Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Monthly Progress Report for the
Time Frame of June 1 – 30, 2012

Prepared for United States Environmental Protection Agency and
Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

Submitted: July 27, 2012

Table of Contents

Table of Contents i

Tables iv

Figures v

Appendices viii

Acronyms and Abbreviations ix

1.0 Introduction 1

2a.0 Surface Water and Sediment Monitoring Activities 3

2a.1 Introduction 3

2a.2 Work Completed 3

2a.2.1 Surface Water Monitoring 3

2a.2.2 Sediment Monitoring 4

2a.3 Work Planned 6

2a.3.1 Surface Water Monitoring 6

2a.3.2 Sediment Monitoring 6

2b.0 Water Quality Monitoring Activities 7

2b.1 Introduction 7

2b.2 Work Completed 7

2b.3 Work Planned 8

2c.0 Potable Water Monitoring Activities 9

2c.1 Introduction 9

2c.2 Work Completed 9

2c.2.1 Residential Drinking Water Wells 9

2c.2.2 Groundwater Monitoring 10

2c.3 Work Planned 10

2c.3.1 Residential Drinking Water Wells 10

2c.3.2 Groundwater Monitoring 10

2d.0 Air Sampling and Monitoring Activities 11

2d.1 Introduction 11

2d.2 Work Completed 11

2d.2.1 Community Air Monitoring 11

2d.2.2 Community Air Sampling 12

2d.2.3 Work Area Air Monitoring 12

2d.2.4 Odor Response 12

2d.3 Work Planned 13

2e.0 Submerged Oil Assessment and Recovery Activities 14
2e.1 Introduction 14
2e.2 Work Completed 14
2e.2.1 Spring 2012 Reassessment Poling 14
2e.2.2 Spring 2012 Poling (Monitoring) 15
2e.2.3 Sediment Collection 15
2e.2.4 Temperature Effects Study 16
2e.3 Work Planned 16
2e.3.1 2012 Reassessment Poling 16
2e.3.2 Spring 2012 Poling Monitoring 16
2e.3.3 Sediment Collection 16
2e.3.4 Temperature Effects Study 16
2f.0 Remedial Investigation Activities 17
2f.1 Introduction 17
2f.2 Work Completed 17
2f.2.1 HP OSCAR Remedial Investigation 18
2f.2.2 Kalamazoo River Remedial Investigation 18
2f.2.3 Parcel Primers and Presentations 18
2f.2.4 Additional Investigations 19
2f.3 Work Planned 20
2g.0 Temporary Facility Restoration and Demobilization Activities 21
2g.1 Introduction 21
2g.2 Work Completed 21
2g.2.1 River Access Sites and Other Work Sites 21
2g.2.2 Soil Staging and Decontamination Areas 21
2g.3 Work Planned 21
2h.0 River Bank Erosion Control and Restoration Activities 22
2h.1 Introduction 22
2h.2 Work Completed 22
2h.3 Work Planned 24
2i.0 Sediment Traps and Cylindrical Sampling Devices 26
2i.1 Introduction 26
2i.2 Work Completed 26
2i.2.1 Sediment Trap Monitoring 26
2i.2.2 Model Calculations 27
2i.3 Work Planned 27
2j.0 Waste Management Activities 28
2j.1 Introduction 28
2j.2 Work Completed 29
2j.2.1 Oily Debris 30
2j.2.2 Non-Impacted Debris 30

2j.2.3 Soil 31
2j.2.4 Miscellaneous Small Quantity Waste Streams 31
2j.2.5 Decontamination and Precipitation Wastewater 31
2j.2.6 Recovered Oil Calculations 31
2j.3 Work Planned 32
2k.0 Overbank Excavation Activities 34
2k.1 Introduction 34
2k.2 Work Completed 34
2k.3 Work Planned 34
2l.0 Overbank Oil Recovery Activities 35
2l.1 Introduction 35
2l.2 Work Completed 35
2l.3 Work Planned 35
2m.0 Hydrodynamic Assessment and Model Activities 36
2m.1 Introduction 36
2m.2 Work Completed 36
2m.2.1 Hydrodynamic Modeling 36
2m.2.2 Water Velocity Monitoring 37
2m.2.3 Suspended Sediment Samples 37
2m.2.4 Sediment Core Collection 38
2m.3 Work Planned 38
3.0 Conclusion 39
4.0 References 40

Tables

Table 2a-1 Surface Water Monitoring Locations-Kalamazoo River and Morrow Lake 5
Table 2a-2 Sediment Monitoring Locations 5
Table 2b-1 Water Quality Monitoring Results June 1, 2012 (See Attached) 8
Table 2b-2 Water Quality Monitoring Results June 2, 2012 (See Attached) 8
Table 2b-3 Water Quality Monitoring Results June 4, 2012 (See Attached) 8
Table 2b-4 Water Quality Monitoring Results June 5, 2012 (See Attached) 8
Table 2b-5 Water Quality Monitoring Results June 6, 2012 (See Attached) 8
Table 2b-6 Water Quality Monitoring Results June 7, 2012 (See Attached) 8
Table 2b-7 Water Quality Monitoring Results June 8, 2012 (See Attached) 8
Table 2b-8 Water Quality Monitoring Results June 21, 2012 (See Attached) 8
Table 2c-1 Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells (See Attached)..... 10
Table 2c-2 Residential Well Sampling and Letter Status Through June 29, 2012 - Winterized Wells (See Attached)..... 10
Table 2c-3 Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled (See Attached)..... 10
Table 2c-4 Residential Well Sampling and Letter Status for the Month of June 2012 - Sampled Wells (See Attached)..... 11
Table 2h-1 Bridge and Access Site Restoration Work Areas 23
Table 2h-2 ERO Site Restoration Work Areas 24
Table 2i-1 Results for Sediment Trap Monitoring Event Conducted June 1, 2012 28
Table 2i-2 Sediment Trap Monitoring Rounds Sedimentation Rates Summary (See Attached) 28
Table 2j-1 Waste Transporters and Disposal Facilities June 2012 30
Table 2j-2 Waste Shipment Summary Through June 30, 2012 31
Table 2j-3 Weekly and Project Cumulative Recovered Oil Through July 2, 2012..... 32

Figures

Figure 2a-1	Kalamazoo River and Morrow Lake Surface Water Monitoring Locations June 2012
Figure 2a-2	Kalamazoo River and Morrow Lake Sediment Monitoring Locations June 2012
Figure 2b-1	Water Quality Monitoring Locations Talmadge Creek June 2012
Figure 2b-2	Water Quality Monitoring Locations Ceresco Dam June 2012
Figure 2c-1	Potable Well Locations, Eligibility Status, and Wells Sampled as of June 30, 2012
Figure 2e-1	Poling Results 2012 Spring Reassessment June 1 – June 22, 2012
Figure 2e-2	Submerged Oil Poling Results Sediment Fan and Morrow Lake (Rounds 15-19) June 2012
Figure 2e-3	Submerged Oil Poling Results Morrow Lake Delta (Round 3) June 2012
Figure 2e-4	Walling Suspended Sediment Trap Locations
Figure 2f-1	Kalamazoo River Remedial Investigation Sample Locations June 2012
Figure 2f-2	Boring and Poling Results Sub-Unit A1- Source Area June 2012
Figure 2i-1	Sediment Trap Site Survey June 2012
Figure 2m-1	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 99% Structure Alternate Configuration
Figure 2m-2	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 99% vs No Structures - Alternate
Figure 2m-3	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 99% Alternate vs 99% Original
Figure 2m-4	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 75% Structure Alternate Configuration
Figure 2m-5	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 75% vs No Structures - Alternate
Figure 2m-6	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass October 31 - November 7, 2011 75% Alternate vs 75% Original
Figure 2m-7	Riverine Grid: Difference in Net Change in Silt Mass October 31 - November 7, 2011 75% vs No Structures - Alternate
Figure 2m-8	Riverine Grid: Difference in Net Change in Silt Mass October 31 - November 7, 2011 75% Alternate vs 75% Original Structures
Figure 2m-9	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 99% Structure Alternate Configuration
Figure 2m-10	Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 99% vs No Structures - Alternate

Figure 2m-11 Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 99% Alternate vs 99% Original
Figure 2m-12 Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 75% Structure Alternate Configuration
Figure 2m-13 Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 75% vs No Structures - Alternate
Figure 2m-14 Riverine Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass May 16 - May 23, 2011 75% Alternate vs 75% Original
Figure 2m-15 Riverine Grid: Difference in Net Change in Silt Mass May 16 - May 23, 2011 75% vs No Structures - Alternate
Figure 2m-16 Riverine Grid: Difference in Net Change in Silt Mass May 16 - May 23, 2011 75% Alternate vs 75% Original Structures
Figure 2m-17 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 99% Alternate Structure
Figure 2m-18 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 99% vs No Structures Alternate Configuration
Figure 2m-19 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 99% Alternate vs 99% Original Structures
Figure 2m-20 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 75% Alternate Structure
Figure 2m-21 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 75% vs No Structures Alternate Configuration
Figure 2m-22 Floodplain Grid: Sedimentation Rate Cells With Net Change in Silt or Clay Mass July 24 - July 31, 2011 75% Alternate vs 75% Original Structures
Figure 2m-23 Floodplain Grid: Difference in Net Change in Silt Mass July 24 - July 31, 2011 75% vs No Structures Alternate Configuration
Figure 2m-24 Floodplain Grid: Difference in Net Change in Silt Mass July 24 - July 31, 2011 75% Alternate vs 75% Original Structures
Figure 2m-25 Velocity Profiles 1 Ft Depth June 1 through June 5, 2012 E4.5 Control Point Location
Figure 2m-26 Velocity Profiles 3 Ft Depth June 1 through June 5, 2012 E4.5 Control Point Location
Figure 2m-27 Velocity Profiles 1 Ft Depth June 7, 2012 E4.5 Control Point Location
Figure 2m-28 Velocity Profiles 3 Ft Depth June 7, 2012 E4.5 Control Point Location
Figure 2m-29 Velocity Profiles Near-Surface Velocity (Top of Profile) June 6, 2012 E4.0 Control Point Location

Figure 2m-30 Velocity Profiles Mid-Depth Velocity (Middle of Profile) June 6, 2012 E4.0 Control Point Location
Figure 2m-31 Velocity Profiles Near-Bed Velocity (Bottom of Profile) June 6, 2012 E4.0 Control Point Location
Figure 2m-32 Velocity Profiles Near-Surface Velocity (Top of Profile) June 15, 2012 E4.0 Control Point Location
Figure 2m-33 Velocity Profiles Mid-Depth Velocity (Middle of Profile) June 15, 2012 E4.0 Control Point Location
Figure 2m-34 Velocity Profles Near-Bed Velocity (Bottom of Profile) June 15, 2012 E4.0 Control Point Location

Appendices

Appendix A Planning Resources

Appendix B Analytical Data Reports for Samples Collected in June 2012

Appendix C Analytical Data Reports for Samples Collected Prior to June 2012

Appendix D Level 1 Reviews of Laboratory Analytical Results

Appendix E Waste Manifests and Bills of Lading

Acronyms and Abbreviations

CFS	Cubic Feet per Second
COPC	Chemical of Potential Concern
CO	Carbon Monoxide
CSD	Cylindrical Sampling Devices
CWA	Clean Water Act
DO	Dissolved Oxygen
Enbridge	Enbridge Energy, Limited Partnership
EQ	Environmental Quality Company
ERO	Environment, Right of Way, and Operations
ESL	Ecological Screening Levels
°F	Degrees Farenheit
FTC	Frac Tank City
GPS	Global Positioning System
H_2S	Hydrogen Sulfide
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HP OSCAR	High Priority Outstanding Site Characterization and Reconciliation
I	Island
IAPs	Incident Action Plans
ICS	Incident Command System
KRBEA	Kalamazoo River Bank Erosion Assessment
L	Left
LDB	Left Descending Bank
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
LIWS	Liquid Industrial Waste Services
MDEQ	Michigan Department of Environmental Quality
MDEQ Order	Administrative Consent Order And Partial Settlement Agreement entered *In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership*, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq.
MDNRE	Michigan Department of Natural Resources and Environment (see page 1)
MP	Mile Post

MSW	Municipal Solid Waste
OB	Overbank
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
R	Right
RDB	Right Descending Bank
RDF	Recycling & Disposal Facility
RI	Remedial Investigation
RRD	Remediation and Redevelopment Division
SAP	Sampling and Analysis Plan
SCRIBE	Software tool developed by U.S. EPA to assist in the process of managing environmental data
Supplemental Order	Supplement to Order for Compliance Under Section 311(c) of the Clean Water Act, issued by U.S. EPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. *et al*., Respondents, Docket No: CWA 1321-5-10-001
TEC	Threshold Effects Concentration
U.S. EPA	United States Environmental Protection Agency
U.S. EPA Order	U.S. EPA Removal Administrative Order Under Section 311(c) of the Clean Water Act, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001
UV	Ultraviolet
VOCs	Volatile Organic Compounds
WSS	Walling Suspended Sediment
WTTD	Waste Treatment, Transportation, and Disposal
WTTD Plan	Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Waste Treatment, Transportation, and Disposal Plan.* Approved by U.S. EPA on May 17, 2011.

1.0 Introduction

This monthly progress report for the period of June 1 through and including June 30, 2012 is submitted to the United States Environmental Protection Agency (U.S. EPA) and to the Michigan Department of Environmental Quality (MDEQ) to satisfy reporting requirements for each agency as defined below describing activities completed during the prior month.

Paragraph 18 of the U.S. EPA *Removal Administrative Order Under Section 311(c) of the Clean Water Act (CWA)*, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001 (U.S. EPA Order) as modified by Paragraph 6 of the Supplement to Order for Compliance Under Section 311(c) of the CWA, issued by U.S. EPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. *et al*., Respondents, Docket No: CWA 1321-5-10-001 (Supplemental Order) (U.S. EPA, 2010) requires monthly progress reports to be submitted to the U.S. EPA commencing on December 27, 2010 and continuing monthly thereafter (Supplemental Order, Paragraph 6(o)).

Paragraph 7.9 of the Administrative Consent Order and Partial Settlement Agreement entered *In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership*, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq. signed on November 1, 2010 (MDEQ, 2010) (MDEQ Order) requires Enbridge Energy, Limited Partnership (Enbridge) to submit to the MDEQ, formerly Michigan Department of Natural Resources and Environment, written progress reports on the 27th day of each month.

Following this introduction, *Section 2* of this report is arranged by activity, for example 'Surface Water and Sediment Monitoring Activities'. In each subsection, the subject area work is introduced and an update of progress made in the previous month is described, including field activities performed, analyses completed, and reports submitted. Each section also summarizes future work planned. Conclusions are presented in *Section 3* and references are provided for each section in *Section 4.* Planning resources, including daily summaries of completed work (referred to as *Incident Command System* (ICS) *214*), *Incident Action Plans* (IAPs), and work orders are provided as *Appendix A.*

Laboratory analytical reports of samples that were collected and received in June 2012 can be found in *Appendix B*. Laboratory analytical reports received in June 2012 for samples collected prior to June 2012 can be found in *Appendix C*. All laboratory analytical results received for samples collected in June 2012 and received in July 2012 will be submitted with the July 2012 monthly progress report.

There were no work plans approved during June 2012. Level 1 reviews of laboratory analytical results are included in *Appendix D*.

Waste manifests and bills of lading received in June 2012 are included in *Appendix E*.

2a.0 Surface Water and Sediment Monitoring Activities

2a.1 Introduction

In June 2012, monthly surface water and sediment monitoring activities were conducted per the *Addendum to the Sampling and Analysis Plan (SAP): Attachment C - Surface Water and Sediment Monitoring Supplement to the Sampling and Analysis Plan* approved by MDEQ on May 18, 2012 (Enbridge, 2012(1)). Sampling activities were completed at routine monitoring locations to assess the quality of the surface water in the Kalamazoo River and Morrow Lake.

2a.2 Work Completed

2a.2.1 Surface Water Monitoring

In June 2012, surface water sampling consisted of collecting samples from nine locations in the Kalamazoo River (between the Talmadge Creek confluence and Morrow Lake), eight locations within Morrow Lake, and one location in the Kalamazoo River immediately downstream of the Morrow Lake Dam per the *SAP: Attachment C* (Enbridge, 2012(1)). Surface water sample location identification number (Sample ID), location description, and latitude and longitude coordinates for each surface water monitoring location are provided in *Table 2a-1*.

Location ID	Location Description	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
ML-1	Morrow Lake	42.279011	-85.458466
SW-935	Morrow Lake	42.278255	-85.472069
ML-7	Morrow Lake	42.281063	-85.480469
ML-10	Morrow Lake	42.276375	-85.478920
SWKR3840C02	Morrow Lake	42.274991	-85.464724
SW-936	Morrow Lake	42.276611	-85.453972
SW-937	Morrow Lake	42.281200	-85.486115
SW-112	Downstream of Morrow Lake Dam	42.283659	-85.498262
SWKR3980C01	Morrow Lake Dam	42.282665	-85.491508
SW-105	15 Mile Bridge	42.258250	-84.998184
SW-115	Fort Custer State Park	42.324341	-85.358049
SWKR0540C01	MP 5.4	42.266558	-85.054032
SWKR0600C01	MP 6.0	42.270887	-85.063948
SW-120	Shady Bend Campground, Augusta	42.347423	-85.329214
SWKR1948C01	Mile Post (MP) 19.4	42.343617	-85.243147
SWKR1480C01	MP 14.8	42.304726	-85.183417
SWKR1565C01	MP 15.5	42.312748	-85.184869
SW-110	35th St Bridge, Galesburg	42.280206	-85.429028

Table 2a-1. Surface Water Monitoring Locations-Kalamazoo River and Morrow Lake

Surface water samples (18 samples plus one duplicate) were collected from 18 locations during June 2012 and were compared to Michigan *Rule 57 Water Quality Standards* (MDEQ, 2011). There were no analytical results that exceeded the Michigan *Rule 57 Water Quality Standards* (MDEQ, 2011). *Figure 2a-1* shows the sample locations.

In addition to the proposed monitoring schedule, turbidity monitoring was conducted remotely in Talmadge Creek at the confluence with the Kalamazoo River from June 1 through and including June 8, 2012 excluding Sundays. The results of this monitoring are described in *Section 2b.*

2a.2.2 Sediment Monitoring

Sediment sampling consisted of collecting samples from two locations in the Kalamazoo River (between the Talmadge Creek confluence and Morrow Lake) and one location within Morrow Lake. The sample location identification, location description, and latitude and longitude coordinates for these sediment monitoring locations are provided in *Table 2a-2*. *Figure 2a-2* shows these sample locations and any exceedances of U.S. EPA *Region 5 Ecological Screening Levels (ESLs) 2003* (U.S. EPA, 2003) or *Threshold Effects Concentration (TEC) Guidelines*

(MacDonald et al., 2000), both of which are included as appendices to the MDEQ Remediation and Redevelopment Division (RRD) *Operational Memorandum No. 4, Attachment* (MDEQ, 2006).

Location ID	Location Description	Latitude	Longitude
SW-937	Morrow Lake	42.281200	-85.486115
SWKR0600C01	MP 6.0, O & M Control Point	42.270887	-85.063948
SWKR1565C01	MP 15.5, O & M Control Point	42.312748	-85.184869

Table 2a-2. Sediment Monitoring Locations

Sediment samples (three samples plus one duplicate) were collected from three monitoring locations during June 2012 and compared to *U.S. EPA Region 5 Ecological Screening Levels* (ESLs) *2003* (U.S. EPA, 2003), and to *Threshold Effects Concentration* (TEC) *Guidelines* (MacDonald et al., 2000). The sediment sample collected from one monitoring location (SWKR1565C01) had laboratory analytical results that exceeded criteria.

The following constituents were detected above the ESL in the sediment sample and the duplicate sample collected from monitoring location SWKR1565C01:

- Benzo(a)anthracene,
- Benzo(a)pyrene,
- Benzo(g,h,i)perylene,
- Benzo(k)fluoranthene,
- Chrysene,
- Fluoranthene,
- Indeno(1,2,3-c,d)pyrene,
- Phenanthrene, and
- Pyrene.

Also, the following constituents were detected above the TEC in the same sediment sample and duplicate sample:

- Benzo(a)anthracene,
- Benzo(a)pyrene,
- Chrysene,
- Fluoranthene,
- Phenanthrene, and
- Pyrene.

2a.3 Work Planned

2a.3.1 Surface Water Monitoring

The next monthly surface water monitoring event for the Kalamazoo River and Morrow Lake is scheduled for the week of July 9, 2012 per the *SAP: Attachment C* (Enbridge, 2012(1)).

2a.3.2 Sediment Monitoring

Sediment monitoring for the Kalamazoo River and Morrow Lake is conducted on a quarterly schedule with the next sampling event tentatively scheduled for the week of September 10, 2012.

2b.0 Water Quality Monitoring Activities

2b.1 Introduction

The Water Quality Monitoring Program was initiated in July 2011 in response to concerns about the potential risk to fish populations related to reduced dissolved oxygen (DO) levels. This monitoring program was implemented in accordance with the *Water Quality Measurement Standard Operating Procedure* (Enbridge, 2011) approved by MDEQ on September 22, 2011.

During June 2012, water quality was monitored at Ceresco Dam and upstream of the confluence of Talmadge Creek and the Kalamazoo River. Water quality readings consisted of turbidity and water temperature measurements at the Talmadge Creek confluence. DO was monitored in addition to turbidity and water temperature during sheet pile and containment removal activities at the Ceresco Dam Portage construction.

2b.2 Work Completed

Monitoring location WQ-TC-Remote was established to monitor water quality at the confluence of Talamadge Creek and the Kalamazoo River after excavation and restoration activities had been completed. The water quality monitor is located in Talmadge Creek between A Drive and the confluence. This location was monitored remotely. Temperature and turbidity readings were recorded every five minutes during daily work hours (0700 through 1900, Monday through Saturday). Water quality monitoring readings at this location took place from June 1 through and including June 8, 2012, excluding June 3, 2012.

In addition, monitoring was conducted during the removal of the containment and sheet pile at the Ceresco Dam Canoe Portage that is currently being constructed. Water quality monitoring readings were collected at this location on June 21, 2012.

All data collected during the month of June 2012 are provided in *Tables 2b-1 through 2b-8* (See Attached). Water quality monitoring locations are shown on *Figures 2b-1 and 2b-2*.

2b.3 Work Planned

Water quality monitoring will no longer be regularly conducted at the confluence because there is no longer work being conducted in Talmadge Creek that would require water quality monitoring. The need to resume water quality monitoring will be evaluated as appropriate.

2c.0 Potable Water Monitoring Activities

2c.1 Introduction

In June 2012, quarterly potable well sampling was conducted in accordance with the *SAP: Attachment B*, approved by MDEQ on May 18, 2012 (Enbridge, 2012). An amended sampling plan for wells not sampled on a quarterly basis is under development. Well locations and eligibility status as of June 29, 2012 are shown on *Figure 2c-1*.

2c.2 Work Completed

2c.2.1 Residential Drinking Water Wells

There are currently 168 residential wells eligible for sampling under the SAP (Enbridge, 2012) included in the potable well monitoring program. These wells fall into four categories: winterized; not accessible; refused permission; and, yes. 'Yes' denotes the wells are being sampled at the frequency outlined in the SAP (Enbridge, 2012). Wells designated as 'winterized', 'not accessible', or 'refused permission' are eligible but they are not currently being sampled. Some well pumps at unoccupied homes owned by Enbridge are turned off. These wells are categorized as 'winterized'.

The eligibility status of the wells was not altered during this monitoring period.

Results of residential potable well monitoring are reported through several methods. Each time sampling occurs, a report is submitted to the Calhoun and Kalamazoo County Public Health Departments providing notification of the sample locations. On a monthly basis, information shown on *Tables 2c-1 through 2c-3* (See Attached), and *Figure 2c-1* is updated and posted on the Enbridge Sharepoint site, which can be accessed by Calhoun and Kalamazoo County Public Health Departments, MDEQ, and U.S. EPA. This information is also updated when public health meetings are held. Analytical data are uploaded to the U.S. EPA SCRIBE database (a software tool used to manage environmental data) to be viewed by Calhoun and Kalamazoo County Public Health Departments, MDEQ, U.S. EPA, and Michigan Department of Community Health. Well owners receive landowner letters communicating the analytical results of their potable water well sample within a month of sample collection.

Multiple sampling events have been completed at the 168 residential wells included in the potable well monitoring program. The results for all wells sampled through June 29, 2012 are summarized on *Tables 2c-1 through 2c-3* (See Attached), and *Figure 2c-1*. The results for the wells sampled in June 2012 are summarized on *Table 2c-4* (See Attached). The tables include updates on well locations, access status, sampling data, and landowner letters. Sample frequency and constituent detections are also summarized on *Figure 2c-1*.

2c.2.2 Groundwater Monitoring

Groundwater samples were collected and analyzed in June 2012 from five monitoring wells (including one duplicate) in the Village of Augusta and five monitoring wells (including one duplicate) at the City of Kalamazoo Wellfield #39. Samples were collected in accordance with the *Augusta Monitoring Well Installation Work Plan* (Enbridge, 2011(2)) and the *Kalamazoo Monitoring Well Installation Work Plan* (Enbridge, 2011(3)).

2c.3 Work Planned

2c.3.1 Residential Drinking Water Wells

Residential drinking water sampling for the potable well monitoring program is planned to continue during July 2012 per *SAP: Attachment B* (Enbridge, 2012). An additional sampling event to include those wells not sampled on a quarterly basis is planned for July or August 2012.

2c.3.2 Groundwater Monitoring

A letter report for the June 2012 monitoring well sampling at the Village of Augusta wellfield will be completed and submitted to the Village of Augusta, the Village of Augusta Chief of Police Jeff Heppler, and a courtesy copy provided to the MDEQ in July 2012.

A letter report for the June 2012 monitoring well sampling at the City of Kalamazoo Wellfield #39 will be completed and submitted to the City of Kalamazoo and a courtesy copy provided to the MDEQ in July 2012.

No groundwater analytical data will be collected during July 2012 from the five monitoring wells for the Village of Augusta and the City of Kalamazoo Wellfield #39. The sampling of the wells has been transitioned from a monthly to a quarterly sampling frequency and is tentatively scheduled for sampling during September 2012.

2d.0 Air Sampling and Monitoring Activities

2d.1 Introduction

During June 2012, there were no air monitoring or air sampling documents submitted to U.S. EPA.

Air sampling and monitoring activities are performed in 'community' and 'work areas' in accordance with the *Air Monitoring and Sampling Addendum to the Sampling and Analysis Plan* (Enbridge, 2012). The term 'community' includes all individuals living or working near areas potentially impacted by the Enbridge Line 6B crude oil release or from subsequent response actions. 'Work areas' are those sites where workers are engaged in oil recovery activities. During June 2012, air monitoring activities were only performed in work areas during boom deployment/maintenance activities and poling activities.

The purpose of air monitoring and sampling activities is to assess community exposures to target analytes and worker exposure to chemicals of potential concern (COPCs). Target analytes are those volatile organic compounds (VOCs) associated with the release and measured by modified U.S. EPA Method TO-15 laboratory analysis. All other VOCs reported from the TO-15 method are referred to as non-target analytes. COPCs are a subset of the 'target analytes' that includes:

- Benzene,
- Toluene,
- Ethylbenzene,
- Xylenes, and
- N-hexane.

2d.2 Work Completed

No air sampling activities were conducted in June 2012. Air monitoring activities were conducted in work areas as discussed below.

2d.2.1 Community Air Monitoring

No community air monitoring was conducted in June 2012.

2d.2.2 Community Air Sampling

No community air sampling was conducted during June 2012.

2d.2.3 Work Area Air Monitoring

Real-time air monitoring data were collected to provide information regarding airborne chemical concentrations for immediate use. MultiRAEs™ were used to collect real-time air quality data for VOCs, carbon monoxide (CO), and hydrogen sulfide (H_2S). If monitoring indicated a VOC alarm above applicable action levels, benzene monitoring was initiated utilizing benzene-specific monitoring devices, including UltraRAEs™ and Gastec™ tubes. This information assisted field personnel with hazard assessment for potential worker and community exposure scenarios.

Real-time air monitoring in work areas was conducted from June 1 through and including June 28, 2012 with the exception of June 3, 10, 17, 24, 26, 29, and 30, 2012 when no oil recovery activities were being conducted. Real-time air monitoring readings were collected by Enbridge Safety in oil recovery work areas, which consisted of boom deployment and maintenance and poling. A total of 618 readings were collected in the work areas during oil recovery activities during June 2012, including:

- 206 VOC readings,
- 206 CO readings, and
- 206 H_2S readings.

There were no detections during boom deployment and maintenance activities conducted in June 2012. However, there were 12 VOC detections (ranging from 0.2 to 0.9 ppm) and 3 CO detections (ranging from 1 to 2 ppm) during poling activities. Of the 12 VOC detections, 9 were documented on a single day and it was determined this was due to an equipment malfunction that was discovered at the end of the day. The three remaining VOC detections were not sustained readings, two were indicative of boat motors and the third was not detected during actual poling activities. All three detections of CO were attributed to boat motors.

2d.2.4 Odor Response

In response to the release, Enbridge established a hotline number that remains available throughout the response activities for the public to communicate their concerns to Enbridge. As work activities

were initiated, the public was encouraged to use the hotline to report any perceived odor issues related to these activities. There were no calls regarding odor issues that required air sampling or monitoring efforts in June 2012.

2d.3 Work Planned

In July 2012, air monitoring and sampling activities per the approved *Air Monitoring and Sampling Addendum to the Sampling and Analysis Plan* (Enbridge, 2012), will continue within work areas and within communities adjacent to oil recovery activities. Specifically, air monitoring will be conducted within the work areas during oil recovery activities. Community air monitoring and sampling will only be initiated during specific conditions outlined in *Air Monitoring and Sampling Addendum to the Sampling and Analysis Plan* (Enbridge, 2012). Odor response activities will address odor complaints during periods of oil recovery activities.

2e.0 Submerged Oil Assessment and Recovery Activities

2e.1 Introduction

During June 2012, submerged oil assessment activities including poling and sediment collection were performed. Poling activities consisted of the Spring 2012 (or is it 2012 Spring - Figures say 2012 Spring. Just need to be consistent) Reassessment Poling and routine monitoring in Morrow Lake and the Morrow Lake Delta. Activities also included collection of sediment from the 19 Walling Suspended Sediment (WSS) samplers located throughout the affected Kalamazoo River system, the Morrow Lake Delta, and Morrow Lake.

No submerged oil recovery field activities were conducted during June 2012.

2e.2 Work Completed

2e.2.1 Spring 2012 Reassessment Poling

The Spring 2012 Reassessment poling of the Kalamazoo River, Morrow Lake, and Morrow Lake Delta was conducted during June 2012. These activities werecompleted on June 22, 2012. Poling ring tests were also conducted starting mid-June at dry poling locations. A total of 4,161 poling locations were incorporated into the 2012 Reassessment data set during the June 2012 reporting period. The results of the 4,161 poling locations showed 1,281 ‘none’ locations, 1,818 ‘light’ locations, 712 ‘moderate’ locations and 350 ‘heavy’ locations. The poling locations and results completed during June 2012 are shown in *Figure 2e-1*.

The U.S. EPA directed that poling be completed at a minimum water and sediment temperature of 60 degress Farenheit (°F) (U.S. EPA, 2012). Beginning in mid-June, poling locations that had been assessed at lower temperatures than this minimum temperature requirement were re-assessed. Some of the poling locations did not have minimum temperatures of 60°F due to natural features, such as a nearby spring or because the location was dry or inaccessible and therefore could not be re-assessed. Additionally, locations that had previously been collected with a submerged oil category result of ‘heavy” were not re-visited.

2e.2.2 Spring 2012 Poling (Monitoring)

Submerged oil monitoring activities were conducted on Morrow Lake including the Sediment Fan on a weekly basis throughout June 2012 and on the Morrow Lake Delta during the last week of June 2012. The poling activities conducted on Morrow Lake including the Sediment Fan were at 65 pre-determined poling locations. These included the 40 poling locations monitored at the end of the 2011 field season and an additional 25 locations added in the western portion of the lake. Five rounds of poling were completed. The results of the poling conducted during the last round of monitoring in June 2012 showed that no 'heavy' locations were identified and two 'moderate' locations were identified in the eastern half of the lake. The remainder of the locations were characterized as 'light' or 'none'. The poling locations and associated submerged oil results are provided in *Figure 2e-2*.

In addition, one round of poling was conducted on the Morrow Lake Delta from June 27 through and including June 29, 2012. A total of 61 pre-selected locations were poled to determine presence and characterization of submerged oil. The results indicated that 21 'heavy' and 17 'moderate' locations were present across the Delta, but mainly concentrated in the western portion. The remaining 23 locations were 'light' or 'none'. The poling locations and associated submerged oil results are provided in *Figure 2e-3.*

2e.2.3 Sediment Collection

Additional field work for submerged oil activities included sample collection from 11 WSS sample locations. The WSS samplers have been installed at 20 locations with two individual samplers being installed at a majority of the locations. Three locations, WSS-02, WSS-11, and WSS-18, have only one sampler due to limited water depth.

Sediment samples from the WSS samplers are collected on a monthly basis. In June 2012 samples were collected from the WSS locations. The WSS were vertically positioned to allow for the sediment to settle out of suspension over a 12-hour period after being retrieved from the field. Following the initial 12-hour period the WSS samplers were then placed on a table at an angle for another 12-hours, for a total of 24-hours before being decanted. Once the WSS were decanted the sediment remaining within the samplers was transferred to 32-ounce sample jars. The sediment was allowed to settle in the sample jars before a second round of decanting was completed. After the sample jars were decanted, the sediment was transferred to 8-ounce sample jars and submitted to the

laboratory for analysis. The laboratory further dried the samples to obtain a dry weight. If the volume of a sample is insufficient to complete the analyses, the sediment samples at a single location are composited to obtain a sufficient volume to conduct the analysis. The 19 WSS locations are shown in *Figure 2e-4.* The samplers were re-installed at the 19 locations following sample collection.

2e.2.4 Temperature Effects Study

During June 2012, submerged oil temperature effects work was not conducted.

2e.3 Work Planned

2e.3.1 2012 Reassessment Poling

Reassessment poling activities are complete and not anticipated to continue in July 2012.

2e.3.2 Spring 2012 Poling Monitoring

The monitoring of Morrow Lake and Morrow Lake Delta will continue in July 2012 to assess and characterize the presence of submerged oil to determine if assessed locations are changing or remaining static.

2e.3.3 Sediment Collection

The *2012 Consolidated Work Plan* (Enbridge, 2011) requires sampling of the WSS samplers on a monthly basis. Therefore, the WSS samplers will be sampled during July 2012.

2e.3.4 Temperature Effects Study

No further work is anticipated related to the Temperature Effects Study.

2f.0 Remedial Investigation Activities

2f.1 Introduction

Remedial investigation (RI) activities conducted in June 2012 were in support of the Kalamazoo River RI Program. Activities for the RIs were conducted in accordance with the following work plans:

- *Remedial Investigation Work Plan for Kalamazoo River (MP 5.80 to MP 11.00)* approved by MDEQ on February 10, 2012 (Enbridge, 2012(1)), and
- *Remedial Investigation Work Plan for Kalamazoo River (MP 11.00 to Morrow Lake Dam)* approved by MDEQ on March 8, 2012 (Enbridge, 2012(2)).

2f.2 Work Completed

Field activities were conducted for the Kalamazoo River RI from MP 6.00 to MP 21.50 and included the following:

- Soil and sediment core collection via manual techniques,
- Soil and sediment sampling from the collected cores,
- Continuous logging of collected cores,
- Evaluation of soil and sediment cores using ultraviolet (UV) light,
- Installation of temporary monitoring wells in select soil borings,
- Groundwater sampling via low-flow techniques,
- Collection of surface water samples at select locations, and
- Global Positioning System (GPS) collection of horizontal (X, Y) coordinates for each boring and bulk sediment location.

Soil, sediment, groundwater, and surface water samples were collected and analyzed for the following:

- Polynuclear aromatic hydrocarbons,
- Four select metals (beryllium, vanadium, nickel, and molybdenum), and
- Total petroleum hydrocarbons as diesel range organics and oil range organics, and
- VOCs at locations upstream of MP 14.00 (soil only).

2f.2.1 HP OSCAR Remedial Investigation

No activities related to expedited remedial investigations at High Priority Outstanding Sites Characterization and Reconciliation (HP OSCAR) locations occurred during June 2012.

2f.2.2 Kalamazoo River Remedial Investigation

Kalamazoo River RI activities continued during June 2012 and were conducted in accordance with *Remedial Investigation Work Plan for Kalamazoo River (MP 5.80 to MP 11.00)* (Enbridge, 2012(1)) and *Remedial Investigation Work Plan for Kalamazoo River (MP 11.00 to Morrow Lake Dam)* (Enbridge, 2012(2)).

The initial scopes of work for the work plans covering MP 2.25 to MP 5.80 were completed prior to this reporting period. The initial scope of work for the work plans covering MP 5.80 to Morrow Lake Dam commenced prior to this reporting period. As analytical reports are received, step-out borings will be completed from MP 2.25 to Morrow Lake Dam as necessary for delineation purposes. Investigation activities performed during this reporting period emphasized Enbridge-owned properties and river access points from MP 6.00 to MP 21.50.

The locations of borings installed during June 2012 for the Kalamazoo River RI field activities are presented in *Figure 2f-1*.

2f.2.3 Parcel Primers and Presentations

A Parcel Primer development and presentation procedure was initiated in June 2012. The purpose of the Parcel Primer is to provide the parcel owner with documentation of Enbridge and MDEQ concurrence that further O&M and/or remedial investigation activities are not required on the subject parcel.

Each parcel is categorized into one of three color code designations:

- "No Color" – Parcel does not require investigation, data compilation, or review,
- "Green Hatched" – Limited data compilation and a "Live GIS" presentation to show lack of historical issues, and
- "Orange" – Parcel requires RI activities and a full primer package.

The final templates for the primer package and concurrence form remain under review; however, each primer package contains:

- Parcel location and precise description of RI study area,
- Assessment history,
- RI history,
- Ecological setting and assessment,
- Additional assessments and descriptions, as applicable, and
- Conclusions and recommendations, including the concurrence form.

Primers submitted for MDEQ review and concurrence in June 2012 include;

- *Presentation for Parcels located within Squaw Creek Subdivision MP 2.75 – MP 3.25*, submitted June 13, 2012 (Enbridge 2012(5)),
- *Presentation for Kalamazoo River Saylor's Landing Access Site: Parcel TC-B-078.001*, submitted June 13, 2012 (Enbridge 2012(6)),
- *Addendum to Presentation for Kalamazoo River Saylor's Landing Access Site: Parcel TC-B-078.001*, submitted June 27, 2012 (Enbridge 2012(7)),
- *Presentation for Kalamazoo River Parcel KN-C-143 (10-017-002-00) (MP 13.00 R1)*, submitted June 28, 2012 (Enbridge 2012(8)), and
- *Presentation for Kalamazoo River Parcel KN-C-085 (16-340-075-00) (MP 2.00 to 2.25 RDB)*, submitted June 28, 2012 (Enbridge 2012(9)).

2f.2.4 Additional Investigations

Additional investigation activities were conducted in June 2012 in support of and in accordance with the *Investigation Work Plan for Source Area (A1)* approved by the U.S. EPA on May 21, 2012 (Enbridge, 2012(3)). The objective of this work was to identify and characterize the nature and extent of any residual oil impact in Sub-Unit A1 of the Source Area.

Field activities were conducted for Sub-Unit A1 of the Source Area investigation from June 7 through June 8, 2012 and included the following:

- Soil and sediment core collection via manual techniques,
- Logging of collected cores,
- Evaluation of soil and sediment cores using UV light,
- Poling at field-selected locations to locate and classify submerged oil, and
- GPS collection of horizontal (X, Y) coordinates for each boring and poling location.

Analytical samples were not collected from the soil and sediment cores. The locations of poling activities and soil and sediment borings installed in Sub-Unit A1 are presented in *Figure 2f-2*. A *Report of Findings for the Investigation Work Plan for Source Area (A1)* will be submitted in July 2012.

2f.3 Work Planned

Planned RI activities for July 2012 consist of the following:

- Continue implementation of field activities for Kalamazoo River RI (MP 2.25 to Ceresco Dam (MP 5.80)) in accordance with *Remedial Investigation Work Plan for Kalamazoo River (MP 2.25 to MP 3.14)* approved by MDEQ on November 18, 2011 (Enbridge, 2011), and *Remedial Investigation Work Plan for Kalamazoo River (MP 3.14 to Ceresco Dam (MP 5.80))* approved by MDEQ on January 13, 2012 (Enbridge, 2012(4)) as necessary,
- Continue implementation of the Kalamazoo River RI (MP 5.80 to MP 11.00) in accordance with *Remedial Investigation Work Plan for Kalamazoo River (MP 5.80 to MP 11.00)* approved by MDEQ on February 10, 2012 (Enbridge, 2012(1)),
- Continue implementation of the Kalamazoo River RI (MP 11.00 to Morrow Lake Dam) in accordance with the *Remedial Investigation Work Plan for Kalamazoo River (MP 11.00 to Morrow Lake Dam)* (Enbridge, 2012(2)).
- Data Gap RI in the Source Area, and
- Parcel Primer generation and presentation.

2g.0 Temporary Facility Restoration and Demobilization Activities

2g.1 Introduction

Approximately 95 work sites have been used for release response activities to provide river access sites, staging of equipment and materials, decontamination, waste staging, and similar activities. As work is completed, site decommissioning and closure activities are performed to remove equipment and consumables, implement soil erosion and sediment control measures, and to restore the site to pre-response conditions. After activities cease, and as sites were vacated, inspections were performed. If appropriate, verification soil samples were collected for laboratory analysis in accordance with MDEQ requirements outlined in (RRD *Operational Memorandum No. 2* (MDEQ, 2004) for comparison to Part 201 of Michigan's Act 451 of 1994, as amended, Generic Residential Criteria in accordance with the *Soil Staging, Decontamination & River Access Site Closure Plan* (Enbridge, 2011), currently under review by MDEQ and U.S. EPA. The MDEQ is notified of each sampling event.

2g.2 Work Completed

2g.2.1 River Access Sites and Other Work Sites

No soil samples were collected at either River Access Sites or Other Work Sites during June 2012.

2g.2.2 Soil Staging and Decontamination Areas

No decomissioning samples were collected at Soil Staging and Decontamination Areas in June 2012.

2g.3 Work Planned

Sampling activities are planned for the northern area of Frac Tank City (FTC) during July 2012.

2h.0 River Bank Erosion Control and Restoration Activities

2h.1 Introduction

In June 2012, erosion control and restoration activities were conducted at two bridge and access sites and three Environment, Right of Way, and Operations (ERO) sites. Sites requiring erosion control and restoration activities were identified during work plan development, Kalamazoo River Bank Erosion Assessment (KRBEA) site monitoring events, or in coordination with representatives of Enbridge and the MDEQ.

Restoration of areas following oil recovery efforts, monitoring of previously restored areas, design and monitoring of wetland mitigation areas, implementation of sediment and erosion control measures, and continuation of MDEQ and Michigan Department of Natural Resources (MDNR) permitting efforts were conducted for numerous locations as described below in *Section 2h.2*.

2h.2 Work Completed

Restoration and erosion control activities were completed at two bridge and access sites as summarized in *Table 2h-1*.

Kalamazoo River Segments	Unique Site Identification	Work Completed
MP 21.00 – MP 21.25	MP 21.25 Custer Road Restoration Area	Installed approximately 150 cubic yards of topsoil, 18,000 square feet of mesic prairie native seed, 1,440 square feet of C125BN erosion control blanket, 16,560 square feet of straw mulch, 150 linear feet of exclusion construction fencing, 6 red osier dogwood shrubs, 4 spicebush shrubs, and 9 nannyberry shrubs to stabilize the area and improve habitat.
MP 37.00 – MP 37.25	MP 37.25 Launch Site E3.5	Installed approximately 115,500 square feet of mesic prairie native seed and straw mulch within previously disturbed areas on this former launch site to stabilize the area and improve habitat.

Table 2h-1. Bridge and Access Site Restoration Work Areas

Restoration and erosion control activities were completed at three ERO sites as summarized in *Table 2h-2*.

Kalamazoo River Segments	Unique Site Identification	Work Completed
Talmadge Creek	MP 1.75 Left Descending Bank(LDB)	Installed approximately 20 linear feet of coir log and 1,350 square feet of sedge meadow native seed mix on the subject site.
MP 6.25 – MP 6.50	MP 6.50 Left Descending Bank(LDB)	Installed 2 cubic yards of topsoil, 600 square feet of sedge meadow native seed mix, 600 square feet of C125BN erosion control blanket, 200 square feet of jute, and 1 apple tree on the subject site.
MP 32.00 – MP 32.25	MP 32.25 LDB	Installed 4,200 square feet of turf grass seed, 720 square feet of C125BN erosion control blanket, 3,380 square feet of straw mulch, and 2 cubic yards of 21AA road gravel for restoration and driveway repair on the subject site.

Table 2h-2. ERO Site Restoration Work Areas

KRBEA trips are made to assess, rank, and score Kalamazoo River sites exhibiting signs of existing erosion or potential for future erosion. KRBEAs are scheduled to occur every other month; however, adjustments to this schedule are made based on water levels, boating activity, and the ability to access and monitor the riverbank. The most recent KRBEA river trip was conducted from June 12 through and including June 13, 2012 (Monitoring Trip No. 8). Results from this trip will be presented in a future version of the *Kalamazoo River Bank Erosion Assessment and Action Plan Summary Report – Monitoring Trip No. 8,* which was under development in June 2012.

One of the nine high-priority KRBEA sites identified during Monitoring Trip No. 1 (November 28 through and including November 30, 2010), Raymond Road (MP 12.20 L1), has yet to be stabilized or restored. During June 2012, the permitting process for proposed final restoration and stabilization design plans continued in coordination with the MDEQ.

The *Kalamazoo River Bank Erosion Assessment and Action Plan Summary Report – Monitoring Trip No. 7* (Enbridge, 2012(1)) was submitted to MDEQ on June 21, 2012 for the previous river assessment monitoring trip that was conducted from April 18 through and including April 20, 2012. This report, along with *Kalamazoo River Bank Erosion Assessment and Action Plan Summary Report – Monitoring Trip No. 6* (Enbridge, 2012(2)) submitted to MDEQ on May 15, 2012, are currently under review by the MDEQ.

Although KRBEA site restoration preparation activities were conducted during June 2012, no field restoration activities were conducted on KRBEA sites in June 2012.

Other restoration and assessment activities completed in June 2012 included:

- Conducted post-construction site inspections of completed KRBEA sites as well as OB 5.92 Right (R), OB 13.40 LDB (formerly 13.50 Left (L)1 and LDB4), OB 15.00 Island (I) (formerly MP 15.00 I), OB 15.00 L (formerly MP 15.00 LDB), and Talmadge Creek,
- Used GPS to locate fallen tree and woody debris boat obstruction locations near MP 11.25 and 11.50 prior to subsequent removal,
- Revised and resubmitted the *Invasive Species Management Plan* (Enbridge, 2012(3)) to the MDEQ for review,
- Revised and resubmitted the *Final Restoration Plan, Talmadge Creek* (Enbridge, 2012(4)) to the MDEQ for review,
- Initiated or continued work on numerous MDEQ or MDNR permit application packages and supporting documents for HP OSCAR, Submerged Oil, KRBEA, or other future restoration work sites including: submerged sediment structure installation in accordance with the *Plan for Preventing Migration of Oil Past the Morrow Lake Dam During Winter 2011-2012 (MP 36.75 – 37.25)* submitted to U.S. EPA on November 8, 2011 (Enbridge, 2011(1)), submerged oil toolbox methods, the E 4.0 containment boom, the KRBEA Raymond Road site (12.20 L1), the Morrow Lake Fan, and the Bradley ERO site (MP 26.80 Right Descending Bank (RDB)), and
- Continued mitigation plan coordination and development for potential wetland mitigation locations.

2h.3 Work Planned

Work planned for July 2012 is as follows:

- Continue erosion control and restoration activities along the Kalamazoo River,
- Conduct post-construction inspections of completed restoration sites,
- Continue to monitor MDEQ processing of the submitted permit application for the high-priority KRBEA site at Raymond Road (MP 12.20 L1),
- Continue MDEQ permit application development and ecological assessments for designated work sites and projects,
- Initiate restoration along Talmadge Creek,
- Complete restoration at Bradley ERO site (MP 26.80 RDB),

- Potentially commence implementation of the *Talmadge Creek Final Restoration Plan* (Enbridge 2012(4)), and
- Potentially commence implementation of the *Invasive Species Management Plan* (Enbridge, 2012(3)).

2i.0 Sediment Traps and Cylindrical Sampling Devices

2i.1 Introduction

During June 2012, sediment trap and cylindrical sampling device (CSD) activities included monitoring, planning for proposed alternate locations, and data compilation of the May 2012 monitoring data. Monitoring activities were conducted at two sediment trap and CSD locations: 21.50 RDB and 28.25 RDB. In June 2012, planning for future sediment trap and CSD locations was conducted using the hydrodynamic model to estimate sedimentation rates. In addition, Hydrologic Engineering Center – River Analysis System (HEC-RAS) model runs were initiated to predict the 100-year flood surface water elevation impacts for 33.00 A RDB.

During June 2012, there were two HEC-RAS model runs initiated to determine the calculated 100-year backwater effects caused by the installation of a sediment trap at 33.00 A RDB.

2i.2 Work Completed

During June 2012, the following report was resubmitted to U.S. EPA and MDEQ for review:

- *Sediment Trap Monitoring and Maintenance Plan,* submitted to U.S. EPA on June 14, 2012 (Enbridge, 2012(1)).

2i.2.1 Sediment Trap Monitoring

During June 2012, no additional sediment traps, sediment structures, or CSDs were installed. Monitoring was conducted at two of the six installed sediment traps, 21.50 RDB and 28.25 RDB, in accordance with the *Sediment Trap Monitoring and Maintenance Plan,* submitted to U.S. EPA on June 14, 2012 (Enbridge, 2012(1)). Monitoring activities included poling and observation of the sediment collected in the CSD samplers. The poling results are included in *Table 2i-1* and are shown in *Figure 2i-1*.

Location	Poling ID	Date Conducted	Poling Result
MP 21.50	CSKR2150C01	June 1, 2012	Heavy
	CSKR2150C02	June 1, 2012	Heavy
	CSKR2150C03	June 1, 2012	Moderate
MP 28.25	CSKR2850C01	June 1, 2012	Light
	CSKR2850C01	June 1, 2012	Light
	CSKR2850C01	June 1, 2012	Light

Table 2i-1. Results for Sediment Trap Monitoring Event Conducted June 1, 2012

During June 2012, data compilation included calculating the rate of sedimentation in the CSD sample jars. The sedimentation rates were determined through review and evaluation of the data collected during the four monitoring events conducted during May 2012. The results for the sedimentation rates within the CSD sample jars are attached as *Table 2i-2*.

2i.2.2 Model Calculations

During June 2012, alternate sediment trap structures were proposed for two sediment trap locations, 26.00 RDB and 33.00 A RDB, to determine if sedimentation rates would be greater than in the original sediment trap location. Sedimentation rates for the alternate locations were determined by using the hydrodynamic model. The hydrodynamic model showed favorable sedimentation rates for the alternate sediment trap location at 33.00 A RDB and did not show favorable rates for 26.00 RDB. In June 2012, a HEC-RAS model run was initiated for the proposed alternate sediment trap location at 33.00 A RDB.

2i.3 Work Planned

During July 2012, the next round of monitoring is planned for the week of July 9, 2012. In addition, water level measurements for the proposed CSD locations within the proposed sediment traps will be conducted concurrently with monitoring events. The HEC-RAS model run for the alternate sediment trap location at 33.00 A RDB is expected to be completed.

2j.0 Waste Management Activities

2j.1 Introduction

In June 2012, waste management activities were conducted in accordance with the *Waste Treatment, Transportation, and Disposal (WTTD) Plan* (WTTD Plan) (Enbridge, 2011(1)) approved by U.S. EPA on May 17, 2011, the *Addendum to the Revised Waste Treatment, Transportation and Disposal Plan (May 20, 2011)* (Enbridge, 2011(2)) approved by U.S. EPA on June 20, 2011, and the *Operation and Maintenance Excavation Work Plan titled Waste Best Management Practices (BMPs)* (Enbridge, 2011(3)) approved by U.S. EPA on June 29, 2011.

Generated waste streams included, but were not limited to:

- Crude oil impacted debris,
- Non-impacted debris - Municipal Solid Waste (MSW),
- Crude oil impacted soil,
- Miscellaneous other small volume materials,
- Crude oil impacted water, and
- Non-impacted precipitation.

Table 2j-1 provides a list of transporters and disposal facilities used for management of each waste stream.

Waste Stream	Disposal Company	EPA ID Number	Treatment Option	Transporter
Wastewater (Hazardous)	Dynecol, Inc.	MID 074 259 565	Wastewater Treatment	PVS Transportation HM Environmental SET Environmental, Inc. and sub-contractors
Wastewater (Hazardous)	Environmental Quality Company (EQ) Detroit, Inc.	MID 000 724 831 MID 980 991 566	Stabilization, Fuel Blending, Incineration	EQ
Wastewater (Non-Hazardous)	Dynecol, Inc.	MID 074 259 565	Wastewater Treatment	PVS Transportation HM Environmental SET Environmental, Inc. and sub-contractors
Wastewater (Non-Hazardous)	EQ Detroit, Inc.	MID 980 991 566	Recycle/Reclaim	EQ
Wastewater (Non-Hazardous)	Liquid Industrial Waste Services (LIWS)	MID 006 546 121	Wastewater Treatment	LIWS
Wastewater (Non-Hazardous)	Plummer's Environmental Services	MIK 111 229 563	Wastewater Treatment	Plummer's Environmental Services
Wastewater (Non-Hazardous)	Marshall Publicly Owned Treatment Works (POTW) Muskegon POTW Kalamazoo POTW Battle Creek POTW		Wastewater Treatment POTW	LIWS Clean Harbors EQ SET Environmental, Inc. and sub-contractors
Hazardous Solids (Dumpsters and Soils)	Envirosafe Services of OH	OHD 045 243 706	Landfill	Safety Kleen and sub-contractors
Hazardous Solids (Dumpsters and Soils)	EQ Michigan Disposal	MID 048 090 633	Landfill	EQ
Non-Hazardous Waste Solid	Republic Services C&C Landfill	MID 985 618 420	Landfill	Republic Waste of West Michigan
Non-Hazardous Soil	Waste Management Landfill – Three Rivers		Landfill	SET Environmental, Inc. and sub-contractors
Non-Hazardous Soil	Republic Services C&C Landfill	MID 985 618 420	Landfill	SET Environmental, Inc. and sub-contractors

Table 2j-1. Waste Transporters and Disposal Facilities June 2012

2j.2 Work Completed

Table 2j-2 is a summary of waste shipments that occurred during June 2012 and the cumulative amount of each waste type generated during response activities from June 1 through and including June 30, 2012. The processes that generate each waste stream are described further in the following sections. Waste manifests and bills of lading received in June 2012 are included in *Appendix E.*

Waste Stream	Shipped to	Quantity Shipped in June 2012	Cumulative Total Shipped as of June 30, 2012	Unit of Measure
Non-Hazardous Soil	Westside Recycling Three Rivers, MI	0	64,815	Cubic Yards
Non-Hazardous Soil	C&C Landfill Marshall, MI	41	76,443	Cubic Yards
Hazardous Soil	Envirosafe Services Oregon, OH	0	19,644	Cubic Yards
Geotube Sediment	Westside Recycling Three Rivers, MI	0	5,562	Cubic Yards
Hazardous Water	Dynecol Detroit, MI	0	3,594,579	Gallons
Non-Hazardous Water	Dynecol Detroit, MI	0	981,792	Gallons
Non-Hazardous Water	LIWS, Inc.	6,300	1,364,757	Gallons
Non-Hazardous Water	Plummer's Environmental Services	0	392,526	Gallons
Non-Hazardous Water (precipitation)	POTW Battle Creek, MI	0	1,143,280	Gallons
Non-Hazardous Debris (MSW removed from Cumulative Total)	C&C Landfill Marshall, MI	190.4	7,024	Tons
Wildlife Center Sharps	Stericycle Clinton, IL	0	9	Containers
Lab Personal Protective Equipment (PPE) and sampling equipment	Safety Kleen Smithfield, KY	0	60	Drums
Stockbridge, MI Terminal Hydrotest Water	EQ Co. Detroit, MI	0	2,381,100	Gallons
Griffith, IN Terminal Oil/Water Mixture	Clean Harbor's Rock Island, IL	0	2,171,813	Gallons

Table 2j-2. Waste Shipment Summary Through June 30, 2012

2j.2.1 Oily Debris

Oily debris is segregated from non-oily debris and stored in lined 20-cubic yard roll-off boxes. Handling procedures for oily debris were conducted in accordance with procedures outlined in the approved WTTD Plan (Enbridge, 2011(1)). Based on how the waste was generated (e.g. control points), sampling and required analyses were performed in accordance with the WTTD Plan (Enbridge, 2011(1)). Non-hazardous oily debris generated in June 2012 is shown in *Table 2j-2.*

2j.2.2 Non-Impacted Debris

Non-impacted (non-oily) debris or MSW generated at field locations was transported to Republic Services' C&C Landfill in Marshall, Michigan using lined 20-cubic yard roll-off boxes. Non-impacted debris was not sampled and was not included in the recovered oil calculations. The non-hazardous designation for the debris was based on generator knowledge.

2j.2.3 Soil

Crude oil impacted soil was excavated from the Ceresco Dam upstream canoe portage area. Handling procedures for oil impacted soil were conducted in accordance with the WTTD Plan (Enbridge, 2011(1)). Sampling frequency and required analyses were also performed in accordance with the WTTD Plan (Enbridge, 2011(1)).

Disposal requirements for oil impacted soil were based on an evaluation of analytical data. Non-hazardous oil impacted soil was disposed at Republic Services' C&C Landfill in Marshall, Michigan in June 2012. Hazardous soil was not generated during June 2012.

2j.2.4 Miscellaneous Small Quantity Waste Streams

Miscellaneous small quantity waste streams have been generated throughout the project. These wastes have primarily been stored in drums and include, but are not limited to: used oil, batteries, small quantities of medical waste, and lab samples. These waste streams have been characterized individually and disposed at approved facilities as required.

2j.2.5 Decontamination and Precipitation Wastewater

Accumulated decontamination and precipitation from FTC's soil staging cell containment was transported to LIWS in Holland, Michigan for disposal.

2j.2.6 Recovered Oil Calculations

The quantity of oil contained in waste materials has been calculated since the beginning of the release response. Oil and grease analytical results for oily solids and oily liquids are used to calculate recovered oil volumes. The oil quantity calculation is based on the concentration of oil (analytical results) in the waste and the total amount of waste shipped. Recovered oil values are determined for each waste stream and a recovered oil summary is reported weekly. A summary of this report through July 2, 2012 is provided in *Table 2j-3*.

Waste Stream	Weekly Oil Recovery Estimates (gallons)					Cumulative Oil Recovery Estimate (gallons)
	6/04/2012	6/11/2012	6/18/2012	6/25/2012	7/02/2012	
Soil (Impacted Soil & Debris) C&C Landfill	0	0	0	0	0	**13,813**
Soil (Impacted Soil & Debris) Envirosafe/Westside Recycling & Disposal Facility (RDF)	--	--	--	--	--	**278,665**
Geotube Sediment (Impacted Sediment) Westside RDF	--	--	--	--	--	**1,298**
Debris (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	0	16	166	0	0	**33,964**
Wastewater FTC - Influent to Carbon Filtration System	--	--	--	--	--	**8,109**
Wastewater FTC - Water to Dynecol/ LIWS/ Plummer's/City of Battle Creek	0	0	0	0	0	**46,176**
Wastewater Battle Creek - Non-Hazardous rain water Ceresco Dredge and C05 Inactive Decon Pad	--	--	--	--	--	**--**
Wildlife Center Wastewater Non-Hazardous water to Plummer's	--	--	--	--	--	**--**
Ceresco Pretreatment System	--	--	--	--	--	**90**
A-1 Pretreatment System	--	--	--	--	--	**9**
Oily Water Recoverable Petroleum Product to Griffith	--	--	--	--	--	**766,288**
						Total: 1,148,411

Table 2j-3. Weekly and Project Cumulative Recovered Oil Through July 2, 2012

2j.3 Work Planned

Waste management activities are planned to continue in accordance with the plans referenced in *Section 2j.1*. Soils with no free liquids will be transported either directly to FTC and stockpiled using a bill of lading or directly to the landfill using a manifest in accordance with the approved *Addendum to the Revised Waste Treatment, Transportation, and Disposal Plan* (Enbridge, 2011(2)). Each soil stockpile will have a representative sample (one 4-point composite sample collected and homogenized for oil and grease analysis) collected for every 200 cubic yards of

waste soil. Each load transported directly to the landfill will have one scoop (single point aliquot) of soil collected for oil and grease analysis prior to leaving the site per the approved *Operation and Maintenance Excavation Work Plan titled Waste Best Management Practices* (Enbridge, 2011(3)).

2k.0 Overbank Excavation Activities

2k.1 Introduction

During June 2012, no overbank excavation activities were conducted.

2k.2 Work Completed

No overbank excavation activities were conducted during June 2012.

2k.3 Work Planned

No overbank excavation activities are scheduled during July 2012.

2l.0 Overbank Oil Recovery Activities

2l.1 Introduction

During June 2012, no overbank oil recovery activities were conducted.

2l.2 Work Completed

No overbank oil recovery activities were conducted during June 2012.

2l.3 Work Planned

No overbank oil recovery activities are scheduled during July 2012.

2m.0 Hydrodynamic Assessment and Model Activities

2m.1 Introduction

Hydrodynamic assessment data has been used to develop an understanding of the riverine and floodplain system by identifying physical patterns and migration rates of sediment caused by various river conditions. During June 2012, velocity measurements and sediment trap monitoring were conducted to support the site hydrodynamic model. Additional tasks using the hydrodynamic model consisted of model runs to determine if alternate sediment trap structure configurations would further enhance sediment deposition in certain proposed sediment trap areas.

2m.2 Work Completed

During June 2012, field activities consisted of velocity measurements in Morrow Lake and the Kalamazoo River and sediment trap monitoring at the following locations:

- 10.75 LDB,
- 14.75 RDB,
- 19.25 LDB,
- 21.50 RDB,
- 28.25 RDB , and
- 36.10 Northwest.

In addition, the sampling of WSS samplers was completed and the 11 samplers were returned to the river. During June 2012, field work was conducted in accordance with the *Hydrodynamic Assessment Work Plan* (Enbridge, 2011).

2m.2.1 Hydrodynamic Modeling

The hydrodynamic model was used to evaluate new sediment trap structure locations and their effects on sediment deposition within that location. Three model runs to evaluate sediment trap effectiveness using alternate trap configurations were completed in June 2012.

Alternate sediment trap configurations were modeled for six potential sediment trap areas:

- 10.5 L2,
- 21.50 RDB,
- 26.00 RDB,
- 28.25 RDB,
- 33.00 A, and
- 33.00 B.

Each alternate sediment trap configuration was modeled under three different flow regimes:

- 'Normal' flow (600-800 cubic feet per second (cfs),
- The calibration flow period of October 31 through and including November 7, 2011),
- Bankfull flow (1,500 cfs flow period May 16 through and including May 23, 2011), and
- Overbank flood (3,000 cfs; the spill flow period of July 24 through and including July 31, 2010).

'Normal' flow sedimentation rate results, including comparisons to the previous sediment trap configuration results, are shown in *Figures 2m-1 through 2m-8*. Bankfull flow results are shown in *Figures 2m-9 through 2m-16*. Overbank flood results are shown in *Figures 2m-17 through 2m-24*.

2m.2.2 Water Velocity Monitoring

Velocity measurements on Morrow Lake and in the Kalamazoo River continued in June 2012. The measurements were collected on transects and on single point stations throughout Morrow Lake as well as in the Kalamazoo River near the Mill Ponds (MP 14.25 to MP 15.50) and above Ceresco Dam (MP 5.50 to MP 5.75). The water velocity measurement activities were conducted during a low flow event. Processed velocity results from June 2012 are shown in *Figures 2m-25 through 2m-34.*

2m.2.3 Suspended Sediment Samples

The 2012 reinstallation (June report says installation) of the WSS samplers was completed in April 2012. The devices were retrieved in May 2012 in order to test suspended sediment that

had been collected in the samplers. Samplers WSS1 through WSS5 and WSS17 through WSS20 were returned to the river (after sampling) in May 2012. Samplers WSS6, WSS10, WSS12, and WSS13 were returned to the river on June 1, 2012. Samplers WSS7, WSS11, and WSS14 were returned to the river on June 2, 2012. Samplers WSS8, WSS9, WSS15, and WSS16 were returned to the river on June 4, 2012. Locations of WSS samplers are shown in *Figure 2e-4.*

2m.2.4 Sediment Core Collection

Sediment core collection was not performed in June 2012.

2m.3 Work Planned

Work planned for July 2012 includes the following:

- Collect velocity measurements on Morrow Lake, Morrow Lake Delta, and the Kalamazoo River, and continue processing velocity data collected in June 2012.
- Remove, sample, and reinstall WSS samplers.
- Conduct sediment core collection, and
- Continue sediment trap monitoring.

3.0 Conclusion

As described in this monthly progress report for June 2012, Enbridge continued to conduct activities required under the U.S. EPA Order and Supplemental Order and to conduct activities pursuant to the MDEQ Order. The work conducted and data received during July 2012 will be included in the monthly report to be submitted on August 27, 2012.

4.0 References

Section 1.0 Introduction

U.S. EPA, 2010. "*Removal Administrative Order Section 311(c) of the Clean Water Act*, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001 as modified by Paragraph 6 of the Supplement to Order for Compliance Under Section 311(c) of the Clean Water Act, issued by the U.S. EPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. *et al.*, Respondents, Docket No: CWA 1321-5-10-001."

MDEQ, 2010. "Administrative Consent Order and Partial Settlement Agreement entered *In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership*, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq. signed November 1, 2010."

Section 2a.0 Surface Water and Sediment Monitoring Activities

Enbridge, 2012(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Addendum to the Sampling and Analysis Plan (SAP): Attachment C - Surface Water and Sediment Monitoring Supplement to the Sampling and Analysis Plan."* Approved by MDEQ on May 18, 2012.

MDEQ, 2011. "*Rule 57 Water Quality Values*" "*Rule 323.1057 (Toxic Substances) of the Part 4 Water Quality Standards.*" June 2011.

U.S.EPA, 2003. United States Environmental Protection Agency "*U.S. EPA Region 5 Ecological Screening Levels 2003."* August 2003

McDonald et al, 2000. MacDonald Environmental Sciences Ltd. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems "*Threshold Effects Concentration (TEC) Guidelines."* January 2000

MDEQ, 2006. Michigan Department of Environmental Quality; "*RRD Operational Memorandum No. 4, Attachment 7."* May 2006.

Section 2b.0 Water Quality Monitoring Activities

Enbridge, 2011. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan *Water Quality Measurement Standard Operating Procedure.*" Approved by MDEQ on September 22, 2011.

Section 2c.0 Potable Water Investigation Activities

Enbridge, 2012. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Addendum to Sampling and Analysis Plan (SAP): Attachment B - Drinking Water Well Supplement to the Sampling and Analysis Plan."* Approved by MDEQ on May 18, 2012.

Enbridge, 2011(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Sampling and Analysis Plan*." Approved by MDEQ on August 30, 2011.

Enbridge, 2011(2). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Augusta Monitoring Well Installation Work Plan*," submitted to MDEQ on February 10, 2011.

Enbridge, 2011(3). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Kalamazoo Monitoring Well Installation Work Plan*," submitted to MDEQ on February 10, 2011.

Section 2d.0 Air Sampling and Monitoring Activities

Enbridge, 2012. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Air Monitoring & Sampling Addendum to the Sampling & Analysis Plan*," submitted to U.S. EPA on December 9, 2011 and resubmitted on January 31, 2012, March 28, 2012, and May 3, 2012. Approved by U.S. EPA on May 4, 2012.

Section 2e.0 Submerged Oil Assessment and Recovery Activities

Enbridge, 2011. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Addendum to the Response Plan for Downstream Impacted Areas, August 2, 2010 (Revised August 17, 2010 per U.S. EPA August 17, 2010 letter), Supplement to Source Area Response Plan and Supplement to Response Plan for Downstream Impacted Areas, Referred to as Operations and Maintenance Work Plan commonly referred to as "Consolidated Work Plan for Activities through 2012*," submitted to U.S. EPA on October 20, 2011.

U.S. EPA, 2012: Letter from Ralph Dollhoph, Federal On-Scene Coordinator and Incident Commander, U.S. EPA Region 5 to Rich Adams, Vice President of Operations, Enbridge Energy LLC *Re: Enbridge Energy, Limited Partnership's March 22, 2010 Letter.* April 25, 2012.

Section 2f.0 Remedial Investigation Activities

Enbridge, 2011. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Remedial Investigation Work Plan for Kalamazoo River (MP 2.25 to MP 3.14).*" Approved by MDEQ on November 18, 2011.

Enbridge, 2012(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Remedial Investigation Work Plan for Kalamazoo River (MP 5.80 to MP 11.00).*" Approved by MDEQ on February 10, 2012.

Enbridge, 2012(2). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan*; Remedial Investigation Work Plan for Kalamazoo River (MP 11.00 to Morrow Lake Dam),"* submitted to MDEQ on February 7, 2012.

Enbridge, 2012(3). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Investigation Work Plan for Source Area (A1).*" Approved by U.S. EPA on May 21, 2012.

Enbridge, 2012(4). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Remedial Investigation Work Plan for Kalamazoo River (MP 3.14 to Ceresco Dam (MP 5.80)).*" Approved by MDEQ on January 13, 2012.

Enbridge, 2012(5). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Presentation for Parcels located within Squaw Creek Subdivision MP 2.75 – MP 3.25*," submitted June 13, 2012.

Enbridge, 2012(6). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Presentation for Kalamazoo River Saylor's Landing Access Site: Parcel TC-B-078.001*," submitted June 13, 2012

Enbridge, 2012(7). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Addendum to Presentation for Kalamazoo River Saylor's Landing Access Site: Parcel TC-B-078.001*," submitted June 27, 2012.

Enbridge, 2012(8). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Presentation for Kalamazoo River Parcel KN-C-143 (10-017-002-00) (MP 13.00 R1*," submitted June 28, 2012.

Enbridge, 2012(9). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Presentation for Kalamazoo River Parcel KN-C-085 (16-340-075-00) (MP 2.00 to 2.25 RDB),*" submitted June 28, 2012.

Section 2g.0 Temporary Facility Restoration and Demobilization Activities

Enbridge, 2011. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Soil Staging, Decontamination and River Access Site Closure Plan,*" submitted to U.S. EPA and MDEQ on January 11, 2011.

MDEQ, 2004. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *RRD Operational Memorandum No. 2, MDEQ Remediation and Redevelopment Division, Sampling and Analysis.*" October 22, 2004.

Section 2h.0 River Bank Erosion Control and Restoration Activities

Enbridge, 2011(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Plan for Preventing Migration of Oil Past the Morrow Lake Dam During Winter 2011-2012 (MP 36.75 – 37.25),*" submitted to U.S. EPA on November 8, 2011.

Enbridge, 2012 (1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Kalamazoo River Bank Erosion Assessment and Action Plan Summary Report – Monitoring Trip No. 7,*" submitted to MDEQ on June 21, 2012.

Enbridge, 2012 (2). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Kalamazoo River Bank Erosion Assessment and Action Plan Summary Report – Monitoring Trip No. 6,*" submitted to MDEQ on May 15, 2012.

Enbridge, 2012 (3). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Invasive Species Management Plan,*" submitted to MDEQ on June 1, 2012.

Enbridge, 2012 (4). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Final Restoration Plan Talmadge Creek,*" submitted to MDEQ on June 1, 2012.

Section 2i.0 Sediment Traps and Cylindrical Sampling Devices

Enbridge, 2012(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Sediment Trap Monitoring and Maintenance Plan,"*submitted to U.S. EPA on April 23, 2012, resubmitted on June 14, 2012.

Section 2j.0 Waste Management Activities

Enbridge, 2011(1). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Waste Treatment, Transportation, and Disposal Plan.*" Approved by U.S. EPA on May 17, 2011.

Enbridge, 2011(2). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Addendum to the Revised Waste Treatment, Transportation and Disposal Plan.*" Approved by U.S. EPA on June 20, 2011.

Enbridge, 2011(3). "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Operation and Maintenance Excavation Work Plan titled Waste Best Management Practices.*" Approved by U.S. EPA on June 29, 2011.

Section 2m.0 Hydrodynamic Assessment and Model Activites

Enbridge, 2011. "Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan; *Hydrodynamic Assessment Work Plan,*" submitted to U.S. EPA on September 30, 2011.

Enbridge Line 6B MP 608 Pipeline Release

Marshall, Michigan

Tables

Prepared for U.S. EPA and MDEQ

Enbridge Energy, Limited Partnership

Submitted: July 27, 2012

Table 2b-1. Water Quality Monitoring Results June 1, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/1/2012	07:00	0.5	1	1.7	NA	9.54
	6/1/2012	07:05	0.5	1	1.6	NA	9.54
	6/1/2012	07:10	0.5	1	1.9	NA	9.53
	6/1/2012	07:15	0.5	1	1.8	NA	9.52
	6/1/2012	07:20	0.5	1	2	NA	9.51
	6/1/2012	07:25	0.5	1	2	NA	9.51
	6/1/2012	07:30	0.5	1	1.9	NA	9.53
	6/1/2012	07:35	0.5	1	1.9	NA	9.53
	6/1/2012	07:40	0.5	1	1.9	NA	9.53
	6/1/2012	07:45	0.5	1	1.7	NA	9.54
	6/1/2012	07:50	0.5	1	1.5	NA	9.54
	6/1/2012	07:55	0.5	1	2.2	NA	9.55
	6/1/2012	08:00	0.5	1	2	NA	9.56
	6/1/2012	08:05	0.5	1	2	NA	9.56
	6/1/2012	08:10	0.5	1	2	NA	9.58
	6/1/2012	08:15	0.5	1	2.2	NA	9.57
	6/1/2012	08:20	0.5	1	2.7	NA	9.59
	6/1/2012	08:25	0.5	1	2.4	NA	9.6
	6/1/2012	08:30	0.5	1	2.9	NA	9.6
	6/1/2012	08:35	0.5	1	2.9	NA	9.61
	6/1/2012	08:40	0.5	1	2.6	NA	9.62
	6/1/2012	08:45	0.5	1	2.3	NA	9.63
	6/1/2012	08:50	0.5	1	2.6	NA	9.65
	6/1/2012	08:55	0.5	1	2.6	NA	9.66
	6/1/2012	09:00	0.5	1	1.9	NA	9.67
	6/1/2012	09:05	0.5	1	2	NA	9.69
	6/1/2012	09:10	0.5	1	1.9	NA	9.7
	6/1/2012	09:15	0.5	1	2.3	NA	9.7
	6/1/2012	09:20	0.5	1	2	NA	9.71
	6/1/2012	09:25	0.5	1	1.9	NA	9.72
	6/1/2012	09:30	0.5	1	2	NA	9.72
	6/1/2012	09:35	0.5	1	2	NA	9.73
	6/1/2012	09:40	0.5	1	1.8	NA	9.73
	6/1/2012	09:45	0.5	1	1.8	NA	9.74

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/1/2012	09:50	0.5	1	1.8	NA	9.75
	6/1/2012	09:55	0.5	1	1.6	NA	9.76
	6/1/2012	10:00	0.5	1	1.7	NA	9.8
	6/1/2012	10:05	0.5	1	1.5	NA	9.83
	6/1/2012	10:10	0.5	1	1.5	NA	9.87
	6/1/2012	10:15	0.5	1	1.7	NA	9.91
	6/1/2012	10:20	0.5	1	1.6	NA	9.94
	6/1/2012	10:25	0.5	1	1.8	NA	9.93
	6/1/2012	10:30	0.5	1	3.4	NA	9.95
	6/1/2012	10:35	0.5	1	4.2	NA	9.95
	6/1/2012	10:40	0.5	1	2.7	NA	9.96
	6/1/2012	10:45	0.5	1	2.1	NA	9.98
	6/1/2012	10:50	0.5	1	1.8	NA	10
	6/1/2012	10:55	0.5	1	1.8	NA	10.02
	6/1/2012	11:00	0.5	1	2	NA	10.03
	6/1/2012	11:05	0.5	1	1.6	NA	10.04
	6/1/2012	11:10	0.5	1	1.7	NA	10.07
	6/1/2012	11:15	0.5	1	1.9	NA	10.07
	6/1/2012	11:20	0.5	1	2.3	NA	10.1
	6/1/2012	11:25	0.5	1	2.1	NA	10.14
	6/1/2012	11:30	0.5	1	1.6	NA	10.17
	6/1/2012	11:35	0.5	1	2.1	NA	10.21
	6/1/2012	11:40	0.5	1	2.3	NA	10.24
	6/1/2012	11:45	0.5	1	1.8	NA	10.26
	6/1/2012	11:50	0.5	1	2	NA	10.28
	6/1/2012	11:55	0.5	1	2.7	NA	10.29
	6/1/2012	12:00	0.5	1	1.7	NA	10.31
	6/1/2012	12:05	0.5	1	2.5	NA	10.33
	6/1/2012	12:10	0.5	1	1.6	NA	10.36
	6/1/2012	12:15	0.5	1	1.6	NA	10.39
	6/1/2012	12:20	0.5	1	1.7	NA	10.43
	6/1/2012	12:25	0.5	1	1.5	NA	10.45
	6/1/2012	12:30	0.5	1	1.4	NA	10.48
	6/1/2012	12:35	0.5	1	1.9	NA	10.52
	6/1/2012	12:40	0.5	1	1.4	NA	10.57
	6/1/2012	12:45	0.5	1	1.5	NA	10.61

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/1/2012	12:50	0.5	1	1.8	NA	10.66
	6/1/2012	12:55	0.5	1	1.6	NA	10.68
	6/1/2012	13:00	0.5	1	1.6	NA	10.71
	6/1/2012	13:05	0.5	1	1.5	NA	10.74
	6/1/2012	13:10	0.5	1	1.7	NA	10.79
	6/1/2012	13:15	0.5	1	1.7	NA	10.84
	6/1/2012	13:20	0.5	1	1.8	NA	10.9
	6/1/2012	13:25	0.5	1	1.7	NA	10.97
	6/1/2012	13:30	0.5	1	1.7	NA	11.03
	6/1/2012	13:35	0.5	1	1.6	NA	11.07
	6/1/2012	13:40	0.5	1	1.7	NA	11.09
	6/1/2012	13:45	0.5	1	1.8	NA	11.1
	6/1/2012	13:50	0.5	1	1.5	NA	11.12
	6/1/2012	13:55	0.5	1	1.4	NA	11.13
	6/1/2012	14:00	0.5	1	1.8	NA	11.14
	6/1/2012	14:05	0.5	1	1.6	NA	11.17
	6/1/2012	14:10	0.5	1	1.4	NA	11.19
	6/1/2012	14:15	0.5	1	1.5	NA	11.21
	6/1/2012	14:20	0.5	1	1.6	NA	11.21
	6/1/2012	14:25	0.5	1	1.4	NA	11.22
	6/1/2012	14:30	0.5	1	1.6	NA	11.22
	6/1/2012	14:35	0.5	1	1.4	NA	11.23
	6/1/2012	14:40	0.5	1	1.4	NA	11.25
	6/1/2012	14:45	0.5	1	2.1	NA	11.27
	6/1/2012	14:50	0.5	1	3.4	NA	11.29
	6/1/2012	14:55	0.5	1	2.2	NA	11.31
	6/1/2012	15:00	0.5	1	1.9	NA	11.35
	6/1/2012	15:05	0.5	1	1.9	NA	11.38
	6/1/2012	15:10	0.5	1	2.3	NA	11.4
	6/1/2012	15:15	0.5	1	1.7	NA	11.43
	6/1/2012	15:20	0.5	1	1.7	NA	11.45
	6/1/2012	15:25	0.5	1	1.4	NA	11.45
	6/1/2012	15:30	0.5	1	1.8	NA	11.45
	6/1/2012	15:35	0.5	1	2.2	NA	11.46
	6/1/2012	15:40	0.5	1	1.5	NA	11.46
	6/1/2012	15:45	0.5	1	1.7	NA	11.48

Table 2b-1. Water Quality Monitoring Results June 1, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/1/2012	15:50	0.5	1	1.5	NA	11.49
	6/1/2012	15:55	0.5	1	2.9	NA	11.51
	6/1/2012	16:00	0.5	1	2	NA	11.52
	6/1/2012	16:05	0.5	1	1.9	NA	11.54
	6/1/2012	16:10	0.5	1	1.6	NA	11.55
	6/1/2012	16:15	0.5	1	1.5	NA	11.55
	6/1/2012	16:20	0.5	1	1.8	NA	11.57
	6/1/2012	16:25	0.5	1	1.5	NA	11.59
	6/1/2012	16:30	0.5	1	1.6	NA	11.59
	6/1/2012	16:35	0.5	1	1.6	NA	11.61
	6/1/2012	16:40	0.5	1	1.8	NA	11.59
	6/1/2012	16:45	0.5	1	2.2	NA	11.58
	6/1/2012	16:50	0.5	1	2.5	NA	11.59
	6/1/2012	16:55	0.5	1	2.3	NA	11.58
	6/1/2012	17:00	0.5	1	2.7	NA	11.57
	6/1/2012	17:05	0.5	1	1.7	NA	11.54
	6/1/2012	17:10	0.5	1	1.8	NA	11.52
	6/1/2012	17:15	0.5	1	1.8	NA	11.5
	6/1/2012	17:20	0.5	1	1.8	NA	11.49
	6/1/2012	17:25	0.5	1	1.9	NA	11.47
	6/1/2012	17:30	0.5	1	2.3	NA	11.45
	6/1/2012	17:35	0.5	1	2.5	NA	11.44
	6/1/2012	17:40	0.5	1	2.2	NA	11.43
	6/1/2012	17:45	0.5	1	1.9	NA	11.43
	6/1/2012	17:50	0.5	1	2	NA	11.43
	6/1/2012	17:55	0.5	1	2.2	NA	11.43
	6/1/2012	18:00	0.5	1	2.6	NA	11.43
	6/1/2012	18:05	0.5	1	2.1	NA	11.42
	6/1/2012	18:10	0.5	1	2.2	NA	11.42
	6/1/2012	18:15	0.5	1	2.2	NA	11.4
	6/1/2012	18:20	0.5	1	2.1	NA	11.4
	6/1/2012	18:25	0.5	1	2	NA	11.39
	6/1/2012	18:30	0.5	1	2	NA	11.38
	6/1/2012	18:35	0.5	1	2.4	NA	11.37
	6/1/2012	18:40	0.5	1	2.2	NA	11.37
	6/1/2012	18:45	0.5	1	2	NA	11.36

Table 2b-1. Water Quality Monitoring Results June 1, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/1/2012	18:50	0.5	1	2	NA	11.36
	6/1/2012	18:55	0.5	1	2.1	NA	11.35
	6/1/2012	19:00	0.5	1	2.4	NA	11.35

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-2. Water Quality Monitoring Results June 2, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/2/2012	07:00	0.5	1	5.2	NA	8.41
	6/2/2012	07:05	0.5	1	5.7	NA	8.43
	6/2/2012	07:10	0.5	1	4.2	NA	8.45
	6/2/2012	07:15	0.5	1	3.9	NA	8.47
	6/2/2012	07:20	0.5	1	3.8	NA	8.48
	6/2/2012	07:25	0.5	1	4.3	NA	8.51
	6/2/2012	07:30	0.5	1	4.9	NA	8.55
	6/2/2012	07:35	0.5	1	3.8	NA	8.58
	6/2/2012	07:40	0.5	1	4	NA	8.6
	6/2/2012	07:45	0.5	1	3.7	NA	8.64
	6/2/2012	07:50	0.5	1	3.9	NA	8.68
	6/2/2012	07:55	0.5	1	4.6	NA	8.71
	6/2/2012	08:00	0.5	1	4.1	NA	8.75
	6/2/2012	08:05	0.5	1	3.8	NA	8.79
	6/2/2012	08:10	0.5	1	3.7	NA	8.83
	6/2/2012	08:15	0.5	1	3.7	NA	8.87
	6/2/2012	08:20	0.5	1	2.8	NA	8.92
	6/2/2012	08:25	0.5	1	3.5	NA	8.97
	6/2/2012	08:30	0.5	1	3.7	NA	9.03
	6/2/2012	08:35	0.5	1	3.2	NA	9.09
	6/2/2012	08:40	0.5	1	3.4	NA	9.15
	6/2/2012	08:45	0.5	1	3.6	NA	9.22
	6/2/2012	08:50	0.5	1	3.9	NA	9.28
	6/2/2012	08:55	0.5	1	3.4	NA	9.35
	6/2/2012	09:00	0.5	1	4.3	NA	9.42
	6/2/2012	09:05	0.5	1	3.5	NA	9.49
	6/2/2012	09:10	0.5	1	3.7	NA	9.58
	6/2/2012	09:15	0.5	1	3.3	NA	9.67
	6/2/2012	09:20	0.5	1	3.7	NA	9.77
	6/2/2012	09:25	0.5	1	4	NA	9.86
	6/2/2012	09:30	0.5	1	3.1	NA	9.96
	6/2/2012	09:35	0.5	1	2.9	NA	10.07
	6/2/2012	09:40	0.5	1	3.2	NA	10.17
	6/2/2012	09:45	0.5	1	2.5	NA	10.27

Table 2b-2. Water Quality Monitoring Results June 2, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/2/2012	09:50	0.5	1	2.3	NA	10.38
	6/2/2012	09:55	0.5	1	2.6	NA	10.5
	6/2/2012	10:00	0.5	1	2.7	NA	10.63
	6/2/2012	10:05	0.5	1	3	NA	10.75
	6/2/2012	10:10	0.5	1	2.8	NA	10.87
	6/2/2012	10:15	0.5	1	2.7	NA	10.98
	6/2/2012	10:20	0.5	1	2.6	NA	11.1
	6/2/2012	10:25	0.5	1	2.8	NA	11.21
	6/2/2012	10:30	0.5	1	1.9	NA	11.34
	6/2/2012	10:35	0.5	1	1.9	NA	11.48
	6/2/2012	10:40	0.5	1	1.8	NA	11.61
	6/2/2012	10:45	0.5	1	1.8	NA	11.74
	6/2/2012	10:50	0.5	1	2.1	NA	11.87
	6/2/2012	10:55	0.5	1	1.8	NA	11.99
	6/2/2012	11:00	0.5	1	1.7	NA	12.12
	6/2/2012	11:05	0.5	1	1.7	NA	12.24
	6/2/2012	11:10	0.5	1	1.8	NA	12.36
	6/2/2012	11:15	0.5	1	1.5	NA	12.54
	6/2/2012	11:20	0.5	1	2	NA	12.74
	6/2/2012	11:25	0.5	1	1.9	NA	12.95
	6/2/2012	11:30	0.5	1	2.4	NA	13.14
	6/2/2012	11:35	0.5	1	2.3	NA	13.33
	6/2/2012	11:40	0.5	1	2.4	NA	13.55
	6/2/2012	11:45	0.5	1	1.9	NA	13.79
	6/2/2012	11:50	0.5	1	1.7	NA	14.08
	6/2/2012	11:55	0.5	1	1.8	NA	14.39
	6/2/2012	12:00	0.5	1	1.8	NA	14.65
	6/2/2012	12:05	0.5	1	1.8	NA	14.95
	6/2/2012	12:10	0.5	1	1.7	NA	15.22
	6/2/2012	12:15	0.5	1	2.5	NA	15.52
	6/2/2012	12:20	0.5	1	2.3	NA	15.77
	6/2/2012	12:25	0.5	1	1.6	NA	16
	6/2/2012	12:30	0.5	1	1.7	NA	16.22
	6/2/2012	12:35	0.5	1	2.1	NA	16.42
	6/2/2012	12:40	0.5	1	3.9	NA	16.61
	6/2/2012	12:45	0.5	1	2	NA	16.81

Table 2b-2. Water Quality Monitoring Results June 2, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/2/2012	12:50	0.5	1	2	NA	17.04
	6/2/2012	12:55	0.5	1	1.8	NA	17.27
	6/2/2012	13:00	0.5	1	1.8	NA	17.51
	6/2/2012	13:05	0.5	1	1.8	NA	17.73
	6/2/2012	13:10	0.5	1	2.1	NA	17.94
	6/2/2012	13:15	0.5	1	2	NA	18.13
	6/2/2012	13:20	0.5	1	2.5	NA	18.32
	6/2/2012	13:25	0.5	1	2.6	NA	18.56
	6/2/2012	13:30	0.5	1	2.8	NA	18.77
	6/2/2012	13:35	0.5	1	2.1	NA	18.97
	6/2/2012	13:40	0.5	1	2.1	NA	19.17
	6/2/2012	13:45	0.5	1	2.3	NA	19.33
	6/2/2012	13:50	0.5	1	2.3	NA	19.49
	6/2/2012	13:55	0.5	1	2.3	NA	19.61
	6/2/2012	14:00	0.5	1	2.3	NA	19.77
	6/2/2012	14:05	0.5	1	1.9	NA	19.87
	6/2/2012	14:10	0.5	1	2.3	NA	20
	6/2/2012	14:15	0.5	1	2.8	NA	20.14
	6/2/2012	14:20	0.5	1	2.3	NA	20.26
	6/2/2012	14:25	0.5	1	2.3	NA	20.4
	6/2/2012	14:30	0.5	1	2.3	NA	20.53
	6/2/2012	14:35	0.5	1	3.1	NA	20.65
	6/2/2012	14:40	0.5	1	2.4	NA	20.81
	6/2/2012	14:45	0.5	1	2.6	NA	20.97
	6/2/2012	14:50	0.5	1	2.4	NA	21.09
	6/2/2012	14:55	0.5	1	2.5	NA	21.17
	6/2/2012	15:00	0.5	1	2.9	NA	21.23
	6/2/2012	15:05	0.5	1	2.7	NA	21.31
	6/2/2012	15:10	0.5	1	3.6	NA	21.33
	6/2/2012	15:15	0.5	1	3.2	NA	21.42
	6/2/2012	15:20	0.5	1	3.2	NA	21.49
	6/2/2012	15:25	0.5	1	3.4	NA	21.52
	6/2/2012	15:30	0.5	1	3	NA	21.61
	6/2/2012	15:35	0.5	1	3.4	NA	21.55
	6/2/2012	15:40	0.5	1	3.1	NA	21.51
	6/2/2012	15:45	0.5	1	3	NA	21.47

Table 2b-2. Water Quality Monitoring Results June 2, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/2/2012	15:50	0.5	1	3.3	NA	21.37
	6/2/2012	15:55	0.5	1	2.9	NA	21.38
	6/2/2012	16:00	0.5	1	3.1	NA	21.4
	6/2/2012	16:05	0.5	1	3	NA	21.51
	6/2/2012	16:10	0.5	1	3.2	NA	21.56
	6/2/2012	16:15	0.5	1	3.7	NA	21.6
	6/2/2012	16:20	0.5	1	3.3	NA	21.69
	6/2/2012	16:25	0.5	1	3.9	NA	21.71
	6/2/2012	16:30	0.5	1	3	NA	21.75
	6/2/2012	16:35	0.5	1	4.5	NA	21.77
	6/2/2012	16:40	0.5	1	4	NA	21.79
	6/2/2012	16:45	0.5	1	2.6	NA	21.8
	6/2/2012	16:50	0.5	1	2.3	NA	21.84
	6/2/2012	16:55	0.5	1	2.3	NA	21.85
	6/2/2012	17:00	0.5	1	3.5	NA	21.85
	6/2/2012	17:05	0.5	1	2.8	NA	21.8
	6/2/2012	17:10	0.5	1	2.6	NA	21.73
	6/2/2012	17:15	0.5	1	2.4	NA	21.69
	6/2/2012	17:20	0.5	1	2.7	NA	21.61
	6/2/2012	17:25	0.5	1	3.3	NA	21.56
	6/2/2012	17:30	0.5	1	3.4	NA	21.51
	6/2/2012	17:35	0.5	1	3.3	NA	21.42
	6/2/2012	17:40	0.5	1	3.2	NA	21.31
	6/2/2012	17:45	0.5	1	2.4	NA	21.21
	6/2/2012	17:50	0.5	1	2.3	NA	21.13
	6/2/2012	17:55	0.5	1	3.2	NA	21.09
	6/2/2012	18:00	0.5	1	2.2	NA	21.03
	6/2/2012	18:05	0.5	1	3.3	NA	20.94
	6/2/2012	18:10	0.5	1	2.3	NA	20.81
	6/2/2012	18:15	0.5	1	3.5	NA	20.63
	6/2/2012	18:20	0.5	1	3.2	NA	20.44
	6/2/2012	18:25	0.5	1	2.7	NA	20.25
	6/2/2012	18:30	0.5	1	2.3	NA	20.06
	6/2/2012	18:35	0.5	1	3.3	NA	19.9
	6/2/2012	18:40	0.5	1	3.1	NA	19.76
	6/2/2012	18:45	0.5	1	3.3	NA	19.63

Table 2b-2. Water Quality Monitoring Results June 2, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/2/2012	18:50	0.5	1	3.1	NA	19.49
	6/2/2012	18:55	0.5	1	3.3	NA	19.35
	6/2/2012	19:00	0.5	1	2.7	NA	19.21

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-3. Water Quality Monitoring Results June 4, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/4/2012	07:00	0.5	1	6.1	NA	10.74
	6/4/2012	07:05	0.5	1	5.9	NA	10.75
	6/4/2012	07:10	0.5	1	7.5	NA	10.75
	6/4/2012	07:15	0.5	1	5.7	NA	10.75
	6/4/2012	07:20	0.5	1	7	NA	10.73
	6/4/2012	07:25	0.5	1	6	NA	10.72
	6/4/2012	07:30	0.5	1	4.9	NA	10.7
	6/4/2012	07:35	0.5	1	5.2	NA	10.68
	6/4/2012	07:40	0.5	1	4.7	NA	10.67
	6/4/2012	07:45	0.5	1	5.8	NA	10.68
	6/4/2012	07:50	0.5	1	5.2	NA	10.67
	6/4/2012	07:55	0.5	1	7.8	NA	10.67
	6/4/2012	08:00	0.5	1	6.8	NA	10.66
	6/4/2012	08:05	0.5	1	6.3	NA	10.65
	6/4/2012	08:10	0.5	1	5.9	NA	10.65
	6/4/2012	08:15	0.5	1	4.7	NA	10.66
	6/4/2012	08:20	0.5	1	6.6	NA	10.7
	6/4/2012	08:25	0.5	1	6.1	NA	10.74
	6/4/2012	08:30	0.5	1	6.2	NA	10.77
	6/4/2012	08:35	0.5	1	6.6	NA	10.8
	6/4/2012	08:40	0.5	1	8.1	NA	10.84
	6/4/2012	08:45	0.5	1	7	NA	10.87
	6/4/2012	08:50	0.5	1	6.9	NA	10.91
	6/4/2012	08:55	0.5	1	4.6	NA	10.95
	6/4/2012	09:00	0.5	1	5.9	NA	10.97
	6/4/2012	09:05	0.5	1	6.8	NA	10.97
	6/4/2012	09:10	0.5	1	7	NA	10.97
	6/4/2012	09:15	0.5	1	7.3	NA	11
	6/4/2012	09:20	0.5	1	6.8	NA	11.1
	6/4/2012	09:25	0.5	1	7.2	NA	11.24
	6/4/2012	09:30	0.5	1	7.8	NA	11.41
	6/4/2012	09:35	0.5	1	7.7	NA	11.58
	6/4/2012	09:40	0.5	1	8.5	NA	11.72
	6/4/2012	09:45	0.5	1	8	NA	11.88

Table 2b-3. Water Quality Monitoring Results June 4, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/4/2012	09:50	0.5	1	8.7	NA	11.97
	6/4/2012	09:55	0.5	1	7.8	NA	12.04
	6/4/2012	10:00	0.5	1	8	NA	12.09
	6/4/2012	10:05	0.5	1	9.3	NA	12.21
	6/4/2012	10:10	0.5	1	9.2	NA	12.38
	6/4/2012	10:15	0.5	1	7.1	NA	12.61
	6/4/2012	10:20	0.5	1	7.6	NA	12.83
	6/4/2012	10:25	0.5	1	8.4	NA	13.05
	6/4/2012	10:30	0.5	1	9.2	NA	13.24
	6/4/2012	10:35	0.5	1	9.4	NA	13.41
	6/4/2012	10:40	0.5	1	11	NA	13.59
	6/4/2012	10:45	0.5	1	12.1	NA	13.78
	6/4/2012	10:50	0.5	1	10.3	NA	13.97
	6/4/2012	10:55	0.5	1	7.9	NA	14.2
	6/4/2012	11:00	0.5	1	11.5	NA	14.42
	6/4/2012	11:05	0.5	1	10.1	NA	14.64
	6/4/2012	11:10	0.5	1	8.8	NA	14.9
	6/4/2012	11:15	0.5	1	8.3	NA	15.12
	6/4/2012	11:20	0.5	1	10.8	NA	15.37
	6/4/2012	11:25	0.5	1	11.2	NA	15.6
	6/4/2012	11:30	0.5	1	8.5	NA	15.83
	6/4/2012	11:35	0.5	1	9.8	NA	16.09
	6/4/2012	11:40	0.5	1	12.7	NA	16.36
	6/4/2012	11:45	0.5	1	8.4	NA	16.64
	6/4/2012	11:50	0.5	1	9.8	NA	16.9
	6/4/2012	11:55	0.5	1	12.1	NA	17.18
	6/4/2012	12:00	0.5	1	12.5	NA	17.48
	6/4/2012	12:05	0.5	1	9.3	NA	17.76
	6/4/2012	12:10	0.5	1	12.6	NA	18.05
	6/4/2012	12:15	0.5	1	13.1	NA	18.33
	6/4/2012	12:20	0.5	1	12.7	NA	18.6
	6/4/2012	12:25	0.5	1	10.7	NA	18.88
	6/4/2012	12:30	0.5	1	10.9	NA	19.14
	6/4/2012	12:35	0.5	1	11.3	NA	19.37
	6/4/2012	12:40	0.5	1	14.9	NA	19.6
	6/4/2012	12:45	0.5	1	10.5	NA	19.84

Table 2b-3. Water Quality Monitoring Results June 4, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/4/2012	12:50	0.5	1	8.8	NA	20.08
	6/4/2012	12:55	0.5	1	9.3	NA	20.33
	6/4/2012	13:00	0.5	1	11.1	NA	20.57
	6/4/2012	13:05	0.5	1	15.4	NA	20.65
	6/4/2012	13:10	0.5	1	9.8	NA	20.87
	6/4/2012	13:15	0.5	1	8.9	NA	20.98
	6/4/2012	13:20	0.5	1	11.7	NA	21.14
	6/4/2012	13:25	0.5	1	9.6	NA	21.29
	6/4/2012	13:30	0.5	1	10.6	NA	21.53
	6/4/2012	13:35	0.5	1	12.9	NA	21.73
	6/4/2012	13:40	0.5	1	14.5	NA	21.9
	6/4/2012	13:45	0.5	1	12.4	NA	22.05
	6/4/2012	13:50	0.5	1	13.7	NA	22.09
	6/4/2012	13:55	0.5	1	11.8	NA	22.06
	6/4/2012	14:00	0.5	1	16	NA	22.04
	6/4/2012	14:05	0.5	1	12.7	NA	22.14
	6/4/2012	14:10	0.5	1	14.5	NA	22.03
	6/4/2012	14:15	0.5	1	9.3	NA	22.08
	6/4/2012	14:20	0.5	1	11.4	NA	22.2
	6/4/2012	14:25	0.5	1	13.2	NA	22.18
	6/4/2012	14:30	0.5	1	8	NA	22.3
	6/4/2012	14:35	0.5	1	14.5	NA	22.42
	6/4/2012	14:40	0.5	1	9.9	NA	22.39
	6/4/2012	14:45	0.5	1	13.8	NA	22.6
	6/4/2012	14:50	0.5	1	13.7	NA	22.72
	6/4/2012	14:55	0.5	1	10.2	NA	22.69
	6/4/2012	15:00	0.5	1	11.6	NA	22.83
	6/4/2012	15:05	0.5	1	13.4	NA	22.86
	6/4/2012	15:10	0.5	1	15.4	NA	22.85
	6/4/2012	15:15	0.5	1	10.2	NA	22.95
	6/4/2012	15:20	0.5	1	17.4	NA	23.09
	6/4/2012	15:25	0.5	1	8.7	NA	23.04
	6/4/2012	15:30	0.5	1	14.4	NA	22.98
	6/4/2012	15:35	0.5	1	9.9	NA	22.96
	6/4/2012	15:40	0.5	1	9.6	NA	22.89
	6/4/2012	15:45	0.5	1	11	NA	22.99

Table 2b-3. Water Quality Monitoring Results June 4, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/4/2012	15:50	0.5	1	16	NA	23.17
	6/4/2012	15:55	0.5	1	9.1	NA	23.29
	6/4/2012	16:00	0.5	1	9.1	NA	23.39
	6/4/2012	16:05	0.5	1	8.5	NA	23.43
	6/4/2012	16:10	0.5	1	10.3	NA	23.31
	6/4/2012	16:15	0.5	1	8	NA	23.08
	6/4/2012	16:20	0.5	1	8.3	NA	22.94
	6/4/2012	16:25	0.5	1	8.2	NA	22.83
	6/4/2012	16:30	0.5	1	8	NA	22.8
	6/4/2012	16:35	0.5	1	8.7	NA	22.83
	6/4/2012	16:40	0.5	1	7.6	NA	22.88
	6/4/2012	16:45	0.5	1	5.4	NA	22.8
	6/4/2012	16:50	0.5	1	8.6	NA	22.77
	6/4/2012	16:55	0.5	1	6	NA	22.8
	6/4/2012	17:00	0.5	1	5.4	NA	22.69
	6/4/2012	17:05	0.5	1	5.7	NA	22.57
	6/4/2012	17:10	0.5	1	5.2	NA	22.51
	6/4/2012	17:15	0.5	1	7	NA	22.51
	6/4/2012	17:20	0.5	1	5	NA	22.52
	6/4/2012	17:25	0.5	1	7.6	NA	22.61
	6/4/2012	17:30	0.5	1	9.4	NA	22.68
	6/4/2012	17:35	0.5	1	6.3	NA	22.81
	6/4/2012	17:40	0.5	1	5.4	NA	22.92
	6/4/2012	17:45	0.5	1	4.8	NA	23.01
	6/4/2012	17:50	0.5	1	5.8	NA	23.08
	6/4/2012	17:55	0.5	1	6.9	NA	23.06
	6/4/2012	18:00	0.5	1	6	NA	22.95
	6/4/2012	18:05	0.5	1	4.9	NA	22.82
	6/4/2012	18:10	0.5	1	5.9	NA	22.61
	6/4/2012	18:15	0.5	1	4.6	NA	22.42
	6/4/2012	18:20	0.5	1	4.8	NA	22.27
	6/4/2012	18:25	0.5	1	5.3	NA	22.11
	6/4/2012	18:30	0.5	1	6.1	NA	21.99
	6/4/2012	18:35	0.5	1	7.5	NA	21.9
	6/4/2012	18:40	0.5	1	5.8	NA	21.81
	6/4/2012	18:45	0.5	1	5.1	NA	21.67

Table 2b-3. Water Quality Monitoring Results June 4, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/4/2012	18:50	0.5	1	5.9	NA	21.56
	6/4/2012	18:55	0.5	1	6.2	NA	21.38
	6/4/2012	19:00	0.5	1	6.3	NA	21.27

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-4. Water Quality Monitoring Results June 5, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/5/2012	07:00	0.5	1	2.5	NA	10.12
	6/5/2012	07:05	0.5	1	2	NA	10.11
	6/5/2012	07:10	0.5	1	1.8	NA	10.1
	6/5/2012	07:15	0.5	1	1.9	NA	10.08
	6/5/2012	07:20	0.5	1	1.4	NA	10.08
	6/5/2012	07:25	0.5	1	1.7	NA	10.08
	6/5/2012	07:30	0.5	1	1.8	NA	10.09
	6/5/2012	07:35	0.5	1	1.7	NA	10.11
	6/5/2012	07:40	0.5	1	2	NA	10.14
	6/5/2012	07:45	0.5	1	1.9	NA	10.17
	6/5/2012	07:50	0.5	1	2	NA	10.22
	6/5/2012	07:55	0.5	1	1.9	NA	10.25
	6/5/2012	08:00	0.5	1	2.1	NA	10.26
	6/5/2012	08:05	0.5	1	2.1	NA	10.29
	6/5/2012	08:10	0.5	1	1.8	NA	10.31
	6/5/2012	08:15	0.5	1	2.5	NA	10.36
	6/5/2012	08:20	0.5	1	2.3	NA	10.42
	6/5/2012	08:25	0.5	1	2.2	NA	10.49
	6/5/2012	08:30	0.5	1	1.8	NA	10.59
	6/5/2012	08:35	0.5	1	2.2	NA	10.65
	6/5/2012	08:40	0.5	1	2.2	NA	10.71
	6/5/2012	08:45	0.5	1	1.9	NA	10.79
	6/5/2012	08:50	0.5	1	2.4	NA	10.82
	6/5/2012	08:55	0.5	1	2.1	NA	10.86
	6/5/2012	09:00	0.5	1	2.2	NA	10.91
	6/5/2012	09:05	0.5	1	2	NA	11.01
	6/5/2012	09:10	0.5	1	2	NA	11.06
	6/5/2012	09:15	0.5	1	2.2	NA	11.18
	6/5/2012	09:20	0.5	1	2.2	NA	11.24
	6/5/2012	09:25	0.5	1	2	NA	11.29
	6/5/2012	09:30	0.5	1	2.1	NA	11.39
	6/5/2012	09:35	0.5	1	2.4	NA	11.5
	6/5/2012	09:40	0.5	1	2.9	NA	11.63
	6/5/2012	09:45	0.5	1	2.7	NA	11.82

Table 2b-4. Water Quality Monitoring Results June 5, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/5/2012	09:50	0.5	1	2.2	NA	11.98
	6/5/2012	09:55	0.5	1	3.4	NA	12.13
	6/5/2012	10:00	0.5	1	5	NA	12.27
	6/5/2012	10:05	0.5	1	3.9	NA	12.38
	6/5/2012	10:10	0.5	1	3.8	NA	12.51
	6/5/2012	10:15	0.5	1	2.7	NA	12.65
	6/5/2012	10:20	0.5	1	2.5	NA	12.8
	6/5/2012	10:25	0.5	1	2.6	NA	12.98
	6/5/2012	10:30	0.5	1	2.7	NA	13.14
	6/5/2012	10:35	0.5	1	2.6	NA	13.3
	6/5/2012	10:40	0.5	1	3.3	NA	13.48
	6/5/2012	10:45	0.5	1	2.3	NA	13.68
	6/5/2012	10:50	0.5	1	1.9	NA	13.92
	6/5/2012	10:55	0.5	1	2.2	NA	14.2
	6/5/2012	11:00	0.5	1	1.9	NA	14.39
	6/5/2012	11:05	0.5	1	1.8	NA	14.57
	6/5/2012	11:10	0.5	1	1.9	NA	14.73
	6/5/2012	11:15	0.5	1	1.9	NA	14.89
	6/5/2012	11:20	0.5	1	1.9	NA	15.09
	6/5/2012	11:25	0.5	1	1.8	NA	15.31
	6/5/2012	11:30	0.5	1	1.8	NA	15.51
	6/5/2012	11:35	0.5	1	2.1	NA	15.75
	6/5/2012	11:40	0.5	1	2.3	NA	15.96
	6/5/2012	11:45	0.5	1	2.2	NA	16.15
	6/5/2012	11:50	0.5	1	2.2	NA	16.27
	6/5/2012	11:55	0.5	1	2.1	NA	16.36
	6/5/2012	12:00	0.5	1	2.3	NA	16.47
	6/5/2012	12:05	0.5	1	1.9	NA	16.63
	6/5/2012	12:10	0.5	1	2	NA	16.84
	6/5/2012	12:15	0.5	1	2	NA	17.13
	6/5/2012	12:20	0.5	1	2.2	NA	17.41
	6/5/2012	12:25	0.5	1	2.3	NA	17.61
	6/5/2012	12:30	0.5	1	2.2	NA	17.76
	6/5/2012	12:35	0.5	1	2.1	NA	17.84
	6/5/2012	12:40	0.5	1	2.4	NA	18
	6/5/2012	12:45	0.5	1	2.5	NA	18.23

Table 2b-4. Water Quality Monitoring Results June 5, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/5/2012	12:50	0.5	1	3	NA	18.48
	6/5/2012	12:55	0.5	1	2.4	NA	18.81
	6/5/2012	13:00	0.5	1	2.6	NA	19.09
	6/5/2012	13:05	0.5	1	2.5	NA	19.41
	6/5/2012	13:10	0.5	1	2.8	NA	19.64
	6/5/2012	13:15	0.5	1	3	NA	19.74
	6/5/2012	13:20	0.5	1	2.8	NA	19.8
	6/5/2012	13:25	0.5	1	2.3	NA	19.76
	6/5/2012	13:30	0.5	1	2.4	NA	19.69
	6/5/2012	13:35	0.5	1	2.1	NA	19.65
	6/5/2012	13:40	0.5	1	2.7	NA	19.72
	6/5/2012	13:45	0.5	1	2.4	NA	19.8
	6/5/2012	13:50	0.5	1	2.4	NA	20.03
	6/5/2012	13:55	0.5	1	2.7	NA	20.33
	6/5/2012	14:00	0.5	1	2.8	NA	20.5
	6/5/2012	14:05	0.5	1	2.2	NA	20.69
	6/5/2012	14:10	0.5	1	2.9	NA	20.69
	6/5/2012	14:15	0.5	1	2.7	NA	20.65
	6/5/2012	14:20	0.5	1	2.5	NA	20.43
	6/5/2012	14:25	0.5	1	2.1	NA	20.32
	6/5/2012	14:30	0.5	1	2.7	NA	20.4
	6/5/2012	14:35	0.5	1	3.5	NA	20.47
	6/5/2012	14:40	0.5	1	2.3	NA	20.78
	6/5/2012	14:45	0.5	1	2.9	NA	21.03
	6/5/2012	14:50	0.5	1	2.4	NA	21.29
	6/5/2012	14:55	0.5	1	2.4	NA	21.54
	6/5/2012	15:00	0.5	1	2.4	NA	21.64
	6/5/2012	15:05	0.5	1	2.3	NA	21.63
	6/5/2012	15:10	0.5	1	2.4	NA	21.72
	6/5/2012	15:15	0.5	1	2.7	NA	21.62
	6/5/2012	15:20	0.5	1	2.5	NA	21.65
	6/5/2012	15:25	0.5	1	2	NA	21.8
	6/5/2012	15:30	0.5	1	2.5	NA	21.94
	6/5/2012	15:35	0.5	1	3.7	NA	22.17
	6/5/2012	15:40	0.5	1	2.8	NA	22.29
	6/5/2012	15:45	0.5	1	2.4	NA	22.35

Table 2b-4. Water Quality Monitoring Results June 5, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/5/2012	15:50	0.5	1	2.8	NA	22.39
	6/5/2012	15:55	0.5	1	2.4	NA	22.25
	6/5/2012	16:00	0.5	1	2.7	NA	22.07
	6/5/2012	16:05	0.5	1	1.9	NA	22.05
	6/5/2012	16:10	0.5	1	-0.7	NA	22.03
	6/5/2012	16:15	0.5	1	-0.6	NA	22.07
	6/5/2012	16:20	0.5	1	2.9	NA	15.36
	6/5/2012	16:25	0.5	1	0.1	NA	22.03
	6/5/2012	16:30	0.5	1	0	NA	22
	6/5/2012	16:35	0.5	1	0.7	NA	21.98
	6/5/2012	16:40	0.5	1	2	NA	21.98
	6/5/2012	16:45	0.5	1	1.2	NA	21.93
	6/5/2012	16:50	0.5	1	-0.8	NA	21.96
	6/5/2012	16:55	0.5	1	0.4	NA	22.05
	6/5/2012	17:00	0.5	1	0.5	NA	22.09
	6/5/2012	17:05	0.5	1	0.1	NA	22.1
	6/5/2012	17:10	0.5	1	0	NA	22.2
	6/5/2012	17:15	0.5	1	0.4	NA	22.1
	6/5/2012	17:20	0.5	1	0.5	NA	21.97
	6/5/2012	17:25	0.5	1	0.3	NA	21.82
	6/5/2012	17:30	0.5	1	0.1	NA	21.66
	6/5/2012	17:35	0.5	1	0.6	NA	21.5
	6/5/2012	17:40	0.5	1	0.6	NA	21.41
	6/5/2012	17:45	0.5	1	0.7	NA	21.42
	6/5/2012	17:50	0.5	1	0.2	NA	21.44
	6/5/2012	17:55	0.5	1	0.1	NA	21.44
	6/5/2012	18:00	0.5	1	-0.1	NA	21.39
	6/5/2012	18:05	0.5	1	0.4	NA	21.24
	6/5/2012	18:10	0.5	1	0.1	NA	21.05
	6/5/2012	18:15	0.5	1	0.5	NA	20.87
	6/5/2012	18:20	0.5	1	0.3	NA	20.71
	6/5/2012	18:25	0.5	1	0.2	NA	20.59
	6/5/2012	18:30	0.5	1	0.6	NA	20.49
	6/5/2012	18:35	0.5	1	0.6	NA	20.37
	6/5/2012	18:40	0.5	1	1.3	NA	20.28
	6/5/2012	18:45	0.5	1	1.4	NA	20.25

Table 2b-4. Water Quality Monitoring Results June 5, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/5/2012	18:50	0.5	1	0.6	NA	20.15
	6/5/2012	18:55	0.5	1	0.4	NA	20.02
	6/5/2012	19:00	0.5	1	0.5	NA	19.85

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-5. Water Quality Monitoring Results June 6, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/6/2012	07:00	0.5	1	-0.1	NA	9.32
	6/6/2012	07:05	0.5	1	-0.2	NA	9.31
	6/6/2012	07:10	0.5	1	0.2	NA	9.3
	6/6/2012	07:15	0.5	1	-0.3	NA	9.28
	6/6/2012	07:20	0.5	1	-0.4	NA	9.29
	6/6/2012	07:25	0.5	1	-0.2	NA	9.28
	6/6/2012	07:30	0.5	1	-0.3	NA	9.28
	6/6/2012	07:35	0.5	1	-0.2	NA	9.28
	6/6/2012	07:40	0.5	1	1.2	NA	9.29
	6/6/2012	07:45	0.5	1	1.1	NA	9.32
	6/6/2012	07:50	0.5	1	0.3	NA	9.35
	6/6/2012	07:55	0.5	1	-0.3	NA	9.38
	6/6/2012	08:00	0.5	1	0.1	NA	9.4
	6/6/2012	08:05	0.5	1	-0.3	NA	9.44
	6/6/2012	08:10	0.5	1	0.3	NA	9.47
	6/6/2012	08:15	0.5	1	-0.3	NA	9.5
	6/6/2012	08:20	0.5	1	-0.3	NA	9.54
	6/6/2012	08:25	0.5	1	-0.3	NA	9.59
	6/6/2012	08:30	0.5	1	0.1	NA	9.62
	6/6/2012	08:35	0.5	1	-0.5	NA	9.68
	6/6/2012	08:40	0.5	1	0.3	NA	9.73
	6/6/2012	08:45	0.5	1	-0.3	NA	9.79
	6/6/2012	08:50	0.5	1	0	NA	9.83
	6/6/2012	08:55	0.5	1	-0.5	NA	9.9
	6/6/2012	09:00	0.5	1	-0.5	NA	9.96
	6/6/2012	09:05	0.5	1	0	NA	10.05
	6/6/2012	09:10	0.5	1	0	NA	10.15
	6/6/2012	09:15	0.5	1	0.3	NA	10.25
	6/6/2012	09:20	0.5	1	1.5	NA	10.38
	6/6/2012	09:25	0.5	1	1.4	NA	10.52
	6/6/2012	09:30	0.5	1	0.5	NA	10.65
	6/6/2012	09:35	0.5	1	0.4	NA	10.82
	6/6/2012	09:40	0.5	1	-0.1	NA	10.98
	6/6/2012	09:45	0.5	1	0	NA	11.16

Table 2b-5. Water Quality Monitoring Results June 6, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/6/2012	09:50	0.5	1	0.1	NA	11.35
	6/6/2012	09:55	0.5	1	0	NA	11.53
	6/6/2012	10:00	0.5	1	0.2	NA	11.73
	6/6/2012	10:05	0.5	1	0.5	NA	11.93
	6/6/2012	10:10	0.5	1	0.2	NA	12.13
	6/6/2012	10:15	0.5	1	-0.4	NA	12.33
	6/6/2012	10:20	0.5	1	-0.2	NA	12.53
	6/6/2012	10:25	0.5	1	-0.2	NA	12.74
	6/6/2012	10:30	0.5	1	-0.4	NA	12.96
	6/6/2012	10:35	0.5	1	-0.3	NA	13.18
	6/6/2012	10:40	0.5	1	-0.1	NA	13.41
	6/6/2012	10:45	0.5	1	-0.2	NA	13.65
	6/6/2012	10:50	0.5	1	-0.1	NA	13.88
	6/6/2012	10:55	0.5	1	-0.1	NA	14.12
	6/6/2012	11:00	0.5	1	-0.2	NA	14.36
	6/6/2012	11:05	0.5	1	-0.1	NA	14.61
	6/6/2012	11:10	0.5	1	0.1	NA	14.85
	6/6/2012	11:15	0.5	1	-0.1	NA	15.09
	6/6/2012	11:20	0.5	1	-0.2	NA	15.34
	6/6/2012	11:25	0.5	1	0.1	NA	15.6
	6/6/2012	11:30	0.5	1	0.4	NA	15.85
	6/6/2012	11:35	0.5	1	-0.2	NA	16.13
	6/6/2012	11:40	0.5	1	0.1	NA	16.41
	6/6/2012	11:45	0.5	1	-0.2	NA	16.67
	6/6/2012	11:50	0.5	1	1.8	NA	16.94
	6/6/2012	11:55	0.5	1	6.6	NA	17.23
	6/6/2012	12:00	0.5	1	0.4	NA	17.53
	6/6/2012	12:05	0.5	1	0.2	NA	17.82
	6/6/2012	12:10	0.5	1	0.3	NA	18.11
	6/6/2012	12:15	0.5	1	-0.2	NA	18.39
	6/6/2012	12:20	0.5	1	0	NA	18.66
	6/6/2012	12:25	0.5	1	0	NA	18.92
	6/6/2012	12:30	0.5	1	0.3	NA	19.2
	6/6/2012	12:35	0.5	1	0.3	NA	19.45
	6/6/2012	12:40	0.5	1	0.1	NA	19.74
	6/6/2012	12:45	0.5	1	0.9	NA	19.99

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/6/2012	12:50	0.5	1	0.3	NA	20.24
	6/6/2012	12:55	0.5	1	0.2	NA	20.48
	6/6/2012	13:00	0.5	1	-0.2	NA	20.73
	6/6/2012	13:05	0.5	1	0.2	NA	20.95
	6/6/2012	13:10	0.5	1	0.4	NA	21.16
	6/6/2012	13:15	0.5	1	-0.2	NA	21.4
	6/6/2012	13:20	0.5	1	0	NA	21.59
	6/6/2012	13:25	0.5	1	-0.1	NA	21.78
	6/6/2012	13:30	0.5	1	0	NA	21.94
	6/6/2012	13:35	0.5	1	8	NA	22.06
	6/6/2012	13:40	0.5	1	-0.2	NA	22.27
	6/6/2012	13:45	0.5	1	-0.1	NA	22.27
	6/6/2012	13:50	0.5	1	-0.1	NA	22.37
	6/6/2012	13:55	0.5	1	-0.2	NA	22.42
	6/6/2012	14:00	0.5	1	0	NA	22.43
	6/6/2012	14:05	0.5	1	-0.3	NA	22.49
	6/6/2012	14:10	0.5	1	0.1	NA	22.45
	6/6/2012	14:15	0.5	1	-0.3	NA	22.66
	6/6/2012	14:20	0.5	1	-0.1	NA	22.77
	6/6/2012	14:25	0.5	1	0.1	NA	23.02
	6/6/2012	14:30	0.5	1	0.5	NA	23.18
	6/6/2012	14:35	0.5	1	-0.2	NA	23.3
	6/6/2012	14:40	0.5	1	0	NA	23.47
	6/6/2012	14:45	0.5	1	0.1	NA	23.4
	6/6/2012	14:50	0.5	1	0.4	NA	23.44
	6/6/2012	14:55	0.5	1	0.2	NA	23.52
	6/6/2012	15:00	0.5	1	0	NA	23.64
	6/6/2012	15:05	0.5	1	-0.2	NA	23.75
	6/6/2012	15:10	0.5	1	-0.1	NA	23.85
	6/6/2012	15:15	0.5	1	0.1	NA	23.92
	6/6/2012	15:20	0.5	1	0	NA	23.91
	6/6/2012	15:25	0.5	1	0	NA	23.8
	6/6/2012	15:30	0.5	1	-0.2	NA	23.64
	6/6/2012	15:35	0.5	1	-0.3	NA	23.68
	6/6/2012	15:40	0.5	1	0	NA	23.65
	6/6/2012	15:45	0.5	1	0.3	NA	23.69

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/6/2012	15:50	0.5	1	0.4	NA	23.75
	6/6/2012	15:55	0.5	1	0.7	NA	23.84
	6/6/2012	16:00	0.5	1	0.2	NA	23.96
	6/6/2012	16:05	0.5	1	0.4	NA	24.1
	6/6/2012	16:10	0.5	1	1.2	NA	24.28
	6/6/2012	16:15	0.5	1	1.1	NA	24.44
	6/6/2012	16:20	0.5	1	1.1	NA	24.55
	6/6/2012	16:25	0.5	1	1.3	NA	24.63
	6/6/2012	16:30	0.5	1	-0.3	NA	24.67
	6/6/2012	16:35	0.5	1	1.8	NA	24.69
	6/6/2012	16:40	0.5	1	0.1	NA	24.71
	6/6/2012	16:45	0.5	1	0.1	NA	24.63
	6/6/2012	16:50	0.5	1	0.3	NA	24.52
	6/6/2012	16:55	0.5	1	-0.1	NA	24.33
	6/6/2012	17:00	0.5	1	2.8	NA	24.07
	6/6/2012	17:05	0.5	1	-0.5	NA	23.82
	6/6/2012	17:10	0.5	1	-0.8	NA	23.65
	6/6/2012	17:15	0.5	1	1	NA	23.57
	6/6/2012	17:20	0.5	1	0.4	NA	23.59
	6/6/2012	17:25	0.5	1	0.7	NA	23.7
	6/6/2012	17:30	0.5	1	0.9	NA	23.8
	6/6/2012	17:35	0.5	1	-0.5	NA	23.85
	6/6/2012	17:40	0.5	1	2.1	NA	23.82
	6/6/2012	17:45	0.5	1	0.3	NA	23.73
	6/6/2012	17:50	0.5	1	0	NA	23.64
	6/6/2012	17:55	0.5	1	-0.7	NA	23.54
	6/6/2012	18:00	0.5	1	0.1	NA	23.49
	6/6/2012	18:05	0.5	1	0.3	NA	23.42
	6/6/2012	18:10	0.5	1	3.1	NA	23.38
	6/6/2012	18:15	0.5	1	1.8	NA	23.28
	6/6/2012	18:20	0.5	1	-0.1	NA	23.18
	6/6/2012	18:25	0.5	1	0.2	NA	23.06
	6/6/2012	18:30	0.5	1	0.8	NA	22.95
	6/6/2012	18:35	0.5	1	1.1	NA	22.87
	6/6/2012	18:40	0.5	1	0.2	NA	22.8
	6/6/2012	18:45	0.5	1	-0.2	NA	22.71

Table 2b-5. Water Quality Monitoring Results June 6, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/6/2012	18:50	0.5	1	0.1	NA	22.62
	6/6/2012	18:55	0.5	1	0.9	NA	22.5
	6/6/2012	19:00	0.5	1	0.5	NA	22.37

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-6. Water Quality Monitoring Results June 7, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/7/2012	07:00	0.5	1	0.4	NA	10.53
	6/7/2012	07:05	0.5	1	1	NA	10.51
	6/7/2012	07:10	0.5	1	0.1	NA	10.51
	6/7/2012	07:15	0.5	1	-0.2	NA	10.49
	6/7/2012	07:20	0.5	1	-0.1	NA	10.48
	6/7/2012	07:25	0.5	1	0.4	NA	10.46
	6/7/2012	07:30	0.5	1	0.3	NA	10.46
	6/7/2012	07:35	0.5	1	-0.1	NA	10.45
	6/7/2012	07:40	0.5	1	3.8	NA	10.46
	6/7/2012	07:45	0.5	1	-0.2	NA	10.47
	6/7/2012	07:50	0.5	1	-0.3	NA	10.5
	6/7/2012	07:55	0.5	1	-0.2	NA	10.53
	6/7/2012	08:00	0.5	1	-0.2	NA	10.56
	6/7/2012	08:05	0.5	1	0	NA	10.59
	6/7/2012	08:10	0.5	1	0.2	NA	10.61
	6/7/2012	08:15	0.5	1	-0.2	NA	10.65
	6/7/2012	08:20	0.5	1	-0.4	NA	10.68
	6/7/2012	08:25	0.5	1	0.5	NA	10.72
	6/7/2012	08:30	0.5	1	-0.1	NA	10.78
	6/7/2012	08:35	0.5	1	0	NA	10.82
	6/7/2012	08:40	0.5	1	-0.2	NA	10.87
	6/7/2012	08:45	0.5	1	0	NA	10.92
	6/7/2012	08:50	0.5	1	0.3	NA	10.97
	6/7/2012	08:55	0.5	1	0.1	NA	11.02
	6/7/2012	09:00	0.5	1	0	NA	11.09
	6/7/2012	09:05	0.5	1	3.3	NA	11.17
	6/7/2012	09:10	0.5	1	-0.4	NA	11.26
	6/7/2012	09:15	0.5	1	-0.3	NA	11.36
	6/7/2012	09:20	0.5	1	-0.2	NA	11.48
	6/7/2012	09:25	0.5	1	-0.3	NA	11.61
	6/7/2012	09:30	0.5	1	0.1	NA	11.75
	6/7/2012	09:35	0.5	1	0.2	NA	11.91
	6/7/2012	09:40	0.5	1	0.6	NA	12.07
	6/7/2012	09:45	0.5	1	0	NA	12.24

Table 2b-6. Water Quality Monitoring Results June 7, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/7/2012	09:50	0.5	1	0.3	NA	12.43
	6/7/2012	09:55	0.5	1	1.2	NA	12.61
	6/7/2012	10:00	0.5	1	0.6	NA	12.79
	6/7/2012	10:05	0.5	1	0.1	NA	12.96
	6/7/2012	10:10	0.5	1	0.4	NA	13.16
	6/7/2012	10:15	0.5	1	0.3	NA	13.36
	6/7/2012	10:20	0.5	1	0.1	NA	13.56
	6/7/2012	10:25	0.5	1	0.1	NA	13.75
	6/7/2012	10:30	0.5	1	0.2	NA	13.96
	6/7/2012	10:35	0.5	1	0.3	NA	14.18
	6/7/2012	10:40	0.5	1	0	NA	14.42
	6/7/2012	10:45	0.5	1	0.1	NA	14.64
	6/7/2012	10:50	0.5	1	0.1	NA	14.88
	6/7/2012	10:55	0.5	1	-0.1	NA	15.13
	6/7/2012	11:00	0.5	1	0	NA	15.35
	6/7/2012	11:05	0.5	1	-0.1	NA	15.59
	6/7/2012	11:10	0.5	1	0.2	NA	15.82
	6/7/2012	11:15	0.5	1	-0.1	NA	16.07
	6/7/2012	11:20	0.5	1	0.1	NA	16.3
	6/7/2012	11:25	0.5	1	-0.1	NA	16.56
	6/7/2012	11:30	0.5	1	-0.2	NA	16.81
	6/7/2012	11:35	0.5	1	0	NA	17.05
	6/7/2012	11:40	0.5	1	-0.1	NA	17.33
	6/7/2012	11:45	0.5	1	0	NA	17.6
	6/7/2012	11:50	0.5	1	0	NA	17.88
	6/7/2012	11:55	0.5	1	-0.2	NA	18.15
	6/7/2012	12:00	0.5	1	-0.1	NA	18.45
	6/7/2012	12:05	0.5	1	0.4	NA	18.73
	6/7/2012	12:10	0.5	1	0	NA	19.02
	6/7/2012	12:15	0.5	1	-0.1	NA	19.31
	6/7/2012	12:20	0.5	1	0.7	NA	19.59
	6/7/2012	12:25	0.5	1	-0.1	NA	19.8
	6/7/2012	12:30	0.5	1	0.6	NA	20.07
	6/7/2012	12:35	0.5	1	0.1	NA	20.34
	6/7/2012	12:40	0.5	1	-0.2	NA	20.6
	6/7/2012	12:45	0.5	1	0.2	NA	20.86

Table 2b-6. Water Quality Monitoring Results June 7, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/7/2012	12:50	0.5	1	0.3	NA	21.05
	6/7/2012	12:55	0.5	1	1	NA	21.22
	6/7/2012	13:00	0.5	1	1	NA	21.35
	6/7/2012	13:05	0.5	1	1.6	NA	21.52
	6/7/2012	13:10	0.5	1	2.1	NA	21.58
	6/7/2012	13:15	0.5	1	2.1	NA	21.84
	6/7/2012	13:20	0.5	1	1.3	NA	21.97
	6/7/2012	13:25	0.5	1	0.4	NA	22.07
	6/7/2012	13:30	0.5	1	0.7	NA	22.12
	6/7/2012	13:35	0.5	1	0.3	NA	22.13
	6/7/2012	13:40	0.5	1	0.2	NA	22.2
	6/7/2012	13:45	0.5	1	0.7	NA	22.31
	6/7/2012	13:50	0.5	1	0.2	NA	22.48
	6/7/2012	13:55	0.5	1	0.4	NA	22.62
	6/7/2012	14:00	0.5	1	0.2	NA	22.74
	6/7/2012	14:05	0.5	1	0.2	NA	22.99
	6/7/2012	14:10	0.5	1	0.1	NA	23.11
	6/7/2012	14:15	0.5	1	1.1	NA	23.28
	6/7/2012	14:20	0.5	1	0.2	NA	23.46
	6/7/2012	14:25	0.5	1	0.1	NA	23.63
	6/7/2012	14:30	0.5	1	0	NA	23.83
	6/7/2012	14:35	0.5	1	0.1	NA	24.01
	6/7/2012	14:40	0.5	1	-0.1	NA	24.1
	6/7/2012	14:45	0.5	1	0.2	NA	24.25
	6/7/2012	14:50	0.5	1	1	NA	24.27
	6/7/2012	14:55	0.5	1	0.9	NA	24.37
	6/7/2012	15:00	0.5	1	0.1	NA	24.48
	6/7/2012	15:05	0.5	1	-0.1	NA	24.62
	6/7/2012	15:10	0.5	1	0.2	NA	24.81
	6/7/2012	15:15	0.5	1	0.1	NA	24.99
	6/7/2012	15:20	0.5	1	0.1	NA	25.1
	6/7/2012	15:25	0.5	1	0.9	NA	25.23
	6/7/2012	15:30	0.5	1	0.3	NA	25.32
	6/7/2012	15:35	0.5	1	0.4	NA	25.4
	6/7/2012	15:40	0.5	1	-0.1	NA	25.52
	6/7/2012	15:45	0.5	1	0.2	NA	25.68

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/7/2012	15:50	0.5	1	0.2	NA	25.78
	6/7/2012	15:55	0.5	1	-0.2	NA	25.79
	6/7/2012	16:00	0.5	1	0.7	NA	25.85
	6/7/2012	16:05	0.5	1	-0.3	NA	25.89
	6/7/2012	16:10	0.5	1	-0.1	NA	25.92
	6/7/2012	16:15	0.5	1	3.1	NA	25.91
	6/7/2012	16:20	0.5	1	4.5	NA	25.88
	6/7/2012	16:25	0.5	1	0.8	NA	25.74
	6/7/2012	16:30	0.5	1	0.6	NA	25.64
	6/7/2012	16:35	0.5	1	2.2	NA	25.52
	6/7/2012	16:40	0.5	1	-1.1	NA	25.38
	6/7/2012	16:45	0.5	1	0.2	NA	25.35
	6/7/2012	16:50	0.5	1	0.1	NA	25.35
	6/7/2012	16:55	0.5	1	1	NA	25.44
	6/7/2012	17:00	0.5	1	-1.9	NA	25.52
	6/7/2012	17:05	0.5	1	3.3	NA	25.53
	6/7/2012	17:10	0.5	1	3.4	NA	25.51
	6/7/2012	17:15	0.5	1	-1.8	NA	25.44
	6/7/2012	17:20	0.5	1	7.2	NA	25.39
	6/7/2012	17:25	0.5	1	4.3	NA	25.39
	6/7/2012	17:30	0.5	1	-1	NA	25.42
	6/7/2012	17:35	0.5	1	0.8	NA	25.37
	6/7/2012	17:40	0.5	1	1.8	NA	25.36
	6/7/2012	17:45	0.5	1	1.3	NA	25.3
	6/7/2012	17:50	0.5	1	2.3	NA	25.29
	6/7/2012	17:55	0.5	1	1.5	NA	25.25
	6/7/2012	18:00	0.5	1	0.4	NA	25.21
	6/7/2012	18:05	0.5	1	1	NA	25.15
	6/7/2012	18:10	0.5	1	1.4	NA	25.09
	6/7/2012	18:15	0.5	1	0.3	NA	25.02
	6/7/2012	18:20	0.5	1	1.3	NA	24.9
	6/7/2012	18:25	0.5	1	1	NA	24.82
	6/7/2012	18:30	0.5	1	0.4	NA	24.68
	6/7/2012	18:35	0.5	1	1	NA	24.53
	6/7/2012	18:40	0.5	1	0.8	NA	24.39
	6/7/2012	18:45	0.5	1	0.4	NA	24.23

Table 2b-6. Water Quality Monitoring Results June 7, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/7/2012	18:50	0.5	1	0.3	NA	24.08
	6/7/2012	18:55	0.5	1	-0.2	NA	23.92
	6/7/2012	19:00	0.5	1	0.3	NA	23.76

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-7. Water Quality Monitoring Results June 8, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-TC-Remote	Talmadge Creek						
	6/8/2012	07:00	0.5	1	-0.2	NA	10.28
	6/8/2012	07:05	0.5	1	-0.1	NA	10.27
	6/8/2012	07:10	0.5	1	0	NA	10.24
	6/8/2012	07:15	0.5	1	0.5	NA	10.23
	6/8/2012	07:20	0.5	1	0.1	NA	10.22
	6/8/2012	07:25	0.5	1	0	NA	10.2
	6/8/2012	07:30	0.5	1	0	NA	10.19
	6/8/2012	07:35	0.5	1	0	NA	10.19
	6/8/2012	07:40	0.5	1	-0.2	NA	10.19
	6/8/2012	07:45	0.5	1	1	NA	10.21
	6/8/2012	07:50	0.5	1	0	NA	10.24
	6/8/2012	07:55	0.5	1	-0.1	NA	10.27
	6/8/2012	08:00	0.5	1	0.1	NA	10.29
	6/8/2012	08:05	0.5	1	0	NA	10.32
	6/8/2012	08:10	0.5	1	0.4	NA	10.34
	6/8/2012	08:15	0.5	1	-0.2	NA	10.37
	6/8/2012	08:20	0.5	1	-0.1	NA	10.41
	6/8/2012	08:25	0.5	1	-0.1	NA	10.45
	6/8/2012	08:30	0.5	1	-0.2	NA	10.49
	6/8/2012	08:35	0.5	1	-0.2	NA	10.54
	6/8/2012	08:40	0.5	1	0.2	NA	10.59
	6/8/2012	08:45	0.5	1	-0.2	NA	10.65
	6/8/2012	08:50	0.5	1	-0.3	NA	10.7
	6/8/2012	08:55	0.5	1	-0.2	NA	10.77
	6/8/2012	09:00	0.5	1	-0.2	NA	10.84
	6/8/2012	09:05	0.5	1	-0.3	NA	10.92
	6/8/2012	09:10	0.5	1	0.4	NA	11.01
	6/8/2012	09:15	0.5	1	-0.2	NA	11.11
	6/8/2012	09:20	0.5	1	0.5	NA	11.22
	6/8/2012	09:25	0.5	1	63.3	NA	11.34
	6/8/2012	09:30	0.5	1	13.5	NA	11.49
	6/8/2012	09:35	0.5	1	2.4	NA	11.64
	6/8/2012	09:40	0.5	1	2.5	NA	11.8
	6/8/2012	09:45	0.5	1	1.5	NA	11.98

Table 2b-7. Water Quality Monitoring Results June 8, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/8/2012	09:50	0.5	1	0.3	NA	12.15
	6/8/2012	09:55	0.5	1	0.2	NA	12.32
	6/8/2012	10:00	0.5	1	0.9	NA	12.5
	6/8/2012	10:05	0.5	1	1.2	NA	12.7
	6/8/2012	10:10	0.5	1	0.8	NA	12.9
	6/8/2012	10:15	0.5	1	0.4	NA	13.11
	6/8/2012	10:20	0.5	1	0.5	NA	13.32
	6/8/2012	10:25	0.5	1	0.4	NA	13.54
	6/8/2012	10:30	0.5	1	0.4	NA	13.74
	6/8/2012	10:35	0.5	1	0.4	NA	13.97
	6/8/2012	10:40	0.5	1	0.4	NA	14.19
	6/8/2012	10:45	0.5	1	0.1	NA	14.43
	6/8/2012	10:50	0.5	1	0.4	NA	14.67
	6/8/2012	10:55	0.5	1	0.2	NA	14.91
	6/8/2012	11:00	0.5	1	0.2	NA	15.14
	6/8/2012	11:05	0.5	1	0.1	NA	15.39
	6/8/2012	11:10	0.5	1	0.1	NA	15.62
	6/8/2012	11:15	0.5	1	0.2	NA	15.87
	6/8/2012	11:20	0.5	1	0.3	NA	16.1
	6/8/2012	11:25	0.5	1	0.1	NA	16.36
	6/8/2012	11:30	0.5	1	0.2	NA	16.61
	6/8/2012	11:35	0.5	1	0.6	NA	16.88
	6/8/2012	11:40	0.5	1	0.5	NA	17.16
	6/8/2012	11:45	0.5	1	1.5	NA	17.44
	6/8/2012	11:50	0.5	1	0.8	NA	17.72
	6/8/2012	11:55	0.5	1	0.9	NA	18
	6/8/2012	12:00	0.5	1	0.5	NA	18.29
	6/8/2012	12:05	0.5	1	0.3	NA	18.58
	6/8/2012	12:10	0.5	1	0.2	NA	18.87
	6/8/2012	12:15	0.5	1	0.4	NA	19.16
	6/8/2012	12:20	0.5	1	0	NA	19.44
	6/8/2012	12:25	0.5	1	0.6	NA	19.7
	6/8/2012	12:30	0.5	1	0.4	NA	19.98
	6/8/2012	12:35	0.5	1	0.4	NA	20.26
	6/8/2012	12:40	0.5	1	0.8	NA	20.52
	6/8/2012	12:45	0.5	1	0.6	NA	20.78

Table 2b-7. Water Quality Monitoring Results June 8, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/8/2012	12:50	0.5	1	0.7	NA	21.01
	6/8/2012	12:55	0.5	1	0.8	NA	21.24
	6/8/2012	13:00	0.5	1	2.2	NA	21.45
	6/8/2012	13:05	0.5	1	1.1	NA	21.65
	6/8/2012	13:10	0.5	1	0.2	NA	21.87
	6/8/2012	13:15	0.5	1	0.3	NA	22.06
	6/8/2012	13:20	0.5	1	0.2	NA	22.24
	6/8/2012	13:25	0.5	1	0.5	NA	22.43
	6/8/2012	13:30	0.5	1	0.2	NA	22.64
	6/8/2012	13:35	0.5	1	0.4	NA	22.83
	6/8/2012	13:40	0.5	1	0.2	NA	23.05
	6/8/2012	13:45	0.5	1	0.4	NA	23.24
	6/8/2012	13:50	0.5	1	0.1	NA	23.43
	6/8/2012	13:55	0.5	1	0.7	NA	23.61
	6/8/2012	14:00	0.5	1	0.3	NA	23.75
	6/8/2012	14:05	0.5	1	0.7	NA	23.92
	6/8/2012	14:10	0.5	1	1.7	NA	24.09
	6/8/2012	14:15	0.5	1	0.5	NA	24.25
	6/8/2012	14:20	0.5	1	1.2	NA	24.39
	6/8/2012	14:25	0.5	1	0.9	NA	24.55
	6/8/2012	14:30	0.5	1	0.7	NA	24.68
	6/8/2012	14:35	0.5	1	0.7	NA	24.82
	6/8/2012	14:40	0.5	1	0.5	NA	24.98
	6/8/2012	14:45	0.5	1	0.4	NA	25.08
	6/8/2012	14:50	0.5	1	0.2	NA	25.21
	6/8/2012	14:55	0.5	1	0.6	NA	25.26
	6/8/2012	15:00	0.5	1	0.2	NA	25.34
	6/8/2012	15:05	0.5	1	0.2	NA	25.4
	6/8/2012	15:10	0.5	1	0.7	NA	25.44
	6/8/2012	15:15	0.5	1	0.1	NA	25.52
	6/8/2012	15:20	0.5	1	0.7	NA	25.57
	6/8/2012	15:25	0.5	1	0.3	NA	25.67
	6/8/2012	15:30	0.5	1	0.1	NA	25.76
	6/8/2012	15:35	0.5	1	0.1	NA	25.81
	6/8/2012	15:40	0.5	1	-0.1	NA	25.84
	6/8/2012	15:45	0.5	1	0.2	NA	25.86

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/8/2012	15:50	0.5	1	0.2	NA	25.93
	6/8/2012	15:55	0.5	1	0.3	NA	26
	6/8/2012	16:00	0.5	1	0.6	NA	26.09
	6/8/2012	16:05	0.5	1	0.3	NA	26.18
	6/8/2012	16:10	0.5	1	0.5	NA	26.21
	6/8/2012	16:15	0.5	1	0.3	NA	26.27
	6/8/2012	16:20	0.5	1	0.3	NA	26.28
	6/8/2012	16:25	0.5	1	2.5	NA	26.32
	6/8/2012	16:30	0.5	1	-0.2	NA	26.31
	6/8/2012	16:35	0.5	1	1.6	NA	26.28
	6/8/2012	16:40	0.5	1	-2.3	NA	26.26
	6/8/2012	16:45	0.5	1	2.7	NA	26.23
	6/8/2012	16:50	0.5	1	1.8	NA	26.25
	6/8/2012	16:55	0.5	1	2.4	NA	26.27
	6/8/2012	17:00	0.5	1	3.7	NA	26.29
	6/8/2012	17:05	0.5	1	2.1	NA	26.27
	6/8/2012	17:10	0.5	1	0.7	NA	26.24
	6/8/2012	17:15	0.5	1	-3	NA	26.2
	6/8/2012	17:20	0.5	1	1.2	NA	26.16
	6/8/2012	17:25	0.5	1	-0.6	NA	26.11
	6/8/2012	17:30	0.5	1	0.6	NA	26.09
	6/8/2012	17:35	0.5	1	0.3	NA	26.18
	6/8/2012	17:40	0.5	1	0.5	NA	26.21
	6/8/2012	17:45	0.5	1	0.3	NA	26.27
	6/8/2012	17:50	0.5	1	0.3	NA	26.28
	6/8/2012	17:55	0.5	1	2.5	NA	26.32
	6/8/2012	18:00	0.5	1	-0.2	NA	26.31
	6/8/2012	18:05	0.5	1	1.6	NA	26.28
	6/8/2012	18:10	0.5	1	-2.3	NA	26.26
	6/8/2012	18:15	0.5	1	2.7	NA	26.23
	6/8/2012	18:20	0.5	1	1.8	NA	26.25
	6/8/2012	18:25	0.5	1	2.4	NA	26.27
	6/8/2012	18:30	0.5	1	3.7	NA	26.29
	6/8/2012	18:35	0.5	1	2.1	NA	26.27
	6/8/2012	18:40	0.5	1	0.7	NA	26.24
	6/8/2012	18:45	0.5	1	-3	NA	26.2

Table 2b-7. Water Quality Monitoring Results June 8, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
	6/8/2012	18:50	0.5	1	1.2	NA	26.16
	6/8/2012	18:55	0.5	1	-0.6	NA	26.11
	6/8/2012	19:00	0.5	1	5.1	NA	26.07

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NA = data not available

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2b-8. Water Quality Monitoring Results June 21, 2012
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Date	Time	Sample Depth (ft)	DTB (ft)	Turbidity * (NTU)	DO * (mg/L)	Temperature (°C)
WQ-KR0580L-01							
	06/21/2012	11:55	0.5	0.75	183.0	1.0	28.5
	06/21/2012	12:31	0.5	0.75	140	4.20	28.9
WQ-KR0580L-02							
	06/21/2012	12:00	0.5	1.0	16.6	10.97	26.3
	06/21/2012	12:37	0.5	1.0	14.9	13.3	26.7
WQ-KR0580L-03							
	06/21/2012	12:58	0.5	1.5	6.93	8.4	26.4
	06/21/2012	13:32	0.5	1.5	7.68	9.50	26.5

Footnotes:

°C = degrees Celsius

DO = dissolved oxygen

DTB = depth to bottom

ft = feet

mg/L = milligrams per liter

NTU = nephelometric turbidity units

* = Any meter displaying readings outside of normal ranges was recalibrated in the field. If problem persisted, the meter was replaced.

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C07198A_StandPipe	C07198A [redacted]	[redacted]	Galesburg MI	Kalamazoo		Permit but Call/Schedule Required	04-Oct-10		4	3	**04-Oct-10**			Iron
											24-Feb-11	23-Mar-11		
											18-Oct-11	02-Dec-11		IRON, TOTAL, TITANIUM
											17-Apr-12	16-May-12		
C0004F3A	C0004F3 [redacted]	[redacted]	Ceresco MI	Calhoun	7.5	Permit but Call/Schedule Required	12-Sep-10	Prior to Sale or	8	7	**30-Jul-10**	21-Aug-10		
											31-Aug-10	01-Oct-10		Iron
											12-Sep-10	01-Oct-10		Iron
											20-Sep-10			Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											15-Sep-11	29-Nov-11		IRON, TOTAL
											16-Dec-11	20-Jan-12		
C001899A	C001899 [redacted]	[redacted]	Marshall MI	Calhoun	1.5	Unattended Permission, Anytime	31-Aug-10	Prior to Sale or	12	12	**30-Jul-10**	21-Aug-10		
											31-Aug-10	14-Oct-10		Iron
											11-Oct-10	26-Oct-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C001899A	C001899 [redacted]	[redacted]	Marshall MI	Calhoun	1.5	Unattended Permission, Anytime	31-Aug-10	Prior to Sale or	12	12	**12-Oct-10**	26-Oct-10		Iron
											22-Oct-10	12-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											12-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											19-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											19-Oct-11	08-Dec-11		
											19-Jan-12	09-Feb-12		
C0021FEA	C0021FE [redacted]	[redacted]	Marshall MI	Calhoun	1.5	Permit but Call/Schedule Required	19-Sep-10	Prior to Sale or	12	12	**27-Jul-10**	21-Aug-10		
											31-Aug-10	14-Oct-10		Iron
											04-Sep-10	04-Oct-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0021FEA	C0021FE [redacted]	[redacted]	Marshall MI	Calhoun	1.5	Permit but Call/Schedule Required	19-Sep-10	Prior to Sale or	12	12	**19-Sep-10**	01-Nov-10		
											11-Oct-10	26-Oct-10		Iron
											24-Oct-10	30-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											12-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											19-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM
											20-Oct-11	08-Dec-11		IRON, TOTAL
											19-Jan-12	09-Feb-12		
C002471A	C002471 [redacted]	[redacted]	Marshall MI	Calhoun	1.25	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	7	6	**31-Jul-10**	25-Aug-10		
											01-Sep-10	05-Oct-10		Iron
											04-Sep-10	13-Oct-10		
											17-Sep-10			Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C002471A	C002471 [redacted]	[redacted]	Marshall MI	Calhoun	1.25	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	7	6	**13-Oct-10**	13-Nov-10		Iron
											29-Oct-10	04-Dec-10		IRON
											23-Feb-12	30-Mar-12		
C0027CBA	C0027CB [redacted]	[redacted]	Marshall MI	Calhoun	1.5	Unattended Permission, Anytime	31-Aug-10	Prior to Sale or	10	10	**07-Aug-10**	19-Aug-10		Iron
											31-Aug-10	14-Oct-10		Iron
											12-Sep-10	07-Jan-11		Iron
											17-Sep-10	08-Feb-11		Iron
											11-Oct-10	28-Oct-10		Iron
											21-Oct-10	13-Dec-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											22-Feb-12	16-Mar-12		
C0040EEA	C0040EE [redacted]	[redacted]	Marshall MI	Calhoun	2.5	Permit but Call/Schedule Required	25-Oct-10	Prior to Sale or	11	11	**29-Jul-10**	21-Aug-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0040EEA	C0040EE [redacted]	[redacted]	Marshall MI	Calhoun	2.5	Permit but Call/Schedule Required	25-Oct-10	Prior to Sale or	11	11	25-Oct-10	12-Nov-10		
											03-Nov-10	19-Nov-10		
											11-Nov-10	21-Dec-10		IRON, TOTAL
											29-Nov-10	10-Dec-10		IRON, TOTAL
											14-Dec-10	26-Jan-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											15-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											17-Nov-11	14-Dec-11		IRON, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C005139A	C005139 [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or	12	12	07-Aug-10	19-Sep-10		Iron
											28-Aug-10	02-Oct-10		Iron
											13-Sep-10	04-Oct-10		Iron
											21-Sep-10	08-Oct-10		Iron
											07-Oct-10	26-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											04-Jan-11	24-Jan-11		IRON, TOTAL
											08-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											15-Jul-11	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
C0094BAPW1	C0094BA [redacted]	[redacted]	Marshall MI	Calhoun	1.75	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	11	10	29-Jul-10	21-Aug-10		
											11-Sep-10	04-Oct-10		Iron
											25-Sep-10	07-Oct-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0094BAPW1	C0094BA [redacted]	[redacted]	Marshall MI	Calhoun	1.75	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	11	10	**29-Oct-10**	16-Dec-10		IRON
											25-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Feb-11	03-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											16-Aug-11	29-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											17-Nov-11	14-Dec-11		IRON, TOTAL, NICKEL, TOTAL
											23-Feb-12	16-Mar-12		
C0118AEA	C0118AE [redacted]	[redacted]	Ceresco MI	Calhoun	5.75	Permit but Call/Schedule Required	28-Aug-10	Prior to Sale or	12	12	**28-Jul-10**	21-Aug-10		
											28-Aug-10	01-Oct-10		Iron
											11-Sep-10	01-Oct-10		Iron
											20-Sep-10	09-Feb-11		Iron
											12-Oct-10	26-Oct-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0118AEA	C0118AE [redacted]	[redacted]	Ceresco MI	Calhoun	5.75	Permit but Call/Schedule Required	28-Aug-10	Prior to Sale or	12	12	22-Oct-10	30-Nov-10		IRON
											06-Nov-10	29-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											21-Jan-11	17-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
C0127FCA	C0127FC [redacted]	[redacted]	Marshall MI	Calhoun	3.25	Unattended Permission, Anytime	16-Sep-10	Prior to Sale or	7	7	01-Aug-10	25-Aug-10		
											31-Aug-10	05-Oct-10		Iron
											23-Oct-10	12-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0127FCA	C0127FC	[redacted]	Marshall MI	Calhoun	3.25	Unattended Permission, Anytime	16-Sep-10	Prior to Sale or Occupation	7	7	**24-Jan-11**	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
C0129FBA	C0129FB	[redacted]	Marshall MI	Calhoun	3.25	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or	11	11	**07-Aug-10**	19-Aug-10		Iron
											04-Sep-10	04-Oct-10		
											09-Sep-10	04-Oct-10		Iron
											24-Sep-10	07-Oct-10		Iron
											11-Oct-10	28-Oct-10		Iron
											21-Oct-10	12-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											06-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0129FBA	C0129FB	[redacted]	Marshall	Calhoun	3.25	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or Occupation	11	11	**19-Jul-11**	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
C013407A	C013407	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	19-Sep-10	Prior to Sale or	8	8	**28-Jul-10**	08-Sep-10		
	[redacted]		MI											
											05-Sep-10	01-Oct-10		
											20-Sep-10	08-Feb-11		Iron
											06-Oct-10	20-Oct-10		
											15-Oct-10	26-Oct-10		Iron
											29-Oct-10	07-Jan-11		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL, NICKEL, TOTAL
											16-Nov-11	18-Jan-12		IRON, TOTAL
C0144C0A	C0144C0	[redacted]	Marshall	Calhoun	3.25	Unattended Permission, Anytime	12-Sep-10	Prior to Sale or	14	14	**27-Jul-10**	21-Aug-10		
	[redacted]0		MI											
											31-Aug-10	05-Oct-10		Iron
											12-Sep-10	04-Oct-10		Iron
											19-Sep-10	08-Feb-11		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0144C0A	C0144C0 [redacted]	[redacted]	Marshall MI	Calhoun	3.25	Unattended Permission, Anytime	12-Sep-10	Prior to Sale or	14	14	**01-Oct-10**	08-Feb-11		Iron
											14-Oct-10	28-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											11-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											11-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											17-Nov-11	18-Jan-12		IRON, TOTAL
											24-Feb-12	16-Mar-12		
C01497DA	C01497D [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Permit but Call/Schedule Required	21-Sep-10	Prior to Sale or	8	7	**29-Jul-10**	25-Aug-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01497DA	C01497D [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Permit but Call/Schedule Required	21-Sep-10	Prior to Sale or	8	7	**31-Aug-10**	14-Oct-10		Iron
											21-Sep-10	08-Oct-10		Iron
											10-Oct-10	28-Oct-10		Iron
											21-Oct-10	12-Nov-10		
											07-Nov-10	29-Nov-10		
											02-Dec-10	18-Dec-10		
C015098PW1	C015098 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or	12	11	**10-Aug-10**	11-Nov-10		Iron
											28-Aug-10	02-Oct-10		Iron
											13-Sep-10	11-Nov-10		Iron
											19-Sep-10	08-Feb-11		Iron
											10-Oct-10	26-Oct-10		Iron
											20-Oct-10			Iron
											30-Oct-10	18-Nov-10		IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C015098PW1	C015098 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or	12	11	**03-Feb-11**	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											13-Sep-11	30-Nov-11		IRON, TOTAL
											19-Dec-11	20-Jan-12		
C016277A	C016277 [redacted]	[redacted]	Marshall MI	Calhoun	3.25	Unattended Permission, Anytime	06-Sep-10	Prior to Sale or	9	9	**07-Aug-10**	19-Aug-10		Iron
											08-Sep-10	05-Oct-10		Iron
											23-Oct-10	12-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											06-Apr-11	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM
											19-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		IRON, TOTAL
C0173A0PW1	C0173A0 [redacted]	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or	12	11	**05-Aug-10**	20-Aug-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0173A0PW1	C0173A0 [redacted]	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or	12	11	**20-Sep-10**	01-Nov-10		Iron
											24-Jan-11	17-Feb-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											06-Apr-11	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0173A0PW1	C0173A0	[redacted]	Marshall	Calhoun	3	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or Occupation	12	11	**19-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											14-Sep-11	30-Nov-11		IRON, TOTAL
											19-Jan-12	09-Feb-12		
C0179BEPW1	C0179BE	[redacted]	Marshall	Calhoun	3	Unattended Permission, Anytime	15-Sep-10	Prior to Sale or	12	11	**27-Jul-10**	21-Aug-10		
	[redacted]		MI											
											13-Oct-10	13-Nov-10		
											23-Oct-10	14-Jan-11		
											05-Nov-10	09-Dec-10		
											01-Dec-10	15-Dec-10		NICKEL, TOTAL
											24-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0179BEPW1	C0179BE	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime	15-Sep-10	Prior to Sale or Occupation	12	11	**12-Aug-11**	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											17-Nov-11	18-Jan-12		
											24-Feb-12	16-Mar-12		
C01855AA	C01855A	[redacted]	Galesburg MI	KALAMAZOO	37.25	Unattended Permission, Anytime	23-Sep-10	Prior to Sale or	12	12	**10-Aug-10**	23-Aug-10		
											23-Sep-10	07-Oct-10		
											05-Oct-10	20-Oct-10		
											16-Oct-10	28-Oct-10		Nickel
											29-Oct-10	04-Dec-10		
											11-Nov-10	09-Dec-10		
											29-Nov-10	10-Dec-10		
											12-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											11-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											11-Jul-11	21-Jul-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01855AA	C01855A [redacted]	[redacted]	Galesburg MI	KALAMAZOO	37.25	Unattended Permission, Anytime	23-Sep-10	Prior to Sale or	12	12	**18-Oct-11**	18-Jan-12		
											16-Jan-12	09-Feb-12		
C019930PW1	C019930 [redacted]	[redacted]	Galesburg MI	Kalamazoo	33.5	Unattended Permission, Anytime	23-Oct-10	Prior to Sale or	8	8	**08-Aug-10**	01-Sep-10		Iron
											23-Oct-10	12-Nov-10		IRON
											04-Nov-10	23-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											10-Jan-11	16-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											31-Jan-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											28-Feb-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											16-Jan-12	09-Feb-12		
C0208B6A	C0208B6 [redacted]	[redacted]	Ceresco MI	CALHOUN	7.25	Unattended Permission, Anytime	24-Sep-10	Prior to Sale or	14	12	**27-Jul-10**	01-Sep-10		
											31-Jul-10	01-Sep-10		
											24-Sep-10	07-Oct-10		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0208B6A	C0208B6 [redacted]	[redacted]	Ceresco MI	CALHOUN	7.25	Unattended Permission, Anytime	24-Sep-10	Prior to Sale or	14	12	**06-Oct-10**	01-Nov-10		Iron, Naphthalene
											16-Oct-10	28-Oct-10		Iron, Naphthalene
											30-Oct-10			IRON, NAPHTHALENE
											11-Nov-10			IRON, TOTAL, NAPHTHALENE
											29-Nov-10	10-Dec-10		IRON, TOTAL
											16-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											06-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											18-Oct-11	18-Jan-12		IRON, TOTAL
											18-Jan-12	09-Feb-12		
C0218F7PW1	C0218F7 [redacted]	[redacted]	Marshall MI	Calhoun	2.25	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	7	7	**27-Jul-10**	01-Nov-10		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0218F7PW1	C0218F7 [redacted]	[redacted]	Marshall MI	Calhoun	2.25	Permit but Call/Schedule Required	01-Sep-10	Prior to Sale or	7	7	**31-Jul-10**	01-Nov-10		
											15-Sep-10	04-Oct-10		Iron
											22-Sep-10	13-Oct-10		Iron
											06-Nov-10	04-Dec-10		IRON
											17-Nov-11	14-Dec-11		IRON, TOTAL
											23-Feb-12	16-Mar-12		
C0227A5A	C0227A5 [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or	12	12	**07-Aug-10**	21-Sep-10		
											28-Aug-10	04-Oct-10		
											13-Sep-10	14-Oct-10		
											21-Sep-10	14-Oct-10		
											10-Oct-10	28-Oct-10		
											21-Oct-10	12-Nov-10		
											02-Nov-10	19-Nov-10		
											02-Dec-10	18-Dec-10		IRON, TOTAL
											19-Jan-11	15-Feb-11		NICKEL, TOTAL, VANADIUM, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0227A5A	C0227A5	[redacted]	Battle Creek	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or Occupation	12	12	**04-Feb-11**	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											04-May-11	17-May-11		IRON, TOTAL, VANADIUM, TOTAL
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
C024080PW1	C024080	[redacted]	Marshall	Calhoun	3	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or	10	9	**08-Sep-10**	03-Nov-10		Iron
	[redacted]		MI											
											14-Dec-10	26-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											18-Jan-11	10-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											31-Jan-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Feb-11	09-Mar-11		IRON, TOTAL, MOLYBDENUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C024080PW1	C024080	[redacted]	Marshall	Calhoun	3	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or Occupation	10	9	**02-Mar-11**	25-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
	[redacted]		MI											
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											14-Sep-11	29-Nov-11		IRON, TOTAL
											16-Dec-11	20-Jan-12		
C02433AWP1	C02433A	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or	11	10	**04-Sep-10**	13-Oct-10		
	[redacted]		MI											
											17-Sep-10	13-Oct-10		Iron
											06-Oct-10			Iron
											15-Oct-10	26-Oct-10		Iron
											29-Oct-10	07-Jan-11		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											24-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C02433AWP1	C02433A	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or Occupation	11	10	**14-Feb-11**	03-Mar-11		IRON, TOTAL, MERCURY, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											23-Feb-12	16-Mar-12		
C0248B2PW1	C0248B2	[redacted]	Galesburg	Kalamazoo	36.25	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or	11	11	**08-Sep-10**	13-Oct-10		Iron
	[redacted]		MI											
											17-Sep-10	07-Oct-10		Iron
											06-Oct-10	20-Oct-10		Iron
											16-Oct-10	22-Nov-10		Iron
											06-Nov-10	23-Nov-10		IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											12-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											08-Apr-11	05-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0248B2PW1	C0248B2	[redacted]	Galesburg	Kalamazoo	36.25	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or Occupation	11	11	**14-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											19-Oct-11	08-Dec-11		
											16-Jan-12	09-Feb-12		
C0250C1WP1	C0250C1	[redacted]	Galesburg	Kalamazoo	36.25	Unattended Permission, Anytime		Prior to Sale or	10	8	**18-Oct-10**			Iron
	[redacted]		MI											
											30-Oct-10	18-Nov-10		IRON
											03-Dec-10			IRON, TOTAL
											12-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											31-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											28-Feb-11	23-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0250C1WP1	C0250C1	[redacted]	Galesburg MI	Kalamazoo	36.25	Unattended Permission, Anytime		Prior to Sale or Occupation	10	8	**09-Jun-11**	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											15-Dec-11	20-Jan-12		
C0286B9PW1	C0286B9	[redacted]	Marshall MI	Calhoun	1	Permit but Call/Schedule Required	24-Sep-10	Prior to Sale or	1	1	01-Mar-12	16-Mar-12		
C0292E1A	C0292E1	[redacted]	Marshall MI	Calhoun	1.5	Permit but Call/Schedule Required	31-Aug-10	Prior to Sale or	8	7	**12-Aug-10**	01-Sep-10		
											31-Aug-10	13-Oct-10		Iron
											22-Sep-10	13-Oct-10		Iron
											01-Oct-10			Iron
											14-Oct-10	26-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											16-Dec-11	20-Jan-12		
C0300B3WP1	C0300B3	[redacted]	Galesburg MI	Kalamazoo	33.25	Unattended Permission, Anytime	07-Sep-10	Prior to Sale or	7	7	**09-Sep-10**	16-Oct-10		Iron
											23-Oct-10	12-Nov-10		IRON
											29-Oct-10	04-Dec-10		IRON
											06-Nov-10	03-Dec-10		IRON

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0300B3WP1	C0300B3 [redacted]	[redacted]	Galesburg MI	Kalamazoo	33.25	Unattended Permission, Anytime	07-Sep-10	Prior to Sale or	7	7	**01-Dec-10**	15-Dec-10		IRON, TOTAL
											15-Dec-10	26-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											10-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
C0304AAPW1	C0304AA [redacted]	[redacted]	Battle Creek MI	Calhoun	13.75	Unattended Permission, Anytime	29-Sep-10	Prior to Sale or	12	10	**04-Sep-10**	13-Oct-10		
											29-Sep-10	20-Oct-10		Iron
											12-Oct-10	26-Oct-10		Iron
											23-Oct-10	13-Jan-11	ETHYLBENZENE, M-P-XYLENE, O-XYLENE (1,2-DIMETHYLBENZENE)	IRON
											07-Nov-10			IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0304AAPW1	C0304AA [redacted]	[redacted]	Battle Creek MI	Calhoun	13.75	Unattended Permission, Anytime	29-Sep-10	Prior to Sale or Occupation	12	10	09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											02-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM
											04-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
C033469WP1	C033469 [redacted]	[redacted]	Augusta MI	Kalamazoo	28.25	Unattended Permission, Anytime	05-Sep-10	Prior to Sale or	7	6	08-Sep-10	21-Oct-10		Iron
											18-Sep-10	14-Oct-10		Iron
											08-Oct-10	26-Oct-10		Iron
											19-Oct-10			Iron
											05-Nov-10	09-Dec-10		IRON, TOTAL
											02-Dec-10	20-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, TITANIUM
C0335FFWP1	C0335FF [redacted]	[redacted]	Augusta MI	Kalamazoo	27.5	Permit but Call/Schedule Required	29-Aug-10	Prior to Sale or	8	8	03-Oct-10	16-Nov-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0335FFWP1	C0335FF [redacted]	[redacted]	Augusta MI	Kalamazoo	27.5	Permit but Call/Schedule Required	29-Aug-10	Prior to Sale or	8	8	**27-Oct-10**	14-Jan-11		IRON
											05-Nov-10	10-Dec-10		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											12-Sep-11	29-Nov-11		IRON, TOTAL
											15-Dec-11	20-Jan-12		
C033645WP1	C033645 [redacted]	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	12-Sep-10	Prior to Sale or	8	7	**12-Sep-10**			Iron
											27-Oct-10	14-Jan-11		IRON
											06-Nov-10	03-Dec-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											10-Jan-11	15-Feb-11		IRON, TOTAL, TITANIUM
											04-Feb-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C033645WP1	C033645 [redacted]	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	12-Sep-10	Prior to Sale or Occupation	8	7	03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											08-Aug-11	18-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
C0375FBWP1	C0375FB [redacted]	[redacted]	Battle Creek MI	Calhoun	12	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or	12	12	24-Aug-10	14-Oct-10		Iron
											04-Sep-10	14-Oct-10		
											19-Sep-10	27-Oct-10		Iron
											11-Oct-10	26-Oct-10		Iron
											21-Oct-10	12-Nov-10		IRON
											01-Nov-10	19-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											05-May-11	17-May-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0375FBWP1	C0375FB	[redacted]	Battle Creek	Calhoun	12	Unattended Permission, Anytime	04-Sep-10	Prior to Sale or Occupation	12	12	**09-Aug-11**	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											22-Feb-12	16-Mar-12		
C0384A2WP1	C0384A2	[redacted]	Ceresco	Calhoun	5.75	Permit but Call/Schedule Required	05-Sep-10	Prior to Sale or	6	6	**05-Sep-10**	13-Oct-10		Iron
	[redacted]		MI											
											21-Sep-10	13-Oct-10		Iron
											06-Oct-10	26-Oct-10		Iron
											15-Oct-10	28-Oct-10		Iron
											29-Oct-10	07-Jan-11		
											02-Dec-10	18-Dec-10		IRON, TOTAL
C038718WP1	C038718	[redacted]	Marshall	Calhoun	2.75	Permit but Call/Schedule Required	21-Sep-10	Prior to Sale or	7	6	**11-Sep-10**	13-Oct-10		
	[redacted]		MI											
											21-Sep-10	07-Jan-11		
											02-Oct-10			
											15-Oct-10	28-Oct-10		
											29-Oct-10	11-Jan-11		
											30-Nov-10	15-Dec-10		NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C038718WP1	C038718 [redacted]	[redacted]	Marshall MI	Calhoun	2.75	Permit but Call/Schedule Required	21-Sep-10	Prior to Sale or	7	6	24-Feb-12	16-Mar-12		
C043756WP1	C043756 [redacted]	[redacted]	Marshall MI	Calhoun	2.75	Unattended Permission, Anytime	07-Sep-10	Prior to Sale or	11	11	**09-Sep-10**	13-Oct-10		Iron
											21-Sep-10	13-Oct-10		Iron
											12-Oct-10	26-Oct-10		Iron
											22-Oct-10	12-Nov-10		IRON
											06-Nov-10	20-Dec-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											06-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											19-Oct-11	08-Dec-11		
											19-Jan-12	09-Feb-12		
C044607PW1	C044607 [redacted]	[redacted]	Marshall MI	Calhoun	2.75	Permit but Call/Schedule Required	08-Sep-10	Prior to Sale or	8	8	**09-Sep-10**	13-Oct-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C044607PW1	C044607 [redacted]	[redacted]	Marshall MI	Calhoun	2.75	Permit but Call/Schedule Required	08-Sep-10	Prior to Sale or	8	8	**21-Sep-10**	13-Oct-10		Iron
											12-Oct-10	26-Oct-10		Iron
											22-Oct-10	12-Nov-10		IRON
											06-Nov-10	29-Nov-10		IRON
											06-Dec-10	18-Dec-10		IRON, TOTAL
											14-Sep-11	30-Nov-11		IRON, TOTAL
											19-Jan-12	09-Feb-12		
C0470F1PW1	C0470F1 [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or	11	11	**04-Sep-10**	13-Oct-10		
											21-Sep-10	13-Oct-10		Iron
											10-Oct-10	28-Oct-10		Iron
											21-Oct-10	12-Nov-10		IRON
											07-Nov-10	29-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											24-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM , NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0470F1PW1	C0470F1 [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	26-Aug-10	Prior to Sale or Occupation	11	11	**08-Feb-11**	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											04-May-11	25-May-11		IRON, TOTAL, NICKEL, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											20-Feb-12	16-Mar-12		
C04757EWP1	C04757E [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Permit but Call/Schedule Required	07-Sep-10	Prior to Sale or	6	6	**07-Sep-10**	13-Oct-10		
											21-Sep-10	13-Oct-10		
											10-Oct-10	28-Oct-10		
											21-Oct-10	12-Nov-10		
											07-Nov-10	29-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
C053154PW1	C053154 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Permit but Call/Schedule Required	04-Sep-10	Prior to Sale or	3	2	**09-Oct-10**	28-Oct-10		Iron
											20-Oct-10			Iron
											30-Oct-10	18-Nov-10		IRON

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0568B5PW1	C0568B5 [redacted]	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime	06-Sep-10	Prior to Sale or	12	11	**08-Sep-10**	13-Oct-10		Iron
											19-Sep-10	13-Oct-10		Iron
											01-Oct-10			Iron
											15-Oct-10	26-Oct-10		Iron
											29-Oct-10	03-Dec-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											24-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											17-Nov-11	18-Jan-12		IRON, TOTAL
											24-Feb-12	16-Mar-12		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0601CEWP1	C0601CE [redacted]	[redacted]	Battle Creek MI	Calhoun	10.5	Unattended Permission, Anytime	11-Oct-10	Prior to Sale or	16	14	**20-Oct-10**	26-Jan-11		Iron
											01-Nov-10	19-Nov-10		IRON
											12-Nov-10	29-Mar-11		IRON, NICKEL
											17-Jan-11	10-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, VANADIUM, TOTAL
											27-Jan-11	02-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Feb-11	09-Mar-11		IRON, TOTAL
											03-Mar-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Apr-11	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											05-May-11	17-May-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0601CEWP1	C0601CE [redacted]	[redacted]	Battle Creek MI	Calhoun	10.5	Unattended Permission, Anytime	11-Oct-10	Prior to Sale or Occupation	16	14	**06-Jun-11**	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											13-Sep-11	30-Nov-11		IRON, TOTAL
											20-Dec-11	20-Jan-12		
C0603E2WP1	C0603E2 [redacted]	[redacted]	Battle Creek MI	Calhoun	10	Permit but Call/Schedule Required	14-Sep-10	Prior to Sale or	4	3	**30-Aug-10**	15-Oct-10		Iron
											14-Sep-10			Iron
											13-Sep-11	30-Nov-11		IRON, TOTAL
											20-Dec-11	20-Jan-12		
C060441WP1	C060441 [redacted]	[redacted]	Battle Creek MI	Calhoun	10	Permit but Call/Schedule Required	25-Sep-10	Prior to Sale or	4	4	**04-Sep-10**	13-Oct-10		
											19-Sep-10	13-Oct-10		Iron
											13-Sep-11	30-Nov-11		IRON, TOTAL
											20-Dec-11	20-Jan-12		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0605D7WP1	C0605D7 [redacted]	[redacted]	Battle Creek MI	Calhoun	10	Permit but Call/Schedule Required		Prior to Sale or	4	4	**06-Dec-10**	20-Dec-10		IRON, TOTAL
											17-Jan-11	10-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											13-Sep-11	30-Nov-11		IRON, TOTAL
											20-Dec-11	20-Jan-12		
C06827CA	C06827C [redacted]	[redacted]	Battle Creek MI	Calhoun	12.25	Unattended Permission, Anytime	28-Oct-10	Prior to Sale or	6	6	**19-Aug-10**	06-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL, NICKEL, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											07-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											05-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
C0789C3PW1	C0789C3 [redacted]	[redacted]	Augusta MI	Kalamazoo	26.75	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or	4	4	**07-Dec-10**	20-Dec-10		IRON, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0789C3PW1	C0789C3 [redacted]	[redacted]	Augusta MI	Kalamazoo	26.75	Permit but Call/Schedule Required	06-Sep-10	Prior to Sale or	4	4	**17-Jan-11**	10-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											14-Nov-11	14-Dec-11		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C0872B9PW2	C0872B9 [redacted]	[redacted]	Augusta MI	Kalamazoo	26.75	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or	8	8	**04-Sep-10**	28-Oct-10		
											18-Sep-10	16-Nov-10		
											08-Oct-10	26-Oct-10		
											02-Dec-10	08-Feb-11		IRON, TOTAL
											13-Jan-11	15-Feb-11		IRON, TOTAL, VANADIUM, TOTAL
											07-Apr-11	02-May-11		IRON, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											17-Oct-11	14-Dec-11		
C090249WP1	C090249 [redacted]	[redacted]	Galesburg MI	Kalamazoo	37.25	Unattended Permission, Anytime	26-Sep-10	Prior to Sale or	10	10	**04-Oct-10**	16-Nov-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C090249WP1	C090249 [redacted]	[redacted]	Galesburg MI	Kalamazoo	37.25	Unattended Permission, Anytime	26-Sep-10	Prior to Sale or	10	10	**13-Oct-10**	16-Nov-10		
											23-Oct-10	12-Nov-10		
											06-Nov-10	03-Dec-10		
											01-Dec-10	15-Dec-10		
											12-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											11-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											11-Jul-11	21-Jul-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		IRON, TOTAL
											16-Jan-12	09-Feb-12		
C0947C2WP1	C0947C2 [redacted]	[redacted]	Marshall MI	Calhoun	2	Permit but Call/Schedule Required	05-Oct-10	Prior to Sale or	4	4	**02-Nov-10**	30-Nov-10		IRON
											17-Nov-10	02-Dec-10		IRON
											29-Nov-10	28-Jan-11		IRON, TOTAL
											05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C107264WP1	C107264 [redacted]	[redacted]	Ceresco MI	Calhoun	6.5	Unattended Permission, Anytime	28-Oct-10	Prior to Sale or	8	6	01-Aug-10			
											28-Oct-10	17-Nov-10		IRON
											11-Nov-10	09-Dec-10		IRON, TOTAL
											29-Nov-10	10-Dec-10		IRON, TOTAL
											20-Jan-11			IRON, TOTAL, MOLYBDENUM , NICKEL, TOTAL
											08-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											13-Sep-11	29-Nov-11		IRON, TOTAL, NICKEL, TOTAL
											22-Feb-12	16-Mar-12		
C1426E4WP1	C1426E4 [redacted]	[redacted]	Battle Creek MI	Calhoun	21	Unattended Permission, Anytime	27-Oct-10	Prior to Sale or	9	10	**27-Oct-10**	14-Jan-11		IRON
											03-Nov-10	19-Nov-10		IRON
											03-Nov-10	12-Jan-11		IRON
											19-Nov-10	13-Dec-10		IRON, TOTAL
											02-Dec-10	20-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C1426E4WP1	C1426E4 [redacted]	[redacted]	Battle Creek MI	Calhoun	21	Unattended Permission, Anytime	27-Oct-10	Prior to Sale or Occupation	9	10	**19-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											01-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											05-May-11	17-May-11		IRON, TOTAL, VANADIUM, TOTAL
											10-Aug-11	24-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											21-Feb-12	16-Mar-12		
C0002C6A	C0002C6 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	12	11	**03-Aug-10**	13-Nov-10		
											25-Sep-10	07-Oct-10		Iron
											25-Oct-10	12-Nov-10		IRON
											29-Oct-10	07-Jan-11		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0002C6A	C0002C6	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	12	11	**14-Feb-11**	03-Mar-11		IRON, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		IRON, TOTAL
											23-Feb-12	16-Mar-12		
											25-Jun-12			
C0029CCWP1	C0029CC	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	**03-Aug-10**	25-Aug-10		
	[redacted]		MI											
											10-Sep-10	01-Oct-10		Iron
											12-Sep-10	01-Oct-10		
											25-Oct-10	12-Nov-10		
											29-Oct-10	07-Jan-11		
											30-Nov-10	15-Dec-10		
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, VANADIUM, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0029CCWP1	C0029CC [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	**09-Feb-11**	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											01-Mar-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Apr-11	26-Apr-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											10-Jun-11	22-Jun-11		IRON, TOTAL, TITANIUM
											13-Sep-11	29-Nov-11		
											16-Dec-11	20-Jan-12		
											25-Jun-12			
C005315A	C005315 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Restricted Times	25-Oct-10	Quarterly 2	11	10	**01-Aug-10**	25-Aug-10		
											25-Oct-10	12-Nov-10		
											29-Oct-10	07-Jan-11		
											30-Nov-10	15-Dec-10		
											26-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C005315A	C005315	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Restricted Times	25-Oct-10	Quarterly 2	11	10	**14-Feb-11**	03-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI								**09-May-11**	26-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, MERCURY, TOTAL, NICKEL, TOTAL
											16-Nov-11	14-Dec-11		
											23-Feb-12	16-Mar-12		
											25-Jun-12			
C011485A	C011485	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	19-Sep-10	Quarterly 2	13	12	**03-Aug-10**	25-Aug-10		
	[redacted]		MI								**19-Sep-10**	08-Feb-11		Iron
											06-Oct-10	20-Oct-10		Iron
											16-Oct-10	28-Oct-10		Iron
											30-Oct-10	18-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											21-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C011485A	C011485	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	19-Sep-10	Quarterly 2	13	12	**10-Feb-11**	07-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI								**09-May-11**	26-May-11		IRON, TOTAL, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											16-Nov-11	14-Dec-11		IRON, TOTAL
											23-Feb-12	16-Mar-12		
											25-Jun-12			
C0223BCA	C0223BC	[redacted]	Marshall	Calhoun	0.5	Unattended Permission, Anytime		Quarterly 2	12	8	**07-Aug-10**	25-Aug-10		Iron
	[redacted]		MI								**01-Nov-10**	07-Jan-11		IRON
											01-Dec-10	06-Jan-11		IRON, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-May-11	25-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0223BCA	C0223BC	[redacted]	Marshall	Calhoun	0.5	Unattended Permission, Anytime		Quarterly 2	12	8	**15-Aug-11**	14-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											18-Nov-11			IRON, TOTAL
											23-Feb-12	16-Mar-12		
											25-Jun-12			
C0254D8	C0254D8	[redacted]	Ceresco	Calhoun	7.5	Unattended Permission, Anytime	05-Sep-10	Quarterly 2	10	9	**05-Sep-10**	07-Oct-10		Iron
	[redacted]		MI											
											24-Oct-10	12-Nov-10		IRON
											06-Nov-10	03-Dec-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL
											06-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											18-Oct-11	18-Jan-12		IRON, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0254D8	C0254D8 1[redacted]	[redacted]	Ceresco MI	Calhoun	7.5	Unattended Permission, Anytime	05-Sep-10	Quarterly 2	10	9	18-Jan-12	09-Feb-12		
											26-Jun-12			
C0273F9WP1	C0273F9 [redacted]	[redacted]	Ceresco MI	Calhoun	6.5	Unattended Permission, Anytime	03-Oct-10	Quarterly 2	14	12	**01-Sep-10**	01-Nov-10	Toluene	Iron
											03-Oct-10	27-Oct-10	Toluene	Iron
											24-Oct-10	30-Nov-10		IRON
											05-Nov-10		ETHYLBENZENE, TOLUENE	
											17-Nov-10	02-Dec-10		IRON
											29-Nov-10	10-Dec-10		IRON, TOTAL
											14-Dec-10	26-Jan-11		IRON, TOTAL, MOLYBDENUM, VANADIUM, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											08-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0273F9WP1	C0273F9	[redacted]	Ceresco	Calhoun	6.5	Unattended Permission, Anytime	03-Oct-10	Quarterly 2	14	12	**12-May-11**	02-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI								**12-Aug-11**	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL
											16-Nov-11	14-Dec-11		IRON, TOTAL
											22-Feb-12	16-Mar-12		
											26-Jun-12			
C030309WP1	C030309	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	**10-Sep-10**	13-Oct-10		
	1[redacted]		MI								**11-Sep-10**	13-Oct-10		
											20-Sep-10	13-Oct-10		
											06-Oct-10	20-Oct-10		
											15-Oct-10	28-Oct-10		
											29-Oct-10	07-Jan-11		
											30-Nov-10	15-Dec-10		
											26-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C030309WP1	C030309	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	**14-Feb-11**	03-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		
											23-Feb-12	16-Mar-12		
											25-Jun-12			
C0314EBWP1	C0314EB	[redacted]	Ceresco	Calhoun	6	Permit but Call/Schedule Required	12-Oct-10	Quarterly 2	4	4	**15-Oct-10**	26-Oct-10		Iron
	[redacted]		MI											
											12-Nov-10	02-Dec-10		IRON
											29-Nov-10	10-Dec-10		IRON, TOTAL
											19-Oct-11	07-Dec-11		
C031751PW1	C031751	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	26-Aug-10	Quarterly 2	11	9	**28-Aug-10**	01-Nov-10		Iron
	[redacted]		MI											
											11-Sep-10			Iron
											24-Oct-10	30-Nov-10		IRON

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C031751PW1	C031751 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	26-Aug-10	Quarterly 2	11	9	**06-Nov-10**	29-Nov-10		IRON, NICKEL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		
											25-Jun-12			
C0377D7A	C0377D7 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	14	12	**15-Aug-10**	02-Sep-10		
											28-Aug-10	01-Oct-10		
											25-Sep-10	07-Oct-10		Iron
											06-Oct-10	20-Oct-10		Iron
											20-Oct-10			Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0377D7A	C0377D7 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	14	12	**06-Nov-10**	29-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											16-Aug-11	29-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		
											22-Feb-12	16-Mar-12		
											25-Jun-12			
C03868EWP1	C03868E [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	04-Sep-10	Quarterly 2	12	11	**04-Sep-10**	13-Oct-10		
											21-Sep-10	07-Jan-11		
											06-Oct-10	20-Oct-10		
											15-Oct-10	01-Nov-10		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C03868EWP1	C03868E [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	04-Sep-10	Quarterly 2	12	11	**29-Oct-10**	07-Jan-11		
											30-Nov-10	15-Dec-10		
											21-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											10-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM , TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											16-Nov-11	18-Jan-12		
											25-Jun-12			
C07198APW1	C07198A [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Permit but Call/Schedule Required	04-Oct-10	Quarterly 2	9	8	08-Aug-10			
											04-Oct-10	16-Oct-10		Iron
											15-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C07198APW1	C07198A [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Permit but Call/Schedule Required	04-Oct-10	Quarterly 2	9	8	**31-Jan-11**	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											28-Feb-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL
											15-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM
											18-Oct-11	02-Dec-11		IRON, TOTAL
											21-Dec-11	20-Jan-12		
											17-Apr-12	16-May-12		
C086970PW1	C086970 04-34-350-020	Augusta Municipal Wells	Augusta MI	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	17	15	**27-Oct-10**	14-Jan-11		IRON
											03-Nov-10	04-Dec-10		IRON
											18-Nov-10	21-Jan-11		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL
											10-Jan-11	19-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C086970PW1	C086970 04-34-350-020	Augusta Municipal Wells	Augusta MI	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	17	15	**04-Feb-11**	09-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											01-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											19-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											14-Sep-11	28-Nov-11		IRON, TOTAL
											15-Dec-11	20-Jan-12		
											24-Apr-12	16-May-12		
											26-Jun-12			

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C086970PW2	C086970 04-34-350-020	Augusta Municipal Wells	Augusta MI	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	16	15	**27-Oct-10**	14-Jan-11		IRON
											03-Nov-10	04-Dec-10		IRON
											18-Nov-10	09-Dec-10		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL
											10-Jan-11	19-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											04-Feb-11	09-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											01-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL, NICKEL, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C086970PW2	C086970	Augusta Municipal Wells	Augusta	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	16	15	**19-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	04-34-350-020		MI											
											11-Aug-11	29-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											14-Sep-11	28-Nov-11		IRON, TOTAL
											15-Dec-11	20-Jan-12		
											24-Apr-12	16-May-12		
											26-Jun-12			
C0881CCWP1	C0881CC	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	02-Oct-10	Quarterly 2	12	10	**04-Oct-10**	20-Oct-10		Iron
	[redacted]		MI											
											16-Oct-10	26-Oct-10		Iron
											30-Oct-10	18-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL, NICKEL, TOTAL
											21-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0881CCWP1	C0881CC	[redacted]	Ceresco	Calhoun	6	Unattended Permission, Anytime	02-Oct-10	Quarterly 2	12	10	**09-May-11**	26-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI											
											11-Aug-11	29-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											16-Nov-11	14-Dec-11		IRON, TOTAL
											23-Feb-12	16-Mar-12		
											26-Jun-12			
C088276WP1	C088276	[redacted]	Ceresco	Calhoun	6	Permit but Call/Schedule Required	12-Oct-10	Quarterly 2	9	8	**13-Oct-10**	13-Nov-10		Iron
	[redacted]		MI											
											22-Oct-10	12-Nov-10		IRON
											06-Nov-10	29-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											21-Jan-11	15-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		IRON, TOTAL, TITANIUM
											02-Mar-11	23-Mar-11		IRON, TOTAL
											19-Oct-11	07-Dec-11		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C088276WP1	C088276 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Permit but Call/Schedule Required	12-Oct-10	Quarterly 2	9	8	26-Jun-12			
C0889FEWP1	C0889FE [redacted]	[redacted]	Galesburg MI	Kalamazoo	38	Permit but Call/Schedule Required		Quarterly 2	10	9	**01-Dec-10**	21-Dec-10		IRON, TOTAL
											15-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Feb-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											01-Mar-11	29-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											15-Sep-11	28-Nov-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0889FEWP1	C0889FE [redacted]	[redacted]	Galesburg MI	Kalamazoo	38	Permit but Call/Schedule Required		Quarterly 2	10	9	24-Apr-12	16-May-12		
											26-Jun-12			
C10619FWP1	C10619F [redacted]	[redacted]	Ceresco MI	Calhoun	8	Unattended Permission, Anytime	09-Oct-10	Quarterly 2	22	18	**30-Aug-10**	28-Oct-10		Iron
											31-Aug-10	06-Oct-10		Iron
											12-Oct-10	28-Oct-10	Toluene	Iron
											22-Oct-10		TOLUENE	IRON
											04-Nov-10		TOLUENE	IRON
											17-Nov-10	02-Dec-10	TOLUENE	IRON
											29-Nov-10	11-Dec-10	TOLUENE	IRON, TOTAL
											16-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Jan-11	26-Jan-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											17-Jan-11	10-Mar-11	TOLUENE	IRON, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C10619FWP1	C10619F	[redacted]	Ceresco MI	Calhoun	8	Unattended Permission, Anytime	09-Oct-10	Quarterly 2	22	18	**27-Jan-11**	02-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Feb-11	09-Mar-11		IRON, TOTAL, MOLYBDENUM
											03-Mar-11	29-Mar-11	TOLUENE	IRON, TOTAL, MOLYBDENUM
											04-Apr-11	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											18-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											12-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C10619FWP1	C10619F [redacted]	[redacted]	Ceresco MI	Calhoun	8	Unattended Permission, Anytime	09-Oct-10	Quarterly 2	22	18	**14-Sep-11**	29-Nov-11		IRON, TOTAL
											16-Dec-11	20-Jan-12		
											26-Jun-12			
C135093WP1	C135093 [redacted]	[redacted]	Marshall MI	Calhoun	0.25	Unattended Permission, Anytime	11-Oct-10	Quarterly 2	12	9	19-Aug-10			
											11-Oct-10	26-Oct-10		
											21-Oct-10	13-Dec-10		
											06-Nov-10	17-Feb-11		
											01-Dec-10	15-Dec-10		
											26-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											11-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											18-Nov-11			

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C135093WP1	C135093 [redacted]	[redacted]	Marshall MI	Calhoun	0.25	Unattended Permission, Anytime	11-Oct-10	Quarterly 2	12	9	23-Feb-12	16-Mar-12		
											25-Jun-12			
C152569WP1	C152569 [redacted]	[redacted]	Ceresco MI	CALHOUN	7.25	Unattended Permission, Anytime		Quarterly 2	10	9	**17-Nov-10**	02-Dec-10		IRON
											29-Nov-10	13-Dec-10		IRON, TOTAL
											16-Dec-10	26-Jan-11		IRON, TOTAL, VANADIUM, TOTAL
											06-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		IRON, TOTAL
											22-Feb-12	16-Mar-12		
											26-Jun-12			

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C1528D4PW1	C1528D4 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Unattended Permission, Anytime		Quarterly 2	11	9	**11-Nov-10**	06-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											29-Nov-10	06-Jan-11		IRON, TOTAL
											14-Dec-10	26-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Jan-11	26-Jan-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-May-11	02-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											12-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											16-Nov-11	14-Dec-11		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C1528D4PW1	C1528D4 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Unattended Permission, Anytime		Quarterly 2	11	9	23-Feb-12	16-Mar-12		
											25-Jun-12			
C153895PW1	C153895 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Permit But Call First		Quarterly 2	15	13	**17-Nov-10**	02-Dec-10		IRON
											29-Nov-10	10-Dec-10		IRON, TOTAL
											14-Dec-10	26-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											21-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-Mar-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C153895PW1	C153895 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Permit But Call First		Quarterly 2	15	13	**09-May-11**	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											10-Jun-11	22-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											20-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											14-Sep-11	29-Nov-11		IRON, TOTAL
											16-Dec-11	20-Jan-12		
											25-Jun-12			
C000749A	C000749 [redacted]	[redacted]	Battle Creek MI	CALHOUN	22.75	Permit but Call/Schedule Required	19-Nov-10	Semi-Annual	9	9	**06-Aug-10**	20-Aug-10		Iron
											17-Nov-10	13-Dec-10		IRON, NICKEL
											29-Nov-10	11-Dec-10		IRON, TOTAL
											17-Jan-11	10-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											27-Jan-11	02-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C000749A	C000749	[redacted]	Battle Creek	CALHOUN	22.75	Permit but Call/Schedule Required	19-Nov-10	Semi-Annual	9	9	03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
	[redacted]		MI											
											15-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											15-Nov-11	14-Dec-11		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C001311A	C001311	[redacted]	Marshall	Calhoun	3	Unattended Permission, Anytime	06-Sep-10	Semi-Annual	11	11	31-Jul-10	25-Aug-10		
	[redacted]		MI											
											08-Sep-10	04-Oct-10		Iron
											27-Oct-10	14-Jan-11		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											01-Dec-10	15-Dec-10		IRON, TOTAL
											24-Jan-11	15-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C001311A	C001311	[redacted]	Marshall	Calhoun	3	Unattended Permission, Anytime	06-Sep-10	Semi-Annual	11	11	**02-May-11**	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											15-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											17-Nov-11	14-Dec-11		IRON, TOTAL
											24-Feb-12	16-Mar-12		
C0042C2A	C0042C2	[redacted]	Battle Creek	CALHOUN	13.5	Unattended Permission, Anytime	23-Oct-10	Semi-Annual	10	10	**02-Aug-10**	25-Aug-10		
	[redacted]		MI											
											29-Oct-10	04-Dec-10		
											11-Nov-10	13-Jan-11	M,P-XYLENES	IRON, TOTAL
											29-Nov-10	10-Dec-10		IRON, TOTAL
											16-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											06-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											11-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0042C2A	C0042C2 [redacted]	[redacted]	Battle Creek MI	CALHOUN	13.5	Unattended Permission, Anytime	23-Oct-10	Semi-Annual	10	10	**15-Jul-11**	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											17-Jan-12	09-Feb-12		
C00474DA	C00474D [redacted]	[redacted]	Battle Creek MI	Calhoun	13.75	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	11	10	**02-Aug-10**	25-Aug-10		
											05-Aug-10	20-Aug-10		
											24-Oct-10	12-Nov-10		IRON
											02-Nov-10	19-Nov-10		IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											04-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											11-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0048DCA	C0048DC	[redacted]	Battle Creek MI	CALHOUN	22.75	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	12	11	**10-Aug-10**	25-Aug-10		
											23-Sep-10	07-Oct-10		Iron
											07-Oct-10	26-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											04-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											08-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											15-Jul-11	02-Aug-11		IRON, TOTAL, VANADIUM, TOTAL
											17-Oct-11	14-Dec-11		
											17-Jan-12	09-Feb-12		
C00589DA	C00589D	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	13	13	**10-Aug-10**	25-Aug-10		Iron
											28-Aug-10	02-Oct-10		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C00589DA	C00589D [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	13	13	**13-Sep-10**	04-Oct-10		Iron
											21-Sep-10	08-Oct-10		Iron
											07-Oct-10	26-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											04-Jan-11	24-Jan-11		IRON, TOTAL
											08-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM
											15-Jul-11	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											17-Jan-12	09-Feb-12		
C00856DA	C00856D [redacted]	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	07-Sep-10	Semi-Annual	14	14	**04-Aug-10**	25-Aug-10		
											07-Sep-10	05-Oct-10		Iron
											17-Sep-10	08-Feb-11		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C00856DA	C00856D [redacted]	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	07-Sep-10	Semi-Annual	14	14	**08-Oct-10**	26-Oct-10		Iron
											18-Oct-10	12-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											13-Jan-11	15-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Feb-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											28-Feb-11	25-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C00856DA	C00856D	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	07-Sep-10	Semi-Annual	14	14	**12-Sep-11**	29-Nov-11		IRON, TOTAL
	[redacted]										15-Dec-11	20-Jan-12		
C00928FA	C00928F	[redacted]	Augusta MI	Kalamazoo	26.5	Unattended Permission, Anytime	27-Oct-10	Semi-Annual	10	10	**03-Aug-10**	23-Aug-10		
	[redacted]										**31-Aug-10**	05-Oct-10		
											27-Oct-10	14-Jan-11		
											05-Nov-10	09-Dec-10		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL
											13-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											07-Apr-11	02-May-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											17-Oct-11	08-Dec-11		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C00928FA	C00928F [redacted]	[redacted]	Augusta MI	Kalamazoo	26.5	Unattended Permission, Anytime	27-Oct-10	Semi-Annual	10	10	17-Jan-12	09-Feb-12		
C0108EFA	C0108EF [redacted]	[redacted]	Marshall MI	Calhoun	0.75	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	13	12	**01-Aug-10**	21-Aug-10		
											10-Aug-10	01-Nov-10		Iron
											12-Aug-10	05-Oct-10		Iron
											20-Aug-10	27-Sep-10		Iron
											24-Oct-10	30-Nov-10		
											03-Nov-10			
											11-Nov-10	09-Dec-10		IRON, TOTAL
											17-Dec-10	17-Feb-11		IRON, TOTAL, TITANIUM, VANADIUM, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL
											11-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0108EFA	C0108EF	[redacted]	Marshall	Calhoun	0.75	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	13	12	02-May-11	12-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											15-Aug-11	14-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, TITANIUM
											18-Nov-11	19-Dec-11		IRON, TOTAL
C0137BDA	C0137BD	[redacted]	Marshall	Calhoun	2.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	13	08-Aug-10	01-Sep-10		Iron
	[redacted]		MI											
											01-Sep-10	05-Oct-10		Iron
											11-Sep-10	04-Oct-10		Iron
											20-Sep-10	08-Feb-11		Iron
											02-Oct-10	08-Feb-11		Iron
											16-Oct-10	28-Oct-10		Iron
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0137BDA	C0137BD	[redacted]	Marshall	Calhoun	2.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	13	**06-Apr-11**	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											20-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											19-Oct-11	08-Dec-11		
											19-Jan-12	09-Feb-12		
C0139BAA	C0139BA	[redacted]	Marshall	Calhoun	2.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	11	**02-Aug-10**	25-Aug-10		
	[redacted]		MI											
											01-Sep-10	05-Oct-10		Iron
											12-Sep-10	04-Oct-10		Iron
											19-Sep-10	08-Feb-11		Iron
											03-Oct-10	20-Oct-10		Iron
											16-Oct-10			Iron
											29-Oct-10	03-Dec-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											07-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0139BAA	C0139BA	[redacted]	Marshall	Calhoun	2.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	11	**06-Apr-11**	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											20-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											19-Oct-11	08-Dec-11		
C015322A	C015322	[redacted]	Battle Creek	Calhoun	23	Unattended Permission, Anytime	07-Sep-10	Semi-Annual	16	14	**05-Aug-10**			
	[redacted]		MI											
											07-Sep-10	07-Oct-10		Iron
											13-Sep-10	04-Oct-10		Iron
											16-Sep-10	07-Oct-10		Iron
											30-Sep-10	20-Oct-10		Iron
											14-Oct-10	28-Oct-10		Iron, Nickel
											28-Oct-10	17-Nov-10		IRON
											11-Nov-10	09-Dec-10		IRON, TOTAL
											29-Nov-10	11-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C015322A	C015322	[redacted]	Battle Creek	Calhoun	23	Unattended Permission, Anytime	07-Sep-10	Semi-Annual	16	14	**07-Feb-11**	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											04-May-11	17-May-11		IRON, TOTAL
											11-Aug-11	29-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Nov-11	18-Jan-12		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C015481A	C015481	[redacted]	Battle Creek	Calhoun	23	Unattended Permission, Anytime	04-Sep-10	Semi-Annual	13	13	**05-Aug-10**	20-Aug-10		
	[redacted]		MI											
											04-Sep-10	04-Oct-10		
											16-Sep-10	07-Oct-10		Iron
											30-Sep-10	20-Oct-10		Iron
											14-Oct-10	28-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C015481A	C015481 [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	04-Sep-10	Semi-Annual	13	13	**14-Jan-11**	17-Feb-11		IRON, TOTAL, TITANIUM
											07-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Nov-11	18-Jan-12		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C0156ADA	C0156AD [redacted]	[redacted]	Battle Creek MI	Calhoun	23.25	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	15	14	**05-Aug-10**			
											01-Sep-10	14-Oct-10		Iron
											13-Sep-10	30-Nov-10		Iron, Nickel
											21-Sep-10	28-Oct-10		Iron, Nickel
											30-Sep-10	30-Nov-10		Iron, Nickel
											14-Oct-10	28-Oct-10		Iron
											28-Oct-10	30-Nov-10		IRON, NICKEL
											11-Nov-10	09-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0156ADA	C0156AD [redacted]	[redacted]	Battle Creek MI	Calhoun	23.25	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	15	14	02-Dec-10	18-Dec-10		IRON, TOTAL, NICKEL, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL, NICKEL, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											15-Nov-11	15-Mar-12		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C01573BA	C01573B [redacted]	[redacted]	Battle Creek MI	Calhoun	23.25	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	12	05-Aug-10			
											01-Sep-10	28-Oct-10		Iron
											13-Sep-10	04-Oct-10		Iron
											16-Sep-10	07-Jan-11		Iron
											30-Sep-10	08-Feb-11		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01573BA	C01573B [redacted]	[redacted]	Battle Creek MI	Calhoun	23.25	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	13	12	14-Oct-10	26-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL
											13-Jan-11	15-Feb-11		IRON, TOTAL
											11-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Jul-11	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											19-Jan-12	09-Feb-12		
C0165D4PW1	C0165D4M [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	16	14	28-Aug-10	04-Oct-10		Iron
											31-Aug-10	05-Oct-10		Iron
											14-Sep-10	05-Oct-10		Iron
											20-Sep-10	08-Feb-11		
											09-Oct-10	28-Oct-10		
											19-Oct-10	08-Feb-11		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0165D4PW1	C0165D4M	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	16	14	**30-Oct-10**	18-Nov-10		IRON
											18-Nov-10	09-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											03-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											06-May-11	26-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Nov-11	14-Dec-11		
											21-Feb-12	16-Mar-12		
C017595PW1	C017595	[redacted]	Battle Creek MI	Calhoun	14.25	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	12	10	**29-Jul-10**	21-Aug-10		
											24-Oct-10	12-Nov-10		IRON
											02-Nov-10	19-Nov-10		IRON

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C017595PW1	C017595 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.25	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	12	10	01-Dec-10	15-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											03-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-May-11	26-May-11		IRON, TOTAL, TITANIUM
											09-Aug-11	11-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											16-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C0177B9A	C0177B9 [redacted]	[redacted]	Battle Creek MI	Calhoun	14	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	11	11	10-Aug-10	02-Sep-10		Iron
											28-Sep-10	20-Oct-10		Iron
											24-Oct-10	12-Nov-10		IRON
											07-Nov-10	29-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0177B9A	C0177B9 [redacted]	[redacted]	Battle Creek MI	Calhoun	14	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	11	11	25-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											03-Feb-11	02-Mar-11		IRON, TOTAL
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											16-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C0180D5A	C0180D5 [redacted]	[redacted]	Battle Creek MI	Calhoun	14	Permit but Call/Schedule Required	31-Aug-10	Semi-Annual	15	13	08-Aug-10	19-Aug-10		Iron
											31-Aug-10	05-Oct-10		Iron
											14-Sep-10	05-Oct-10		Iron
											20-Sep-10			Iron
											07-Oct-10	28-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0180D5A	C0180D5 [redacted]	[redacted]	Battle Creek MI	Calhoun	14	Permit but Call/Schedule Required	31-Aug-10	Semi-Annual	15	13	**30-Oct-10**	17-Nov-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											19-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											08-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											17-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C018776A	C018776 [redacted]	[redacted]	Galesburg MI	KALAMAZOO	37.25	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	11	11	**10-Aug-10**	23-Aug-10		
											23-Sep-10	07-Oct-10		
											05-Oct-10	20-Oct-10		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C018776A	C018776 [redacted]	[redacted]	Galesburg MI	KALAMAZOO	37.25	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	11	11	**16-Oct-10**	01-Nov-10		
											29-Oct-10	04-Dec-10		
											01-Dec-10	15-Dec-10		
											12-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											11-Apr-11	02-May-11		TITANIUM, VANADIUM, TOTAL
											11-Jul-11	21-Jul-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		
											16-Jan-12	09-Feb-12		
C01932EA	C01932E [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	18	17	**07-Aug-10**	01-Sep-10		Iron
											01-Sep-10	01-Nov-10		
											12-Sep-10	04-Oct-10		
											03-Oct-10	07-Jan-11		
											16-Oct-10	26-Oct-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01932EA	C01932E [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	18	17	**30-Oct-10**	18-Nov-10		
											01-Dec-10	06-Jan-11		
											12-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											31-Jan-11	02-Mar-11		MOLYBDENUM, NICKEL, TOTAL
											28-Feb-11	23-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Jun-11	22-Jun-11		MOLYBDENUM, TITANIUM
											14-Jul-11	02-Aug-11		MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01932EA	C01932E	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	01-Sep-10	Semi-Annual	18	17	**08-Aug-11**	11-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		
											16-Jan-12	09-Feb-12		
C01948DPW1	C01948D	[redacted]	Galesburg MI	Kalamazoo	34.25	Unattended Permission, Anytime	06-Sep-10	Semi-Annual	11	10	**08-Sep-10**	16-Oct-10		
											17-Sep-10	08-Oct-10		
											08-Oct-10	26-Oct-10		
											18-Oct-10			
											30-Oct-10	18-Nov-10		
											01-Dec-10	06-Jan-11		
											12-Jan-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											07-Apr-11	05-May-11		MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01948DPW1	C01948D	[redacted]	Galesburg	Kalamazoo	34.25	Unattended Permission, Anytime	06-Sep-10	Semi-Annual	11	10	**14-Jul-11**	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI								**18-Oct-11**	18-Jan-12		
											16-Jan-12	09-Feb-12		
C0229A2A	C0229A2M	[redacted]	Battle Creek	CALHOUN	14.75	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	16	16	**02-Aug-10**	17-Nov-10		
	[redacted]		MI								**28-Sep-10**	11-Nov-10		Iron
											12-Oct-10	11-Nov-10		Iron
											27-Oct-10	10-Jan-11		IRON, NICKEL
											05-Nov-10	20-Jan-11		IRON, TOTAL
											16-Dec-10	24-Jan-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											18-Jan-11	17-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											03-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0229A2A	C0229A2M	[redacted]	Battle Creek MI	CALHOUN	14.75	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	16	16	**01-Mar-11**	23-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-May-11	26-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											15-Jul-11	02-Aug-11		IRON, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Nov-11	14-Dec-11		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C023047A	C023047	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	31-Aug-10	Semi-Annual	15	14	**07-Aug-10**	01-Sep-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C023047A	C023047 [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	31-Aug-10	Semi-Annual	15	14	31-Aug-10	05-Oct-10		Iron
											13-Sep-10	04-Oct-10		Iron
											16-Sep-10	07-Oct-10		Iron
											30-Sep-10	20-Oct-10		Iron
											14-Oct-10	01-Nov-10		Iron
											28-Oct-10	17-Nov-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											14-Feb-11	03-Mar-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL
											08-Aug-11	11-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Nov-11	18-Jan-12		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C023047A	C023047 [redacted]	[redacted]	Battle Creek MI	Calhoun	23	Unattended Permission, Anytime	31-Aug-10	Semi-Annual	15	14	20-Feb-12	16-Mar-12		
C0231D1A	C0231D1 [redacted]	[redacted]	Battle Creek MI	CALHOUN	23	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	12	11	**07-Aug-10**	01-Sep-10		Iron
											25-Sep-10	07-Oct-10		Iron
											30-Sep-10			Iron
											14-Oct-10	28-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		IRON, TOTAL, TITANIUM
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											04-May-11	17-May-11		IRON, TOTAL
											10-Aug-11	24-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											15-Nov-11	18-Jan-12		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0231D1A	C0231D1 [redacted]	[redacted]	Battle Creek MI	CALHOUN	23	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	12	11	21-Feb-12	16-Mar-12		
C024723PW1	C024723 [redacted]	[redacted]	Galesburg MI	Kalamazoo	36.25	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	16	15	**04-Sep-10**	07-Oct-10		
											17-Sep-10	07-Oct-10		
											06-Oct-10	20-Oct-10		
											19-Oct-10	12-Nov-10		
											06-Nov-10	03-Dec-10		
											03-Dec-10	18-Dec-10		
											12-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											31-Jan-11	02-Mar-11		IRON, TOTAL, VANADIUM, TOTAL
											28-Feb-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C024723PW1	C024723	[redacted]	Galesburg	Kalamazoo	36.25	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	16	15	**02-May-11**	12-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											09-Jun-11	21-Jun-11		IRON, TOTAL, TITANIUM
											14-Jul-11	02-Aug-11		IRON, TOTAL, TITANIUM, VANADIUM, TOTAL
											12-Sep-11	29-Nov-11		
											15-Dec-11	20-Jan-12		
C0252EDA	C0252ED	[redacted]	Galesburg	Kalamazoo	36.25	Permit but Call/Schedule Required	06-Sep-10	Semi-Annual	12	12	**24-Aug-10**	06-Oct-10		
	[redacted]		MI											
											08-Sep-10	13-Oct-10		
											17-Sep-10	07-Oct-10		
											06-Oct-10	20-Oct-10		
											16-Oct-10	28-Oct-10		
											29-Oct-10	04-Dec-10		
											03-Dec-10	18-Dec-10		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0252EDA	C0252ED [redacted]	[redacted]	Galesburg MI	Kalamazoo	36.25	Permit but Call/Schedule Required	06-Sep-10	Semi-Annual	12	12	**13-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											11-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											18-Oct-11	18-Jan-12		
											16-Jan-12	09-Feb-12		
C0269A6PW1	C0269A6 [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	08-Oct-10	Semi-Annual	17	16	**29-Aug-10**	28-Oct-10		
											11-Sep-10			
											17-Sep-10	28-Oct-10		
											08-Oct-10	26-Oct-10		
											18-Oct-10	12-Nov-10		
											30-Oct-10	18-Nov-10		
											16-Dec-10	24-Jan-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0269A6PW1	C0269A6	[redacted]	Galesburg	Kalamazoo	34.75	Unattended Permission, Anytime	08-Oct-10	Semi-Annual	17	16	**12-Jan-11**	15-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
	[redacted]		MI											
											31-Jan-11	02-Mar-11		BERYLLIUM, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											28-Feb-11	23-Mar-11		IRON, TOTAL, MOLYBDENUM
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											14-Jul-11	02-Aug-11		MOLYBDENUM, TITANIUM
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0269A6PW1	C0269A6 [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	08-Oct-10	Semi-Annual	17	16	16-Jan-12	09-Feb-12		
C0271D5PW1	C0271D5 [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.25	Unattended Permission, Anytime	25-Oct-10	Semi-Annual	9	9	**19-Sep-10**	11-Nov-10		
											25-Oct-10	12-Nov-10		IRON
											06-Nov-10	03-Dec-10		IRON
											01-Dec-10	15-Dec-10		
											13-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											07-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Jul-11	02-Aug-11		IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		
											16-Jan-12	09-Feb-12		
C0298FFWP1	C0298FF [redacted]	[redacted]	Battle Creek MI	Calhoun	17	Permit but Call/Schedule Required	06-Oct-10	Semi-Annual	14	14	**07-Oct-10**	28-Oct-10		Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0298FFWP1	C0298FF [redacted]	[redacted]	Battle Creek MI	Calhoun	17	Permit but Call/Schedule Required	06-Oct-10	Semi-Annual	14	14	**17-Oct-10**	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL
											14-Jan-11	17-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											01-Feb-11	02-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											01-Mar-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											05-May-11	17-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Jun-11	22-Jun-11		IRON, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0298FFWP1	C0298FF [redacted]	[redacted]	Battle Creek MI	Calhoun	17	Permit but Call/Schedule Required	06-Oct-10	Semi-Annual	14	14	**19-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											16-Aug-11	29-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											20-Oct-11	08-Dec-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		
C0298FFWP2	C0298FF [redacted]	[redacted]	Battle Creek MI	Calhoun	17	Permit but Call/Schedule Required	06-Oct-10	Semi-Annual	10	10	**07-Oct-10**	28-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON
											02-Dec-10	12-Jan-11		IRON, TOTAL
											14-Jan-11	17-Feb-11		BERYLLIUM, TOTAL, IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											01-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											05-May-11	17-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0298FFWP2	C0298FF	[redacted]	Battle Creek	Calhoun	17	Permit but Call/Schedule Required	06-Oct-10	Semi-Annual	10	10	**16-Aug-11**	29-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
	[redacted]		MI											
											20-Oct-11	08-Dec-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		
C030917WP1	C030917	[redacted]	Galesburg	Kalamazoo	32.5	Permit but Call/Schedule Required	07-Sep-10	Semi-Annual	11	11	**23-Oct-10**	12-Nov-10		IRON
	[redacted]		MI											
											04-Nov-10	23-Nov-10		IRON
											18-Nov-10	09-Dec-10		IRON, TOTAL
											01-Dec-10	21-Dec-10		IRON, TOTAL
											10-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											31-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM
											28-Feb-11	23-Mar-11		IRON, TOTAL, MOLYBDENUM
											05-Apr-11	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C030917WP1	C030917	[redacted]	Galesburg	Kalamazoo	32.5	Permit but Call/Schedule Required	07-Sep-10	Semi-Annual	11	11	**10-Jun-11**	22-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI											
											12-Sep-11	29-Nov-11		IRON, TOTAL
											15-Dec-11	20-Jan-12		
C0310F2PW1	C0310F2	[redacted]	Marshall	Calhoun	3.25	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	14	14	**08-Sep-10**	16-Oct-10		Iron
	[redacted]		MI											
											24-Oct-10	30-Nov-10		IRON
											05-Nov-10	09-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		IRON, TOTAL
											11-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											11-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MERCURY, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											02-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0310F2PW1	C0310F2	[redacted]	Marshall	Calhoun	3.25	Unattended Permission, Anytime	24-Oct-10	Semi-Annual	14	14	**04-Apr-11**	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											02-May-11	12-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											19-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-Aug-11	14-Sep-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											14-Sep-11	29-Nov-11		IRON, TOTAL
											16-Dec-11	20-Jan-12		
C0337D3WP1	C0337D3	[redacted]	Augusta	Kalamazoo	27.25	Unattended Permission, Anytime	04-Sep-10	Semi-Annual	11	10	**04-Sep-10**	13-Oct-10		
	[redacted]		MI											
											18-Sep-10	13-Oct-10		Iron
											08-Oct-10	26-Oct-10		Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0337D3WP1	C0337D3 [redacted]	[redacted]	Augusta MI	Kalamazoo	27.25	Unattended Permission, Anytime	04-Sep-10	Semi-Annual	11	10	**18-Oct-10**			Iron
											05-Nov-10	09-Dec-10		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL
											13-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											07-Apr-11	02-May-11		IRON, TOTAL, TITANIUM
											15-Jul-11	02-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM
											17-Oct-11	08-Dec-11		IRON, TOTAL
											17-Jan-12	09-Feb-12		
C03429BWP1	C03429B [redacted]	[redacted]	Augusta MI	Kalamazoo	26.75	Unattended Permission, Anytime	18-Oct-10	Semi-Annual	11	10	**07-Sep-10**	13-Oct-10		Iron
											18-Sep-10	13-Oct-10		Iron
											09-Oct-10	26-Oct-10		Iron
											20-Oct-10			Iron
											05-Nov-10	09-Dec-10		IRON, TOTAL
											02-Dec-10	18-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C03429BWP1	C03429B [redacted]	[redacted]	Augusta MI	Kalamazoo	26.75	Unattended Permission, Anytime	18-Oct-10	Semi-Annual	11	10	**13-Jan-11**	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL
											07-Apr-11	02-May-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											15-Jul-11	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											17-Jan-12	09-Feb-12		
C046713WP1	C046713 [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	14	12	**26-Aug-10**	30-Nov-10		Iron, Nickel
											28-Aug-10	13-Oct-10		
											13-Sep-10	13-Oct-10		
											21-Sep-10	13-Oct-10		
											10-Oct-10	01-Nov-10		
											21-Oct-10			
											01-Nov-10			
											17-Nov-10	02-Dec-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C046713WP1	C046713 [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	26-Aug-10	Semi-Annual	14	12	**19-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											01-Feb-11	02-Mar-11		IRON, TOTAL, VANADIUM, TOTAL
											04-May-11	17-May-11		IRON, TOTAL, VANADIUM, TOTAL
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											15-Nov-11	18-Jan-12		NICKEL, TOTAL
C04879DWP1	C04879DM [redacted]	[redacted]	Battle Creek MI	Calhoun	14.75	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	11	11	**28-Sep-10**	11-Nov-10		Iron
											12-Oct-10	11-Nov-10	p,m-Xylene	Iron
											23-Oct-10	14-Jan-11		IRON
											04-Nov-10	30-Nov-10		IRON
											19-Nov-10	06-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C04879DWP1	C04879DM [redacted]	[redacted]	Battle Creek MI	Calhoun	14.75	Unattended Permission, Anytime	28-Sep-10	Semi-Annual	11	11	**03-Feb-11**	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											14-Nov-11	14-Dec-11		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C0491E9PW1	C0491E9 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Permit but Call/Schedule Required	26-Aug-10	Semi-Annual	14	13	**28-Aug-10**	13-Oct-10		Iron
											13-Sep-10	13-Oct-10		Iron
											19-Sep-10	13-Oct-10		Iron
											10-Oct-10	28-Oct-10		Iron
											20-Oct-10			Iron
											30-Oct-10	18-Nov-10		IRON
											03-Dec-10	20-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0491E9PW1	C0491E9 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Permit but Call/Schedule Required	26-Aug-10	Semi-Annual	14	13	**18-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											04-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											14-Feb-11	03-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											10-Aug-11	29-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											15-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C052339PW1	C052339 [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	26-Sep-10	Semi-Annual	12	11	**28-Aug-10**	13-Oct-10		Iron
											13-Sep-10	13-Oct-10		Iron
											19-Sep-10	13-Oct-10		Iron
											09-Oct-10	28-Oct-10		Iron
											19-Oct-10			Iron

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C052339PW1	C052339	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	26-Sep-10	Semi-Annual	12	11	**30-Oct-10**	18-Nov-10		IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											03-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											06-May-11	26-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Aug-11	15-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											14-Nov-11	18-Jan-12		IRON, TOTAL
C052927WP1	C052927	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime		Semi-Annual	9	9	**14-Dec-10**	26-Jan-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C052927WP1	C052927 [redacted]	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime		Semi-Annual	9	9	**17-Jan-11**	10-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											27-Jan-11	02-Mar-11		MOLYBDENUM, NICKEL, TOTAL
											02-Mar-11	25-Mar-11		MOLYBDENUM, NICKEL, TOTAL
											04-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											14-Sep-11	30-Nov-11		
											16-Dec-11	20-Jan-12		
C05354DA	C05354D [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	15-Sep-10	Semi-Annual	14	13	**15-Aug-10**	02-Sep-10		Iron
											28-Aug-10	02-Oct-10		Iron
											15-Sep-10	04-Oct-10		Iron
											22-Sep-10	14-Oct-10		Iron
											09-Oct-10	26-Oct-10		Iron
											19-Oct-10			Iron

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C05354DA	C05354D [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	15-Sep-10	Semi-Annual	14	13	**30-Oct-10**	30-Nov-10		IRON
											03-Dec-10	18-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											03-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											14-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C053761WP1	C053761 [redacted]	[redacted]	Battle Creek MI	Calhoun	18.25	Permit but Call/Schedule Required	09-Sep-10	Semi-Annual	11	11	**20-Sep-10**	13-Oct-10		Iron
											12-Oct-10	28-Oct-10		Iron
											25-Oct-10	03-Dec-10		IRON
											08-Nov-10	29-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C053761WP1	C053761 [redacted]	[redacted]	Battle Creek MI	Calhoun	18.25	Permit but Call/Schedule Required	09-Sep-10	Semi-Annual	11	11	**19-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											03-Feb-11	02-Mar-11		IRON, TOTAL
											05-May-11	17-May-11		IRON, TOTAL, NICKEL, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											16-Nov-11	18-Jan-12		IRON, TOTAL
											22-Feb-12	16-Mar-12		
C0572EAWP1	C0572EA [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Permit but Call/Schedule Required	04-Sep-10	Semi-Annual	12	12	**07-Sep-10**	13-Oct-10		Iron
											20-Sep-10	13-Oct-10		Iron
											11-Oct-10	26-Oct-10		Iron
											23-Oct-10	12-Nov-10		IRON
											08-Nov-10	29-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											19-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0572EAWP1	C0572EA [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Permit but Call/Schedule Required	04-Sep-10	Semi-Annual	12	12	**14-Feb-11**	03-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
											06-May-11	26-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											14-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C0574DFWP1	C0574DF [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	12	11	**28-Sep-10**	20-Oct-10		Iron
											12-Oct-10	28-Oct-10		Iron
											23-Oct-10	14-Jan-11		IRON
											09-Nov-10	02-Dec-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											18-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											08-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0574DFWP1	C0574DF [redacted]	[redacted]	Battle Creek MI	Calhoun	14.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	12	11	**06-May-11**	26-May-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											09-Aug-11	11-Sep-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											15-Nov-11	18-Jan-12		IRON, TOTAL
											21-Feb-12	16-Mar-12		
C059451PW1	C059451 [redacted]	[redacted]	Battle Creek MI	Calhoun	10.5	Permit but Call/Schedule Required	20-Sep-10	Semi-Annual	8	8	**04-Sep-10**	13-Oct-10		
											16-Dec-10	26-Jan-11		IRON, TOTAL, VANADIUM, TOTAL
											03-Jan-11	15-Feb-11		IRON, TOTAL
											08-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											01-Mar-11	25-Mar-11		MOLYBDENUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C059451PW1	C059451	[redacted]	Battle Creek	Calhoun	10.5	Permit but Call/Schedule Required	20-Sep-10	Semi-Annual	8	8	**10-Jun-11**	22-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI								**14-Sep-11**	30-Nov-11		
											20-Dec-11	20-Jan-12		
C06162CPW1	C06162C	[redacted]	Battle Creek	Calhoun	14.75	Permit but Call/Schedule Required	20-Sep-10	Semi-Annual	12	12	**07-Sep-10**	07-Jan-11		Iron
	[redacted]		MI								**20-Sep-10**	13-Oct-10		Iron
											11-Oct-10	08-Feb-11		Iron
											25-Oct-10	08-Feb-11	TOLUENE	IRON
											08-Nov-10	29-Nov-10		IRON
											02-Dec-10	18-Dec-10		IRON, TOTAL
											19-Jan-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Feb-11	02-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, VANADIUM, TOTAL
											05-May-11	17-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C06162CPW1	C06162C	[redacted]	Battle Creek	Calhoun	14.75	Permit but Call/Schedule Required	20-Sep-10	Semi-Annual	12	12	**11-Aug-11**	29-Aug-11		BERYLLIUM, TOTAL, IRON, TOTAL, MERCURY, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
	[redacted]		MI								**16-Nov-11**	18-Jan-12		IRON, TOTAL
											22-Feb-12	16-Mar-12		
C0668ECA	C0668EC	[redacted]	Marshall	Calhoun	2.75	Unattended Permission, Anytime		Semi-Annual	9	9	**18-Aug-10**	24-Sep-10		
	[redacted]		MI								**24-Oct-10**	12-Nov-10		IRON
											05-Nov-10	10-Dec-10		IRON, TOTAL
											30-Nov-10	15-Dec-10		
											07-Jan-11	15-Feb-11		IRON, TOTAL
											06-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											20-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0668ECA	C0668EC	[redacted]	Marshall MI	Calhoun	2.75	Unattended Permission, Anytime		Semi-Annual	9	9	19-Jan-12	09-Feb-12		
C0678ADA	C0678AD	[redacted]	Augusta MI	KALAMAZOO	29.5	Unattended Permission, Anytime	23-Sep-10	Semi-Annual	12	11	**13-Aug-10**	07-Sep-10		
											23-Sep-10	07-Oct-10		
											08-Oct-10	26-Oct-10		
											18-Oct-10			
											30-Oct-10	03-Dec-10		
											02-Dec-10	18-Dec-10		IRON, TOTAL
											10-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, PHENANTHRENE, TITANIUM
											31-Jan-11	02-Mar-11		
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											08-Aug-11	18-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											14-Nov-11	18-Jan-12		
											20-Feb-12	16-Mar-12		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0693ABPW1	C0693AB [redacted]	[redacted]	Battle Creek MI	Calhoun	11	Permit but Call/Schedule Required	27-Oct-10	Semi-Annual	10	10	**20-Aug-10**	27-Sep-10		Iron, Nickel
											27-Oct-10	14-Jan-11		IRON
											03-Nov-10	19-Nov-10		IRON
											17-Nov-10	02-Dec-10		IRON
											02-Dec-10	20-Dec-10		IRON, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL
											12-Apr-11	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											20-Oct-11	08-Dec-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		
C0730ACPW1	C0730AC [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	17	17	**01-Sep-10**	09-Nov-10		Iron
											14-Sep-10	09-Nov-10		
											22-Sep-10	09-Nov-10		Iron
											09-Oct-10	09-Nov-10		

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0730ACPW1	C0730AC [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	17	17	25-Oct-10	14-Jan-11		
											06-Nov-10	03-Dec-10		
											01-Dec-10	15-Dec-10		
											12-Jan-11	21-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											31-Jan-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											28-Feb-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, VANADIUM, TOTAL
											05-Apr-11	26-Apr-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0730ACPW1	C0730AC	[redacted]	Galesburg	Kalamazoo	34.5	Unattended Permission, Anytime	14-Sep-10	Semi-Annual	17	17	**14-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, TITANIUM, VANADIUM, TOTAL
	[redacted]		MI											
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-Sep-11	29-Nov-11		
											15-Dec-11	20-Jan-12		
C07313APW1	C07313A	[redacted]	Galesburg	Kalamazoo		Unattended Permission, Anytime	15-Sep-10	Semi-Annual	8	6	**15-Sep-10**			Iron
	[redacted]		MI											
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											09-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											14-Jul-11	02-Aug-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											12-Sep-11	29-Nov-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C07313APW1	C07313A [redacted]	[redacted]	Galesburg MI	Kalamazoo		Unattended Permission, Anytime	15-Sep-10	Semi-Annual	8	6	15-Dec-11	20-Jan-12		
C07824BPW1	C07824B [redacted]	[redacted]	Augusta MI	Kalamazoo	27.5	Unattended Permission, Anytime	29-Aug-10	Semi-Annual	10	10	**27-Oct-10**	14-Jan-11		IRON
											03-Nov-10	07-Jan-11		IRON
											19-Nov-10	04-Dec-10		IRON, TOTAL
											02-Dec-10	20-Dec-10		IRON, TOTAL
											10-Jan-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											04-Feb-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM , TITANIUM
											03-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM
											08-Aug-11	11-Sep-11		IRON, TOTAL, MOLYBDENUM , NICKEL, TOTAL, TITANIUM
											14-Nov-11	14-Dec-11		IRON, TOTAL
											20-Feb-12	16-Mar-12		
C0876A0WP1	C0876A0 [redacted]	[redacted]	Battle Creek MI	Calhoun	19.25	Permit but Call/Schedule Required	04-Oct-10	Semi-Annual	9	9	**05-Oct-10**	20-Oct-10		Iron
											25-Oct-10	12-Nov-10		IRON

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0876A0WP1	C0876A0 [redacted]0	[redacted]	Battle Creek MI	Calhoun	19.25	Permit but Call/Schedule Required	04-Oct-10	Semi-Annual	9	9	**07-Nov-10**	29-Nov-10		IRON
											03-Dec-10	20-Dec-10		IRON, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											12-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											18-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL
											19-Oct-11	08-Dec-11		
											18-Jan-12	09-Feb-12		
C087736WP1	C087736 [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.5	Unattended Permission, Anytime	27-Sep-10	Semi-Annual	11	10	**27-Sep-10**	28-Oct-10		Nickel
											09-Oct-10	26-Oct-10		
											19-Oct-10			
											03-Nov-10	19-Nov-10		IRON
											18-Nov-10	05-Jan-11		IRON, TOTAL
											01-Dec-10	15-Dec-10		

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C087736WP1	C087736	[redacted]	Galesburg MI	Kalamazoo	34.5	Unattended Permission, Anytime	27-Sep-10	Semi-Annual	11	10	**12-Jan-11**	15-Feb-11		IRON, TOTAL, VANADIUM, TOTAL
	[redacted]										**07-Apr-11**	02-May-11		IRON, TOTAL, TITANIUM
											14-Jul-11	02-Aug-11		IRON, TOTAL, TITANIUM
											18-Oct-11	18-Jan-12		
											16-Jan-12	09-Feb-12		
C0920E7PW1	C0920E7	[redacted]	Battle Creek MI	Calhoun	22.75	Unattended Permission, Anytime	23-Nov-10	Semi-Annual	8	8	**01-Dec-10**	15-Dec-10		
	[redacted]										**15-Dec-10**	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											04-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											01-Feb-11	07-Mar-11		IRON, TOTAL, VANADIUM, TOTAL
											28-Feb-11	25-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0920E7PW1	C0920E7	[redacted]	Battle Creek	Calhoun	22.75	Unattended Permission, Anytime	23-Nov-10	Semi-Annual	8	8	**06-Jun-11**	21-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
	[redacted]		MI								**13-Sep-11**	29-Nov-11		
											19-Dec-11	20-Jan-12		
C0949C5WP1	C0949C5	[redacted]	Battle Creek	Calhoun	13.75	Unattended Permission, Anytime	25-Sep-10	Semi-Annual	12	12	**25-Sep-10**	13-Oct-10		Iron
	[redacted]		MI								**12-Oct-10**	26-Oct-10		Iron
											23-Oct-10	14-Jan-11		IRON
											07-Nov-10	29-Nov-10		IRON
											03-Dec-10	20-Dec-10		IRON, TOTAL
											06-Jan-11	24-Jan-11		IRON, TOTAL, MERCURY, TOTAL, NICKEL, TOTAL
											09-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											02-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0949C5WP1	C0949C5	[redacted]	Battle Creek MI	Calhoun	13.75	Unattended Permission, Anytime	25-Sep-10	Semi-Annual	12	12	**04-Apr-11**	26-Apr-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											06-Jun-11	21-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											13-Sep-11	28-Nov-11		IRON, TOTAL
											19-Dec-11	20-Jan-12		
C14123EWP1	C14123E	[redacted]	Battle Creek MI	Calhoun	20.25	Unattended Permission, Anytime	20-Oct-10	Semi-Annual	10	10	**24-Oct-10**	12-Nov-10		IRON
											03-Nov-10	07-Jan-11		IRON, NICKEL
											18-Nov-10	21-Dec-10		IRON, TOTAL, NICKEL, TOTAL
											02-Dec-10	20-Dec-10		IRON, TOTAL
											15-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											03-Jan-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C14123EWP1	C14123E	[redacted]	Battle Creek	Calhoun	20.25	Unattended Permission, Anytime	20-Oct-10	Semi-Annual	10	10	**11-Apr-11**	02-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											15-Jul-11	02-Aug-11		IRON, TOTAL
											17-Oct-11	08-Dec-11		IRON, TOTAL
											17-Jan-12	09-Feb-12		
C14332AWP1	C14332A	[redacted]	Augusta	Kalamazoo	29.75	Permit but Call/Schedule Required		Semi-Annual	9	9	**19-Nov-10**	04-Dec-10		IRON, TOTAL
	[redacted]		MI											
											29-Nov-10	11-Dec-10		IRON, TOTAL
											15-Dec-10	26-Jan-11		IRON, TOTAL, VANADIUM, TOTAL
											10-Jan-11	21-Apr-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											04-Feb-11	02-Mar-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
											11-Apr-11	02-May-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C14332AWP1	C14332A	[redacted]	Augusta	Kalamazoo	29.75	Permit but Call/Schedule Required		Semi-Annual	9	9	**14-Jul-11**	02-Aug-11		IRON, TOTAL, MOLYBDENUM, TITANIUM
	[redacted]		MI											
											20-Oct-11	08-Dec-11		IRON, TOTAL
											18-Jan-12	09-Feb-12		
C145599A	C145599	[redacted]	Battle Creek	CALHOUN	11	Permit but Call/Schedule Required		Semi-Annual	8	8	**23-Aug-10**	01-Nov-10		Iron
	[redacted]		MI											
											17-Nov-10	02-Dec-10		IRON
											01-Dec-10	15-Dec-10		IRON, TOTAL
											06-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL
											08-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											05-May-11	17-May-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											09-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											16-Nov-11	18-Jan-12		IRON, TOTAL
C145623WP1	C145623	[redacted]	Battle Creek	Calhoun	10.75	Unattended Permission, Anytime	28-Oct-10	Semi-Annual	8	8	**03-Nov-10**	07-Jan-11		IRON
	[redacted]		MI											

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C145623WP1	C145623 [redacted]	[redacted]	Battle Creek MI	Calhoun	10.75	Unattended Permission, Anytime	28-Oct-10	Semi-Annual	8	8	**17-Nov-10**	02-Dec-10		IRON
											29-Nov-10	10-Dec-10		IRON, TOTAL
											08-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											01-Mar-11	25-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											10-Jun-11	22-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											13-Sep-11	08-Dec-11		IRON, TOTAL, NICKEL, TOTAL
											20-Dec-11	20-Jan-12		
C1509C0WP1	C1509C0 [redacted]	[redacted]	Battle Creek MI	Calhoun	20.5	Permit but Call/Schedule Required		Semi-Annual	12	10	13-Aug-10			
											07-Nov-10	10-Dec-10		IRON
											18-Nov-10	05-Jan-11		IRON, TOTAL
											29-Nov-10	11-Dec-10		IRON, TOTAL
											15-Dec-10	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C1509C0WP1	C1509C0 [redacted]	[redacted]	Battle Creek MI	Calhoun	20.5	Permit but Call/Schedule Required		Semi-Annual	12	10	**19-Jan-11**	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL
											01-Feb-11	02-Mar-11		IRON, TOTAL, NICKEL, TOTAL
											05-May-11	17-May-11		IRON, TOTAL
											10-Aug-11	24-Aug-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
											16-Nov-11	14-Dec-11		
											20-Feb-12	16-Mar-12		
C1520E6WP1	C1520E6 [redacted]	[redacted]	Battle Creek MI	Calhoun	2.25	Unattended Permission, Anytime	19-Nov-10	Semi-Annual	9	8	09-Aug-10			
											02-Dec-10	26-Jan-11		
											03-Jan-11	26-Jan-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
											17-Jan-11	10-Mar-11		IRON, TOTAL, VANADIUM, TOTAL
											01-Feb-11	07-Mar-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL

Table 2c-1. Residential Well Sampling and Letter Status Through June 29, 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C1520E6WP1	C1520E6 [redacted]	[redacted]	Battle Creek MI	Calhoun	2.25	Unattended Permission, Anytime	19-Nov-10	Semi-Annual	9	8	**01-Mar-11**	25-Mar-11		VANADIUM, TOTAL
											06-Jun-11	21-Jun-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											13-Sep-11	29-Nov-11		
											19-Dec-11	20-Jan-12		

Notes:
Bold and Underlined Sample Date: Represents analytical results that have had a Level II Validation performed.
Non Bold and Underlined Sample Date: Represents analytical results that have had a Level I Review performed.
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Cnt: Count
DRO: Diesel Range Organics
GRO: Gasoline Range Organics
ORO: Oil Range Organics

Table 2c-2. Residential Well Sampling and Letter Status Through June 29, 2012 - Winterized Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0250C1WP2	C0250C1 [redacted]	[redacted]	Galesburg MI	Kalamazoo	36	Unattended Permission, Anytime		Prior to Sale or Occupation	3	3	23-Oct-10	12-Nov-10		
											30-Oct-10	18-Nov-10		
											03-Dec-10	20-Dec-10		IRON, TOTAL
C0555CBA	C0555CB [redacted]	[redacted]	Marshall MI	Calhoun	3	Unattended Permission, Anytime	06-Sep-10	Prior to Sale or Occupation	9	7	15-Aug-10	01-Sep-10		Iron
											08-Sep-10	05-Oct-10		Iron
											19-Sep-10			Iron
											01-Oct-10			Iron
											14-Oct-10	26-Oct-10		Iron
											28-Oct-10	17-Nov-10		IRON
											30-Nov-10	15-Dec-10		IRON, TOTAL
											11-Jan-11	15-Feb-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											11-Feb-11	07-Mar-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
C0872B9PW1	C0872B9 [redacted]	[redacted]	Augusta MI	Kalamazoo	27	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or Occupation	3	3	30-Aug-10	28-Oct-10		Iron
											18-Sep-10	16-Nov-10		Iron

Table 2c-2. Residential Well Sampling and Letter Status Through June 29, 2012 - Winterized Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0872B9PW1	C0872B9 [redacted]	[redacted]	Augusta MI	Kalamazoo	27	Unattended Permission, Anytime	29-Aug-10	Prior to Sale or Occupation	3	3	**08-Oct-10**	26-Oct-10		Iron
C50318DWP2	C50318D [redacted]	[redacted]	Marshall MI	calhoun	2.25	Permit but Call/Schedule Required	03-Dec-10	Prior to Sale or Occupation						
C062360A	C062360 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Permit but Call/Schedule Required		Quarterly 2	4	4	**18-Aug-10**	03-Nov-10		Iron
											20-Jul-11	02-Aug-11		IRON, TOTAL, NICKEL, TOTAL, TITANIUM
											11-Aug-11	29-Aug-11		IRON, TOTAL, MERCURY, TOTAL, NICKEL, TOTAL
											14-Sep-11	29-Nov-11		IRON, TOTAL
C0955AFPW1	C0955AF [redacted]	[redacted]	Ceresco MI		6	Permit But Call First		Quarterly 2						
C01836FA	C01836F [redacted]	[redacted]	Battle Creek MI	Calhoun	14	Unattended Permission, Anytime	30-Aug-10	Semi-Annual	10	9	**08-Aug-10**	19-Aug-10		Iron
											30-Aug-10	05-Oct-10		Iron
											13-Sep-10	04-Oct-10		Iron
											20-Sep-10			Iron
											07-Oct-10	28-Oct-10		Iron
											17-Oct-10	01-Nov-10		Iron
											30-Oct-10	18-Nov-10		IRON

Table 2c-2. Residential Well Sampling and Letter Status Through June 29, 2012 - Winterized Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C01836FA	C01836F	[redacted]	Battle Creek	Calhoun	14	Unattended Permission, Anytime	30-Aug-10	Semi-Annual	10	9	**12-May-11**	02-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM
	[redacted]		MI											
											06-Jun-11	21-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
											13-Sep-11	30-Nov-11		IRON, TOTAL, NICKEL, TOTAL
C052927WP2	C052927	[redacted]	Marshall	Calhoun	3	Unattended Permission, Anytime		Semi-Annual						
	[redacted]		MI											
C1346E7WP1	C1346E7	[redacted]	Galesburg	Kalamazoo	38.75	Unattended Permission, Anytime	16-Oct-10	Semi-Annual	7	7	**28-Sep-10**	13-Nov-10		Iron
	[redacted]		MI											
											16-Oct-10	26-Oct-10		Iron
											30-Oct-10	03-Dec-10		
											01-Dec-10	15-Dec-10		IRON, TOTAL
											04-May-11	17-May-11		IRON, TOTAL, VANADIUM, TOTAL
											09-Jun-11	21-Jun-11		TITANIUM, VANADIUM, TOTAL
											12-Sep-11	30-Nov-11		

Table 2c-2. Residential Well Sampling and Letter Status Through June 29, 2012 - Winterized Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects

Notes:
Bold and Underlined Sample Date: Represents analytical results that have had a Level II Validation performed.
Non Bold and Underlined Sample Date: Represents analytical results that have had a Level I Review performed.
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Cnt: Count
DRO: Diesel Range Organics
GRO: Gasoline Range Organics
ORO: Oil Range Organics

Table 2c-3. Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0246B5WP1	C0246B5 [redacted]	[redacted]	GALESBURG MI	Kalamazoo	34.75	Unattended Permission, Anytime	12-Oct-10	Prior to Sale or Occupation	1					
C025965WP1	C025965 [redacted]	[redacted]	Galesburg MI	Kalamazoo	34.75	Unattended Permission, Anytime	09-Oct-10	Prior to Sale or Occupation	3	1				
											16-Oct-10	01-Nov-10		Iron
											30-Oct-10			IRON
C038297	C038297 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	05-Sep-10	Prior to Sale or Occupation	9	8				
											05-Sep-10	07-Oct-10		
											24-Oct-10	30-Nov-10		NICKEL
											06-Nov-10	29-Nov-10		
											30-Nov-10	15-Dec-10		IRON, TOTAL
											20-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, VANADIUM, TOTAL
											08-Feb-11	07-Mar-11		BERYLLIUM, TOTAL, IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL

Table 2c-3. Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C038297	C038297	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	05-Sep-10	Prior to Sale or Occupation	9	8	12-May-11	02-Jun-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL, TITANIUM, VANADIUM, TOTAL
											12-Aug-11	14-Sep-11		IRON, TOTAL, NICKEL, TOTAL, VANADIUM, TOTAL
C046882A	C046882	[redacted]	Battle Creek MI	Calhoun	22.75	Permit but Call and Schedule First	26-Aug-10	Prior to Sale or Occupation	12	11				
											03-Aug-10	21-Sep-10		
											28-Aug-10	01-Nov-10		
											28-Aug-10	28-Oct-10		
											13-Sep-10	28-Oct-10		
											21-Sep-10			
											10-Oct-10	26-Oct-10		
											20-Oct-10	12-Nov-10		
											03-Nov-10	15-Feb-11		
											02-Dec-10	18-Dec-10		IRON, TOTAL
											19-Jan-11	15-Feb-11		NICKEL, TOTAL, VANADIUM, TOTAL

Table 2c-3. Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C046882A	C046882 [redacted]	[redacted]	Battle Creek MI	Calhoun	22.75	Permit but Call and Schedule First	26-Aug-10	Prior to Sale or Occupation	12	11	**01-Feb-11**	02-Mar-11		IRON, TOTAL, VANADIUM, TOTAL
											04-May-11	17-May-11		IRON, TOTAL, VANADIUM, TOTAL
C0883E0WP1	C0883E0 [redacted]	[redacted]	Galesburg MI	Kalamazoo	37.5	Permit but Call/Schedule Required	07-Oct-10	Prior to Sale or Occupation	1					
C50318DWP1	C50318D [redacted]	[redacted]	Marshall MI	calhoun	2.25	Permit but Call/Schedule Required	03-Dec-10	Prior to Sale or Occupation	4	3				
											03-Aug-10	25-Aug-10		
											06-Dec-10	20-Dec-10		IRON, TOTAL
											11-Jan-11	15-Feb-11		IRON, TOTAL, MOLYBDENUM, NICKEL, TOTAL
C002068A	C002068 [redacted]	[redacted]	Marshall MI	Calhoun	1.25	Refused Permission	31-Aug-10	Quarterly 2	7	7	**01-Aug-10**	01-Sep-10		
											31-Aug-10	28-Oct-10		Iron
											12-Sep-10	21-Oct-10		
											22-Oct-10	12-Nov-10		
											05-Nov-10	20-Dec-10		
											30-Nov-10	15-Dec-10		

Table 2c-3. Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C002068A	C002068 [redacted]	[redacted]	Marshall MI	Calhoun	1.25	Refused Permission	31-Aug-10	Quarterly 2	7	7	05-Jan-11	24-Jan-11		IRON, TOTAL, NICKEL, TOTAL
C0023D2WP1	C0023D2 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Permit But Call First		Quarterly 2	1	1	28-Jul-10	21-Aug-10		
C0188E7A	C0188E7 [redacted]	[redacted]	Ceresco MI	Calhoun	6			Quarterly 2	1	1	08-Aug-10	02-Sep-10		
C032604WP1	C032604 [redacted]	[redacted]	CERESCO MI	Calhoun	6	Permit but Call/Schedule Required	15-Oct-10	Quarterly 2	1					
C039759WP1	C039759 [redacted]	[redacted]	Ceresco MI	Calhoun	5.75	Permit but Call/Schedule Required	03-Oct-10	Quarterly 2	4	3				
											12-Oct-10	01-Nov-10		Iron
											23-Oct-10	03-Dec-10		BERYLLIUM, IRON
											08-Nov-10	03-Dec-10		IRON
C01477APW1	C01477A [redacted]	[redacted]	Battle Creek MI	Calhoun	21	Refused Permission	29-Sep-10	Semi-Annual	2	1	08-Aug-10			Iron
											17-Aug-10	01-Sep-10		Iron
C035755WP1	C035755 [redacted]	[redacted]	Augusta MI	Kalamazoo	24.75	Refused Permission	05-Sep-10	Semi-Annual	5	5	08-Sep-10	13-Oct-10		Iron
											18-Sep-10	13-Oct-10		Iron
											08-Oct-10	26-Oct-10		Iron
											18-Oct-10	12-Nov-10		Iron
											06-Nov-10	03-Dec-10		IRON

Table 2c-3. Residential Well Sampling and Letter Status Through June 29, 2012 - Wells Not Being Sampled
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C035755WP2	C035755 [redacted]	[redacted]	Augusta MI	Kalamazoo	24.75	Refused Permission	05-Sep-10	Semi-Annual	5	5	**08-Sep-10**	13-Oct-10		
											18-Sep-10	13-Oct-10		
											08-Oct-10	26-Oct-10		
											18-Oct-10	12-Nov-10		Iron
											06-Nov-10	03-Dec-10		
C0609FCWP1	C0609FC [redacted]	[redacted]	Battle Creek MI		14			Semi-Annual	1					
C068050PW1	C068050 [redacted]	[redacted]	Battle Creek MI	Calhoun		Refused Permission	22-Oct-10	Semi-Annual	1	1	**18-Aug-10**	24-Sep-10		
C0878A7WP1	C0878A7 [redacted]	[redacted]	Springfield MI	Calhoun	17.75			Semi-Annual	1					
C12624BPW1	C12624B [redacted]	[redacted]	Battle Creek		13.75			Semi-Annual						
C14255EWP1	C14255E [redacted]	[redacted]	SPRINGFIELD MI	Calhoun	17.75	Refused Permission		Semi-Annual						
C14351FWP1	C14351F [redacted]	[redacted]	BATTLE CREEK MI	Calhoun	14			Semi-Annual	1					

Notes:
Bold and Underlined Sample Date: Represents analytical results that have had a Level II Validation performed.
Non Bold and Underlined Sample Date: Represents analytical results that have had a Level I Review performed.
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Cnt: Count
DRO: Diesel Range Organics
GRO: Gasoline Range Organics

Table 2c-4. Residential Well Sampling and Letter Status for the Month of June 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C0002C6A	C0002C6 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	12	11	25-Jun-12			
C0029CCWP1	C0029CC [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	25-Jun-12			
C005315A	C005315 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Restricted Times	25-Oct-10	Quarterly 2	11	10	25-Jun-12			
C011485A	C011485 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	19-Sep-10	Quarterly 2	13	12	25-Jun-12			
C0223BCA	C0223BC [redacted]	[redacted]	Marshall MI	Calhoun	0.5	Unattended Permission, Anytime		Quarterly 2	12	8	25-Jun-12			
C0254D8	C0254D8 [redacted]	[redacted]	Ceresco MI	Calhoun	7.5	Unattended Permission, Anytime	05-Sep-10	Quarterly 2	10	9	26-Jun-12			
C0273F9WP1	C0273F9 [redacted]	[redacted]	Ceresco MI	Calhoun	6.5	Unattended Permission, Anytime	03-Oct-10	Quarterly 2	14	12	26-Jun-12			
C030309WP1	C030309 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	08-Sep-10	Quarterly 2	14	13	25-Jun-12			
C031751PW1	C031751 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	26-Aug-10	Quarterly 2	11	9	25-Jun-12			
C0377D7A	C0377D7 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	25-Sep-10	Quarterly 2	14	12	25-Jun-12			
C03868EWP1	C03868E [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	04-Sep-10	Quarterly 2	12	11	25-Jun-12			
C086970PW1	C086970 04-34-350-020	Augusta Municipal Wells	Augusta MI	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	17	15	26-Jun-12			

Table 2c-4. Residential Well Sampling and Letter Status for the Month of June 2012 - Sampled Wells
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Well No	Property No/Tax ID	Address	City/State	County	Mile Post	Permission	Permission Date	Frequency	Sample Cnt.	Letter Cnt.	Sample Date *	Letter Sent Date	BTEX, GRO, ORO, DRO Detects	Other Crude Oil Constituent Detects
C086970PW2	C086970 04-34-350-020	Augusta Municipal Wells	Augusta MI	Kalamazoo	28.75	Permit but Call/Schedule Required	27-Oct-10	Quarterly 2	16	15	26-Jun-12			
C0881CCWP1	C0881CC [redacted]	[redacted]	Ceresco MI	Calhoun	6	Unattended Permission, Anytime	02-Oct-10	Quarterly 2	12	10	26-Jun-12			
C088276WP1	C088276 [redacted]	[redacted]	Ceresco MI	Calhoun	6	Permit but Call/Schedule Required	12-Oct-10	Quarterly 2	9	8	26-Jun-12			
C0889FEWP1	C0889FE [redacted]	[redacted]	Galesburg MI	Kalamazoo	38	Permit but Call/Schedule Required		Quarterly 2	10	9	26-Jun-12			
C10619FWP1	C10619F [redacted]	[redacted]	Ceresco MI	Calhoun	8	Unattended Permission, Anytime	09-Oct-10	Quarterly 2	22	18	26-Jun-12			
C135093WP1	C135093 [redacted]	[redacted]	Marshall MI	Calhoun	0.25	Unattended Permission, Anytime	11-Oct-10	Quarterly 2	12	9	25-Jun-12			
C152569WP1	C152569 [redacted]	[redacted]	Ceresco MI	CALHOUN	7.25	Unattended Permission, Anytime		Quarterly 2	10	9	26-Jun-12			
C1528D4PW1	C1528D4 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Unattended Permission, Anytime		Quarterly 2	11	9	25-Jun-12			
C153895PW1	C153895 [redacted]	[redacted]	Ceresco MI	CALHOUN	6	Permit But Call First		Quarterly 2	15	13	25-Jun-12			

Notes:
Bold and Underlined Sample Date: Represents analytical results that have had a Level II Validation performed.
Non Bold and Underlined Sample Date: Represents analytical results that have had a Level I Review performed.
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Cnt: Count
DRO: Diesel Range Organics
GRO: Gasoline Range Organics
ORO: Oil Range Organics

Table 2i-2. Sediment Trap Monitoring Rounds Sedimentation Rates Summary
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Locations	Geomorphic Setting	Channel Gradient	Cylindrical Sampler Device Identification Number	Date Installed	Monitoring Round 1					Monitoring Round 2				
					Sample Jars Collected	Date Conducted	# of Days	Measured Sediment (mm)	Sedimentation Rate (mm/day)	Sample Jars Collected	Date Conducted	# of Days	Measured Sediment (mm)	Sedimentation Rate (mm/day)
10.75 LDB	Backwater	2.7 ft/mile	C01	5/2/2012	Yes	5/10/2012	8	20	2.50	No	5/16/2012	6	10	1.67
			C02	5/2/2012	Yes	5/10/2012	8	20	2.50	No	5/16/2012	6	10	1.67
			C03	6/13/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14.75 RDB	Cut off channel	0.5 ft/mile	C01	5/1/2012	Yes	5/11/2012	10	76	7.60	No	5/16/2012	5	50	10.00
			C02	5/1/2012	Yes	5/11/2012	10	75	7.50	Yes	5/16/2012	5	78	15.60
			C03	5/1/2012	Yes	5/11/2012	10	20	2.00	No	5/16/2012	5	25	5.00
19.25 LDB	Cut off channel	0.6 ft/mile	C01	5/2/2012	Yes	5/10/2012	8	25	3.13	No	5/16/2012	6	19	3.17
			C02	5/2/2012	Yes	5/10/2012	8	37	4.63	No	5/16/2012	6	19	3.17
			C03	5/2/2012	Yes	5/9/2012	7	3	0.43	No	5/16/2012	7	3	0.43
			C04	5/2/2012	Yes	5/9/2012	7	13	1.86	No	5/16/2012	7	10	1.43
			C05	5/2/2012	Yes	5/9/2012	7	30	4.29	No	5/16/2012	7	20	2.86
21.50 RDB	Oxbow	0.5 ft/mile	C01	5/2/2012	N/A	N/A	N/A	N/A	N/A	Yes	5/17/2012	15	80	5.33
			C02	5/2/2012	N/A	N/A	N/A	N/A	N/A	Yes	5/17/2012	15	95	6.33
			C03	5/2/2012	N/A	N/A	N/A	N/A	N/A	Yes	5/17/2012	15	140	9.33
28.25 RDB	Oxbow	0.4 ft/mile	C01	5/2/2012	N/A	N/A	N/A	N/A	N/A	No	5/18/2012	16	42	2.63
			C02	5/2/2012	N/A	N/A	N/A	N/A	N/A	Yes	5/18/2012	16	130	8.13
			C03	5/2/2012	N/A	N/A	N/A	N/A	N/A	Yes	5/18/2012	16	95	5.94
36.10 NW	Cut off channel	0.3 ft/mile	C01	5/8/2012	Yes	5/11/2012	3	19	6.33	No	5/17/2012	6	29	4.83
			C02	5/8/2012	Yes	5/11/2012	3	26	8.67	No	5/17/2012	6	32	5.33
			C03	5/8/2012	Yes	5/11/2012	3	7	2.33	No	5/17/2012	6	18	3.00

N/A Either no sampler in location or not assessed during monitoring round

mm	Millimeter
mm/day	Millimeters per day
TEXT	Sample device on side facing upstream
	Sample Jars replaced but no sample collected
	Sample device top at or above surface of water

Table 2i-2. Sediment Trap Monitoring Rounds Sedimentation Rates Summary
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Locations	Geomorphic Setting	Channel Gradient	Cylindrical Sampler Device Identification Number	Date Installed	Monitoring Round 3					Modification Round 4				
					Sample Jars Collected	Date Conducted	# of Days	Measured Sediment (mm)	Sedimentation Rate (mm/day)	Sample Jars Collected	Date Conducted	# of Days	Measured Sediment (mm)	Sedimentation Rate (mm/day)
10.75 LDB	Backwater	2.7 ft/mile	C01	5/2/2012	No	5/23/2012	13	22	1.69	No	5/31/2012	21	22	1.05
			C02	5/2/2012	No	5/23/2012	13	17	1.31	No	5/31/2012	21	22	1.05
			C03	6/13/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14.75 RDB	Cut off channel	0.5 ft/mile	C01	5/1/2012	No	5/23/2012	12	91	7.58	No	5/31/2012	20	101	5.05
			C02	5/1/2012	No	5/23/2012	7	45	6.43	No	5/31/2012	15	50	3.33
			C03	5/1/2012	No	5/23/2012	12	38	3.17	No	5/31/2012	20	38	1.90
19.25 LDB	Cut off channel	0.6 ft/mile	C01	5/2/2012	No	5/23/2012	13	19	1.46	No	5/31/2012	21	19	0.90
			C02	5/2/2012	No	5/23/2012	13	30	2.31	No	5/31/2012	21	50	2.38
			C03	5/2/2012	No	5/23/2012	14	No assessment		No	5/31/2012	22	No assessment	
			C04	5/2/2012	No	5/23/2012	14	32	2.29	No	5/31/2012	22	51	2.32
			C05	5/2/2012	No	5/23/2012	14	41	2.93	No	5/31/2012	22	76	3.45
21.50 RDB	Oxbow	0.5 ft/mile	C01	5/2/2012	No	5/24/2012	7	25	3.57	No	6/1/2012	15	47	3.13
			C02	5/2/2012	No	5/24/2012	7	30	4.29	No	6/1/2012	15	57	3.80
			C03	5/2/2012	No	5/24/2012	7	60	8.57	No	6/1/2012	15	76	5.07
28.25 RDB	Oxbow	0.4 ft/mile	C01	5/2/2012	No	5/24/2012	22	50	2.27	No	6/1/2012	30	50	1.67
			C02	5/2/2012	No	5/24/2012	6	10	1.67	No	6/1/2012	14	12	0.86
			C03	5/2/2012	No	5/24/2012	6	13	2.17	No	6/1/2012	14	19	1.36
36.10 NW	Cut off channel	0.3 ft/mile	C01	5/8/2012	No	5/24/2012	13	41	3.15	No	5/30/2012	19	63	3.32
			C02	5/8/2012	No	5/24/2012	13	50	3.85	No	5/30/2012	19	63	3.32
			C03	5/8/2012	No	5/24/2012	13	26	2.00	No	5/30/2012	19	38	2.00

N/A Either no sampler in location or not assessed during monitoring round	
mm	Millimeter
mm/day	Millimeters per day
TEXT	Sample device on side facing upstream
	Sample Jars replaced but no sample collected
	Sample device top at or above surface of water

Enbridge Line 6B MP 608 Pipeline Release

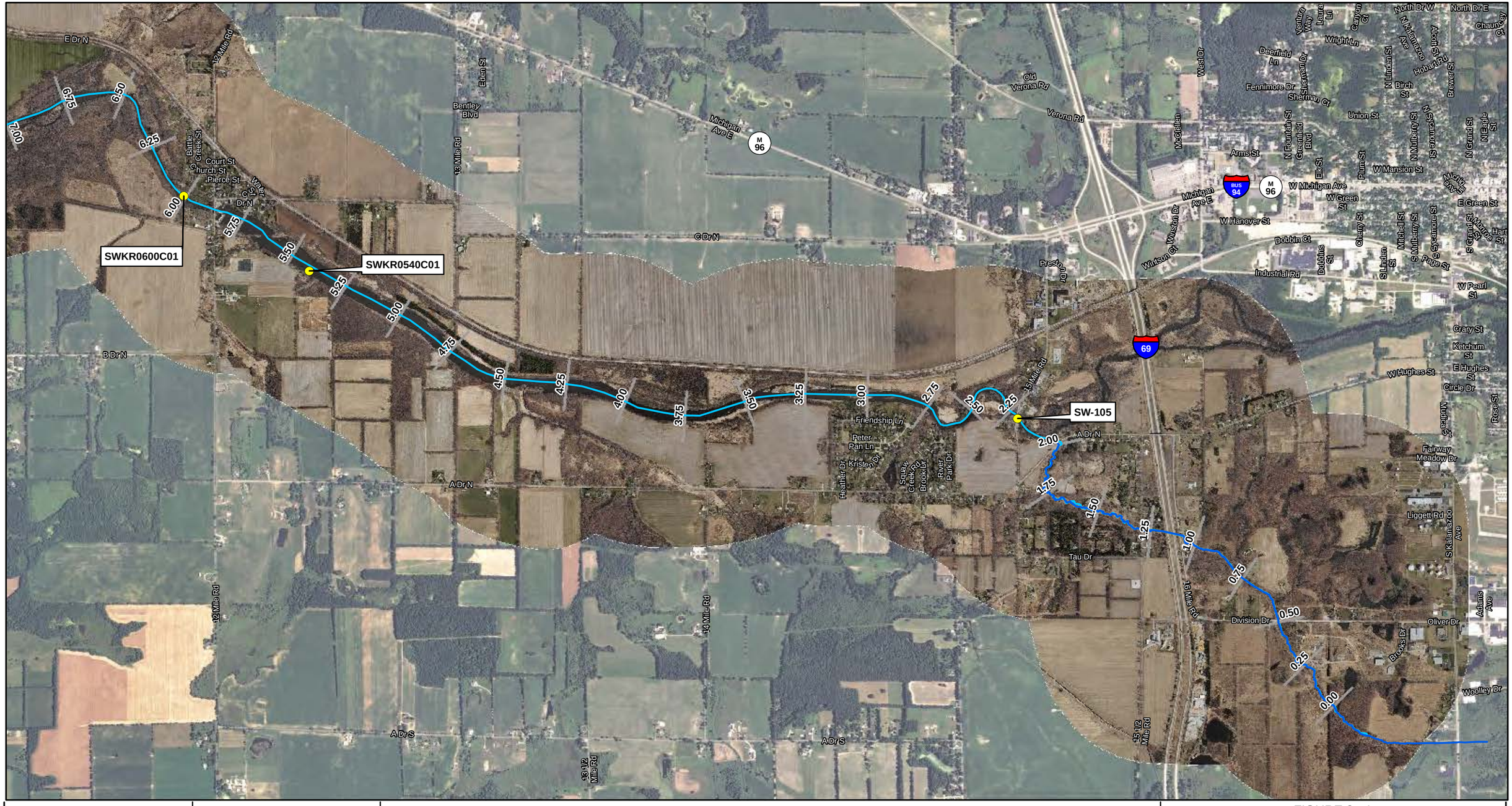
Marshall, Michigan

Figures

Prepared for U.S. EPA and MDEQ

Enbridge Energy, Limited Partnership

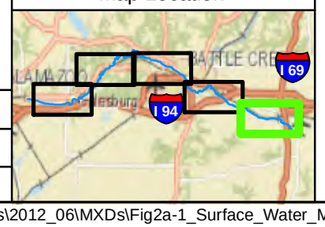
Submitted: July 27, 2012



ENBRIDGE

Drawn:	NS	6/27/2012
Approved:	EE	6/27/2012
Project #:	60246209	

Map Location



Legend

- Surface Water Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-1
KALAMAZOO RIVER AND MORROW LAKE
SURFACE WATER MONITORING LOCATIONS
JUNE 2012
SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-1_Surface_Water_Monitoring_Locations.mxd

Aerial Photography Date: April 2011 over August 2010

SWKR1565C01

SWKR1480C01

15.00 14.75 14.50 14.25 14.00 13.75 13.50 13.25 13.00 12.75 12.50 12.25 12.00 11.75 11.50 11.25 11.00 10.75 10.50 10.25 10.00 9.75 9.50 9.25 9.00 8.75 8.50 8.25 8.00 7.75 7.50 7.25 7.00

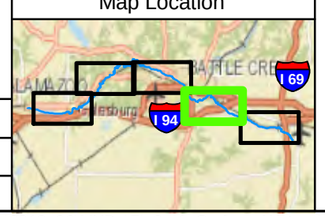
Bluff St
Baker Ct
E Goguac St
Sycamore St
Arthur St
Crown St
South Ave
Jay St
Park St
Main St
Bennett St
Elm St
E Dickman Rd
Warren St
Oak St
High St
Horton St
Willow St
Mary St
Maple St
Pico Pl
Burnham St E
Echo St
Fonda Ave
Newark Ave
Walnut Ave
Midway Ct
Lathrop Ave
Granville St
Gilbert St
Michigan Ave E
Idaho St
1st St
2nd St
Colvin Ave
Lansing Ave
Ashley St
Spencer Ave
Margaret St
Cynthia St
Clark St
Bell St
Budge St S
Cornwell St
Bradford St
Shirley Ave
Charles St
Wiest St
Raymond Rd N
Row F
Elm St
Maple Dr
Bardwell St
Cross St
Main St
Glen Dr
Princeton St N
Park Dr
Cliff Cutoff
Cliff St
Leonard Wood
Prospect Pl
Princeton St S
Dexter St
Garden St
Burton Ave
Crest Ave
Michigan Ave
Vernon Ave
Evanston Ave
Palmer Ave
Arlington Ave
Peck St
Katherine
Wattles Rd N
Olive St
Lasted Ln
Eastland Dr
Dulles Dr
Humphrey Dr
McArthur Dr
Nixon
White Oak Ct
Wallace Ave W
Stone St S
S Elizabeth St
Orchard Ln
Forest Ln
Nibley
Hidden Forest Ln
Forest Park Ave
10 Mile Rd
I Dr N
Wheatfield Rd
Ridgewood St
Lowell Ave
Strongwood Ave
Grant Ter
H Dr N
Wheatfield Pkwy
Beaumont Dr
Boyer Dr
Crosby Dr
Jono St
Wattles Ct
Wattles Rd S
9 1/2 Mile Rd
G Dr N
F Dr N
E River Rd
Flower Ln
Kimball Pines Park Rd
River Rd E
Golden Ave
Raymond Rd S
Silver St
Overton St
Oriell St
McCormick St
S River Dr
Linn Ave
Cherokee St
Pawnee St
Auburn St
Duke St
Fruin Ave
Bellevista
Pinewood Ave
Marion St
Row E
Row D
Row C
Columbia Ave E
Richmond Ave
Bonita Dr
Tan Ct
Windmill Way Dr
Oliver Beach Rd
Alden Ave W
Alden Ave E
Enwood St
Walnut Ct
Kingman Ave W
Kingman Ave E
Highway St
Jericho Rd
Illinois Rd
Old Elm Ave
Nelson St
Marjorie St
Inn Rd
Post Ave
Cedric St
Yale St
James St
Grebe St
Hannah St
Territorial Rd E
Riverside Ct
Riverside Pkwy
Sisson Ave
Pauline Ave
Rockford St
Sceney St
Logan St
S Shore Dr
Riverside Dr
Foster Dr
Tyler St
Weeks Ave
Woods Rd
Jean Ln
N Acacia Ave
Alaska Ave
Bird Ln
Bird Blvd
Golden Ave
Shellfield Rd
Lakeside Rd
Tree Haven Ln
Chapel Hill Dr
Enlow Ct
N Chapel Hill Dr
Brentwood Dr
Goldenview Dr
Eastfield Dr
Timberline Dr
Cleveland Ave
Meadow Dr
Gleneagle Dr
Knollwood Rd
Cambridge Dr
Kingside Dr
Morningside Dr
Country Club Dr
Briar Hill Dr
Applewood Pl
Francis Dr
Edgehill Pl
S Hills Dr
N S Court Dr
Beachfield Dr
Devon Ct
East Rd
E Michigan Rd
Riverside Dr
Edgebrook Dr
Cook Dr
Phillips Ct
Minges Ct
Beckwith Dr
E Hamilton Ln
Christian Dr
Ryans Run
Hoover Rd
D Dr N
Bach Dr
Zuhuby Dr
Larson Ln
Jessica Ln
Lady Ln
Harper Creek Dr
Beavers Ridge Dr
Trappers Ridge
Hollister Fern Beach Rd
Beach Ln
Woodland Alyp Bch
Monroe Bch
Woodland Beach Rd
South Ln
Manor Dr
C Dr N
8 1/2 Mile Rd
Dundee Dr
Robins Ln
9 Mile Rd
10 1/2 Mile Rd
Kistler Dr
Kistler Ter Rd
Beadle Lake Rd
Tower Rd
Orbit Dr
Juanita Dr
E Dr N
Council Crest Ln
Council Crest Cir
Beadle Lake Dr
Pebble Shores Dr
Grand Castle Ter
Torrey Ln
Cherry Ln
Wheatfield Rd
E Dr N
Bignell St
Marsha
Bard
Delmaris Ln
Golden Ave
Michigan Ave E
Park Dr
Cliff Cutoff
Cliff St
Leonard Wood
Prospect Pl
Princeton St S
Dexter St
Garden St
Burton Ave
Crest Ave
Michigan Ave
Vernon Ave
Evanston Ave
Palmer Ave
Arlington Ave
Peck St
Katherine
Wattles Rd N
Olive St
Lasted Ln
Eastland Dr
Dulles Dr
Humphrey Dr
McArthur Dr
Nixon
White Oak Ct
Wallace Ave W
Stone St S
S Elizabeth St
Orchard Ln
Forest Ln
Nibley
Hidden Forest Ln
Forest Park Ave
10 Mile Rd
I Dr N
Wheatfield Rd
Ridgewood St
Lowell Ave
Strongwood Ave
Grant Ter
H Dr N
Wheatfield Pkwy
Beaumont Dr
Boyer Dr
Crosby Dr
Jono St
Wattles Ct
Wattles Rd S
9 1/2 Mile Rd
G Dr N
F Dr N
E River Rd
Flower Ln
Kimball Pines Park Rd
River Rd E
Golden Ave
Raymond Rd S
Silver St
Overton St
Oriell St
McCormick St
S River Dr
Linn Ave
Cherokee St
Pawnee St
Auburn St
Duke St
Fruin Ave
Bellevista
Pinewood Ave
Marion St
Row E
Row D
Row C
Columbia Ave E
Richmond Ave
Bonita Dr
Tan Ct
Windmill Way Dr
Oliver Beach Rd
Alden Ave W
Alden Ave E
Enwood St
Walnut Ct
Kingman Ave W
Kingman Ave E
Highway St
Jericho Rd
Illinois Rd
Old Elm Ave
Nelson St
Marjorie St
Inn Rd
Post Ave
Cedric St
Yale St
James St
Grebe St
Hannah St
Territorial Rd E
Riverside Ct
Riverside Pkwy
Sisson Ave
Pauline Ave
Rockford St
Sceney St
Logan St
S Shore Dr
Riverside Dr
Foster Dr
Tyler St
Weeks Ave
Woods Rd
Jean Ln
N Acacia Ave
Alaska Ave
Bird Ln
Bird Blvd
Golden Ave
Shellfield Rd
Lakeside Rd
Tree Haven Ln
Chapel Hill Dr
Enlow Ct
N Chapel Hill Dr
Brentwood Dr
Goldenview Dr
Eastfield Dr
Timberline Dr
Cleveland Ave
Meadow Dr
Gleneagle Dr
Knollwood Rd
Cambridge Dr
Kingside Dr
Morningside Dr
Country Club Dr
Briar Hill Dr
Applewood Pl
Francis Dr
Edgehill Pl
S Hills Dr
N S Court Dr
Beachfield Dr
Devon Ct
East Rd
E Michigan Rd
Riverside Dr
Edgebrook Dr
Cook Dr
Phillips Ct
Minges Ct
Beckwith Dr
E Hamilton Ln
Christian Dr
Ryans Run
Hoover Rd
D Dr N
Bach Dr
Zuhuby Dr
Larson Ln
Jessica Ln
Lady Ln
Harper Creek Dr
Beavers Ridge Dr
Trappers Ridge
Hollister Fern Beach Rd
Beach Ln
Woodland Alyp Bch
Monroe Bch
Woodland Beach Rd
South Ln
Manor Dr
C Dr N
8 1/2 Mile Rd
Dundee Dr
Robins Ln
9 Mile Rd
10 1/2 Mile Rd
Kistler Dr
Kistler Ter Rd
Beadle Lake Rd
Tower Rd
Orbit Dr
Juanita Dr
E Dr N
Council Crest Ln
Council Crest Cir
Beadle Lake Dr
Pebble Shores Dr
Grand Castle Ter
Torrey Ln
Cherry Ln
Wheatfield Rd
E Dr N
Bignell St
Marsha
Bard
Delmaris Ln
Golden Ave

BUS 94
M 66
M 96
194
94

ENBRIDGE

Drawn:	NS	6/27/2012
Approved:	EE	6/27/2012
Project #:	60246209	

Map Location



Legend

- Surface Water Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-1
KALAMAZOO RIVER AND MORROW LAKE
SURFACE WATER MONITORING LOCATIONS
JUNE 2012
SHEET 2 OF 5

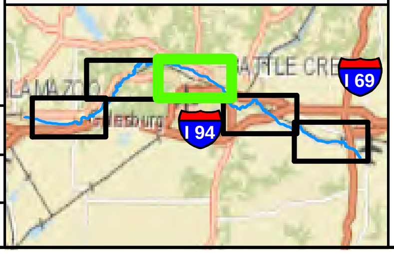
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-1_Surface_Water_Monitoring_Locations.mxd

Aerial Photography Date: April 2011 over August 2010



Map Location



Legend

- Surface Water Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

N

0 1,000 2,000 4,000

Scale in Feet

ENBRIDGE

Drawn: NS 6/27/2012

Approved: EE 6/27/2012

Project #: 60246209

FIGURE 2a-1
KALAMAZOO RIVER AND MORROW LAKE
SURFACE WATER MONITORING LOCATIONS
JUNE 2012
SHEET 3 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-1_Surface_Water_Monitoring_Locations.mxd

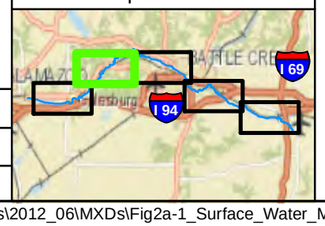
Aerial Photography Date: April 2011 over August 2010



ENBRIDGE

Drawn:	NS	6/27/2012
Approved:	EE	6/27/2012
Project #:	60246209	

Map Location



Legend

- Surface Water Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

N

0 1,000 2,000 4,000

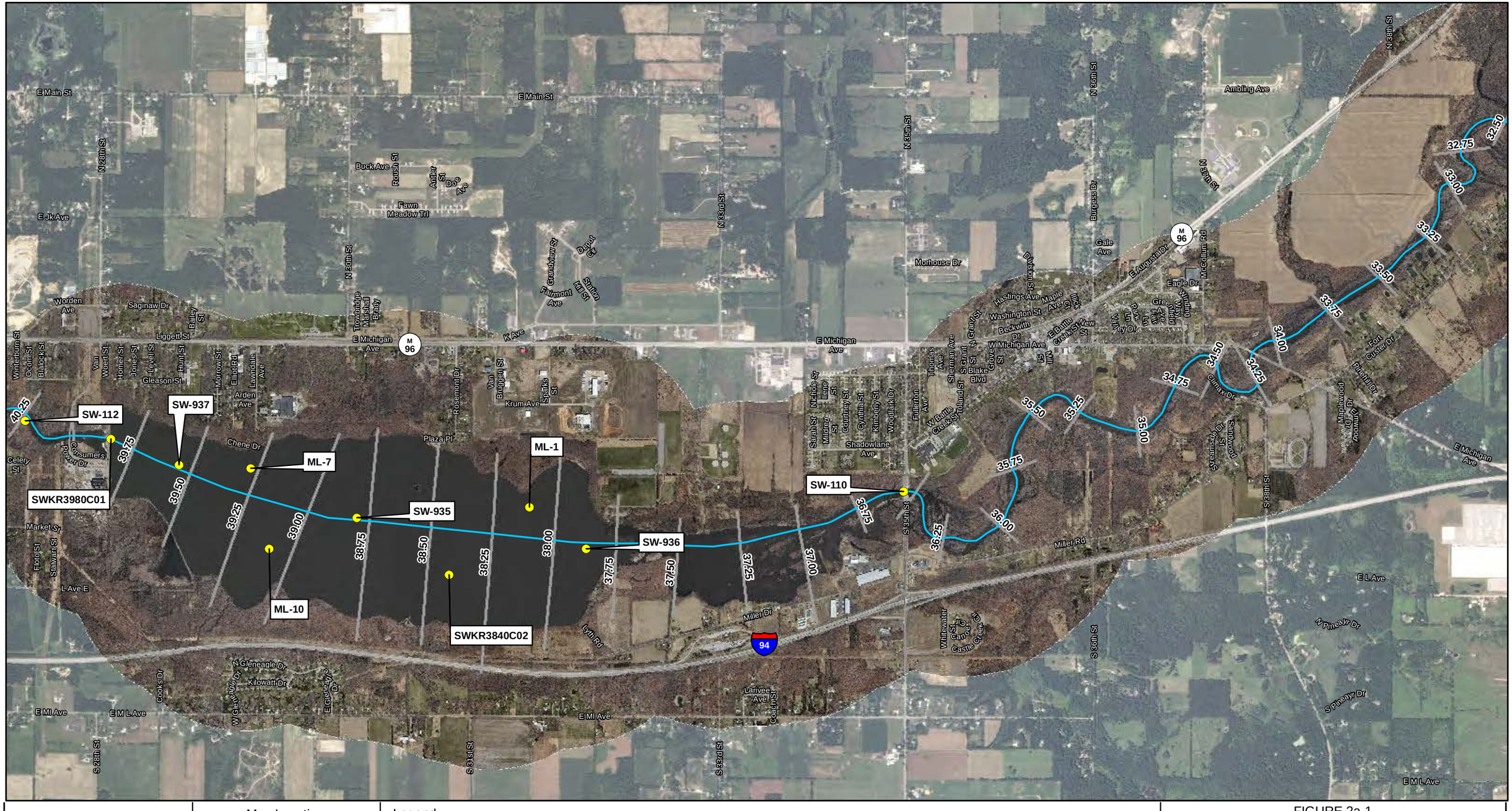
Scale in Feet

FIGURE 2a-1
KALAMAZOO RIVER AND MORROW LAKE
SURFACE WATER MONITORING LOCATIONS
JUNE 2012
SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-1_Surface_Water_Monitoring_Locations.mxd

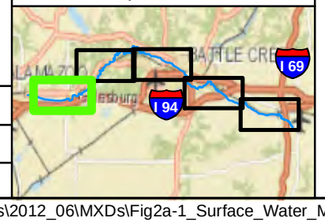
Aerial Photography Date: April 2011 over August 2010



ENBRIDGE

Drawn:	NS	6/27/2012
Approved:	EE	6/27/2012
Project #:	60246209	

Map Location



Legend

- Surface Water Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

N

0 1,000 2,000 4,000

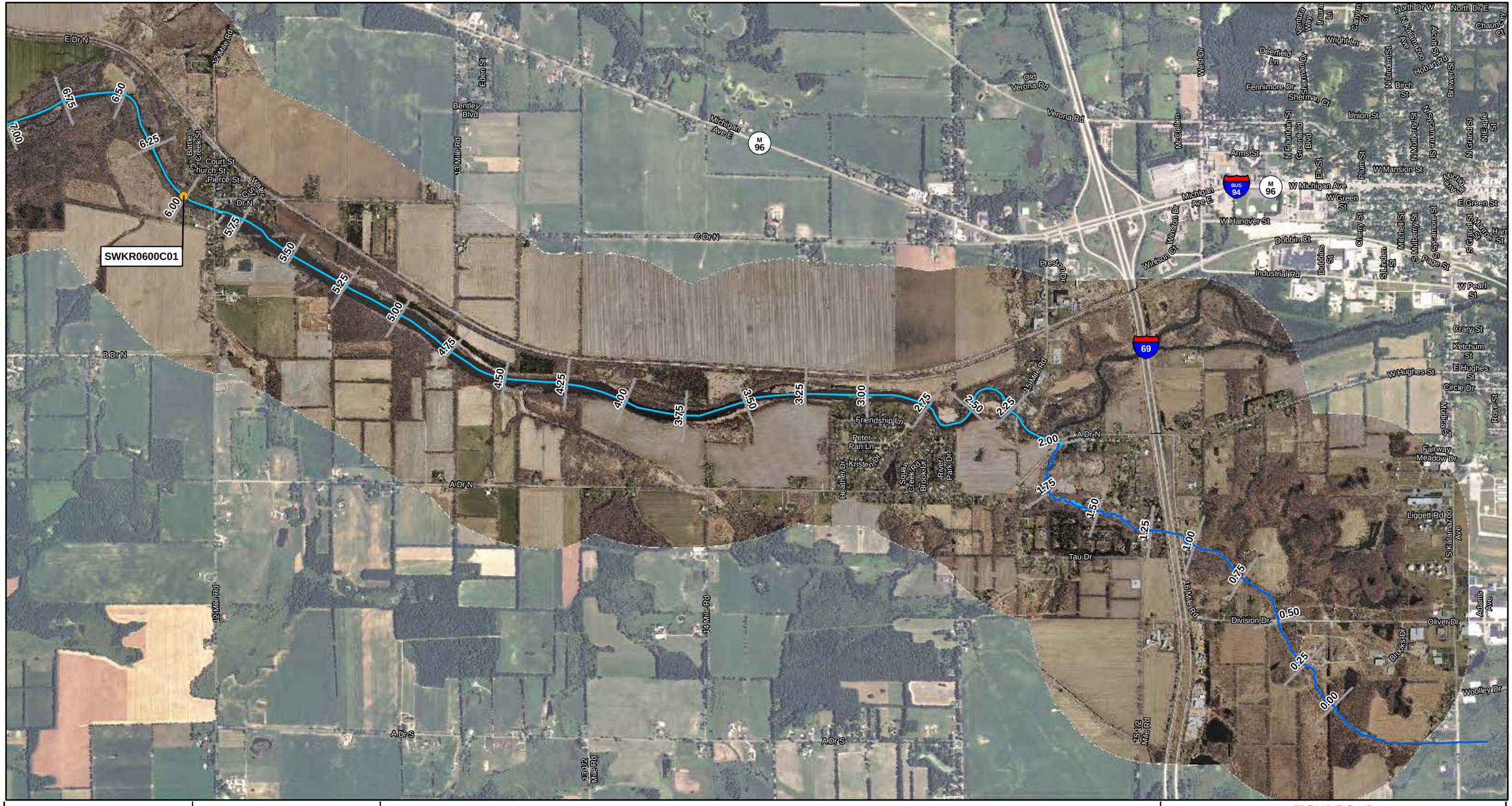
Scale in Feet

FIGURE 2a-1
KALAMAZOO RIVER AND MORROW LAKE
SURFACE WATER MONITORING LOCATIONS
JUNE 2012
SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

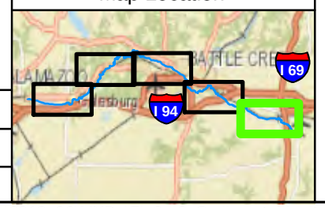
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-1_Surface_Water_Monitoring_Locations.mxd

Aerial Photography Date: April 2011 over August 2010



Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

- Sediment Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level and Threshold Effect Concentration

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-2
KALAMAZOO RIVER AND MORROW LAKE
SEDIMENT MONITORING LOCATIONS
JUNE 2012
SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-2_Sediment_Monitoring_Locations.mxd

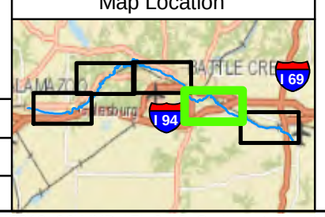
Aerial Photography Date: April 2011 over August 2010

Analyte	Location: SWKR1565C01	
	Sample ID & Result	Duplicate ID & Result
	SEC06121425PDS1	SEC06121425PDS2
Benzo(a)anthracene	1100 ug/kg	800 ug/kg
Benzo(a)pyrene	1400 ug/kg	1000 ug/kg
Benzo(g,h,i)perylene	730 ug/kg	530 ug/kg
Benzo(k)fluoranthene	870 ug/kg	510 ug/kg
Chrysene	1500 ug/kg	1100 ug/kg
Fluoranthene	2600 ug/kg	2000 ug/kg
Indeno(1,2,3-c,d)pyrene	680 ug/kg	490 ug/kg
Phenanthrene	1000 ug/kg	730 ug/kg
Pyrene	2200 ug/kg	1700 ug/kg

ENBRIDGE

Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

- Sediment Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level and Threshold Effect Concentration

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-2
KALAMAZOO RIVER AND MORROW LAKE
SEDIMENT MONITORING LOCATIONS
JUNE 2012
SHEET 2 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-2_Sediment_Monitoring_Locations.mxd

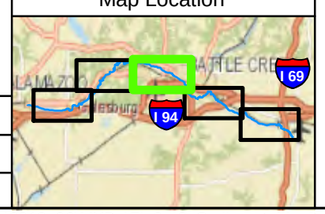
Aerial Photography Date: April 2011 over August 2010

Analyte	Location: SWKR1565C01	
	Sample ID & Result	Duplicate ID & Result
	SEC06121425PDS1	SEC06121425PDS2
Benzo(a)anthracene	1100 ug/kg	800 ug/kg
Benzo(a)pyrene	1400 ug/kg	1000 ug/kg
Benzo(g,h,i)perylene	730 ug/kg	530 ug/kg
Benzo(k)fluoranthene	870 ug/kg	510 ug/kg
Chrysene	1500 ug/kg	1100 ug/kg
Fluoranthene	2600 ug/kg	2000 ug/kg
Indeno(1,2,3-c,d)pyrene	680 ug/kg	490 ug/kg
Phenanthrene	1000 ug/kg	730 ug/kg
Pyrene	2200 ug/kg	1700 ug/kg

ENBRIDGE

Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

- Sediment Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level and Threshold Effect Concentration

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-2
KALAMAZOO RIVER AND MORROW LAKE
SEDIMENT MONITORING LOCATIONS
JUNE 2012
SHEET 3 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

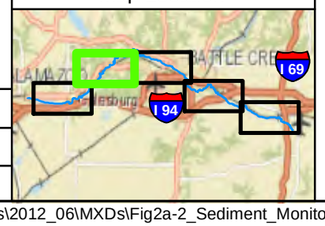
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-2_Sediment_Monitoring_Locations_Sheet3.mxd

Aerial Photography Date: April 2011 over August 2010



Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

- Sediment Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level and Threshold Effect Concentration

N

0 1,000 2,000 4,000

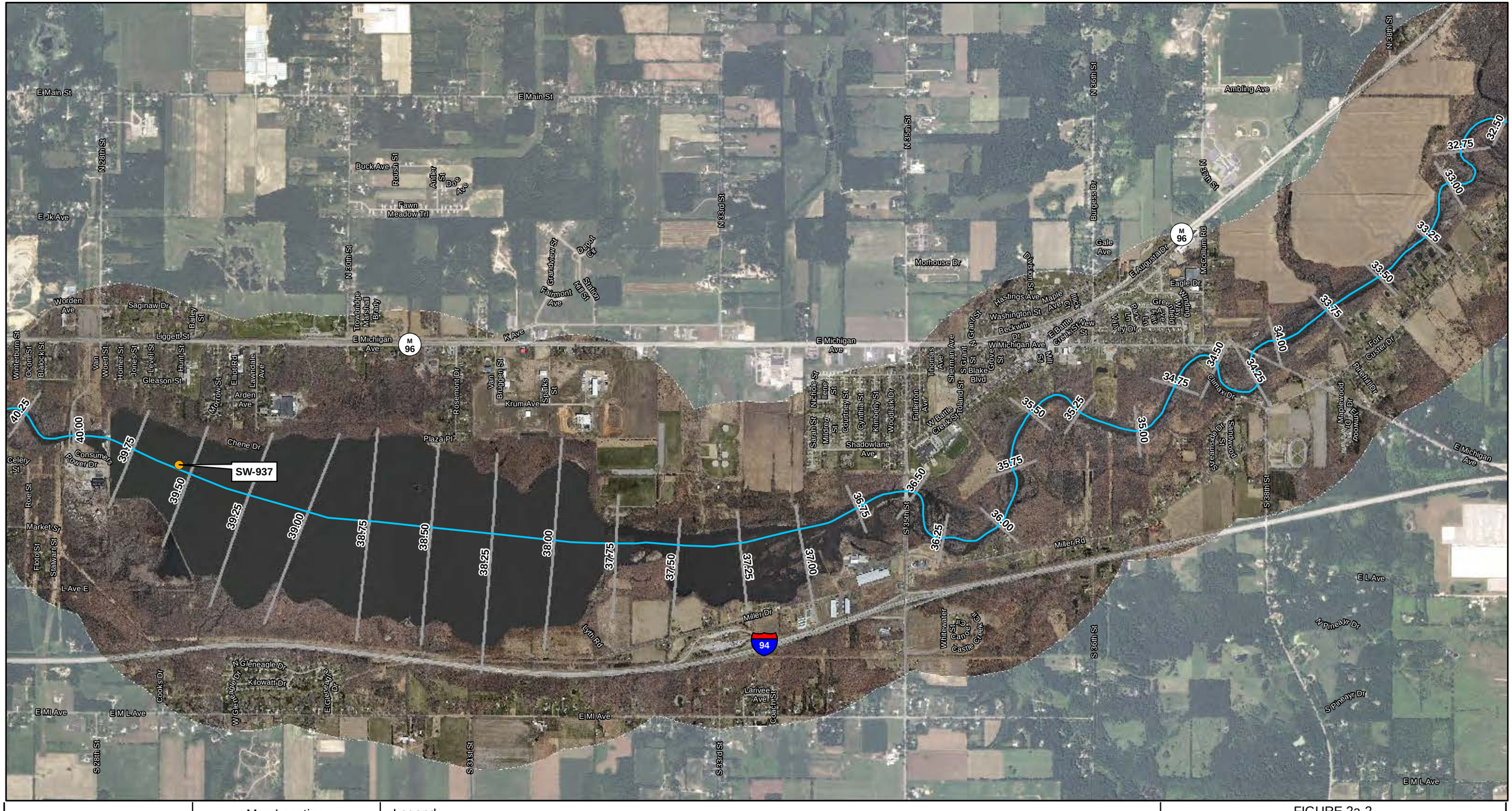
Scale in Feet

FIGURE 2a-2
KALAMAZOO RIVER AND MORROW LAKE
SEDIMENT MONITORING LOCATIONS
JUNE 2012
SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

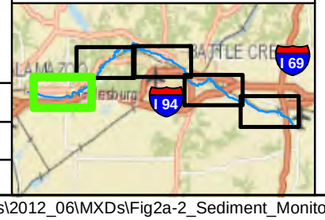
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-2_Sediment_Monitoring_Locations.mxd

Aerial Photography Date: April 2011 over August 2010



Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

- Sediment Sampling Location
- Talmadge Creek
- Kalamazoo River
- Quarter Mile Grid Segments
- SW-105 Sample Location ID - No Exceedances

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level

Sample Result Exceeds U.S. EPA Region 5 Ecological Screening Level and Threshold Effect Concentration

N

0 1,000 2,000 4,000

Scale in Feet

FIGURE 2a-2
KALAMAZOO RIVER AND MORROW LAKE
SEDIMENT MONITORING LOCATIONS
JUNE 2012
SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2a-2_Sediment_Monitoring_Locations.mxd

Aerial Photography Date: April 2011 over August 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

- Water Quality Monitoring Location
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2b-1
WATER QUALITY MONITORING LOCATIONS
TALMADGE CREEK
JUNE 2012
SHEET 1 OF 1

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2b-1_WQM_Talmadge_Creek.mxd

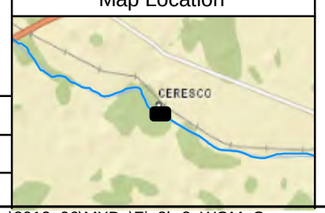
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60162778	

Map Location



Legend

Water Quality Monitoring Location

- DO > 4 mg/L & Turbidity < 50 NTU
- DO < 4 mg/L
- Turbidity > 50 NTU
- DO < 4 mg/L & Turbidity > 50 NTU

Quarter Mile Grid Segments

N

0 40 80 160

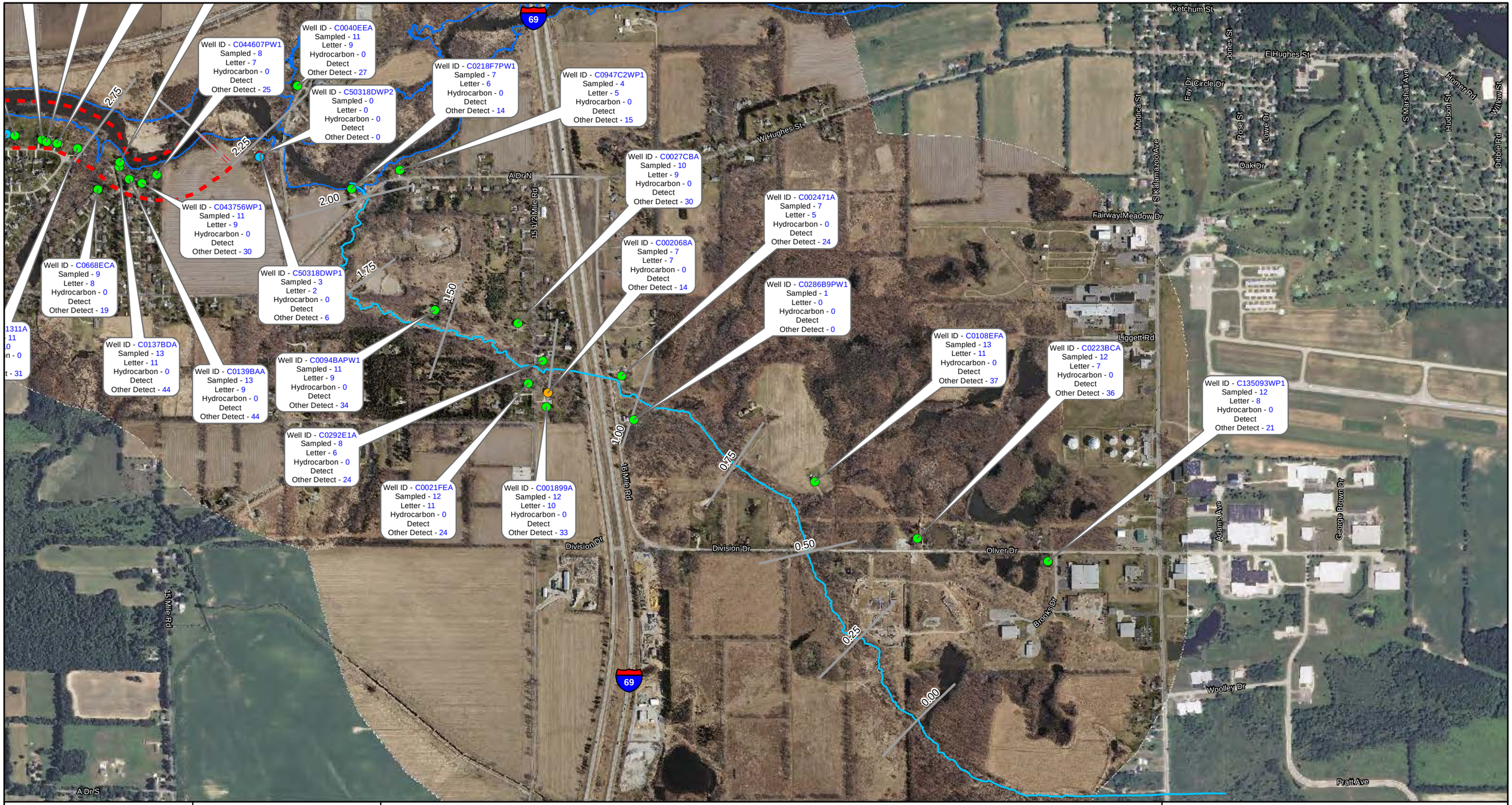
Scale in Feet

FIGURE 2b-2
WATER QUALITY MONITORING LOCATIONS
CERESCO DAM
JUNE 2012
SHEET 1 OF 1

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2b-2_WQM_Ceresco.mxd

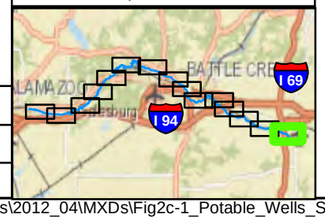
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

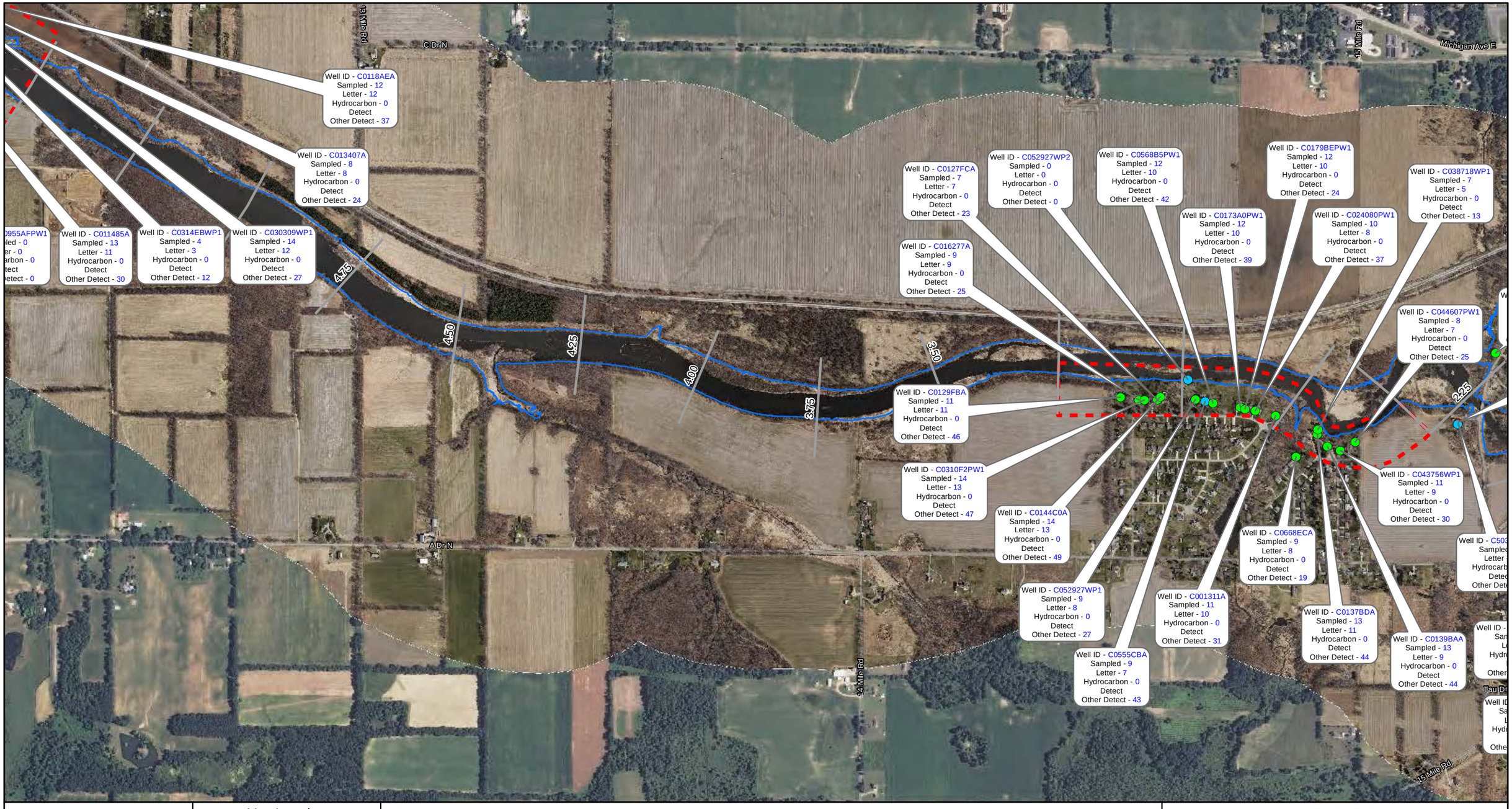
Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 1 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

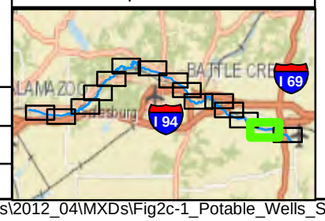
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 2 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C10619FWP1
Sampled - 22
Letter - 17
Hydrocarbon - 7
Detect
Other Detect - 84

Well ID - C0254D8
Sampled - 10
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 18

Well ID - C0004F3A
Sampled - 8
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 18

Well ID - C152569WP1
Sampled - 10
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 20

Well ID - C0208B6A
Sampled - 14
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 37

Well ID - C0188E7A
Sampled - 1
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 3

Well ID - C02433AWP1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 29

Well ID - C088276WP1
Sampled - 9
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 16

Well ID - C0273F9WP1
Sampled - 14
Letter - 11
Hydrocarbon - 4
Detect
Other Detect - 58

Well ID - C107264WP1
Sampled - 8
Letter - 5
Hydrocarbon - 0
Detect
Other Detect - 18

Well ID - C153895PW1
Sampled - 15
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 43

Well ID - C1528D4PW1
Sampled - 11
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 43

Well ID - C0002C6A
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 28

Well ID - C0881CCWP1
Sampled - 12
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 31

Well ID - C0023D2WP1
Sampled - 1
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C062360A
Sampled - 4
Letter - 4
Hydrocarbon - 0
Detect
Other Detect - 15

Well ID - C03868EWP1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C005315A
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 22

Well ID - C0029CCWP1
Sampled - 14
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 28

Well ID - C0955AFPW1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C011485A
Sampled - 13
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 30

Well ID - C0314EBWP1
Sampled - 4
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 12

Well ID - C030309WP1
Sampled - 14
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 27

Well ID - C031751PW1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 31

Well ID - C032604WP1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C0377D7A
Sampled - 14
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 38

Well ID - C038297
Sampled - 8
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C0384A2WP1
Sampled - 6
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C039759WP1
Sampled - 3
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 12

Well ID - C0118AEA
Sampled - 12
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 37

Well ID - C013407A
Sampled - 8
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 24

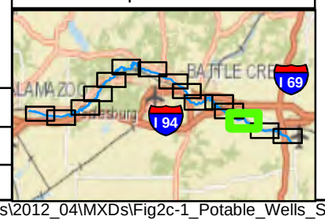
8.00
7.75
7.50
7.25
7.00
6.75
6.50
4.75

E Dr N
D Dr N
C Dr N
B Dr N
12 Mile Rd
13 Mile Rd
10 1/2 Mile Rd
Michigan Ave E
Eden St
Bentley Blvd
Wheatfield Rd

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 3 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

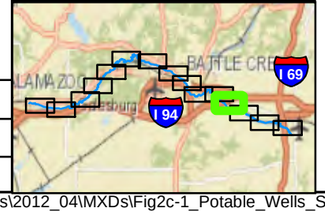
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 4 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C0375FBWP1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 43

Well ID - C06827CA
Sampled - 6
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C145599A
Sampled - 8
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C145623WP1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 23

Well ID - C0693ABPW1
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 35

Well ID - C059451PW1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 15

Well ID - C060441WP1
Sampled - 4
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 6

Well ID - C0601CEWP1
Sampled - 16
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 66

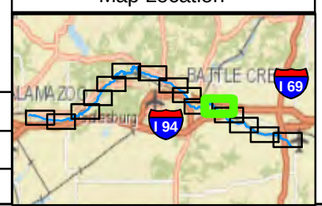
Well ID - C0603E2WP1
Sampled - 4
Letter - 2
Hydrocarbon - 0
Detect
Other Detect - 14

Well ID - C0605D7WP1
Sampled - 4
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 10

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 5 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C068050PW1
Sampled - 1
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 4

Well ID - C06162CPW1
Sampled - 12
Letter - 11
Hydrocarbon - 1
Detect
Other Detect - 39

Well ID - C015098PW1
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 44

Well ID - C0572EAWP1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 37

Well ID - C052339PW1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 53

Well ID - C0177B9A
Sampled - 11
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 31

Well ID - C0609FCWP1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C0229A2A
Sampled - 16
Letter - 15
Hydrocarbon - 0
Detect
Other Detect - 54

Well ID - C04879DWP1
Sampled - 11
Letter - 10
Hydrocarbon - 1
Detect
Other Detect - 37

Well ID - C0304AAPW1
Sampled - 12
Letter - 10
Hydrocarbon - 3
Detect
Other Detect - 36

Well ID - C0491E9PW1
Sampled - 14
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 56

Well ID - C053154PW1
Sampled - 3
Letter - 2
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C05354DA
Sampled - 14
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 57

Well ID - C0574DFWP1
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 36

Well ID - C017595PW1
Sampled - 12
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 35

Well ID - C01836FA
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 50

Well ID - C14351FWP1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C0180D5A
Sampled - 15
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 63

Well ID - C0165D4PW1
Sampled - 16
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 48

Well ID - C0949C5WP1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 36

Well ID - C12624BPW1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C0042C2A
Sampled - 10
Letter - 8
Hydrocarbon - 1
Detect
Other Detect - 18

Well ID - C00474DA
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 27

Well ID - C0375FBWP1
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 43

Well ID - C06827CA
Sampled - 6
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 19

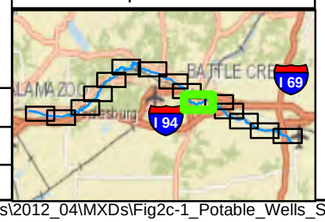
Well ID - C145599A
Sampled - 8
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C0693ABPW1
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 35

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 6 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C0878A7WP1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C0298FFWP2
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 31

Well ID - C0298FFWP1
Sampled - 14
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 45

Well ID - C068050PW1
Sampled - 1
Letter - 1
Hydrocarbon - 0
Detect

Well ID - C06162CPW1
Sampled - 12
Letter - 11
Hydrocarbon - 1

17.25
17.00
16.75
16.50
16.25
16.00
15.75
15.50
15.25

Map Location

Legend

Well Eligibility Status
- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000
Scale in Feet

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 7 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

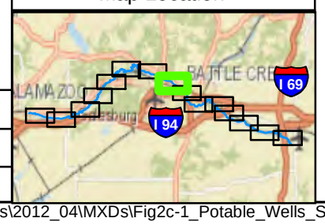
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 8 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C000749A
Sampled - 9
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 29

Well ID - C00589DA
Sampled - 13
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 39

Well ID - C0048DCA
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 36

Well ID - C01477APW1
Sampled - 2
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 13

Well ID - C1426E4WP1
Sampled - 9
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 28

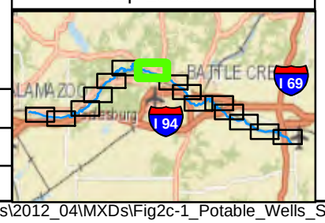
Well ID - C1509C0WP1
Sampled - 12
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 23

Well ID - C14123EWP1
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 35

Well ID - C1520E6WP1
Sampled - 9
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 19

Quail Ave
Tail St
Sanborn Ave
Patriot Dr
Murray Ave
Cook Ave
Avon Dr
1 Mile Rd
S Ulrich Dr
Wheeler Ave
Sperry Ave
N Finlay Ave
S Finlay Ave
Goldwater Ave
Newburn Ave
Custer Dr
Beulah Ave
Ball St
Robinwood St
Duane St
Tulip Tree Ln
Blueberry Ln
Coller Ave
Oak St
N Gardner Ave
S Gardner Ave
M 89
Bibb Ln
Bruce Ave
S Lindow Dr
N Lindow Dr
Virginia Ave
Alida Dr
Marie Ave
Wellington Ave
Simmons Ave
Stephanie Ave
John Bria Rd
Maxine Pl
Susan Dr
Snow Ave
Cross St
Major Dr
Woodside Dr
Linwood Ave
Presidential Dr
Tammy Dr
Birdsall Dr W
Billy Dr
Baughman Dr
Creekview Dr
Mosher Ave
Morgan Ave W
Taylor Ave
Kellogg St
Ludwig Ave
Shellenberger Ave
Spaulding Ave W
Laura Ln
Allison Dr
Oakley St
Myrtle St
Willard St W
Willard St E
Michigan Ave W
Urbandale Blvd
Jackson St W
Iden St
Center St
Hussey Ave
El Prudence Ln
Bansill Dr
Lamora Ave
Mason Ave N
Cedar Ave N
Woodlawn Ave N
Broadway Blvd
Sigel Ave
Geneva Ave
Geiger Ave
Miller Ave
Bedford Rd N
Bedford Rd S
Bond Ave
Lacey Ave
Allene Ave
Avery Ave
Everett Ave
Emerald Ave
Mason Ave S
Cedar Ave S
Stoughton Rd
Benny St
Iowa St
Diane St
Laurel Dr
Waupaka Dr
Clark Cir
River Rd W
Clark Rd
William Shafer Cir E
Brydges Dr
N Brady Rd
Leonard Wood Dr
M 37
22.00
21.75
21.50
21.25
21.00
20.75
20.50
20.25
20.00
19.75
19.50
19.25
19.00

Map Location



Legend

Well Eligibility Status
- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000
Scale in Feet

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 9 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C00856DA
Sampled - 14
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 51

Well ID - C0872B9PW2
Sampled - 8
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 18

Well ID - C0789C3PW1
Sampled - 4
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 9

Well ID - C00928FA
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 23

Well ID - C07824BPW1
Sampled - 10
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 24

Well ID - C03429BWP1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 27

Well ID - C0872B9PW1
Sampled - 3
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 17

Well ID - C033645WP1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C0335FFWP1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C0337D3WP1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 28

Well ID - C01573BA
Sampled - 13
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 37

Well ID - C0156ADA
Sampled - 15
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 62

Well ID - C0231D1A
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 40

Well ID - C04757EWP1
Sampled - 6
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 14

Well ID - C01497DA
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 14

Well ID - C0920E7PW1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C005139A
Sampled - 12
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 41

Well ID - C015481A
Sampled - 13
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 32

Well ID - C000749A
Sampled - 9
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 29

Well ID - C015322A
Sampled - 16
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 53

Well ID - C023047A
Sampled - 15
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 57

Well ID - C0470F1PW1
Sampled - 11
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C046882A
Sampled - 11
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 27

Well ID - C0227A5A
Sampled - 12
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 41

Well ID - C00589DA
Sampled - 13
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 39

Well ID - C046713WP1
Sampled - 14
Letter - 12
Hydrocarbon - 0
Detect
Other Detect - 47

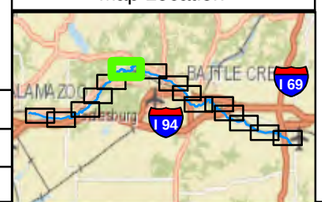
Well ID - C0048DCA
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 36

Well ID - C035755WP1
Sampled - 5
Letter - 5
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C035755WP2
Sampled - 5
Letter - 5
Hydrocarbon - 0
Detect
Other Detect - 14

E E F Ave
N 46th St
Pin Oak Ct
Maple Ridge Trl
Teal St
River Rd W
N 44th St
N Augusta Dr
Fort Custer Dr
Ann Ln
Martin Dr
James B Eads Dr
W County Line Rd
William Shafter Cir W
Paul Lambers Jr
Duane Dewey Ln
William Shafter Cir N
William Shafter Cir S
Clark Rd
26.00
26.25
25.75
25.50
25.25
25.00
24.75
24.50
24.25
22.00
27.75

Map Location



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 10 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C086970PW1
Sampled - 17
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 43

Well ID - C086970PW2
Sampled - 16
Letter - 13
Hydrocarbon - 0
Detect
Other Detect - 40

Well ID - C0335FFWP1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 19

Well ID - C033645WP1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 26

Well ID - C0337D3WP1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 28

Sampled - 3
Letter - 3
Hydrocarbon - 0
Detect
Other Detect - 17

Well ID - C0678ADA
Sampled - 12
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 32

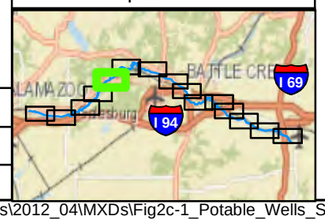
Well ID - C14332AWP1
Sampled - 9
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 22

Well ID - C033469WP1
Sampled - 7
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 24

27.75
28.00
28.25
28.50
28.75
29.00
29.25
29.50
29.75
30.00
30.25
30.50

N Augusta Dr
N 42nd St
W Jefferson St
W Washington St
W Jackson St
W Van Buren St
W Michigan Ave
W Clinton St
E Michigan Ave
E Clinton St
E Augusta Dr
Fort Custer Dr
E F C Ave
E G Ave
Circle Dr
Meadow Dr
Fayette St
N Lincoln St
N Chestnut St
N Webster St
W Canal St
E Canal St
S Webster St
S Lincoln St
S Cherry St
E Augusta Dr
M 96
Fort Custer Rec Area Access
Augusta Climax Rd
Fort Custer Rec Area BAS
Martin Dr
Ann Ln
James S Fields Dr
Chippewa Way
S Battle Creek Blvd
Eagle Lake Dr
Harmonia Rd
Longman Rd
Range Rd

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

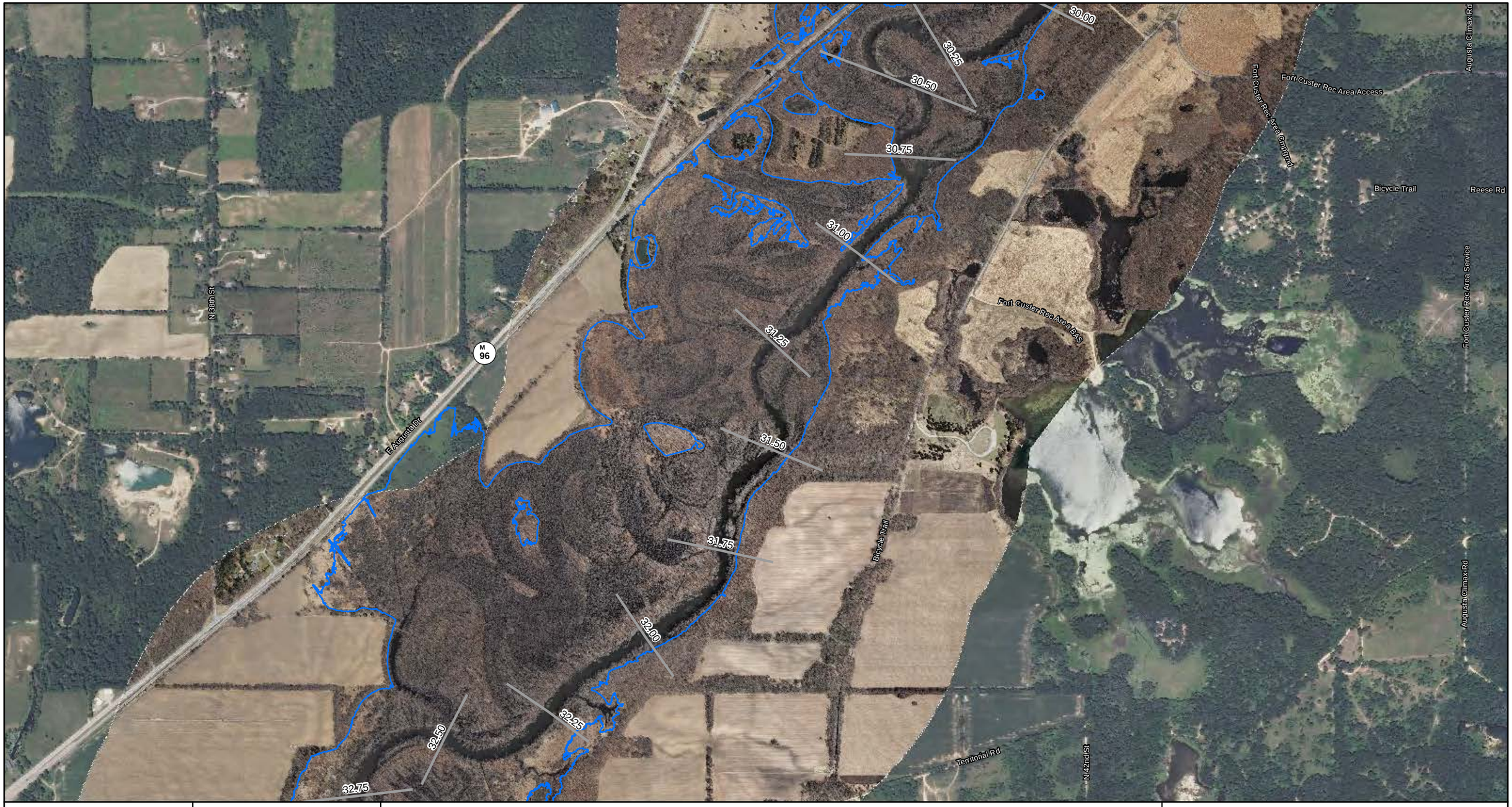
Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 11 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

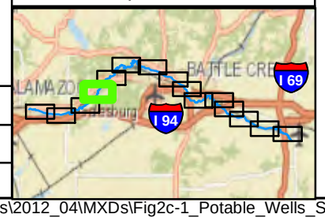
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 12 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010

Well ID - C019930PW1
Sampled - 8
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 27

Well ID - C025965WP1
Sampled - 2
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 11

Well ID - C07198A_StandPipe
Sampled - 4
Letter - 1
Hydrocarbon - 0
Detect
Other Detect - 8

Well ID - C0246B5WP1
Sampled - 0
Letter - 0
Hydrocarbon - 0
Detect
Other Detect - 0

Well ID - C01932EA
Sampled - 18
Letter - 16
Hydrocarbon - 0
Detect
Other Detect - 46

Well ID - C01948DPW1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 29

Well ID - C0300B3WP1
Sampled - 7
Letter - 7
Hydrocarbon - 0
Detect
Other Detect - 25

Well ID - C030917WP1
Sampled - 11
Letter - 10
Hydrocarbon - 0
Detect
Other Detect - 32

Well ID - C0271D5PW1
Sampled - 9
Letter - 8
Hydrocarbon - 0
Detect
Other Detect - 23

Well ID - C07198APW1
Sampled - 9
Letter - 6
Hydrocarbon - 0
Detect
Other Detect - 20

Well ID - C07313APW1
Sampled - 8
Letter - 5
Hydrocarbon - 0
Detect
Other Detect - 23

Well ID - C0730ACPW1
Sampled - 17
Letter - 16
Hydrocarbon - 0
Detect
Other Detect - 50

Well ID - C0269A6PW1
Sampled - 17
Letter - 15
Hydrocarbon - 0
Detect
Other Detect - 49

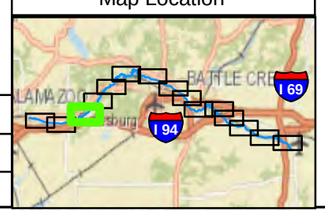
Well ID - C087736WP1
Sampled - 11
Letter - 9
Hydrocarbon - 0
Detect
Other Detect - 25

Well ID - C0252EDA
Sampled - 12
Letter - 11
Hydrocarbon - 0
Detect
Other Detect - 31

ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status
- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

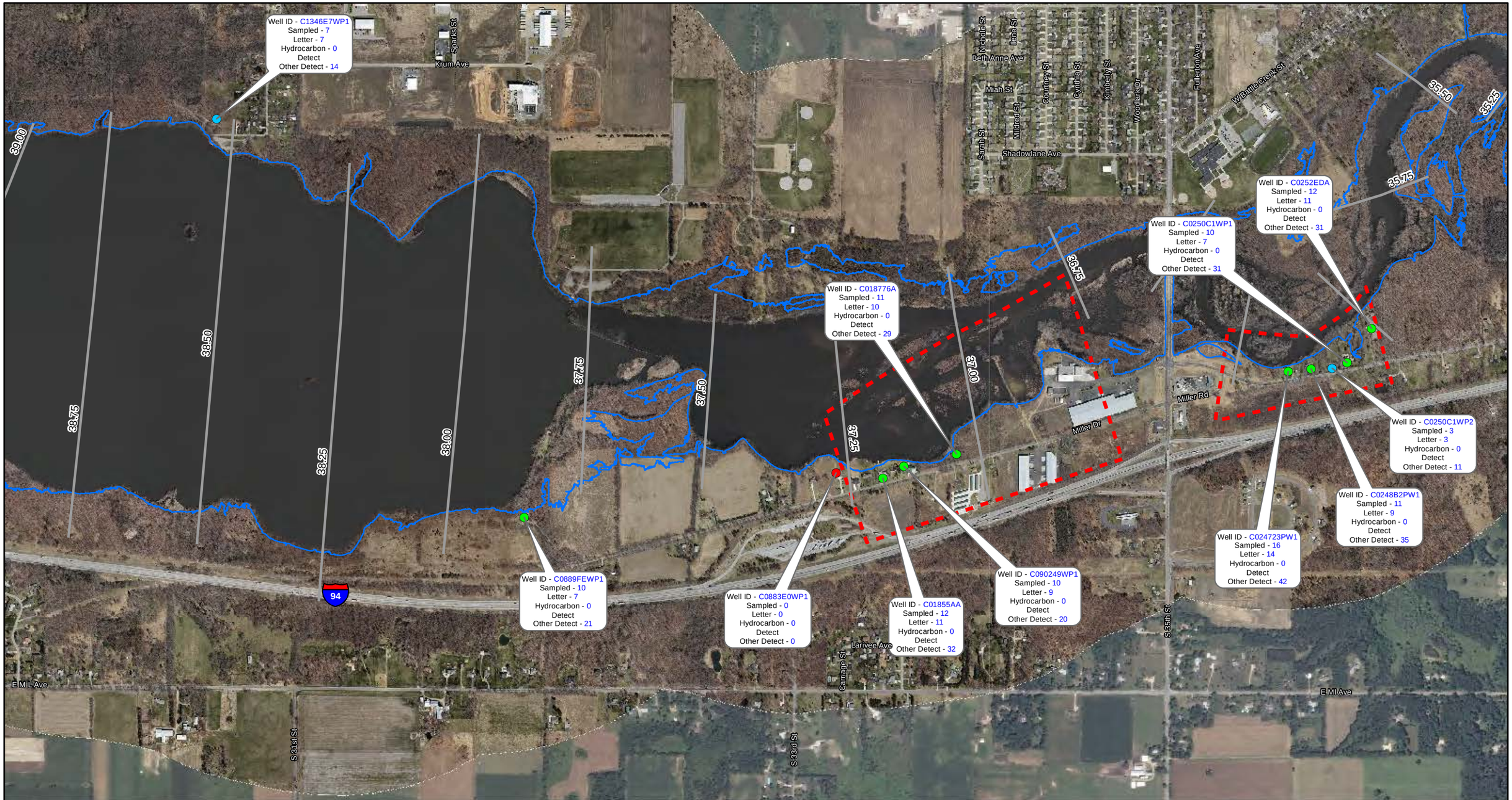
0 1,000 2,000
Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 13 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

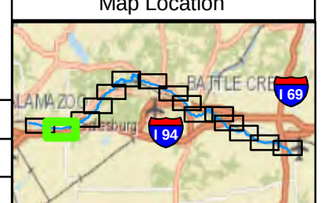
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 14 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

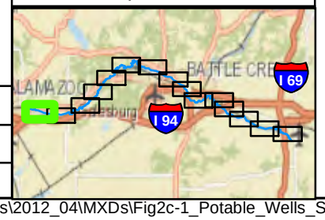
Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

Well Eligibility Status

- Eligible
- Not Accessible
- Winterized
- Refused Permission

- Target Area
- Kalamazoo River Flood Inundation Boundary
- Talmadge Creek
- Quarter Mile Grid Segments
- Hydrocarbon Detection

Well ID C14255EWP1 is not shown as owner refused permission to have a GPS location taken.

N

0 1,000 2,000

Scale in Feet

FIGURE 2c-1
POTABLE WELL LOCATIONS, ELIGIBILITY STATUS, AND WELLS SAMPLED AS OF JUNE 30, 2012
SHEET 15 OF 15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_04\MXDs\Fig2c-1_Potable_Wells_Sampled_as_of_April_30_2012.mxd

Aerial Photography Date: April 2011 over 2010



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 1 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 2 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

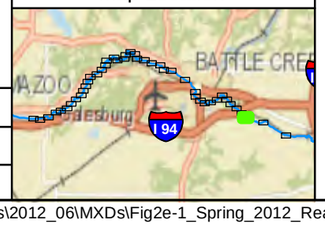
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 3 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 4 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE		
Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 5 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

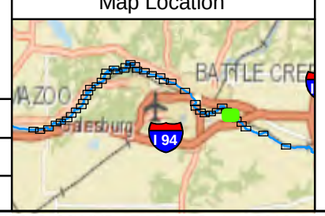
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 6 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

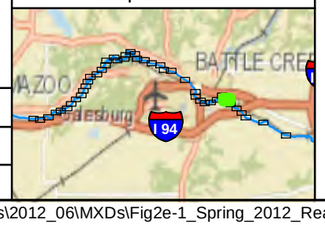
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 7 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

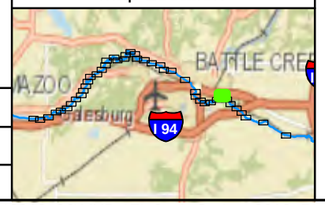
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 8 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 9 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

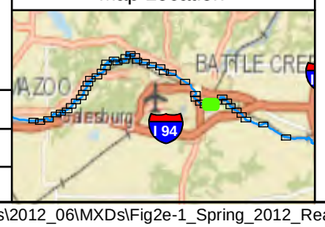
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

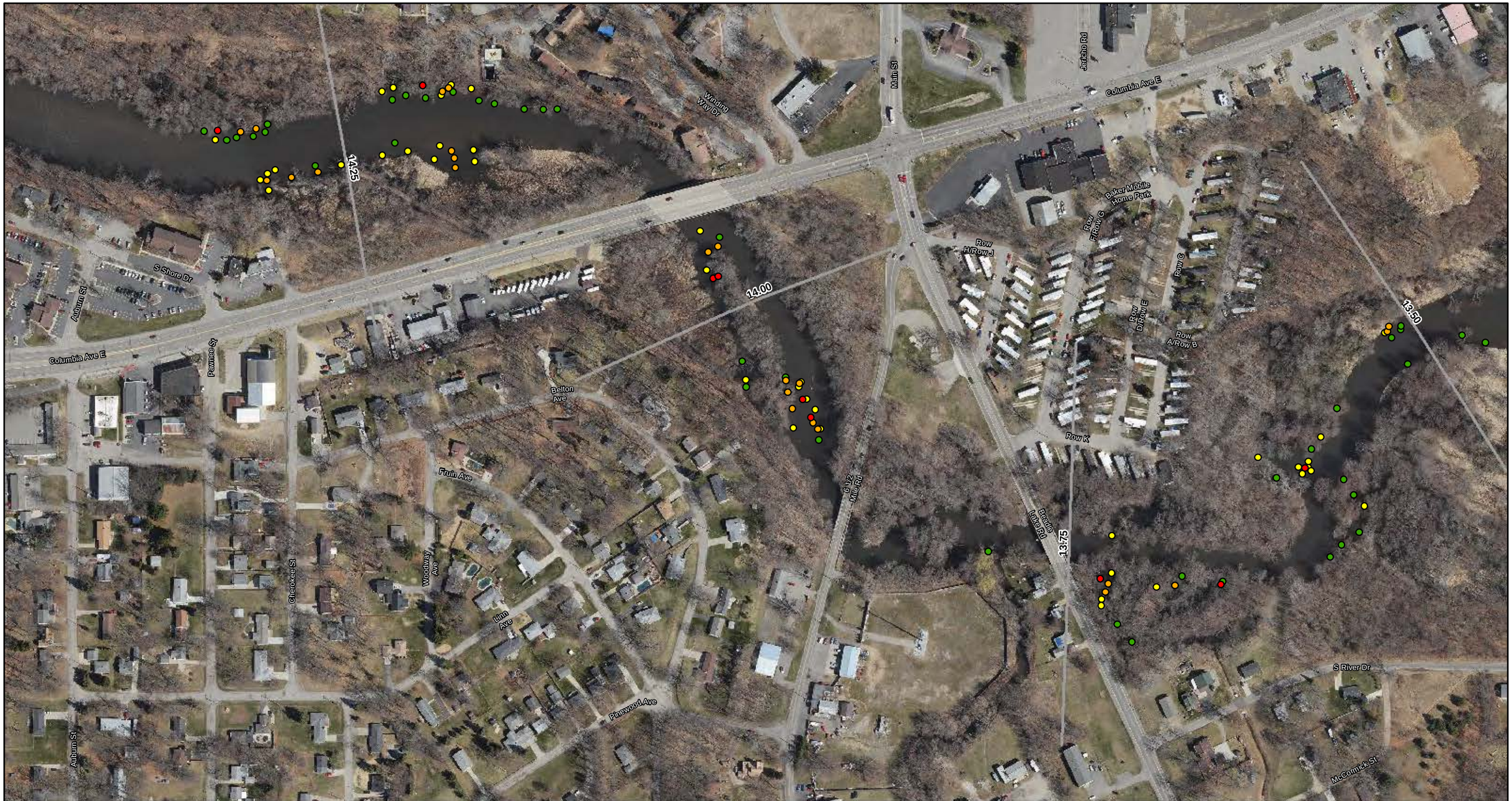
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 10 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

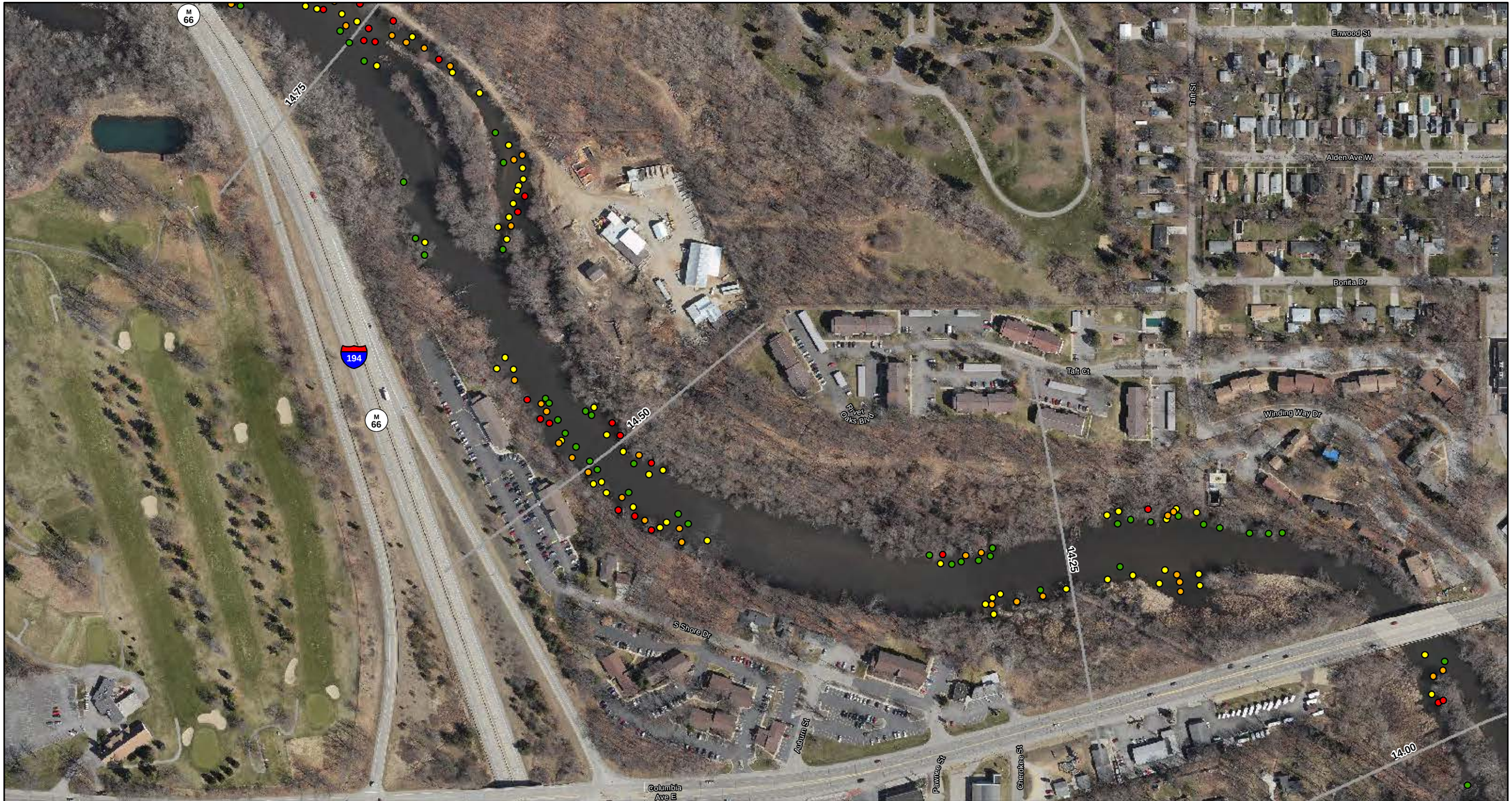
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 11 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

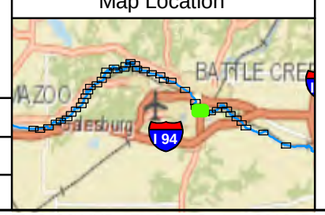
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

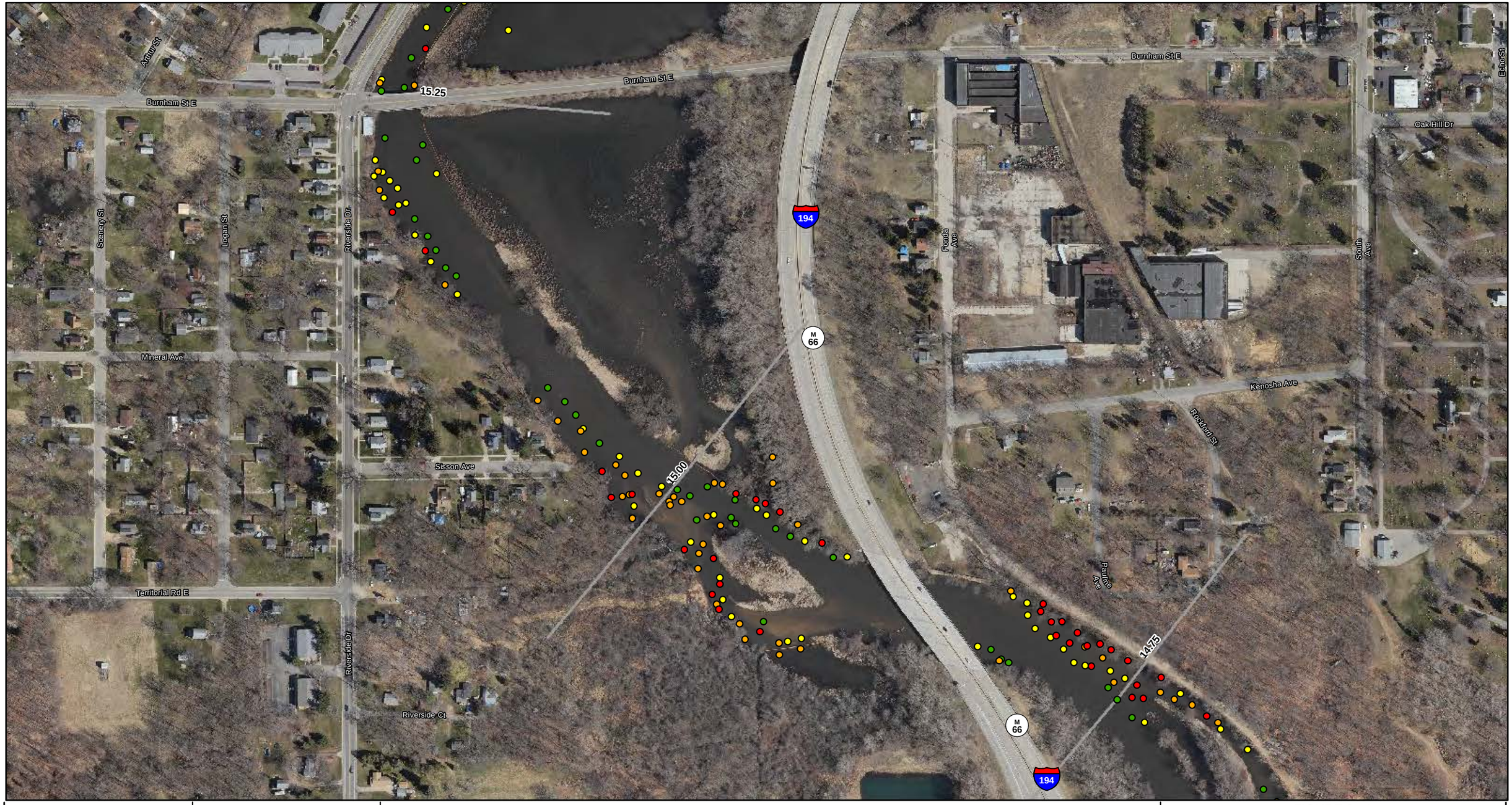
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 12 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

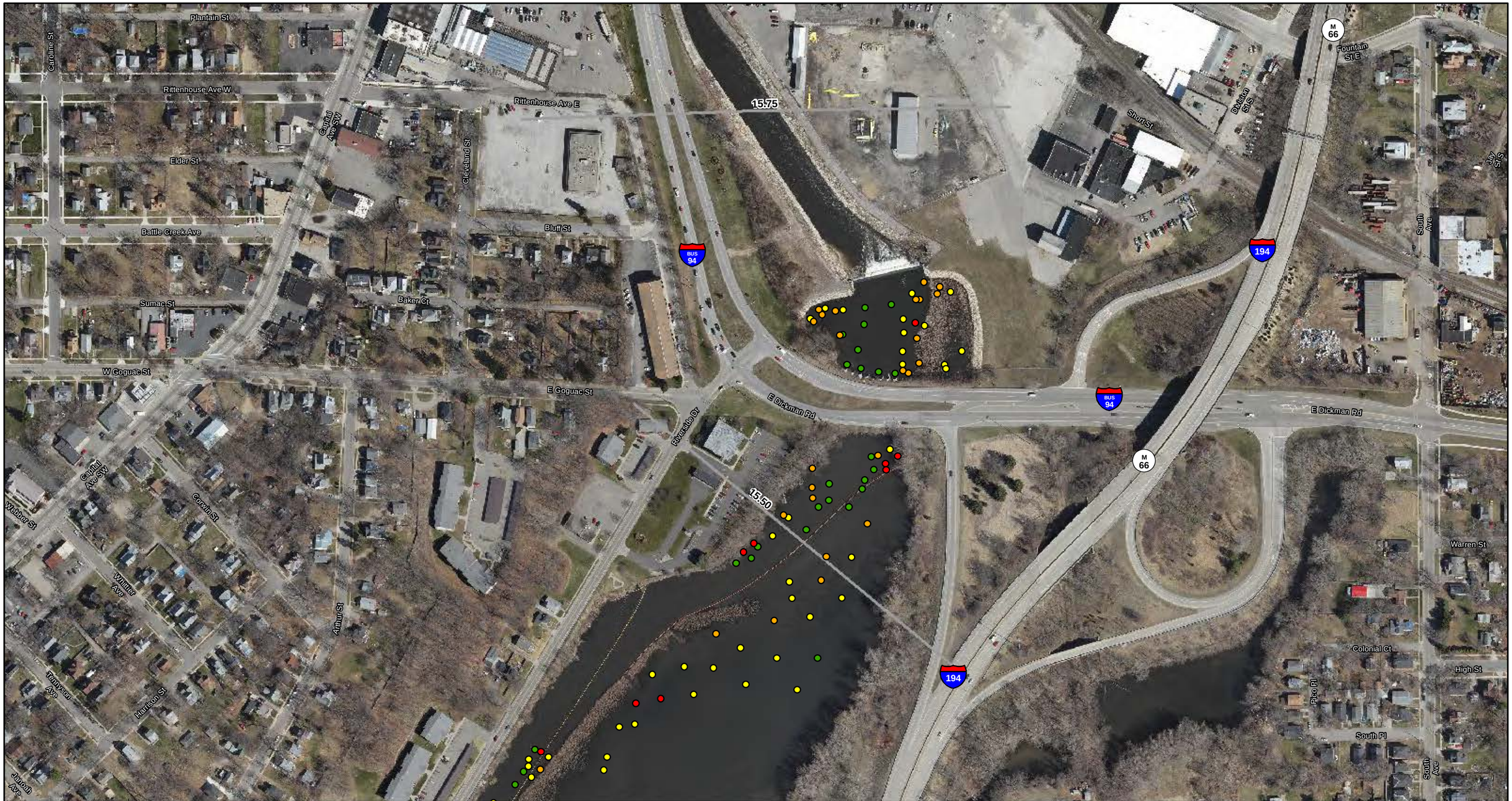
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 13 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 14 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 15 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

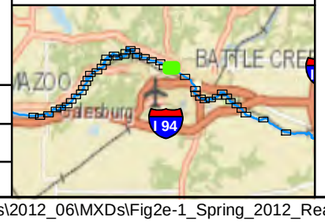
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

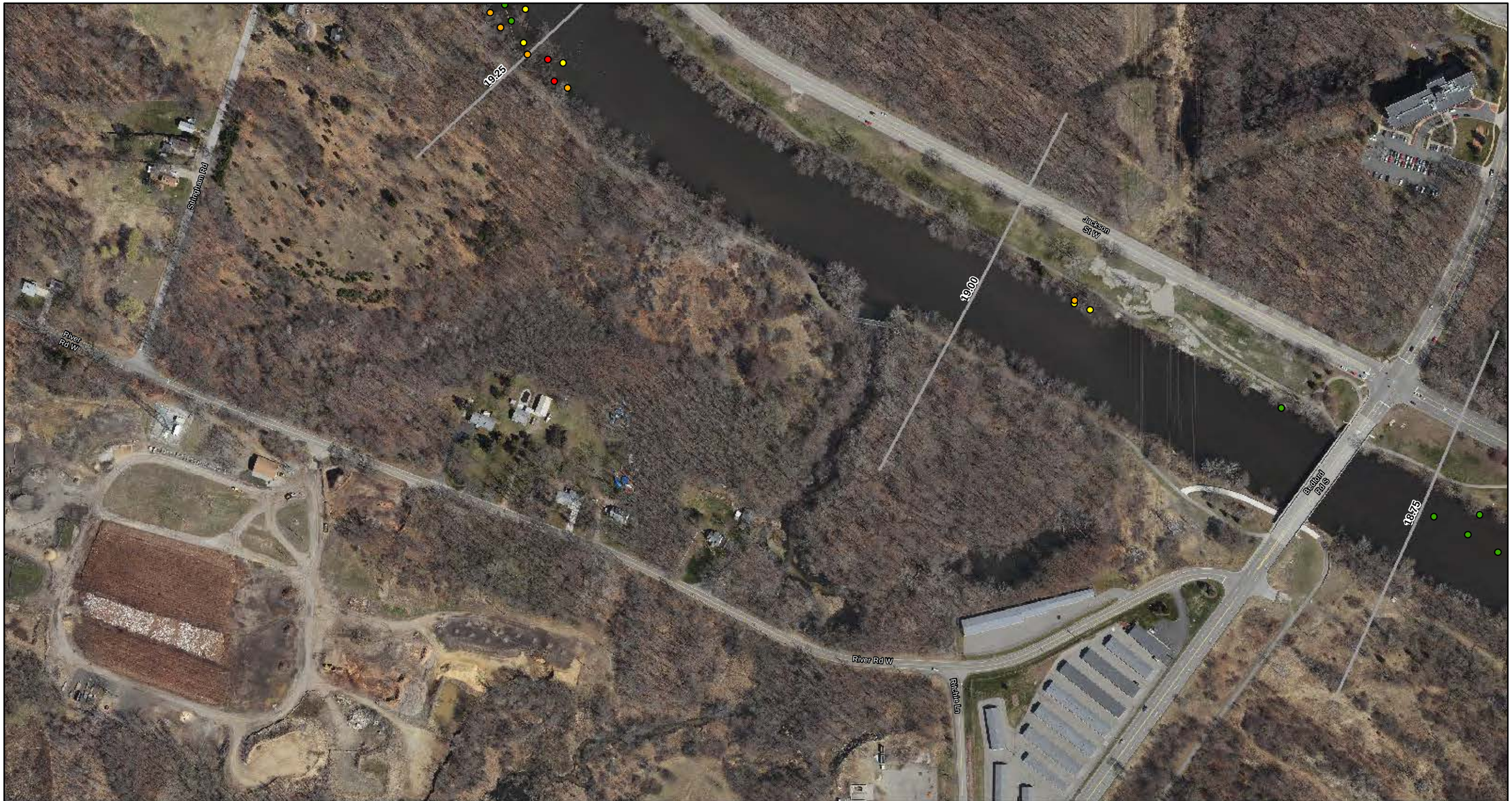
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 16 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

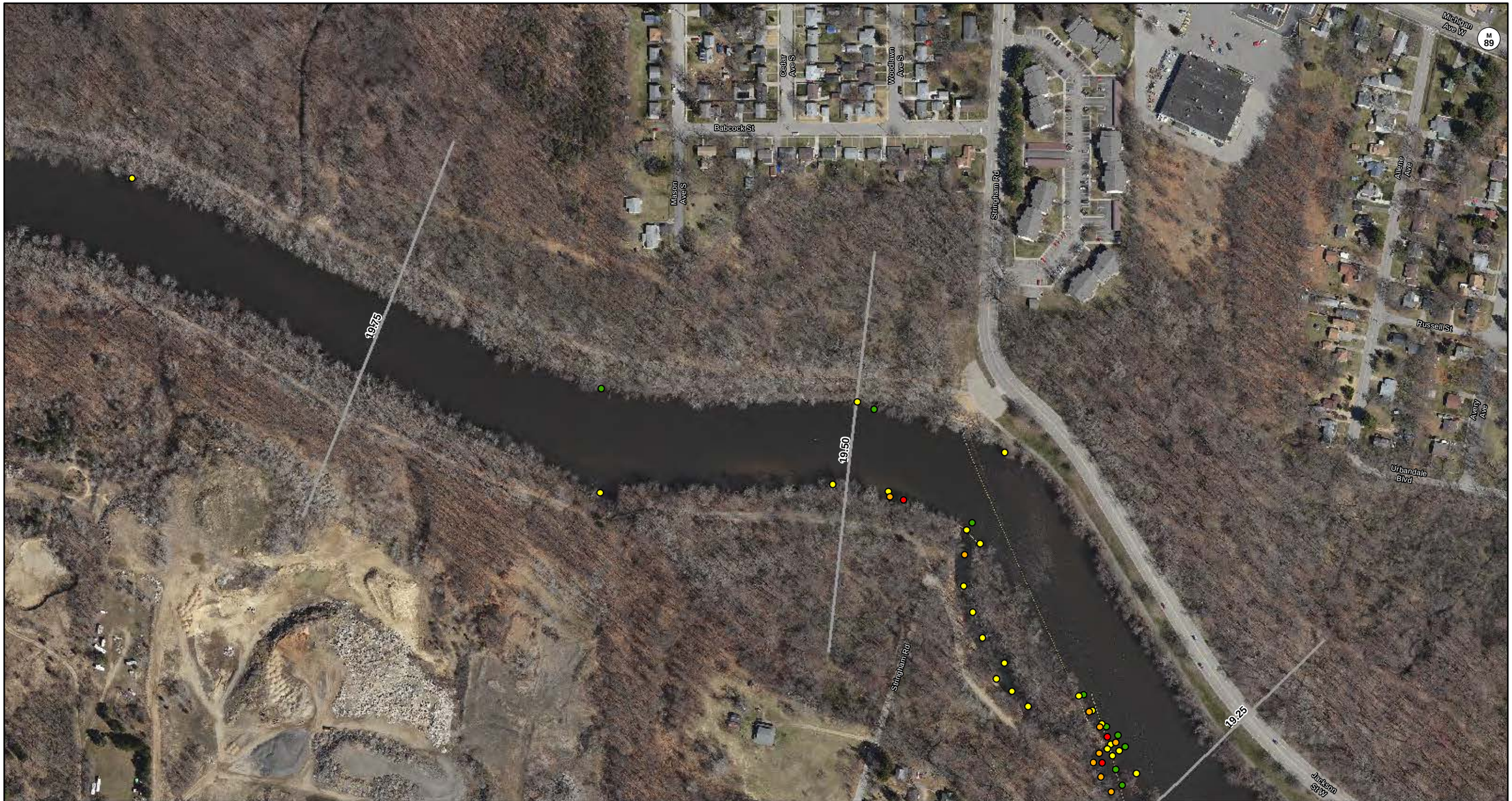
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 17 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

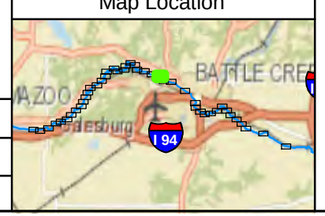
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

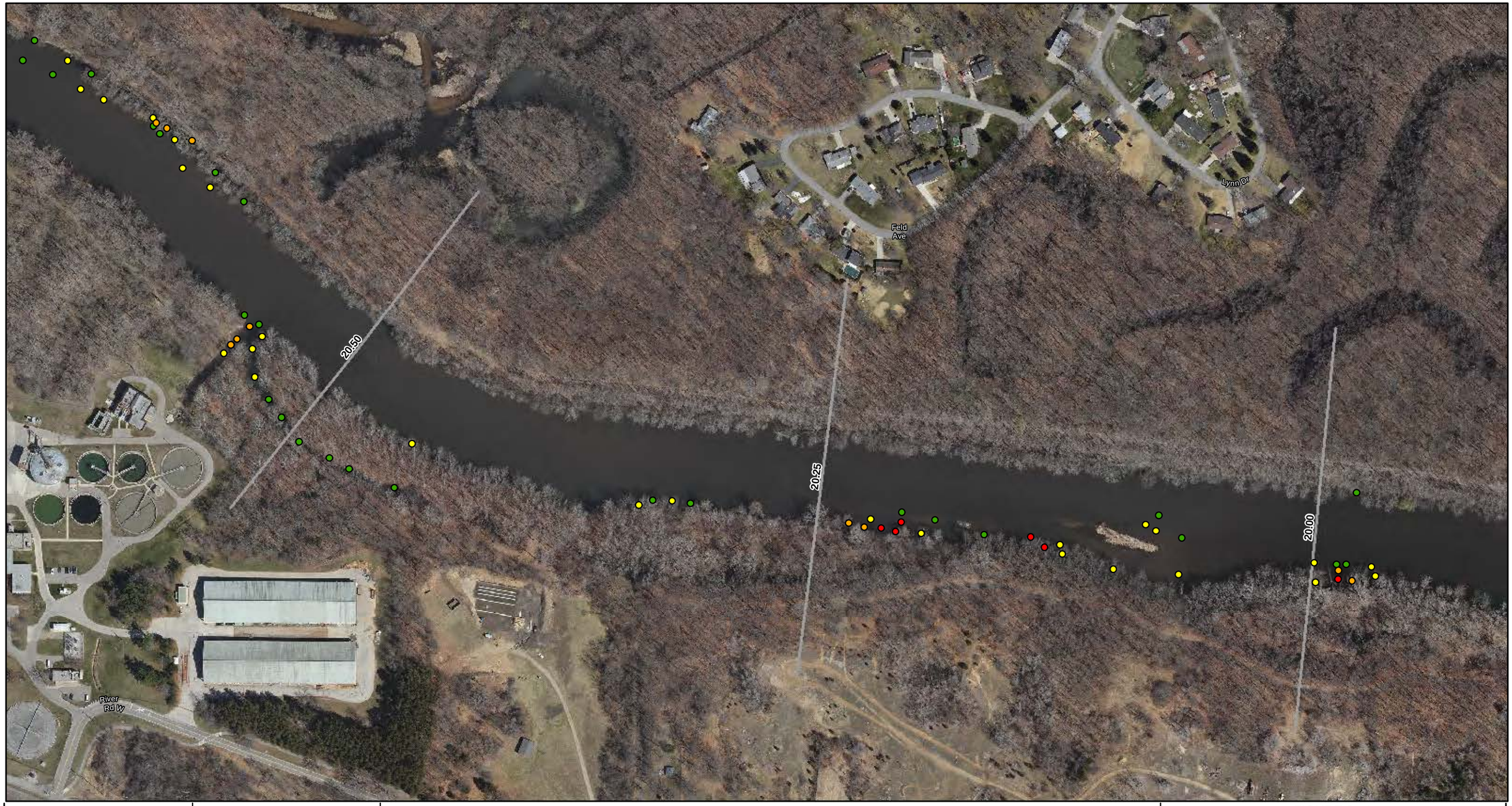
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 18 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 19 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

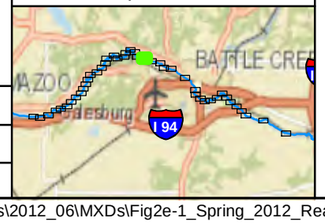
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

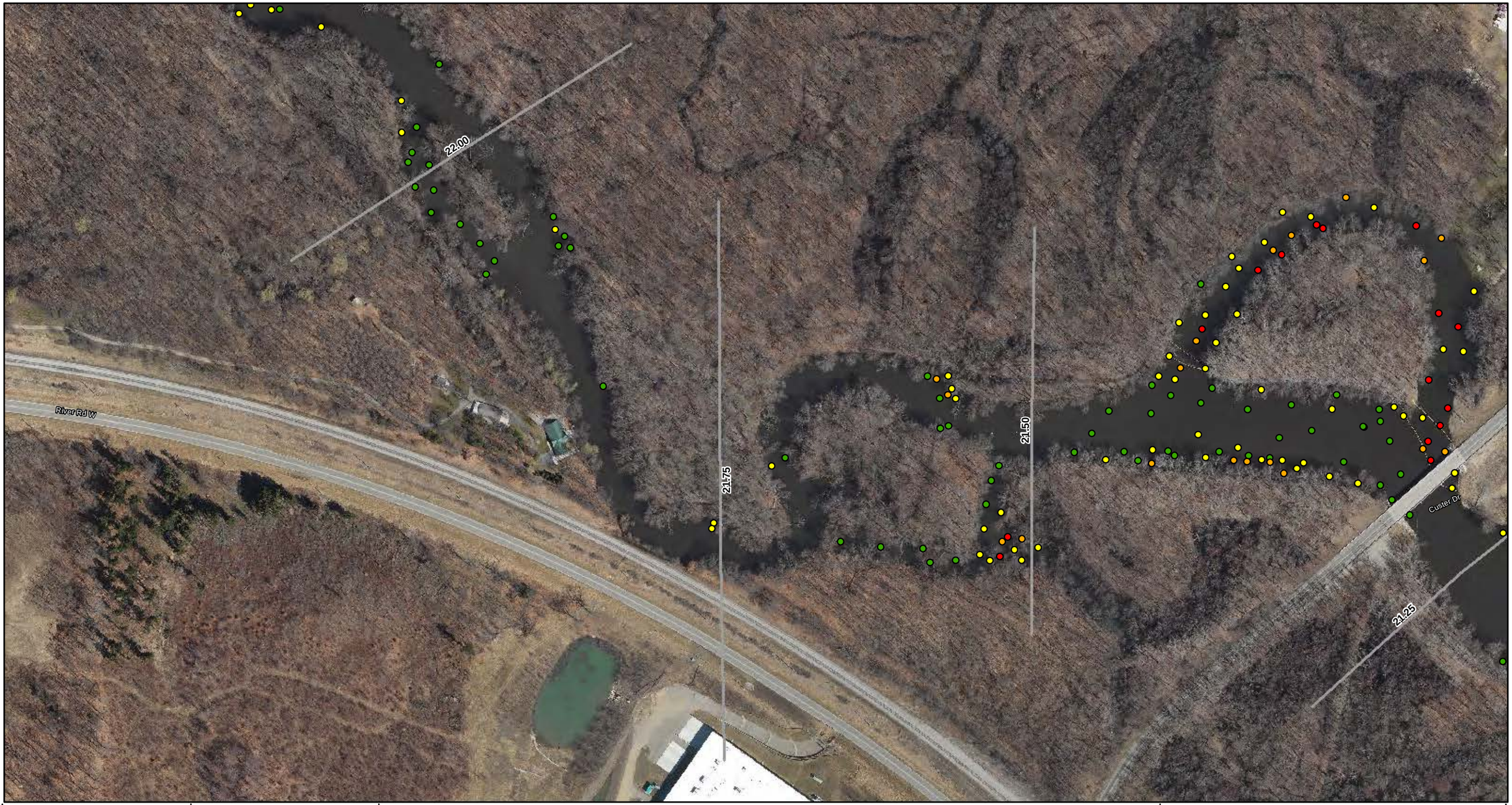
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 20 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 21 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

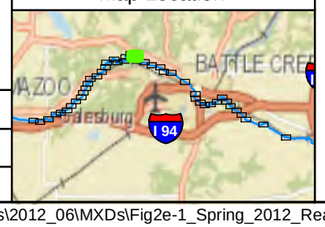
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 22 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 23 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 24 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 25 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

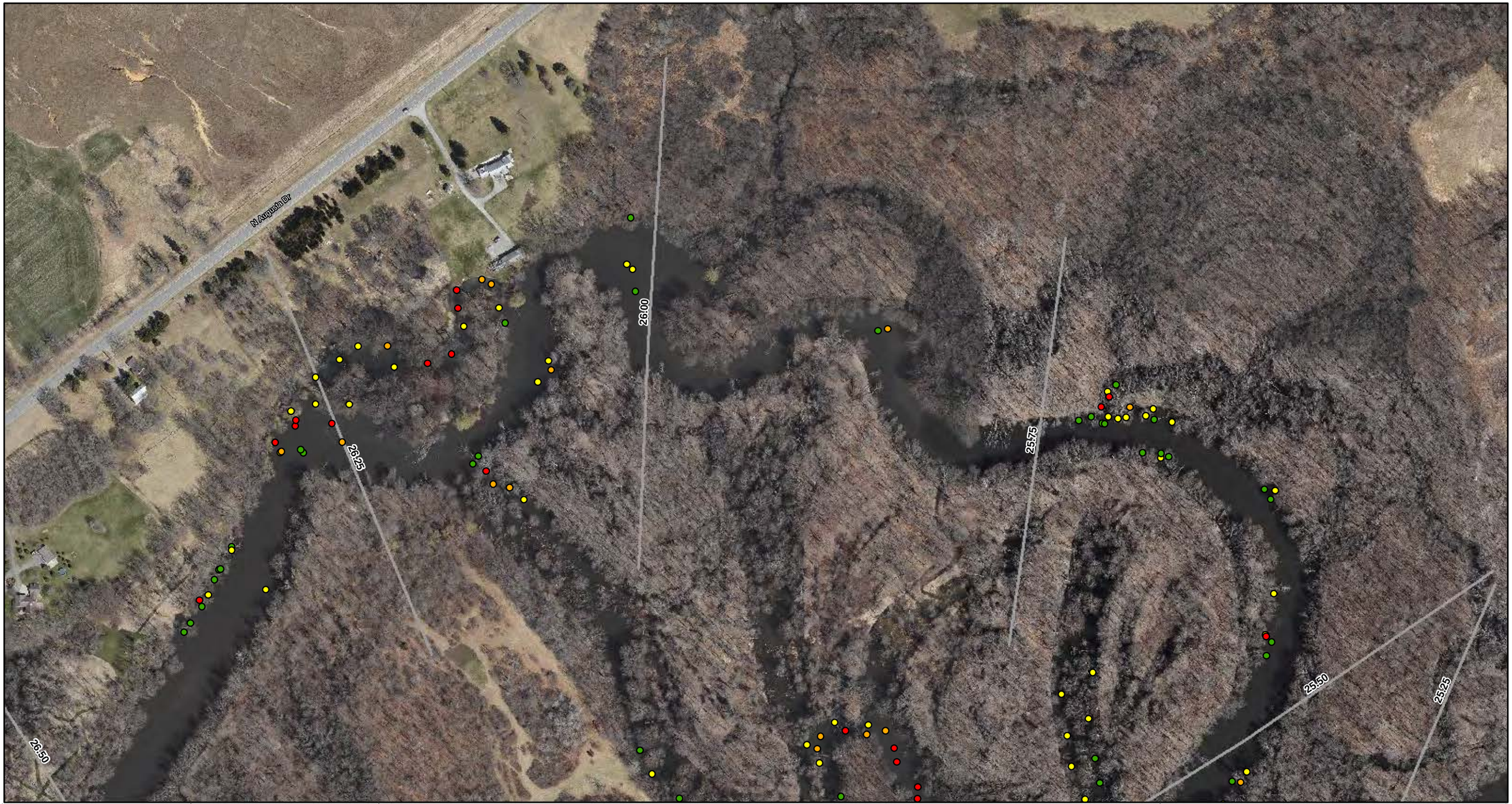
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 26 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 27 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

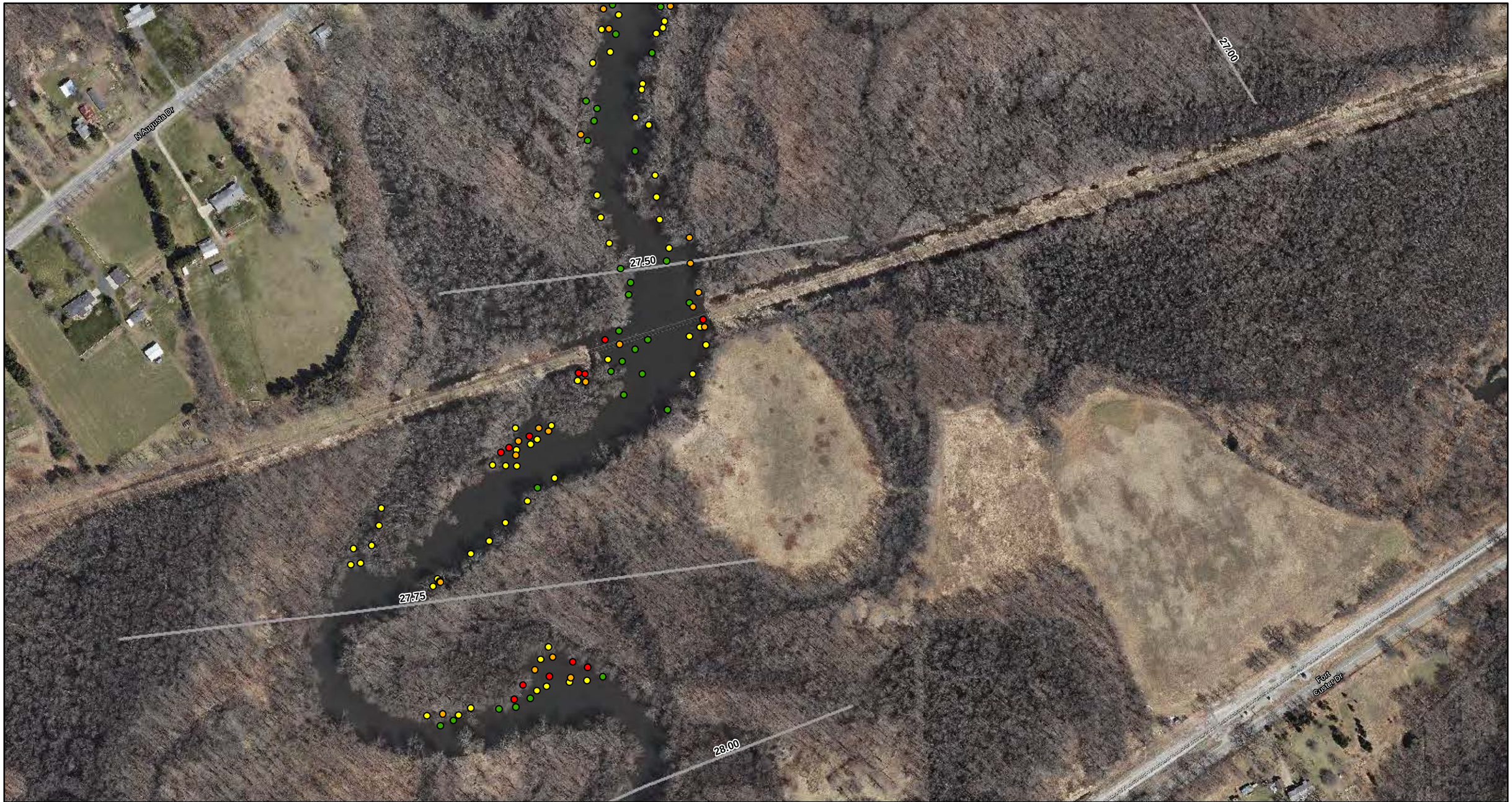
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 28 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 29 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

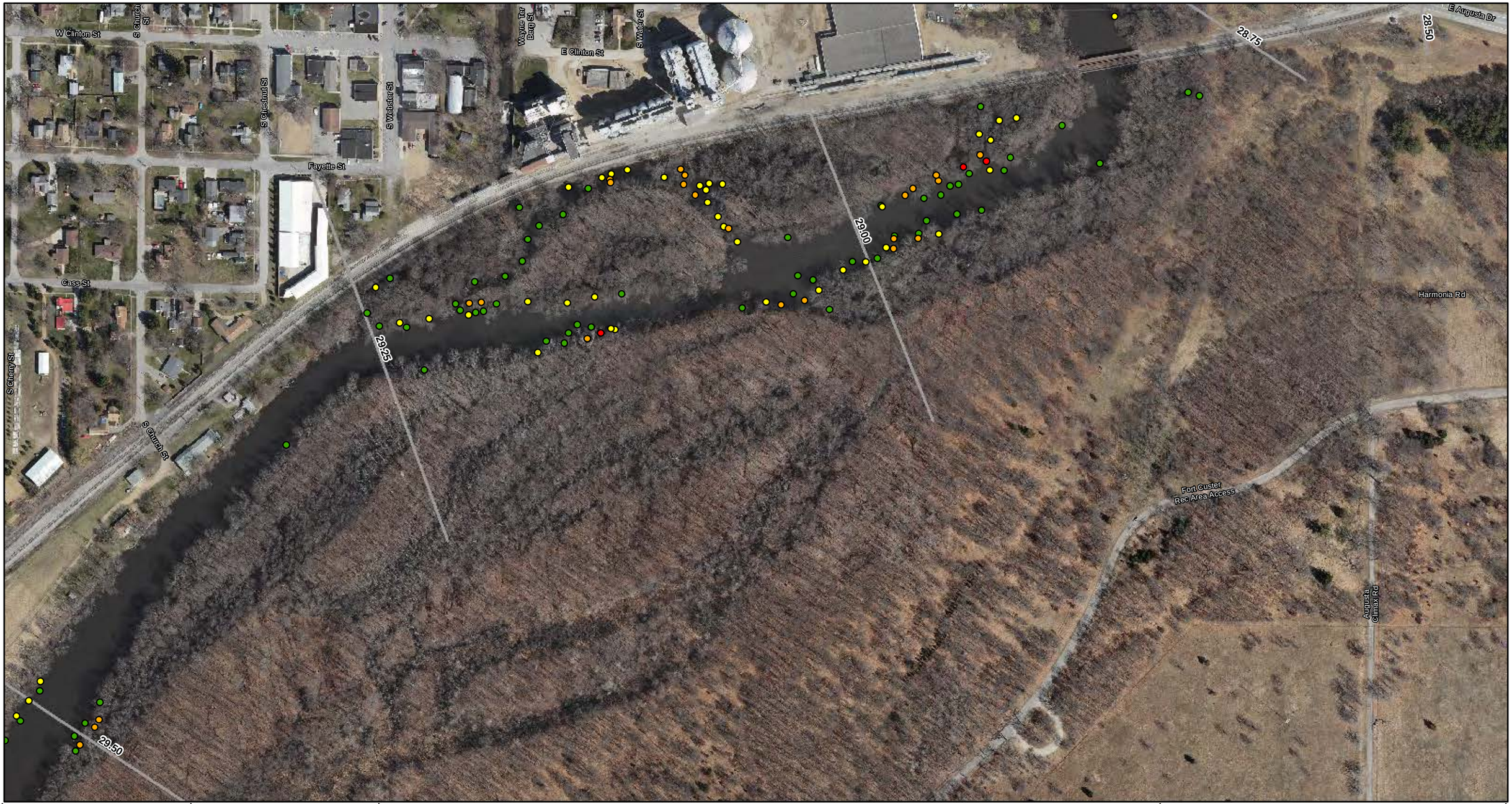
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 30 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 31 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 32 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 33 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 34 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

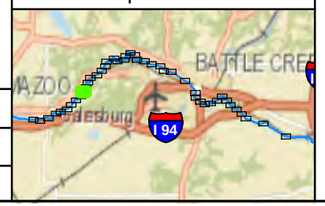
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 35 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 36 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 37 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

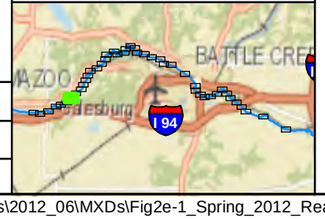
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 38 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE		
Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 39 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 40 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

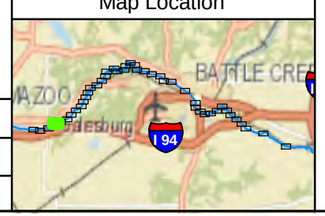
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

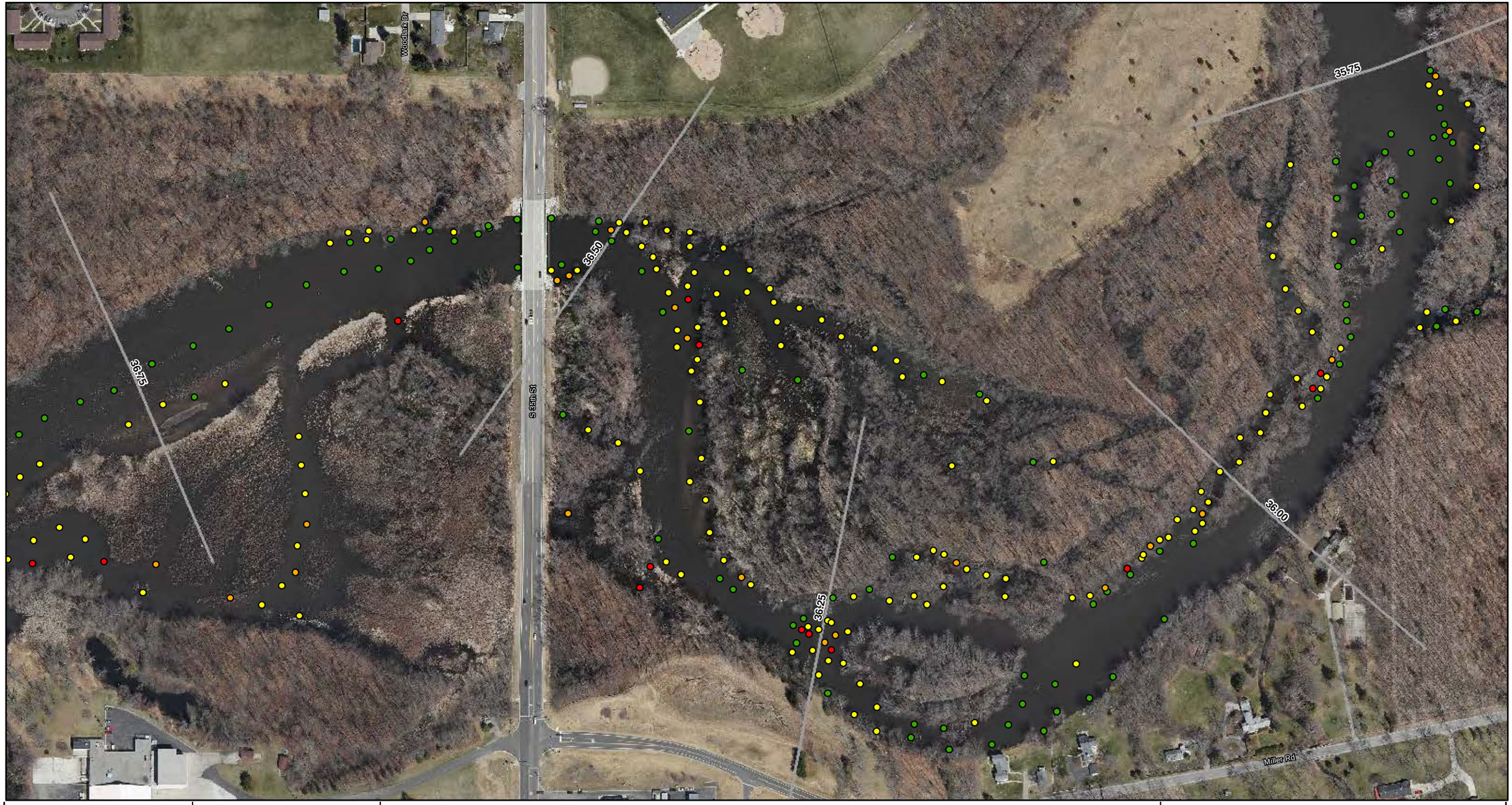
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 41 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE		
Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

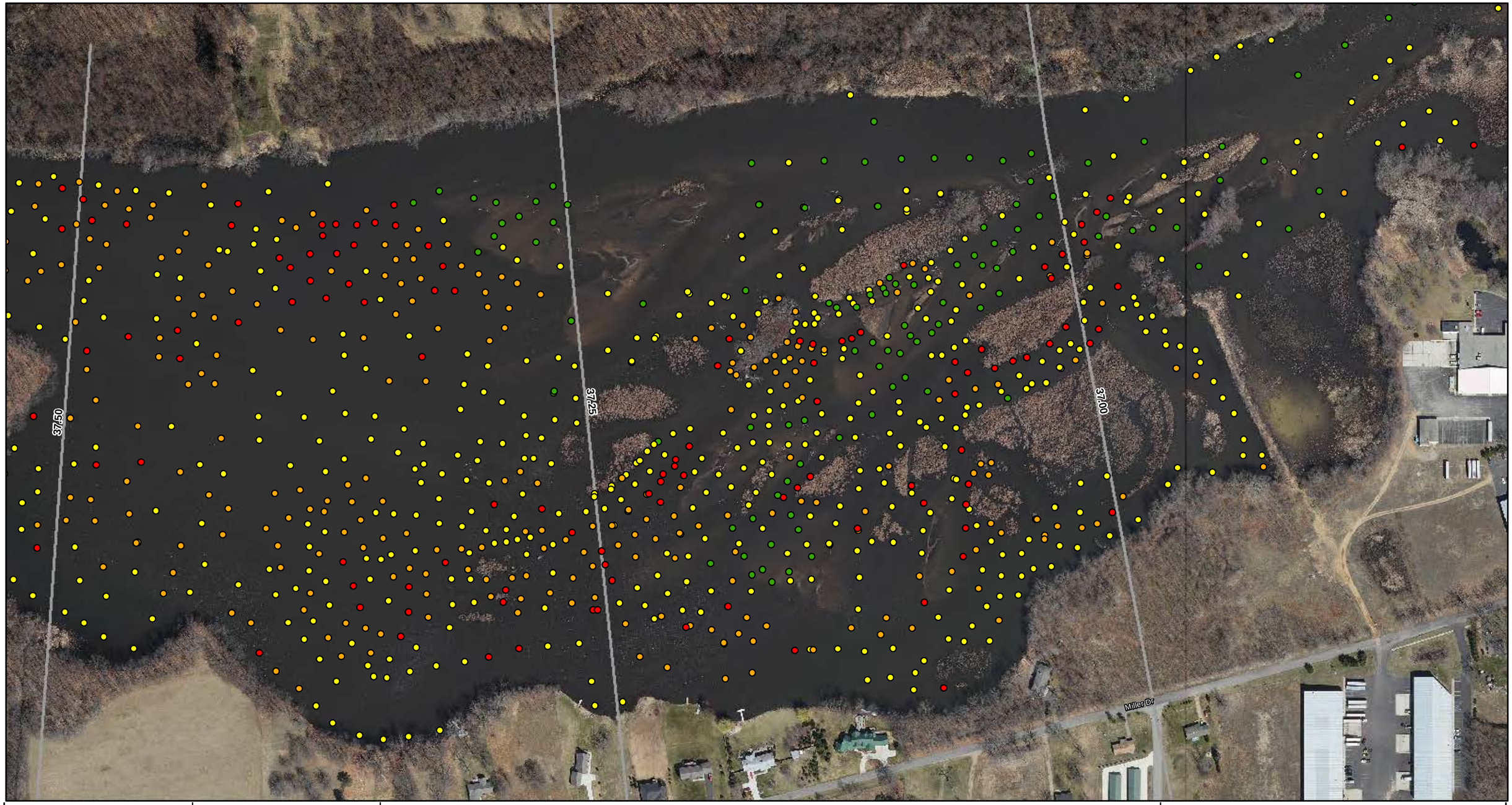
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 42 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 125 250 500

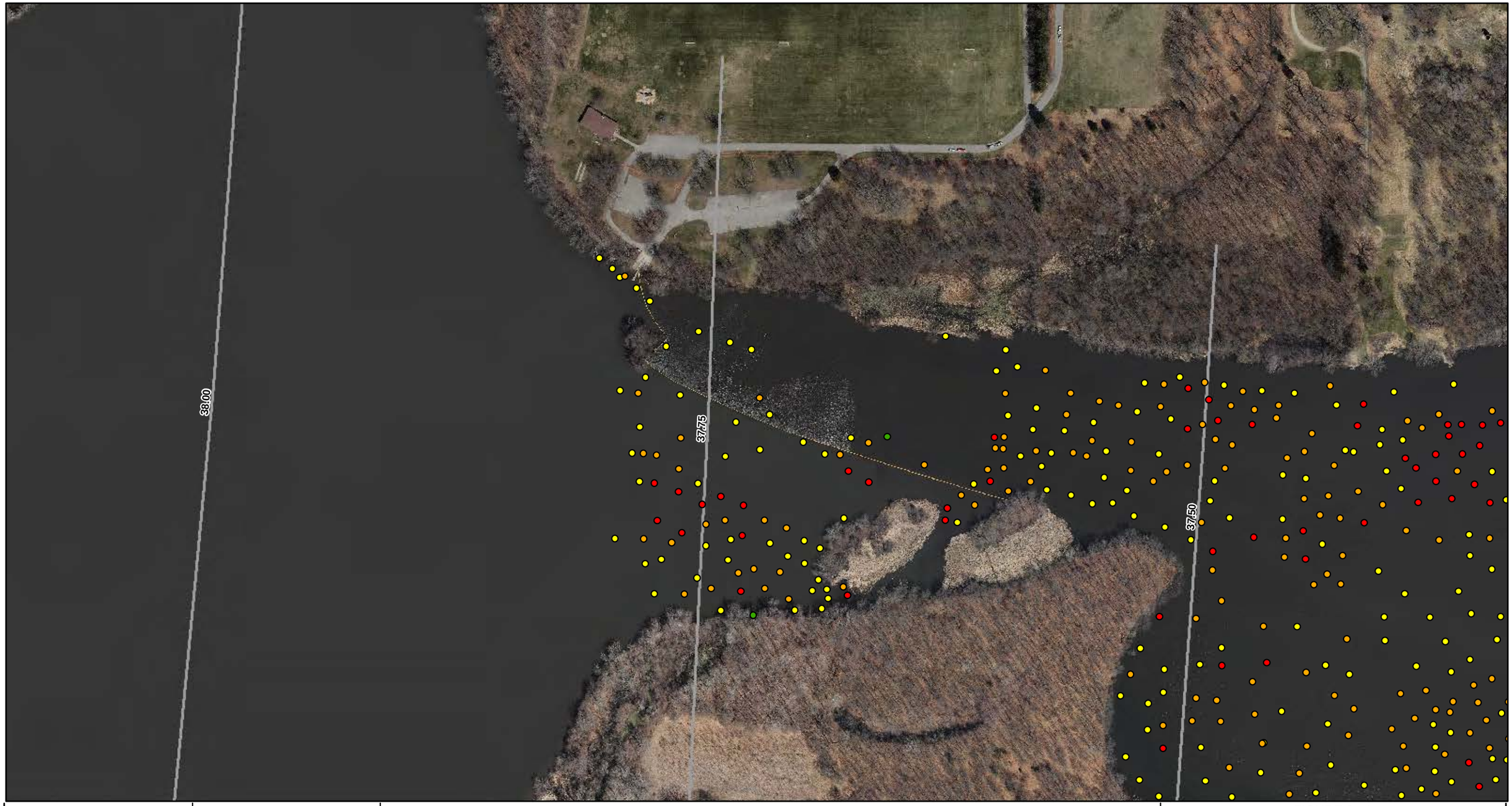
Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 43 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/23/2012
Approved:	MU	7/23/2012
Project #:	60246209	

Map Location



Legend

2012 Spring Reassessment Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2e-1
POLING RESULTS
2012 SPRING REASSESSMENT
JUNE 1 - JUNE 22, 2012
SHEET 44 OF 44

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-1_Spring_2012_Reassessment_Poling_Results.mxd

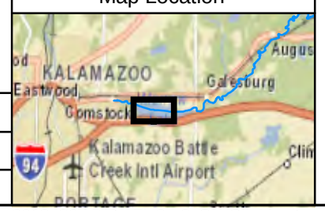
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 15 Monitoring Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Spring 2012 Sediment Fan and Lake Monitoring Poling Location

Quarter Mile Grid Segments

N

0 350 700 1,400

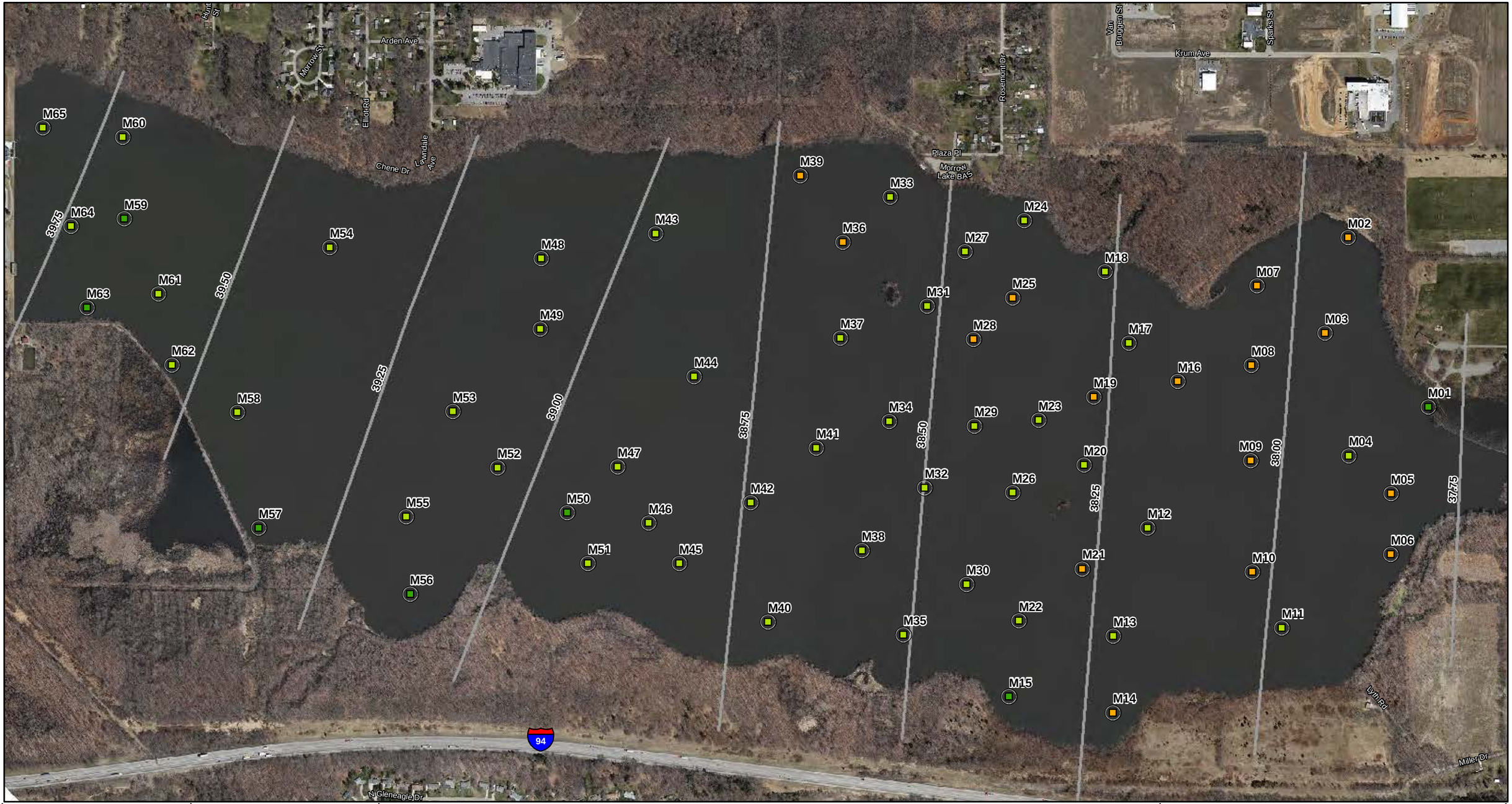
Scale in Feet

FIGURE 2e-2
SUBMERGED OIL POLING RESULTS
SEDIMENT FAN AND MORROW LAKE (ROUND 15)
JUNE 1 - JUNE 4, 2012
SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

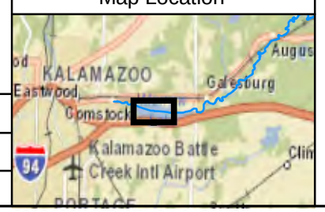
Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-2_SubOil_Monitoring_Morrow_Sheet1.mxd

Aerial Photography Date: April 2011



Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 16 Monitoring Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Spring 2012 Sediment Fan and Lake Monitoring Poling Location

Quarter Mile Grid Segments

N

0 350 700 1,400

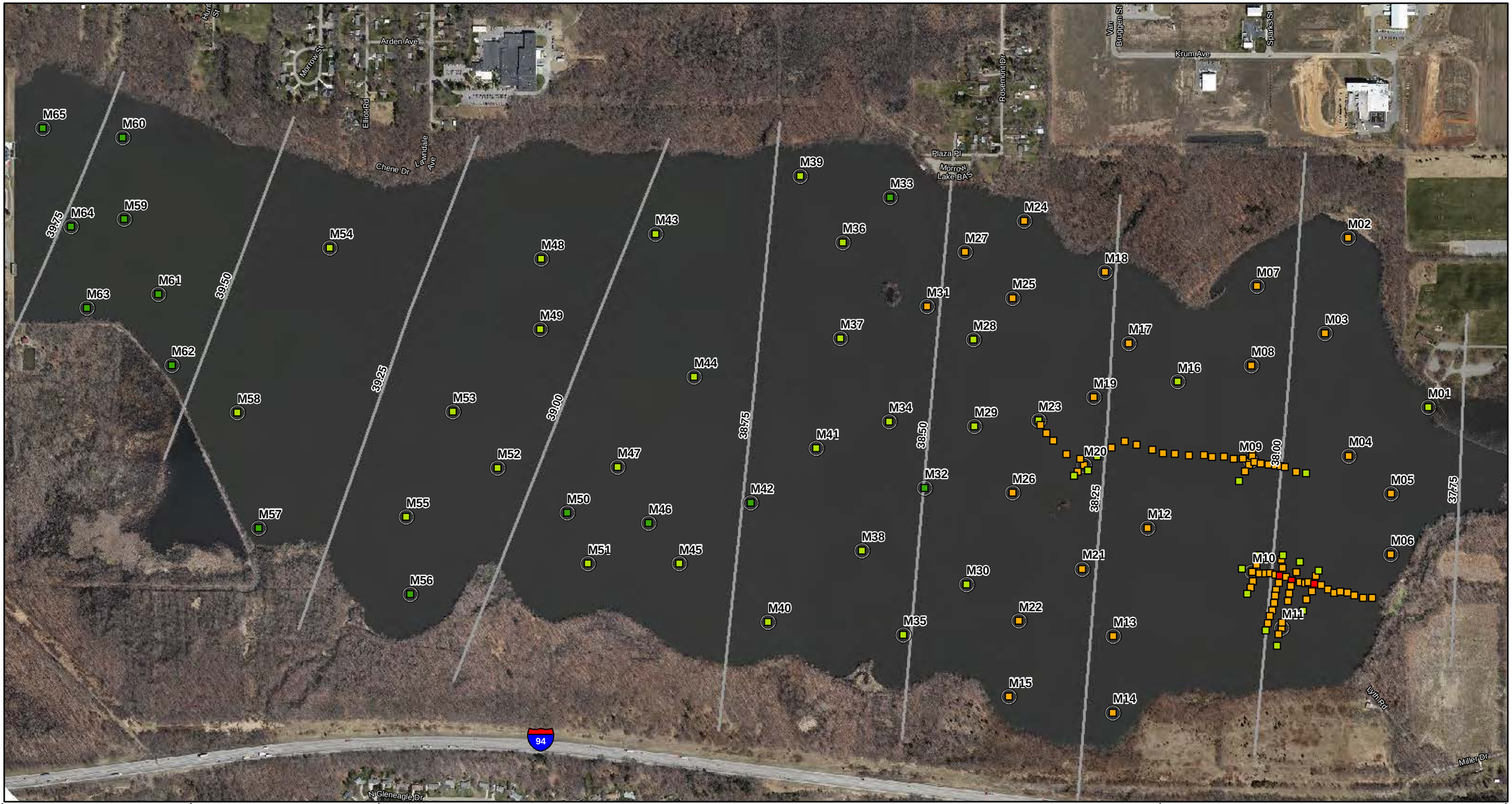
Scale in Feet

FIGURE 2e-2
SUBMERGED OIL POLING RESULTS
SEDIMENT FAN AND MORROW LAKE (ROUND 16)
JUNE 5 - JUNE 6, 2012
SHEET 2 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-2_SubOil_Monitoring_Morrow_Sheet2.mxd

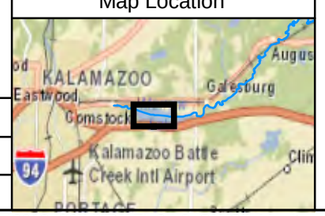
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 17 Monitoring Poling

Spring 2012 Sediment Fan and Lake Monitoring Poling Location

Quarter Mile Grid Segments

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

N

0 350 700 1,400

Scale in Feet

FIGURE 2e-2
SUBMERGED OIL POLING RESULTS
SEDIMENT FAN AND MORROW LAKE (ROUND 17)
JUNE 11 - JUNE 16, 2012
SHEET 3 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-2_SubOil_Monitoring_Morrow_Sheet3.mxd

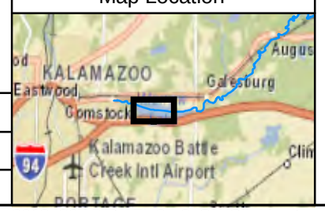
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 18 Monitoring Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Spring 2012 Sediment Fan and Lake Monitoring Poling Location

Quarter Mile Grid Segments

N

0 350 700 1,400

Scale in Feet

FIGURE 2e-2
SUBMERGED OIL POLING RESULTS
SEDIMENT FAN AND MORROW LAKE (ROUND 18)
JUNE 18 - JUNE 20, 2012
SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-2_SubOil_Monitoring_Morrow_Sheet4.mxd

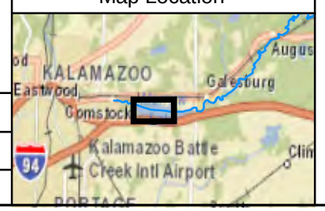
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 19 Monitoring Poling

Submerged Oil Category

- Heavy
- Moderate
- Light
- None

Spring 2012 Sediment Fan and Lake Monitoring Poling Location

Quarter Mile Grid Segments

N

0 350 700 1,400

Scale in Feet

FIGURE 2e-2
SUBMERGED OIL POLING RESULTS
SEDIMENT FAN AND MORROW LAKE (ROUND 19)
JUNE 25 - JUNE 29, 2012
SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-2_SubOil_Monitoring_Morrow_Sheet5.mxd

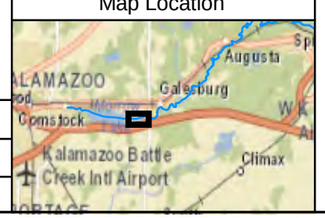
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

Round 3 Monitoring Poling

Spring 2012 Delta Monitoring Poling Location (Primary)

Submerged Oil Category

Quarter Mile Grid Segments

- Heavy
- Moderate
- Light
- None

N

0 175 350 700

Scale in Feet

FIGURE 2e-3
SUBMERGED OIL POLING RESULTS
MORROW LAKE DELTA (ROUND 3)
JUNE 27 - JUNE 29, 2012
SHEET 1 OF 1

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-3_SubOil_Monitoring_Delta.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 1 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

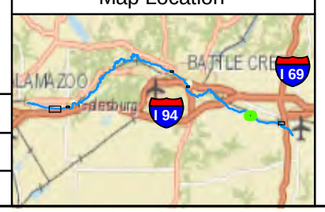
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 2 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 50 100 200

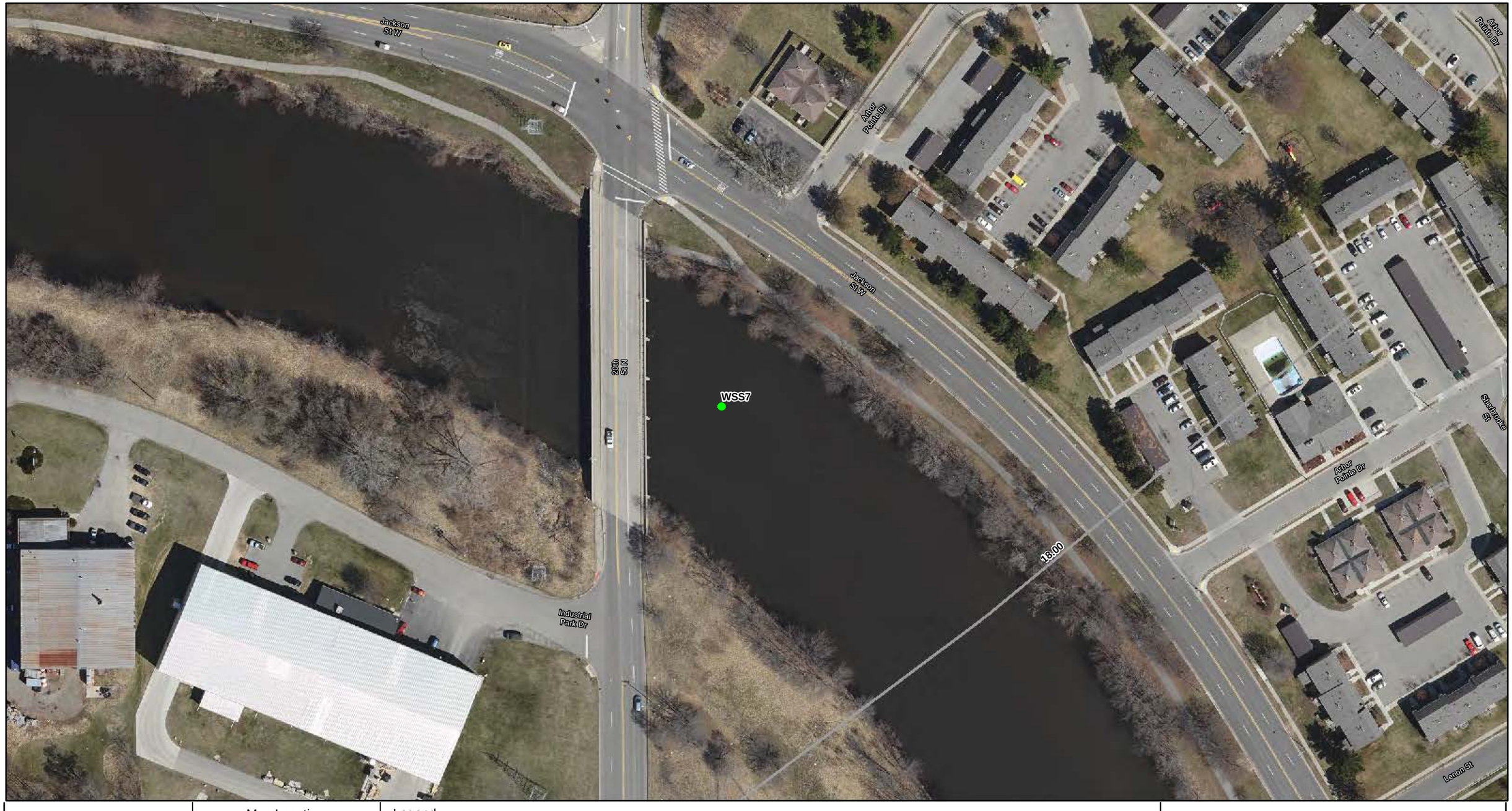
Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 3 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 4 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

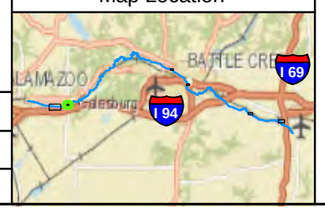
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 50 100 200

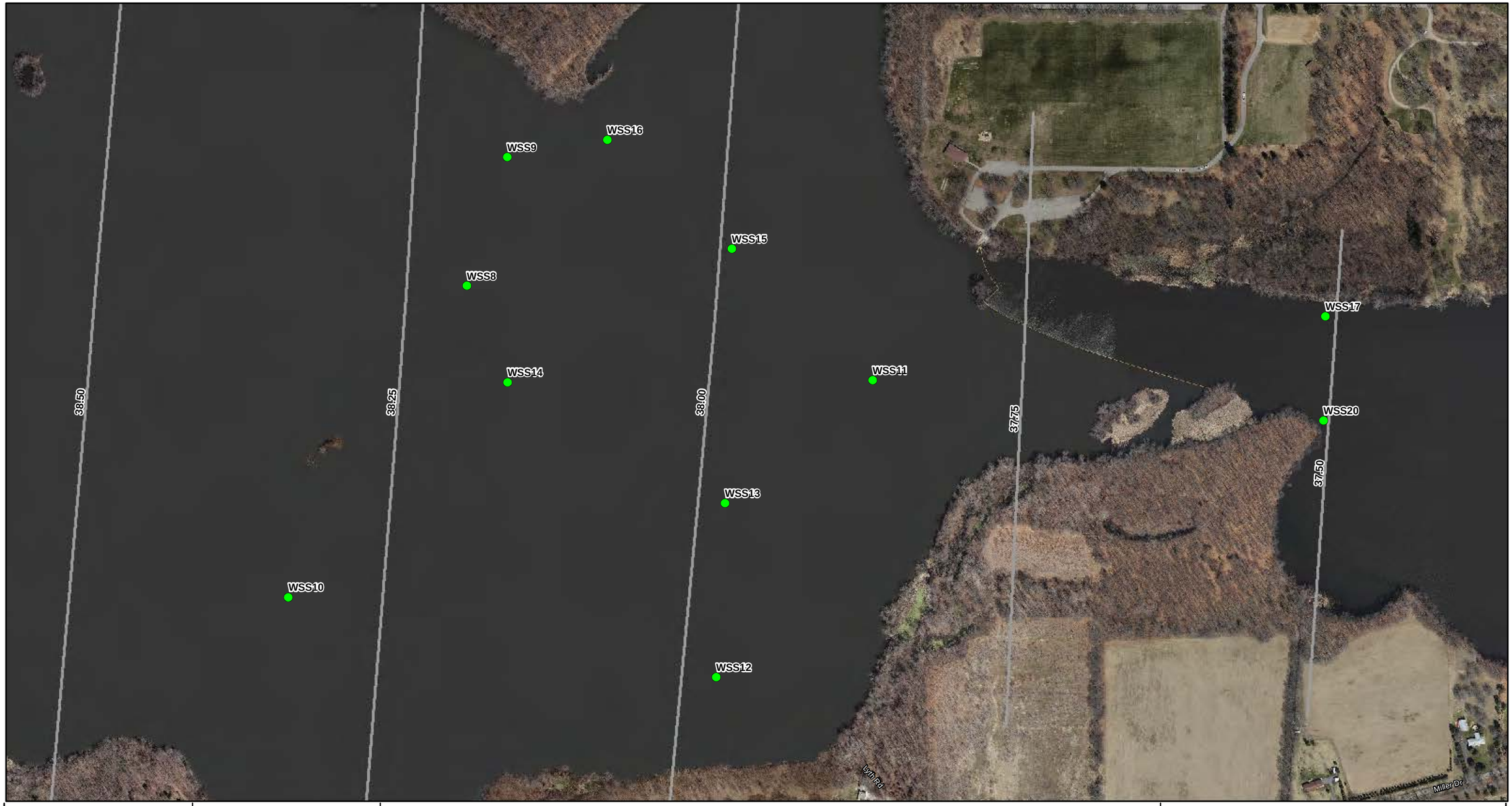
Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 5 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

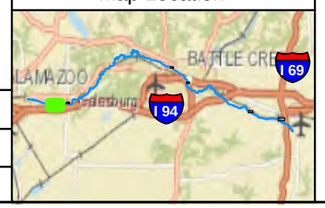
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/10/2012
Approved:	EE	7/10/2012
Project #:	60246209	

Map Location



Legend

- Walling Suspended Sediment Trap
- Quarter Mile Grid Segments

N

0 200 400 800

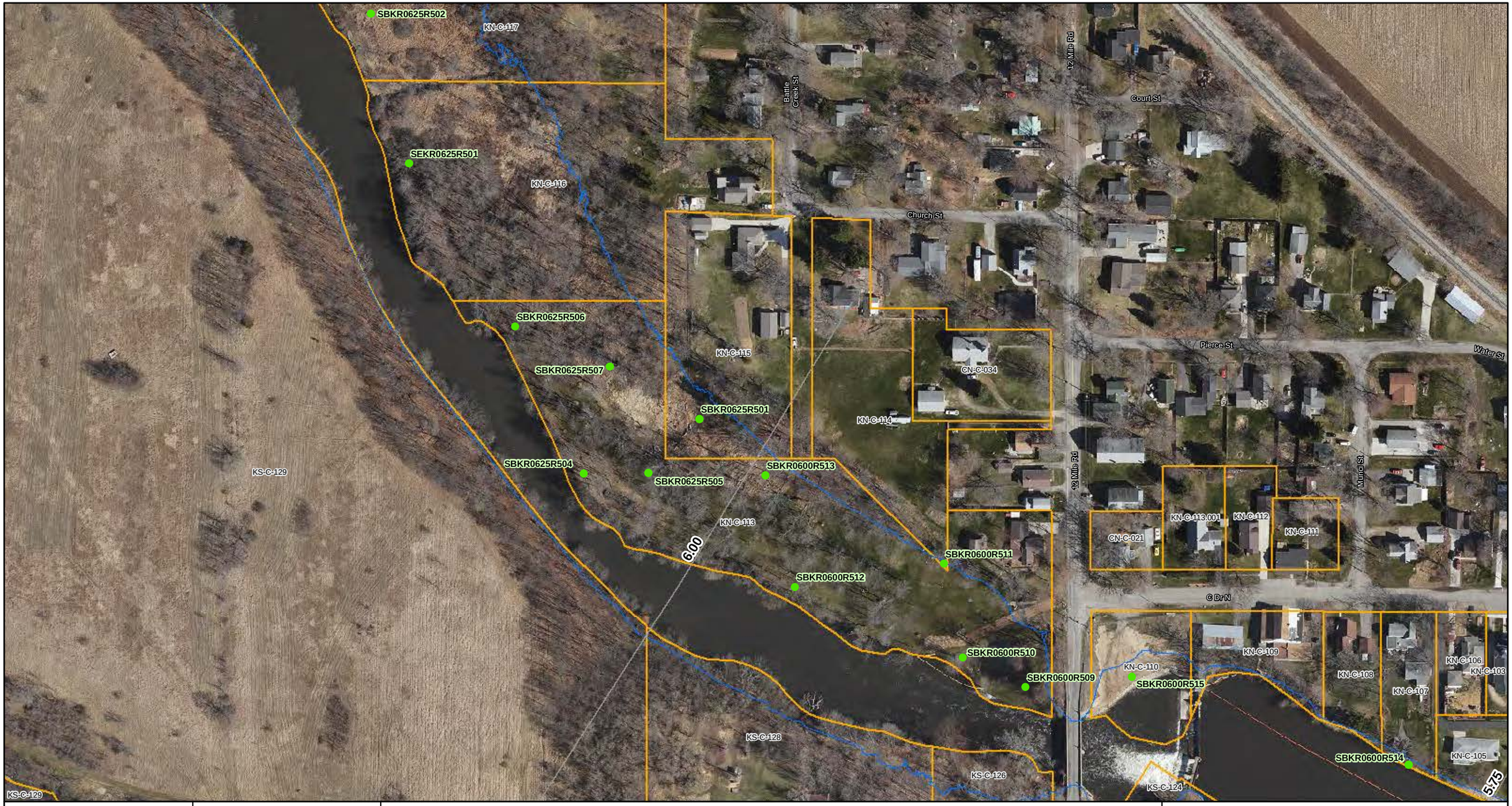
Scale in Feet

FIGURE 2e-4
WALLING SUSPENDED SEDIMENT TRAP LOCATIONS
SHEET 6 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2e-4_Walling_Suspended_Sediment_Traps.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 1 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

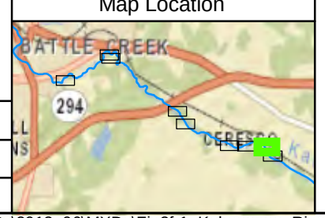
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 2 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

Aerial Photography Date: April 2011

KN-C-121

SBKR0675I501

SBKR0

SBKR0675L502

SBKR0675L505

SBKR0675L504

SBKR0675L503

SBKR0700I501

SBKR0700L501

SBKR0700I502

SBKR0700I505

SBKR0700I503

SBKR0700I504

SBKR0700I506

SBKR0700I509

SBKR0700I508

SBKR0700I510

SBKR0700I507

SBKR0700I515

SBKR0700I516

SBKR0700I514

SBKR0700I517

SBKR0700I511

SBKR0700I519

SBKR0700I512

SBKR0700I513

SBKR0700I518

SBKR0700L502

SBKR0700L503

6.75

7.00

KS-C-130

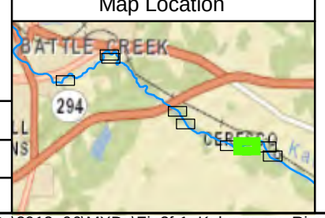
KS-C-131

SEKR0725L501

ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

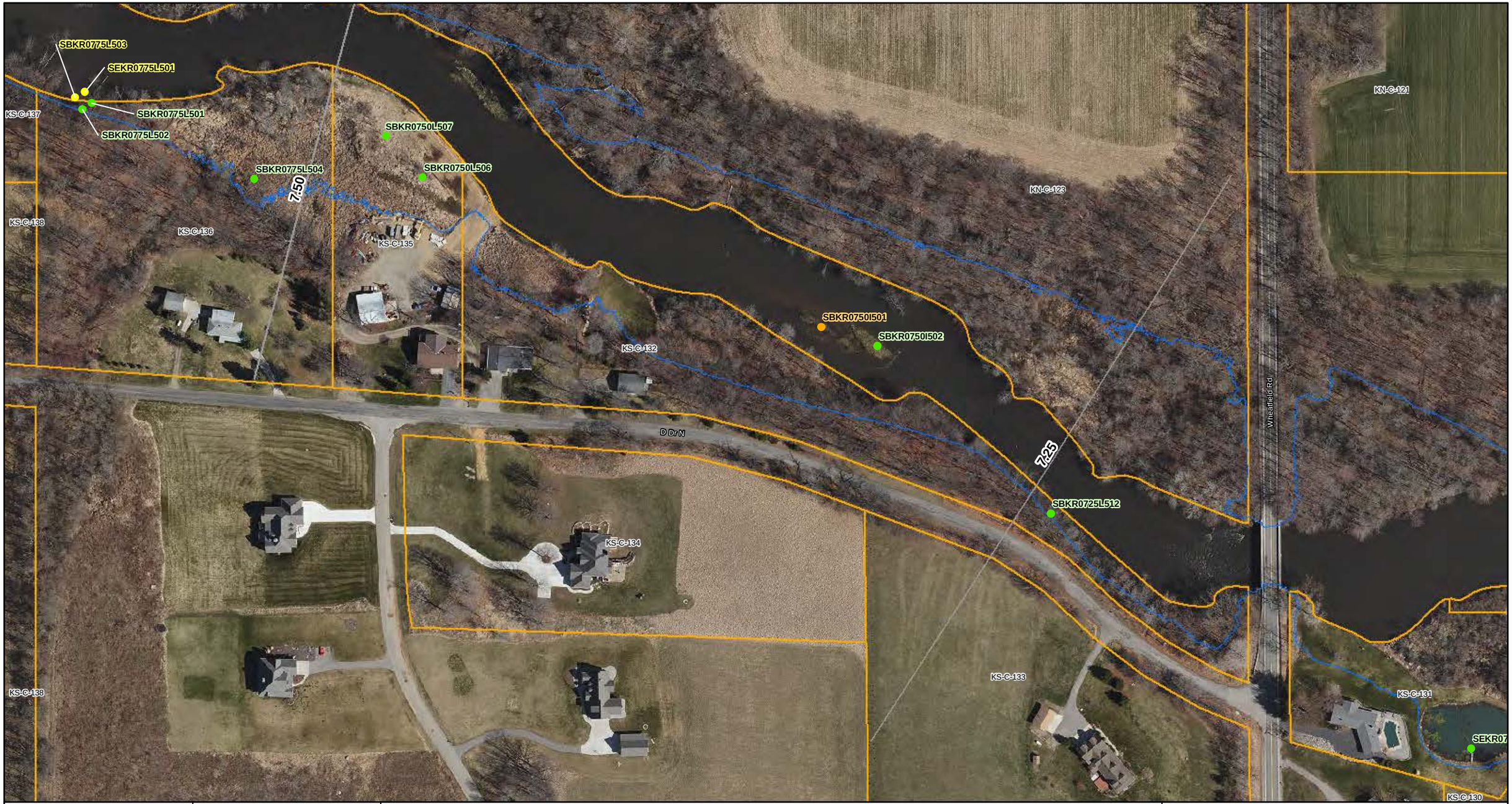
Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 3 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

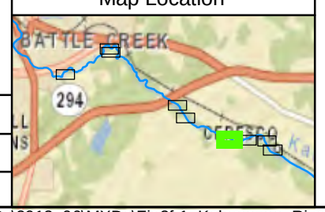
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 4 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

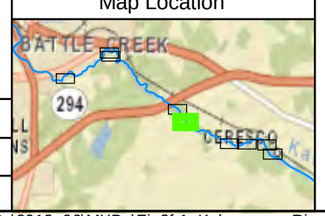
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

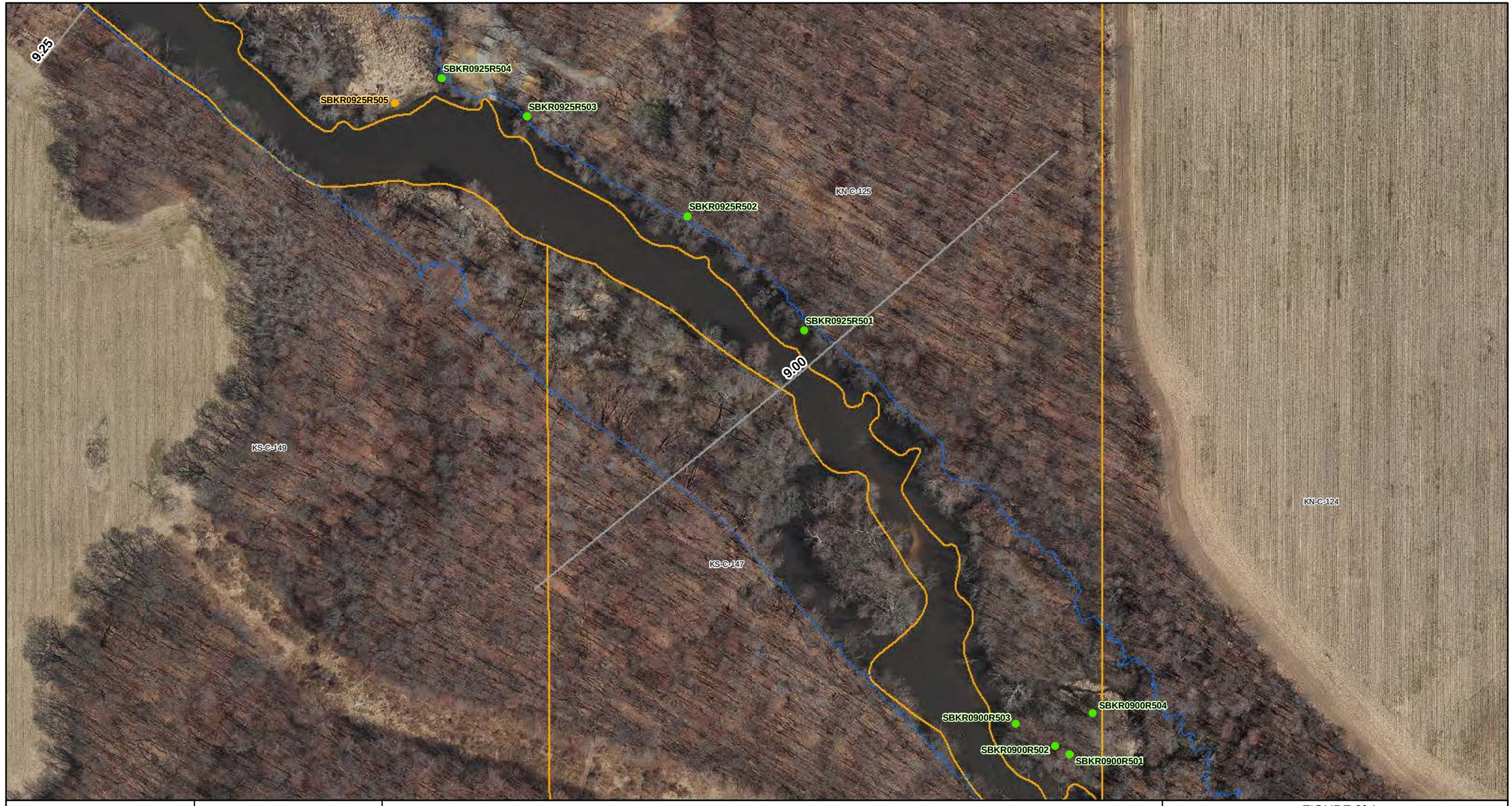
Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 5 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI
Observations
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 6 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 7 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 8 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

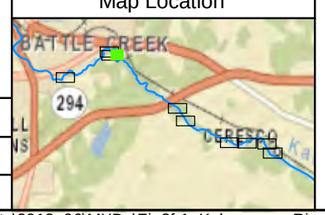
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI
Observations
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 20 40 80

Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 9 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI_Sheet9.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/5/2012
Approved:	EE	7/5/2012
Project #:	60246209	

Map Location



Legend

Kalamazoo River RI

Observations

- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

- Kalamazoo River Flood Inundation Boundary
- Parcel Boundary
- Quarter Mile Grid Segments

N

0 75 150 300

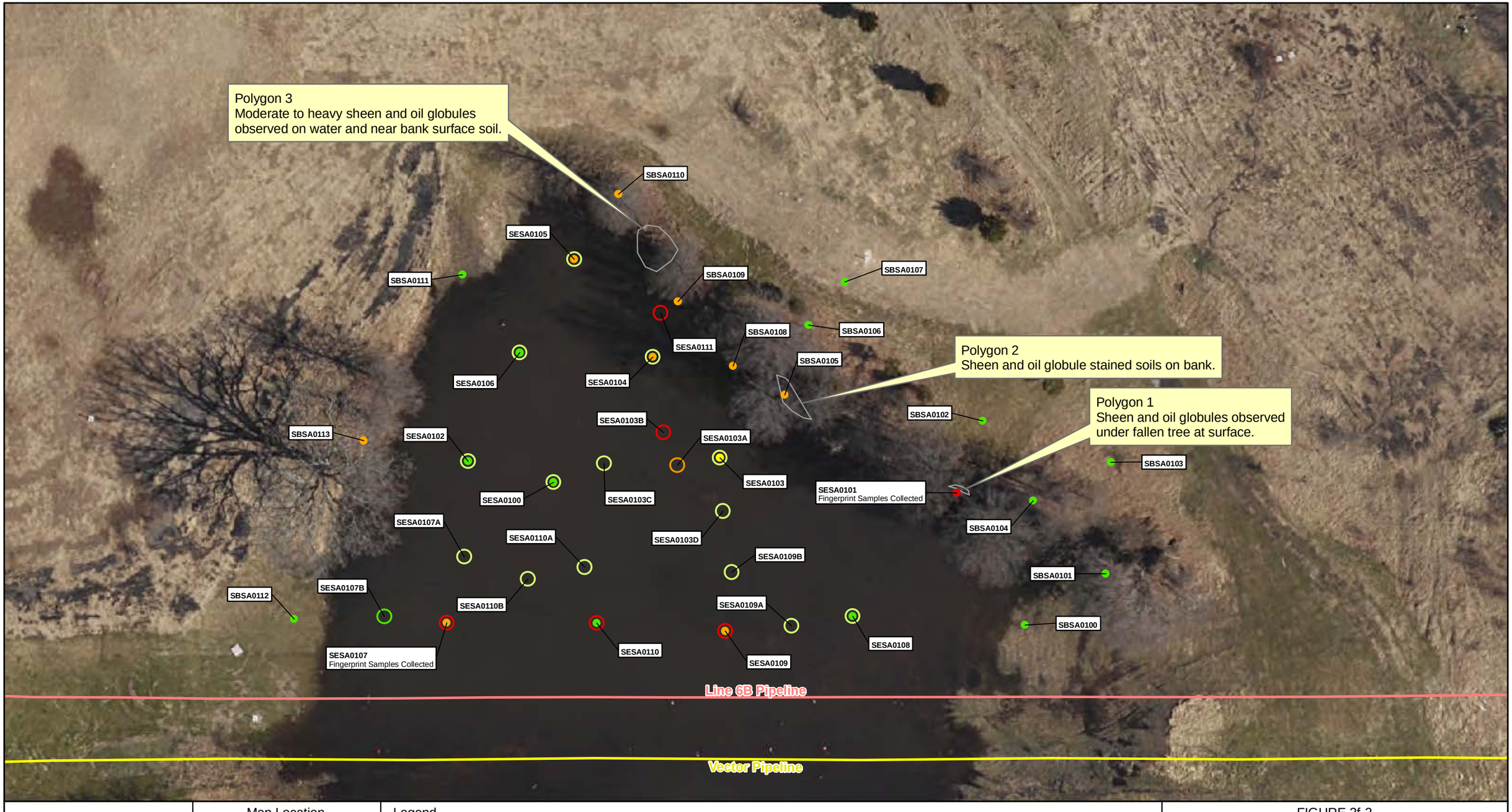
Scale in Feet

FIGURE 2f-1
KALAMAZOO RIVER REMEDIAL INVESTIGATION
SAMPLE LOCATIONS
JUNE 2012
SHEET 10 OF 10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-1_Kalamazoo_River_RI.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/19/2012
Approved:	MU	7/19/2012
Project #:	60246209	

Map Location



Legend

Observations
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

Poling Results
- Heavy
- Moderate
- Light
- None

- Observations
- Vector Pipeline
- Line 6B Pipeline

N

0 20 40 80

Scale in Feet

FIGURE 2f-2
BORING AND POLING RESULTS
SUB-UNIT A1 - SOURCE AREA
JUNE 2012
SHEET 1 OF 1

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2f-2_Source_Area_Samples.mxd

Aerial Photography Date: April 2011

CSKR2150C02

CSKR2150C03

CSKR2150C01

21.50

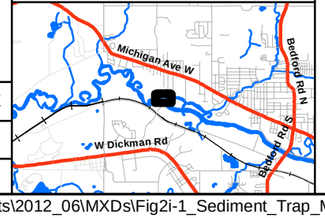
21.25

CUSTER Dr

ENBRIDGE

Drawn:	NS	7/24/2012
Approved:	MU	7/24/2012
Project #:	60246209	

Map Location



Legend

Sediment Trap Monitoring Round 3 Result

- Poling, Heavy
- Poling, Moderate
- Poling, Light
- Poling, None

Sediment Trap Site Boundary

Quarter Mile Grid Segments

N

0 25 50 100 150 200

Scale in Feet

FIGURE 2i-1
SEDIMENT TRAP SITE SURVEY
21.50 RDB
ROUND 3: JUNE 1, 2012
SHEET 1 OF 2

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2i-1_Sediment_Trap_Monitoring_Sheet1.mxd

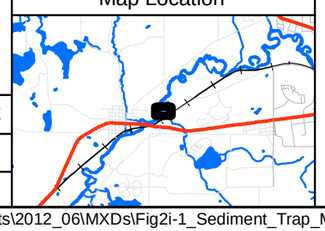
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	7/24/2012
Approved:	MU	7/24/2012
Project #:	60246209	

Map Location



Legend

Sediment Trap Monitoring Round 3 Result
- Poling, Heavy
- Poling, Moderate
- Poling, Light
- Poling, None

Sediment Trap Site Boundary
Quarter Mile Grid Segments

N

0 25 50 100 150 200

Scale in Feet

FIGURE 2i-1
SEDIMENT TRAP SITE SURVEY
28.25 RDB
ROUND 3: JUNE 1, 2012
SHEET 2 OF 2

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Monthly_Progress_Reports\2012_06\MXDs\Fig2i-1_Sediment_Trap_Monitoring_Sheet2.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

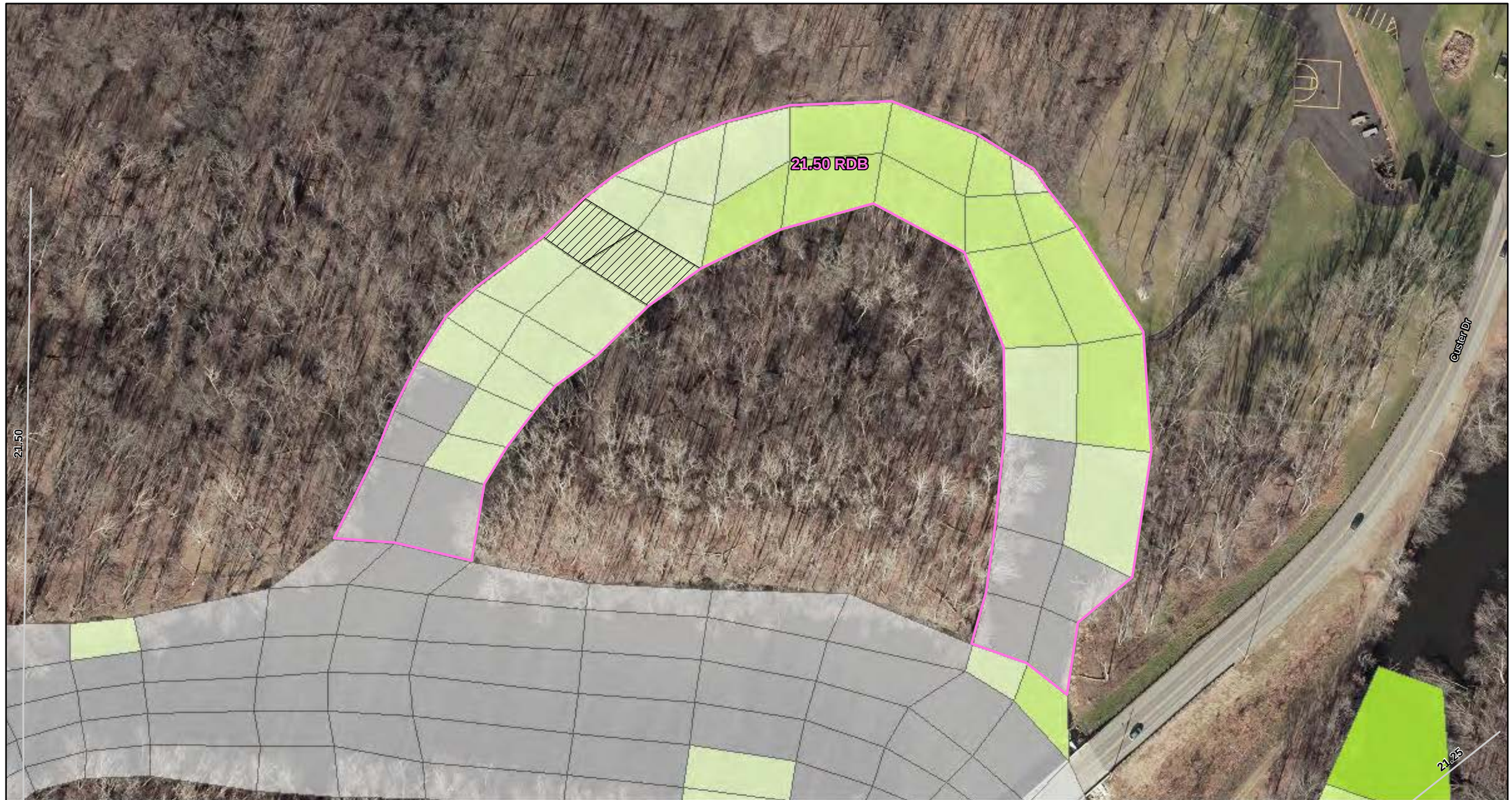
0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

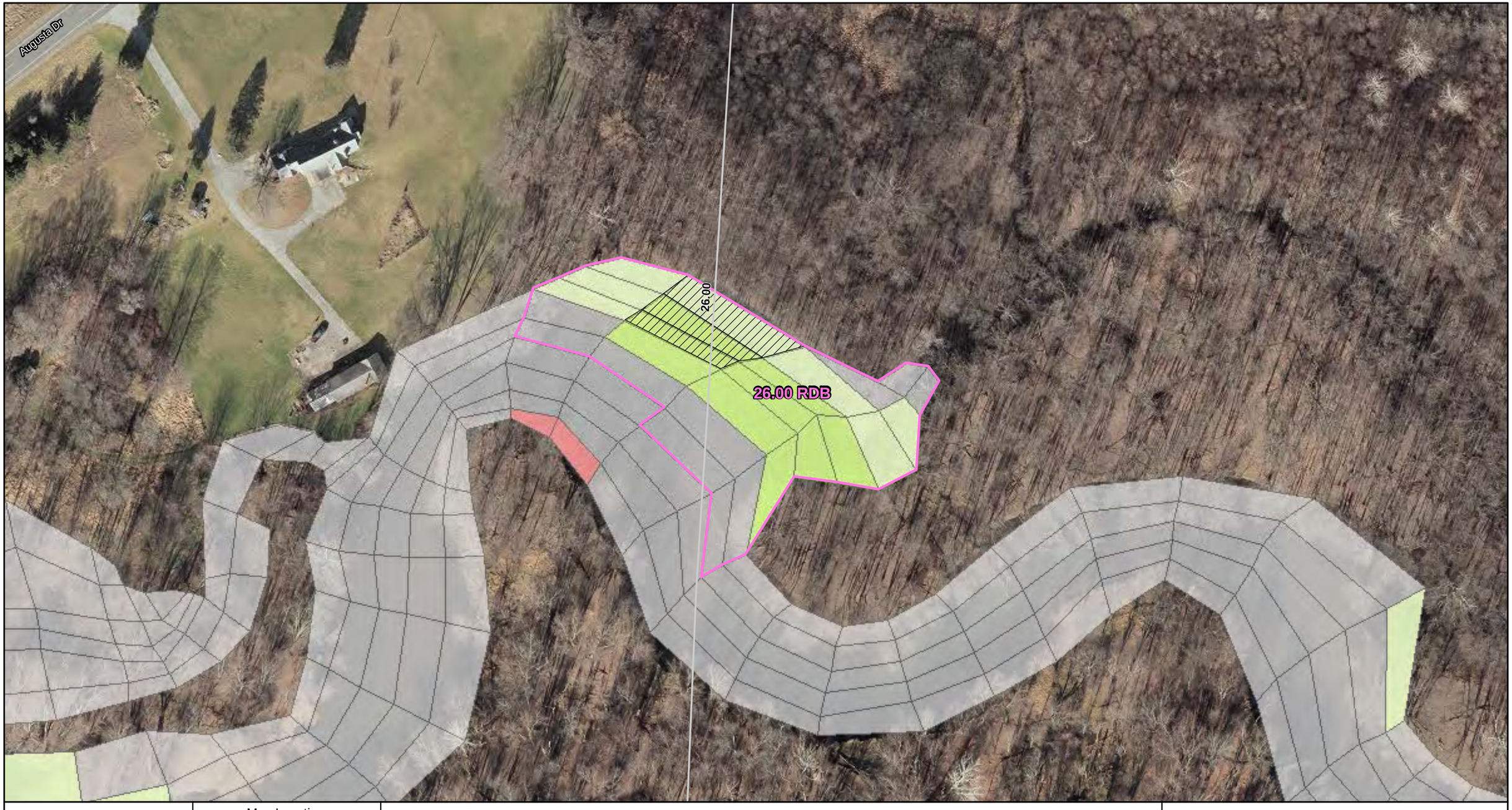
0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

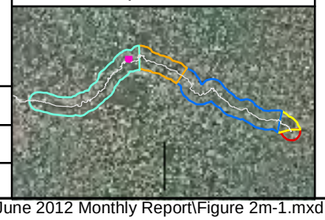
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

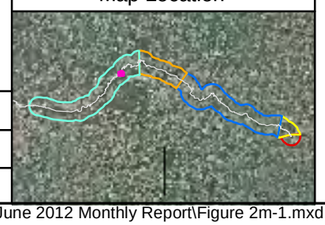
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

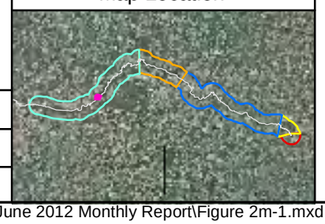
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-1
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-1.mxd

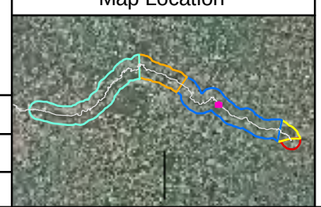
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)
99% vs. No Structures - Alternate Configuration
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200
Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)
99% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200
Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

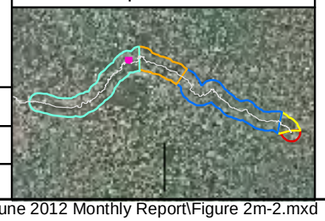
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

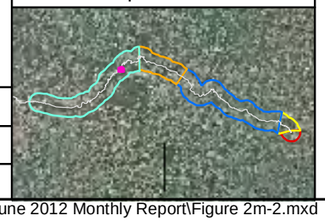
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

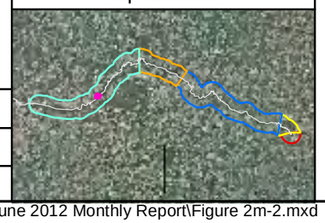
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation
- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

mm/week = Millimeters Per Week

N

0 50 100 200

Scale in Feet

FIGURE 2m-2
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-2.mxd

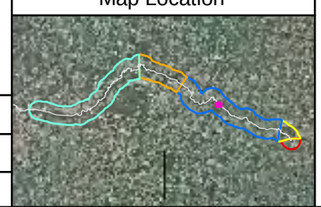
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

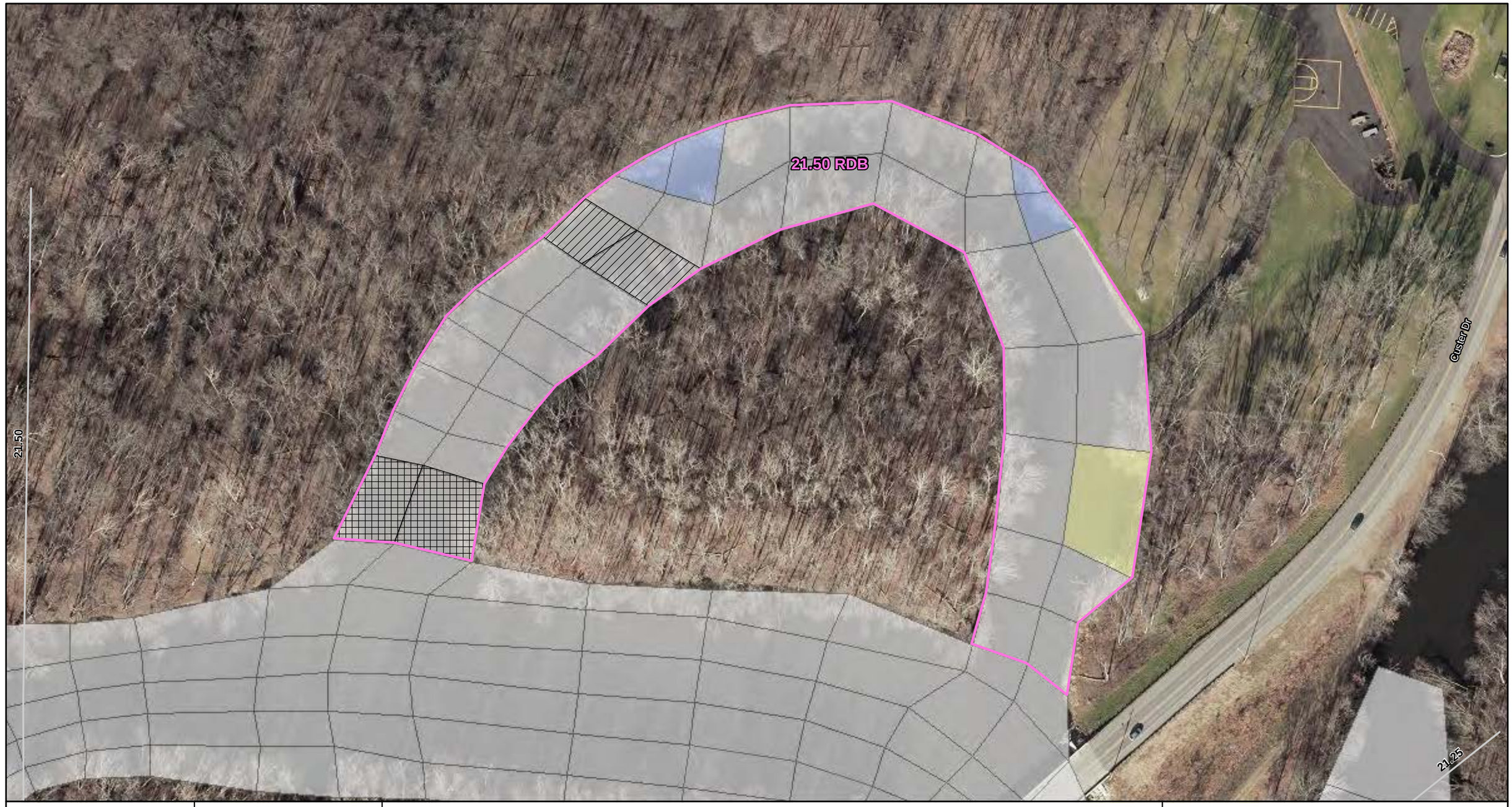
0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

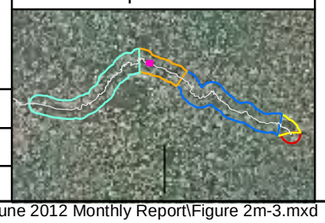
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

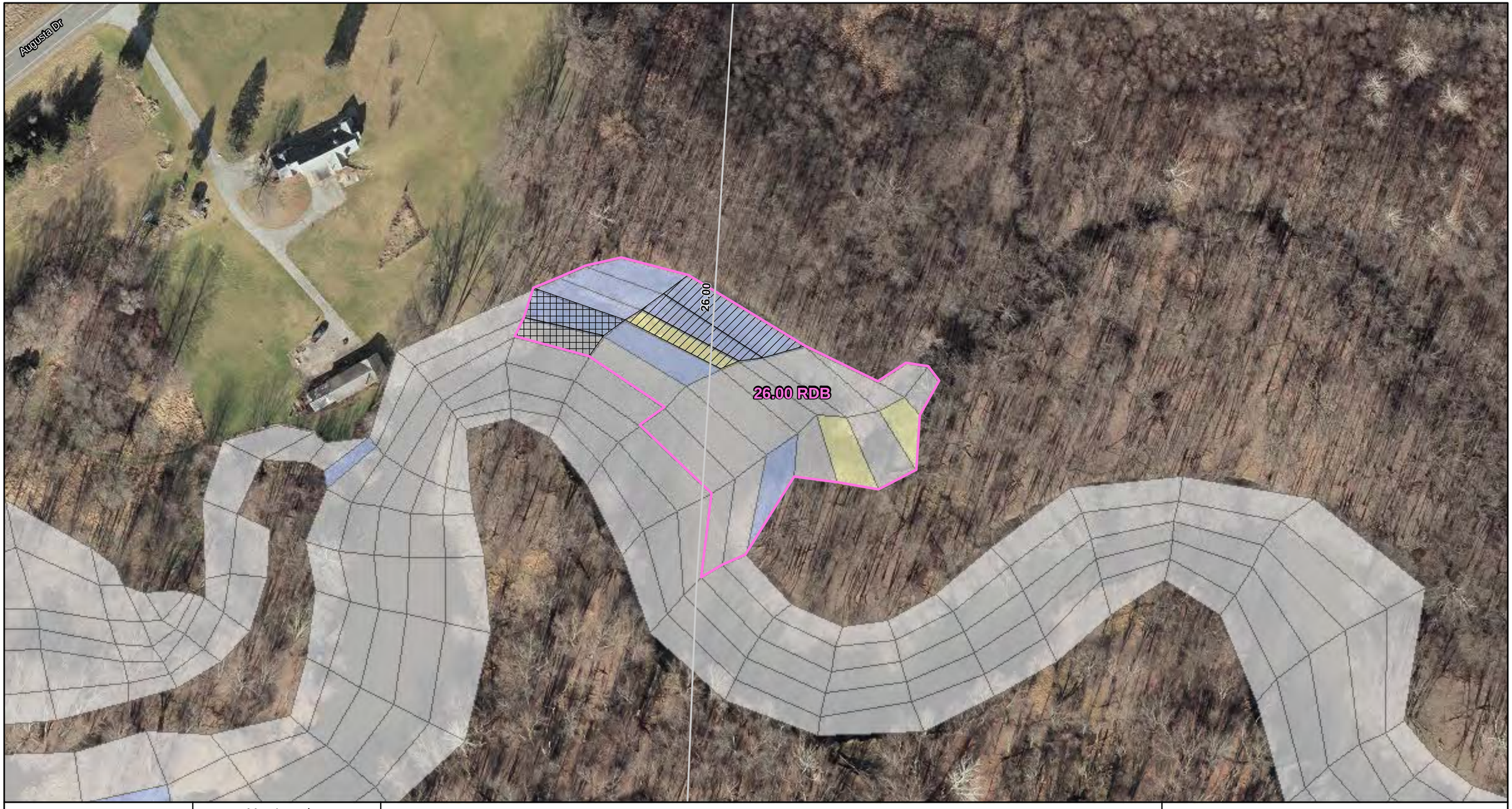
0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

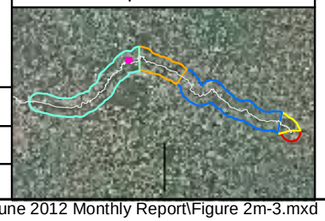
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

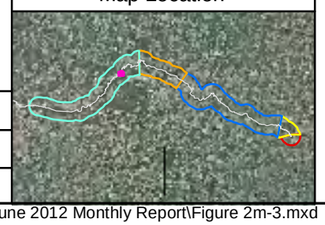
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

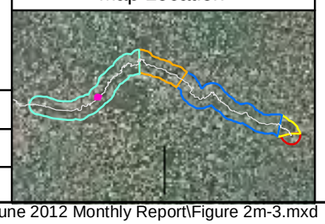
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-3
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
99% ALTERNATE VS. 99% ORIGINAL
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-3.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

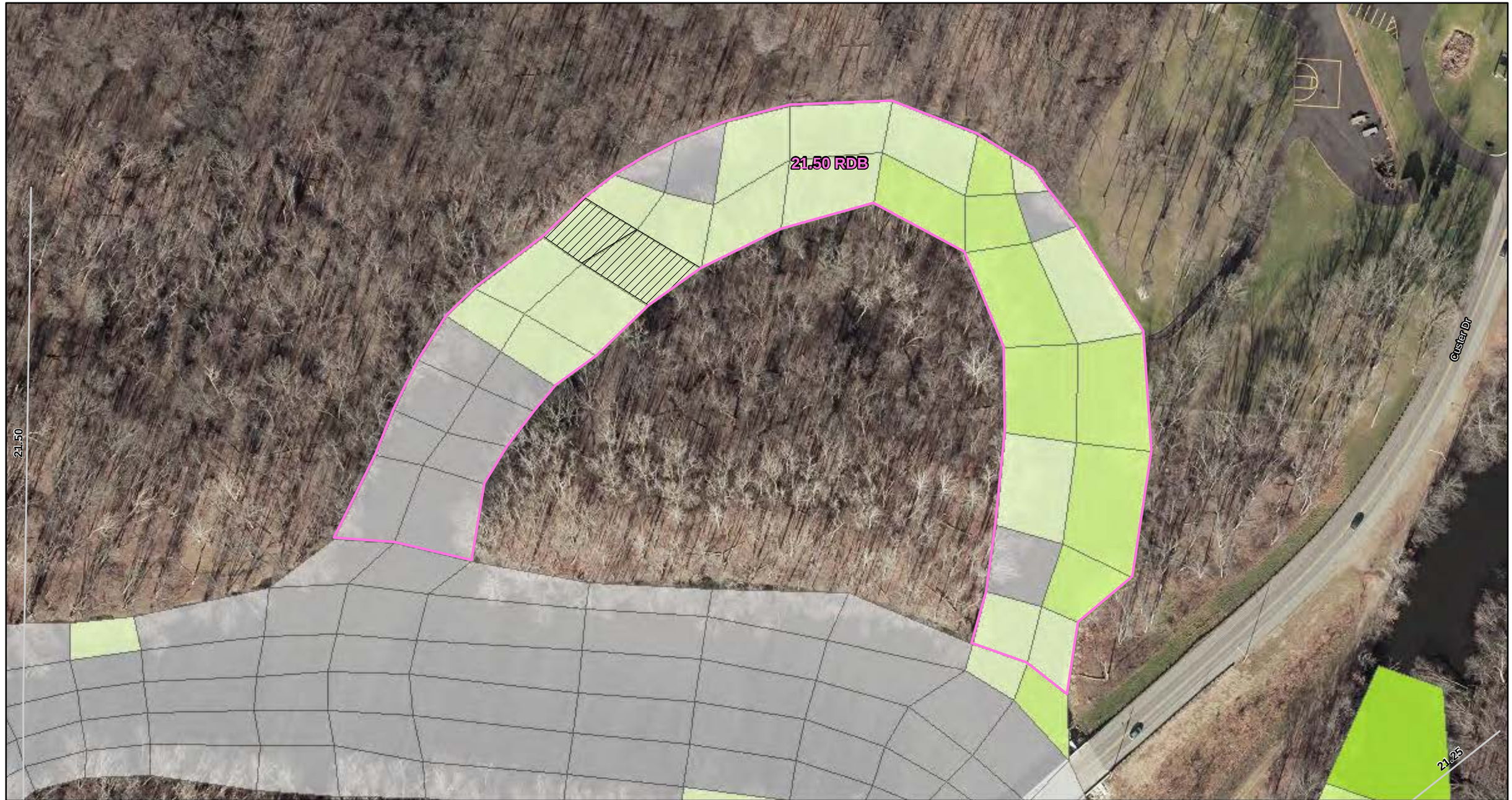
0 50 100 200

Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

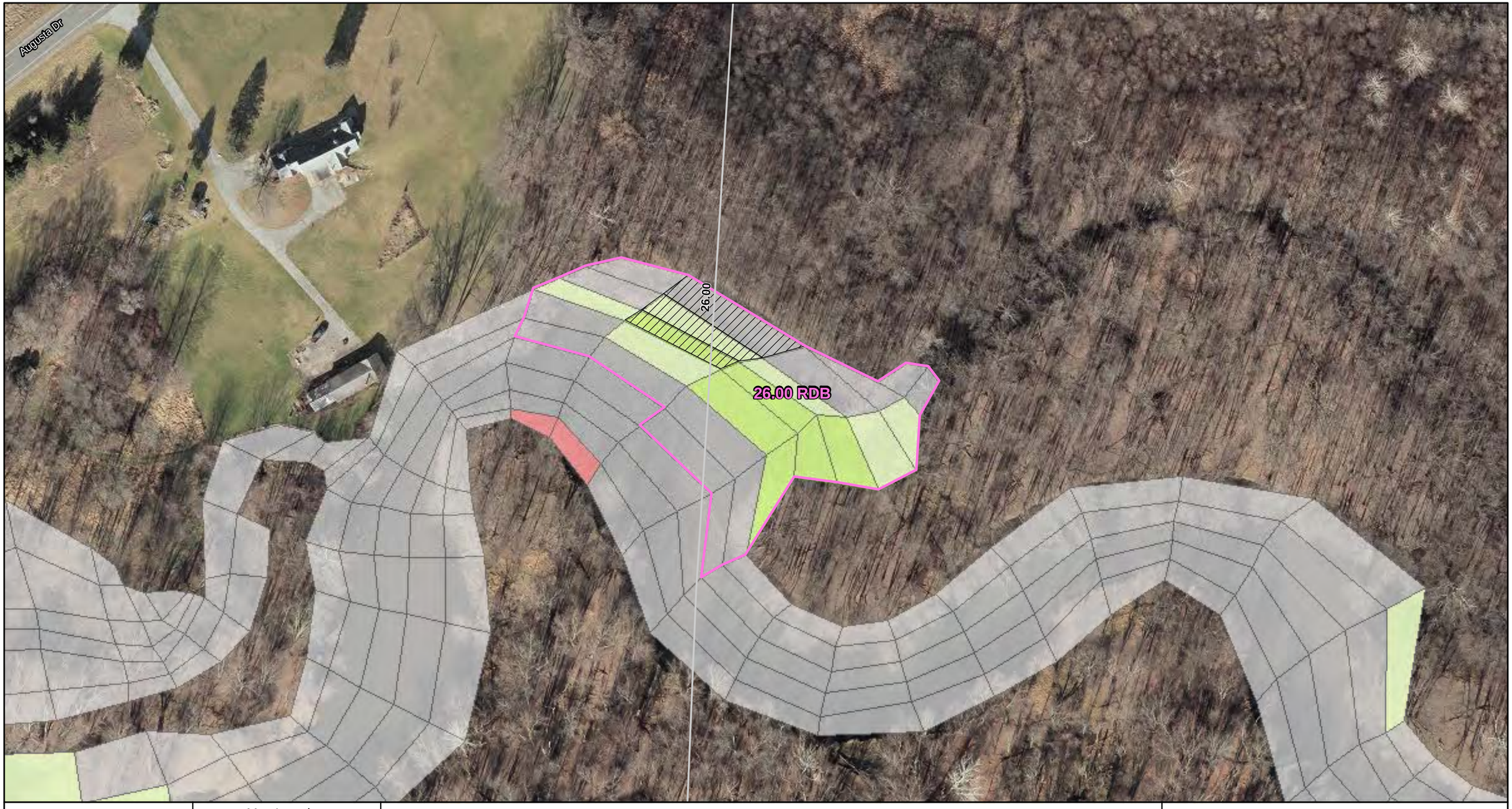
0 50 100 200

Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

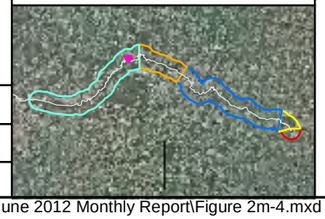
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

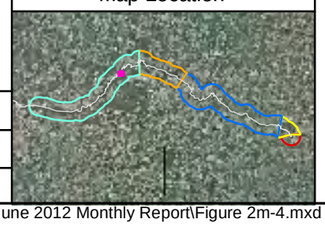
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

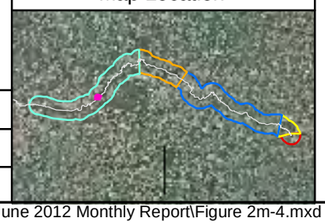
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass
- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200
Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-4
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-4.mxd

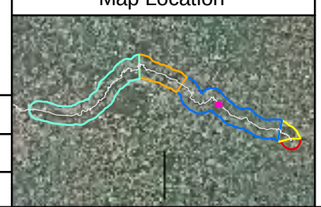
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

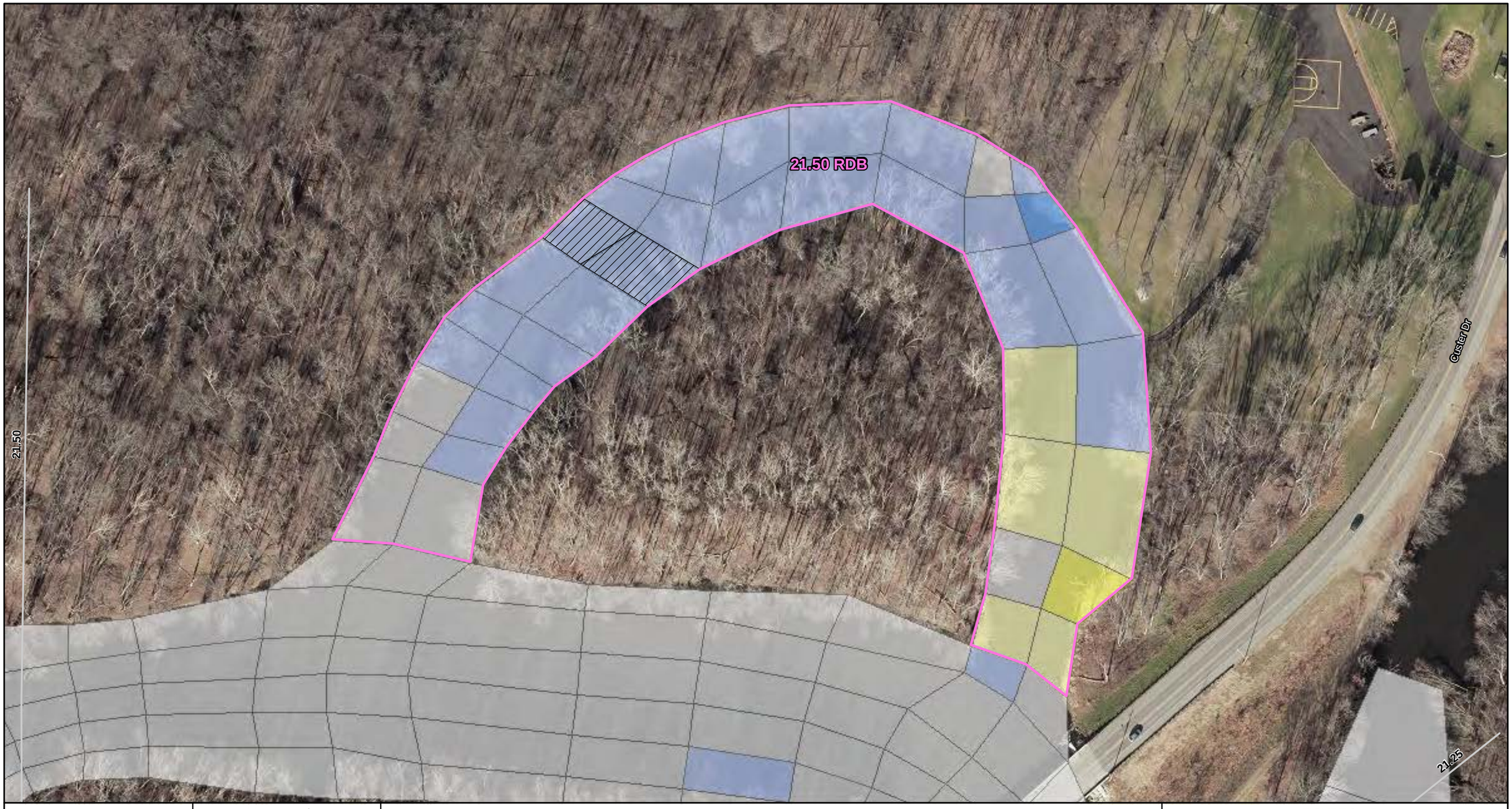
0 50 100 200

Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

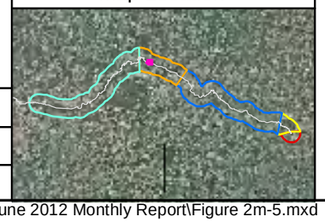
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

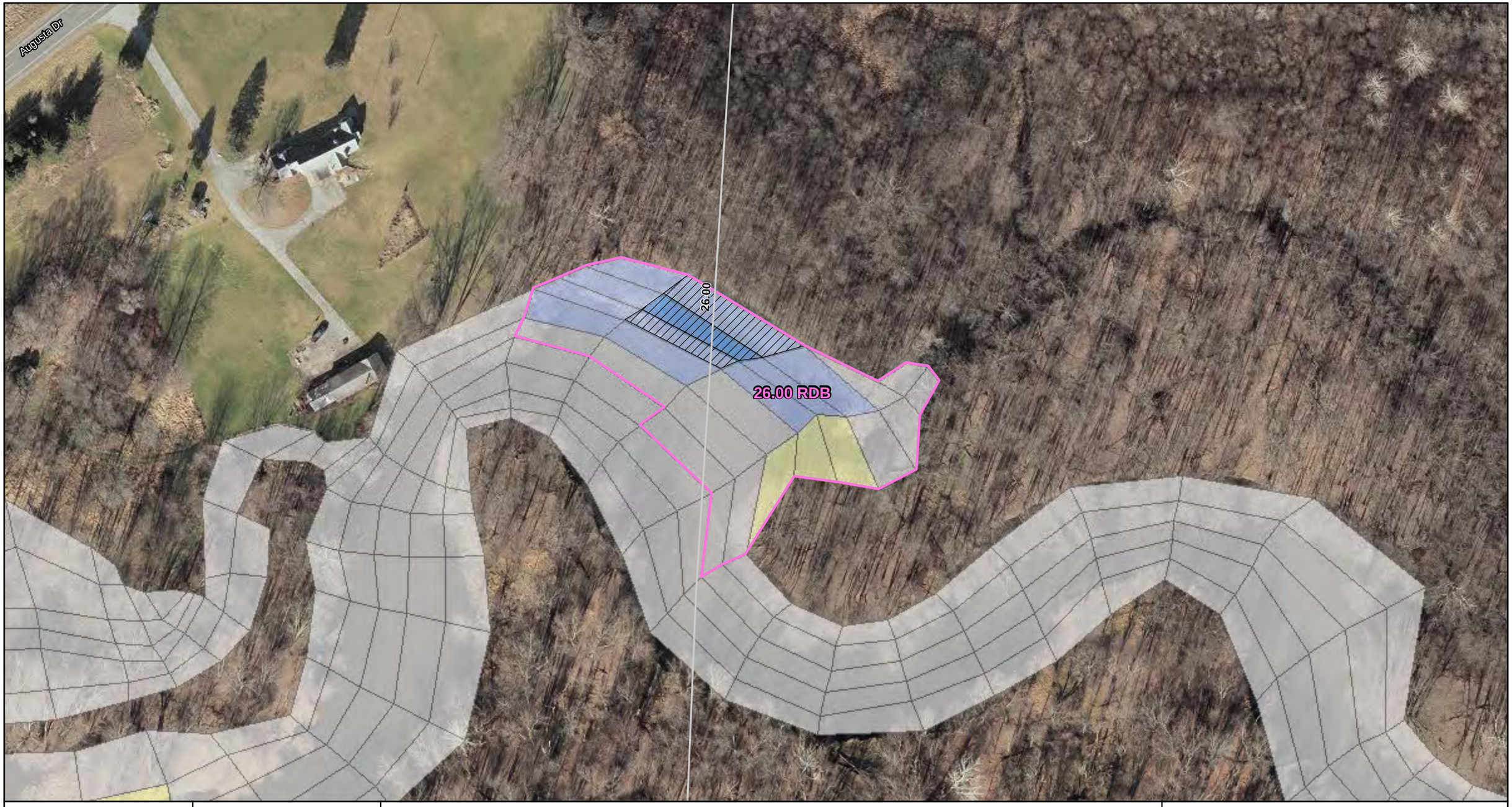
0 50 100 200

Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

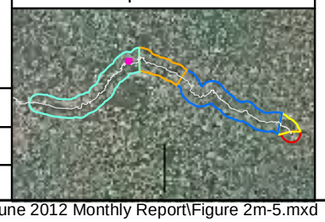
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)
75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200
Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

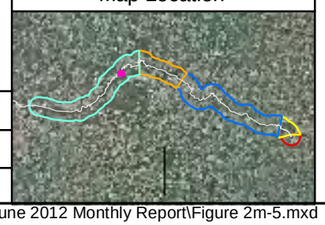
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

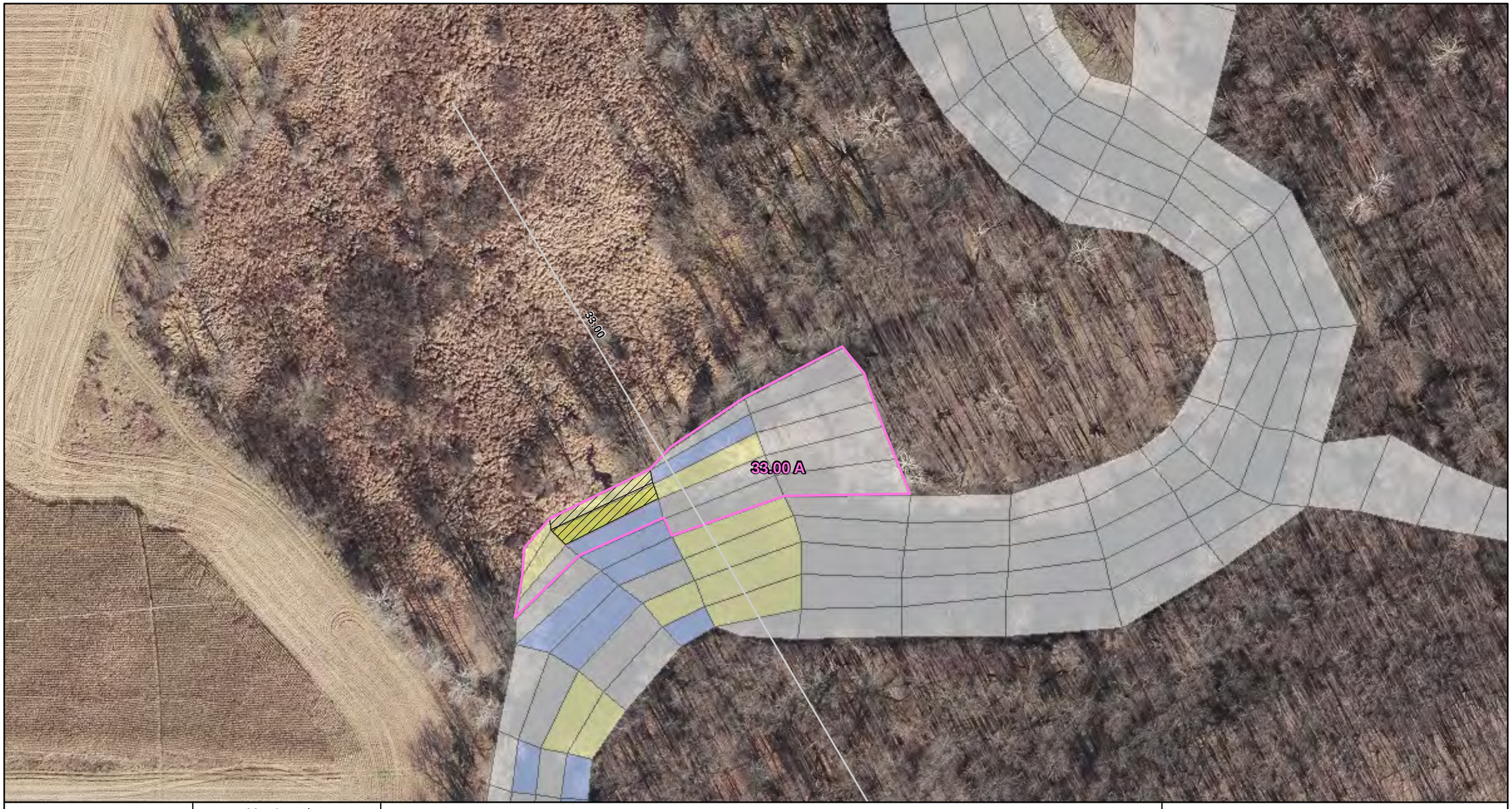
0 50 100 200

Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

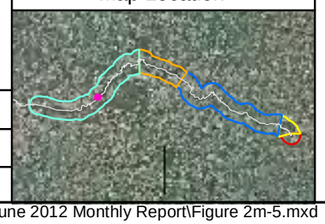
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

Aerial Photography Date: November 2011



Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-5
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-5.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

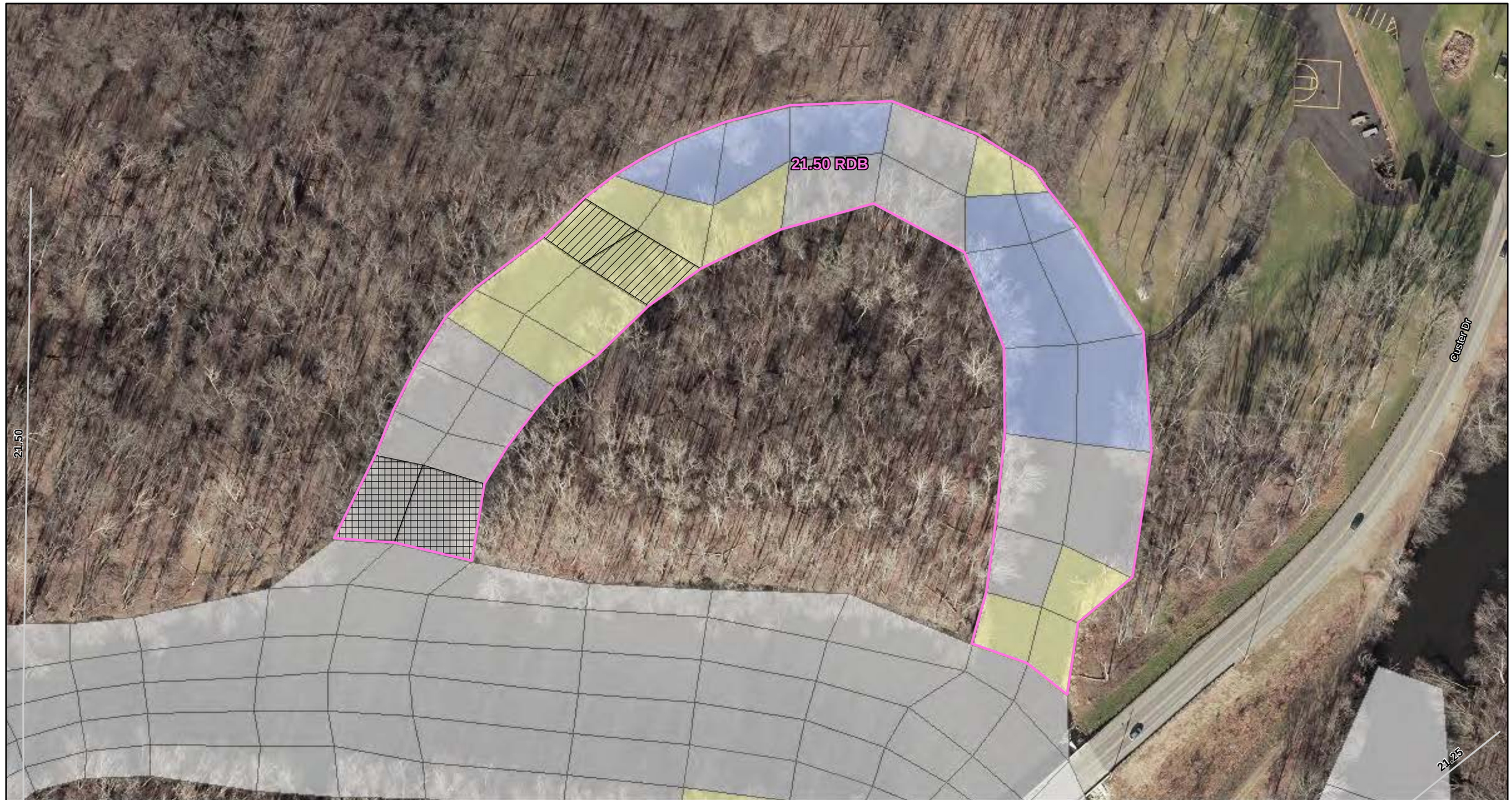
0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

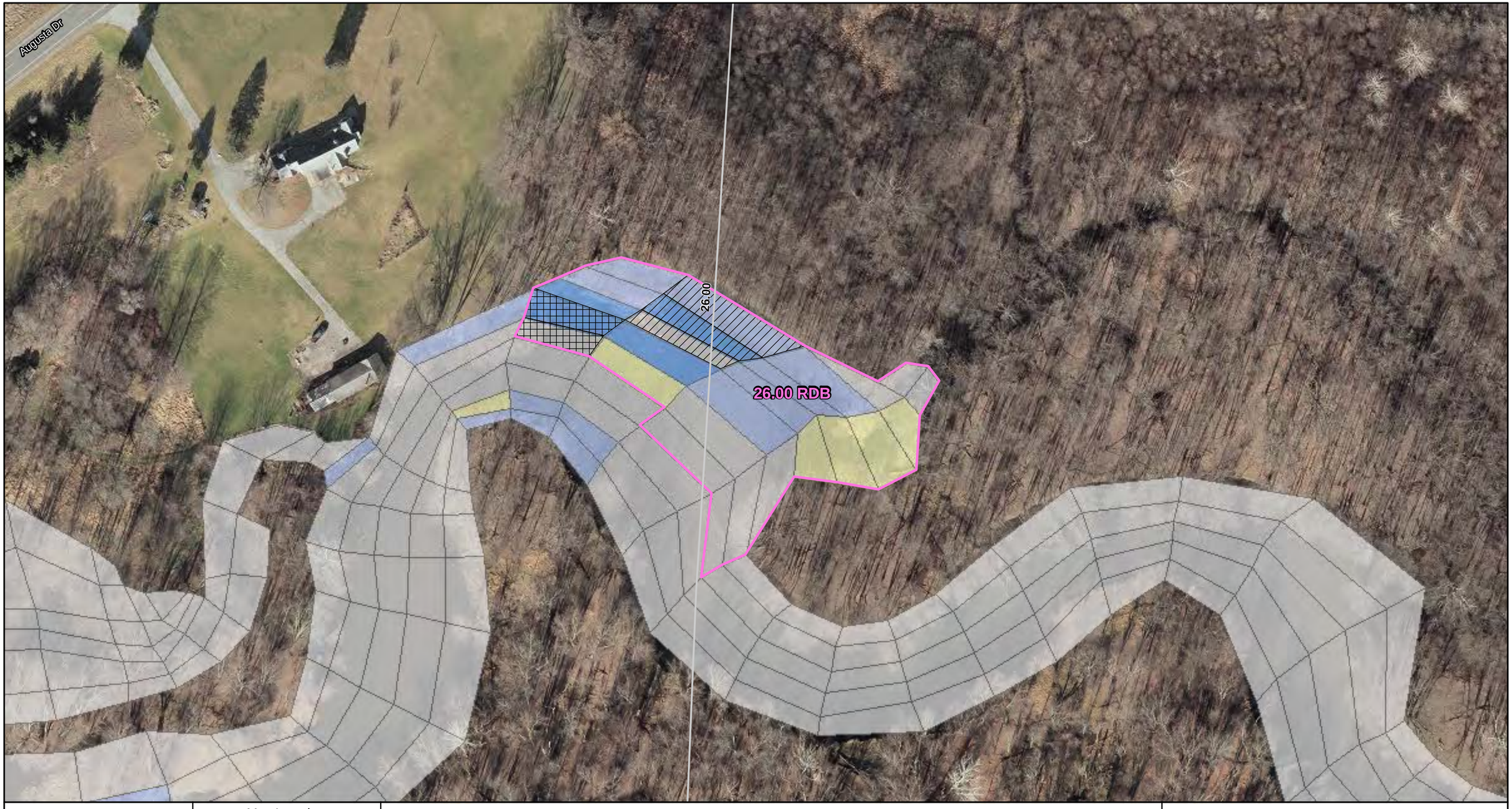
0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

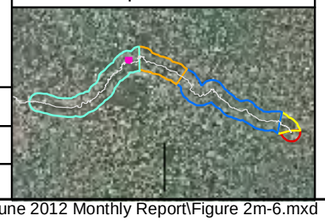
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

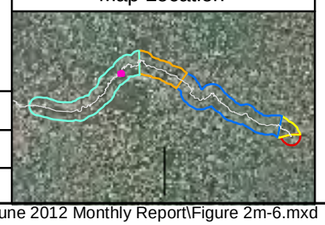
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

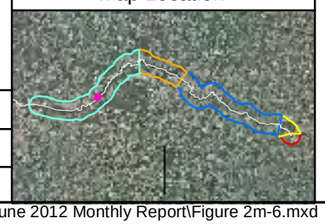
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-6
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-6.mxd

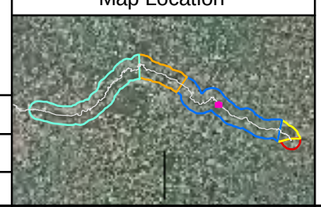
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change
- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

g/m2 = Grams Per Square Meter

N

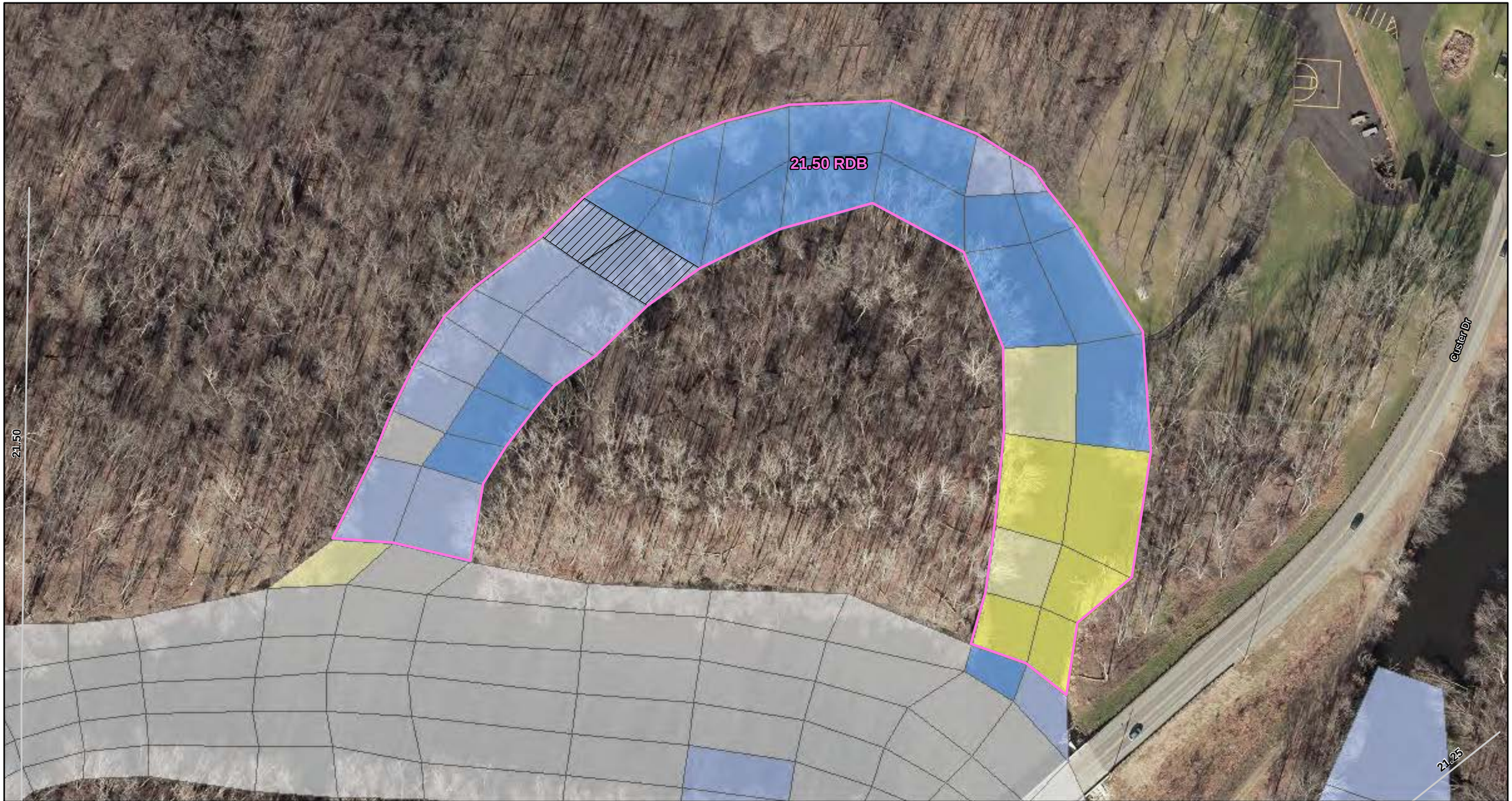
0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

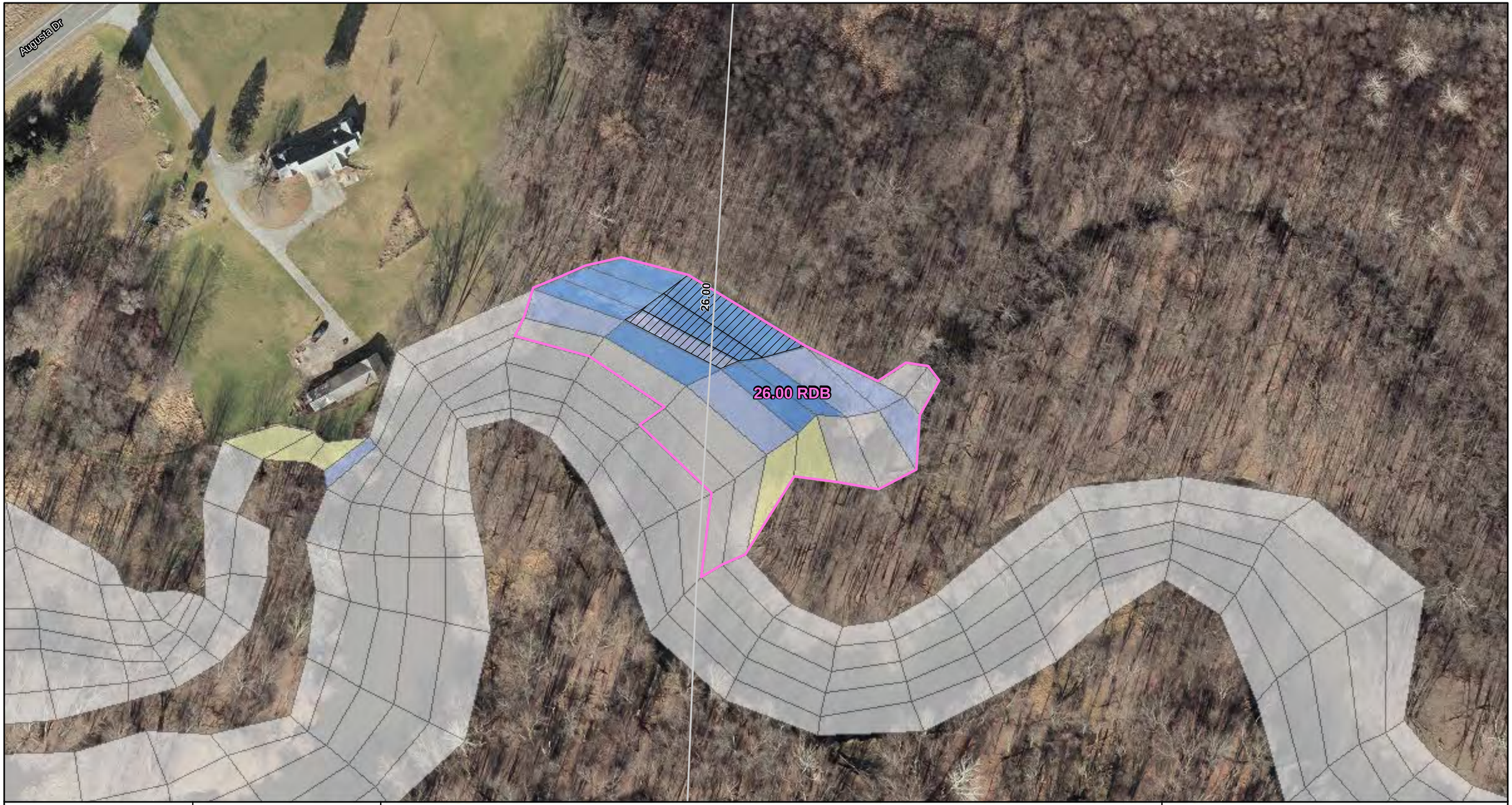
0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

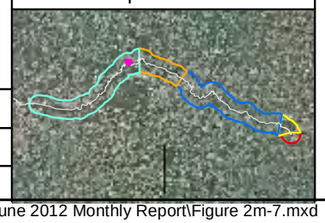
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change
- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

g/m2 = Grams Per Square Meter

N

0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

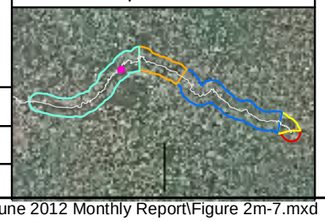
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change
- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

g/m2 = Grams Per Square Meter

N

0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

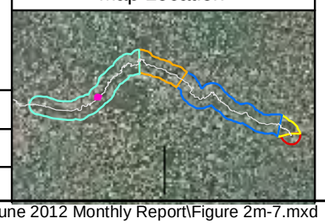
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-7
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-7.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

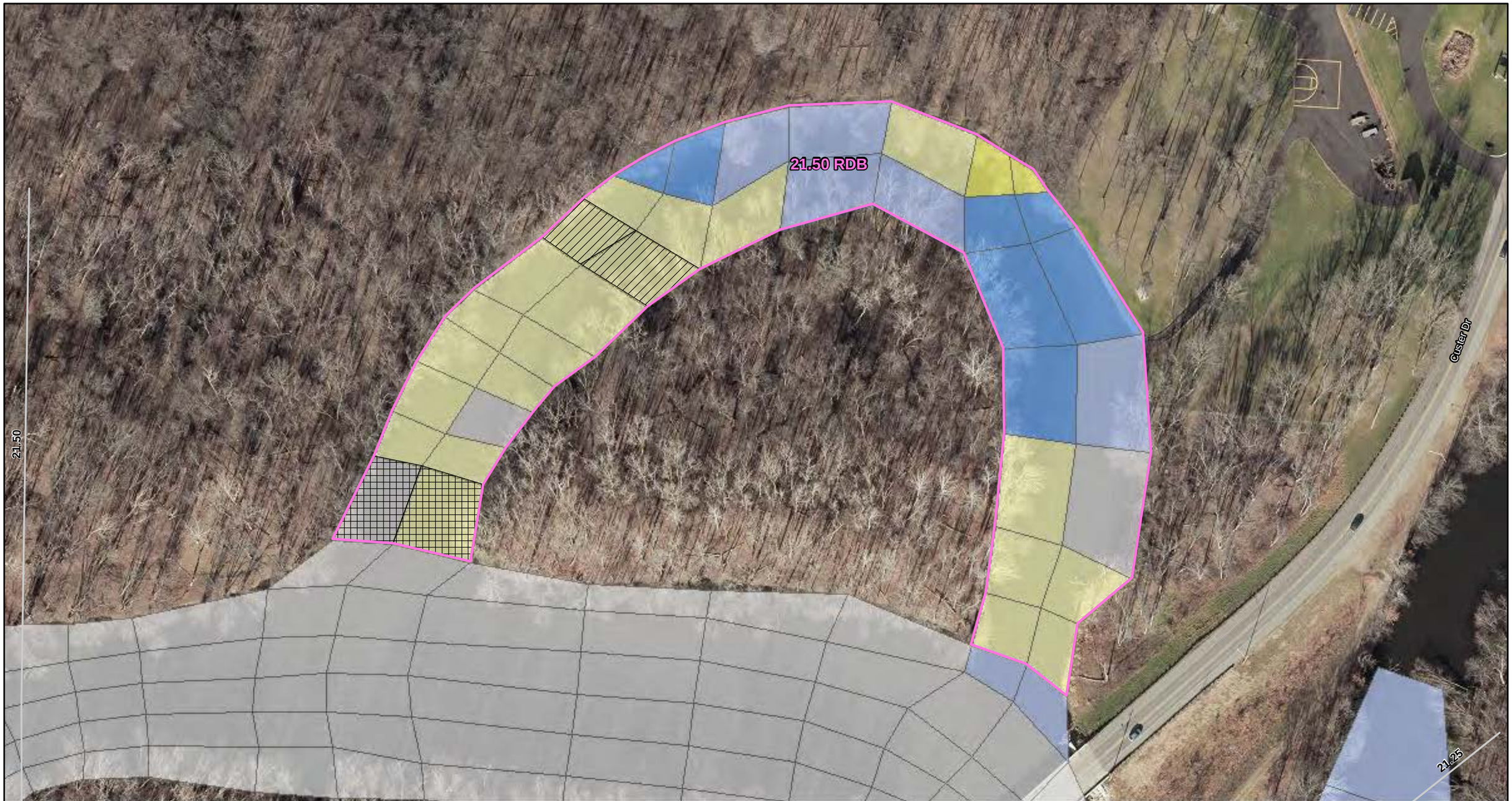
0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

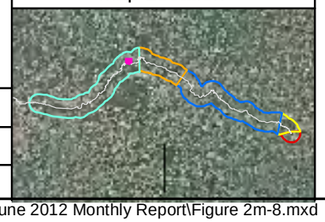
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

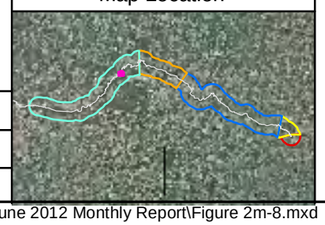
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

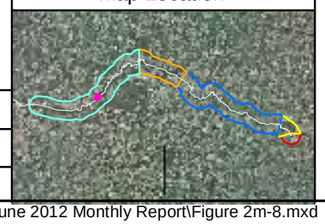
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-8
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
OCTOBER 31 - NOVEMBER 7, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-8.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

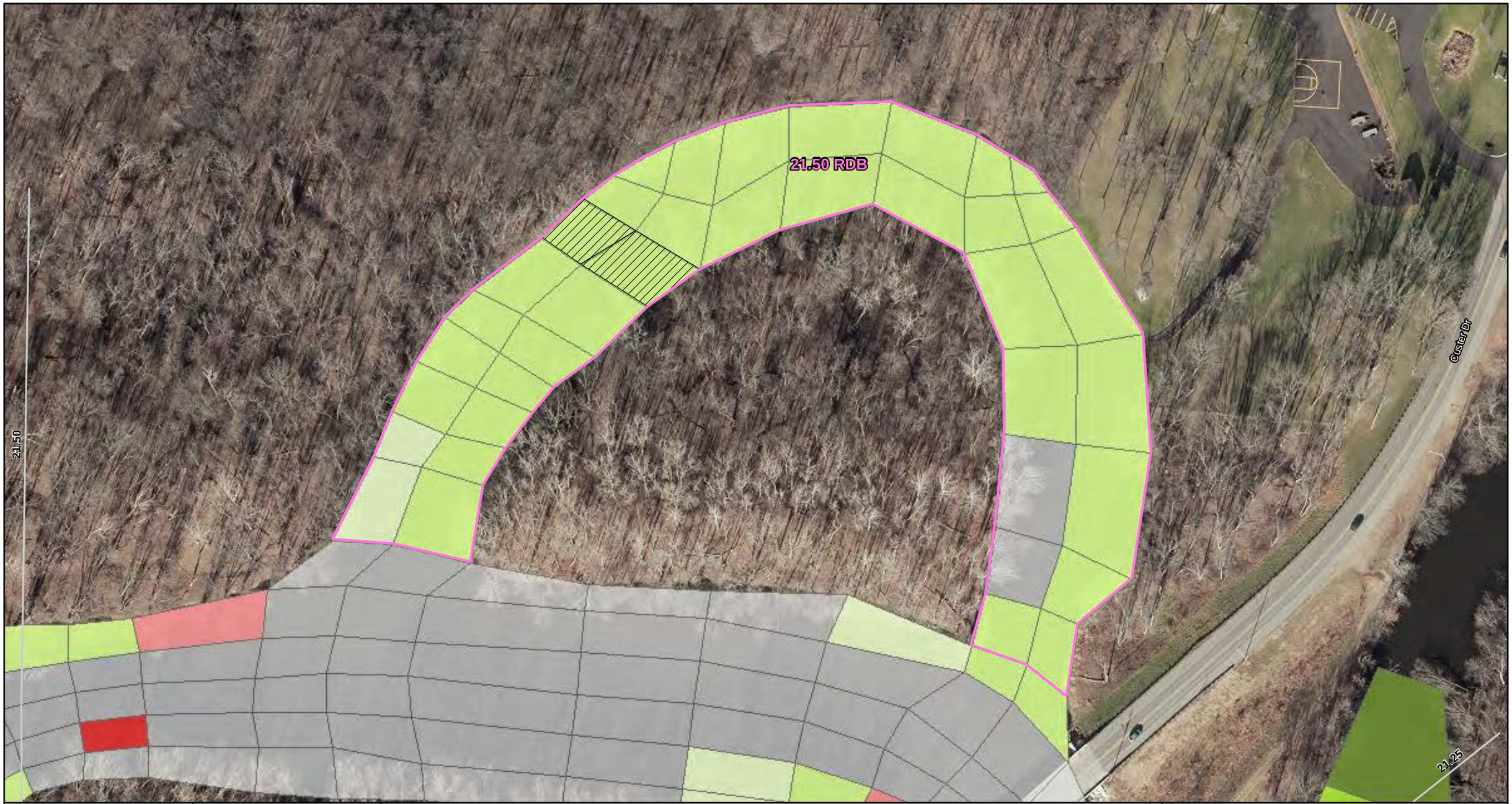
0 50 100 200

Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

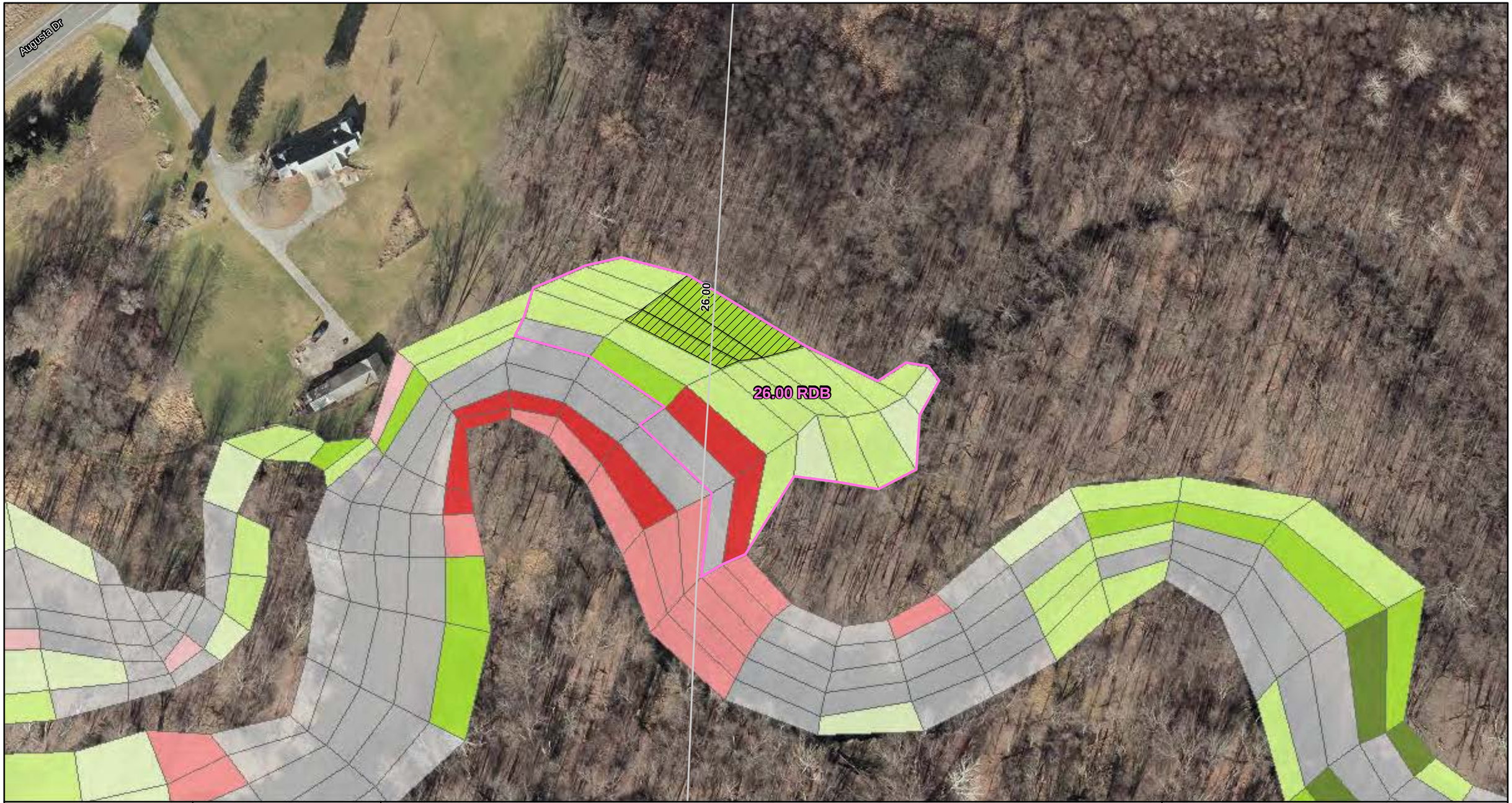
0 50 100 200

Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

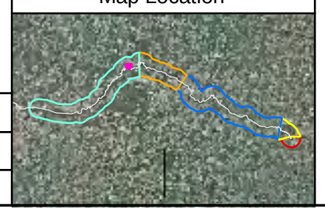
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

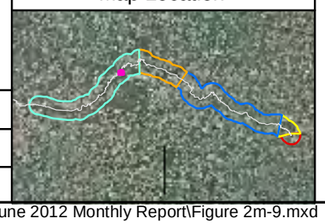
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

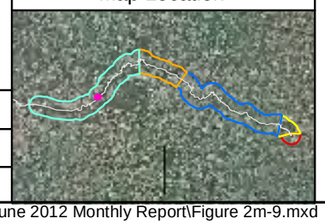
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass
- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200
Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

Aerial Photography Date: November 2011

33.00

33.00 B

33.25

ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-9
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% STRUCTURE ALTERNATE CONFIGURATION
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-9.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

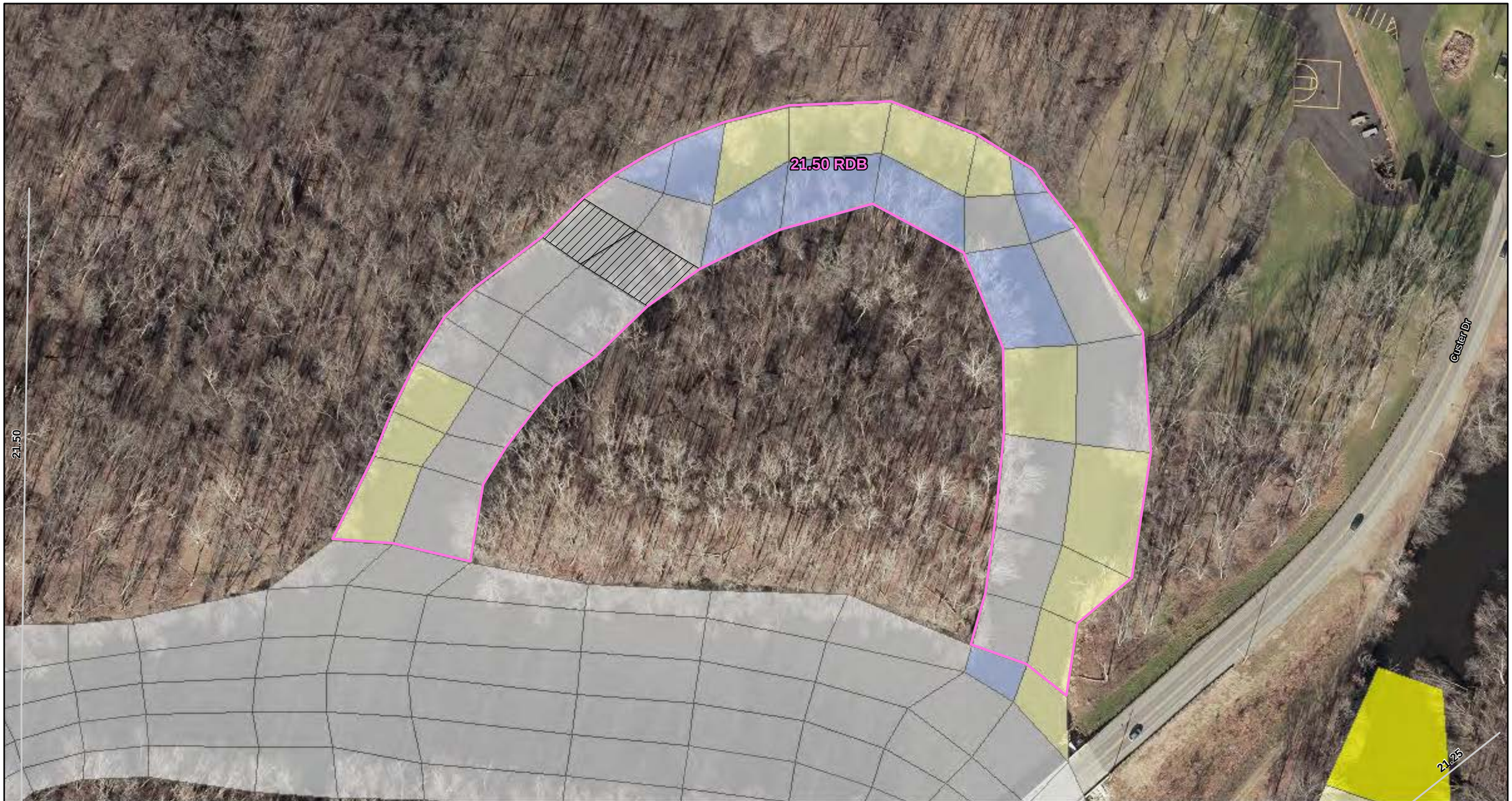
0 50 100 200

Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)
99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

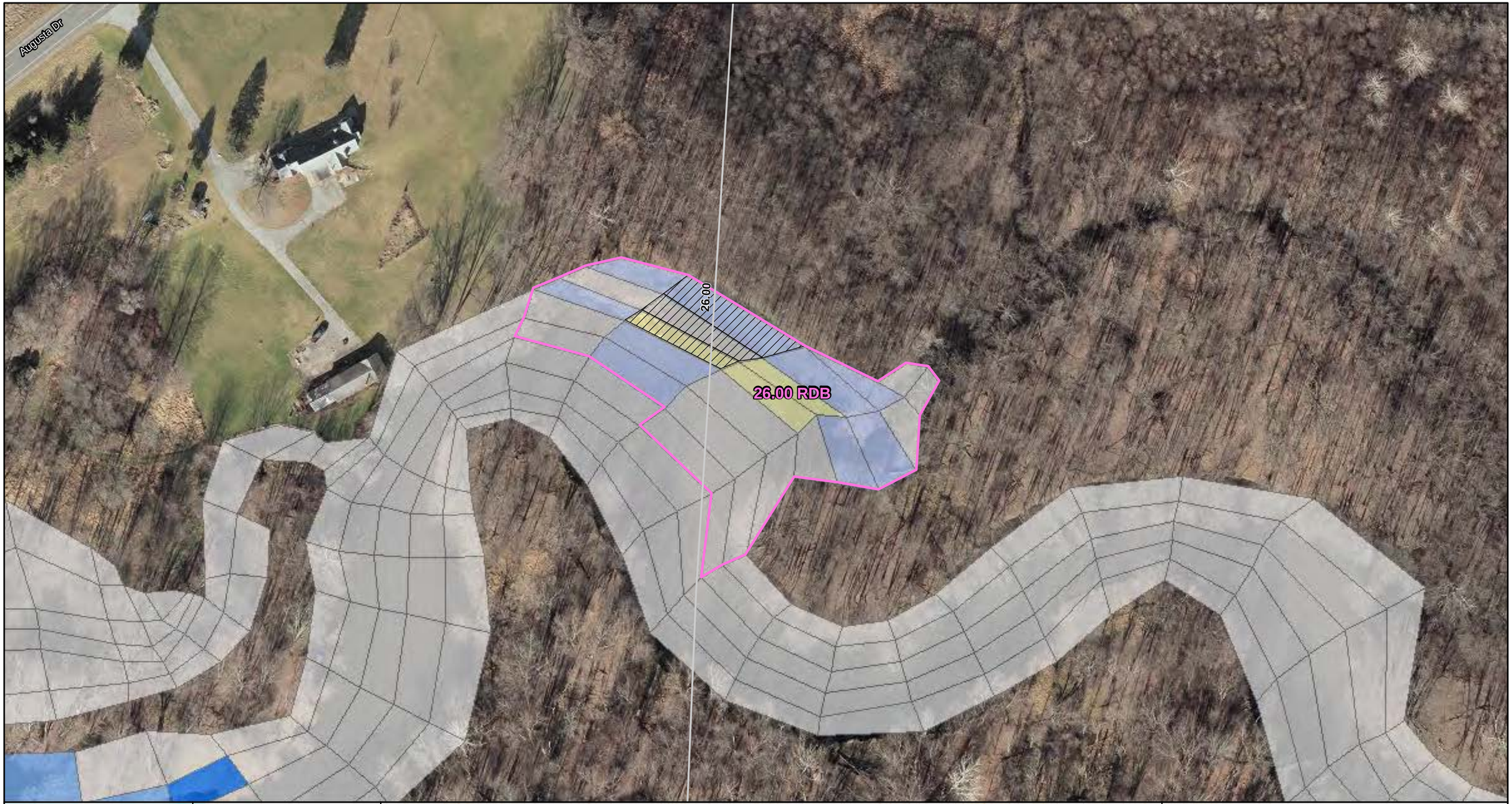
N

0 50 100 200
Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

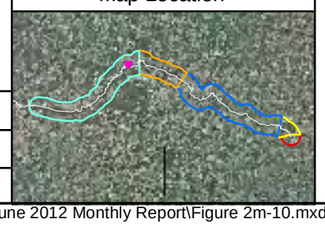
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

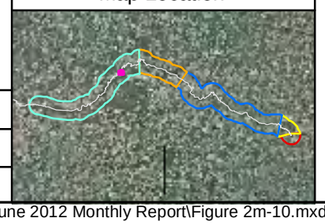
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

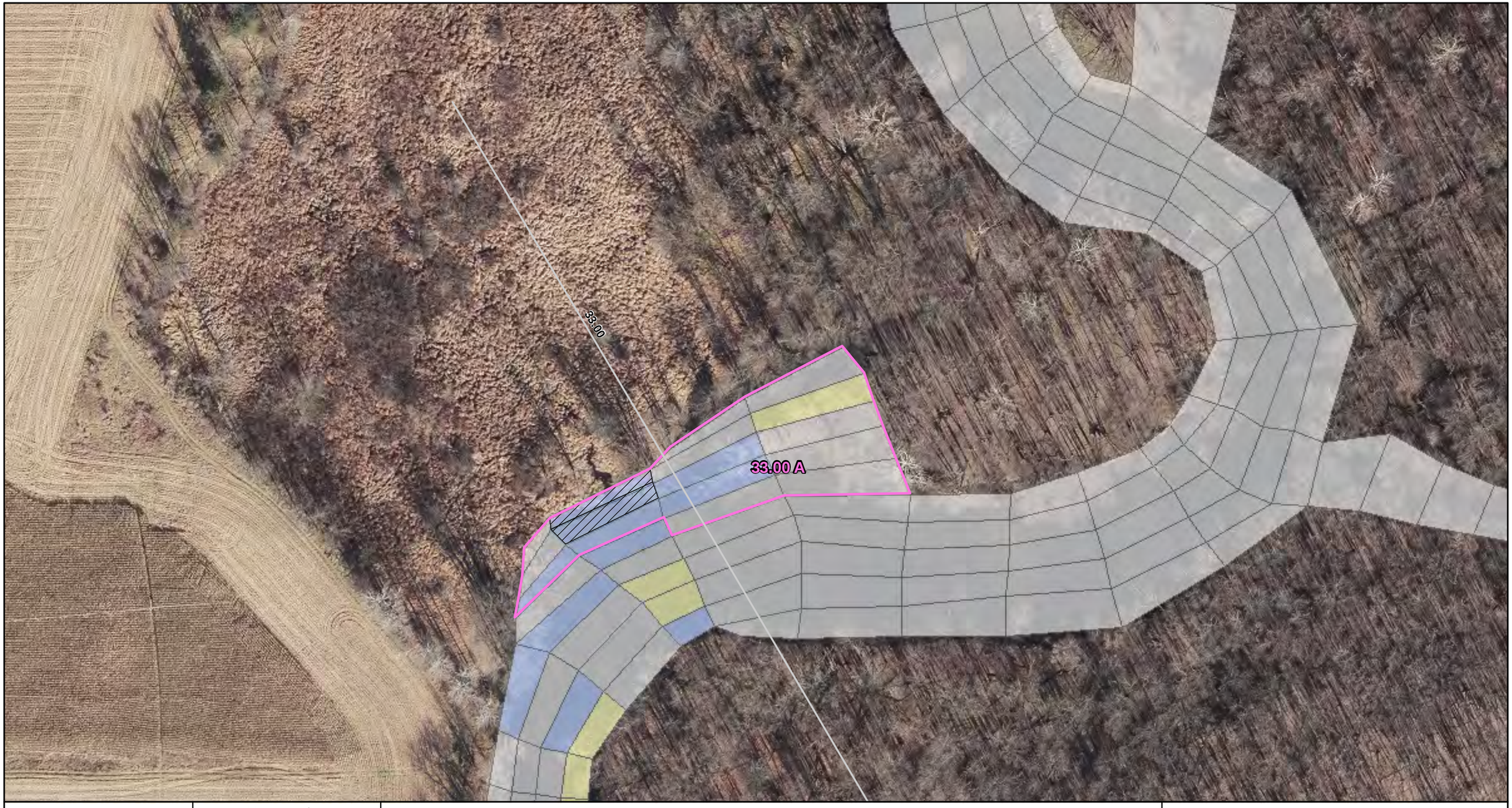
0 50 100 200

Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

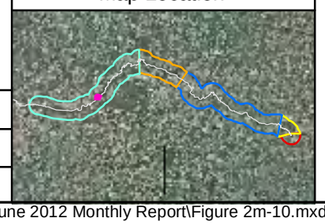
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-10
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-10.mxd

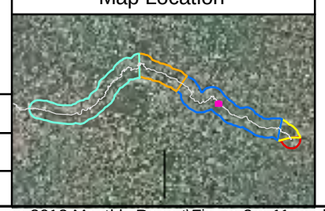
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

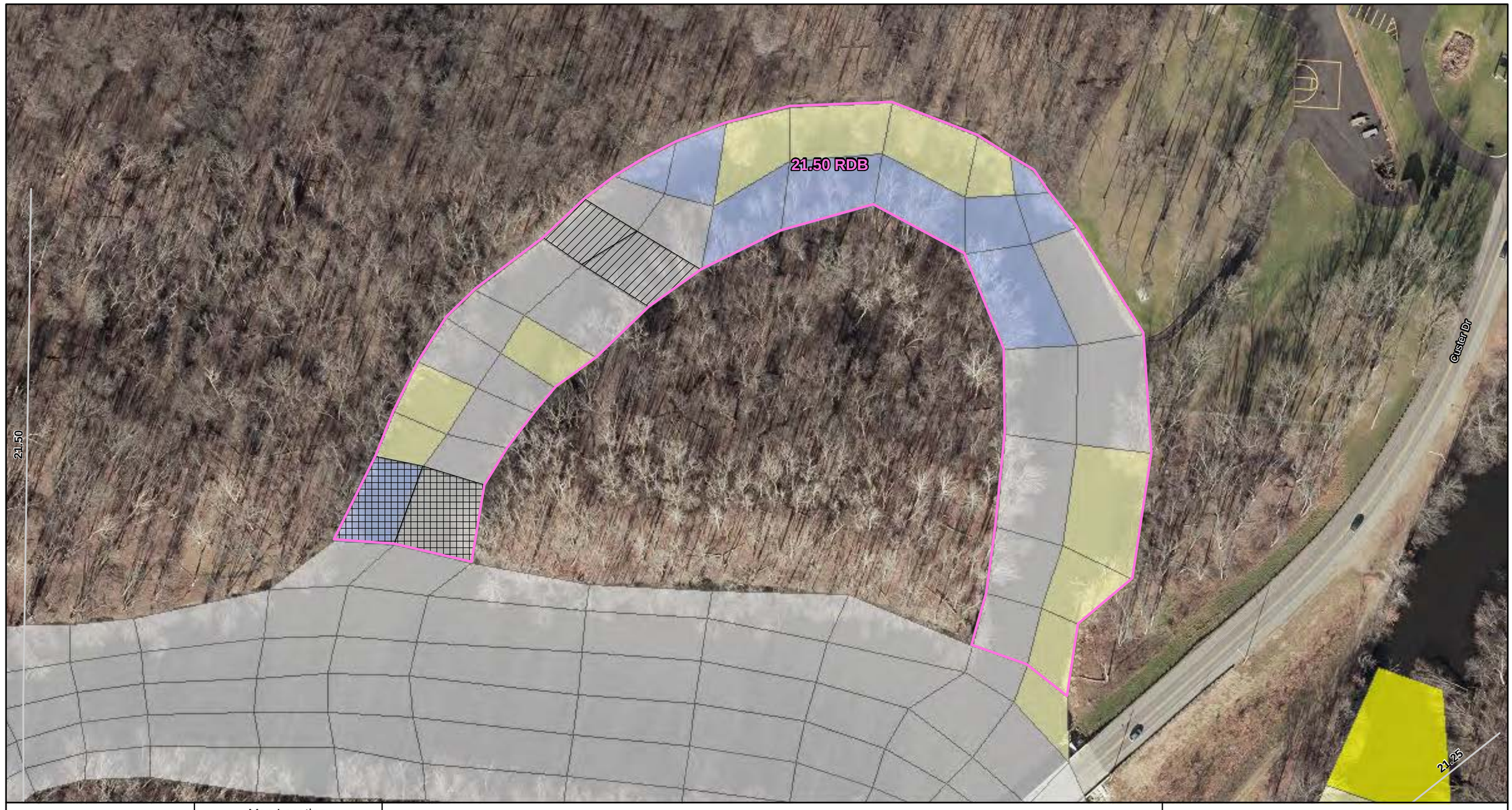
0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

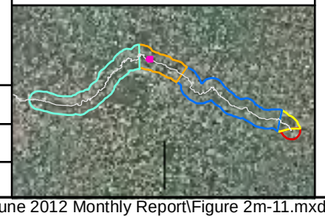
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

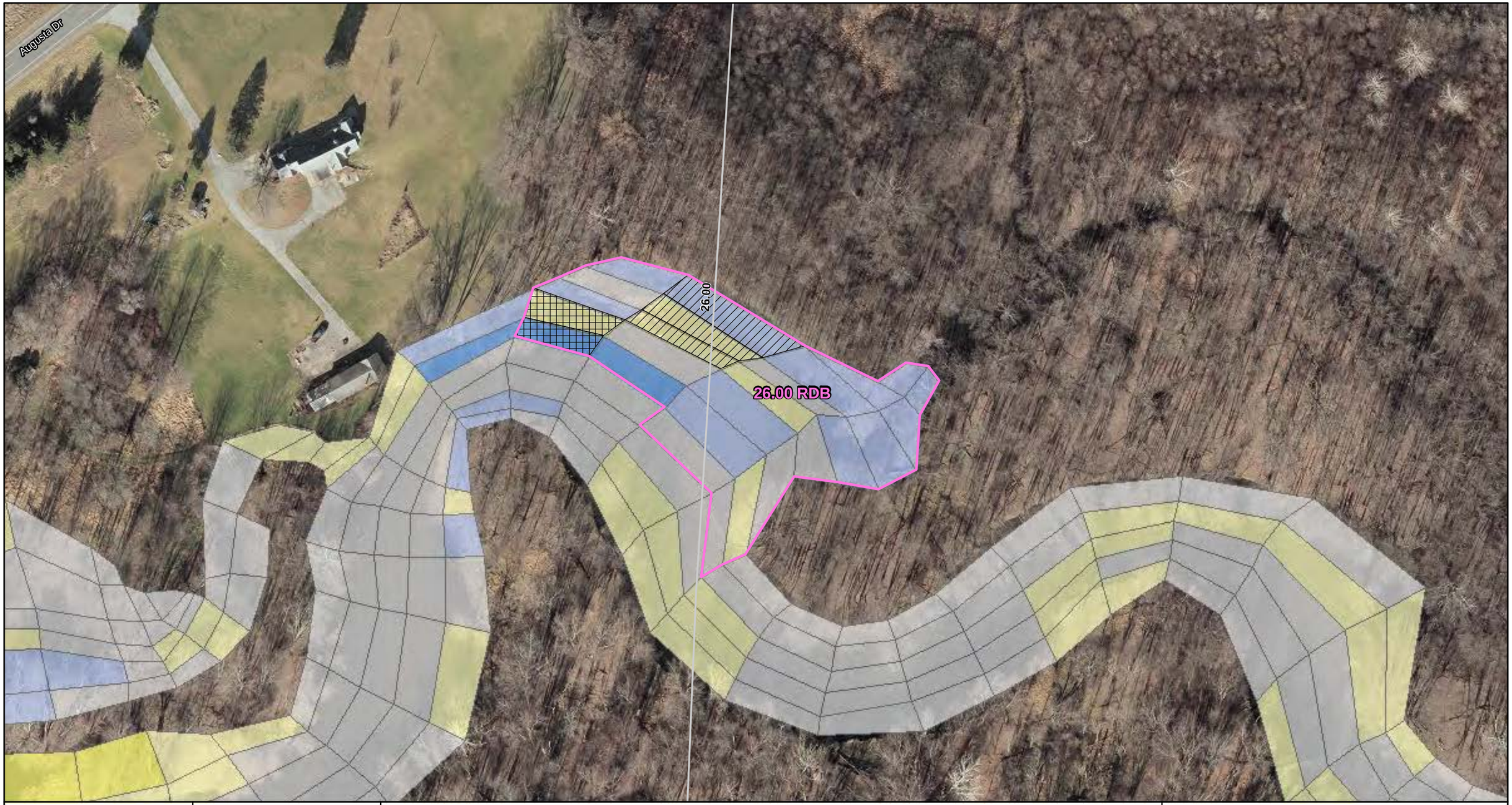
0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

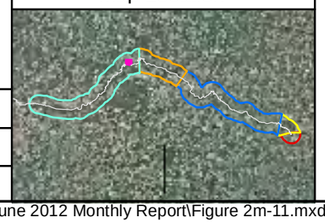
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

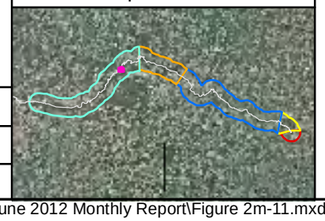
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

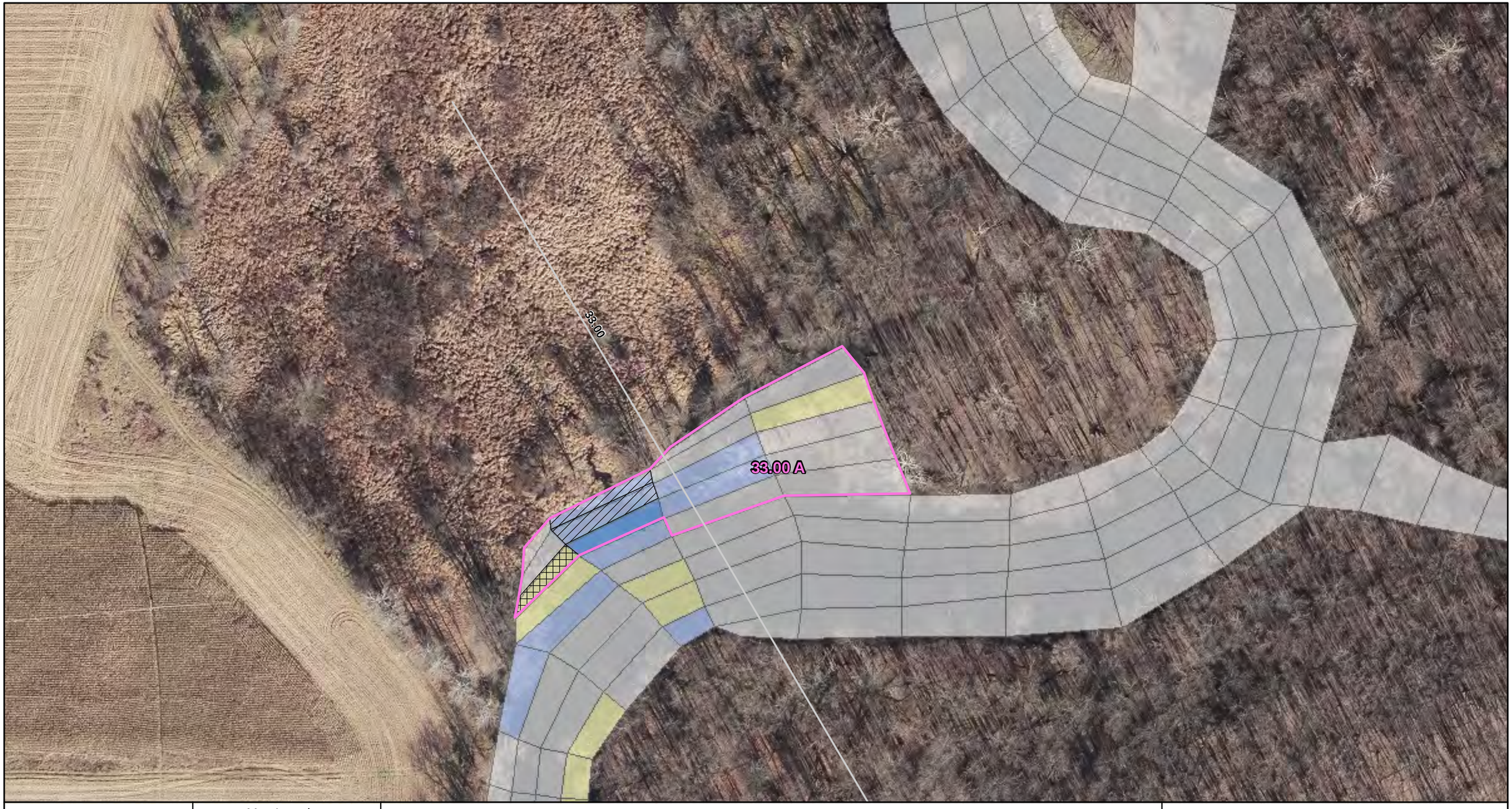
0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

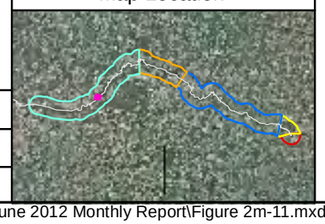
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

99% Alternate vs. 99% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-11
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
99% ALTERNATE VS. 99% ORIGINAL
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-11.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

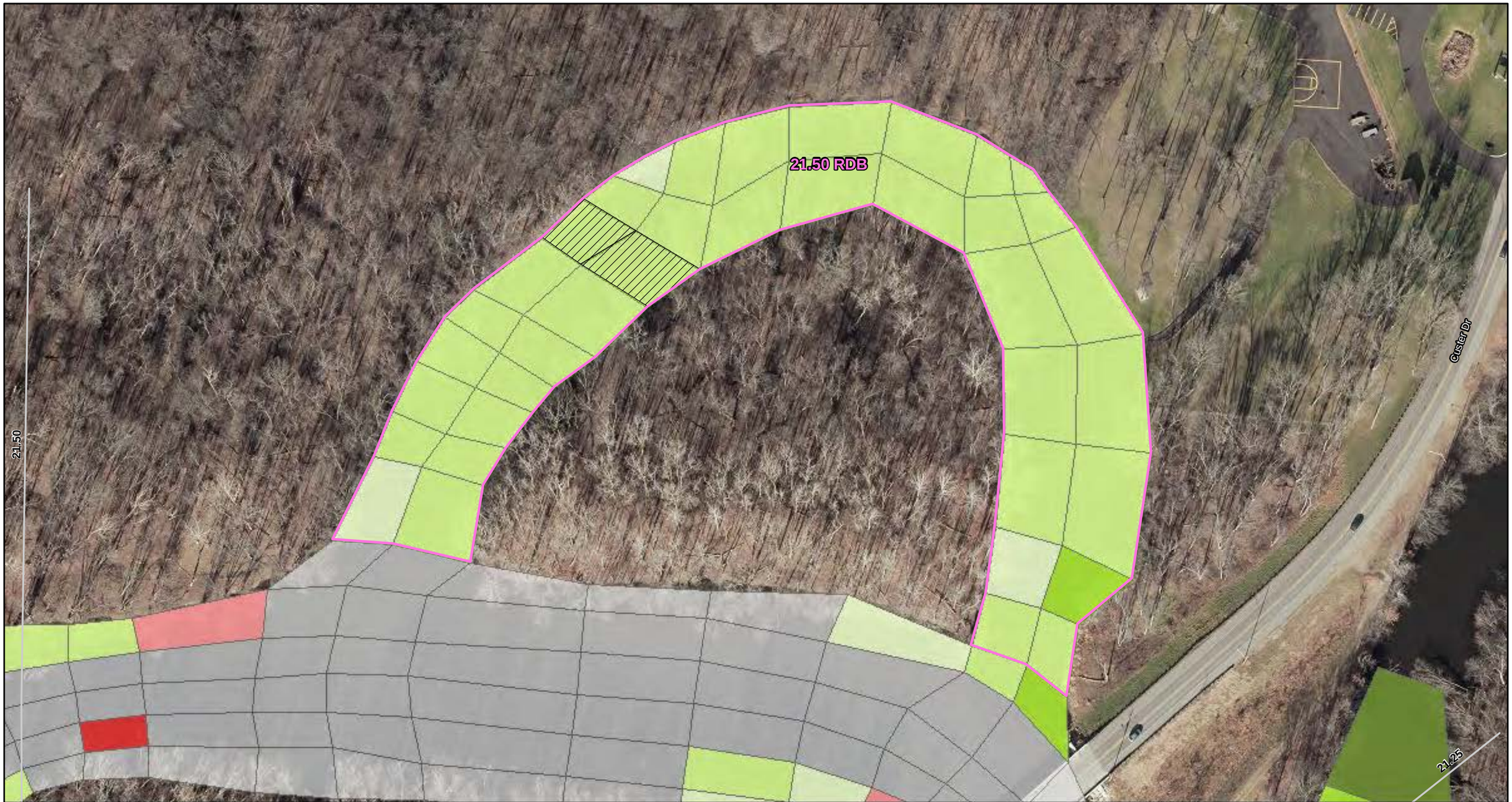
0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

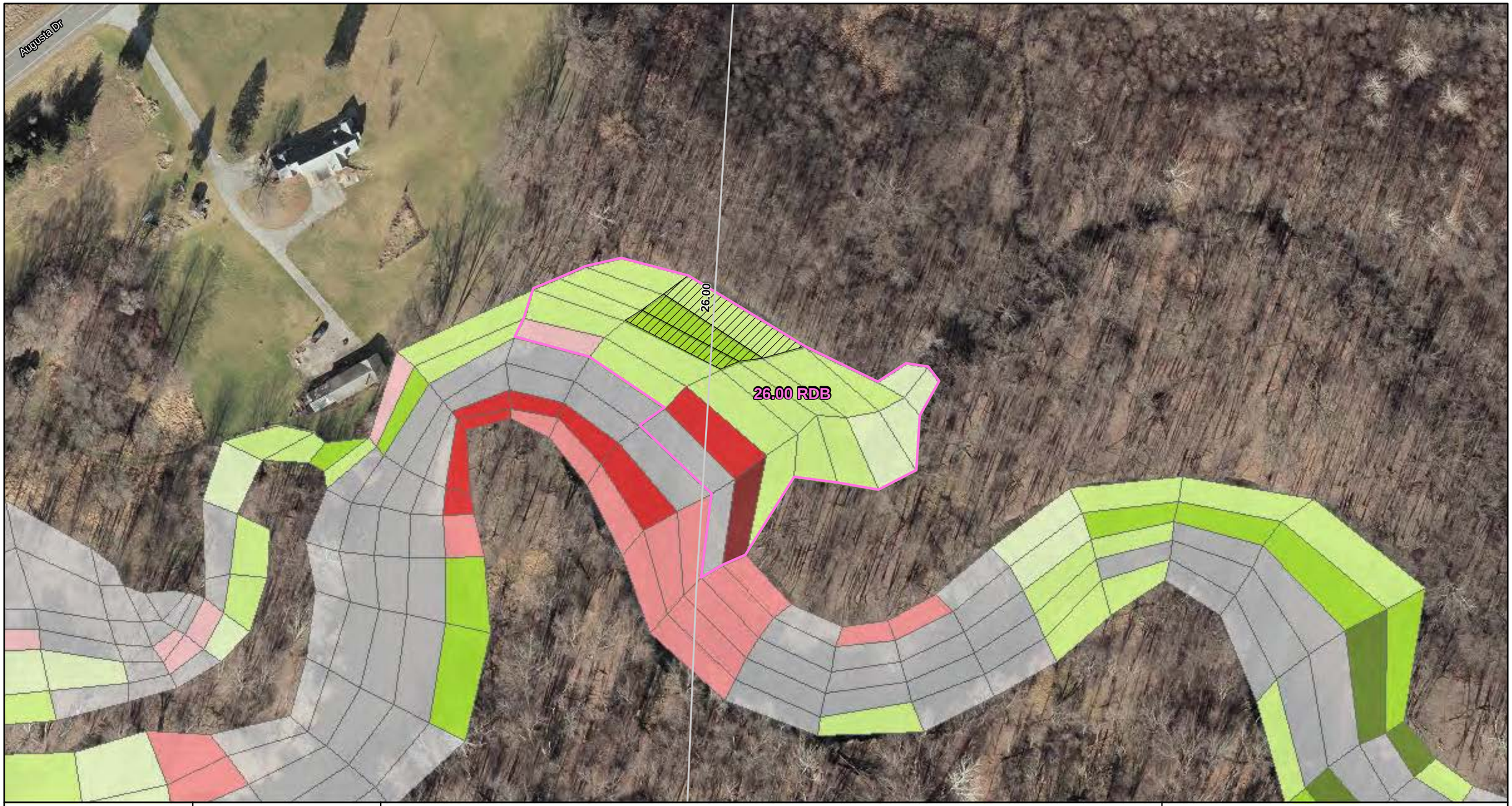
0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

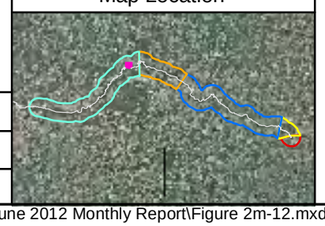
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

Aerial Photography Date: November 2011

28.00

28.25 RDB

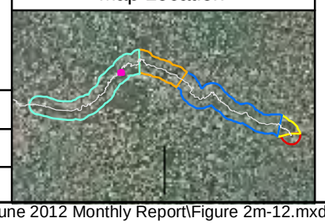
28.25

Fort Custer Dr

ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

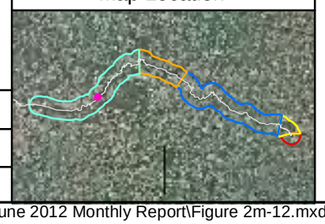
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

Aerial Photography Date: November 2011

33.00

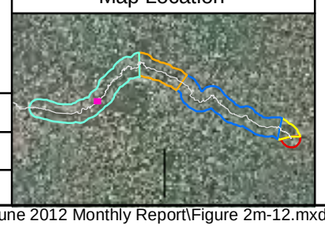
33.00 B

33.25

ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion
- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-12
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% STRUCTURE ALTERNATE CONFIGURATION
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-12.mxd

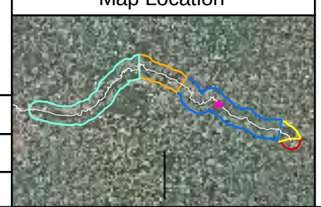
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

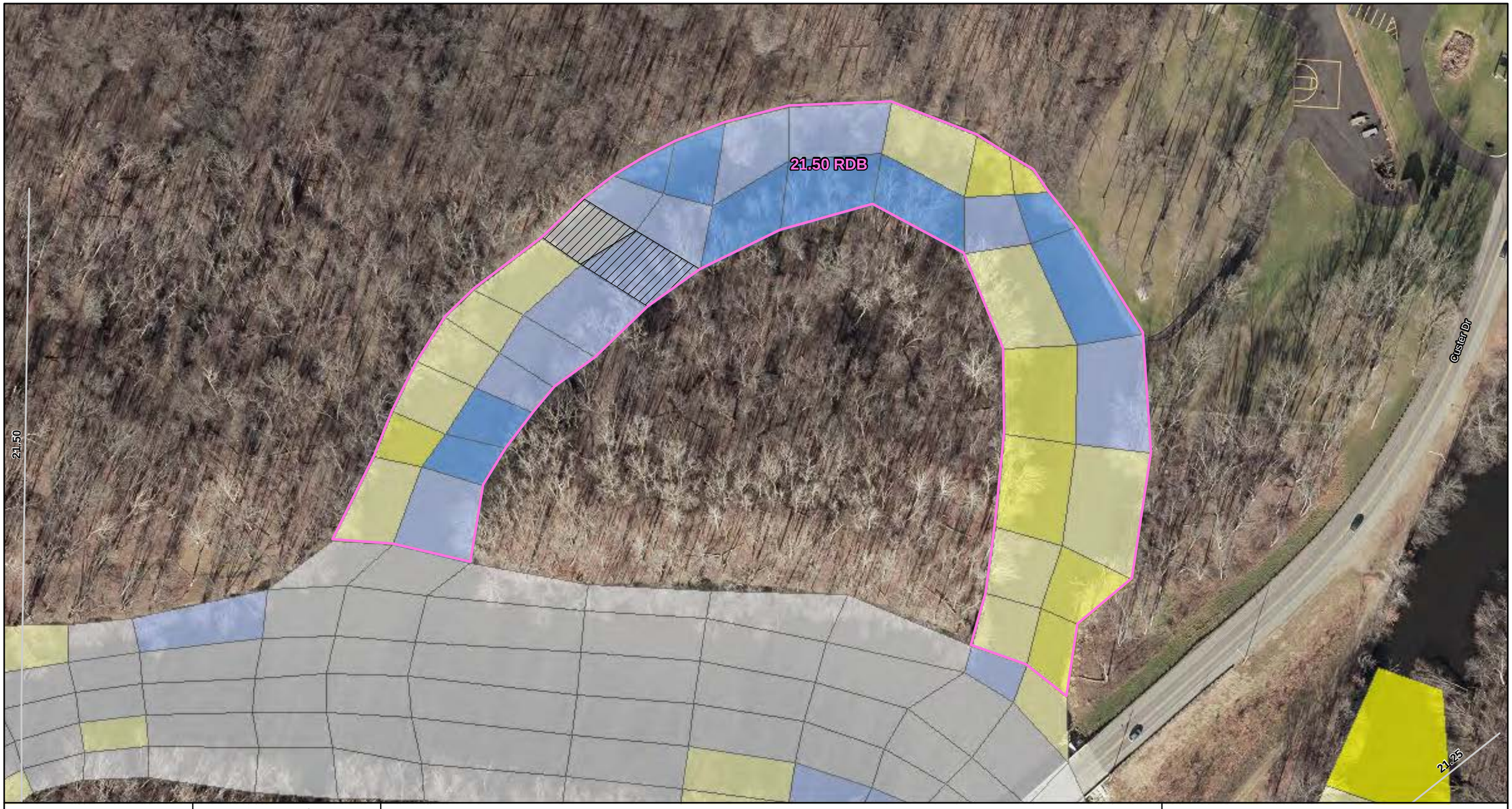
0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

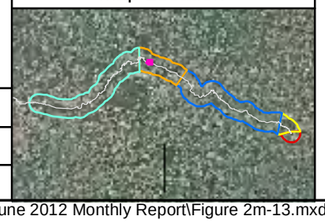
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

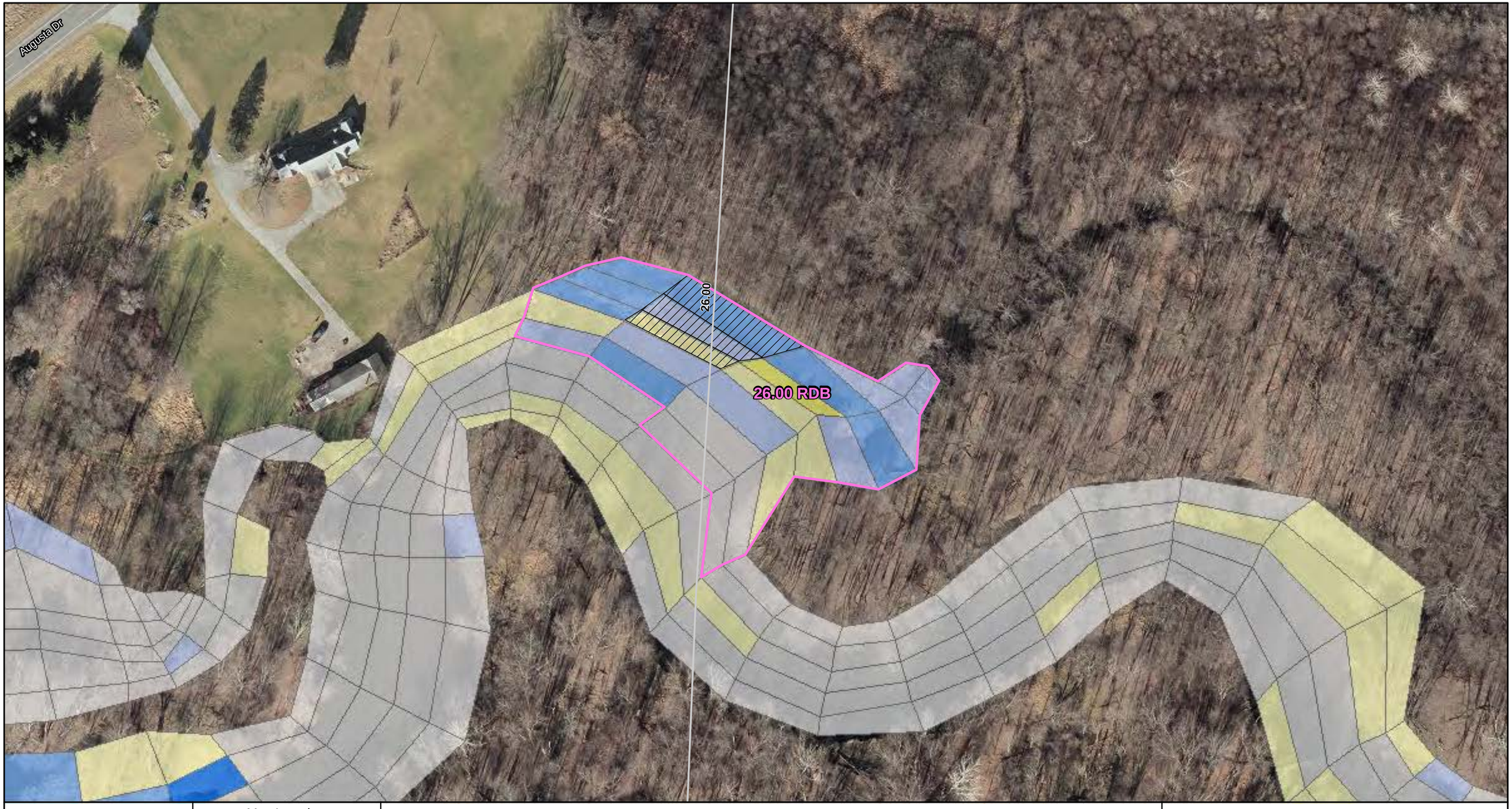
0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

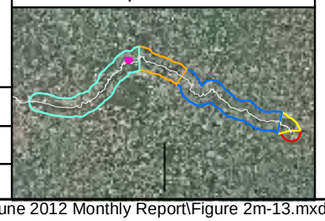
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

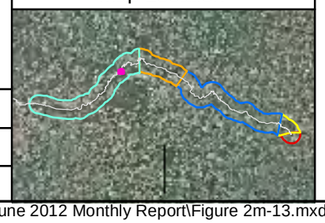
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

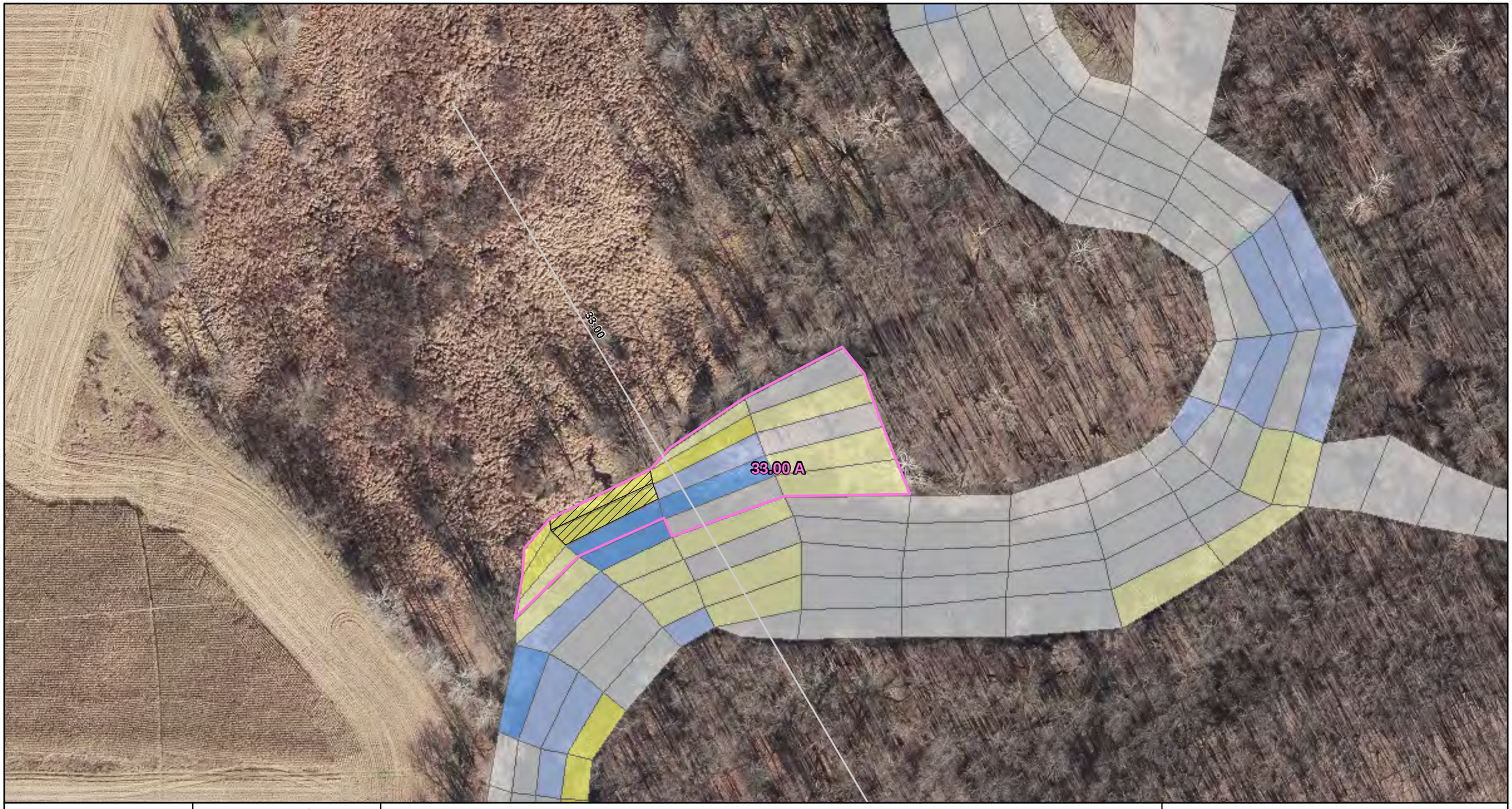
0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

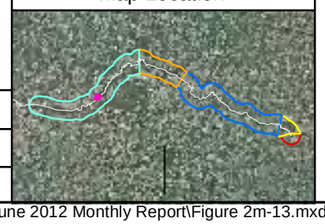
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% vs. No Structures - Alternate Configuration

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-13
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-13.mxd

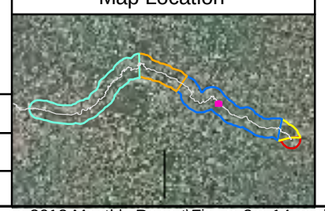
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

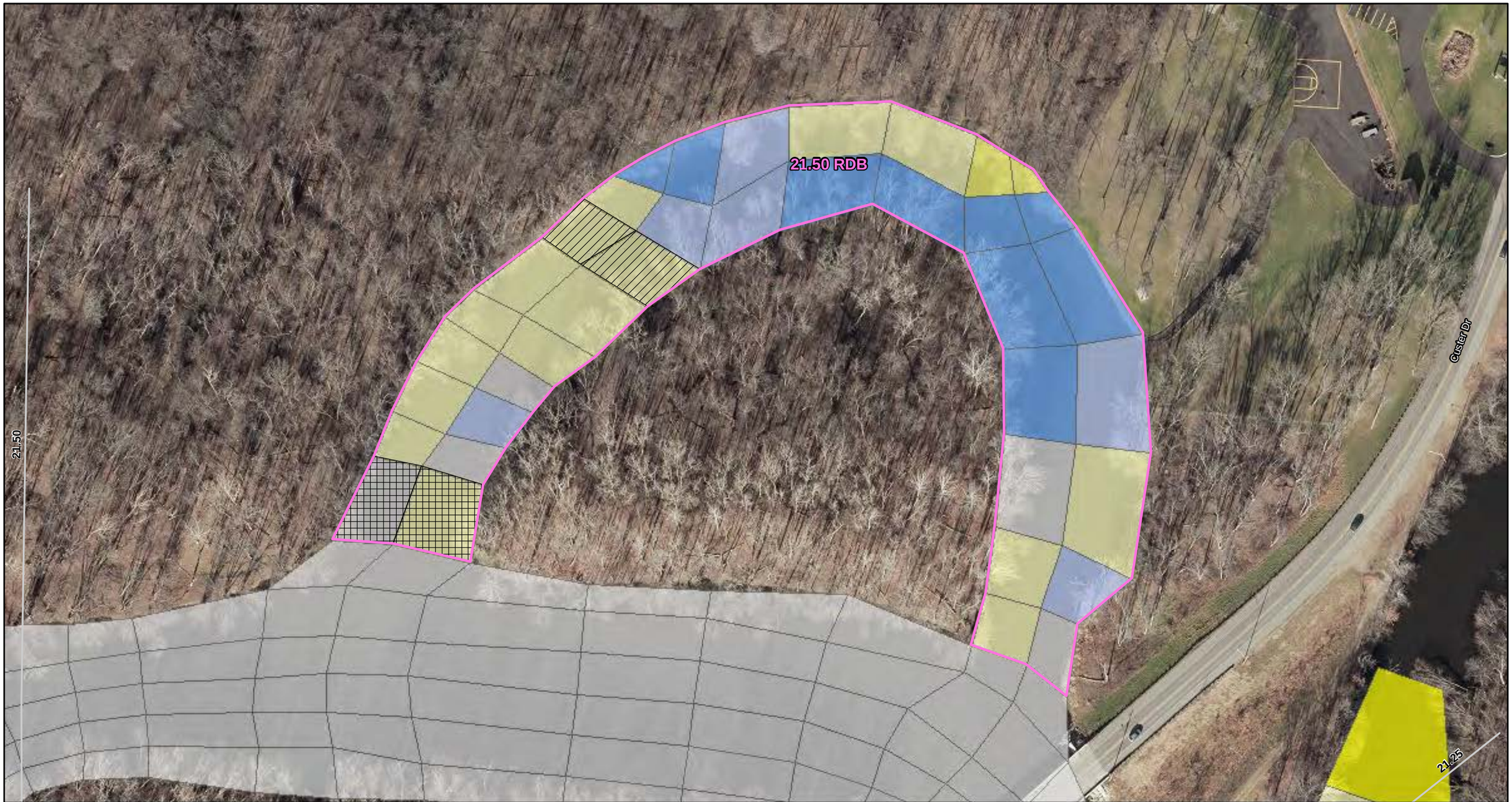
0 50 100 200

Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

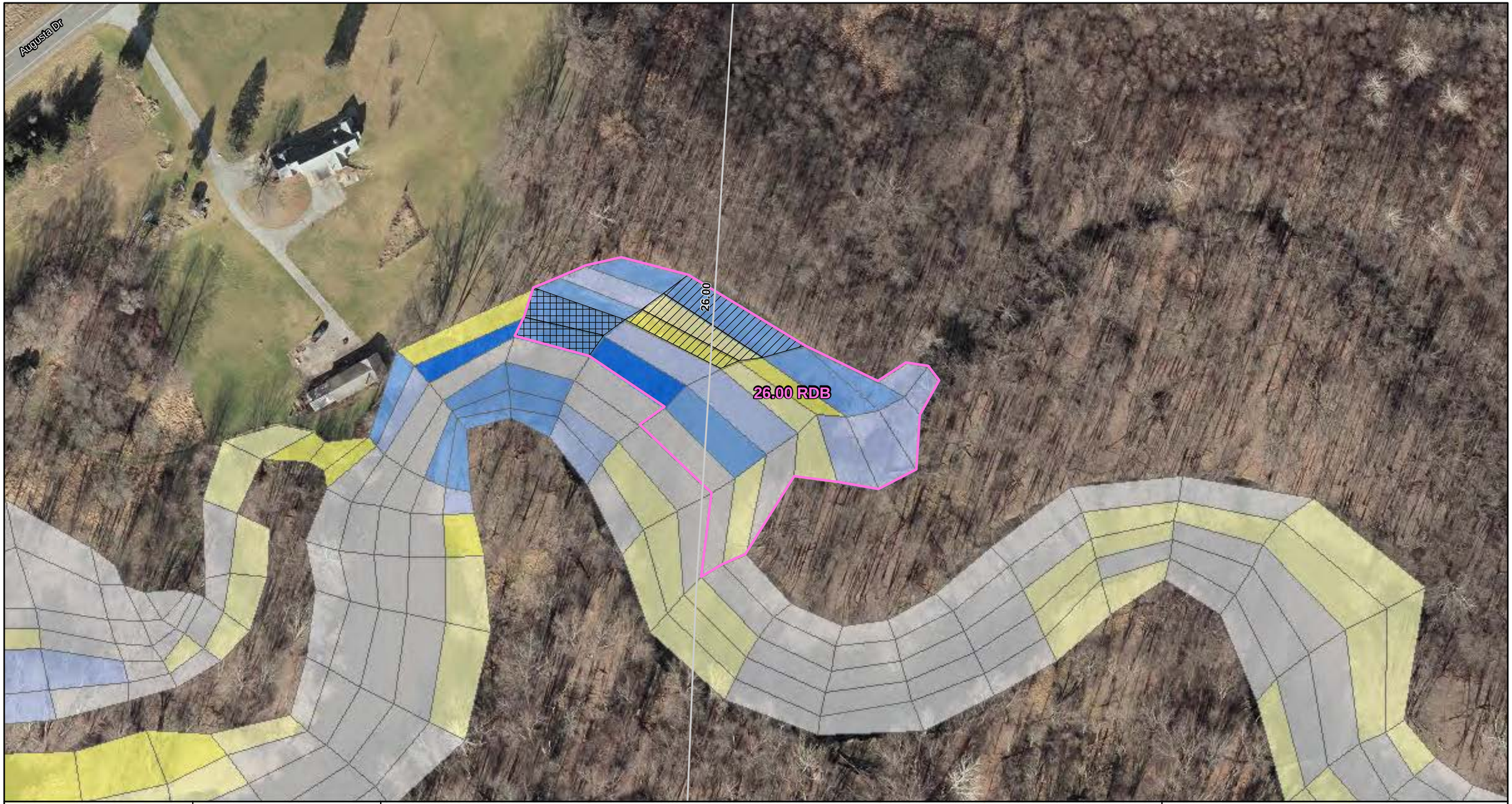
0 50 100 200

Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

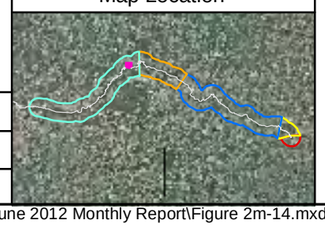
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

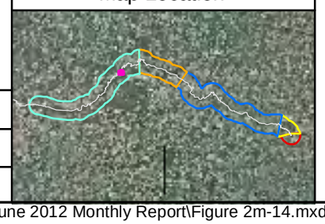
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

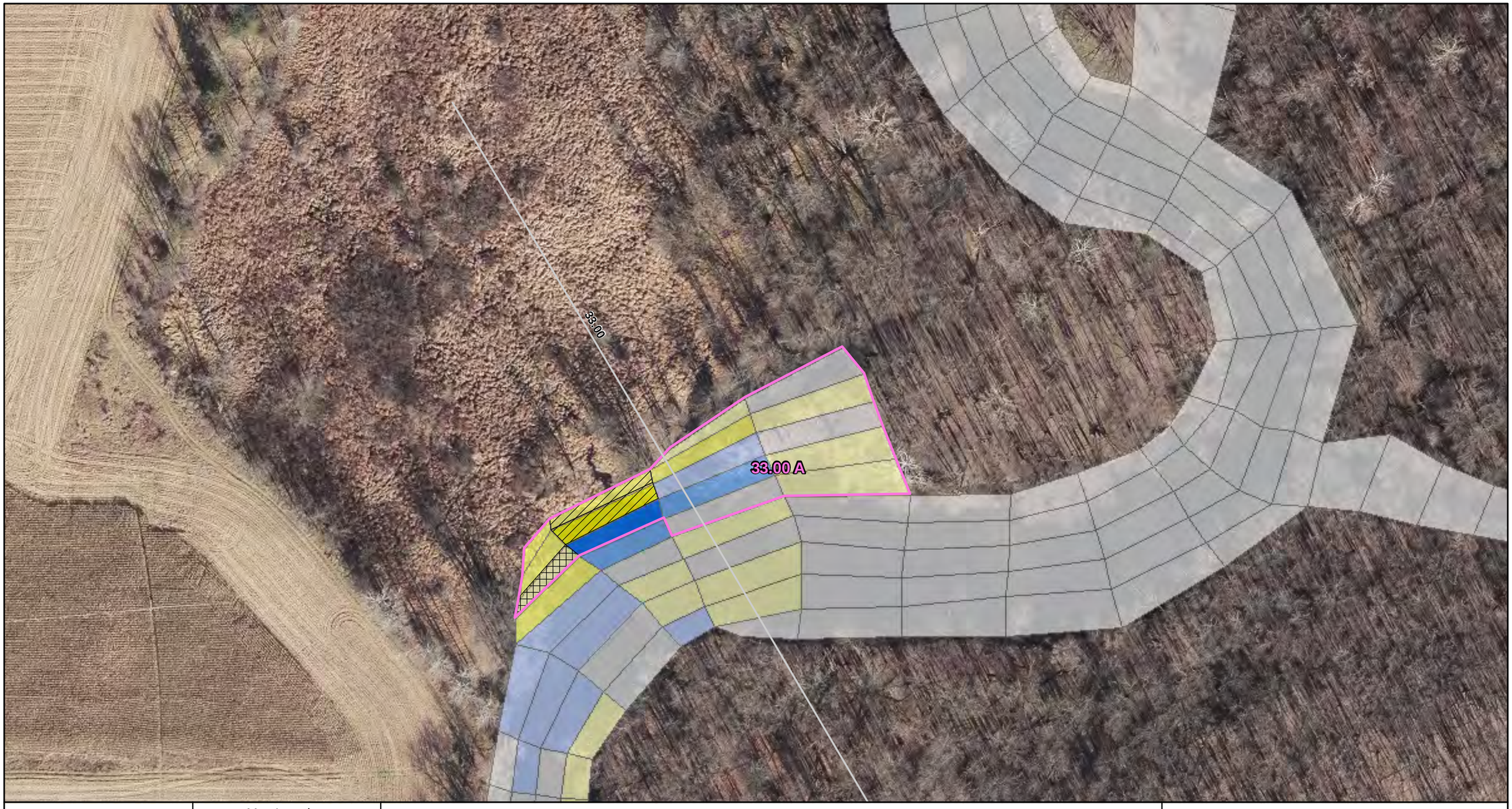
Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
28.25 RDB
SHEET 4 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

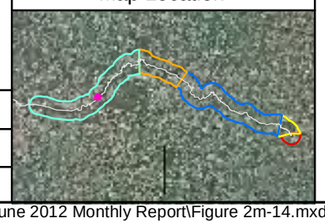
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
33.00 A
SHEET 5 OF 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Change in Sedimentation Rate (mm/week)

75% Alternate vs. 75% Original Structures

- >5.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- >5.00 increase in sedimentation

mm/week = Millimeters Per Week

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-14
RIVERINE GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-14.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

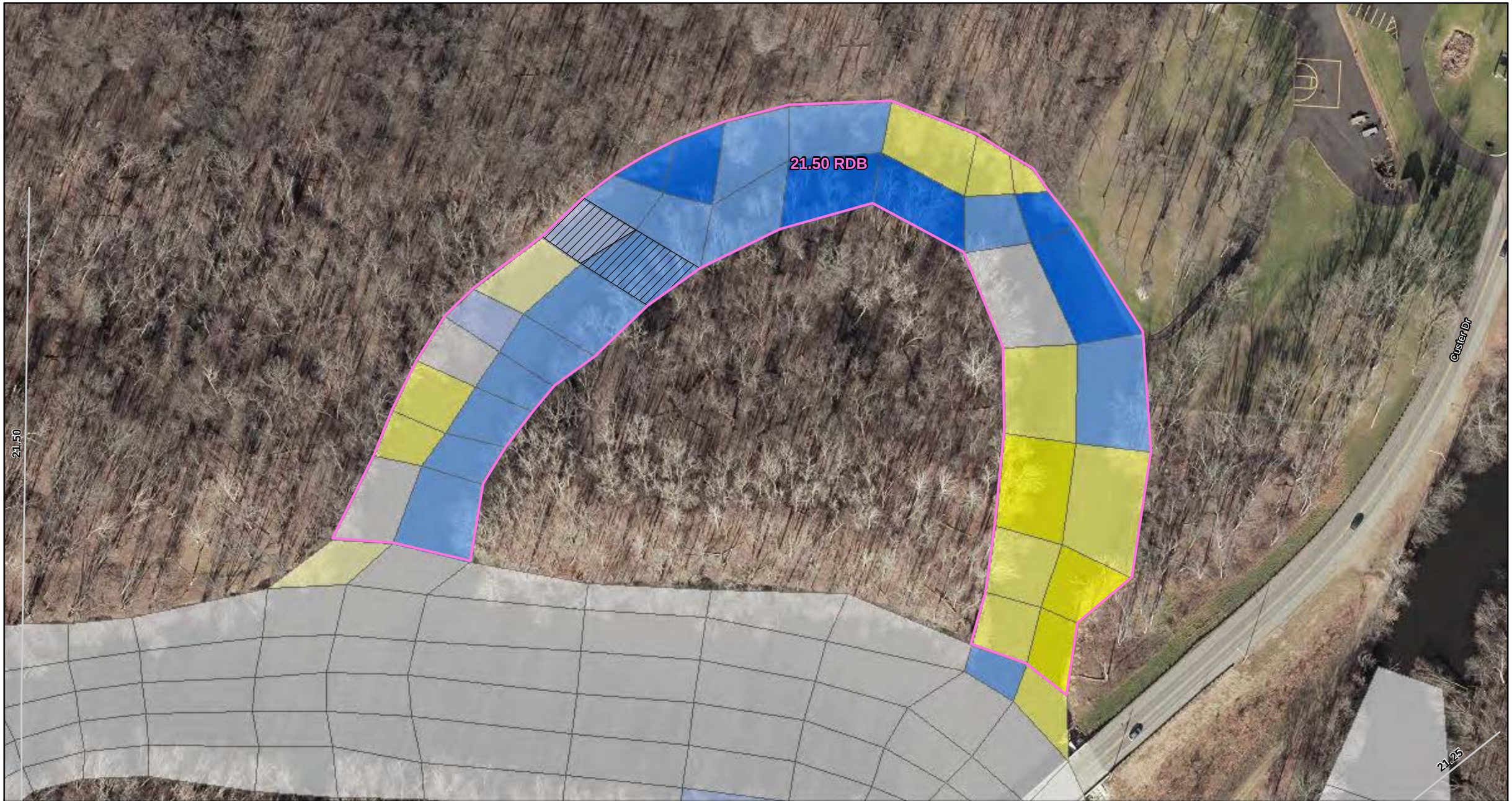
0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

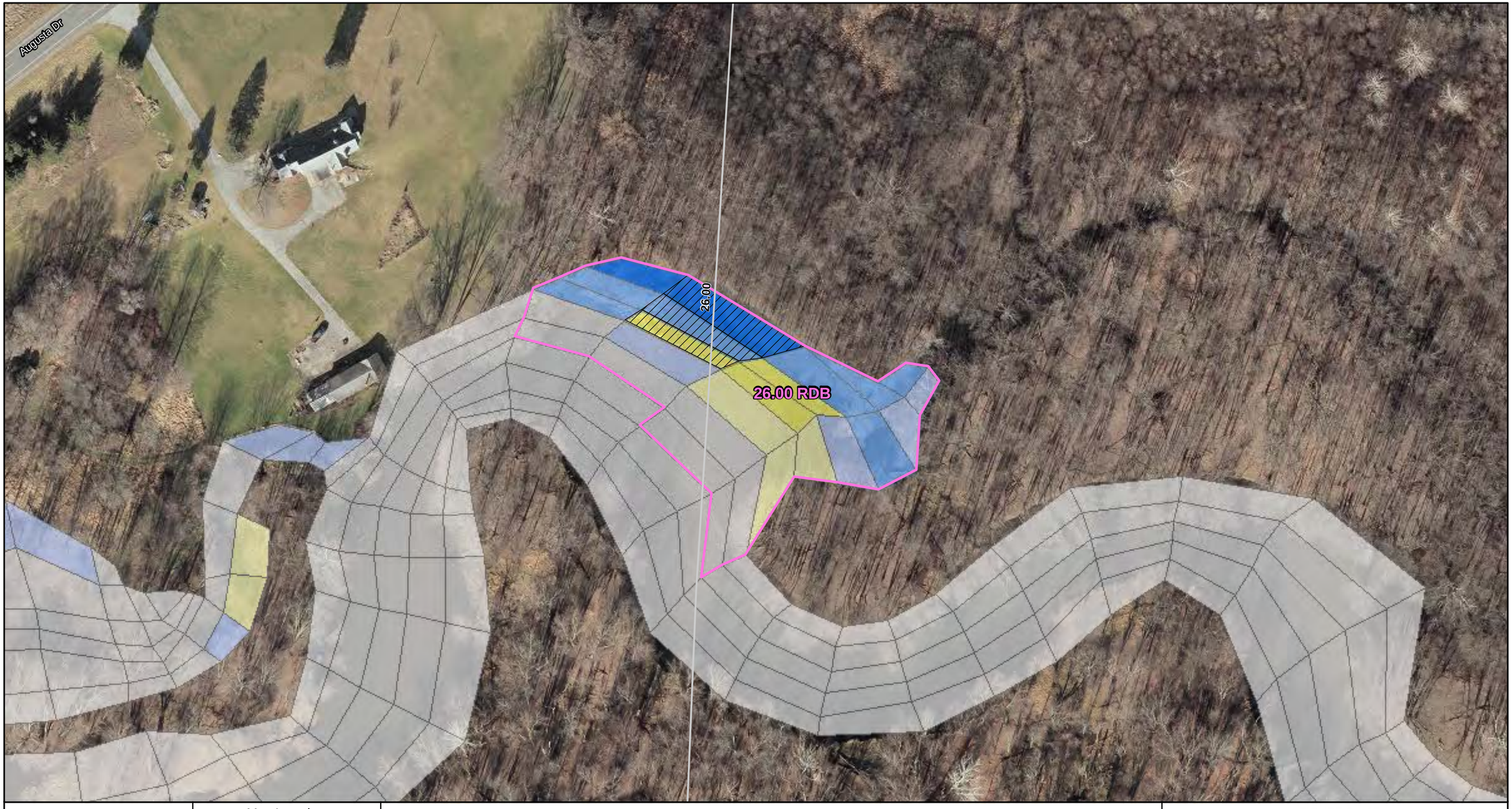
0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

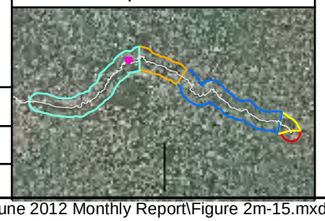
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

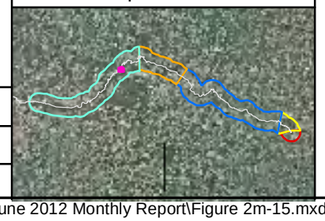
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

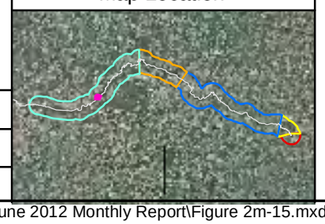
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Structures vs. No Structures - Alternate

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Sediment Trap Area
- Christmas Tree Structure Cell
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-15
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% VS. NO STRUCTURES - ALTERNATE
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-15.mxd

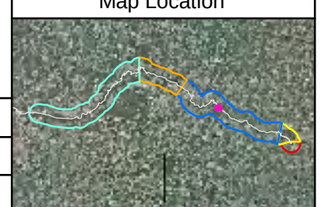
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

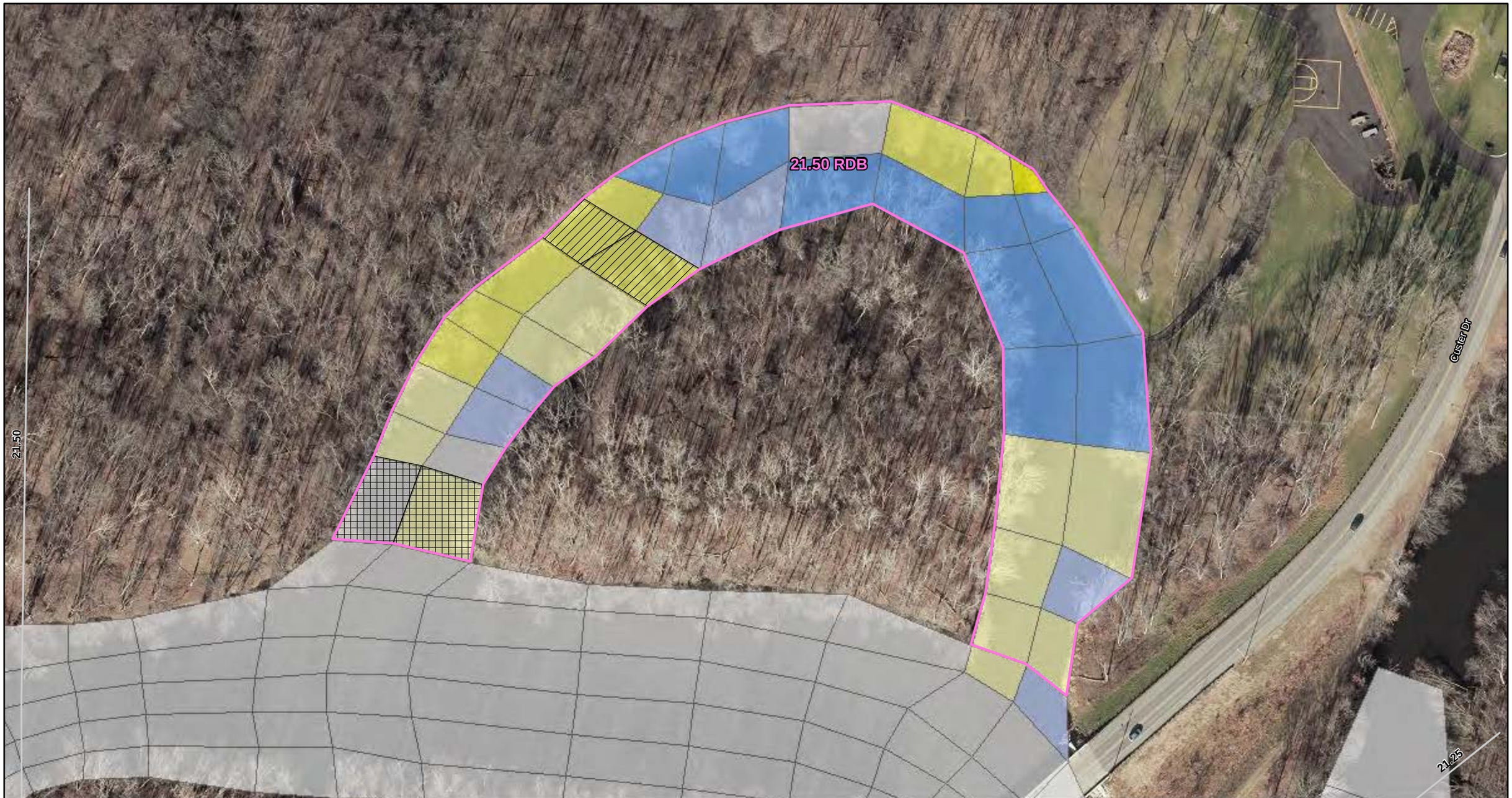
0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
10.50 L2
SHEET 1 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

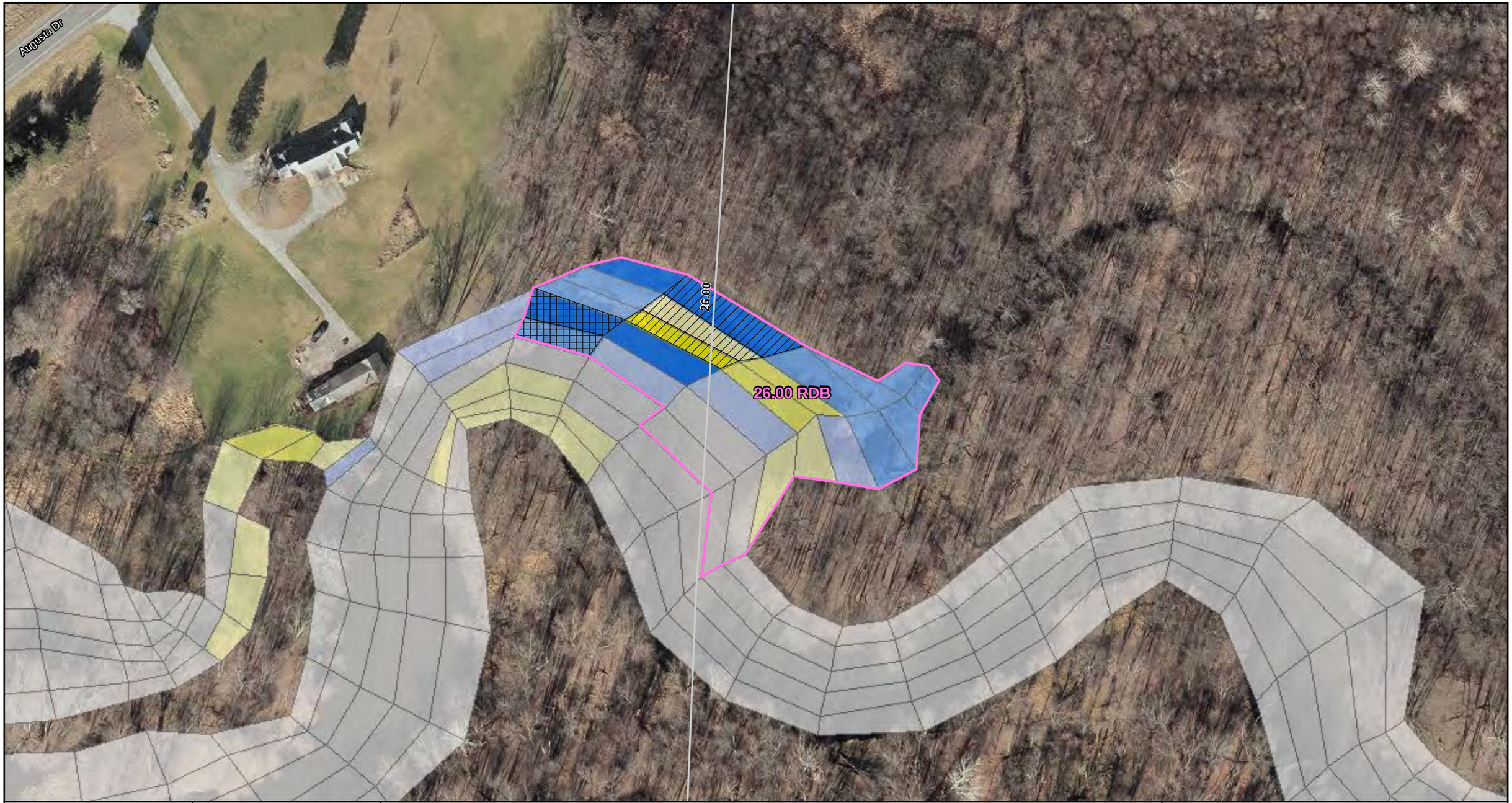
0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
21.50 RDB
SHEET 2 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

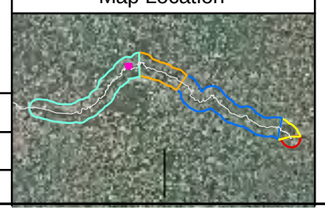
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
26.00 RDB
SHEET 3 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

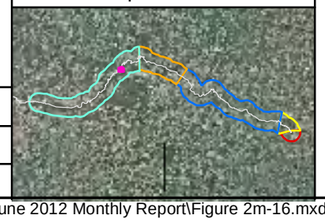
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
28.25 RDB
SHEET 4 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

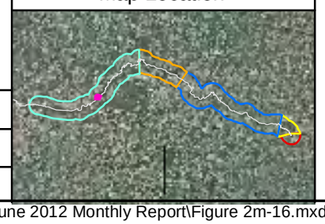
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 A
SHEET 5 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS	7/2/2012
Approved:	DBR	7/2/2012
Project #:	106-4186	

Map Location



Legend

Difference in Net Change in Silt Mass (g/m2)

75% Alternate vs. 75% Original Structures

- >5,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- >5,000 increase in net change

g/m2 = Grams Per Square Meter

- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Quarter Mile Grid Segment

N

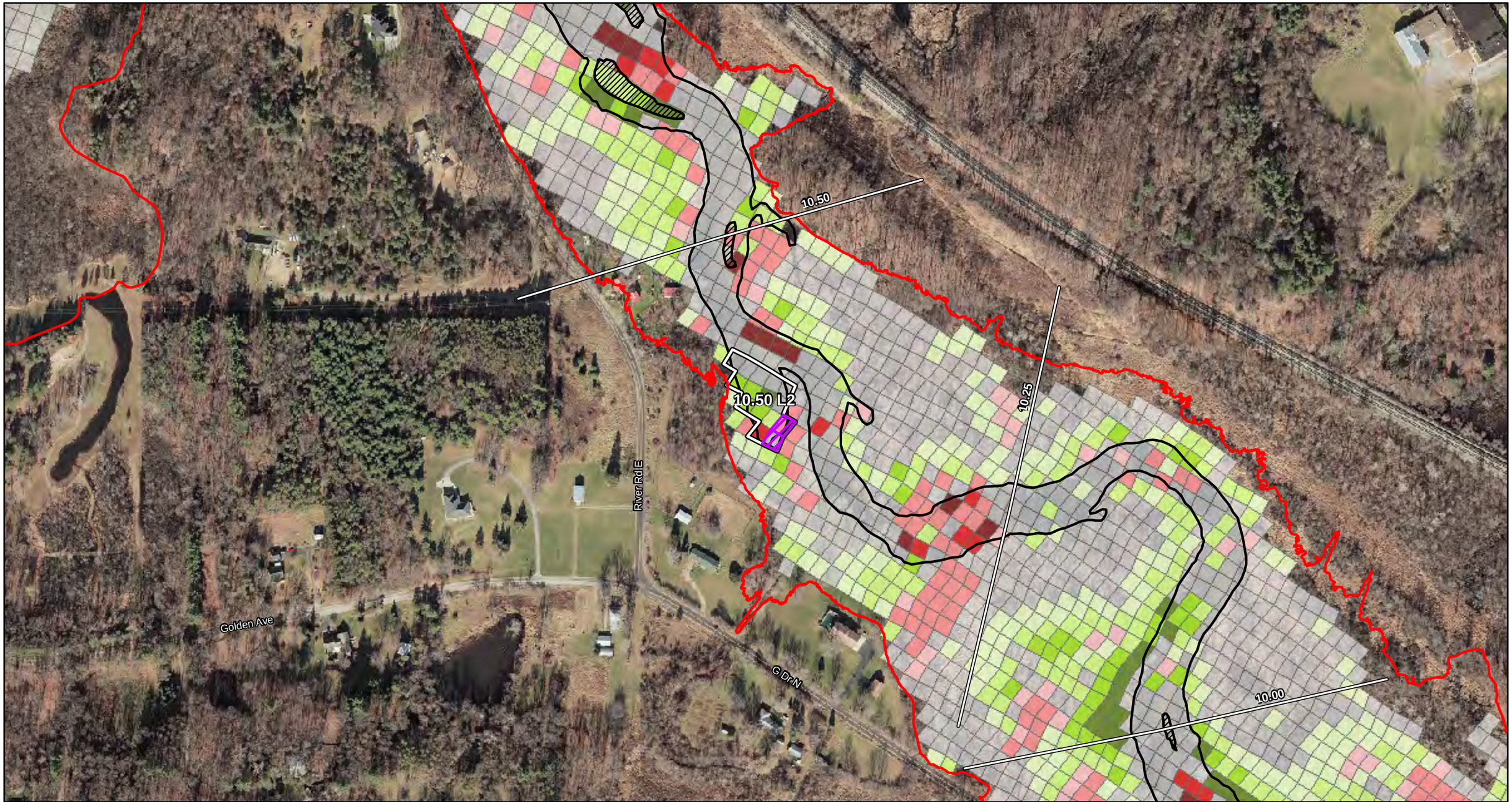
0 50 100 200

Scale in Feet

FIGURE 2m-16
RIVERINE GRID:
DIFFERENCE IN NET CHANGE IN SILT MASS
MAY 16 - MAY 23, 2011
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 B
SHEET 6 OF 6
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-16.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

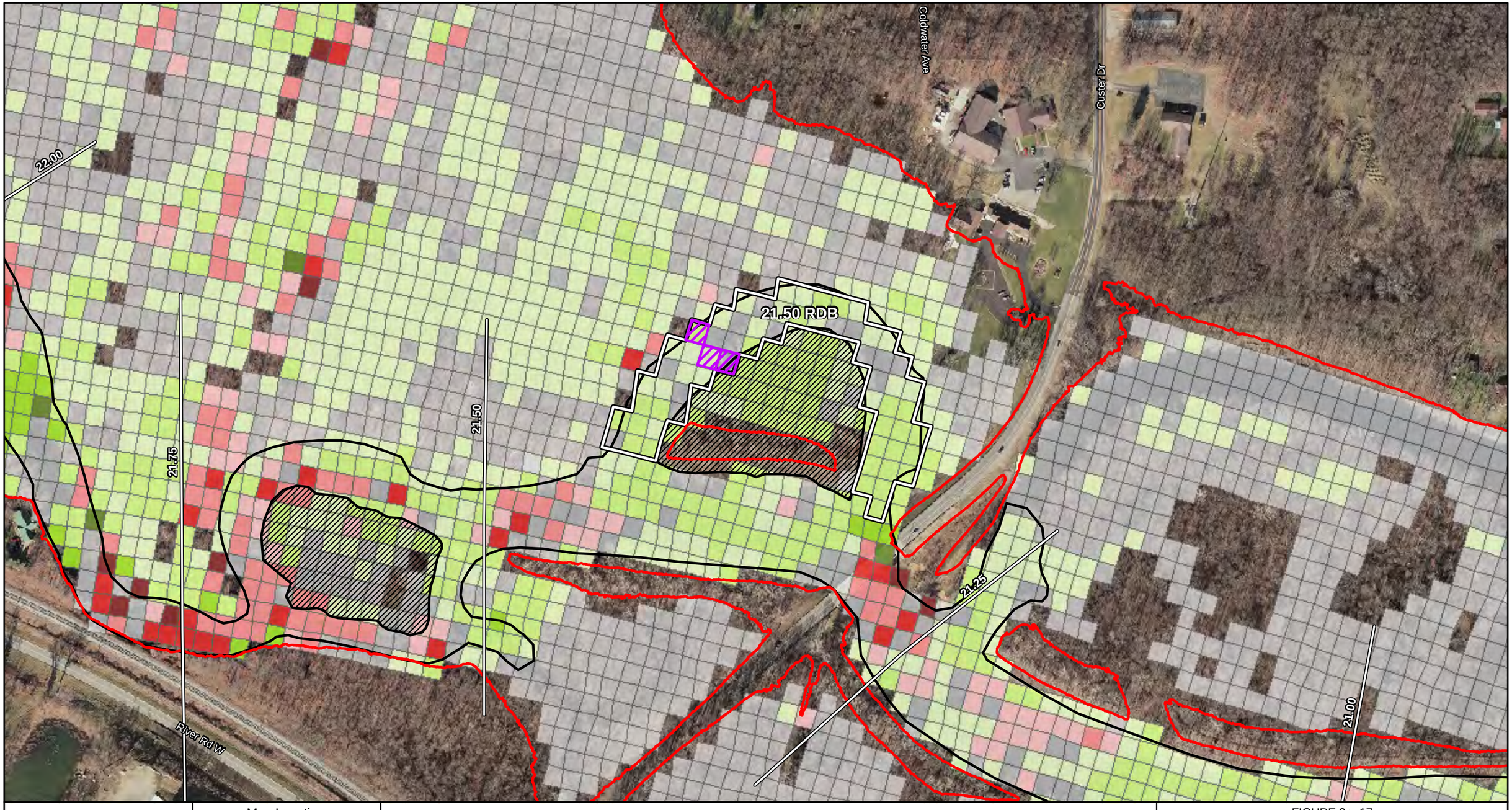
FIGURE 2m-17
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 99% ALTERNATE STRUCTURE
10.50 L2

SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-17.mxd

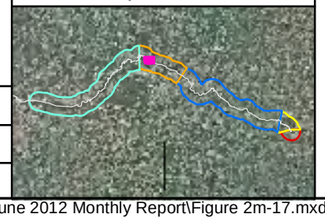
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

FIGURE 2m-17
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 99% ALTERNATE STRUCTURE

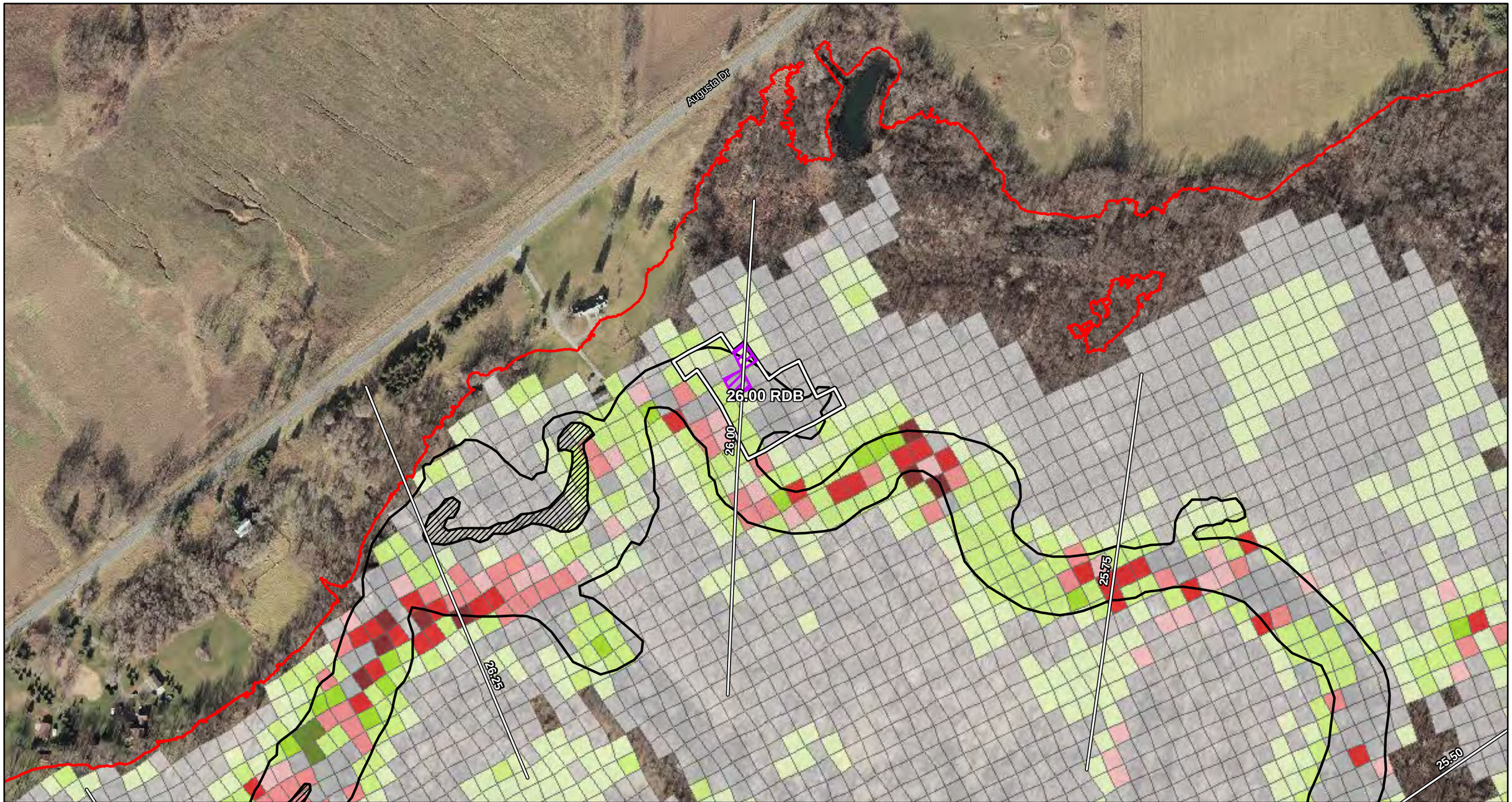
21.50 RDB

SHEET 2 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-17.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

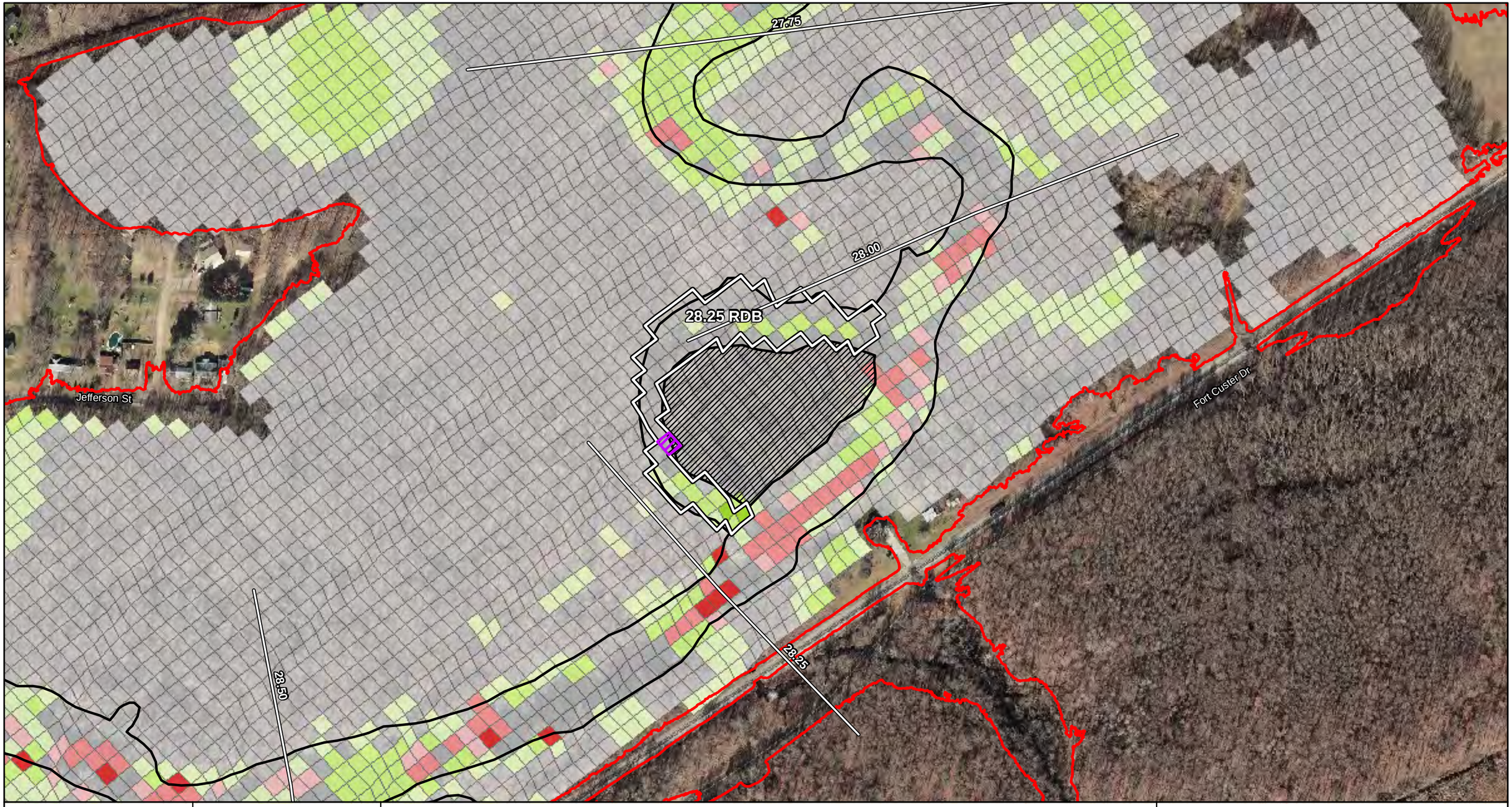
FIGURE 2m-17
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 99% ALTERNATE STRUCTURE
26.00 RDB

SHEET 3 OF 5

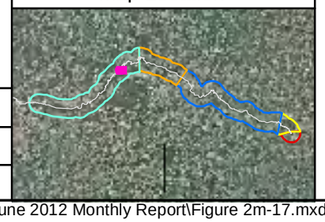
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-17.mxd

Aerial Photography Date: November 2011



Map Location



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

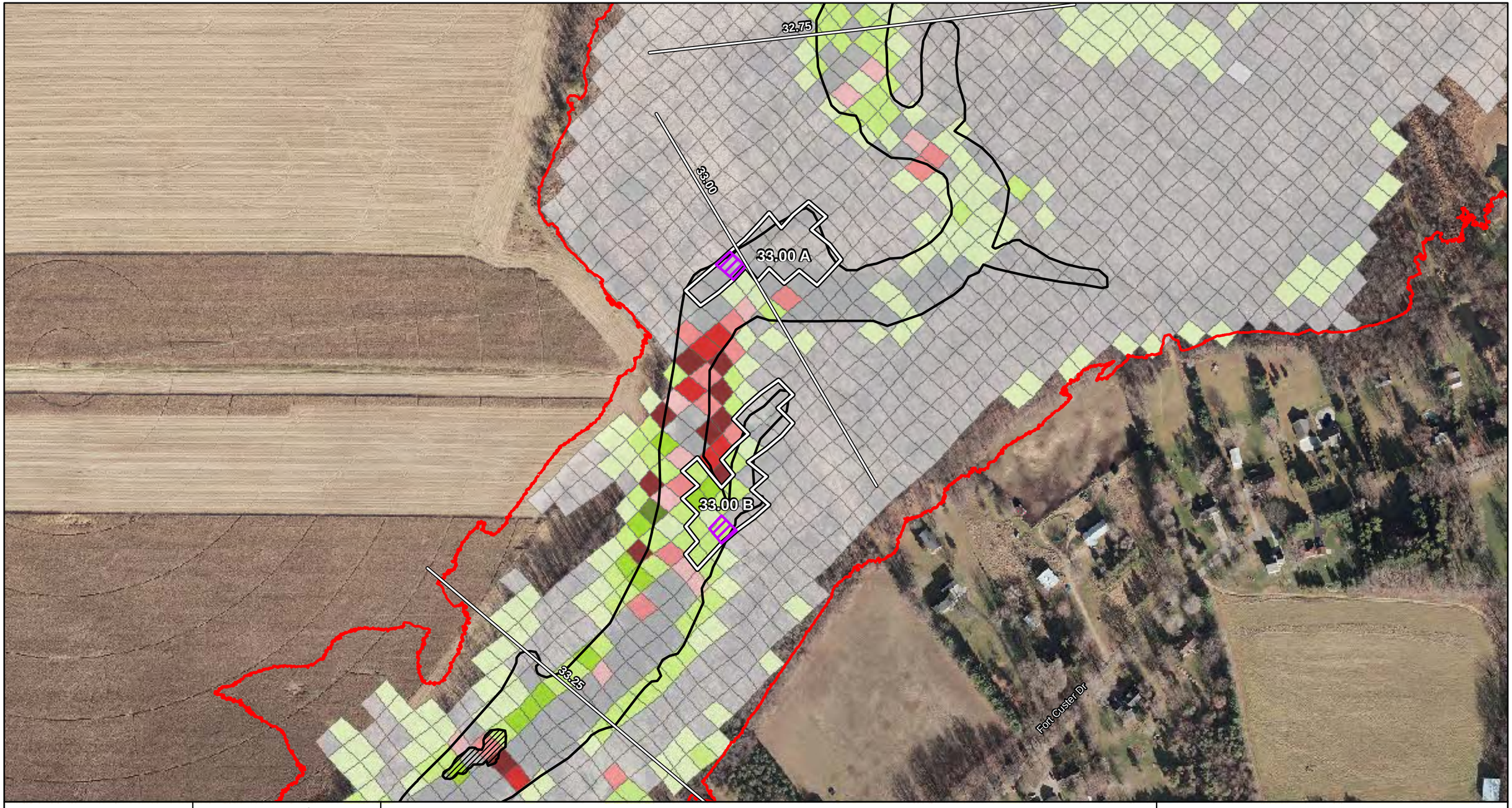
FIGURE 2m-17
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 99% ALTERNATE STRUCTURE
28.25 RDB

SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-17.mxd

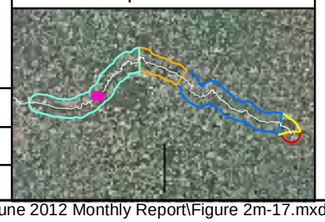
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

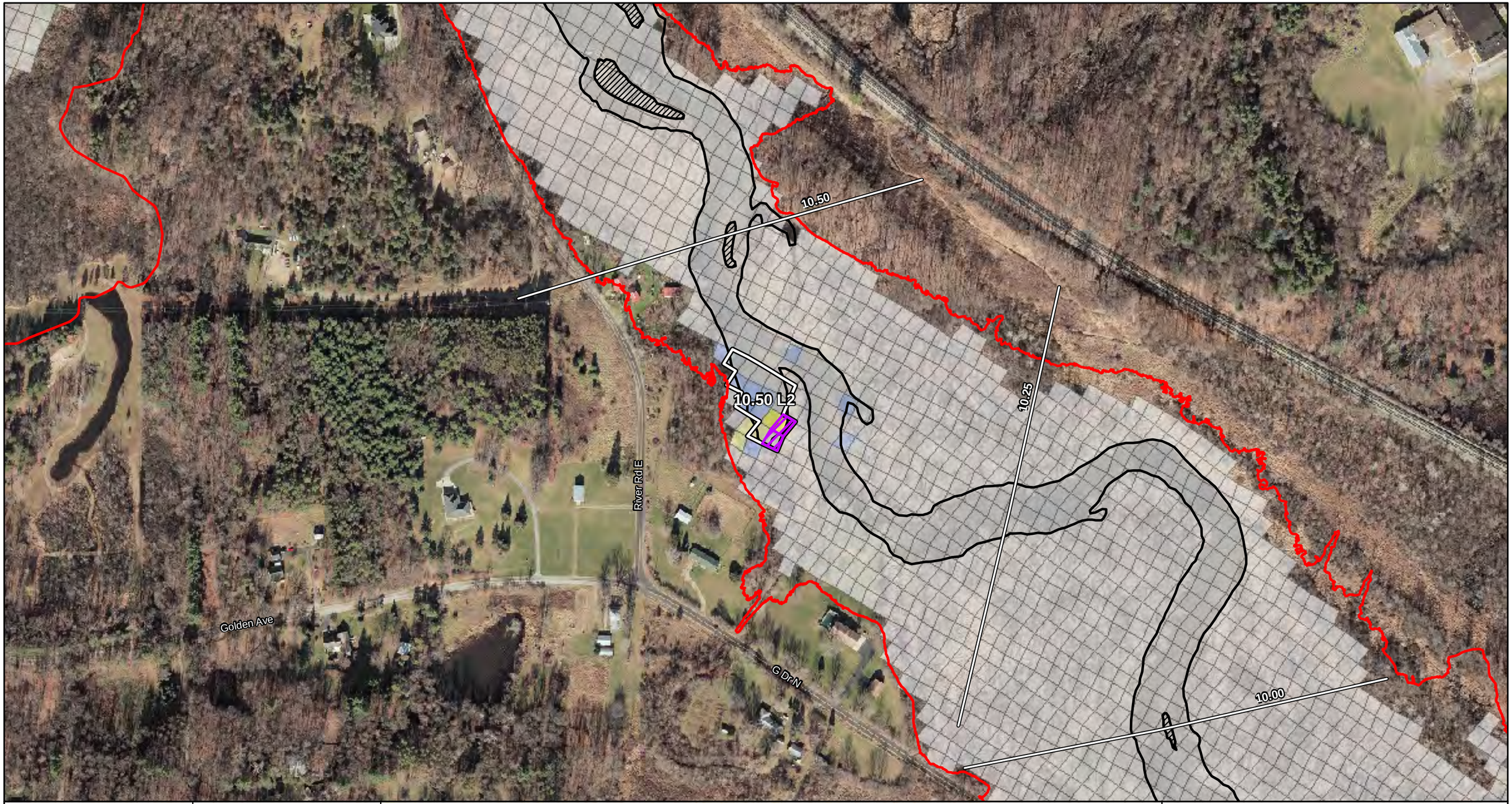
FIGURE 2m-17
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 99% ALTERNATE STRUCTURE
33.00 A & 33.00 B

SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-17.mxd

Aerial Photography Date: November 2011



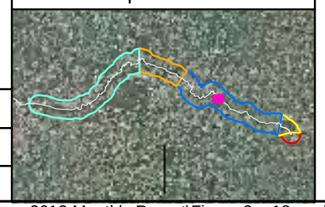
ENBRIDGE

Drawn: BRS 7/2/2012

Approved: DBR 7/2/2012

Project #: 106-4186

Map Location



Change in Sedimentation Rate (mm/week)

99% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

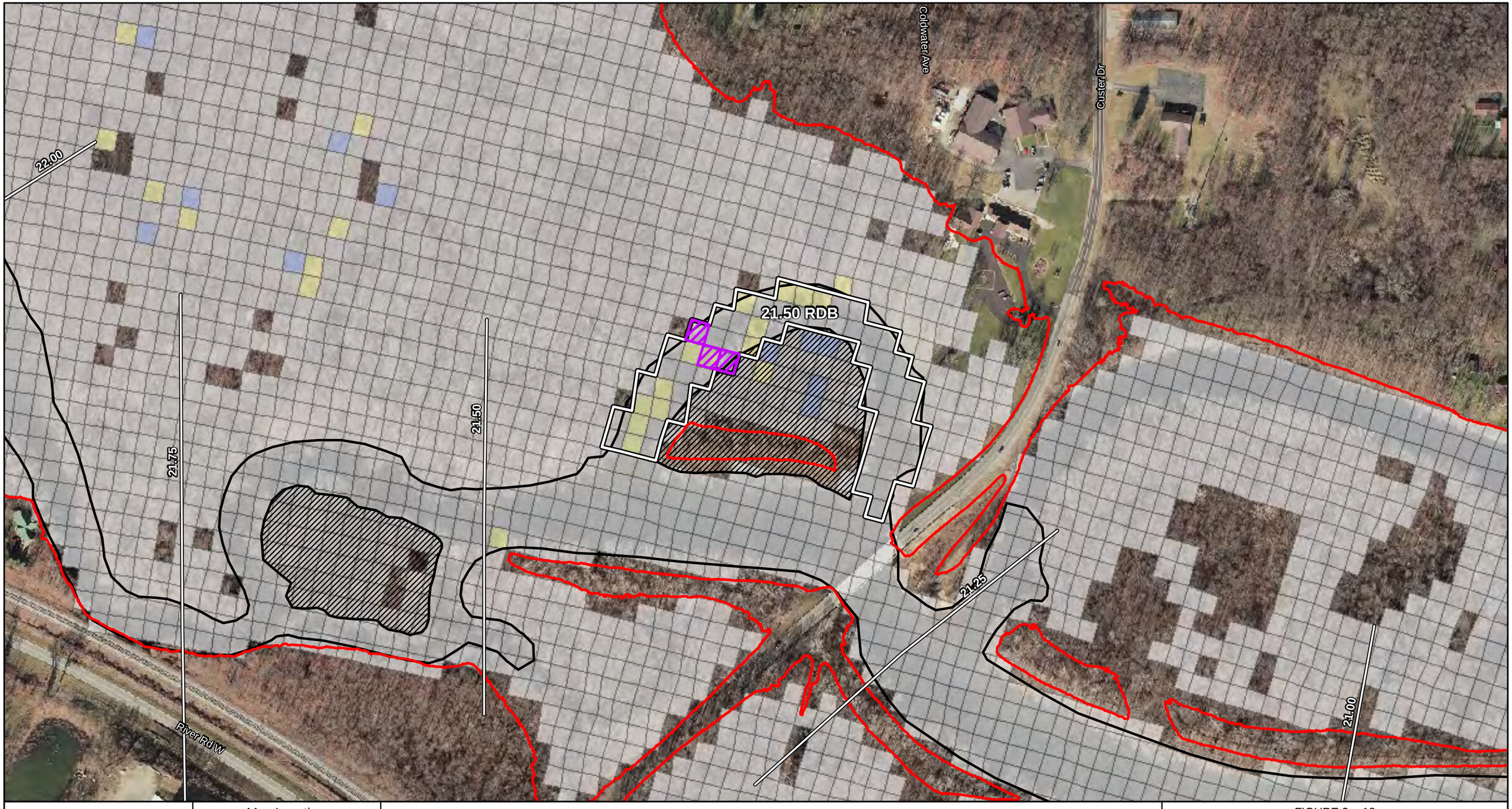
0 125 250 500

Scale in Feet

FIGURE 2m-18
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 99% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-18.mxd

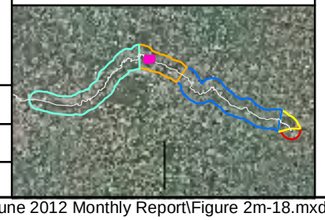
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

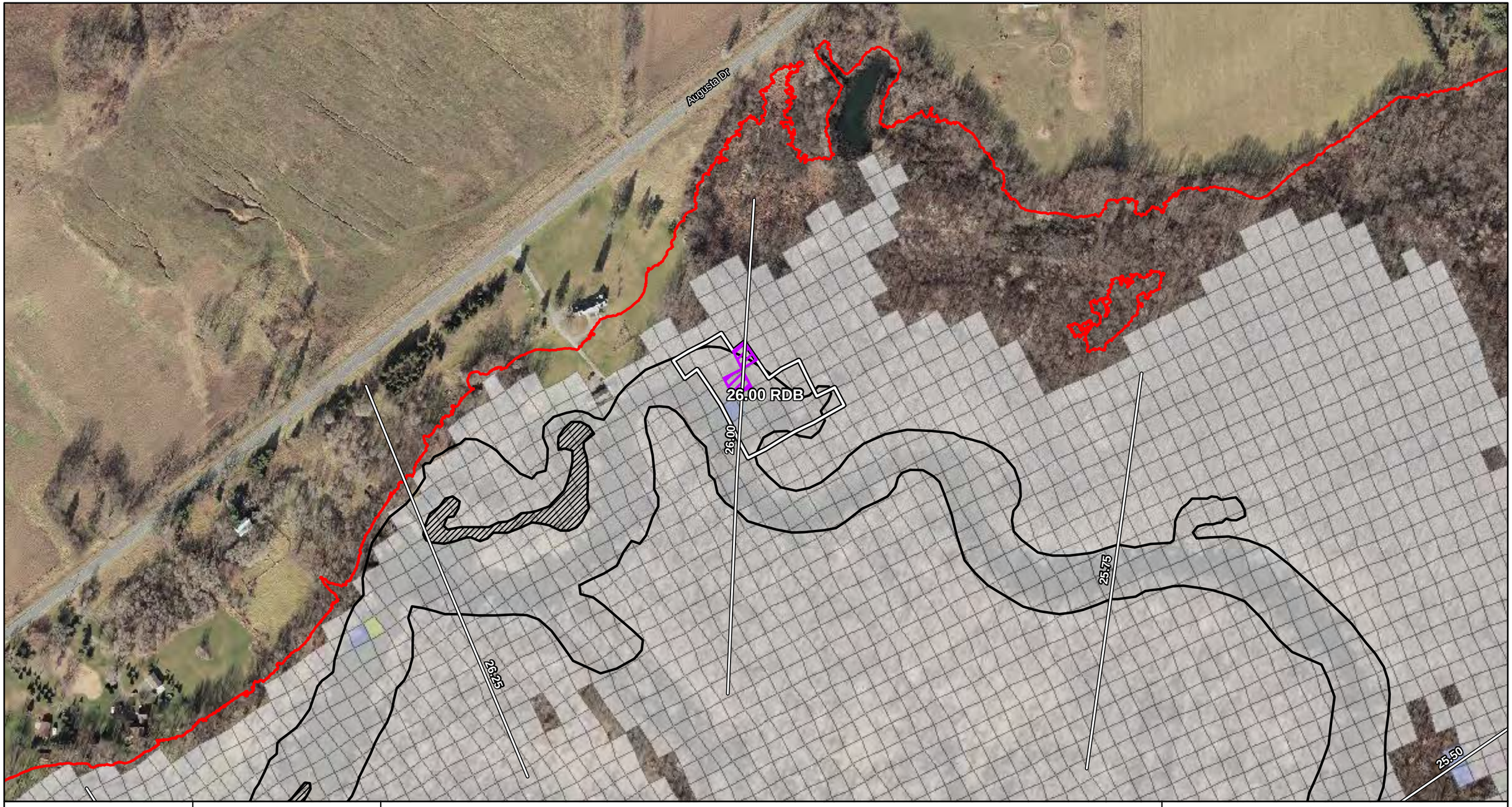
N

0 125 250 500
Scale in Feet

FIGURE 2m-18
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 99% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-18.mxd

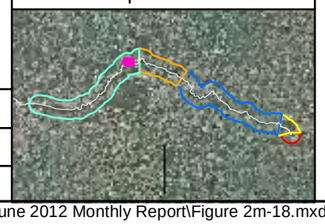
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)

99% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

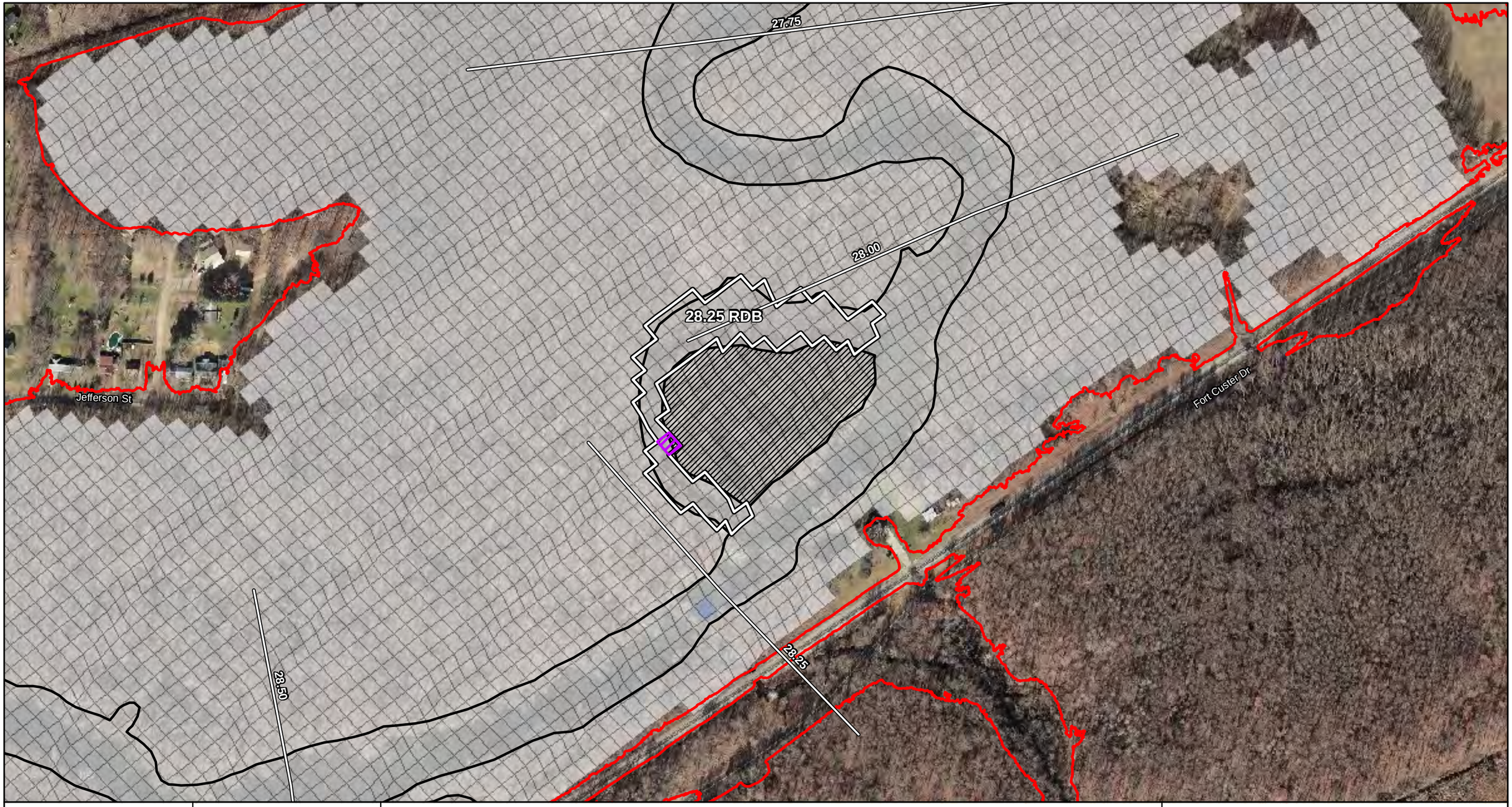
0 125 250 500

Scale in Feet

FIGURE 2m-18
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 99% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-18.mxd

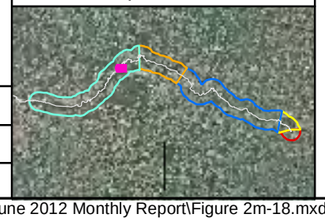
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

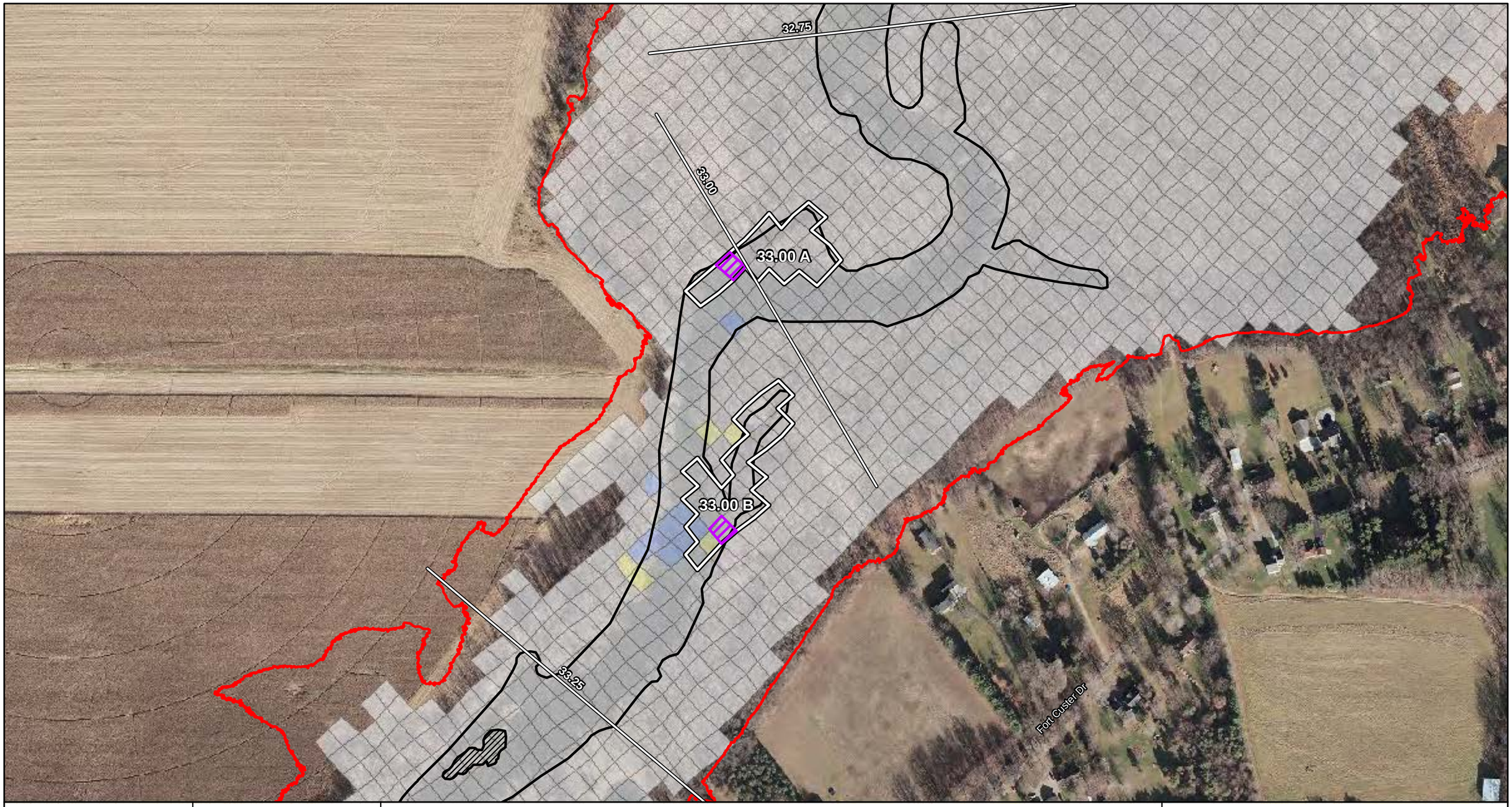
N

0 125 250 500
Scale in Feet

FIGURE 2m-18
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 99% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-18.mxd

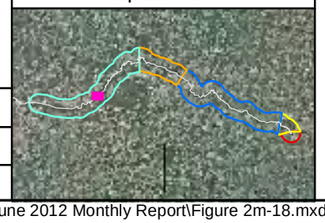
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation
- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

mm/week = Millimeters Per Week

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

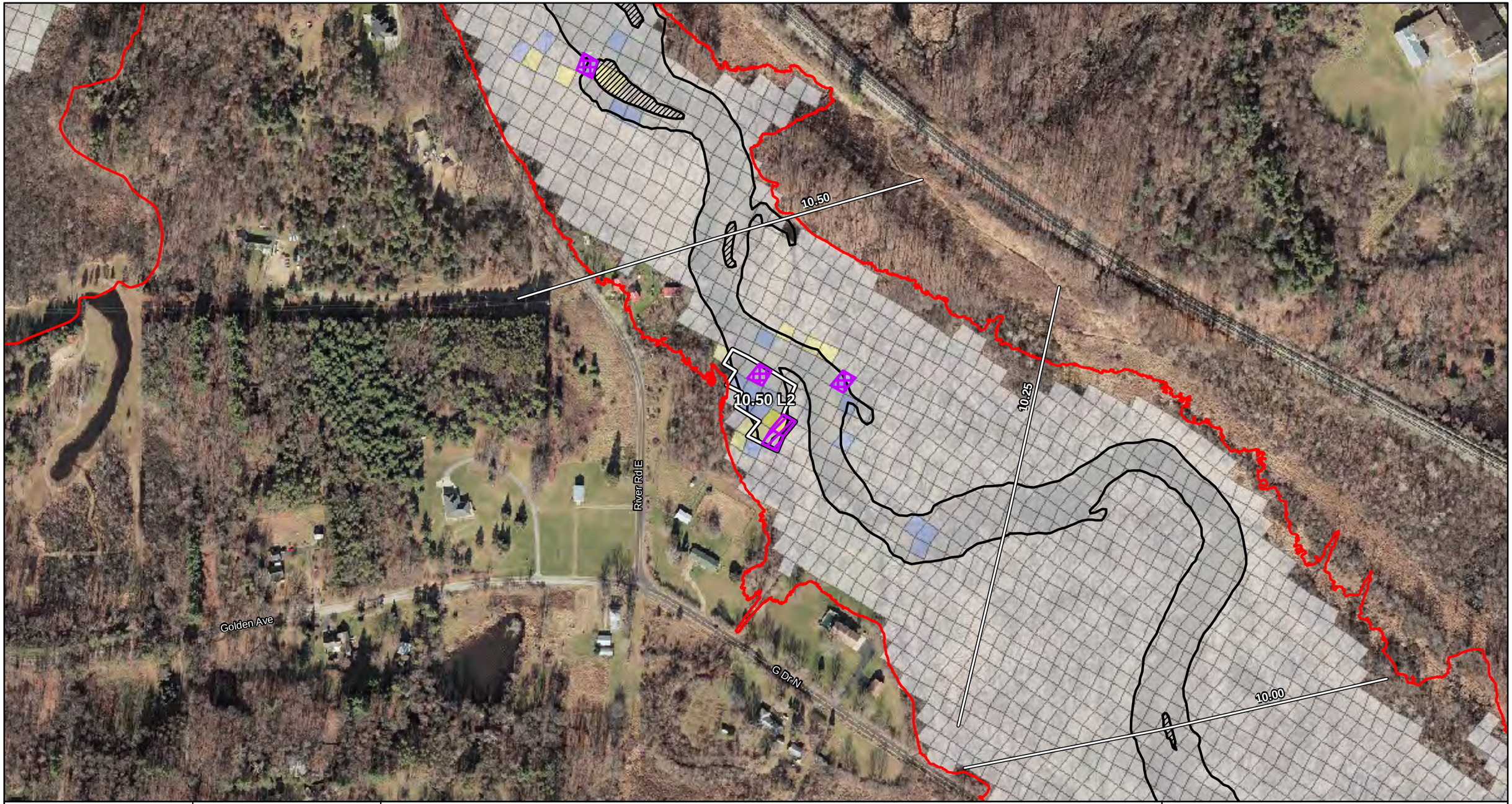
N

0 125 250 500
Scale in Feet

FIGURE 2m-18
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 99% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-18.mxd

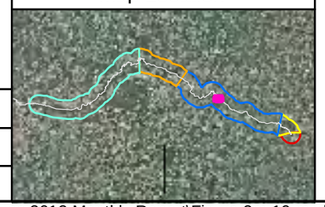
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Alternate vs. 99% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

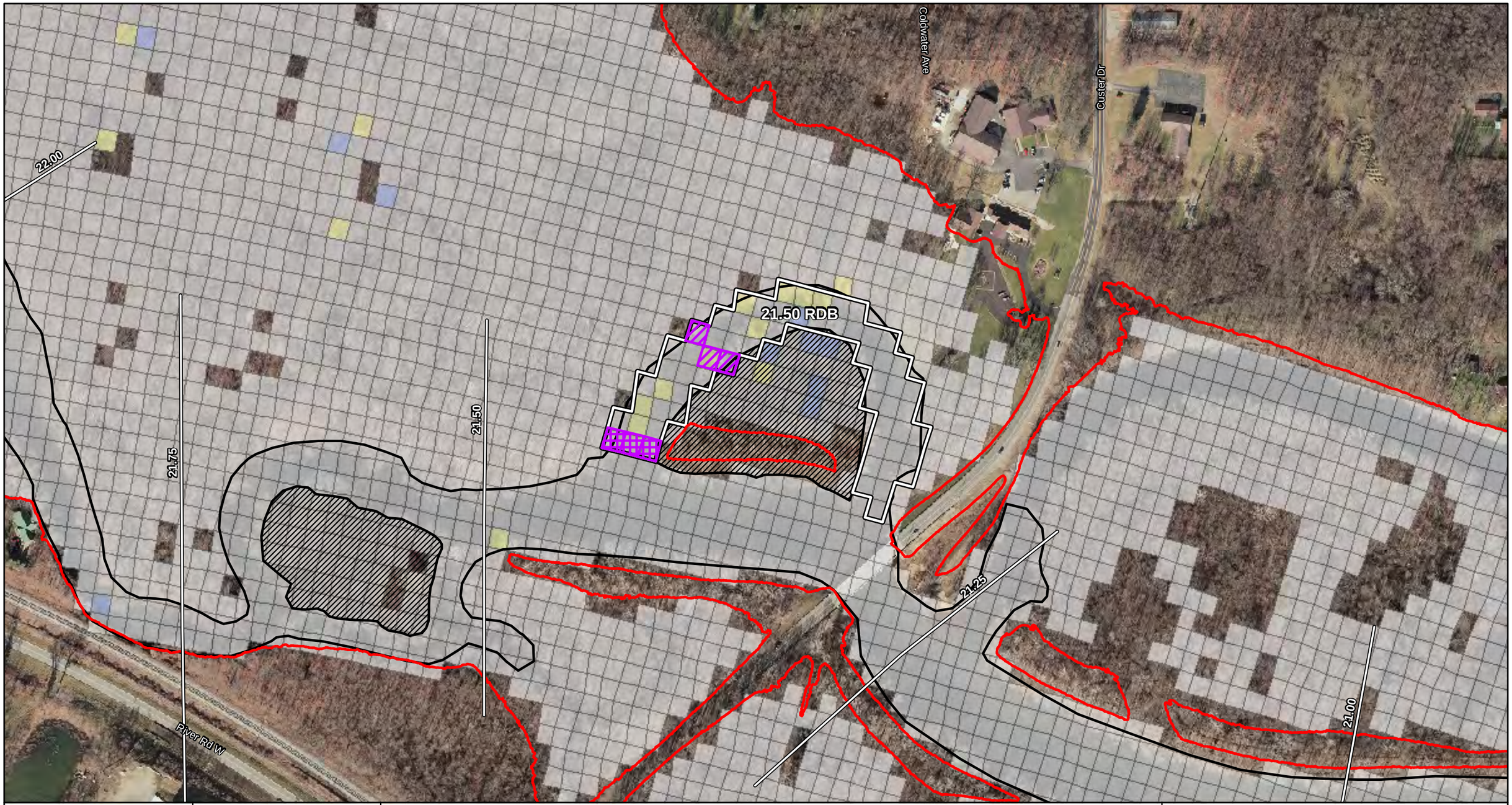
N

0 125 250 500
Scale in Feet

FIGURE 2m-19
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
99% ALTERNATE VS. 99% ORIGINAL STRUCTURES
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-19.mxd

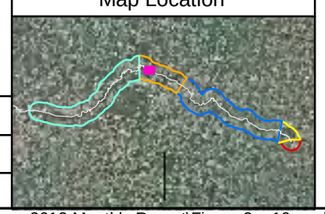
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Alternate vs. 99% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

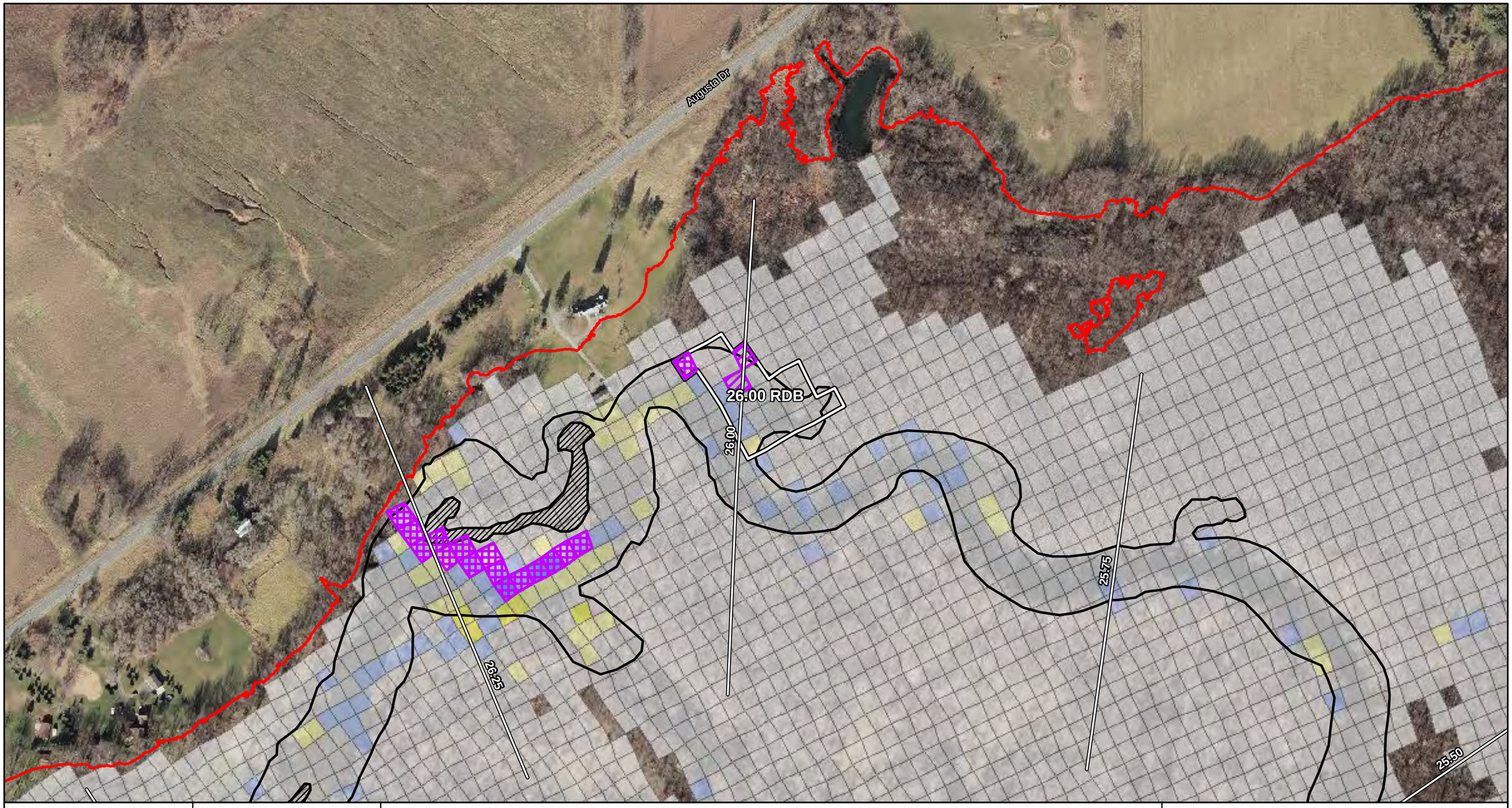
N

0 125 250 500
Scale in Feet

FIGURE 2m-19
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
99% ALTERNATE VS. 99% ORIGINAL STRUCTURES
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-19.mxd

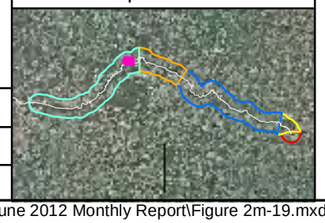
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Alternate vs. 99% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500
Scale in Feet

FIGURE 2m-19
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
99% ALTERNATE VS. 99% ORIGINAL STRUCTURES
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-19.mxd

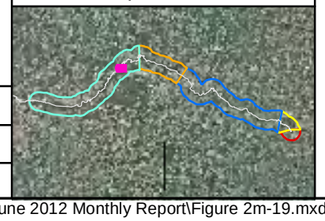
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Alternate vs. 99% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

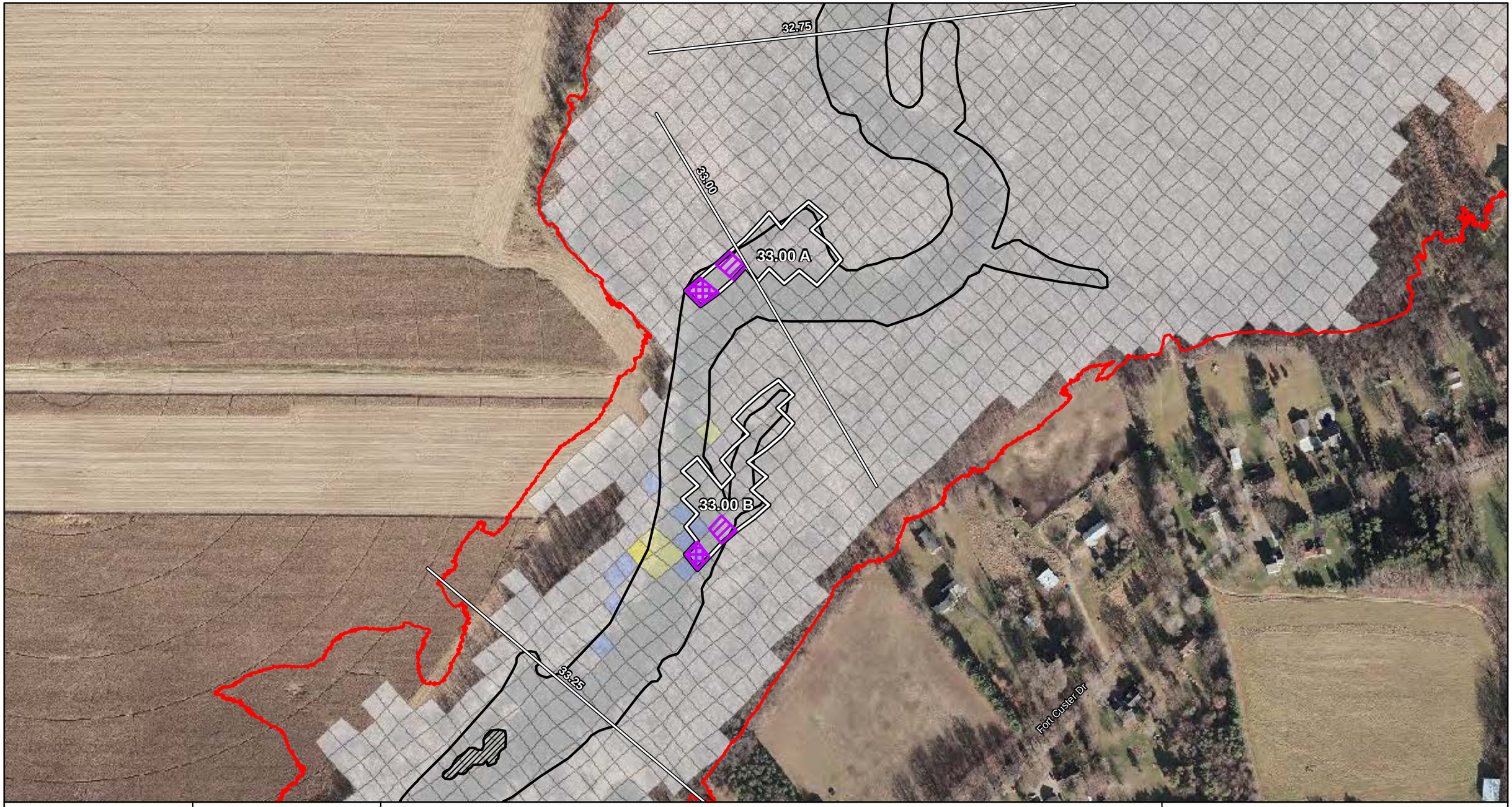
N

0 125 250 500
Scale in Feet

FIGURE 2m-19
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
99% ALTERNATE VS. 99% ORIGINAL STRUCTURES
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-19.mxd

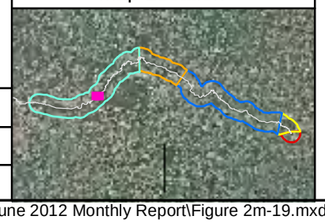
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
99% Alternate vs. 99% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

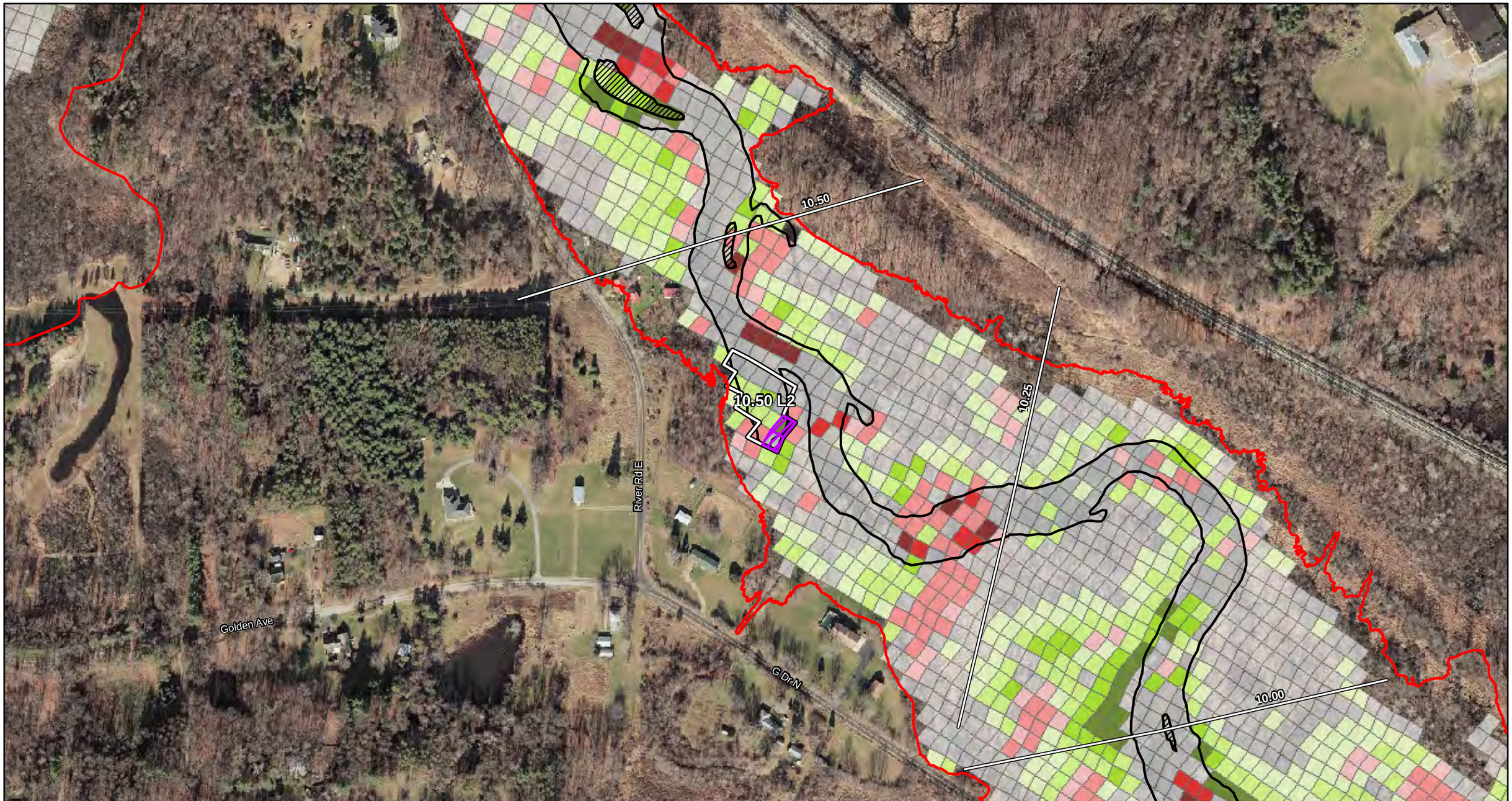
N

0 125 250 500
Scale in Feet

FIGURE 2m-19
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
99% ALTERNATE VS. 99% ORIGINAL STRUCTURES
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-19.mxd

Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

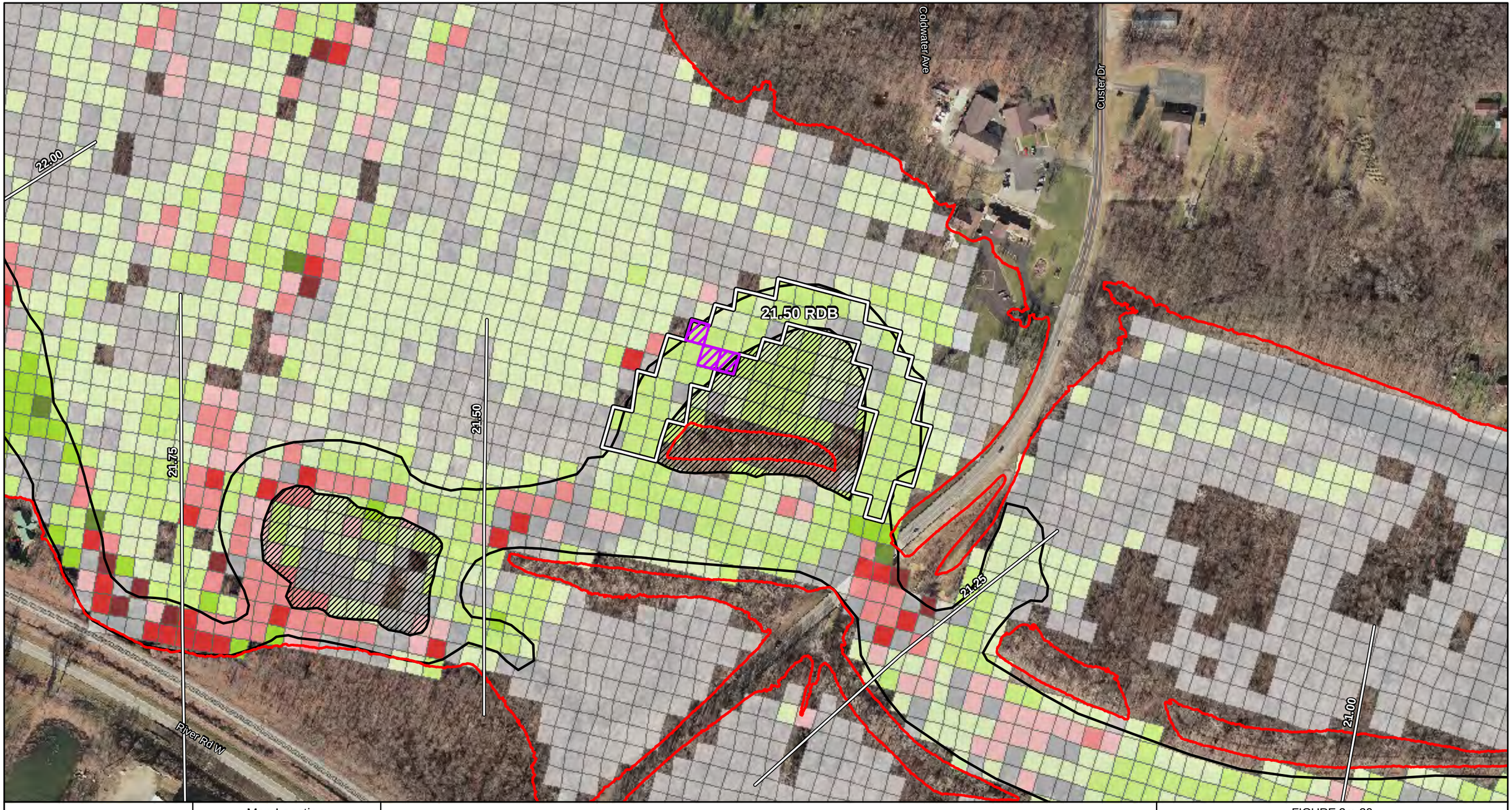
FIGURE 2m-20
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 75% ALTERNATE STRUCTURE
10.50 L2

SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-20.mxd

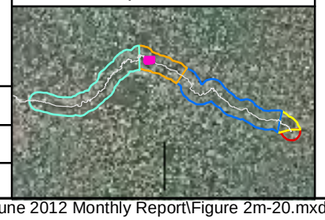
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

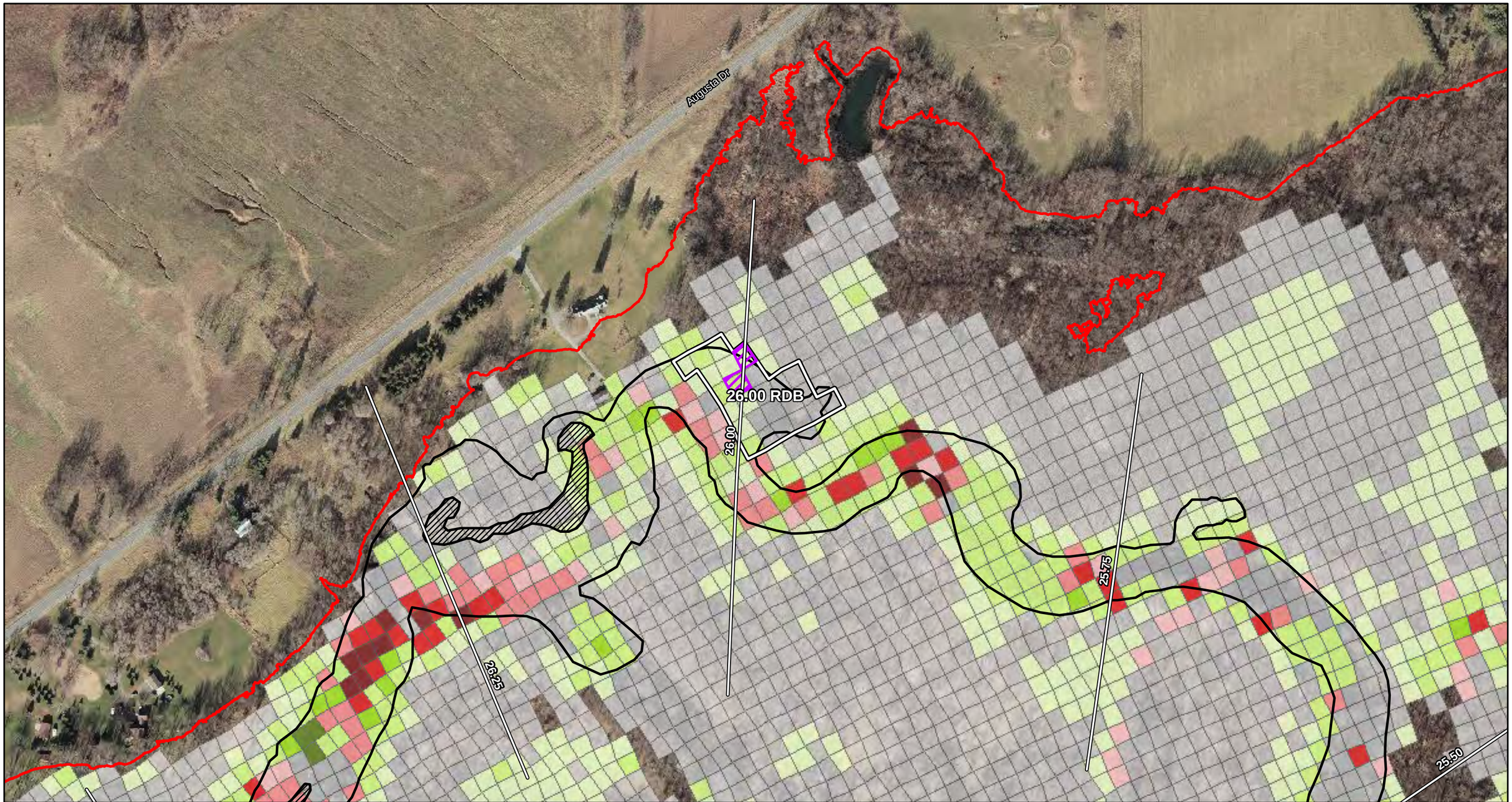
FIGURE 2m-20
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 75% ALTERNATE STRUCTURE
21.50 RDB

SHEET 2 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-20.mxd

Aerial Photography Date: November 2011



Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

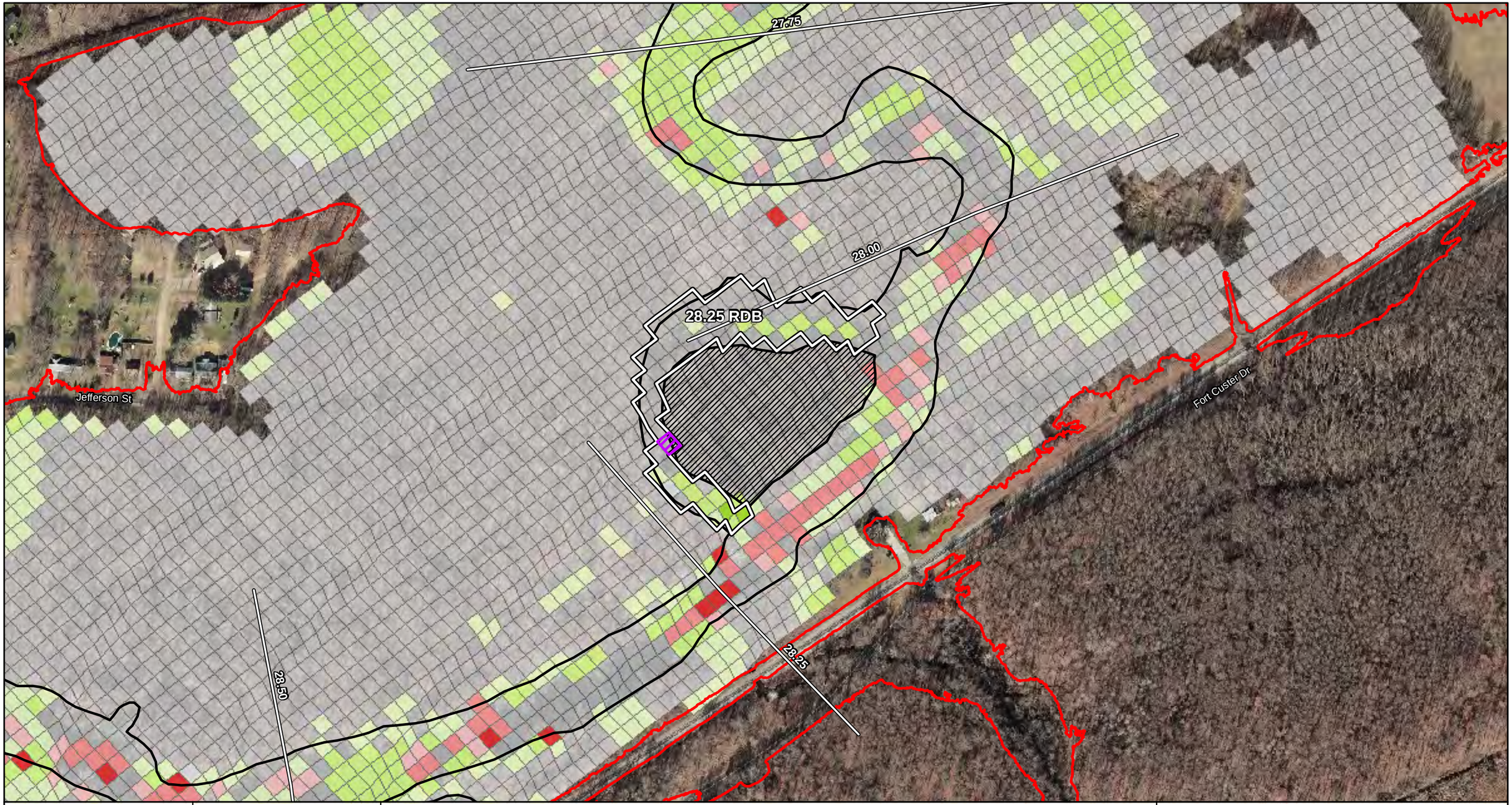
FIGURE 2m-20
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 75% ALTERNATE STRUCTURE
26.00 RDB

SHEET 3 OF 5

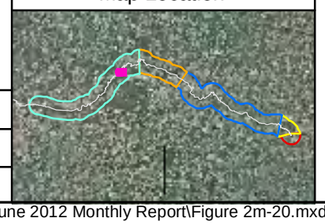
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-20.mxd

Aerial Photography Date: November 2011



Map Location



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

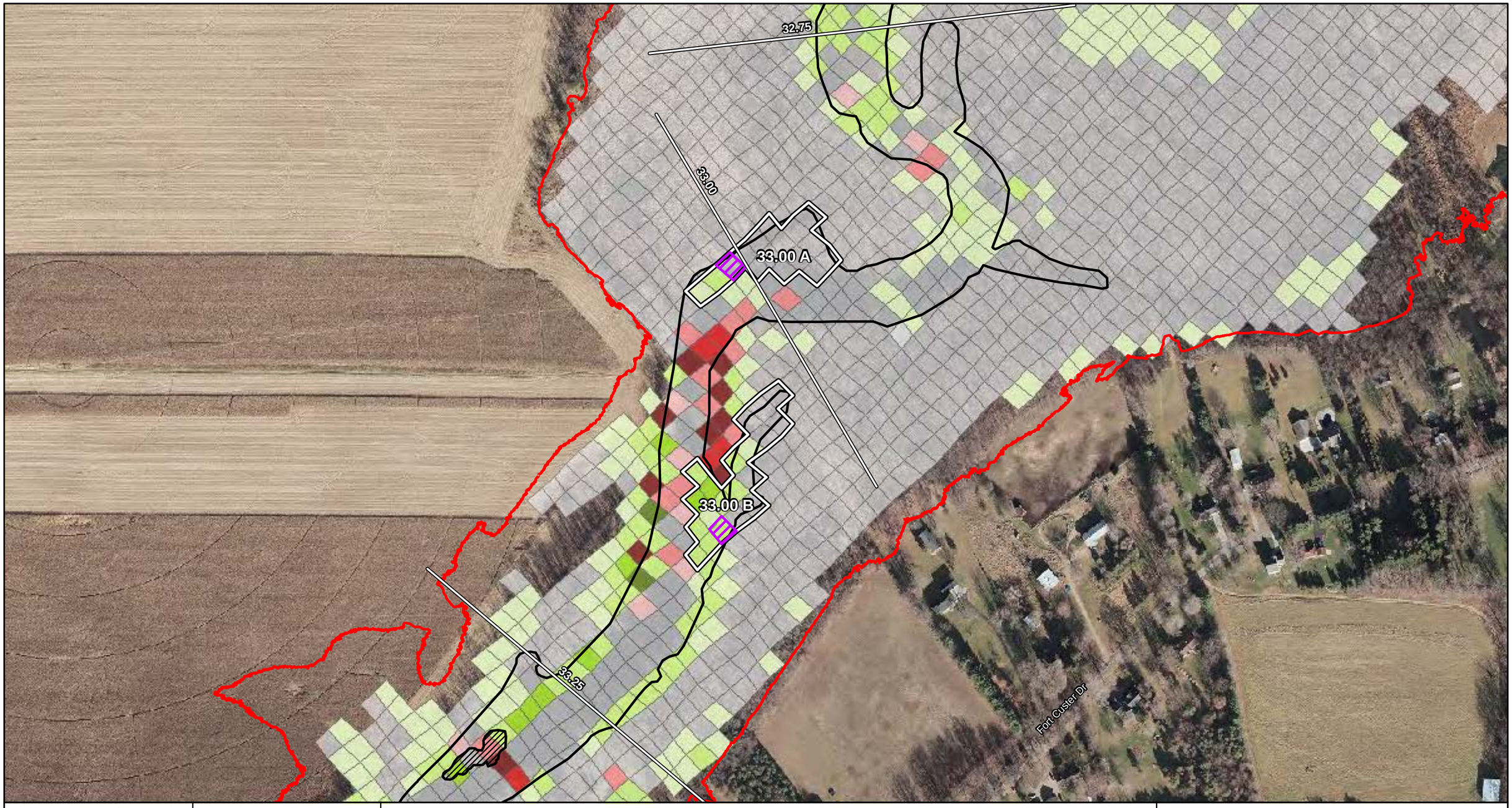
FIGURE 2m-20
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 75% ALTERNATE STRUCTURE
28.25 RDB

SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-20.mxd

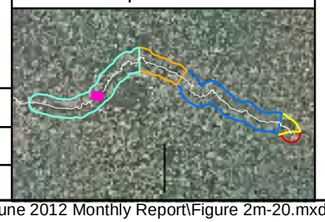
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Sedimentation Rate (mm/week)

Cells with Net Change in Silt or Clay Mass

- >10.00 mm/week erosion
- 5.00 - 10.00 mm/week erosion
- 1.00 - 5.00 mm/week erosion
- 0.10 - 1.00 mm/week erosion

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 mm/week deposition
- 1.00 - 5.00 mm/week deposition
- 5.00 - 10.00 mm/week deposition
- >10.00 mm/week deposition
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500

Scale in Feet

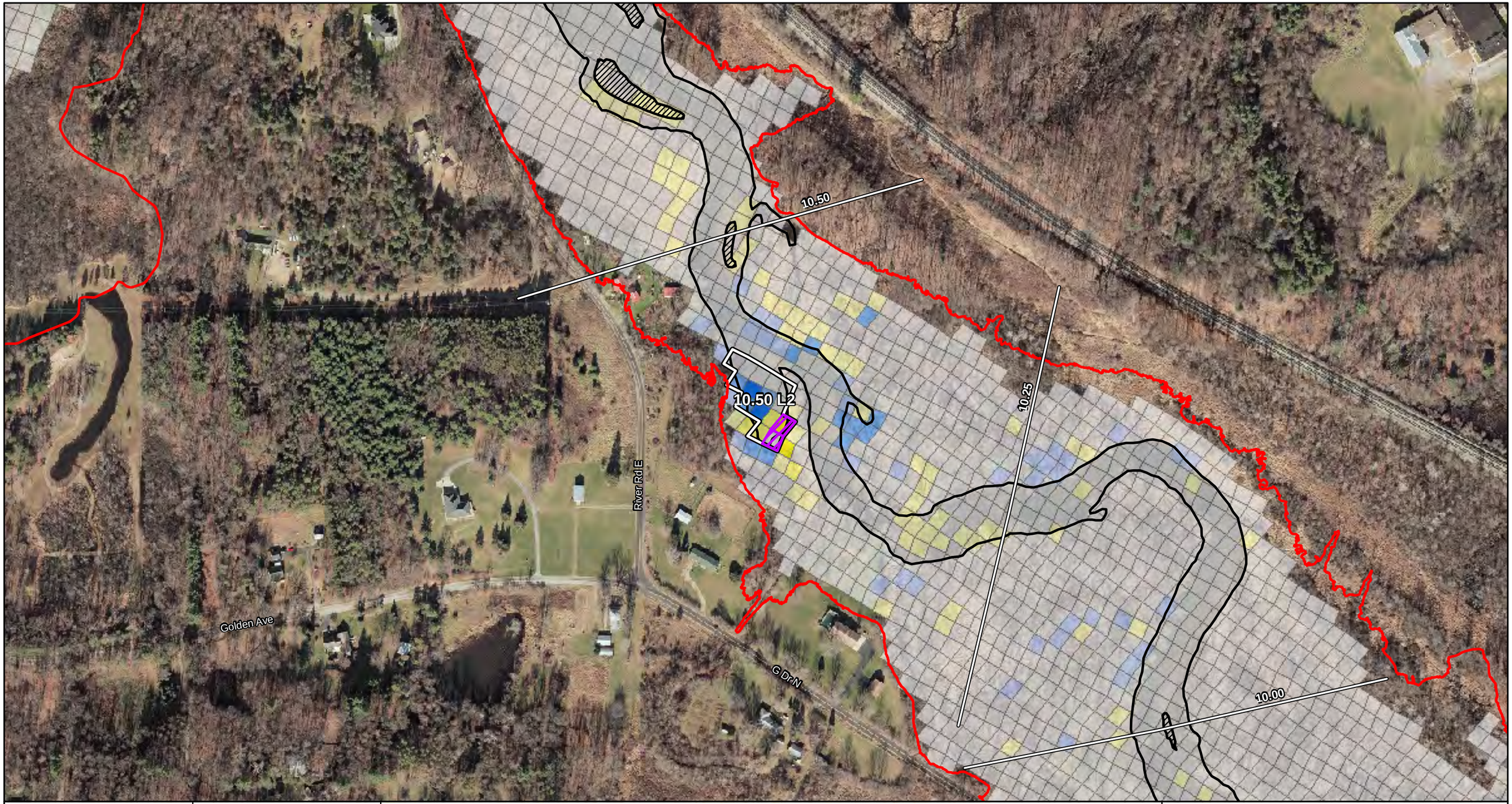
FIGURE 2m-20
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 - 75% ALTERNATE STRUCTURE
33.00 A & 33.00 B

SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-20.mxd

Aerial Photography Date: November 2011



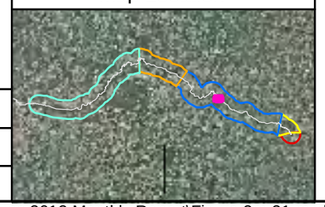
ENBRIDGE

Drawn: BRS 7/2/2012

Approved: DBR 7/2/2012

Project #: 106-4186

Map Location



Change in Sedimentation Rate (mm/week)

75% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

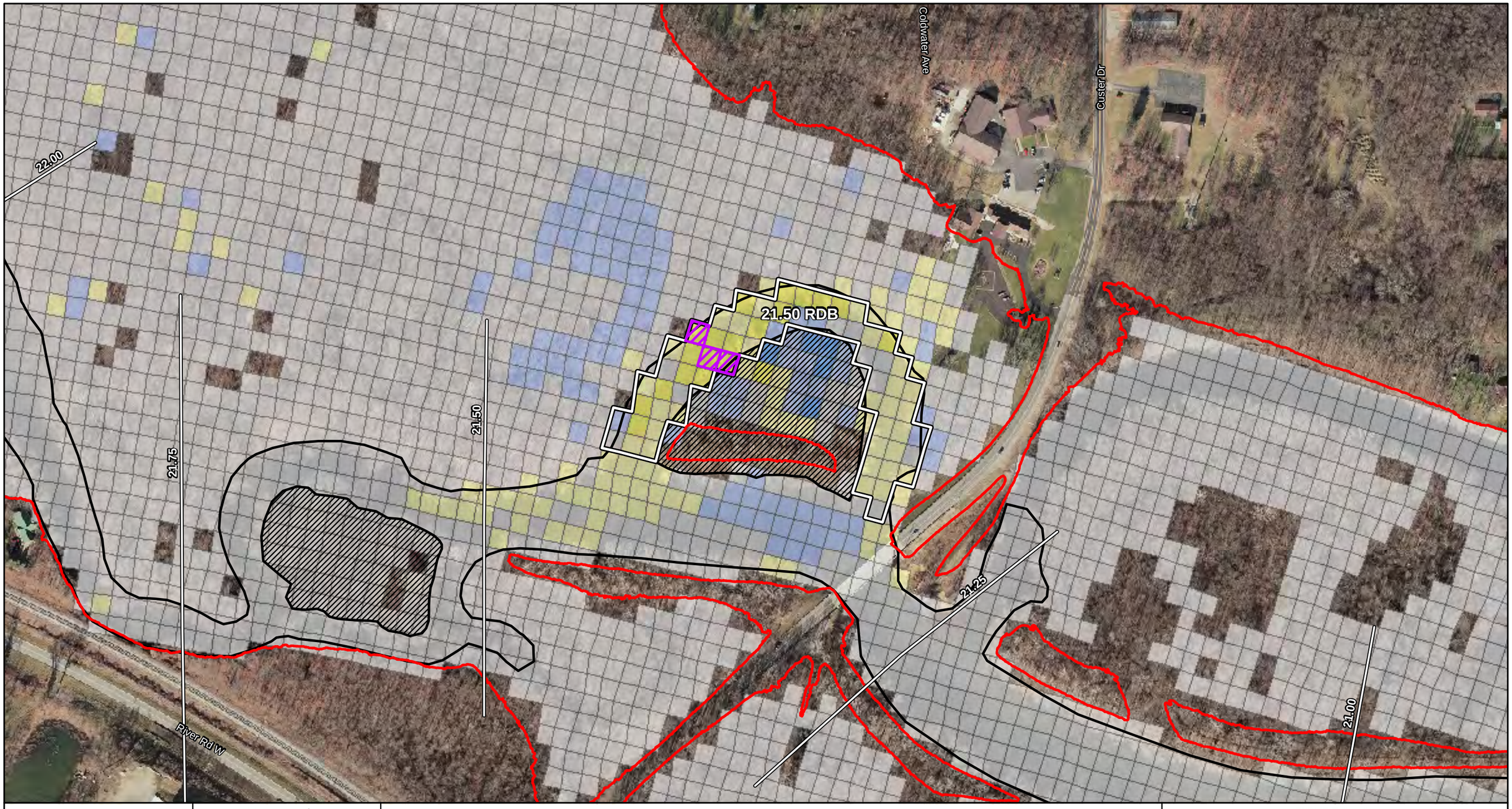
0 125 250 500

Scale in Feet

FIGURE 2m-21
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-21.mxd

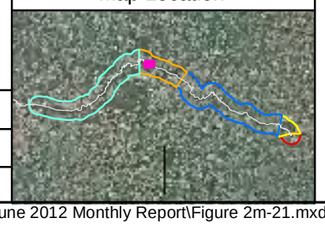
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)

75% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

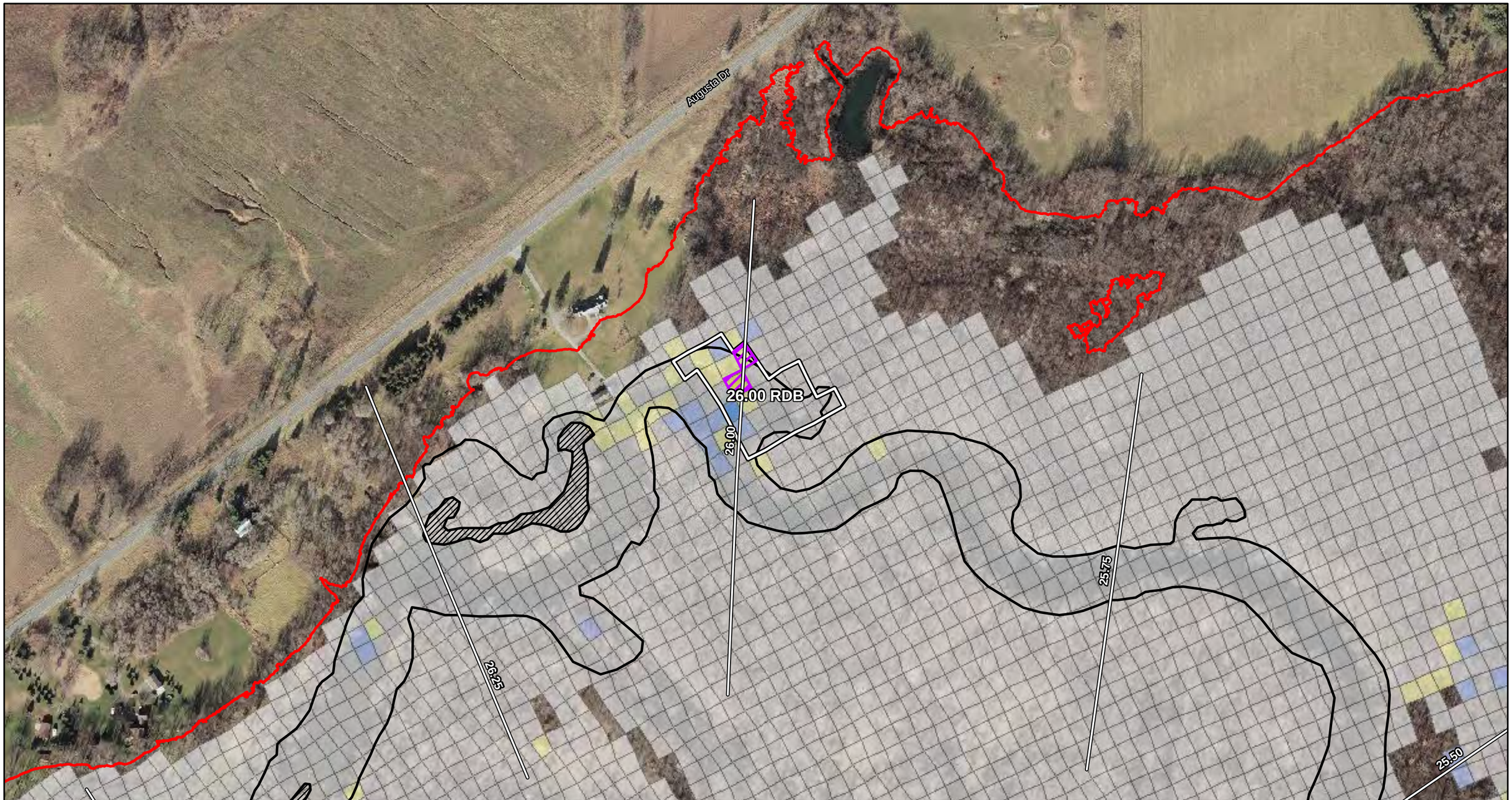
0 125 250 500

Scale in Feet

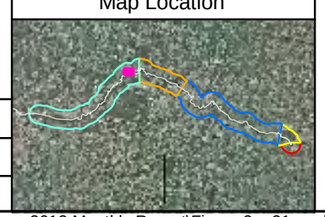
FIGURE 2m-21
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-21.mxd

Aerial Photography Date: November 2011



Map Location



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Change in Sedimentation Rate (mm/week)

75% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

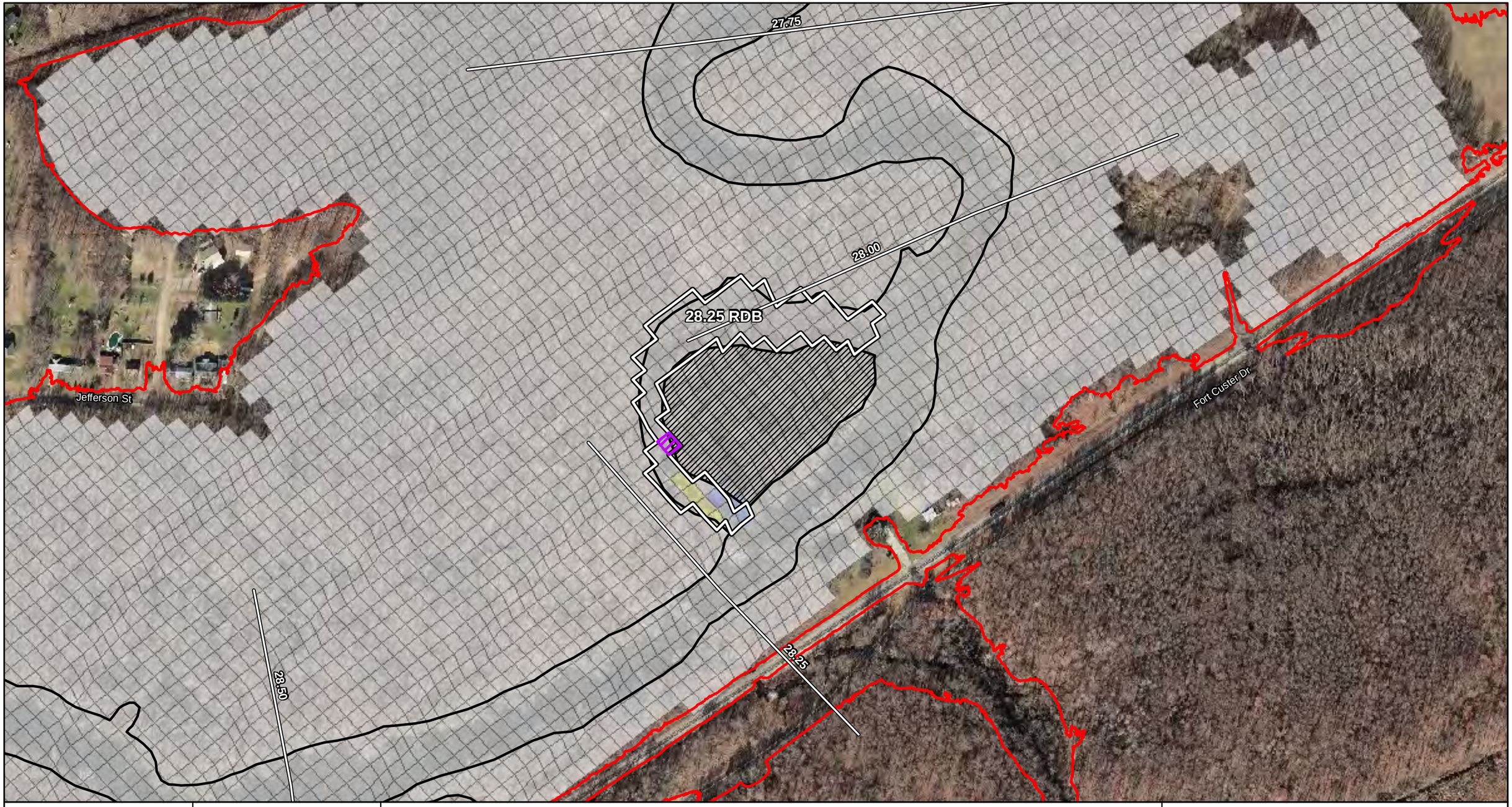
0 125 250 500

Scale in Feet

FIGURE 2m-21
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-21.mxd

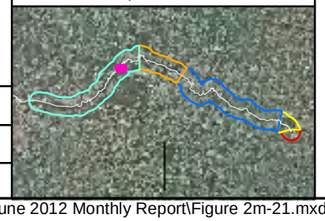
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)

75% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

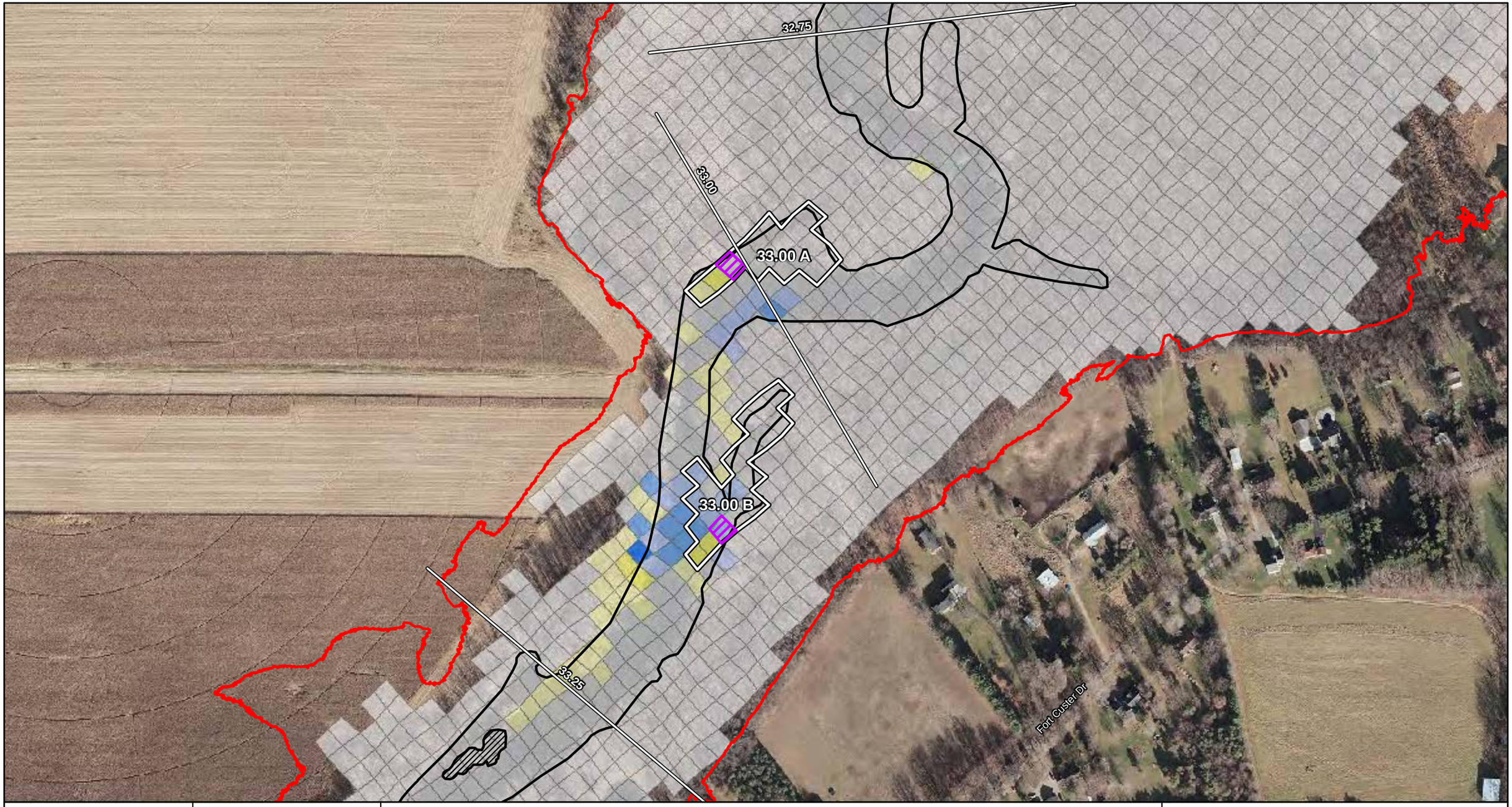
0 125 250 500

Scale in Feet

FIGURE 2m-21
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-21.mxd

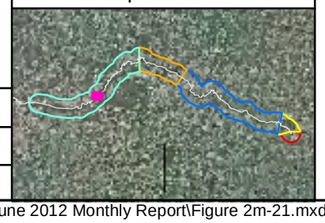
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)

75% Structures vs. No Structures - Alternate

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

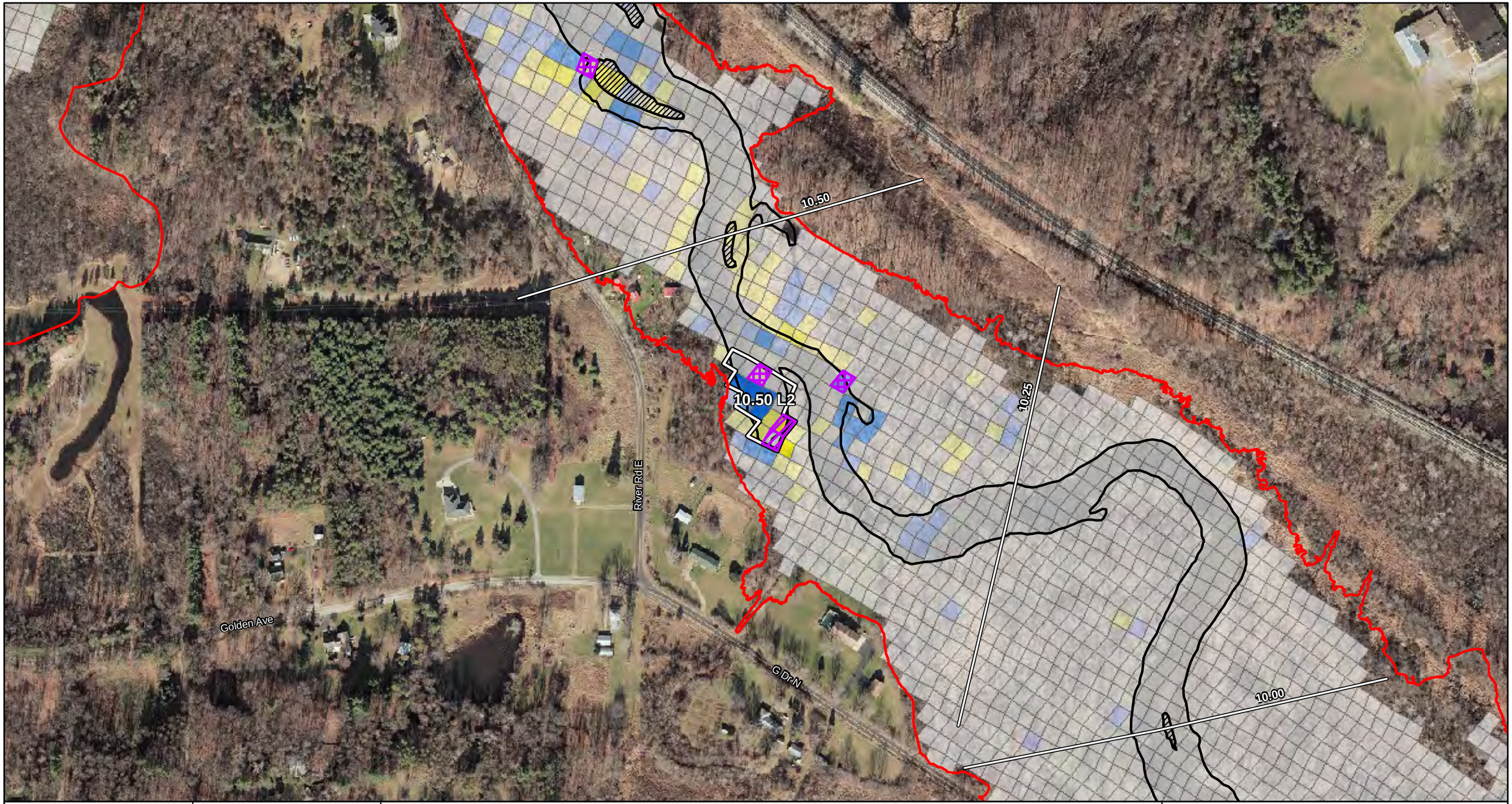
0 125 250 500

Scale in Feet

FIGURE 2m-21
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-21.mxd

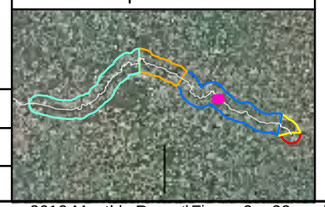
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
75% Alternate vs. 75% Original Structures
- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

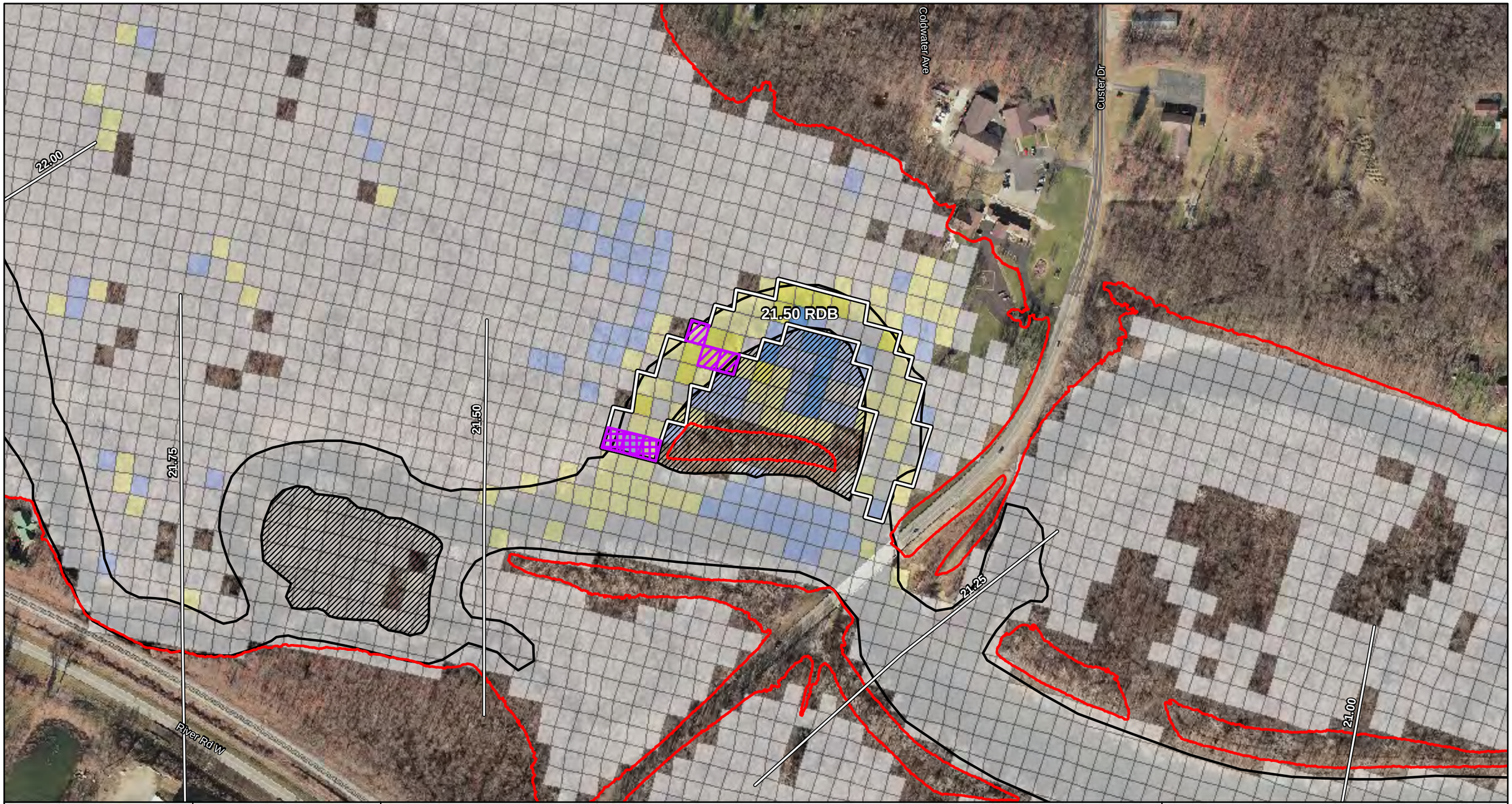
N

0 125 250 500
Scale in Feet

FIGURE 2m-22
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-22.mxd

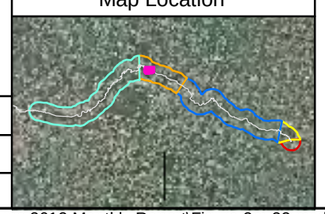
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
75% Alternate vs. 75% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

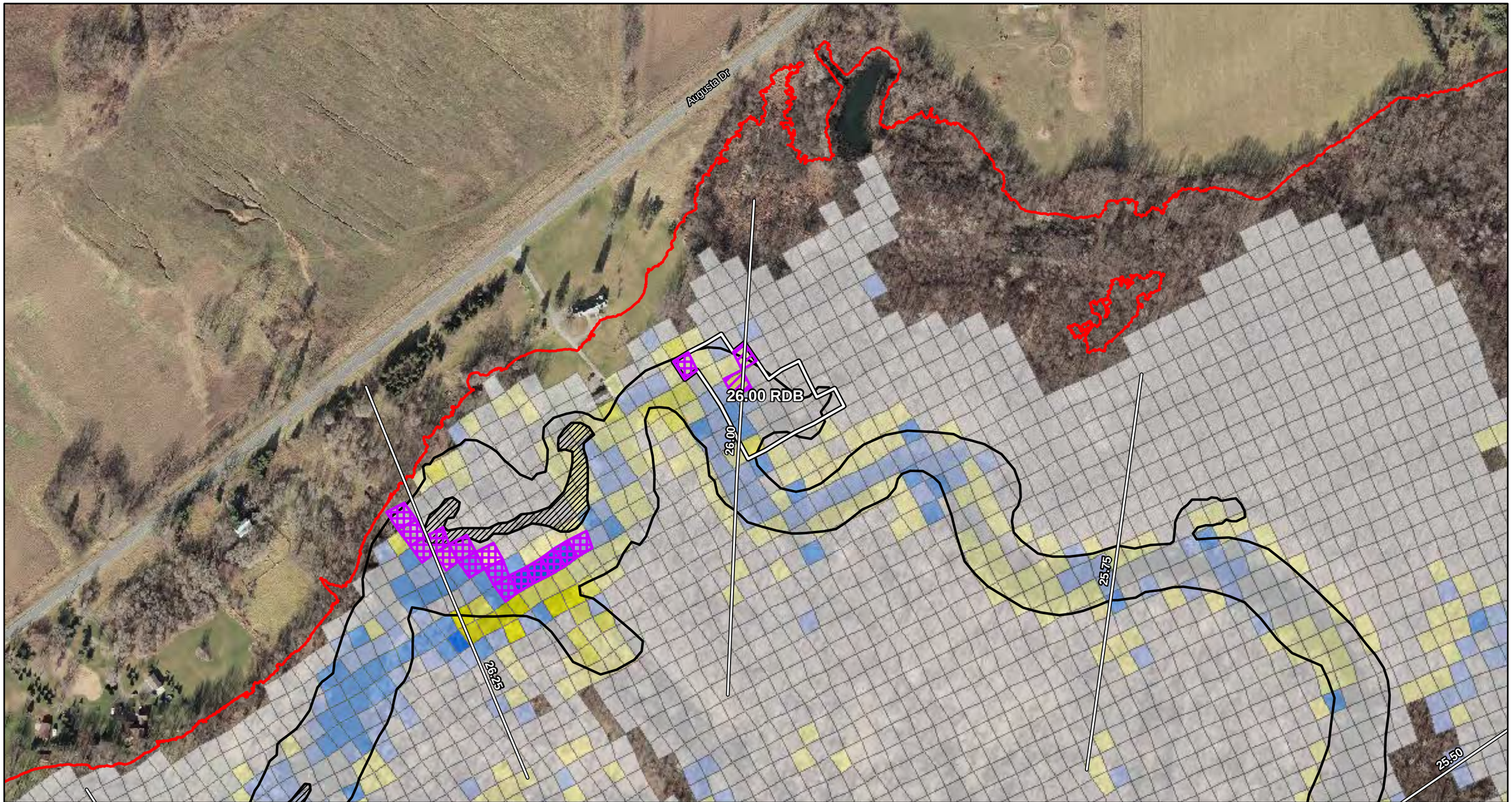
N

0 125 250 500
Scale in Feet

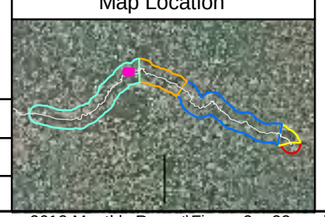
FIGURE 2m-22
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-22.mxd

Aerial Photography Date: November 2011



Map Location



Change in Sedimentation Rate (mm/week)
75% Alternate vs. 75% Original Structures
- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell

- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500
Scale in Feet

ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

FIGURE 2m-22
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-22.mxd

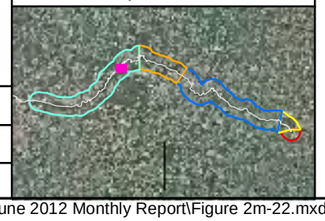
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
75% Alternate vs. 75% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

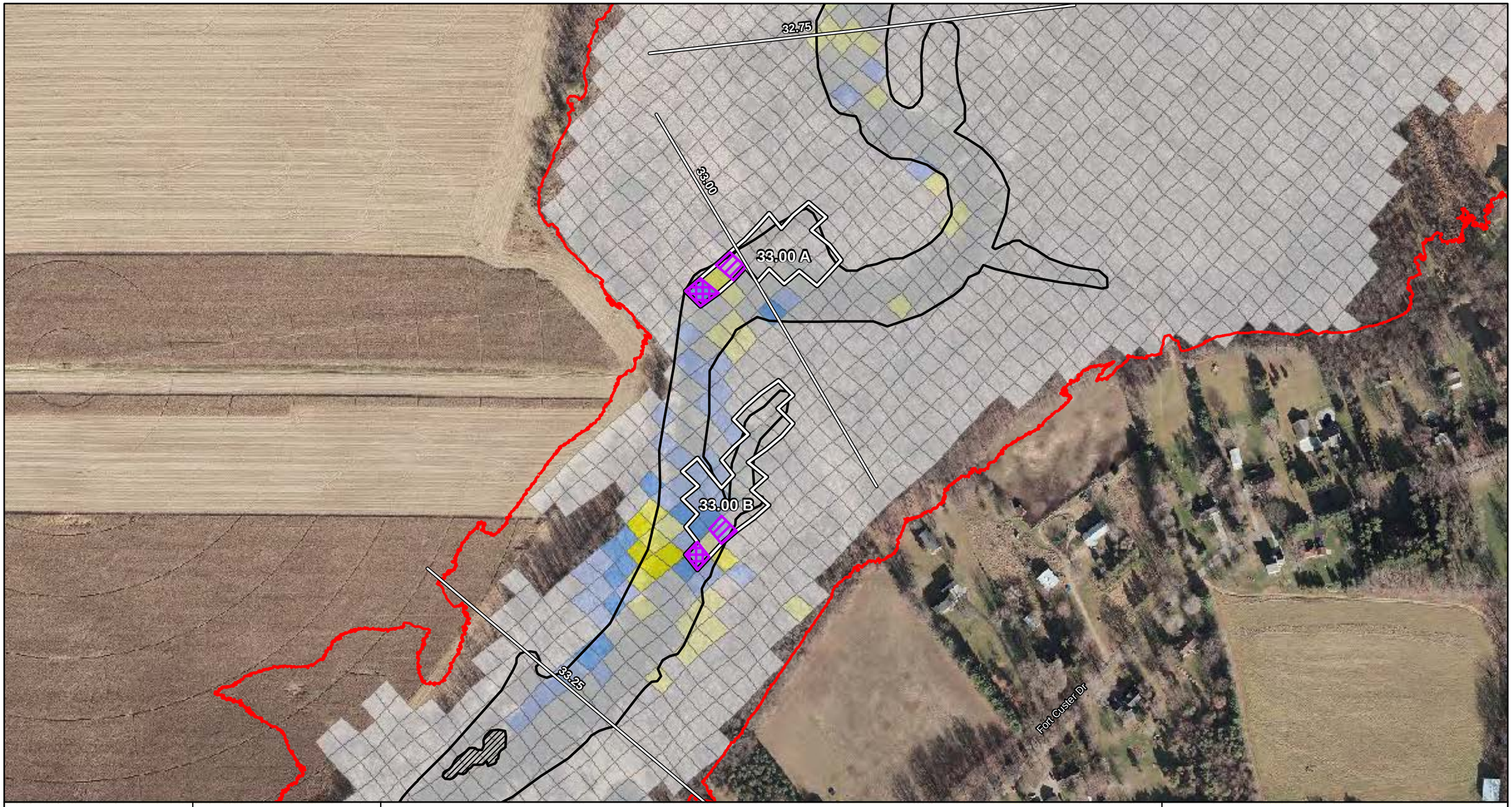
N

0 125 250 500
Scale in Feet

FIGURE 2m-22
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-22.mxd

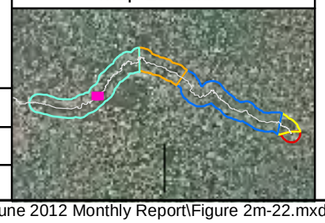
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Change in Sedimentation Rate (mm/week)
75% Alternate vs. 75% Original Structures

- >10.00 decrease in sedimentation
- 5.00 - 10.00 decrease in sedimentation
- 1.00 - 5.00 decrease in sedimentation
- 0.10 - 1.00 decrease in sedimentation

mm/week = Millimeters Per Week

- No Change
- 0.10 - 1.00 increase in sedimentation
- 1.00 - 5.00 increase in sedimentation
- 5.00 - 10.00 increase in sedimentation
- >10.00 increase in sedimentation
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

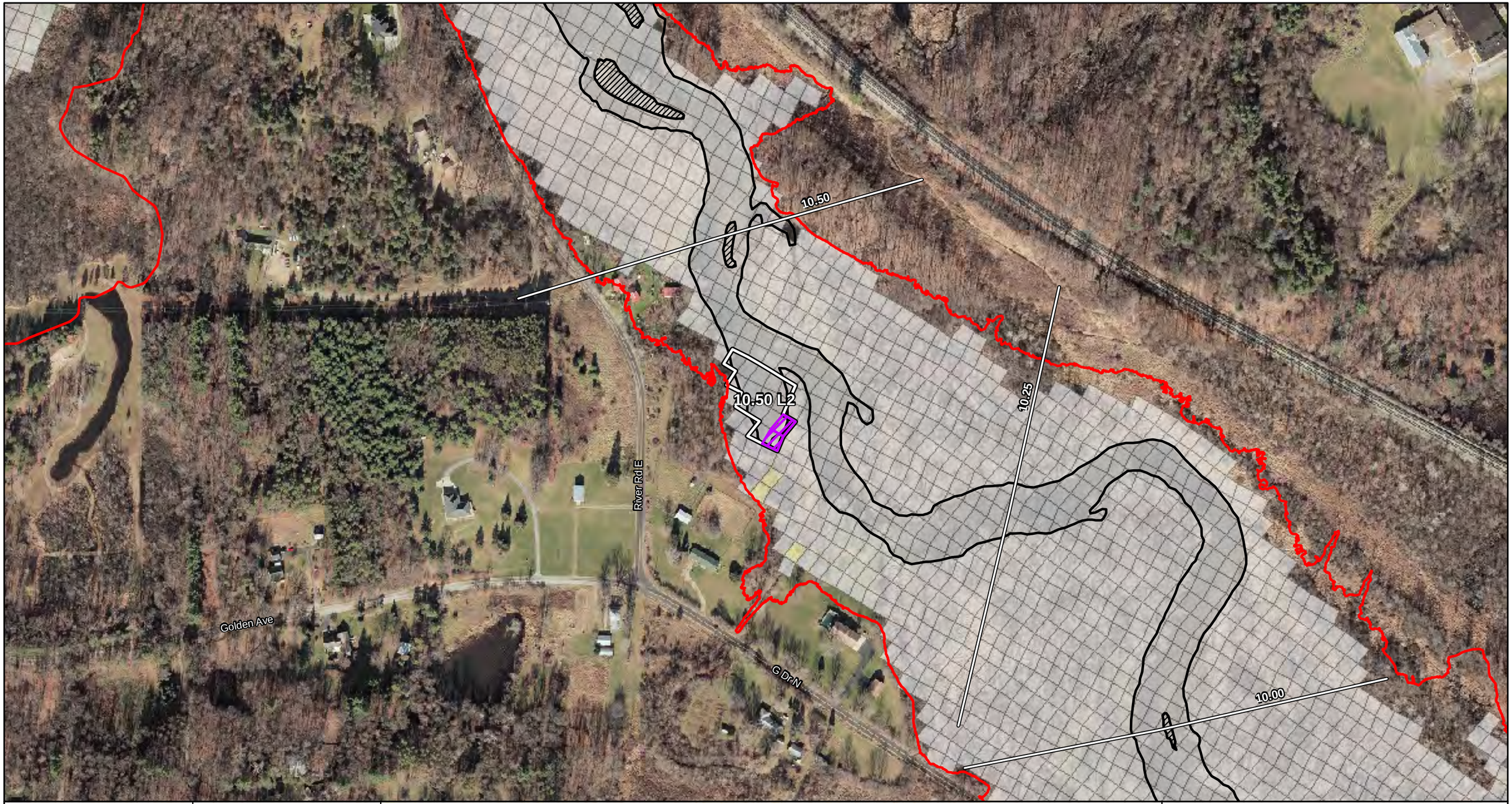
N

0 125 250 500
Scale in Feet

FIGURE 2m-22
FLOODPLAIN GRID: SEDIMENTATION RATE
CELLS WITH NET CHANGE IN SILT OR CLAY MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-22.mxd

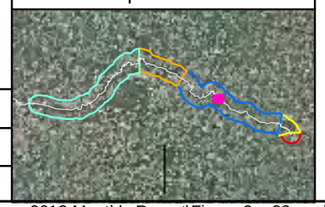
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Structures vs. No Structures

- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

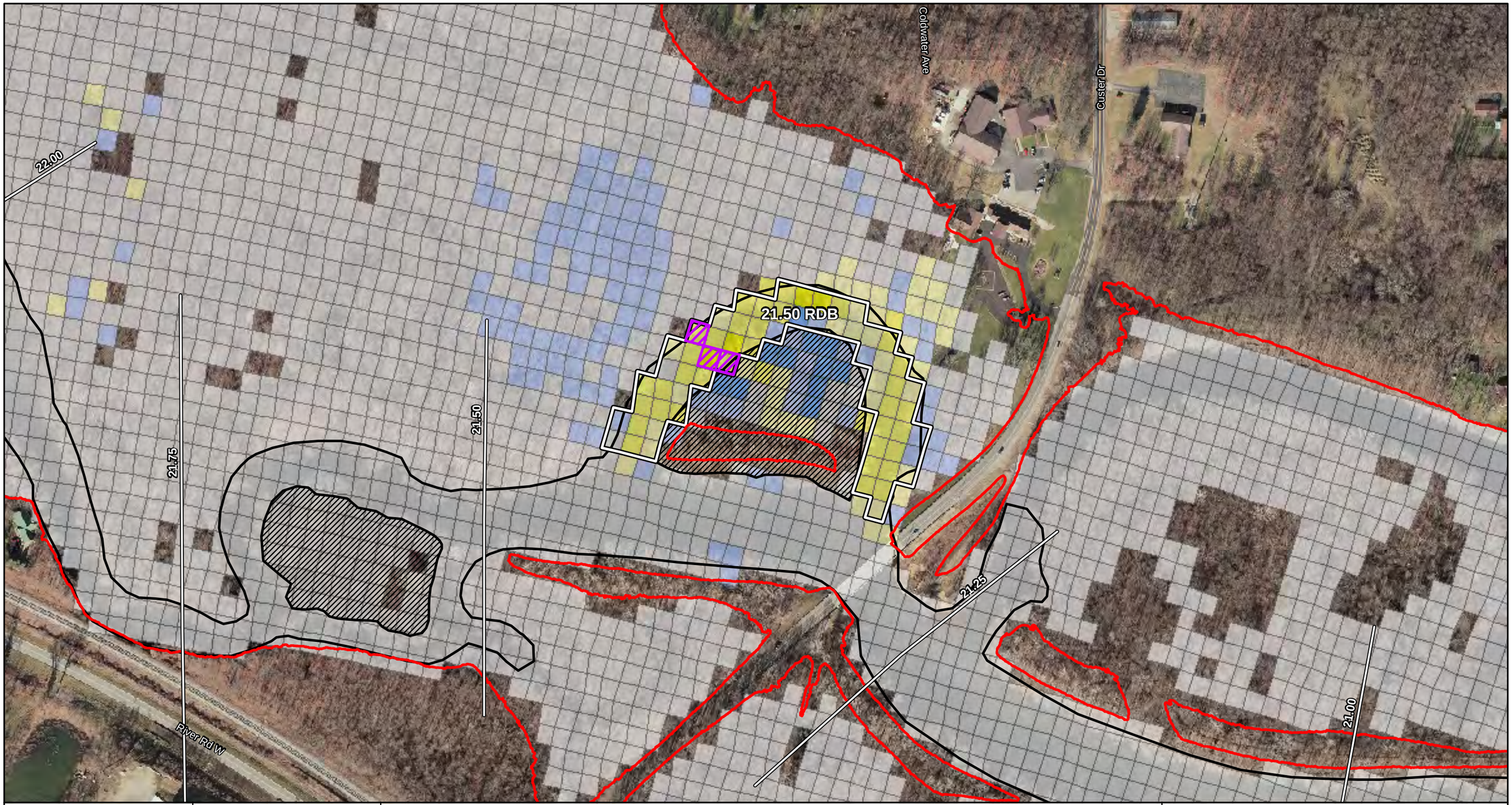
N

0 125 250 500
Scale in Feet

FIGURE 2m-23
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-23.mxd

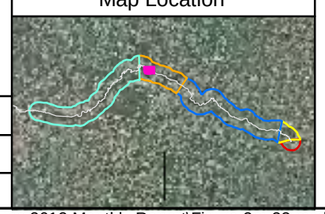
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Structures vs. No Structures

- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

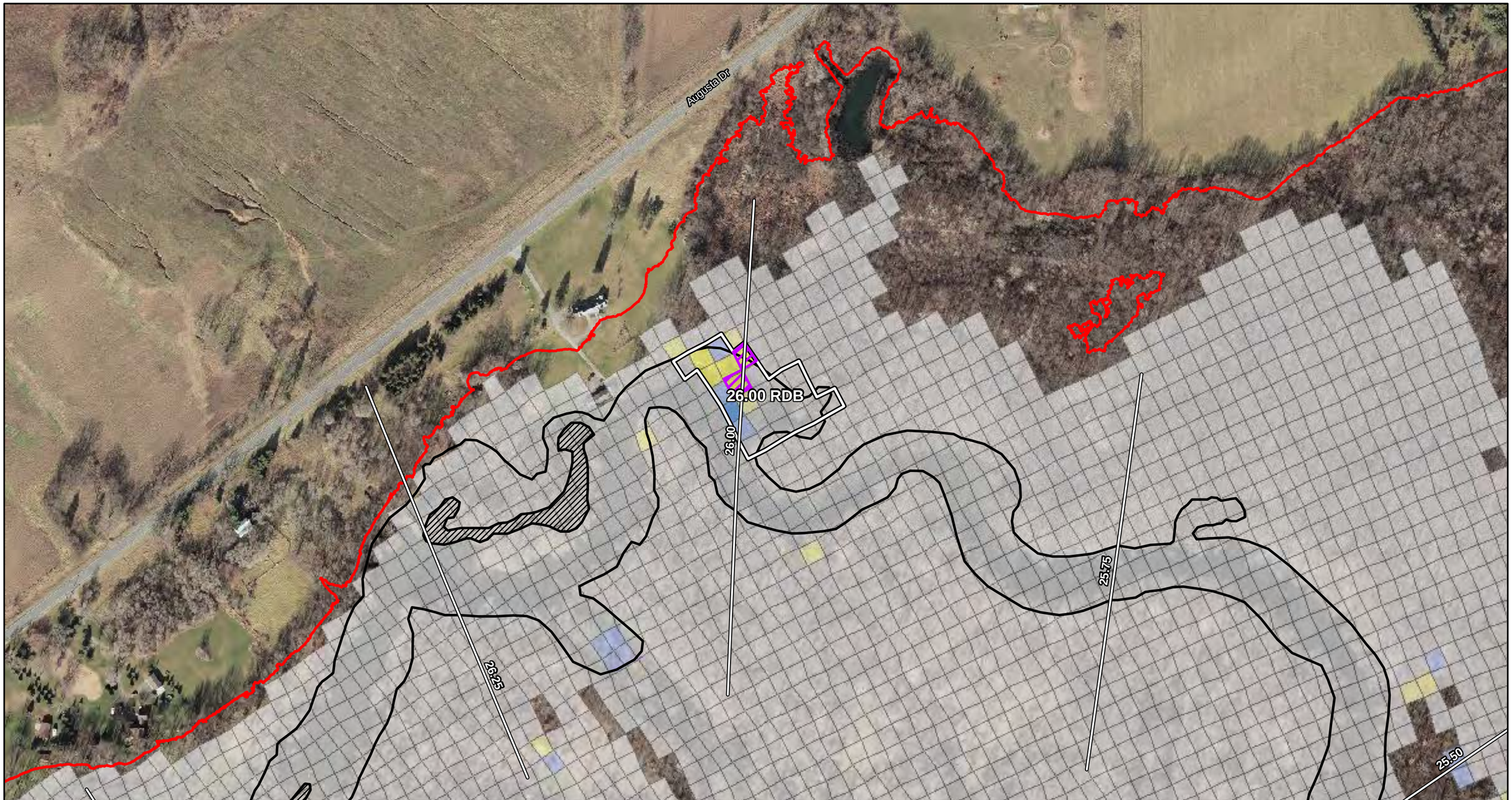
N

0 125 250 500
Scale in Feet

FIGURE 2m-23
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

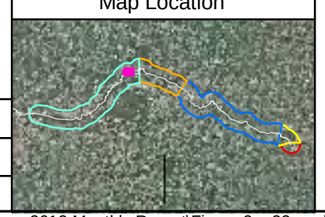
X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-23.mxd

Aerial Photography Date: November 2011



Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Structures vs. No Structures

- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500
Scale in Feet

FIGURE 2m-23
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-23.mxd

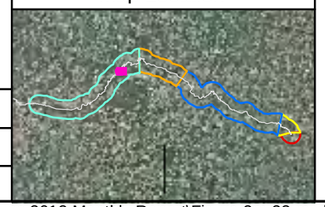
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Structures vs. No Structures

- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

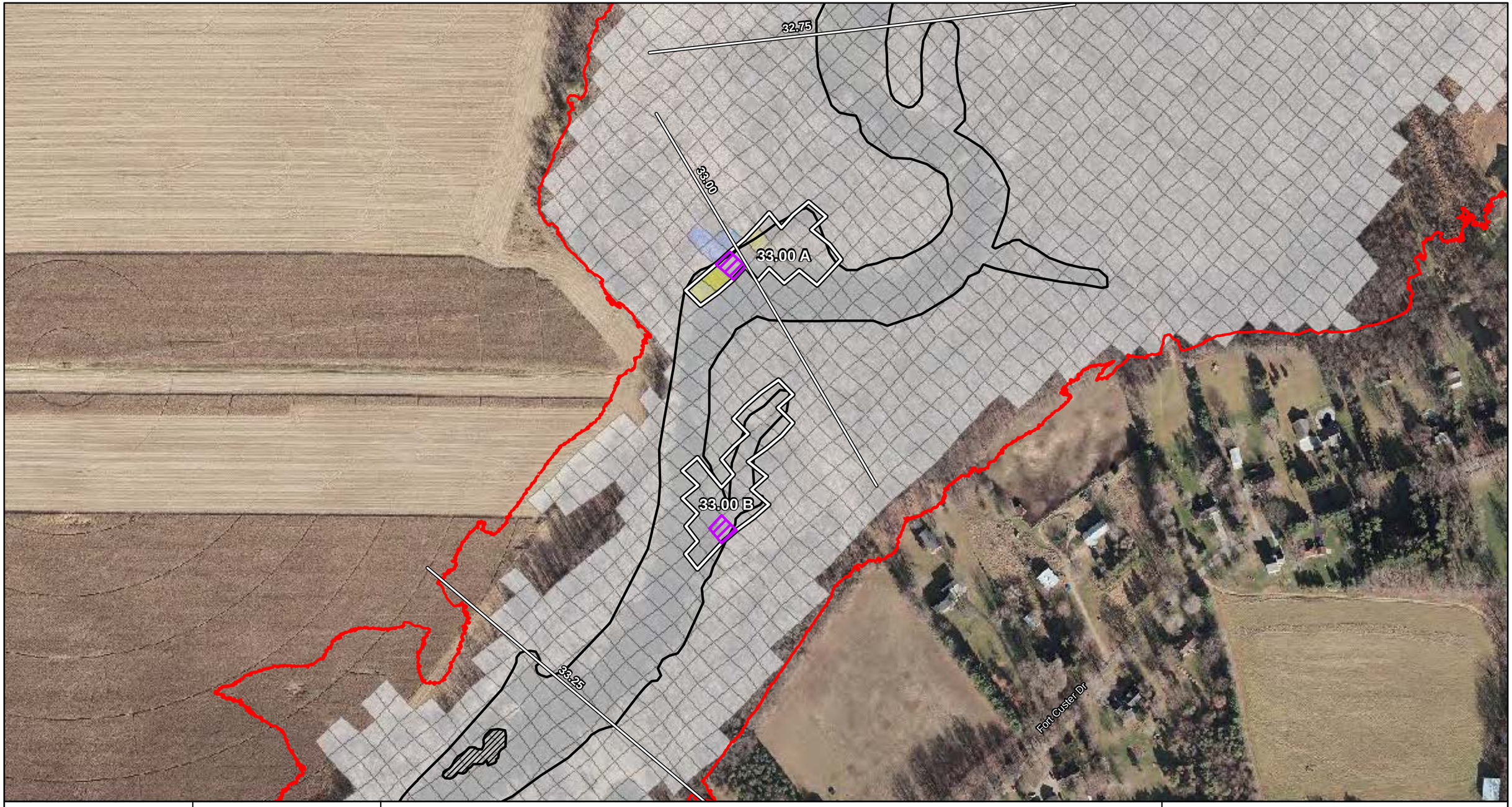
N

0 125 250 500
Scale in Feet

FIGURE 2m-23
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-23.mxd

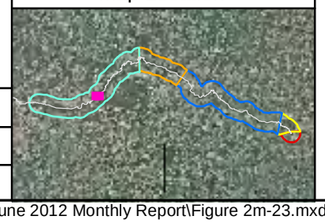
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Structures vs. No Structures
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain

- Christmas Tree Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

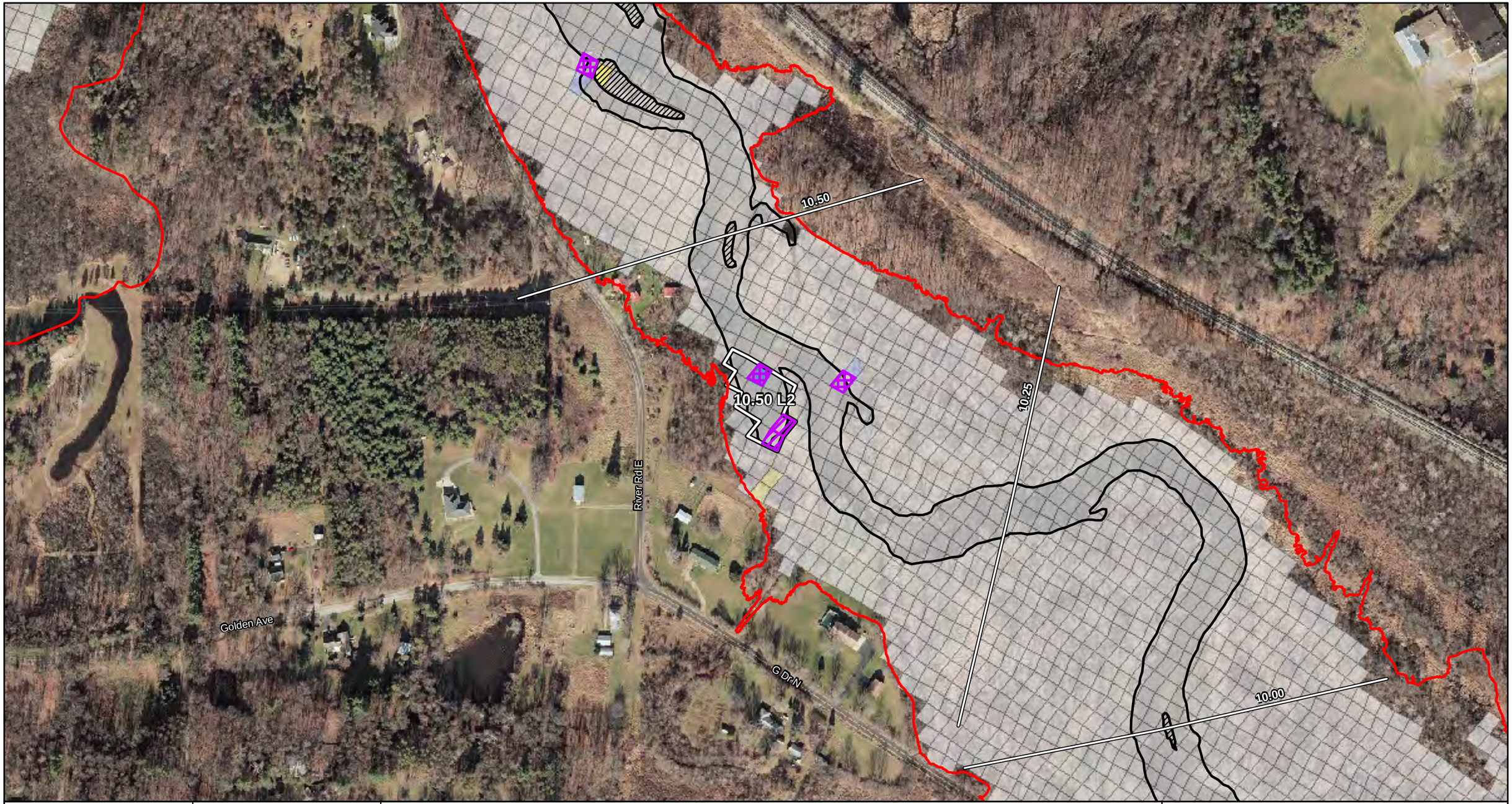
N

0 125 250 500
Scale in Feet

FIGURE 2m-23
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010 --- 75% VS. NO STRUCTURES
ALTERNATE CONFIGURATION
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-23.mxd

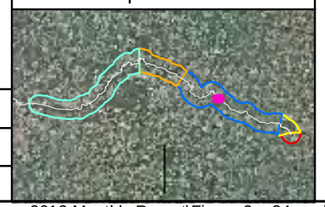
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Alternate vs. 75% Original Structures

- >10,000 decrease in net change
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- g/m2 = Grams Per Square Meter
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

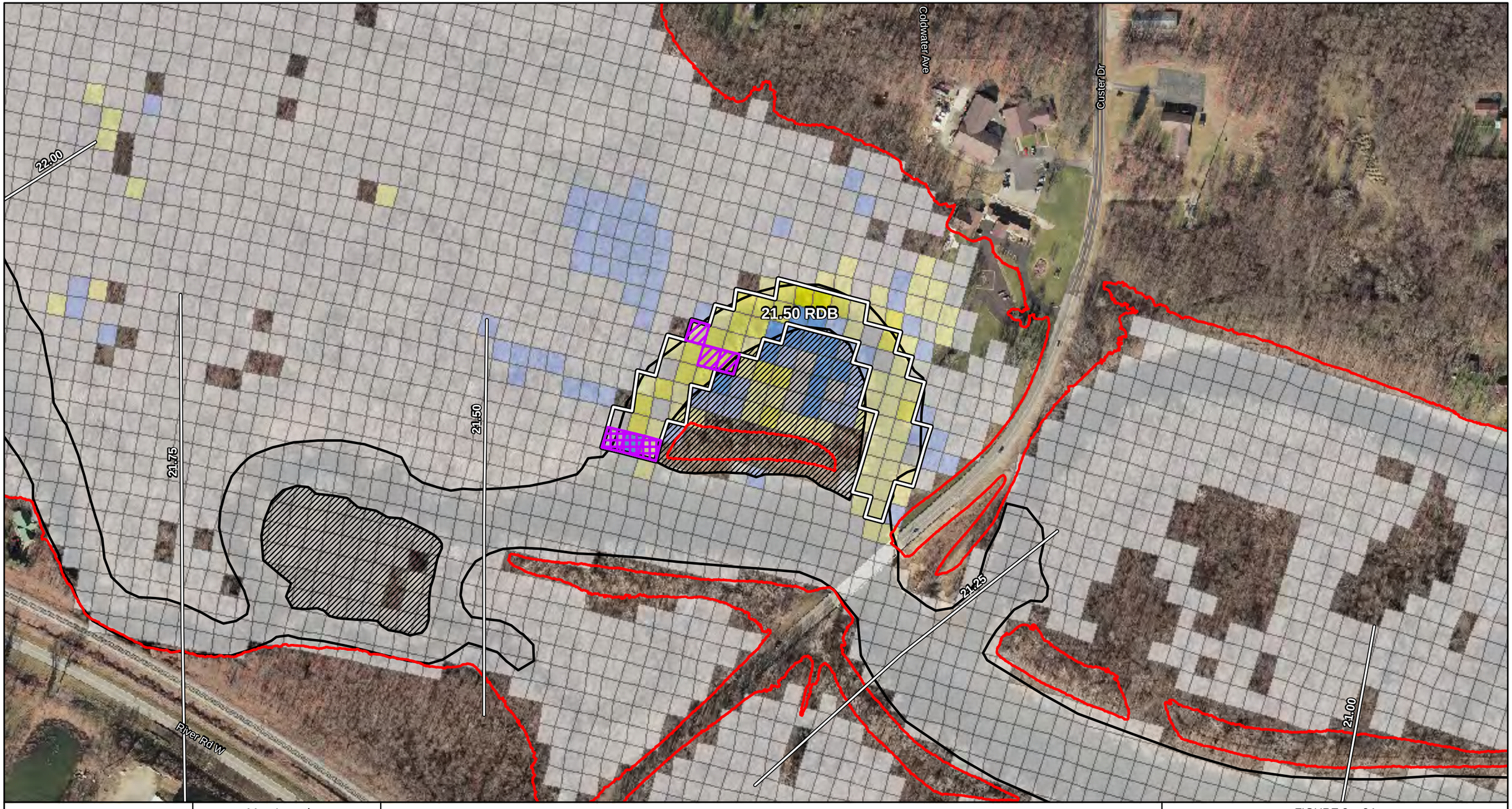
N

0 125 250 500
Scale in Feet

FIGURE 2m-24
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
10.50 L2
SHEET 1 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-24.mxd

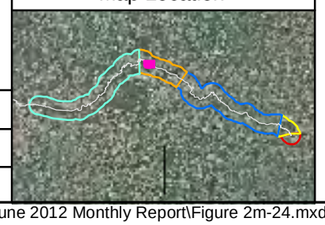
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Alternate vs. 75% Original Structures

- >10,000 decrease in net change
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change
- g/m2 = Grams Per Square Meter
- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

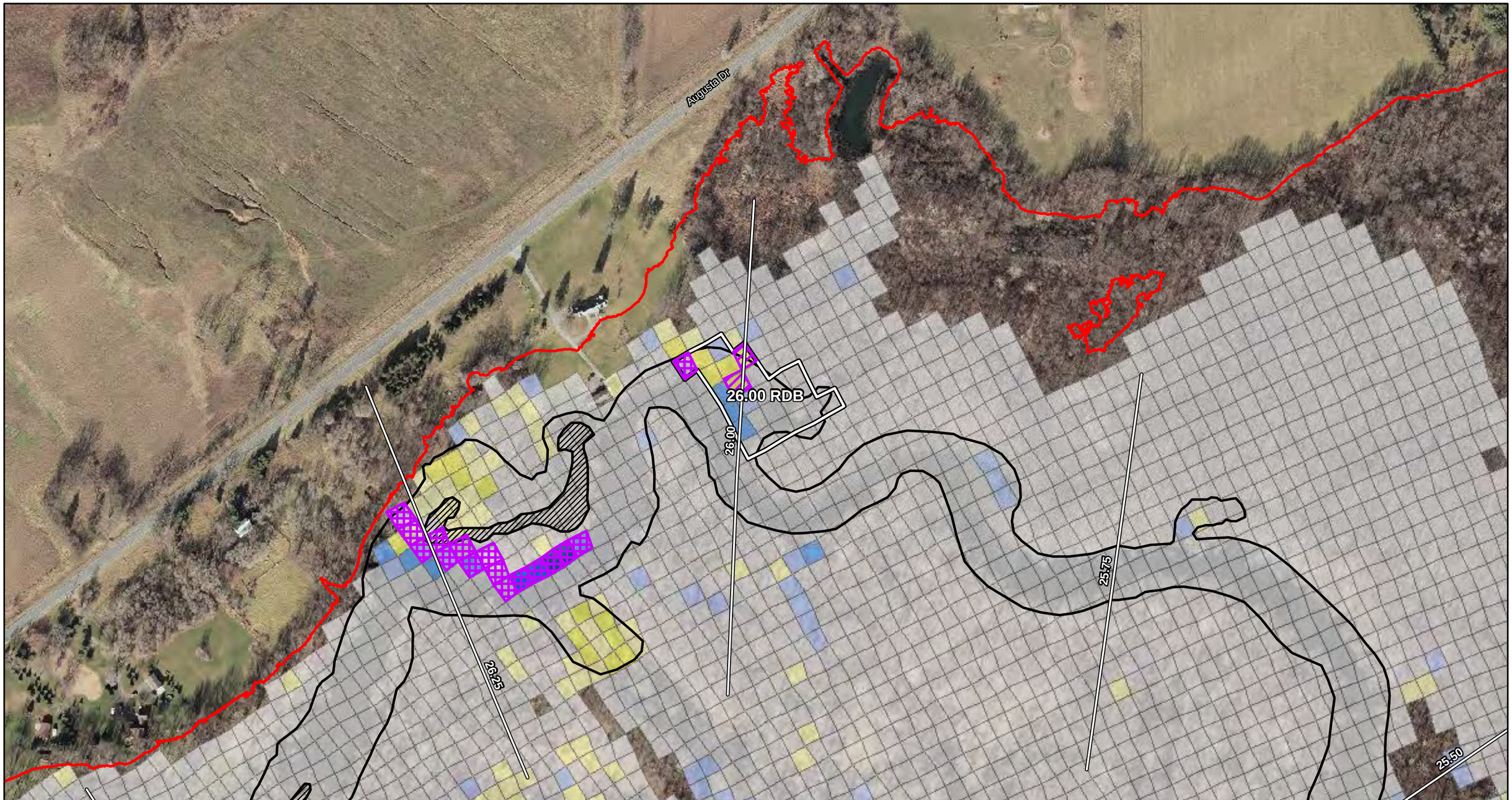
N

0 125 250 500
Scale in Feet

FIGURE 2m-24
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
21.50 RDB
SHEET 2 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

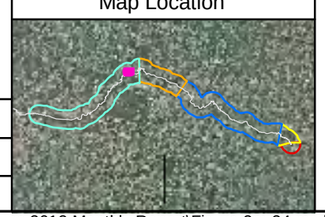
X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-24.mxd

Aerial Photography Date: November 2011



Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Alternate vs. 75% Original Structures
- >10,000 decrease in net change
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

N

0 125 250 500
Scale in Feet

FIGURE 2m-24
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
26.00 RDB
SHEET 3 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-24.mxd

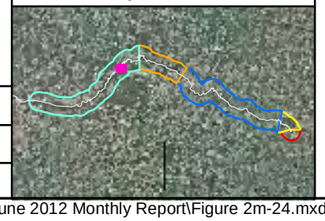
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Alternate vs. 75% Original Structures

- >10,000 decrease in net change
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

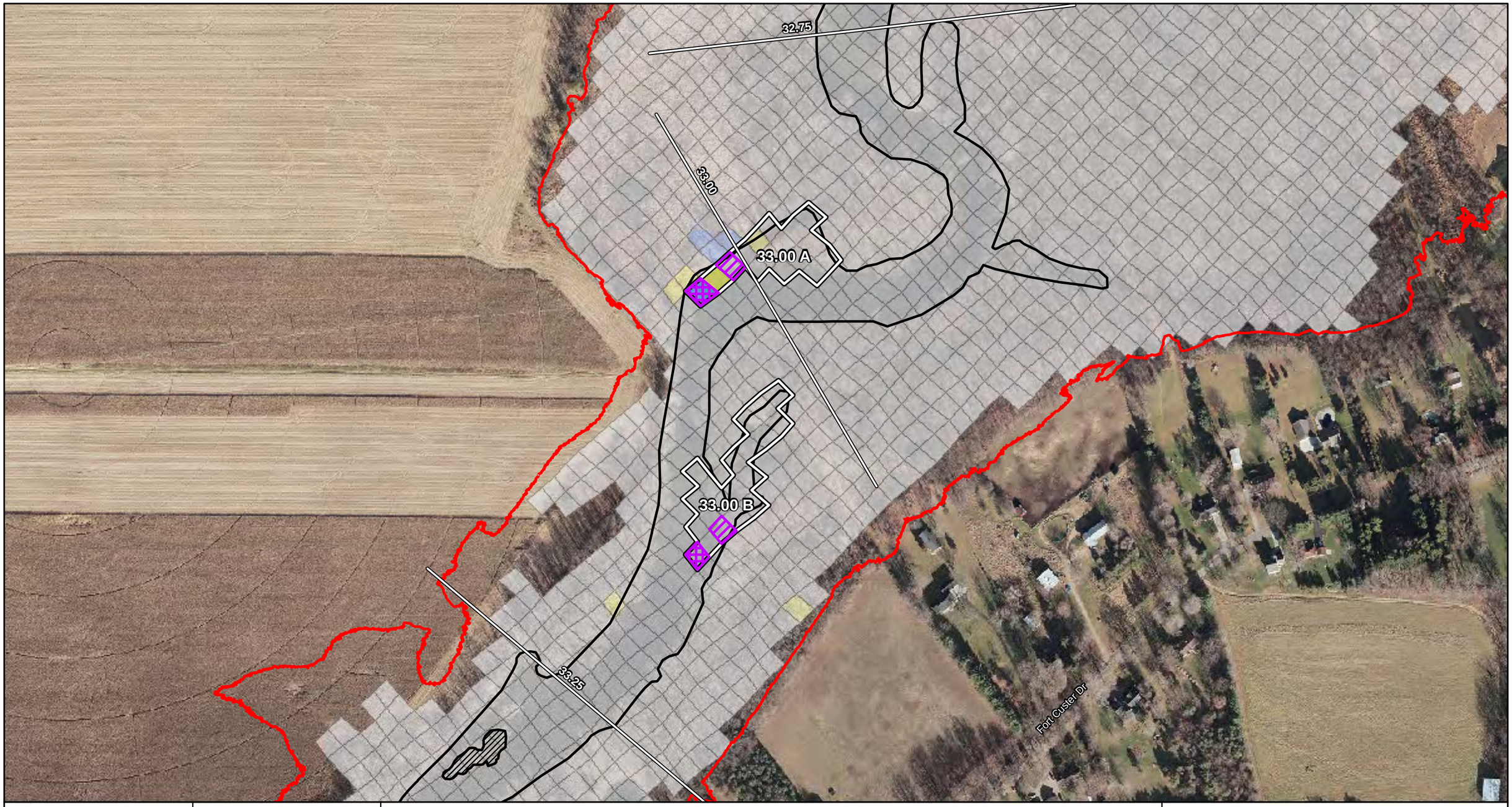
N

0 125 250 500
Scale in Feet

FIGURE 2m-24
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
28.25 RDB
SHEET 4 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-24.mxd

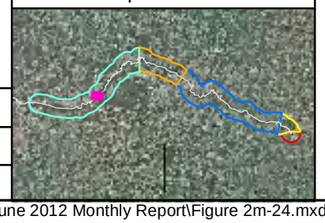
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/2/2012
Approved:	DBR 7/2/2012
Project #:	106-4186

Map Location



Difference in Net Change in Silt Mass (g/m2)
75% Alternate vs. 75% Original Structures
- >10,000 decrease in net change
- 5,000 - 10,000 decrease in net change
- 1,000 - 5,000 decrease in net change
- 100 - 1,000 decrease in net change

g/m2 = Grams Per Square Meter

- No Change
- 100 - 1,000 increase in net change
- 1,000 - 5,000 increase in net change
- 5,000 - 10,000 increase in net change
- >10,000 increase in net change
- HEC-RAS 100-Year Floodplain
- Original Structure Cell
- Alternate Structure Cell
- Sediment Trap Area
- Channel Bankline
- Island Bankline
- Quarter Mile Grid Segment

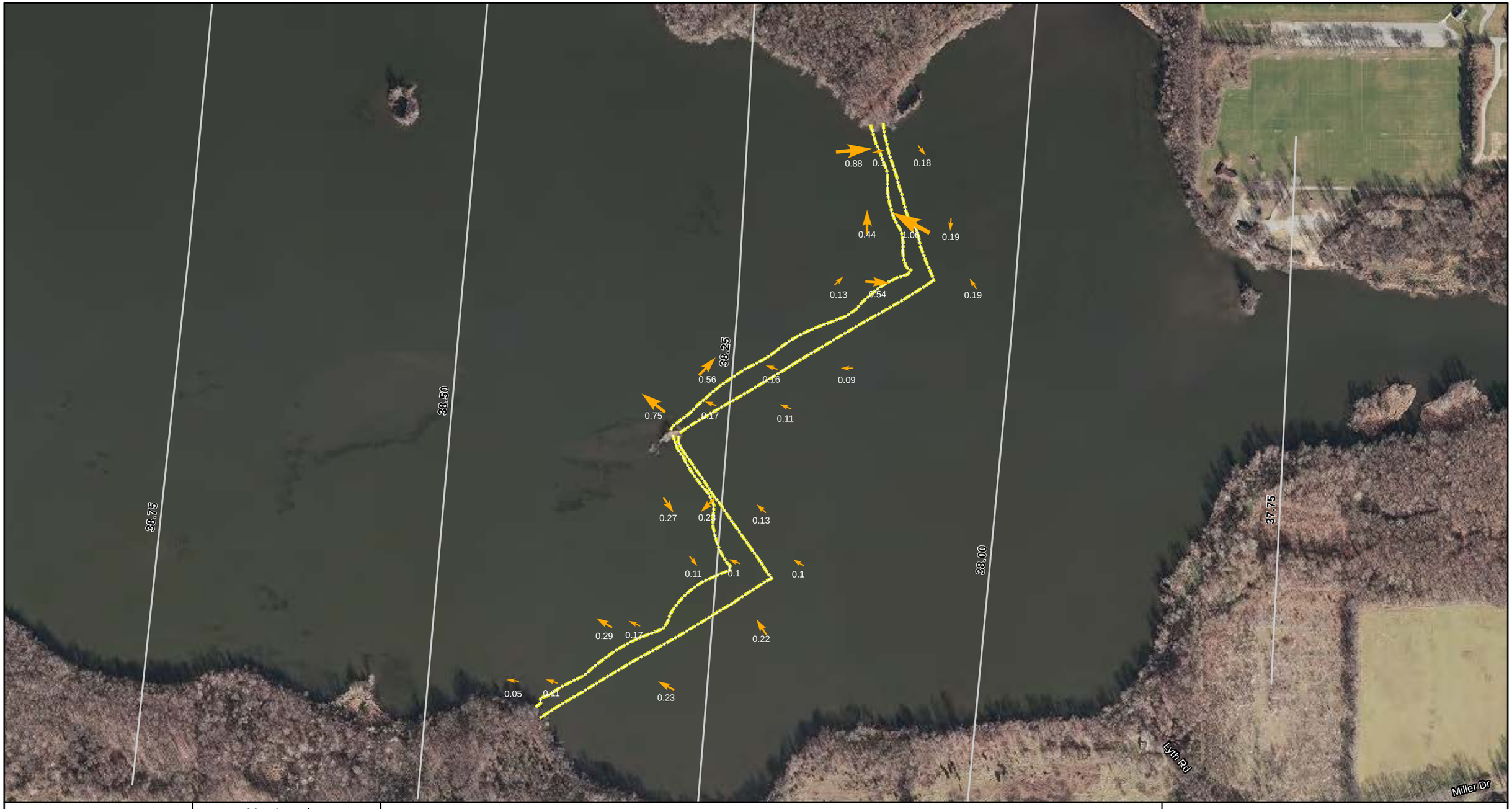
N

0 125 250 500
Scale in Feet

FIGURE 2m-24
FLOODPLAIN GRID
DIFFERENCE IN NET CHANGE IN SILT MASS
JULY 24 - JULY 31, 2010
75% ALTERNATE VS. 75% ORIGINAL STRUCTURES
33.00 A & 33.00 B
SHEET 5 OF 5
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-24.mxd

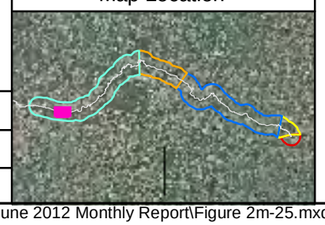
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.5 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

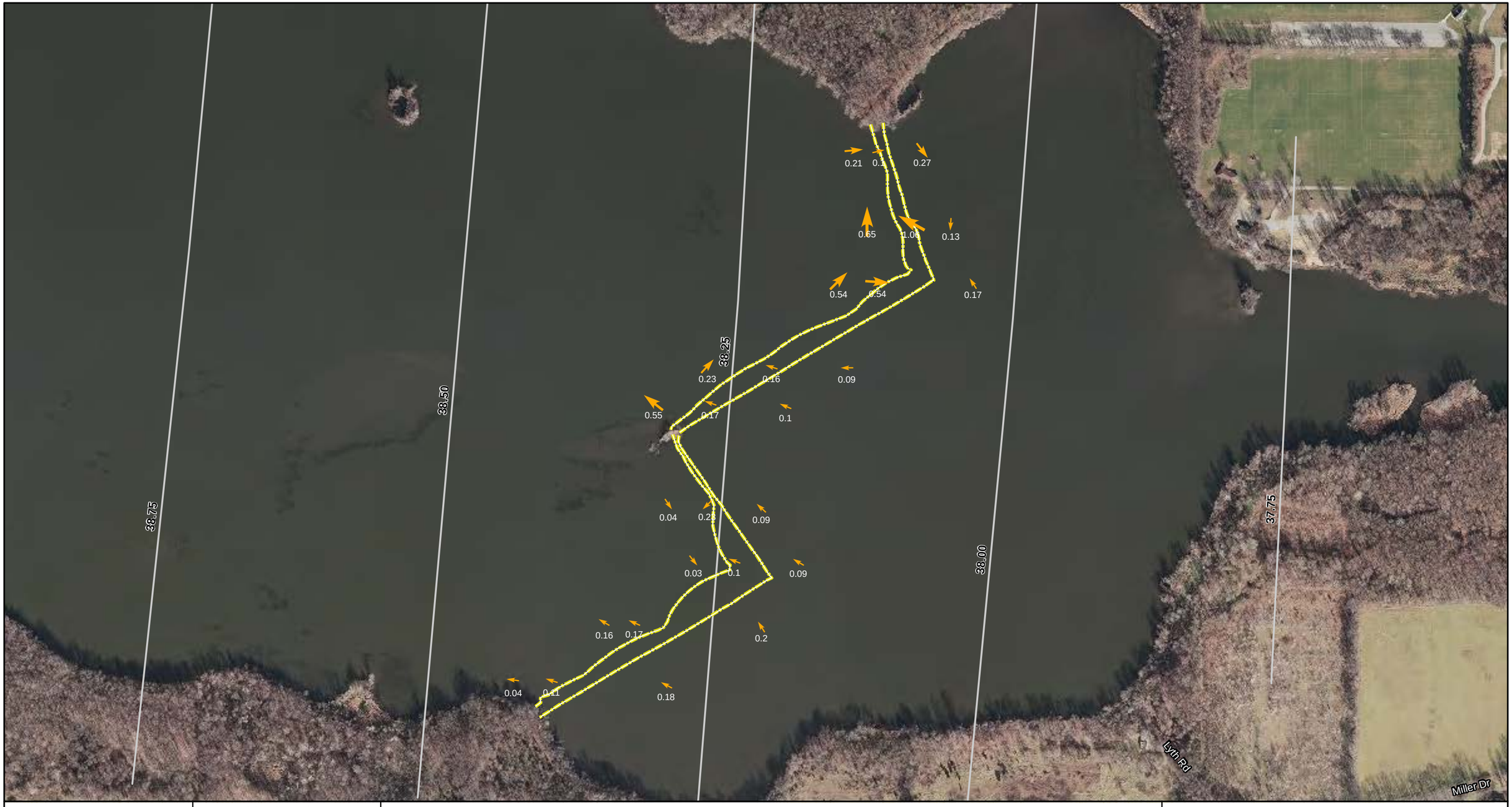
FIGURE 2m-25
VELOCITY PROFILES
1 FT DEPTH
JUNE 1 THROUGH JUNE 5, 2012

E4.5 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-25.mxd

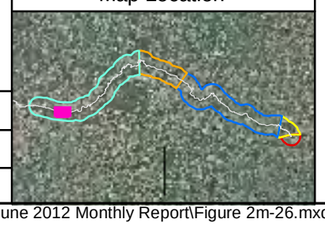
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.5 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-26
VELOCITY PROFILES
3 FT DEPTH
JUNE 1 THROUGH JUNE 5, 2012

E4.5 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-26.mxd

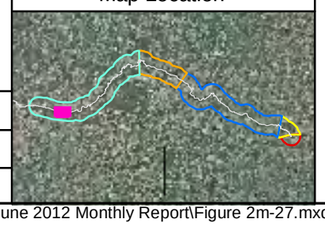
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- >1.0

2011 E4.5 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-27
VELOCITY PROFILES
1 FT DEPTH
JUNE 7, 2012

E4.5 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-27.mxd

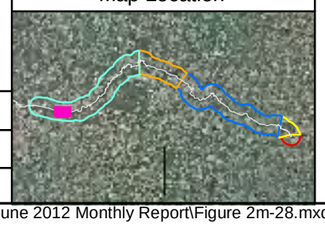
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.5 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-28
VELOCITY PROFILES
3 FT DEPTH
JUNE 7, 2012

E4.5 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-28.mxd

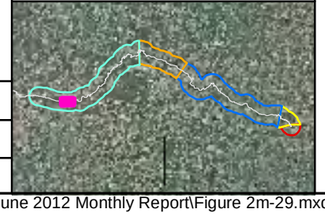
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-29
VELOCITY PROFILES
NEAR-SURFACE VELOCITY (TOP OF PROFILE)
JUNE 6, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-29.mxd

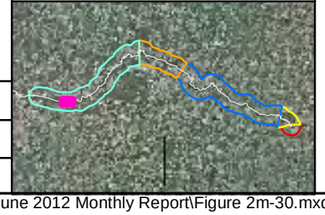
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-30
VELOCITY PROFILES
MID-DEPTH VELOCITY (MIDDLE OF PROFILE)
JUNE 6, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-30.mxd

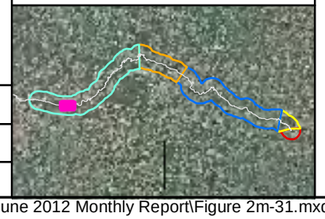
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-31
VELOCITY PROFILES
NEAR-BED VELOCITY (BOTTOM OF PROFILE)
JUNE 6, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-31.mxd

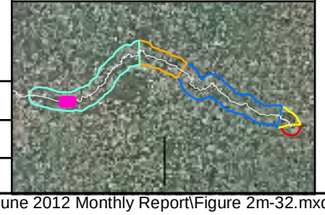
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-32
VELOCITY PROFILES
NEAR-SURFACE VELOCITY (TOP OF PROFILE)
JUNE 15, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-32.mxd

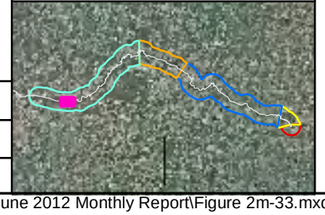
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-33
VELOCITY PROFILES
MID-DEPTH VELOCITY (MIDDLE OF PROFILE)
JUNE 15, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-33.mxd

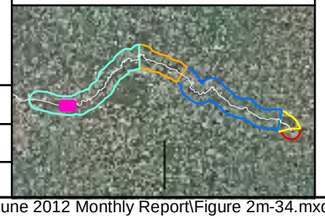
Aerial Photography Date: November 2011



ENBRIDGE

Drawn:	BRS 7/5/2012
Approved:	DBR 7/5/2012
Project #:	106-4186

Map Location



Legend

Velocity (ft/sec)

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0

2011 E4.0 Boom Location

Quarter Mile Grid Segment

N

0 225 450 900

Scale in Feet

FIGURE 2m-34
VELOCITY PROFILES
NEAR-BED VELOCITY (BOTTOM OF PROFILE)
JUNE 15, 2012

E4.0 CONTROL POINT LOCATION

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

X:\ArcMap Project Files\Report Maps\June 2012 Monthly Report\Figure 2m-34.mxd

Aerial Photography Date: November 2011

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/04/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 01, 2012; 0700
	Position:	Incident Commander	To:	June 02, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Near Misses

Most safety incidents occur as a result of an unsafe condition or unsafe action coming together with a person. The end result is the person gets injured.

Often unsafe acts or unsafe conditions have several misfires and the result is a near miss. The only difference between a near miss and an incident is chance. All near misses need to be taken seriously

- Near misses are injuries without people.
- Near misses are not funny; they are often deadly.
- Always report a near miss.
- Take immediate action to prevent a similar near miss.
- If you did not cause a near miss but saw it, report it. You may be saving a life.

Remember: Near misses are warnings that something or someone is not performing the job correctly. Don't let near misses repeat themselves or you may find yourself or a co-worker being treated for an injury that could have been avoided.

Safety Items for June 1st: There are no issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place.

Waste Management (John Wallace):

Decon: No activities.

T&D: A drum of soil was hauled into FTC from C3.2 AECOM and disposed of in pile #136. A roll-off of MSW was hauled to C&C landfill for disposal.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for the situational awareness group. Sheen Sweep: E4/Delta: Two boats swept all day 124' snare used. Ceresco to MP 5.25: 80' snare use. MP 36.25: 25' snare used. MP 26.25: 14' snare used. MP 28.25: 14' snare used. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 26 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 3 bags of debris. MP 37.75 (E4.0): Recovered 7 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. Collected eight (8) sediment samples from walling tube samplers. Samples were submitted to ALPHA labs. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected five (5) soil samples from MP 11.50L. Collected five (5) sediment samples from MP 11.50L. MP 32.25 LDB – Howard ERO site- Installed turf grass seed, C-125BN erosion control blanket and 10 bales of straw to complete restoration of the subject site. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. Conducted rain event monitoring trip # 3 on Talmadge Creek. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Segment 2 Primer submitted for agency approval. Continue development of segment 9 Primer. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/04/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 02, 2012; 0700
	Position:	Incident Commander	To:	June 04, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Near Misses

Most safety incidents occur as a result of an unsafe condition or unsafe action coming together with a person. The end result is the person gets injured.

Often unsafe acts or unsafe conditions have several misfires and the result is a near miss. The only difference between a near miss and an incident is chance. All near misses need to be taken seriously

- Near misses are injuries without people.
- Near misses are not funny; they are often deadly.
- Always report a near miss.
- Take immediate action to prevent a similar near miss.
- If you did not cause a near miss but saw it, report it. You may be saving a life.

Remember: Near misses are warnings that something or someone is not performing the job correctly. Don't let near misses repeat themselves or you may find yourself or a co-worker being treated for an injury that could have been avoided.

Safety Items for June 2nd:

Near Miss – SET boat operator drove too close to a tree limb while transporting a MDEQ poling observer. The near miss was reported to Ted Blackburn who forwarded the report to Enbridge Safety.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place.

Waste Management (John Wallace):

Decon: No activities.

T&D: No activities.

Waste Management Characterization: No activities.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 8 boats for the poling crews. Provided 1 boat for the situational awareness group. Provided 1 boat for the Walling Samplers reinstallation. Sheen Sweep: E4/Delta: Two boats swept all day 78' snare used. Ceresco to MP 5.25: 42' snare used. MP 26.25: 10' snare used. MP 26.65: 10' snare used. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 23 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 4 bags of debris. MP 37.75 (E4.0): Recovered 9 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: No activities. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: No activities. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/05/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 04, 2012; 0700
	Position:	Incident Commander	To:	June 05, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Insect Repellent

With the increase in temperatures, the numbers of mosquitos and ticks are increasing. It is important to be protected by using a repellant that contains DEET (always follow the instructions on the product label).

- Cover exposed skin or clothing. Do not apply repellant under clothing.
- Do not apply repellent to cuts, wounds, or irritated skin.
- Wash treated skin with soap and water after returning indoors.
- Do not spray aerosol or pump products in enclosed areas.
- Do not apply aerosol or pump products directly to the face. Spray hands and then rub them carefully over the face, avoiding the eyes and mouth. Do not forget the ears.

Safety Items for June 4th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place.

Waste Management (John Wallace):

Decon: No activities.

T&D: Water was hauled in to FTC from Superior and disposed of in cell A/B sump.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for the situational awareness group. MP 21.5: Green 3' containment boom was adjusted. Sheen Sweep: E4/Delta: Two boats swept all day 54' snare used. Ceresco to MP 5.25: 48' snare used. MP 15.0: 20' snare used. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 147 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 5 bags of debris. MP 37.75 (E4.0): Recovered 8 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. Collected thirteen (13) sediment samples from walling tube samplers. Samples were submitted to ALPHA labs. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected two (2) soil samples from MP 11.50L. Collected ten (10) soil samples from MP 12.00L. Collected one (1) groundwater sample from MP 12.00L. Collected two (2) soil samples from MP 12.25L. MP 32.25 LDB – Howard ERO site- Placed additional supplemental large woody debris along the extent of the reconstructed bank and installed six 8' posts in the river to secure woody material in place at the downstream end of the site. GPS located a dead fallen tree obstructing boat passage within the river near MP 11.25. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continue development of Segment 9 Primer. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214	
Kalamazoo River/Enbridge Spill Response	6/06/2012	12:00		
4. Unit Name/Designators	**5. Unit Leader**		**6. Operational Period : DATE/TIME**	
Enbridge Operations	**Name:**	John Sobojinski	**From:**	**June 05, 2012; 0700**
	Position:	Incident Commander	**To:**	**June 06, 2012; 0700**

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	**Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River**
Health and Safety Issues	**Safety & Security (Dale Gross)** **General Safety Message:** **Hydration** By the time one becomes thirsty, dehydration has already begun. This loss of body fluid can lead to progressively worse symptoms of dehydration: thirst, fatigue, weakness, delirium. Losing just 10% of body water can cause muscle spasms. A 20 % loss could lead to death as kidney failure can occur when blood cannot circulate properly. **Tips to prevent Dehydration:** ➢ Track how much water you consume. ➢ Carry a bottle of water around with you. ➢ Remember, caffeine acts as a diuretic; so caffeinated beverages can cause fluid loss. **Safety Items for June 5th:** No issues to report.
Activities / Comments	**Air Operations (Mark Fuller):** No flights took place. **Waste Management (John Wallace):** Decon: No activities. T&D: A drum of soil from C3.2 AECOM was hauled into FTC and disposed of in cell B pile#136. A roll-off box of oily debris from C0.4 was hauled to C&C landfill for disposal. Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for EPA tour in the Lake and Delta. Buoys: Two buoys installed at the 19.25 Sediment Trap BB127 and BB128. Sheen Sweep: E4/Delta: Two boats swept all day 74' snare used. Ceresco to MP 5.25: 10' snare used. MP 4.75 – 5.75: 42' snare used. MP 26 – 28.75: 24' snare used. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 105 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 7 bags of debris. MP 37.75 (E4.0): Recovered 62 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected one (1) soil sample from MP 11.50L. Collected one (1) soil sample from MP 11.75L. Collected four (4) soil samples from MP 12.00L. Collected two (2) soil samples from MP 12.25L. MP 32.25 LDB – Howard ERO site- Removed remnant woody material from the subject site, installed seven 8' posts in the river to secure woody material in place, and installed 2 cubic yards of 21AA road gravel in the property driveway to repair construction impact. Removed dead and down material in the river near MP 11.25 to allow for improved boat passage. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continue development of Segment 9 Primer. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/07/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 06, 2012; 0700
	Position:	Incident Commander	To:	June 07, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Life Saving Rule #4 – Ground Disturbance

Dig Safely. Always follow procedures for locating, positively identifying and excavating buried facilities. Protect yourself, your community and the environment by protecting our pipelines – ensure that all buried facilities are identified and marked prior to excavation.

By building a strong foundation of safe practices we can protect our most valuable resource – our people.

**** Make certain you know and obey the Enbridge 10-2-1 Rule ****

Safety Items for June 6th: Near Miss – SWAT, Trevor Evans. 18:30, while loading a boat onto the trailer at E0.4 Launch, the boat was not square on the trailer. T. Evans got help from 5 coworkers (SWAT and SET) to lift the boat to get on the trailer correctly. T. Evans didn't realize that he was standing on a rock and his foot slid off the rock and rolled his ankle. At the time his ankle did not hurt, but this morning it was stiff and he reported it. T. Evans is able to work today and no First Aid.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place.

Waste Management (John Wallace):

Decon: Argos and a Jon boat were final deconed and taken of site.

T&D: No waste to report coming in to FTC or Out going from FTC.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for Situational awareness. Sheen Sweep: E4/Delta: Two boats swept all day 100' snare used. Ceresco to MP 5.00: 38' snare used. MP 14.75: 10' snare used. MP 18.75: 10' snare used. MP 26 – 28.75: 24' snare used. Total snare used: 182'. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 100 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 6 bags of debris. MP 37.75 (E4.0): Recovered 1 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected two (2) soil samples from MP 11.50L. Collected eight (8) soil samples from MP 12.00L. Collected two (2) soil samples from MP 12.25L. Talmadge Creek Monaweck site – Conducted a site visit and performed preliminary reconnaissance with Enbridge Operations of the subject site to plan logistics of material installation planned for 6/7/12. MP 23.40 R and MP 24.00 R – Returned to the subject sites to remove additional debris remaining from completion of the completed restoration sites. Constructed brush bundles for use at the ERO Bradley site (MP 26.75 R). Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continue development of Segment 9 Primer. Implementation Group: No activities. Monitoring Group: Began weekly buoy and signage inspection.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/08/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 07, 2012; 0700
	Position:	Incident Commander	To:	June 08, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Right/Responsibility to Stop Work

Every worker performing any work in/on any work site location has the authority and responsibility to immediately stop unsafe work and at risk behaviors.

A few examples are;

- Working with tools or equipment that have been altered or modified.
- Working in an unsafe manner (horse play, disregard for rules, etc.) that endangers yourself and others.

Regardless of how urgent or important an activity may be, safety, health or environmental protection shall not be compromised.

Safety Items for June 7th: Occurred June 6th, Reported June 7th Near Miss – SWAT, Trevor Evans. 18:30, while loading a boat onto the trailer at E0.4 Launch, the boat was not square on the trailer. T. Evans got help from 5 coworkers (SWAT and SET) to lift the boat to get on the trailer correctly. T. Evans didn't realize that he was standing on a rock and his foot slid off the rock and rolled his ankle. At the time his ankle did not hurt, but this morning it was stiff and he reported it. T. Evans is able to work today and no First Aid.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place.

Waste Management (John Wallace):
Decon: No activities.

T&D: No activities.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Sheen Sweep: E4/Delta: Two boats swept all day 30' snare used. Ceresco to MP 5.00: 56' snare used. MP 18.75: 10' snare used. MP 20: 10' snare used. MP 26 – 28.25: 20' snare used. Total Snare used: 136'. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 67 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 8 bags of debris. MP 37.75 (E4.0): Recovered 6 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected five (5) soil samples from MP 11.50L. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continue development of Segment 9 Primer. Began submerged oil assessment for segments 3-10. Implementation Group: No activities. Monitoring Group: Completed weekly buoy and signage inspection.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/11/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 08, 2012; 0700
	Position:	Incident Commander	To:	June 09, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Right/Responsibility to Stop Work

Every worker performing any work in/on any work site location has the authority and responsibility to immediately stop unsafe work and at risk behaviors.

A few examples are;

- Working with tools or equipment that have been altered or modified.
- Working in an unsafe manner (horse play, disregard for rules, etc.) that endangers yourself and others.

Regardless of how urgent or important an activity may be, safety, health or environmental protection shall not be compromised.

Safety Items for June 8th: No issue's to report.

Activities / Comments

Air Operations (Mark Fuller):
We flew today at 1030 AM. Poling activities were observed in the pond in the Source Area. Crane mats were being destroyed at Frac Tank City, several poling crews were observed on the downstream half of the river and water levels were extremely low, so that ordinarily submerged portions of both the creek and river are exposed. Crews were cleaning the control points at Ceresco Dam and at the Mill Ponds. A sweep boat was observed near C 0.4 boat launch near some, and several other sweep boats observed near poling crews, in the MP 20's and on Morrow Lake.

Waste Management (John Wallace):
Decon: A Jon boat was cleaned and returned to service.

T&D: A roll-off of oily debris and 2 other roll-offs of timber mats were hauled to C&C landfill for disposal in the operational period.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Talmadge Creek: Removed all snare from the culverts on the creek 400' total. Boom: Removed 300' 12" hard boom from 30.8 LDB. Buoys: WSS 17, 19, and 20 installed around the Walling Samplers in the Lake. (Configuration consists of 3 floating rope Buoys and 1 concrete anchor). Sheen Sweep: E4/Delta: Two boats swept all day 100' snare used. Ceresco to MP 5.00: 56' snare used. MP 13.75 – 15.25: 10'. MP 18.75: 10' snare used. MP 26 – 28.25: 25' snare used. Talmadge Creek: No activity. P 5.75 (Ceresco): Recovered 93 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 10 bags of debris. MP 37.75 (E4.0): Recovered 0 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. Collected two (2) sheen samples for fingerprinting and submitted them to ALPHA. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: No activities. Talmadge Creek Monaweck Property – Installed sedge meadow wetland seed on disturbed access areas. E 3.5 Boat Launch – Met with Jack Spates and Carr Excavators to plan site and bank restoration activities. Remedial Action: No sampling. Monitoring: Continued remote turbidity monitoring at the Confluence. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continue development of Segment 9 Primer. Continued development of submerged oil assessment for segments 3-10. Implementation Group: Installed two buoys at MP 19.25. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/11/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 09, 2012; 0700
	Position:	Incident Commander	To:	June 11, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Personal Conduct & Community Relations

In the towns of Marshall, Battle Creek, and the surrounding areas, we are visitors to the communities and neighborhoods.
Our work requires us to travel within and between locations, utilize local services, and interact with the citizens of the areas.
It is imperative that we conduct ourselves with the utmost level of respectfulness to the people, the environment, and the law.

Respect Citizens and Their Property including:

- **Merchants**
- **Local Authorities**
- **The General Public**

Drive Safe and Be Courteous

Preserve the Environment

Follow All State and Federal Laws

Safety Items for June 9th & June 10th: There are no issues to report.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place.

Waste Management (John Wallace):
Decon: No activities.

T&D: No activities.

Waste Management Characterization: No activities.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Provided 1 boat for John Sobojinski and Jack Spates. Boom: Removed 300' of Containment boom from 21.5 RDB Oxbow. Sheen Sweep: E4/Delta: Two boats swept all day 65' snare used. Ceresco to MP 5.00: 42' snare used. MP 13.8 – 15.25: 10'. MP 18.75: 10' snare used. MP 26 – 28.25: 25' snare used. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 109 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 13 bags of debris. MP 37.75 (E4.0): Recovered 4 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: No activities. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: No activities. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/12/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 11, 2012; 0700
	Position:	Incident Commander	To:	June 12, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Hand Tools

- Make certain to choose the correct tool for the job.
- Only use tools that are in good working condition.
- Use all tools properly an only for the task that they were intended. If you don't know how to use a tool ask someone who does to show you how.
- Carry and store tools safely.

Safety Items for June 11th: First Aid - SET boat operator, Shawn Burnum, rolled an ankle stepping from a boat trailer onto the landing at C3.2. The operator received first aid (cold pack) and resumed work activities.

First Aid – A SWAT boat operator, Kenny Decker, got a foreign body in his left eye while driving a boat from C.32 to MP 7.0. The foreign body could not be washed out. The worker was driven to an urgent care facility and the foreign body was removed using a wet Q-tip. The worker returned to work.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place.

Waste Management (John Wallace):
Decon: No activities.

T&D: A drum of soil delivered to FTC from C3.2 R.I work disposed of in pile #136. Roll-off boxes of timber mats disposed of at C&C landfill in the operational period.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination. Collected two (2) oil debris samples from timber mats at Frac Tank City.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for Situational awareness. Boom: Removed 200' of 3' curtain containment boom in the 21.5 oxbow. Sheen Sweep: E4/Delta: Two boats swept all day 115' snare used. Ceresco to MP 5.00: 42' snare used. MP 13.75 – 15.25: 10'. Total Footage Snare used: 167. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 117 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 45 bags of debris. MP 37.75 (E4.0): Recovered 16 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. Collected one (1) sheen sample for fingerprint analysis. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected thirteen (13) soil samples from MP 11.50L. C 3.7 Launch Site – watered all trees, shrubs and previously seeded areas. Custer Road Restoration Area (MP 21.25) – Crew transported straw bales and mulch to the site, received topsoil delivery from Carr Excavators, and started site preparation for restoration activities commencing on Tuesday 6/12/12. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Submerged oil supplements for segment 3 review. Initiate Segment 4 submerged oil supplement. Continue developing segment 9 primer. Implementation Group: No activities. Monitoring Group: Scheduled security for the opening of segments 3-8. Updated buoy inspections forms with new buoy locations.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/13/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 12, 2012; 0700
	Position:	Incident Commander	To:	June 13, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Water Operations & Boat Safety

The boat captain is responsible for the safety of the crew. Enbridge Safety's objective is to minimize potential risks to operators, passengers, and bystanders by:

- Ensuring all persons has a general understanding of boating safety.
- Utilizing well defined operations guidelines.
- Ensuring operator competency.
- Performing vessel inspections.
- Conducting passenger briefings.
- Following PPE requirements.
- Inspection of all vessels.

Safety Items for June 12th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

We flew yesterday at 11 AM. We observed crane mats being crushed and boom being deconed at FTC. We observed the Erosion monitoring trip near MP 3.25. A crew was seen cleaning debris from the Ceresco Control Boom. A poling crew was working near MP 10.25. A crew was observed at the 19.25 sediment trap. A poling crew was observed in the Delta and in Morrow Lake.

Waste Management (John Wallace):

Decon: Hard boom and a Jon boat were deconed today.

T&D: A drum of soil from C3.2 R.I work was disposed of at FTC pile#136. Roll-off boxes of timber mats as well as oily debris were hauled to C&C landfill for disposal.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Boom: 8.75 R1 removed 18" hard boom, also removed the sediment curtain from the 10.75 LDB Boom location. Buoys: Installed Walling Sampler Buoy configurations at 6 locations WSS 11, 13,3,4,5, and Talmadge. Sheen Sweep: E4/Delta: Two boats swept all day 52' snare used. Ceresco to MP 5.00: 42' snare used. MP 13.75 – 15.25: 10' snare used. MP 26-28.25: 20' snare used. Total Footage Snare used: 124. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 86 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 18 bags of debris. MP 37.75 (E4.0): Recovered 4 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected four (4) soil samples from MP 11.50L. Collected nine (9) soil samples from MP 13.25L. Custer Road Restoration Area (MP 21.25) – Installed topsoil to the subject site; spread topsoil by skid steer; felled overhanging dead tree creating safety hazard on the site; transported plant material to the site for installation on 6/13/12. Remedial Action: No sampling. Monitoring: Collected eight (8) surface water samples on Morrow Lake. Collected one (1) sediment sample on Morrow Lake. Collected ten (10) surface water samples on Kalamazoo River. Collected two (2) sediment samples on the Kalamazoo River. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: Continued Segments 4 and 5 submerged oil supplement. Continued development of Segment 9 primer. Implementation Group: Installed buoys at new walling structures. Monitoring Group: Updated buoy inspections forms with new buoy locations.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/14/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 13, 2012; 0700
	Position:	Incident Commander	To:	June 14, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Life Saving Rule #5 – Isolate Energized Systems

Always follow procedures for lockout/ tag-out. Equipment, facilities and piping systems could have stored or residual energy that poses a danger.

Each and every one of us must do everything in our power to protect ourselves, and to protect those around us.

You are the power behind lifesaving rules

Safety Items for June 13th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flight took place.

Waste Management (John Wallace):

Decon: Hard boom was deconed and sent back to service.

T&D: Oily debris roll-offs and timber mats in roll-off boxes were hauled to C&C landfill for disposal.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Boom: 8.50 L1 removed 12" hard boom, 8.50 L3 200' of 12" hard boom removed. Buoys: Installed Walling Sampler Buoy configurations at following locations WSS 7, 8, 10, 12,14,15,16. Sheen Sweep: E4/Delta: Two boats swept all day 40' snare used. Ceresco to MP 5.25: 42' snare used. MP 13.75 – 15.5: 10' snare used. Total Footage Snare used: 92. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 76 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 10 bags of debris. MP 37.75 (E4.0): Recovered 4 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected one (1) soil sample from MP 13.25L. Collected eleven (11) soil samples from MP 13.50L. Custer Road Restoration Area (MP 21.25) – Continued site restoration activities. Installed 70 cubic yards of topsoil to the subject site; spread topsoil by skid steer. Kalamazoo River Bank Erosion Assessment Site Tour – Crew participated in KRBEAS field review of previously completed and pending bank restoration sites. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Updated media kit material completed today for MAC presentation Thursday. River Opening kiosk maps updated with two potential opening plans. Assessment Group: Continued Segments 4, 5, 6, 7, 8, 9, and 10 submerged oil supplement. Continued development of Segment 9 primer. Implementation Group: Installed buoys at new walling structures. Monitoring Group: Updated buoy inspections forms with new buoy locations. Performed weekly buoy and signage inspections.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/15/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 14, 2012; 0700
	Position:	Incident Commander	To:	June 15, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

River Use by the Public

Boat operators and passengers should be aware that the public is using the river now and number public users are increasing, especially on the weekends.

- Be aware that recreational users of the river may be anywhere on the river.
- Kayaker and canoeists may not follow navigation rules and may not be in full control.
- The public always has the right of way on the river.
- Swimmers have been observed in the river and may be difficult to see. When you see swimmers - get off step.
- When in doubt, stop and evaluate the situation.
- Know what to do in case of an emergency.
- Be courteous when interacting with the public.

Safety Items for June 14th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flight took place.

Waste Management (John Wallace):

Decon: Hard boom and a canoe were deconed and sent back to service in the operational period.

T&D: Crane mats were hauled to C&C landfill in roll-off boxes. Soil from C3.2 was brought to FTC for disposal in pile 136 cell B.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 5 boats for the poling crews. Sheen Sweep: E4/Delta: Two boats swept all day 25' snare used. Ceresco to MP 5.25: 24' snare used. MP 13.75 – 15.5: 10' snare used. MP 25 – 29: 10' snare used. Total Footage Snare used: 69. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 66 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 29 bags of debris. MP 37.75 (E4.0): Recovered 70 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected seven (7) soil samples from MP 13.50L. Collected three (3) soil samples from MP 13.75L. Custer Road Restoration Area (MP 21.25) – Installed 6 red osier dogwood, 5 spicebush, 9 nannyberry viburnum, Mesic prairie seed, C-125BN erosion control fabric and straw to restore the subject site. Watered the entire restoration area. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: River Opening kiosk maps updated with two potential opening plans. Assessment Group: Continued Segments 8, 9, and 10 submerged oil supplement. Submitted submerged oil supplements for agency approval for Segments 4, 5, and 6. Continued development of Segment 9 primer. Implementation Group: Installed buoys at new walling structures. Monitoring Group: Updated buoy inspections forms with new buoy locations.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/18/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 15, 2012; 0700
	Position:	Incident Commander	To:	June 16, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

River Use by the Public

Boat operators and passengers should be aware that the public is using the river now and number public users are increasing, especially on the weekends.

- Be aware that recreational users of the river may be anywhere on the river.
- Kayaker and canoeists may not follow navigation rules and may not be in full control.
- The public always has the right of way on the river.
- Swimmers have been observed in the river and may be difficult to see. When you see swimmers - get off step.
- When in doubt, stop and evaluate the situation.
- Know what to do in case of an emergency.
- Be courteous when interacting with the public.

Safety Items for June 15th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flight took place.

Waste Management (John Wallace):

Decon: Hard boom was deconed and sent back to service in the operational period.

T&D: A roll-off of MSW was hauled to C&C landfill for disposal. A drum of soil was disposed of in Cell B pile#136 from Superior as well as water was disposed of in cell A/B sump from Superior.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Boom: MP 21.5: Pulled 500' 12" Hard boom. E4 Control point: Removed x-tex and reinstalled half curtain. Sheen Sweep: E4/Delta: Two boats swept all day 25' snare used. Ceresco to MP 5.25: 12' snare used. MP 13.75 – 15.5: 25' snare used. MP 25 – 29: 50' snare used. Total Footage Snare used: 112. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 73 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 37 bags of debris. MP 37.75 (E4.0): Recovered 38 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. Collected one (1) sheen sample for fingerprinting and submitted to ALPHA labs. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected two (2) soil samples from MP 13.75I. Collected ten (10) soil samples from MP 13.75L. Custer Road Restoration Area (MP 21.25) – Installed construction fencing to prevent vehicle access to restored access corridor. Water previously installed plants and seeded areas. ERO (Bays Property) – Traveled to subject site and met with property owner regarding bank concerns. Initiated restoration planning for the site. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: River Opening kiosk maps updated with two potential opening plans. Conducted DK Security River Opening awareness training. Assessment Group: Continued Segments 8, 9, and 10 submerged oil supplement. Continued development of Segment 9 primer. Implementation Group: Installed buoys at new walling structures. Adjusted buoy locations in Morrow Lake Delta. Monitoring Group: Conducted DK Security River Opening awareness training. Scheduled DK Security guards at specified kiosk locations.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214	
Kalamazoo River/Enbridge Spill Response	6/18/2012	12:00		
4. Unit Name/Designators	**5. Unit Leader**		**6. Operational Period : DATE/TIME**	
Enbridge Operations	**Name:**	John Sobojinski	**From:**	**June 16, 2012; 0700**
	Position:	Incident Commander	**To:**	**June 18, 2012; 0700**

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Slips, Trips and Fall Conditions

Most hazards can be avoided by using common sense. Please consider the following hazardous situations.

Boats

- Loss of balance due to instability
- Slippery surfaces (frost, rain, ice, snow, etc.)
- Tools/Equipment/Debris
- Overextending
- Access/Egress

Work Areas

- Tools/Equipment/Debris
- Fallen Trees/Branches
- Large Stones/Uneven Terrain/Steep Slopes/Holes
- Environmental Conditions (muddy, slick, etc.)
- Vehicle/Equipment – Access/Egress

Controls

- Identify and Control Hazards
- Focus on the Task – Avoid Distractions
- Maintain 3 Point Contact – Access/Egress
- Utilize Non-Slip Tapes
- Wear Proper Footwear for Conditions

Safety Items for June 16th: Red Calvert, McDaniel's, struck a deer driving from C3.2 towards Wattles Rd. on G Dr heading east. The deer jumped and landed on trucks windshield, shattering the glass. Red called 911 to report the incident.

Safety Items for June 17th: There are no issues to report.

Activities / Comments	**Air Operations (Mark Fuller):** No flight took place. **Waste Management (John Wallace):** Decon: No activities. T&D: No activities. Waste Management Characterization: No activities. **Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No sampling. Recovery: No activities.
Activities / Comments (Cont.)	**Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Buoys: Ceresco: Installed 5 buoys and anchors. Sheen Sweep: E4/Delta: Two boats swept all day 12' snare used. Ceresco to MP 5.25: 10' snare used. C5: 24' snare used. Total Footage Snare used: 46. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 87 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 62 bags of debris. MP 37.75 (E4.0): Recovered 103 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: No activities. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: No activities. Assessment Group: No activities. Implementation Group: No activities. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/19/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 18, 2012; 0700
	Position:	Incident Commander	To:	June 19, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Boat Trailer Inspections

A ten point inspection for boat trailers:

1.) Lighting – Check running, turn, reverse and stop indicator lights.

2.) Lug nuts. Are they tight?

3.) Boat trailer tire inspection – How's the tread? Check the air pressure with a gauge.

4.) Wheel bearings – When was the last time they were greased?

5.) Check bolts for tightness and welds for cracks. The bolts on the leaf springs are notorious for coming loose.

6.) Make sure your safety chain is in proper order and always hook it up. Make sure all pins are in place.

7.) Check the bunks on which the boat sits. Are the carpet and wooden boards in good condition? This is best looked at while the boat's off the trailer.

8.) Check for corrosion.

9.) Check straps for wear.

10.) Check that ball and trailer hitch ball coupler are the same size and the load doesn't exceed the hitch rating.

Safety Items for June 18th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flight took place.

Waste Management (John Wallace):

Decon: Hard boom was deconed and sent back to service in there operational period.

T&D: A drum of soil was hauled in from Superior and disposed of at FTC Pile#136. A roll-off of oily debris was hauled to C&C landfill for disposal.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination. Collected one (1) oily debris sample from Roll-Off Box RT3273.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Provided 1 boat for EI Inspections. Boom: Ceresco: Pulled 1100' 12" Hard Boom, 100' Creek Boom. 11.79: Pulled 200' 12" Hard Boom. Buoys: Delta: 12 Rope Floats in channel per map #BB 129-140. Sheen Sweep: E4 to MP 37.75: 25' snare used. Shady Bend: 25' snare used. Ceresco to MP 5.25: 34' snare used. Total Footage Snare used: 84. Talmadge Creek: No activity. MP 5.75 (Ceresco): Recovered 162 bags of debris. MP 15.65 (Battle Creek Dam): Recovered 20 bags of debris. MP 37.75 (E4.0): Recovered 47 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected one (1) soil sample from MP 07.25L. Collected one (1) sediment sample from MP 07.25L. Collected one (1) surface water sample from MP 07.25L. Collected three (3) soil samples from 07. 50I. Custer Road Restoration Area (MP 21.25) – Completed installation of site protection fencing through the placement of construction fencing and 12 support T-posts. Continued development of restoration plan permit modification drawings for the Bradley ERO site at MP26.75 R. Performed safety and maintenance inspections on site tools and restoration equipment. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Kiosk mapping. Coordination for news conference information packet. Assessment Group: Submit Segment 9 primer to for final review. Continue to respond to MDEQ comments for primers 1-8 and 10. Implementation Group: Reconfigure buoy layout for segments 2 and 9. No activities. Monitoring Group: Scheduled DK Security for potential opening segments.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/20/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 19, 2012; 0700
	Position:	Incident Commander	To:	June 20, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Housekeeping and Litter

Remember that we are guests in the Marshall and Battle Creek communities and keeping our worksites clean is a visible demonstration of how we respect the environment and residents.

- Always put your own litter in the appropriate receptacle.
- Retrieve any litter noticed in the river or on the ground near our worksites.
- Inspect open pickup beds, trailers, and boats before traveling for loose materials.

Safety Items for June 19th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

We flew today at 10:30 AM. Boom was being deconed at FTC. No sheen or activity was observed at the confluence. A sweeper boat was working on the LDB across from boat launch C 0.4. The control point had been removed from Ceresco. The control point at Battle Creek Dam was being removed. A reassessment team was doing ring tests near MP 30. A poling crew and the velocity crew were working in Morrow Lake.

Waste Management (John Wallace):

Decon: Hard boom was deconed in the operational period.

T&D: A roll-off was hauled to C&C landfill for disposal. Water was hauled in from C3.2 R.I work and disposed of in cell A/B sump at FTC.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activity. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 9 boats for the poling crews. Provided 1 boat for situational awareness. Provided 1 boat for EI Inspections. Boom: MP 10.75 Removed 12" Hard Boom. MP 15.65: Removed Hard boom and Rope/T-cup. C 3.2: Removed 6" Hard Boom. Buoys: Delta: Installed 1 additional Buoy (GPS BB129-141). MP 21.5: Installed 2 Buoys BB 142 & 143. Ceresco: Removed CB 36 & 37, Reconfigured CB 33-35. Sheen Sweep: E4 to MP 37.75: 30' snare used. Shady Bend: 25' snare used. Ceresco to MP 5.25: 24' snare used. Total Footage Snare used: 89. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 3 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected four (4) soil samples from MP 07.75L. Collected two (2) sediment samples from MP 07.75L. Collected two (2) soil samples from MP 12.00R. Collected three (3) soil samples from MP 13.75L. Collected two (2) sediment samples from MP 13.75L. Crew cut posts and prepared woody debris on Enbridge owned property for use in conducting upcoming KRBEAS riverbank restoration projects. Transported and staged prepared materials at the C 3.2 Boat Launch for use on upcoming KRBEAS projects. Completed site visit to the E 3.5 Boat Launch restoration site to plan site seeding and restoration activities for 6/20/12. Remedial Action: No sampling. Monitoring: Collected five (5) groundwater samples from the monitoring wells adjacent to the Village of Augusta Municipal Wells. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Coordination for news conference information packet. Assessment Group: Continue to respond to MDEQ comments for primers 1-8 and 10. Implementation Group: Reconfigure buoy layout for segments 2 and 9. Monitoring Group: No activities.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/21/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 20, 2012; 0700
	Position:	Incident Commander	To:	June 21, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Life Saving Rule #6 – Report Incidents

Always report significant safety related incidents. We believe all injuries and incidents are preventable. Reporting incidents allows us to understand what happened and prevent it from happening again.

When you speak up for safety, everyone benefits.

You are the voice of lifesaving rules.

Safety Items for June 20th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place today.

Waste Management (John Wallace):
Decon: Hard boom was deconed in the operational period.

T&D: A roll-off of oily debris was hauled to C&C landfill for disposal. Soil was hauled in from legacy project at Ceresco Dam and disposed of at FTC.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: Collected one (1) soil sample from Ceresco River Access Point. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 8 boats for the poling crews. Provided 1 boat for situational awareness. Provided 1 boat for EI Inspections. Buoys: Delta: Installed additional Buoys (CB 28, 15-18). Sheen Sweep: E4 to MP 37.75: 30' snare used. Shady Bend: 25' snare used. MP 15.5-13.75: 20' snare used. Ceresco to MP 5.25: 24' snare used. Total Footage Snare used: 99. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 12 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected five (5) soil samples from MP 06.00R. Collected two (2) soil samples from MP 06.25R. Collected two (2) soil samples from MP 13.75L. Collected one (1) sediment sample from MP 13.75L. E 3.5 Launch Site - Installed Mesic prairie seed and straw to restore the overbank portion of the demobilized launch site. Assisted Carr Excavators with the installation of construction fencing to protect the restored area. Remedial Action: No sampling. Monitoring: Collected five (5) groundwater samples from the monitoring wells adjacent to the Kalamazoo Municipal Well field #39. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Coordination for news conference information packet. Present river opening news conference information packet and agenda to the MAC. Assessment Group: Continue to respond to MDEQ comments for primers 1-8. Implementation Group: Reconfigure buoy layout for segments 2 and 9. Monitoring Group: Perform DK Security river opening awareness training.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214	
Kalamazoo River/Enbridge Spill Response	6/22/2012	12:00		
4. Unit Name/Designators	**5. Unit Leader**		**6. Operational Period : DATE/TIME**	
Enbridge Operations	**Name:**	John Sobojinski	**From:**	**June 21, 2012; 0700**
	Position:	Incident Commander	**To:**	**June 22, 2012; 0700**

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	**Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River**

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Emergency Eyewash Stations/Bottles

Emergency eyewash equipment can be key to saving your eyesight.

Before an emergency occurs:

- Know the equipment location.
- Know how to use the equipment: Always review the manufacturer's instructions for the equipment before an emergency occurs.
- Equipment maintenance: Perform regular checks to ensure the equipment will function as intended in the event of an emergency, and the saline solution has not expired.

In the event of an emergency:

- Remove caps.
- Pour contents of the bottle into the affected eye.
- Repeat if necessary.
- If required, seek further medical attention.

Don't forget to notify Enbridge Safety and submit a report documenting the incident.

Safety Items for June 21th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place today.

Waste Management (John Wallace):

Decon: Hard boom was deconed as well as 3"pipe. ER Jon boats were final deconed and will be picked up and taken off site.

T&D: No T&D activities were performed today.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activities. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 2 boats for the Bathymetry crew. Provided 1 boat for Situational awareness. Provided 2 boats for EI Inspections. Provided 1 boat for ADCP (Velocity) crew. Boom: Ceresco: Removed 12" HB and 8" xtex. E4: Staged 4000' of 12" HB and pipes. Buoys: MP 2.75: Recovered closed river anchor and buoy signs. Sheen Sweep: E4 to MP 37.75: 30' snare used. Shady Bend: 50' snare used. Ceresco to MP 5.25: 24' snare used. Total Footage Snare used: 104. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 3 bags of debris Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected two (2) soil samples from MP 06.00R. Collected five (5) soil samples from MP 06.25R. Collected one (1) sediment sample from MP 06.25R. Collected two (2) soil samples from MP 06.50R. Collected two (2) soil samples from MP 06.50I. E 3.5 Launch Site - Installed Mesic prairie seed and straw to restore the overbank portion of the demobilized launch site. Removed remnant silt fence from the subject site. Custer Road Restoration (MP 21.50) – Watered previously installed plantings. Remedial Action: No sampling. Monitoring: Conducted water quality monitoring at Ceresco Dam Portage during sheet pile and curtain removal. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Coordinate news conference for River Opening. Provided additional personnel at select kiosk to answer questions. Assessment Group: Continue to respond to MDEQ comments for primers 1-8. Implementation Group: No activities. Monitoring Group: Updated buoy inspection forms and map. Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/25/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 22, 2012; 0700
	Position:	Incident Commander	To:	June 23, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Emergency Eyewash Stations/Bottles

Emergency eyewash equipment can be key to saving your eyesight.

Before an emergency occurs:

- Know the equipment location.
- Know how to use the equipment: Always review the manufacturer's instructions for the equipment before an emergency occurs.
- Equipment maintenance: Perform regular checks to ensure the equipment will function as intended in the event of an emergency, and the saline solution has not expired.

In the event of an emergency:

- Remove caps.
- Pour contents of the bottle into the affected eye.
- Repeat if necessary.
- If required, seek further medical attention.

Don't forget to notify Enbridge Safety and submit a report documenting the incident.

Safety Items for June 22th: Benito Vavra was piloting a jet boat with passengers Norman Kent and Matthew Haak for situational awareness activities. They were traveling upstream on the Kalamazoo River, upstream of MP 29.25, and approached an area of rocks and rapids. B. Vavra slowed down while still on step. The boat was traveling between 1/2 and 3/4 throttle. B. Vavra steered the boat to the right to avoid large rocks that were visible above the water surface near the middle of the river. 12:33 - The boat hits an unseen, submerged rock. The boat striking the rock slid into another large rock, and caused the boat to stop suddenly, resulting in all three occupants of the boat to be ejected from the boat into the water. The depth of the water, excluding the rock, was approximately 18 inches. B. Vavra assists N. Kent to get N. Kent onto his feet. All three check on each other and determine that no one has life threatening injuries. B. Vavra secures the boat which had drifted from the location of the impact and is 1/4 filled with water. M. Haak is uninjured. 16:48 – B. Vavra is released from Battle Creek Health System with no work restrictions. 17:45 – N. Kent is released from Battle Creek Health System with no work restrictions.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place today.

Waste Management (John Wallace):
Decon: Hard boom was deconed in the operational period along with a final decon of an E.R Jon Boat.

T&D: LIWS hauled out water from the Cell A/B sump and disposed of at their facility. Water from Superior was hauled in from there R.I work and disposed of in cell A/B sump. A drum of soil was hauled in C3.2 R.I work and disposed of in FTC pile#136.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination. Collected one (1) waste water sample from Frac Tank City sump.

Overbank (Jack Spates):
Recovery: No activity. No sampling.

Compliance: Collected one (1) soil sample from Ceresco River Access Point.

Monitoring: No monitoring.

Submerged Oil (David Bareham):
Science: No activities.

Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow Lake.

Containment (Kevin Oscar) :
Completed oversight/EI inspections with EPA and Enbridge reps. Provided 2 boats for the Bathymetry crew. Provided 1 boat for Situational awareness. Provided 1 boat for EI Inspections. Provided 1 boat for ADCP (Velocity) crew. Boom: E4: Completed MOB into E4 started installation of boom posts and anchor. Sheen Sweep: E4 to MP 37.75: 70' snare used. Shady Bend: 25' snare used. Ceresco to MP: 5.25' 24 snare used. Total Footage Snare used: 119. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 8 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations.

Kalamazoo River (Bryan Stiemsma):
Remedial Investigation: Collected two (2) soil samples from MP 06.50R. Collected one (1) soil sample from MP 06.50I. Collected two (2) soil samples from MP 07.50L. Collected one (1) soil sample from MP 07.75L. Collected three (3) soil samples from MP 09.25R. MP 11.5 – MP 11.75 – Crew jetted in place fourteen 8 foot posts into the river bottom for use in holding future woody debris planned for installation.

Remedial Action: No sampling.

Monitoring: No activities.

Activities / Comments (Cont.)	**River Opening Branch (John Bohrmann):** Communications (Media) Group: Restocked kiosk material when needed. Assessment Group: Continue to respond to MDEQ comments for primers 1-8. Implementation Group: No activities. Monitoring Group: Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/25/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 23, 2012; 0700
	Position:	Incident Commander	To:	June 25, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Other Poisonous Plants

In addition to poison ivy, poison oak, and poison sumac, there are two plants that you should also be aware of that can cause serious skin problems – Giant Hogweed and Wild Parsnip. These invasive plants contain photosensitizing chemicals which in contact with human skin and in conjunction with sunlight cause phytophotodermatitis - a serious skin inflammation.

Giant Hogweed

Giant hogweed can grow to 14 feet or more. Its hollow, ridged stems grow 2-4 inches in diameter and have dark reddish-purple blotches. Its large compound leaves can grow up to 5 feet wide. Its white flower heads can grow up to 2 1/2 feet in diameter.

Wild Parsnip
Wild parsnip has large leaves that resemble celery leaves. The stem is hollow and grooved, two to five feet tall. The flowers are small, yellow, five-petaled, and look like a yellow Queen's Anne's Lace.

Safety Items for June 23 and 24th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place today.

Waste Management (John Wallace):
Decon: No activities.

T&D: No T&D activities were performed today.

Waste Management Characterization: No activities.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activities. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: No activities. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 1 boat for Situational awareness. Provided 1 boat for EI transportation. Boom: E4: Reconfiguration in process. Sheen Sweep: E4 to MP 37.75: 30' snare used. Shady Bend: 10' snare used. Ceresco to MP 5.25: 24' snare used. Total Footage Snare used: 64'. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 23 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: No activities. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Restocked kiosk material when needed. Provided personnel to assist with questions from the public at select kiosk locations. Assessment Group: No activities. Implementation Group: No activities. Monitoring Group: Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present. Provided personnel to assist with questions from the public at select kiosk locations

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/26/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 25, 2012; 0700
	Position:	Incident Commander	To:	June 26, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Securing Loads

Securing Loads for Transport

- Inspect all anchor points and tie-down locations for visible signs of damage.
- Always inspect every chain before use. Look for cracked, bent, twisted or stretched links.
- Keep chains/straps straight and tight. Ratchet binders are recommended for chains.
- Be sure to flag and permit the load if it exceeds the width and length restrictions for transporting according to federal/state/local regulations.
- Ensure that all items on the trailer and the load are secured.
- Check load and trailer for fluid leakages, rocks and other loose debris.

Transporting a Load

- Ensure the load is properly secured and balanced.
- Many governmental agencies throughout the world require the truck driver, within the first 25 miles (40.2 km) after beginning a trip, stop and recheck all load securing devices and make adjustments as necessary.
- ALWAYS use common sense and good judgment when loading, hauling, and transporting equipment and materials.

Safety Items for June 25th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

No flights took place today.

Waste Management (John Wallace):

Decon: Hard boom was deconed in the operational period.

T&D: A roll-off of MSW was hauled to C&C landfill for disposal. Multiple roll-off containers of oily debris were hauled to C&C landfill for disposal in the operational period.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activities. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: No activities. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 1 boat for Situational awareness. Provided 2 boats for EI transportation. Boom: E4: Reconfiguration in process, installed 12" boom with 50' curtain, removed 300' curtain from old E4, installed 6 posts. Sheen Sweep: E4 to MP 37.75: 40' snare used. Shady Bend: 50' snare used. MP 13.75-15.5: 10' snare used. Ceresco to MP 5.25: 24' snare used. Total Footage Snare used: 124'. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 71 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected one (1) soil sample at MP 08.75L. Collected four (4) soil samples at MP 09.00R. Collected three (3) soil samples at MP 09.25R. Custer Road Restoration Area – Watered previously planted plant material. Obtained necessary parts and repaired irrigation equipment to allow continued watering of previously planted restoration sites. Remedial Action: No sampling. Monitoring: Collected twelve (12) drinking water samples. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Restocked kiosk material when needed. Update kiosk map. Assessment Group: Continued review of primers 1 & 10. Implementation Group: No activities. Monitoring Group: Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/27/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 26, 2012; 0700
	Position:	Incident Commander	To:	June 27, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)
General Safety Message:

Safety Culture

Safety is not a priority or an initiative; it must be a core value.

There must be a shared belief that all incidents are preventable and a shared goal to achieve zero incidents. There must be a commitment to doing things right the first time, every time and a will to continually improve safe work practices.

A strong safety culture involves and engages all personnel. It requires individuals to take personal responsibility for safety and to freely intervene to ensure the safety of their co-workers.

Safety Items for June 26th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):
No flights took place today.

Waste Management (John Wallace):
Decon: No decon activities were performed.

T&D: There were roll-off boxes of oily debris were hauled to C&C landfill for disposal in there operational period.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activities. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: Collected twelve (12) sheen samples. Recovery: Conducted poling activities throughout the Kalamazoo River, the Morrow Lake Delta and Morrow **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 1 boat for Situational awareness. Provided 2 boats for EI transportation. Boom: E4: Reconfiguration in process, installed 650' on the north side of #1, installed 700' curtain and installed 1 3" pole on #2. Finished lights and post caps on #1. Buoys: Inflated buoys for E4, buoys have not been set. Sheen Sweep: E4 to MP 37.75: 30' snare used. Shady Bend: 50' snare used. MP 13.75-15.5: 10' snare used. Ceresco to MP 5.25: 35' snare used. Total Footage Snare used: 125. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 11 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected seven (7) soil samples at MP 07.00I. Collected two (2) soil samples at MP 08.75L. ERO site MP 6.5 LDB (Bays) – Initiated equipment planning and staging of topsoil and other materials on the subject site for restoration work planned to start on Wednesday June 27, 2012. C 3.7 Launch – Watered previously planted trees and shrubs on the subject site. Remedial Action: No sampling. Monitoring: Collected nine (9) drinking water samples. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Restocked kiosk material when needed. Update kiosk map. Assessment Group: Continued review of primers 1 & 10. Implementation Group: No activities. Monitoring Group: Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present.

1. Incident Name	2. Date Prepared	3. Time Prepared	UNIT LOG ICS 214
Kalamazoo River/Enbridge Spill Response	6/28/2012	12:00	

4. Unit Name/Designators	5. Unit Leader		6. Operational Period : DATE/TIME	
Enbridge Operations	Name:	John Sobojinski	From:	June 27, 2012; 0700
	Position:	Incident Commander	To:	June 28, 2012; 0700

7. Personnel Roster Assigned

Name	ICS Position	DUTY CELL
John Sobojinski	Enbridge Incident Commander	[redacted]
Bob Steede	Environment	
Christopher Haux	Operations	
Jason Manshum	Public Information	
Dale Gross	Safety & Security	
Mark Fuller	Air Operations	
John Wallace	Waste Management	
Jack Spates	Overbank	
David Bareham	Submerged Oil	
Kevin Oscar	Containment	
John Bohrmann	River Reopening	
Bryan Stiemsma	Kalamazoo River	

8. Activity Log

Activity Areas	Safety & Security, Air Operations, Waste Management, Overbank, Submerged Oil, Containment, Talmadge Creek, Kalamazoo River

Health and Safety Issues

Safety & Security (Dale Gross)

General Safety Message:

Life Saving Rule #6 – Report Incidents

Always report significant safety related incidents. We believe all injuries and incidents are preventable. Reporting incidents allows us to understand what happened and prevent it from happening again.

When you speak up for safety, everyone benefits. You are the voice of lifesaving rules.

Safety Items for June 27th: No issues to report.

Activities / Comments

Air Operations (Mark Fuller):

We flew today at 10 AM. Boom was being deconed at FTC. A sweep boat was seen at Ceresco Dam. The handicap accessible canoe launch was being constructed at Historic Bridge Park. A sweep boat was seen in the Mill Ponds. A sheen/globule collection crew was observed upstream of the confluence with the Battle Creek River. Two kayakers were observed near MP 23. The new control point was being installed at E4. Two fishing boats were observed near the Morrow Lake Dam.

Waste Management (John Wallace):

Decon: Roll-off boxes were deconed along with hard boom and well casing pipe in their operational period.

T&D: No waste being hauled in or out of FTC in the operational period.

Waste Management Characterization: Continuing waste management characterization, documentation and coordination.

Activities / Comments (Cont.)	**Overbank (Jack Spates):** Recovery: No activity. No sampling. Compliance: No activities. Monitoring: No monitoring. **Submerged Oil (David Bareham):** Science: Collected three (3) sheen samples. Recovery: Conducted poling activities throughout the Morrow Lake Delta and Morrow Lake. **Containment (Kevin Oscar) :** Completed oversight/EI inspections with EPA and Enbridge reps. Provided 1 boat for Situational awareness. Provided 2 boats for EI transportation. Provided 2 boats for Globule investigation. Boom: E4: Reconfiguration in process, installed 750' of 12" HB, installed 900' xtex, and installed 4 posts. Ceresco Damn MP 5.75: Installed 50' of curtain, and 3 posts. Buoys: E4: Reconfigured buoys CB 20-27 at the bottom of downstream side of #1 of E4, GPS locations of reconfigured buoys. Sheen Sweep: E4 to MP 37.75: 40' snare used. Shady Bend: 25' snare used. MP 13.75-15.5: 10' snare used. Ceresco to MP 5.25: 35' snare used. Total Footage Snare used: 110. Talmadge Creek: No activity. MP 37.75 (E4.0): Recovered 12 bags of debris. Inspected all containment on the river, completed adjustments as required. All debris was taken to Frac Tank City for temporary storage in the Oily Waste Roll off for disposal at a later date. Completed gas monitoring during all recovery operations. **Kalamazoo River (Bryan Stiemsma):** Remedial Investigation: Collected seven (7) soil samples at MP 07.00I. ERO site MP 6.5 LDB (Bays) – Installed 2 cubic yards of topsoil, sedge meadow native wetland seed, C-125BN erosion control blanket, jute blanket and one apple tree to restore the eroding riverbank site. Remedial Action: No sampling. Monitoring: No activities. **River Opening Branch (John Bohrmann):** Communications (Media) Group: Restocked kiosk material when needed. Assessment Group: No activities. Implementation Group: No activities. Monitoring Group: Provided security at select kiosks. Performed daily patron count at kiosk locations where security is present.

1. Incident Name **Kalamazoo River/Enbridge Spill**	2. Operational Period (Date/Time) Starting: **May 31, 2012, 0700** End: **June 07, 2012, 0700**	**IAP Cover Sheet**

3. Approved by Incident Commander(s):

Ralph Dollhopf, U.S. EPA
Michelle DeLong, Department Environmental Quality
Mark DuCharme, Department Environmental Quality
John Sobojinski, Enbridge

INCIDENT ACTION PLAN

The items below are included in this Incident Action Plan:

- ICS 202 (Response Objectives) 1
- ICS 207 (Organizational Chart & OPS Chart) 2
- ICS 204 (Assignment List) 5
- Division Map 20
- Meeting Locations and Traffic Plans 21
- ICS 205 (Communication Plan) 32
- ICS 205a (Communications List) 33
- ICS 205a (Communications Attachment) 35
- ICS 206 (Medical Plan) 36
- Safety Message/Evacuation Plan 41
- Weather Forecast 44
- ICS 230 Meeting Schedule 45



4. Prepared By:
Amy Back, Avery/Enbridge

Date/Time
05/30/2012

1. Incident Name	2. Operational Period (Date/Time)	INCIDENT OBJECTIVES ICS 202-EPA
Kalamazoo River/Enbridge Spill	From: May 31, 2012 @ 0700 To: June 07, 2012 @ 0700	

3. Incident Objective(s)

1. Ensure health and safety of the public and response and recovery personnel.
2. Ensure absolute containment of submerged oil and oil-containing sediments within the Delta and the Fan of Morrow Lake.
3. Ensure effective transition of regulatory oversight from EPA to Michigan DEQ jurisdiction as appropriate.
4. Continue developing strategy for opening of Kalamazoo River.
5. Perform recovery and containment of oil from affected public and private areas of river and river system.
6. Perform remediation and restoration of affected public and private areas of river and river system.
7. Maintain effective communications with cooperating and assisting agencies, the public, including regular coordination with the Multi-Agency Coordination Group (MAC).
8. Provide protection of environmentally and culturally sensitive areas including wildlife and historic properties.
9. Collect, coordinate, manage and communicate environmental and public health data including maintenance of Joint Information Center function.

4. Operational Period Command Emphasis

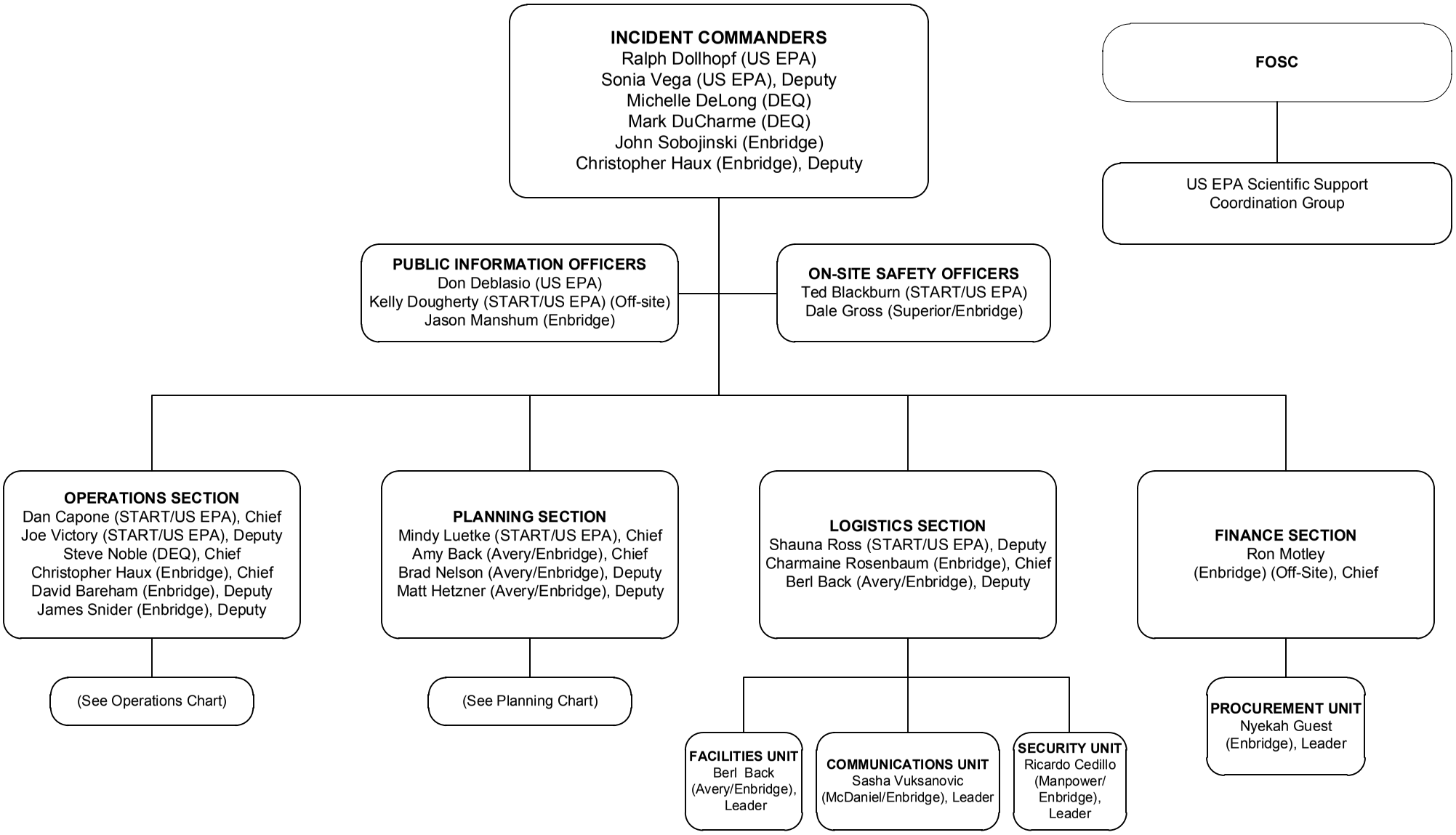
1. Respond to and document emerging oil throughout the Kalamazoo River system.
2. Continue efforts to secure proper permitting for the second phase of the Kalamazoo River Submerged Sediment Trap Structures.
3. Refine and implement River Opening Strategy.

5. Safety Objectives for the Operational Period

1. Focus on management of change and the use of the safe work permit.
2. Assure effective integration of public safety and worker safety on the river. Focus on recognition and reporting of in water hazards.
3. Focus on ensuring proper ratio of on-water safety inspectors to site workers.

6. Prepared by Planning Section Chief (Enbridge): Amy Back	**Date/Time:** 5/30/2012	0804
7. Approved by Incident Commander (US EPA): Ralph Dollhopf	**Date/Time:** 5/30/2012	1334
8. Approved by Incident Commander (DEQ): Michelle DeLong	**Date/Time:** 5/30/2012	1305
9. Approved by Incident Commander (DEQ): Mark DuCharme	**Date/Time:** 5/30/2012	1220
10. Approved by Incident Commander (Enbridge): John Sobojinski	**Date/Time:** 5/30/2012	1125

Enbridge Pipelines Response Unified Command



ICS 207
5/31 – 6/7



OPERATIONS SECTION
Dan Capone (START/US EPA), Chief
Joe Victory (START/US EPA), Deputy
Steve Noble (DEQ), Chief
Christopher Haux (Enbridge) Chief
David Bareham (Enbridge), Deputy
James Snider (Enbridge), Deputy



Air Operations Branch
Matt Haak
(START/US EPA), Director
Mark Fuller
(AECOM/Enbridge), Director

Waste Management Branch
Bryan McKinnon
(START/US EPA), Director
John Wallace
(Avery/Enbridge), Director

- **Decon Group**
  Steve Runstrom
  (Avery/Enbridge), Supervisor
- **T & D Group**
  Steve Runstrom
  (Avery/Enbridge), Supervisor
- **Waste Management Characterization Group**
  Doran Lefaive
  (AECOM/Enbridge),Supervisor

Overbank Branch
Rex Johnson
(START/US EPA), Director
Jack Spates
(Avery/Enbridge), Director

- **OSCAR Group**
  Joe Victory
  (START/US EPA), Supervisor
  Steve Noble (DEQ), Supervisor
  Dave Bareham
  (Enbridge), Supervisor
- **Overbank Science Group**
  Brett Yokom
  (Trimedia/Enbridge), Supervisor
- **Overbank Compliance Group**
  Dan Zahner
  (START/US EPA), Supervisor
  Matt Sumner
  (AECOM/Enbridge), Supervisor
- **Overbank Recovery Group**
  Dan Zahner
  (START/US EPA), Supervisor
  Mike Wekseth
  (SWAT/Enbridge), Supervisor
- **Overbank Monitoring Group**
  Matt Sumner
  (AECOM/Enbridge), Supervisor

Submerged Oil Branch
Dan Zahner
(START/US EPA), Director
Matt Sumner
(AECOM/Enbridge), Director

- **Submerged Oil Assessment Group**
  Joe Victory
  (START/US EPA), Supervisor
  Steve Noble (DEQ), Supervisor
  Dave Bareham
  (Enbridge), Supervisor
- **Submerged Oil Science Group**
  Faith Fitzpatrick (USGS), Supervisor
  Ron Zelt (USGS), Supervisor
  Dave Dryburgh
  (AECOM/Enbridge), Supervisor
- **Submerged Oil Compliance Group**
  Mark Berninger
  (Cardno JFNEW/Enbridge), Supervisor
- **Submerged Oil Recovery Group**
  Dylan Massey
  (LBG/Enbridge), Supervisor
- **Submerged Oil Monitoring Group**
  Dylan Massey
  (LBG/Enbridge), Supervisor

Containment Branch
Rex Johnson
(START/US EPA), Director
Dean Sahara
(SWAT/Enbridge), Director
Mike Wekseth
(SWAT/Enbridge), Deputy

- **Containment Science Group**
  Faith Fitzpatrick (USGS), Supervisor
  Ron Zelt (USGS), Supervisor
  Elijah Eversole
  (AECOM/Enbridge), Supervisor
- **Containment Compliance Group**
  Mike Zambetis
  (Cardno JFNEW/Enbridge), Supervisor
- **Containment Recovery Group**
  Oliver Webb
  (SWAT/Enbridge), Supervisor
- **Containment Monitoring Group**
  David Pesses
  (LBG/Enbridge), Supervisor

River Opening Branch
Chris Lantinga
(START/US EPA), Director
Steve Noble (DEQ), Director
John Bohrmann
(Enbridge), Director

- **River Opening Media Group**
  Don Deblasio (US EPA), Supervisor
  Francisco Arcaute
  (US EPA)(Off-site), Supervisor
  Kelly Dougherty
  (START/US EPA) (Off-site), Assistant
  Jason Manshum
  (Enbridge), Supervisor
- **River Opening Assessment Group**
  Elijah Eversole
  (AECOM/Enbridge), Supervisor
- **River Opening Implementation Group**
  Brett Yokm
  (Trimedia/Enbridge), Supervisor
- **River Opening Monitoring & Security Group**
  Alison Schoeff
  (AECOM/Enbridge), Supervisor

Kalamazoo River System Branch
Steve Noble (DEQ), Director
Bryan Stiemsma
(AECOM/Enbridge) Director

- **Talmadge Creek/ Kalamazoo River Remedial Investigation Group**
  Brian Albig
  (AECOM/Enbridge), Supervisor
- **Kalamazoo River Compliance Group**
  Mike Zambetis
  (Cardno JFNew/Enbridge), Supervisor
- **Kalamazoo River Remedial Action Group**
  Matt Sumner
  (AECOM/Enbridge), Supervisor
- **Talmadge Creek/Kalamazoo River Monitoring Group**
  Alison Schoeff
  (AECOM/Enbridge), Supervisor

ENBRIDGE

ICS 207
5/31 – 6/7



PLANNING SECTION
Mindy Luetke (START/US EPA), Chief
Amy Back (Avery/Enbridge), Chief
Brad Nelson (Avery/Enbridge), Deputy
Matt Hetzner (Avery/Enbridge), Deputy



SITUATION UNIT
Matt Haak (START/US EPA), Director
Matt Hetzner (Avery/Enbridge), Director
Mark Fuller (AECOM/Enbridge), Assistant

GIS SPECIALISTS
Jim Valenza (START/US EPA), Leader
Tik Sulaiman (START/US EPA), Assistant
Chad Fizzell (DEQ)(Off-site), Leader
Kevin Brown (Weston/DEQ)(Off-site), Leader
Debora Periard (AECOM/Enbridge), Leader
Ken Kaiser (AECOM/Enbridge), Leader

RESOURCE UNIT
Shauna Ross (START/US EPA), Leader
Breanna Bukowski (Weston/DEQ)(Off-site), Leader
Brad Nelson (Avery/Enbridge), Leader

PUBLIC HEALTH SPECIALISTS
Linda Dykema (MDCH)
KCHCSD
CCPHD
MDARD

ENVIRONMENTAL UNIT
Isaac Aboulafia
(START/US EPA), Leader
Elizabeth Wessling
(START/US EPA)(Off-site), Leader
Faith Fitzpatrick (USGS), Leader
Ron Zelt (USGS), Assistant
Rex Johnson (START/US EPA), Assistant
Tom Graan (START/US EPA), Assistant
Jeff Spruit (DEQ)(Off-site), Leader
Kim Churchill (Weston/DEQ), Leader
John Bohrmann (Enbridge), Leader

DOCUMENTATION UNIT
Brennan Pierce
(START/US EPA), Leader
Crystal Laskey (DEQ), Leader
Carolyn Giles-Smith
(Weston/DEQ), Leader
Matt Hetzner (Avery/Enbridge), Leader

ENBRIDGE

ICS 207
5/31 – 6/7

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: May 31, 2012, 0700 To: June 07, 2012, 0700	**Assignment List** **ICS 204 - EPA**
3. Branch **Air Operations**	4. Division/Group/Staging **N/A**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Matt Haak	START/US EPA	
	Mark Fuller	AECOM/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons	Notes/Remarks
Air Operations	See Branch Directors listed above.		1 START/US EPA 1 Contractor 1 Pilot	Marshall Regional Airport Heli Pad

7. Work Assignments

Enbridge and START/US EPA:

1. Photo-document areas of sheen from source area to Morrow Lake dam and report observations back to operations section chiefs for monitoring and response. Flights occur once a week and as needed.

8. Special Instructions

Air Ops Team shall report to Marshall Regional Airport Heli-Pad. Additional flights can be scheduled on a case by case basis by contacting Mark Fuller (AECOM/Enbridge) at 847-533-9428. Additional operations recon flights shall be scheduled as required. These flights will have priority over the other flights in order to establish work priorities.

Areas that are deemed sensitive due to property owner concerns shall be avoided. If it is necessary to fly over at the sensitive area, pilot shall be instructed to maintain a minimum altitude of 500 ft. Sensitive flight areas include: Squaw Creek Subdivision (MP 3.25), Village of Ceresco and MP 10.5-11.5 LDB.

SAFETY INSTRUCTIONS:
DO NOT access heli-pad without being escorted by the pilot. Never approach or exit the aircraft to/from the rear, near the tail rotor.

Severe Weather Alerts:
Follow instructions and procedures provided by the FAA and the Civil Defense System.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back (Avery/Enbridge)	5/30/2012 1052	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: May 31, 2012, 0700 To: June 07, 2012, 0700	**ICS 204- EPA**
3. Branch	**4. Division/Group/Staging**	
Waste Management	**Decon / T&D / Waste Management Characterization**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Bryan McKinnon	START/US EPA	
	John Wallace	Avery/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Decon	Steve Runstrom (Avery/Enbridge)	[redacted]	10 Contractors
T&D	Steve Runstrom (Avery/Enbridge)		10 Contractors
Waste Management Characterization	Doran Lefaive (AECOM/Enbridge)		2 Contractors

7. Work Assignments

Decon

1. Vessels, Frac tanks, boom, vac trucks, roll off boxes, yellow iron and miscellaneous equipment. Decon is ongoing at Frac Tank City (FTC), during daylight hours only.
2. All final Decon will be completed at Frac Tank City.
3. Field decon operations for: personnel, hand equipment, and boats for preparation of transport shall be installed prior to work beginning at boat launches / staging areas for individual work sites.
4. All Decon activities will be done under the instruction and by the Decon Division only.

For START/US EPA:

1. Provide oversight of decon activities.

T & D

1. Haul contaminated soil, water, media and debris to staging areas for waste characterization and oil recovery sampling prior to offsite disposal.
2. Waste generated from boat launches / staging areas decontamination sites shall be collected at a minimum of daily for direct haul to the landfill or transported to Frac Tank City for consolidation with similar waste streams as necessary.
3. Waste generated from coring will be consolidated daily and transported to Frac Tank City.

For START/US EPA:

1. Provide oversight of T&D activities.
2. Ensure appropriate sampling, tracking and disposal is performed on oil impacted debris, water and soil.
3. Review manifests, weight tickets and bills of lading for correlation to waste stream analytical data.
4. Review weekly oil recovery and waste disposal report.

Waste Management Characterization

1. Waste management characterization, manifesting, and coordination of transportation and disposal.

For START/US EPA:

1. Provide oversight of waste management characterization and manifesting activities.

All Groups Designated Meeting Location: FTC.

8. Special Instructions

Interim decon processes shall follow best practices.

All personnel will report to designated meeting location at 0700 and work activities will conclude at 1900. All work permit activities will be completed within the allotted permit time and in accordance with the Fatigue Management Plan.

Ensure all Best Management Practices (BMPs) are in place and utilized.

SAFETY INSTRUCTIONS:

For vacuum truck operation guidelines, please refer the HASP.

At Frac Tank City:

1. The following procedure shall be used for initial opening of hatch or rear doors of liquid vacuum trucks and hatches of vacuum excavation units:
    a. Approach the hatch to be opened with a calibrated five gas monitor and a benzene monitor.
    b. Personnel performing this task must wear a full face respirator with organic vapor cartridge.
    c. Slightly open the hatch and take VOC, H2S, LEL, Oxygen, CO and benzene readings.
    d. If readings are greater than 10 ppm H2S, 10% LEL, 25 ppm CO or 25 ppm benzene then personnel shall close the hatch and utilize SCBA prior to opening the hatch.
2. Operations - Respiratory protection may be required depending on periodic monitoring results. Wear a half-mask respirator equipped with an organic vapor cartridge when 0.5 ppm benzene is detected. Wear a full-face respirator equipped with an organic vapor/acid gas cartridge when benzene is at 5 ppm to 25 ppm.

Please refer to the respective agencies/contractors Fatigue Management Plan to ensure proper rest periods.

Process for Reporting Potentially Hazardous Materials:

If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1053	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: May 31, 2012, 0700 To: June 07, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Overbank Branch**	4. Division/Group/Staging **Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Jack Spates	Avery/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Outstanding Sites Characterization and Reconciliation	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	
Overbank Science	Brett Yokom (Trimedia/Enbridge)		
Overbank Compliance	Dan Zahner (START/US EPA) Matt Sumner (AECOM/Enbridge)		
Overbank Recovery	Dan Zahner (START/US EPA) Mike Wekseth (Swat/Enbridge)		
Overbank Monitoring	Matt Sumner (AECOM/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge)(Off-site)		

7. Work Assignments

Outstanding Sites Characterization and Reconciliation (OSCAR):

1. Participate in data review, quality control, and site closure process to ensure that all pending issues are addressed.
2. Direct field evaluations and request information for site determination.
3. Oversee transfer of sites between the various branches.

Designated Meeting Location: ICP.

Overbank Science

1. No activities at this time.

Overbank Compliance

1. No activities at this time.

Overbank Recovery

1. Execute tasks assigned by ERO as requested.

Overbank Monitoring

1. Provide support services as necessary.
2. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team. Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

Process for Reporting Potentially Hazardous Material:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1053	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: May 31, 2012, 0700 To: June 07, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Submerged Oil	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Dan Zahner	START/US EPA	
	Matt Sumner	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Submerged Oil Assessment	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	1 USGS 12 START/US EPA 1 DEQ 4 Weston/DEQ 26 Contractors
Submerged Oil Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Dave Dryburgh (AECOM/Enbridge)		
Submerged Oil Compliance	Mark Berninger (Cardno JFNEW/Enbridge)		
Submerged Oil Recovery	Dylan Massey (LBG/Enbridge)		1 START/US EPA 21 Contractors
Submerged Oil Monitoring	Dylan Massey (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		

7. Work Assignments

Submerged Oil Assessment Special Purpose Meeting: Daily at 1100, Trailer #2

Submerged Oil Assessment

1. Continue refinement of 2012 Submerged Oil Recovery Plan.
2. Conduct poling activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. (10 Teams)
3. Review sheen tracking information from the field.
4. Continue sampling and monitoring of cylindrical sampling devices.
5. Collect velocity data within Morrow Lake. (1 team)

For START/US EPA and DEQ:

1. Oversee and document Submerged Oil Assessment work activities.

Submerged Oil Science

1. Continue implementation of the hydrodynamic model to determine movement of submerged oil.
2. Continue development of Submerged Oil Quantification.

For START/US EPA:

1. Oversee and document Submerged Oil Science work activities.

Submerged Oil Compliance

1. Continue to complete ecological assessments at sites determined by the Submerged Oil Assessment Group.
2. Track previously submitted MDEQ applications for sediment removal.

Submerged Oil Recovery

1. Implement sheen management activities as necessary.

Submerged Oil Monitoring

1. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team. Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

When operating or working in the vicinity of Ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1053	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204 - EPA
Kalamazoo River/Enbridge Spill Response	From: May 31, 2012, 0700 To: June 07, 2012, 0700	
3. Branch	**4. Division/Group/Staging**	
Containment	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Dean Sahara	SWAT/Enbridge	
	Mike Wekseth, Deputy	SWAT/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Containment Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Elijah Eversole (AECOM/Enbridge)	[redacted]	
Containment Compliance	Mike Zambetis (Cardno JFNEW/Enbridge)		1 Contractor
Containment Recovery	Oliver Webb (SWAT/Enbridge)		14 Contractors
Containment Monitoring	David Pesses (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		2 START/US EPA

7. Work Assignments

Containment Science

1. Refine the hydrodynamic model and concepts of the Plan for Preventing Migration of Oil Past the Morrow Lake Dam.
2. Introduce new variables to enhance the potential sediment trap locations.
3. Develop subsurface containment strategies throughout the Kalamazoo River system to prevent recontamination of the Morrow Lake fan.

Containment Compliance

1. Monitor submitted MDEQ permit application for toolbox activities in the Kalamazoo River.
2. Monitor submitted MDEQ application for permit for the Kalamazoo River Sediment Control Structures (13 sites).

Containment Recovery

1. Utilize resources to contain and collect sheen and surface oil as necessary.
2. Perform containment strategies throughout the Talmadge Creek and Kalamazoo River including the following tasks:
   a) Deploy shoreline containment boom as required.
   b) Complete sheen management as required.
3. Maintain three Control Points: MP 5.75 (Ceresco), MP 15.65 (BC Dam), and MP 37.75 (E4).
4. Maintain Protective Containment sites (11 sites total).
5. Maintain installed Kalamazoo River Sediment Control Structures.

Containment Monitoring

Identify control points and protective containment locations requiring further clean up or maintenance action.

1. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.
2. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team. Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50-MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
Photo Ionization (VOCs) / Four Gas Detectors (O2, CO, LEL and H2S) and Direct Reading Instrument for Benzene will be used for air monitoring during debris removal activities.

Hexane is flammable and may be harmful in contact with skin. When handling hexane and sheen test samples containing hexane, wear approved safety glasses, disposable nitrile gloves and keep away from ignition sources. Properly dispose of sheen test samples containing hexane.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1054	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: May 31, 2012, 0700 To: June 07, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **River Opening Coordination**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone Joe Victory, Deputy Steve Noble Christopher Haux Dave Bareham, Deputy James Snider, Deputy	START/US EPA START/US EPA DEQ Enbridge Enbridge Enbridge	[redacted]
Branch Director:	Chris Lantinga Steve Noble John Bohrmann	START/US EPA DEQ Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
River Opening Media Group	Don Deblasio (US EPA) Francisco Arcaute (US EPA) (Off-site) Kelly Dougherty (START/US EPA)(Off-site), Assistant Jason Manshum (Enbridge)	[redacted]	
River Opening Assessment/ Confirmation Group	Elijah Eversole (AECOM/Enbridge)		
River Opening Implementation Group	Brett Yokom (Tri Media/Enbridge)		
River Opening Monitoring & Security Group	Alison Schoeff (AECOM/Enbridge)		1 Contractor

7. Work Assignments

River Opening Media Group Special Purpose Meeting: Monday, Wednesday, & Friday at 1430, Trailer #2.
The focus of this group is on opening Segment 2 – 8 and 10.

All Groups

1. Continue development of River Opening Plan.

River Opening Media Group

1. Develop plan and media packs for press conference concerning river opening.
2. Ensure all media relations are coordinated.
3. Ensure kiosk materials are prepared for posting.
4. Ensure all signage is prepared for posting.

River Opening Assessment Group

1. Continue overbank review of Segments 2 – 8.

River Opening Implementation Group

1. Conduct maintenance activities as directed by the River Opening Monitoring & Security Group.
2. Staging of material for implementation of river traffic control devices and on-shore signage.

River Opening Monitoring & Security Group

1. Conduct daily monitoring of river conditions, recording observations of sheen or oil, by River Opening segment.
2. Conduct weekly monitoring of buoys and signage in open segment of the river.
3. Provide security at E4 boat launch for the potential opening of Segment 10.
4. Perform daily patron count at one location for Segment 10.

Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1054	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: May 31, 2012, 0700 To: June 07, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Kalamazoo River System Branch	**Remedial Investigation / Compliance / Remedial Action / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Steve Noble	DEQ	
	Bryan Stiemsma	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Talmadge Creek/Kalamazoo River Remedial Investigation	Brian Albig (AECOM/Enbridge)	[redacted]	8 Contractors 2 DEQ 1 Weston/DEQ
Kalamazoo River Compliance	Mike Zambetis (Cardno JFNew/Enbridge)		3 Contractors
Kalamazoo River Remedial Action	Matt Sumner (AECOM/Enbridge)		
Talmadge Creek/Kalamazoo River Monitoring	Alison Schoeff (AECOM/Enbridge)		2 Contractors

7. Work Assignments

The Kalamazoo River System Branch Special Purpose Meeting is held on Tuesday at 1500 in Trailer #2.

Talmadge Creek/Kalamazoo River Remedial Investigation

1. Implement Remedial Investigation Work Plan between MP 5.8 to Morrow Lake Dam.

For DEQ:

1. Observe and document RI activities with emphasis on conformance with approved work plans and standard operating procedures.
2. Collect RI split samples at 10% frequency for soil, sediment and groundwater.

Kalamazoo River Compliance

1. Continue restoration/stabilization of the Kalamazoo River Bank Erosion Assessment Sites (KRBEAS).

Kalamazoo River Remedial Action

1. Provide support activities as necessary.

Talmadge Creek/Kalamazoo River Monitoring

1. Monitor erosion control devices.
2. Continuous visual monitoring of the confluence by remote web based camera.
3. Continue implementation of the Talmadge Creek Monitoring and Maintenance Plan.
4. Perform remote turbidity monitoring at the confluence.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed by 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
When operating or working in the vicinity of ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1055	D. Bareham, Enbridge	5/30/2012 1145

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: May 31, 2012, 0700 To: June 07, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Planning Section**	4. Division/Group/Staging **Situation Unit / GIS Specialists / Resources Unit / Environmental Unit / Documentation Unit**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Planning Section Chief:	Mindy Luetke Amy Back Brad Nelson, Deputy Matt Hetzner, Deputy	START/US EPA Avery/Enbridge Avery/Enbridge Avery/Enbridge	[redacted]

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons
Situation Unit	Matt Haak (START/US EPA) Matt Hetzner (Avery/Enbridge) Mark Fuller (AECOM/Enbridge), Assistant	[redacted]	1 START/US EPA 1 Contractor
GIS Specialists	Jim Valenza (START/US EPA) Tik Sulaiman (START/US EPA), Leader Chad Fizzell (DEQ) (Off-site) Kevin Brown (Weston/DEQ) (Off-site) Debora Endriss-Periard (AECOM/Enbridge) Ken Kaiser (AECOM/Enbridge)		1 DEQ 1 Weston/DEQ 2 Contractors
Resources Unit	Shauna Ross (START/US EPA), Leader Breanna Bukowski (Weston/DEQ)(Off-site) Brad Nelson (Avery/Enbridge)		1 START/US EPA 1 Weston/DEQ 1 Contractor
Environmental Unit	Ernie Sarkipato (DEQ) Doug Thompson (DEQ) Isaac Aboulafia (START/US EPA) Elizabeth Wessling (START/US EPA)(Off-site) Faith Fitzpatrick (USGS) Ron Zelt (USGS), Assistant Rex Johnson (START/US EPA), Assistant Tom Graan (START/US EPA) , Assistant Jeff Spruit (DEQ)(Off-site) Kim Churchill (Weston/DEQ) John Bohrmann (Enbridge)		2 START/US EPA 1 Weston/DEQ 2 USGS 3 DEQ 1 Enbridge 9 Contractors
Documentation Unit	Brennan Pierce (START/US EPA) Crystal Laskey (DEQ) Carolyn Giles-Smith (Weston/DEQ) Matt Hetzner (Avery/Enbridge)		1 US EPA 2 START/US EPA 1 DEQ 1 Weston/DEQ 3 Contractors

7. Work Assignments

Situation Unit:

1. Organize field metrics, prepare for and facilitate presentations, and monitor action tracking.

Maintain situational awareness around operational activities and plan for operational needs.

For START/US EPA:

1. Maintain situational awareness around operational activities.
2. Communicate observations to the Operations Section Chief.
3. Provide daily situational photo log summaries.
4. Conduct daily monitoring of river conditions, recording observations of sheen and/or oil, by River Opening Segment.
5. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.

GIS Specialists:

1. Provide data as necessary.
2. Process Yuma data from the field teams.

Resources Unit:

1. Produce an Incident Action Plan as required by the Incident Commanders.
2. Support the planning efforts of operations and provide information to Logistics in order to properly prepare and order resources.

Environmental Unit:
1. Conduct strategic assessment, modeling, and environmental monitoring.
2. Conduct analysis of sheen testing data.
3. Finalize submerged oil quantification for Spring 2011.

For START/US EPA:
1. Continue to coordinate efforts to calculate the quantity of submerged oil remaining as of Spring 2011.
2. Continue supporting the evaluation of the hydrogeomorphology of the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

Documentation Unit:
1. Maintain accurate, up-to-date incident files.
2. Store files for post-incident use.

All Goups: Designated Meeting Location: ICP.

8. Special Instructions

All personnel will report to designated meeting location at 0700. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

SAFETY INSTRUCTIONS:

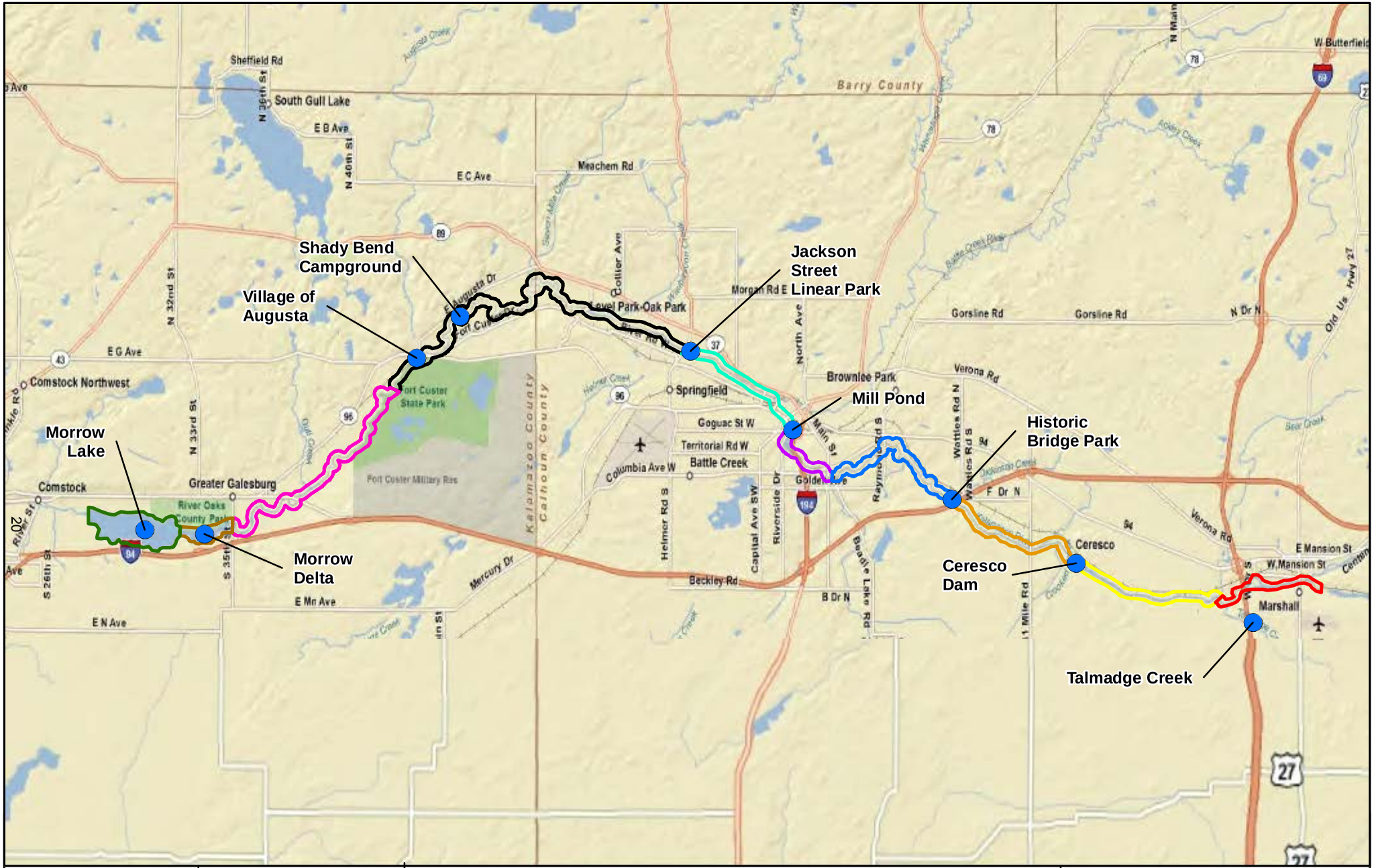
Process for Reporting Potentially Hazardous Materials: If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	5/30/2012 1045	A. Back, Avery/Enbridge	5/30/2012 1055	D. Bareham, Enbridge	5/30/2012 1145



ENBRIDGE

Drawn:	GM	4/26/2012
Approved:	AG	4/26/2012
Project #:	60162778	

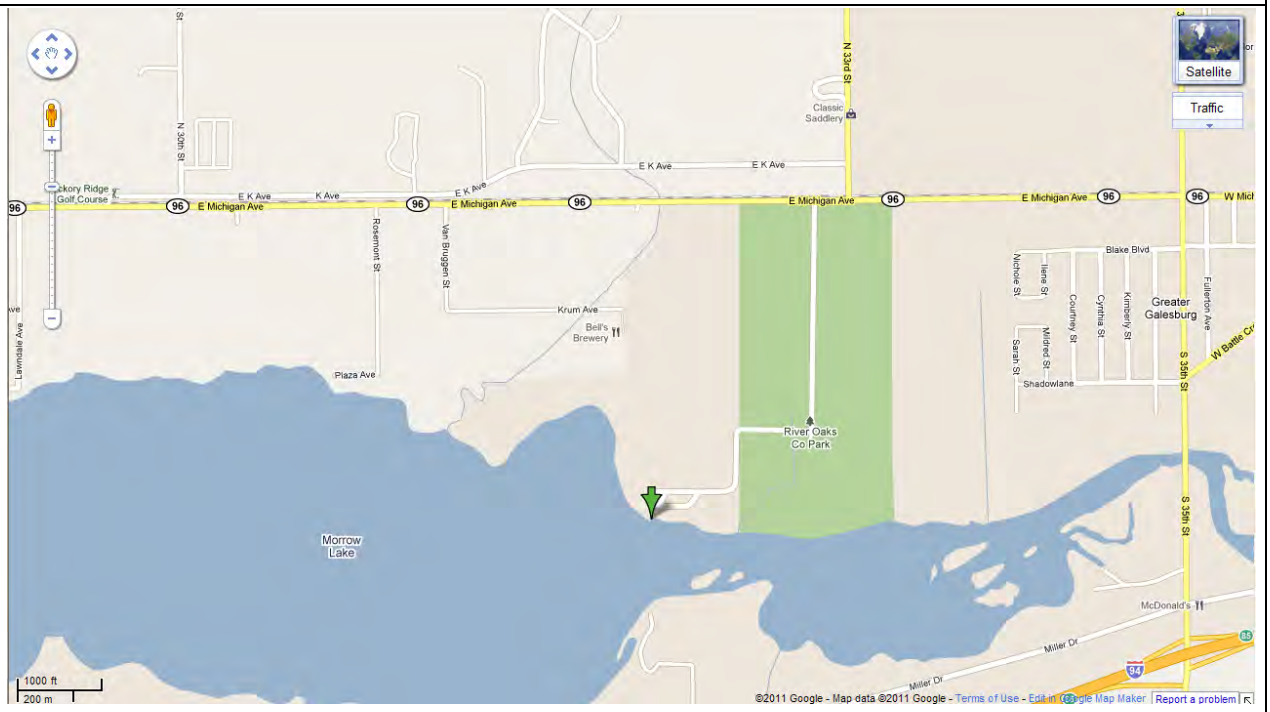
KALAMAZOO RIVER OVERVIEW MAP

ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP

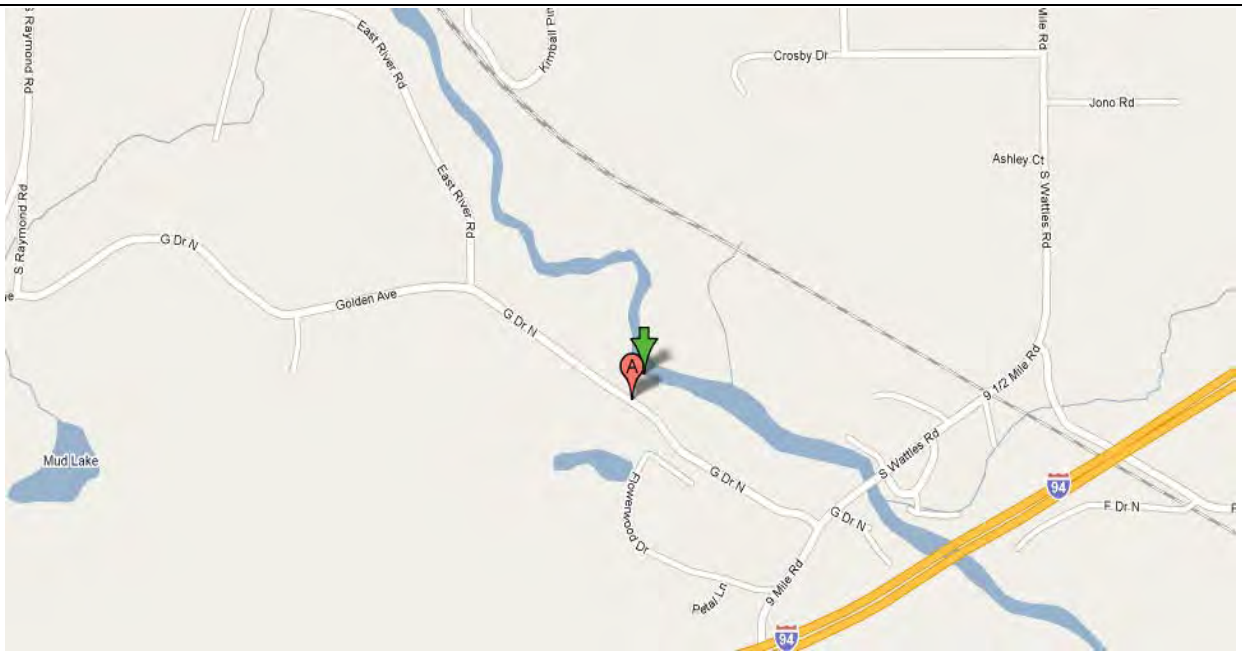
Z:\Work\GIS\Enbridge_Requests\MXDs\River_Overview_Reopening.mxd

Toolbox Meeting Locations

E4 - 9424 E Michigan Ave , Galesburg, MI 49053 GPS Coordinates Lat: 42.278265 Long: -85.452295



C3.2 8677-9015 G Dr N Battle Creek, MI 49014 GPS Coordinates Lat: 42.293492 Long: -85.124479



Refer to traffic plan for detailed access instructions.

1. Incident Name	2. Operational Period (Date / Time)	Traffic Plan
Kalamazoo River / Enbridge Spill	From: **05/31/2012 / 0700 hrs** To: **06/07/2012 / 0700 hrs**	

Traffic Safety Alert for Parking at Incident Command Post 1601 Pratt Avenue



- Thursday morning parking: Please note meeting attendees who do not work at ICP are to use Woolley Drive.
- For the Thursday morning meeting, an ICP parking permit will be required to park in the main ICP parking lot.
- Slow speeds are imperative at all times.
- There is very limited parking with two-way traffic and pedestrian traffic. Watch vehicle speeds.
- Due to the pedestrian traffic, MAC members and deliveries only will be allowed at the back entrance.
- Everyone must check in at the Security Check Point as shown at the Pratt Avenue entrance.

Any further questions or concerns, contact the Safety Office.

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: Talmadge Creek

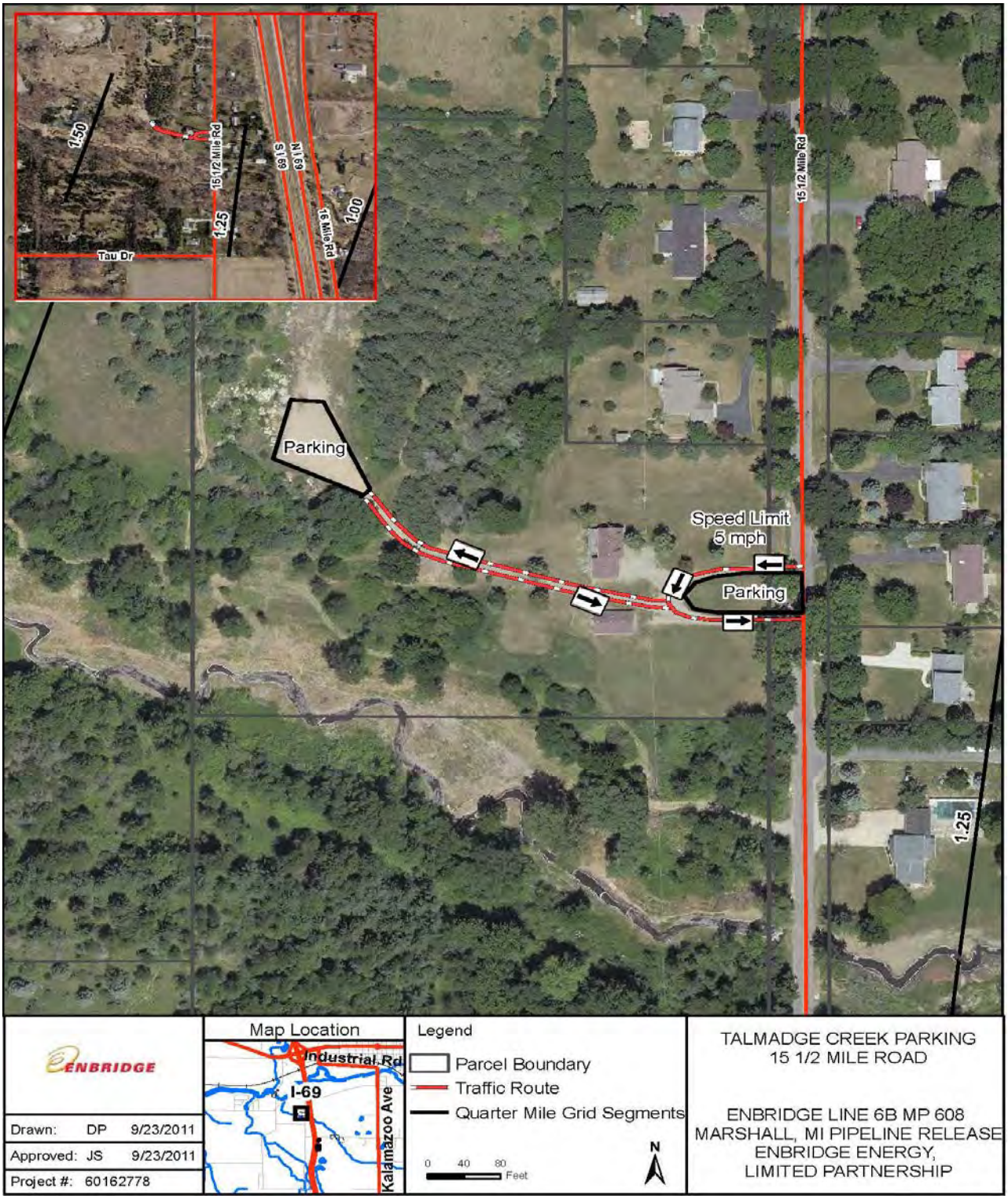


16054 Division Dr., Marshall, MI 49068
GPS Coordinates: Lat: 42.24620, Long: -84.97641

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: 15 ½ Mile Road



12271-12699 15 ½ Mile Road, Marshall, MI 49068
GPS Coordinates: Lat: 42.25348, Long: -84.99030

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: C 0.4



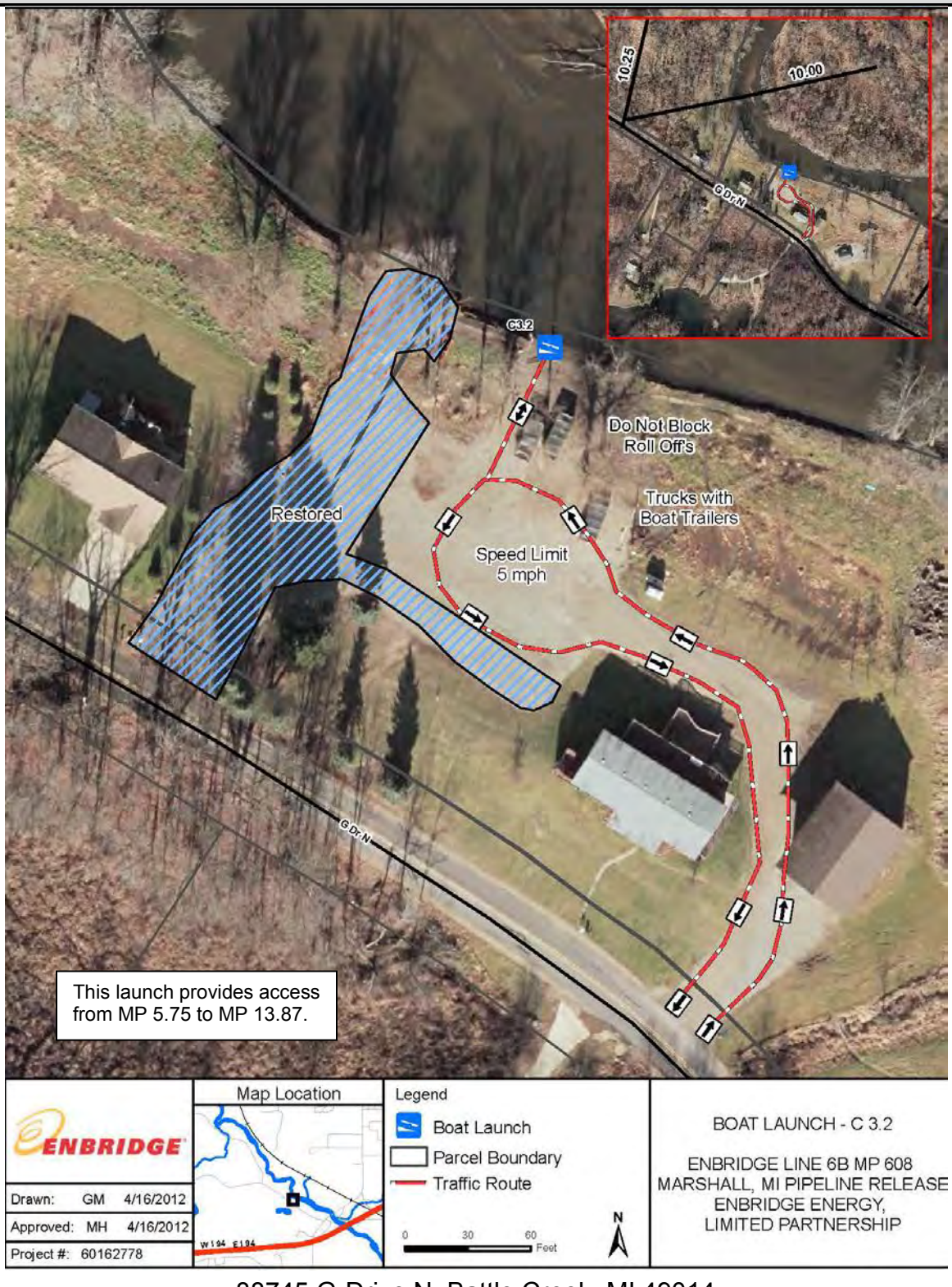
12400-12998 C-Drive N, Ceresco, MI 49033

GPS Coordinates: Lat: 42.265127, Long:-85.048364

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: C 3.2



88745 G-Drive N, Battle Creek, MI 49014

GPS Coordinates: Lat: 42.293492 Long: -85.124479

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: D2



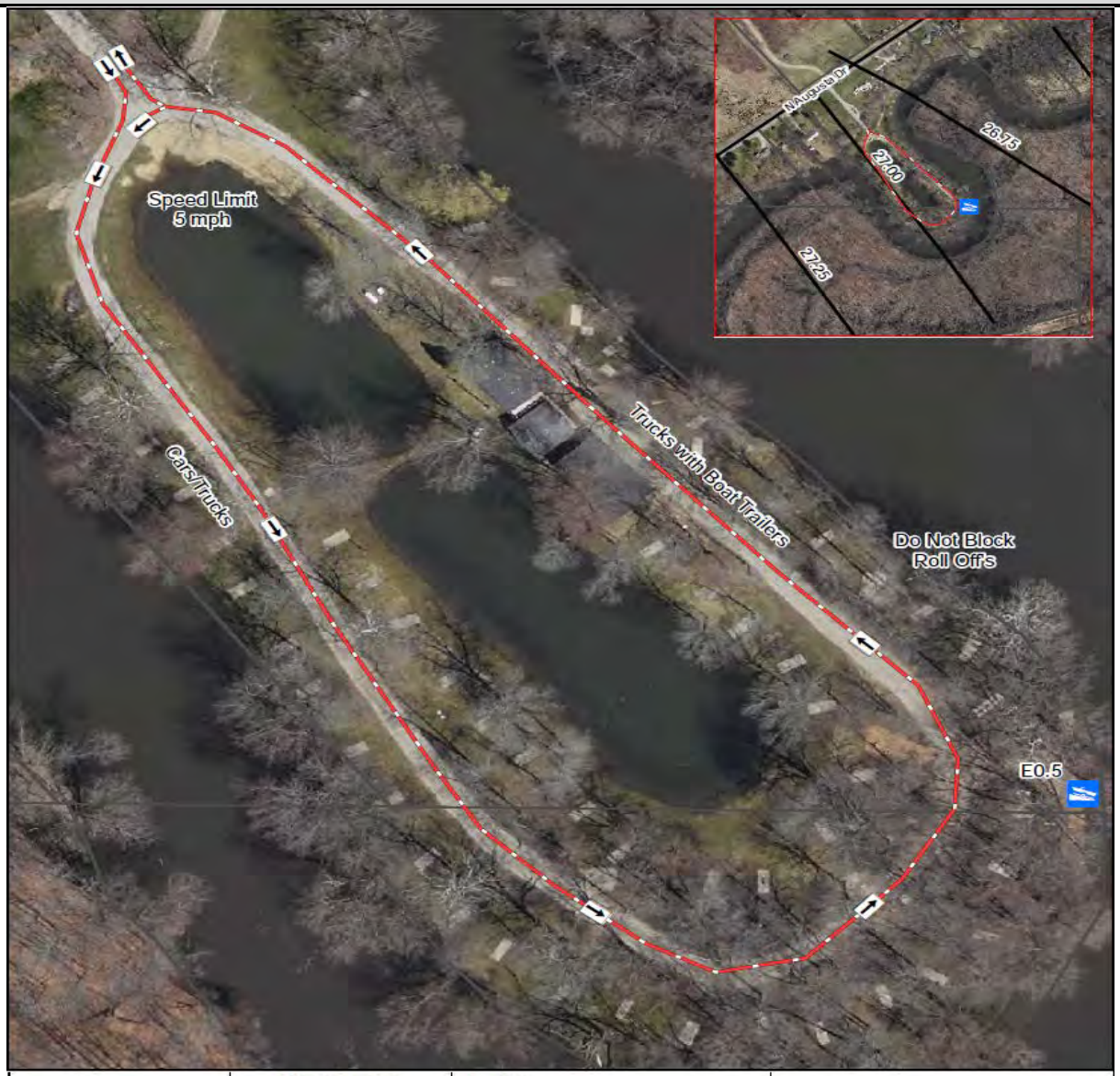
This launch provides access from MP 15.75 to MP 23.25.

1445-1509 Jackson St W, Battle Creek, MI 49037
GPS Coordinates: Lat: 42.338427 Long:-85.232309

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: E 0.5



This launch provides access from MP 23.25 to MP 28.75.

(Shady Bend Camp Ground), 15320 East Augusta Dr, Augusta, MI 49012
GPS Coordinates:Lat: 42.347408 Long: -85.3295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: E 2



5106-5140 River Rd, Augusta, MI 49053
GPS Coordinates: Lat: 42.32412 Long: -85.358041

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

30

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: E 3

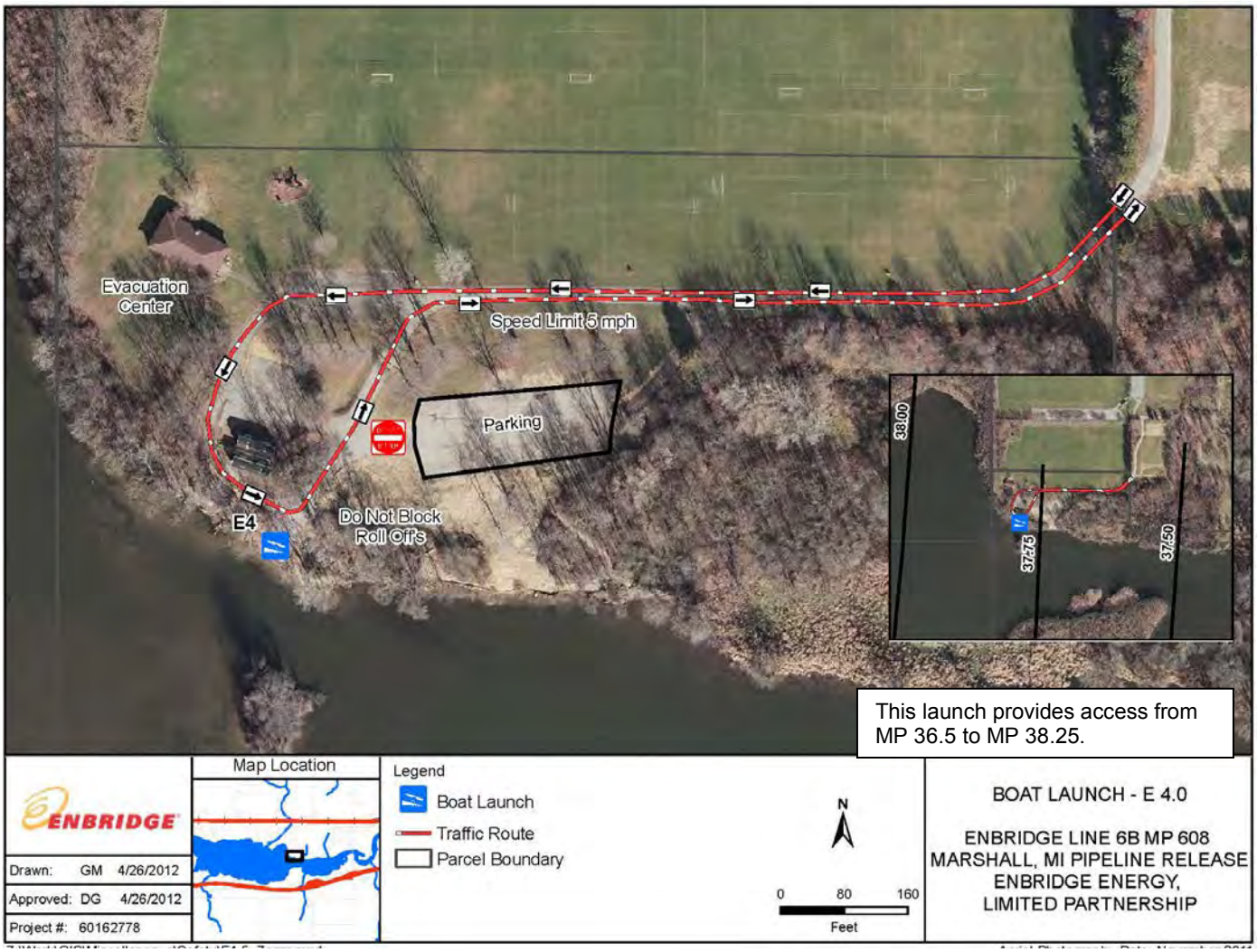


188 East Michigan Avenue., Galesburg, MI 49053
GPS Coordinates: Lat: 42.284663 Long: -85.412855

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 05/31/2012 0700 To: 06/07/2012 0700	

3.TRAFFIC PLAN: E 4



9424 E Michigan Ave., Galesburg, MI 49053
GPS Coordinates: Lat: 42.278265 Long: -85.452295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	5-30-2012

1. Incident Name Kalamazoo River/Enbridge Spill Response	2. Operational Period (Date/Time) From: May 31, 2012, 0700 To: June 07, 2012, 0700	Radio Communications Plan ICS 205- EPA

Enbridge Line 6B – Marshall Release Radio Check Inventory (ICS 205)

Radio Number	Organization	User Name	PTT CALL NUMBER
D-1	WESTON/DEQ	Vinne DelloRusso	269-986-7542
D-2	WESTON/DEQ	Terri Shattuck	269-986-8005
S-1	ENBRIDGE	Dale Gross	269-986-8011
S-4	ENBRIDGE/Avery	Matt Peischer	269-986-8100
S-7	ENBRIDGE/McDaniel	Red Calvert	269-986-8106
S-9	ENBRIDGE/McDaniel	Sasha Vuksanovic	269-986-7434
S-11	ENBRIDGE/Manpower	Ricardo Cedillo	269-986-8418
U-2	START/ US EPA	Mike Stewart	269-986-8110
B-51	SWAT	Clark Short	269-967-3675
B-52	SET	Andrew Jasman	269-967-3973
B-55	SWAT	Jesus Vavra	269-986-8885
B-58	SWAT	Trevor Evans	269-967-2310
B-59	SET	Zachary Woods	269-986-7386
B-60	SWAT	Benito Vavra	269-986-3451
B-61	SET	Berry Vavrina	269-986-5774
B-62	SWAT	Paul Kerpash	269-986-3287
B-63	SET	Dustin Young	269-986-5787
B-64	SET	John Henry	269-967-3998
B-65	SWAT	Jon Boyer	269-986-5840
B-66	SWAT	Kenny Decker	269-986-5930
B-68	SET	Bruce Allen	269-986-8250
B-69	SET	David Hoekstra	269-986-5819
G-50	SWAT	Chris Jones	269-986-8384
G-51	SET	James Barber	269-986-5951
G-52	SET	Ben Fischer	269-986-0185
G-53	SET	Richard Cale	269-986-6029
G-54	SET	Tony Marotz	269-986-3421
G-55	SET	Shaun Burnum	269-986-5271
G-60	SWAT	Oliver Webb	269-986-9102
G-61	SET	Ruben Garcia	269-986-8341
G-63	SET	Mark Taylor	269-986-5675
G-69	SWAT	Kimo Mathis	269-986-5334
P-12	SWAT	Ziggy Przybyl	281-743-8839
P-15	SWAT	Jeff Madden	281-743-8842
P-18	SWAT	Hassan Salim	281-743-8845
P-20	SWAT	Travis Gibson	281-743-8847
P-22	SWAT	Bill Rowe	281-743-8849

Communication Check: Communication Check will be tested Mondays and Thursdays by Enbridge Safety Office at 1200 hours.

SPECIAL NOTATION ON WEATHER MESSAGING:
See daily updates for additional weather information.

Enbridge Safety is responsible for weather on-site and they are supported by the NOAA / NWS Grand Rapids Weather Office.

Enbridge Safety will maintain consistent weather messages by following the established format of presenting daily and extended forecast, river depth, hydrologic predictions, and the five day quantitative precipitation forecast. The compilation of information will be presented through daily briefings. Enbridge Safety will continue the current practice of issuing a daily forecast to the field safety staff by posting NWS updates in various locations around the Incident Command Post.

In the event of severe weather warnings and alerts, the NWS Grand Rapids Center will contact the Enbridge Safety Office using the Enbridge Safety Radio System between the hours of 0700-1800 hours. If severe weather warning and alerts are occurring from 1800-0700, NWS Grand Rapids Center will contact the Enbridge Safety Office by phone at: **269-781-1913** and DK Security by phone at: **269-781-1911**. These numbers are in operation 24/7. Enbridge Safety will initiate the notification process by using the Call-EM-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews.

- *Severe Weather Alerts:* report to shelter when the county activates their warning sirens.
- *Fire/Building Evacuation Alert*: Report to assigned evacuation point. Follow Air Horn Procedure: Series of Three 1 second blasts.

Weather related cancellation or concerns call 269-781-1914

Enbridge Oil Spill Incident - Campbell ICP, Marshall, MI
U.S. EPA Trailer Phone Directory

Trailer No.	Trailer Designations	Phone Number	Ext No.
1	Deputy IC Office (SW)	269-781-1995	11995
1	IC Fax Line	269-781-1110	11127
1	IC Conference Area	269-781-1026	11026
1	Operations Section Chief	269-781-1994	11994
1	Health & Safety (West End)	269-781-1991	11991
2	Work Room (NW)	269-781-1955	11955
2A	Large Conference Room (MID)	269-781-1591	11591
2B	Conference Room (NE)	269-781-1954	11954
3	MDEQ Field Trailer	269-781-1953	11953
3	MDEQ Documentation	269-781-1951	11951
4	Operations	269-781-1958	11958
4	Operations	269-781-1971	11971
4	River Opening	269-781-1972	11972
7	Copy Center	No Phone	
8	Logistics	269-781- 1997	11997
8	EPA Hotline	269-781-1992	11992
8	Weston IC (East End)	269-781-1988	11988
9	Planning	269-781-1015	11015
9	EPA Documentation	269-781-1905	11905
9	GIS	269-781-1018	11018
9	Environmental Unit	269-781-1019	11019
9	Conference Room	269-781-1963	11963
9	Wate Management Branch	269-781-1955	11955
9	Environmental Unit (USGS)	269-781-1582	11582
9	PIO	269-781-1587	11587
10	MDEQ-WRD	269-781-1014	11014
10	MDEQ-WRD	269-781-1023	11023
10	MDEQ-WRD	269-781-1022	11022
11	MDEQ-RD & Weston	269-781-1024	11024
11	MDEQ-RD & Weston	269-781-1012	11012
11	MDEQ-RD & Weston	269-781-1013	11013
Indoor	Weston Indoor Area	269-781-1961	11961

To dial between trailers, use the extension number, 1-1997 for Logistics

To place a conference call within the VOIP network, dial first number, select button under "more", scroll down to Confrm and select. Dial next number, press confirm again to connect all. Repeat steps to connect more numbers.

Repeat the same steps to conference in one outside line.

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 05/31/2012/ 0700 hrs To: 06/07/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Aboulafia, Isaac	[redacted]	[redacted]	START/US EPA	Planning
Adams, Rich			Enbridge	Operations
Albig, Brian			AECOM/Enbridge	Environment
Allen, Toby			MRG/Enbridge	Public Information
Arcaute, Francisco			US EPA	Public & Govt. Affairs
Back, Amy			Avery/Enbridge	DPSC
Back, Berl			Avery/Enbridge	Facilities Manager
Baine, Jaclyn			AECOM/Enbridge	Environment
Baker, Paul			Kalamazoo OEM	MAC
Bareham, Dave			Enbridge	Environment
Beodray, Frank			START/US EPA	
Berecz, Karen			START/US EPA	O & M
Berninger, Mark			Cardno JFNEW/Enbridge	Restoration
Blackburn, Ted			START/US EPA	Safety Officer
Blanchard, Mark			START/US EPA	
Blue, Melissa			AECOM/Enbridge	Environment Admin.
Bohrmann, John			Enbridge	Environment
Brettmann, Gregg			DEQ	Environmental Unit Leader
Bretz, Ryan			Manpower/Enbridge	IT
Brown , Kevin			Weston/DEQ	GIS Support
Bukowski, Breanna			Weston/DEQ	Planning
Burrous, Lauren			USGS	USGS
Calvert, Red			McDaniel/Enbridge	Safety
Capone, Dan			START/US EPA	Operations
Cavazos, Lupe			START/US EPA	Planning
Cedillo, Ricardo			Manpower/Enbridge	Security Unit Leader
Churchill, Kim			Weston/DEQ	Environmental Unit
Cox, Renee			Manpower/Enbridge	Documentation
Dababneh, Fouad			US EPA	
Daniel, Pat			Enbridge	MAC
Daniel, Wayne			Tulsa/Enbridge	Operations
Deblasio, Don			US EPA	Public Information
Dekker, Shaun			SET/Enbridge	Waste Management
DelloRusso, Vincent			Weston/DEQ	Operations
DeLong, Michelle			DEQ	Incident Commander
Dennis, Kate			Manpower/Enbridge	Admin Support
Dew, Justin			Avery/Enbridge	Facilities Coordinator
Dobrowski, Ed			USGS	USGS
Doherty, Bob			Enbridge	Environment
Dollhopf, Ralph			US EPA	Incident Commander (FOSC)
Donaldson, Elizabeth			Enbridge	Planning
Dougherty, Kelly			START/US EPA	Public Information
Dryburgh, Dave			AECOM/Enbridge	Environment
Dubois, Amy			US EPA	
DuCharme, Mark			DEQ	Incident Commander
Dunham, Durk			Calhoun County EMA	MAC
Dykema, Linda			MDCH	Public Health
Fitzpatrick, Faith			USGS	Tech Specialist
Fizzell, Chad			DEQ	GIS Support
Frost, Joe			Calhoun County Health	MAC
Fuller, Mark			AECOM/Enbridge	Environment
Giles-Smith, Carolyn			Weston/DEQ	Documentation
Good, Gena			START/US EPA	
Graan, Tom			START/US EPA	Submerged Oil Lead
Gross, Dale			Superior/Enbridge	Safety Officer
Guest, Nyekah			Enbridge	Procurement
Haak, Matt			START/US EPA	Sit Unit Leader
Haase, Becky			Enbridge	Public Affairs
Hackley, Richard			US EPA	Finance
Haux, Christopher			Enbridge	OSC
Hehir, Nate			Superior/Enbridge	Environment
Hetzner, Matt			Avery/Enbridge	Planning
Hoard, Chris			USGS	USGS
Hodges, Luke			Stantec/Enbridge	
Hogan, Charlene			AECOM/Enbridge	Environment
Hong, Lorie			START/US EPA	Logistics
Hummel, Rebecca			Manpower/Enbridge	Finance
Johnson, Rex			START/US EPA	Operations
Jones, Susan			DEQ	Operations
Kaiser, Ken			AECOM/Enbridge	GIS Specialist
Kane, Sean			START/US EPA	Waste Management
Kendall, Joseph			START/US EPA	Operations
Kent, Norm			AECOM/Enbridge	Environment
Kerpash, Paul			SWAT/Enbridge	Control Point Management
Kidder, Steven			START/US EPA	Operations SOS
Kirby-Miles, Leslie			US EPA	Legal
Kogge, Stu			Cardno JFNEW/Enbridge	Operations
Kosmowski, Christine			City of Battle Creek	MAC
Lantinga, Chris			START/US EPA	Operations
Laquerre, Tim			START/US EPA	Operations
Laskey, Crystal			MDEQ	Planning
Lefaive, Doran			AECOM/Enbridge	Waste Management
Lisabeth, Nicole			MSP	PIO
Long, Janna			Weston/DEQ	Operations
Luetke, Mindy			START/US EPA	PSC
Lundholm, Mark			Weston/DEQ	Operations
Makoski, Paul			Calhoun County Health	MAC

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 05/31/2012/ 0700 hrs To: 06/07/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Manshum, Jason	[redacted]	[redacted]	Enbridge	Public Affairs
Maradkel, Ben			START/US EPA	
Massey, Dylan			LBG/Enbridge	Environmental Inspector
McKay, John			Enbridge	ROW
McKenzie, Michael			Battle Creek Emer. Srvs.	MAC
McKinnon, Bryan			START/US EPA	Waste Management Lead
Mehl, Rick			START/US EPA	
Moisan, Paul			START/US EPA	Documentation
Moore, Terry			SET/Enbridge	
Nelson, Brad			Avery/Enbridge	DPSC
Neumeier, Laura			Trimedia/Enbridge	Air Monitoring
Newberry, Christina			Manpower/Enbridge	Documentation
Noble, Steve			DEQ	Water Resources Division
Nye, Dennis			START/US EPA	Recovery
Oleschuk, Rick			Enbridge	Safety Officer
Olson, Alex			Avery/Enbridge	Planning
Ostrodka, Steve			US EPA	Submerged Oil Lead
Periard, Debora			AECOM/Enbridge	GIS Support
Pesses, David			LBG/Enbridge	Environmental Inspector
Pierce, Brennan			START/US EPA	Documentation
Piescher, Matthew			Avery/Enbridge	Field Inspector
Porter, Pete			Salem/Enbridge	Right of Way Agent
Powell, Meredith			Hill & Knowlton/Enbridge	Public & Govt. Affairs
Pratt, Catherine			AECOM/Enbridge	Environment
Quiggle, Lisa			MDCH	
Rader, Larry			START/US EPA	Sit Unit Leader
Rafati, Mike			US EPA	
Reber, Lt. Barry			MSP EMHSD	MAC
Reed, Mike			Tetra Tech/Enbridge	Envrionmental Inspector
Reigner, Selma			Kelly Services/Enbridge	Admin. Assistant
Richardson, Dave			Tetra Tech/Enbridge	River Poling Supervisor
Rosenbaum, Charmaine			Enbridge	Project Support Manager
Ross, Shauna			START/US EPA	
Runstrom, Steve			Avery/Enbridge	Operations Inspector
Rutherford, James			Calhoun County Health	MAC
Sahara, Dean			SWAT/Enbridge	Operations
Sarkipato, Ernie			DEQ	
Saylor, Andy			SET/Enbridge	
Schmitt, Ben			DEQ	Operations
Schneider, Dave			Kalamazoo County	MAC
Schoeff, Alison			AECOM/Enbridge	Water Monitoring Supervisor
Shattuck, Terri			Weston/DEQ	Operations
Smith, Brian			Tulsa/ Enbridge	Overbank Excavation Field Inspector
Smith, Karen			Accountemps/Enbridge	Accounts Payable - Lead
Snider, Jim			Enbridge	Environment Director
Sobojinski, John			Enbridge	Incident Commander
Spates, Jack			Avery/Enbridge	Operations
Spruit, Jeff			DEQ	Environment
St. Onge, Greg			LBG/Enbridge	O&M
Standen, Joe			LBG/Enbridge	Strike Lead
Steede, Bob			Enbridge	DOSC
Stiemsma, Bryan			AECOM/Enbridge	Environment Supervisor
Stuart, Mike			START/US EPA	Safety Officer
Sulaiman, Tik			START/US EPA	GIS Specialist
Sumner, Matt			AECOM/Enbridge	Environment
Taft, Bill			DEQ	Wildlife Environmental NRDA Group
Thomas, Brittany			START/US EPA	Finance
Thompson, Doug			DEQ	
Underhill, Kevin			Enbridge	Environment
Urie, Cheryl			Enbridge	Safety Officer
Ushio, Miako			AECOM/Enbridge	Talmadge Creek Remediation Lead
Vail, Linda			Kalamazoo County Health	MAC
Valenza, James			START/US EPA	GIS Specialist
VanWagner, Elmer			Weston/DEQ	Operations
Vega, Sonia			US EPA	Deputy Incident Commander
Victory, Joe			START/US EPA	DOSC
Vilhauer, Eric			Enbridge	ROW Agent
Vosburg, Cheryl			City of Marshall	MAC
Vuksanovic, Sasha			McDaniel/Enbridge	Safety
Wagner, Greg			START/US EPA	Submerged Oil Recovery
Wahrer, Marc			START/US EPA	Operations
Wallace, John			Avery/Enbridge	Operations Inspector
Watt, Tammy			Enbridge	Finance
Webb, Oliver			SWAT/Enbridge	Control Point Management
Weir, Karen			START/US EPA	
Wekseth, Mike			SWAT/Enbridge	Operations Inspector
Wellman, John			START/US EPA	Operations
Wessling, Elizabeth			START/US EPA	PSC
Williams, Lisa			USFWS	
Wilson, Lee			Weston/DEQ	Operations
Wiswell, Amber			Kelly Services/Enbridge	Admin. Assistant
Wolf, Mike			AECOM/Enbridge	Monitoring
Wolfe, Stephen			US EPA	Deputy Incident Commander
Yokom, Brett			Trimedia/Enbridge	Environment
Zahner, Dan			START/US EPA	Operations
Zambetis, Mike			Cardno JFNEW/Enbridge	Restoration
Zanter, Paul			US EPA	Logistics
Zelt, Ron			USGS	Environmental Unit Leader Assistant

MEDICAL PLAN ICS – 206	Kalamazoo River/Enbridge Spill	1. Date Prepared 5/30/2012	2. Time Prepared 0800	3. Operational Period 05/31/2012 0700 06/07/2012 0700

4. Transportation

Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
Lifecare Ambulance	330 West Hamblin Avenue, Battle Creek, MI 49015	9-1-1	X	
City of Marshall Fire Dept	323 West Michigan Avenue, Marshall, MI 49068	9-1-1	X	

5. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Bronson Methodist Hospital	601 John Street Kalamazoo, MI	15 Min	50 min	269-341-7654	X		X	
Borgess Medical Center	1521 Gull Road Kalamazoo, MI	15 min	50 min	269-226-7000	X			X
Oaklawn Hospital	200 N. Madison Ave Marshall, MI		5 min	269-781-4271		X		X
Battle Creek Health System	300 North Avenue Battle Creek, MI		20 min	269-966-8000		X		X

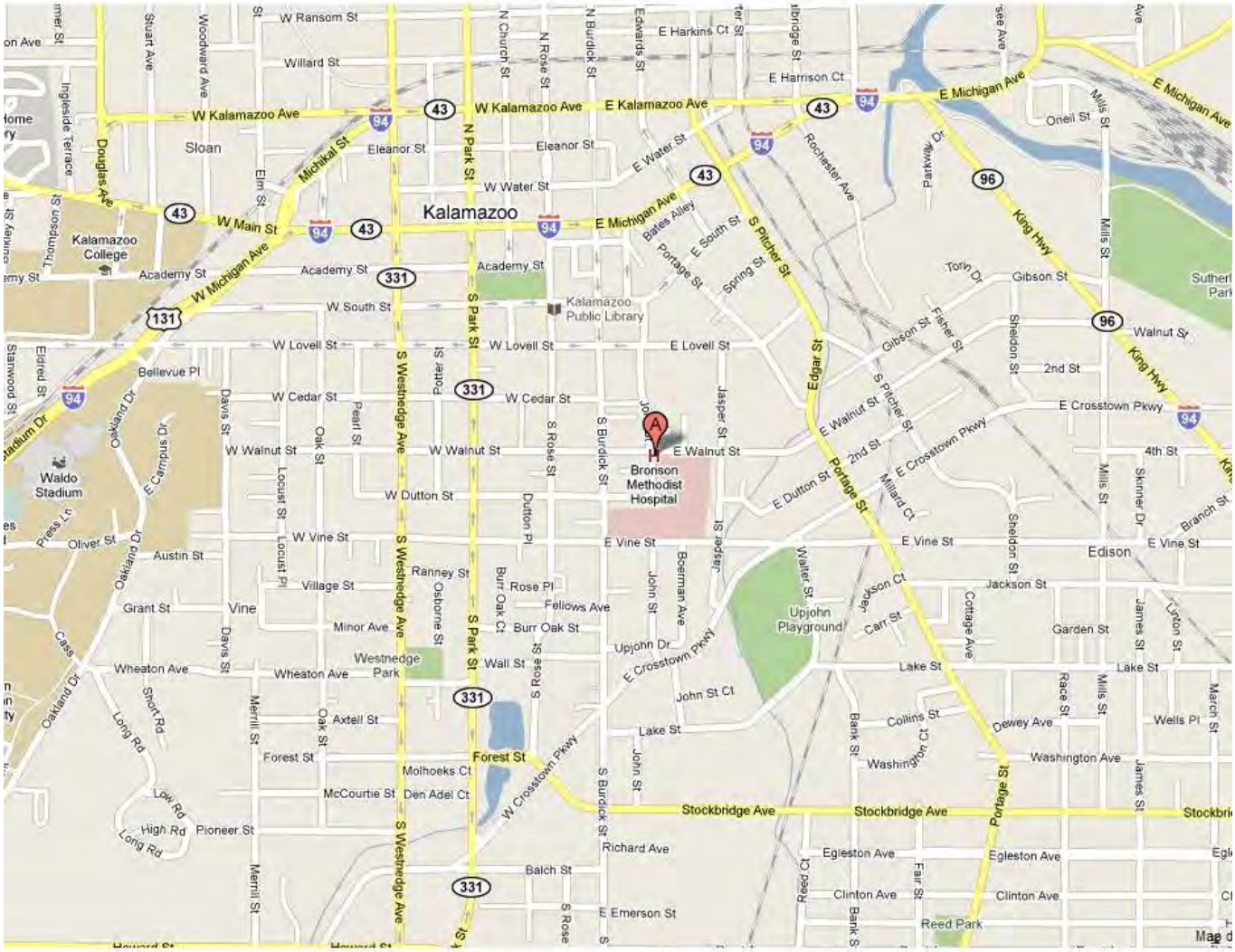
6. Medical Emergency Procedures

1. Dial 9-1-1 for all emergencies. Give 9-1-1 operators as much information as possible. Stay on the line and answer all questions – information may be radioed to responders. On-site personnel trained and certified in first aid should attempt to stabilize victim until fire department/EMS personnel arrive.
2. Report all incidents to the Project Safety Officer. Keep a log of events. Secure the area. Identify witnesses for later investigation.

NOTE: Suspend all operations during an actual emergency situation!

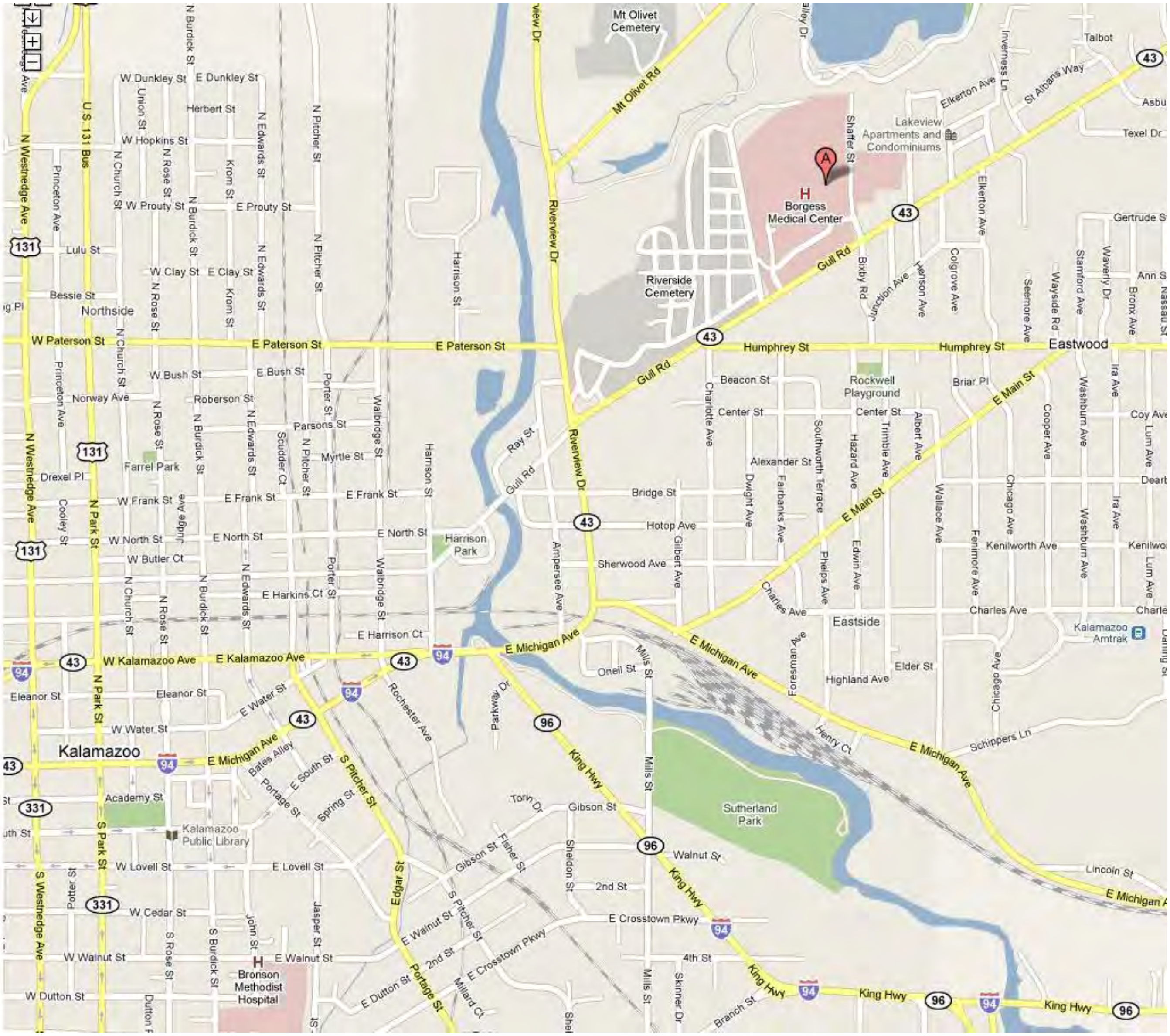
Prepared by	10. Reviewed by (Safety Officer)
Dale Gross 5/30/2012	Dale Gross 5/30/2012

Hospital Route Map – Bronson Methodist Hospital – Kalamazoo, MI



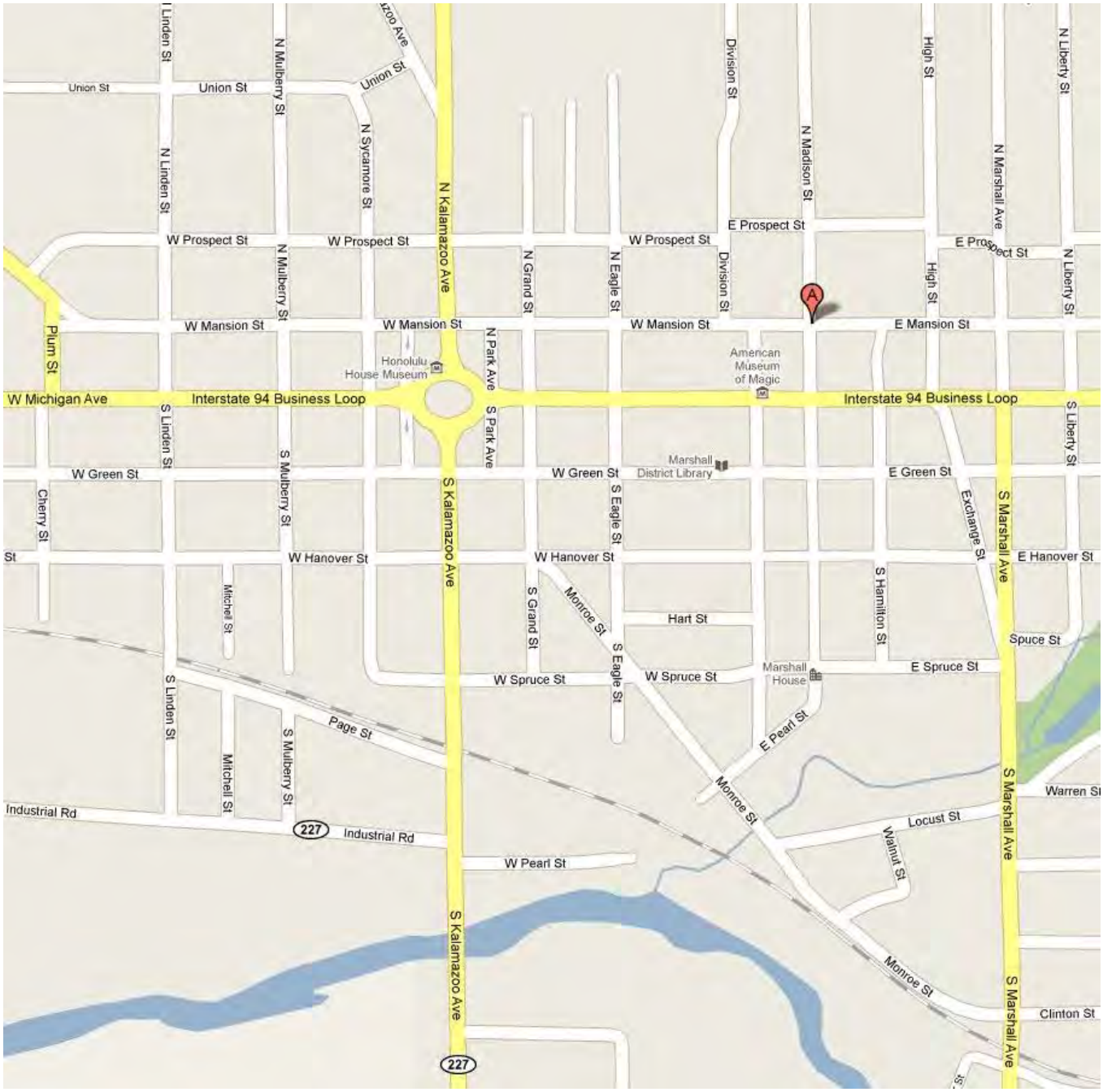
Bronson Methodist Hospital
601 John St
Kalamazoo, MI 49007
(269) 341 - 7979

Hospital Route Map – Borgess Medical Center – Kalamazoo, MI



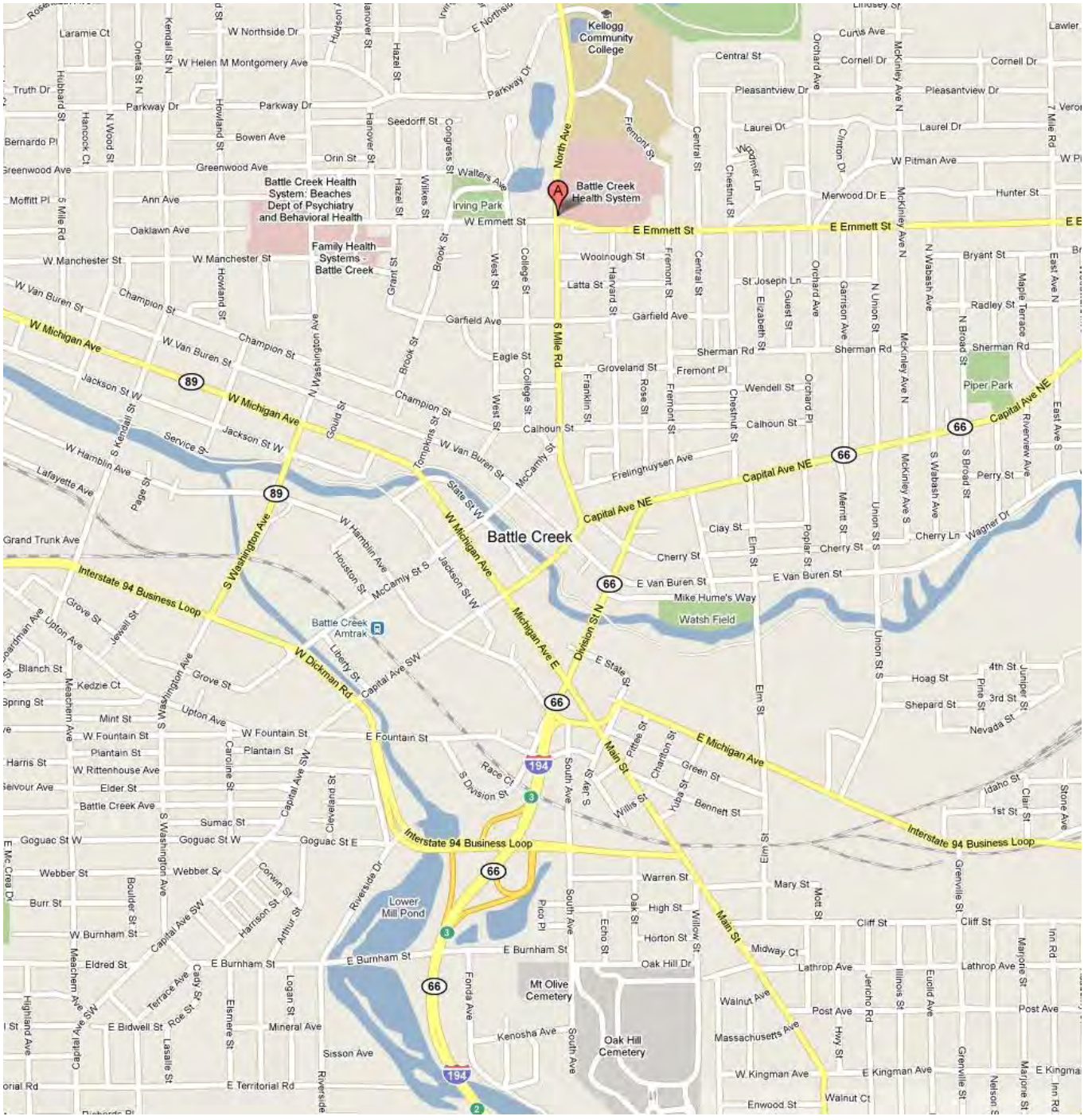
Borgess Medical Center
1521 Gull Road
Kalamazoo, MI 49048
(269) 226 - 7000

Hospital Route Map – Oaklawn Hospital – Marshall, MI



Oaklawn Hospital
200 North Madison St.
Marshall, MI
(269) 781-4271

Hospital Route Map – Battle Creek Health System – Battle Creek, MI



Battle Creek Health System
300 North Avenue
Battle Creek, MI
(269) 966-8000

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Instructions
Operational Period: 5/31/12 (0700hrs) to 6/7/12 (0700hrs)

River Opening: Be advised that the Kalamazoo River between MP – 2.75 and MP 2.25 has been opened to the public. Public recreational activities are to be expected on the river in this segment. Be courteous and respectful to members of the public at all times. Be aware that members of the public may be present in closed segments of the river or work areas.

Weather: Review weather information prior to commencing work each day. Be aware of changes in the weather conditions and ensure proper controls are implemented to address the weather hazards such as: Cold, Wind, Rain, Ice, Fog, Frost, etc. Take actions in accordance with instructions provided by supervisory personnel and as received through the Call-Em-All and PTT systems.

Sunscreen: Sunscreen should be applied to exposed skin, and not just if you are going to be in the sun. UVB rays cannot penetrate glass windows, but UVA rays can, leaving you prone to these damaging effects if unprotected.

PPE: Be prepared for changing weather conditions by wearing, and/or having available, appropriate cold weather gear and approved safety footwear with appropriate soles for use on slippery ground conditions due to frost, ice and rain. When PFDs are required you must ensure that they are United States Coast Guard approved and are the outermost layer, with reflective vest worn under the PFD.

Vehicles: Follow speed limits and adjust speed as necessary for road conditions. Clear all windows of frost before driving. Make sure your vehicle is in proper working condition.

SPECIAL NOTATION ON WEATHER and HAZARD ALERT MESSAGING:
(See daily updates for additional weather information).

Enbridge Safety will maintain consistent weather messages by compiling information and present through daily briefings. Weather forecast updates will be distributed to field safety staff for further communication in the field. Enbridge Safety is responsible for communicating weather alerts based on information received through the Weather TAP system and text messages received from the National Weather Service in Grand Rapids.

In the event of severe weather warnings and alerts, Enbridge Safety will be monitoring via the Weather TAP system. Enbridge Safety will initiate the notification process by using the Call-Em-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews. DK Security will be notified by Enbridge Safety by phone from 1800 – 0700 hours.

Severe Weather Alerts: Take appropriate shelter when the county activates their tornado warning sirens. In the Incident Command Post, report to the designated tornado shelter rooms. Where appropriate shelter is not available, lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of potential for flooding and flying debris.

Note: Emergency notification siren systems will be tested on the first (1st) Saturday of each month in Calhoun and Kalamazoo Counties. Typically a siren is sounded at 1200 hours; however, this could be delayed due to current circumstances in the county.

Fire/Building Evacuation Alert: In the event of a fire, utilize air horn to initiate series of three 1 second blasts. Must report to the designated evacuation point upon hearing a series of three 1 second air horn blasts. **Please close all doors, and turn lights out upon leaving your area.**

Call the Safety Office at 269-781-1914 if you have weather related concerns. Call 269-781-1913 for other Safety related issues.

Safety Orientations: Held Monday - Friday at 0800 at the Operations Center (1601 Pratt Avenue)

Boat Safety Awareness Orientation: Available by appointment Monday – Friday, contact the Safety Office.

If you see wildlife (dead or alive) that is impacted by the oil, call Bob Doherty [redacted]

Field Safety Staff	
Name	**Phone**
Red Calvert	[redacted]
Steve Runstrom	
Matt Piescher	

Communication Check: Communication Check will be tested twice a week via the Verizon Push To Talk (PTT) system by Enbridge Safety office on Monday's and Thursday's at 1200 hours.

Call-Em-All: Will be tested by Enbridge Safety office on Wednesday's at 1200 hours.

First Aid Kits: There are four (4) kits located within the Incident Command Post Facility. Please review the Evacuation Plan map for locations.

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Message
Operational Period: 5/31/12 (0700hrs) to 6/7/12 (0700hrs)

DAY 1:
Thursday, May 31, 2012

Life Saving Rule #3 – Confined Space Entry

Always follow procedures for Confined Space Entry;

- Always complete the required permit
- Receive proper authorization and ensure personnel are in place to perform the rescue plan before entering a confined space

Remember: It is up to us to keep unsafe behavior out of the workplace

DAY 2:
Friday, June 1, 2012

Community Event

The annual Greater Marshall Area Community Garage Sales is scheduled for today and tomorrow. This event will bring a number of visitors to the area resulting in increased vehicle and pedestrian traffic. All workers should:

- Be aware of increased traffic volumes. Adjust speed accordingly.
- Watch out for pedestrians while operating motor vehicles.
- Be courteous to drivers pulling into and out of residences holding the sales.

DAY 3/ DAY 4:
Saturday, June 2 – Sunday, June 3, 2012

Near Misses

Most safety incidents occur as a result of an unsafe condition or unsafe action coming together with a person. The end result is the person gets injured.

Often unsafe acts or unsafe conditions have several misfires and the result is a near miss. The only difference between a near miss and an incident is chance. All near misses need to be taken seriously

- Near misses are injuries without people.
- Near misses are not funny; they are often deadly.
- Always report a near miss.
- Take immediate action to prevent a similar near miss.
- If you did not cause a near miss but saw it, report it. You may be saving a life.

Remember: Near misses are warnings that something or someone is not performing the job correctly. Don't let near misses repeat themselves or you may find yourself or a co-worker being treated for an injury that could have been avoided.

DAY 5:
Monday, June 4, 2012

The Spotter

A vehicle/equipment spotter is required whenever the driver's/ operator's vision is obstructed or when reversing in a congested work area. A review what the spotter should be doing and looking out for:

- Look out for themselves.
- Look out for others.
- Make sure the vehicle/equipment is not damaged.
- Make sure the project and project materials are not damaged.
- Give clear and understandable signals.
- Always signal on the driver's side.
- Use hand signals and give consistent signals.
- The spotter must watch where they are walking.

It is the responsibility of the spotter to direct a vehicle without injury or property damage. This is a big responsibility—no one should take it lightly.

DAY 6:
Tuesday, June 5, 2012

Insect Repellent

With the increase in temperatures, the numbers of mosquitos and ticks are increasing. It is important to be protected by using a repellant that contains DEET (always follow the instructions on the product label).

- Cover exposed skin or clothing. Do not apply repellant under clothing.
- Do not apply repellent to cuts, wounds, or irritated skin.
- Wash treated skin with soap and water after returning indoors.
- Do not spray aerosol or pump products in enclosed areas.
- Do not apply aerosol or pump products directly to the face. Spray hands and then rub them carefully over the face, avoiding the eyes and mouth. Do not forget the ears.

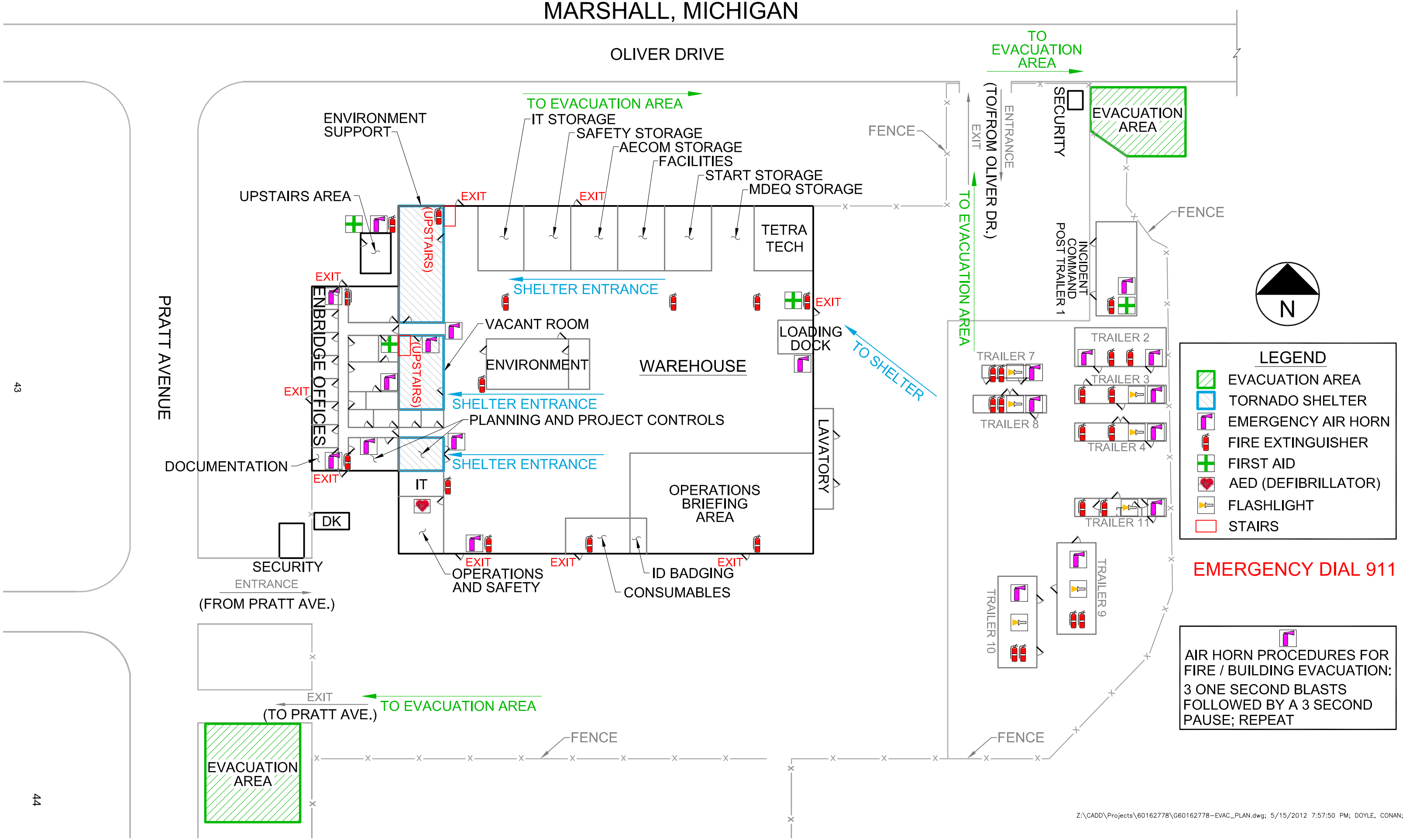
DAY 7:
Wednesday, June 6, 2012

Hydration

By the time one becomes thirsty, dehydration has already begun. This loss of body fluid can lead to progressively worse symptoms of dehydration: thirst, fatigue, weakness, delirium. Losing just 10% of body water can cause muscle spasms. A 20 % loss could lead to death as kidney failure can occur when blood cannot circulate properly.

Tips to prevent Dehydration:
- Track how much water you consume.
- Carry a bottle of water around with you.
- Remember, caffeine acts as a diuretic; so caffeinated beverages can cause fluid loss.

ENBRIDGE INCIDENT COMMAND POST FACILITY
EMERGENCY RESPONSE / EVACUATION PLAN
MARSHALL, MICHIGAN



Z:\CADD\Projects\60162778\G60162778-EVAC_PLAN.dwg; 5/15/2012 7:57:50 PM; DOYLE, CONAN;

Weather Forecast

Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
31	Jun 1	2	3	4	5	6	7
Showers	Thunderstorms	Partly Cloudy	Partly Cloudy	Partly Cloudy	Mostly Sunny	Mostly Cloudy	Showers
64° Lo 50°	59° Lo 48°	67° Lo 51°	76° Lo 59°	80° Lo 56°	73° Lo 53°	75° Lo 53°	73° Lo 53°
Hist. Avg 75° Lo 51°	Hist. Avg 75° Lo 51°	Hist. Avg 76° Lo 51°	Hist. Avg 76° Lo 52°	Hist. Avg 76° Lo 52°	Hist. Avg 77° Lo 52°	Hist. Avg 77° Lo 53°	Hist. Avg 77° Lo 53°

1. Incident Name	2. Operational Period (Date/Time)	DAILY MEETING SCHEDULE
KALAMAZOO RIVER / ENBRIDGE SPILL RESPONSE	From: May 31, 2012 0700	ICS-230
	To: June 7, 2012 0700	

3. Meeting Schedule (Commonly-held meetings are included)

Date/ Time	Meeting Name	Purpose	Attendees	Location
5/31/2012	**Thursday**			
0700 0730	Operations Briefing	Present IAP for the next Operational Period to All Staff	UC, Command and General Staff, Branch Directors, Div /Grp Sups., Task Force / Strike Team Leaders, Unit Leaders, Field Supervisors, EPA, DEQ, Scribe	Pratt Avenue Warehouse
0900 0945	MAC Meeting	Update MAC with situation metrics, and briefings of common interest.	UC, Command and General Staff, Multi-Agency Coordination Group, Invited attendees	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/1/2012	**Friday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
0930 0945	Objectives Meeting	Review current objectives and identify objectives for the next Operational Period.	UC, Operations, Safety, Planning, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/2/2012	**Saturday**			
6/3/2012	**Sunday**			
6/4/2012	**Monday**			
0900 0945	Tactics	Finalize primary and alternate tactics and strategies to achieve UC objectives for the next Operational Period.	Operations, Planning, Safety	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/5/2012	**Tuesday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1500 1530	Kalamazoo River System Branch Special Purpose Meeting	Coordinate future Kalamazoo River System Branch activities	Kalamazoo River System Branch Directors and Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/6/2012	**Wednesday**			
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)

4. Prepared by: Amy Back, Planning Section Chief **Date/Time** 5/30/2012

A Back 0813

Incident Name Kalamazoo River/Enbridge Spill	2. Operational Period (Date/Time) Starting: **June 14, 2012, 0700** End: **June 21, 2012, 0700**	**IAP Cover Sheet**

3. Approved by Incident Commander(s):

Ralph Dollhopf, U.S. EPA
Michelle DeLong, Department Environmental Quality
Mark DuCharme, Department Environmental Quality
John Sobojinski, Enbridge

INCIDENT ACTION PLAN

The items below are included in this Incident Action Plan:

- ICS 202 (Response Objectives) 1
- ICS 207 (Organizational Chart & OPS Chart) 2
- ICS 204 (Assignment List) 5
- Segment Map 20
- Meeting Locations and Traffic Plans 21
- ICS 205 (Communication Plan) 32
- ICS 205a (Communications List) 33
- ICS 205a (Communications Attachment) 35
- ICS 206 (Medical Plan) 36
- Safety Message/Evacuation Plan 41
- Weather Forecast 44
- ICS 230 Meeting Schedule 45



4. Prepared By:
Amy Back, Avery/Enbridge

Date/Time
06/13/2012#

1. Incident Name	2. Operational Period (Date/Time)	INCIDENT OBJECTIVES ICS 202-EPA
Kalamazoo River/Enbridge Spill	From: June 14, 2012 @ 0700 To: June 21, 2012 @ 0700	

3. Incident Objective(s)

1. Ensure health and safety of the public and response and recovery personnel.
2. Ensure absolute containment of submerged oil and oil-containing sediments within the Delta and the Fan of Morrow Lake.
3. Ensure effective transition of regulatory oversight from EPA to Michigan DEQ jurisdiction as appropriate.
4. Continue developing strategy for opening of Kalamazoo River.
5. Perform recovery and containment of oil from affected public and private areas of river and river system.
6. Perform remediation and restoration of affected public and private areas of river and river system.
7. Maintain effective communications with cooperating and assisting agencies, the public, including regular coordination with the Multi-Agency Coordination Group (MAC).
8. Provide protection of environmentally and culturally sensitive areas including wildlife and historic properties.
9. Collect, coordinate, manage and communicate environmental and public health data including maintenance of Joint Information Center function.

4. Operational Period Command Emphasis

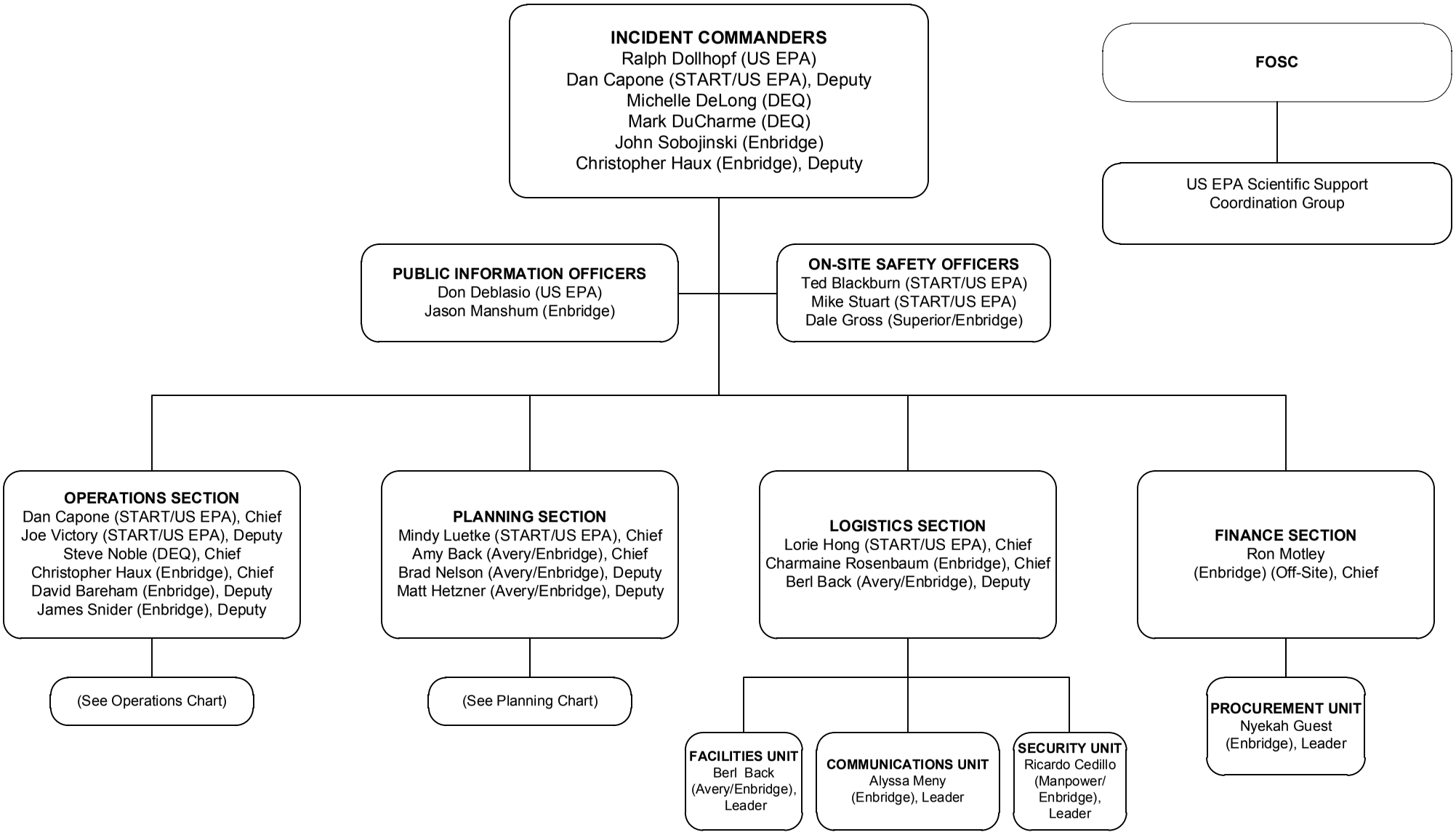
1. Respond to and document emerging oil throughout the Kalamazoo River system.
2. Continue efforts to secure proper permitting for the second phase of the Kalamazoo River Submerged Sediment Trap Structures.
3. Refine and implement River Opening Strategy.
4. Evaluate and continue planning for implementation of containment options to prevent the migration of oil into the fan and Morrow Lake.

5. Safety Objectives for the Operational Period

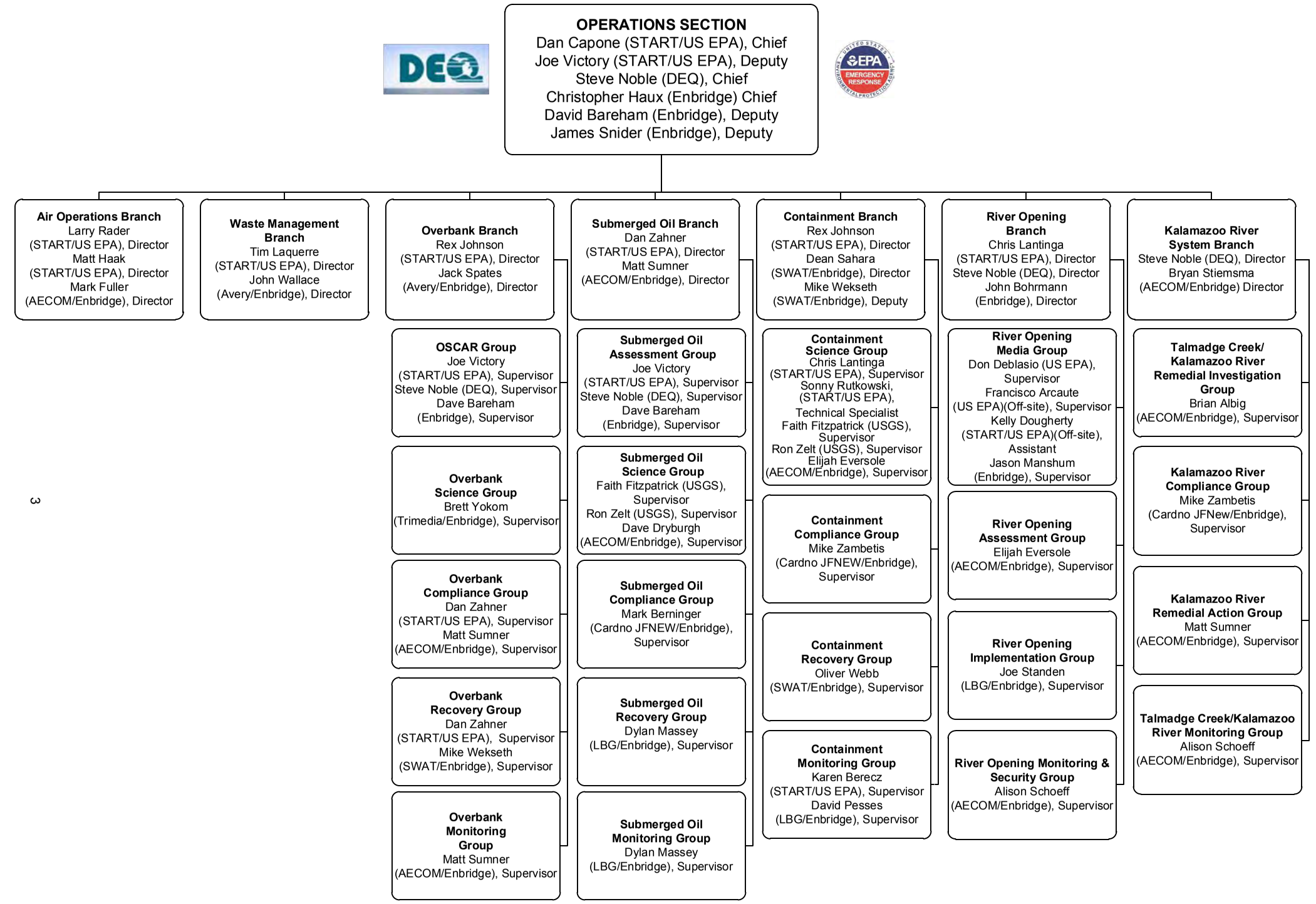
1. Focus on management of change and the use of the safe work permit.
2. Assure effective integration of public safety and worker safety on the river. Focus on vehicle and boat inspections and maintenance.

6. Prepared by Planning Section Chief (Enbridge): Amy Back	**Date/Time:** 6/13/2012 1155
7. Approved by Incident Commander (US EPA): Ralph Dollhopf	**Date/Time:** 6/13/2012 1527
8. Approved by Incident Commander (DEQ): Michelle DeLong	**Date/Time:** 6/13/2012
9. Approved by Incident Commander (DEQ): Mark DuCharme	**Date/Time:** 6/13/2012 1349
10. Approved by Incident Commander (Enbridge): John Sobojinski	**Date/Time:** 6/13/2012 12:15

Enbridge Pipelines Response Unified Command



ICS 207
6/14 – 6/21


OPERATIONS SECTION
Dan Capone (START/US EPA), Chief
Joe Victory (START/US EPA), Deputy
Steve Noble (DEQ), Chief
Christopher Haux (Enbridge) Chief
David Bareham (Enbridge), Deputy
James Snider (Enbridge), Deputy
Air Operations Branch
Larry Rader
(START/US EPA), Director
Matt Haak
(START/US EPA), Director
Mark Fuller
(AECOM/Enbridge), Director
Waste Management Branch
Tim Laquerre
(START/US EPA), Director
John Wallace
(Avery/Enbridge), Director
Overbank Branch
Rex Johnson
(START/US EPA), Director
Jack Spates
(Avery/Enbridge), Director
OSCAR Group
Joe Victory
(START/US EPA), Supervisor
Steve Noble (DEQ), Supervisor
Dave Bareham
(Enbridge), Supervisor
Overbank Science Group
Brett Yokom
(Trimedia/Enbridge), Supervisor
Overbank Compliance Group
Dan Zahner
(START/US EPA), Supervisor
Matt Sumner
(AECOM/Enbridge), Supervisor
Overbank Recovery Group
Dan Zahner
(START/US EPA), Supervisor
Mike Wekseth
(SWAT/Enbridge), Supervisor
Overbank Monitoring Group
Matt Sumner
(AECOM/Enbridge), Supervisor
Submerged Oil Branch
Dan Zahner
(START/US EPA), Director
Matt Sumner
(AECOM/Enbridge), Director
Submerged Oil Assessment Group
Joe Victory
(START/US EPA), Supervisor
Steve Noble (DEQ), Supervisor
Dave Bareham
(Enbridge), Supervisor
Submerged Oil Science Group
Faith Fitzpatrick (USGS), Supervisor
Ron Zelt (USGS), Supervisor
Dave Dryburgh
(AECOM/Enbridge), Supervisor
Submerged Oil Compliance Group
Mark Berninger
(Cardno JFNEW/Enbridge), Supervisor
Submerged Oil Recovery Group
Dylan Massey
(LBG/Enbridge), Supervisor
Submerged Oil Monitoring Group
Dylan Massey
(LBG/Enbridge), Supervisor
Containment Branch
Rex Johnson
(START/US EPA), Director
Dean Sahara
(SWAT/Enbridge), Director
Mike Wekseth
(SWAT/Enbridge), Deputy
Containment Science Group
Chris Lantinga
(START/US EPA), Supervisor
Sonny Rutkowski,
(START/US EPA),
Technical Specialist
Faith Fitzpatrick (USGS),
Supervisor
Ron Zelt (USGS), Supervisor
Elijah Eversole
(AECOM/Enbridge), Supervisor
Containment Compliance Group
Mike Zambetis
(Cardno JFNEW/Enbridge),
Supervisor
Containment Recovery Group
Oliver Webb
(SWAT/Enbridge), Supervisor
Containment Monitoring Group
Karen Berecz
(START/US EPA), Supervisor
David Pesses
(LBG/Enbridge), Supervisor
River Opening Branch
Chris Lantinga
(START/US EPA), Director
Steve Noble (DEQ), Director
John Bohrmann
(Enbridge), Director
River Opening Media Group
Don Deblasio (US EPA),
Supervisor
Francisco Arcaute
(US EPA)(Off-site), Supervisor
Kelly Dougherty
(START/US EPA)(Off-site),
Assistant
Jason Manshum
(Enbridge), Supervisor
River Opening Assessment Group
Elijah Eversole
(AECOM/Enbridge), Supervisor
River Opening Implementation Group
Joe Standen
(LBG/Enbridge), Supervisor
River Opening Monitoring & Security Group
Alison Schoeff
(AECOM/Enbridge), Supervisor
Kalamazoo River System Branch
Steve Noble (DEQ), Director
Bryan Stiemsma
(AECOM/Enbridge) Director
Talmadge Creek/ Kalamazoo River Remedial Investigation Group
Brian Albig
(AECOM/Enbridge), Supervisor
Kalamazoo River Compliance Group
Mike Zambetis
(Cardno JFNew/Enbridge),
Supervisor
Kalamazoo River Remedial Action Group
Matt Sumner
(AECOM/Enbridge), Supervisor
Talmadge Creek/Kalamazoo River Monitoring Group
Alison Schoeff
(AECOM/Enbridge), Supervisor



PLANNING SECTION
Mindy Luetke (START/US EPA), Chief
Amy Back (Avery/Enbridge), Chief
Brad Nelson (Avery/Enbridge), Deputy
Matt Hetzner (Avery/Enbridge), Deputy



SITUATION UNIT
Larry Rader (START/US EPA), Director
Matt Haak (START/US EPA), Director
Matt Hetzner (Avery/Enbridge), Director
Mark Fuller (AECOM/Enbridge), Assistant

GIS SPECIALISTS
Jason Torres (START/US EPA), Leader
Jim Valenza (START/US EPA), Leader
Chad Fizzell (DEQ)(Off-site), Leader
Kevin Brown (Weston/DEQ)(Off-site), Leader
Debora Periard (AECOM/Enbridge), Leader
Ken Kaiser (AECOM/Enbridge), Leader

RESOURCE UNIT
Lorie Hong (START/US EPA), Leader
Breanna Bukowski (Weston/DEQ)(Off-site), Leader
Brad Nelson (Avery/Enbridge), Leader

PUBLIC HEALTH SPECIALISTS
Linda Dykema (MDCH)
KCHCSD
CCPHD
MDARD

ENVIRONMENTAL UNIT
Isaac Aboulafia
(START/US EPA), Leader
Elizabeth Wessling
(START/US EPA)(Off-site), Leader
Faith Fitzpatrick (USGS), Leader
Ron Zelt (USGS), Assistant
Rex Johnson (START/US EPA), Assistant
Tom Graan (START/US EPA), Assistant
Jeff Spruit (DEQ)(Off-site), Leader
Kim Churchill (Weston/DEQ), Leader
John Bohrmann (Enbridge), Leader

DOCUMENTATION UNIT
Brennan Pierce
(START/US EPA), Leader
Crystal Laskey (DEQ), Leader
Carolyn Giles-Smith
(Weston/DEQ), Leader
Matt Hetzner (Avery/Enbridge), Leader

ENBRIDGE

ICS 207
6/14 – 6/21

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 14, 2012, 0700 To: June 21, 2012, 0700	**ICS 204 - EPA**
3. Branch **Air Operations**	**4. Division/Group/Staging** **N/A**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Larry Rader	START/US EPA	
	Matt Haak	START/US EPA	
	Mark Fuller	AECOM/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons	Notes/Remarks
Air Operations	See Branch Directors listed above.		1 START/US EPA 1 Contractor 1 Pilot	Marshall Regional Airport Heli Pad

7. Work Assignments

Enbridge and START/US EPA:

1. Photo-document areas of sheen from source area to Morrow Lake dam and report observations back to operations section chiefs for monitoring and response. Flights occur once a week and as needed.

8. Special Instructions

Air Ops Team shall report to Marshall Regional Airport Heli-Pad. Additional flights can be scheduled on a case by case basis by contacting Mark Fuller (AECOM/Enbridge) at 847-533-9428. Additional operations recon flights shall be scheduled as required. These flights will have priority over the other flights in order to establish work priorities.

Areas that are deemed sensitive due to property owner concerns shall be avoided. If it is necessary to fly over at the sensitive area, pilot shall be instructed to maintain a minimum altitude of 500 ft. Sensitive flight areas include: Squaw Creek Subdivision (MP 3.25), Village of Ceresco and MP 10.5-11.5 LDB.

SAFETY INSTRUCTIONS:
DO NOT access heli-pad without being escorted by the pilot. Never approach or exit the aircraft to/from the rear, near the tail rotor.

Severe Weather Alerts:
Follow instructions and procedures provided by the FAA and the Civil Defense System.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1138

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 14, 2012, 0700 To: June 21, 2012, 0700	**Assignment List ICS 204- EPA**
3. Branch **Waste Management**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Tim Laquerre	START/US EPA	
	John Wallace	Avery/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
See Branch Directors			

7. Work Assignments

1. Field decon operations for: personnel, hand equipment, and boats for preparation of transport shall be installed prior to work beginning at boat launches / staging areas for individual work sites.
2. Haul contaminated soil, water, media and debris to staging areas for waste characterization and oil recovery sampling prior to offsite disposal.
3. Waste shall be collected at a minimum of daily for direct haul to the landfill or transported to Frac Tank City (FTC) for consolidation with similar waste streams as necessary. Waste generated from coring will be consolidated daily and transported to Frac Tank City.
4. Waste management characterization, manifesting, and coordination of transportation and disposal.

For START/US EPA:

1. Provide oversight of all waste management activities.
2. Ensure appropriate sampling, tracking and disposal is performed on oil impacted debris, water and soil.
3. Review manifests, weight tickets and bills of lading for correlation to waste stream analytical data.
4. Review weekly oil recovery and waste disposal report.

8. Special Instructions

Ensure all Best Management Practices (BMPs) are in place and utilized.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

SAFETY INSTRUCTIONS:

For vacuum truck operation guidelines, please refer the HASP.

At Frac Tank City:

1. The following procedure shall be used for initial opening of hatch or rear doors of liquid vacuum trucks and hatches of vacuum excavation units:
   a. Approach the hatch to be opened with a calibrated five gas monitor and a benzene monitor.
   b. Personnel performing this task must wear a full face respirator with organic vapor cartridge.
   c. Slightly open the hatch and take VOC, H2S, LEL, Oxygen, CO and benzene readings.
   d. If readings are greater than 10 ppm H2S, 10% LEL, 25 ppm CO or 25 ppm benzene then personnel shall close the hatch and utilize SCBA prior to opening the hatch.
2. Operations - Respiratory protection may be required depending on periodic monitoring results. Wear a half-mask respirator equipped with an organic vapor cartridge when 0.5 ppm benzene is detected. Wear a full-face respirator equipped with an organic vapor/acid gas cartridge when benzene is at 5 ppm to 25 ppm.

Process for Reporting Potentially Hazardous Materials:

If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1156	A. Back, Avery/Enbridge	6/13/2012 1157	C. Haux, Enbridge	6/13/2012 1158

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 14, 2012, 0700 To: June 21, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Overbank Branch	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Jack Spates	Avery/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Outstanding Sites Characterization and Reconciliation	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	
Overbank Science	Brett Yokom (Trimedia/Enbridge)		
Overbank Compliance	Dan Zahner (START/US EPA) Matt Sumner (AECOM/Enbridge)		
Overbank Recovery	Dan Zahner (START/US EPA) Mike Wekseth (SWAT/Enbridge)		
Overbank Monitoring	Matt Sumner (AECOM/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge)(Off-site)		

7. Work Assignments

Outstanding Sites Characterization and Reconciliation (OSCAR):

1. Participate in data review, quality control, and site closure process to ensure that all pending issues are addressed.
2. Direct field evaluations and request information for site determination.
3. Oversee transfer of sites between the various branches.

Designated Meeting Location: ICP.

Overbank Science

1. No activities at this time.

Overbank Compliance

1. No activities at this time.

Overbank Recovery

1. Execute tasks assigned by ERO as requested.

Overbank Monitoring

1. Provide support services as necessary.
2. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

Process for Reporting Potentially Hazardous Material:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1158

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 14, 2012, 0700 To: June 21, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Submerged Oil	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Dan Zahner	START/US EPA	
	Matt Sumner	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Submerged Oil Assessment	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	1 USGS 12 START/US EPA 1 DEQ 4 Weston/DEQ 26 Contractors
Submerged Oil Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Dave Dryburgh (AECOM/Enbridge)		
Submerged Oil Compliance	Mark Berninger (Cardno JFNEW/Enbridge)		
Submerged Oil Recovery	Dylan Massey (LBG/Enbridge)		1 START/US EPA 21 Contractors
Submerged Oil Monitoring	Dylan Massey (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		1 START/US EPA

7. Work Assignments

Submerged Oil Assessment Special Purpose Meeting: Daily at 1100, Trailer #2

Submerged Oil Assessment

1. Continue refinement of 2012 Submerged Oil Recovery Plan.
2. Conduct poling activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. (10 Teams)
3. Conduct coring activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake.
4. Review sheen tracking information from the field.
5. Continue sampling and monitoring of cylindrical sampling devices, as required per the approved sampling plan.
6. Collect velocity data within Morrow Lake. (1 team)

For START/US EPA and DEQ:

1. Oversee and document Submerged Oil Assessment work activities.

Submerged Oil Science

1. Continue implementation of the hydrodynamic model to determine movement of submerged oil.
2. Continue development of Submerged Oil Quantification.

For START/US EPA:

1. Oversee and document Submerged Oil Science work activities.

Submerged Oil Compliance

1. Continue to complete ecological assessments at sites determined by the Submerged Oil Assessment Group.
2. Track previously submitted MDEQ applications for sediment removal.

For DEQ:

1. Oversee and document Submerged Oil Compliance work activities.

Submerged Oil Recovery

1. Implement sheen management activities as necessary.

Submerged Oil Monitoring

1. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

When operating or working in the vicinity of Ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1158

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204 - EPA
Kalamazoo River/Enbridge Spill Response	From: June 14, 2012, 0700 To: June 21, 2012, 0700	
3. Branch	**4. Division/Group/Staging**	
Containment	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Dean Sahara (Off-site)	SWAT/Enbridge	
	Mike Wekseth, Deputy	SWAT/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Containment Science	Chris Lantinga Sonny Rutkowski, Technical Specialist Faith Fitzpatrick (USGS) Ron Zelt (USGS) Elijah Eversole (AECOM/Enbridge)	[redacted]	
Containment Compliance	Mike Zambetis (Cardno JFNEW/Enbridge)		1 Contractor
Containment Recovery	Oliver Webb (SWAT/Enbridge)		14 Contractors
Containment Monitoring	Karen Berecz (START/US EPA) David Pesses (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		2 START/US EPA

7. Work Assignments

Containment Science

1. Refine the hydrodynamic model and concepts of the Plan for Preventing Migration of Oil Past the Morrow Lake Dam.
2. Introduce new variables to enhance the potential sediment trap locations.
3. Develop subsurface containment strategies throughout the Kalamazoo River system to prevent recontamination of the Morrow Lake fan.

For START/US EPA:

1. Interface with Enbridge and assist with the development of surface and subsurface containment strategies throughout the Kalamazoo River system to prevent the continued migration of oil, oil sheen, submerged oil, and oil-containing sediments into Morrow Lake.

Containment Compliance

1. Monitor submitted MDEQ permit application for toolbox activities in the Kalamazoo River.
2. Monitor submitted MDEQ application for permit for the Kalamazoo River Sediment Control Structures (13 sites).

Containment Recovery

1. Utilize resources to contain and collect sheen and surface oil as necessary.
2. Perform containment strategies throughout the Talmadge Creek and Kalamazoo River including the following tasks:
   a) Deploy shoreline containment boom as required.
   b) Complete sheen management as required.
3. Maintain three Control Points: MP 5.75 (Ceresco), MP 15.65 (BC Dam), and MP 37.75 (E4).
4. Maintain Protective Containment sites (4 sites total).
5. Maintain installed Kalamazoo River Sediment Control Structures, including the cylindrical sampling devices.

Containment Monitoring

1. Identify control points and protective containment locations requiring further clean up or maintenance action.
2. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.
3. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50-MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
Photo Ionization (VOCs) / Four Gas Detectors (O2, CO, LEL and H2S) and Direct Reading Instrument for Benzene will be used for air monitoring during debris removal activities.

Hexane is flammable and may be harmful in contact with skin. When handling hexane and sheen test samples containing hexane, wear approved safety glasses, disposable nitrile gloves and keep away from ignition sources. Properly dispose of sheen test samples containing hexane.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1155

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 14, 2012, 0700 To: June 21, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **River Opening Coordination**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone Joe Victory, Deputy Steve Noble Christopher Haux Dave Bareham, Deputy James Snider, Deputy	START/US EPA START/US EPA DEQ Enbridge Enbridge Enbridge	[redacted]
Branch Director:	Chris Lantinga Steve Noble John Bohrmann	START/US EPA DEQ Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
River Opening Media Group	Don Deblasio (US EPA) Francisco Arcaute (US EPA) (Off-site) Kelly Dougherty (START/US EPA), Assistant (Off-site) Jason Manshum (Enbridge)	[redacted]	
River Opening Assessment/ Confirmation Group	Elijah Eversole (AECOM/Enbridge)		
River Opening Implementation Group	Joe Standen (LBG/Enbridge)		
River Opening Monitoring & Security Group	Alison Schoeff (AECOM/Enbridge)		1 Contractor

7. Work Assignments

River Opening Media Group Special Purpose Meeting: Monday, Wednesday, & Friday at 1430, Trailer #2.
The focus of this group is on opening Segments 2 – 10.

All Groups

1. Continue development of River Opening Plan.

River Opening Media Group

1. Develop plan and media packs for press conference concerning river opening.
2. Ensure all media relations are coordinated.
3. Ensure kiosk materials are prepared for posting.
4. Ensure all signage is prepared for posting.

River Opening Assessment Group

1. Complete all outstanding submerged oil and overbank supplemental packets.

River Opening Implementation Group

1. Conduct maintenance activities as directed by the River Opening Monitoring & Security Group.
2. Continue staging of material for implementation of river traffic control devices and on-shore signage.

River Opening Monitoring & Security Group

1. Conduct daily monitoring of river conditions, recording observations of sheen or oil, by River Opening segment.
2. Conduct weekly monitoring of buoys and signage in open segment of the river.

Designated Meeting Location: ICP

8. Special Instructions
NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012. No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.
9. Communications (radio and/or phone contact numbers needed for this assignment)
Incident Command Safety Office: 269-781-1913
Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1153

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 14, 2012, 0700 To: June 21, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Kalamazoo River System Branch	**Remedial Investigation / Compliance / Remedial Action / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Steve Noble	DEQ	
	Bryan Stiemsma	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Talmadge Creek/Kalamazoo River Remedial Investigation	Brian Albig (AECOM/Enbridge)	[redacted]	8 Contractors 2 DEQ 1 Weston/DEQ
Kalamazoo River Compliance	Mike Zambetis (Cardno JFNew/Enbridge)		6 Contractors
Kalamazoo River Remedial Action	Matt Sumner (AECOM/Enbridge)		
Talmadge Creek/Kalamazoo River Monitoring	Alison Schoeff (AECOM/Enbridge)		2 Contractors

7. Work Assignments

Talmadge Creek/Kalamazoo River Remedial Investigation

1. Implement Remedial Investigation Work Plan between MP 5.8 to Morrow Lake Dam.

For DEQ:

1. Observe and document RI activities with emphasis on conformance with approved work plans and standard operating procedures.
2. Collect RI split samples at 10% frequency for soil, sediment and groundwater.

Kalamazoo River Compliance

1. Continue restoration/stabilization of the Kalamazoo River Bank Erosion Assessment Sites (KRBEAS).
2. Conduct Kalamazoo River System Erosion Tour number 8.

Kalamazoo River Remedial Action

1. Provide support activities as necessary.

Talmadge Creek/Kalamazoo River Monitoring

1. Monitor erosion control devices.
2. Perform quarterly ground water sampling at the Augusta and Kalamazoo Municipal Well Fields.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed by 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
When operating or working in the vicinity of ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 14, 2012, 0700 To: June 21, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Planning Section**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Planning Section Chief:	Mindy Luetke	START/US EPA	[redacted]
	Amy Back	Avery/Enbridge	
	Brad Nelson, Deputy	Avery/Enbridge	
	Matt Hetzner, Deputy	Avery/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons
Situation Unit	Larry Rader (START/US EPA) Matt Haak (START/US EPA) Matt Hetzner (Avery/Enbridge) Mark Fuller (AECOM/Enbridge), Assistant	[redacted]	1 START/US EPA 1 Contractor
GIS Specialists	Jason Torres (START/US EPA) Jim Valenza (START/US EPA) Chad Fizzell (DEQ) (Off-site) Kevin Brown (Weston/DEQ) (Off-site) Debora Endriss-Periard (AECOM/Enbridge) Ken Kaiser (AECOM/Enbridge)		1 DEQ 1 Weston/DEQ 2 Contractors
Resources Unit	Lori Hong (START/US EPA), Leader Breanna Bukowski (Weston/DEQ)(Off-site) Brad Nelson (Avery/Enbridge)		1 START/US EPA 1 Weston/DEQ 1 Contractor
Environmental Unit	Isaac Aboulafia (START/US EPA) Elizabeth Wessling (START/US EPA)(Off-site) Faith Fitzpatrick (USGS) Ron Zelt (USGS), Assistant Rex Johnson (START/US EPA), Assistant Tom Graan (START/US EPA) , Assistant Jeff Spruit (DEQ)(Off-site) Kim Churchill (Weston/DEQ) John Bohrmann (Enbridge)		2 START/US EPA 1 Weston/DEQ 2 USGS 3 DEQ 1 Enbridge 9 Contractors
Documentation Unit	Brennan Pierce (START/US EPA) Crystal Laskey (DEQ) Carolyn Giles-Smith (Weston/DEQ) Matt Hetzner (Avery/Enbridge)		1 US EPA 2 START/US EPA 1 DEQ 1 Weston/DEQ 3 Contractors

7. Work Assignments

Situation Unit:

1. Organize field metrics, prepare for and facilitate presentations, and monitor action tracking.

Maintain situational awareness around operational activities and plan for operational needs.

For START/US EPA:

1. Maintain situational awareness around operational activities.
2. Communicate observations to the Operations Section Chief.
3. Provide daily situational photo log summaries.
4. Conduct daily monitoring of river conditions, recording observations of sheen and/or oil, by River Opening Segment.
5. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.

GIS Specialists:

1. Provide data as necessary.
2. Process Yuma data from the field teams.

Resources Unit:

1. Produce an Incident Action Plan as required by the Incident Commanders.
2. Support the planning efforts of operations and provide information to Logistics in order to properly prepare and order resources.

Environmental Unit:

1. Conduct strategic assessment, modeling, and environmental monitoring.
2. Conduct analysis of sheen testing data.
3. Finalize submerged oil quantification for Spring 2011.

For START/US EPA:

1. Continue to coordinate efforts to calculate the quantity of submerged oil remaining as of Spring 2011.
2. Continue supporting the evaluation of the hydrogeomorphology of the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

Documentation Unit:

1. Maintain accurate, up-to-date incident files.
2. Store files for post-incident use.

All Goups: Designated Meeting Location: ICP.

8. Special Instructions

All personnel will report to designated meeting location at 0700. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

SAFETY INSTRUCTIONS:

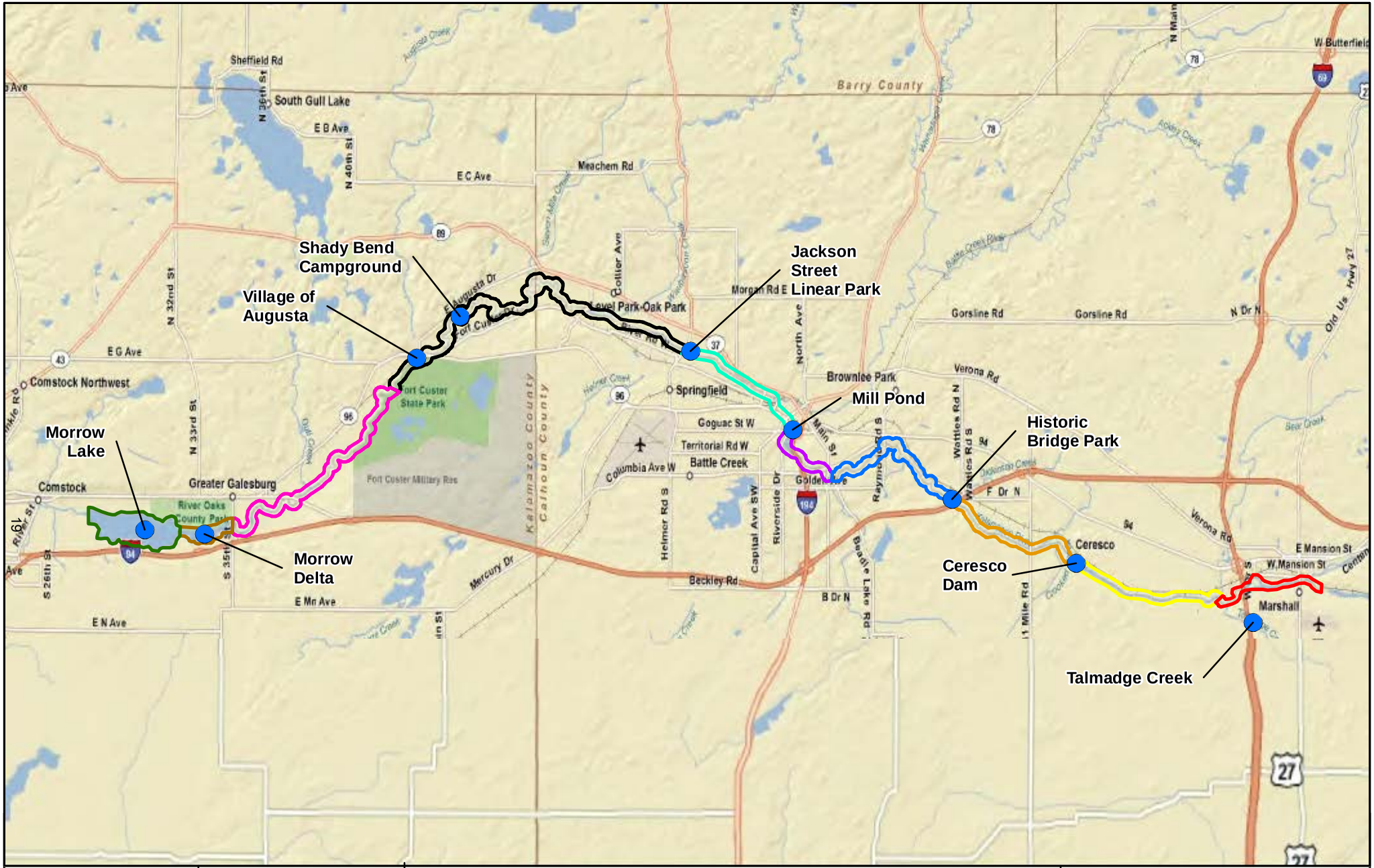
Process for Reporting Potentially Hazardous Materials: If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/13/2012 1149	A. Back, Avery/Enbridge	6/13/2012 1155	C. Haux, Enbridge	6/13/2012 1158



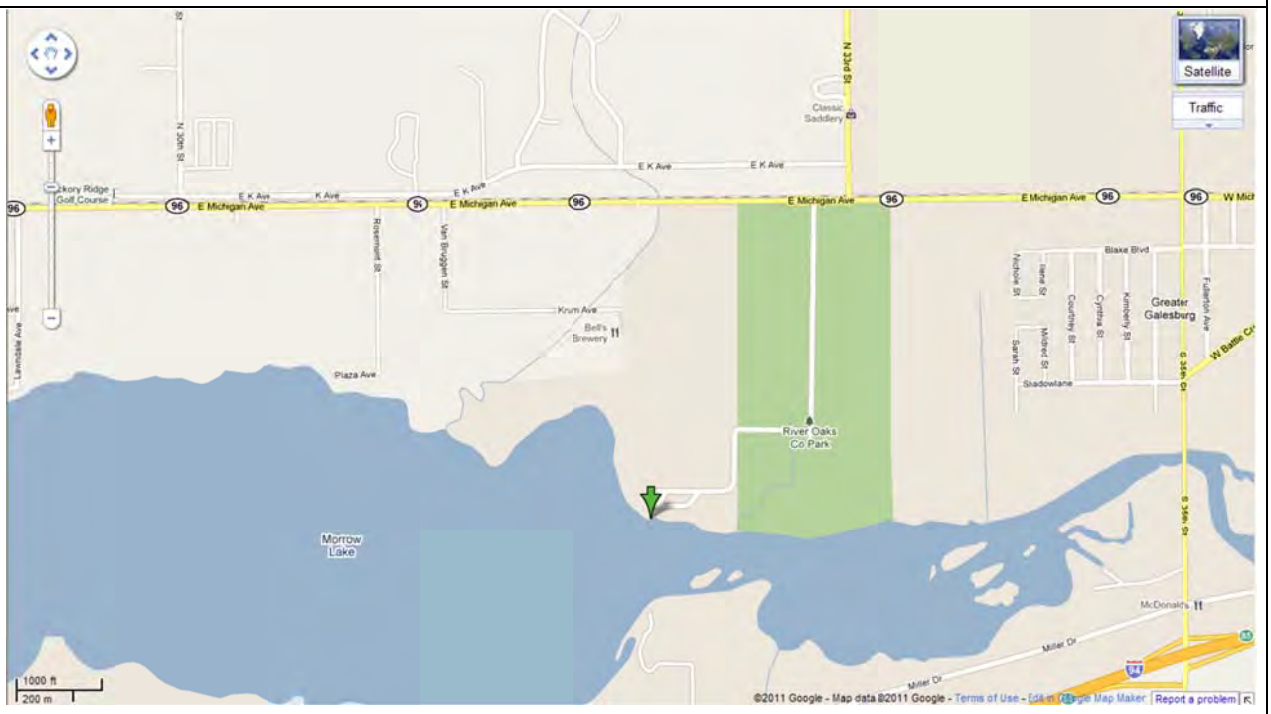
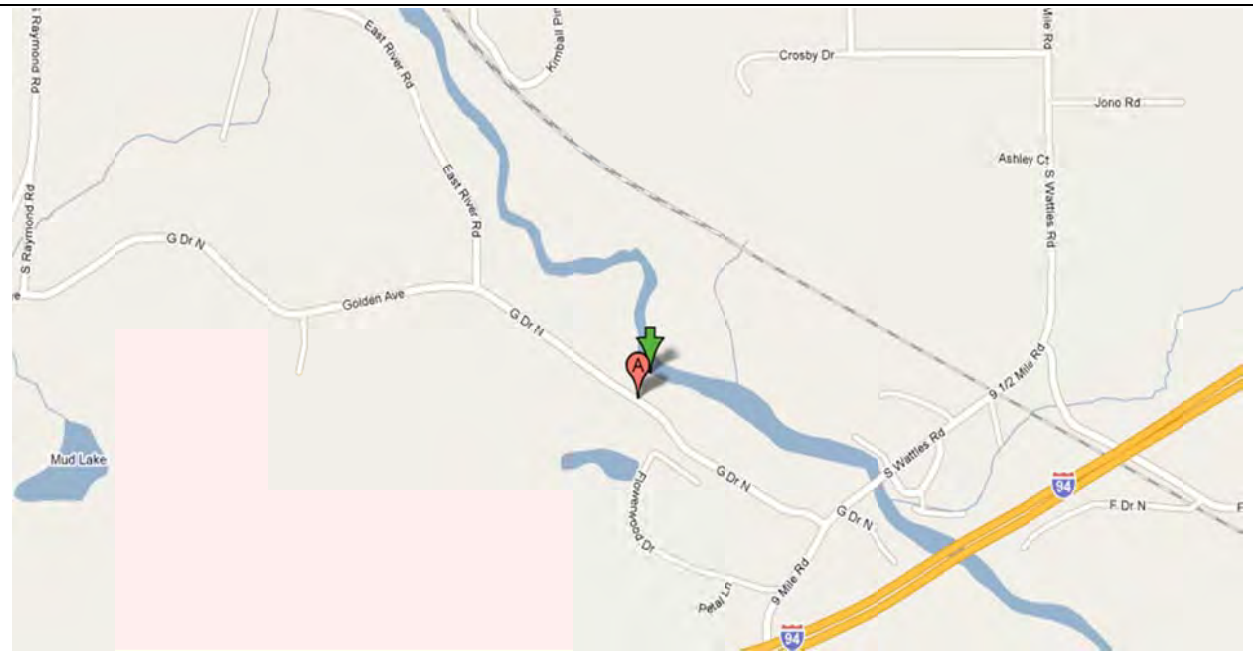
ENBRIDGE

Drawn:	GM	4/26/2012
Approved:	AG	4/26/2012
Project #:	60162778	

KALAMAZOO RIVER OVERVIEW MAP

ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Enbridge_Requests\MXDs\River_Overview_Reopening.mxd

Toolbox Meeting Locations
E4 - 9424 E Michigan Ave , Galesburg, MI 49053 GPS Coordinates Lat: 42.278265 Long: -85.452295

C3.2 8677-9015 G Dr N Battle Creek, MI 49014 GPS Coordinates Lat: 42.293492 Long: -85.124479


Refer to traffic plan for detailed access instructions.

1. Incident Name	2. Operational Period (Date / Time)	Traffic Plan
Kalamazoo River / Enbridge Spill	From: **06/14/2012 / 0700 hrs** To: **06/21/2012 / 0700 hrs**	

Traffic Safety Alert for Parking at Incident Command Post 1601 Pratt Avenue



- Thursday morning parking: Please note meeting attendees who do not work at ICP are to use Woolley Drive.
- For the Thursday morning meeting, an ICP parking permit will be required to park in the main ICP parking lot.
- Slow speeds are imperative at all times.
- There is very limited parking with two-way traffic and pedestrian traffic. Watch vehicle speeds.
- Due to the pedestrian traffic, MAC members and deliveries only will be allowed at the back entrance.
- Everyone must check in at the Security Check Point as shown at the Pratt Avenue entrance.

Any further questions or concerns, contact the Safety Office.

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: Talmadge Creek



16054 Division Dr., Marshall, MI 49068
GPS Coordinates: Lat: 42.24620, Long: -84.97641

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: C 5



97 Kenosha Ave Battle Creek, MI 49014
GPS Coordinates Lat: 42.304905 Long: -85.183463

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: C 0.4



This launch provides access from the Confluence to MP 5.75.

12400-12998 C-Drive N, Ceresco, MI 49033

GPS Coordinates: Lat: 42.265127, Long:-85.048364

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: C 3.2



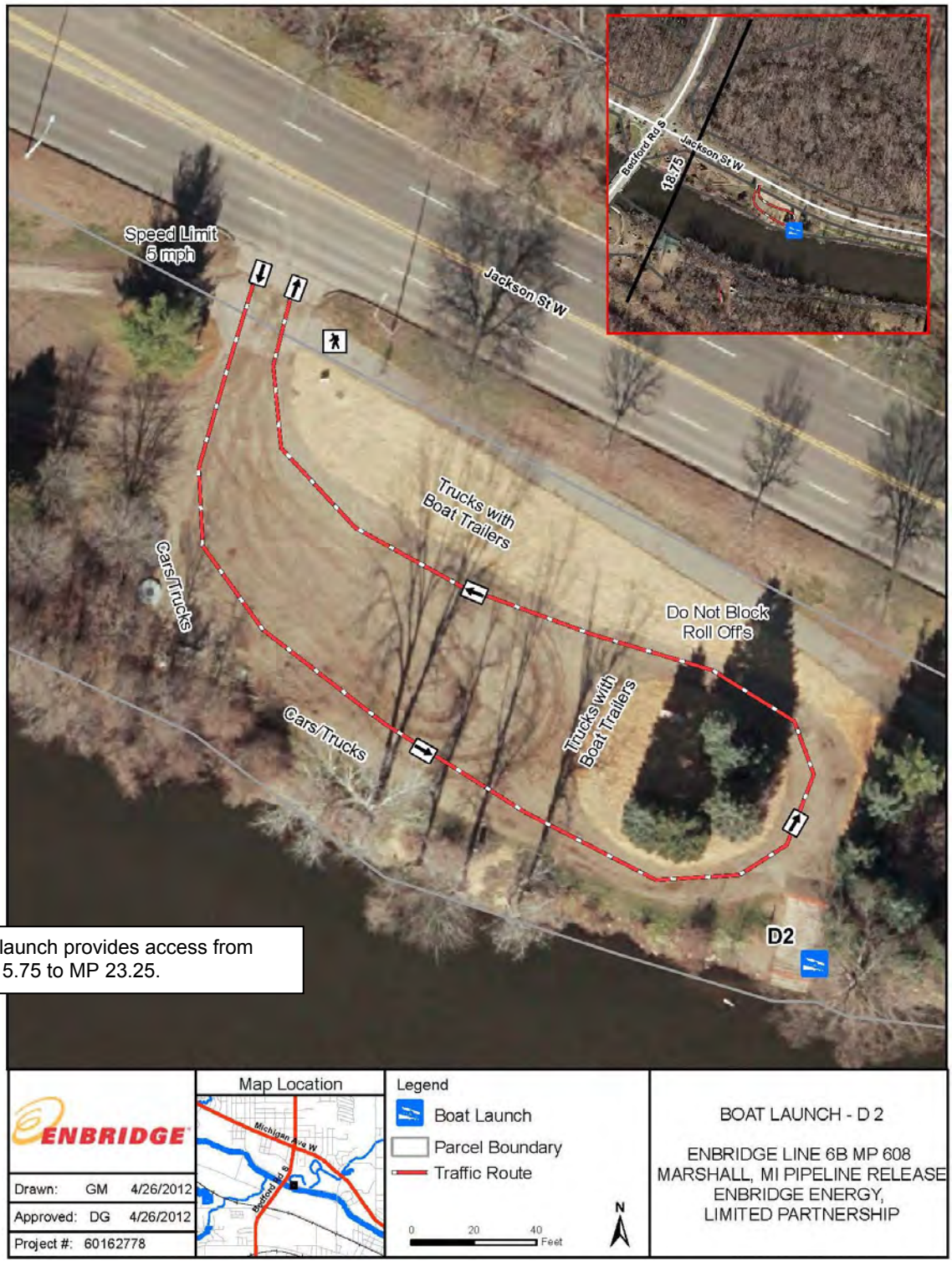
88745 G-Drive N, Battle Creek, MI 49014

GPS Coordinates: Lat: 42.293492 Long: -85.124479

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: D2



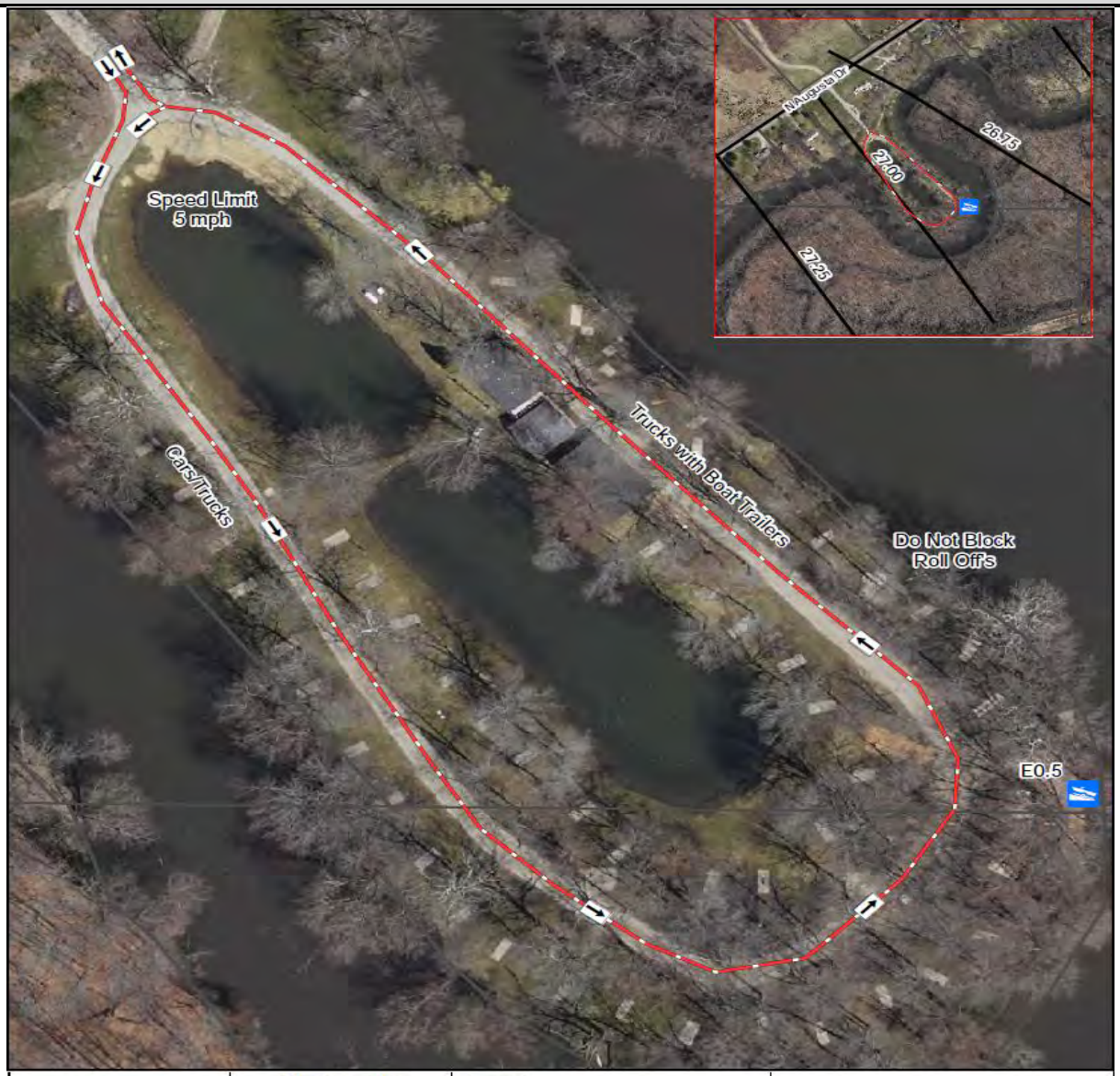
This launch provides access from MP 15.75 to MP 23.25.

1445-1509 Jackson St W, Battle Creek, MI 49037
GPS Coordinates: Lat: 42.338427 Long:-85.232309

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: E 0.5



(Shady Bend Camp Ground), 15320 East Augusta Dr, Augusta, MI 49012
GPS Coordinates:Lat: 42.347408 Long: -85.3295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: E 2



5106-5140 River Rd, Augusta, MI 49053
GPS Coordinates: Lat: 42.32412 Long: -85.358041

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

75

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: E 3

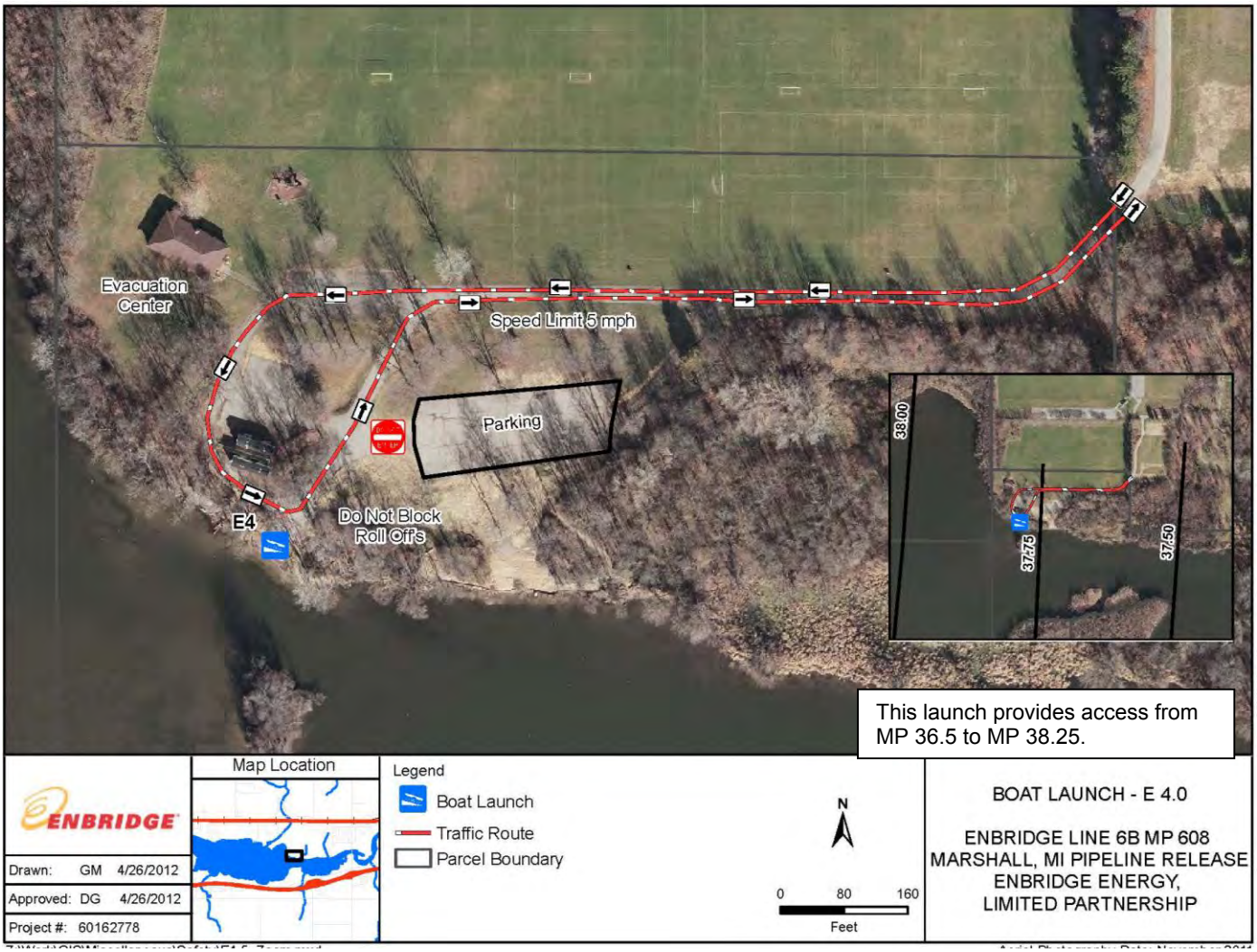


188 East Michigan Avenue., Galesburg, MI 49053
GPS Coordinates: Lat: 42.284663 Long: -85.412855

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/14/2012 0700 To: 06/21/2012 0700	

3.TRAFFIC PLAN: E 4



9424 E Michigan Ave., Galesburg, MI 49053
GPS Coordinates: Lat: 42.278265 Long: -85.452295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-13-2012

1. Incident Name Kalamazoo River/Enbridge Spill Response	2. Operational Period (Date/Time) From: June 14, 2012, 0700 To: June 21, 2012, 0700	Radio Communications Plan ICS 205- EPA

Enbridge Line 6B – Marshall Release Radio Check Inventory (ICS 205)

Radio Number	Organization	User Name	PTT CALL NUMBER
D-1	WESTON/DEQ	Vinne DelloRusso	269-986-7542
D-2	WESTON/DEQ	Terri Shattuck	269-986-8005
S-1	ENBRIDGE	Dale Gross	269-986-8011
S-4	ENBRIDGE/Avery	Matt Peischer	269-986-8100
S-7	ENBRIDGE/McDaniel	Red Calvert	269-986-8106
S-11	ENBRIDGE/Manpower	Ricardo Cedillo	269-986-8418
U-2	START/ US EPA	Mike Stewart	269-986-8110
B-51	SWAT	Clark Short	269-967-3675
B-52	SET	Andrew Jasman	269-967-3973
B-55	SWAT	Jesus Vavra	269-986-8885
B-54	SWAT	Travis Gibson	269-986-0957
B-58	SWAT	Trevor Evans	269-967-2310
B-59	SET	Zachary Woods	269-986-7386
B-60	SWAT	Benito Vavra	269-986-3451
B-61	SET	Berry Vavrina	269-986-5774
B-62	SWAT	Paul Kerpash	269-986-3287
B-63	SET	Dustin Young	269-986-5787

B-64	SET	John Henry	269-967-3998
B-65	SWAT	Jon Boyer	269-986-5840
B-66	SWAT	Kenny Decker	269-986-5930
B-67	SET	John Kauth	269-986-8186
B-68	SET	Bruce Allen	269-986-8250
B-69	SET	David Hoekstra	269-986-5819
G-50	SWAT	Chris Jones	269-986-8384
G-51	SET	James Barber	269-986-5951
G-52	SET	Ben Fischer	269-986-0185
G-53	SET	Richard Cale	269-986-6029
G-54	SET	Tony Marotz	269-986-3421
G-55	SET	Shaun Burnum	269-986-5271
G-60	SWAT	Oliver Webb	269-986-9102
G-61	SET	Ruben Garcia	269-986-8341
G-62	SET	Ben Fisher	269-986-8390
G-63	SET	Mark Taylor	269-986-5675
S-52	SWAT	Ziggy Przybyl	269-986-7583
B-50	SWAT	Jeff Madden	269-967-3675
B-62	SWAT	Hassan Salim	269-986-3287
S-50	SWAT	Bill Rowe	269-986-7583

Communication Check: Communication Check will be tested Mondays and Thursdays by Enbridge Safety Office at 1200 hours.

SPECIAL NOTATION ON WEATHER MESSAGING:
See daily updates for additional weather information.

Enbridge Safety is responsible for weather on-site and they are supported by the NOAA / NWS Grand Rapids Weather Office.

Enbridge Safety will maintain consistent weather messages by following the established format of presenting daily and extended forecast, river depth, hydrologic predictions, and the five day quantitative precipitation forecast. The compilation of information will be presented through daily briefings. Enbridge Safety will continue the current practice of issuing a daily forecast to the field safety staff by posting NWS updates in various locations around the Incident Command Post.

In the event of severe weather warnings and alerts, the NWS Grand Rapids Center will contact the Enbridge Safety Office using the Enbridge Safety Radio System between the hours of 0700-1800 hours. If severe weather warning and alerts are occurring from 1800-0700, NWS Grand Rapids Center will contact the Enbridge Safety Office by phone at: **269-781-1913** and DK Security by phone at: **269-781-1911**. These numbers are in operation 24/7. Enbridge Safety will initiate the notification process by using the Call-EM-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews.

- *Severe Weather Alerts:* report to shelter when the county activates their warning sirens.
- *Fire/Building Evacuation Alert*: Report to assigned evacuation point. Follow Air Horn Procedure: Series of Three 1 second blasts.

Weather related cancellation or concerns call 269-781-1914

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/14/2012/ 0700 hrs To: 06/21/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Aboulafia, Isaac	[redacted]		START/US EPA	Planning
Adams, Rich			Enbridge	Operations
Aguilera, Jose			START/US EPA	O&M
Albig, Brian			AECOM/Enbridge	Environment
Allen, Toby			MRG/Enbridge	Public Information
Arcaute, Francisco			US EPA	Public & Govt. Affairs
Back, Amy			Avery/Enbridge	DPSC
Back, Berl			Avery/Enbridge	Facilities Manager
Baine, Jaclyn			AECOM/Enbridge	Environment
Baker, Paul			Kalamazoo OEM	MAC
Bareham, Dave			Enbridge	Environment
Beodray, Frank			START/US EPA	
Berecz, Karen			START/US EPA	O & M
Berninger, Mark			Cardno JFNEW/Enbridge	Restoration
Blackburn, Ted			START/US EPA	Safety Officer
Blanchard, Mark			START/US EPA	
Blue, Melissa			AECOM/Enbridge	Environment Admin.
Bohrmann, John			Enbridge	Environment
Brettmann, Gregg			DEQ	Environmental Unit Leader
Bretz, Ryan			Manpower/Enbridge	IT
Brown , Kevin			Weston/DEQ	GIS Support
Bukowski, Breanna			Weston/DEQ	Planning
Burrous, Lauren			USGS	USGS
Calvert, Red			McDaniel/Enbridge	Safety
Capone, Dan			START/US EPA	Operations
Cavazos, Lupe			START/US EPA	Planning
Cedillo, Ricardo			Manpower/Enbridge	Security Unit Leader
Churchill, Kim			Weston/DEQ	Environmental Unit
Cox, Renee			Manpower/Enbridge	Documentation
Daniel, Pat			Enbridge	MAC
Daniel, Wayne			Tulsa/Enbridge	Operations
Deblasio, Don			US EPA	Public Information
Dekker, Shaun			SET/Enbridge	Waste Management
DelloRusso, Vincent			Weston/DEQ	Operations
DeLong, Michelle			DEQ	Incident Commander
Dennis, Kate			Manpower/Enbridge	Admin Support
Dew, Justin			Avery/Enbridge	Facilities Coordinator
Dobrowski, Ed			USGS	USGS
Doherty, Bob			Enbridge	Environment
Dollhopf, Ralph			US EPA	Incident Commander (FOSC)
Donaldson, Elizabeth			Enbridge	Planning
Dougherty, Kelly			START/US EPA	Public Information
Dryburgh, Dave			AECOM/Enbridge	Environment
Dubois, Amy			US EPA	
DuCharme, Mark			DEQ	Incident Commander
Dunham, Durk			Calhoun County EMA	MAC
Dykema, Linda			MDCH	Public Health
Eversole, Elijah			Enbridge/AECOM	Containment
Fitzpatrick, Faith			USGS	Tech Specialist
Fizzell, Chad			DEQ	GIS Support
Frost, Joe			Calhoun County Health	MAC
Fuller, Mark			AECOM/Enbridge	Environment
Giles-Smith, Carolyn			Weston/DEQ	Documentation
Good, Gena			START/US EPA	
Graan, Tom			START/US EPA	Submerged Oil Lead
Gross, Dale			Superior/Enbridge	Safety Officer
Guest, Nyekah			Enbridge	Procurement
Haak, Matt			START/US EPA	Sit Unit Leader
Hackley, Richard			US EPA	Finance
Haux, Christopher			Enbridge	OSC
Hehir, Nate			Superior/Enbridge	Environment
Hendrix, Kristen			START/US EPA	Operations
Hetzner, Matt			Avery/Enbridge	Planning
Hoard, Chris			USGS	USGS
Hodges, Luke			Stantec/Enbridge	
Hogan, Charlene			AECOM/Enbridge	Environment
Hong, Lorie			START/US EPA	Logistics
Hummel, Rebecca			Manpower/Enbridge	Finance
Johnson, Rex			START/US EPA	Operations
Jones, Susan			DEQ	Operations
Kaiser, Ken			AECOM/Enbridge	GIS Specialist
Kane, Sean			START/US EPA	Waste Management
Kent, Norm			AECOM/Enbridge	Environment
Kerpash, Paul			SWAT/Enbridge	Control Point Management
Kidder, Steven			START/US EPA	Operations SOS
Kirby-Miles, Leslie			US EPA	Legal
Kogge, Stu			Cardno JFNEW/Enbridge	Operations
Kosmowski, Christine			City of Battle Creek	MAC
Lantinga, Chris			START/US EPA	Operations
Laquerre, Tim			START/US EPA	Operations
Laskey, Crystal			MDEQ	Planning
Lefaive, Doran			AECOM/Enbridge	Waste Management
Lisabeth, Nicole			MSP	PIO
Luetke, Mindy			START/US EPA	PSC
Lundholm, Mark			Weston/DEQ	Operations
Makoski, Paul			Calhoun County Health	MAC
Manshum, Jason			Enbridge	Public Affairs
Massey, Dylan			LBG/Enbridge	Environmental Inspector
McKay, John			Enbridge	ROW
McKenzie, Michael			Battle Creek Emer. Srvs.	MAC
McKinnon, Bryan			START/US EPA	Waste Management Lead
Mehl, Rick			START/US EPA	
Meny, Alyssa			Enbridge	Communications Unit
Moisan, Paul			START/US EPA	Documentation
Moore, Terry			SET/Enbridge	
Nelson, Brad			Avery/Enbridge	DPSC
Neumeier, Laura			Trimedia/Enbridge	Air Monitoring
Newberry, Christina			Manpower/Enbridge	Documentation
Noble, Steve			DEQ	Water Resources Division
Nye, Dennis			START/US EPA	Recovery
Oleschuk, Rick			Enbridge	Safety Officer
Olson, Alex			Avery/Enbridge	Planning
Ostrodka, Steve			US EPA	Submerged Oil Lead
Periard, Debora			AECOM/Enbridge	GIS Support
Pesses, David			LBG/Enbridge	Environmental Inspector
Pierce, Brennan			START/US EPA	Documentation
Piescher, Matthew			Avery/Enbridge	Field Inspector
Porter, Pete			Salem/Enbridge	Right of Way Agent

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/14/2012/ 0700 hrs To: 06/21/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Powell, Meredith	[redacted]		Hill & Knowlton/Enbridge	Public & Govt. Affairs
Pratt, Catherine			AECOM/Enbridge	Environment
Quiggle, Lisa			MDCH	
Rader, Larry			START/US EPA	Sit Unit Leader
Reber, Lt. Barry			MSP EMHSD	MAC
Reed, Mike			Tetra Tech/Enbridge	Envrionmental Inspector
Reigner, Selma			Kelly Services/Enbridge	Admin. Assistant
Richardson, Dave			Tetra Tech/Enbridge	River Poling Supervisor
Rosenbaum, Charmaine			Enbridge	Project Support Manager
Ross, Shauna			START/US EPA	
Runstrom, Steve			Avery/Enbridge	Operations Inspector
Rutherford, James			Calhoun County Health	MAC
Rutkowski, Sonny			START/US EPA	Technical Specialist
Sahara, Dean			SWAT/Enbridge	Operations
Sarkipato, Ernie			DEQ	
Saylor, Andy			SET/Enbridge	
Schmitt, Ben			DEQ	Operations
Schneider, Dave			Kalamazoo County	MAC
Schoeff, Alison			AECOM/Enbridge	Water Monitoring Supervisor
Shattuck, Terri			Weston/DEQ	Operations
Smith, Brian			Tulsa/ Enbridge	Overbank Excavation Field Inspector
Snider, Jim			Enbridge	Environment Director
Sobojinski, John			Enbridge	Incident Commander
Spates, Jack			Avery/Enbridge	Operations
Spruit, Jeff			DEQ	Environment
St. Onge, Greg			LBG/Enbridge	O&M
Standen, Joe			LBG/Enbridge	River Opening Implementation
Steede, Bob			Enbridge	DOSC
Stiemsma, Bryan			AECOM/Enbridge	Environment Supervisor
Stuart, Mike			START/US EPA	Safety Officer
Sulaiman, Tik			START/US EPA	GIS Specialist
Sumner, Matt			AECOM/Enbridge	Environment
Taft, Bill			DEQ	Wildlife Environmental NRDA Group
Thomas, Brittany			START/US EPA	Finance
Thompson, Doug			DEQ	
Torres, Jason			START/US EPA	GIS Specialist
Ushio, Miako			AECOM/Enbridge	Talmadge Creek Remediation Lead
Vail, Linda			Kalamazoo County Health	MAC
Valenza, James			START/US EPA	GIS Specialist
VanWagner, Elmer			Weston/DEQ	Operations
Vega, Sonia			US EPA	Deputy Incident Commander
Victory, Joe			START/US EPA	DOSC
Vilhauer, Eric			Enbridge	ROW Agent
Vosburg, Cheryl			City of Marshall	MAC
Wagner, Greg			START/US EPA	Submerged Oil Recovery
Wahrer, Marc			START/US EPA	Operations
Wallace, John			Avery/Enbridge	Operations Inspector
Watt, Tammy			Enbridge	Finance
Webb, Oliver			SWAT/Enbridge	Control Point Management
Weir, Karen			START/US EPA	
Wekseth, Mike			SWAT/Enbridge	Operations Inspector
Wellman, John			START/US EPA	Operations
Wessling, Elizabeth			START/US EPA	PSC
Williams, Lisa			USFWS	
Wilson, Lee			Weston/DEQ	Operations
Wiswell, Amber			Kelly Services/Enbridge	Admin. Assistant
Wolf, Mike			AECOM/Enbridge	Monitoring
Wolfe, Stephen			US EPA	Deputy Incident Commander
Yokom, Brett			Trimedia/Enbridge	Environment
Zahner, Dan			START/US EPA	Operations
Zambetis, Mike			Cardno JFNEW/Enbridge	Restoration
Zanter, Paul			US EPA	Logistics
Zelt, Ron			USGS	Environmental Unit Leader Assistant

Prepared by:
Matt Hetzner

Email Corrections To
matt.hetzner@enbridge.com

DATE /TIME
6/13/201211:29 AM

Enbridge Oil Spill Incident - Campbell ICP, Marshall, MI
U.S. EPA Trailer Phone Directory

Trailer No.	Trailer Designations	Phone Number	Ext No.
1	Deputy IC Office (SW)	269-781-1995	11995
1	IC Fax Line	269-781-1110	11127
1	IC Conference Area	269-781-1026	11026
1	Operations Section Chief	269-781-1994	11994
1	Health & Safety (West End)	269-781-1991	11991
2	Work Room (NW)	269-781-1955	11955
2A	Large Conference Room (MID)	269-781-1591	11591
2B	Conference Room (NE)	269-781-1954	11954
3	MDEQ Field Trailer	269-781-1953	11953
3	MDEQ Documentation	269-781-1951	11951
4	Operations	269-781-1958	11958
4	Operations	269-781-1971	11971
4	River Opening	269-781-1972	11972
7	Copy Center	No Phone	
8	Logistics	269-781- 1997	11997
8	EPA Hotline	269-781-1992	11992
8	Weston IC (East End)	269-781-1988	11988
9	Planning	269-781-1015	11015
9	EPA Documentation	269-781-1905	11905
9	GIS	269-781-1018	11018
9	Environmental Unit	269-781-1019	11019
9	Conference Room	269-781-1963	11963
9	Wate Management Branch	269-781-1955	11955
9	Environmental Unit (USGS)	269-781-1582	11582
9	PIO	269-781-1587	11587
10	MDEQ-WRD	269-781-1014	11014
10	MDEQ-WRD	269-781-1023	11023
10	MDEQ-WRD	269-781-1022	11022
11	MDEQ-RD & Weston	269-781-1024	11024
11	MDEQ-RD & Weston	269-781-1012	11012
11	MDEQ-RD & Weston	269-781-1013	11013
Indoor	Weston Indoor Area	269-781-1961	11961

To dial between trailers, use the extension number, 1-1997 for Logistics

To place a conference call within the VOIP network, dial first number, select button under "more", scroll down to Confrm and select. Dial next number, press confirm again to connect all. Repeat steps to connect more numbers.

Repeat the same steps to conference in one outside line.

MEDICAL PLAN ICS – 206	Kalamazoo River/Enbridge Spill	1. Date Prepared 6/13/2012	2. Time Prepared 0800	3. Operational Period 06/14/2012 0700 06/21/2012 0700

4. Transportation

Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
Lifecare Ambulance	330 West Hamblin Avenue, Battle Creek, MI 49015	9-1-1	X	
City of Marshall Fire Dept	323 West Michigan Avenue, Marshall, MI 49068	9-1-1	X	

5. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Bronson Methodist Hospital	601 John Street Kalamazoo, MI	15 Min	50 min	269-341-7654	X		X	
Borgess Medical Center	1521 Gull Road Kalamazoo, MI	15 min	50 min	269-226-7000	X			X
Oaklawn Hospital	200 N. Madison Ave Marshall, MI		5 min	269-781-4271		X		X
Battle Creek Health System	300 North Avenue Battle Creek, MI		20 min	269-966-8000		X		X

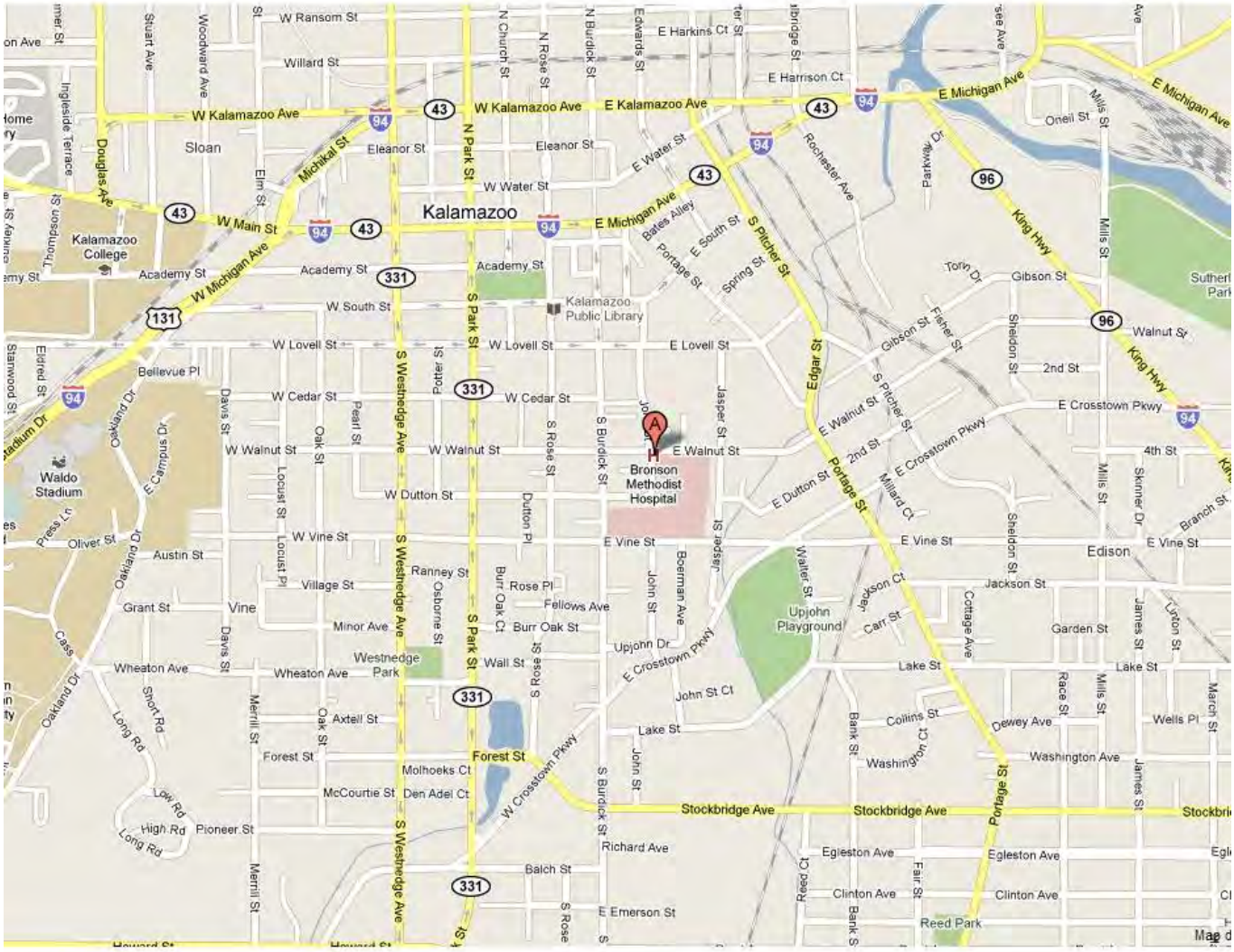
6. Medical Emergency Procedures

1. Dial 9-1-1 for all emergencies. Give 9-1-1 operators as much information as possible. Stay on the line and answer all questions – information may be radioed to responders. On-site personnel trained and certified in first aid should attempt to stabilize victim until fire department/EMS personnel arrive.
2. Report all incidents to the Project Safety Officer. Keep a log of events. Secure the area. Identify witnesses for later investigation.

NOTE: Suspend all operations during an actual emergency situation!

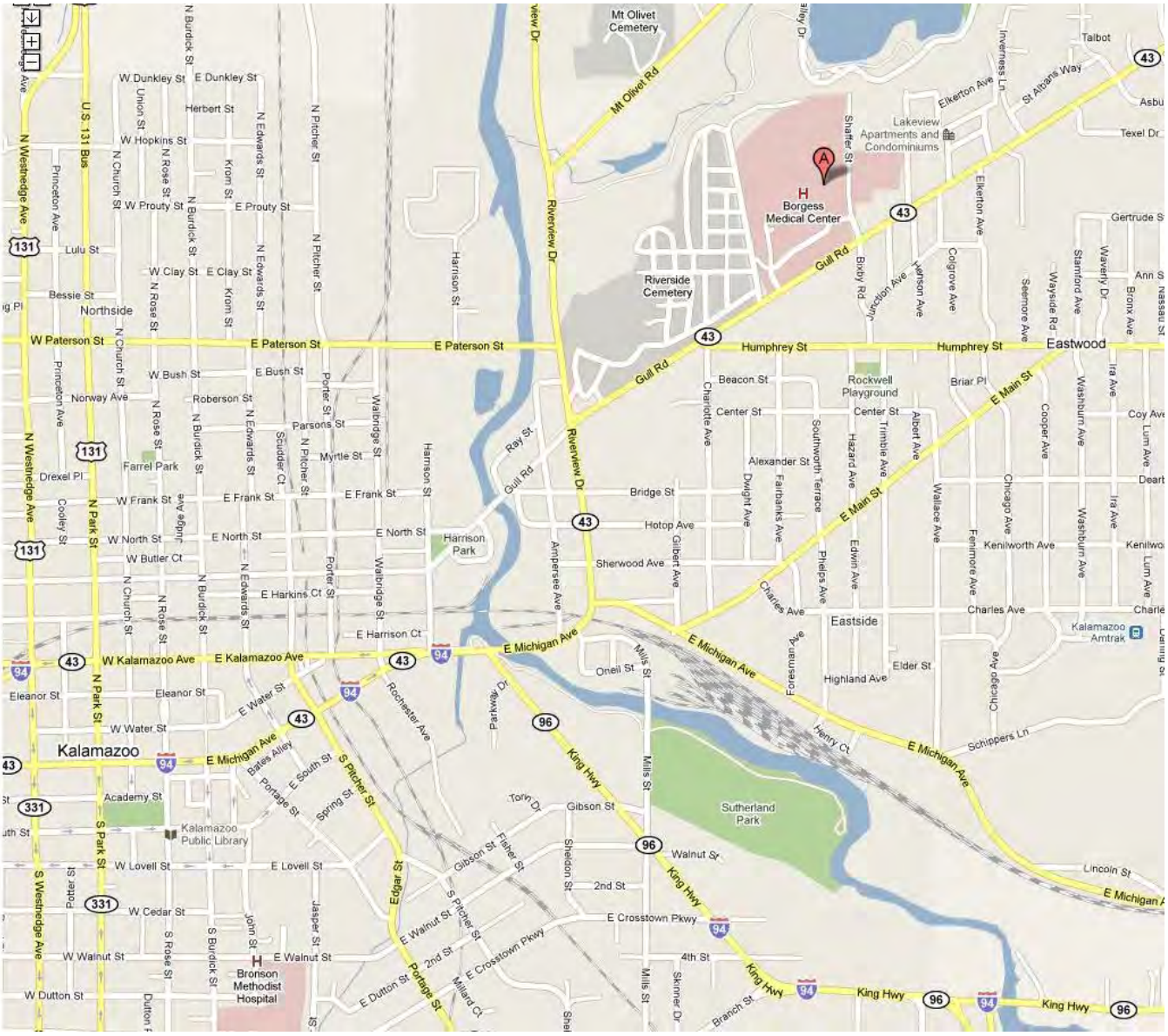
Prepared by	10. Reviewed by (Safety Officer)
Dale Gross 6/13/2012	Dale Gross 6/13/2012

Hospital Route Map – Bronson Methodist Hospital – Kalamazoo, MI



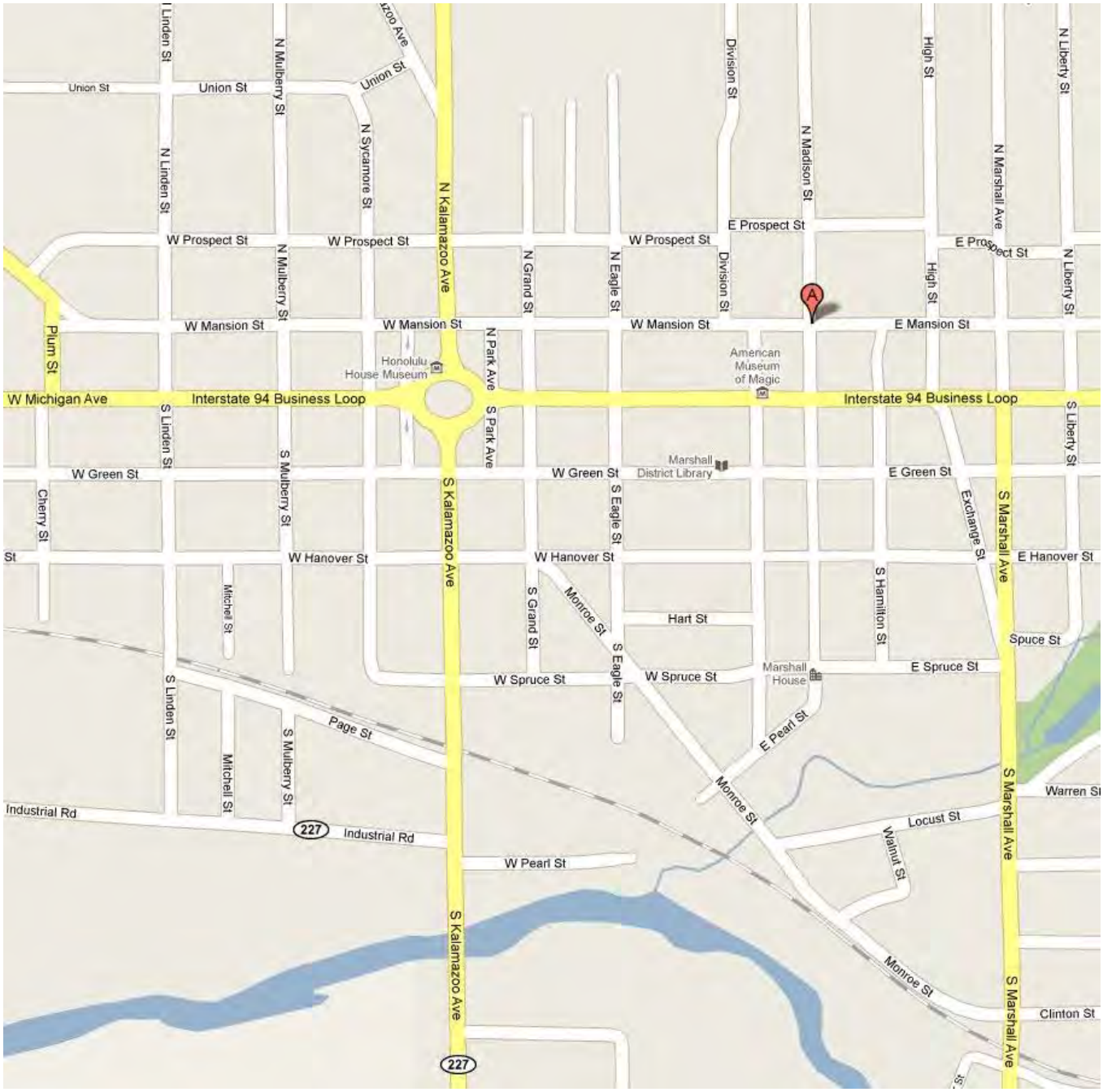
Bronson Methodist Hospital
601 John St
Kalamazoo, MI 49007
(269) 341 - 7979

Hospital Route Map – Borgess Medical Center – Kalamazoo, MI



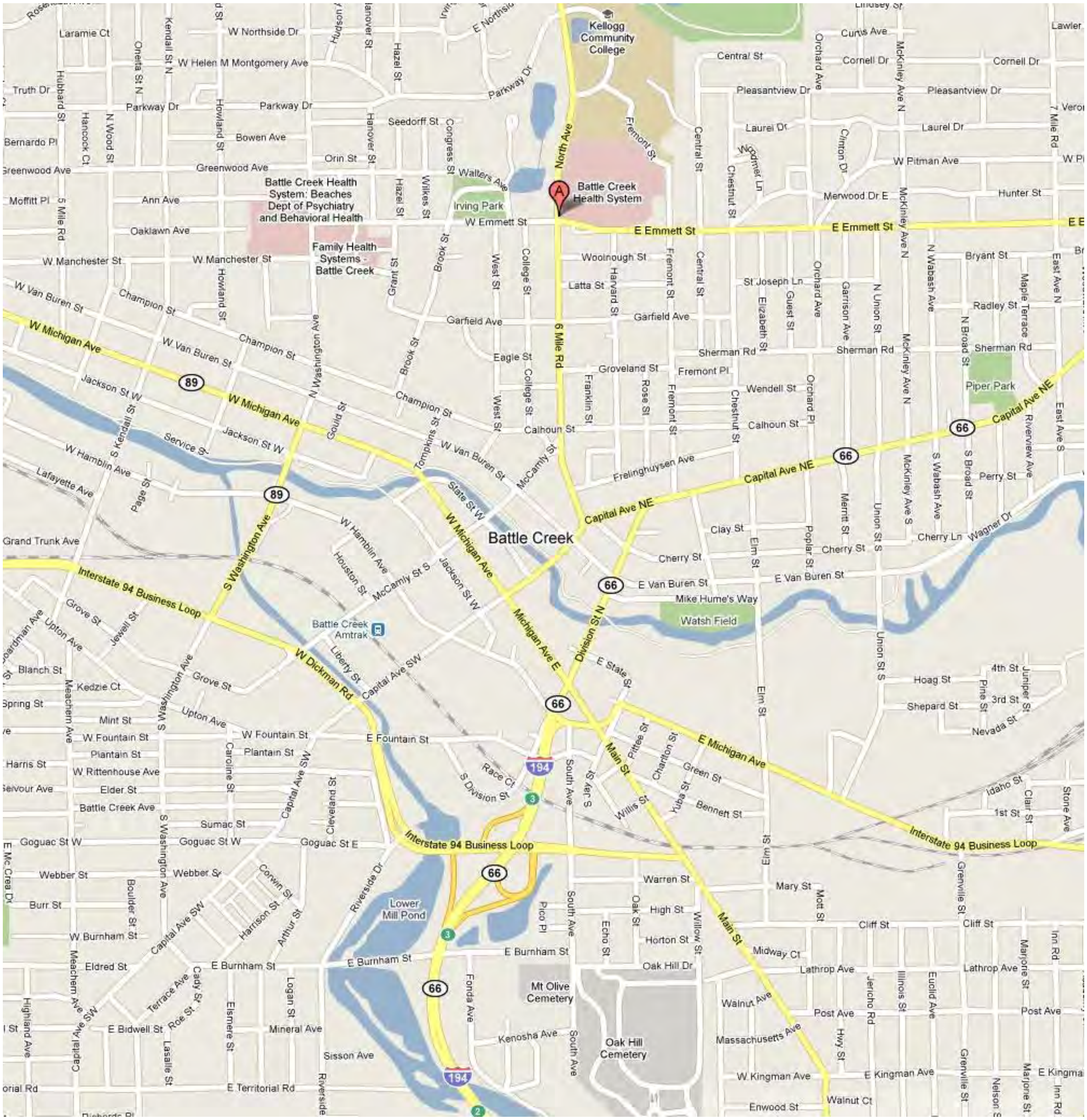
Borgess Medical Center
1521 Gull Road
Kalamazoo, MI 49048
(269) 226 - 7000

Hospital Route Map – Oaklawn Hospital – Marshall, MI



Oaklawn Hospital
200 North Madison St.
Marshall, MI
(269) 781-4271

Hospital Route Map – Battle Creek Health System – Battle Creek, MI



Battle Creek Health System
300 North Avenue
Battle Creek, MI
(269) 966-8000

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Instructions
Operational Period: 6/14/12 (0700hrs) to 6/21/12 (0700hrs)

River Opening: Be advised that the Kalamazoo River between MP – 2.75 and MP 2.25 has been opened to the public. Public recreational activities are to be expected on the river in this segment. Be courteous and respectful to members of the public at all times. Be aware that members of the public may be present in closed segments of the river or work areas.

Weather: Review weather information prior to commencing work each day. Be aware of changes in the weather conditions and ensure proper controls are implemented to address the weather hazards such as: Cold, Wind, Rain, Ice, Fog, Frost, etc. Take actions in accordance with instructions provided by supervisory personnel and as received through the Call-Em-All and PTT systems.

Sunscreen: Sunscreen should be applied to exposed skin, and not just if you are going to be in the sun. UVB rays cannot penetrate glass windows, but UVA rays can, leaving you prone to these damaging effects if unprotected.

PPE: Be prepared for changing weather conditions by wearing, and/or having available, appropriate cold weather gear and approved safety footwear with appropriate soles for use on slippery ground conditions due to frost, ice and rain. When PFDs are required you must ensure that they are United States Coast Guard approved and are the outermost layer, with reflective vest worn under the PFD.

Vehicles: Follow speed limits and adjust speed as necessary for road conditions. Clear all windows of frost before driving. Make sure your vehicle is in proper working condition.

SPECIAL NOTATION ON WEATHER and HAZARD ALERT MESSAGING:
(See daily updates for additional weather information).

Enbridge Safety will maintain consistent weather messages by compiling information and present through daily briefings. Weather forecast updates will be distributed to field safety staff for further communication in the field. Enbridge Safety is responsible for communicating weather alerts based on information received through the Weather TAP system and text messages received from the National Weather Service in Grand Rapids.

In the event of severe weather warnings and alerts, Enbridge Safety will be monitoring via the Weather TAP system. Enbridge Safety will initiate the notification process by using the Call-Em-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews. DK Security will be notified by Enbridge Safety by phone from 1800 – 0700 hours.

Severe Weather Alerts: Take appropriate shelter when the county activates their tornado warning sirens. In the Incident Command Post, report to the designated tornado shelter rooms. Where appropriate shelter is not available, lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of potential for flooding and flying debris.

Note: Emergency notification siren systems will be tested on the first (1st) Saturday of each month in Calhoun and Kalamazoo Counties. Typically a siren is sounded at 1200 hours; however, this could be delayed due to current circumstances in the county.

Fire/Building Evacuation Alert: In the event of a fire, utilize air horn to initiate series of three 1 second blasts. Must report to the designated evacuation point upon hearing a series of three 1 second air horn blasts. **Please close all doors, and turn lights out upon leaving your area.**

Call the Safety Office at 269-781-1914 if you have weather related concerns. Call 269-781-1913 for other Safety related issues.

Safety Orientations: Held Monday - Friday at 0800 at the Operations Center (1601 Pratt Avenue)

Boat Safety Awareness Orientation: Available by appointment Monday – Friday, contact the Safety Office.

If you see wildlife (dead or alive) that is impacted by the oil, call Bob Doherty [redacted]

Field Safety Staff	
Name	**Phone**
Red Calvert	[redacted]
Steve Runstrom	
Matt Piescher	

Communication Check: Communication Check will be tested twice a week via the Verizon Push To Talk (PTT) system by Enbridge Safety office on Monday's and Thursday's at 1200 hours.

Call-Em-All: Will be tested by Enbridge Safety office on Wednesday's at 1200 hours.

First Aid Kits: There are four (4) kits located within the Incident Command Post Facility. Please review the Evacuation Plan map for locations.

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Message
Operational Period: 6/14/12 (0700hrs) to 6/21/12 (0700hrs)

DAY 1:
Thursday, June14, 2012

Life Saving Rule #5 – Isolate Energized Systems

Always follow procedures for lockout/ tag-out. Equipment, facilities and piping systems could have stored or residual energy that poses a danger.

Each and every one of us must do everything in our power to protect ourselves, and to protect those around us.

You are the power behind lifesaving rules

DAY 2:
Friday, June 15, 2012

River Use by the Public

Boat operators and passengers should be aware that the public is using the river now and number public users are increasing, especially on the weekends.

- Be aware that recreational users of the river may be anywhere on the river.
- Kayaker and canoeists may not follow navigation rules and may not be in full control.
- The public always has the right of way on the river.
- Swimmers have been observed in the river and may be difficult to see. When you see swimmers - get off step.
- When in doubt, stop and evaluate the situation.
- Know what to do in case of an emergency.
- Be courteous when interacting with the public.

DAY 3/ DAY 4:
Saturday, June 16 – Sunday, June 17, 2012

Slips, Trips and Fall Conditions

Most hazards can be avoided by using common sense. Please consider the following hazardous situations.

Boats
- Loss of balance due to instability
- Slippery surfaces (frost, rain, ice, snow, etc.)
- Tools/Equipment/Debris
- Overextending
- Access/Egress

Work Areas
- Tools/Equipment/Debris
- Fallen Trees/Branches
- Large Stones/Uneven Terrain/Steep Slopes/Holes
- Environmental Conditions (muddy, slick, etc.)
- Vehicle/Equipment – Access/Egress

Controls
- Identify and Control Hazards
- Focus on the Task – Avoid Distractions
- Maintain 3 Point Contact – Access/Egress
- Utilize Non-Slip Tapes
- Wear Proper Footwear for Conditions

DAY 5:
Monday, June 18, 2012

Safe Work Permits

Safe Work Permits shall be completed and authorized before starting any Contractor work activities. The Permit serves as an important communication device between the authorized Permit issuer, authorized Permit approver, and the Contractor performing the work. This communication ensures that all required safety measures are implemented before and during the work.

Safe Work Permits:

- Aids pre-job planning by designating personnel to complete required safety checks or hazard assessment before the work begins.
- Helps protects workers, Contractors, and the public by ensuring required safety measures are implemented.
- Requires Contractors to provide adequate notice and significant descriptions of the scope of the work when requesting the Permit.

DAY 6:
Tuesday, June 19, 2012

Boat Trailer Inspections

A ten point inspection for boat trailers:

1.) Lighting – Check running, turn, reverse and stop indicator lights.
2.) Lug nuts. Are they tight?
3.) Boat trailer tire inspection – how's the tread? Check the air pressure with a gauge.
4.) Wheel bearings – when was the last time they were greased?
5.) Check bolts for tightness and welds for cracks. The bolts on the leaf springs are notorious for coming loose.
6.) Make sure your safety chain is in proper order and always hook it up. Make sure all pins are in place
7.) Check the bunks on which the boat sits. Are the carpet and wooden boards in good condition? This is best looked at while the boat's off the trailer.
8.) Check for corrosion.
9.) Check straps for wear.
10.) Check that ball and trailer hitch ball coupler are the same size and the load doesn't exceed the hitch rating.

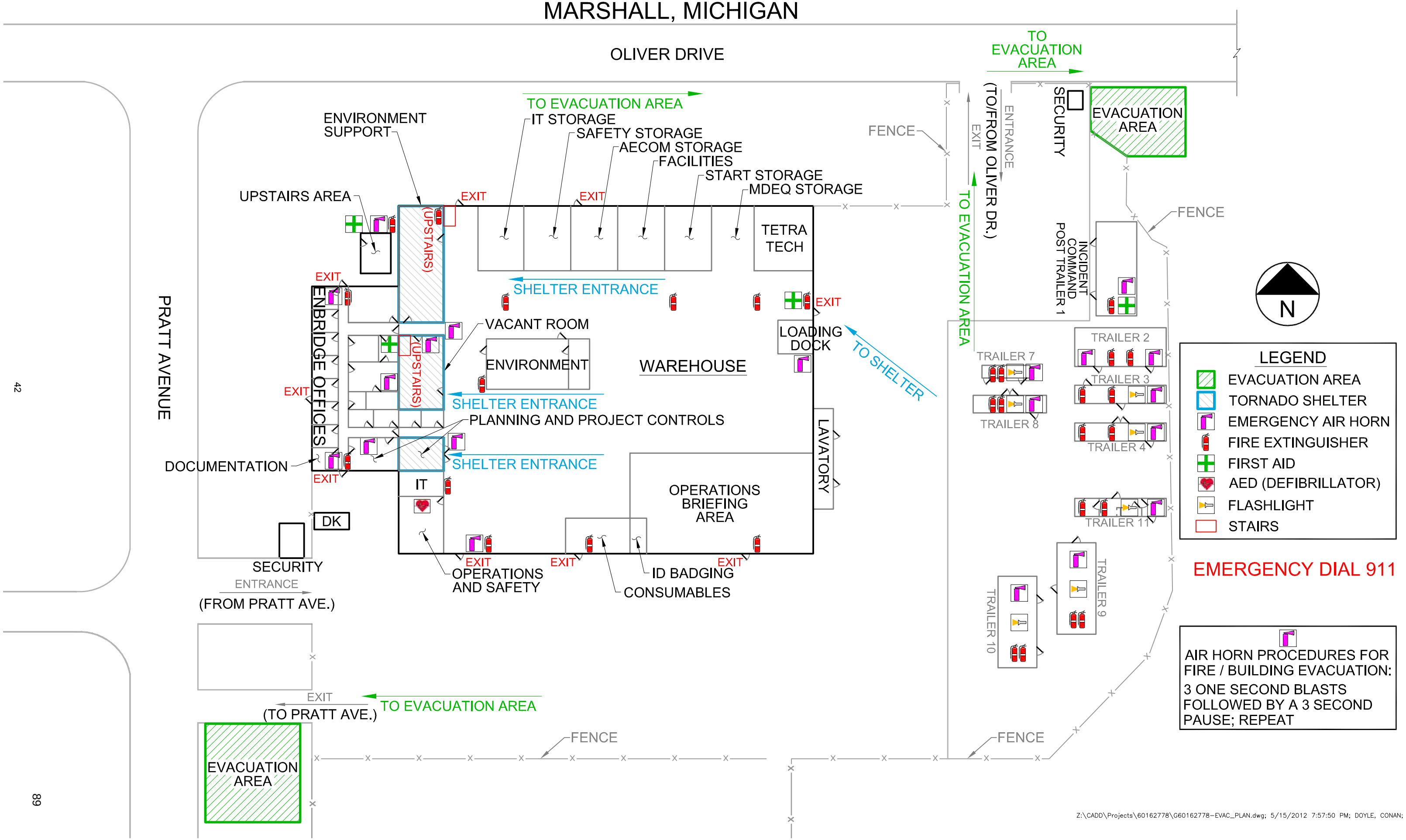
DAY 7:
Wednesday, June 20, 2012

Housekeeping and Litter

Remember that we are guests in the Marshall and Battle Creek communities. Keeping our worksites clean is a visible demonstration of how we respect the environment and residents.

- Always put your own litter in the appropriate receptacle.
- Retrieve any litter noticed in the river or on the ground near our worksites.
- Inspect open pickup beds, trailers, and boats before traveling for loose materials.

ENBRIDGE INCIDENT COMMAND POST FACILITY
EMERGENCY RESPONSE / EVACUATION PLAN
MARSHALL, MICHIGAN



Weather Forecast

Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
14	15	16	17	18	19	20	21
Mostly Sunny	Mostly Sunny	Mostly Sunny	Mostly Sunny	Partly Sunny	Thunderstorms	Thunderstorms	Rain
77° Lo 52°	85° Lo 59°	87° Lo 62°	89° Lo 64°	85° Lo 64°	84° Lo 60°	86° Lo 64°	84° Lo 55°
Hist. Avg 79° Lo 55°	Hist. Avg 80° Lo 55°	Hist. Avg 80° Lo 56°	Hist. Avg 80° Lo 56°	Hist. Avg 80° Lo 56°	Hist. Avg 81° Lo 56°	Hist. Avg 81° Lo 57°	Hist. Avg 81° Lo 57°

1. Incident Name	2. Operational Period (Date/Time)	DAILY MEETING SCHEDULE
KALAMAZOO RIVER / ENBRIDGE SPILL RESPONSE	From: June 14, 2012 0700	ICS-230
	To: June 21, 2012 0700	

3. Meeting Schedule (Commonly-held meetings are included)

Date/ Time	Meeting Name	Purpose	Attendees	Location
6/14/2012	**Thursday**			
0700 0730	Operations Briefing	Present IAP for the next Operational Period to All Staff	UC, Command and General Staff, Branch Directors, Div./Grp Sups., Task Force / Strike Team Leaders, Unit Leaders, Field Supervisors, EPA, DEQ, Scribe	Pratt Avenue Warehouse
0800 0845	MAC Meeting	Update MAC with situation metrics, and briefings of common interest	UC, Command and General Staff, Multi-Agency Coordination Group, Invited attendees	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/15/2012	**Friday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
0930 0945	Objectives Meeting	Review current objectives and identify objectives for the next Operational Period	UC, Operations, Safety, Planning, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/16/2012	**Saturday**			
6/17/2012	**Sunday**			
6/18/2012	**Monday**			
0900 0945	Tactics	Finalize primary and alternate tactics and strategies to achieve UC objectives for the next Operational Period	Operations, Planning, Safety	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/19/2012	**Tuesday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1500 1530	Kalamazoo River System Branch Special Purpose Meeting	Coordinate future Kalamazoo River System Branch activities	Kalamazoo River System Branch Directors and Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/20/2012	**Wednesday**			
0900 0915	Planning Meeting	Review tactics and assignments to meet the project Objectives for the next Operational Period	UC, Command and General Staff, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)

4. Prepared by: Amy Back, Planning Section Chief **Date/Time** 6/8/2012 6/13/12 1503

1. Incident Name **Kalamazoo River/Enbridge Spill**	2. Operational Period (Date/Time) Starting: **June 21, 2012, 0700** End: **June 28, 2012, 0700**	**IAP Cover Sheet**

3. Approved by Incident Commander(s):

Ralph Dollhopf, U.S. EPA

Michelle DeLong, Department Environmental Quality

Mark DuCharme, Department Environmental Quality

Christopher Haux, Enbridge, Deputy

INCIDENT ACTION PLAN

The items below are included in this Incident Action Plan:

- ICS 202 (Response Objectives) 1
- ICS 207 (Organizational Chart & OPS Chart) 2
- ICS 204 (Assignment List) 5
- Segment Map 16
- Meeting Locations and Traffic Plans 17
- ICS 205 (Communication Plan) 27
- ICS 205a (Communications List) 28
- ICS 205a (Communications Attachment) 30
- ICS 206 (Medical Plan) 31
- Safety Message/Evacuation Plan 36
- Weather Forecast 39
- ICS 230 Meeting Schedule 40



4. Prepared By:
Amy Back, Avery/Enbridge

Date/Time
06/20/2012#

1. Incident Name	2. Operational Period (Date/Time)	INCIDENT OBJECTIVES ICS 202-EPA
Kalamazoo River/Enbridge Spill	From: June 21, 2012 @ 0700 To: June 28, 2012 @ 0700	

3. Incident Objective(s)

1. Ensure health and safety of the public and response and recovery personnel.
2. Ensure absolute containment of submerged oil and oil-containing sediments within the Delta and the Fan of Morrow Lake.
3. Ensure effective transition of regulatory oversight from EPA to Michigan DEQ jurisdiction as appropriate.
4. Continue developing strategy for opening of Kalamazoo River.
5. Perform recovery and containment of oil from affected public and private areas of river and river system.
6. Perform remediation and restoration of affected public and private areas of river and river system.
7. Maintain effective communications with cooperating and assisting agencies, the public, including regular coordination with the Multi-Agency Coordination Group (MAC).
8. Provide protection of environmentally and culturally sensitive areas including wildlife and historic properties.
9. Collect, coordinate, manage and communicate environmental and public health data including maintenance of Joint Information Center function.

4. Operational Period Command Emphasis

1. Respond to and document emerging oil throughout the Kalamazoo River system.
2. Continue efforts to secure proper permitting for the second phase of the Kalamazoo River Submerged Sediment Trap Structures.

5. Safety Objectives for the Operational Period

1. Focus on management of change and the use of the safe work permit.
2. Assure effective integration of public safety and worker safety on the river. Focus on public access security.
3. Focus on effective PPE use and warm weather hazards.

6. Prepared by Planning Section Chief (Enbridge): Amy Back ABack	**Date/Time:** 6/20/2012 0923
7. Approved by Incident Commander (US EPA): Ralph Dollhopf	**Date/Time:** 6/20/2012 1216
8. Approved by Incident Commander (DEQ): Michelle DeLong	**Date/Time:** 6/20/2012
9. Approved by Incident Commander (DEQ): Mark DuCharme	**Date/Time:** 6/20/2012 0936
10. Approved by Deputy Incident Commander (Enbridge): Christopher Haux	**Date/Time:** 6/20/2012 1015

Enbridge Pipelines Response Unified Command

INCIDENT COMMANDERS
Ralph Dollhopf (US EPA)
Sonia Vega (US EPA), Deputy
Dan Capone (START/US EPA), Deputy
Michelle DeLong (DEQ)
Mark DuCharme (DEQ)
John Sobojinski (Enbridge)
Christopher Haux (Enbridge), Deputy

FOSC

US EPA Scientific Support Coordination Group

PUBLIC INFORMATION OFFICERS
Don Deblasio (US EPA)
Jason Manshum (Enbridge)

ON-SITE SAFETY OFFICERS
Mike Stuart (START/US EPA)
Dale Gross (Superior/Enbridge)

OPERATIONS SECTION
Dan Capone (START/US EPA), Chief
Joe Victory (START/US EPA), Deputy
Steve Noble (DEQ), Chief
Christopher Haux (Enbridge), Chief
David Bareham (Enbridge), Deputy
James Snider (Enbridge), Deputy

(See Operations Chart)

PLANNING SECTION
Mindy Luetke (START/US EPA), Chief
Amy Back (Avery/Enbridge), Chief
Brad Nelson (Avery/Enbridge), Deputy
Matt Hetzner (Avery/Enbridge), Deputy

(See Planning Chart)

LOGISTICS SECTION
Lorie Hong (START/US EPA), Chief
Charmaine Rosenbaum (Enbridge), Chief
Berl Back (Avery/Enbridge), Deputy

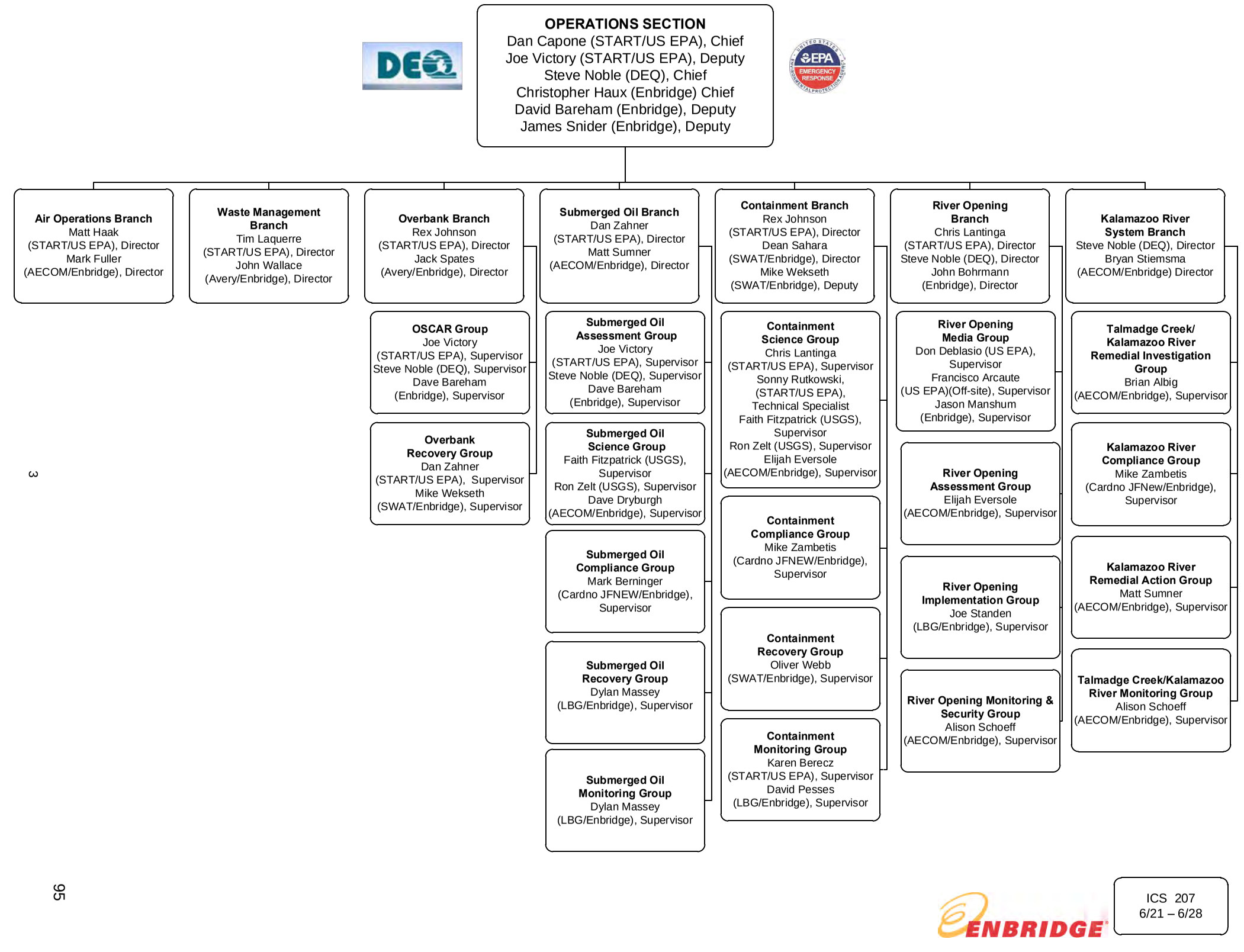
FACILITIES UNIT
Berl Back (Avery/Enbridge), Leader

COMMUNICATIONS UNIT
Alyssa Meny (Enbridge), Leader

SECURITY UNIT
Ricardo Cedillo (Manpower/ Enbridge), Leader

FINANCE SECTION
Ron Motley
(Enbridge) (Off-Site), Chief

PROCUREMENT UNIT
Nyekah Guest
(Enbridge), Leader


OPERATIONS SECTION
Dan Capone (START/US EPA), Chief
Joe Victory (START/US EPA), Deputy
Steve Noble (DEQ), Chief
Christopher Haux (Enbridge) Chief
David Bareham (Enbridge), Deputy
James Snider (Enbridge), Deputy
Air Operations Branch
Matt Haak
(START/US EPA), Director
Mark Fuller
(AECOM/Enbridge), Director
Waste Management Branch
Tim Laquerre
(START/US EPA), Director
John Wallace
(Avery/Enbridge), Director
Overbank Branch
Rex Johnson
(START/US EPA), Director
Jack Spates
(Avery/Enbridge), Director
OSCAR Group
Joe Victory
(START/US EPA), Supervisor
Steve Noble (DEQ), Supervisor
Dave Bareham
(Enbridge), Supervisor
Overbank Recovery Group
Dan Zahner
(START/US EPA), Supervisor
Mike Wekseth
(SWAT/Enbridge), Supervisor
Submerged Oil Branch
Dan Zahner
(START/US EPA), Director
Matt Sumner
(AECOM/Enbridge), Director
Submerged Oil Assessment Group
Joe Victory
(START/US EPA), Supervisor
Steve Noble (DEQ), Supervisor
Dave Bareham
(Enbridge), Supervisor
Submerged Oil Science Group
Faith Fitzpatrick (USGS), Supervisor
Ron Zelt (USGS), Supervisor
Dave Dryburgh
(AECOM/Enbridge), Supervisor
Submerged Oil Compliance Group
Mark Berninger
(Cardno JFNEW/Enbridge), Supervisor
Submerged Oil Recovery Group
Dylan Massey
(LBG/Enbridge), Supervisor
Submerged Oil Monitoring Group
Dylan Massey
(LBG/Enbridge), Supervisor
Containment Branch
Rex Johnson
(START/US EPA), Director
Dean Sahara
(SWAT/Enbridge), Director
Mike Wekseth
(SWAT/Enbridge), Deputy
Containment Science Group
Chris Lantinga
(START/US EPA), Supervisor
Sonny Rutkowski,
(START/US EPA),
Technical Specialist
Faith Fitzpatrick (USGS),
Supervisor
Ron Zelt (USGS), Supervisor
Elijah Eversole
(AECOM/Enbridge), Supervisor
Containment Compliance Group
Mike Zambetis
(Cardno JFNEW/Enbridge),
Supervisor
Containment Recovery Group
Oliver Webb
(SWAT/Enbridge), Supervisor
Containment Monitoring Group
Karen Berecz
(START/US EPA), Supervisor
David Pesses
(LBG/Enbridge), Supervisor
River Opening Branch
Chris Lantinga
(START/US EPA), Director
Steve Noble (DEQ), Director
John Bohrmann
(Enbridge), Director
River Opening Media Group
Don Deblasio (US EPA),
Supervisor
Francisco Arcaute
(US EPA)(Off-site), Supervisor
Jason Manshum
(Enbridge), Supervisor
River Opening Assessment Group
Elijah Eversole
(AECOM/Enbridge), Supervisor
River Opening Implementation Group
Joe Standen
(LBG/Enbridge), Supervisor
River Opening Monitoring & Security Group
Alison Schoeff
(AECOM/Enbridge), Supervisor
Kalamazoo River System Branch
Steve Noble (DEQ), Director
Bryan Stiemsma
(AECOM/Enbridge) Director
Talmadge Creek/ Kalamazoo River Remedial Investigation Group
Brian Albig
(AECOM/Enbridge), Supervisor
Kalamazoo River Compliance Group
Mike Zambetis
(Cardno JFNew/Enbridge), Supervisor
Kalamazoo River Remedial Action Group
Matt Sumner
(AECOM/Enbridge), Supervisor
Talmadge Creek/Kalamazoo River Monitoring Group
Alison Schoeff
(AECOM/Enbridge), Supervisor



PLANNING SECTION
Mindy Luetke (START/US EPA), Chief
Amy Back (Avery/Enbridge), Chief
Brad Nelson (Avery/Enbridge), Deputy
Matt Hetzner (Avery/Enbridge), Deputy



SITUATION UNIT
Matt Haak (START/US EPA), Director
Matt Hetzner (Avery/Enbridge), Director
Mark Fuller (AECOM/Enbridge), Assistant

GIS SPECIALISTS
Jim Valenza (START/US EPA), Leader
Chad Fizzell (DEQ)(Off-site), Leader
Kevin Brown (Weston/DEQ)(Off-site), Leader
Debora Periard (AECOM/Enbridge), Leader
Ken Kaiser (AECOM/Enbridge), Leader

RESOURCE UNIT
Lorie Hong (START/US EPA), Leader
Breanna Bukowski (Weston/DEQ)(Off-site), Leader
Brad Nelson (Avery/Enbridge), Leader

PUBLIC HEALTH SPECIALISTS
Linda Dykema (MDCH)
KCHCSD
CCPHD
MDARD

ENVIRONMENTAL UNIT
Isaac Aboulafia
(START/US EPA), Leader
Elizabeth Wessling
(START/US EPA)(Off-site), Leader
Faith Fitzpatrick (USGS), Leader
Ron Zelt (USGS), Assistant
Rex Johnson (START/US EPA), Assistant
Tom Graan (START/US EPA), Assistant
Jeff Spruit (DEQ)(Off-site), Leader
Kim Churchill (Weston/DEQ), Leader
John Bohrmann (Enbridge), Leader

DOCUMENTATION UNIT
Brennan Pierce
(START/US EPA), Leader
Crystal Laskey (DEQ), Leader
Carolyn Giles-Smith
(Weston/DEQ), Leader
Matt Hetzner (Avery/Enbridge), Leader

4

ENBRIDGE

ICS 207
6/21 – 6/28

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	**Assignment List** **ICS 204 - EPA**
3. Branch **Air Operations**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Matt Haak	START/US EPA	
	Mark Fuller	AECOM/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons	Notes/Remarks
Air Operations	See Branch Directors listed above.		1 START/US EPA 1 Contractor 1 Pilot	Marshall Regional Airport Heli Pad

7. Work Assignments

Enbridge and START/US EPA:

1. Photo-document areas of sheen from source area to Morrow Lake dam and report observations back to operations section chiefs for monitoring and response. Flights occur once a week and as needed.

8. Special Instructions

Air Ops Team shall report to Marshall Regional Airport Heli-Pad. Additional flights can be scheduled on a case by case basis by contacting Mark Fuller (AECOM/Enbridge) at [redacted] Additional operations recon flights shall be scheduled as required. These flights will have priority over the other flights in order to establish work priorities.

Areas that are deemed sensitive due to property owner concerns shall be avoided. If it is necessary to fly over at the sensitive area, pilot shall be instructed to maintain a minimum altitude of 500 ft. Sensitive flight areas include: Squaw Creek Subdivision (MP 3.25), Village of Ceresco and MP 10.5-11.5 LDB.

SAFETY INSTRUCTIONS:
DO NOT access heli-pad without being escorted by the pilot. Never approach or exit the aircraft to/from the rear, near the tail rotor.

Severe Weather Alerts:
Follow instructions and procedures provided by the FAA and the Civil Defense System.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0400	A. Back, Avery/Enbridge	6/20/2012 0822	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 21, 2012, 0700 To: June 28, 2012, 0700	**ICS 204- EPA**
3. Branch **Waste Management**	**4. Division/Group/Staging**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Tim Laquerre	START/US EPA	
	John Wallace	Avery/Enbridge	

6. Resources Assigned — **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
See Branch Directors			

7. Work Assignments

1. Field decon operations for: personnel, hand equipment, and boats for preparation of transport shall be installed prior to work beginning at boat launches / staging areas for individual work sites.
2. Haul contaminated soil, water, media and debris to staging areas for waste characterization and oil recovery sampling prior to offsite disposal.
3. Waste shall be collected at a minimum of daily for direct haul to the landfill or transported to Frac Tank City (FTC) for consolidation with similar waste streams as necessary. Waste generated from coring will be consolidated daily and transported to Frac Tank City.
4. Waste management characterization, manifesting, and coordination of transportation and disposal.

For START/US EPA:

1. Provide oversight of all waste management activities.
2. Ensure appropriate sampling, tracking and disposal is performed on oil impacted debris, water and soil.
3. Review manifests, weight tickets and bills of lading for correlation to waste stream analytical data.
4. Review weekly oil recovery and waste disposal report.

8. Special Instructions

Ensure all Best Management Practices (BMPs) are in place and utilized.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

SAFETY INSTRUCTIONS:

For vacuum truck operation guidelines, please refer the HASP.

At Frac Tank City:

1. The following procedure shall be used for initial opening of hatch or rear doors of liquid vacuum trucks and hatches of vacuum excavation units:
   a. Approach the hatch to be opened with a calibrated five gas monitor and a benzene monitor.
   b. Personnel performing this task must wear a full face respirator with organic vapor cartridge.
   c. Slightly open the hatch and take VOC, H2S, LEL, Oxygen, CO and benzene readings.
   d. If readings are greater than 10 ppm H2S, 10% LEL, 25 ppm CO or 25 ppm benzene then personnel shall close the hatch and utilize SCBA prior to opening the hatch.
2. Operations - Respiratory protection may be required depending on periodic monitoring results. Wear a half-mask respirator equipped with an organic vapor cartridge when 0.5 ppm benzene is detected. Wear a full-face respirator equipped with an organic vapor/acid gas cartridge when benzene is at 5 ppm to 25 ppm.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0700	A. Back, Avery/Enbridge	6/20/2012 0822	D. Bareham, Enbridge	6/20/2012 1830

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Overbank Branch**	4. Division/Group/Staging **Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Jack Spates	Avery/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Outstanding Sites Characterization and Reconciliation	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	
Overbank Recovery	Dan Zahner (START/US EPA) Mike Wekseth (SWAT/Enbridge)		

7. Work Assignments

Outstanding Sites Characterization and Reconciliation (OSCAR):

1. Participate in data review, quality control, and site closure process to ensure that all pending issues are addressed.
2. Direct field evaluations and request information for site determination.
3. Oversee transfer of sites between the various branches.

Designated Meeting Location: ICP.

Overbank Recovery

1. Execute tasks assigned by ERO as requested.

Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0500	A. Back, Avery/Enbridge	6/20/2012 0522	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Submerged Oil**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Dan Zahner	START/US EPA	
	Matt Sumner	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Submerged Oil Assessment	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	1 USGS 5 START/US EPA 1 DEQ 1 Weston/DEQ 16 Contractors
Submerged Oil Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Dave Dryburgh (AECOM/Enbridge)		
Submerged Oil Compliance	Mark Berninger (Cardno JFNEW/Enbridge)		
Submerged Oil Recovery	Dylan Massey (LBG/Enbridge)		
Submerged Oil Monitoring	Dylan Massey (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		

7. Work Assignments

Submerged Oil Assessment Special Purpose Meeting: Daily at 1100, Trailer #2

Submerged Oil Assessment

1. Continue refinement of 2012 Submerged Oil Recovery Plan.
2. Conduct Morrow Lake monitoring activities. (1 Team)
3. Conduct coring activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. (3 Core Collection Teams, 1 Logging Team)
4. Review sheen tracking information from the field.
5. Continue sampling and monitoring of cylindrical sampling devices, as required per the sampling plan.
6. Collect velocity data within the Kalamazoo River System. (1 Team)

For START/US EPA and DEQ:

1. Oversee and document Submerged Oil Assessment work activities.

Submerged Oil Science

1. Continue implementation of the hydrodynamic model to determine movement of submerged oil.
2. Continue development of Submerged Oil Quantification.

For START/US EPA:

1. Oversee and document Submerged Oil Science work activities.

Submerged Oil Compliance

1. Track previously submitted MDEQ permit applications for sediment removal.

Submerged Oil Recovery

1. Implement sheen management activities as necessary.

Submerged Oil Monitoring

1. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

When operating or working in the vicinity of Ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0400	A. Back, Avery/Enbridge	6/20/2012 0800	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Containment**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone Joe Victory, Deputy Steve Noble Christopher Haux Dave Bareham, Deputy James Snider, Deputy	START/US EPA START/US EPA DEQ Enbridge Enbridge Enbridge	[redacted]
Branch Director:	Rex Johnson Dean Sahara (Off-site) Mike Wekseth, Deputy	START/US EPA SWAT/Enbridge SWAT/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Containment Science	Chris Lantinga (START/US EPA) Sonny Rutkowski, Technical Specialist (START/US EPA) Faith Fitzpatrick (USGS) Ron Zelt (USGS) Elijah Eversole (AECOM/Enbridge)	[redacted]	
Containment Compliance	Mike Zambetis (Cardno JFNEW/Enbridge)		1 Contractor
Containment Recovery	Oliver Webb (SWAT/Enbridge)		1 START/US EPA 14 Contractors
Containment Monitoring	Karen Berecz (START/US EPA) David Pesses (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		2 START/US EPA 3 Contractors

7. Work Assignments

Containment Science

1. Refine the hydrodynamic model and concepts of the Plan for Preventing Migration of Oil Past the Morrow Lake Dam.
2. Develop subsurface containment strategies throughout the Kalamazoo River system to prevent recontamination of the Morrow Lake fan.

For START/US EPA:

1. Interface with Enbridge and assist with the development of surface and subsurface containment strategies throughout the Kalamazoo River system to prevent the continued migration of oil, oil sheen, submerged oil, and oil-containing sediments into Morrow Lake.

Containment Compliance

1. Monitor submitted MDEQ permit application for toolbox activities in the Kalamazoo River.
2. Monitor submitted MDEQ application for permit for the Kalamazoo River Sediment Control Structures (13 sites).
3. Monitor submitted MDEQ permit application for the E4.0 containment boom reconfiguration plan.

Containment Recovery

1. Utilize resources to contain and collect sheen and surface oil as necessary.
2. Perform containment strategies along the Kalamazoo River including the following tasks:
   a) Deploy and maintain shoreline containment boom as required.
   b) Complete sheen management as required.
3. Continue to implement and maintain the E4.0 containment boom reconfiguration plan.
4. Install and maintain Kalamazoo River Sediment Control Structures, including the cylindrical sampling devices.

Containment Monitoring

1. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.
2. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50-MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
Photo Ionization (VOCs) / Four Gas Detectors (O2, CO, LEL and H2S) and Direct Reading Instrument for Benzene will be used for air monitoring during debris removal activities.

Hexane is flammable and may be harmful in contact with skin. When handling hexane and sheen test samples containing hexane, wear approved safety glasses, disposable nitrile gloves and keep away from ignition sources. Properly dispose of sheen test samples containing hexane.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0800	A. Back, Avery/Enbridge	6/20/2012 0822	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 21, 2012, 0700 To: June 28, 2012, 0700	**ICS 204 - EPA**
3. Branch **Kalamazoo River System Branch**	**4. Division/Group/Staging**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Steve Noble	DEQ	
	Bryan Stiemsma	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Talmadge Creek/Kalamazoo River Remedial Investigation	Brian Albig (AECOM/Enbridge)	[redacted]	8 Contractors 2 DEQ
Kalamazoo River Compliance	Mike Zambetis (Cardno JFNew/Enbridge)		2 Contractors
Kalamazoo River Remedial Action	Matt Sumner (AECOM/Enbridge)		
Talmadge Creek/Kalamazoo River Monitoring	Alison Schoeff (AECOM/Enbridge)		

7. Work Assignments

Talmadge Creek/Kalamazoo River Remedial Investigation

1. Implement Remedial Investigation Work Plan between MP 5.8 to Morrow Lake Dam.

For DEQ:

1. Observe and document RI activities with emphasis on conformance with approved work plans and standard operating procedures.
2. Collect RI split samples at approved frequency for soil, sediment and groundwater.

Kalamazoo River Compliance

1. Continue restoration/stabilization of the Kalamazoo River Bank Erosion Assessment Sites (KRBEAS).

Kalamazoo River Remedial Action

1. Provide support activities as necessary.

Talmadge Creek/Kalamazoo River Monitoring

1. Monitor erosion control devices.
2. Conduct quarterly potable water sampling.
   All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

In accordance with the Fatigue Management Plan, all work permit activities will be completed by 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
When operating or working in the vicinity of ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0800	A. Back, Avery/Enbridge	6/20/2012 0822	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204 - EPA
Kalamazoo River/Enbridge Spill Response	From: June 21, 2012, 0700 To: June 28, 2012, 0700	
3. Branch **River Opening Coordination**	**4. Division/Group/Staging**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Chris Lantinga	START/US EPA	
	Steve Noble	DEQ	
	John Bohrmann	Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
River Opening Media Group	Don Deblasio (US EPA) Francisco Arcaute (US EPA) (Off-site) Jason Manshum (Enbridge)	[redacted]	
River Opening Assessment/Confirmation Group	Elijah Eversole (AECOM/Enbridge)		
River Opening Implementation Group	Joe Standen (LBG/Enbridge)		
River Opening Monitoring & Security Group	Alison Schoeff (AECOM/Enbridge)		

7. Work Assignments

River Opening Media Group Special Purpose Meeting: Monday, Wednesday, & Friday at 1430, Trailer #2.

All Groups

1. Continue development of River Opening Plan.

River Opening Media Group

1. Ensure all media relations are coordinated.
2. Maintain kiosk materials and signage.
3. Provide personnel to provide information to the public at select kiosk locations as necessary.

River Opening Assessment Group

1. Provide support services as necessary.

River Opening Implementation Group

1. Conduct maintenance activities as directed by the River Opening Monitoring & Security Group.

River Opening Monitoring & Security Group

1. Conduct daily monitoring of river conditions, recording observations of sheen or oil, by River Opening segment.
2. Conduct weekly monitoring of buoys and signage in open segments of the river.
3. Provide security at select kiosk locations.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director.

In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0900	A. Back, Avery/Enbridge	6/20/2012 0820	D. Bareham, Enbridge	6/20/2012 1030

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Planning Section**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Planning Section Chief:	Mindy Luetke Amy Back Brad Nelson, Deputy Matt Hetzner, Deputy	START/US EPA Avery/Enbridge Avery/Enbridge Avery/Enbridge	[redacted]

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons
Situation Unit	Matt Haak (START/US EPA) Matt Hetzner (Avery/Enbridge) Mark Fuller (AECOM/Enbridge), Assistant	[redacted]	1 START/US EPA 1 Contractor
GIS Specialists	Jim Valenza (START/US EPA) Chad Fizzell (DEQ) (Off-site) Kevin Brown (Weston/DEQ) (Off-site) Debora Periard (AECOM/Enbridge) Ken Kaiser (AECOM/Enbridge)		1 DEQ 1 Weston/DEQ 2 Contractors
Resources Unit	Lori Hong (START/US EPA) Breanna Bukowski (Weston/DEQ)(Off-site) Brad Nelson (Avery/Enbridge)		1 START/US EPA 1 Weston/DEQ 1 Contractor
Environmental Unit	Isaac Aboulafia (START/US EPA) Elizabeth Wessling (START/US EPA)(Off-site) Faith Fitzpatrick (USGS) Ron Zelt (USGS), Assistant Rex Johnson (START/US EPA), Assistant Tom Graan (START/US EPA) , Assistant Jeff Spruit (DEQ)(Off-site) Kim Churchill (Weston/DEQ) John Bohrmann (Enbridge)		2 START/US EPA 1 Weston/DEQ 2 USGS 3 DEQ 1 Enbridge 9 Contractors
Documentation Unit	Brennan Pierce (START/US EPA) Crystal Laskey (DEQ) Carolyn Giles-Smith (Weston/DEQ) Matt Hetzner (Avery/Enbridge)		1 US EPA 2 START/US EPA 1 DEQ 1 Weston/DEQ 3 Contractors

7. Work Assignments

Situation Unit:

1. Organize field metrics, prepare for and facilitate presentations, and monitor action tracking.
2. Maintain situational awareness around operational activities and plan for operational needs.
   For START/US EPA:
   1. Maintain situational awareness around operational activities.
   2. Communicate observations to the Operations Section Chief.
   3. Provide daily situational photo log summaries.
   4. Conduct daily monitoring of river conditions, recording observations of sheen and/or oil, by River Opening Segment.
   5. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.

GIS Specialists:

1. Provide data as necessary.
2. Process Yuma data from the field teams.

Resources Unit:

1. Produce an Incident Action Plan as required by the Incident Commanders.
2. Support the planning efforts of operations and provide information to Logistics in order to properly prepare and order resources.

Environmental Unit:

1. Conduct strategic assessment, modeling, and environmental monitoring.
2. Conduct analysis of sheen testing data.
3. Finalize submerged oil quantification for Spring 2011.

For START/US EPA:

1. Continue to coordinate efforts to calculate the quantity of submerged oil remaining as of Spring 2011.
2. Continue supporting the evaluation of the hydrogeomorphology of the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

Documentation Unit:

1. Maintain accurate, up-to-date incident files.
2. Store files for post-incident use.

All Goups: Designated Meeting Location: ICP.

8. Special Instructions

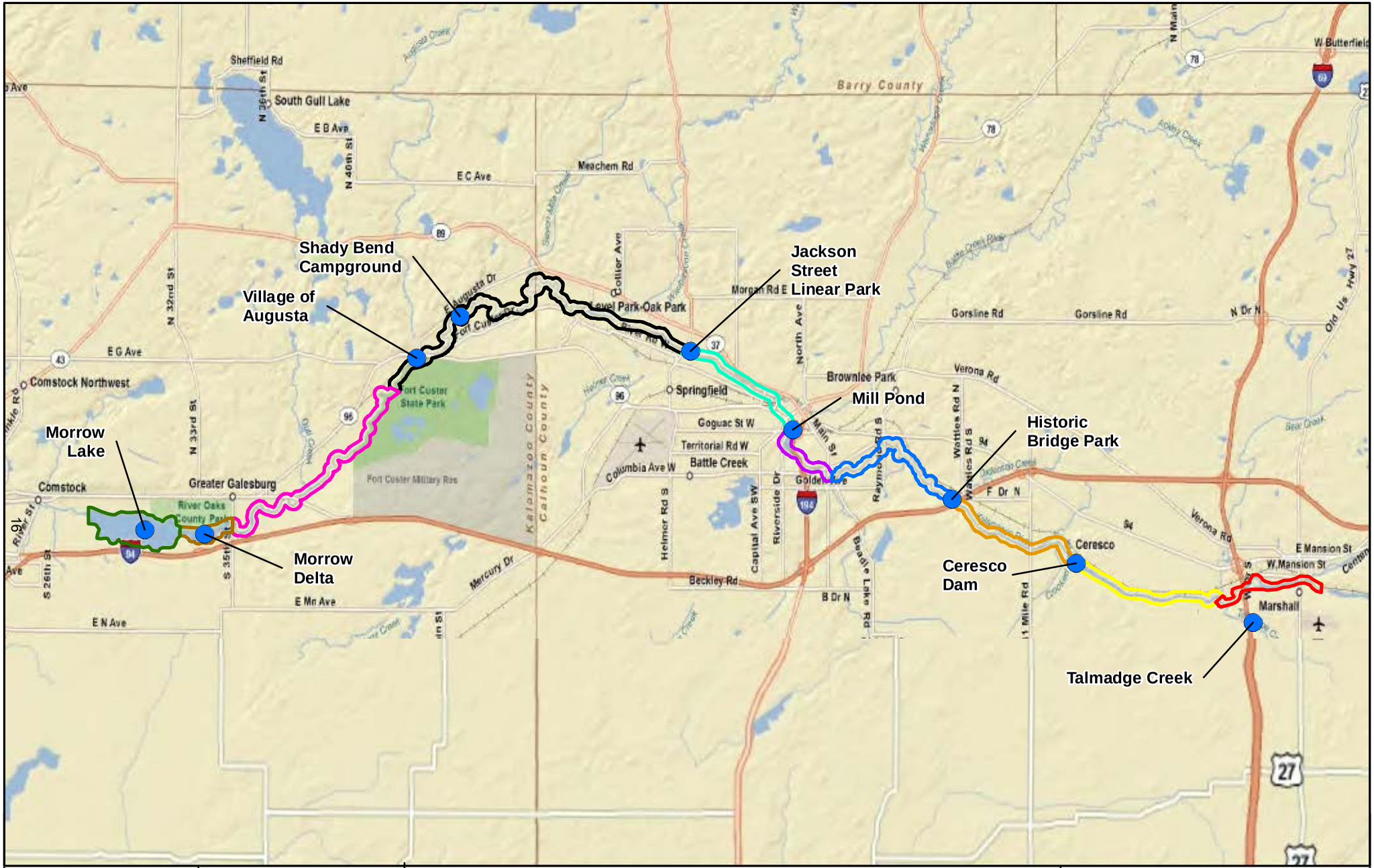
In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/20/2012 0900	A. Back, Avery/Enbridge	6/20/2012 0822	D. Bareham, Enbridge	6/20/2012 1030



ENBRIDGE

Drawn:	GM	4/26/2012
Approved:	AG	4/26/2012
Project #:	60162778	

Map 608

Map Location



Segments

1. Perrin Dam (-2.70) to Saylor's Landing (2.25)
2. Saylor's Landing (2.25) to Ceresco Dam (5.90)
3. Ceresco Dam (5.90) to Historic Bridge Park (9.50)
4. Historic Bridge Park (9.50) to Paddler's Grove (13.75)
5. Paddler's Grove (13.75) to Mill Pond Dam (15.60)
6. Mill Pond Dam (15.60) to Linear Park (18.75)
7. Linear Park (18.75) to Fort Custer Rec. (30.00)
8. Fort Custer Rec. (30.00) to 35th Street Bridge (35.25)
9. 35th Street Bridge (35.25) to Morrow Lake Delta (37.75)
10. Morrow Lake Delta (37.75) to Morrow Lake (39.90)

Points of Interest

N

0 1.5 3 6
Miles

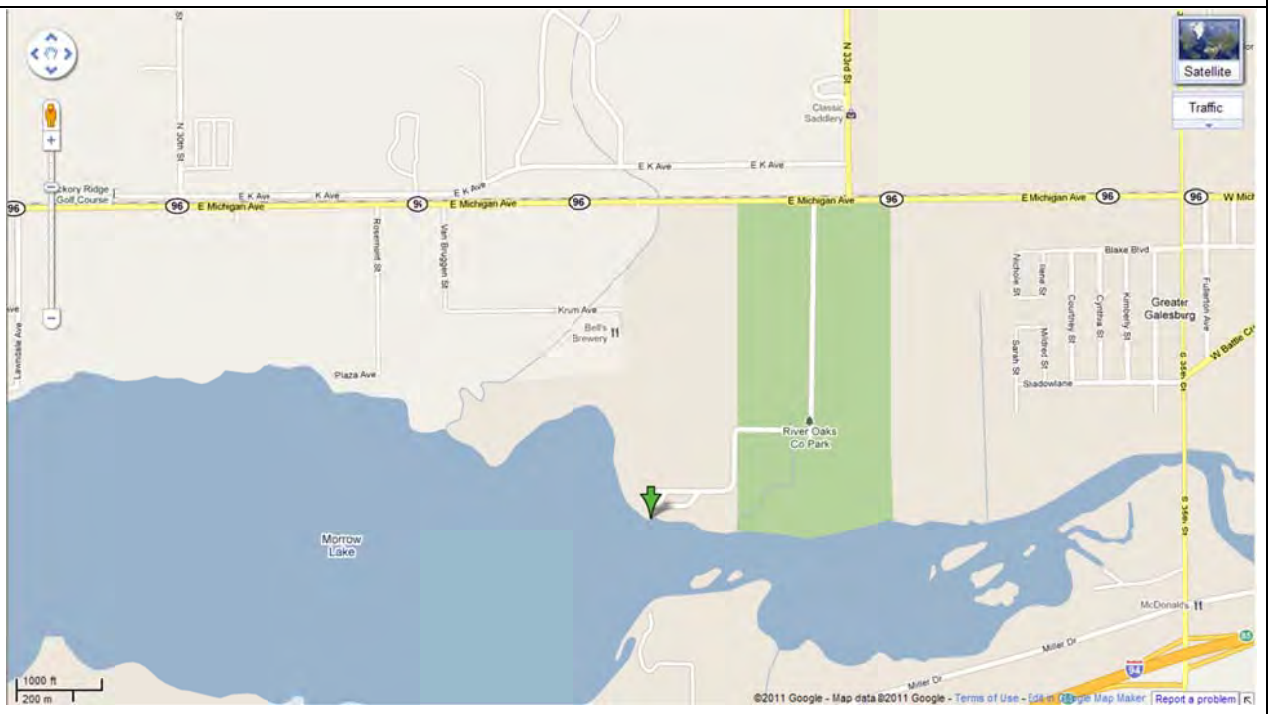
KALAMAZOO RIVER OVERVIEW MAP

ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP

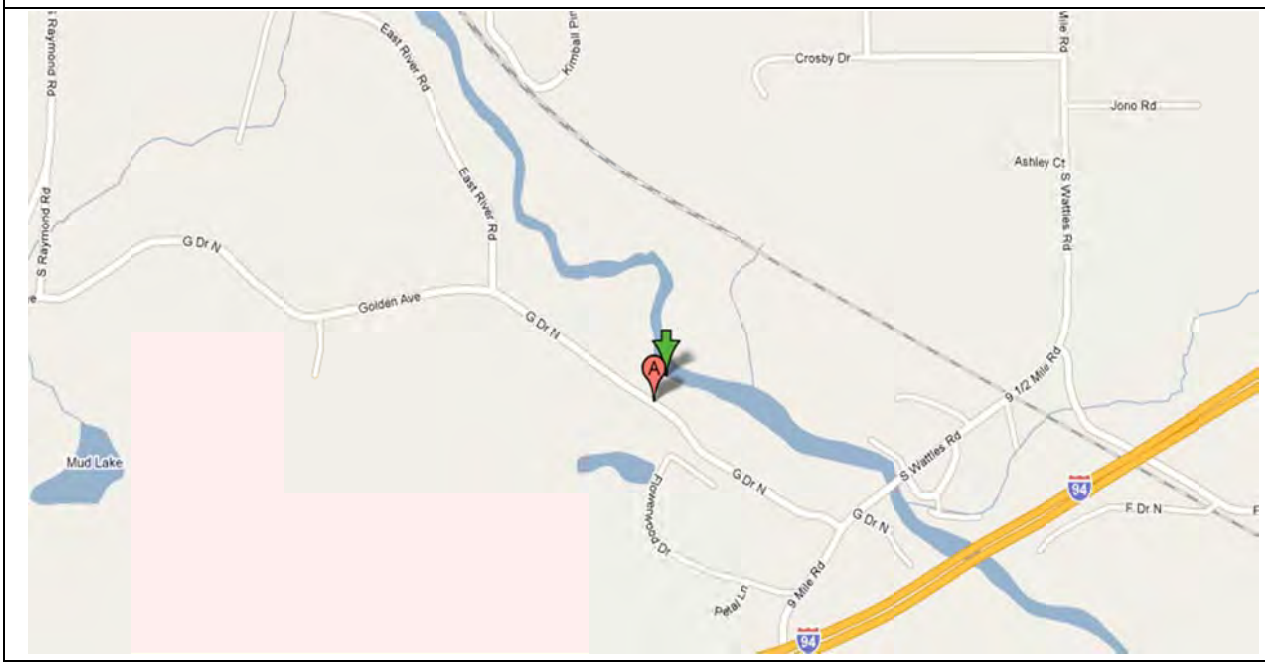
Z:\Work\GIS\Enbridge_Requests\MXDs\River_Overview_Reopening.mxd

Toolbox Meeting Locations

E4 - 9424 E Michigan Ave , Galesburg, MI 49053 GPS Coordinates Lat: 42.278265 Long: -85.452295



C3.2 8677-9015 G Dr N Battle Creek, MI 49014 GPS Coordinates Lat: 42.293492 Long: -85.124479



Refer to traffic plan for detailed access instructions.

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: Talmadge Creek



16054 Division Dr., Marshall, MI 49068
GPS Coordinates: Lat: 42.24620, Long: -84.97641

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: C 5



97 Kenosha Ave Battle Creek, MI 49014
GPS Coordinates Lat: 42.304905 Long: -85.183463

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: C 0.4



12400-12998 C-Drive N, Ceresco, MI 49033

GPS Coordinates: Lat: 42.265127, Long:-85.048364

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

112

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: C 3.2



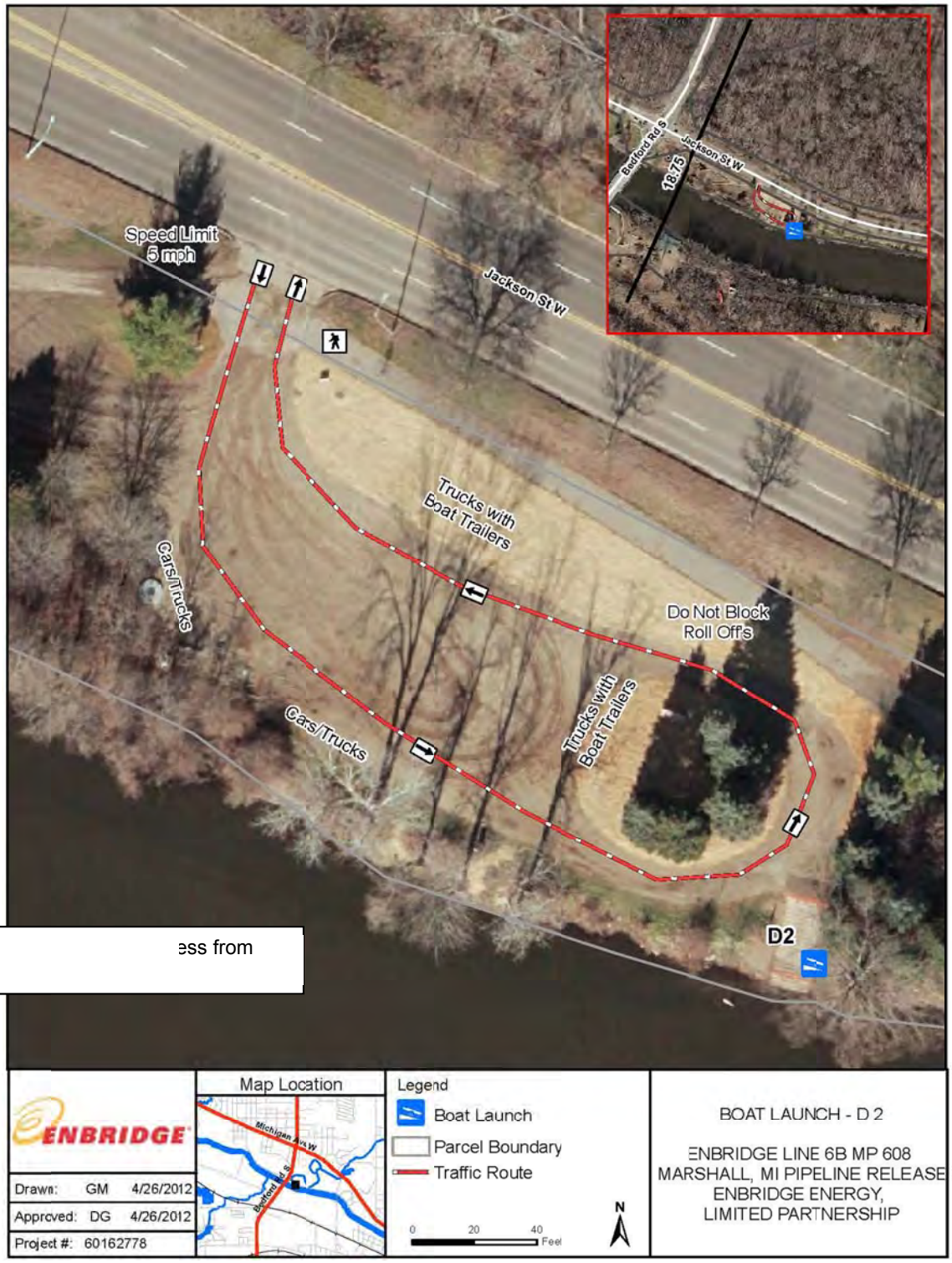
88745 G-Drive N, Battle Creek, MI 49014

GPS Coordinates: Lat: 42.293492 Long: -85.124479

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: D2



ess from

1445-1509 Jackson St W, Battle Creek, MI 49037
GPS Coordinates: Lat: 42.338427 Long:-85.232309

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: E 0.5



from

(Shady Bend Camp Ground), 15320 East Augusta Dr, Augusta, MI 49012
GPS Coordinates:Lat: 42.347408 Long: -85.3295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: E 2



5106-5140 River Rd, Augusta, MI 49053
GPS Coordinates: Lat: 42.32412 Long: -85.358041

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

116

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: E 3

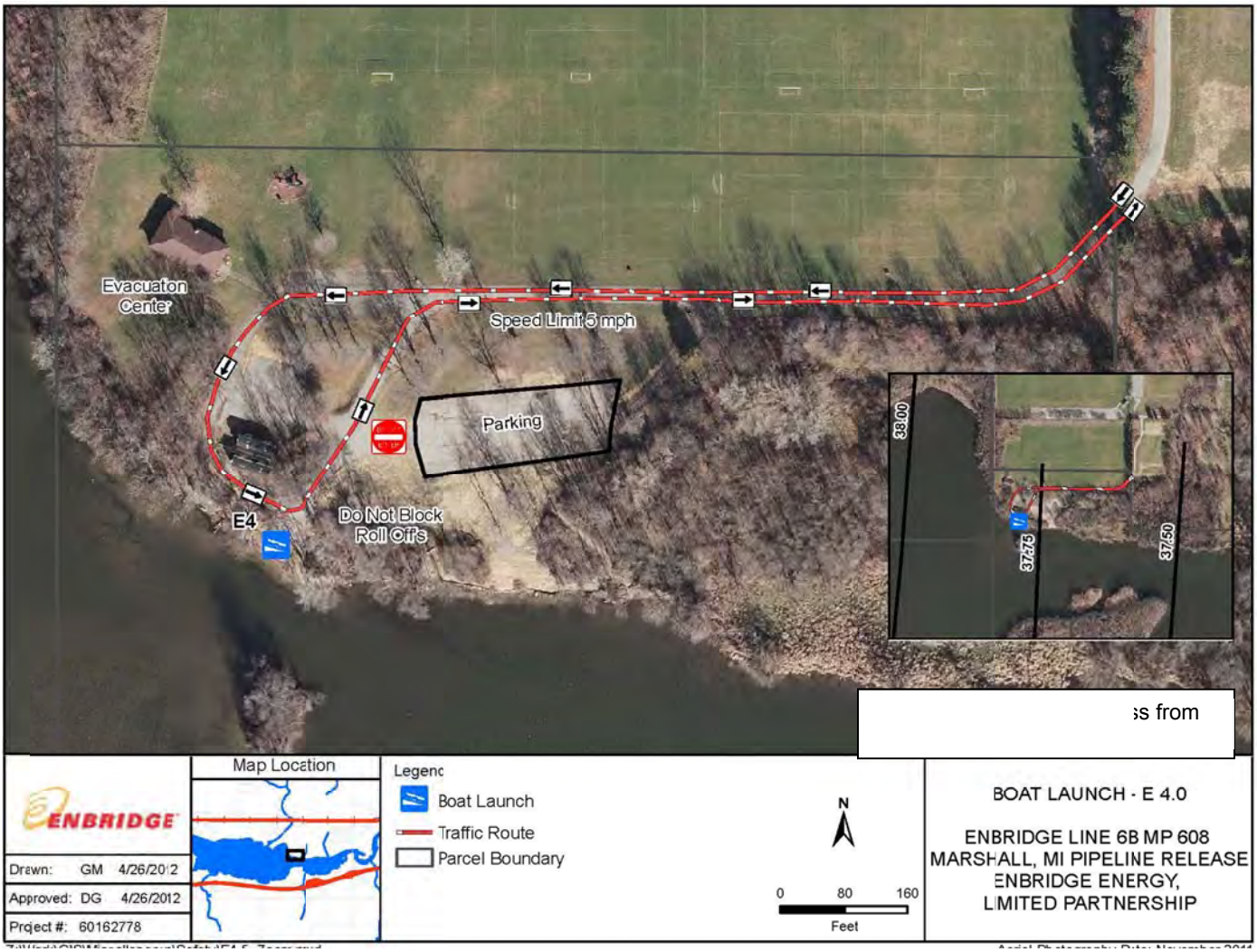


188 East Michigan Avenue., Galesburg, MI 49053
GPS Coordinates: Lat: 42.284663 Long: -85.412855

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/21/2012 0700 To: 06/28/2012 0700	

3.TRAFFIC PLAN: E 4



9424 E Michigan Ave., Galesburg, MI 49053
GPS Coordinates: Lat: 42.278265 Long: -85.452295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-20-2012

1. Incident Name Kalamazoo River/Enbridge Spill Response	2. Operational Period (Date/Time) From: June 21, 2012, 0700 To: June 28, 2012, 0700	Radio Communications Plan ICS 205- EPA

Enbridge Line 6B – Marshall Release Radio Check Inventory (ICS 205)

Radio Number	Organization	User Name	PTT CALL NUMBER
D-1	WESTON/DEQ	Vinne DelloRusso	269-986-7542
D-2	WESTON/DEQ	Terri Shattuck	269-986-8005
S-1	ENBRIDGE	Dale Gross	269-986-8011
S-4	ENBRIDGE/Avery	Matt Peischer	269-986-8100
S-7	ENBRIDGE/McDaniel	Berry Vavrina	269-986-8106
S-11	ENBRIDGE/Manpower	Ricardo Cedillo	269-986-8418
U-2	START/ US EPA	Mike Stewart	269-986-8110
B-51	SWAT	Clark Short	269-967-3675
B-52	SET	Andrew Jasman	269-967-3973
B-55	SWAT	Jesus Vavra	269-986-8885
B-54	SWAT	Travis Gibson	269-986-0957
B-58	SWAT	Trevor Evans	269-967-2310
B-59	SET	Zachary Woods	269-986-7386
B-60	SWAT	Benito Vavra	269-986-3451
B-62	SWAT	Paul Kerpash	269-986-3287
B-63	SET	Dustin Young	269-986-5787
B-64	SET	John Henry	269-967-3998
B-65	SWAT	Jon Boyer	269-986-5840
B-66	SWAT	Kenny Decker	269-986-5930
B-67	SET	John Kauth	269-986-8186
B-68	SET	Bruce Allen	269-986-8250
B-69	SET	David Hoekstra	269-986-5819
G-50	SWAT	Chris Jones	269-986-8384
G-51	SET	James Barber	269-986-5951
G-52	SET	Ben Fischer	269-986-0185
G-53	SET	Richard Cale	269-986-6029
G-54	SET	Tony Marotz	269-986-3421
G-55	SET	Shaun Burnum	269-986-5271
G-60	SWAT	Oliver Webb	269-986-9102
G-61	SET	Ruben Garcia	269-986-8341
G-62	SET	Ben Fisher	269-986-8390
G-63	SET	Mark Taylor	269-986-5675
S-52	SWAT	Ziggy Przybyl	269-986-7583
B-50	SWAT	Jeff Madden	269-967-3675
B-62	SWAT	Hassan Salim	269-986-3287
S-50	SWAT	Bill Rowe	269-986-7583

Communication Check: Communication Check will be tested Mondays and Thursdays by Enbridge Safety Office at 1200 hours.

SPECIAL NOTATION ON WEATHER MESSAGING:
See daily updates for additional weather information.

Enbridge Safety is responsible for weather on-site and they are supported by the NOAA / NWS Grand Rapids Weather Office.

Enbridge Safety will maintain consistent weather messages by following the established format of presenting daily and extended forecast, river depth, hydrologic predictions, and the five day quantitative precipitation forecast. The compilation of information will be presented through daily briefings. Enbridge Safety will continue the current practice of issuing a daily forecast to the field safety staff by posting NWS updates in various locations around the Incident Command Post.

In the event of severe weather warnings and alerts, the NWS Grand Rapids Center will contact the Enbridge Safety Office using the Enbridge Safety Radio System between the hours of 0700-1800 hours. If severe weather warning and alerts are occurring from 1800-0700, NWS Grand Rapids Center will contact the Enbridge Safety Office by phone at: **269-781-1913** and DK Security by phone at: **269-781-1911**. These numbers are in operation 24/7. Enbridge Safety will initiate the notification process by using the Call-EM-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews.

- *Severe Weather Alerts:* report to shelter when the county activates their warning sirens.
- *Fire/Building Evacuation Alert*: Report to assigned evacuation point. Follow Air Horn Procedure: Series of Three 1 second blasts.

Weather related cancellation or concerns call 269-781-1914

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/21/2012/ 0700 hrs To: 06/28/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Aboulafia, Isaac	[redacted]	[redacted]	START/US EPA	Planning
Adams, Rich			Enbridge	Operations
Aguilera, Jose			START/US EPA	O&M
Albig, Brian			AECOM/Enbridge	Environment
Allen, Toby			MRG/Enbridge	Public Information
Arcaute, Francisco			US EPA	Public & Govt. Affairs
Back, Amy			Avery/Enbridge	DPSC
Back, Berl			Avery/Enbridge	Facilities Manager
Baine, Jaclyn			AECOM/Enbridge	Environment
Baker, Paul			Kalamazoo OEM	MAC
Bareham, Dave			Enbridge	Environment
Beodray, Frank			START/US EPA	
Berecz, Karen			START/US EPA	O & M
Berninger, Mark			Cardno JFNEW/Enbridge	Restoration
Blackburn, Ted			START/US EPA	Safety Officer
Blanchard, Mark			START/US EPA	
Blue, Melissa			AECOM/Enbridge	Environment Admin.
Bohrmann, John			Enbridge	Environment
Brettmann, Gregg			DEQ	Environmental Unit Leader
Bretz, Ryan			Manpower/Enbridge	IT
Brown , Kevin			Weston/DEQ	GIS Support
Bukowski, Breanna			Weston/DEQ	Planning
Burrous, Lauren			USGS	USGS
Calvert, Red			McDaniel/Enbridge	Safety
Capone, Dan			START/US EPA	Operations
Cavazos, Lupe			START/US EPA	Planning
Cedillo, Ricardo			Manpower/Enbridge	Security Unit Leader
Churchill, Kim			Weston/DEQ	Environmental Unit
Cox, Renee			Manpower/Enbridge	Documentation
Daniel, Pat			Enbridge	MAC
Daniel, Wayne			Tulsa/Enbridge	Operations
Deblasio, Don			US EPA	Public Information
Dekker, Shaun			SET/Enbridge	Waste Management
DelloRusso, Vincent			Weston/DEQ	Operations
DeLong, Michelle			DEQ	Incident Commander
Dennis, Kate			Manpower/Enbridge	Admin Support
Dobrowski, Ed			USGS	USGS
Doherty, Bob			Enbridge	Environment
Dollhopf, Ralph			US EPA	Incident Commander (FOSC)
Donaldson, Elizabeth			Enbridge	Planning
Dougherty, Kelly			START/US EPA	Public Information
Dryburgh, Dave			AECOM/Enbridge	Environment
Dubois, Amy			US EPA	
DuCharme, Mark			DEQ	Incident Commander
Dunham, Durk			Calhoun County EMA	MAC
Dykema, Linda			MDCH	Public Health
Eversole, Elijah			Enbridge/AECOM	Containment
Fitzpatrick, Faith			USGS	Tech Specialist
Fizzell, Chad			DEQ	GIS Support
Frost, Joe			Calhoun County Health	MAC
Fuller, Mark			AECOM/Enbridge	Environment
Giles-Smith, Carolyn			Weston/DEQ	Documentation
Good, Gena			START/US EPA	
Graan, Tom			START/US EPA	Submerged Oil Lead
Gross, Dale			Superior/Enbridge	Safety Officer
Guest, Nyekah			Enbridge	Procurement
Haak, Matt			START/US EPA	Sit Unit Leader
Hackley, Richard			US EPA	Finance
Haux, Christopher			Enbridge	OSC
Hehir, Nate			Superior/Enbridge	Environment
Hendrix, Kristen			START/US EPA	Operations
Hetzner, Matt			Avery/Enbridge	Planning
Hoard, Chris			USGS	USGS
Hodges, Luke			Stantec/Enbridge	
Hogan, Charlene			AECOM/Enbridge	Environment
Hong, Lorie			START/US EPA	Logistics
Hummel, Rebecca			Manpower/Enbridge	Finance
Johnson, Rex			START/US EPA	Operations
Jones, Susan			DEQ	Operations
Kaiser, Ken			AECOM/Enbridge	GIS Specialist
Kane, Sean			START/US EPA	Waste Management
Kent, Norm			AECOM/Enbridge	Environment
Kerpash, Paul			SWAT/Enbridge	Control Point Management
Kidder, Steven			START/US EPA	Operations SOS
Kirby-Miles, Leslie			US EPA	Legal
Kogge, Stu			Cardno JFNEW/Enbridge	Operations
Kosmowski, Christine			City of Battle Creek	MAC
Lantinga, Chris			START/US EPA	Operations
Laquerre, Tim			START/US EPA	Operations
Laskey, Crystal			MDEQ	Planning
Lefaive, Doran			AECOM/Enbridge	Waste Management
Lisabeth, Nicole			MSP	PIO
Luetke, Mindy			START/US EPA	PSC
Lundholm, Mark			Weston/DEQ	Operations
Makoski, Paul			Calhoun County Health	MAC
Manshum, Jason			Enbridge	Public Affairs
Massey, Dylan			LBG/Enbridge	Environmental Inspector
McKay, John			Enbridge	ROW
McKenzie, Michael			Battle Creek Emer. Srvs.	MAC
McKinnon, Bryan			START/US EPA	Waste Management Lead
Mehl, Rick			START/US EPA	
Meny, Alyssa			Enbridge	Communications Unit
Moisan, Paul			START/US EPA	Documentation
Moore, Terry			SET/Enbridge	
Nelson, Brad			Avery/Enbridge	DPSC
Neumeier, Laura			Trimedia/Enbridge	Air Monitoring
Newberry, Christina			Manpower/Enbridge	Documentation
Noble, Steve			DEQ	Water Resources Division
Nye, Dennis			START/US EPA	Recovery
Oleschuk, Rick			Enbridge	Safety Officer
Olson, Alex			Avery/Enbridge	Planning
Ostrodka, Steve			US EPA	Submerged Oil Lead
Periard, Debora			AECOM/Enbridge	GIS Support
Pesses, David			LBG/Enbridge	Environmental Inspector
Pierce, Brennan			START/US EPA	Documentation
Piescher, Matthew			Avery/Enbridge	Field Inspector
Porter, Pete			Salem/Enbridge	Right of Way Agent
Powell, Meredith			Hill & Knowlton/Enbridge	Public & Govt. Affairs

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/21/2012/ 0700 hrs To: 06/28/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Pratt, Catherine	[redacted]	[redacted]	AECOM/Enbridge	Environment
Quiggle, Lisa			MDCH	
Rader, Larry			START/US EPA	Sit Unit Leader
Reber, Lt. Barry			MSP EMHSD	MAC
Reed, Mike			Tetra Tech/Enbridge	Envrionmental Inspector
Reigner, Selma			Kelly Services/Enbridge	Admin. Assistant
Richardson, Dave			Tetra Tech/Enbridge	River Poling Supervisor
Rosenbaum, Charmaine			Enbridge	Project Support Manager
Ross, Shauna			START/US EPA	
Runstrom, Steve			Avery/Enbridge	Operations Inspector
Rutherford, James			Calhoun County Health	MAC
Rutkowski, Sonny			START/US EPA	Technical Specialist
Sahara, Dean			SWAT/Enbridge	Operations
Sarkipato, Ernie			DEQ	
Saylor, Andy			SET/Enbridge	
Schmitt, Ben			DEQ	Operations
Schneider, Dave			Kalamazoo County	MAC
Schoeff, Alison			AECOM/Enbridge	Water Monitoring Supervisor
Shattuck, Terri			Weston/DEQ	Operations
Smith, Brian			Tulsa/ Enbridge	Overbank Excavation Field Inspector
Snider, Jim			Enbridge	Environment Director
Sobojinski, John			Enbridge	Incident Commander
Spates, Jack			Avery/Enbridge	Operations
Spruit, Jeff			DEQ	Environment
St. Onge, Greg			LBG/Enbridge	O&M
Standen, Joe			LBG/Enbridge	River Opening Implementation
Steede, Bob			Enbridge	DOSC
Stiemsma, Bryan			AECOM/Enbridge	Environment Supervisor
Stuart, Mike			START/US EPA	Safety Officer
Sulaiman, Tik			START/US EPA	GIS Specialist
Sumner, Matt			AECOM/Enbridge	Environment
Taft, Bill			DEQ	Wildlife Environmental NRDA Group
Thomas, Brittany			START/US EPA	Finance
Thompson, Doug			DEQ	
Torres, Jason			START/US EPA	GIS Specialist
Ushio, Miako			AECOM/Enbridge	Talmadge Creek Remediation Lead
Vail, Linda			Kalamazoo County Health	MAC
Valenza, James			START/US EPA	GIS Specialist
VanWagner, Elmer			Weston/DEQ	Operations
Vega, Sonia			US EPA	Deputy Incident Commander
Victory, Joe			START/US EPA	DOSC
Vilhauer, Eric			Enbridge	ROW Agent
Vosburg, Cheryl			City of Marshall	MAC
Wagner, Greg			START/US EPA	Submerged Oil Recovery
Wahrer, Marc			START/US EPA	Operations
Wallace, John			Avery/Enbridge	Operations Inspector
Watt, Tammy			Enbridge	Finance
Webb, Oliver			SWAT/Enbridge	Control Point Management
Weir, Karen			START/US EPA	
Wekseth, Mike			SWAT/Enbridge	Operations Inspector
Wellman, John			START/US EPA	Operations
Wessling, Elizabeth			START/US EPA	PSC
Williams, Lisa			USFWS	
Wilson, Lee			Weston/DEQ	Operations
Wiswell, Amber			Kelly Services/Enbridge	Admin. Assistant
Wolf, Mike			AECOM/Enbridge	Monitoring
Wolfe, Stephen			US EPA	Deputy Incident Commander
Yokom, Brett			Trimedia/Enbridge	Environment
Zahner, Dan			START/US EPA	Operations
Zambetis, Mike			Cardno JFNEW/Enbridge	Restoration
Zanter, Paul			US EPA	Logistics
Zelt, Ron			USGS	Environmental Unit Leader Assistant

Enbridge Oil Spill Incident - Campbell ICP, Marshall, MI
U.S. EPA Trailer Phone Directory

Trailer No.	Trailer Designations	Phone Number	Ext No.
1	Deputy IC Office (SW)	269-781-1995	11995
1	IC Fax Line	269-781-1110	11127
1	IC Conference Area	269-781-1026	11026
1	Operations Section Chief	269-781-1994	11994
1	Health & Safety (West End)	269-781-1991	11991
2	Work Room (NW)	269-781-1955	11955
2A	Large Conference Room (MID)	269-781-1591	11591
2B	Conference Room (NE)	269-781-1954	11954
3	MDEQ Field Trailer	269-781-1953	11953
3	MDEQ Documentation	269-781-1951	11951
4	Operations	269-781-1958	11958
4	Operations	269-781-1971	11971
4	River Opening	269-781-1972	11972
7	Copy Center	No Phone	
8	Logistics	269-781- 1997	11997
8	EPA Hotline	269-781-1992	11992
8	Weston IC (East End)	269-781-1988	11988
9	Planning	269-781-1015	11015
9	EPA Documentation	269-781-1905	11905
9	GIS	269-781-1018	11018
9	Environmental Unit	269-781-1019	11019
9	Conference Room	269-781-1963	11963
9	Wate Management Branch	269-781-1955	11955
9	Environmental Unit (USGS)	269-781-1582	11582
9	PIO	269-781-1587	11587
10	MDEQ-WRD	269-781-1014	11014
10	MDEQ-WRD	269-781-1023	11023
10	MDEQ-WRD	269-781-1022	11022
11	MDEQ-RD & Weston	269-781-1024	11024
11	MDEQ-RD & Weston	269-781-1012	11012
11	MDEQ-RD & Weston	269-781-1013	11013
Indoor	Weston Indoor Area	269-781-1961	11961

To dial between trailers, use the extension number, 1-1997 for Logistics

To place a conference call within the VOIP network, dial first number, select button under "more", scroll down to Confrm and select. Dial next number, press confirm again to connect all. Repeat steps to connect more numbers.

Repeat the same steps to conference in one outside line.

MEDICAL PLAN ICS – 206	Kalamazoo River/Enbridge Spill	1. Date Prepared 6/20/2012	2. Time Prepared 0800	3. Operational Period 06/21/2012 0700 06/28/2012 0700

4. Transportation

Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
Lifecare Ambulance	330 West Hamblin Avenue, Battle Creek, MI 49015	9-1-1	X	
City of Marshall Fire Dept	323 West Michigan Avenue, Marshall, MI 49068	9-1-1	X	

5. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Bronson Methodist Hospital	601 John Street Kalamazoo, MI	15 Min	50 min	269-341-7654	X		X	
Borgess Medical Center	1521 Gull Road Kalamazoo, MI	15 min	50 min	269-226-7000	X			X
Oaklawn Hospital	200 N. Madison Ave Marshall, MI		5 min	269-781-4271		X		X
Battle Creek Health System	300 North Avenue Battle Creek, MI		20 min	269-966-8000		X		X

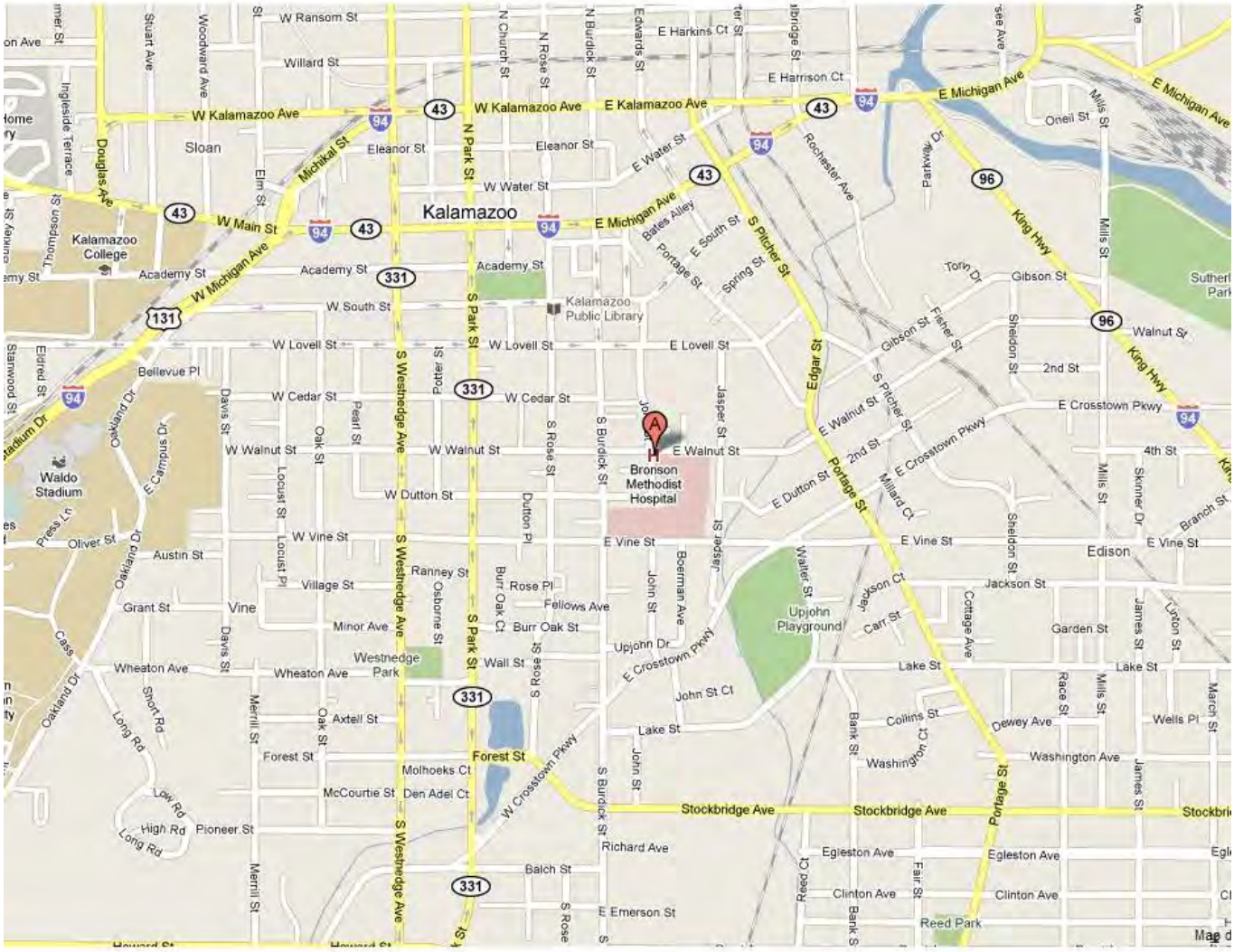
6. Medical Emergency Procedures

1. Dial 9-1-1 for all emergencies. Give 9-1-1 operators as much information as possible. Stay on the line and answer all questions – information may be radioed to responders. On-site personnel trained and certified in first aid should attempt to stabilize victim until fire department/EMS personnel arrive.
2. Report all incidents to the Project Safety Officer. Keep a log of events. Secure the area. Identify witnesses for later investigation.

NOTE: Suspend all operations during an actual emergency situation!

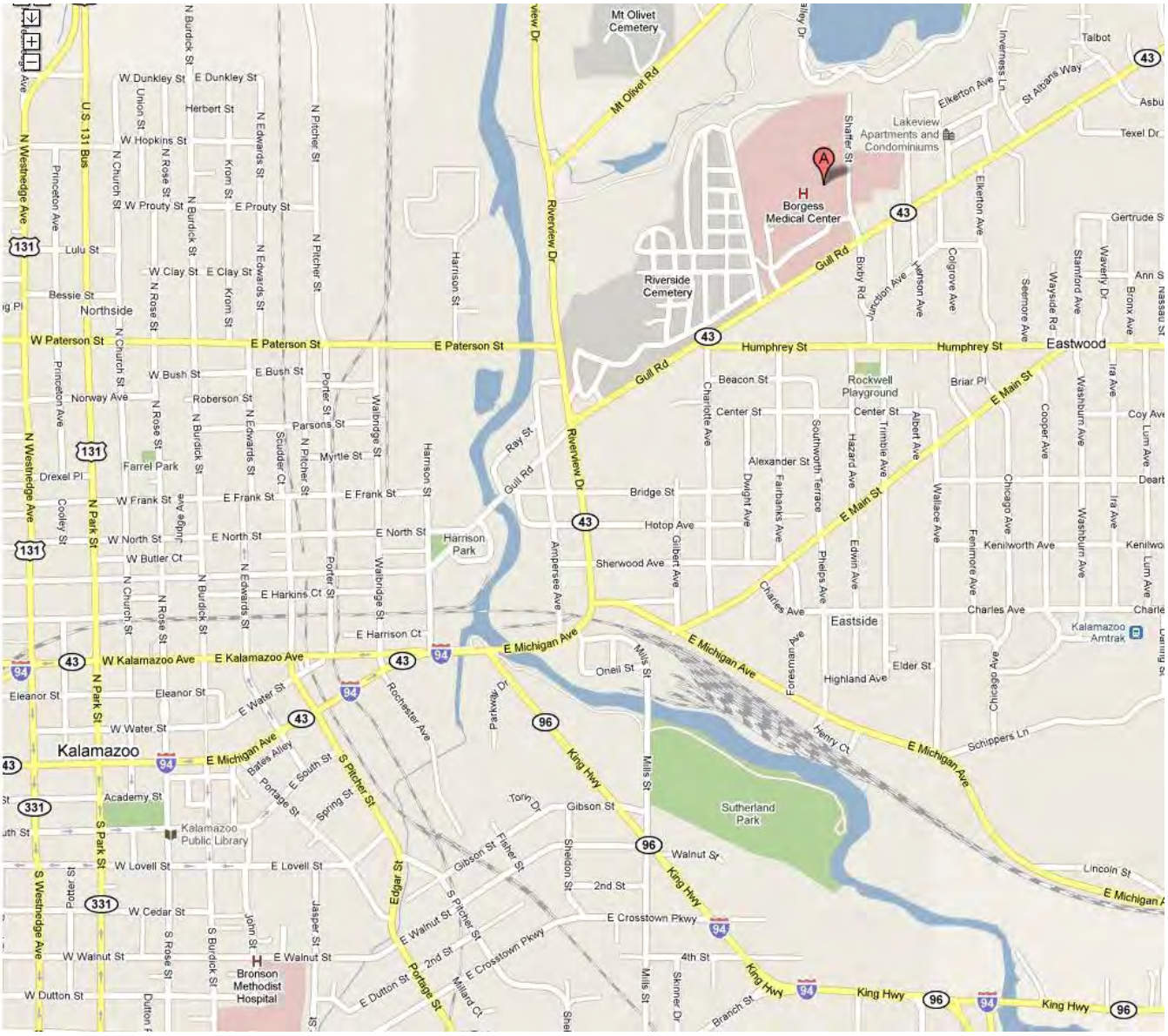
Prepared by	10. Reviewed by (Safety Officer)
Dale Gross 6/20/2012	Dale Gross 6/20/2012

Hospital Route Map – Bronson Methodist Hospital – Kalamazoo, MI



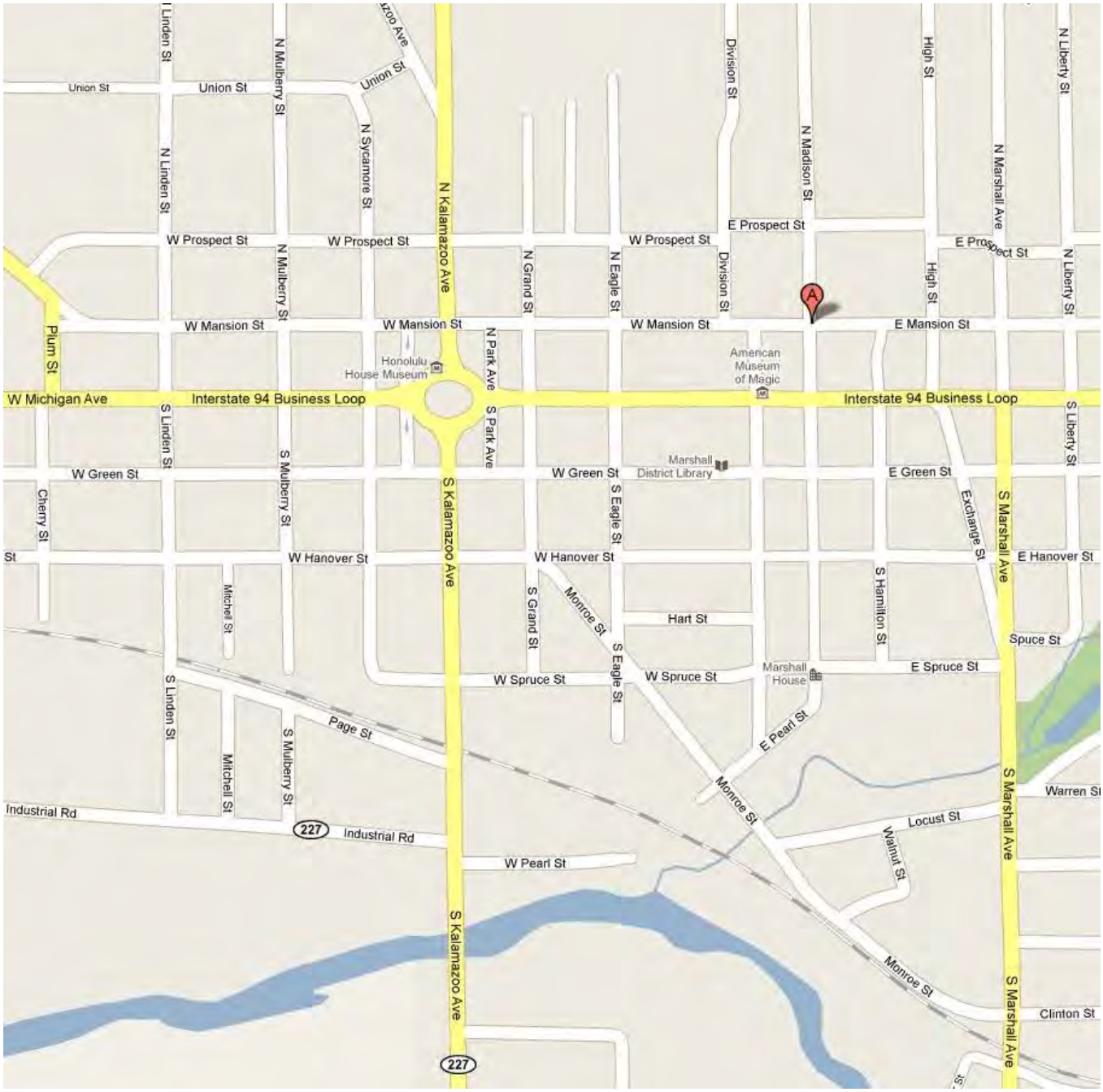
Bronson Methodist Hospital
601 John St
Kalamazoo, MI 49007
(269) 341 - 7979

Hospital Route Map – Borgess Medical Center – Kalamazoo, MI



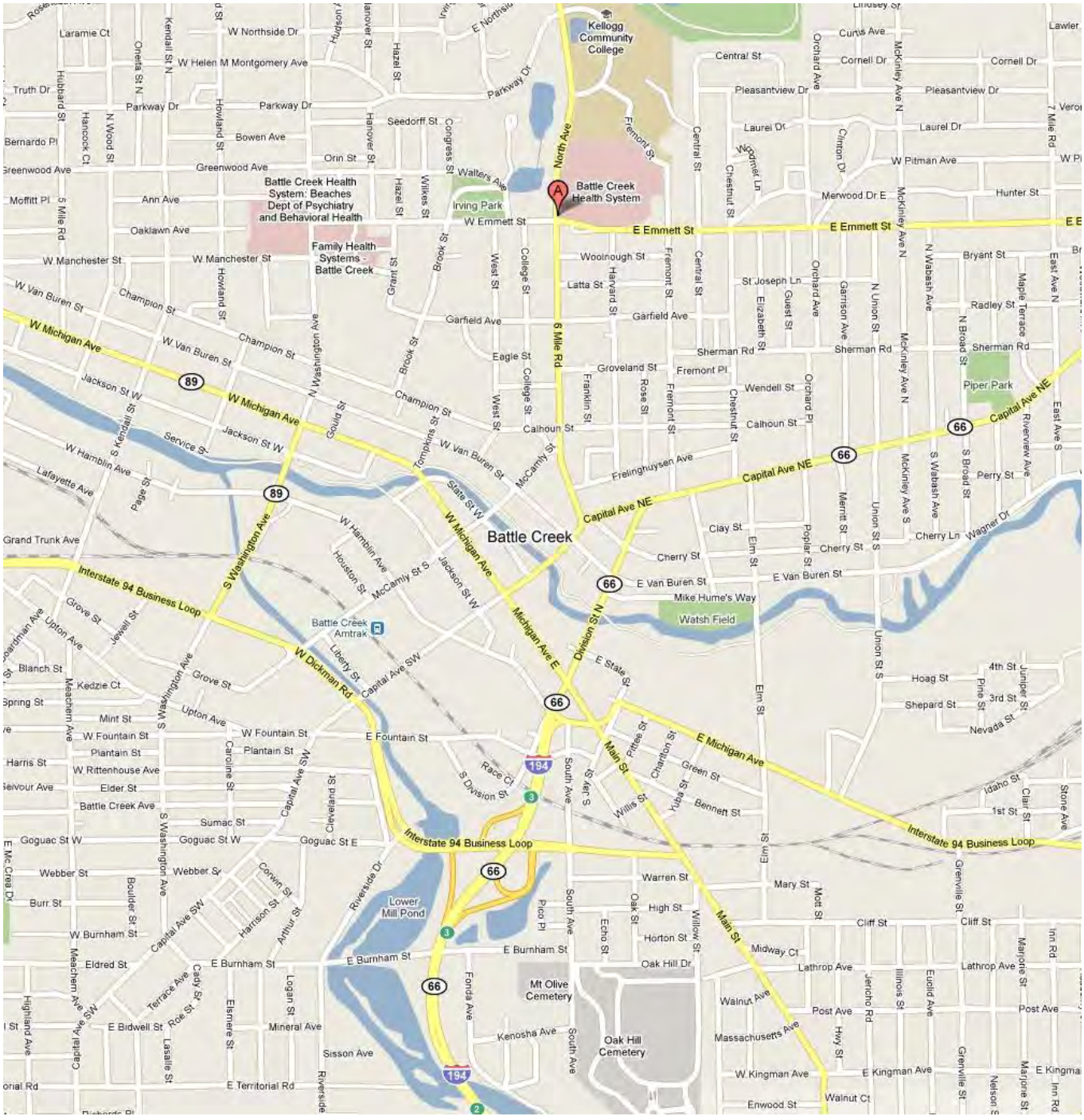
Borgess Medical Center
1521 Gull Road
Kalamazoo, MI 49048
(269) 226 - 7000

Hospital Route Map – Oaklawn Hospital – Marshall, MI



Oaklawn Hospital
200 North Madison St.
Marshall, MI
(269) 781-4271

Hospital Route Map – Battle Creek Health System – Battle Creek, MI



Battle Creek Health System
300 North Avenue
Battle Creek, MI
(269) 966-8000

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Instructions
Operational Period: 6/21/12 (0700hrs) to 6/28/12 (0700hrs)

River Opening: Be advised that the Kalamazoo River between MP – 2.75 and MP 2.25 has been opened to the public. Public recreational activities are to be expected on the river in this segment. Be courteous and respectful to members of the public at all times. Be aware that members of the public may be present in closed segments of the river or work areas.

Weather: Review weather information prior to commencing work each day. Be aware of changes in the weather conditions and ensure proper controls are implemented to address the weather hazards such as: Cold, Wind, Rain, Ice, Fog, Frost, etc. Take actions in accordance with instructions provided by supervisory personnel and as received through the Call-Em-All and PTT systems.

Sunscreen: Sunscreen should be applied to exposed skin, and not just if you are going to be in the sun. UVB rays cannot penetrate glass windows, but UVA rays can, leaving you prone to these damaging effects if unprotected.

PPE: Be prepared for changing weather conditions by wearing, and/or having available, appropriate cold weather gear and approved safety footwear with appropriate soles for use on slippery ground conditions due to frost, ice and rain. When PFDs are required you must ensure that they are United States Coast Guard approved and are the outermost layer, with reflective vest worn under the PFD.

Vehicles: Follow speed limits and adjust speed as necessary for road conditions. Make sure your vehicle is in proper working condition.

Process for Reporting Potentially Hazardous Materials: If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

SPECIAL NOTATION ON WEATHER and HAZARD ALERT MESSAGING:

(See daily updates for additional weather information).

Enbridge Safety will maintain consistent weather messages by compiling information and present through daily briefings. Weather forecast updates will be distributed to field safety staff for further communication in the field. Enbridge Safety is responsible for communicating weather alerts based on information received through the Weather TAP system and text messages received from the National Weather Service in Grand Rapids.

In the event of severe weather warnings and alerts, Enbridge Safety will be monitoring via the Weather TAP system. Enbridge Safety will initiate the notification process by using the Call-Em-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews. DK Security will be notified by Enbridge Safety by phone from 1800 – 0700 hours.

Severe Weather Alerts: Take appropriate shelter when the county activates their tornado warning sirens. In the Incident Command Post, report to the designated tornado shelter rooms. Where appropriate shelter is not available, lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of potential for flooding and flying debris.

Note: Emergency notification siren systems will be tested on the first (1st) Saturday of each month in Calhoun and Kalamazoo Counties. Typically a siren is sounded at 1200 hours; however, this could be delayed due to current circumstances in the county.

Fire/Building Evacuation Alert: In the event of a fire, utilize air horn to initiate series of three 1 second blasts. Must report to the designated evacuation point upon hearing a series of three 1 second air horn blasts. **Please close all doors, and turn lights out upon leaving your area.**

Call the Safety Office at 269-781-1914 if you have weather related concerns. Call 269-781-1913 for other Safety related issues.

Safety Orientations: Held Monday - Friday at 0800 at the Operations Center (1601 Pratt Avenue)

Boat Safety Awareness Orientation: Available by appointment Monday – Friday, contact the Safety Office.

If you see wildlife (dead or alive) that is impacted by the oil, call Bob Doherty [redacted]

Field Safety Staff	
Name	**Phone**
Barry Vavrina	[redacted]
Steve Runstrom	
Matt Piescher	

Communication Check: Communication Check will be tested twice a week via the Verizon Push To Talk (PTT) system by Enbridge Safety office on Monday's and Thursday's at 1200 hours.

Call-Em-All: Will be tested by Enbridge Safety office on Wednesday's at 1200 hours.

First Aid Kits: There are four (4) kits located within the Incident Command Post Facility. Please review the Evacuation Plan map for locations.

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Message
Operational Period: 6/21/12 (0700hrs) to 6/28/12 (0700hrs)

DAY 1:
Thursday, June 21, 2012

Lifesaving Rule #2 – Driving Safety

Only drive a vehicle or operate equipment when not under the effect of alcohol or any substances that cause impairment.

Driving a vehicle or operating equipment is a high-risk activity. Focus on the task.

Remember: When it comes to safety – you are at the wheel. People are relying on your professional integrity to be safe in everything you do.

DAY 2:
Friday, June 22, 2012

Emergency Eyewash Stations/Bottles

Emergency eyewash equipment can be key to saving your eyesight.

Before an emergency occurs:

- Know the equipment location.
- Know how to use the equipment: Always review the manufacturer's instructions for the equipment before an emergency occurs.
- Equipment maintenance: Perform regular checks to ensure the equipment will function as intended in the event of an emergency, and the saline solution has not expired.

In the event of an emergency:

- Remove caps.
- Pour contents of the bottle into the affected eye.
- Repeat if necessary.
- If required, seek further medical attention.

Don't forget to notify Enbridge Safety and submit a report documenting the incident.

DAY 3/ DAY 4:
Saturday, June 23– Sunday, June 24, 2012

Other Poisonous Plants

In addition to poison ivy, poison oak, and poison sumac, there are two plants that you should also be aware of that can cause serious skin problems – Giant Hogweed and Wild Parsnip. These invasive plants contain photosensitizing chemicals which in contact with human skin and in conjunction with sunlight cause phytophotodermatitis - a serious skin inflammation.

Giant Hogweed
Giant hogweed can grow to 14 feet or more. Its hollow, ridged stems grow 2-4 inches in diameter and have dark reddish-purple blotches. Its large compound leaves can grow up to 5 feet wide. Its white flower heads can grow up to 2 1/2 feet in diameter.

Wild Parsnip
Wild parsnip has large leaves that resemble celery leaves. The stem is hollow and grooved, two to five feet tall. The flowers are small, yellow, five-petaled, and look like a yellow Queen's Anne's Lace.

DAY 5:
Monday, June 25, 2012

Field Level Hazard Assessments

Prior to the start of work or when significant change of scope occurs, a Field Level Hazard Assessment (FLHA) is to be completed involving the Contractor Site Representative and the workers involved in the work.

The FLHA is to be reviewed and signed off with all workers as part of the tailgate/toolbox safety meeting prior to starting any work. The FLHA is to be completed in the workplace where the task will be performed. This documentation is to be handwritten, photocopying is not permitted.

DAY 6:
Tuesday, June 26, 2012

Securing Loads

Securing Loads for Transport
- Inspect all anchor points and tie-down locations for visible signs of damage.
- Always inspect every chain before use. Look for cracked, bent, twisted or stretched links.
- Keep chains/straps straight and tight. Ratchet binders are recommended for chains.
- Be sure to flag and permit the load if it exceeds the width and length restrictions for transporting according to federal/state/local regulations.
- Ensure that all items on the trailer and the load are secured.
- Check load and trailer for fluid leakages, rocks and other loose debris.

Transporting a Load
- Ensure the load is properly secured and balanced.
- Many governmental agencies throughout the world require the truck driver, within the first 25 miles (40.2 km) after beginning a trip, stop and recheck all load securing devices and make adjustments as necessary.
- ALWAYS use common sense and good judgment when loading, hauling, and transporting equipment and materials.

DAY 7:
Wednesday, June 27, 2012

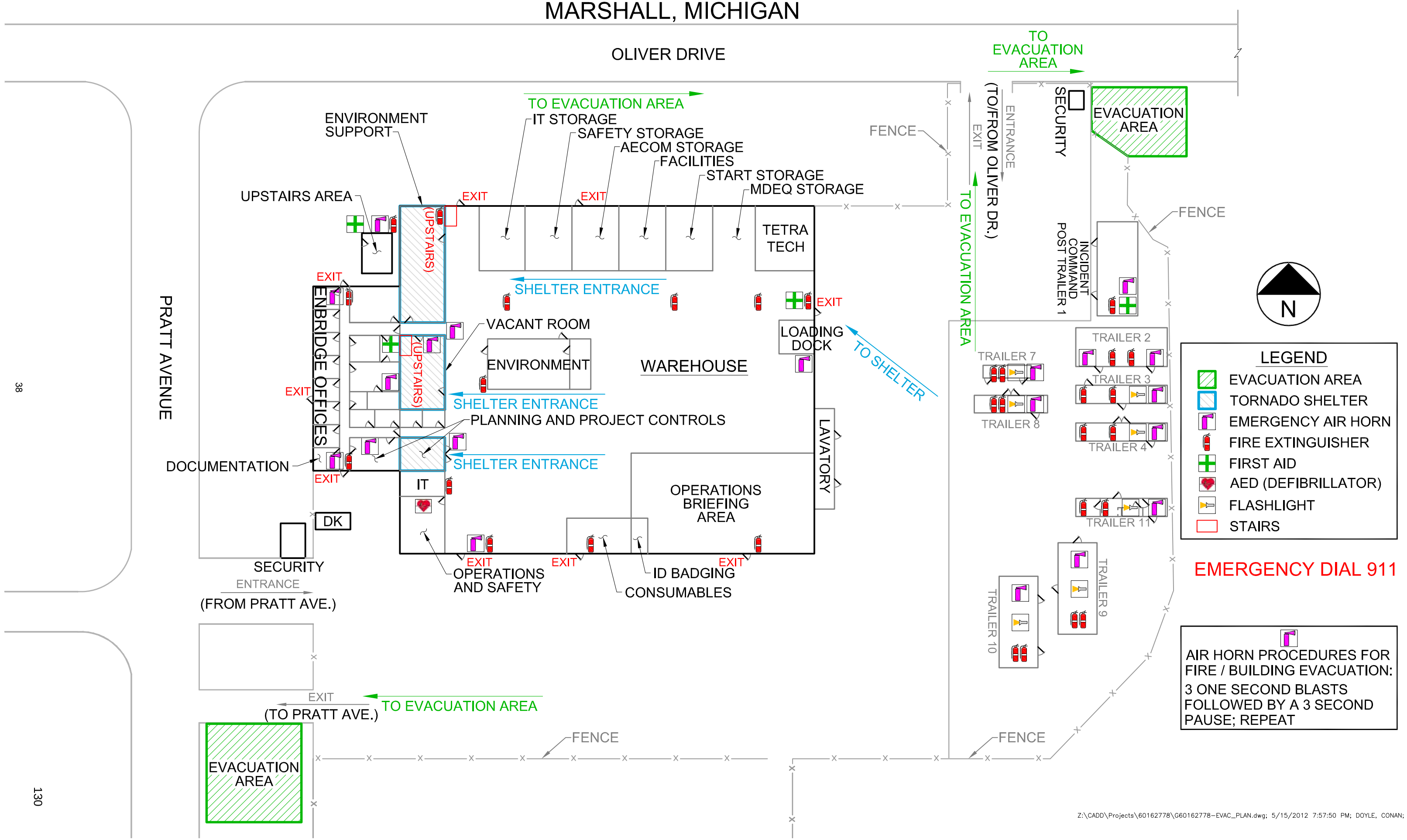
Safety Culture

Safety is not a priority or an initiative; it must be a core value.

There must be a shared belief that all incidents are preventable and a shared goal to achieve zero incidents. There must be a commitment to doing things right the first time, every time and a will to continually improve safe work practices.

A strong safety culture involves and engages all personnel. It requires individuals to take personal responsibility for safety and to freely intervene to ensure the safety of their co-workers.

ENBRIDGE INCIDENT COMMAND POST FACILITY
EMERGENCY RESPONSE / EVACUATION PLAN
MARSHALL, MICHIGAN



Weather Forecast

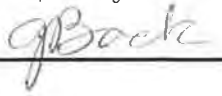


1. Incident Name	2. Operational Period (Date/Time)	DAILY MEETING SCHEDULE
KALAMAZOO RIVER / ENBRIDGE SPILL RESPONSE	From: June 21, 2012 0700	ICS-230
	To: June 28, 2012 0700	

3. Meeting Schedule (Commonly-held meetings are included)

Date/ Time	Meeting Name	Purpose	Attendees	Location
6/21/2012	**Thursday**			
0700 0730	Operations Briefing	Present IAP for the next Operational Period to All Staff	UC, Command and General Staff, Branch Directors, Div /Grp Sups., Task Force / Strike Team Leaders, Unit Leaders, Field Supervisors, EPA, DEQ, Scribe	Pratt Avenue Warehouse
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/22/2012	**Friday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
0930 0945	Objectives Meeting	Review current objectives and identify objectives for the next Operational Period	UC, Operations, Safety, Planning, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/23/2012	**Saturday**			
6/24/2012	**Sunday**			
6/25/2012	**Monday**			
0900 0945	Tactics	Finalize primary and alternate tactics and strategies to achieve UC objectives for the next Operational Period	Operations, Planning, Safety	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/26/2012	**Tuesday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1500 1530	Kalamazoo River System Branch Special Purpose Meeting	Coordinate future Kalamazoo River System Branch activities	Kalamazoo River System Branch Directors and Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/27/2012	**Wednesday**			
0900 0915	Planning Meeting	Review tactics and assignments to meet the project Objectives for the next Operational Period	UC, Command and General Staff, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)

4. Prepared by: Amy Back, Planning Section Chief **Date/Time** 6/20/2012



0822

1. Incident Name **Kalamazoo River/Enbridge Spill**	2. Operational Period (Date/Time) Starting**: June 07, 2012, 0700** End**: June 14, 2012, 0700**	**IAP Cover Sheet**

3. Approved by Incident Commander(s):

_____ Ralph Dollhopf, U.S. EPA
_____ Michelle DeLong, Department Environmental Quality
_____ Mark DuCharme, Department Environmental Quality
_____ John Sobojinski, Enbridge

INCIDENT ACTION PLAN

The items below are included in this Incident Action Plan:

- ICS 202 (Response Objectives) 1
- ICS 207 (Organizational Chart & OPS Chart) 2
- ICS 204 (Assignment List) 5
- Division Map 20
- Meeting Locations and Traffic Plans 21
- ICS 205 (Communication Plan) 32
- ICS 205a (Communications List) 33
- ICS 205a (Communications Attachment) 35
- ICS 206 (Medical Plan) 36
- Safety Message/Evacuation Plan 41
- Weather Forecast 44
- ICS 230 Meeting Schedule 45



4. Prepared By: Amy Back, Avery/Enbridge

Date/Time 06/6/2012#

1. Incident Name	2. Operational Period (Date/Time)	INCIDENT OBJECTIVES ICS 202-EPA
Kalamazoo River/Enbridge Spill	From: June 07, 2012 @ 0700 To: June 14, 2012 @ 0700	

3. Incident Objective(s)

1. Ensure health and safety of the public and response and recovery personnel.
2. Ensure absolute containment of submerged oil and oil-containing sediments within the Delta and the Fan of Morrow Lake.
3. Ensure effective transition of regulatory oversight from EPA to Michigan DEQ jurisdiction as appropriate.
4. Continue developing strategy for opening of Kalamazoo River.
5. Perform recovery and containment of oil from affected public and private areas of river and river system.
6. Perform remediation and restoration of affected public and private areas of river and river system.
7. Maintain effective communications with cooperating and assisting agencies, the public, including regular coordination with the Multi-Agency Coordination Group (MAC).
8. Provide protection of environmentally and culturally sensitive areas including wildlife and historic properties.
9. Collect, coordinate, manage and communicate environmental and public health data including maintenance of Joint Information Center function.

4. Operational Period Command Emphasis

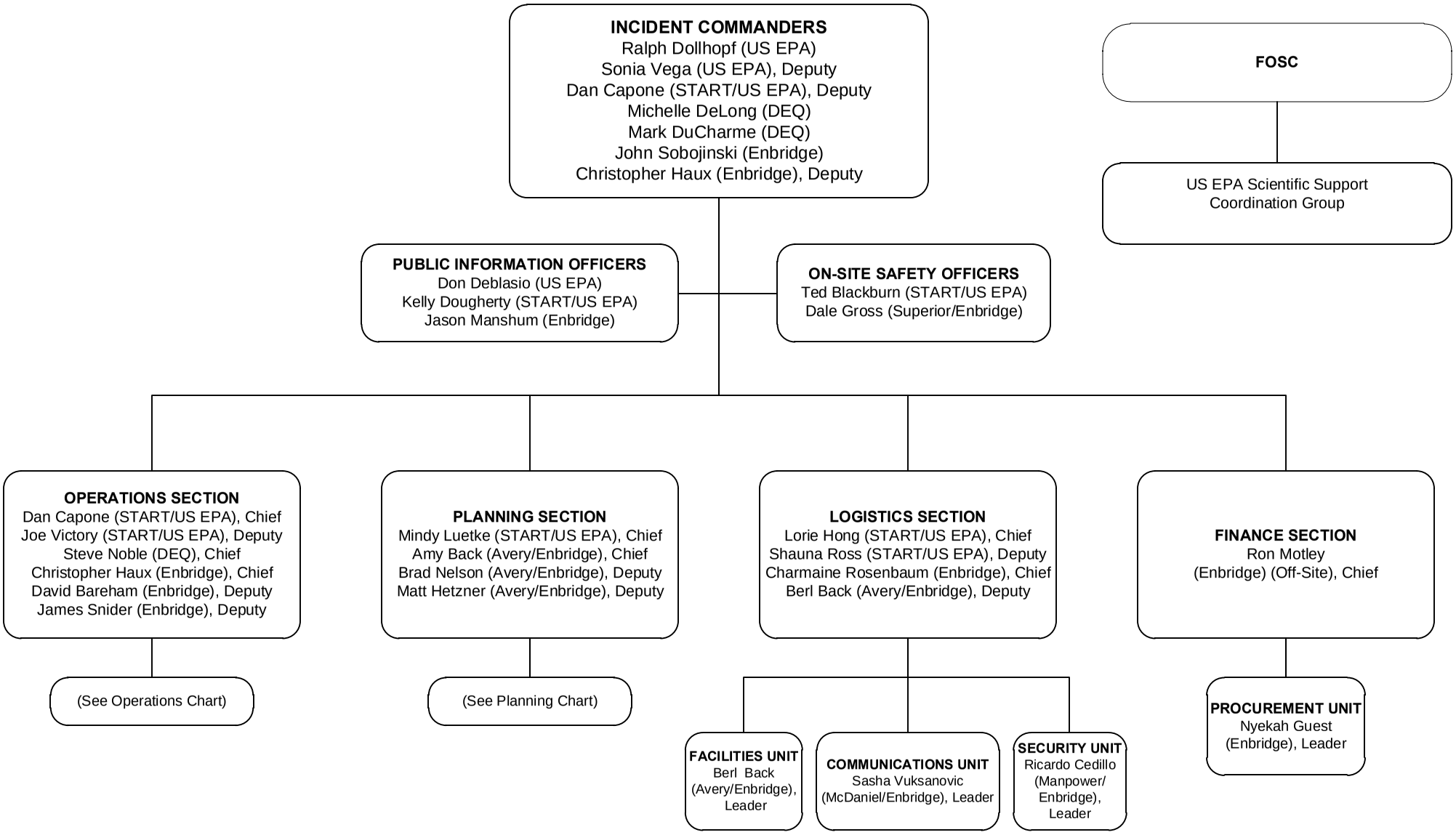
1. Respond to and document emerging oil throughout the Kalamazoo River system.
2. Continue efforts to secure proper permitting for the second phase of the Kalamazoo River Submerged Sediment Trap Structures.
3. Refine and implement River Opening Strategy.
4. Evaluate and continue planning for implementation of containment options to prevent the migration of oil into the fan and Morrow Lake.

5. Safety Objectives for the Operational Period

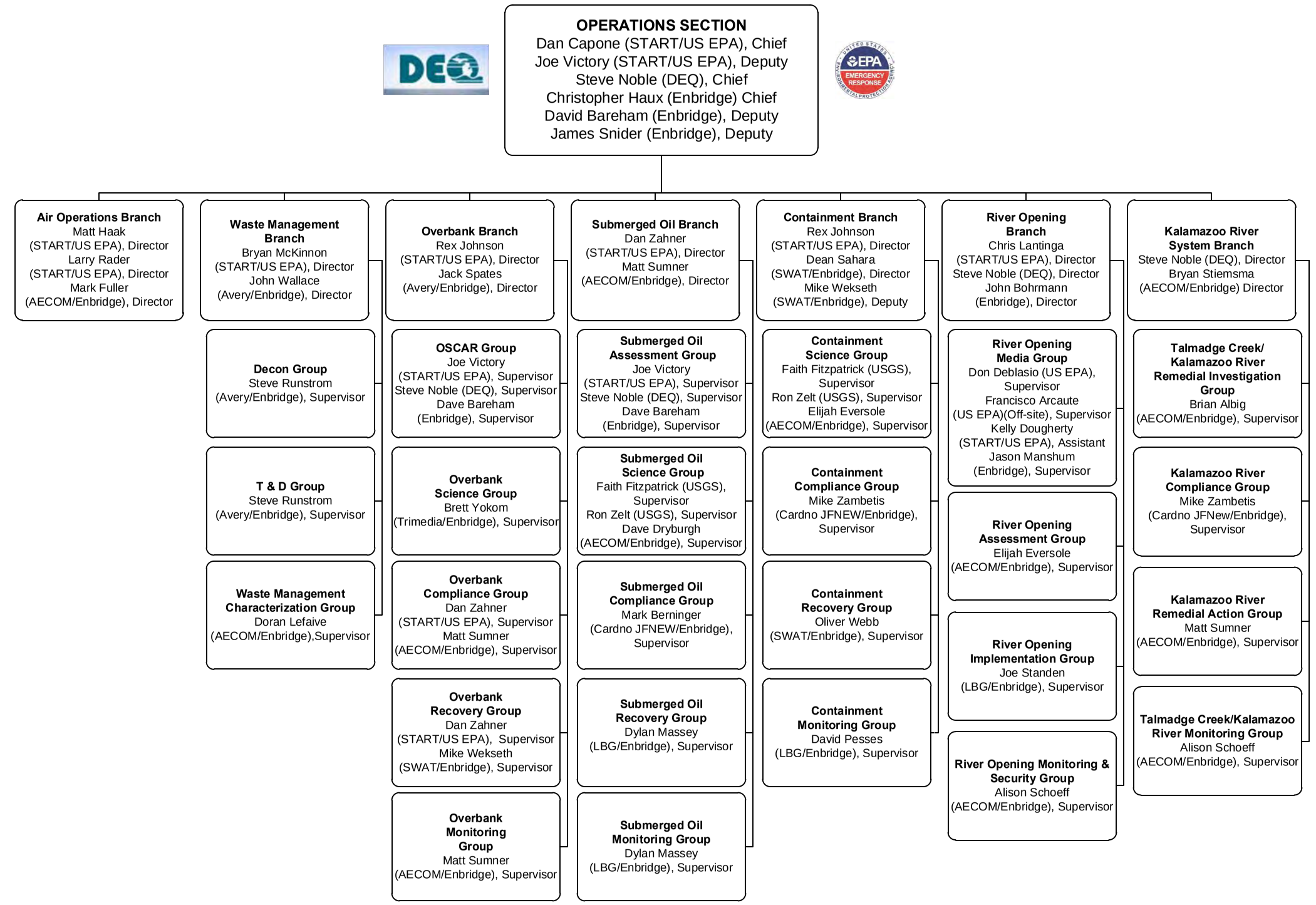
1. Focus on management of change and the use of the safe work permit.
2. Assure effective integration of public safety and worker safety on the river. Focus on recognition and avoidance of public and worker dual-use hazards.

6. Prepared by Planning Section Chief (Enbridge): Amy Back	**Date/Time:** 6/6/2012
7. Approved by Incident Commander (US EPA): Ralph Dollhopf	**Date/Time:** 6/6/2012
8. Approved by Incident Commander (DEQ): Michelle DeLong	**Date/Time:** 6/6/2012
9. Approved by Incident Commander (DEQ): Mark DuCharme	**Date/Time:** 6/6/2012
10. Approved by Incident Commander (Enbridge): John Sobojinski	**Date/Time:** 6/6/2012

Enbridge Pipelines Response Unified Command



ICS 207
6/7 – 6/14



ICS 207
6/7 – 6/14



PLANNING SECTION
Mindy Luetke (START/US EPA), Chief
Amy Back (Avery/Enbridge), Chief
Brad Nelson (Avery/Enbridge), Deputy
Matt Hetzner (Avery/Enbridge), Deputy



SITUATION UNIT
Matt Haak (START/US EPA), Director
Larry Rader (START/US EPA), Director
Matt Hetzner (Avery/Enbridge), Director
Mark Fuller (AECOM/Enbridge), Assistant

GIS SPECIALISTS
Jim Valenza (START/US EPA), Leader
Jason Torres (START/US EPA), Assistant
Chad Fizzell (DEQ)(Off-site), Leader
Kevin Brown (Weston/DEQ)(Off-site), Leader
Debora Periard (AECOM/Enbridge), Leader
Ken Kaiser (AECOM/Enbridge), Leader

RESOURCE UNIT
Lorie Hong (START/US EPA), Leader
Shauna Ross (START/US EPA), Leader
Breanna Bukowski (Weston/DEQ)(Off-site), Leader
Brad Nelson (Avery/Enbridge), Leader

PUBLIC HEALTH SPECIALISTS
Linda Dykema (MDCH)
KCHCSD
CCPHD
MDARD

ENVIRONMENTAL UNIT
Isaac Aboulafia
(START/US EPA)(Off-site), Leader
Elizabeth Wessling
(START/US EPA)(Off-site), Leader
Faith Fitzpatrick (USGS), Leader
Ron Zelt (USGS), Assistant
Rex Johnson (START/US EPA), Assistant
Tom Graan (START/US EPA), Assistant
Jeff Spruit (DEQ)(Off-site), Leader
Kim Churchill (Weston/DEQ), Leader
John Bohrmann (Enbridge), Leader

DOCUMENTATION UNIT
Brennan Pierce
(START/US EPA), Leader
Crystal Laskey (DEQ), Leader
Carolyn Giles-Smith
(Weston/DEQ), Leader
Matt Hetzner (Avery/Enbridge), Leader

ENBRIDGE

ICS 207
6/7 – 6/14

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 07, 2012, 0700 To: June 14, 2012, 0700	**ICS 204 - EPA**

3. Branch	4. Division/Group/Staging
Air Operations	**N/A**

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Matt Haak	START/US EPA	
	Larry Rader	START/US EPA	
	Mark Fuller	AECOM/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons	Notes/Remarks
Air Operations	See Branch Directors listed above.		1 START/US EPA 1 Contractor 1 Pilot	Marshall Regional Airport Heli Pad

7. Work Assignments

Enbridge and START/US EPA:

1. Photo-document areas of sheen from source area to Morrow Lake dam and report observations back to operations section chiefs for monitoring and response. Flights occur once a week and as needed.

8. Special Instructions

Air Ops Team shall report to Marshall Regional Airport Heli-Pad. Additional flights can be scheduled on a case by case basis by contacting Mark Fuller (AECOM/Enbridge) at 847-533-9428. Additional operations recon flights shall be scheduled as required. These flights will have priority over the other flights in order to establish work priorities.

Areas that are deemed sensitive due to property owner concerns shall be avoided. If it is necessary to fly over at the sensitive area, pilot shall be instructed to maintain a minimum altitude of 500 ft. Sensitive flight areas include: Squaw Creek Subdivision (MP 3.25), Village of Ceresco and MP 10.5-11.5 LDB.

SAFETY INSTRUCTIONS:
DO NOT access heli-pad without being escorted by the pilot. Never approach or exit the aircraft to/from the rear, near the tail rotor.

Severe Weather Alerts:
Follow instructions and procedures provided by the FAA and the Civil Defense System.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	Date/Time	11. Reviewed by (PSC),	Date/Time	12. Reviewed by (OSC),	Date/Time
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	**Assignment List ICS 204- EPA**
3. Branch **Waste Management**	4. Division/Group/Staging **Decon / T&D / Waste Management Characterization**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Bryan McKinnon	START/US EPA	
	John Wallace	Avery/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Decon	Steve Runstrom (Avery/Enbridge)	[redacted]	10 Contractors
T&D	Steve Runstrom (Avery/Enbridge)		10 Contractors
Waste Management Characterization	Doran Lefaive (AECOM/Enbridge)		2 Contractors

7. Work Assignments

Decon

1. Vessels, Frac tanks, boom, vac trucks, roll off boxes, yellow iron and miscellaneous equipment. Decon is ongoing at Frac Tank City (FTC), during daylight hours only.
2. All final Decon will be completed at Frac Tank City.
3. Field decon operations for: personnel, hand equipment, and boats for preparation of transport shall be installed prior to work beginning at boat launches / staging areas for individual work sites.
4. All Decon activities will be done under the instruction and by the Decon Division only.

For START/US EPA:

1. Provide oversight of decon activities.

T & D

1. Haul contaminated soil, water, media and debris to staging areas for waste characterization and oil recovery sampling prior to offsite disposal.
2. Waste generated from boat launches / staging areas decontamination sites shall be collected at a minimum of daily for direct haul to the landfill or transported to Frac Tank City for consolidation with similar waste streams as necessary.
3. Waste generated from coring will be consolidated daily and transported to Frac Tank City.

For START/US EPA:

1. Provide oversight of T&D activities.
2. Ensure appropriate sampling, tracking and disposal is performed on oil impacted debris, water and soil.
3. Review manifests, weight tickets and bills of lading for correlation to waste stream analytical data.
4. Review weekly oil recovery and waste disposal report.

Waste Management Characterization

1. Waste management characterization, manifesting, and coordination of transportation and disposal.

For START/US EPA:

1. Provide oversight of waste management characterization and manifesting activities.

All Groups Designated Meeting Location: FTC.

8. Special Instructions

Interim decon processes shall follow best practices.

All personnel will report to designated meeting location at 0700 and work activities will conclude at 1900. All work permit activities will be completed within the allotted permit time and in accordance with the Fatigue Management Plan.

Ensure all Best Management Practices (BMPs) are in place and utilized.

SAFETY INSTRUCTIONS:

For vacuum truck operation guidelines, please refer the HASP.

At Frac Tank City:

1. The following procedure shall be used for initial opening of hatch or rear doors of liquid vacuum trucks and hatches of vacuum excavation units:
    a. Approach the hatch to be opened with a calibrated five gas monitor and a benzene monitor.
    b. Personnel performing this task must wear a full face respirator with organic vapor cartridge.
    c. Slightly open the hatch and take VOC, H2S, LEL, Oxygen, CO and benzene readings.
    d. If readings are greater than 10 ppm H2S, 10% LEL, 25 ppm CO or 25 ppm benzene then personnel shall close the hatch and utilize SCBA prior to opening the hatch.
2. Operations - Respiratory protection may be required depending on periodic monitoring results. Wear a half-mask respirator equipped with an organic vapor cartridge when 0.5 ppm benzene is detected. Wear a full-face respirator equipped with an organic vapor/acid gas cartridge when benzene is at 5 ppm to 25 ppm.

Please refer to the respective agencies/contractors Fatigue Management Plan to ensure proper rest periods.

Process for Reporting Potentially Hazardous Materials:

If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)
Incident Command Safety Office: 269-781-1913
Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	**Date/Time**	**11. Reviewed by (PSC),**	**Date/Time**	**12. Reviewed by (OSC),**	**Date/Time**
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 07, 2012, 0700 To: June 14, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Overbank Branch	**Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Jack Spates	Avery/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Outstanding Sites Characterization and Reconciliation	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	
Overbank Science	Brett Yokom (Trimedia/Enbridge)		
Overbank Compliance	Dan Zahner (START/US EPA) Matt Sumner (AECOM/Enbridge)		
Overbank Recovery	Dan Zahner (START/US EPA) Mike Wekseth (Swat/Enbridge)		
Overbank Monitoring	Matt Sumner (AECOM/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge)(Off-site)		

7. Work Assignments

Outstanding Sites Characterization and Reconciliation (OSCAR):

1. Participate in data review, quality control, and site closure process to ensure that all pending issues are addressed.
2. Direct field evaluations and request information for site determination.
3. Oversee transfer of sites between the various branches.

Designated Meeting Location: ICP.

Overbank Science

1. No activities at this time.

Overbank Compliance

1. No activities at this time.

Overbank Recovery

1. Execute tasks assigned by ERO as requested.

Overbank Monitoring

1. Provide support services as necessary.
2. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

Process for Reporting Potentially Hazardous Material:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	**Date/Time**	**11. Reviewed by (PSC)**	**Date/Time**	**12. Reviewed by (OSC)**	**Date/Time**
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Submerged Oil**	4. Division/Group/Staging **Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Dan Zahner	START/US EPA	
	Matt Sumner	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Submerged Oil Assessment	Joe Victory (START/US EPA) Steve Noble (DEQ) Dave Bareham (Enbridge)	[redacted]	1 USGS 12 START/US EPA 1 DEQ 4 Weston/DEQ 26 Contractors
Submerged Oil Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Dave Dryburgh (AECOM/Enbridge)		
Submerged Oil Compliance	Mark Berninger (Cardno JFNEW/Enbridge)		
Submerged Oil Recovery	Dylan Massey (LBG/Enbridge)		1 START/US EPA 21 Contractors
Submerged Oil Monitoring	Dylan Massey (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		1 START/US EPA

7. Work Assignments

Submerged Oil Assessment Special Purpose Meeting: Daily at 1100, Trailer #2

Submerged Oil Assessment

1. Continue refinement of 2012 Submerged Oil Recovery Plan.
2. Conduct poling activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake. (10 Teams)
3. Conduct coring activities throughout the Kalamazoo River, Morrow Lake Delta, and Morrow Lake.
4. Review sheen tracking information from the field.
5. Continue sampling and monitoring of cylindrical sampling devices.
6. Collect velocity data within Morrow Lake. (1 team)

For START/US EPA and DEQ:

1. Oversee and document Submerged Oil Assessment work activities.

Submerged Oil Science

1. Continue implementation of the hydrodynamic model to determine movement of submerged oil.
2. Continue development of Submerged Oil Quantification.

For START/US EPA:

1. Oversee and document Submerged Oil Science work activities.

Submerged Oil Compliance

1. Continue to complete ecological assessments at sites determined by the Submerged Oil Assessment Group.
2. Track previously submitted MDEQ applications for sediment removal.

For DEQ:

1. Oversee and document Submerged Oil Compliance work activities.

Submerged Oil Recovery

1. Implement sheen management activities as necessary.

Submerged Oil Monitoring

1. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

For START/US EPA:

1. Implement Air Sampling at 27.90, 26.80, and 26.19T as recommended by MDCH.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:

When operating or working in the vicinity of Ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:

If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Containment**	4. Division/Group/Staging **Science / Compliance / Recovery / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Rex Johnson	START/US EPA	
	Dean Sahara (Off-site)	SWAT/Enbridge	
	Mike Wekseth, Deputy	SWAT/Enbridge	

6. Resources Assigned **"X" indicates 204a attachment with additional instructions**

Division Identifier	Leader	Contact Info. #	# of Persons
Containment Science	Faith Fitzpatrick (USGS) Ron Zelt (USGS) Elijah Eversole (AECOM/Enbridge)	[redacted]	
Containment Compliance	Mike Zambetis (Cardno JFNEW/Enbridge)		1 Contractor
Containment Recovery	Oliver Webb (SWAT/Enbridge)		14 Contractors
Containment Monitoring	David Pesses (LBG/Enbridge) Air Monitoring: Chris Lantinga (START/US EPA) Laura Neumeier (Trimedia/Enbridge) (Off-site)		2 START/US EPA

7. Work Assignments

Containment Science

1. Refine the hydrodynamic model and concepts of the Plan for Preventing Migration of Oil Past the Morrow Lake Dam.
2. Introduce new variables to enhance the potential sediment trap locations.
3. Develop subsurface containment strategies throughout the Kalamazoo River system to prevent recontamination of the Morrow Lake fan.

Containment Compliance

1. Monitor submitted MDEQ permit application for toolbox activities in the Kalamazoo River.
2. Monitor submitted MDEQ application for permit for the Kalamazoo River Sediment Control Structures (13 sites).

Containment Recovery

1. Utilize resources to contain and collect sheen and surface oil as necessary.
2. Perform containment strategies throughout the Talmadge Creek and Kalamazoo River including the following tasks:
   a) Deploy shoreline containment boom as required.
   b) Complete sheen management as required.
3. Maintain three Control Points: MP 5.75 (Ceresco), MP 15.65 (BC Dam), and MP 37.75 (E4).
4. Maintain Protective Containment sites (9 sites total).
5. Maintain installed Kalamazoo River Sediment Control Structures.

Containment Monitoring

1. Identify control points and protective containment locations requiring further clean up or maintenance action.
2. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.
3. All odor complaints will be reported to US EPA and MDCH within 30 minutes of receipt by the odor response team (Monday through Saturday 0700 – 1900). Complainants will then be contacted to schedule an odor response site visit or receive additional complaint information if no on-site response requested. Response evaluation will be reported to agencies and complainants upon completion. Samples will be analyzed at a 24-hour turnaround time.

All Groups: Designated Meeting Location: ICP

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director. Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

Rowe Island, MP 38.50-MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
Photo Ionization (VOCs) / Four Gas Detectors (O2, CO, LEL and H2S) and Direct Reading Instrument for Benzene will be used for air monitoring during debris removal activities.

Hexane is flammable and may be harmful in contact with skin. When handling hexane and sheen test samples containing hexane, wear approved safety glasses, disposable nitrile gloves and keep away from ignition sources. Properly dispose of sheen test samples containing hexane.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	**Date/Time**	**11. Reviewed by (PSC)**	**Date/Time**	**12. Reviewed by (OSC)**	**Date/Time**
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **River Opening Coordination**	4. Division/Group/Staging	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Chris Lantinga	START/US EPA	
	Steve Noble	DEQ	
	John Bohrmann	Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
River Opening Media Group	Don Deblasio (US EPA) Francisco Arcaute (US EPA) (Off-site) Kelly Dougherty (START/US EPA), Assistant Jason Manshum (Enbridge)	[redacted]	
River Opening Assessment/ Confirmation Group	Elijah Eversole (AECOM/Enbridge)		
River Opening Implementation Group	Joe Standen (LBG/Enbridge)		
River Opening Monitoring & Security Group	Alison Schoeff (AECOM/Enbridge)		1 Contractor

7. Work Assignments

River Opening Media Group Special Purpose Meeting: Monday, Wednesday, & Friday at 1430, Trailer #2.
The focus of this group is on opening Segments 2 – 8 and 10.

All Groups

1. Continue development of River Opening Plan.

River Opening Media Group

1. Develop plan and media packs for press conference concerning river opening.
2. Ensure all media relations are coordinated.
3. Ensure kiosk materials are prepared for posting.
4. Ensure all signage is prepared for posting.

River Opening Assessment Group

1. Continue overbank review of Segment 9.

River Opening Implementation Group

1. Conduct maintenance activities as directed by the River Opening Monitoring & Security Group.
2. Staging of material for implementation of river traffic control devices and on-shore signage.

River Opening Monitoring & Security Group

1. Conduct daily monitoring of river conditions, recording observations of sheen or oil, by River Opening segment.
2. Conduct weekly monitoring of buoys and signage in open segment of the river.

Designated Meeting Location: ICP

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

No vessels will travel over the E4 control point at MP 37.75 without prior authorization from the Containment Branch Director.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency

10. Prepared by	**Date/Time**	**11. Reviewed by (PSC)**	**Date/Time**	**12. Reviewed by (OSC)**	**Date/Time**
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name	2. Operational Period (Date/Time)	Assignment List
Kalamazoo River/Enbridge Spill Response	From: June 07, 2012, 0700 To: June 14, 2012, 0700	**ICS 204 - EPA**
3. Branch	**4. Division/Group/Staging**	
Kalamazoo River System Branch	**Remedial Investigation / Compliance / Remedial Action / Monitoring**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:	Dan Capone	START/US EPA	[redacted]
	Joe Victory, Deputy	START/US EPA	
	Steve Noble	DEQ	
	Christopher Haux	Enbridge	
	Dave Bareham, Deputy	Enbridge	
	James Snider, Deputy	Enbridge	
Branch Director:	Steve Noble	DEQ	
	Bryan Stiemsma	AECOM/Enbridge	

6. Resources Assigned

Division Identifier	Leader	Contact Info. #	# of Persons
Talmadge Creek/Kalamazoo River Remedial Investigation	Brian Albig (AECOM/Enbridge)	[redacted]	8 Contractors 1 DEQ 1 Weston/DEQ
Kalamazoo River Compliance	Mike Zambetis (Cardno JFNew/Enbridge)		1 DEQ 6 Contractors
Kalamazoo River Remedial Action	Matt Sumner (AECOM/Enbridge)		
Talmadge Creek/Kalamazoo River Monitoring	Alison Schoeff (AECOM/Enbridge)		2 Contractors

7. Work Assignments

The Kalamazoo River System Branch Special Purpose Meeting is held on Tuesday at 1500 in Trailer #2.

Talmadge Creek/Kalamazoo River Remedial Investigation

1. Implement Remedial Investigation Work Plan between MP 5.8 to Morrow Lake Dam.

For DEQ:

1. Observe and document RI activities with emphasis on conformance with approved work plans and standard operating procedures.
2. Collect RI split samples at 10% frequency for soil, sediment and groundwater.

Kalamazoo River Compliance

1. Continue restoration/stabilization of the Kalamazoo River Bank Erosion Assessment Sites (KRBEAS).
2. Conduct Kalamazoo River System Erosion Tour number 8.

Kalamazoo River Remedial Action

1. Provide support activities as necessary.

Talmadge Creek/Kalamazoo River Monitoring

1. Monitor erosion control devices.
2. Continuous visual monitoring of the confluence by remote web based camera.
3. Continue implementation of the Talmadge Creek Monitoring and Maintenance Plan.
4. Perform remote turbidity monitoring at the confluence.
5. Perform monthly surface water monitoring on the Kalamazoo River and Morrow Lake.
6. Perform quarterly sediment monitoring on the Kalamazoo River and Morrow Lake.
7. Perform monthly surface water and sediment monitoring on Talmadge Creek per the Talmadge Creek Monitoring and Maintenance Plan.

All Groups: Designated Meeting Location: ICP.

8. Special Instructions

NRDA Trustees will be conducting recreational use surveys along the Kalamazoo River at river access points through Autumn 2012.

Detailed work instructions will be provided to all team members through daily work orders.

No water operations will commence before 0700 and will conclude by 1900. All land based activities will begin at 0700 with adequate lighting. In accordance with the Fatigue Management Plan, all work permit activities will be completed by 1900.

Rowe Island, MP 38.50 to MP 38.75, is a No Go Zone – Environmental Sensitive Area.

SAFETY INSTRUCTIONS:
When operating or working in the vicinity of ultra violet testing equipment, wear approved safety glasses that provide protection from UV A rays and never look directly into the illuminator.

All in water activities of workers in water depths over fifty percent (50%) of thigh height will require tethering. Please refer to the HASP for further instructions.

Process for Reporting Potentially Hazardous Materials:
If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	**Date/Time**	**11. Reviewed by (PSC)**	**Date/Time**	**12. Reviewed by (OSC)**	**Date/Time**
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012

1. Incident Name **Kalamazoo River/Enbridge Spill Response**	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	**Assignment List ICS 204 - EPA**
3. Branch **Planning Section**	4. Division/Group/Staging **Situation Unit / GIS Specialists / Resources Unit / Environmental Unit / Documentation Unit**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Planning Section Chief:	Mindy Luetke	START/US EPA	[redacted]
	Amy Back	Avery/Enbridge	
	Brad Nelson, Deputy	Avery/Enbridge	
	Matt Hetzner, Deputy	Avery/Enbridge	

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Division Identifier	Leader	Contact Info. #	# of Persons
Situation Unit	Matt Haak (START/US EPA) Larry Rader (START/US EPA) Matt Hetzner (Avery/Enbridge) Mark Fuller (AECOM/Enbridge), Assistant	[redacted]	1 START/US EPA 1 Contractor
GIS Specialists	Jim Valenza (START/US EPA) Jason Torres (START/US EPA), Assistant Chad Fizzell (DEQ) (Off-site) Kevin Brown (Weston/DEQ) (Off-site) Debora Endriss-Periard (AECOM/Enbridge) Ken Kaiser (AECOM/Enbridge)		1 DEQ 1 Weston/DEQ 2 Contractors
Resources Unit	Lori Hong (START/US EPA), Leader Shauna Ross (START/US EPA), Leader Breanna Bukowski (Weston/DEQ)(Off-site) Brad Nelson (Avery/Enbridge)		1 START/US EPA 1 Weston/DEQ 1 Contractor
Environmental Unit	Isaac Aboulafia (START/US EPA) Elizabeth Wessling (START/US EPA)(Off-site) Faith Fitzpatrick (USGS) Ron Zelt (USGS), Assistant Rex Johnson (START/US EPA), Assistant Tom Graan (START/US EPA) , Assistant Jeff Spruit (DEQ)(Off-site) Kim Churchill (Weston/DEQ) John Bohrmann (Enbridge)		2 START/US EPA 1 Weston/DEQ 2 USGS 3 DEQ 1 Enbridge 9 Contractors
Documentation Unit	Brennan Pierce (START/US EPA) Crystal Laskey (DEQ) Carolyn Giles-Smith (Weston/DEQ) Matt Hetzner (Avery/Enbridge)		1 US EPA 2 START/US EPA 1 DEQ 1 Weston/DEQ 3 Contractors

7. Work Assignments

Situation Unit:

1. Organize field metrics, prepare for and facilitate presentations, and monitor action tracking.

Maintain situational awareness around operational activities and plan for operational needs.

For START/US EPA:

1. Maintain situational awareness around operational activities.
2. Communicate observations to the Operations Section Chief.
3. Provide daily situational photo log summaries.
4. Conduct daily monitoring of river conditions, recording observations of sheen and/or oil, by River Opening Segment.
5. Record and document sheen observations in main channel and overbank areas, and conduct sheen testing, if necessary. Report sheen observations back to operations section chiefs for monitoring and response.

GIS Specialists:

1. Provide data as necessary.
2. Process Yuma data from the field teams.

Resources Unit:
1. Produce an Incident Action Plan as required by the Incident Commanders.
2. Support the planning efforts of operations and provide information to Logistics in order to properly prepare and order resources.

Environmental Unit:
1. Conduct strategic assessment, modeling, and environmental monitoring.
2. Conduct analysis of sheen testing data.
3. Finalize submerged oil quantification for Spring 2011.

For START/US EPA:
1. Continue to coordinate efforts to calculate the quantity of submerged oil remaining as of Spring 2011.
2. Continue supporting the evaluation of the hydrogeomorphology of the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.

Documentation Unit:
1. Maintain accurate, up-to-date incident files.
2. Store files for post-incident use.

All Goups: Designated Meeting Location: ICP.

8. Special Instructions

All personnel will report to designated meeting location at 0700. In accordance with the Fatigue Management Plan, all work permit activities will be completed no later than 1900.

SAFETY INSTRUCTIONS:

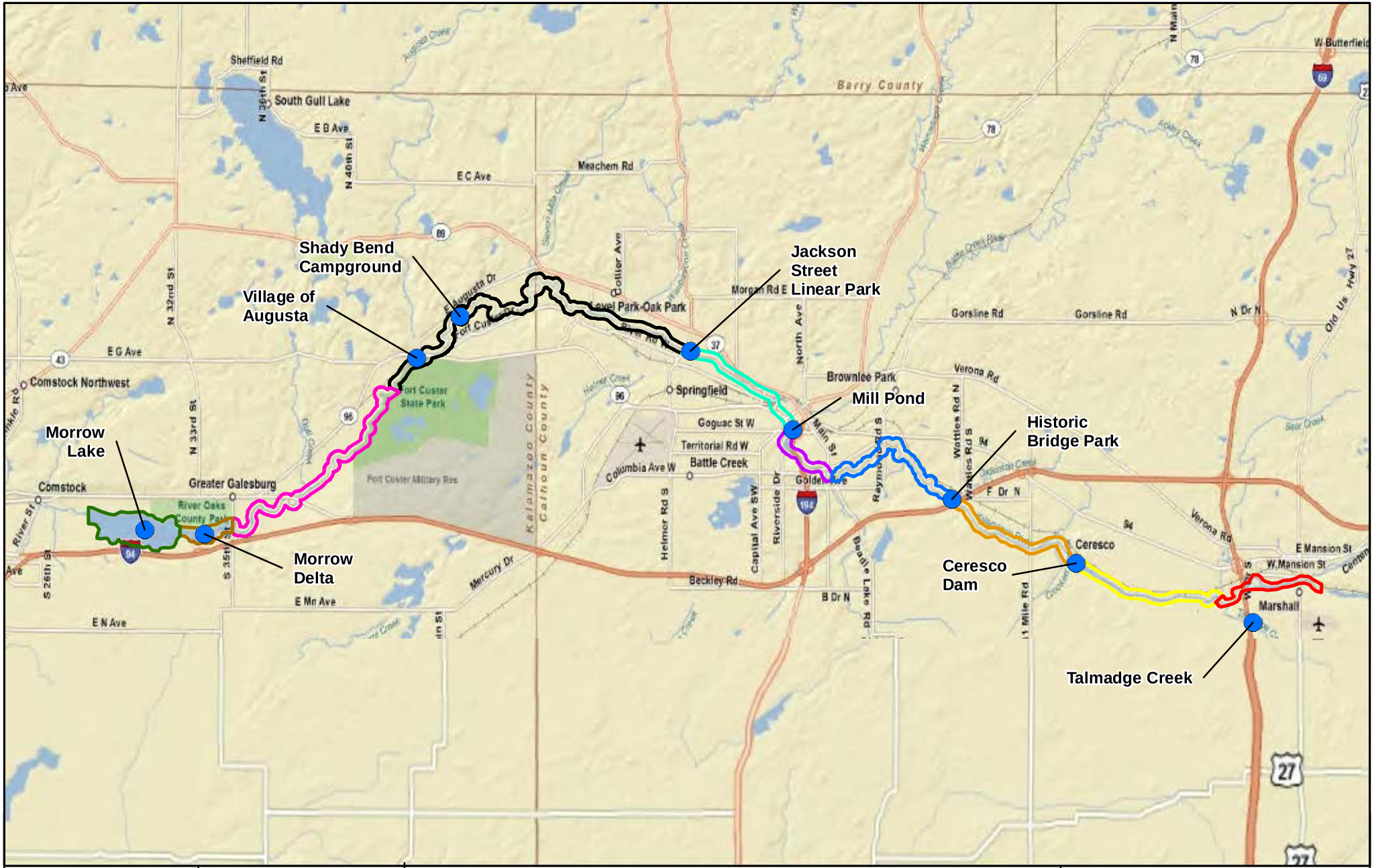
Process for Reporting Potentially Hazardous Materials: If you observe a potentially hazardous material which is not spill related, notify field safety officer and evacuate the area. Do not let anyone into the area unless it is Enbridge Safety and/or Operations Inspector. Immediately report all details to the Enbridge Safety Office at 269-781-1913. The Enbridge Safety Office will alert the Emergency Response Center or call (911). Notifications will go to Calhoun County EMS or Kalamazoo County EMS, EPA, DEQ and Pollution Emergencies.

9. Communications (radio and/or phone contact numbers needed for this assignment)

Incident Command Safety Office: 269-781-1913

Emergency Communications: Use IAP Medical Plan/IAP Phone list. Dial 911 for Medical Emergency.

10. Prepared by	Date/Time	11. Reviewed by (PSC)	Date/Time	12. Reviewed by (OSC)	Date/Time
M. Hetzner, Avery/Enbridge	6/06/2012	A. Back, Avery/Enbridge	6/06/2012	C. Haux, Enbridge	6/06/2012



ENBRIDGE

Drawn:	GM	4/26/2012
Approved:	AG	4/26/2012
Project #:	60162778	

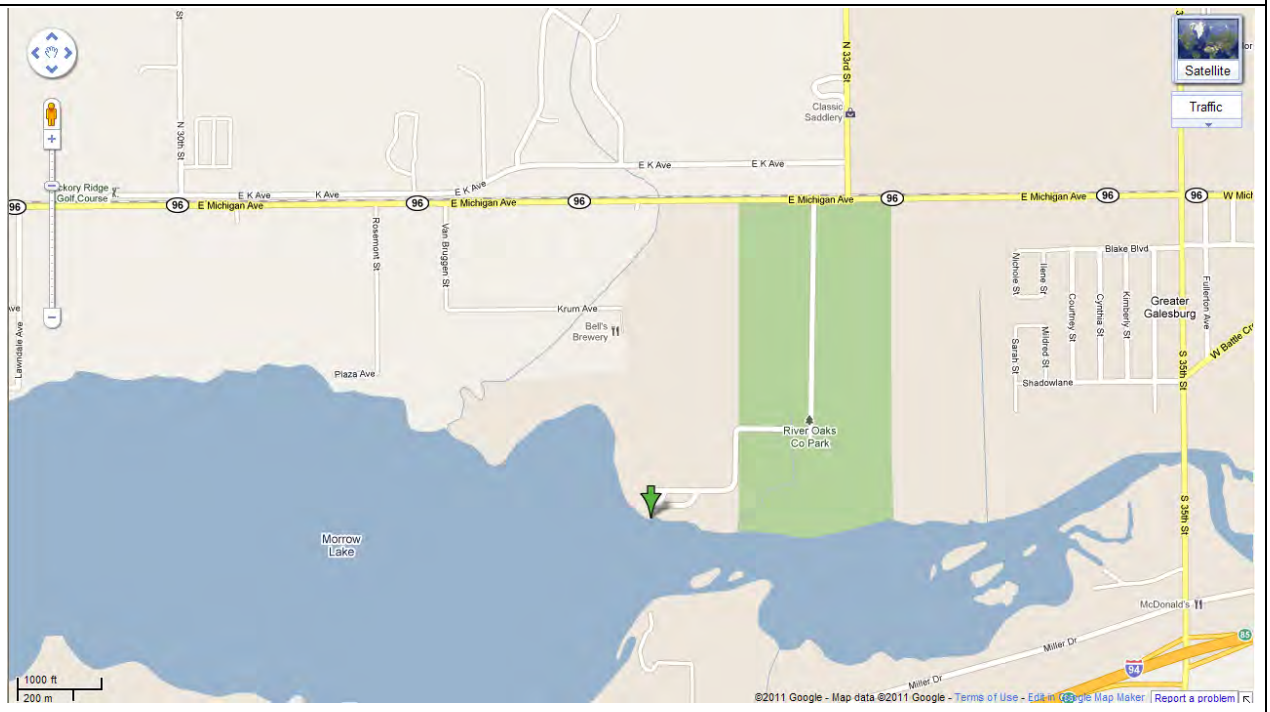
KALAMAZOO RIVER OVERVIEW MAP

ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP

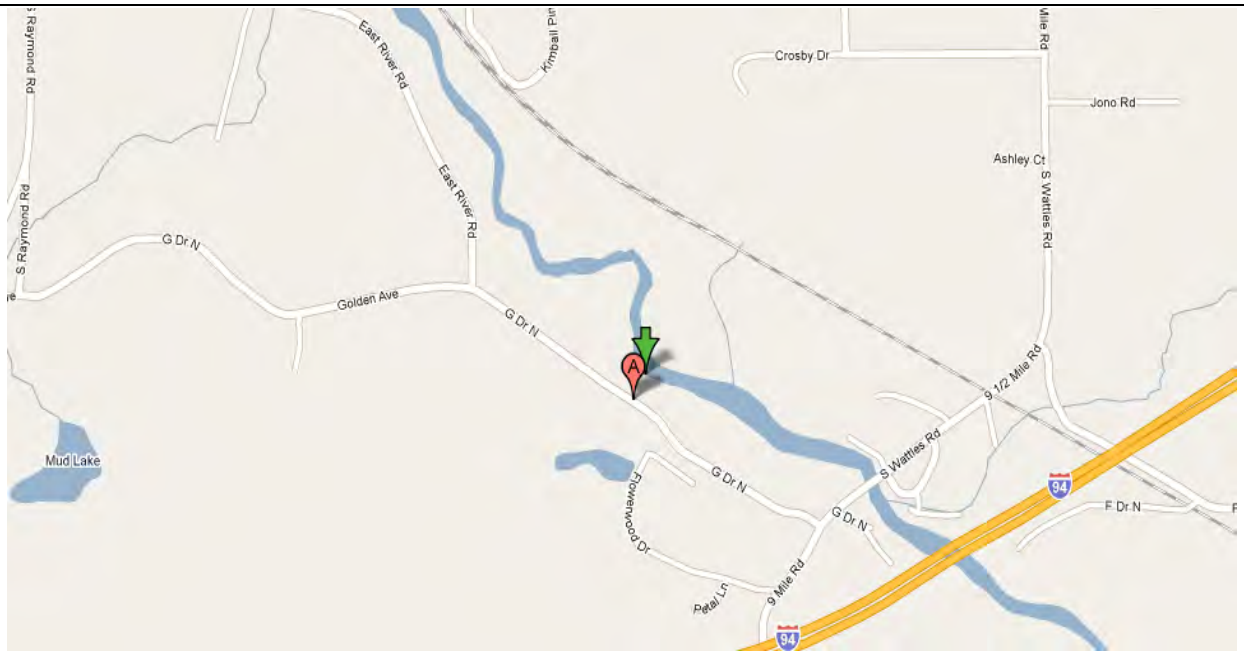
Z:\Work\GIS\Enbridge_Requests\MXDs\River_Overview_Reopening.mxd

Toolbox Meeting Locations

E4 - 9424 E Michigan Ave , Galesburg, MI 49053 GPS Coordinates Lat: 42.278265 Long: -85.452295



C3.2 8677-9015 G Dr N Battle Creek, MI 49014 GPS Coordinates Lat: 42.293492 Long: -85.124479



Refer to traffic plan for detailed access instructions.

1. Incident Name	2. Operational Period (Date / Time)	Traffic Plan
Kalamazoo River / Enbridge Spill	From: **06/07/2012 / 0700 hrs** To: **06/14/2012 / 0700 hrs**	

Traffic Safety Alert for Parking at Incident Command Post 1601 Pratt Avenue



- Thursday morning parking: Please note meeting attendees who do not work at ICP are to use Woolley Drive.
- For the Thursday morning meeting, an ICP parking permit will be required to park in the main ICP parking lot.
- Slow speeds are imperative at all times.
- There is very limited parking with two-way traffic and pedestrian traffic. Watch vehicle speeds.
- Due to the pedestrian traffic, MAC members and deliveries only will be allowed at the back entrance.
- Everyone must check in at the Security Check Point as shown at the Pratt Avenue entrance.

Any further questions or concerns, contact the Safety Office.

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: Talmadge Creek



16054 Division Dr., Marshall, MI 49068
GPS Coordinates: Lat: 42.24620, Long: -84.97641

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: C 0.4



This launch provides access from the Confluence to MP 5.75.

12400-12998 C-Drive N, Ceresco, MI 49033

GPS Coordinates: Lat: 42.265127, Long:-85.048364

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: C 3.2



88745 G-Drive N, Battle Creek, MI 49014

GPS Coordinates: Lat: 42.293492 Long: -85.124479

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: C 5



97 Kenosha Ave Battle Creek, MI 49014
GPS Coordinates Lat: 42.304905 Long: -85.183463

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: D2



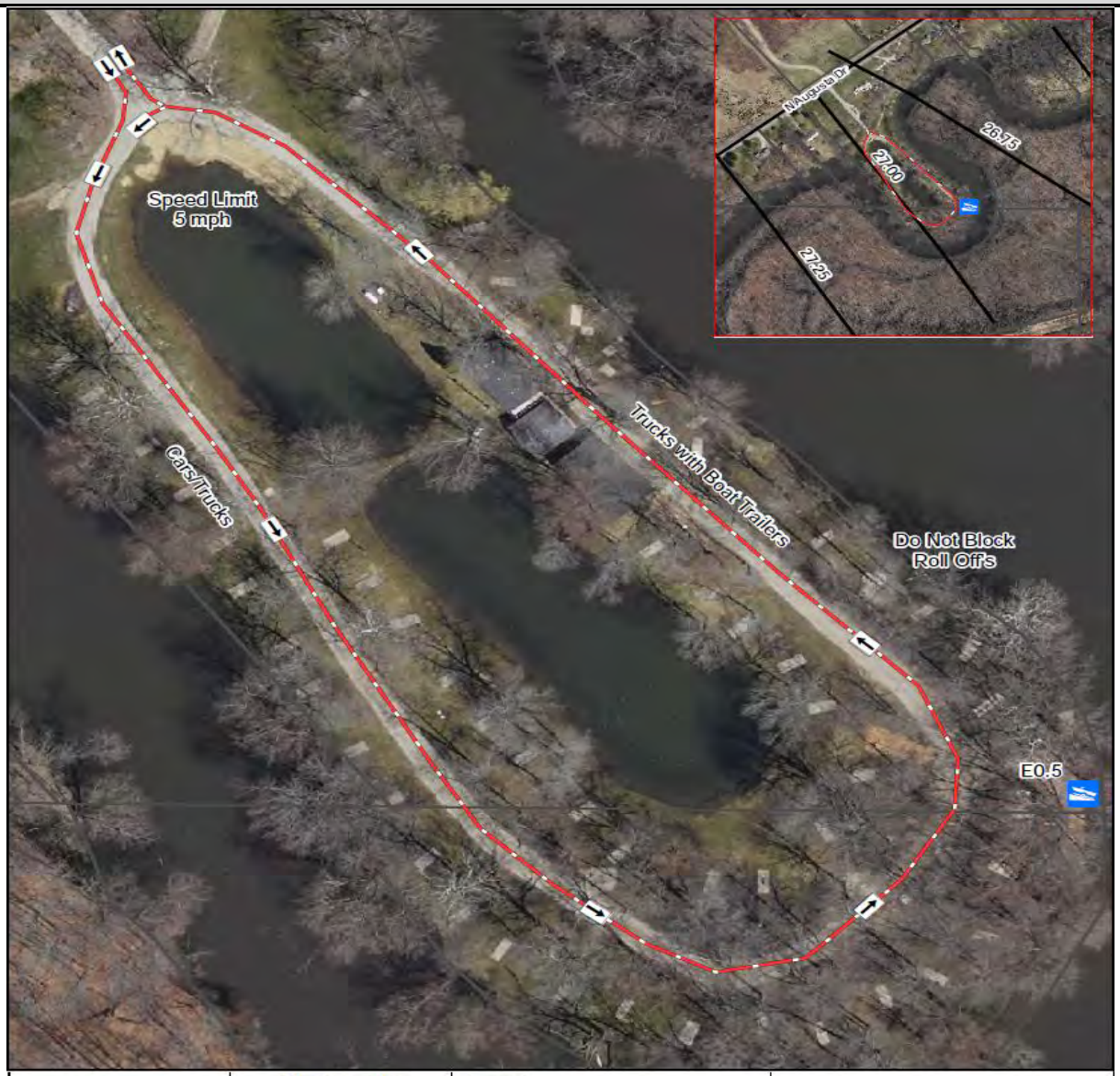
This launch provides access from MP 15.75 to MP 23.25.

1445-1509 Jackson St W, Battle Creek, MI 49037
GPS Coordinates: Lat: 42.338427 Long:-85.232309

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: E 0.5



(Shady Bend Camp Ground), 15320 East Augusta Dr, Augusta, MI 49012
GPS Coordinates:Lat: 42.347408 Long: -85.3295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: E 2



5106-5140 River Rd, Augusta, MI 49053
GPS Coordinates: Lat: 42.32412 Long: -85.358041

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: E 3



ENBRIDGE

Drawn:	GM	7/18/2011
Approved:	VM	7/18/2011
Project #:	60162778	

Map Location



Legend

- Boat Launch
- Parcel Boundary
- Traffic Route

0 22.5 45 Feet

N

Boat Lauch - E 3

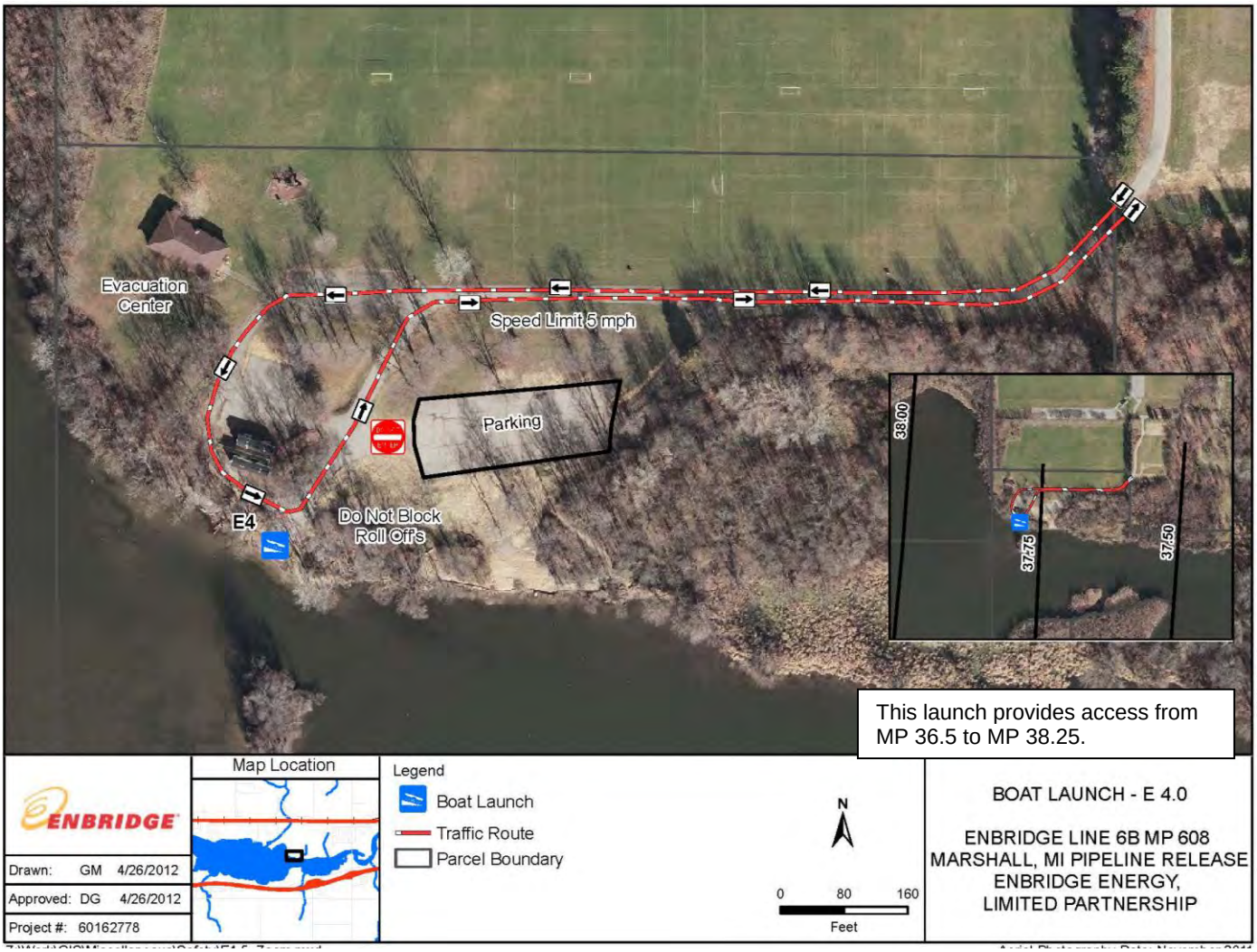
ENBRIDGE LINE 6B MP 608
PIPELINE RELEASE
MARSHALL, MI

188 East Michigan Avenue., Galesburg, MI 49053
GPS Coordinates: Lat: 42.284663 Long: -85.412855

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name	2. Operational Period (Date / Time)	TRAFFIC PLAN ICS - EPA
Kalamazoo River/Enbridge Spill	From: 06/07/2012 0700 To: 06/14/2012 0700	

3.TRAFFIC PLAN: E 4



9424 E Michigan Ave., Galesburg, MI 49053
GPS Coordinates: Lat: 42.278265 Long: -85.452295

4. Prepared by:	Date/Time
Name/Position: Dale Gross, Safety Officer	6-06-2012

1. Incident Name Kalamazoo River/Enbridge Spill Response	2. Operational Period (Date/Time) From: June 07, 2012, 0700 To: June 14, 2012, 0700	Radio Communications Plan ICS 205- EPA

Enbridge Line 6B – Marshall Release Radio Check Inventory (ICS 205)

Radio Number	Organization	User Name	PTT CALL NUMBER
D-1	WESTON/DEQ	Vinne DelloRusso	269-986-7542
D-2	WESTON/DEQ	Terri Shattuck	269-986-8005
S-1	ENBRIDGE	Dale Gross	269-986-8011
S-4	ENBRIDGE/Avery	Matt Peischer	269-986-8100
S-7	ENBRIDGE/McDaniel	Red Calvert	269-986-8106
S-9	ENBRIDGE/McDaniel	Sasha Vuksanovic	269-986-7434
S-11	ENBRIDGE/Manpower	Ricardo Cedillo	269-986-8418
U-2	START/ US EPA	Mike Stewart	269-986-8110
B-51	SWAT	Clark Short	269-967-3675
B-52	SET	Andrew Jasman	269-967-3973
B-55	SWAT	Jesus Vavra	269-986-8885
B-54	SWAT	Travis Gibson	269-986-0957
B-58	SWAT	Trevor Evans	269-967-2310
B-59	SET	Zachary Woods	269-986-7386
B-60	SWAT	Benito Vavra	269-986-3451
B-61	SET	Berry Vavrina	269-986-5774
B-62	SWAT	Paul Kerpash	269-986-3287
B-63	SET	Dustin Young	269-986-5787
B-64	SET	John Henry	269-967-3998
B-65	SWAT	Jon Boyer	269-986-5840
B-66	SWAT	Kenny Decker	269-986-5930
B-67	SET	John Kauth	269-986-8186
B-68	SET	Bruce Allen	269-986-8250
B-69	SET	David Hoekstra	269-986-5819
G-50	SWAT	Chris Jones	269-986-8384
G-51	SET	James Barber	269-986-5951
G-52	SET	Ben Fischer	269-986-0185
G-53	SET	Richard Cale	269-986-6029
G-54	SET	Tony Marotz	269-986-3421
G-55	SET	Shaun Burnum	269-986-5271
G-60	SWAT	Oliver Webb	269-986-9102
G-61	SET	Ruben Garcia	269-986-8341
G-62	SET	Ben Fisher	269-986-8390
G-63	SET	Mark Taylor	269-986-5675
S-52	SWAT	Ziggy Przybyl	269-986-7583
B-50	SWAT	Jeff Madden	269-967-3675
B-62	SWAT	Hassan Salim	269-986-3287
S-50	SWAT	Bill Rowe	269-986-7583

Communication Check: Communication Check will be tested Mondays and Thursdays by Enbridge Safety Office at 1200 hours.

SPECIAL NOTATION ON WEATHER MESSAGING:
See daily updates for additional weather information.

Enbridge Safety is responsible for weather on-site and they are supported by the NOAA / NWS Grand Rapids Weather Office.

Enbridge Safety will maintain consistent weather messages by following the established format of presenting daily and extended forecast, river depth, hydrologic predictions, and the five day quantitative precipitation forecast. The compilation of information will be presented through daily briefings. Enbridge Safety will continue the current practice of issuing a daily forecast to the field safety staff by posting NWS updates in various locations around the Incident Command Post.

In the event of severe weather warnings and alerts, the NWS Grand Rapids Center will contact the Enbridge Safety Office using the Enbridge Safety Radio System between the hours of 0700-1800 hours. If severe weather warning and alerts are occurring from 1800-0700, NWS Grand Rapids Center will contact the Enbridge Safety Office by phone at: **269-781-1913** and DK Security by phone at: **269-781-1911**. These numbers are in operation 24/7. Enbridge Safety will initiate the notification process by using the Call-EM-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews.

- *Severe Weather Alerts:* report to shelter when the county activates their warning sirens.
- *Fire/Building Evacuation Alert*: Report to assigned evacuation point. Follow Air Horn Procedure: Series of Three 1 second blasts.

Weather related cancellation or concerns call 269-781-1914

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/07/2012/ 0700 hrs To: 06/14/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Aboulafia, Isaac	[redacted]	[redacted]	START/US EPA	Planning
Adams, Rich			Enbridge	Operations
Aguilera, Jose			START/US EPA	O&M
Albiq, Brian			AECOM/Enbridge	Environment
Allen, Toby			MRG/Enbridge	Public Information
Arcaute, Francisco			US EPA	Public & Govt. Affairs
Back, Amy			Avery/Enbridge	DPSC
Back, Berl			Avery/Enbridge	Facilities Manager
Baine, Jaclyn			AECOM/Enbridge	Environment
Baker, Paul			Kalamazoo OEM	MAC
Bareham, Dave			Enbridge	Environment
Beodray, Frank			START/US EPA	
Berecz, Karen			START/US EPA	O & M
Berninger, Mark			Cardno JFNEW/Enbridge	Restoration
Blackburn, Ted			START/US EPA	Safety Officer
Blanchard, Mark			START/US EPA	
Blue, Melissa			AECOM/Enbridge	Environment Admin.
Bohrmann, John			Enbridge	Environment
Brettmann, Gregg			DEQ	Environmental Unit Leader
Bretz, Ryan			Manpower/Enbridge	IT
Brown , Kevin			Weston/DEQ	GIS Support
Bukowski, Breanna			Weston/DEQ	Planning
Burrous, Lauren			USGS	USGS
Calvert, Red			McDaniel/Enbridge	Safety
Capone, Dan			START/US EPA	Operations
Cavazos, Lupe			START/US EPA	Planning
Cedillo, Ricardo			Manpower/Enbridge	Security Unit Leader
Churchill, Kim			Weston/DEQ	Environmental Unit
Cox, Renee			Manpower/Enbridge	Documentation
Dababneh, Fouad			US EPA	
Daniel, Pat			Enbridge	MAC
Daniel, Wayne			Tulsa/Enbridge	Operations
Deblasio, Don			US EPA	Public Information
Dekker, Shaun			SET/Enbridge	Waste Management
DelloRusso, Vincent			Weston/DEQ	Operations
DeLong, Michelle			DEQ	Incident Commander
Dennis, Kate			Manpower/Enbridge	Admin Support
Dew, Justin			Avery/Enbridge	Facilities Coordinator
Dobrowski, Ed			USGS	USGS
Doherty, Bob			Enbridge	Environment
Dollhopf, Ralph			US EPA	Incident Commander (FOSC)
Donaldson, Elizabeth			Enbridge	Planning
Dougherty, Kelly			START/US EPA	Public Information
Dryburgh, Dave			AECOM/Enbridge	Environment
Dubois, Amy			US EPA	
DuCharme, Mark			DEQ	Incident Commander
Dunham, Durk			Calhoun County EMA	MAC
Dykema, Linda			MDCH	Public Health
Eversole, Elijah			Enbridge/AECOM	Containment
Fitzpatrick, Faith			USGS	Tech Specialist
Fizzell, Chad			DEQ	GIS Support
Frost, Joe			Calhoun County Health	MAC
Fuller, Mark			AECOM/Enbridge	Environment
Giles-Smith, Carolyn			Weston/DEQ	Documentation
Good, Gena			START/US EPA	
Graan, Tom			START/US EPA	Submerged Oil Lead
Gross, Dale			Superior/Enbridge	Safety Officer
Guest, Nyekah			Enbridge	Procurement
Haak, Matt			START/US EPA	Sit Unit Leader
Haase, Becky			Enbridge	Public Affairs
Hackley, Richard			US EPA	Finance
Haux, Christopher			Enbridge	OSC
Hehir, Nate			Superior/Enbridge	Environment
Hetzner, Matt			Avery/Enbridge	Planning
Hoard, Chris			USGS	USGS
Hodges, Luke			Stantec/Enbridge	
Hogan, Charlene			AECOM/Enbridge	Environment
Hong, Lorie			START/US EPA	Logistics
Hummel, Rebecca			Manpower/Enbridge	Finance
Johnson, Rex			START/US EPA	Operations
Jones, Susan			DEQ	Operations
Kaiser, Ken			AECOM/Enbridge	GIS Specialist
Kane, Sean			START/US EPA	Waste Management
Kendall, Joseph			START/US EPA	Operations
Kent, Norm			AECOM/Enbridge	Environment
Kerpash, Paul			SWAT/Enbridge	Control Point Management
Kidder, Steven			START/US EPA	Operations SOS
Kirby-Miles, Leslie			US EPA	Legal
Kogge, Stu			Cardno JFNEW/Enbridge	Operations
Kosmowski, Christine			City of Battle Creek	MAC
Lantinga, Chris			START/US EPA	Operations
Laquerre, Tim			START/US EPA	Operations
Laskey, Crystal			MDEQ	Planning
Lefaive, Doran			AECOM/Enbridge	Waste Management
Lisabeth, Nicole			MSP	PIO
Long, Janna			Weston/DEQ	Operations
Luetke, Mindy			START/US EPA	PSC
Lundholm, Mark			Weston/DEQ	Operations
Makoski, Paul			Calhoun County Health	MAC
Manshum, Jason			Enbridge	Public Affairs
Maradkel, Ben			START/US EPA	
Massey, Dylan			LBG/Enbridge	Environmental Inspector
McKay, John			Enbridge	ROW
McKenzie, Michael			Battle Creek Emer. Srvs.	MAC
McKinnon, Bryan			START/US EPA	Waste Management Lead
Mehl, Rick			START/US EPA	
Meny, Alyssa			Enbridge	Communications Unit
Moisan, Paul			START/US EPA	Documentation
Moore, Terry			SET/Enbridge	
Nelson, Brad			Avery/Enbridge	DPSC
Neumeier, Laura			Trimedia/Enbridge	Air Monitoring
Newberry, Christina			Manpower/Enbridge	Documentation
Noble, Steve			DEQ	Water Resources Division
Nye, Dennis			START/US EPA	Recovery

Prepared by:
Matt Hetzner

Email Corrections To
matt.hetzner@enbridge.com

DATE /TIME
6/4/20122:41 PM

1. Kalamazoo River/ Enbridge Spill	2. Operational Period (Date / Time) From: 06/07/2012/ 0700 hrs To: 06/14/2012/ 0700 hrs	Operations Communications Plan

3. Communication Contact List

NAME	PHONE NUMBER	EMAIL ADDRESS	AGENCY / AFFILIATION	POSITION
Oleschuk, Rick	[redacted]	[redacted]	Enbridge	Safety Officer
Olson, Alex			Avery/Enbridge	Planning
Ostrodka, Steve			US EPA	Submerged Oil Lead
Periard, Debora			AECOM/Enbridge	GIS Support
Pesses, David			LBG/Enbridge	Environmental Inspector
Pierce, Brennan			START/US EPA	Documentation
Piescher, Matthew			Avery/Enbridge	Field Inspector
Porter, Pete			Salem/Enbridge	Right of Way Agent
Powell, Meredith			Hill & Knowlton/Enbridge	Public & Govt. Affairs
Pratt, Catherine			AECOM/Enbridge	Environment
Quiggle, Lisa			MDCH	
Rader, Larry			START/US EPA	Sit Unit Leader
Rafati, Mike			US EPA	
Reber, Lt. Barry			MSP EMHSD	MAC
Reed, Mike			Tetra Tech/Enbridge	Envrionmental Inspector
Reigner, Selma			Kelly Services/Enbridge	Admin. Assistant
Richardson, Dave			Tetra Tech/Enbridge	River Poling Supervisor
Rosenbaum, Charmaine			Enbridge	Project Support Manager
Ross, Shauna			START/US EPA	
Runstrom, Steve			Avery/Enbridge	Operations Inspector
Rutherford, James			Calhoun County Health	MAC
Sahara, Dean			SWAT/Enbridge	Operations
Sarkipato, Ernie			DEQ	
Saylor, Andy			SET/Enbridge	
Schmitt, Ben			DEQ	Operations
Schneider, Dave			Kalamazoo County	MAC
Schoeff, Alison			AECOM/Enbridge	Water Monitoring Supervisor
Shattuck, Terri			Weston/DEQ	Operations
Smith, Brian			Tulsa/ Enbridge	Overbank Excavation Field Inspector
Snider, Jim			Enbridge	Environment Director
Sobojinski, John			Enbridge	Incident Commander
Spates, Jack			Avery/Enbridge	Operations
Spruit, Jeff			DEQ	Environment
St. Onge, Greg			LBG/Enbridge	O&M
Standen, Joe			LBG/Enbridge	River Opening Implementation
Steede, Bob			Enbridge	DOSC
Stiemsma, Bryan			AECOM/Enbridge	Environment Supervisor
Stuart, Mike			START/US EPA	Safety Officer
Sulaiman, Tik			START/US EPA	GIS Specialist
Sumner, Matt			AECOM/Enbridge	Environment
Taft, Bill			DEQ	Wildlife Environmental NRDA Group
Thomas, Brittany			START/US EPA	Finance
Thompson, Doug			DEQ	
Torres, Jason			START/US EPA	GIS Specialist
Underhill, Kevin			Enbridge	Environment
Ushio, Miako			AECOM/Enbridge	Talmadge Creek Remediation Lead
Vail, Linda			Kalamazoo County Health	MAC
Valenza, James			START/US EPA	GIS Specialist
VanWagner, Elmer			Weston/DEQ	Operations
Vega, Sonia			US EPA	Deputy Incident Commander
Victory, Joe			START/US EPA	DOSC
Vilhauer, Eric			Enbridge	ROW Agent
Vosburg, Cheryl			City of Marshall	MAC
Wagner, Greg			START/US EPA	Submerged Oil Recovery
Wahrer, Marc			START/US EPA	Operations
Wallace, John			Avery/Enbridge	Operations Inspector
Watt, Tammy			Enbridge	Finance
Webb, Oliver			SWAT/Enbridge	Control Point Management
Weir, Karen			START/US EPA	
Wekseth, Mike			SWAT/Enbridge	Operations Inspector
Wellman, John			START/US EPA	Operations
Wessling, Elizabeth			START/US EPA	PSC
Williams, Lisa			USFWS	
Wilson, Lee			Weston/DEQ	Operations
Wiswell, Amber			Kelly Services/Enbridge	Admin. Assistant
Wolf, Mike			AECOM/Enbridge	Monitoring
Wolfe, Stephen			US EPA	Deputy Incident Commander
Yokom, Brett			Trimedia/Enbridge	Environment
Zahner, Dan			START/US EPA	Operations
Zambetis, Mike			Cardno JFNEW/Enbridge	Restoration
Zanter, Paul			US EPA	Logistics
Zelt, Ron			USGS	Environmental Unit Leader Assistant

Prepared by:
Matt Hetzner

Email Corrections To
matt.hetzner@enbridge.com

DATE /TIME
6/4/20122:41 PM

Enbridge Oil Spill Incident - Campbell ICP, Marshall, MI
U.S. EPA Trailer Phone Directory

Trailer No.	Trailer Designations	Phone Number	Ext No.
1	Deputy IC Office (SW)	269-781-1995	11995
1	IC Fax Line	269-781-1110	11127
1	IC Conference Area	269-781-1026	11026
1	Operations Section Chief	269-781-1994	11994
1	Health & Safety (West End)	269-781-1991	11991
2	Work Room (NW)	269-781-1955	11955
2A	Large Conference Room (MID)	269-781-1591	11591
2B	Conference Room (NE)	269-781-1954	11954
3	MDEQ Field Trailer	269-781-1953	11953
3	MDEQ Documentation	269-781-1951	11951
4	Operations	269-781-1958	11958
4	Operations	269-781-1971	11971
4	River Opening	269-781-1972	11972
7	Copy Center	No Phone	
8	Logistics	269-781- 1997	11997
8	EPA Hotline	269-781-1992	11992
8	Weston IC (East End)	269-781-1988	11988
9	Planning	269-781-1015	11015
9	EPA Documentation	269-781-1905	11905
9	GIS	269-781-1018	11018
9	Environmental Unit	269-781-1019	11019
9	Conference Room	269-781-1963	11963
9	Wate Management Branch	269-781-1955	11955
9	Environmental Unit (USGS)	269-781-1582	11582
9	PIO	269-781-1587	11587
10	MDEQ-WRD	269-781-1014	11014
10	MDEQ-WRD	269-781-1023	11023
10	MDEQ-WRD	269-781-1022	11022
11	MDEQ-RD & Weston	269-781-1024	11024
11	MDEQ-RD & Weston	269-781-1012	11012
11	MDEQ-RD & Weston	269-781-1013	11013
Indoor	Weston Indoor Area	269-781-1961	11961

To dial between trailers, use the extension number, 1-1997 for Logistics

To place a conference call within the VOIP network, dial first number, select button under "more", scroll down to Confrm and select. Dial next number, press confirm again to connect all. Repeat steps to connect more numbers.

Repeat the same steps to conference in one outside line.

MEDICAL PLAN ICS – 206	Kalamazoo River/Enbridge Spill	1. Date Prepared 6/06/2012	2. Time Prepared 0800	3. Operational Period 06/07/2012 0700 06/14/2012 0700

4. Transportation

Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
Lifecare Ambulance	330 West Hamblin Avenue, Battle Creek, MI 49015	9-1-1	X	
City of Marshall Fire Dept	323 West Michigan Avenue, Marshall, MI 49068	9-1-1	X	

5. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Bronson Methodist Hospital	601 John Street Kalamazoo, MI	15 Min	50 min	269-341-7654	X		X	
Borgess Medical Center	1521 Gull Road Kalamazoo, MI	15 min	50 min	269-226-7000	X			X
Oaklawn Hospital	200 N. Madison Ave Marshall, MI		5 min	269-781-4271		X		X
Battle Creek Health System	300 North Avenue Battle Creek, MI		20 min	269-966-8000		X		X

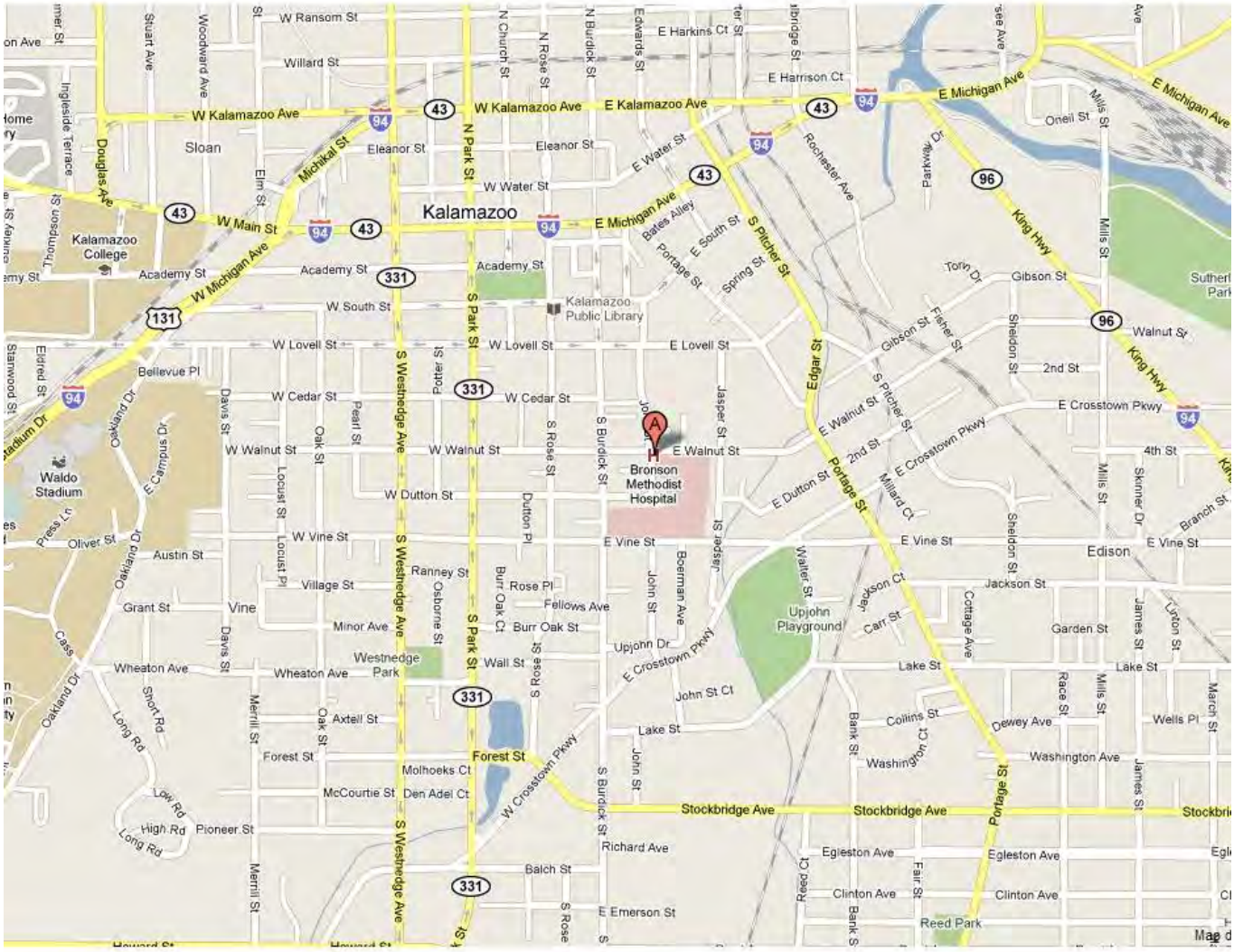
6. Medical Emergency Procedures

1. Dial 9-1-1 for all emergencies. Give 9-1-1 operators as much information as possible. Stay on the line and answer all questions – information may be radioed to responders. On-site personnel trained and certified in first aid should attempt to stabilize victim until fire department/EMS personnel arrive.
2. Report all incidents to the Project Safety Officer. Keep a log of events. Secure the area. Identify witnesses for later investigation.

NOTE: Suspend all operations during an actual emergency situation!

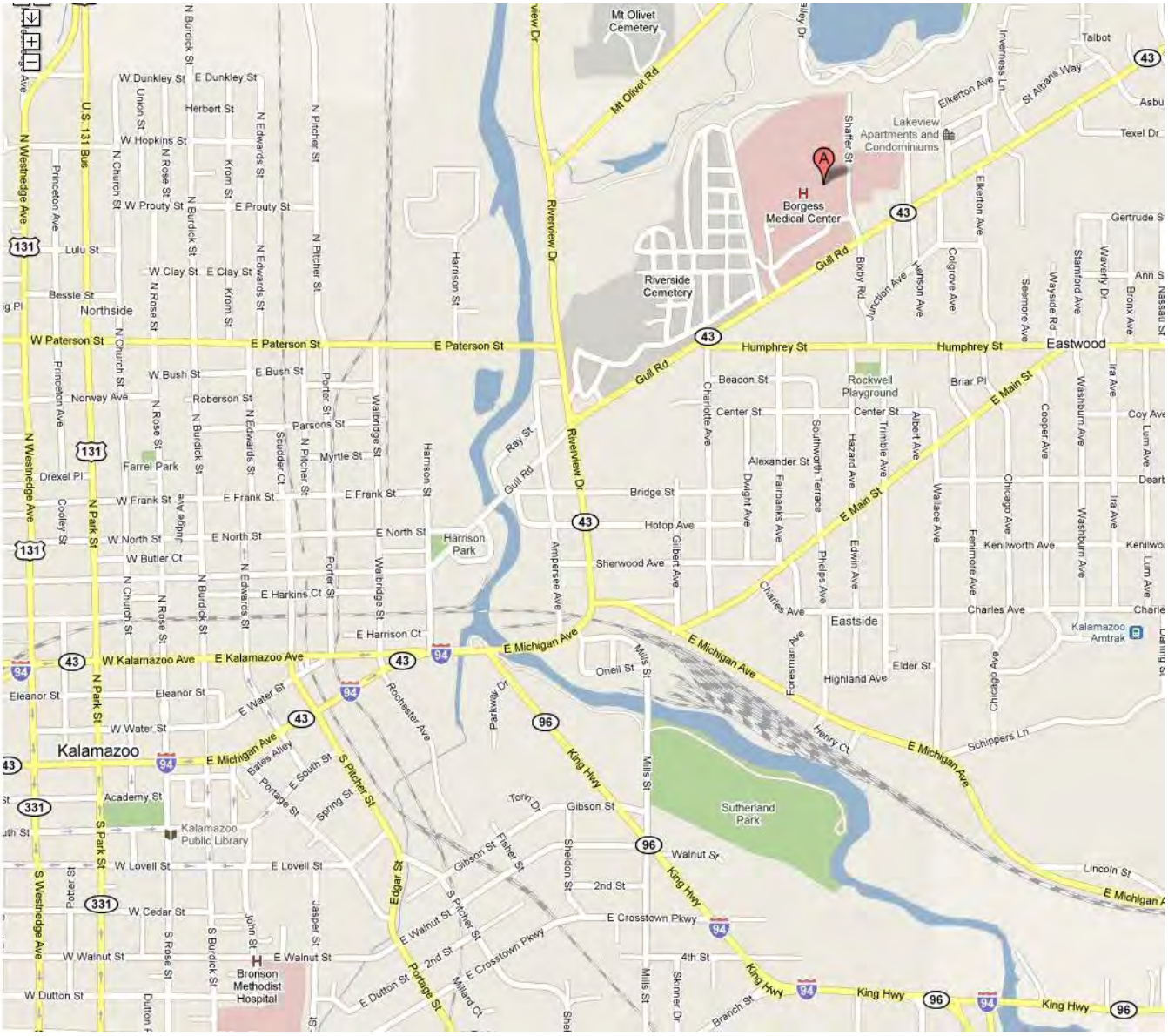
Prepared by	10. Reviewed by (Safety Officer)
Dale Gross 6/06/2012	Dale Gross 6/06/2012

Hospital Route Map – Bronson Methodist Hospital – Kalamazoo, MI



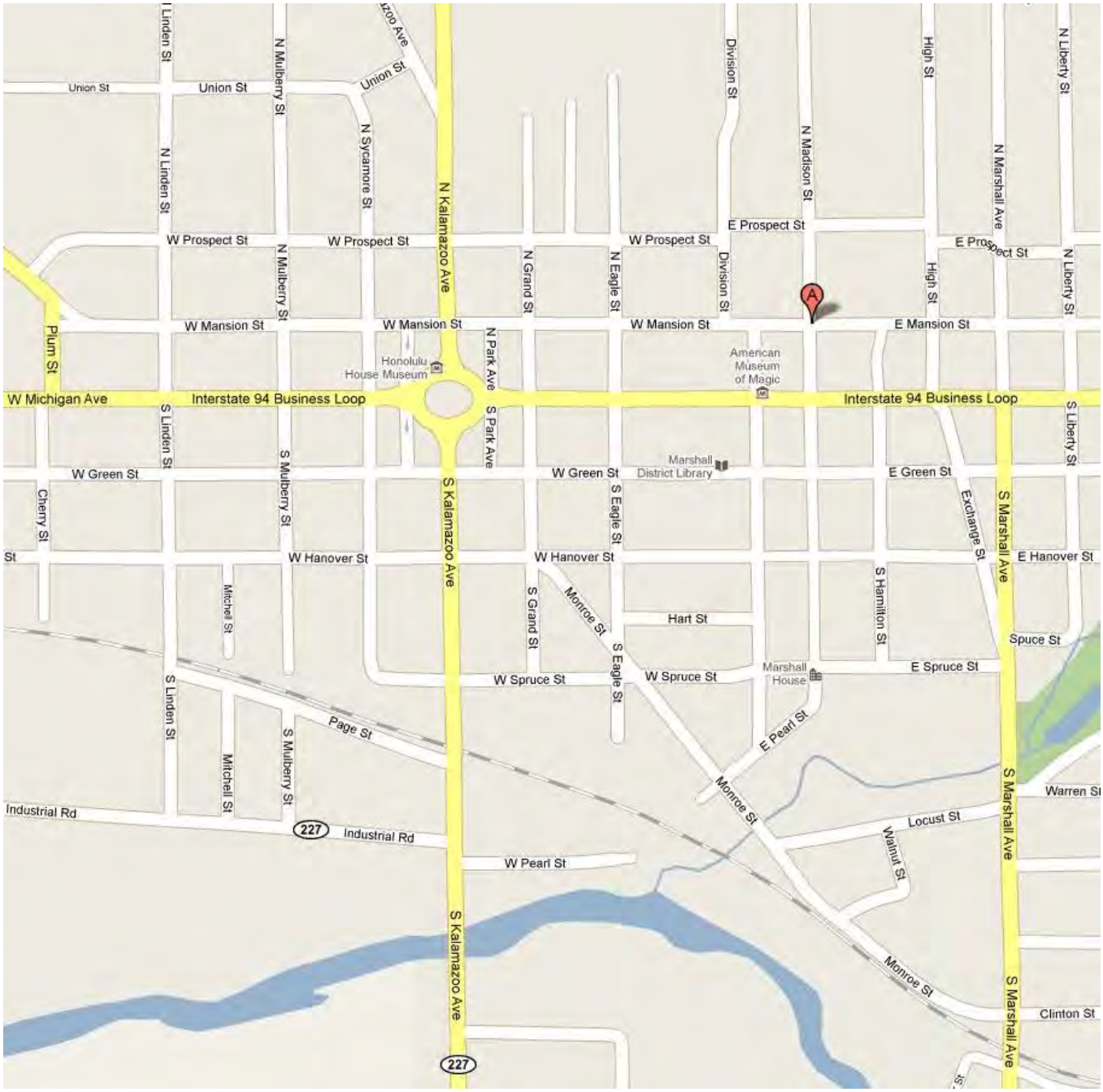
Bronson Methodist Hospital
601 John St
Kalamazoo, MI 49007
(269) 341 - 7979

Hospital Route Map – Borgess Medical Center – Kalamazoo, MI



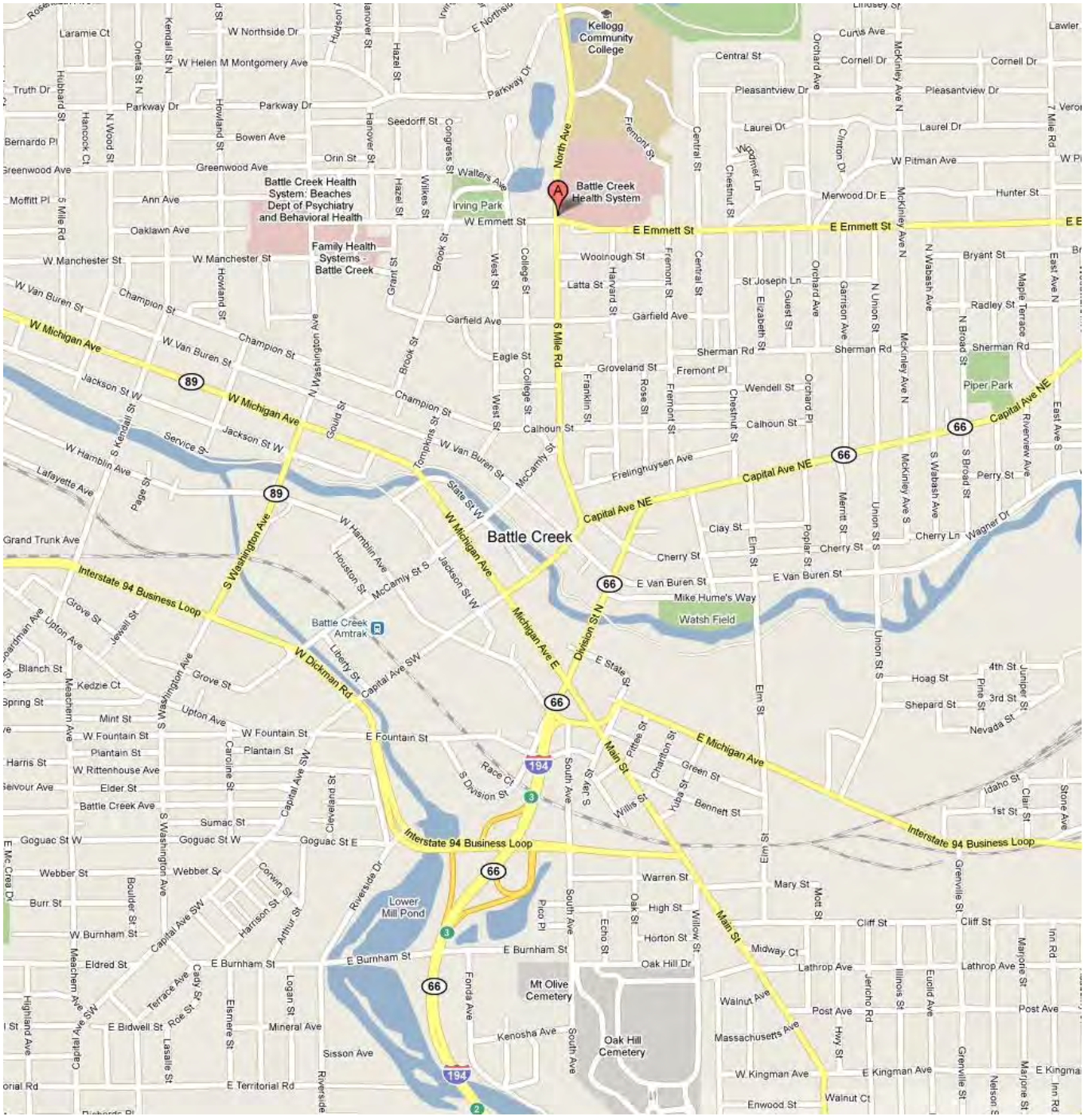
Borgess Medical Center
1521 Gull Road
Kalamazoo, MI 49048
(269) 226 - 7000

Hospital Route Map – Oaklawn Hospital – Marshall, MI



Oaklawn Hospital
200 North Madison St.
Marshall, MI
(269) 781-4271

Hospital Route Map – Battle Creek Health System – Battle Creek, MI



Battle Creek Health System
300 North Avenue
Battle Creek, MI
(269) 966-8000

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Instructions
Operational Period: 6/7/12 (0700hrs) to 6/14/12 (0700hrs)

River Opening: Be advised that the Kalamazoo River between MP – 2.75 and MP 2.25 has been opened to the public. Public recreational activities are to be expected on the river in this segment. Be courteous and respectful to members of the public at all times. Be aware that members of the public may be present in closed segments of the river or work areas.

Weather: Review weather information prior to commencing work each day. Be aware of changes in the weather conditions and ensure proper controls are implemented to address the weather hazards such as: Cold, Wind, Rain, Ice, Fog, Frost, etc. Take actions in accordance with instructions provided by supervisory personnel and as received through the Call-Em-All and PTT systems.

Sunscreen: Sunscreen should be applied to exposed skin, and not just if you are going to be in the sun. UVB rays cannot penetrate glass windows, but UVA rays can, leaving you prone to these damaging effects if unprotected.

PPE: Be prepared for changing weather conditions by wearing, and/or having available, appropriate cold weather gear and approved safety footwear with appropriate soles for use on slippery ground conditions due to frost, ice and rain. When PFDs are required you must ensure that they are United States Coast Guard approved and are the outermost layer, with reflective vest worn under the PFD.

Vehicles: Follow speed limits and adjust speed as necessary for road conditions. Clear all windows of frost before driving. Make sure your vehicle is in proper working condition.

SPECIAL NOTATION ON WEATHER and HAZARD ALERT MESSAGING:
(See daily updates for additional weather information).

Enbridge Safety will maintain consistent weather messages by compiling information and present through daily briefings. Weather forecast updates will be distributed to field safety staff for further communication in the field. Enbridge Safety is responsible for communicating weather alerts based on information received through the Weather TAP system and text messages received from the National Weather Service in Grand Rapids.

In the event of severe weather warnings and alerts, Enbridge Safety will be monitoring via the Weather TAP system. Enbridge Safety will initiate the notification process by using the Call-Em-All system to Field Safety Staff and Operations. Operations in turn will contact their Operation Field Inspectors. The Operation Field Inspector will communicate the necessary plan with their field work crews. DK Security will be notified by Enbridge Safety by phone from 1800 – 0700 hours.

Severe Weather Alerts: Take appropriate shelter when the county activates their tornado warning sirens. In the Incident Command Post, report to the designated tornado shelter rooms. Where appropriate shelter is not available, lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of potential for flooding and flying debris.

Note: Emergency notification siren systems will be tested on the first (1st) Saturday of each month in Calhoun and Kalamazoo Counties. Typically a siren is sounded at 1200 hours; however, this could be delayed due to current circumstances in the county.

Fire/Building Evacuation Alert: In the event of a fire, utilize air horn to initiate series of three 1 second blasts. Must report to the designated evacuation point upon hearing a series of three 1 second air horn blasts. **Please close all doors, and turn lights out upon leaving your area.**

Call the Safety Office at 269-781-1914 if you have weather related concerns. Call 269-781-1913 for other Safety related issues.

Safety Orientations: Held Monday - Friday at 0800 at the Operations Center (1601 Pratt Avenue)

Boat Safety Awareness Orientation: Available by appointment Monday – Friday, contact the Safety Office.

If you see wildlife (dead or alive) that is impacted by the oil, call Bob Doherty [redacted]

Field Safety Staff	
Name	**Phone**
Red Calvert	[redacted]
Steve Runstrom	
Matt Piescher	

Communication Check: Communication Check will be tested twice a week via the Verizon Push To Talk (PTT) system by Enbridge Safety office on Monday's and Thursday's at 1200 hours.

Call-Em-All: Will be tested by Enbridge Safety office on Wednesday's at 1200 hours.

First Aid Kits: There are four (4) kits located within the Incident Command Post Facility. Please review the Evacuation Plan map for locations.

KALAMAZOO RIVER/ENBRIDGE SPILL
General Safety Message
Operational Period: 6/7/12 (0700hrs) to 6/14/12 (0700hrs)

DAY 1:
Thursday, June 7, 2012

Life Saving Rule #4 – Ground Disturbance

Dig Safely. Always follow procedures for locating, positively identifying and excavating buried facilities. Protect yourself, your community and the environment by protecting our pipelines – ensure that all buried facilities are identified and marked prior to excavation.

By building a strong foundation of safe practices we can protect our most valuable resource – our people.

**** Make certain you know and obey the Enbridge 10-2-1 Rule ****

DAY 2:
Friday, June 8, 2012

Right/Responsibility to Stop Work

Every worker performing any work in/on any work site location has the authority and responsibility to immediately stop unsafe work and at risk behaviors.

A few examples are;

- Working with tools or equipment that have been altered or modified.
- Working in an unsafe manner (horse play, disregard for rules, etc.) that endangers yourself and others.

Regardless of how urgent or important an activity may be, safety, health or environmental protection shall not be compromised.

DAY 3/ DAY 4:
Saturday, June 9 – Sunday, June 10, 2012

Personal Conduct & Community Relations

In the towns of Marshall, Battle Creek, and the surrounding areas, we are visitors to the communities and neighborhoods.

Our work requires us to travel within and between locations, utilize local services, and interact with the citizens of the areas.

It is imperative that we conduct ourselves with the utmost level of respectfulness to the people, the environment, and the law.

Respect Citizens and Their Property including:

- **Merchants**
- **Local Authorities**
- **The General Public**

Drive Safe and Be Courteous

Preserve the Environment

Follow All State and Federal Laws

DAY 5:
Monday, June 11, 2012

Chocking Vehicles and Equipment

Effective chocking practices are important to operator and public safety, and for avoiding unnecessary costs due to damages. A vehicle, trailer, or other mobile equipment moving uncontrollably can have devastating consequences. Chocks prevent the mobile equipment from inadvertently moving. Chocks slide tightly underneath and behind the wheels.

Guidelines for Effective Chocking:

- Attempt to park the equipment on the flattest surface whenever possible.
- Use chocking and blocking in addition to other methods, including the use of the parking brake, parking in gear or turning the wheels into a curb or berm.
- The height, width and length of the chock should be large enough to prevent the mobile equipment from rolling over it. Lay the chocks side-by-side if necessary to cover the width of the tire.
- Do not unhook trailers or equipment without chocking first.

Remember: The heavier the mobile equipment, the lesser the slope required for it to begin to roll.

DAY 6:
Tuesday, June 12, 2012

Hand Tools

- Make certain to choose the correct tool for the job.
- Only use tools that are in good working condition.
- Use all tools properly an only for the task that they were intended. If you don't know how to use a tool ask someone who does to show you how.
- Carry and store tools safely.

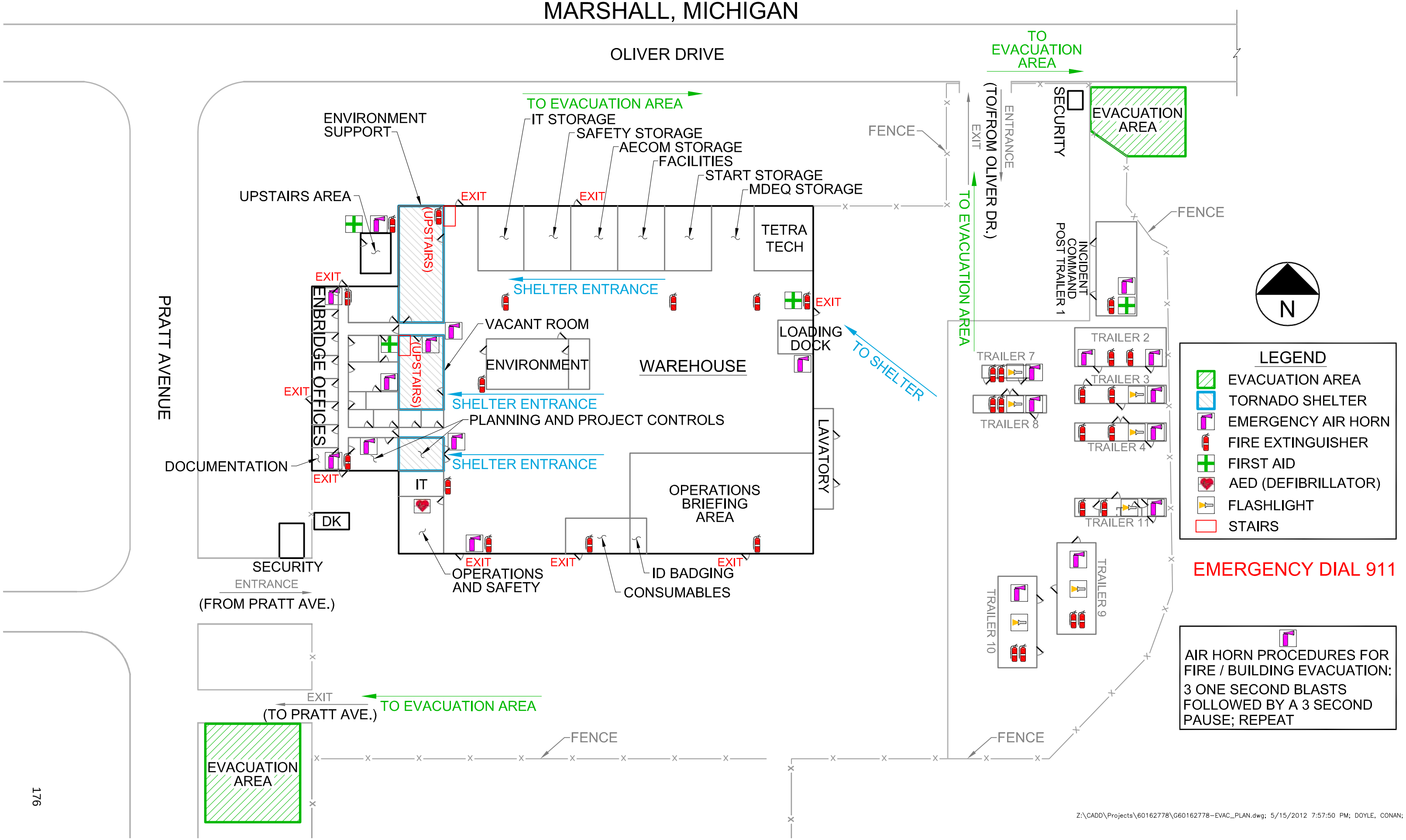
DAY 7:
Wednesday, June 13, 2012

Water Operations & Boat Safety

The boat captain is responsible for the safety of the crew. Enbridge Safety's objective is to minimize potential risks to operators, passengers, and bystanders by:

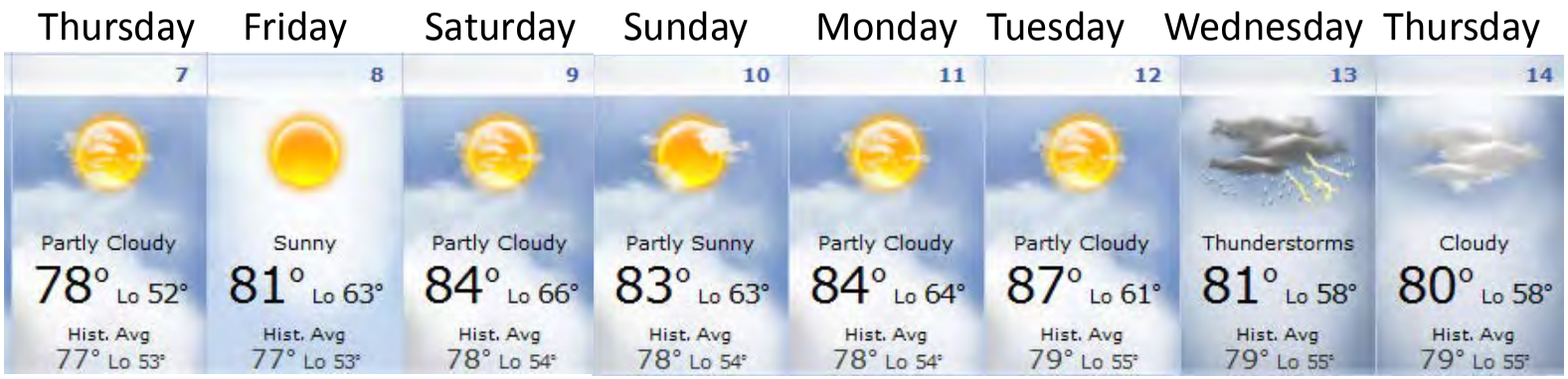
- Ensuring all persons have a general understanding of boating safety.
- Utilizing well defined operations guidelines.
- Ensuring operator competency.
- Performing vessel inspections.
- Conducting passenger briefings.
- Following PPE requirements.
- Inspection of all vessels.

ENBRIDGE INCIDENT COMMAND POST FACILITY
EMERGENCY RESPONSE / EVACUATION PLAN
MARSHALL, MICHIGAN



Z:\CADD\Projects\60162778\G60162778-EVAC_PLAN.dwg; 5/15/2012 7:57:50 PM; DOYLE, CONAN;

Weather Forecast



1. Incident Name	2. Operational Period (Date/Time)	DAILY MEETING SCHEDULE
KALAMAZOO RIVER / ENBRIDGE SPILL RESPONSE	From: June 7, 2012 0700	ICS-230
	To: June 14, 2012 0700	

3. Meeting Schedule (Commonly-held meetings are included)

Date/ Time	Meeting Name	Purpose	Attendees	Location
6/7/2012	**Thursday**			
0700 0730	Operations Briefing	Present IAP for the next Operational Period to All Staff	UC, Command and General Staff, Branch Directors, Div./Grp Sups., Task Force / Strike Team Leaders, Unit Leaders, Field Supervisors, EPA, DEQ, Scribe	Pratt Avenue Warehouse
0900 0945	MAC Meeting	Update MAC with situation metrics, and briefings of common interest.	UC, Command and General Staff, Multi-Agency Coordination Group, Invited attendees	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/8/2012	**Friday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff.	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
0930 0945	Objectives Meeting	Review current objectives and identify objectives for the next Operational Period.	UC, Operations, Safety, Planning, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors.	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/9/2012	**Saturday**			
6/10/2012	**Sunday**			
6/11/2012	**Monday**			
0900 0945	Tactics	Finalize primary and alternate tactics and strategies to achieve UC objectives for the next Operational Period.	Operations, Planning, Safety	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/12/2012	**Tuesday**			
0900 0930	Command and General Staff Meeting	UC presents direction to Command and General Staff.	UC, Command and General Staff, SITL	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1500 1530	Kalamazoo River System Branch Special Purpose Meeting	Coordinate future Kalamazoo River System Branch activities	Kalamazoo River System Branch Directors and Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)
6/13/2012	**Wednesday**			
0900 0915	Planning Meeting	Review tactics and assignments to meet the project Objectives for the next Operational Period.	UC, Command and General Staff, Scribe	UC Meeting Room (Trailer #2)
1100 1200	Submerged Oil Assessment Special Purpose Meeting	Review poling information and sheen tracking information from the field.	Operations Section Chiefs, GIS Support	UC Meeting Room (Trailer #2)
1430 1530	River Opening Media Group Special Purpose Meeting	Coordinate future river opening media activities	River Opening Coordination Directors & Media Group Supervisors	UC Meeting Room (Trailer #2)
1600 1630	Operations Meeting	Summary of daily activities	Operations Section Branch Directors	UC Meeting Room (Trailer #2)

4. Prepared by: Amy Back, Planning Section Chief **Date/Time** 6/6/2012

Line 6B Response

Daily Work Orders

Friday, June 01, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from C 3.2 Boat Launch to MP 13.75 LDB.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Strike locations at 11.25 L1, 11.75 S, and 13.73 LDB.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **D2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Sediment trap monitoring at MP 28.25 and MP 21.50.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from Delta east.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Lake/Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from Delta west (neck).			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from monitoring locations on Morrow Lake.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from C 3.2 Boat Launch to MP 13.75 RDB.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Blake Swartz** **Chad Khodl** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E 0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from MP 20.50 - MP 27.00.			

Date: **6/1/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Karl Schultz** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect poling data from MP 27.00 - MP 32.00.			

Date: **6/1/2012**	**Walling Sediment Collection**	**Task #2.000**	**Team 11 (K)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Joel Davis** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **D 2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Walling sampler replacement.			

Date: **6/1/2012**	**Velocity Measurements Morrow Lake**	**Task #2.000**	**Team 12 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012:			
Collect water velocity measurements in Morrow Lake.			

Kalamazoo River System Branch Work Orders

Date: **6/1/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 13**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Craig Simon**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 1, 2012: **Collect soil cores from MP 11.50 on Enbridge owned property.**			

Line 6B Response

Daily Work Orders

Saturday, June 02, 2012

Table of Contents

Submerged Oil Branch Work Orders 2-3

Submerged Oil Branch Work Orders

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 920-634-5531**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from C 3.2 Boat Launch to MP 13.75 LDB.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Strike locations at 11.75 S, 13.73 LDB, 20.60, 22.06 - 22.10 RDB, and 22.57.			

Date: **6/2/2012**	**Walling Sampling**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Joel Davis**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9** [redacted]	
Starting Field Area: **D2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Replace Walling samplers.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges: 5** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from Delta east.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from Delta west.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from monitoring locations on Morrow Lake.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from C 3.2 Boat Launch to MP 13.75.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Blake Swartz** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from MP 20.50 - MP 27.00.			

Date: **6/2/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Karl Schultz** **Russell Platte:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect poling data from MP 27.00 - MP 32.00.			

Date: **6/2/2012**	**Velocity Measurements Morrow Lake**	**Task #2.000**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 2, 2012:			
Collect water velocity measurements in Morrow Lake.			

Line 6B Response

Daily Work Orders

Tuesday, June 05, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from C 3.2 Boat Launch to MP 13.75.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Strike locations at MP 20.60 and 22.06 - 22.10 RDB.			

Date: **6/5/2012**	**Walling Sampling**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **D4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from Delta central.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from Delta east.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from Delta west.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from monitoring locations on Morrow Lake.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from MP 20.5 - MP 27.00 RDB.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from MP 20.5 - MP 27.00 LDB.			

Date: **6/5/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect poling data from MP 27.00 - MP 32.00.			

Date: **6/5/2012**	**Velocity Measurements Morrow Lake**	**Task #2.000**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012:			
Collect water velocity measurements in Morrow Lake.			

Kalamazoo River System Branch

Date: **6/5/2012**	**Walling Sampling**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 5, 2012: **Collect soil borings on Enbridge owned property.**			

Line 6B Response

Daily Work Orders

Wednesday, June 06, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling locations from MP 27.00 to MP 30.00.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **D4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from Delta and delineate the neck downstream of containment.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 30.00 to MP 33.00.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 30.00 to MP 33.00.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from monitoring locations on Morrow Lake.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 20.5 - MP 27.00 RDB.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 20.5 - MP 27.00 LDB.			

Date: **6/6/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect poling data from MP 27.00 - MP 30.00.			

Date: **6/6/2012**	**Velocity Measurements Morrow Lake**	**Task #2.000**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012:			
Collect water velocity measurements in Morrow Lake.			

Kalamazoo River System Branch

Date: **6/6/2012**	**Kzoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 6, 2012: **Collect soil borings on Enbridge owned property.**			

Line 6B Response

Daily Work Orders

Thursday, June 07, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal [redacted]** **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 20.00 to MP 27.00.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9[redacted]1**	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling locations from MP 32.50 to MP 35.25 RDB.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson[redacted]**	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from Delta and delineate the neck downstream of containment.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from upstream of Kalamazoo River Dam.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges:[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 30.00 to MP 32.50 RDB.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 30.00 to MP 32.50.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 35.25 to 35th street bridge.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 20.5 - MP 27.00 RDB.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 20.5 - MP 27.00 LDB.			

Date: **6/7/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect poling data from MP 32.50 to MP 35.25 LDB.			

Date: **6/7/2012**	**Velocity Measurements Morrow Lake**	**Task #2.000**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012:			
Collect water velocity measurements in Morrow Lake.			

Kalamazoo River System Branch

Date: **6/7/2012**	**Source Area Assessment**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
	Poling Lead: **Joel Davis**		
Meeting Location: **0800 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **Source Area**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**	
Proposed Work for June 7, 2012: **Source area assessment.**			

Line 6B Response

Daily Work Orders

Friday, June 08, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 20.00 to MP 27.00.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling locations from MP 32.50 to MP 35.25 RDB.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from Delta and delineate the neck.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 30.00 to MP 32.50 RDB.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 30.00 to MP 32.50 LDB.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 35.25 to 35th street bridge.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 20.5 - MP 27.00 RDB.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 20.5 - MP 27.00 LDB.			

Date: **6/8/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012:			
Collect poling data from MP 32.50 to MP 35.25 LDB.			

Kalamazoo River System Branch

Date: **6/8/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark** Poling Lead: **Joel Davis**		
Meeting Location: **0800 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **Source Area**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**	
Proposed Work for June 8, 2012: **Source area assessment.**			

Line 6B Response

Daily Work Orders

Saturday, June 09, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Keith Payne**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 22.00 to MP 27.00 delineations.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling locations from MP 32.50 to MP 35.25 RDB.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from Delta.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam delineations.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 30.00 to MP 32.50 RDB.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 30.00 to MP 32.50 LDB.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 35.25 to 35th Street Bridge.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 35.25 to 35th Street Bridge.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 22.75 - MP 27.00 Delineations.			

Date: **6/9/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 9, 2012:			
Collect poling data from MP 32.50 to MP 35.25 LDB.			



Line 6B Response

Daily Work Orders

Monday, June 11, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal [redacted] Joel Davis**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9[redacted]**	
Starting Field Area: **C5/D2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Complete delineations not completed on Saturday June 9, 2012 by Team D.			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson Eric Celebreeze:[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson[redacted]**	
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Strike 22.06 RDB – 22.10			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Target Locations in sediment traps – 10.75, 14.75, 19.25, 21.5, 28.25 and 36.10.			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke Matt Stebbens[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Collect poling data from MP 13.75 to Kalamazoo River Dam delineations.			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans Luke Hodges:[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **E4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Delineations MP 30 – 35th Street Bridge			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale Amber McDougle[redacted]**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:[redacted]**	
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Ceresco to (MP 5.85) to 13.75			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Lake Monitoring			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
23.26 RDB and recon 24.55 RDB			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Delineations MP 20.5 to 30 LDB			

Date: **6/11/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 11, 2012:			
Delineations MP 30 – 35th Street Bridge			

Kalamazoo River System Branch

Date: **6/11/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 11**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0800 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **MP 11.50**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**	

Proposed Work for June 11, 2012:

The RI will continue at MP 11.5.

Date: **6/11/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Nate Hehir**		
Meeting Location: **0800 at ICP**	Project Lead: **Brian Albig**		
Starting Field Area: **ICP 0800**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**	

Proposed Work for June 11, 2012:

Monitor well installation at the Cereco Dam site



Line 6B Response

Daily Work Orders

Tuesday, June 12, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Joel Davis**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling at locations which were previously below 60 degrees in temperature.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct strike poling at MP 24.55.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **D2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Target Locations in sediment traps – 19.25, 21.5, 28.25 and 36.10.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling at locations in the Mill Ponds for further delineation.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling at locations which were previously below 60 degrees in temperature.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Morrow Lake Monitoring, round 17.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9** [redacted]	
Starting Field Area: **E0.5 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct strike poling at MP 24.55.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Date: **6/12/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 12, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Kalamazoo River System Branch

Date: **6/12/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 11**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0800 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **MP 11.50**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**	

Proposed Work for June 12, 2012:

The RI will continue at MP 11.5.

Line 6B Response

Daily Work Orders

Wednesday, June 13, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Neal:** [redacted] **Joel Davis**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling at locations which were previously below 60 degrees in temperature.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct strike poling at MP 25.41.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Erric Recci** **Colin McGuire**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Target Locations in sediment traps – 21.5, 28.25 and 36.10.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Kelly Lemke** **Matt Stebbens:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **C5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling at locations in the Mill Ponds for further delineation.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Weldon Evans** **Luke Hodges** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Loran LaSale** **Amber McDougle** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling at locations which were previously below 60 degrees in temperature.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Morrow Lake Monitoring, round 17.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E0.5 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct strike poling at MP 25.41.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Date: **6/13/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 13, 2012:			
Conduct poling in the Morrow Lake Delta locations and delineations.			

Kalamazoo River System Branch

Date: **6/13/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 11**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP (Team Lead)**	Project Lead: **Brian Albig**		
Starting Field Area: **MP 13.40**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 13, 2012:

The team will collect soil cores from MP 13.40 .

Line 6B Response

Daily Work Orders

Thursday, June 14, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/14/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Eric Oleson** **Eric Celebreeze** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson: 9** [redacted]	
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

Team will assist with ring tests at MP 25.41.

Date: **6/14/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Mike Bigsby** **Guenter Miller** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

Morrow Lake Monitoring, round 17.

Date: **6/14/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Roy Wagner** **Matt Hanson** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E0.5 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

Team will assist with ring tests at MP 25.41.

Date: **6/14/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Frank Ronguillo** **Chad Khodl:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

Conduct poling in the Morrow Lake Delta locations and delineations.

Date: **6/14/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead:	**Alex Thibeault** **Russell Platte:** [redacted]	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

Conduct poling in the Morrow Lake Delta locations and delineations.

Date: **6/14/2012**	**Velocity Measurements in Morrow Lake**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**

Proposed Work for June 14, 2012:

Collect water velocity measurements on Morrow Lake.

Kalamazoo River System Branch

Date: **6/14/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **MP 13.40**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 14, 2012:

The team will collect soil cores from MP 13.40 .



Line 6B Response

Daily Work Orders

Friday, June 15, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct poling at locations which were previously below 60 degrees from MP 25.18 to MP 30.00.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct strike poling at MP 22.10 RDB and ponds at E0.5 boat launch.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Target Locations in sediment traps at MP 21.50 and MP 36.10.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C0.4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct ring test at MP 4.30 South.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct poling at locations which were previously below 60 degrees from MP 27.50 to 35th Street Bridge.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct poling at locations which were previously below 60 degrees from MP 25.18 to MP 30.00.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Morrow Lake Monitoring, round 17.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Roy Wagner**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct strike poling at MP 27.52 RDB, MP 27.34 RDB, and MP 28.42 RDB.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Frank Ronguillo**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct poling at locations which were previously below 60 degrees from MP 27.50 to 35th Street Bridge LDB.			

Date: **6/15/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 15, 2012:			
Conduct poling at locations which were previously below 60 degrees from MP 27.50 to 35th Street Bridge.			

Date: **6/15/2012**	**Water Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 15, 2012:		
Collect water velocity measurements in Morrow Lake.		

Kalamazoo River System Branch

Date: **6/15/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 11**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP (Team Lead)**	Project Lead: **Brian Albig**		
Starting Field Area: **MP 13.40**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	

Proposed Work for June 15, 2012:

The team will collect soil cores from MP 13.40 .

Line 6B Response

Daily Work Orders

Saturday, June 16, 2012

Table of Contents

Submerged Oil Branch Work Orders 2-3

Submerged Oil Branch Work Orders

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct poling from MP 27.50 to 35th Street Bridge.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct strike poling at MP 28.75, MP 28.85, and MP 28.80, and MP 32.15.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Target Locations in sediment traps at MP 36.10.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson: 9** [redacted]		
Starting Field Area: **C0.4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct ring test at MP 4.30 South, MP 9.15, MP 13.35, MP 13.63, and MP 13.73.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E3 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Delta delineations.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct strike poling at MP 28.61, MP 28.60, and MP 28.75.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Morrow Lake Monitoring, round 17.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Roy Wagner**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct strike poling at MP 28.61, MP 28.60, and MP 28.75.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kevin Hammond**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct strike poling at MP 28.75, MP 28.85, and MP 28.80, and MP 32.15.			

Date: **6/16/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C0.4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 16, 2012:			
Conduct ring test at MP 4.30 South, MP 9.15, MP 13.35, MP 13.63, and MP 13.73.			

Date: **6/16/2012**	**Water Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 16, 2012:		
Collect water velocity measurements in Morrow Lake Delta.		

Line 6B Response

Daily Work Orders

Monday, June 18, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct poling from MP 27.50 to 35th Street Bridge.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct strike poling at MP 28.80 and MP 32.15.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Delta delineations.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct ring test at MP 13.35, MP 13.63, and MP 13.73.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Delta delineations.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct strike poling at MP 28.60, and MP 28.75.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Morrow Lake Monitoring, round 18.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Roy Wagner**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct strike poling at MP 28.60, and MP 28.75.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kevin Hammond**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct strike poling at MP 28.80 and MP 32.15.			

Date: **6/18/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Conduct ring test at MP 13.35, MP 13.63, and MP 13.73.			

Date: **6/18/2012**	**Water Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 18, 2012:		
Collect water velocity measurements in Morrow Lake Delta.		

Kalamazoo River System Branch

Date: **6/18/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Jon Stark**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 18, 2012:			
Collect soil cores on Enbridge owned properties at MP 7.50.			

Date: **6/18/2012**	**Ceresco Monitor Well Installation**	**Team 13**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Nate Hehir**	
Meeting Location: **0800 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **Ceresco Dam**	Field Work Start Time: **1000**	Field Work Stop Time: **1900**
Proposed Work for June 18, 2012:		
Monitor well installation.		

Line 6B Response

Daily Work Orders

Tuesday, June 19, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct poling from MP 20.50 to 35th Street Bridge and MP 18.25 to MP 18.75.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E3 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct strike poling between MP 32 and 35th Street Bridge.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Ring test locations between MP 29.00 and 35th Street Bridge.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Ring test locations at MP 9.00, MP 14.00, and MP 21.50 to MP 29.00.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct poling in Morrow Lake Delta.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct poling from MP 20.50 to 35th Street Bridge.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Morrow Lake Monitoring, round 18.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Roy Wagner**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct poling from MP 20.50 to 35th Street Bridge.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kevin Hammond**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E3 Boat Lauch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct strike poling between MP 32 and 35th Street Bridge.			

Date: **6/19/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012:			
Conduct poling from MP 7.00, MP 9.00, and between MP 11.25 and MP 14.00.			

Date: **6/19/2012**	**Water Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 19, 2012:		
Collect water velocity measurements in Morrow Lake and the Delta.		

Kalamazoo River System Branch

Date: **6/19/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 19, 2012: **Collect soil cores on Enbridge owned properties at MP 7.50.**			

Line 6B Response

Daily Work Orders

Wednesday, June 20, 2012

Table of Contents

Overbank Branch Work Orders	2
Submerged Oil Branch Work Orders	3-4
Kalamazoo River Branch Work Orders	5

Overbank Branch

Date: **6/20/2012**		**Overbank Recovery Group**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **John Wallace**	
Meeting Location: **0700 at Ceresco Dam**	Project Lead: **Jack Spates**	
Starting Field Area: **Ceresco Dam**	Field Work Start Time: **0730**	Field Work Stop Time: **1900**

Proposed Work for June 20, 2012:

Overbank scrape in support of the Ceresco Dam Portage Legacy project.

Submerged Oil Branch Work Orders

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Conduct bathymetry bathy points between 20.5 and 26.25			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E3 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Conduct remaining strike locations in 36.45 and 36.37LDB			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Ring test locations between MP 34 and 35th street bridge			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Ring test locations between 21.5 and 29.0			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Collect bathymetry points between 15.22 and 20.5			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Amber McDoogle**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Collect bathymetry points between 35.87 and 21.85			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Morrow Lake Monitoring			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Assist team B at 36.37LDB and 36.45N			

Date: **6/20/2012**	**ing Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name:	Team Lead:		
Meeting Location:	Project Lead:		
Starting Field Area:	Field Work Start Time:	Field Work Stop Time:	
Proposed Work for June 20, 2012:			
Stand Down			

Date: **6/20/2012**	**/ater Velocity Measurements**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 20, 2012:		
Collect bathymetry points between 9.0 and 15.22		

Date: **6/20/2012**	**/ater Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 20, 2012:		
Collect water velocity measurements in Morrow Lake		

Kalamazoo River System Branch

Date: **6/20/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Collect soil cores on Enbridge owned properties at MP 7.50.			

Line 6B Response

Daily Work Orders

Wednesday, June 20, 2012

Table of Contents

Submerged Oil Branch Work Orders	2-3
Kalamazoo River Branch Work Orders	4

Submerged Oil Branch Work Orders

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 1 (A)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Joel Davis**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Conduct bathymetry bathy points between 20.5 and 26.25			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 2 (B)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Eric Oleson**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E3 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Conduct remaining strike locations in 36.45 and 36.37LDB			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 3 (C)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Colin McGuire**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Ring test locations between MP 34 and 35th street bridge			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson** [redacted]		
Starting Field Area: **C3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Ring test locations between 21.5 and 29.0			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 5 (E)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Weldon Evans**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave** [redacted]		
Starting Field Area: **E4 Delta Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Collect bathymetry points between 15.22 and 20.5			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 6 (F)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Amber McDoogle**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Collect bathymetry points between 35.87 and 21.85			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Morrow Lake Monitoring			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 8 (H)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Steve Pilcher**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]		
Starting Field Area: **E0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012:			
Assist team B at 36.37LDB and 36.45N			

Date: **6/20/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 9 (I)**
Work Site Name:	Team Lead:		
Meeting Location:	Project Lead:		
Starting Field Area:	Field Work Start Time:	Field Work Stop Time:	
Proposed Work for June 20, 2012:			
Stand Down			

Date: **6/20/2012**	**Water Velocity Measurements**	**Team 10 (J)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Richard Buckmaster**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 20, 2012:		
Collect bathymetry points between 9.0 and 15.22		

Date: **6/20/2012**	**Water Velocity Measurements**	**Team 11 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Dave Richardson:** [redacted]	
Starting Field Area: **E4 Lake Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 20, 2012:		
Collect water velocity measurements in Morrow Lake		

Kalamazoo River System Branch

Date: **6/20/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team 12**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 20, 2012: **Collect soil cores on Enbridge owned properties at MP 7.50.**			

Line 6B Response

Daily Work Orders

Thursday, June 21, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/21/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 21, 2012:			
Collect Bathymety data from MP 20.5 to E0.5.			

Date: **6/21/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 21, 2012:			
Collect Bathymety data from MP 20.5 to E0.5.			

Date: **6/21/2012**	**Water Velocity Measurements**		**Team 10 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson:** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 21, 2012:			
Collect water velocity measurements in River.			

Kalamazoo River System Branch

Date: **6/21/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team RR**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 21, 2012: **Collect soil cores in vicinity of MP 6.50.**			

Line 6B Response

Daily Work Orders

Friday, June 22, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/22/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 4 (D)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Kelly Lemke**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 22, 2012:			
Collect Bathymety data.			

Date: **6/22/2012**	**Poling Reassessment Spring 2012**	**Task #1.000**	**Team 7 (G)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Bigsby**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 22, 2012:			
Collect Bathymety data.			

Date: **6/22/2012**	**Water Velocity Measurements**		**Team 10 (V)**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Mike Reed**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead:	**Dave Richardson** [redacted]	
Starting Field Area: **E 0.5 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 22, 2012:			
Collect water velocity measurements in River.			

Kalamazoo River System Branch

Date: **6/22/2012**	**Kalamazoo Remedial Investigation**	**Task #6.000**	**Team RR**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**		
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**		
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**	
Proposed Work for June 22, 2012: **Collect soil cores in vicinity of MP 6.50.**			



Line 6B Response

Daily Work Orders

Monday, June 25, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/25/2012**	**Morriw Lake & Delta Monitoring**	**Team 1**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Russell Platte**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 25, 2012:		
Conduct poling at Morrow Lake and Morrow Lake Delta monitoring locations.		

Date: **6/25/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 2**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Amber McDougle**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner** [redacted]	
Starting Field Area:	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 25, 2012:		
Collect oil globules and heavy sheen from location on the Kalamazoo River.		

Date: **6/25/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 3**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Ted Reckers**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner** [redacted]	
Starting Field Area:	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 25, 2012:		
Collect oil globules and heavy sheen from location on the Kalamazoo River.		

Kalamazoo River System Branch

Date: **6/25/2012**	**Kalamazoo Remedial Investigation**	**Team 4**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 25, 2012: **Collect soil cores in vicinity of MP 6.50.**		

Line 6B Response

Daily Work Orders

Tuesday, June 26, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/26/2012**	**Morrow Lake & Delta Monitoring**	**Team 1**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Russell Platte**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 26, 2012:		
Conduct poling at Morrow Lake and Morrow Lake Delta monitoring locations.		

Date: **6/26/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 2**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Amber McDougle**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **TBD at Morning Briefing**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 26, 2012:		
Collect oil globules and heavy sheen from location on the Kalamazoo River.		

Date: **6/26/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 3**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Ted Reckers**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **TBD at Morning Briefing**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 26, 2012:		
Collect oil globules and heavy sheen from location on the Kalamazoo River.		

Kalamazoo River System Branch

Date: **6/26/2012**	**Kalamazoo Remedial Investigation**	**Team 4**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 26, 2012: **Collect soil cores around MP 9.25.**		

Line 6B Response

Daily Work Orders

Wednesday, June 27, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/27/2012**	**Morrow Lake & Delta Monitoring**	**Team 1**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Russell Platte**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 27, 2012:		
Conduct poling at Morrow Lake and Morrow Lake Delta monitoring locations.		

Date: **6/27/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 2**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Amber McDougle**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner** [redacted]	
Starting Field Area: **Battle Creek River**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 27, 2012:		
Collect oil globules and heavy sheen from location on the Battle Creek River.		

Date: **6/27/2012**	**Oil Globule & Heavy Sheen Collection**	**Team 3**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Ted Reckers**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **Above Confluence**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 27, 2012:		
Collect oil globules and heavy sheen from location on the Kalamazoo River.		

Kalamazoo River System Branch

Date: **6/27/2012**	**Kalamazoo Remedial Investigation**	**Team 4**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 27, 2012: **Collect soil cores around MP 7.00 Island and LDB.**		

Line 6B Response

Daily Work Orders

Thursday, June 28, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/28/2012**	**Morrow Lake & Delta Monitoring**	**Team 1**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Russell Platte**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 28, 2012:		
Conduct poling at Morrow Lake Delta monitoring locations.		

Kalamazoo River System Branch

Date: **6/28/2012**	**Kalamazoo Remedial Investigation**	**Team 2**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 28, 2012: **Collect soil cores around MP 7.00 LDB.**		

Line 6B Response

Daily Work Orders

Friday, June 29, 2012

Table of Contents

Submerged Oil Branch Work Orders	2
Kalamazoo River Branch Work Orders	3

Submerged Oil Branch Work Orders

Date: **6/29/2012**	**Morrow Lake & Delta Monitoring**	**Team 1**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Russell Platte**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Matt Sumner:** [redacted]	
Starting Field Area: **E 4 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 29, 2012:		
Conduct poling at Morrow Lake Delta monitoring locations.		

Kalamazoo River System Branch

Date: **6/29/2012**	**Kalamazoo Remedial Investigation**	**Team 2**
Work Site Name: **Marshall, Line 6B Response**	Team Lead: **Reed Rector**	
Meeting Location: **0700 at ICP for Morning Briefing**	Project Lead: **Brian Albig**	
Starting Field Area: **C 3.2 Boat Launch**	Field Work Start Time: **0900**	Field Work Stop Time: **1900**
Proposed Work for June 29, 2012: **Collect soil cores around MP 7.00 LDB.**		

ANALYTICAL REPORT

Prepared for:
AECOM
250 Apollo Drive
Chelmsford, MA 01824

Project:	Enbridge Line 6B MP 608
ETR:	1204031
Report Date:	May 09, 2012

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

Sample ID Cross Reference

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**

Lab Sample ID	Client Sample ID
1204031-01	SEKR1934L013S041912D005
1204031-02	SEKR0900I3004S041912D005
1204031-03	SEKR1934L013S041912P005
1204031-04	SEKR0900I3004S041912P005
1204031-05	SEKR0900I3004D041912P005
1204031-06	SEKR0900I3004S042012H005
1204031-07	SEKR0900I3004DS042012H005
1204031-08	SEKR1934L013S042012H005

Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624).

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

CASE NARRATIVE
Alpha Analytical

ETR: 1204031
Project: Enbridge Line 6B MP 608

All analyses were performed according to the Alpha Analytical quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Analytical certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Sample Receipt

Samples (1204031-01 through -08) were received in good condition, between 2° and 6°C, and without discrepancies.

Samples were released for analysis on 4-20-2012. Samples were frozen until scheduled for analysis. Per the customer's request, all samples (1204031-01 through -08) were analyzed for PAH, BIO and SHC.

Sample Preparation and Extraction

Samples 1204031-01 and -02 were extracted on 4-30-2012 (prep batch 1204031_35SED). Samples 1204031-03 through -08 were extracted on 5-01-2012 (prep batch 1204031_35sheen).The extraction and preparation procedure was performed according to the Alpha Analytical SOP (stated below) but with the following deviation:

1. The extraction for samples 1204031-01 and -02 was performed on a smaller sample size than the method specified representative sample due to a strong hydrocarbon odor. In addition, these samples were spiked with five times the amount of surrogate due to the potentially high levels of petroleum present.

2. Duplicate precision is measured with this prep batch but performed and reported on a sample from another ETR 1204035.

The observations noted on the *Forensic Preparation Checklist* should neither have any adverse affect on the analysis nor should they impact data quality for samples in this ETR.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - Sediments

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP O-008, Issue No. 7, 07/07/2011).* Sediment samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to a 4mL volume. An aliquot of the extract based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011)* is processed through an alumina column (*Alumina Column Cleanup of Organic Extracts, SOP OP-009, Issue No. 3, 07/14/2011*), concentrated to a 900uL volume and spiked with internal standard for instrument analysis. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques.

Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. The method blank S043012B07 contained low-level target compounds. The single component compounds were detected at less than 5x the sample specific method detection limit (MDL), the multi-component compounds were detected at less than 10x the MDL of the associated single component compound. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

3. The standard reference material (SRM) 1941b was inadvertently not extracted with the sediment samples; therefore no SRM is included in this data package.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - GLOB/Sheen

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP 2247, Rev. 2, 04/02/2012).* GLOB and sheen samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to an appropriate volume based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011).* The total extract oil weight as determined by gravimetric weighing is used as the weight for the GLOB samples. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific reporting limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. The method blank SO050112B01 contained low-level target compounds. The single component compounds were detected at less than the sample specific reporting limit (RL), the multi-component compounds were detected at less than 2x the RL of the associated single component compound. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

3. Sheen samples are reported, using an initial amount of one, as ng (per sample).

4. The Alaska North Slope Crude reference oil (SO050512ANS02) analyzed with the samples has the % recovery of Benzo[g,h,i]perylene above the 135% acceptance criteria at 143%. Since this was the only compound outside criteria no further corrective action was taken.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - Sediments

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The method blank SS043012B07 contained low-level target compounds detected at less than 5x the sample specific method detection limit (MDL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - GLOB/Sheen

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.The method blank SO050112B01 contained low-level target compounds detected at less than 5x the sample specific method detection limit (MDL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The method blank SO050112B01 contained low-level target compounds detected at less than the sample specific reporting limit (RL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Analytical makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Analytical. To the best of my knowledge, the information contained

in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: Susan E O'Neil Title: **Project Manager** Date: 5/22/12

Susan O'Neil

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids By GC/MS-SIM

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SS043012B07	77	88	86	91
LCS	SS043012LCS02	82	91	83	89
LCSD	SS043012LCSD02	77	91	85	91
SEKR1934L013S041912D005	1204031-01	76	97	84	93
SEKR1934L013S041912D005	1204031-01 M	72	89	81	88
SEKR1934L013S041912D005	1204031-01 S	75	90	79	88
SEKR0900I3004S041912D005	1204031-02	69	86	78	86

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **GLOB**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO050112B01	77	83	84	96
LCS	SO050112LCS01	74	77	72	92
LCSD	SO050112LCSD01	80	82	79	95
SEKR1934L013S041912P005	1204031-03	87	93	91	98
SEKR0900I3004S041912P005	1204031-04	75	92	88	97
SEKR0900I3004D041912P005	1204031-05	82	95	90	102

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO050112B01	77	83	84	96
LCS	SO050112LCS01	74	77	72	92
LCSD	SO050112LCSD01	80	82	79	95
SEKR0900I3004S042012H005	1204031-06	83	95	89	114
SEKR0900I3004DS042012H005	1204031-07	85	102	91	119
SEKR1934L013S042012H005	1204031-08	74	85	84	92

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	04/30/12	100	AC

Lab ID:		SS043012B07	SS043012LCS02		SS043012LCSD02				
Parameter		**Blank Conc.**	**LCS Conc.**	**% Recovery**	**LCSD Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
Naphthalene		0.244 U	101	80	101	81	1	30	50-125
Acenaphthylene		0.0852 U	98.2	79	100	80	2	30	50-125
Acenaphthene		0.101 U	102	82	103	83	2	30	50-125
Fluorene		0.119 U	107	85	106	85	0	30	50-125
Anthracene		0.176 U	88.6	71	87.3	70	1	30	50-125
Phenanthrene		0.140	110	88	107	86	2	30	50-125
Fluoranthene		0.156	125	100	119	95	5	30	50-125
Pyrene		0.186 U	127	102	123	98	3	30	50-125
Benz[a]anthracene		0.0952	112	90	112	89	1	30	50-125
Chrysene/Triphenylene		0.156	111	89	110	88	0	30	50-125
Benzo[b]fluoranthene		0.255	120	96	120	96	0	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene		0.142	105	84	106	85	1	30	50-125
Benzo[a]pyrene		0.180	108	86	108	86	0	30	50-125
Indeno[1,2,3-cd]pyrene		0.576	121	97	120	96	1	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene		0.342	112	89	111	89	1	30	50-125
Benzo[g,h,i]perylene		0.882	107	85	106	85	0	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	82	77	40-120
Phenanthrene-d10	91	91	40-120
Benzo[a]pyrene-d12	83	85	40-120
5B(H)Cholane	89	91	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:07

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	AC

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	20.0	U	811	81	843	84	4	30	50-125
Acenaphthylene	20.0	U	806	81	837	84	4	30	50-125
Acenaphthene	20.0	U	851	85	859	86	1	30	50-125
Fluorene	20.0	U	854	85	885	88	4	30	50-125
Anthracene	20.0	U	707	71	734	73	4	30	50-125
Phenanthrene	20.0	U	859	86	882	88	3	30	50-125
Fluoranthene	2.62		949	95	974	97	3	30	50-125
Pyrene	2.93		975	97	1010	101	4	30	50-125
Benz[a]anthracene	3.38		869	87	921	92	6	30	50-125
Chrysene/Triphenylene	3.42		866	87	901	90	4	30	50-125
Benzo[b]fluoranthene	7.20		925	92	970	97	5	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	5.74		865	87	907	91	5	30	50-125
Benzo[a]pyrene	4.92		885	89	920	92	4	30	50-125
Indeno[1,2,3-cd]pyrene	13.4		1010	101	982	98	3	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	7.75		924	92	956	96	3	30	50-125
Benzo[g,h,i]perylene	15.0		868	87	909	91	5	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	74	80	40-120
Phenanthrene-d10	77	82	40-120
Benzo[a]pyrene-d12	72	79	40-120
5B(H)Cholane	92	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/09/12 15:08

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	AC

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	20.0	U	811	81	843	84	4	30	50-125
Acenaphthylene	20.0	U	806	81	837	84	4	30	50-125
Acenaphthene	20.0	U	851	85	859	86	1	30	50-125
Fluorene	20.0	U	854	85	885	88	4	30	50-125
Anthracene	20.0	U	707	71	734	73	4	30	50-125
Phenanthrene	20.0	U	859	86	882	88	3	30	50-125
Fluoranthene	2.62		949	95	974	97	3	30	50-125
Pyrene	2.93		975	97	1010	101	4	30	50-125
Benz[a]anthracene	3.38		869	87	921	92	6	30	50-125
Chrysene/Triphenylene	3.42		866	87	901	90	4	30	50-125
Benzo[b]fluoranthene	7.20		925	92	970	97	5	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	5.74		865	87	907	91	5	30	50-125
Benzo[a]pyrene	4.92		885	89	920	92	4	30	50-125
Indeno[1,2,3-cd]pyrene	13.4		1010	101	982	98	3	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	7.75		924	92	956	96	3	30	50-125
Benzo[g,h,i]perylene	15.0		868	87	909	91	5	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	74	80	40-120
Phenanthrene-d10	77	82	40-120
Benzo[a]pyrene-d12	72	79	40-120
5B(H)Cholane	92	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/09/12 10:26

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/19/12	04/20/12	04/30/12	26.8	AC

Lab ID:		1204031-01		1204031-01				
Parameter	**Sample Conc.**	**Matrix Spike Conc.**	**% Recovery**	**Matrix Spike Dup. Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
Naphthalene	99.1	2240	67	2320	69	4	30	50-125
Acenaphthylene	140	2420	71	2480	72	2	30	50-125
Acenaphthene	68.1	2520	76	2540	76	1	30	50-125
Fluorene	77.1	2690	81	2680	81	0	30	50-125
Anthracene	272	2620	73	2490	69	5	30	50-125
Phenanthrene	898	4190	103	3430	78	20	30	50-125
Fluoranthene	3020	6480	108	5260	69	21	30	50-125
Pyrene	3090	6230	98	5300	68	16	30	50-125
Benz[a]anthracene	1080	3920	89	3360	70	15	30	50-125
Chrysene/Triphenylene	1220	4010	87	3470	69	14	30	50-125
Benzo[b]fluoranthene	1220	4350	98	3820	80	13	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	957	3380	76	3060	65	10	30	50-125
Benzo[a]pyrene	1260	3910	83	3420	67	13	30	50-125
Indeno[1,2,3-cd]pyrene	798	3410	81	3110	71	9	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	231	2870	82	2690	76	6	30	50-125
Benzo[g,h,i]perylene	818	3220	75	2970	66	8	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	72	75	40-120
Phenanthrene-d10	89	90	40-120
Benzo[a]pyrene-d12	81	79	40-120
5B(H)Cholane	88	88	50-130

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:07

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	489	96	65-135
C1-Decalins	761.1	694	91	65-135
C2-Decalins	641.9	578	90	65-135
C3-Decalins	338.2	286	84	65-135
C4-Decalins	300.9	278	92	65-135
Benzothiophene	5.3	4.52	85	65-135
C1-Benzo(b)thiophenes	29.8	22.7	76	65-135
C2-Benzo(b)thiophenes	50.1	45.2	90	65-135
C3-Benzo(b)thiophenes	103.3	89.2	86	65-135
C4-Benzo(b)thiophenes	84.9	75.8	89	65-135
Naphthalene	577.6	550	95	65-135
C1-Naphthalenes	1242	1120	90	65-135
C2-Naphthalenes	1472	1330	90	65-135
C3-Naphthalenes	1053.4	914	87	65-135
C4-Naphthalenes	552.7	466	84	65-135
Biphenyl	152.5	145	95	65-135
Dibenzofuran	53.5	50.1	94	65-135
Acenaphthylene	7.1	6.44	91	65-135
Acenaphthene	18.7	18.6	99	65-135
Fluorene	79.4	71.6	90	65-135
C1-Fluorenes	175.1	160	92	65-135
C2-Fluorenes	256.5	228	89	65-135
C3-Fluorenes	238.7	202	85	65-135
Phenanthrene	222	213	96	65-135
C1-Phenanthrenes/Anthracenes	440.5	401	91	65-135
C2-Phenanthrenes/Anthracenes	464.9	411	88	65-135
C3-Phenanthrenes/Anthracenes	307.7	285	93	65-135
C4-Phenanthrenes/Anthracenes	122.9	113	92	65-135
Dibenzothiophene	146.1	135	93	65-135
C1-Dibenzothiophenes	299	251	84	65-135
C2-Dibenzothiophenes	392.9	338	86	65-135
C3-Dibenzothiophenes	350.5	298	85	65-135
C4-Dibenzothiophenes	189.2	156	82	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.01	98	65-135
Pyrene	13.3	13.4	101	65-135
C1-Fluoranthenes/Pyrenes	66.1	63.4	96	65-135
C2-Fluoranthenes/Pyrenes	100.9	99.2	98	65-135
C3-Fluoranthenes/Pyrenes	120.8	111	92	65-135
C4-Fluoranthenes/Pyrenes	105.6	104	99	65-135
Naphthobenzothiophenes	45.1	43.6	97	65-135
C1-Naphthobenzothiophenes	124.1	113	91	65-135
C2-Naphthobenzothiophenes	168.9	155	92	65-135
C3-Naphthobenzothiophenes	136.1	118	87	65-135
C4-Naphthobenzothiophenes	93.9	77.2	82	65-135
Benz[a]anthracene	2.00	1.77	88	65-135
Chrysene/Triphenylene	37.4	33.1	88	65-135
C1-Chrysenes	63.9	61.2	96	65-135
C2-Chrysenes	86.6	80.0	92	65-135
C3-Chrysenes	99.6	85.6	86	65-135
C4-Chrysenes	62.2	53.4	86	65-135
Benzo[b]fluoranthene	5.3	5.25	99	65-135
Benzo[e]pyrene	9.6	9.61	100	65-135
Benzo[a]pyrene	2.00	1.96	98	65-135
Perylene	2.7	2.68	99	65-135
Benzo[g,h,i]perylene	3.1	3.08	99	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:16

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	5.21	80	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:16

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	121	84	65-135
2/3-Methyldibenzothiophene	103.1	84.4	82	65-135
1-Methyldibenzothiophene	46.8	40.5	87	65-135
3-Methylphenanthrene	91.8	82.1	89	65-135
2/4-Methylphenanthrene	99.6	92.4	93	65-135
2-Methylanthracene	3.1	2.96	95	65-135
9-Methylphenanthrene	145.9	129	88	65-135
1-Methylphenanthrene	97.6	92.7	95	65-135
2-Methylnaphthalene	1162.6	1110	96	65-135
1-Methylnaphthalene	831.9	798	96	65-135
2,6-Dimethylnaphthalene	696.1	673	97	65-135
2,3,5-Trimethylnaphthalene	162.2	189	117	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	65.1	97	65-135
C24 Tricyclic Terpane	42.3	41.4	98	65-135
C25 Tricyclic Terpane	40.9	41.4	101	65-135
C24 Tetracyclic Terpane	14.3	14.5	102	65-135
C26 Tricyclic Terpane-22S	17.0	17.5	103	65-135
C26 Tricyclic Terpane-22R	15.0	15.0	100	65-135
C28 Tricyclic Terpane-22S	16.3	14.4	88	65-135
C28 Tricyclic Terpane-22R	17.7	18.5	104	65-135
C29 Tricyclic Terpane-22S	20.7	20.4	99	65-135
C29 Tricyclic Terpane-22R	21.1	20.8	99	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	26.8	87	65-135
C30 Tricyclic Terpane-22S	15.8	16.6	105	65-135
C30 Tricyclic Terpane-22R	15.8	16.9	107	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	36.1	98	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	6.77	94	65-135
17a(H),21b(H)-25-Norhopane	8.6	7.07	82	65-135
30-Norhopane	97.5	96.2	99	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.2	91	65-135
17a(H)-Diahopane	14.3	14.2	99	65-135
30-Normoretane	11.5	12.0	105	65-135
Hopane	171.1	166	97	65-135
Moretane	16.6	16.1	97	65-135
30-Homohopane-22S	73.8	66.5	90	65-135
30-Homohopane-22R	63.4	56.9	90	65-135
30,31-Bishomohopane-22S	52.5	47.0	90	65-135
30,31-Bishomohopane-22R	38.4	35.0	91	65-135
30,31-Trishomohopane-22S	41.1	36.7	89	65-135
30,31-Trishomohopane-22R	27.4	24.0	87	65-135
Tetrakishomohopane-22S	30.0	25.7	86	65-135
Tetrakishomohopane-22R	20.7	19.4	94	65-135
Pentakishomohopane-22S	30.2	27.7	92	65-135
Pentakishomohopane-22R	23.2	21.0	90	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	54.4	111	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	25.2	100	65-135
13b,17a-20S-Methyldiacholestane	23.3	20.7	89	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	60.9	95	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	73.3	97	65-135
Unknown Sterane (S18)	20.7	18.8	91	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.48	83	65-135
14a,17a-20S-Methylcholestane	36.7	36.5	99	65-135
14a,17a-20R-Methylcholestane	33.0	34.2	104	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	53.5	103	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	35.6	90	65-135
14b(H),17b(H)-20R-Cholestane	40.1	38.7	97	65-135
14b(H),17b(H)-20S-Cholestane	40.7	40.3	99	65-135
14b,17b-20R-Methylcholestane	44.8	41.3	92	65-135
14b,17b-20S-Methylcholestane	54.0	52.7	98	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	57.8	98	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	36.7	90	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	392	129	65-135
C28,20S-triaromatic steroid	191.8	240	125	65-135
C27,20R-triaromatic steroid	186.4	223	119	65-135
C28,20R-triaromatic steroid	158.3	190	120	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:16

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	503	99	65-135
C1-Decalins	761.1	706	93	65-135
C2-Decalins	641.9	612	95	65-135
C3-Decalins	338.2	296	88	65-135
C4-Decalins	300.9	269	90	65-135
Benzothiophene	5.3	4.85	91	65-135
C1-Benzo(b)thiophenes	29.8	20.6	69	65-135
C2-Benzo(b)thiophenes	50.1	46.0	92	65-135
C3-Benzo(b)thiophenes	103.3	91.5	89	65-135
C4-Benzo(b)thiophenes	84.9	78.8	93	65-135
Naphthalene	577.6	538	93	65-135
C1-Naphthalenes	1242	1110	89	65-135
C2-Naphthalenes	1472	1300	89	65-135
C3-Naphthalenes	1053.4	910	86	65-135
C4-Naphthalenes	552.7	475	86	65-135
Biphenyl	152.5	146	96	65-135
Dibenzofuran	53.5	50.8	95	65-135
Acenaphthylene	7.1	6.24	88	65-135
Acenaphthene	18.7	19.4	104	65-135
Fluorene	79.4	72.9	92	65-135
C1-Fluorenes	175.1	166	95	65-135
C2-Fluorenes	256.5	232	90	65-135
C3-Fluorenes	238.7	214	90	65-135
Phenanthrene	222	215	97	65-135
C1-Phenanthrenes/Anthracenes	440.5	410	93	65-135
C2-Phenanthrenes/Anthracenes	464.9	426	92	65-135
C3-Phenanthrenes/Anthracenes	307.7	282	92	65-135
C4-Phenanthrenes/Anthracenes	122.9	115	93	65-135
Dibenzothiophene	146.1	138	94	65-135
C1-Dibenzothiophenes	299	262	88	65-135
C2-Dibenzothiophenes	392.9	348	89	65-135
C3-Dibenzothiophenes	350.5	313	89	65-135
C4-Dibenzothiophenes	189.2	162	86	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.72	115	65-135
Pyrene	13.3	14.8	111	65-135
C1-Fluoranthenes/Pyrenes	66.1	64.4	97	65-135
C2-Fluoranthenes/Pyrenes	100.9	104	104	65-135
C3-Fluoranthenes/Pyrenes	120.8	115	95	65-135
C4-Fluoranthenes/Pyrenes	105.6	99.5	94	65-135
Naphthobenzothiophenes	45.1	45.3	100	65-135
C1-Naphthobenzothiophenes	124.1	116	93	65-135
C2-Naphthobenzothiophenes	168.9	152	90	65-135
C3-Naphthobenzothiophenes	136.1	120	88	65-135
C4-Naphthobenzothiophenes	93.9	78.6	84	65-135
Benz[a]anthracene	2.00	2.41	120	65-135
Chrysene/Triphenylene	37.4	35.8	96	65-135
C1-Chrysenes	63.9	60.8	95	65-135
C2-Chrysenes	86.6	80.7	93	65-135
C3-Chrysenes	99.6	89.6	90	65-135
C4-Chrysenes	62.2	51.7	83	65-135
Benzo[b]fluoranthene	5.3	6.52	123	65-135
Benzo[e]pyrene	9.6	10.8	112	65-135
Benzo[a]pyrene	2.00	2.23	112	65-135
Perylene	2.7	3.24	120	65-135
Benzo[g,h,i]perylene	3.1	4.42	143[a]	65-135

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:10

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	6.64	102	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:11

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	129	90	65-135
2/3-Methyldibenzothiophene	103.1	87.5	85	65-135
1-Methyldibenzothiophene	46.8	41.8	89	65-135
3-Methylphenanthrene	91.8	85.0	93	65-135
2/4-Methylphenanthrene	99.6	95.1	95	65-135
2-Methylanthracene	3.1	3.40	110	65-135
9-Methylphenanthrene	145.9	134	92	65-135
1-Methylphenanthrene	97.6	95.2	98	65-135
2-Methylnaphthalene	1162.6	1100	95	65-135
1-Methylnaphthalene	831.9	782	94	65-135
2,6-Dimethylnaphthalene	696.1	662	95	65-135
2,3,5-Trimethylnaphthalene	162.2	174	108	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:11

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	64.8	96	65-135
C24 Tricyclic Terpane	42.3	39.3	93	65-135
C25 Tricyclic Terpane	40.9	40.3	98	65-135
C24 Tetracyclic Terpane	14.3	13.7	96	65-135
C26 Tricyclic Terpane-22S	17.0	17.5	103	65-135
C26 Tricyclic Terpane-22R	15.0	15.0	100	65-135
C28 Tricyclic Terpane-22S	16.3	14.4	88	65-135
C28 Tricyclic Terpane-22R	17.7	16.4	93	65-135
C29 Tricyclic Terpane-22S	20.7	20.4	98	65-135
C29 Tricyclic Terpane-22R	21.1	18.8	89	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	27.3	89	65-135
C30 Tricyclic Terpane-22S	15.8	18.5	117	65-135
C30 Tricyclic Terpane-22R	15.8	15.9	101	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	34.3	94	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	5.74	80	65-135
17a(H),21b(H)-25-Norhopane	8.6	10.2	119	65-135
30-Norhopane	97.5	91.4	94	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.0	90	65-135
17a(H)-Diahopane	14.3	14.1	99	65-135
30-Normoretane	11.5	11.4	99	65-135
Hopane	171.1	151	88	65-135
Moretane	16.6	15.6	94	65-135
30-Homohopane-22S	73.8	65.4	89	65-135
30-Homohopane-22R	63.4	55.5	87	65-135
30,31-Bishomohopane-22S	52.5	46.7	89	65-135
30,31-Bishomohopane-22R	38.4	34.0	89	65-135
30,31-Trishomohopane-22S	41.1	36.3	88	65-135
30,31-Trishomohopane-22R	27.4	22.1	81	65-135
Tetrakishomohopane-22S	30.0	27.2	91	65-135
Tetrakishomohopane-22R	20.7	19.1	92	65-135
Pentakishomohopane-22S	30.2	27.8	92	65-135
Pentakishomohopane-22R	23.2	18.7	80	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	45.3	92	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	26.0	103	65-135
13b,17a-20S-Methyldiacholestane	23.3	30.0	129	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	57.0	89	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	76.8	102	65-135
Unknown Sterane (S18)	20.7	19.3	93	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.59	85	65-135
14a,17a-20S-Methylcholestane	36.7	34.7	94	65-135
14a,17a-20R-Methylcholestane	33.0	32.4	98	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	50.0	96	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	36.2	91	65-135
14b(H),17b(H)-20R-Cholestane	40.1	39.2	98	65-135
14b(H),17b(H)-20S-Cholestane	40.7	40.0	98	65-135
14b,17b-20R-Methylcholestane	44.8	40.1	89	65-135
14b,17b-20S-Methylcholestane	54.0	50.3	93	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	54.4	92	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	38.1	94	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	386	127	65-135
C28,20S-triaromatic steroid	191.8	248	129	65-135
C27,20R-triaromatic steroid	186.4	232	124	65-135
C28,20R-triaromatic steroid	158.3	205	130	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 20:11

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Date Analyzed: **05/04/12 09:05**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS043012LCS02	05/04/12 13:33
LCSD	SS043012LCSD02	05/04/12 15:05
SEKR1934L013S041912D005	1204031-01	05/04/12 16:37
SEKR1934L013S041912D005	1204031-01 M	05/04/12 18:09
SEKR1934L013S041912D005	1204031-01 S	05/04/12 19:41
SEKR0900I3004S041912D005	1204031-02	05/04/12 22:54

N/A - Not Applicable

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Date Analyzed: **05/02/12 20:53**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/02/12 22:24
LCSD	SO050112LCSD01	05/02/12 23:54
SEKR1934L013S041912P005	1204031-03	05/03/12 01:25
SEKR0900I3004S041912P005	1204031-04	05/03/12 02:56
SEKR0900I3004D041912P005	1204031-05	05/03/12 04:27

N/A - Not Applicable

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Date Analyzed: **05/02/12 20:53**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/02/12 22:24
LCSD	SO050112LCSD01	05/02/12 23:54
SEKR0900I3004S042012H005	1204031-06	05/03/12 07:27
SEKR0900I3004DS042012H005	1204031-07	05/03/12 10:29
SEKR1934L013S042012H005	1204031-08	05/03/12 12:00

N/A - Not Applicable

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **C305021201**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		44781	43.15	26089	26.70
Upper Limit:		89562	43.65	52178	27.20
Lower Limit:		22390	42.65	13044	26.20
Client ID	**Lab ID**				
Blank	SO050112B01	32650	43.17	18606	26.71
Blank	SO050112B01	32650	43.17	18606	26.71
LCS	SO050112LCS01	35501	43.15	19753	26.70
LCS	SO050112LCS01	35501	43.15	19753	26.70
LCSD	SO050112LCSD01	33587	43.15	19021	26.70
LCSD	SO050112LCSD01	33587	43.15	19021	26.70
SEKR1934L013S041912P005	1204031-03	31325	43.15	17202	26.71
SEKR0900I3004S041912P005	1204031-04	33542	43.15	18045	26.70
SEKR0900I3004D041912P005	1204031-05	33128	43.15	17663	26.70
CCV	C305021202	46077	43.15	27233	26.70

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **C305021202**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		46077	43.15	27233	26.70
Upper Limit:		92154	43.65	54466	27.20
Lower Limit:		23038	42.65	13616	26.20
Client ID	**Lab ID**				
SEKR0900I3004S042012H005	1204031-06	34739	43.15	18393	26.70
SEKR0900I3004DS042012H005	1204031-07	39002	43.15	20629	26.70
SEKR1934L013S042012H005	1204031-08	33820	43.15	18874	26.70
CCV	C305031203	28462	43.15	17064	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **C305031204**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		30421	43.17	18143	26.71
Upper Limit:		60842	43.67	36286	27.21
Lower Limit:		15210	42.67	9072	26.21
Client ID	**Lab ID**				
Blank	SS043012B07	30629	43.17	17315	26.71
LCS	SS043012LCS02	33254	43.15	18337	26.70
LCSD	SS043012LCSD02	32423	43.15	18527	26.70
SEKR1934L013S041912D005	1204031-01	43097	43.17	18890	26.70
SEKR1934L013S041912D005	1204031-01 M	43284	43.17	20993	26.70
SEKR1934L013S041912D005	1204031-01 S	45922	43.17	21659	26.70
CCV	C305031205	32966	43.17	19577	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **C305031205**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		32966	43.17	19577	26.71
Upper Limit:		65932	43.67	39154	27.21
Lower Limit:		16483	42.67	9788	26.21
Client ID	**Lab ID**				
SEKR0900I3004S041912D005	1204031-02	43533	43.17	21641	26.70
CCV	C305031206	32005	43.17	19115	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.92	2	1	AC

Parameter	Result	
cis/trans-Decalin	**15.5**	
C1-Decalins	1.80	U
C2-Decalins	1.80	U
C3-Decalins	**92.9**	
C4-Decalins	**320**	
Benzothiophene	**4.96**	J
C1-Benzo(b)thiophenes	**10.6**	J
C2-Benzo(b)thiophenes	**16.9**	
C3-Benzo(b)thiophenes	**57.5**	
C4-Benzo(b)thiophenes	**77.5**	
Naphthalene	**99.1**	
C1-Naphthalenes	**97.3**	
C2-Naphthalenes	**136**	
C3-Naphthalenes	**147**	
C4-Naphthalenes	**270**	
Biphenyl	**19.6**	
Dibenzofuran	**56.3**	
Acenaphthylene	**140**	
Acenaphthene	**68.1**	
Fluorene	**77.1**	
C1-Fluorenes	**86.0**	
C2-Fluorenes	**356**	
C3-Fluorenes	**896**	
Anthracene	**272**	
Phenanthrene	**898**	
C1-Phenanthrenes/Anthracenes	**776**	
C2-Phenanthrenes/Anthracenes	**728**	
C3-Phenanthrenes/Anthracenes	**817**	
C4-Phenanthrenes/Anthracenes	**628**	
Retene	1.03	U
Dibenzothiophene	**68.3**	
C1-Dibenzothiophenes	**178**	
C2-Dibenzothiophenes	**404**	

Parameter	Result
C3-Dibenzothiophenes	**665**
C4-Dibenzothiophenes	**542**
Benzo(b)fluorene	**331**
Fluoranthene	**3020**
Pyrene	**3090**
C1-Fluoranthenes/Pyrenes	**1780**
C2-Fluoranthenes/Pyrenes	**1250**
C3-Fluoranthenes/Pyrenes	**702**
C4-Fluoranthenes/Pyrenes	**582**
Naphthobenzothiophenes	**440**
C1-Naphthobenzothiophenes	**403**
C2-Naphthobenzothiophenes	**480**
C3-Naphthobenzothiophenes	**383**
C4-Naphthobenzothiophenes	**340**
Benz[a]anthracene	**1080**
Chrysene/Triphenylene	**1220**
C1-Chrysenes	**626**
C2-Chrysenes	**454**
C3-Chrysenes	**413**
C4-Chrysenes	**213**
Benzo[b]fluoranthene	**1220**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**957**
Benzo[a]fluoranthene	**245**
Benzo[e]pyrene	**923**
Benzo[a]pyrene	**1260**
Perylene	**431**
Indeno[1,2,3-cd]pyrene	**798**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**231**
Benzo[g,h,i]perylene	**818**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.92	2	1	AC

Parameter	Result
Carbazole	**91.5**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.92	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**43.4**
2/3-Methyldibenzothiophene	**66.8**
1-Methyldibenzothiophene	**24.3**
3-Methylphenanthrene	**158**
2/4-Methylphenanthrene	**191**
2-Methylanthracene	**86.0**
9-Methylphenanthrene	**193**
1-Methylphenanthrene	**120**
2-Methylnaphthalene	**102**
1-Methylnaphthalene	**62.3**
2,6-Dimethylnaphthalene	**77.9**
2,3,5-Trimethylnaphthalene	**20.9**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.92	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	622	
C24 Tricyclic Terpane	399	
C25 Tricyclic Terpane	446	
C24 Tetracyclic Terpane	409	
C26 Tricyclic Terpane-22S	214	
C26 Tricyclic Terpane-22R	205	
C28 Tricyclic Terpane-22S	145	
C28 Tricyclic Terpane-22R	281	
C29 Tricyclic Terpane-22S	176	
C29 Tricyclic Terpane-22R	210	
18a-22,29,30-Trisnorneohopane-TS	866	
C30 Tricyclic Terpane-22S	183	
C30 Tricyclic Terpane-22R	148	
17a(H)-22,29,30-Trisnorhopane-TM	958	
17a/b,21b/a 28,30-Bisnorhopane	139	
17a(H),21b(H)-25-Norhopane	262	
30-Norhopane	2610	
18a(H)-30-Norneohopane-C29Ts	829	
17a(H)-Diahopane	210	
30-Normoretane	425	
18a(H)&18b(H)-Oleananes	292	
Hopane	3860	
Moretane	562	
30-Homohopane-22S	1210	
30-Homohopane-22R	1040	
T22a-Gammacerane/C32-diahopane	269	
30,31-Bishomohopane-22S	2480	G
30,31-Bishomohopane-22R	627	

Parameter	Result	
30,31-Trishomohopane-22S	712	
30,31-Trishomohopane-22R	298	
Tetrakishomohopane-22S	566	
Tetrakishomohopane-22R	1690	G
Pentakishomohopane-22S	320	
Pentakishomohopane-22R	226	
13b(H),17a(H)-20S-Diacholestane	600	
13b(H),17a(H)-20R-Diacholestane	331	
13b,17a-20S-Methyldiacholestane	372	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	1090	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	1080	
Unknown Sterane (S18)	304	
13a,17b-20S-Ethyldiacholestane	30.5	
14a,17a-20S-Methylcholestane	523	
14a,17a-20R-Methylcholestane	434	
14a(H),17a(H)-20S-Ethylcholestane	626	
14a(H),17a(H)-20R-Ethylcholestane	581	
14b(H),17b(H)-20R-Cholestane	487	
14b(H),17b(H)-20S-Cholestane	534	
14b,17b-20R-Methylcholestane	545	
14b,17b-20S-Methylcholestane	754	
14b(H),17b(H)-20R-Ethylcholestane	1050	
14b(H),17b(H)-20S-Ethylcholestane	612	
C26,20R- +C27,20S- triaromatic steroid	1350	
C28,20S-triaromatic steroid	1560	
C27,20R-triaromatic steroid	854	
C28,20R-triaromatic steroid	976	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	93	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

18/2 5/6/12

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	18890M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.166	240	43097	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	155637	1898.303 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 189.83%#		
42) Phenanthrene-d10	32.567	188	157811	2435.202 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 243.52%#		
86) Benzo[a]pyrene-d12	48.256	264	188107	2106.103 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 210.61%#		
127) 5B(H)Cholane - Surr	43.769	217	31360	2327.392 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 232.74%#		
Target Compounds					Qvalue
3) trans-Decalin	16.369	138	183M3	12.272 ng/mL	
7) C3-Decalins	22.511	180	1099m	73.699 ng/mL	
8) C4-Decalins	25.492	194	3787M5	253.958 ng/mL	
10) Naphthalene	19.801	128	9463M3	78.600 ng/mL	
11) C1-Naphthalenes	22.496	142	9286M5	77.130 ng/mL	
12) C2-Naphthalenes	24.995	156	12979M5	107.804 ng/mL	
13) C3-Naphthalenes	27.675	170	14006M5	116.334 ng/mL	
14) C4-Naphthalenes	31.694	184	25809M5	214.370 ng/mL	
16) 2-Methylnaphthalene	22.496	142	5761	80.928 ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	3447	49.400 ng/mL#	100
18) Benzothiophene	20.012	134	426M3	3.932 ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	910M5	8.399 ng/mL	
20) C2-Benzo(b)thiophenes	24.664	162	1452M5	13.402 ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	4939M5	45.588 ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	6661M5	61.482 ng/mL	
23) Biphenyl	24.378	154	1400M3	15.547 ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	3612	61.758 ng/mL#	100
25) Dibenzofuran	27.464	168	4619	44.669 ng/mL	94
26) Acenaphthylene	26.079	152	13271	111.043 ng/mL#	100
27) Acenaphthene	26.816	153	3800M3	54.001 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.367	170	780M3	16.544 ng/mL	
29) Fluorene	28.834	166	4744M3	61.127 ng/mL	
30) C1-Fluorenes	31.197	180	5295M5	68.227 ng/mL	
31) C2-Fluorenes	33.395	194	21884M5	281.978 ng/mL	
32) C3-Fluorenes	35.909	208	55128M5	710.332 ng/mL	
33) Dibenzothiophene	32.161	184	6739	54.169 ng/mL#	42

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
34) 4-Methyldibenzothiophene(	33.937	198	4277	34.379	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.298	198	6587M3	52.948	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	2393	19.235	ng/mL#	100
37) OTP	34.374	198	32695M3	262.809	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	50223M5	403.703	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	17528m	140.894	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	39903M5	320.748	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	65577M5	527.121	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	53445M5	429.602	ng/mL	
43) Phenanthrene	32.657	178	77809	711.877	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	13735	125.662	ng/mL	91
45) 2/4-Methylphenanthrene(2M	34.750	192	16578M3	151.673	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	7451M3	68.169	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	16695M3	152.743	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	10359M3	94.775	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.750	192	67230M5	615.090	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	63066M5	576.993	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	63066m	576.993	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	70842M5	648.136	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	54425M5	497.936	ng/mL	
55) Anthracene	32.838	178	23067	216.058	ng/mL	98
56) Carbazole	33.500	167	7822	72.532	ng/mL#	92
57) 1-Methylphenanthrene	35.157	192	10311M3	148.861	ng/mL	
58) Fluoranthene	37.430	202	260243M3	2397.351	ng/mL	
59) Benzo(b)fluorene	39.960	216	16537M3	262.580	ng/mL	
60) Pyrene	38.318	202	270584	2452.091	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.704	216	155824M5	1412.111	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	108959M5	987.410	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	61401M5	556.429	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	50923M5	461.475	ng/mL	
66) Naphthobenzothiophene	42.173	234	24315	204.671	ng/ml#	75
67) Naphthobenzothiophene-2,1	42.173	234	24315	204.671	ng/mL#	75
68) Naphthobenzothiophene-1,2	42.519	234	5877	49.470	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	11306M3	95.168	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	37942M5	319.376	ng/ml	
71) C2-Naphthobenzothiophenes	45.576	262	45254M5	380.925	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	36113M5	303.981	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290	32075M5	269.991	ng/mL	
75) Benz[a]anthracene	43.106	228	117626M3	859.908	ng/mL	
77) Chrysene/Triphenylene	43.257	228	134035	970.565	ng/mL	99
78) C1-Chrysenes	44.732	242	68570M5	496.524	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
79) C2-Chrysenes	46.148	256	49726M5	360.072	ng/mL	
79) C2-Chrysenes BS	46.148	256	49726m	360.072	ng/mL	
80) C3-Chrysenes	47.488	270	45193M5	327.248	ng/mL	
81) C4-Chrysenes	49.521	284	23337M5	168.986	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	144890	963.980	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	124223	759.114	ng/mL	97
84) Benzo[a]fluoranthene	47.533	252	31836M3	194.547	ng/mL	
85) Benzo[e]pyrene	48.151	252	108827	732.007	ng/mL	99
87) Benzo[a]pyrene	48.347	252	143130	999.946	ng/mL	99
88) Perylene	48.648	252	52294	341.848	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276	105444M3	633.019	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	28978	182.876	ng/mL#	88
91) Benzo[g,h,i]perylene	54.476	276	114157	648.673	ng/mL	100
92) Hopane (T19)	52.232	191	86980	3062.247	ng/mL#	81
94) C23 Tricyclic Terpane (T4	40.803	191	14013M3	493.346	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	8997	316.751	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.061	191	10041M3	353.507	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	9210	324.250	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.070	191	4827M3	169.941	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	4614M3	162.442	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3269M3	115.090	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	6326	222.715	ng/ml	100
102) C29 Tricyclic Terpane-22S	47.127	191	3958	139.347	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.322	191	4731	166.561	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.452	191	19500M3	686.523	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191	4112M3	144.768	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3341M3	117.624	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	21583	759.858	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.169	191	3135	110.372	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.973	191	5903M3	207.823	ng/ml	
110) 30-Norhopane (T15)	50.862	191	58691M3	2066.295	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	18676M3	657.513	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	4737M3	166.772	ng/ml	
113) 30-Normoretane (T17)	51.645	191	9563	336.678	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.036	191	6586M3	231.869	ng/ml	
115) Moretane (T20)	52.910	191	12651M3	445.395	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	27310M3	961.485	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191	23324	821.153	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	6049	212.963	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.530	191G	55890	1967.682	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	14115	496.937	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
121) 30,31-Trishomohopane-22S	57.698	191	16039M3	564.674	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	6702M3	235.953	ng/ml	
123) Tetrakishomohopane-22S (T	60.364	191	12743M3	448.634	ng/ml	
124) Tetrakishomohopane-22R (T	61.207	191G	38039	1339.214	ng/ml	100
125) Pentakishomohopane-22S (T	63.466	191	7218M3	254.119	ng/ml	
126) Pentakishomohopane-22R (T	64.761	191	5082M3	178.919	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	6416	476.165	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.696	217	3533	262.203	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.404	217	3980M3	295.377	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	11676	866.538	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	11507	853.995	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	3246	240.903	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.332	217	326	24.194	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	5590M3	414.863	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	4640M3	344.359	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	6692M3	496.649	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	6210	460.877	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.353	218	5205M3	386.291	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	5702M3	423.176	ng/ml	
141) 14b,17b-20R-Methylcholest	48.663	218	5828	432.527	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	8060M3	598.175	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	11267M3	836.184	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	6538M3	485.220	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	14404	1068.997	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	16620	1233.458	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	9121M3	676.918	ng/mL	
148) C28,20R-triaromatic stero	52.021	231	10433M3	774.288	ng/mL	

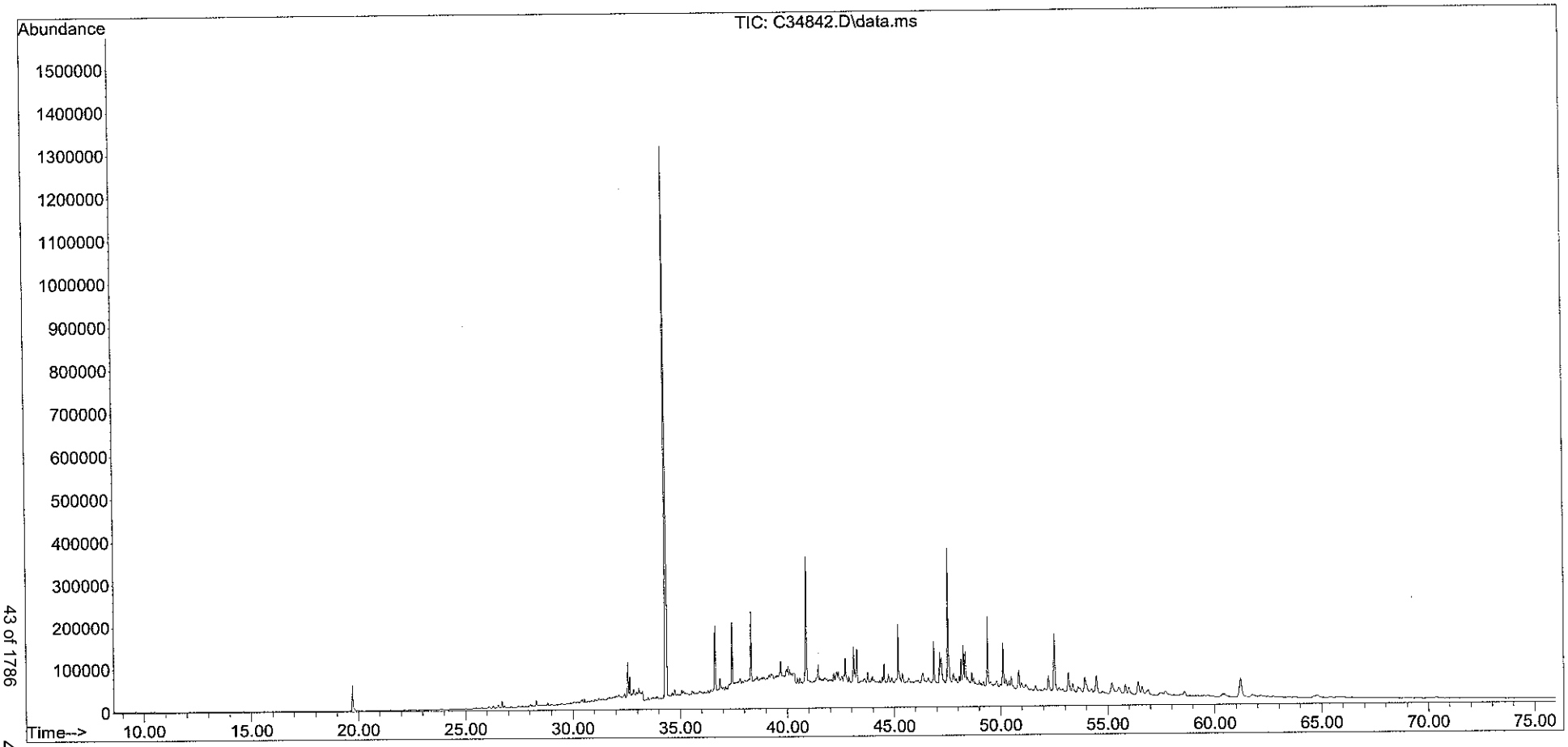
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	36.7	9.15	2	1	AC

Parameter	Result	
cis/trans-Decalin	**8.15**	
C1-Decalins	**19.4**	
C2-Decalins	**51.4**	
C3-Decalins	**62.0**	
C4-Decalins	**128**	
Benzothiophene	**4.67**	J
C1-Benzo(b)thiophenes	**9.85**	
C2-Benzo(b)thiophenes	**14.5**	
C3-Benzo(b)thiophenes	**45.2**	
C4-Benzo(b)thiophenes	**64.2**	
Naphthalene	**78.2**	
C1-Naphthalenes	**54.2**	
C2-Naphthalenes	**117**	
C3-Naphthalenes	**214**	
C4-Naphthalenes	**232**	
Biphenyl	**15.8**	
Dibenzofuran	**38.2**	
Acenaphthylene	**135**	
Acenaphthene	**44.0**	
Fluorene	**69.4**	
C1-Fluorenes	**96.3**	
C2-Fluorenes	**213**	
C3-Fluorenes	**314**	
Anthracene	**324**	
Phenanthrene	**895**	
C1-Phenanthrenes/Anthracenes	**952**	
C2-Phenanthrenes/Anthracenes	**792**	
C3-Phenanthrenes/Anthracenes	**499**	
C4-Phenanthrenes/Anthracenes	**267**	
Retene	0.486	U
Dibenzothiophene	**64.0**	
C1-Dibenzothiophenes	**205**	
C2-Dibenzothiophenes	**396**	

Parameter	Result
C3-Dibenzothiophenes	**507**
C4-Dibenzothiophenes	**393**
Benzo(b)fluorene	**448**
Fluoranthene	**3100**
Pyrene	**2950**
C1-Fluoranthenes/Pyrenes	**1860**
C2-Fluoranthenes/Pyrenes	**914**
C3-Fluoranthenes/Pyrenes	**472**
C4-Fluoranthenes/Pyrenes	**371**
Naphthobenzothiophenes	**458**
C1-Naphthobenzothiophenes	**418**
C2-Naphthobenzothiophenes	**447**
C3-Naphthobenzothiophenes	**376**
C4-Naphthobenzothiophenes	**273**
Benz[a]anthracene	**1520**
Chrysene/Triphenylene	**1540**
C1-Chrysenes	**771**
C2-Chrysenes	**446**
C3-Chrysenes	**404**
C4-Chrysenes	**222**
Benzo[b]fluoranthene	**1490**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**1190**
Benzo[a]fluoranthene	**375**
Benzo[e]pyrene	**1130**
Benzo[a]pyrene	**1710**
Perylene	**472**
Indeno[1,2,3-cd]pyrene	**1110**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**310**
Benzo[g,h,i]perylene	**1060**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	78	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	36.7	9.15	2	1	AC

Parameter	Result
Carbazole	**46.7**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	78	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	36.7	9.15	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**66.9**
2/3-Methyldibenzothiophene	**76.7**
1-Methyldibenzothiophene	**38.0**
3-Methylphenanthrene	**184**
2/4-Methylphenanthrene	**231**
2-Methylanthracene	**129**
9-Methylphenanthrene	**245**
1-Methylphenanthrene	**150**
2-Methylnaphthalene	**57.8**
1-Methylnaphthalene	**33.4**
2,6-Dimethylnaphthalene	**54.0**
2,3,5-Trimethylnaphthalene	**33.7**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	78	40-120

N/A - Not Applicable

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	36.7	9.15	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**213**	
C24 Tricyclic Terpane	**126**	
C25 Tricyclic Terpane	**132**	
C24 Tetracyclic Terpane	**62.8**	
C26 Tricyclic Terpane-22S	**59.8**	
C26 Tricyclic Terpane-22R	**61.7**	
C28 Tricyclic Terpane-22S	**52.5**	
C28 Tricyclic Terpane-22R	**87.6**	
C29 Tricyclic Terpane-22S	**61.5**	
C29 Tricyclic Terpane-22R	**65.0**	
18a-22,29,30-Trisnorneohopane-TS	**121**	
C30 Tricyclic Terpane-22S	**61.4**	
C30 Tricyclic Terpane-22R	**54.0**	
17a(H)-22,29,30-Trisnorhopane-TM	**228**	
17a/b,21b/a 28,30-Bisnorhopane	**116**	
17a(H),21b(H)-25-Norhopane	**165**	
30-Norhopane	**689**	
18a(H)-30-Norneohopane-C29Ts	**174**	
17a(H)-Diahopane	**35.1**	
30-Normoretane	**83.8**	
18a(H)&18b(H)-Oleananes	**35.8**	
Hopane	**840**	
Moretane	**113**	
30-Homohopane-22S	**353**	
30-Homohopane-22R	**292**	
T22a-Gammacerane/C32-diahopane	**117**	
30,31-Bishomohopane-22S	**928**	G
30,31-Bishomohopane-22R	**265**	

Parameter	Result	
30,31-Trishomohopane-22S	**236**	
30,31-Trishomohopane-22R	**94.6**	
Tetrakishomohopane-22S	**271**	G
Tetrakishomohopane-22R	**1030**	G
Pentakishomohopane-22S	**116**	
Pentakishomohopane-22R	**79.2**	
13b(H),17a(H)-20S-Diacholestane	**97.6**	
13b(H),17a(H)-20R-Diacholestane	**53.1**	
13b,17a-20S-Methyldiacholestane	**49.3**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**217**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**237**	
Unknown Sterane (S18)	**66.7**	
13a,17b-20S-Ethyldiacholestane	**14.7**	
14a,17a-20S-Methylcholestane	**114**	
14a,17a-20R-Methylcholestane	**86.5**	
14a(H),17a(H)-20S-Ethylcholestane	**171**	
14a(H),17a(H)-20R-Ethylcholestane	**146**	
14b(H),17b(H)-20R-Cholestane	**112**	
14b(H),17b(H)-20S-Cholestane	**113**	
14b,17b-20R-Methylcholestane	**125**	
14b,17b-20S-Methylcholestane	**169**	
14b(H),17b(H)-20R-Ethylcholestane	**277**	
14b(H),17b(H)-20S-Ethylcholestane	**125**	
C26,20R- +C27,20S- triaromatic steroid	**744**	
C28,20S-triaromatic steroid	**725**	
C27,20R-triaromatic steroid	**497**	
C28,20R-triaromatic steroid	**563**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	86	50-130

N/A - Not Applicable
G - Matrix Interference

05/08/12 19:59

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

5/6/12

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	21641M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.166	240	43533	500.000	ng/mL	0.02
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	161305	1717.336	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 171.73%#			
42) Phenanthrene-d10		32.567	188	160111	2156.619	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 215.66%#			
86) Benzo[a]pyrene-d12		48.256	264	176027	1951.113	ng/mL	0.02
Spiked Amount	1000.000	Range 50 - 130		Recovery = 195.11%#			
127) 5B(H)Cholane - Surr		43.769	217	29254	2149.350	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 214.94%#			
Target Compounds							Qvalue
3) trans-Decalin		16.368	138	234	13.697	ng/mL	100
5) C1-Decalins		18.311	152	556M5	32.546	ng/mL	
6) C2-Decalins		19.289	166	1477M5	86.457	ng/mL	
7) C3-Decalins		22.511	180	1780M5	104.194	ng/mL	
8) C4-Decalins		25.492	194	3684M5	215.646	ng/mL	
10) Naphthalene		19.801	128	18136	131.489	ng/mL#	100
11) C1-Naphthalenes		22.496	142	12558M5	91.047	ng/mL	
12) C2-Naphthalenes		25.341	156	27135M5	196.733	ng/mL	
13) C3-Naphthalenes		28.021	170	49505M5	358.919	ng/mL	
14) C4-Naphthalenes		30.444	184	53837M5	390.327	ng/mL	
16) 2-Methylnaphthalene		22.496	142	7925	97.175	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	4490	56.168	ng/mL#	100
18) Benzothiophene		20.012	134	975	7.855	ng/mL	100
19) C1-Benzo(b)thiophenes		22.631	148	2054M5	16.549	ng/mL	
20) C2-Benzo(b)thiophenes		25.371	162	3020M5	24.332	ng/mL	
21) C3-Benzo(b)thiophenes		27.509	176	9422M5	75.912	ng/mL	
22) C4-Benzo(b)thiophenes		29.616	190	13386M5	107.849	ng/mL	
23) Biphenyl		24.378	154	2731	26.473	ng/mL#	100
24) 2,6-Dimethylnaphthalene		24.995	156	6082	90.771	ng/mL#	100
25) Dibenzofuran		27.464	168	7606	64.205	ng/mL	94
26) Acenaphthylene		26.079	152	31046	226.750	ng/mL#	100
27) Acenaphthene		26.816	153	5964M3	73.979	ng/mL	
28) 2,3,5-Trimethylnaphthalen		28.367	170	3058M3	56.616	ng/mL	
29) Fluorene		28.834	166	10376M3	116.701	ng/mL	
30) C1-Fluorenes		31.197	180	14387M5	161.813	ng/mL	
31) C2-Fluorenes		33.395	194	31768M5	357.301	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
32) C3-Fluorenes	35.909	208	46914M5	527.650	ng/mL	
33) Dibenzothiophene	32.161	184	15335	107.596	ng/mL#	67
34) 4-Methyldibenzothiophene(	33.937	198	16012	112.346	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	18375M3	128.926	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	9099	63.842	ng/mL#	100
37) OTP	34.374	198	30187M3	211.804	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	79271M5	556.196	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	49084m	344.392	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	94804M5	665.182	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	121460M5	852.210	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	94161M5	660.670	ng/mL	
43) Phenanthrene	32.657	178	188332	1504.021	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	38627	308.476	ng/mL	100
45) 2/4-Methylphenanthrene(2M	34.735	192	48578	387.944	ng/mL	95
46) 2-Methylanthracene(2MA)	34.886	192	27193	217.164	ng/mL#	39
47) 9-Methylphenanthrene(9MP)	35.066	192	51505	411.319	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.157	192	31531M3	251.807	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.735	192	200359M5	1600.069	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	166598M5	1330.453	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	166598m	1330.453	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.725	220	105024M5	838.723	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	56099M5	448.007	ng/mL	
55) Anthracene	32.838	178	66569M3	544.260	ng/mL	
56) Carbazole	33.500	167	9686M3	78.399	ng/mL	
57) 1-Methylphenanthrene	35.157	192	31412M3	395.849	ng/mL	
58) Fluoranthene	37.430	202	648368M3	5213.494	ng/mL	
59) Benzo(b)fluorene	39.944	216	54331M3	753.021	ng/mL	
60) Pyrene	38.318	202	627390	4962.799	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.703	216	394663M5	3121.875	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	194141M5	1535.700	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244	100382M5	794.045	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	78743M5	622.875	ng/mL	
66) Naphthobenzothiophene	42.158	234	60868	447.225	ng/ml#	69
67) Naphthobenzothiophene-2,1	42.158	234	60868	447.225	ng/mL#	69
68) Naphthobenzothiophene-1,2	42.504	234	13409M3	98.522	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	30504M3	224.127	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	95525M5	701.866	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	102269M5	751.417	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	85905M5	631.184	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	62511M5	459.297	ng/mL	
75) Benz[a]anthracene	43.106	228	352348M3	2550.050	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	360545M3	2584.605	ng/mL	
78) C1-Chrysenes	44.732	242	180811M5	1296.163	ng/mL	
79) C2-Chrysenes	46.434	256	104501M5	749.126	ng/mL	
79) C2-Chrysenes BS	46.434	256	104501m	749.126	ng/mL	
80) C3-Chrysenes	47.473	270	94670M5	678.652	ng/mL	
81) C4-Chrysenes	49.024	284	52133M5	373.721	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	380462	2505.931	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.217	252	331463	2005.250	ng/mL	98
84) Benzo[a]fluoranthene	47.533	252	104079	629.646	ng/mL#	1
85) Benzo[e]pyrene	48.151	252	286193	1905.751	ng/mL	98
87) Benzo[a]pyrene	48.346	252	416174	2878.389	ng/mL	99
88) Perylene	48.648	252	122512	792.846	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.181	276	313018M3	1860.340	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	83402	521.067	ng/mL#	92
91) Benzo[g,h,i]perylene	54.491	276	317733	1787.369	ng/mL	100
92) Hopane (T19)	52.217	191	40517M3	1412.169	ng/mL	
94) C23 Tricyclic Terpane (T4	40.788	191	10254	357.390	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.510	191	6097M3	212.503	ng/ml	
96) C25 Tricyclic Terpane (T6	43.001	191	6369M3	221.983	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	3027	105.502	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.055	191	2882M3	100.448	ng/ml	
99) C26 Tricyclic Terpane-22R	44.145	191	2976	103.725	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.434	191	2533M3	88.284	ng/ml	
101) C28 Tricyclic Terpane-22R	46.599	191	4221M3	147.118	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	2966	103.376	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.322	191	3135M3	109.266	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.452	191	5855M3	204.069	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191	2959M3	103.132	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	2602M3	90.689	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	11014	383.879	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	5577	194.379	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.958	191	7943M3	276.843	ng/ml	
110) 30-Norhopane (T15)	50.846	191	33222M3	1157.911	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.952	191	8400M3	292.771	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	1694M3	59.042	ng/ml	
113) 30-Normoretane (T17)	51.630	191	4041M3	140.844	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	52.036	191	1724M3	60.088	ng/ml	
115) Moretane (T20)	52.895	191	5468M3	190.580	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	17040M3	593.908	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191	14053	489.799	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	5654	197.063	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.530	191G	44760M3	1560.053	ng/ml	
120) 30,31-Bishomohopane-22R (	55.982	191	12772	445.152	ng/ml	100
121) 30,31-Trishomohopane-22S	57.713	191	11360M3	395.938	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4561M3	158.968	ng/ml	
123) Tetrakishomohopane-22S (T	60.379	191G	13062M3	455.259	ng/ml	
124) Tetrakishomohopane-22R (T	61.222	191G	49894	1738.992	ng/ml	100
125) Pentakishomohopane-22S (T	63.466	191	5605M3	195.355	ng/ml	
126) Pentakishomohopane-22R (T	64.761	191	3820M3	133.141	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2231M3	163.916	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1215	89.268	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.389	217	1128M3	82.876	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	4961	364.495	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.774	217	5424M3	398.512	ng/ml	
133) Unknown Sterane (S18)	48.060	217	1525M3	112.045	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.316	217	337	24.760	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.467	217	2615M3	192.129	ng/ml	
136) 14a,17a-20R-Methylcholest	49.190	217	1978M3	145.328	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	3911M3	287.349	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.455	217	3348M3	245.984	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.352	218	2564M2	188.382	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.428	218	2576M3	189.264	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2848M3	209.248	ng/ml	
142) 14b,17b-20S-Methylcholest	48.738	218	3867M3	284.116	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	6331M3	465.151	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.837	218	2849M3	209.322	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	17027	1251.008	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	16585	1218.533	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	11379	836.038	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	12879M3	946.246	ng/mL	

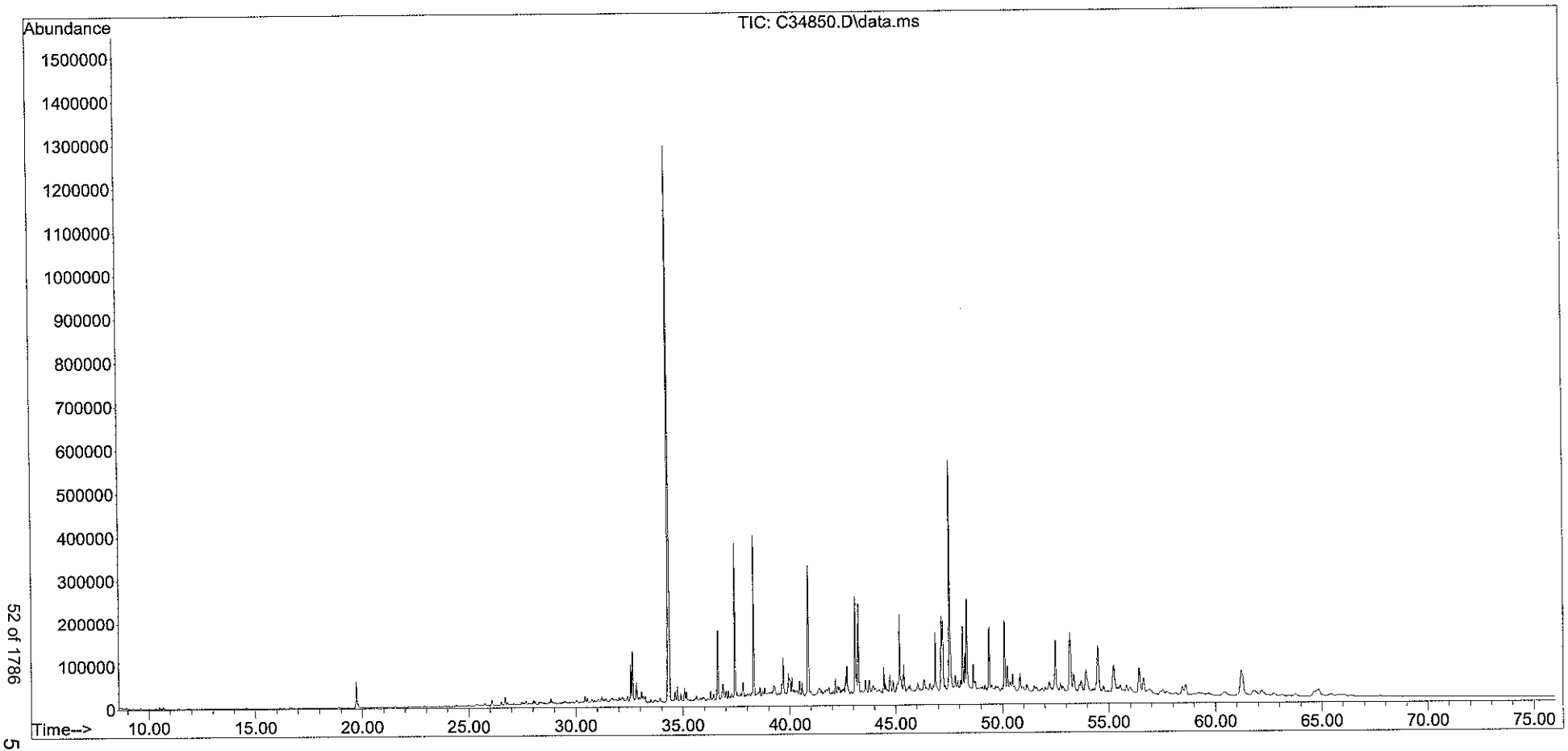
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00032	1	1	AC

Parameter	Result	
cis/trans-Decalin	31.2	U
C1-Decalins	31.2	U
C2-Decalins	31.2	U
C3-Decalins	31.2	U
C4-Decalins	31.2	U
Benzothiophene	**4.09**	J
C1-Benzo(b)thiophenes	31.2	U
C2-Benzo(b)thiophenes	31.2	U
C3-Benzo(b)thiophenes	31.2	U
C4-Benzo(b)thiophenes	31.2	U
Naphthalene	**173**	
C1-Naphthalenes	**90.1**	
C2-Naphthalenes	**32.2**	
C3-Naphthalenes	31.2	U
C4-Naphthalenes	31.2	U
Biphenyl	31.2	U
Dibenzofuran	31.2	U
Acenaphthylene	31.2	U
Acenaphthene	31.2	U
Fluorene	31.2	U
C1-Fluorenes	31.2	U
C2-Fluorenes	31.2	U
C3-Fluorenes	31.2	U
Anthracene	**1.54**	J
Phenanthrene	**6.09**	J
C1-Phenanthrenes/Anthracenes	**7.94**	J
C2-Phenanthrenes/Anthracenes	**23.5**	J
C3-Phenanthrenes/Anthracenes	**33.2**	
C4-Phenanthrenes/Anthracenes	**34.6**	
Retene	31.2	U
Dibenzothiophene	31.2	U
C1-Dibenzothiophenes	31.2	U
C2-Dibenzothiophenes	**23.9**	J

Parameter	Result	
C3-Dibenzothiophenes	**47.2**	
C4-Dibenzothiophenes	**55.4**	
Benzo(b)fluorene	**2.94**	JB
Fluoranthene	**6.51**	JB
Pyrene	**8.43**	JB
C1-Fluoranthenes/Pyrenes	31.2	U
C2-Fluoranthenes/Pyrenes	31.2	U
C3-Fluoranthenes/Pyrenes	31.2	U
C4-Fluoranthenes/Pyrenes	31.2	U
Naphthobenzothiophenes	**5.03**	JB
C1-Naphthobenzothiophenes	**31.8**	
C2-Naphthobenzothiophenes	**53.3**	
C3-Naphthobenzothiophenes	**68.6**	
C4-Naphthobenzothiophenes	31.2	U
Benz[a]anthracene	**4.81**	JB
Chrysene/Triphenylene	**6.85**	JB
C1-Chrysenes	**11.8**	J
C2-Chrysenes	31.2	U
C3-Chrysenes	31.2	U
C4-Chrysenes	31.2	U
Benzo[b]fluoranthene	**11.4**	JB
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**8.49**	JB
Benzo[a]fluoranthene	31.2	U
Benzo[e]pyrene	**12.5**	JB
Benzo[a]pyrene	**10.4**	JB
Perylene	**10.1**	JB
Indeno[1,2,3-cd]pyrene	**21.3**	JB
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**11.5**	JB
Benzo[g,h,i]perylene	**28.2**	JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	93	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00032	1	1	AC

Parameter	Result
Carbazole	3.09 JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	93	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00032	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	31.2	U
2/3-Methyldibenzothiophene	31.2	U
1-Methyldibenzothiophene	31.2	U
3-Methylphenanthrene	**1.04**	J
2/4-Methylphenanthrene	**0.878**	J
2-Methylanthracene	31.2	U
9-Methylphenanthrene	**1.19**	J
1-Methylphenanthrene	**0.753**	J
2-Methylnaphthalene	**94.0**	
1-Methylnaphthalene	**50.8**	
2,6-Dimethylnaphthalene	**13.2**	J
2,3,5-Trimethylnaphthalene	31.2	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	93	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00032	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**33.2**	
C24 Tricyclic Terpane	**22.6**	J
C25 Tricyclic Terpane	31.2	U
C24 Tetracyclic Terpane	31.2	U
C26 Tricyclic Terpane-22S	31.2	U
C26 Tricyclic Terpane-22R	31.2	U
C28 Tricyclic Terpane-22S	31.2	U
C28 Tricyclic Terpane-22R	31.2	U
C29 Tricyclic Terpane-22S	31.2	U
C29 Tricyclic Terpane-22R	31.2	U
18a-22,29,30-Trisnorneohopane-TS	**29.2**	J
C30 Tricyclic Terpane-22S	31.2	U
C30 Tricyclic Terpane-22R	31.2	U
17a(H)-22,29,30-Trisnorhopane-TM	**33.3**	
17a/b,21b/a 28,30-Bisnorhopane	31.2	U
17a(H),21b(H)-25-Norhopane	31.2	U
30-Norhopane	**67.2**	
18a(H)-30-Norneohopane-C29Ts	31.2	U
17a(H)-Diahopane	31.2	U
30-Normoretane	31.2	U
18a(H)&18b(H)-Oleananes	31.2	U
Hopane	**94.4**	
Moretane	31.2	U
30-Homohopane-22S	31.2	U
30-Homohopane-22R	31.2	U
T22a-Gammacerane/C32-diahopane	31.2	U
30,31-Bishomohopane-22S	31.2	U
30,31-Bishomohopane-22R	31.2	U

Parameter	Result	
30,31-Trishomohopane-22S	31.2	U
30,31-Trishomohopane-22R	31.2	U
Tetrakishomohopane-22S	31.2	U
Tetrakishomohopane-22R	31.2	U
Pentakishomohopane-22S	31.2	U
Pentakishomohopane-22R	31.2	U
13b(H),17a(H)-20S-Diacholestane	31.2	U
13b(H),17a(H)-20R-Diacholestane	31.2	U
13b,17a-20S-Methyldiacholestane	31.2	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**45.6**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**25.5**	J
Unknown Sterane (S18)	**47.2**	GB
13a,17b-20S-Ethyldiacholestane	31.2	U
14a,17a-20S-Methylcholestane	31.2	U
14a,17a-20R-Methylcholestane	31.2	U
14a(H),17a(H)-20S-Ethylcholestane	**46.3**	
14a(H),17a(H)-20R-Ethylcholestane	31.2	U
14b(H),17b(H)-20R-Cholestane	**13.7**	J
14b(H),17b(H)-20S-Cholestane	**22.3**	J
14b,17b-20R-Methylcholestane	31.2	U
14b,17b-20S-Methylcholestane	31.2	U
14b(H),17b(H)-20R-Ethylcholestane	**19.8**	J
14b(H),17b(H)-20S-Ethylcholestane	**18.5**	J
C26,20R- +C27,20S- triaromatic steroid	**87.1**	
C28,20S-triaromatic steroid	**94.8**	
C27,20R-triaromatic steroid	**85.2**	
C28,20R-triaromatic steroid	**60.3**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	98	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

BP 5/4/12

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.711	164	17202M3	500.000	ng/mL	0.02
74) Chrysene-d12		43.151	240	31325	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	64785M3	867.721	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	86.77%		
42) Phenanthrene-d10		32.567	188	54711	927.097	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	92.71%		
86) Benzo[a]pyrene-d12		48.241	264	59351	914.237	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	91.42%		
127) 5B(H)Cholane - Surr		43.769	217	9552	975.312	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	97.53%		
Target Compounds							Qvalue
10) Naphthalene		19.801	128	6067	55.338	ng/mL#	100
11) C1-Naphthalenes		22.511	142	3160M5	28.823	ng/mL	
12) C2-Naphthalenes		25.025	156	1128M5	10.289	ng/mL	
16) 2-Methylnaphthalene		22.511	142	1951	30.096	ng/mL#	100
17) 1-Methylnaphthalene		22.932	142	1033M3	16.257	ng/mL	
18) Benzothiophene		20.027	134	129M3	1.308	ng/mL	
24) 2,6-Dimethylnaphthalene		25.025	156	225M3	4.225	ng/mL	
39) C2-Dibenzothiophenes		35.623	212	867M5	7.653	ng/mL	
40) C3-Dibenzothiophenes		37.415	226	1710M5	15.094	ng/mL	
41) C4-Dibenzothiophenes		38.424	240	2007M5	17.716	ng/mL	
43) Phenanthrene		32.657	178	194M3	1.949	ng/mL	
44) 3-Methylphenanthrene(3MP)		34.600	192	33M3	0.332	ng/mL	
45) 2/4-Methylphenanthrene...		34.735	192	28M3	0.281	ng/mL	
47) 9-Methylphenanthrene(9MP)		35.081	192	38M2	0.382	ng/mL	
48) 1-Methylphenanthrene(1MP)		35.172	192	24M2	0.241	ng/mL	
49) C1-Phenanthrenes/Anthr...		35.081	192	253M5	2.542	ng/mL	
50) C2-Phenanthrenes/Anthr...		36.632	206	2871M5	28.844	ng/mL	
51) 5AA IS BKGD		36.632	206	2123	21.329	ng/mL	100
52) C3-Phenanthrenes/Anthr...		39.990	220	1057M5	10.619	ng/mL	
53) C4-Phenanthrenes/Anthr...		40.893	234	1101M5	11.062	ng/mL	
55) Anthracene		32.838	178	48M2	0.494	ng/mL	
56) Carbazole		33.501	167	97M3	0.988	ng/mL	
57) 1-Methylphenanthrene		35.172	192	24M3	0.380	ng/mL	
58) Fluoranthene		37.430	202	206M3	2.084	ng/mL	
59) Benzo(b)fluorene		39.945	216	54M3	0.942	ng/mL	
60) Pyrene		38.303	202	271	2.697	ng/mL#	58
66) Naphthobenzothiophene		42.158	234	174M3	1.608	ng/ml	
67) Naphthobenzothiophene-...		42.158	234	174M3	1.608	ng/mL	
70) C1-Naphthobenzothiophenes		43.558	248	1102M5	10.186	ng/ml	
71) C2-Naphthobenzothiophenes		45.591	262	1845M5	17.054	ng/ml	
72) C3-Naphthobenzothiophenes		47.157	276	2374M5	21.944	ng/ml	
75) Benz[a]anthracene		43.091	228	153	1.539	ng/mL#	48
77) Chrysene/Triphenylene		43.242	228	220M3	2.192	ng/mL	
78) C1-Chrysenes		44.717	242	378M5	3.766	ng/mL	
82) Benzo[b]fluoranthene		47.142	252	400M3	3.661	ng/mL	
83) Benzo[j]+[k]fluoranthene		47.217	252	323M3	2.716	ng/mL	
85) Benzo[e]pyrene		48.136	252	434M3	4.016	ng/mL	
87) Benzo[a]pyrene		48.332	252	345M3	3.316	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
88)	Perylene	48.633	252		359M3	3.229	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	53.151	276		826M3	6.822	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278		424M3	3.681	ng/mL	
91)	Benzo[g,h,i]perylene	54.446	276		1154	9.022	ng/mL	93
92)	Hopane (T19)	52.202	191		624M3	30.225	ng/mL	
94)	C23 Tricyclic Terpane ...	40.788	191		219M3	10.608	ng/ml	
95)	C24 Tricyclic Terpane ...	41.510	191		149M3	7.217	ng/ml	
104)	18a-22,29,30-Trisnorne...	48.437	191		193M3	9.348	ng/ml	
107)	17a(H)-22,29,30-Trisno...	48.994	191		220M3	10.656	ng/ml	
110)	30-Norhopane (T15)	50.847	191		444M3	21.506	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.277	217		143M3	14.601	ng/ml	
132)	14a,17a-20R-Chol/13b,1...	47.774	217		80M3	8.168	ng/ml	
133)	Unknown Sterane (S18)	48.091	217	G	148M3	15.112	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.521	217		145	14.805	ng/ml	100
139)	14b(H),17b(H)-20R-Chol...	47.353	218		43M2	4.391	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218		70M2	7.147	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.777	218		62M3	6.331	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.823	218		58M3	5.922	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231		273M3	27.875	ng/mL	
146)	C28,20S-triaromatic st...	50.350	231		297M3	30.325	ng/mL	
147)	C27,20R-triaromatic st...	50.801	231		267M3	27.262	ng/mL	
148)	C28,20R-triaromatic st...	52.006	231		189M3	19.298	ng/mL	

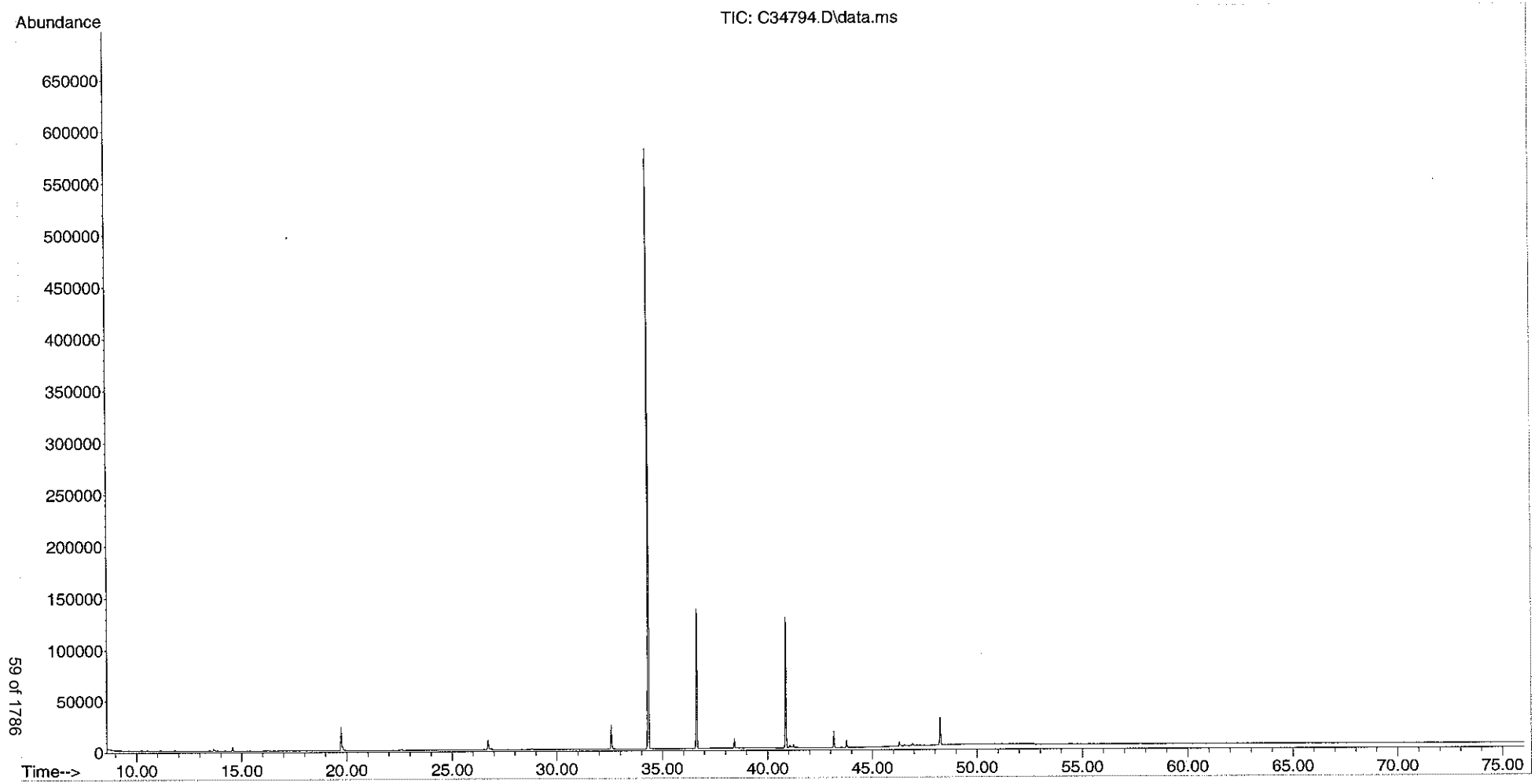
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00056	1	1	AC

Parameter	Result	
cis/trans-Decalin	**14.4**	J
C1-Decalins	**54.7**	
C2-Decalins	**122**	
C3-Decalins	**138**	
C4-Decalins	**327**	
Benzothiophene	**6.85**	J
C1-Benzo(b)thiophenes	**18.4**	
C2-Benzo(b)thiophenes	**13.6**	J
C3-Benzo(b)thiophenes	**70.7**	
C4-Benzo(b)thiophenes	**148**	
Naphthalene	**378**	
C1-Naphthalenes	**256**	
C2-Naphthalenes	**133**	
C3-Naphthalenes	**226**	
C4-Naphthalenes	**428**	
Biphenyl	**7.54**	J
Dibenzofuran	**4.47**	J
Acenaphthylene	**2.06**	J
Acenaphthene	**8.07**	J
Fluorene	**7.51**	J
C1-Fluorenes	**56.6**	
C2-Fluorenes	**290**	
C3-Fluorenes	**556**	
Anthracene	17.9	U
Phenanthrene	**49.5**	
C1-Phenanthrenes/Anthracenes	**294**	
C2-Phenanthrenes/Anthracenes	**826**	
C3-Phenanthrenes/Anthracenes	**907**	
C4-Phenanthrenes/Anthracenes	**488**	
Retene	17.9	U
Dibenzothiophene	**25.7**	
C1-Dibenzothiophenes	**268**	
C2-Dibenzothiophenes	**926**	
C3-Dibenzothiophenes	**1340**	
C4-Dibenzothiophenes	**1010**	
Benzo(b)fluorene	17.9	U
Fluoranthene	**35.1**	
Pyrene	**67.8**	
C1-Fluoranthenes/Pyrenes	**237**	
C2-Fluoranthenes/Pyrenes	**380**	
C3-Fluoranthenes/Pyrenes	**447**	
C4-Fluoranthenes/Pyrenes	**457**	
Naphthobenzothiophenes	**142**	
C1-Naphthobenzothiophenes	**537**	
C2-Naphthobenzothiophenes	**812**	
C3-Naphthobenzothiophenes	**724**	
C4-Naphthobenzothiophenes	**548**	
Benz[a]anthracene	**17.1**	JB
Chrysene/Triphenylene	**73.8**	
C1-Chrysenes	**212**	
C2-Chrysenes	**327**	
C3-Chrysenes	**489**	
C4-Chrysenes	**283**	
Benzo[b]fluoranthene	**28.4**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**11.5**	JB
Benzo[a]fluoranthene	**3.62**	J
Benzo[e]pyrene	**41.0**	B
Benzo[a]pyrene	**22.7**	B
Perylene	**36.4**	B
Indeno[1,2,3-cd]pyrene	**16.8**	JB
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.79**	JB
Benzo[g,h,i]perylene	**37.8**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

05/09/12 14:48

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00056	1	1	AC

Parameter	Result
Carbazole	**13.0** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00056	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	**98.1**
2/3-Methyldibenzothiophene	**92.4**
1-Methyldibenzothiophene	**59.6**
3-Methylphenanthrene	**53.6**
2/4-Methylphenanthrene	**61.6**
2-Methylanthracene	**9.77** J
9-Methylphenanthrene	**105**
1-Methylphenanthrene	**58.1**
2-Methylnaphthalene	**276**
1-Methylnaphthalene	**158**
2,6-Dimethylnaphthalene	**71.2**
2,3,5-Trimethylnaphthalene	**32.2**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00056	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**506**	
C24 Tricyclic Terpane	**277**	
C25 Tricyclic Terpane	**255**	
C24 Tetracyclic Terpane	**91.6**	
C26 Tricyclic Terpane-22S	**99.4**	
C26 Tricyclic Terpane-22R	**100**	
C28 Tricyclic Terpane-22S	**106**	
C28 Tricyclic Terpane-22R	**116**	
C29 Tricyclic Terpane-22S	**138**	
C29 Tricyclic Terpane-22R	**131**	
18a-22,29,30-Trisnorneohopane-TS	**147**	
C30 Tricyclic Terpane-22S	**117**	
C30 Tricyclic Terpane-22R	**111**	
17a(H)-22,29,30-Trisnorhopane-TM	**334**	
17a/b,21b/a 28,30-Bisnorhopane	**188**	
17a(H),21b(H)-25-Norhopane	**59.3**	
30-Norhopane	**828**	
18a(H)-30-Norneohopane-C29Ts	**110**	
17a(H)-Diahopane	**44.1**	
30-Normoretane	**98.7**	
18a(H)&18b(H)-Oleananes	17.9	U
Hopane	**1170**	
Moretane	**80.9**	
30-Homohopane-22S	**505**	
30-Homohopane-22R	**410**	
T22a-Gammacerane/C32-diahopane	**174**	
30,31-Bishomohopane-22S	**320**	
30,31-Bishomohopane-22R	**227**	

Parameter	Result	
30,31-Trishomohopane-22S	**232**	
30,31-Trishomohopane-22R	**152**	
Tetrakishomohopane-22S	**172**	
Tetrakishomohopane-22R	**145**	
Pentakishomohopane-22S	**228**	
Pentakishomohopane-22R	**148**	
13b(H),17a(H)-20S-Diacholestane	**155**	
13b(H),17a(H)-20R-Diacholestane	**69.6**	
13b,17a-20S-Methyldiacholestane	**84.6**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**264**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**275**	
Unknown Sterane (S18)	**127**	B
13a,17b-20S-Ethyldiacholestane	**26.7**	
14a,17a-20S-Methylcholestane	**161**	
14a,17a-20R-Methylcholestane	**129**	
14a(H),17a(H)-20S-Ethylcholestane	**331**	
14a(H),17a(H)-20R-Ethylcholestane	**228**	
14b(H),17b(H)-20R-Cholestane	**192**	
14b(H),17b(H)-20S-Cholestane	**198**	
14b,17b-20R-Methylcholestane	**168**	
14b,17b-20S-Methylcholestane	**221**	
14b(H),17b(H)-20R-Ethylcholestane	**294**	
14b(H),17b(H)-20S-Ethylcholestane	**195**	
C26,20R- +C27,20S- triaromatic steroid	**1670**	
C28,20S-triaromatic steroid	**1430**	
C27,20R-triaromatic steroid	**1060**	
C28,20R-triaromatic steroid	**1190**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	97	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	18045M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	33542	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	58815	750.959	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	75.10%		
42) Phenanthrene-d10		32.567	188	57107	922.491	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	92.25%		
86) Benzo[a]pyrene-d12		48.241	264	60964	877.013	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	87.70%		
127) 5B(H)Cholane - Surr		43.769	217	10213	973.879	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	97.39%		
Target Compounds							Qvalue
3) trans-Decalin		16.384	138	115M3	8.073	ng/mL	
5) C1-Decalins		17.874	152	436M5	30.608	ng/mL	
6) C2-Decalins		19.289	166	973M5	68.305	ng/mL	
7) C3-Decalins		22.119	180	1097M5	77.010	ng/mL	
8) C4-Decalins		25.507	194	2609M5	183.154	ng/mL	
10) Naphthalene		19.801	128	24356	211.775	ng/mL#	100
11) C1-Naphthalenes		22.496	142	16474M5	143.241	ng/mL	
12) C2-Naphthalenes		25.341	156	8586M5	74.655	ng/mL	
13) C3-Naphthalenes		28.021	170	14584M5	126.807	ng/mL	
14) C4-Naphthalenes		30.445	184	27597M5	239.955	ng/mL	
16) 2-Methylnaphthalene		22.496	142	10507	154.510	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	5882	88.244	ng/mL#	100
18) Benzothiophene		20.027	134	397M3	3.836	ng/mL	
19) C1-Benzo(b)thiophenes		22.631	148	1065M5	10.290	ng/mL	
20) C2-Benzo(b)thiophenes		25.537	162	790M5	7.633	ng/mL	
21) C3-Benzo(b)thiophenes		27.509	176	4100M5	39.616	ng/mL	
22) C4-Benzo(b)thiophenes		29.617	190	8604M5	83.135	ng/mL	
23) Biphenyl		24.378	154	363	4.220	ng/mL#	100
24) 2,6-Dimethylnaphthalene		24.995	156	2227	39.860	ng/mL#	100
25) Dibenzofuran		27.464	168	247	2.501	ng/mL#	47
26) Acenaphthylene		26.079	152	132M3	1.156	ng/mL	
27) Acenaphthene		26.816	153	304M3	4.522	ng/mL	
28) 2,3,5-Trimethylnaphtha...		28.367	170	813M3	18.051	ng/mL	
29) Fluorene		28.834	166	312M3	4.208	ng/mL	
30) C1-Fluorenes		31.197	180	2349M5	31.685	ng/mL	
31) C2-Fluorenes		33.395	194	12058M5	162.645	ng/mL	
32) C3-Fluorenes		35.232	208	23092M5	311.477	ng/mL	
33) Dibenzothiophene		32.161	184	1713	14.414	ng/mL#	1
34) 4-Methyldibenzothiophe...		33.922	198	6529	54.939	ng/mL#	100
35) 2/3-Methyldibenzothiop...		34.298	198	6151M3	51.758	ng/mL	
36) 1-Methyldibenzothiophe...		34.705	198	3967	33.381	ng/mL#	100
37) OTP		34.344	198	11614M3	97.727	ng/mL	
38) C1-Dibenzothiophenes		34.344	198	29433M5	247.667	ng/mL	
39) C2-Dibenzothiophenes		35.623	212	61645M5	518.719	ng/mL	
40) C3-Dibenzothiophenes		37.415	226	89081M5	749.582	ng/mL	
41) C4-Dibenzothiophenes		39.116	240	67083M5	564.477	ng/mL	
43) Phenanthrene		32.657	178	2892	27.698	ng/mL#	1
44) 3-Methylphenanthrene(3MP)		34.615	192	3134M3	30.016	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2/4-Methylphenanthrene...	34.720	192	3599M3	34.469	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	571M3	5.469	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	6163	59.026	ng/mL	91
48) 1-Methylphenanthrene(1MP)	35.157	192	3398M3	32.544	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	17208M5	164.809	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.873	206	48324M5	462.821	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	53012M5	507.720	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	28565M5	273.580	ng/mL	
56) Carbazole	33.485	167	752M3	7.300	ng/mL	
57) 1-Methylphenanthrene	35.157	192	3415M3	51.611	ng/mL	
58) Fluoranthene	37.430	202	2036M3	19.634	ng/mL	
60) Pyrene	38.303	202	4000M3	37.946	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	14004M5	132.850	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	22458M5	213.050	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	26390M5	250.351	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	26972M5	255.872	ng/mL	
66) Naphthobenzothiophene	42.158	234	6373	56.157	ng/ml#	89
67) Naphthobenzothiophene-...	42.158	234	6373	56.157	ng/mL#	89
68) Naphthobenzothiophene-...	42.489	234	1593M3	14.037	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1091M3	9.614	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	34152M5	300.936	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	51573M5	454.444	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	46011M5	405.433	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	34801M5	306.655	ng/mL	
75) Benz[a]anthracene	43.091	228	1019M3	9.572	ng/mL	
77) Chrysene/Triphenylene	43.227	228	4441M3	41.319	ng/mL	
78) C1-Chrysenes	44.717	242	12740M5	118.531	ng/mL	
79) C2-Chrysenes	46.795	256	19691M5	183.203	ng/mL	
80) C3-Chrysenes	49.491	270	29407M5	273.599	ng/mL	
81) C4-Chrysenes	49.506	284	17017M5	158.324	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	1862M3	15.917	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.202	252	823M3	6.462	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	258M2	2.026	ng/mL	
85) Benzo[e]pyrene	48.136	252	2657	22.963	ng/mL#	88
87) Benzo[a]pyrene	48.316	252	1416M3	12.711	ng/mL	
88) Perylene	48.633	252	2429	20.402	ng/mL#	47
89) Indeno[1,2,3-cd]pyrene	53.121	276	1220M3	9.410	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.151	278	538M3	4.362	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	2897	21.151	ng/mL	91
92) Hopane (T19)	52.217	191	14491M3	655.507	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	6264M3	283.355	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	3433	155.293	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	3161M3	142.989	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	1134M3	51.297	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	1230M3	55.640	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1238M3	56.001	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1307M3	59.123	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1436M3	64.958	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	1715M3	77.579	ng/ml	
103) C29 Tricyclic Terpane-...	47.322	191	1624M3	73.462	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	1822	82.419	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	1453M3	65.727	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	1379M3	62.380	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107) 17a(H)-22,29,30-Trisno...	48.994	191	4131M3	186.868	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	2333M3	105.534	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.973	191	734M3	33.203	ng/ml	
110) 30-Norhopane (T15)	50.847	191	10251M3	463.709	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	1356M3	61.339	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	546M3	24.699	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1222	55.278	ng/ml	100
115) Moretane (T20)	52.895	191	1002M3	45.326	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	6255M3	282.948	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	5071	229.389	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2148M3	97.166	ng/mL	
119) 30,31-Bishomohopane-22...	55.545	191	3963M3	179.268	ng/ml	
120) 30,31-Bishomohopane-22...	55.937	191	2814M3	127.293	ng/ml	
121) 30,31-Trishomohopane-2...	57.683	191	2871	129.871	ng/ml	100
122) 30,31-Trishomohopane-2...	58.301	191	1879M3	84.997	ng/ml	
123) Tetrakishomohopane-22S...	60.304	191	2136	96.623	ng/ml	100
124) Tetrakishomohopane-22R...	61.207	191	1794M3	81.152	ng/ml	
125) Pentakishomohopane-22S...	63.466	191	2825M3	127.790	ng/ml	
126) Pentakishomohopane-22R...	64.776	191	1836M3	83.052	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	909M3	86.679	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	409M3	39.001	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	497M3	47.392	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1553	148.089	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1613M3	153.810	ng/ml	
133) Unknown Sterane (S18)	48.045	217	749	71.422	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	157	14.971	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	944M3	90.017	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	755M3	71.994	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	1943M3	185.278	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	1342M3	127.969	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1125M3	107.276	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1164M3	110.995	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	986	94.022	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	1297M3	123.678	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	1726M3	164.586	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1143M3	108.993	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	9813	935.736	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	8384	799.471	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	6240M4	595.026	ng/mL	
148) C28,20R-triaromatic st...	52.006	231	6990M3	666.544	ng/mL	

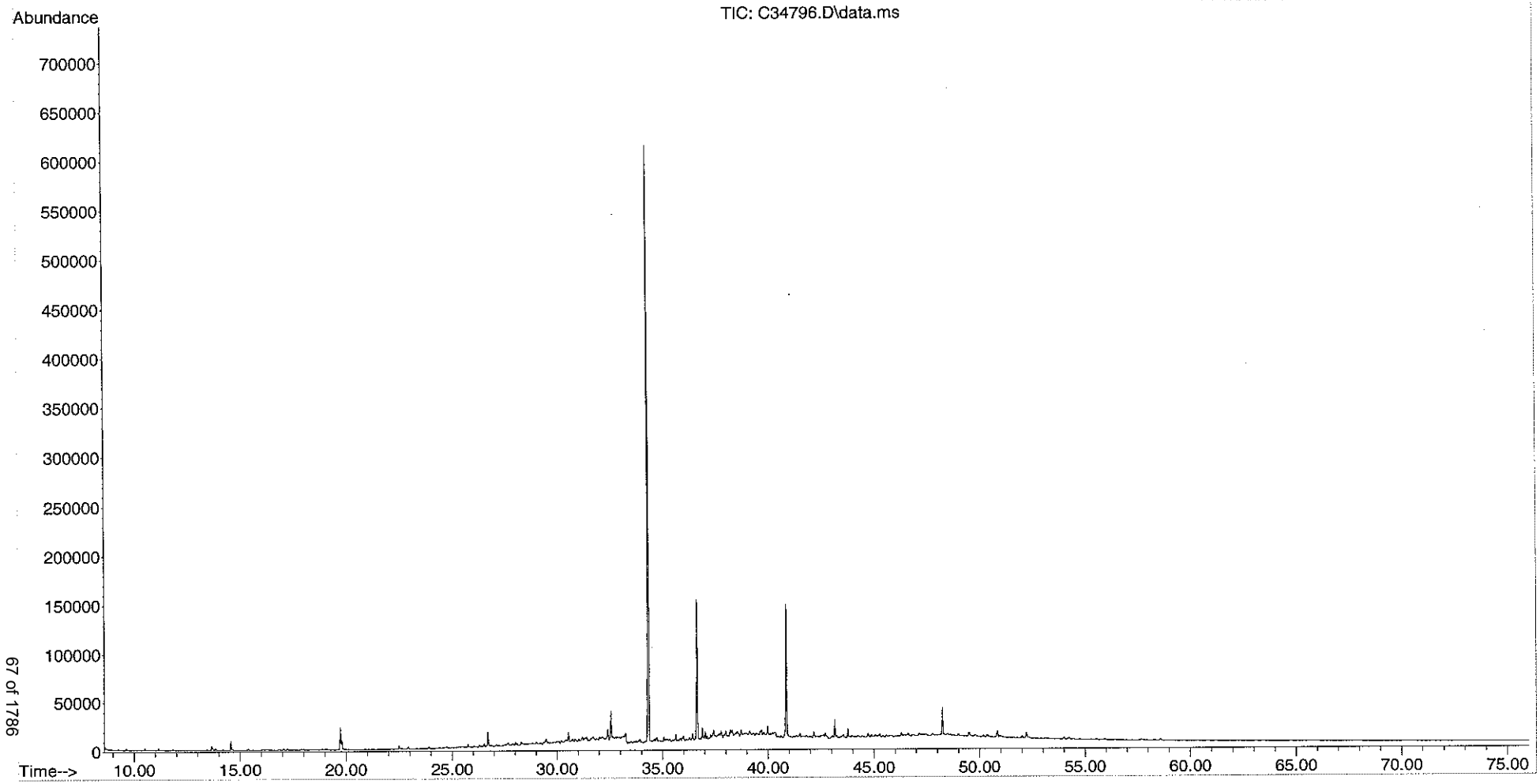
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004D041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-05**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00248	1	1	AC

Parameter	Result	
cis/trans-Decalin	**2.57**	J
C1-Decalins	**9.52**	
C2-Decalins	**23.4**	
C3-Decalins	**26.6**	
C4-Decalins	**90.4**	
Benzothiophene	**0.378**	J
C1-Benzo(b)thiophenes	4.03	U
C2-Benzo(b)thiophenes	**4.00**	J
C3-Benzo(b)thiophenes	**22.7**	
C4-Benzo(b)thiophenes	**50.3**	
Naphthalene	**16.1**	
C1-Naphthalenes	**10.5**	
C2-Naphthalenes	**19.9**	
C3-Naphthalenes	**78.2**	
C4-Naphthalenes	**147**	
Biphenyl	**0.551**	J
Dibenzofuran	**0.596**	J
Acenaphthylene	**0.361**	J
Acenaphthene	4.03	U
Fluorene	**2.01**	J
C1-Fluorenes	**21.1**	
C2-Fluorenes	**92.3**	
C3-Fluorenes	**166**	
Anthracene	4.03	U
Phenanthrene	**15.0**	
C1-Phenanthrenes/Anthracenes	**97.8**	
C2-Phenanthrenes/Anthracenes	**253**	
C3-Phenanthrenes/Anthracenes	**282**	
C4-Phenanthrenes/Anthracenes	**152**	
Retene	4.03	U
Dibenzothiophene	**9.58**	
C1-Dibenzothiophenes	**89.6**	
C2-Dibenzothiophenes	**286**	

Parameter	Result	
C3-Dibenzothiophenes	**406**	
C4-Dibenzothiophenes	**303**	
Benzo(b)fluorene	4.03	U
Fluoranthene	**8.39**	B
Pyrene	**20.3**	B
C1-Fluoranthenes/Pyrenes	**73.2**	
C2-Fluoranthenes/Pyrenes	**111**	
C3-Fluoranthenes/Pyrenes	**132**	
C4-Fluoranthenes/Pyrenes	**147**	
Naphthobenzothiophenes	**42.6**	
C1-Naphthobenzothiophenes	**164**	
C2-Naphthobenzothiophenes	**248**	
C3-Naphthobenzothiophenes	**224**	
C4-Naphthobenzothiophenes	**167**	
Benz[a]anthracene	**4.49**	B
Chrysene/Triphenylene	**22.0**	B
C1-Chrysenes	**62.0**	
C2-Chrysenes	**99.4**	
C3-Chrysenes	**125**	
C4-Chrysenes	**78.3**	
Benzo[b]fluoranthene	**8.41**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**3.70**	JB
Benzo[a]fluoranthene	**1.07**	J
Benzo[e]pyrene	**12.8**	B
Benzo[a]pyrene	**6.92**	B
Perylene	**11.1**	B
Indeno[1,2,3-cd]pyrene	**5.74**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.32**	JB
Benzo[g,h,i]perylene	**11.5**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	90	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

05/09/12 14:48

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004D041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-05**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00248	1	1	AC

Parameter	Result
Carbazole	4.13 B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	90	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004D041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-05**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00248	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**34.0**	
2/3-Methyldibenzothiophene	**28.6**	
1-Methyldibenzothiophene	**19.4**	
3-Methylphenanthrene	**18.0**	
2/4-Methylphenanthrene	**21.4**	
2-Methylanthracene	**3.08**	J
9-Methylphenanthrene	**34.9**	
1-Methylphenanthrene	**20.0**	
2-Methylnaphthalene	**11.2**	
1-Methylnaphthalene	**7.16**	
2,6-Dimethylnaphthalene	**9.14**	
2,3,5-Trimethylnaphthalene	**11.4**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	90	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004D041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-05**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/03/12	100	0.00248	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**145**	
C24 Tricyclic Terpane	**85.2**	
C25 Tricyclic Terpane	**78.0**	
C24 Tetracyclic Terpane	**26.0**	
C26 Tricyclic Terpane-22S	**29.2**	
C26 Tricyclic Terpane-22R	**26.8**	
C28 Tricyclic Terpane-22S	**31.0**	
C28 Tricyclic Terpane-22R	**33.1**	
C29 Tricyclic Terpane-22S	**42.0**	
C29 Tricyclic Terpane-22R	**35.8**	
18a-22,29,30-Trisnorneohopane-TS	**43.3**	
C30 Tricyclic Terpane-22S	**39.3**	
C30 Tricyclic Terpane-22R	**33.5**	
17a(H)-22,29,30-Trisnorhopane-TM	**97.0**	
17a/b,21b/a 28,30-Bisnorhopane	**53.3**	
17a(H),21b(H)-25-Norhopane	**17.3**	
30-Norhopane	**247**	
18a(H)-30-Norneohopane-C29Ts	**39.4**	
17a(H)-Diahopane	**14.0**	
30-Normoretane	**21.9**	
18a(H)&18b(H)-Oleananes	4.03	U
Hopane	**352**	
Moretane	**26.2**	
30-Homohopane-22S	**153**	
30-Homohopane-22R	**126**	
T22a-Gammacerane/C32-diahopane	**53.6**	
30,31-Bishomohopane-22S	**101**	
30,31-Bishomohopane-22R	77.7	

Parameter	Result	
30,31-Trishomohopane-22S	**77.2**	
30,31-Trishomohopane-22R	**45.3**	
Tetrakishomohopane-22S	**51.3**	
Tetrakishomohopane-22R	**33.7**	
Pentakishomohopane-22S	**59.9**	
Pentakishomohopane-22R	**41.0**	
13b(H),17a(H)-20S-Diacholestane	**61.6**	
13b(H),17a(H)-20R-Diacholestane	**23.9**	
13b,17a-20S-Methyldiacholestane	**22.2**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**77.7**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**98.6**	
Unknown Sterane (S18)	**21.5**	B
13a,17b-20S-Ethyldiacholestane	**7.44**	
14a,17a-20S-Methylcholestane	**46.3**	
14a,17a-20R-Methylcholestane	**36.1**	
14a(H),17a(H)-20S-Ethylcholestane	**108**	
14a(H),17a(H)-20R-Ethylcholestane	**73.6**	
14b(H),17b(H)-20R-Cholestane	**58.3**	
14b(H),17b(H)-20S-Cholestane	**61.6**	
14b,17b-20R-Methylcholestane	**53.2**	
14b,17b-20S-Methylcholestane	**66.0**	
14b(H),17b(H)-20R-Ethylcholestane	**91.7**	
14b(H),17b(H)-20S-Ethylcholestane	**59.5**	
C26,20R- +C27,20S- triaromatic steroid	**504**	
C28,20S-triaromatic steroid	**419**	
C27,20R-triaromatic steroid	**320**	
C28,20R-triaromatic steroid	**355**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	102	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.

05/09/12 14:48

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17663M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33128	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	62526	815.607	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 81.56%			
42) Phenanthrene-d10	32.567	188	57641	951.254	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.13%			
86) Benzo[a]pyrene-d12	48.241	264	62073	904.127	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.41%			
127) 5B(H)Cholane - Surr	43.769	217	10606	1023.993	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.40%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	89M3	6.383	ng/mL	
5) C1-Decalins	17.859	152	329M5	23.596	ng/mL	
6) C2-Decalins	19.650	166	810M5	58.092	ng/mL	
7) C3-Decalins	22.119	180	918M5	65.838	ng/mL	
8) C4-Decalins	25.507	194	3125M5	224.122	ng/mL	
10) Naphthalene	19.801	128	4502	39.991	ng/mL#	100
11) C1-Naphthalenes	22.496	142	2932M5	26.045	ng/mL	
12) C2-Naphthalenes	25.341	156	5550M5	49.301	ng/mL	
13) C3-Naphthalenes	28.021	170	21821M5	193.836	ng/mL	
14) C4-Naphthalenes	30.444	184	41085M5	364.959	ng/mL	
16) 2-Methylnaphthalene	22.496	142	1844	27.703	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	1158	17.749	ng/mL#	100
18) Benzothiophene	20.027	134	95M3	0.938	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	1004M5	9.911	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5711M5	56.375	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	12632M5	124.695	ng/mL	
23) Biphenyl	24.377	154	115M3	1.366	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	1240	22.674	ng/mL#	100
25) Dibenzofuran	27.464	168	143	1.479	ng/mL#	47
26) Acenaphthylene	26.079	152	100M3	0.895	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	1248M3	28.309	ng/mL	
29) Fluorene	28.834	166	362M3	4.988	ng/mL	
30) C1-Fluorenes	31.197	180	3796M5	52.310	ng/mL	
31) C2-Fluorenes	33.395	194	16613M5	228.931	ng/mL	
32) C3-Fluorenes	35.232	208	29788M5	410.486	ng/mL	
33) Dibenzothiophene	32.160	184	2764	23.761	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	9806	84.298	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	8261M3	71.016	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	5610	48.227	ng/mL#	100
37) OTP	34.343	198	11500M3	98.861	ng/mL	
38) C1-Dibenzothiophenes	34.343	198	37358M5	321.152	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	82513M5	709.331	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	117059M5	1006.309	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	87384M5	751.205	ng/mL	
43) Phenanthrene	32.657	178	3791	37.093	ng/mL#	1
44) 3-Methylphenanthrene(3MP)	34.614	192	4571M3	44.725	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	5425M3	53.081	ng/mL	
46) 2-Methylanthracene(2MA)	34.885	192	780M3	7.632	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
47) 9-Methylphenanthrene(9MP)	35.066	192	8853	86.623	ng/mL	92
48) 1-Methylphenanthrene(1MP)	35.156	192	5076M3	49.667	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	24798M5	242.638	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	64097M5	627.163	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	71355M5	698.180	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	38619M5	377.871	ng/mL	
56) Carbazole	33.485	167	1032M3	10.234	ng/mL	
57) 1-Methylphenanthrene	35.156	192	5060M3	78.126	ng/mL	
58) Fluoranthene	37.430	202	2111M3	20.797	ng/mL	
60) Pyrene	38.303	202	5191M3	50.310	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	18729M5	181.517	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	28438M5	275.614	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	33886M5	328.414	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	37728M5	365.650	ng/mL	
66) Naphthobenzothiophene	42.158	234	8319	74.890	ng/ml	97
67) Naphthobenzothiophene-...	42.158	234	8319	74.890	ng/mL	97
68) Naphthobenzothiophene-...	42.504	234	2004M3	18.040	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1404M3	12.639	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	45234M5	407.207	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	68317M5	615.005	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	61782M5	556.176	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	45897M5	413.175	ng/mL	
75) Benz[a]anthracene	43.091	228	1172M3	11.146	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5784M3	54.486	ng/mL	
78) C1-Chrysenes	44.717	242	16315M5	153.690	ng/mL	
79) C2-Chrysenes	46.795	256	26170M5	246.525	ng/mL	
80) C3-Chrysenes	49.491	270	32919M5	310.102	ng/mL	
81) C4-Chrysenes	49.506	284	20615M5	194.197	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	2409M3	20.851	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1153M3	9.166	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	333M2	2.647	ng/mL	
85) Benzo[e]pyrene	48.136	252	3615M3	31.633	ng/mL	
87) Benzo[a]pyrene	48.331	252	1889M3	17.168	ng/mL	
88) Perylene	48.633	252	3245M3	27.596	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1822M3	14.230	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	702M3	5.763	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3868	28.593	ng/mL#	82
92) Hopane (T19)	52.217	191	19056	872.779	ng/mL#	77
94) C23 Tricyclic Terpane ...	40.787	191	7849M3	359.490	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4611	211.187	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	4222M3	193.371	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1405M3	64.350	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	1581M3	72.411	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1452M3	66.503	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1677M3	76.808	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1792	82.075	ng/ml	100
102) C29 Tricyclic Terpane-...	47.111	191	2277	104.288	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	1937M3	88.716	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2343	107.311	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2127M3	97.418	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1816	83.174	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.994	191	5252	240.546	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	2885M3	132.135	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) 17a(H),21b(H)-25-Norho...	49.958	191	935	42.824	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	13374M3	612.539	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2134M3	97.739	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	758	34.717	ng/ml	100
113) 30-Normoretane (T17)	51.615	191	1186M3	54.320	ng/ml	
115) Moretane (T20)	52.895	191	1421M3	65.083	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	8269	378.726	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	6835	313.048	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2903	132.960	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	5446	249.431	ng/ml	100
120) 30,31-Bishomohopane-22...	55.936	191	4209M3	192.775	ng/ml	
121) 30,31-Trishomohopane-2...	57.698	191	4183M3	191.585	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	2455M3	112.441	ng/ml	
123) Tetrakishomohopane-22S...	60.318	191	2778	127.234	ng/ml	100
124) Tetrakishomohopane-22R...	61.222	191	1826	83.632	ng/ml	100
125) Pentakishomohopane-22S...	63.451	191	3242M3	148.486	ng/ml	
126) Pentakishomohopane-22R...	64.746	191	2220M3	101.678	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1581	152.643	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	614M3	59.281	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	570M3	55.033	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217	1997	192.807	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	2532	244.461	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	552M3	53.295	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	191	18.441	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1190	114.893	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	928M3	89.597	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	2767M3	267.150	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	1891M3	182.573	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	1498M3	144.630	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1583M3	152.836	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1366M3	131.885	ng/ml	
142) 14b,17b-20S-Methylchol...	48.723	218	1696M3	163.746	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	2355M3	227.372	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.807	218	1529M3	147.623	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	12953	1250.592	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	10761M3	1038.958	ng/mL	
147) C27,20R-triaromatic st...	50.801	231	8224	794.014	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	9122M3	880.715	ng/mL	

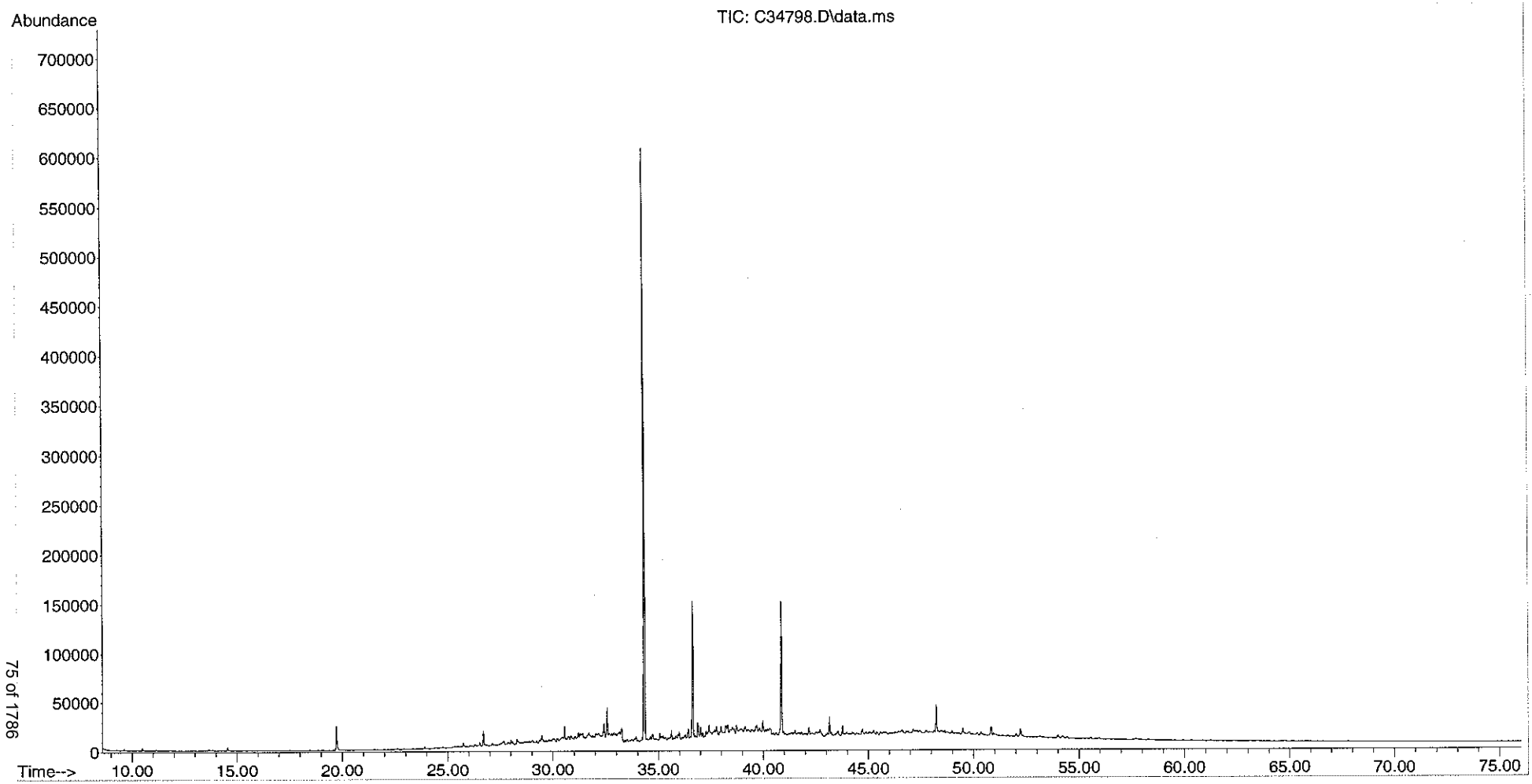
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-06**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	4	1	AC

Parameter	Result	
cis/trans-Decalin	**24.0**	J
C1-Decalins	**147**	
C2-Decalins	**434**	
C3-Decalins	**569**	
C4-Decalins	**1120**	
Benzothiophene	40.0	U
C1-Benzo(b)thiophenes	40.0	U
C2-Benzo(b)thiophenes	**50.5**	
C3-Benzo(b)thiophenes	**318**	
C4-Benzo(b)thiophenes	**640**	
Naphthalene	**4.30**	J
C1-Naphthalenes	**23.3**	J
C2-Naphthalenes	**287**	
C3-Naphthalenes	**1140**	
C4-Naphthalenes	**1800**	
Biphenyl	**5.06**	J
Dibenzofuran	**5.12**	J
Acenaphthylene	**10.1**	J
Acenaphthene	**12.3**	J
Fluorene	**30.4**	J
C1-Fluorenes	**305**	
C2-Fluorenes	**1080**	
C3-Fluorenes	**1840**	
Anthracene	40.0	U
Phenanthrene	**233**	
C1-Phenanthrenes/Anthracenes	**1250**	
C2-Phenanthrenes/Anthracenes	**2770**	
C3-Phenanthrenes/Anthracenes	**3050**	
C4-Phenanthrenes/Anthracenes	**1690**	
Retene	40.0	U
Dibenzothiophene	**153**	
C1-Dibenzothiophenes	**1110**	
C2-Dibenzothiophenes	**3210**	
C3-Dibenzothiophenes	**4500**	
C4-Dibenzothiophenes	**3440**	
Benzo(b)fluorene	40.0	U
Fluoranthene	**110**	
Pyrene	**232**	
C1-Fluoranthenes/Pyrenes	**860**	
C2-Fluoranthenes/Pyrenes	**1320**	
C3-Fluoranthenes/Pyrenes	**1530**	
C4-Fluoranthenes/Pyrenes	**1600**	
Naphthobenzothiophenes	**489**	
C1-Naphthobenzothiophenes	**1760**	
C2-Naphthobenzothiophenes	**2890**	
C3-Naphthobenzothiophenes	**2570**	
C4-Naphthobenzothiophenes	**1890**	
Benz[a]anthracene	**57.5**	
Chrysene/Triphenylene	**269**	
C1-Chrysenes	**685**	
C2-Chrysenes	**1140**	
C3-Chrysenes	**1470**	
C4-Chrysenes	**932**	
Benzo[b]fluoranthene	**105**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**45.8**	B
Benzo[a]fluoranthene	**8.86**	J
Benzo[e]pyrene	**160**	
Benzo[a]pyrene	**84.9**	
Perylene	**134**	
Indeno[1,2,3-cd]pyrene	**68.8**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**33.7**	JB
Benzo[g,h,i]perylene	**132**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-06**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	4	1	AC

Parameter	Result
Carbazole	**44.0**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-06**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	4	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**436**	
2/3-Methyldibenzothiophene	**340**	
1-Methyldibenzothiophene	**244**	
3-Methylphenanthrene	**218**	
2/4-Methylphenanthrene	**262**	
2-Methylanthracene	**34.8**	J
9-Methylphenanthrene	**428**	
1-Methylphenanthrene	**240**	
2-Methylnaphthalene	**16.2**	J
1-Methylnaphthalene	**17.3**	J
2,6-Dimethylnaphthalene	**128**	
2,3,5-Trimethylnaphthalene	**165**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-06**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	4	1	AC

Parameter	Result
C23 Tricyclic Terpane	**1740**
C24 Tricyclic Terpane	**989**
C25 Tricyclic Terpane	**953**
C24 Tetracyclic Terpane	**320**
C26 Tricyclic Terpane-22S	**368**
C26 Tricyclic Terpane-22R	**344**
C28 Tricyclic Terpane-22S	**335**
C28 Tricyclic Terpane-22R	**403**
C29 Tricyclic Terpane-22S	**485**
C29 Tricyclic Terpane-22R	**461**
18a-22,29,30-Trisnorneohopane-TS	**496**
C30 Tricyclic Terpane-22S	**371**
C30 Tricyclic Terpane-22R	**324**
17a(H)-22,29,30-Trisnorhopane-TM	**1160**
17a/b,21b/a 28,30-Bisnorhopane	**735**
17a(H),21b(H)-25-Norhopane	**191**
30-Norhopane	**3000**
18a(H)-30-Norneohopane-C29Ts	**425**
17a(H)-Diahopane	**151**
30-Normoretane	**307**
18a(H)&18b(H)-Oleananes	**52.8**
Hopane	**4050**
Moretane	**304**
30-Homohopane-22S	**1840**
30-Homohopane-22R	**1450**
T22a-Gammacerane/C32-diahopane	**634**
30,31-Bishomohopane-22S	**1200**
30,31-Bishomohopane-22R	**843**

Parameter	Result
30,31-Trishomohopane-22S	**914**
30,31-Trishomohopane-22R	**584**
Tetrakishomohopane-22S	**583**
Tetrakishomohopane-22R	**421**
Pentakishomohopane-22S	**741**
Pentakishomohopane-22R	**518**
13b(H),17a(H)-20S-Diacholestane	**615**
13b(H),17a(H)-20R-Diacholestane	**266**
13b,17a-20S-Methyldiacholestane	**276**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**899**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**1150**
Unknown Sterane (S18)	**226**
13a,17b-20S-Ethyldiacholestane	**85.4**
14a,17a-20S-Methylcholestane	**582**
14a,17a-20R-Methylcholestane	**401**
14a(H),17a(H)-20S-Ethylcholestane	**1160**
14a(H),17a(H)-20R-Ethylcholestane	**791**
14b(H),17b(H)-20R-Cholestane	**640**
14b(H),17b(H)-20S-Cholestane	**700**
14b,17b-20R-Methylcholestane	**543**
14b,17b-20S-Methylcholestane	**834**
14b(H),17b(H)-20R-Ethylcholestane	**1130**
14b(H),17b(H)-20S-Ethylcholestane	**678**
C26,20R- +C27,20S- triaromatic steroid	**5900**
C28,20S-triaromatic steroid	**5100**
C27,20R-triaromatic steroid	**3770**
C28,20R-triaromatic steroid	**4160**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	114	50-130

N/A - Not Applicable

05/08/12 19:56

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

RB 5/5/12

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18393M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34739	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	16497	206.651	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 20.67%#			
42) Phenanthrene-d10	32.567	188	14917	236.406	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 23.64%#			
86) Benzo[a]pyrene-d12	48.241	264	15941	221.422	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 22.14%#			
127) 5B(H)Cholane - Surr	43.769	217	3094M3	284.868	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 28.49%#			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	87M3	5.992	ng/mL	
5) C1-Decalins	18.311	152	535M5	36.847	ng/mL	
6) C2-Decalins	19.635	166	1577M5	108.612	ng/mL	
7) C3-Decalins	22.119	180	2065M5	142.222	ng/mL	
8) C4-Decalins	25.492	194	4075M5	280.655	ng/mL	
10) Naphthalene	19.801	128	126	1.075	ng/mL#	100
11) C1-Naphthalenes	22.496	142	684M5	5.835	ng/mL	
12) C2-Naphthalenes	25.341	156	8411M5	71.750	ng/mL	
13) C3-Naphthalenes	28.021	170	33484M5	285.634	ng/mL	
14) C4-Naphthalenes	30.445	184	52749M5	449.973	ng/mL	
16) 2-Methylnaphthalene	22.496	142	280M3	4.040	ng/mL	
17) 1-Methylnaphthalene	22.917	142	294	4.327	ng/mL#	100
20) C2-Benzo(b)thiophenes	25.537	162	1331M5	12.617	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	8396M5	79.591	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	16890M5	160.110	ng/mL	
23) Biphenyl	24.378	154	111	1.266	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	1820	31.959	ng/mL#	100
25) Dibenzofuran	27.464	168	129M3	1.281	ng/mL	
26) Acenaphthylene	26.079	152	294M3	2.526	ng/mL	
27) Acenaphthene	26.831	153	211M3	3.079	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	1893M3	41.236	ng/mL	
29) Fluorene	28.834	166	574M3	7.596	ng/mL	
30) C1-Fluorenes	31.197	180	5767M5	76.317	ng/mL	
31) C2-Fluorenes	33.395	194	20384M5	269.748	ng/mL	
32) C3-Fluorenes	35.232	208	34713M5	459.368	ng/mL	
33) Dibenzothiophene	32.161	184	4624M3	38.173	ng/mL	
34) 4-Methyldibenzothiophe...	33.922	198	13213	109.079	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	10309M3	85.105	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	7399	61.082	ng/mL#	100
37) OTP	34.298	198	2605M3	21.505	ng/mL	
38) C1-Dibenzothiophenes	33.922	198	36331M5	299.927	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	97133M5	801.872	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	136289M5	1125.121	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	104255M5	860.667	ng/mL	
43) Phenanthrene	32.657	178	6207	58.323	ng/mL#	22
44) 3-Methylphenanthrene(3MP)	34.615	192	5801M3	54.508	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	6964	65.435	ng/mL	100
46) 2-Methylanthracene(2MA)	34.886	192	927M3	8.710	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
47) 9-Methylphenanthrene(9MP)	35.066	192	11390	107.023	ng/mL	93
48) 1-Methylphenanthrene(1MP)	35.157	192	6376M3	59.910	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	33220M5	312.143	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	73641M5	691.949	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	81044M5	761.510	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	45076M5	423.545	ng/mL	
56) Carbazole	33.485	167	1155M3	10.999	ng/mL	
57) 1-Methylphenanthrene	35.157	192	6511M3	96.540	ng/mL	
58) Fluoranthene	37.430	202	2896M3	27.399	ng/mL	
60) Pyrene	38.303	202	6225M3	57.937	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	23113M5	215.115	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	35410M5	329.564	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	41048M5	382.037	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	42958M5	399.814	ng/mL	
66) Naphthobenzothiophene	42.158	234	9513	82.239	ng/ml	98
67) Naphthobenzothiophene-...	42.158	234	9513	82.239	ng/mL	98
68) Naphthobenzothiophene-...	42.504	234	2287M3	19.771	ng/mL	
69) Naphthobenzothiophene-...	42.790	234	2345M3	20.272	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	50854M5	439.630	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	83662M5	723.253	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	74291M5	642.241	ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	54615M5	472.143	ng/mL	
75) Benz[a]anthracene	43.091	228	1585M3	14.375	ng/mL	
77) Chrysene/Triphenylene	43.227	228	7490M3	67.285	ng/mL	
78) C1-Chrysenes	44.717	242	19063M5	171.249	ng/mL	
79) C2-Chrysenes	46.795	256	31582M5	283.711	ng/mL	
80) C3-Chrysenes	49.491	270	40900M5	367.417	ng/mL	
81) C4-Chrysenes	49.597	284	25934M5	232.973	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3171M3	26.173	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1509M3	11.440	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	292M2	2.214	ng/mL	
85) Benzo[e]pyrene	48.136	252	4778M3	39.871	ng/mL	
87) Benzo[a]pyrene	48.331	252	2450M3	21.234	ng/mL	
88) Perylene	48.633	252	4127M3	33.469	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	2310M3	17.204	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1075M3	8.416	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	4677	32.970	ng/mL#	83
92) Hopane (T19)	52.217	191	23182M3	1012.515	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	9935M3	433.929	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	5660	247.211	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	5453M3	238.169	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1829	79.885	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	2106M3	91.983	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1968M3	85.956	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1917M3	83.728	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	2306M3	100.719	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	2774M3	121.159	ng/ml	
103) C29 Tricyclic Terpane-...	47.307	191	2641M3	115.350	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2836M3	123.867	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	2125M3	92.813	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1854M3	80.977	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	6619	289.097	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	4208M3	183.792	ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) 17a(H),21b(H)-25-Norho...	49.973	191	1095M3	47.826	ng/ml	
110) 30-Norhopane (T15)	50.847	191	17163M3	749.624	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2431M3	106.178	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	863M3	37.693	ng/ml	
113) 30-Normoretane (T17)	51.615	191	1759M3	76.827	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.006	191	302M3	13.190	ng/ml	
115) Moretane (T20)	52.895	191	1737M3	75.867	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	10508	458.956	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	8300	362.517	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	3632	158.634	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	6874	300.234	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	4827	210.828	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	5231	228.473	ng/ml	100
122) 30,31-Trishomohopane-2...	58.301	191	3345M3	146.099	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	3336M3	145.706	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2411	105.305	ng/ml	100
125) Pentakishomohopane-22S...	63.451	191	4239	185.146	ng/ml	100
126) Pentakishomohopane-22R...	64.746	191	2966M3	129.545	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1669M3	153.667	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	722M3	66.475	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	749M3	68.961	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	2442	224.838	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	3128M3	287.998	ng/ml	
133) Unknown Sterane (S18)	48.060	217	613	56.440	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	232	21.360	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217	1580M3	145.472	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	1089M3	100.265	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	3148M3	289.840	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2147M3	197.677	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1737M3	159.927	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1901M3	175.027	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1475	135.805	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2264M3	208.449	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	3070M3	282.658	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1840M3	169.411	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	16019	1474.886	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	13843	1274.540	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	10235	942.347	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	11300M3	1040.403	ng/mL	

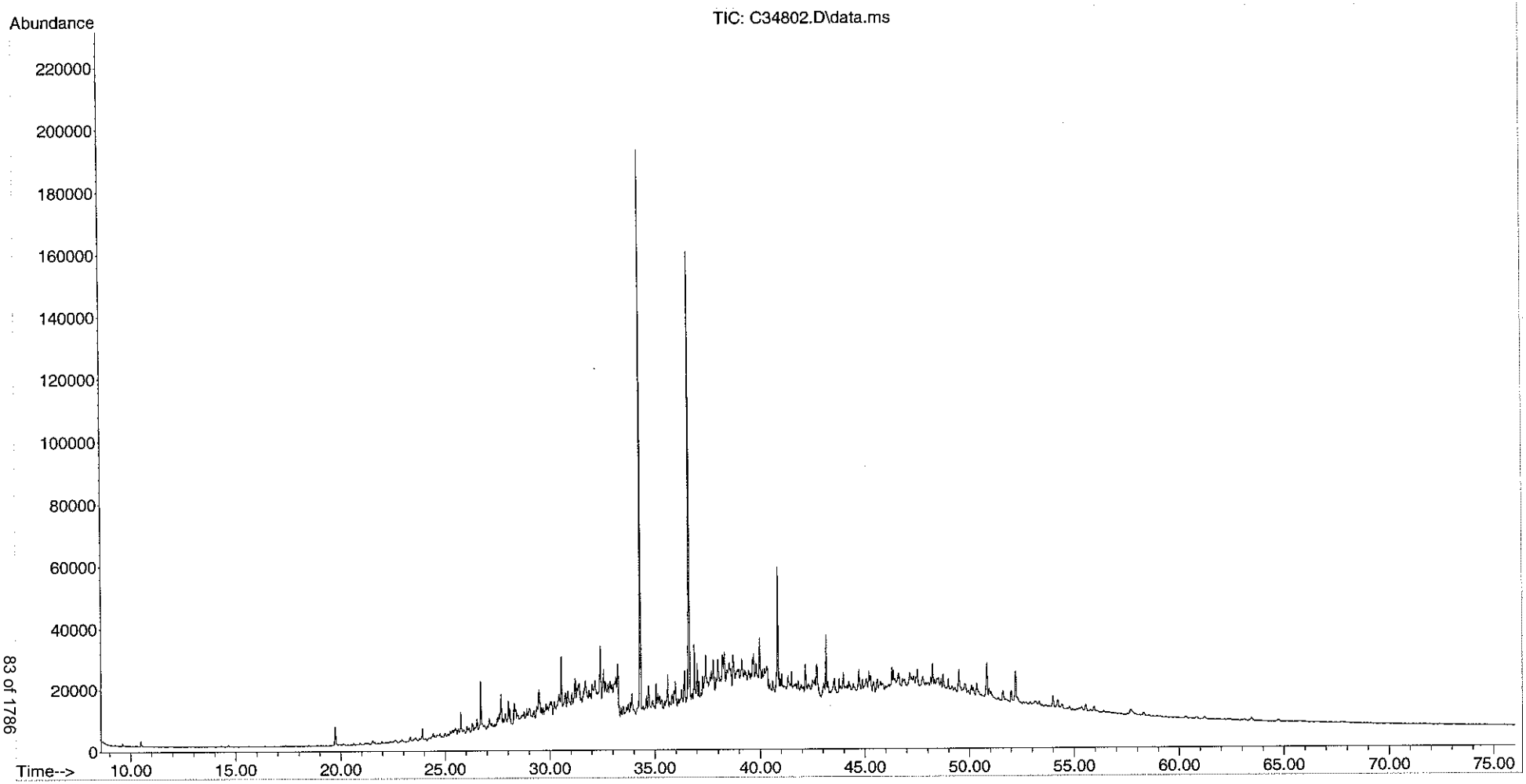
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR090013004DS042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-07**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	5.71	1	AC

Parameter	Result	
cis/trans-Decalin	**65.2**	
C1-Decalins	**260**	
C2-Decalins	**799**	
C3-Decalins	**1120**	
C4-Decalins	**2060**	
Benzothiophene	57.1	U
C1-Benzo(b)thiophenes	**39.7**	J
C2-Benzo(b)thiophenes	**111**	
C3-Benzo(b)thiophenes	**639**	
C4-Benzo(b)thiophenes	**1300**	
Naphthalene	**4.13**	J
C1-Naphthalenes	**39.4**	J
C2-Naphthalenes	**630**	
C3-Naphthalenes	**2430**	
C4-Naphthalenes	**3680**	
Biphenyl	**10.0**	J
Dibenzofuran	**13.4**	J
Acenaphthylene	**17.9**	J
Acenaphthene	**30.2**	J
Fluorene	**60.6**	
C1-Fluorenes	**609**	
C2-Fluorenes	**2200**	
C3-Fluorenes	**3450**	
Anthracene	57.1	U
Phenanthrene	**484**	
C1-Phenanthrenes/Anthracenes	**2440**	
C2-Phenanthrenes/Anthracenes	**5200**	
C3-Phenanthrenes/Anthracenes	**5460**	
C4-Phenanthrenes/Anthracenes	**2820**	
Retene	**1720**	
Dibenzothiophene	**321**	
C1-Dibenzothiophenes	**2300**	
C2-Dibenzothiophenes	**5960**	

Parameter	Result	
C3-Dibenzothiophenes	**7880**	
C4-Dibenzothiophenes	**5690**	
Benzo(b)fluorene	57.1	U
Fluoranthene	**176**	
Pyrene	**428**	
C1-Fluoranthenes/Pyrenes	**1400**	
C2-Fluoranthenes/Pyrenes	**2160**	
C3-Fluoranthenes/Pyrenes	**2680**	
C4-Fluoranthenes/Pyrenes	**2720**	
Naphthobenzothiophenes	**829**	
C1-Naphthobenzothiophenes	**3060**	
C2-Naphthobenzothiophenes	**4740**	
C3-Naphthobenzothiophenes	**4180**	
C4-Naphthobenzothiophenes	**3020**	
Benz[a]anthracene	**84.6**	
Chrysene/Triphenylene	**431**	
C1-Chrysenes	**1120**	
C2-Chrysenes	**1800**	
C3-Chrysenes	**2290**	
C4-Chrysenes	**1350**	
Benzo[b]fluoranthene	**175**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**56.0**	JB
Benzo[a]fluoranthene	57.1	U
Benzo[e]pyrene	**254**	
Benzo[a]pyrene	**126**	
Perylene	**218**	
Indeno[1,2,3-cd]pyrene	**93.4**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**38.1**	JB
Benzo[g,h,i]perylene	**192**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004DS042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-07**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	5.71	1	AC

Parameter	Result
Carbazole	**80.0**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004DS042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-07**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	5.71	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**900**	
2/3-Methyldibenzothiophene	**769**	
1-Methyldibenzothiophene	**488**	
3-Methylphenanthrene	**457**	
2/4-Methylphenanthrene	**542**	
2-Methylanthracene	**69.4**	
9-Methylphenanthrene	**856**	
1-Methylphenanthrene	**487**	
2-Methylnaphthalene	**26.0**	J
1-Methylnaphthalene	**28.0**	J
2,6-Dimethylnaphthalene	**290**	
2,3,5-Trimethylnaphthalene	**364**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004DS042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-07**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	5.71	1	AC

Parameter	Result
C23 Tricyclic Terpane	**2770**
C24 Tricyclic Terpane	**1550**
C25 Tricyclic Terpane	**1480**
C24 Tetracyclic Terpane	**522**
C26 Tricyclic Terpane-22S	**560**
C26 Tricyclic Terpane-22R	**590**
C28 Tricyclic Terpane-22S	**639**
C28 Tricyclic Terpane-22R	**670**
C29 Tricyclic Terpane-22S	**832**
C29 Tricyclic Terpane-22R	**696**
18a-22,29,30-Trisnorneohopane-TS	**815**
C30 Tricyclic Terpane-22S	**532**
C30 Tricyclic Terpane-22R	**576**
17a(H)-22,29,30-Trisnorhopane-TM	**1780**
17a/b,21b/a 28,30-Bisnorhopane	**1220**
17a(H),21b(H)-25-Norhopane	**391**
30-Norhopane	**4740**
18a(H)-30-Norneohopane-C29Ts	**748**
17a(H)-Diahopane	**261**
30-Normoretane	**541**
18a(H)&18b(H)-Oleananes	**127**
Hopane	**6480**
Moretane	**525**
30-Homohopane-22S	**2880**
30-Homohopane-22R	**2300**
T22a-Gammacerane/C32-diahopane	**1010**
30,31-Bishomohopane-22S	**1830**
30,31-Bishomohopane-22R	**1420**

Parameter	Result
30,31-Trishomohopane-22S	**1420**
30,31-Trishomohopane-22R	**853**
Tetrakishomohopane-22S	**933**
Tetrakishomohopane-22R	**656**
Pentakishomohopane-22S	**1240**
Pentakishomohopane-22R	**754**
13b(H),17a(H)-20S-Diacholestane	**1010**
13b(H),17a(H)-20R-Diacholestane	**383**
13b,17a-20S-Methyldiacholestane	**373**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**1430**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**1880**
Unknown Sterane (S18)	**301**
13a,17b-20S-Ethyldiacholestane	**203**
14a,17a-20S-Methylcholestane	**719**
14a,17a-20R-Methylcholestane	**706**
14a(H),17a(H)-20S-Ethylcholestane	**1740**
14a(H),17a(H)-20R-Ethylcholestane	**1120**
14b(H),17b(H)-20R-Cholestane	**1080**
14b(H),17b(H)-20S-Cholestane	**1120**
14b,17b-20R-Methylcholestane	**980**
14b,17b-20S-Methylcholestane	**1310**
14b(H),17b(H)-20R-Ethylcholestane	**1680**
14b(H),17b(H)-20S-Ethylcholestane	**1180**
C26,20R- +C27,20S- triaromatic steroid	**9500**
C28,20S-triaromatic steroid	**8160**
C27,20R-triaromatic steroid	**6000**
C28,20R-triaromatic steroid	**6580**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	119	50-130

N/A - Not Applicable

05/08/12 19:57

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20629M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	39002	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	13351	149.115	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	14.91%#		
42) Phenanthrene-d10	32.567	188	12651	178.762	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	17.88%#		
86) Benzo[a]pyrene-d12	48.241	264	12951	160.228	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	16.02%#		
127) 5B(H)Cholane - Surr	43.769	217	2547M3	208.873	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	20.89%#		
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	186	11.422	ng/mL	100
5) C1-Decalins	18.311	152	742M5	45.564	ng/mL	
6) C2-Decalins	19.289	166	2279M5	139.947	ng/mL	
7) C3-Decalins	22.119	180	3183M5	195.459	ng/mL	
8) C4-Decalins	25.492	194	5881M5	361.136	ng/mL	
10) Naphthalene	19.801	128	95M3	0.723	ng/mL	
11) C1-Naphthalenes	22.496	142	907M5	6.898	ng/mL	
12) C2-Naphthalenes	25.416	156	14509M5	110.353	ng/mL	
13) C3-Naphthalenes	28.021	170	56018M5	426.063	ng/mL	
14) C4-Naphthalenes	30.444	184	84830M5	645.202	ng/mL	
16) 2-Methylnaphthalene	22.496	142	354	4.554	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	374	4.908	ng/mL#	100
19) C1-Benzo(b)thiophenes	22.631	148	823M5	6.956	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2293M5	19.381	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	13240M5	111.906	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	26999M5	228.198	ng/mL	
23) Biphenyl	24.378	154	173	1.759	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	3240	50.727	ng/mL#	100
25) Dibenzofuran	27.464	168	264	2.338	ng/mL#	47
26) Acenaphthylene	26.079	152	410	3.141	ng/mL#	100
27) Acenaphthene	26.816	153	407M3	5.296	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	3280M3	63.705	ng/mL	
29) Fluorene	28.834	166	900M3	10.619	ng/mL	
30) C1-Fluorenes	31.197	180	9043M5	106.698	ng/mL	
31) C2-Fluorenes	33.395	194	32667M5	385.436	ng/mL	
32) C3-Fluorenes	35.232	208	51172M5	603.775	ng/mL	
33) Dibenzothiophene	32.161	184	7635M3	56.198	ng/mL	
34) 4-Methyldibenzothiophe...	33.937	198	21406	157.561	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	18302	134.714	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	11598	85.368	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	54632M5	402.124	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	141769M5	1043.504	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	187466M5	1379.861	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	135309M5	995.954	ng/mL	
43) Phenanthrene	32.657	178	10110M3	84.699	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	9557M3	80.066	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	11334	94.954	ng/mL	99
46) 2-Methylanthracene(2MA)	34.870	192	1451M3	12.156	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
47) 9-Methylphenanthrene(9MP)	35.066	192	17893	149.904	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.157	192	10172M3	85.219	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	51075M5	427.895	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	108815M5	911.628	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	114091M5	955.829	ng/mL	
53) C4-Phenanthrenes/Anthr...	39.643	234	58884M5	493.317	ng/mL	
54) Retene	39.643	234	7033M3	302.052	ng/mL	
56) Carbazole	33.485	167	1650M3	14.010	ng/mL	
57) 1-Methylphenanthrene	35.157	192	10193M3	134.752	ng/mL	
58) Fluoranthene	37.430	202	3645M3	30.747	ng/mL	
60) Pyrene	38.303	202	9035M3	74.975	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	29502M5	244.816	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	45562M5	378.086	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	56508M5	468.919	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	57481M5	476.994	ng/mL	
66) Naphthobenzothiophene	42.158	234	13359	102.970	ng/ml	91
67) Naphthobenzothiophene-...	42.158	234	13359	102.970	ng/mL	91
68) Naphthobenzothiophene-...	42.504	234	3244M3	25.004	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2226M3	17.158	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	69517M5	535.830	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	107669M5	829.902	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	94849M5	731.087	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	68511M5	528.076	ng/mL	
75) Benz[a]anthracene	43.091	228	1834M3	14.815	ng/mL	
77) Chrysene/Triphenylene	43.227	228	9425M3	75.413	ng/mL	
78) C1-Chrysenes	44.717	242	24521M5	196.203	ng/mL	
79) C2-Chrysenes	46.795	256	39332M5	314.711	ng/mL	
80) C3-Chrysenes	48.015	270	50107M5	400.927	ng/mL	
81) C4-Chrysenes	49.596	284	29538M5	236.346	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4173	30.679	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.202	252	1452M3	9.805	ng/mL	
85) Benzo[e]pyrene	48.136	252	5983	44.469	ng/mL	97
87) Benzo[a]pyrene	48.331	252	2863M3	22.102	ng/mL	
88) Perylene	48.633	252	5296	38.255	ng/mL#	65
89) Indeno[1,2,3-cd]pyrene	53.136	276	2467M3	16.365	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	956M3	6.667	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	5364	33.680	ng/mL#	82
92) Hopane (T19)	52.217	191	29170	1134.795	ng/mL#	81
94) C23 Tricyclic Terpane ...	40.788	191	12453M3	484.457	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	6967	271.036	ng/ml	100
96) C25 Tricyclic Terpane ...	43.046	191	6679M3	259.832	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	2352M3	91.499	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2519M3	97.996	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2657M3	103.365	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2878M3	111.962	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	3014	117.253	ng/ml	100
102) C29 Tricyclic Terpane-...	47.112	191	3747	145.769	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3132M3	121.844	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3668	142.696	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2396M3	93.211	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	2592	100.836	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.994	191	8009M3	311.573	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	5489M3	213.538	ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) 17a(H),21b(H)-25-Norho...	49.958	191	1759	68.430	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	21337M3	830.069	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	3368M3	131.025	ng/ml	
112) 17a(H)-Diahopane (X)	51.087	191	1173M3	45.633	ng/ml	
113) 30-Normoretane (T17)	51.630	191	2437	94.806	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.021	191	574	22.330	ng/ml	100
115) Moretane (T20)	52.895	191	2364M3	91.966	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	12968	504.492	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	10369	403.383	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	4566M3	177.630	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	8257	321.220	ng/ml	100
120) 30,31-Bishomohopane-22...	55.952	191	6391	248.628	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	6398M3	248.900	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	3840M3	149.387	ng/ml	
123) Tetrakishomohopane-22S...	60.334	191	4201M3	163.431	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2954M3	114.919	ng/ml	
125) Pentakishomohopane-22S...	63.451	191	5572	216.766	ng/ml	100
126) Pentakishomohopane-22R...	64.761	191	3395	132.075	ng/ml	100
128) 13b(H),17a(H)-20S-Diac...	45.274	217	2154M3	176.644	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	818	67.082	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	797M3	65.360	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	3063M3	251.189	ng/ml	
132) 14a,17a-20R-Chol/13b,1...	47.774	217	4023M3	329.916	ng/ml	
133) Unknown Sterane (S18)	48.060	217	642M3	52.649	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	434	35.591	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1535	125.882	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1508M3	123.667	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	3718M3	304.904	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2383M3	195.424	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	2296M3	188.289	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	2402M3	196.982	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	2094	171.724	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2804M3	229.949	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	3595M3	294.817	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	2526M3	207.151	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	20282	1663.276	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	17435	1429.801	ng/mL	100
147) C27,20R-triaromatic st...	50.816	231	12809	1050.434	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	14053M3	1152.451	ng/mL	

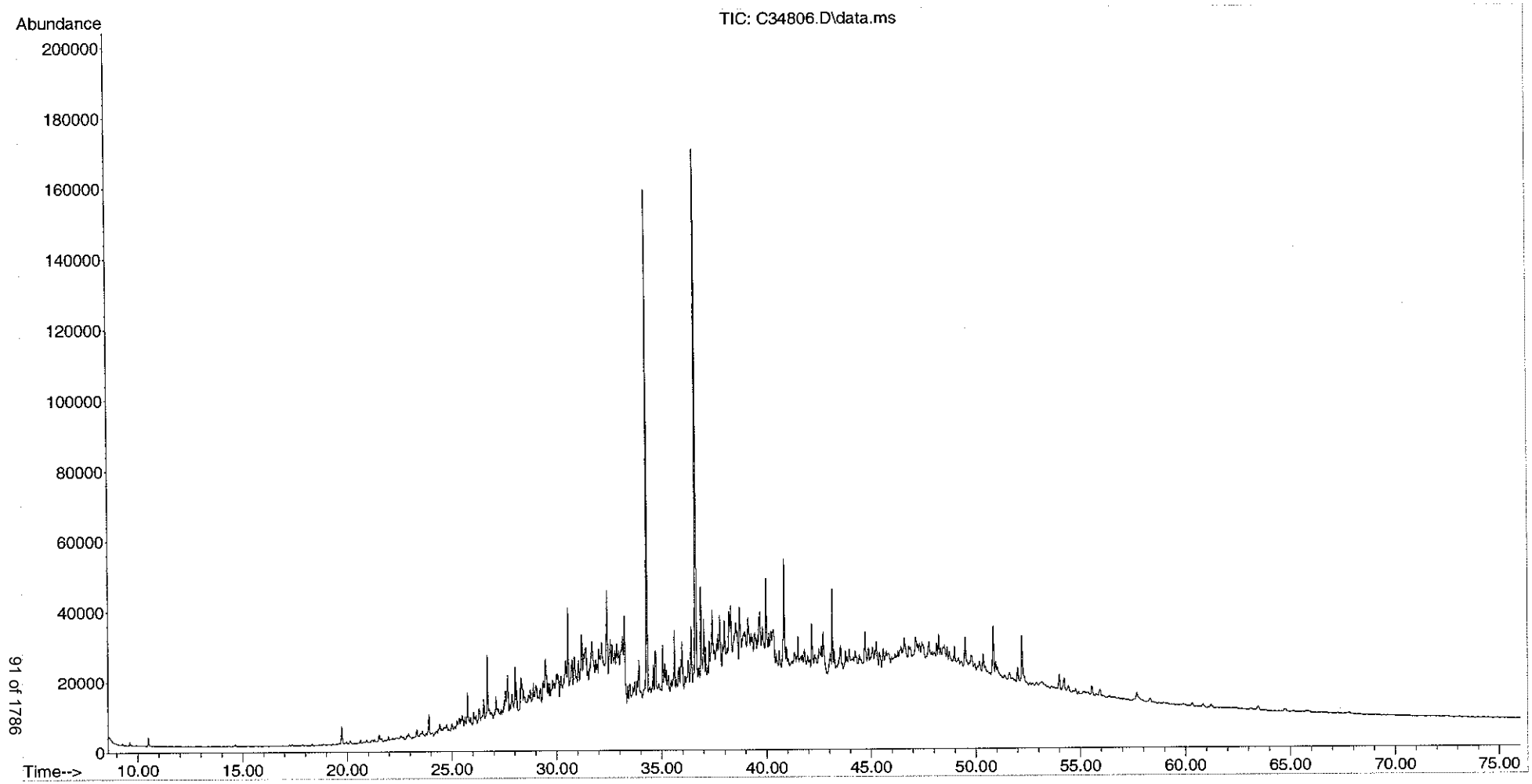
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	10.0	U
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U
C3-Benzo(b)thiophenes	**13.9**	
C4-Benzo(b)thiophenes	**12.6**	
Naphthalene	**6.13**	J
C1-Naphthalenes	**5.48**	J
C2-Naphthalenes	**8.01**	J
C3-Naphthalenes	**14.3**	
C4-Naphthalenes	**42.5**	
Biphenyl	**1.71**	J
Dibenzofuran	**4.48**	J
Acenaphthylene	**1.27**	J
Acenaphthene	**2.13**	J
Fluorene	**2.23**	J
C1-Fluorenes	10.0	U
C2-Fluorenes	**28.4**	
C3-Fluorenes	**70.8**	
Anthracene	**3.22**	J
Phenanthrene	**11.3**	
C1-Phenanthrenes/Anthracenes	**22.4**	
C2-Phenanthrenes/Anthracenes	**97.1**	
C3-Phenanthrenes/Anthracenes	**136**	
C4-Phenanthrenes/Anthracenes	**114**	
Retene	10.0	U
Dibenzothiophene	**2.01**	J
C1-Dibenzothiophenes	**18.7**	
C2-Dibenzothiophenes	**98.6**	

Parameter	Result	
C3-Dibenzothiophenes	**194**	
C4-Dibenzothiophenes	**178**	
Benzo(b)fluorene	**4.89**	JB
Fluoranthene	**31.3**	
Pyrene	**31.0**	
C1-Fluoranthenes/Pyrenes	**46.1**	
C2-Fluoranthenes/Pyrenes	**66.6**	
C3-Fluoranthenes/Pyrenes	**96.4**	
C4-Fluoranthenes/Pyrenes	**105**	
Naphthobenzothiophenes	**22.9**	B
C1-Naphthobenzothiophenes	**100**	
C2-Naphthobenzothiophenes	**177**	
C3-Naphthobenzothiophenes	**180**	
C4-Naphthobenzothiophenes	**153**	
Benz[a]anthracene	**9.77**	JB
Chrysene/Triphenylene	**22.3**	B
C1-Chrysenes	**38.2**	
C2-Chrysenes	**83.3**	
C3-Chrysenes	**119**	
C4-Chrysenes	**95.5**	
Benzo[b]fluoranthene	**21.2**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**13.0**	B
Benzo[a]fluoranthene	**3.01**	J
Benzo[e]pyrene	**20.2**	B
Benzo[a]pyrene	**14.5**	B
Perylene	**13.2**	B
Indeno[1,2,3-cd]pyrene	**16.2**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**4.41**	JB
Benzo[g,h,i]perylene	**21.1**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**2.37** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**5.82**	J
2/3-Methyldibenzothiophene	**3.93**	J
1-Methyldibenzothiophene	**3.19**	J
3-Methylphenanthrene	**3.55**	J
2/4-Methylphenanthrene	**4.57**	J
2-Methylanthracene	**1.97**	J
9-Methylphenanthrene	**7.07**	J
1-Methylphenanthrene	**3.89**	J
2-Methylnaphthalene	**5.19**	J
1-Methylnaphthalene	**2.40**	J
2,6-Dimethylnaphthalene	**2.88**	J
2,3,5-Trimethylnaphthalene	**1.06**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**152**	
C24 Tricyclic Terpane	**87.4**	
C25 Tricyclic Terpane	**94.5**	
C24 Tetracyclic Terpane	**37.9**	
C26 Tricyclic Terpane-22S	**34.7**	
C26 Tricyclic Terpane-22R	**30.6**	
C28 Tricyclic Terpane-22S	**30.5**	
C28 Tricyclic Terpane-22R	**44.9**	
C29 Tricyclic Terpane-22S	**51.7**	
C29 Tricyclic Terpane-22R	**40.4**	
18a-22,29,30-Trisnorneohopane-TS	**52.0**	
C30 Tricyclic Terpane-22S	**31.5**	
C30 Tricyclic Terpane-22R	**39.8**	
17a(H)-22,29,30-Trisnorhopane-TM	**125**	
17a/b,21b/a 28,30-Bisnorhopane	**60.8**	
17a(H),21b(H)-25-Norhopane	**35.2**	
30-Norhopane	**289**	
18a(H)-30-Norneohopane-C29Ts	**57.2**	
17a(H)-Diahopane	**25.8**	
30-Normoretane	**43.6**	
18a(H)&18b(H)-Oleananes	**14.9**	
Hopane	**409**	
Moretane	**46.5**	
30-Homohopane-22S	**171**	
30-Homohopane-22R	**156**	
T22a-Gammacerane/C32-diahopane	**59.9**	
30,31-Bishomohopane-22S	**142**	
30,31-Bishomohopane-22R	**85.5**	

Parameter	Result	
30,31-Trishomohopane-22S	**100**	
30,31-Trishomohopane-22R	**57.6**	
Tetrakishomohopane-22S	**59.0**	
Tetrakishomohopane-22R	**82.9**	G
Pentakishomohopane-22S	**68.9**	
Pentakishomohopane-22R	**54.8**	
13b(H),17a(H)-20S-Diacholestane	**62.4**	
13b(H),17a(H)-20R-Diacholestane	**37.2**	
13b,17a-20S-Methyldiacholestane	**31.9**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**108**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**127**	
Unknown Sterane (S18)	**38.3**	B
13a,17b-20S-Ethyldiacholestane	**12.6**	
14a,17a-20S-Methylcholestane	**53.9**	
14a,17a-20R-Methylcholestane	**39.8**	
14a(H),17a(H)-20S-Ethylcholestane	**106**	
14a(H),17a(H)-20R-Ethylcholestane	**73.4**	
14b(H),17b(H)-20R-Cholestane	**63.6**	
14b(H),17b(H)-20S-Cholestane	**70.6**	
14b,17b-20R-Methylcholestane	**52.6**	
14b,17b-20S-Methylcholestane	**71.7**	
14b(H),17b(H)-20R-Ethylcholestane	**115**	
14b(H),17b(H)-20S-Ethylcholestane	**66.1**	
C26,20R- +C27,20S- triaromatic steroid	**489**	
C28,20S-triaromatic steroid	**424**	
C27,20R-triaromatic steroid	**298**	
C28,20R-triaromatic steroid	**355**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18874M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33820	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60930	743.793	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 74.38%			
42) Phenanthrene-d10	32.567	188	55249	853.277	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.33%			
86) Benzo[a]pyrene-d12	48.241	264	58647	836.747	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.67%			
127) 5B(H)Cholane - Surr	43.769	217	9689	916.317	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.63%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	737M3	6.127	ng/mL	
11) C1-Naphthalenes	22.511	142	659M5	5.478	ng/mL	
12) C2-Naphthalenes	25.010	156	963M5	8.005	ng/mL	
13) C3-Naphthalenes	27.674	170	1715M5	14.257	ng/mL	
14) C4-Naphthalenes	30.444	184	5110M5	42.480	ng/mL	
16) 2-Methylnaphthalene	22.511	142	369M3	5.188	ng/mL	
17) 1-Methylnaphthalene	22.932	142	167M3	2.395	ng/mL	
21) C3-Benzo(b)thiophenes	26.139	176	1501M5	13.866	ng/mL	
22) C4-Benzo(b)thiophenes	30.369	190	1361M5	12.573	ng/mL	
23) Biphenyl	24.378	154	154M3	1.712	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	168M3	2.875	ng/mL	
25) Dibenzofuran	27.464	168	463	4.481	ng/mL#	90
26) Acenaphthylene	26.079	152	152	1.273	ng/mL#	100
27) Acenaphthene	26.816	153	150M3	2.133	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	50M3	1.061	ng/mL	
29) Fluorene	28.834	166	173M3	2.231	ng/mL	
31) C2-Fluorenes	33.244	194	2201M5	28.384	ng/mL	
32) C3-Fluorenes	35.232	208	5494M5	70.851	ng/mL	
33) Dibenzothiophene	32.161	184	250M3	2.011	ng/mL	
34) 4-Methyldibenzothiophe...	33.937	198	724	5.825	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.268	198	489M3	3.934	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	397M3	3.194	ng/mL	
37) OTP	34.328	198	12297M3	98.930	ng/mL	
38) C1-Dibenzothiophenes	34.328	198	14623M5	117.642	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	12260M5	98.632	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	24068M5	193.627	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	22070M5	177.554	ng/mL	
43) Phenanthrene	32.657	178	1239	11.345	ng/mL#	21
44) 3-Methylphenanthrene(3MP)	34.615	192	388M3	3.553	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	499	4.569	ng/mL	98
46) 2-Methylanthracene(2MA)	34.886	192	215M3	1.969	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	772M3	7.069	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	425M3	3.892	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	2444M5	22.379	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	12284M5	112.482	ng/mL	
51) 5AA IS BKGD	36.632	206	1676M6	15.347	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	14854M5	136.015	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	12476M5	114.240	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55) Anthracene	32.838	178	344M3	3.225	ng/mL	
56) Carbazole	33.515	167	255	2.367	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	431M3	6.228	ng/mL	
58) Fluoranthene	37.430	202	3399M3	31.338	ng/mL	
59) Benzo(b)fluorene	39.944	216	308M3	4.895	ng/mL	
60) Pyrene	38.303	202	3423	31.046	ng/mL#	90
61) C1-Fluoranthenes/Pyrenes	39.703	216	5079M5	46.066	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	7348M5	66.646	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244	10624M5	96.359	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.395	258	11546M5	104.721	ng/mL	
66) Naphthobenzothiophene	42.158	234	1869	15.746	ng/ml#	87
67) Naphthobenzothiophene-...	42.158	234	1869	15.746	ng/mL#	87
68) Naphthobenzothiophene-...	42.504	234	428M3	3.606	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	425M3	3.580	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	11872M5	100.017	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	21029M5	177.161	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	21373M5	180.060	ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	18112M5	152.587	ng/mL	
75) Benz[a]anthracene	43.091	228	1049M3	9.772	ng/mL	
77) Chrysene/Triphenylene	43.242	228	2420M3	22.330	ng/mL	
78) C1-Chrysenes	44.717	242	4137M5	38.174	ng/mL	
79) C2-Chrysenes	46.795	256	9028M5	83.305	ng/mL	
80) C3-Chrysenes	48.015	270	12945M5	119.449	ng/mL	
81) C4-Chrysenes	49.596	284	10346M5	95.467	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	2504	21.229	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.202	252	1676M3	13.051	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	386M2	3.006	ng/mL	
85) Benzo[e]pyrene	48.136	252	2354	20.177	ng/mL	91
87) Benzo[a]pyrene	48.331	252	1631M3	14.520	ng/mL	
88) Perylene	48.633	252	1580M3	13.162	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	2112M3	16.157	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	548M3	4.407	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	2911	21.078	ng/mL#	89
92) Hopane (T19)	52.202	191	9120M3	409.156	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	3400	152.536	ng/ml	100
95) C24 Tricyclic Terpane ...	41.510	191	1949M3	87.439	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	2106M3	94.483	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	845	37.910	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	773M3	34.680	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	681M3	30.552	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	679M3	30.462	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1000M3	44.864	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	1153	51.728	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	900	40.377	ng/ml	100
104) 18a-22,29,30-Trisnorne...	48.437	191	1159M3	51.997	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	703M3	31.539	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	888M3	39.839	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	2775M3	124.497	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	1355	60.790	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191	785	35.218	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	6441M3	288.967	ng/ml	
111) 18a(H)-30-Norneohopane...	50.937	191	1276M3	57.246	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	575	25.797	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
113)	30-Normoretane (T17)	51.615	191		972M3	43.607	ng/ml	
114)	18a(H)&18b(H)-Oleanane...	52.021	191		332M3	14.895	ng/ml	
115)	Moretane (T20)	52.895	191		1037M3	46.524	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191		3820	171.379	ng/ml	100
117)	30-Homohopane-22R (T22)	54.235	191		3477	155.991	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191		1336M3	59.938	ng/mL	
119)	30,31-Bishomohopane-22...	55.545	191		3160	141.769	ng/ml	100
120)	30,31-Bishomohopane-22...	55.952	191		1906M3	85.510	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191		2233	100.180	ng/ml	100
122)	30,31-Trishomohopane-2...	58.316	191		1284	57.605	ng/ml	100
123)	Tetrakishomohopane-22S...	60.318	191		1314M3	58.951	ng/ml	
124)	Tetrakishomohopane-22R...	61.162	191	G	1848M3	82.908	ng/ml	
125)	Pentakishomohopane-22S...	63.436	191		1535M3	68.866	ng/ml	
126)	Pentakishomohopane-22R...	64.716	191		1221M3	54.778	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217		660M3	62.418	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217		393M3	37.167	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.374	217		337M3	31.871	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217		1139	107.719	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217		1340	126.728	ng/ml	100
133)	Unknown Sterane (S18)	48.045	217		405	38.302	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217		133	12.578	ng/ml	100
135)	14a,17a-20S-Methylchol...	48.452	217		570M3	53.907	ng/ml	
136)	14a,17a-20R-Methylchol...	49.190	217		421M3	39.815	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.536	217		1123M3	106.205	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.455	217		776M3	73.389	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.352	218		672M3	63.553	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218		747M3	70.646	ng/ml	
141)	14b,17b-20R-Methylchol...	48.633	218		556	52.583	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.723	218		758M3	71.686	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218		1218M3	115.190	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.822	218		699M3	66.106	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231		5170M3	488.942	ng/mL	
146)	C28,20S-triaromatic st...	50.350	231		4478M3	423.498	ng/mL	
147)	C27,20R-triaromatic st...	50.801	231		3155	298.378	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231		3757M3	355.310	ng/mL	

✓ MM 5/9/12

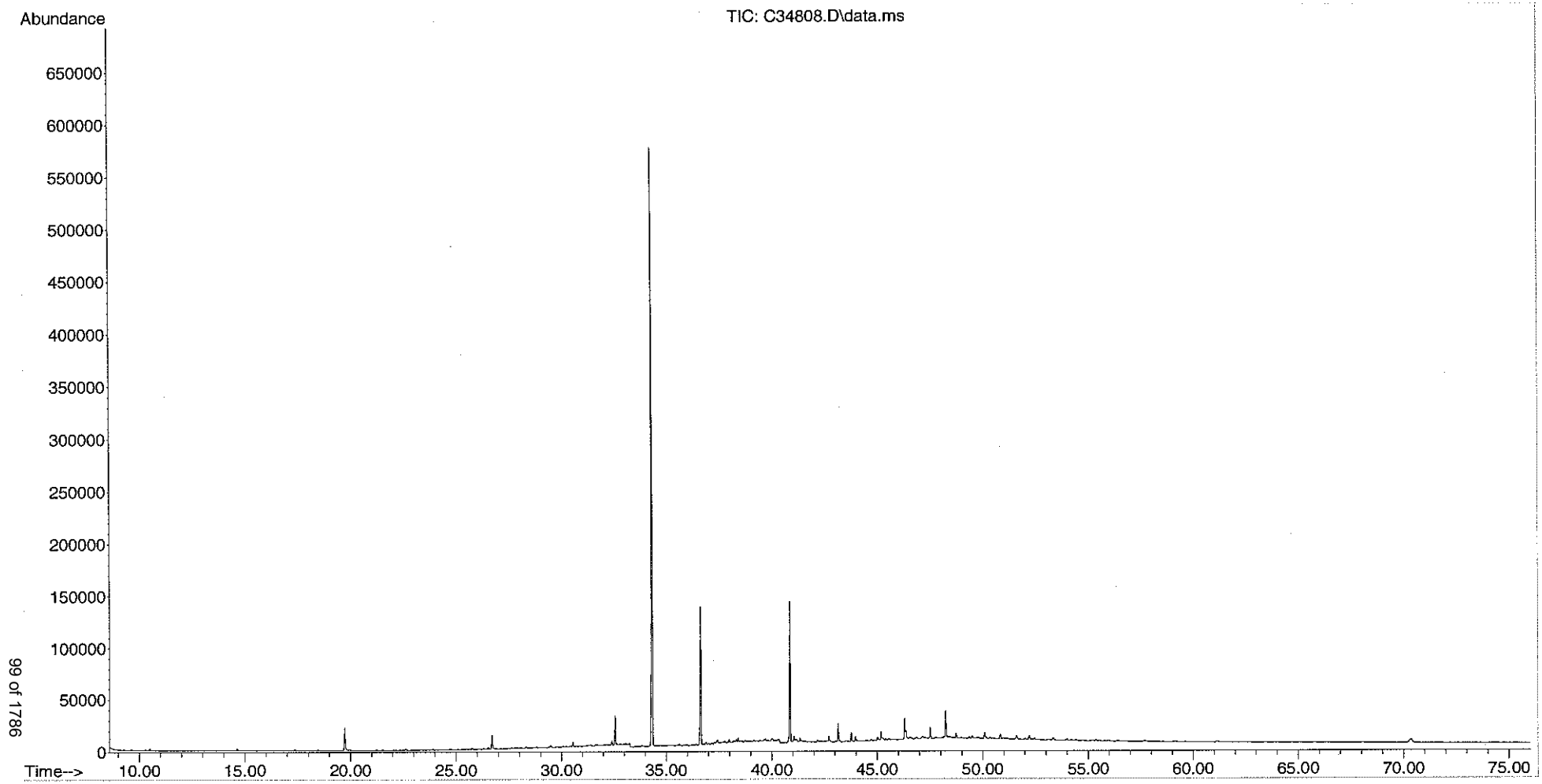
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
1)	i	Acenaphthene-d10	ISTD								
2)	t	2-butoxyethanol	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
3)	A1	trans-Decalin	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
4)	t	cis-Decalin	0.306	0.302	0.324	0.315	0.297	0.276	0.261	0.297	7.41
5)	A2	C1-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
6)	A2	C2-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
7)	A2	C3-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
8)	A2	C4-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
9)	s	Naphthalene-d8	2.368	2.312	2.355	2.303	2.120	1.974	1.759	2.170	10.67
10)	A1	Naphthalene	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
11)	A2	C1-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
12)	A2	C2-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
13)	A2	C3-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
14)	A2	C4-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
15)	t	Glycol Ether I...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
16)	t	2-Methylnaphth...	1.947	1.940	1.933	2.033	1.908	1.786	1.642	1.884	6.87
17)	t	1-Methylnaphth...	1.886	1.952	1.880	1.973	1.869	1.748	1.621	1.847	6.66
18)	A1	Benzothiophene	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
19)	A2	C1-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
20)	A2	C2-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
21)	A2	C3-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
22)	A2	C4-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
23)	t	Biphenyl	2.451	2.492	2.418	2.526	2.412	2.262	2.123	2.384	5.97
24)	t	2,6-Dimethylna...	1.551	1.564	1.525	1.619	1.611	1.527	1.438	1.548	3.94
25)	t	Dibenzofuran	2.745	2.706	2.754	2.896	2.854	2.673	2.531	2.737	4.39
26)	t	Acenaphthylene	3.124	3.157	3.130	3.302	3.335	3.152	2.943	3.163	4.08
27)	t	Acenaphthene	1.902	1.814	1.864	1.967	1.936	1.837	1.719	1.863	4.47
28)	t	2,3,5-Trimethy...	1.264	1.195	1.173	1.282	1.322	1.278	1.221	1.248	4.27
29)	A1	Fluorene	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
30)	A2	C1-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
31)	A2	C2-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
32)	A2	C3-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
33)	A1	Dibenzothiophene	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
34)	A2	4-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
35)	A2	2/3-Methyldibe...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
36)	A2	1-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
37)	A2	OTP	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
38)	A2	C1-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
39)	A2	C2-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
40)	A2	C3-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
41)	A2	C4-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
42)	s	Phenanthrene-d10	1.746	1.609	1.629	1.721	1.830	1.774	1.699	1.715	4.56
43)	A1	Phenanthrene	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
44)	A2	3-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
45)	A2	2/4-Methylphen...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
46)	A2	2-Methylanthra...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
47)	A2	9-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
48)	A2	1-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
49)	A2	C1-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
50)	A2	C2-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
51)	A2	5AA IS BKGD	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
52)	A2	C3-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
53)	A2	C4-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
54)	t	Retene	0.546	0.482	0.470	0.552	0.664	0.627	0.609	0.564	12.94
55)	t	Anthracene	2.646	2.603	2.733	2.983	3.149	2.947	2.720	2.826	7.16
56)	t	Carbazole	2.607	2.661	2.695	2.964	3.214	3.019	2.820	2.854	7.75
57)	t	1-Methylphenan...	1.698	1.672	1.757	1.915	2.067	1.931	1.793	1.833	7.81
58)	A1	Fluoranthene	2.700	2.676	2.705	3.015	3.240	2.982	2.796	2.873	7.38
59)	t	Benzo(b)fluorene	1.452	1.477	1.457	1.706	1.972	1.844	1.760	1.667	12.51
60)	A1	Pyrene	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
61)	A2	C1-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
62)	A2	C2-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
63)	A2	C3-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
64)	A2	C4-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
65)	t	Bis-(2-ethylhe...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
66)	A1	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
67)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
68)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
69)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
70)	A2	C1-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
71)	A2	C2-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
72)	A2	C3-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
73)	A2	C4-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
74)	i	Chrysene-d12	----------ISTD----------								
75)	t	Benz[a]anthracene	1.568	1.500	1.529	1.642	1.723	1.649	1.499	1.587	5.41
76)	A1	Chrysene	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
77)	A2	Chrysene/Triph...	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
78)	A2	C1-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
79)	A2	C2-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
80)	A2	C3-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
81)	A2	C4-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
82)	t	Benzo[b]fluora...	1.797	1.658	1.608	1.728	1.863	1.863	1.690	1.744	5.75

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
83)	A1	Benzo[j]+[k]fl...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
84)	A2	Benzo[a]fluora...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
85)	t	Benzo[e]pyrene	1.815	1.680	1.649	1.703	1.808	1.756	1.663	1.725	3.96
86)	s	Benzo[a]pyrene...	1.096	0.952	0.936	0.973	1.115	1.109	1.072	1.036	7.62
87)	t	Benzo[a]pyrene	1.726	1.588	1.546	1.621	1.768	1.740	1.635	1.661	5.07
88)	t	Perylene	1.857	1.695	1.649	1.721	1.894	1.861	1.748	1.775	5.36
89)	t	Indeno[1,2,3-c...	1.993	1.807	1.750	1.809	2.110	2.069	1.990	1.933	7.36
90)	t	Dibenz[ah]+[ac...	1.864	1.804	1.714	1.779	1.976	1.927	1.806	1.838	4.89
91)	t	Benzo[g,h,i]pe...	2.244	2.049	1.946	1.945	2.110	2.064	1.936	2.042	5.50
92)	A1	Hopane (T19)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
93)	A2	17a(H),21B(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
94)	A2	C23 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
95)	A2	C24 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
96)	A2	C25 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
97)	A2	C24 Tetracycli...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
98)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
99)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
100)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
101)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
102)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
103)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
104)	A2	18a-22,29,30-T...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
105)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
106)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
107)	A2	17a(H)-22,29,3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
108)	A2	17a/b,21b/a 28...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
109)	A2	17a(H),21b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
110)	A2	30-Norhopane (...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
111)	A2	18a(H)-30-Norn...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
112)	A2	17a(H)-Diahopa...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
113)	A2	30-Normoretane...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
114)	A2	18a(H)&18b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
115)	A2	Moretane (T20)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
116)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
117)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
118)	A2	Gammacerane/C3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
119)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
120)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
121)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
122)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
123)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
124)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

	Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
125)	A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
126)	A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
127)	SA1 5B(H)Cholane -...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
128)	A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
129)	A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
130)	A2 13b,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
131)	A2 14a,17a-20S-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
132)	A2 14a,17a-20R-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
133)	A2 Unknown Steran...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
134)	A2 13a,17b-20S-Et...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
135)	A2 14a,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
136)	A2 14a,17a-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
137)	A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
138)	A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
139)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
140)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
141)	A2 14b,17b-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
142)	A2 14b,17b-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
143)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
144)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
145)	A2 C26,20R- +C27,...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
146)	A2 C28,20S-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
147)	A2 C27,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
148)	A2 C28,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHA040@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

MMC SS 3/29/12

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	14.195	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1.42%#			
42) Phenanthrene-d10	32.793	188	547	9.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.90%#			
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1.09%#			
127) 5B(H)Cholane - Surr	43.995	217	84M4	10.806	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1.08%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	6.464	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.681	ng/mL	
10) Naphthalene	20.042	128	1021M4	18.113	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	15.327	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	15.482	ng/mL	
18) Benzothiophene	20.268	134	928M4	20.074	ng/mL	
23) Biphenyl	24.618	154	768	14.461	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	12.837	ng/mL	
25) Dibenzofuran	27.705	168	860M4	13.938	ng/mL	
26) Acenaphthylene	26.320	152	979M4	15.394	ng/mL	
27) Acenaphthene	27.057	153	596M4	14.760	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.608	170	396	11.213	ng/mL	93
29) Fluorene	29.075	166	632M4	12.577	ng/mL	
33) Dibenzothiophene	32.386	184	1010	13.309	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	11.436	ng/mL	
54) Retene	39.869	234	171M4	7.712	ng/mL	
55) Anthracene	33.064	178	829	11.221	ng/mL	97
56) Carbazole	33.726	167	817M4	12.040	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.115	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.176	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	7.556	ng/mL	
60) Pyrene	38.529	202	858	9.073	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.128	ng/ml	
67) Naphthobenzothiophene-...	42.368	234	910	9.209	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	10.573	ng/mL	
76) Chrysene	43.468	228	726M4	11.052	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	11.052	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	11.013	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	11.707	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	11.556	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	11.694	ng/mL	
88) Perylene	48.858	252	835M4	11.775	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	11.728	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	11.668	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	12.946	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	14.214	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	171M4	13.890	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHAO40@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

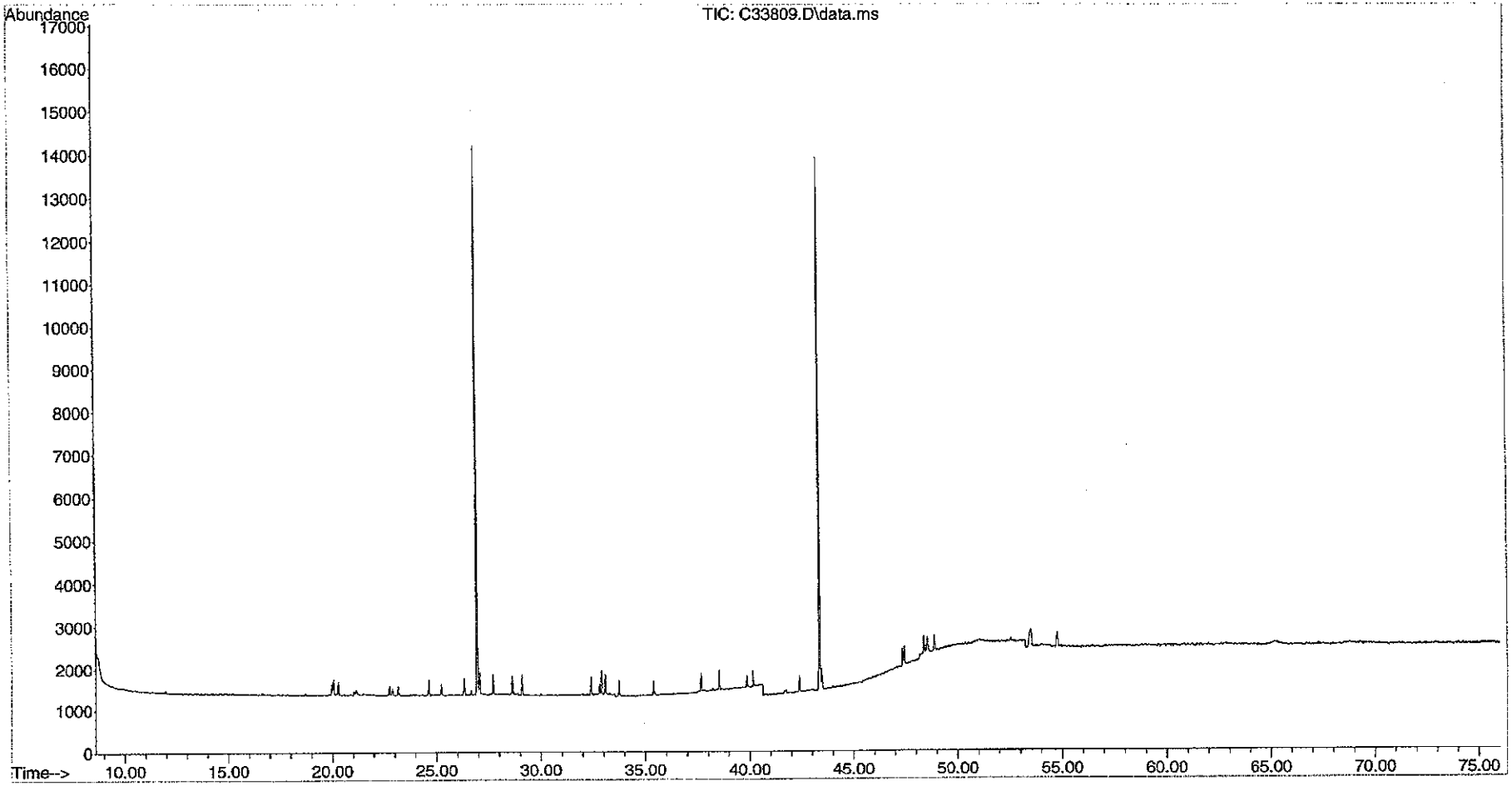
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHAO40@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHA041@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

MMB for SL 3/29/12

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	34.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	3.46%#		
42) Phenanthrene-d10	32.793	188	1224	20.786	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.08%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	23.682	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.37%#		
127) 5B(H)Cholane - Surr	43.995	217	161	21.276	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	15.117	ng/mL	
4) cis-Decalin	17.844	138	115M4	14.013	ng/mL	
10) Naphthalene	20.042	128	2630	48.035	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	38.180	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	40.050	ng/mL	
18) Benzothiophene	20.268	134	2336M4	52.022	ng/mL	
23) Biphenyl	24.619	154	1896M4	36.754	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	32.359	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	34.355	ng/mL	
26) Acenaphthylene	26.320	152	2402	38.885	ng/mL#	100
27) Acenaphthene	27.057	153	1380	35.184	ng/mL	98
28) 2,3,5-Trimethylnaphtha...	28.608	170	909M4	26.498	ng/mL	
29) Fluorene	29.075	166	1499M4	30.710	ng/mL	
33) Dibenzothiophene	32.386	184	2440	33.102	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	27.679	ng/mL	
54) Retene	39.869	234	367	17.041	ng/mL	94
55) Anthracene	33.064	178	1981M4	27.606	ng/mL	
56) Carbazole	33.726	167	2025M4	30.723	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.437	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	22.734	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	19.217	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.122	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.555	ng/ml	100
67) Naphthobenzothiophene-...	42.384	234	2165	22.555	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	25.297	ng/mL	
76) Chrysene	43.468	228	1712M4	26.771	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	26.911	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	25.399	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	26.567	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	26.754	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	26.903	ng/mL	
88) Perylene	48.874	252	1855M4	26.870	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	26.595	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	28.233	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	29.549	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	34.877	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	418M4	34.877	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHAO41@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

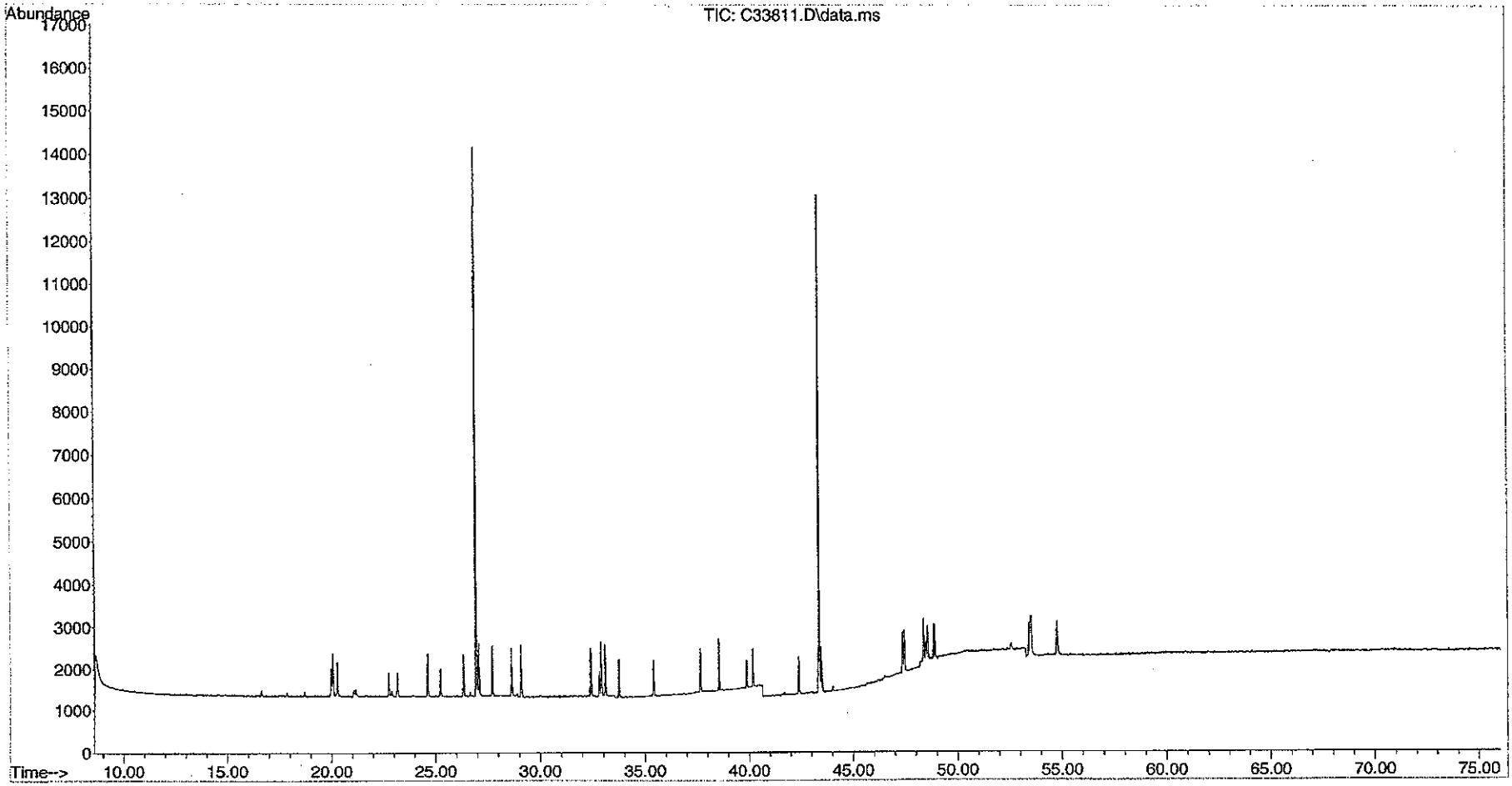
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHA041@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHA042@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

MMG for SR 3/29/12

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15537M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	7319M4	141.187	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 14.12%#			
42) Phenanthrene-d10	32.793	188	5062	84.198	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.42%#			
86) Benzo[a]pyrene-d12	48.467	264	4202	93.161	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.32%#			
127) 5B(H)Cholane - Surr	43.995	217	631M4	81.342	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.13%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	620M4	57.735	ng/mL	
4) cis-Decalin	17.844	138	504M4	60.153	ng/mL	
10) Naphthalene	20.042	128	10404	186.118	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	152.196	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	154.295	ng/mL#	100
18) Benzothiophene	20.268	134	9155	199.694	ng/mL	100
23) Biphenyl	24.619	154	7515M4	142.687	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	126.219	ng/mL	
25) Dibenzofuran	27.705	168	8558	139.860	ng/mL	97
26) Acenaphthylene	26.320	152	9725	154.202	ng/mL#	100
27) Acenaphthene	27.057	153	5791	144.616	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.608	170	3646	104.103	ng/mL	95
29) Fluorene	29.075	166	6206M4	124.533	ng/mL	
33) Dibenzothiophene	32.387	184	10032	133.305	ng/mL	99
43) Phenanthrene	32.883	178	8659M4	114.513	ng/mL	
54) Retene	39.854	234	1461	66.445	ng/mL	100
55) Anthracene	33.064	178	8493M4	115.924	ng/mL	
56) Carbazole	33.726	167	8375M4	124.456	ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	94.334	ng/mL	
58) Fluoranthene	37.641	202	8404M4	91.914	ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	75.841	ng/mL	100
60) Pyrene	38.529	202	8523M4	90.883	ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.002	ng/ml	
67) Naphthobenzothiophene-...	42.369	234	8849M4	90.298	ng/mL	
75) Benz[a]anthracene	43.302	228	6862	103.126	ng/mL	100
76) Chrysene	43.453	228	7256M4	110.681	ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	111.032	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	98.558	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	105.654	ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	104.988	ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	104.793	ng/mL	
88) Perylene	48.859	252	7398M4	104.535	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	102.985	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	107.318	ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	112.266	ng/mL	99
92) Hopane (T19)	52.548	191	1398	113.786	ng/mL	99
93) 17a(H),21B(H)-hopane -...	52.548	191	1398	113.786	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHAO42@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

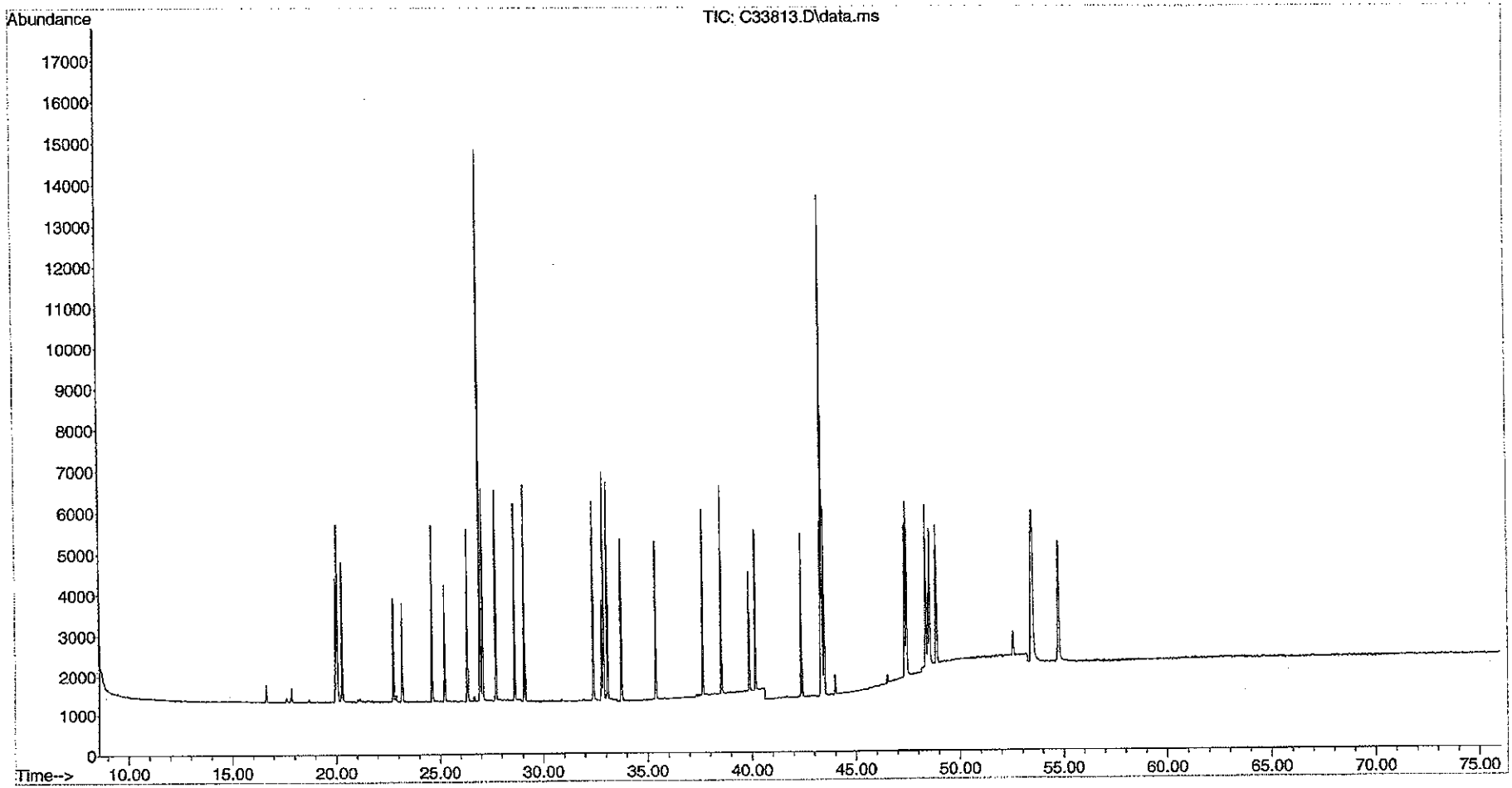
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHAO42@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

MNE SR 3/29/12

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	690.288	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.03%			
42) Phenanthrene-d10	32.793	188	30011	444.688	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.47%#			
86) Benzo[a]pyrene-d12	48.467	264	26218	483.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.40%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	430.078	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.01%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	301.956	ng/mL	
4) cis-Decalin	17.844	138	2748	292.174	ng/mL	100
10) Naphthalene	20.042	128	60651M4	966.547	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	800.461	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	809.738	ng/mL	
18) Benzothiophene	20.253	134	54196	1053.098	ng/mL	100
23) Biphenyl	24.619	154	44061	745.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	670.105	ng/mL	
25) Dibenzofuran	27.690	168	50514	735.407	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	813.474	ng/mL	
27) Acenaphthene	27.057	153	34314	763.360	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.608	170	22365M4	568.869	ng/mL	
29) Fluorene	29.075	166	37446M3	669.384	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	719.639	ng/mL	
43) Phenanthrene	32.883	178	53364	628.681	ng/mL	100
54) Retene	39.854	234	9623M4	389.871	ng/mL	
55) Anthracene	33.064	178	52019M4	632.516	ng/mL	
56) Carbazole	33.726	167	51702M4	684.436	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	514.047	ng/mL	
58) Fluoranthene	37.641	202	52587M3	512.355	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	443.755	ng/mL	98
60) Pyrene	38.529	202	53499	508.197	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	506.802	ng/ml	98
67) Naphthobenzothiophene-...	42.369	234	55752	506.802	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	553.548	ng/mL	
76) Chrysene	43.453	228	45764M4	581.223	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	581.909	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	529.436	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	564.954	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	542.397	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	549.348	ng/mL	
88) Perylene	48.874	252	46371	545.553	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	532.487	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	556.838	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	561.014	ng/mL	99
92) Hopane (T19)	52.548	191	7873	533.536	ng/mL#	89
93) 17a(H),21B(H)-hopane -...	52.548	191	7873	533.536	ng/mL#	89

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

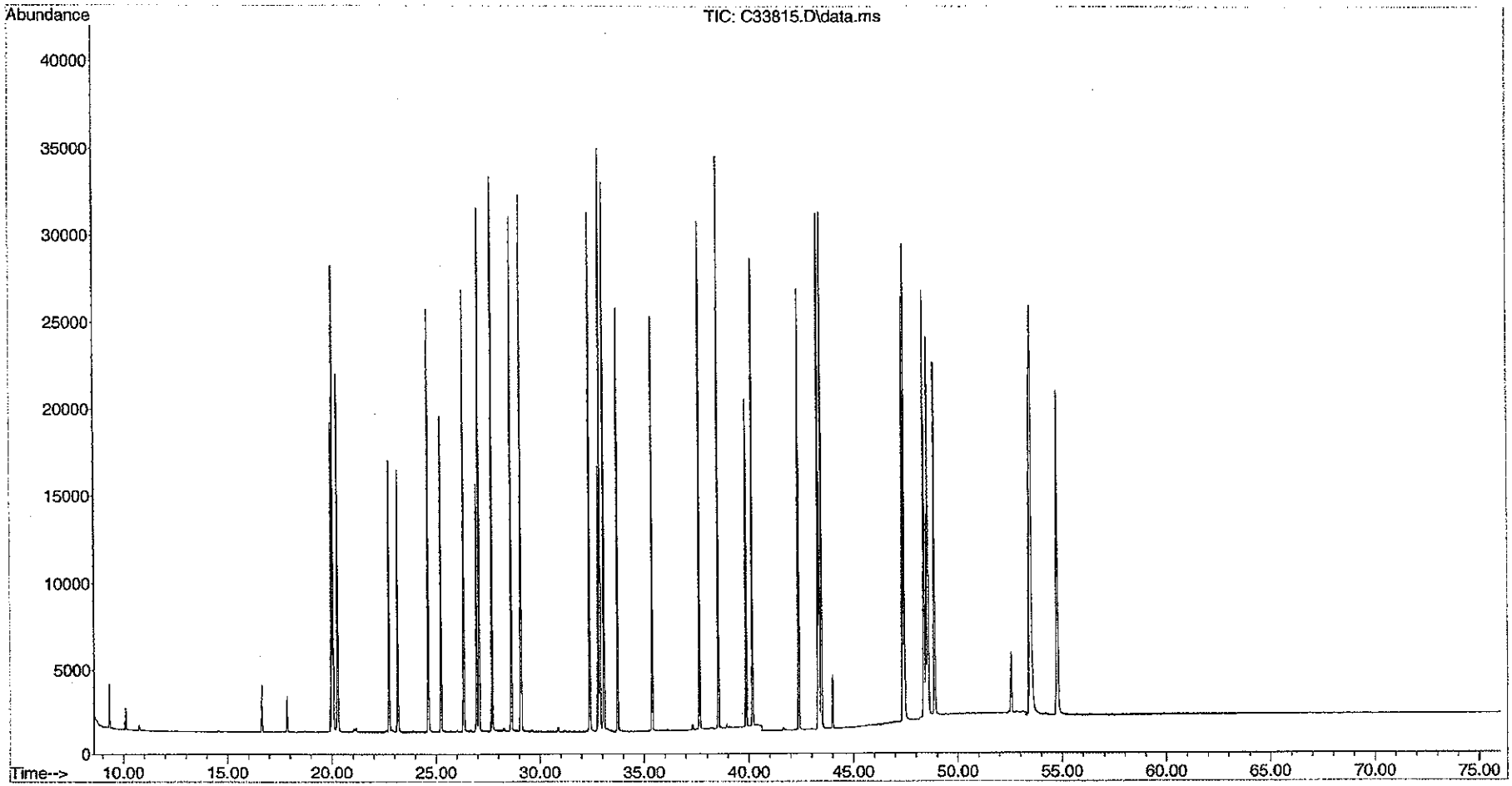
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHA088@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

MAL for SR 3/29/12

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	22551M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	478162	6355.066 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 635.51%#		
42) Phenanthrene-d10	32.793	188	412777	4730.380 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 473.04%#		
86) Benzo[a]pyrene-d12	48.482	264	443076	5545.446 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 554.54%#		
127) 5B(H)Cholane - Surr	43.995	217	64588M4	4700.223 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 470.02%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	43356	2781.614 ng/mL	100
4) cis-Decalin	17.844	138	33472	2752.401 ng/mL	100
10) Naphthalene	20.042	128	717522M4	8843.529 ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	7511.855 ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	7671.541 ng/mL#	100
18) Benzothiophene	20.268	134	651957	9797.743 ng/mL	100
23) Biphenyl	24.619	154	543936	7115.490 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	6667.718 ng/mL#	100
25) Dibenzofuran	27.705	168	643601	7246.670 ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	8216.990 ng/mL	
27) Acenaphthene	27.057	153	436514M4	7510.380 ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.608	170	298218	5866.548 ng/mL	98
29) Fluorene	29.075	166	496059M4	6858.178 ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	7268.637 ng/mL	
43) Phenanthrene	32.883	178	705493M4	6428.067 ng/mL	
54) Retene	39.869	234	149798	4693.772 ng/mL	94
55) Anthracene	33.064	178	710151M4	6678.295 ng/mL	
56) Carbazole	33.726	167	724874M3	7421.536 ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5549.758 ng/mL	
58) Fluoranthene	37.656	202	730627M3	5505.463 ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5131.170 ng/mL	
60) Pyrene	38.544	202	747539M4	5491.938 ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5776.683 ng/ml	
67) Naphthobenzothiophene-...	42.384	234	821825M4	5777.801 ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5809.075 ng/mL	99
76) Chrysene	43.468	228	665554M4	5731.133 ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5730.238 ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5709.986 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5808.435 ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5757.223 ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5991.154 ng/mL	
88) Perylene	48.889	252	752672	6003.913 ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	6210.458 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	6184.645 ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838517	6085.922 ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	5641.802 ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	122720M3	5638.678 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHAO88@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

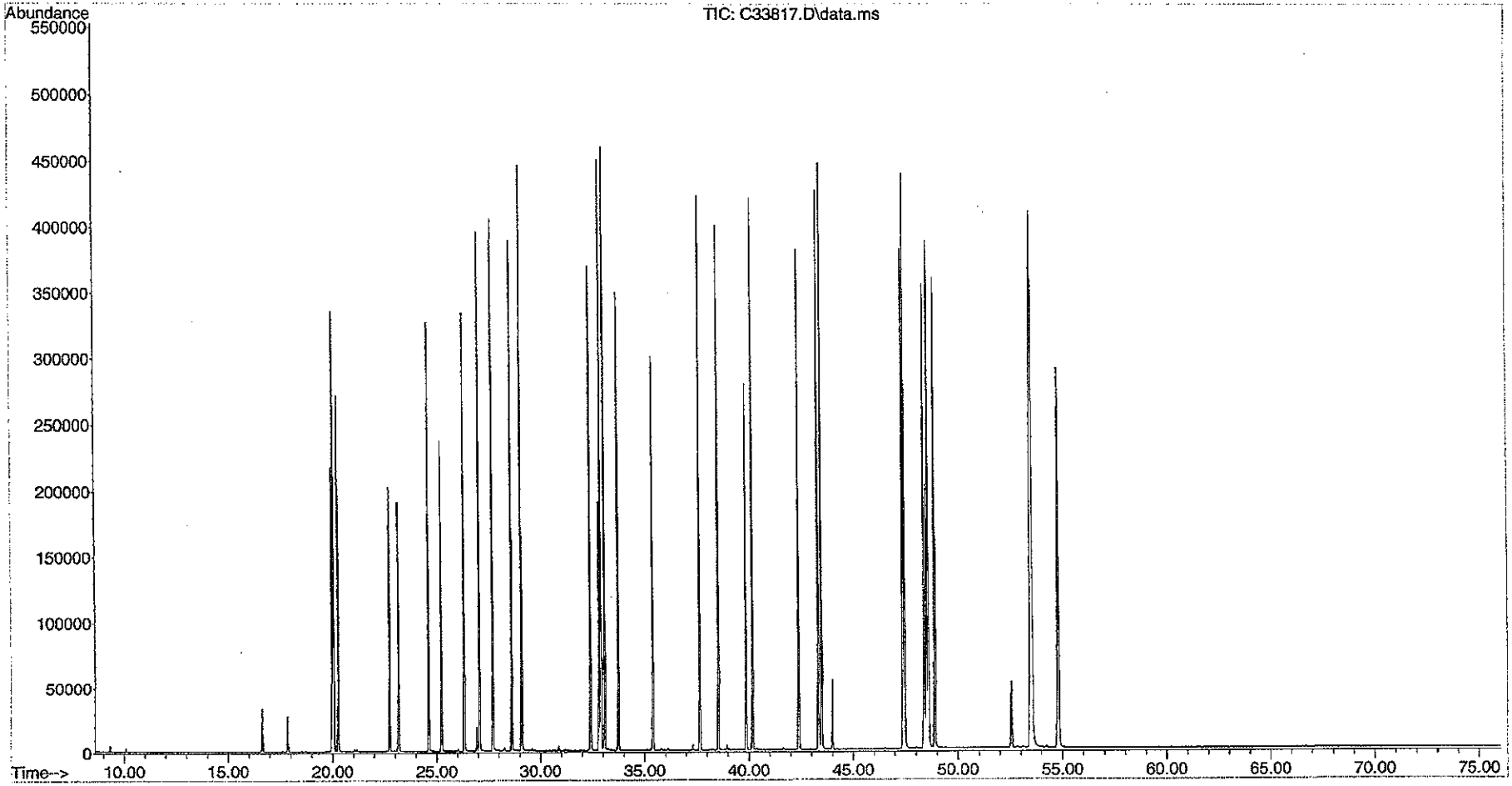
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHAO88@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHAO45@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

MM for SR 3/29/12

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	20041M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	791075	11830.663 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1183.07%#	
42) Phenanthrene-d10	32.808	188	710873M4	9166.827 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 916.68%#	
86) Benzo[a]pyrene-d12	48.497	264	755272	11037.321 ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1103.73%#	
127) 5B(H)Cholane - Surr	43.995	217	107458	9130.770 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 913.08%#	
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	72570	5239.034 ng/mL	100
4) cis-Decalin	17.844	138	55394	5125.536 ng/mL	100
10) Naphthalene	20.042	128	1183724	16416.753 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	14063.659 ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	14348.981 ng/mL	
18) Benzothiophene	20.268	134	1064574	18002.356 ng/mL	100
23) Biphenyl	24.619	154	906757M4	13347.329 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	12641.215 ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	13573.702 ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	15531.963 ng/mL	
27) Acenaphthene	27.057	153	736224	14253.453 ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.623	170	512344	11341.143 ng/mL	99
29) Fluorene	29.075	166	837178M3	13023.858 ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	13623.641 ng/mL	
43) Phenanthrene	32.898	178	1195572	12257.724 ng/mL	99
54) Retene	39.869	234	251265	8859.198 ng/mL	93
55) Anthracene	33.079	178	1181250M4	12499.803 ng/mL	
56) Carbazole	33.741	167	1210095m	13941.104 ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10369.547 ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10135.785 ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	9595.000 ng/mL	99
60) Pyrene	38.544	202	1228730M4	10157.684 ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10732.503 ng/ml	
67) Naphthobenzothiophene-...	42.399	234	1356294M4	10729.599 ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	11118.569 ng/mL	99
76) Chrysene	43.483	228	1085655M4	10915.688 ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	10910.460 ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	11418.659 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	10878.013 ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	11182.087 ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	11788.129 ng/mL	
88) Perylene	48.904	252	1266913	11799.877 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	12176.588 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	12064.466 ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1404966	11906.453 ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	10720.577 ng/mL	
93) 17a(H),21B(H)-hopane -...	52.563	191	199673M3	10712.315 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHAO45@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

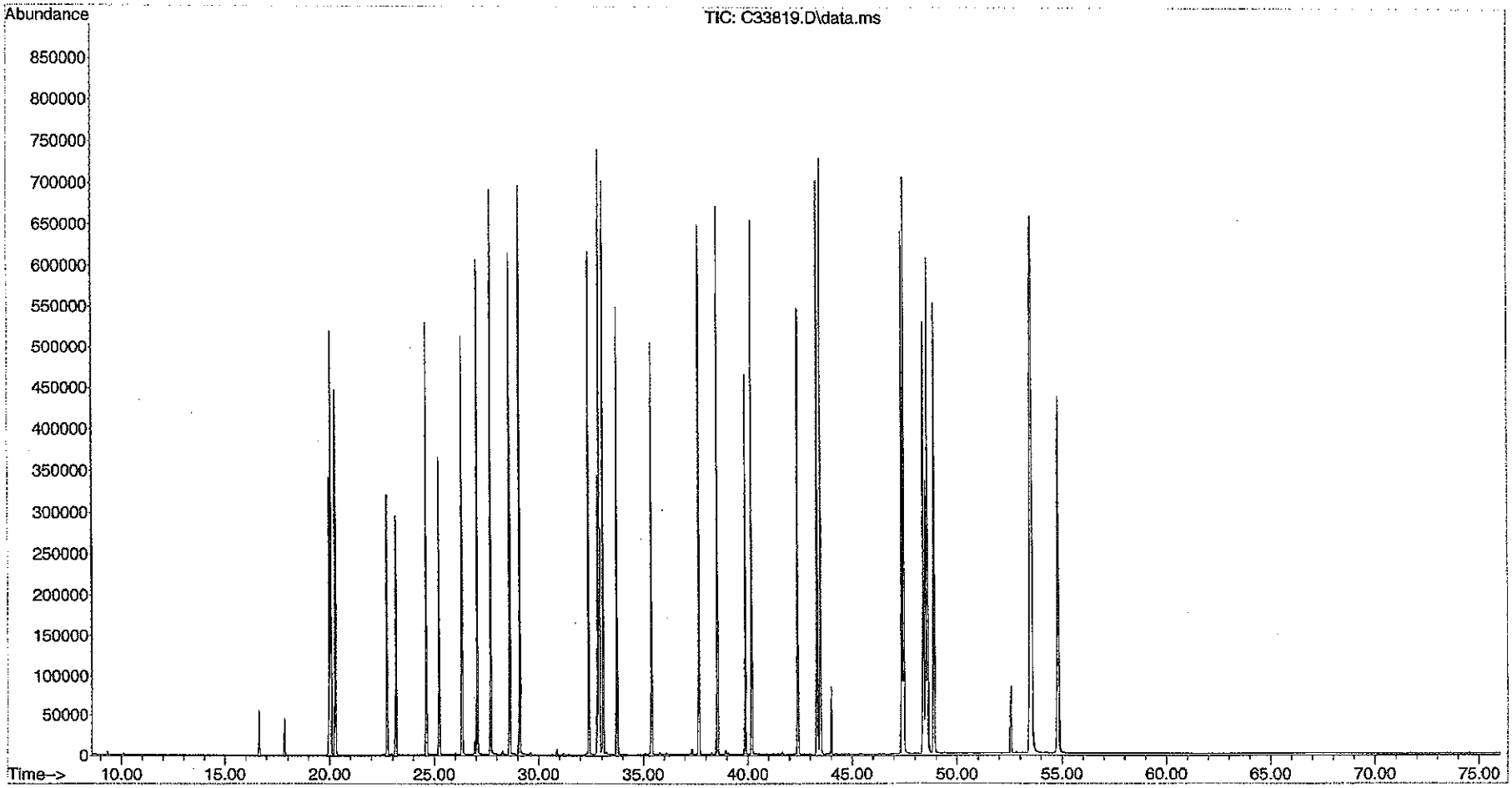
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHA045@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : AC
Sample : I303261207
Misc : WHA047@20000ng/ml
ALS Vial : 11 Sample Multiplier: 1

MM for SL 3/29/12

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	18516M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.982	136	1302520	21083.759 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 2108.38%#	
42) Phenanthrene-d10	32.808	188	1258411	17563.931 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1756.39%#	
86) Benzo[a]pyrene-d12	48.512	264	1393115	21325.190 ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 2132.52%#	
127) 5B(H)Cholane - Surr	44.010	217	195942M4	17439.814 ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1743.98%#	
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	124104M4	9697.328 ng/mL	
4) cis-Decalin	17.844	138	96625M4	9676.944 ng/mL	
10) Naphthalene	20.057	128	1949049	29257.134 ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	25854.831 ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	26609.552 ng/mL#	100
18) Benzothiophene	20.268	134	1808135	33094.557 ng/mL	100
23) Biphenyl	24.619	154	1572275M4	25049.794 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	23810.418 ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	25710.272 ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	29003.190 ng/mL	
27) Acenaphthene	27.072	153	1273128	26678.070 ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.623	170	904177	21663.113 ng/mL	100
29) Fluorene	29.090	166	1451673M4	24443.469 ng/mL	
33) Dibenzothiophene	32.402	184	2285641	25485.077 ng/mL	99
43) Phenanthrene	32.898	178	2086430	23153.152 ng/mL	98
54) Retene	39.884	234	451319	17223.374 ng/mL	92
55) Anthracene	33.079	178	2014742M4	23075.600 ng/mL	
56) Carbazole	33.741	167	2088328M4	26040.459 ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19255.650 ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19002.422 ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	18321.441 ng/mL	
60) Pyrene	38.559	202	2108058M4	18862.228 ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20448.484 ng/ml	98
67) Naphthobenzothiophene-...	42.399	234	2387636M4	20444.194 ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	20217.341 ng/mL	
76) Chrysene	43.498	228	1888024M4	19884.398 ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	19887.463 ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	20722.621 ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	20712.666 ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	21181.566 ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	22157.852 ng/mL	
88) Perylene	48.919	252	2271920	22165.085 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	23421.956 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	22616.127 ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516558	22339.282 ng/mL	100

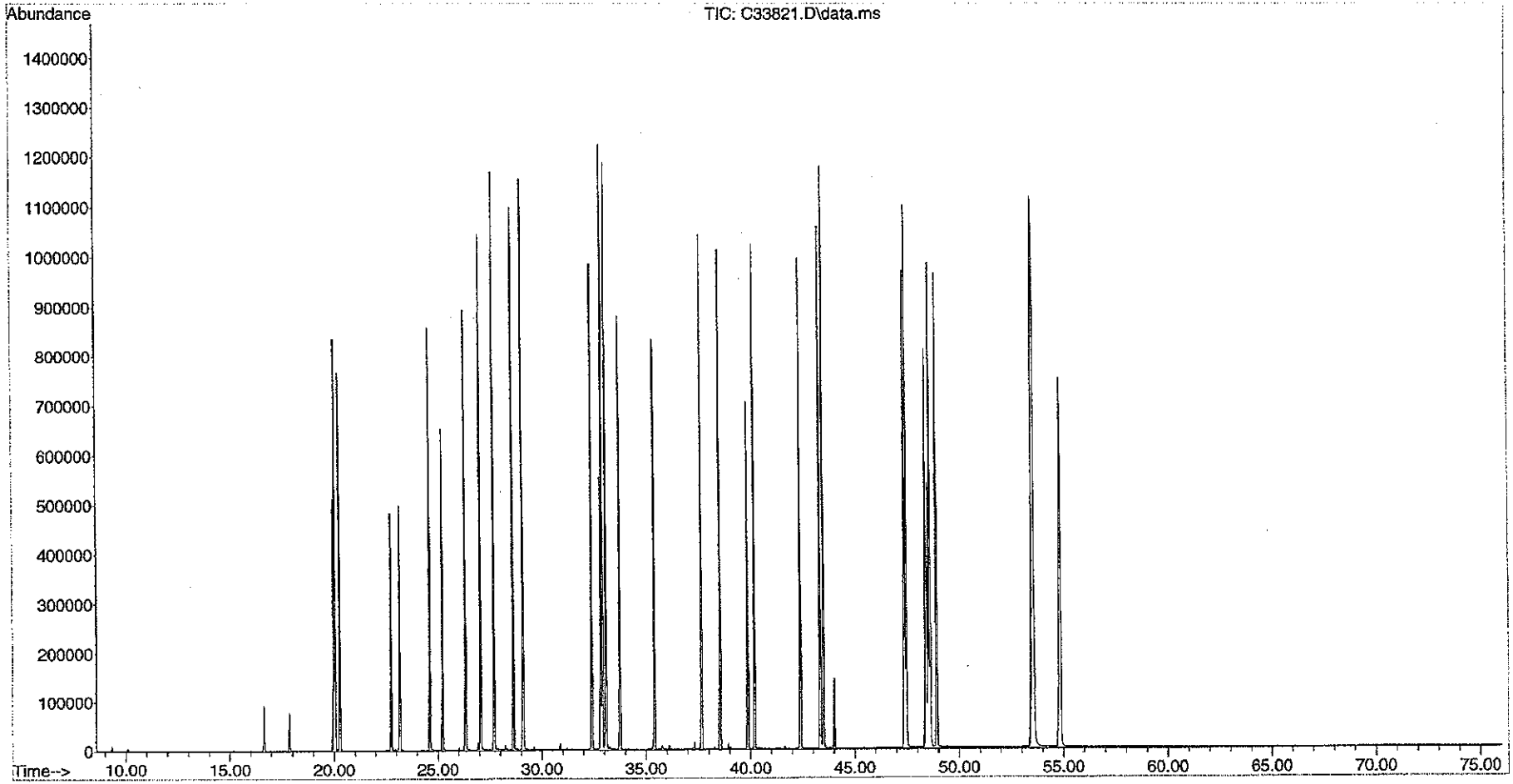
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : AC
Sample : I303261207
Misc : WHA047@20000ng/ml
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

MAH for SR 3/29/12

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : ~~25%~~ 20% MAH 5/29/12 Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	86	0.00
3	A1	trans-Decalin	0.395	0.416	-5.3	86	0.00
4	t	cis-Decalin	0.297	0.316	-6.4	86	0.00
9	s	Naphthalene-d8	2.170	2.330	-7.4	87	0.00
10	A1	Naphthalene	3.187	3.475	-9.0	86	0.00
16	t	2-Methylnaphthalene	1.884	2.055	-9.1	87	0.00
17	t	1-Methylnaphthalene	1.847	1.994	-8.0	87	0.00
18	A1	Benzothiophene	2.868	3.068	-7.0	85	0.01
23	t	Biphenyl	2.384	2.576	-8.1	88	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.662	-7.4	89	0.00
25	t	Dibenzofuran	2.737	2.960	-8.1	88	0.01
26	t	Acenaphthylene	3.163	3.420	-8.1	89	0.00
27	t	Acenaphthene	1.863	2.020	-8.4	89	0.00
28	t	2,3,5-Trimethylnaphthalene	1.248	1.317	-5.5	89	0.00
29	A1	Fluorene	2.054	2.172	-5.7	87	0.00
33	A1	Dibenzothiophene	3.293	3.547	-7.7	88	0.00
42	s	Phenanthrene-d10	1.715	1.734	-1.1	87	0.00
43	A1	Phenanthrene	2.893	3.090	-6.8	87	0.00
54	t	Retene	0.564	0.557	1.2	87	0.00
55	t	Anthracene	2.826	3.018	-6.8	87	0.00
56	t	Carbazole	2.854	3.008	-5.4	88	0.00
57	t	1-Methylphenanthrene	1.833	1.954	-6.6	88	0.00
58	A1	Fluoranthene	2.873	3.064	-6.6	88	0.00
59	t	Benzo(b)fluorene	1.667	1.719	-3.1	87	0.00
60	A1	Pyrene	2.921	3.101	-6.2	87	0.00
66	A1	Naphthobenzothiophene	3.145	3.276	-4.2	88	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.276	-4.2	88	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	85	0.00
75	t	Benz[a]anthracene	1.587	1.743	-9.8	90	0.00
76	A1	Chrysene	1.602	1.762	-10.0	88	0.00
77	A2	Chrysene/Triphenylene	1.602	1.760	-9.9	88	0.00
82	t	Benzo[b]fluoranthene	1.744	1.871	-7.3	92	-0.01
83	A1	Benzo[j]+[k]fluoranthene	1.899	2.073	-9.2	90	0.00
85	t	Benzo[e]pyrene	1.725	1.833	-6.3	91	0.00
86	s	Benzo[a]pyrene-d12	1.036	0.895	13.6	78	0.00
87	t	Benzo[a]pyrene	1.661	1.764	-6.2	92	-0.01
88	t	Perylene	1.775	1.879	-5.9	92	-0.02
89	t	Indeno[1,2,3-cd]pyrene	1.933	1.953	-1.0	91	0.00
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.913	-4.1	91	0.00
91	t	Benzo[g,h,i]perylene	2.042	2.085	-2.1	91	0.00
92	A1	Hopane (T19)	0.330	0.000#	100.0#	0#	-52.55#
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.000#	100.0#	0#	-52.55#
127	SA1	5B(H)Cholane - Surr	0.156	0.000#	100.0#	0#	-43.99#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.96	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15052M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	35074	536.878	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.793	188	26097M4	505.389	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%			
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	3130	263.420	ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319	ng/mL	100
10) Naphthalene	20.042	128	52309	545.264	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838	ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994	ng/mL	
23) Biphenyl	24.618	154	38768	540.294	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656	ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769	ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489	ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.608	170	19817M4	527.499	ng/mL	
29) Fluorene	29.075	166	32696M4	528.715	ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598	ng/mL	
43) Phenanthrene	32.883	178	46516	534.091	ng/mL	100
54) Retene	39.854	234	8385	493.546	ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942	ng/mL	
56) Carbazole	33.726	167	45283M4	526.968	ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804	ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176	ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672	ng/mL	
60) Pyrene	38.529	202	46681M4	530.900	ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975	ng/ml	97
67) Naphthobenzothiophene-...	42.368	234	49317	520.975	ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145	ng/mL	
76) Chrysene	43.452	228	40148M4	549.904	ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398	ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841	ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397	ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093	ng/mL	
88) Perylene	48.858	252	42809	529.339	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620	ng/mL	99

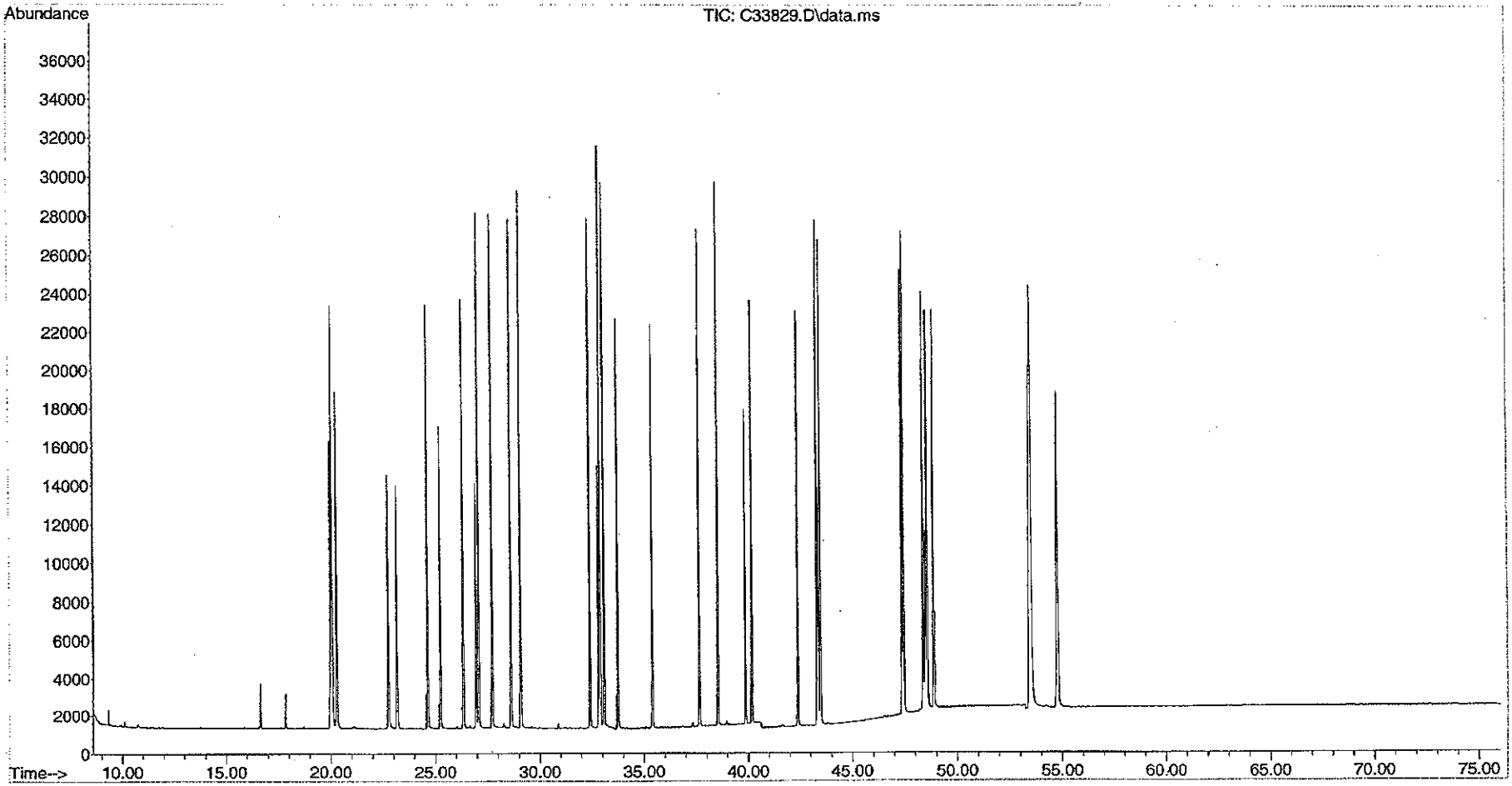
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	150	-0.03
3	A1	trans-Decalin	0.395	0.391	1.0	140	-0.06
4	t	cis-Decalin	0.297	0.300	-1.0	142	-0.05
9	s	Naphthalene-d8	2.170	2.106	2.9	137	-0.05
10	A1	Naphthalene	3.187	2.931	8.0	126	-0.05
16	t	2-Methylnaphthalene	1.884	1.784	5.3	131	-0.03
17	t	1-Methylnaphthalene	1.847	1.694	8.3	128	-0.05
18	A1	Benzothiophene	2.868	2.611	9.0	126	-0.03
23	t	Biphenyl	2.384	2.268	4.9	134	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.503	2.9	139	-0.03
25	t	Dibenzofuran	2.737	2.602	4.9	134	-0.02
26	t	Acenaphthylene	3.163	2.916	7.8	132	-0.02
27	t	Acenaphthene	1.863	1.762	5.4	134	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.233	1.2	144	-0.02
29	A1	Fluorene	2.054	1.973	3.9	137	-0.02
33	A1	Dibenzothiophene	3.293	3.130	4.9	134	-0.02
42	s	Phenanthrene-d10	1.715	1.693	1.3	147	-0.02
43	A1	Phenanthrene	2.893	2.771	4.2	135	-0.02
54	t	Retene	0.564	0.619	-9.8	168	0.00
55	t	Anthracene	2.826	2.745	2.9	138	-0.02
56	t	Carbazole	2.854	2.700	5.4	136	-0.02
57	t	1-Methylphenanthrene	1.833	1.888	-3.0	147	0.00
58	A1	Fluoranthene	2.873	2.923	-1.7	145	0.00
59	t	Benzo(b)fluorene	1.667	1.770	-6.2	155	0.00
60	A1	Pyrene	2.921	2.975	-1.8	145	0.00
66	A1	Naphthobenzothiophene	3.145	3.252	-3.4	152	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.252	-3.4	152	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	166	0.00
75	t	Benz[a]anthracene	1.587	1.594	-0.4	161	0.01
76	A1	Chrysene	1.602	1.555	2.9	152	0.01
77	A2	Chrysene/Triphenylene	1.602	1.555	2.9	152	0.01
82	t	Benzo[b]fluoranthene	1.744	1.877	-7.6	181	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.829	3.7	156	0.01
85	t	Benzo[e]pyrene	1.725	1.710	0.9	167	0.01
86	s	Benzo[a]pyrene-d12	1.036	1.017	1.8	174	0.03
87	t	Benzo[a]pyrene	1.661	1.639	1.3	168	0.03
88	t	Perylene	1.775	1.761	0.8	170	0.03
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.131	-10.2	196	0.06
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.021	-10.0	189	0.05
91	t	Benzo[g,h,i]perylene	2.042	2.180	-6.8	186	0.08
92	A1	Hopane (T19)	0.330	0.286	13.3	162	0.00
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.286	13.3	162	0.00
127	SA1	5B(H)Cholane - Surr	0.156	0.157	-0.6	175	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.12	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	26089M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	44781	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	54950	485.283	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.53%#			
42) Phenanthrene-d10	32.567	188	44160	493.402	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.34%#			
86) Benzo[a]pyrene-d12	48.241	264	45536	490.662	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.07%#			
127) 5B(H)Cholane - Surr	43.769	217	7026	501.828	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.18%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	5103	247.780	ng/mL	100
4) cis-Decalin	17.603	138	3914	252.162	ng/mL	100
10) Naphthalene	19.801	128	76478	459.943	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	46542	473.392	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	44193	458.580	ng/mL#	100
18) Benzothiophene	20.027	134	68125	455.294	ng/mL	100
23) Biphenyl	24.393	154	59181	475.856	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	39215	485.480	ng/mL#	100
25) Dibenzofuran	27.479	168	67874	475.265	ng/mL	96
26) Acenaphthylene	26.094	152	76063M3	460.823	ng/mL	
27) Acenaphthene	26.831	153	45976	473.069	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.382	170	32171	494.066	ng/mL	99
29) Fluorene	28.849	166	51461M3	480.111	ng/mL	
33) Dibenzothiophene	32.160	184	81656	475.249	ng/mL	99
43) Phenanthrene	32.657	178	72281	478.822	ng/mL	99
54) Retene	39.643	234	16137	548.005	ng/mL	97
55) Anthracene	32.838	178	71626M3	485.764	ng/mL	
56) Carbazole	33.500	167	70445M3	472.973	ng/mL	
57) 1-Methylphenanthrene	35.172	192	49260	514.930	ng/mL	99
58) Fluoranthene	37.430	202	76253M3	508.609	ng/mL	
59) Benzo(b)fluorene	39.944	216	46182	530.948	ng/mL	100
60) Pyrene	38.318	202	77613	509.265	ng/mL	98
66) Naphthobenzothiophene	42.158	234	84831	517.025	ng/ml#	66
67) Naphthobenzothiophene-...	42.158	234	84831	517.025	ng/mL#	66
75) Benz[a]anthracene	43.091	228	71364	502.089	ng/mL	100
76) Chrysene	43.257	228	69630	485.239	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	69630	485.239	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	84065	538.267	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	81920	481.779	ng/mL	96
85) Benzo[e]pyrene	48.136	252	76555	495.571	ng/mL	96
87) Benzo[a]pyrene	48.331	252	73411	493.583	ng/mL	95
88) Perylene	48.633	252	78871	496.195	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	95448M3	551.461	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	90499	549.649	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97641	533.960	ng/mL	100
92) Hopane (T19)	52.217	191	12792	433.424	ng/mL#	84
93) 17a(H),21B(H)-hopane -...	52.217	191	12792	433.424	ng/mL#	84

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

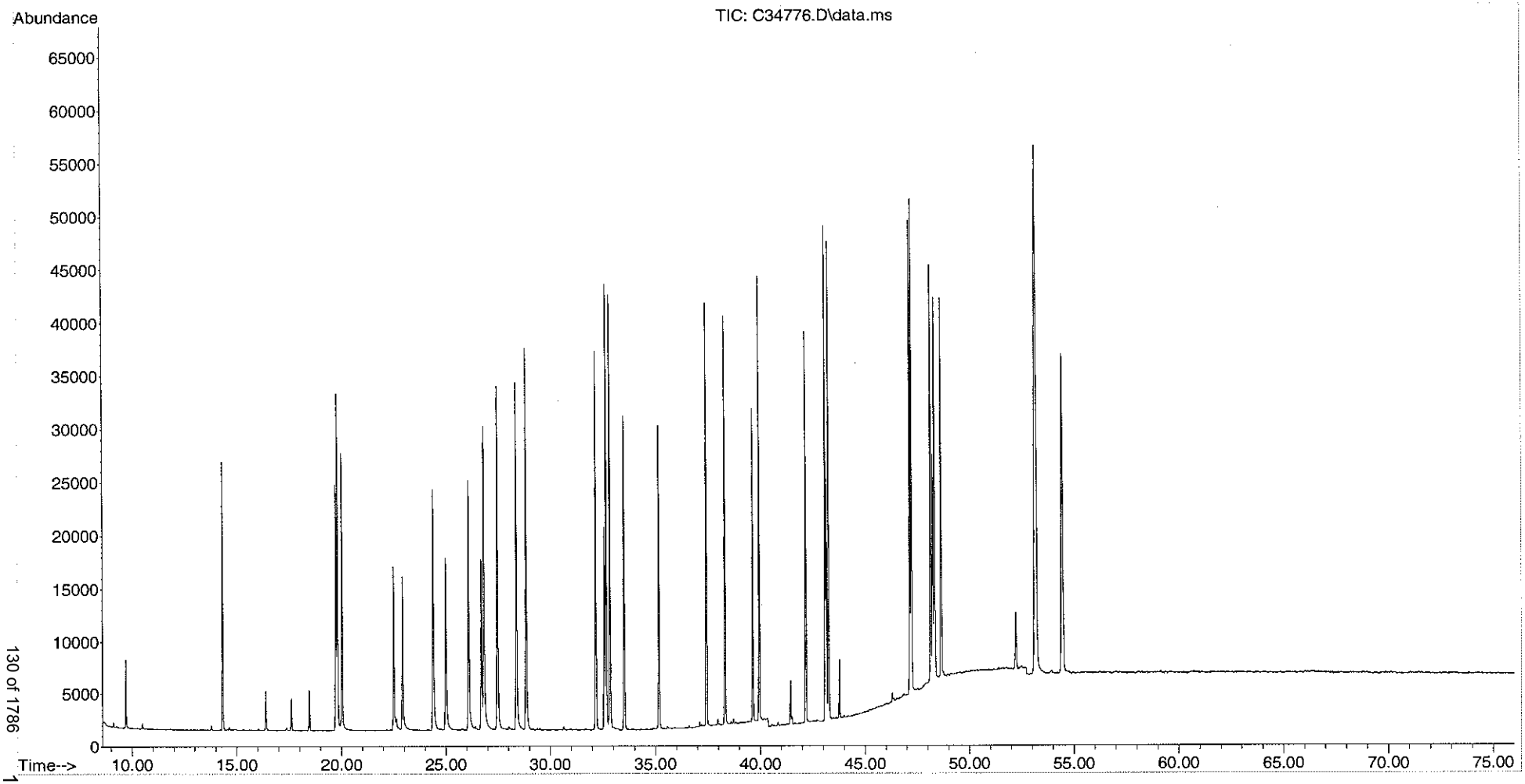
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	156	-0.03
3	A1	trans-Decalin	0.395	0.395	0.0	148	-0.06
4	t	cis-Decalin	0.297	0.291	2.0	144	-0.05
9	s	Naphthalene-d8	2.170	2.095	3.5	142	-0.05
10	A1	Naphthalene	3.187	2.935	7.9	132	-0.05
16	t	2-Methylnaphthalene	1.884	1.762	6.5	135	-0.03
17	t	1-Methylnaphthalene	1.847	1.674	9.4	132	-0.05
18	A1	Benzothiophene	2.868	2.618	8.7	132	-0.03
23	t	Biphenyl	2.384	2.226	6.6	138	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.493	3.6	144	-0.03
25	t	Dibenzofuran	2.737	2.586	5.5	139	-0.02
26	t	Acenaphthylene	3.163	2.902	8.3	137	-0.02
27	t	Acenaphthene	1.863	1.744	6.4	138	-0.03
28	t	2,3,5-Trimethylnaphthalene	1.248	1.222	2.1	149	-0.02
29	A1	Fluorene	2.054	1.958	4.7	142	-0.02
33	A1	Dibenzothiophene	3.293	3.072	6.7	138	-0.02
42	s	Phenanthrene-d10	1.715	1.678	2.2	152	-0.02
43	A1	Phenanthrene	2.893	2.706	6.5	138	-0.02
54	t	Retene	0.564	0.629	-11.5	178	0.00
55	t	Anthracene	2.826	2.692	4.7	141	-0.02
56	t	Carbazole	2.854	2.619	8.2	138	0.00
57	t	1-Methylphenanthrene	1.833	1.846	-0.7	151	-0.02
58	A1	Fluoranthene	2.873	2.896	-0.8	150	0.00
59	t	Benzo(b)fluorene	1.667	1.766	-5.9	162	0.00
60	A1	Pyrene	2.921	2.959	-1.3	151	0.00
66	A1	Naphthobenzothiophene	3.145	3.248	-3.3	159	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.248	-3.3	159	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	171	0.00
75	t	Benz[a]anthracene	1.587	1.606	-1.2	167	0.02
76	A1	Chrysene	1.602	1.567	2.2	158	0.02
77	A2	Chrysene/Triphenylene	1.602	1.567	2.2	158	0.02
82	t	Benzo[b]fluoranthene	1.744	1.787	-2.5	177	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.893	0.3	166	0.02
85	t	Benzo[e]pyrene	1.725	1.689	2.1	170	0.02
86	s	Benzo[a]pyrene-d12	1.036	1.010	2.5	177	0.03
87	t	Benzo[a]pyrene	1.661	1.597	3.9	168	0.03
88	t	Perylene	1.775	1.741	1.9	173	0.03
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.071	-7.1	196	0.06
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.991	-8.3	191	0.05
91	t	Benzo[g,h,i]perylene	2.042	2.117	-3.7	186	0.08
92	A1	Hopane (T19)	0.330	0.291	11.8	170	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.290	12.1	170	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.158	-1.3	182	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.11	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

RB & SLR 5/15/12

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	27233M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	46077	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	57040	482.579	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	48.26%#		
42) Phenanthrene-d10		32.567	188	45708	489.245	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	48.92%#		
86) Benzo[a]pyrene-d12		48.241	264	46524	487.208	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	48.72%#		
127) 5B(H)Cholane - Surr		43.754	217	7298	506.594	ng/ml	-0.01
Spiked Amount	1000.000	Range 50 - 130		Recovery =	50.66%		
Target Compounds							Qvalue
3) trans-Decalin		16.384	138	5383	250.396	ng/mL	100
4) cis-Decalin		17.603	138	3968	244.902	ng/mL	100
10) Naphthalene		19.801	128	79919	460.447	ng/mL#	100
16) 2-Methylnaphthalene		22.496	142	47971	467.430	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	45592	453.223	ng/mL#	100
18) Benzothiophene		20.027	134	71300	456.496	ng/mL	100
23) Biphenyl		24.393	154	60633	467.051	ng/mL#	100
24) 2,6-Dimethylnaphthalene		24.995	156	40652	482.129	ng/mL#	100
25) Dibenzofuran		27.479	168	70414	472.339	ng/mL	95
26) Acenaphthylene		26.094	152	79043M3	458.761	ng/mL	
27) Acenaphthene		26.816	153	47495M3	468.169	ng/mL	
28) 2,3,5-Trimethylnaphtha...		28.382	170	33282	489.657	ng/mL	100
29) Fluorene		28.849	166	53325M3	476.603	ng/mL	
33) Dibenzothiophene		32.161	184	83671	466.520	ng/mL	100
43) Phenanthrene		32.657	178	73704	467.738	ng/mL	99
54) Retene		39.643	234	17133	557.387	ng/mL	99
55) Anthracene		32.838	178	73311M3	476.306	ng/mL	
56) Carbazole		33.515	167	71324M3	458.758	ng/mL	
57) 1-Methylphenanthrene		35.157	192	50285	503.563	ng/mL	100
58) Fluoranthene		37.430	202	78861M3	503.908	ng/mL	
59) Benzo(b)fluorene		39.944	216	48097	529.736	ng/mL	100
60) Pyrene		38.318	202	80569	506.453	ng/mL	98
66) Naphthobenzothiophene		42.158	234	88451	516.442	ng/ml#	65
67) Naphthobenzothiophene-...		42.158	234	88451	516.442	ng/mL#	65
75) Benz[a]anthracene		43.091	228	73981	505.861	ng/mL	100
76) Chrysene		43.257	228	72194	488.956	ng/mL	100
77) Chrysene/Triphenylene		43.257	228	72194	488.956	ng/mL	100
82) Benzo[b]fluoranthene		47.142	252	82351	512.461	ng/mL	97
83) Benzo[j]+[k]fluoranthene		47.217	252	87208	498.453	ng/mL	96
85) Benzo[e]pyrene		48.136	252	77842	489.729	ng/mL	97
87) Benzo[a]pyrene		48.331	252	73582	480.818	ng/mL	95
88) Perylene		48.633	252	80208	490.413	ng/mL	95
89) Indeno[1,2,3-cd]pyrene		53.136	276	95412M3	535.748	ng/mL	
90) Dibenz[ah]+[ac]anthracene		53.181	278	91742	541.526	ng/mL	97
91) Benzo[g,h,i]perylene		54.431	276	97529	518.346	ng/mL	100
92) Hopane (T19)		52.202	191	13412M3	441.649	ng/mL	
93) 17a(H),21B(H)-hopane -...		52.202	191	13345M3	439.443	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

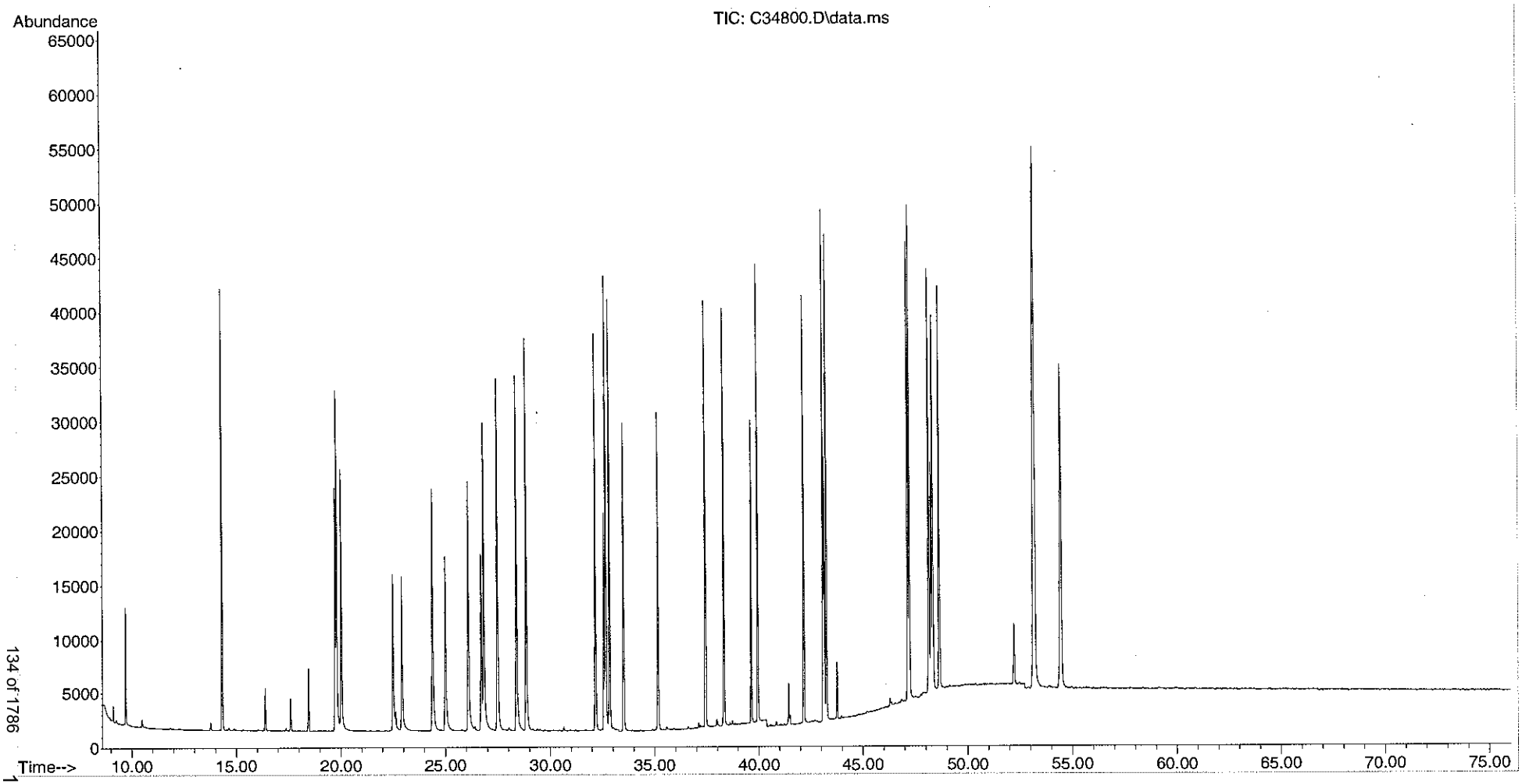
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	98	-0.02
3	A1	trans-Decalin	0.395	0.397	-0.5	93	-0.06
4	t	cis-Decalin	0.297	0.295	0.7	92	-0.05
9	s	Naphthalene-d8	2.170	2.088	3.8	89	-0.05
10	A1	Naphthalene	3.187	2.961	7.1	83	-0.05
16	t	2-Methylnaphthalene	1.884	1.769	6.1	85	-0.02
17	t	1-Methylnaphthalene	1.847	1.654	10.4	82	-0.03
18	A1	Benzothiophene	2.868	2.642	7.9	83	-0.03
23	t	Biphenyl	2.384	2.261	5.2	88	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.499	3.2	91	-0.02
25	t	Dibenzofuran	2.737	2.596	5.2	88	-0.02
26	t	Acenaphthylene	3.163	2.917	7.8	86	-0.02
27	t	Acenaphthene	1.863	1.746	6.3	87	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.226	1.8	94	0.00
29	A1	Fluorene	2.054	1.970	4.1	90	0.00
33	A1	Dibenzothiophene	3.293	3.085	6.3	87	0.00
42	s	Phenanthrene-d10	1.715	1.674	2.4	95	0.00
43	A1	Phenanthrene	2.893	2.749	5.0	88	-0.02
54	t	Retene	0.564	0.610	-8.2	108	0.00
55	t	Anthracene	2.826	2.736	3.2	90	0.00
56	t	Carbazole	2.854	2.623	8.1	87	0.00
57	t	1-Methylphenanthrene	1.833	1.834	-0.1	94	0.00
58	A1	Fluoranthene	2.873	2.879	-0.2	93	0.00
59	t	Benzo(b)fluorene	1.667	1.752	-5.1	100	0.01
60	A1	Pyrene	2.921	2.901	0.7	93	0.00
66	A1	Naphthobenzothiophene	3.145	3.227	-2.6	99	0.01
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.227	-2.6	99	0.01
74	i	Chrysene-d12	1.000	1.000	0.0	106	0.00
75	t	Benz[a]anthracene	1.587	1.615	-1.8	104	0.01
76	A1	Chrysene	1.602	1.584	1.1	99	0.01
77	A2	Chrysene/Triphenylene	1.602	1.584	1.1	99	0.01
82	t	Benzo[b]fluoranthene	1.744	1.871	-7.3	114	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.810	4.7	98	0.01
85	t	Benzo[e]pyrene	1.725	1.706	1.1	106	0.01
86	s	Benzo[a]pyrene-d12	1.036	1.016	1.9	110	0.03
87	t	Benzo[a]pyrene	1.661	1.631	1.8	106	0.03
88	t	Perylene	1.775	1.759	0.9	108	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.129	-10.1	124	0.08
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.991	-8.3	118	0.06
91	t	Benzo[g,h,i]perylene	2.042	2.145	-5.0	116	0.09
92	A1	Hopane (T19)	0.330	0.294	10.9	106	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.294	10.9	106	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.160	-2.6	113	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.11	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17064M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	28462	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	35622	480.975	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.10%#			
42) Phenanthrene-d10	32.582	188	28572	488.078	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.81%#			
86) Benzo[a]pyrene-d12	48.241	264	28904	490.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.00%#			
127) 5B(H)Cholane - Surr	43.753	217	4543	510.526	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.05%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3389	251.587	ng/mL	100
4) cis-Decalin	17.603	138	2521	248.318	ng/mL	100
10) Naphthalene	19.801	128	50529	464.606	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	30183	469.370	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	28220	447.708	ng/mL#	100
18) Benzothiophene	20.027	134	45080	460.623	ng/mL	100
23) Biphenyl	24.392	154	38574	474.204	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	25575	484.074	ng/mL#	100
25) Dibenzofuran	27.479	168	44306	474.320	ng/mL	95
26) Acenaphthylene	26.094	152	49769M3	460.995	ng/mL	
27) Acenaphthene	26.831	153	29794	468.704	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	20924	491.294	ng/mL	100
29) Fluorene	28.864	166	33621M3	479.569	ng/mL	
33) Dibenzothiophene	32.176	184	52643	468.436	ng/mL	100
43) Phenanthrene	32.657	178	46915	475.158	ng/mL	99
54) Retene	39.643	234	10413	540.647	ng/mL	97
55) Anthracene	32.853	178	46687M3	484.091	ng/mL	
56) Carbazole	33.515	167	44751M3	459.373	ng/mL	
57) 1-Methylphenanthrene	35.171	192	31302	500.268	ng/mL	99
58) Fluoranthene	37.430	202	49134M3	501.056	ng/mL	
59) Benzo(b)fluorene	39.959	216	29894	525.461	ng/mL	100
60) Pyrene	38.318	202	49499	496.572	ng/mL	97
66) Naphthobenzothiophene	42.173	234	55072	513.174	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	55072	513.174	ng/mL#	66
75) Benz[a]anthracene	43.091	228	45979	508.967	ng/mL	99
76) Chrysene	43.257	228	45092	494.410	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45092	494.410	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	53247	536.422	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	51506	476.589	ng/mL	97
85) Benzo[e]pyrene	48.136	252	48554	494.522	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46418	491.037	ng/mL	95
88) Perylene	48.648	252	50072	495.631	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.151	276	60603M3	550.897	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	56659	541.426	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	61054	525.314	ng/mL	100
92) Hopane (T19)	52.202	191	8372	446.305	ng/mL#	81
93) 17a(H),21B(H)-hopane -...	52.202	191	8372	446.305	ng/mL#	81

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

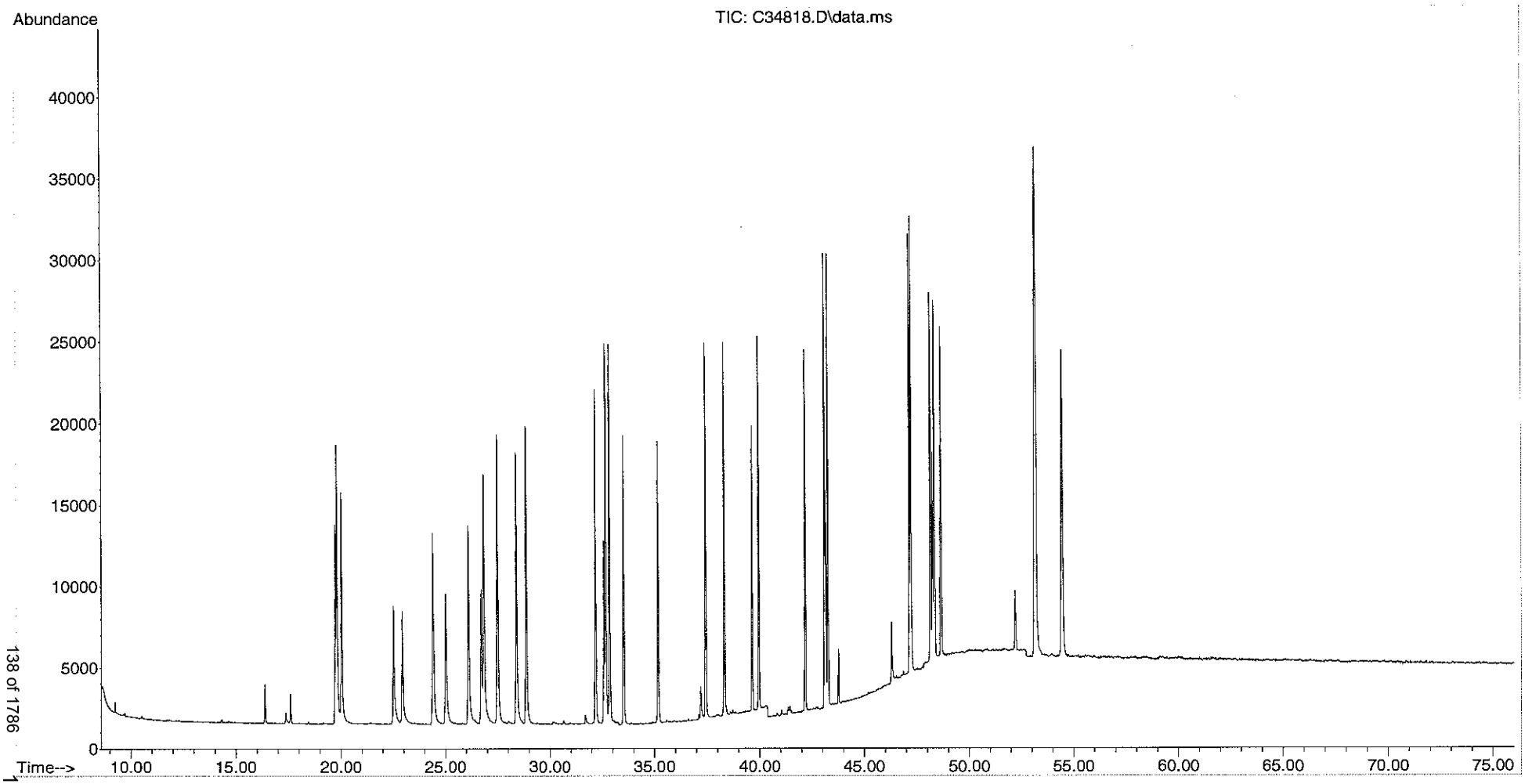
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

1st 2nd CC 5/6/12

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	104	-0.02
3	A1	trans-Decalin	0.395	0.389	1.5	97	-0.06
4	t	cis-Decalin	0.297	0.285	4.0	94	-0.05
9	s	Naphthalene-d8	2.170	2.109	2.8	95	-0.05
10	A1	Naphthalene	3.187	3.021	5.2	90	-0.05
16	t	2-Methylnaphthalene	1.884	1.779	5.6	91	-0.02
17	t	1-Methylnaphthalene	1.847	1.645	10.9	87	-0.03
18	A1	Benzothiophene	2.868	2.691	6.2	90	-0.03
23	t	Biphenyl	2.384	2.300	3.5	95	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.500	3.1	96	-0.02
25	t	Dibenzofuran	2.737	2.634	3.8	95	0.00
26	t	Acenaphthylene	3.163	2.927	7.5	92	-0.02
27	t	Acenaphthene	1.863	1.768	5.1	93	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.243	0.4	101	0.00
29	A1	Fluorene	2.054	2.007	2.3	97	0.00
33	A1	Dibenzothiophene	3.293	3.123	5.2	93	0.00
42	s	Phenanthrene-d10	1.715	1.674	2.4	101	0.00
43	A1	Phenanthrene	2.893	2.774	4.1	94	0.00
54	t	Retene	0.564	0.618	-9.6	116	0.00
55	t	Anthracene	2.826	2.786	1.4	97	0.00
56	t	Carbazole	2.854	2.685	5.9	94	0.00
57	t	1-Methylphenanthrene	1.833	1.880	-2.6	102	0.00
58	A1	Fluoranthene	2.873	2.897	-0.8	100	0.00
59	t	Benzo(b)fluorene	1.667	1.761	-5.6	107	0.02
60	A1	Pyrene	2.921	2.937	-0.5	100	0.00
66	A1	Naphthobenzothiophene	3.145	3.247	-3.2	106	0.02
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.247	-3.2	106	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	113	0.02
75	t	Benz[a]anthracene	1.587	1.611	-1.5	111	0.02
76	A1	Chrysene	1.602	1.572	1.9	104	0.02
77	A2	Chrysene/Triphenylene	1.602	1.572	1.9	104	0.02
82	t	Benzo[b]fluoranthene	1.744	1.847	-5.9	121	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.852	2.5	107	0.03
85	t	Benzo[e]pyrene	1.725	1.698	1.6	113	0.03
86	s	Benzo[a]pyrene-d12	1.036	1.007	2.8	117	0.03
87	t	Benzo[a]pyrene	1.661	1.625	2.2	113	0.03
88	t	Perylene	1.775	1.756	1.1	115	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.235	-15.6	139	0.08

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.005	-9.1	127	0.06
91	t	Benzo[g,h,i]perylene	2.042	2.157	-5.6	125	0.09
92	A1	Hopane (T19)	0.330	0.310	6.1	120	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.310	6.1	120	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.157	-0.6	119	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.10	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

1st 2nd RM 5/6/12

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18143M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30421	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	38272	486.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.60%#			
42) Phenanthrene-d10	32.582	188	30371	487.955	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.80%#			
86) Benzo[a]pyrene-d12	48.241	264	30629	485.826	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.58%#			
127) 5B(H)Cholane - Surr	43.754	217	4785	503.094	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.31%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3531	246.540	ng/mL	100
4) cis-Decalin	17.603	138	2582	239.201	ng/mL	100
10) Naphthalene	19.801	128	54811	474.005	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	32279	472.112	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	29853	445.449	ng/mL#	100
18) Benzothiophene	20.027	134	48823	469.200	ng/mL	100
23) Biphenyl	24.408	154	41726	482.446	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	27223	484.622	ng/mL#	100
25) Dibenzofuran	27.494	168	47796	481.252	ng/mL	95
26) Acenaphthylene	26.094	152	53097M3	462.572	ng/mL	
27) Acenaphthene	26.832	153	32079	474.637	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.397	170	22550	497.984	ng/mL	99
29) Fluorene	28.864	166	36416M3	488.545	ng/mL	
33) Dibenzothiophene	32.176	184	56663	474.222	ng/mL	99
43) Phenanthrene	32.673	178	50334	479.468	ng/mL	99
54) Retene	39.643	234	11209	547.364	ng/mL	98
55) Anthracene	32.853	178	50554M3	493.013	ng/mL	
56) Carbazole	33.516	167	48707M3	470.247	ng/mL	
57) 1-Methylphenanthrene	35.172	192	34101	512.589	ng/mL	100
58) Fluoranthene	37.430	202	52554M3	504.059	ng/mL	
59) Benzo(b)fluorene	39.960	216	31953	528.250	ng/mL	100
60) Pyrene	38.318	202	53285	502.762	ng/mL	96
66) Naphthobenzothiophene	42.173	234	58908	516.273	ng/ml#	65
67) Naphthobenzothiophene-2,1	42.173	234	58908	516.273	ng/mL#	65
75) Benz[a]anthracene	43.091	228	48995	507.427	ng/mL	99
76) Chrysene	43.257	228	47818	490.536	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	47818	490.536	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	56173	529.457	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	56325	487.618	ng/mL	97
85) Benzo[e]pyrene	48.151	252	51642	492.102	ng/mL	96
87) Benzo[a]pyrene	48.332	252	49448	489.405	ng/mL	95
88) Perylene	48.648	252	53413	494.655	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	53.151	276	68006M3	578.383	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	60995	545.326	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	65614	528.194	ng/mL	99
92) Hopane (T19)	52.202	191	9428	470.234	ng/mL#	79
93) 17a(H),21B(H)-hopane - C3	52.202	191	9428	470.234	ng/mL#	79

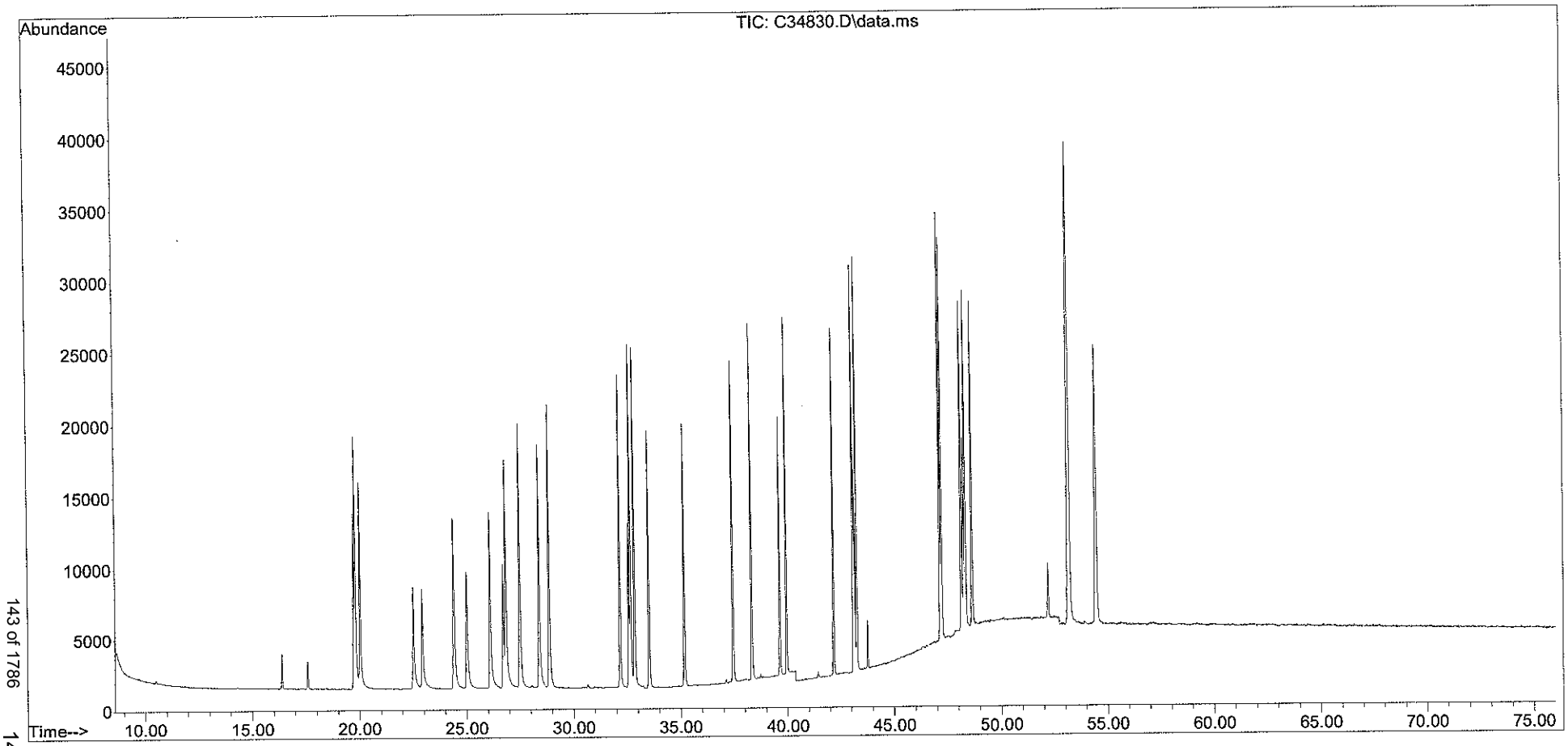
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

1st vdm 5/6/12

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	112	-0.02
3	A1	trans-Decalin	0.395	0.377	4.6	101	-0.06
4	t	cis-Decalin	0.297	0.285	4.0	102	-0.06
9	s	Naphthalene-d8	2.170	2.042	5.9	100	-0.05
10	A1	Naphthalene	3.187	2.911	8.7	94	-0.05
16	t	2-Methylnaphthalene	1.884	1.745	7.4	96	0.00
17	t	1-Methylnaphthalene	1.847	1.579	14.5	90	-0.03
18	A1	Benzothiophene	2.868	2.567	10.5	93	-0.03
23	t	Biphenyl	2.384	2.239	6.1	99	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.498	3.2	104	0.00
25	t	Dibenzofuran	2.737	2.587	5.5	100	0.00
26	t	Acenaphthylene	3.163	2.904	8.2	99	-0.02
27	t	Acenaphthene	1.863	1.744	6.4	99	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.231	1.4	108	0.00
29	A1	Fluorene	2.054	1.993	3.0	104	0.00
33	A1	Dibenzothiophene	3.293	3.082	6.4	99	0.00
42	s	Phenanthrene-d10	1.715	1.668	2.7	109	0.00
43	A1	Phenanthrene	2.893	2.727	5.7	100	0.00
54	t	Retene	0.564	0.618	-9.6	126	0.00
55	t	Anthracene	2.826	2.791	1.2	105	0.00
56	t	Carbazole	2.854	2.675	6.3	101	0.01
57	t	1-Methylphenanthrene	1.833	1.875	-2.3	110	0.00
58	A1	Fluoranthene	2.873	2.883	-0.3	107	0.01
59	t	Benzo(b)fluorene	1.667	1.769	-6.1	116	0.01
60	A1	Pyrene	2.921	2.920	0.0	107	0.00
66	A1	Naphthobenzothiophene	3.145	3.261	-3.7	115	0.02
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.261	-3.7	115	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	122	0.01
75	t	Benz[a]anthracene	1.587	1.619	-2.0	121	0.01
76	A1	Chrysene	1.602	1.583	1.2	114	0.01
77	A2	Chrysene/Triphenylene	1.602	1.583	1.2	114	0.01
82	t	Benzo[b]fluoranthene	1.744	1.833	-5.1	130	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.840	3.1	115	0.03
85	t	Benzo[e]pyrene	1.725	1.697	1.6	122	0.03
86	s	Benzo[a]pyrene-d12	1.036	0.999	3.6	126	0.03
87	t	Benzo[a]pyrene	1.661	1.612	3.0	122	0.03
88	t	Perylene	1.775	1.740	2.0	124	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.266	-17.2	153	0.08

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.988	-8.2	137	0.06
91	t	Benzo[g,h,i]perylene	2.042	2.125	-4.1	134	0.11
92	A1	Hopane (T19)	0.330	0.299	9.4	125	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.296	10.3	124	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.162	-3.8	134	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.10	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

18h2 5/6/12

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19577M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32966	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	39969	470.394	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.04%#			
42) Phenanthrene-d10	32.582	188	32661	486.310	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.63%#			
86) Benzo[a]pyrene-d12	48.241	264	32926	481.942	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.19%#			
127) 5B(H)Cholane - Surr	43.754	217	5350	519.072	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.91%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3691	238.834	ng/mL	100
4) cis-Decalin	17.588	138	2790	239.538	ng/mL	100
10) Naphthalene	19.801	128	56993	456.773	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	34171	463.175	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30905	427.368	ng/mL#	100
18) Benzothiophene	20.027	134	50255	447.585	ng/mL	100
23) Biphenyl	24.408	154	43838	469.738	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	29336	483.984	ng/mL#	100
25) Dibenzofuran	27.494	168	50655	472.679	ng/mL	96
26) Acenaphthylene	26.094	152	56854M3	459.022	ng/mL	
27) Acenaphthene	26.831	153	34135	468.063	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.397	170	24109	493.413	ng/mL	98
29) Fluorene	28.864	166	39011M3	485.023	ng/mL	
33) Dibenzothiophene	32.176	184	60338	467.989	ng/mL	99
43) Phenanthrene	32.672	178	53382	471.255	ng/mL	99
54) Retene	39.643	234	12093	547.276	ng/mL	96
55) Anthracene	32.853	178	54646M3	493.883	ng/mL	
56) Carbazole	33.530	167	52377	468.638	ng/mL	98
57) 1-Methylphenanthrene	35.172	192	36714	511.443	ng/mL	99
58) Fluoranthene	37.445	202	56447M3	501.741	ng/mL	
59) Benzo(b)fluorene	39.959	216	34633	530.617	ng/mL	100
60) Pyrene	38.318	202	57171	499.915	ng/mL	97
66) Naphthobenzothiophene	42.173	234	63845	518.556	ng/ml#	66
67) Naphthobenzothiophene-2,1	42.173	234	63845	518.556	ng/mL#	66
75) Benz[a]anthracene	43.091	228	53368	510.047	ng/mL	99
76) Chrysene	43.257	228	52173	493.893	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	52173	493.893	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	60436	525.661	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	60657	484.581	ng/mL	96
85) Benzo[e]pyrene	48.151	252	55949	491.985	ng/mL	97
87) Benzo[a]pyrene	48.331	252	53157	485.498	ng/mL	95
88) Perylene	48.648	252	57365	490.241	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.151	276	74711M3	586.354	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	65528	540.625	ng/mL	98
91) Benzo[g,h,i]perylene	54.461	276	70039	520.288	ng/mL	100
92) Hopane (T19)	52.202	191	9866M3	454.091	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.202	191	9747M3	448.614	ng/mL	

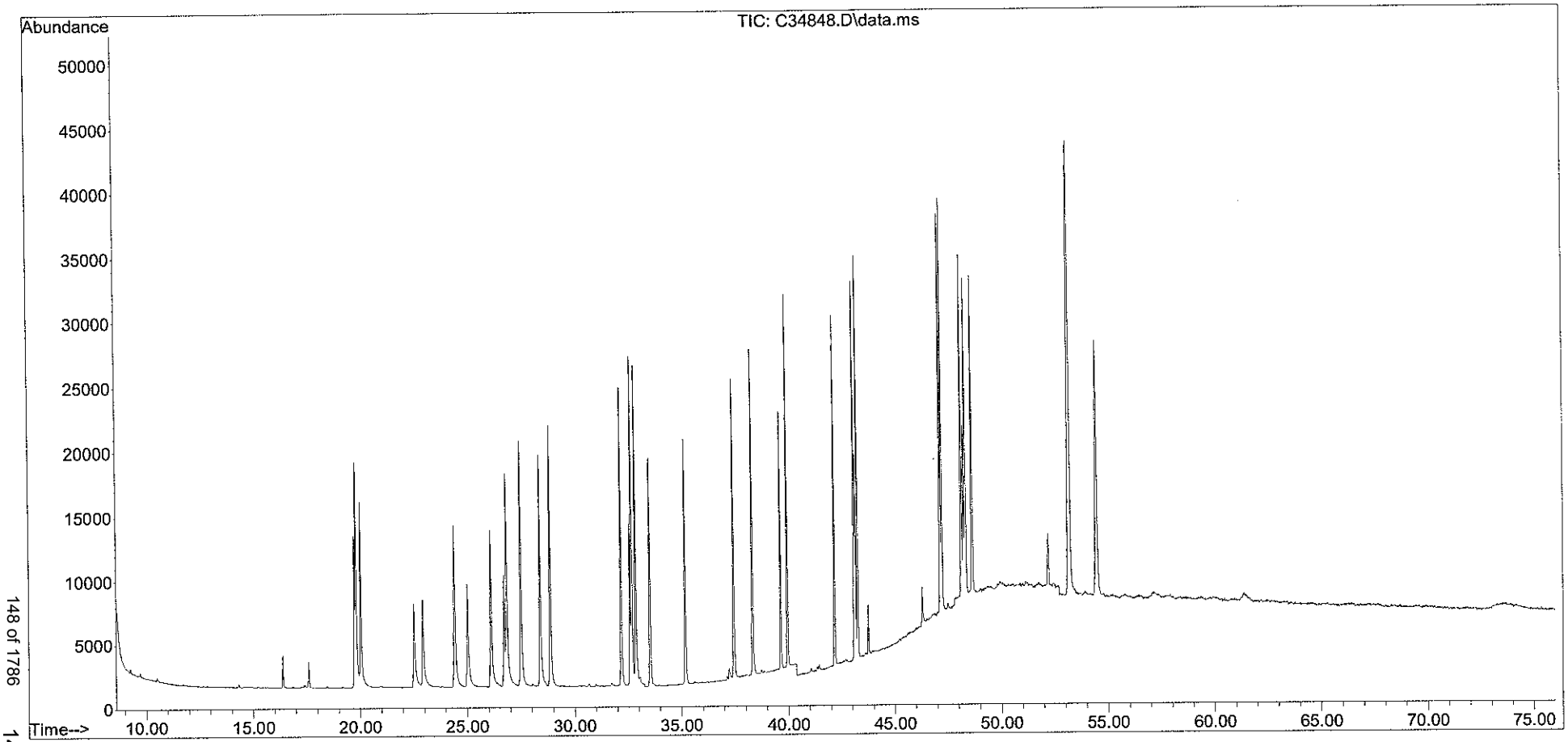
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

193 2WG 5/6/12

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	110	-0.02
3	A1	trans-Decalin	0.395	0.339	14.2	89	-0.06
4	t	cis-Decalin	0.297	0.255	14.1	89	-0.05
9	s	Naphthalene-d8	2.170	1.832	15.6	87	-0.03
10	A1	Naphthalene	3.187	2.600	18.4	82	-0.03
16	t	2-Methylnaphthalene	1.884	1.742	7.5	94	0.00
17	t	1-Methylnaphthalene	1.847	1.569	15.1	87	-0.03
18	A1	Benzothiophene	2.868	2.350	18.1	83	-0.03
23	t	Biphenyl	2.384	2.274	4.6	99	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.503	2.9	102	0.00
25	t	Dibenzofuran	2.737	2.600	5.0	98	0.00
26	t	Acenaphthylene	3.163	2.894	8.5	96	0.00
27	t	Acenaphthene	1.863	1.716	7.9	96	-0.01
28	t	2,3,5-Trimethylnaphthalene	1.248	1.241	0.6	106	0.00
29	A1	Fluorene	2.054	1.982	3.5	101	0.00
33	A1	Dibenzothiophene	3.293	3.088	6.2	97	0.00
42	s	Phenanthrene-d10	1.715	1.678	2.2	107	0.00
43	A1	Phenanthrene	2.893	2.742	5.2	98	0.00
54	t	Retene	0.564	0.617	-9.4	123	0.00
55	t	Anthracene	2.826	2.784	1.5	102	0.00
56	t	Carbazole	2.854	2.683	6.0	99	0.02
57	t	1-Methylphenanthrene	1.833	1.866	-1.8	107	0.02
58	A1	Fluoranthene	2.873	2.881	-0.3	105	0.02
59	t	Benzo(b)fluorene	1.667	1.767	-6.0	114	0.02
60	A1	Pyrene	2.921	2.924	-0.1	104	0.02
66	A1	Naphthobenzothiophene	3.145	3.213	-2.2	110	0.02
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.213	-2.2	110	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	119	0.02
75	t	Benz[a]anthracene	1.587	1.616	-1.8	117	0.03
76	A1	Chrysene	1.602	1.576	1.6	110	0.03
77	A2	Chrysene/Triphenylene	1.602	1.576	1.6	110	0.03
82	t	Benzo[b]fluoranthene	1.744	1.793	-2.8	123	0.05
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.919	-1.1	117	0.03
85	t	Benzo[e]pyrene	1.725	1.710	0.9	119	0.03
86	s	Benzo[a]pyrene-d12	1.036	1.023	1.3	125	0.05
87	t	Benzo[a]pyrene	1.661	1.635	1.6	120	0.05
88	t	Perylene	1.775	1.749	1.5	121	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.280	-18.0	150	0.09

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.053	-11.7	137	0.08
91	t	Benzo[g,h,i]perylene	2.042	2.195	-7.5	134	0.12
92	A1	Hopane (T19)	0.330	0.307	7.0	125	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.310	6.1	126	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.169	-8.3	135	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.13	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

5/16/12

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19115M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	32005	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	35010	421.990	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.20%#			
42) Phenanthrene-d10	32.582	188	32069	489.036	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.90%#			
86) Benzo[a]pyrene-d12	48.256	264	32752	493.789	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.38%#			
127) 5B(H)Cholane - Surr	43.769	217	5413	540.954	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.10%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3236	214.453	ng/mL	100
4) cis-Decalin	17.603	138	2440	214.552	ng/mL	100
10) Naphthalene	19.816	128	49694	407.901	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	33291	462.154	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30000	424.880	ng/mL#	100
18) Benzothiophene	20.027	134	44915	409.694	ng/mL	100
23) Biphenyl	24.408	154	43469	477.042	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	28733	485.493	ng/mL#	100
25) Dibenzofuran	27.494	168	49706	475.034	ng/mL	96
26) Acenaphthylene	26.109	152	55313M3	457.374	ng/mL	
27) Acenaphthene	26.832	153	32796	460.571	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.397	170	23728	497.353	ng/mL	98
29) Fluorene	28.864	166	37891M3	482.484	ng/mL	
33) Dibenzothiophene	32.176	184	59025	468.870	ng/mL	98
43) Phenanthrene	32.673	178	52422	473.965	ng/mL	99
54) Retene	39.643	234	11800	546.923	ng/mL	97
55) Anthracene	32.853	178	53211M3	492.537	ng/mL	
56) Carbazole	33.531	167	51280M3	469.913	ng/mL	
57) 1-Methylphenanthrene	35.187	192	35663	508.809	ng/mL	100
58) Fluoranthene	37.445	202	55068M3	501.314	ng/mL	
59) Benzo(b)fluorene	39.960	216	33772	529.931	ng/mL	99
60) Pyrene	38.333	202	55892	500.543	ng/mL	97
66) Naphthobenzothiophene	42.173	234	61419	510.908	ng/ml#	66
67) Naphthobenzothiophene-2,1	42.173	234	61419	510.908	ng/mL#	66
75) Benz[a]anthracene	43.106	228	51712	509.060	ng/mL	99
76) Chrysene	43.272	228	50443	491.854	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.272	228	50443	491.854	ng/mL	100
82) Benzo[b]fluoranthene	47.157	252	57388	514.138	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.232	252	61409	505.320	ng/mL	97
85) Benzo[e]pyrene	48.151	252	54730	495.717	ng/mL	98
87) Benzo[a]pyrene	48.347	252	52337	492.362	ng/mL	97
88) Perylene	48.648	252	55992	492.875	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276	72966M3	589.854	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	65703	558.345	ng/mL	98
91) Benzo[g,h,i]perylene	54.476	276	70256	537.571	ng/mL	99
92) Hopane (T19)	52.202	191	9829M3	465.971	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.202	191	9936M3	471.044	ng/mL	

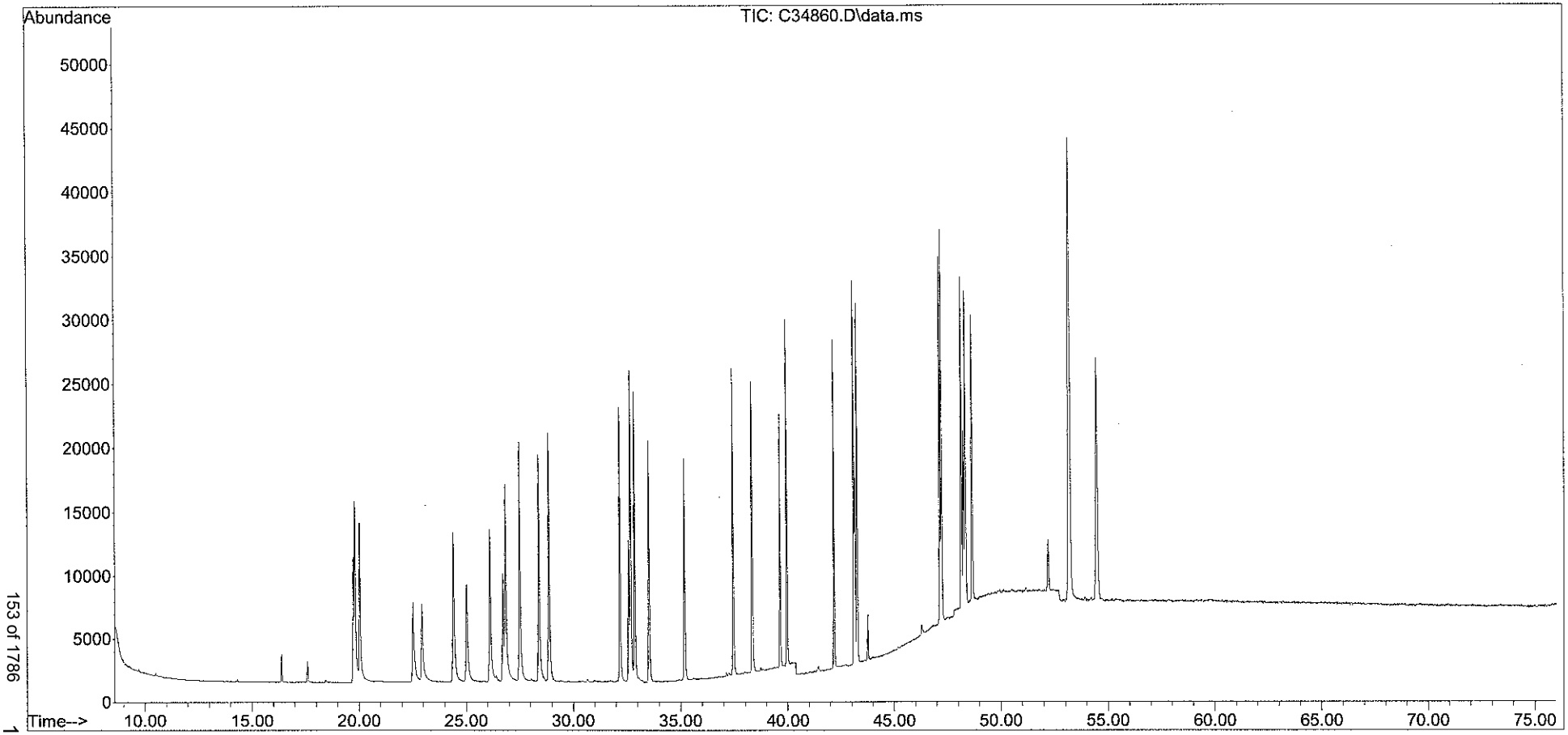
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

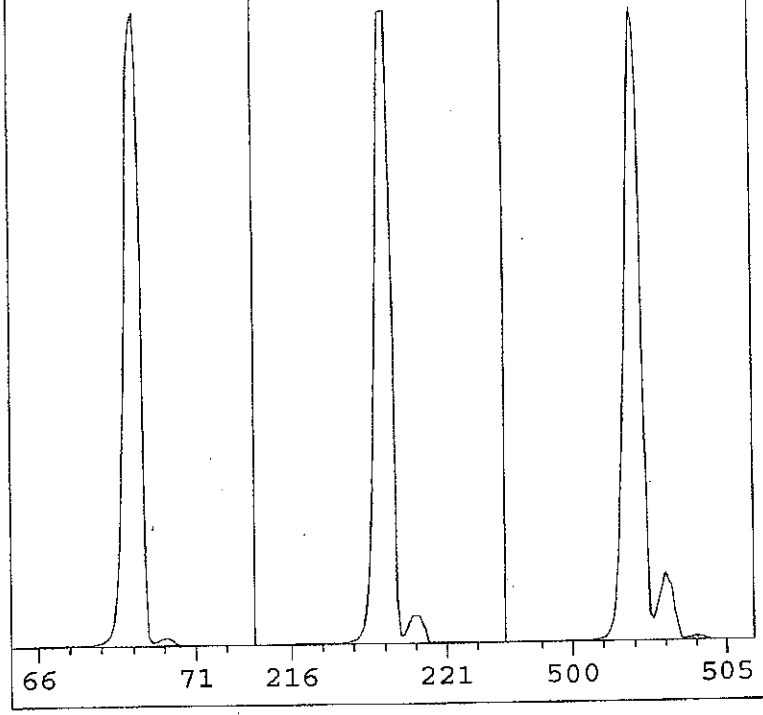


5973 Tune

Sat Mar 24 14:44:30 2012
C:\MSDCHEM\1\5973N\PFTBA.U

Instrument: PAH 3

Mass	69.10	Mass	219.10	Mass	502.00
Ab	426142	Ab	236222	Ab	40080
Pw50	0.56	Pw50	0.59	Pw50	0.55



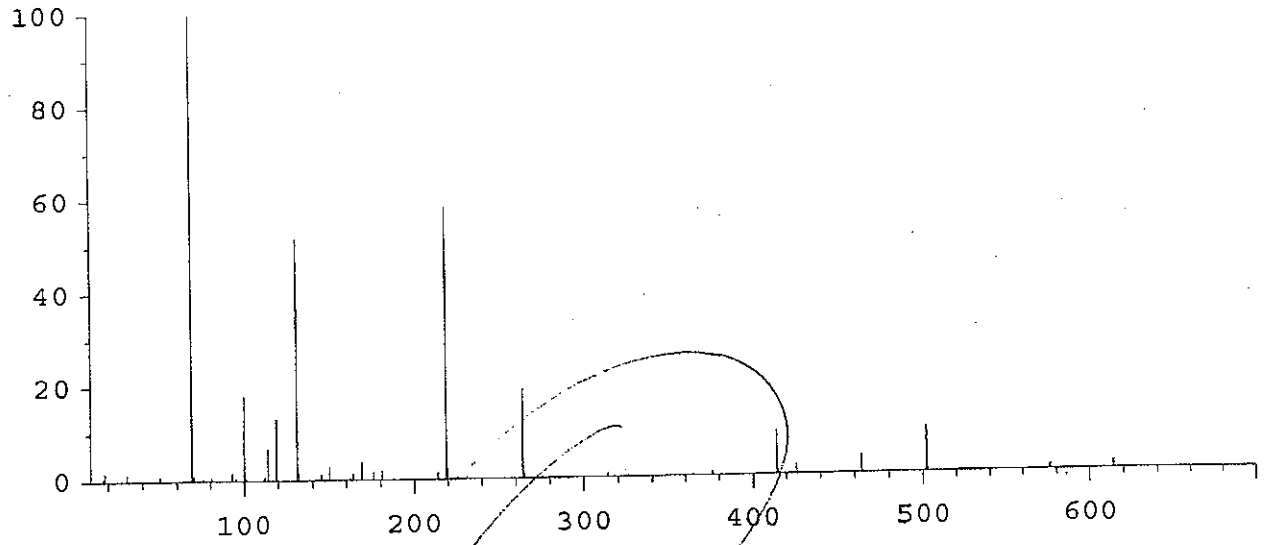
Ion Pol	POS	MassGain	58
		MassOffs	-11
Emission	34.6	AmuGain	2453
ElEnrgy	69.9	AmuOffs	133
Filament	1	Wid219	-0.076
		DC Pol	POS
Repeller	29.79		
IonFcus	90.2	HEDEnab	ON
EntLens	0.0	EMVolts	1341
EntOffs	VAR		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	57
MS Quad	150		

3/24/12

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
142 peaks Base: 69.00 Abundance: 380032



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	380032	100.00	70.00	4298	1.13
219.00	222080	58.44	220.00	9804	4.41
502.00	37096	9.76	503.00	3764	10.15

TARGET MASS:	50	69	131	219	414	502
DYNAMIC ENT OFFSET:	16.8	19.6	19.3	18.6	22.3	24.1
TARGET ABUND(%):	1.0	100.0	50.0	51.0	8.0	8.0
ACTUAL TUNE ABUND(%):	1.1	100.0	51.7	58.4	9.4	9.8

C34774.D PAH3032612.M 5-2-2012 9:41 am

[targets]
base=69
masses=5
mass1=50
mass2=131
mass3=219
mass4=414
mass5=502
target1=1
target2=45
target3=55
target4=2.5
target5=2
[ATUNE.cnorm]
masses=5
69=491264
50=5435
131=284160
219=405504
414=50072
502=49456
[TARGET.cnorm]
masses=5
69=418432
50=4610
131=219840
219=233216
414=36584
502=43248
[PFTBA.cnorm]
masses=5
69=380032 ✓
50=4053
131=196544
219=222080 - 58.4%
414=35608
502=37096 - 9.76%

✓MM 6/4/12

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result	
cis/trans-Decalin	0.358	U
C1-Decalins	0.358	U
C2-Decalins	0.358	U
C3-Decalins	0.358	U
C4-Decalins	0.358	U
Benzothiophene	0.290	U
C1-Benzo(b)thiophenes	0.290	U
C2-Benzo(b)thiophenes	0.290	U
C3-Benzo(b)thiophenes	0.290	U
C4-Benzo(b)thiophenes	0.290	U
Naphthalene	0.244	U
C1-Naphthalenes	0.244	U
C2-Naphthalenes	0.244	U
C3-Naphthalenes	0.244	U
C4-Naphthalenes	0.244	U
Biphenyl	0.113	U
Dibenzofuran	0.106	U
Acenaphthylene	0.0852	U
Acenaphthene	0.101	U
Fluorene	0.119	U
C1-Fluorenes	0.119	U
C2-Fluorenes	0.119	U
C3-Fluorenes	0.119	U
Anthracene	0.176	U
Phenanthrene	**0.140**	J
C1-Phenanthrenes/Anthracenes	0.211	U
C2-Phenanthrenes/Anthracenes	0.211	U
C3-Phenanthrenes/Anthracenes	0.211	U
C4-Phenanthrenes/Anthracenes	0.211	U
Retene	0.204	U
Dibenzothiophene	0.109	U
C1-Dibenzothiophenes	0.109	U
C2-Dibenzothiophenes	0.109	U

Parameter	Result	
C3-Dibenzothiophenes	0.109	U
C4-Dibenzothiophenes	0.109	U
Benzo(b)fluorene	0.225	U
Fluoranthene	**0.156**	J
Pyrene	0.186	U
C1-Fluoranthenes/Pyrenes	0.186	U
C2-Fluoranthenes/Pyrenes	0.186	U
C3-Fluoranthenes/Pyrenes	0.186	U
C4-Fluoranthenes/Pyrenes	0.186	U
Naphthobenzothiophenes	0.121	U
C1-Naphthobenzothiophenes	0.121	U
C2-Naphthobenzothiophenes	0.121	U
C3-Naphthobenzothiophenes	0.121	U
C4-Naphthobenzothiophenes	0.121	U
Benz[a]anthracene	**0.0952**	J
Chrysene/Triphenylene	**0.156**	J
C1-Chrysenes	0.195	U
C2-Chrysenes	0.195	U
C3-Chrysenes	0.195	U
C4-Chrysenes	0.195	U
Benzo[b]fluoranthene	**0.255**	J
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**0.142**	J
Benzo[a]fluoranthene	0.222	U
Benzo[e]pyrene	**0.279**	J
Benzo[a]pyrene	**0.180**	J
Perylene	**0.196**	J
Indeno[1,2,3-cd]pyrene	**0.576**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**0.342**	J
Benzo[g,h,i]perylene	**0.882**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.109 U
2/3-Methyldibenzothiophene	0.109 U
1-Methyldibenzothiophene	0.109 U
3-Methylphenanthrene	0.211 U
2/4-Methylphenanthrene	0.211 U
2-Methylanthracene	0.211 U
9-Methylphenanthrene	0.211 U
1-Methylphenanthrene	0.211 U
2-Methylnaphthalene	0.162 U
1-Methylnaphthalene	0.162 U
2,6-Dimethylnaphthalene	0.171 U
2,3,5-Trimethylnaphthalene	0.135 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22S	2.00	U	Unknown Sterane (S18)	**1.98**	J
C30 Tricyclic Terpane-22R	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
30-Norhopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
17a(H)-Diahopane	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
30-Normoretane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
Hopane	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
Moretane	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
30-Homohopane-22S	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30-Homohopane-22R	2.00	U	C28,20S-triaromatic steroid	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C27,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	91	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

18:12 PM 5/6/12

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.711	164	17315M3	500.000	ng/mL	0.02
74) Chrysene-d12		43.167	240	30629	500.000	ng/mL	0.02
System Monitoring Compounds							
9) Naphthalene-d8		19.741	136	28930	384.956	ng/mL	0.02
Spiked Amount	1000.000	Range 50 - 130		Recovery =	38.50%#		
42) Phenanthrene-d10		32.567	188	26282	442.451	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	44.25%#		
86) Benzo[a]pyrene-d12		48.256	264	27389	431.484	ng/mL	0.02
Spiked Amount	1000.000	Range 50 - 130		Recovery =	43.15%#		
127) 5B(H)Cholane - Surr		43.754	217	4348	454.043	ng/ml	-0.01
Spiked Amount	1000.000	Range 50 - 130		Recovery =	45.40%#		
Target Compounds							Qvalue
43) Phenanthrene		32.658	178	56M2	0.559	ng/mL	
58) Fluoranthene		37.445	202	62M3	0.623	ng/mL	
75) Benz[a]anthracene		43.091	228	37M3	0.381	ng/mL	
77) Chrysene/Triphenylene		43.257	228	61M3	0.622	ng/mL	
82) Benzo[b]fluoranthene		47.142	252	109M2	1.020	ng/mL	
83) Benzo[j]+[k]fluoranthene		47.232	252	66M2	0.567	ng/mL	
85) Benzo[e]pyrene		48.151	252	118	1.117	ng/mL#	1
87) Benzo[a]pyrene		48.347	252	73M2	0.718	ng/mL	
88) Perylene		48.648	252	85M4	0.782	ng/mL	
89) Indeno[1,2,3-cd]pyrene		53.166	276	273M3	2.306	ng/mL	
90) Dibenz[ah]+[ac]anthracene		53.211	278	154M4	1.367	ng/mL	
91) Benzo[g,h,i]perylene		54.476	276	441	3.526	ng/mL#	69
133) Unknown Sterane (S18)		48.091	217	76M2	7.936	ng/ml	

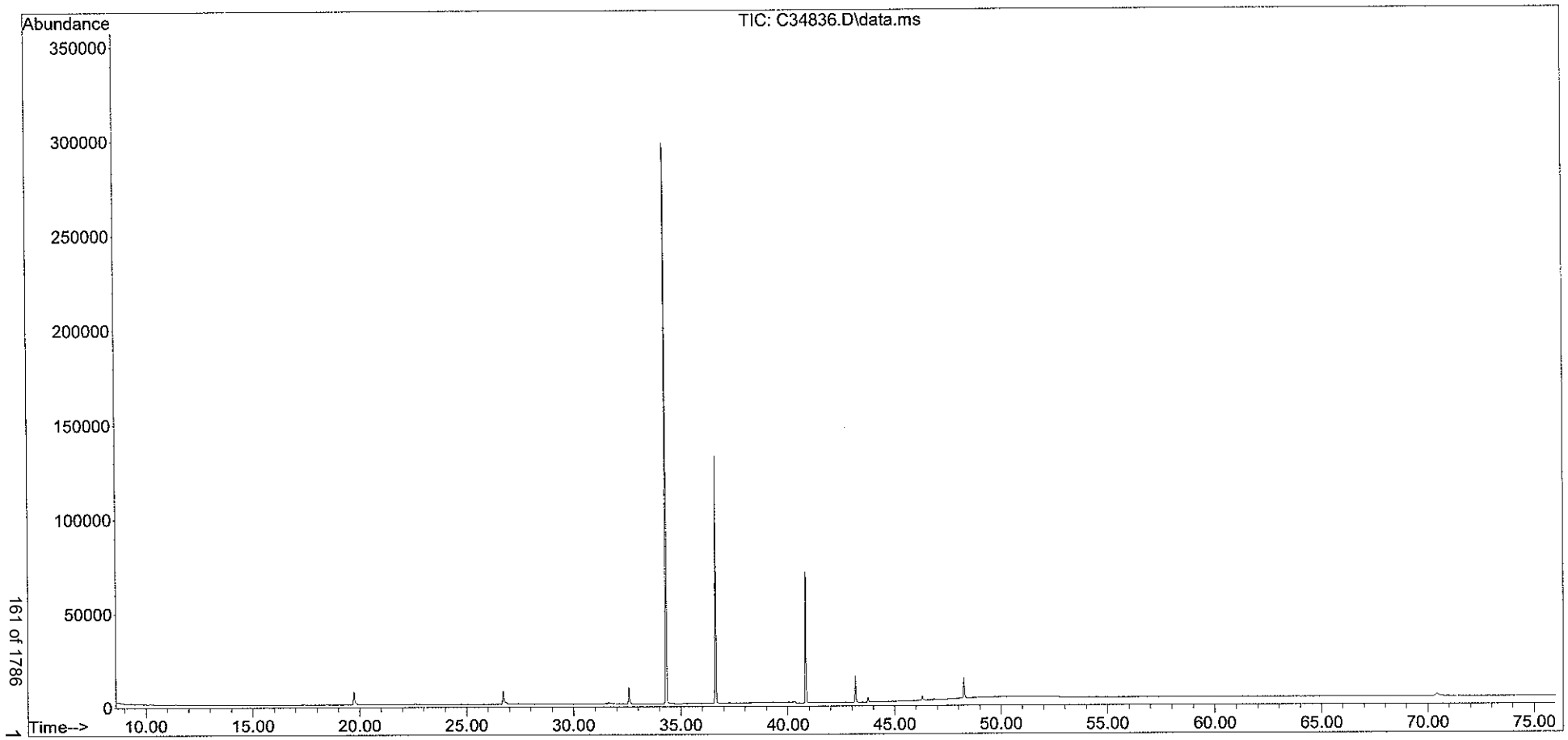
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result	
cis/trans-Decalin	20.0	U
C1-Decalins	20.0	U
C2-Decalins	20.0	U
C3-Decalins	20.0	U
C4-Decalins	20.0	U
Benzothiophene	20.0	U
C1-Benzo(b)thiophenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U
Naphthalene	20.0	U
C1-Naphthalenes	20.0	U
C2-Naphthalenes	20.0	U
C3-Naphthalenes	20.0	U
C4-Naphthalenes	20.0	U
Biphenyl	20.0	U
Dibenzofuran	20.0	U
Acenaphthylene	20.0	U
Acenaphthene	20.0	U
Fluorene	20.0	U
C1-Fluorenes	20.0	U
C2-Fluorenes	20.0	U
C3-Fluorenes	20.0	U
Anthracene	20.0	U
Phenanthrene	20.0	U
C1-Phenanthrenes/Anthracenes	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U
C3-Phenanthrenes/Anthracenes	20.0	U
C4-Phenanthrenes/Anthracenes	20.0	U
Retene	20.0	U
Dibenzothiophene	20.0	U
C1-Dibenzothiophenes	20.0	U
C2-Dibenzothiophenes	20.0	U

Parameter	Result	
C3-Dibenzothiophenes	20.0	U
C4-Dibenzothiophenes	20.0	U
Benzo(b)fluorene	**2.90**	J
Fluoranthene	**2.62**	J
Pyrene	**2.93**	J
C1-Fluoranthenes/Pyrenes	20.0	U
C2-Fluoranthenes/Pyrenes	20.0	U
C3-Fluoranthenes/Pyrenes	20.0	U
C4-Fluoranthenes/Pyrenes	20.0	U
Naphthobenzothiophenes	**2.85**	J
C1-Naphthobenzothiophenes	20.0	U
C2-Naphthobenzothiophenes	20.0	U
C3-Naphthobenzothiophenes	20.0	U
C4-Naphthobenzothiophenes	20.0	U
Benz[a]anthracene	**3.38**	J
Chrysene/Triphenylene	**3.42**	J
C1-Chrysenes	20.0	U
C2-Chrysenes	20.0	U
C3-Chrysenes	20.0	U
C4-Chrysenes	20.0	U
Benzo[b]fluoranthene	**7.20**	J
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**5.74**	J
Benzo[a]fluoranthene	20.0	U
Benzo[e]pyrene	**8.35**	J
Benzo[a]pyrene	**4.92**	J
Perylene	**5.23**	J
Indeno[1,2,3-cd]pyrene	**13.4**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.75**	J
Benzo[g,h,i]perylene	**15.0**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
Carbazole	**2.32** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	20.0 U
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	**18.6**	J
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	**2.90**	J
C3-Decalins	20.0	U	Fluoranthene	**2.62**	J
C4-Decalins	20.0	U	Pyrene	**2.93**	J
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	**2.85**	J
Naphthalene	20.0	U	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**3.38**	J
Biphenyl	20.0	U	Chrysene/Triphenylene	**3.42**	J
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	20.0	U	C2-Chrysenes	20.0	U
Acenaphthene	20.0	U	C3-Chrysenes	20.0	U
Fluorene	20.0	U	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**7.20**	J
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**5.74**	J
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	20.0	U	Benzo[e]pyrene	**8.35**	J
Phenanthrene	20.0	U	Benzo[a]pyrene	**4.92**	J
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	**5.23**	J
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**13.4**	J
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.75**	J
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**15.0**	J
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	**2.32** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	20.0 U
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	**18.6**	J
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

RB/rsk 5/5/12

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18606M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32650	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31011	384.014	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
42) Phenanthrene-d10	32.567	188	26472	414.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28296	418.180	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.82%#			
127) 5B(H)Cholane - Surr	43.769	217	4900M3	480.013	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.00%#			
Target Compounds						Qvalue
56) Carbazole	33.515	167	123M3	1.158	ng/mL	
58) Fluoranthene	37.430	202	140M3	1.309	ng/mL	
59) Benzo(b)fluorene	39.944	216	90M2	1.451	ng/mL	
60) Pyrene	38.318	202	159	1.463	ng/mL#	58
66) Naphthobenzothiophene	42.158	234	167	1.427	ng/ml#	49
67) Naphthobenzothiophene-...	42.158	234	167	1.427	ng/mL#	49
75) Benz[a]anthracene	43.106	228	175	1.689	ng/mL#	48
77) Chrysene/Triphenylene	43.257	228	179M3	1.711	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	410	3.601	ng/mL#	69
83) Benzo[j]+[k]fluoranthene	47.232	252	356M3	2.872	ng/mL	
85) Benzo[e]pyrene	48.151	252	470	4.173	ng/mL#	35
87) Benzo[a]pyrene	48.331	252	267	2.462	ng/mL#	59
88) Perylene	48.648	252	303M3	2.614	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	847M3	6.712	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	465M3	3.874	ng/mL	
91) Benzo[g,h,i]perylene	54.461	276	997	7.478	ng/mL	98
133) Unknown Sterane (S18)	48.090	217	95M2	9.306	ng/ml	

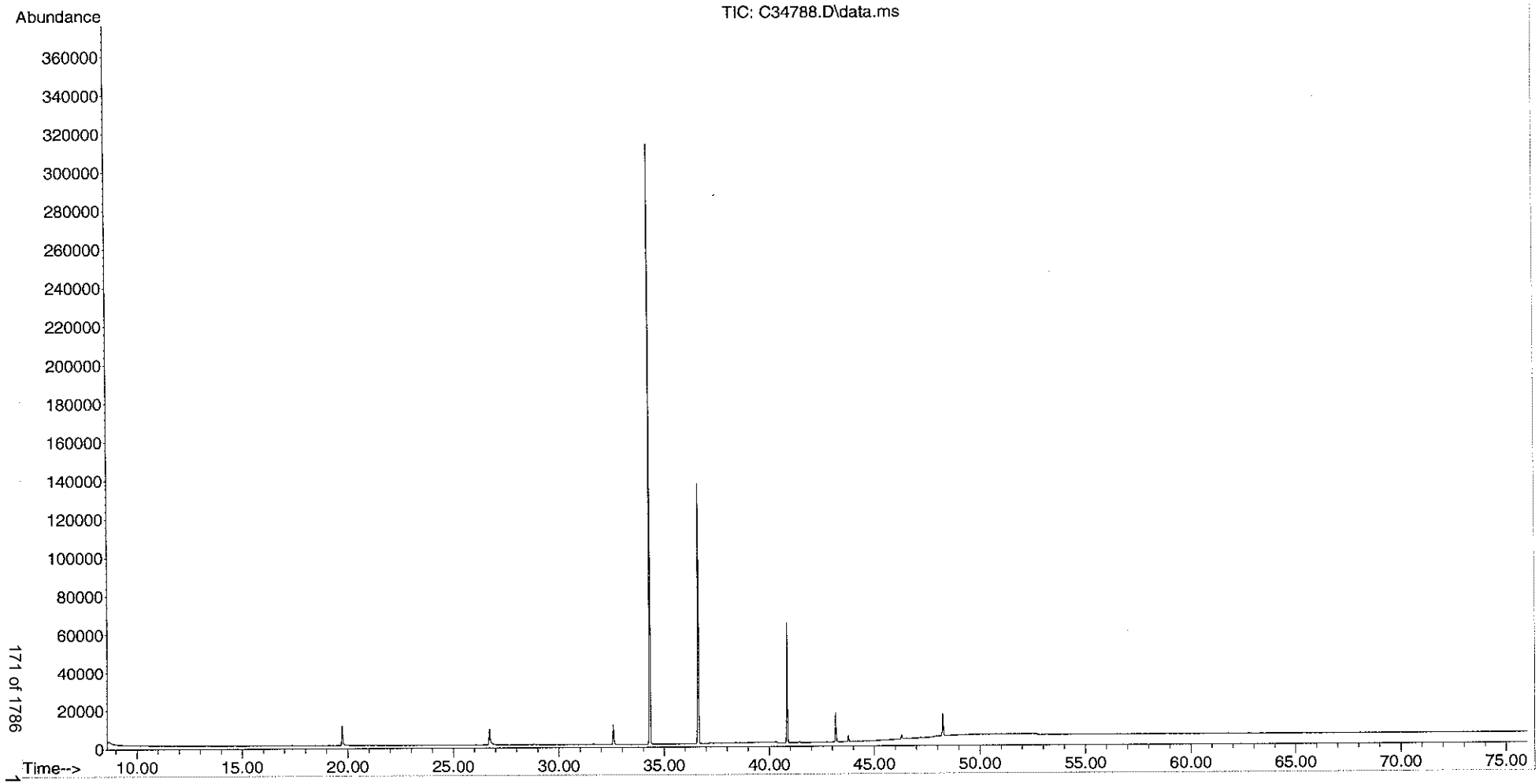
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.358	U	C3-Dibenzothiophenes	0.109	U
C1-Decalins	0.358	U	C4-Dibenzothiophenes	0.109	U
C2-Decalins	0.358	U	Benzo(b)fluorene	0.225	U
C3-Decalins	0.358	U	Fluoranthene	**125**	S
C4-Decalins	0.358	U	Pyrene	**127**	S
Benzothiophene	0.290	U	C1-Fluoranthenes/Pyrenes	0.186	U
C1-Benzo(b)thiophenes	0.290	U	C2-Fluoranthenes/Pyrenes	0.186	U
C2-Benzo(b)thiophenes	0.290	U	C3-Fluoranthenes/Pyrenes	0.186	U
C3-Benzo(b)thiophenes	0.290	U	C4-Fluoranthenes/Pyrenes	0.186	U
C4-Benzo(b)thiophenes	0.290	U	Naphthobenzothiophenes	0.121	U
Naphthalene	**101**	S	C1-Naphthobenzothiophenes	0.121	U
C1-Naphthalenes	0.244	U	C2-Naphthobenzothiophenes	0.121	U
C2-Naphthalenes	0.244	U	C3-Naphthobenzothiophenes	0.121	U
C3-Naphthalenes	0.244	U	C4-Naphthobenzothiophenes	0.121	U
C4-Naphthalenes	0.244	U	Benz[a]anthracene	**112**	S
Biphenyl	0.113	U	Chrysene/Triphenylene	**111**	S
Dibenzofuran	0.106	U	C1-Chrysenes	0.195	U
Acenaphthylene	**98.2**	S	C2-Chrysenes	0.195	U
Acenaphthene	**102**	S	C3-Chrysenes	0.195	U
Fluorene	**107**	S	C4-Chrysenes	0.195	U
C1-Fluorenes	0.119	U	Benzo[b]fluoranthene	**120**	S
C2-Fluorenes	0.119	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**105**	S
C3-Fluorenes	0.119	U	Benzo[a]fluoranthene	0.222	U
Anthracene	**88.6**	S	Benzo[e]pyrene	0.201	U
Phenanthrene	**110**	S	Benzo[a]pyrene	**108**	S
C1-Phenanthrenes/Anthracenes	0.211	U	Perylene	0.407	U
C2-Phenanthrenes/Anthracenes	0.211	U	Indeno[1,2,3-cd]pyrene	**121**	S
C3-Phenanthrenes/Anthracenes	0.211	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**112**	S
C4-Phenanthrenes/Anthracenes	0.211	U	Benzo[g,h,i]perylene	**107**	S
Retene	0.204	U			
Dibenzothiophene	0.109	U			
C1-Dibenzothiophenes	0.109	U			
C2-Dibenzothiophenes	0.109	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.109 U
2/3-Methyldibenzothiophene	0.109 U
1-Methyldibenzothiophene	0.109 U
3-Methylphenanthrene	0.211 U
2/4-Methylphenanthrene	0.211 U
2-Methylanthracene	0.211 U
9-Methylphenanthrene	0.211 U
1-Methylphenanthrene	0.211 U
2-Methylnaphthalene	**102**
1-Methylnaphthalene	0.162 U
2,6-Dimethylnaphthalene	0.171 U
2,3,5-Trimethylnaphthalene	0.135 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22S	2.00	U	Unknown Sterane (S18)	2.00	U
C30 Tricyclic Terpane-22R	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
30-Norhopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
17a(H)-Diahopane	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
30-Normoretane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
Hopane	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
Moretane	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
30-Homohopane-22S	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30-Homohopane-22R	2.00	U	C28,20S-triaromatic steroid	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C27,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	89	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

1st 2nd 5/6/12

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	18337M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	33254	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	32814	412.302	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	41.23%#		
42) Phenanthrene-d10		32.567	188	28601	454.656	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	45.47%#		
86) Benzo[a]pyrene-d12		48.241	264	28767	417.419	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	41.74%#		
127) 5B(H)Cholane - Surr		43.754	217	4648	447.057	ng/ml	-0.01
Spiked Amount	1000.000	Range 50 - 130		Recovery =	44.71%#		
Target Compounds							Qvalue
10) Naphthalene		19.801	128	47023	402.353	ng/mL#	100
16) 2-Methylnaphthalene		22.511	142	28114	406.844	ng/mL#	100
26) Acenaphthylene		26.094	152	45575	392.841	ng/mL#	100
27) Acenaphthene		26.816	153	27866M3	407.940	ng/mL	
29) Fluorene		28.849	166	32136M3	426.565	ng/mL	
43) Phenanthrene		32.657	178	46538	438.618	ng/mL	99
55) Anthracene		32.838	178	36708M3	354.197	ng/mL	
58) Fluoranthene		37.430	202	52667M3	499.798	ng/mL	
60) Pyrene		38.318	202	54521	508.981	ng/mL	95
75) Benz[a]anthracene		43.091	228	47507	450.100	ng/mL	99
77) Chrysene/Triphenylene		43.257	228	47220	443.134	ng/mL	100
82) Benzo[b]fluoranthene		47.142	252	55443	478.057	ng/mL	97
83) Benzo[j]+[k]fluoranthene		47.217	252	53206	421.375	ng/mL	96
87) Benzo[a]pyrene		48.331	252	47749	432.328	ng/mL	97
89) Indeno[1,2,3-cd]pyrene		53.151	276	62256M3	484.372	ng/mL	
90) Dibenz[ah]+[ac]anthracene		53.196	278	54640	446.892	ng/mL	98
91) Benzo[g,h,i]perylene		54.446	276	57920	426.535	ng/mL	99

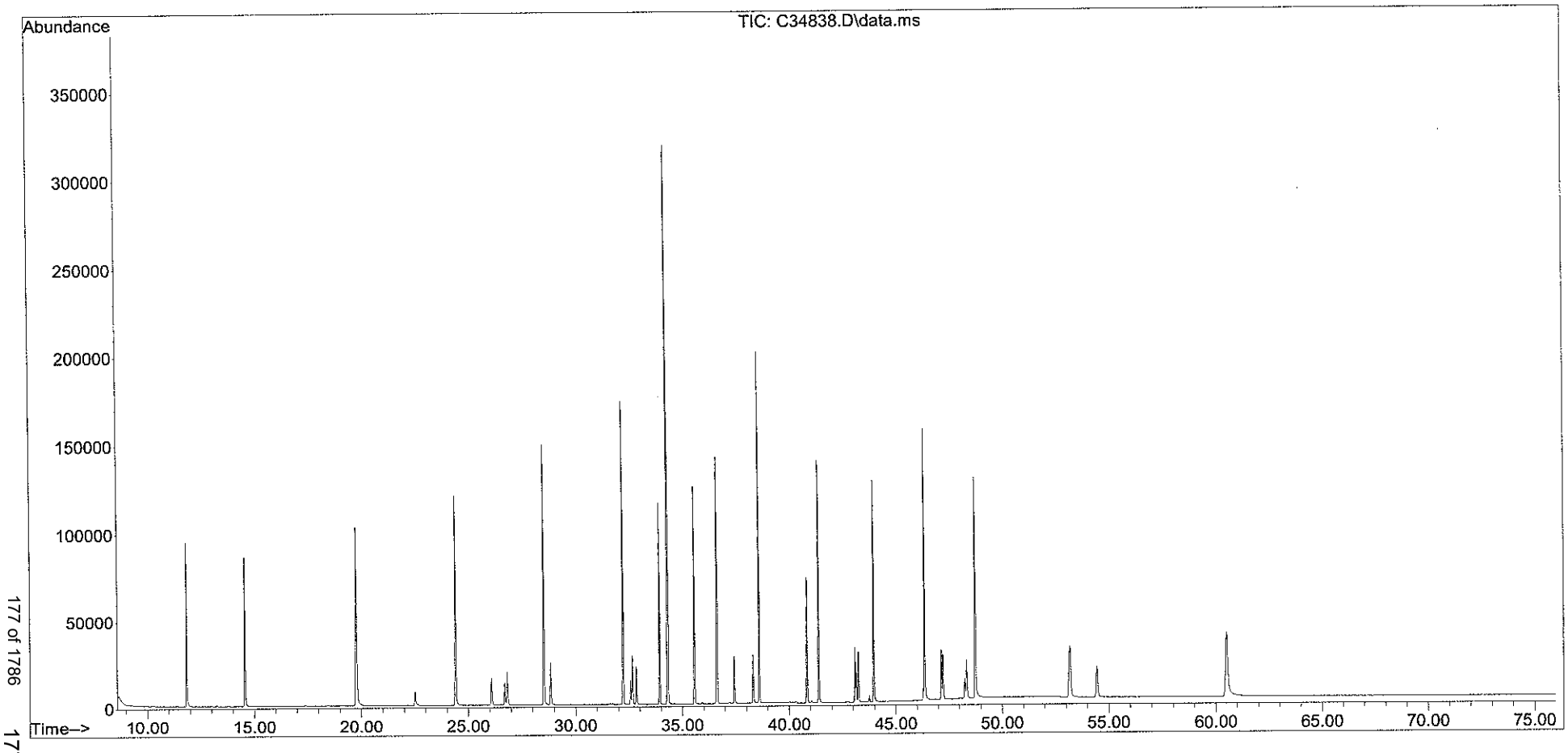
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.358	U	C3-Dibenzothiophenes	0.109	U
C1-Decalins	0.358	U	C4-Dibenzothiophenes	0.109	U
C2-Decalins	0.358	U	Benzo(b)fluorene	0.225	U
C3-Decalins	0.358	U	Fluoranthene	**119**	S
C4-Decalins	0.358	U	Pyrene	**123**	S
Benzothiophene	0.290	U	C1-Fluoranthenes/Pyrenes	0.186	U
C1-Benzo(b)thiophenes	0.290	U	C2-Fluoranthenes/Pyrenes	0.186	U
C2-Benzo(b)thiophenes	0.290	U	C3-Fluoranthenes/Pyrenes	0.186	U
C3-Benzo(b)thiophenes	0.290	U	C4-Fluoranthenes/Pyrenes	0.186	U
C4-Benzo(b)thiophenes	0.290	U	Naphthobenzothiophenes	0.121	U
Naphthalene	**101**	S	C1-Naphthobenzothiophenes	0.121	U
C1-Naphthalenes	0.244	U	C2-Naphthobenzothiophenes	0.121	U
C2-Naphthalenes	0.244	U	C3-Naphthobenzothiophenes	0.121	U
C3-Naphthalenes	0.244	U	C4-Naphthobenzothiophenes	0.121	U
C4-Naphthalenes	0.244	U	Benz[a]anthracene	**112**	S
Biphenyl	0.113	U	Chrysene/Triphenylene	**110**	S
Dibenzofuran	0.106	U	C1-Chrysenes	0.195	U
Acenaphthylene	**100**	S	C2-Chrysenes	0.195	U
Acenaphthene	**103**	S	C3-Chrysenes	0.195	U
Fluorene	**106**	S	C4-Chrysenes	0.195	U
C1-Fluorenes	0.119	U	Benzo[b]fluoranthene	**120**	S
C2-Fluorenes	0.119	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**106**	S
C3-Fluorenes	0.119	U	Benzo[a]fluoranthene	0.222	U
Anthracene	**87.3**	S	Benzo[e]pyrene	0.201	U
Phenanthrene	**107**	S	Benzo[a]pyrene	**108**	S
C1-Phenanthrenes/Anthracenes	0.211	U	Perylene	0.407	U
C2-Phenanthrenes/Anthracenes	0.211	U	Indeno[1,2,3-cd]pyrene	**120**	S
C3-Phenanthrenes/Anthracenes	0.211	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**111**	S
C4-Phenanthrenes/Anthracenes	0.211	U	Benzo[g,h,i]perylene	**106**	S
Retene	0.204	U			
Dibenzothiophene	0.109	U			
C1-Dibenzothiophenes	0.109	U			
C2-Dibenzothiophenes	0.109	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.109 U
2/3-Methyldibenzothiophene	0.109 U
1-Methyldibenzothiophene	0.109 U
3-Methylphenanthrene	0.211 U
2/4-Methylphenanthrene	0.211 U
2-Methylanthracene	0.211 U
9-Methylphenanthrene	0.211 U
1-Methylphenanthrene	0.211 U
2-Methylnaphthalene	**103**
1-Methylnaphthalene	0.162 U
2,6-Dimethylnaphthalene	0.171 U
2,3,5-Trimethylnaphthalene	0.135 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22S	2.00	U	Unknown Sterane (S18)	2.00	U
C30 Tricyclic Terpane-22R	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
30-Norhopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
17a(H)-Diahopane	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
30-Normoretane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
Hopane	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
Moretane	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
30-Homohopane-22S	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30-Homohopane-22R	2.00	U	C28,20S-triaromatic steroid	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C27,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	91	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

18m2 5/6/12

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18527M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32423	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	30958	384.993	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	28827	453.549	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.35%#			
86) Benzo[a]pyrene-d12	48.241	264	28441	423.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.33%#			
127) 5B(H)Cholane - Surr	43.754	217	4632	456.936	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.69%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47851	405.238	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28766	412.010	ng/mL#	100
26) Acenaphthylene	26.094	152	46895M3	400.073	ng/mL	
27) Acenaphthene	26.816	153	28581	414.117	ng/mL	99
29) Fluorene	28.849	166	32410M4	425.790	ng/mL	
43) Phenanthrene	32.657	178	45989	428.999	ng/mL	99
55) Anthracene	32.838	178	36580M3	349.342	ng/mL	
58) Fluoranthene	37.430	202	50677M3	475.982	ng/mL	
60) Pyrene	38.318	202	53251	492.027	ng/mL	95
75) Benz[a]anthracene	43.091	228	45909	446.108	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45853	441.334	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	54206	479.370	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	52374	425.417	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46433	431.188	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	59936M3	478.273	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	52761	442.584	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	56235	424.741	ng/mL	99

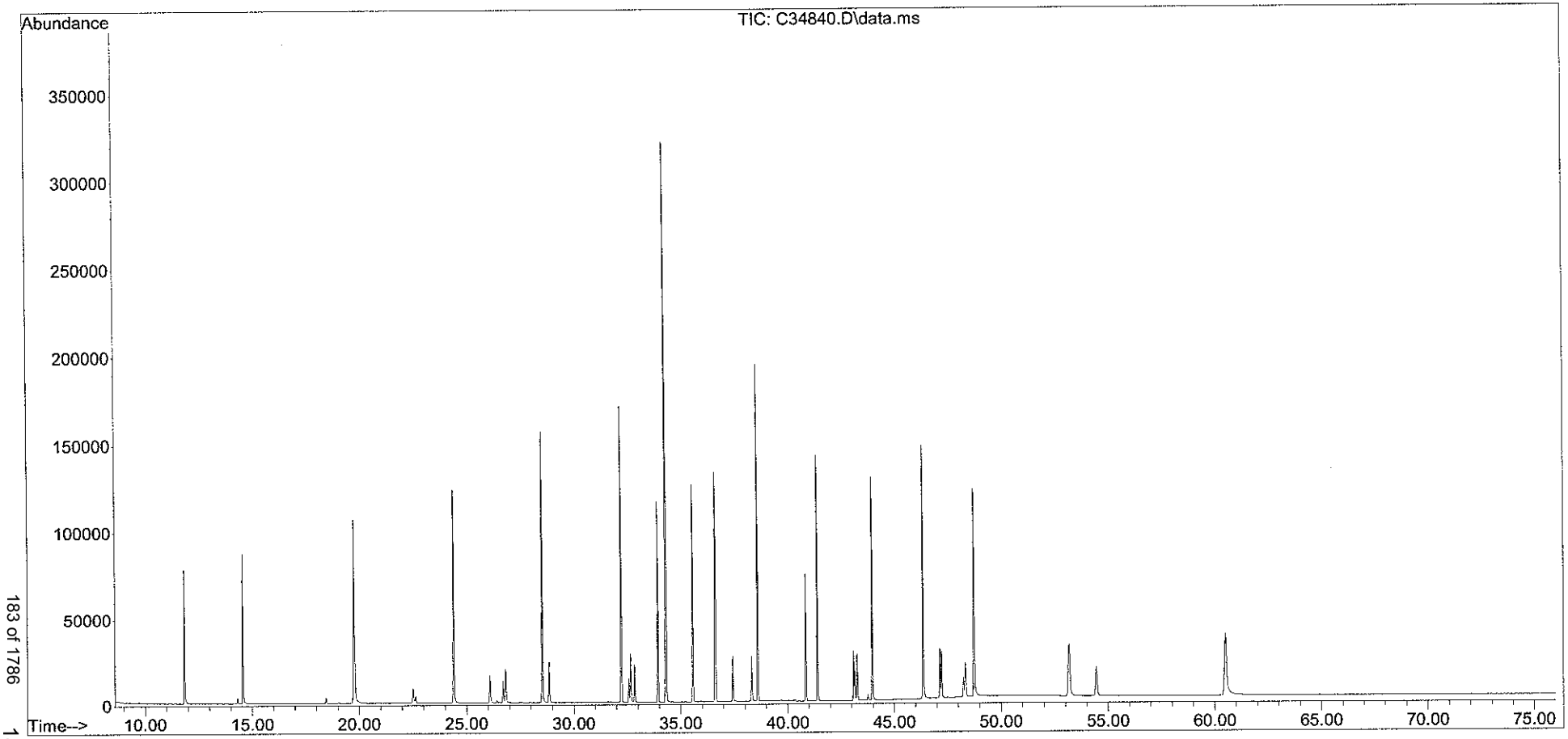
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**949**	S
C4-Decalins	20.0	U	Pyrene	**975**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**811**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**869**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**866**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**806**	S	C2-Chrysenes	20.0	U
Acenaphthene	**851**	S	C3-Chrysenes	20.0	U
Fluorene	**854**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**925**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**865**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**707**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**859**	S	Benzo[a]pyrene	**885**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**1010**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**924**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**868**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**827**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**949**	S
C4-Decalins	20.0	U	Pyrene	**975**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**811**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**869**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**866**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**806**	S	C2-Chrysenes	20.0	U
Acenaphthene	**851**	S	C3-Chrysenes	20.0	U
Fluorene	**854**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**925**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**865**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**707**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**859**	S	Benzo[a]pyrene	**885**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**1010**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**924**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**868**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**827**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	19753M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	35501	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	31883	371.887	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	37.19%#		
42) Phenanthrene-d10		32.567	188	25976	383.327	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	38.33%#		
86) Benzo[a]pyrene-d12		48.241	264	26602	361.573	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	36.16%#		
127) 5B(H)Cholane - Surr		43.769	217	5097	459.213	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	45.92%#		
Target Compounds							Qvalue
10) Naphthalene		19.801	128	51060	405.576	ng/mL#	100
16) 2-Methylnaphthalene		22.496	142	30786	413.575	ng/mL#	100
26) Acenaphthylene		26.094	152	50343	402.832	ng/mL#	100
27) Acenaphthene		26.816	153	31298	425.338	ng/mL	98
29) Fluorene		28.849	166	34652M3	426.989	ng/mL	
43) Phenanthrene		32.657	178	49113	429.705	ng/mL	99
55) Anthracene		32.838	178	39458M3	353.439	ng/mL	
58) Fluoranthene		37.430	202	53856M3	474.445	ng/mL	
60) Pyrene		38.318	202	56245	487.436	ng/mL	97
75) Benz[a]anthracene		43.091	228	48940	434.329	ng/mL	99
77) Chrysene/Triphenylene		43.242	228	49239	432.835	ng/mL	100
82) Benzo[b]fluoranthene		47.142	252	57239	462.304	ng/mL	96
83) Benzo[j]+[k]fluoranthene		47.217	252	58317	432.620	ng/mL	97
87) Benzo[a]pyrene		48.331	252	52193	442.654	ng/mL	96
89) Indeno[1,2,3-cd]pyrene		53.136	276	69249M3	504.678	ng/mL	
90) Dibenz[ah]+[ac]anthracene		53.181	278	60330	462.198	ng/mL	97
91) Benzo[g,h,i]perylene		54.431	276	62892	433.836	ng/mL	100

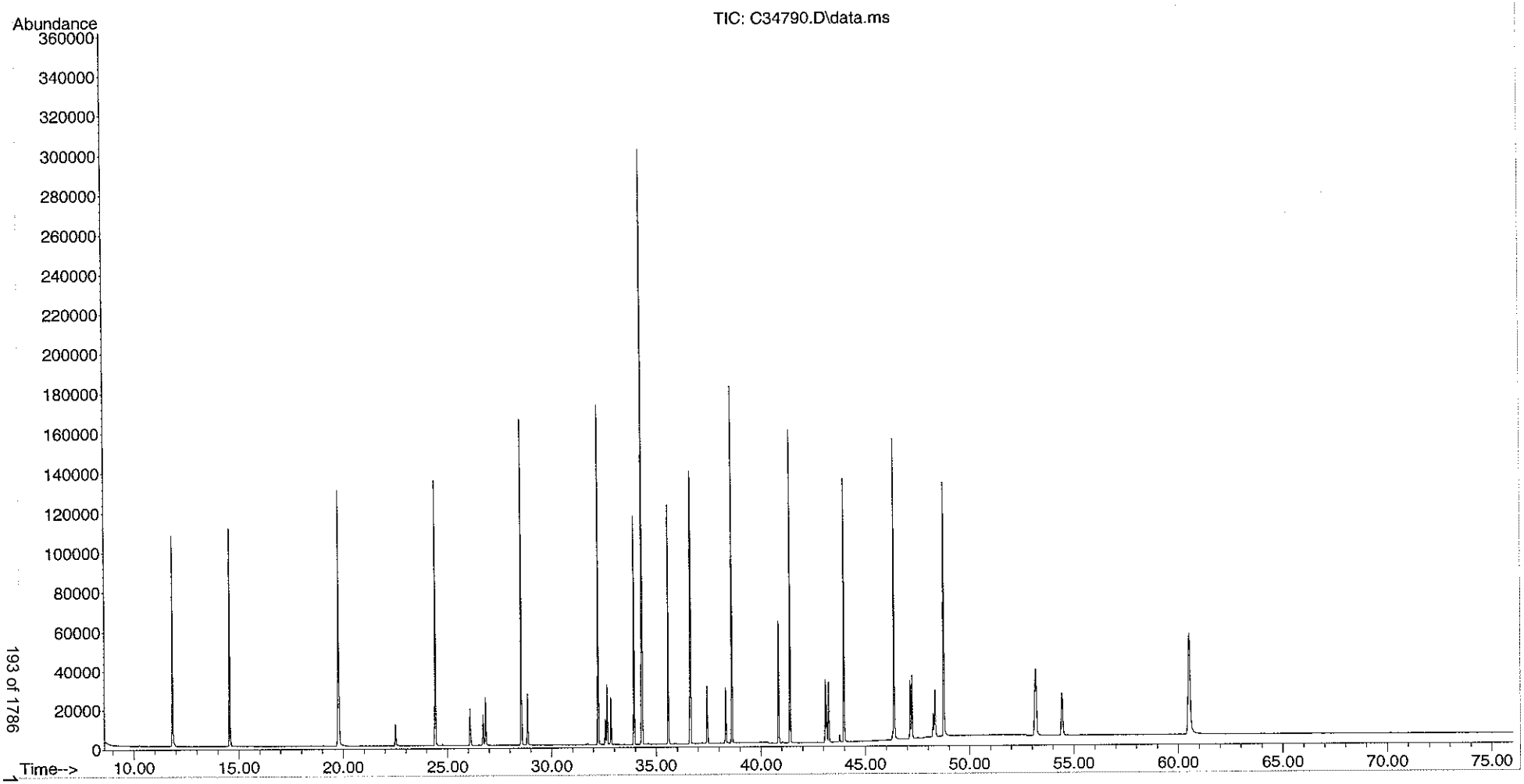
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**974**	S
C4-Decalins	20.0	U	Pyrene	**1010**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**843**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**921**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**901**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**837**	S	C2-Chrysenes	20.0	U
Acenaphthene	**859**	S	C3-Chrysenes	20.0	U
Fluorene	**885**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**970**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**907**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**734**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**882**	S	Benzo[a]pyrene	**920**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**982**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**956**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**909**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**859**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**974**	S
C4-Decalins	20.0	U	Pyrene	**1010**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**843**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**921**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**901**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**837**	S	C2-Chrysenes	20.0	U
Acenaphthene	**859**	S	C3-Chrysenes	20.0	U
Fluorene	**885**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**970**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**907**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**734**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**882**	S	Benzo[a]pyrene	**920**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**982**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**956**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**909**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**859**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

RB/SCR 5/5/12

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	19021M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	33587	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	32852	397.936	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	39.79%#		
42) Phenanthrene-d10		32.567	188	26668	408.683	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	40.87%#		
86) Benzo[a]pyrene-d12		48.241	264	27379	393.340	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	39.33%#		
127) 5B(H)Cholane - Surr		43.769	217	5012	477.288	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	47.73%#		
Target Compounds							Qvalue
10) Naphthalene		19.801	128	51108	421.580	ng/mL#	100
16) 2-Methylnaphthalene		22.496	142	30768	429.239	ng/mL#	100
26) Acenaphthylene		26.079	152	50368	418.543	ng/mL#	100
27) Acenaphthene		26.816	153	30445	429.668	ng/mL	100
29) Fluorene		28.834	166	34563M3	442.282	ng/mL	
43) Phenanthrene		32.657	178	48535	440.990	ng/mL	99
55) Anthracene		32.838	178	39450M3	366.966	ng/mL	
58) Fluoranthene		37.430	202	53262M3	487.269	ng/mL	
60) Pyrene		38.318	202	56100	504.889	ng/mL	97
75) Benz[a]anthracene		43.091	228	49115	460.721	ng/mL	100
77) Chrysene/Triphenylene		43.242	228	48498	450.615	ng/mL	100
82) Benzo[b]fluoranthene		47.142	252	56819	485.064	ng/mL	97
83) Benzo[j]+[k]fluoranthene		47.217	252	57833	453.478	ng/mL	96
87) Benzo[a]pyrene		48.331	252	51333	460.170	ng/mL	95
89) Indeno[1,2,3-cd]pyrene		53.136	276	63756M3	491.124	ng/mL	
90) Dibenz[ah]+[ac]anthracene		53.181	278	59010	477.848	ng/mL	97
91) Benzo[g,h,i]perylene		54.431	276	62345	454.570	ng/mL	99

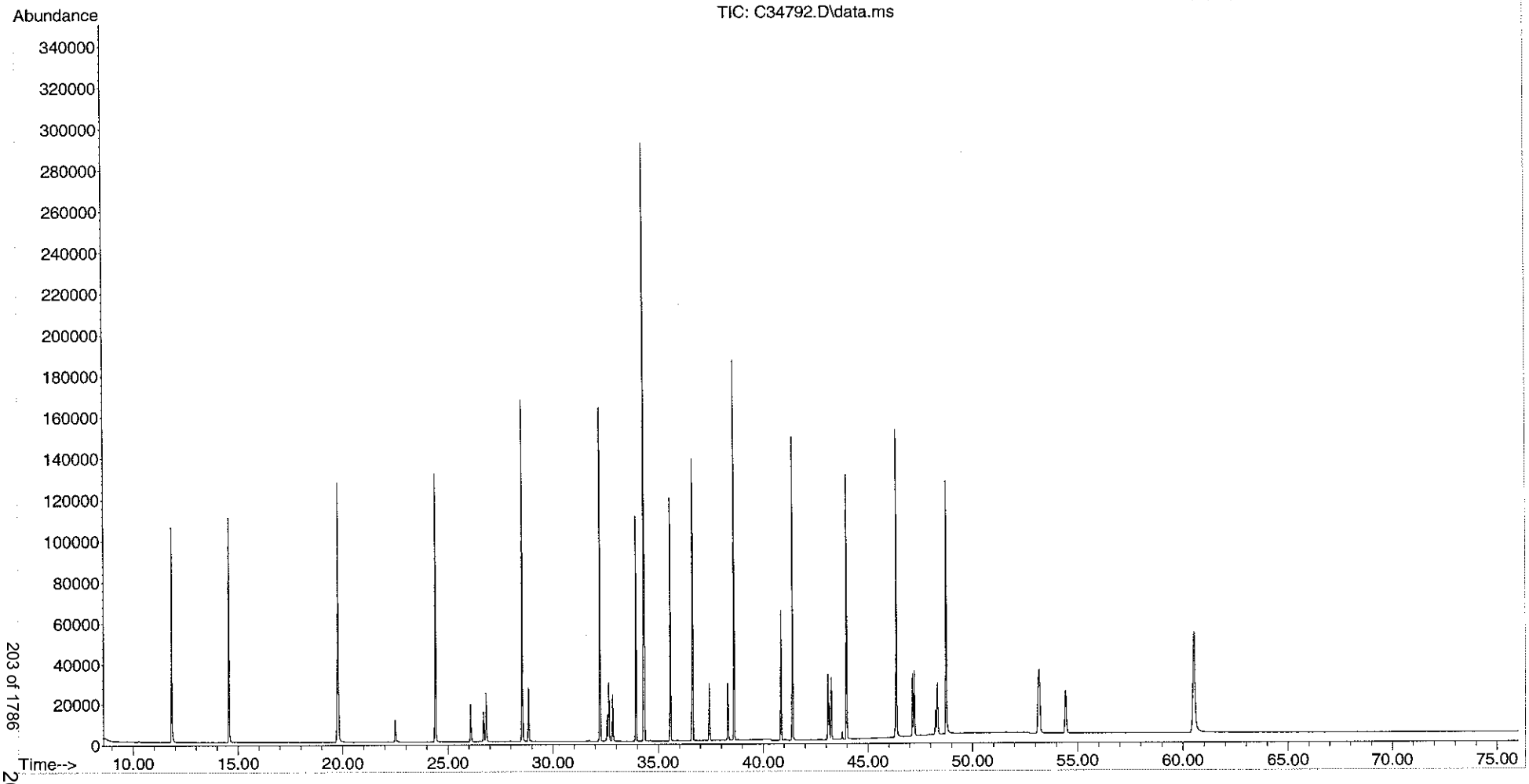
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Matrix Spike
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 M**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.82	2	1	AC

Parameter	Result	
cis/trans-Decalin	**16.2**	
C1-Decalins	**21.3**	
C2-Decalins	**65.3**	
C3-Decalins	**79.0**	
C4-Decalins	**328**	
Benzothiophene	**6.48**	J
C1-Benzo(b)thiophenes	**36.9**	
C2-Benzo(b)thiophenes	**18.5**	
C3-Benzo(b)thiophenes	**55.8**	
C4-Benzo(b)thiophenes	**74.5**	
Naphthalene	**2240**	S
C1-Naphthalenes	**1480**	
C2-Naphthalenes	**148**	
C3-Naphthalenes	**167**	
C4-Naphthalenes	**269**	
Biphenyl	**31.2**	
Dibenzofuran	**64.9**	
Acenaphthylene	**2420**	S
Acenaphthene	**2520**	S
Fluorene	**2690**	S
C1-Fluorenes	**100**	
C2-Fluorenes	**326**	
C3-Fluorenes	**1060**	
Anthracene	**2620**	S
Phenanthrene	**4190**	S
C1-Phenanthrenes/Anthracenes	**775**	
C2-Phenanthrenes/Anthracenes	**686**	
C3-Phenanthrenes/Anthracenes	**774**	
C4-Phenanthrenes/Anthracenes	**615**	
Retene	1.05	U
Dibenzothiophene	**103**	
C1-Dibenzothiophenes	**172**	
C2-Dibenzothiophenes	**367**	

Parameter	Result	
C3-Dibenzothiophenes	**621**	
C4-Dibenzothiophenes	**514**	
Benzo(b)fluorene	**405**	
Fluoranthene	**6480**	S
Pyrene	**6230**	S
C1-Fluoranthenes/Pyrenes	**1710**	
C2-Fluoranthenes/Pyrenes	**1230**	
C3-Fluoranthenes/Pyrenes	**680**	
C4-Fluoranthenes/Pyrenes	**595**	
Naphthobenzothiophenes	**451**	
C1-Naphthobenzothiophenes	**378**	
C2-Naphthobenzothiophenes	**437**	
C3-Naphthobenzothiophenes	**362**	
C4-Naphthobenzothiophenes	**290**	
Benz[a]anthracene	**3920**	S
Chrysene/Triphenylene	**4010**	S
C1-Chrysenes	**708**	
C2-Chrysenes	**527**	
C3-Chrysenes	**510**	
C4-Chrysenes	**225**	
Benzo[b]fluoranthene	**4350**	S
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**3380**	S
Benzo[a]fluoranthene	**271**	
Benzo[e]pyrene	**967**	
Benzo[a]pyrene	**3910**	S
Perylene	**451**	
Indeno[1,2,3-cd]pyrene	**3410**	S
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2870**	S
Benzo[g,h,i]perylene	**3220**	S

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	72	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Matrix Spike
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 M**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.82	2	1	AC

Parameter	Result
Carbazole	**197**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	72	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable

Form I
Matrix Spike
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 M**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.82	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**53.9**
2/3-Methyldibenzothiophene	**59.1**
1-Methyldibenzothiophene	**24.2**
3-Methylphenanthrene	**168**
2/4-Methylphenanthrene	**208**
2-Methylanthracene	**80.4**
9-Methylphenanthrene	**173**
1-Methylphenanthrene	**115**
2-Methylnaphthalene	**2410**
1-Methylnaphthalene	**101**
2,6-Dimethylnaphthalene	**80.9**
2,3,5-Trimethylnaphthalene	**22.9**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	72	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable

Form I
Matrix Spike
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 M**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.82	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	576	
C24 Tricyclic Terpane	420	
C25 Tricyclic Terpane	366	
C24 Tetracyclic Terpane	385	
C26 Tricyclic Terpane-22S	200	
C26 Tricyclic Terpane-22R	178	
C28 Tricyclic Terpane-22S	152	
C28 Tricyclic Terpane-22R	252	
C29 Tricyclic Terpane-22S	173	
C29 Tricyclic Terpane-22R	180	
18a-22,29,30-Trisnorneohopane-TS	833	
C30 Tricyclic Terpane-22S	182	
C30 Tricyclic Terpane-22R	170	
17a(H)-22,29,30-Trisnorhopane-TM	954	
17a/b,21b/a 28,30-Bisnorhopane	136	
17a(H),21b(H)-25-Norhopane	337	
30-Norhopane	2520	
18a(H)-30-Norneohopane-C29Ts	822	
17a(H)-Diahopane	188	
30-Normoretane	423	
18a(H)&18b(H)-Oleananes	297	
Hopane	3710	
Moretane	473	
30-Homohopane-22S	1180	
30-Homohopane-22R	1040	
T22a-Gammacerane/C32-diahopane	257	
30,31-Bishomohopane-22S	2510	G
30,31-Bishomohopane-22R	726	

Parameter	Result	
30,31-Trishomohopane-22S	659	
30,31-Trishomohopane-22R	275	
Tetrakishomohopane-22S	395	
Tetrakishomohopane-22R	1600	G
Pentakishomohopane-22S	319	
Pentakishomohopane-22R	230	
13b(H),17a(H)-20S-Diacholestane	634	
13b(H),17a(H)-20R-Diacholestane	359	
13b,17a-20S-Methyldiacholestane	431	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	1090	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	1110	
Unknown Sterane (S18)	294	
13a,17b-20S-Ethyldiacholestane	47.6	
14a,17a-20S-Methylcholestane	551	
14a,17a-20R-Methylcholestane	389	
14a(H),17a(H)-20S-Ethylcholestane	533	
14a(H),17a(H)-20R-Ethylcholestane	598	
14b(H),17b(H)-20R-Cholestane	469	
14b(H),17b(H)-20S-Cholestane	499	
14b,17b-20R-Methylcholestane	482	
14b,17b-20S-Methylcholestane	790	
14b(H),17b(H)-20R-Ethylcholestane	965	
14b(H),17b(H)-20S-Ethylcholestane	686	
C26,20R- +C27,20S- triaromatic steroid	1310	
C28,20S-triaromatic steroid	1360	
C27,20R-triaromatic steroid	816	
C28,20R-triaromatic steroid	940	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	88	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

18h22 AG 5/6/12

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	20993M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.167	240	43284	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	163036	1789.344 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 178.93%#		
42) Phenanthrene-d10	32.567	188	160274	2225.452 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 222.55%#		
86) Benzo[a]pyrene-d12	48.256	264	181859	2027.352 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 202.74%#		
127) 5B(H)Cholane - Surr	43.784	217	29692	2194.080 ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 219.41%#		
Target Compounds					Qvalue
3) trans-Decalin	16.369	138	210M3	12.672 ng/mL	
5) C1-Decalins	18.311	152	275M5	16.594 ng/mL	
6) C2-Decalins	20.177	166	844M5	50.929 ng/mL	
7) C3-Decalins	22.104	180	1021M5	61.610 ng/mL	
8) C4-Decalins	25.492	194	4240M5	255.853 ng/mL	
10) Naphthalene	19.801	128	233569	1745.683 ng/mL#	100
11) C1-Naphthalenes	22.496	142	154636M5	1155.742 ng/mL	
12) C2-Naphthalenes	24.995	156	15427M5	115.301 ng/mL	
13) C3-Naphthalenes	28.894	170	17458M5	130.480 ng/mL	
14) C4-Naphthalenes	31.694	184	28094M5	209.973 ng/mL	
16) 2-Methylnaphthalene	22.496	142	148530	1877.472 ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	6092	78.561 ng/mL#	100
18) Benzothiophene	20.027	134	608M3	5.050 ng/mL	
19) C1-Benzo(b)thiophenes	22.360	148	3465M5	28.779 ng/mL	
20) C2-Benzo(b)thiophenes	24.664	162	1740M5	14.452 ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5240M5	43.521 ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	6994M5	58.089 ng/mL	
23) Biphenyl	24.393	154	2433M3	24.312 ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	4100	63.079 ng/mL#	100
25) Dibenzofuran	27.464	168	5817	50.619 ng/mL	92
26) Acenaphthylene	26.079	152	251109	1890.628 ng/mL#	100
27) Acenaphthene	26.817	153	153482	1962.606 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.367	170	937M3	17.883 ng/mL	
29) Fluorene	28.834	166	180619M3	2094.161 ng/mL	
30) C1-Fluorenes	31.197	180	6745M5	78.204 ng/mL	
31) C2-Fluorenes	33.410	194	21914M5	254.079 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
32) C3-Fluorenes	35.909	208	71232M5	825.889	ng/mL	
33) Dibenzothiophene	32.161	184	11144	80.604	ng/mL#	89
34) 4-Methyldibenzothiophene(	33.937	198	5811	42.031	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.299	198	6374M3	46.103	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	2608	18.864	ng/mL#	100
37) OTP	34.374	198	32814M3	237.343	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	51353M5	371.434	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	18539m	134.092	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	39538M5	285.977	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	66934M5	484.131	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	55414M5	400.808	ng/mL	
43) Phenanthrene	32.658	178	397154	3269.577	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.630	192	15961	131.399	ng/mL	96
45) 2/4-Methylphenanthrene(2M	34.750	192	19650M3	161.769	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	7614M3	62.682	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	16422M3	135.194	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.172	192	10874M3	89.520	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.750	192	73355M5	603.896	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	64992M5	535.048	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	64992m	535.048	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	73246M5	602.999	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	58209M5	479.207	ng/mL	
55) Anthracene	32.838	178	242148M3	2040.885	ng/mL	
56) Carbazole	33.501	167	18382M3	153.378	ng/mL	
57) 1-Methylphenanthrene	35.172	192	10679M3	138.729	ng/mL	
58) Fluoranthene	37.445	202	609198M3	5049.735	ng/mL	
59) Benzo(b)fluorene	39.960	216	22112M3	315.930	ng/mL	
60) Pyrene	38.318	202	595777	4858.203	ng/mL	97
61) C1-Fluoranthenes/Pyrenes	39.704	216	163059M5	1329.648	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.450	230	117557M5	958.607	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	65009M5	530.109	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	56849M5	463.569	ng/mL	
66) Naphthobenzothiophene	42.173	234	27043	204.831	ng/ml#	76
67) Naphthobenzothiophene-2,1	42.173	234	27043	204.831	ng/mL#	76
68) Naphthobenzothiophene-1,2	42.519	234	6296	47.688	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	13096M3	99.192	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	38946M5	294.987	ng/ml	
71) C2-Naphthobenzothiophenes	45.576	262	44935M5	340.349	ng/ml	
72) C3-Naphthobenzothiophenes	47.187	276	37288M5	282.429	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290	29836M5	225.986	ng/mL	
75) Benz[a]anthracene	43.106	228	420272	3059.135	ng/mL	95

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.272	228	433581	3126.052	ng/mL	99
78) C1-Chrysenes	44.732	242	76605M5	552.310	ng/mL	
79) C2-Chrysenes	46.148	256	56940M5	410.529	ng/mL	
79) C2-Chrysenes BS	46.148	256	56940m	410.529	ng/mL	
80) C3-Chrysenes	47.488	270	55104M5	397.291	ng/mL	
81) C4-Chrysenes	49.024	284	24320M5	175.343	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	512100	3392.375	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	433345	2636.686	ng/mL	98
84) Benzo[a]fluoranthene	47.533	252	34684M3	211.035	ng/mL	
85) Benzo[e]pyrene	48.166	252	112595	754.080	ng/mL	99
87) Benzo[a]pyrene	48.347	252	437841	3045.665	ng/mL	97
88) Perylene	48.663	252	54022	351.619	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.181	276	444487M3	2656.889	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	355677	2234.930	ng/mL	96
91) Benzo[g,h,i]perylene	54.491	276	443114	2507.024	ng/mL	99
92) Hopane (T19)	52.232	191	82572	2894.498	ng/mL#	79
94) C23 Tricyclic Terpane (T4	40.803	191	12819M3	449.360	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	9342	327.477	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.061	191	8135M3	285.166	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	8565	300.239	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.070	191	4443M3	155.746	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	3962M3	138.885	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3388M3	118.764	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	5609M3	196.619	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	3857	135.204	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.323	191	4011	140.603	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.452	191	18530	649.555	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	4036M3	141.479	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3783	132.610	ng/mL	100
107) 17a(H)-22,29,30-Trisnorho	49.009	191	21220	743.851	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	3028	106.144	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.958	191	7503	263.012	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	56026M3	1963.948	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	18284M3	640.932	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	4179M3	146.492	ng/ml	
113) 30-Normoretane (T17)	51.645	191	9414	330.001	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.052	191	6614M3	231.849	ng/ml	
115) Moretane (T20)	52.925	191	10522M3	368.841	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	26192M3	918.140	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191	23090	809.402	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	5718	200.440	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.545	191G	55851	1957.814	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.982	191	16145M3	565.951	ng/ml	
121) 30,31-Trishomohopane-22S	57.714	191	14653M3	513.650	ng/ml	
122) 30,31-Trishomohopane-22R	58.316	191	6119M3	214.497	ng/ml	
123) Tetrakishomohopane-22S (T	60.364	191	8794M3	308.267	ng/ml	
124) Tetrakishomohopane-22R (T	61.207	191G	35669	1250.349	ng/ml	100
125) Pentakishomohopane-22S (T	63.481	191	7091	248.570	ng/ml	100
126) Pentakishomohopane-22R (T	64.776	191	5124M3	179.618	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	6687M3	494.134	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.711	217	3790M3	280.061	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	4545M3	335.851	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	11470	847.572	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	11723	866.267	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	3103	229.295	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.332	217	502M3	37.095	ng/ml	
135) 14a,17a-20S-Methylcholest	48.482	217	5811M3	429.402	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	4108M3	303.559	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	5624M3	415.584	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	6308M3	466.128	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	4949M3	365.705	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	5269M3	389.351	ng/ml	
141) 14b,17b-20R-Methylcholest	48.663	218	5080	375.385	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	8337M3	616.060	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.808	218	10180M3	752.248	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	7241M3	535.071	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	13837	1022.480	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	14341M3	1059.723	ng/mL	
147) C27,20R-triaromatic stero	50.817	231	8614	636.529	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	9922M3	733.183	ng/mL	

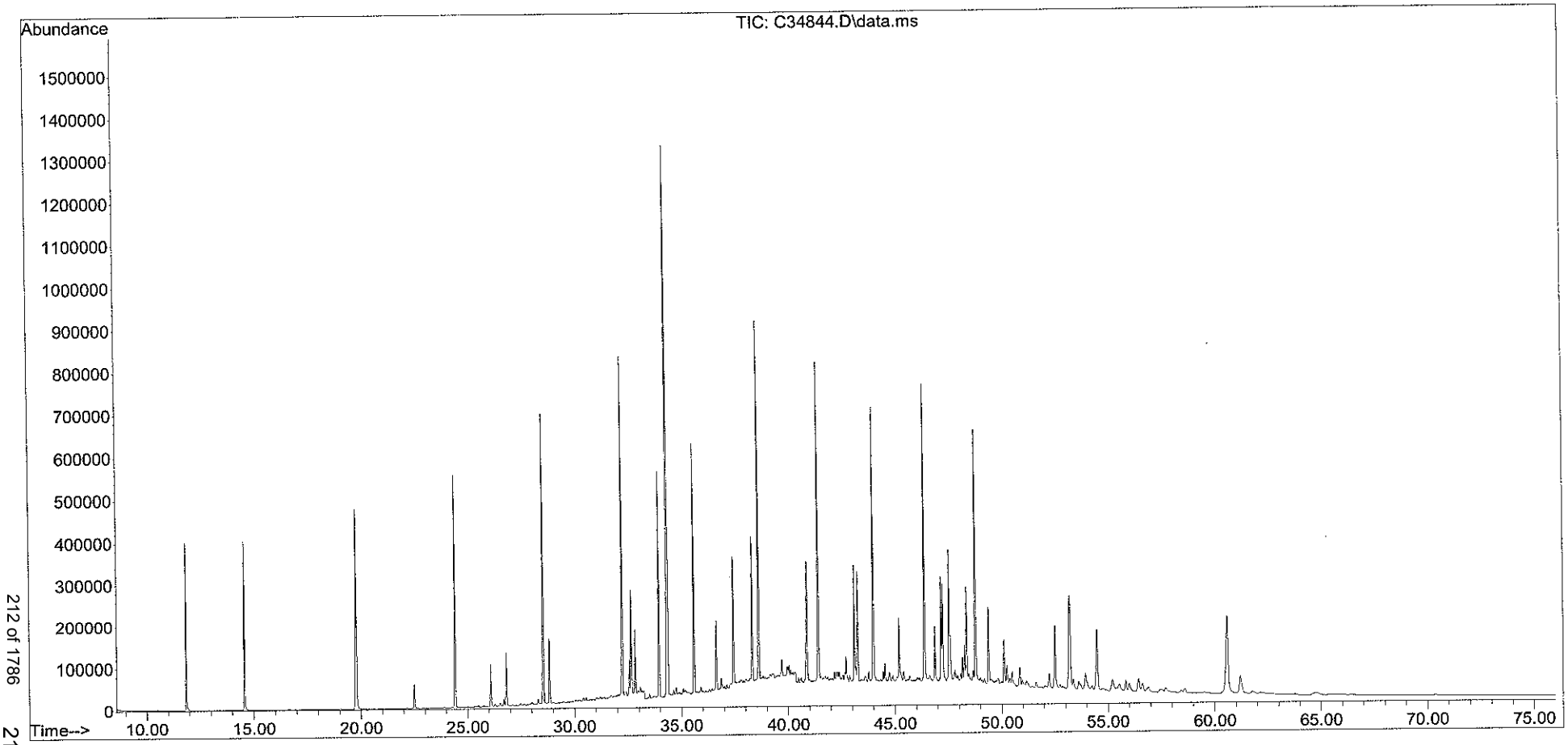
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Matrix Spike Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 S**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.77	2	1	AC

Parameter	Result	
cis/trans-Decalin	**18.2**	
C1-Decalins	**19.1**	
C2-Decalins	**60.4**	
C3-Decalins	**84.6**	
C4-Decalins	**287**	
Benzothiophene	**6.72**	J
C1-Benzo(b)thiophenes	**35.5**	
C2-Benzo(b)thiophenes	**13.3**	
C3-Benzo(b)thiophenes	**57.3**	
C4-Benzo(b)thiophenes	**79.2**	
Naphthalene	**2320**	S
C1-Naphthalenes	**1520**	
C2-Naphthalenes	**120**	
C3-Naphthalenes	**147**	
C4-Naphthalenes	**248**	
Biphenyl	**29.1**	
Dibenzofuran	**44.2**	
Acenaphthylene	**2480**	S
Acenaphthene	**2540**	S
Fluorene	**2680**	S
C1-Fluorenes	**75.0**	
C2-Fluorenes	**317**	
C3-Fluorenes	**936**	
Anthracene	**2490**	S
Phenanthrene	**3430**	S
C1-Phenanthrenes/Anthracenes	**465**	
C2-Phenanthrenes/Anthracenes	**568**	
C3-Phenanthrenes/Anthracenes	**688**	
C4-Phenanthrenes/Anthracenes	**595**	
Retene	1.06	U
Dibenzothiophene	**67.5**	
C1-Dibenzothiophenes	**173**	
C2-Dibenzothiophenes	**351**	

Parameter	Result	
C3-Dibenzothiophenes	**585**	
C4-Dibenzothiophenes	**506**	
Benzo(b)fluorene	**272**	
Fluoranthene	**5260**	S
Pyrene	**5300**	S
C1-Fluoranthenes/Pyrenes	**1230**	
C2-Fluoranthenes/Pyrenes	**968**	
C3-Fluoranthenes/Pyrenes	**596**	
C4-Fluoranthenes/Pyrenes	**500**	
Naphthobenzothiophenes	**317**	
C1-Naphthobenzothiophenes	**320**	
C2-Naphthobenzothiophenes	**405**	
C3-Naphthobenzothiophenes	**322**	
C4-Naphthobenzothiophenes	**287**	
Benz[a]anthracene	**3360**	S
Chrysene/Triphenylene	**3470**	S
C1-Chrysenes	**507**	
C2-Chrysenes	**403**	
C3-Chrysenes	**374**	
C4-Chrysenes	**221**	
Benzo[b]fluoranthene	**3820**	S
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**3060**	S
Benzo[a]fluoranthene	**178**	
Benzo[e]pyrene	**696**	
Benzo[a]pyrene	**3420**	S
Perylene	**340**	
Indeno[1,2,3-cd]pyrene	**3110**	S
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2690**	S
Benzo[g,h,i]perylene	**2970**	S

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Matrix Spike Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 S**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.77	2	1	AC

Parameter	Result
Carbazole	77.0

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable

Form I
Matrix Spike Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 S**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.77	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**45.8**
2/3-Methyldibenzothiophene	**50.0**
1-Methyldibenzothiophene	**18.6**
3-Methylphenanthrene	**88.6**
2/4-Methylphenanthrene	**104**
2-Methylanthracene	**56.8**
9-Methylphenanthrene	**125**
1-Methylphenanthrene	**68.5**
2-Methylnaphthalene	**2480**
1-Methylnaphthalene	**84.2**
2,6-Dimethylnaphthalene	**67.4**
2,3,5-Trimethylnaphthalene	**19.0**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable

Form I
Matrix Spike Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 S**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.77	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**553**	
C24 Tricyclic Terpane	**352**	
C25 Tricyclic Terpane	**353**	
C24 Tetracyclic Terpane	**372**	
C26 Tricyclic Terpane-22S	**197**	
C26 Tricyclic Terpane-22R	**161**	
C28 Tricyclic Terpane-22S	**133**	
C28 Tricyclic Terpane-22R	**244**	
C29 Tricyclic Terpane-22S	**170**	
C29 Tricyclic Terpane-22R	**201**	
18a-22,29,30-Trisnorneohopane-TS	**768**	
C30 Tricyclic Terpane-22S	**156**	
C30 Tricyclic Terpane-22R	**168**	
17a(H)-22,29,30-Trisnorhopane-TM	**843**	
17a/b,21b/a 28,30-Bisnorhopane	**120**	
17a(H),21b(H)-25-Norhopane	**300**	
30-Norhopane	**2290**	
18a(H)-30-Norneohopane-C29Ts	**745**	
17a(H)-Diahopane	**153**	
30-Normoretane	**372**	
18a(H)&18b(H)-Oleananes	**286**	
Hopane	**3490**	
Moretane	**485**	
30-Homohopane-22S	**1080**	
30-Homohopane-22R	**965**	
T22a-Gammacerane/C32-diahopane	**238**	
30,31-Bishomohopane-22S	**2240**	G
30,31-Bishomohopane-22R	**570**	

Parameter	Result	
30,31-Trishomohopane-22S	**646**	
30,31-Trishomohopane-22R	**302**	
Tetrakishomohopane-22S	**512**	
Tetrakishomohopane-22R	**1580**	G
Pentakishomohopane-22S	**283**	
Pentakishomohopane-22R	**217**	
13b(H),17a(H)-20S-Diacholestane	**569**	
13b(H),17a(H)-20R-Diacholestane	**351**	
13b,17a-20S-Methyldiacholestane	**426**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**1030**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**1010**	
Unknown Sterane (S18)	**272**	
13a,17b-20S-Ethyldiacholestane	**50.9**	
14a,17a-20S-Methylcholestane	**531**	
14a,17a-20R-Methylcholestane	**359**	
14a(H),17a(H)-20S-Ethylcholestane	**543**	
14a(H),17a(H)-20R-Ethylcholestane	**519**	
14b(H),17b(H)-20R-Cholestane	**447**	
14b(H),17b(H)-20S-Cholestane	**507**	
14b,17b-20R-Methylcholestane	**438**	
14b,17b-20S-Methylcholestane	**726**	
14b(H),17b(H)-20R-Ethylcholestane	**916**	
14b(H),17b(H)-20S-Ethylcholestane	**618**	
C26,20R- +C27,20S- triaromatic steroid	**1180**	
C28,20S-triaromatic steroid	**1360**	
C27,20R-triaromatic steroid	**778**	
C28,20R-triaromatic steroid	**861**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	88	50-130

N/A - Not Applicable
G - Matrix Interference

05/08/12 19:59

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

1st check 5/6/12

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	21659M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	45922	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	177222	1885.228	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 188.52%#			
42) Phenanthrene-d10	32.567	188	167578	2255.320	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 225.53%#			
86) Benzo[a]pyrene-d12	48.256	264	186805	1962.861	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 196.29%#			
127) 5B(H)Cholane - Surr	43.784	217	31494	2193.550	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 219.36%#			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	240	14.037	ng/mL	100
5) C1-Decalins	18.311	152	252M5	14.739	ng/mL	
6) C2-Decalins	20.177	166	798M5	46.673	ng/mL	
7) C3-Decalins	22.104	180	1118M5	65.389	ng/mL	
8) C4-Decalins	25.492	194	3788M5	221.549	ng/mL	
10) Naphthalene	19.801	128	247658	1794.067	ng/mL#	100
11) C1-Naphthalenes	22.496	142	161817M5	1172.224	ng/mL	
12) C2-Naphthalenes	24.995	156	12806M5	92.768	ng/mL	
13) C3-Naphthalenes	28.563	170	15715M5	113.842	ng/mL	
14) C4-Naphthalenes	31.694	184	26495M5	191.933	ng/mL	
16) 2-Methylnaphthalene	22.496	142	156382	1915.941	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	5208	65.096	ng/mL#	100
18) Benzothiophene	20.012	134	645M3	5.192	ng/mL	
19) C1-Benzo(b)thiophenes	22.360	148	3408M5	27.435	ng/mL	
20) C2-Benzo(b)thiophenes	24.649	162	1275M5	10.264	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5505M5	44.316	ng/mL	
22) C4-Benzo(b)thiophenes	30.731	190	7607M5	61.238	ng/mL	
23) Biphenyl	24.393	154	2320M3	22.470	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	3495	52.118	ng/mL#	100
25) Dibenzofuran	27.464	168	4050	34.159	ng/mL#	93
26) Acenaphthylene	26.079	152	262621	1916.502	ng/mL#	100
27) Acenaphthene	26.816	153	158178	1960.460	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.367	170	793M3	14.669	ng/mL	
29) Fluorene	28.834	166	184469M3	2073.033	ng/mL	
30) C1-Fluorenes	31.197	180	5159M5	57.976	ng/mL	
31) C2-Fluorenes	33.410	194	21795M5	244.929	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
32) C3-Fluorenes	35.909	208	64399M5	723.706	ng/mL	
33) Dibenzothiophene	32.161	184	7441	52.166	ng/mL#	87
34) 4-Methyldibenzothiophene(	33.937	198	5054M3	35.431	ng/mL	
35) 2/3-Methyldibenzothiophen	34.298	198	5509M3	38.621	ng/mL	
36) 1-Methyldibenzothiophene(	34.720	198	2054	14.400	ng/mL#	100
37) OTP	34.374	198	31455M3	220.517	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	50490M5	353.963	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	19035m	133.446	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	38666M5	271.070	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	64470M5	451.971	ng/mL	
41) C4-Dibenzothiophenes	40.908	240	55790M5	391.119	ng/mL	
43) Phenanthrene	32.657	178	331901	2648.362	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	8582	68.479	ng/mL	89
45) 2/4-Methylphenanthrene(2M	34.750	192	10086	80.480	ng/mL	98
46) 2-Methylanthracene(2MA)	34.901	192	5506M3	43.934	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	12062M3	96.247	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.172	192	6637M3	52.959	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.081	192	45030M5	359.311	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	55003M5	438.889	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	55003m	438.889	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	66624M5	531.618	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	57639M5	459.923	ng/mL	
55) Anthracene	32.838	178	235534M3	1924.098	ng/mL	
56) Carbazole	33.500	167	7358M3	59.507	ng/mL	
57) 1-Methylphenanthrene	35.172	192	6658M3	83.833	ng/mL	
58) Fluoranthene	37.445	202	505726M3	4063.137	ng/mL	
59) Benzo(b)fluorene	39.960	216	15157M3	209.900	ng/mL	
60) Pyrene	38.318	202	518687	4099.523	ng/mL	96
61) C1-Fluoranthenes/Pyrenes	39.719	216	119752M5	946.479	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.465	230	94683M5	748.342	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	58267M5	460.522	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.943	258	48848M5	386.078	ng/mL	
66) Naphthobenzothiophene	42.173	234	19521	143.311	ng/ml#	76
67) Naphthobenzothiophene-2,1	42.173	234	19521	143.311	ng/mL#	76
68) Naphthobenzothiophene-1,2	42.519	234	4709M3	34.570	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	9121M3	66.960	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	33633M5	246.912	ng/ml	
71) C2-Naphthobenzothiophenes	45.576	262	42626M5	312.933	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	33904M5	248.901	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290	30253M5	222.098	ng/mL	
75) Benz[a]anthracene	43.106	228	378704	2598.212	ng/mL	95

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.272	228	394777	2682.776	ng/mL	100
78) C1-Chrysenes	44.732	242	57669M5	391.900	ng/mL	
79) C2-Chrysenes	46.148	256	45802M5	311.255	ng/mL	
79) C2-Chrysenes BS	46.148	256	45802m	311.255	ng/mL	
80) C3-Chrysenes	47.488	270	42537M5	289.068	ng/mL	
81) C4-Chrysenes	49.612	284	25173M5	171.067	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	472681	2951.371	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.232	252	412920	2368.084	ng/mL	98
84) Benzo[a]fluoranthene	47.533	252	24037M3	137.851	ng/mL	
85) Benzo[e]pyrene	48.166	252	85197	537.811	ng/mL	98
87) Benzo[a]pyrene	48.347	252	403767	2647.300	ng/mL	97
88) Perylene	48.663	252	42812	262.648	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.181	276	426700M3	2404.050	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	350859M3	2078.008	ng/mL	
91) Benzo[g,h,i]perylene	54.491	276	430253	2294.423	ng/mL	99
92) Hopane (T19)	52.232	191	81685	2698.916	ng/mL#	80
94) C23 Tricyclic Terpane (T4	40.803	191	12946M3	427.743	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	8246	272.452	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.061	191	8259M3	272.882	ng/ml	
97) C24 Tetracyclic Terpane (	44.341	191	8699M3	287.420	ng/ml	
98) C26 Tricyclic Terpane-22S	44.070	191	4617M3	152.548	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	3774M3	124.695	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3108M3	102.690	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	5701M3	188.364	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	3981M3	131.534	ng/ml	
103) C29 Tricyclic Terpane-22R	47.338	191	4703	155.390	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.452	191	17974	593.871	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	3643M3	120.367	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3937M3	130.081	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.009	191	19710M3	651.229	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.169	191	2803	92.613	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.973	191	7010M3	231.614	ng/ml	
110) 30-Norhopane (T15)	50.862	191	53671M3	1773.318	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	17424M3	575.698	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	3569M3	117.922	ng/ml	
113) 30-Normoretane (T17)	51.645	191	8705	287.618	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.051	191	6680	220.711	ng/ml	100
115) Moretane (T20)	52.925	191	11354M3	375.142	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	25324M3	836.718	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191	22575	745.890	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	5557	183.606	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.545	191G	52474	1733.769	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	13342	440.827	ng/ml	100
121) 30,31-Trishomohopane-22S	57.713	191	15116M3	499.441	ng/ml	
122) 30,31-Trishomohopane-22R	58.316	191	7077M3	233.828	ng/ml	
123) Tetrakishomohopane-22S (T	60.364	191	11977M3	395.726	ng/ml	
124) Tetrakishomohopane-22R (T	61.207	191G	36833	1216.982	ng/ml	100
125) Pentakishomohopane-22S (T	63.481	191	6615M3	218.563	ng/ml	
126) Pentakishomohopane-22R (T	64.761	191	5083M3	167.945	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	6314M3	439.769	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.711	217	3892M3	271.077	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	4728M3	329.304	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	11411	794.773	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	11197	779.868	ng/ml	100
133) Unknown Sterane (S18)	48.075	217	3023	210.551	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.331	217	565	39.352	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	5894M3	410.516	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	3982M3	277.345	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	6024M3	419.570	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	5755M3	400.834	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	4962M3	345.602	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	5620M3	391.432	ng/ml	
141) 14b,17b-20R-Methylcholest	48.663	218	4860M4	338.498	ng/ml	
142) 14b,17b-20S-Methylcholest	48.738	218	8055M3	561.029	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.807	218	10162M3	707.781	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	6853M3	477.310	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	13053M3	909.138	ng/mL	
146) C28,20S-triaromatic stero	50.365	231	15070	1049.622	ng/mL	100
147) C27,20R-triaromatic stero	50.832	231	8632M3	601.217	ng/mL	
148) C28,20R-triaromatic stero	52.021	231	9551M3	665.225	ng/mL	

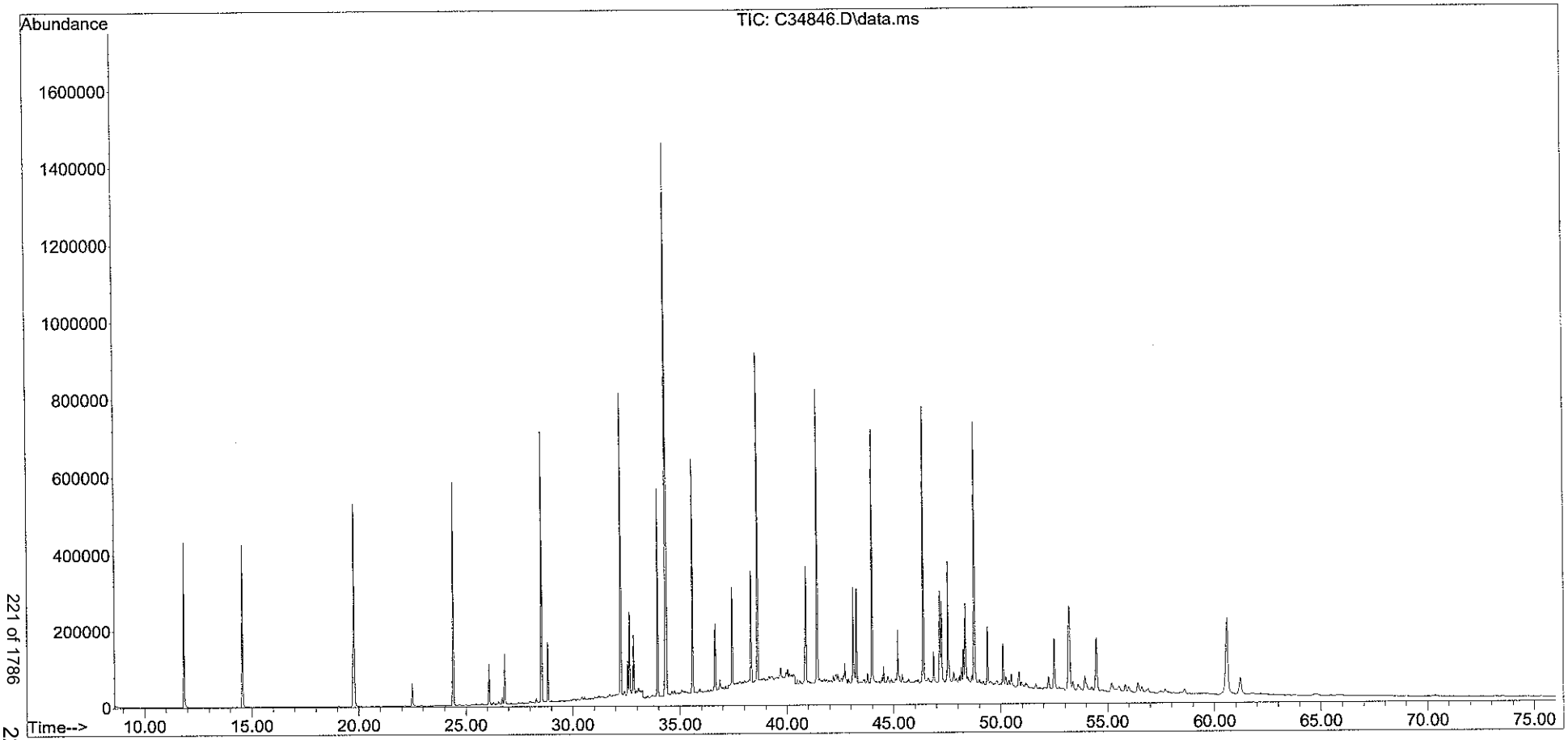
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Cold Lake Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**131**		C3-Dibenzothiophenes	**342**	
C1-Decalins	**247**		C4-Dibenzothiophenes	**233**	
C2-Decalins	**351**		Benzo(b)fluorene	1.84	U
C3-Decalins	**229**		Fluoranthene	**6.13**	
C4-Decalins	**215**		Pyrene	**18.3**	
Benzothiophene	**7.97**		C1-Fluoranthenes/Pyrenes	**61.7**	
C1-Benzo(b)thiophenes	**38.2**		C2-Fluoranthenes/Pyrenes	**86.7**	
C2-Benzo(b)thiophenes	**73.0**		C3-Fluoranthenes/Pyrenes	**97.5**	
C3-Benzo(b)thiophenes	**119**		C4-Fluoranthenes/Pyrenes	**97.5**	
C4-Benzo(b)thiophenes	**120**		Naphthobenzothiophenes	**40.4**	
Naphthalene	**57.2**		C1-Naphthobenzothiophenes	**126**	
C1-Naphthalenes	**155**		C2-Naphthobenzothiophenes	**178**	
C2-Naphthalenes	**316**		C3-Naphthobenzothiophenes	**155**	
C3-Naphthalenes	**368**		C4-Naphthobenzothiophenes	**114**	
C4-Naphthalenes	**277**		Benz[a]anthracene	**4.68**	
Biphenyl	**16.5**		Chrysene/Triphenylene	**20.2**	
Dibenzofuran	**7.64**		C1-Chrysenes	**47.0**	
Acenaphthylene	**2.47**		C2-Chrysenes	**78.0**	
Acenaphthene	**12.4**		C3-Chrysenes	**92.5**	
Fluorene	**25.9**		C4-Chrysenes	**56.1**	
C1-Fluorenes	**72.1**		Benzo[b]fluoranthene	**6.76**	
C2-Fluorenes	**138**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.85**	
C3-Fluorenes	**158**		Benzo[a]fluoranthene	1.84	U
Anthracene	1.84	U	Benzo[e]pyrene	**9.82**	
Phenanthrene	**75.1**		Benzo[a]pyrene	**5.41**	
C1-Phenanthrenes/Anthracenes	**196**		Perylene	**9.76**	
C2-Phenanthrenes/Anthracenes	**260**		Indeno[1,2,3-cd]pyrene	**4.70**	
C3-Phenanthrenes/Anthracenes	**222**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.42**	
C4-Phenanthrenes/Anthracenes	**109**		Benzo[g,h,i]perylene	**8.01**	
Retene	1.84	U			
Dibenzothiophene	**60.8**				
C1-Dibenzothiophenes	**192**				
C2-Dibenzothiophenes	**327**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Cold Lake Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
Carbazole	**4.64**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**75.4**
2/3-Methyldibenzothiophene	**59.5**
1-Methyldibenzothiophene	**42.2**
3-Methylphenanthrene	**39.0**
2/4-Methylphenanthrene	**46.6**
2-Methylanthracene	**4.21**
9-Methylphenanthrene	**67.0**
1-Methylphenanthrene	**39.0**
2-Methylnaphthalene	**158**
1-Methylnaphthalene	**108**
2,6-Dimethylnaphthalene	**162**
2,3,5-Trimethylnaphthalene	**68.3**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**107**
C24 Tricyclic Terpane	**59.6**
C25 Tricyclic Terpane	**54.2**
C24 Tetracyclic Terpane	**19.6**
C26 Tricyclic Terpane-22S	**21.4**
C26 Tricyclic Terpane-22R	**20.4**
C28 Tricyclic Terpane-22S	**22.4**
C28 Tricyclic Terpane-22R	**24.9**
C29 Tricyclic Terpane-22S	**30.4**
C29 Tricyclic Terpane-22R	**25.8**
18a-22,29,30-Trisnorneohopane-TS	**25.7**
C30 Tricyclic Terpane-22S	**21.2**
C30 Tricyclic Terpane-22R	**21.6**
17a(H)-22,29,30-Trisnorhopane-TM	**67.1**
17a/b,21b/a 28,30-Bisnorhopane	**44.9**
17a(H),21b(H)-25-Norhopane	**13.7**
30-Norhopane	**178**
18a(H)-30-Norneohopane-C29Ts	**22.7**
17a(H)-Diahopane	**5.88**
30-Normoretane	**19.0**
18a(H)&18b(H)-Oleananes	**3.89**
Hopane	**254**
Moretane	**21.0**
30-Homohopane-22S	**110**
30-Homohopane-22R	**89.7**
T22a-Gammacerane/C32-diahopane	**35.4**
30,31-Bishomohopane-22S	**67.4**
30,31-Bishomohopane-22R	**47.8**

Parameter	Result
30,31-Trishomohopane-22S	**52.4**
30,31-Trishomohopane-22R	**36.4**
Tetrakishomohopane-22S	**35.8**
Tetrakishomohopane-22R	**25.6**
Pentakishomohopane-22S	**43.1**
Pentakishomohopane-22R	**29.7**
13b(H),17a(H)-20S-Diacholestane	**33.7**
13b(H),17a(H)-20R-Diacholestane	**15.6**
13b,17a-20S-Methyldiacholestane	**15.0**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**52.6**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**69.6**
Unknown Sterane (S18)	**10.5**
13a,17b-20S-Ethyldiacholestane	**6.36**
14a,17a-20S-Methylcholestane	**27.7**
14a,17a-20R-Methylcholestane	**29.1**
14a(H),17a(H)-20S-Ethylcholestane	**78.2**
14a(H),17a(H)-20R-Ethylcholestane	**51.0**
14b(H),17b(H)-20R-Cholestane	**41.5**
14b(H),17b(H)-20S-Cholestane	**42.3**
14b,17b-20R-Methylcholestane	**34.8**
14b,17b-20S-Methylcholestane	**50.3**
14b(H),17b(H)-20R-Ethylcholestane	**66.5**
14b(H),17b(H)-20S-Ethylcholestane	**38.9**
C26,20R- +C27,20S- triaromatic steroid	**357**
C28,20S-triaromatic steroid	**309**
C27,20R-triaromatic steroid	**231**
C28,20R-triaromatic steroid	**250**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	112	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

MAL 5/31/12

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	23817M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.167	240	42411	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	93859	907.974	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.80%			
42) Phenanthrene-d10	32.567	188	82104	1004.863	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.49%			
86) Benzo[a]pyrene-d12	48.241	264	72947	829.948	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.99%			
127) 5B(H)Cholane - Surr	43.769	217	14861	1120.753	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 112.08%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	12337	656.177	ng/mL	100
4) cis-Decalin	17.603	138	754M3	53.211	ng/mL	
5) C1-Decalins	17.874	152	25179M5	1339.213	ng/mL	
6) C2-Decalins	19.304	166	35736M5	1900.716	ng/mL	
7) C3-Decalins	22.119	180	23346M5	1241.720	ng/mL	
8) C4-Decalins	25.507	194	21876M5	1163.534	ng/mL	
10) Naphthalene	19.801	128	47114	310.376	ng/mL#	100
11) C1-Naphthalenes	22.496	142	127731M5	841.461	ng/mL	
12) C2-Naphthalenes	25.341	156	260450M5	1715.782	ng/mL	
13) C3-Naphthalenes	28.021	170	302564M5	1993.218	ng/mL	
14) C4-Naphthalenes	30.445	184	228022M5	1502.154	ng/mL	
16) 2-Methylnaphthalene	22.496	142	77085	858.848	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	51530	585.723	ng/mL#	100
18) Benzothiophene	20.027	134	5901	43.200	ng/mL	100
19) C1-Benzo(b)thiophenes	22.887	148	28288M5	207.089	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	54033M5	395.562	ng/mL	
21) C3-Benzo(b)thiophenes	27.524	176	88377M5	646.986	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	88613M5	648.714	ng/mL	
23) Biphenyl	24.378	154	10176	89.627	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	64699	877.379	ng/mL#	100
25) Dibenzofuran	27.464	168	5404	41.449	ng/mL#	43
26) Acenaphthylene	26.079	152	2021	13.412	ng/mL#	100
27) Acenaphthene	26.817	153	5947M3	67.029	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	22016M3	370.364	ng/mL	
29) Fluorene	28.834	166	13718M3	140.193	ng/mL	
30) C1-Fluorenes	31.212	180	38230M5	390.696	ng/mL	
31) C2-Fluorenes	33.410	194	73499M5	751.131	ng/mL	
32) C3-Fluorenes	35.232	208	83934M5	857.772	ng/mL	
33) Dibenzothiophene	32.161	184	51665	329.382	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.937	198	64088	408.583	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	50568M3	322.389	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	35916	228.977	ng/mL#	100
37) OTP	34.344	198	15611M3	99.526	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	178964M5	1140.958	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	163353m	1041.432	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	277827M5	1771.243	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	291226M5	1856.667	ng/mL	
41) C4-Dibenzothiophenes	39.132	240	198533M5	1265.717	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	Phenanthrene	32.658	178	56105	407.119	ng/mL#	78
44)	3-Methylphenanthrene(3MP)	34.630	192	29170M3	211.669	ng/mL	
45)	2/4-Methylphenanthrene(2M	34.735	192	34814M3	252.624	ng/mL	
46)	2-Methylanthracene(2MA)	34.886	192	3149M3	22.850	ng/mL	
47)	9-Methylphenanthrene(9MP)	35.081	192	50040	363.109	ng/mL	98
48)	1-Methylphenanthrene(1MP)	35.172	192	29139M3	211.444	ng/mL	
49)	C1-Phenanthrenes/Anthrace	35.081	192	146127M5	1060.353	ng/mL	
50)	C2-Phenanthrenes/Anthrace	36.888	206	193953M5	1407.397	ng/mL	
50)	C2-Phenanthrenes/Anthr BS	36.888	206	193953m	1407.397	ng/mL	
52)	C3-Phenanthrenes/Anthrace	39.990	220	165692M5	1202.324	ng/mL	
53)	C4-Phenanthrenes/Anthrace	40.908	234	81166M5	588.971	ng/mL	
56)	Carbazole	33.501	167	3417M3	25.131	ng/mL	
57)	1-Methylphenanthrene	35.172	192	29274M3	335.202	ng/mL	
58)	Fluoranthene	37.430	202	4547M3	33.222	ng/mL	
60)	Pyrene	38.318	202	13787M3	99.094	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.704	216	46566M5	334.694	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.510	230	65429M5	470.273	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.528	244	73575M5	528.822	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.883	258	73580M5	528.858	ng/mL	
66)	Naphthobenzothiophene	42.173	234	22625	151.048	ng/ml#	89
67)	Naphthobenzothiophene-2,1	42.173	234	22625	151.048	ng/mL#	89
68)	Naphthobenzothiophene-1,2	42.504	234	6089	40.651	ng/mL#	13
69)	Naphthobenzothiophene-2,3	42.805	234	4121M3	27.513	ng/mL	
70)	C1-Naphthobenzothiophenes	44.251	248	102218M5	682.425	ng/ml	
71)	C2-Naphthobenzothiophenes	45.621	262	144800M5	966.710	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	125541M5	838.133	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290	92213M5	615.630	ng/mL	
75)	Benz[a]anthracene	43.091	228	3415M3	25.369	ng/mL	
77)	Chrysene/Triphenylene	43.242	228	14884M3	109.520	ng/mL	
78)	C1-Chrysenes	44.732	242	34624M5	254.772	ng/mL	
79)	C2-Chrysenes	46.810	256	57477M5	422.930	ng/mL	
79)	C2-Chrysenes BS	46.810	256	57477m	422.930	ng/mL	
80)	C3-Chrysenes	49.506	270	68192M5	501.774	ng/mL	
81)	C4-Chrysenes	49.521	284	41359M5	304.330	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	5421	36.650	ng/mL	93
83)	Benzo[j]+[k]fluoranthene	47.217	252	2485M3	15.431	ng/mL	
85)	Benzo[e]pyrene	48.151	252	7787M3	53.225	ng/mL	
87)	Benzo[a]pyrene	48.332	252	4133M3	29.341	ng/mL	
88)	Perylene	48.648	252	7965	52.910	ng/mL#	74
89)	Indeno[1,2,3-cd]pyrene	53.151	276	4178M3	25.488	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278	2043	13.102	ng/mL#	51
91)	Benzo[g,h,i]perylene	54.446	276	7518	43.410	ng/mL#	80
92)	Hopane (T19)	52.232	191	38533	1378.549	ng/mL#	79
94)	C23 Tricyclic Terpane (T4	40.803	191	16194M3	579.353	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.525	191	9035M3	323.234	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.046	191	8216M3	293.934	ng/ml	
97)	C24 Tetracyclic Terpane (	44.326	191	2969M3	106.218	ng/ml	
98)	C26 Tricyclic Terpane-22S	44.070	191	3241M3	115.949	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.160	191	3095M3	110.726	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.449	191	3389M3	121.244	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.615	191	3776M3	135.089	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.127	191	4609	164.891	ng/ml	100
103)	C29 Tricyclic Terpane-22R	47.323	191	3909M3	139.848	ng/ml	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
104) 18a-22,29,30-Trisnorneoho	48.452	191	3889M3	139.132	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191	3216M3	115.055	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3277M3	117.237	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	10164M3	363.625	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.199	191	6807M3	243.526	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.988	191	2080	74.414	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	26947M3	964.050	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	3442M3	123.140	ng/ml	
112) 17a(H)-Diahopane (X)	51.103	191	891	31.876	ng/ml	100
113) 30-Normoretane (T17)	51.645	191	2872	102.748	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.021	191	590M3	21.108	ng/ml	
115) Moretane (T20)	52.925	191	3186M3	113.982	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	16685	596.919	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	13594	486.336	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	5372M3	192.188	ng/mL	
119) 30,31-Bishomohopane-22S (	55.575	191	10218M3	365.557	ng/ml	
120) 30,31-Bishomohopane-22R (	55.967	191	7245	259.196	ng/ml	100
121) 30,31-Trishomohopane-22S	57.714	191	7940M3	284.060	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	5509M3	197.089	ng/ml	
123) Tetrakishomohopane-22S (T	60.349	191	5427	194.155	ng/ml	100
124) Tetrakishomohopane-22R (T	61.267	191	3883M3	138.917	ng/ml	
125) Pentakishomohopane-22S (T	63.511	191	6536M3	233.831	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4498M3	160.920	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.289	217	2425M3	182.883	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1124M3	84.767	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1076M3	81.147	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3782M3	285.222	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	5006	377.531	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	756M3	57.014	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.332	217	457	34.465	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.497	217	1989M3	150.002	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	2092M3	157.770	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.567	217	5619M3	423.761	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	3664M3	276.323	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2986M3	225.191	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	3044M3	229.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2501	188.615	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	3618M3	272.854	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4780M3	360.487	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2799M3	211.089	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	25693	1937.656	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	22236	1676.944	ng/mL	100
147) C27,20R-triaromatic stero	50.817	231	16630	1254.164	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	17947M3	1353.486	ng/mL	

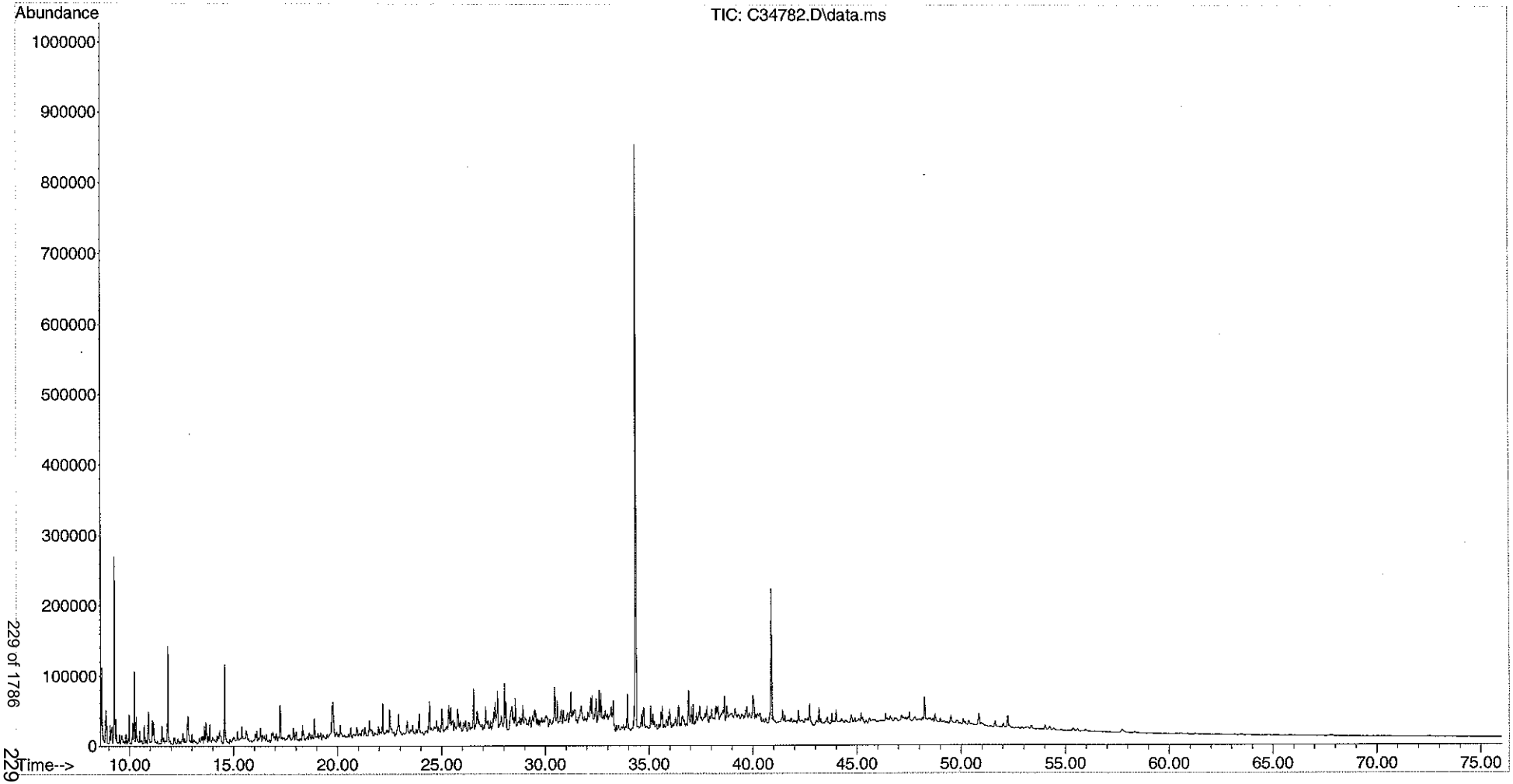
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



229 of 1786

229

Form I
Western Canadian Select
Alkylated Polynuclear Aromatic Hydrocarbons

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**163**		C3-Dibenzothiophenes	**315**	
C1-Decalins	**277**		C4-Dibenzothiophenes	**209**	
C2-Decalins	**388**		Benzo(b)fluorene	1.99	U
C3-Decalins	**240**		Fluoranthene	**7.00**	
C4-Decalins	**243**		Pyrene	**22.4**	
Benzothiophene	**5.75**		C1-Fluoranthenes/Pyrenes	**72.2**	
C1-Benzo(b)thiophenes	**28.8**		C2-Fluoranthenes/Pyrenes	**93.8**	
C2-Benzo(b)thiophenes	**51.2**		C3-Fluoranthenes/Pyrenes	**110**	
C3-Benzo(b)thiophenes	**97.6**		C4-Fluoranthenes/Pyrenes	**108**	
C4-Benzo(b)thiophenes	**95.8**		Naphthobenzothiophenes	**35.3**	
Naphthalene	**63.6**		C1-Naphthobenzothiophenes	**116**	
C1-Naphthalenes	**172**		C2-Naphthobenzothiophenes	**170**	
C2-Naphthalenes	**400**		C3-Naphthobenzothiophenes	**148**	
C3-Naphthalenes	**440**		C4-Naphthobenzothiophenes	**114**	
C4-Naphthalenes	**313**		Benz[a]anthracene	**4.40**	
Biphenyl	**17.0**		Chrysene/Triphenylene	**20.4**	
Dibenzofuran	**7.70**		C1-Chrysenes	**53.3**	
Acenaphthylene	**3.04**		C2-Chrysenes	**84.8**	
Acenaphthene	**14.1**		C3-Chrysenes	**99.1**	
Fluorene	**30.1**		C4-Chrysenes	**59.9**	
C1-Fluorenes	**82.1**		Benzo[b]fluoranthene	**7.35**	
C2-Fluorenes	**150**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.74**	
C3-Fluorenes	**176**		Benzo[a]fluoranthene	1.99	U
Anthracene	1.99	U	Benzo[e]pyrene	**10.9**	
Phenanthrene	**81.3**		Benzo[a]pyrene	**5.93**	
C1-Phenanthrenes/Anthracenes	**205**		Perylene	**10.3**	
C2-Phenanthrenes/Anthracenes	**275**		Indeno[1,2,3-cd]pyrene	**5.04**	
C3-Phenanthrenes/Anthracenes	**224**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.64**	
C4-Phenanthrenes/Anthracenes	**112**		Benzo[g,h,i]perylene	**9.40**	
Retene	**66.6**				
Dibenzothiophene	**57.4**				
C1-Dibenzothiophenes	**172**				
C2-Dibenzothiophenes	**302**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Western Canadian Select
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
Carbazole	**4.61**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**68.3**
2/3-Methyldibenzothiophene	**55.0**
1-Methyldibenzothiophene	**37.5**
3-Methylphenanthrene	**42.3**
2/4-Methylphenanthrene	**48.3**
2-Methylanthracene	**3.35**
9-Methylphenanthrene	**68.9**
1-Methylphenanthrene	**40.8**
2-Methylnaphthalene	**179**
1-Methylnaphthalene	**115**
2,6-Dimethylnaphthalene	**209**
2,3,5-Trimethylnaphthalene	**83.7**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**107**
C24 Tricyclic Terpane	**59.5**
C25 Tricyclic Terpane	**57.1**
C24 Tetracyclic Terpane	**22.3**
C26 Tricyclic Terpane-22S	**24.1**
C26 Tricyclic Terpane-22R	**22.3**
C28 Tricyclic Terpane-22S	**22.8**
C28 Tricyclic Terpane-22R	**26.1**
C29 Tricyclic Terpane-22S	**31.8**
C29 Tricyclic Terpane-22R	**27.6**
18a-22,29,30-Trisnorneohopane-TS	**33.5**
C30 Tricyclic Terpane-22S	**24.5**
C30 Tricyclic Terpane-22R	**19.7**
17a(H)-22,29,30-Trisnorhopane-TM	**69.7**
17a/b,21b/a 28,30-Bisnorhopane	**43.3**
17a(H),21b(H)-25-Norhopane	**11.7**
30-Norhopane	**178**
18a(H)-30-Norneohopane-C29Ts	**27.0**
17a(H)-Diahopane	**6.66**
30-Normoretane	**17.5**
18a(H)&18b(H)-Oleananes	**5.37**
Hopane	**253**
Moretane	**20.5**
30-Homohopane-22S	**107**
30-Homohopane-22R	**92.2**
T22a-Gammacerane/C32-diahopane	**39.4**
30,31-Bishomohopane-22S	**75.9**
30,31-Bishomohopane-22R	**46.0**

Parameter	Result
30,31-Trishomohopane-22S	**55.8**
30,31-Trishomohopane-22R	**37.6**
Tetrakishomohopane-22S	**37.9**
Tetrakishomohopane-22R	**23.3**
Pentakishomohopane-22S	**44.2**
Pentakishomohopane-22R	**32.3**
13b(H),17a(H)-20S-Diacholestane	**36.0**
13b(H),17a(H)-20R-Diacholestane	**17.3**
13b,17a-20S-Methyldiacholestane	**16.7**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**58.3**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**71.2**
Unknown Sterane (S18)	**15.8**
13a,17b-20S-Ethyldiacholestane	**6.50**
14a,17a-20S-Methylcholestane	**33.0**
14a,17a-20R-Methylcholestane	**29.8**
14a(H),17a(H)-20S-Ethylcholestane	**80.4**
14a(H),17a(H)-20R-Ethylcholestane	**41.8**
14b(H),17b(H)-20R-Cholestane	**41.5**
14b(H),17b(H)-20S-Cholestane	**42.9**
14b,17b-20R-Methylcholestane	**32.2**
14b,17b-20S-Methylcholestane	**47.3**
14b(H),17b(H)-20R-Ethylcholestane	**67.8**
14b(H),17b(H)-20S-Ethylcholestane	**38.6**
C26,20R- +C27,20S- triaromatic steroid	**368**
C28,20S-triaromatic steroid	**322**
C27,20R-triaromatic steroid	**237**
C28,20R-triaromatic steroid	**264**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	113	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

MAL 5/31/12

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	22062M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.151	240	38237	500.000 ng/mL	0.00
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	88122	920.289 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.03%		
42) Phenanthrene-d10	32.567	188	77260	1020.797 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.08%		
86) Benzo[a]pyrene-d12	48.241	264	65170	822.405 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.24%		
127) 5B(H)Cholane - Surr	43.769	217	13541	1132.680 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 113.27%		
Target Compounds					Qvalue
3) trans-Decalin	16.384	138	13203	758.099 ng/mL	100
4) cis-Decalin	17.603	138	771M3	58.739 ng/mL	
5) C1-Decalins	17.874	152	24226M5	1391.026 ng/mL	
6) C2-Decalins	19.650	166	33895M5	1946.207 ng/mL	
7) C3-Decalins	22.119	180	20987M5	1205.046 ng/mL	
8) C4-Decalins	25.507	194	21234M5	1219.229 ng/mL	
10) Naphthalene	19.801	128	44897	319.299 ng/mL#	100
11) C1-Naphthalenes	22.496	142	121461M5	863.807 ng/mL	
12) C2-Naphthalenes	25.341	156	282454M5	2008.758 ng/mL	
13) C3-Naphthalenes	28.021	170	310493M5	2208.166 ng/mL	
14) C4-Naphthalenes	30.445	184	221158M5	1572.833 ng/mL	
16) 2-Methylnaphthalene	22.496	142	74743	898.999 ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	46894	575.428 ng/mL#	100
18) Benzothiophene	20.027	134	3651	28.854 ng/mL	100
19) C1-Benzo(b)thiophenes	22.074	148	18291M5	144.556 ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	32517M5	256.985 ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	62005M5	490.032 ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	60845M5	480.864 ng/mL	
23) Biphenyl	24.378	154	8982	85.404 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	71653	1048.977 ng/mL#	100
25) Dibenzofuran	27.464	168	4664	38.619 ng/mL#	39
26) Acenaphthylene	26.079	152	2132	15.274 ng/mL#	100
27) Acenaphthene	26.816	153	5817M3	70.779 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	23140M3	420.239 ng/mL	
29) Fluorene	28.834	166	13677M3	150.892 ng/mL	
30) C1-Fluorenes	31.212	180	37348M5	412.044 ng/mL	
31) C2-Fluorenes	33.410	194	68276M5	753.259 ng/mL	
32) C3-Fluorenes	35.232	208	80306M5	885.981 ng/mL	
33) Dibenzothiophene	32.161	184	41844	287.991 ng/mL#	66
34) 4-Methyldibenzothiophene(	33.937	198	49801	342.755 ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	40101M3	275.995 ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	27375	188.408 ng/mL#	100
37) OTP	34.344	198	14341M3	98.702 ng/mL	
38) C1-Dibenzothiophenes	33.937	198	139894M5	962.820 ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	125553m	864.118 ng/mL	
39) C2-Dibenzothiophenes	35.623	212	220560M5	1518.003 ng/mL	
40) C3-Dibenzothiophenes	37.430	226	229447M5	1579.168 ng/mL	
41) C4-Dibenzothiophenes	39.131	240	152263M5	1047.950 ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) Phenanthrene	32.657	178	52113	408.233	ng/mL#	84
44) 3-Methylphenanthrene(3MP)	34.615	192	27087M3	212.189	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	30942	242.388	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	2145M3	16.803	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	44141	345.784	ng/mL	100
48) 1-Methylphenanthrene(1MP)	35.172	192	26134M3	204.724	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	131235M5	1028.045	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	176322M5	1381.239	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	176322m	1381.239	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	143713M5	1125.793	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.643	234	72068M5	564.553	ng/mL	
54) Retene	39.643	234	8329M3	334.477	ng/mL	
56) Carbazole	33.500	167	2911M3	23.112	ng/mL	
57) 1-Methylphenanthrene	35.172	192	25890M3	320.036	ng/mL	
58) Fluoranthene	37.430	202	4454M3	35.131	ng/mL	
60) Pyrene	38.318	202	14472M3	112.292	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	46715M5	362.475	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	60701M5	470.996	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	70809M5	549.427	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	70035M5	543.421	ng/mL	
66) Naphthobenzothiophene	42.173	234	17157	123.655	ng/ml	91
67) Naphthobenzothiophene-2,1	42.173	234	17157	123.655	ng/mL	91
68) Naphthobenzothiophene-1,2	42.504	234	4459M3	32.137	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	2950M3	21.261	ng/mL	
70) C1-Naphthobenzothiophenes	44.251	248	80852M5	582.721	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	118512M5	854.146	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	102816M5	741.021	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	79535M5	573.229	ng/mL	
75) Benz[a]anthracene	43.091	228	2679M3	22.074	ng/mL	
77) Chrysene/Triphenylene	43.242	228	12551M3	102.435	ng/mL	
78) C1-Chrysenes	44.732	242	32776M5	267.501	ng/mL	
79) C2-Chrysenes	46.810	256	52123M5	425.401	ng/mL	
79) C2-Chrysenes BS	46.810	256	52123m	425.401	ng/mL	
80) C3-Chrysenes	48.015	270	60931M5	497.288	ng/mL	
81) C4-Chrysenes	49.597	284	36855M5	300.792	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4920M3	36.894	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1994M3	13.734	ng/mL	
85) Benzo[e]pyrene	48.151	252	7244M3	54.919	ng/mL	
87) Benzo[a]pyrene	48.332	252	3782M3	29.780	ng/mL	
88) Perylene	48.648	252	7029M3	51.789	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	3741M3	25.313	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1864M3	13.259	ng/mL	
91) Benzo[g,h,i]perylene	54.446	276	7367M3	47.182	ng/mL	
92) Hopane (T19)	52.232	191	31973	1268.725	ng/mL#	79
94) C23 Tricyclic Terpane (T4	40.803	191	13516M3	536.330	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	7524M3	298.561	ng/ml	
96) C25 Tricyclic Terpane (T6	43.046	191	7227M3	286.776	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	2819	111.861	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.070	191	3051M3	121.067	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	2816M3	111.742	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	2881M3	114.321	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	3300M3	130.948	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	4019M3	159.478	ng/ml	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
103) C29 Tricyclic Terpane-22R	47.322	191	3489M3	138.447	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.452	191	4237	168.129	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	3103M3	123.131	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	2489M3	98.766	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	8815	349.789	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	5480	217.453	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.988	191	1479	58.688	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	22515M3	893.421	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	3417M3	135.590	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	842M3	33.412	ng/ml	
113) 30-Normoretane (T17)	51.630	191	2211M3	87.735	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	52.036	191	679M3	26.943	ng/ml	
115) Moretane (T20)	52.925	191	2589M3	102.734	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	13484	535.060	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	11655	462.484	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	4990M3	198.009	ng/mL	
119) 30,31-Bishomohopane-22S (	55.575	191	9599	380.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	5816	230.785	ng/ml	100
121) 30,31-Trishomohopane-22S	57.698	191	7057M3	280.030	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4758M3	188.803	ng/ml	
123) Tetrakishomohopane-22S (T	60.334	191	4790	190.073	ng/ml	100
124) Tetrakishomohopane-22R (T	61.237	191	2942M3	116.742	ng/ml	
125) Pentakishomohopane-22S (T	63.496	191	5594M3	221.976	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4088	162.216	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2162M3	180.847	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1036M3	86.660	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1001M3	83.732	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3500M3	292.769	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	4271	357.261	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	949	79.382	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	390	32.623	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	1983	165.874	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.205	217	1785M3	149.312	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	4826M3	403.686	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	2510M3	209.957	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2489M3	208.200	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	2575M3	215.394	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	1933	161.692	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	2840M3	237.561	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4069M3	340.365	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2318M3	193.897	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	22071	1846.200	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	19348	1618.425	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	14241	1191.234	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	15852M3	1325.991	ng/mL	

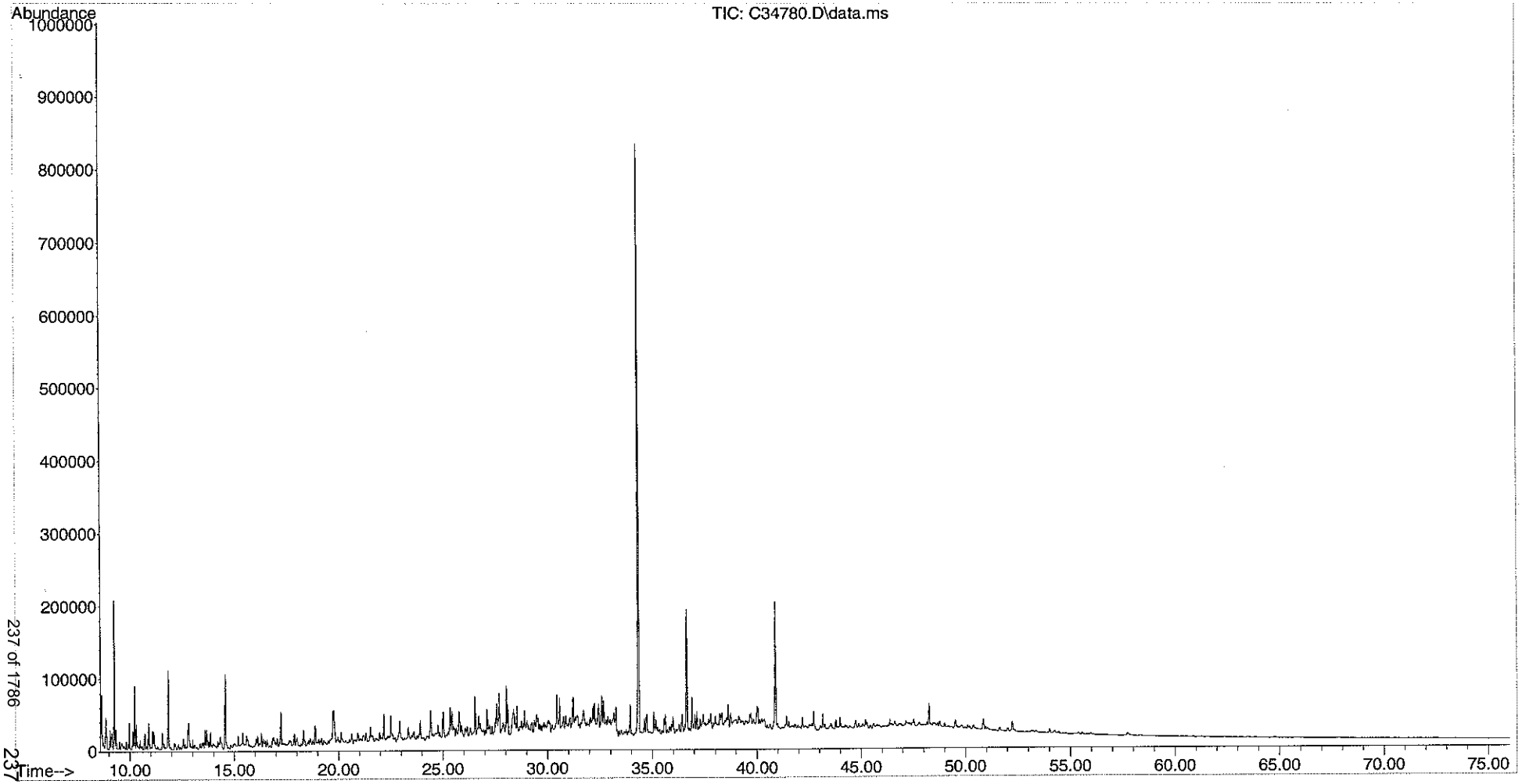
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



237 of 1786
237

Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result	
cis/trans-Decalin	503	
C1-Decalins	706	
C2-Decalins	612	
C3-Decalins	296	
C4-Decalins	269	
Benzothiophene	4.85	
C1-Benzo(b)thiophenes	20.6	
C2-Benzo(b)thiophenes	46.0	
C3-Benzo(b)thiophenes	91.5	
C4-Benzo(b)thiophenes	78.8	
Naphthalene	538	
C1-Naphthalenes	1110	
C2-Naphthalenes	1300	
C3-Naphthalenes	910	
C4-Naphthalenes	475	
Biphenyl	146	
Dibenzofuran	50.8	
Acenaphthylene	6.24	
Acenaphthene	19.4	
Fluorene	72.9	
C1-Fluorenes	166	
C2-Fluorenes	232	
C3-Fluorenes	214	
Anthracene	1.92	U
Phenanthrene	215	
C1-Phenanthrenes/Anthracenes	410	
C2-Phenanthrenes/Anthracenes	426	
C3-Phenanthrenes/Anthracenes	282	
C4-Phenanthrenes/Anthracenes	115	
Retene	1.92	U
Dibenzothiophene	138	
C1-Dibenzothiophenes	262	
C2-Dibenzothiophenes	348	
C3-Dibenzothiophenes	313	
C4-Dibenzothiophenes	162	
Benzo(b)fluorene	8.15	
Fluoranthene	4.72	
Pyrene	14.8	
C1-Fluoranthenes/Pyrenes	64.4	
C2-Fluoranthenes/Pyrenes	104	
C3-Fluoranthenes/Pyrenes	115	
C4-Fluoranthenes/Pyrenes	99.5	
Naphthobenzothiophenes	45.3	
C1-Naphthobenzothiophenes	116	
C2-Naphthobenzothiophenes	152	
C3-Naphthobenzothiophenes	120	
C4-Naphthobenzothiophenes	78.6	
Benz[a]anthracene	2.41	
Chrysene/Triphenylene	35.8	
C1-Chrysenes	60.8	
C2-Chrysenes	80.7	
C3-Chrysenes	89.6	
C4-Chrysenes	51.7	
Benzo[b]fluoranthene	6.52	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.42	J
Benzo[a]fluoranthene	0.793	J
Benzo[e]pyrene	10.8	
Benzo[a]pyrene	2.23	
Perylene	3.24	
Indeno[1,2,3-cd]pyrene	2.19	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	2.05	
Benzo[g,h,i]perylene	4.42	

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	6.64

N/A - Not Applicable

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**129**
2/3-Methyldibenzothiophene	**87.5**
1-Methyldibenzothiophene	**41.8**
3-Methylphenanthrene	**85.0**
2/4-Methylphenanthrene	**95.1**
2-Methylanthracene	**3.40**
9-Methylphenanthrene	**134**
1-Methylphenanthrene	**95.2**
2-Methylnaphthalene	**1100**
1-Methylnaphthalene	**782**
2,6-Dimethylnaphthalene	**662**
2,3,5-Trimethylnaphthalene	**174**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**64.8**
C24 Tricyclic Terpane	**39.3**
C25 Tricyclic Terpane	**40.3**
C24 Tetracyclic Terpane	**13.7**
C26 Tricyclic Terpane-22S	**17.5**
C26 Tricyclic Terpane-22R	**15.0**
C28 Tricyclic Terpane-22S	**14.4**
C28 Tricyclic Terpane-22R	**16.4**
C29 Tricyclic Terpane-22S	**20.4**
C29 Tricyclic Terpane-22R	**18.8**
18a-22,29,30-Trisnorneohopane-TS	**27.3**
C30 Tricyclic Terpane-22S	**18.5**
C30 Tricyclic Terpane-22R	**15.9**
17a(H)-22,29,30-Trisnorhopane-TM	**34.3**
17a/b,21b/a 28,30-Bisnorhopane	**5.74**
17a(H),21b(H)-25-Norhopane	**10.2**
30-Norhopane	**91.4**
18a(H)-30-Normeohopane-C29Ts	**22.0**
17a(H)-Diahopane	**14.1**
30-Normoretane	**11.4**
18a(H)&18b(H)-Oleananes	**2.96**
Hopane	**151**
Moretane	**15.6**
30-Homohopane-22S	**65.4**
30-Homohopane-22R	**55.5**
T22a-Gammacerane/C32-diahopane	**11.0**
30,31-Bishomohopane-22S	**46.7**
30,31-Bishomohopane-22R	**34.0**

Parameter	Result
30,31-Trishomohopane-22S	**36.3**
30,31-Trishomohopane-22R	**22.1**
Tetrakishomohopane-22S	**27.2**
Tetrakishomohopane-22R	**19.1**
Pentakishomohopane-22S	**27.8**
Pentakishomohopane-22R	**18.7**
13b(H),17a(H)-20S-Diacholestane	**45.3**
13b(H),17a(H)-20R-Diacholestane	**26.0**
13b,17a-20S-Methyldiacholestane	**30.0**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**57.0**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**76.8**
Unknown Sterane (S18)	**19.3**
13a,17b-20S-Ethyldiacholestane	**3.59**
14a,17a-20S-Methylcholestane	**34.7**
14a,17a-20R-Methylcholestane	**32.4**
14a(H),17a(H)-20S-Ethylcholestane	**50.0**
14a(H),17a(H)-20R-Ethylcholestane	**36.2**
14b(H),17b(H)-20R-Cholestane	**39.2**
14b(H),17b(H)-20S-Cholestane	**40.0**
14b,17b-20R-Methylcholestane	**40.1**
14b,17b-20S-Methylcholestane	**50.3**
14b(H),17b(H)-20R-Ethylcholestane	**54.4**
14b(H),17b(H)-20S-Ethylcholestane	**38.1**
C26,20R- +C27,20S- triaromatic steroid	**386**
C28,20S-triaromatic steroid	**248**
C27,20R-triaromatic steroid	**232**
C28,20R-triaromatic steroid	**205**

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

MAL 5/9/12

Quant Time: May 09 11:59:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19418M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34455M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	80850	959.313	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.93%			
42) Phenanthrene-d10	32.567	188	68998M3	1035.766	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 103.58%			
86) Benzo[a]pyrene-d12	48.241	264	67556	946.092	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.61%			
127) 5B(H)Cholane - Surr	43.769	217	11999M3	1113.867	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 111.39%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	37830	2467.915	ng/mL	100
4) cis-Decalin	17.603	138	1736M3	150.266	ng/mL	
5) C1-Decalins	17.874	152	56364M5	3677.017	ng/mL	
6) C2-Decalins	19.650	166	48878M5	3188.653	ng/mL	
7) C3-Decalins	22.119	180	23640M5	1542.202	ng/mL	
8) C4-Decalins	25.507	194	21514M5	1403.508	ng/mL	
10) Naphthalene	19.801	128	347250	2805.837	ng/mL#	100
11) C1-Naphthalenes	22.496	142	713023M5	5761.343	ng/mL	
12) C2-Naphthalenes	25.341	156	840799M5	6793.794	ng/mL	
13) C3-Naphthalenes	27.674	170	586624M5	4740.019	ng/mL	
14) C4-Naphthalenes	30.444	184	306047M5	2472.910	ng/mL	
16) 2-Methylnaphthalene	22.496	142	419181	5728.367	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	292319	4075.412	ng/mL#	100
18) Benzothiophene	20.012	134	2812M3	25.250	ng/mL	
19) C1-Benzo(b)thiophenes	22.059	148	11933M5	107.149	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	26686M5	239.619	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	53082M5	476.634	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	45732M5	410.637	ng/mL	
23) Biphenyl	24.377	154	70355	760.049	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	207397	3449.646	ng/mL#	100
25) Dibenzofuran	27.464	168	28118	264.527	ng/mL#	79
26) Acenaphthylene	26.079	152	3994	32.510	ng/mL#	100
27) Acenaphthene	26.831	153	7301M3	100.932	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	44057M3	909.051	ng/mL	
29) Fluorene	28.834	166	30318M3	380.029	ng/mL	
30) C1-Fluorenes	31.197	180	68981M5	864.662	ng/mL	
31) C2-Fluorenes	33.395	194	96290M5	1206.974	ng/mL	
32) C3-Fluorenes	35.232	208	88864M5	1113.891	ng/mL	
33) Dibenzothiophene	32.161	184	91894	718.577	ng/mL#	76
34) 4-Methyldibenzothiophene(	33.937	198	85707	670.197	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	58309	455.955	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.690	198	27871	217.941	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	174531M5	1364.768	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	174531m	1364.768	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	231715M5	1811.926	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	208634M5	1631.441	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	107824M5	843.144	ng/mL	
43) Phenanthrene	32.657	178	126106	1122.376	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.614	192	49733M3	442.637	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHA085 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 09 11:59:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2/4-Methylphenanthrene(2M	34.720	192	55654M3	495.335	ng/mL	
46) 2-Methylanthracene(2MA)	34.870	192	1990M3	17.712	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	78236	696.321	ng/mL	99
48) 1-Methylphenanthrene(1MP)	35.156	192	55713M3	495.860	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	239866M5	2134.870	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	249544M5	2221.006	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	249544m	2221.006	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.725	220	165093M5	1469.371	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	67229M5	598.356	ng/mL	
56) Carbazole	33.500	167	3838M3	34.621	ng/mL	
57) 1-Methylphenanthrene	35.156	192	54663M3	767.715	ng/mL	
58) Fluoranthene	37.430	202	2744M3	24.590	ng/mL	
59) Benzo(b)fluorene	39.944	216	2748M3	42.447	ng/mL	
60) Pyrene	38.303	202	8739M3	77.041	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	38064M5	335.565	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	61720M5	544.111	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	68069M5	600.083	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	58826M5	518.598	ng/mL	
66) Naphthobenzothiophene	42.158	234	21528M3	176.284	ng/ml	
67) Naphthobenzothiophene-2,1	42.158	234	21519M3	176.211	ng/mL	
68) Naphthobenzothiophene-1,2	42.504	234	4884M3	39.993	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	2419M3	19.808	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	73495M5	601.822	ng/ml	
71) C2-Naphthobenzothiophenes	45.560	262	96416M5	789.513	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	76135M5	623.440	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	49996M5	409.398	ng/mL	
75) Benz[a]anthracene	43.091	228	1369M3	12.518	ng/mL	
77) Chrysene/Triphenylene	43.227	228	20557M3	186.192	ng/mL	
78) C1-Chrysenes	44.717	242	34901M5	316.110	ng/mL	
79) C2-Chrysenes	46.795	256	46293M5	419.292	ng/mL	
79) C2-Chrysenes BS	46.795	256	46293m	419.292	ng/mL	
80) C3-Chrysenes	49.491	270	51416M5	465.693	ng/mL	
81) C4-Chrysenes	49.611	284	29667M5	268.704	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4074	33.904	ng/mL#	90
83) Benzo[j]+[k]fluoranthene	47.217	252	967M3	7.391	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	539M2	4.120	ng/mL	
85) Benzo[e]pyrene	48.136	252	6659M3	56.025	ng/mL	
87) Benzo[a]pyrene	48.331	252	1329M3	11.614	ng/mL	
88) Perylene	48.633	252	2058M3	16.828	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1518M3	11.399	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1349M3	10.649	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3235M3	22.993	ng/mL	
92) Hopane (T19)	52.217	191	17821M3	784.780	ng/mL	
94) C23 Tricyclic Terpane (T4	40.788	191	7643M3	336.573	ng/ml	
95) C24 Tricyclic Terpane (T5	41.510	191	4640M3	204.331	ng/ml	
96) C25 Tricyclic Terpane (T6	43.001	191	4752M3	209.263	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	1617M3	71.207	ng/ml	
98) C26 Tricyclic Terpane-22S	44.055	191	2064M3	90.892	ng/ml	
99) C26 Tricyclic Terpane-22R	44.145	191	1773M3	78.077	ng/ml	
100) C28 Tricyclic Terpane-22S	46.434	191	1699M3	74.818	ng/ml	
101) C28 Tricyclic Terpane-22R	46.599	191	1940M3	85.431	ng/ml	
102) C29 Tricyclic Terpane-22S	47.111	191	2402	105.776	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.307	191	2214M3	97.497	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.437	191	3225M3	142.019	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 09 11:59:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
105) C30 Tricyclic Terpane-22S	48.527	191	2186M3	96.264	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1881M3	82.833	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.979	191	4052	178.437	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	678	29.857	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.973	191	1205	53.064	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	10783M3	474.849	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.952	191	2594M3	114.231	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	1663M3	73.233	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1347M3	59.318	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.976	191	350	15.413	ng/ml	100
115) Moretane (T20)	52.910	191	1846M3	81.292	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	7714M3	339.700	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	6547	288.309	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	1292	56.896	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.560	191	5517M3	242.951	ng/ml	
120) 30,31-Bishomohopane-22R (	55.936	191	4015M3	176.808	ng/ml	
121) 30,31-Trishomohopane-22S	57.698	191	4281M3	188.521	ng/ml	
122) 30,31-Trishomohopane-22R	58.316	191	2611M3	114.980	ng/ml	
123) Tetrakishomohopane-22S (T	60.333	191	3217M3	141.666	ng/ml	
124) Tetrakishomohopane-22R (T	61.222	191	2254M3	99.259	ng/ml	
125) Pentakishomohopane-22S (T	63.451	191	3287M3	144.749	ng/ml	
126) Pentakishomohopane-22R (T	64.761	191	2203M3	97.013	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2537M3	235.510	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1457M3	135.253	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.389	217	1677M3	155.676	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.247	217	3192	296.313	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.774	217	4303M3	399.447	ng/ml	
133) Unknown Sterane (S18)	48.045	217	1082	100.442	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	201M3	18.659	ng/ml	
135) 14a,17a-20S-Methylcholest	48.467	217	1941	180.183	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.190	217	1815M3	168.486	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	2802M3	260.110	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.455	217	2030M3	188.445	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.352	218	2192M3	203.483	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.428	218	2237M3	207.661	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2244	208.310	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.723	218	2814M3	261.224	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	3049M3	283.039	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.822	218	2133M3	198.006	ng/ml	
145) C26,20R- +C27,20S- triaro	49.491	231	21599	2005.034	ng/mL	100
146) C28,20S-triaromatic stero	50.349	231	13888	1289.223	ng/mL	100
147) C27,20R-triaromatic stero	50.801	231	12980	1204.933	ng/mL	100
148) C28,20R-triaromatic stero	52.006	231	11498M3	1067.359	ng/mL	

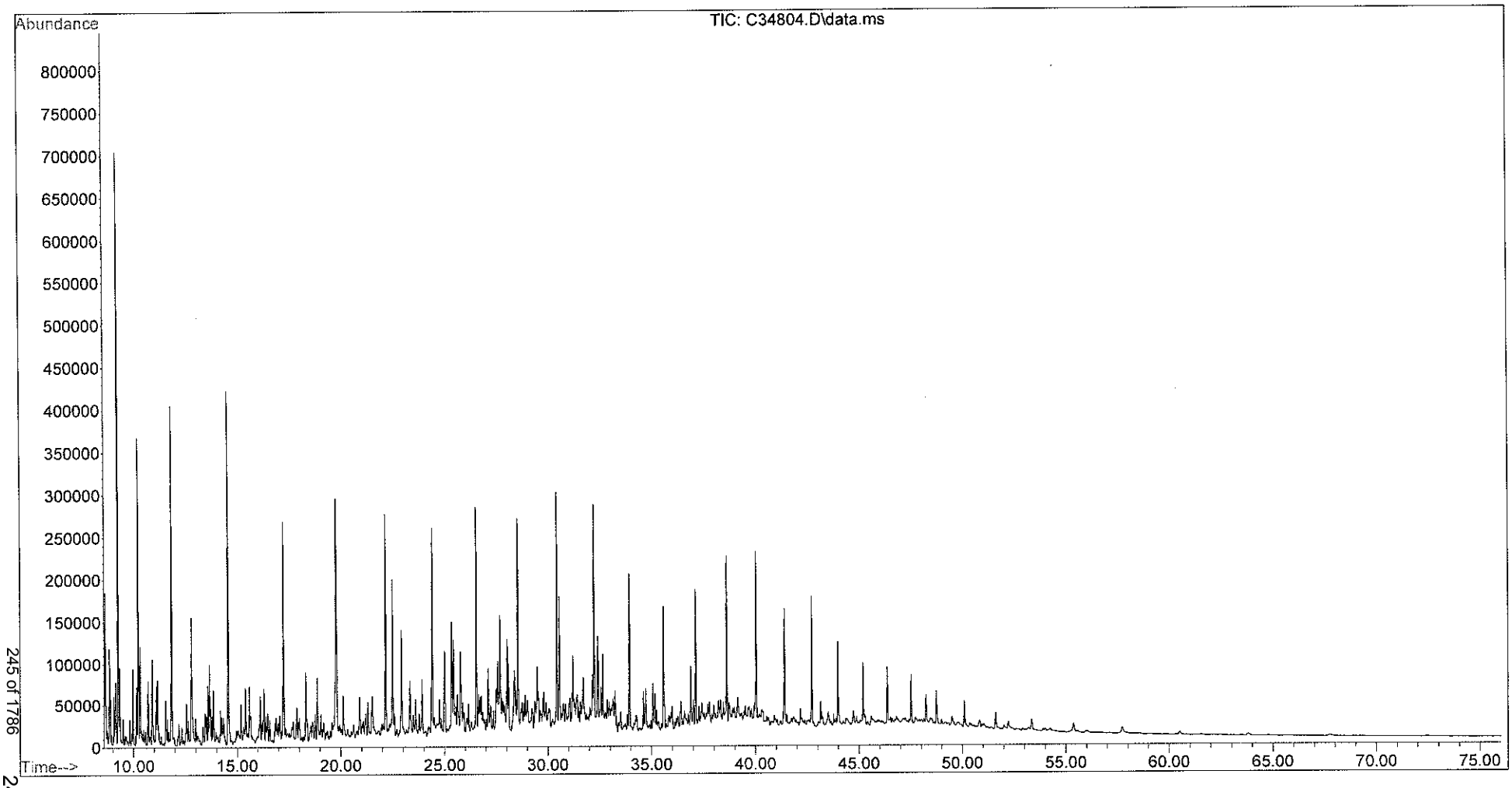
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 09 11:59:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result	
cis/trans-Decalin	489	
C1-Decalins	694	
C2-Decalins	578	
C3-Decalins	286	
C4-Decalins	278	
Benzothiophene	4.52	
C1-Benzo(b)thiophenes	22.7	
C2-Benzo(b)thiophenes	45.2	
C3-Benzo(b)thiophenes	89.2	
C4-Benzo(b)thiophenes	75.8	
Naphthalene	550	
C1-Naphthalenes	1120	
C2-Naphthalenes	1330	
C3-Naphthalenes	914	
C4-Naphthalenes	466	
Biphenyl	145	
Dibenzofuran	50.1	
Acenaphthylene	6.44	
Acenaphthene	18.6	
Fluorene	71.6	
C1-Fluorenes	160	
C2-Fluorenes	228	
C3-Fluorenes	202	
Anthracene	1.92	U
Phenanthrene	213	
C1-Phenanthrenes/Anthracenes	401	
C2-Phenanthrenes/Anthracenes	411	
C3-Phenanthrenes/Anthracenes	285	
C4-Phenanthrenes/Anthracenes	113	
Retene	1.92	U
Dibenzothiophene	135	
C1-Dibenzothiophenes	251	
C2-Dibenzothiophenes	338	
C3-Dibenzothiophenes	298	
C4-Dibenzothiophenes	156	
Benzo(b)fluorene	6.30	
Fluoranthene	4.01	
Pyrene	13.4	
C1-Fluoranthenes/Pyrenes	63.4	
C2-Fluoranthenes/Pyrenes	99.2	
C3-Fluoranthenes/Pyrenes	111	
C4-Fluoranthenes/Pyrenes	104	
Naphthobenzothiophenes	43.6	
C1-Naphthobenzothiophenes	113	
C2-Naphthobenzothiophenes	155	
C3-Naphthobenzothiophenes	118	
C4-Naphthobenzothiophenes	77.2	
Benz[a]anthracene	1.77	J
Chrysene/Triphenylene	33.1	
C1-Chrysenes	61.2	
C2-Chrysenes	80.0	
C3-Chrysenes	85.6	
C4-Chrysenes	53.4	
Benzo[b]fluoranthene	5.25	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.92	U
Benzo[a]fluoranthene	1.92	U
Benzo[e]pyrene	9.61	
Benzo[a]pyrene	1.96	
Perylene	2.68	
Indeno[1,2,3-cd]pyrene	0.685	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	0.849	J
Benzo[g,h,i]perylene	3.08	

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	**5.21**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**121**
2/3-Methyldibenzothiophene	**84.4**
1-Methyldibenzothiophene	**40.5**
3-Methylphenanthrene	**82.1**
2/4-Methylphenanthrene	**92.4**
2-Methylanthracene	**2.96**
9-Methylphenanthrene	**129**
1-Methylphenanthrene	**92.7**
2-Methylnaphthalene	**1110**
1-Methylnaphthalene	**798**
2,6-Dimethylnaphthalene	**673**
2,3,5-Trimethylnaphthalene	**189**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**65.1**	
C24 Tricyclic Terpane	**41.4**	
C25 Tricyclic Terpane	**41.4**	
C24 Tetracyclic Terpane	**14.5**	
C26 Tricyclic Terpane-22S	**17.5**	
C26 Tricyclic Terpane-22R	**15.0**	
C28 Tricyclic Terpane-22S	**14.4**	
C28 Tricyclic Terpane-22R	**18.5**	
C29 Tricyclic Terpane-22S	**20.4**	
C29 Tricyclic Terpane-22R	**20.8**	
18a-22,29,30-Trisnorneohopane-TS	**26.8**	
C30 Tricyclic Terpane-22S	**16.6**	
C30 Tricyclic Terpane-22R	**16.9**	
17a(H)-22,29,30-Trisnorhopane-TM	**36.1**	
17a/b,21b/a 28,30-Bisnorhopane	**6.77**	
17a(H),21b(H)-25-Norhopane	**7.07**	
30-Norhopane	**96.2**	
18a(H)-30-Norneohopane-C29Ts	**22.2**	
17a(H)-Diahopane	**14.2**	
30-Normoretane	**12.0**	
18a(H)&18b(H)-Oleananes	1.92	U
Hopane	**166**	
Moretane	**16.1**	
30-Homohopane-22S	**66.5**	
30-Homohopane-22R	**56.9**	
T22a-Gammacerane/C32-diahopane	**11.8**	
30,31-Bishomohopane-22S	**47.0**	
30,31-Bishomohopane-22R	**35.0**	

Parameter	Result
30,31-Trishomohopane-22S	**36.7**
30,31-Trishomohopane-22R	**24.0**
Tetrakishomohopane-22S	**25.7**
Tetrakishomohopane-22R	**19.4**
Pentakishomohopane-22S	**27.7**
Pentakishomohopane-22R	**21.0**
13b(H),17a(H)-20S-Diacholestane	**54.4**
13b(H),17a(H)-20R-Diacholestane	**25.2**
13b,17a-20S-Methyldiacholestane	**20.7**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**60.9**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**73.3**
Unknown Sterane (S18)	**18.8**
13a,17b-20S-Ethyldiacholestane	**3.48**
14a,17a-20S-Methylcholestane	**36.5**
14a,17a-20R-Methylcholestane	**34.2**
14a(H),17a(H)-20S-Ethylcholestane	**53.5**
14a(H),17a(H)-20R-Ethylcholestane	**35.6**
14b(H),17b(H)-20R-Cholestane	**38.7**
14b(H),17b(H)-20S-Cholestane	**40.3**
14b,17b-20R-Methylcholestane	**41.3**
14b,17b-20S-Methylcholestane	**52.7**
14b(H),17b(H)-20R-Ethylcholestane	**57.8**
14b(H),17b(H)-20S-Ethylcholestane	**36.7**
C26,20R- +C27,20S- triaromatic steroid	**392**
C28,20S-triaromatic steroid	**240**
C27,20R-triaromatic steroid	**223**
C28,20R-triaromatic steroid	**190**

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

MHK for SR 3/29/12

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	16662M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000 ng/mL	0.00
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	69136M4	956.009 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%		
42) Phenanthrene-d10	32.793	188	60729M4	1062.426 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%		
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%		
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337 ng/mL	
4) cis-Decalin	17.844	138	1522	153.534 ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211 ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213 ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392 ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858 ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688 ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971 ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710 ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463 ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700 ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711 ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600 ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545 ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112 ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565 ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934 ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823 ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618 ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060 ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553 ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471 ng/mL	
29) Fluorene	29.075	166	25536M4	373.033 ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256 ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195 ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727 ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049 ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372 ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778 ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158 ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297 ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297 ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393 ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276 ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068 ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342 ng/mL	
44) 3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2/4-Methylphenanthrene(2M	34.946	192	46400M4	481.280	ng/mL	
46) 2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.292	192	64818	672.319	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56) Carbazole	33.726	167	2583M3	27.154	ng/mL	
57) 1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58) Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59) Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60) Pyrene	38.529	202	6787M4	69.730	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66) Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68) Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69) Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70) C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71) C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72) C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73) C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75) Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76) Chrysene	43.438	228	16140M3	173.194	ng/mL	
77) Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78) C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79) C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79) C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80) C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81) C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85) Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87) Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88) Perylene	48.874	252	1440M4	13.950	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91) Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92) Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93) 17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94) C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95) C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96) C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97) C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98) C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99) C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100) C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101) C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102) C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/mL	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

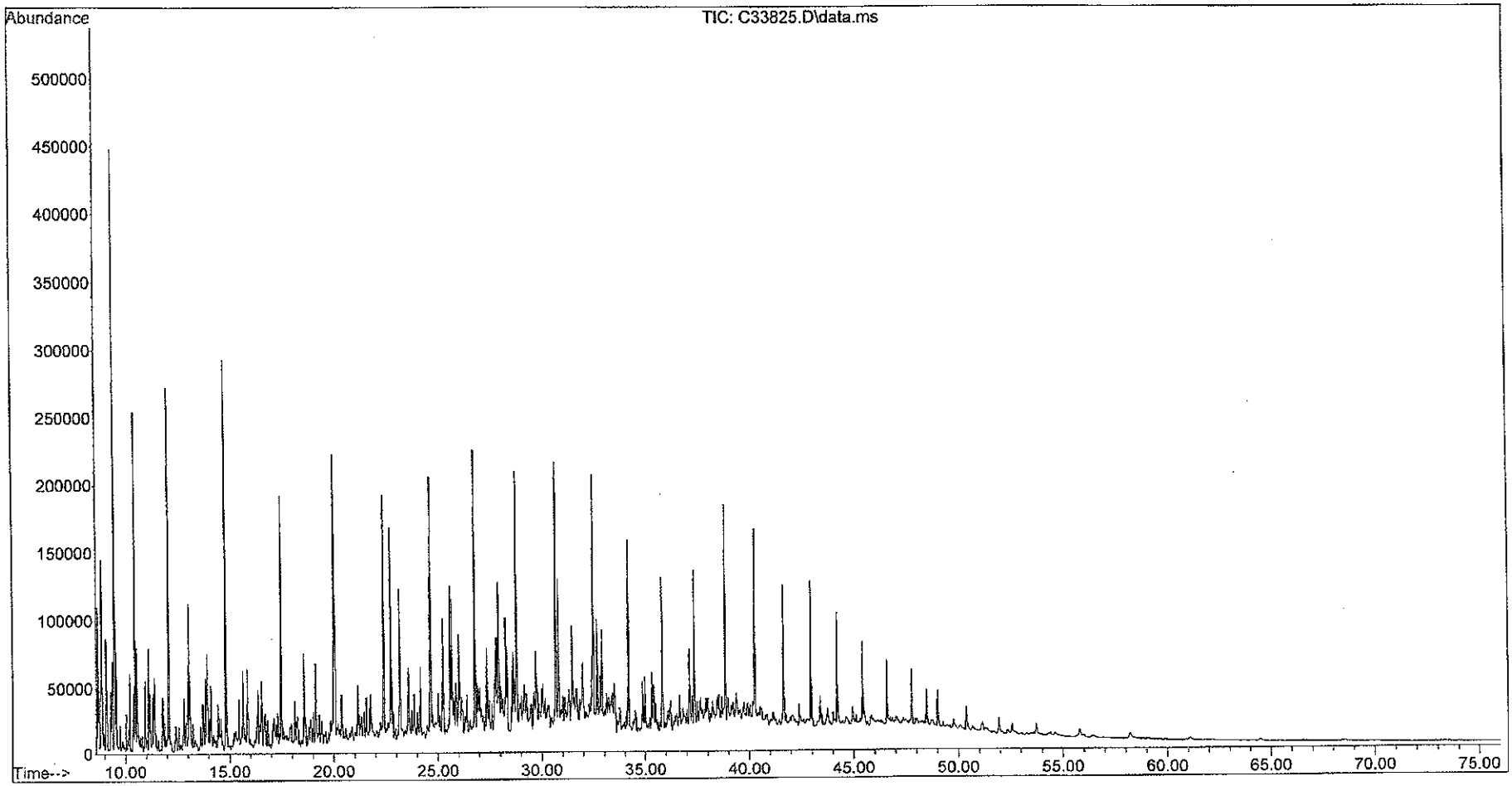
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed



Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	PS1204031_035 - Pan Weight	PS1204031_035 - Wet Weight	PS1204031_035 - Dry Weight	PS1204031_035 - Dry Weight #2	PS1204031_035 - Dry Weight #3	Percent Solid	RPD
1204031-01	SAM	1.33	6.63	2.75	2.75		26.79	
1204031-02	SAM	1.33	7.51	3.6	3.6		36.73	
1204035-05	SAM	1.34	6.22	3.7	3.7		48.36	
1204035-06	SAM	1.33	8.36	4.71	4.71		48.08	
1204035-07	D	1.33	7.23	6.32	6.32		84.58	0.91%
1204035-07	SAM	1.32	7.25	6.29	6.29		83.81	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	

Initial: 4/30/2012 11:20:03 PM lrf
Weight #1: 5/1/2012 8:20:00 PM lrf
Weight #2: 5/3/2012 4:50:45 PM bls

Alpha Woods Hole Lab
Batch Prep Report
04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-01	M	Shaker	CTK	4/30/2012	5/2/2012		5.82	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	S	Shaker	CTK	4/30/2012	5/2/2012		5.77	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	SAM	Shaker	CTK	4/30/2012	5/2/2012		5.92	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-02	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.15	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-05	SAM	Shaker	CTK	4/30/2012	5/2/2012		7.46	4	1	4	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-06	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.63	2.66667	1	2.67	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	D	Shaker	CTK	4/30/2012	5/2/2012		6.88	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	SAM	Shaker	CTK	4/30/2012	5/2/2012		6.69	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012

Alpha Woods Hole Lab
Batch Prep Report
04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	Notes
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-02	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-05	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-06	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
SS043012B07	1st Prep
SS043012B07	1st Prep
SS043012LCS02	1st Prep
SS043012LCS02	1st Prep
SS043012LCSD02	1st Prep
SS043012LCSD02	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP NEWFIE Analyst: CTK Witness: JM

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-01	M	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	S	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204031-02	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-05	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-06	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	D	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	SAM	WHAP38	500	µl	WHAP31	500	µl			
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP SHC Analyst: CTK Witness: JM

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-01	M	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	S	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	SAM	WHAP38	500	µl				WHAP36	100	µl
1204031-02	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-05	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-06	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-07	D	WHAP38	500	µl				WHAP36	100	µl
1204035-07	SAM	WHAP38	500	µl				WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	1204031_035SED - Sample
1204031-01	SAM	5.92
1204031-01M	OP NEWFIE	5.82
1204031-01M	OP SHC	5.82
1204031-01S	OP NEWFIE	5.77
1204031-01S	OP SHC	5.77
1204031-02	SAM	9.15
1204035-05	SAM	7.46
1204035-06	SAM	9.63
1204035-07	D	6.88
1204035-07	SAM	6.69
SS043012B07	B	30
SS043012B07	B	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP SHC	30
SS043012LCS02LCS	OP SHC	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP SHC	30
SS043012LCSD02LCSD	OP SHC	30

ETR 1204031_035~~sheen~~ SED mm 5/9/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	1		4000	50	0.189	15.12	2000	7.56	2.00	
1204031	1ms	ms	4000	50	0.225	18.00	2000	9.00	2.00	
1204031	1msd	msd	4000	50	0.204	16.32	2000	8.16	2.00	
1204031	2		4000	50	0.203	16.24	2000	8.12	2.00	
1204035	5		4000	50	0.345	27.60	1000	6.90	4.00	
1204031	6		4000	50	0.291	23.28	1500	8.72	2.67	
1204035	7D	D	4000	50	0.096	7.68	2000	3.84	2.00	10%
1204035	7		4000	50	0.106	8.48	2000	4.24	2.00	

Note:
Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/2/12

ETR 1204031_035~~sheen~~ SED MK 5/9/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA

Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	1		4000	50	0.189					
1204031	1ms	ms	4000	50	0.225					
1204031	1msd	msd	4000	50	0.204					
1204031	2		4000	50	0.203					
1204035	5		4000	50	0.345					
1204031	6		4000	50	0.291					
1204035	7D	D	4000	50	0.096					#VALUE!
1204035	7		4000	50	0.106					

Note:

Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/2/12

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3660B	CTK	5/1/2012												True
1204031-01	S	3660B	CTK	5/1/2012												True
1204031-01	SAM	3660B	CTK	5/1/2012												True
1204031-02	SAM	3660B	CTK	5/1/2012												True
1204035-05	SAM	3660B	CTK	5/1/2012												True
1204035-06	SAM	3660B	CTK	5/1/2012												True
1204035-07	D	3660B	CTK	5/1/2012												True
1204035-07	SAM	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	S	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-02	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-05	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1	4	0	0.1	True
1204035-06	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1.5	2.66667	0	0.1	True
1204035-07	D	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-07	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True

Forensic Preparation Checklist

Batch ID: 1204031-035SED Client: AECOM Project: ENBRIDGE

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	4/30/12	CTK
1st Extraction:	4/30/12	CTK
2nd Extraction:	5/1/12	JM
3rd Extraction:	5/1/12	CTK

Extraction Hit:

Cleanup Methods:		Date/Initials:
No Cleanup Required		
Alumina Column (3610)	X	5/2/12 BA
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)	X	5/1/12 CTK
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	BA 5/2/12	WHAP 36
RIS Spike Witness:	PW 5/2/12	100uL

Prep Process Notes
All field samples spiked high @ 500 uL due to hydrocarbon odor. CTK 4/30/12

REAGENT	LOT #
DCM	LØ5E1Ø
SODIUM SULFATE	K21617
SILICA GEL	N/A
ALUMINA	61

REAGENT	LOT #
COPPER	ONR043012A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	BA	Date:	5/2/12
BATCH REVIEWED Analyst:	MAE	Date:	5/9/12

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-03	SAM	Shaker	BA	5/1/2012			0.00032	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-04	SAM	Shaker	BA	5/1/2012			0.00056	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-05	SAM	Shaker	BA	5/1/2012			0.00248	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-06	SAM	Shaker	BA	5/1/2012			1	4	1	4	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-07	SAM	Shaker	BA	5/1/2012			1	5.71	1	5.71	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-01	SAM	Shaker	BA	5/1/2012			0.00088	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-02	SAM	Shaker	BA	5/1/2012			0.000008	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-03	SAM	Shaker	BA	5/1/2012			0.00096	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-04	SAM	Shaker	BA	5/1/2012			0.00416	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-09	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-10	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-11	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-12	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
TO050112ANS02	ANS																
TO050112ANS02	ANS																
TO050112ANS02	ANS																

Alpha Woods Hole Lab
Batch Prep Report
05/01/2012 1204031_35sheen - OP NEWFIE

Lab ID	Notes
1204031-03	1st Prep
1204031-04	1st Prep
1204031-05	1st Prep
1204031-06	1st Prep
1204031-07	1st Prep
1204031-08	1st Prep
1204035-01	1st Prep
1204035-02	1st Prep
1204035-03	1st Prep
1204035-04	1st Prep
1204035-08	1st Prep
1204035-09	1st Prep
1204035-10	1st Prep
1204035-11	1st Prep
1204035-12	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112CL01	1st Prep

2666

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-05	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-06	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-07	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-01	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-02	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-09	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-10	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-11	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-12	SAM	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

Printed On: 5/7/2012 11:16:24 AM (MAL)

267 of 1786
267

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-05	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-06	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-07	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-01	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-02	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-09	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-10	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-11	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-12	SAM	WHAP38	100	µl				WHAP36	50	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
05/01/2012

Lab ID	QC Type	1204031_35sheen - Sample
1204031-03	SAM	0.00032
1204031-04	SAM	0.00056
1204031-05	SAM	0.00248
1204031-06	SAM	1
1204031-07	SAM	1
1204031-08	SAM	1
1204035-01	SAM	0.00088
1204035-02	SAM	0.000008
1204035-03	SAM	0.00096
1204035-04	SAM	0.00416
1204035-08	SAM	1
1204035-09	SAM	1
1204035-10	SAM	1
1204035-11	SAM	1
1204035-12	SAM	1
SO050112B01	B	1
SO050112B01	B	1
SO050112B01	B	0.001
SO050112B01	B	0.001
SO050112LCS01LCS	OP NEWFIE	1
SO050112LCS01LCS	OP NEWFIE	1
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP SHC	1
SO050112LCS01LCS	OP SHC	1
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP NEWFIE	1
SO050112LCSD01LCSD	OP NEWFIE	1
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP SHC	1
SO050112LCSD01LCSD	OP SHC	1
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050512ANS02	ANS	

ETR 1204031_035sheen

Alpha Analytical

Analyst BA
Date 05/01/2012

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (uL)	Aliquot Removed (uL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (ul)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	3		4000	50	0.004	0.32	2000	0.16	2.00	
1204031	4		4000	50	0.007	0.56	2000	0.28	2.00	
1204031	5		4000	50	0.031	2.48	2000	1.24	2.00	
1204031	6		4000	50	0.147	11.76	1000	2.94	4.00	
1204031	7		4000	50	0.251	20.08	700	3.52	5.71	
1204031	8		4000	50	0.014	1.12	2000	0.56	2.00	
1204035	1		4000	50	0.011	0.88	2000	0.44	2.00	
1204035	2		4000	50	0.001	0.08	2000	0.04	2.00	
1204035	3		4000	50	0.012	0.96	2000	0.48	2.00	
1204035	4		4000	50	0.052	4.16	2000	2.08	2.00	
1204035	8		4000	50	0.032	2.56	2000	1.28	2.00	
1204035	9		4000	50	0.002	0.16	2000	0.08	2.00	
1204035	10		4000	50	0.017	1.36	2000	0.68	2.00	
1204035	11		4000	50	0.016	1.28	2000	0.64	2.00	
1204035	12		4000	50	0.031	2.48	2000	1.24	2.00	

Note:
Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/1/2012

ETR 1204031_035sheen

Alpha Analytical

Analyst BA

Date 05/01/2012

- [ ] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [x] Oily Material Prep.
- [ ] Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	3		4000	50	0.004					
1204031	4		4000	50	0.007					
1204031	5		4000	50	0.031					
1204031	6		4000	50	0.147					
1204031	7		4000	50	0.251					
1204031	8		4000	50	0.014					
1204035	1		4000	50	0.011					
1204035	2		4000	50	0.001					
1204035	3		4000	50	0.012					
1204035	4		4000	50	0.052					
1204035	8		4000	50	0.032					
1204035	9		4000	50	0.002					
1204035	10		4000	50	0.017					
1204035	11		4000	50	0.016					
1204035	12		4000	50	0.031					

Note:

Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/1/12

Forensic Preparation Checklist

Enbridge Line 6

Batch ID: 1204031_035 Sheen **Client:** AECOM **Project:** MP608

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • (Sheen) Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

Extraction HT:
N/A

	Date:	Initials:
COC/ETR Check:	5/1/12	BA
1st Extraction:	↓	↓
2nd Extraction:		
3rd Extraction:	↓	↓

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	BA 5/1/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

Date/Initials:		ID & Amount:
RIS Spike Analyst:	5/1/12 BA	WHAP 36 50uL + 100uL
RIS Spike Witness:	5/1/12 BLS	

Prep Process Notes

REAGENT	LOT #
DCM	L05E10
SODIUM SULFATE	—
SILICA GEL	—
ALUMINA	—

REAGENT	LOT #
COPPER	—
GLASS WOOL	—

BATCH COMPLETE Analyst:	BLS	Date:	5/1/12
BATCH REVIEWED Analyst:	BA	Date:	5/2/12

Analysis log File

Total Files Reported in Log : 46
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C33801.D	ANS303261201		3/26/2012 9:46 am
2	C33803.D	C303261201		3/26/2012 11:16 am
3	C33805.D	MC252		3/26/2012 12:48 pm
4	C33807.D	DCM	DCM	3/26/2012 2:21 pm
5	C33809.D	I303261201	WHAO40@10ng/ml	3/26/2012 3:53 pm
6	C33811.D	I303261202	WHAO41@25ng/ml	3/26/2012 5:27 pm
7	C33813.D	I303261203 PAH3032612.M	WHAO42@100ng/ml	3/26/2012 7:01 pm
8	C33815.D	I303261204	WHAP29@500ng/ml	3/26/2012 8:34 pm
9	C33817.D	I303261205	WHAO88@5000ng/ml	3/26/2012 10:06 pm
10	C33819.D	I303261206	WHAO45@10000ng/ml	3/26/2012 11:37 pm
11	C33821.D	I303261207	WHAO47@20000ng/ml	3/27/2012 1:09 am
12	C33823.D	DCM		3/27/2012 2:40 am
13	C33825.D	ST032912ANS02	WHAO85 5.210 mg/ml	3/27/2012 4:11 am
14	C33827.D	DCM	DCM	3/27/2012 5:42 am
15	C33829.D	Q303261201	WHAN53@500ng/ml	3/27/2012 7:13 am
16	C33831.D	ST032912MC205	WHAP34: 5.178mg/ml	3/27/2012 8:45 am
17	C33833.D	SRM	WHAO79: 5.131mg/ml	3/27/2012 10:17 am
18	C33835.D	COREXIT	WHAN89	3/27/2012 11:51 am
19	C33837.D	C303261201	WHAP29@500ng/ml	3/27/2012 1:25 pm
20	C33839.D	WG525034-1,32	WG525373,WG525034	3/27/2012 2:58 pm
21	C33841.D	WG525034-2,32	WG525373,WG525034	3/27/2012 4:33 pm
22	C33843.D	WG525034-3,32	WG525373,WG525034	3/27/2012 6:06 pm
23	C33845.D	L1204660-01,32	WG525373,WG525034	3/27/2012 7:39 pm
24	C33847.D	L1204660-03,32	WG525373,WG525034	3/27/2012 9:11 pm
25	C33849.D	L1204660-05,32	WG525373,WG525034	3/27/2012 10:43 pm
26	C33851.D	L1204660-07,32	WG525373,WG525034	3/28/2012 12:18 am
27	C33853.D	L1204660-10,32	WG525373,WG525034	3/28/2012 1:50 am
28	C33855.D	C203261202	WG525373,WG525034	3/28/2012 3:21 am
29	C33857.D	SRM	WG525373,WG525034	3/28/2012 4:53 am
30	C33859.D	DCM	WG525373,WG525034	3/28/2012 6:24 am
31	C33861.D	L1204660-12,32	WG525373,WG525034	3/28/2012 7:56 am
32	C33863.D	L1204660-14,32	WG525373,WG525034	3/28/2012 9:27 am
33	C33865.D	L1204660-17,32	WG525373,WG525034	3/28/2012 11:00 am
34	C33867.D	L1204660-19,32	WG525373,WG525034	3/28/2012 12:33 pm
35	C33869.D	L1204660-21,32	WG525373,WG525034	3/28/2012 2:05 pm
36	C33871.D	L1204660-23,32	WG525373,WG525034	3/28/2012 3:38 pm
37	C33873.D	L1204660-25,32	WG525373,WG525034	3/28/2012 5:11 pm
38	C33875.D	L1204660-27,32	WG525373,WG525034	3/28/2012 6:43 pm
39	C33877.D	C203261203	WG525373,WG525034	3/28/2012 8:16 pm
40	C33879.D	SRM	WG525373,WG525034	3/28/2012 9:48 pm
41	C33881.D	DCM	WG525373,WG525034	3/28/2012 11:23 pm
42	C33883.D	WG525034-1,32	WG525373,WG525034	3/29/2012 12:59 am
43	C33885.D	WG525034-2,32	WG525373,WG525034	3/29/2012 2:33 am
44	C33887.D	WG525034-3,32	WG525373,WG525034	3/29/2012 4:06 am
45	C33891.D	L1204660-03,32	WG525373,WG525034	3/29/2012 7:11 am
46	C33893.D	L1204660-05,32	WG525373,WG525034	3/29/2012 8:47 am

3/29/12

Printed: 03/29/12 Page: 1

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 50
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C34774.D	PRIME	1X ETR1204031_35	5/2/2012 9:41 am
2	C34776.D	C305021201 PASS	1X ETR1204031_35	5/2/2012 11:19 am
3	C34778.D	ANS305021201	WHAO85	5/2/2012 1:01 pm
4	C34780.D	SO050512WCS02	WHAP10	5/2/2012 2:31 pm
5	C34782.D	SO050512CL01	WHAP12	5/2/2012 4:01 pm
6	C34784.D	DCM	DCM	5/2/2012 5:53 pm
7	C34786.D	DCM	DCM	5/2/2012 7:23 pm
8	C34788.D	SO050112B01	1X ETR1204031	5/2/2012 8:53 pm
9	C34790.D	SO050112LCS01	1X ETR1204031	5/2/2012 10:24 pm
10	C34792.D	SO050112LCSD01	1X ETR1204031	5/2/2012 11:54 pm
11	C34794.D	1204031-03	1X	5/3/2012 1:25 am
12	C34796.D	1204031-04	1X	5/3/2012 2:56 am
13	C34798.D	1204031-05	1X	5/3/2012 4:27 am
14	C34800.D	C305021202 PASS	CC WHAP056 500NG/ML	5/3/2012 5:57 am
15	C34802.D	1204031-06	1X	5/3/2012 7:27 am
16	C34804.D	so050512ANS02	1X ANS WHAO85 5.210MG/M..	5/3/2012 8:58 am
17	C34806.D	1204031-07	1X	5/3/2012 10:29 am
18	C34808.D	1204031-08	1X	5/3/2012 12:00 pm
19	C34810.D	1204035-01	1X	5/3/2012 1:30 pm
20	C34812.D	1204035-02	1X	5/3/2012 2:59 pm
21	C34814.D	1204035-03	1X	5/3/2012 4:28 pm
22	C34816.D	1204035-04	1X	5/3/2012 5:58 pm
23	C34818.D	C305031203 PASS	CC WHAP06 500NG/ML	5/3/2012 7:29 pm
24	C34820.D	1204035-08	1X	5/3/2012 8:59 pm
25	C34822.D	1204035-09	1X	5/3/2012 10:29 pm
26	C34824.D	1204035-10	1X	5/4/2012 12:00 am
27	C34826.D	1204035-11	1X	5/4/2012 1:31 am
28	C34828.D	1204035-12	1X	5/4/2012 3:02 am
29	C34830.D	C305031204 PASS	CC WHAP06 500NG/ML	5/4/2012 4:34 am
30	C34832.D	DCM	DCM	5/4/2012 6:05 am
31	C34834.D	DCM	DCM	5/4/2012 7:35 am
32	C34836.D	SS043012B07	1X ETR1204031_35	5/4/2012 9:05 am
33	C34836B.D	LCS CHECK WHAP63	1X	5/4/2012 10:37 am
34	C34838.D	SS043012LCS02	1X ETR1204031_35	5/4/2012 1:33 pm
35	C34840.D	SS043012LCSD02	1X ETR1204031_35	5/4/2012 3:05 pm
36	C34842.D	1204031-01	1X	5/4/2012 4:37 pm
37	C34844.D	1204031-01M	1X	5/4/2012 6:09 pm
38	C34846.D	1204031-01S	1X	5/4/2012 7:41 pm
39	C34848.D	C305031205 PASS	CC WHAP06 500NG/ML	5/4/2012 9:17 pm
40	C34850.D	1204031-02	1X	5/4/2012 10:54 pm
41	C34852.D	1204035-05	1X	5/5/2012 12:32 am
42	C34854.D	1204035-06	1X	5/5/2012 2:06 am
43	C34856.D	1204035-07	1X	5/5/2012 3:42 am
44	C34858.D	1204035-07D	1X	5/5/2012 5:17 am
45	C34860.D	C305031206 PASS	CC WHAP06 500NG/ML	5/5/2012 6:54 am
46	C34862.D	A F2 22ML	1X	5/5/2012 8:30 am
47	C34864.D	B F2 24ML	1X	5/5/2012 10:07 am
48	C34866.D	C F2 26ML	1X	5/5/2012 11:42 am
49	C34868.D	D F2 28ML	1X	5/5/2012 1:14 pm
50	C34870.D	E F2 30ML	1X	5/5/2012 2:47 pm

PAH303262 12.M MM 5/30/12

Printed: 05/30/12 Page: 1

Total Saturated Hydrocarbons By GC/FID

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SS043012B07	90	88
LCS	SS043012LCS02	92	90
LCSD	SS043012LCSD02	93	91
SEKR1934L013S041912D005	1204031-01	89	84
SEKR1934L013S041912D005	1204031-01 M	85	81
SEKR1934L013S041912D005	1204031-01 S	83	80
SEKR0900I3004S041912D005	1204031-02	83	79

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **GLOB**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO050112B01	85	83
LCS	SO050112LCS01	77	74
LCSD	SO050112LCSD01	82	79
SEKR1934L013S041912P005	1204031-03	93	90
SEKR0900I3004S041912P005	1204031-04	90	87
SEKR0900I3004D041912P005	1204031-05	92	89

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204031**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO050112B01	85	83
LCS	SO050112LCS01	77	74
LCSD	SO050112LCSD01	82	79
SEKR0900I3004S042012H005	1204031-06	89	89
SEKR0900I3004DS042012H005	1204031-07	90	94
SEKR1934L013S042012H005	1204031-08	88	85

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	04/30/12	100	BAL

Lab ID: SS043012B07 SS043012LCS02 SS043012LCSD02

Parameter	Blank Conc.	LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
n-Nonane (C9)	0.0340 U	1.75	70	1.64	66	6	30	50-125
n-Decane (C10)	0.0348 U	1.83	73	1.79	72	2	30	50-125
n-Dodecane (C12)	0.0352 U	1.90	76	1.92	77	1	30	50-125
n-Tetradecane (C14)	0.0260 U	1.95	78	1.98	79	1	30	50-125
n-Hexadecane (C16)	0.0240 U	2.27	91	2.31	92	1	30	50-125
n-Octadecane (C18)	0.0772	2.40	96	2.38	95	1	30	50-125
n-Nonadecane (C19)	0.0203 U	2.24	90	2.22	89	1	30	50-125
n-Eicosane (C20)	0.00550	2.26	90	2.25	90	1	30	50-125
n-Docosane (C22)	0.00300	2.29	92	2.26	90	2	30	50-125
n-Tetracosane (C24)	0.00400	2.30	92	2.28	91	1	30	50-125
n-Hexacosane (C26)	0.00300	2.28	91	2.27	91	0	30	50-125
n-Octacosane (C28)	0.00475	2.27	91	2.27	91	0	30	50-125
n-Triacontane (C30)	0.00325	2.26	90	2.22	89	1	30	50-125
n-Hexatriacontane (C36)	0.0415 U	2.03	81	1.95	78	4	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	92	93	40-125
d50-Tetracosane	90	91	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 17:43

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	BAL

Lab ID:		SO050112B01	SO050112LCS01		SO050112LCSD01				
Parameter	**Blank Conc.**		**LCS Conc.**	**% Recovery**	**LCSD Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	2000	U	15300	76	16300	82	7	30	50-130
n-Decane (C10)	2000	U	15600	78	16300	82	4	30	50-130
n-Dodecane (C12)	2000	U	15800	79	16400	82	4	30	50-130
n-Tetradecane (C14)	2000	U	16400	82	16900	84	3	30	50-130
n-Hexadecane (C16)	2000	U	18400	92	19100	96	4	30	50-130
n-Octadecane (C18)	778		19200	96	19800	99	3	30	50-130
n-Nonadecane (C19)	2000	U	17800	89	18400	92	3	30	50-130
n-Eicosane (C20)	2000	U	18000	90	18700	93	3	30	50-130
n-Docosane (C22)	2000	U	18200	91	18800	94	3	30	50-130
n-Tetracosane (C24)	2000	U	18400	92	19100	96	4	30	50-130
n-Hexacosane (C26)	2000	U	18200	91	18900	94	3	30	50-130
n-Octacosane (C28)	2000	U	18200	91	18800	94	3	30	50-130
n-Triacontane (C30)	2000	U	18200	91	18800	94	3	30	50-130
n-Hexatriacontane (C36)	2000	U	17300	86	17700	89	3	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	77	82	40-125
d50-Tetracosane	74	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 17:43

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	BAL

Lab ID:		SO050112B01	SO050112LCS01		SO050112LCSD01				
Parameter	**Blank Conc.**		**LCS Conc.**	**% Recovery**	**LCSD Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	2.00	U	15.3	76	16.3	82	7	30	50-130
n-Decane (C10)	2.00	U	15.6	78	16.3	82	4	30	50-130
n-Dodecane (C12)	2.00	U	15.8	79	16.4	82	4	30	50-130
n-Tetradecane (C14)	2.00	U	16.4	82	16.9	84	3	30	50-130
n-Hexadecane (C16)	2.00	U	18.4	92	19.1	96	4	30	50-130
n-Octadecane (C18)	0.778		19.2	96	19.8	99	3	30	50-130
n-Nonadecane (C19)	2.00	U	17.8	89	18.4	92	3	30	50-130
n-Eicosane (C20)	2.00	U	18.0	90	18.7	93	3	30	50-130
n-Docosane (C22)	2.00	U	18.2	91	18.8	94	3	30	50-130
n-Tetracosane (C24)	2.00	U	18.4	92	19.1	96	4	30	50-130
n-Hexacosane (C26)	2.00	U	18.2	91	18.9	94	3	30	50-130
n-Octacosane (C28)	2.00	U	18.2	91	18.8	94	3	30	50-130
n-Triacontane (C30)	2.00	U	18.2	91	18.8	94	3	30	50-130
n-Hexatriacontane (C36)	2.00	U	17.3	86	17.7	89	3	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	77	82	40-125
d50-Tetracosane	74	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 17:42

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/19/12	04/20/12	04/30/12	26.8	BAL

Lab ID:		1204031-01		1204031-01				
Parameter	**Sample Conc.**	**Matrix Spike Conc.**	**% Recovery**	**Matrix Spike Dup. Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	0.0391	34.7	54	35.8	55	3	30	50-125
n-Decane (C10)	0.0668	39.1	61	40.0	62	2	30	50-125
n-Dodecane (C12)	0.0794	46.6	72	46.6	72	0	30	50-125
n-Tetradecane (C14)	0.134	51.1	79	50.6	78	1	30	50-125
n-Hexadecane (C16)	0.274	55.7	86	55.3	85	1	30	50-125
n-Octadecane (C18)	1.24	58.6	89	56.9	86	3	30	50-125
n-Nonadecane (C19)	0.628	53.7	83	52.3	80	3	30	50-125
n-Eicosane (C20)	1.64	55.2	83	53.9	81	2	30	50-125
n-Docosane (C22)	0.436	53.4	83	52.7	81	1	30	50-125
n-Tetracosane (C24)	0.460	53.2	82	52.1	80	2	30	50-125
n-Hexacosane (C26)	1.73	53.4	80	53.1	79	0	30	50-125
n-Octacosane (C28)	1.10	52.4	80	52.4	79	0	30	50-125
n-Triacontane (C30)	2.65	48.9	72	49.4	72	1	30	50-125
n-Hexatriacontane (C36)	0.950	35.0	53	34.8	52	0	30	50-125

N/A - Not Applicable

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	85	83	40-125
d50-Tetracosane	81	80	40-125

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/08/12 17:43

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6230	100	65-135
n-Decane (C10)	5060	4990	99	65-135
n-Undecane (C11)	4640	4610	99	65-135
n-Dodecane (C12)	4121	4190	102	65-135
n-Tridecane (C13)	3859	4010	104	65-135
2,6,10 Trimethyldodecane (1380)	914	845	92	65-135
n-Tetradecane (C14)	3500	3630	104	65-135
2,6,10 Trimethyltridecane (1470)	1316	1320	100	65-135
n-Pentadecane (C15)	3836	3500	91	65-135
n-Hexadecane (C16)	3174	3320	104	65-135
Norpristane (1650)	1030	1220	118	65-135
n-Heptadecane (C17)	2818	2930	104	65-135
Pristane	2093	2020	96	65-135
n-Octadecane (C18)	2460	2670	109	65-135
Phytane	1213	1180	98	65-135
n-Nonadecane (C19)	2354	2310	98	65-135
n-Eicosane (C20)	2305	2350	102	65-135
n-Heneicosane (C21)	2077	2030	98	65-135
n-Docosane (C22)	2010	1950	97	65-135
n-Tricosane (C23)	1735	1740	100	65-135
n-Tetracosane (C24)	1629	1620	99	65-135
n-Pentacosane (C25)	1607	1530	95	65-135
n-Hexacosane (C26)	1333	1400	105	65-135
n-Heptacosane (C27)	1085	1090	100	65-135
n-Octacosane (C28)	770	755	98	65-135
n-Nonacosane (C29)	774	733	95	65-135
n-Triacontane (C30)	595	679	114	65-135
n-Hentriacontane (C31)	534	593	111	65-135
n-Dotriacontane (C32)	501	415	83	65-135
n-Tritriacontane (C33)	322	379	118	65-135
n-Tetratriacontane (C34)	289	358	124	65-135
n-Pentatriacontane (C35)	271	291	107	65-135
n-Hexatriacontane (C36)	166	181	109	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	157	108	65-135
n-Octatriacontane (C38)	136	114	83	65-135
n-Nonatriacontane (C39)	94.3	74.4	79	65-135
n-Tetracontane (C40)	86.5	78.2	90	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	543000	100	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/09/12 11:30

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6820	110	65-135
n-Decane (C10)	5060	5360	106	65-135
n-Undecane (C11)	4640	4990	108	65-135
n-Dodecane (C12)	4121	4530	110	65-135
n-Tridecane (C13)	3859	4300	111	65-135
2,6,10 Trimethyldodecane (1380)	914	929	102	65-135
n-Tetradecane (C14)	3500	4040	115	65-135
2,6,10 Trimethyltridecane (1470)	1316	1570	119	65-135
n-Pentadecane (C15)	3836	3950	103	65-135
n-Hexadecane (C16)	3174	3740	118	65-135
Norpristane (1650)	1030	1170	114	65-135
n-Heptadecane (C17)	2818	3280	117	65-135
Pristane	2093	2350	112	65-135
n-Octadecane (C18)	2460	2880	117	65-135
Phytane	1213	1320	109	65-135
n-Nonadecane (C19)	2354	2510	107	65-135
n-Eicosane (C20)	2305	2590	113	65-135
n-Heneicosane (C21)	2077	2230	107	65-135
n-Docosane (C22)	2010	2180	108	65-135
n-Tricosane (C23)	1735	1890	109	65-135
n-Tetracosane (C24)	1629	1800	111	65-135
n-Pentacosane (C25)	1607	1670	104	65-135
n-Hexacosane (C26)	1333	1510	114	65-135
n-Heptacosane (C27)	1085	1210	111	65-135
n-Octacosane (C28)	770	836	109	65-135
n-Nonacosane (C29)	774	770	100	65-135
n-Triacontane (C30)	595	643	108	65-135
n-Hentriacontane (C31)	534	631	118	65-135
n-Dotriacontane (C32)	501	424	85	65-135
n-Tritriacontane (C33)	322	430	133	65-135
n-Tetratriacontane (C34)	289	383	133	65-135
n-Pentatriacontane (C35)	271	302	111	65-135
n-Hexatriacontane (C36)	166	195	117	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	164	113	65-135
n-Octatriacontane (C38)	136	123	90	65-135
n-Nonatriacontane (C39)	94.3	93.8	99	65-135
n-Tetracontane (C40)	86.5	98.3	114	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	598000	110	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Date Analyzed: **05/03/12 19:09**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS043012LCS02	05/03/12 20:37
LCSD	SS043012LCSD02	05/03/12 22:06
SEKR1934L013S041912D005	1204031-01	05/04/12 01:04
SEKR1934L013S041912D005	1204031-01 M	05/04/12 02:33
SEKR1934L013S041912D005	1204031-01 S	05/04/12 04:02
SEKR0900I3004S041912D005	1204031-02	05/04/12 05:31

N/A - Not Applicable

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Date Analyzed: **05/01/12 21:17**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/01/12 22:46
LCSD	SO050112LCSD01	05/02/12 00:15
SEKR1934L013S041912P005	1204031-03	05/02/12 03:12
SEKR0900I3004S041912P005	1204031-04	05/02/12 04:41
SEKR0900I3004D041912P005	1204031-05	05/02/12 06:09

N/A - Not Applicable

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Date Analyzed: **05/01/12 21:17**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/01/12 22:46
LCSD	SO050112LCSD01	05/02/12 00:15
SEKR0900I3004S042012H005	1204031-06	05/02/12 07:38
SEKR0900I3004DS042012H005	1204031-07	05/02/12 09:07
SEKR1934L013S042012H005	1204031-08	05/02/12 10:36

N/A - Not Applicable

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003397.D
Time Acquired : 01 May 2012 11:09 am

73964400

File	Sample	Internal Standard Responses
A003399.D		
	TO050112ANS02	78002987
A003403.D		
	C1705011202R	69675756

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 09 09:11:06 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003403.D
Time Acquired : 01 May 2012 4:50 pm

69675800

File	Sample	Internal Standard Responses
A003409.D	SO050112B01	83741302
A003411.D	SO050112LCS01	86590551
A003413.D	SO050112LCSD01	79616546
A003417.D	1204031-03	81582085
A003419.D	1204031-04	78673110
A003421.D	1204031-05	82381315
A003423.D	1204031-06	87053636
A003425.D	1204031-07	93168037
A003427.D	1204031-08	82884194
A003429.D	C1705011203R	74679519

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 09 09:12:51 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003453.D
Time Acquired : 03 May 2012 5:50 am

74517200

File	Sample	Internal Standard Responses
A003459.D		
	TO050112WCS01	77429144
A003461.D		
	TO050112CL01	84460741
A003465.D		
	C1705011205R	85990134

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 09 09:15:50 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003465.D
Time Acquired : 03 May 2012 2:43 pm

85990100

File	Sample	Internal Standard Responses
A003471.D	SS043012B07	78862048
A003473.D	SS043012LCS02	80058430
A003475.D	SS043012LCSD02	83014672
A003479.D	1204031-01	83515884
A003481.D	1204031-01M	83385936
A003483.D	1204031-01S	85179172
A003485.D	1204031-02	85799939
A003487.D	C1705011206R	75344132

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 09 09:17:14 2012 FID17

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.92	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0391**	J	n-Docosane (C22)	**0.436**	J
n-Decane (C10)	**0.0668**	J	n-Tricosane (C23)	**1.65**	
n-Undecane (C11)	**0.0580**	J	n-Tetracosane (C24)	**0.460**	J
n-Dodecane (C12)	**0.0794**	J	n-Pentacosane (C25)	**11.6**	
n-Tridecane (C13)	**0.103**	J	n-Hexacosane (C26)	**1.73**	
2,6,10 Trimethyldodecane (1380)	**0.137**	J	n-Heptacosane (C27)	**13.4**	
n-Tetradecane (C14)	**0.134**	J	n-Octacosane (C28)	**1.10**	J
2,6,10 Trimethyltridecane (1470)	**0.705**	J	n-Nonacosane (C29)	**20.5**	
n-Pentadecane (C15)	**0.444**	J	n-Triacontane (C30)	**2.65**	
n-Hexadecane (C16)	**0.274**	J	n-Hentriacontane (C31)	**11.0**	
Norpristane (1650)	**0.501**	J	n-Dotriacontane (C32)	**0.965**	J
n-Heptadecane (C17)	**0.963**	J	n-Tritriacontane (C33)	**2.92**	
Pristane	**0.968**	J	n-Tetratriacontane (C34)	**5.53**	
n-Octadecane (C18)	**1.24**	J	n-Pentatriacontane (C35)	**2.77**	
Phytane	**0.919**	J	n-Hexatriacontane (C36)	**0.950**	J
n-Nonadecane (C19)	**0.628**	J	n-Heptatriacontane (C37)	**0.956**	J
n-Eicosane (C20)	**1.64**		n-Octatriacontane (C38)	**0.320**	J
n-Heneicosane (C21)	**0.936**	J	n-Nonatriacontane (C39)	**0.223**	J
			n-Tetracontane (C40)	**0.361**	J
Total Petroleum Hydrocarbons (C9-C44)	**4450**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	89	40-125
d50-Tetracosane	84	40-125

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003479.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 1:04 am
Operator : BAL
Sample : 1204031-01
Misc : 1X
ALS Vial : 93 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.632	83515884	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.668	188159686	111.204 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 222.41%#	
24) s d50-Tetracosane	35.346	146178230	105.401 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 210.80%#	
Target Compounds			
2) t n-Octane (C8)	5.203	20037	0.016 ug/mL M4
3) t n-Nonane (C9)	7.352	41716	0.031 ug/mL M4
4) t n-Decane (C10)	9.794	74694	0.053 ug/mL M4
5) t n-Undecane (C11)	12.283	65974	0.046 ug/mL M4
6) t n-Dodecane (C12)	14.698	91803	0.063 ug/mL M4
7) t n-Tridecane (C13)	16.991	120062	0.082 ug/mL M4
8) t 1380	18.665	161222	0.109 ug/mL M4
9) t n-Tetradecane (C14)	19.167	158088	0.106 ug/mL M4
10) t 1470	20.456	828465	0.559 ug/mL M4
11) t n-Pentadecane (C15)	21.206	522556	0.352 ug/mL M4
12) t n-Hexadecane (C16)	23.171	330901	0.217 ug/mL M4
13) t 1650	24.073	598112	0.397 ug/mL M4
14) t n-Heptadecane (C17)	25.023	1151197	0.764 ug/mL M4
15) t Pristane	25.121	1181819	0.768 ug/mL M4
16) t n-Octadecane (C18)	26.792	1510996	0.982 ug/mL M4
17) t Phytane	26.956	1112311	0.729 ug/mL M4
18) t n-Nonadecane (C19)	28.478	764972	0.498 ug/mL M4
20) t n-Eicosane (C20)	30.029	2030681	1.302 ug/mL M4
21) t n-Heneicosane (C21)	31.613	1169636	0.742 ug/mL M4
22) t n-Docosane (C22)	33.081	543172	0.346 ug/mL M4
23) t n-Tricosane (C23)	34.489	2089083	1.308 ug/mL M4
25) t n-Tetracosane (C24)	35.840	570561	0.365 ug/mL M4
26) t n-Pentacosane (C25)	37.141	14719738	9.207 ug/mL M4
27) t n-Hexacosane (C26)	38.402	2184654	1.375 ug/mL M4
28) t n-Heptacosane (C27)	39.615	16567596	10.610 ug/mL M4
29) t n-Octacosane (C28)	40.772	1375024	0.871 ug/mL M4
30) t n-Nonacosane (C29)	41.918	25648059	16.283 ug/mL M4
31) t n-Triacontane (C30)	42.994	3303517	2.104 ug/mL M4
32) t n-Hentriacontane (C31)	44.061	13715824	8.692 ug/mL M4
33) t n-Dotriacontane (C32)	45.072	1202354	0.765 ug/mL M4
34) t n-Tritriacontane (C33)	46.075	3528058	2.316 ug/mL M4
35) t n-tetratriacontane (C34)	47.035	6818480	4.386 ug/mL M4
36) t n-Pentatriacontane (C35)	48.049	3462688	2.195 ug/mL M4
37) t n-Hexatriacontane (C36)	49.207	1212511	0.753 ug/mL M4
38) t n-Heptatriacontane (C37)	50.523	1193801	0.758 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003479.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 1:04 am
Operator : BAL
Sample : 1204031-01
Misc : 1X
ALS Vial : 93 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

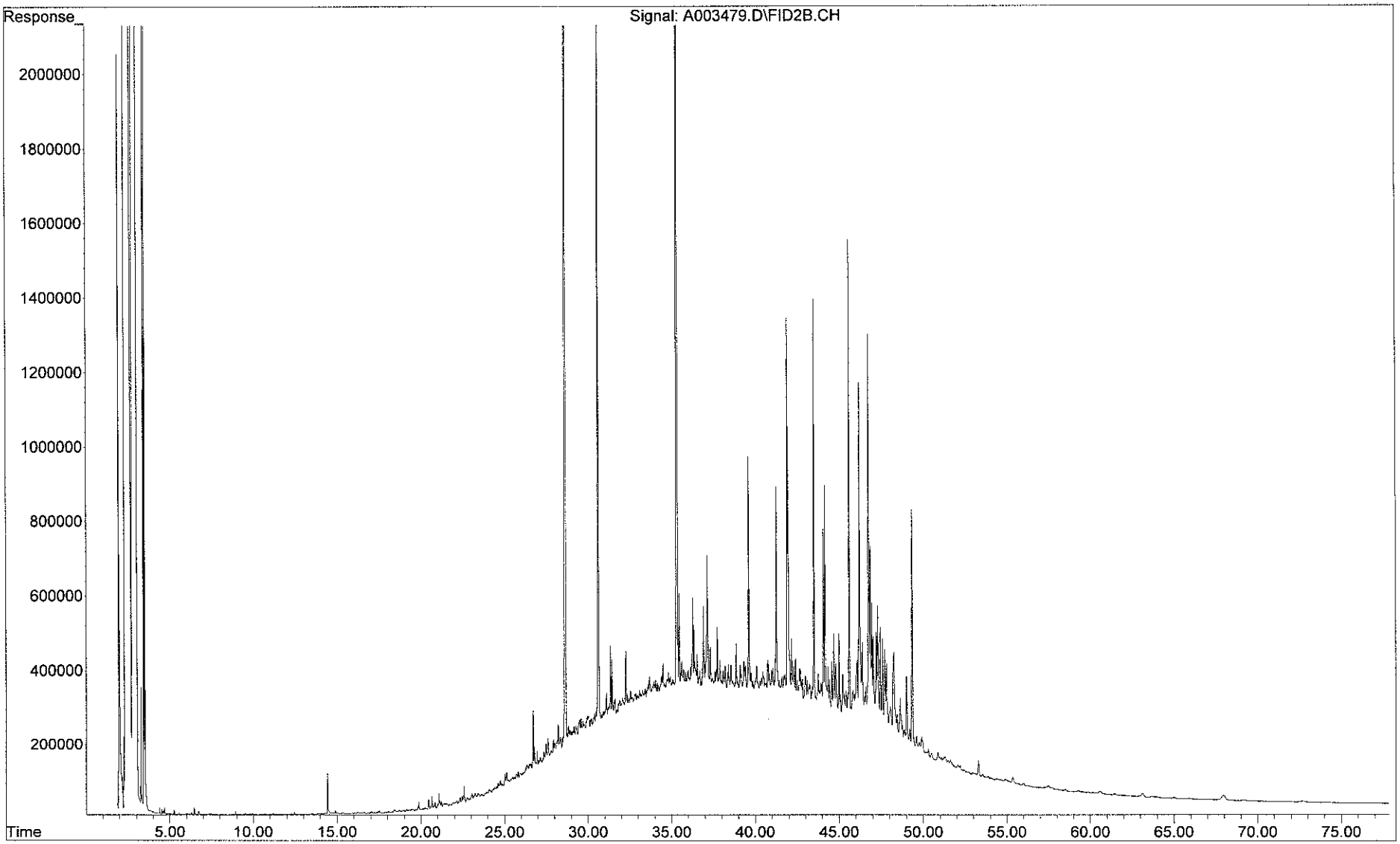
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
39)	t	n-Octatriacontane (C38)	52.053	396626	0.254	ug/mL	M4
40)	t	n-Nonatriacontane (C39)	53.873	258100	0.177	ug/mL	M4
41)	t	n-Tetracontane (C40)	55.971	418038	0.286	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	38.335	5864939706	3824.448	ug/mL	M4
44)	h	Total Resolved Hydroc...	38.335	694657274	452.977	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003479.D
Operator : BAL
Acquired : 04 May 2012 1:04 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-01
Misc Info : 1X
ALS Vial : 93



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-02**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	36.7	9.15	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0125**	J	n-Docosane (C22)	**0.279**	J
n-Decane (C10)	**0.0476**	J	n-Tricosane (C23)	**1.08**	
n-Undecane (C11)	**0.0411**	J	n-Tetracosane (C24)	**0.298**	J
n-Dodecane (C12)	**0.0631**	J	n-Pentacosane (C25)	**3.96**	
n-Tridecane (C13)	**0.0887**	J	n-Hexacosane (C26)	**0.852**	
2,6,10 Trimethyldodecane (1380)	**0.115**	J	n-Heptacosane (C27)	**9.67**	
n-Tetradecane (C14)	**0.107**	J	n-Octacosane (C28)	**0.472**	J
2,6,10 Trimethyltridecane (1470)	**0.438**	J	n-Nonacosane (C29)	**17.8**	
n-Pentadecane (C15)	**0.289**	J	n-Triacontane (C30)	**0.712**	
n-Hexadecane (C16)	**0.315**	J	n-Hentriacontane (C31)	**7.31**	
Norpristane (1650)	**0.234**	J	n-Dotriacontane (C32)	**0.386**	J
n-Heptadecane (C17)	**0.492**	J	n-Tritriacontane (C33)	**1.46**	
Pristane	**0.432**	J	n-Tetratriacontane (C34)	**2.20**	
n-Octadecane (C18)	**1.08**		n-Pentatriacontane (C35)	**1.49**	
Phytane	**0.599**		n-Hexatriacontane (C36)	**0.154**	J
n-Nonadecane (C19)	**0.210**	J	n-Heptatriacontane (C37)	**0.582**	J
n-Eicosane (C20)	**0.174**	J	n-Octatriacontane (C38)	**0.147**	J
n-Heneicosane (C21)	**0.277**	J	n-Nonatriacontane (C39)	**0.182**	J
			n-Tetracontane (C40)	**0.137**	J
Total Petroleum Hydrocarbons (C9-C44)	**1330**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	83	40-125
d50-Tetracosane	79	40-125

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003485.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 5:31 am
Operator : BAL
Sample : 1204031-02
Misc : 1X
ALS Vial : 96 Sample Multiplier: 1

5/12

Integration File: SHCINT2.E
Quant Time: May 07 14:13:19 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.631	85799939	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.668	179952652	103.523 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	207.05%#
24) s	d50-Tetracosane	35.342	140869209	98.869 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	197.74%#
	Target Compounds			
2) t	n-Octane (C8)	5.210	30491	0.024 ug/mL M4
3) t	n-Nonane (C9)	7.356	29135	0.021 ug/mL M4
4) t	n-Decane (C10)	9.799	116168	0.080 ug/mL M4
5) t	n-Undecane (C11)	12.287	101672	0.069 ug/mL M4
6) t	n-Dodecane (C12)	14.700	159306	0.106 ug/mL M4
7) t	n-Tridecane (C13)	16.993	225604	0.149 ug/mL M4
8) t	1380	18.667	295460	0.194 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	273539	0.179 ug/mL M4
10) t	1470	20.461	1122282	0.736 ug/mL M4
11) t	n-Pentadecane (C15)	21.218	740758	0.486 ug/mL M4
12) t	n-Hexadecane (C16)	23.176	828896	0.529 ug/mL M4
13) t	1650	24.088	607903	0.393 ug/mL M4
14) t	n-Heptadecane (C17)	25.029	1279904	0.827 ug/mL M4
15) t	Pristane	25.125	1147752	0.726 ug/mL M4
16) t	n-Octadecane (C18)	26.793	2863951	1.811 ug/mL M4
17) t	Phytane	26.957	1576098	1.006 ug/mL M4
18) t	n-Nonadecane (C19)	28.474	558288	0.353 ug/mL M4
20) t	n-Eicosane (C20)	30.066	467828	0.292 ug/mL M4
21) t	n-Heneicosane (C21)	31.601	751871	0.465 ug/mL M4
22) t	n-Docosane (C22)	33.069	755743	0.469 ug/mL M4
23) t	n-Tricosane (C23)	34.484	2961829	1.806 ug/mL M4
25) t	n-Tetracosane (C24)	35.838	803982	0.500 ug/mL M4
26) t	n-Pentacosane (C25)	37.145	10929203	6.654 ug/mL M4
27) t	n-Hexacosane (C26)	38.392	2338625	1.432 ug/mL M4
28) t	n-Heptacosane (C27)	39.614	26072034	16.252 ug/mL M4
29) t	n-Octacosane (C28)	40.770	1286441	0.793 ug/mL M4
30) t	n-Nonacosane (C29)	41.928	48309885	29.854 ug/mL M4
31) t	n-Triacontane (C30)	42.991	1930577	1.197 ug/mL M4
32) t	n-Hentriacontane (C31)	44.065	19908419	12.280 ug/mL M4
33) t	n-Dotriacontane (C32)	45.075	1047821	0.649 ug/mL M4
34) t	n-Tritriacontane (C33)	46.081	3845654	2.457 ug/mL M4
35) t	n-tetratriacontane (C34)	47.034	5902781	3.696 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.060	4062901	2.507 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.207	426797	0.258 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.534	1580962	0.978 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003485.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 5:31 am
Operator : BAL
Sample : 1204031-02
Misc : 1X
ALS Vial : 96 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:19 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

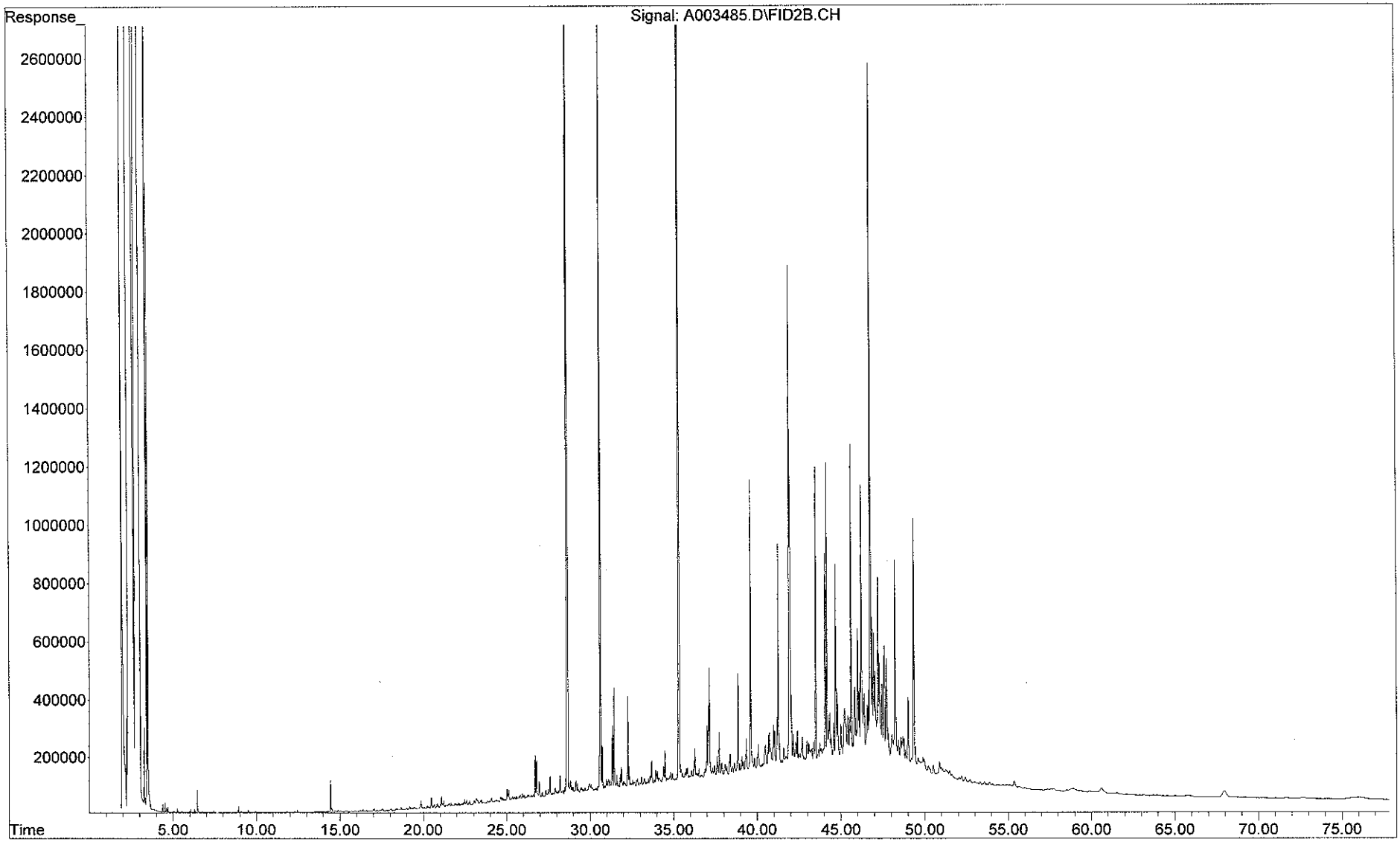
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
39) t	n-Octatriacontane (C38)	52.072	396061	0.247	ug/mL	M4
40) t	n-Nonatriacontane (C39)	53.872	457959	0.305	ug/mL	M4
41) t	n-Tetracontane (C40)	56.005	347579	0.231	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	3977647841	2524.722	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	883116135	560.538	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003485.D
Operator : BAL
Acquired : 04 May 2012 5:31 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-02
Misc Info : 1X
ALS Vial : 96



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/02/12	100	0.00032	1	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**175**	J	n-Docosane (C22)	3120	U
n-Decane (C10)	**206**	J	n-Tricosane (C23)	**144**	JB
n-Undecane (C11)	**106**	J	n-Tetracosane (C24)	3120	U
n-Dodecane (C12)	**116**	J	n-Pentacosane (C25)	**278**	CJB
n-Tridecane (C13)	**31.2**	J	n-Hexacosane (C26)	**40.6**	J
2,6,10 Trimethyldodecane (1380)	3120	U	n-Heptacosane (C27)	3120	U
n-Tetradecane (C14)	**18.8**	J	n-Octacosane (C28)	3120	U
2,6,10 Trimethyltridecane (1470)	**31.2**	J	n-Nonacosane (C29)	3120	U
n-Pentadecane (C15)	**212**	J	n-Triacontane (C30)	**62.5**	J
n-Hexadecane (C16)	**78.1**	J	n-Hentriacontane (C31)	**125**	J
Norpristane (1650)	**43.8**	J	n-Dotriacontane (C32)	**37.5**	J
n-Heptadecane (C17)	3120	U	n-Tritriacontane (C33)	**100**	J
Pristane	**75.0**	J	n-Tetratriacontane (C34)	**68.8**	J
n-Octadecane (C18)	**2560**	CJB	n-Pentatriacontane (C35)	**50.0**	J
Phytane	**172**	J	n-Hexatriacontane (C36)	**53.1**	J
n-Nonadecane (C19)	3120	U	n-Heptatriacontane (C37)	**37.5**	J
n-Eicosane (C20)	3120	U	n-Octatriacontane (C38)	3120	U
n-Heneicosane (C21)	3120	U	n-Nonatriacontane (C39)	3120	U
			n-Tetracontane (C40)	3120	U
Total Petroleum Hydrocarbons (C9-C44)	625000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	93	40-125
d50-Tetracosane	90	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003417.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 3:12 am
Operator : BAL
Sample : 1204031-03
Misc : 1X
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:14:26 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

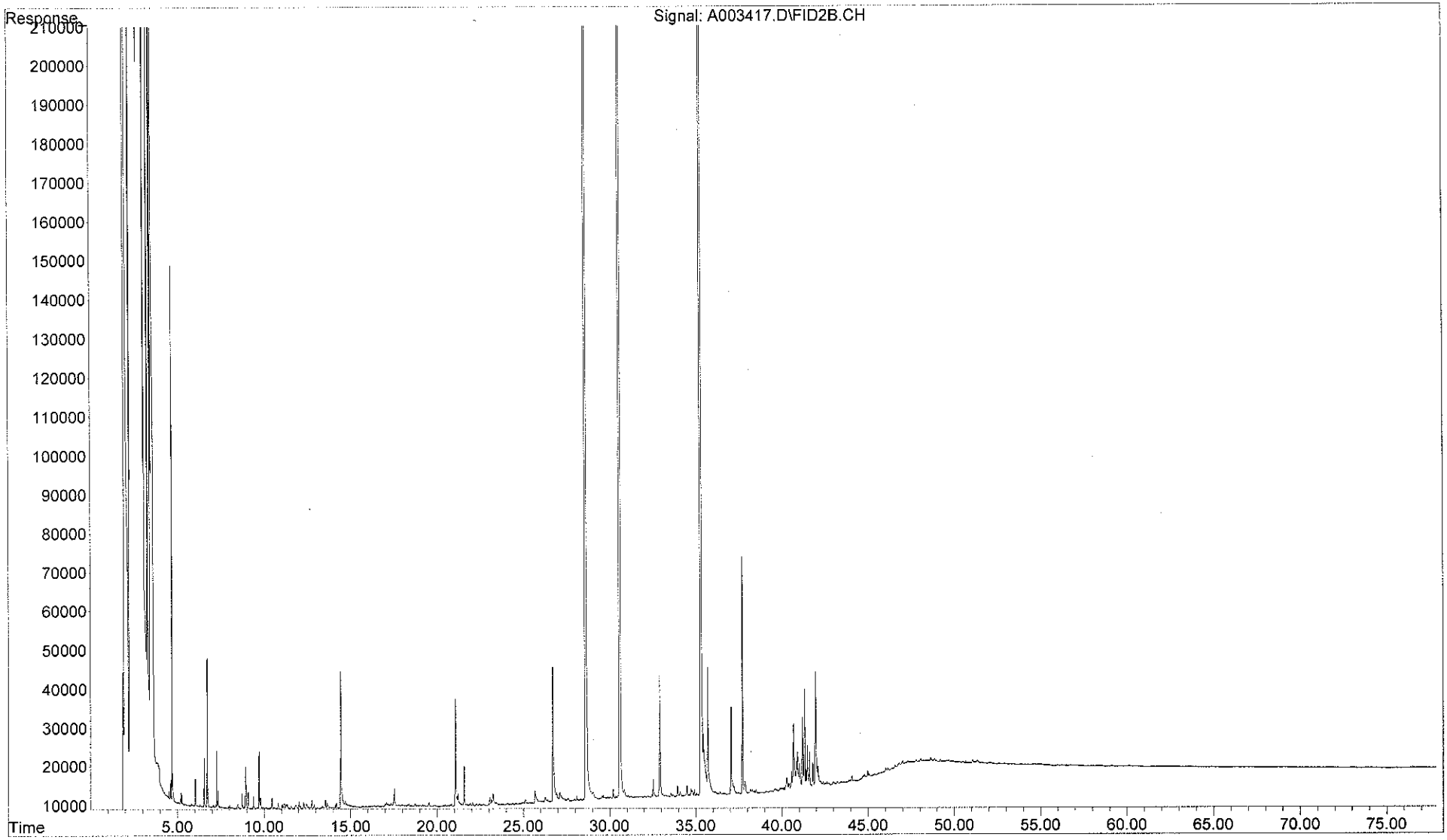
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.619	81582085	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.635	76730728	46.424 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	92.85%
24) s	d50-Tetracosane	35.307	61197986	45.172 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	90.34%
	Target Compounds			
2) t	n-Octane (C8)	5.213	35952	0.030 ug/mL M4
3) t	n-Nonane (C9)	7.355	72801	0.056 ug/mL M4
4) t	n-Decane (C10)	9.795	90637	0.066 ug/mL M4
5) t	n-Undecane (C11)	12.283	47892	0.034 ug/mL M4
6) t	n-Dodecane (C12)	14.703	53130	0.037 ug/mL M4
7) t	n-Tridecane (C13)	16.998	15006	0.010 ug/mL M4
9) t	n-Tetradecane (C14)	19.165	9343	0.006 ug/mL M4
10) t	1470	20.457	13941	0.010 ug/mL M4
11) t	n-Pentadecane (C15)	21.209	98715	0.068 ug/mL M4
12) t	n-Hexadecane (C16)	23.156	37964	0.025 ug/mL M4
13) t	1650	24.085	19929	0.014 ug/mL M4
15) t	Pristane	25.121	36266	0.024 ug/mL M4
16) t	n-Octadecane (C18)	26.706	1231464C	0.819 ug/mL M4
17) t	Phytane	26.936	82216	0.055 ug/mL M4
23) t	n-Tricosane (C23)	34.483	71843	0.046 ug/mL M4
26) t	n-Pentacosane (C25)	37.116	138738C	0.089 ug/mL M4
27) t	n-Hexacosane (C26)	38.390	20290	0.013 ug/mL M4
31) t	n-Triacontane (C30)	42.987	30586	0.020 ug/mL M4
32) t	n-Hentriacontane (C31)	44.058	62143	0.040 ug/mL M4
33) t	n-Dotriacontane (C32)	45.050	18590	0.012 ug/mL M4
34) t	n-Tritriacontane (C33)	46.014	48008	0.032 ug/mL M4
35) t	n-tetratriacontane (C34)	47.008	32956	0.022 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.057	25021	0.016 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.193	26635	0.017 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.517	17770	0.012 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	268419445	179.182 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	21613313	14.428 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003417.D
Operator : BAL
Acquired : 02 May 2012 3:12 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-03
Misc Info : 1X
ALS Vial : 62



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/02/12	100	0.00056	1	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**170**	J	n-Docosane (C22)	1790	U
n-Decane (C10)	**245**	J	n-Tricosane (C23)	**223**	JB
n-Undecane (C11)	**212**	J	n-Tetracosane (C24)	1790	U
n-Dodecane (C12)	**207**	J	n-Pentacosane (C25)	**371**	CJB
n-Tridecane (C13)	**173**	J	n-Hexacosane (C26)	1790	U
2,6,10 Trimethyldodecane (1380)	**264**	J	n-Heptacosane (C27)	1790	U
n-Tetradecane (C14)	**120**	J	n-Octacosane (C28)	1790	U
2,6,10 Trimethyltridecane (1470)	**609**	J	n-Nonacosane (C29)	1790	U
n-Pentadecane (C15)	**330**	J	n-Triacontane (C30)	**218**	J
n-Hexadecane (C16)	**171**	J	n-Hentriacontane (C31)	**1090**	J
Norpristane (1650)	**741**	J	n-Dotriacontane (C32)	**179**	J
n-Heptadecane (C17)	1790	U	n-Tritriacontane (C33)	**655**	J
Pristane	**1540**	J	n-Tetratriacontane (C34)	**621**	J
n-Octadecane (C18)	**218**	CJB	n-Pentatriacontane (C35)	**318**	J
Phytane	**1250**	J	n-Hexatriacontane (C36)	**157**	J
n-Nonadecane (C19)	**179**	J	n-Heptatriacontane (C37)	1790	U
n-Eicosane (C20)	**171**	J	n-Octatriacontane (C38)	1790	U
n-Heneicosane (C21)	1790	U	n-Nonatriacontane (C39)	1790	U
			n-Tetracontane (C40)	1790	U
Total Petroleum Hydrocarbons (C9-C44)	**1400000**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	90	40-125
d50-Tetracosane	87	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003419.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 4:41 am
Operator : BAL
Sample : 1204031-04
Misc : 1X
ALS Vial : 63 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 08:50:34 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

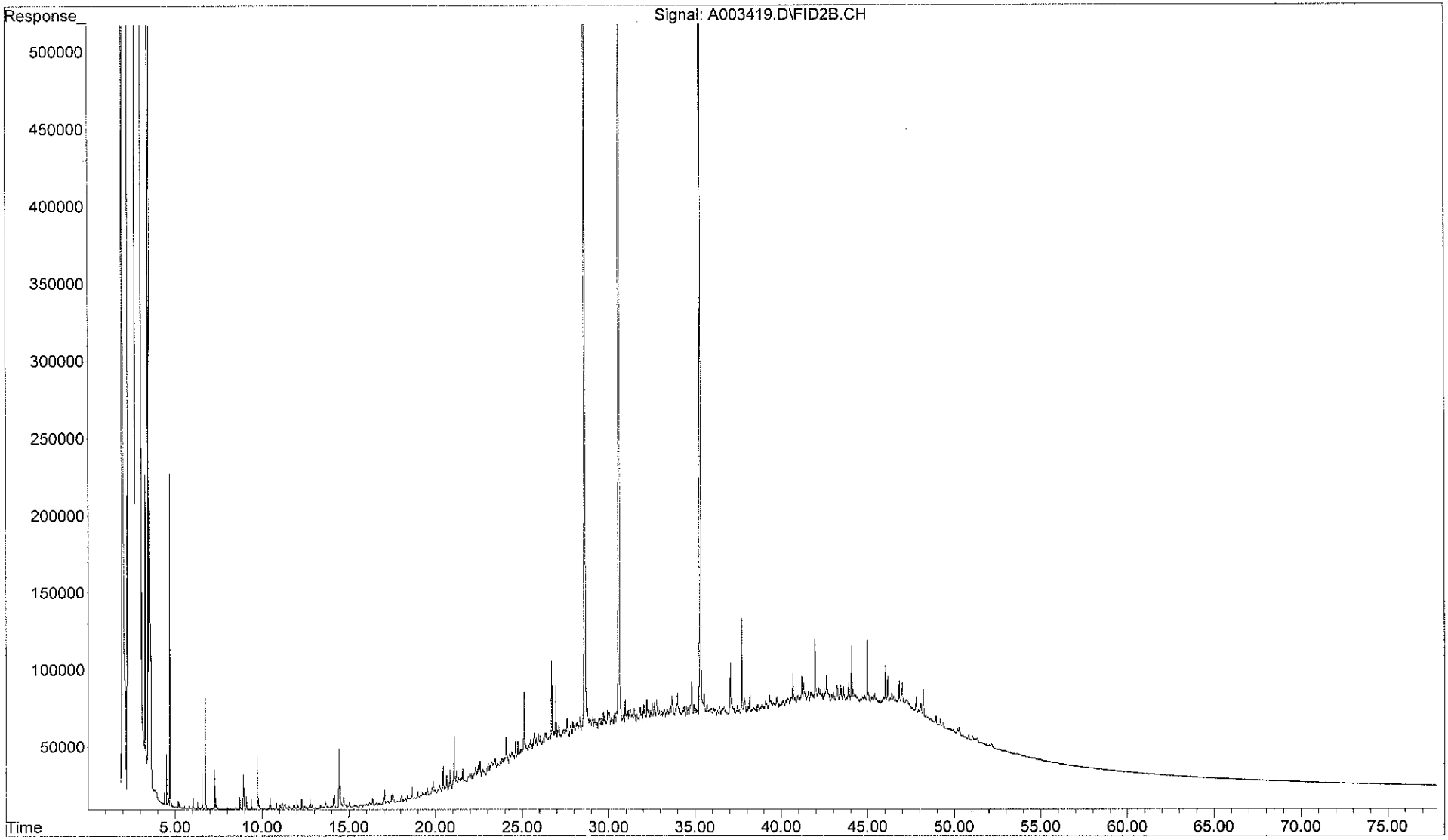
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.619	78673110	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.634	71414999	44.805 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	89.61%
24) s	d50-Tetracosane	35.305	56963193	43.601 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	87.20%
	Target Compounds			
2) t	n-Octane (C8)	5.208	44928	0.038 ug/mL M4
3) t	n-Nonane (C9)	7.353	119137	0.095 ug/mL M4
4) t	n-Decane (C10)	9.795	182584	0.137 ug/mL M4
5) t	n-Undecane (C11)	12.286	160521	0.119 ug/mL M4
6) t	n-Dodecane (C12)	14.697	159759	0.116 ug/mL M4
7) t	n-Tridecane (C13)	16.991	134700	0.097 ug/mL M4
8) t	1380	18.664	207293	0.148 ug/mL M4
9) t	n-Tetradecane (C14)	19.164	93615	0.067 ug/mL M4
10) t	1470	20.447	476649	0.341 ug/mL M4
11) t	n-Pentadecane (C15)	21.209	258336	0.185 ug/mL M4
12) t	n-Hexadecane (C16)	23.152	137927	0.096 ug/mL M4
13) t	1650	24.076	589077	0.415 ug/mL M4
15) t	Pristane	25.120	1253028	0.864 ug/mL M4
16) t	n-Octadecane (C18)	26.802	176376C	0.122 ug/mL M4
17) t	Phytane	26.940	1002664	0.698 ug/mL M4
18) t	n-Nonadecane (C19)	28.451	144689	0.100 ug/mL M4
20) t	n-Eicosane (C20)	30.046	141497	0.096 ug/mL M4
23) t	n-Tricosane (C23)	34.488	188613	0.125 ug/mL M4
26) t	n-Pentacosane (C25)	37.125	312991C	0.208 ug/mL M4
31) t	n-Triacontane (C30)	43.003	180527	0.122 ug/mL M4
32) t	n-Hentriacontane (C31)	44.067	908342	0.611 ug/mL M4
33) t	n-Dotriacontane (C32)	45.036	147580	0.100 ug/mL M4
34) t	n-Tritriacontane (C33)	46.016	526698	0.367 ug/mL M4
35) t	n-tetratriacontane (C34)	46.990	509151	0.348 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.064	264160	0.178 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.196	134208	0.088 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	1423462681	985.358 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	80272099	55.566 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003419.D
Operator : BAL
Acquired : 02 May 2012 4:41 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-04
Misc Info : 1X
ALS Vial : 63



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004D041912P005**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-05**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	05/01/12	05/02/12	100	0.00248	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**20.6**	J
n-Decane (C10)	**24.2**	J
n-Undecane (C11)	**19.4**	J
n-Dodecane (C12)	**19.8**	J
n-Tridecane (C13)	**19.4**	J
2,6,10 Trimethyldodecane (1380)	**66.1**	J
n-Tetradecane (C14)	**25.8**	J
2,6,10 Trimethyltridecane (1470)	**196**	J
n-Pentadecane (C15)	**73.8**	J
n-Hexadecane (C16)	403	U
Norpristane (1650)	**213**	J
n-Heptadecane (C17)	403	U
Pristane	**471**	
n-Octadecane (C18)	**49.2**	CJB
Phytane	**362**	J
n-Nonadecane (C19)	**50.8**	J
n-Eicosane (C20)	**75.4**	J
n-Heneicosane (C21)	**60.1**	J
Total Petroleum Hydrocarbons (C9-C44)	**436000**	

Parameter	Result	
n-Docosane (C22)	403	U
n-Tricosane (C23)	**65.7**	JB
n-Tetracosane (C24)	403	U
n-Pentacosane (C25)	**110**	CJB
n-Hexacosane (C26)	403	U
n-Heptacosane (C27)	403	U
n-Octacosane (C28)	403	U
n-Nonacosane (C29)	403	U
n-Triacontane (C30)	**69.4**	J
n-Hentriacontane (C31)	**296**	J
n-Dotriacontane (C32)	**50.8**	J
n-Tritriacontane (C33)	**196**	J
n-Tetratriacontane (C34)	**193**	J
n-Pentatriacontane (C35)	**101**	J
n-Hexatriacontane (C36)	**57.3**	J
n-Heptatriacontane (C37)	403	U
n-Octatriacontane (C38)	403	U
n-Nonatriacontane (C39)	403	U
n-Tetracontane (C40)	403	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	92	40-125
d50-Tetracosane	89	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003421.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 6:09 am
Operator : BAL
Sample : 1204031-05
Misc : 1X
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 08:52:15 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

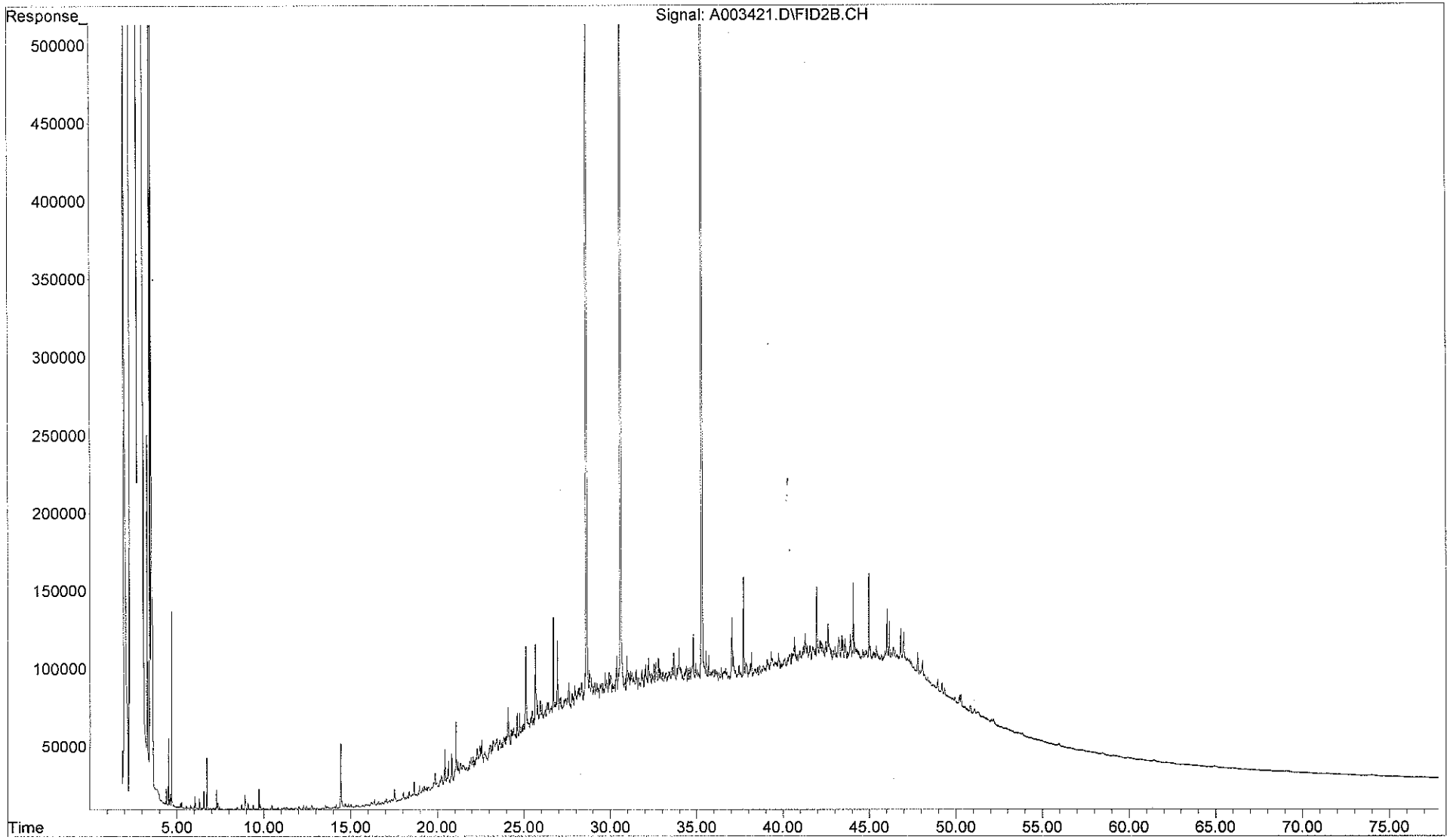
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.621	82381315	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.636	76774749	46.000 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	92.00%
24) s d50-Tetracosane	35.309	60911466	44.525 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	89.05%
Target Compounds			
2) t n-Octane (C8)	5.212	35505	0.029 ug/mL M4
3) t n-Nonane (C9)	7.354	66978	0.051 ug/mL M4
4) t n-Decane (C10)	9.796	84068	0.060 ug/mL M4
5) t n-Undecane (C11)	12.285	68319	0.048 ug/mL M4
6) t n-Dodecane (C12)	14.697	70796	0.049 ug/mL M4
7) t n-Tridecane (C13)	16.990	69491	0.048 ug/mL M4
8) t 1380	18.664	239676	0.164 ug/mL M4
9) t n-Tetradecane (C14)	19.167	93868	0.064 ug/mL M4
10) t 1470	20.448	711098	0.486 ug/mL M4
11) t n-Pentadecane (C15)	21.209	267401	0.183 ug/mL M4
13) t 1650	24.079	784866	0.528 ug/mL M4
15) t Pristane	25.119	1771825	1.167 ug/mL M4
16) t n-Octadecane (C18)	26.810	184730C	0.122 ug/mL M4
17) t Phytane	26.940	1353055	0.899 ug/mL M4
18) t n-Nonadecane (C19)	28.449	191365	0.126 ug/mL M4
20) t n-Eicosane (C20)	30.048	288031	0.187 ug/mL M4
21) t n-Heneicosane (C21)	31.640	231786	0.149 ug/mL M4
23) t n-Tricosane (C23)	34.492	257020	0.163 ug/mL M4
26) t n-Pentacosane (C25)	37.126	428390C	0.272 ug/mL M4
31) t n-Triacontane (C30)	43.013	266090	0.172 ug/mL M4
32) t n-Hentriacontane (C31)	44.069	1142030	0.734 ug/mL M4
33) t n-Dotriacontane (C32)	45.042	195086	0.126 ug/mL M4
34) t n-Tritriacontane (C33)	46.018	728957	0.485 ug/mL M4
35) t n-tetratriacontane (C34)	46.992	733445	0.478 ug/mL M4
36) t n-Pentatriacontane (C35)	48.071	390483	0.251 ug/mL M4
37) t n-Hexatriacontane (C36)	49.200	225590	0.142 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	1927559523	1274.246 ug/mL M4
44) h Total Resolved Hydroc...	38.335	103973068	68.733 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003421.D
Operator : BAL
Acquired : 02 May 2012 6:09 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-05
Misc Info : 1X
ALS Vial : 64



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-06**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/02/12	100	1.00	4	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0280**	J	n-Docosane (C22)	4.00	U
n-Decane (C10)	**0.0440**	J	n-Tricosane (C23)	**0.880**	J
n-Undecane (C11)	**0.120**	J	n-Tetracosane (C24)	**0.656**	J
n-Dodecane (C12)	**0.160**	J	n-Pentacosane (C25)	**2.16**	CJB
n-Tridecane (C13)	**0.300**	J	n-Hexacosane (C26)	**1.36**	J
2,6,10 Trimethyldodecane (1380)	**1.07**	J	n-Heptacosane (C27)	**1.18**	J
n-Tetradecane (C14)	**0.328**	J	n-Octacosane (C28)	**1.29**	J
2,6,10 Trimethyltridecane (1470)	**2.69**	J	n-Nonacosane (C29)	**1.18**	J
n-Pentadecane (C15)	**0.808**	J	n-Triacontane (C30)	**1.82**	J
n-Hexadecane (C16)	4.00	U	n-Hentriacontane (C31)	**4.73**	
Norpristane (1650)	**2.43**	J	n-Dotriacontane (C32)	**1.46**	J
n-Heptadecane (C17)	4.00	U	n-Tritriacontane (C33)	**3.28**	J
Pristane	**5.64**		n-Tetratriacontane (C34)	**2.83**	J
n-Octadecane (C18)	**0.552**	CJB	n-Pentatriacontane (C35)	**1.52**	J
Phytane	**3.95**	J	n-Hexatriacontane (C36)	**0.704**	J
n-Nonadecane (C19)	**0.500**	J	n-Heptatriacontane (C37)	4.00	U
n-Eicosane (C20)	**0.904**	J	n-Octatriacontane (C38)	4.00	U
n-Heneicosane (C21)	**0.756**	J	n-Nonatriacontane (C39)	4.00	U
			n-Tetracontane (C40)	4.00	U
Total Petroleum Hydrocarbons (C9-C44)	**5420**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	89	40-125
d50-Tetracosane	89	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003423.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 7:38 am
Operator : BAL
Sample : 1204031-06
Misc : 1X
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 12:03:19 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

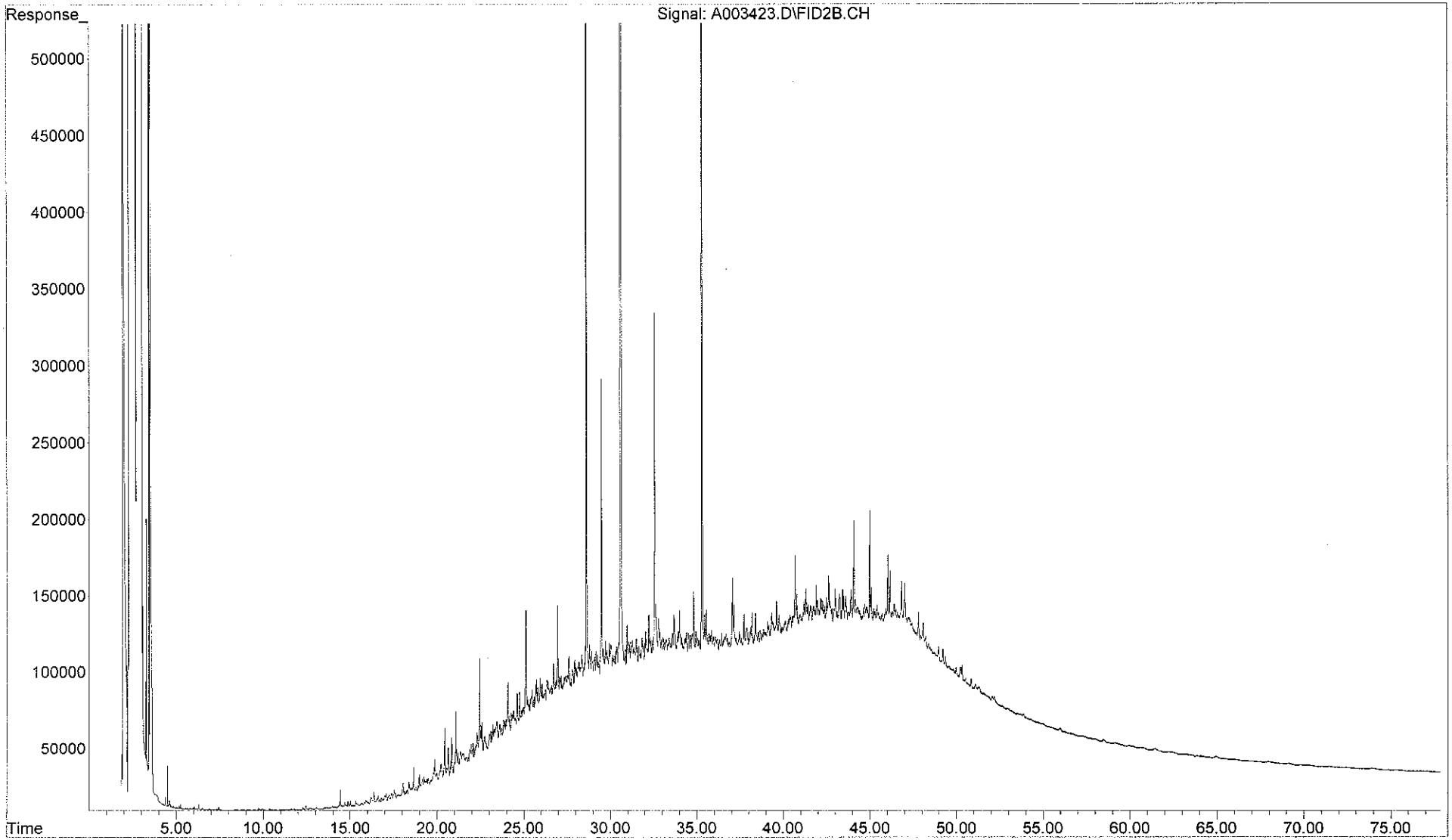
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.623	87053636	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.615	19700343	11.170 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 22.34%#	
24) s d50-Tetracosane	35.292	16130554	11.158 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 22.32%#	
Target Compounds			
2) t n-Octane (C8)	5.209	7953	0.006 ug/mL M4
3) t n-Nonane (C9)	7.352	9724	0.007 ug/mL M4
4) t n-Decane (C10)	9.795	16534	0.011 ug/mL M4
5) t n-Undecane (C11)	12.284	45456	0.030 ug/mL M4
6) t n-Dodecane (C12)	14.696	61459	0.040 ug/mL M4
7) t n-Tridecane (C13)	16.993	115499	0.075 ug/mL M4
8) t 1380	18.665	414685	0.268 ug/mL M4
9) t n-Tetradecane (C14)	19.164	127059	0.082 ug/mL M4
10) t 1470	20.449	1039183	0.672 ug/mL M4
11) t n-Pentadecane (C15)	21.212	312512	0.202 ug/mL M4
13) t 1650	24.081	954146	0.608 ug/mL M4
15) t Pristane	25.120	2265054	1.411 ug/mL M4
16) t n-Octadecane (C18)	26.793	221670C	0.138 ug/mL M4
17) t Phytane	26.942	1568547	0.987 ug/mL M4
18) t n-Nonadecane (C19)	28.468	199872	0.125 ug/mL M4
20) t n-Eicosane (C20)	30.045	367178	0.226 ug/mL M4
21) t n-Heneicosane (C21)	31.639	310809	0.189 ug/mL M4
23) t n-Tricosane (C23)	34.490	366436	0.220 ug/mL M4
25) t n-Tetracosane (C24)	35.828	267891	0.164 ug/mL M4
26) t n-Pentacosane (C25)	37.127	899341C	0.540 ug/mL M4
27) t n-Hexacosane (C26)	38.382	564063	0.341 ug/mL M4
28) t n-Heptacosane (C27)	39.590	480307	0.295 ug/mL M4
29) t n-Octacosane (C28)	40.762	531965	0.323 ug/mL M4
30) t n-Nonacosane (C29)	41.888	483863	0.295 ug/mL M4
31) t n-Triacontane (C30)	42.985	745299	0.455 ug/mL M4
32) t n-Hentriacontane (C31)	44.071	1943915	1.182 ug/mL M4
33) t n-Dotriacontane (C32)	45.051	598452	0.365 ug/mL M4
34) t n-Tritriacontane (C33)	46.024	1299821	0.819 ug/mL M4
35) t n-tetratriacontane (C34)	46.995	1147196	0.708 ug/mL M4
36) t n-Pentatriacontane (C35)	48.068	624417	0.380 ug/mL M4
37) t n-Hexatriacontane (C36)	49.196	295082	0.176 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	2455596202	1536.188 ug/mL M4
44) h Total Resolved Hydroc...	38.335	139260538	87.120 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003423.D
Operator : BAL
Acquired : 02 May 2012 7:38 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-06
Misc Info : 1X
ALS Vial : 65



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR0900I3004DS042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-07**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/02/12	100	1.00	5.71	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.0571**	J
n-Decane (C10)	**0.0914**	J
n-Undecane (C11)	**0.263**	J
n-Dodecane (C12)	**0.297**	J
n-Tridecane (C13)	**0.634**	J
2,6,10 Trimethyldodecane (1380)	**2.02**	J
n-Tetradecane (C14)	**0.725**	J
2,6,10 Trimethyltridecane (1470)	**4.97**	J
n-Pentadecane (C15)	**1.82**	J
n-Hexadecane (C16)	5.71	U
Norpristane (1650)	**4.20**	J
n-Heptadecane (C17)	5.71	U
Pristane	**9.26**	
n-Octadecane (C18)	**0.971**	CJB
Phytane	**6.92**	
n-Nonadecane (C19)	**0.702**	J
n-Eicosane (C20)	**1.29**	J
n-Heneicosane (C21)	**1.23**	J
Total Petroleum Hydrocarbons (C9-C44)	**8950**	

Parameter	Result	
n-Docosane (C22)	5.71	U
n-Tricosane (C23)	**1.25**	J
n-Tetracosane (C24)	**0.657**	J
n-Pentacosane (C25)	**2.22**	CJB
n-Hexacosane (C26)	**1.47**	J
n-Heptacosane (C27)	5.71	U
n-Octacosane (C28)	5.71	U
n-Nonacosane (C29)	**1.04**	J
n-Triacontane (C30)	**1.58**	J
n-Hentriacontane (C31)	**6.35**	
n-Dotriacontane (C32)	**1.16**	J
n-Tritriacontane (C33)	**4.46**	J
n-Tetratriacontane (C34)	**3.60**	J
n-Pentatriacontane (C35)	**2.01**	J
n-Hexatriacontane (C36)	**1.31**	J
n-Heptatriacontane (C37)	5.71	U
n-Octatriacontane (C38)	5.71	U
n-Nonatriacontane (C39)	5.71	U
n-Tetracontane (C40)	5.71	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	90	40-125
d50-Tetracosane	94	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003425.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 9:07 am
Operator : BAL
Sample : 1204031-07
Misc : 1X
ALS Vial : 66 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:45:44 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

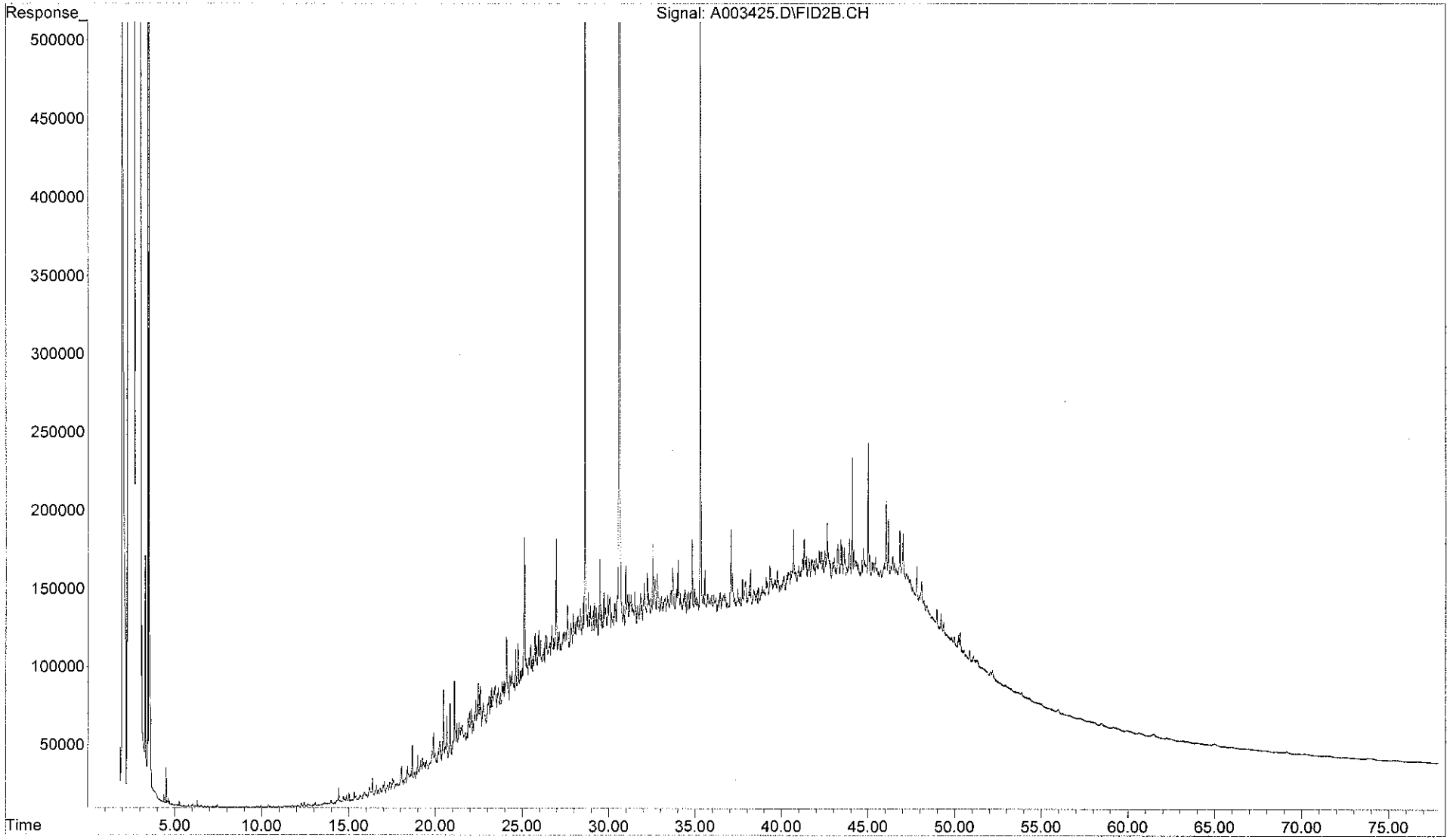
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.627	93168037	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.615	14899198	7.893 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	15.79%#
24) s	d50-Tetracosane	35.293	12793700	8.269 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	16.54%#
	Target Compounds			
2) t	n-Octane (C8)	5.208	10306	0.007 ug/mL M4
3) t	n-Nonane (C9)	7.354	14820	0.010 ug/mL M4
4) t	n-Decane (C10)	9.799	24563	0.016 ug/mL M4
5) t	n-Undecane (C11)	12.286	73561	0.046 ug/mL M4
6) t	n-Dodecane (C12)	14.699	84247	0.052 ug/mL M4
7) t	n-Tridecane (C13)	16.989	181906	0.111 ug/mL M4
8) t	1380	18.666	586281	0.354 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	210640	0.127 ug/mL M4
10) t	1470	20.449	1439929	0.870 ug/mL M4
11) t	n-Pentadecane (C15)	21.213	526575	0.318 ug/mL M4
13) t	1650	24.079	1234415	0.735 ug/mL M4
15) t	Pristane	25.123	2786137	1.622 ug/mL M4
16) t	n-Octadecane (C18)	26.797	291610C	0.170 ug/mL M4
17) t	Phytane	26.944	2062264	1.212 ug/mL M4
18) t	n-Nonadecane (C19)	28.466	211415	0.123 ug/mL M4
20) t	n-Eicosane (C20)	30.056	393746	0.226 ug/mL M4
21) t	n-Heneicosane (C21)	31.638	377565	0.215 ug/mL M4
23) t	n-Tricosane (C23)	34.494	387906	0.218 ug/mL M4
25) t	n-Tetracosane (C24)	35.832	200919	0.115 ug/mL M4
26) t	n-Pentacosane (C25)	37.129	693848C	0.389 ug/mL M4
27) t	n-Hexacosane (C26)	38.382	455362	0.257 ug/mL M4
30) t	n-Nonacosane (C29)	41.870	319109	0.182 ug/mL M4
31) t	n-Triacontane (C30)	43.016	485434	0.277 ug/mL M4
32) t	n-Hentriacontane (C31)	44.075	1956924	1.112 ug/mL M4
33) t	n-Dotriacontane (C32)	45.045	355835	0.203 ug/mL M4
34) t	n-Tritriacontane (C33)	46.023	1328786	0.782 ug/mL M4
35) t	n-tetratriacontane (C34)	46.998	1094237	0.631 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.076	619545	0.352 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.202	410944	0.229 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	2974267955	1738.551 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	163684408	95.679 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003425.D
Operator : BAL
Acquired : 02 May 2012 9:07 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-07
Misc Info : 1X
ALS Vial : 66



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S042012H005**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-08**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/20/12	04/21/12	05/01/12	05/02/12	100	1.00	1	1	BAL

Parameter	Result	
n-Nonane (C9)	1.00	U
n-Decane (C10)	**0.0100**	J
n-Undecane (C11)	**0.0130**	J
n-Dodecane (C12)	**0.0220**	J
n-Tridecane (C13)	**0.0230**	J
2,6,10 Trimethyldodecane (1380)	**0.0580**	J
n-Tetradecane (C14)	**0.0310**	J
2,6,10 Trimethyltridecane (1470)	**0.133**	J
n-Pentadecane (C15)	**0.123**	J
n-Hexadecane (C16)	**0.0590**	J
Norpristane (1650)	**0.198**	J
n-Heptadecane (C17)	**0.0280**	J
Pristane	**0.381**	J
n-Octadecane (C18)	**0.0950**	CJB
Phytane	**0.369**	J
n-Nonadecane (C19)	**0.106**	J
n-Eicosane (C20)	**0.0300**	J
n-Heneicosane (C21)	**0.0580**	J
n-Docosane (C22)	**0.0590**	J
n-Tricosane (C23)	**0.158**	JB
n-Tetracosane (C24)	**0.141**	J
n-Pentacosane (C25)	**0.509**	CJB
n-Hexacosane (C26)	**0.360**	J
n-Heptacosane (C27)	**0.676**	J
n-Octacosane (C28)	**0.450**	J
n-Nonacosane (C29)	**0.708**	J
n-Triacontane (C30)	**0.482**	J
n-Hentriacontane (C31)	**0.924**	J
n-Dotriacontane (C32)	**0.363**	J
n-Tritriacontane (C33)	**0.566**	J
n-Tetratriacontane (C34)	**0.373**	J
n-Pentatriacontane (C35)	**0.202**	J
n-Hexatriacontane (C36)	**0.0890**	J
n-Heptatriacontane (C37)	**0.0630**	J
n-Octatriacontane (C38)	1.00	U
n-Nonatriacontane (C39)	1.00	U
n-Tetracontane (C40)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**634**	

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	88	40-125
d50-Tetracosane	85	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003427.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 10:36 am
Operator : BAL
Sample : 1204031-08
Misc : 1X
ALS Vial : 67 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:45:45 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.623	82884194	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.635	73495718	43.768 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	87.54%
24) s	d50-Tetracosane	35.307	58498196	42.501 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	85.00%
	Target Compounds			
2) t	n-Octane (C8)	5.205	13659	0.011 ug/mL M4
4) t	n-Decane (C10)	9.802	14042	0.010 ug/mL M4
5) t	n-Undecane (C11)	12.283	17930	0.013 ug/mL M4
6) t	n-Dodecane (C12)	14.699	32327	0.022 ug/mL M4
7) t	n-Tridecane (C13)	16.992	33583	0.023 ug/mL M4
8) t	1380	18.667	85066	0.058 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	45006	0.031 ug/mL M4
10) t	1470	20.450	196039	0.133 ug/mL M4
11) t	n-Pentadecane (C15)	21.208	180800	0.123 ug/mL M4
12) t	n-Hexadecane (C16)	23.159	89000	0.059 ug/mL M4
13) t	1650	24.078	295618	0.198 ug/mL M4
14) t	n-Heptadecane (C17)	25.016	41882	0.028 ug/mL M4
15) t	Pristane	25.118	582011	0.381 ug/mL M4
16) t	n-Octadecane (C18)	26.770	144908C	0.095 ug/mL M4
17) t	Phytane	26.937	558690	0.369 ug/mL M4
18) t	n-Nonadecane (C19)	28.464	161096	0.106 ug/mL M4
20) t	n-Eicosane (C20)	30.055	46045	0.030 ug/mL M4
21) t	n-Heneicosane (C21)	31.597	90718	0.058 ug/mL M4
22) t	n-Docosane (C22)	33.064	92339	0.059 ug/mL M4
23) t	n-Tricosane (C23)	34.475	250932	0.158 ug/mL M4
25) t	n-Tetracosane (C24)	35.825	219099	0.141 ug/mL M4
26) t	n-Pentacosane (C25)	37.128	807075C	0.509 ug/mL M4
27) t	n-Hexacosane (C26)	38.383	568504	0.360 ug/mL M4
28) t	n-Heptacosane (C27)	39.593	1047112	0.676 ug/mL M4
29) t	n-Octacosane (C28)	40.758	704917	0.450 ug/mL M4
30) t	n-Nonacosane (C29)	41.887	1106592	0.708 ug/mL M4
31) t	n-Triacontane (C30)	42.982	751376	0.482 ug/mL M4
32) t	n-Hentriacontane (C31)	44.036	1447843	0.924 ug/mL M4
33) t	n-Dotriacontane (C32)	45.058	565727	0.363 ug/mL M4
34) t	n-Tritriacontane (C33)	46.052	855238	0.566 ug/mL M4
35) t	n-tetratriacontane (C34)	47.012	575941	0.373 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.035	315873	0.202 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.193	142184	0.089 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.520	98617	0.063 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	1257135370	826.009 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003427.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 10:36 am
Operator : BAL
Sample : 1204031-08
Misc : 1X
ALS Vial : 67 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:45:45 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

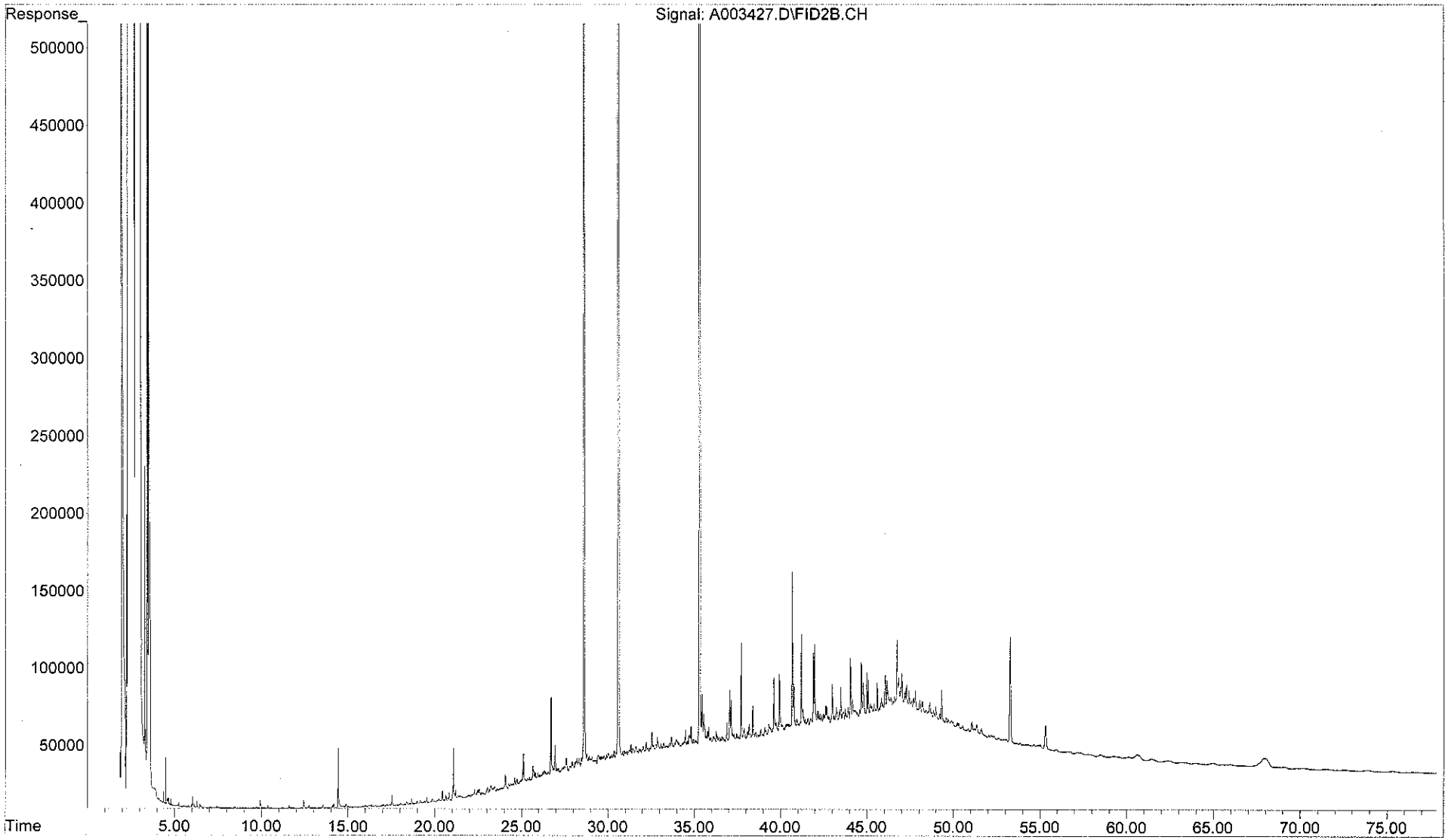
Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
44) h Total Resolved Hydroc...	38.335	80075766	52.614 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003427.D
Operator : BAL
Acquired : 02 May 2012 10:36 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-08
Misc Info : 1X
ALS Vial : 67



Response Factor Report FID17

Method Path : O:\Forensics\Methods\FID17\
Method File : HC17032312R.M
Title : FID Forensics
Last Update : Fri Apr 13 08:31:03 2012
Response Via : Initial Calibration

2° 4/13/12
6° 4.12.12

Calibration Files
1 =A002922.D 10 =A002924.D 50 =A002926.D 100 =A002928.D 200 =A002930.D 500 =A002932.D

		Compound	1	10	50	100	200	500	Avg	%RSD
1)	I	5-alpha-androstane	----------ISTD----------							
2)	t	n-Octane (C8)	0.702	0.731	0.814	0.716	0.746		0.742	5.89
3)	t	n-Nonane (C9)	0.775	0.774	0.874	0.785	0.780		0.798	5.41
4)	t	n-Decane (C10)	0.818	0.819	0.919	0.844	0.823		0.845✓	5.08
5)	t	n-Undecane (C11)	0.837	0.837	0.930	0.861	0.833		0.860	4.78
6)	t	n-Dodecane (C12)	0.856	0.856	0.943	0.879	0.850		0.877	4.39
7)	t	n-Tridecane (...	0.858	0.860	0.948	0.884	0.854		0.881	4.45
8)	t	1380	0.858	0.871	0.958	0.893	0.863		0.889	4.64
9)	t	n-Tetradecane...	0.858	0.871	0.958	0.893	0.863		0.889	4.64
10)	t	1470	0.855	0.873	0.956	0.894	0.863		0.888	4.55
11)	t	n-Pentadecane...	0.855	0.873	0.956	0.894	0.863		0.888	4.55
12)	t	n-Hexadecane ...	0.918	0.891	0.969	0.909	0.876		0.913	3.90
13)	t	1650	0.872	0.879	0.979	0.902	0.876		0.902	4.95
14)	t	n-Heptadecane...	0.872	0.879	0.979	0.902	0.876		0.902	4.95
15)	t	Pristane	0.906	0.909	0.991	0.922	0.882		0.922	4.47✓
16)	t	n-Octadecane ...	0.899	0.907	0.988	0.924	0.889		0.921	4.28
17)	t	Phytane	0.899	0.899	0.977	0.913	0.879		0.913	4.15
18)	t	n-Nonadecane ...	0.899	0.909	0.984	0.924	0.887		0.920	4.13
19)	s	ortho-terphenyl	1.041	0.991	1.117	1.012	0.977	0.939✓	1.013	6.08
20)	t	n-Eicosane (C20)	0.922	0.921	0.999	0.931	0.894		0.934	4.20
21)	t	n-Heneicosane...	0.970	0.926	0.998	0.931	0.892		0.943	4.35
22)	t	n-Docosane (C22)	0.925	0.933	1.004	0.937	0.898		0.940	4.18
23)	t	n-Tricosane (...	1.001	0.942	1.003	0.937	0.897		0.956	4.77
24)	s	d50-Tetracosane	0.858	0.820	0.909	0.828	0.798	0.770✓	0.830	5.83
25)	t	n-Tetracosane...	0.924	0.934	1.001	0.932	0.892		0.937	4.25
26)	t	n-Pentacosane...	0.951	0.953	1.021	0.951	0.910		0.957	4.15
27)	t	n-Hexacosane ...	0.948	0.946	1.015	0.945	0.903		0.951	4.24
28)	t	n-Heptacosane...	0.931	0.926	1.008	0.926	0.883		0.935	4.85
29)	t	n-Octacosane ...	0.956	0.936	1.003	0.938	0.893		0.945	4.21
30)	t	n-Nonacosane ...	0.942	0.937	0.999	0.941	0.896		0.943✓	3.91
31)	t	n-Triacontane...	0.939	0.925	1.019	0.930	0.887		0.940	5.17
32)	t	n-Hentriacont...	0.946	0.934	1.005	0.940	0.899		0.945	4.03
33)	t	n-Dotriaconta...	0.944	0.932	0.994	0.938	0.899		0.941	3.65
34)	t	n-Tritriacont...	0.910	0.890	1.006	0.895	0.859		0.912	6.11
35)	t	n-tetratriaco...	0.930	0.920	0.993	0.922	0.889		0.931	4.10
36)	t	n-Pentatriaco...	0.943	0.935	1.001	0.936	0.907		0.944	3.67
37)	t	n-Hexatriacon...	0.964	0.952	1.024	0.953	0.928		0.964	3.71
38)	t	n-Heptatriaco...	0.940	0.931	0.998	0.932	0.912		0.942	3.45
39)	t	n-Octatriacon...	0.928	0.923	0.988	0.926	0.908		0.935	3.28
40)	t	n-Nonatriacon...	0.869	0.868	0.902	0.877	0.861		0.875	1.83
41)	t	n-Tetracontan...	0.869✓	0.868✓	0.902✓	0.877✓	0.861✓		0.875✓	1.83✓

Response Factor Report FID17

Method Path : O:\Forensics\Methods\FID17\
Method File : HC17032312R.M
Title : FID Forensics
Last Update : Fri Apr 13 08:31:03 2012
Response Via : Initial Calibration

Calibration Files
1 =A002922.D 10 =A002924.D 50 =A002926.D 100 =A002928.D 200 =A002930.D 500 =A002932.D

	Compound	1	10	50	100	200	500	Avg	%RSD
42) h	C9-C44 Total ...	0.910	0.904	0.982	0.914	0.881		0.918	4.12
43) h	C10-C28 DRO	0.910	0.904	0.982	0.914	0.881		0.918	4.12
44) h	Total Resolve...	0.910	0.904	0.982	0.914	0.881		0.918	4.12

(#) = Out of Range

rfupdate

RSF Update Summary Report

Method Path.....: O:\Forensics\Methods\FID17\
Method File.....: HC17032312R.M
Method Title.....: FID Forensics
Last Update.....: Thu Apr 12 17:31:17 2012

Generating Average Response Factor For: C9-C44 Total Petroleum Hydroca

No	Compound	Level	Conc	Response
1	n-Nonane (C9)	1	1.00000	1251590.810
2	n-Decane (C10)	1	1.00000	1321037.062
3	n-Undecane (C11)	1	1.00000	1351689.394
4	n-Dodecane (C12)	1	1.00000	1382021.772
5	n-Tridecane (C13)	1	1.00000	1385851.172
6	n-Tetradecane (C14)	1	1.00000	1385694.154
7	n-Pentadecane (C15)	1	1.00000	1380905.176
8	n-Hexadecane (C16)	1	1.00000	1481980.146
9	n-Heptadecane (C17)	1	1.00000	1407333.797
10	Pristane	1	1.00000	1462508.755
11	n-Octadecane (C18)	1	1.00000	1451516.806
12	Phytane	1	1.00000	1450908.828
13	n-Nonadecane (C19)	1	1.00000	1452042.517
14	n-Eicosane (C20)	1	1.00000	1488956.814
15	n-Heneicosane (C21)	1	1.00000	1566193.494
16	n-Docosane (C22)	1	1.00000	1494136.620
17	n-Tricosane (C23)	1	1.00000	1616058.553
18	n-Tetracosane (C24)	1	1.00000	1492625.928
19	n-Pentacosane (C25)	1	1.00000	1535515.805
20	n-Hexacosane (C26)	1	1.00000	1531093.732
21	n-Heptacosane (C27)	1	1.00000	1502818.690
22	n-Octacosane (C28)	1	1.00000	1544460.200
23	n-Nonacosane (C29)	1	1.00000	1520796.229
24	n-Triacontane (C30)	1	1.00000	1515864.557
25	n-Hentriacontane (C31)	1	1.00000	1527103.174
26	n-Dotriacontane (C32)	1	1.00000	1524164.198
27	n-Tritriacontane (C33)	1	1.00000	1468618.159
28	n-tetratriacontane (C34)	1	1.00000	1502229.934
29	n-Pentatriacontane (C35)	1	1.00000	1521980.119
30	n-Hexatriacontane (C36)	1	1.00000	1556551.472
31	n-Heptatriacontane (C37)	1	1.00000	1517174.620
32	n-Octatriacontane (C38)	1	1.00000	1497802.178
33	n-Tetracontane (C40)	1	1.00000	1403843.320
Avg RSF For: C9-C44 Total Petroleum			1.00000	1469486.915
1	n-Nonane (C9)	2	10.00000	12315102.701
2	n-Decane (C10)	2	10.00000	13039875.249
3	n-Undecane (C11)	2	10.00000	13313729.005
4	n-Dodecane (C12)	2	10.00000	13617651.114
5	n-Tridecane (C13)	2	10.00000	13681016.188
6	n-Tetradecane (C14)	2	10.00000	13856606.635
7	n-Pentadecane (C15)	2	10.00000	13886578.156
8	n-Hexadecane (C16)	2	10.00000	14182164.573
9	n-Heptadecane (C17)	2	10.00000	13995316.484
10	Pristane	2	10.00000	14459482.087
11	n-Octadecane (C18)	2	10.00000	14436946.090

rfupdate

12	Phytane	2	10.00000	14304887.764
13	n-Nonadecane (C19)	2	10.00000	14459932.744
14	n-Eicosane (C20)	2	10.00000	14661546.427
15	n-Heneicosane (C21)	2	10.00000	14733421.808
16	n-Docosane (C22)	2	10.00000	14856193.426
17	n-Tricosane (C23)	2	10.00000	14989800.191
18	n-Tetracosane (C24)	2	10.00000	14860125.159
19	n-Pentacosane (C25)	2	10.00000	15162428.753
20	n-Hexacosane (C26)	2	10.00000	15053917.525
21	n-Heptacosane (C27)	2	10.00000	14734040.134
22	n-Octacosane (C28)	2	10.00000	14903797.489
23	n-Nonacosane (C29)	2	10.00000	14916698.111
24	n-Triacontane (C30)	2	10.00000	14723984.237
25	n-Hentriacontane (C31)	2	10.00000	14868817.920
26	n-Dotriacontane (C32)	2	10.00000	14833937.541
27	n-Tritriacontane (C33)	2	10.00000	14164493.187
28	n-tetratriacontane (C34)	2	10.00000	14634039.814
29	n-Pentatriacontane (C35)	2	10.00000	14881147.723
30	n-Hexatriacontane (C36)	2	10.00000	15149933.058
31	n-Heptatriacontane (C37)	2	10.00000	14817088.819 ✓
32	n-Octatriacontane (C38)	2	10.00000	14692998.916
33	n-Tetracontane (C40)	2	10.00000	13810396.463
Avg RSF For: C9-C44 Total Petroleum			10.00000	14393881.682 ✓

1	n-Nonane (C9)	3	50.00000	69849787.472
2	n-Decane (C10)	3	50.00000	73417765.505
3	n-Undecane (C11)	3	50.00000	74329043.981 ✓
4	n-Dodecane (C12)	3	50.00000	75302608.961
5	n-Tridecane (C13)	3	50.00000	75699587.756
6	n-Tetradecane (C14)	3	50.00000	76569189.485
7	n-Pentadecane (C15)	3	50.00000	76336538.541
8	n-Hexadecane (C16)	3	50.00000	77427057.372
9	n-Heptadecane (C17)	3	50.00000	78183870.107
10	Pristane	3	50.00000	79152172.328
11	n-Octadecane (C18)	3	50.00000	78943782.744
12	Phytane	3	50.00000	78077156.193
13	n-Nonadecane (C19)	3	50.00000	78613119.552
14	n-Eicosane (C20)	3	50.00000	79830952.394
15	n-Heneicosane (C21)	3	50.00000	79701602.197
16	n-Docosane (C22)	3	50.00000	80239937.886
17	n-Tricosane (C23)	3	50.00000	80141905.545
18	n-Tetracosane (C24)	3	50.00000	79976309.310
19	n-Pentacosane (C25)	3	50.00000	81528319.502
20	n-Hexacosane (C26)	3	50.00000	81107752.544
21	n-Heptacosane (C27)	3	50.00000	80556879.750
22	n-Octacosane (C28)	3	50.00000	80114755.829 ✓
23	n-Nonacosane (C29)	3	50.00000	79829963.217
24	n-Triacontane (C30)	3	50.00000	81435110.807
25	n-Hentriacontane (C31)	3	50.00000	80253840.859
26	n-Dotriacontane (C32)	3	50.00000	79416221.405
27	n-Tritriacontane (C33)	3	50.00000	80380202.270
28	n-tetratriacontane (C34)	3	50.00000	79327431.238
29	n-Pentatriacontane (C35)	3	50.00000	79999079.598
30	n-Hexatriacontane (C36)	3	50.00000	81767264.542
31	n-Heptatriacontane (C37)	3	50.00000	79694630.194 ✓
32	n-Octatriacontane (C38)	3	50.00000	78915028.544
33	n-Tetracontane (C40)	3	50.00000	72059279.276
Avg RSF For: C9-C44 Total Petroleum			50.00000	78429640.815 ✓

		rfupdate		
1	n-Nonane (C9)	4	100.00000	139166590.195
2	n-Decane (C10)	4	100.00000	149650341.800
3	n-Undecane (C11)	4	100.00000	152683602.539
4	n-Dodecane (C12)	4	100.00000	155918559.776
5	n-Tridecane (C13)	4	100.00000	156670977.185
6	n-Tetradecane (C14)	4	100.00000	158385691.580
7	n-Pentadecane (C15)	4	100.00000	158515674.930 ✓
8	n-Hexadecane (C16)	4	100.00000	161137617.321
9	n-Heptadecane (C17)	4	100.00000	159957630.146
10	Pristane	4	100.00000	163412985.339
11	n-Octadecane (C18)	4	100.00000	163885604.299
12	Phytane	4	100.00000	161817378.529
13	n-Nonadecane (C19)	4	100.00000	163800379.478
14	n-Eicosane (C20)	4	100.00000	165133731.684
15	n-Heneicosane (C21)	4	100.00000	165005365.625
16	n-Docosane (C22)	4	100.00000	166193989.738
17	n-Tricosane (C23)	4	100.00000	166142292.821
18	n-Tetracosane (C24)	4	100.00000	165232280.741
19	n-Pentacosane (C25)	4	100.00000	168707053.494
20	n-Hexacosane (C26)	4	100.00000	167573223.939
21	n-Heptacosane (C27)	4	100.00000	164217824.497
22	n-Octacosane (C28)	4	100.00000	166272275.928
23	n-Nonacosane (C29)	4	100.00000	166855969.638
24	n-Triacontane (C30)	4	100.00000	164926868.621
25	n-Hentriacontane (C31)	4	100.00000	166726295.141
26	n-Dotriacontane (C32)	4	100.00000	166338854.971 ✓
27	n-Tritriacontane (C33)	4	100.00000	158769675.097
28	n-tetratriacontane (C34)	4	100.00000	163543587.540
29	n-Pentatriacontane (C35)	4	100.00000	166041950.204
30	n-Hexatriacontane (C36)	4	100.00000	168925919.390
31	n-Heptatriacontane (C37)	4	100.00000	165259008.760
32	n-Octatriacontane (C38)	4	100.00000	164224434.140
33	n-Tetracontane (C40)	4	100.00000	155519297.691
Avg RSF For: C9-C44 Total Petroleum			100.00000	162018573.720 ✓

1	n-Nonane (C9)	5	200.00000	250230981.180
2	n-Decane (C10)	5	200.00000	263978041.987
3	n-Undecane (C11)	5	200.00000	267261383.664
4	n-Dodecane (C12)	5	200.00000	272847916.384
5	n-Tridecane (C13)	5	200.00000	274002228.745
6	n-Tetradecane (C14)	5	200.00000	276962520.985
7	n-Pentadecane (C15)	5	200.00000	276880125.762
8	n-Hexadecane (C16)	5	200.00000	280982027.162 ✓
9	n-Heptadecane (C17)	5	200.00000	281159251.003
10	Pristane	5	200.00000	282980320.425
11	n-Octadecane (C18)	5	200.00000	285198786.571
12	Phytane	5	200.00000	281888535.117
13	n-Nonadecane (C19)	5	200.00000	284498116.994
14	n-Eicosane (C20)	5	200.00000	286903851.698
15	n-Heneicosane (C21)	5	200.00000	286292670.209
16	n-Docosane (C22)	5	200.00000	288096922.901
17	n-Tricosane (C23)	5	200.00000	287706887.194
18	n-Tetracosane (C24)	5	200.00000	286136127.791
19	n-Pentacosane (C25)	5	200.00000	292006311.645
20	n-Hexacosane (C26)	5	200.00000	289672666.663
21	n-Heptacosane (C27)	5	200.00000	283442147.562
22	n-Octacosane (C28)	5	200.00000	286465604.631
23	n-Nonacosane (C29)	5	200.00000	287352846.380
24	n-Triacontane (C30)	5	200.00000	284500296.942 ✓
25	n-Hentriacontane (C31)	5	200.00000	288436968.215
26	n-Dotriacontane (C32)	5	200.00000	288288995.998

rfupdate

27	n-Tritriacontane (C33)	5	200.00000	275629019.485
28	n-tetratriacontane (C34)	5	200.00000	285148495.608 ✓
29	n-Pentatriacontane (C35)	5	200.00000	290992959.203
30	n-Hexatriacontane (C36)	5	200.00000	297722948.061
31	n-Heptatriacontane (C37)	5	200.00000	292537632.627
32	n-Octatriacontane (C38)	5	200.00000	291433530.460
33	n-Tetracontane (C40)	5	200.00000	276101843.983
Avg RSF For: C9-C44 Total Petroleum			200.00000	282537544.340 ✓

Generating Reference Response Factors

No	Compound	No	Refrence Compound
8	1380	✓ 9	n-Tetradecane (C14)
10	1470	✓11	n-Pentadecane (C15)
13	1650	✓14	n-Heptadecane (C17)
40	n-Nonatriacontane (C39)	✓41	n-Tetracontane (C40)
43	C10-C28 DRO	✓42	C9-C44 Total Petroleum Hydr
44	Total Resolved Hydrocarbons	✓42	C9-C44 Total Petroleum Hydr

Abacus Response Factor Update Macro Ver. 1.0

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002922.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 6:22 pm
Operator : BAL
Sample : I1703231201R
Misc : WHA093
ALS Vial : 57 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 16:57:42 2012
Quant Method : O:\Forensics\Methods\FID17\HCl7032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:28:22 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

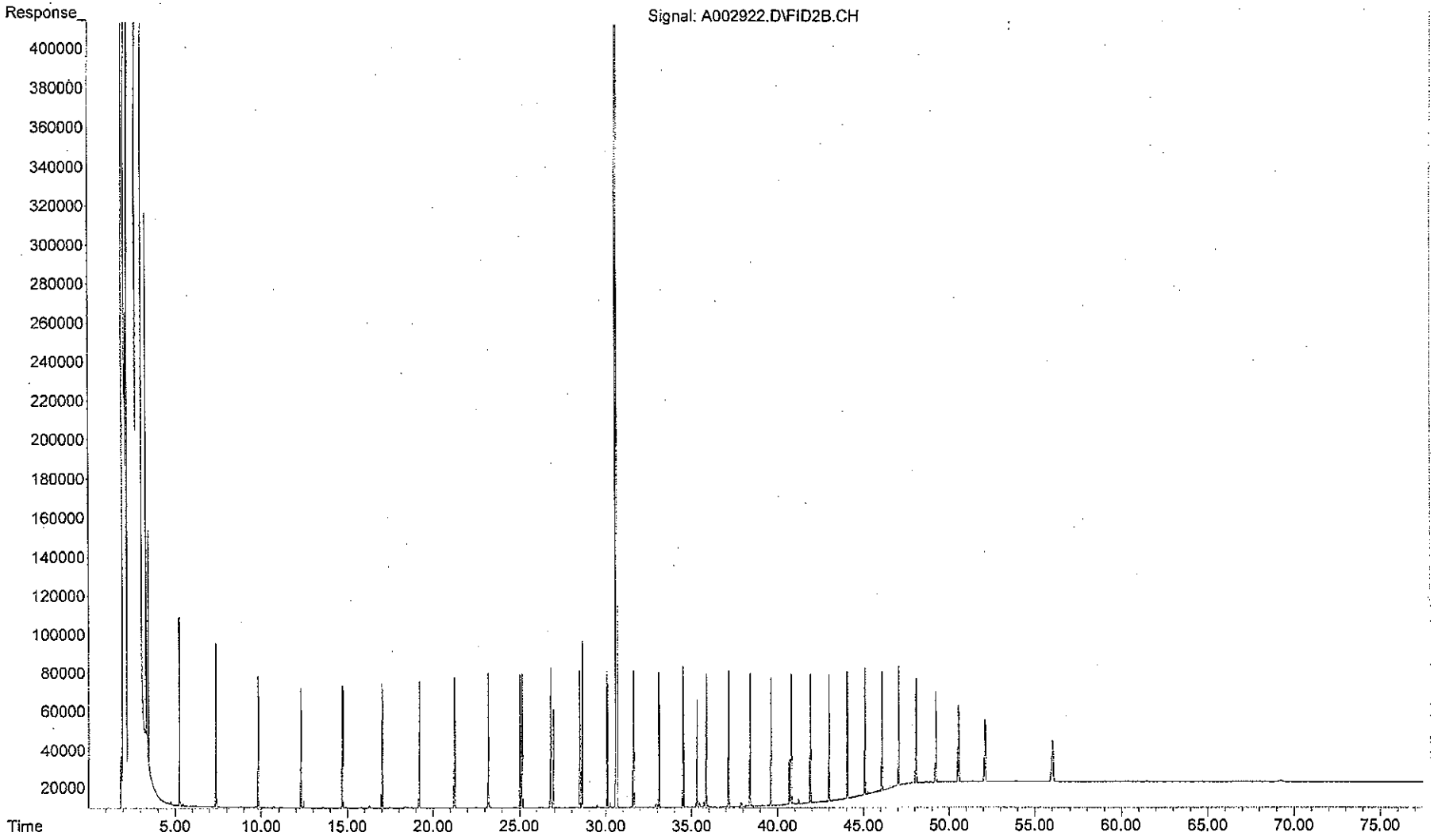
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.640	80737217	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.626	1681665	1.010 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.02%#
24) s	d50-Tetracosane	35.300	1385064	1.017 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.03%#
	Target Compounds			
2) t	n-Octane (C8)	5.230	1133517	0.915 ug/mL M4
3) t	n-Nonane (C9)	7.368	1251591	0.955 ug/mL M4
4) t	n-Decane (C10)	9.812	1321037	0.950 ug/mL M4
5) t	n-Undecane (C11)	12.301	1351689	0.971 ug/mL M4
6) t	n-Dodecane (C12)	14.713	1382022	0.971 ug/mL M4
7) t	n-Tridecane (C13)	17.007	1385851	0.967 ug/mL M4
9) t	n-Tetradecane (C14)	19.179	1385694	0.957 ug/mL M4
11) t	n-Pentadecane (C15)	21.236	1380905	0.949 ug/mL M4
12) t	n-Hexadecane (C16)	23.185	1481980	1.010 ug/mL M4
14) t	n-Heptadecane (C17)	25.035	1407334	0.970 ug/mL M4
15) t	Pristane	25.143	1462509	0.957 ug/mL M4
16) t	n-Octadecane (C18)	26.796	1451517	0.979 ug/mL M4
17) t	Phytane	26.954	1450909	0.967 ug/mL M4
18) t	n-Nonadecane (C19)	28.478	1452043	0.989 ug/mL M4
20) t	n-Eicosane (C20)	30.078	1488957	0.991 ug/mL M4
21) t	n-Heneicosane (C21)	31.608	1566193	1.040 ug/mL M4
22) t	n-Docosane (C22)	33.078	1494137	0.989 ug/mL M4
23) t	n-Tricosane (C23)	34.488	1616059	1.066 ug/mL M4
25) t	n-Tetracosane (C24)	35.841	1492626	0.978 ug/mL M4
26) t	n-Pentacosane (C25)	37.144	1535516	0.998 ug/mL M4
27) t	n-Hexacosane (C26)	38.398	1531094	0.999 ug/mL M4
28) t	n-Heptacosane (C27)	39.606	1502819	0.986 ug/mL M4
29) t	n-Octacosane (C28)	40.773	1544460	1.008 ug/mL M4
30) t	n-Nonacosane (C29)	41.901	1520796	1.005 ug/mL M4
31) t	n-Triacontane (C30)	42.992	1515865	0.989 ug/mL M4
32) t	n-Hentriacontane (C31)	44.048	1527103	1.007 ug/mL M4
33) t	n-Dotriacontane (C32)	45.072	1524164	1.019 ug/mL M4
34) t	n-Tritriacontane (C33)	46.066	1468618	0.981 ug/mL M4
35) t	n-tetratriacontane (C34)	47.032	1502230	1.007 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.053	1521980	1.009 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.205	1556551	1.010 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.534	1517175	1.011 ug/mL M4
39) t	n-Octatriacontane (C38)	52.077	1497802	1.007 ug/mL M4
41) t	n-Tetracontane (C40)	55.997	1403843	1.024 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002922.D
Operator : BAL
Acquired : 23 Mar 2012 6:22 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231201R
Misc Info : WHA093
ALS Vial : 57



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002924.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 7:51 pm
Operator : BAL
Sample : I1703231202R
Misc : WHA094
ALS Vial : 58 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:02:04 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:36:23 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

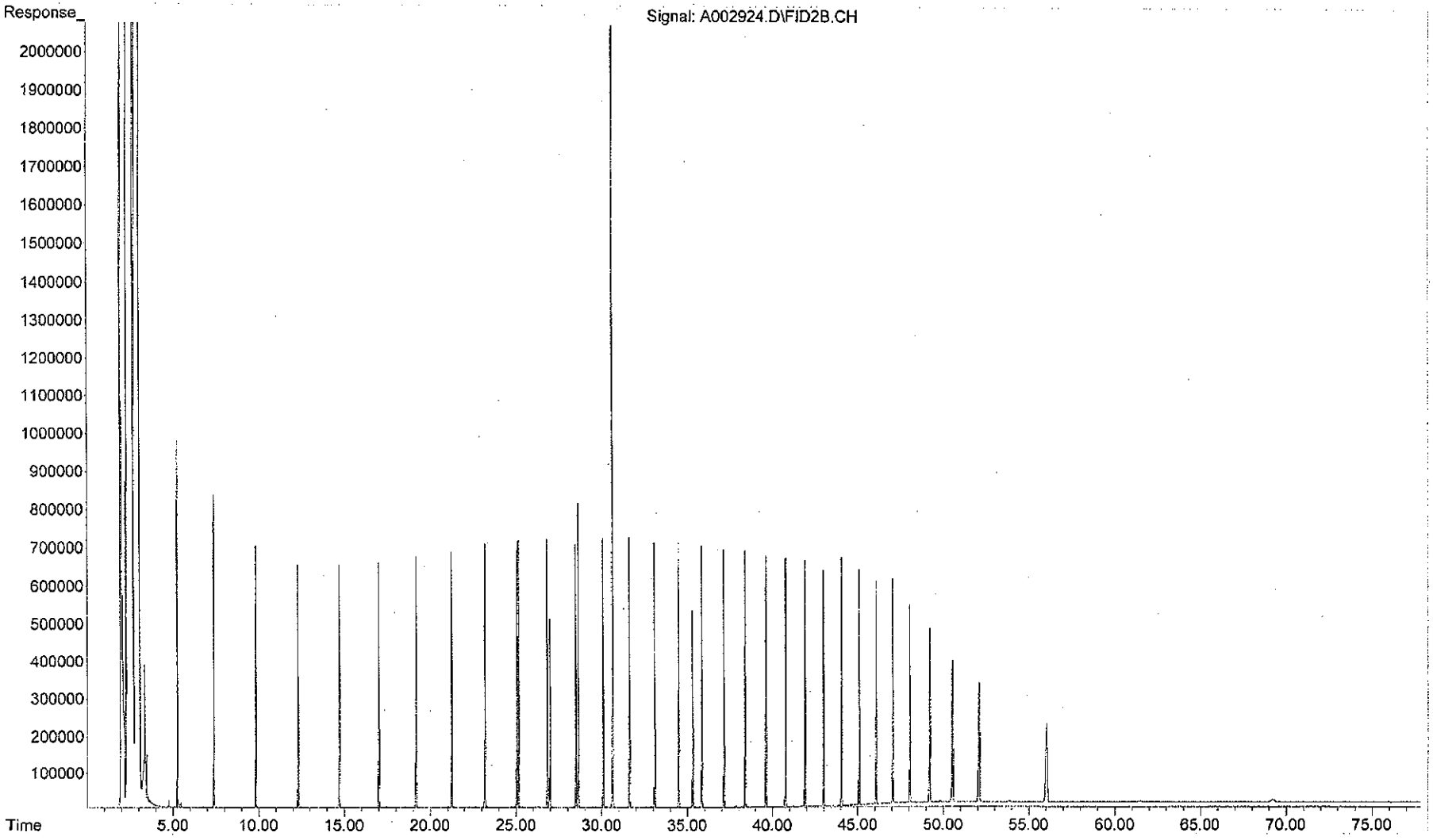
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.640	79573508	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.632	15768442	9.644 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	19.29%#
24) s	d50-Tetracosane	35.304	13042971	9.774 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	19.55%#
	Target Compounds			
2) t	n-Octane (C8)	5.232	11638641	9.525 ug/mL M4
3) t	n-Nonane (C9)	7.371	12315103	9.624 ug/mL M4
4) t	n-Decane (C10)	9.814	13039875	9.723 ug/mL M4
5) t	n-Undecane (C11)	12.302	13313729	9.828 ug/mL M4
6) t	n-Dodecane (C12)	14.714	13617651	9.861 ug/mL M4
7) t	n-Tridecane (C13)	17.010	13681016	9.857 ug/mL M4
9) t	n-Tetradecane (C14)	19.183	13856607	9.882 ug/mL M4
11) t	n-Pentadecane (C15)	21.239	13886578	9.916 ug/mL M4
12) t	n-Hexadecane (C16)	23.189	14182165	9.884 ug/mL M4
14) t	n-Heptadecane (C17)	25.039	13995316	9.975 ug/mL M4
15) t	Pristane	25.147	14459482	9.799 ug/mL M4
16) t	n-Octadecane (C18)	26.801	14436946	10.054 ug/mL M4
17) t	Phytane	26.963	14304888	9.861 ug/mL M4
18) t	n-Nonadecane (C19)	28.483	14459933	10.148 ug/mL M4
20) t	n-Eicosane (C20)	30.083	14661546	10.058 ug/mL M4
21) t	n-Heneicosane (C21)	31.614	14733422	9.998 ug/mL M4
22) t	n-Docosane (C22)	33.084	14856193	10.144 ug/mL M4
23) t	n-Tricosane (C23)	34.492	14989800	10.067 ug/mL M4
25) t	n-Tetracosane (C24)	35.846	14860125	10.095 ug/mL M4
26) t	n-Pentacosane (C25)	37.147	15162429	10.142 ug/mL M4
27) t	n-Hexacosane (C26)	38.403	15053918	10.129 ug/mL M4
28) t	n-Heptacosane (C27)	39.612	14734040	10.025 ug/mL M4
29) t	n-Octacosane (C28)	40.778	14903797	10.079 ug/mL M4
30) t	n-Nonacosane (C29)	41.906	14916698	10.154 ug/mL M4
31) t	n-Triacontane (C30)	42.999	14723984	9.945 ug/mL M4
32) t	n-Hentriacontane (C31)	44.054	14868818	10.114 ug/mL M4
33) t	n-Dotriacontane (C32)	45.078	14833938	10.193 ug/mL M4
34) t	n-Tritriacontane (C33)	46.071	14164493	9.819 ug/mL M4
35) t	n-tetratriacontane (C34)	47.036	14634040	10.081 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.059	14881148	10.157 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.215	15149933	10.164 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.543	14817089	10.173 ug/mL M4
39) t	n-Octatriacontane (C38)	52.085	14692999	10.168 ug/mL M4
41) t	n-Tetracontane (C40)	56.012	13810396	10.318 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002924.D
Operator : BAL
Acquired : 23 Mar 2012 7:51 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231202R
Misc Info : WHA094
ALS Vial : 58



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002926.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 9:20 pm
Operator : BAL
Sample : I1703231203R
Misc : WHAP26
ALS Vial : 59 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:27:28 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:45:15 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

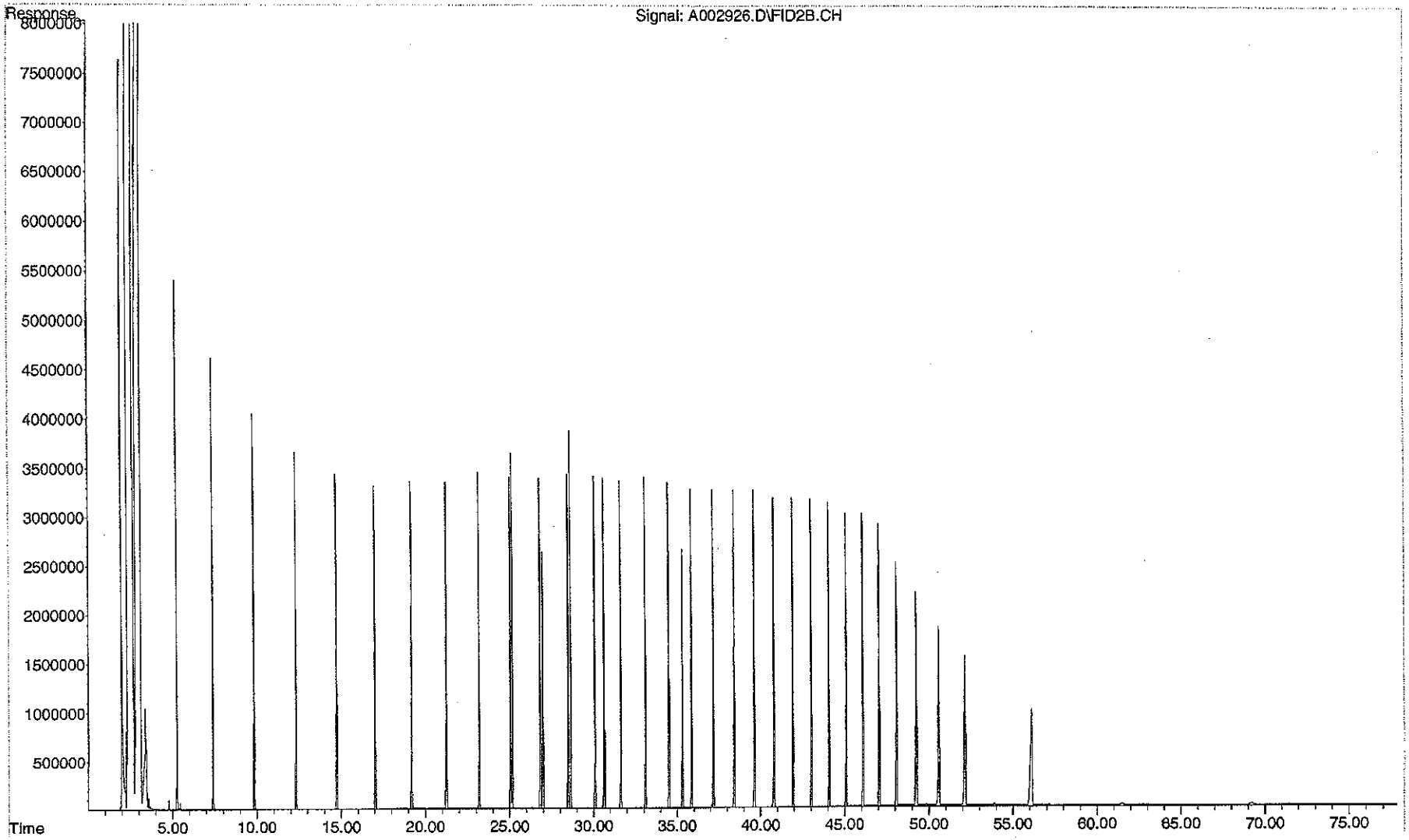
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.642	79889388	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.661	89251704	54.284 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	108.57%
24) s	d50-Tetracosane	35.326	72603404	54.044 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	108.09%
	Target Compounds			
2) t	n-Octane (C8)	5.257	65034398	53.754 ug/mL M4
3) t	n-Nonane (C9)	7.391	69849787	54.869 ug/mL M4
4) t	n-Decane (C10)	9.831	73417766	54.950 ug/mL M4
5) t	n-Undecane (C11)	12.317	74329044	54.887 ug/mL M4
6) t	n-Dodecane (C12)	14.728	75302609	54.555 ug/mL M4
7) t	n-Tridecane (C13)	17.025	75699588	54.630 ug/mL M4
9) t	n-Tetradecane (C14)	19.200	76569189	54.710 ug/mL M4
11) t	n-Pentadecane (C15)	21.258	76336539	54.556 ug/mL M4
12) t	n-Hexadecane (C16)	23.209	77427057	53.924 ug/mL M4
14) t	n-Heptadecane (C17)	25.062	78183870	55.722 ug/mL M4
15) t	Pristane	25.173	79152172	53.827 ug/mL M4
16) t	n-Octadecane (C18)	26.825	78943783	54.807 ug/mL M4
17) t	Phytane	26.988	78077156	53.912 ug/mL M4
18) t	n-Nonadecane (C19)	28.506	78613120	54.878 ug/mL M4
20) t	n-Eicosane (C20)	30.106	79830952	54.553 ug/mL M4
21) t	n-Heneicosane (C21)	31.637	79701602	53.870 ug/mL M4
22) t	n-Docosane (C22)	33.107	80239938	54.603 ug/mL M4
23) t	n-Tricosane (C23)	34.517	80141906	53.476 ug/mL M4
25) t	n-Tetracosane (C24)	35.872	79976309	54.266 ug/mL M4
26) t	n-Pentacosane (C25)	37.174	81528320	54.296 ug/mL M4
27) t	n-Hexacosane (C26)	38.427	81107753	54.179 ug/mL M4
28) t	n-Heptacosane (C27)	39.639	80556880	54.739 ug/mL M4
29) t	n-Octacosane (C28)	40.807	80114756	53.922 ug/mL M4
30) t	n-Nonacosane (C29)	41.935	79829963	53.993 ug/mL M4
31) t	n-Triacontane (C30)	43.027	81435111	54.977 ug/mL M4
32) t	n-Hentriacontane (C31)	44.083	80253841	54.300 ug/mL M4
33) t	n-Dotriacontane (C32)	45.107	79416221	54.151 ug/mL M4
34) t	n-Tritriacontane (C33)	46.100	80380202	55.929 ug/mL M4
35) t	n-tetratriacontane (C34)	47.066	79327431	54.395 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.095	79999080	54.367 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.259	81767265	54.635 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.593	79694630	54.462 ug/mL M4
39) t	n-Octatriacontane (C38)	52.149	78915029	54.298 ug/mL M4
41) t	n-Tetracontane (C40)	56.096	72059279	53.234 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\FORENSICS\DATA\FID17\2012\MAR2012\MAR23.SEC\A002926.D
Operator : BAL
Acquired : 23 Mar 2012 9:20 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231203R
Misc Info : WHAP26
ALS Vial : 59



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002928.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 10:49 pm
Operator : BAL
Sample : I1703231204R
Misc : WHAO95
ALS Vial : 60 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:10:19 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 11:41:01 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

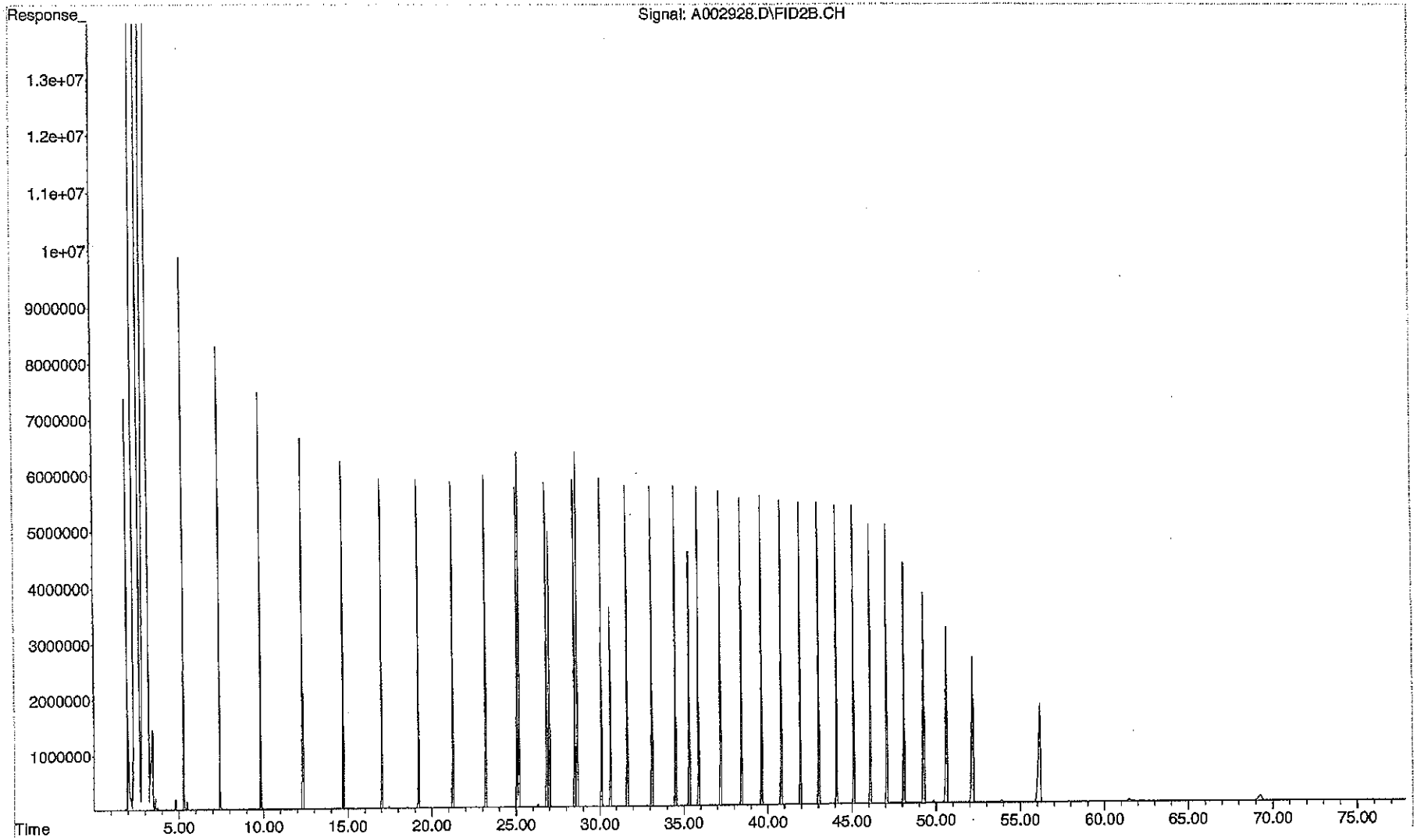
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.649	88655466	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	28.686	179525459	98.012 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	196.02%#
24) s	d50-Tetracosane	35.348	146744856	97.681 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	195.36%#
Target Compounds				
2) t	n-Octane (C8)	5.293	126868109	94.325 ug/mL M4
3) t	n-Nonane (C9)	7.419	139166590	97.371 ug/mL M4
4) t	n-Decane (C10)	9.851	149650342	99.747 ug/mL M4
5) t	n-Undecane (C11)	12.334	152683603	100.327 ug/mL M4
6) t	n-Dodecane (C12)	14.745	155918560	100.696 ug/mL M4
7) t	n-Tridecane (C13)	17.042	156670977	100.795 ug/mL M4
9) t	n-Tetradecane (C14)	19.217	158385692	100.882 ug/mL M4
11) t	n-Pentadecane (C15)	21.277	158515675	101.054 ug/mL M4
12) t	n-Hexadecane (C16)	23.228	161137617	100.087 ug/mL M4
14) t	n-Heptadecane (C17)	25.082	159957630	100.878 ug/mL M4
15) t	Pristane	25.195	163412985	99.520 ug/mL M4
16) t	n-Octadecane (C18)	26.847	163885604	101.175 ug/mL M4
17) t	Phytane	27.012	161817379	99.918 ug/mL M4
18) t	n-Nonadecane (C19)	28.530	163800379	101.616 ug/mL M4
20) t	n-Eicosane (C20)	30.130	165133732	100.375 ug/mL M4
21) t	n-Heneicosane (C21)	31.662	165005366	99.294 ug/mL M4
22) t	n-Docosane (C22)	33.133	166193990	100.722 ug/mL M4
23) t	n-Tricosane (C23)	34.543	166142293	98.696 ug/mL M4
25) t	n-Tetracosane (C24)	35.898	165232281	99.959 ug/mL M4
26) t	n-Pentacosane (C25)	37.201	168707053	100.042 ug/mL M4
27) t	n-Hexacosane (C26)	38.455	167573224	99.635 ug/mL M4
28) t	n-Heptacosane (C27)	39.664	164217824	98.986 ug/mL M4
29) t	n-Octacosane (C28)	40.832	166272276	99.633 ug/mL M4
30) t	n-Nonacosane (C29)	41.961	166855970	100.357 ug/mL M4
31) t	n-Triacontane (C30)	43.054	164926869	98.250 ug/mL M4
32) t	n-Hentriacontane (C31)	44.112	166726295	100.128 ug/mL M4
33) t	n-Dotriacontane (C32)	45.136	166338855	100.676 ug/mL M4
34) t	n-Tritriacontane (C33)	46.125	158769675	96.897 ug/mL M4
35) t	n-tetratriacontane (C34)	47.094	163543588	99.287 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.127	166041950	99.974 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.299	168925919	99.949 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.640	165259009	99.992 ug/mL M4
39) t	n-Octatriacontane (C38)	52.204	164224434	100.036 ug/mL M4
41) t	n-Tetracontane (C40)	56.163	155519298	102.328 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\FORENSICS\DATA\FID17\2012\MAR2012\MAR23.SEC\A002928.D
Operator : BAL
Acquired : 23 Mar 2012 10:49 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231204R
Misc Info : WHAO95
ALS Vial : 60



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002930.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 12:18 am
Operator : BAL
Sample : I1703231205R
Misc : WHA096
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:11:37 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 11:50:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

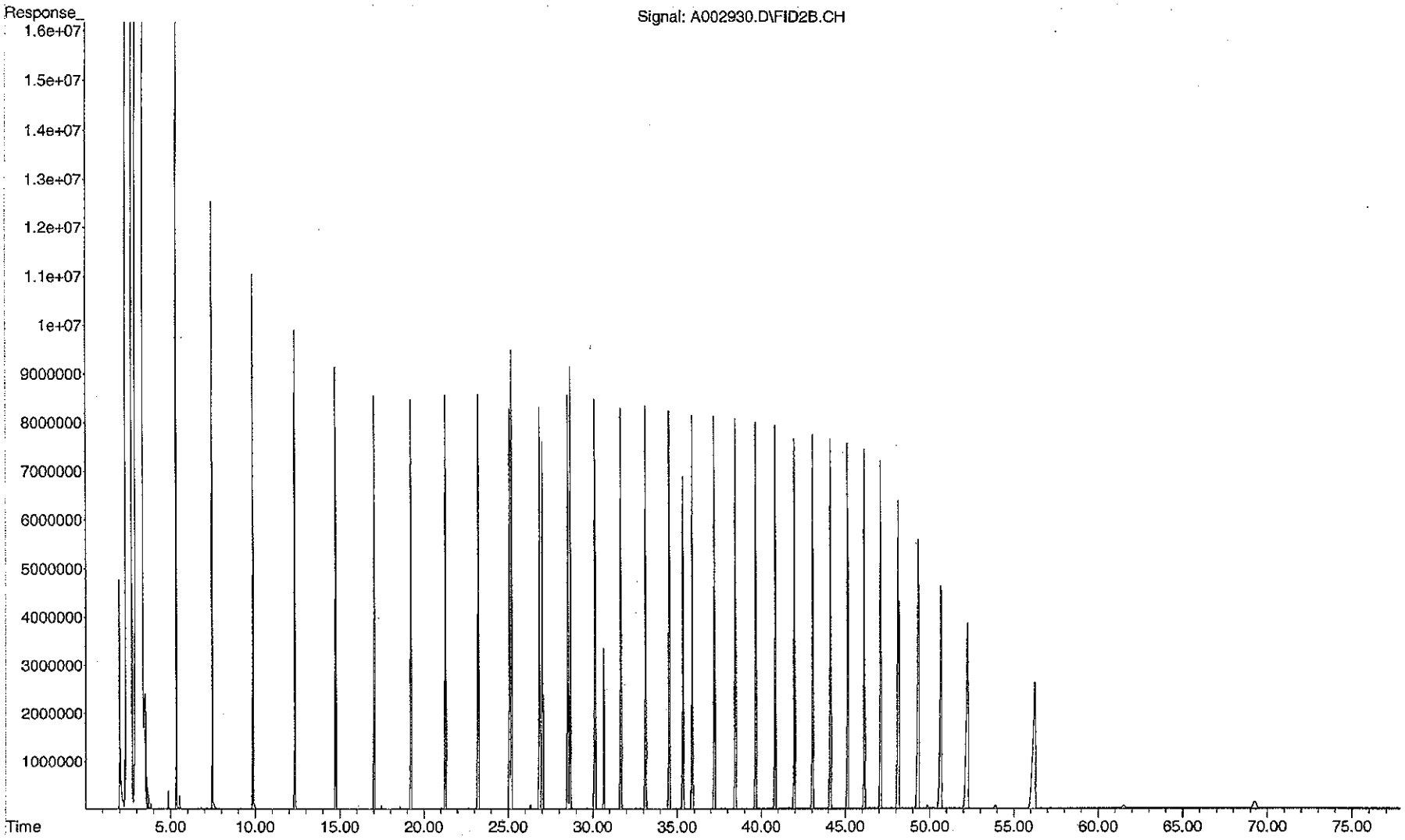
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.651	80211999	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.713	313621375	188.283 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 376.57%#
24) s	d50-Tetracosane	35.373	256185900	188.361 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 376.72%#
	Target Compounds			
2) t	n-Octane (C8)	5.351	239243704	198.817 ug/mL M4
3) t	n-Nonane (C9)	7.460	250230981	193.813 ug/mL M4
4) t	n-Decane (C10)	9.877	263978042	193.805 ug/mL M4
5) t	n-Undecane (C11)	12.355	267261384	193.022 ug/mL M4
6) t	n-Dodecane (C12)	14.764	272847916	193.455 ug/mL M4
7) t	n-Tridecane (C13)	17.061	274002229	193.506 ug/mL M4
9) t	n-Tetradecane (C14)	19.238	276962521	193.719 ug/mL M4
11) t	n-Pentadecane (C15)	21.296	276880126	193.783 ug/mL M4
12) t	n-Hexadecane (C16)	23.250	280982027	191.576 ug/mL M4
14) t	n-Heptadecane (C17)	25.106	281159251	194.313 ug/mL M4
15) t	Pristane	25.222	282980320	190.079 ug/mL M4
16) t	n-Octadecane (C18)	26.870	285198787	192.946 ug/mL M4
17) t	Phytane	27.039	281888535	191.549 ug/mL M4
18) t	n-Nonadecane (C19)	28.553	284498117	193.076 ug/mL M4
20) t	n-Eicosane (C20)	30.153	286903852	191.236 ug/mL M4
21) t	n-Heneicosane (C21)	31.687	286292670	188.981 ug/mL M4
22) t	n-Docosane (C22)	33.156	288096923	190.924 ug/mL M4
23) t	n-Tricosane (C23)	34.568	287706887	187.581 ug/mL M4
25) t	n-Tetracosane (C24)	35.926	286136128	190.309 ug/mL M4
26) t	n-Pentacosane (C25)	37.227	292006312	190.108 ug/mL M4
27) t	n-Hexacosane (C26)	38.481	289672667	189.694 ug/mL M4
28) t	n-Heptacosane (C27)	39.691	283442148	188.271 ug/mL M4
29) t	n-Octacosane (C28)	40.860	286465605	188.904 ug/mL M4
30) t	n-Nonacosane (C29)	41.991	287352846	190.237 ug/mL M4
31) t	n-Triacontane (C30)	43.081	284500297	187.980 ug/mL M4
32) t	n-Hentriacontane (C31)	44.140	288436968	190.906 ug/mL M4
33) t	n-Dotriacontane (C32)	45.163	288288996	192.020 ug/mL M4
34) t	n-Tritriacontane (C33)	46.155	275629019	187.608 ug/mL M4
35) t	n-tetratriacontane (C34)	47.125	285148496	191.572 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.166	290992959	193.395 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.339	297722948	193.986 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.691	292537633	195.526 ug/mL M4
39) t	n-Octatriacontane (C38)	52.266	291433530	196.290 ug/mL M4
41) t	n-Tetracontane (C40)	56.253	276101844	199.645 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002930.D
Operator : BAL
Acquired : 24 Mar 2012 12:18 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231205R
Misc Info : WHA096
ALS Vial : 61



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002932.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 1:47 am
Operator : BAL
Sample : I1703231206R
Misc : WHA097
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 28 14:25:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 12:09:32 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

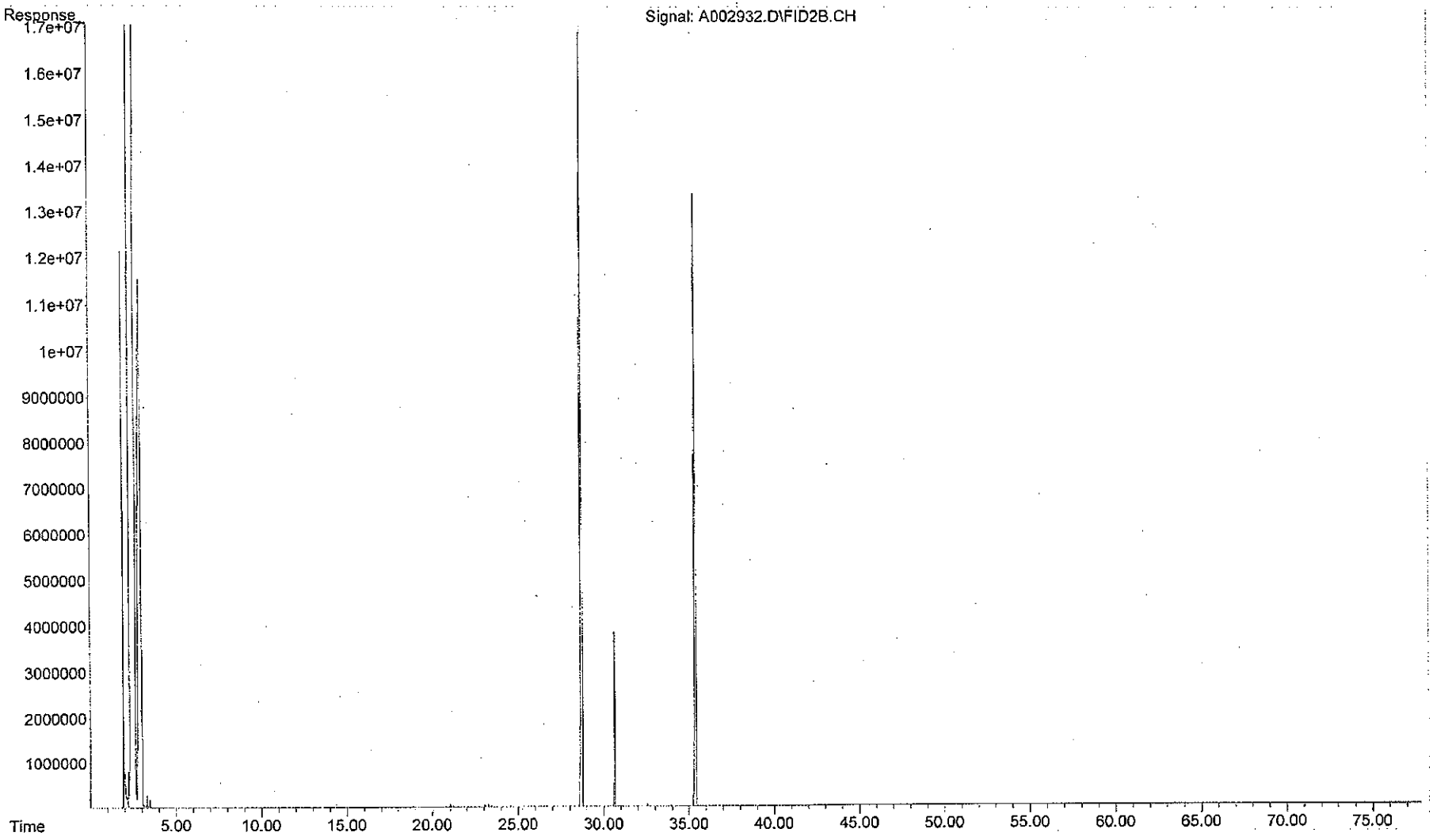
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.648	93986669	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.771f	882093541	455.046 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 910.09%#	
24) s d50-Tetracosane	35.431f	723388324	455.329 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 910.66%#	
Target Compounds			
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002932.D
Operator : BAL
Acquired : 24 Mar 2012 1:47 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231206R
Misc Info : WHA097
ALS Vial : 62



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002936.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 4:45 am
Operator : BAL
Sample : CQ1703231207R
Misc : WHA098
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:28:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	117	0.00
2	t	n-Octane (C8)	50.000	43.618	12.8	93	0.00
3	t	n-Nonane (C9)	50.000	42.966	14.1	92	0.00
4	t	n-Decane (C10)	50.000	42.770	14.5	92	0.00
5	t	n-Undecane (C11)	50.000	42.552	14.9	92	0.00
6	t	n-Dodecane (C12)	50.000	42.411	15.2	92	0.00
7	t	n-Tridecane (C13)	50.000	42.285	15.4	92	0.00
9	t	n-Tetradecane (C14)	50.000	42.338	15.3	92	0.00
11	t	n-Pentadecane (C15)	50.000	42.421	15.2	92	0.00
12	t	n-Hexadecane (C16)	50.000	41.839	16.3	92	0.00
14	t	n-Heptadecane (C17)	50.000	42.030	15.9	90	0.00
15	t	Pristane	50.000	42.248	15.5	92	0.00
16	t	n-Octadecane (C18)	50.000	42.255	15.5	92	0.00
17	t	Phytane	50.000	42.154	15.7	92	0.00
18	t	n-Nonadecane (C19)	50.000	42.290	15.4	92	0.00
19	s	ortho-terphenyl	50.000	42.571	14.9	90	0.00
20	t	n-Eicosane (C20)	50.000	42.138	15.7	92	0.00
21	t	n-Heneicosane (C21)	50.000	41.796	16.4	92	0.00
22	t	n-Docosane (C22)	50.000	42.199	15.6	92	0.00
23	t	n-Tricosane (C23)	50.000	41.536	16.9	92	0.00
24	s	d50-Tetracosane	50.000	42.568	14.9	91	0.00
25	t	n-Tetracosane (C24)	50.000	42.178	15.6	92	0.00
26	t	n-Pentacosane (C25)	50.000	42.106	15.8	92	0.00
27	t	n-Hexacosane (C26)	50.000	42.058	15.9	92	0.00
28	t	n-Heptacosane (C27)	50.000	41.888	16.2	91	0.00
29	t	n-Octacosane (C28)	50.000	41.923	16.2	92	0.00
30	t	n-Nonacosane (C29)	50.000	42.120	15.8	93	0.00
31	t	n-Triacontane (C30)	50.000	41.750	16.5	90	0.00
32	t	n-Hentriacontane (C31)	50.000	41.993	16.0	92	0.00
33	t	n-Dotriacontane (C32)	50.000	42.061	15.9	93	0.00
34	t	n-Tritriacontane (C33)	50.000	41.464	17.1	88	0.00
35	t	n-tetratriacontane (C34)	50.000	41.902	16.2	92	0.00
36	t	n-Pentatriacontane (C35)	50.000	41.964	16.1	92	0.00
37	t	n-Hexatriacontane (C36)	50.000	41.807	16.4	92	0.00
38	t	n-Heptatriacontane (C37)	50.000	41.756	16.5	92	0.00
39	t	n-Octatriacontane (C38)	50.000	41.707	16.6	92	0.00
41	t	n-Tetracontane (C40)	50.000	41.860	16.3	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC17032312R.M Fri Apr 13 08:45:14 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002936.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 4:45 am
Operator : BAL
Sample : CQ1703231207R
Misc : WHAO98
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:28:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

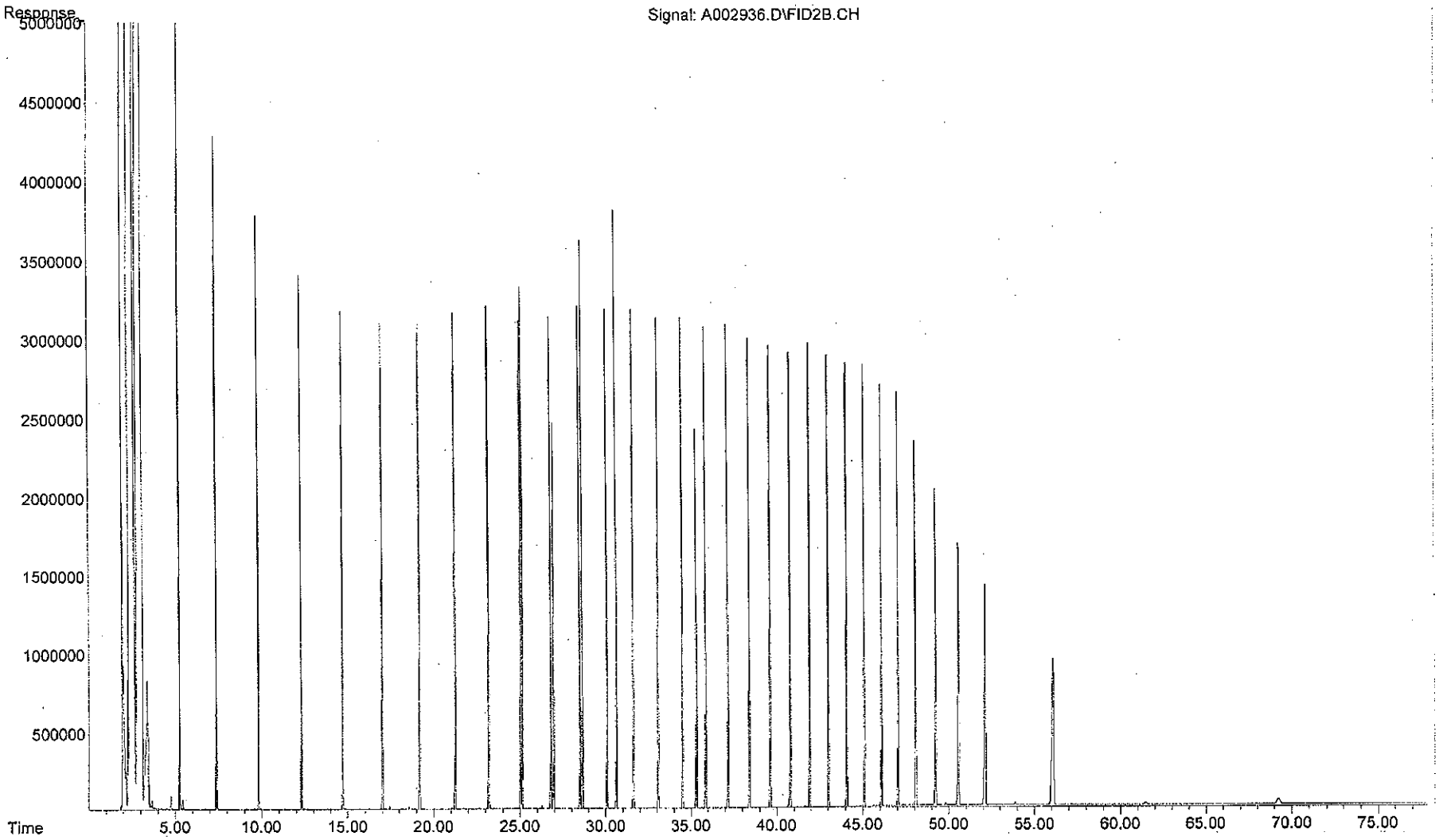
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.644	93255139	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terpheny1	28.655	80429835	42.571 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 85.14%	
24) s d50-Tetracosane	35.323	65922118	42.568 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 85.14%	
Target Compounds			
2) t n-Octane (C8)	5.255	60339221	43.618 ug/mL M4
3) t n-Nonane (C9)	7.389	63917158	42.966 ug/mL M4
4) t n-Decane (C10)	9.827	67376984	42.770 ug/mL M4
5) t n-Undecane (C11)	12.312	68224068	42.552 ug/mL M4
6) t n-Dodecane (C12)	14.725	69354440	42.411 ug/mL M4
7) t n-Tridecane (C13)	17.022	69450604	42.285 ug/mL M4
9) t n-Tetradecane (C14)	19.197	70180781	42.338 ug/mL M4
11) t n-Pentadecane (C15)	21.254	70262014	42.421 ug/mL M4
12) t n-Hexadecane (C16)	23.206	71208050	41.839 ug/mL M4
14) t n-Heptadecane (C17)	25.058	70676997	42.030 ug/mL M4
15) t Pristane	25.168	72629603	42.248 ug/mL M4
16) t n-Octadecane (C18)	26.820	72622064	42.255 ug/mL M4
17) t Phytane	26.984	71795832	42.154 ug/mL M4
18) t n-Nonadecane (C19)	28.502	72602680	42.290 ug/mL M4
20) t n-Eicosane (C20)	30.102	73374893	42.138 ug/mL M4
21) t n-Heneicosane (C21)	31.635	73530566	41.796 ug/mL M4
22) t n-Docosane (C22)	33.104	73958137	42.199 ug/mL M4
23) t n-Tricosane (C23)	34.513	74054372	41.536 ug/mL M4
25) t n-Tetracosane (C24)	35.869	73676859	42.178 ug/mL M4
26) t n-Pentacosane (C25)	37.169	75166884	42.106 ug/mL M4
27) t n-Hexacosane (C26)	38.426	74635040	42.058 ug/mL M4
28) t n-Heptacosane (C27)	39.634	73038716	41.888 ug/mL M4
29) t n-Octacosane (C28)	40.803	73912203	41.923 ug/mL M4
30) t n-Nonacosane (C29)	41.931	74080350	42.120 ug/mL M4
31) t n-Triacontane (C30)	43.022	73197652	41.750 ug/mL M4
32) t n-Hentriacontane (C31)	44.080	73995669	41.993 ug/mL M4
33) t n-Dotriacontane (C32)	45.104	73845691	42.061 ug/mL M4
34) t n-Tritriacontane (C33)	46.097	70532080	41.464 ug/mL M4
35) t n-tetratriacontane (C34)	47.062	72741135	41.902 ug/mL M4
36) t n-Pentatriacontane (C35)	48.089	73921306	41.964 ug/mL M4
37) t n-Hexatriacontane (C36)	49.252	75167249	41.807 ug/mL M4
38) t n-Heptatriacontane (C37)	50.585	73392714	41.756 ug/mL M4
39) t n-Octatriacontane (C38)	52.140	72702313	41.707 ug/mL M4
41) t n-Tetracontane (C40)	56.080	68342189	41.860 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002936.D
Operator : BAL
Acquired : 24 Mar 2012 4:45 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231207R
Misc Info : WHAO98
ALS Vial : 64



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.653	97972052	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.663	96084997	48.408 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 96.82%	
24) s d50-Tetracosane	35.337	82614419	50.779 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 101.56%	
Target Compounds			
2) t n-Octane (C8)	5.230	123075347	84.685 ug/mL M4
3) t n-Nonane (C9)	7.381	97742451	62.541 ug/mL M4
4) t n-Decane (C10)	9.826	82821759	50.043 ug/mL M4
5) t n-Undecane (C11)	12.316	77909742	46.254 ug/mL M4
6) t n-Dodecane (C12)	14.727	72244987	42.052 ug/mL M4
7) t n-Tridecane (C13)	17.024	69443394	40.245 ug/mL M4
8) t 1380	18.688	14772117	8.483 ug/mL M4
9) t n-Tetradecane (C14)	19.198	63395205	36.404 ug/mL M4
10) t 1470	20.475	22976806	13.204 ug/mL M4
11) t n-Pentadecane (C15)	21.254	61059417	35.090 ug/mL M4
12) t n-Hexadecane (C16)	23.204	59484808	33.268 ug/mL M4
13) t 1650	24.104	21557086	12.202 ug/mL M4
14) t n-Heptadecane (C17)	25.056	51983436	29.425 ug/mL M4
15) t Pristane	25.150	36546739	20.235 ug/mL M4
16) t n-Octadecane (C18)	26.816	48461212	26.840 ug/mL M4
17) t Phytane	26.968	21270524	11.887 ug/mL M4
18) t n-Nonadecane (C19)	28.499	41772057	23.160 ug/mL M4
20) t n-Eicosane (C20)	30.099	43057464	23.536 ug/mL M4
21) t n-Heneicosane (C21)	31.632	37612708	20.350 ug/mL M4
22) t n-Docosane (C22)	33.099	35951373	19.526 ug/mL M4
23) t n-Tricosane (C23)	34.510	32715537	17.466 ug/mL M4
25) t n-Tetracosane (C24)	35.862	29847959	16.264 ug/mL M4
26) t n-Pentacosane (C25)	37.164	28736741	15.322 ug/mL M4
27) t n-Hexacosane (C26)	38.416	26131394	14.017 ug/mL M4
28) t n-Heptacosane (C27)	39.624	20017262	10.927 ug/mL M4
29) t n-Octacosane (C28)	40.790	14032444	7.576 ug/mL M4
30) t n-Nonacosane (C29)	41.918	13594350	7.357 ug/mL M4
31) t n-Triacontane (C30)	43.010	12549661	6.813 ug/mL M4
32) t n-Hentriacontane (C31)	44.066	11018588	5.952 ug/mL M4
33) t n-Dotriacontane (C32)	45.086	7688497	4.168 ug/mL M4
34) t n-Tritriacontane (C33)	46.080	6803662	3.807 ug/mL M4
35) t n-tetratriacontane (C34)	47.040	6553948	3.594 ug/mL M4
36) t n-Pentatriacontane (C35)	48.065	5396390	2.916 ug/mL M4
37) t n-Hexatriacontane (C36)	49.225	3427024	1.814 ug/mL M4
38) t n-Heptatriacontane (C37)	50.551	2911633	1.577 ug/mL M4
39) t n-Octatriacontane (C38)	52.091	2086662	1.139 ug/mL M4
40) t n-Nonatriacontane (C39)	53.884	1280528	0.747 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

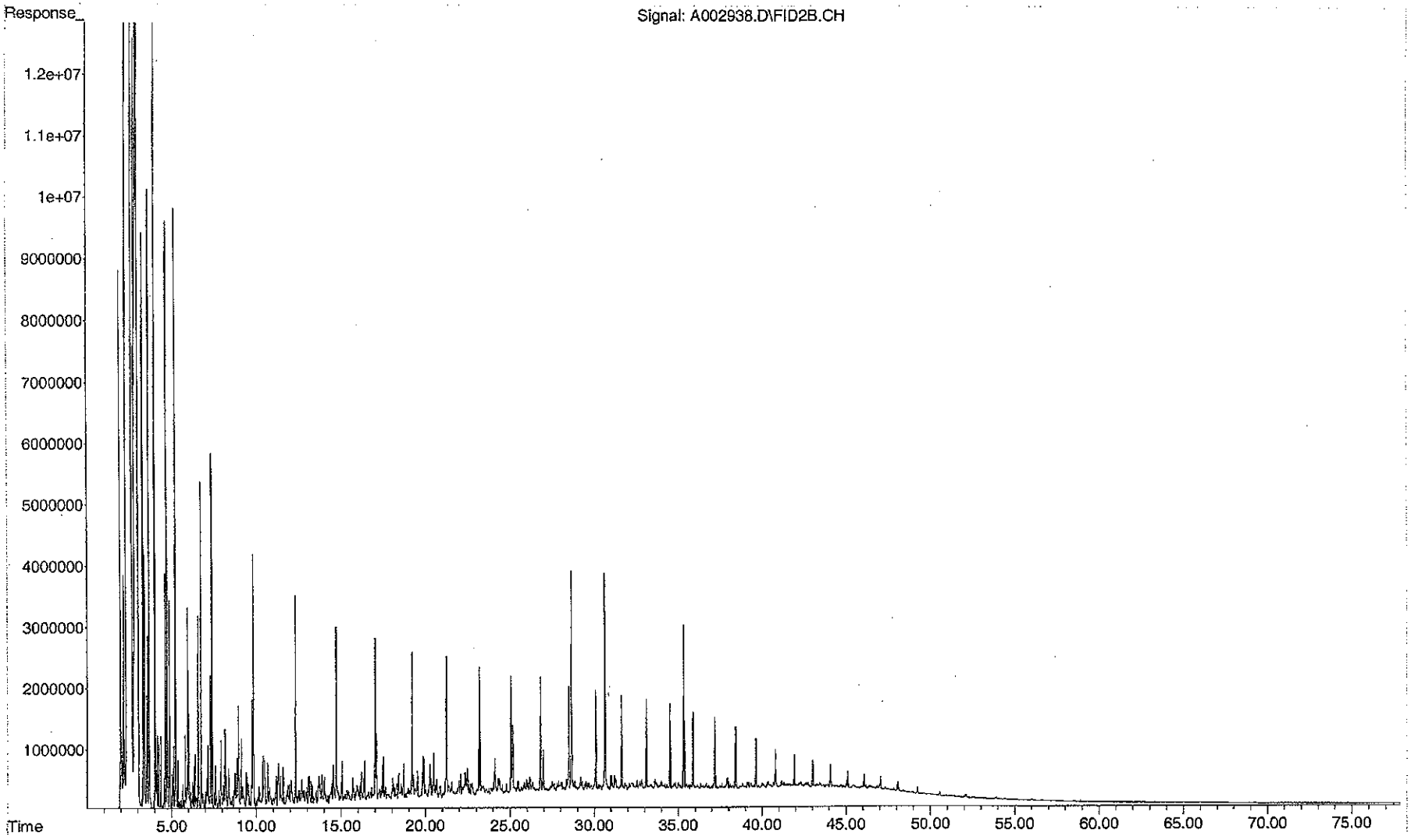
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.019	1346114	0.785	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	10074246033	5599.956	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	3443065595	1913.892	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002938.D
Operator : BAL
Acquired : 24 Mar 2012 6:14 am using AcqMethod FID17.M
Instrument : FID17
Sample : TS032612ANS02
Misc Info : 1X, WHAM98
ALS Vial : 65



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	53.130	-6.3	90	0.00
3	t	n-Nonane (C9)	50.000	51.428	-2.9	87	0.00
4	t	n-Decane (C10)	50.000	51.054	-2.1	87	0.00
5	t	n-Undecane (C11)	50.000	51.146	-2.3	88	0.00
6	t	n-Dodecane (C12)	50.000	51.927	-3.9	89	0.00
7	t	n-Tridecane (C13)	50.000	52.357	-4.7	90	0.00
9	t	n-Tetradecane (C14)	50.000	52.779	-5.6	91	0.00
11	t	n-Pentadecane (C15)	50.000	53.222	-6.4	92	0.00
12	t	n-Hexadecane (C16)	50.000	52.810	-5.6	92	0.00
14	t	n-Heptadecane (C17)	50.000	52.790	-5.6	90	0.00
15	t	Pristane	50.000	54.033	-8.1	93	0.00
16	t	n-Octadecane (C18)	50.000	53.265	-6.5	92	0.00
17	t	Phytane	50.000	54.072	-8.1	94	0.00
18	t	n-Nonadecane (C19)	50.000	53.451	-6.9	93	0.00
19	s	ortho-terphenyl	50.000	56.118	-12.2	94	0.00
20	t	n-Eicosane (C20)	50.000	53.281	-6.6	92	0.00
21	t	n-Heneicosane (C21)	50.000	52.864	-5.7	93	0.00
22	t	n-Docosane (C22)	50.000	53.388	-6.8	92	0.00
23	t	n-Tricosane (C23)	50.000	52.459	-4.9	93	0.00
24	s	d50-Tetracosane	50.000	55.203	-10.4	93	0.00
25	t	n-Tetracosane (C24)	50.000	53.140	-6.3	92	0.00
26	t	n-Pentacosane (C25)	50.000	53.181	-6.4	92	0.00
27	t	n-Hexacosane (C26)	50.000	53.073	-6.1	92	0.00
28	t	n-Heptacosane (C27)	50.000	52.891	-5.8	91	0.00
29	t	n-Octacosane (C28)	50.000	52.804	-5.6	92	0.00
30	t	n-Nonacosane (C29)	50.000	53.147	-6.3	93	0.00
31	t	n-Triacontane (C30)	50.000	52.470	-4.9	90	0.00
32	t	n-Hentriacontane (C31)	50.000	52.763	-5.5	92	0.00
33	t	n-Dotriacontane (C32)	50.000	52.684	-5.4	92	0.00
34	t	n-Tritriacontane (C33)	50.000	52.157	-4.3	88	0.00
35	t	n-tetratriacontane (C34)	50.000	52.487	-5.0	91	0.00
36	t	n-Pentatriacontane (C35)	50.000	52.603	-5.2	92	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.226	-4.5	91	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.096	-4.2	91	0.00
39	t	n-Octatriacontane (C38)	50.000	51.931	-3.9	91	0.00
41	t	n-Tetracontane (C40)	50.000	51.567	-3.1	93	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.620	73964426	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.641	84093264	56.118 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.24%
24) s	d50-Tetracosane	35.311	67804686	55.203 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	110.41%
	Target Compounds			
2) t	n-Octane (C8)	5.239	58293482	53.130 ug/mL M4
3) t	n-Nonane (C9)	7.376	60679830	51.428 ug/mL M4
4) t	n-Decane (C10)	9.814	63790059	51.054 ug/mL M4
5) t	n-Undecane (C11)	12.299	65039323	51.146 ug/mL M4
6) t	n-Dodecane (C12)	14.712	67348915	51.927 ug/mL M4
7) t	n-Tridecane (C13)	17.009	68204004	52.357 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	69389467	52.779 ug/mL M4
11) t	n-Pentadecane (C15)	21.242	69917114	53.222 ug/mL M4
12) t	n-Hexadecane (C16)	23.192	71287673	52.810 ug/mL M4
14) t	n-Heptadecane (C17)	25.044	70407990	52.790 ug/mL M4
15) t	Pristane	25.155	73674868	54.033 ug/mL M4
16) t	n-Octadecane (C18)	26.807	72607749	53.265 ug/mL M4
17) t	Phytane	26.972	73043586	54.072 ug/mL M4
18) t	n-Nonadecane (C19)	28.489	72781140	53.451 ug/mL M4
20) t	n-Eicosane (C20)	30.090	73586490	53.281 ug/mL M4
21) t	n-Heneicosane (C21)	31.622	73762862	52.864 ug/mL M4
22) t	n-Docosane (C22)	33.091	74213134	53.388 ug/mL M4
23) t	n-Tricosane (C23)	34.500	74181180	52.459 ug/mL M4
25) t	n-Tetracosane (C24)	35.857	73623746	53.140 ug/mL M4
26) t	n-Pentacosane (C25)	37.159	75298965	53.181 ug/mL M4
27) t	n-Hexacosane (C26)	38.412	74699445	53.073 ug/mL M4
28) t	n-Heptacosane (C27)	39.621	73145768	52.891 ug/mL M4
29) t	n-Octacosane (C28)	40.789	73837059	52.804 ug/mL M4
30) t	n-Nonacosane (C29)	41.919	74138831	53.147 ug/mL M4
31) t	n-Triacontane (C30)	43.010	72964127	52.470 ug/mL M4
32) t	n-Hentriacontane (C31)	44.066	73741516	52.763 ug/mL M4
33) t	n-Dotriacontane (C32)	45.091	73363035	52.684 ug/mL M4
34) t	n-Tritriacontane (C33)	46.082	70368873	52.157 ug/mL M4
35) t	n-tetratriacontane (C34)	47.049	72268769	52.487 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.075	73493738	52.603 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.237	74476598	52.226 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.567	72626044	52.096 ug/mL M4
39) t	n-Octatriacontane (C38)	52.112	71798594	51.931 ug/mL M4
41) t	n-Tetracontane (C40)	56.051	66774181	51.567 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

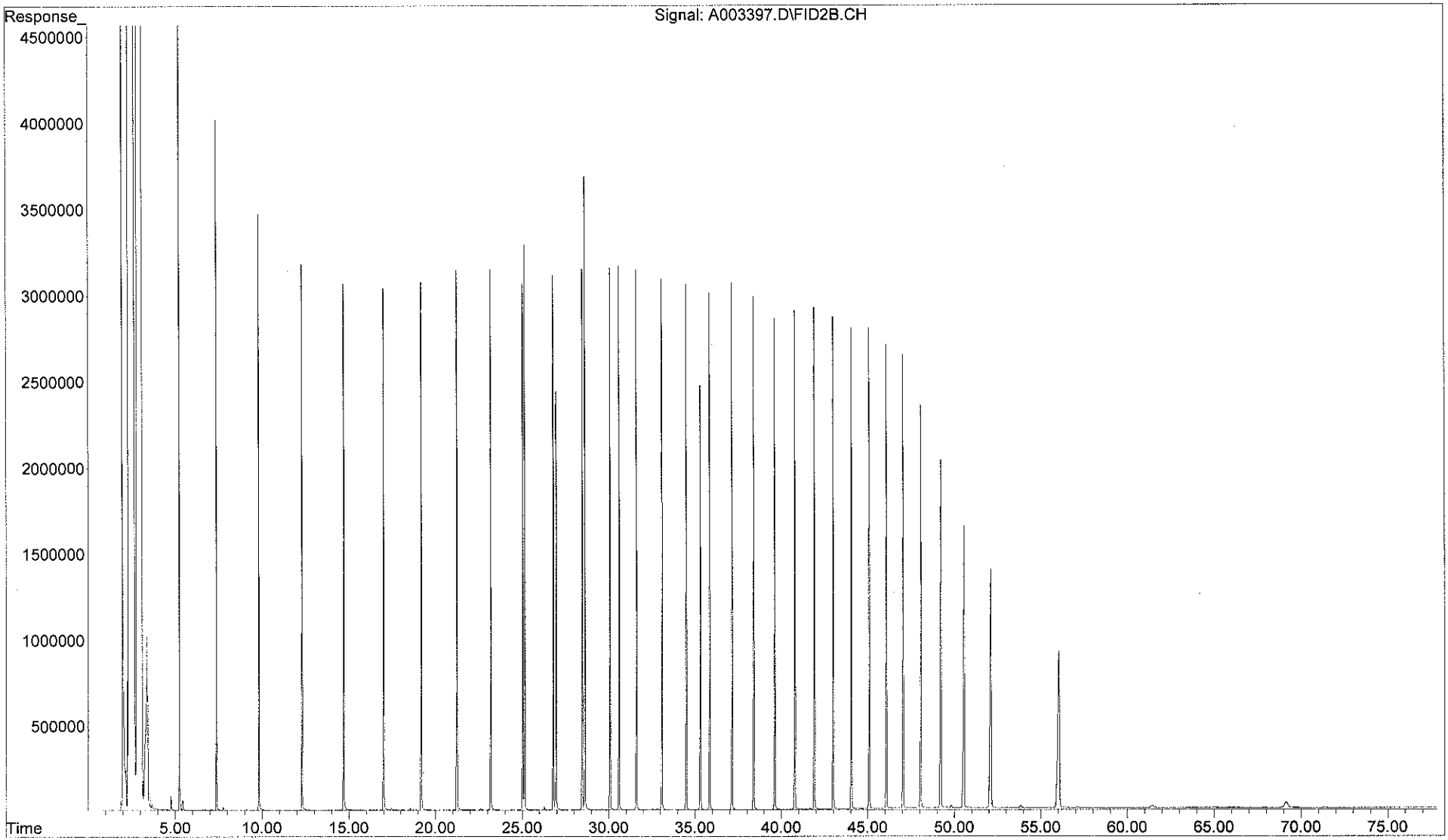
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003397.D
Operator : BAL
Acquired : 01 May 2012 11:09 am using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011201R
Misc Info : WHAP14
ALS Vial : 52



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	87	0.00
2	t	n-Octane (C8)	50.000	53.841	-7.7	86	0.00
3	t	n-Nonane (C9)	50.000	51.456	-2.9	82	0.00
4	t	n-Decane (C10)	50.000	50.721	-1.4	81	0.00
5	t	n-Undecane (C11)	50.000	50.737	-1.5	82	0.00
6	t	n-Dodecane (C12)	50.000	51.690	-3.4	84	0.00
7	t	n-Tridecane (C13)	50.000	52.092	-4.2	84	0.00
9	t	n-Tetradecane (C14)	50.000	52.571	-5.1	85	0.00
11	t	n-Pentadecane (C15)	50.000	53.062	-6.1	86	0.00
12	t	n-Hexadecane (C16)	50.000	52.703	-5.4	87	0.00
14	t	n-Heptadecane (C17)	50.000	52.627	-5.3	85	0.00
15	t	Pristane	50.000	53.883	-7.8	87	0.00
16	t	n-Octadecane (C18)	50.000	53.296	-6.6	87	0.00
17	t	Phytane	50.000	53.931	-7.9	88	0.00
18	t	n-Nonadecane (C19)	50.000	53.620	-7.2	87	0.00
19	s	ortho-terphenyl	50.000	56.107	-12.2	89	0.00
20	t	n-Eicosane (C20)	50.000	53.491	-7.0	87	0.00
21	t	n-Heneicosane (C21)	50.000	53.187	-6.4	88	0.00
22	t	n-Docosane (C22)	50.000	53.761	-7.5	88	0.00
23	t	n-Tricosane (C23)	50.000	52.900	-5.8	88	0.00
24	s	d50-Tetracosane	50.000	55.737	-11.5	89	0.00
25	t	n-Tetracosane (C24)	50.000	53.655	-7.3	88	0.00
26	t	n-Pentacosane (C25)	50.000	53.784	-7.6	88	0.00
27	t	n-Hexacosane (C26)	50.000	53.633	-7.3	88	0.00
28	t	n-Heptacosane (C27)	50.000	53.442	-6.9	86	0.00
29	t	n-Octacosane (C28)	50.000	53.481	-7.0	88	0.00
30	t	n-Nonacosane (C29)	50.000	53.622	-7.2	88	0.00
31	t	n-Triacontane (C30)	50.000	53.170	-6.3	86	0.00
32	t	n-Hentriacontane (C31)	50.000	53.375	-6.8	88	0.00
33	t	n-Dotriacontane (C32)	50.000	53.368	-6.7	88	0.00
34	t	n-Tritriacontane (C33)	50.000	52.615	-5.2	83	0.00
35	t	n-tetratriacontane (C34)	50.000	53.358	-6.7	87	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.083	-6.2	87	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.805	-5.6	87	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.516	-5.0	87	0.00
39	t	n-Octatriacontane (C38)	50.000	52.378	-4.8	86	0.00
41	t	n-Tetracontane (C40)	50.000	52.013	-4.0	88	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.621	69675756	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.641	79201345	56.107 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 112.21%	
24) s d50-Tetracosane	35.313	64490595	55.737 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 111.47%	
Target Compounds			
2) t n-Octane (C8)	5.236	55648353	53.841 ug/mL M4
3) t n-Nonane (C9)	7.375	57191650	51.456 ug/mL M4
4) t n-Decane (C10)	9.813	59699218	50.721 ug/mL M4
5) t n-Undecane (C11)	12.300	60778075	50.737 ug/mL M4
6) t n-Dodecane (C12)	14.712	63154481	51.690 ug/mL M4
7) t n-Tridecane (C13)	17.008	63924065	52.092 ug/mL M4
9) t n-Tetradecane (C14)	19.184	65108871	52.571 ug/mL M4
11) t n-Pentadecane (C15)	21.242	65664839	53.062 ug/mL M4
12) t n-Hexadecane (C16)	23.192	67018591	52.703 ug/mL M4
14) t n-Heptadecane (C17)	25.046	66120685	52.627 ug/mL M4
15) t Pristane	25.156	69209268	53.883 ug/mL M4
16) t n-Octadecane (C18)	26.807	68437459	53.296 ug/mL M4
17) t Phytane	26.971	68628905	53.931 ug/mL M4
18) t n-Nonadecane (C19)	28.489	68777789	53.620 ug/mL M4
20) t n-Eicosane (C20)	30.091	69593275	53.491 ug/mL M4
21) t n-Heneicosane (C21)	31.623	69911359	53.187 ug/mL M4
22) t n-Docosane (C22)	33.092	70397427	53.761 ug/mL M4
23) t n-Tricosane (C23)	34.502	70467648	52.900 ug/mL M4
25) t n-Tetracosane (C24)	35.858	70026390	53.655 ug/mL M4
26) t n-Pentacosane (C25)	37.159	71737511	53.784 ug/mL M4
27) t n-Hexacosane (C26)	38.412	71110160	53.633 ug/mL M4
28) t n-Heptacosane (C27)	39.624	69622471	53.442 ug/mL M4
29) t n-Octacosane (C28)	40.791	70447303	53.481 ug/mL M4
30) t n-Nonacosane (C29)	41.921	70464427	53.622 ug/mL M4
31) t n-Triacontane (C30)	43.010	69649786	53.170 ug/mL M4
32) t n-Hentriacontane (C31)	44.068	70270421	53.375 ug/mL M4
33) t n-Dotriacontane (C32)	45.091	70006831	53.368 ug/mL M4
34) t n-Tritriacontane (C33)	46.084	66869652	52.615 ug/mL M4
35) t n-tetratriacontane (C34)	47.051	69208787	53.358 ug/mL M4
36) t n-Pentatriacontane (C35)	48.077	69864884	53.083 ug/mL M4
37) t n-Hexatriacontane (C36)	49.240	70936068	52.805 ug/mL M4
38) t n-Heptatriacontane (C37)	50.569	68965712	52.516 ug/mL M4
39) t n-Octatriacontane (C38)	52.113	68218538	52.378 ug/mL M4
41) t n-Tetracontane (C40)	56.053	63447047	52.013 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

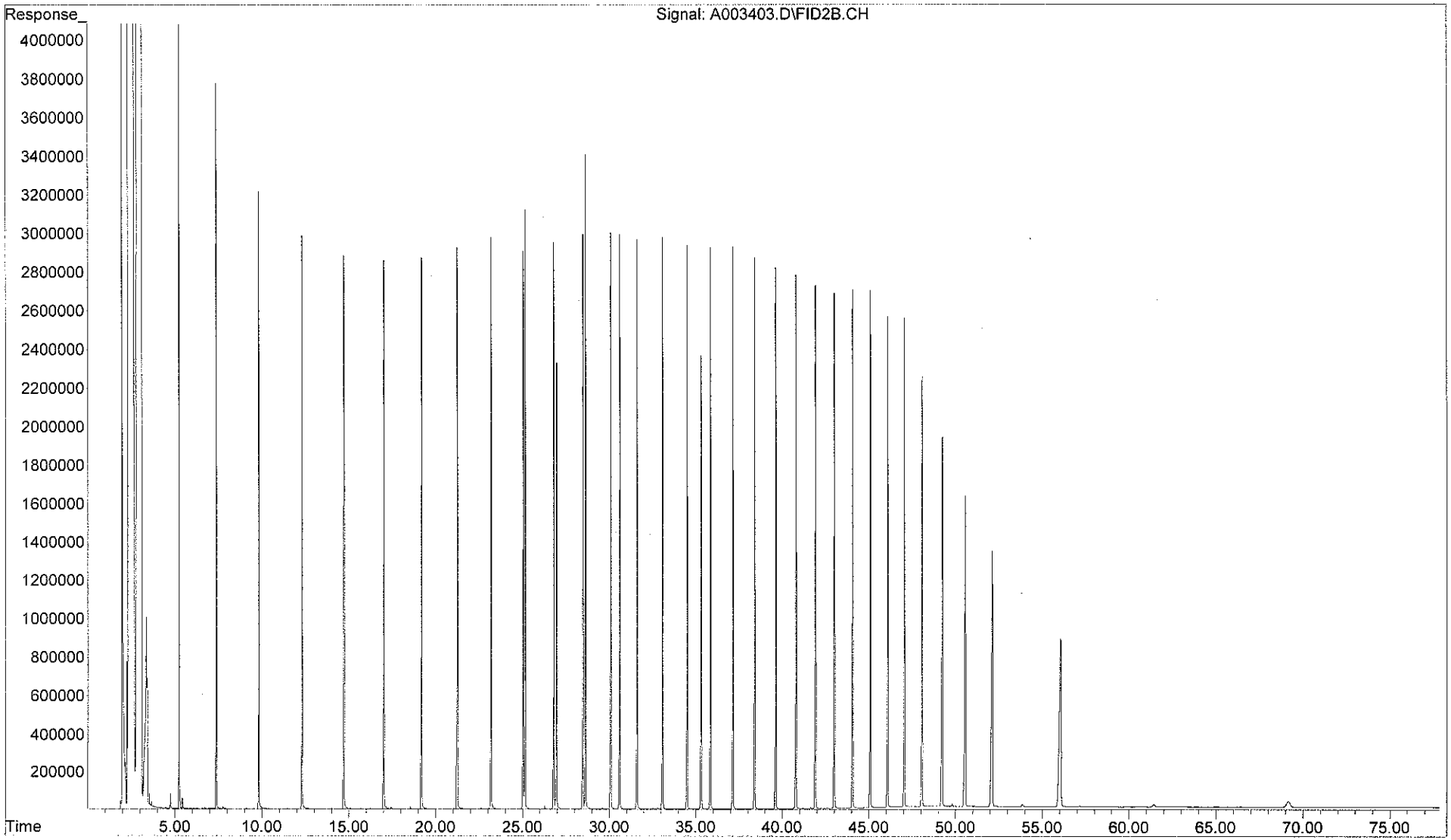
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003403.D
Operator : BAL
Acquired : 01 May 2012 4:50 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011202R
Misc Info : WHAP14
ALS Vial : 55



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	49.090	1.8	84	0.00
3	t	n-Nonane (C9)	50.000	48.759	2.5	83	0.00
4	t	n-Decane (C10)	50.000	49.368	1.3	85	0.00
5	t	n-Undecane (C11)	50.000	50.133	-0.3	87	0.00
6	t	n-Dodecane (C12)	50.000	51.470	-2.9	90	0.00
7	t	n-Tridecane (C13)	50.000	52.177	-4.4	91	0.00
9	t	n-Tetradecane (C14)	50.000	52.807	-5.6	92	0.00
11	t	n-Pentadecane (C15)	50.000	53.376	-6.8	93	0.00
12	t	n-Hexadecane (C16)	50.000	53.003	-6.0	93	0.00
14	t	n-Heptadecane (C17)	50.000	52.932	-5.9	91	0.00
15	t	Pristane	50.000	54.077	-8.2	94	0.00
16	t	n-Octadecane (C18)	50.000	53.517	-7.0	93	0.00
17	t	Phytane	50.000	54.095	-8.2	94	0.00
18	t	n-Nonadecane (C19)	50.000	53.701	-7.4	94	0.00
19	s	ortho-terphenyl	50.000	56.270	-12.5	95	0.00
20	t	n-Eicosane (C20)	50.000	53.517	-7.0	93	0.00
21	t	n-Heneicosane (C21)	50.000	53.195	-6.4	94	0.00
22	t	n-Docosane (C22)	50.000	53.744	-7.5	94	0.00
23	t	n-Tricosane (C23)	50.000	52.842	-5.7	94	0.00
24	s	d50-Tetracosane	50.000	55.587	-11.2	95	0.00
25	t	n-Tetracosane (C24)	50.000	53.497	-7.0	94	0.00
26	t	n-Pentacosane (C25)	50.000	53.672	-7.3	94	0.00
27	t	n-Hexacosane (C26)	50.000	53.521	-7.0	94	0.00
28	t	n-Heptacosane (C27)	50.000	53.473	-6.9	93	0.00
29	t	n-Octacosane (C28)	50.000	53.449	-6.9	94	0.00
30	t	n-Nonacosane (C29)	50.000	53.792	-7.6	95	0.00
31	t	n-Triacontane (C30)	50.000	53.326	-6.7	92	0.00
32	t	n-Hentriacontane (C31)	50.000	53.686	-7.4	94	0.00
33	t	n-Dotriacontane (C32)	50.000	53.700	-7.4	95	0.00
34	t	n-Tritriacontane (C33)	50.000	52.944	-5.9	90	0.00
35	t	n-tetratriacontane (C34)	50.000	53.381	-6.8	94	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.197	-6.4	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.945	-5.9	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.712	-5.4	93	0.00
39	t	n-Octatriacontane (C38)	50.000	52.396	-4.8	93	0.00
41	t	n-Tetracontane (C40)	50.000	52.224	-4.4	95	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	74679519	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.642	85136673	56.270 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.54%
24) s	d50-Tetracosane	35.311	68936396	55.587 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.17%
	Target Compounds			
2) t	n-Octane (C8)	5.233	54382345	49.090 ug/mL M4
3) t	n-Nonane (C9)	7.373	58086984	48.759 ug/mL M4
4) t	n-Decane (C10)	9.813	62280386	49.368 ug/mL M4
5) t	n-Undecane (C11)	12.299	64368111	50.133 ug/mL M4
6) t	n-Dodecane (C12)	14.712	67402347	51.470 ug/mL M4
7) t	n-Tridecane (C13)	17.008	68627247	52.177 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	70097926	52.807 ug/mL M4
11) t	n-Pentadecane (C15)	21.243	70796360	53.376 ug/mL M4
12) t	n-Hexadecane (C16)	23.193	72239752	53.003 ug/mL M4
14) t	n-Heptadecane (C17)	25.046	71280222	52.932 ug/mL M4
15) t	Pristane	25.157	74447756	54.077 ug/mL M4
16) t	n-Octadecane (C18)	26.809	73655979	53.517 ug/mL M4
17) t	Phytane	26.970	73780392	54.095 ug/mL M4
18) t	n-Nonadecane (C19)	28.489	73828497	53.701 ug/mL M4
20) t	n-Eicosane (C20)	30.090	74626893	53.517 ug/mL M4
21) t	n-Heneicosane (C21)	31.622	74943200	53.195 ug/mL M4
22) t	n-Docosane (C22)	33.093	75429203	53.744 ug/mL M4
23) t	n-Tricosane (C23)	34.502	75444680	52.842 ug/mL M4
25) t	n-Tetracosane (C24)	35.858	74834951	53.497 ug/mL M4
26) t	n-Pentacosane (C25)	37.159	76728602	53.672 ug/mL M4
27) t	n-Hexacosane (C26)	38.413	76057753	53.521 ug/mL M4
28) t	n-Heptacosane (C27)	39.623	74666485	53.473 ug/mL M4
29) t	n-Octacosane (C28)	40.789	75462158	53.449 ug/mL M4
30) t	n-Nonacosane (C29)	41.919	75763335	53.792 ug/mL M4
31) t	n-Triacontane (C30)	43.010	74870660	53.326 ug/mL M4
32) t	n-Hentriacontane (C31)	44.067	75756780	53.686 ug/mL M4
33) t	n-Dotriacontane (C32)	45.091	75501290	53.700 ug/mL M4
34) t	n-Tritriacontane (C33)	46.083	72120054	52.944 ug/mL M4
35) t	n-tetratriacontane (C34)	47.050	74210983	53.381 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.074	75042363	53.197 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.236	76232758	52.945 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.567	74194359	52.712 ug/mL M4
39) t	n-Octatriacontane (C38)	52.117	73142701	52.396 ug/mL M4
41) t	n-Tetracontane (C40)	56.049	68279392	52.224 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

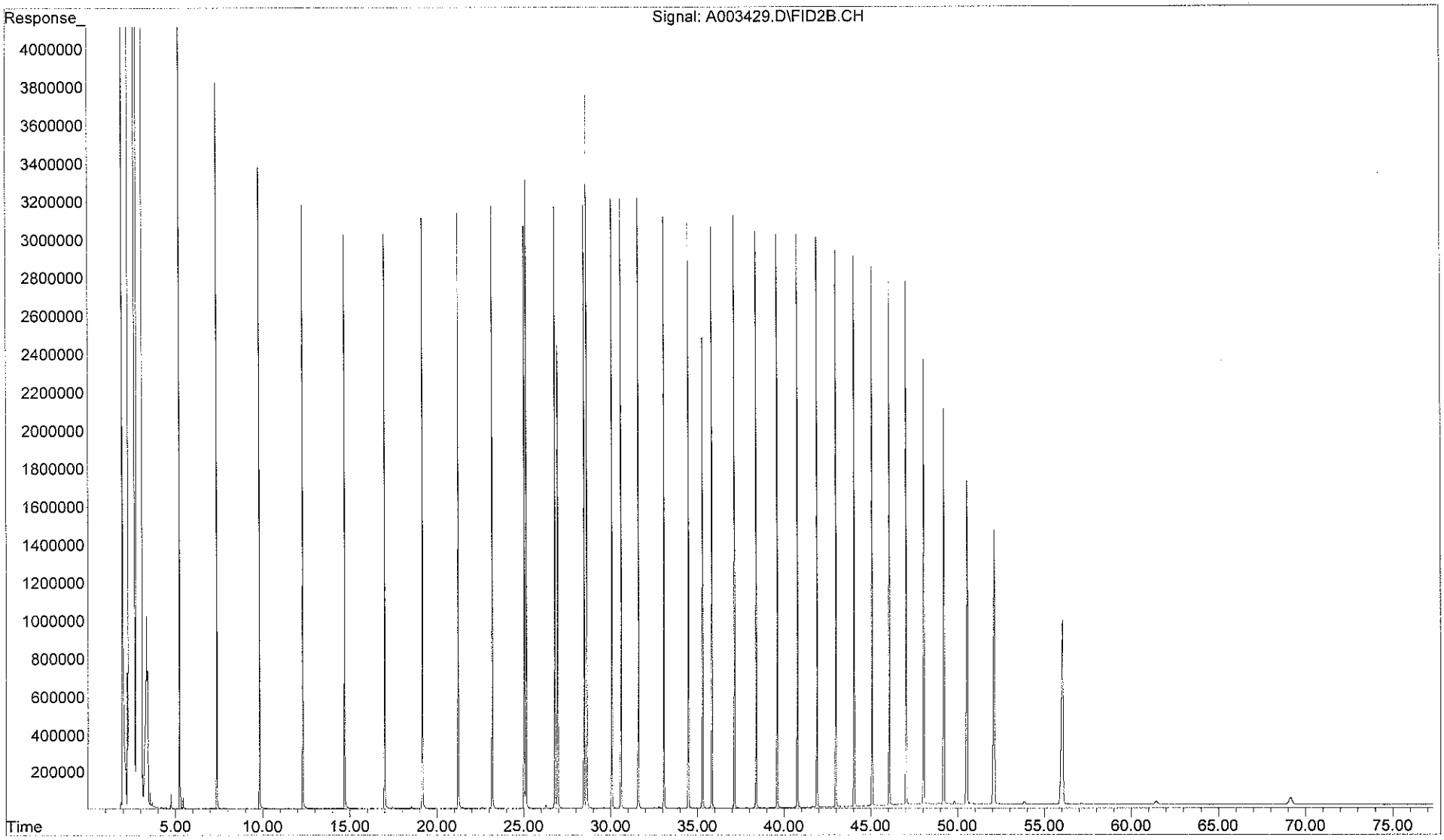
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003429.D
Operator : BAL
Acquired : 02 May 2012 12:05 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011203R
Misc Info : WHAP14
ALS Vial : 68



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	49.135	1.7	84	0.00
3	t	n-Nonane (C9)	50.000	49.130	1.7	84	0.00
4	t	n-Decane (C10)	50.000	49.823	0.4	85	0.00
5	t	n-Undecane (C11)	50.000	50.567	-1.1	87	0.00
6	t	n-Dodecane (C12)	50.000	51.223	-2.4	89	0.00
7	t	n-Tridecane (C13)	50.000	51.857	-3.7	90	0.00
9	t	n-Tetradecane (C14)	50.000	52.472	-4.9	91	0.00
11	t	n-Pentadecane (C15)	50.000	52.975	-6.0	92	0.00
12	t	n-Hexadecane (C16)	50.000	53.075	-6.2	93	0.00
14	t	n-Heptadecane (C17)	50.000	52.997	-6.0	91	0.00
15	t	Pristane	50.000	54.154	-8.3	94	0.00
16	t	n-Octadecane (C18)	50.000	53.651	-7.3	93	0.00
17	t	Phytane	50.000	54.256	-8.5	95	0.00
18	t	n-Nonadecane (C19)	50.000	53.918	-7.8	94	0.00
19	s	ortho-terphenyl	50.000	56.419	-12.8	95	0.00
20	t	n-Eicosane (C20)	50.000	53.707	-7.4	94	0.00
21	t	n-Heneicosane (C21)	50.000	53.410	-6.8	94	0.00
22	t	n-Docosane (C22)	50.000	54.025	-8.0	94	0.00
23	t	n-Tricosane (C23)	50.000	53.069	-6.1	94	0.00
24	s	d50-Tetracosane	50.000	55.830	-11.7	95	0.00
25	t	n-Tetracosane (C24)	50.000	53.747	-7.5	94	0.00
26	t	n-Pentacosane (C25)	50.000	53.919	-7.8	94	0.00
27	t	n-Hexacosane (C26)	50.000	53.780	-7.6	94	0.00
28	t	n-Heptacosane (C27)	50.000	53.711	-7.4	93	0.00
29	t	n-Octacosane (C28)	50.000	53.696	-7.4	94	0.00
30	t	n-Nonacosane (C29)	50.000	54.017	-8.0	95	0.00
31	t	n-Triacontane (C30)	50.000	53.596	-7.2	92	0.00
32	t	n-Hentriacontane (C31)	50.000	53.858	-7.7	94	0.00
33	t	n-Dotriacontane (C32)	50.000	53.830	-7.7	95	0.00
34	t	n-Tritriacontane (C33)	50.000	53.009	-6.0	90	0.00
35	t	n-tetratriacontane (C34)	50.000	53.599	-7.2	94	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.324	-6.6	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.986	-6.0	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.731	-5.5	93	0.00
39	t	n-Octatriacontane (C38)	50.000	52.399	-4.8	92	0.00
41	t	n-Tetracontane (C40)	50.000	52.272	-4.5	95	0.01

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.623	74517229	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.642	85176332	56.419 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.84%
24) s	d50-Tetracosane	35.314	69086944	55.830 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.66%
	Target Compounds			
2) t	n-Octane (C8)	5.234	54313220	49.135 ug/mL M4
3) t	n-Nonane (C9)	7.375	58401073	49.130 ug/mL M4
4) t	n-Decane (C10)	9.814	62718154	49.823 ug/mL M4
5) t	n-Undecane (C11)	12.300	64784272	50.567 ug/mL M4
6) t	n-Dodecane (C12)	14.712	66932572	51.223 ug/mL M4
7) t	n-Tridecane (C13)	17.009	68057245	51.857 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	69501655	52.472 ug/mL M4
11) t	n-Pentadecane (C15)	21.242	70111664	52.975 ug/mL M4
12) t	n-Hexadecane (C16)	23.193	72181164	53.075 ug/mL M4
14) t	n-Heptadecane (C17)	25.045	71211831	52.997 ug/mL M4
15) t	Pristane	25.156	74390838	54.154 ug/mL M4
16) t	n-Octadecane (C18)	26.809	73680232	53.651 ug/mL M4
17) t	Phytane	26.971	73840309	54.256 ug/mL M4
18) t	n-Nonadecane (C19)	28.490	73966343	53.918 ug/mL M4
20) t	n-Eicosane (C20)	30.092	74729444	53.707 ug/mL M4
21) t	n-Heneicosane (C21)	31.624	75081800	53.410 ug/mL M4
22) t	n-Docosane (C22)	33.094	75658639	54.025 ug/mL M4
23) t	n-Tricosane (C23)	34.504	75604626	53.069 ug/mL M4
25) t	n-Tetracosane (C24)	35.858	75021960	53.747 ug/mL M4
26) t	n-Pentacosane (C25)	37.161	76914515	53.919 ug/mL M4
27) t	n-Hexacosane (C26)	38.413	76260148	53.780 ug/mL M4
28) t	n-Heptacosane (C27)	39.623	74836007	53.711 ug/mL M4
29) t	n-Octacosane (C28)	40.791	75646520	53.696 ug/mL M4
30) t	n-Nonacosane (C29)	41.920	75915714	54.017 ug/mL M4
31) t	n-Triacontane (C30)	43.012	75086849	53.596 ug/mL M4
32) t	n-Hentriacontane (C31)	44.068	75833309	53.858 ug/mL M4
33) t	n-Dotriacontane (C32)	45.093	75519155	53.830 ug/mL M4
34) t	n-Tritriacontane (C33)	46.086	72052733	53.009 ug/mL M4
35) t	n-tetratriacontane (C34)	47.052	74352324	53.599 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.079	75059196	53.324 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.240	76124715	52.986 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.573	74060827	52.731 ug/mL M4
39) t	n-Octatriacontane (C38)	52.121	72987381	52.399 ug/mL M4
41) t	n-Tetracontane (C40)	56.059	68193524	52.272 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

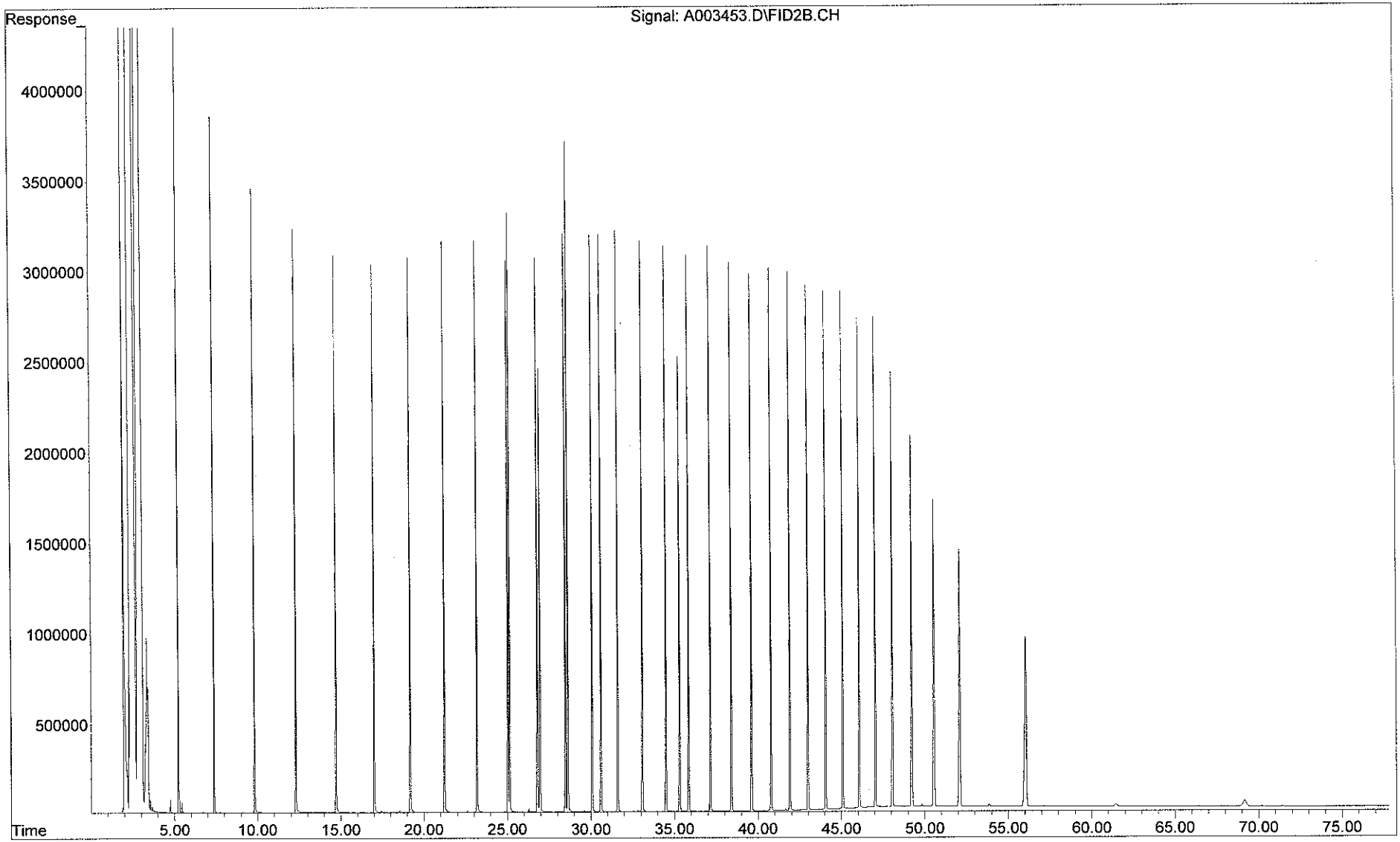
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc	Units
SemiQuant Compounds - Not Calibrated on this Instrument				

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003453.D
Operator : BAL
Acquired : 03 May 2012 5:50 am using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011204R
Misc Info : WHAP14
ALS Vial : 80



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	108	0.01
2	t	n-Octane (C8)	50.000	49.336	1.3	97	0.00
3	t	n-Nonane (C9)	50.000	51.263	-2.5	101	0.00
4	t	n-Decane (C10)	50.000	51.959	-3.9	103	0.00
5	t	n-Undecane (C11)	50.000	51.976	-4.0	103	0.00
6	t	n-Dodecane (C12)	50.000	52.205	-4.4	105	0.00
7	t	n-Tridecane (C13)	50.000	52.544	-5.1	105	0.00
9	t	n-Tetradecane (C14)	50.000	52.998	-6.0	106	0.00
11	t	n-Pentadecane (C15)	50.000	53.371	-6.7	107	0.00
12	t	n-Hexadecane (C16)	50.000	53.340	-6.7	108	0.00
14	t	n-Heptadecane (C17)	50.000	53.223	-6.4	106	0.00
15	t	Pristane	50.000	54.319	-8.6	109	0.00
16	t	n-Octadecane (C18)	50.000	53.738	-7.5	108	0.00
17	t	Phytane	50.000	54.403	-8.8	109	0.00
18	t	n-Nonadecane (C19)	50.000	54.160	-8.3	109	0.00
19	s	ortho-terphenyl	50.000	56.461	-12.9	110	0.00
20	t	n-Eicosane (C20)	50.000	53.805	-7.6	108	0.00
21	t	n-Heneicosane (C21)	50.000	53.451	-6.9	109	0.00
22	t	n-Docosane (C22)	50.000	54.029	-8.1	109	0.00
23	t	n-Tricosane (C23)	50.000	53.109	-6.2	109	0.00
24	s	d50-Tetracosane	50.000	55.935	-11.9	110	0.00
25	t	n-Tetracosane (C24)	50.000	53.840	-7.7	108	0.00
26	t	n-Pentacosane (C25)	50.000	54.024	-8.0	109	0.00
27	t	n-Hexacosane (C26)	50.000	53.884	-7.8	109	0.01
28	t	n-Heptacosane (C27)	50.000	53.823	-7.6	107	0.00
29	t	n-Octacosane (C28)	50.000	53.851	-7.7	109	0.01
30	t	n-Nonacosane (C29)	50.000	54.162	-8.3	110	0.01
31	t	n-Triacontane (C30)	50.000	53.683	-7.4	107	0.00
32	t	n-Hentriacontane (C31)	50.000	53.872	-7.7	109	0.01
33	t	n-Dotriacontane (C32)	50.000	53.865	-7.7	110	0.01
34	t	n-Tritriacontane (C33)	50.000	52.874	-5.7	103	0.00
35	t	n-tetratriacontane (C34)	50.000	53.359	-6.7	108	0.01
36	t	n-Pentatriacontane (C35)	50.000	53.149	-6.3	108	0.01
37	t	n-Hexatriacontane (C36)	50.000	52.842	-5.7	107	0.02
38	t	n-Heptatriacontane (C37)	50.000	52.443	-4.9	107	0.02
39	t	n-Octatriacontane (C38)	50.000	52.290	-4.6	107	0.02
41	t	n-Tetracontane (C40)	50.000	52.097	-4.2	109	0.03

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.630	85990134	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.648	98363550	56.461 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.92%
24) s	d50-Tetracosane	35.319	79872950	55.935 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.87%
	Target Compounds			
2) t	n-Octane (C8)	5.238	62931699	49.336 ug/mL M4
3) t	n-Nonane (C9)	7.379	70318090	51.263 ug/mL M4
4) t	n-Decane (C10)	9.817	75476672	51.959 ug/mL M4
5) t	n-Undecane (C11)	12.302	76841523	51.976 ug/mL M4
6) t	n-Dodecane (C12)	14.715	78718162	52.205 ug/mL M4
7) t	n-Tridecane (C13)	17.013	79576560	52.544 ug/mL M4
9) t	n-Tetradecane (C14)	19.188	81006863	52.998 ug/mL M4
11) t	n-Pentadecane (C15)	21.247	81511302	53.371 ug/mL M4
12) t	n-Hexadecane (C16)	23.198	83710202	53.340 ug/mL M4
14) t	n-Heptadecane (C17)	25.052	82526092	53.223 ug/mL M4
15) t	Pristane	25.161	86105808	54.319 ug/mL M4
16) t	n-Octadecane (C18)	26.814	85162372	53.738 ug/mL M4
17) t	Phytane	26.978	85439918	54.403 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	85736625	54.160 ug/mL M4
20) t	n-Eicosane (C20)	30.097	86391933	53.805 ug/mL M4
21) t	n-Heneicosane (C21)	31.630	86708745	53.451 ug/mL M4
22) t	n-Docosane (C22)	33.099	87315066	54.029 ug/mL M4
23) t	n-Tricosane (C23)	34.509	87310994	53.109 ug/mL M4
25) t	n-Tetracosane (C24)	35.864	86721428	53.840 ug/mL M4
26) t	n-Pentacosane (C25)	37.167	88930211	54.024 ug/mL M4
27) t	n-Hexacosane (C26)	38.422	88170741	53.884 ug/mL M4
28) t	n-Heptacosane (C27)	39.630	86537757	53.823 ug/mL M4
29) t	n-Octacosane (C28)	40.799	87544932	53.851 ug/mL M4
30) t	n-Nonacosane (C29)	41.927	87838680	54.162 ug/mL M4
31) t	n-Triacontane (C30)	43.019	86787026	53.683 ug/mL M4
32) t	n-Hentriacontane (C31)	44.076	87532842	53.872 ug/mL M4
33) t	n-Dotriacontane (C32)	45.100	87203026	53.865 ug/mL M4
34) t	n-Tritriacontane (C33)	46.091	82934202	52.874 ug/mL M4
35) t	n-tetratriacontane (C34)	47.059	85414265	53.359 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.086	86330128	53.149 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.250	87607328	52.842 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.584	84996623	52.443 ug/mL M4
39) t	n-Octatriacontane (C38)	52.135	84049804	52.290 ug/mL M4
41) t	n-Tetracontane (C40)	56.077	78428700	52.097 ug/mL M4

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

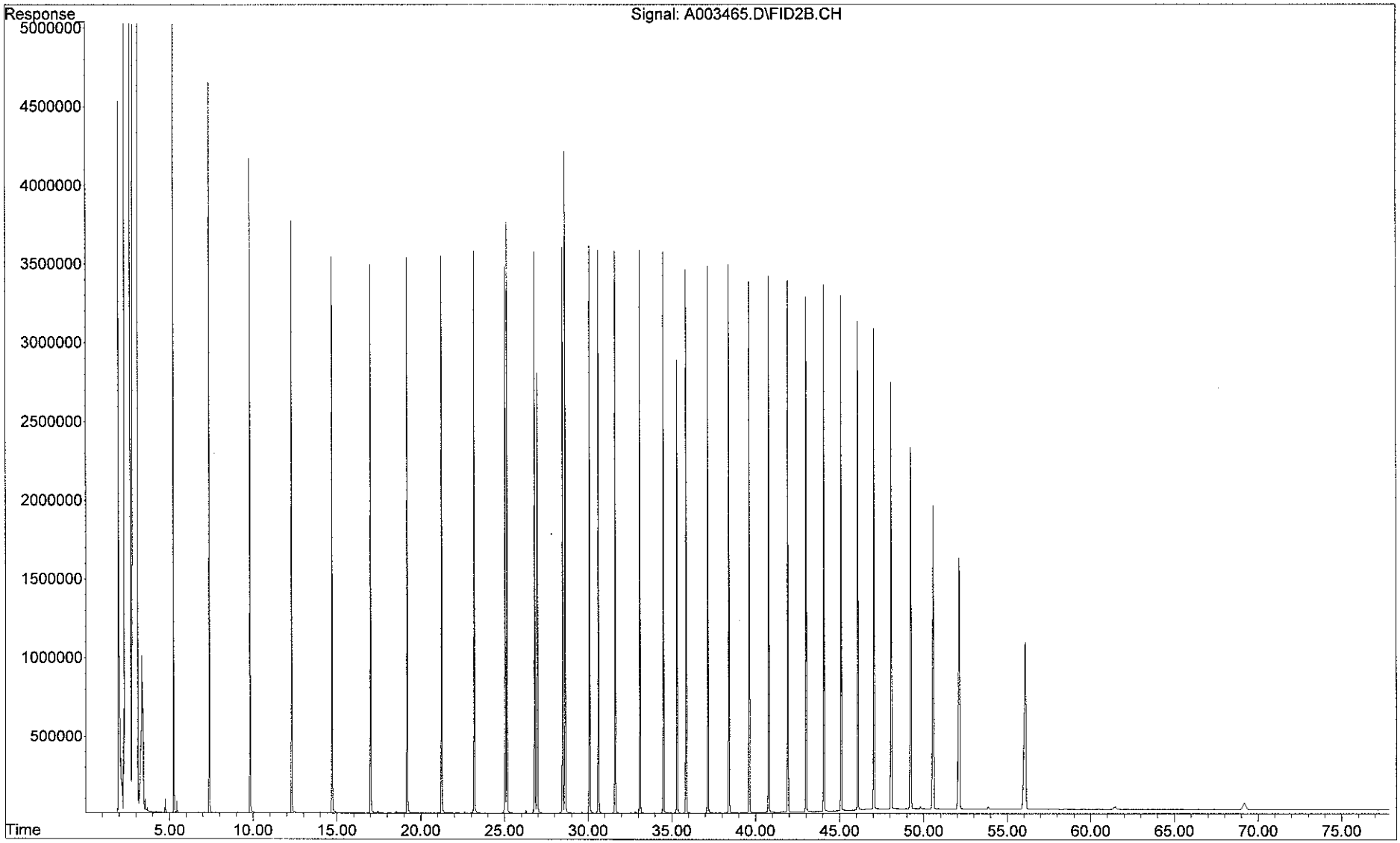
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003465.D
Operator : BAL
Acquired : 03 May 2012 2:43 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011205R
Misc Info : WHAP14
ALS Vial : 86



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	94	0.01
2	t	n-Octane (C8)	50.000	49.653	0.7	85	0.00
3	t	n-Nonane (C9)	50.000	49.442	1.1	85	0.00
4	t	n-Decane (C10)	50.000	50.074	-0.1	87	0.00
5	t	n-Undecane (C11)	50.000	50.953	-1.9	89	0.00
6	t	n-Dodecane (C12)	50.000	51.687	-3.4	91	0.00
7	t	n-Tridecane (C13)	50.000	52.142	-4.3	91	0.00
9	t	n-Tetradecane (C14)	50.000	52.645	-5.3	92	0.00
11	t	n-Pentadecane (C15)	50.000	53.067	-6.1	93	0.00
12	t	n-Hexadecane (C16)	50.000	53.148	-6.3	94	0.00
14	t	n-Heptadecane (C17)	50.000	53.052	-6.1	92	0.00
15	t	Pristane	50.000	54.184	-8.4	95	0.00
16	t	n-Octadecane (C18)	50.000	53.753	-7.5	95	0.00
17	t	Phytane	50.000	54.184	-8.4	95	0.00
18	t	n-Nonadecane (C19)	50.000	53.932	-7.9	95	0.00
19	s	ortho-terphenyl	50.000	56.230	-12.5	96	0.00
20	t	n-Eicosane (C20)	50.000	54.055	-8.1	95	0.00
21	t	n-Heneicosane (C21)	50.000	53.541	-7.1	95	0.00
22	t	n-Docosane (C22)	50.000	54.129	-8.3	96	0.00
23	t	n-Tricosane (C23)	50.000	53.246	-6.5	96	0.01
24	s	d50-Tetracosane	50.000	56.076	-12.2	97	0.00
25	t	n-Tetracosane (C24)	50.000	54.067	-8.1	95	0.01
26	t	n-Pentacosane (C25)	50.000	54.193	-8.4	96	0.01
27	t	n-Hexacosane (C26)	50.000	54.183	-8.4	96	0.01
28	t	n-Heptacosane (C27)	50.000	54.789	-9.6	96	0.01
29	t	n-Octacosane (C28)	50.000	54.148	-8.3	96	0.01
30	t	n-Nonacosane (C29)	50.000	54.237	-8.5	97	0.01
31	t	n-Triacontane (C30)	50.000	53.776	-7.6	94	0.01
32	t	n-Hentriacontane (C31)	50.000	53.987	-8.0	96	0.01
33	t	n-Dotriacontane (C32)	50.000	53.668	-7.3	96	0.01
34	t	n-Tritriacontane (C33)	50.000	52.773	-5.5	90	0.01
35	t	n-tetratriacontane (C34)	50.000	53.449	-6.9	95	0.01
36	t	n-Pentatriacontane (C35)	50.000	53.133	-6.3	95	0.01
37	t	n-Hexatriacontane (C36)	50.000	52.797	-5.6	94	0.02
38	t	n-Heptatriacontane (C37)	50.000	52.578	-5.2	94	0.02
39	t	n-Octatriacontane (C38)	50.000	52.179	-4.4	93	0.02
41	t	n-Tetracontane (C40)	50.000	52.111	-4.2	95	0.03

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.630	75344132	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.647	85832303	56.230 ug/mL m
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.46%
24) s	d50-Tetracosane	35.319	70161234	56.076 ug/mL m
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.15%
	Target Compounds			
2) t	n-Octane (C8)	5.234	55495120	49.653 ug/mL M4
3) t	n-Nonane (C9)	7.376	59423734	49.442 ug/mL M4
4) t	n-Decane (C10)	9.816	63733201	50.074 ug/mL M4
5) t	n-Undecane (C11)	12.303	66001932	50.953 ug/mL M4
6) t	n-Dodecane (C12)	14.716	68288780	51.687 ug/mL M4
7) t	n-Tridecane (C13)	17.014	69190978	52.142 ug/mL M4
9) t	n-Tetradecane (C14)	19.189	70504897	52.645 ug/mL M4
11) t	n-Pentadecane (C15)	21.248	71013284	53.067 ug/mL M4
12) t	n-Hexadecane (C16)	23.198	73082100	53.148 ug/mL M4
14) t	n-Heptadecane (C17)	25.051	72076647	53.052 ug/mL M4
15) t	Pristane	25.161	75257820	54.184 ug/mL M4
16) t	n-Octadecane (C18)	26.814	74638689	53.753 ug/mL M4
17) t	Phytane	26.978	74559417	54.184 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	74805557	53.932 ug/mL M4
20) t	n-Eicosane (C20)	30.097	76048611	54.055 ug/mL M4
21) t	n-Heneicosane (C21)	31.630	76101002	53.541 ug/mL M4
22) t	n-Docosane (C22)	33.100	76646259	54.129 ug/mL M4
23) t	n-Tricosane (C23)	34.511	76698456	53.246 ug/mL M4
25) t	n-Tetracosane (C24)	35.865	76305062	54.067 ug/mL M4
26) t	n-Pentacosane (C25)	37.168	78163129	54.193 ug/mL M4
27) t	n-Hexacosane (C26)	38.422	77683917	54.183 ug/mL M4
28) t	n-Heptacosane (C27)	39.632	77185142	54.789 ug/mL M4
29) t	n-Octacosane (C28)	40.800	77129835	54.148 ug/mL M4
30) t	n-Nonacosane (C29)	41.928	77070350	54.237 ug/mL M4
31) t	n-Triacontane (C30)	43.020	76174731	53.776 ug/mL M4
32) t	n-Hentriacontane (C31)	44.078	76858659	53.987 ug/mL M4
33) t	n-Dotriacontane (C32)	45.101	76127057	53.668 ug/mL M4
34) t	n-Tritriacontane (C33)	46.094	72527388	52.773 ug/mL M4
35) t	n-tetratriacontane (C34)	47.061	74967061	53.449 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.087	75619873	53.133 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.249	76695419	52.797 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.585	74664259	52.578 ug/mL M4
39) t	n-Octatriacontane (C38)	52.134	73486831	52.179 ug/mL M4
41) t	n-Tetracontane (C40)	56.080	68737021	52.111 ug/mL M4

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

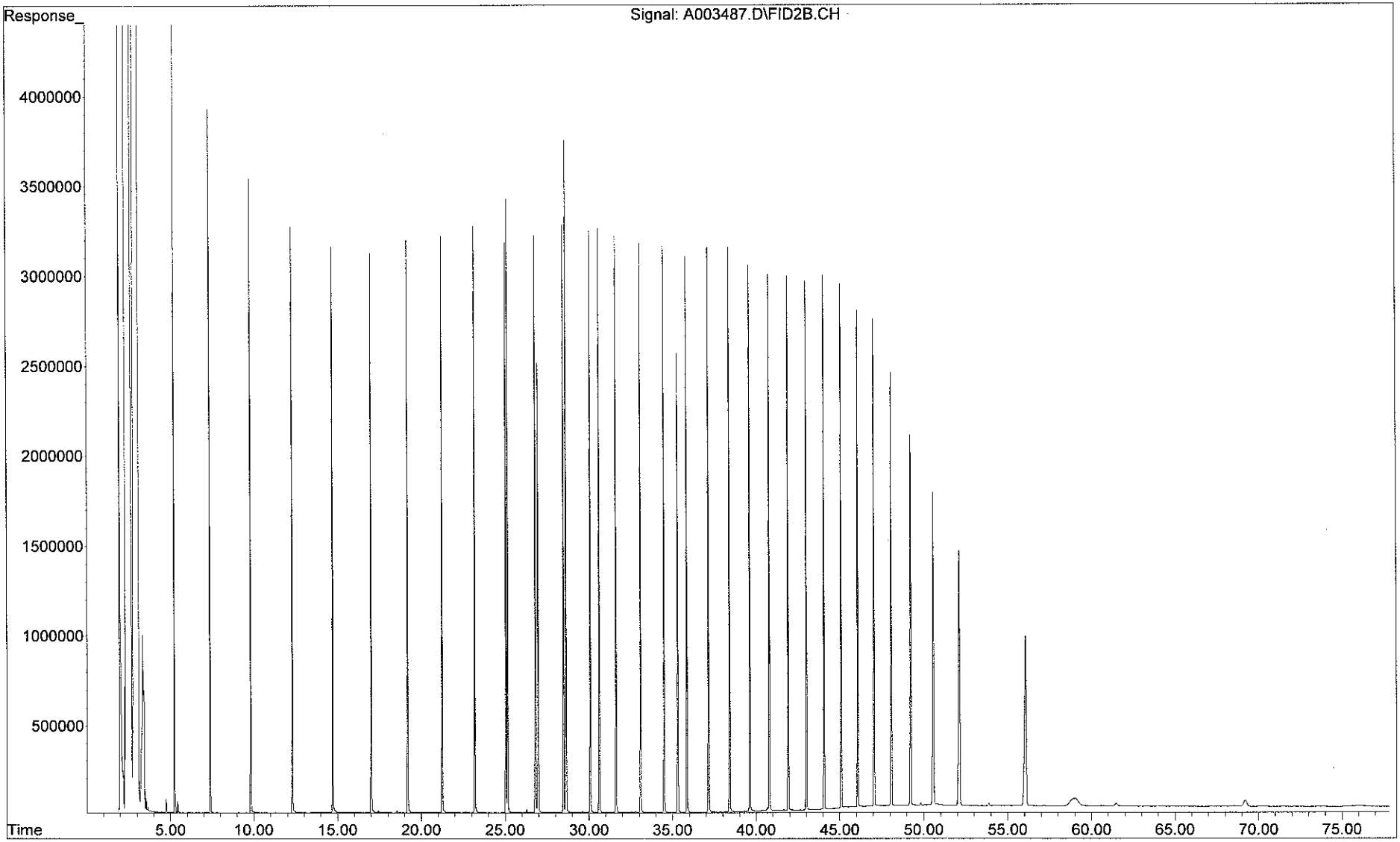
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003487.D
Operator : BAL
Acquired : 04 May 2012 7:00 am using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011206R
Misc Info : WHAP14
ALS Vial : 97



Instrument Blank Association

ETR: 1204031

Project: Enbridge Line 6B MP 608

	Associated Instrument Blank	
Sample ID	**Laboratory ID**	**File ID**
1204031-01	IB1705011207R	A003491
1204031-01M	IB1705011207R	A003491
1204031-01S	IB1705011207R	A003491
1204031-02	IB1705011207R	A003491
1204031-03	IB1705011203R	A003433
1204031-04	IB1705011203R	A003433
1204031-05	IB1705011203R	A003433
1204031-06	IB1705011203R	A003433
1204031-07	IB1705011203R	A003433
1204031-08	IB1705011203R	A003433
SS043012B07	IB1705011206R	A003477
SS043012LCS02	IB1705011206R	A003477
SS043012LCSD02	IB1705011206R	A003477
SO050112B01	IB1705011202R	A003415
SO050112LCS01	IB1705011202R	A003415
SO050112LCSD01	IB1705011202R	A003415
TO050112WCS01	IB1705011205R	A003469
TO050112CL01	IB1705011205R	A003469
TO050112ANS02	IB1705011201R	A003407
TS032612ANS02	IB1703231201R	A002946

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002946.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 12:09 pm
Operator : BAL
Sample : IB1703231201R
Misc : DCM
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:30:54 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

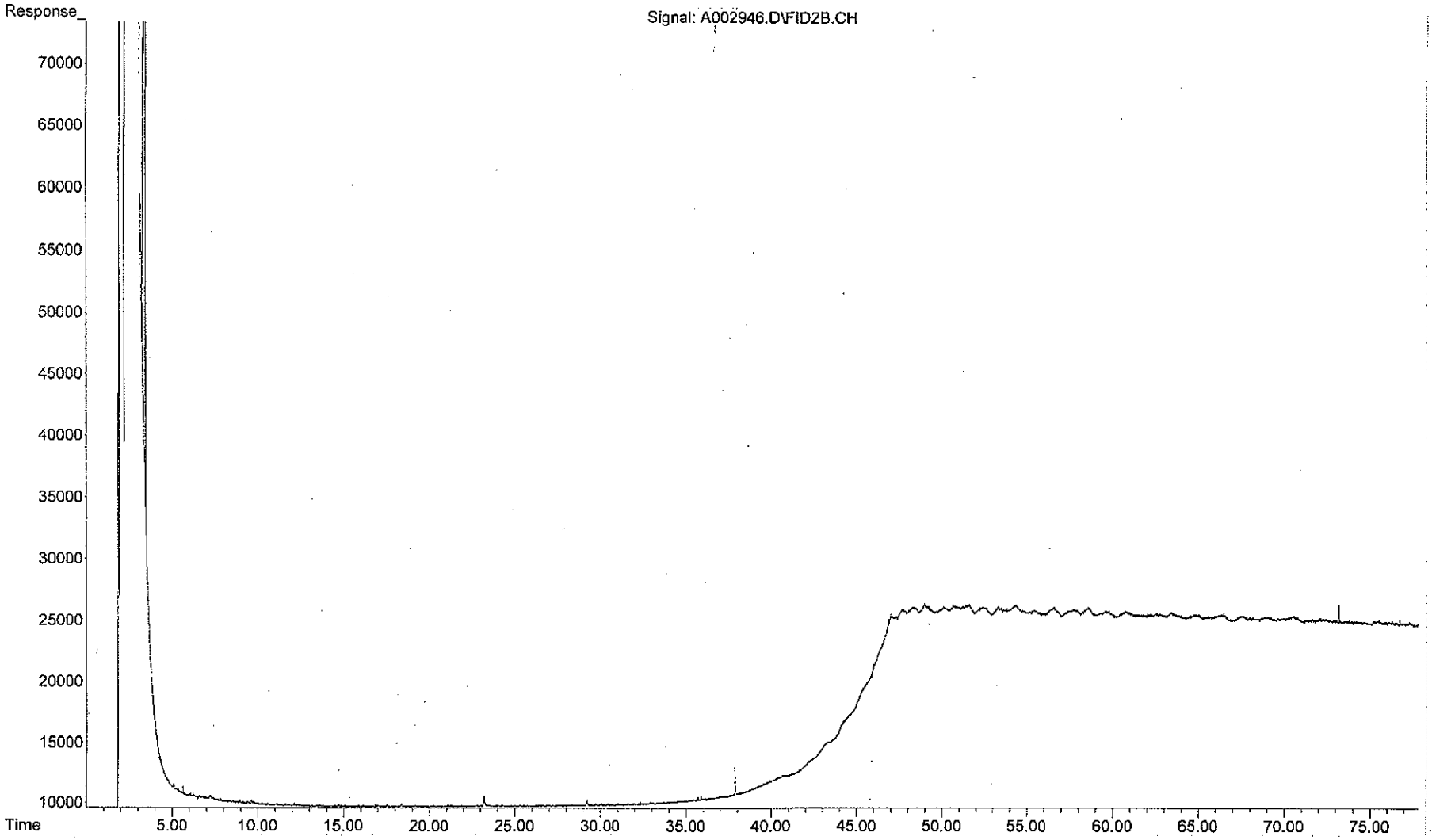
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.651	681	50.000 ug/mL M2
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	275894762	22065900.414 ug/mL M5
44) h	Total Resolved Hydroc...	38.335	3133120	250585.072 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002946.D
Operator : BAL
Acquired : 24 Mar 2012 12:09 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1703231201R
Misc Info : DCM
ALS Vial : 69



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003407.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 7:48 pm
Operator : BAL
Sample : IB1705011201R
Misc : DCM
ALS Vial : 57 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:17:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

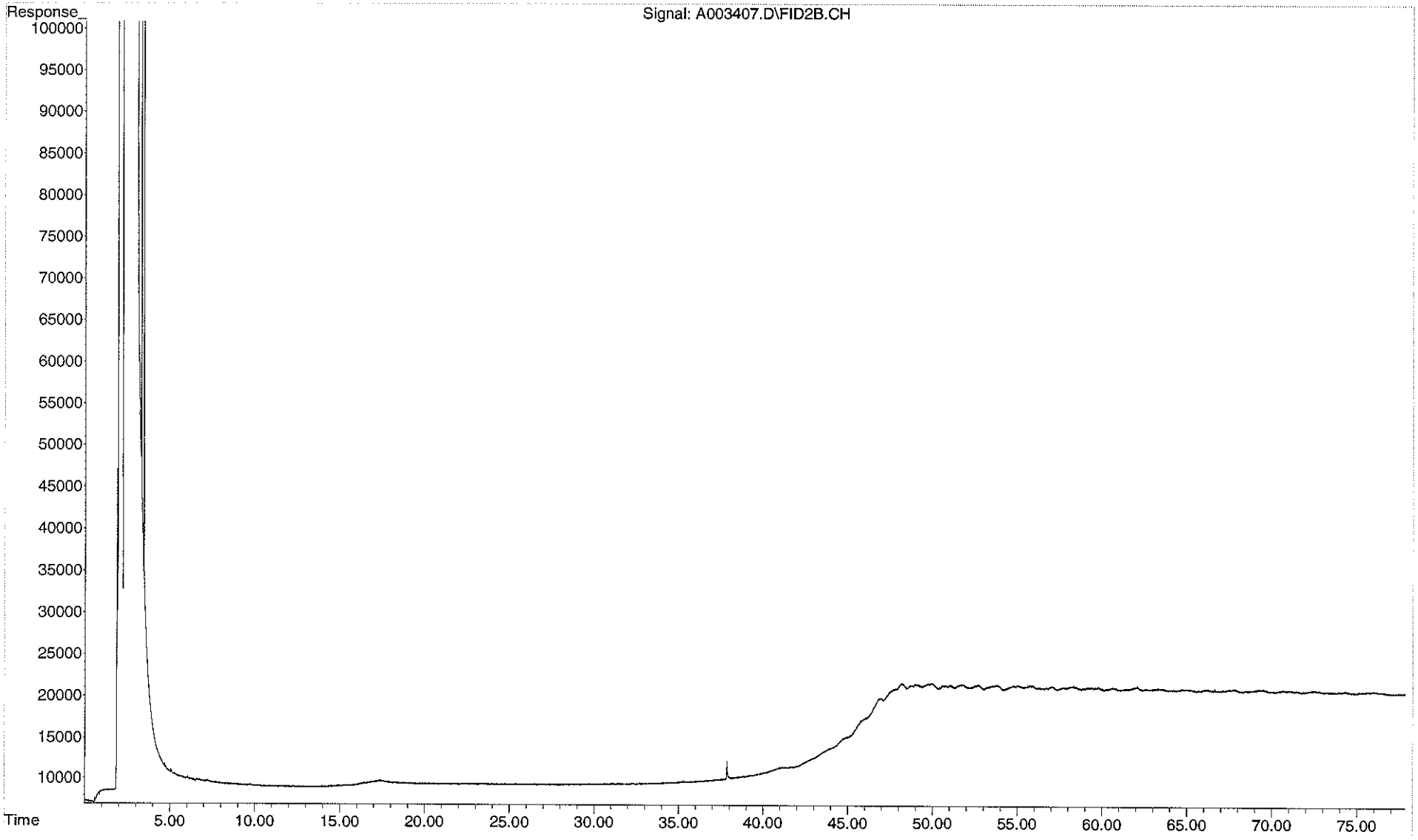
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.618	966	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	231479078	13048546.926 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	1991279	112248.990 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\A003407.D
Operator : BAL
Acquired : 01 May 2012 7:48 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011201R
Misc Info : DCM
ALS Vial : 57



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003415.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 1:43 am
Operator : BAL
Sample : IB1705011202R
Misc : DCM
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:43:35 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

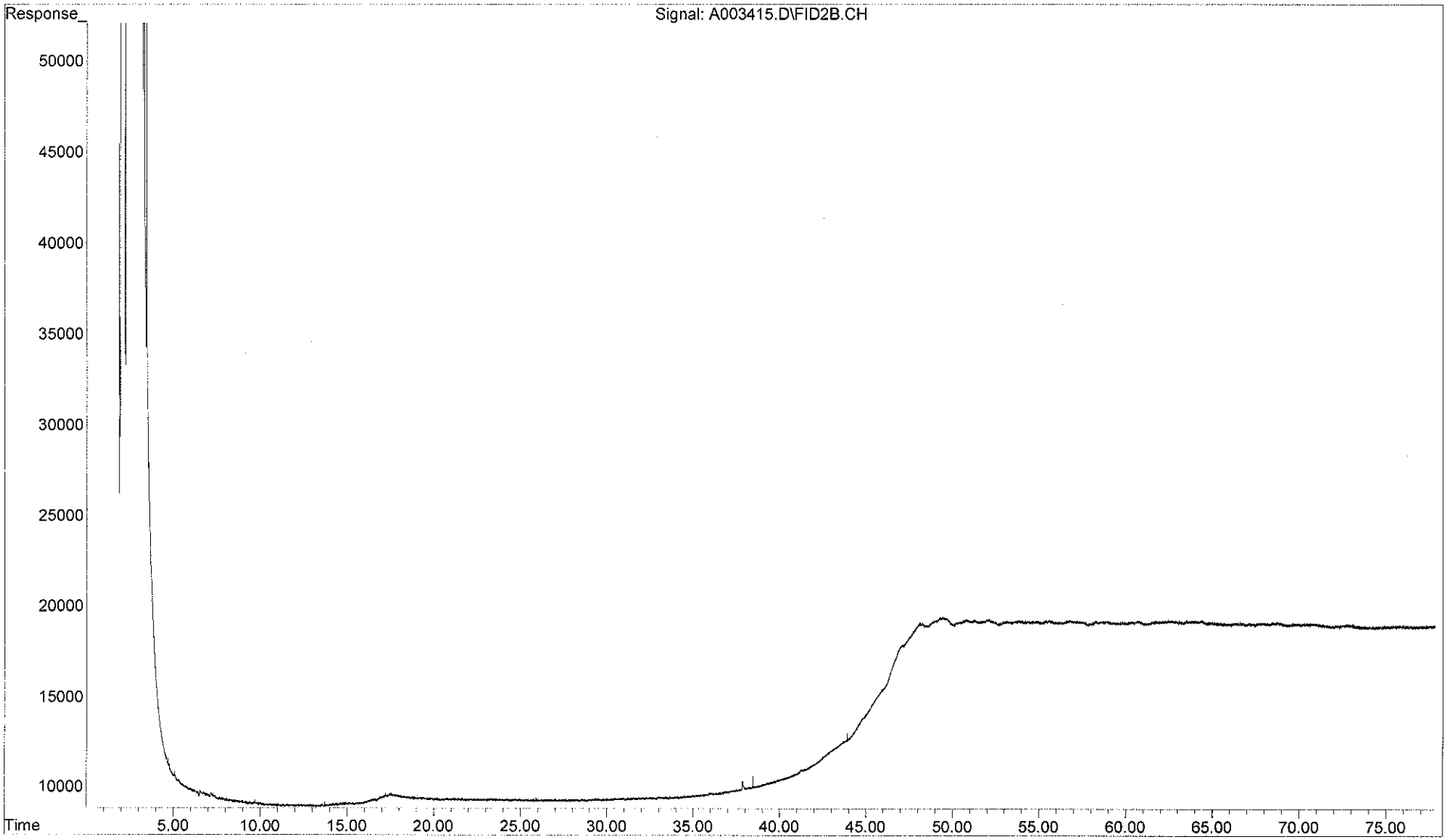
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.603	2101	50.000 ug/mL M4
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	38.335	197059444	5107608.309 ug/mL M5
44) h Total Resolved Hydroc...	38.335	1153778	29904.921 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003415.D
Operator : BAL
Acquired : 02 May 2012 1:43 am using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011202R
Misc Info : DCM
ALS Vial : 61



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003433.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 3:03 pm
Operator : BAL
Sample : IB1705011203R
Misc : DCM
ALS Vial : 70 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:44:53 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

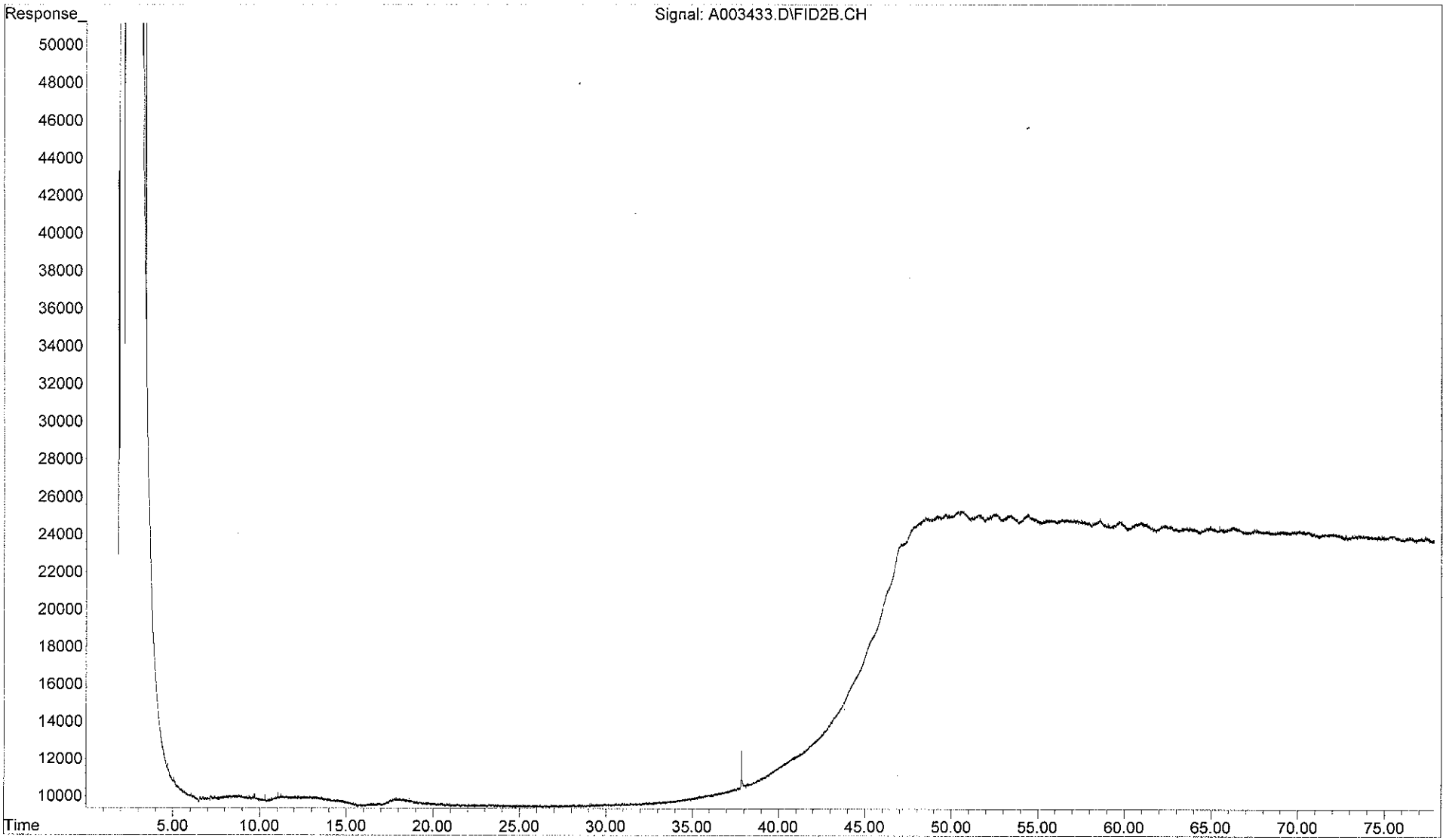
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.610	1547	50.000 ug/mL M2
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	38.335	291436683	10260101.573 ug/mL M4
44) h Total Resolved Hydroc...	38.335	1617895	56958.397 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003433.D
Operator : BAL
Acquired : 02 May 2012 3:03 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011203R
Misc Info : DCM
ALS Vial : 70



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003469.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:40 pm
Operator : BAL
Sample : IB1705011205R
Misc : DCM
ALS Vial : 88 Sample Multiplier: 1

5712

Integration File: SHCINT2.E
Quant Time: May 07 10:11:24 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

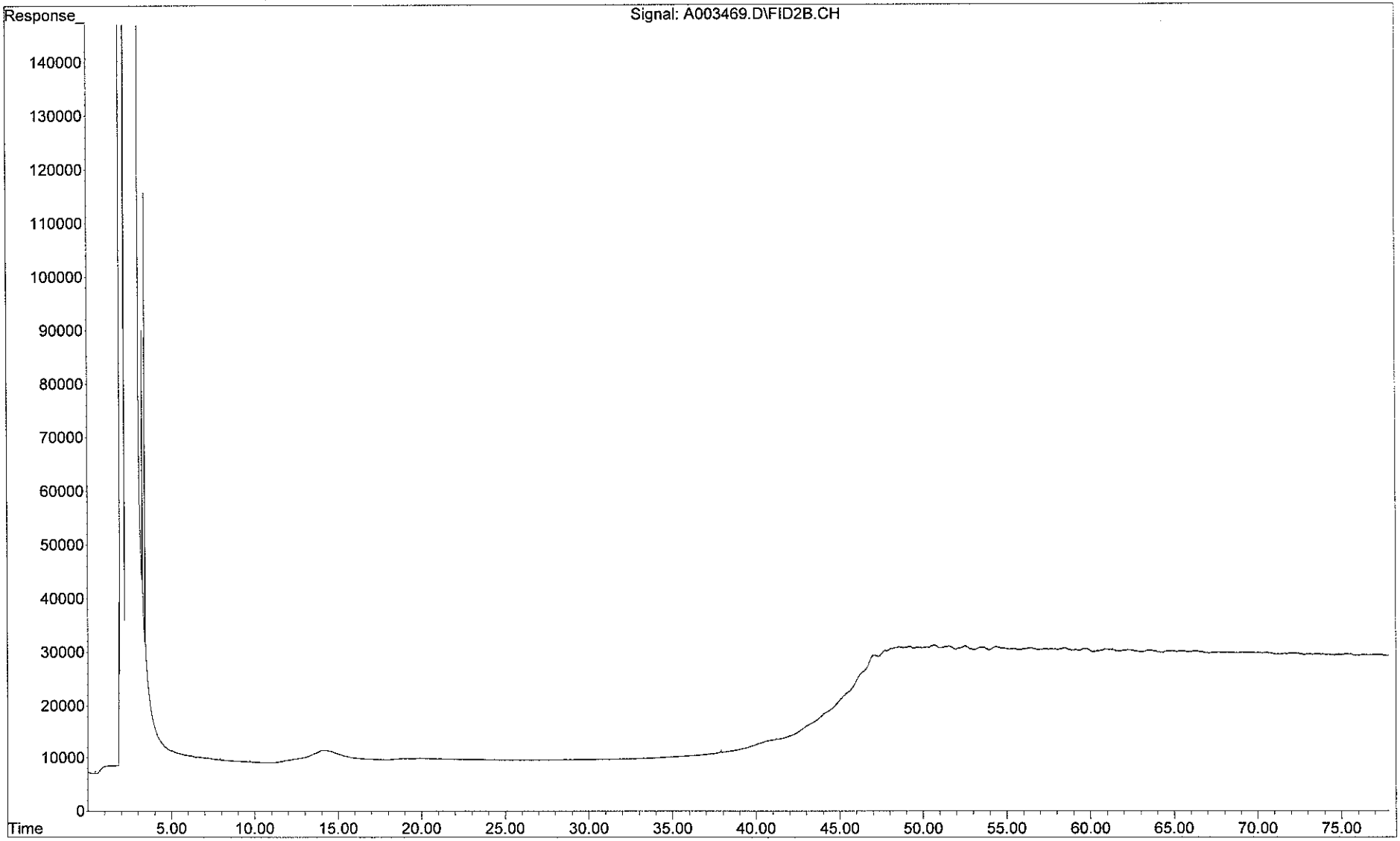
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.624	1152	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	362681961	17148287.491 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	3687805	174366.391 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003469.D
Operator : BAL
Acquired : 03 May 2012 5:40 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011205R
Misc Info : DCM
ALS Vial : 88



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003477.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:35 pm
Operator : BAL
Sample : IB1705011206R
Misc : DCM
ALS Vial : 92 Sample Multiplier: 1

5/12

Integration File: SHCINT2.E
Quant Time: May 04 13:43:28 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

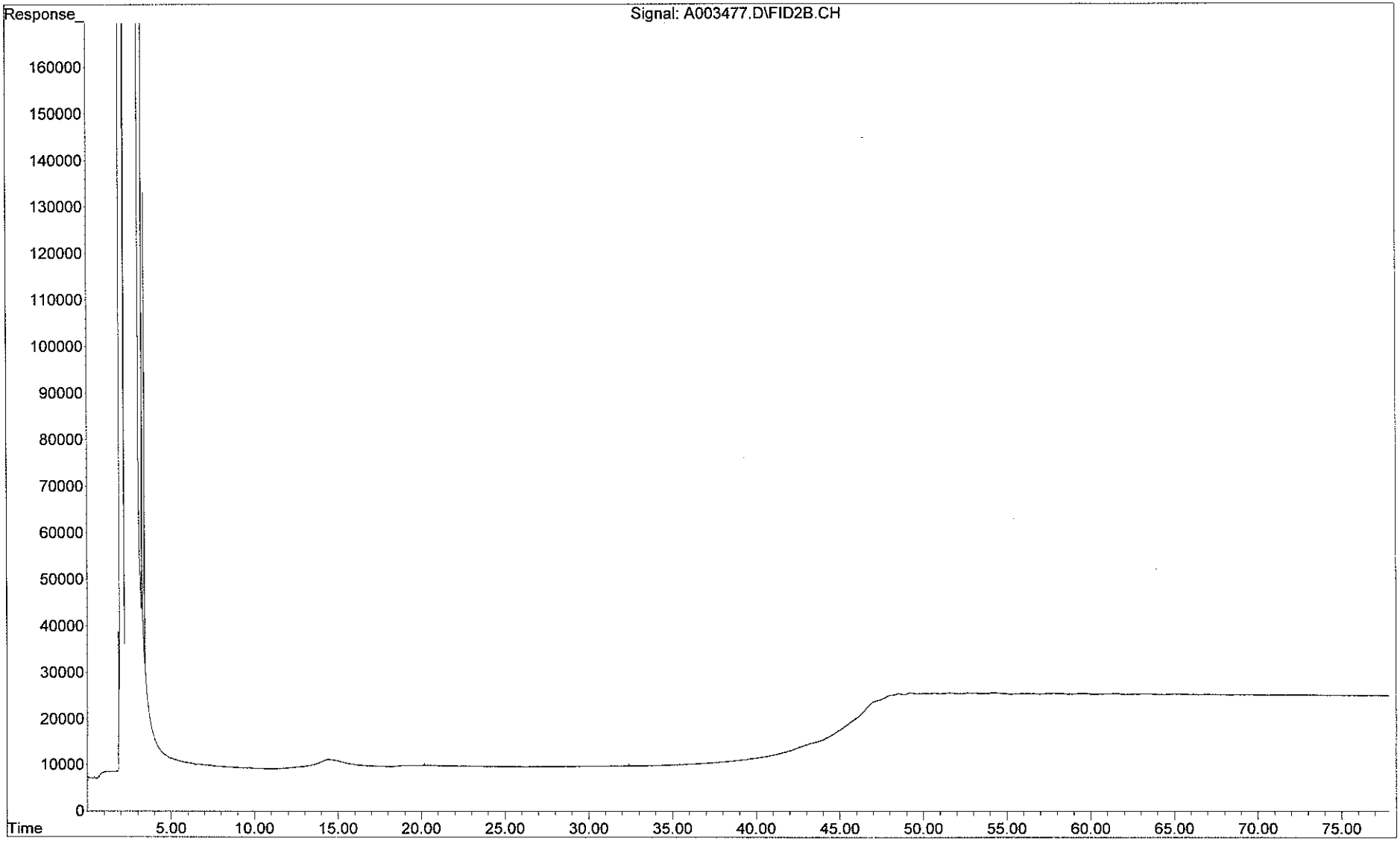
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.612	466	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	282042071	32983821.369 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	1416607	165667.129 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003477.D
Operator : BAL
Acquired : 03 May 2012 11:35 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011206R
Misc Info : DCM
ALS Vial : 92



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003491.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 9:58 am
Operator : BAL
Sample : IB1705011207R
Misc : DCM
ALS Vial : 99 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:12:24 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

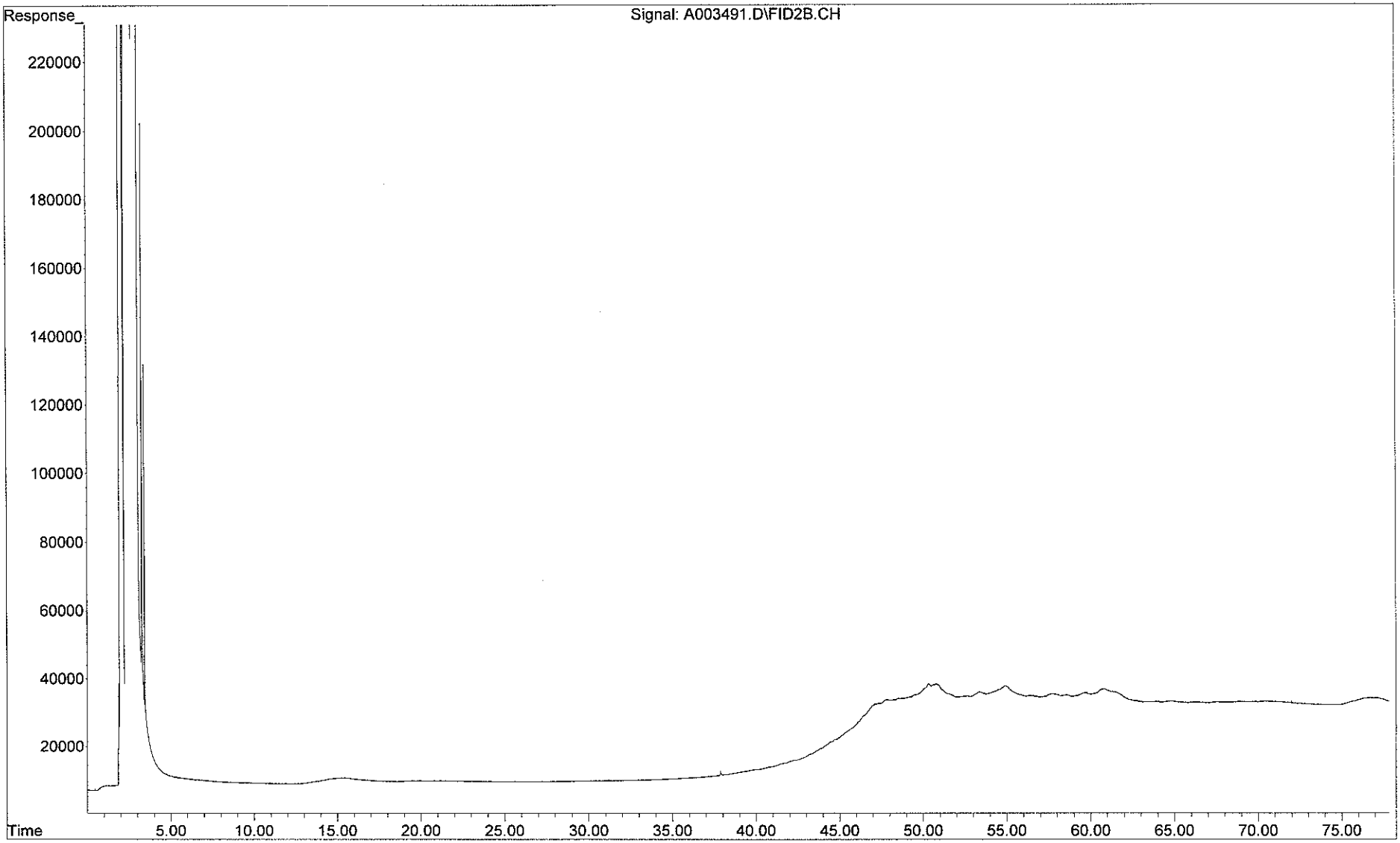
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.596	1114	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	448832687	21941432.861 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	4732384	231345.204 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003491.D
Operator : BAL
Acquired : 04 May 2012 9:58 am using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011207R
Misc Info : DCM
ALS Vial : 99



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	0.0340	U	n-Docosane (C22)	**0.00300**	J
n-Decane (C10)	0.0348	U	n-Tricosane (C23)	**0.0118**	J
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**0.00400**	J
n-Dodecane (C12)	0.0352	U	n-Pentacosane (C25)	**0.118**	CJ
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**0.00300**	J
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	0.0260	U	n-Octacosane (C28)	**0.00475**	J
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**0.00325**	J
n-Hexadecane (C16)	0.0240	U	n-Hentriacontane (C31)	**0.00300**	J
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	**0.00350**	J
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**0.0772**	CJ	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	0.0415	U
n-Nonadecane (C19)	0.0203	U	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**0.00550**	J	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	90	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003471.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 7:09 pm
Operator : BAL
Sample : SS043012B07
Misc : 1X
ALS Vial : 89 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:50:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

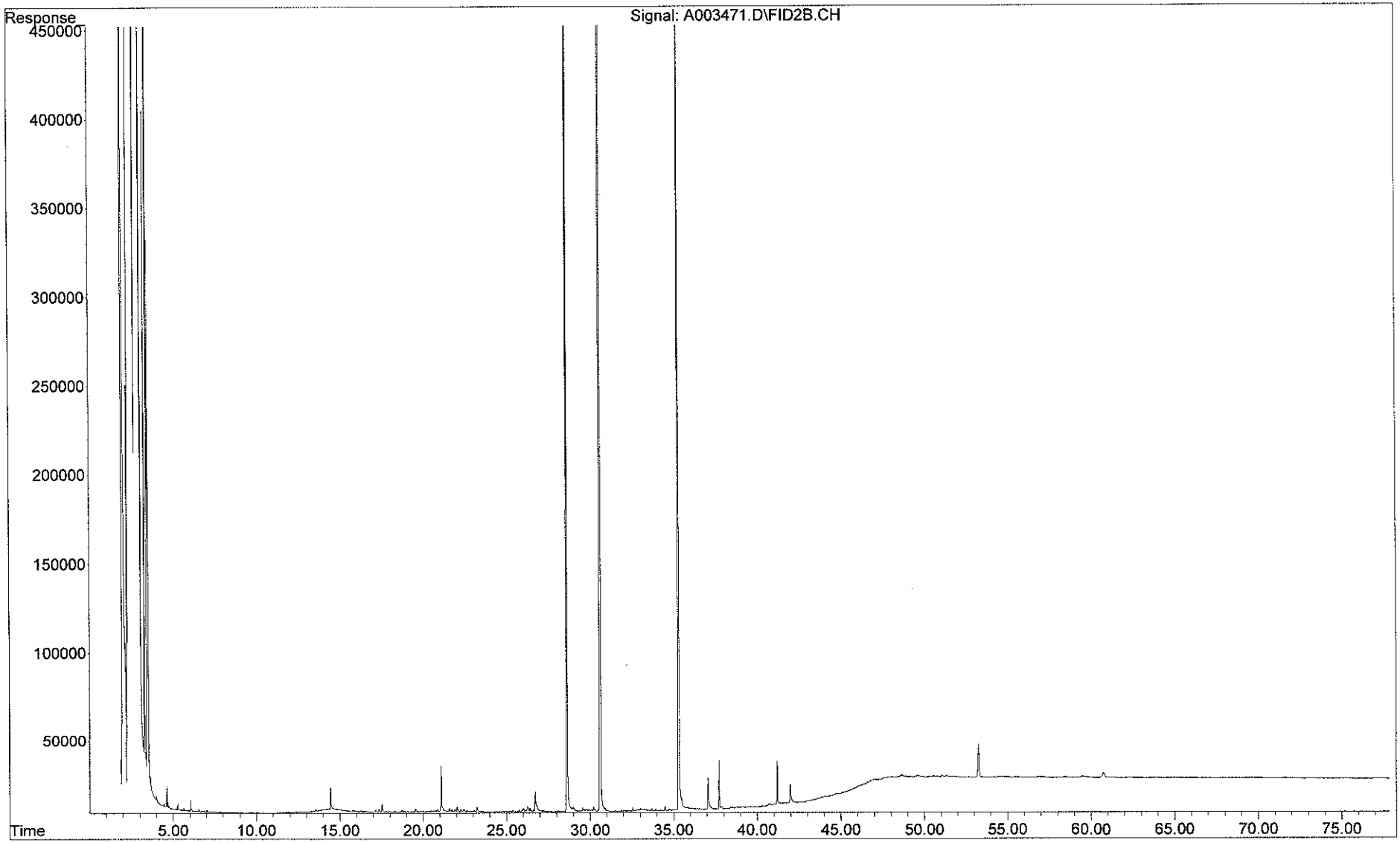
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	78862048	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.623	36125987	22.611 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	45.22%#
24) s	d50-Tetracosane	35.297	28736661	21.943 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	43.89%#
	Target Compounds			
16) t	n-Octadecane (C18)	26.716	449185C	0.309 ug/mL M4
20) t	n-Eicosane (C20)	30.067	32920	0.022 ug/mL M4
22) t	n-Docosane (C22)	33.071	17300	0.012 ug/mL M4
23) t	n-Tricosane (C23)	34.487	71210	0.047 ug/mL M4
25) t	n-Tetracosane (C24)	35.836	24181	0.016 ug/mL M4
26) t	n-Pentacosane (C25)	37.057f	715036C	0.474 ug/mL M4
27) t	n-Hexacosane (C26)	38.388	18167	0.012 ug/mL M4
29) t	n-Octacosane (C28)	40.760	28178	0.019 ug/mL M4
31) t	n-Triacontane (C30)	42.987	19891	0.013 ug/mL M4
32) t	n-Hentriacontane (C31)	44.033	18497	0.012 ug/mL M4
33) t	n-Dotriacontane (C32)	45.066	21366	0.014 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	354805389	245.017 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	13986972	9.659 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003471.D
Operator : BAL
Acquired : 03 May 2012 7:09 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012B07
Misc Info : 1X
ALS Vial : 89



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2000	U	n-Docosane (C22)	2000	U
n-Decane (C10)	2000	U	n-Tricosane (C23)	**76.0**	J
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	2000	U
n-Dodecane (C12)	2000	U	n-Pentacosane (C25)	**976**	CJ
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	2000	U
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	2000	U	n-Octacosane (C28)	2000	U
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	2000	U
n-Hexadecane (C16)	2000	U	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**778**	CJ	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	2000	U
n-Nonadecane (C19)	2000	U	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	2000	U	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	83	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2.00	U	n-Docosane (C22)	2.00	U
n-Decane (C10)	2.00	U	n-Tricosane (C23)	**0.0760**	J
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	2.00	U
n-Dodecane (C12)	2.00	U	n-Pentacosane (C25)	**0.976**	CJ
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	2.00	U
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	2.00	U	n-Octacosane (C28)	2.00	U
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	2.00	U
n-Hexadecane (C16)	2.00	U	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**0.778**	CJ	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	2.00	U
n-Nonadecane (C19)	2.00	U	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	2.00	U	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	83	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003409.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 9:17 pm
Operator : BAL
Sample : SO050112B01
Misc : 1X
ALS Vial : 58 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:21:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

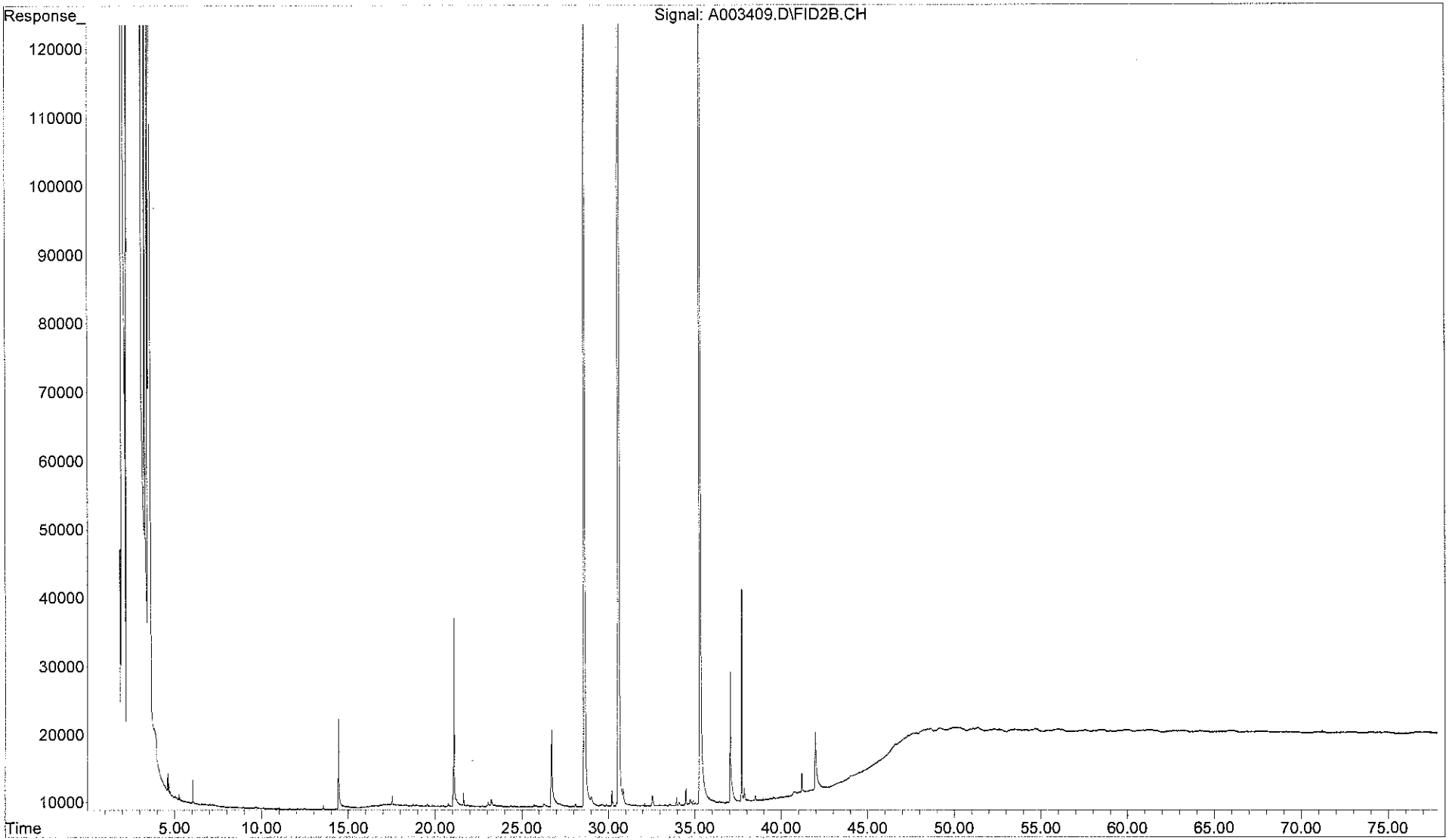
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.621	83741302	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.620	36093151	21.274 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	42.55%#
24) s d50-Tetracosane	35.295	28928874	20.803 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	41.61%#
Target Compounds			
16) t n-Octadecane (C18)	26.710	599661C	0.389 ug/mL M4
23) t n-Tricosane (C23)	34.481	61121	0.038 ug/mL M4
26) t n-Pentacosane (C25)	37.050f	782193C	0.488 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	227585790	148.006 ug/mL M4
44) h Total Resolved Hydroc...	38.335	6862316	4.463 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003409.D
Operator : BAL
Acquired : 01 May 2012 9:17 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112B01
Misc Info : 1X
ALS Vial : 58



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.75**	S	n-Docosane (C22)	**2.29**	S
n-Decane (C10)	**1.83**	S	n-Tricosane (C23)	0.0149	U
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**2.30**	S
n-Dodecane (C12)	**1.90**	S	n-Pentacosane (C25)	0.146	U
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**2.28**	S
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	**1.95**	S	n-Octacosane (C28)	**2.27**	S
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**2.26**	S
n-Hexadecane (C16)	**2.27**	S	n-Hentriacontane (C31)	0.0268	U
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	0.0278	U
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**2.40**	S	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	**2.03**	S
n-Nonadecane (C19)	**2.24**	S	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**2.26**	S	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	92	40-125
d50-Tetracosane	90	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003473.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 8:37 pm
Operator : BAL
Sample : SS043012LCS02
Misc : 1X
ALS Vial : 90 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 16:00:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

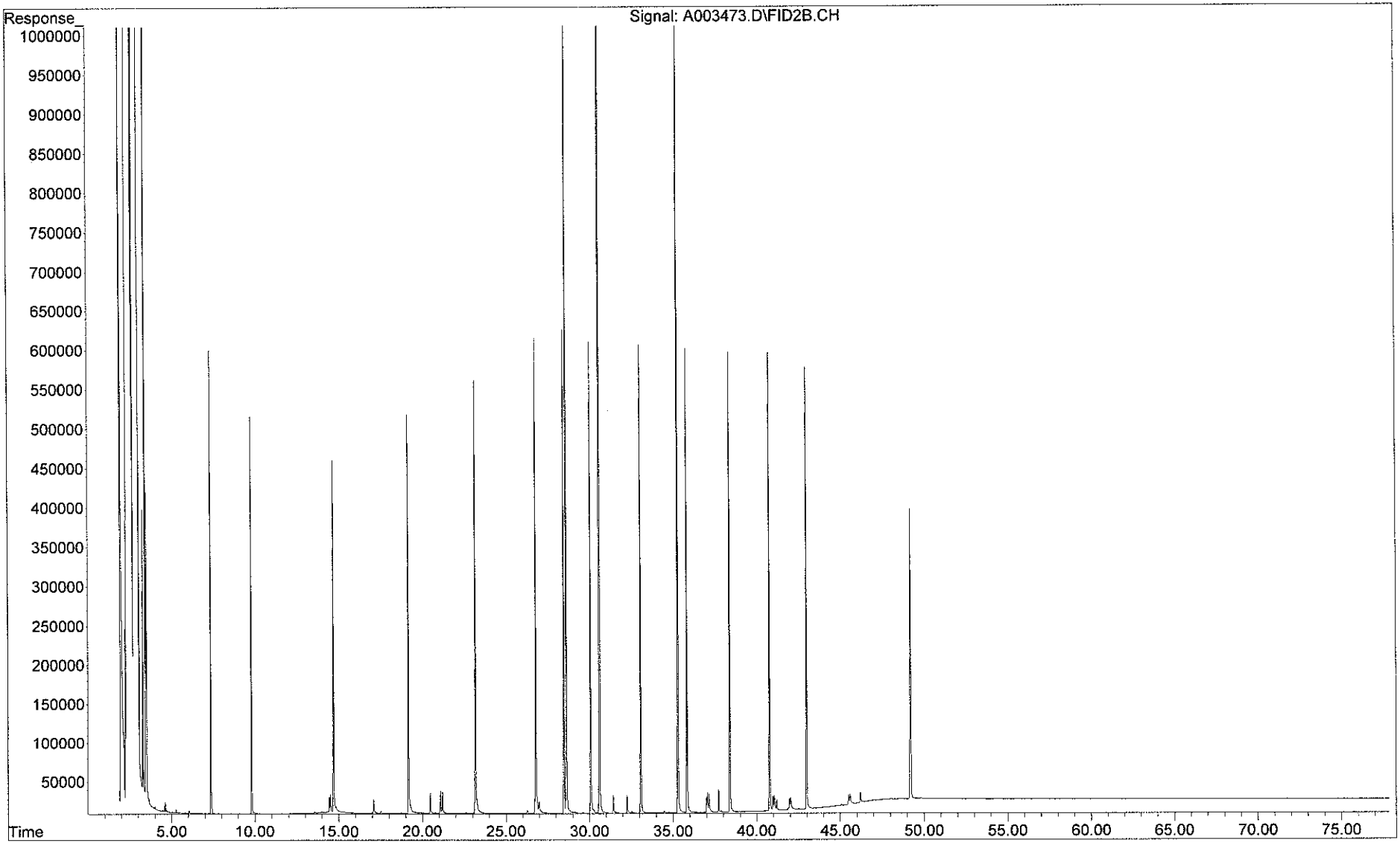
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.623	80058430	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.623	37445820	23.087 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	46.17%#
24) s	d50-Tetracosane	35.297	30065775	22.615 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	45.23%#
	Target Compounds			
3) t	n-Nonane (C9)	7.351	8921443	6.986 ug/mL M4
4) t	n-Decane (C10)	9.793	9892204	7.314 ug/mL M4
6) t	n-Dodecane (C12)	14.698	10680748	7.608 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	11116004	7.811 ug/mL M4
12) t	n-Hexadecane (C16)	23.173	13286978	9.094 ug/mL M4
16) t	n-Octadecane (C18)	26.786	14181628	9.612 ug/mL M4
18) t	n-Nonadecane (C19)	28.467	13195167	8.953 ug/mL M4
20) t	n-Eicosane (C20)	30.069	13527050	9.049 ug/mL M4
22) t	n-Docosane (C22)	33.070	13790399	9.166 ug/mL M4
25) t	n-Tetracosane (C24)	35.833	13780234	9.189 ug/mL M4
27) t	n-Hexacosane (C26)	38.388	13909935	9.131 ug/mL M4
29) t	n-Octacosane (C28)	40.764	13728819	9.071 ug/mL M4
31) t	n-Triacontane (C30)	42.985	13577959	9.021 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.194	12546596	8.128 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	516259144	351.184 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	193957544	131.939 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003473.D
Operator : BAL
Acquired : 03 May 2012 8:37 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012LCS02
Misc Info : 1X
ALS Vial : 90



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.64**	S	n-Docosane (C22)	**2.26**	S
n-Decane (C10)	**1.79**	S	n-Tricosane (C23)	0.0149	U
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**2.28**	S
n-Dodecane (C12)	**1.92**	S	n-Pentacosane (C25)	0.146	U
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**2.27**	S
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	**1.98**	S	n-Octacosane (C28)	**2.27**	S
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**2.22**	S
n-Hexadecane (C16)	**2.31**	S	n-Hentriacontane (C31)	0.0268	U
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	0.0278	U
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**2.38**	S	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	**1.95**	S
n-Nonadecane (C19)	**2.22**	S	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**2.25**	S	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	93	40-125
d50-Tetracosane	91	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

05/08/12 17:41

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003475.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:06 pm
Operator : BAL
Sample : SS043012LCSD02
Misc : 1X
ALS Vial : 91 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 17:11:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

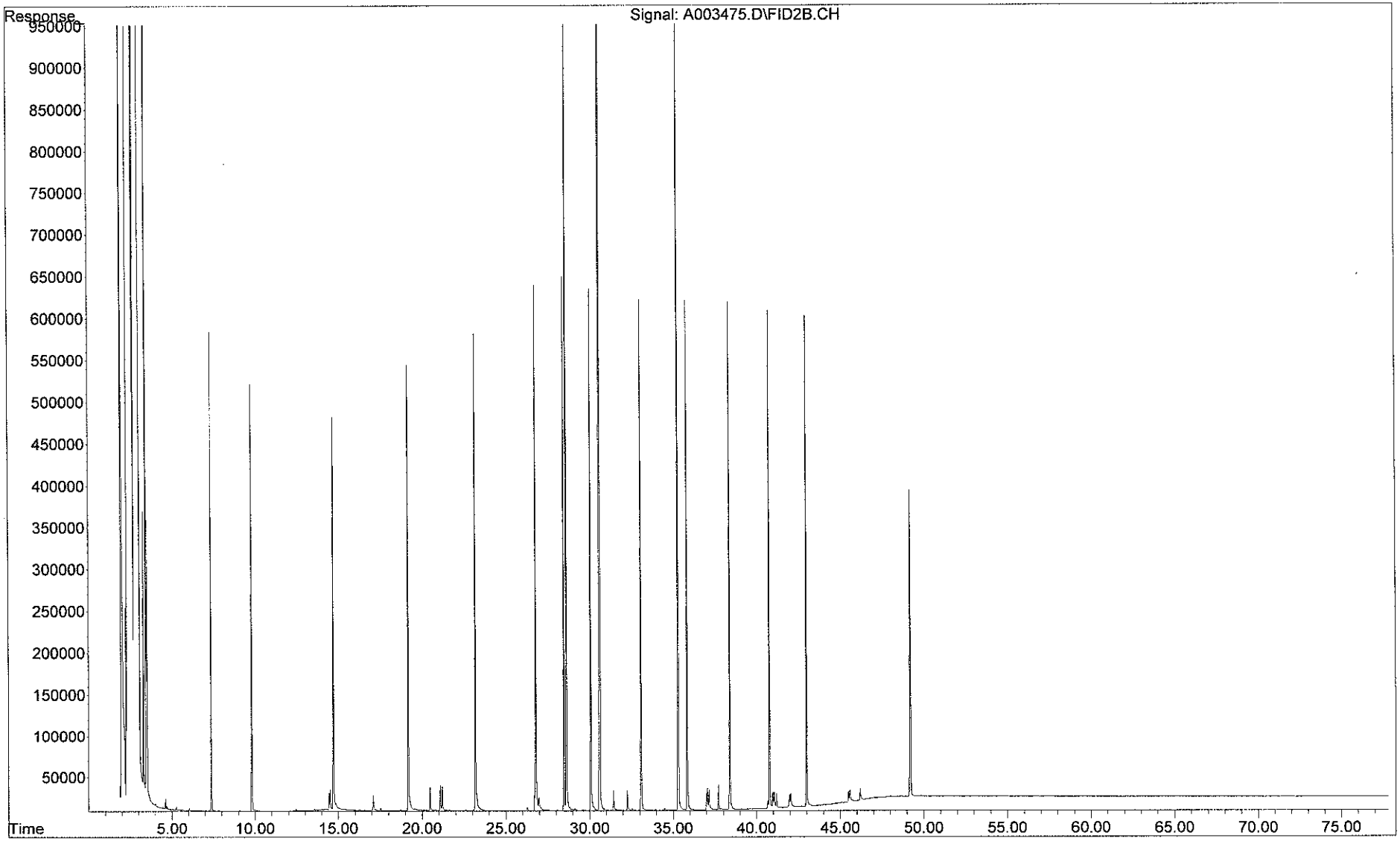
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.622	83014672	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.623	38912478	23.137 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 46.27%#	
24) s d50-Tetracosane	35.297	31262770	22.678 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 45.36%#	
Target Compounds			
3) t n-Nonane (C9)	7.352	8700788	6.570 ug/mL M4
4) t n-Decane (C10)	9.794	10064823	7.177 ug/mL M4
6) t n-Dodecane (C12)	14.699	11150609	7.660 ug/mL M4
9) t n-Tetradecane (C14)	19.168	11693767	7.925 ug/mL M4
12) t n-Hexadecane (C16)	23.174	13977006	9.225 ug/mL M4
16) t n-Octadecane (C18)	26.786	14574893	9.527 ug/mL M4
18) t n-Nonadecane (C19)	28.468	13582972	8.888 ug/mL M4
20) t n-Eicosane (C20)	30.068	13937597	8.991 ug/mL M4
22) t n-Docosane (C22)	33.069	14077176	9.023 ug/mL M4
25) t n-Tetracosane (C24)	35.831	14190687	9.126 ug/mL M4
27) t n-Hexacosane (C26)	38.387	14362527	9.092 ug/mL M4
29) t n-Octacosane (C28)	40.764	14229183	9.066 ug/mL M4
31) t n-Triacontane (C30)	42.984	13891061	8.900 ug/mL M4
37) t n-Hexatriacontane (C36)	49.197	12474364	7.794 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	507655763	333.034 ug/mL M4
44) h Total Resolved Hydroc...	38.335	198300926	130.090 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003475.D
Operator : BAL
Acquired : 03 May 2012 10:06 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012LCSD02
Misc Info : 1X
ALS Vial : 91



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**15300**	S	n-Docosane (C22)	**18200**	S
n-Decane (C10)	**15600**	S	n-Tricosane (C23)	2000	U
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	**18400**	S
n-Dodecane (C12)	**15800**	S	n-Pentacosane (C25)	2000	U
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	**18200**	S
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	**16400**	S	n-Octacosane (C28)	**18200**	S
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	**18200**	S
n-Hexadecane (C16)	**18400**	S	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**19200**	S	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	**17300**	S
n-Nonadecane (C19)	**17800**	S	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	**18000**	S	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	74	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**15.3**	S	n-Docosane (C22)	**18.2**	S
n-Decane (C10)	**15.6**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**18.4**	S
n-Dodecane (C12)	**15.8**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**18.2**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**16.4**	S	n-Octacosane (C28)	**18.2**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**18.2**	S
n-Hexadecane (C16)	**18.4**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**19.2**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**17.3**	S
n-Nonadecane (C19)	**17.8**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**18.0**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	74	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003411.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 10:46 pm
Operator : BAL
Sample : SO050112LCS01
Misc : 1X
ALS Vial : 59 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:27:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

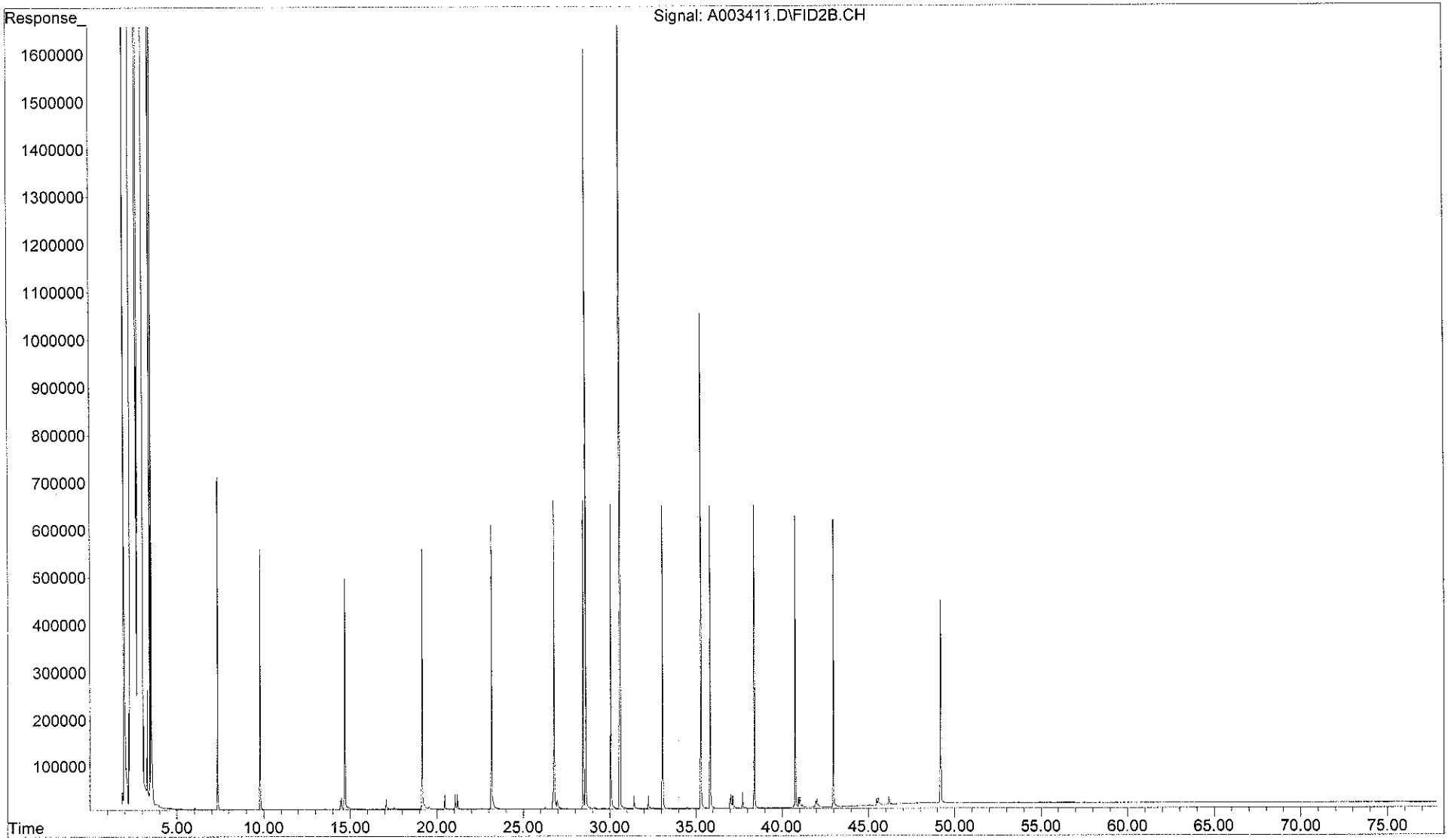
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	86590551	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.620	33552356	19.126 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	38.25%#
24) s	d50-Tetracosane	35.294	26683566	18.557 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	37.11%#
	Target Compounds			
3) t	n-Nonane (C9)	7.354	10556168	7.642 ug/mL M4
4) t	n-Decane (C10)	9.794	11445618	7.825 ug/mL M4
6) t	n-Dodecane (C12)	14.698	12012485	7.911 ug/mL M4
9) t	n-Tetradecane (C14)	19.167	12602006	8.188 ug/mL M4
12) t	n-Hexadecane (C16)	23.173	14554369	9.210 ug/mL M4
16) t	n-Octadecane (C18)	26.785	15316891	9.598 ug/mL M4
18) t	n-Nonadecane (C19)	28.467	14201441	8.909 ug/mL M4
20) t	n-Eicosane (C20)	30.067	14589436	9.023 ug/mL M4
22) t	n-Docosane (C22)	33.067	14767906	9.075 ug/mL M4
25) t	n-Tetracosane (C24)	35.830	14922850	9.200 ug/mL M4
27) t	n-Hexacosane (C26)	38.386	15020913	9.116 ug/mL M4
29) t	n-Octacosane (C28)	40.764	14924738	9.117 ug/mL M4
31) t	n-Triacontane (C30)	42.982	14837172	9.114 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.195	14407868	8.630 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	429841547	270.341 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	211537882	133.043 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003411.D
Operator : BAL
Acquired : 01 May 2012 10:46 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112LCS01
Misc Info : 1X
ALS Vial : 59



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**16300**	S	n-Docosane (C22)	**18800**	S
n-Decane (C10)	**16300**	S	n-Tricosane (C23)	2000	U
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	**19100**	S
n-Dodecane (C12)	**16400**	S	n-Pentacosane (C25)	2000	U
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	**18900**	S
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	**16900**	S	n-Octacosane (C28)	**18800**	S
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	**18800**	S
n-Hexadecane (C16)	**19100**	S	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**19800**	S	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	**17700**	S
n-Nonadecane (C19)	**18400**	S	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	**18700**	S	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	82	40-125
d50-Tetracosane	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**16.3**	S	n-Docosane (C22)	**18.8**	S
n-Decane (C10)	**16.3**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**19.1**	S
n-Dodecane (C12)	**16.4**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**18.9**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**16.9**	S	n-Octacosane (C28)	**18.8**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**18.8**	S
n-Hexadecane (C16)	**19.1**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**19.8**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**17.7**	S
n-Nonadecane (C19)	**18.4**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**18.7**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	82	40-125
d50-Tetracosane	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003413.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:15 am
Operator : BAL
Sample : SO050112LCSD01
Misc : 1X
ALS Vial : 60 Sample Multiplier: 1

5/12

Integration File: SHCINT2.E
Quant Time: May 04 15:42:03 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

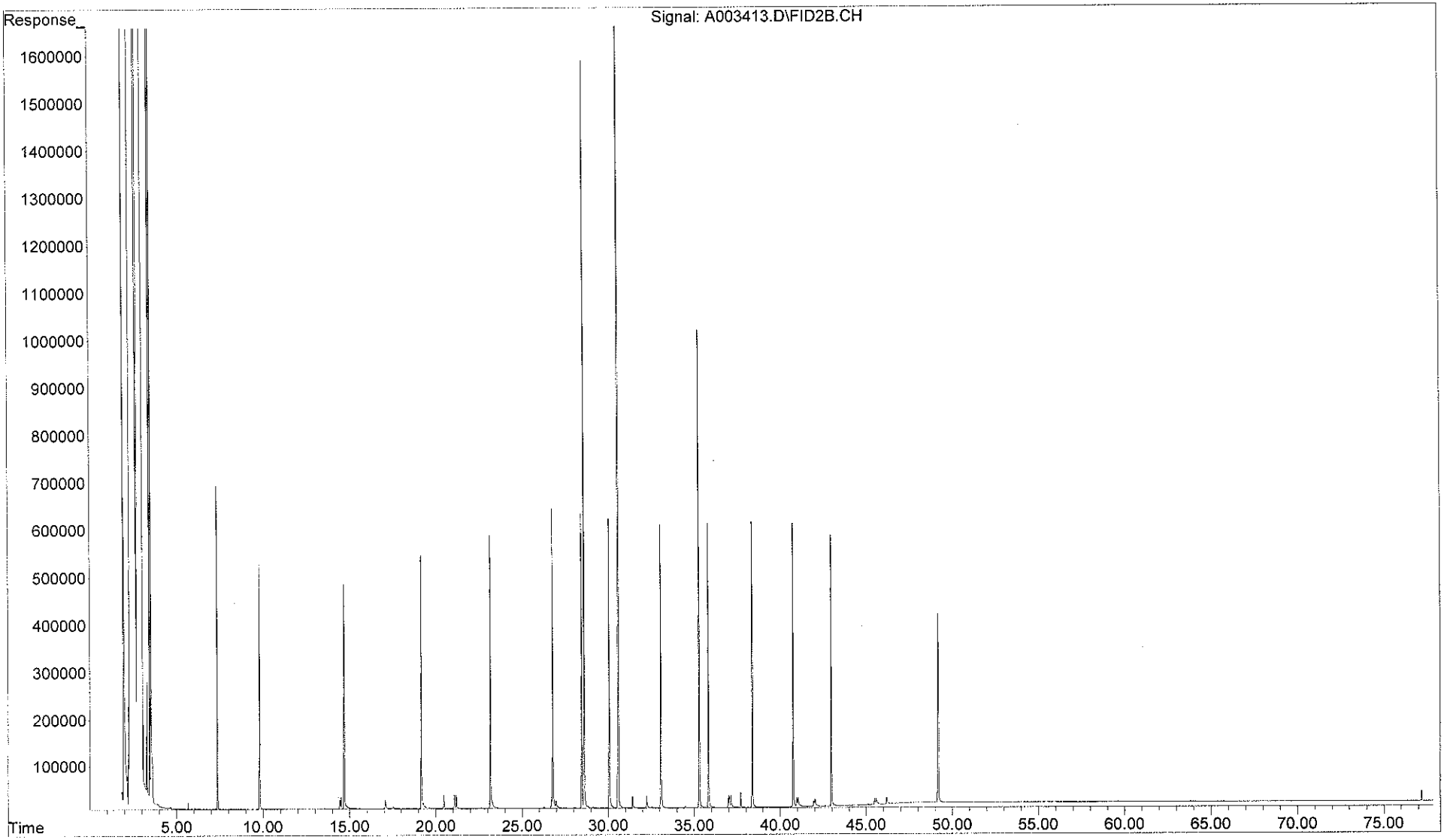
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.620	79616546	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.619	32955330	20.431 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	40.86%#
24) s d50-Tetracosane	35.295	26159096	19.786 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	39.57%#
Target Compounds			
3) t n-Nonane (C9)	7.353	10376735	8.170 ug/mL M4
4) t n-Decane (C10)	9.794	10988572	8.170 ug/mL M4
6) t n-Dodecane (C12)	14.699	11482724	8.225 ug/mL M4
9) t n-Tetradecane (C14)	19.167	11957120	8.449 ug/mL M4
12) t n-Hexadecane (C16)	23.172	13894471	9.562 ug/mL M4
16) t n-Octadecane (C18)	26.785	14557399	9.921 ug/mL M4
18) t n-Nonadecane (C19)	28.467	13498662	9.210 ug/mL M4
20) t n-Eicosane (C20)	30.068	13877714	9.335 ug/mL M4
22) t n-Docosane (C22)	33.068	14031750	9.378 ug/mL M4
25) t n-Tetracosane (C24)	35.831	14246694	9.553 ug/mL M4
27) t n-Hexacosane (C26)	38.386	14288553	9.431 ug/mL M4
29) t n-Octacosane (C28)	40.763	14117029	9.379 ug/mL M4
31) t n-Triacontane (C30)	42.981	14091136	9.414 ug/mL M4
37) t n-Hexatriacontane (C36)	49.194	13614747	8.869 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	411831789	281.703 ug/mL M4
44) h Total Resolved Hydroc...	38.335	201052377	137.525 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003413.D
Operator : BAL
Acquired : 02 May 2012 12:15 am using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112LCSD01
Misc Info : 1X
ALS Vial : 60



Form I
Matrix Spike
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 M**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.82	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**34.7**	S	n-Docosane (C22)	**53.4**	S
n-Decane (C10)	**39.1**	S	n-Tricosane (C23)	**1.81**	
n-Undecane (C11)	**0.113**	J	n-Tetracosane (C24)	**53.2**	S
n-Dodecane (C12)	**46.6**	S	n-Pentacosane (C25)	**11.0**	
n-Tridecane (C13)	**0.198**	J	n-Hexacosane (C26)	**53.4**	S
2,6,10 Trimethyldodecane (1380)	**0.137**	J	n-Heptacosane (C27)	**15.2**	
n-Tetradecane (C14)	**51.1**	S	n-Octacosane (C28)	**52.4**	S
2,6,10 Trimethyltridecane (1470)	**3.30**		n-Nonacosane (C29)	**22.3**	
n-Pentadecane (C15)	**3.62**		n-Triacontane (C30)	**48.9**	S
n-Hexadecane (C16)	**55.7**	S	n-Hentriacontane (C31)	**11.4**	
Norpristane (1650)	**0.648**	J	n-Dotriacontane (C32)	**1.18**	J
n-Heptadecane (C17)	**1.01**	J	n-Tritriacontane (C33)	**2.37**	
Pristane	**1.10**	J	n-Tetratriacontane (C34)	**8.55**	
n-Octadecane (C18)	**58.6**	S	n-Pentatriacontane (C35)	**2.43**	
Phytane	**3.43**		n-Hexatriacontane (C36)	**35.0**	S
n-Nonadecane (C19)	**53.7**	S	n-Heptatriacontane (C37)	**0.835**	J
n-Eicosane (C20)	**55.2**	S	n-Octatriacontane (C38)	**0.331**	J
n-Heneicosane (C21)	**1.03**	J	n-Nonatriacontane (C39)	**0.217**	J
			n-Tetracontane (C40)	**0.335**	J
Total Petroleum Hydrocarbons (C9-C44)	**5280**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	81	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
S - Spike compound.

05/08/12 17:41

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003481.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 2:33 am
Operator : BAL
Sample : 1204031-01M
Misc : 1X
ALS Vial : 94 Sample Multiplier: 1

JSM

Integration File: SHCINT2.E
Quant Time: May 07 14:13:16 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.636	83385936	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.668	179251171	106.105 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	212.21%#
24) s	d50-Tetracosane	35.347	140983481	101.813 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	203.63%#
	Target Compounds			
2) t	n-Octane (C8)	5.201	18370	0.015 ug/mL M4
3) t	n-Nonane (C9)	7.353	35995286	27.060 ug/mL M4
4) t	n-Decane (C10)	9.799	42915793	30.466 ug/mL M4
5) t	n-Undecane (C11)	12.284	126082	0.088 ug/mL M4
6) t	n-Dodecane (C12)	14.706	53060735	36.288 ug/mL M4
7) t	n-Tridecane (C13)	16.991	225911	0.154 ug/mL M4
8) t	1380	18.669	159203	0.107 ug/mL M4
9) t	n-Tetradecane (C14)	19.181	59020294	39.820 ug/mL M4
10) t	1470	20.466	3815705	2.576 ug/mL M4
11) t	n-Pentadecane (C15)	21.195	4179271	2.822 ug/mL M4
12) t	n-Hexadecane (C16)	23.192	66121312	43.448 ug/mL M4
13) t	1650	24.069	759495	0.505 ug/mL M4
14) t	n-Heptadecane (C17)	25.023	1181245	0.786 ug/mL M4
15) t	Pristane	25.124	1320091	0.859 ug/mL M4
16) t	n-Octadecane (C18)	26.809	70183788	45.670 ug/mL M4
17) t	Phytane	26.961	4068987	2.672 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	64298591	41.886 ug/mL M4
20) t	n-Eicosane (C20)	30.097	66989496	43.024 ug/mL M4
21) t	n-Heneicosane (C21)	31.610	1268937	0.807 ug/mL M4
22) t	n-Docosane (C22)	33.100	65300491	41.669 ug/mL M4
23) t	n-Tricosane (C23)	34.486	2254360	1.414 ug/mL M4
25) t	n-Tetracosane (C24)	35.869	64811411	41.494 ug/mL M4
26) t	n-Pentacosane (C25)	37.148	13714612	8.592 ug/mL M4
27) t	n-Hexacosane (C26)	38.425	66006709	41.598 ug/mL M4
28) t	n-Heptacosane (C27)	39.615	18492005	11.860 ug/mL M4
29) t	n-Octacosane (C28)	40.801	64340267	40.813 ug/mL M4
30) t	n-Nonacosane (C29)	41.924	27333567	17.380 ug/mL M4
31) t	n-Triacontane (C30)	43.019	59714888	38.091 ug/mL M4
32) t	n-Hentriacontane (C31)	44.061	13976687	8.871 ug/mL M4
33) t	n-Dotriacontane (C32)	45.074	1448121	0.922 ug/mL M4
34) t	n-Tritriacontane (C33)	46.076	2805376	1.844 ug/mL M4
35) t	n-tetratriacontane (C34)	47.037	10347357	6.666 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.045	2985663	1.896 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.235	43845956	27.273 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.510	1022423	0.651 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003481.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 2:33 am
Operator : BAL
Sample : 1204031-01M
Misc : 1X
ALS Vial : 94 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:16 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

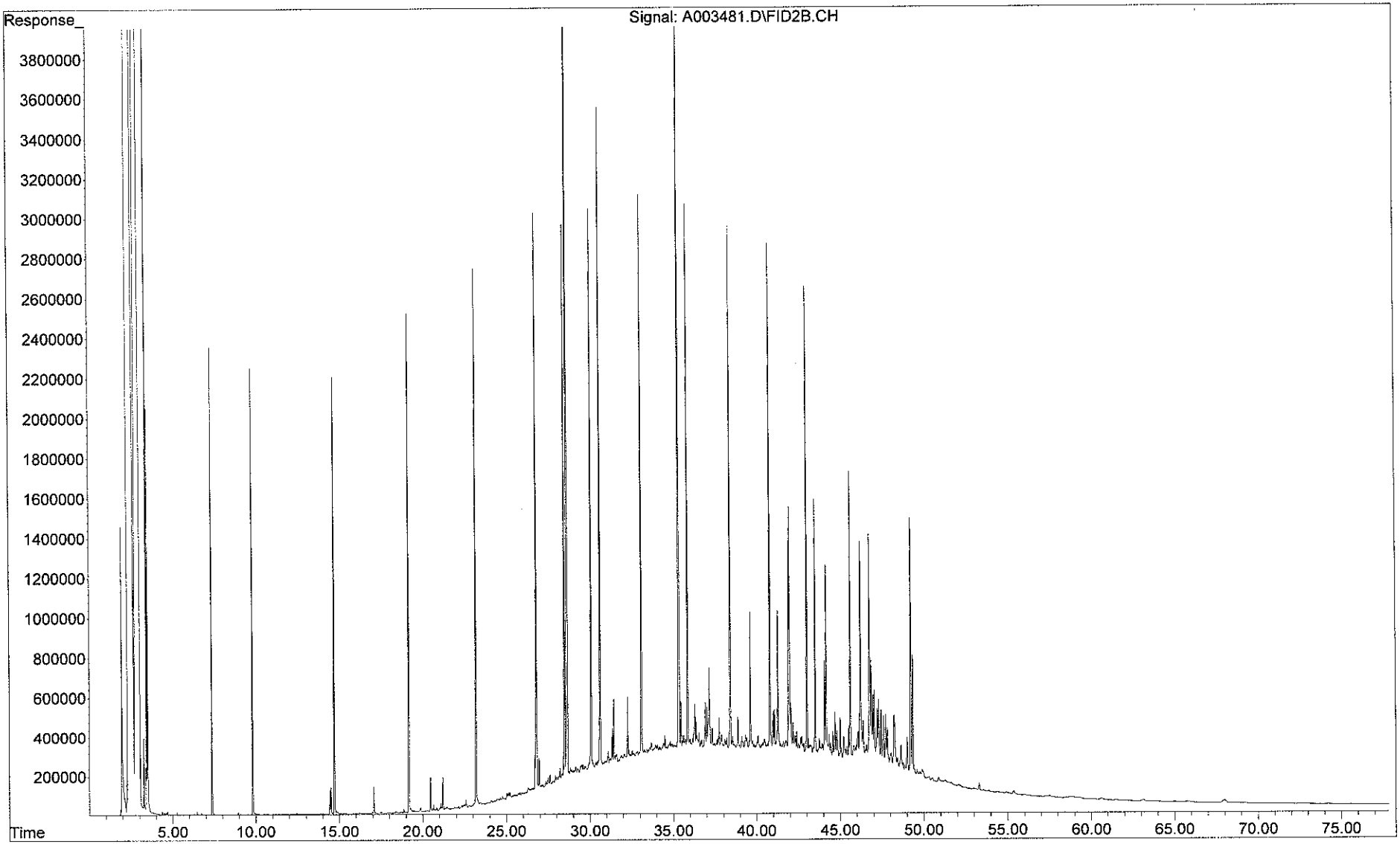
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
39)	t	n-Octatriacontane (C38)	52.070	401632	0.258	ug/mL	M4
40)	t	n-Nonatriacontane (C39)	53.868	246473	0.169	ug/mL	M4
41)	t	n-Tetracontane (C40)	55.980	380682	0.261	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	38.335	6748252777	4407.302	ug/mL	M4
44)	h	Total Resolved Hydroc...	38.335	1576174648	1029.404	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003481.D
Operator : BAL
Acquired : 04 May 2012 2:33 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-01M
Misc Info : 1X
ALS Vial : 94



Form I
Matrix Spike Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1934L013S041912D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **1204031-01 S**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/19/12	04/20/12	04/30/12	05/04/12	26.8	5.77	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**35.8**	S	n-Docosane (C22)	**52.7**	S
n-Decane (C10)	**40.0**	S	n-Tricosane (C23)	**1.52**	
n-Undecane (C11)	**0.0595**	J	n-Tetracosane (C24)	**52.1**	S
n-Dodecane (C12)	**46.6**	S	n-Pentacosane (C25)	**10.3**	
n-Tridecane (C13)	**0.194**	J	n-Hexacosane (C26)	**53.1**	S
2,6,10 Trimethyldodecane (1380)	**0.132**	J	n-Heptacosane (C27)	**12.6**	
n-Tetradecane (C14)	**50.6**	S	n-Octacosane (C28)	**52.4**	S
2,6,10 Trimethyltridecane (1470)	**3.22**		n-Nonacosane (C29)	**18.6**	
n-Pentadecane (C15)	**3.25**		n-Triacontane (C30)	**49.4**	S
n-Hexadecane (C16)	**55.3**	S	n-Hentriacontane (C31)	**10.3**	
Norpristane (1650)	**0.440**	J	n-Dotriacontane (C32)	**1.07**	J
n-Heptadecane (C17)	**0.907**	J	n-Tritriacontane (C33)	**4.49**	
Pristane	**0.859**	J	n-Tetratriacontane (C34)	**4.67**	
n-Octadecane (C18)	**56.9**	S	n-Pentatriacontane (C35)	**1.82**	
Phytane	**2.97**		n-Hexatriacontane (C36)	**34.8**	S
n-Nonadecane (C19)	**52.3**	S	n-Heptatriacontane (C37)	**1.01**	J
n-Eicosane (C20)	**53.9**	S	n-Octatriacontane (C38)	**0.334**	J
n-Heneicosane (C21)	**0.858**	J	n-Nonatriacontane (C39)	**0.207**	J
			n-Tetracontane (C40)	**0.260**	J
Total Petroleum Hydrocarbons (C9-C44)	**4940**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	83	40-125
d50-Tetracosane	80	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
S - Spike compound.

05/08/12 17:41

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003483.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 4:02 am
Operator : BAL
Sample : 1204031-01S
Misc : 1X
ALS Vial : 95 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:18 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.637	85179172	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.670	178544189	103.461 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	206.92%#
24) s	d50-Tetracosane	35.345	141075224	99.735 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	199.47%#
	Target Compounds			
2) t	n-Octane (C8)	5.206	20240	0.016 ug/mL M4
3) t	n-Nonane (C9)	7.355	37611985	27.681 ug/mL M4
4) t	n-Decane (C10)	9.800	44518629	30.939 ug/mL M4
5) t	n-Undecane (C11)	12.286	66789	0.046 ug/mL M4
6) t	n-Dodecane (C12)	14.707	53755487	35.989 ug/mL M4
7) t	n-Tridecane (C13)	16.993	225142	0.150 ug/mL M4
8) t	1380	18.668	153715	0.102 ug/mL M4
9) t	n-Tetradecane (C14)	19.181	59228503	39.119 ug/mL M4
10) t	1470	20.468	3763612	2.488 ug/mL M4
11) t	n-Pentadecane (C15)	21.196	3796099	2.509 ug/mL M4
12) t	n-Hexadecane (C16)	23.192	66493795	42.773 ug/mL M4
13) t	1650	24.072	522897	0.340 ug/mL M4
14) t	n-Heptadecane (C17)	25.025	1076272	0.701 ug/mL M4
15) t	Pristane	25.125	1042298	0.664 ug/mL M4
16) t	n-Octadecane (C18)	26.809	68989099	43.947 ug/mL M4
17) t	Phytane	26.963	3572869	2.297 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	63438303	40.455 ug/mL M4
20) t	n-Eicosane (C20)	30.098	66260616	41.660 ug/mL M4
21) t	n-Heneicosane (C21)	31.610	1065718	0.663 ug/mL M4
22) t	n-Docosane (C22)	33.101	65210131	40.735 ug/mL M4
23) t	n-Tricosane (C23)	34.492	1910676	1.173 ug/mL M4
25) t	n-Tetracosane (C24)	35.870	64231368	40.257 ug/mL M4
26) t	n-Pentacosane (C25)	37.154	13031370	7.992 ug/mL M4
27) t	n-Hexacosane (C26)	38.424	66534111	41.048 ug/mL M4
28) t	n-Heptacosane (C27)	39.615	15574072	9.779 ug/mL M4
29) t	n-Octacosane (C28)	40.804	65259537	40.525 ug/mL M4
30) t	n-Nonacosane (C29)	41.919	23059312	14.354 ug/mL M4
31) t	n-Triacontane (C30)	43.023	61172689	38.199 ug/mL M4
32) t	n-Hentriacontane (C31)	44.062	12859135	7.990 ug/mL M4
33) t	n-Dotriacontane (C32)	45.072	1327282	0.828 ug/mL M4
34) t	n-Tritriacontane (C33)	46.074	5395457	3.473 ug/mL M4
35) t	n-tetratriacontane (C34)	47.035	5719937	3.607 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.050	2264810	1.408 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.234	44216444	26.924 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.518	1257060	0.783 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003483.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 4:02 am
Operator : BAL
Sample : 1204031-01S
Misc : 1X
ALS Vial : 95 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:13:18 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

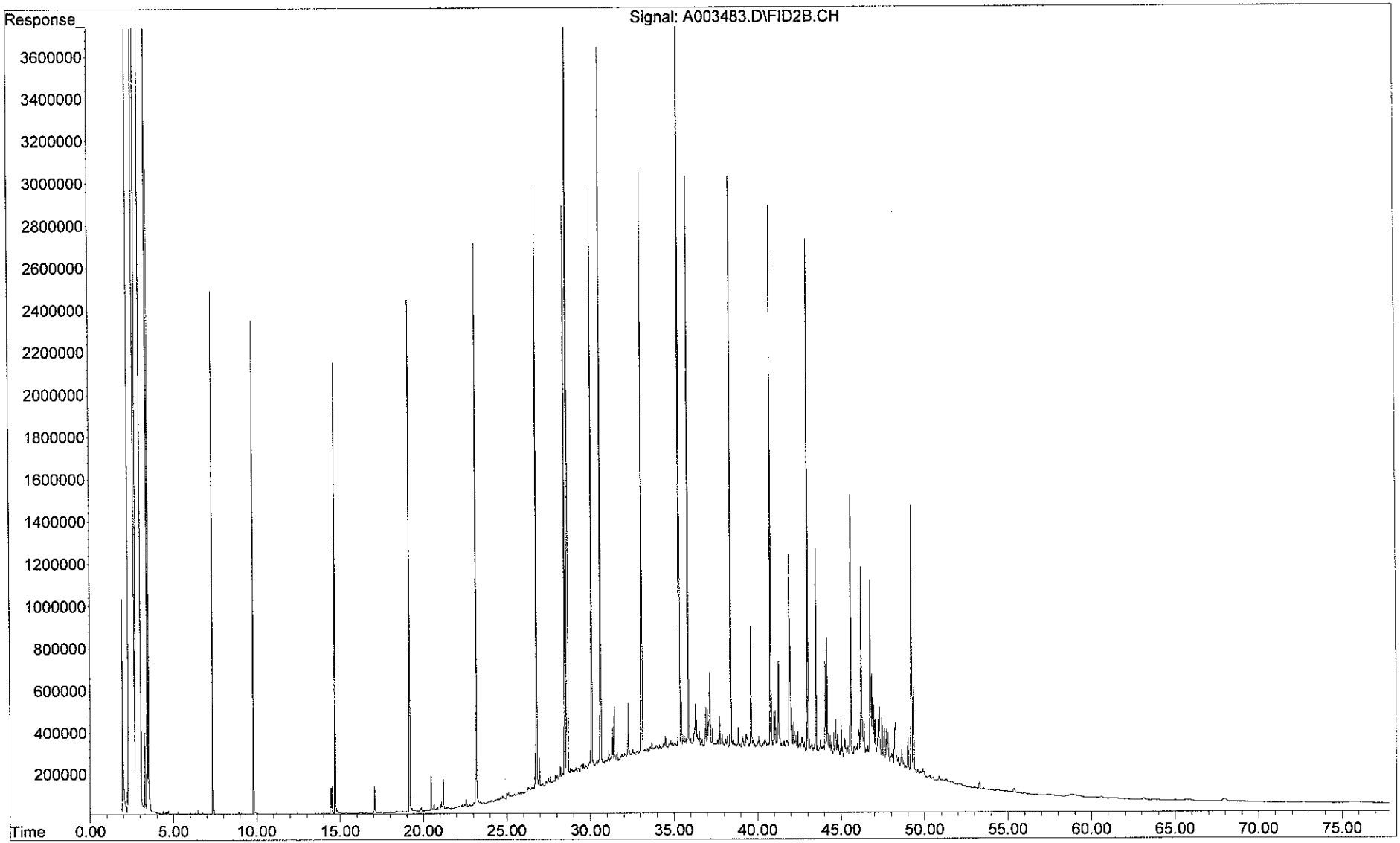
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
39) t	n-Octatriacontane (C38)	52.066	410850	0.258	ug/mL	M4
40) t	n-Nonatriacontane (C39)	53.873	238356	0.160	ug/mL	M4
41) t	n-Tetracontane (C40)	55.975	299728	0.201	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	6424455864	4107.497	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	1460486082	933.767	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003483.D
Operator : BAL
Acquired : 04 May 2012 4:02 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204031-01S
Misc Info : 1X
ALS Vial : 95



Form I
Cold Lake Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TO050112CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.10018	10	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1690**		n-Docosane (C22)	**229**	
n-Decane (C10)	**934**		n-Tricosane (C23)	**209**	
n-Undecane (C11)	**828**		n-Tetracosane (C24)	**182**	
n-Dodecane (C12)	**674**		n-Pentacosane (C25)	**237**	
n-Tridecane (C13)	**607**		n-Hexacosane (C26)	**198**	
2,6,10 Trimethyldodecane (1380)	**301**		n-Heptacosane (C27)	**131**	
n-Tetradecane (C14)	**594**		n-Octacosane (C28)	**116**	
2,6,10 Trimethyltridecane (1470)	**502**		n-Nonacosane (C29)	**144**	
n-Pentadecane (C15)	**631**		n-Triacontane (C30)	**156**	
n-Hexadecane (C16)	**441**		n-Hentriacontane (C31)	**320**	
Norpristane (1650)	**260**		n-Dotriacontane (C32)	**124**	
n-Heptadecane (C17)	**390**		n-Tritriacontane (C33)	**233**	
Pristane	**457**		n-Tetratriacontane (C34)	**188**	
n-Octadecane (C18)	**378**		n-Pentatriacontane (C35)	**140**	
Phytane	**316**		n-Hexatriacontane (C36)	**85.6**	J
n-Nonadecane (C19)	**266**		n-Heptatriacontane (C37)	**48.2**	J
n-Eicosane (C20)	**294**		n-Octatriacontane (C38)	**36.5**	J
n-Heneicosane (C21)	**199**		n-Nonatriacontane (C39)	**37.8**	J
			n-Tetracontane (C40)	**45.5**	J
Total Petroleum Hydrocarbons (C9-C44)	**443000**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	104	40-125
d50-Tetracosane	95	40-125

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003461.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:45 am
Operator : BAL
Sample : TO050112CL01
Misc : WHAP16
ALS Vial : 84 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.633	84460741	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.647	88674152	51.821 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	103.64%
24) s	d50-Tetracosane	35.320	66538723	47.440 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	94.88%
	Target Compounds			
2) t	n-Octane (C8)	5.205	34001536	27.138 ug/mL M4
3) t	n-Nonane (C9)	7.354	22843177	16.954 ug/mL M4
4) t	n-Decane (C10)	9.797	13354864	9.360 ug/mL M4
5) t	n-Undecane (C11)	12.286	12039110	8.291 ug/mL M4
6) t	n-Dodecane (C12)	14.700	10006417	6.756 ug/mL M4
7) t	n-Tridecane (C13)	16.996	9050558	6.084 ug/mL M4
8) t	1380	18.672	4532996	3.019 ug/mL M4
9) t	n-Tetradecane (C14)	19.171	8926929	5.946 ug/mL M4
10) t	1470	20.456	7539302	5.026 ug/mL M4
11) t	n-Pentadecane (C15)	21.228	9480348	6.320 ug/mL M4
12) t	n-Hexadecane (C16)	23.178	6816041	4.422 ug/mL M4
13) t	1650	24.085	3969194	2.606 ug/mL M4
14) t	n-Heptadecane (C17)	25.030	5952345	3.908 ug/mL M4
15) t	Pristane	25.132	7125931	4.577 ug/mL M4
16) t	n-Octadecane (C18)	26.792	5889784	3.784 ug/mL M4
17) t	Phytane	26.953	4892058	3.171 ug/mL M4
18) t	n-Nonadecane (C19)	28.474	4142650	2.664 ug/mL M4
20) t	n-Eicosane (C20)	30.072	4641525	2.943 ug/mL M4
21) t	n-Heneicosane (C21)	31.604	3173124	1.991 ug/mL M4
22) t	n-Docosane (C22)	33.074	3647331	2.298 ug/mL M4
23) t	n-Tricosane (C23)	34.486	3375845	2.091 ug/mL M4
25) t	n-Tetracosane (C24)	35.839	2890457	1.827 ug/mL M4
26) t	n-Pentacosane (C25)	37.140	3831931	2.370 ug/mL M4
27) t	n-Hexacosane (C26)	38.391	3193736	1.987 ug/mL M4
28) t	n-Heptacosane (C27)	39.607	2072043	1.312 ug/mL M4
29) t	n-Octacosane (C28)	40.772	1856467	1.163 ug/mL M4
30) t	n-Nonacosane (C29)	41.899	2293727	1.440 ug/mL M4
31) t	n-Triacontane (C30)	42.993	2490614	1.568 ug/mL M4
32) t	n-Hentriacontane (C31)	44.086	5122203	3.210 ug/mL M4
33) t	n-Dotriacontane (C32)	45.068	1976475	1.243 ug/mL M4
34) t	n-Tritriacontane (C33)	46.037	3595216	2.334 ug/mL M4
35) t	n-tetratriacontane (C34)	47.016	2966410	1.887 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.057	2236723	1.402 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.212	1396925	0.858 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.526	768930	0.483 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003461.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:45 am
Operator : BAL
Sample : TO050112CL01
Misc : WHAP16
ALS Vial : 84 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

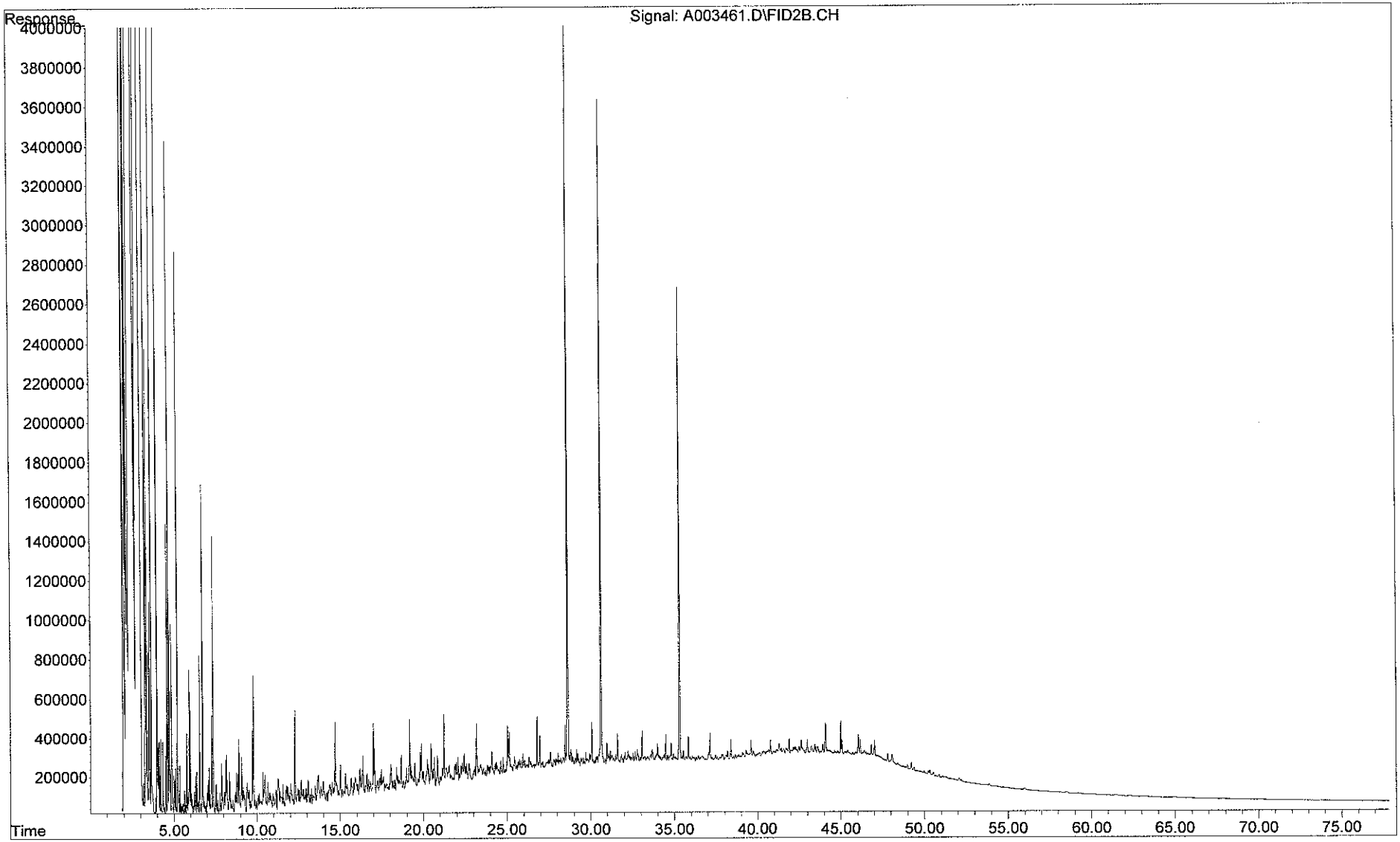
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
39)	t	n-Octatriacontane (C38)	52.075	578414	0.366	ug/mL	M4
40)	t	n-Nonatriacontane (C39)	53.877	560107	0.379	ug/mL	M4
41)	t	n-Tetracontane (C40)	55.996	674394	0.456	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	38.335	7239597967	4668.032	ug/mL	M4
44)	h	Total Resolved Hydroc...	38.335	1035689195	667.804	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003461.D
Operator : BAL
Acquired : 03 May 2012 11:45 am using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112CL01
Misc Info : WHAP16
ALS Vial : 84



Form I
Western Canadian Select
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TO050112WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.10119	10	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1610**		n-Docosane (C22)	**242**	
n-Decane (C10)	**1050**		n-Tricosane (C23)	**200**	
n-Undecane (C11)	**885**		n-Tetracosane (C24)	**182**	
n-Dodecane (C12)	**684**		n-Pentacosane (C25)	**252**	
n-Tridecane (C13)	**656**		n-Hexacosane (C26)	**206**	
2,6,10 Trimethyldodecane (1380)	**335**		n-Heptacosane (C27)	**128**	
n-Tetradecane (C14)	**658**		n-Octacosane (C28)	**104**	
2,6,10 Trimethyltridecane (1470)	**624**		n-Nonacosane (C29)	**132**	
n-Pentadecane (C15)	**658**		n-Triacontane (C30)	**132**	
n-Hexadecane (C16)	**516**		n-Hentriacontane (C31)	**304**	
Norpristane (1650)	**329**		n-Dotriacontane (C32)	**91.0**	J
n-Heptadecane (C17)	**394**		n-Tritriacontane (C33)	**214**	
Pristane	**659**		n-Tetratriacontane (C34)	**182**	
n-Octadecane (C18)	**397**		n-Pentatriacontane (C35)	**109**	
Phytane	**344**		n-Hexatriacontane (C36)	**68.5**	J
n-Nonadecane (C19)	**276**		n-Heptatriacontane (C37)	**36.3**	J
n-Eicosane (C20)	**314**		n-Octatriacontane (C38)	**24.6**	J
n-Heneicosane (C21)	**205**		n-Nonatriacontane (C39)	98.8	U
			n-Tetracontane (C40)	98.8	U
Total Petroleum Hydrocarbons (C9-C44)	**462000**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	104	40-125
d50-Tetracosane	101	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003459.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:16 am
Operator : BAL
Sample : TO050112WCS01
Misc : WHAP15
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.629	77429144	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.644	81465378	51.932 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 103.86%	
24) s d50-Tetracosane	35.317	64687492	50.309 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 100.62%	
Target Compounds			
2) t n-Octane (C8)	5.204	28941145	25.197 ug/mL M4
3) t n-Nonane (C9)	7.353	20101028	16.274 ug/mL M4
4) t n-Decane (C10)	9.797	13884791	10.615 ug/mL M4
5) t n-Undecane (C11)	12.288	11913923	8.950 ug/mL M4
6) t n-Dodecane (C12)	14.701	9401900	6.925 ug/mL M4
7) t n-Tridecane (C13)	16.996	9049809	6.636 ug/mL M4
8) t 1380	18.671	4669569	3.393 ug/mL M4
9) t n-Tetradecane (C14)	19.170	9160374	6.656 ug/mL M4
10) t 1470	20.456	8680564	6.312 ug/mL M4
11) t n-Pentadecane (C15)	21.226	9153894	6.656 ug/mL M4
12) t n-Hexadecane (C16)	23.175	7381974	5.224 ug/mL M4
13) t 1650	24.086	4646300	3.328 ug/mL M4
14) t n-Heptadecane (C17)	25.028	5566505	3.987 ug/mL M4
15) t Pristane	25.128	9523749	6.672 ug/mL M4
16) t n-Octadecane (C18)	26.790	5733677	4.018 ug/mL M4
17) t Phytane	26.947	4921185	3.480 ug/mL M4
18) t n-Nonadecane (C19)	28.472	3982000	2.794 ug/mL M4
20) t n-Eicosane (C20)	30.068	4593771	3.177 ug/mL M4
21) t n-Heneicosane (C21)	31.605	3025477	2.071 ug/mL M4
22) t n-Docosane (C22)	33.071	3571663	2.454 ug/mL M4
23) t n-Tricosane (C23)	34.483	3003337	2.029 ug/mL M4
25) t n-Tetracosane (C24)	35.836	2674248	1.844 ug/mL M4
26) t n-Pentacosane (C25)	37.139	3782117	2.552 ug/mL M4
27) t n-Hexacosane (C26)	38.390	3070641	2.084 ug/mL M4
28) t n-Heptacosane (C27)	39.602	1878366	1.297 ug/mL M4
29) t n-Octacosane (C28)	40.770	1537809	1.051 ug/mL M4
30) t n-Nonacosane (C29)	41.898	1952287	1.337 ug/mL M4
31) t n-Triacontane (C30)	42.993	1941059	1.333 ug/mL M4
32) t n-Hentriacontane (C31)	44.084	4505880	3.080 ug/mL M4
33) t n-Dotriacontane (C32)	45.058	1342657	0.921 ug/mL M4
34) t n-Tritriacontane (C33)	46.034	3060677	2.167 ug/mL M4
35) t n-tetratriacontane (C34)	47.007	2657822	1.844 ug/mL M4
36) t n-Pentatriacontane (C35)	48.070	1612702	1.103 ug/mL M4
37) t n-Hexatriacontane (C36)	49.208	1035276	0.693 ug/mL M4
38) t n-Heptatriacontane (C37)	50.521	535095	0.367 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003459.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:16 am
Operator : BAL
Sample : TO050112WCS01
Misc : WHAP15
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

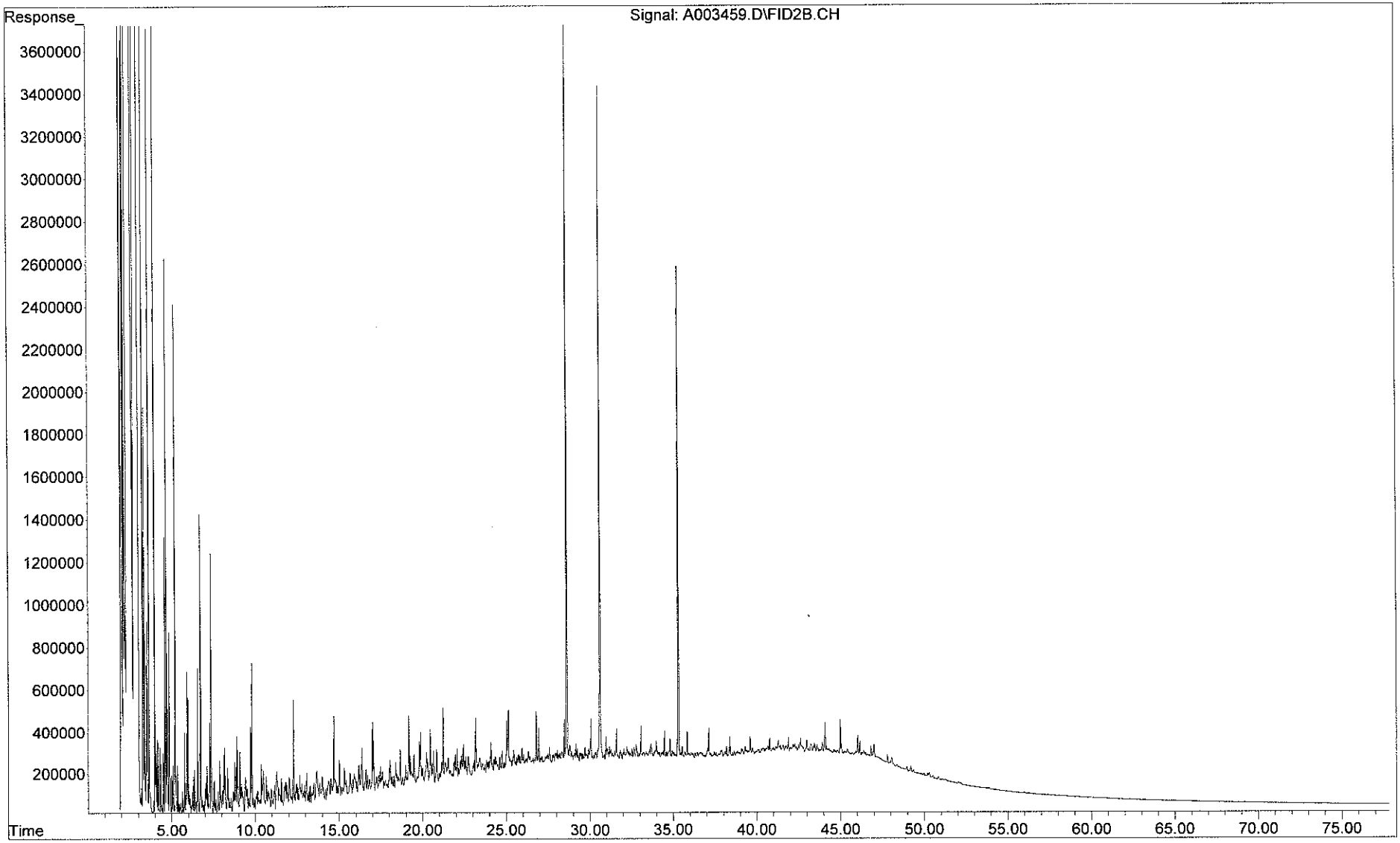
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
39)	t	n-Octatriacontane (C38)	52.063	360241	0.249	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	38.335	7004233128	4926.409	ug/mL	M4
44)	h	Total Resolved Hydroc...	38.335	996351516	700.781	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003459.D
Operator : BAL
Acquired : 03 May 2012 10:16 am using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112WCS01
Misc Info : WHAP15
ALS Vial : 83



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204031**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/01/12	100	0.10058	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	**6820**	n-Docosane (C22)	**2180**
n-Decane (C10)	**5360**	n-Tricosane (C23)	**1890**
n-Undecane (C11)	**4990**	n-Tetracosane (C24)	**1800**
n-Dodecane (C12)	**4530**	n-Pentacosane (C25)	**1670**
n-Tridecane (C13)	**4300**	n-Hexacosane (C26)	**1510**
2,6,10 Trimethyldodecane (1380)	**929**	n-Heptacosane (C27)	**1210**
n-Tetradecane (C14)	**4040**	n-Octacosane (C28)	**836**
2,6,10 Trimethyltridecane (1470)	**1570**	n-Nonacosane (C29)	**770**
n-Pentadecane (C15)	**3950**	n-Triacontane (C30)	**643**
n-Hexadecane (C16)	**3740**	n-Hentriacontane (C31)	**631**
Norpristane (1650)	**1170**	n-Dotriacontane (C32)	**424**
n-Heptadecane (C17)	**3280**	n-Tritriacontane (C33)	**430**
Pristane	**2350**	n-Tetratriacontane (C34)	**383**
n-Octadecane (C18)	**2880**	n-Pentatriacontane (C35)	**302**
Phytane	**1320**	n-Hexatriacontane (C36)	**195**
n-Nonadecane (C19)	**2510**	n-Heptatriacontane (C37)	**164**
n-Eicosane (C20)	**2590**	n-Octatriacontane (C38)	**123**
n-Heneicosane (C21)	**2230**	n-Nonatriacontane (C39)	**93.8** J
		n-Tetracontane (C40)	**98.3** J
Total Petroleum Hydrocarbons (C9-C44)	**598000**		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003399.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 12:38 pm
Operator : BAL
Sample : TO050112ANS02
Misc : WHAP13
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:20:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.631	78002987	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.646	85247950	53.943 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 107.89%	
24) s d50-Tetracosane	35.319	70654652	54.545 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 109.09%	
Target Compounds			
2) t n-Octane (C8)	5.213	106888856	92.376 ug/mL M4
3) t n-Nonane (C9)	7.366	85308629	68.559 ug/mL M4
4) t n-Decane (C10)	9.810	71027937	53.903 ug/mL M4
5) t n-Undecane (C11)	12.300	67335560	50.210 ug/mL M4
6) t n-Dodecane (C12)	14.712	62372966	45.600 ug/mL M4
7) t n-Tridecane (C13)	17.009	59396615	43.235 ug/mL M4
8) t 1380	18.675	12952088	9.342 ug/mL M4
9) t n-Tetradecane (C14)	19.184	56287474	40.597 ug/mL M4
10) t 1470	20.461	21853179	15.774 ug/mL M4
11) t n-Pentadecane (C15)	21.241	55089647	39.764 ug/mL M4
12) t n-Hexadecane (C16)	23.190	53586535	37.642 ug/mL M4
13) t 1650	24.092	16589192	11.794 ug/mL M4
14) t n-Heptadecane (C17)	25.043	46454968	33.027 ug/mL M4
15) t Pristane	25.137	34045628	23.676 ug/mL M4
16) t n-Octadecane (C18)	26.803	41625943	28.956 ug/mL M4
17) t Phytane	26.958	18935239	13.291 ug/mL M4
18) t n-Nonadecane (C19)	28.486	36251013	25.245 ug/mL M4
20) t n-Eicosane (C20)	30.087	37993381	26.085 ug/mL M4
21) t n-Heneicosane (C21)	31.616	33037205	22.451 ug/mL M4
22) t n-Docosane (C22)	33.085	32136502	21.922 ug/mL M4
23) t n-Tricosane (C23)	34.495	28306273	18.981 ug/mL M4
25) t n-Tetracosane (C24)	35.850	26495723	18.134 ug/mL M4
26) t n-Pentacosane (C25)	37.149	25136262	16.834 ug/mL M4
27) t n-Hexacosane (C26)	38.404	22598178	15.225 ug/mL M4
28) t n-Heptacosane (C27)	39.611	17724278	12.153 ug/mL M4
29) t n-Octacosane (C28)	40.778	12393846	8.404 ug/mL M4
30) t n-Nonacosane (C29)	41.905	11400917	7.750 ug/mL M4
31) t n-Triacontane (C30)	42.993	9486357	6.469 ug/mL M4
32) t n-Hentriacontane (C31)	44.050	9359107	6.350 ug/mL M4
33) t n-Dotriacontane (C32)	45.071	6266026	4.267 ug/mL M4
34) t n-Tritriacontane (C33)	46.065	6148902	4.322 ug/mL M4
35) t n-tetratriacontane (C34)	47.028	5594921	3.853 ug/mL M4
36) t n-Pentatriacontane (C35)	48.050	4477684	3.039 ug/mL M4
37) t n-Hexatriacontane (C36)	49.201	2946598	1.959 ug/mL M4
38) t n-Heptatriacontane (C37)	50.530	2424583	1.649 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003399.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 12:38 pm
Operator : BAL
Sample : TO050112ANS02
Misc : WHAP13
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:20:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

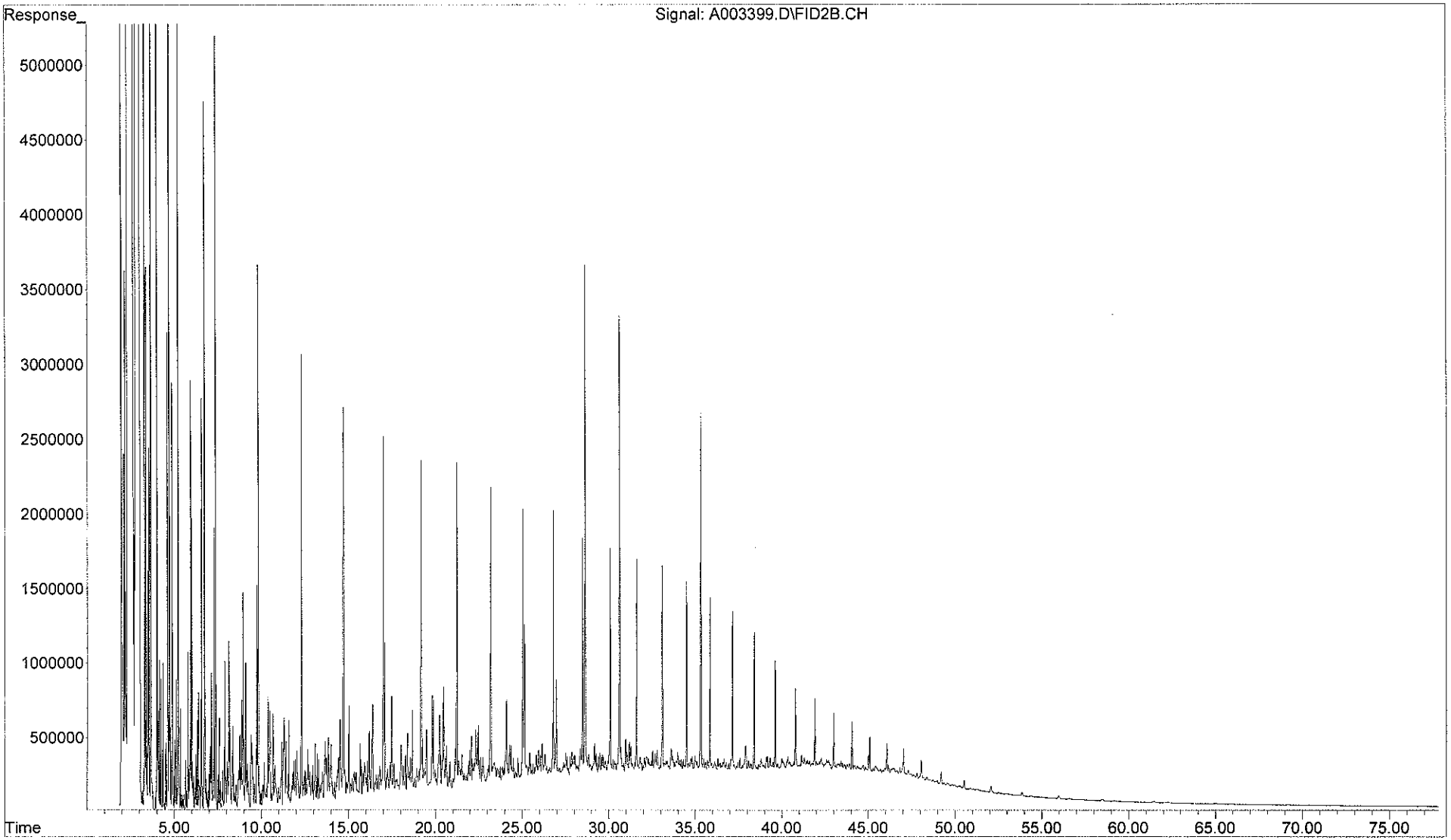
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
39) t	n-Octatriacontane (C38)	52.063	1798430	1.233	ug/mL	M4
40) t	n-Nonatriacontane (C39)	53.868	1287385	0.943	ug/mL	M4
41) t	n-Tetracontane (C40)	55.985	1351177	0.989	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	8849143096	6178.233	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	2853711583	1992.384	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003399.D
Operator : BAL
Acquired : 01 May 2012 12:38 pm using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112ANS02
Misc Info : WHAP13
ALS Vial : 53



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields**
Project: **NF-Deepwater Horizons**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1203076**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/24/12	100	0.10036	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	**6230**	n-Docosane (C22)	**1950**
n-Decane (C10)	**4990**	n-Tricosane (C23)	**1740**
n-Undecane (C11)	**4610**	n-Tetracosane (C24)	**1620**
n-Dodecane (C12)	**4190**	n-Pentacosane (C25)	**1530**
n-Tridecane (C13)	**4010**	n-Hexacosane (C26)	**1400**
2,6,10 Trimethyldodecane (1380)	**845**	n-Heptacosane (C27)	**1090**
n-Tetradecane (C14)	**3630**	n-Octacosane (C28)	**755**
2,6,10 Trimethyltridecane (1470)	**1320**	n-Nonacosane (C29)	**733**
n-Pentadecane (C15)	**3500**	n-Triacontane (C30)	**679**
n-Hexadecane (C16)	**3320**	n-Hentriacontane (C31)	**593**
Norpristane (1650)	**1220**	n-Dotriacontane (C32)	**415**
n-Heptadecane (C17)	**2930**	n-Tritriacontane (C33)	**379**
Pristane	**2020**	n-Tetratriacontane (C34)	**358**
n-Octadecane (C18)	**2670**	n-Pentatriacontane (C35)	**291**
Phytane	**1180**	n-Hexatriacontane (C36)	**181**
n-Nonadecane (C19)	**2310**	n-Heptatriacontane (C37)	**157**
n-Eicosane (C20)	**2350**	n-Octatriacontane (C38)	**114**
n-Heneicosane (C21)	**2030**	n-Nonatriacontane (C39)	**74.4** J
		n-Tetracontane (C40)	**78.2** J
Total Petroleum Hydrocarbons (C9-C44)	**543000**		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.653	97972052	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	28.663	96084997	48.408 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	96.82%
24) s	d50-Tetracosane	35.337	82614419	50.779 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	101.56%
Target Compounds				
2) t	n-Octane (C8)	5.230	123075347	84.685 ug/mL M4
3) t	n-Nonane (C9)	7.381	97742451	62.541 ug/mL M4
4) t	n-Decane (C10)	9.826	82821759	50.043 ug/mL M4
5) t	n-Undecane (C11)	12.316	77909742	46.254 ug/mL M4
6) t	n-Dodecane (C12)	14.727	72244987	42.052 ug/mL M4
7) t	n-Tridecane (C13)	17.024	69443394	40.245 ug/mL M4
8) t	1380	18.688	14772117	8.483 ug/mL M4
9) t	n-Tetradecane (C14)	19.198	63395205	36.404 ug/mL M4
10) t	1470	20.475	22976806	13.204 ug/mL M4
11) t	n-Pentadecane (C15)	21.254	61059417	35.090 ug/mL M4
12) t	n-Hexadecane (C16)	23.204	59484808	33.268 ug/mL M4
13) t	1650	24.104	21557086	12.202 ug/mL M4
14) t	n-Heptadecane (C17)	25.056	51983436	29.425 ug/mL M4
15) t	Pristane	25.150	36546739	20.235 ug/mL M4
16) t	n-Octadecane (C18)	26.816	48461212	26.840 ug/mL M4
17) t	Phytane	26.968	21270524	11.887 ug/mL M4
18) t	n-Nonadecane (C19)	28.499	41772057	23.160 ug/mL M4
20) t	n-Eicosane (C20)	30.099	43057464	23.536 ug/mL M4
21) t	n-Heneicosane (C21)	31.632	37612708	20.350 ug/mL M4
22) t	n-Docosane (C22)	33.099	35951373	19.526 ug/mL M4
23) t	n-Tricosane (C23)	34.510	32715537	17.466 ug/mL M4
25) t	n-Tetracosane (C24)	35.862	29847959	16.264 ug/mL M4
26) t	n-Pentacosane (C25)	37.164	28736741	15.322 ug/mL M4
27) t	n-Hexacosane (C26)	38.416	26131394	14.017 ug/mL M4
28) t	n-Heptacosane (C27)	39.624	20017262	10.927 ug/mL M4
29) t	n-Octacosane (C28)	40.790	14032444	7.576 ug/mL M4
30) t	n-Nonacosane (C29)	41.918	13594350	7.357 ug/mL M4
31) t	n-Triacontane (C30)	43.010	12549661	6.813 ug/mL M4
32) t	n-Hentriacontane (C31)	44.066	11018588	5.952 ug/mL M4
33) t	n-Dotriacontane (C32)	45.086	7688497	4.168 ug/mL M4
34) t	n-Tritriacontane (C33)	46.080	6803662	3.807 ug/mL M4
35) t	n-tetratriacontane (C34)	47.040	6553948	3.594 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.065	5396390	2.916 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.225	3427024	1.814 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.551	2911633	1.577 ug/mL M4
39) t	n-Octatriacontane (C38)	52.091	2086662	1.139 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.884	1280528	0.747 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

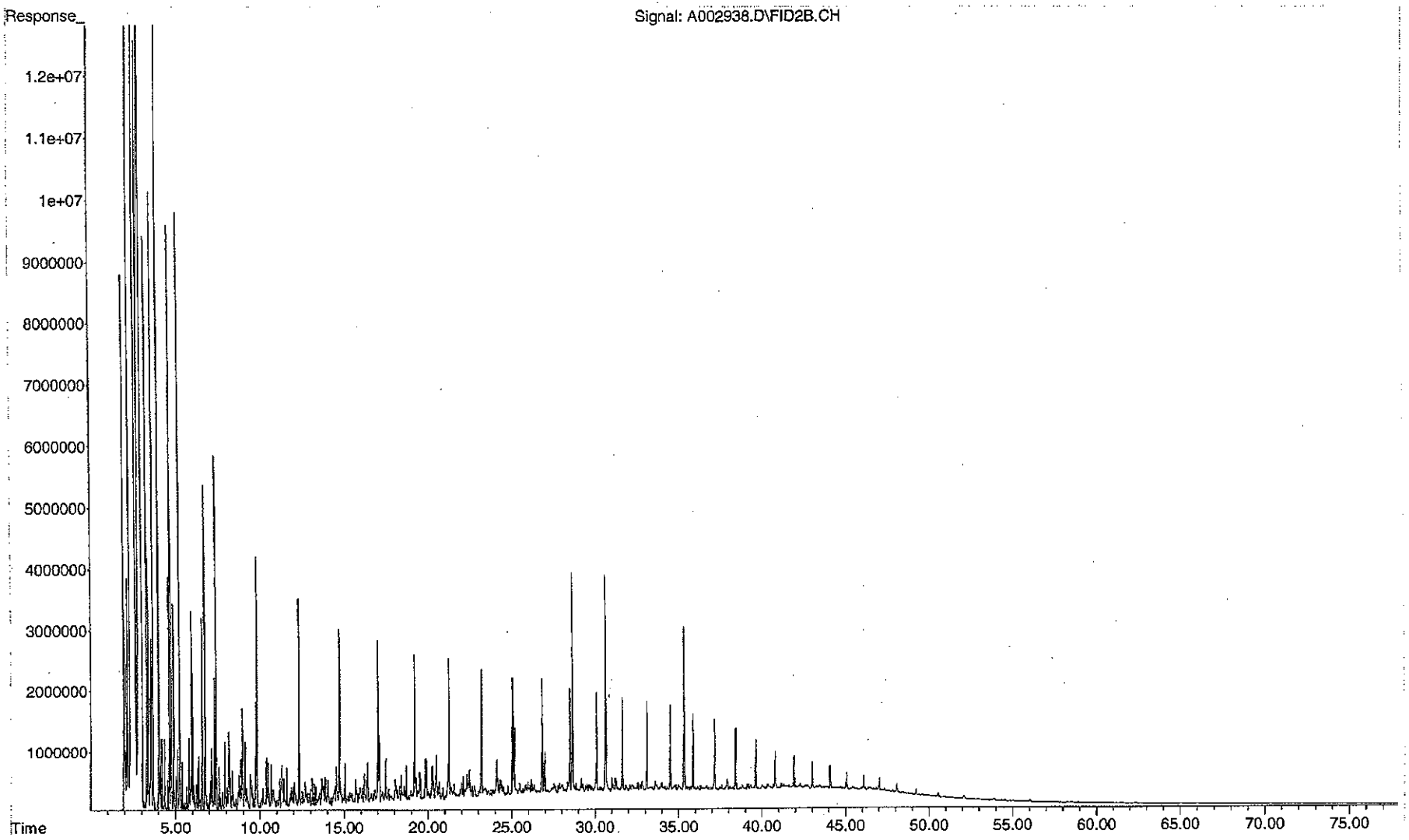
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units
41) t	n-Tetracontane (C40)	56.019	1346114	0.785	ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	10074246033	5599.956	ug/mL M4
44) h	Total Resolved Hydroc...	38.335	3443065595	1913.892	ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002938.D
Operator : BAL
Acquired : 24 Mar 2012 6:14 am using AcqMethod FID17.M
Instrument : FID17
Sample : TS032612ANS02
Misc Info : 1X, WHAM98
ALS Vial : 65



Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	PS1204031_035 - Pan Weight	PS1204031_035 - Wet Weight	PS1204031_035 - Dry Weight	PS1204031_035 - Dry Weight #2	PS1204031_035 - Dry Weight #3	Percent Solid	RPD
1204031-01	SAM	1.33	6.63	2.75	2.75		26.79	
1204031-02	SAM	1.33	7.51	3.6	3.6		36.73	
1204035-05	SAM	1.34	6.22	3.7	3.7		48.36	
1204035-06	SAM	1.33	8.36	4.71	4.71		48.08	
1204035-07	D	1.33	7.23	6.32	6.32		84.58	0.91%
1204035-07	SAM	1.32	7.25	6.29	6.29		83.81	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	

Initial: 4/30/2012 11:20:03 PM lrf
Weight #1: 5/1/2012 8:20:00 PM lrf
Weight #2: 5/3/2012 4:50:45 PM bls

Printed On: 5/3/2012 4:53:03 PM (BLS)

Alpha Woods Hole Lab
Batch Prep Report

04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-01	M	Shaker	CTK	4/30/2012	5/2/2012		5.82	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	S	Shaker	CTK	4/30/2012	5/2/2012		5.77	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	SAM	Shaker	CTK	4/30/2012	5/2/2012		5.92	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-02	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.15	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-05	SAM	Shaker	CTK	4/30/2012	5/2/2012		7.46	4	1	4	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-06	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.63	2.66667	1	2.67	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	D	Shaker	CTK	4/30/2012	5/2/2012		6.88	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	SAM	Shaker	CTK	4/30/2012	5/2/2012		6.69	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012

Alpha Woods Hole Lab
Batch Prep Report

04/30/2012 1204031_035SED - OP SHC

Lab ID	Notes
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-02	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-05	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-06	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
SS043012B07	1st Prep
SS043012B07	1st Prep
SS043012LCS02	1st Prep
SS043012LCS02	1st Prep
SS043012LCSD02	1st Prep
SS043012LCSD02	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP NEWFIE Analyst: CTK Witness: JM

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-01	M	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	S	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204031-02	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-05	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-06	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	D	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	SAM	WHAP38	500	µl	WHAP31	500	µl			
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP SHC Analyst: CTK Witness: JM

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-01	M	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	S	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	SAM	WHAP38	500	µl				WHAP36	100	µl
1204031-02	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-05	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-06	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-07	D	WHAP38	500	µl				WHAP36	100	µl
1204035-07	SAM	WHAP38	500	µl				WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	1204031_035SED - Sample
1204031-01	SAM	5.92
1204031-01M	OP NEWFIE	5.82
1204031-01M	OP SHC	5.82
1204031-01S	OP NEWFIE	5.77
1204031-01S	OP SHC	5.77
1204031-02	SAM	9.15
1204035-05	SAM	7.46
1204035-06	SAM	9.63
1204035-07	D	6.88
1204035-07	SAM	6.69
SS043012B07	B	30
SS043012B07	B	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP SHC	30
SS043012LCS02LCS	OP SHC	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP SHC	30
SS043012LCSD02LCSD	OP SHC	30

ETR 1204031_035~~sheet~~ SED MWL 5/9/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	1		4000	50	0.189	15.12	2000	7.56	2.00	
1204031	1ms	ms	4000	50	0.225	18.00	2000	9.00	2.00	
1204031	1msd	msd	4000	50	0.204	16.32	2000	8.16	2.00	
1204031	2		4000	50	0.203	16.24	2000	8.12	2.00	
1204035	5		4000	50	0.345	27.60	1000	6.90	4.00	
1204031	6		4000	50	0.291	23.28	1500	8.72	2.67	
1204035	7D	D	4000	50	0.096	7.68	2000	3.84	2.00	10%
1204035	7		4000	50	0.106	8.48	2000	4.24	2.00	

Note:
Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/2/12

444 of 1786 444

ETR 1204031_035~~sheen~~ SED mm 5/2/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	1		4000	50	0.189					
1204031	1ms	ms	4000	50	0.225					
1204031	1msd	msd	4000	50	0.204					
1204031	2		4000	50	0.203					
1204035	5		4000	50	0.345					
1204031	6		4000	50	0.291					
1204035	7D	D	4000	50	0.096					#VALUE!
1204035	7		4000	50	0.106					

Note:
Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/2/12

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3660B	CTK	5/1/2012												True
1204031-01	S	3660B	CTK	5/1/2012												True
1204031-01	SAM	3660B	CTK	5/1/2012												True
1204031-02	SAM	3660B	CTK	5/1/2012												True
1204035-05	SAM	3660B	CTK	5/1/2012												True
1204035-06	SAM	3660B	CTK	5/1/2012												True
1204035-07	D	3660B	CTK	5/1/2012												True
1204035-07	SAM	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	S	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-02	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-05	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1	4	0	0.1	True
1204035-06	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1.5	2.66667	0	0.1	True
1204035-07	D	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-07	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	Notes
1204031-01	
1204031-01	
1204031-01	
1204031-02	
1204035-05	
1204035-06	
1204035-07	
1204035-07	
SS043012B07	
SS043012B07	
SS043012LCS02	
SS043012LCS02	
SS043012LCSD02	
SS043012LCSD02	

Forensic Preparation Checklist

Batch ID: 1204031-035SED **Client:** AECOM **Project:** ENBRIDGE

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

Extraction HT:

	Date:	Initials:
COC/ETR Check:	4/30/12	CTK
1st Extraction:	4/30/12	CTK
2nd Extraction:	5/1/12	JM
3rd Extraction:	5/1/12	CTK

Cleanup Methods:		Date/Initials:
No Cleanup Required		
Alumina Column (3610)	X	5/2/12 PA
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)	X	5/1/12 CTK
Water pH<2 verified		

Date/Initials:		ID & Amount:
RIS Spike Analyst:	PA 5/2/12	WHAP 36
RIS Spike Witness:	PW 5/2/12	100µL

Prep Process Notes

All field samples spiked high @ 500 uL due to hydrocarbon odor.
CTK 4/30/12

REAGENT	LOT #
DCM	LØ5E1Ø
SODIUM SULFATE	K21617
SILICA GEL	N/A
ALUMINA	61

REAGENT	LOT #
COPPER	OWR043012A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	PA	Date:	5/2/12
BATCH REVIEWED Analyst:	MAC	Date:	5/9/12

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-03	SAM	Shaker	BA	5/1/2012			0.00032	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-04	SAM	Shaker	BA	5/1/2012			0.00056	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-05	SAM	Shaker	BA	5/1/2012			0.00248	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-06	SAM	Shaker	BA	5/1/2012			1	4	1	4	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-07	SAM	Shaker	BA	5/1/2012			1	5.71	1	5.71	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-01	SAM	Shaker	BA	5/1/2012			0.00088	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-02	SAM	Shaker	BA	5/1/2012			0.000008	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-03	SAM	Shaker	BA	5/1/2012			0.00096	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-04	SAM	Shaker	BA	5/1/2012			0.00416	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-09	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-10	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-11	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-12	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
TO050112ANS02	ANS						0.05	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.05	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.05	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.05	10	1	10						BLS	5/1/2012
TO050112CL01	CL						0.05	10	1	10							
TO050112CL01	CL						0.05	10	1	10							
TO050112CL01	CL						0.05	10	1	10							
TO050112CL01	CL						0.05	10	1	10							
TO050112WCS01	WCS						0.05	10	1	10							
TO050112WCS01	WCS						0.05	10	1	10							
TO050112WCS01	WCS						0.05	10	1	10							
TO050112WCS01	WCS						0.05	10	1	10							

1450 1786

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP SHC

Lab ID	Notes
1204031-03	1st Prep
1204031-04	1st Prep
1204031-05	1st Prep
1204031-06	1st Prep
1204031-07	1st Prep
1204031-08	1st Prep
1204035-01	1st Prep
1204035-02	1st Prep
1204035-03	1st Prep
1204035-04	1st Prep
1204035-08	1st Prep
1204035-09	1st Prep
1204035-10	1st Prep
1204035-11	1st Prep
1204035-12	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-05	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-06	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-07	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-01	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-02	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-09	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-10	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-11	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-12	SAM	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-05	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-06	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-07	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-01	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-02	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-09	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-10	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-11	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-12	SAM	WHAP38	100	µl				WHAP36	50	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
05/01/2012

Lab ID	QC Type	1204031_35sheen - Sample
1204031-03	SAM	0.00032
1204031-04	SAM	0.00056
1204031-05	SAM	0.00248
1204031-06	SAM	1
1204031-07	SAM	1
1204031-08	SAM	1
1204035-01	SAM	0.00088
1204035-02	SAM	0.000008
1204035-03	SAM	0.00096
1204035-04	SAM	0.00416
1204035-08	SAM	1
1204035-09	SAM	1
1204035-10	SAM	1
1204035-11	SAM	1
1204035-12	SAM	1
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	

ETR 1204031_035sheen

Analyst BA

Date 05/01/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	3		4000	50	0.004	0.32	2000	0.16	2.00	
1204031	4		4000	50	0.007	0.56	2000	0.28	2.00	
1204031	5		4000	50	0.031	2.48	2000	1.24	2.00	
1204031	6		4000	50	0.147	11.76	1000	2.94	4.00	
1204031	7		4000	50	0.251	20.08	700	3.52	5.71	
1204031	8		4000	50	0.014	1.12	2000	0.56	2.00	
1204035	1		4000	50	0.011	0.88	2000	0.44	2.00	
1204035	2		4000	50	0.001	0.08	2000	0.04	2.00	
1204035	3		4000	50	0.012	0.96	2000	0.48	2.00	
1204035	4		4000	50	0.052	4.16	2000	2.08	2.00	
1204035	8		4000	50	0.032	2.56	2000	1.28	2.00	
1204035	9		4000	50	0.002	0.16	2000	0.08	2.00	
1204035	10		4000	50	0.017	1.36	2000	0.68	2.00	
1204035	11		4000	50	0.016	1.28	2000	0.64	2.00	
1204035	12		4000	50	0.031	2.48	2000	1.24	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/1/2012

ETR 1204031_035sheen

Analyst BA

Date 05/01/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	3		4000	50	0.004					
1204031	4		4000	50	0.007					
1204031	5		4000	50	0.031					
1204031	6		4000	50	0.147					
1204031	7		4000	50	0.251					
1204031	8		4000	50	0.014					
1204035	1		4000	50	0.011					
1204035	2		4000	50	0.001					
1204035	3		4000	50	0.012					
1204035	4		4000	50	0.052					
1204035	8		4000	50	0.032					
1204035	9		4000	50	0.002					
1204035	10		4000	50	0.017					
1204035	11		4000	50	0.016					
1204035	12		4000	50	0.031					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/1/12

458 of 1786

458

Forensic Preparation Checklist

Batch ID: 1204031_035 Sheen Client: AECOM Project: Enbridge Line 6 MP608

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • (Sheen) Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	5/1/12	BA
1st Extraction:		
2nd Extraction:		
3rd Extraction:	↓	↓

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	BA 5/1/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	5/1/12 BA	WHAP 36 50mL + 100µL
RIS Spike Witness:	5/1/12 BLS	

Prep Process Notes

REAGENT	LOT #
DCM	L050104
SODIUM SULFATE	—
SILICA GEL	—
ALUMINA	—

REAGENT	LOT #
COPPER	—
GLASS WOOL	—

BATCH COMPLETE Analyst:	BLS	Date:	5/1/12
BATCH REVIEWED Analyst:	BA	Date:	5/2/12

Analysis log File

Total Files Reported in Log : 16
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\

04-12-12

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A002916.D	C170323122R	WHAP26	3/23/2012 1:55 pm
2	A002918.D	DCM	DCM	3/23/2012 3:24 pm
3	A002920.D	IB1703231201R	DCM	3/23/2012 4:53 pm
4	A002922.D	I1703231201R	WHA093	3/23/2012 6:22 pm
5	A002924.D	I1703231202R	WHA094	3/23/2012 7:51 pm
6	A002926.D	I1703231203R	WHAP26	3/23/2012 9:20 pm
7	A002928.D	I1703231204R	WHA095	3/23/2012 10:49 pm
8	A002930.D	I1703231205R	WHA096	3/24/2012 12:18 am
9	A002932.D	I1703231206R	WHA097	3/24/2012 1:47 am
10	A002934.D	DCM	DCM	3/24/2012 3:16 am
11	A002936.D	CQ1703231207R - Icv	WHA098	3/24/2012 4:45 am
12	A002938.D	TS032612ANS02 - ANS	1X, WHAM98	3/24/2012 6:14 am
13	A002940.D	TS032612MC202 - MC252	1X, WHAP35	3/24/2012 7:43 am
14	A002942.D	C170323123R	WHAP26	3/24/2012 9:12 am
15	A002944.D	DCM	DCM	3/24/2012 10:41 am
16	A002946.D	IB1703231201R - IB for ANS+MC252	DCM	3/24/2012 12:09 pm

Ical files for method HC\170323124

Printed: 04/12/12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 56
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A003395.D	DCM	DCM	5/1/2012 9:40 am
2	A003397.D✓	C1705011201R	WHAP14	5/1/2012 11:09 am
3	A003399.D✓	TO050112ANS02	WHAP13	5/1/2012 12:38 pm
4	A003401.D	L2	WHAO93	5/1/2012 3:21 pm
5	A003403.D✓	C1705011202R	WHAP14	5/1/2012 4:50 pm
6	A003405.D	DCM	DCM	5/1/2012 6:19 pm
7	A003407.D✓	IB1705011201R	DCM	5/1/2012 7:48 pm
8	A003409.D✓	SO050112B01	1X	5/1/2012 9:17 pm
9	A003411.D✓	SO050112LCS01	1X	5/1/2012 10:46 pm
10	A003413.D✓	SO050112LCSD01	1X	5/2/2012 12:15 am
11	A003415.D✓	IB1705011202R	DCM	5/2/2012 1:43 am
12	A003417.D✓	1204031-03	1X	5/2/2012 3:12 am
13	A003419.D✓	1204031-04	1X	5/2/2012 4:41 am
14	A003421.D✓	1204031-05	1X	5/2/2012 6:09 am
15	A003423.D✓	1204031-06	1X	5/2/2012 7:38 am
16	A003425.D✓	1204031-07	1X	5/2/2012 9:07 am
17	A003427.D✓	1204031-08	1X	5/2/2012 10:36 am
18	A003429.D✓	C1705011203R	WHAP14	5/2/2012 12:05 pm
19	A003431.D	DCM	1X	5/2/2012 1:34 pm
20	A003433.D✓	IB1705011203R	DCM	5/2/2012 3:03 pm
21	A003435.D	1204035-01	1X	5/2/2012 4:32 pm
22	A003437.D	1204035-02	1X	5/2/2012 6:01 pm
23	A003439.D	1204035-03	1X	5/2/2012 7:29 pm
24	A003441.D	1204035-04	1X	5/2/2012 8:58 pm
25	A003443.D	1204035-08	1X	5/2/2012 10:27 pm
26	A003445.D	1204035-09	1X	5/2/2012 11:56 pm
27	A003447.D	1204035-10	1X	5/3/2012 1:24 am
28	A003449.D	1204035-11	1X	5/3/2012 2:53 am
29	A003451.D	1204035-12	1X	5/3/2012 4:21 am
30	A003453.D✓	C1705011204R	WHAP14	5/3/2012 5:50 am
31	A003455.D	DCM	DCM	5/3/2012 7:19 am
32	A003457.D	IB1705011204R	DCM	5/3/2012 8:47 am
33	A003459.D✓	TO050112WCS01	WHAP15	5/3/2012 10:16 am
34	A003461.D✓	TO050112CL01	WHAP16	5/3/2012 11:45 am
35	A003463.D	DCM	DCM	5/3/2012 1:14 pm
36	A003465.D✓	C1705011205R	WHAP14	5/3/2012 2:43 pm
37	A003467.D	DCM	DCM	5/3/2012 4:11 pm
38	A003469.D✓	IB1705011205R	DCM	5/3/2012 5:40 pm
39	A003471.D✓	SS043012B07	1X	5/3/2012 7:09 pm
40	A003473.D✓	SS043012LCS02	1X	5/3/2012 8:37 pm
41	A003475.D✓	SS043012LCSD02	1X	5/3/2012 10:06 pm
42	A003477.D✓	IB1705011206R	DCM	5/3/2012 11:35 pm
43	A003479.D✓	1204031-01	1X	5/4/2012 1:04 am
44	A003481.D✓	1204031-01M	1X	5/4/2012 2:33 am
45	A003483.D✓	1204031-01S	1X	5/4/2012 4:02 am
46	A003485.D✓	1204031-02	1X	5/4/2012 5:31 am
47	A003487.D✓	C1705011206R	WHAP14	5/4/2012 7:00 am
48	A003489.D	DCM	DCM	5/4/2012 8:28 am
49	A003491.D✓	IB1705011207R	DCM	5/4/2012 9:58 am
50	A003493.D	1204035-05	1X	5/4/2012 11:27 am

Printed: 05/07/12

Method = HC1703Z312 R.m
CCV = 50ug/mL

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 56
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
51	A003495.D	1204035-06	1X	5/4/2012 12:57 pm
52	A003497.D	1204035-07	1X	5/4/2012 2:27 pm
53	A003499.D	1204035-07D	1X	5/4/2012 3:56 pm
54	A003501.D	C1705011206R	WHAP14	5/4/2012 5:26 pm
55	A003503.D	DCM	DCM	5/4/2012 6:55 pm
56	A003505.D	IB1705011208R	DCM	5/4/2012 8:24 pm

Chain of Custody Records

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

ALPHA Job #: 1204031

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Enbridge

Address:

Phone: (616) 970-9700

Fax:

Email: John.bohrmann@Enbridge.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Enbridge Marshall fingerprinting

Project Location: Marshall

Project #: 60246209

Project Manager: Dave Bareham

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

TASK # 9.045

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE

MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	GC/MS-SIM	GC-FID	alkyl PAHs	Biomarkers	Sample Specific Comments	TOTAL # BOTTLES
1204031-01	SEKR1934L013504I912D005	4/19/12	1110	SED	JMS	✓	✓	✓	✓		1
-03	SEKR1934L013504I912P005	4/19/12	1150	OIL GLOBES	JMS	✓	✓	✓	✓		1
-02	SEKR0900I300450419128005	4/19/12	1050	SED	JMS	✓	✓	✓	✓		1
-04	SEKR0900I300450419128005	4/19/12	1125	OIL GLOBES	JMS	✓	✓	✓	✓		1
-05	SEKR0900I300450419128005	4/19/12	1125	OIL GLOBES	JMS	✓	✓	✓	✓	DUPLICATE	1

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

Container Type	
Preservative	None →

Relinquished By:	Date/Time	Received By:	Date/Time
John Attick	4-19-12/1435		4/19/12 1435
	4-19-12/1435	RL	4/20/12 Fed Ex
Fed Ex	4/20/12 10100		4/20/12 10100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Hold fridge

ALPHA ANALYTICAL

Sample Delivery Group Form

Laboratory Job No: ~~ACCOM~~ 1204031 Client: Enbridge

Receipt Date/Time: 4/2012 10:00 SDG Reviewer: KC

Samples Delivered By:

[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other _____

Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached 8613 1612 5681

Chain of Custody: [X] Present [ ] Absent: _____

Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:

Is Ice/Blue Ice present? [X] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a)_____ (b)_____ (c)_____ (d)_____ (e)_____

IR Gun: (a) 5.5°C (b)_____ (c)_____ (d)_____ (e)_____

IR Gun SN (circle one): 090512810 100311463

Was Temp: [X] 2-6 Celsius

[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No

[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact

[ ] Broken/Leaking Sample IDs: _____

Sample IDs: _____

All Containers Accounted For? [X] Yes

[ ] No: _____

Extra Samples Received? [X] No

[ ] Yes: _____

Do Sample Labels and COC agree? [X] Yes

[ ] No: _____

Are Samples in Appropriate Containers? [X] Yes

[ ] No: _____

Are samples rec'd within holding time? [X] Yes

[ ] No: _____

* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [X] N/A [ ] <2 [ ] >12 and/or [ ] _____

Are samples properly preserved? [ ] Yes [ ] No If No then.....

Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = _____>>

Other Issues: _____

Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [X] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ] _____

Aqueous: vials contain head space? [ ] No [ ] Yes : _____

Soils: MeOH covering soil? [ ] Yes [ ] No : _____

Reagent H_2O Preserved vials Frozen @ date/time: _____

Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [X] N/A

If Yes: Call Tracker #_____

Form No.: 101-12

Alpha Analytical
Mansfield, MA

[redacted]

FedEx Express — US Airbill

FedEx Tracking Number 8613 1612 5681

0215 — Recipient's Copy

RECIPIENT: PEEL HERE

fedex.com 1.800.GoFedEx 1.800.463.3339

1 From This portion can be removed for Recipient's records.

Date 4-19-12 FedEx Tracking Number 8613 1612 5681

Sender's Name APRIL MODERT Phone 989 684-4405

Company SUPERIOR ENVIRONMENTAL CORP

Address 1680 MARQUETTE ST

Dept/Floor/Suite/Room

City BAY CITY State MI ZIP 48706-4178

2 Your Internal Billing Reference BC3279.00 TASK 9.845

3 To

Recipient's Name SUE O'NEIL Phone 508 844 4117

Company ALPHA WOODS HOLE LAB

Recipient's Address 320 FORBES BLVD

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept/Floor/Suite/Room

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City MANSFIELD State MA ZIP 02048

0354791515

8613 1612 5681

4a Express Package Service — Packages up to 150 lbs.

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate. * To most locations.

4b Express Freight Service — Packages over 150 lbs.

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation: ** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500.

6 Special Handling — Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- [ ] HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No. [ ]

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages | Total Weight | Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

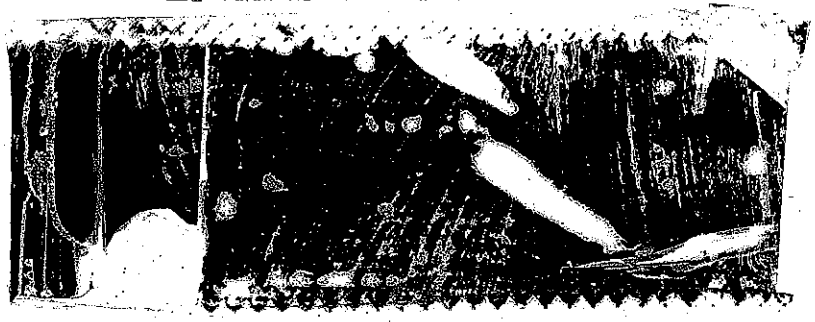
8 Residential Delivery Signature Options — If you require a signature, check Direct or Indirect.

- [x] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

519

Rev. Date 10/09 Part #158279 ©1994–2009 FedEx PRINTED IN U.S.A. SRF

fedex.com 1.800.GoFedEx 1.800.463.3339



MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA Job #: 1204031

Date Rec'd in Lab:

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Enbridge

Address: 1601 Pratt Avenue Marshall MI 49068

Phone: 616 970-9700

Fax:

Email: John.bormann@Ebridge

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Enbridge Marshall fingerprint Id

Project Location: Marshall

Project #: 60246209

Project Manager: Dave Baeham

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Task # 9.045

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE

MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: GC/MS-SIM	GC-FID	alkyl PAHs	Biomarkers	SAMPLE HANDLING	Sample Specific Comments	TOTAL # BOTTLES
1204031-06	SEKR0900I3004[illegible]042012H005	4/20/12	0955	Sheen	RAP	✓	✓	✓	✓			1
-07	SEKR0900I3004D5042012H005	4/20/12	0955	Sheen	RAP	✓	✓	✓	✓		Duplicate	1
-08	SEKR1934L0135042012H005	4/20/12	1023	Sheen	RAP	✓	✓	✓	✓			1

SAMPLE HANDLING

Filtration

☐ Done ☐ Not needed ☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

Container Type	
Preservative	None →

Relinquished By:	Date/Time	Received By:	Date/Time
Russell Rose	4-20-12 / 1249	[illegible]	4-20-12 / 1249
[illegible]	4/20/12 1249	Fedex	4/20/12 / 1600
Fedex	4/21/12 1115	Beam Rose	4/21/12 1115

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ALPHA ANALYTICAL

INTO NOAA 3 1152 4/21 SP

Sample Delivery Group Form

Laboratory Job No: 1204031 Client: AECOM

Receipt Date/Time: 4/21/12 1115 SDG Reviewer: SP

Samples Delivered By:

[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other _____

Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached 4895 5399 9850

Chain of Custody: [X] Present [ ] Absent: _____

Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:

Is Ice/Blue Ice present? [ ] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a) 6 (b)_____ (c)_____ (d)_____ (e)_____

IR Gun: (a) 2.5° (b)_____ (c)_____ (d)_____ (e)_____

IR Gun SN (circle one): 090512810 100311463

Was Temp: [X] 2-6 Celsius

[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No

[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact

[ ] Broken/Leaking Sample IDs: _____

Sample IDs: _____

All Containers Accounted For? [X] Yes

[ ] No: _____

Extra Samples Received? [√] No

[ ] Yes: _____

Do Sample Labels and COC agree? [√] Yes

[ ] No: _____

Are Samples in Appropriate Containers? [√] Yes

[ ] No: _____

Are samples rec'd within holding time? [√] Yes

[ ] No: _____

* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [√] N/A [ ] <2 [ ] >12 and/or [ ] _____

Are samples properly preserved? [ ] Yes [ ] No If No then.....

Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = _____>>

Other Issues: _____

Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [√] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ] _____

Aqueous: vials contain head space? [ ] No [ ] Yes: _____

Soils: MeOH covering soil? [ ] Yes [ ] No: _____

Reagent H_2O Preserved vials Frozen @ date/time: _____

Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [√] N/A

If Yes: Call Tracker #_____

ORIGIN ID: BLUA (916) 373-5600
SHIPPING
TESTAMERICA
880 RIVERSIDE PKWY

WEST SACRAMENTO, CA 95605
UNITED STATES US

SHIP DATE: 20APR12
ACTWGT: 8.7 LB
CAD: 852262/CAFE2511

BILL RECIPIENT

TO **SUSAN O'NEIL**
ALPHA ANALYTICAL
320 FORBES BLVD.

MANSFIELD MA 02048
(000) 000-0000 REF: SEND OUTS
DEPT: SUB WORK



FedEx
Express

J111311060600125

TRK# 0201 **4895 5399 9850**

SATURDAY ### A4
PRIORITY OVERNIGHT

XO WBNA

02048
MA-US **BOS**

Part # 156148-434 NRIT V3 07-09

1204031
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	22062M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	38237	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	88122	920.289	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.03%			
42) Phenanthrene-d10	32.567	188	77260	1020.797	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.08%			
86) Benzo[a]pyrene-d12	48.241	264	65170	822.405	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.24%			
127) 5B(H)Cholane - Surr	43.769	217	13541	1132.680	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 113.27%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	13203	758.099	ng/mL	100
4) cis-Decalin	17.603	138	771M3	58.739	ng/mL	
5) C1-Decalins	17.874	152	24226M5	1391.026	ng/mL	
6) C2-Decalins	19.650	166	33895M5	1946.207	ng/mL	
7) C3-Decalins	22.119	180	20987M5	1205.046	ng/mL	
8) C4-Decalins	25.507	194	21234M5	1219.229	ng/mL	
10) Naphthalene	19.801	128	44897	319.299	ng/mL#	100
11) C1-Naphthalenes	22.496	142	121461M5	863.807	ng/mL	
12) C2-Naphthalenes	25.341	156	282454M5	2008.758	ng/mL	
13) C3-Naphthalenes	28.021	170	310493M5	2208.166	ng/mL	
14) C4-Naphthalenes	30.445	184	221158M5	1572.833	ng/mL	
16) 2-Methylnaphthalene	22.496	142	74743	898.999	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	46894	575.428	ng/mL#	100
18) Benzothiophene	20.027	134	3651	28.854	ng/mL	100
19) C1-Benzo(b)thiophenes	22.074	148	18291M5	144.556	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	32517M5	256.985	ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	62005M5	490.032	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	60845M5	480.864	ng/mL	
23) Biphenyl	24.378	154	8982	85.404	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	71653	1048.977	ng/mL#	100
25) Dibenzofuran	27.464	168	4664	38.619	ng/mL#	39
26) Acenaphthylene	26.079	152	2132	15.274	ng/mL#	100
27) Acenaphthene	26.816	153	5817M3	70.779	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	23140M3	420.239	ng/mL	
29) Fluorene	28.834	166	13677M3	150.892	ng/mL	
30) C1-Fluorenes	31.212	180	37348M5	412.044	ng/mL	
31) C2-Fluorenes	33.410	194	68276M5	753.259	ng/mL	
32) C3-Fluorenes	35.232	208	80306M5	885.981	ng/mL	
33) Dibenzothiophene	32.161	184	41844	287.991	ng/mL#	66
34) 4-Methyldibenzothiophene(	33.937	198	49801	342.755	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	40101M3	275.995	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	27375	188.408	ng/mL#	100
37) OTP	34.344	198	14341M3	98.702	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	139894M5	962.820	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	125553m	864.118	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	220560M5	1518.003	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	229447M5	1579.168	ng/mL	
41) C4-Dibenzothiophenes	39.131	240	152263M5	1047.950	ng/mL	
43) Phenanthrene	32.657	178	52113	408.233	ng/mL#	84
44) 3-Methylphenanthrene(3MP)	34.615	192	27087M3	212.189	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	30942	242.388	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	2145M3	16.803	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	44141	345.784	ng/mL	100
48) 1-Methylphenanthrene(1MP)	35.172	192	26134M3	204.724	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	131235M5	1028.045	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	176322M5	1381.239	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50)	C2-Phenanthrenes/Anthr BS	36.888	206	176322m	1381.239	ng/mL	
52)	C3-Phenanthrenes/Anthrace	39.990	220	143713M5	1125.793	ng/mL	
53)	C4-Phenanthrenes/Anthrace	39.643	234	72068M5	564.553	ng/mL	
54)	Retene	39.643	234	8329M3	334.477	ng/mL	
56)	Carbazole	33.500	167	2911M3	23.112	ng/mL	
57)	1-Methylphenanthrene	35.172	192	25890M3	320.036	ng/mL	
58)	Fluoranthene	37.430	202	4454M3	35.131	ng/mL	
60)	Pyrene	38.318	202	14472M3	112.292	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.704	216	46715M5	362.475	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	42.173	230	60701M5	470.996	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.528	244	70809M5	549.427	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.883	258	70035M5	543.421	ng/mL	
66)	Naphthobenzothiophene	42.173	234	17157	123.655	ng/ml	91
67)	Naphthobenzothiophene-2,1	42.173	234	17157	123.655	ng/mL	91
68)	Naphthobenzothiophene-1,2	42.504	234	4459M3	32.137	ng/mL	
69)	Naphthobenzothiophene-2,3	42.805	234	2950M3	21.261	ng/mL	
70)	C1-Naphthobenzothiophenes	44.251	248	80852M5	582.721	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262	118512M5	854.146	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	102816M5	741.021	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290	79535M5	573.229	ng/mL	
75)	Benz[a]anthracene	43.091	228	2679M3	22.074	ng/mL	
77)	Chrysene/Triphenylene	43.242	228	12551M3	102.435	ng/mL	
78)	C1-Chrysenes	44.732	242	32776M5	267.501	ng/mL	
79)	C2-Chrysenes	46.810	256	52123M5	425.401	ng/mL	
79)	C2-Chrysenes BS	46.810	256	52123m	425.401	ng/mL	
80)	C3-Chrysenes	48.015	270	60931M5	497.288	ng/mL	
81)	C4-Chrysenes	49.597	284	36855M5	300.792	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	4920M3	36.894	ng/mL	
83)	Benzo[j]+[k]fluoranthene	47.217	252	1994M3	13.734	ng/mL	
85)	Benzo[e]pyrene	48.151	252	7244M3	54.919	ng/mL	
87)	Benzo[a]pyrene	48.332	252	3782M3	29.780	ng/mL	
88)	Perylene	48.648	252	7029M3	51.789	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	53.136	276	3741M3	25.313	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.181	278	1864M3	13.259	ng/mL	
91)	Benzo[g,h,i]perylene	54.446	276	7367M3	47.182	ng/mL	
92)	Hopane (T19)	52.232	191	31973	1268.725	ng/mL#	79
94)	C23 Tricyclic Terpane (T4	40.803	191	13516M3	536.330	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.525	191	7524M3	298.561	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.046	191	7227M3	286.776	ng/ml	
97)	C24 Tetracyclic Terpane (	44.326	191	2819	111.861	ng/ml	100
98)	C26 Tricyclic Terpane-22S	44.070	191	3051M3	121.067	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.160	191	2816M3	111.742	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.449	191	2881M3	114.321	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.615	191	3300M3	130.948	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.127	191	4019M3	159.478	ng/ml	
103)	C29 Tricyclic Terpane-22R	47.322	191	3489M3	138.447	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.452	191	4237	168.129	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.542	191	3103M3	123.131	ng/ml	
106)	C30 Tricyclic Terpane-22R	48.783	191	2489M3	98.766	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.994	191	8815	349.789	ng/ml	100
108)	17a/b,21b/a 28,30-Bisnorh	50.184	191	5480	217.453	ng/ml	100
109)	17a(H),21b(H)-25-Norhopan	49.988	191	1479	58.688	ng/ml	100
110)	30-Norhopane (T15)	50.862	191	22515M3	893.421	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.967	191	3417M3	135.590	ng/ml	
112)	17a(H)-Diahopane (X)	51.088	191	842M3	33.412	ng/ml	
113)	30-Normoretane (T17)	51.630	191	2211M3	87.735	ng/ml	
114)	18a(H)&18b(H)-Oleananes (	52.036	191	679M3	26.943	ng/ml	
115)	Moretane (T20)	52.925	191	2589M3	102.734	ng/ml	
116)	30-Homohopane-22S (T21)	54.009	191	13484	535.060	ng/ml	100
117)	30-Homohopane-22R (T22)	54.250	191	11655	462.484	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191	4990M3	198.009	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.575	191	9599	380.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	5816	230.785	ng/ml	100
121) 30,31-Trishomohopane-22S	57.698	191	7057M3	280.030	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4758M3	188.803	ng/ml	
123) Tetrakishomohopane-22S (T	60.334	191	4790	190.073	ng/ml	100
124) Tetrakishomohopane-22R (T	61.237	191	2942M3	116.742	ng/ml	
125) Pentakishomohopane-22S (T	63.496	191	5594M3	221.976	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4088	162.216	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2162M3	180.847	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1036M3	86.660	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1001M3	83.732	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3500M3	292.769	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	4271	357.261	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	949	79.382	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	390	32.623	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	1983	165.874	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.205	217	1785M3	149.312	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	4826M3	403.686	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	2510M3	209.957	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2489M3	208.200	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	2575M3	215.394	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	1933	161.692	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	2840M3	237.561	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4069M3	340.365	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2318M3	193.897	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	22071	1846.200	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	19348	1618.425	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	14241	1191.234	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	15852M3	1325.991	ng/mL	

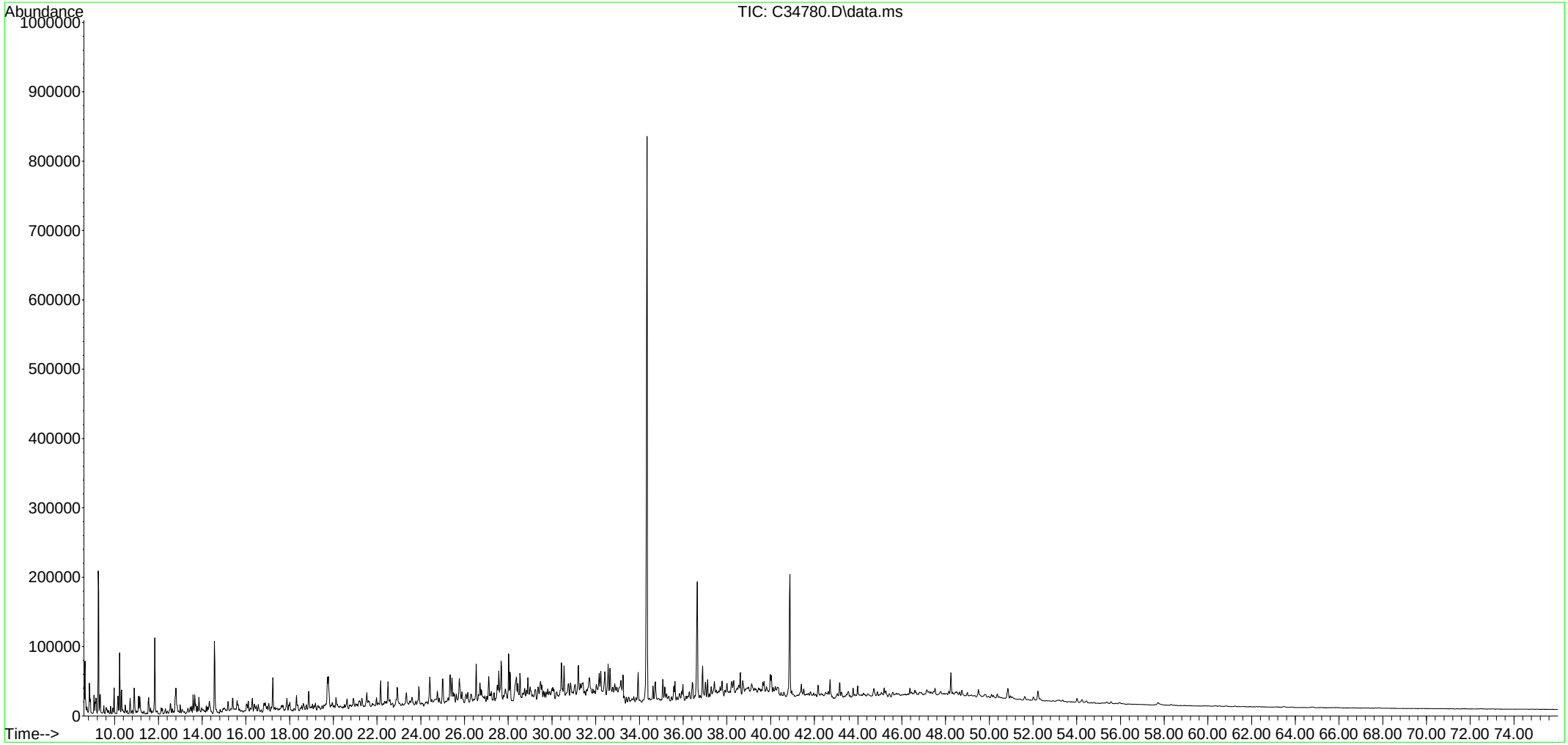
(#) = qualifier out of range (m) = manual integration (+) = signals summed

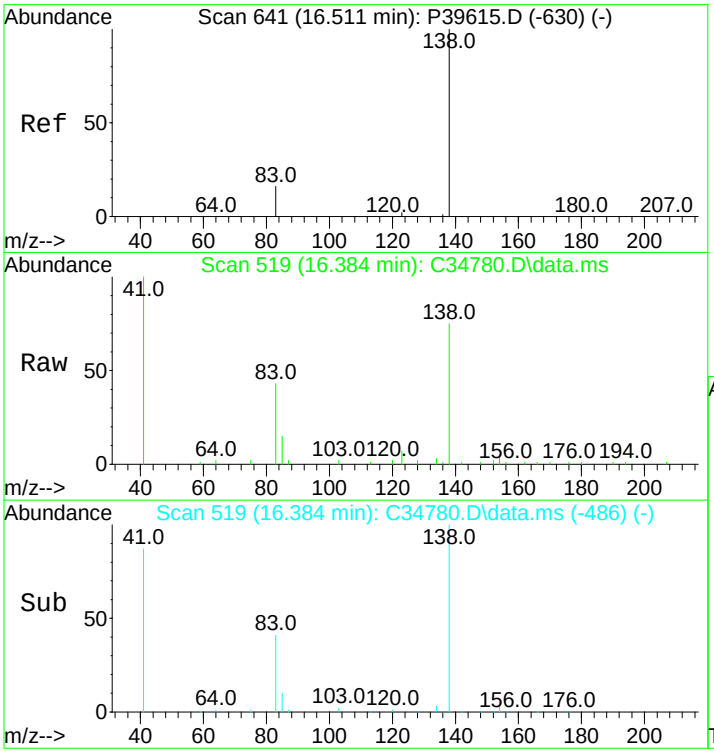
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

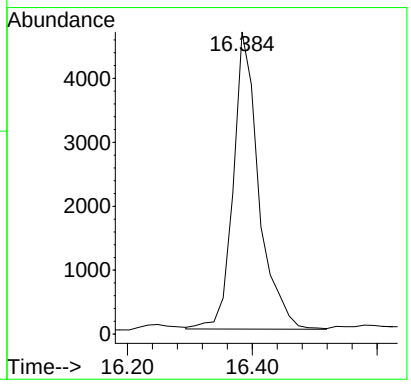
Sub List : Gulf_NEW_POIB_Default - All compounds listed

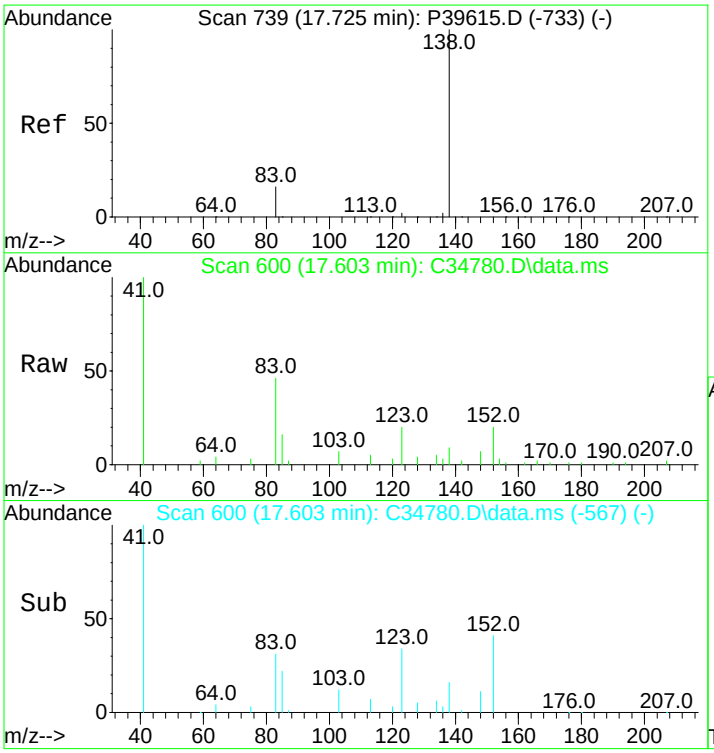




#3
trans-Decalin
Concen: 758.10 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

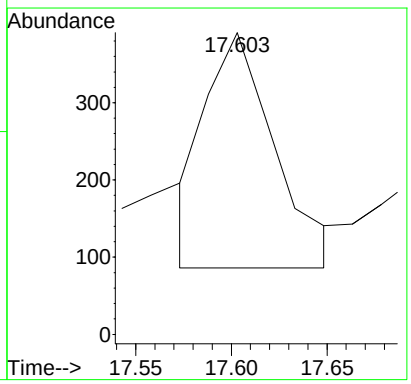
Tgt Ion:138 Resp: 13203

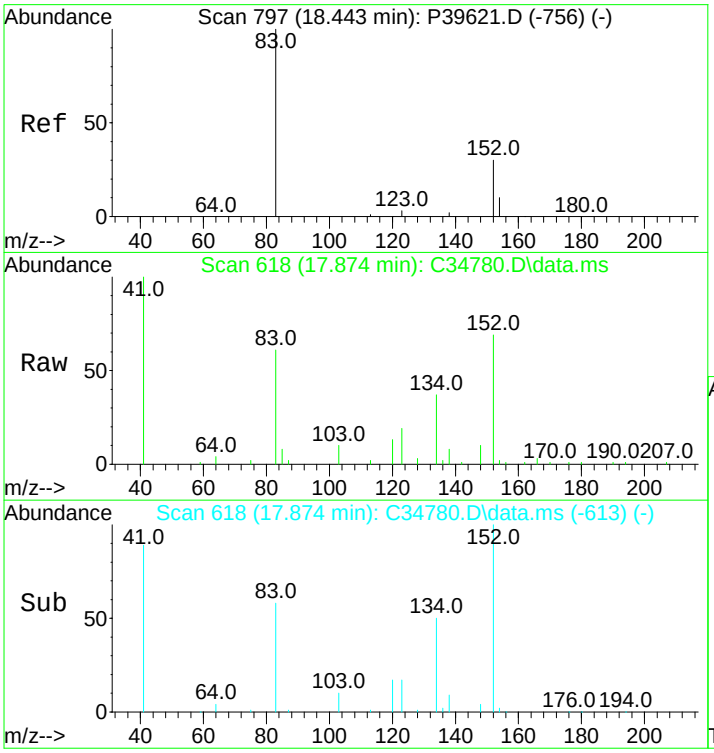




#4
cis-Decalin
Concen: 58.74 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

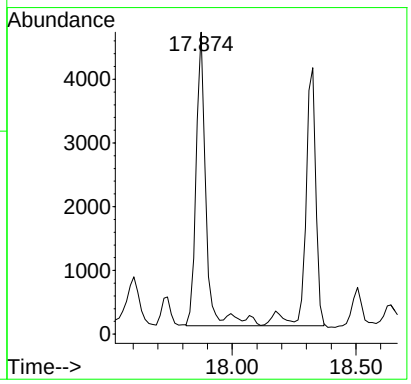
Tgt Ion:138 Resp: 771

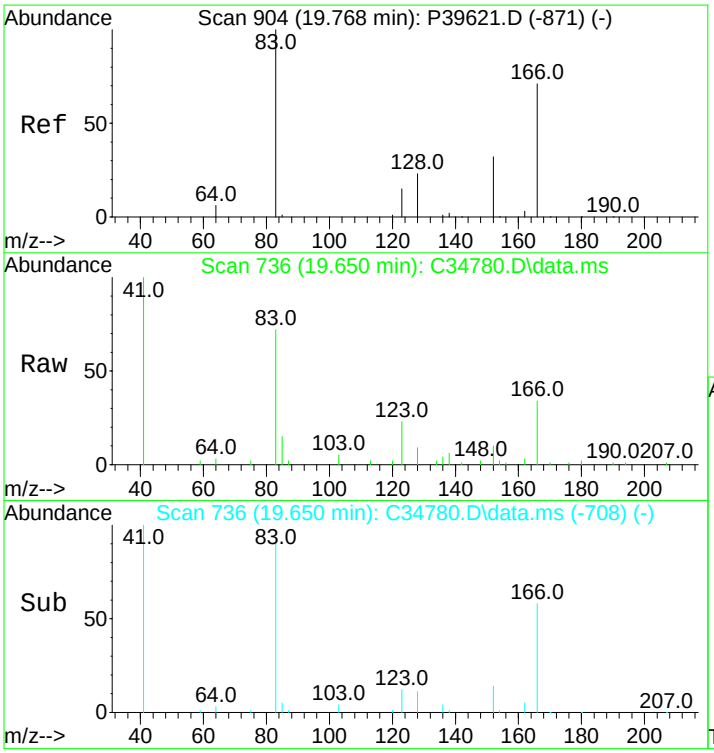




#5
C1-Decalins
Concen: 1391.03 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

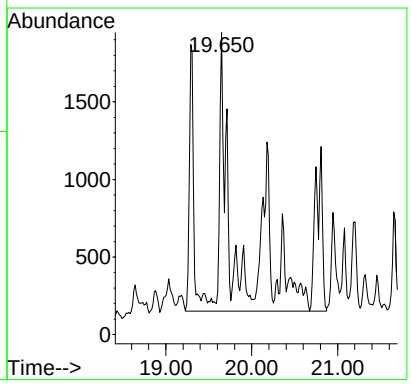
Tgt Ion:152 Resp: 24226

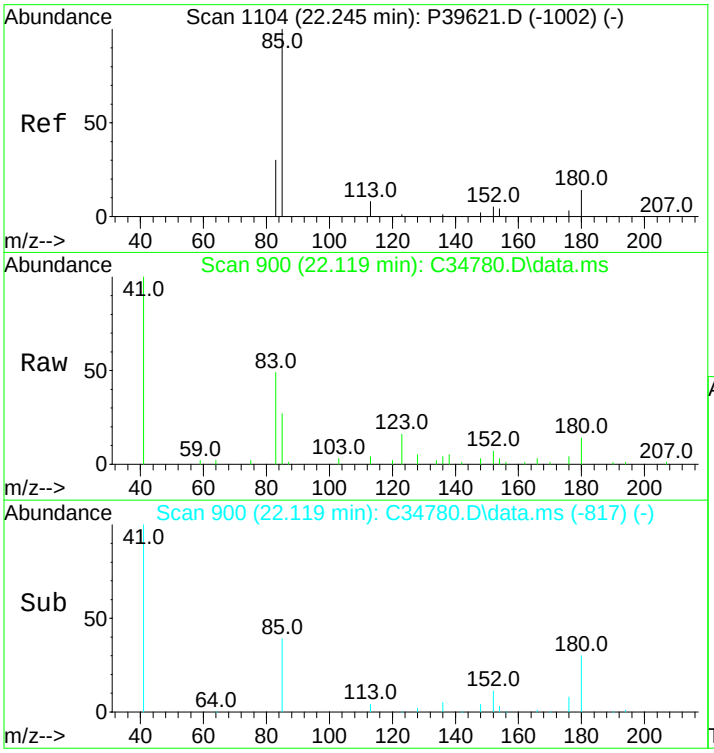




#6
C2-Decalins
Concen: 1946.21 ng/mL m
RT: 19.650 min Scan# 736
Delta R.T. -0.032 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

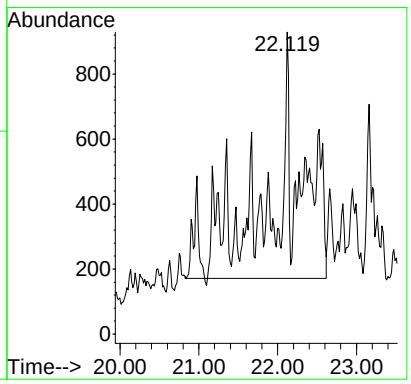
Tgt Ion:166 Resp: 33895

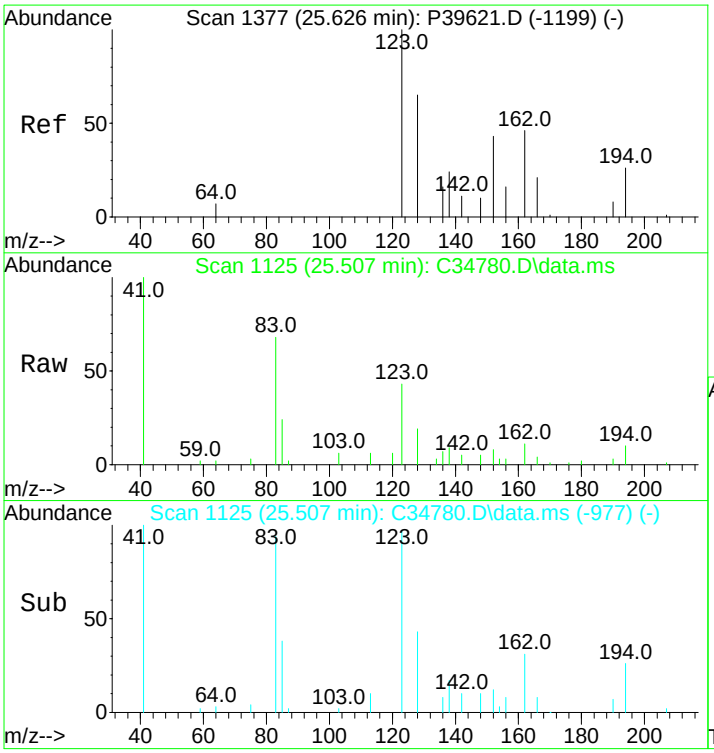




#7
C3-Decalins
Concen: 1205.05 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

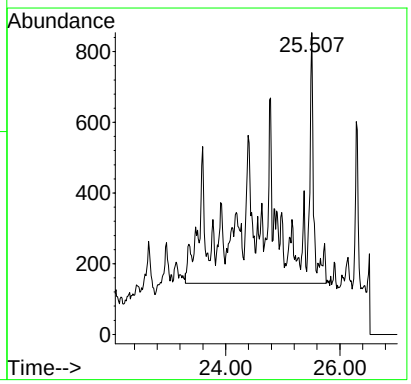
Tgt Ion:180 Resp: 20987

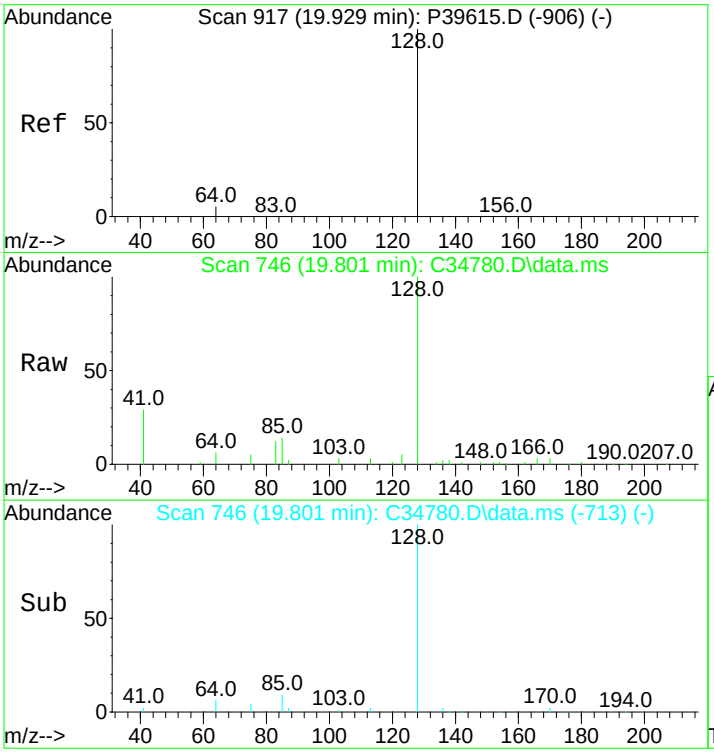




#8
C4-Decalins
Concen: 1219.23 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.005 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:194 Resp: 21234

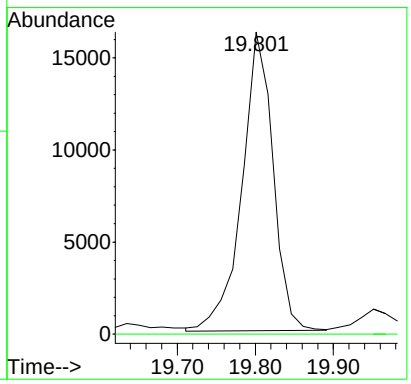


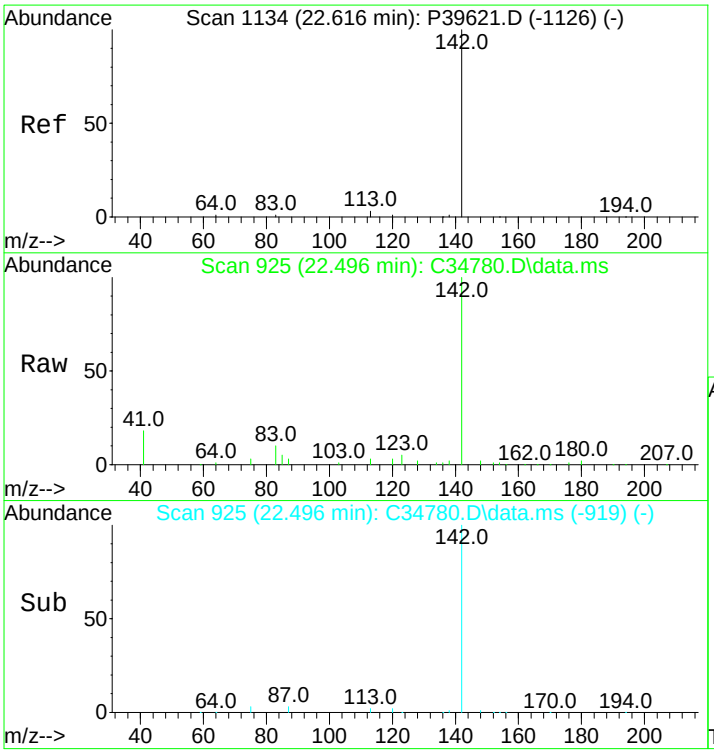


#10
Naphthalene
Concen: 319.30 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:128 Resp: 44897

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

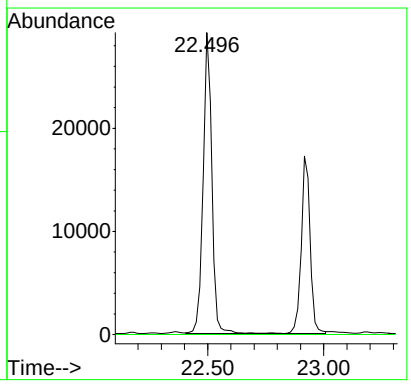


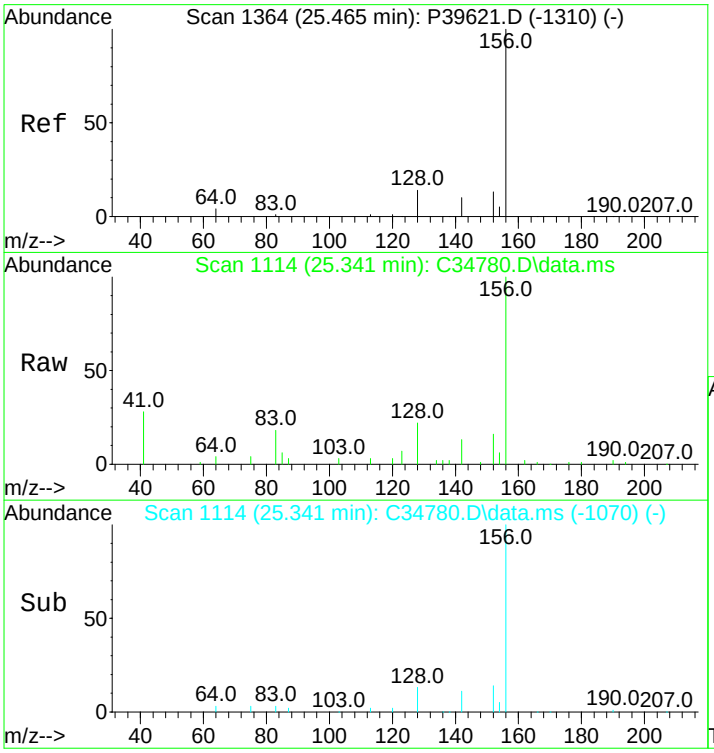


#11
C1-Naphthalenes
Concen: 863.81 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 121461

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

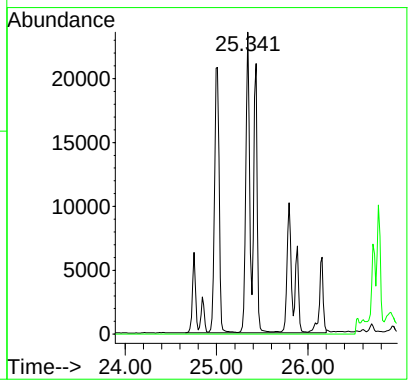


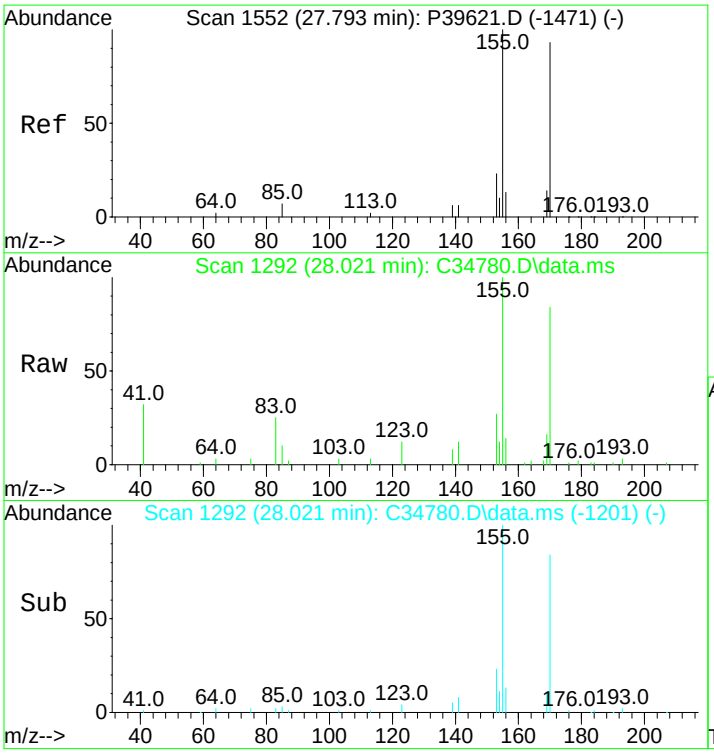


#12
C2-Naphthalenes
Concen: 2008.76 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:156 Resp: 282454

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

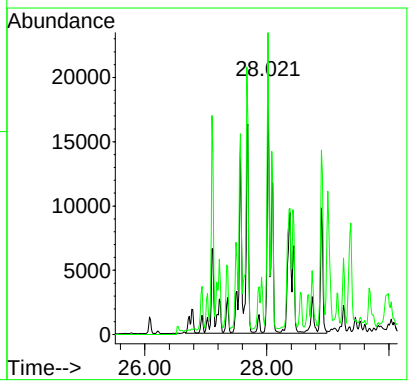


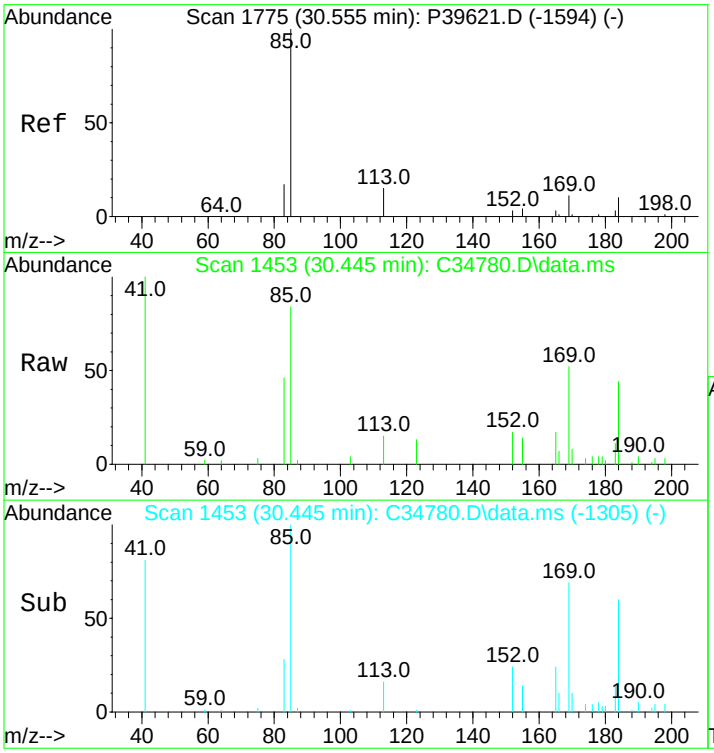


#13
C3-Naphthalenes
Concen: 2208.17 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:170 Resp: 310493

Ion	Ratio	Lower	Upper
170	100		
155	17.3	81.8	122.6#

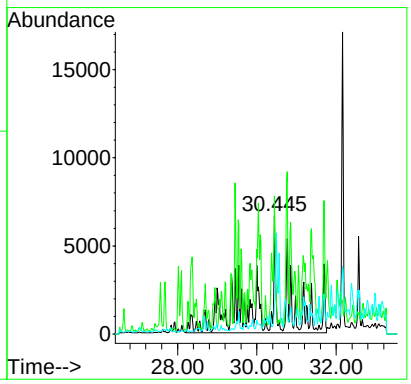


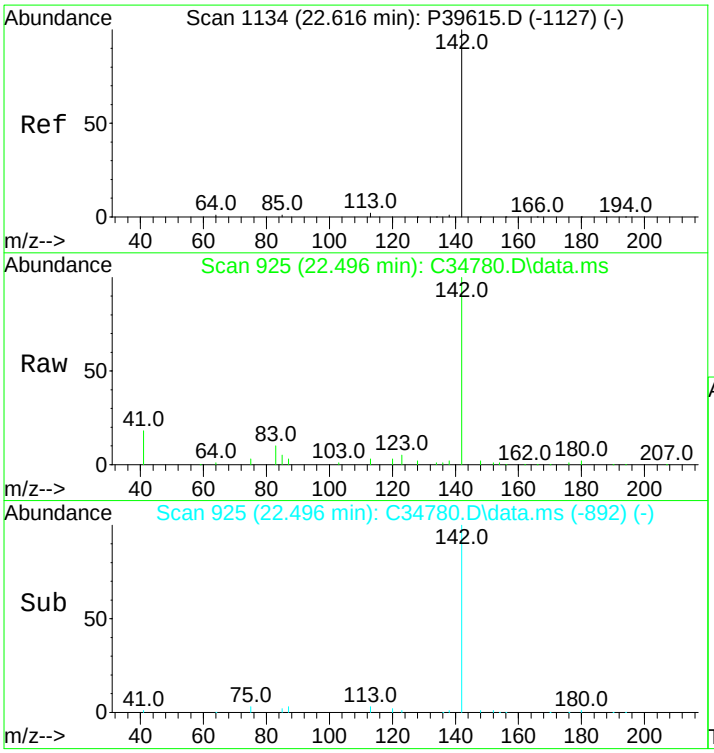


#14
C4-Naphthalenes
Concen: 1572.83 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:184 Resp: 221158

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

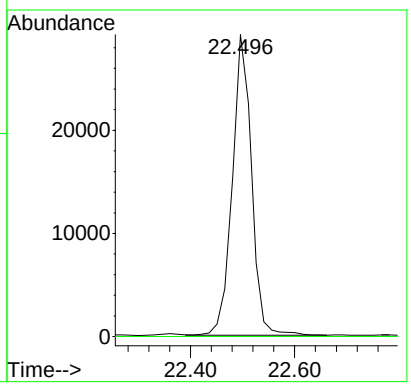


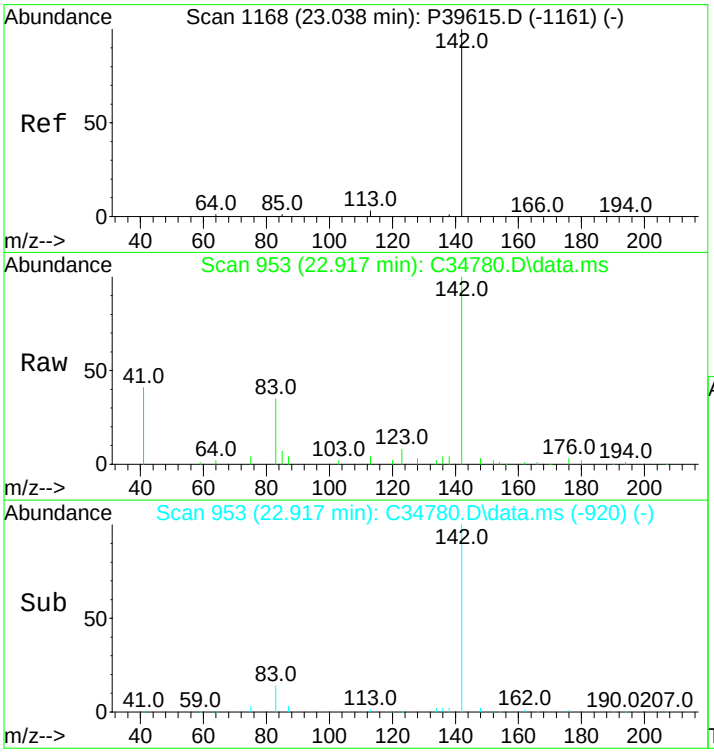


#16
2-Methylnaphthalene
Concen: 899.00 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 74743

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

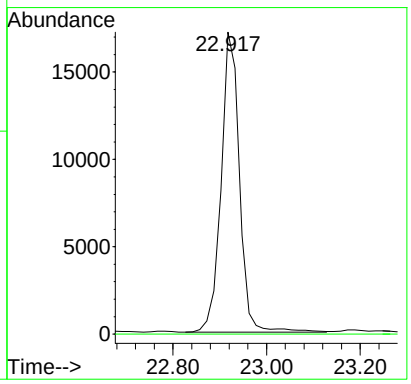


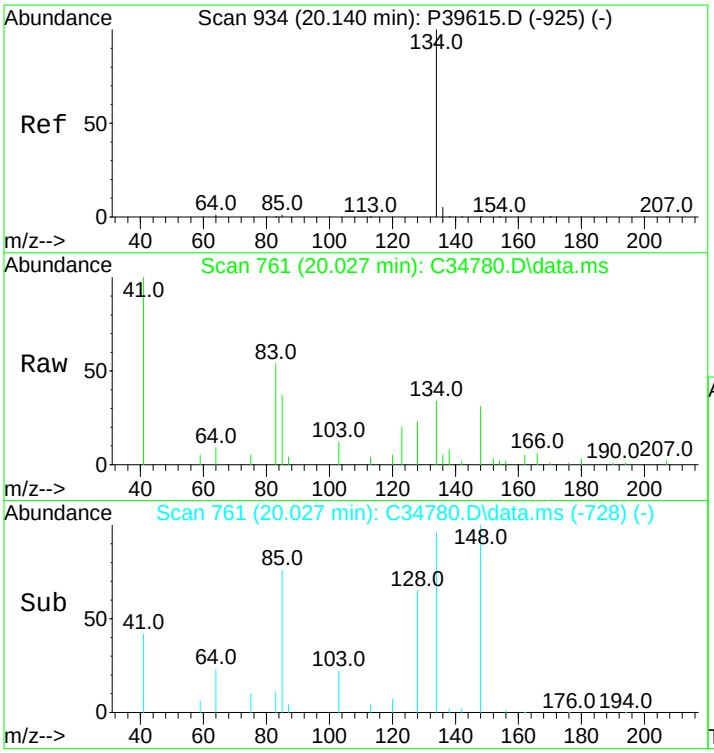


#17
1-Methylnaphthalene
Concen: 575.43 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 46894

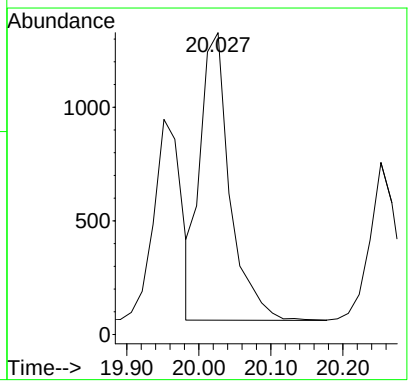
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

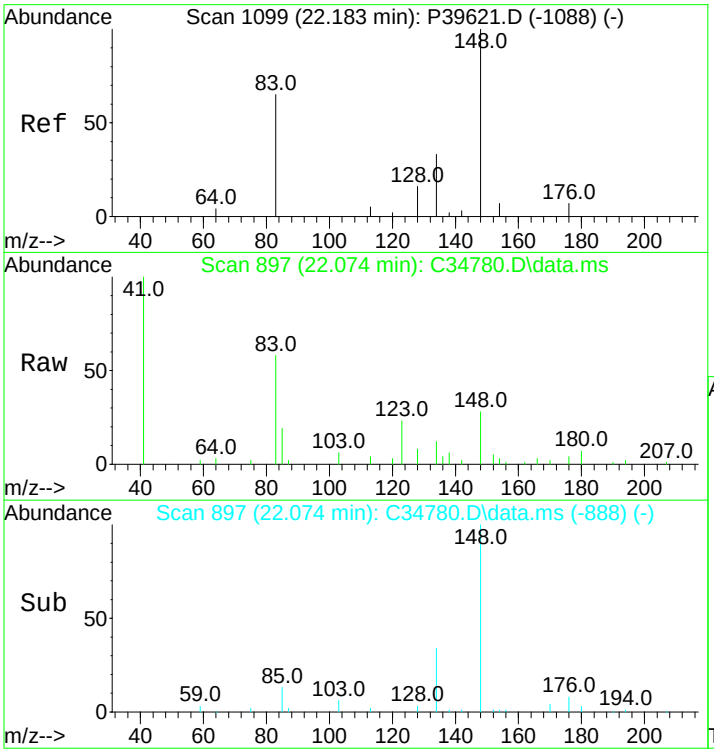




#18
Benzothiophene
Concen: 28.85 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

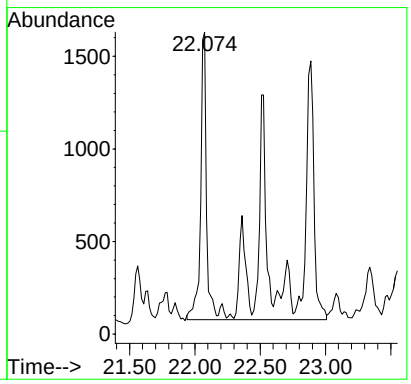
Tgt Ion:134 Resp: 3651

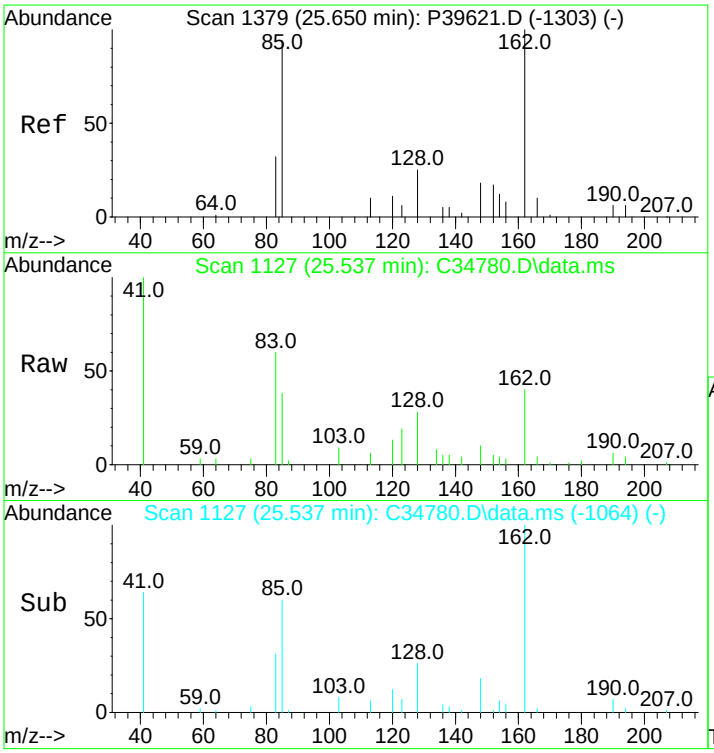




#19
C1-Benzo(b)thiophenes
Concen: 144.56 ng/mL m
RT: 22.074 min Scan# 897
Delta R.T. -0.006 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

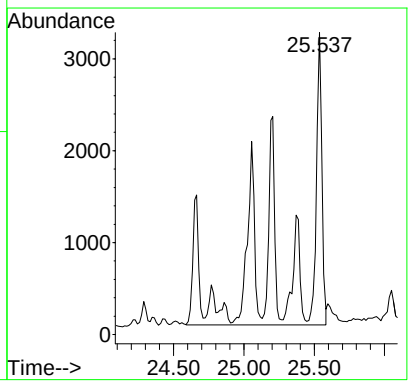
Tgt Ion:148 Resp: 18291

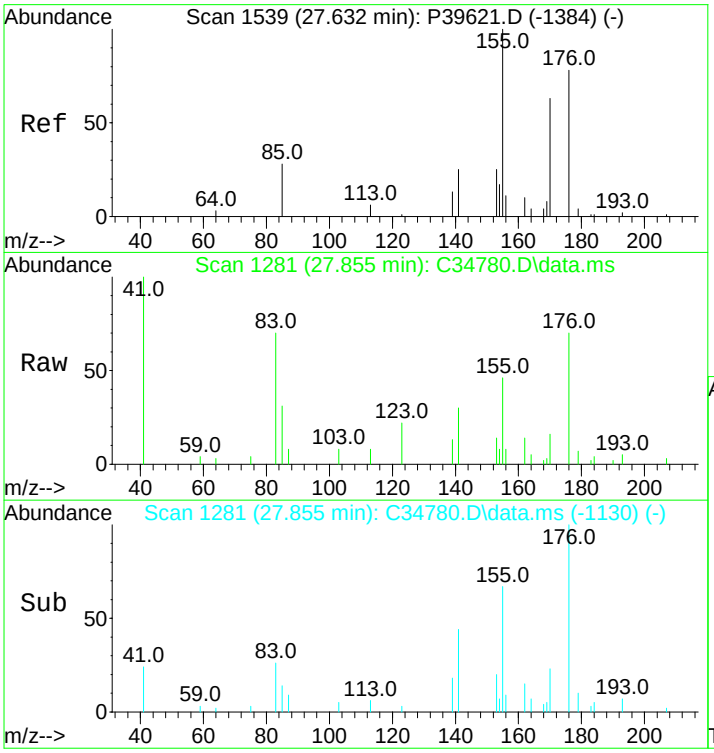




#20
C2-Benzo(b)thiophenes
Concen: 256.99 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

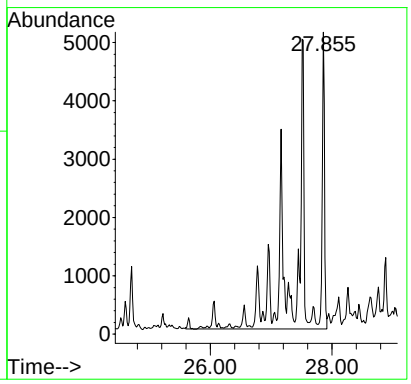
Tgt Ion:162 Resp: 32517

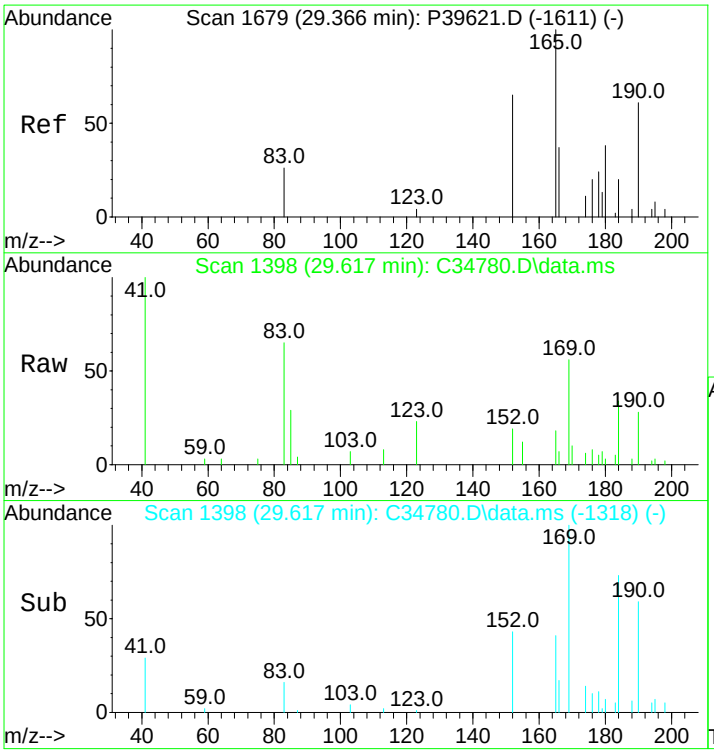




#21
C3-Benzo(b)thiophenes
Concen: 490.03 ng/mL m
RT: 27.855 min Scan# 1281
Delta R.T. 0.350 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

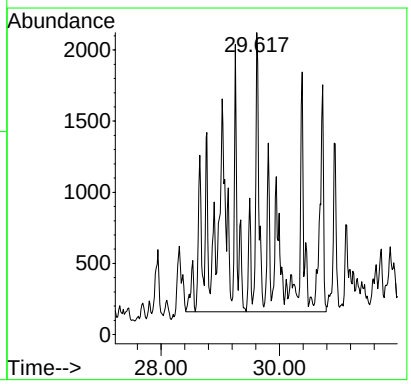
Tgt Ion:176 Resp: 62005

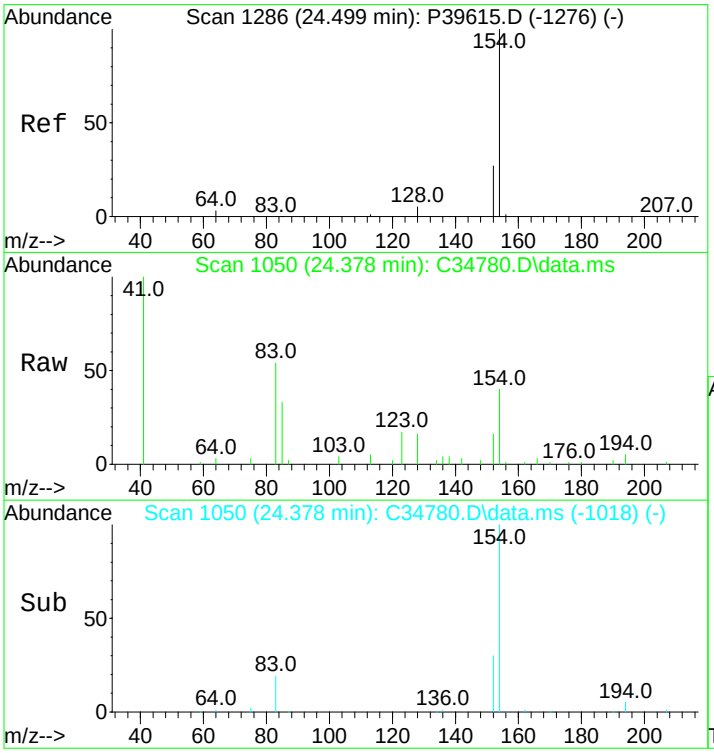




#22
C4-Benzo(b)thiophenes
Concen: 480.86 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:190 Resp: 60845

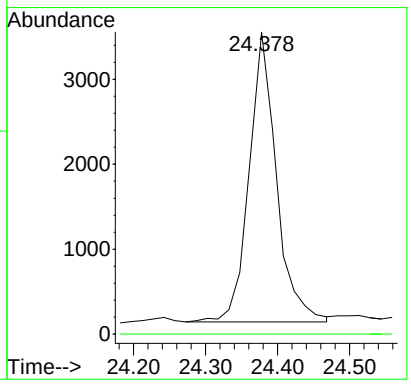


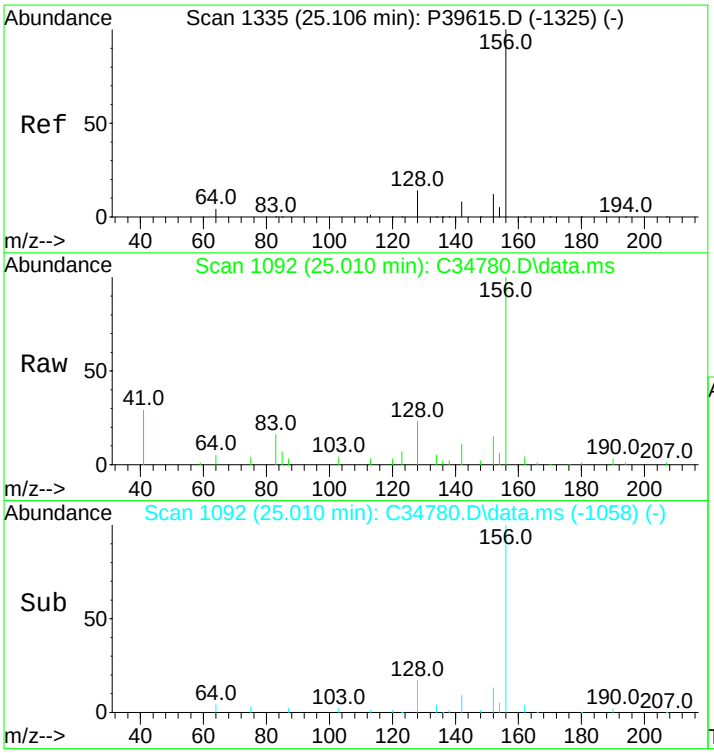


#23
Biphenyl
Concen: 85.40 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:154 Resp: 8982

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

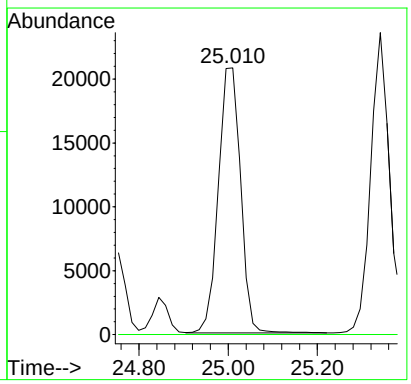


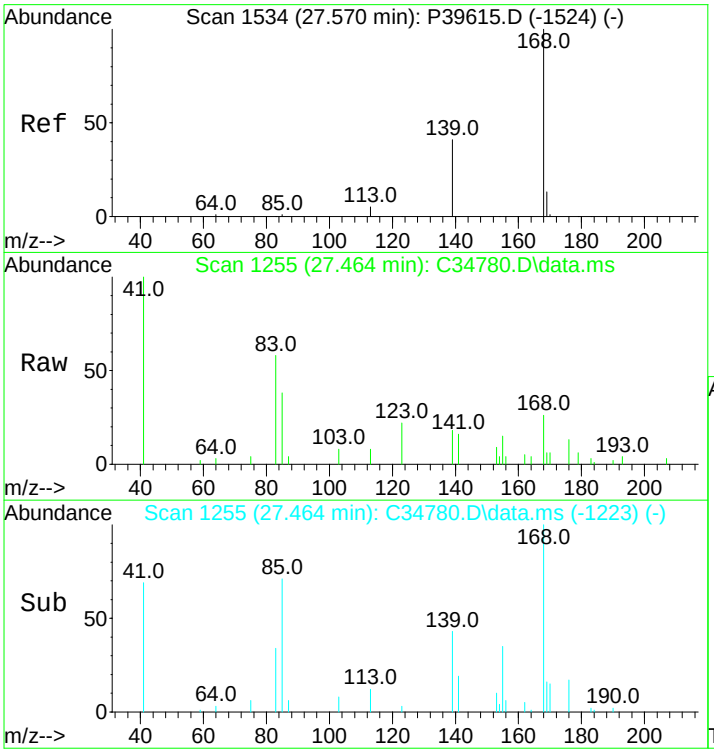


#24
2,6-Dimethylnaphthalene
Concen: 1048.98 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:156 Resp: 71653

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

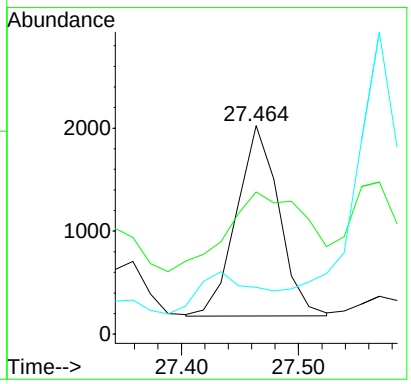


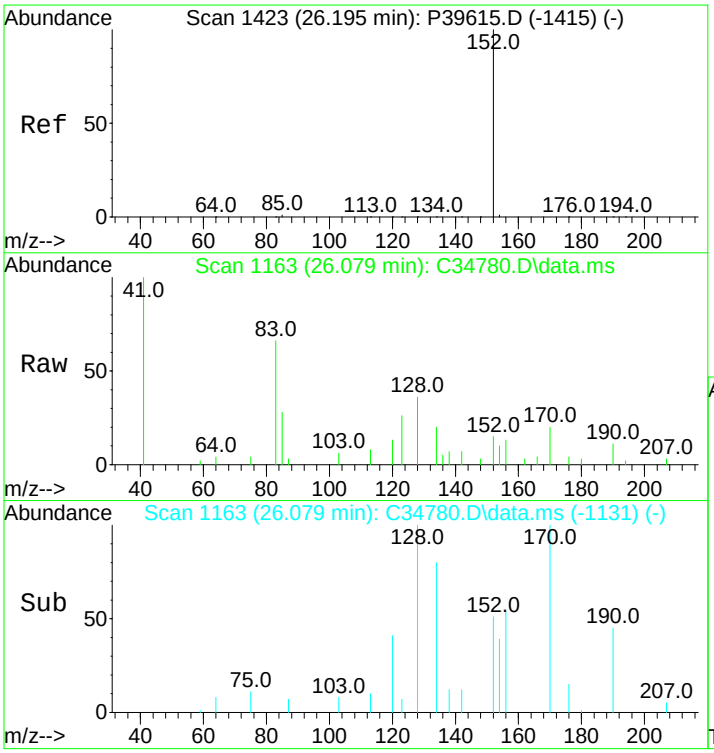


#25
Dibenzofuran
Concen: 38.62 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:168 Resp: 4664

Ion	Ratio	Lower	Upper
168	100		
139	77.3	28.4	42.6#
169	0.0	10.8	16.2#

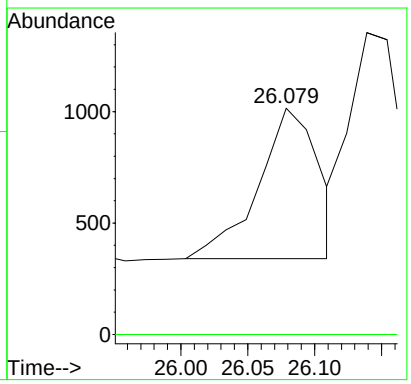


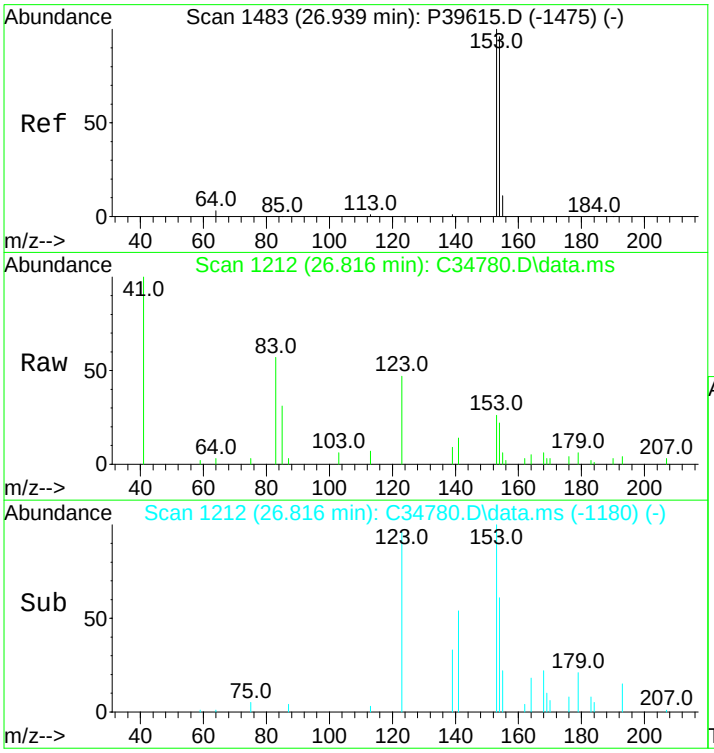


#26
Acenaphthylene
Concen: 15.27 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:152 Resp: 2132

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

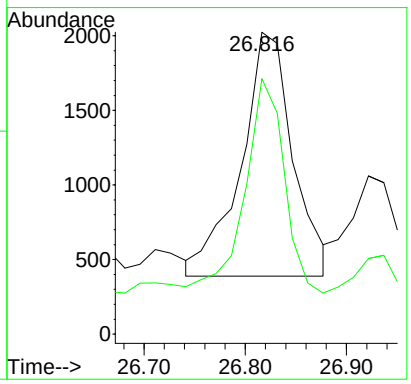


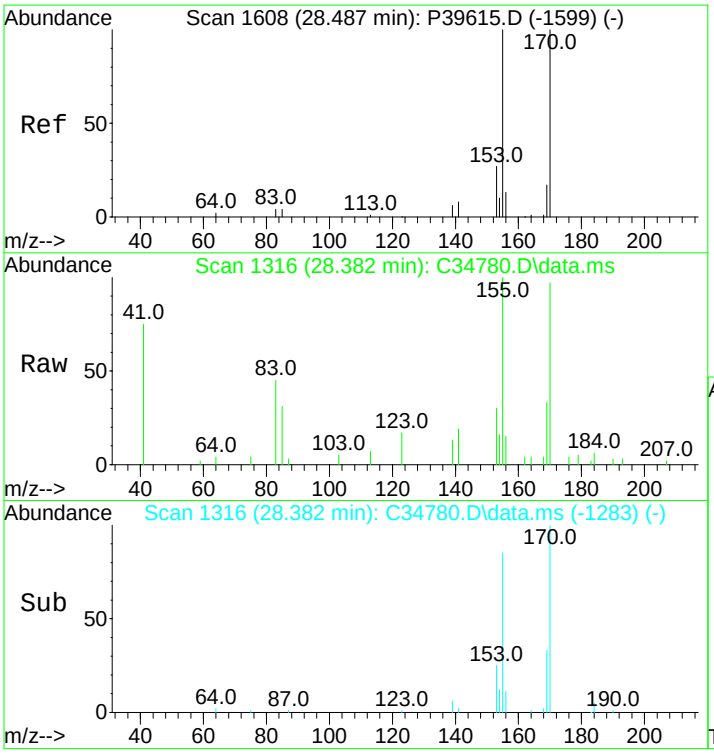


#27
Acenaphthene
Concen: 70.78 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:153 Resp: 5817

Ion	Ratio	Lower	Upper
153	100		
154	70.2	73.6	110.4#

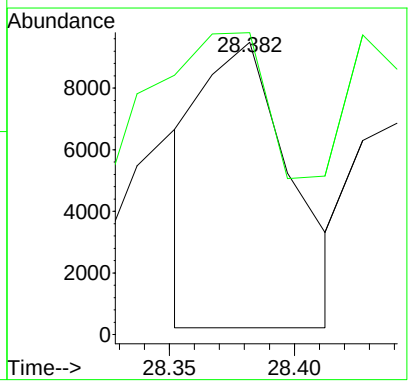


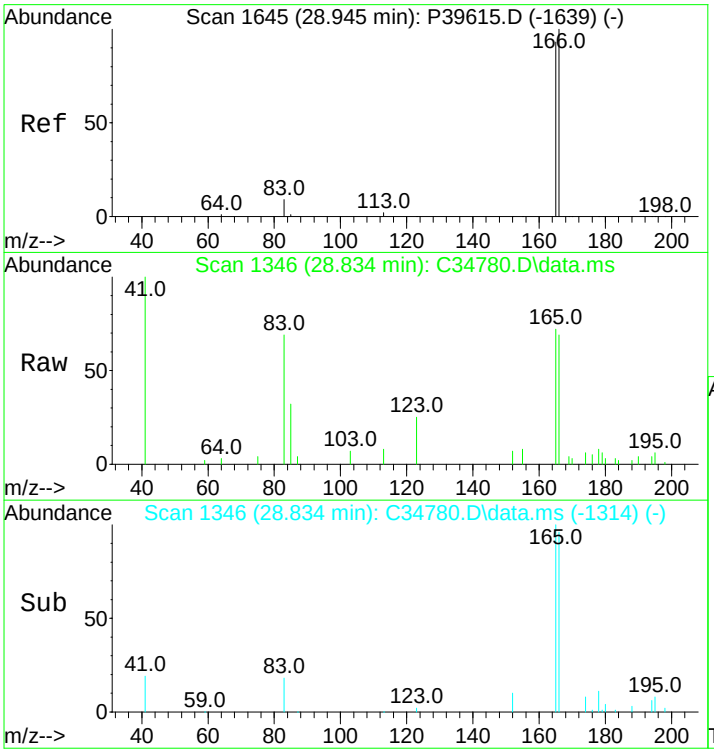


#28
2,3,5-Trimethylnaphthalene
Concen: 420.24 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:170 Resp: 23140

Ion	Ratio	Lower	Upper
170	100		
155	169.8	87.3	130.9#

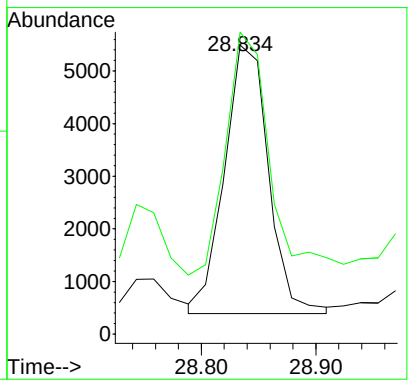


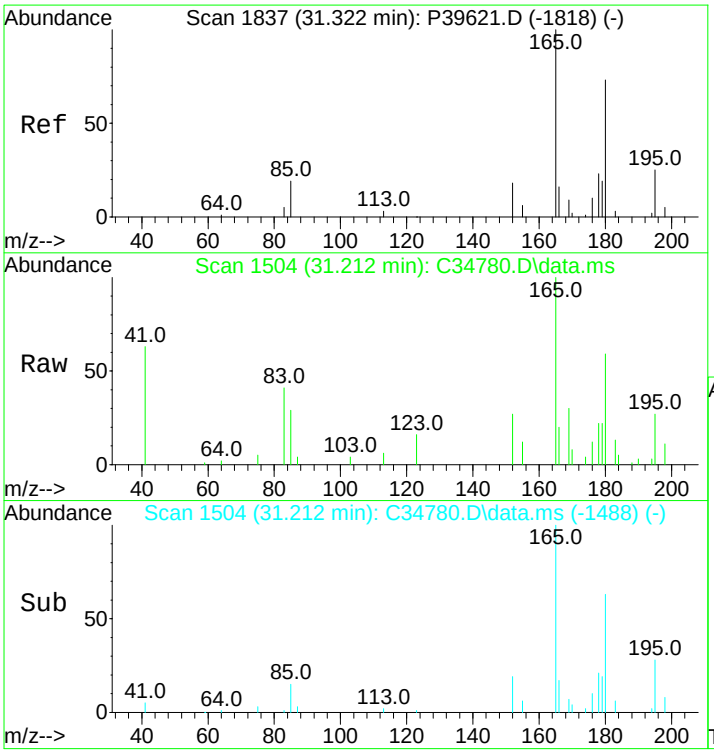


#29
Fluorene
Concen: 150.89 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:166 Resp: 13677

Ion	Ratio	Lower	Upper
166	100		
165	139.0	77.3	115.9#

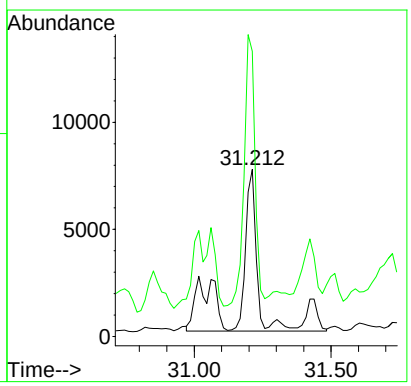


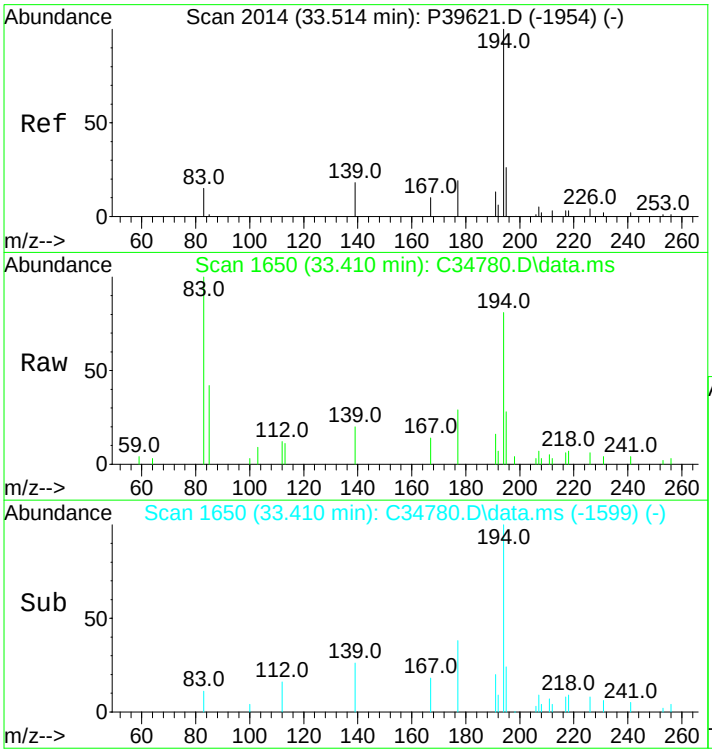


#30
C1-Fluorenes
Concen: 412.04 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:180 Resp: 37348

Ion	Ratio	Lower	Upper
180	100		
165	2.5	111.4	167.2#

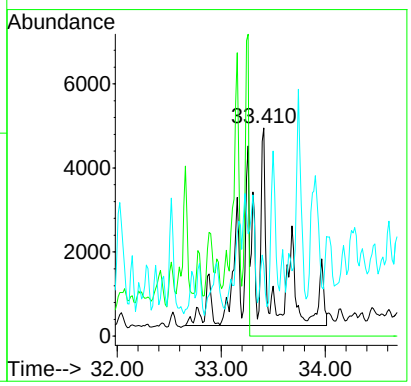


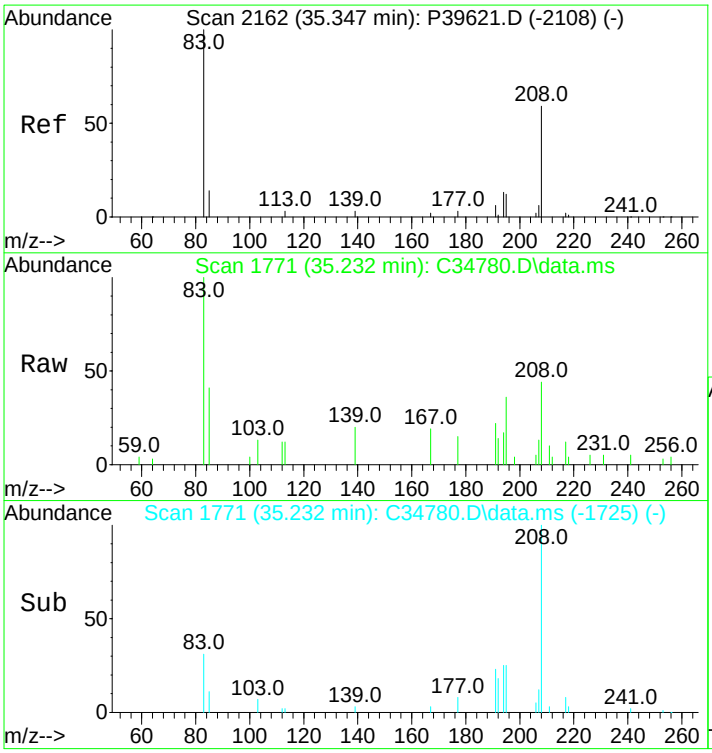


#31
C2-Fluorenes
Concen: 753.26 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:194 Resp: 68276

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	9.3	27.3	40.9#

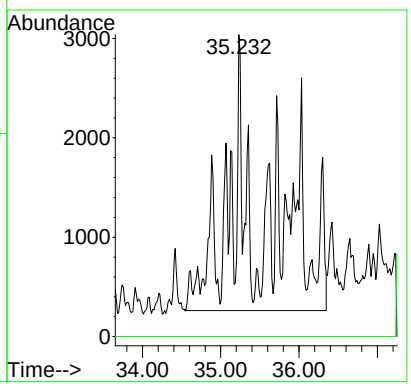


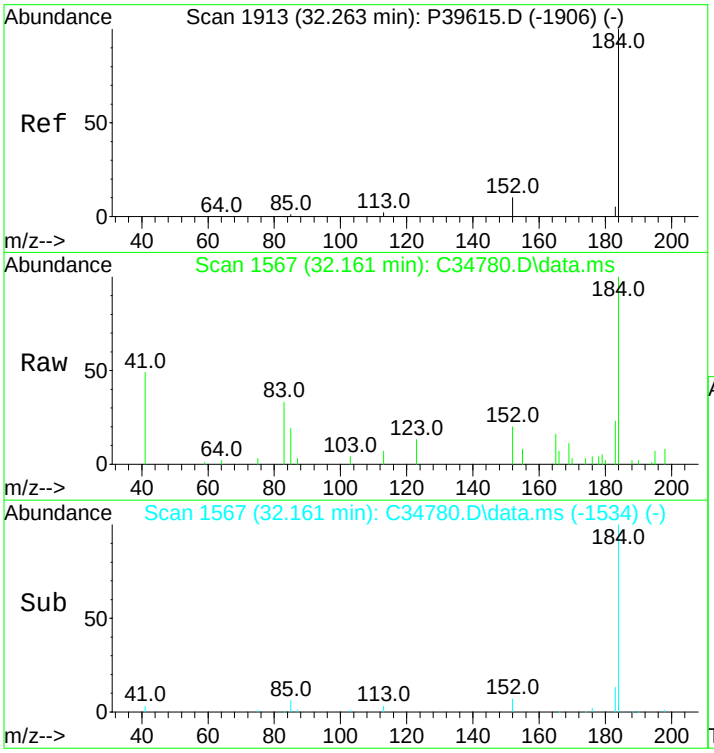


#32
C3-Fluorenes
Concen: 885.98 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:208 Resp: 80306

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

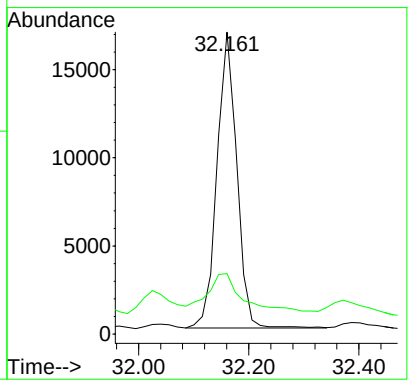


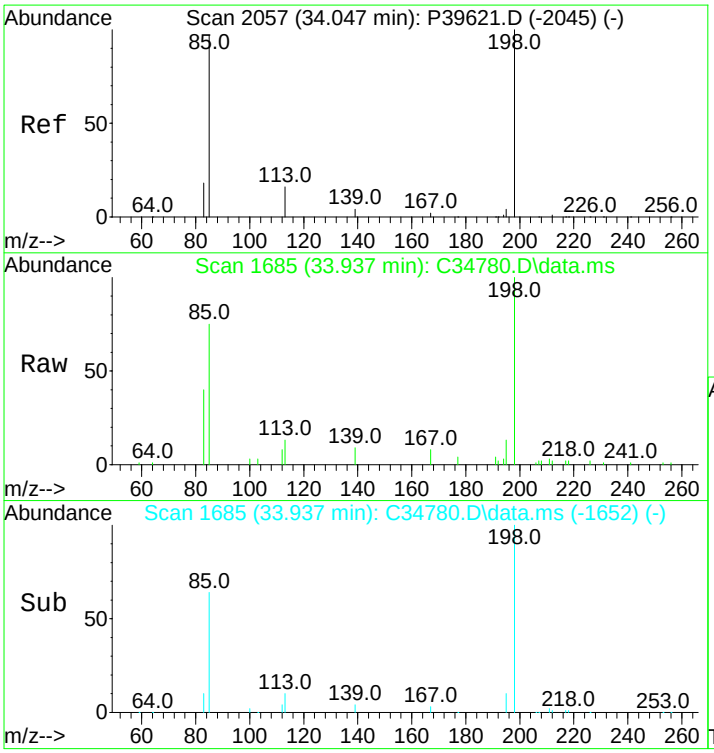


#33
Dibenzothiophene
Concen: 287.99 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:184 Resp: 41844

Ion	Ratio	Lower	Upper
184	100		
152	21.9	7.5	11.3#

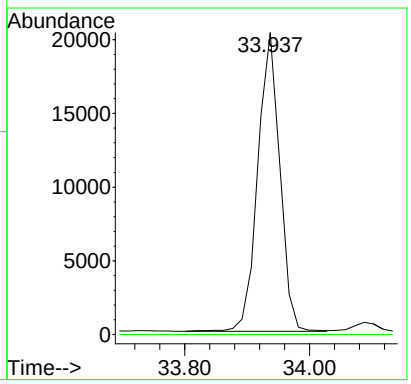


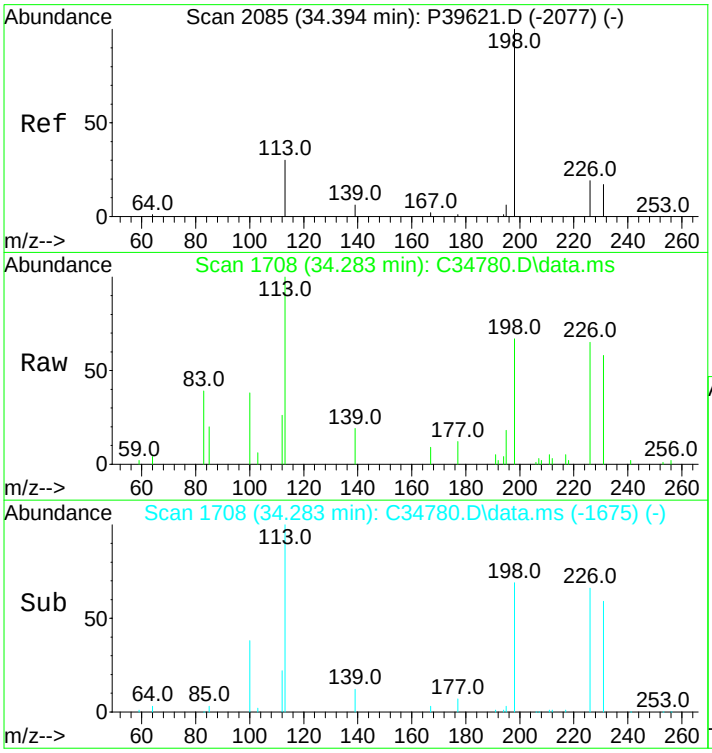


#34
4-Methyldibenzothiophene(4MDT)
Concen: 342.76 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 49801

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

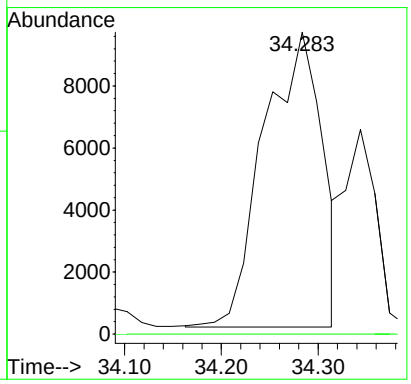


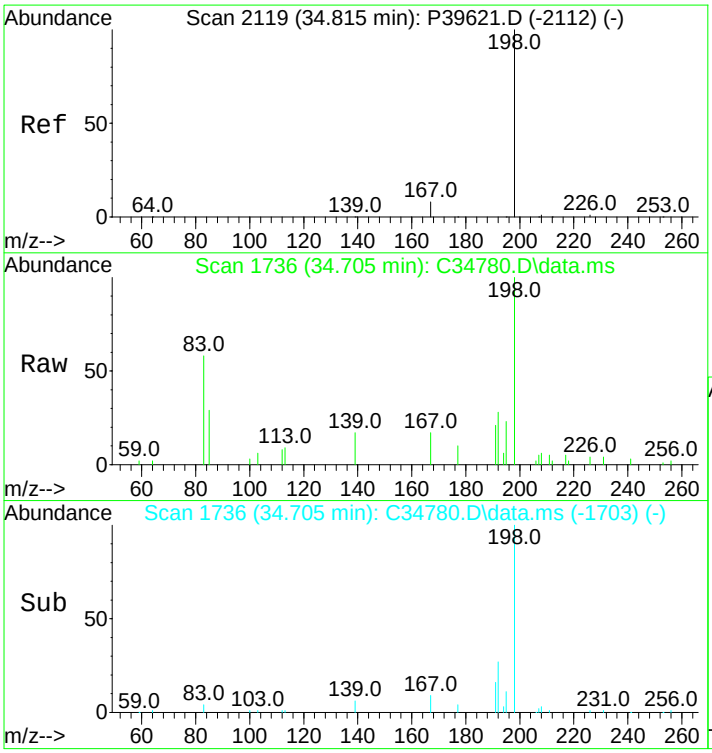


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 275.99 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 40101

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

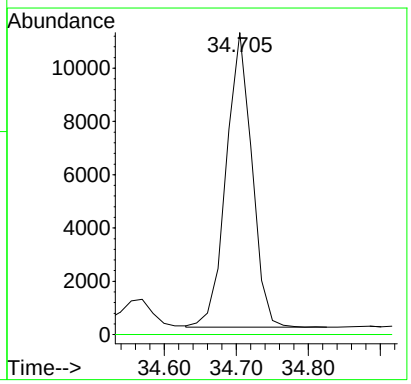


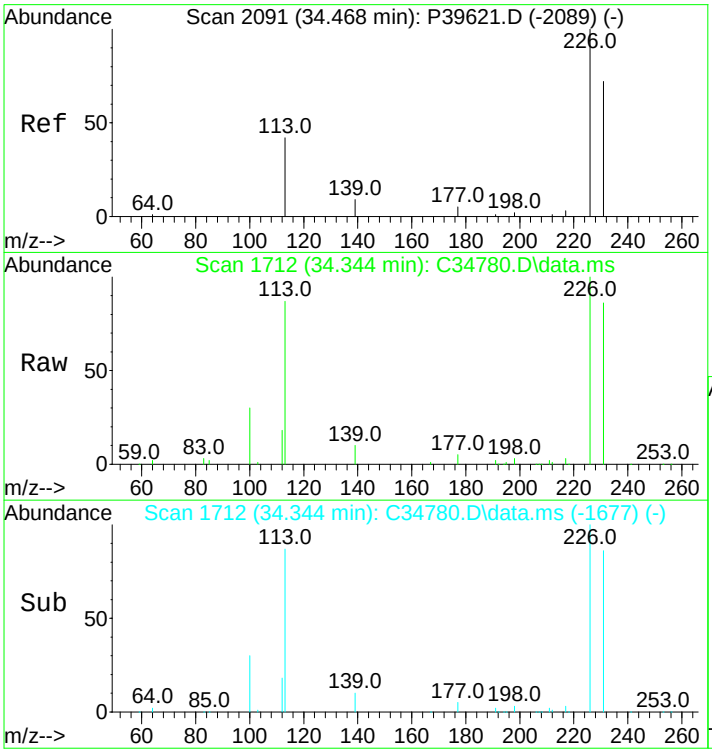


#36
1-Methyldibenzothiophene(1MDT)
Concen: 188.41 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 27375

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

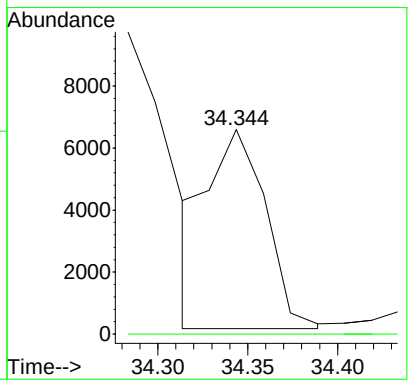


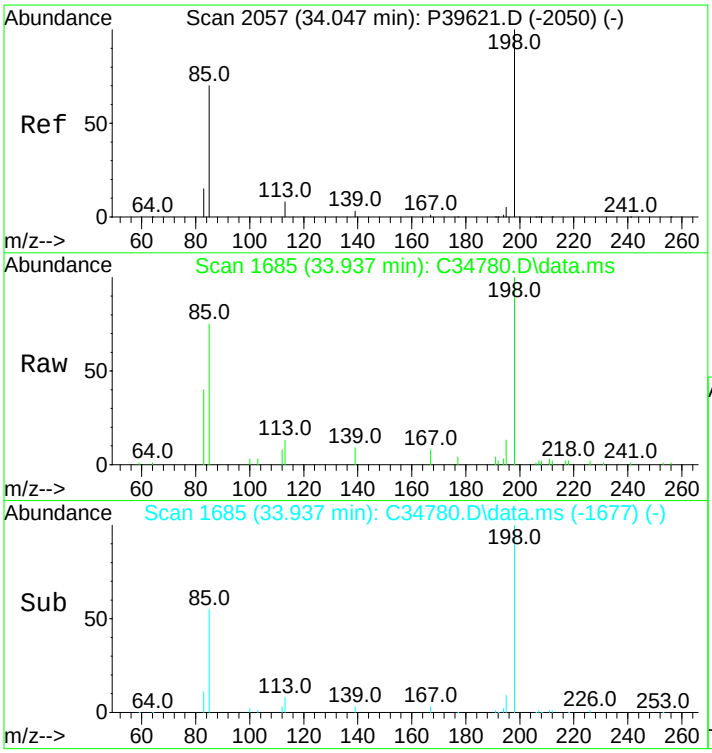


#37
OTP
Concen: 98.70 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 14341

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

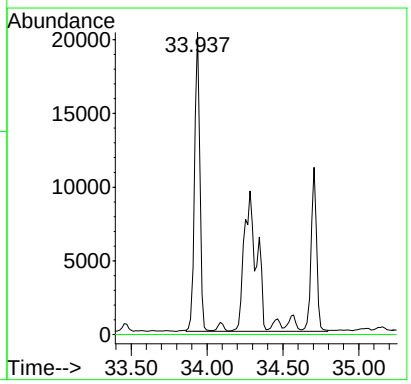


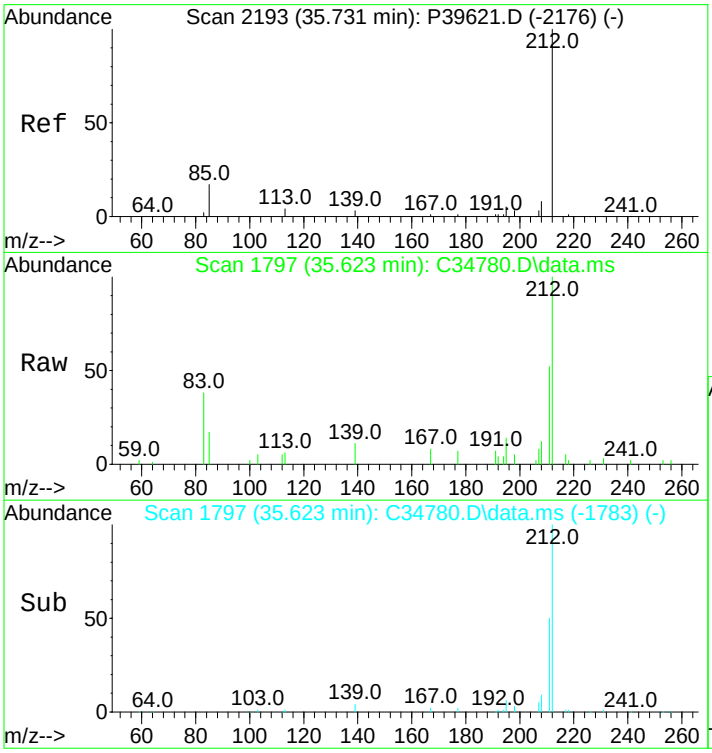


#38
C1-Dibenzothiophenes
Concen: 962.82 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 139894

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

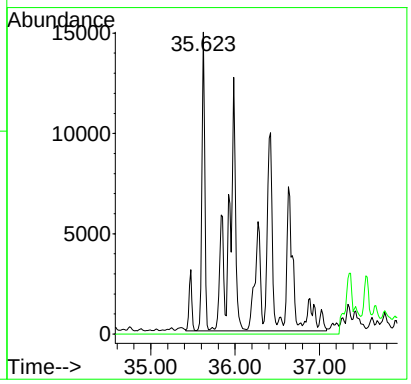


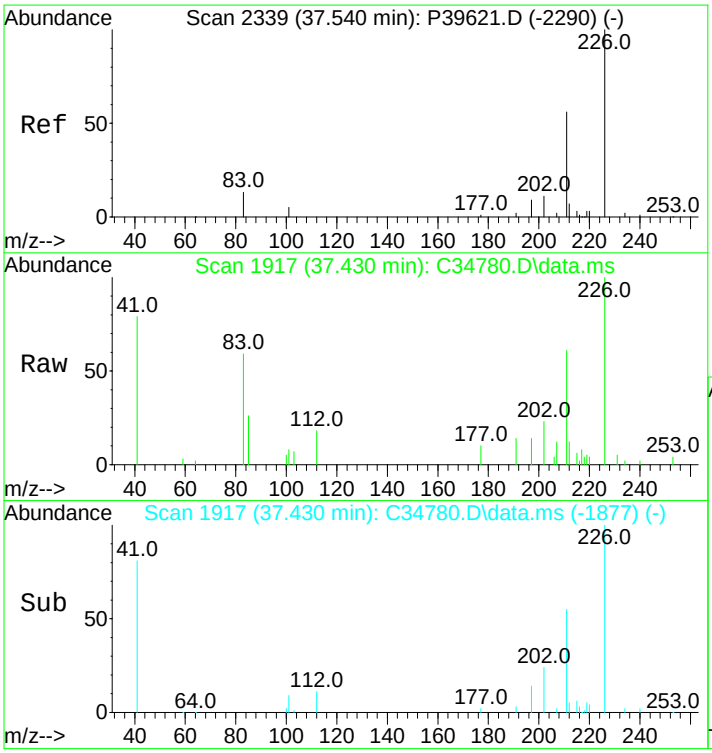


#39
C2-Dibenzothiophenes
Concen: 1518.00 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:212 Resp: 220560

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

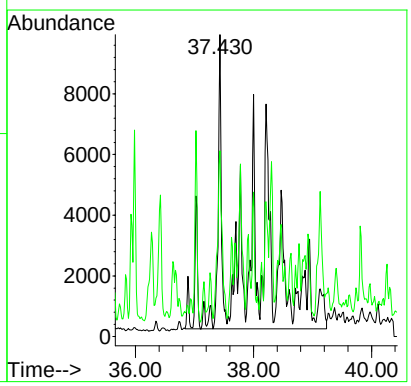


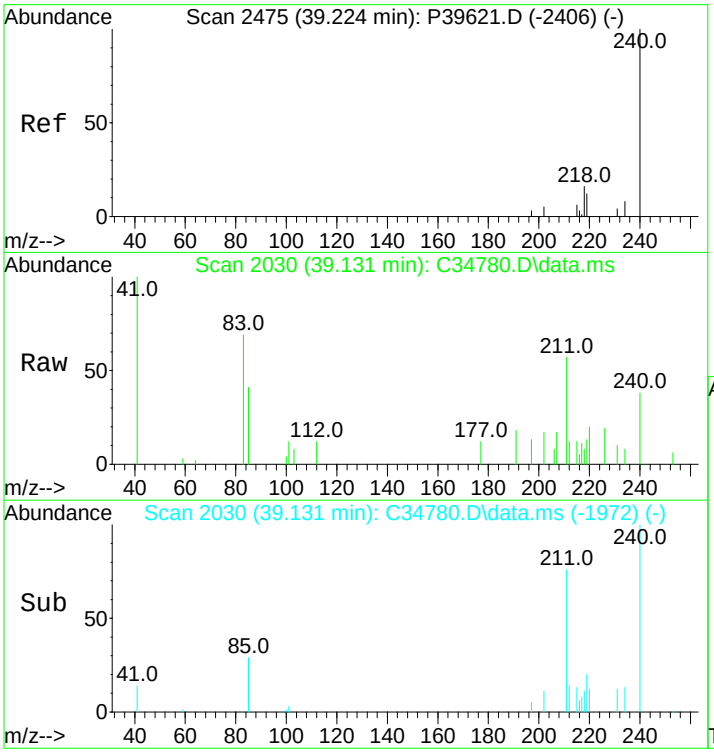


#40
C3-Dibenzothiophenes
Concen: 1579.17 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:226 Resp: 229447

Ion	Ratio	Lower	Upper
226	100		
211	1.6	45.0	67.6#

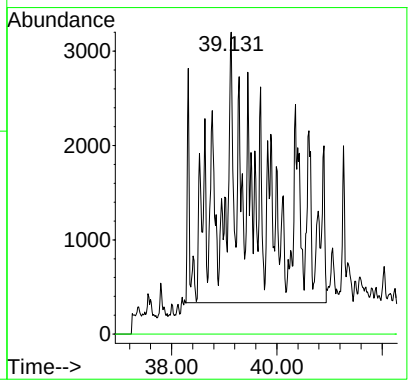


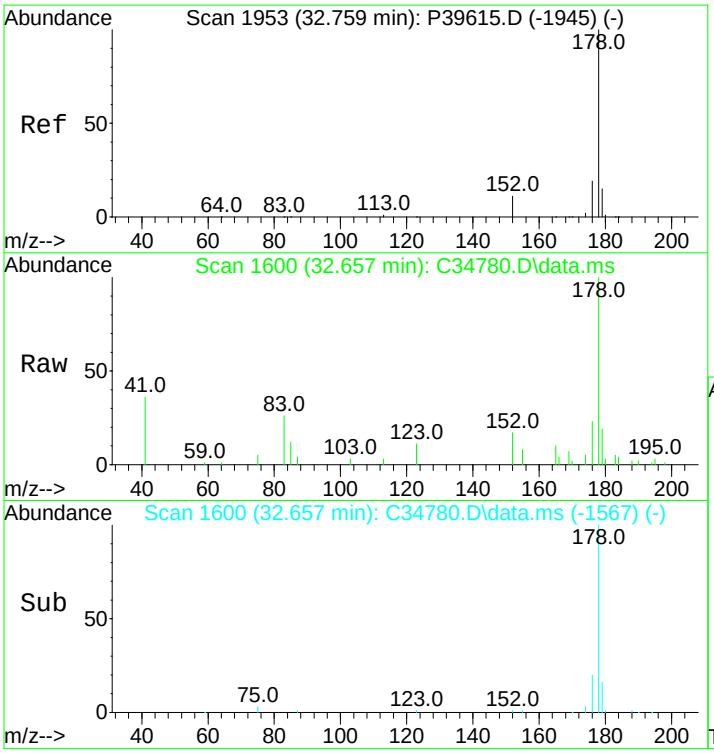


#41
C4-Dibenzothiophenes
Concen: 1047.95 ng/mL m
RT: 39.131 min Scan# 2030
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:240 Resp: 152263

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

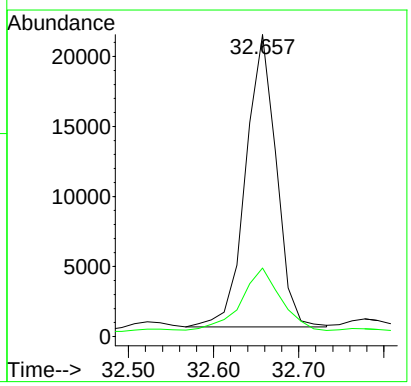


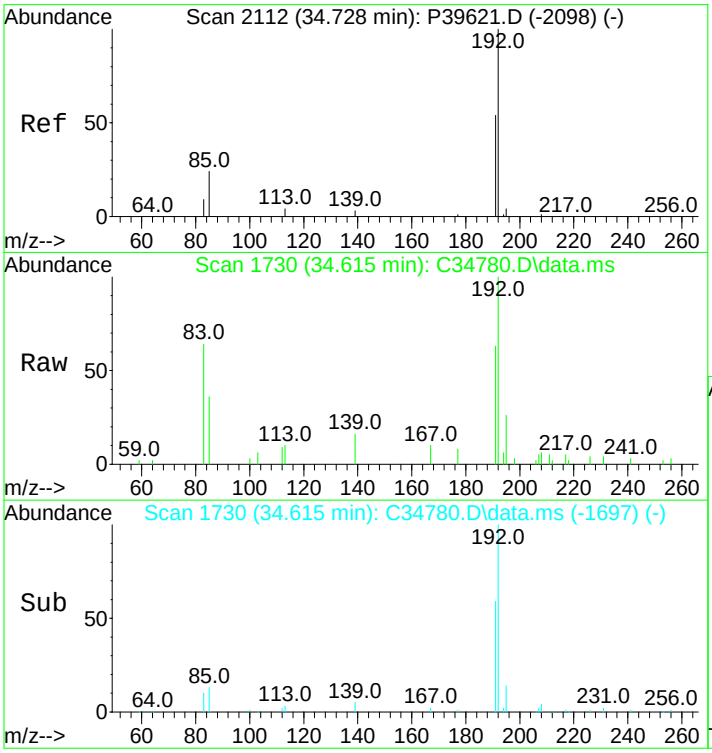


#43
Phenanthrene
Concen: 408.23 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:178 Resp: 52113

Ion	Ratio	Lower	Upper
178	100		
176	27.7	16.1	24.1#

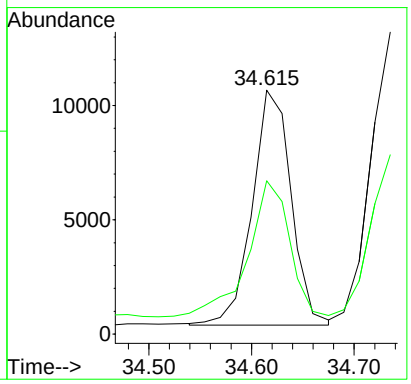


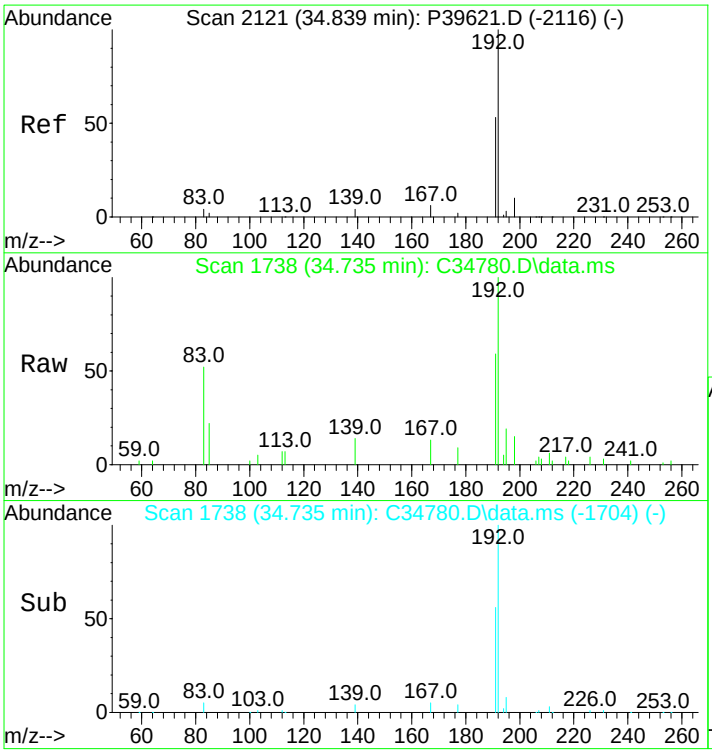


#44
3-Methylphenanthrene(3MP)
Concen: 212.19 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 27087

Ion	Ratio	Lower	Upper
192	100		
191	66.5	46.9	70.3

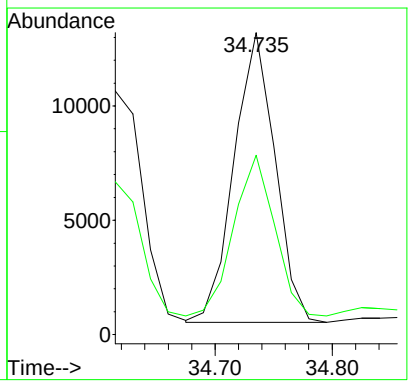


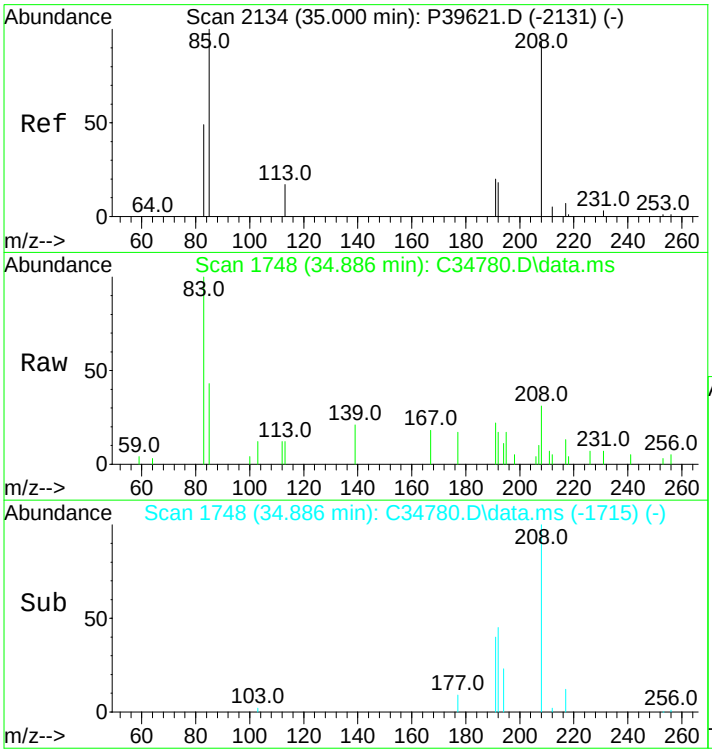


#45
2/4-Methylphenanthrene(2MP)
Concen: 242.39 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 30942

Ion	Ratio	Lower	Upper
192	100		
191	55.2	46.1	69.1

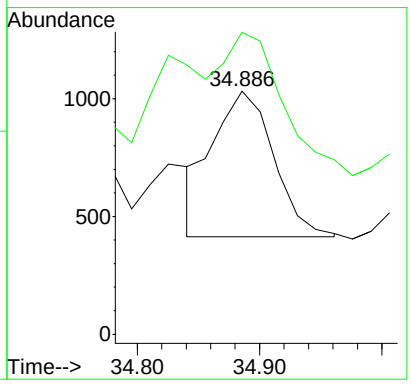


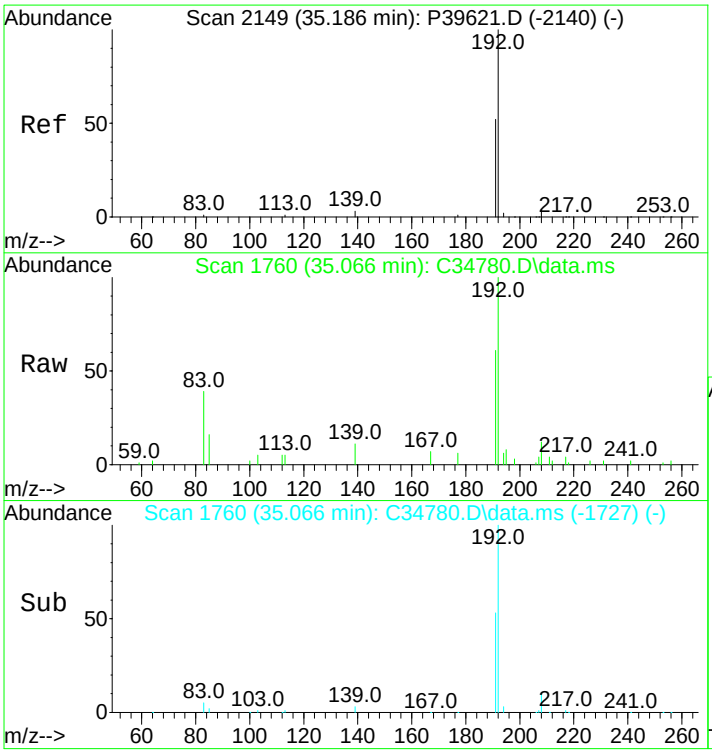


#46
2-Methylanthracene(2MA)
Concen: 16.80 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 2145

Ion	Ratio	Lower	Upper
192	100		
191	98.7	93.4	140.0

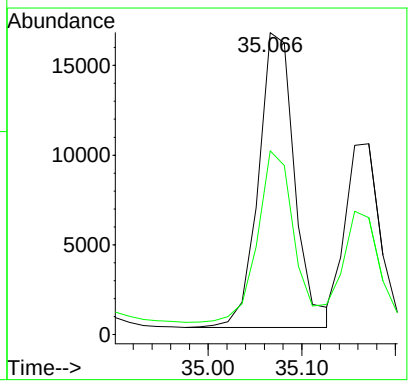


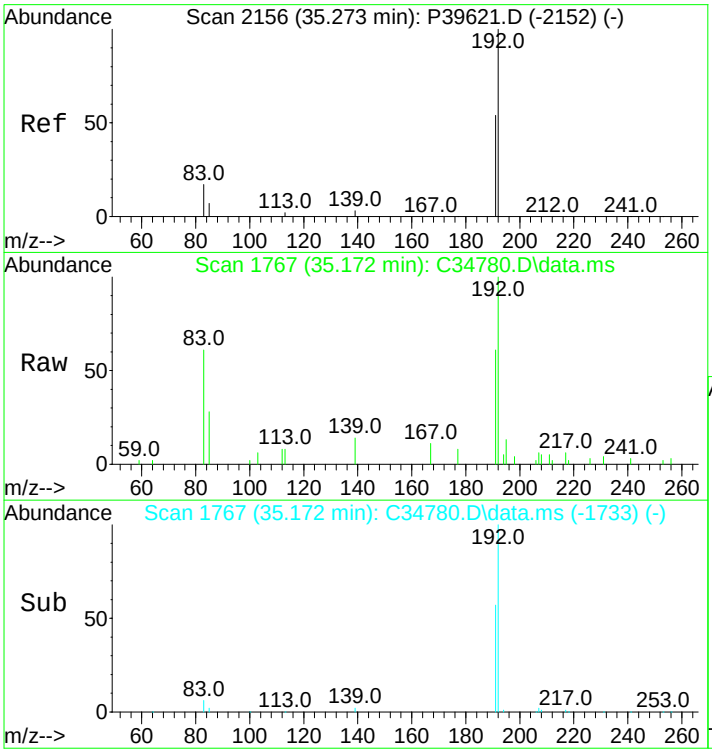


#47
9-Methylphenanthrene(9MP)
Concen: 345.78 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 44141

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.9	68.9

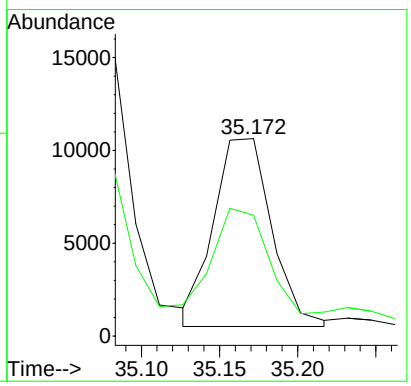


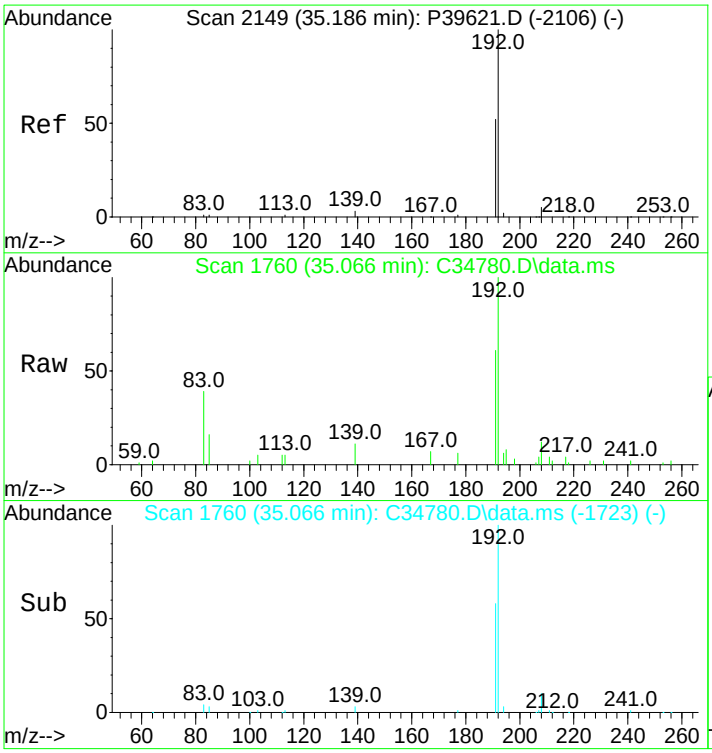


#48
1-Methylphenanthrene(1MP)
Concen: 204.72 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 26134

Ion	Ratio	Lower	Upper
192	100		
191	57.1	49.0	73.4

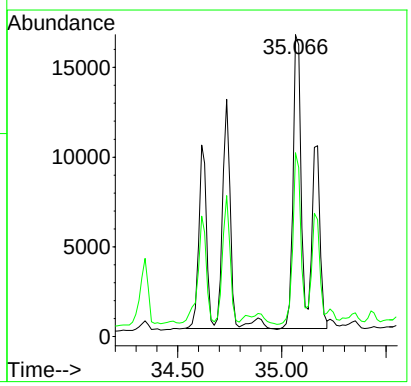


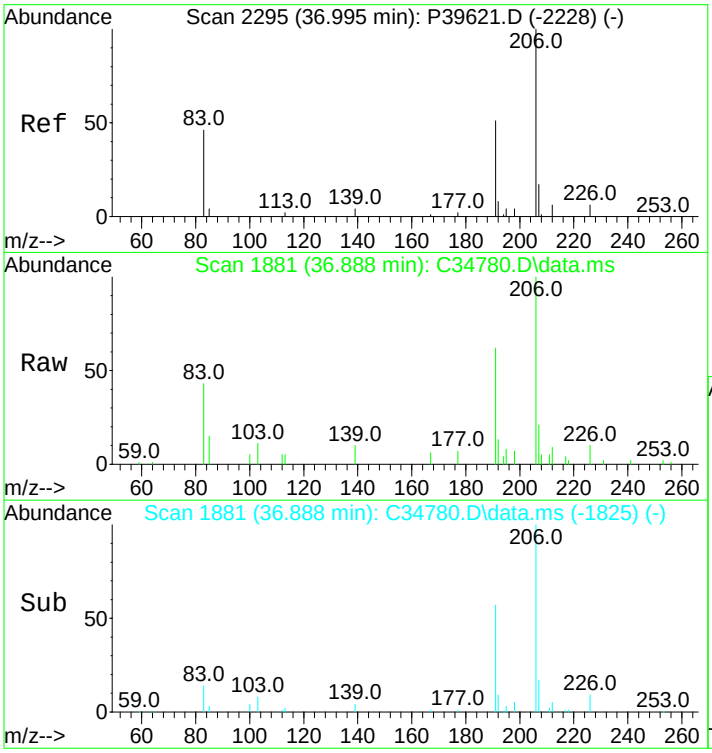


#49
C1-Phenanthrenes/Anthracenes
Concen: 1028.04 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.053 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 131235

Ion	Ratio	Lower	Upper
192	100		
191	19.3	44.2	66.2#

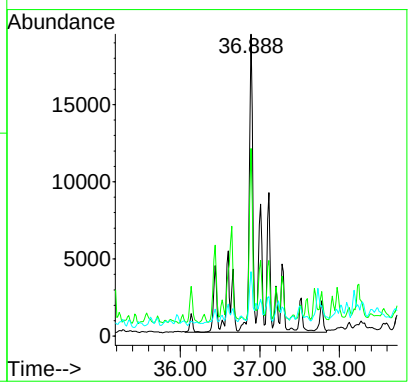


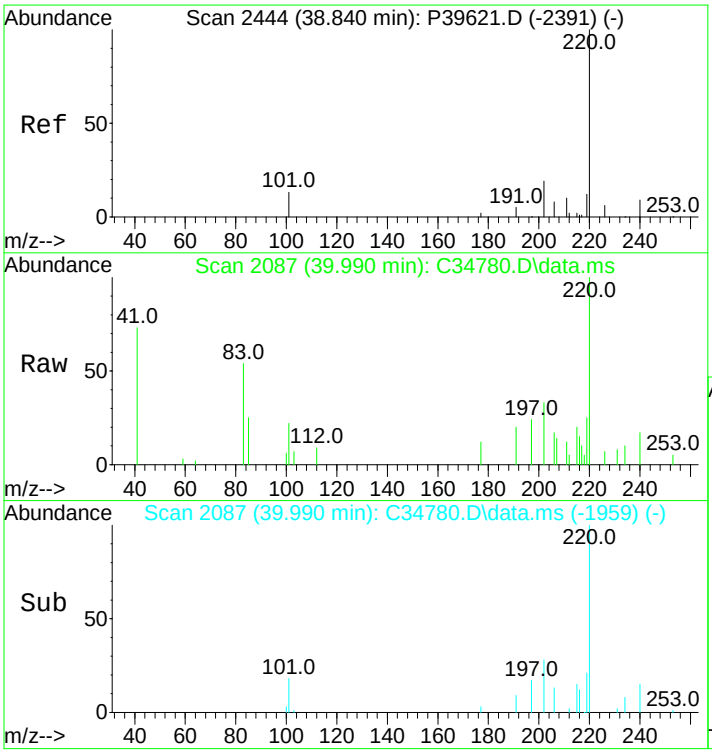


#50
C2-Phenanthrenes/Anthracenes
Concen: 1381.24 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:206 Resp: 176322

Ion	Ratio	Lower	Upper
206	100		
191	17.3	44.0	66.0#
207	5.1	15.1	22.7#

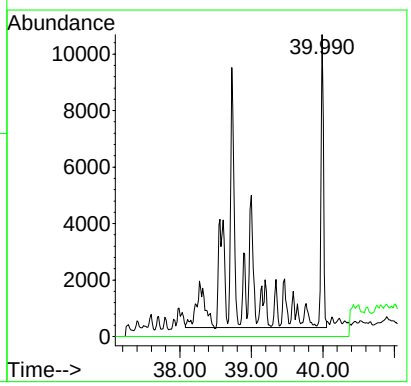


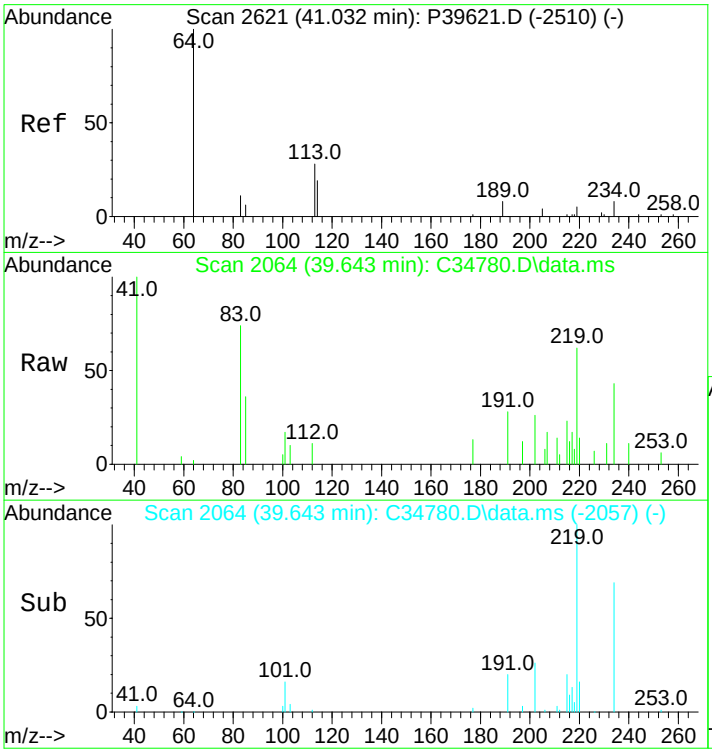


#52
C3-Phenanthrenes/Anthracenes
Concen: 1125.79 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:220 Resp: 143713

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

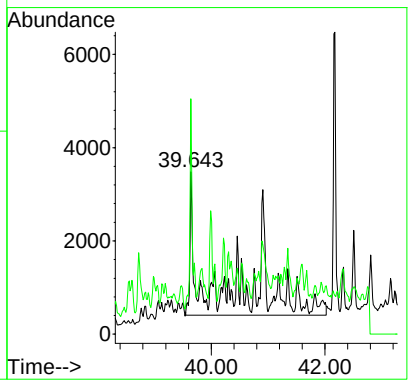


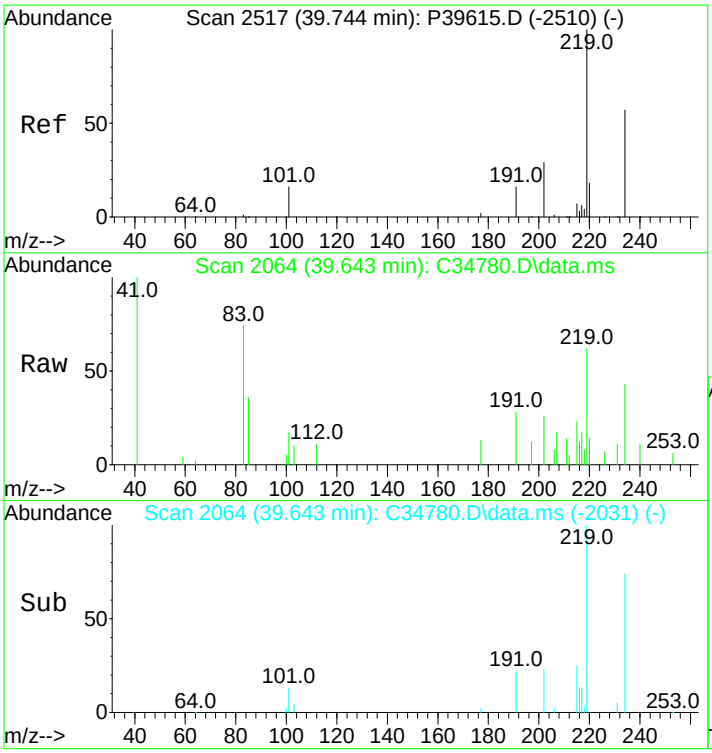


#53
C4-Phenanthrenes/Anthracenes
Concen: 564.55 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. -1.156 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 72068

Ion	Ratio	Lower	Upper
234	100		
219	1.1	46.9	70.3#

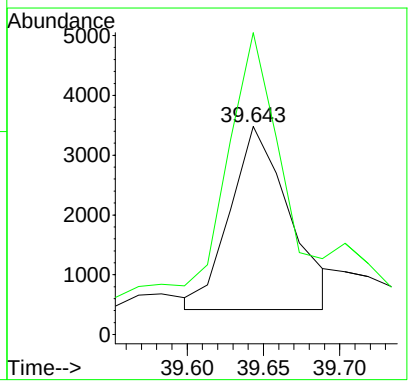


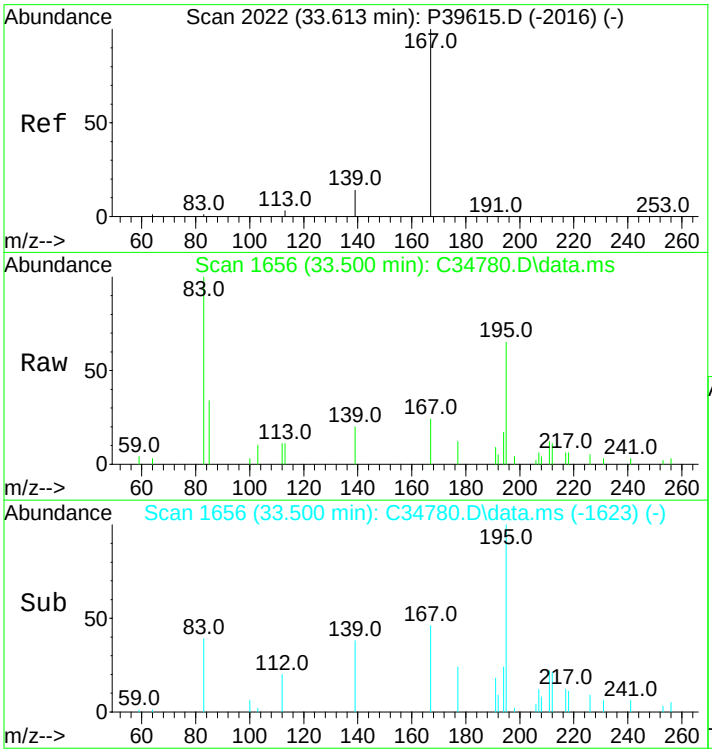


#54
Retene
Concen: 334.48 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 8329

Ion	Ratio	Lower	Upper
234	100		
219	165.3	127.8	191.8

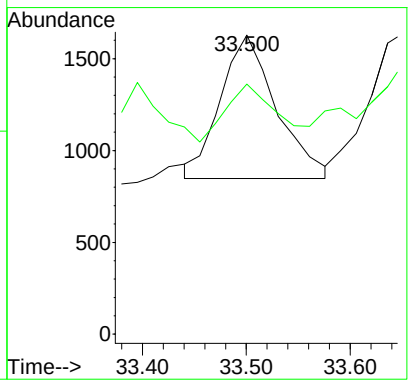


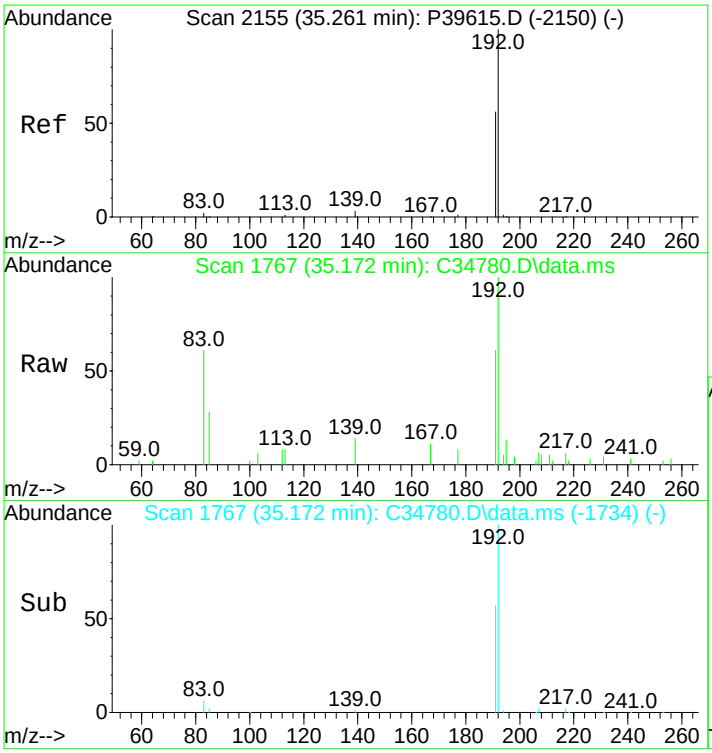


#56
Carbazole
Concen: 23.11 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:167 Resp: 2911

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

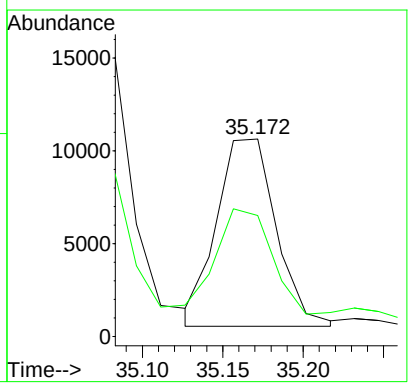


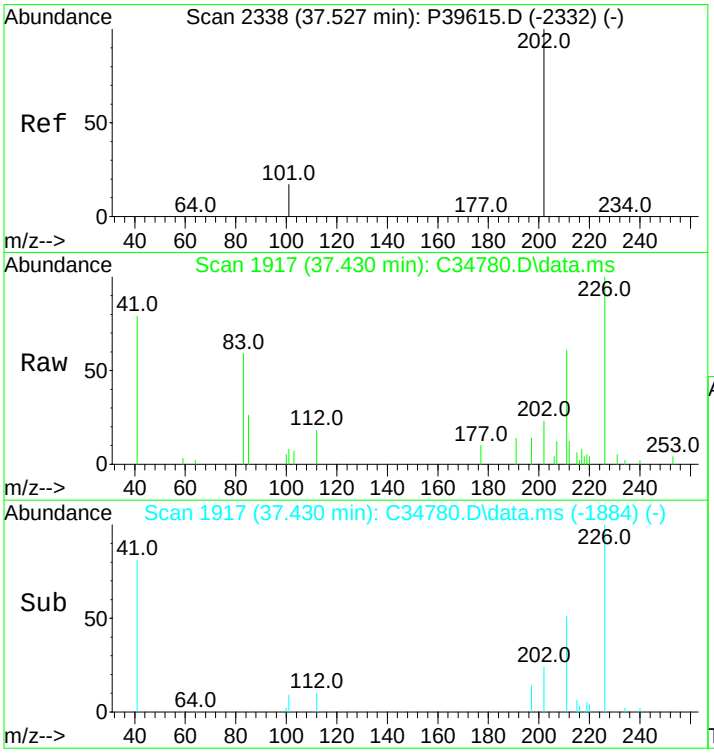


#57
1-Methylphenanthrene
Concen: 320.04 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 25890

Ion	Ratio	Lower	Upper
192	100		
191	60.0	45.9	68.9

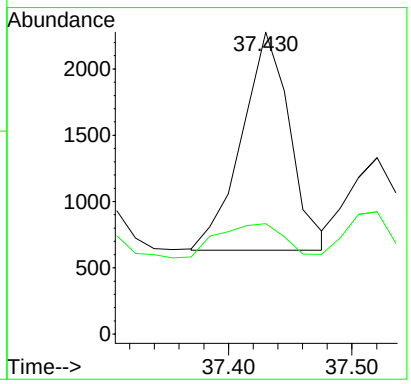


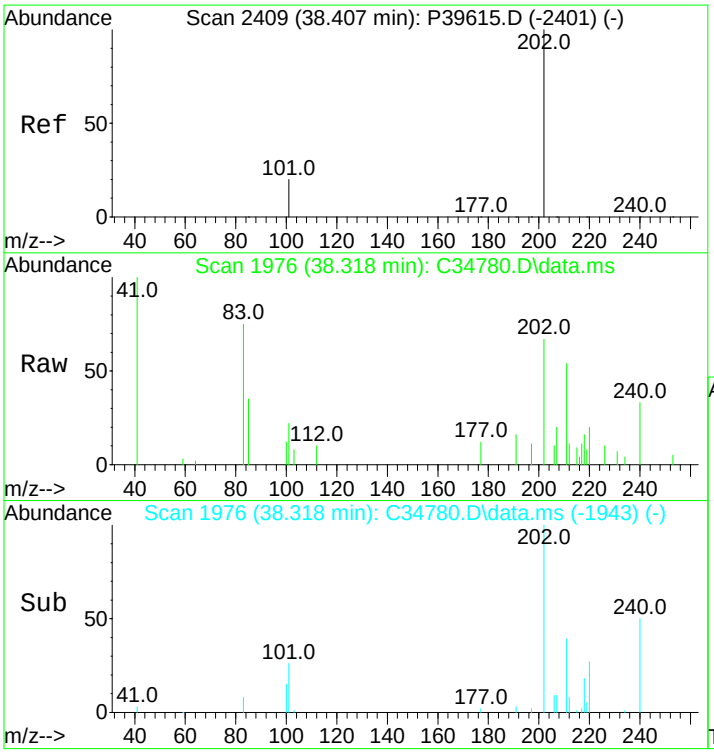


#58
Fluoranthene
Concen: 35.13 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:202 Resp: 4454

Ion	Ratio	Lower	Upper
202	100		
101	55.9	12.9	19.3#

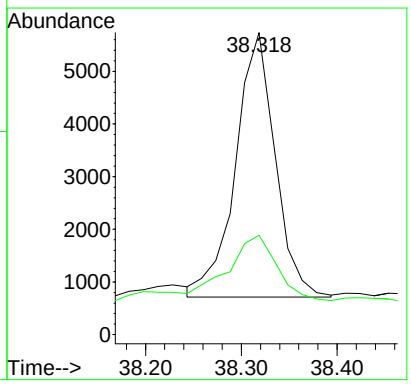


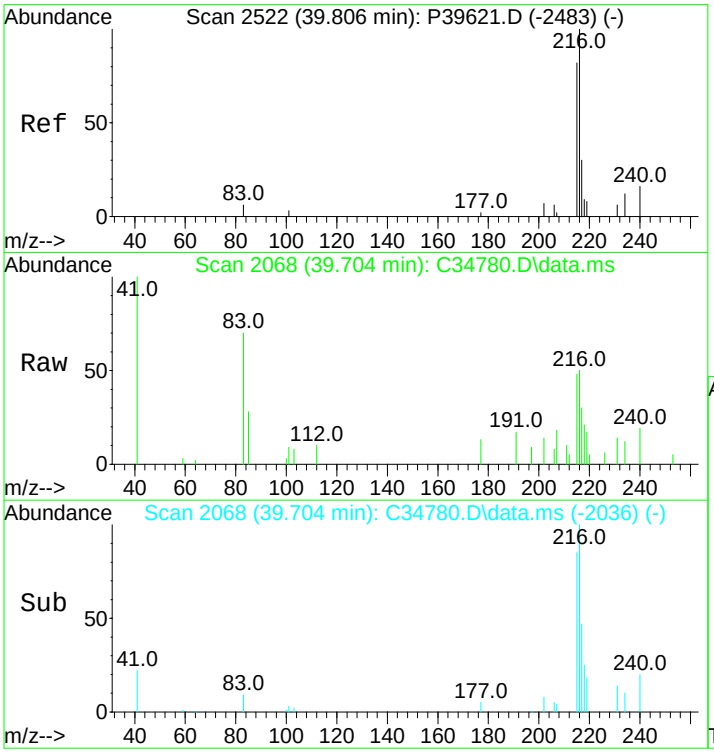


#60
Pyrene
Concen: 112.29 ng/mL m
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:202 Resp: 14472

Ion	Ratio	Lower	Upper
202	100		
101	36.1	15.0	22.4#

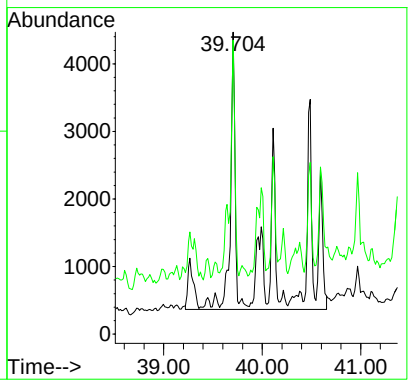


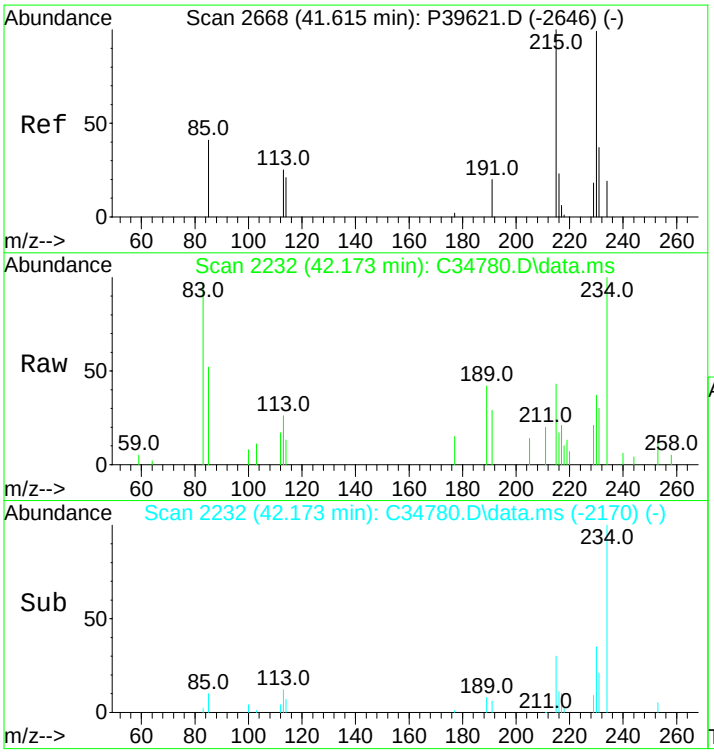


#61
C1-Fluoranthenes/Pyrenes
Concen: 362.47 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:216 Resp: 46715

Ion	Ratio	Lower	Upper
216	100		
215	25.6	71.8	107.6#

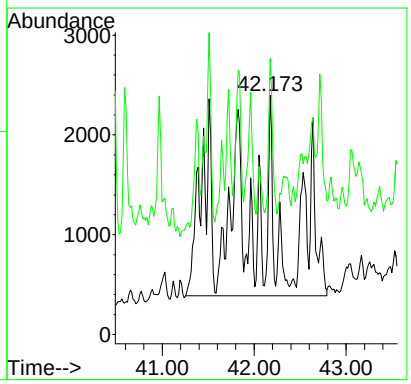


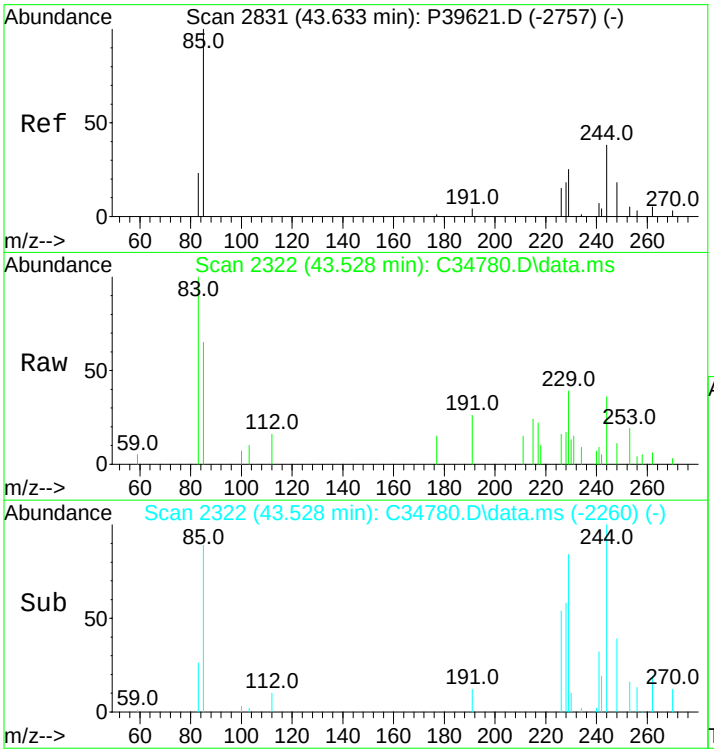


#62
C2-Fluoranthenes/Pyrenes
Concen: 471.00 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:230 Resp: 60701

Ion	Ratio	Lower	Upper
230	100		
215	11.8	99.0	148.4#

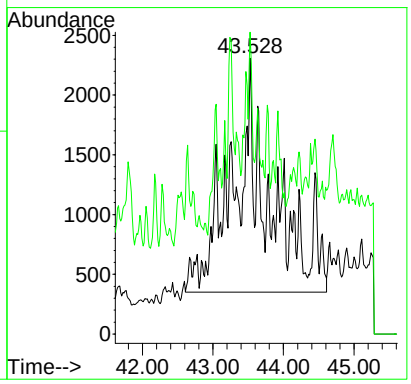


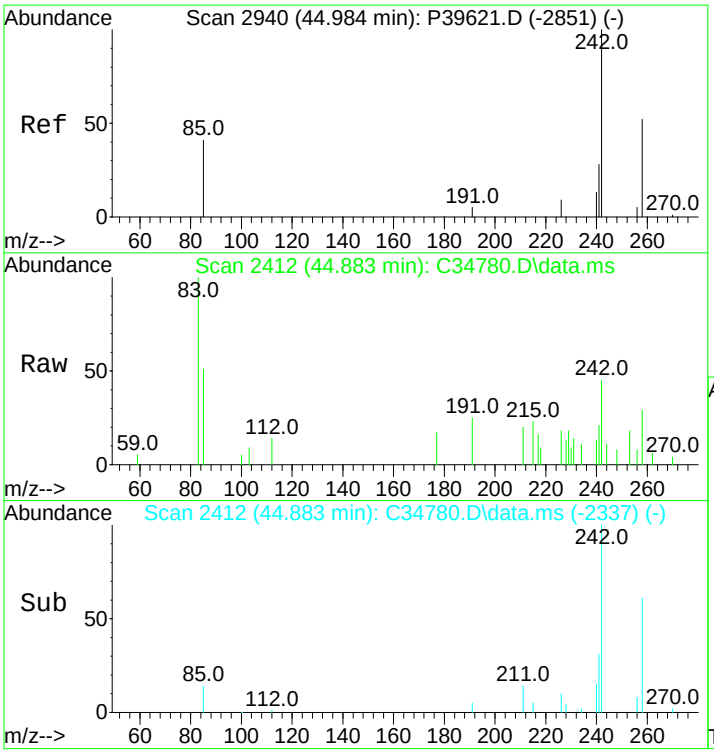


#63
C3-Fluoranthenes/Pyrenes
Concen: 549.43 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:244 Resp: 70809

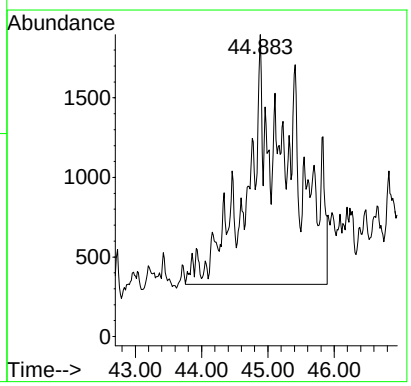
Ion	Ratio	Lower	Upper
244	100		
229	7.2	73.3	109.9#

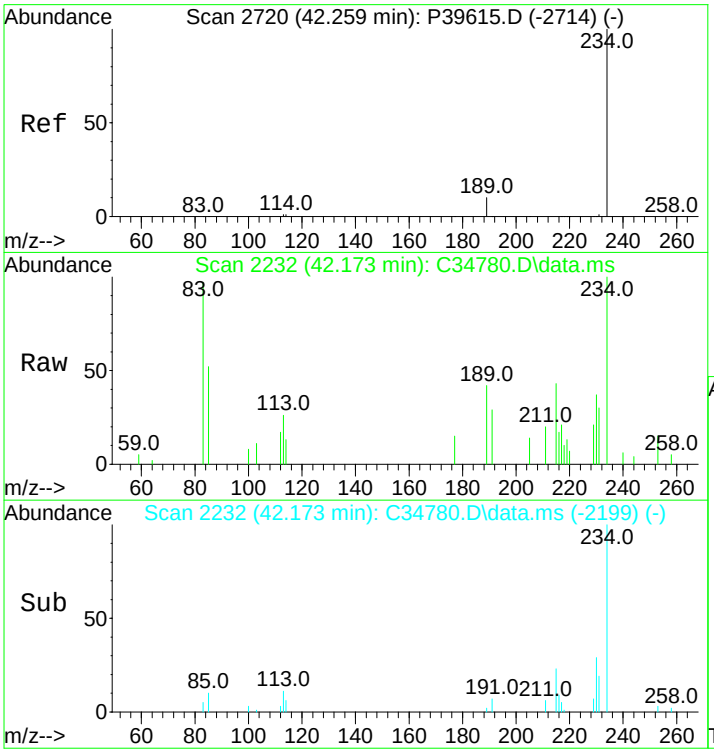




#64
C4-Fluoranthenes/Pyrenes
Concen: 543.42 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:258 Resp: 70035

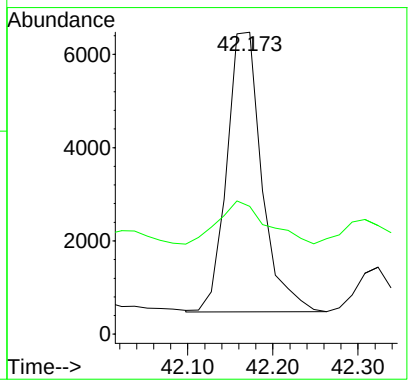


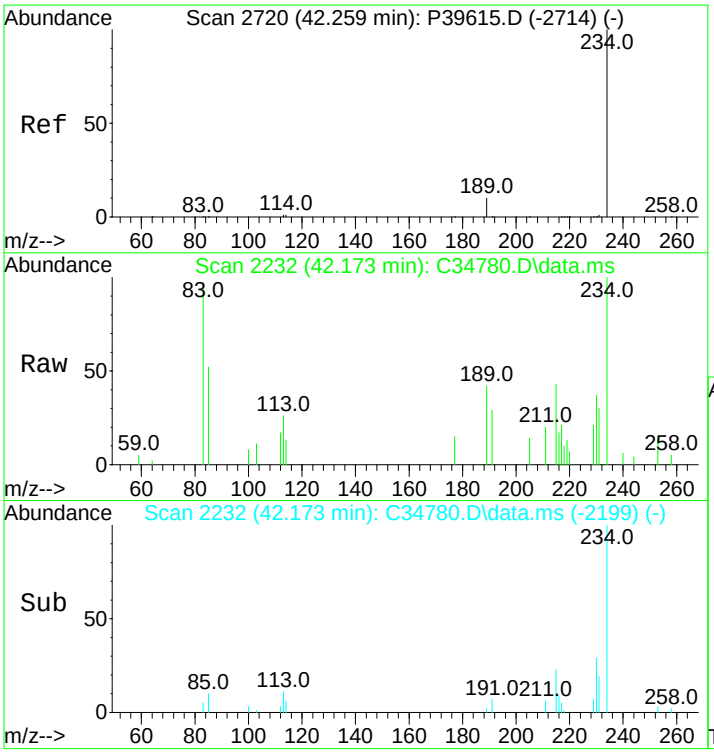


#66
Naphthobenzothiophene
Concen: 123.65 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 17157

Ion	Ratio	Lower	Upper
234	100		
189	21.2	20.5	30.7

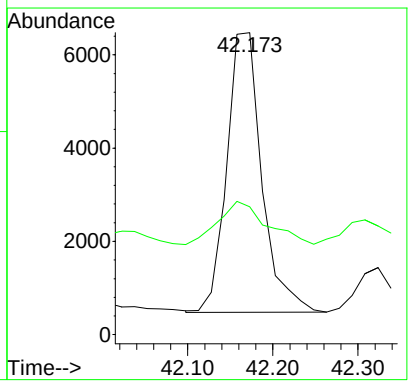


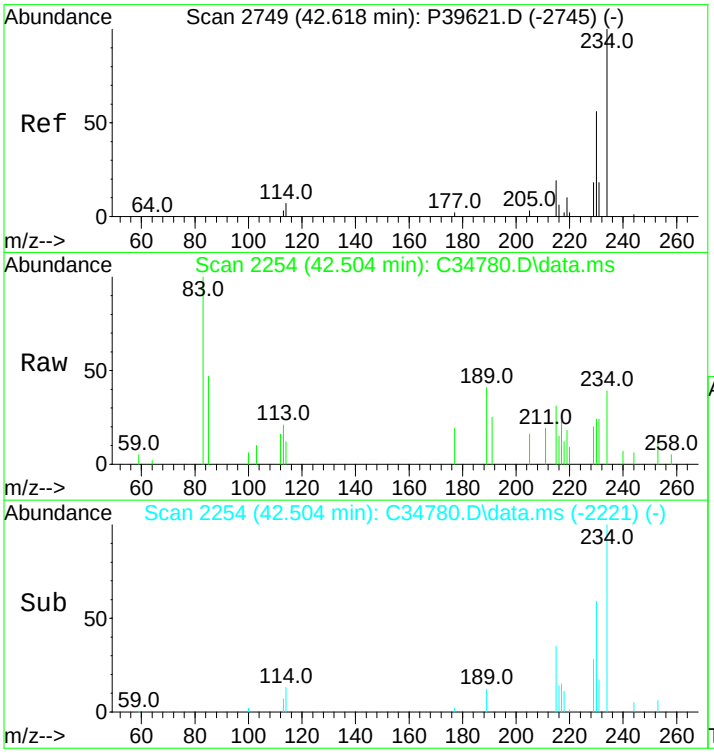


#67
Naphthobenzothiophene-2,1-D
Concen: 123.65 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 17157

Ion	Ratio	Lower	Upper
234	100		
189	21.2	20.5	30.7

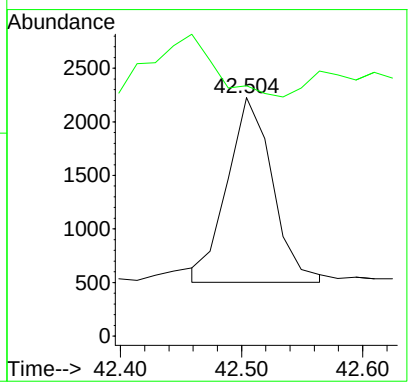


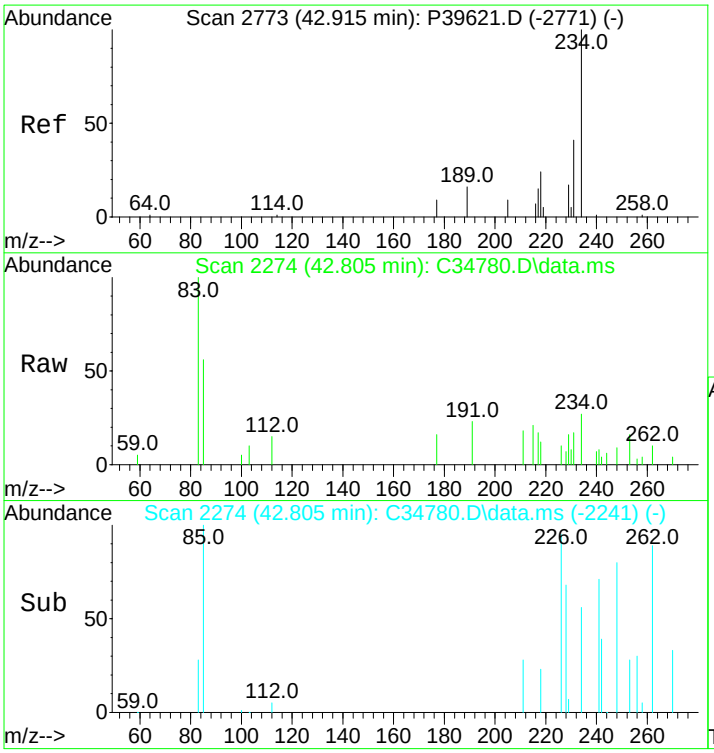


#68
Naphthobenzothiophene-1,2-D
Concen: 32.14 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 4459

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

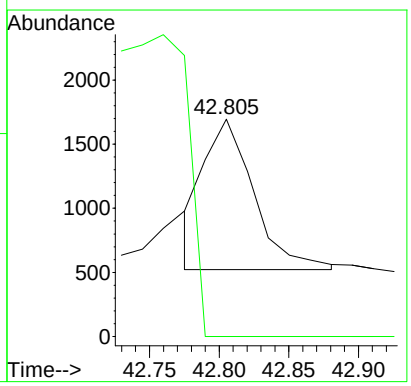


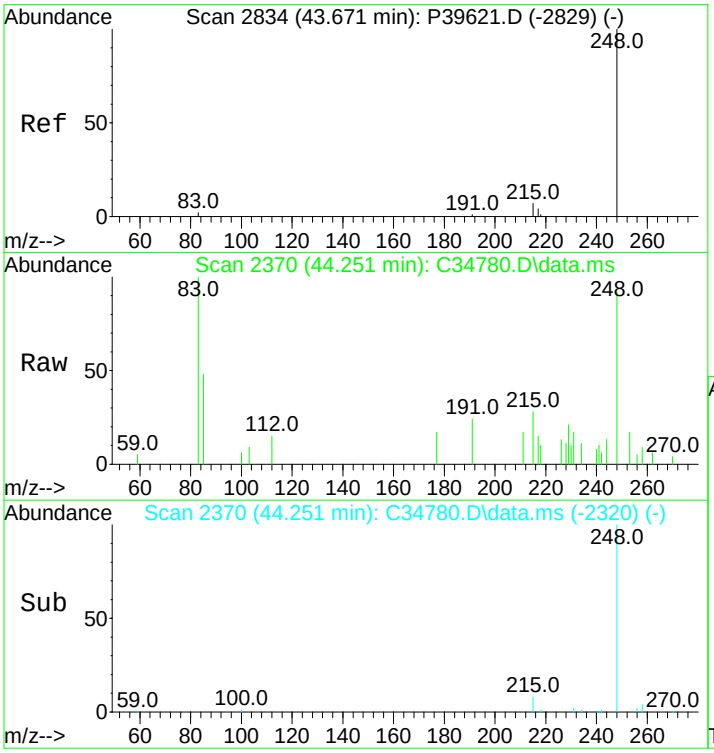


#69
Naphthobenzothiophene-2,3-D
Concen: 21.26 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 2950

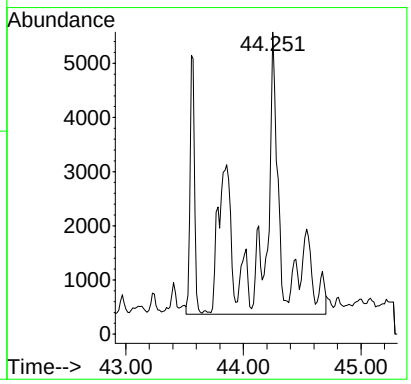
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

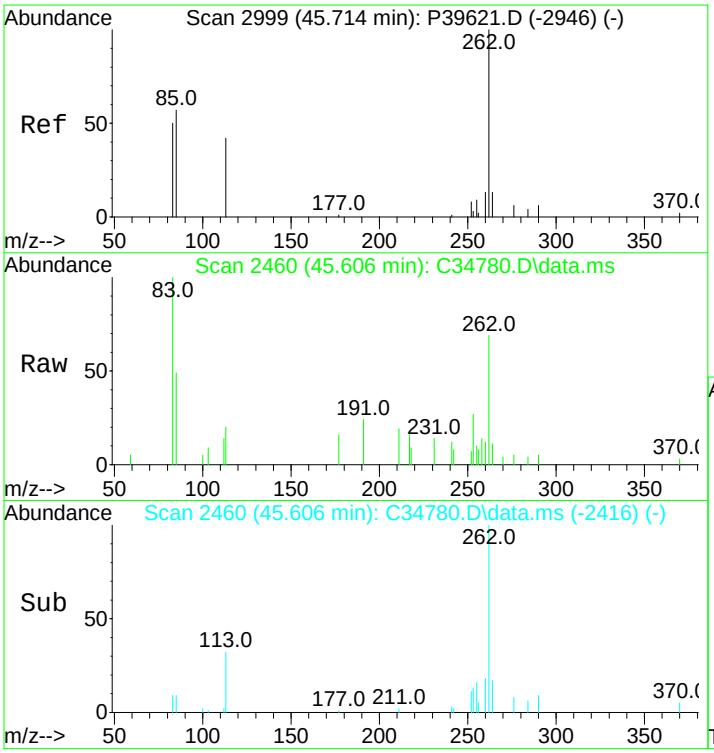




#70
C1-Naphthobenzothiophenes
Concen: 582.72 ng/ml m
RT: 44.251 min Scan# 2370
Delta R.T. 0.124 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

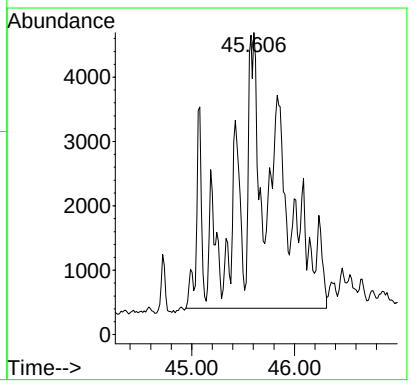
Tgt Ion:248 Resp: 80852

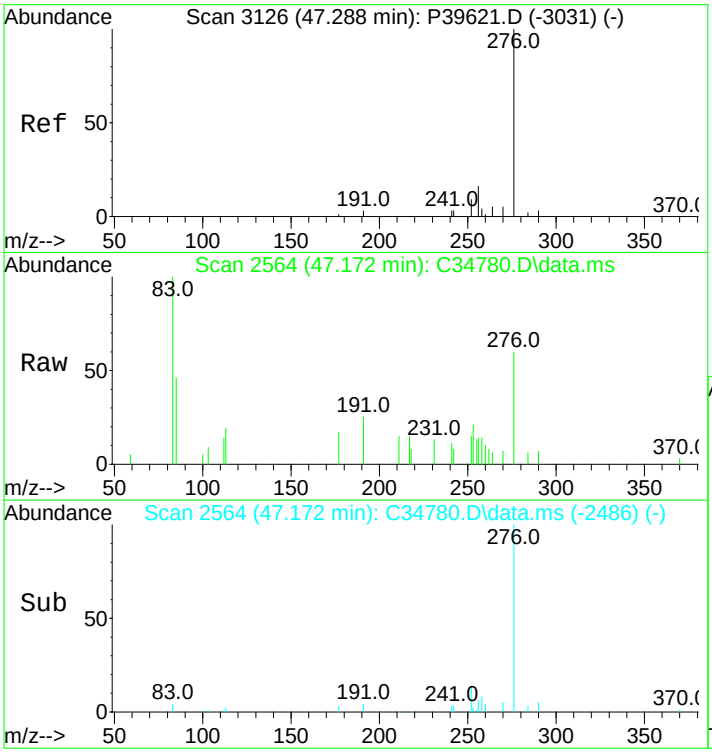




#71
C2-Naphthobenzothiophenes
Concen: 854.15 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

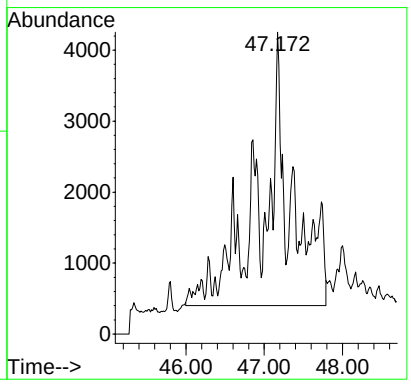
Tgt Ion:262 Resp: 118512

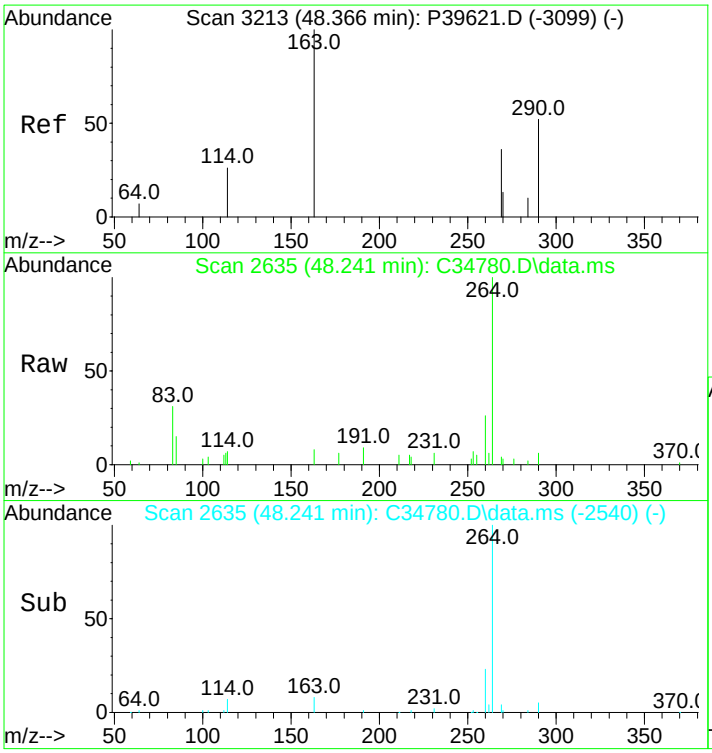




#72
C3-Naphthobenzothiophenes
Concen: 741.02 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

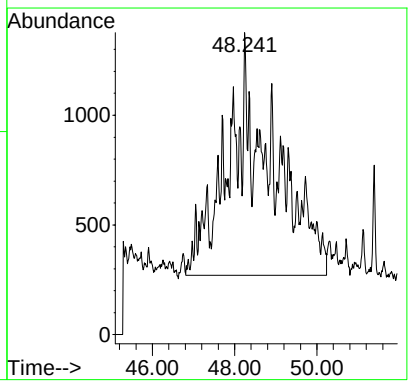
Tgt Ion:276 Resp: 102816

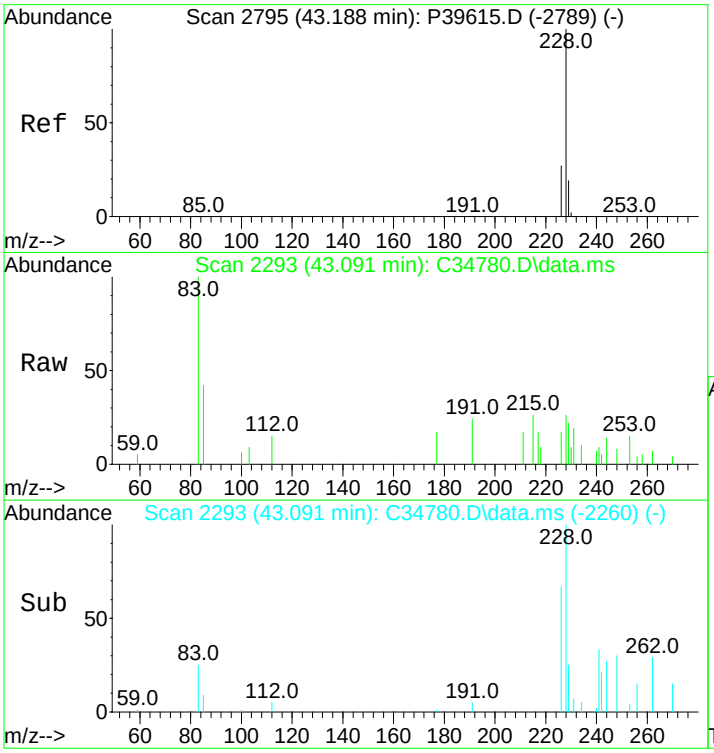




#73
C4-Naphthobenzothiophenes
Concen: 573.23 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:290 Resp: 79535

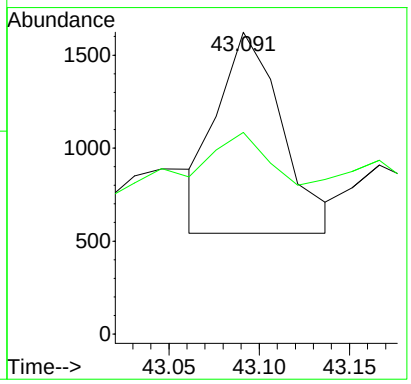


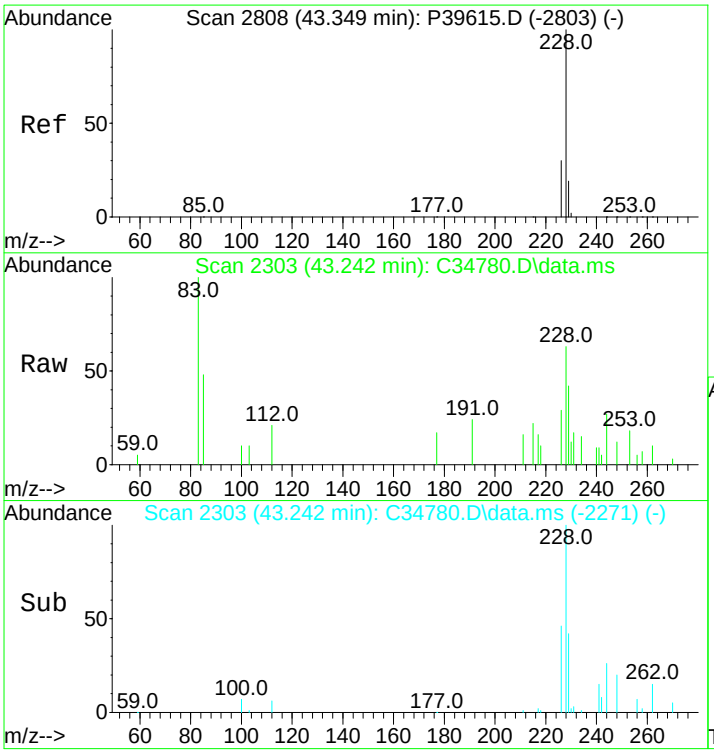


#75
Benz[a]anthracene
Concen: 22.07 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:228 Resp: 2679

Ion	Ratio	Lower	Upper
228	100		
226	144.1	21.4	32.0#

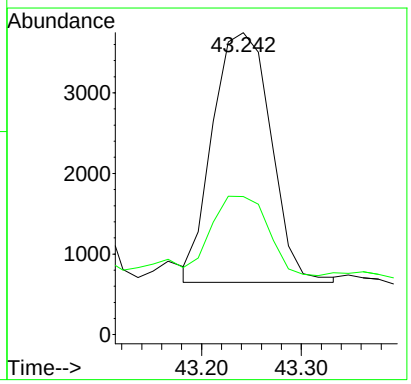


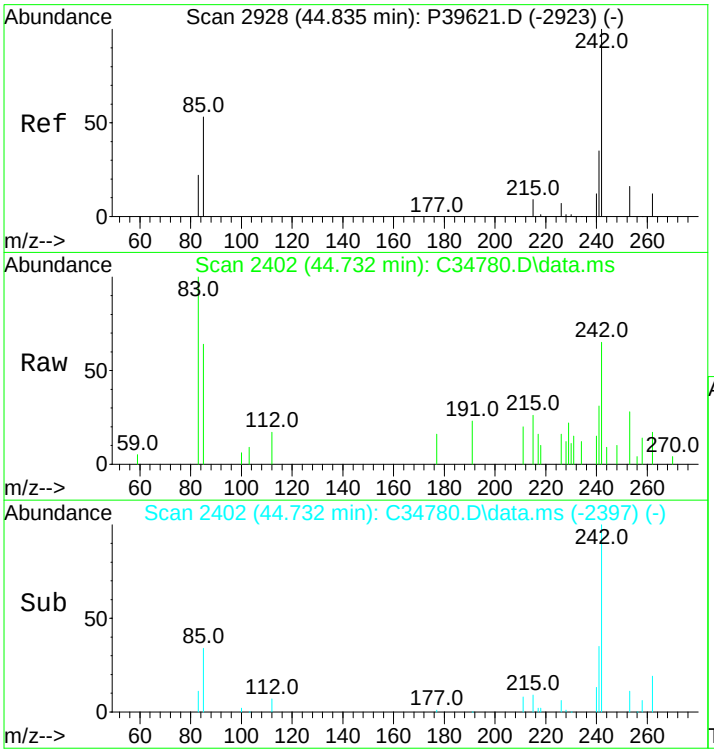


#77
Chrysene/Triphenylene
Concen: 102.43 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:228 Resp: 12551

Ion	Ratio	Lower	Upper
228	100		
226	30.8	23.7	35.5

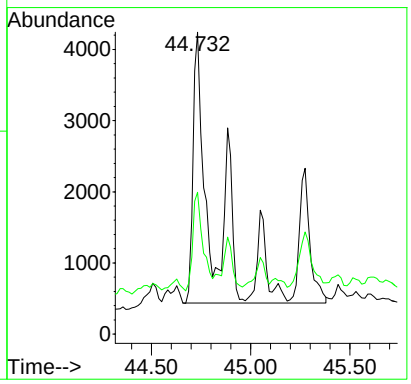


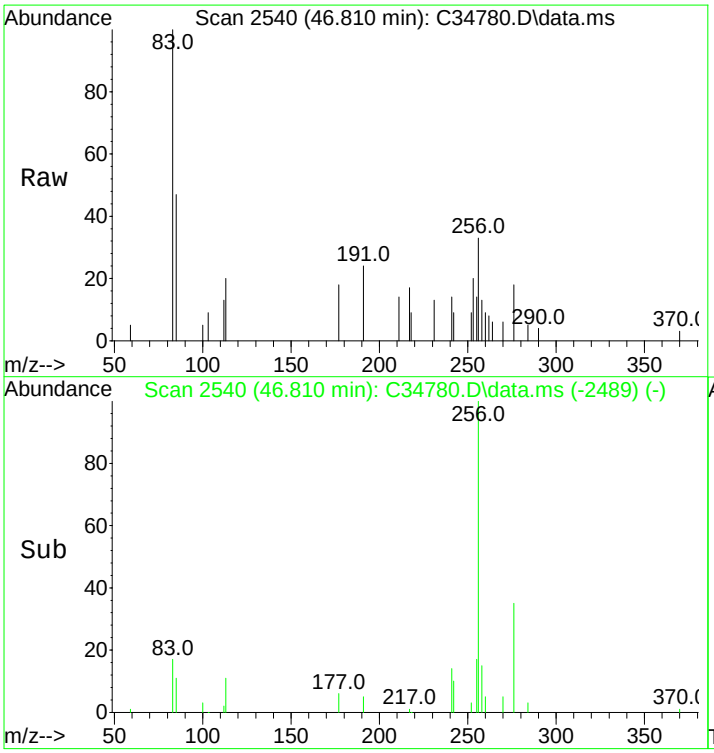


#78
C1-Chrysenes
Concen: 267.50 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:242 Resp: 32776

Ion	Ratio	Lower	Upper
242	100		
241	12.7	31.4	47.2#

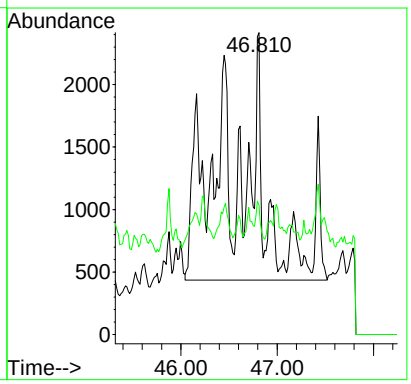


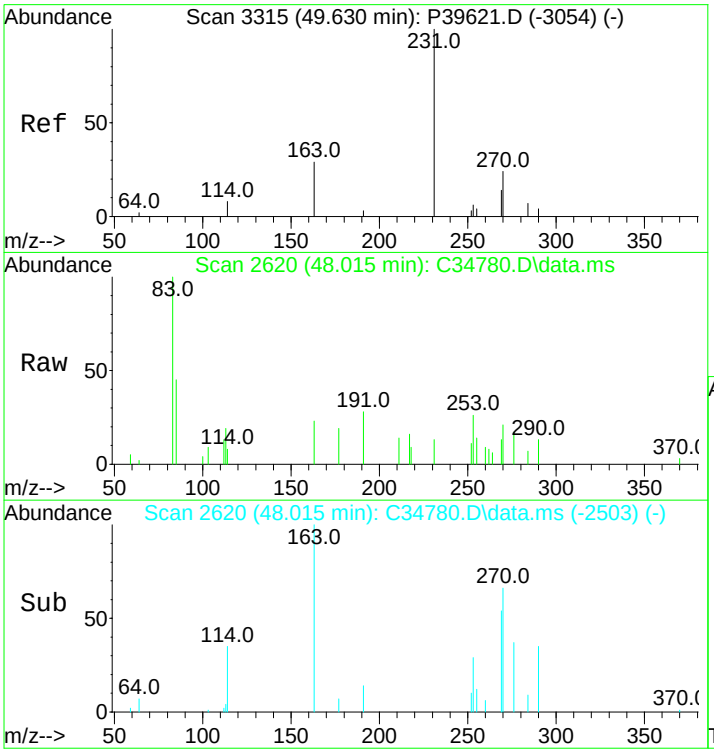


#79
C2-Chrysenes
Concen: 425.40 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:256 Resp: 52123

Ion	Ratio	Lower	Upper
256	100		
241	1.5	21.2	31.8#

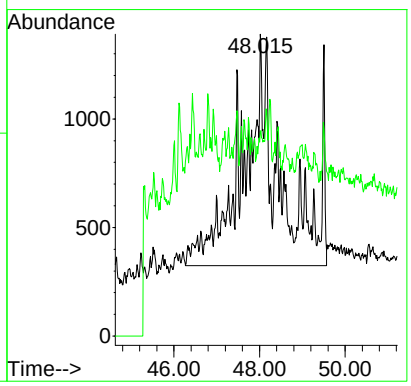


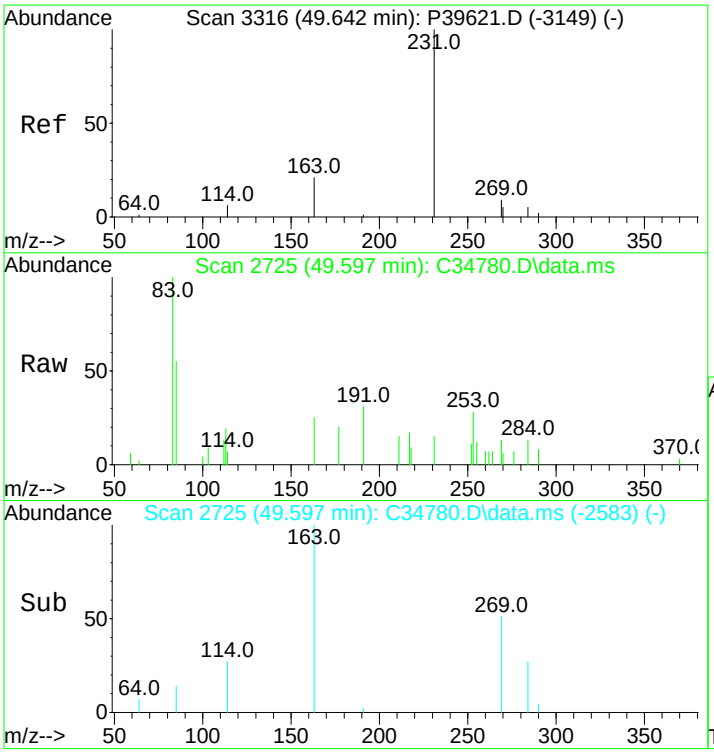


#80
C3-Chrysenes
Concen: 497.29 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:270 Resp: 60931

Ion	Ratio	Lower	Upper
270	100		
255	1.7	33.8	50.8#

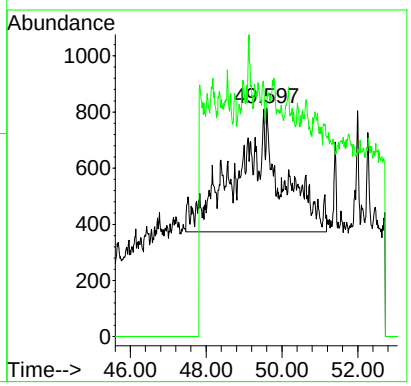


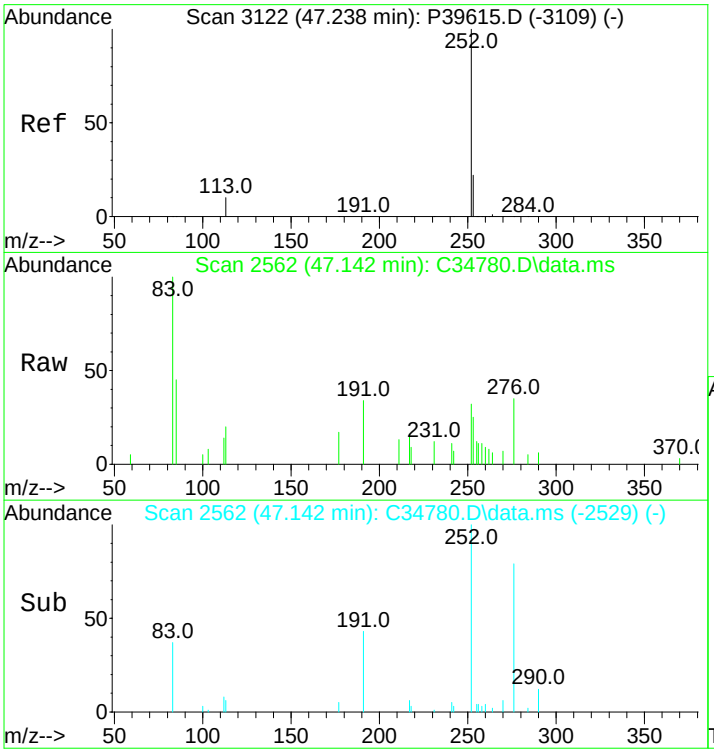


#81
C4-Chrysenes
Concen: 300.79 ng/mL m
RT: 49.597 min Scan# 2725
Delta R.T. -0.004 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:284 Resp: 36855

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

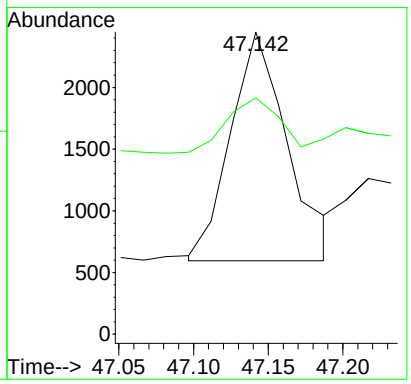


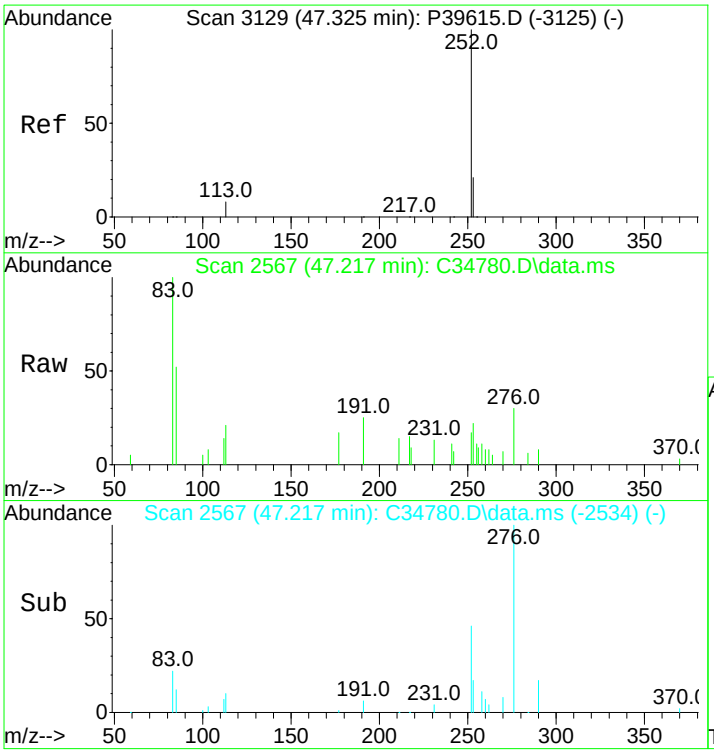


#82
Benzo[b]fluoranthene
Concen: 36.89 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 4920

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.0	28.4

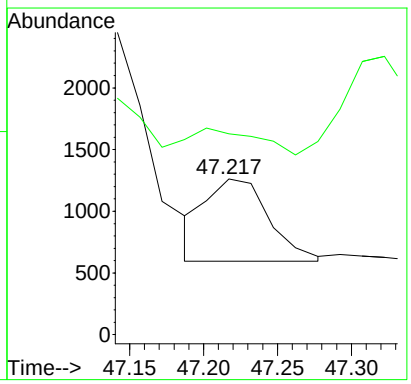


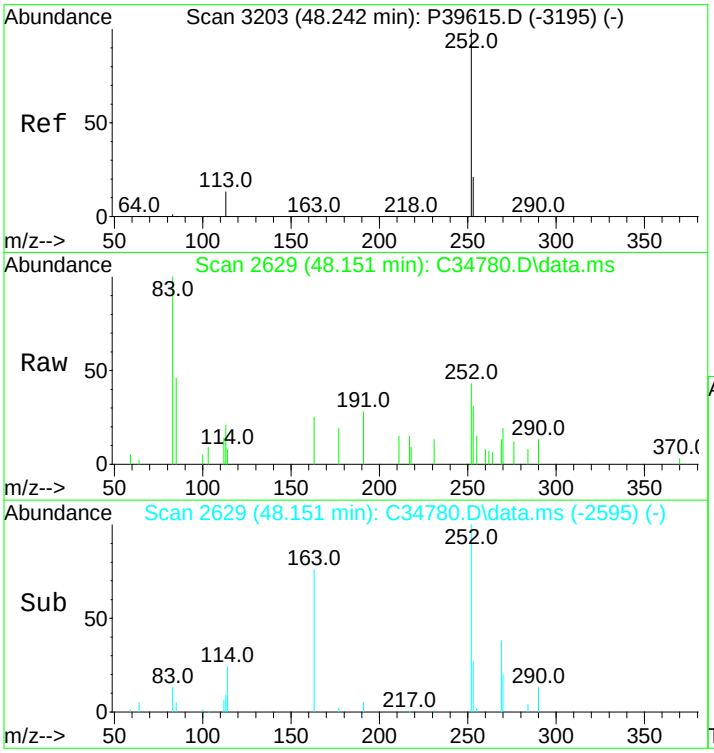


#83
Benzo[j]+[k]fluoranthene
Concen: 13.73 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 1994

Ion	Ratio	Lower	Upper
252	100		
253	29.5	19.0	28.4#

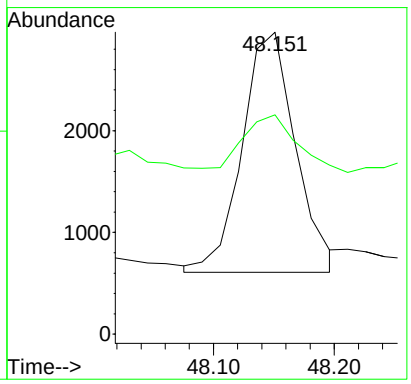


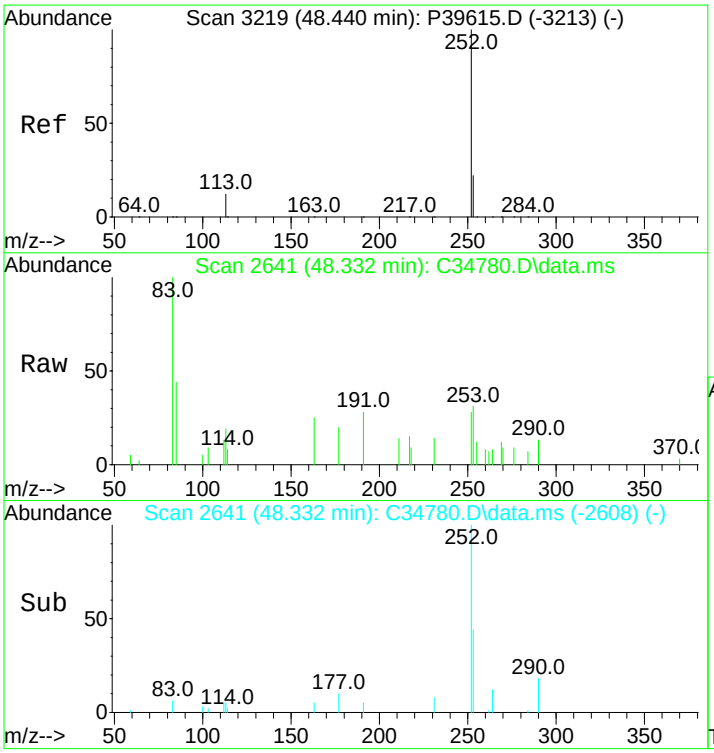


#85
Benzo[e]pyrene
Concen: 54.92 ng/mL m
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 7244

Ion	Ratio	Lower	Upper
252	100		
253	26.7	19.2	28.8

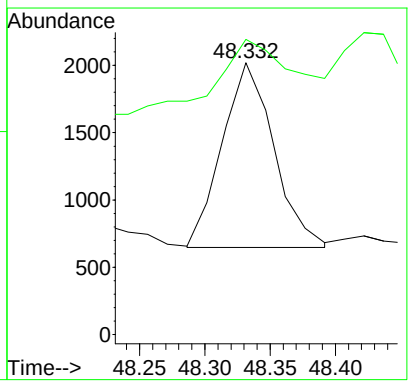


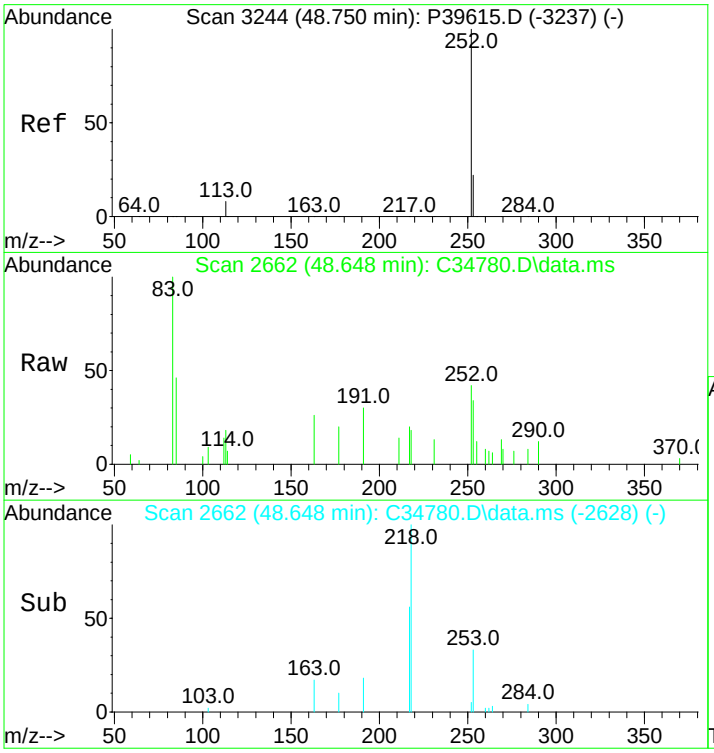


#87
Benzo[a]pyrene
Concen: 29.78 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 3782

Ion	Ratio	Lower	Upper
252	100		
253	49.7	19.5	29.3#

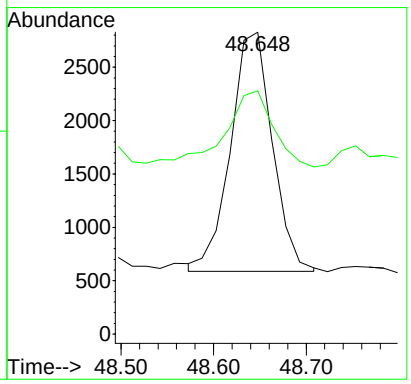


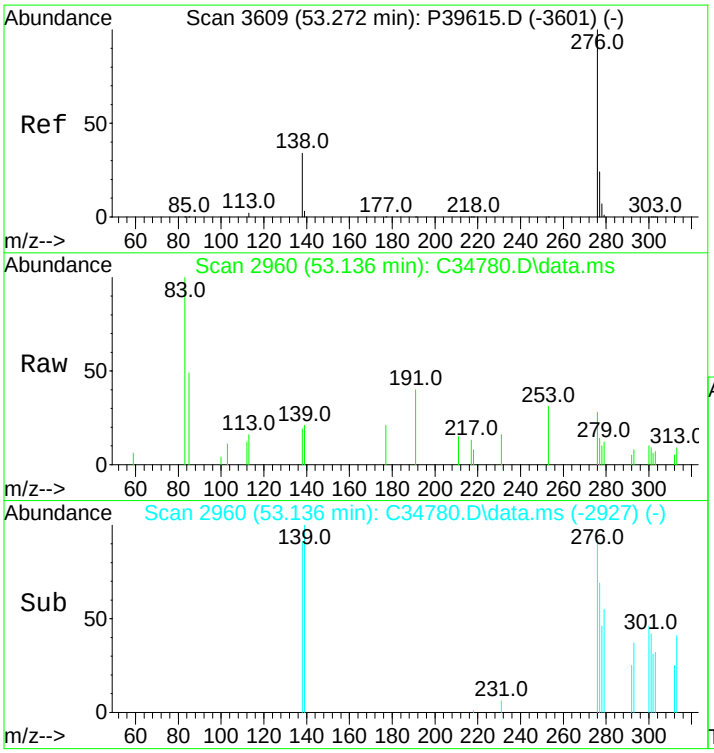


#88
Perylene
Concen: 51.79 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 7029

Ion	Ratio	Lower	Upper
252	100		
253	38.2	19.6	29.4#

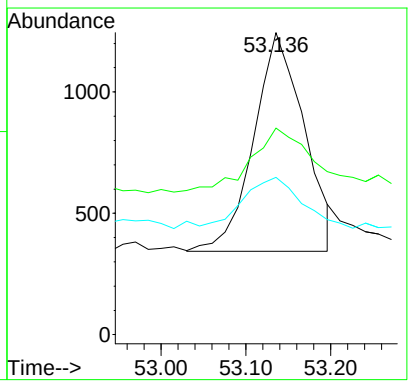


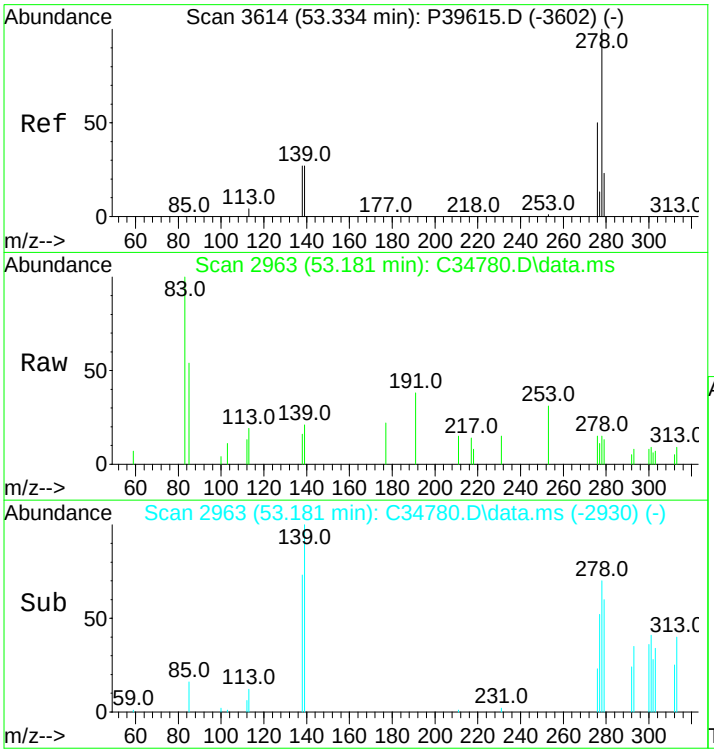


#89
Indeno[1,2,3-cd]pyrene
Concen: 25.31 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:276 Resp: 3741

Ion	Ratio	Lower	Upper
276	100		
138	32.5	23.3	34.9
277	25.2	19.0	28.4

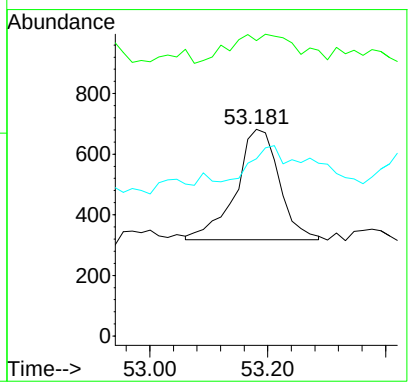


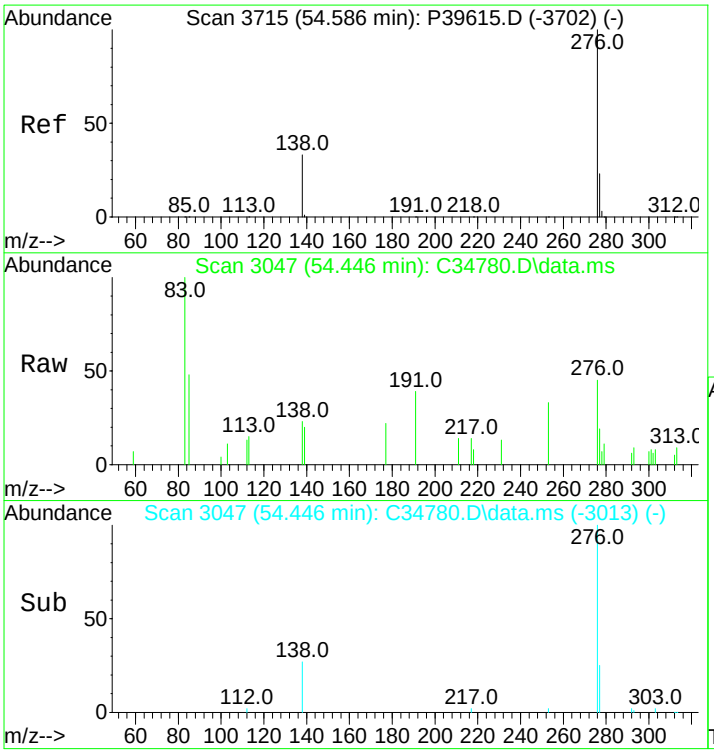


#90
Dibenz[ah]+[ac]anthracene
Concen: 13.26 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:278 Resp: 1864

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

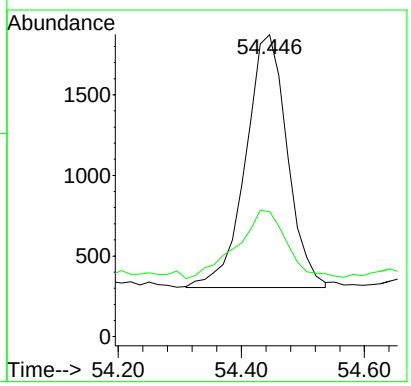


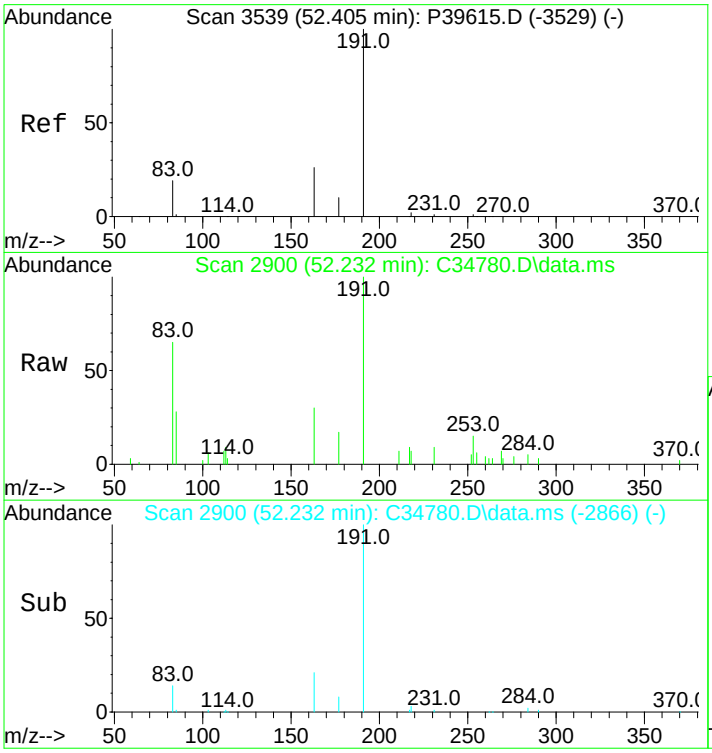


#91
Benzo[g,h,i]perylene
Concen: 47.18 ng/mL m
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:276 Resp: 7367

Ion	Ratio	Lower	Upper
276	100		
277	32.3	18.9	28.3#

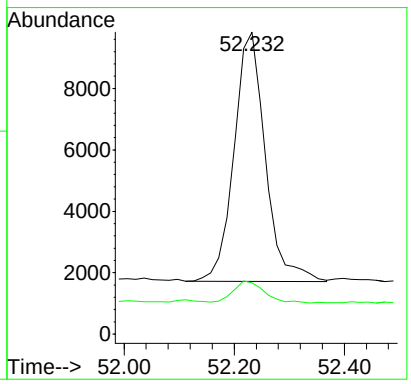


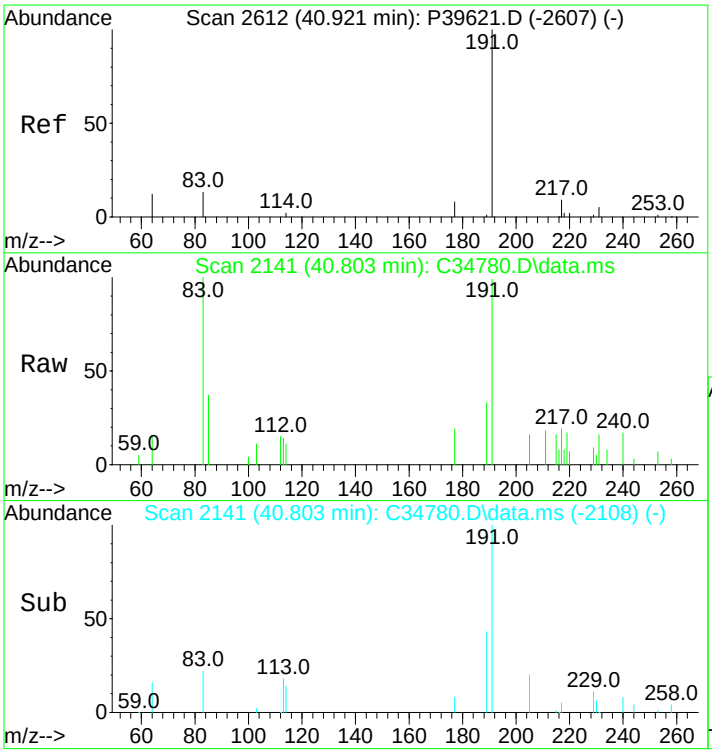


#92
Hopane (T19)
Concen: 1268.72 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:191 Resp: 31973

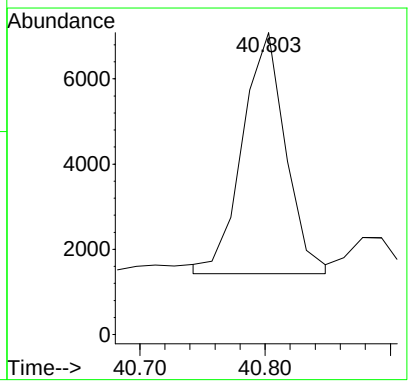
Ion	Ratio	Lower	Upper
191	100		
177	9.1	14.6	21.8#

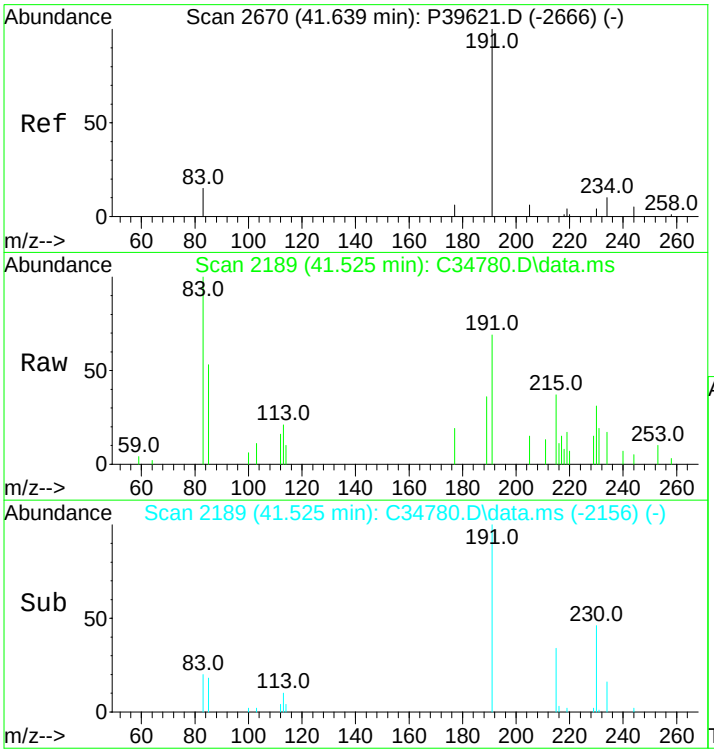




#94
C23 Tricyclic Terpane (T4)
Concen: 536.33 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

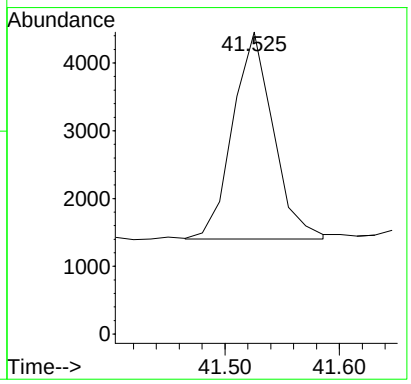
Tgt Ion:191 Resp: 13516

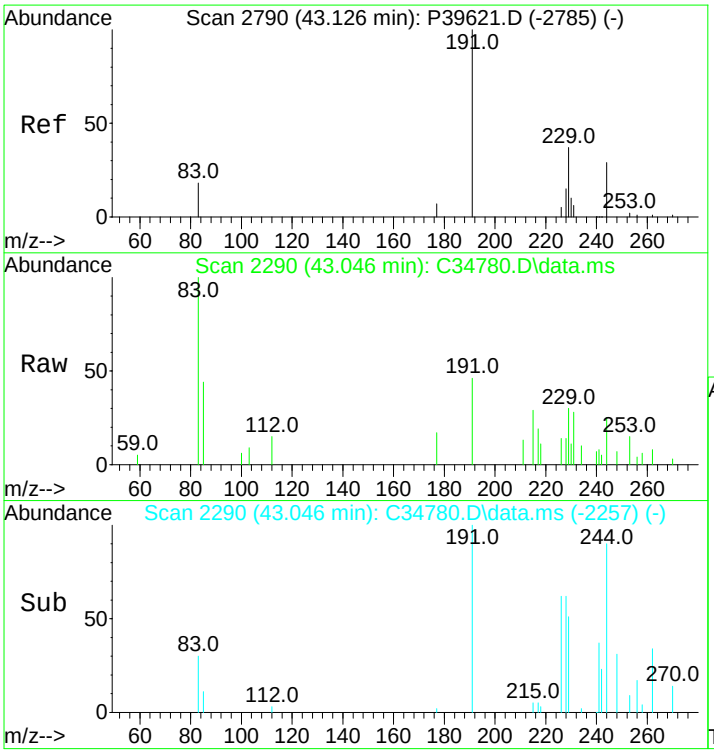




#95
C24 Tricyclic Terpane (T5)
Concen: 298.56 ng/ml m
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

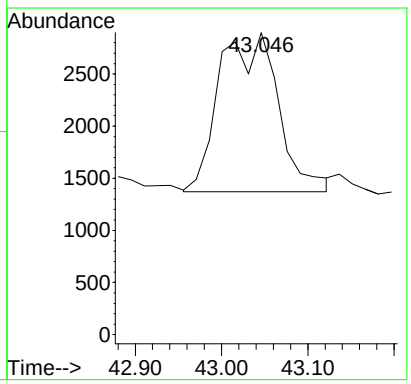
Tgt Ion:191 Resp: 7524

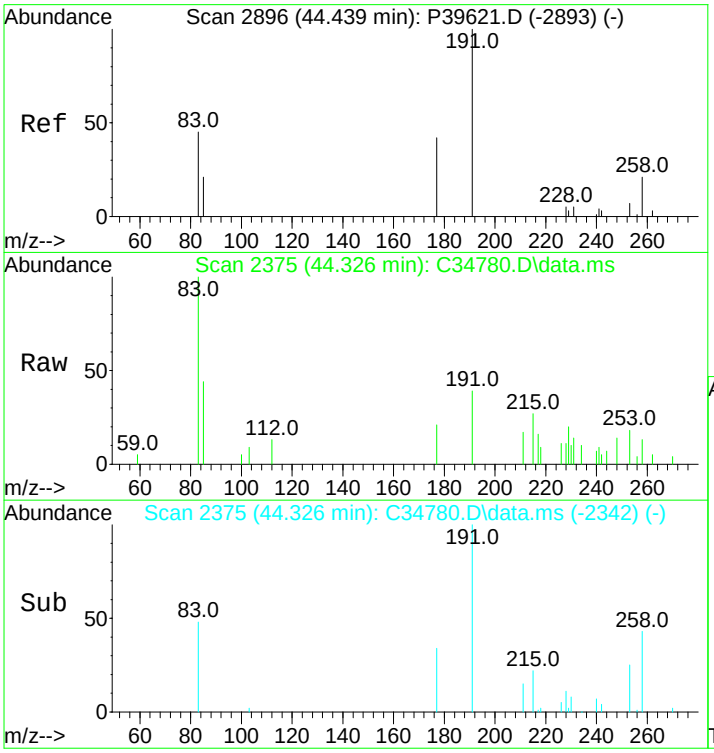




#96
C25 Tricyclic Terpane (T6)
Concen: 286.78 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

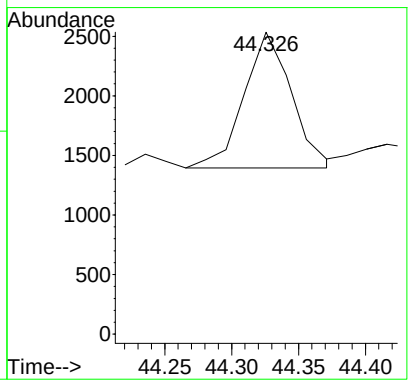
Tgt Ion:191 Resp: 7227

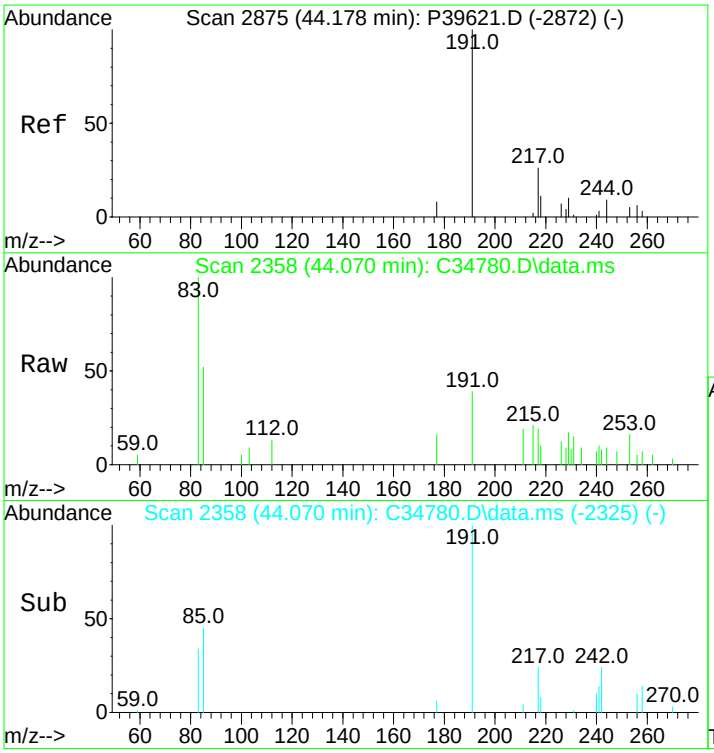




#97
C24 Tetracyclic Terpane (T6a)
Concen: 111.86 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

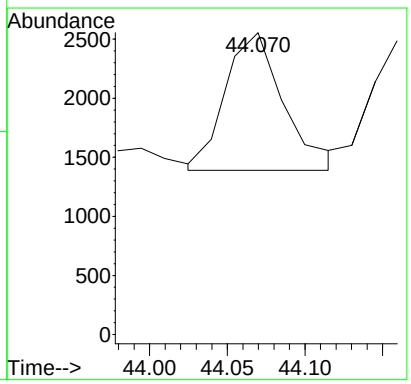
Tgt Ion:191 Resp: 2819

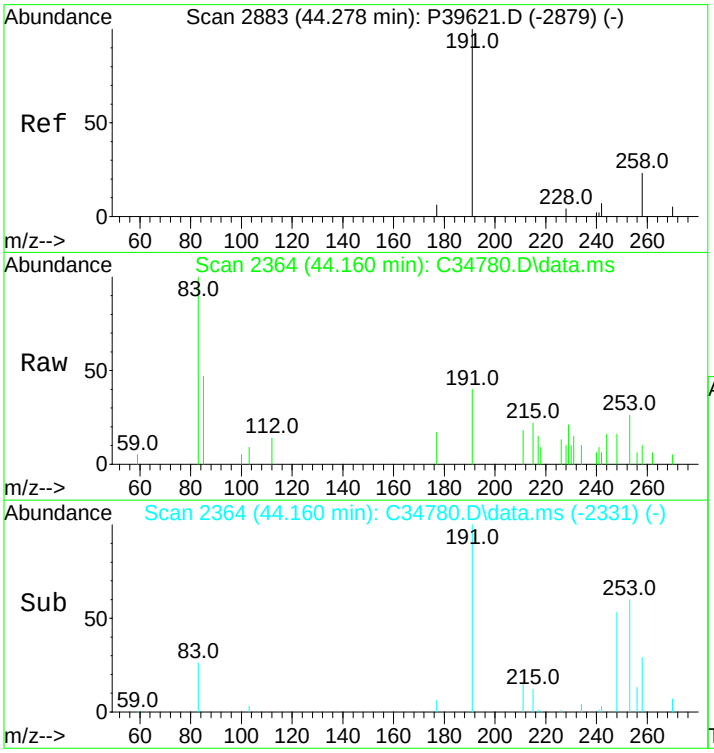




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 121.07 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

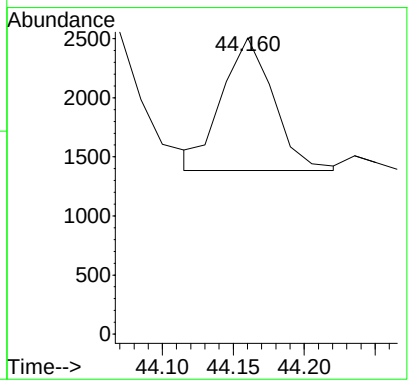
Tgt Ion:191 Resp: 3051

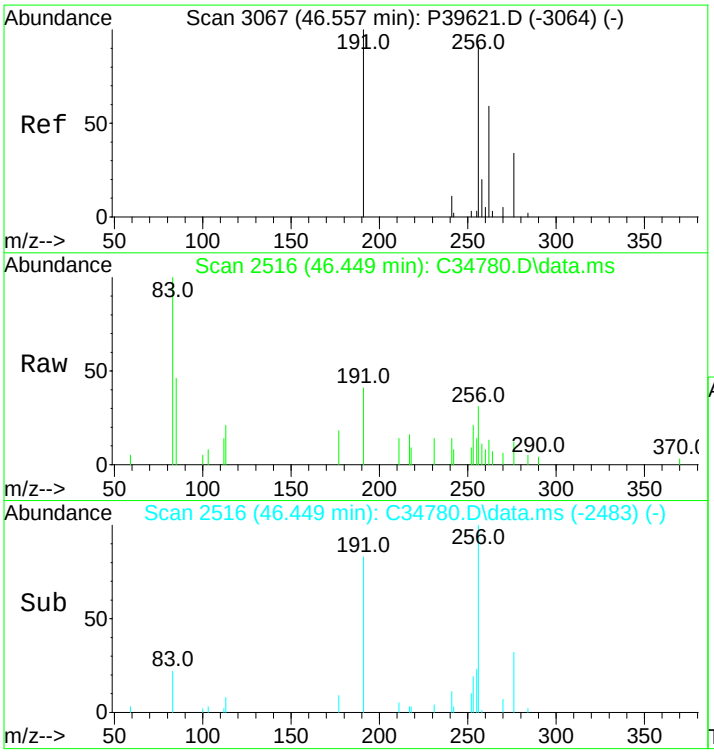




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 111.74 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

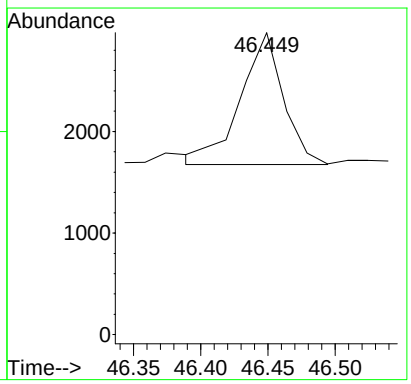
Tgt Ion:191 Resp: 2816

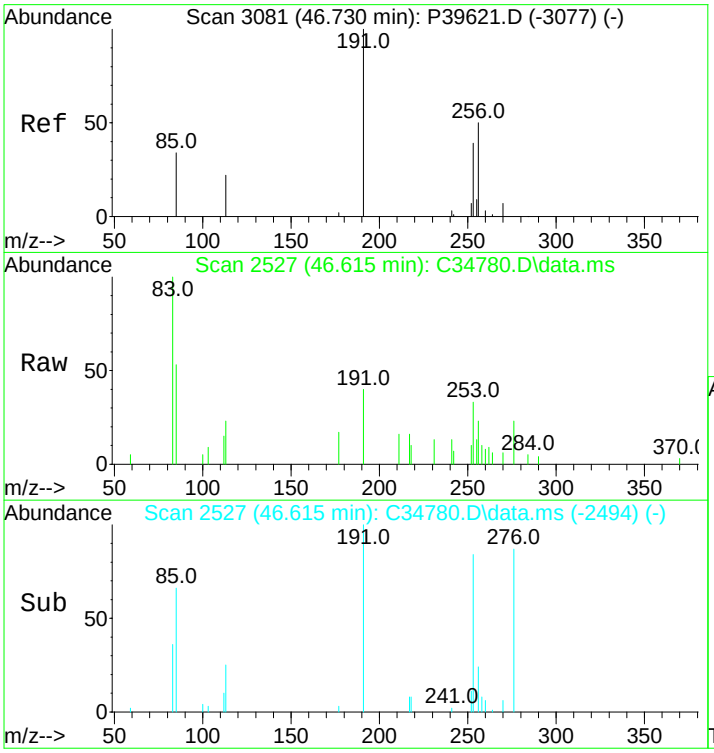




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 114.32 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

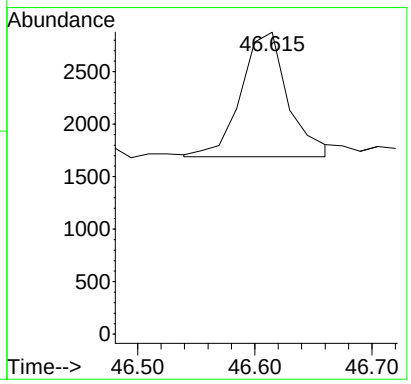
Tgt Ion:191 Resp: 2881

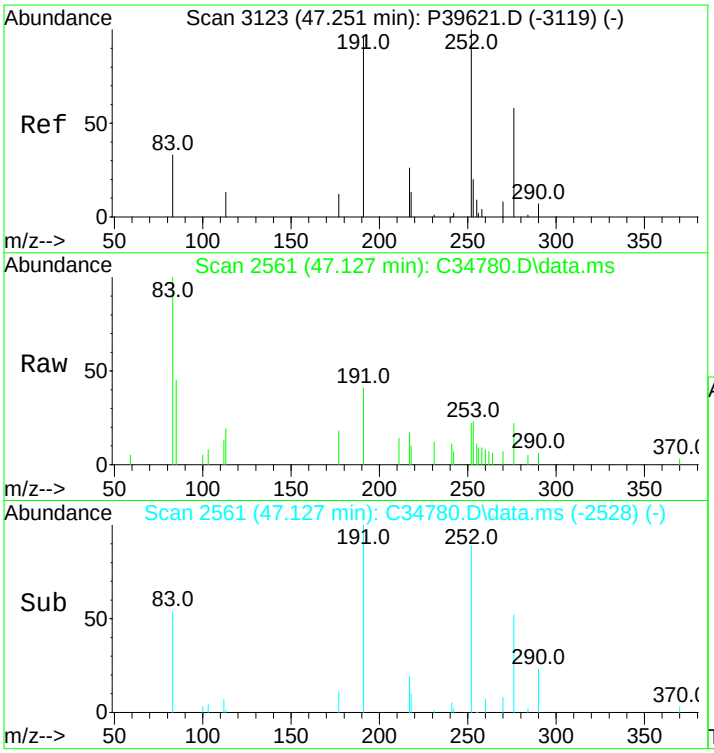




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 130.95 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

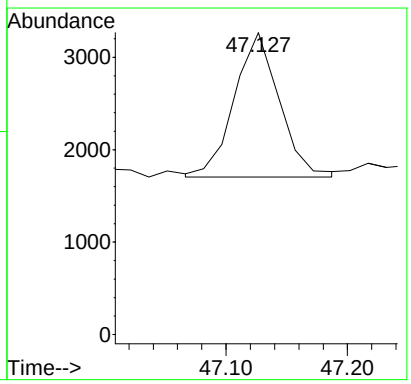
Tgt Ion:191 Resp: 3300

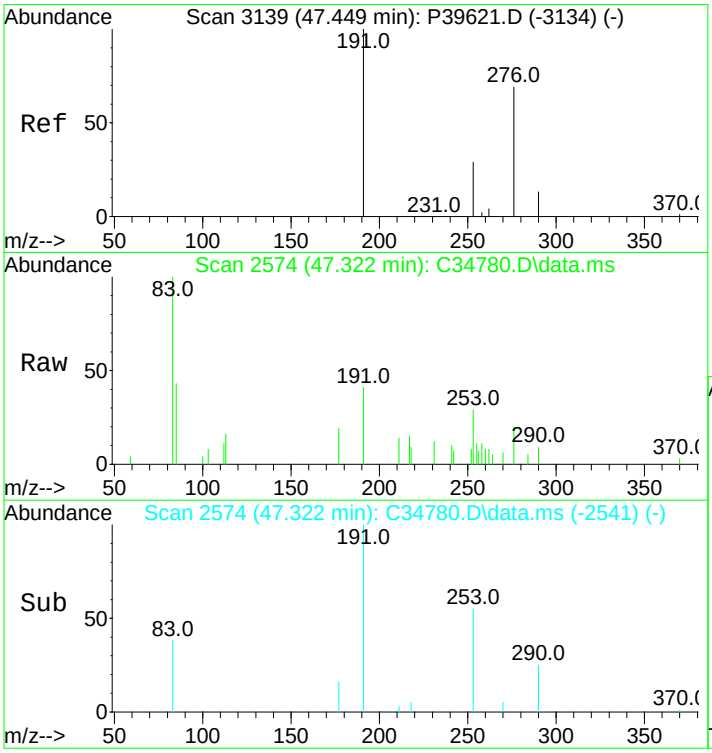




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 159.48 ng/ml m
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

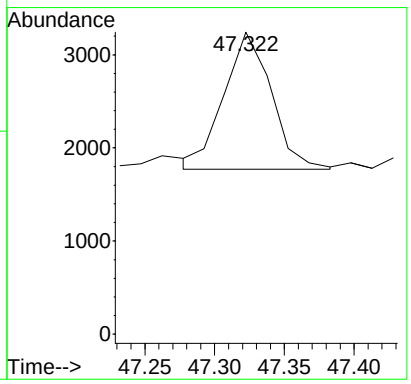
Tgt Ion:191 Resp: 4019

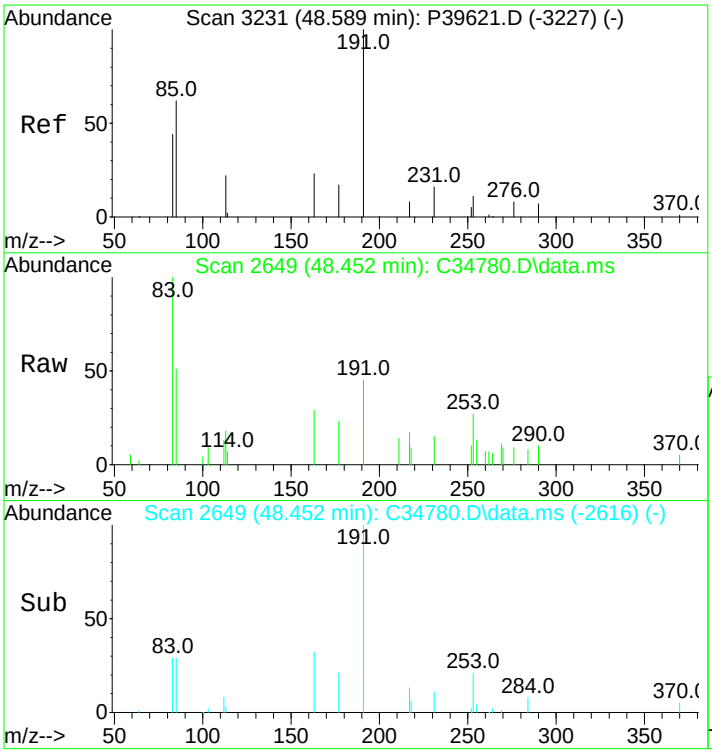




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 138.45 ng/ml m
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

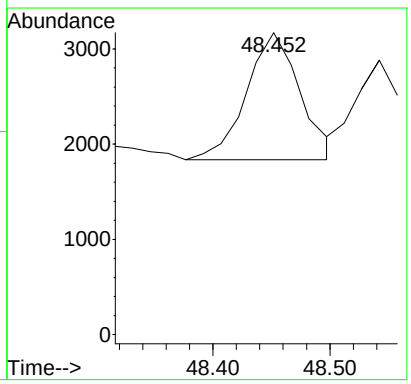
Tgt Ion:191 Resp: 3489

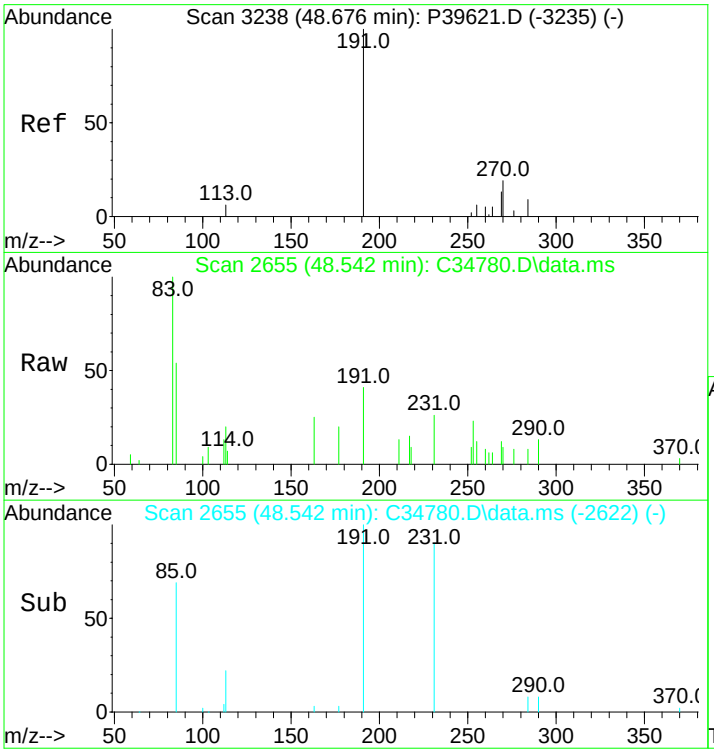




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 168.13 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

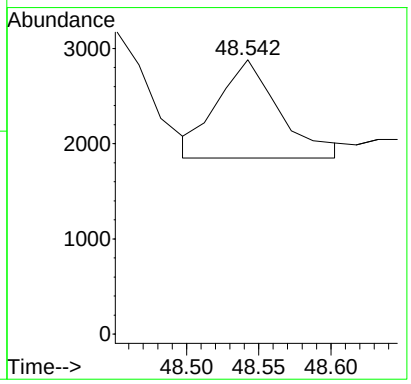
Tgt Ion:191 Resp: 4237

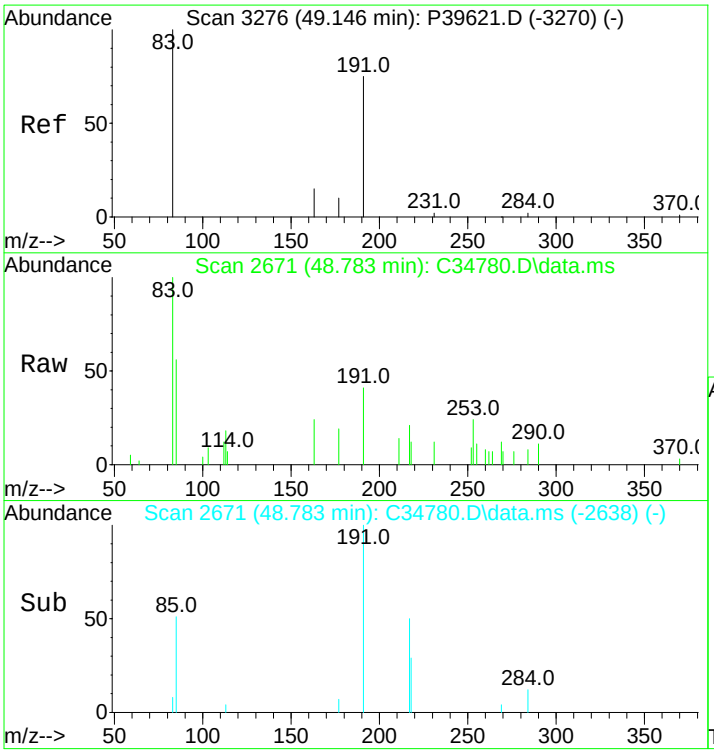




#105
C30 Tricyclic Terpane-22S
Concen: 123.13 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

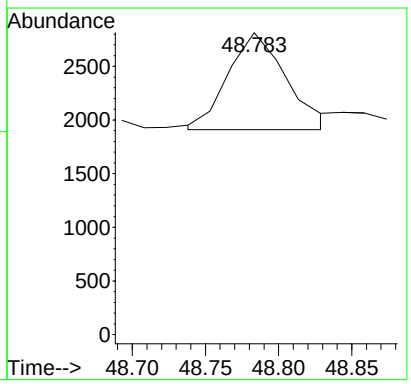
Tgt Ion:191 Resp: 3103

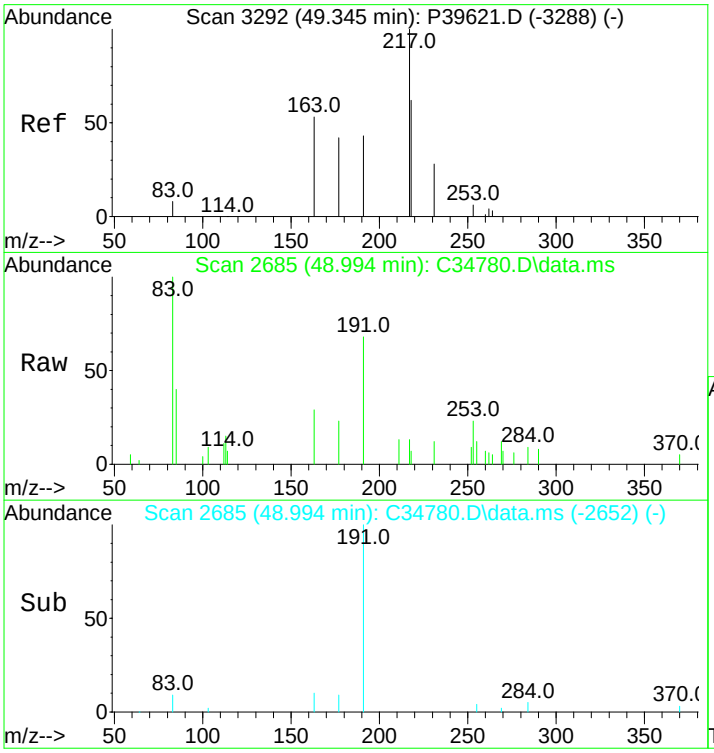




#106
C30 Tricyclic Terpane-22R
Concen: 98.77 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

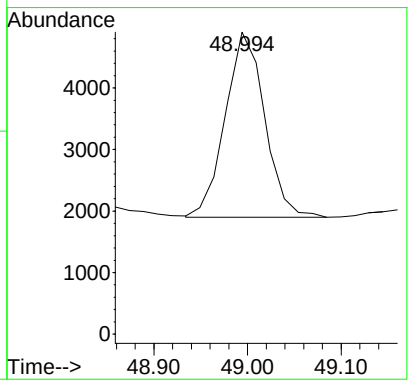
Tgt Ion:191 Resp: 2489

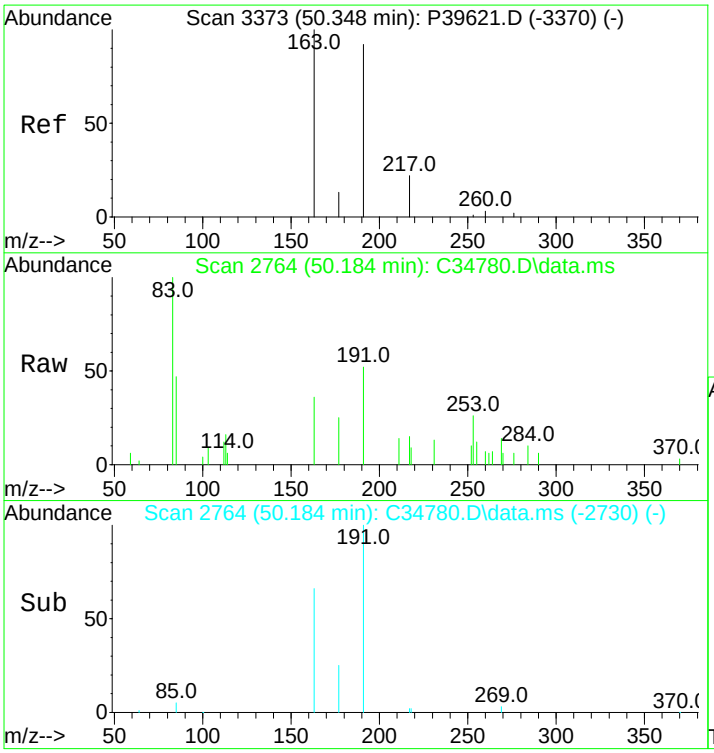




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 349.79 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

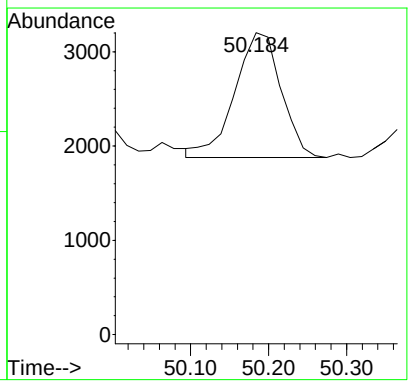
Tgt Ion:191 Resp: 8815

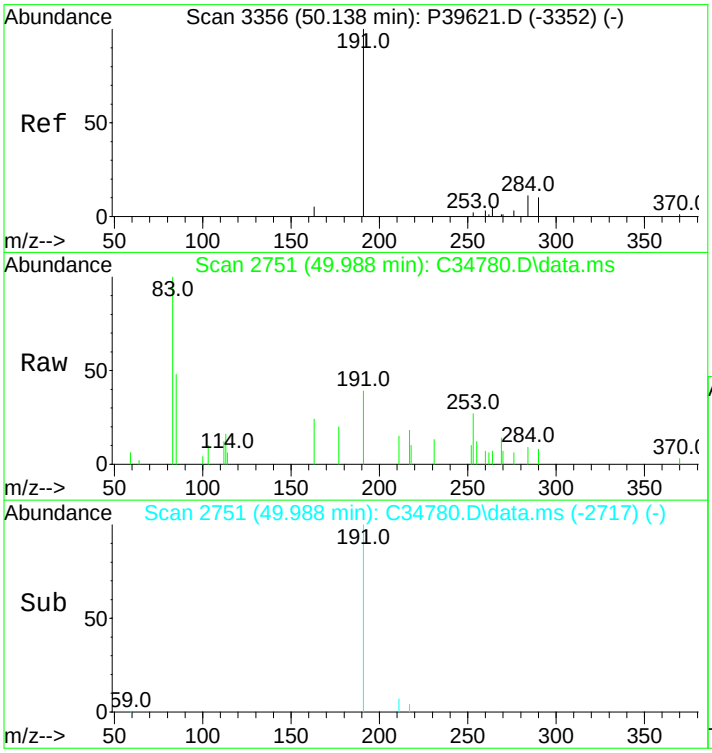




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 217.45 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

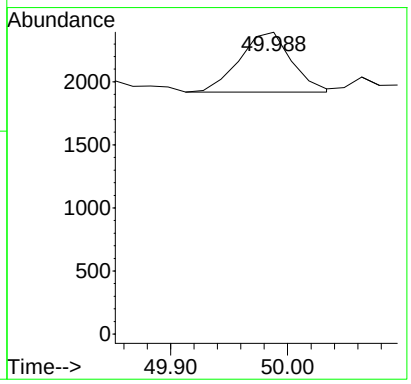
Tgt Ion:191 Resp: 5480

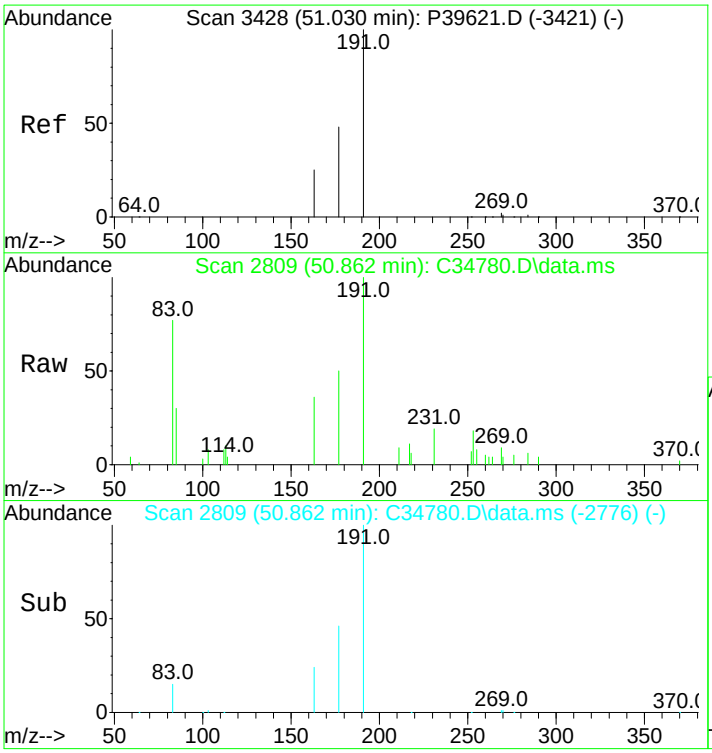




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 58.69 ng/ml
RT: 49.988 min Scan# 2751
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

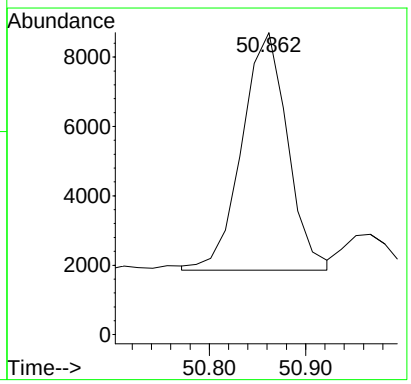
Tgt Ion:191 Resp: 1479

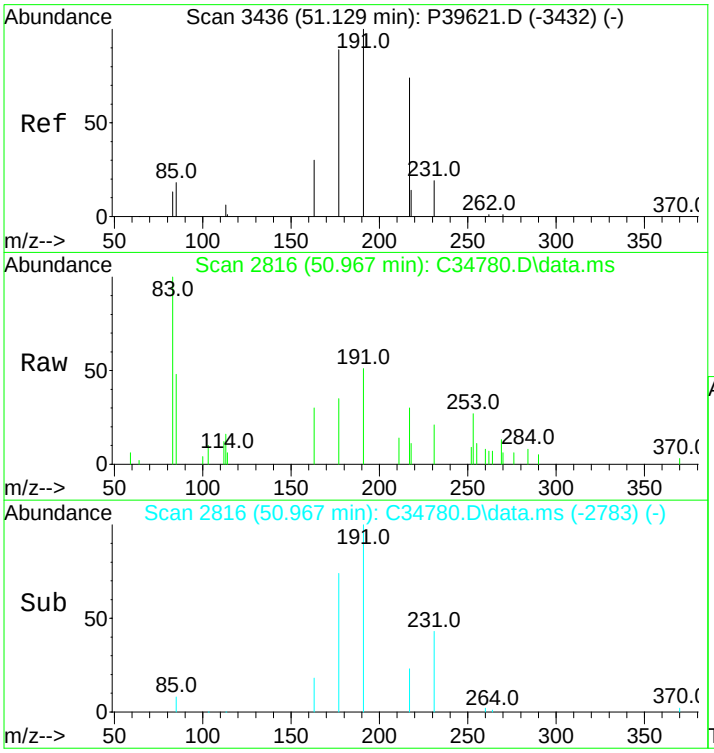




#110
30-Norhopane (T15)
Concen: 893.42 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

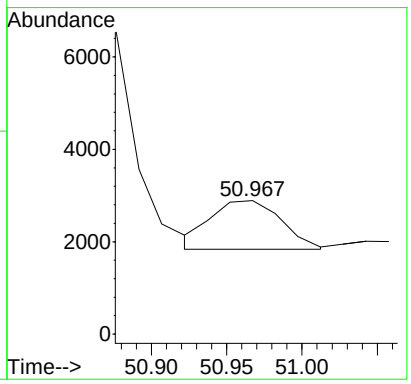
Tgt Ion:191 Resp: 22515

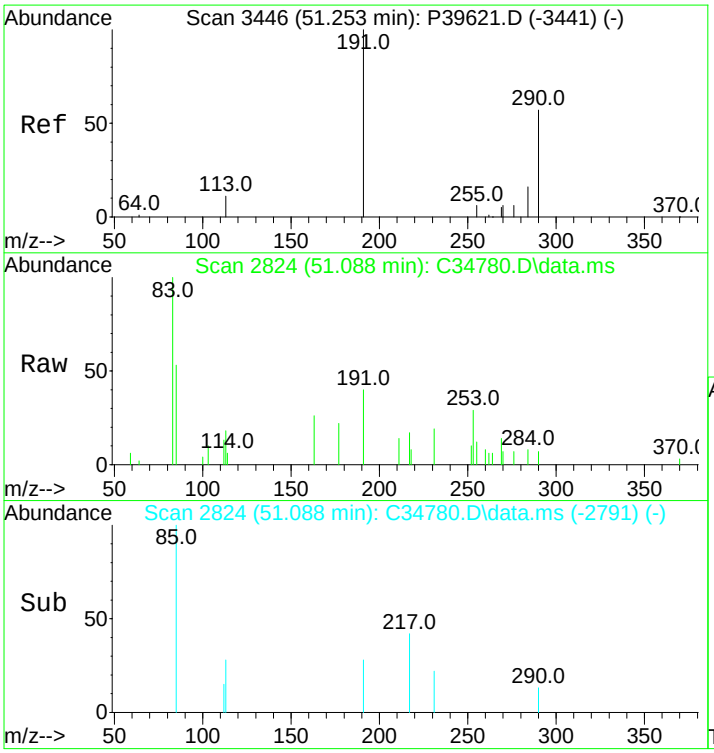




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 135.59 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

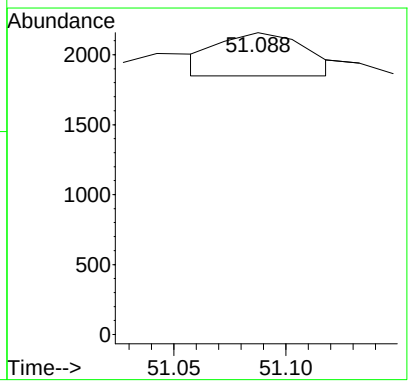
Tgt Ion:191 Resp: 3417

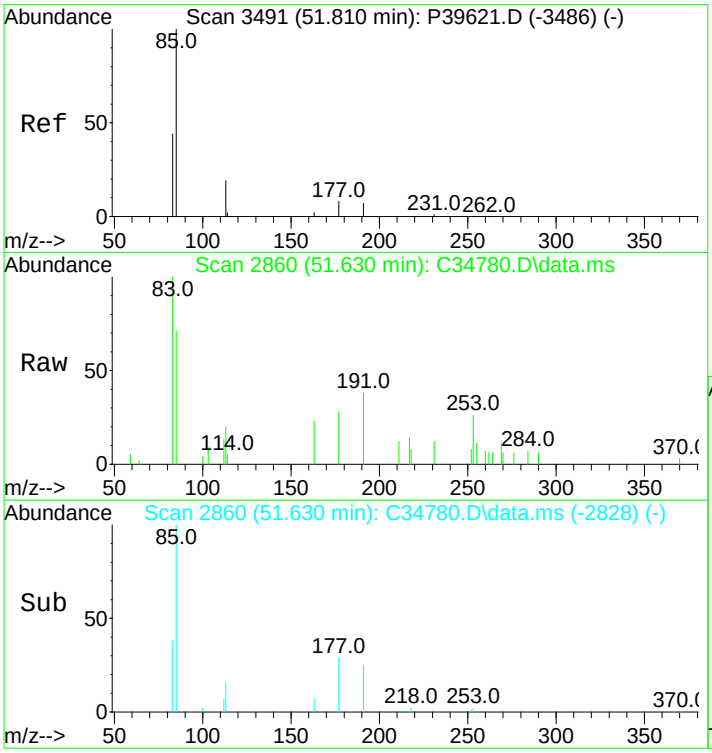




#112
17a(H)-Diahopane (X)
Concen: 33.41 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

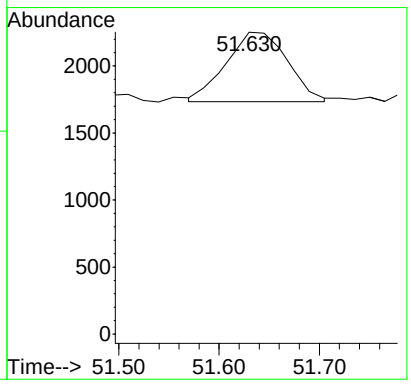
Tgt Ion:191 Resp: 842

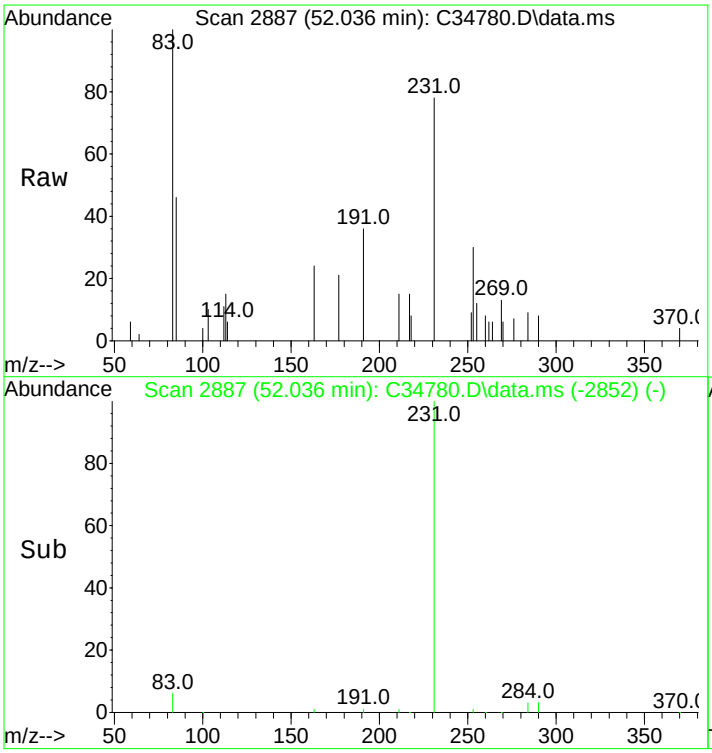




#113
30-Normoretane (T17)
Concen: 87.73 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

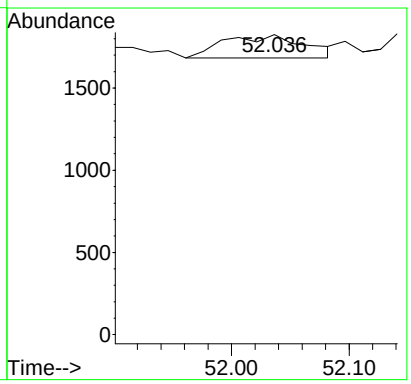
Tgt Ion:191 Resp: 2211

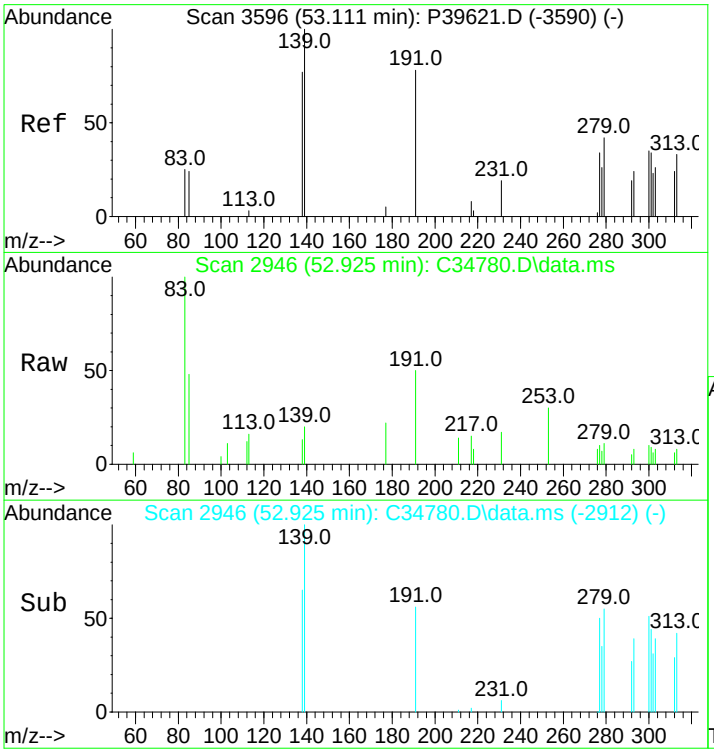




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 26.94 ng/ml m
RT: 52.036 min Scan# 2887
Delta R.T. 0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

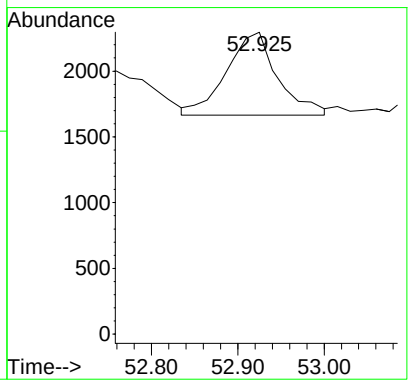
Tgt Ion:191 Resp: 679

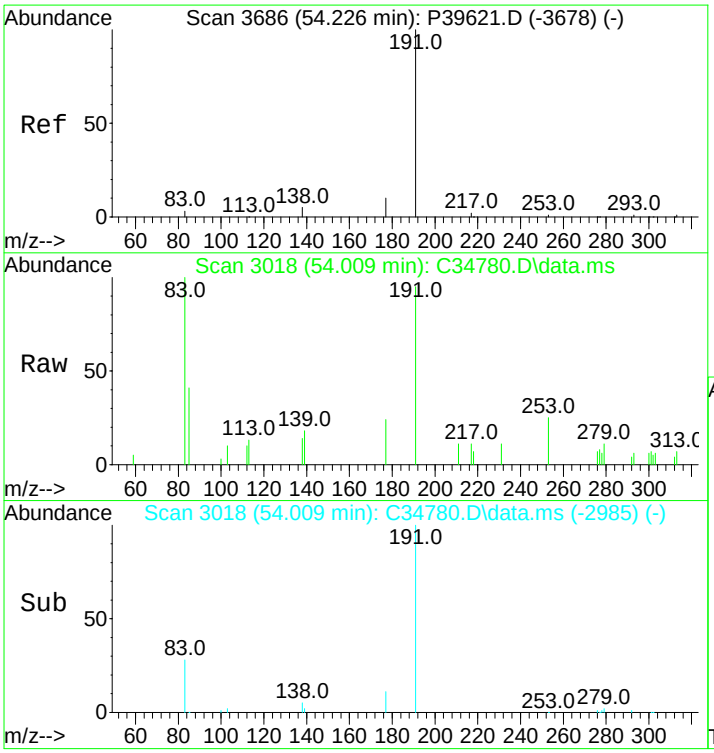




#115
Moretane (T20)
Concen: 102.73 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

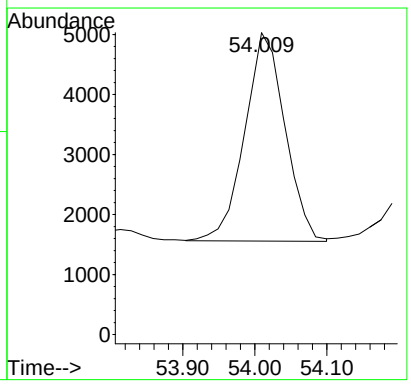
Tgt Ion:191 Resp: 2589

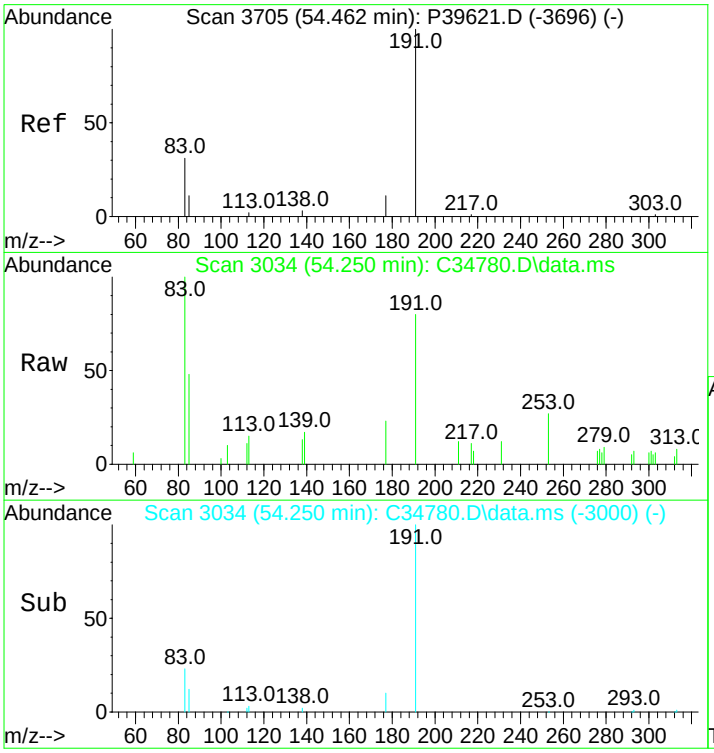




#116
30-Homohopane-22S (T21)
Concen: 535.06 ng/ml
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

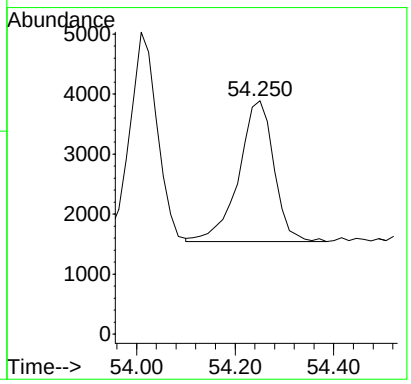
Tgt Ion:191 Resp: 13484

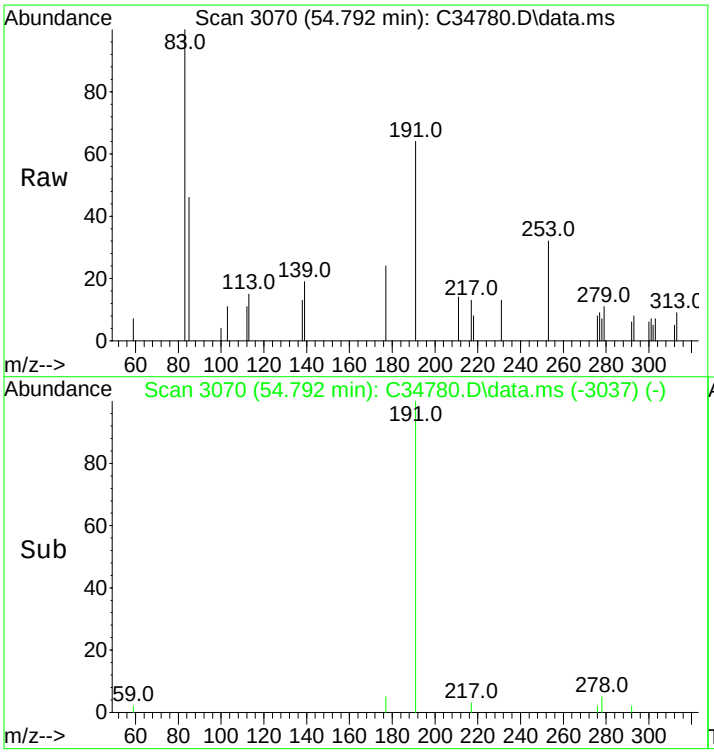




#117
30-Homohopane-22R (T22)
Concen: 462.48 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

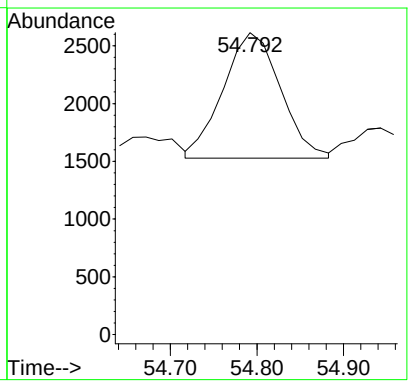
Tgt Ion:191 Resp: 11655

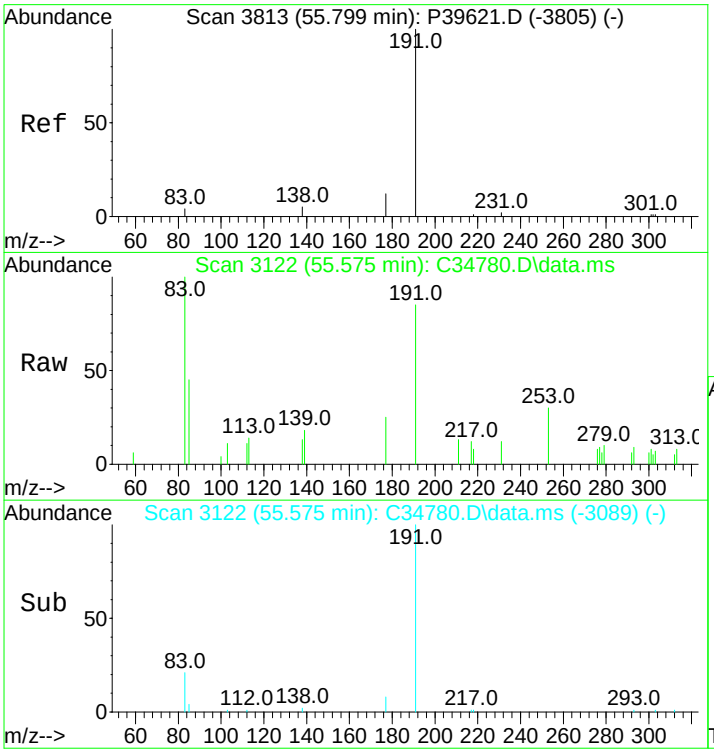




#118
Gammacerane/C32-diahopane
Concen: 198.01 ng/mL m
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

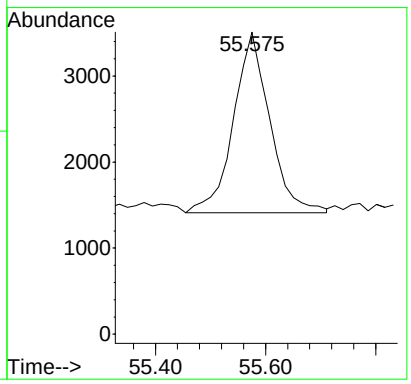
Tgt Ion:191 Resp: 4990

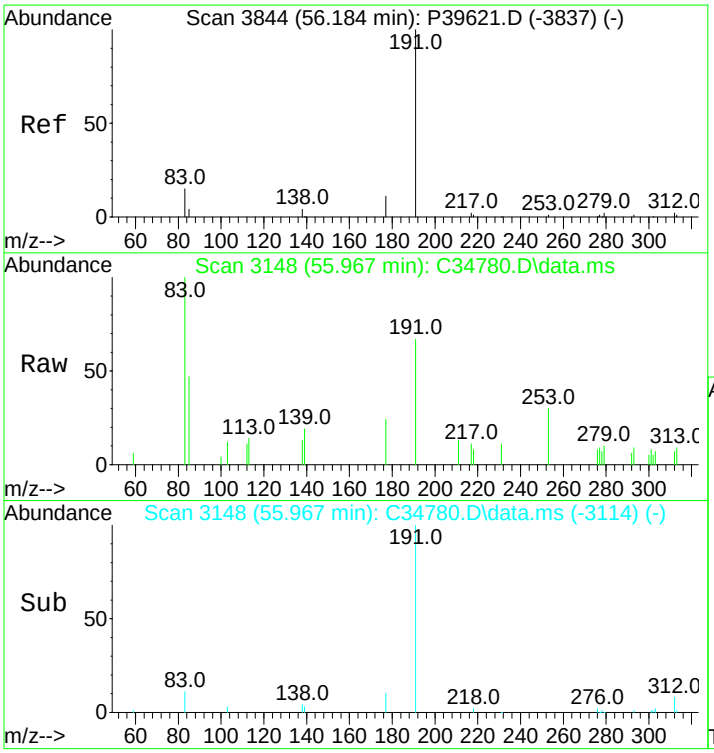




#119
30,31-Bishomohopane-22S (T26)
Concen: 380.90 ng/ml
RT: 55.575 min Scan# 3122
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

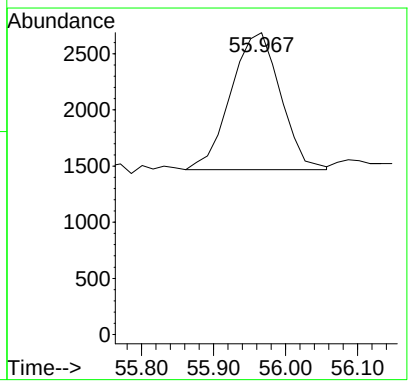
Tgt Ion:191 Resp: 9599

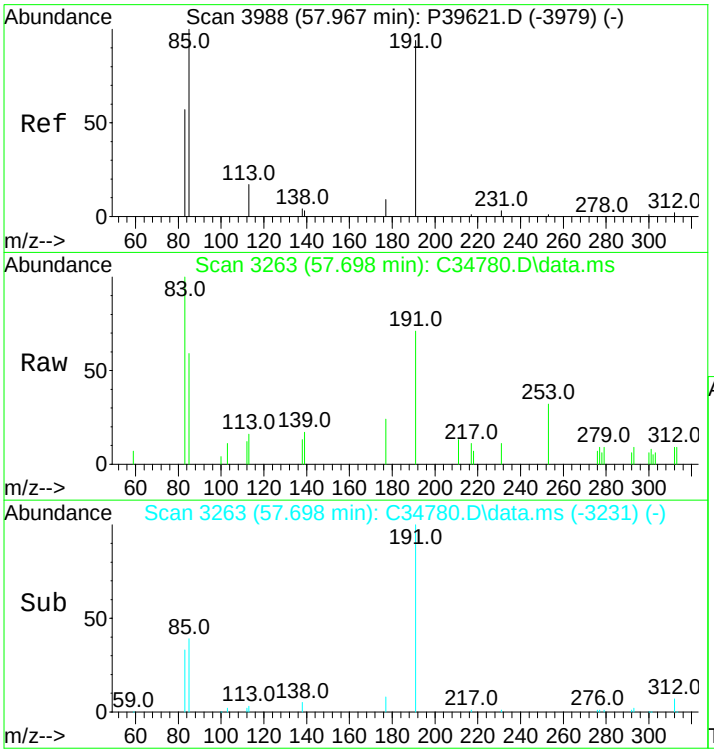




#120
30,31-Bishomohopane-22R (T27)
Concen: 230.79 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

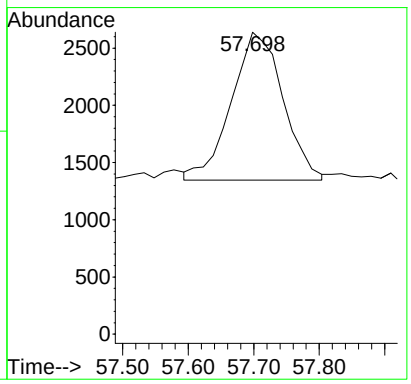
Tgt Ion:191 Resp: 5816

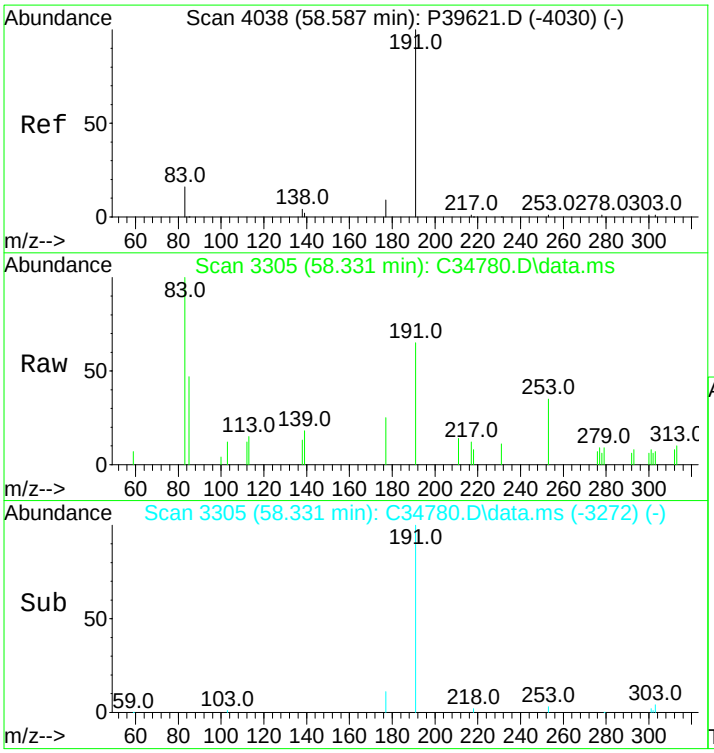




#121
30,31-Trishomohopane-22S (T30)
Concen: 280.03 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

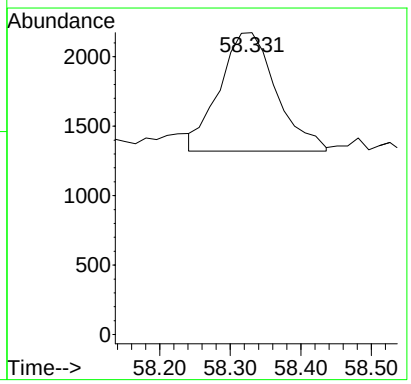
Tgt Ion:191 Resp: 7057

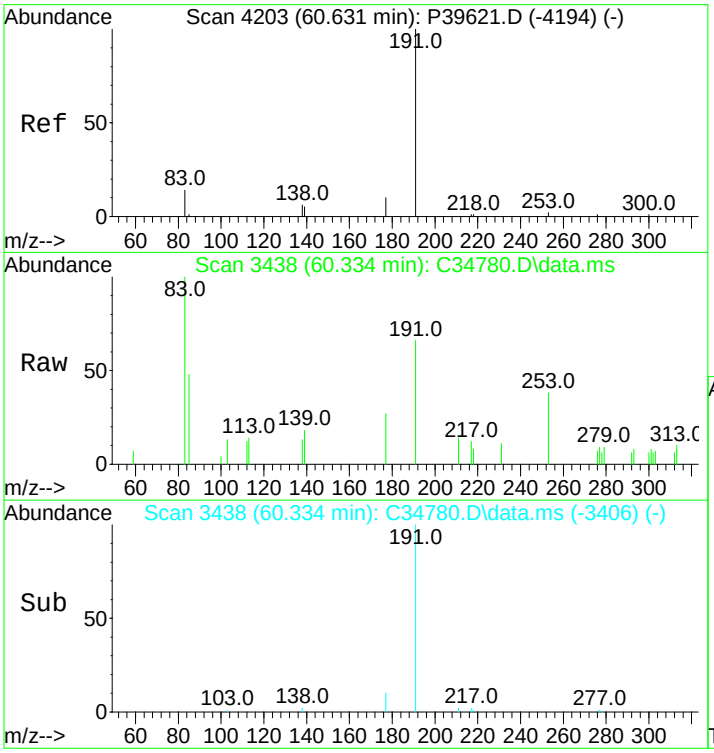




#122
30,31-Trishomohopane-22R (T31)
Concen: 188.80 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

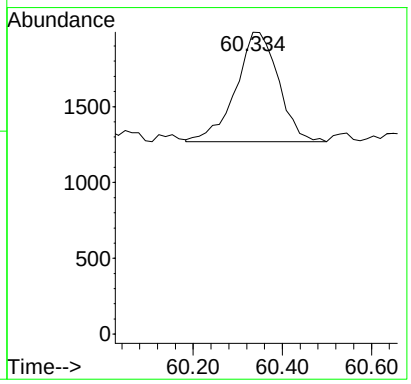
Tgt Ion:191 Resp: 4758

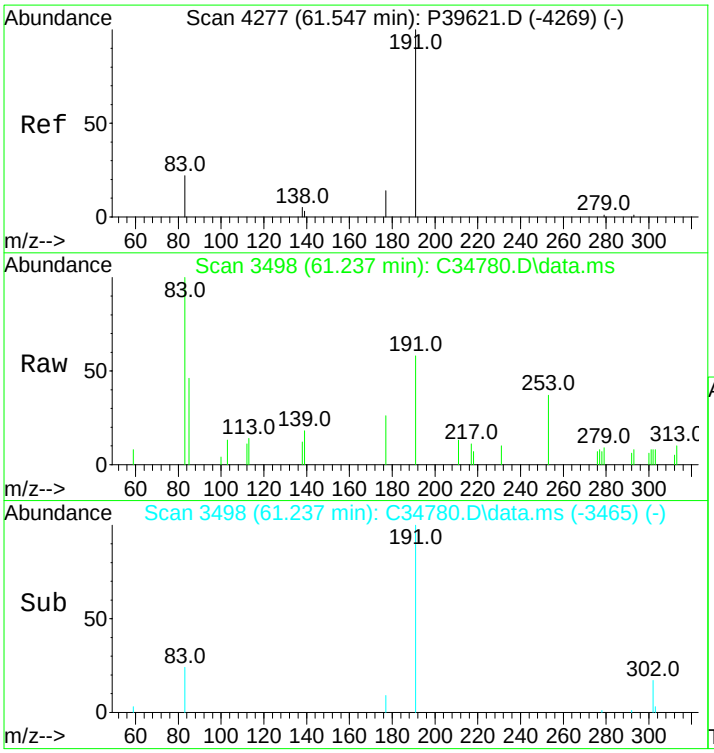




#123
Tetrakishomohopane-22S (T32)
Concen: 190.07 ng/ml
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

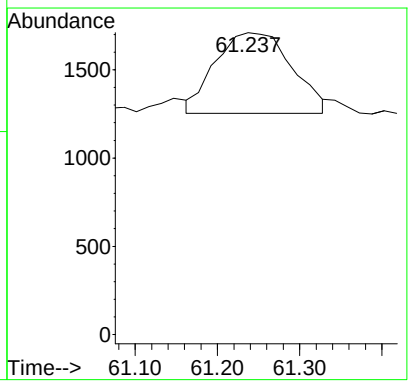
Tgt Ion:191 Resp: 4790

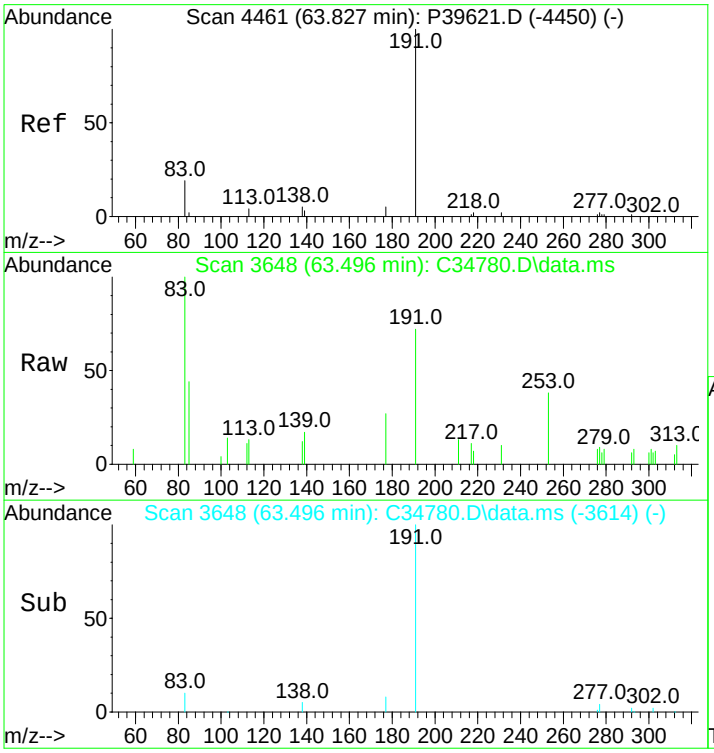




#124
Tetrakishomohopane-22R (T33)
Concen: 116.74 ng/ml m
RT: 61.237 min Scan# 3498
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

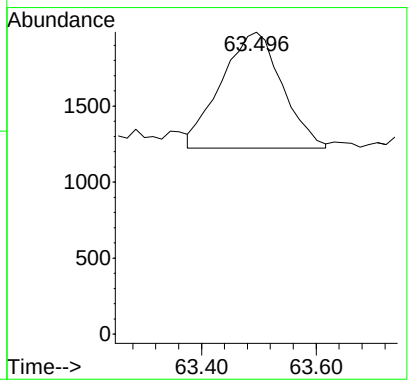
Tgt Ion:191 Resp: 2942

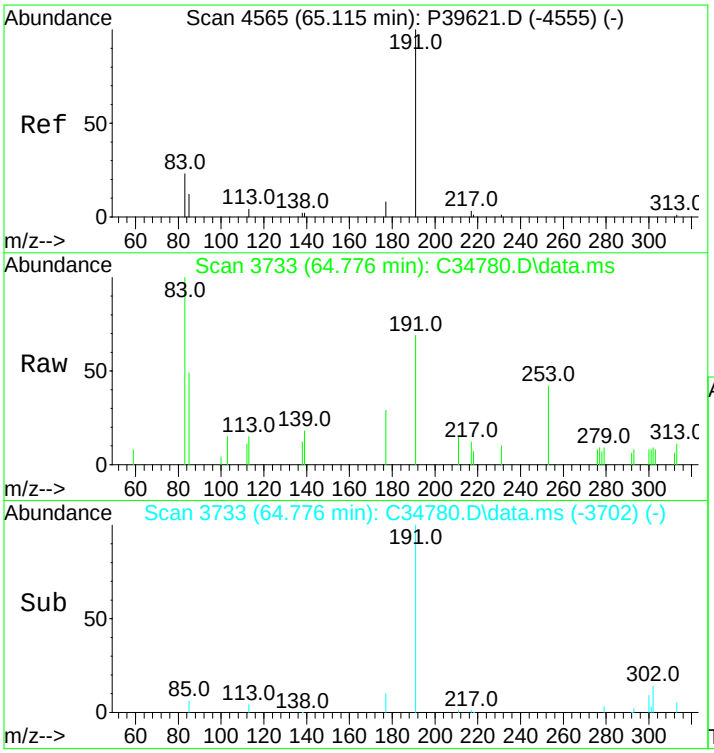




#125
Pentakishomohopane-22S (T34)
Concen: 221.98 ng/ml m
RT: 63.496 min Scan# 3648
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

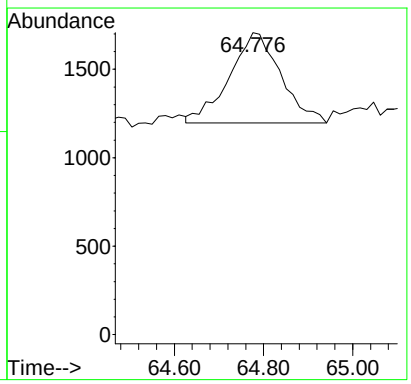
Tgt Ion:191 Resp: 5594

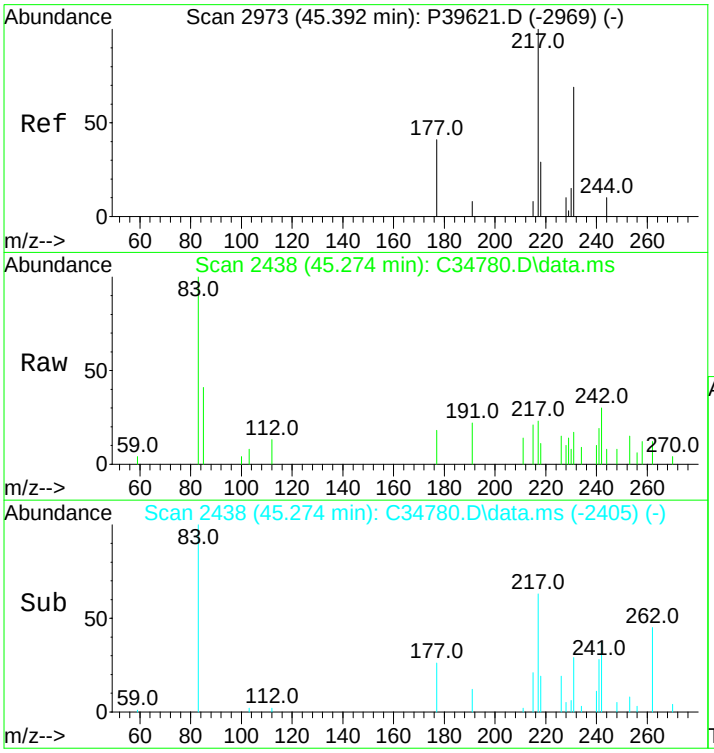




#126
Pentakishomohopane-22R (T35)
Concen: 162.22 ng/ml
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

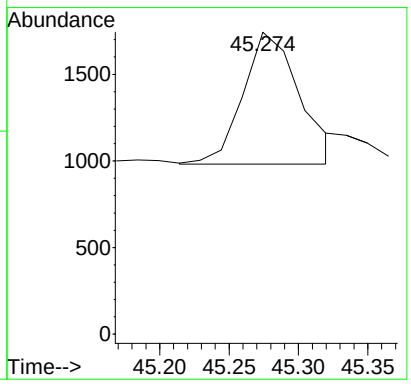
Tgt Ion:191 Resp: 4088

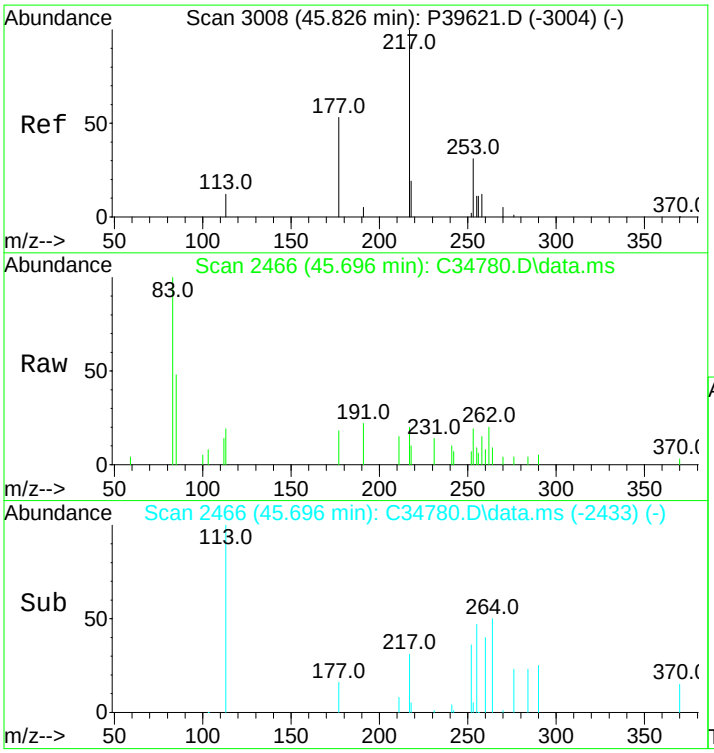




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 180.85 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

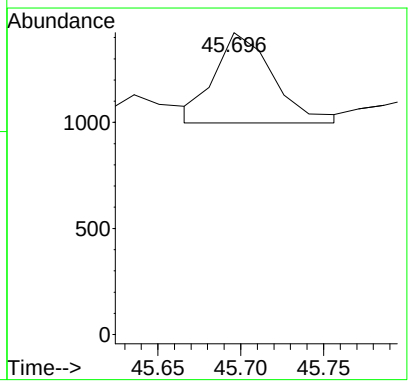
Tgt Ion:217 Resp: 2162

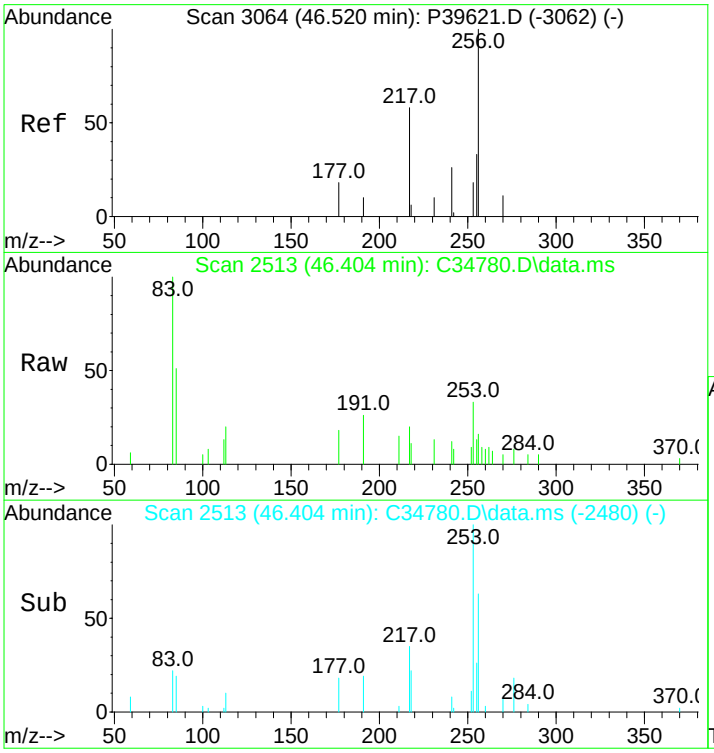




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 86.66 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

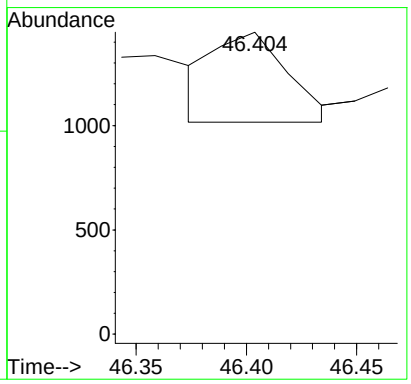
Tgt Ion:217 Resp: 1036

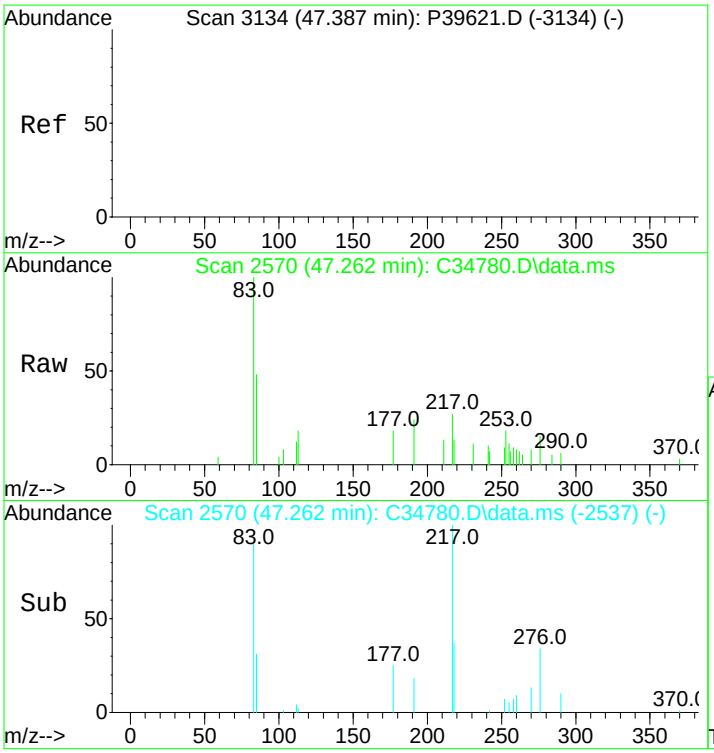




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 83.73 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

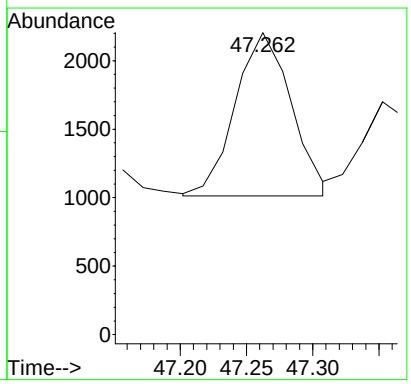
Tgt Ion:217 Resp: 1001

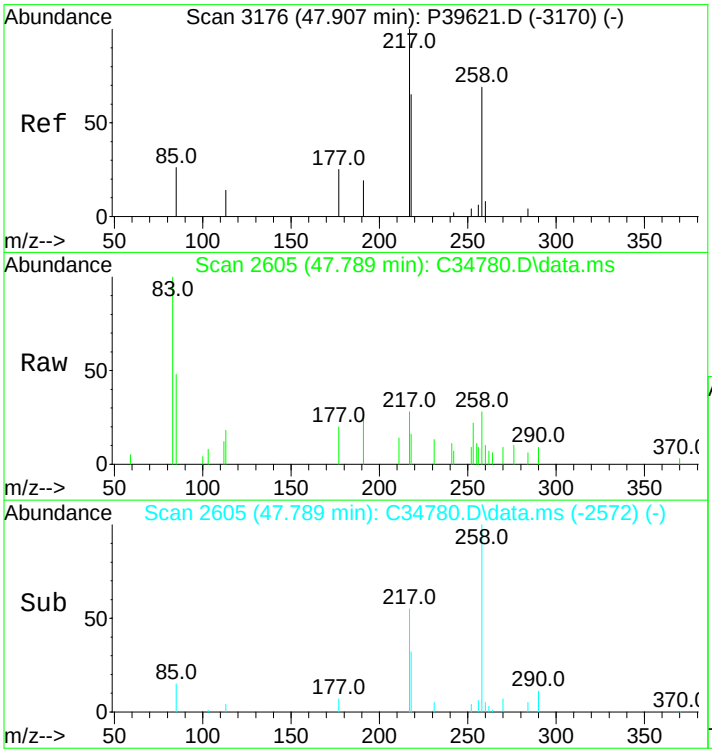




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 292.77 ng/ml m
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

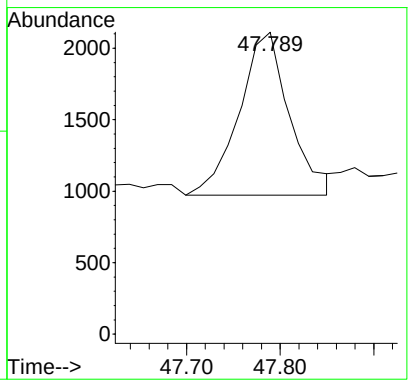
Tgt Ion:217 Resp: 3500

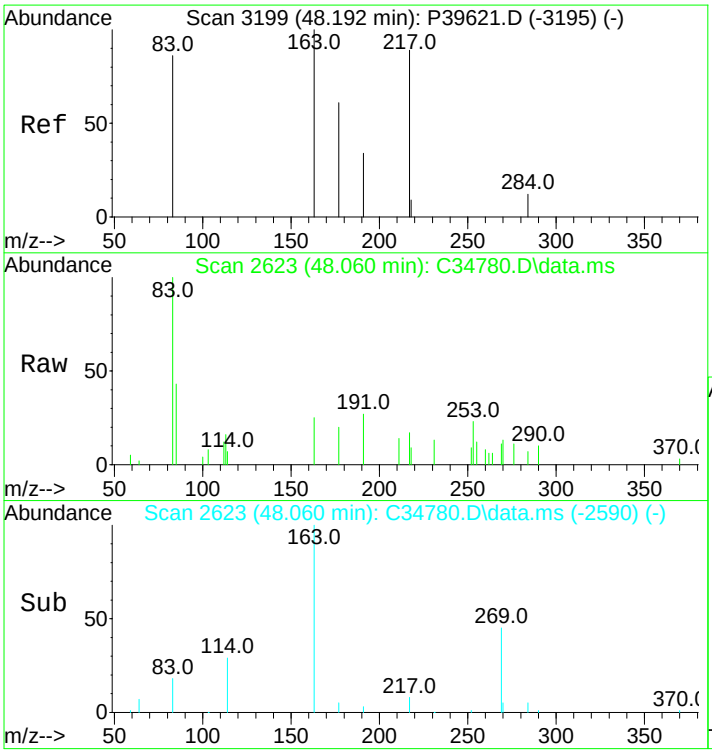




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 357.26 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

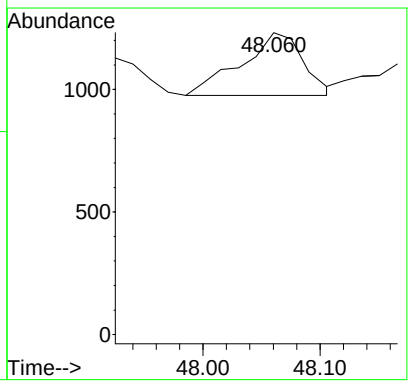
Tgt Ion:217 Resp: 4271

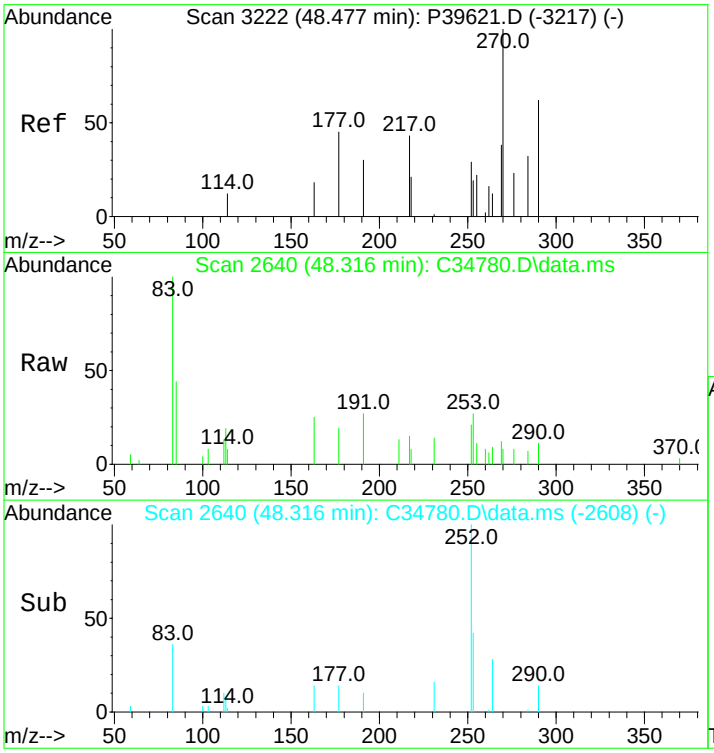




#133
Unknown Sterane (S18)
Concen: 79.38 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

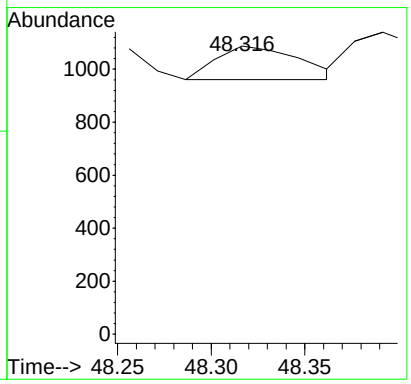
Tgt Ion:217 Resp: 949

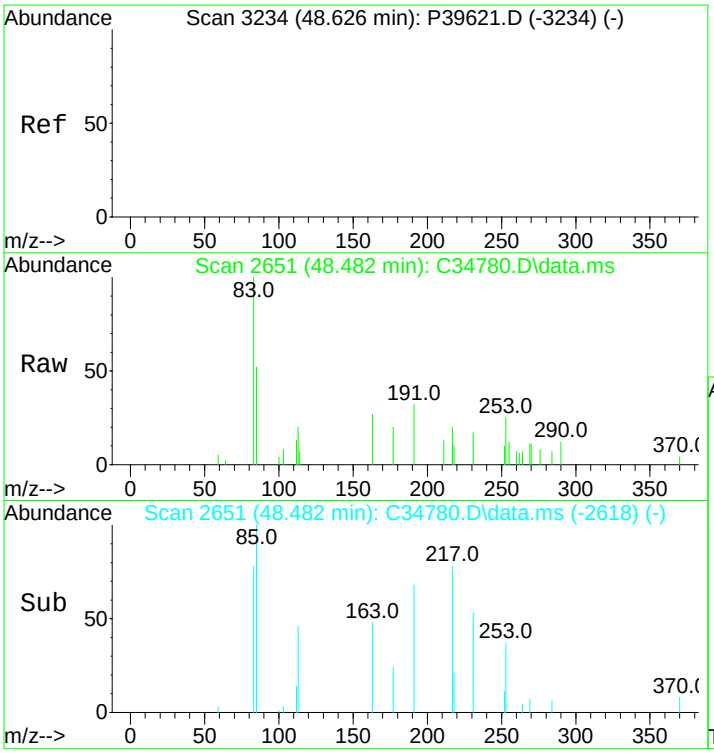




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 32.62 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

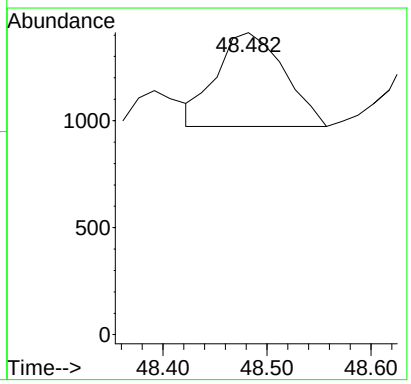
Tgt Ion:217 Resp: 390

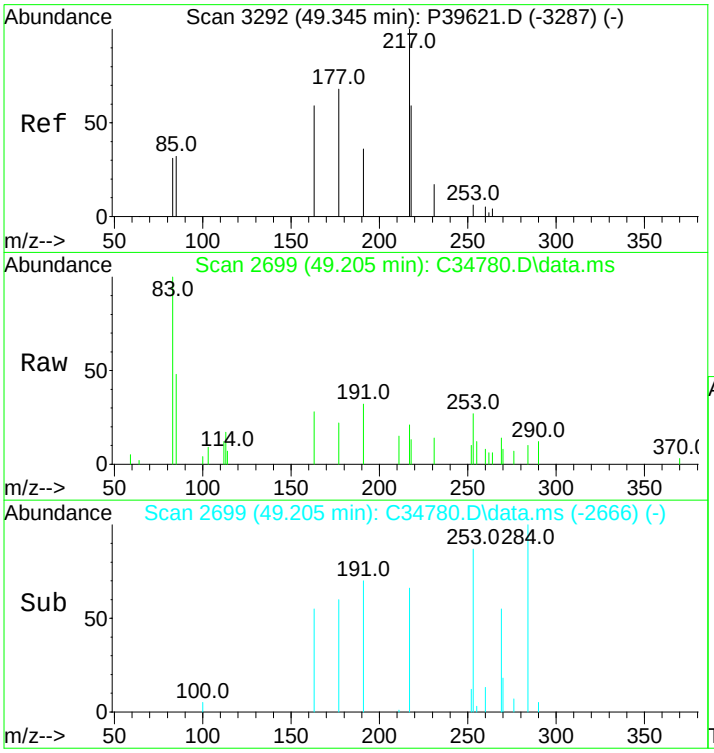




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 165.87 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

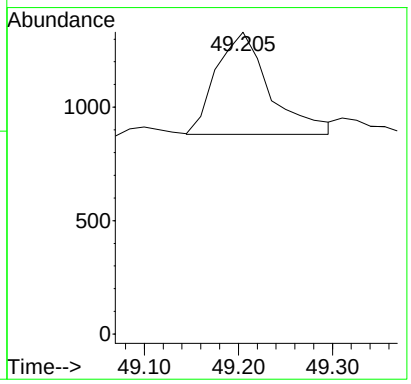
Tgt Ion:217 Resp: 1983

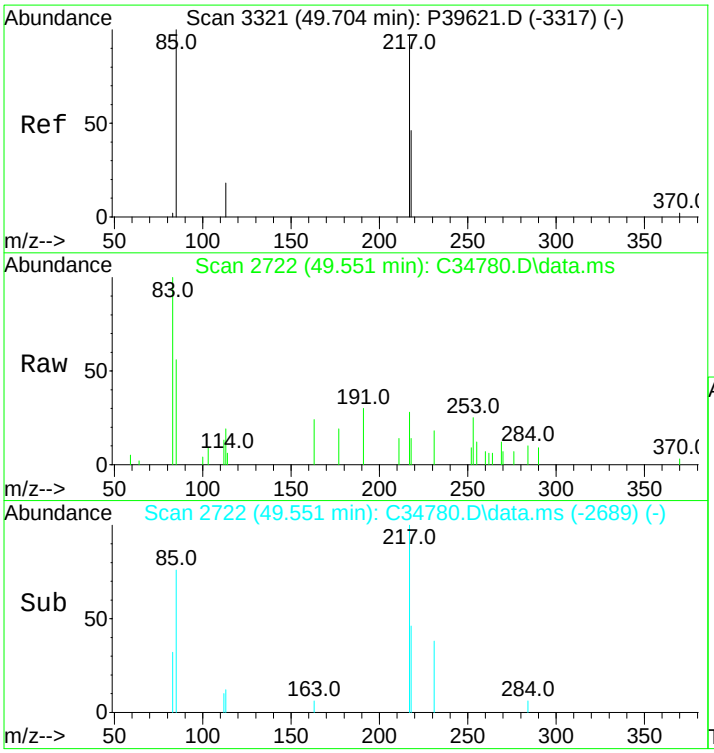




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 149.31 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

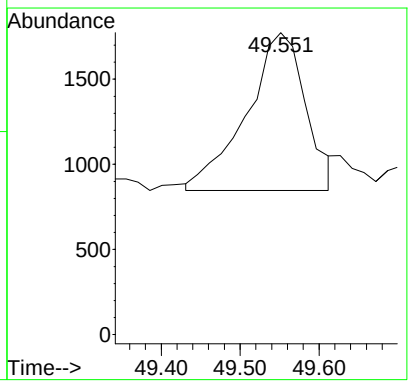
Tgt Ion:217 Resp: 1785

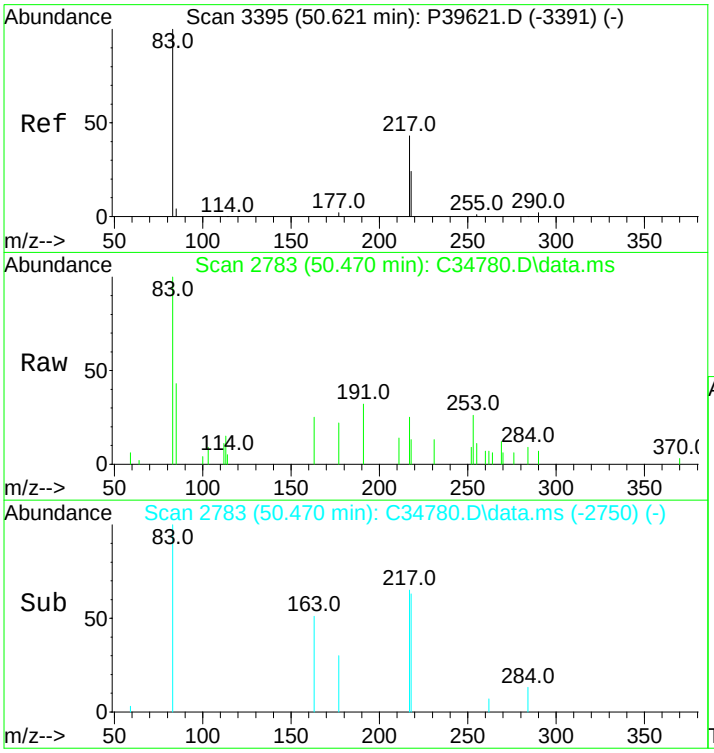




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 403.69 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

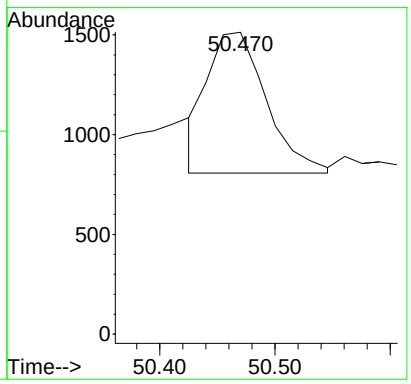
Tgt Ion:217 Resp: 4826

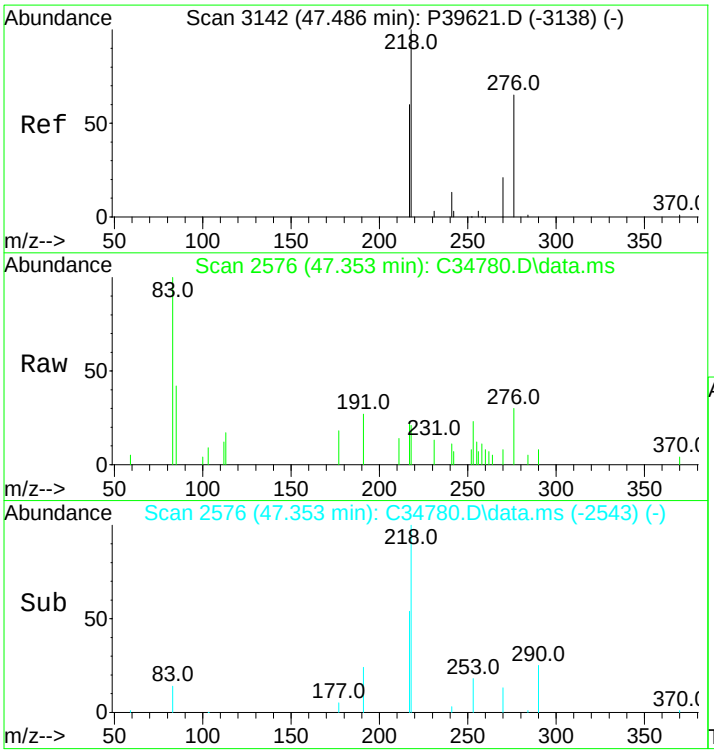




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 209.96 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

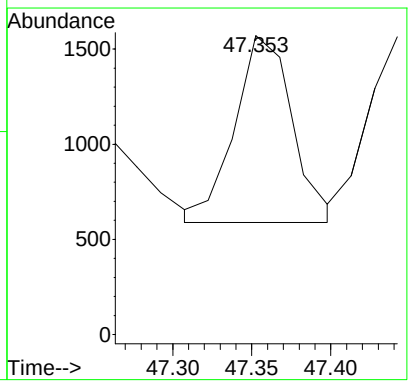
Tgt Ion:217 Resp: 2510

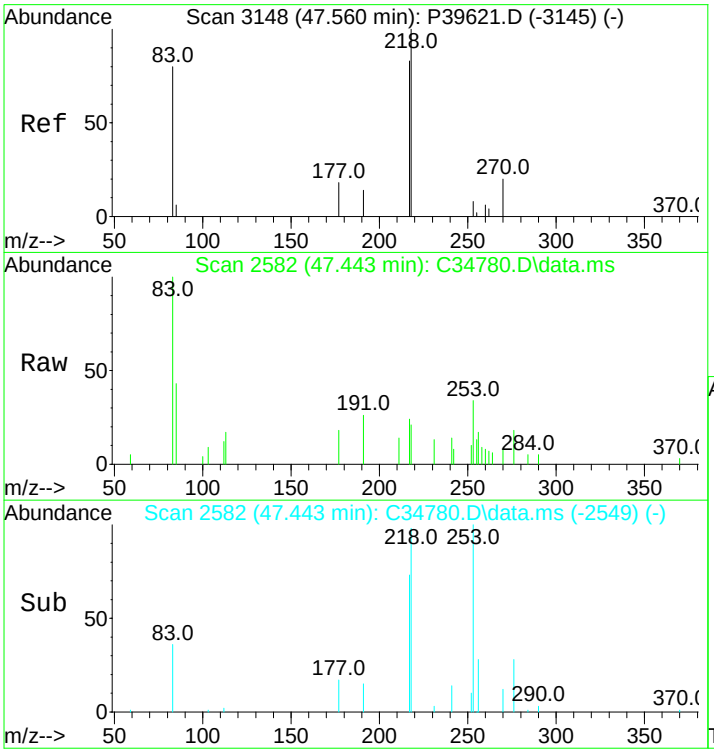




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 208.20 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

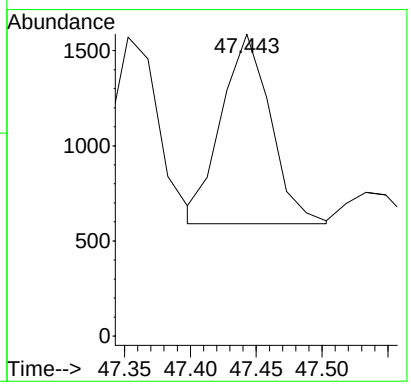
Tgt Ion:218 Resp: 2489

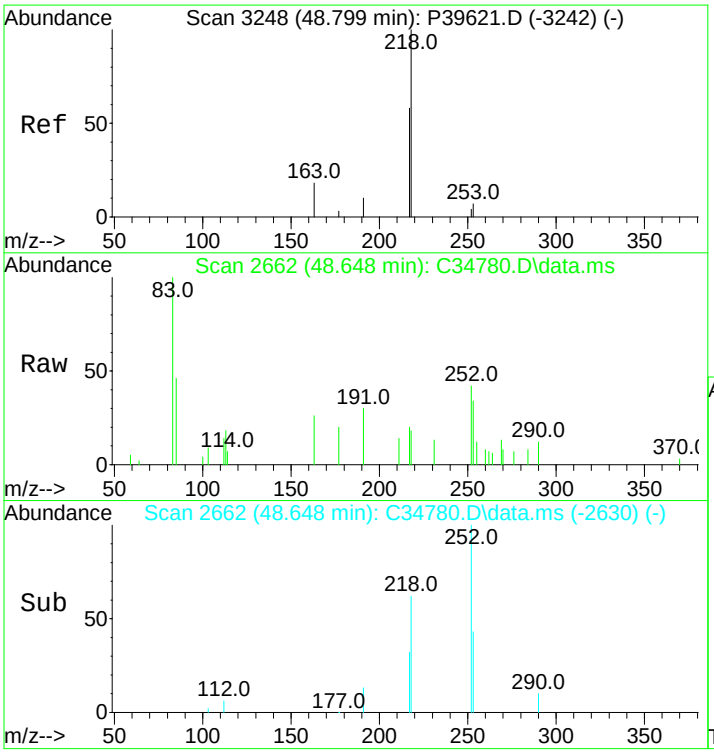




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 215.39 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

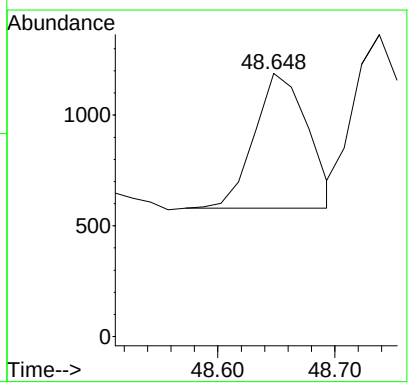
Tgt Ion:218 Resp: 2575

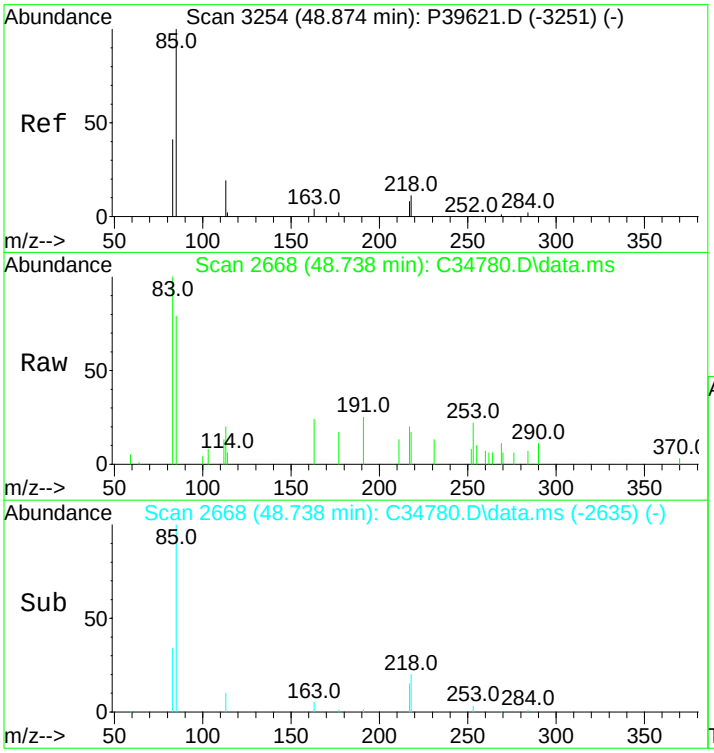




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 161.69 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

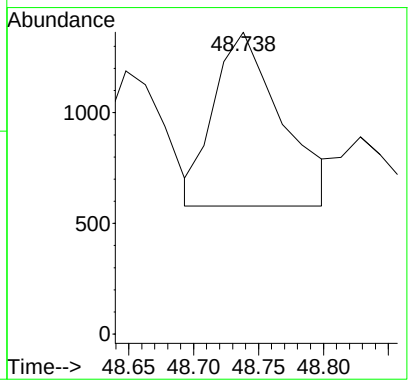
Tgt Ion:218 Resp: 1933

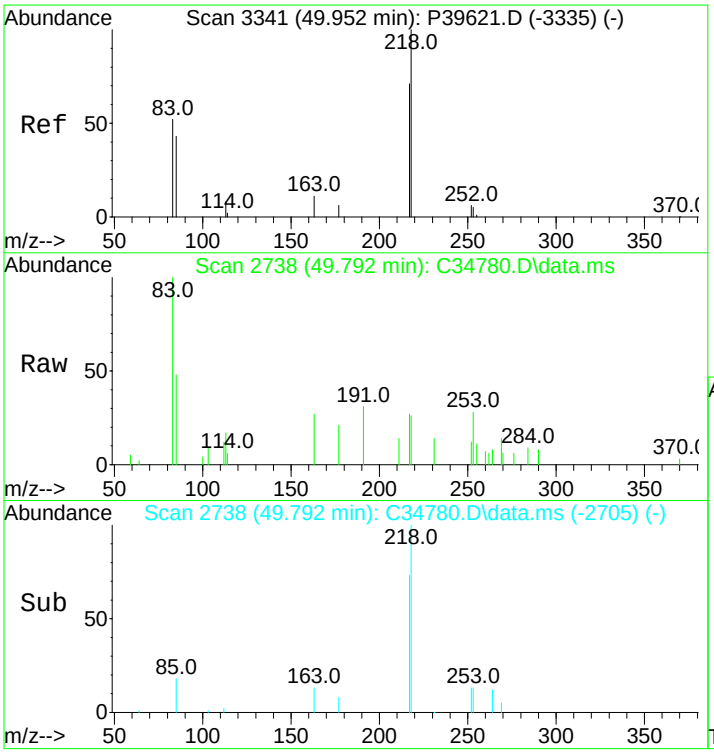




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 237.56 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

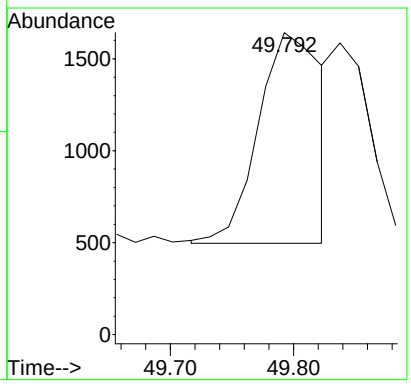
Tgt Ion:218 Resp: 2840

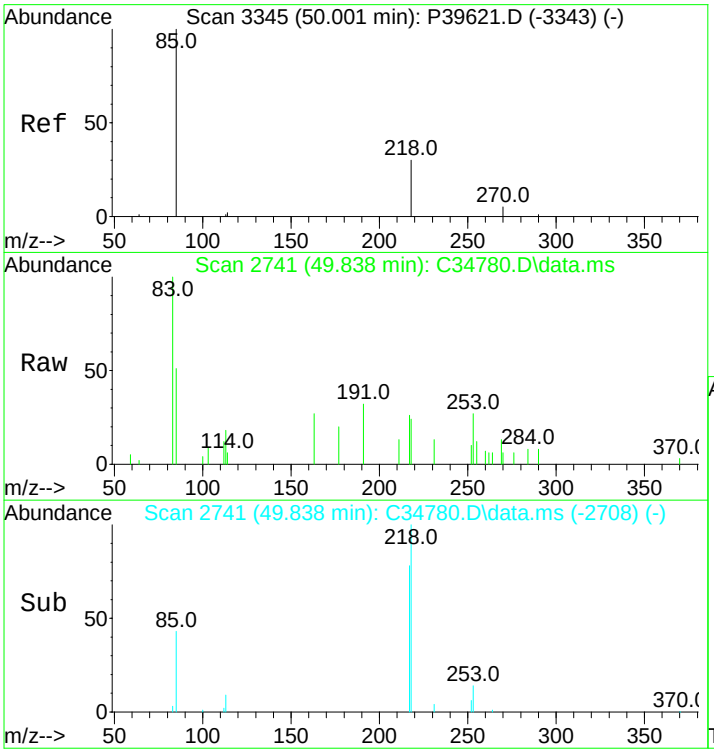




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 340.36 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

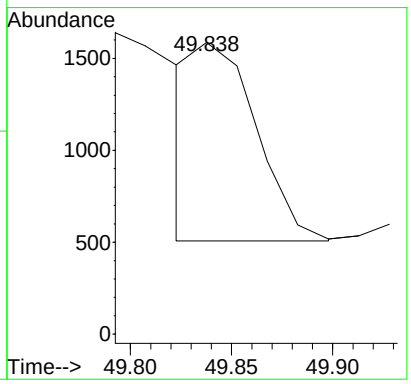
Tgt Ion:218 Resp: 4069

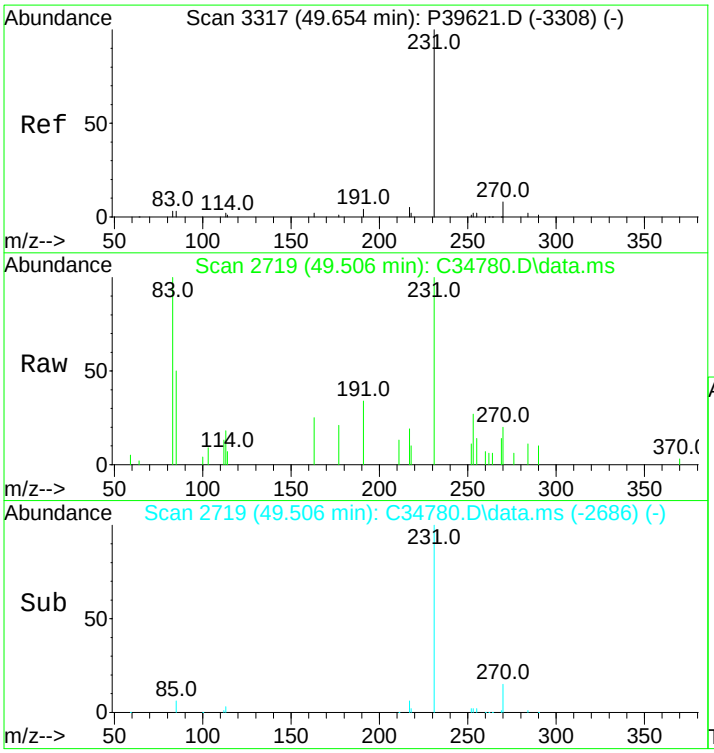




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 193.90 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

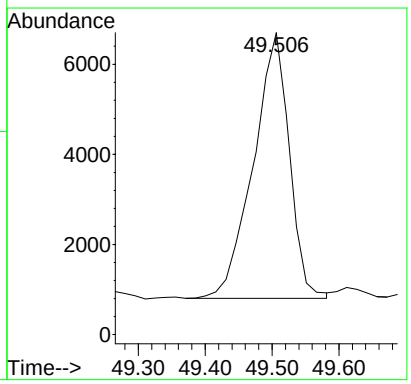
Tgt Ion:218 Resp: 2318

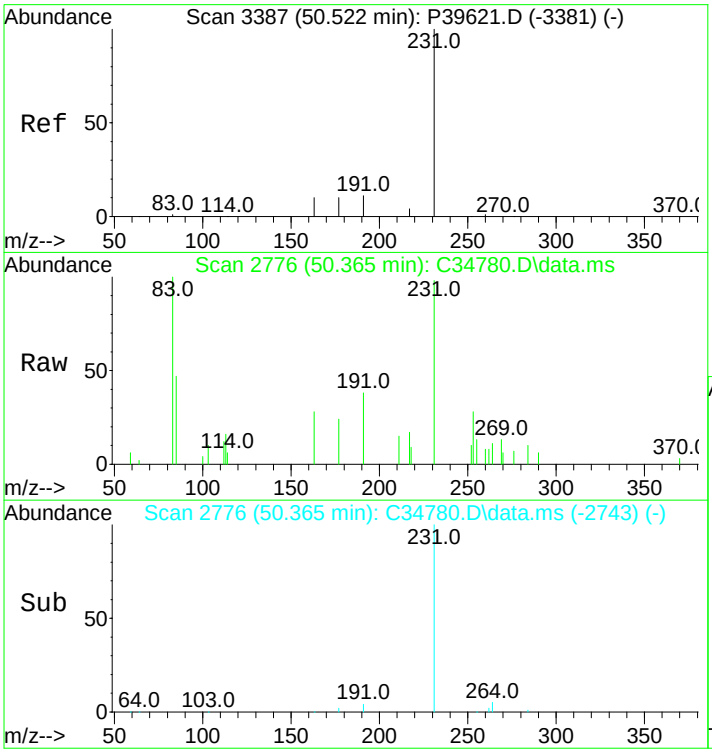




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1846.20 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

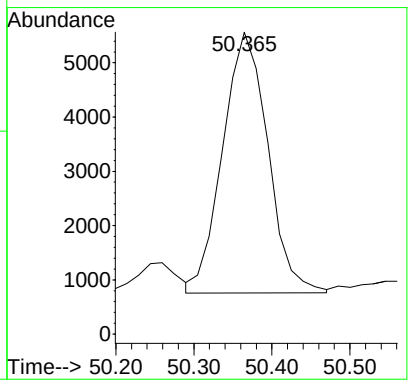
Tgt Ion:231 Resp: 22071

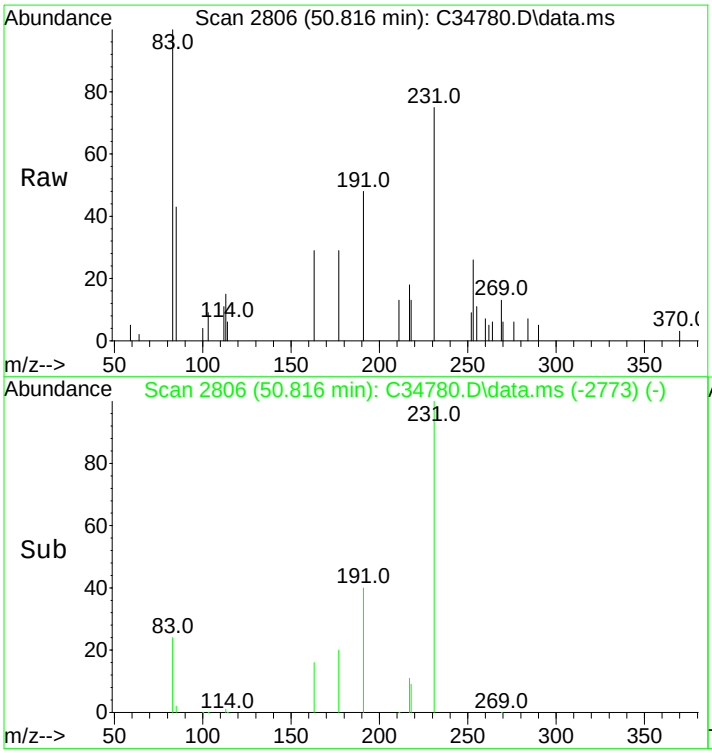




#146
C28,20S-triaromatic steroid
Concen: 1618.43 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

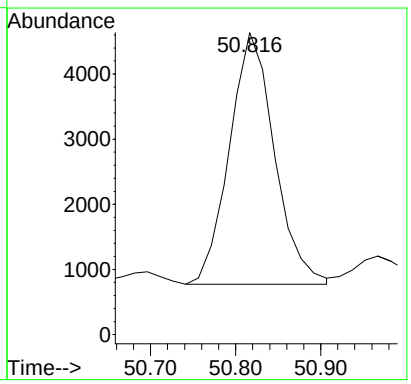
Tgt Ion:231 Resp: 19348

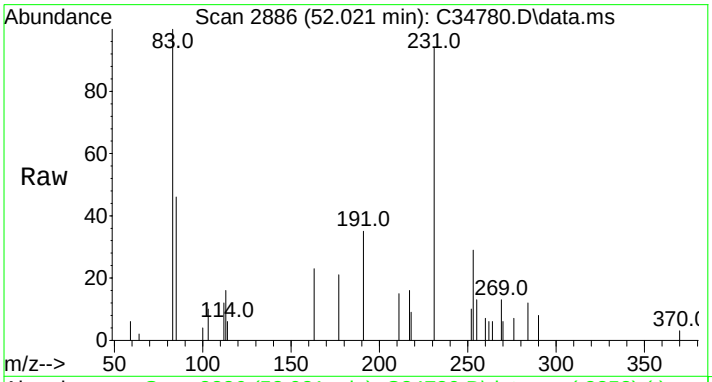




#147
C27,20R-triaromatic steroid
Concen: 1191.23 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

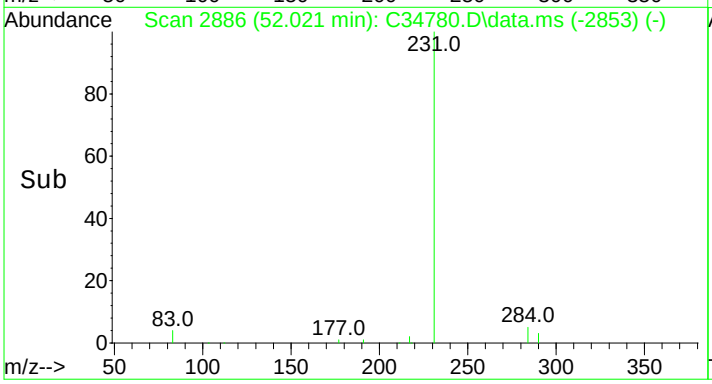
Tgt Ion:231 Resp: 14241

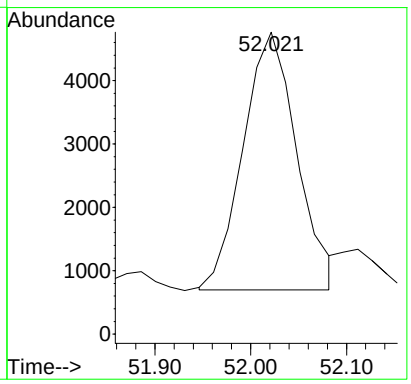




#148
C28,20R-triaromatic steroid
Concen: 1325.99 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:231 Resp: 15852





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	23817M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.167	240	42411	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	93859	907.974	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.80%			
42) Phenanthrene-d10	32.567	188	82104	1004.863	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.49%			
86) Benzo[a]pyrene-d12	48.241	264	72947	829.948	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.99%			
127) 5B(H)Cholane - Surr	43.769	217	14861	1120.753	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 112.08%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	12337	656.177	ng/mL	100
4) cis-Decalin	17.603	138	754M3	53.211	ng/mL	
5) C1-Decalins	17.874	152	25179M5	1339.213	ng/mL	
6) C2-Decalins	19.304	166	35736M5	1900.716	ng/mL	
7) C3-Decalins	22.119	180	23346M5	1241.720	ng/mL	
8) C4-Decalins	25.507	194	21876M5	1163.534	ng/mL	
10) Naphthalene	19.801	128	47114	310.376	ng/mL#	100
11) C1-Naphthalenes	22.496	142	127731M5	841.461	ng/mL	
12) C2-Naphthalenes	25.341	156	260450M5	1715.782	ng/mL	
13) C3-Naphthalenes	28.021	170	302564M5	1993.218	ng/mL	
14) C4-Naphthalenes	30.445	184	228022M5	1502.154	ng/mL	
16) 2-Methylnaphthalene	22.496	142	77085	858.848	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	51530	585.723	ng/mL#	100
18) Benzothiophene	20.027	134	5901	43.200	ng/mL	100
19) C1-Benzo(b)thiophenes	22.887	148	28288M5	207.089	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	54033M5	395.562	ng/mL	
21) C3-Benzo(b)thiophenes	27.524	176	88377M5	646.986	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	88613M5	648.714	ng/mL	
23) Biphenyl	24.378	154	10176	89.627	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	64699	877.379	ng/mL#	100
25) Dibenzofuran	27.464	168	5404	41.449	ng/mL#	43
26) Acenaphthylene	26.079	152	2021	13.412	ng/mL#	100
27) Acenaphthene	26.817	153	5947M3	67.029	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	22016M3	370.364	ng/mL	
29) Fluorene	28.834	166	13718M3	140.193	ng/mL	
30) C1-Fluorenes	31.212	180	38230M5	390.696	ng/mL	
31) C2-Fluorenes	33.410	194	73499M5	751.131	ng/mL	
32) C3-Fluorenes	35.232	208	83934M5	857.772	ng/mL	
33) Dibenzothiophene	32.161	184	51665	329.382	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.937	198	64088	408.583	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	50568M3	322.389	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	35916	228.977	ng/mL#	100
37) OTP	34.344	198	15611M3	99.526	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	178964M5	1140.958	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	163353m	1041.432	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	277827M5	1771.243	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	291226M5	1856.667	ng/mL	
41) C4-Dibenzothiophenes	39.132	240	198533M5	1265.717	ng/mL	
43) Phenanthrene	32.658	178	56105	407.119	ng/mL#	78
44) 3-Methylphenanthrene(3MP)	34.630	192	29170M3	211.669	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	34814M3	252.624	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	3149M3	22.850	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	50040	363.109	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.172	192	29139M3	211.444	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.081	192	146127M5	1060.353	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	193953M5	1407.397	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) C2-Phenanthrenes/Anthr BS	36.888	206	193953m	1407.397	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	165692M5	1202.324	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	81166M5	588.971	ng/mL	
56) Carbazole	33.501	167	3417M3	25.131	ng/mL	
57) 1-Methylphenanthrene	35.172	192	29274M3	335.202	ng/mL	
58) Fluoranthene	37.430	202	4547M3	33.222	ng/mL	
60) Pyrene	38.318	202	13787M3	99.094	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	46566M5	334.694	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	65429M5	470.273	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	73575M5	528.822	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	73580M5	528.858	ng/mL	
66) Naphthobenzothiophene	42.173	234	22625	151.048	ng/ml#	89
67) Naphthobenzothiophene-2,1	42.173	234	22625	151.048	ng/mL#	89
68) Naphthobenzothiophene-1,2	42.504	234	6089	40.651	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	4121M3	27.513	ng/mL	
70) C1-Naphthobenzothiophenes	44.251	248	102218M5	682.425	ng/ml	
71) C2-Naphthobenzothiophenes	45.621	262	144800M5	966.710	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	125541M5	838.133	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	92213M5	615.630	ng/mL	
75) Benz[a]anthracene	43.091	228	3415M3	25.369	ng/mL	
77) Chrysene/Triphenylene	43.242	228	14884M3	109.520	ng/mL	
78) C1-Chrysenes	44.732	242	34624M5	254.772	ng/mL	
79) C2-Chrysenes	46.810	256	57477M5	422.930	ng/mL	
79) C2-Chrysenes BS	46.810	256	57477m	422.930	ng/mL	
80) C3-Chrysenes	49.506	270	68192M5	501.774	ng/mL	
81) C4-Chrysenes	49.521	284	41359M5	304.330	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	5421	36.650	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.217	252	2485M3	15.431	ng/mL	
85) Benzo[e]pyrene	48.151	252	7787M3	53.225	ng/mL	
87) Benzo[a]pyrene	48.332	252	4133M3	29.341	ng/mL	
88) Perylene	48.648	252	7965	52.910	ng/mL#	74
89) Indeno[1,2,3-cd]pyrene	53.151	276	4178M3	25.488	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	2043	13.102	ng/mL#	51
91) Benzo[g,h,i]perylene	54.446	276	7518	43.410	ng/mL#	80
92) Hopane (T19)	52.232	191	38533	1378.549	ng/mL#	79
94) C23 Tricyclic Terpane (T4	40.803	191	16194M3	579.353	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	9035M3	323.234	ng/ml	
96) C25 Tricyclic Terpane (T6	43.046	191	8216M3	293.934	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	2969M3	106.218	ng/ml	
98) C26 Tricyclic Terpane-22S	44.070	191	3241M3	115.949	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	3095M3	110.726	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3389M3	121.244	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	3776M3	135.089	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	4609	164.891	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.323	191	3909M3	139.848	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.452	191	3889M3	139.132	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191	3216M3	115.055	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3277M3	117.237	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	10164M3	363.625	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.199	191	6807M3	243.526	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.988	191	2080	74.414	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	26947M3	964.050	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	3442M3	123.140	ng/ml	
112) 17a(H)-Diahopane (X)	51.103	191	891	31.876	ng/ml	100
113) 30-Normoretane (T17)	51.645	191	2872	102.748	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.021	191	590M3	21.108	ng/ml	
115) Moretane (T20)	52.925	191	3186M3	113.982	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	16685	596.919	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	13594	486.336	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	5372M3	192.188	ng/mL	
119) 30,31-Bishomohopane-22S (	55.575	191	10218M3	365.557	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22R (	55.967	191	7245	259.196	ng/ml	100
121) 30,31-Trishomohopane-22S	57.714	191	7940M3	284.060	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	5509M3	197.089	ng/ml	
123) Tetrakishomohopane-22S (T	60.349	191	5427	194.155	ng/ml	100
124) Tetrakishomohopane-22R (T	61.267	191	3883M3	138.917	ng/ml	
125) Pentakishomohopane-22S (T	63.511	191	6536M3	233.831	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4498M3	160.920	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.289	217	2425M3	182.883	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1124M3	84.767	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1076M3	81.147	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3782M3	285.222	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	5006	377.531	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	756M3	57.014	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.332	217	457	34.465	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.497	217	1989M3	150.002	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	2092M3	157.770	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.567	217	5619M3	423.761	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	3664M3	276.323	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2986M3	225.191	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	3044M3	229.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2501	188.615	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	3618M3	272.854	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4780M3	360.487	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2799M3	211.089	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	25693	1937.656	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	22236	1676.944	ng/mL	100
147) C27,20R-triaromatic stero	50.817	231	16630	1254.164	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	17947M3	1353.486	ng/mL	

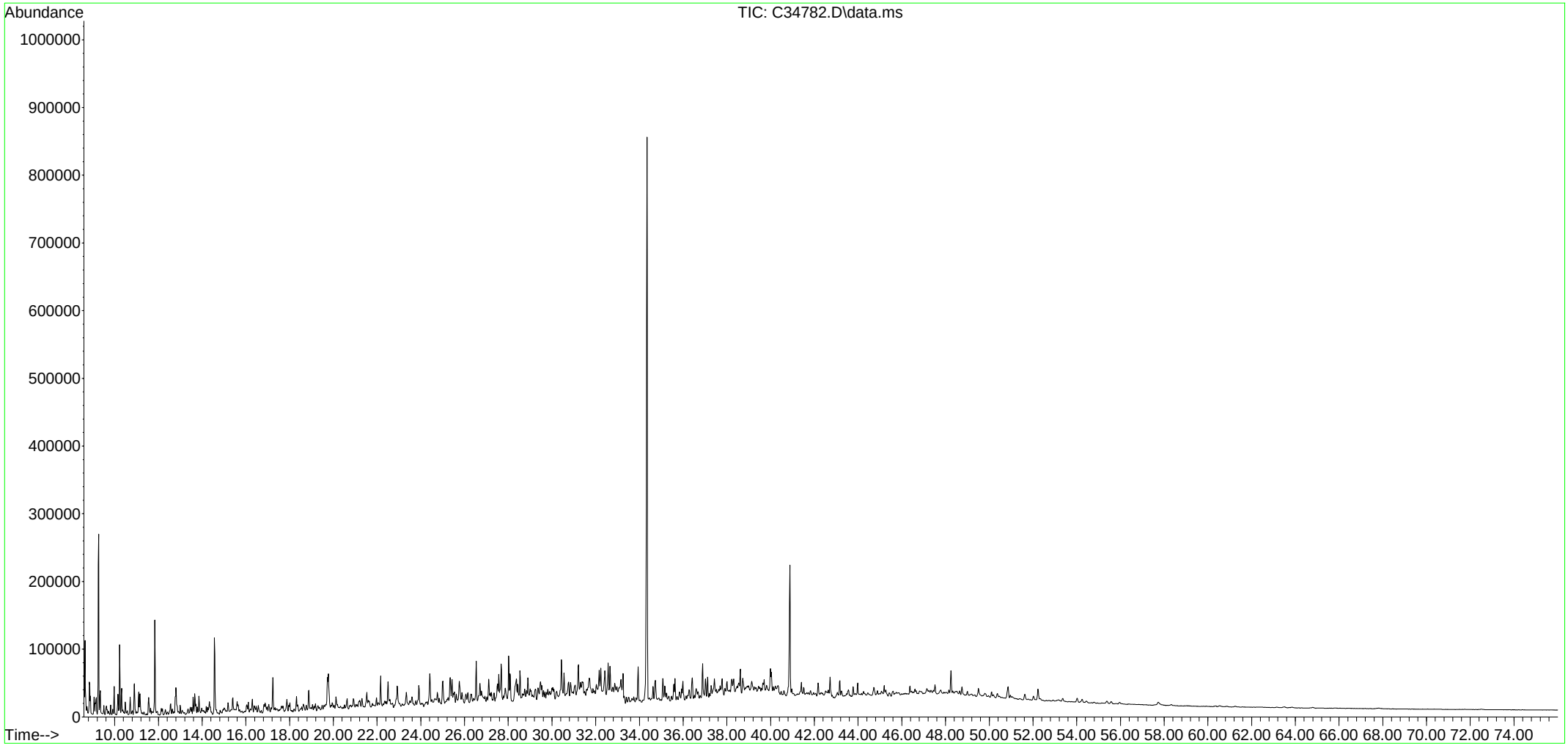
(#) = qualifier out of range (m) = manual integration (+) = signals summed

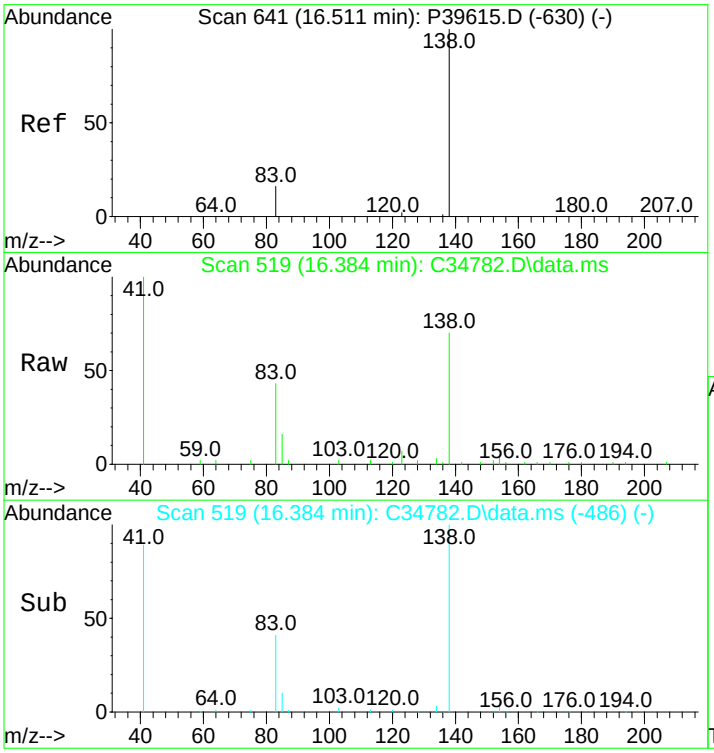
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

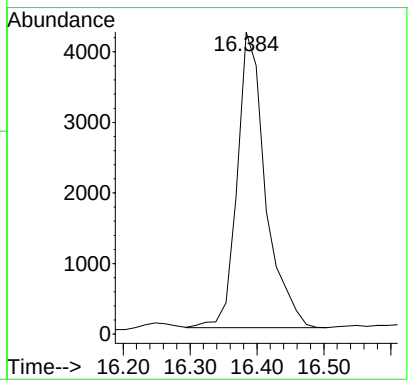
Sub List : Gulf_NEW_POIB_Default - All compounds listed

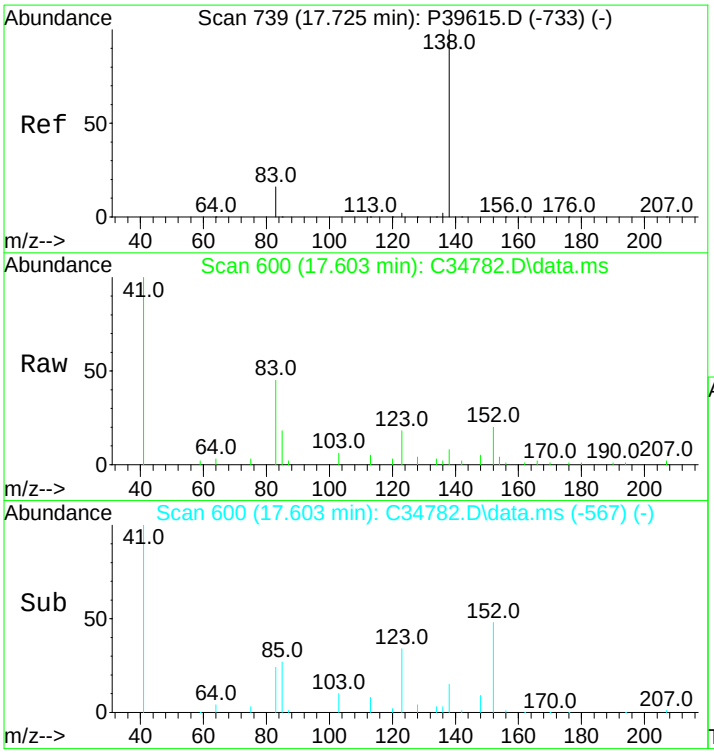




#3
trans-Decalin
Concen: 656.18 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

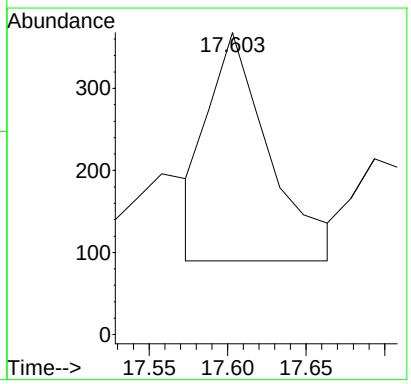
Tgt Ion:138 Resp: 12337

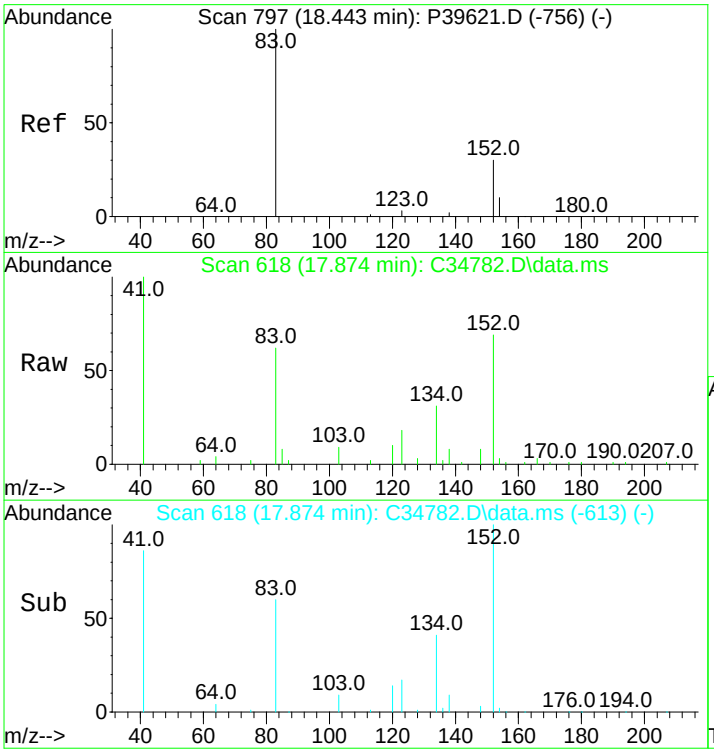




#4
cis-Decalin
Concen: 53.21 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

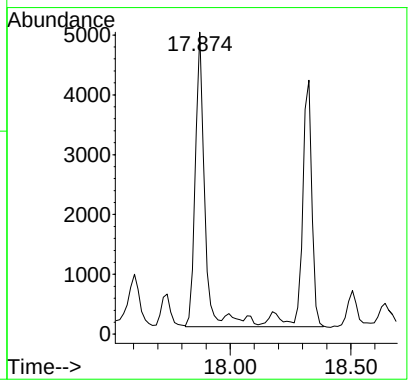
Tgt Ion:138 Resp: 754

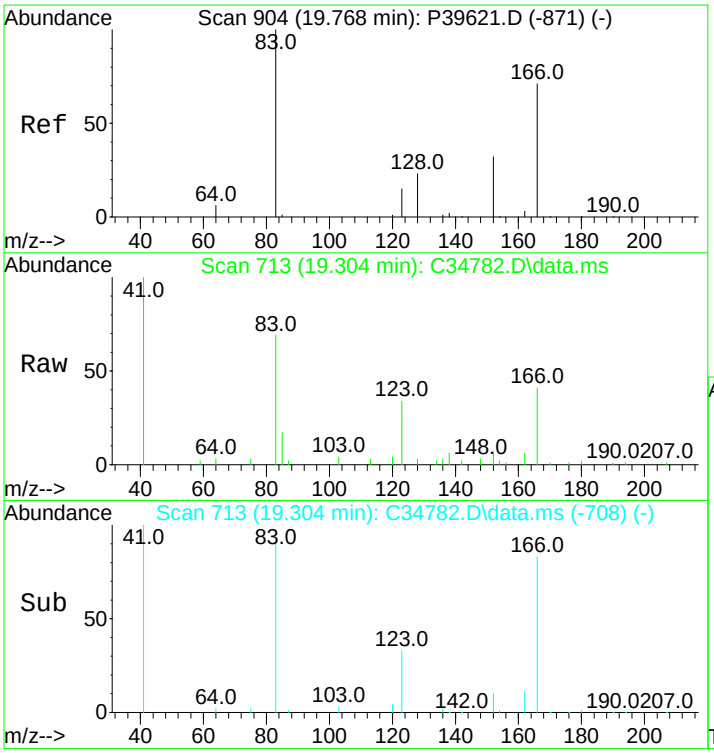




#5
C1-Decalins
Concen: 1339.21 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

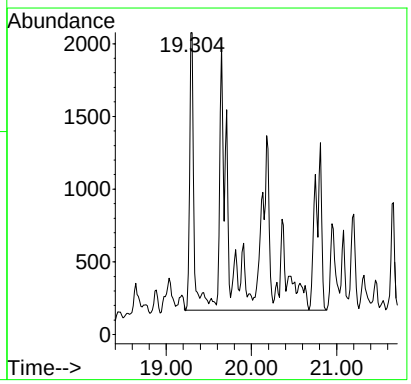
Tgt Ion:152 Resp: 25179

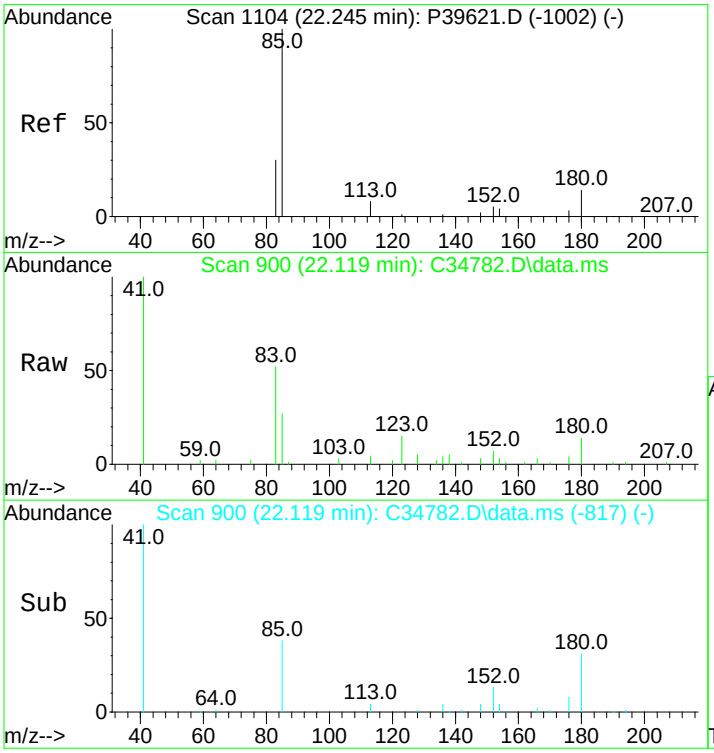




#6
C2-Decalins
Concen: 1900.72 ng/mL m
RT: 19.304 min Scan# 713
Delta R.T. -0.378 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

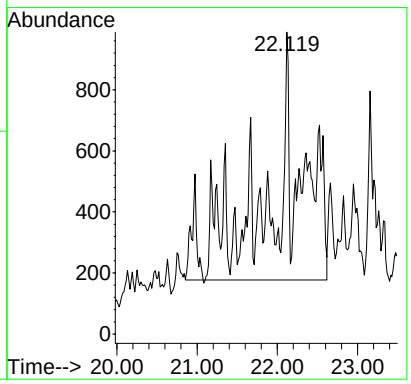
Tgt Ion:166 Resp: 35736

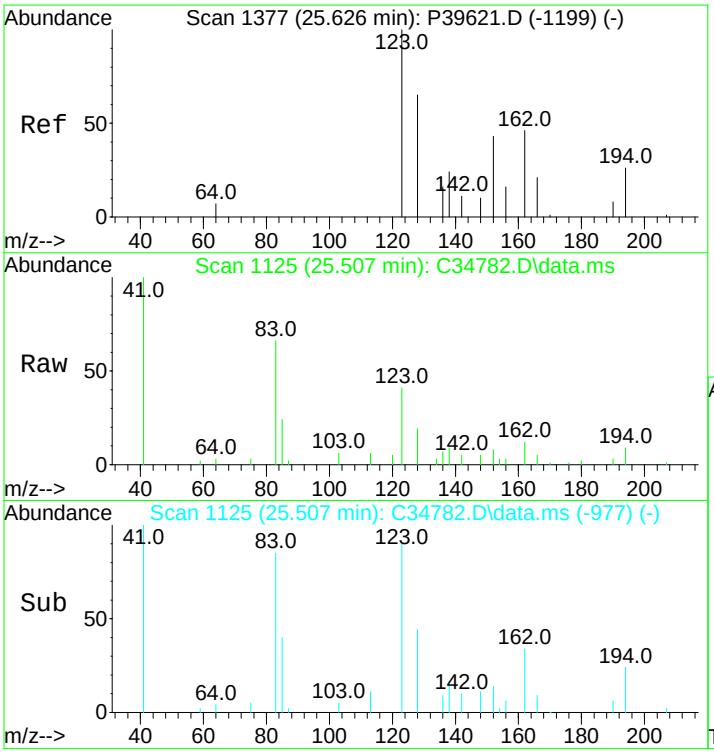




#7
C3-Decalins
Concen: 1241.72 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

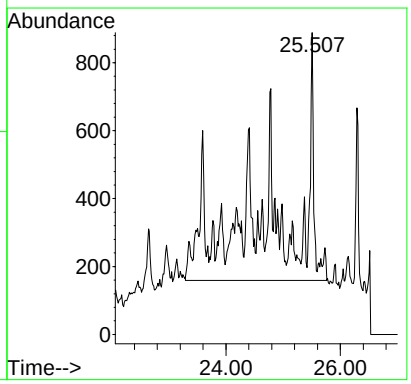
Tgt Ion:180 Resp: 23346

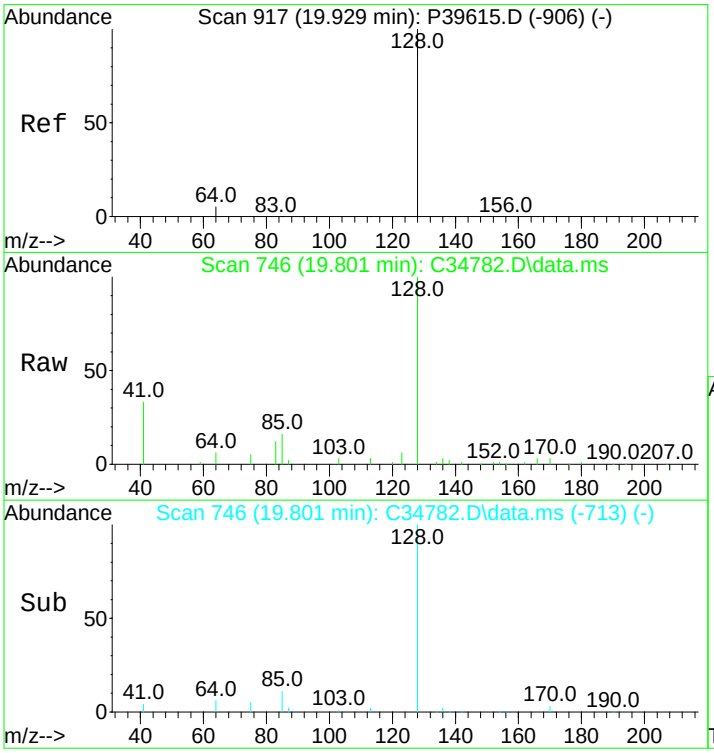




#8
C4-Decalins
Concen: 1163.53 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.005 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:194 Resp: 21876

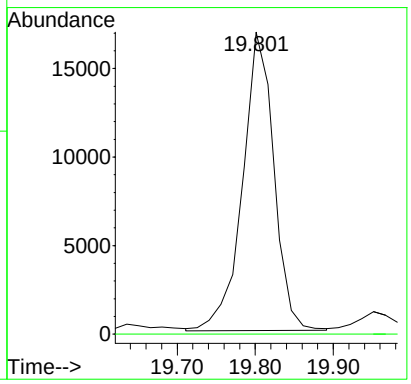


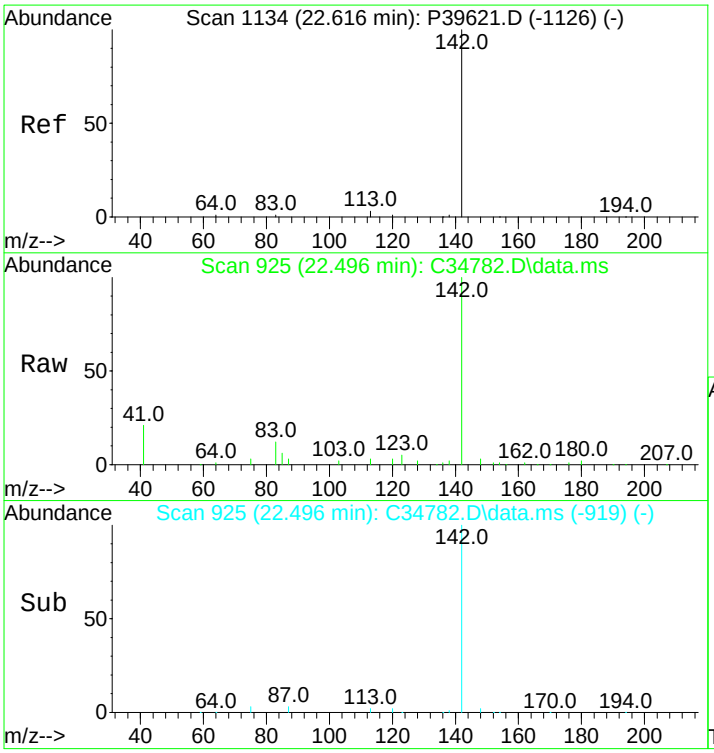


#10
Naphthalene
Concen: 310.38 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:128 Resp: 47114

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

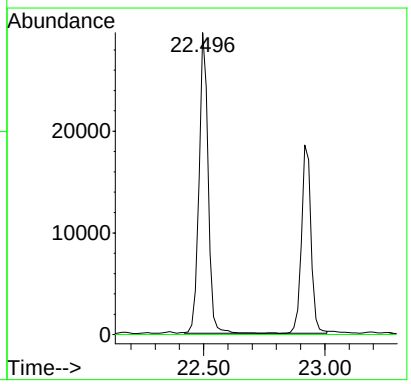


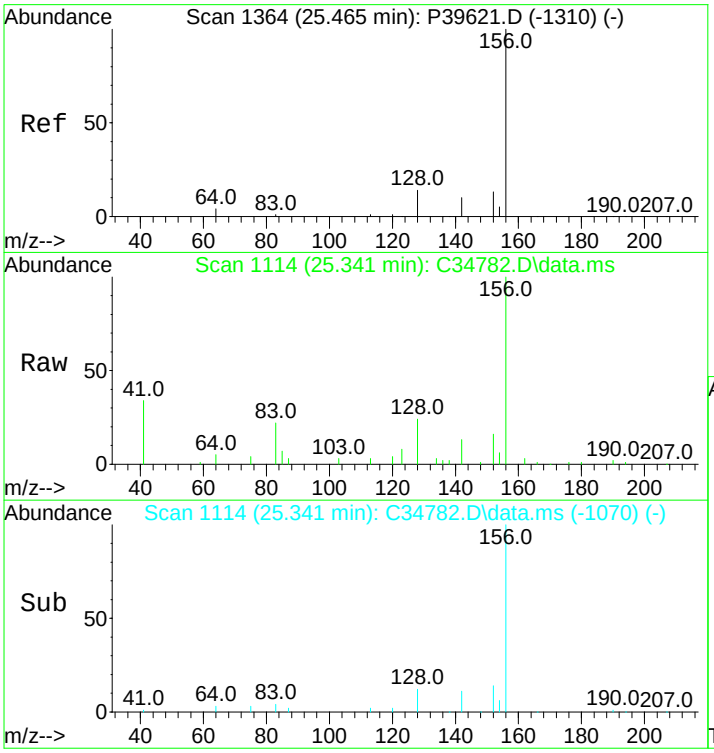


#11
C1-Naphthalenes
Concen: 841.46 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 127731

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

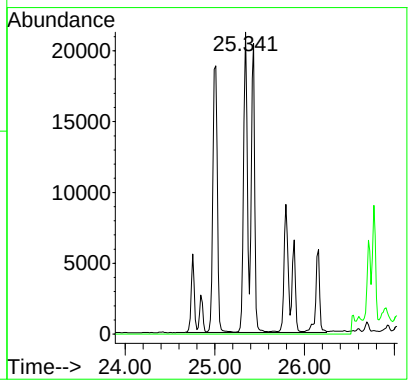


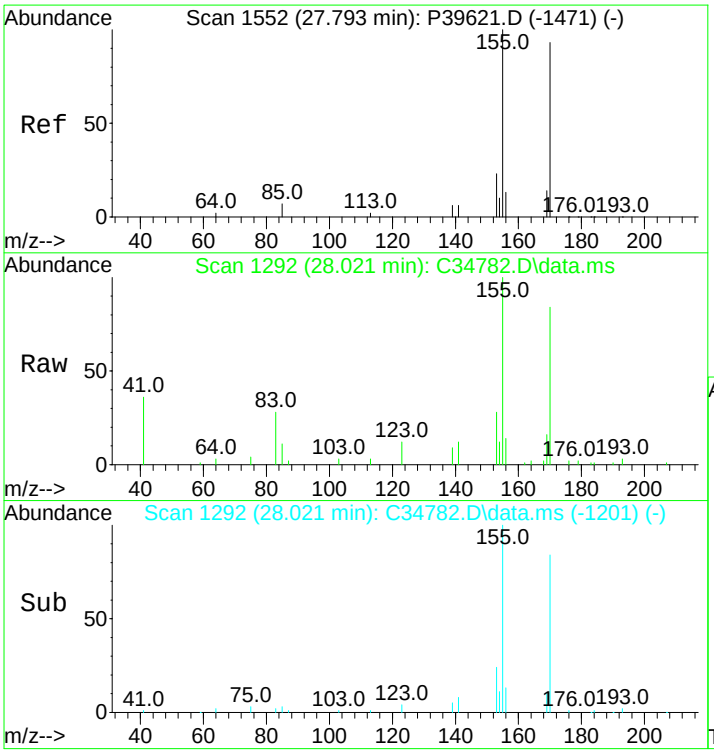


#12
C2-Naphthalenes
Concen: 1715.78 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:156 Resp: 260450

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

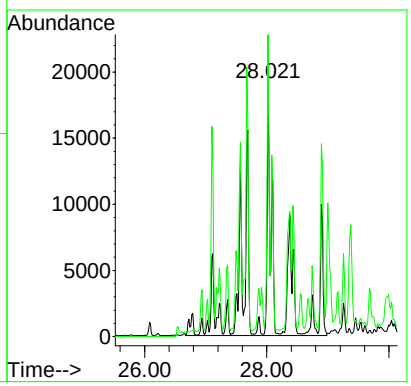


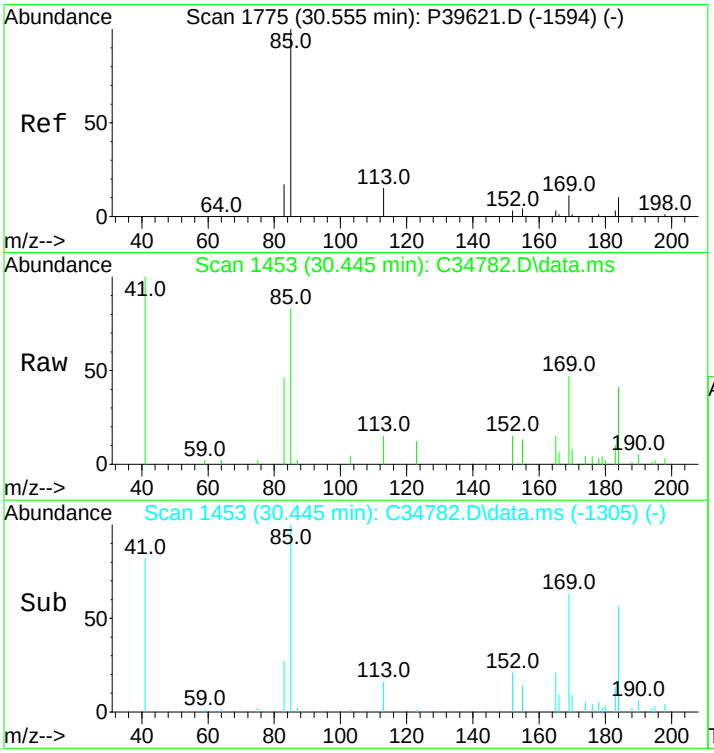


#13
C3-Naphthalenes
Concen: 1993.22 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:170 Resp: 302564

Ion	Ratio	Lower	Upper
170	100		
155	10.7	81.8	122.6#

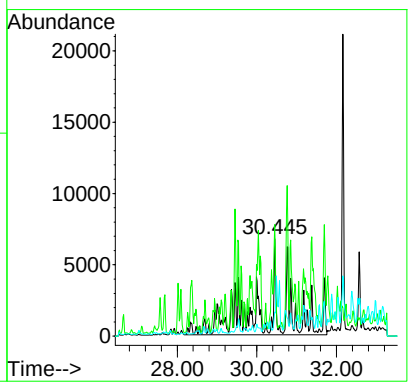


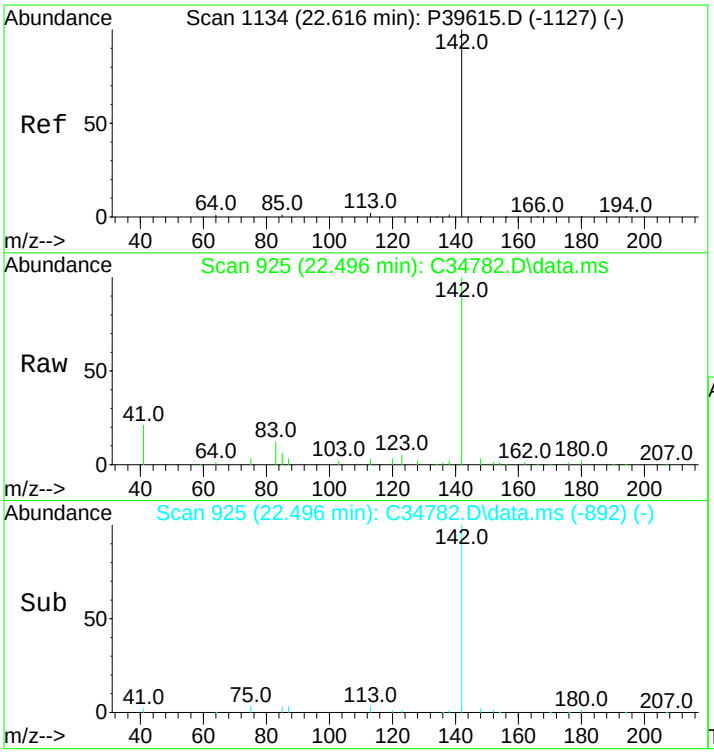


#14
C4-Naphthalenes
Concen: 1502.15 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:184 Resp: 228022

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

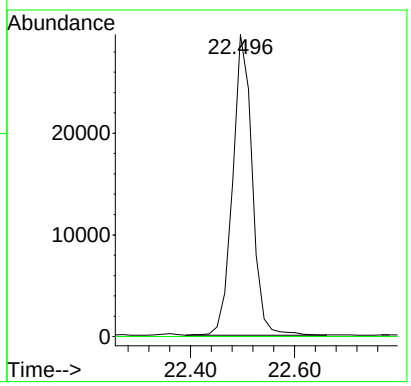


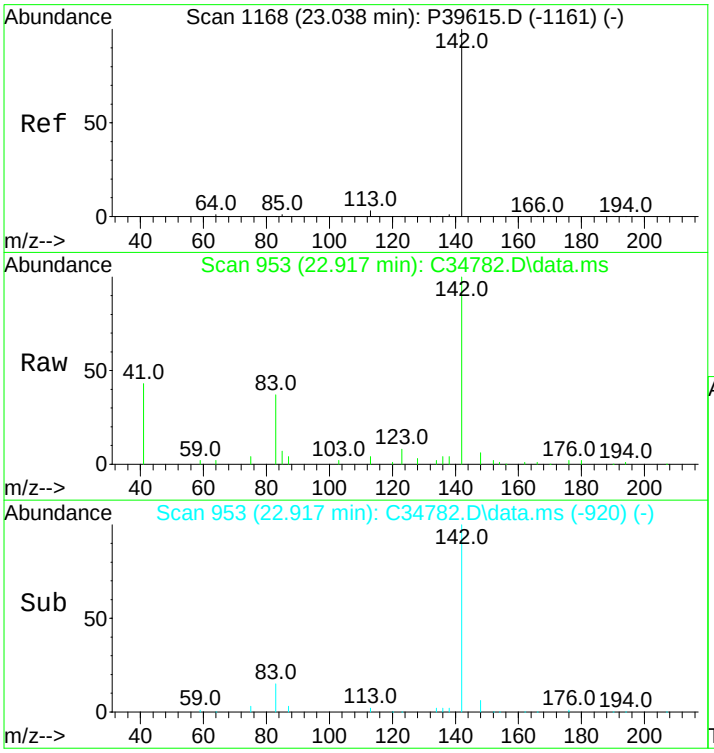


#16
2-Methylnaphthalene
Concen: 858.85 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 77085

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

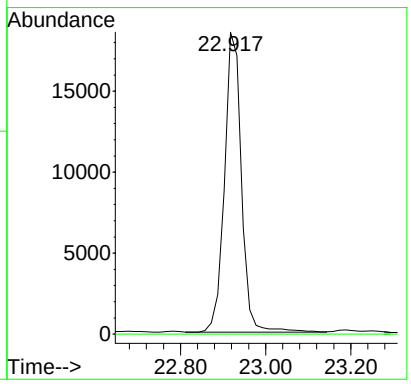


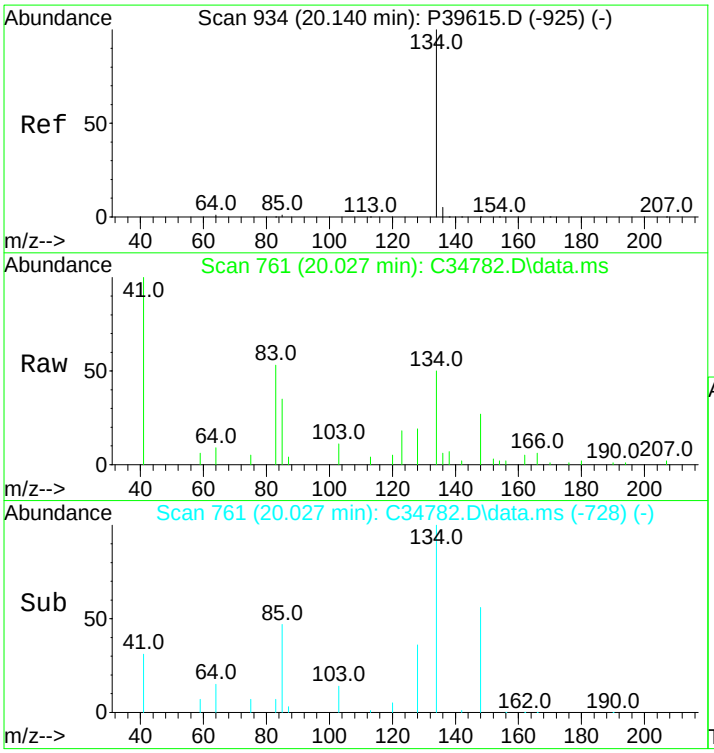


#17
1-Methylnaphthalene
Concen: 585.72 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 51530

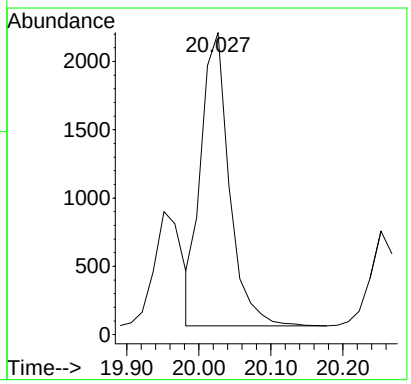
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

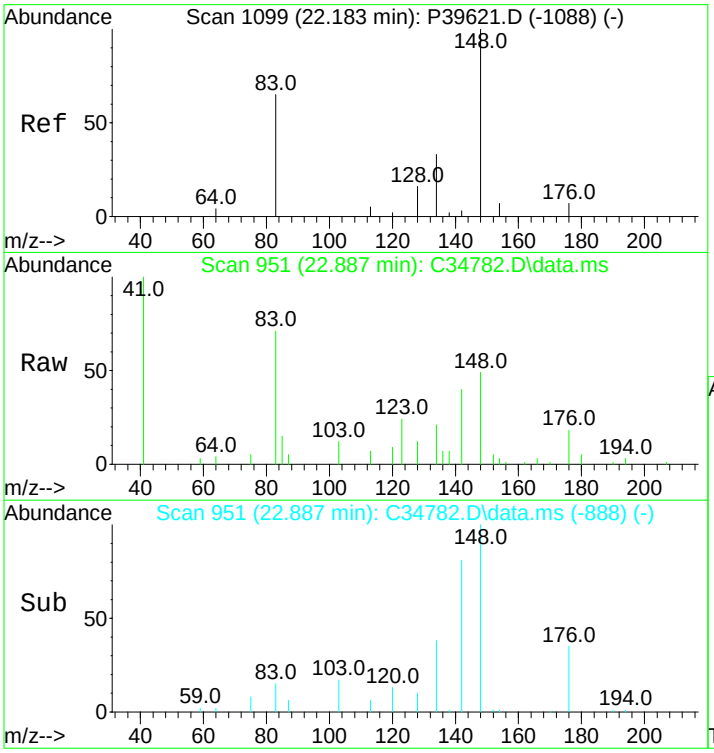




#18
Benzothiophene
Concen: 43.20 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

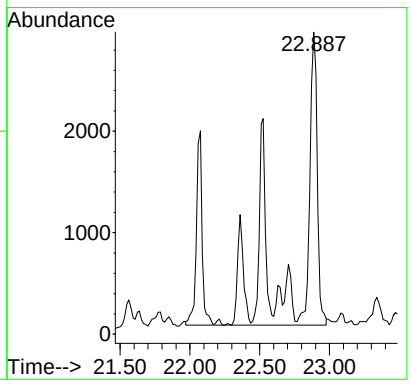
Tgt Ion:134 Resp: 5901

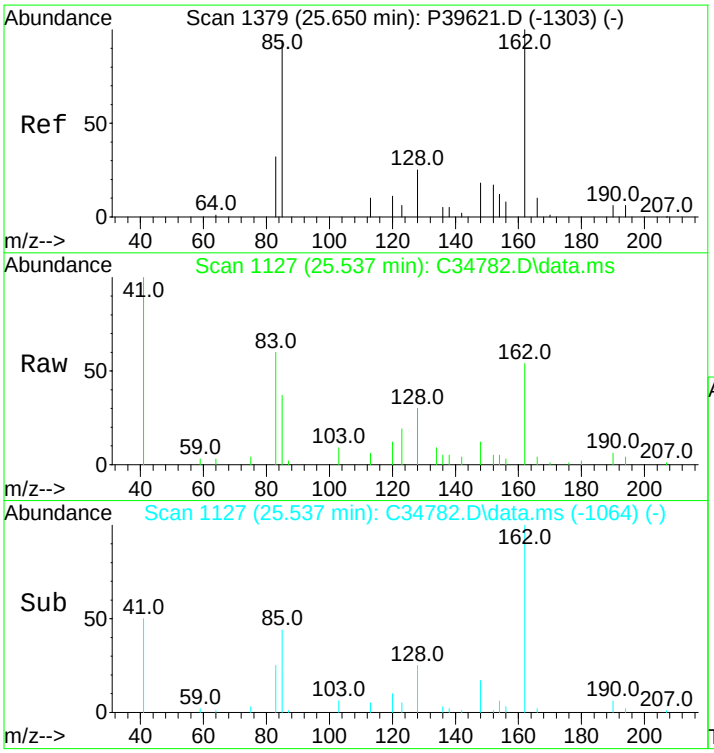




#19
C1-Benzo(b)thiophenes
Concen: 207.09 ng/mL m
RT: 22.887 min Scan# 951
Delta R.T. 0.807 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

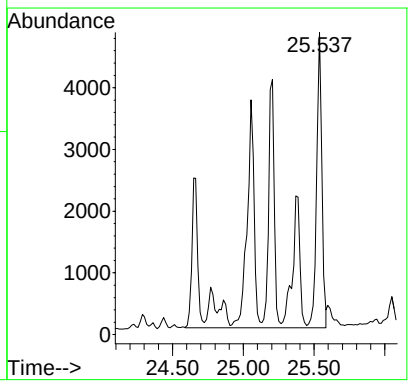
Tgt Ion:148 Resp: 28288

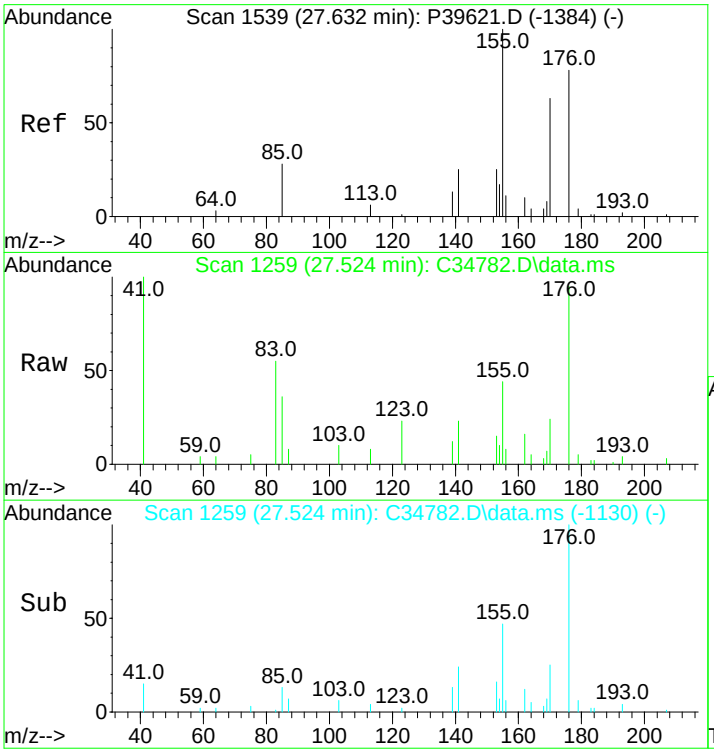




#20
C2-Benzo(b)thiophenes
Concen: 395.56 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

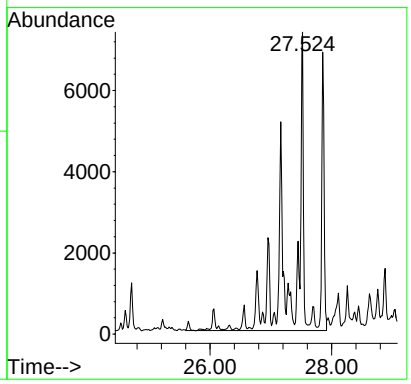
Tgt Ion:162 Resp: 54033

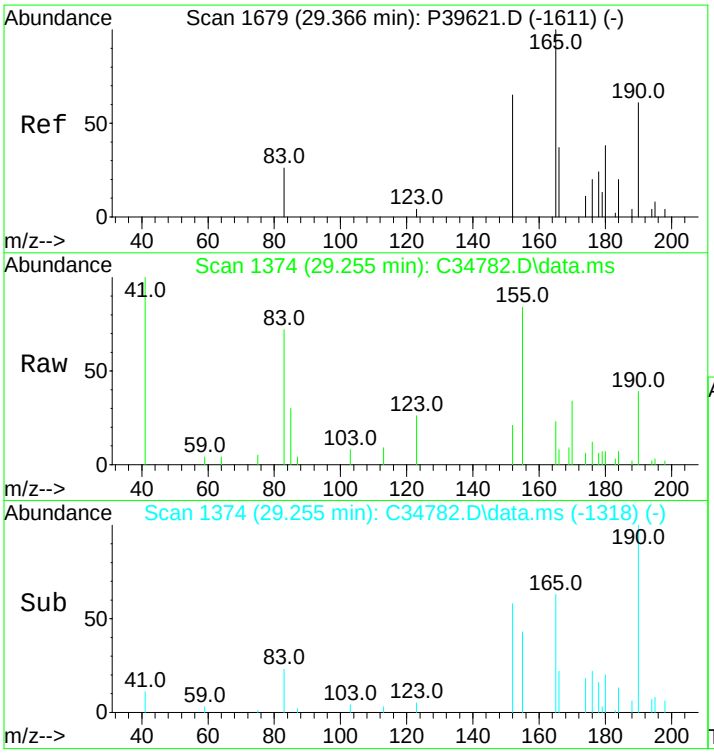




#21
C3-Benzo(b)thiophenes
Concen: 646.99 ng/mL m
RT: 27.524 min Scan# 1259
Delta R.T. 0.019 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

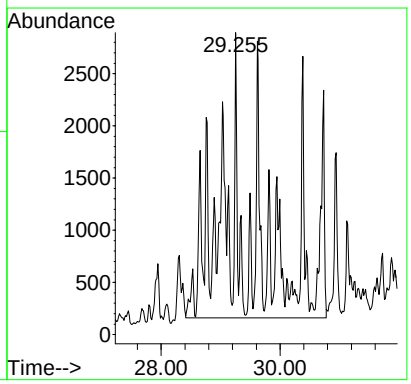
Tgt Ion:176 Resp: 88377

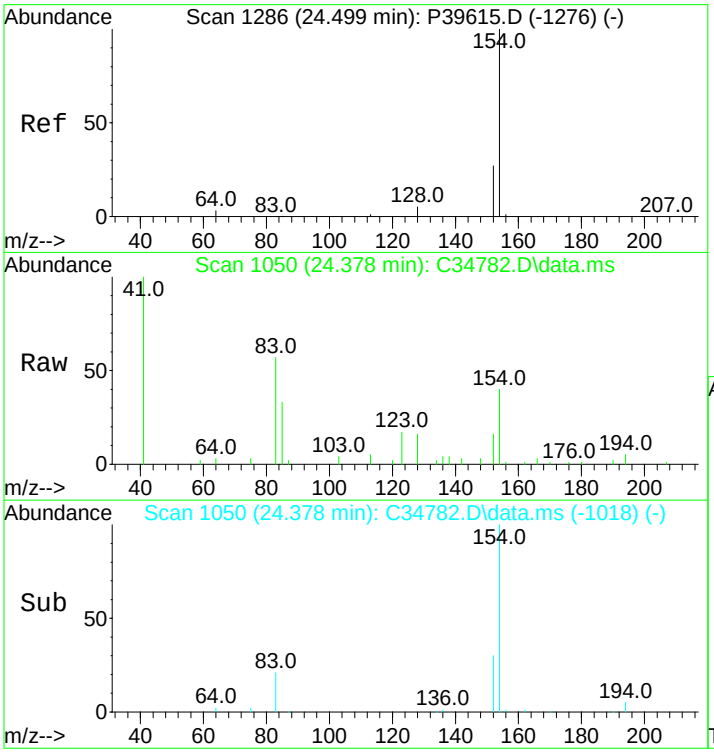




#22
C4-Benzo(b)thiophenes
Concen: 648.71 ng/mL m
RT: 29.255 min Scan# 1374
Delta R.T. 0.026 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:190 Resp: 88613

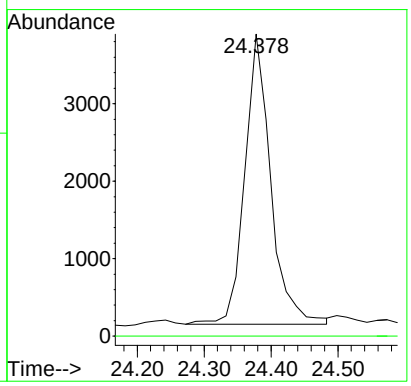


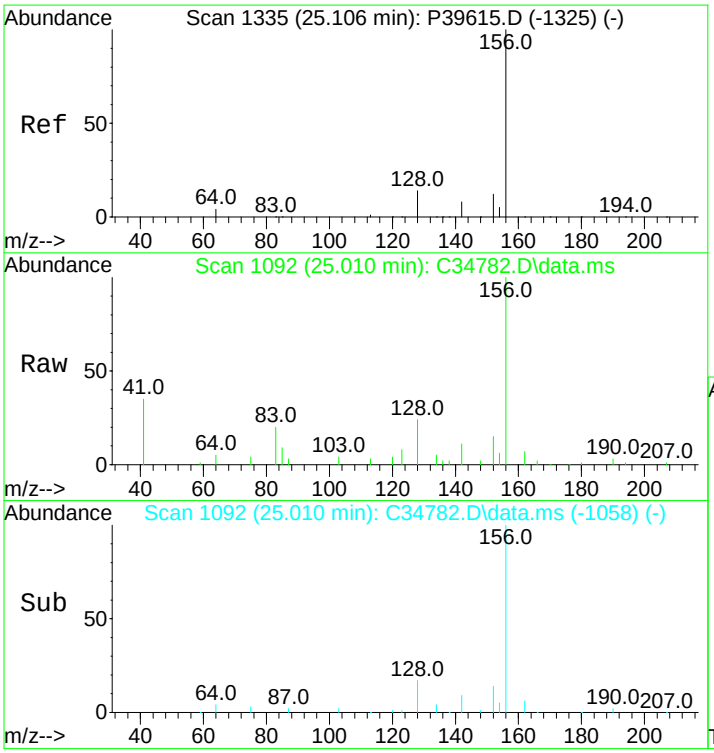


#23
Biphenyl
Concen: 89.63 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:154 Resp: 10176

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

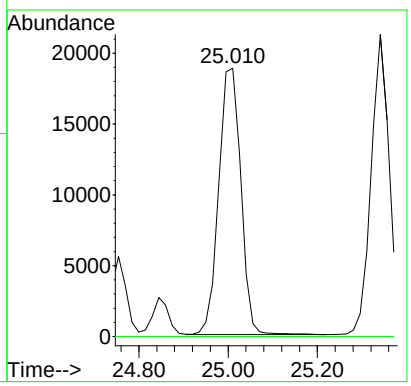


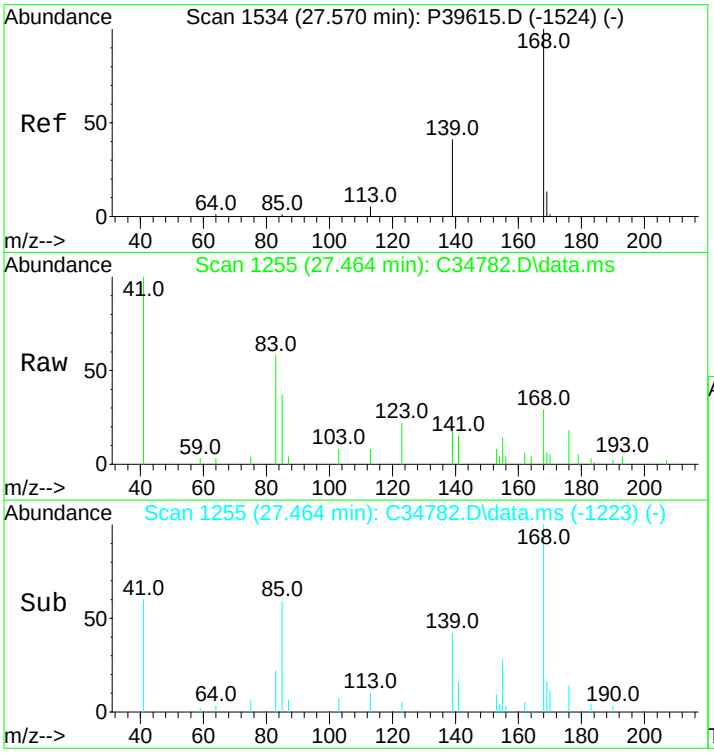


#24
2,6-Dimethylnaphthalene
Concen: 877.38 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:156 Resp: 64699

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

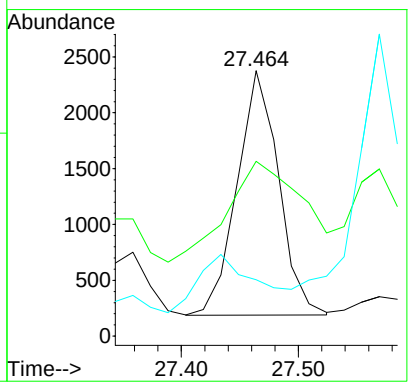


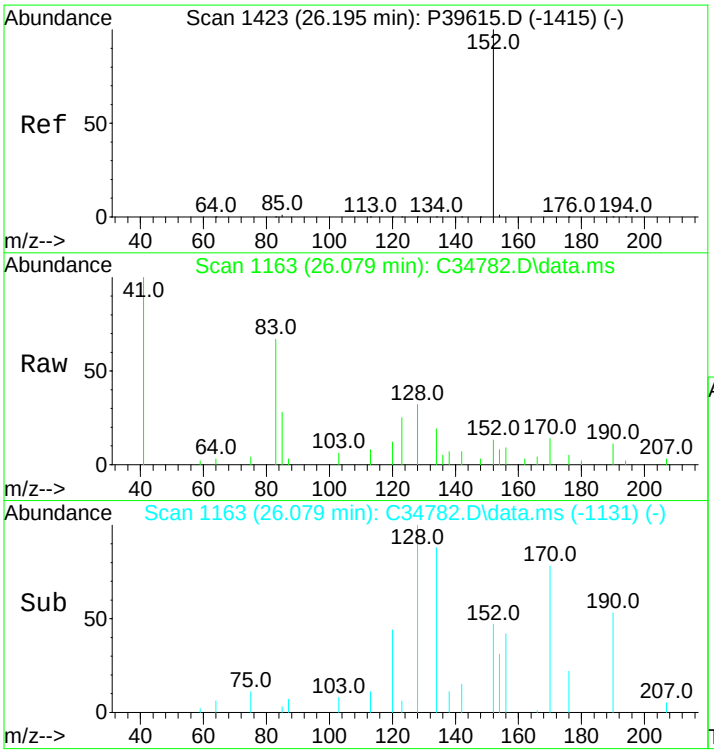


#25
Dibenzofuran
Concen: 41.45 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:168 Resp: 5404

Ion	Ratio	Lower	Upper
168	100		
139	74.0	28.4	42.6#
169	0.0	10.8	16.2#

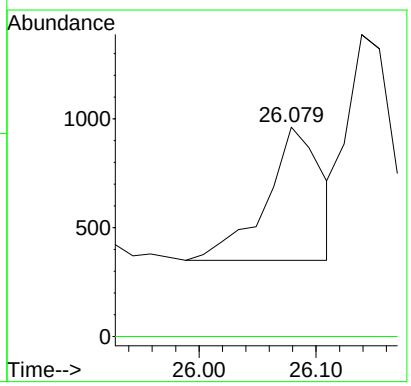


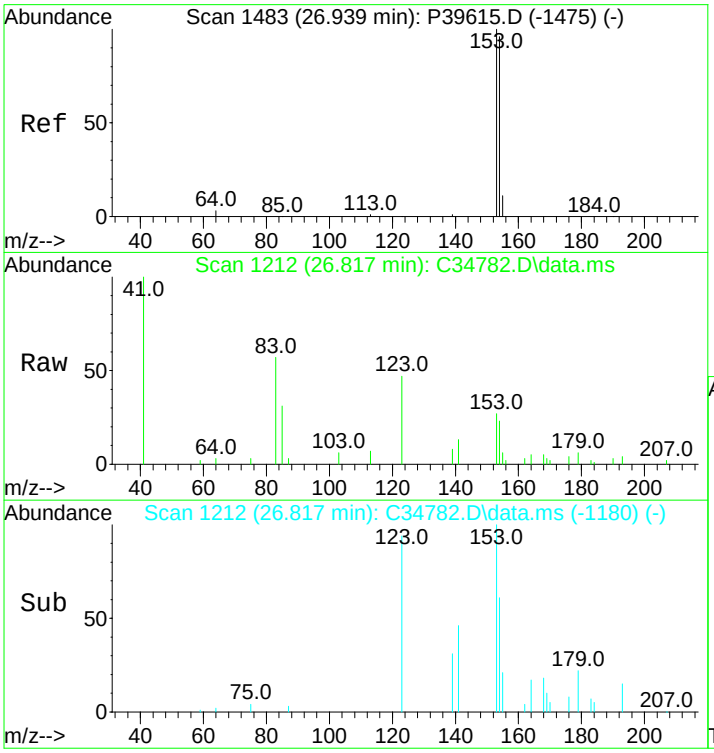


#26
Acenaphthylene
Concen: 13.41 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:152 Resp: 2021

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

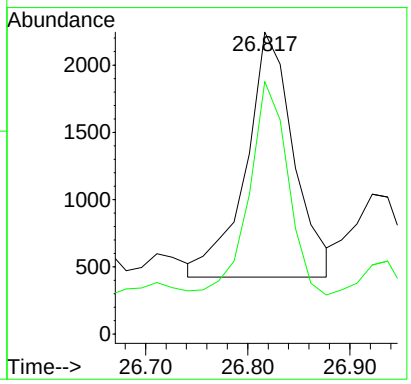


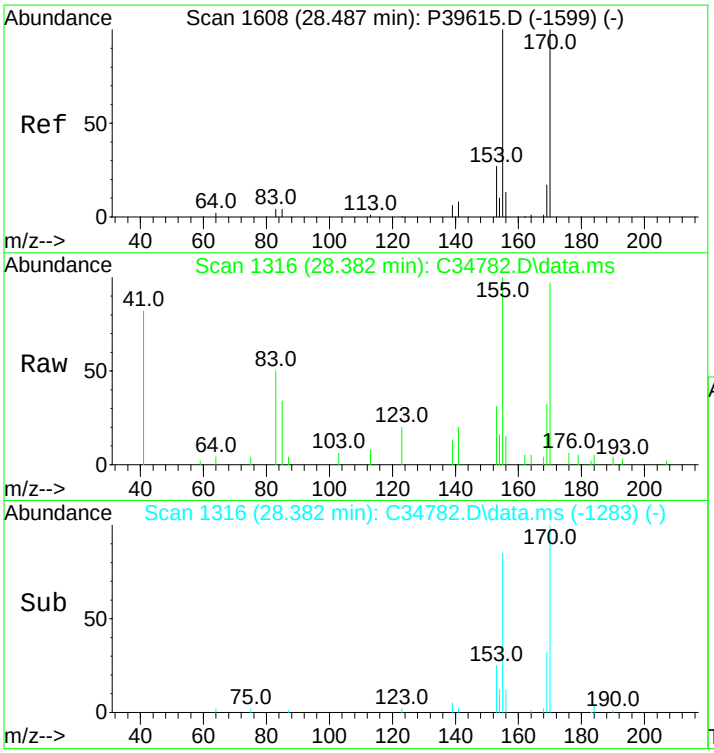


#27
Acenaphthene
Concen: 67.03 ng/mL m
RT: 26.817 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:153 Resp: 5947

Ion	Ratio	Lower	Upper
153	100		
154	73.3	73.6	110.4#

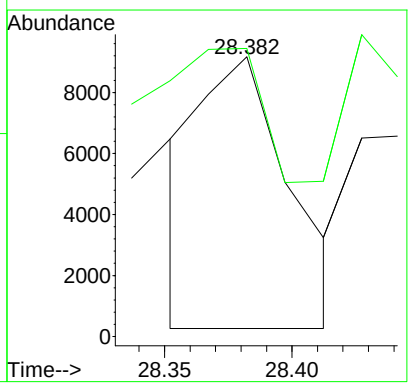


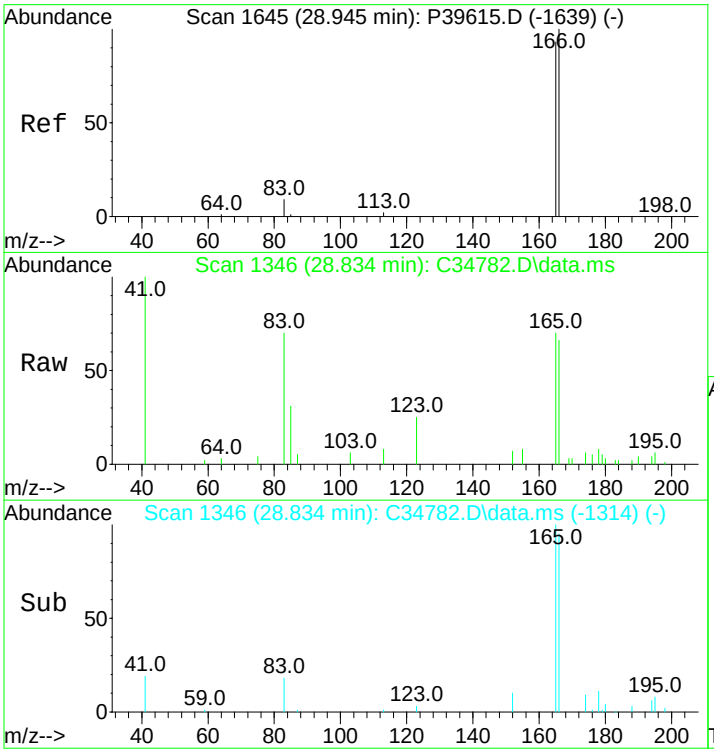


#28
2,3,5-Trimethylnaphthalene
Concen: 370.36 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:170 Resp: 22016

Ion	Ratio	Lower	Upper
170	100		
155	173.3	87.3	130.9#

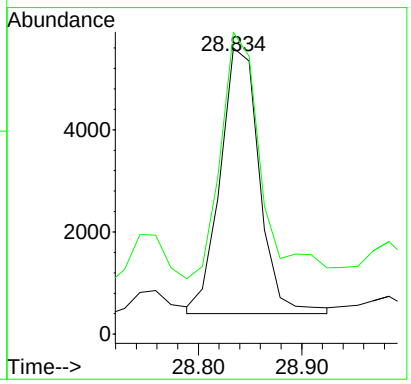


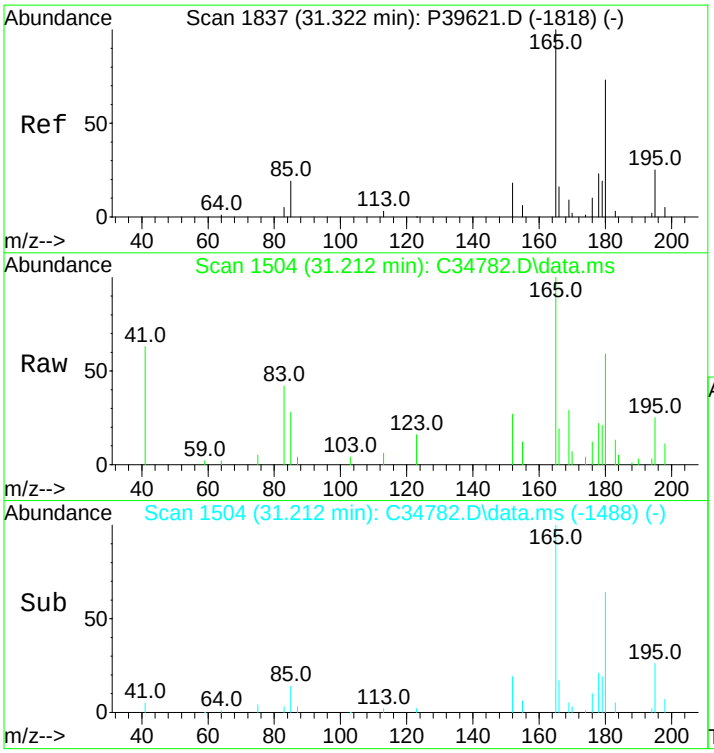


#29
Fluorene
Concen: 140.19 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:166 Resp: 13718

Ion	Ratio	Lower	Upper
166	100		
165	145.8	77.3	115.9#

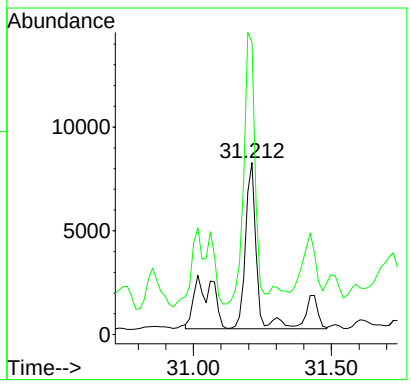


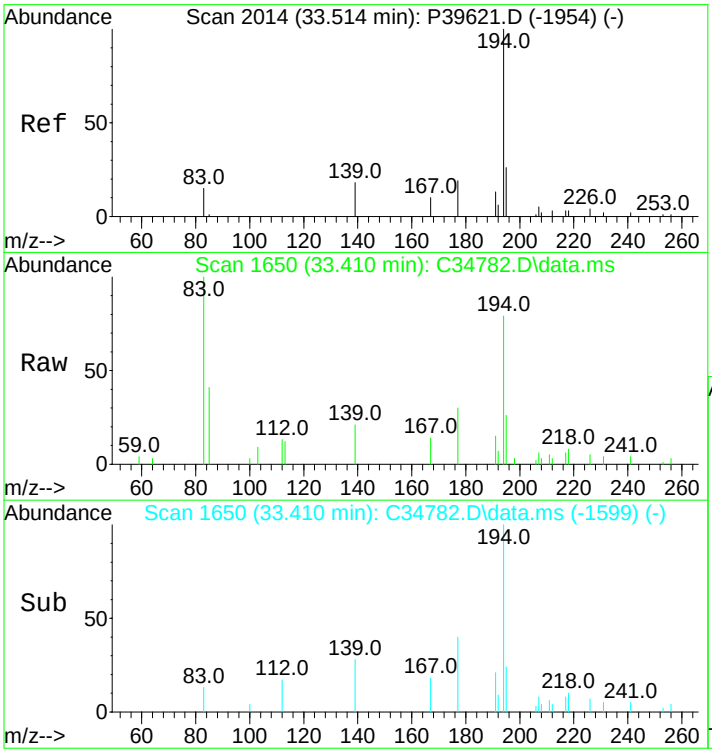


#30
C1-Fluorenes
Concen: 390.70 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:180 Resp: 38230

Ion	Ratio	Lower	Upper
180	100		
165	96.1	111.4	167.2#

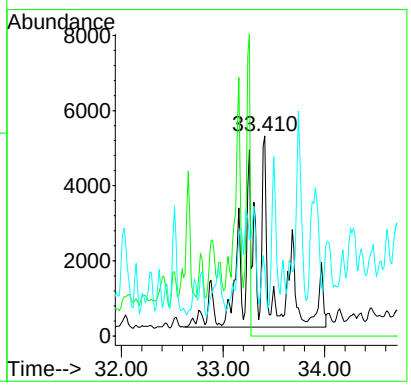


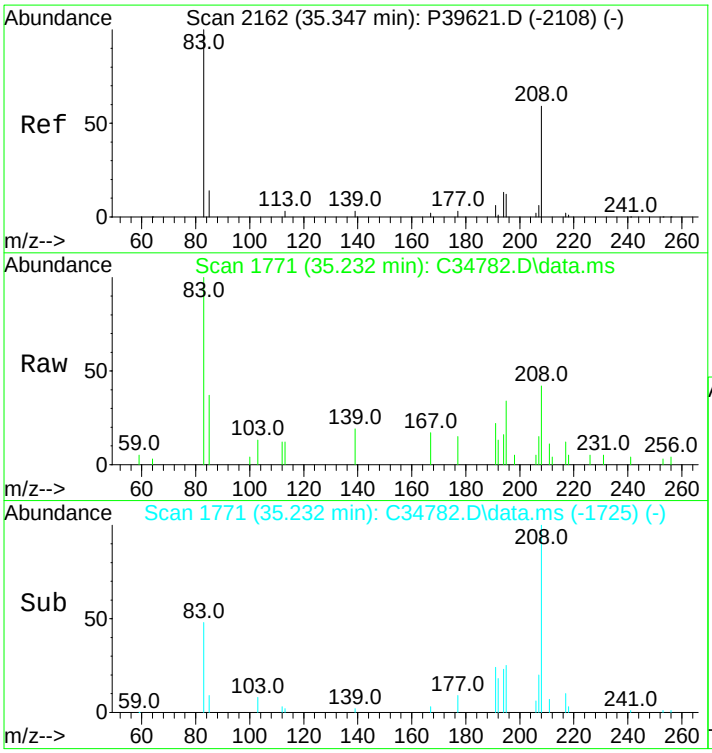


#31
C2-Fluorenes
Concen: 751.13 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:194 Resp: 73499

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	8.9	27.3	40.9#

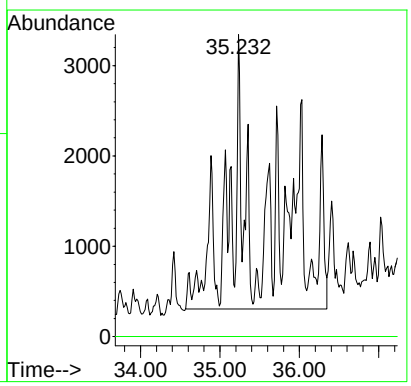


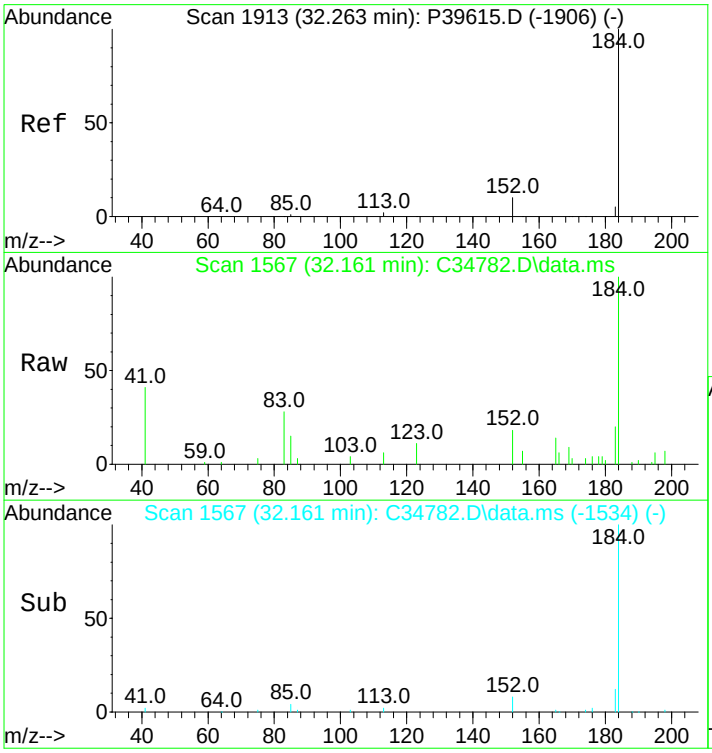


#32
C3-Fluorenes
Concen: 857.77 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:208 Resp: 83934

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

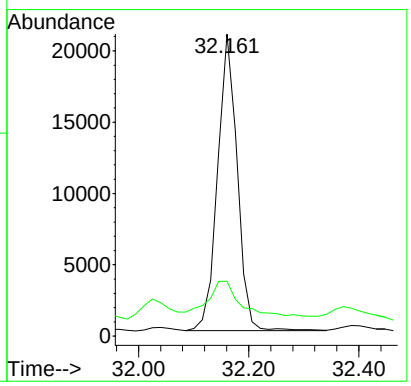


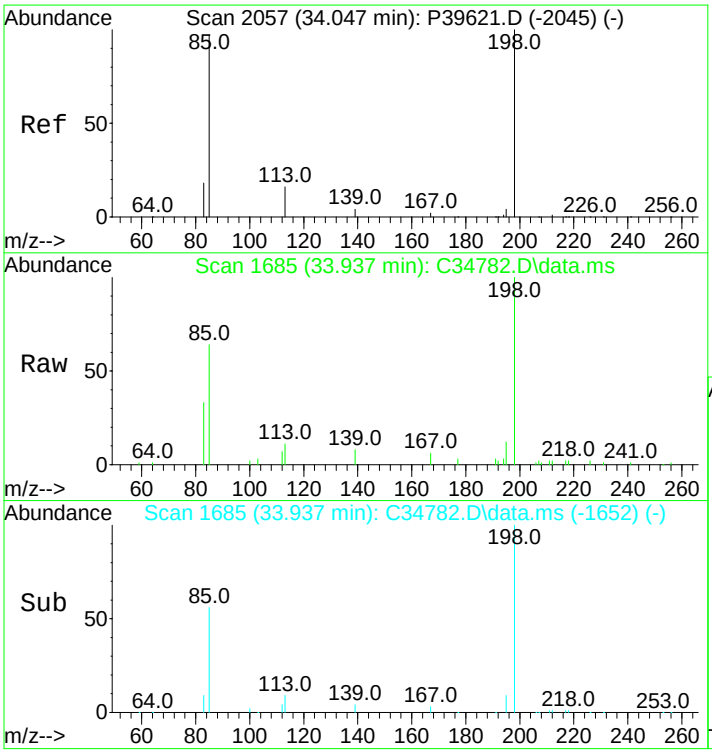


#33
Dibenzothiophene
Concen: 329.38 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:184 Resp: 51665

Ion	Ratio	Lower	Upper
184	100		
152	18.8	7.5	11.3#

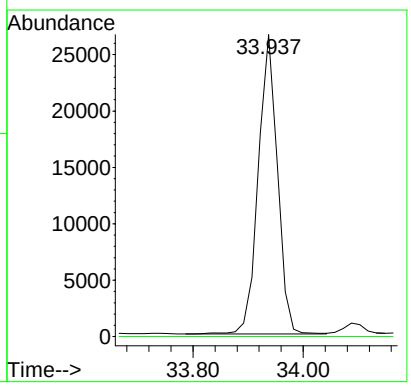


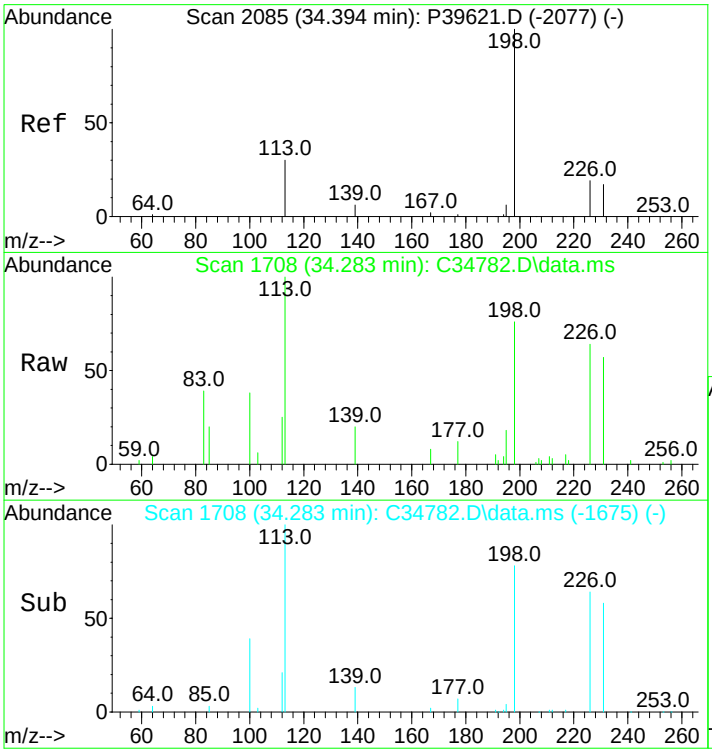


#34
4-Methyldibenzothiophene(4MDT)
Concen: 408.58 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 64088

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

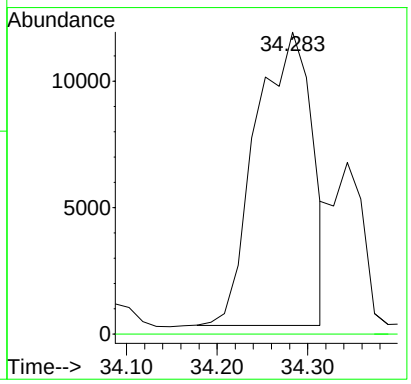


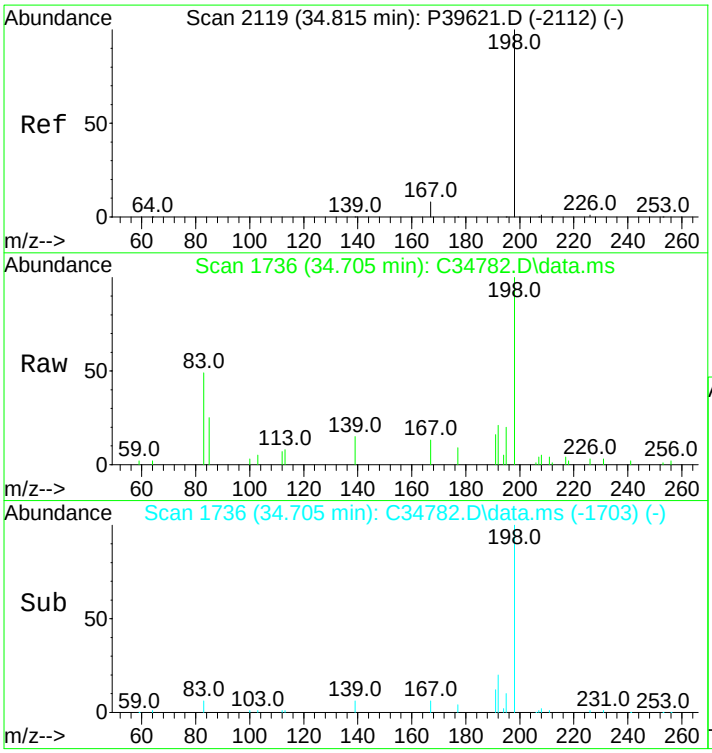


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 322.39 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 50568

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

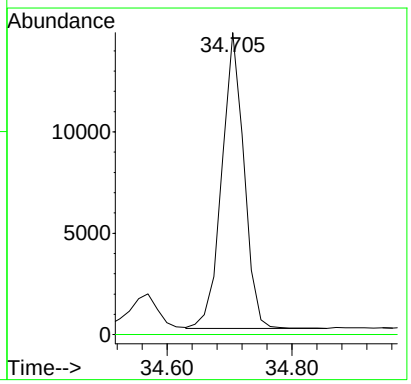


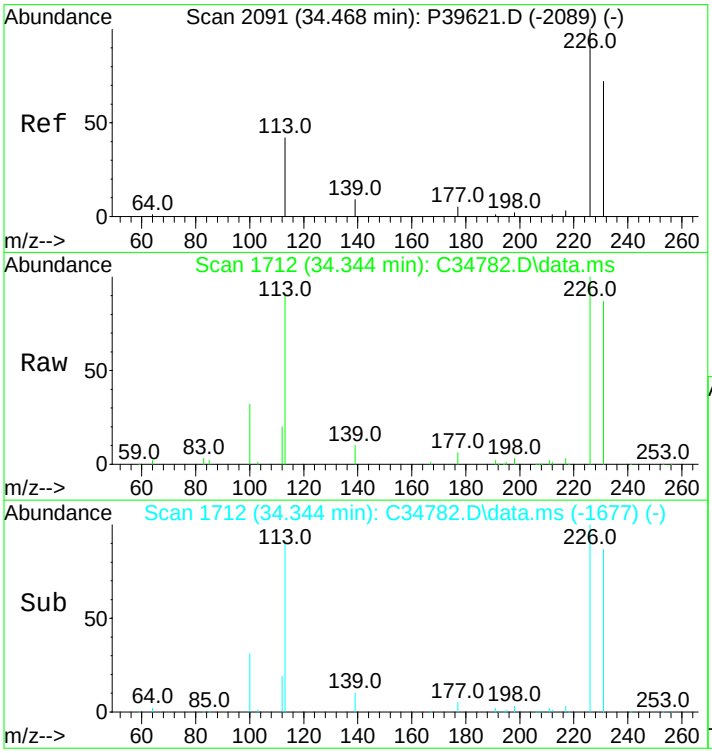


#36
1-Methyldibenzothiophene(1MDT)
Concen: 228.98 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 35916

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

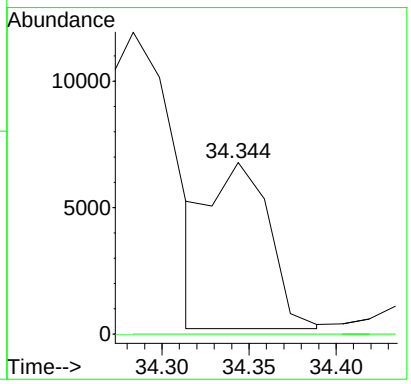


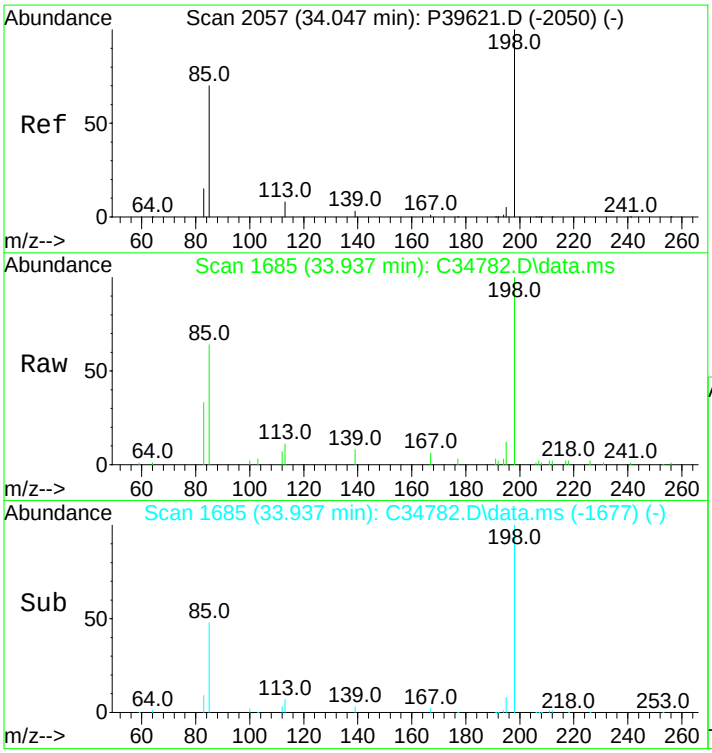


#37
OTP
Concen: 99.53 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 15611

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

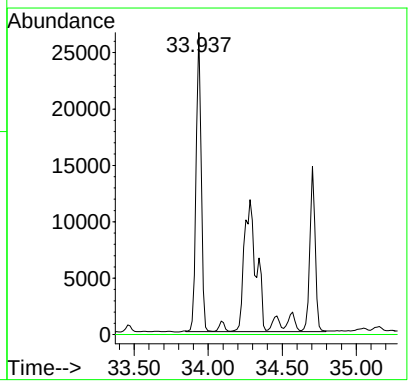


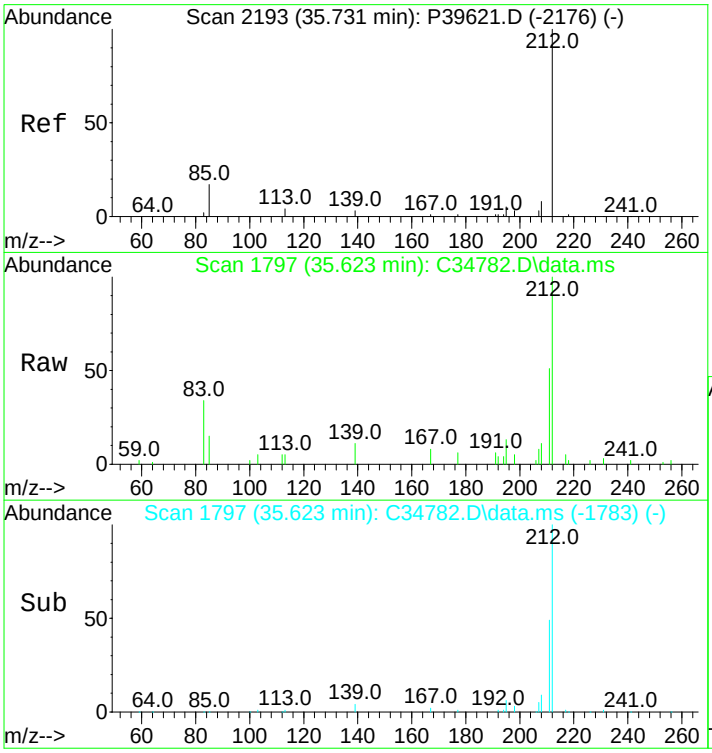


#38
C1-Dibenzothiophenes
Concen: 1140.96 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 178964

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

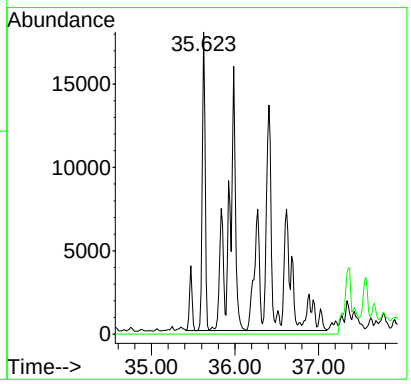


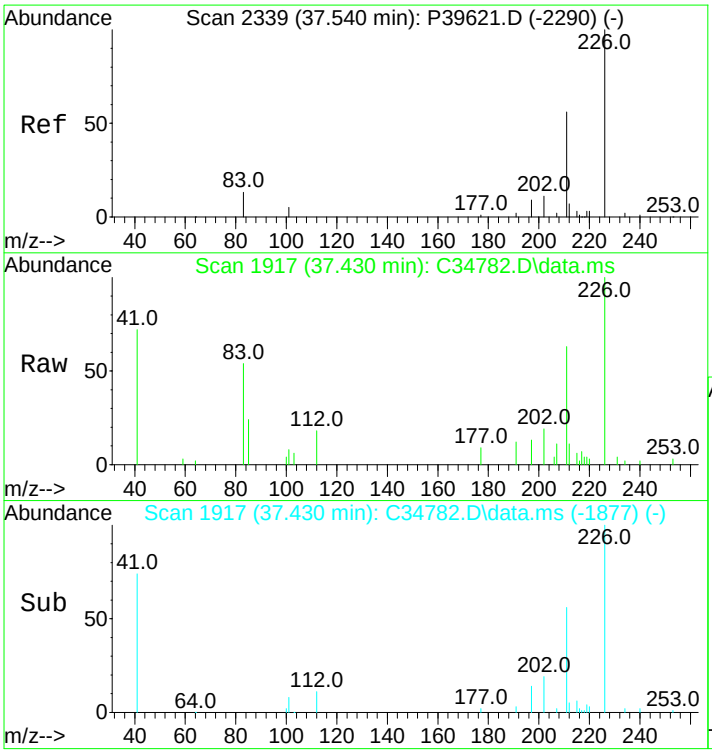


#39
C2-Dibenzothiophenes
Concen: 1771.24 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:212 Resp: 277827

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

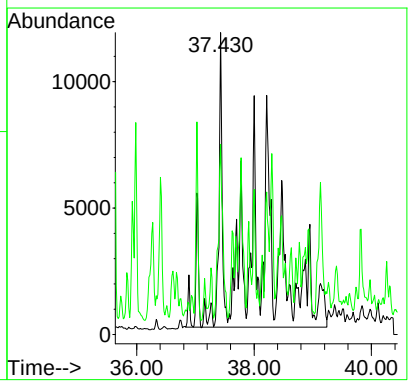


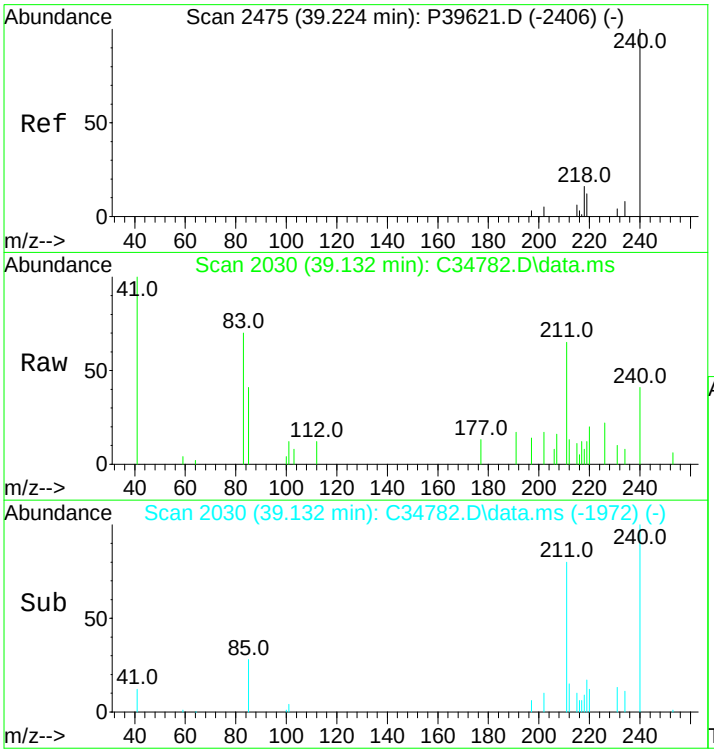


#40
C3-Dibenzothiophenes
Concen: 1856.67 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:226 Resp: 291226

Ion	Ratio	Lower	Upper
226	100		
211	12.3	45.0	67.6#

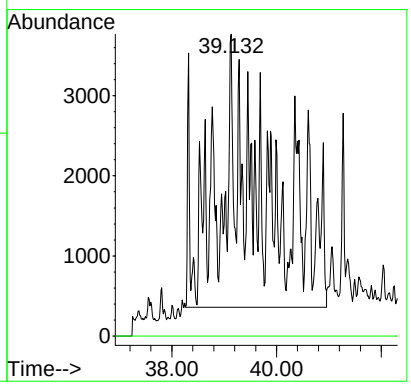


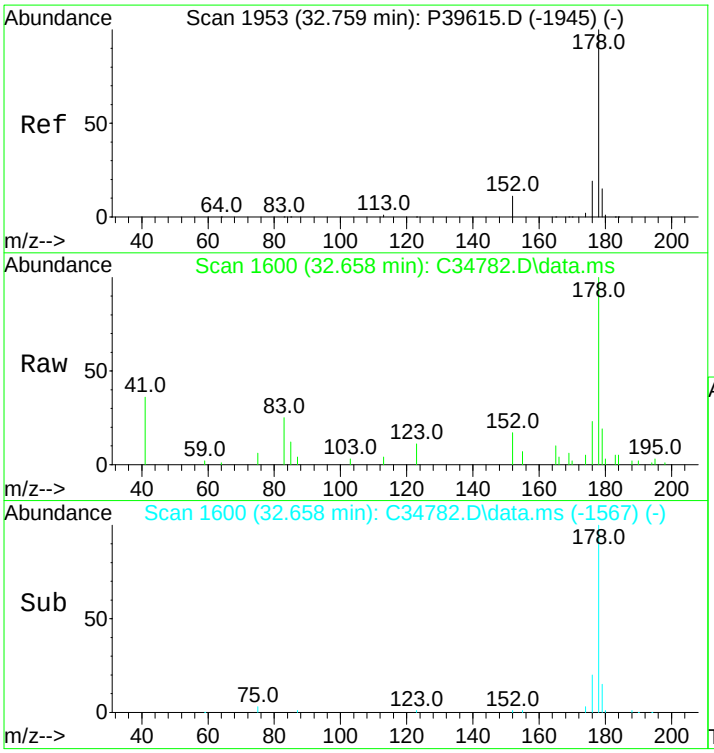


#41
C4-Dibenzothiophenes
Concen: 1265.72 ng/mL m
RT: 39.132 min Scan# 2030
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:240 Resp: 198533

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

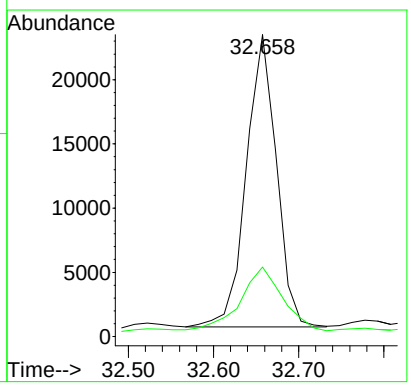


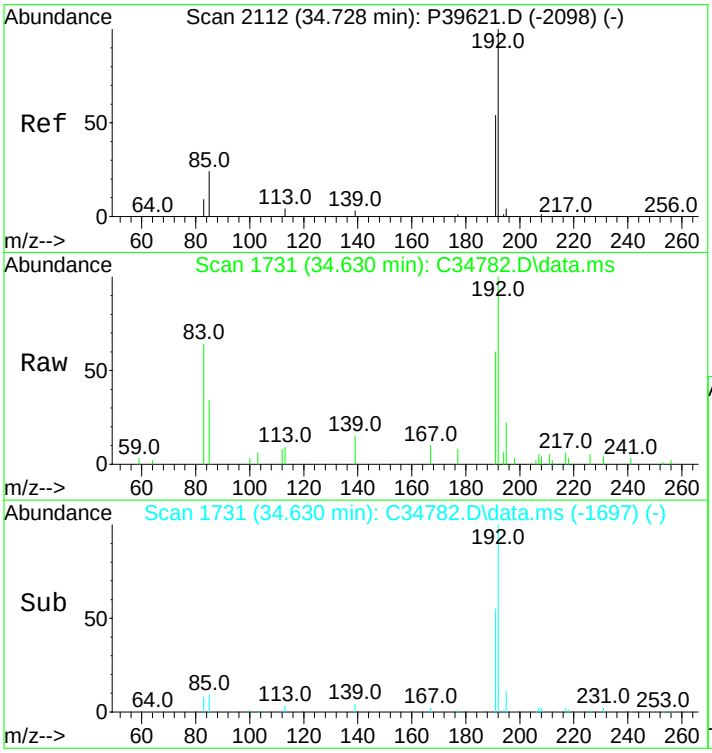


#43
Phenanthrene
Concen: 407.12 ng/mL
RT: 32.658 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:178 Resp: 56105

Ion	Ratio	Lower	Upper
178	100		
176	30.1	16.1	24.1#

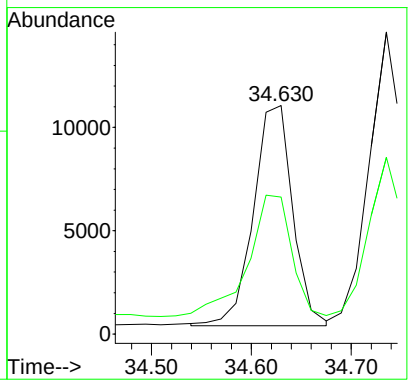


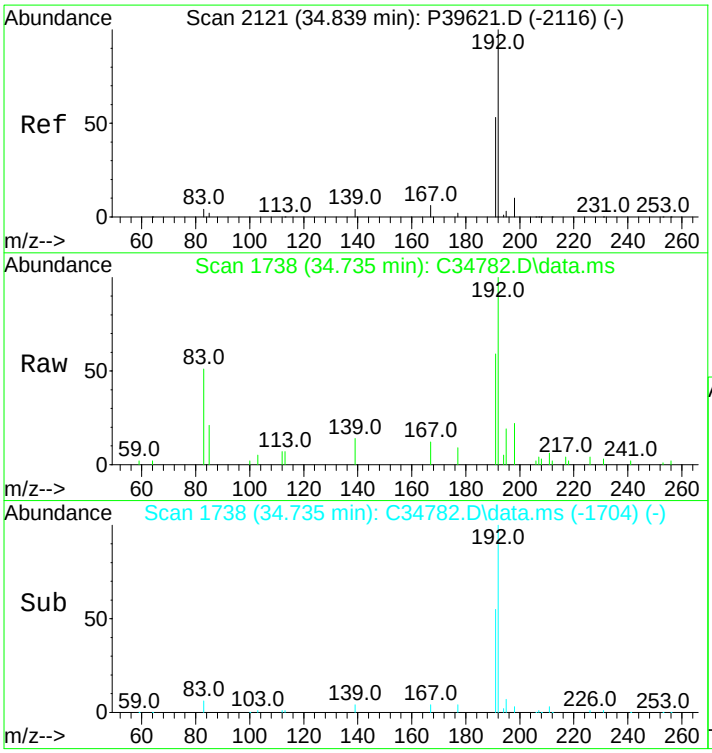


#44
3-Methylphenanthrene(3MP)
Concen: 211.67 ng/mL m
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29170

Ion	Ratio	Lower	Upper
192	100		
191	67.2	46.9	70.3

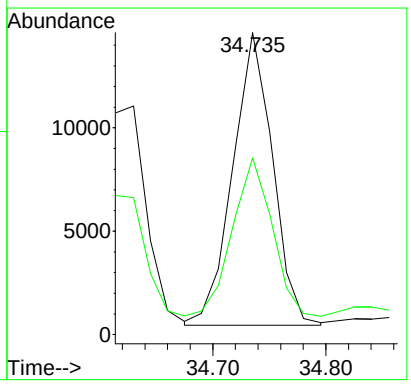


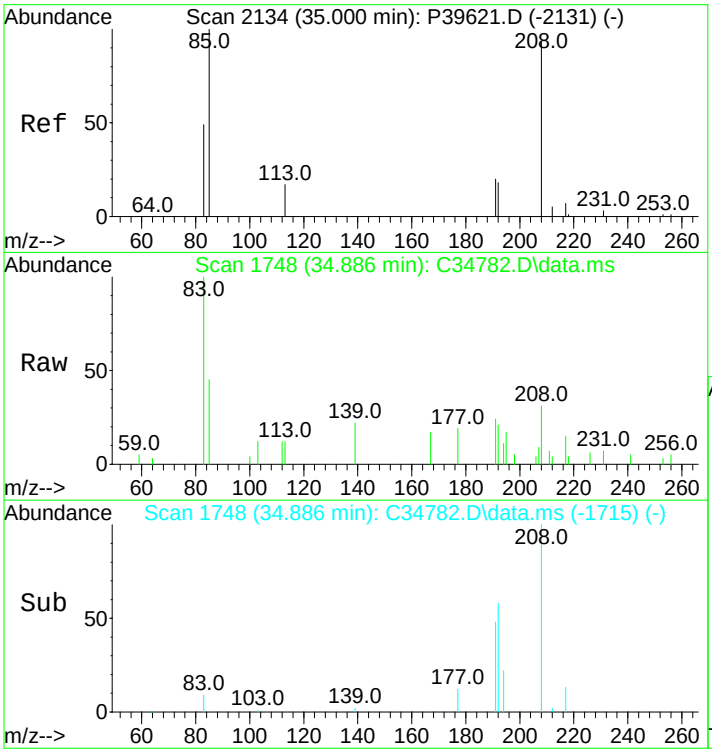


#45
2/4-Methylphenanthrene(2MP)
Concen: 252.62 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 34814

Ion	Ratio	Lower	Upper
192	100		
191	53.7	46.1	69.1

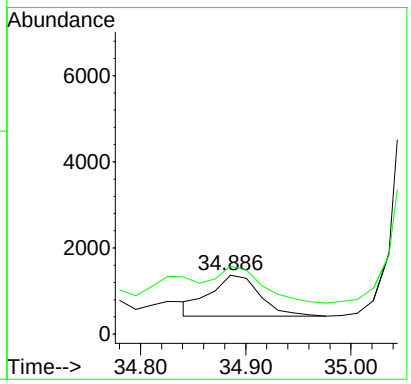


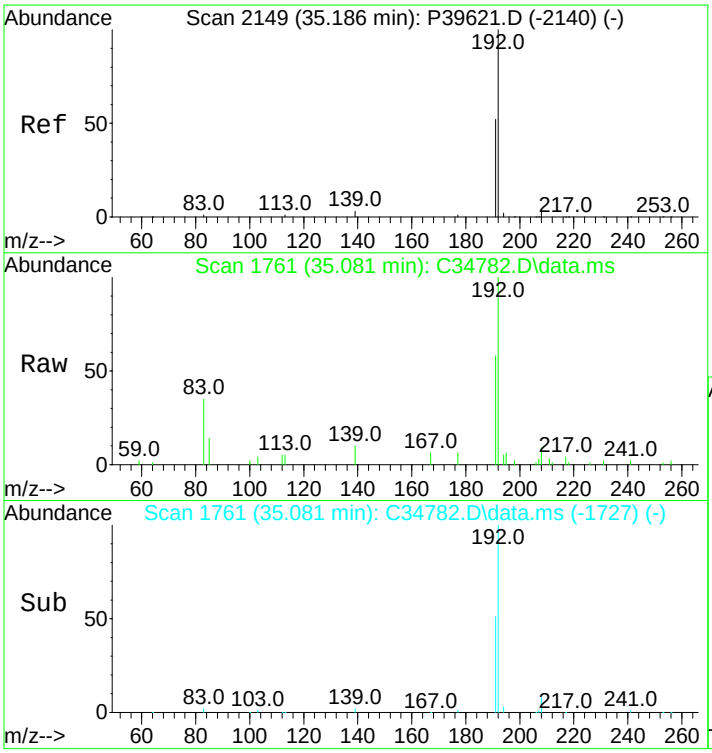


#46
2-Methylanthracene(2MA)
Concen: 22.85 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 3149

Ion	Ratio	Lower	Upper
192	100		
191	83.3	93.4	140.0#

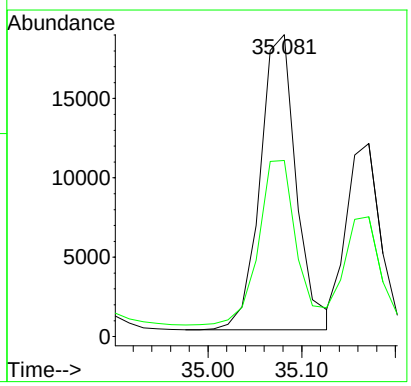


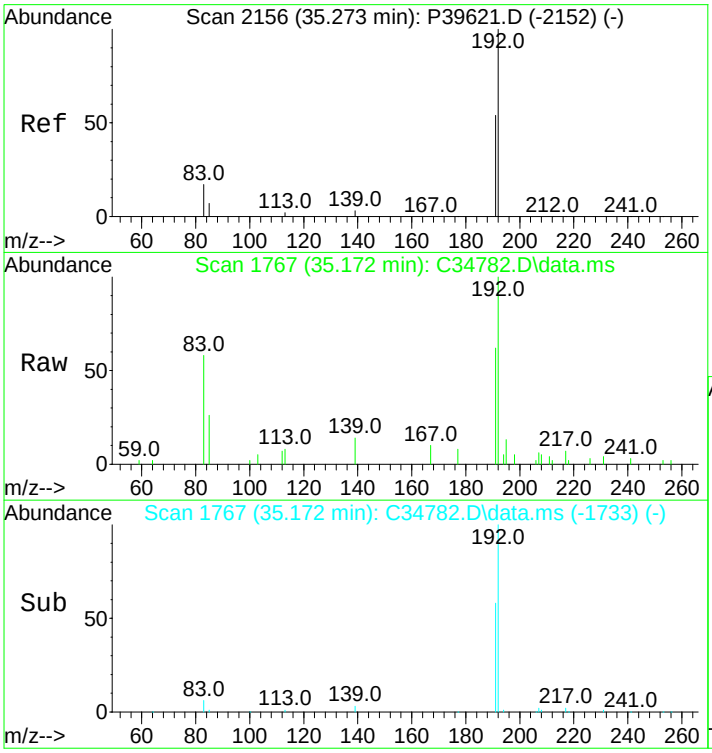


#47
9-Methylphenanthrene(9MP)
Concen: 363.11 ng/mL
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 50040

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.9	68.9

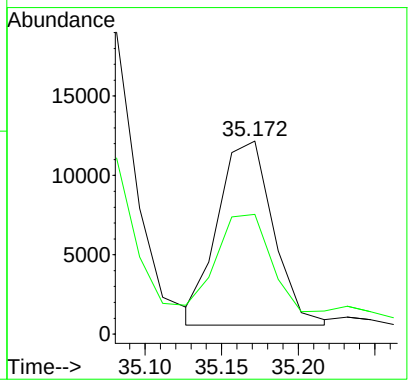


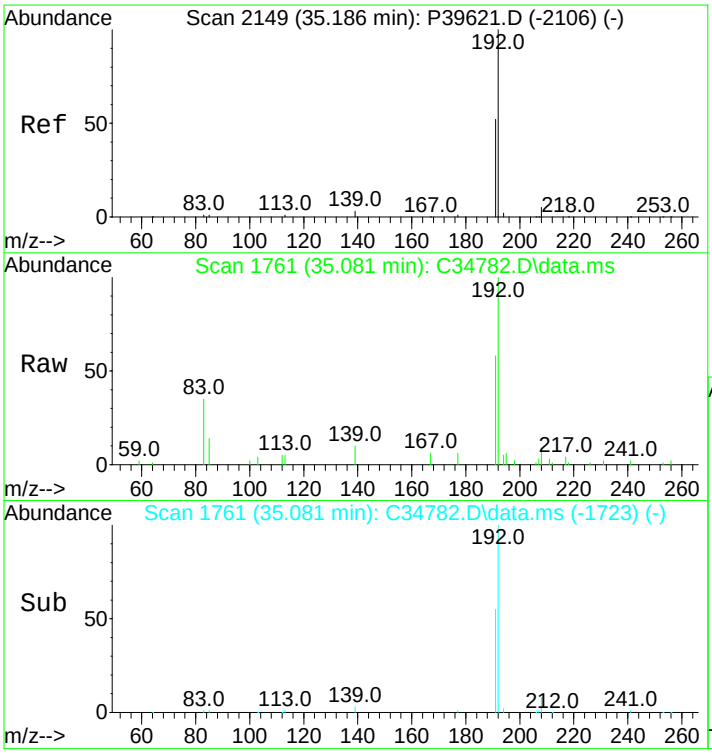


#48
1-Methylphenanthrene(1MP)
Concen: 211.44 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29139

Ion	Ratio	Lower	Upper
192	100		
191	55.1	49.0	73.4

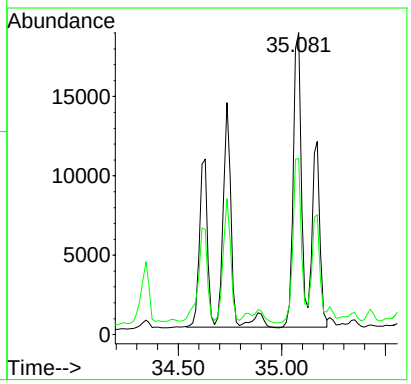


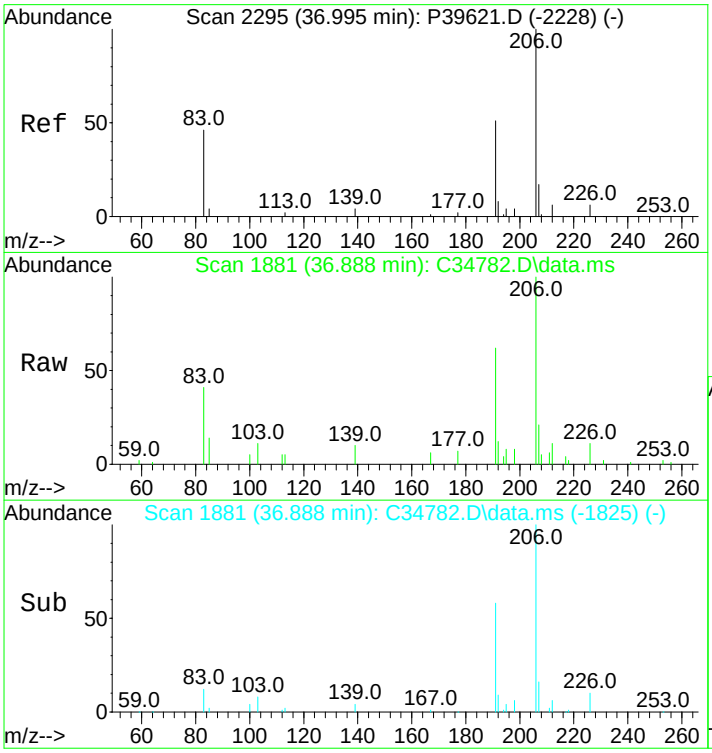


#49
C1-Phenanthrenes/Anthracenes
Concen: 1060.35 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.068 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 146127

Ion	Ratio	Lower	Upper
192	100		
191	20.3	44.2	66.2#

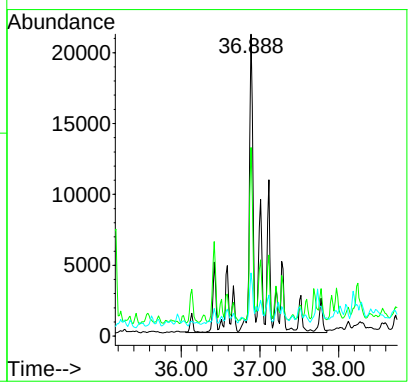


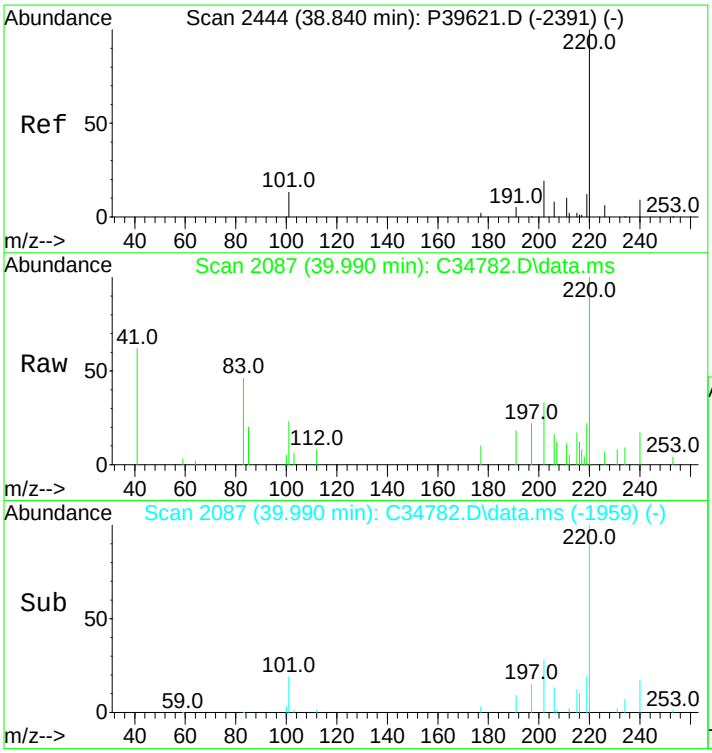


#50
C2-Phenanthrenes/Anthracenes
Concen: 1407.40 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:206 Resp: 193953

Ion	Ratio	Lower	Upper
206	100		
191	17.5	44.0	66.0#
207	4.8	15.1	22.7#

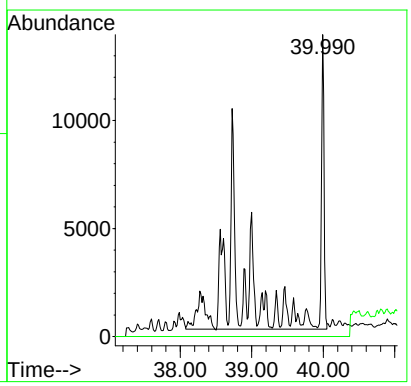


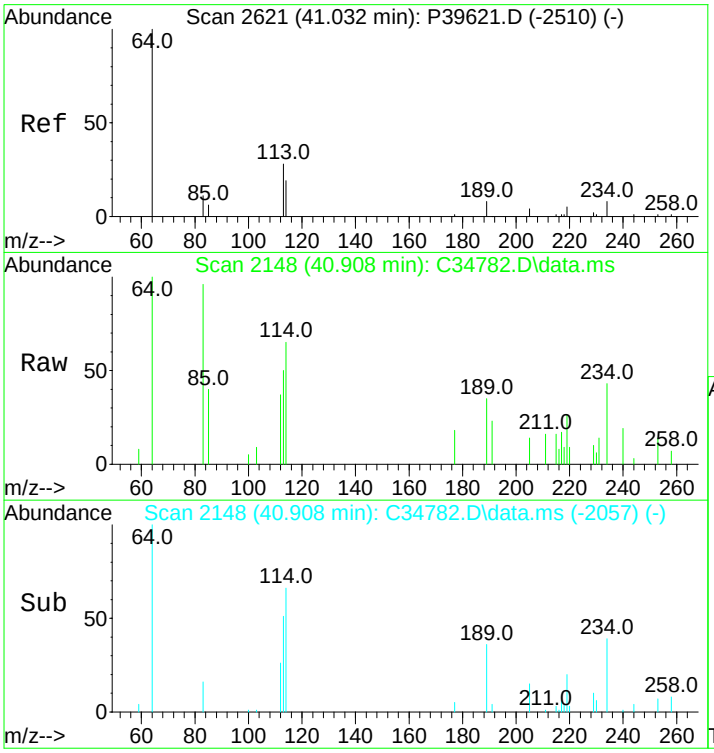


#52
C3-Phenanthrenes/Anthracenes
Concen: 1202.32 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:220 Resp: 165692

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

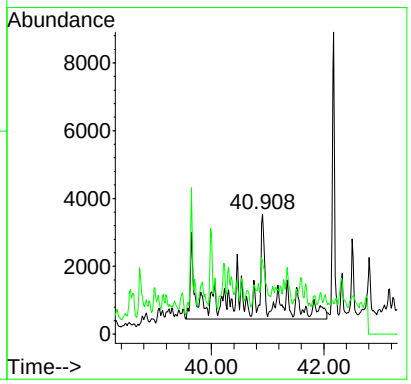


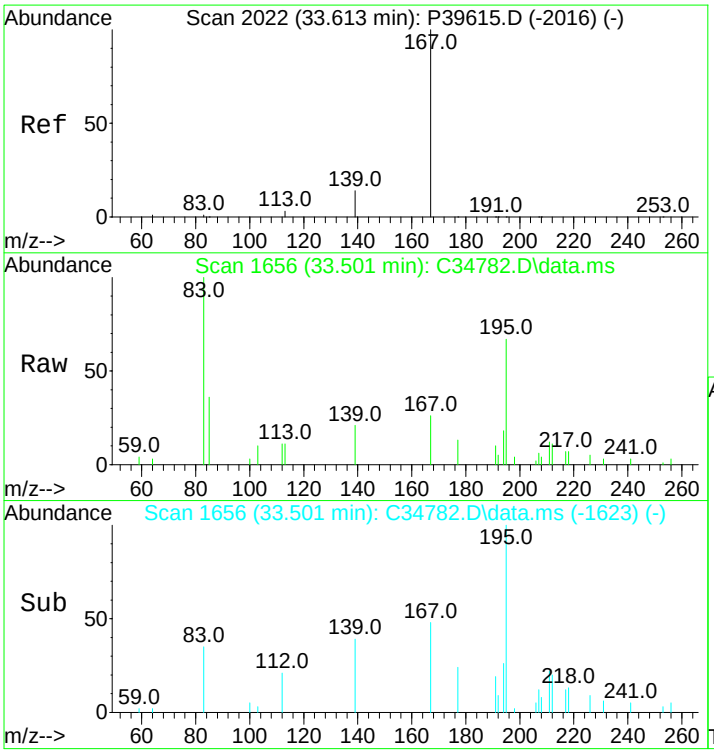


#53
C4-Phenanthrenes/Anthracenes
Concen: 588.97 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 81166

Ion	Ratio	Lower	Upper
234	100		
219	3.0	46.9	70.3#

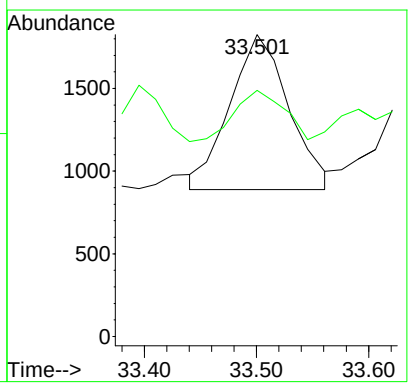


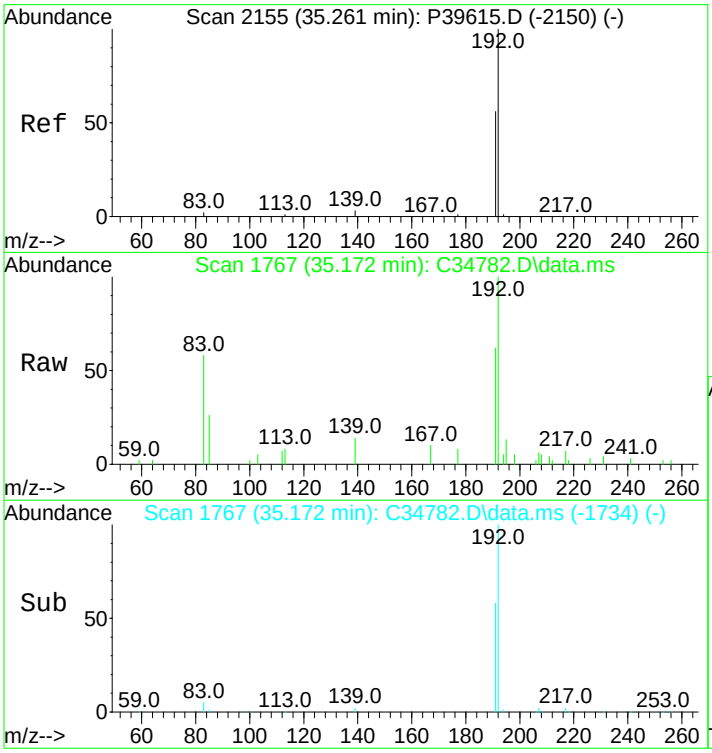


#56
Carbazole
Concen: 25.13 ng/mL m
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:167 Resp: 3417

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

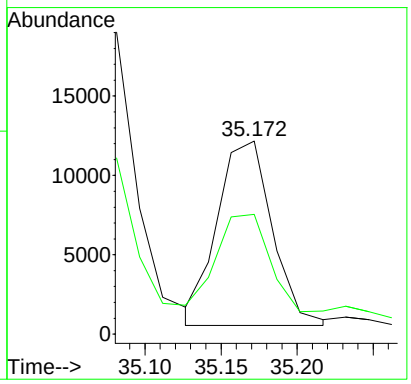


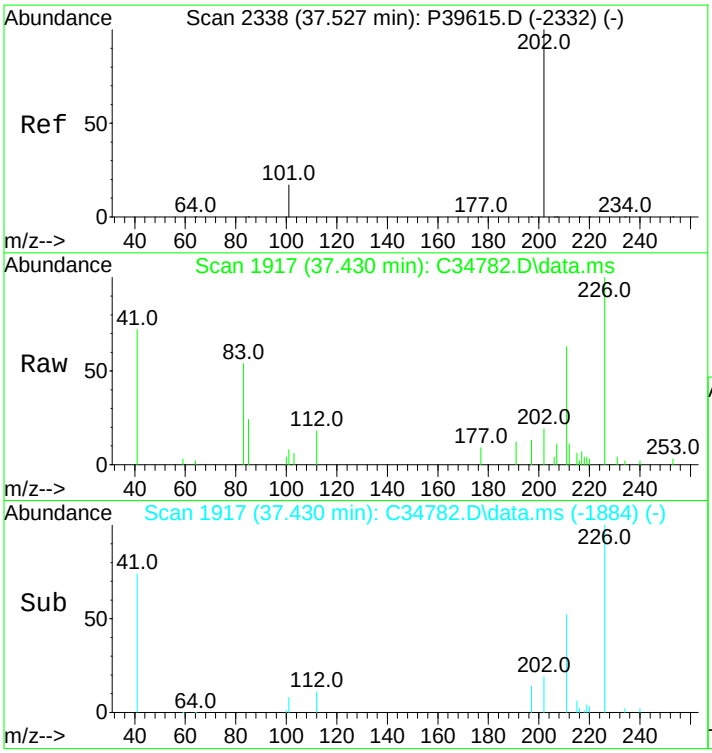


#57
1-Methylphenanthrene
Concen: 335.20 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29274

Ion	Ratio	Lower	Upper
192	100		
191	57.2	45.9	68.9

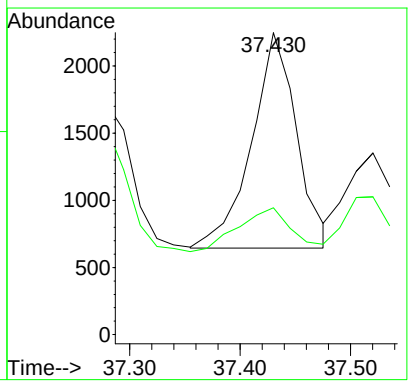


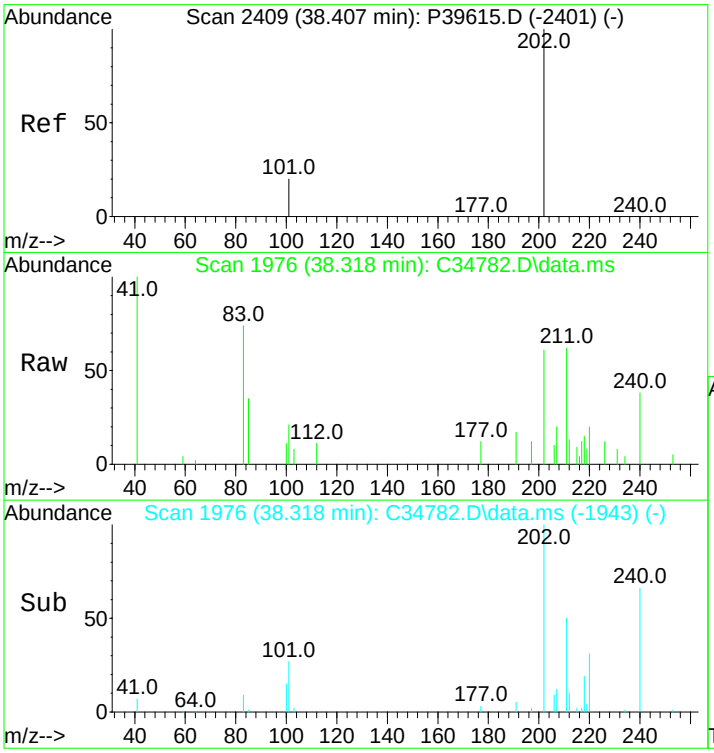


#58
Fluoranthene
Concen: 33.22 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:202 Resp: 4547

Ion	Ratio	Lower	Upper
202	100		
101	49.4	12.9	19.3#

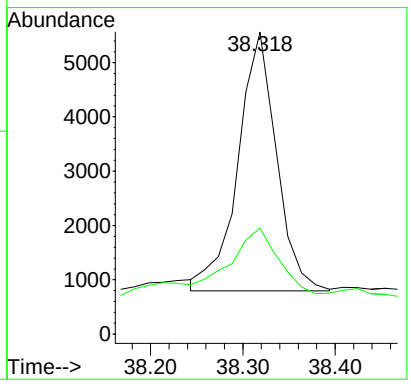


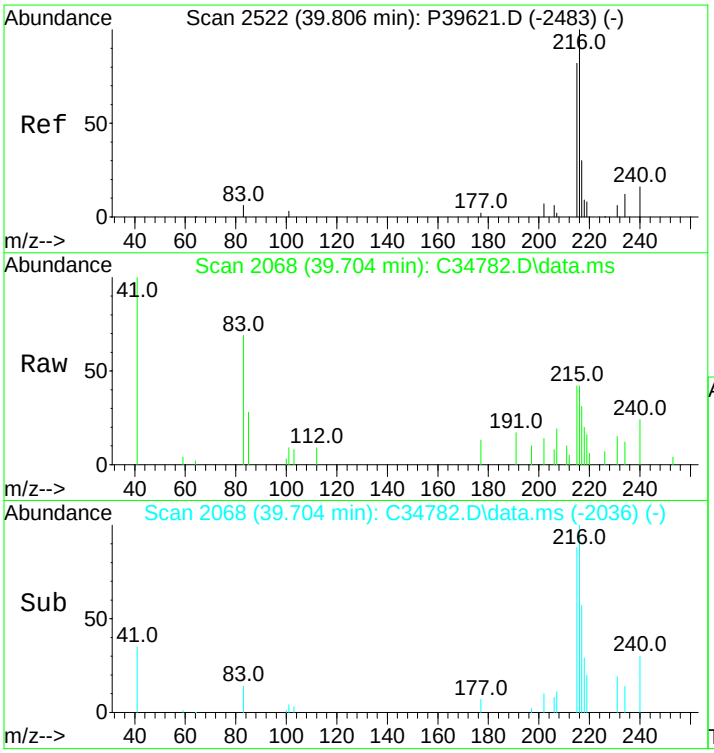


#60
Pyrene
Concen: 99.09 ng/mL m
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:202 Resp: 13787

Ion	Ratio	Lower	Upper
202	100		
101	41.1	15.0	22.4#

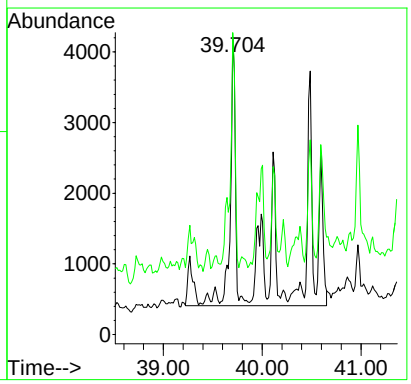


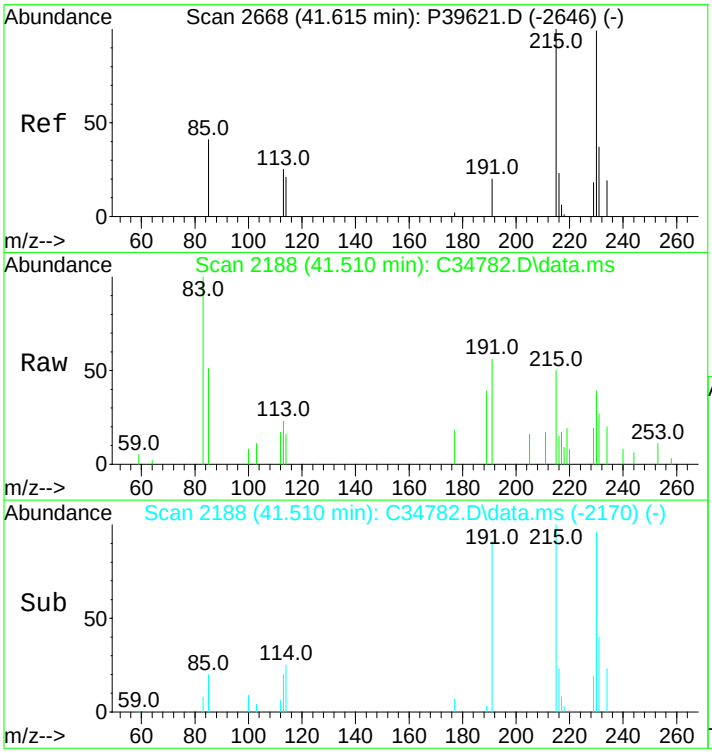


#61
C1-Fluoranthenes/Pyrenes
Concen: 334.69 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:216 Resp: 46566

Ion	Ratio	Lower	Upper
216	100		
215	25.6	71.8	107.6#

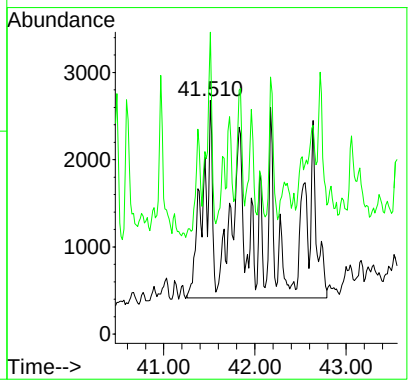


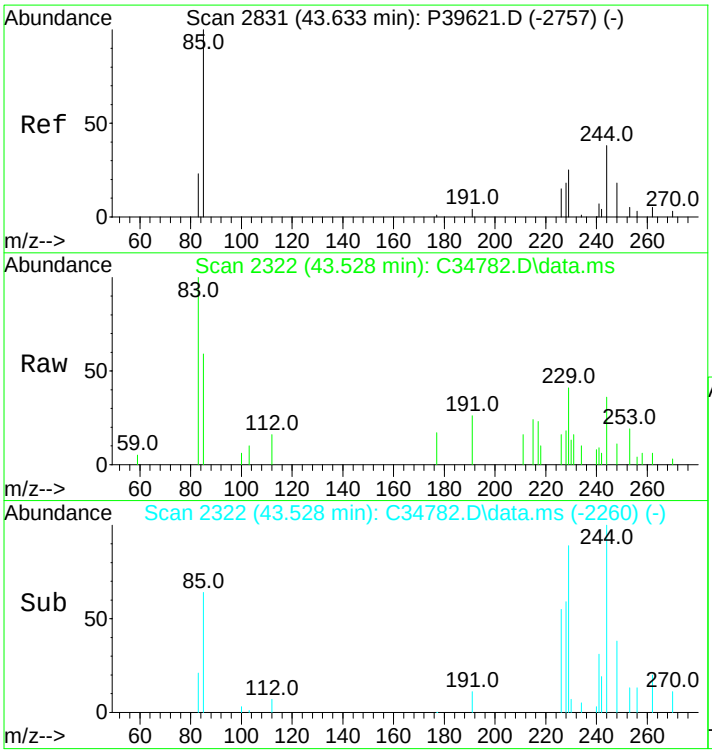


#62
C2-Fluoranthenes/Pyrenes
Concen: 470.27 ng/mL m
RT: 41.510 min Scan# 2188
Delta R.T. 0.111 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:230 Resp: 65429

Ion	Ratio	Lower	Upper
230	100		
215	11.8	99.0	148.4#

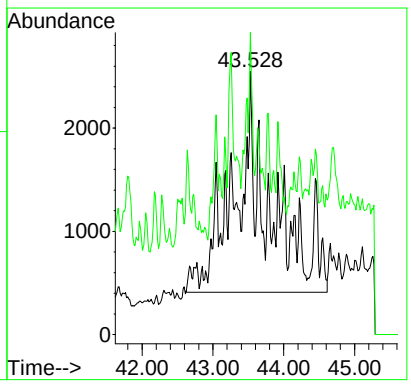


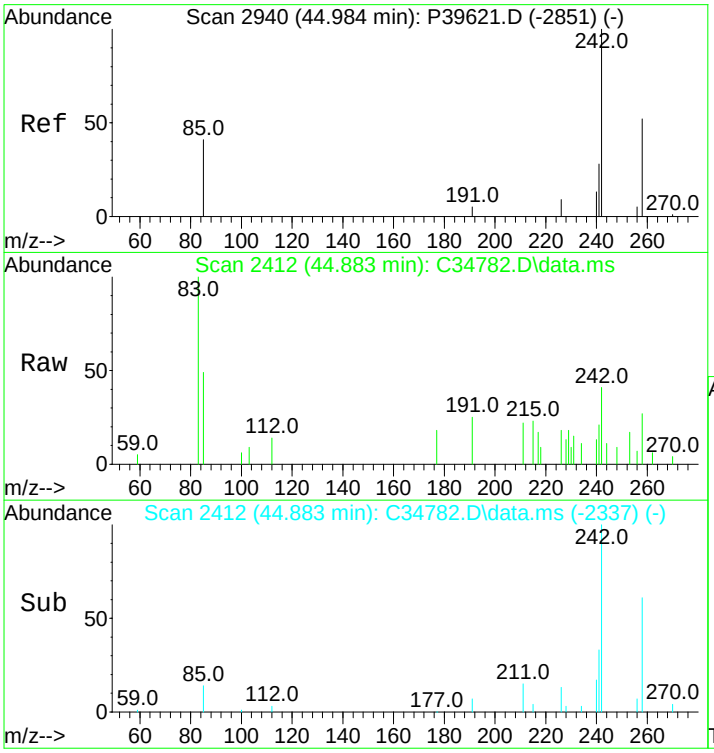


#63
C3-Fluoranthenes/Pyrenes
Concen: 528.82 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.121 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:244 Resp: 73575

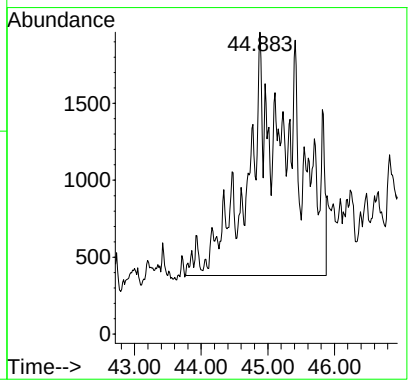
Ion	Ratio	Lower	Upper
244	100		
229	4.9	73.3	109.9#

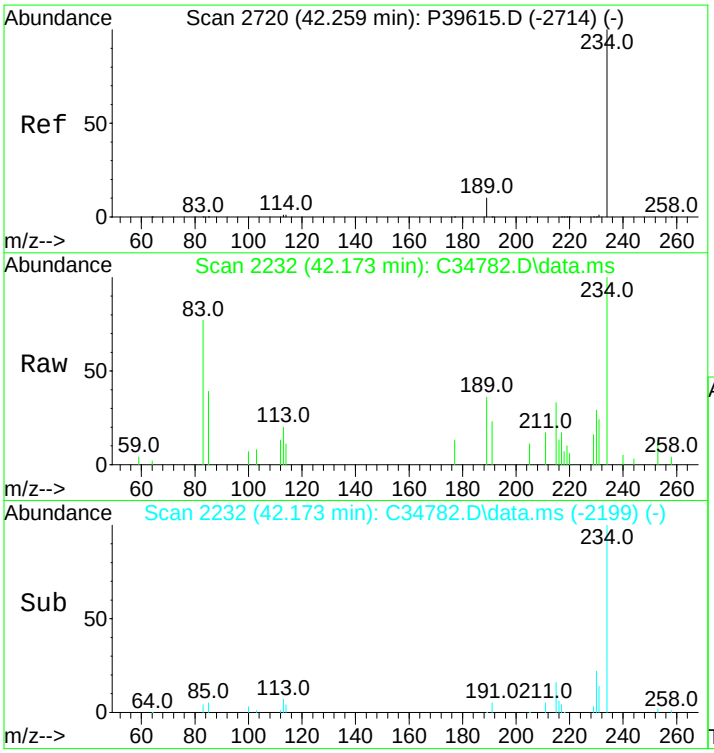




#64
C4-Fluoranthenes/Pyrenes
Concen: 528.86 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:258 Resp: 73580

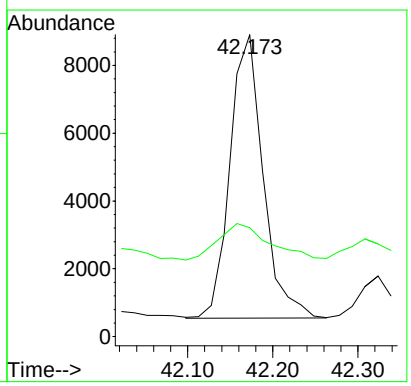


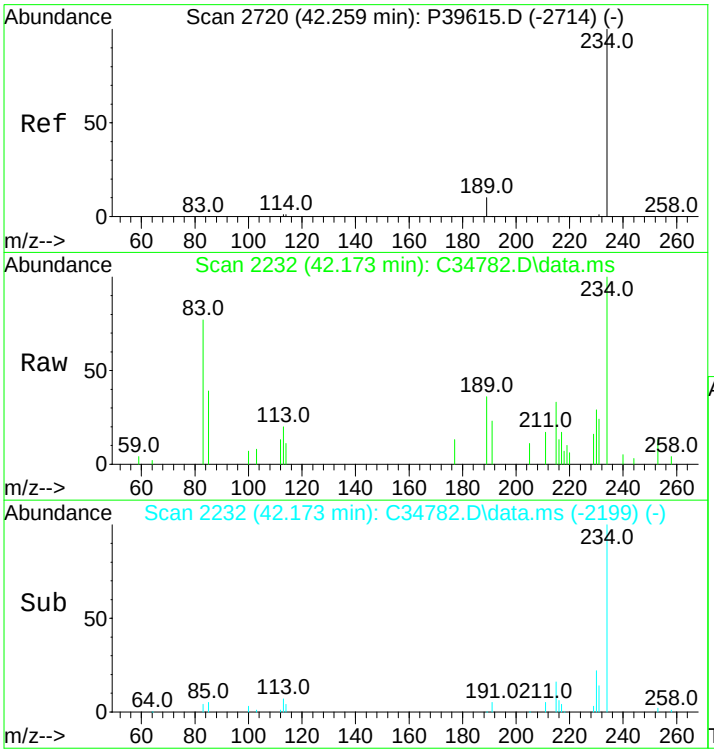


#66
Naphthobenzothiophene
Concen: 151.05 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 22625

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

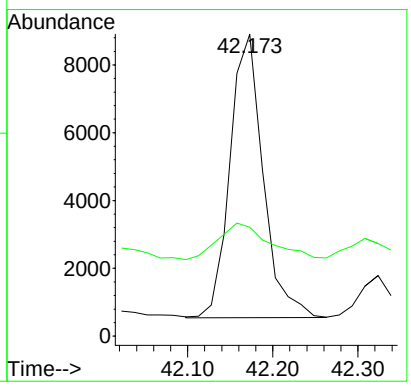


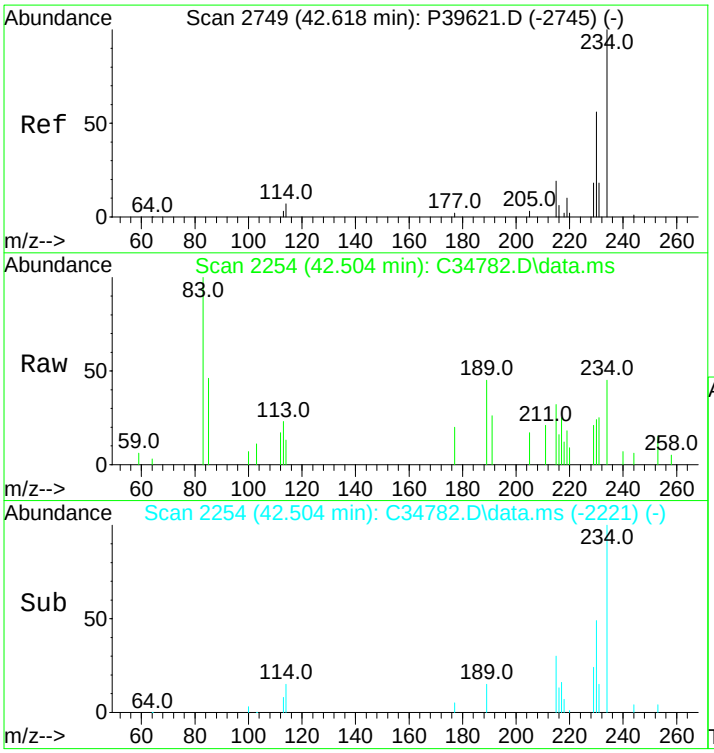


#67
Naphthobenzothiophene-2,1-D
Concen: 151.05 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 22625

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

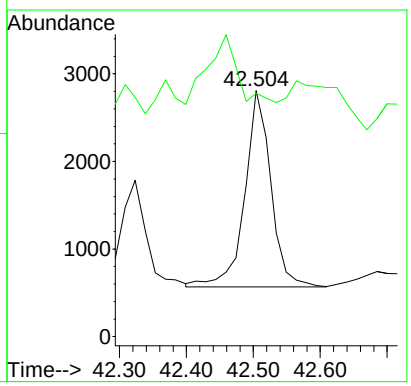


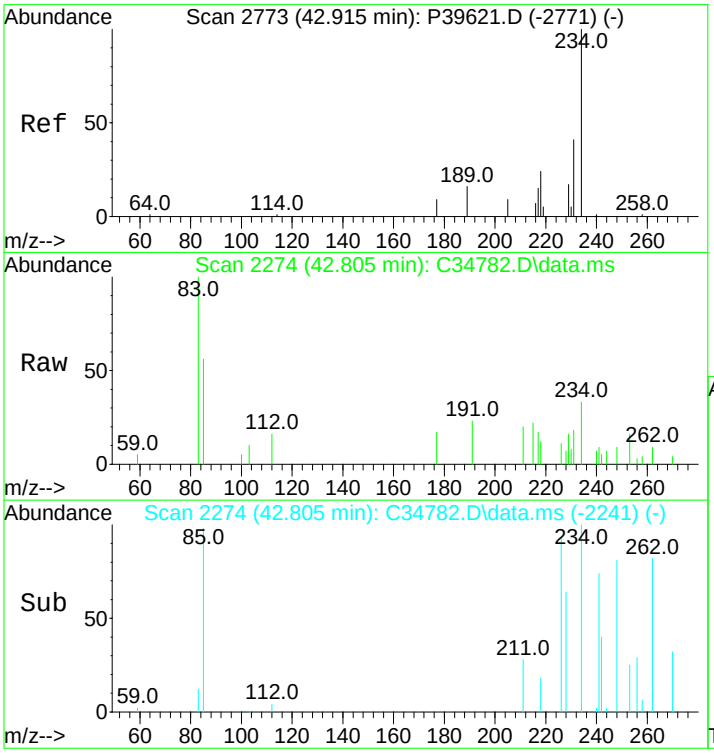


#68
Naphthobenzothiophene-1,2-D
Concen: 40.65 ng/mL
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 6089

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

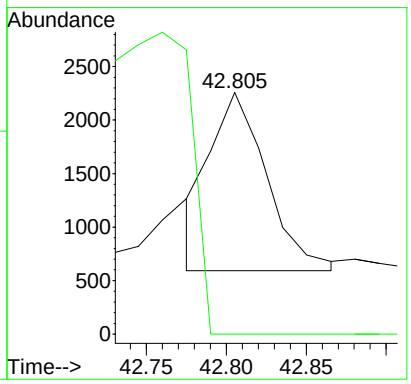


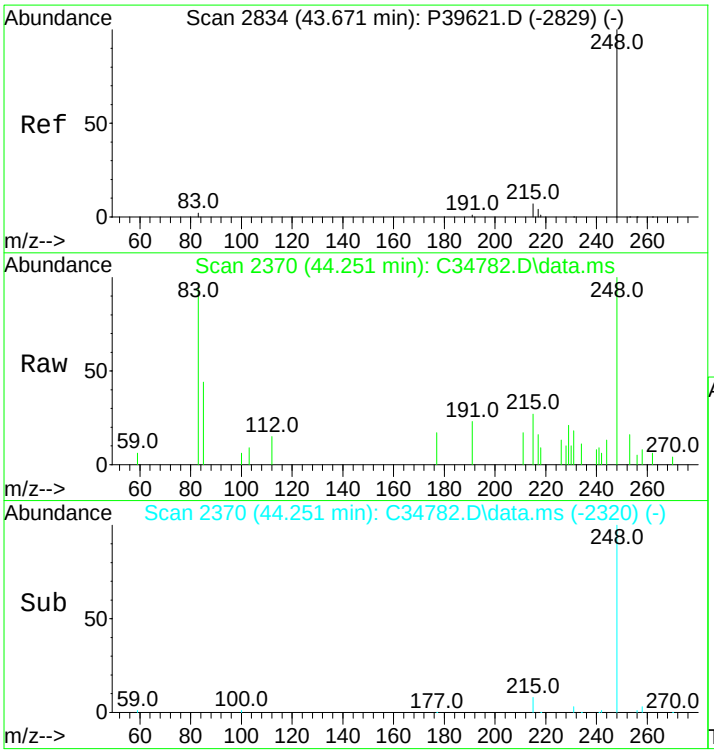


#69
Naphthobenzothiophene-2,3-D
Concen: 27.51 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 4121

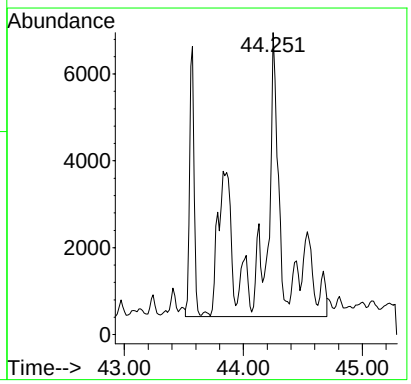
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

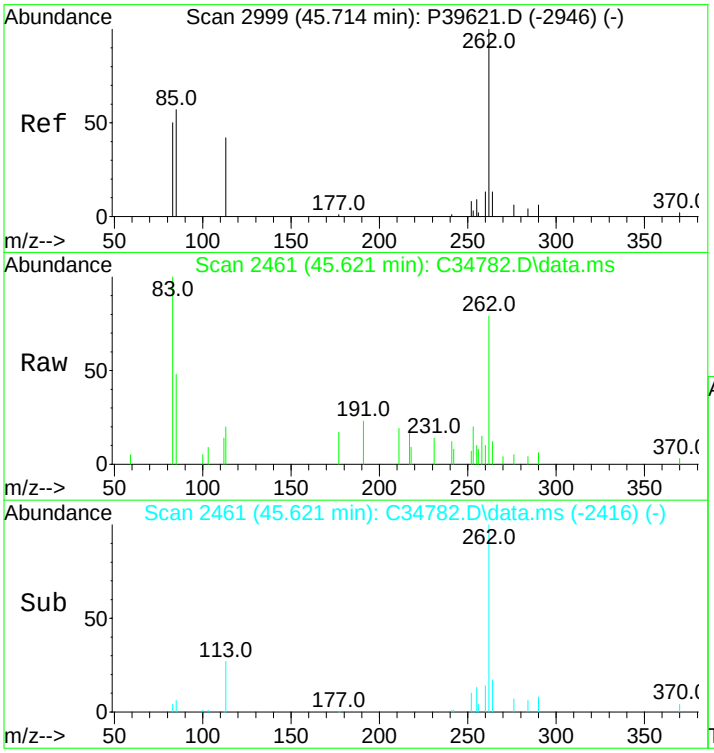




#70
C1-Naphthobenzothiophenes
Concen: 682.42 ng/ml m
RT: 44.251 min Scan# 2370
Delta R.T. 0.124 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

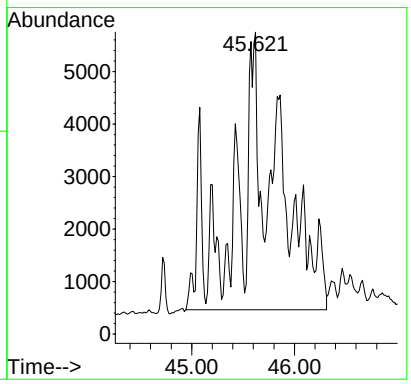
Tgt Ion:248 Resp: 102218

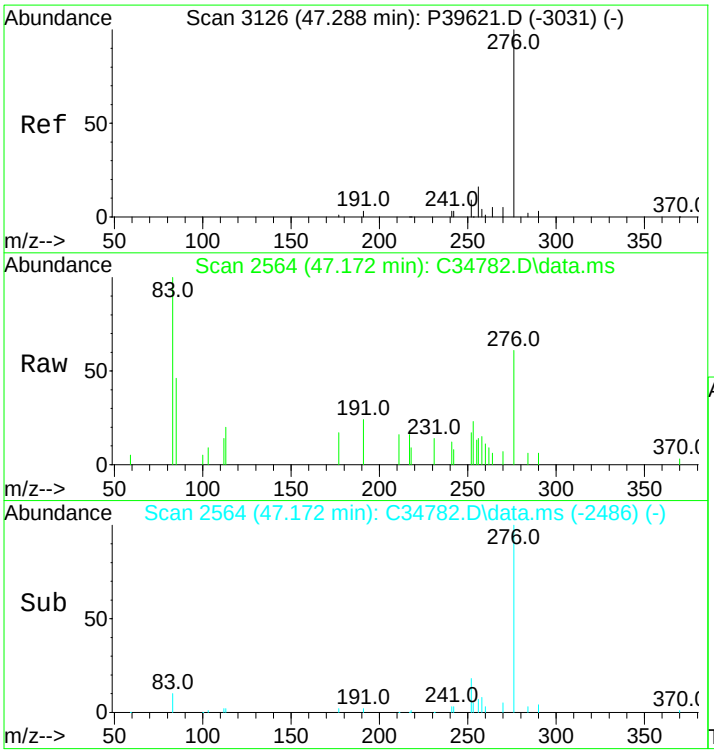




#71
C2-Naphthobenzothiophenes
Concen: 966.71 ng/ml m
RT: 45.621 min Scan# 2461
Delta R.T. 0.190 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

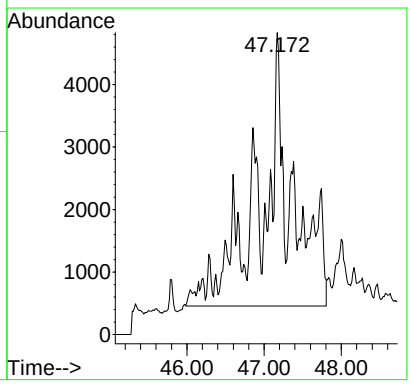
Tgt Ion:262 Resp: 144800

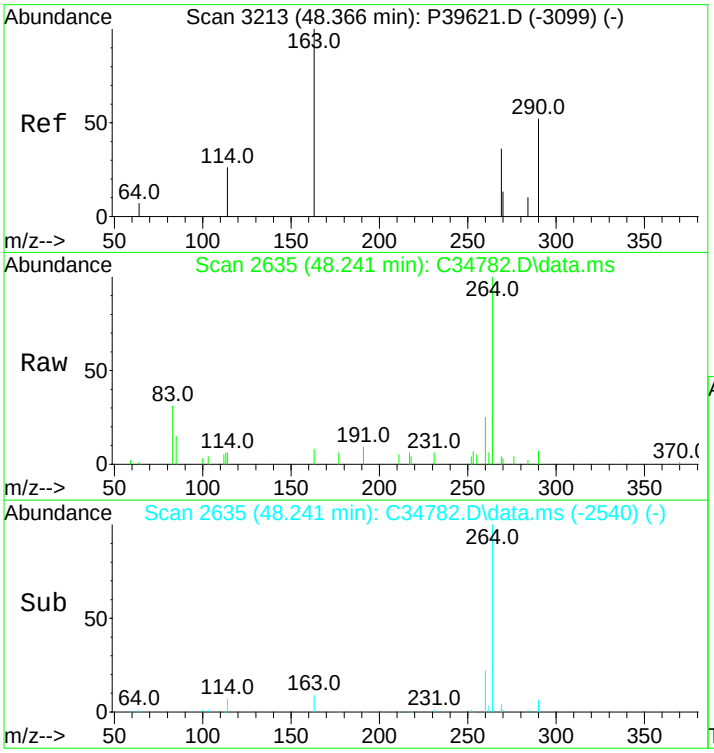




#72
C3-Naphthobenzothiophenes
Concen: 838.13 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

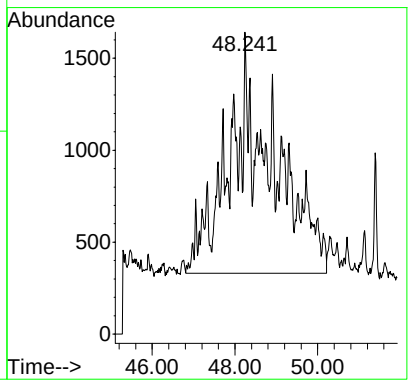
Tgt Ion:276 Resp: 125541

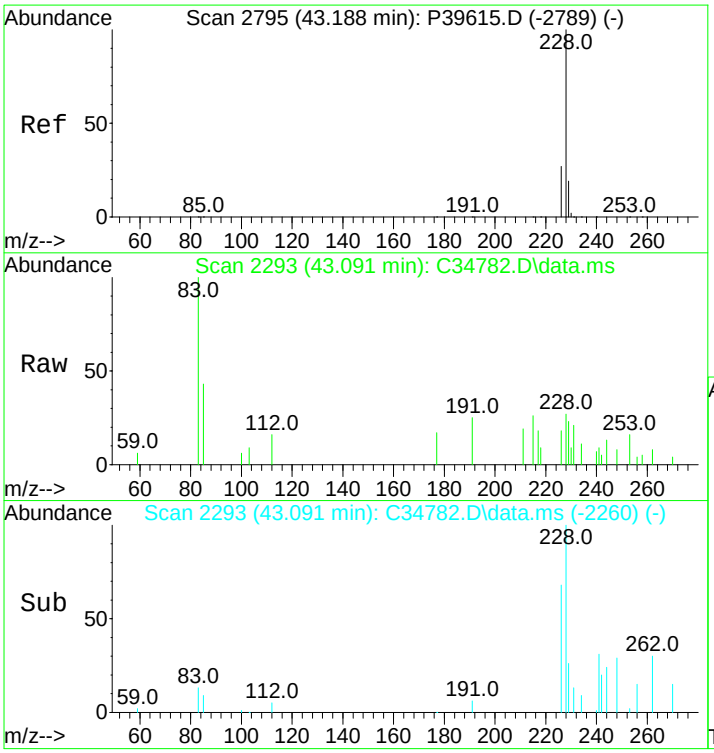




#73
C4-Naphthobenzothiophenes
Concen: 615.63 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:290 Resp: 92213

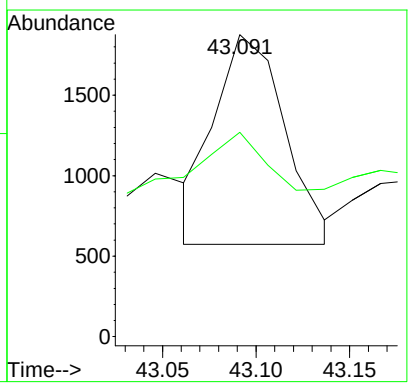


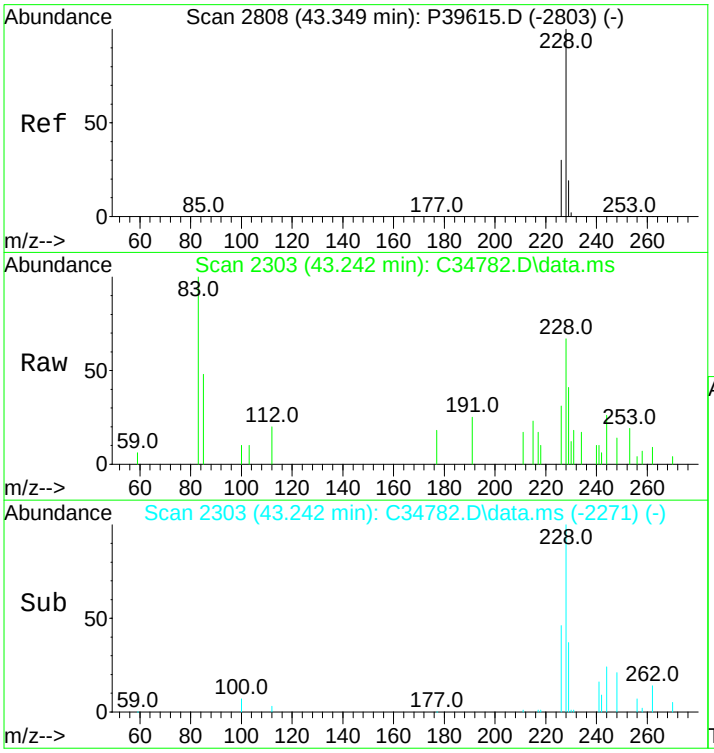


#75
Benz[a]anthracene
Concen: 25.37 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:228 Resp: 3415

Ion	Ratio	Lower	Upper
228	100		
226	152.9	21.4	32.0#

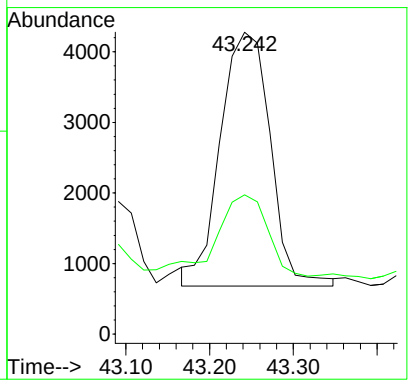


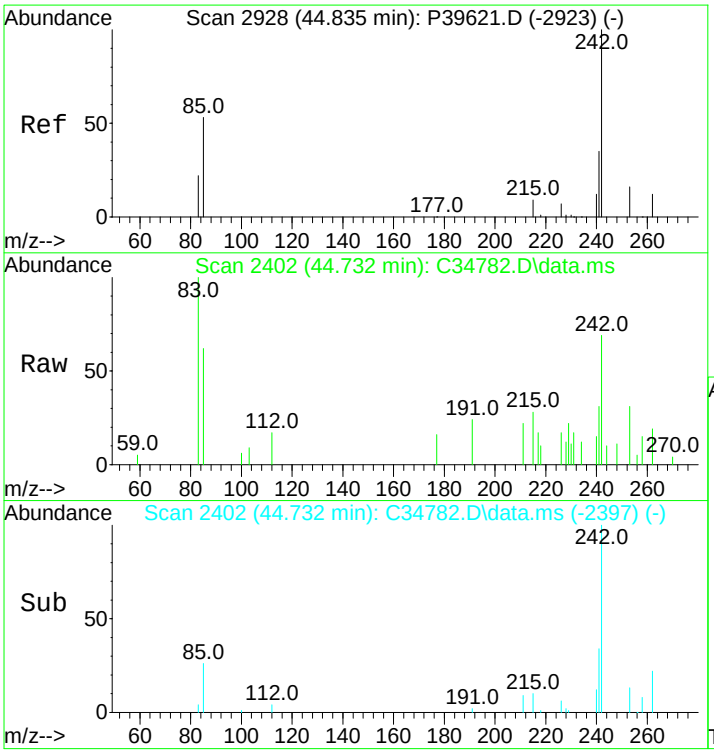


#77
Chrysene/Triphenylene
Concen: 109.52 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:228 Resp: 14884

Ion	Ratio	Lower	Upper
228	100		
226	30.9	23.7	35.5

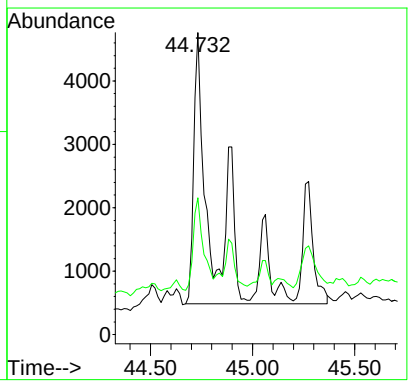


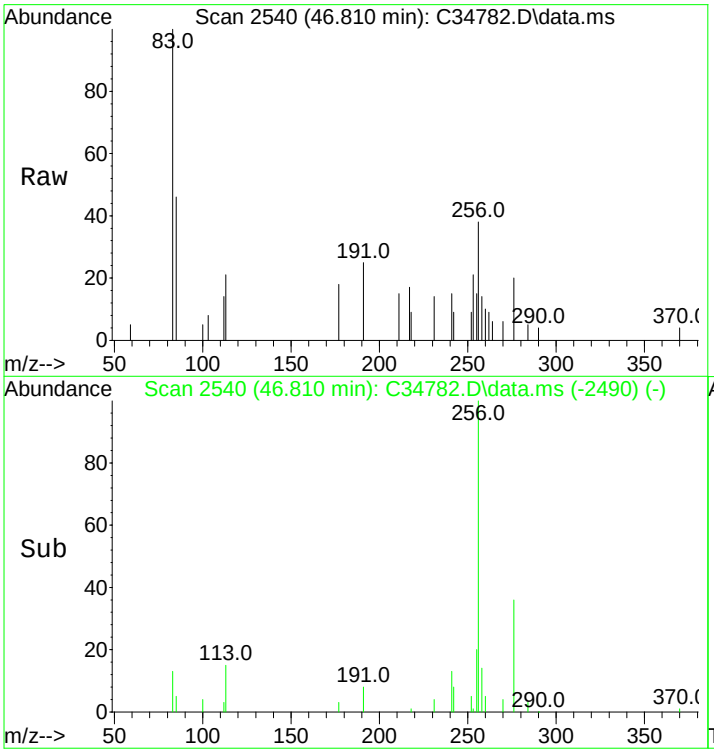


#78
C1-Chrysenes
Concen: 254.77 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:242 Resp: 34624

Ion	Ratio	Lower	Upper
242	100		
241	10.1	31.4	47.2#

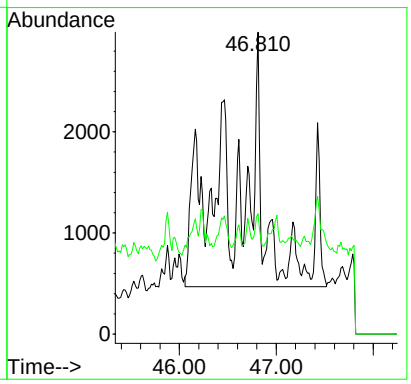


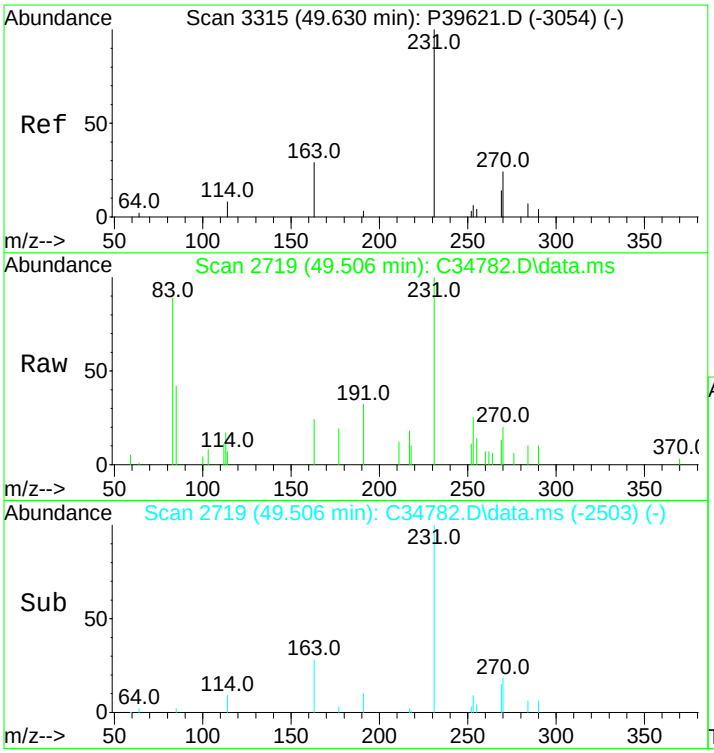


#79
C2-Chrysenes
Concen: 422.93 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:256 Resp: 57477

Ion	Ratio	Lower	Upper
256	100		
241	0.9	21.2	31.8#

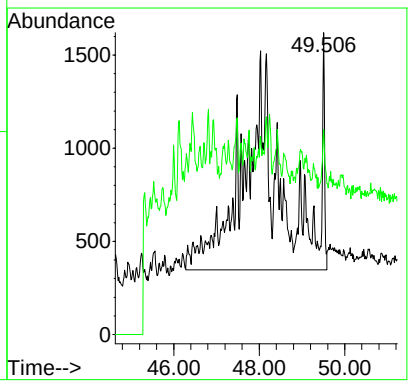


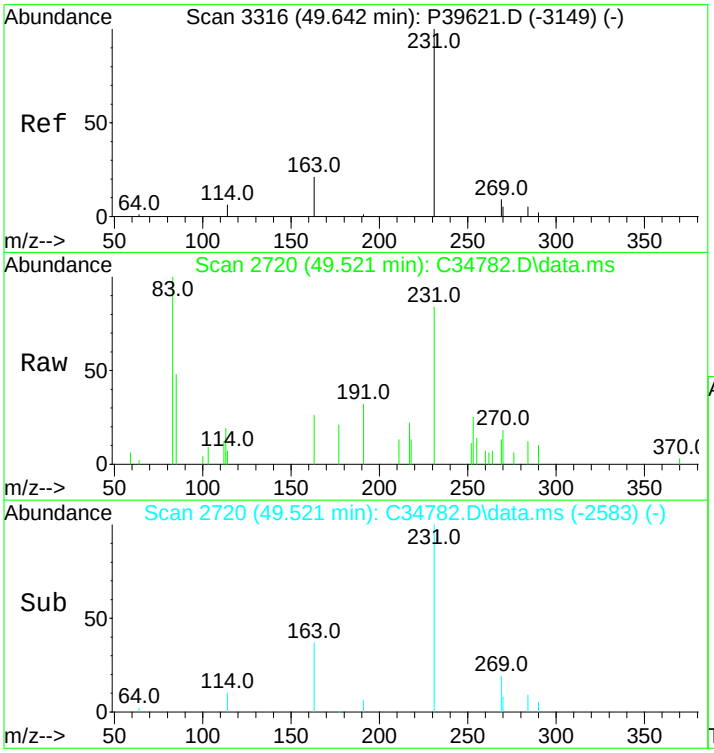


#80
C3-Chrysenes
Concen: 501.77 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.011 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:270 Resp: 68192

Ion	Ratio	Lower	Upper
270	100		
255	1.7	33.8	50.8#

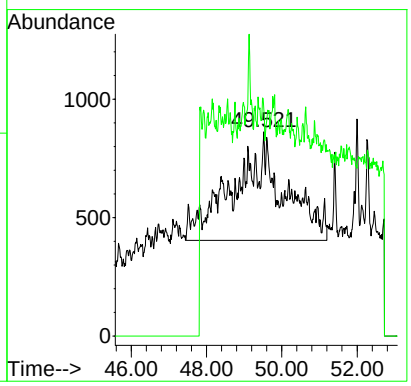


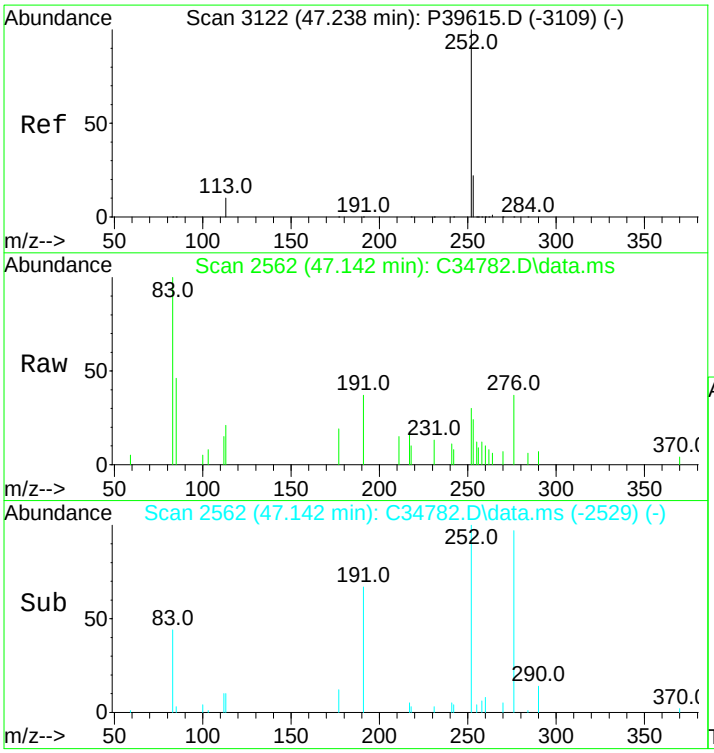


#81
C4-Chrysenes
Concen: 304.33 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:284 Resp: 41359

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

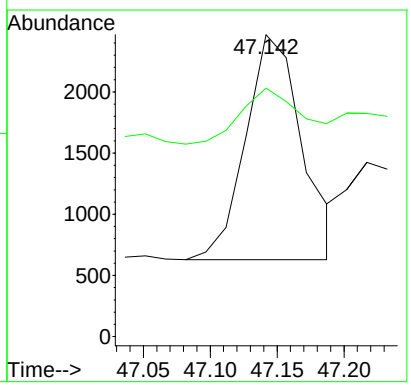


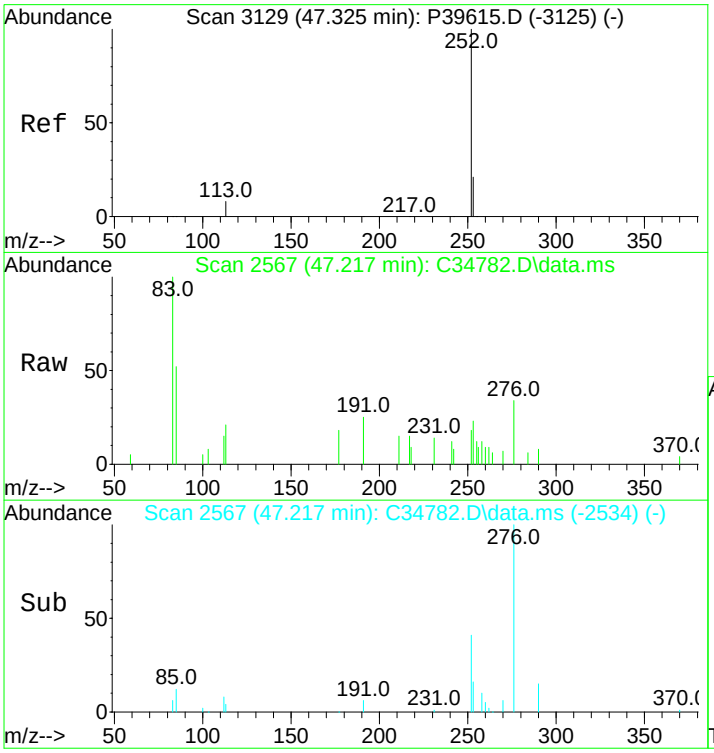


#82
Benzo[b]fluoranthene
Concen: 36.65 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 5421

Ion	Ratio	Lower	Upper
252	100		
253	27.2	19.0	28.4

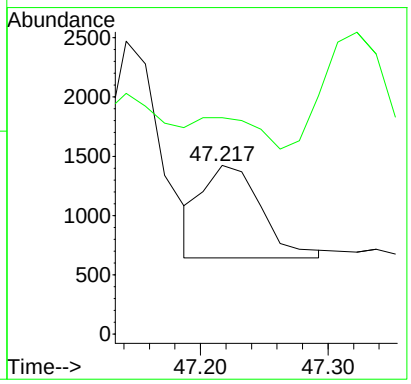


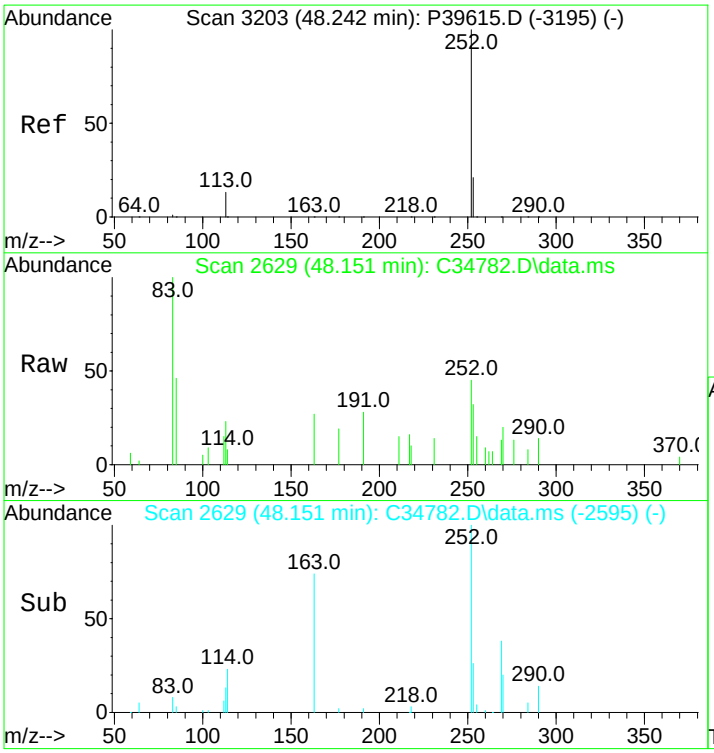


#83
Benzo[j]+[k]fluoranthene
Concen: 15.43 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 2485

Ion	Ratio	Lower	Upper
252	100		
253	34.1	19.0	28.4#

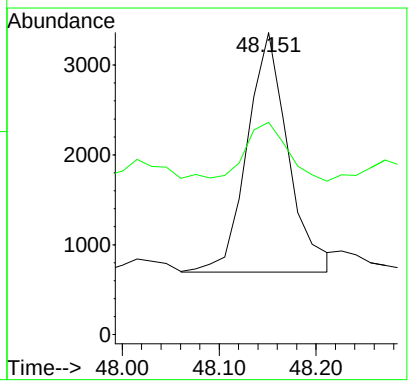


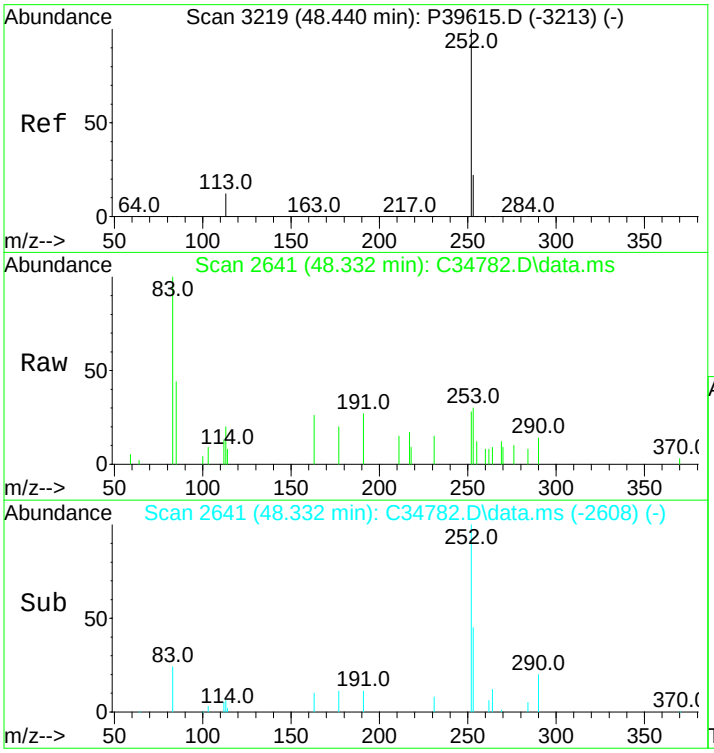


#85
Benzo[e]pyrene
Concen: 53.23 ng/mL m
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 7787

Ion	Ratio	Lower	Upper
252	100		
253	27.8	19.2	28.8

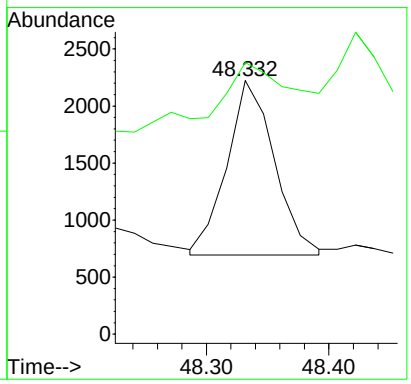


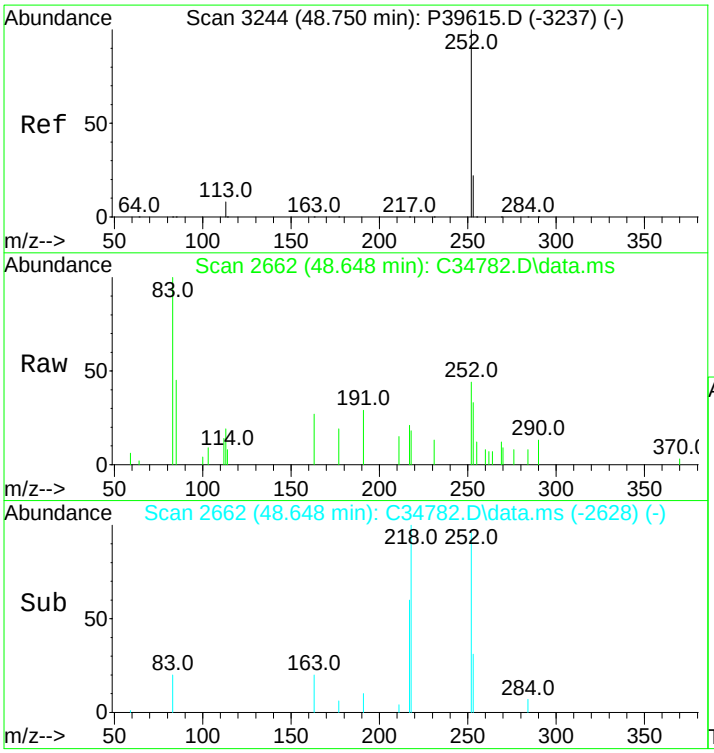


#87
Benzo[a]pyrene
Concen: 29.34 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 4133

Ion	Ratio	Lower	Upper
252	100		
253	47.4	19.5	29.3#

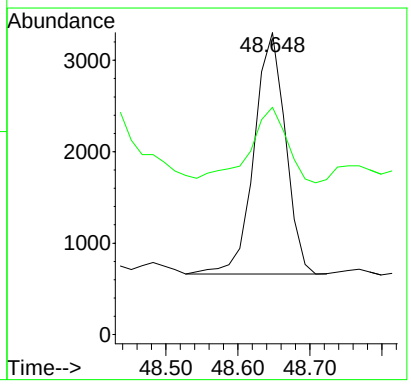


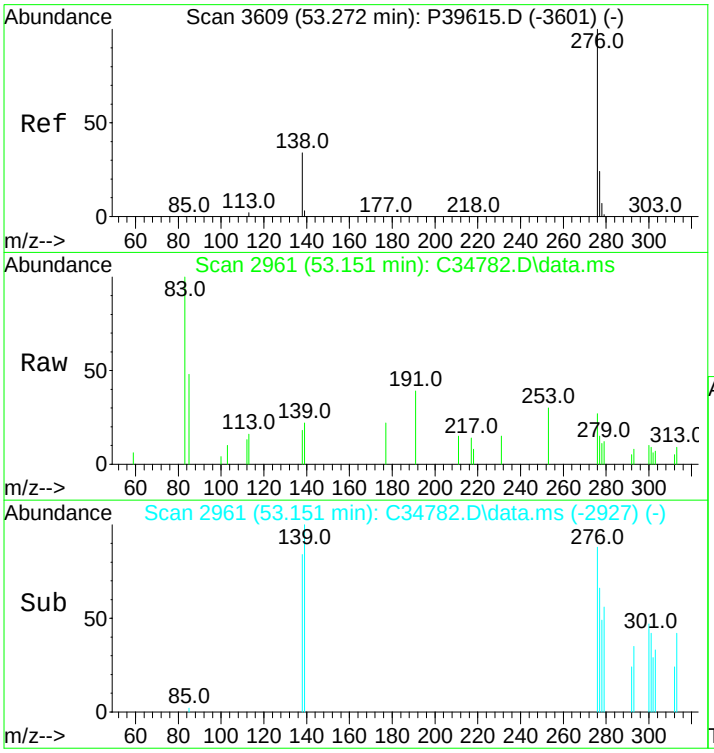


#88
Perylene
Concen: 52.91 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 7965

Ion	Ratio	Lower	Upper
252	100		
253	37.3	19.6	29.4#

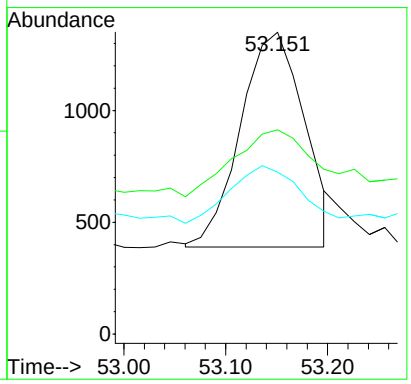


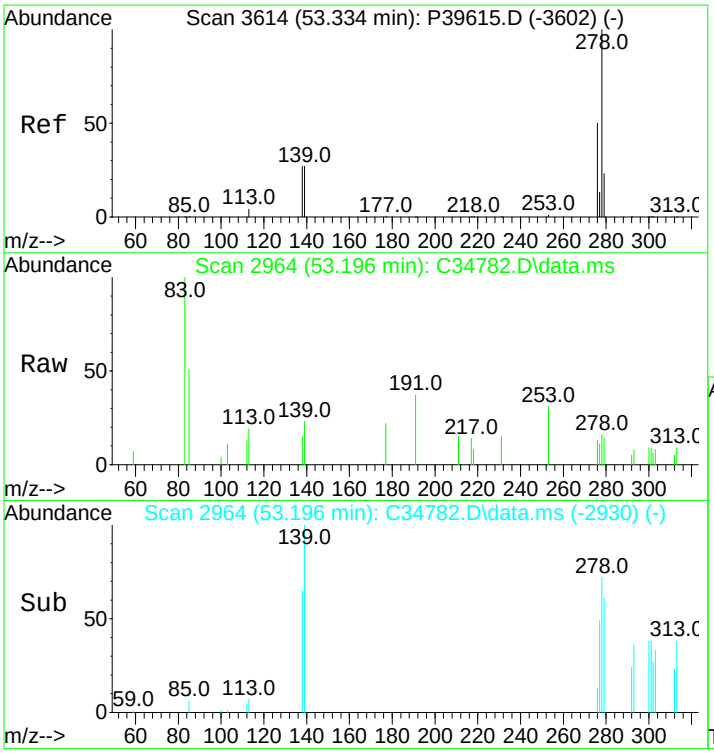


#89
Indeno[1,2,3-cd]pyrene
Concen: 25.49 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:276 Resp: 4178

Ion	Ratio	Lower	Upper
276	100		
138	29.3	23.3	34.9
277	21.8	19.0	28.4

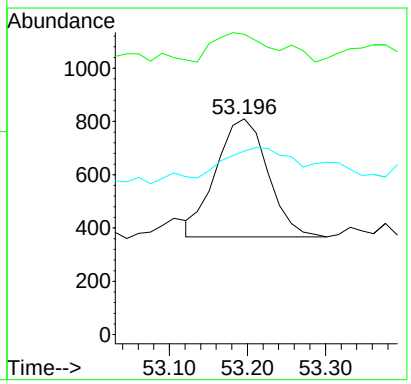


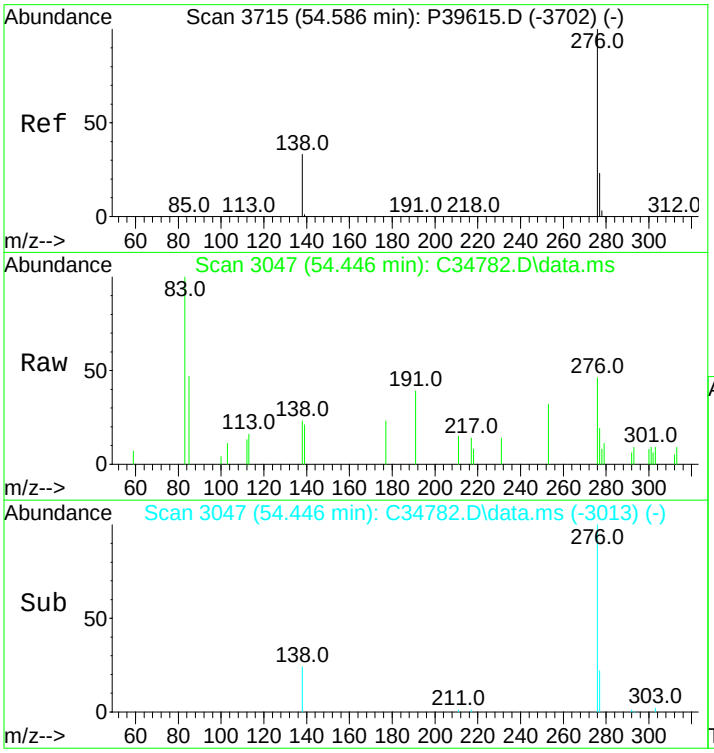


#90
Dibenz[ah]+[ac]anthracene
Concen: 13.10 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:278 Resp: 2043

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

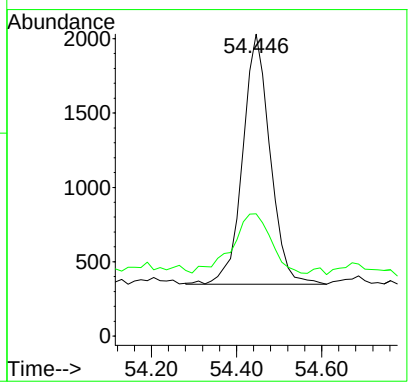


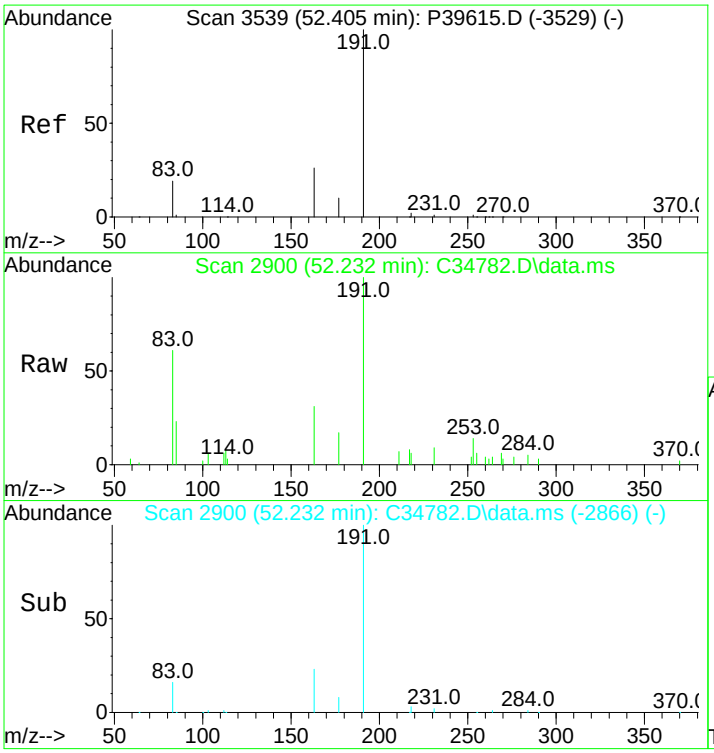


#91
Benzo[g,h,i]perylene
Concen: 43.41 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:276 Resp: 7518

Ion	Ratio	Lower	Upper
276	100		
277	33.5	18.9	28.3#

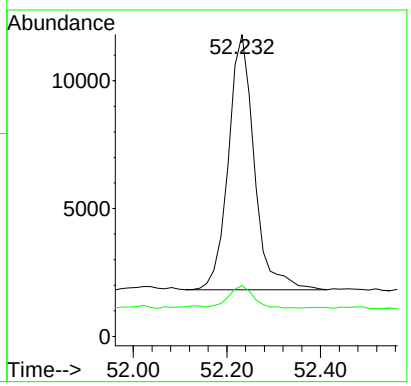


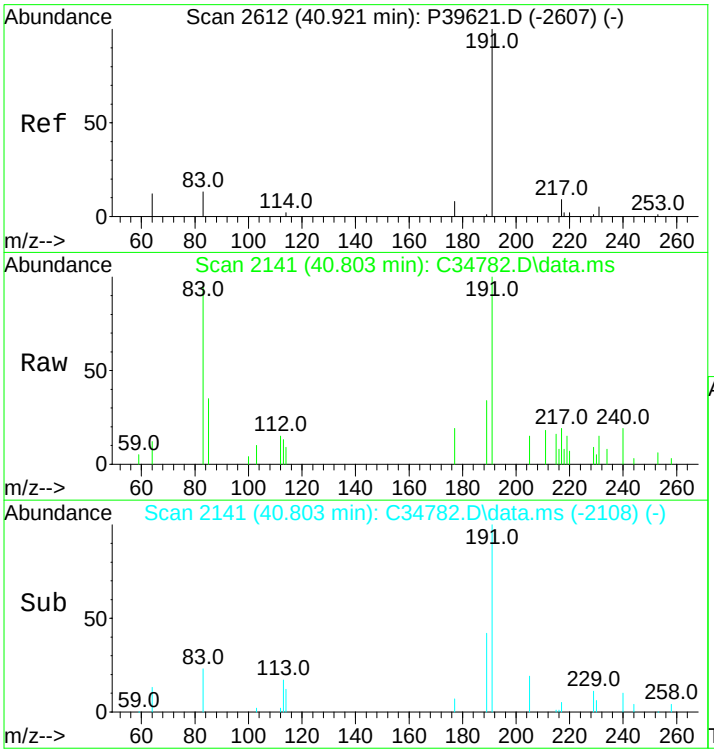


#92
Hopane (T19)
Concen: 1378.55 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:191 Resp: 38533

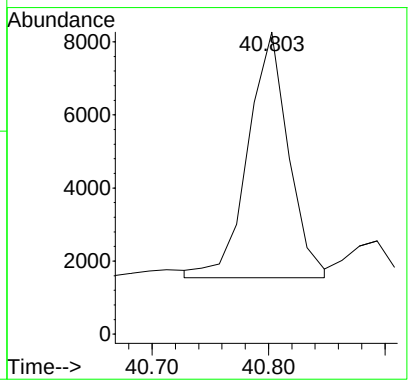
Ion	Ratio	Lower	Upper
191	100		
177	8.8	14.6	21.8#

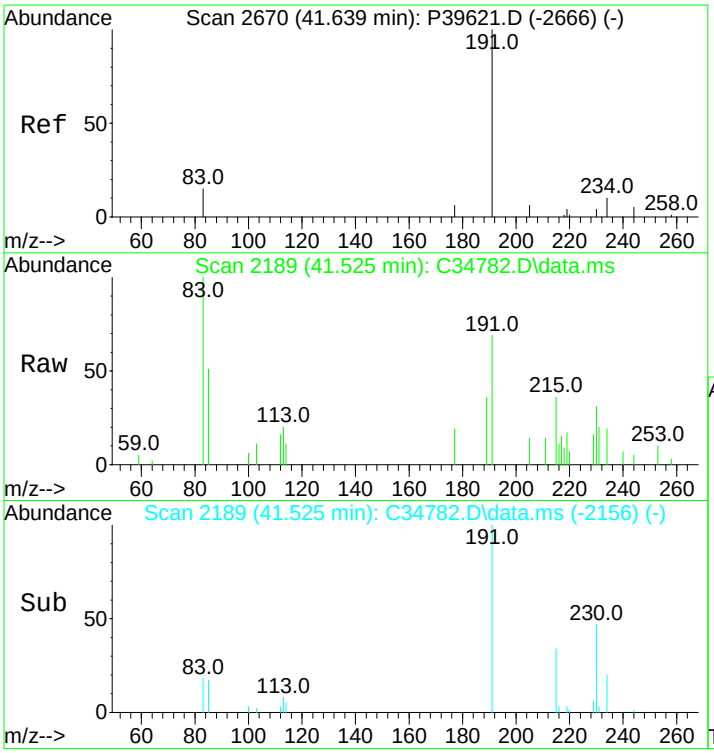




#94
C23 Tricyclic Terpane (T4)
Concen: 579.35 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

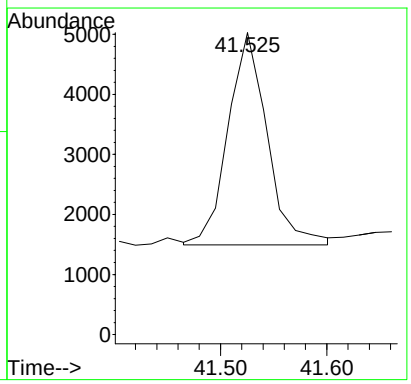
Tgt Ion:191 Resp: 16194

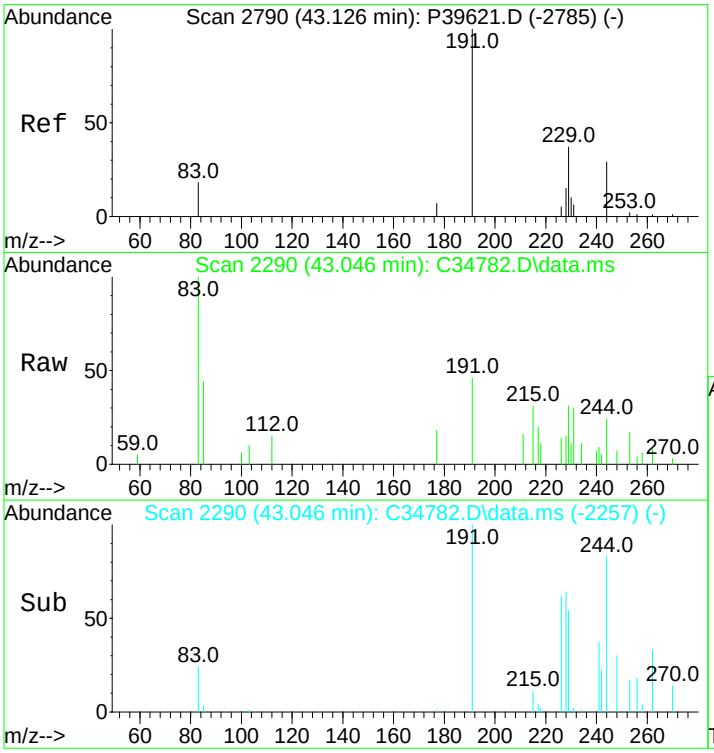




#95
C24 Tricyclic Terpane (T5)
Concen: 323.23 ng/ml m
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

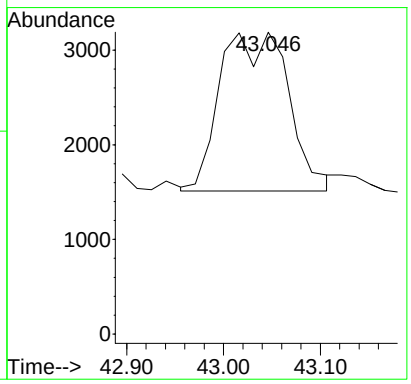
Tgt Ion:191 Resp: 9035

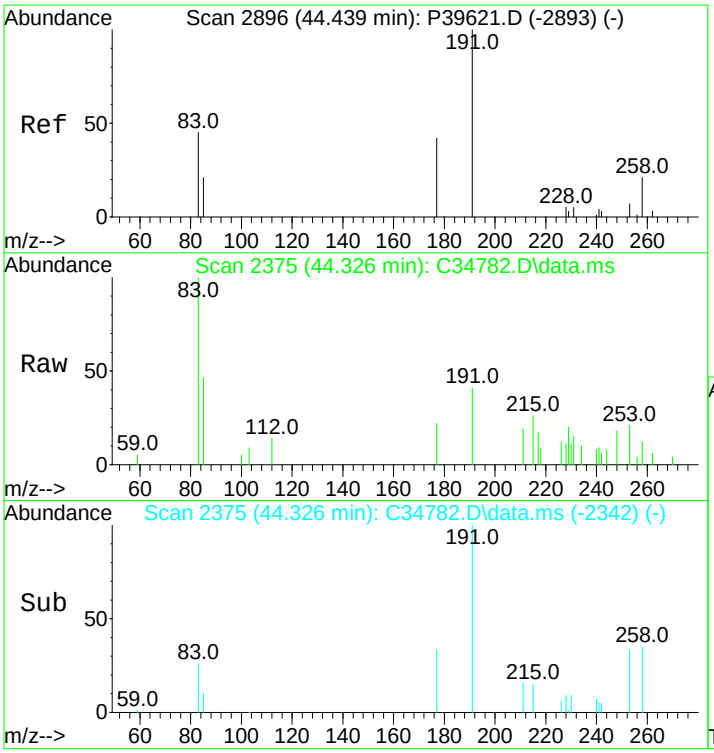




#96
C25 Tricyclic Terpane (T6)
Concen: 293.93 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

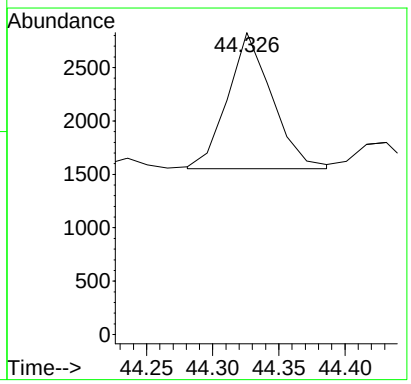
Tgt Ion:191 Resp: 8216

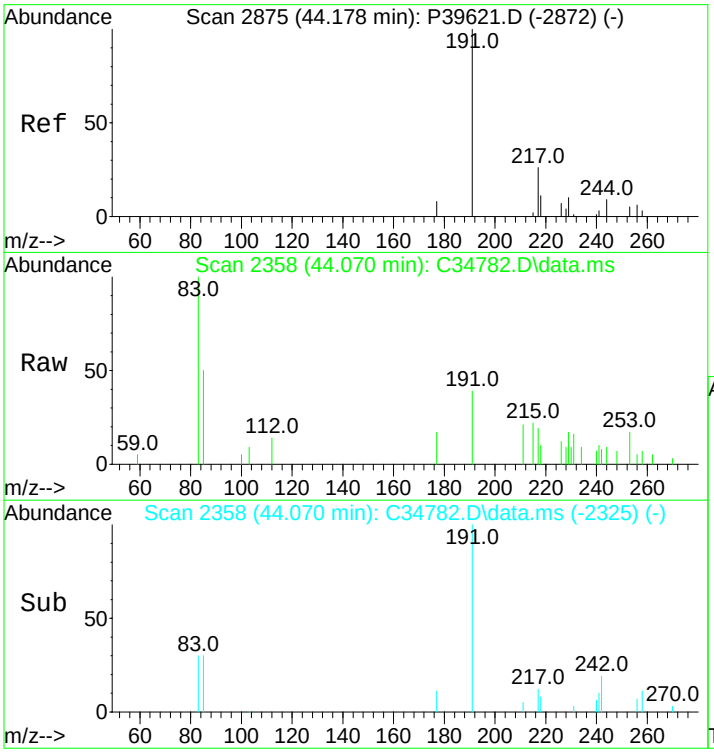




#97
C24 Tetracyclic Terpane (T6a)
Concen: 106.22 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

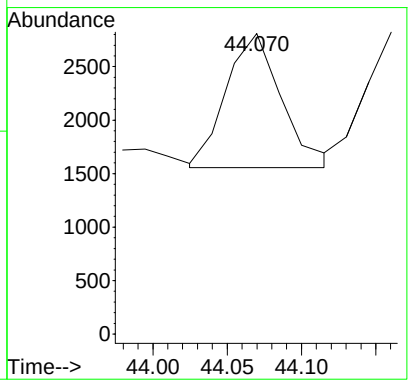
Tgt Ion:191 Resp: 2969

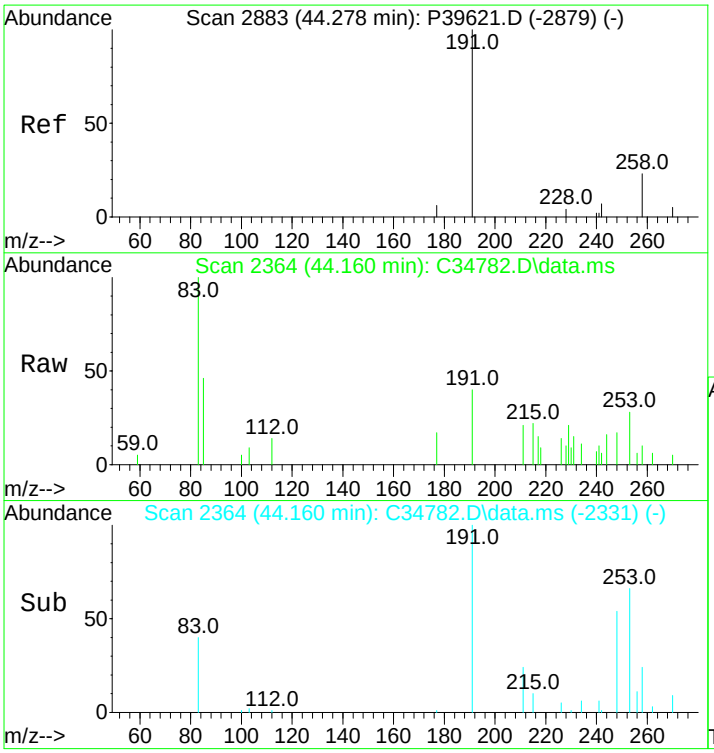




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 115.95 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

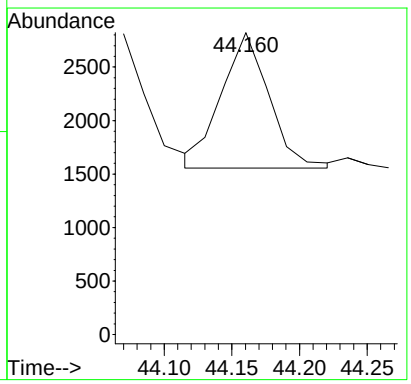
Tgt Ion:191 Resp: 3241

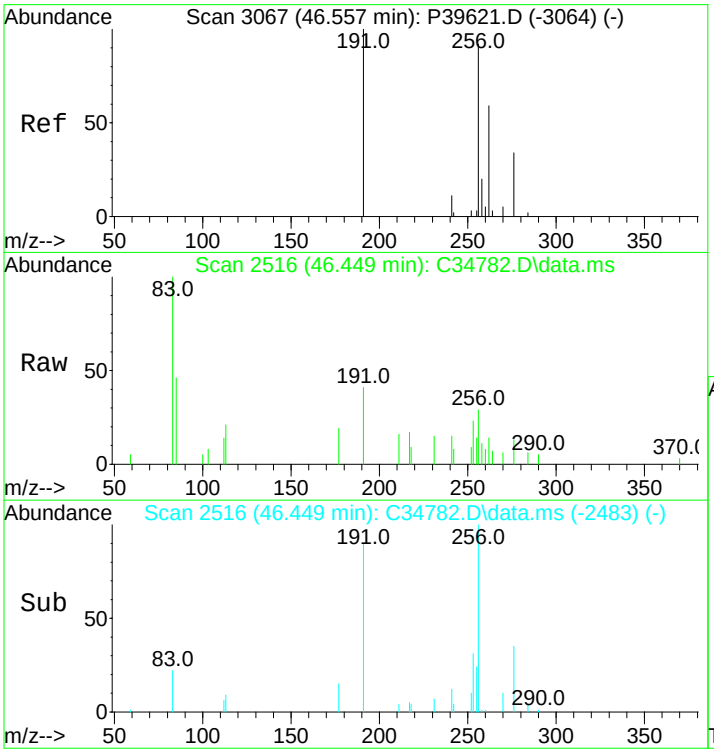




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 110.73 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

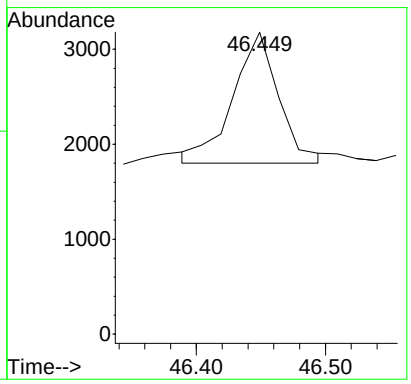
Tgt Ion:191 Resp: 3095

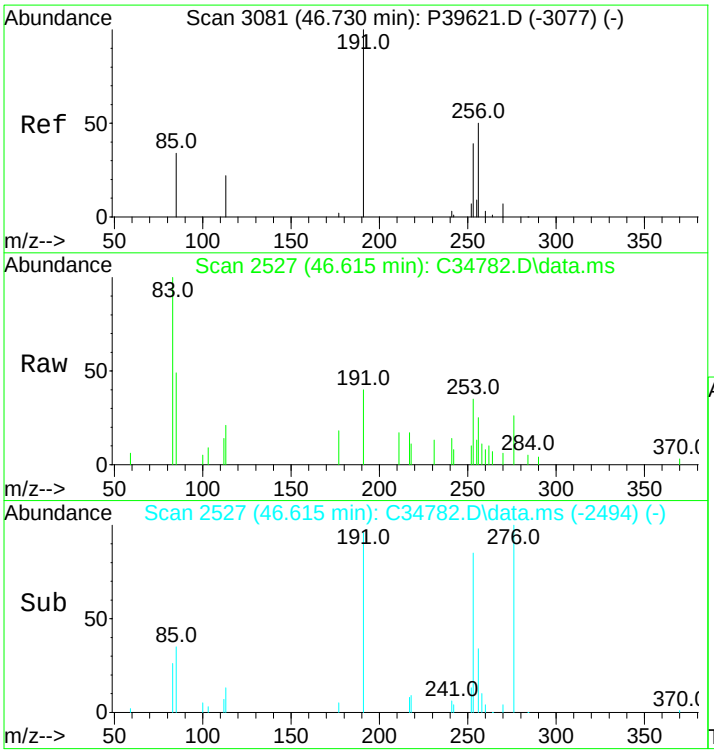




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 121.24 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

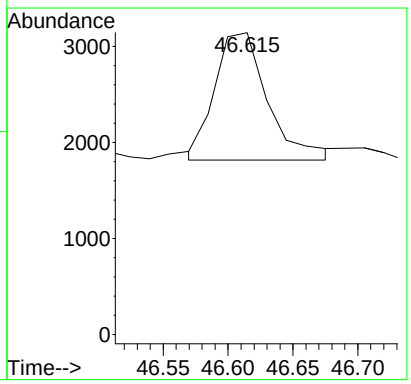
Tgt Ion:191 Resp: 3389

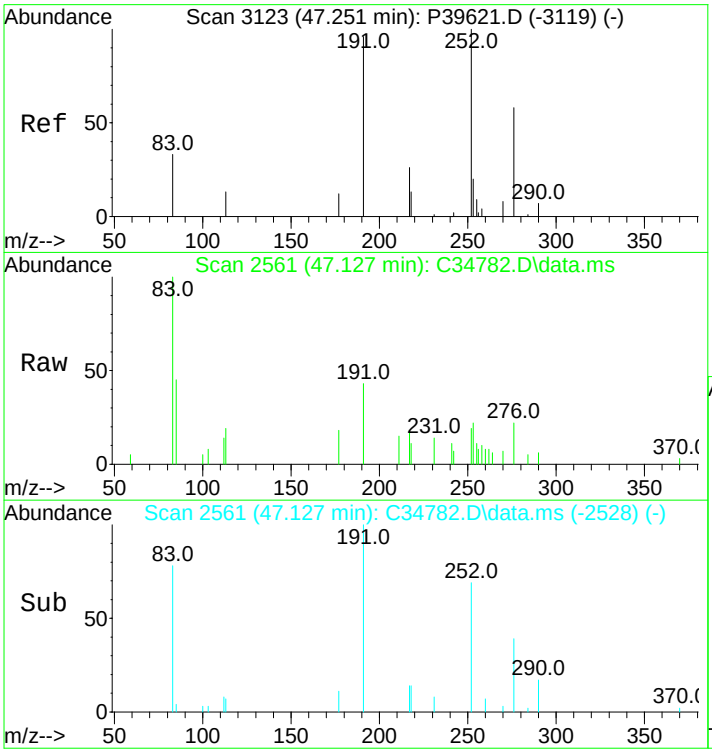




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 135.09 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

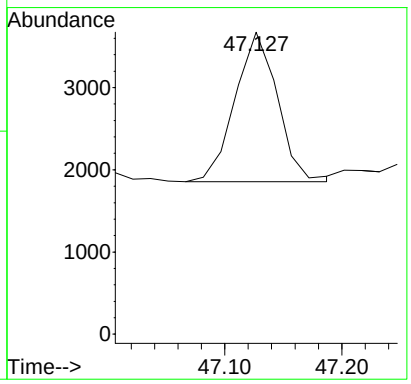
Tgt Ion:191 Resp: 3776

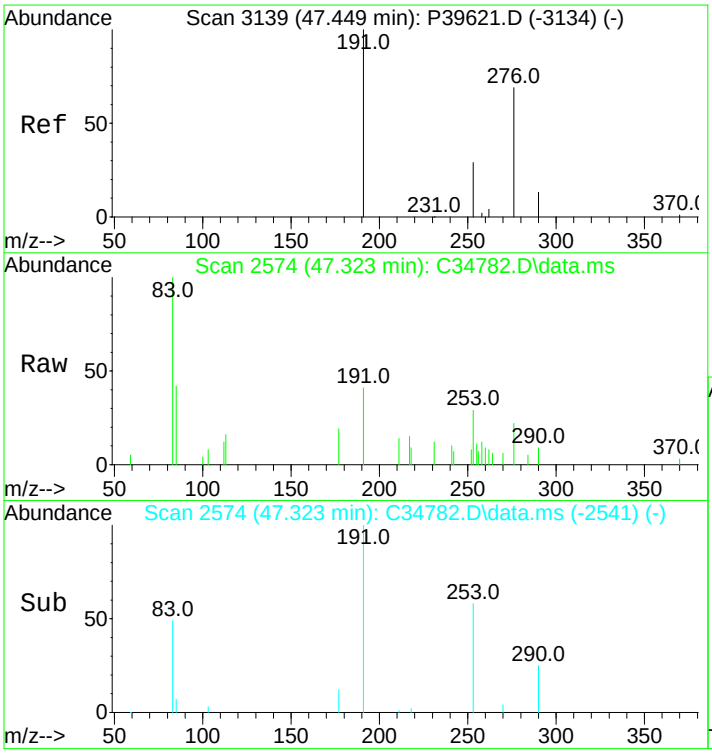




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 164.89 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

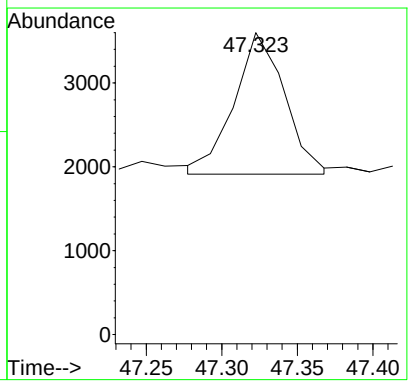
Tgt Ion:191 Resp: 4609

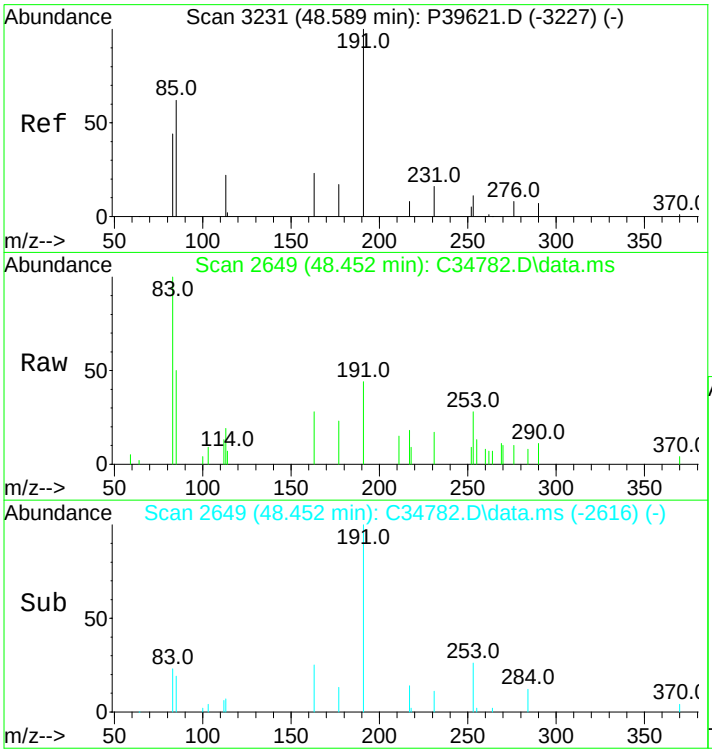




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 139.85 ng/ml m
RT: 47.323 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

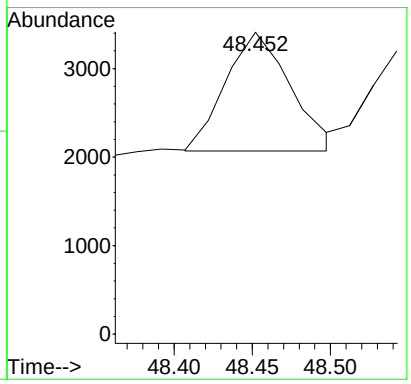
Tgt Ion:191 Resp: 3909

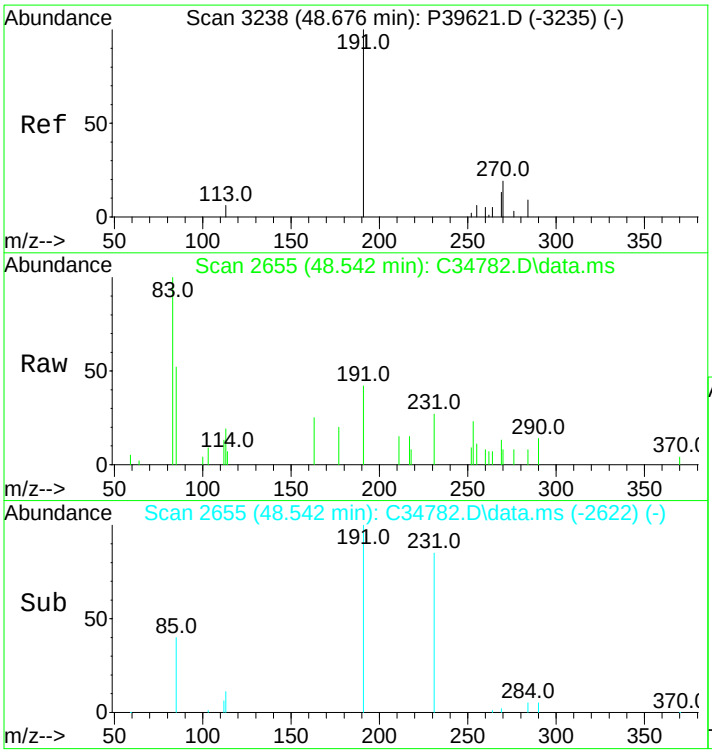




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 139.13 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

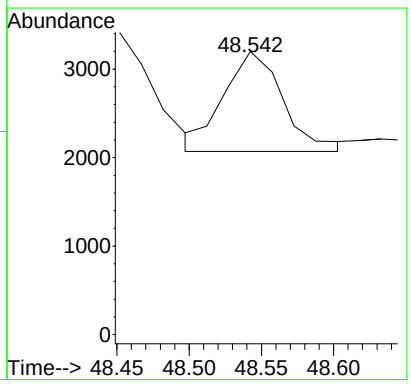
Tgt Ion:191 Resp: 3889

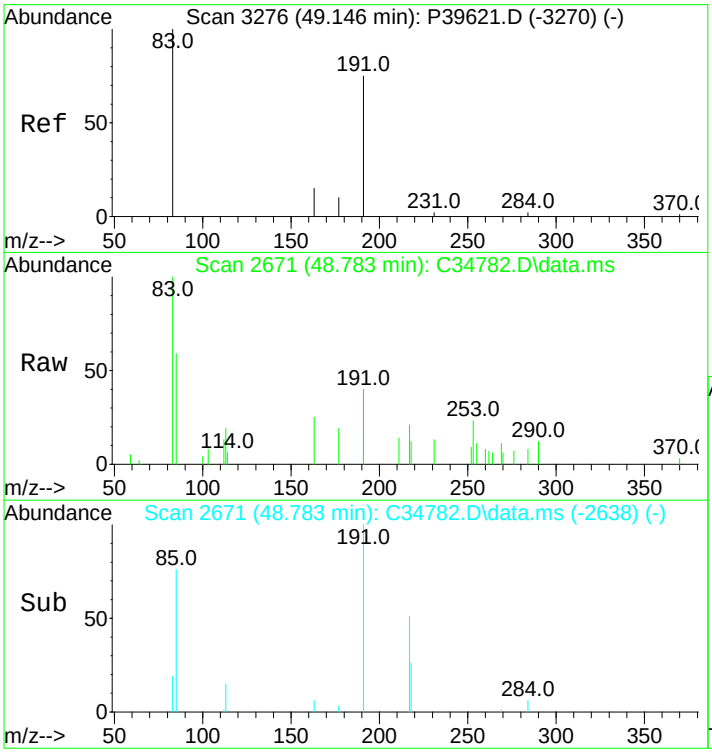




#105
C30 Tricyclic Terpane-22S
Concen: 115.05 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

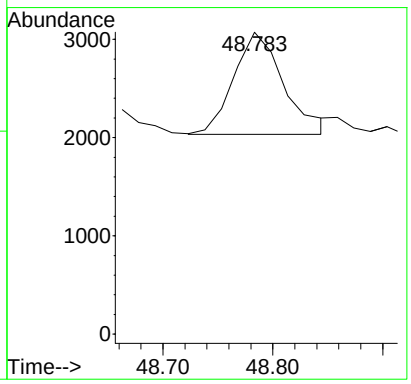
Tgt Ion:191 Resp: 3216

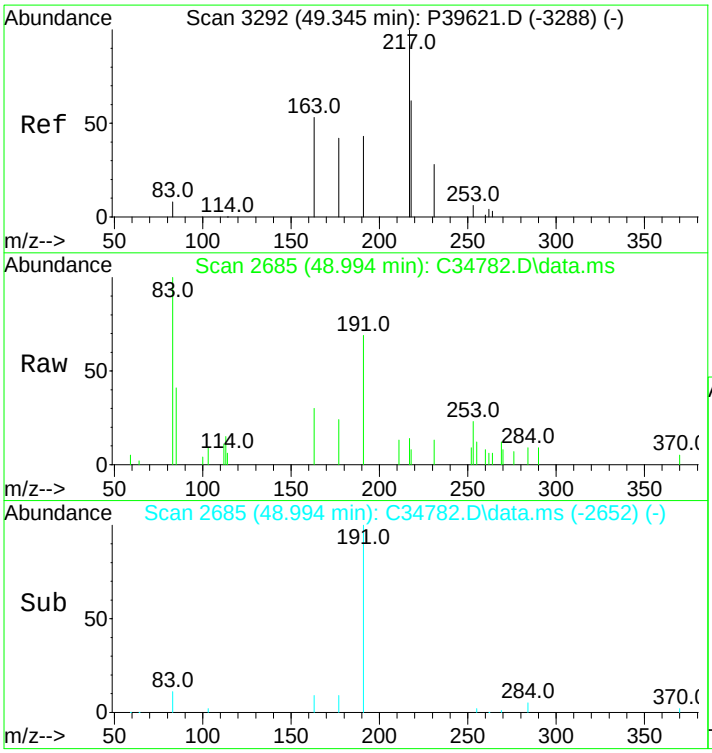




#106
C30 Tricyclic Terpane-22R
Concen: 117.24 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

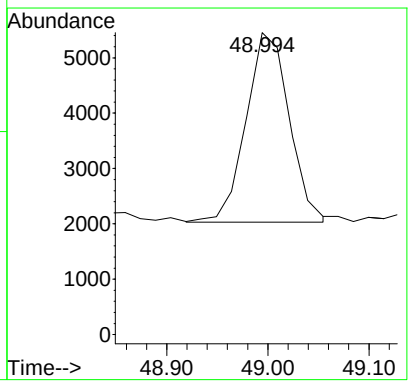
Tgt Ion:191 Resp: 3277

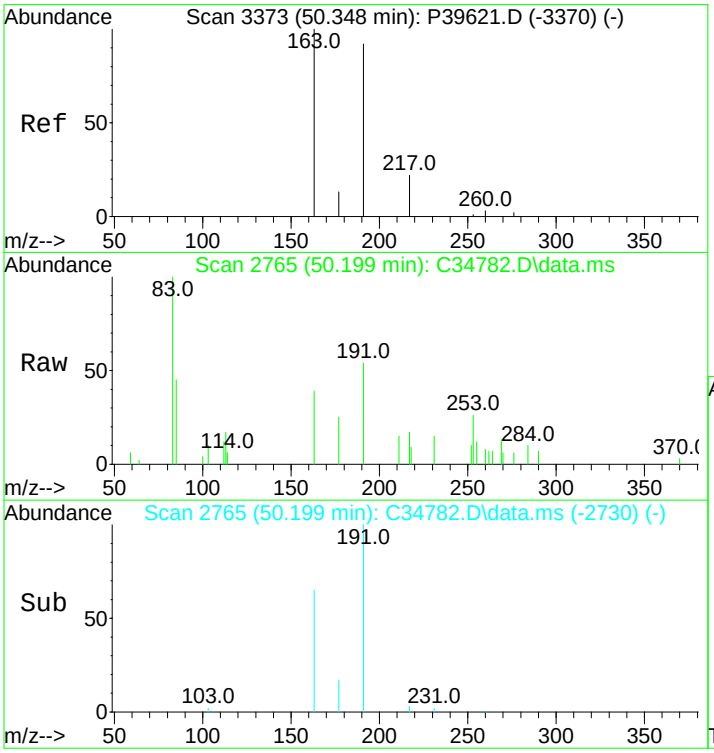




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 363.63 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

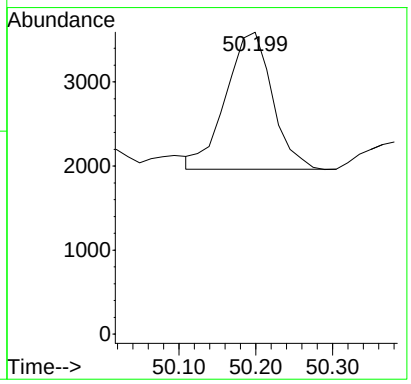
Tgt Ion:191 Resp: 10164

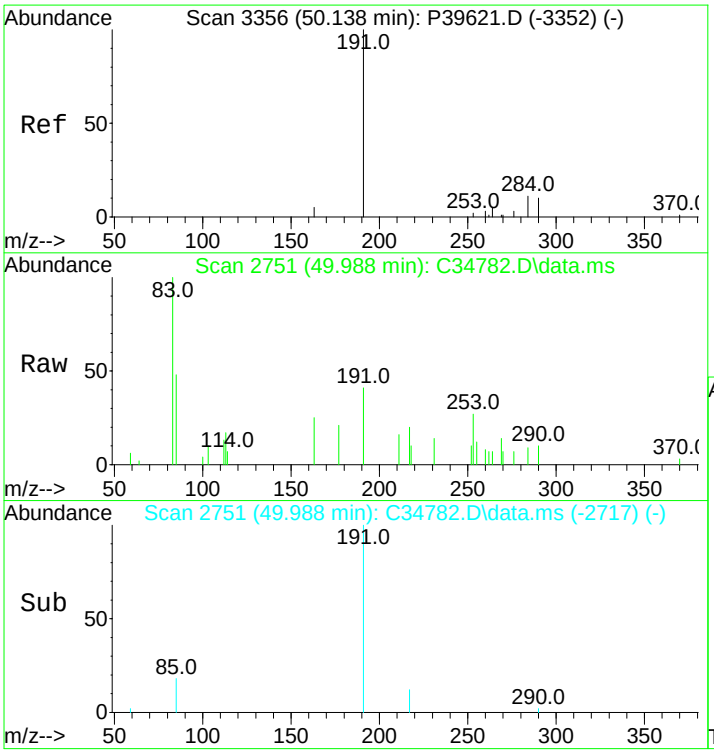




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 243.53 ng/ml m
RT: 50.199 min Scan# 2765
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

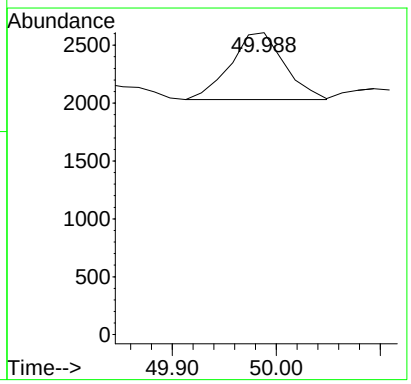
Tgt Ion:191 Resp: 6807

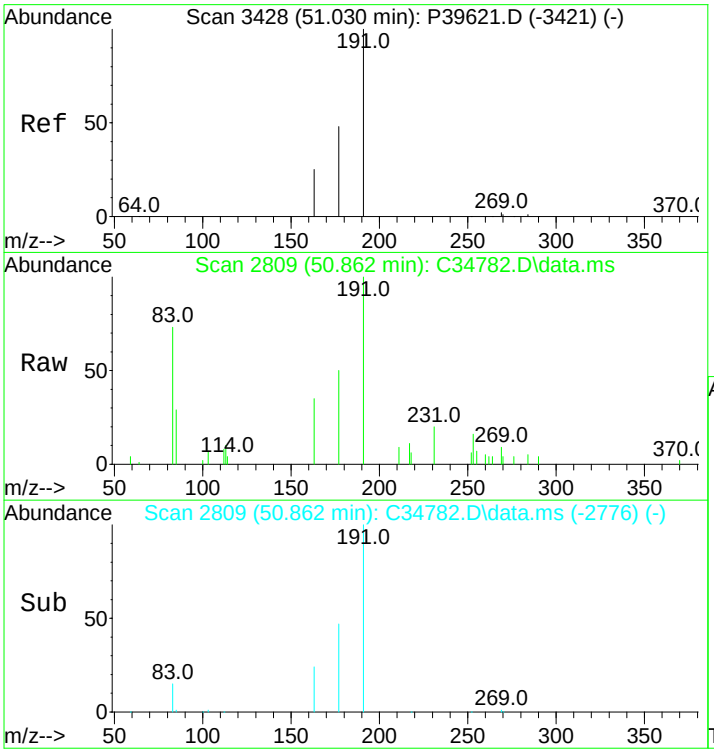




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 74.41 ng/ml
RT: 49.988 min Scan# 2751
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

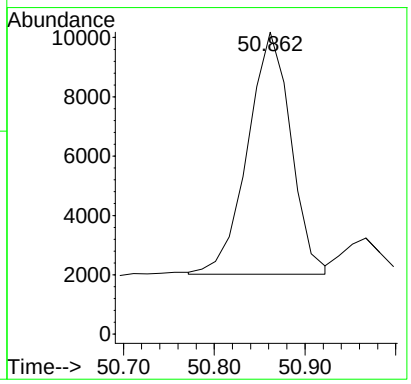
Tgt Ion:191 Resp: 2080

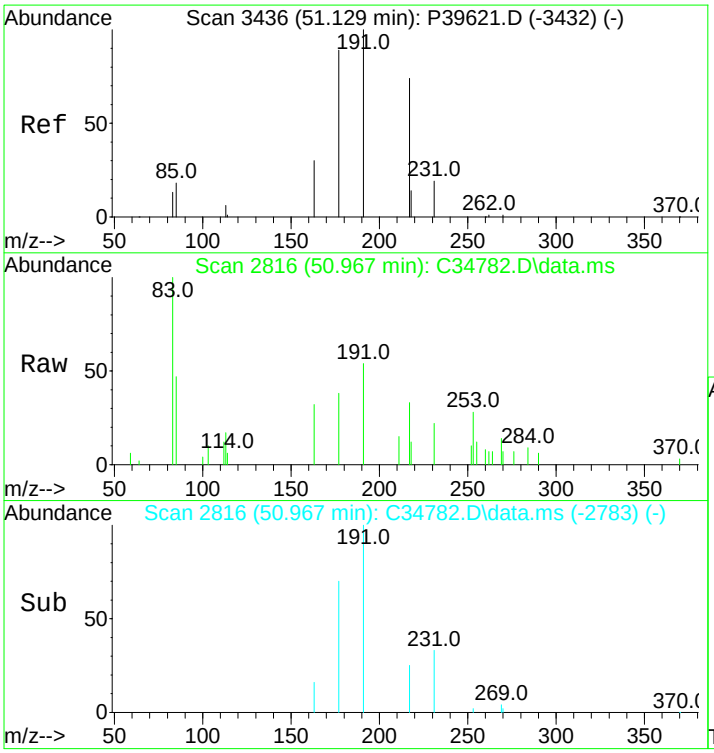




#110
30-Norhopane (T15)
Concen: 964.05 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

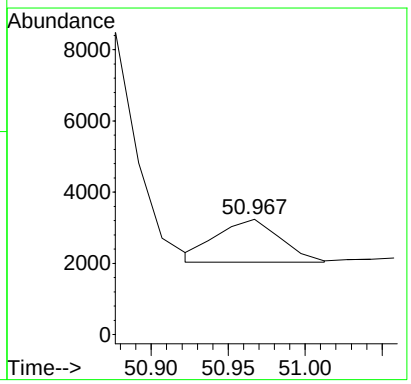
Tgt Ion:191 Resp: 26947

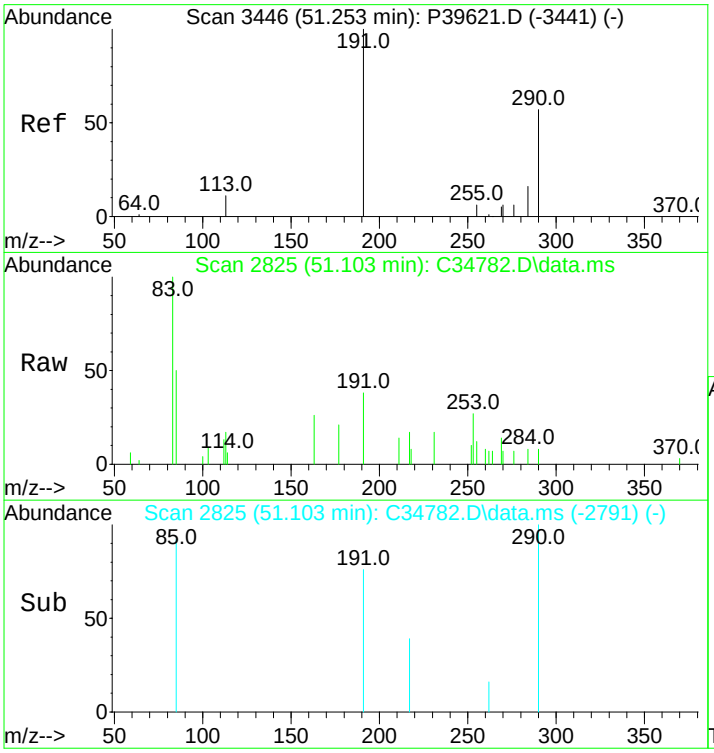




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 123.14 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

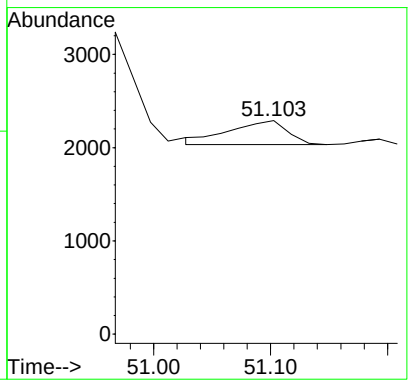
Tgt Ion:191 Resp: 3442

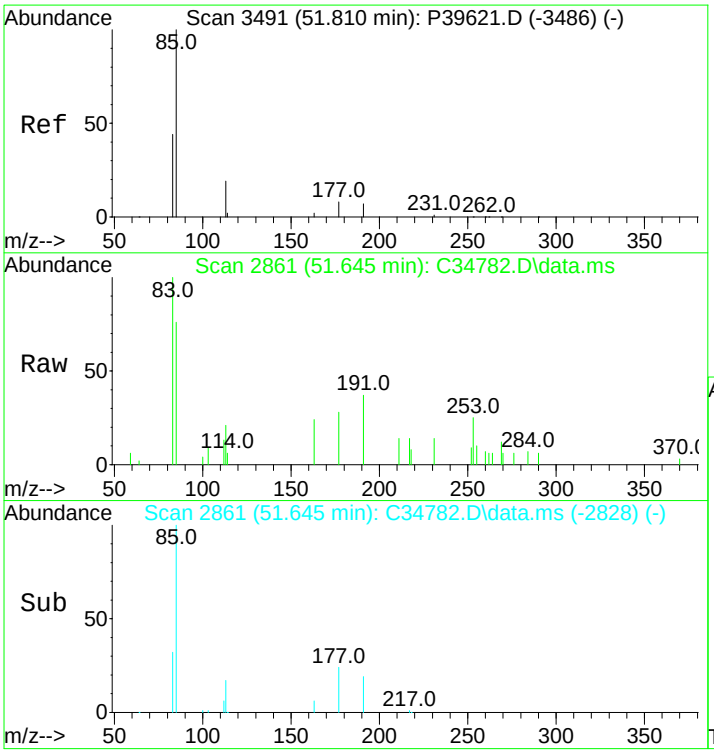




#112
17a(H)-Diahopane (X)
Concen: 31.88 ng/ml
RT: 51.103 min Scan# 2825
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

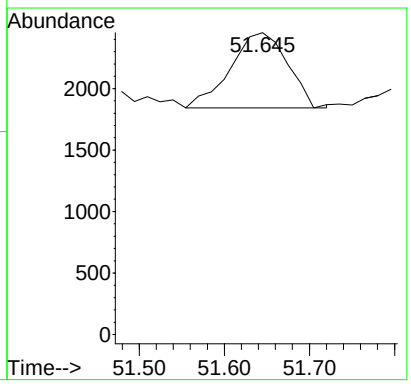
Tgt Ion:191 Resp: 891

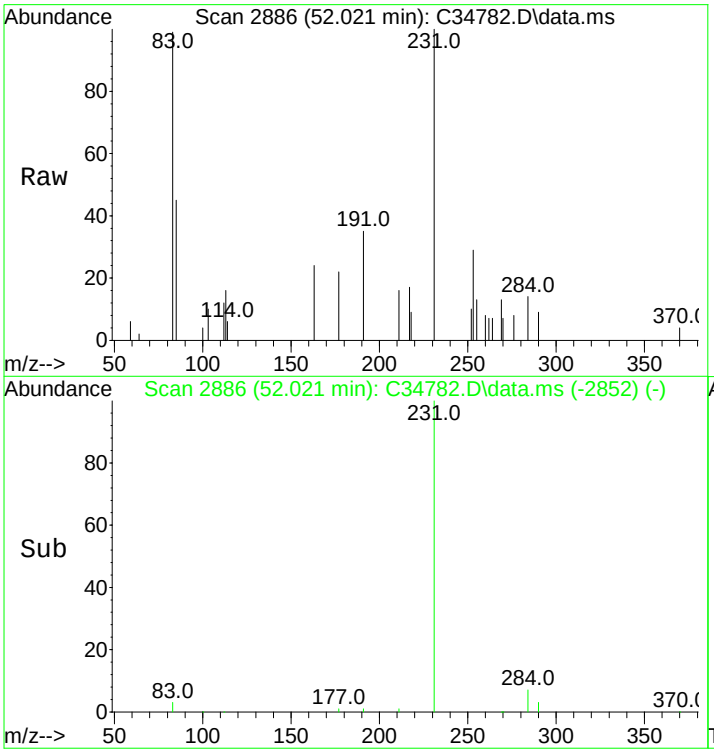




#113
30-Normoretane (T17)
Concen: 102.75 ng/ml
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

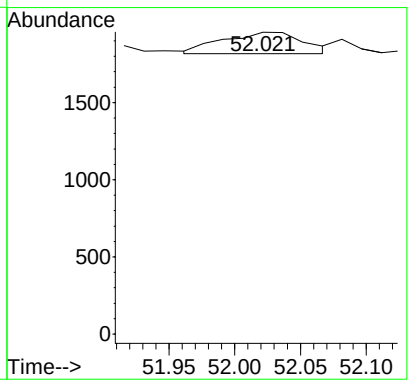
Tgt Ion:191 Resp: 2872

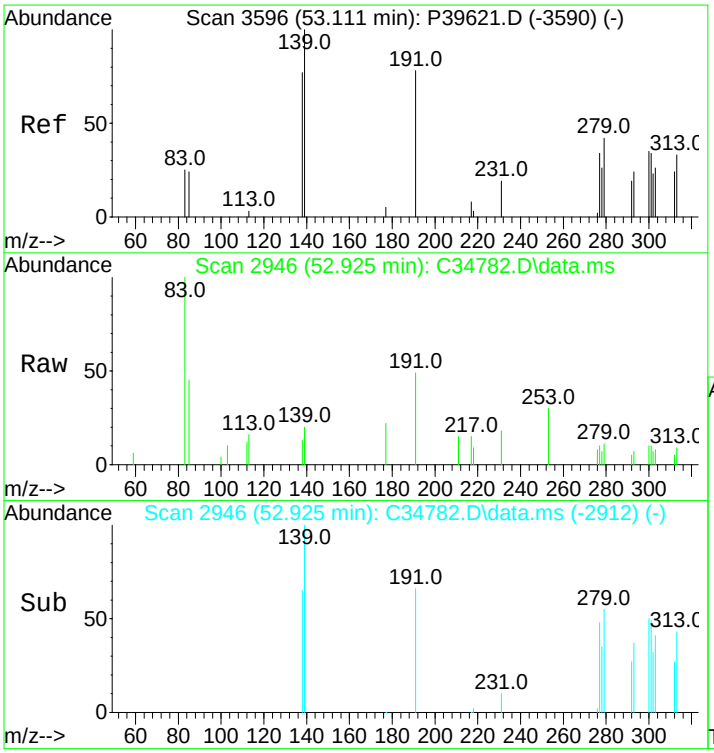




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 21.11 ng/ml m
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

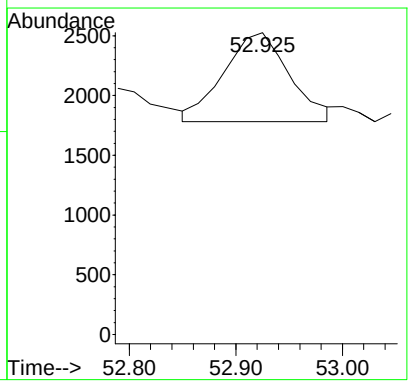
Tgt Ion:191 Resp: 590

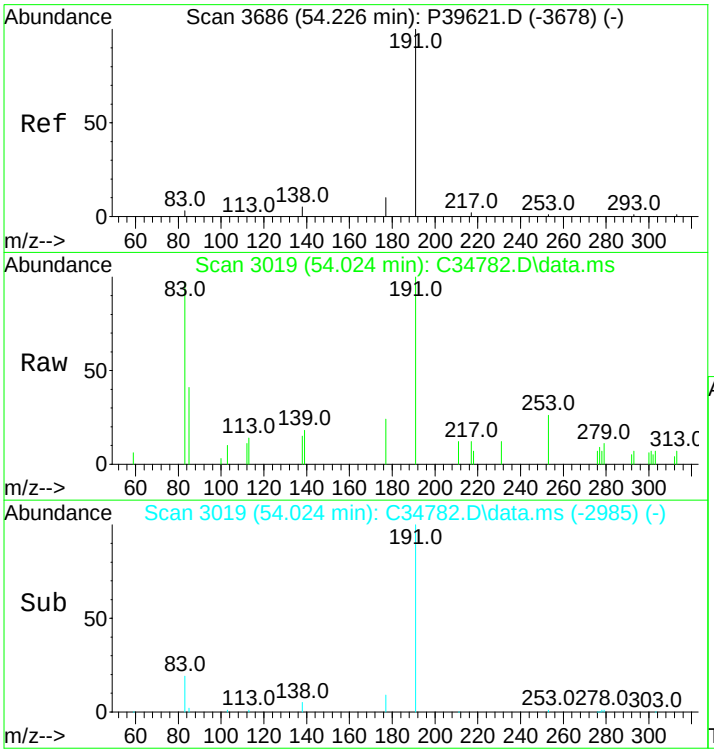




#115
Moretane (T20)
Concen: 113.98 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

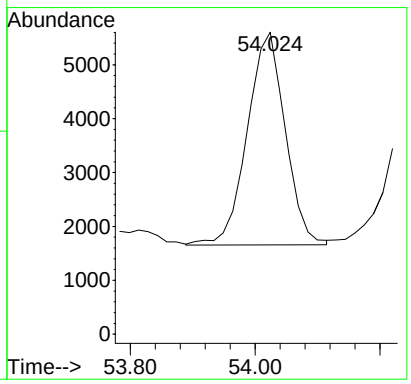
Tgt Ion:191 Resp: 3186

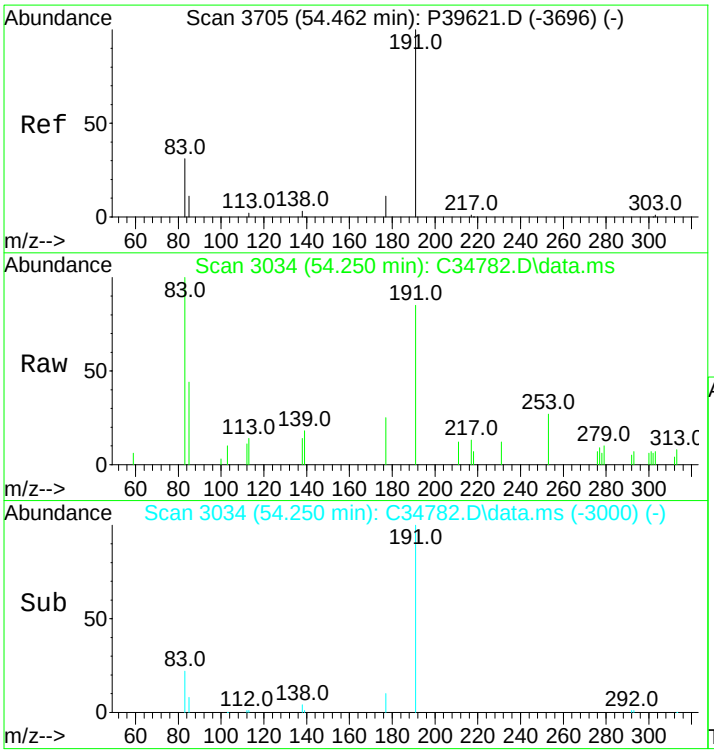




#116
30-Homohopane-22S (T21)
Concen: 596.92 ng/ml
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

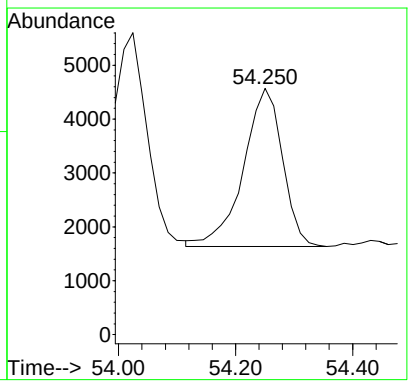
Tgt Ion:191 Resp: 16685

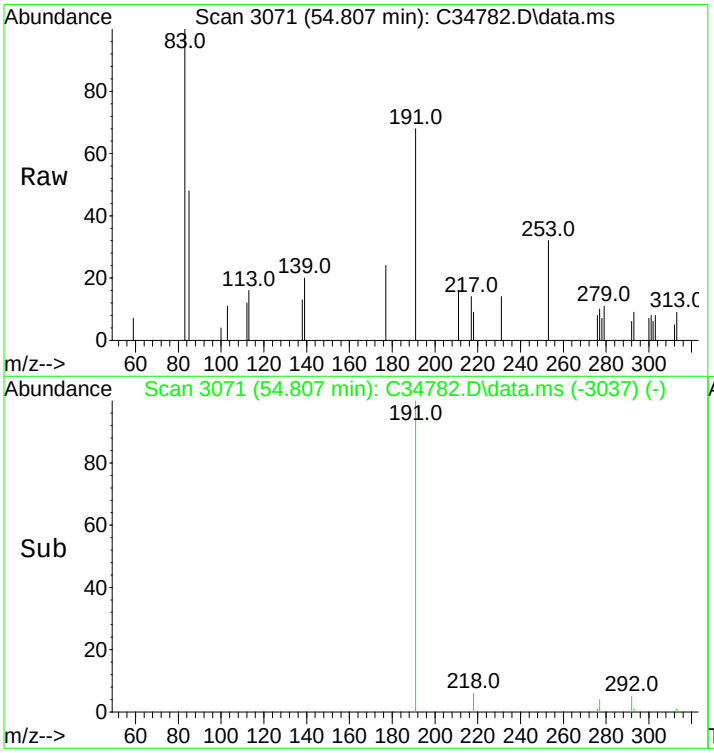




#117
30-Homohopane-22R (T22)
Concen: 486.34 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

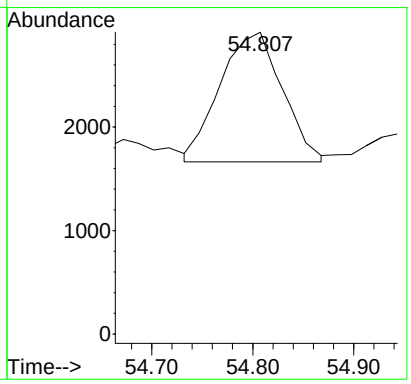
Tgt Ion:191 Resp: 13594

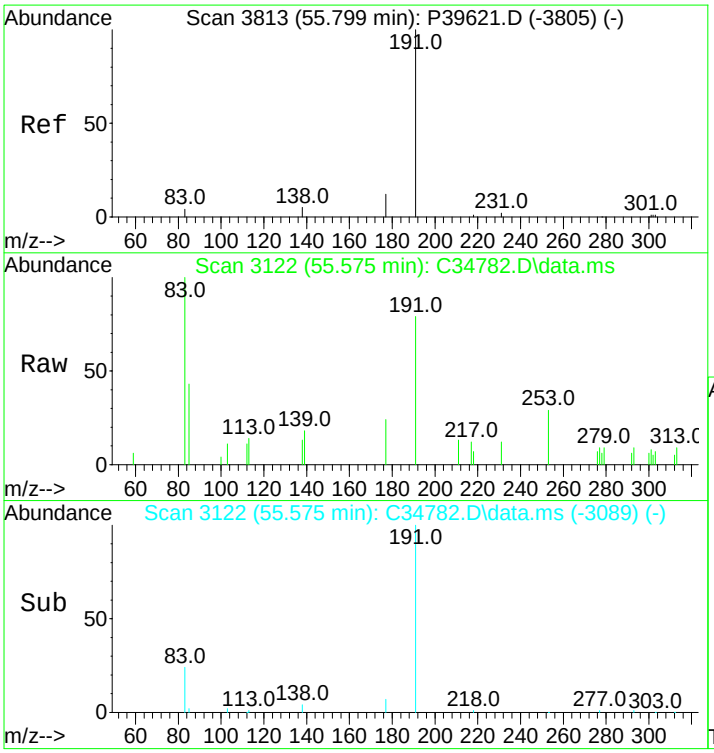




#118
Gammacerane/C32-diahopane
Concen: 192.19 ng/mL m
RT: 54.807 min Scan# 3071
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

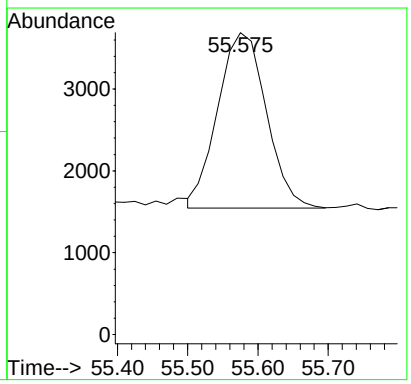
Tgt Ion:191 Resp: 5372

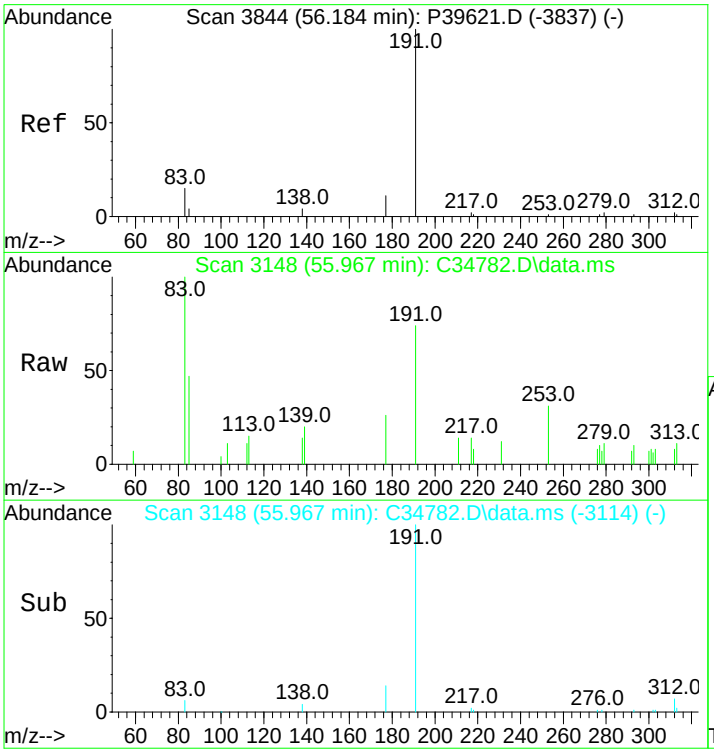




#119
30,31-Bishomohopane-22S (T26)
Concen: 365.56 ng/ml m
RT: 55.575 min Scan# 3122
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

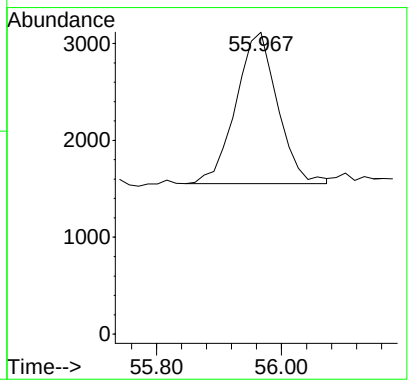
Tgt Ion:191 Resp: 10218

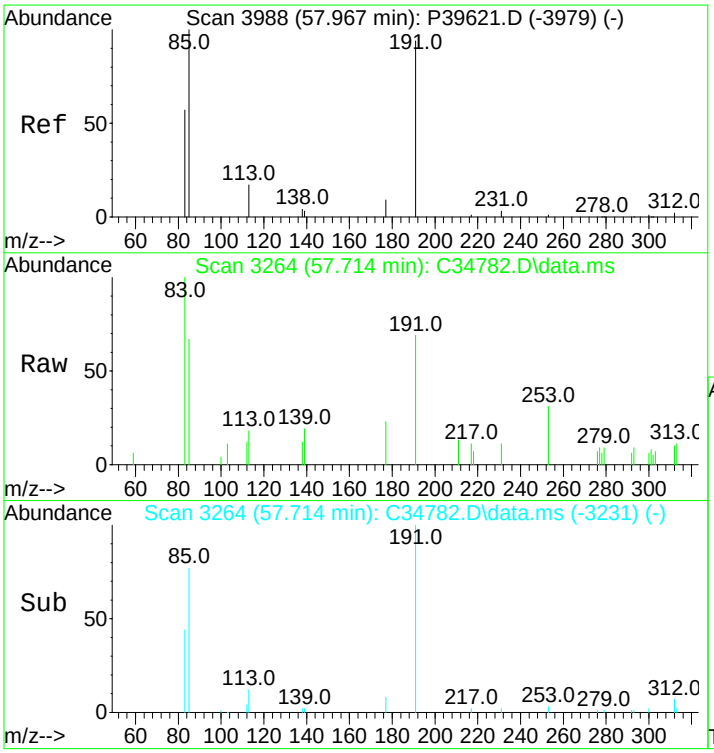




#120
30,31-Bishomohopane-22R (T27)
Concen: 259.20 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

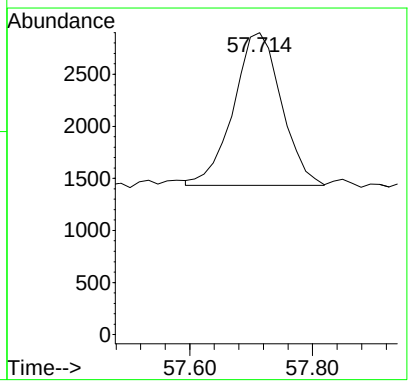
Tgt Ion:191 Resp: 7245

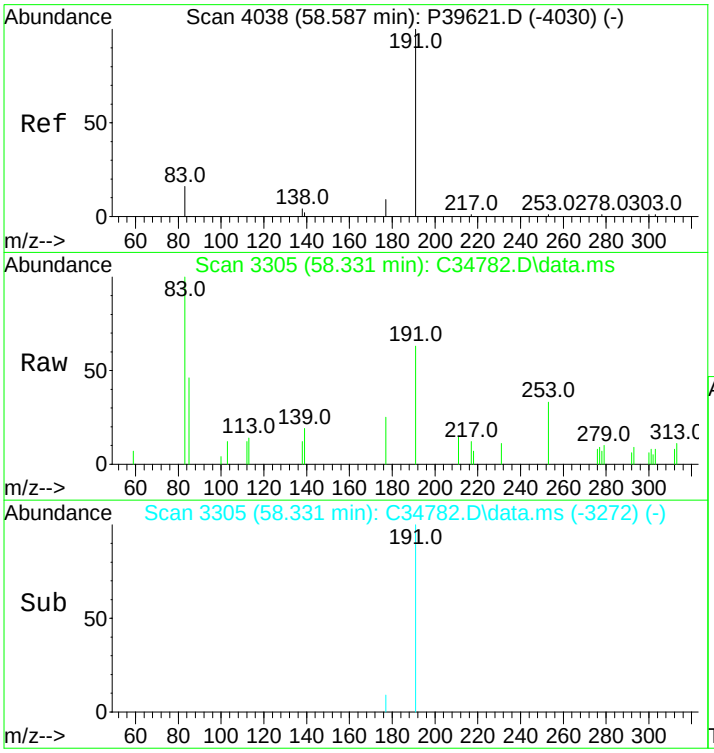




#121
30,31-Trishomohopane-22S (T30)
Concen: 284.06 ng/ml m
RT: 57.714 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

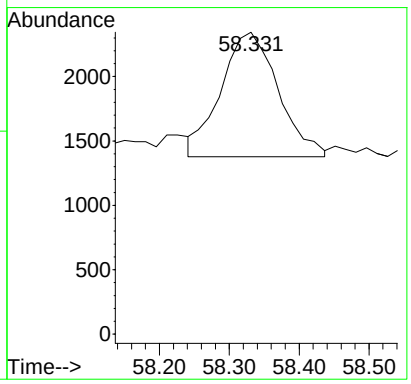
Tgt Ion:191 Resp: 7940

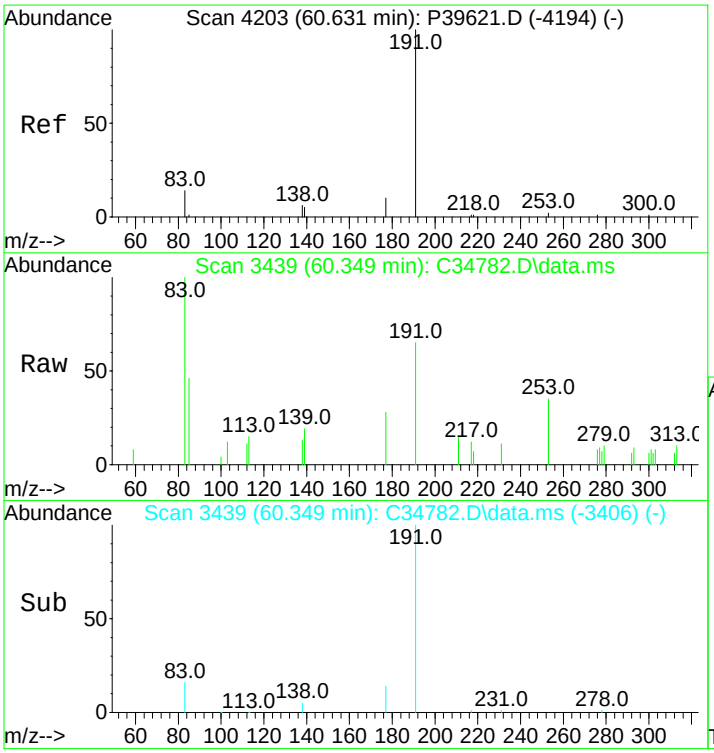




#122
30,31-Trishomohopane-22R (T31)
Concen: 197.09 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

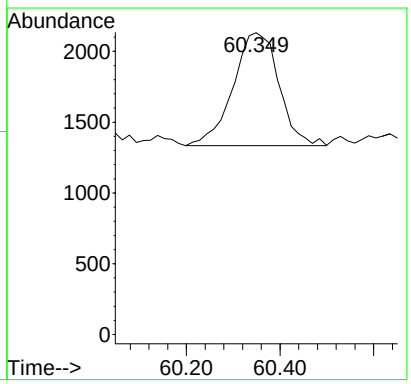
Tgt Ion:191 Resp: 5509

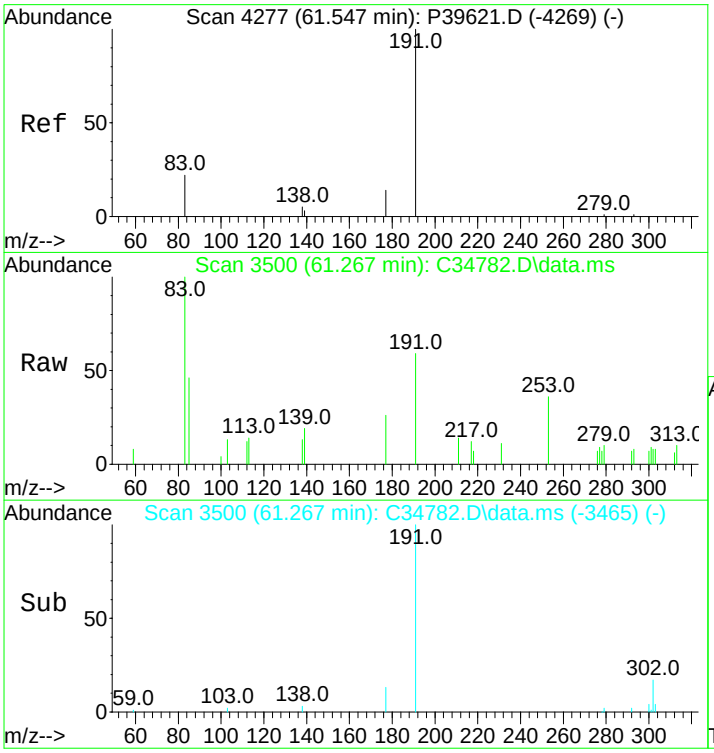




#123
Tetrakishomohopane-22S (T32)
Concen: 194.16 ng/ml
RT: 60.349 min Scan# 3439
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

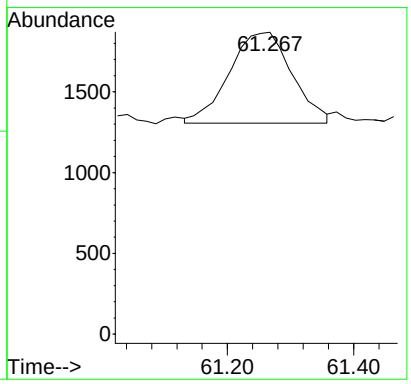
Tgt Ion:191 Resp: 5427

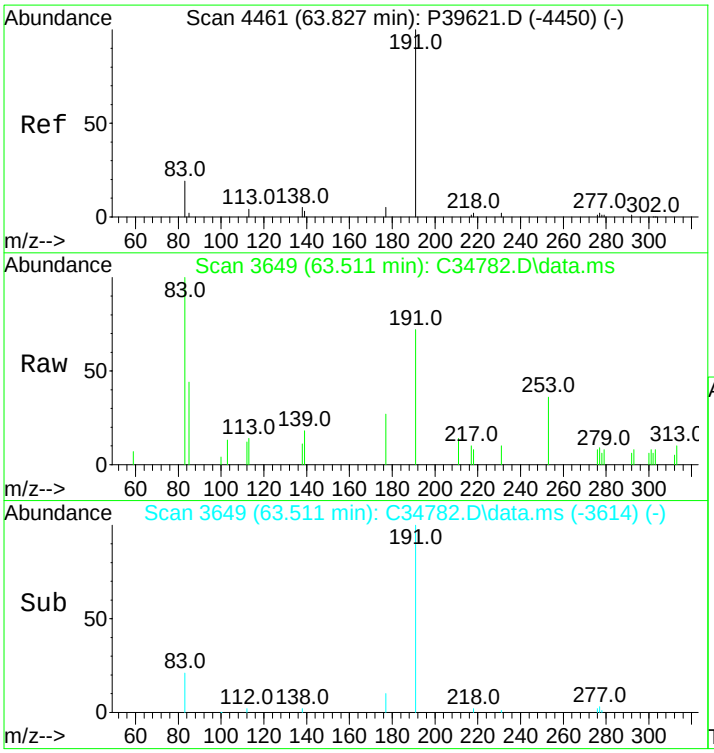




#124
Tetrakishomohopane-22R (T33)
Concen: 138.92 ng/ml m
RT: 61.267 min Scan# 3500
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

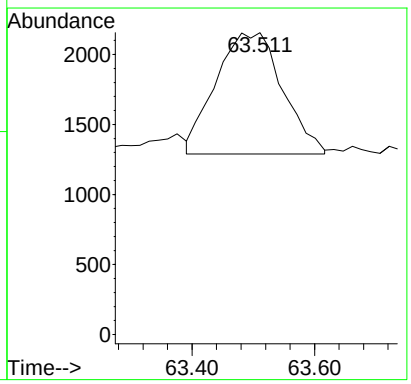
Tgt Ion:191 Resp: 3883

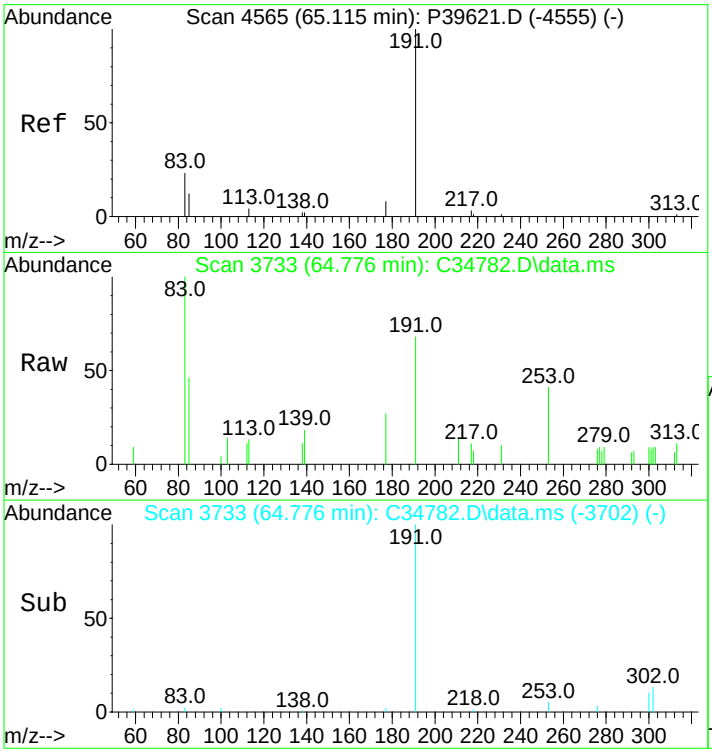




#125
Pentakishomohopane-22S (T34)
Concen: 233.83 ng/ml m
RT: 63.511 min Scan# 3649
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

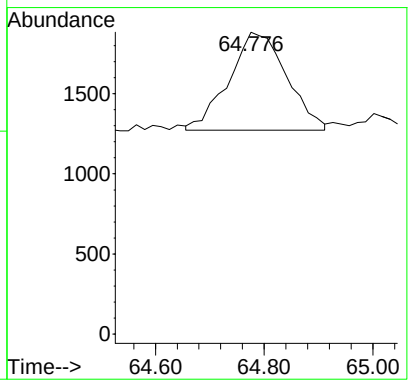
Tgt Ion:191 Resp: 6536

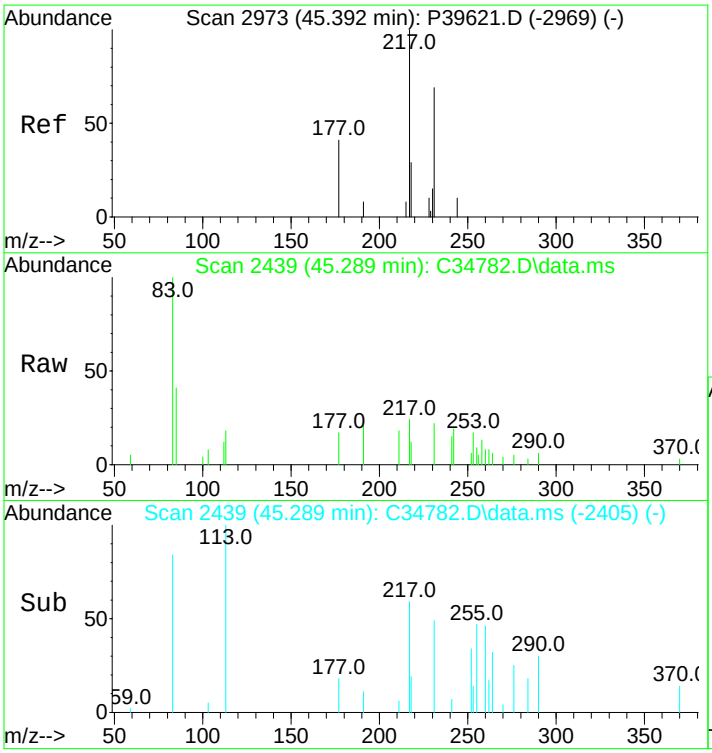




#126
Pentakishomohopane-22R (T35)
Concen: 160.92 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

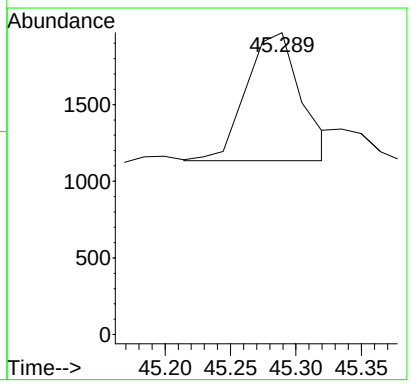
Tgt Ion:191 Resp: 4498

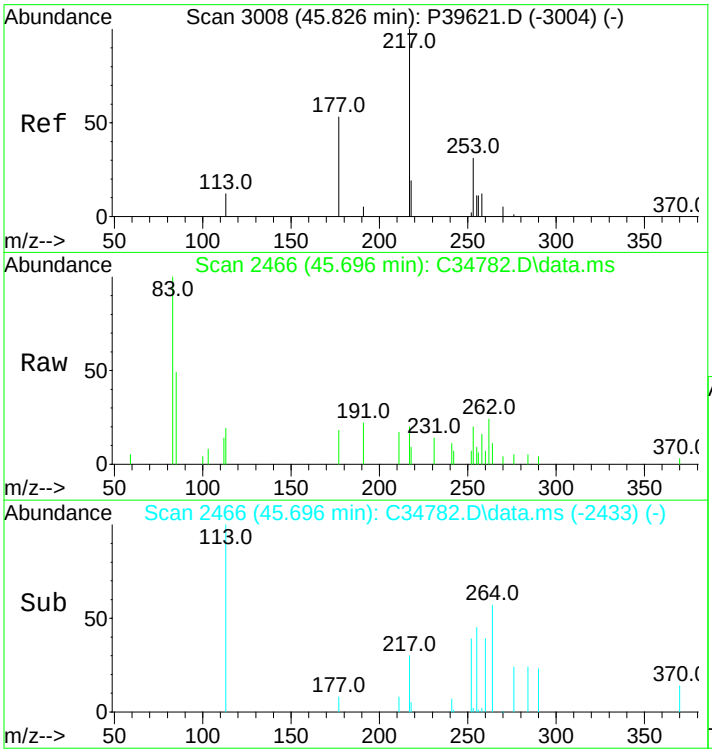




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 182.88 ng/ml m
RT: 45.289 min Scan# 2439
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

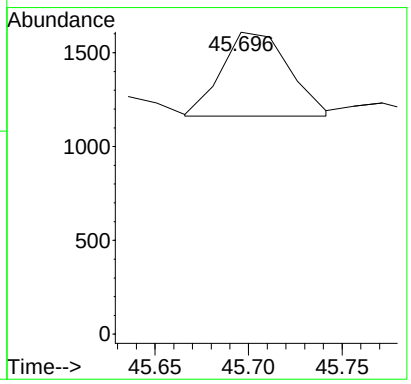
Tgt Ion:217 Resp: 2425

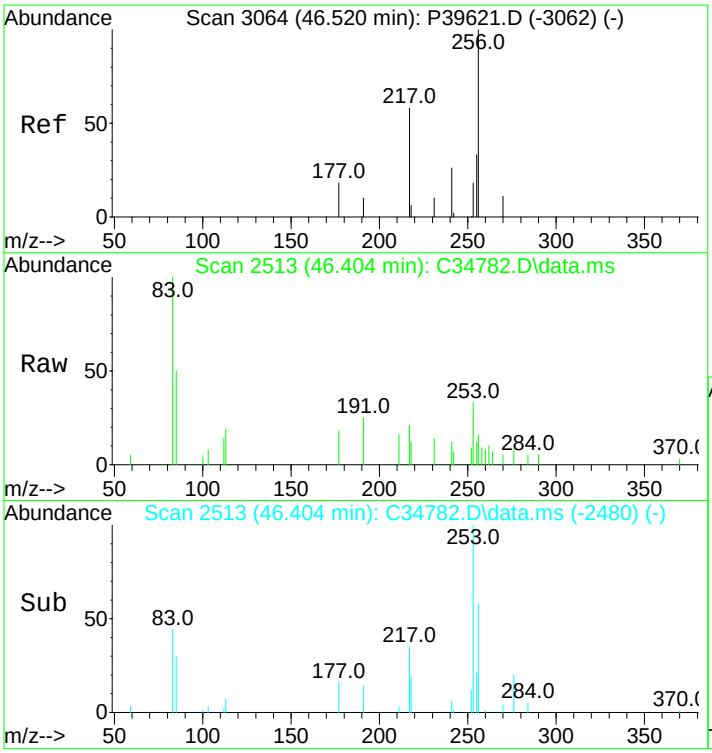




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 84.77 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

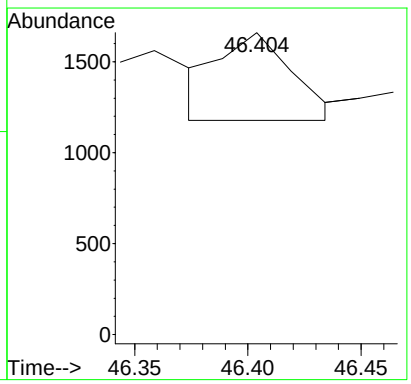
Tgt Ion:217 Resp: 1124

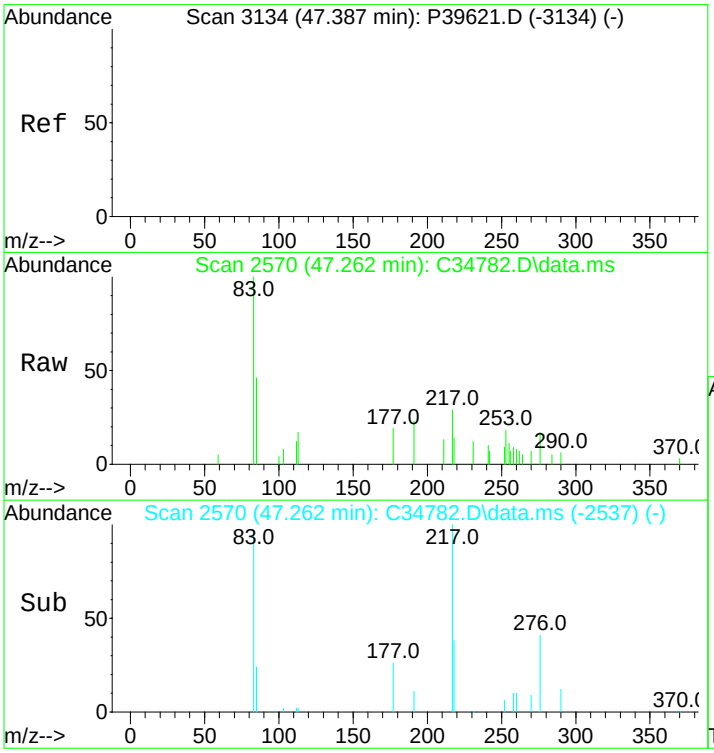




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 81.15 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

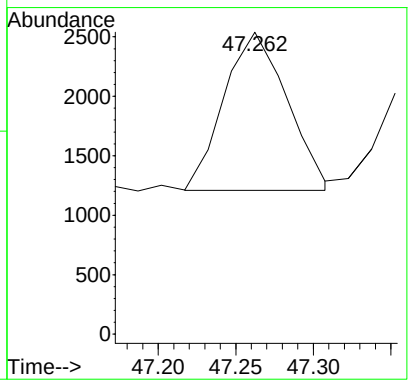
Tgt Ion:217 Resp: 1076

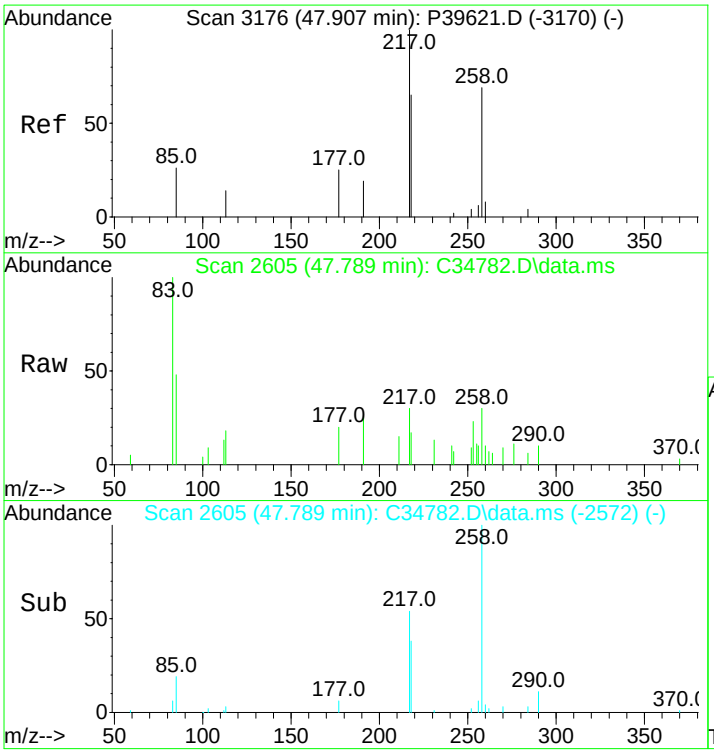




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 285.22 ng/ml m
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

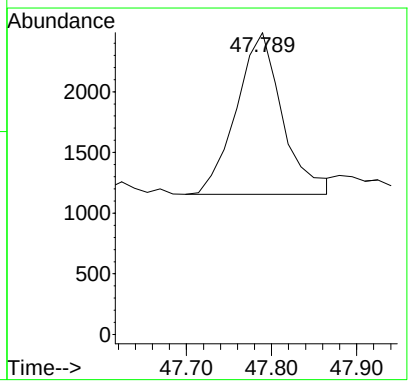
Tgt Ion:217 Resp: 3782

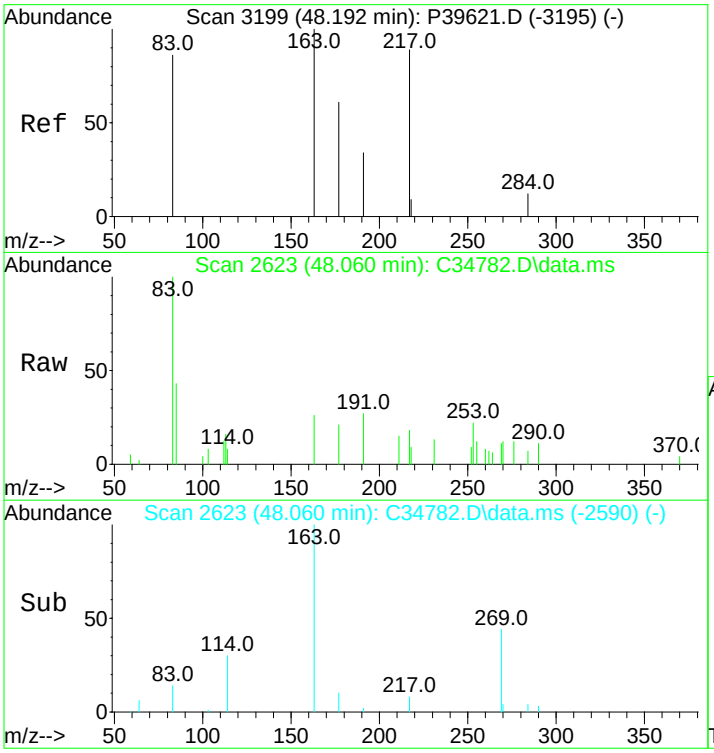




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 377.53 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

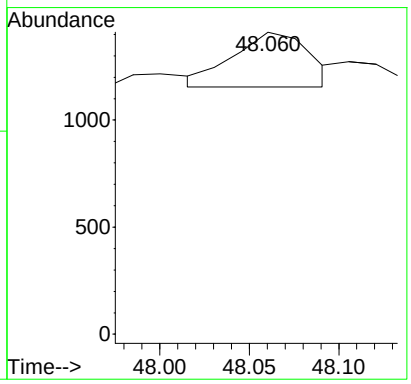
Tgt Ion:217 Resp: 5006

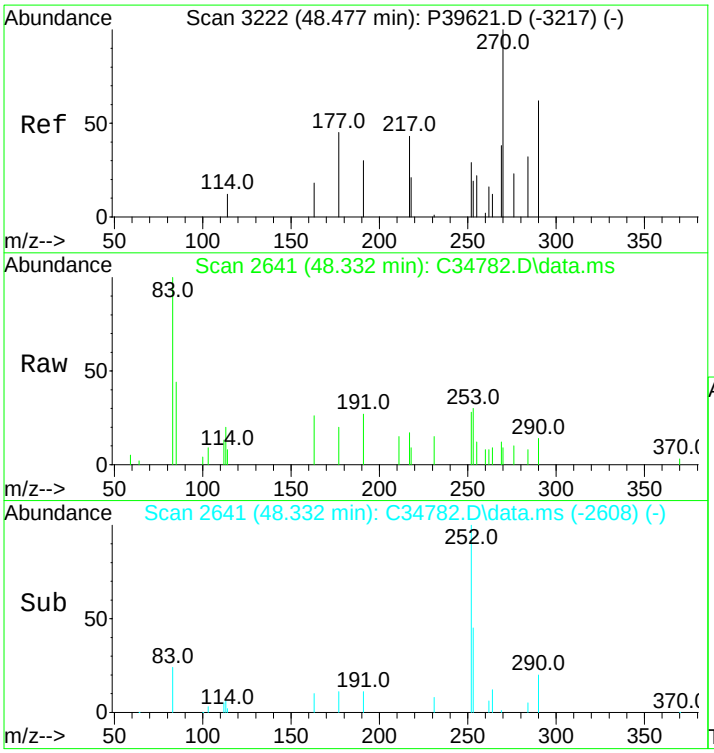




#133
Unknown Sterane (S18)
Concen: 57.01 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

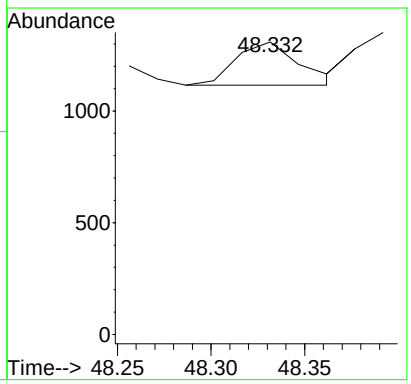
Tgt Ion:217 Resp: 756

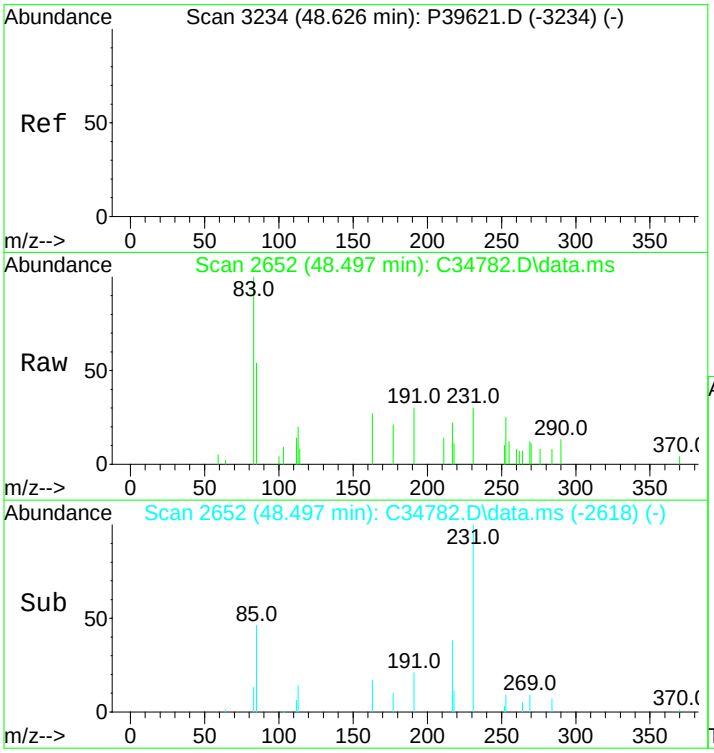




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 34.46 ng/ml
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

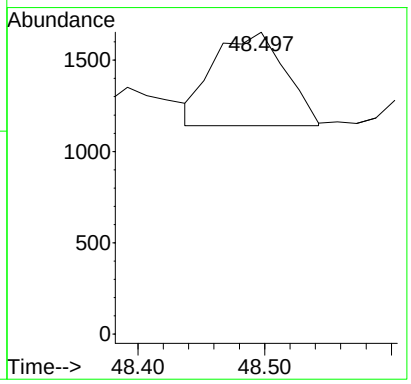
Tgt Ion:217 Resp: 457

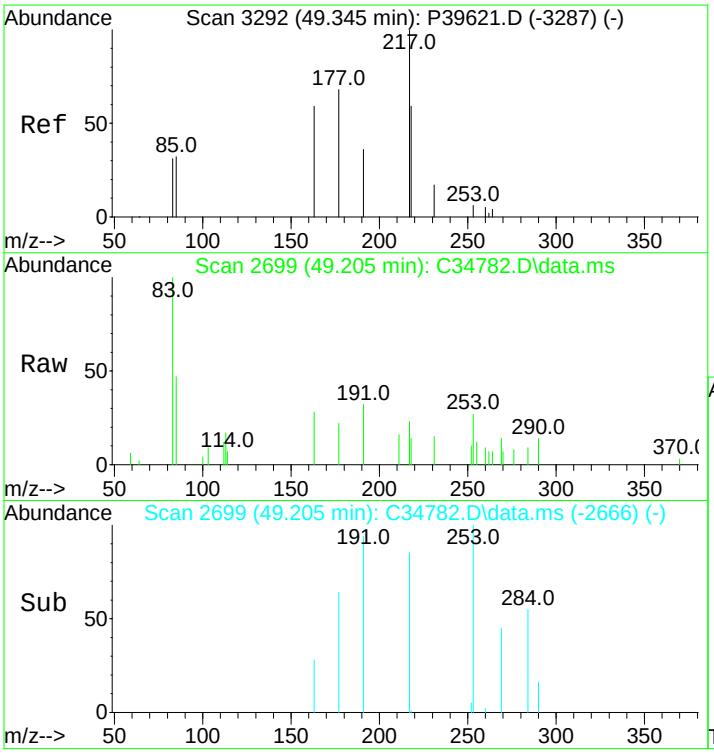




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 150.00 ng/ml m
RT: 48.497 min Scan# 2652
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

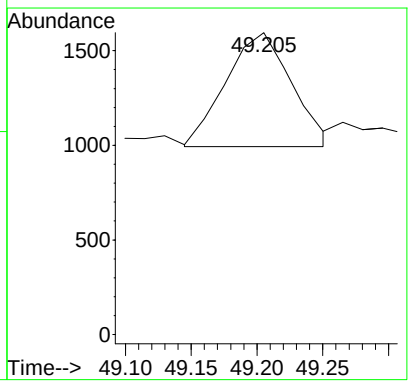
Tgt Ion:217 Resp: 1989

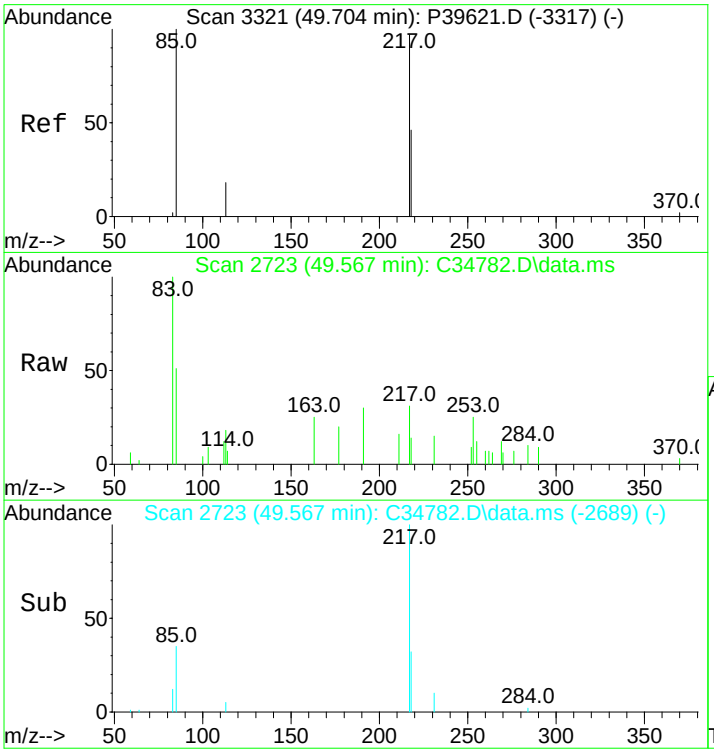




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 157.77 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

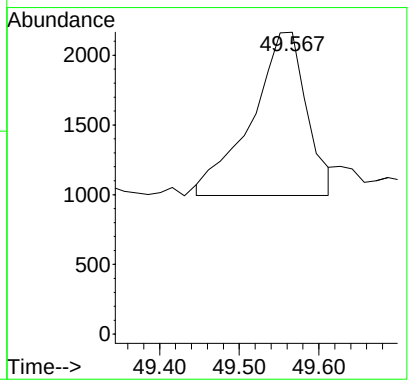
Tgt Ion:217 Resp: 2092

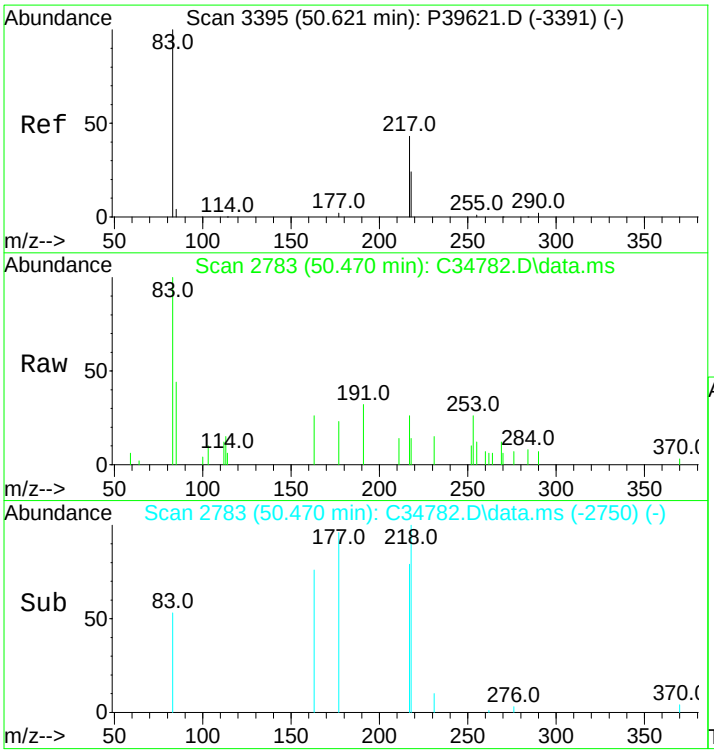




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 423.76 ng/ml m
RT: 49.567 min Scan# 2723
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

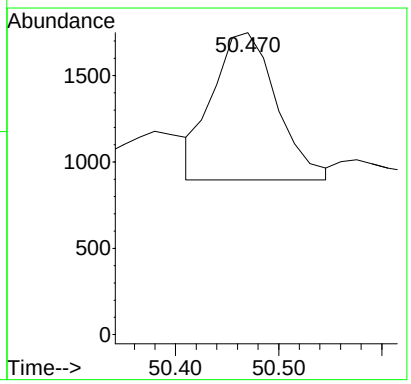
Tgt Ion:217 Resp: 5619

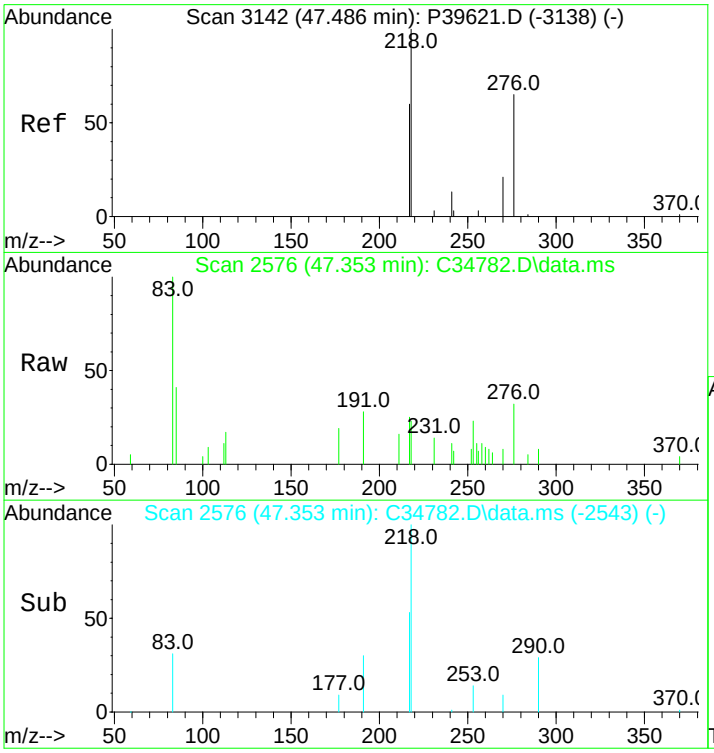




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 276.32 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

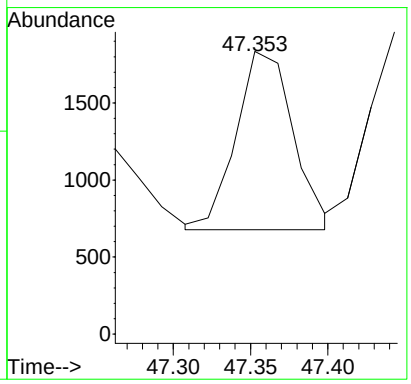
Tgt Ion:217 Resp: 3664

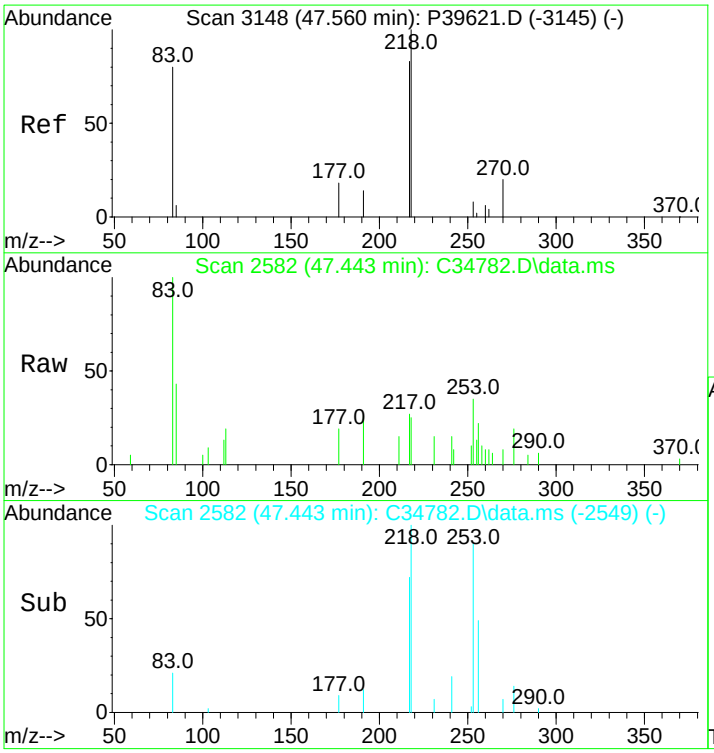




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 225.19 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

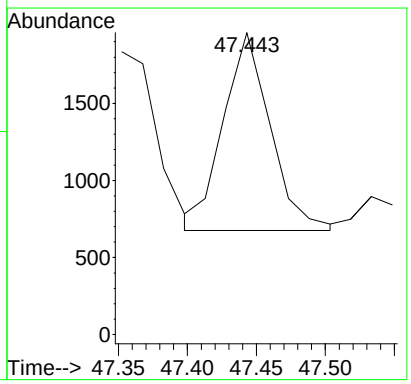
Tgt Ion:218 Resp: 2986

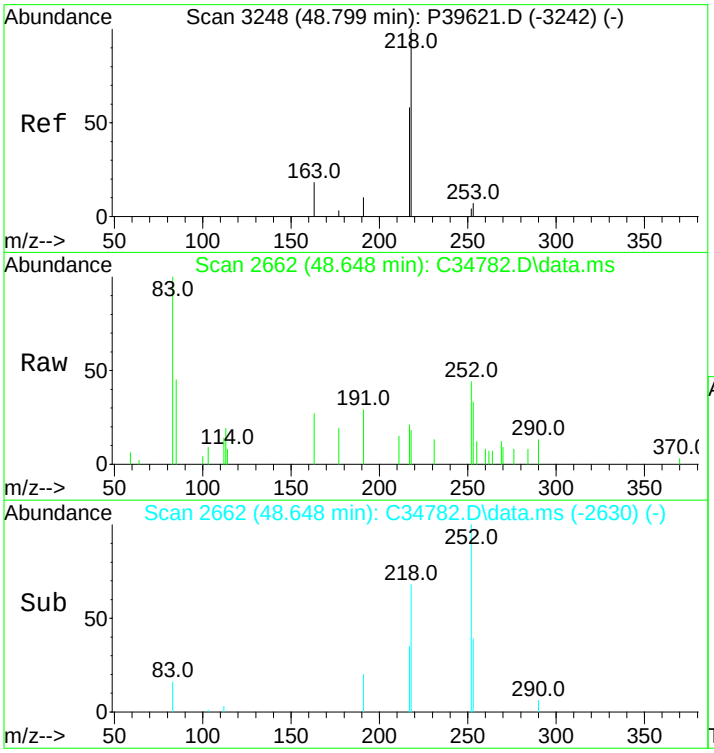




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 229.57 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

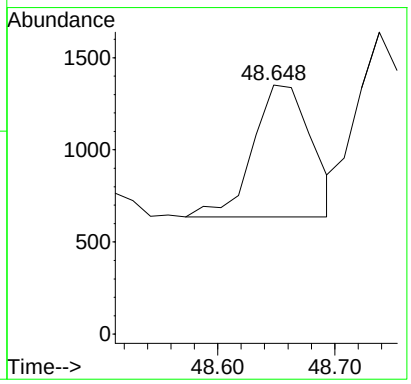
Tgt Ion:218 Resp: 3044

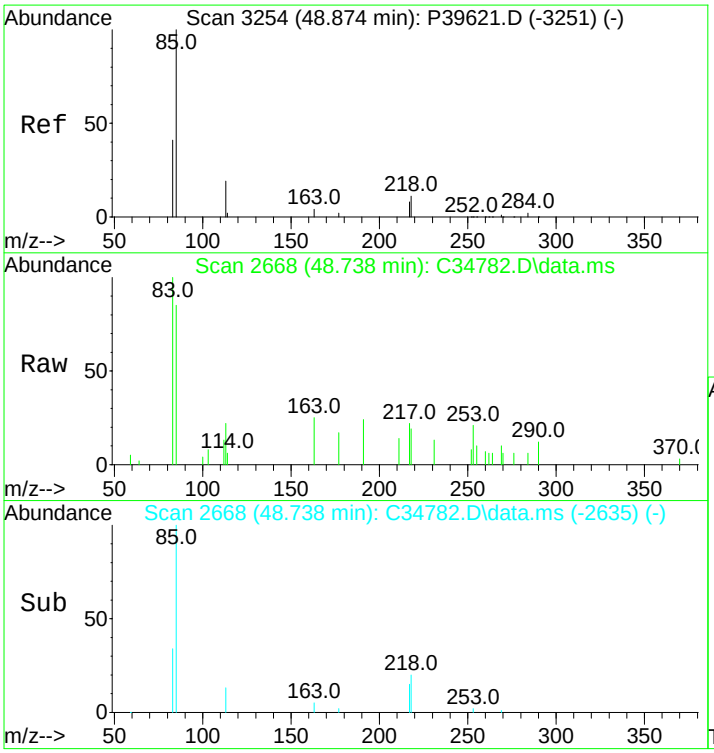




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 188.61 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

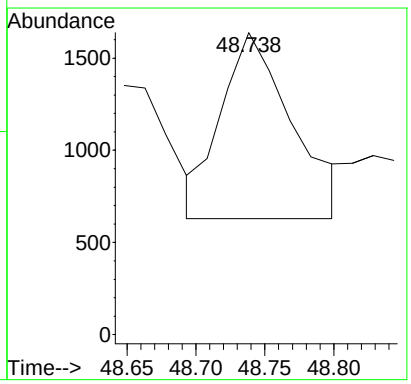
Tgt Ion:218 Resp: 2501

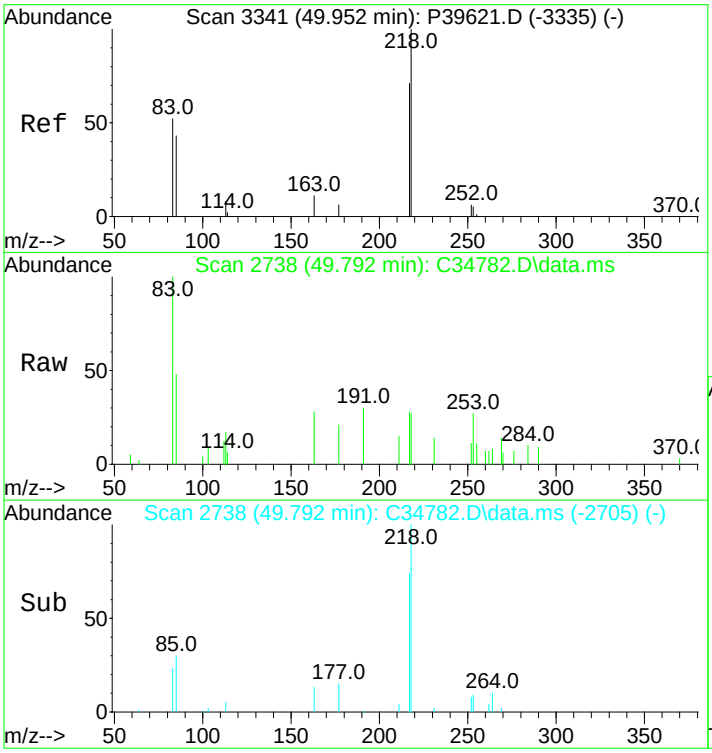




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 272.85 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

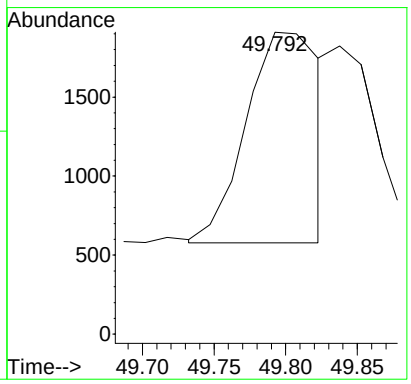
Tgt Ion:218 Resp: 3618

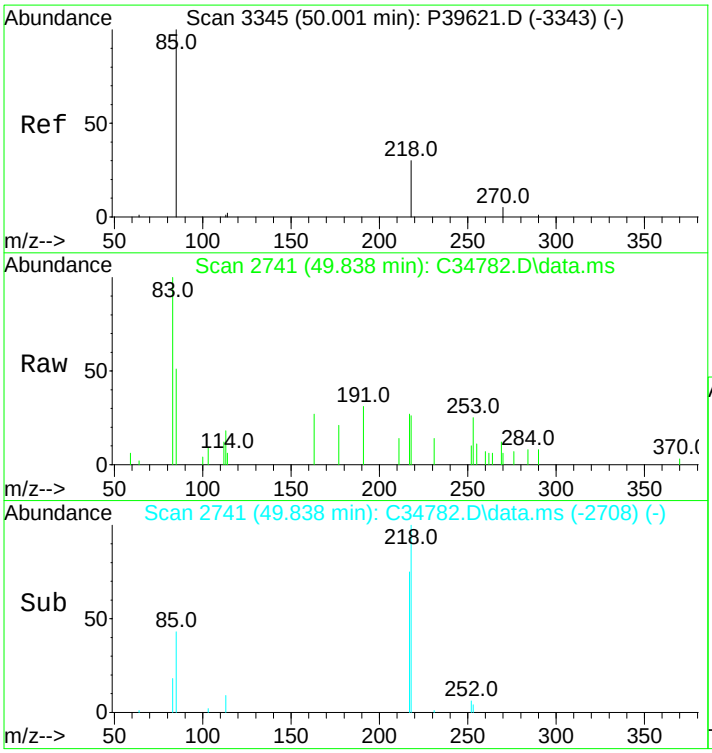




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 360.49 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

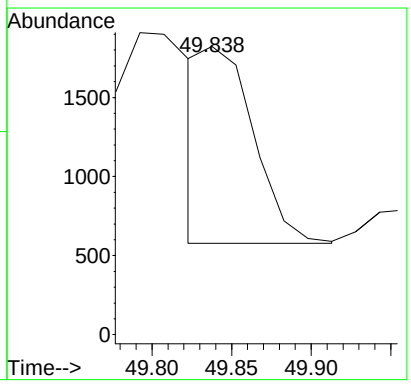
Tgt Ion:218 Resp: 4780

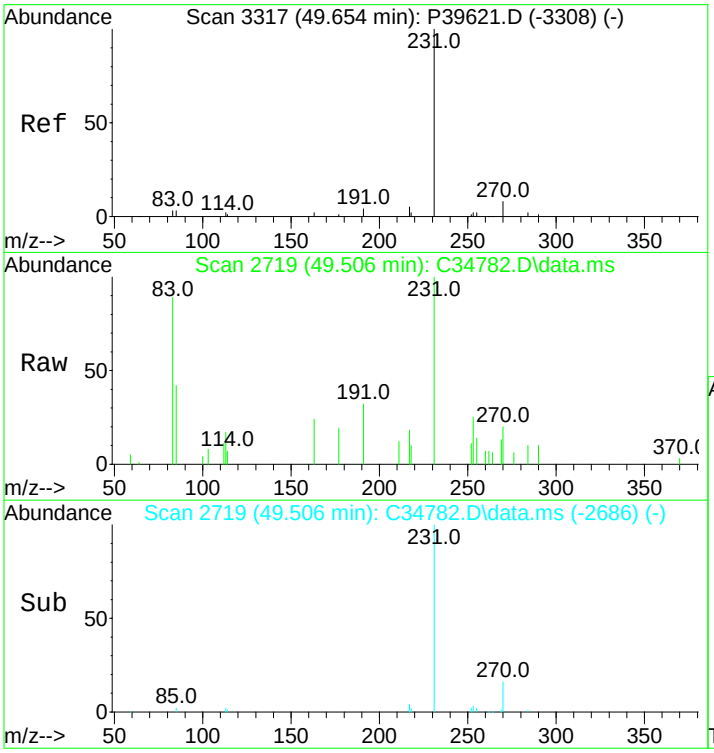




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 211.09 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

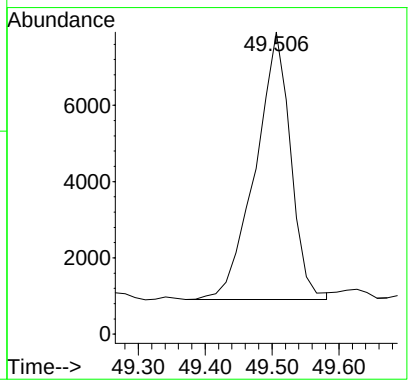
Tgt Ion:218 Resp: 2799

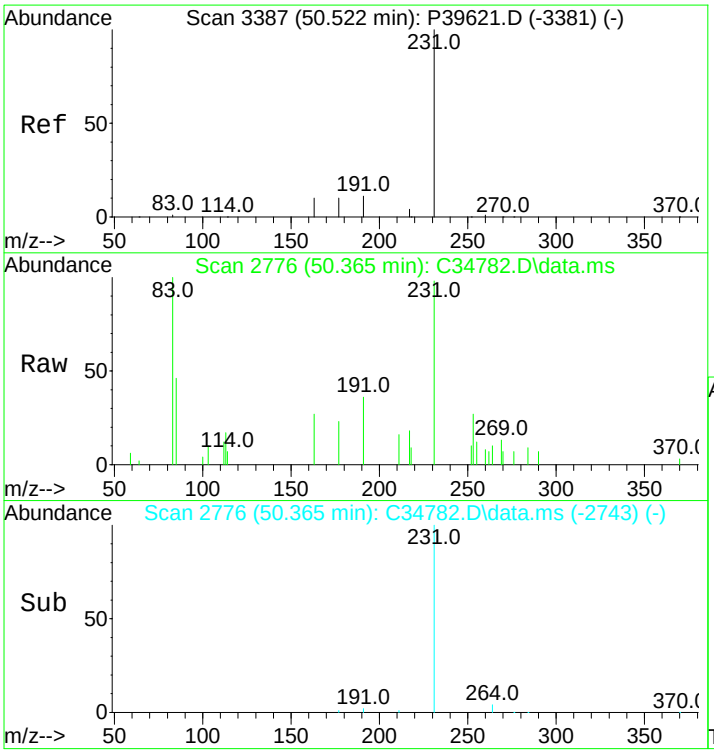




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1937.66 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

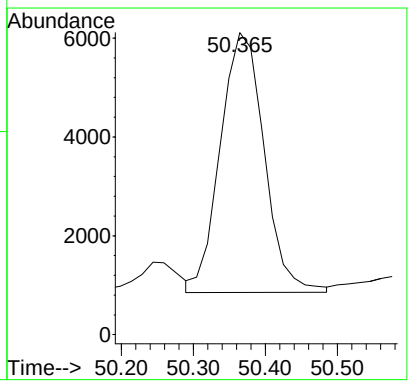
Tgt Ion:231 Resp: 25693

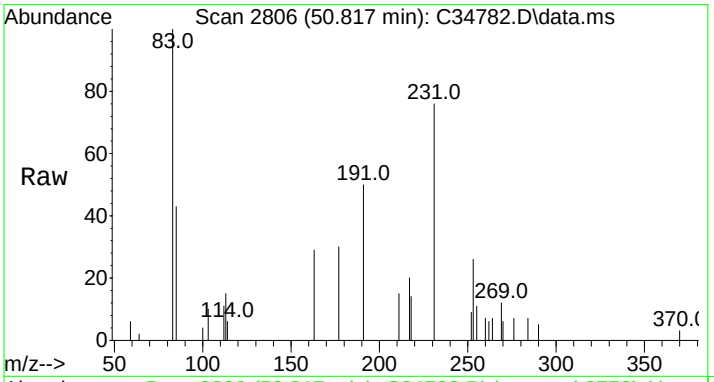




#146
C28,20S-triaromatic steroid
Concen: 1676.94 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

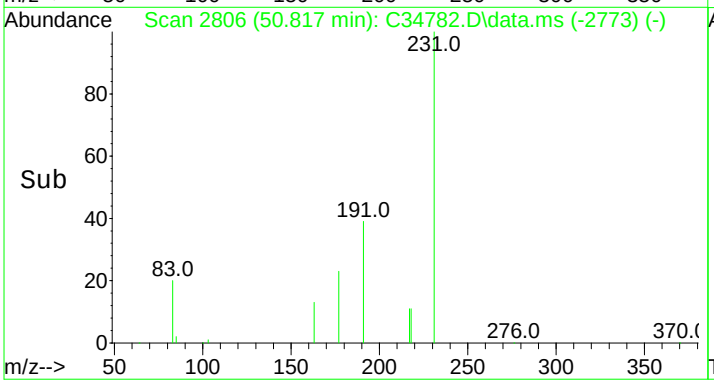
Tgt Ion:231 Resp: 22236

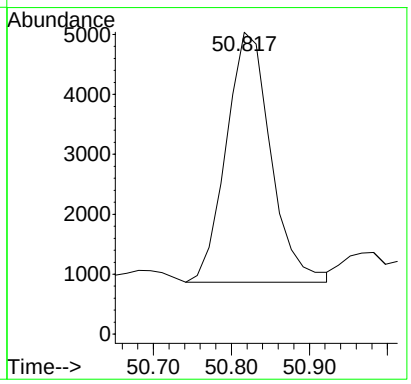


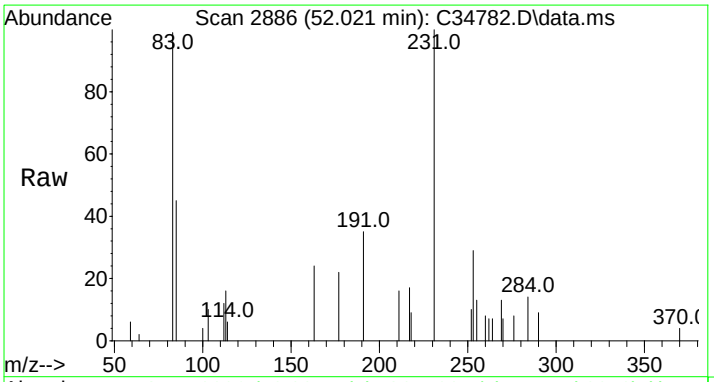


#147
C27,20R-triaromatic steroid
Concen: 1254.16 ng/mL
RT: 50.817 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:231 Resp: 16630

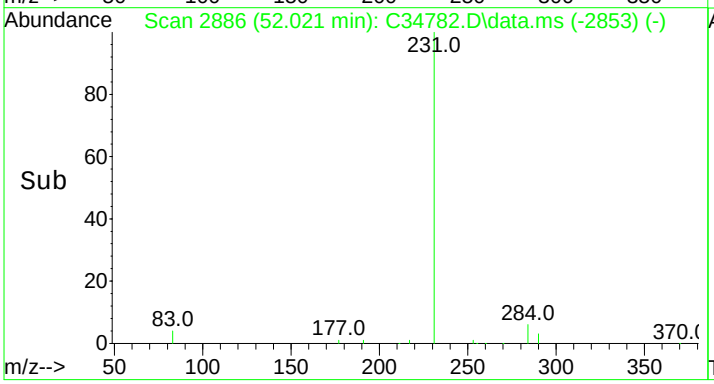


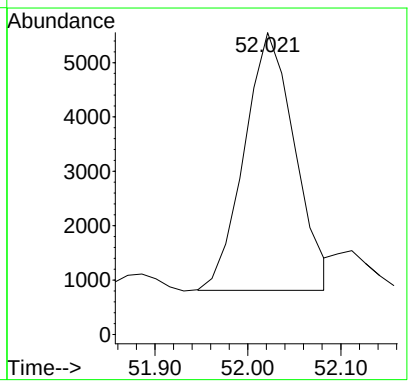




#148
C28,20R-triaromatic steroid
Concen: 1353.49 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:231 Resp: 17947





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18606M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32650	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31011	384.014	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
42) Phenanthrene-d10	32.567	188	26472	414.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28296	418.180	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.82%#			
127) 5B(H)Cholane - Surr	43.769	217	4900M3	480.013	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.00%#			
Target Compounds						Qvalue
56) Carbazole	33.515	167	123M3	1.158	ng/mL	
58) Fluoranthene	37.430	202	140M3	1.309	ng/mL	
59) Benzo(b)fluorene	39.944	216	90M2	1.451	ng/mL	
60) Pyrene	38.318	202	159	1.463	ng/mL#	58
66) Naphthobenzothiophene	42.158	234	167	1.427	ng/ml#	49
67) Naphthobenzothiophene-...	42.158	234	167	1.427	ng/mL#	49
75) Benz[a]anthracene	43.106	228	175	1.689	ng/mL#	48
77) Chrysene/Triphenylene	43.257	228	179M3	1.711	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	410	3.601	ng/mL#	69
83) Benzo[j]+[k]fluoranthene	47.232	252	356M3	2.872	ng/mL	
85) Benzo[e]pyrene	48.151	252	470	4.173	ng/mL#	35
87) Benzo[a]pyrene	48.331	252	267	2.462	ng/mL#	59
88) Perylene	48.648	252	303M3	2.614	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	847M3	6.712	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	465M3	3.874	ng/mL	
91) Benzo[g,h,i]perylene	54.461	276	997	7.478	ng/mL	98
133) Unknown Sterane (S18)	48.090	217	95M2	9.306	ng/ml	

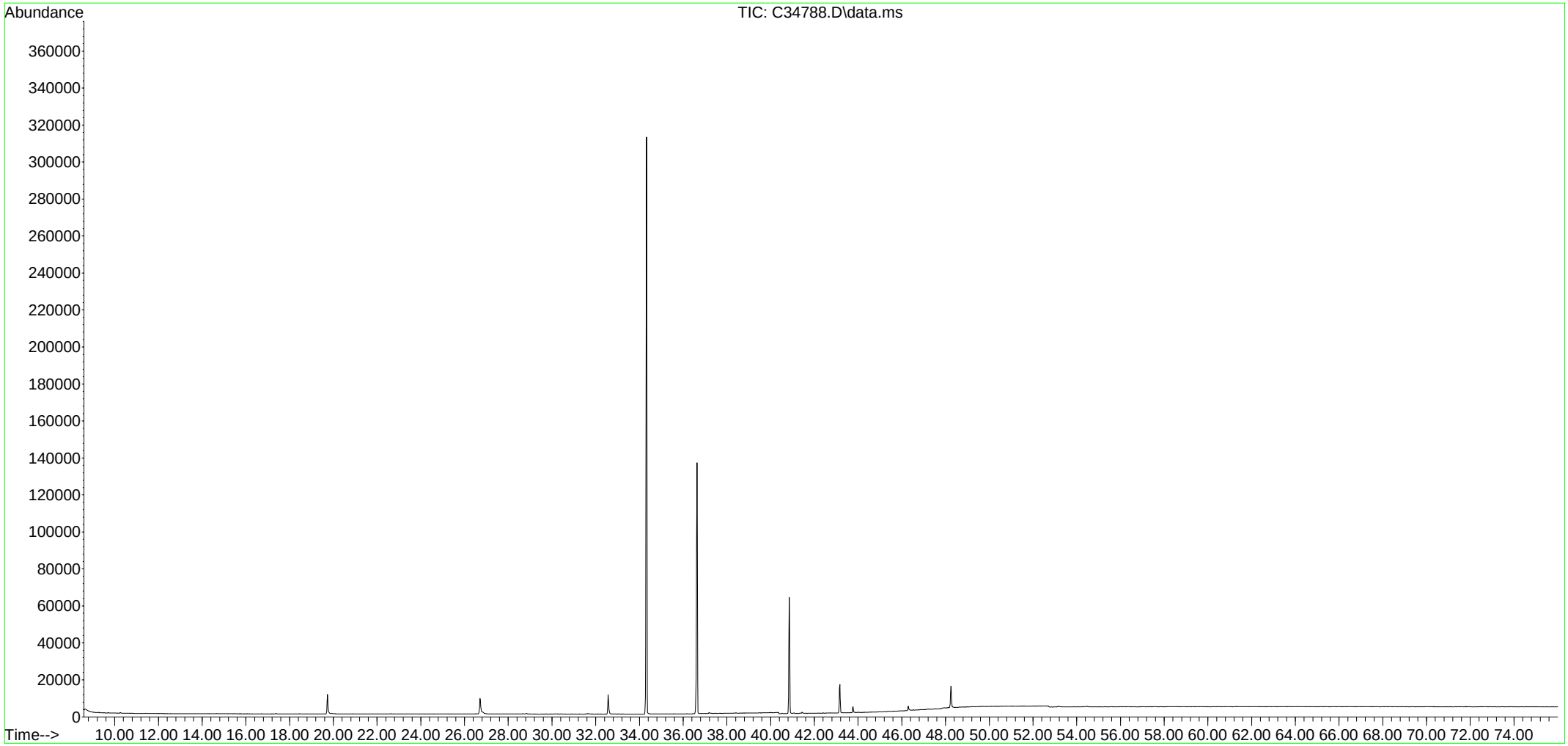
(#) = qualifier out of range (m) = manual integration (+) = signals summed

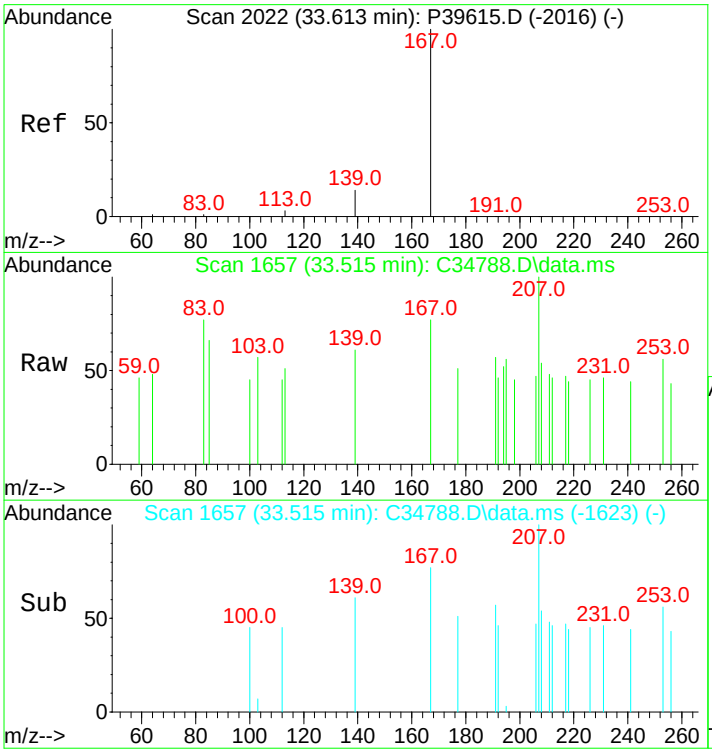
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

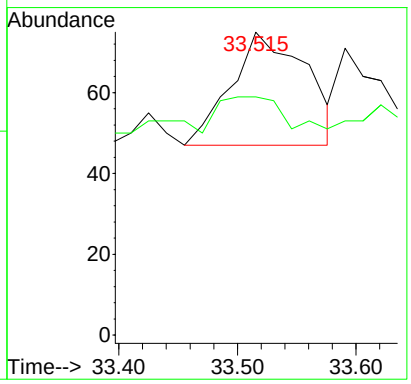


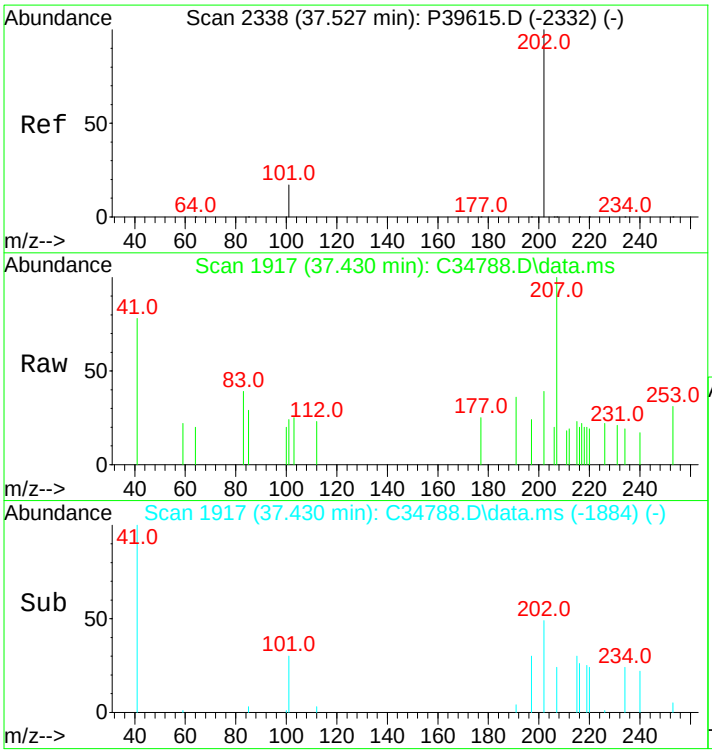


#56
Carbazole
Concen: 1.16 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:167 Resp: 123

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

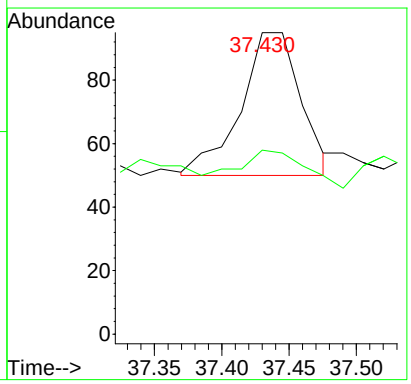


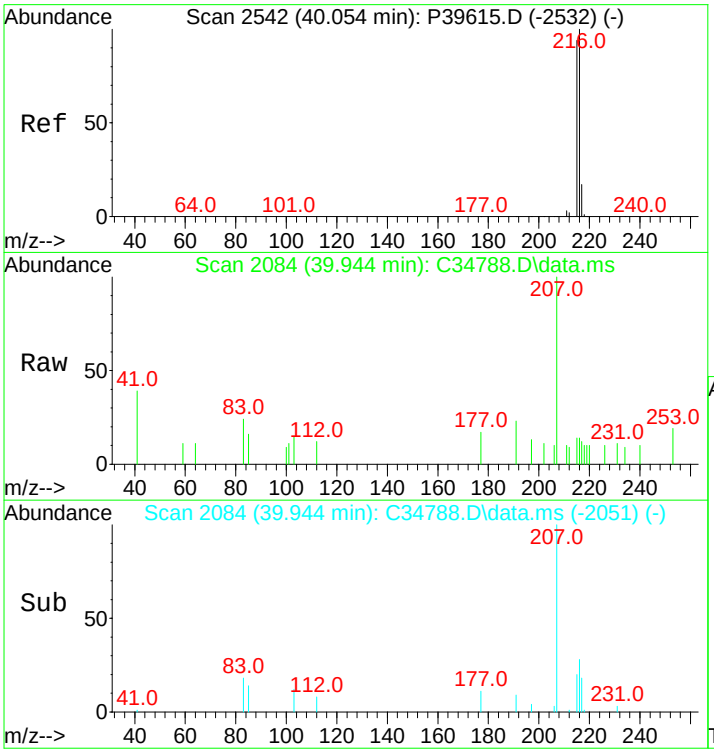


#58
Fluoranthene
Concen: 1.31 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:202 Resp: 140

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

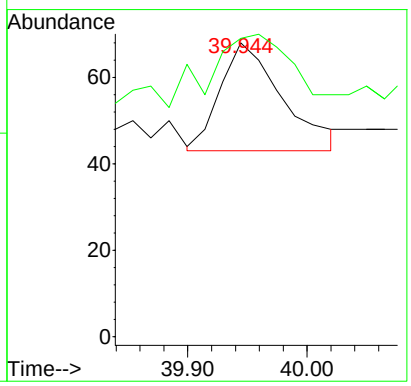


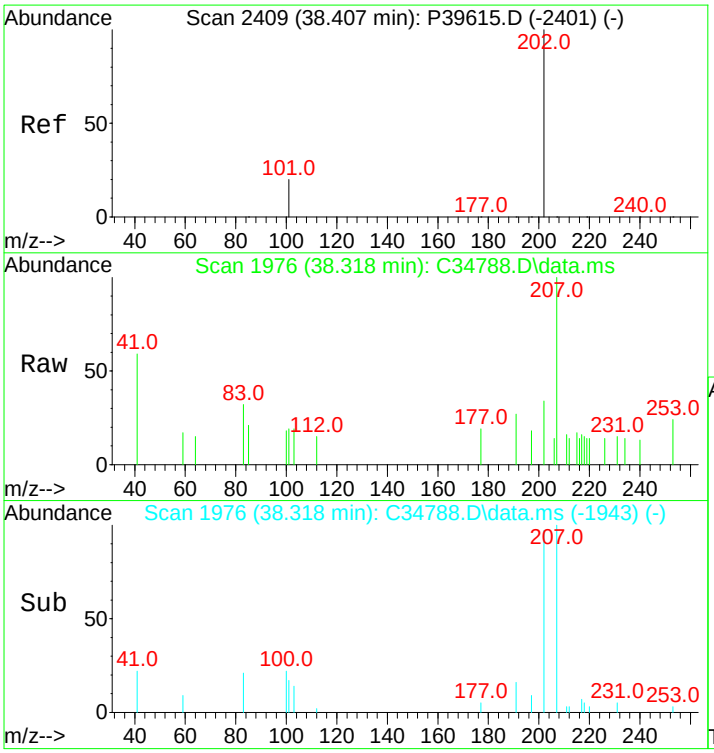


#59
Benzo(b)fluorene
Concen: 1.45 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:216 Resp: 90

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#

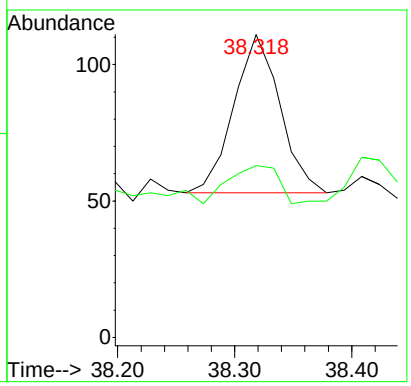


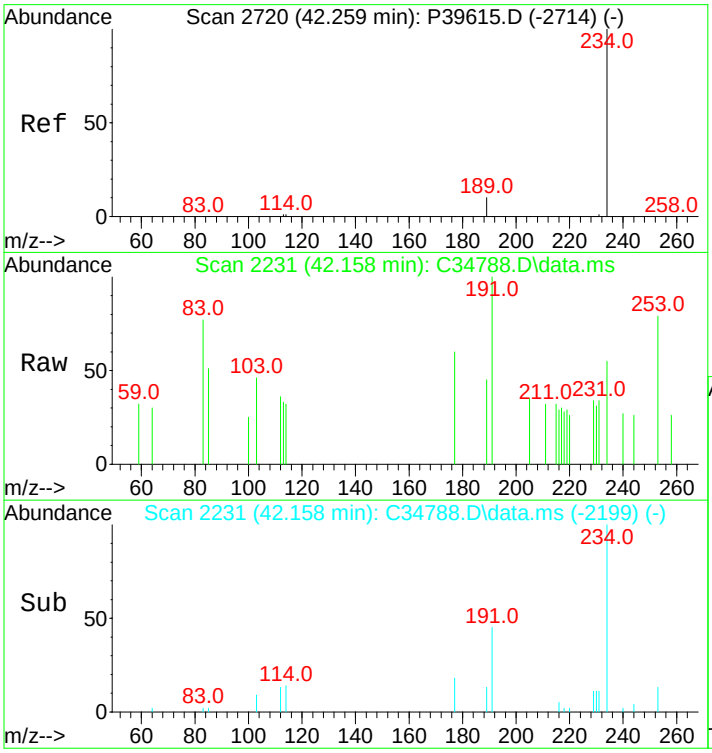


#60
Pyrene
Concen: 1.46 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:202 Resp: 159

Ion	Ratio	Lower	Upper
202	100		
101	0.0	15.0	22.4#

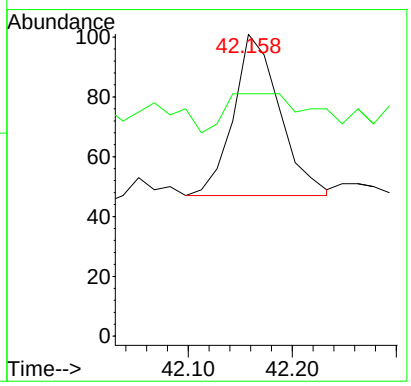


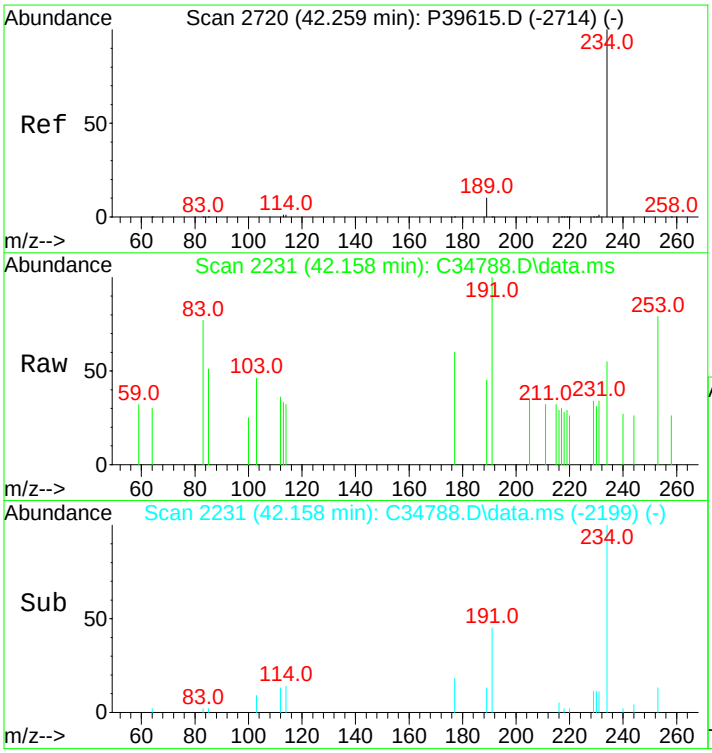


#66
Naphthobenzothiophene
Concen: 1.43 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:234 Resp: 167

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

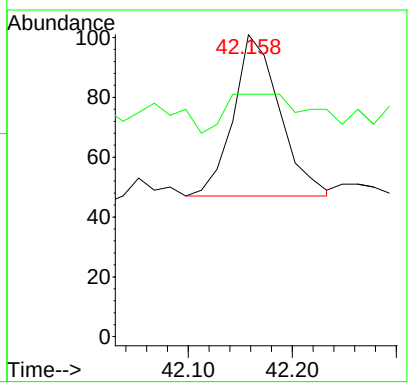


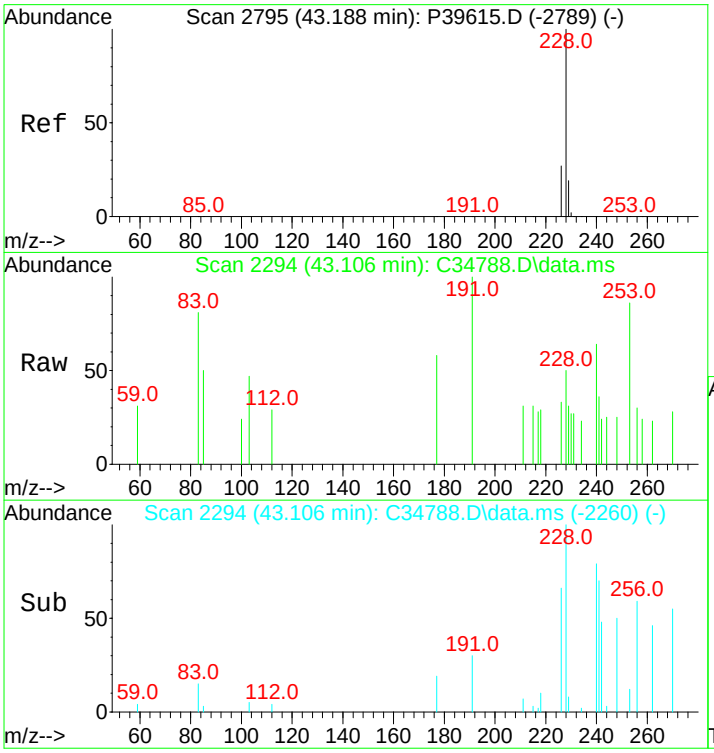


#67
Naphthobenzothiophene-2,1-D
Concen: 1.43 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:234 Resp: 167

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

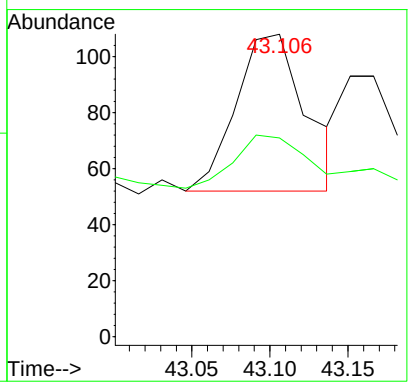


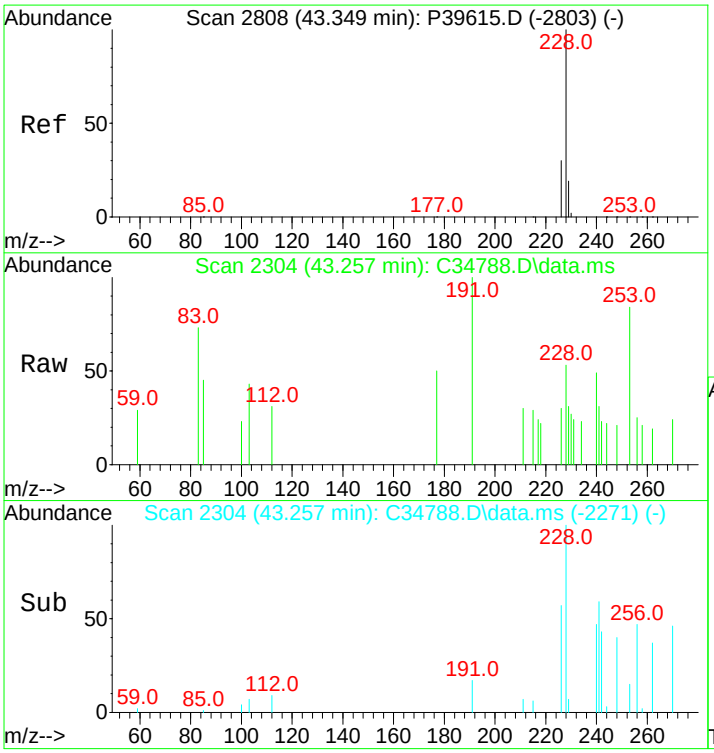


#75
Benz[a]anthracene
Concen: 1.69 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:228 Resp: 175

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

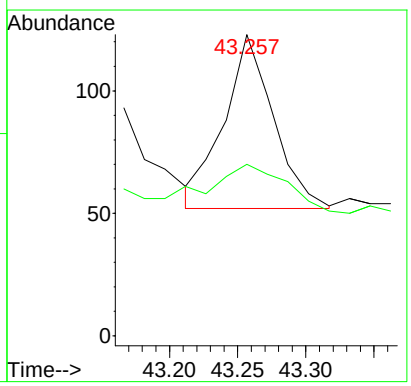


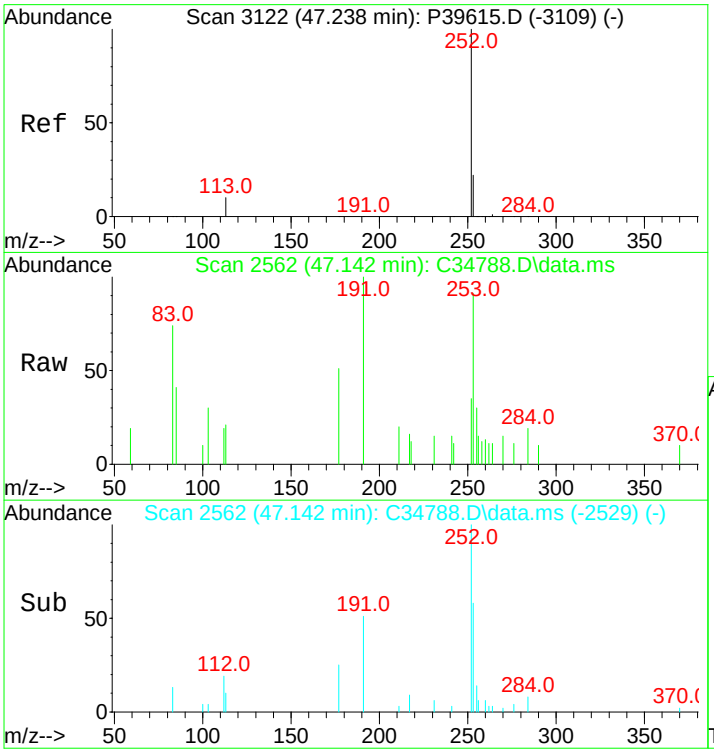


#77
Chrysene/Triphenylene
Concen: 1.71 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:228 Resp: 179

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

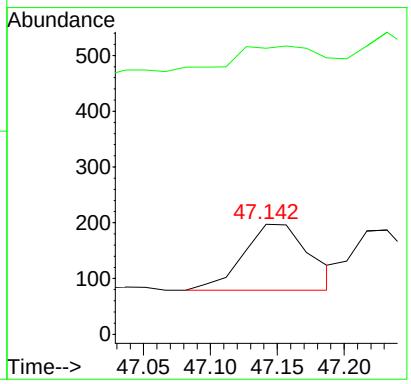


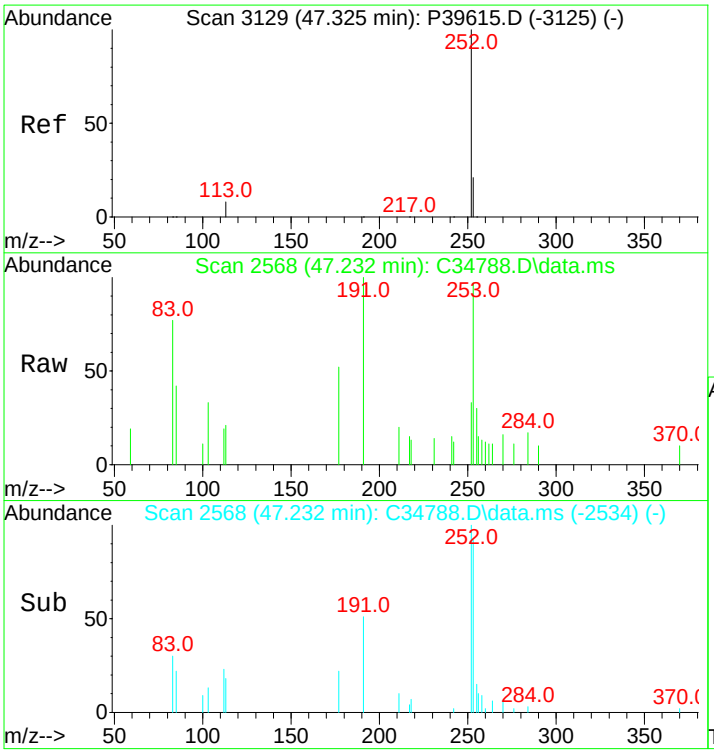


#82
Benzo[b]fluoranthene
Concen: 3.60 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 410

Ion	Ratio	Lower	Upper
252	100		
253	38.8	19.0	28.4#

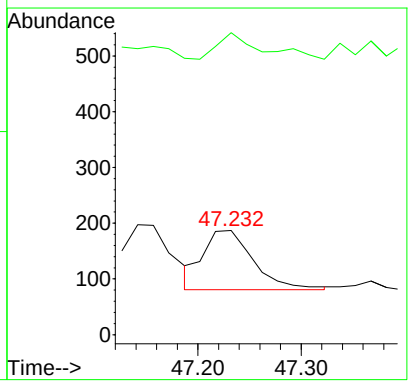


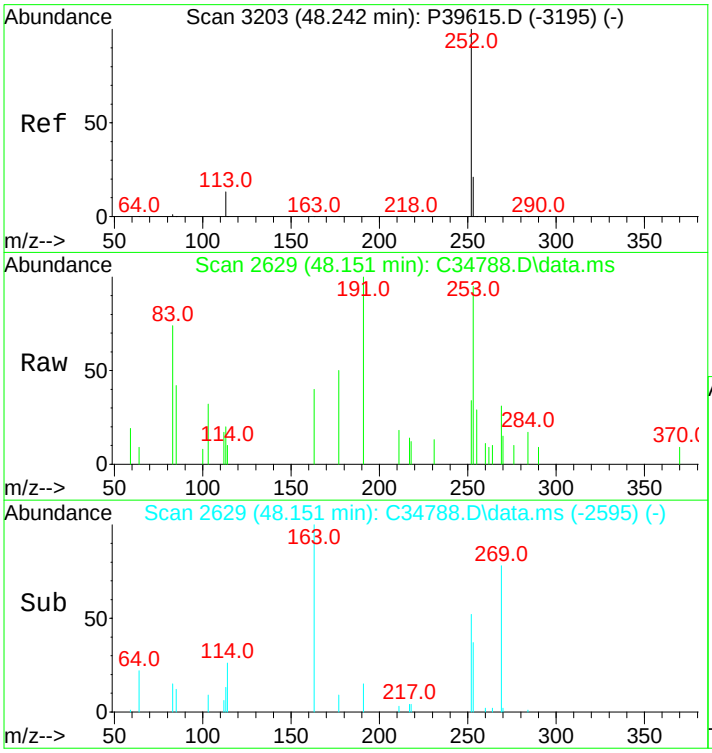


#83
Benzo[j]+[k]fluoranthene
Concen: 2.87 ng/mL m
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 356

Ion	Ratio	Lower	Upper
252	100		
253	46.6	19.0	28.4#

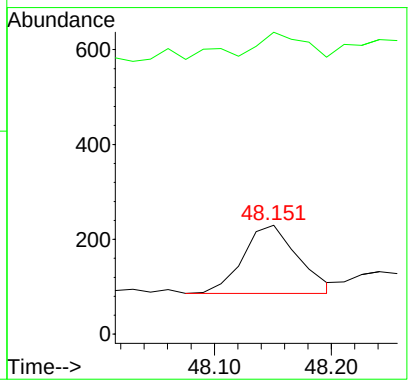


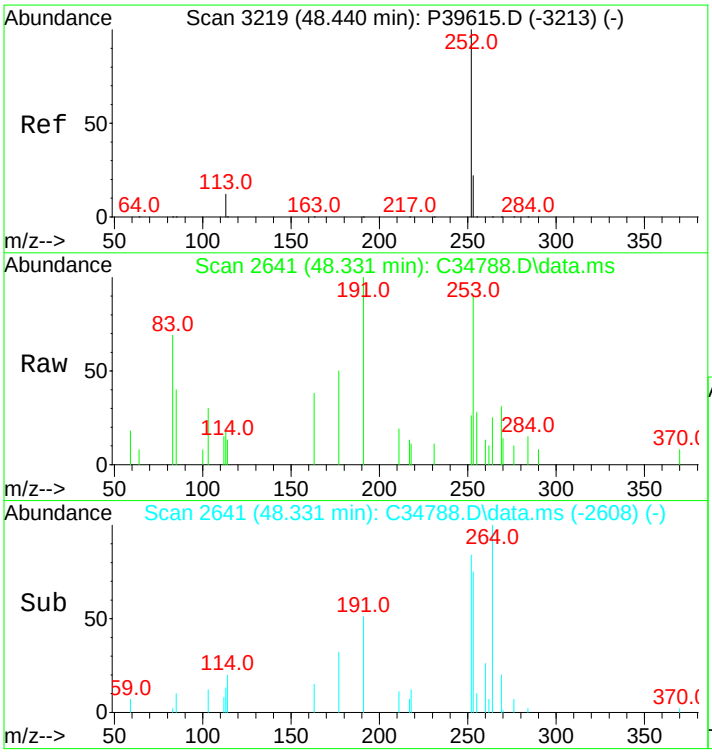


#85
Benzo[e]pyrene
Concen: 4.17 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 470

Ion	Ratio	Lower	Upper
252	100		
253	56.0	19.2	28.8#

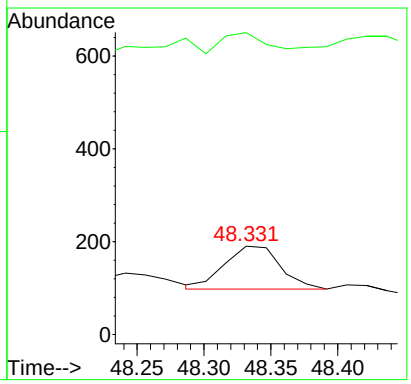


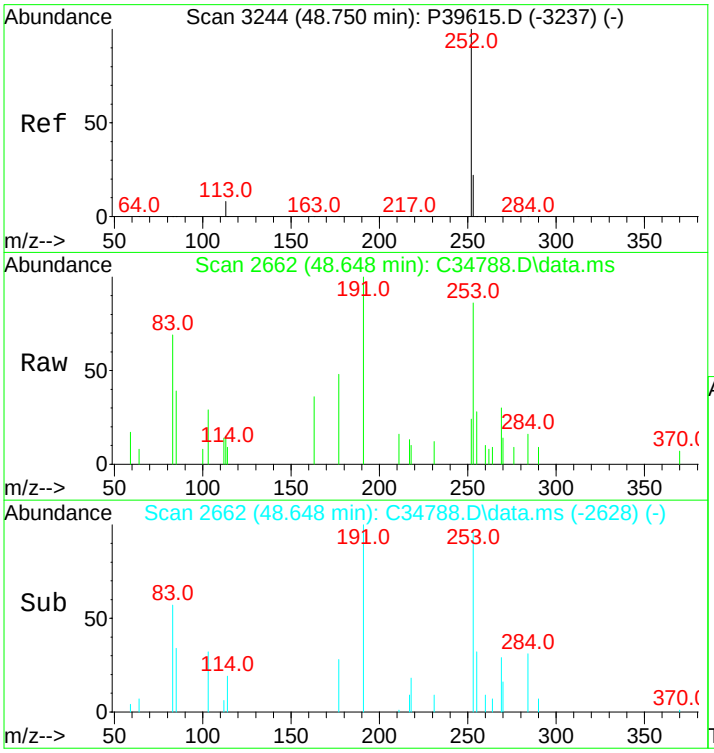


#87
Benzo[a]pyrene
Concen: 2.46 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 267

Ion	Ratio	Lower	Upper
252	100		
253	44.6	19.5	29.3#

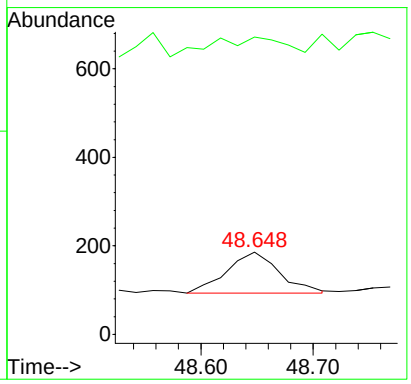


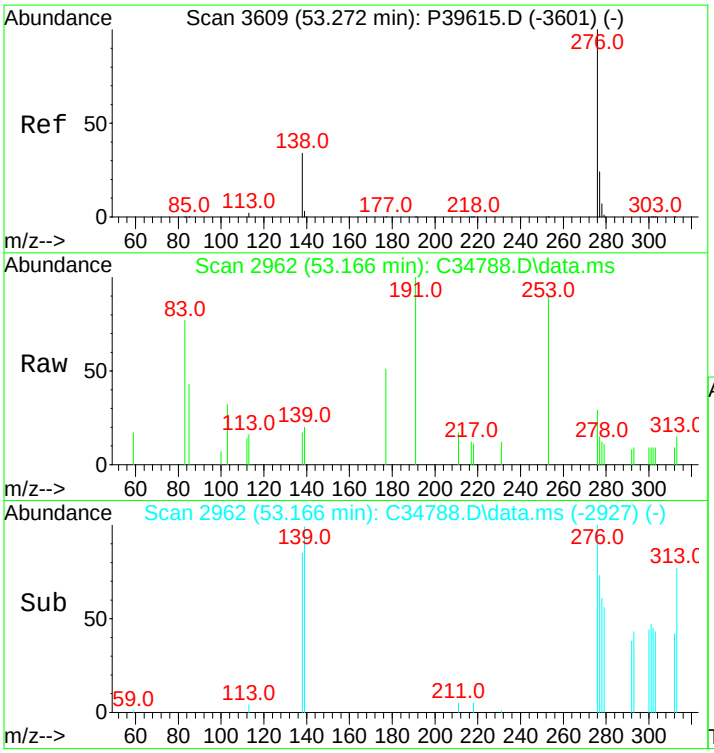


#88
Perylene
Concen: 2.61 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 303

Ion	Ratio	Lower	Upper
252	100		
253	38.3	19.6	29.4#

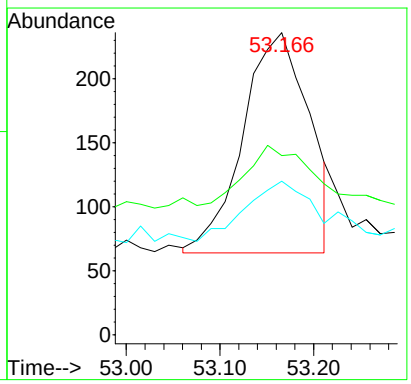


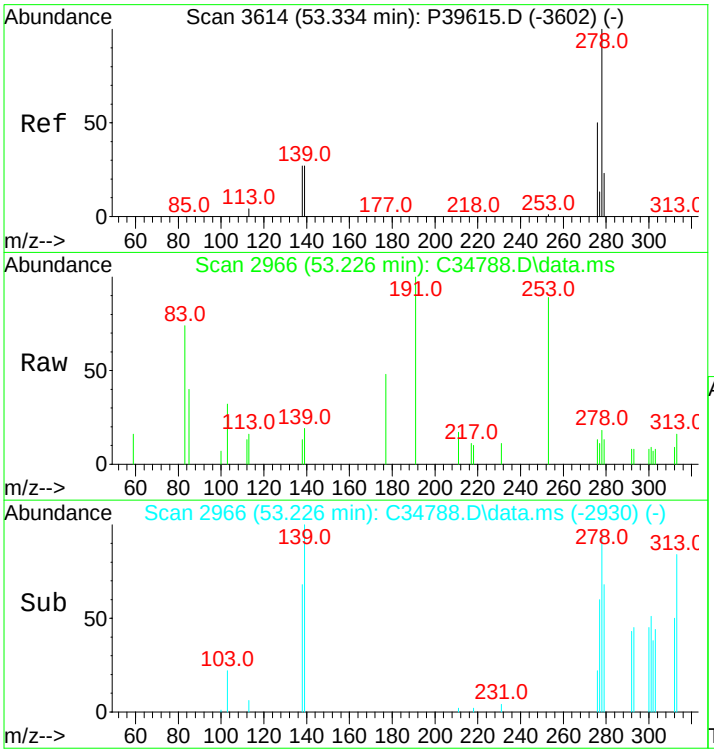


#89
Indeno[1,2,3-cd]pyrene
Concen: 6.71 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:276 Resp: 847

Ion	Ratio	Lower	Upper
276	100		
138	33.4	23.3	34.9
277	23.7	19.0	28.4

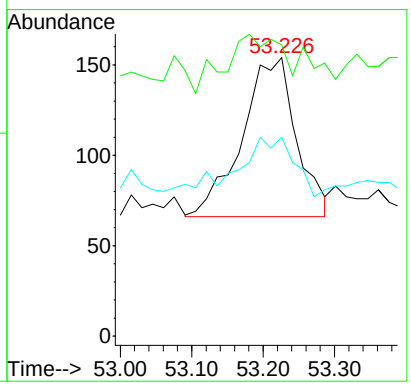


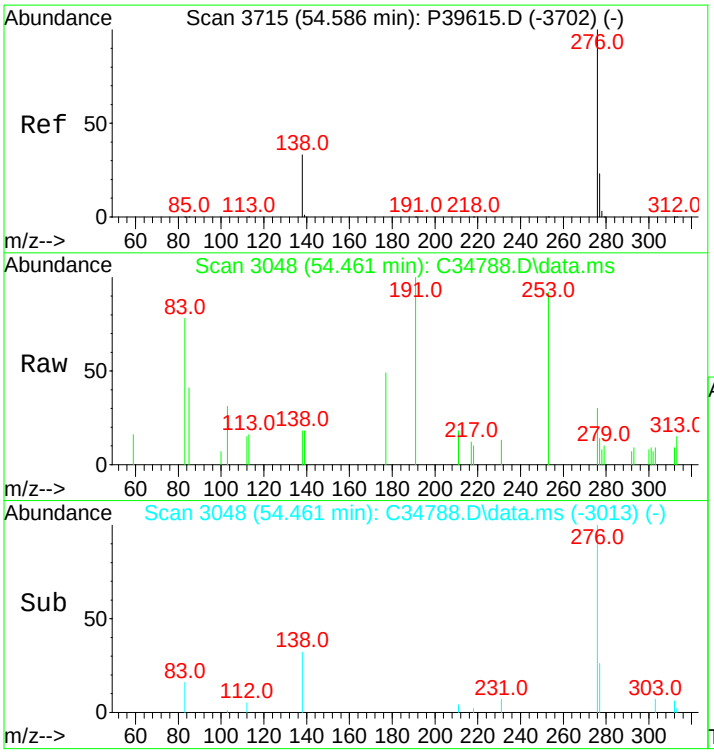


#90
Dibenz[ah]+[ac]anthracene
Concen: 3.87 ng/mL m
RT: 53.226 min Scan# 2966
Delta R.T. 0.045 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:278 Resp: 465

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

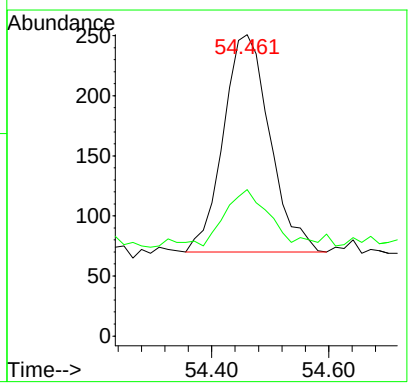


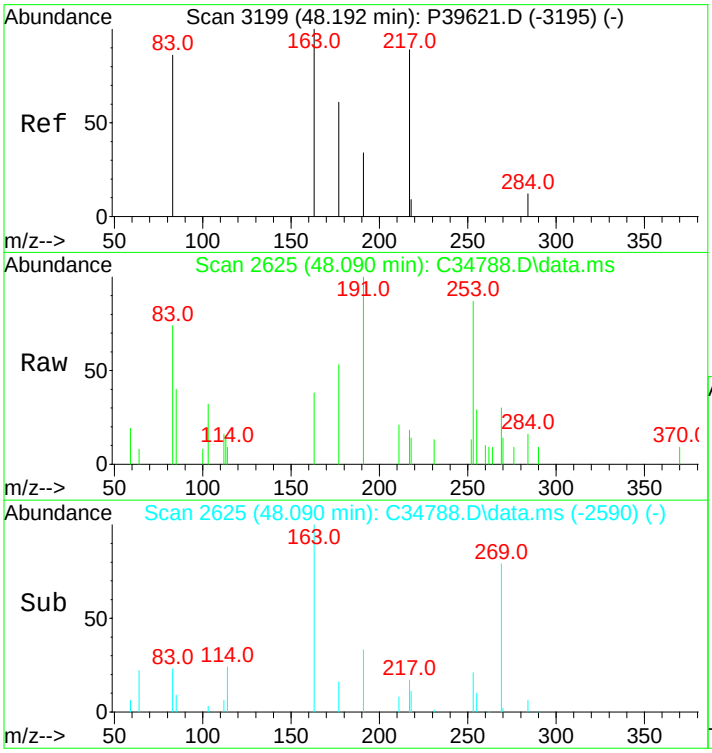


#91
Benzo[g,h,i]perylene
Concen: 7.48 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:276 Resp: 997

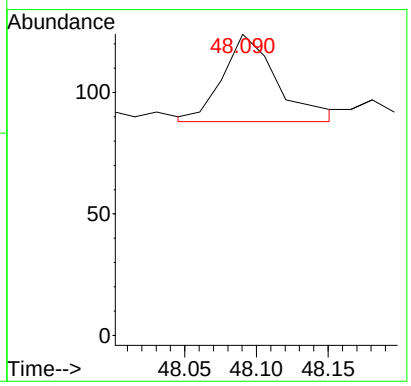
Ion	Ratio	Lower	Upper
276	100		
277	24.4	18.9	28.3





#133
Unknown Sterane (S18)
Concen: 9.31 ng/ml m
RT: 48.090 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:217 Resp: 95



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19753M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	35501	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31883	371.887	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.19%#			
42) Phenanthrene-d10	32.567	188	25976	383.327	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.33%#			
86) Benzo[a]pyrene-d12	48.241	264	26602	361.573	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.16%#			
127) 5B(H)Cholane - Surr	43.769	217	5097	459.213	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.92%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51060	405.576	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30786	413.575	ng/mL#	100
26) Acenaphthylene	26.094	152	50343	402.832	ng/mL#	100
27) Acenaphthene	26.816	153	31298	425.338	ng/mL	98
29) Fluorene	28.849	166	34652M3	426.989	ng/mL	
43) Phenanthrene	32.657	178	49113	429.705	ng/mL	99
55) Anthracene	32.838	178	39458M3	353.439	ng/mL	
58) Fluoranthene	37.430	202	53856M3	474.445	ng/mL	
60) Pyrene	38.318	202	56245	487.436	ng/mL	97
75) Benz[a]anthracene	43.091	228	48940	434.329	ng/mL	99
77) Chrysene/Triphenylene	43.242	228	49239	432.835	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	57239	462.304	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.217	252	58317	432.620	ng/mL	97
87) Benzo[a]pyrene	48.331	252	52193	442.654	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	69249M3	504.678	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	60330	462.198	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62892	433.836	ng/mL	100

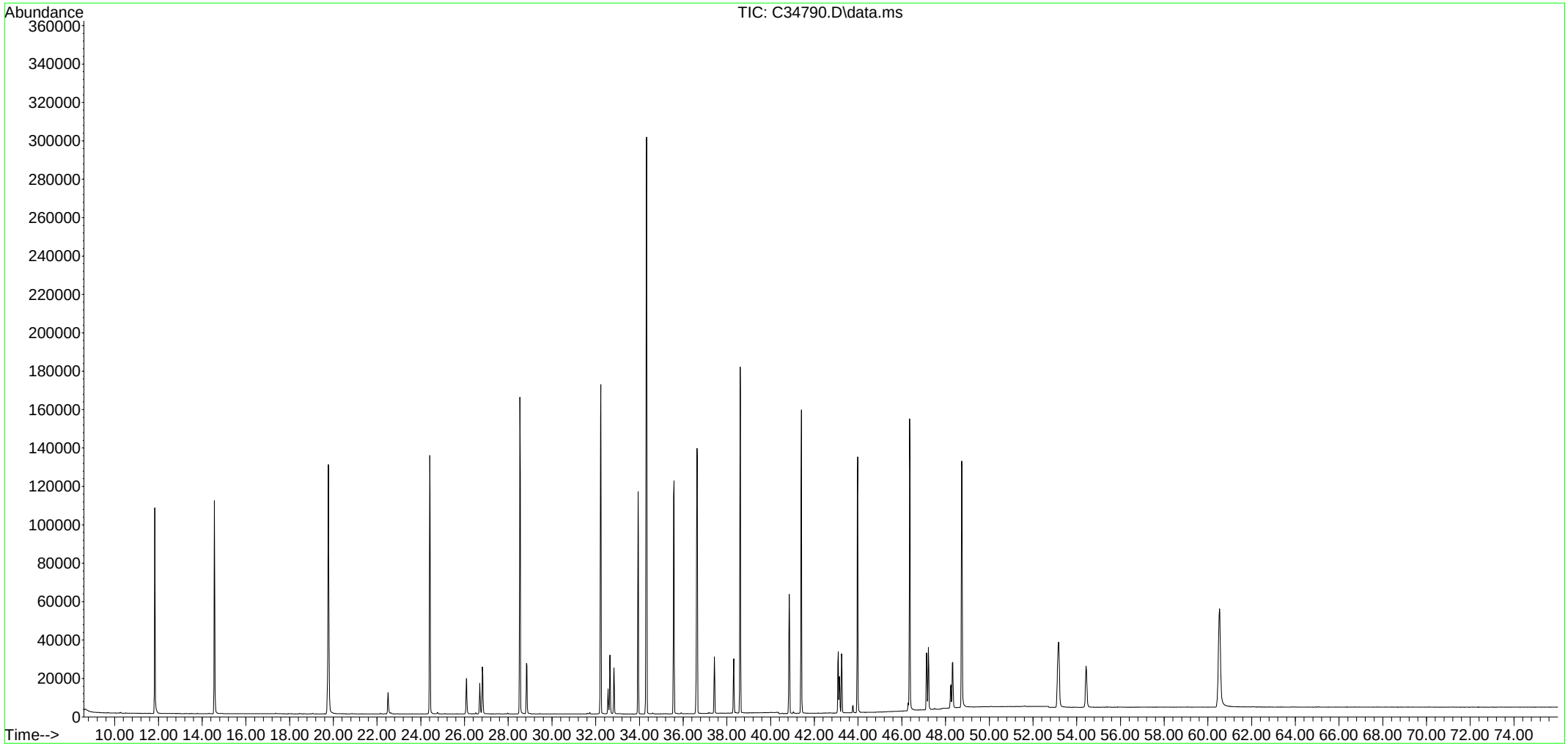
(#) = qualifier out of range (m) = manual integration (+) = signals summed

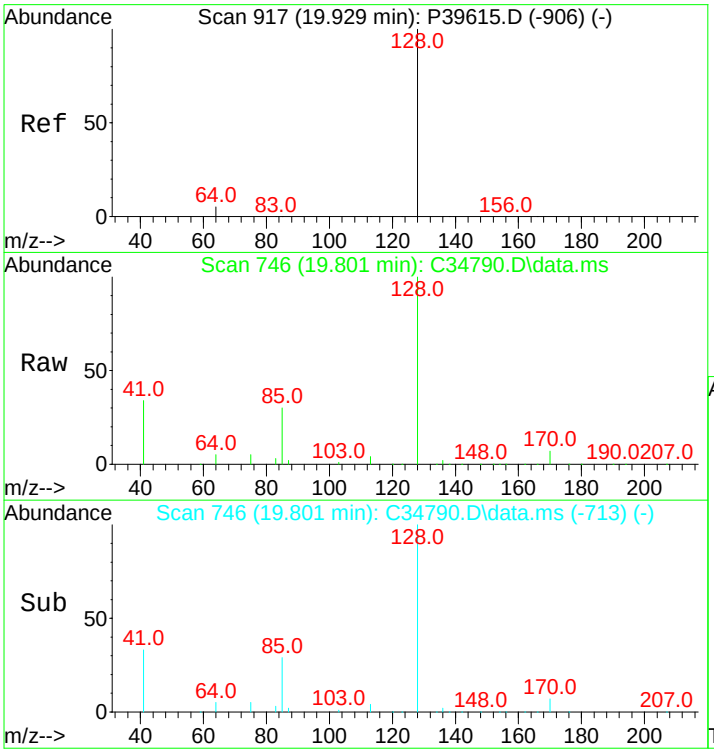
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

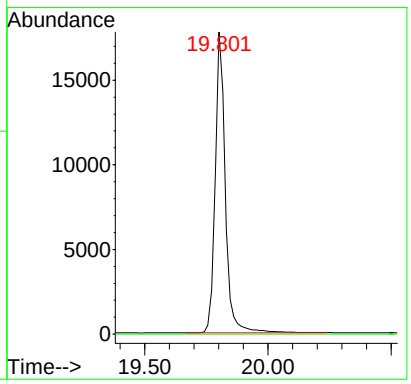


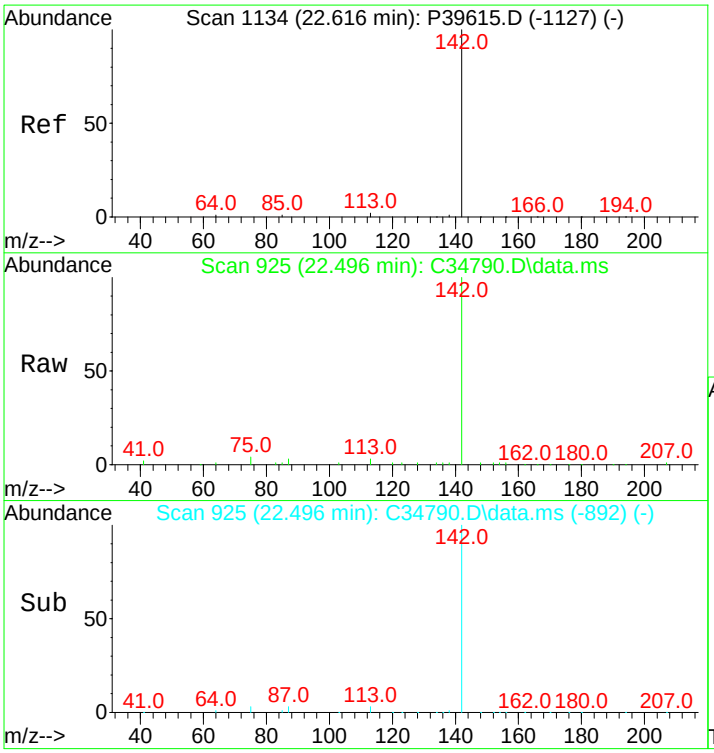


#10
Naphthalene
Concen: 405.58 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:128 Resp: 51060

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

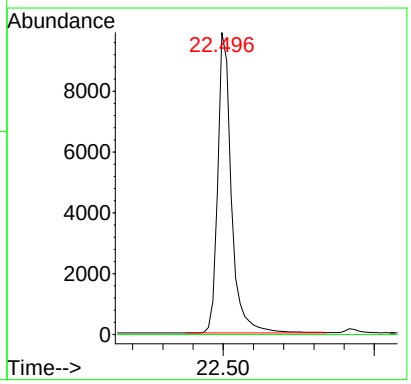


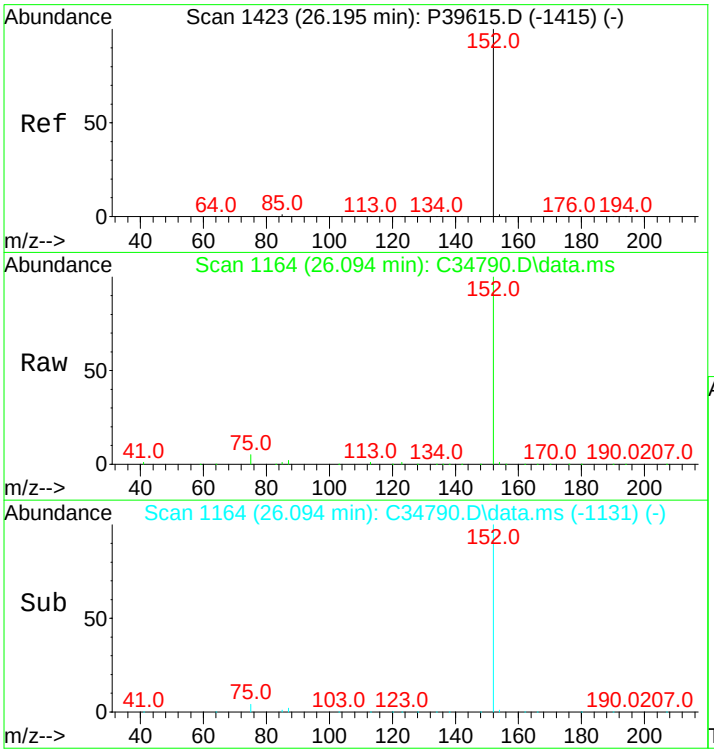


#16
2-Methylnaphthalene
Concen: 413.57 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:142 Resp: 30786

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

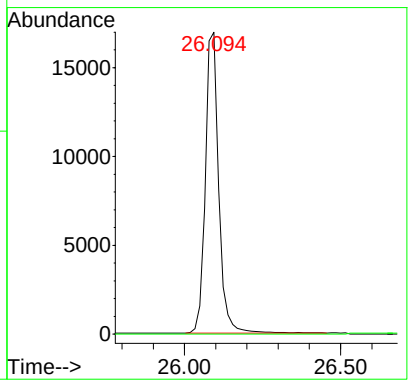


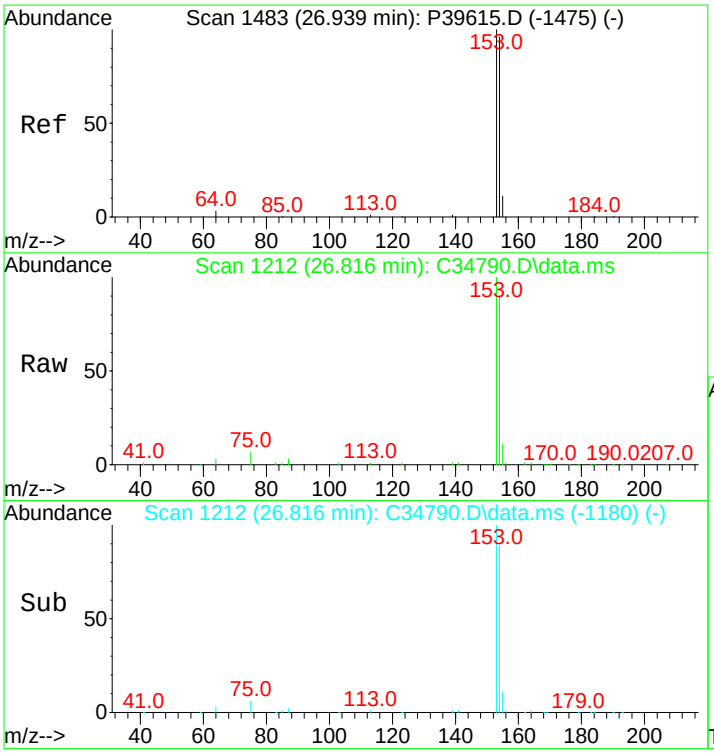


#26
Acenaphthylene
Concen: 402.83 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:152 Resp: 50343

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

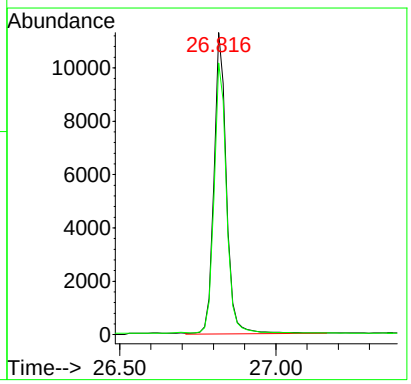


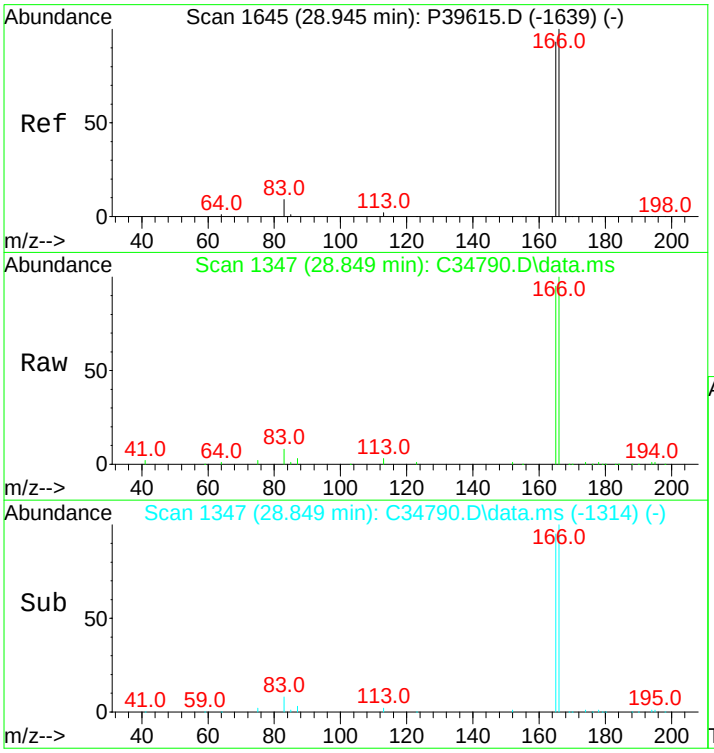


#27
Acenaphthene
Concen: 425.34 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:153 Resp: 31298

Ion	Ratio	Lower	Upper
153	100		
154	89.7	73.6	110.4

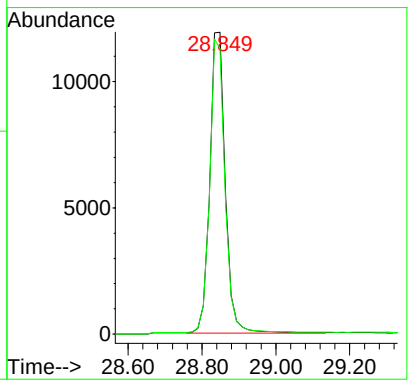


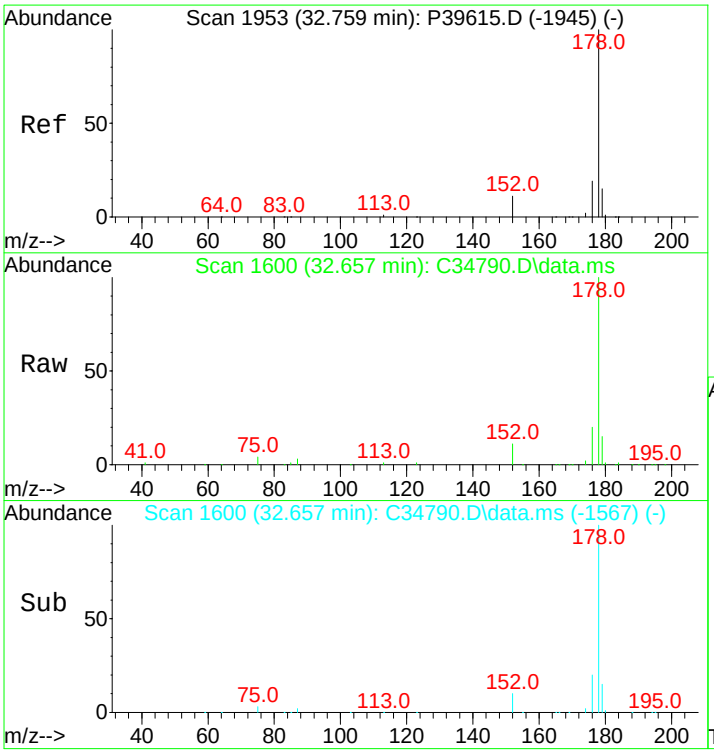


#29
Fluorene
Concen: 426.99 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:166 Resp: 34652

Ion	Ratio	Lower	Upper
166	100		
165	97.0	77.3	115.9

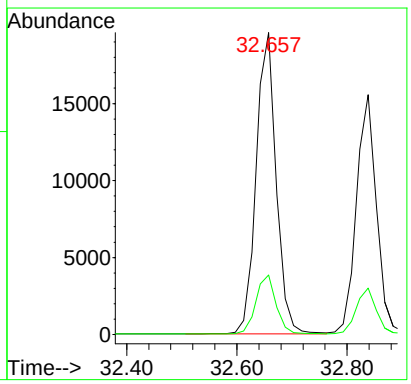


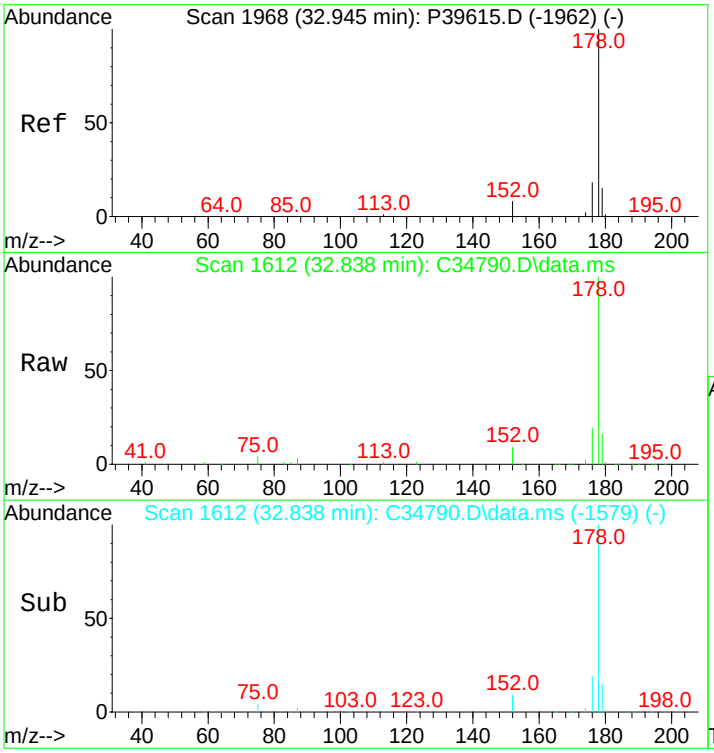


#43
Phenanthrene
Concen: 429.71 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:178 Resp: 49113

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

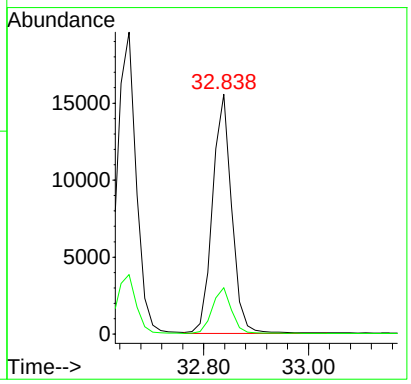


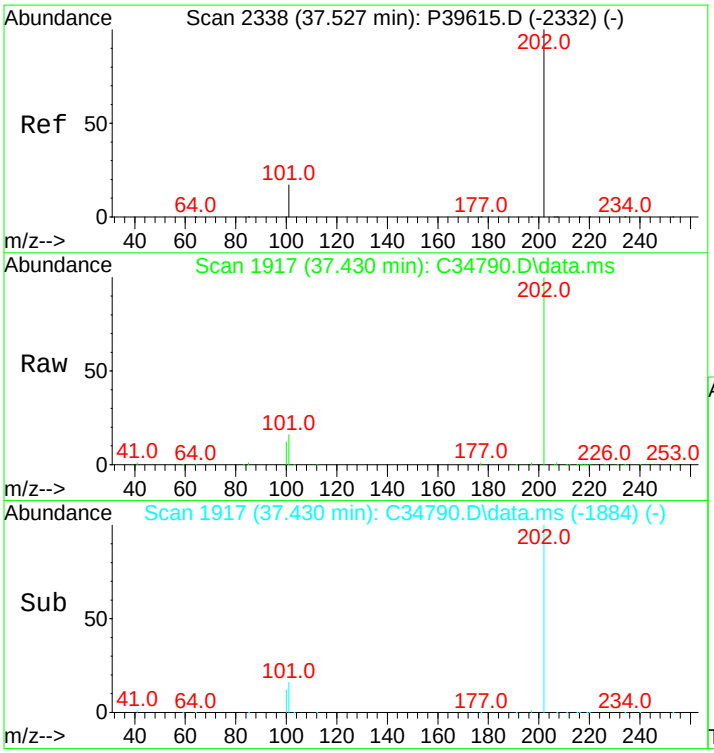


#55
Anthracene
Concen: 353.44 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:178 Resp: 39458

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

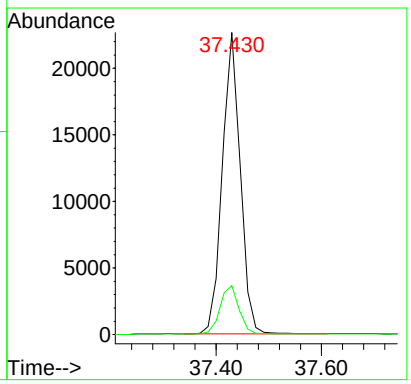


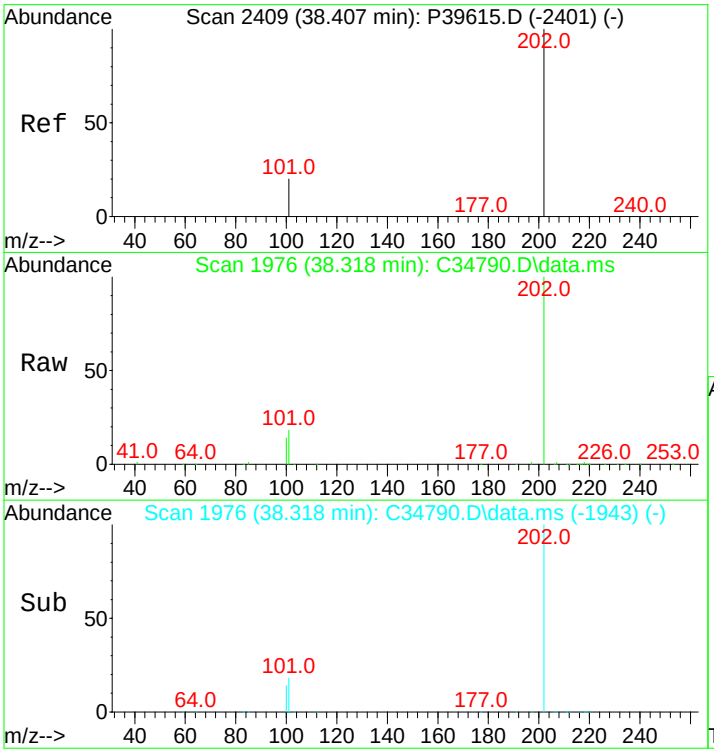


#58
Fluoranthene
Concen: 474.44 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:202 Resp: 53856

Ion	Ratio	Lower	Upper
202	100		
101	17.1	12.9	19.3

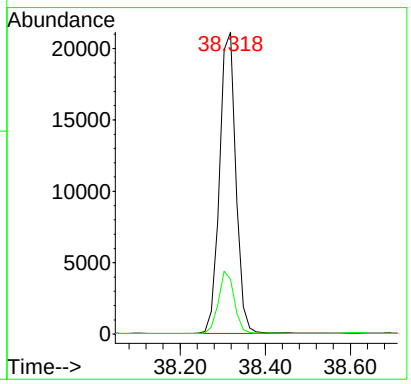


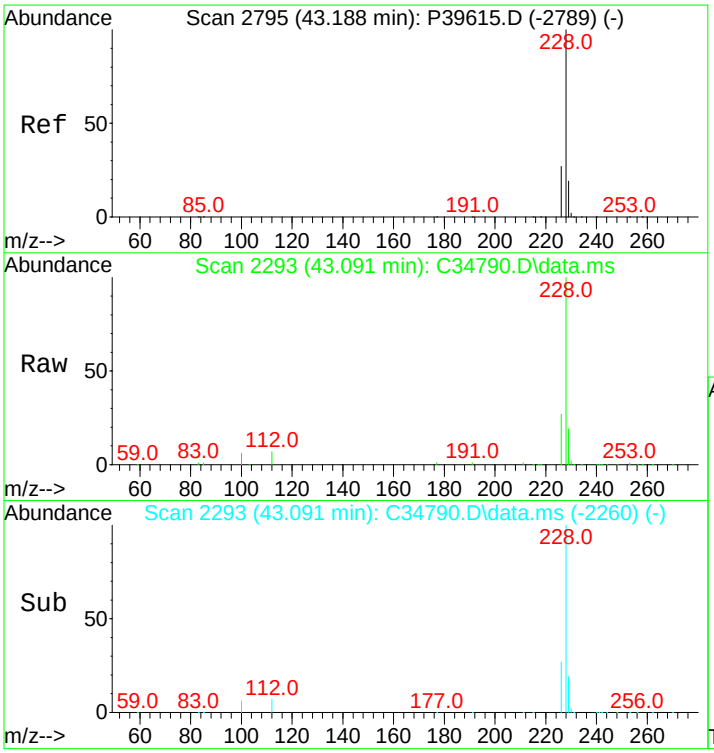


#60
Pyrene
Concen: 487.44 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:202 Resp: 56245

Ion	Ratio	Lower	Upper
202	100		
101	20.0	15.0	22.4

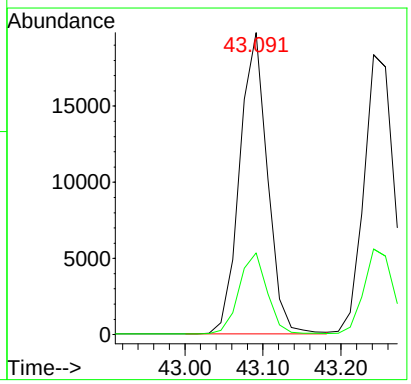


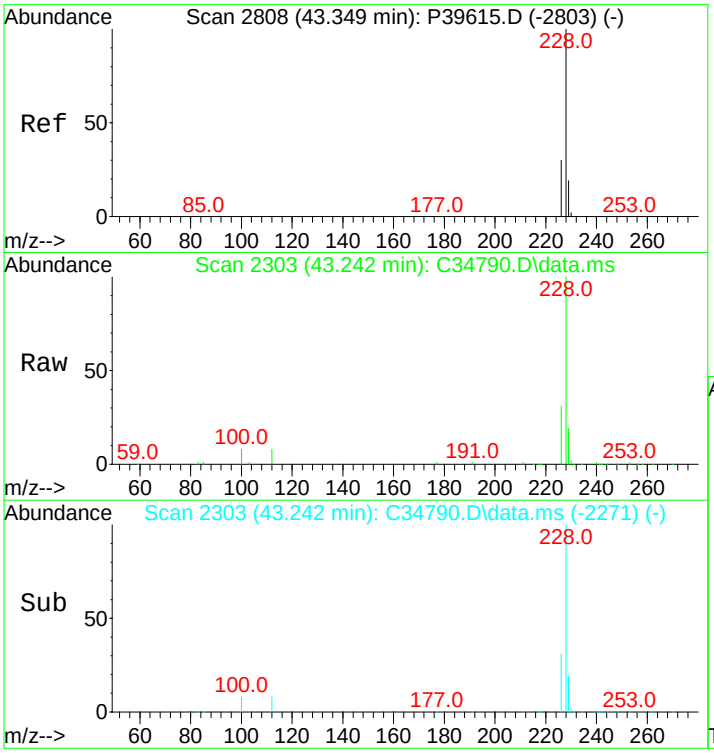


#75
Benz[a]anthracene
Concen: 434.33 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:228 Resp: 48940

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

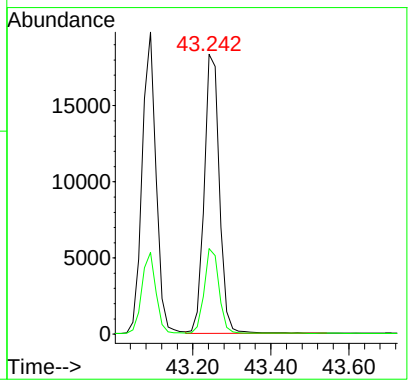


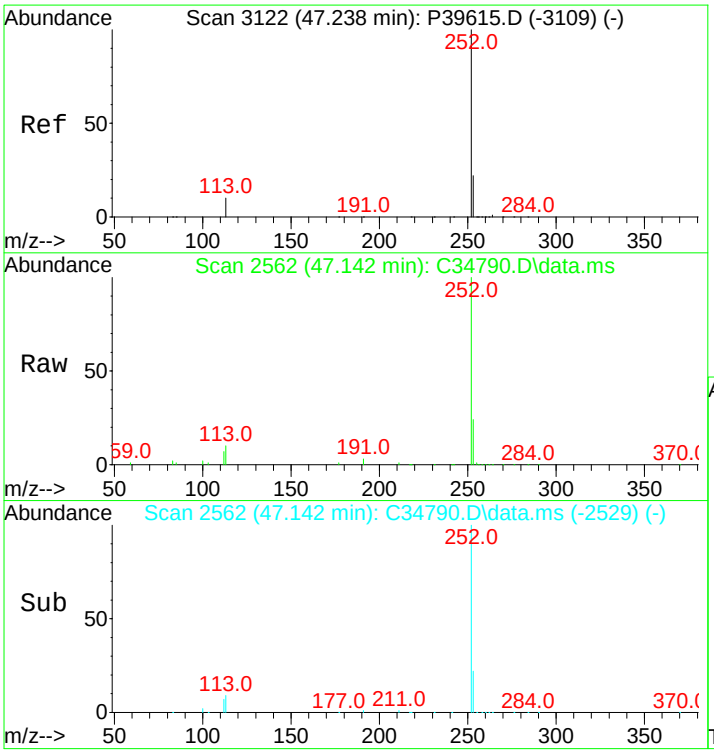


#77
Chrysene/Triphenylene
Concen: 432.83 ng/mL
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:228 Resp: 49239

Ion	Ratio	Lower	Upper
228	100		
226	29.7	23.7	35.5

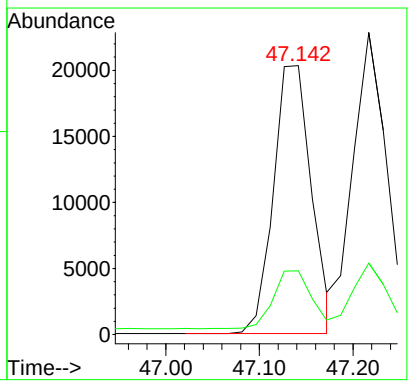


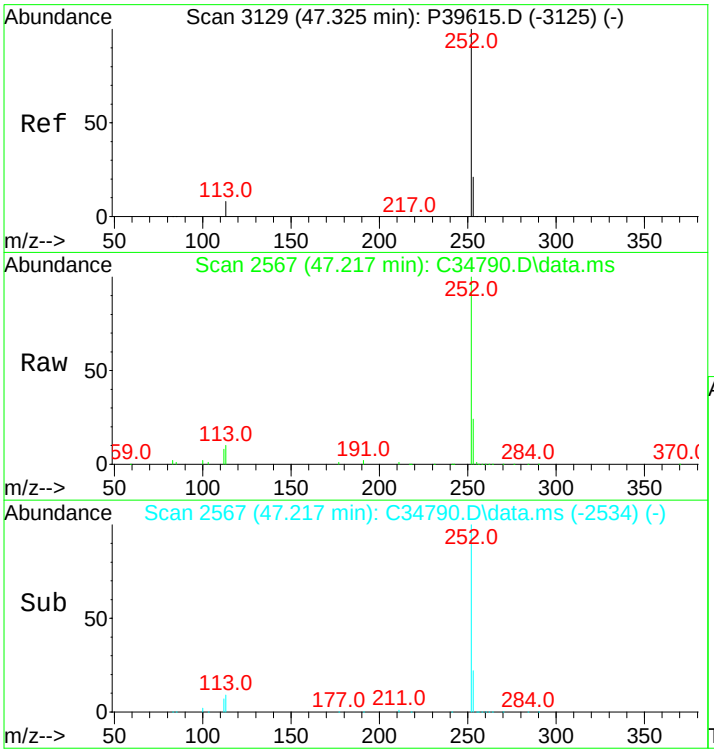


#82
Benzo[b]fluoranthene
Concen: 462.30 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 57239

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

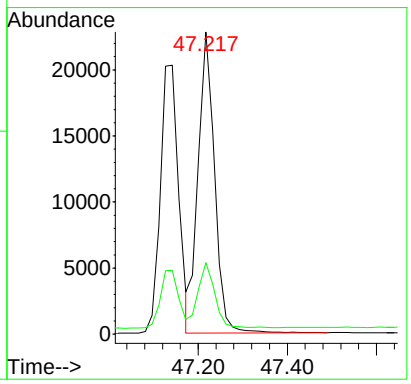


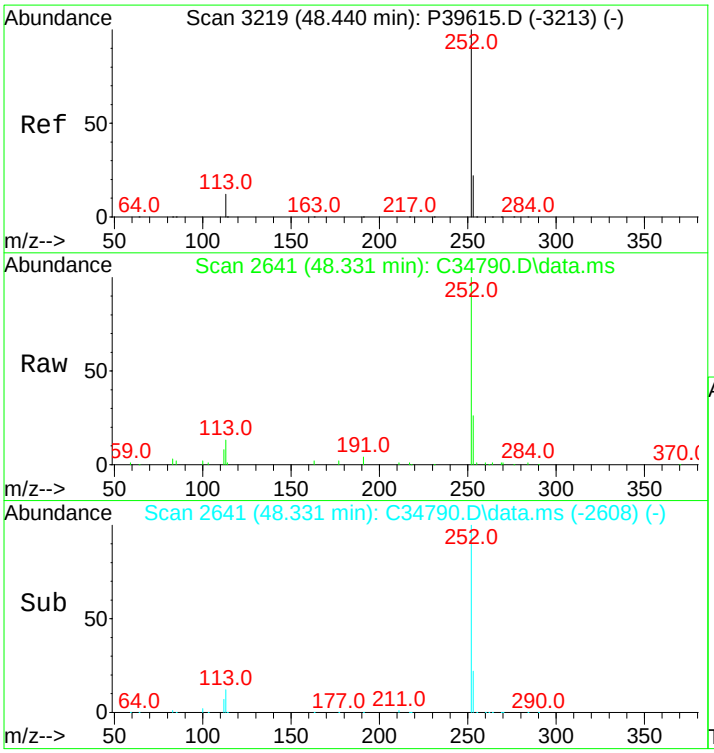


#83
Benzo[j]+[k]fluoranthene
Concen: 432.62 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 58317

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

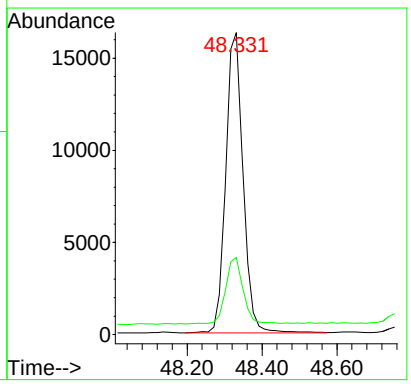


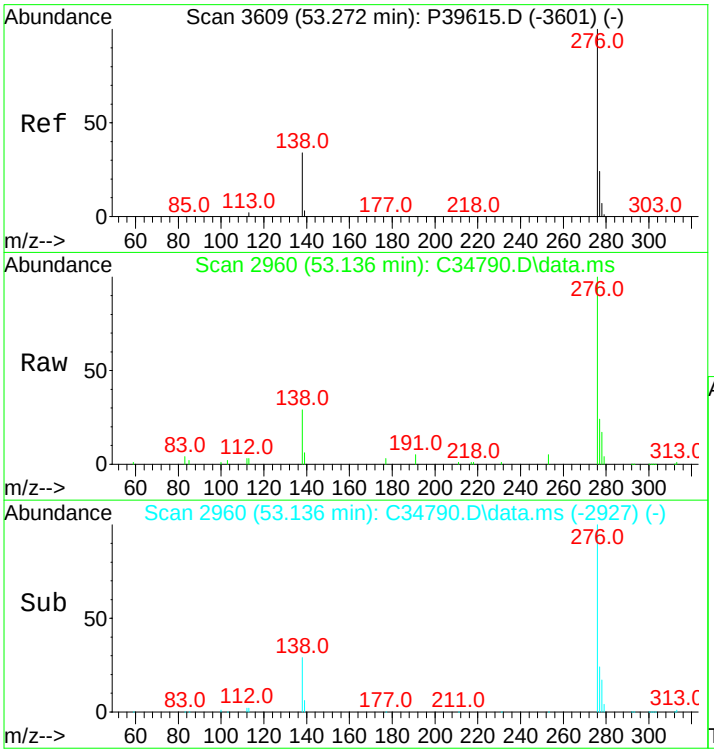


#87
Benzo[a]pyrene
Concen: 442.65 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 52193

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.5	29.3

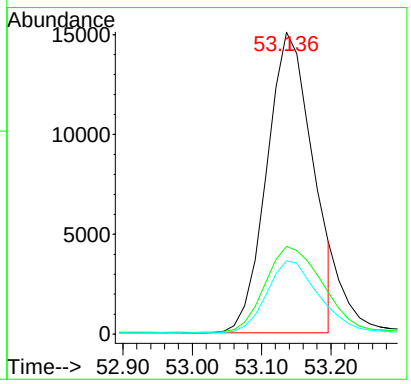


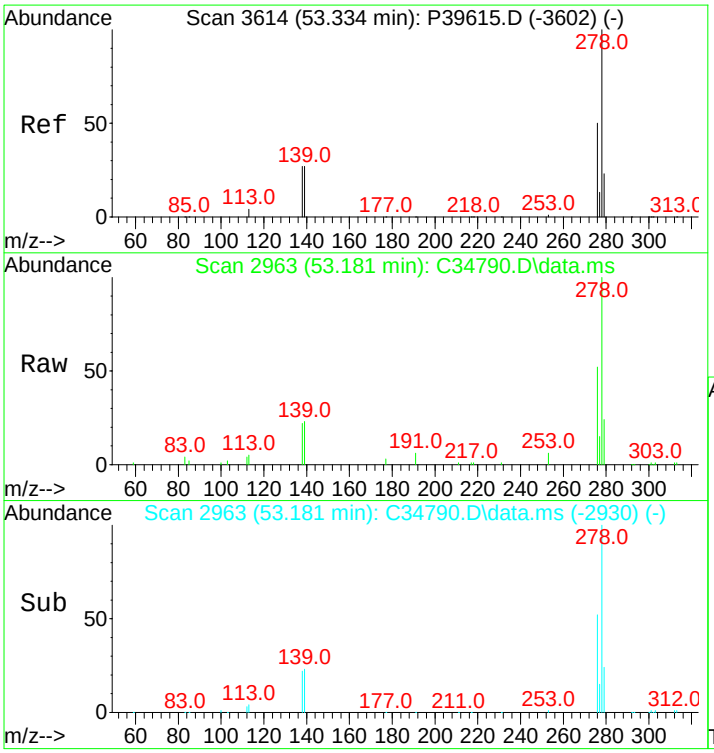


#89
Indeno[1,2,3-cd]pyrene
Concen: 504.68 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:276 Resp: 69249

Ion	Ratio	Lower	Upper
276	100		
138	36.3	23.3	34.9#
277	27.5	19.0	28.4

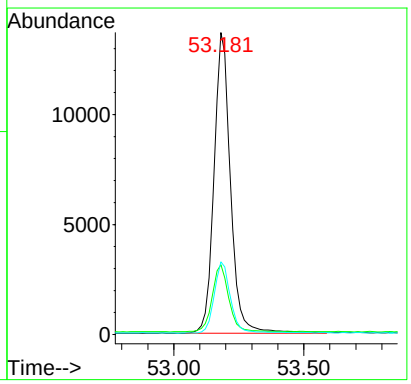


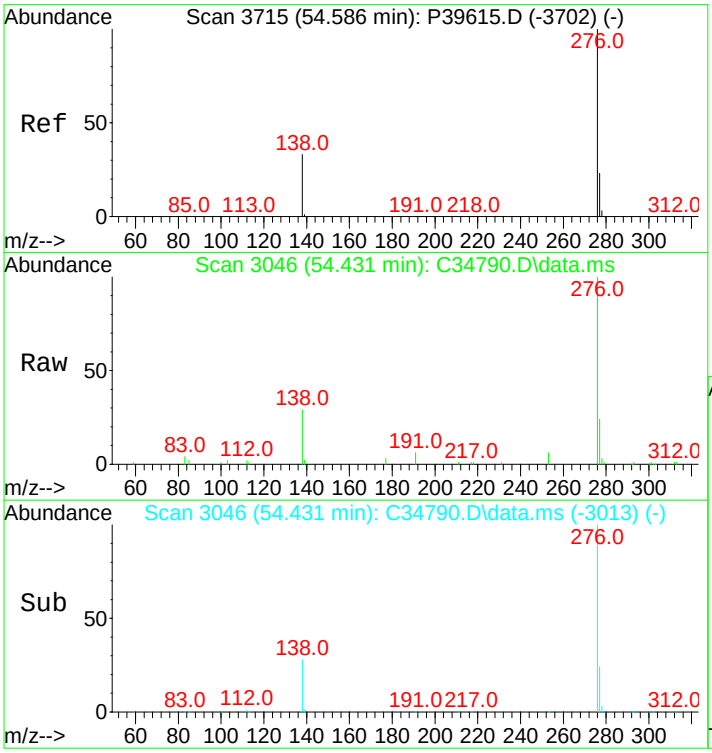


#90
Dibenz[ah]+[ac]anthracene
Concen: 462.20 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:278 Resp: 60330

Ion	Ratio	Lower	Upper
278	100		
139	22.2	19.1	28.7
279	23.1	19.2	28.8

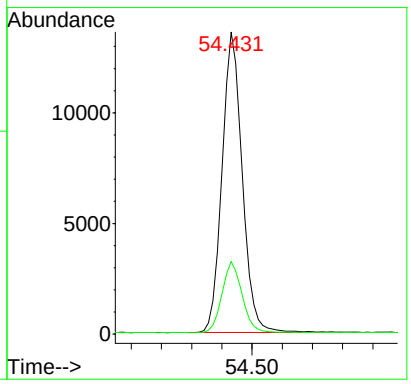




#91
Benzo[g,h,i]perylene
Concen: 433.84 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:276 Resp: 62892

Ion	Ratio	Lower	Upper
276	100		
277	23.8	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19021M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33587	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32852	397.936	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.79%#			
42) Phenanthrene-d10	32.567	188	26668	408.683	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.87%#			
86) Benzo[a]pyrene-d12	48.241	264	27379	393.340	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.33%#			
127) 5B(H)Cholane - Surr	43.769	217	5012	477.288	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.73%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51108	421.580	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30768	429.239	ng/mL#	100
26) Acenaphthylene	26.079	152	50368	418.543	ng/mL#	100
27) Acenaphthene	26.816	153	30445	429.668	ng/mL	100
29) Fluorene	28.834	166	34563M3	442.282	ng/mL	
43) Phenanthrene	32.657	178	48535	440.990	ng/mL	99
55) Anthracene	32.838	178	39450M3	366.966	ng/mL	
58) Fluoranthene	37.430	202	53262M3	487.269	ng/mL	
60) Pyrene	38.318	202	56100	504.889	ng/mL	97
75) Benz[a]anthracene	43.091	228	49115	460.721	ng/mL	100
77) Chrysene/Triphenylene	43.242	228	48498	450.615	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	56819	485.064	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	57833	453.478	ng/mL	96
87) Benzo[a]pyrene	48.331	252	51333	460.170	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	63756M3	491.124	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	59010	477.848	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62345	454.570	ng/mL	99

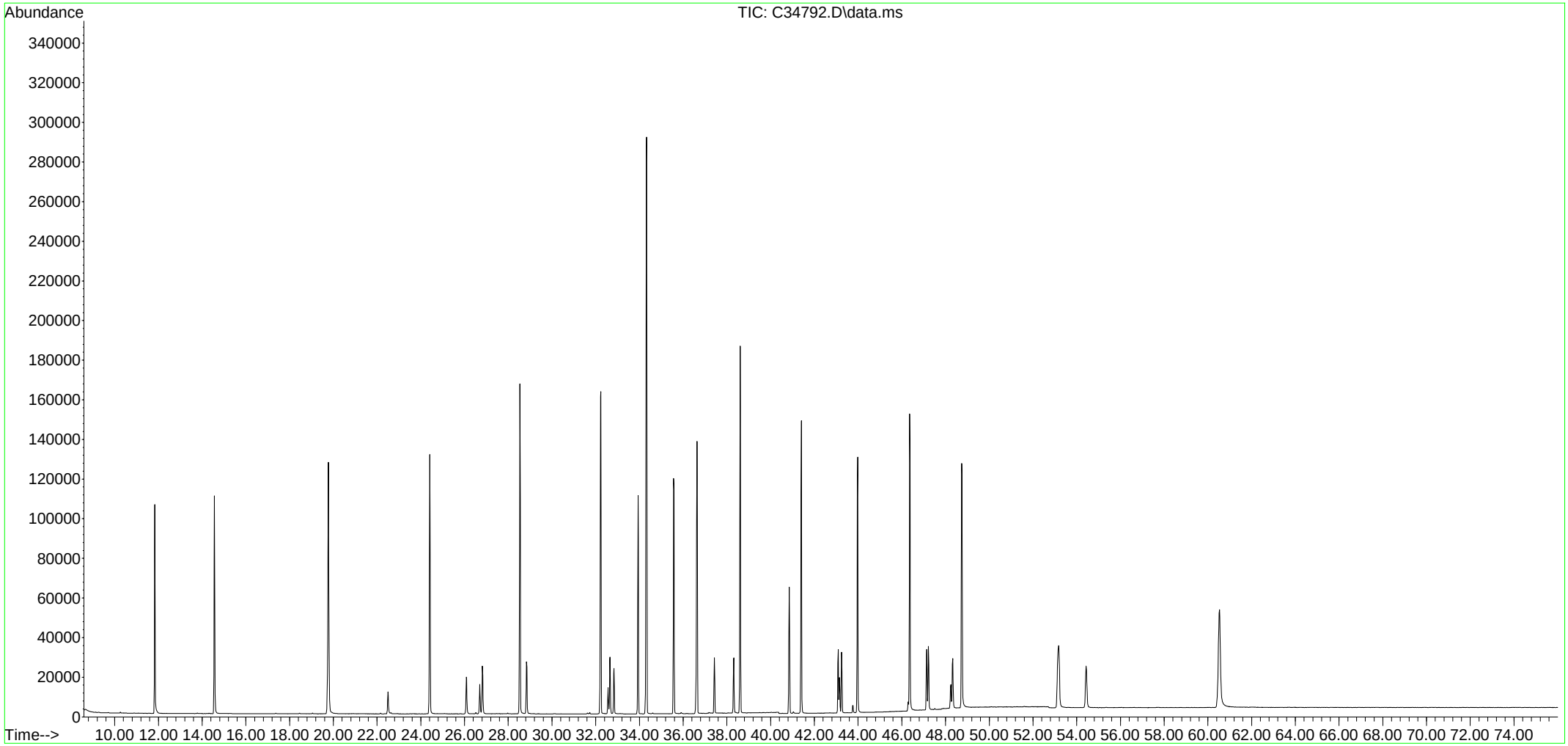
(#) = qualifier out of range (m) = manual integration (+) = signals summed

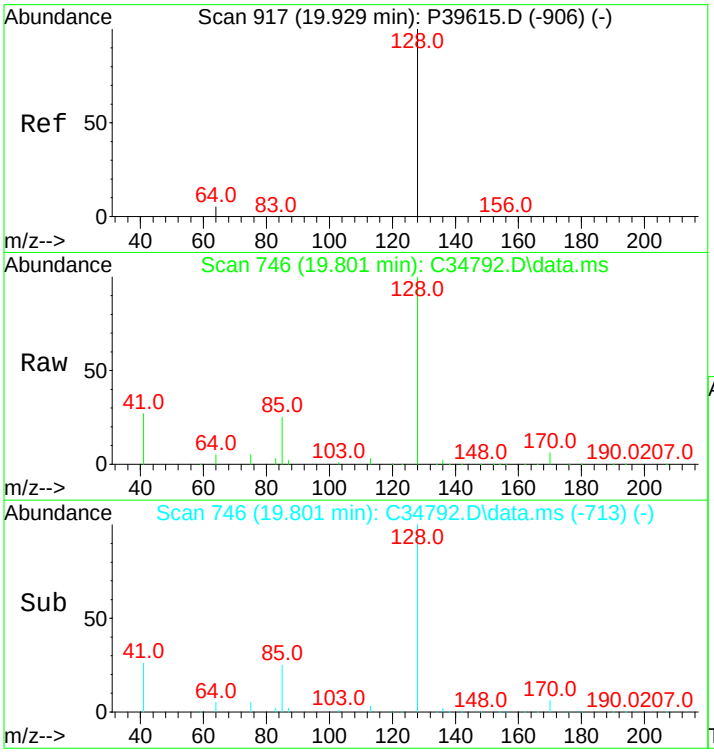
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

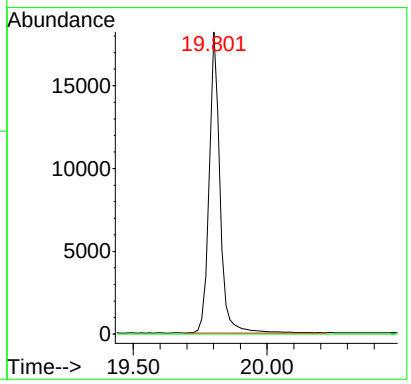


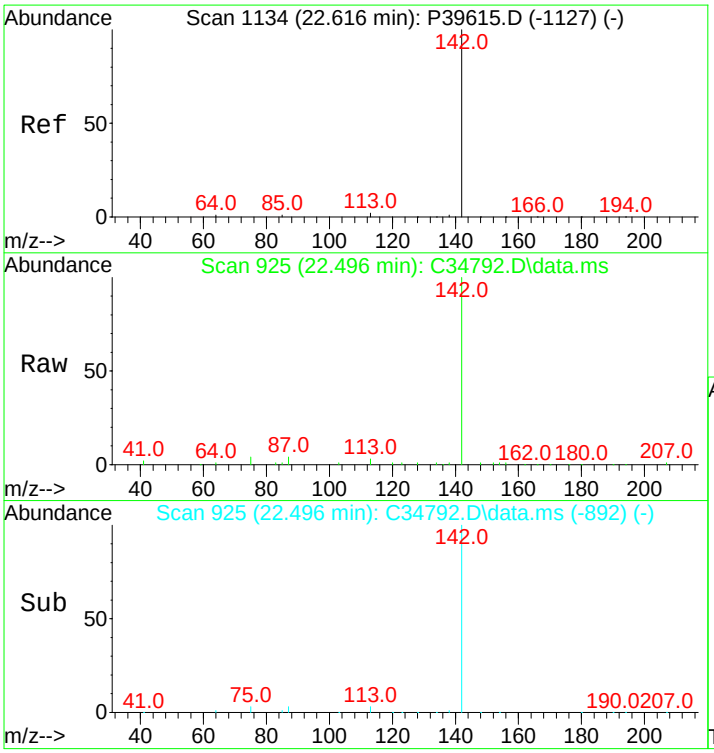


#10
Naphthalene
Concen: 421.58 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:128 Resp: 51108

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

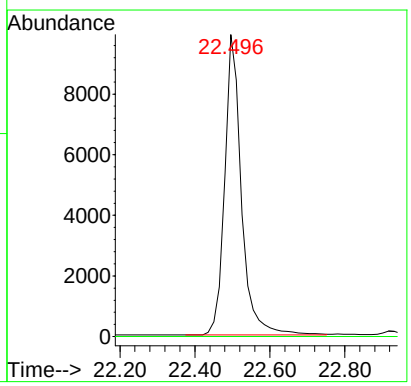


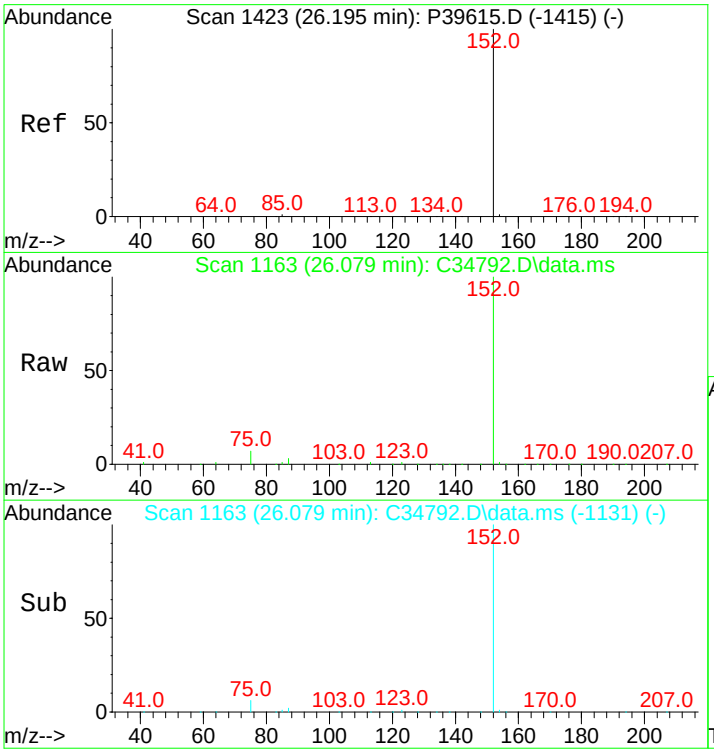


#16
2-Methylnaphthalene
Concen: 429.24 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:142 Resp: 30768

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

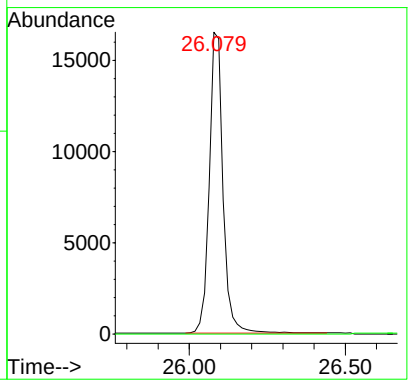


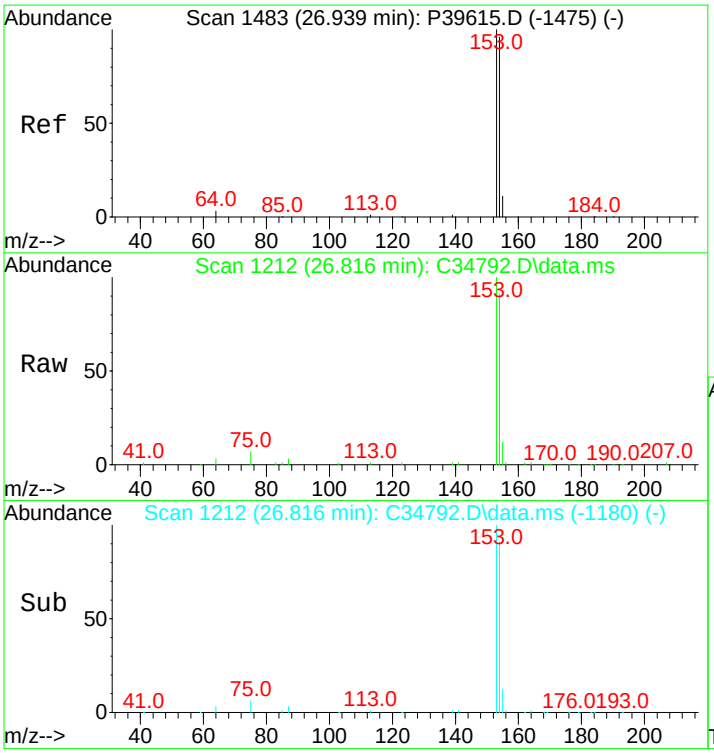


#26
Acenaphthylene
Concen: 418.54 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:152 Resp: 50368

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

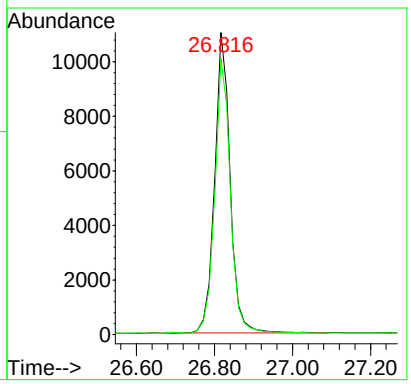


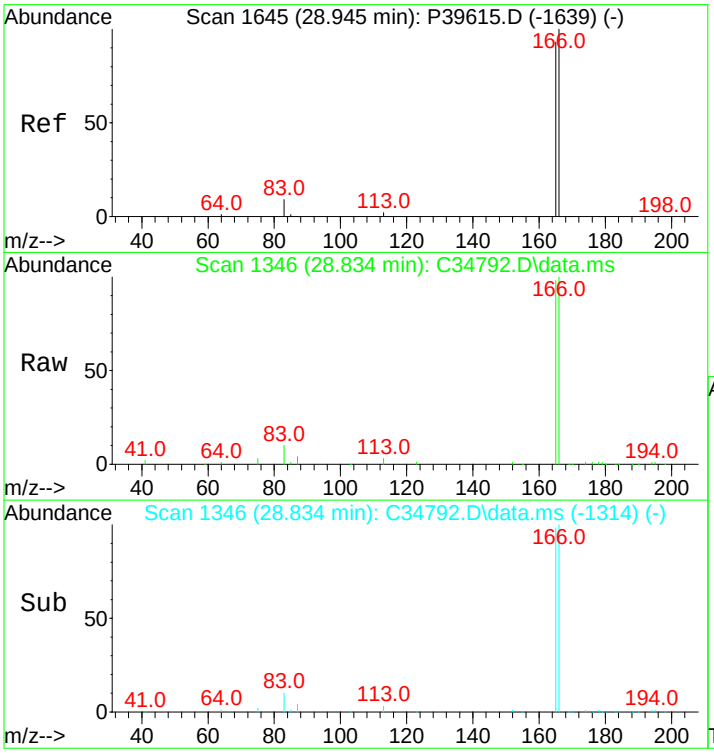


#27
Acenaphthene
Concen: 429.67 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:153 Resp: 30445

Ion	Ratio	Lower	Upper
153	100		
154	91.8	73.6	110.4

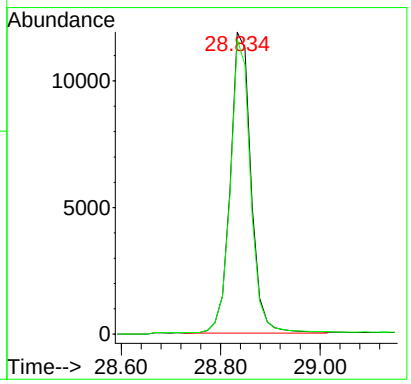


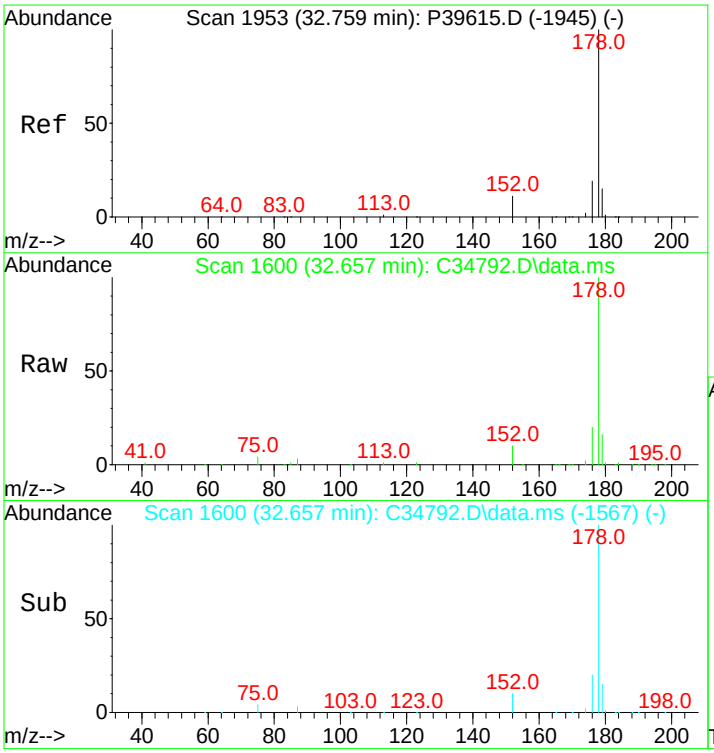


#29
Fluorene
Concen: 442.28 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:166 Resp: 34563

Ion	Ratio	Lower	Upper
166	100		
165	96.4	77.3	115.9

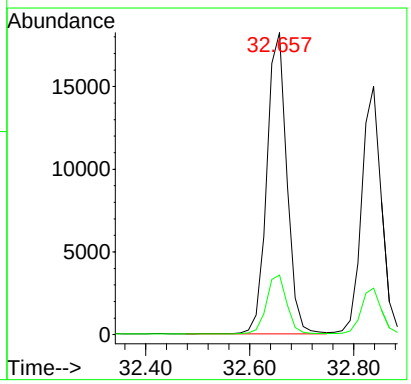


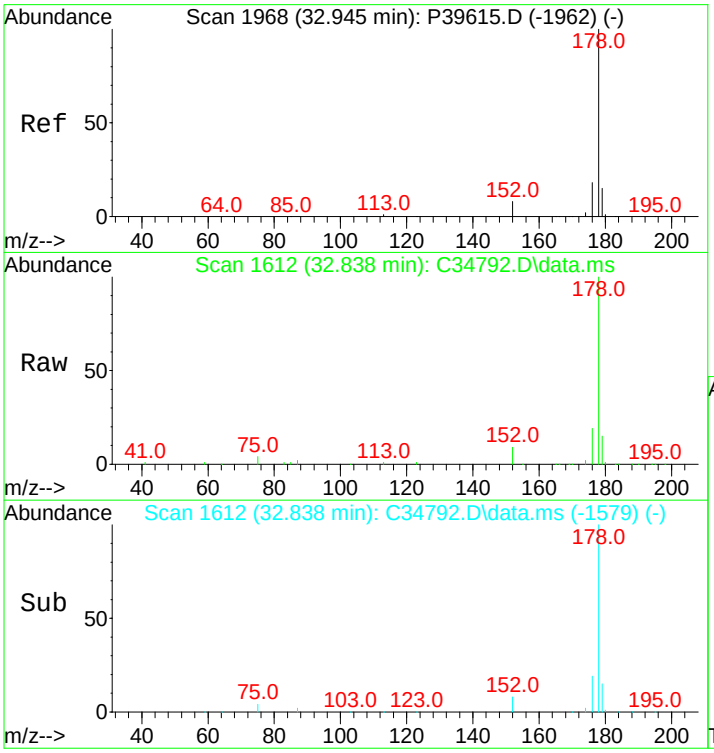


#43
Phenanthrene
Concen: 440.99 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:178 Resp: 48535

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

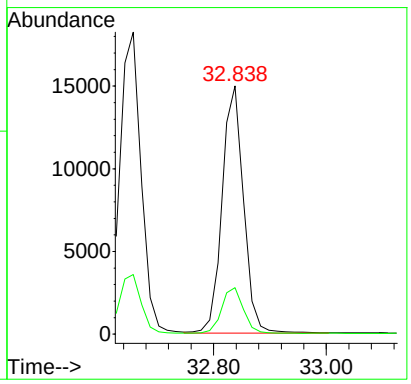


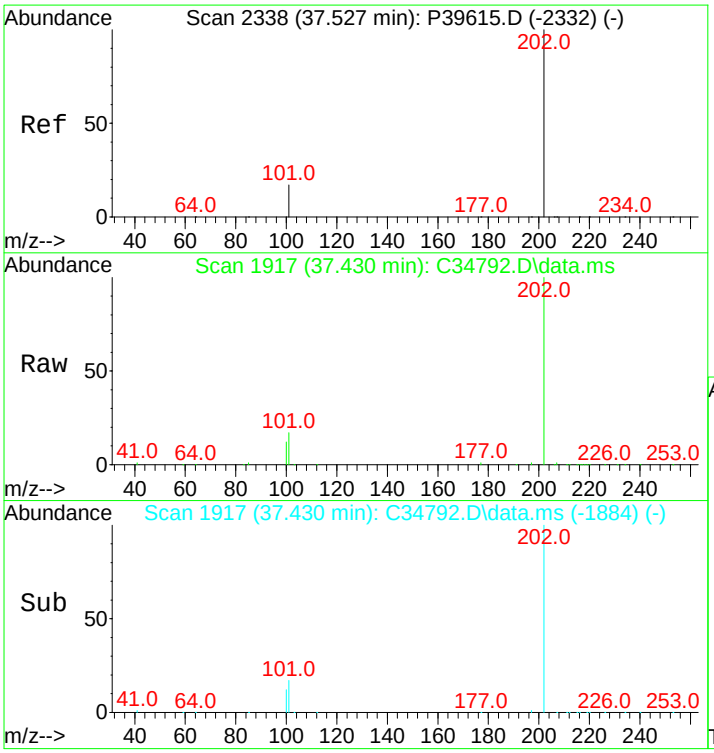


#55
Anthracene
Concen: 366.97 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:178 Resp: 39450

Ion	Ratio	Lower	Upper
178	100		
176	18.8	15.5	23.3

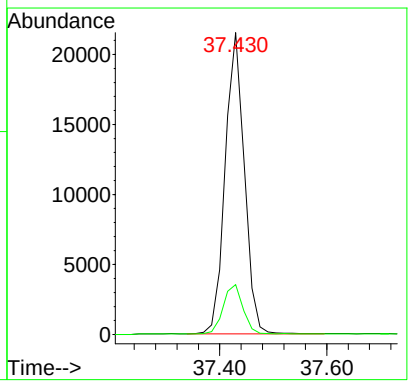


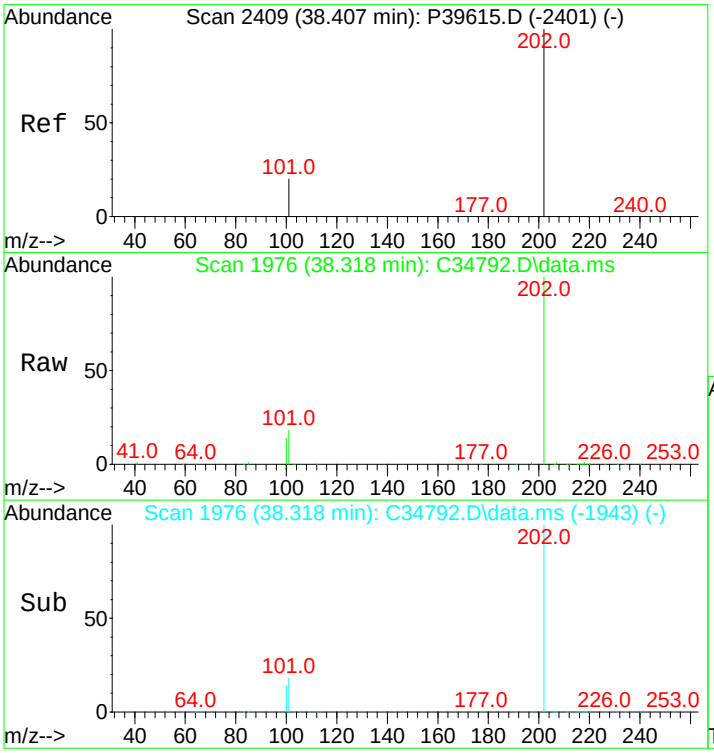


#58
Fluoranthene
Concen: 487.27 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:202 Resp: 53262

Ion	Ratio	Lower	Upper
202	100		
101	17.1	12.9	19.3

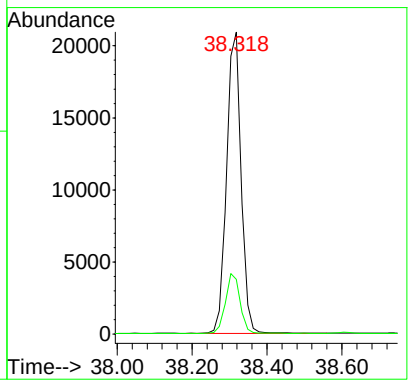


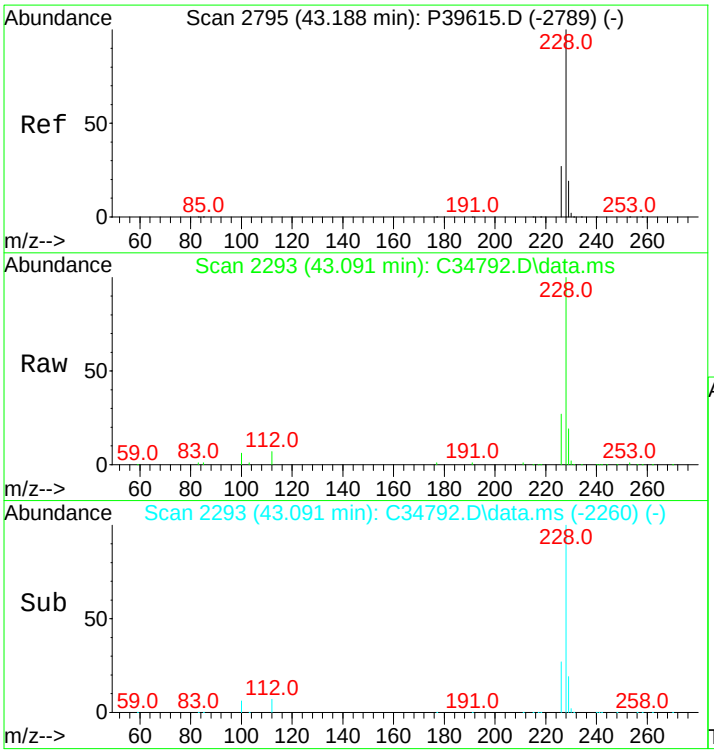


#60
Pyrene
Concen: 504.89 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:202 Resp: 56100

Ion	Ratio	Lower	Upper
202	100		
101	19.9	15.0	22.4

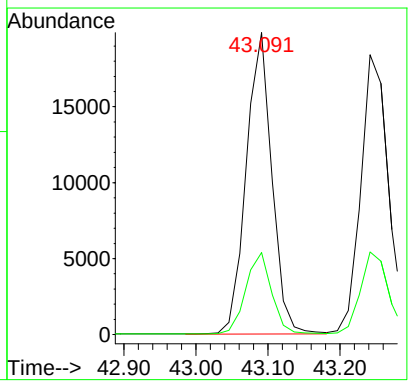


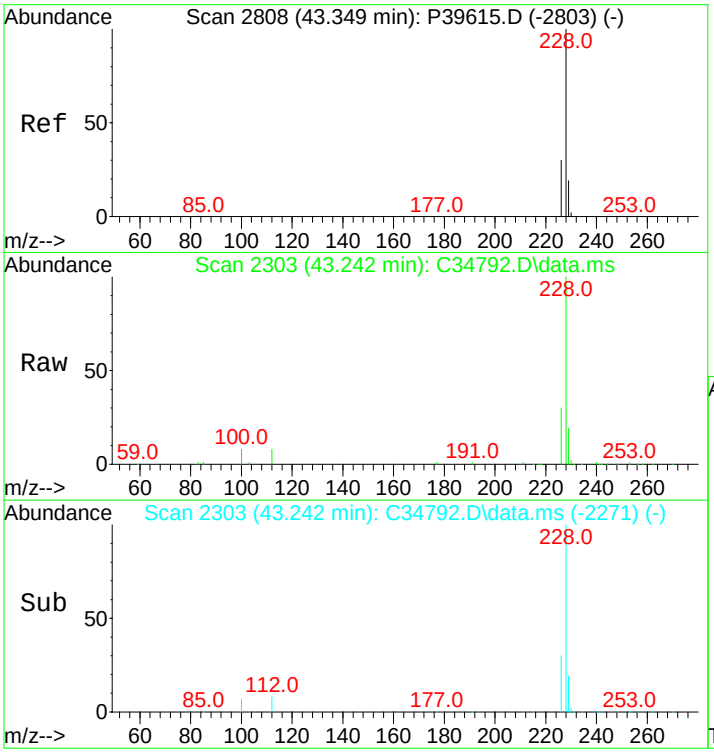


#75
Benz[a]anthracene
Concen: 460.72 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:228 Resp: 49115

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

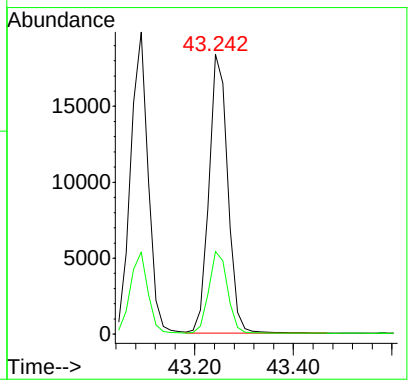


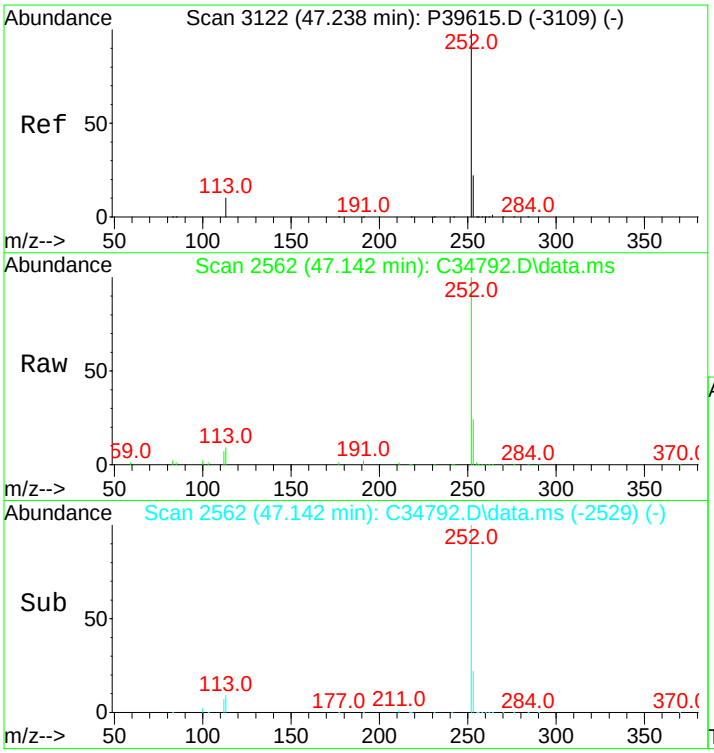


#77
Chrysene/Triphenylene
Concen: 450.62 ng/mL
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:228 Resp: 48498

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

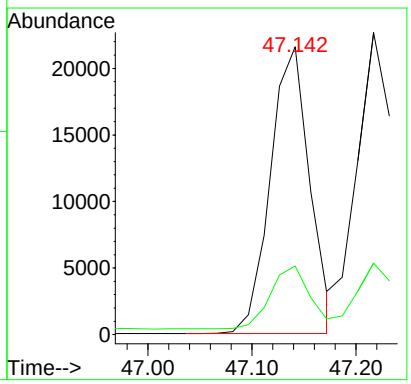


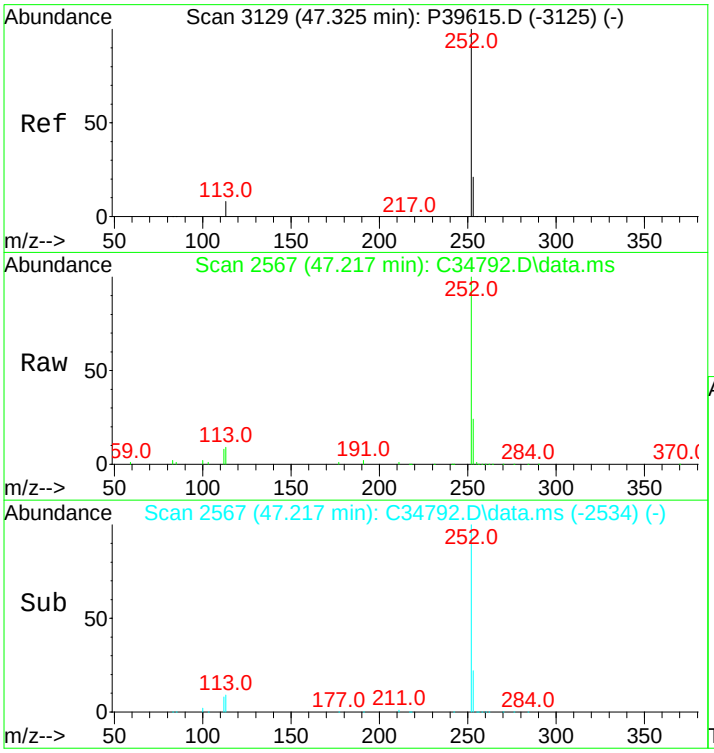


#82
Benzo[b]fluoranthene
Concen: 485.06 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 56819

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

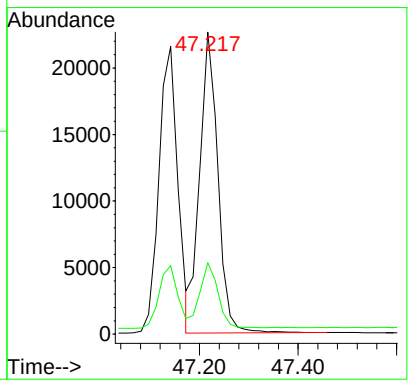


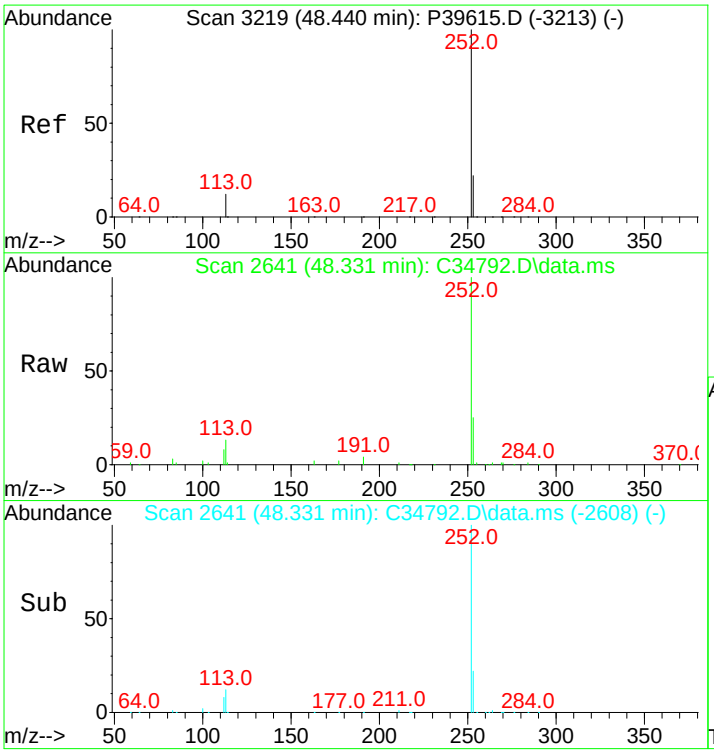


#83
Benzo[j]+[k]fluoranthene
Concen: 453.48 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 57833

Ion	Ratio	Lower	Upper
252	100		
253	21.6	19.0	28.4

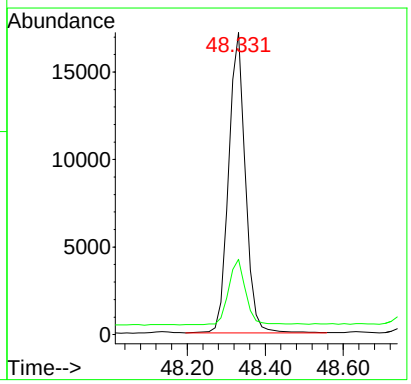


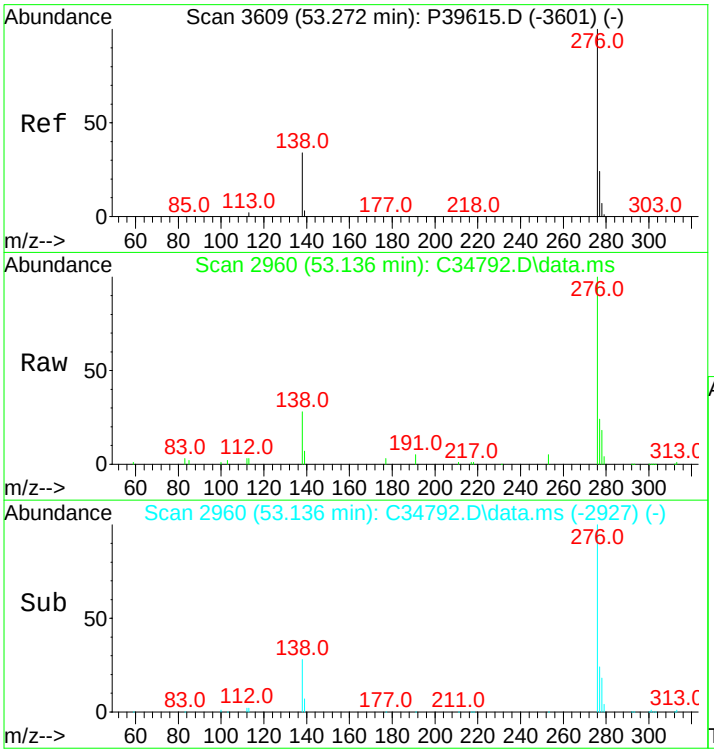


#87
Benzo[a]pyrene
Concen: 460.17 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 51333

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.5	29.3

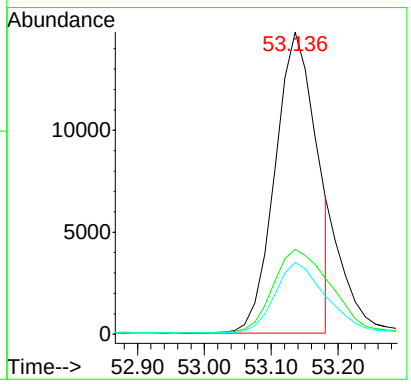


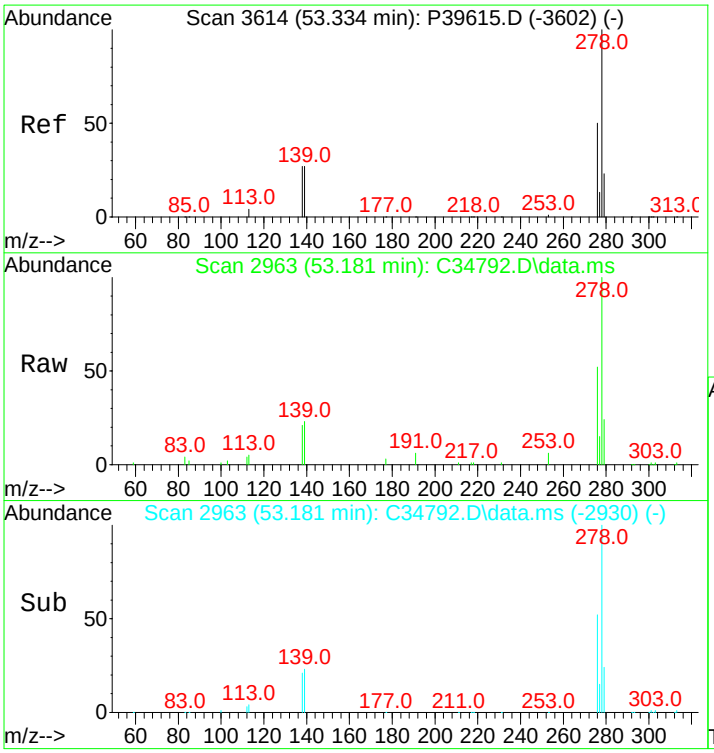


#89
Indeno[1,2,3-cd]pyrene
Concen: 491.12 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:276 Resp: 63756

Ion	Ratio	Lower	Upper
276	100		
138	38.6	23.3	34.9#
277	29.0	19.0	28.4#

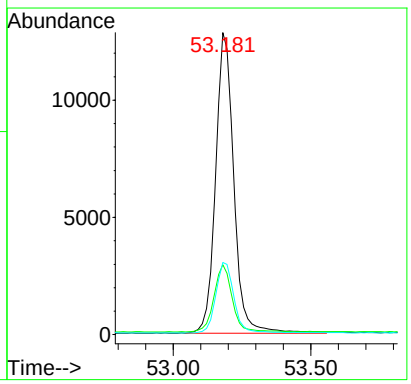


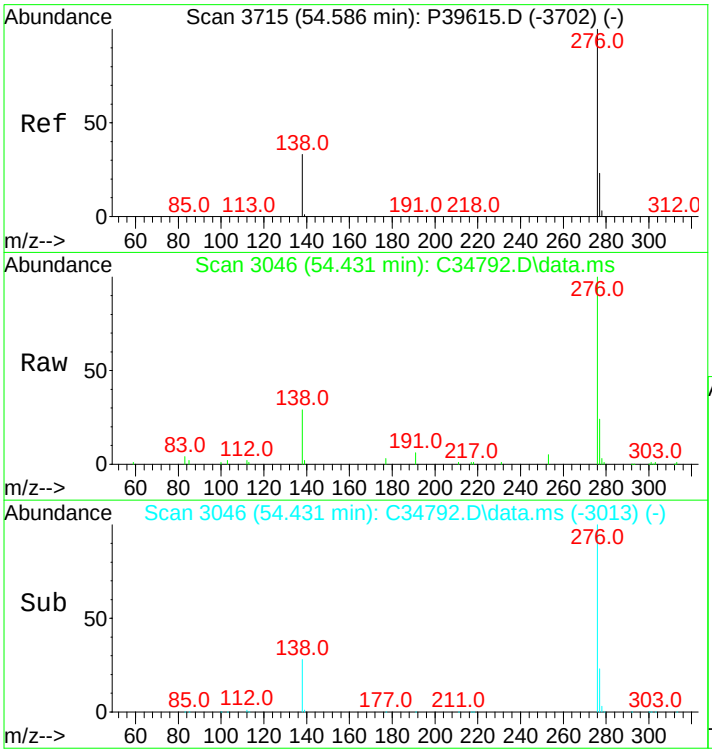


#90
Dibenz[ah]+[ac]anthracene
Concen: 477.85 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:278 Resp: 59010

Ion	Ratio	Lower	Upper
278	100		
139	22.2	19.1	28.7
279	23.1	19.2	28.8

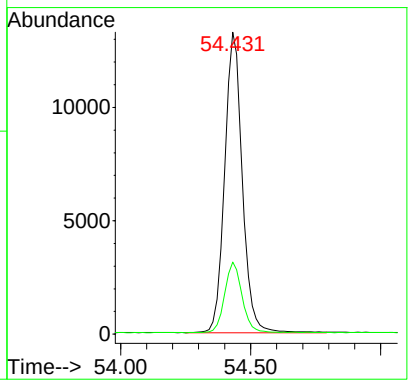




#91
Benzo[g,h,i]perylene
Concen: 454.57 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:276 Resp: 62345

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17202M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	31325	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	64785M3	867.721	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.77%			
42) Phenanthrene-d10	32.567	188	54711	927.097	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.71%			
86) Benzo[a]pyrene-d12	48.241	264	59351	914.237	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.42%			
127) 5B(H)Cholane - Surr	43.769	217	9552	975.312	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.53%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	6067	55.338	ng/mL#	100
11) C1-Naphthalenes	22.511	142	3160M5	28.823	ng/mL	
12) C2-Naphthalenes	25.025	156	1128M5	10.289	ng/mL	
16) 2-Methylnaphthalene	22.511	142	1951	30.096	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	1033M3	16.257	ng/mL	
18) Benzothiophene	20.027	134	129M3	1.308	ng/mL	
24) 2,6-Dimethylnaphthalene	25.025	156	225M3	4.225	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	867M5	7.653	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	1710M5	15.094	ng/mL	
41) C4-Dibenzothiophenes	38.424	240	2007M5	17.716	ng/mL	
43) Phenanthrene	32.657	178	194M3	1.949	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.600	192	33M3	0.332	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	28M3	0.281	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	38M2	0.382	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.172	192	24M2	0.241	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.081	192	253M5	2.542	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	2871M5	28.844	ng/mL	
51) 5AA IS BKGD	36.632	206	2123	21.329	ng/mL	100
52) C3-Phenanthrenes/Anthr...	39.990	220	1057M5	10.619	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	1101M5	11.062	ng/mL	
55) Anthracene	32.838	178	48M2	0.494	ng/mL	
56) Carbazole	33.501	167	97M3	0.988	ng/mL	
57) 1-Methylphenanthrene	35.172	192	24M3	0.380	ng/mL	
58) Fluoranthene	37.430	202	206M3	2.084	ng/mL	
59) Benzo(b)fluorene	39.945	216	54M3	0.942	ng/mL	
60) Pyrene	38.303	202	271	2.697	ng/mL#	58
66) Naphthobenzothiophene	42.158	234	174M3	1.608	ng/ml	
67) Naphthobenzothiophene-...	42.158	234	174M3	1.608	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	1102M5	10.186	ng/ml	
71) C2-Naphthobenzothiophenes	45.591	262	1845M5	17.054	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	2374M5	21.944	ng/ml	
75) Benz[a]anthracene	43.091	228	153	1.539	ng/mL#	48
77) Chrysene/Triphenylene	43.242	228	220M3	2.192	ng/mL	
78) C1-Chrysenes	44.717	242	378M5	3.766	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	400M3	3.661	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	323M3	2.716	ng/mL	
85) Benzo[e]pyrene	48.136	252	434M3	4.016	ng/mL	
87) Benzo[a]pyrene	48.332	252	345M3	3.316	ng/mL	
88) Perylene	48.633	252	359M3	3.229	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.151	276	826M3	6.822	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	424M3	3.681	ng/mL	
91) Benzo[g,h,i]perylene	54.446	276	1154	9.022	ng/mL	93
92) Hopane (T19)	52.202	191	624M3	30.225	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	219M3	10.608	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	149M3	7.217	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	193M3	9.348	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
107) 17a(H)-22,29,30-Trisno...	48.994	191		220M3	10.656	ng/ml	
110) 30-Norhopane (T15)	50.847	191		444M3	21.506	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.277	217		143M3	14.601	ng/ml	
132) 14a,17a-20R-Chol/13b,1...	47.774	217		80M3	8.168	ng/ml	
133) Unknown Sterane (S18)	48.091	217	G	148M3	15.112	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.521	217		145	14.805	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.353	218		43M2	4.391	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218		70M2	7.147	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218		62M3	6.331	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.823	218		58M3	5.922	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231		273M3	27.875	ng/mL	
146) C28,20S-triaromatic st...	50.350	231		297M3	30.325	ng/mL	
147) C27,20R-triaromatic st...	50.801	231		267M3	27.262	ng/mL	
148) C28,20R-triaromatic st...	52.006	231		189M3	19.298	ng/mL	

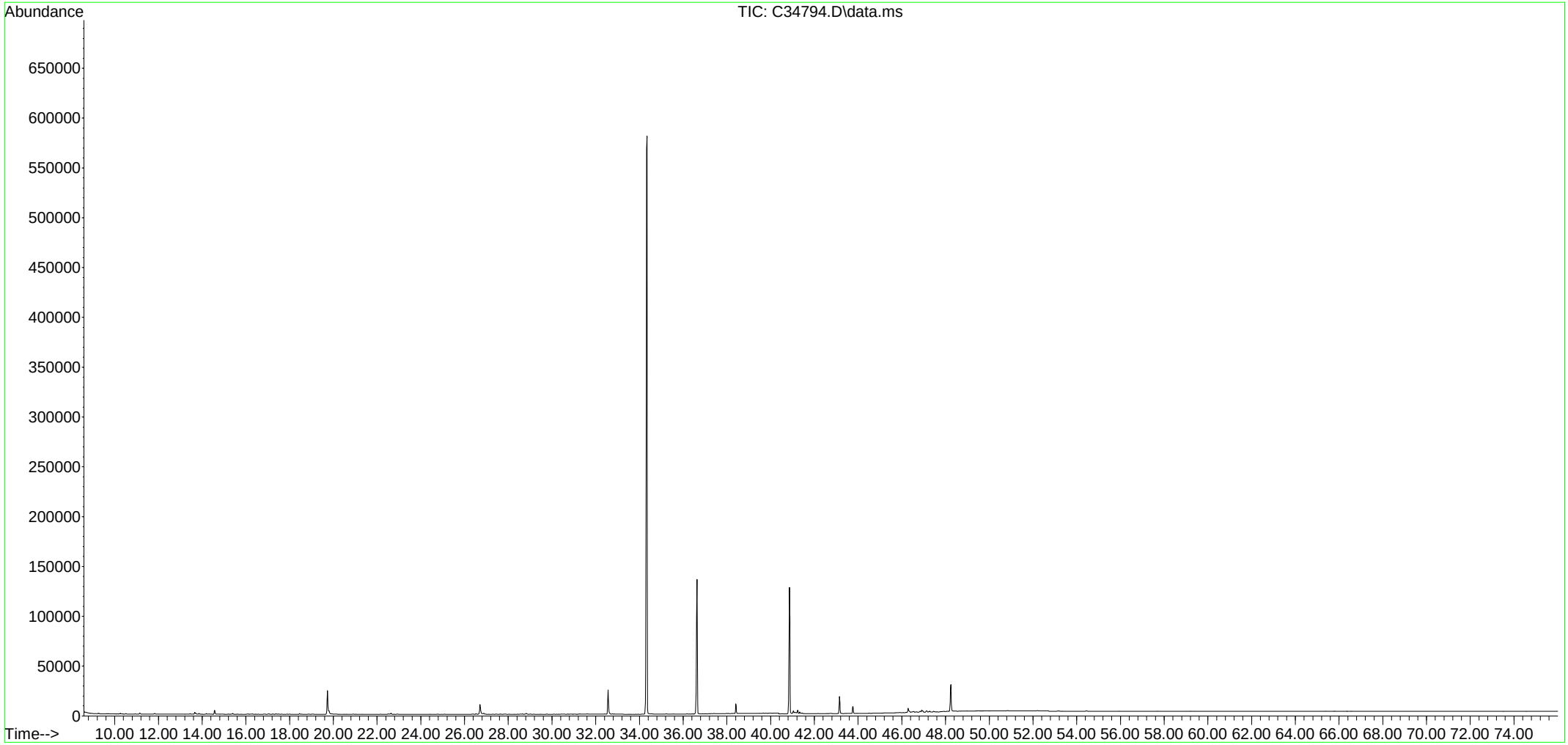
(#) = qualifier out of range (m) = manual integration (+) = signals summed

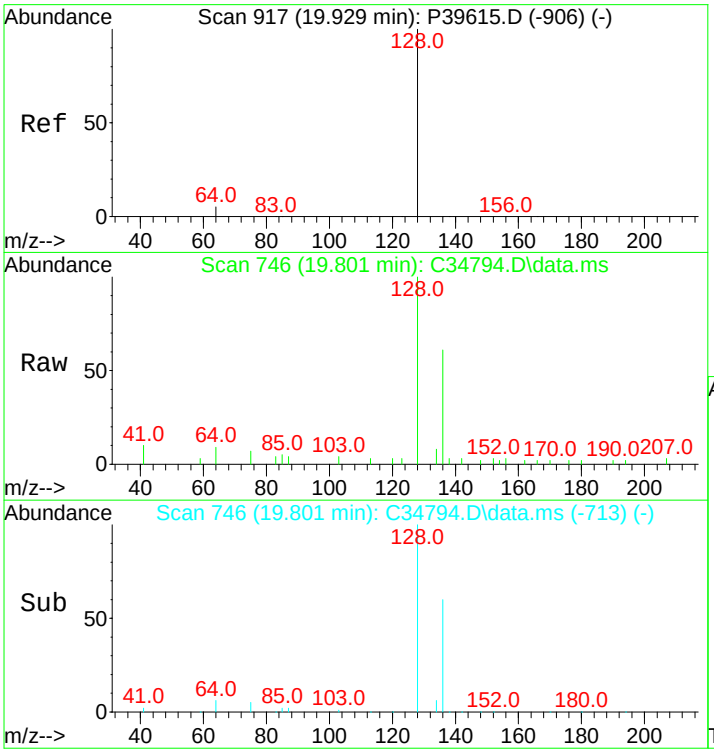
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34794.D
Acq On : 3 May 2012 1:25 am
Operator : AC
Sample : 1204031-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 05 12:45:03 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

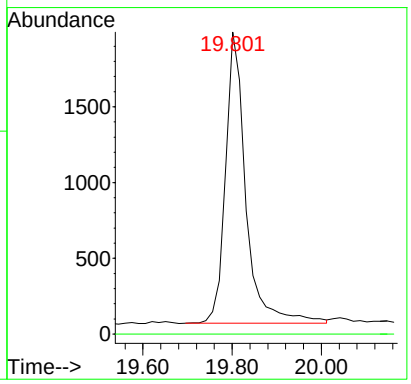


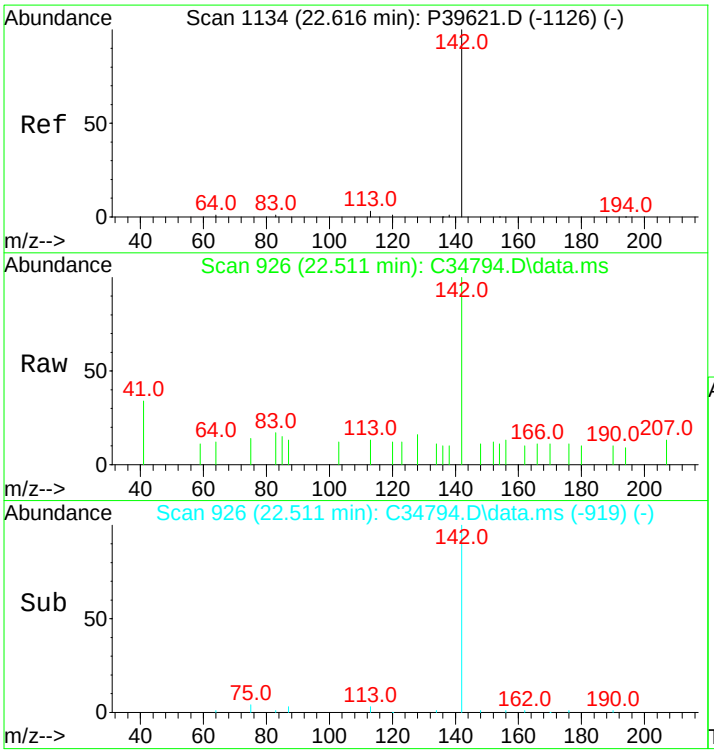


#10
Naphthalene
Concen: 55.34 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:128 Resp: 6067

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

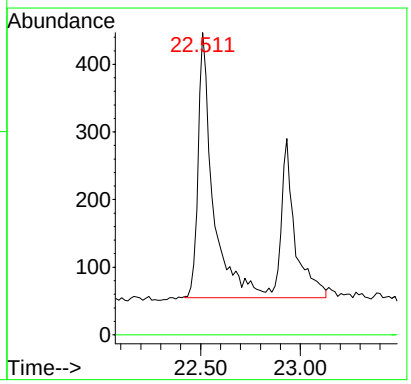


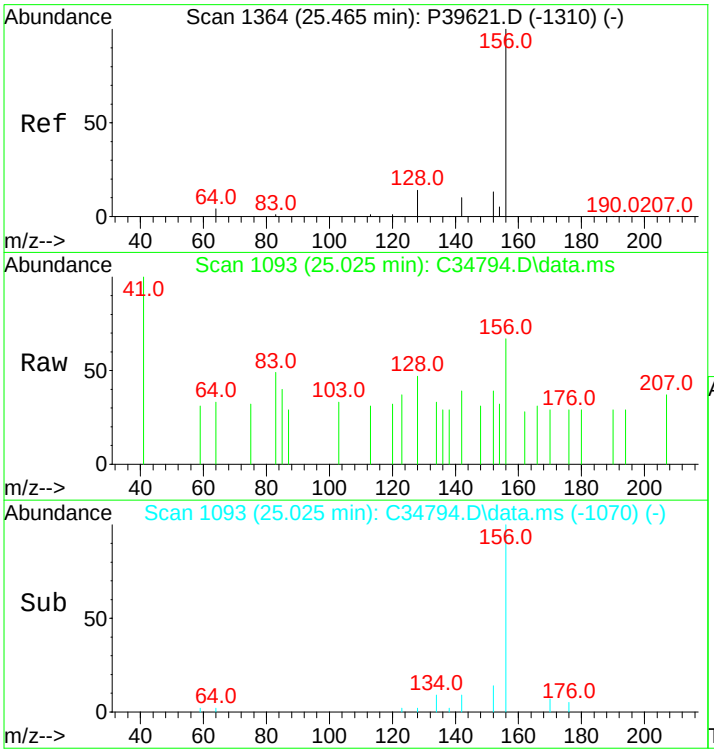


#11
C1-Naphthalenes
Concen: 28.82 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:142 Resp: 3160

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

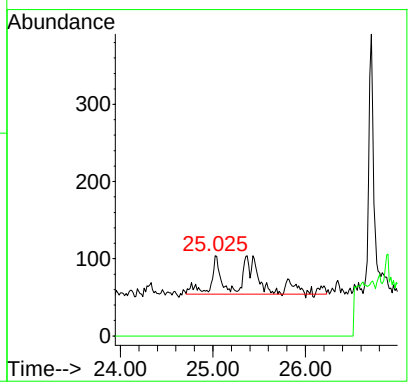


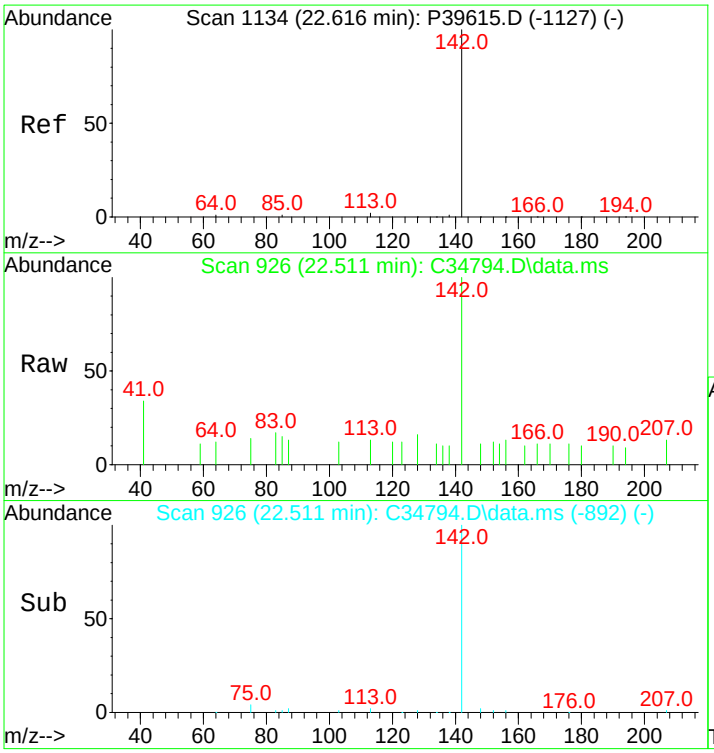


#12
C2-Naphthalenes
Concen: 10.29 ng/mL m
RT: 25.025 min Scan# 1093
Delta R.T. -0.322 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:156 Resp: 1128

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

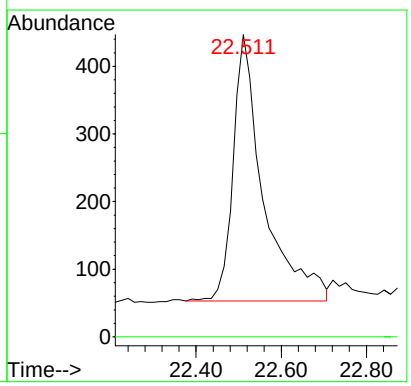


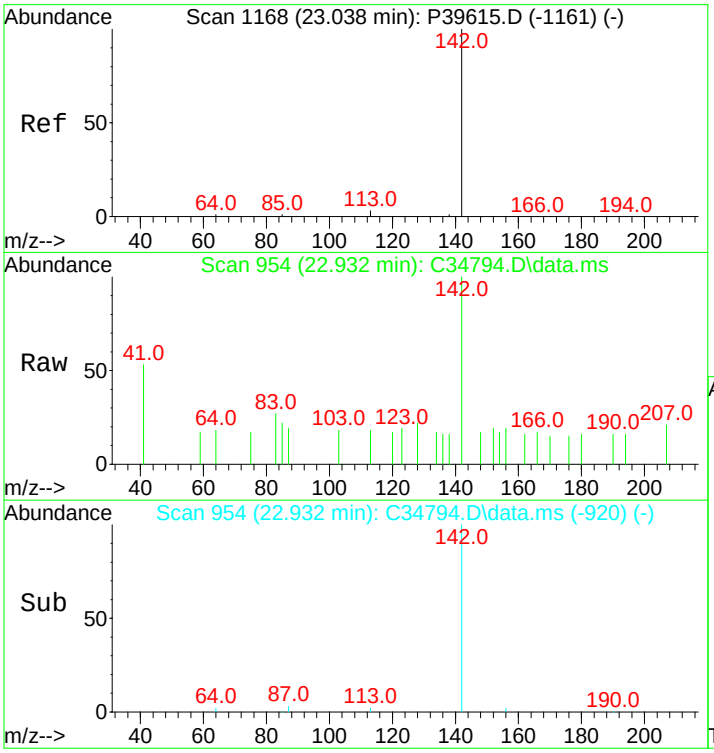


#16
2-Methylnaphthalene
Concen: 30.10 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:142 Resp: 1951

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

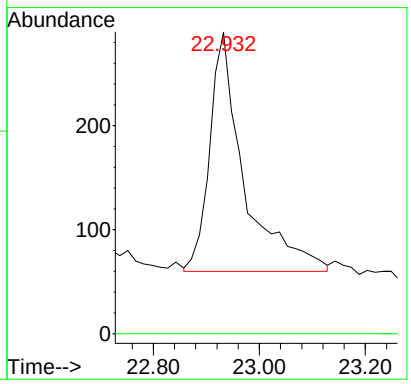


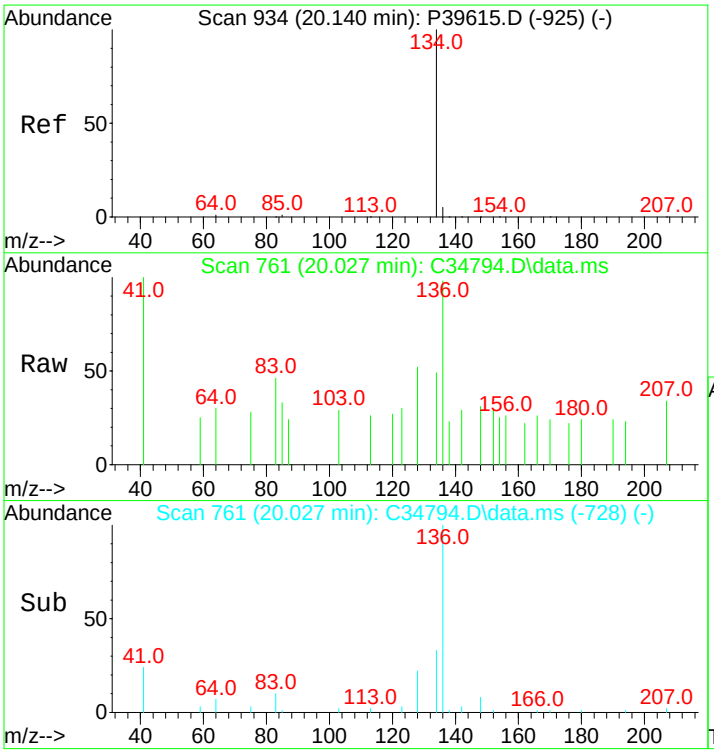


#17
1-Methylnaphthalene
Concen: 16.26 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:142 Resp: 1033

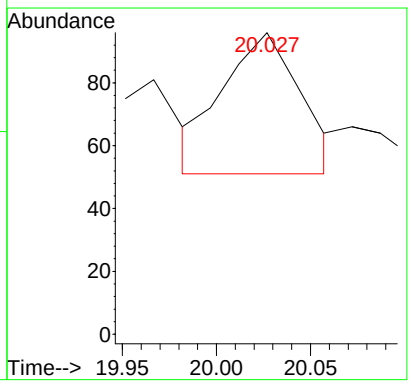
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

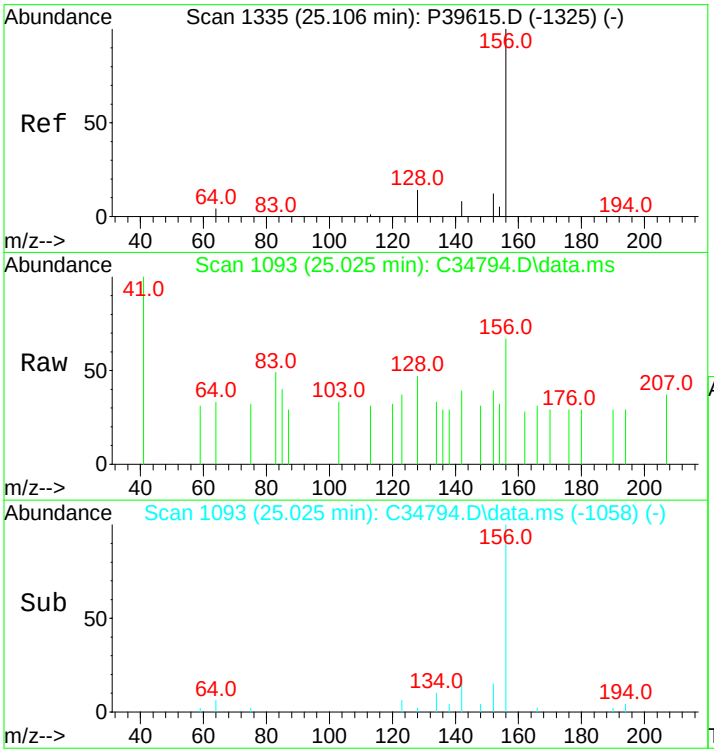




#18
Benzothiophene
Concen: 1.31 ng/mL m
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:134 Resp: 129

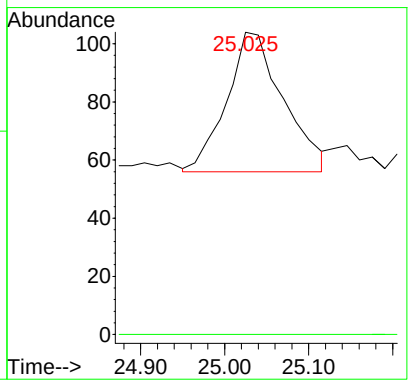


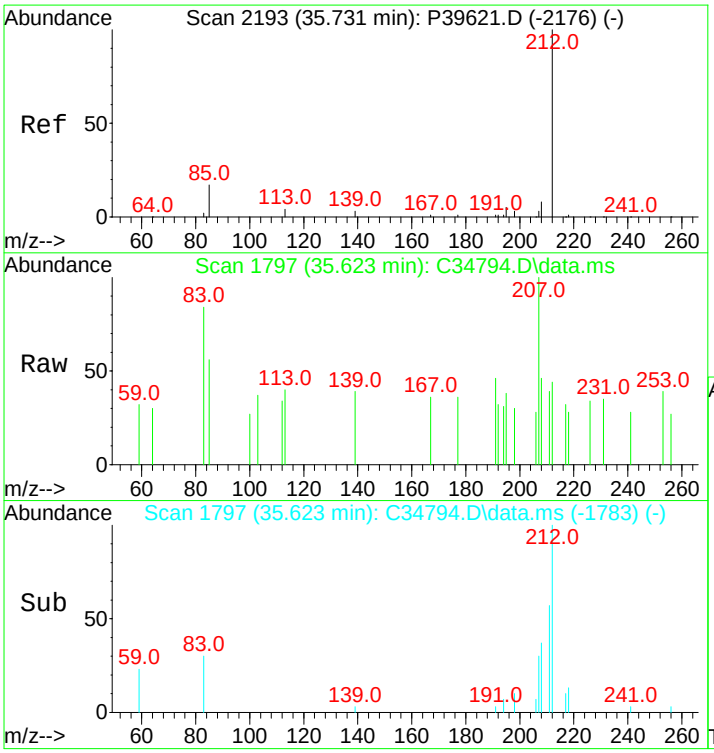


#24
2,6-Dimethylnaphthalene
Concen: 4.22 ng/mL m
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:156 Resp: 225

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

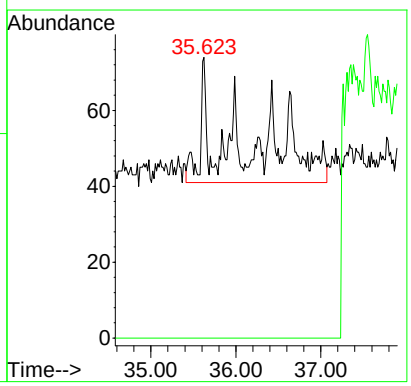


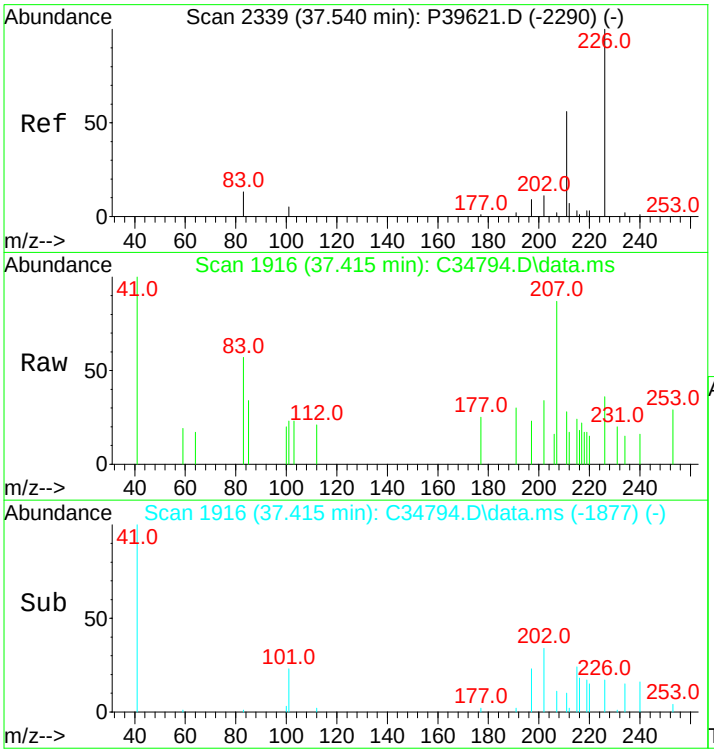


#39
C2-Dibenzothiophenes
Concen: 7.65 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:212 Resp: 867

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

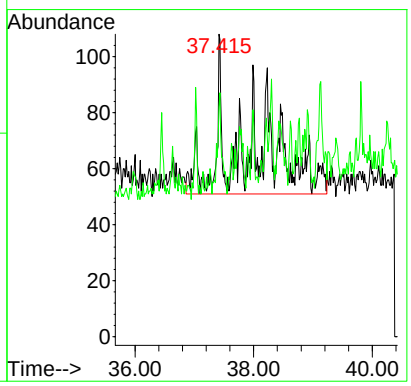


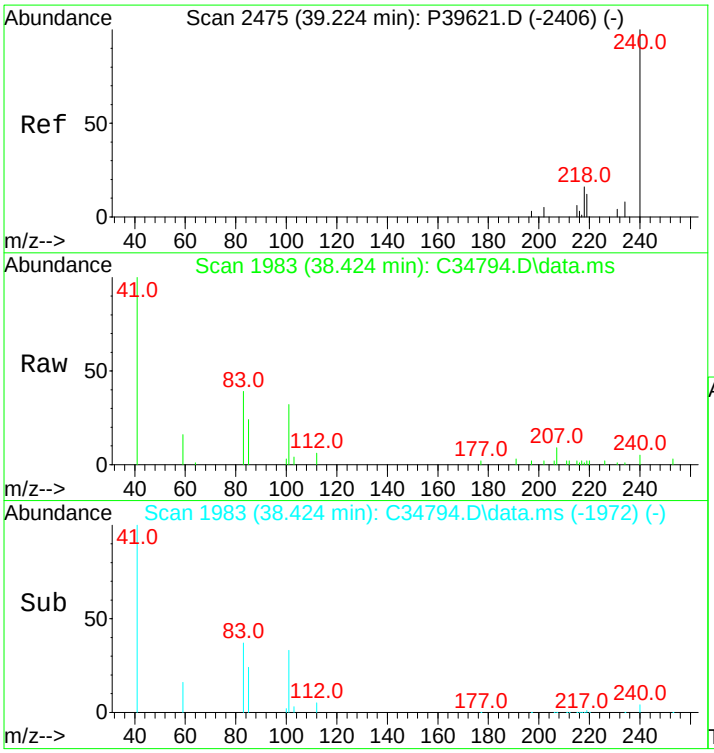


#40
C3-Dibenzothiophenes
Concen: 15.09 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:226 Resp: 1710

Ion	Ratio	Lower	Upper
226	100		
211	11.2	45.0	67.6#

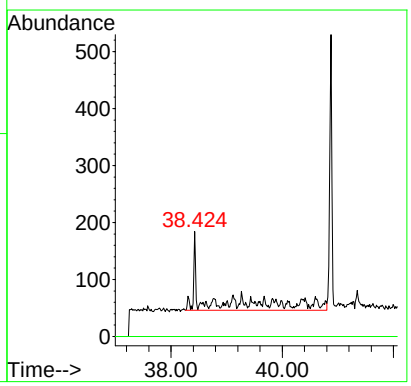


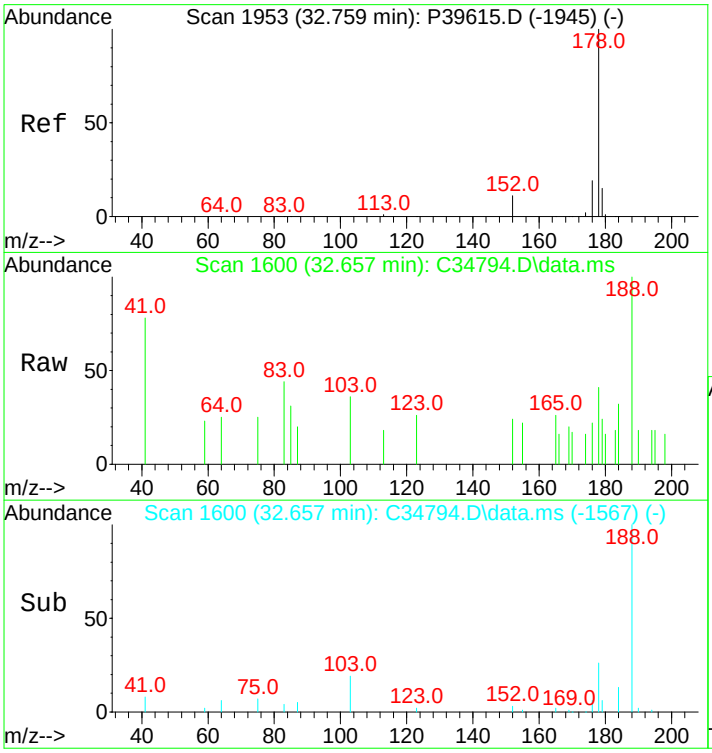


#41
C4-Dibenzothiophenes
Concen: 17.72 ng/mL m
RT: 38.424 min Scan# 1983
Delta R.T. -0.692 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:240 Resp: 2007

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

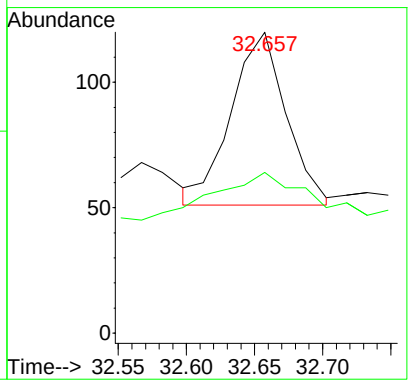


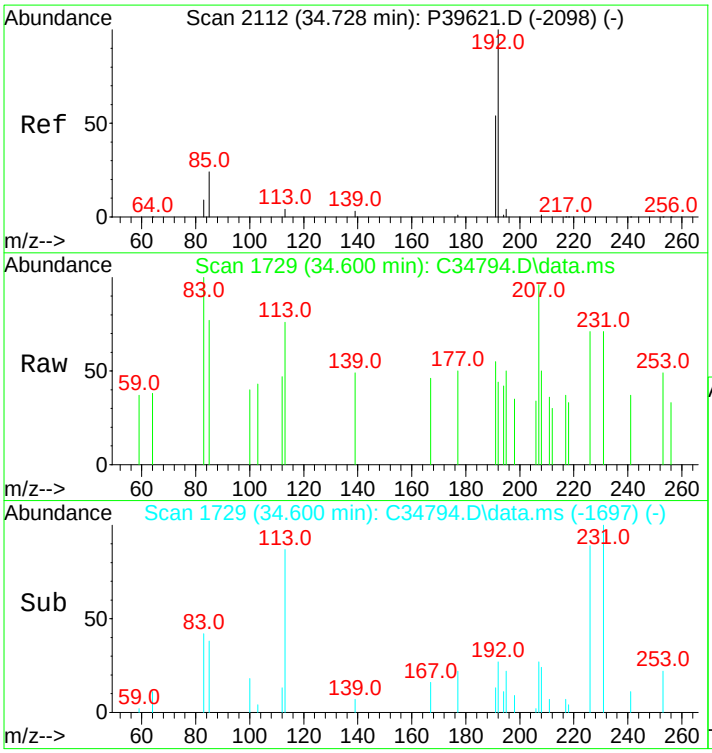


#43
Phenanthrene
Concen: 1.95 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:178 Resp: 194

Ion	Ratio	Lower	Upper
178	100		
176	0.0	16.1	24.1#

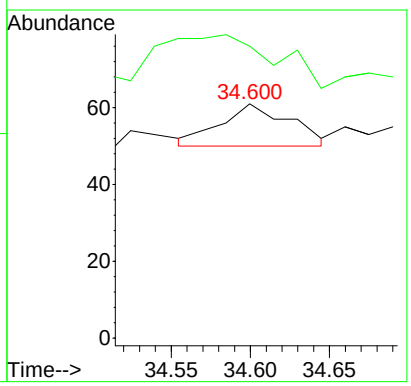


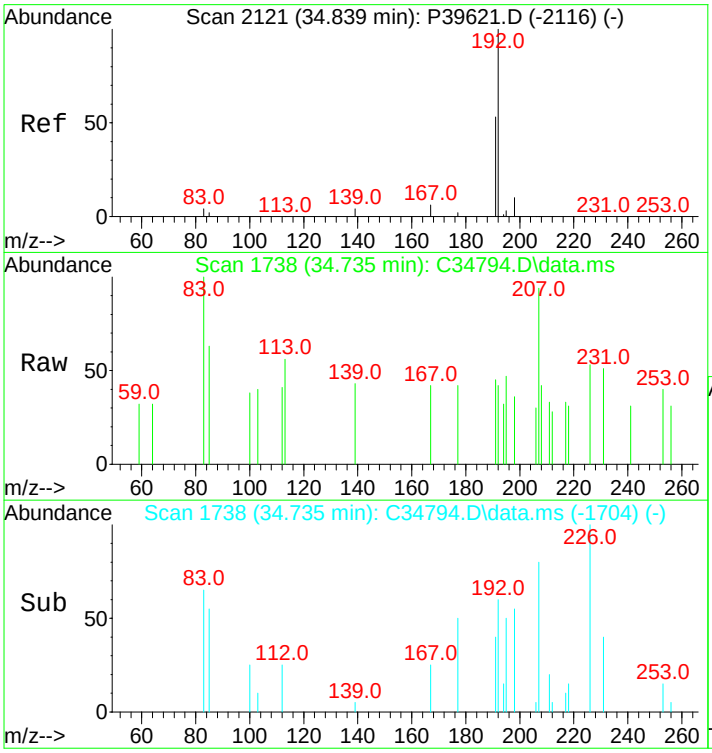


#44
3-Methylphenanthrene(3MP)
Concen: 0.33 ng/mL m
RT: 34.600 min Scan# 1729
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 33

Ion	Ratio	Lower	Upper
192	100		
191	21157.6	46.9	70.3#

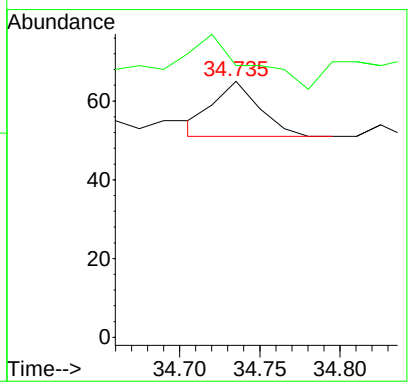


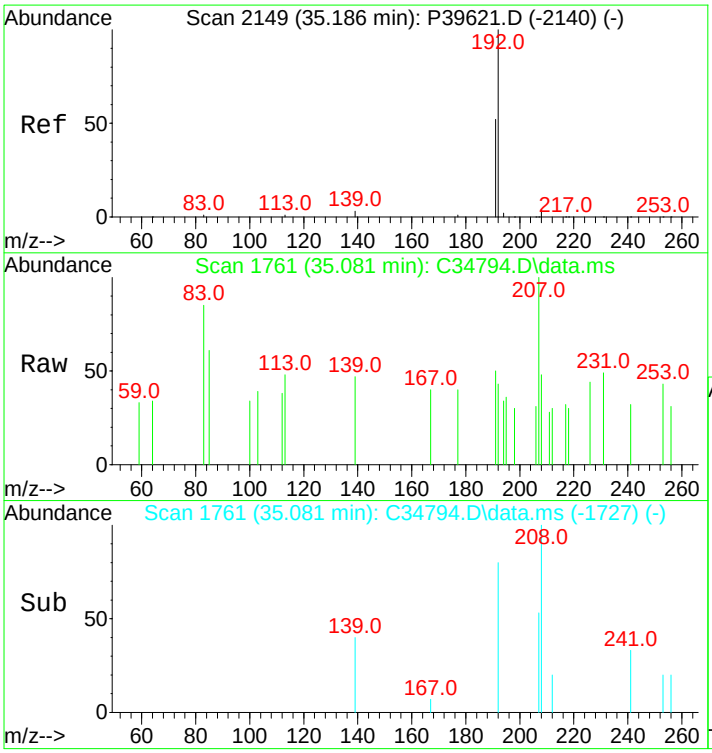


#45
2/4-Methylphenanthrene(2MP)
Concen: 0.28 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 28

Ion	Ratio	Lower	Upper
192	100		
191	24682.1	46.1	69.1#

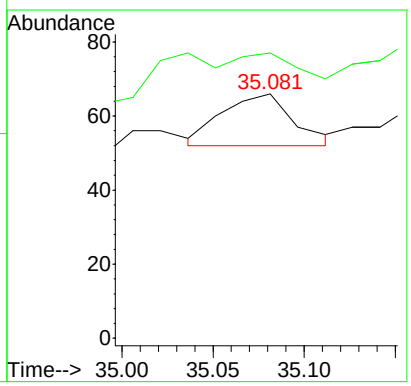


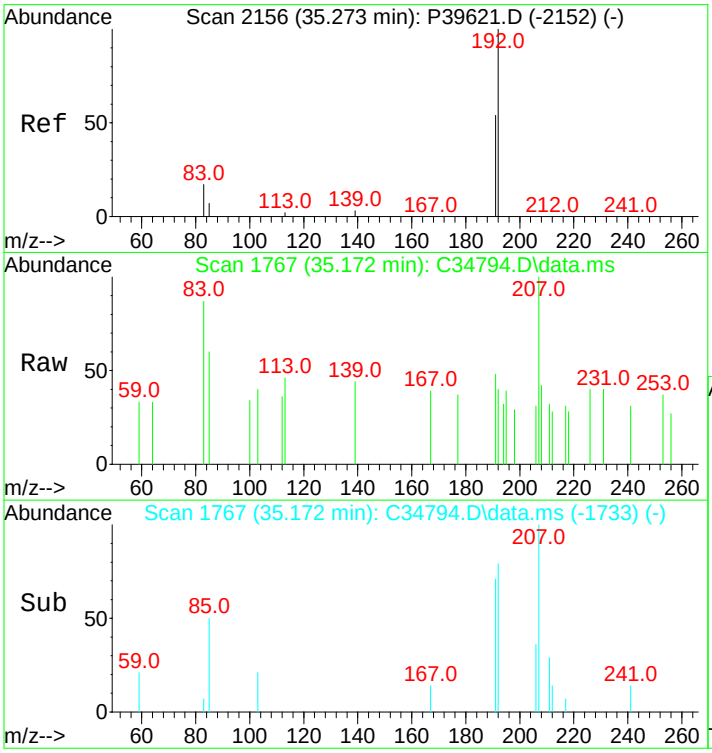


#47
9-Methylphenanthrene(9MP)
Concen: 0.38 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 38

Ion	Ratio	Lower	Upper
192	100		
191	0.0	45.9	68.9#

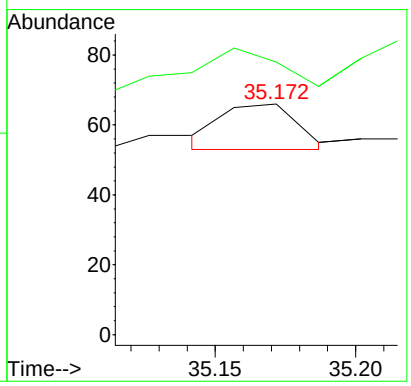


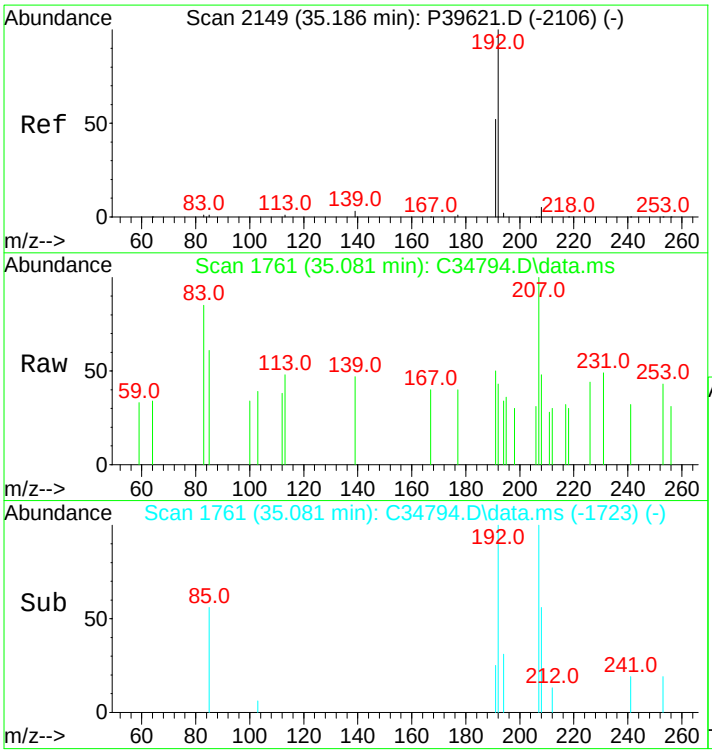


#48
1-Methylphenanthrene(1MP)
Concen: 0.24 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 24

Ion	Ratio	Lower	Upper
192	100		
191	0.0	49.0	73.4#

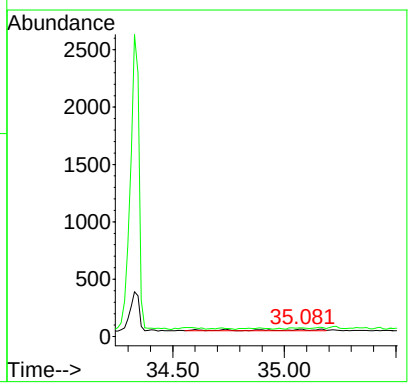


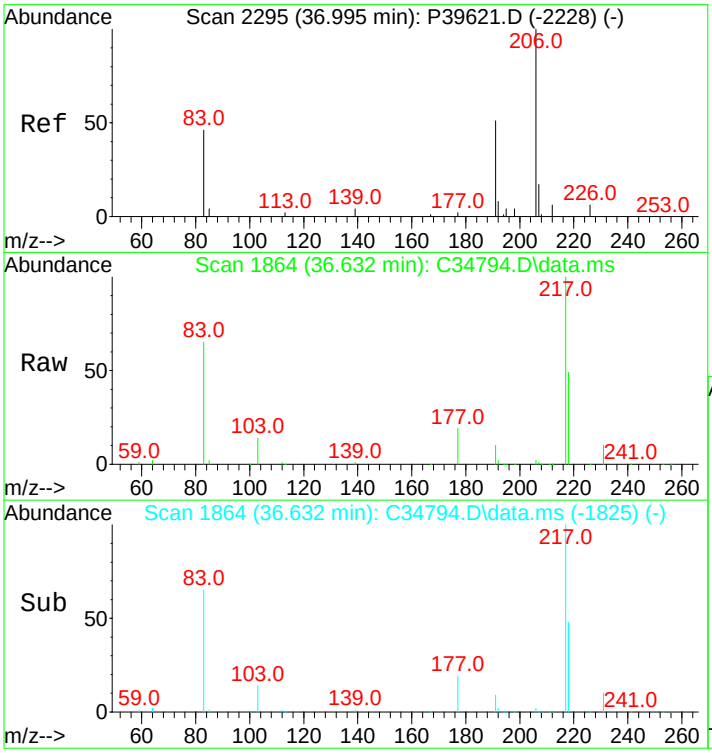


#49
C1-Phenanthrenes/Anthracenes
Concen: 2.54 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.068 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 253

Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.2	66.2#

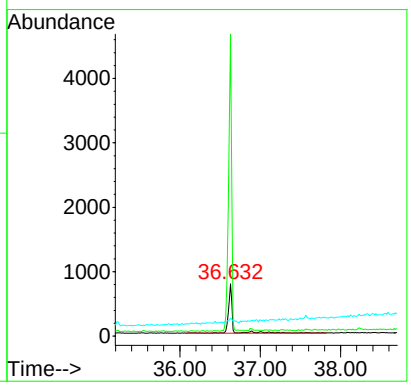


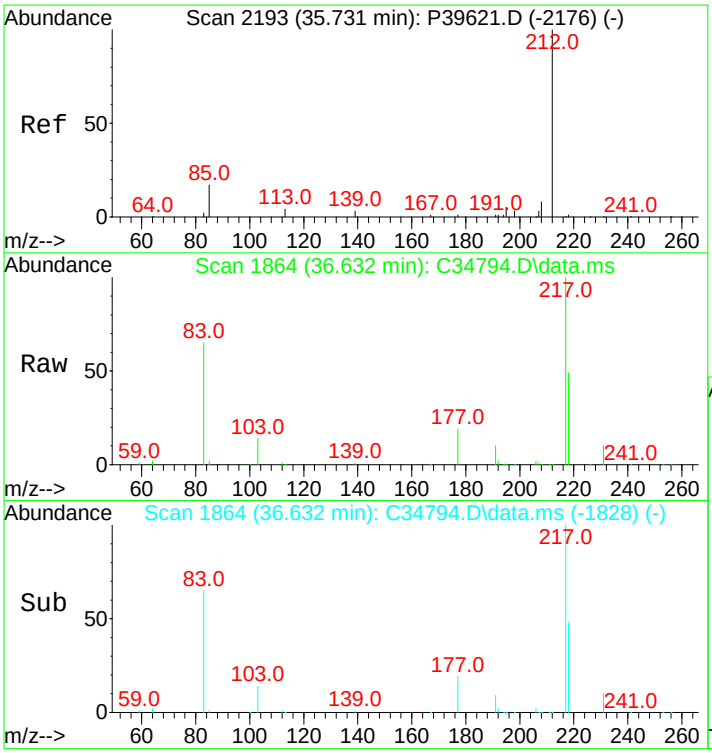


#50
C2-Phenanthrenes/Anthracenes
Concen: 28.84 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. -0.180 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:206 Resp: 2871

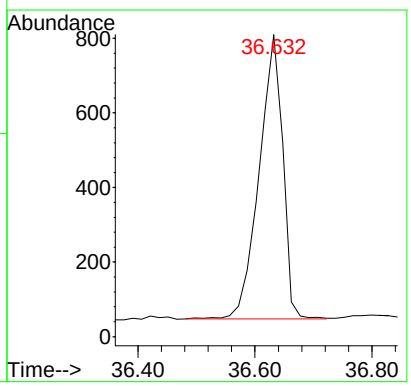
Ion	Ratio	Lower	Upper
206	100		
191	430.0	44.0	66.0#
207	12.9	15.1	22.7#

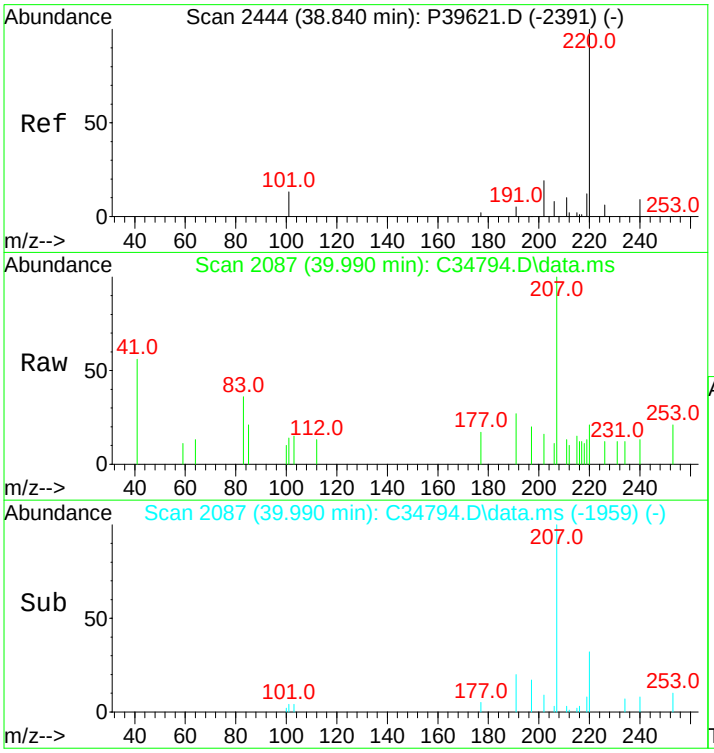




#51
5AA IS BKGD
Concen: 21.33 ng/mL
RT: 36.632 min Scan# 1864
Delta R.T. 0.045 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:206 Resp: 2123

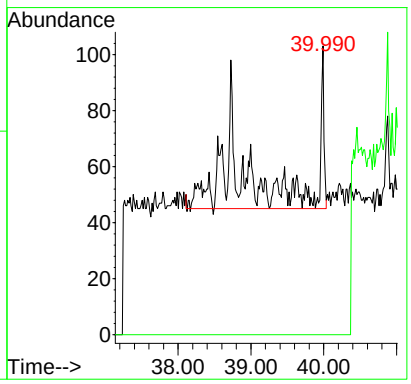


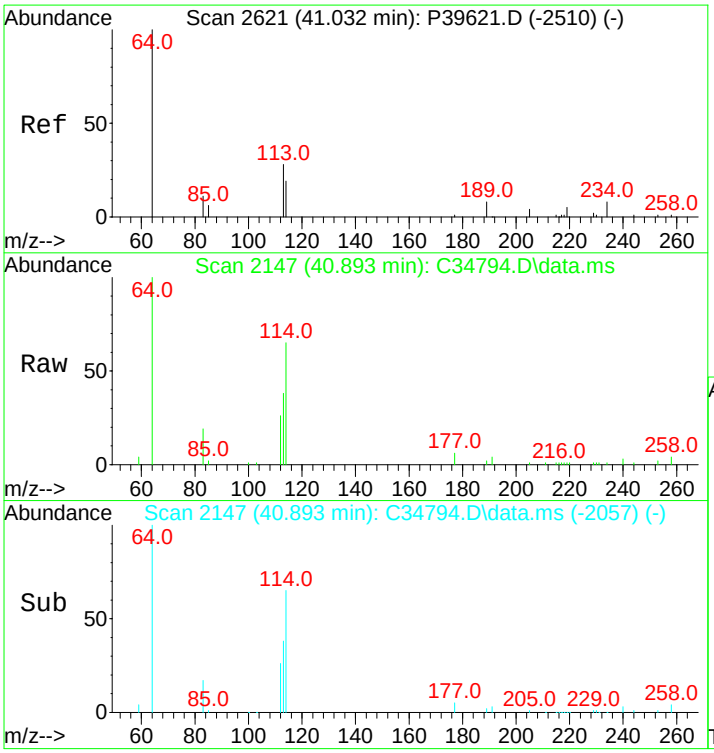


#52
C3-Phenanthrenes/Anthracenes
Concen: 10.62 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:220 Resp: 1057

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

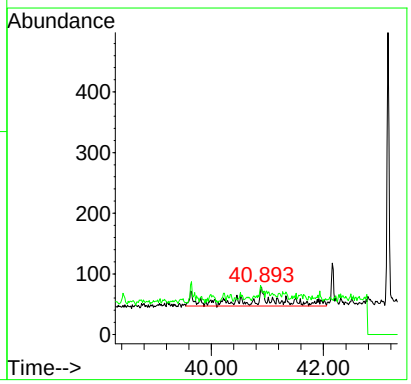


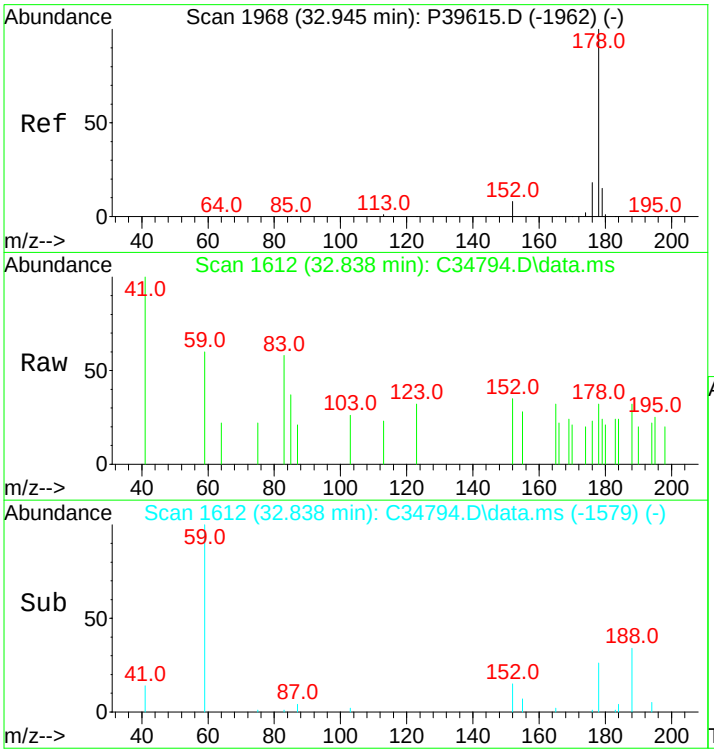


#53
C4-Phenanthrenes/Anthracenes
Concen: 11.06 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:234 Resp: 1101

Ion	Ratio	Lower	Upper
234	100		
219	0.0	46.9	70.3#

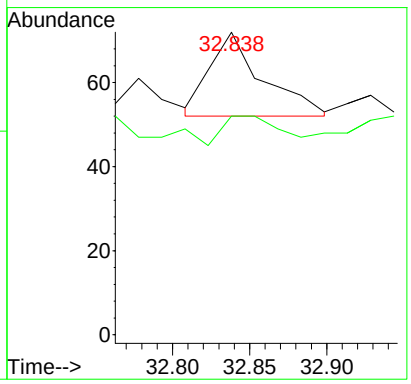


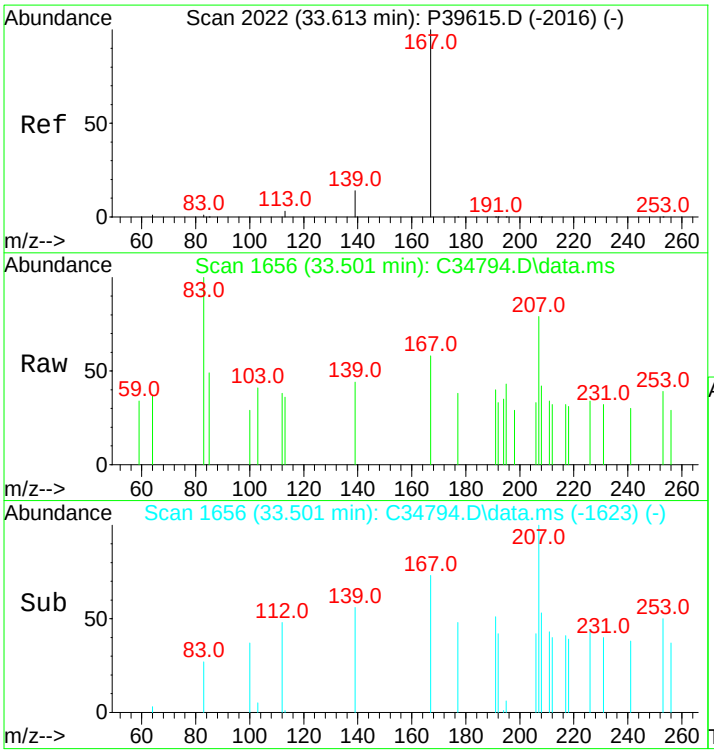


#55
Anthracene
Concen: 0.49 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:178 Resp: 48

Ion	Ratio	Lower	Upper
178	100		
176	0.0	15.5	23.3#

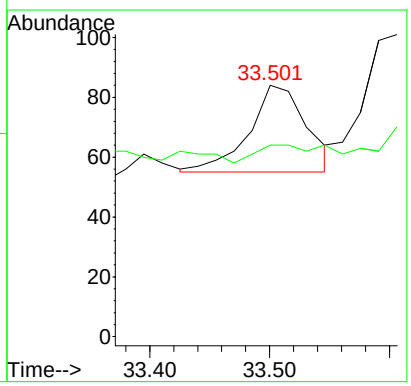


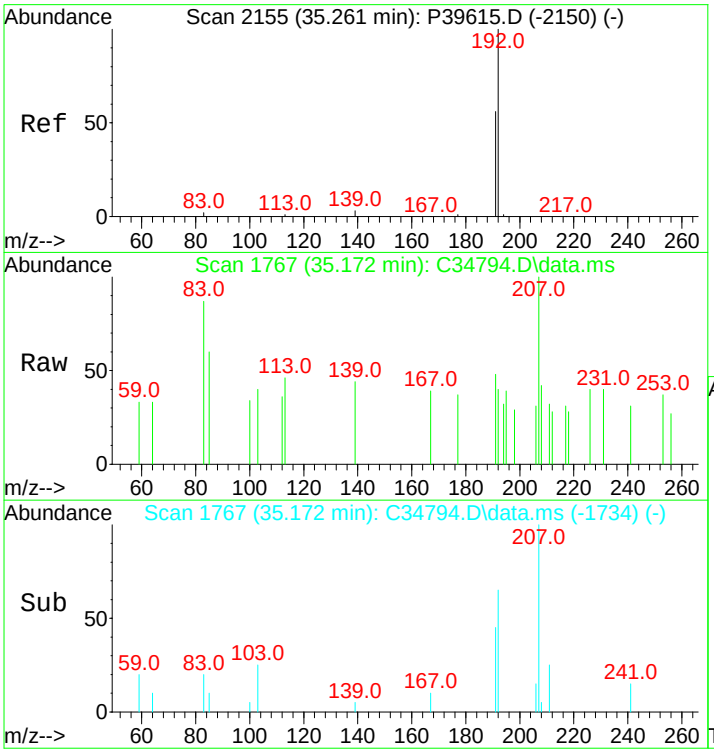


#56
Carbazole
Concen: 0.99 ng/mL m
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:167 Resp: 97

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

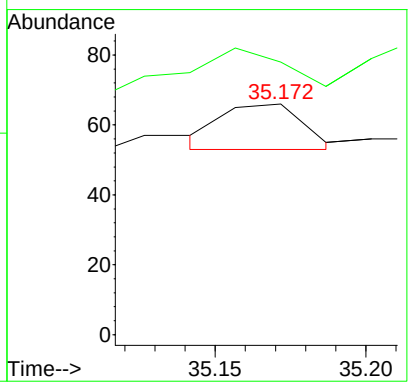


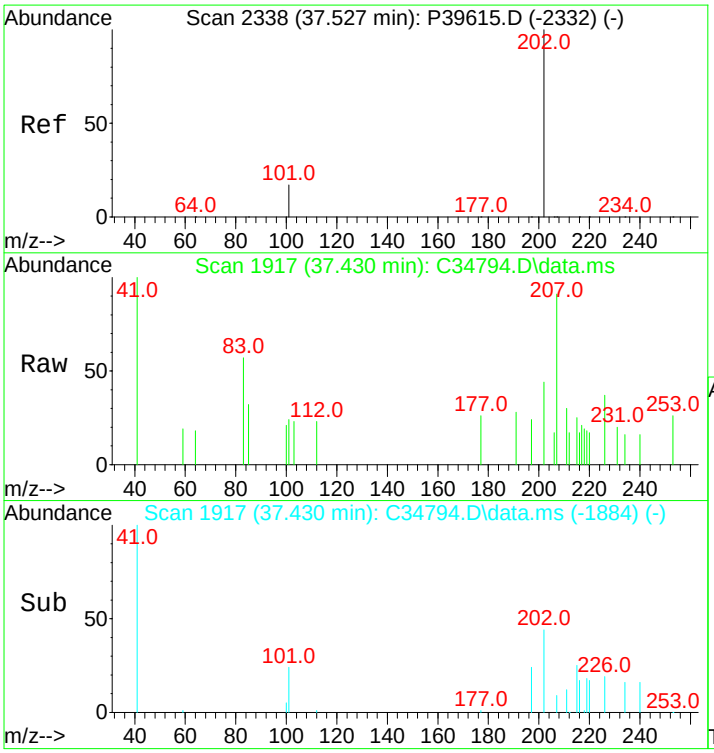


#57
1-Methylphenanthrene
Concen: 0.38 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:192 Resp: 24

Ion	Ratio	Lower	Upper
192	100		
191	0.0	45.9	68.9#

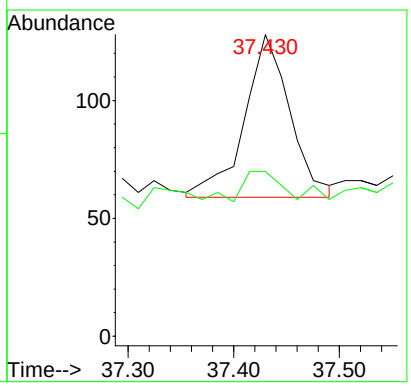


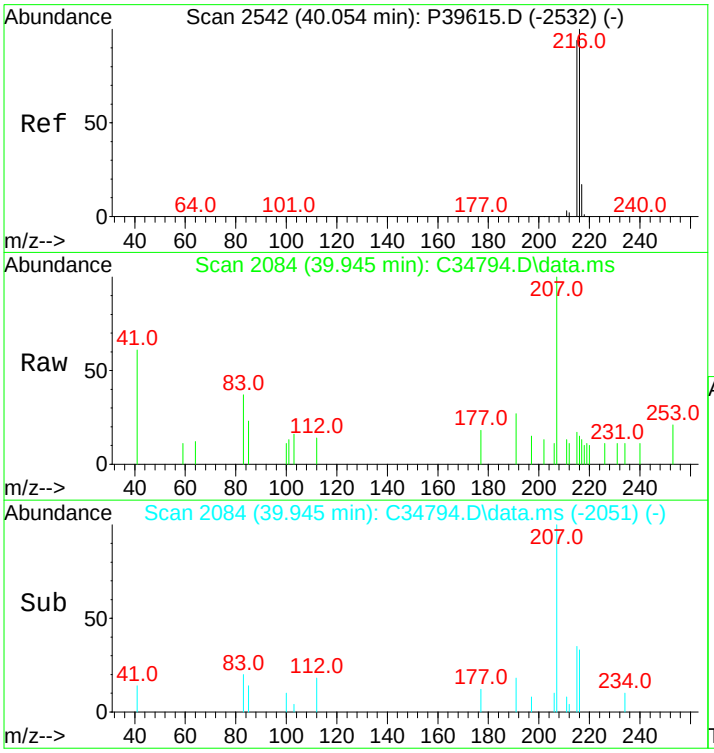


#58
Fluoranthene
Concen: 2.08 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:202 Resp: 206

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

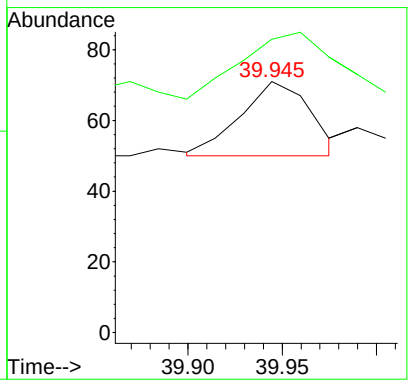


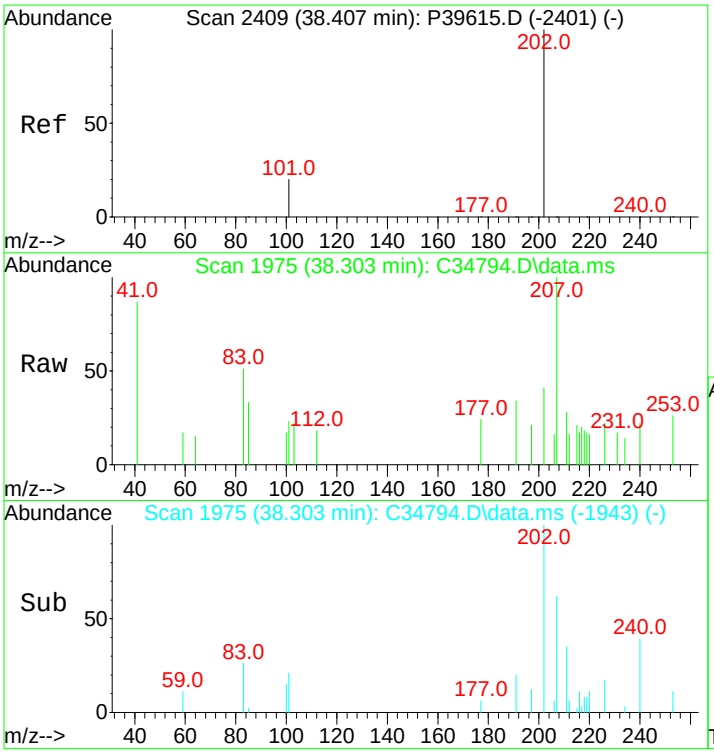


#59
Benzo(b)fluorene
Concen: 0.94 ng/mL m
RT: 39.945 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:216 Resp: 54

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#

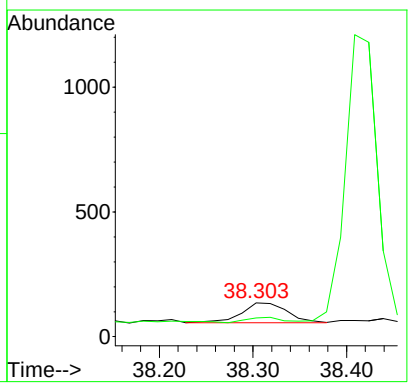


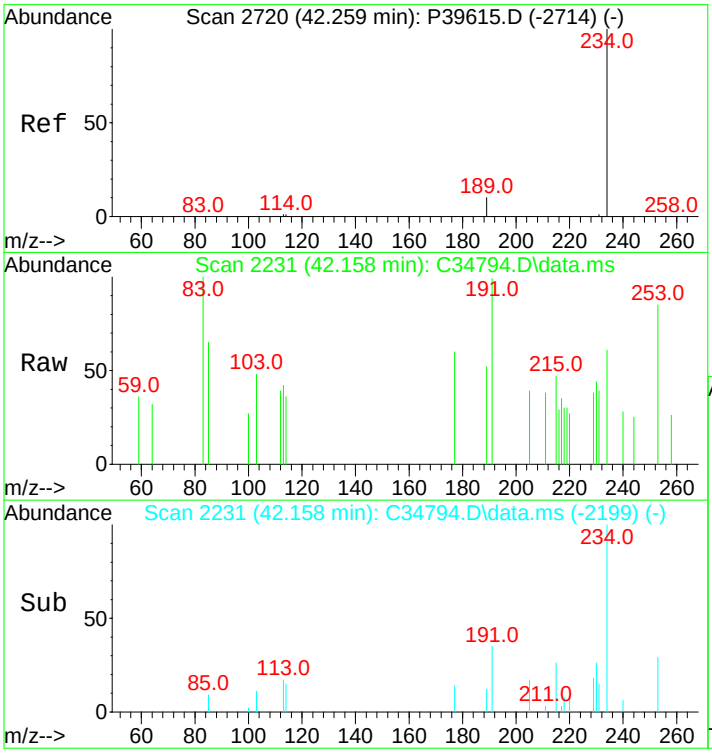


#60
Pyrene
Concen: 2.70 ng/mL
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:202 Resp: 271

Ion	Ratio	Lower	Upper
202	100		
101	0.0	15.0	22.4#

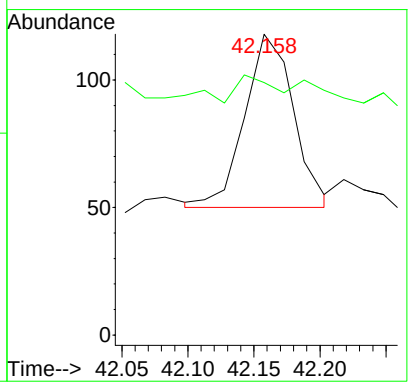


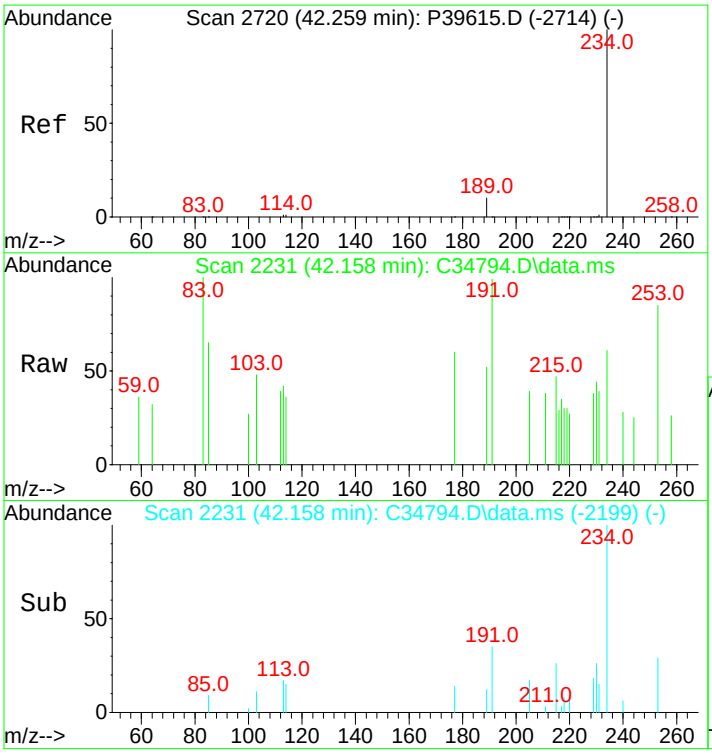


#66
Naphthobenzothiophene
Concen: 1.61 ng/ml m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:234 Resp: 174

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

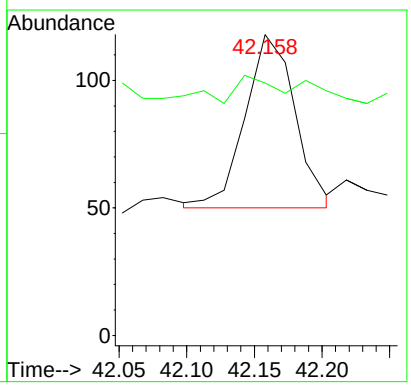


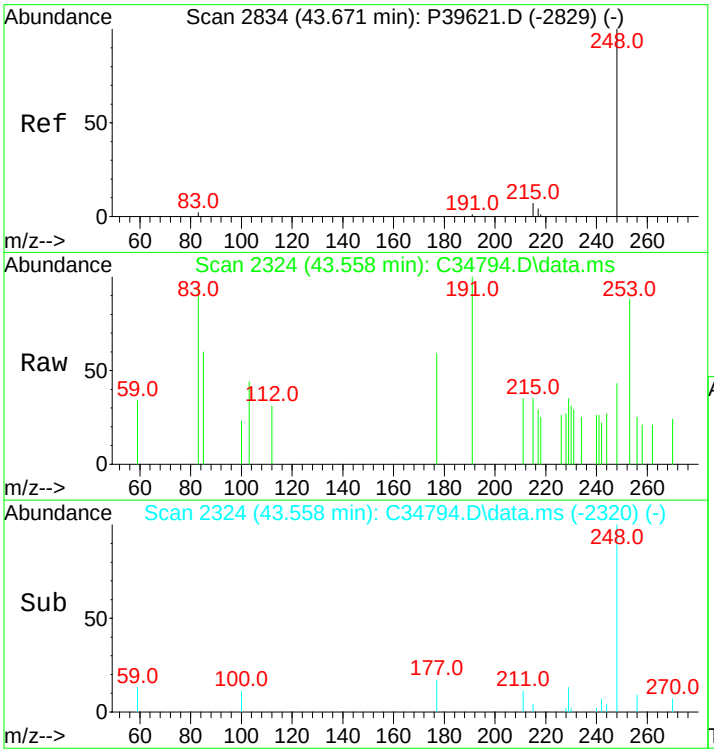


#67
Naphthobenzothiophene-2,1-D
Concen: 1.61 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:234 Resp: 174

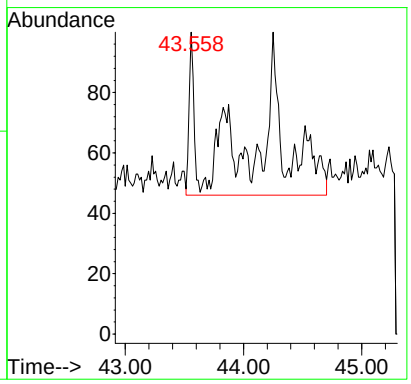
Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

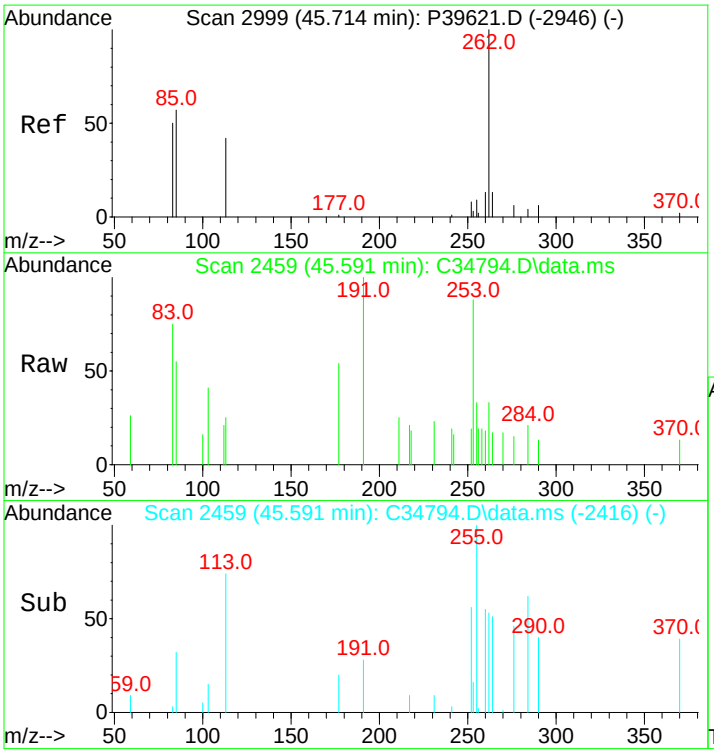




#70
C1-Naphthobenzothiophenes
Concen: 10.19 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

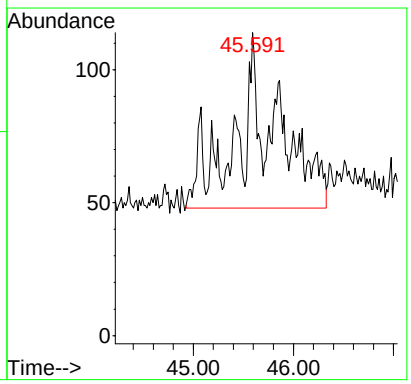
Tgt Ion:248 Resp: 1102

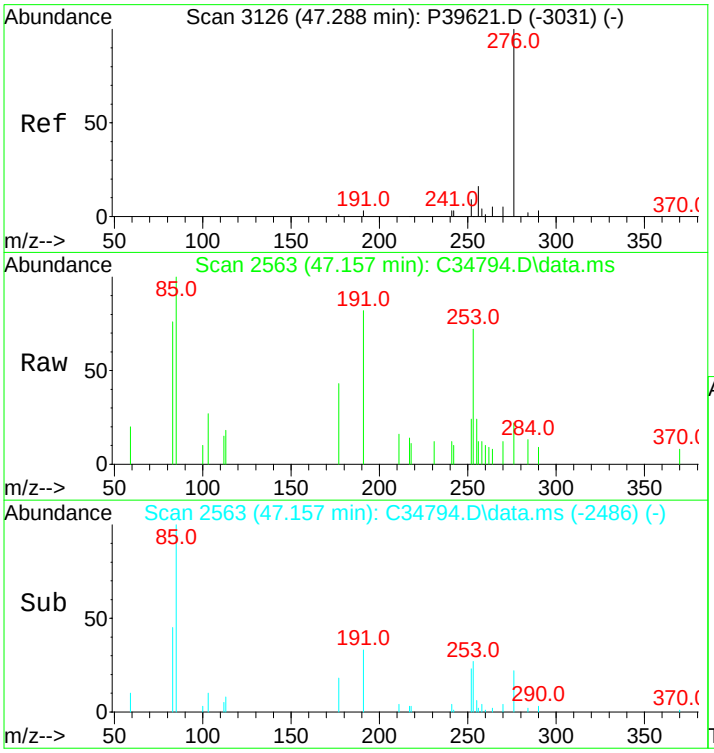




#71
C2-Naphthobenzothiophenes
Concen: 17.05 ng/ml m
RT: 45.591 min Scan# 2459
Delta R.T. 0.160 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

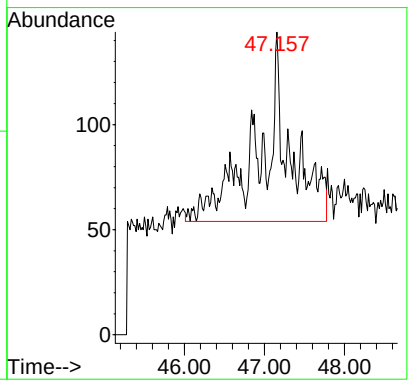
Tgt Ion:262 Resp: 1845

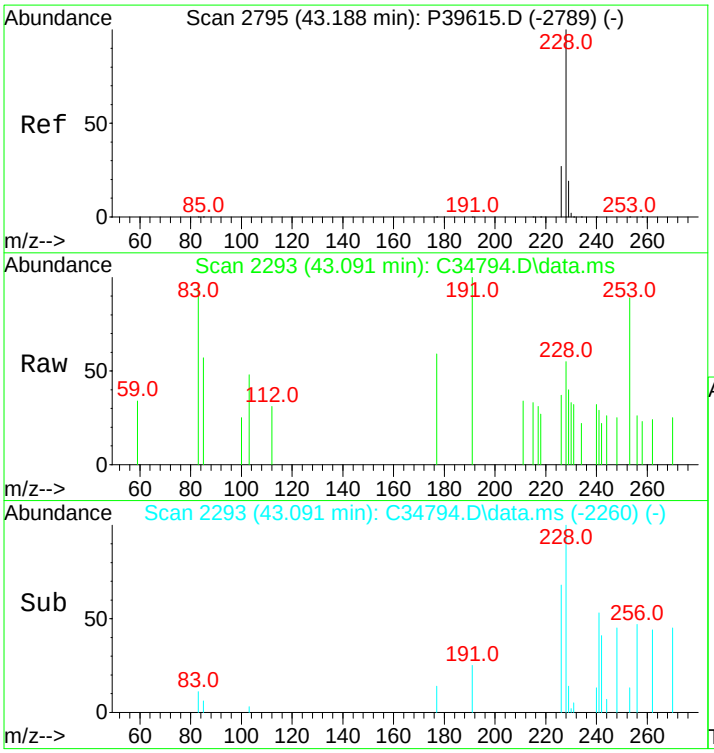




#72
C3-Naphthobenzothiophenes
Concen: 21.94 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:276 Resp: 2374

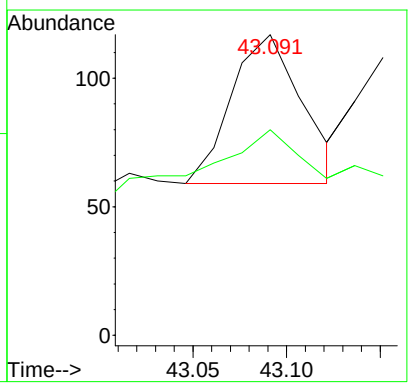


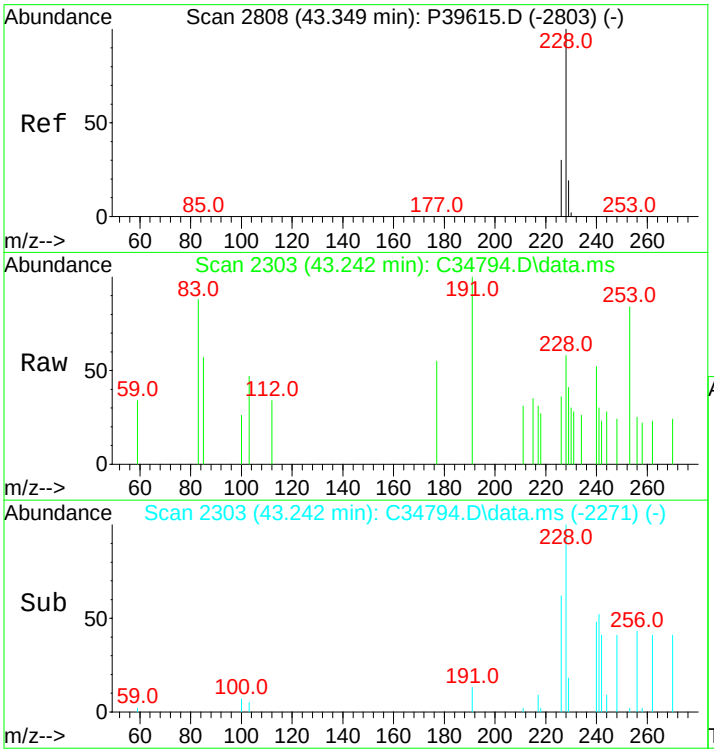


#75
Benz[a]anthracene
Concen: 1.54 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:228 Resp: 153

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

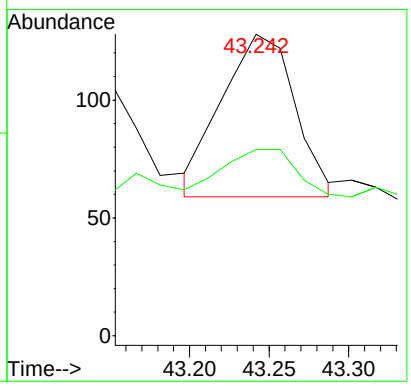


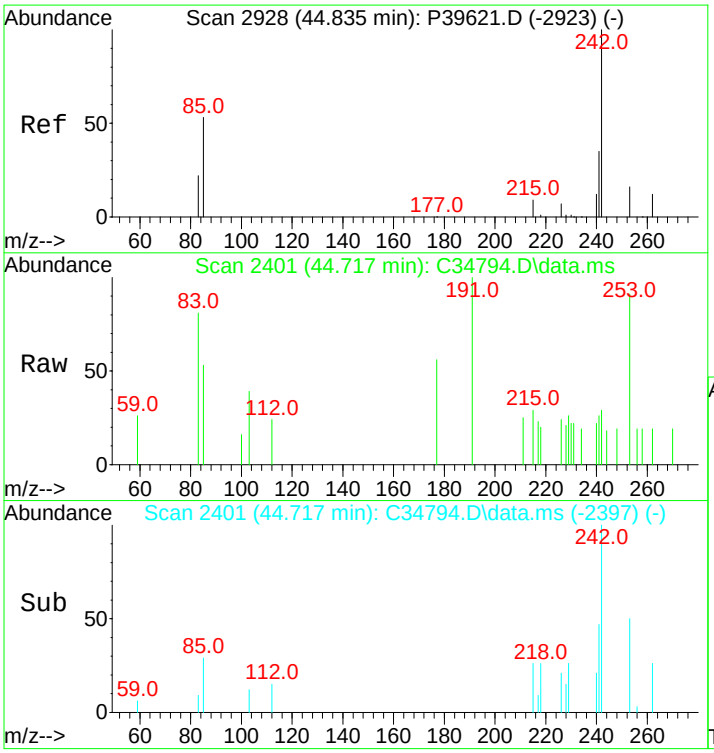


#77
Chrysene/Triphenylene
Concen: 2.19 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:228 Resp: 220

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

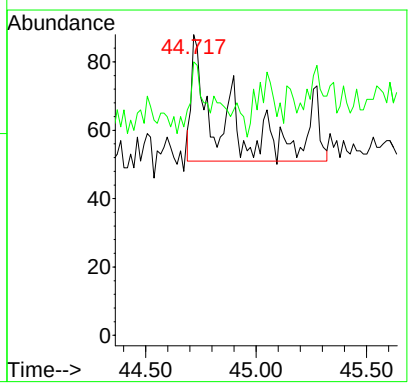


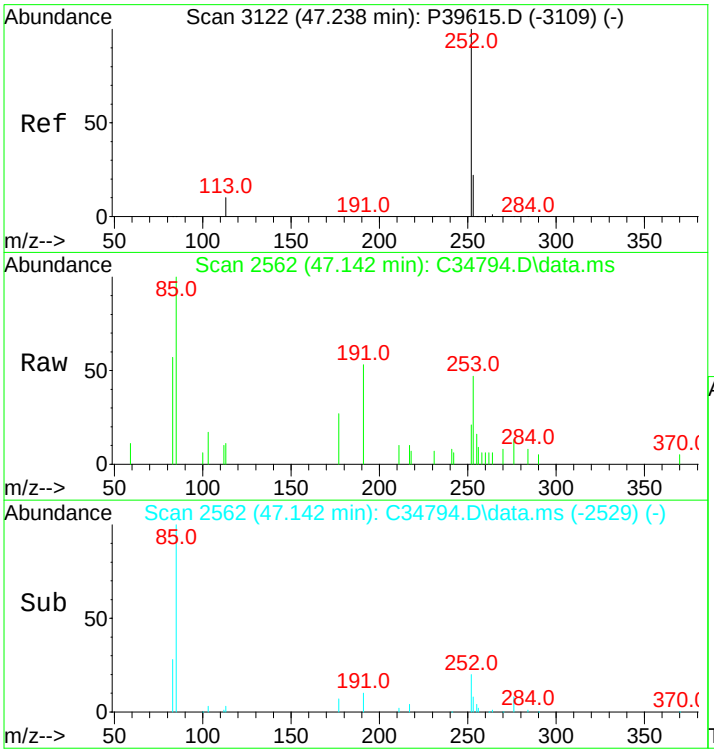


#78
C1-Chrysenes
Concen: 3.77 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:242 Resp: 378

Ion	Ratio	Lower	Upper
242	100		
241	0.0	31.4	47.2#

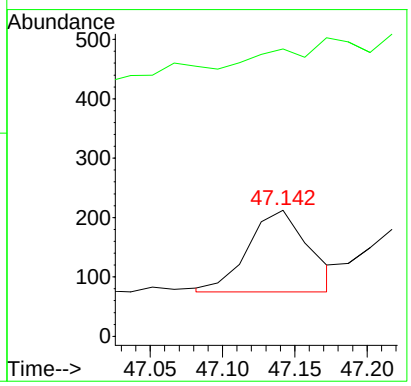


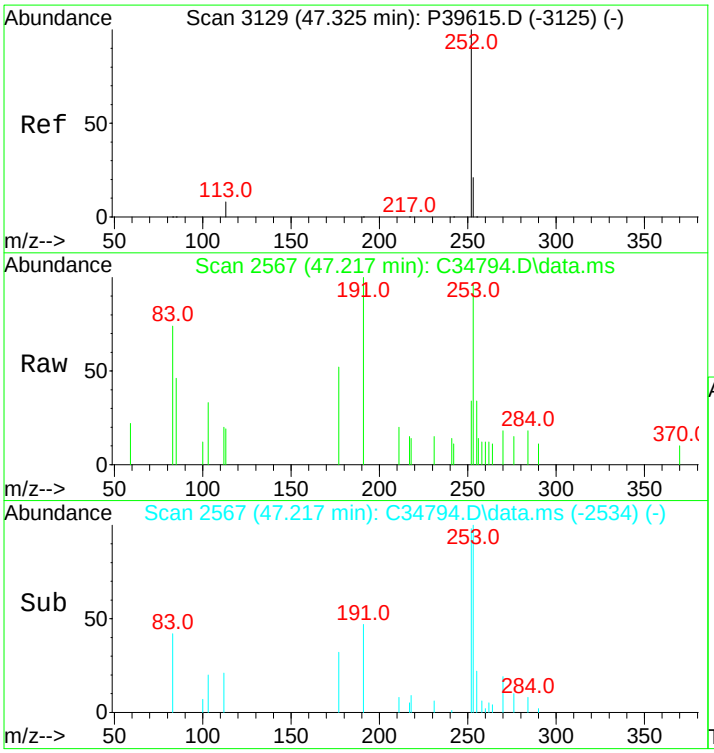


#82
Benzo[b]fluoranthene
Concen: 3.66 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:252 Resp: 400

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

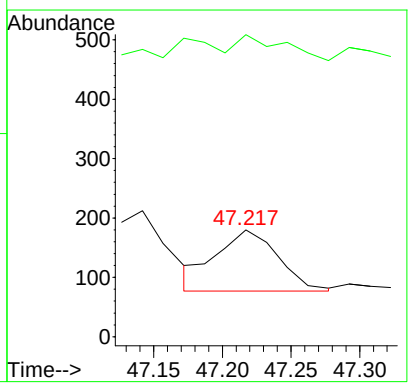


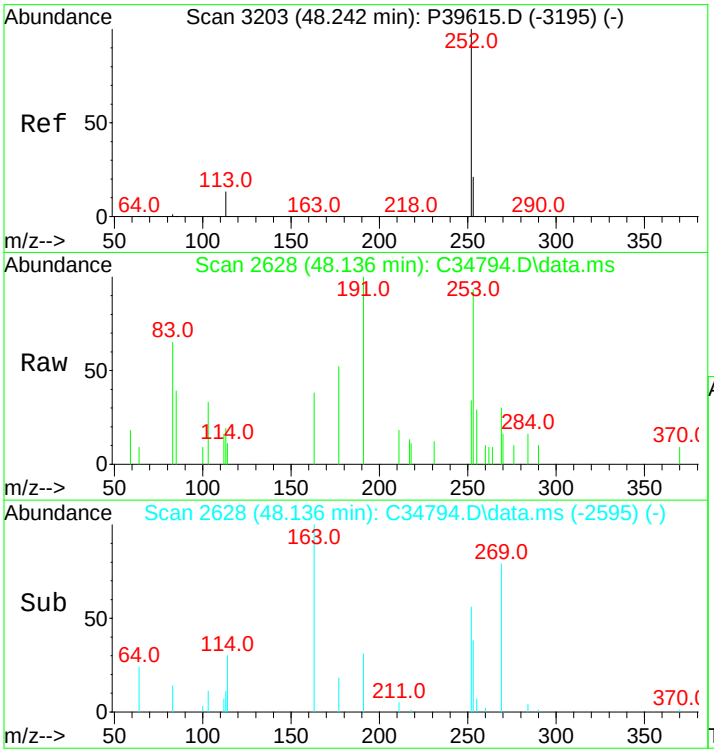


#83
Benzo[j]+[k]fluoranthene
Concen: 2.72 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:252 Resp: 323

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

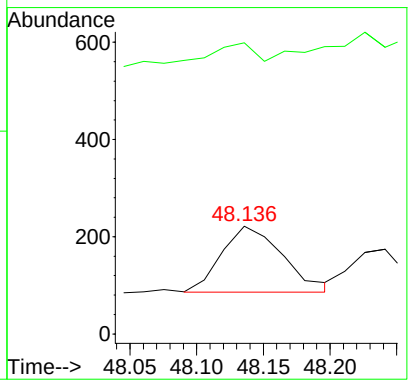


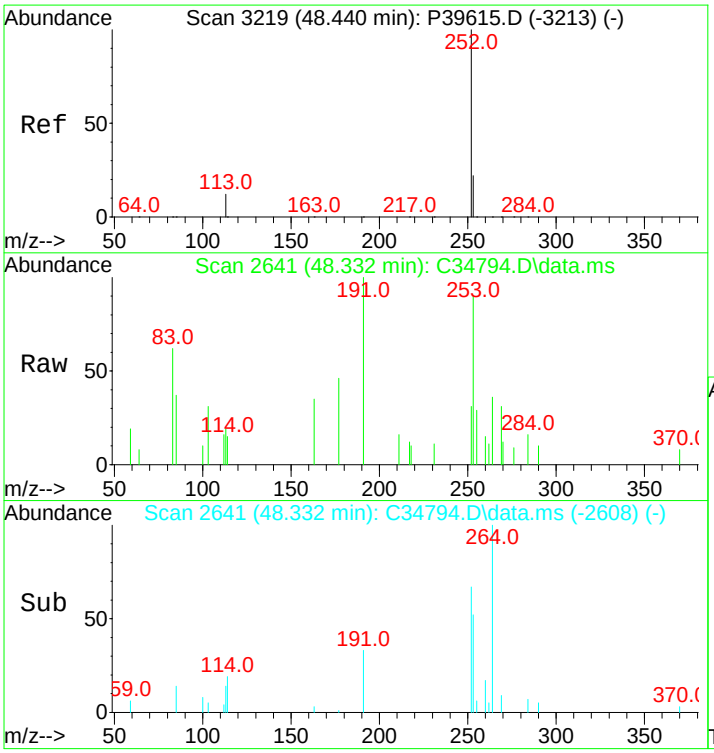


#85
Benzo[e]pyrene
Concen: 4.02 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:252 Resp: 434

Ion	Ratio	Lower	Upper
252	100		
253	56.9	19.2	28.8#

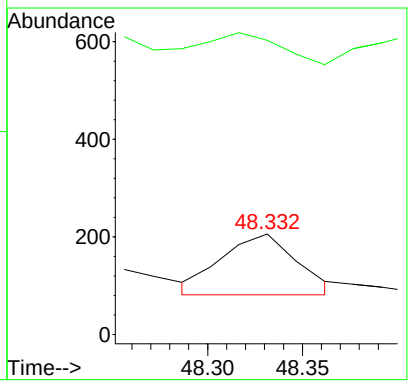


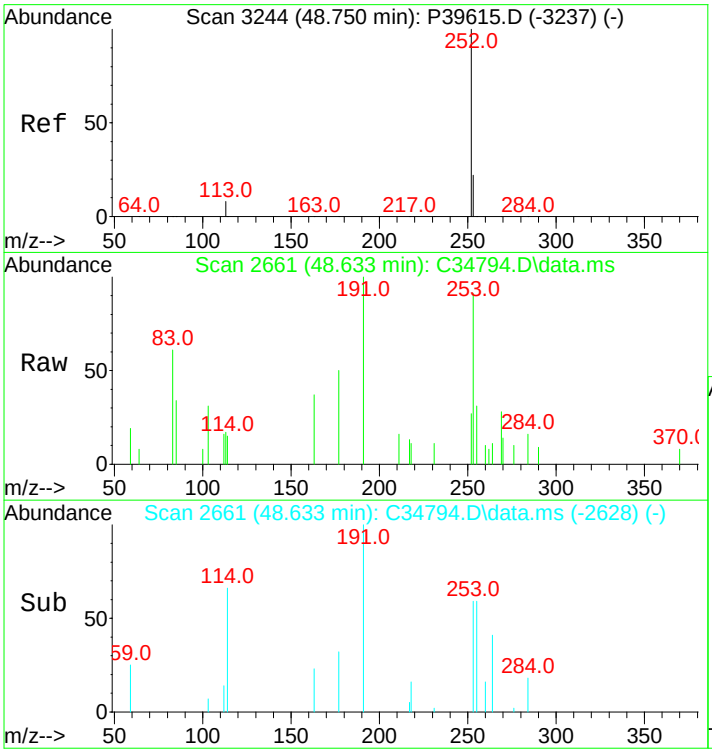


#87
Benzo[a]pyrene
Concen: 3.32 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:252 Resp: 345

Ion	Ratio	Lower	Upper
252	100		
253	48.4	19.5	29.3#

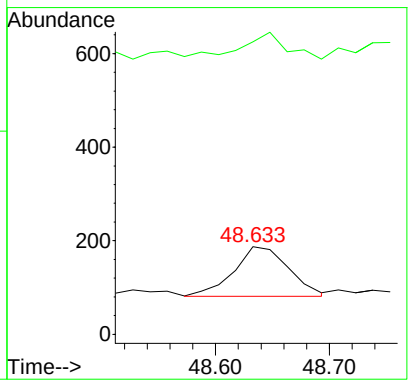


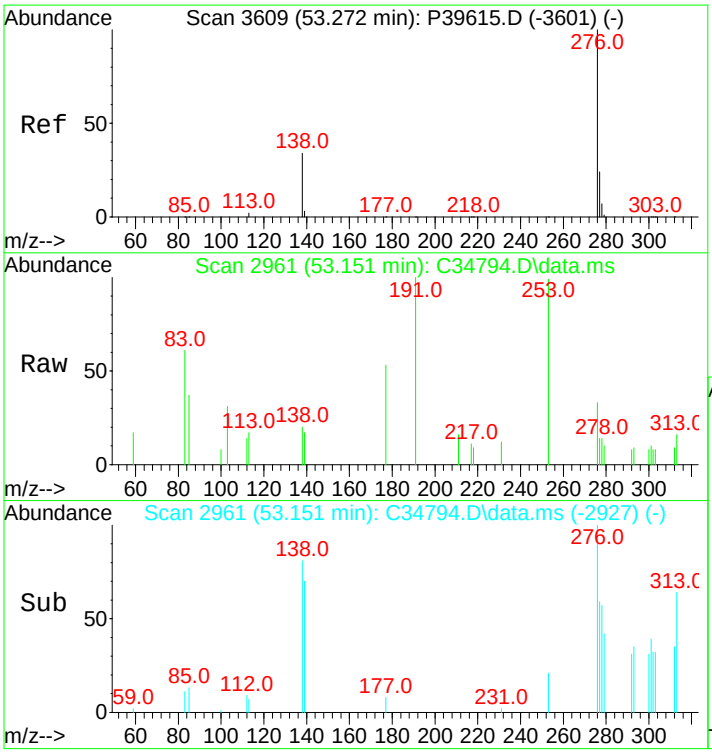


#88
Perylene
Concen: 3.23 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:252 Resp: 359

Ion	Ratio	Lower	Upper
252	100		
253	38.4	19.6	29.4#

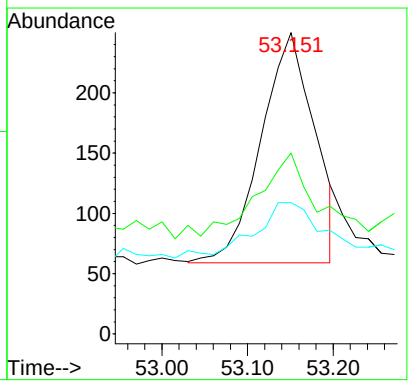


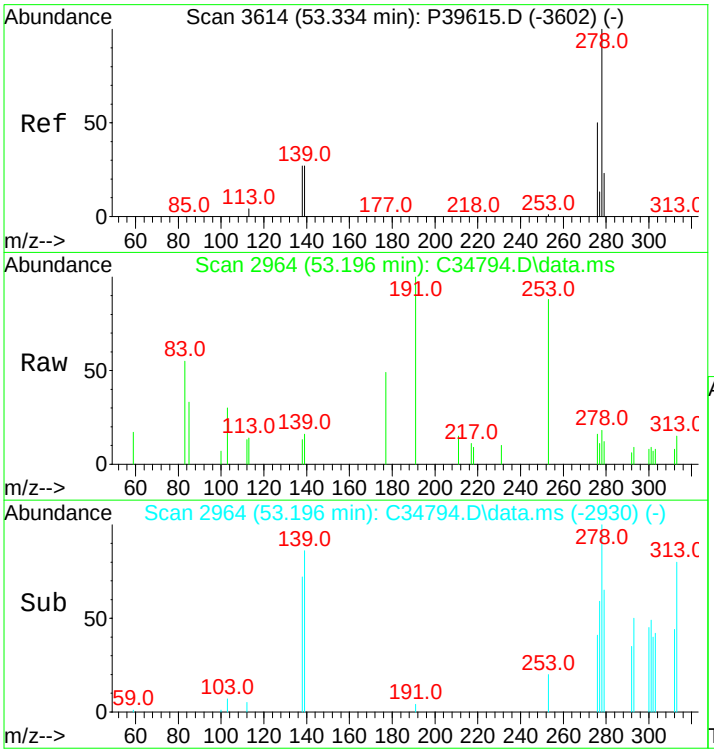


#89
Indeno[1,2,3-cd]pyrene
Concen: 6.82 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:276 Resp: 826

Ion	Ratio	Lower	Upper
276	100		
138	31.4	23.3	34.9
277	35.1	19.0	28.4#

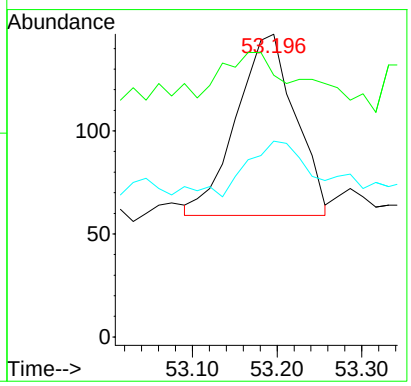


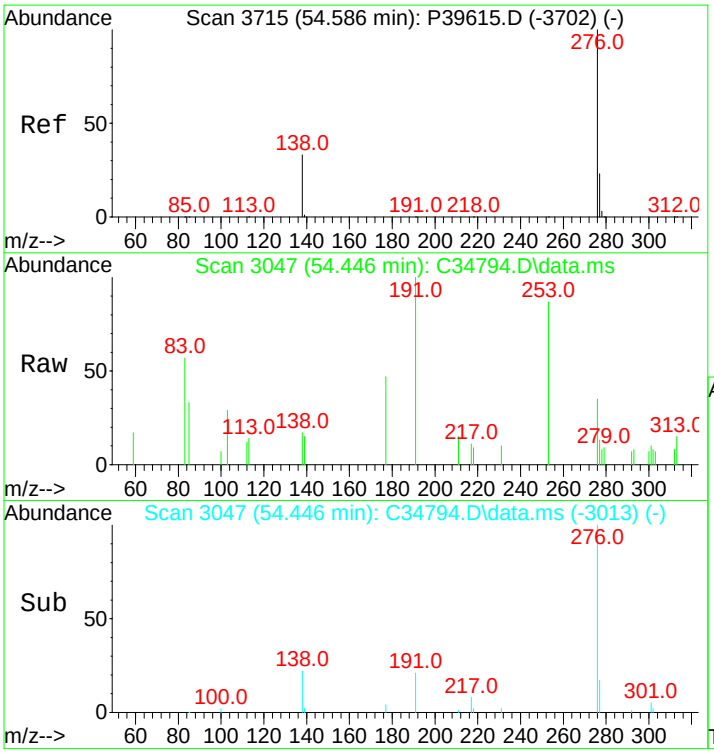


#90
Dibenz[ah]+[ac]anthracene
Concen: 3.68 ng/mL m
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:278 Resp: 424

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

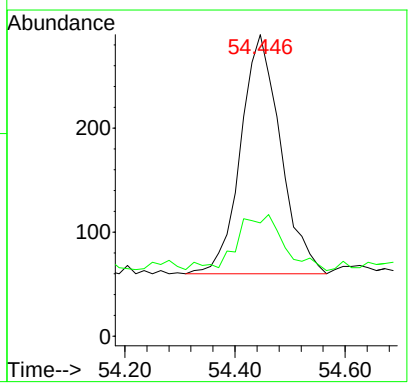


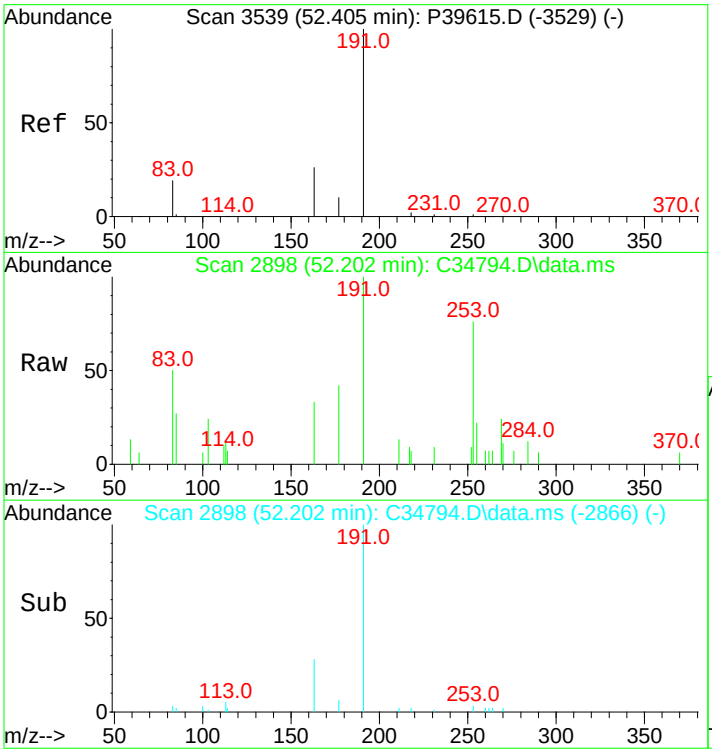


#91
Benzo[g,h,i]perylene
Concen: 9.02 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:276 Resp: 1154

Ion	Ratio	Lower	Upper
276	100		
277	26.9	18.9	28.3

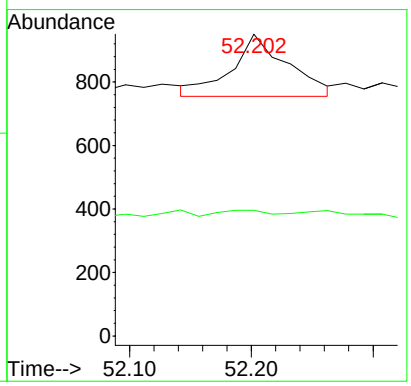


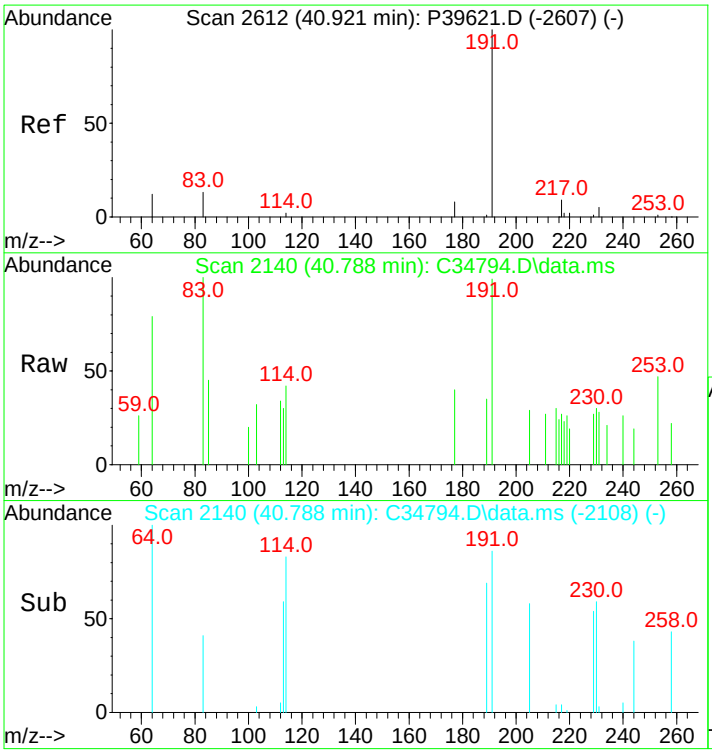


#92
Hopane (T19)
Concen: 30.22 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:191 Resp: 624

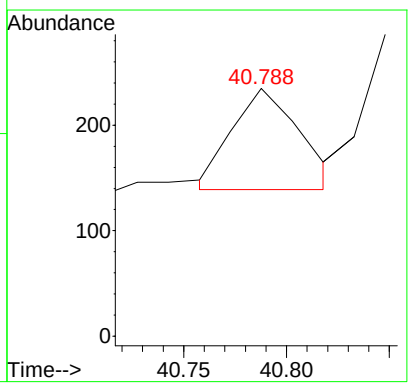
Ion	Ratio	Lower	Upper
191	100		
177	0.0	14.6	21.8#

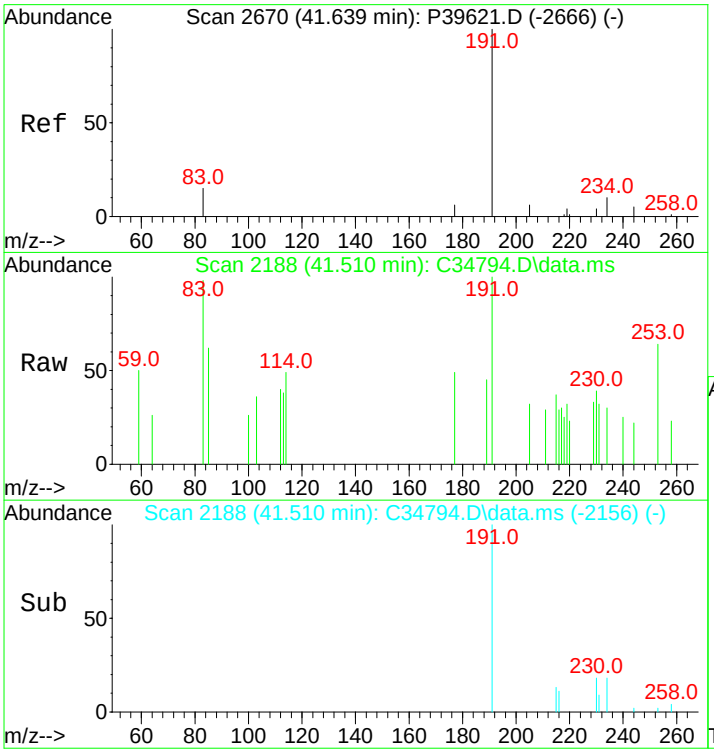




#94
C23 Tricyclic Terpane (T4)
Concen: 10.61 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

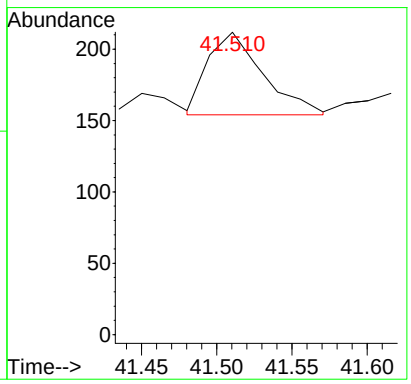
Tgt Ion:191 Resp: 219

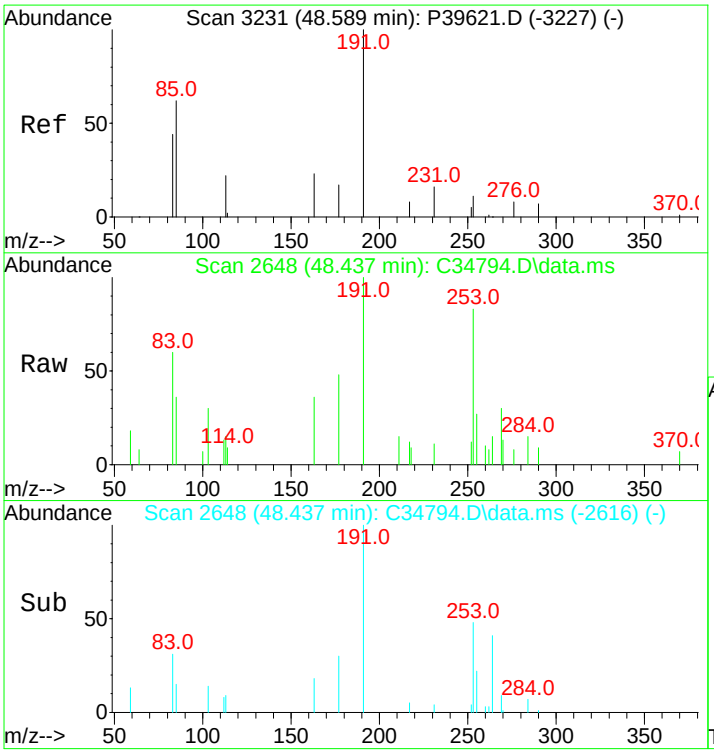




#95
C24 Tricyclic Terpane (T5)
Concen: 7.22 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

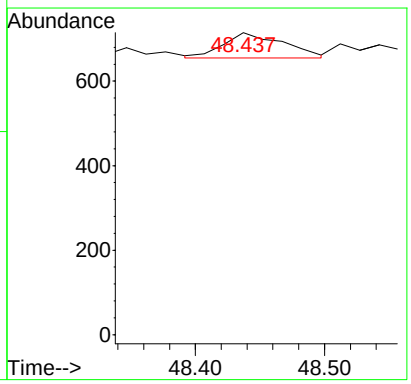
Tgt Ion:191 Resp: 149

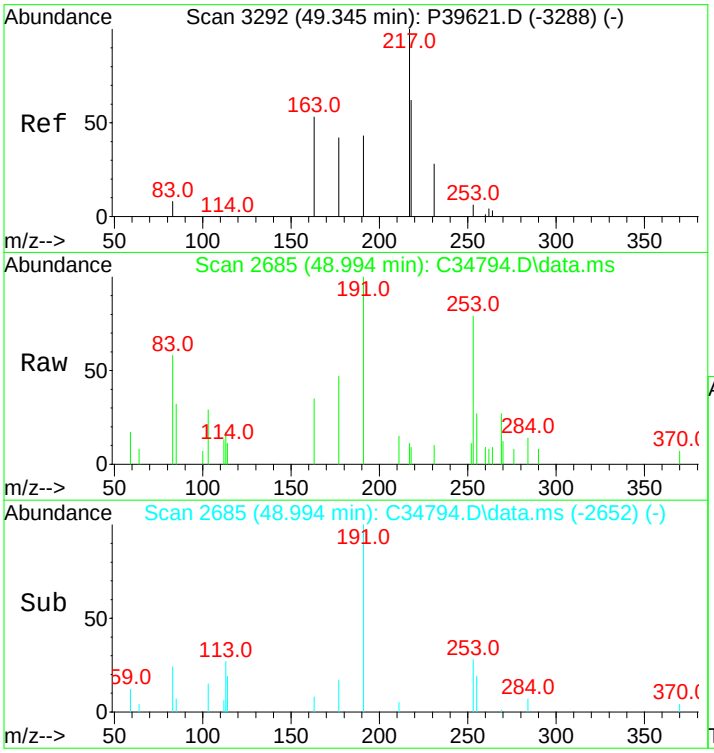




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 9.35 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

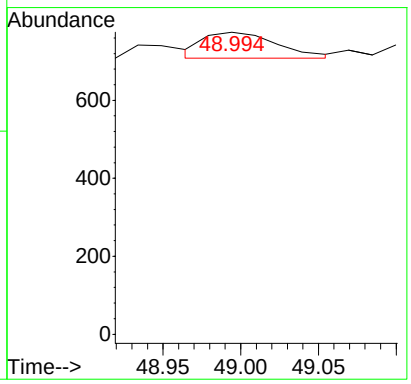
Tgt Ion:191 Resp: 193

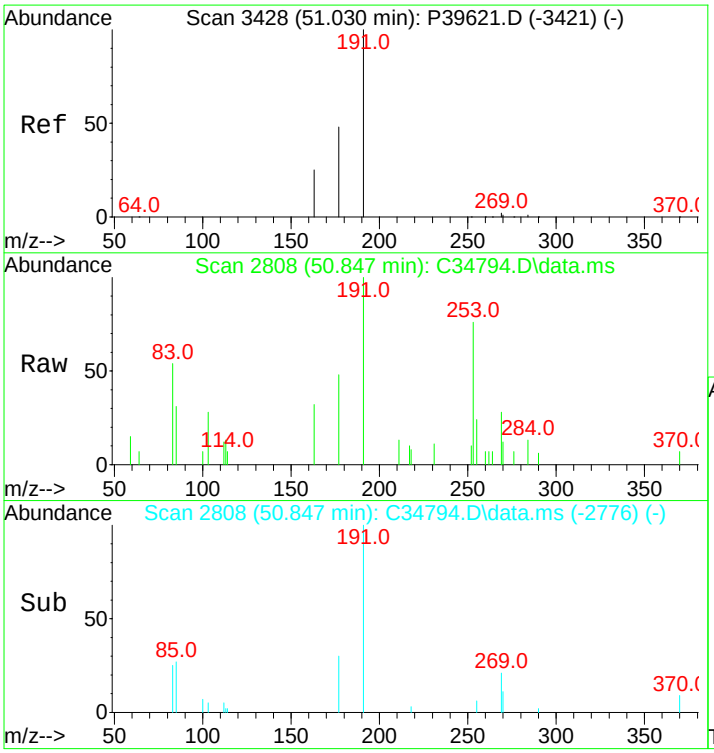




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 10.66 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

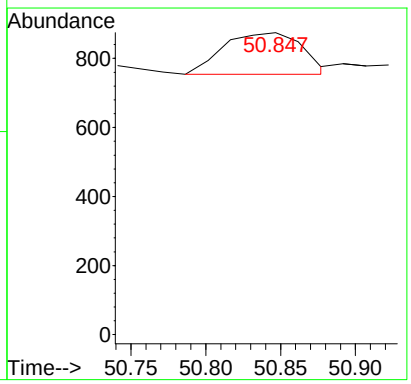
Tgt Ion:191 Resp: 220

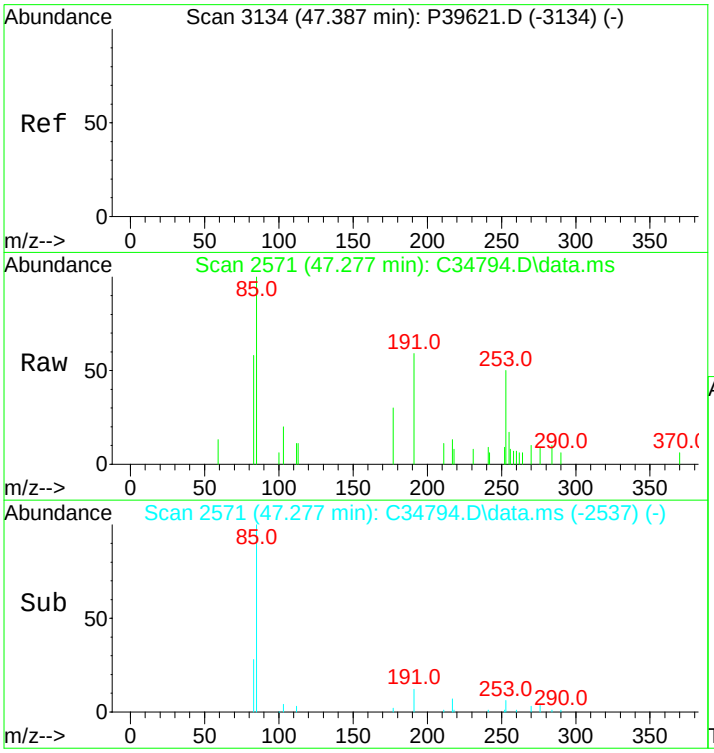




#110
30-Norhopane (T15)
Concen: 21.51 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

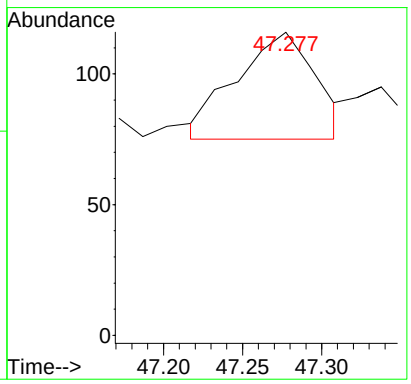
Tgt Ion:191 Resp: 444

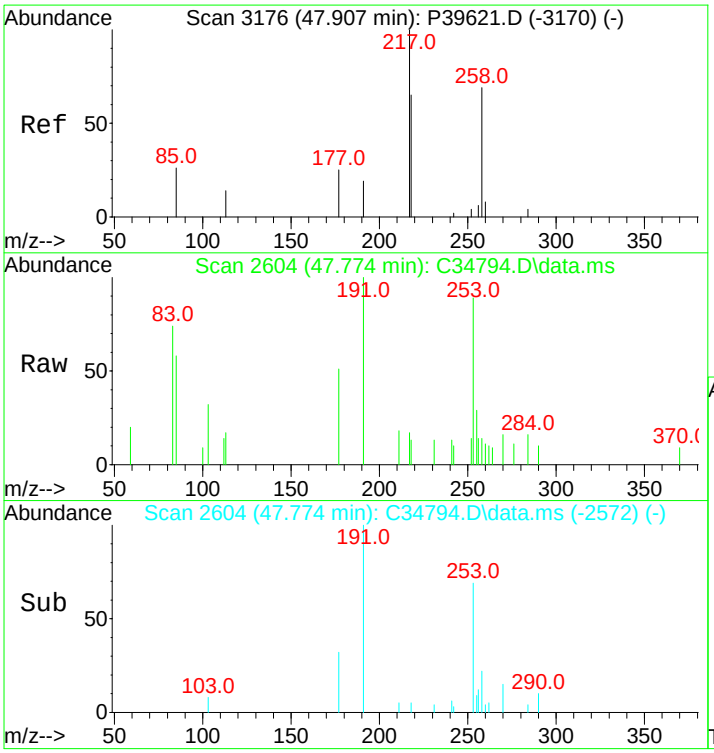




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 14.60 ng/ml m
RT: 47.277 min Scan# 2571
Delta R.T. 0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

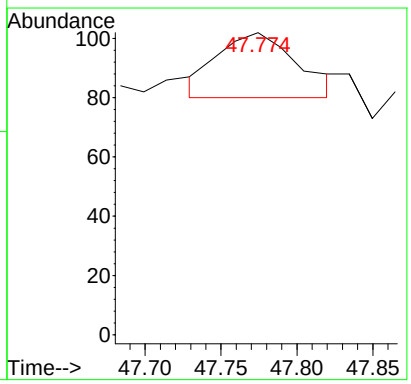
Tgt Ion:217 Resp: 143

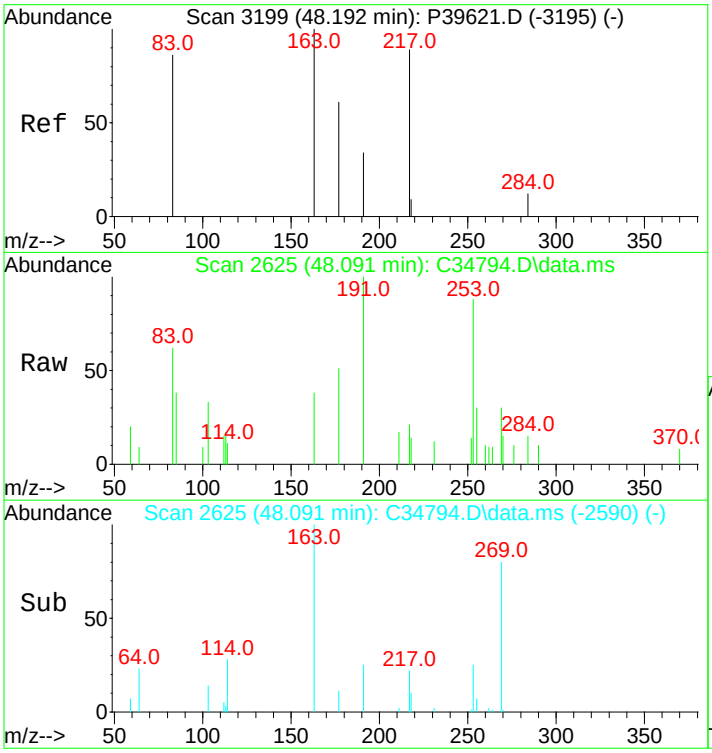




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 8.17 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

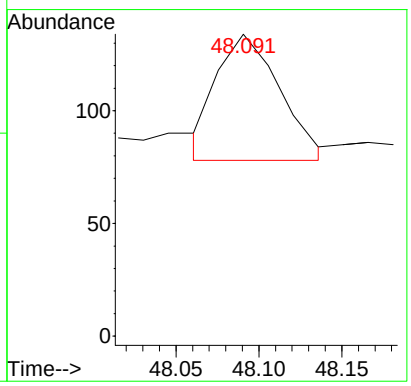
Tgt Ion:217 Resp: 80

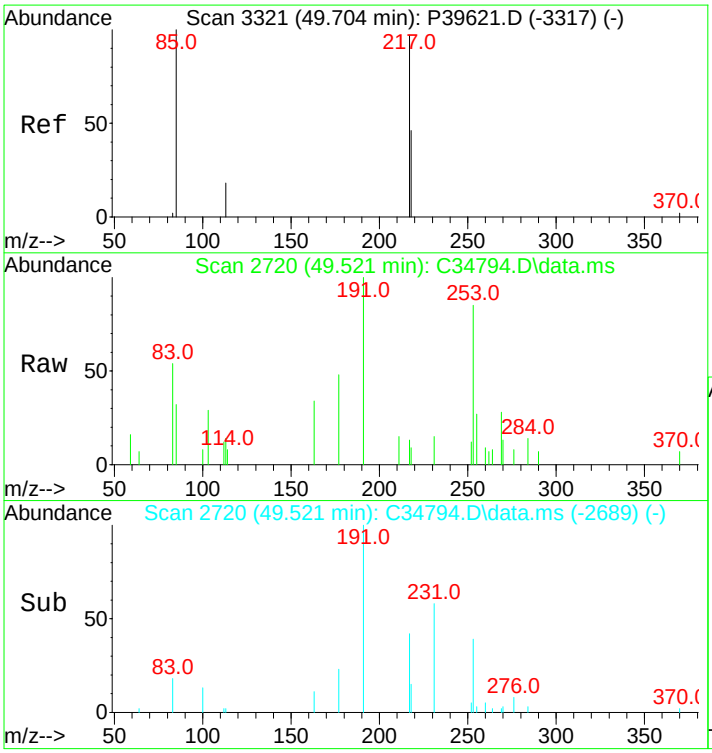




#133
Unknown Sterane (S18)
Concen: 15.11 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

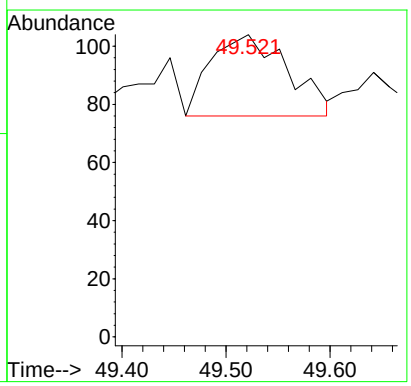
Tgt Ion:217 Resp: 148

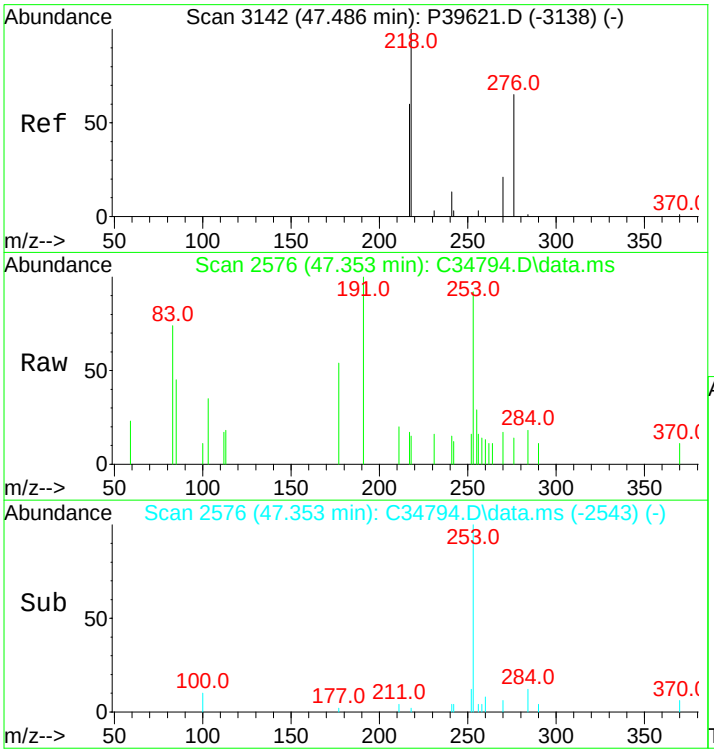




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 14.81 ng/ml
RT: 49.521 min Scan# 2720
Delta R.T. -0.030 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

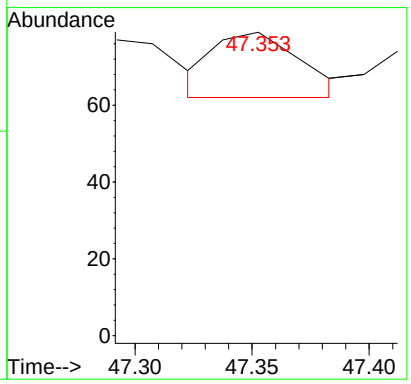
Tgt Ion:217 Resp: 145

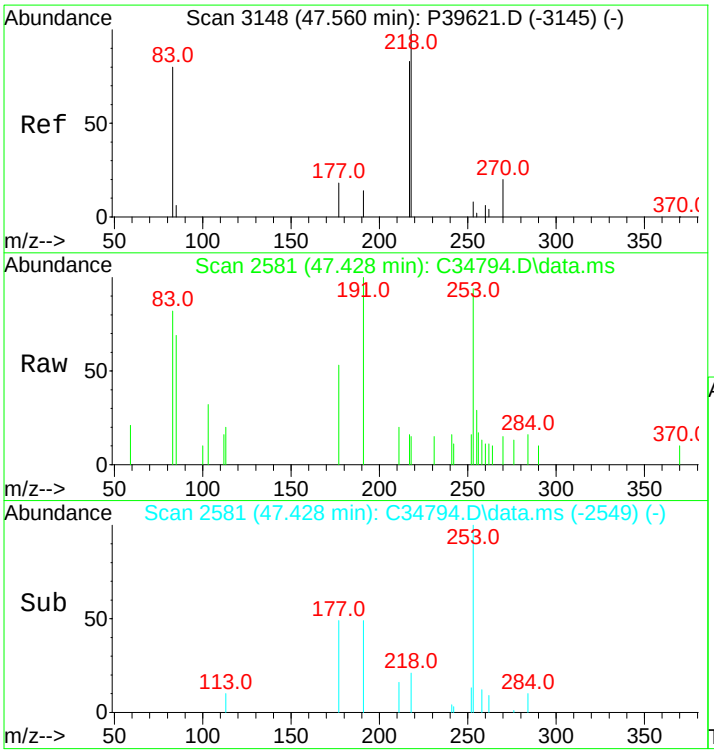




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 4.39 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

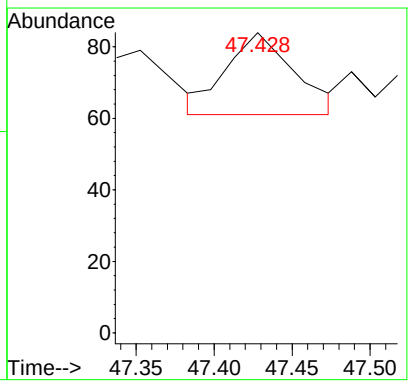
Tgt Ion:218 Resp: 43

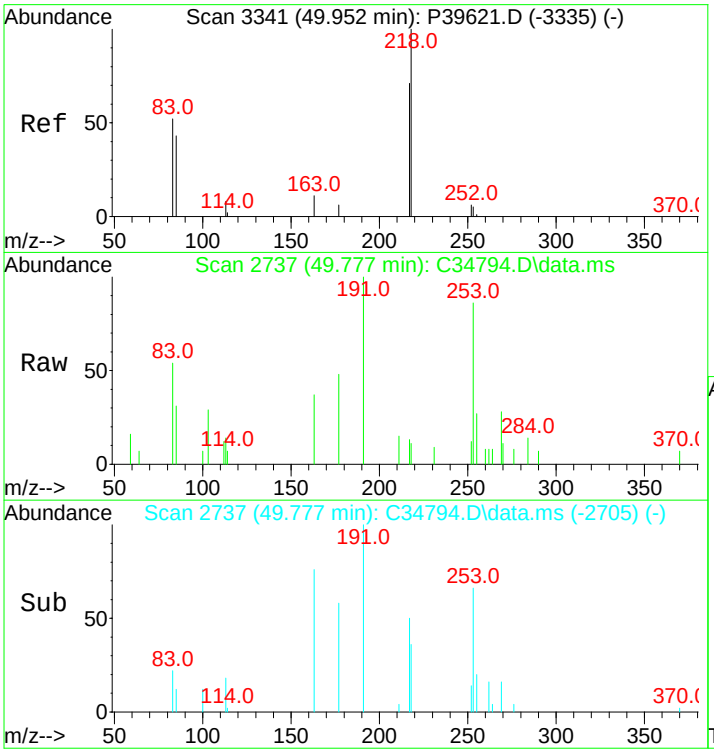




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 7.15 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

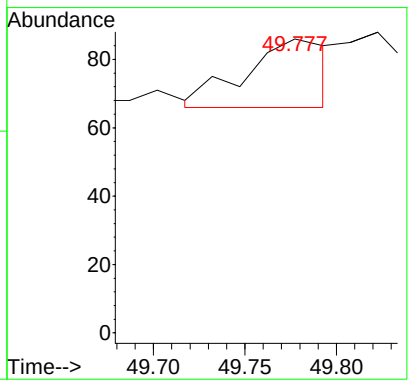
Tgt Ion:218 Resp: 70

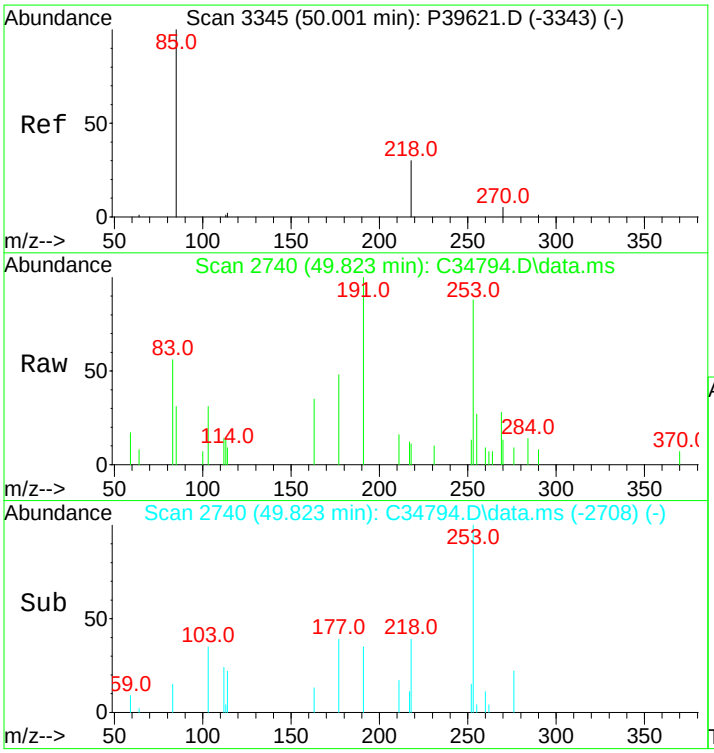




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 6.33 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

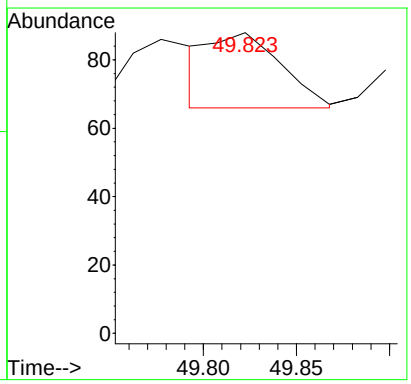
Tgt Ion:218 Resp: 62

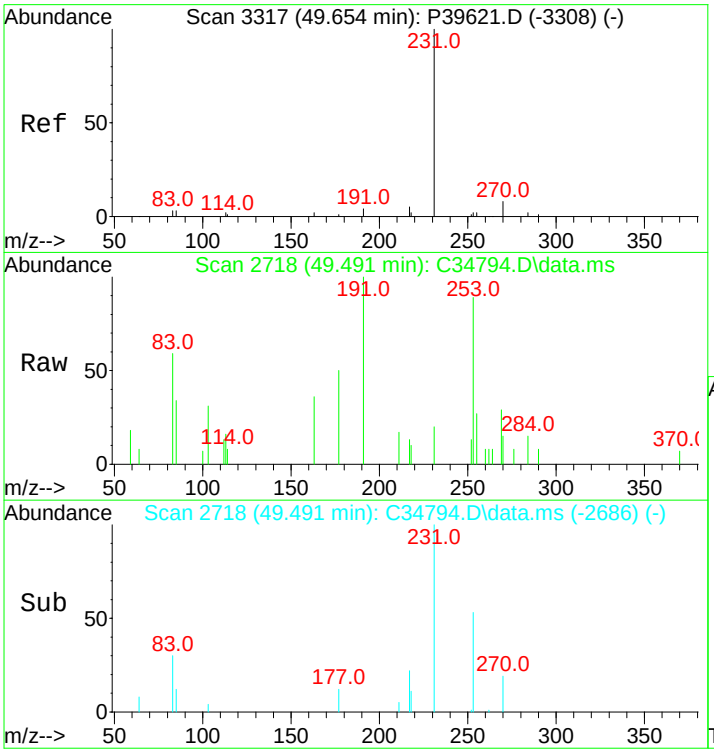




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 5.92 ng/ml m
RT: 49.823 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

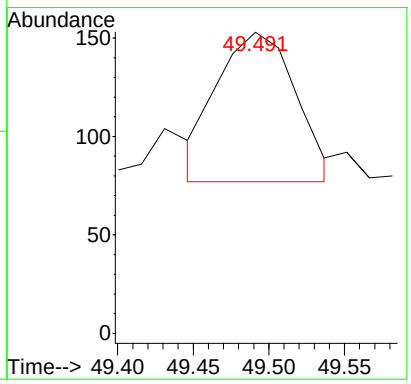
Tgt Ion:218 Resp: 58

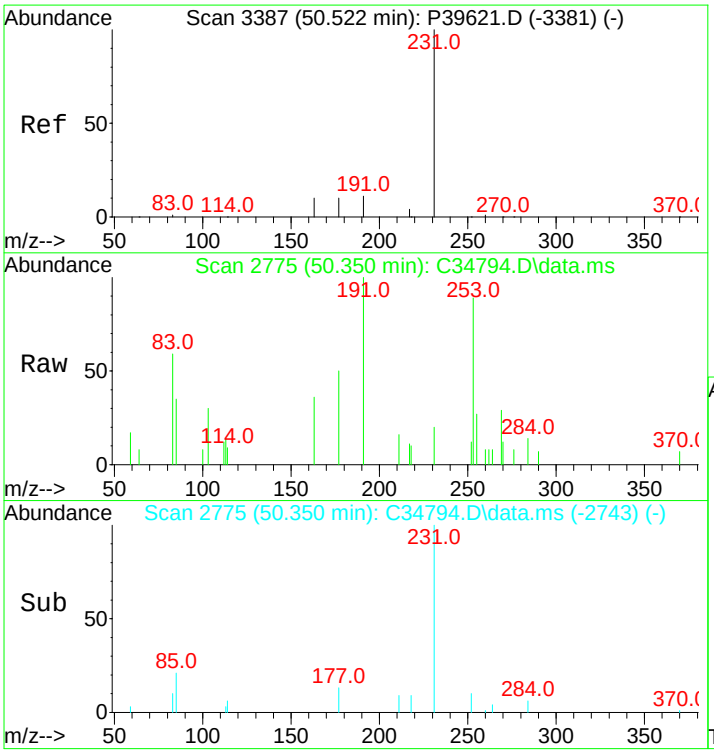




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 27.87 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

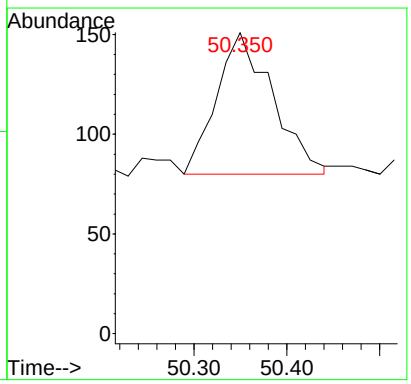
Tgt Ion:231 Resp: 273

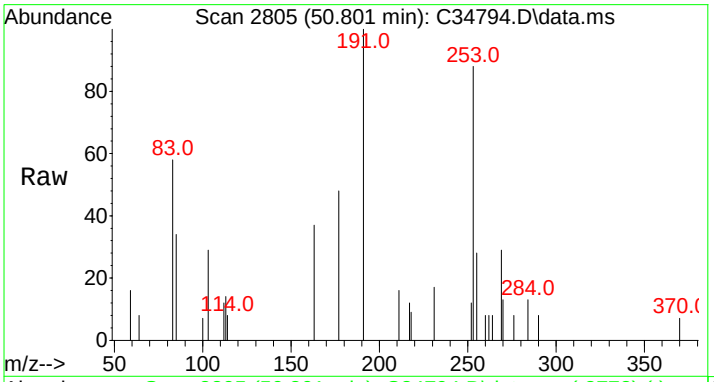




#146
C28,20S-triaromatic steroid
Concen: 30.33 ng/mL m
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

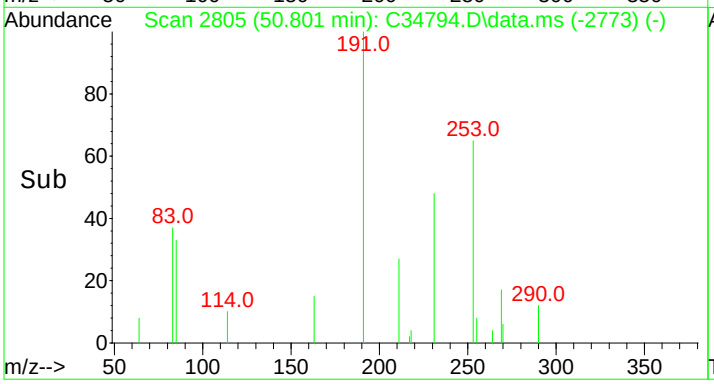
Tgt Ion:231 Resp: 297

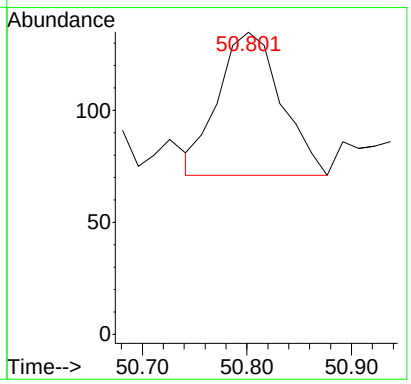


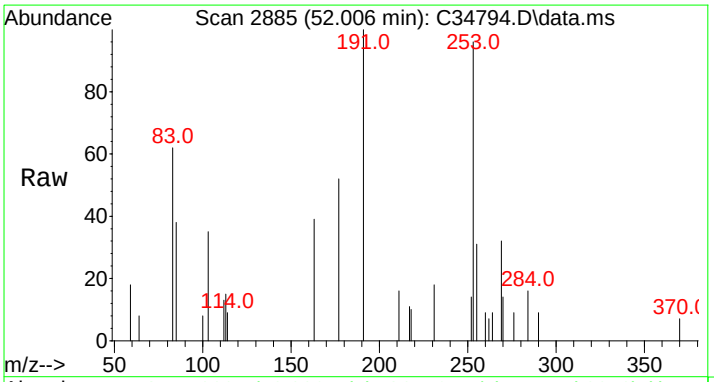


#147
C27,20R-triaromatic steroid
Concen: 27.26 ng/mL m
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:231 Resp: 267

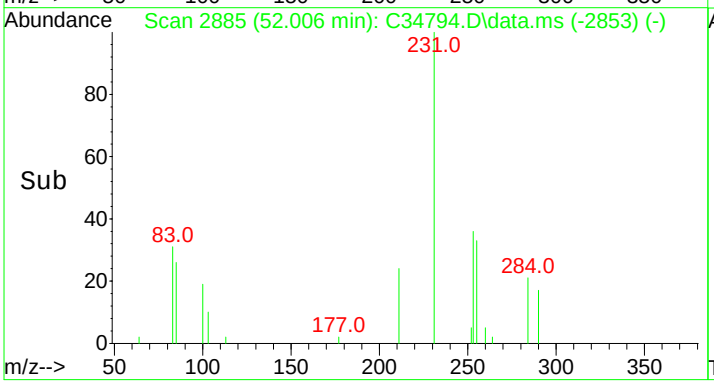


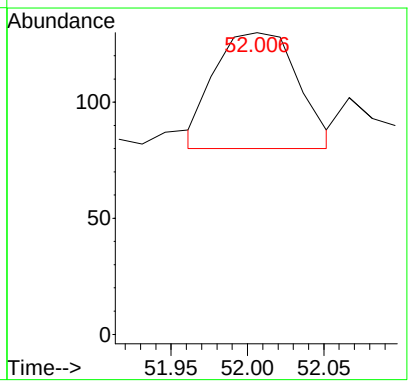




#148
C28,20R-triaromatic steroid
Concen: 19.30 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34794.D
Acq: 3 May 2012 1:25 am

Tgt Ion:231 Resp: 189





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18045M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33542	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	58815	750.959	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 75.10%			
42) Phenanthrene-d10	32.567	188	57107	922.491	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.25%			
86) Benzo[a]pyrene-d12	48.241	264	60964	877.013	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 87.70%			
127) 5B(H)Cholane - Surr	43.769	217	10213	973.879	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.39%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	115M3	8.073	ng/mL	
5) C1-Decalins	17.874	152	436M5	30.608	ng/mL	
6) C2-Decalins	19.289	166	973M5	68.305	ng/mL	
7) C3-Decalins	22.119	180	1097M5	77.010	ng/mL	
8) C4-Decalins	25.507	194	2609M5	183.154	ng/mL	
10) Naphthalene	19.801	128	24356	211.775	ng/mL#	100
11) C1-Naphthalenes	22.496	142	16474M5	143.241	ng/mL	
12) C2-Naphthalenes	25.341	156	8586M5	74.655	ng/mL	
13) C3-Naphthalenes	28.021	170	14584M5	126.807	ng/mL	
14) C4-Naphthalenes	30.445	184	27597M5	239.955	ng/mL	
16) 2-Methylnaphthalene	22.496	142	10507	154.510	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	5882	88.244	ng/mL#	100
18) Benzothiophene	20.027	134	397M3	3.836	ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	1065M5	10.290	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	790M5	7.633	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	4100M5	39.616	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	8604M5	83.135	ng/mL	
23) Biphenyl	24.378	154	363	4.220	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	2227	39.860	ng/mL#	100
25) Dibenzofuran	27.464	168	247	2.501	ng/mL#	47
26) Acenaphthylene	26.079	152	132M3	1.156	ng/mL	
27) Acenaphthene	26.816	153	304M3	4.522	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	813M3	18.051	ng/mL	
29) Fluorene	28.834	166	312M3	4.208	ng/mL	
30) C1-Fluorenes	31.197	180	2349M5	31.685	ng/mL	
31) C2-Fluorenes	33.395	194	12058M5	162.645	ng/mL	
32) C3-Fluorenes	35.232	208	23092M5	311.477	ng/mL	
33) Dibenzothiophene	32.161	184	1713	14.414	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	6529	54.939	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	6151M3	51.758	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	3967	33.381	ng/mL#	100
37) OTP	34.344	198	11614M3	97.727	ng/mL	
38) C1-Dibenzothiophenes	34.344	198	29433M5	247.667	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	61645M5	518.719	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	89081M5	749.582	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	67083M5	564.477	ng/mL	
43) Phenanthrene	32.657	178	2892	27.698	ng/mL#	1
44) 3-Methylphenanthrene(3MP)	34.615	192	3134M3	30.016	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	3599M3	34.469	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	571M3	5.469	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	6163	59.026	ng/mL	91
48) 1-Methylphenanthrene(1MP)	35.157	192	3398M3	32.544	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	17208M5	164.809	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.873	206	48324M5	462.821	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	53012M5	507.720	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	28565M5	273.580	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.485	167	752M3	7.300	ng/mL	
57) 1-Methylphenanthrene	35.157	192	3415M3	51.611	ng/mL	
58) Fluoranthene	37.430	202	2036M3	19.634	ng/mL	
60) Pyrene	38.303	202	4000M3	37.946	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	14004M5	132.850	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	22458M5	213.050	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	26390M5	250.351	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	26972M5	255.872	ng/mL	
66) Naphthobenzothiophene	42.158	234	6373	56.157	ng/ml#	89
67) Naphthobenzothiophene-...	42.158	234	6373	56.157	ng/mL#	89
68) Naphthobenzothiophene-...	42.489	234	1593M3	14.037	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1091M3	9.614	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	34152M5	300.936	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	51573M5	454.444	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	46011M5	405.433	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	34801M5	306.655	ng/mL	
75) Benz[a]anthracene	43.091	228	1019M3	9.572	ng/mL	
77) Chrysene/Triphenylene	43.227	228	4441M3	41.319	ng/mL	
78) C1-Chrysenes	44.717	242	12740M5	118.531	ng/mL	
79) C2-Chrysenes	46.795	256	19691M5	183.203	ng/mL	
80) C3-Chrysenes	49.491	270	29407M5	273.599	ng/mL	
81) C4-Chrysenes	49.506	284	17017M5	158.324	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	1862M3	15.917	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.202	252	823M3	6.462	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	258M2	2.026	ng/mL	
85) Benzo[e]pyrene	48.136	252	2657	22.963	ng/mL#	88
87) Benzo[a]pyrene	48.316	252	1416M3	12.711	ng/mL	
88) Perylene	48.633	252	2429	20.402	ng/mL#	47
89) Indeno[1,2,3-cd]pyrene	53.121	276	1220M3	9.410	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.151	278	538M3	4.362	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	2897	21.151	ng/mL	91
92) Hopane (T19)	52.217	191	14491M3	655.507	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	6264M3	283.355	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	3433	155.293	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	3161M3	142.989	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	1134M3	51.297	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	1230M3	55.640	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1238M3	56.001	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1307M3	59.123	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1436M3	64.958	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	1715M3	77.579	ng/ml	
103) C29 Tricyclic Terpane-...	47.322	191	1624M3	73.462	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	1822	82.419	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	1453M3	65.727	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	1379M3	62.380	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191	4131M3	186.868	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	2333M3	105.534	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.973	191	734M3	33.203	ng/ml	
110) 30-Norhopane (T15)	50.847	191	10251M3	463.709	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	1356M3	61.339	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	546M3	24.699	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1222	55.278	ng/ml	100
115) Moretane (T20)	52.895	191	1002M3	45.326	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	6255M3	282.948	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	5071	229.389	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2148M3	97.166	ng/mL	
119) 30,31-Bishomohopane-22...	55.545	191	3963M3	179.268	ng/ml	
120) 30,31-Bishomohopane-22...	55.937	191	2814M3	127.293	ng/ml	
121) 30,31-Trishomohopane-2...	57.683	191	2871	129.871	ng/ml	100
122) 30,31-Trishomohopane-2...	58.301	191	1879M3	84.997	ng/ml	
123) Tetrakishomohopane-22S...	60.304	191	2136	96.623	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
124) Tetrakishomohopane-22R...	61.207	191	1794M3	81.152	ng/ml	
125) Pentakishomohopane-22S...	63.466	191	2825M3	127.790	ng/ml	
126) Pentakishomohopane-22R...	64.776	191	1836M3	83.052	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	909M3	86.679	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	409M3	39.001	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	497M3	47.392	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1553	148.089	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1613M3	153.810	ng/ml	
133) Unknown Sterane (S18)	48.045	217	749	71.422	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	157	14.971	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	944M3	90.017	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	755M3	71.994	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	1943M3	185.278	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	1342M3	127.969	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1125M3	107.276	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1164M3	110.995	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	986	94.022	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	1297M3	123.678	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	1726M3	164.586	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1143M3	108.993	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	9813	935.736	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	8384	799.471	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	6240M4	595.026	ng/mL	
148) C28,20R-triaromatic st...	52.006	231	6990M3	666.544	ng/mL	

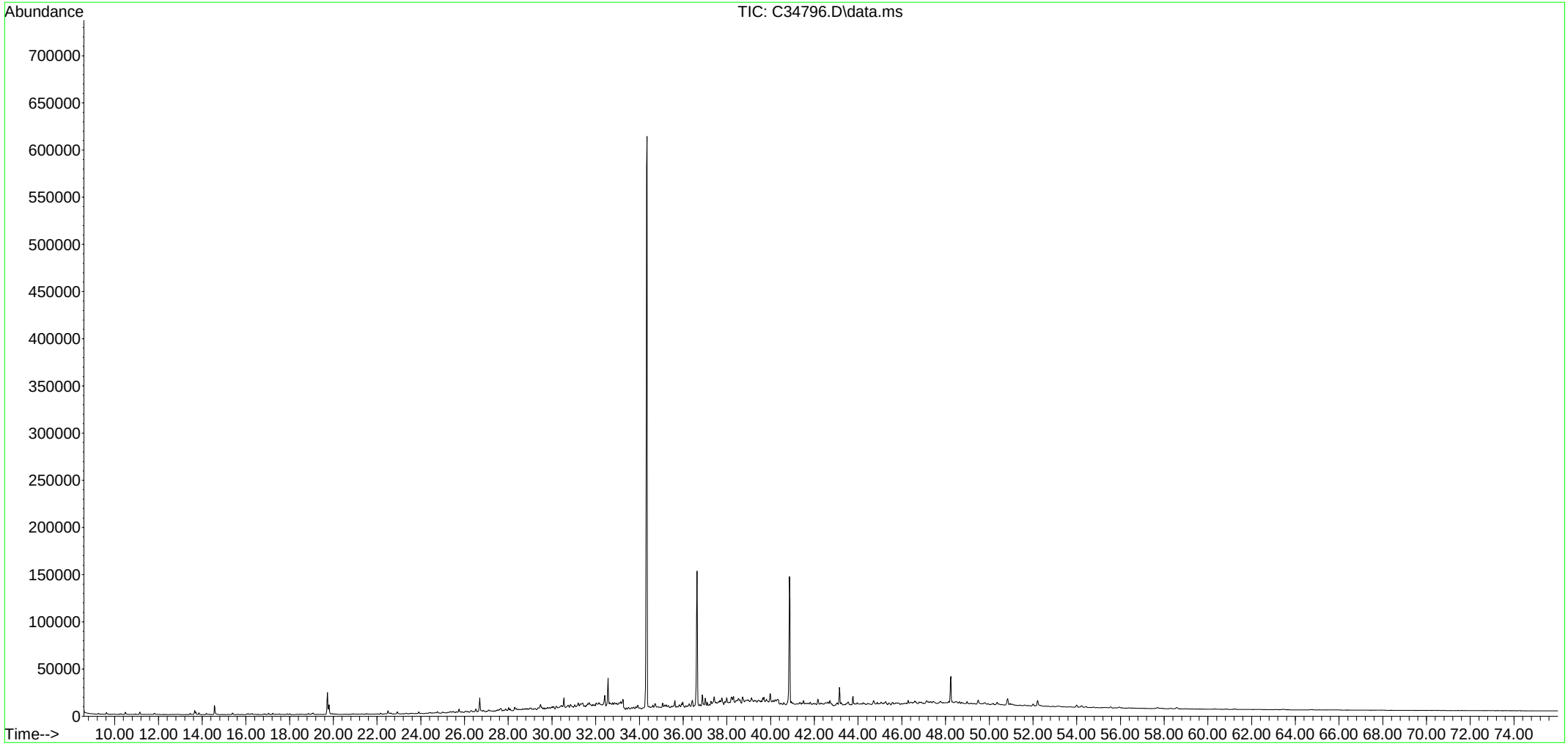
(#) = qualifier out of range (m) = manual integration (+) = signals summed

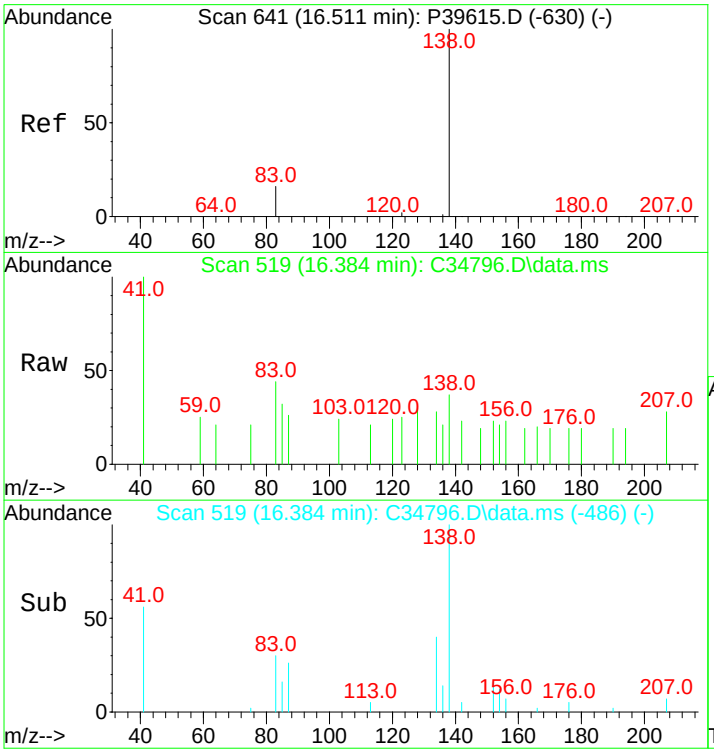
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34796.D
Acq On : 3 May 2012 2:56 am
Operator : AC
Sample : 1204031-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 05 12:45:07 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

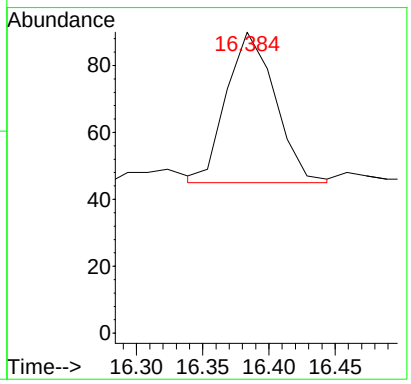
Sub List : Gulf_NEW_POIB_Default - All compounds listed

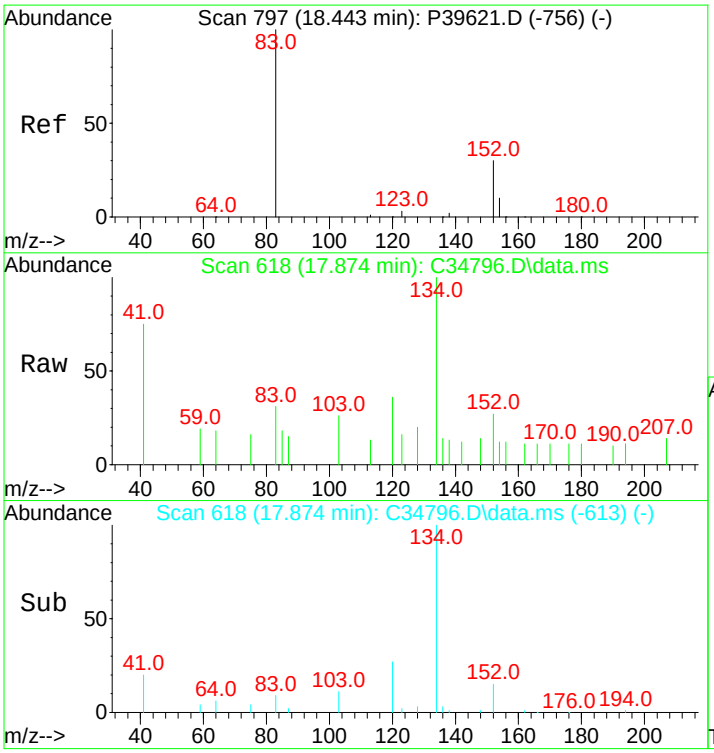




#3
trans-Decalin
Concen: 8.07 ng/mL m
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

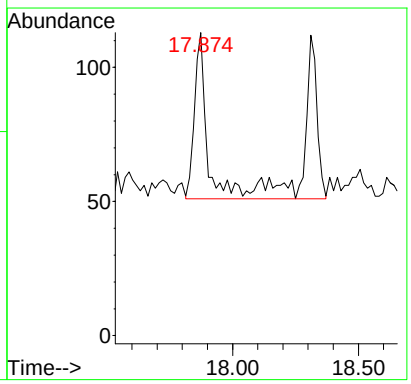
Tgt Ion:138 Resp: 115

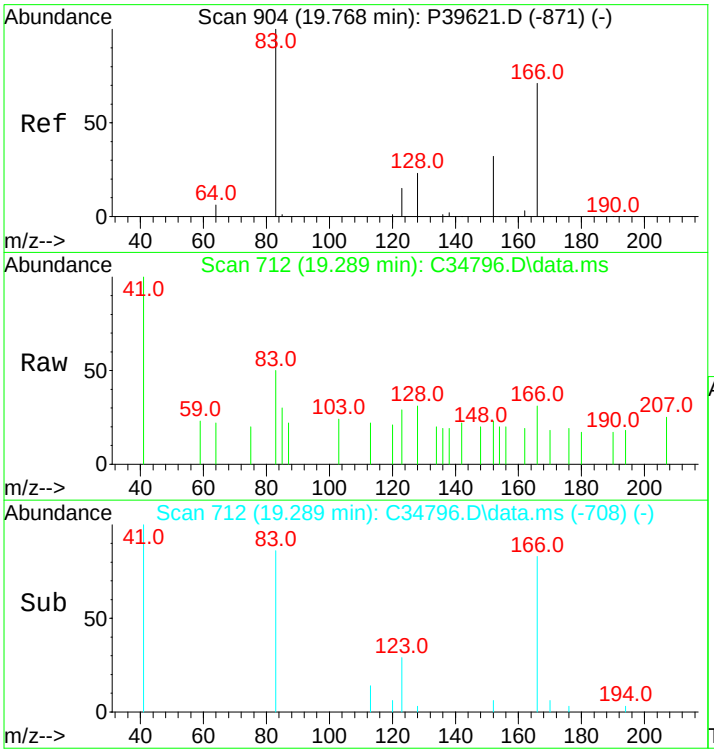




#5
C1-Decalins
Concen: 30.61 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

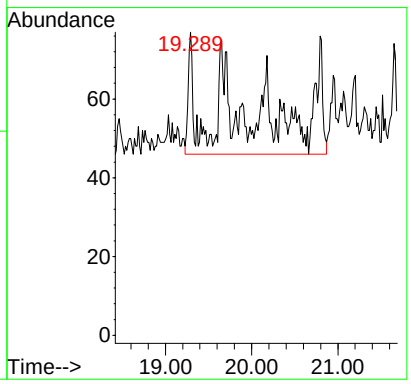
Tgt Ion:152 Resp: 436

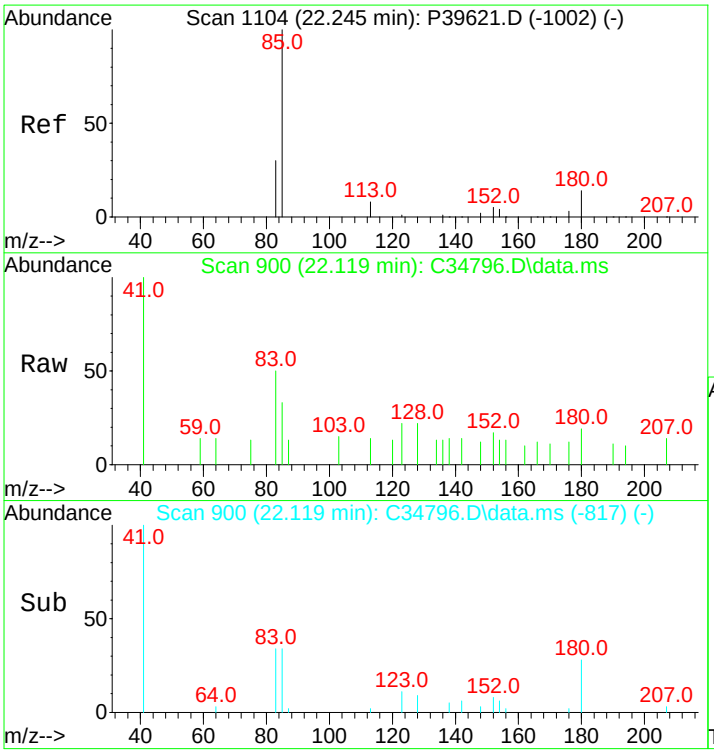




#6
C2-Decalins
Concen: 68.31 ng/mL m
RT: 19.289 min Scan# 712
Delta R.T. -0.393 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

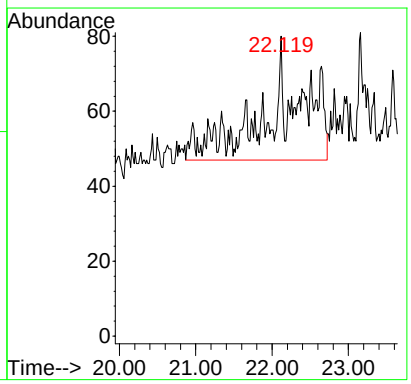
Tgt Ion:166 Resp: 973

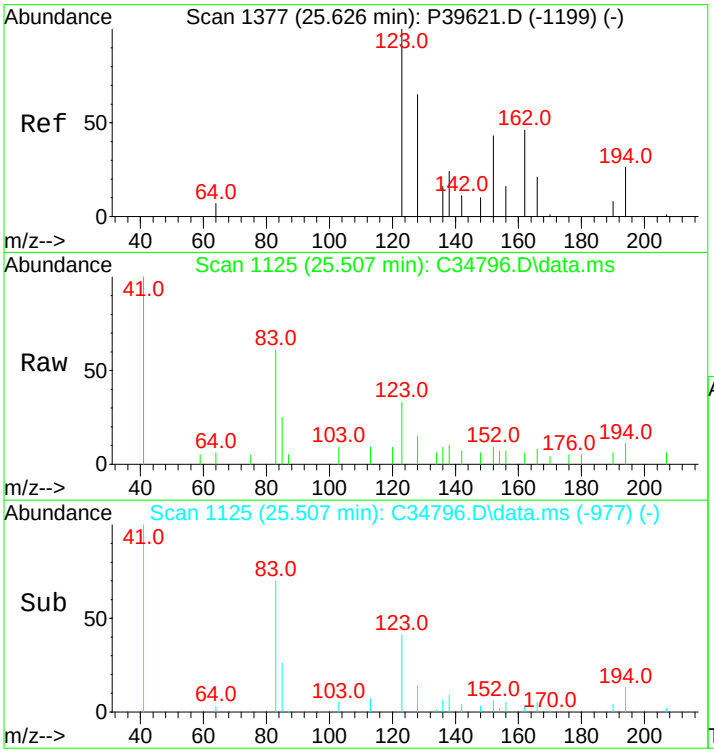




#7
C3-Decalins
Concen: 77.01 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

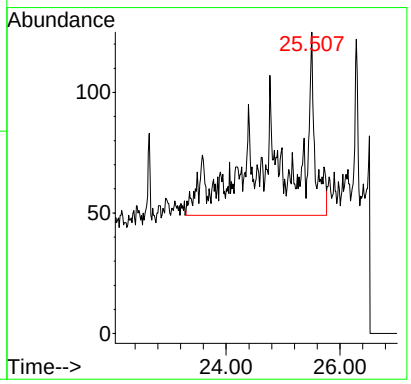
Tgt Ion:180 Resp: 1097

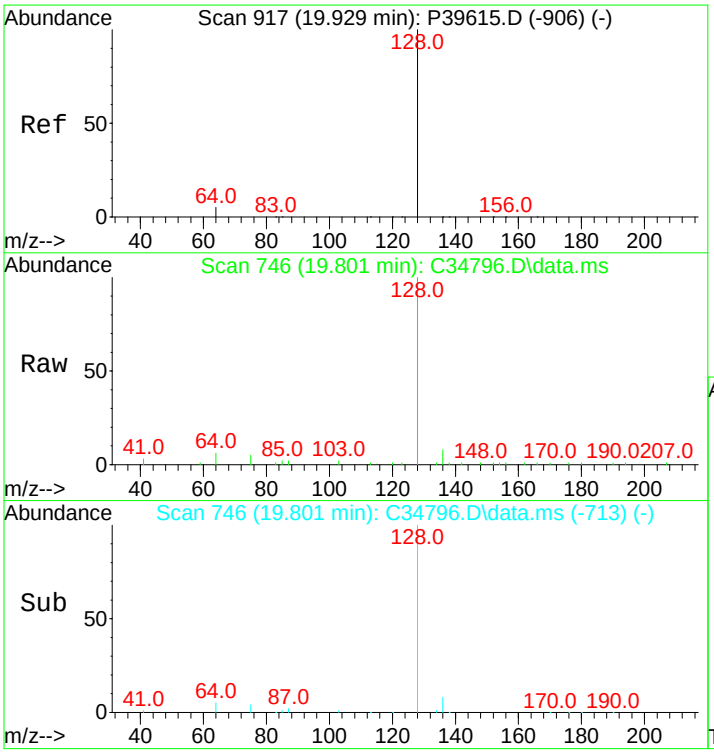




#8
C4-Decalins
Concen: 183.15 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.005 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:194 Resp: 2609

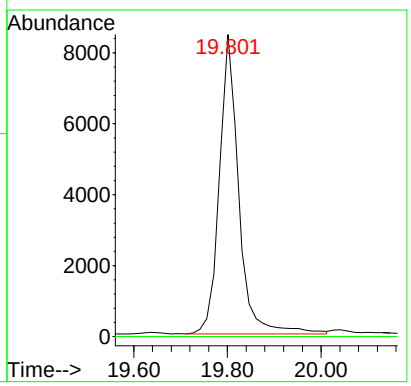


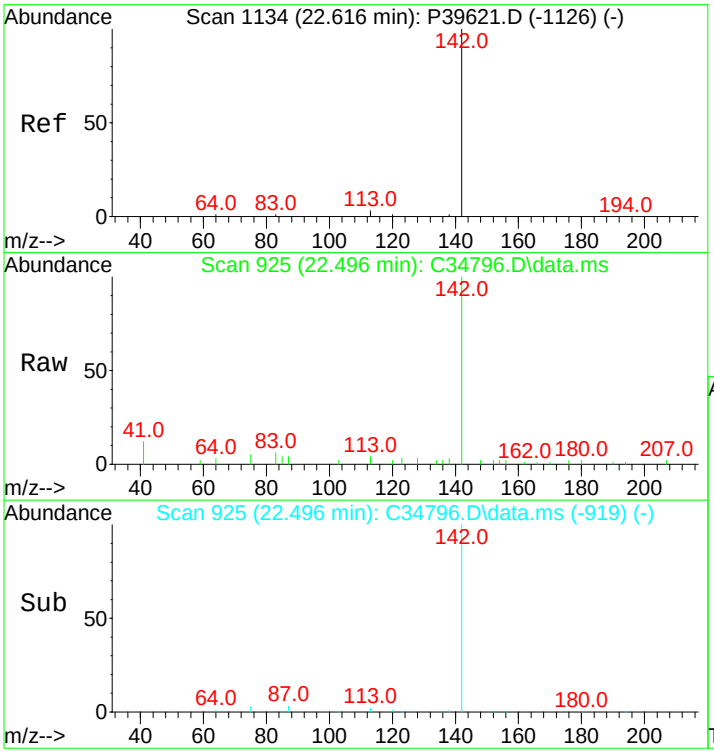


#10
Naphthalene
Concen: 211.77 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:128 Resp: 24356

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

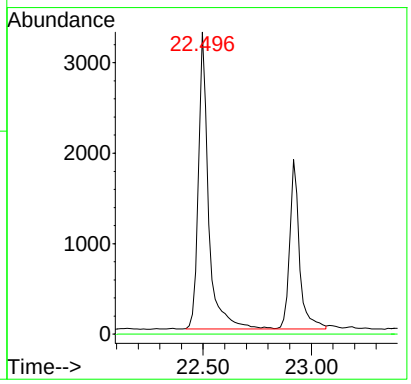


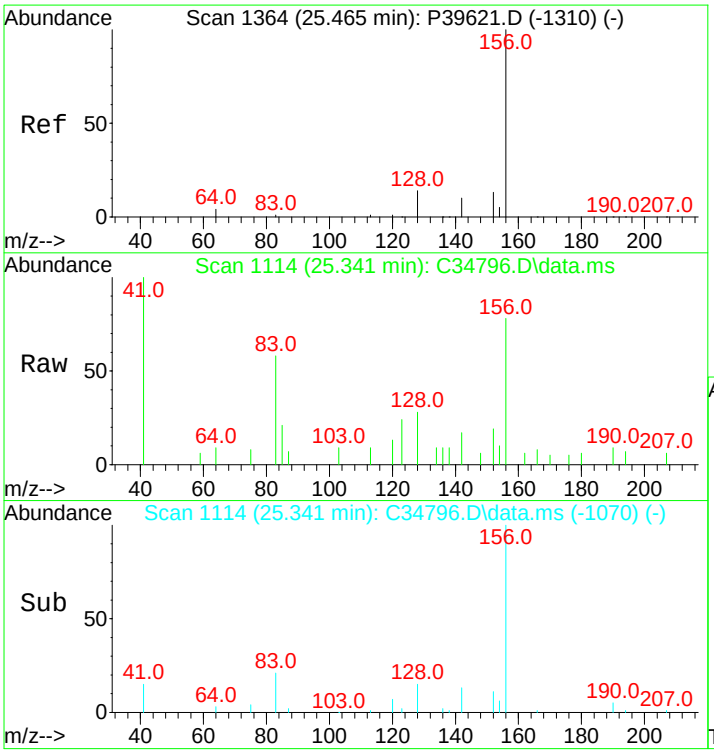


#11
C1-Naphthalenes
Concen: 143.24 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:142 Resp: 16474

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

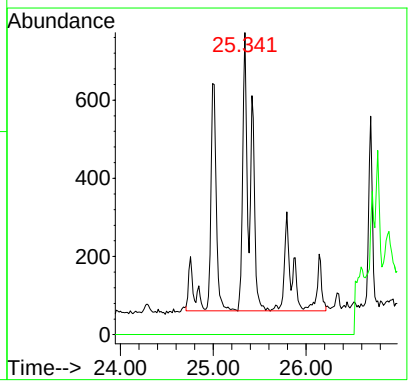


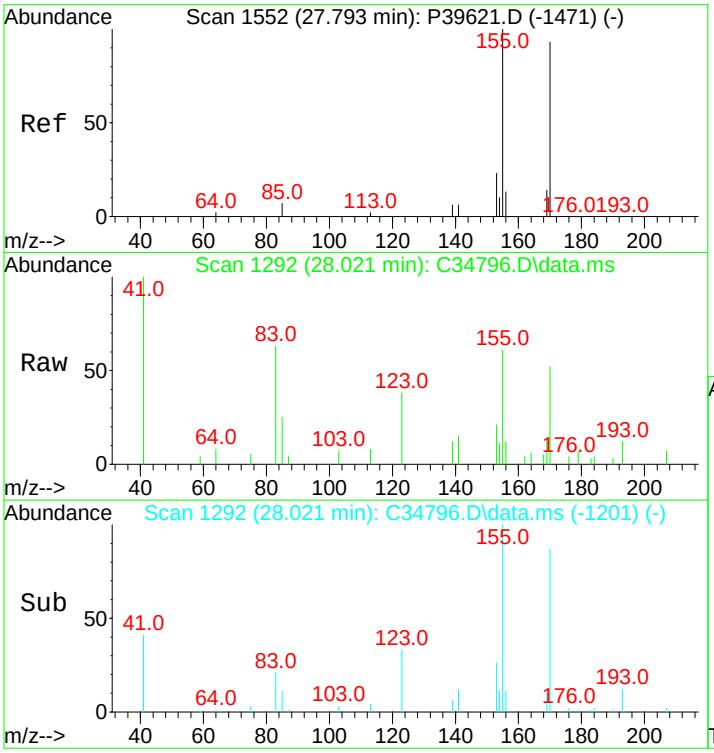


#12
C2-Naphthalenes
Concen: 74.65 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:156 Resp: 8586

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

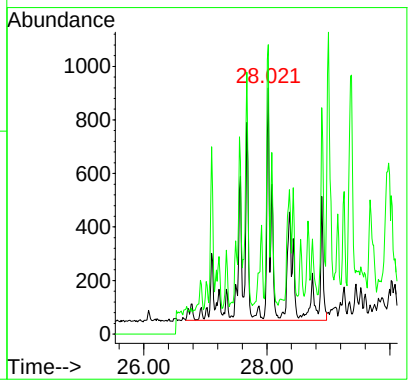


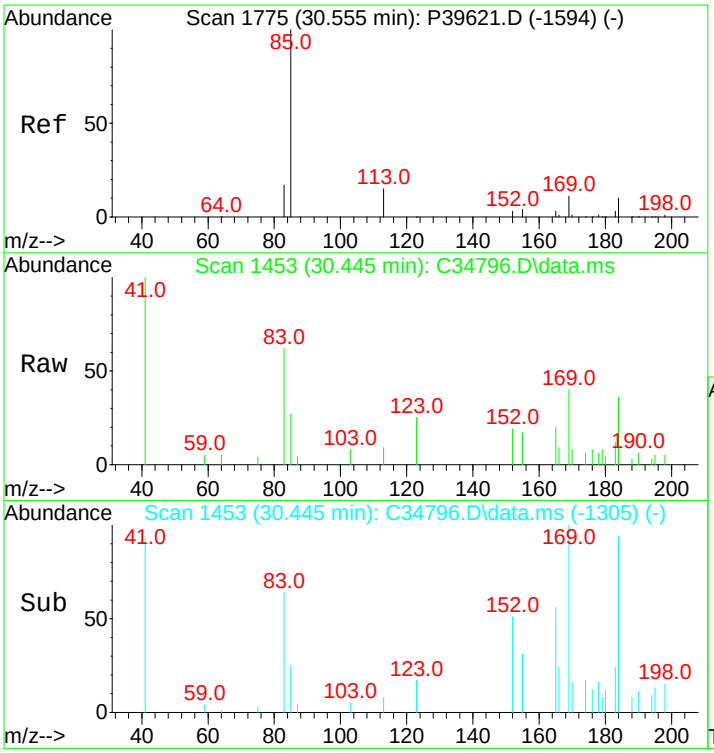


#13
C3-Naphthalenes
Concen: 126.81 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:170 Resp: 14584

Ion	Ratio	Lower	Upper
170	100		
155	16.0	81.8	122.6#

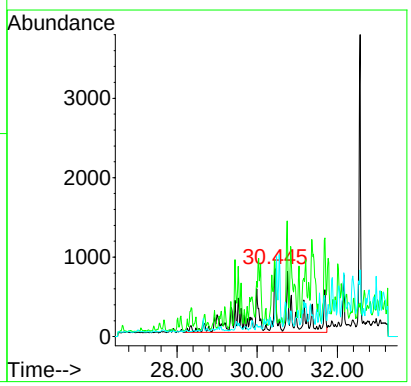


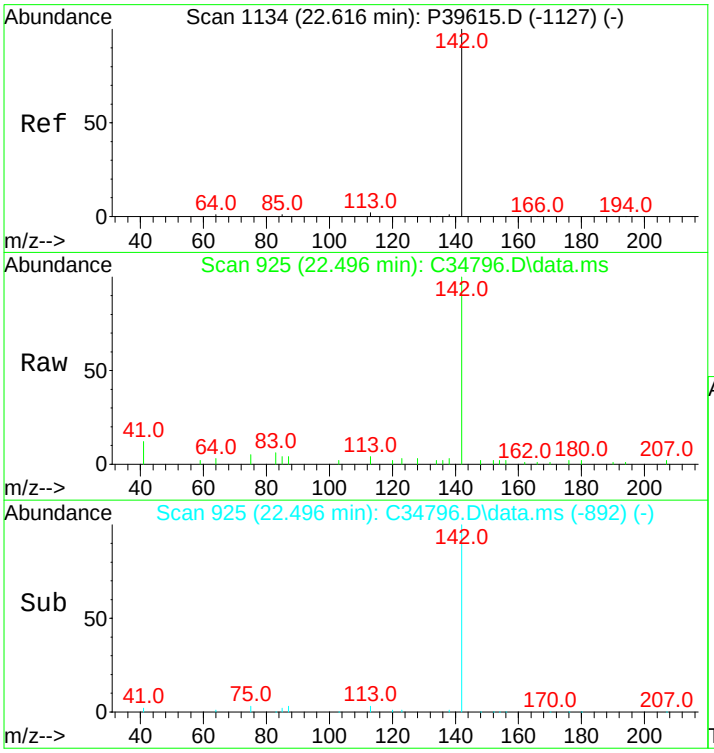


#14
C4-Naphthalenes
Concen: 239.95 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:184 Resp: 27597

Ion	Ratio	Lower	Upper
184	100		
169	9.6	77.4	116.0#
183	0.0	14.8	22.2#

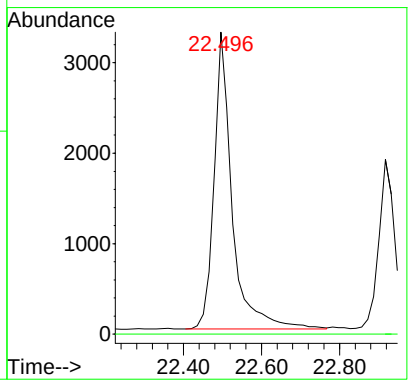


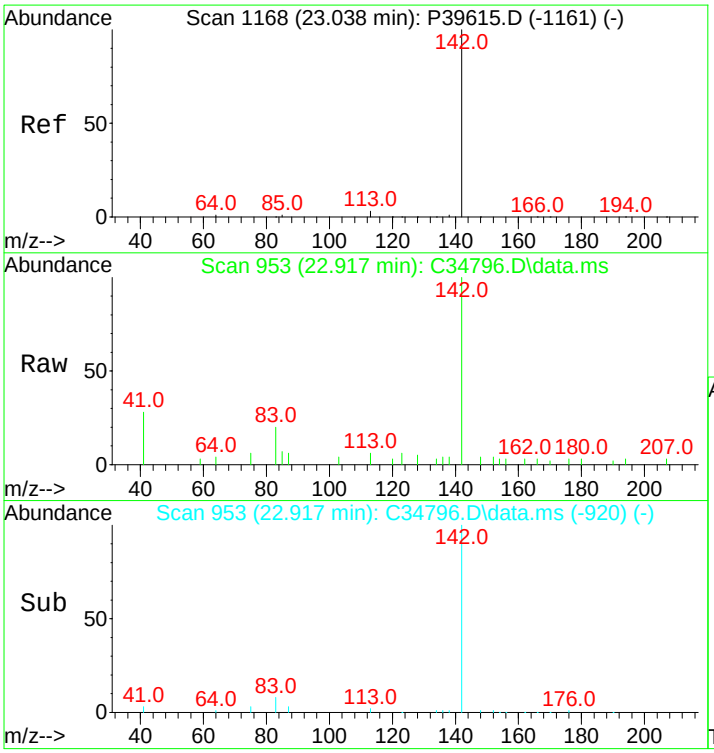


#16
2-Methylnaphthalene
Concen: 154.51 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:142 Resp: 10507

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

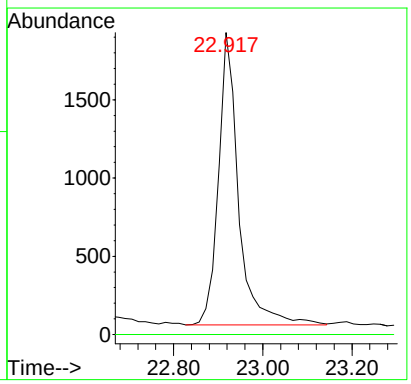


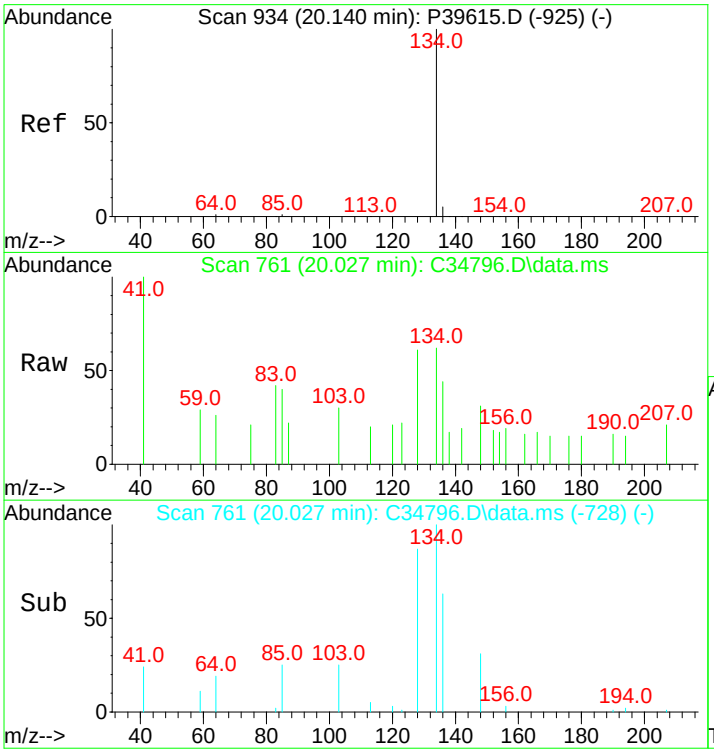


#17
1-Methylnaphthalene
Concen: 88.24 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:142 Resp: 5882

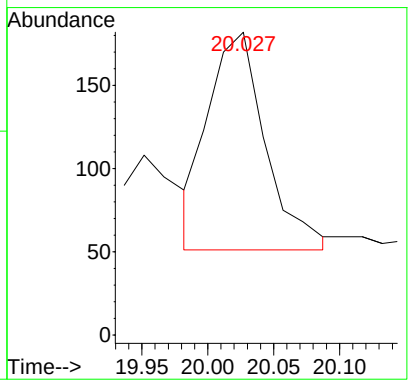
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

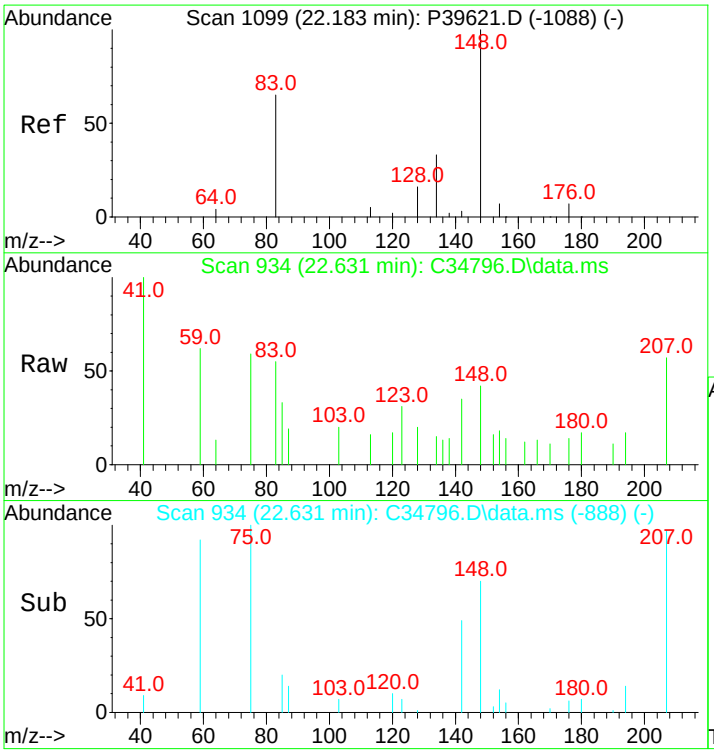




#18
Benzothiophene
Concen: 3.84 ng/mL m
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

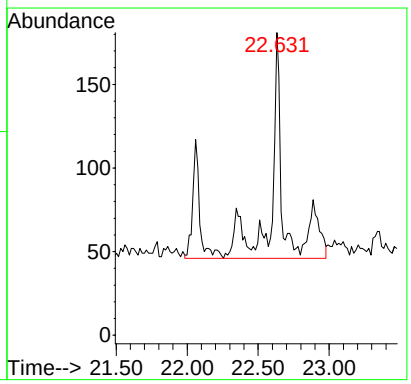
Tgt Ion:134 Resp: 397

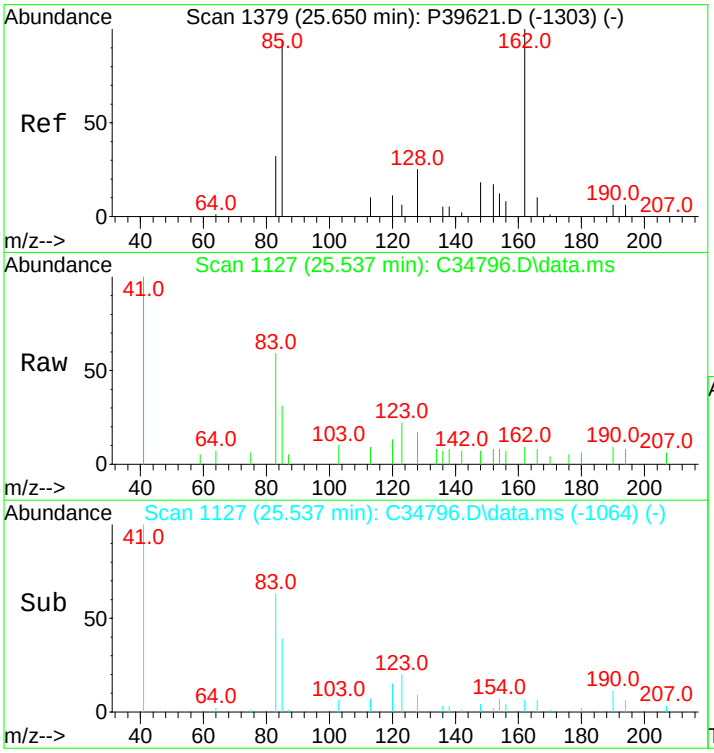




#19
C1-Benzo(b)thiophenes
Concen: 10.29 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

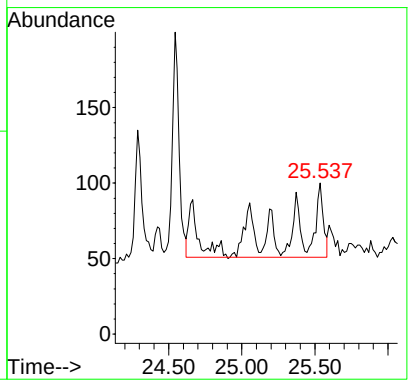
Tgt Ion:148 Resp: 1065

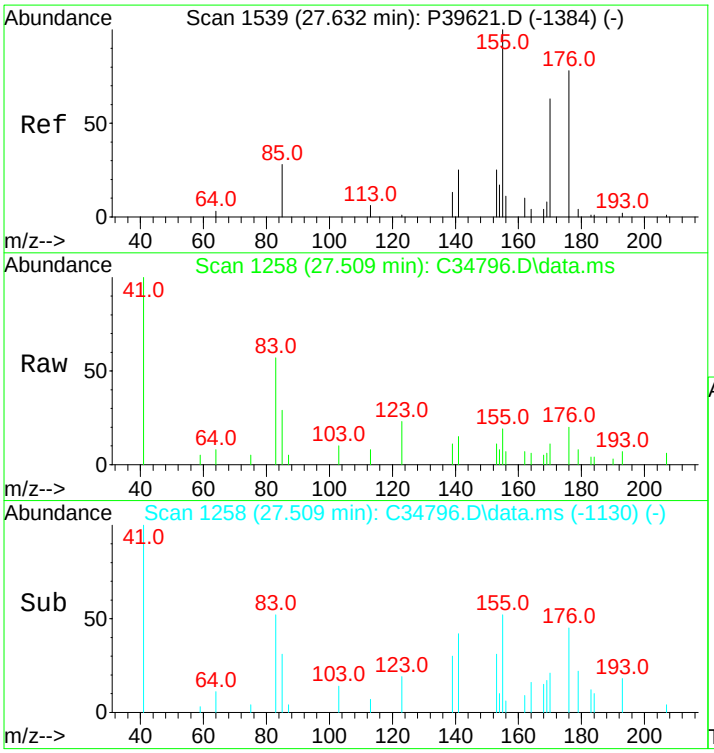




#20
C2-Benzo(b)thiophenes
Concen: 7.63 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

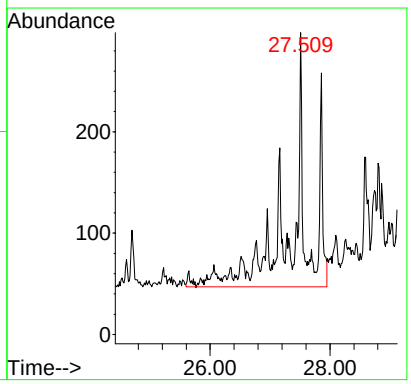
Tgt Ion:162 Resp: 790

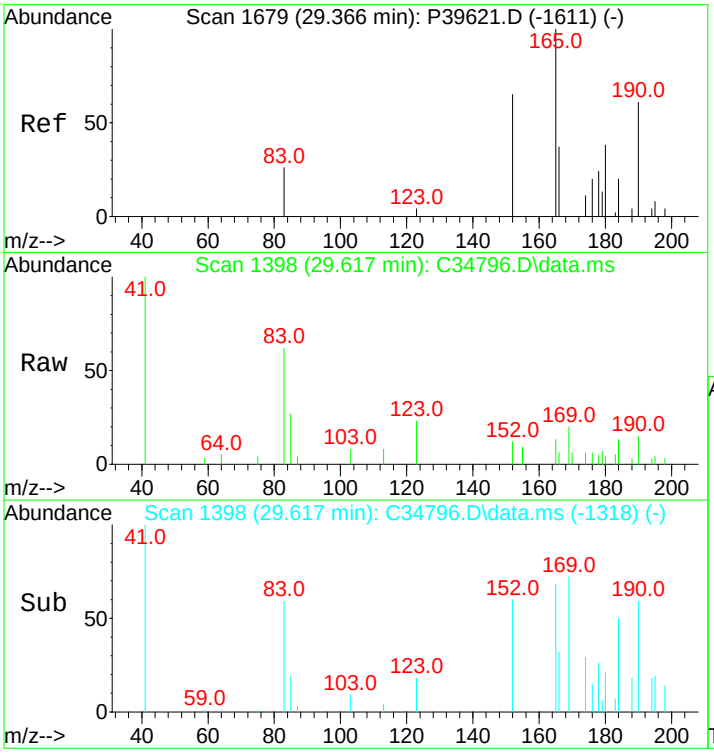




#21
C3-Benzo(b)thiophenes
Concen: 39.62 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

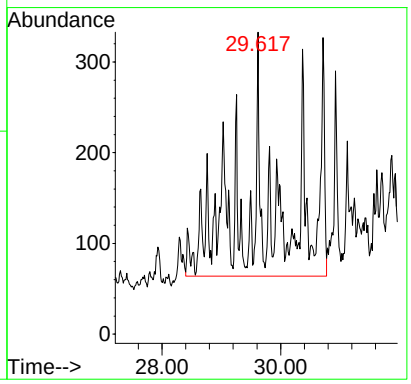
Tgt Ion:176 Resp: 4100

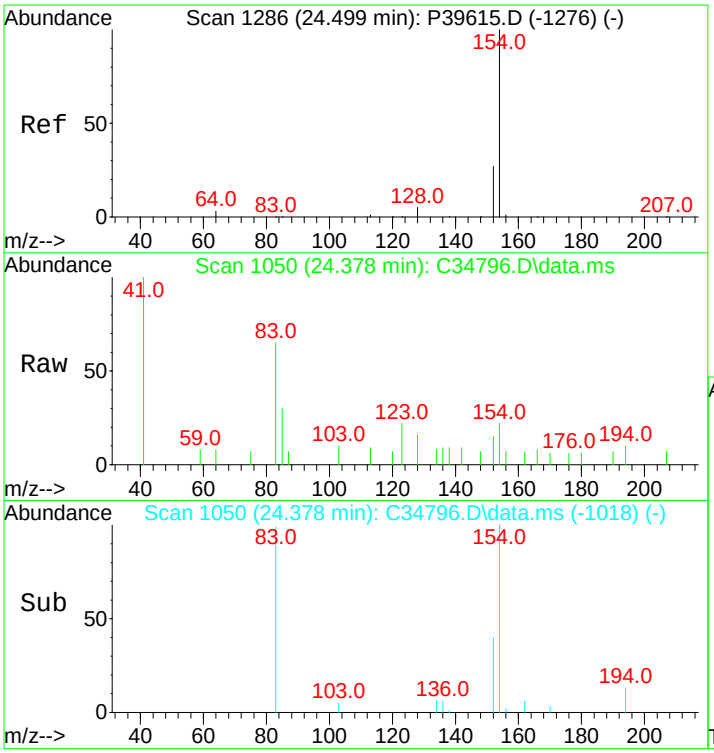




#22
C4-Benzo(b)thiophenes
Concen: 83.14 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:190 Resp: 8604

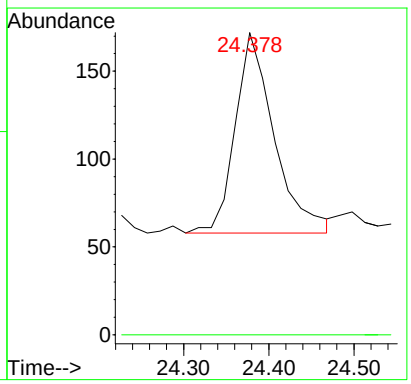


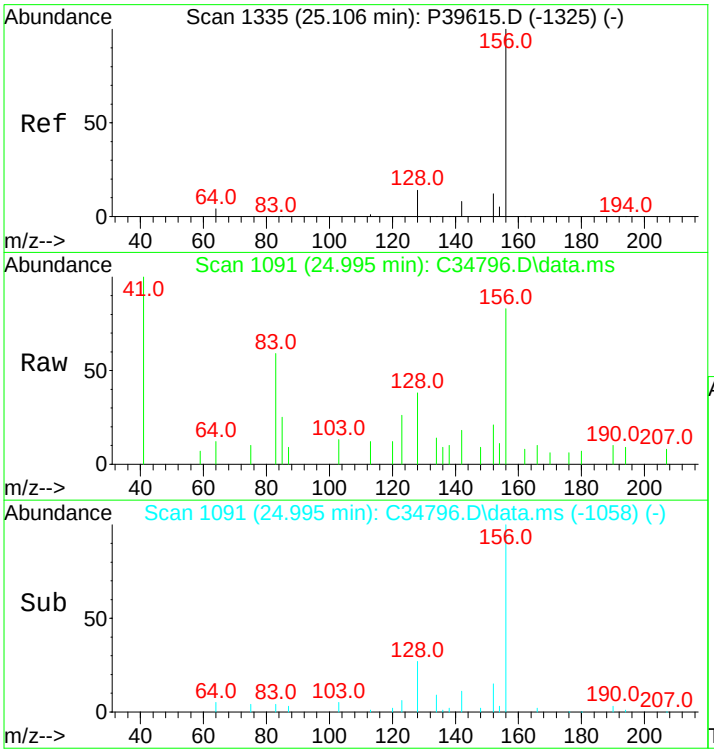


#23
Biphenyl
Concen: 4.22 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:154 Resp: 363

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

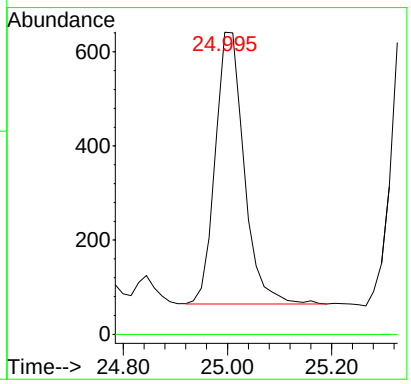


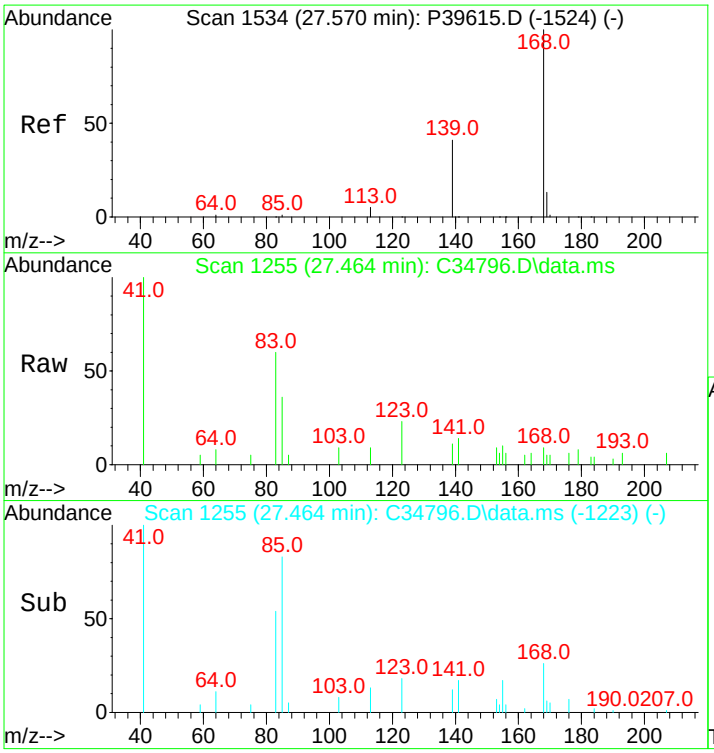


#24
2,6-Dimethylnaphthalene
Concen: 39.86 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:156 Resp: 2227

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

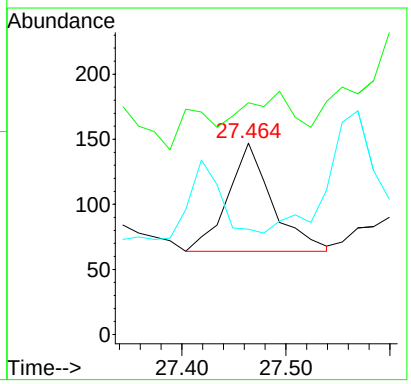


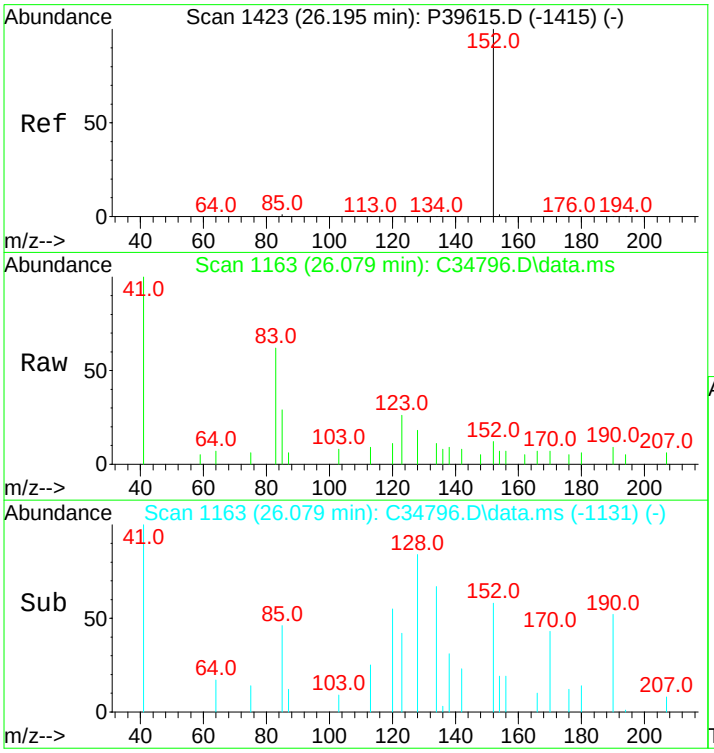


#25
Dibenzofuran
Concen: 2.50 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:168 Resp: 247

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

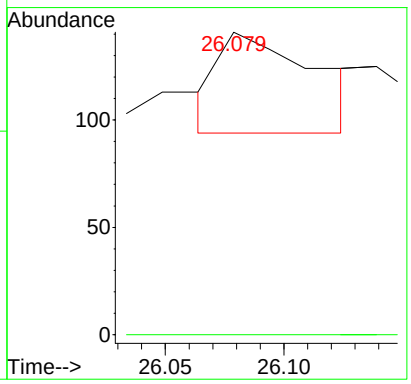


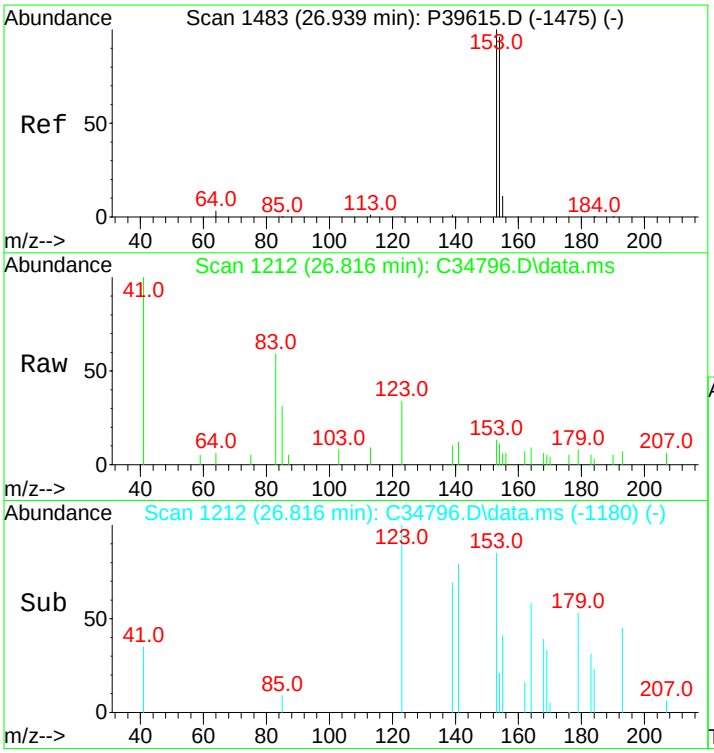


#26
Acenaphthylene
Concen: 1.16 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:152 Resp: 132

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

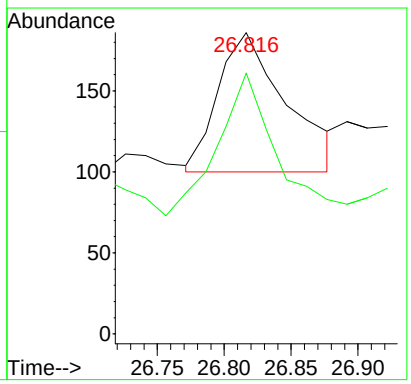


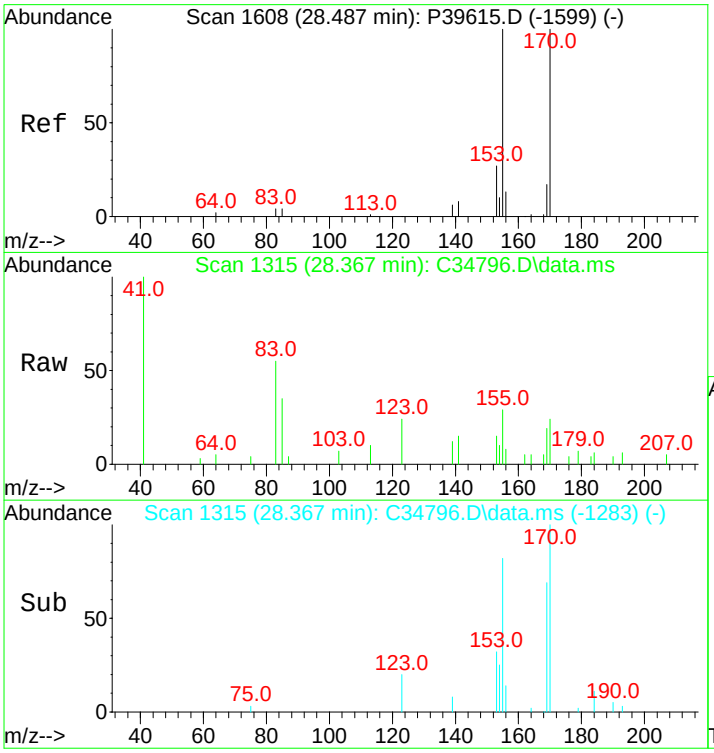


#27
Acenaphthene
Concen: 4.52 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:153 Resp: 304

Ion	Ratio	Lower	Upper
153	100		
154	87.5	73.6	110.4

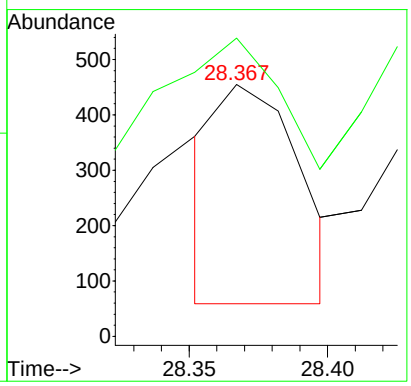


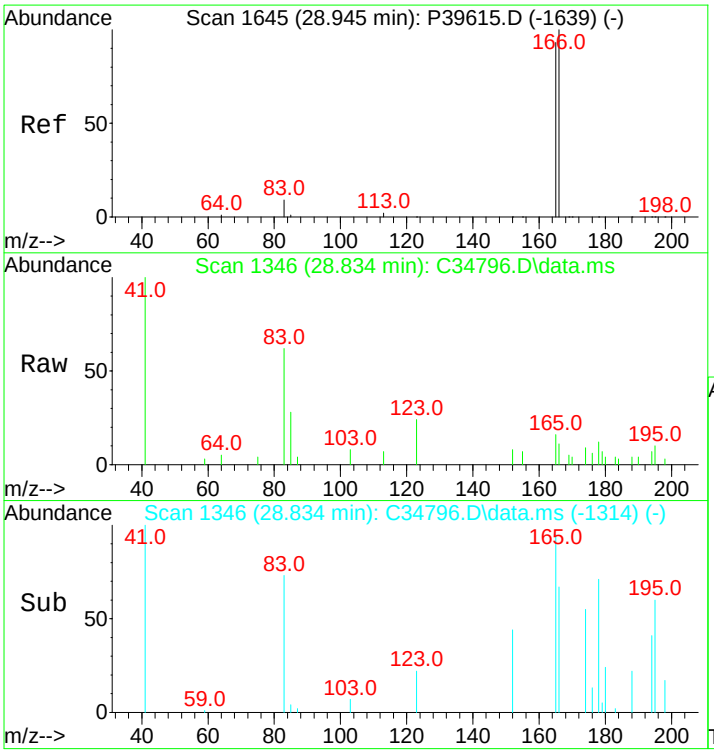


#28
2,3,5-Trimethylnaphthalene
Concen: 18.05 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:170 Resp: 813

Ion	Ratio	Lower	Upper
170	100		
155	203.8	87.3	130.9#

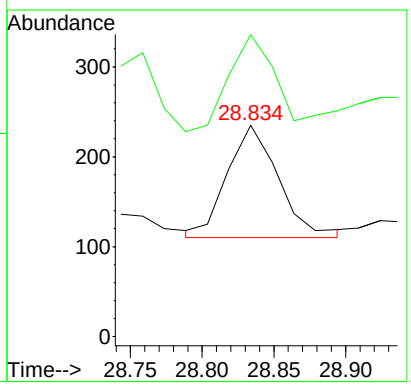


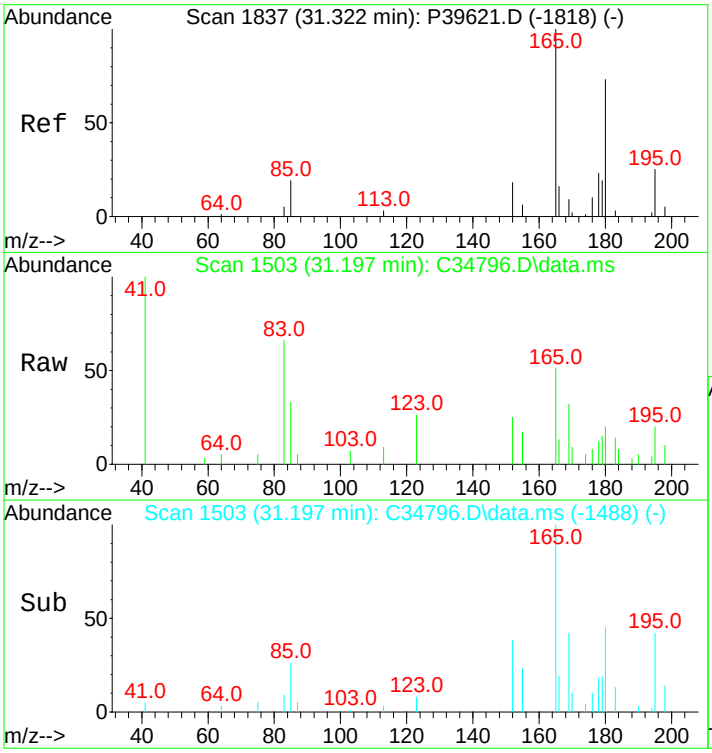


#29
Fluorene
Concen: 4.21 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:166 Resp: 312

Ion	Ratio	Lower	Upper
166	100		
165	145.5	77.3	115.9#

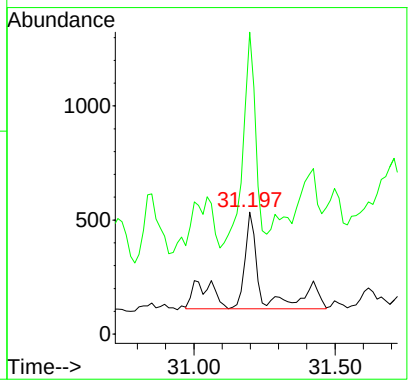


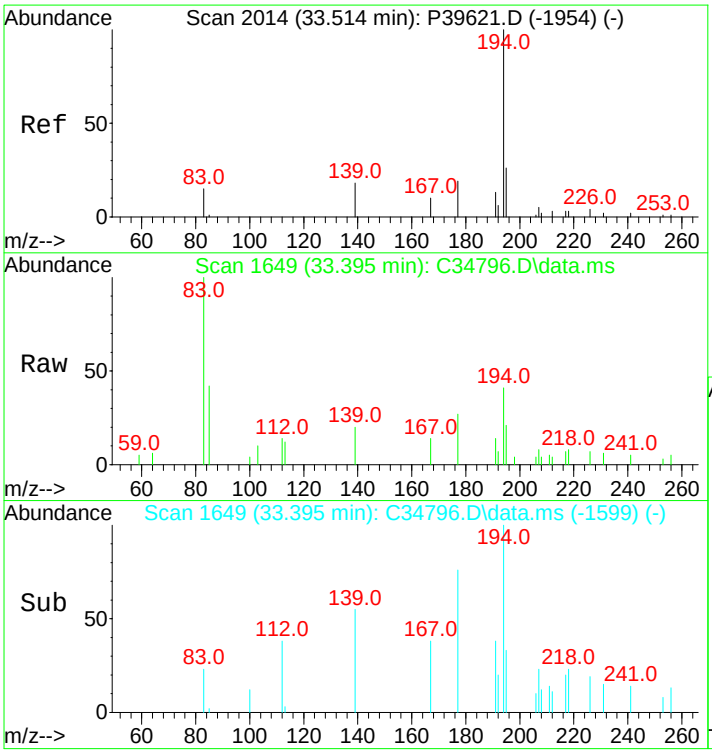


#30
C1-Fluorenes
Concen: 31.68 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:180 Resp: 2349

Ion	Ratio	Lower	Upper
180	100		
165	126.7	111.4	167.2

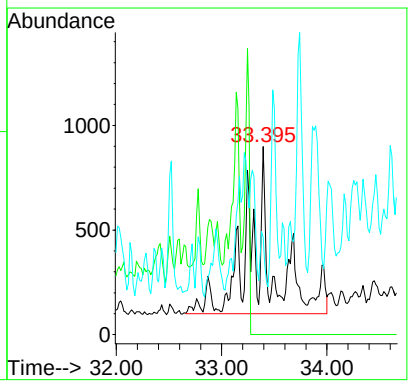


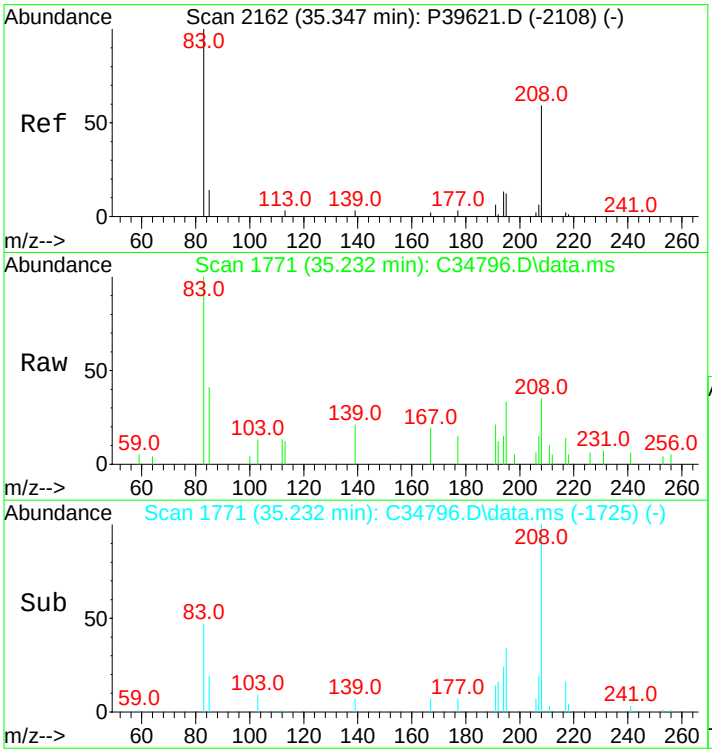


#31
C2-Fluorenes
Concen: 162.64 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:194 Resp: 12058

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.8	27.3	40.9#

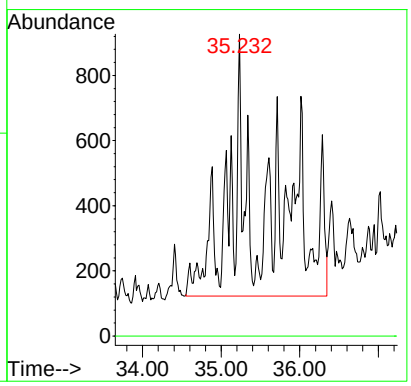


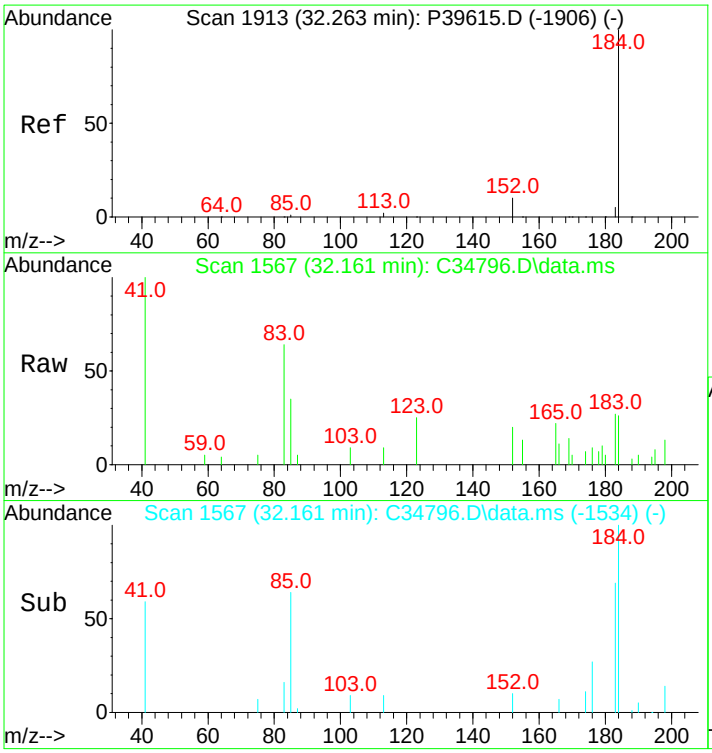


#32
C3-Fluorenes
Concen: 311.48 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:208 Resp: 23092

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

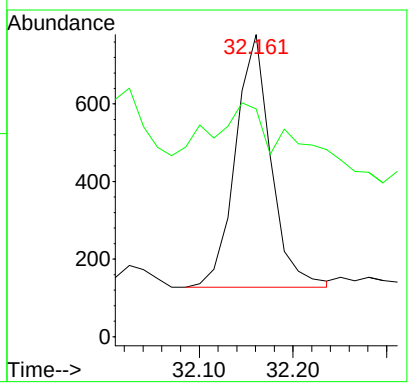


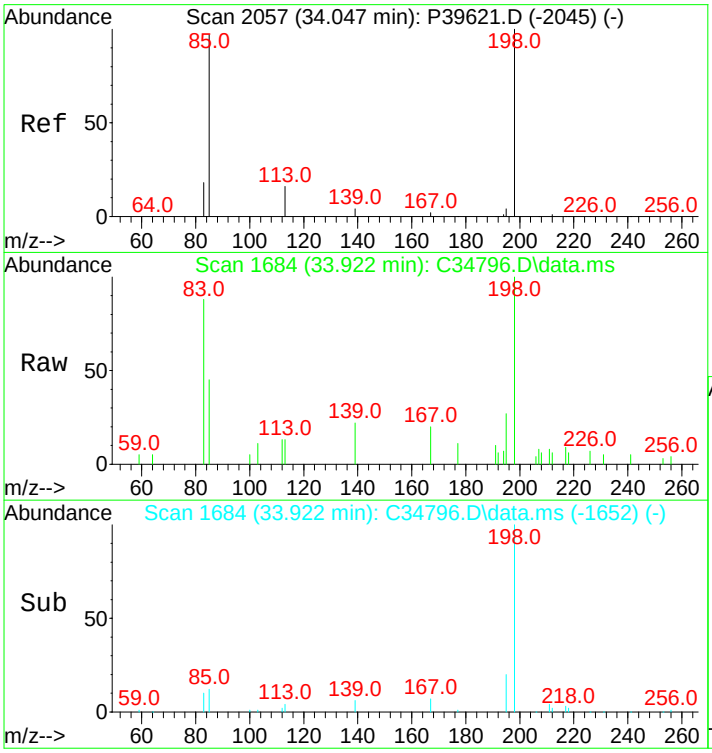


#33
Dibenzothiophene
Concen: 14.41 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:184 Resp: 1713

Ion	Ratio	Lower	Upper
184	100		
152	83.8	7.5	11.3#

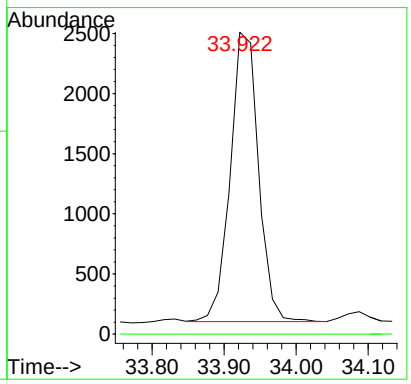


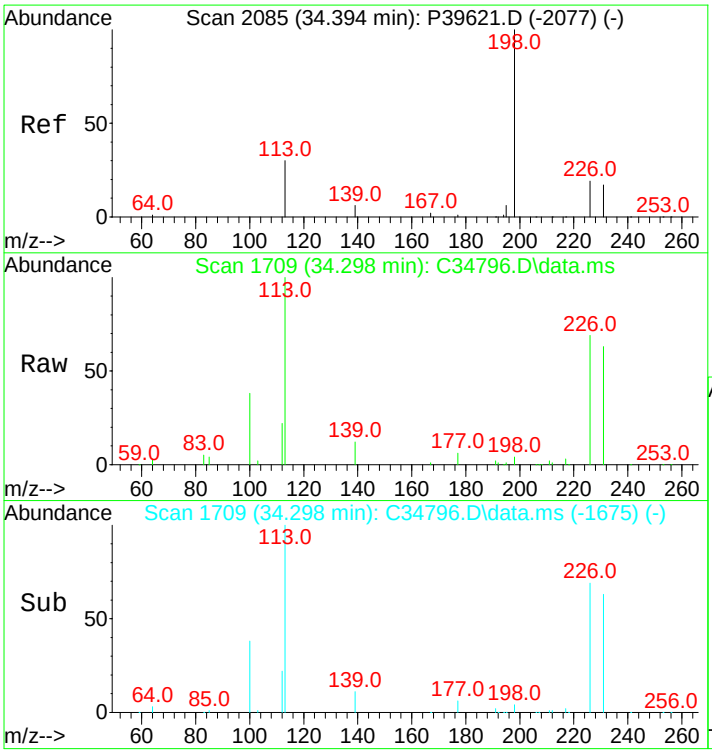


#34
4-Methyldibenzothiophene(4MDT)
Concen: 54.94 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:198 Resp: 6529

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

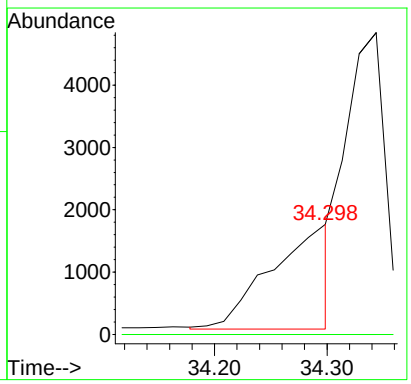


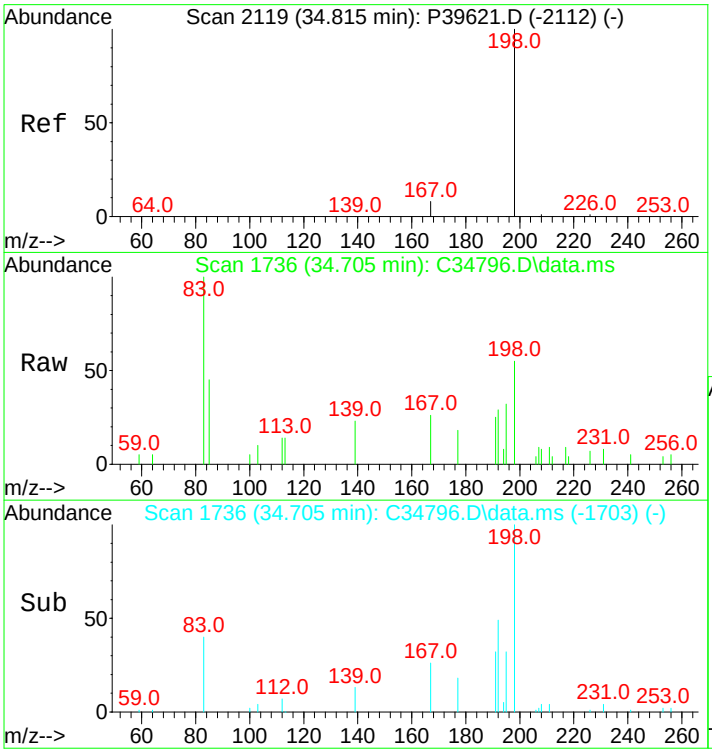


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 51.76 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:198 Resp: 6151

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

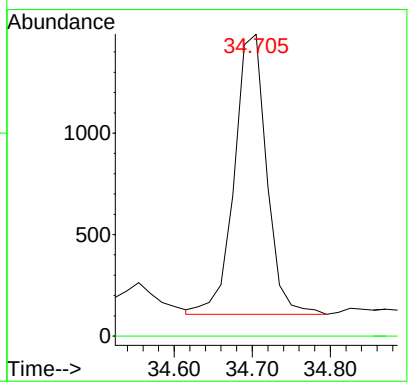


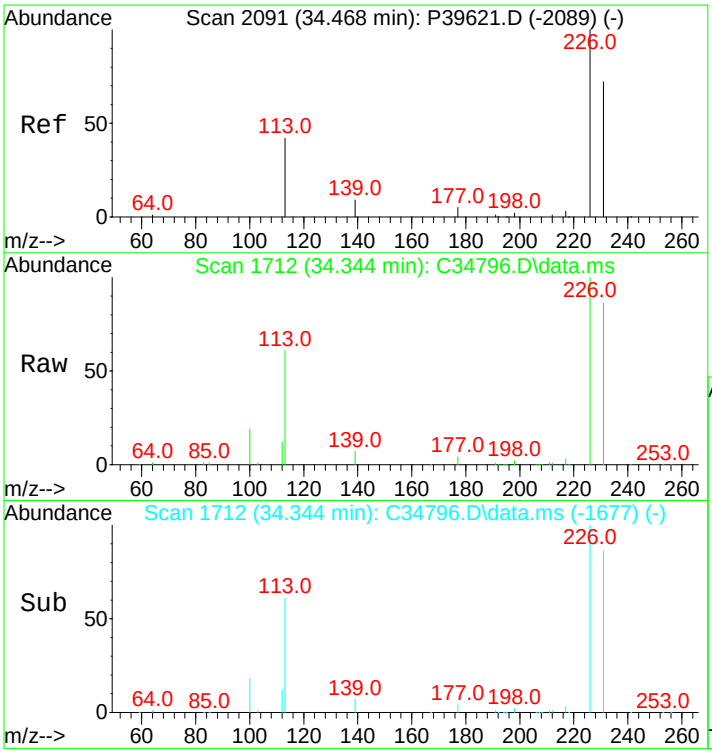


#36
1-Methyldibenzothiophene(1MDT)
Concen: 33.38 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:198 Resp: 3967

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

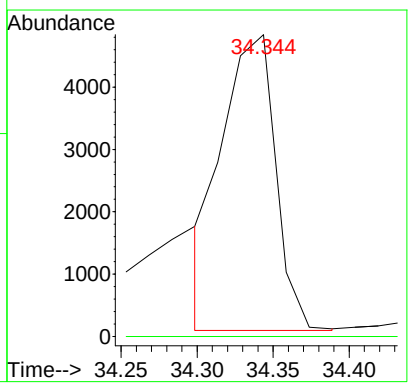


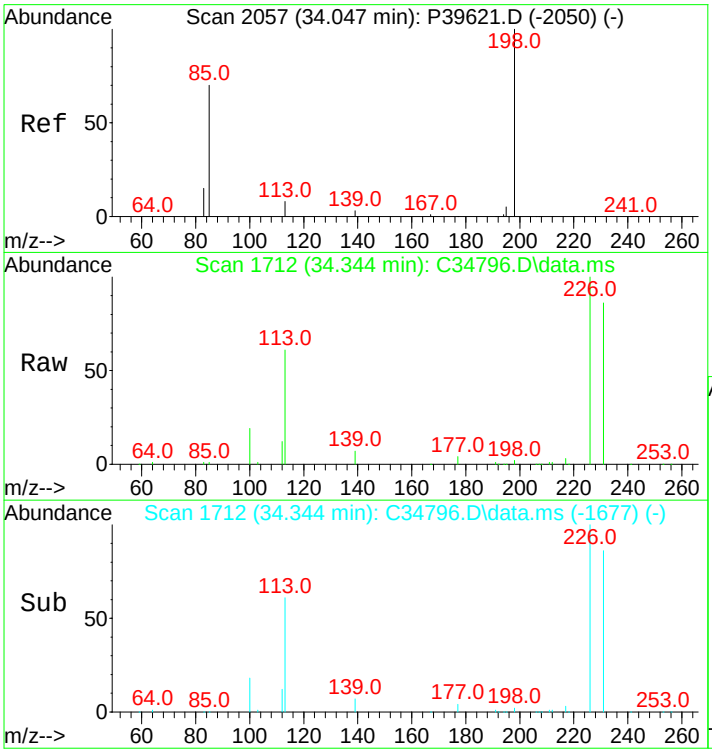


#37
OTP
Concen: 97.73 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:198 Resp: 11614

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

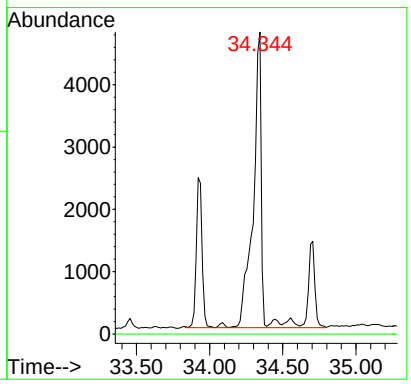


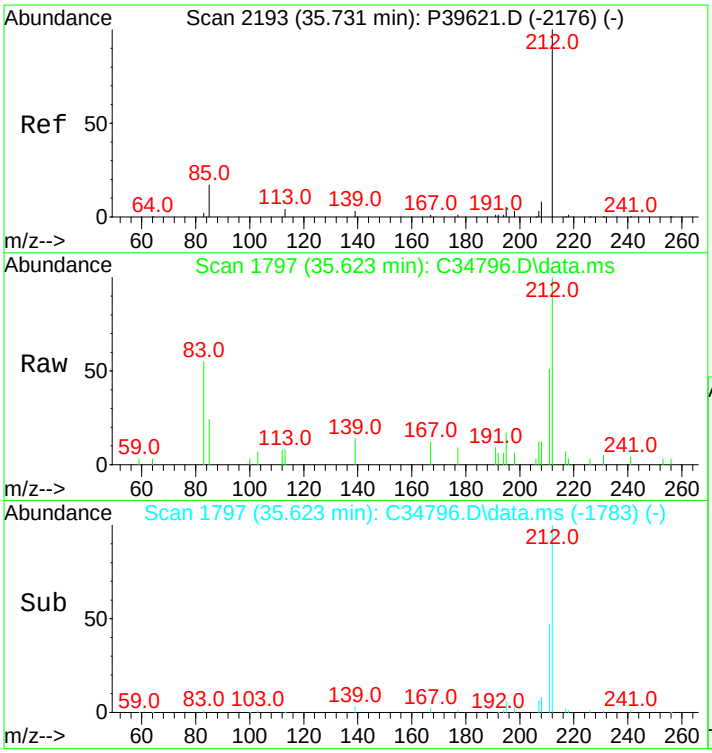


#38
C1-Dibenzothiophenes
Concen: 247.67 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.469 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:198 Resp: 29433

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

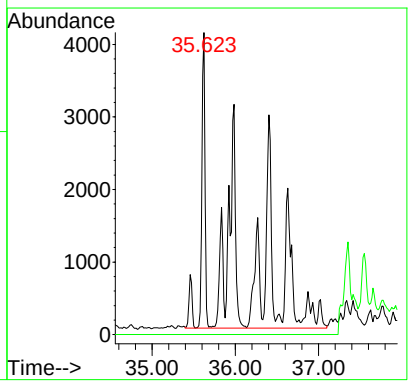


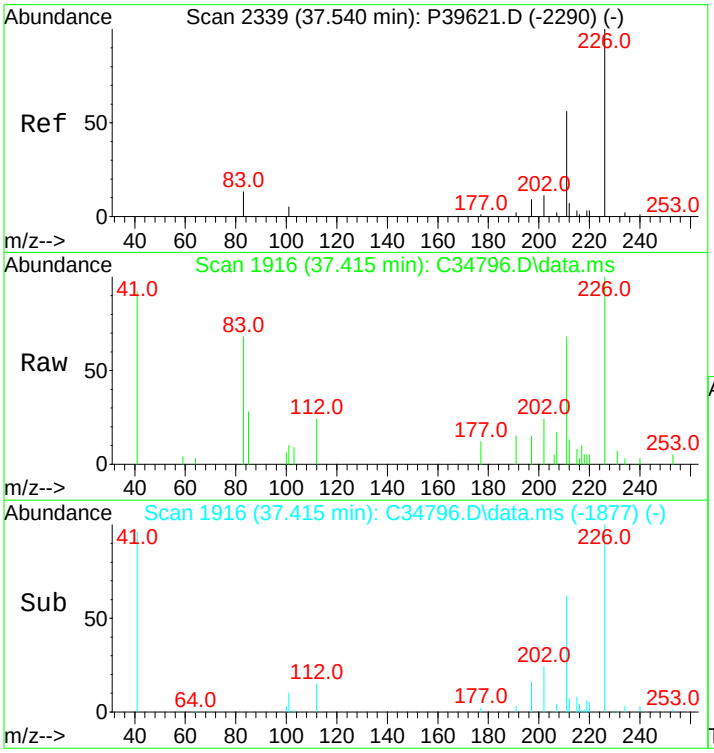


#39
C2-Dibenzothiophenes
Concen: 518.72 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:212 Resp: 61645

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

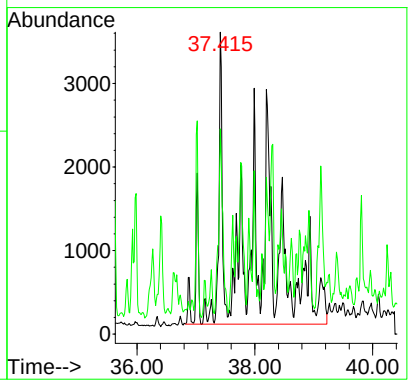


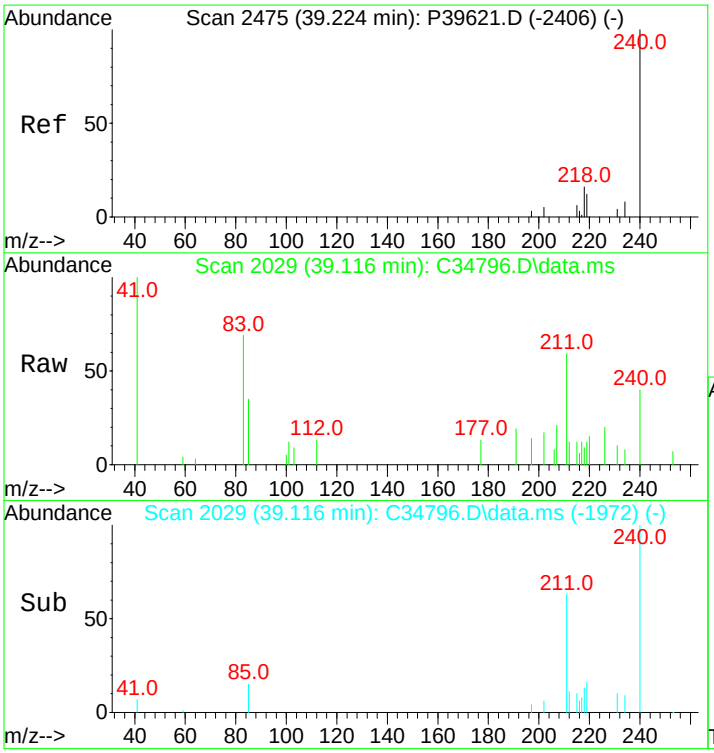


#40
C3-Dibenzothiophenes
Concen: 749.58 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:226 Resp: 89081

Ion	Ratio	Lower	Upper
226	100		
211	12.2	45.0	67.6#

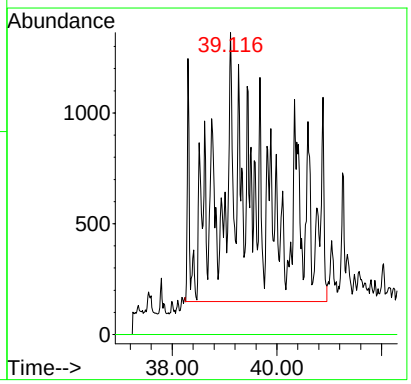


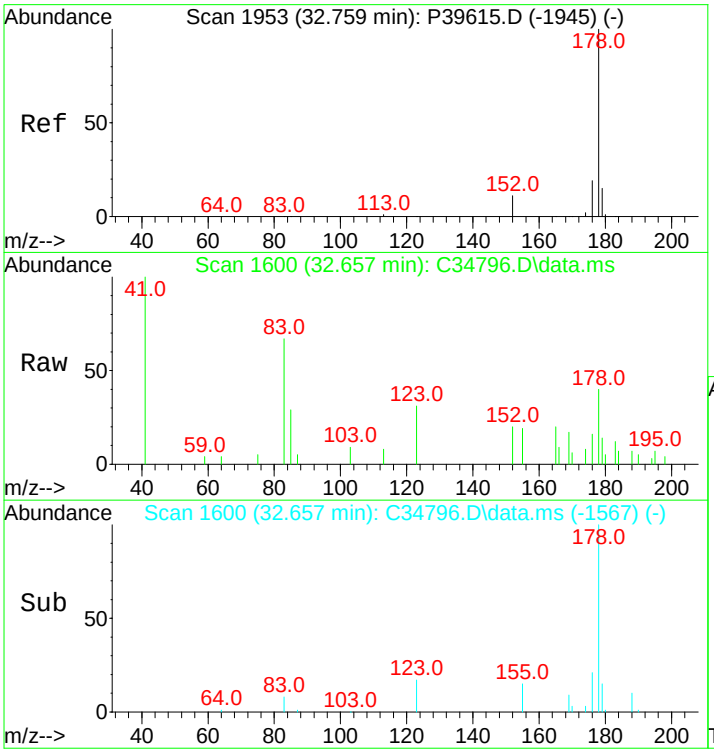


#41
C4-Dibenzothiophenes
Concen: 564.48 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:240 Resp: 67083

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

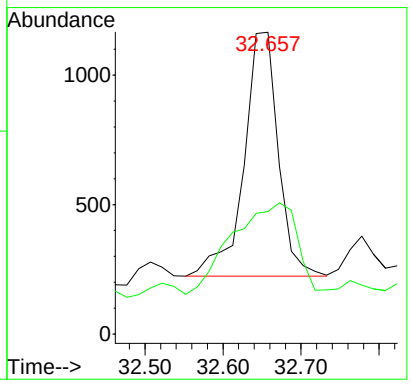


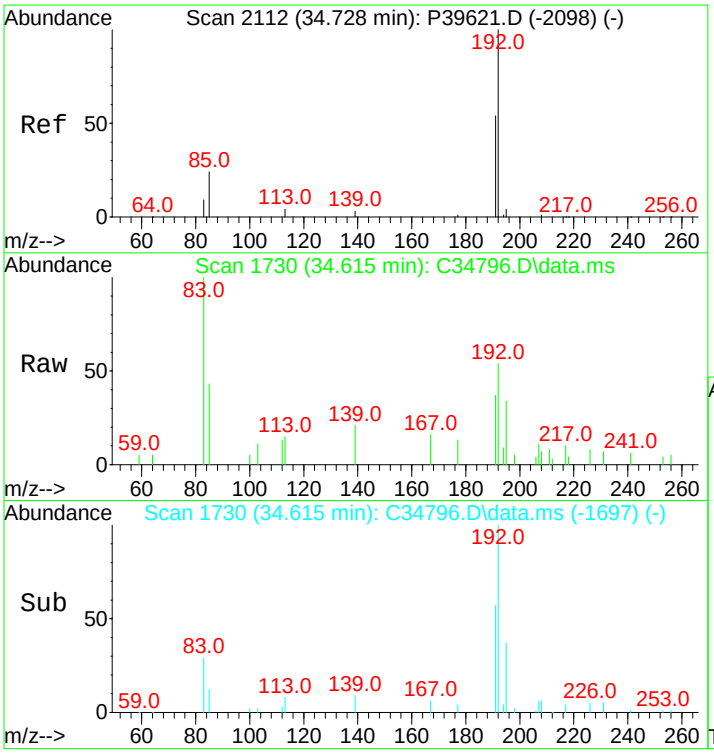


#43
Phenanthrene
Concen: 27.70 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:178 Resp: 2892

Ion	Ratio	Lower	Upper
178	100		
176	70.5	16.1	24.1#

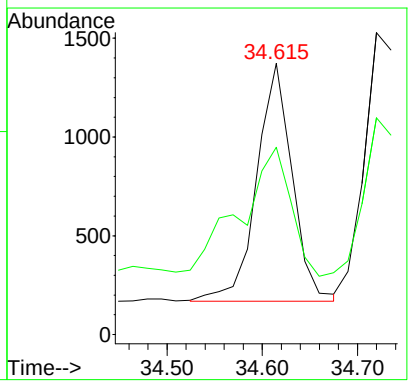


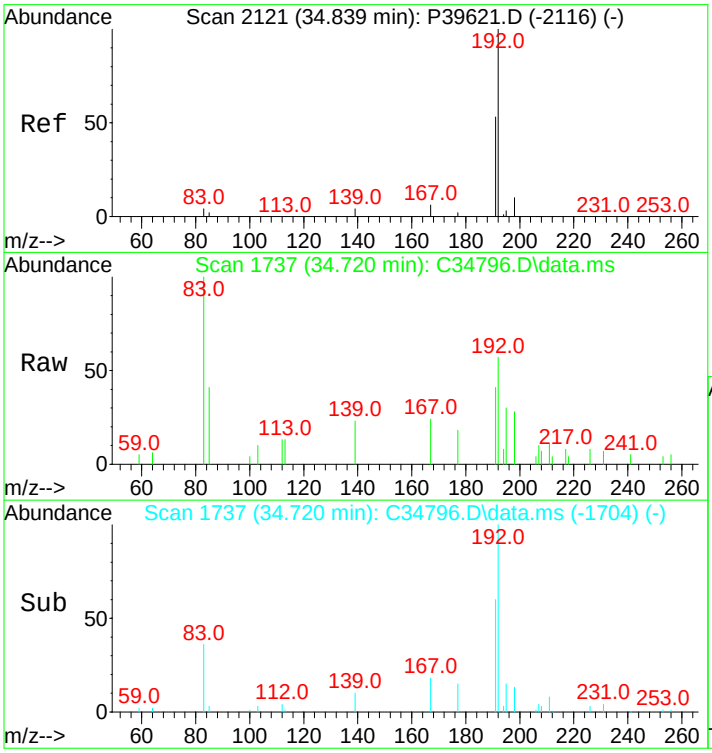


#44
3-Methylphenanthrene(3MP)
Concen: 30.02 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 3134

Ion	Ratio	Lower	Upper
192	100		
191	69.8	46.9	70.3

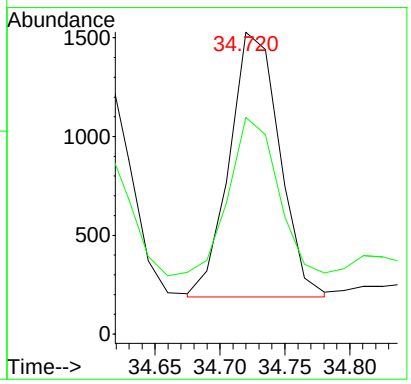


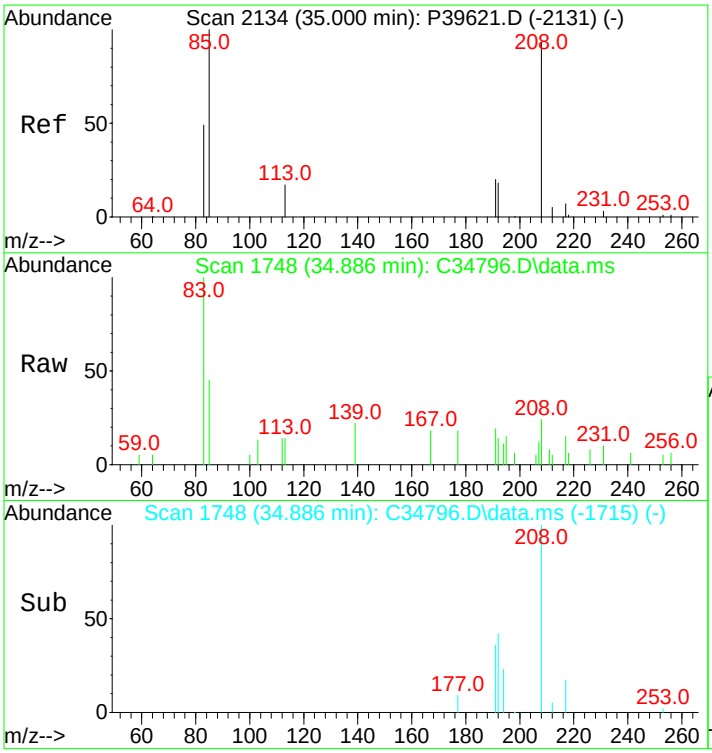


#45
2/4-Methylphenanthrene(2MP)
Concen: 34.47 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 3599

Ion	Ratio	Lower	Upper
192	100		
191	59.0	46.1	69.1

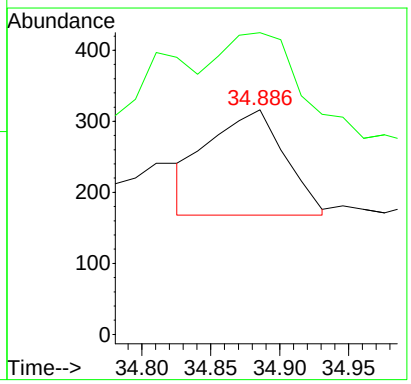


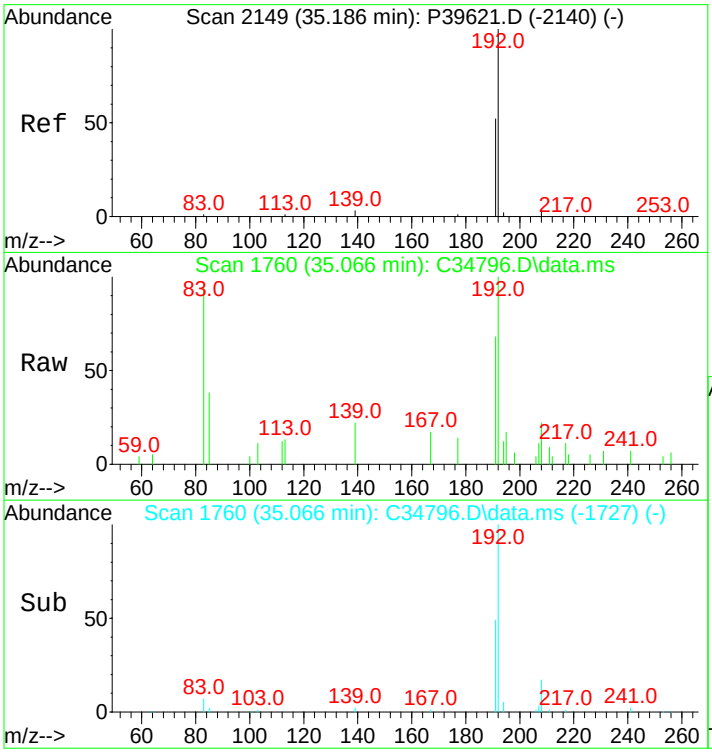


#46
2-Methylanthracene(2MA)
Concen: 5.47 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 571

Ion	Ratio	Lower	Upper
192	100		
191	107.4	93.4	140.0

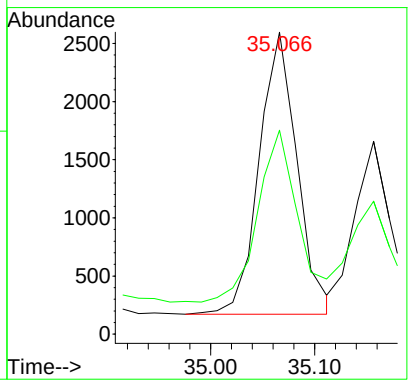


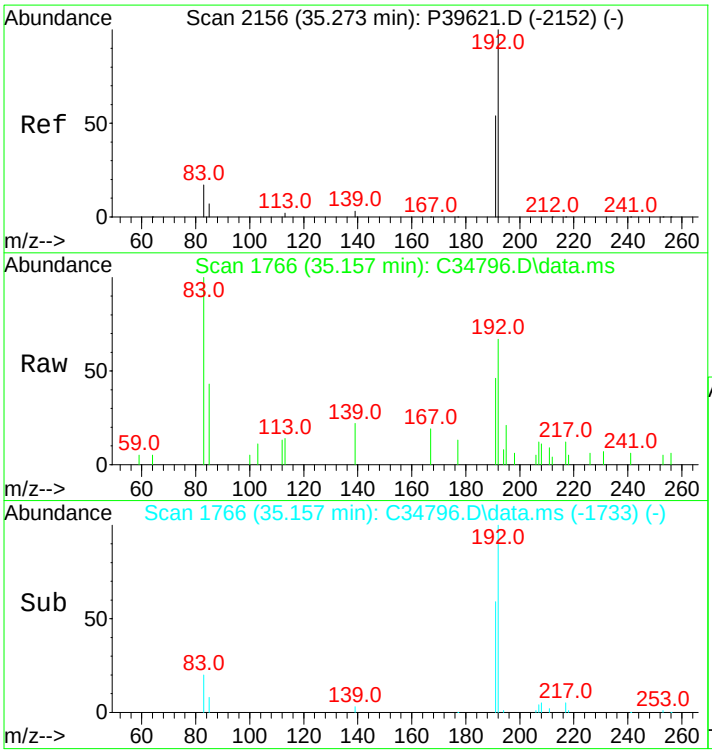


#47
9-Methylphenanthrene(9MP)
Concen: 59.03 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 6163

Ion	Ratio	Lower	Upper
192	100		
191	64.0	45.9	68.9

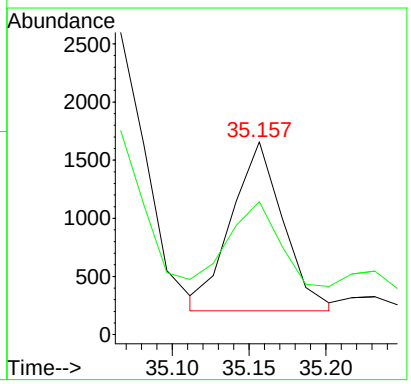


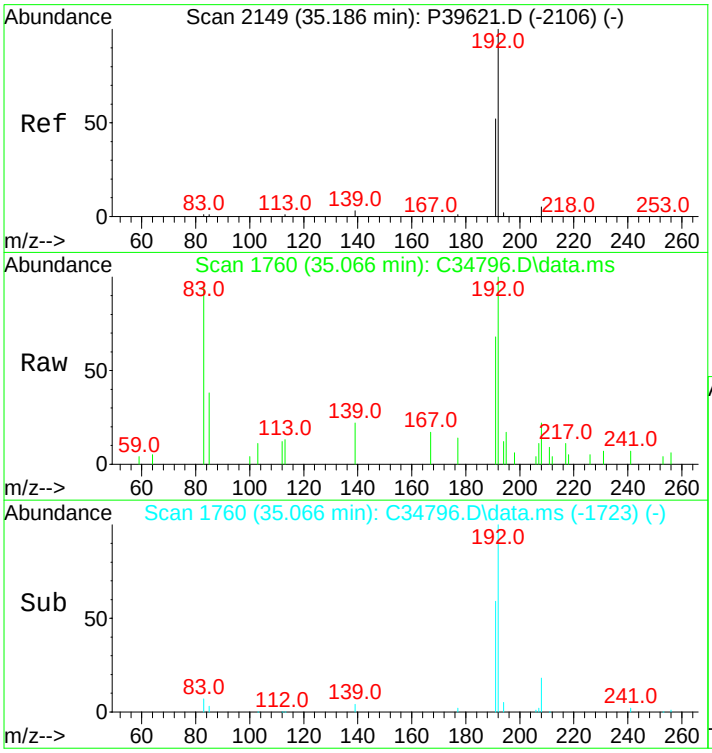


#48
1-Methylphenanthrene(1MP)
Concen: 32.54 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 3398

Ion	Ratio	Lower	Upper
192	100		
191	53.9	49.0	73.4

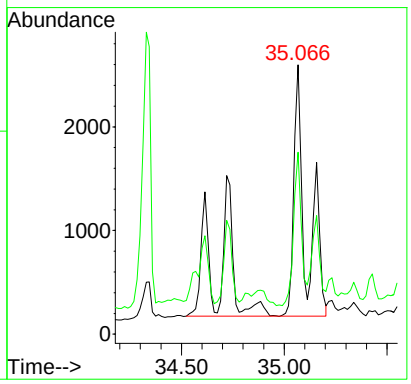


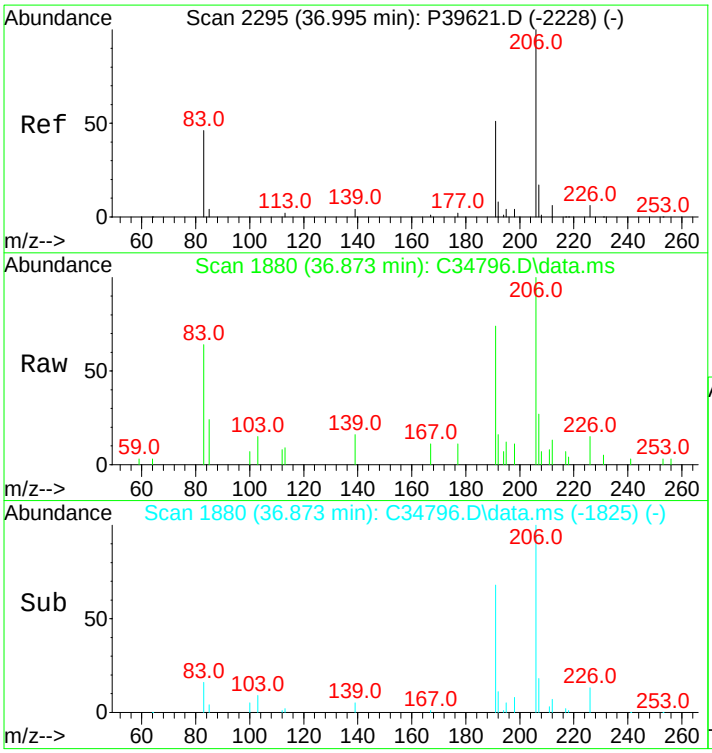


#49
C1-Phenanthrenes/Anthracenes
Concen: 164.81 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 17208

Ion	Ratio	Lower	Upper
192	100		
191	22.9	44.2	66.2#

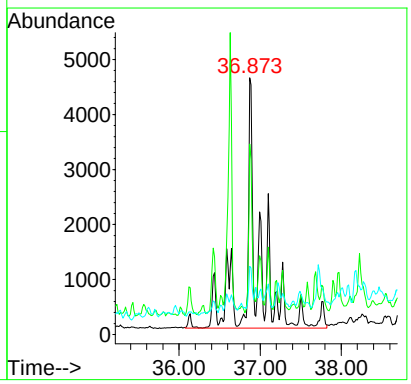


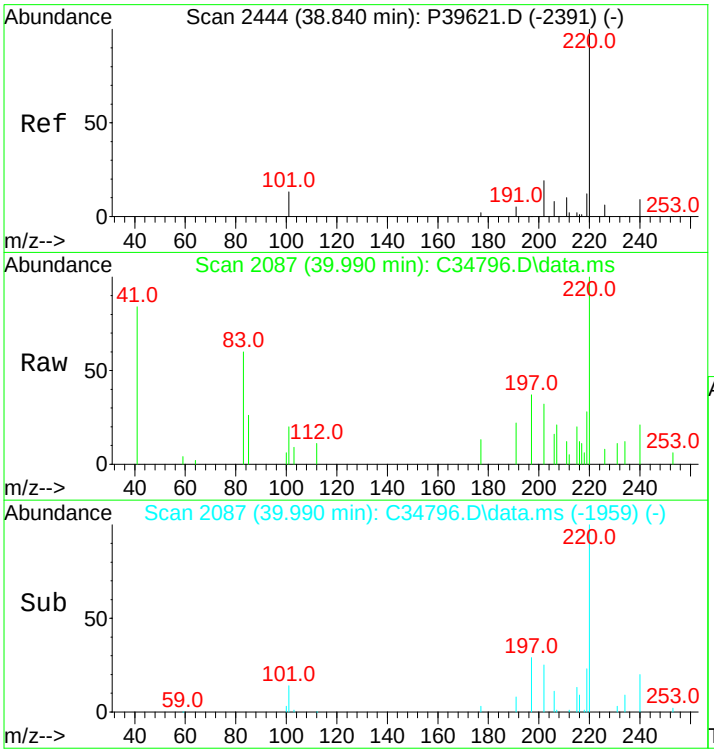


#50
C2-Phenanthrenes/Anthracenes
Concen: 462.82 ng/mL m
RT: 36.873 min Scan# 1880
Delta R.T. 0.061 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:206 Resp: 48324

Ion	Ratio	Lower	Upper
206	100		
191	18.8	44.0	66.0#
207	4.7	15.1	22.7#

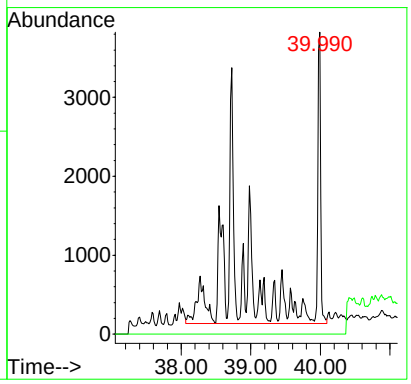


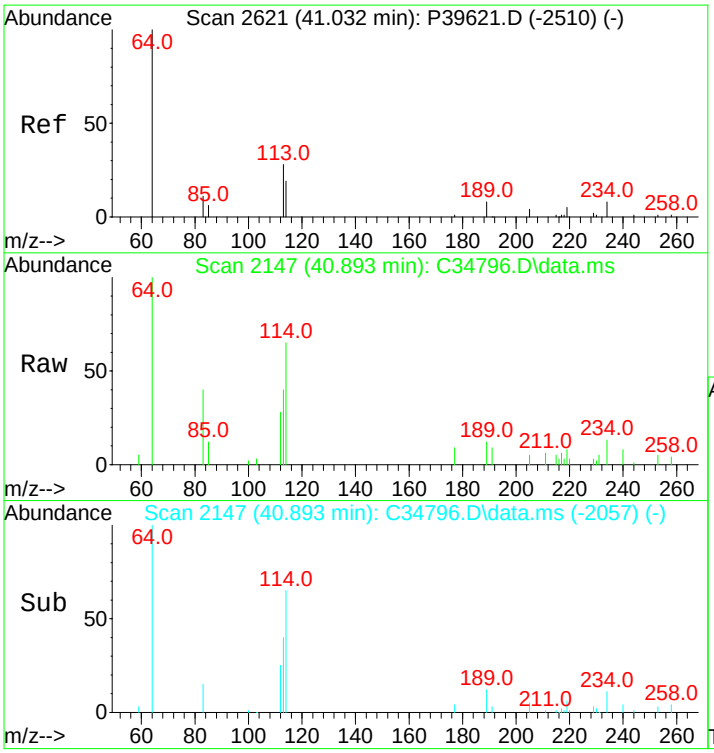


#52
C3-Phenanthrenes/Anthracenes
Concen: 507.72 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:220 Resp: 53012

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

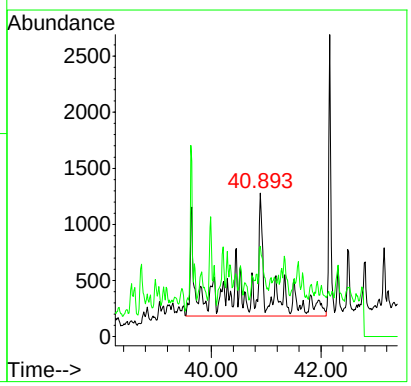


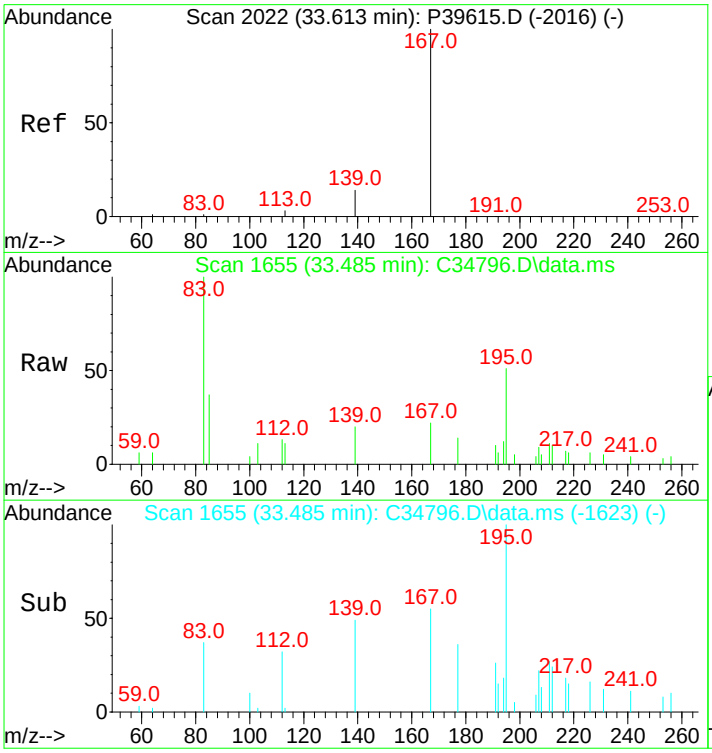


#53
C4-Phenanthrenes/Anthracenes
Concen: 273.58 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:234 Resp: 28565

Ion	Ratio	Lower	Upper
234	100		
219	1.0	46.9	70.3#

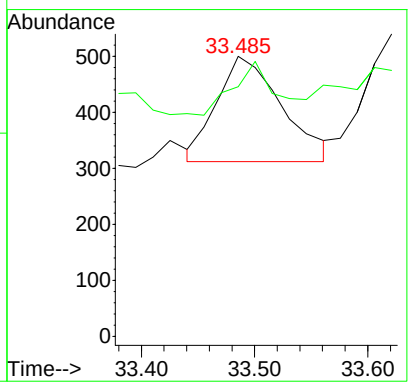


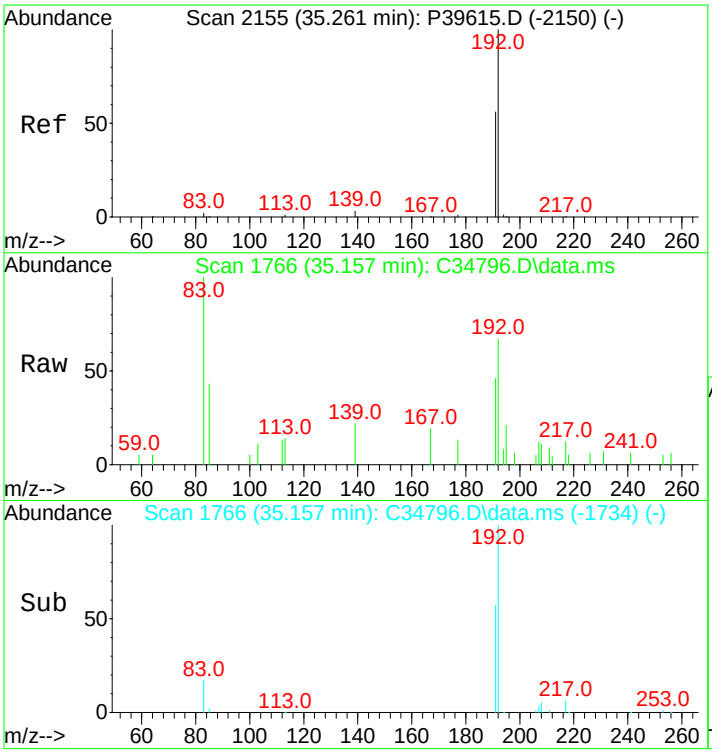


#56
Carbazole
Concen: 7.30 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:167 Resp: 752

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

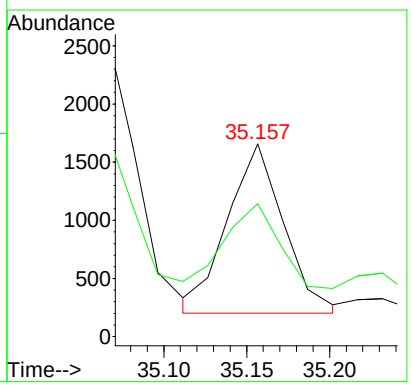


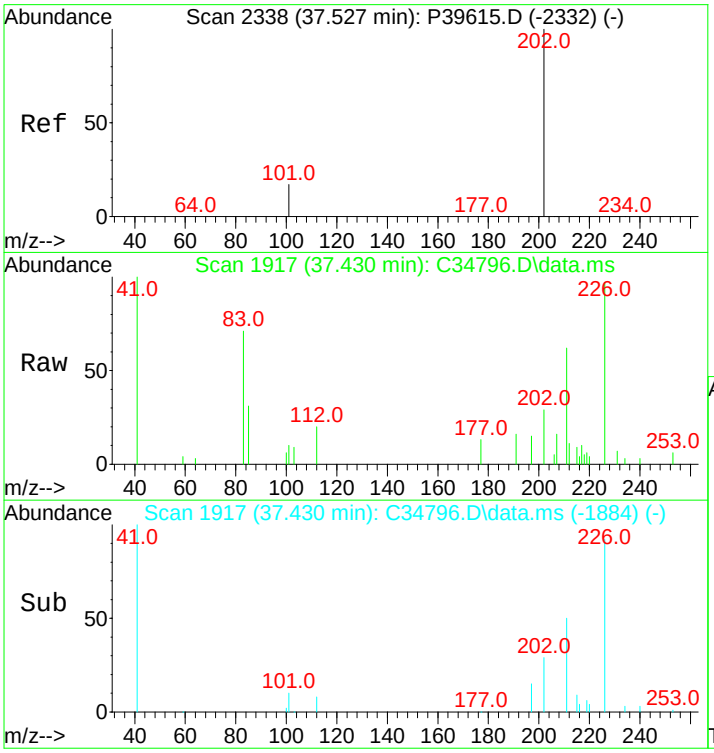


#57
1-Methylphenanthrene
Concen: 51.61 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:192 Resp: 3415

Ion	Ratio	Lower	Upper
192	100		
191	54.1	45.9	68.9

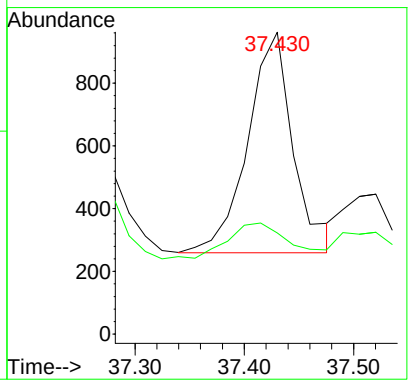


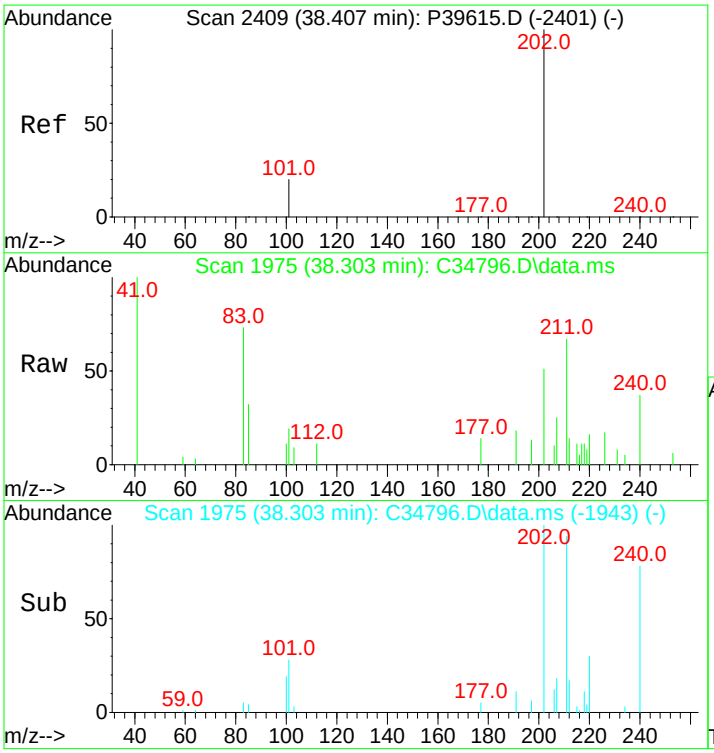


#58
Fluoranthene
Concen: 19.63 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:202 Resp: 2036

Ion	Ratio	Lower	Upper
202	100		
101	39.0	12.9	19.3#

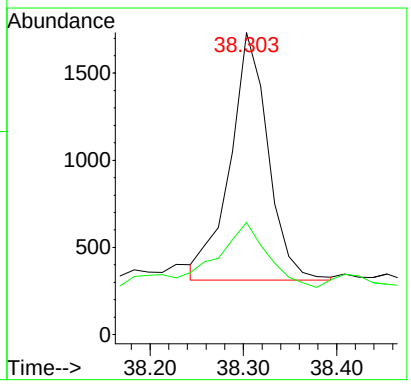


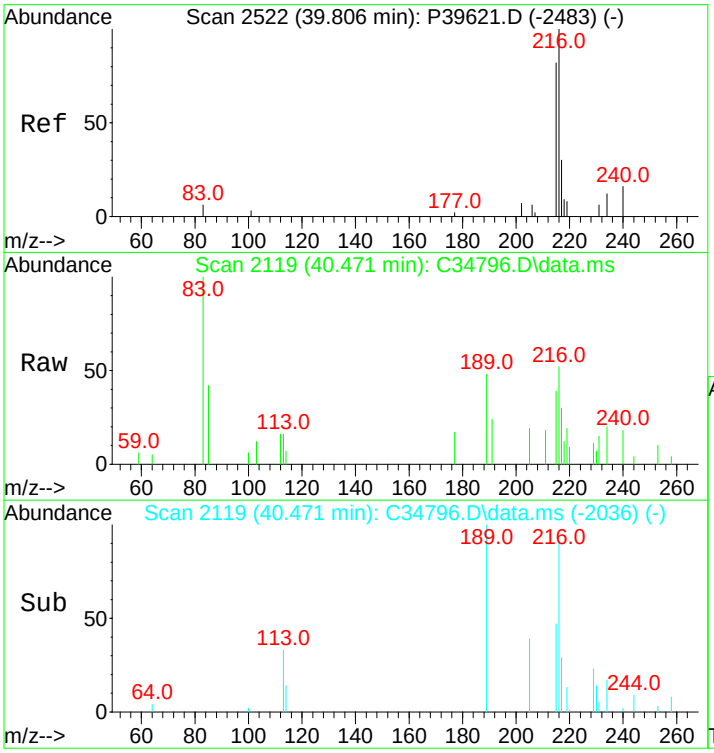


#60
Pyrene
Concen: 37.95 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:202 Resp: 4000

Ion	Ratio	Lower	Upper
202	100		
101	45.5	15.0	22.4#

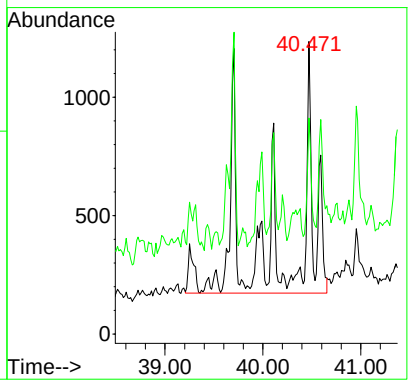


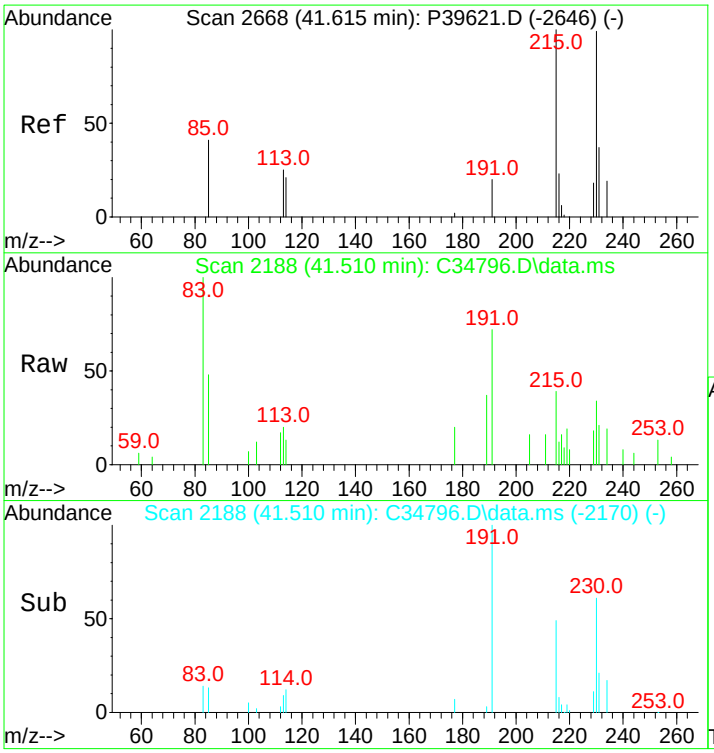


#61
C1-Fluoranthenes/Pyrenes
Concen: 132.85 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:216 Resp: 14004

Ion	Ratio	Lower	Upper
216	100		
215	24.4	71.8	107.6#

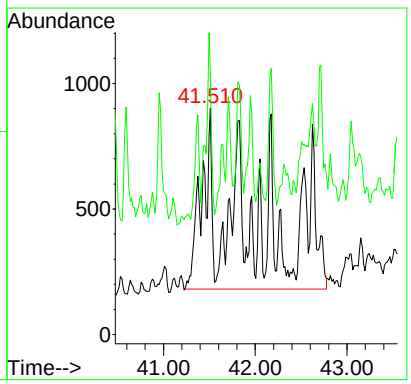


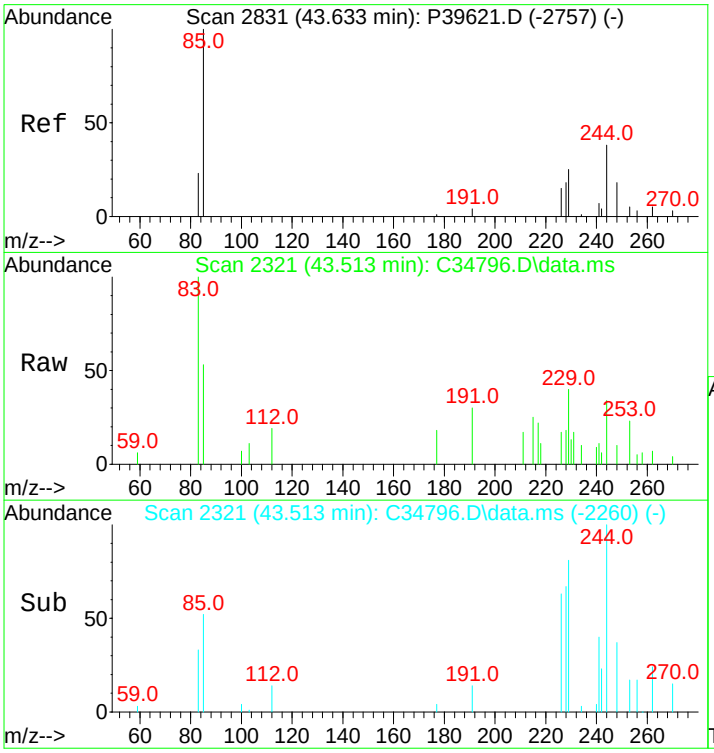


#62
C2-Fluoranthenes/Pyrenes
Concen: 213.05 ng/mL m
RT: 41.510 min Scan# 2188
Delta R.T. 0.111 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:230 Resp: 22458

Ion	Ratio	Lower	Upper
230	100		
215	4.7	99.0	148.4#

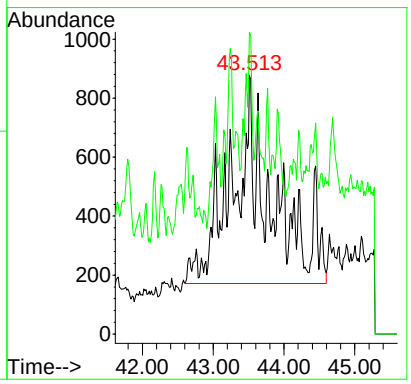


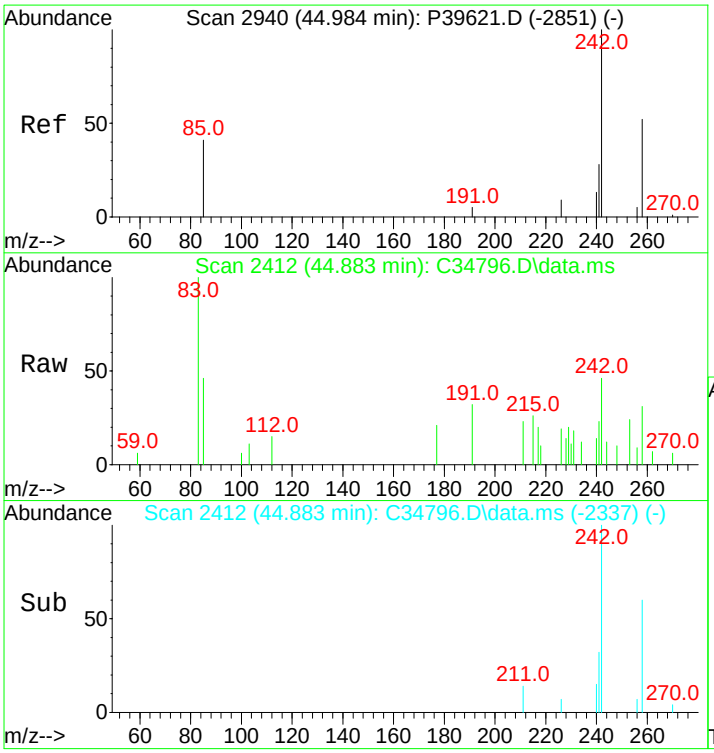


#63
C3-Fluoranthenes/Pyrenes
Concen: 250.35 ng/mL m
RT: 43.513 min Scan# 2321
Delta R.T. 0.105 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:244 Resp: 26390

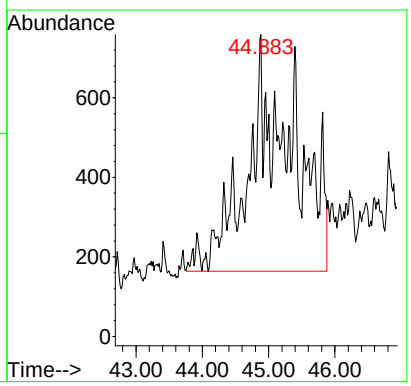
Ion	Ratio	Lower	Upper
244	100		
229	5.9	73.3	109.9#

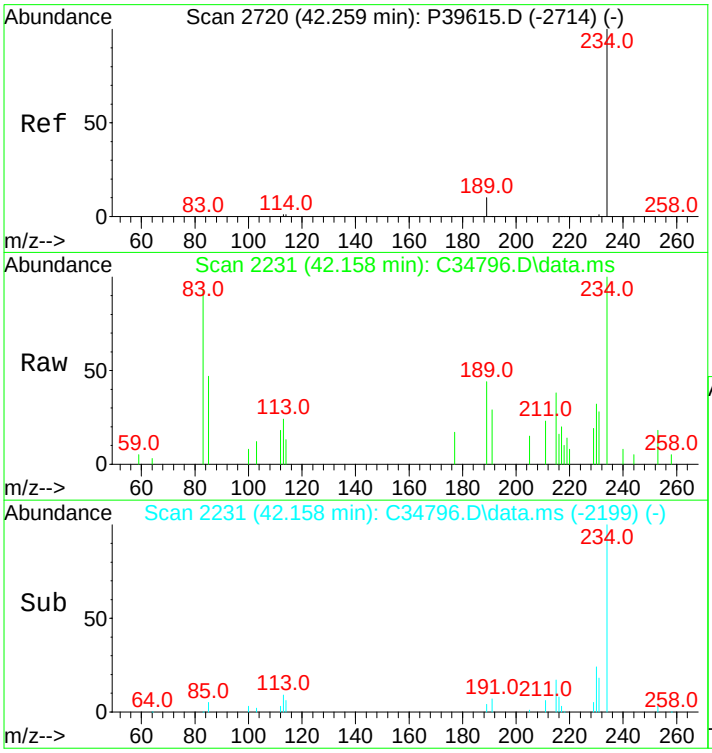




#64
C4-Fluoranthenes/Pyrenes
Concen: 255.87 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:258 Resp: 26972

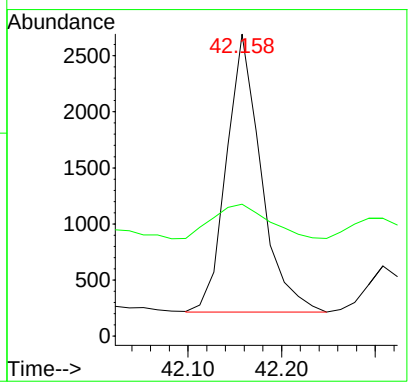


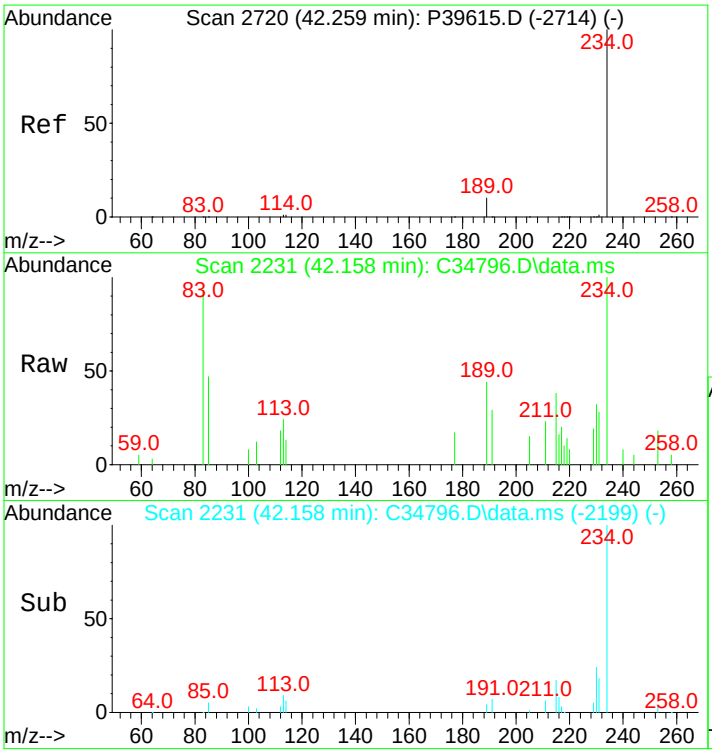


#66
Naphthobenzothiophene
Concen: 56.16 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:234 Resp: 6373

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

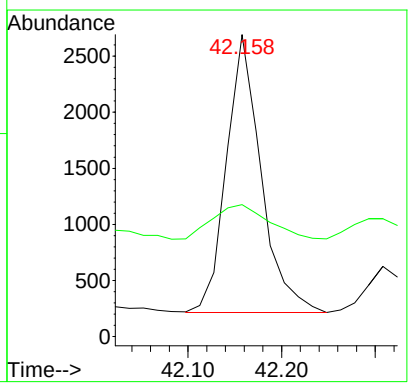


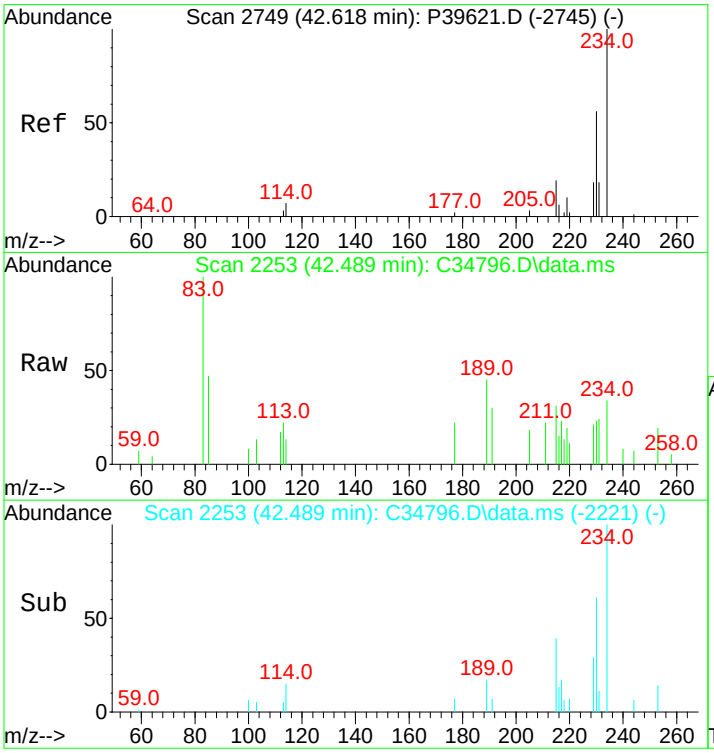


#67
Naphthobenzothiophene-2,1-D
Concen: 56.16 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:234 Resp: 6373

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

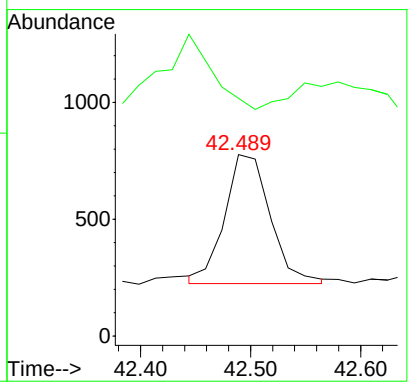


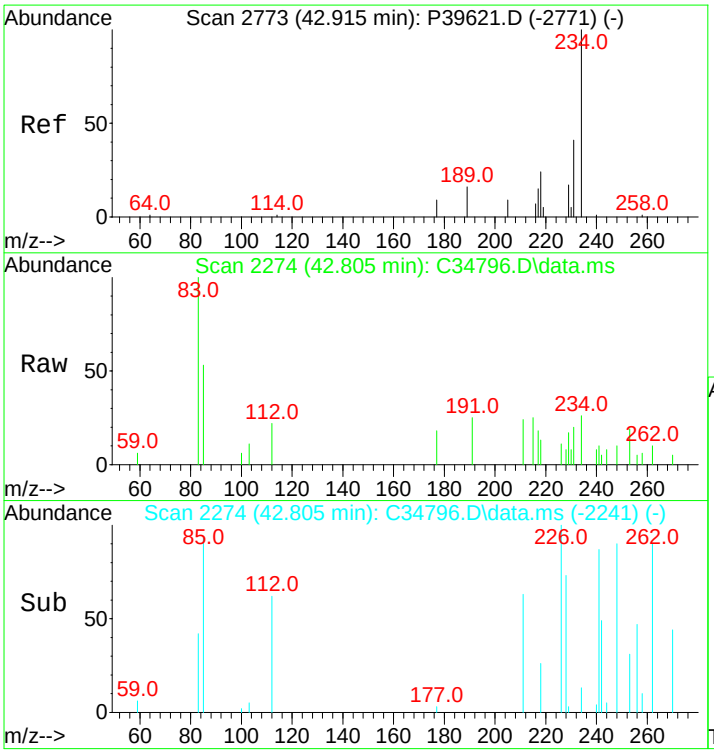


#68
Naphthobenzothiophene-1,2-D
Concen: 14.04 ng/mL m
RT: 42.489 min Scan# 2253
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:234 Resp: 1593

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

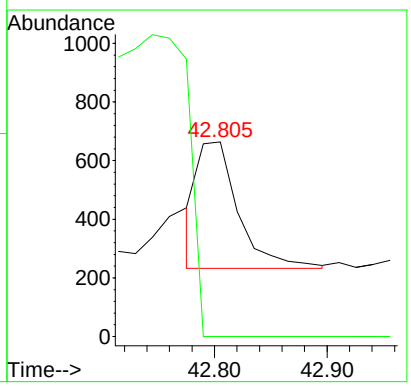


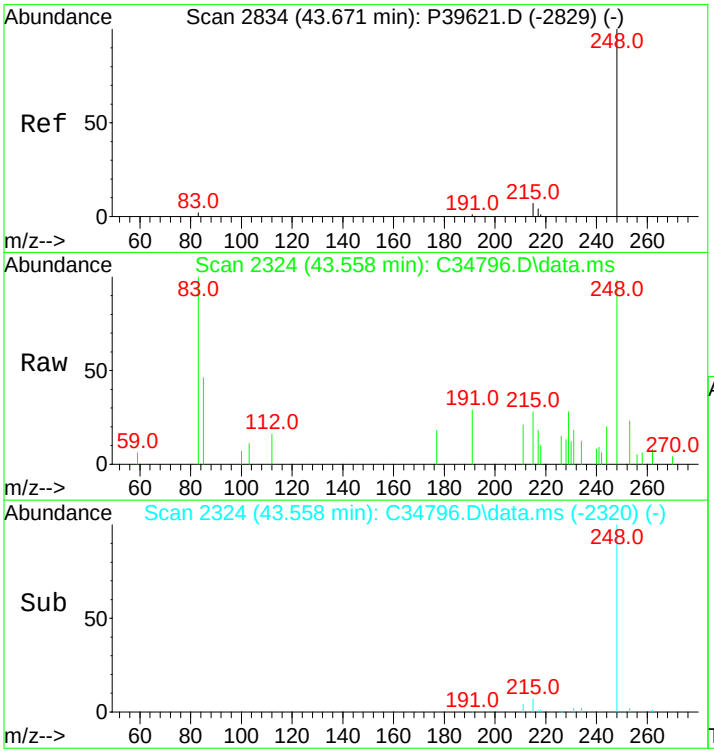


#69
Naphthobenzothiophene-2,3-D
Concen: 9.61 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:234 Resp: 1091

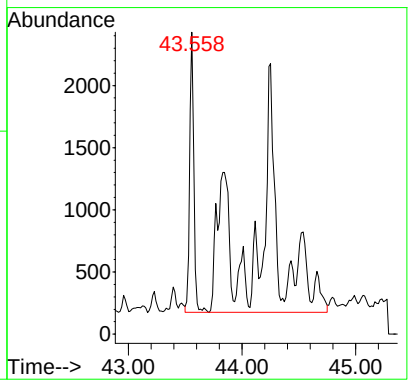
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

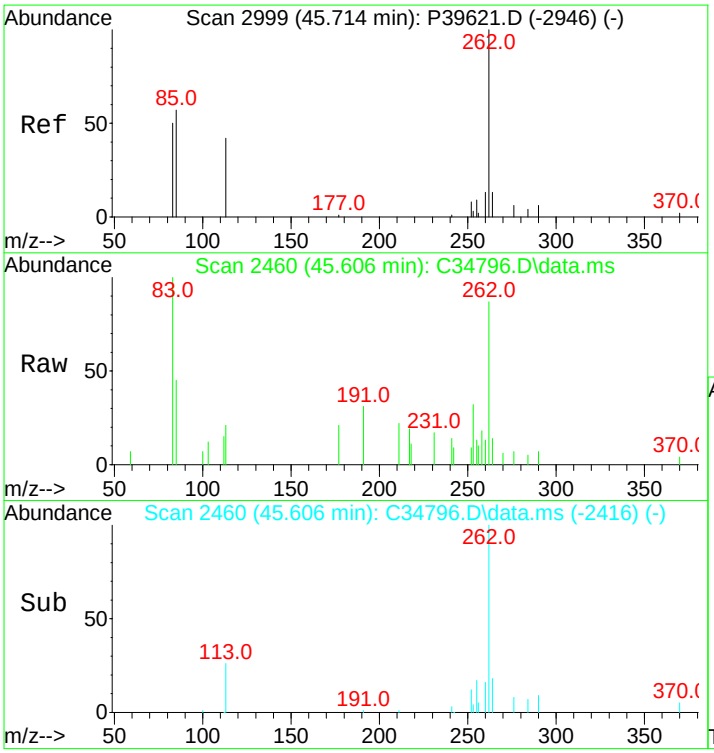




#70
C1-Naphthobenzothiophenes
Concen: 300.94 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

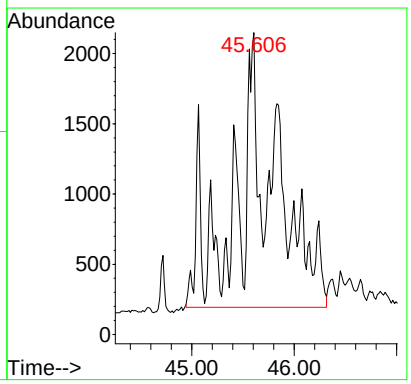
Tgt Ion:248 Resp: 34152

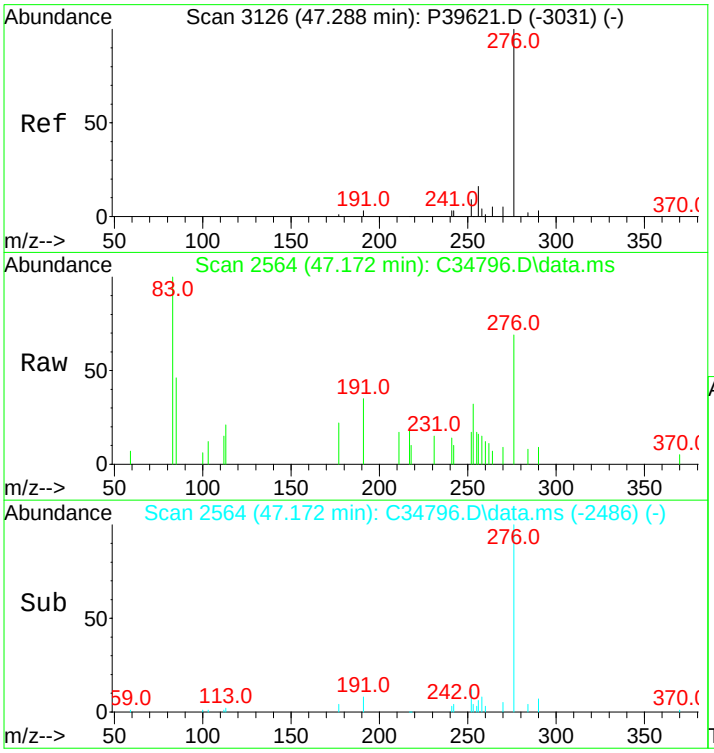




#71
C2-Naphthobenzothiophenes
Concen: 454.44 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

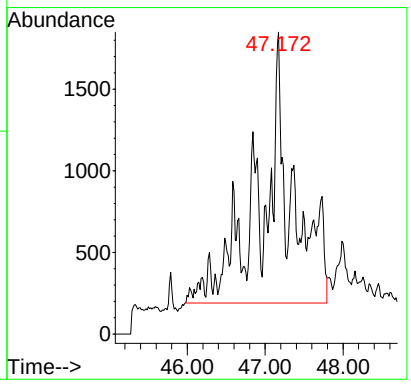
Tgt Ion:262 Resp: 51573

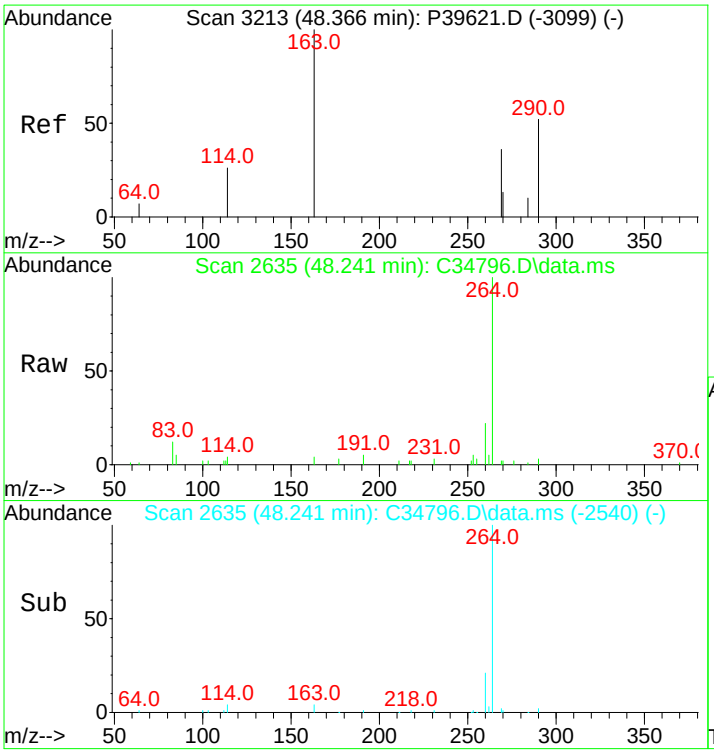




#72
C3-Naphthobenzothiophenes
Concen: 405.43 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

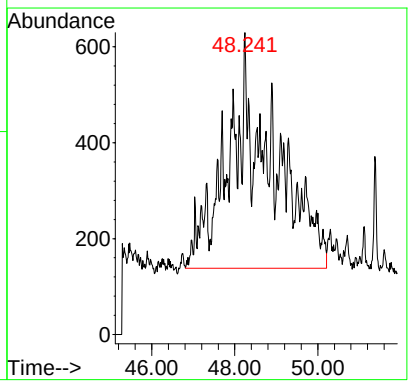
Tgt Ion:276 Resp: 46011

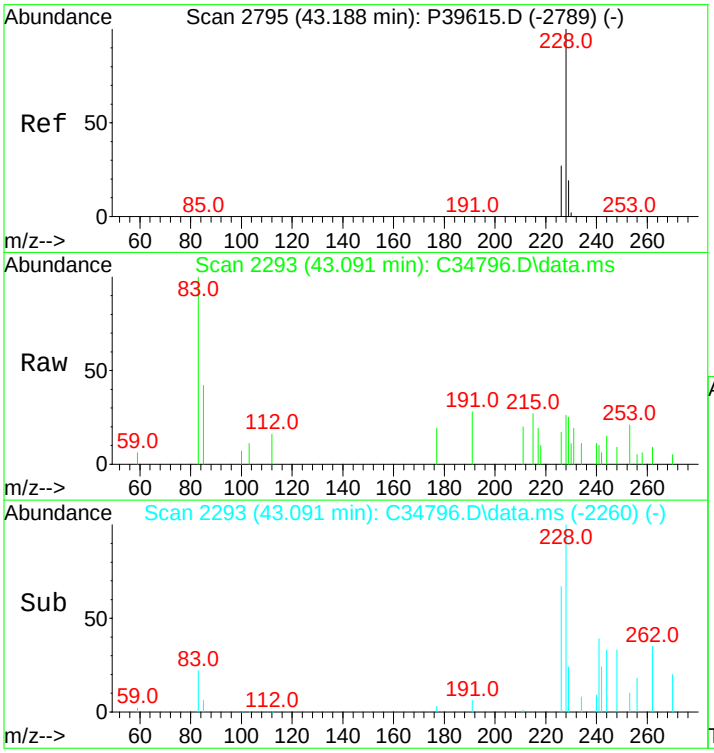




#73
C4-Naphthobenzothiophenes
Concen: 306.65 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:290 Resp: 34801

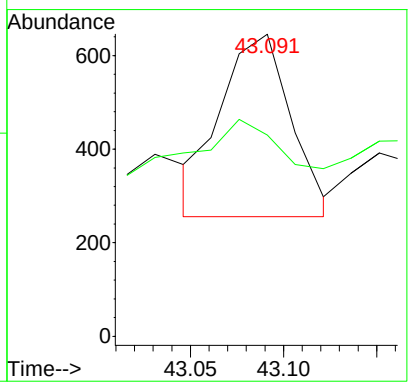


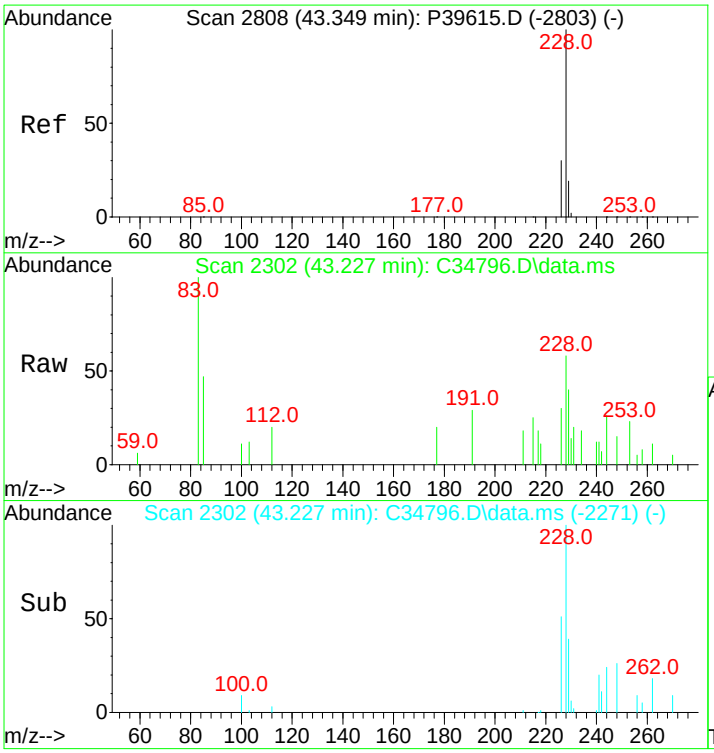


#75
Benz[a]anthracene
Concen: 9.57 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:228 Resp: 1019

Ion	Ratio	Lower	Upper
228	100		
226	120.3	21.4	32.0#

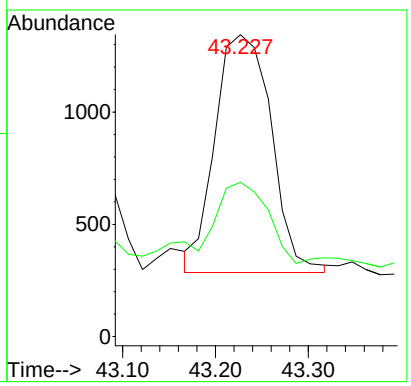


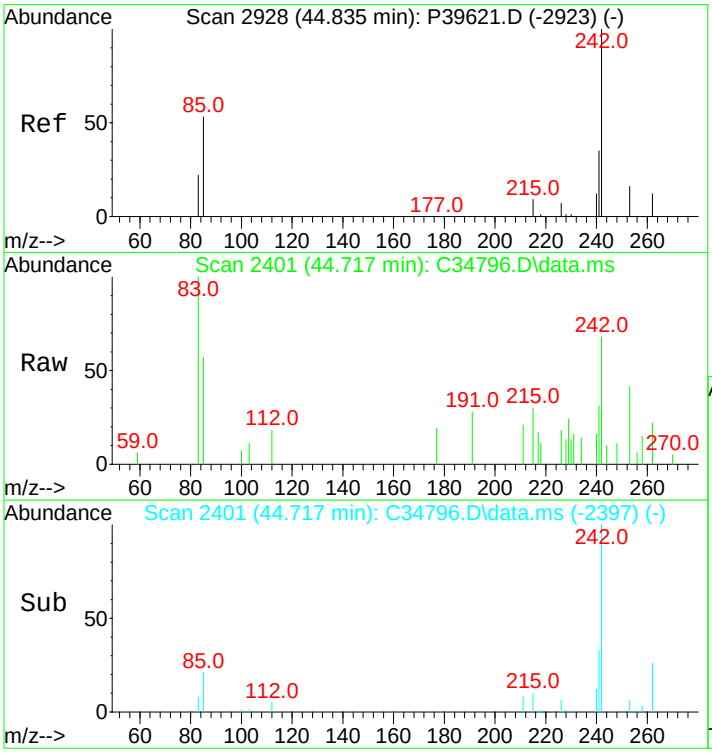


#77
Chrysene/Triphenylene
Concen: 41.32 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:228 Resp: 4441

Ion	Ratio	Lower	Upper
228	100		
226	27.6	23.7	35.5

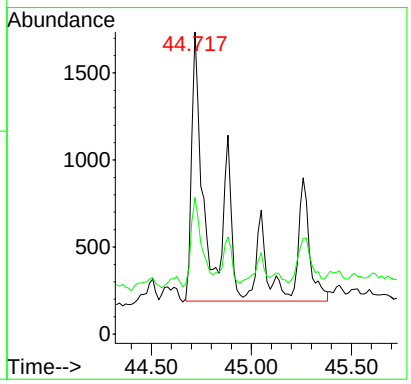


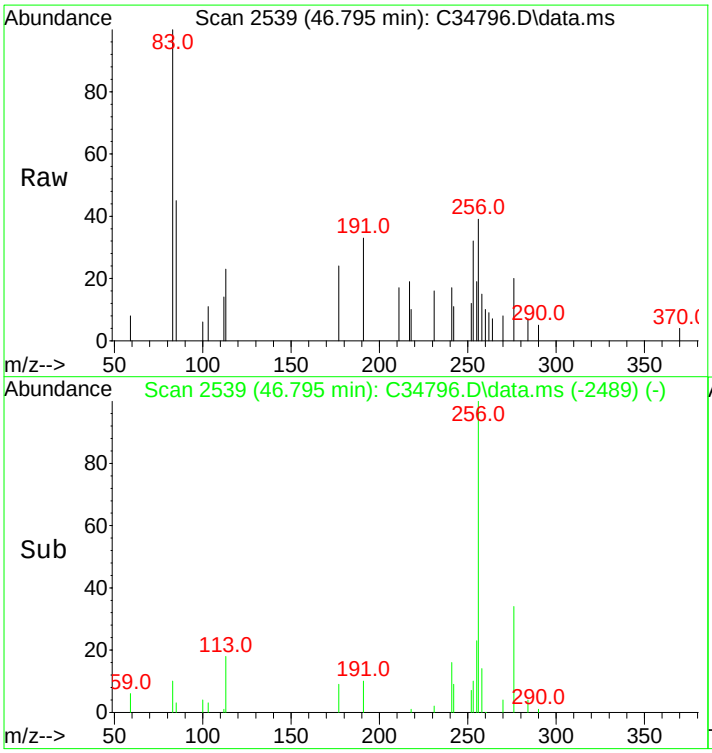


#78
C1-Chrysenes
Concen: 118.53 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:242 Resp: 12740

Ion	Ratio	Lower	Upper
242	100		
241	10.4	31.4	47.2#

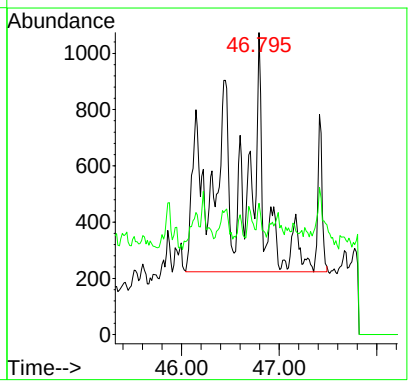


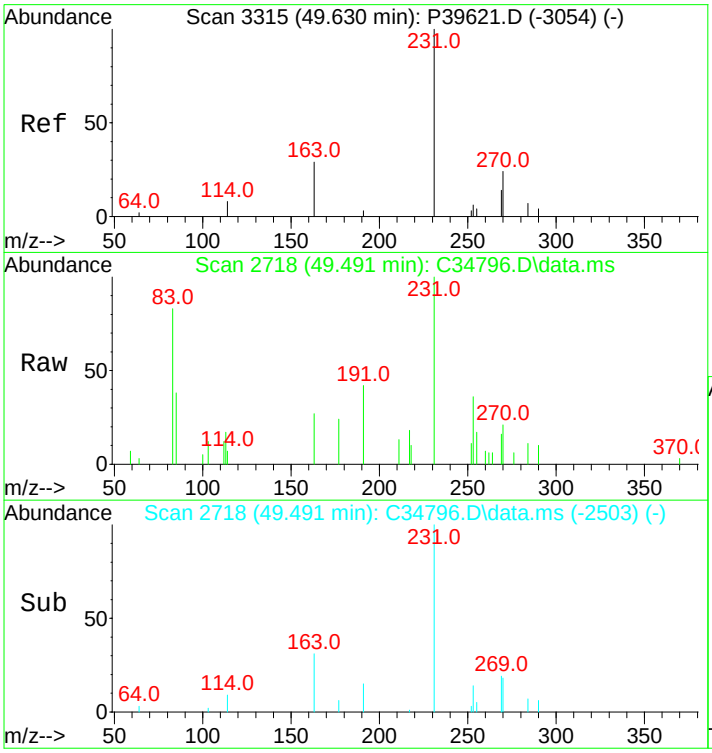


#79
C2-Chrysenes
Concen: 183.20 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:256 Resp: 19691

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

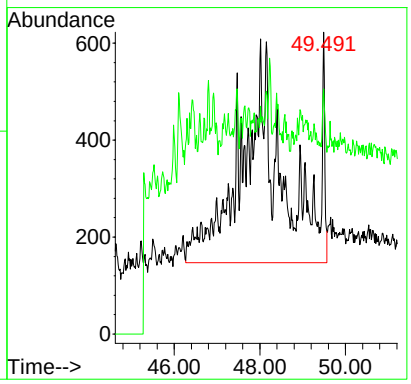


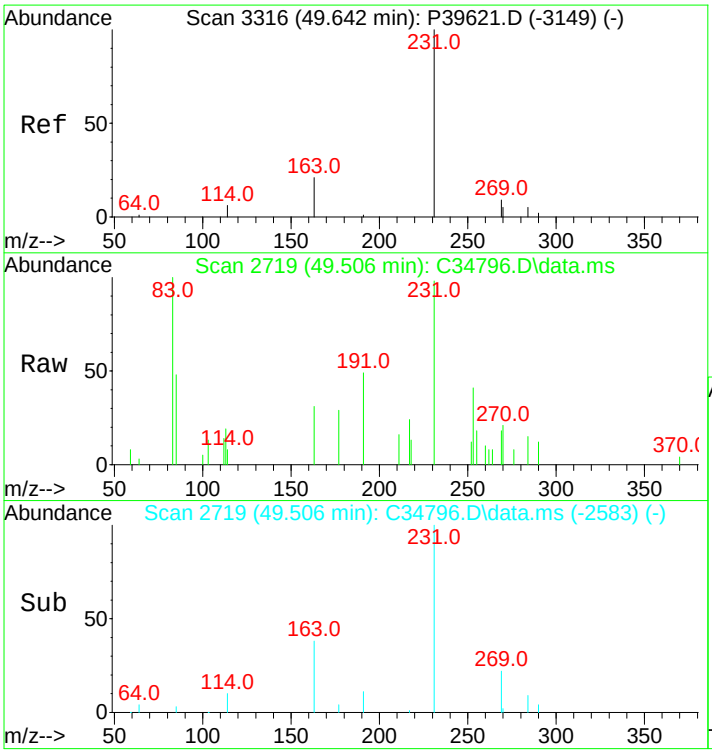


#80
C3-Chrysenes
Concen: 273.60 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:270 Resp: 29407

Ion	Ratio	Lower	Upper
270	100		
255	1.5	33.8	50.8#

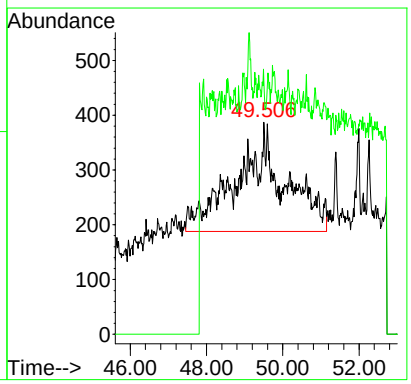


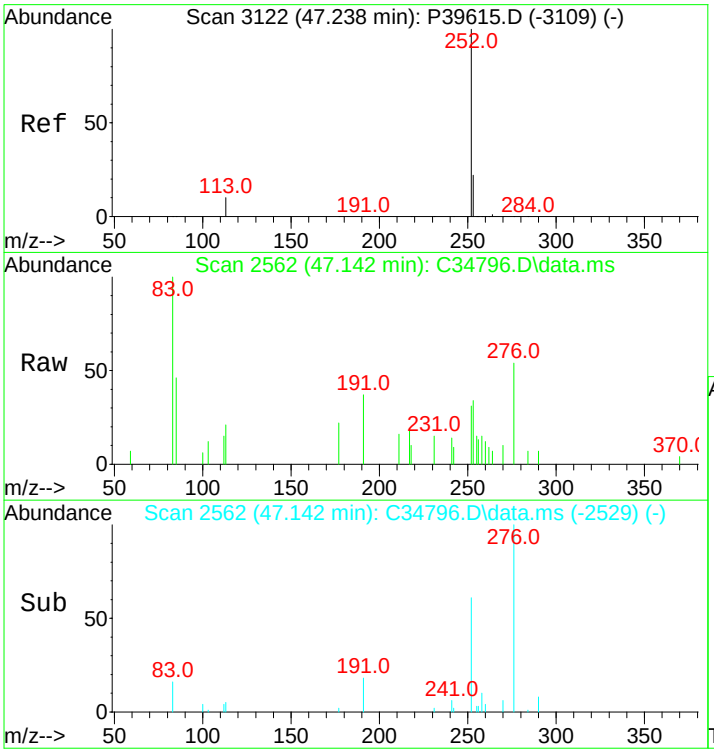


#81
C4-Chrysenes
Concen: 158.32 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:284 Resp: 17017

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

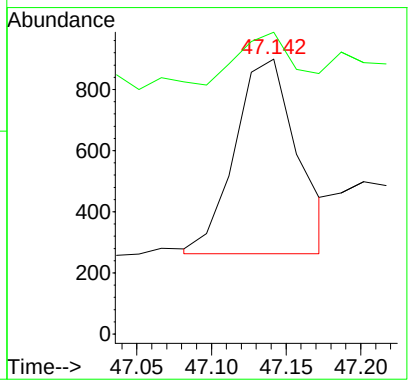


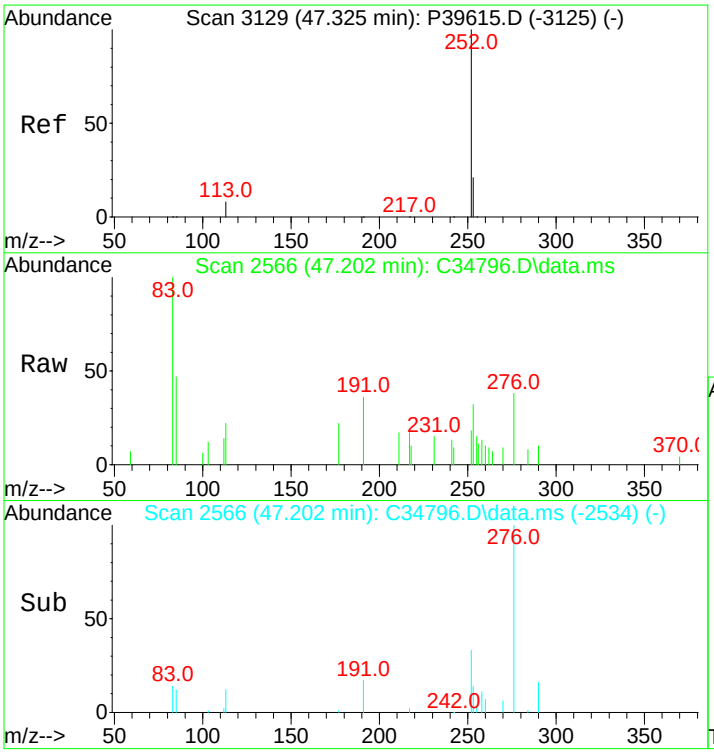


#82
Benzo[b]fluoranthene
Concen: 15.92 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 1862

Ion	Ratio	Lower	Upper
252	100		
253	21.2	19.0	28.4

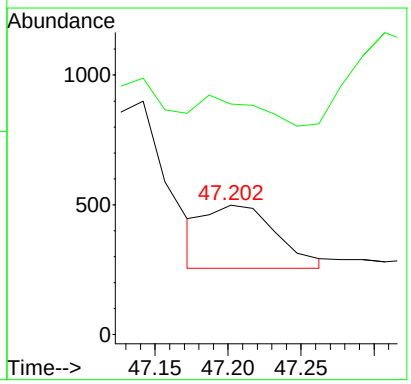


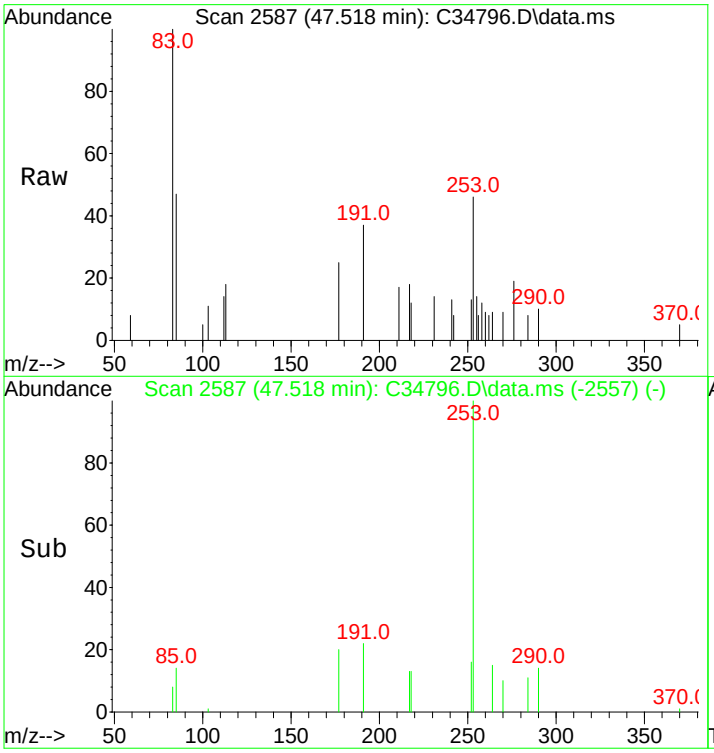


#83
Benzo[j]+[k]fluoranthene
Concen: 6.46 ng/mL m
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 823

Ion	Ratio	Lower	Upper
252	100		
253	47.5	19.0	28.4#

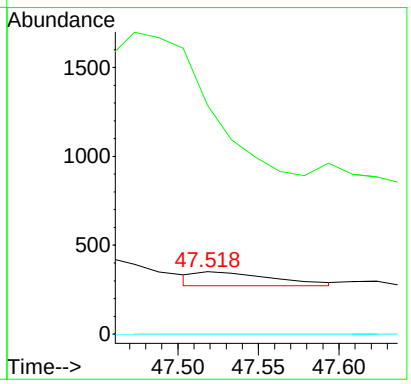


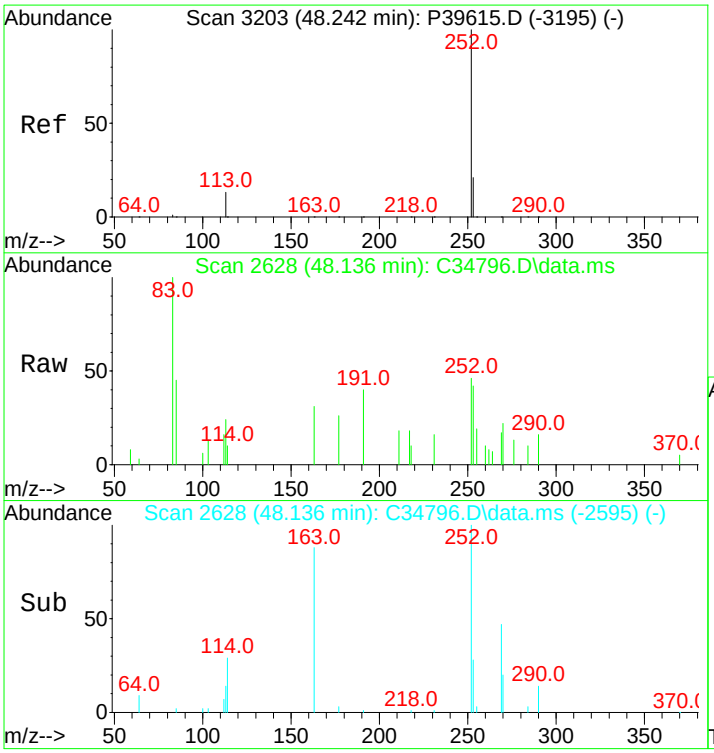


#84
Benzo[a]fluoranthene
Concen: 2.03 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 258

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

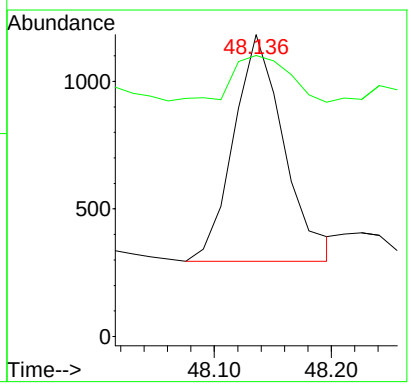


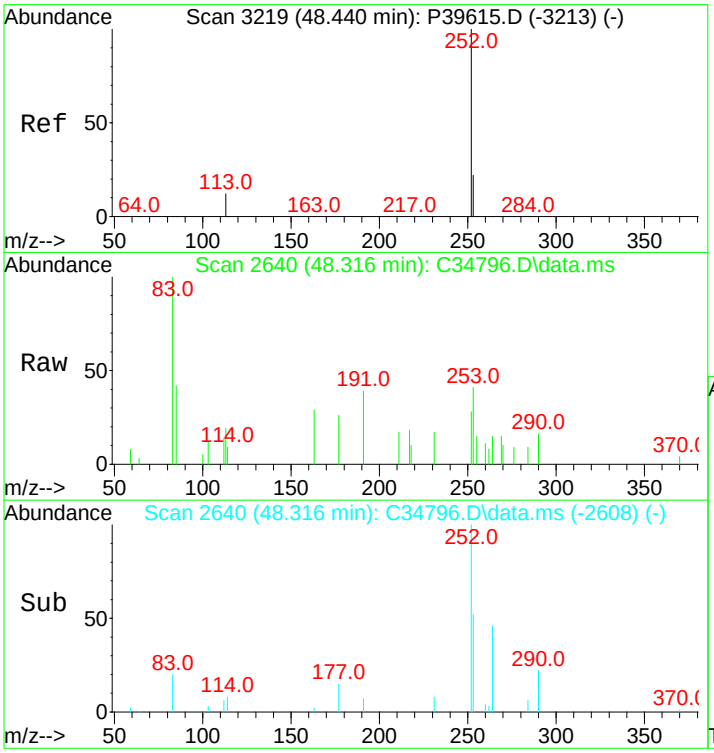


#85
Benzo[e]pyrene
Concen: 22.96 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 2657

Ion	Ratio	Lower	Upper
252	100		
253	30.1	19.2	28.8#

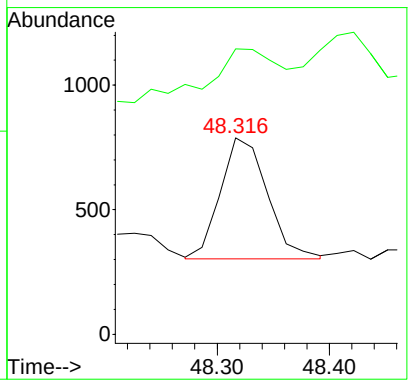


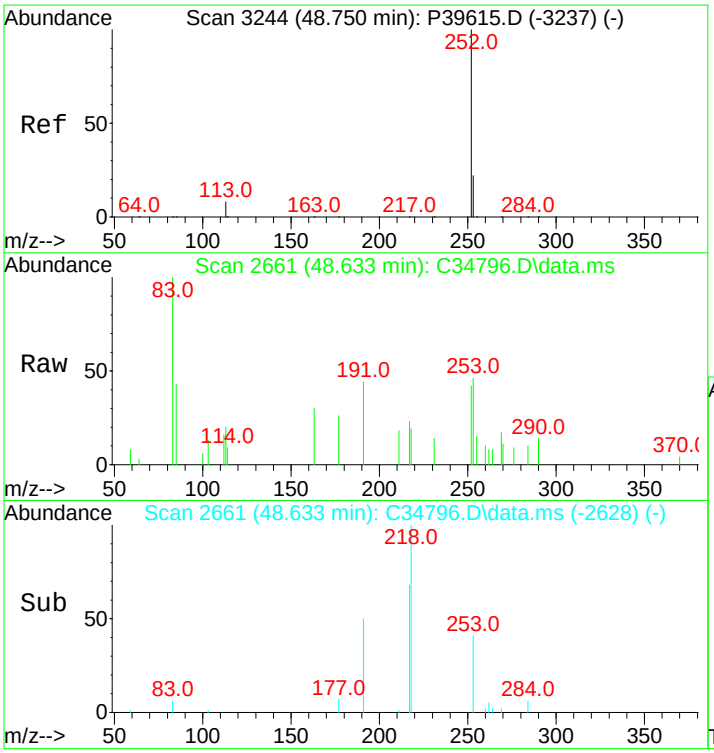


#87
Benzo[a]pyrene
Concen: 12.71 ng/mL m
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 1416

Ion	Ratio	Lower	Upper
252	100		
253	47.5	19.5	29.3#

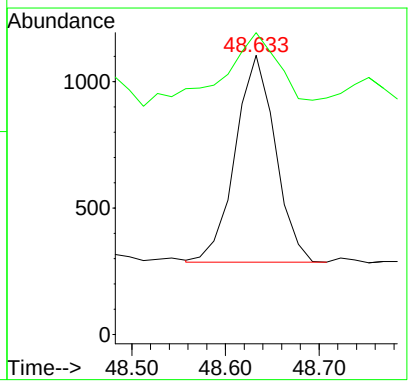


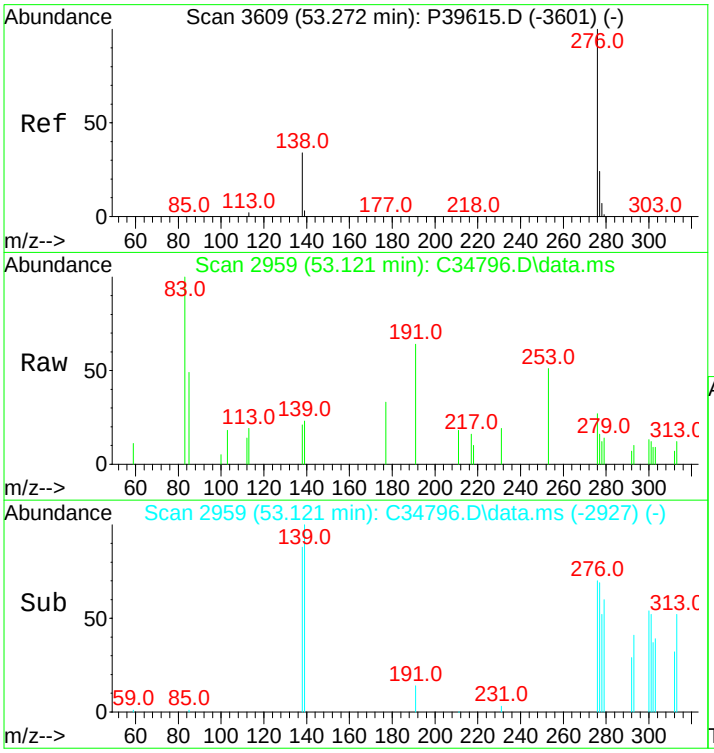


#88
Perylene
Concen: 20.40 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:252 Resp: 2429

Ion	Ratio	Lower	Upper
252	100		
253	50.7	19.6	29.4#

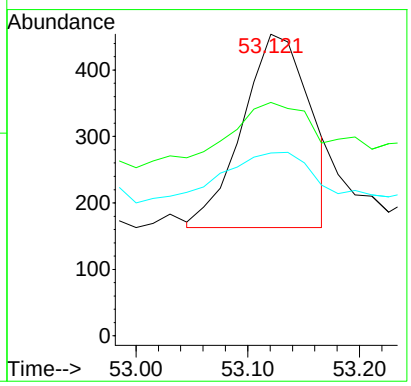


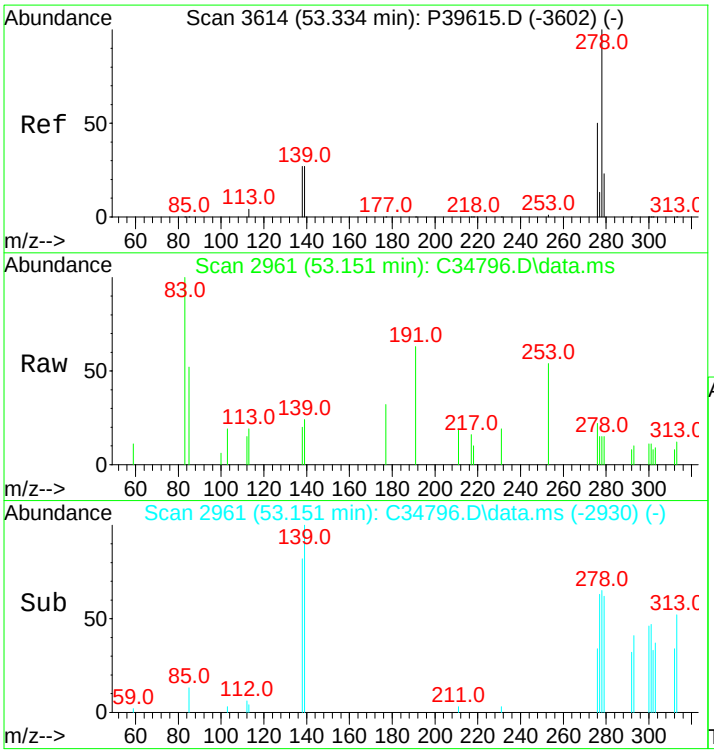


#89
Indeno[1,2,3-cd]pyrene
Concen: 9.41 ng/mL m
RT: 53.121 min Scan# 2959
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:276 Resp: 1220

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

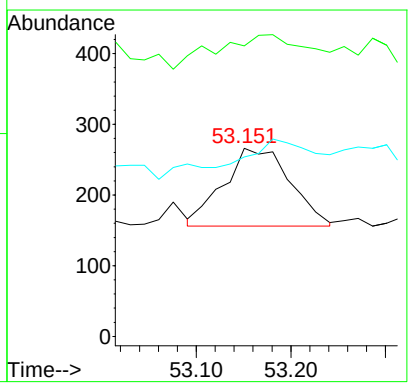


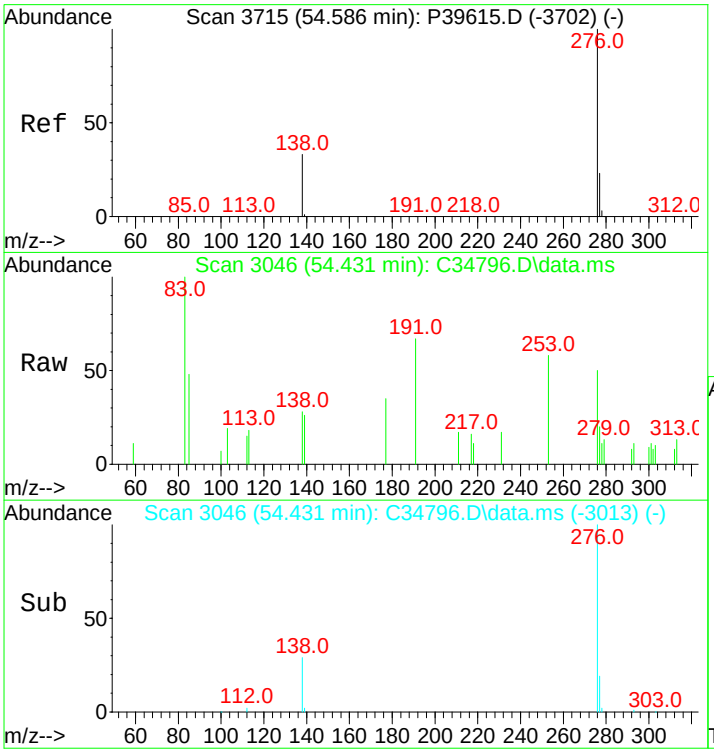


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.36 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:278 Resp: 538

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

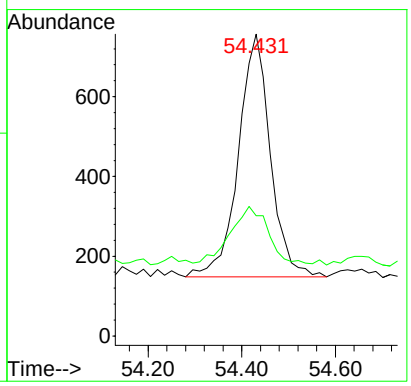


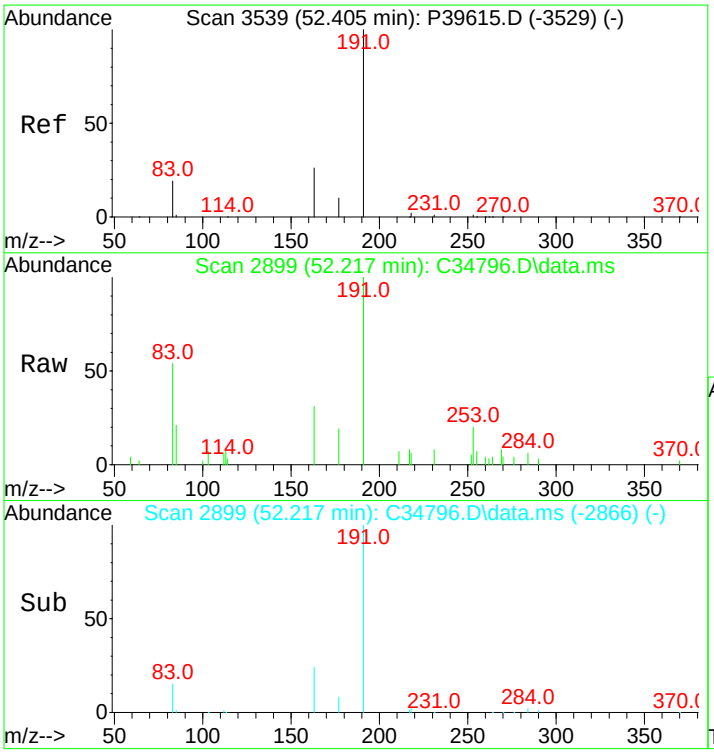


#91
Benzo[g,h,i]perylene
Concen: 21.15 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:276 Resp: 2897

Ion	Ratio	Lower	Upper
276	100		
277	28.1	18.9	28.3

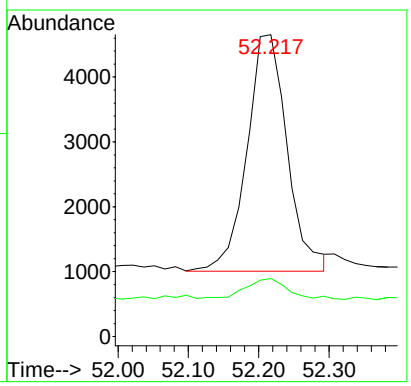


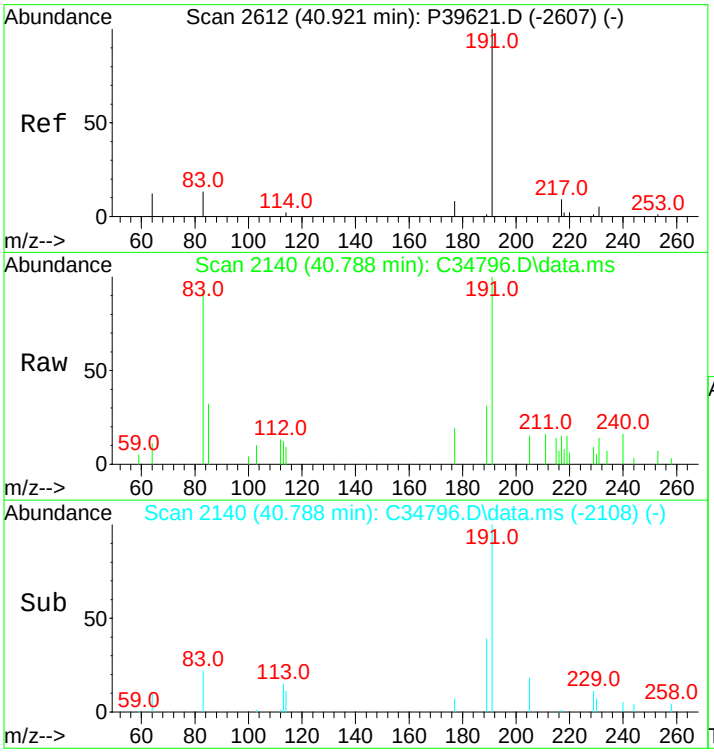


#92
Hopane (T19)
Concen: 655.51 ng/mL m
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:191 Resp: 14491

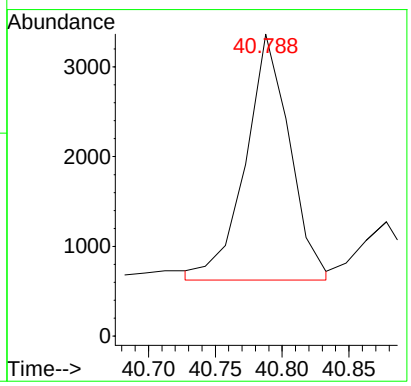
Ion	Ratio	Lower	Upper
191	100		
177	9.2	14.6	21.8#

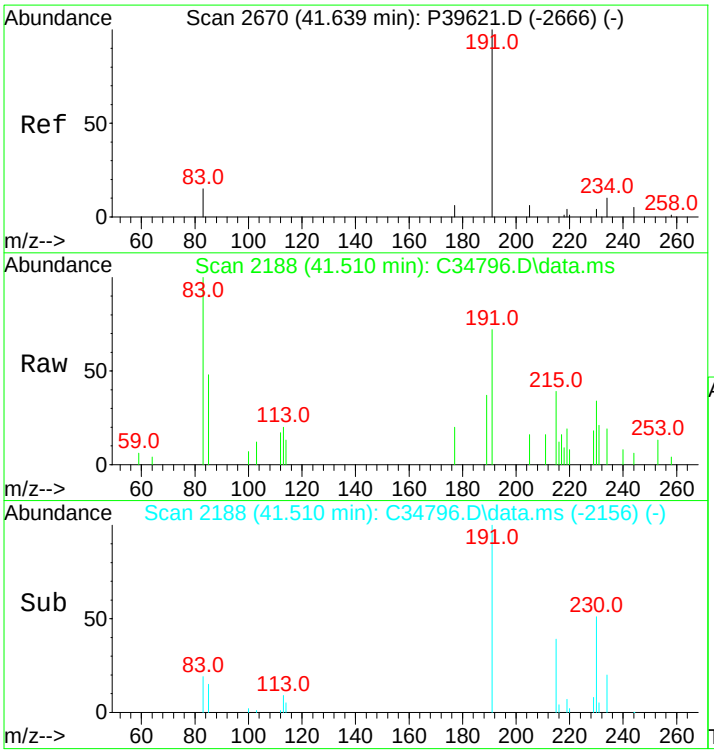




#94
C23 Tricyclic Terpane (T4)
Concen: 283.35 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

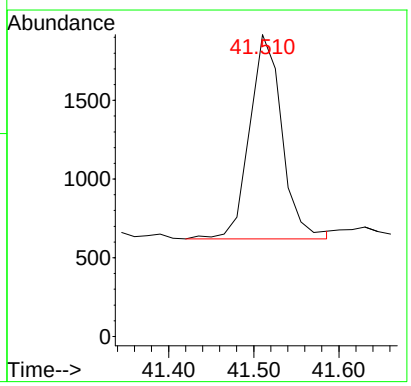
Tgt Ion:191 Resp: 6264

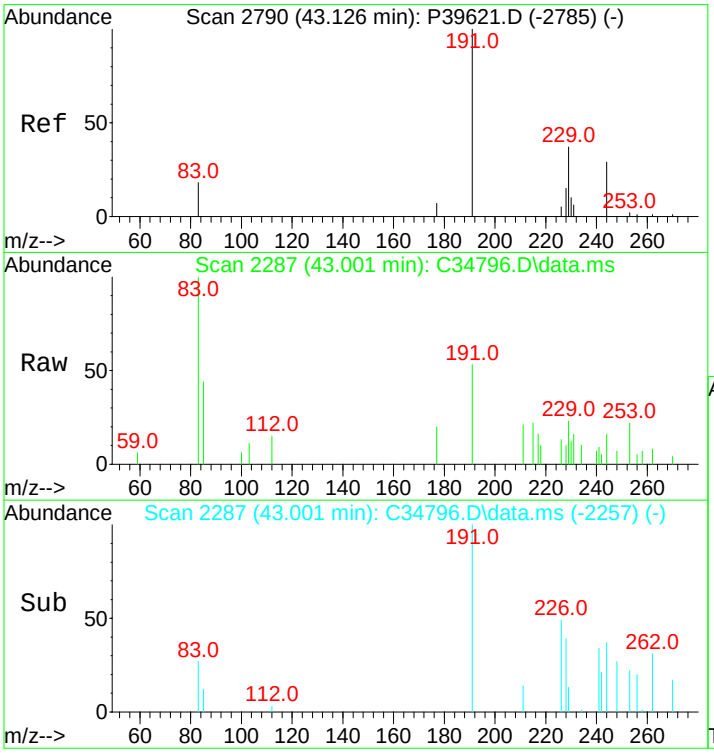




#95
C24 Tricyclic Terpane (T5)
Concen: 155.29 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

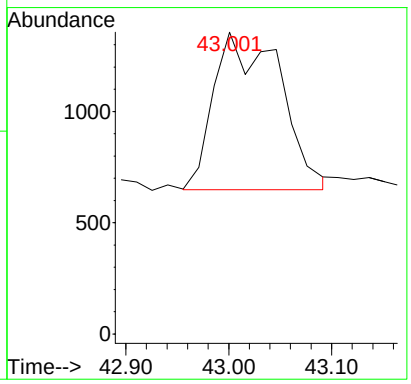
Tgt Ion:191 Resp: 3433

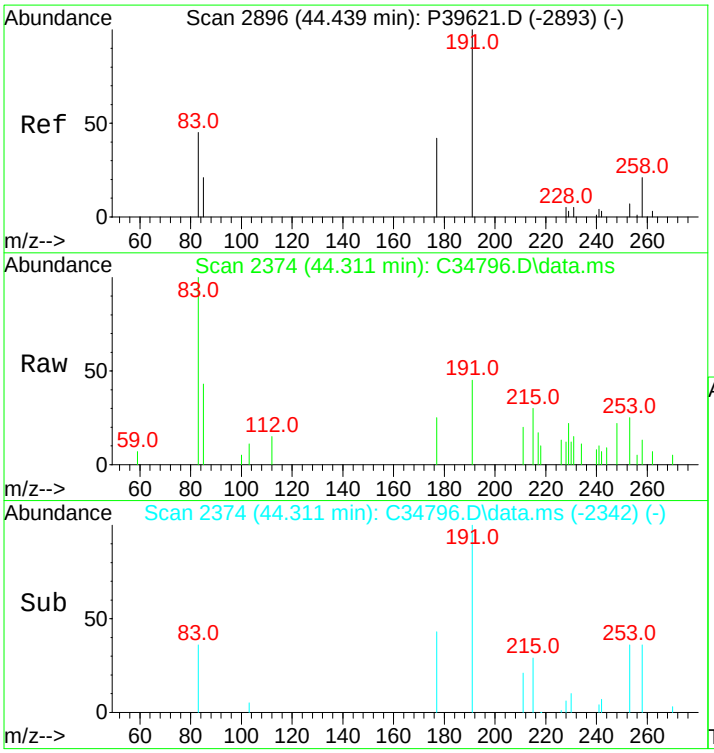




#96
C25 Tricyclic Terpane (T6)
Concen: 142.99 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

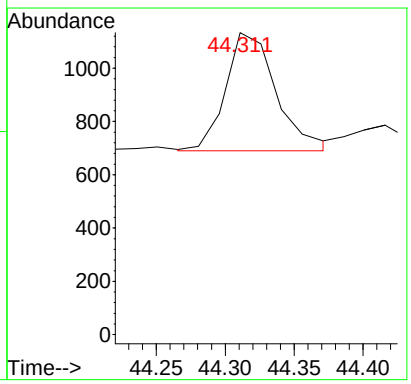
Tgt Ion:191 Resp: 3161

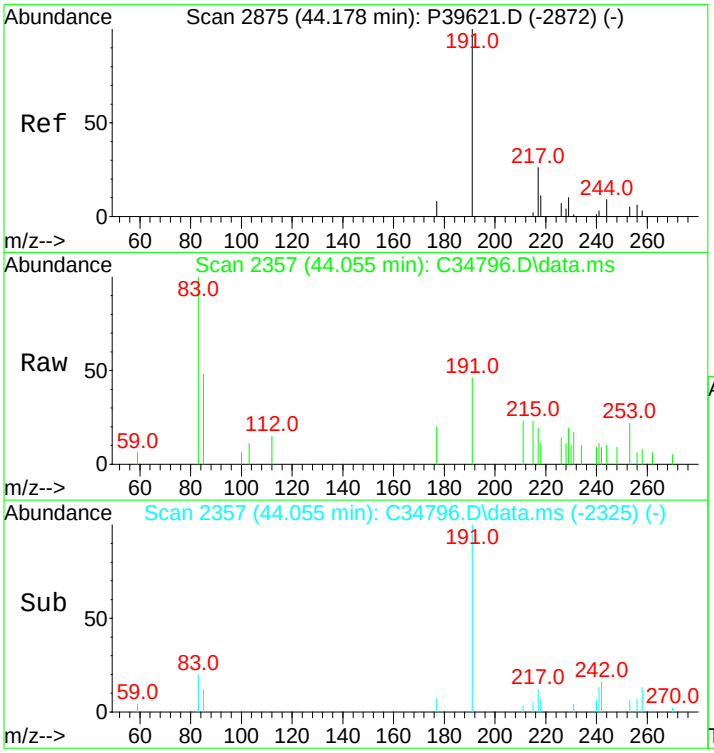




#97
C24 Tetracyclic Terpane (T6a)
Concen: 51.30 ng/ml m
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

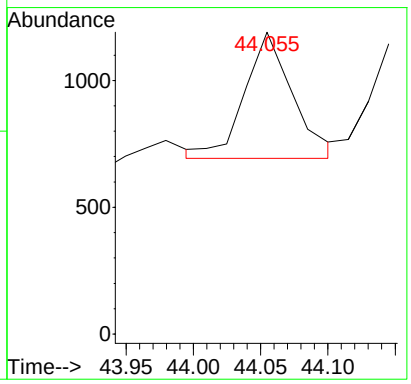
Tgt Ion:191 Resp: 1134

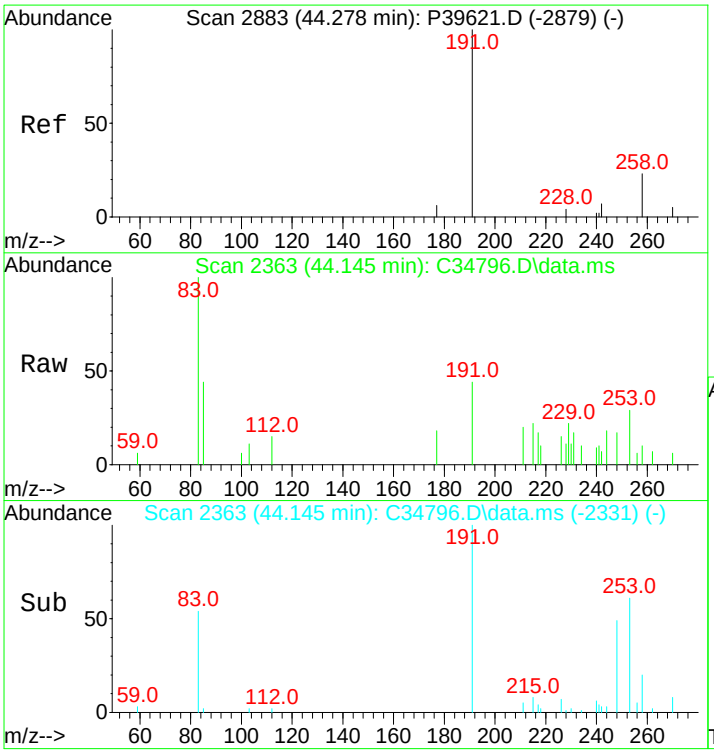




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 55.64 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

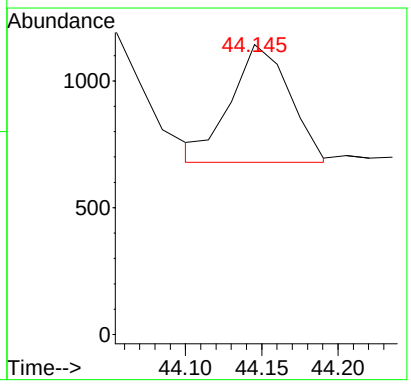
Tgt Ion:191 Resp: 1230

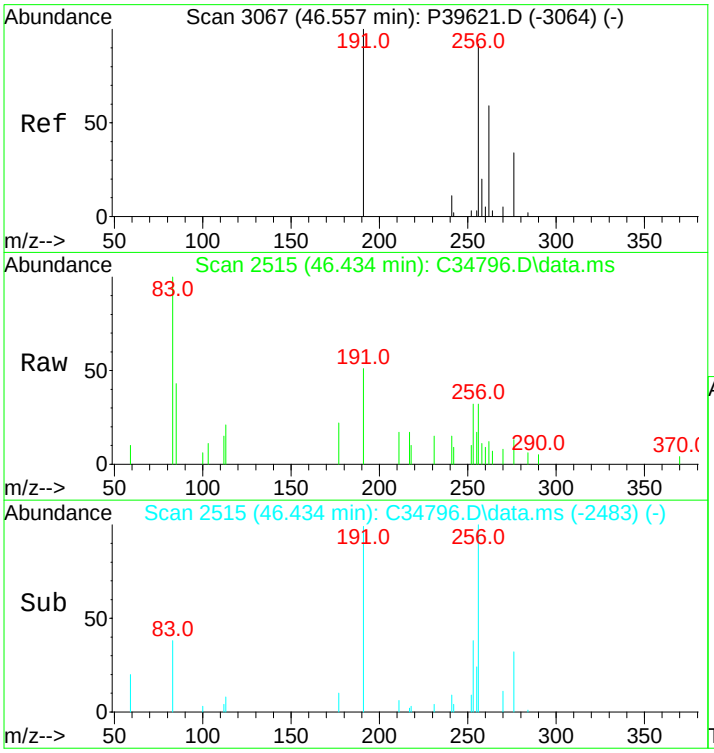




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 56.00 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

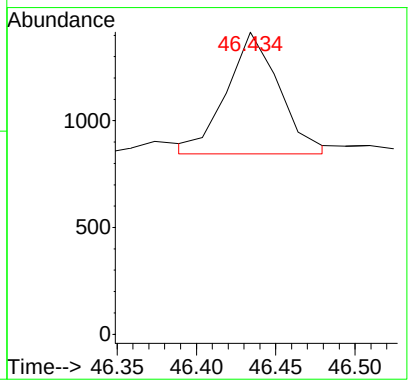
Tgt Ion:191 Resp: 1238

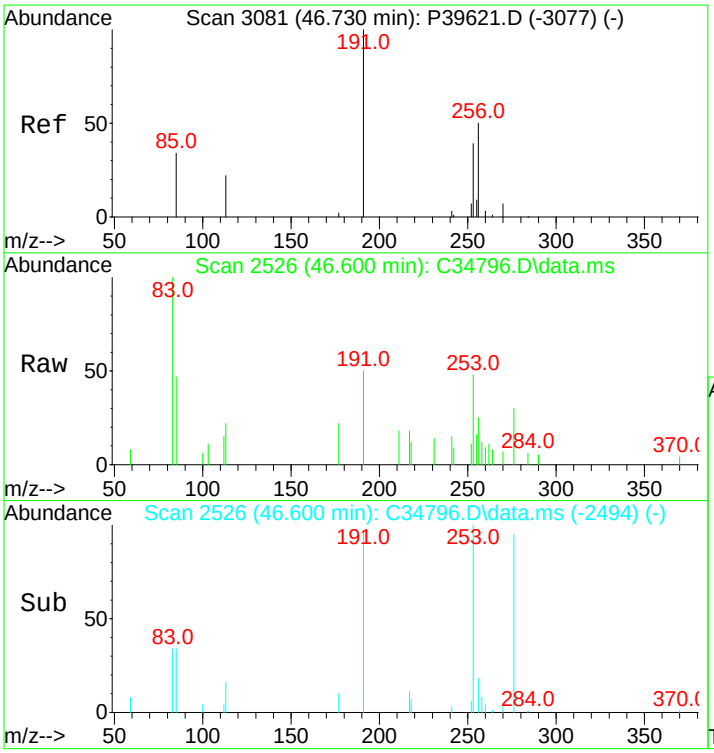




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 59.12 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

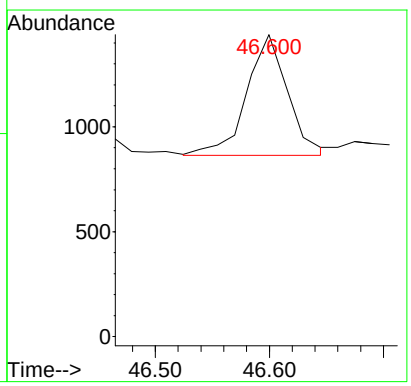
Tgt Ion:191 Resp: 1307

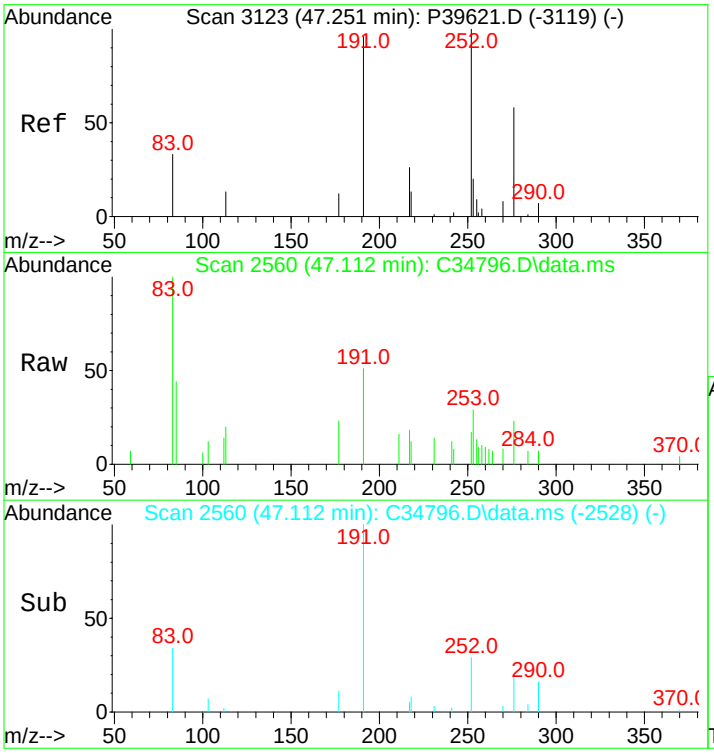




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 64.96 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

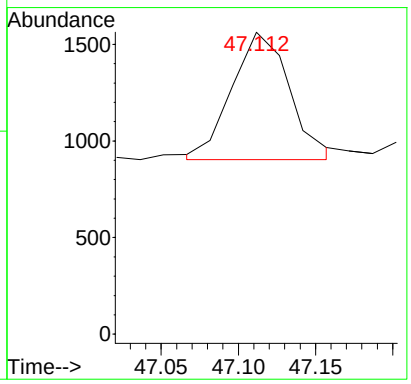
Tgt Ion:191 Resp: 1436

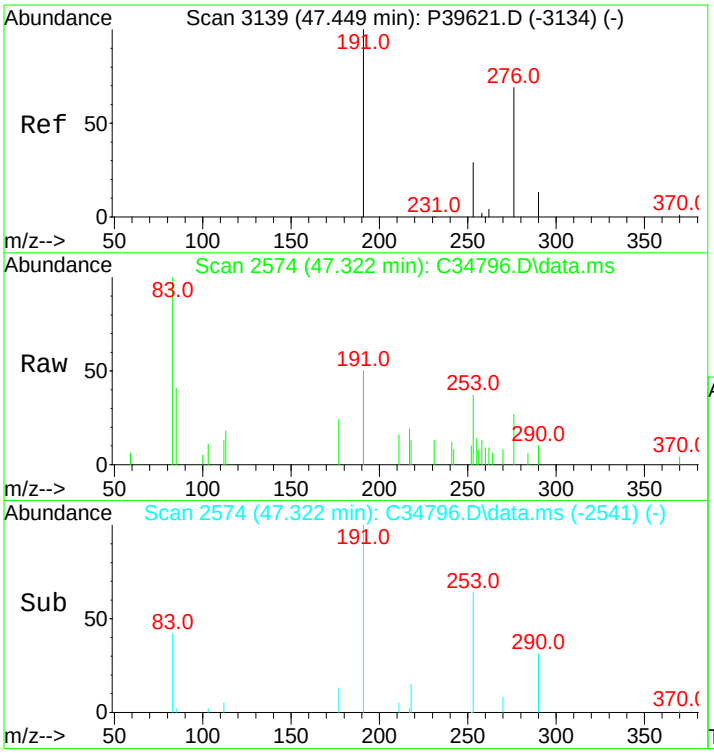




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 77.58 ng/ml m
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

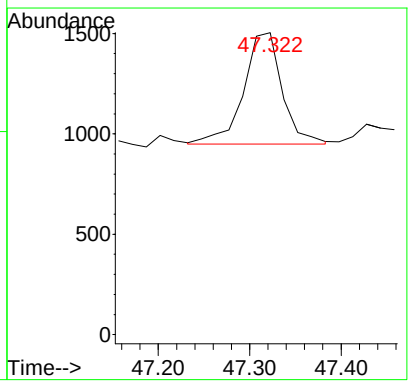
Tgt Ion:191 Resp: 1715

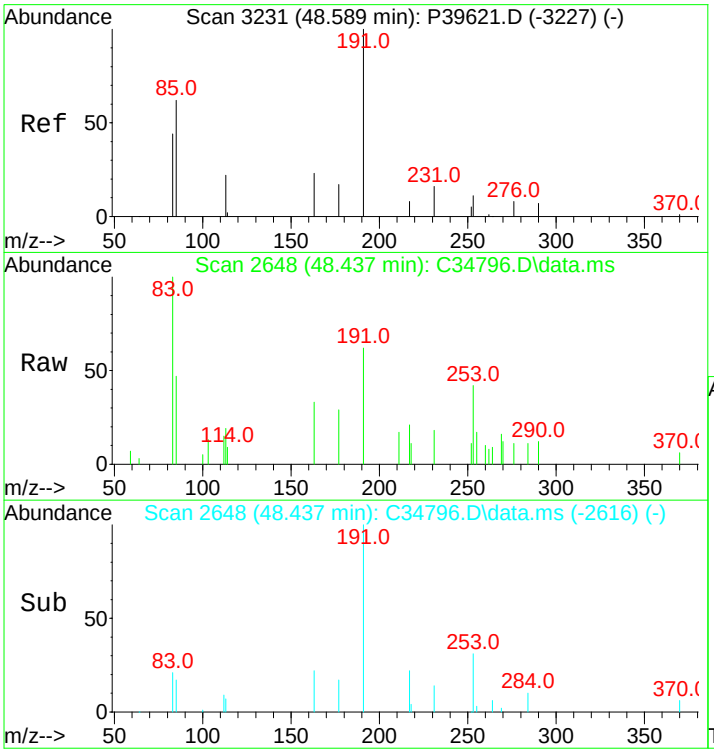




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 73.46 ng/ml m
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

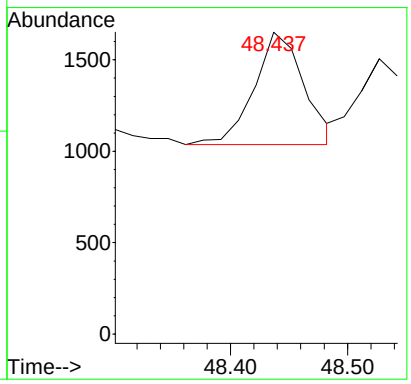
Tgt Ion:191 Resp: 1624

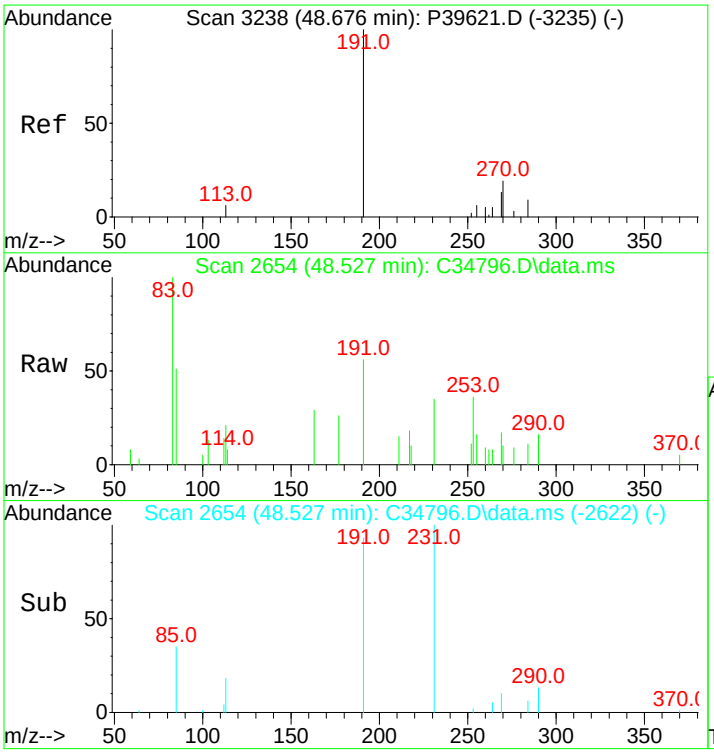




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 82.42 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

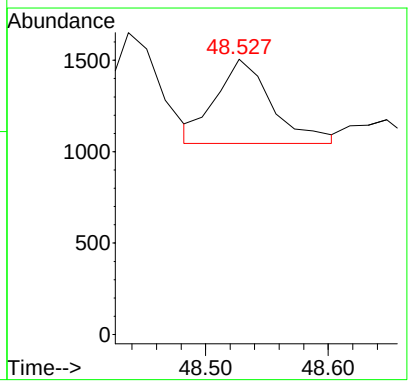
Tgt Ion:191 Resp: 1822

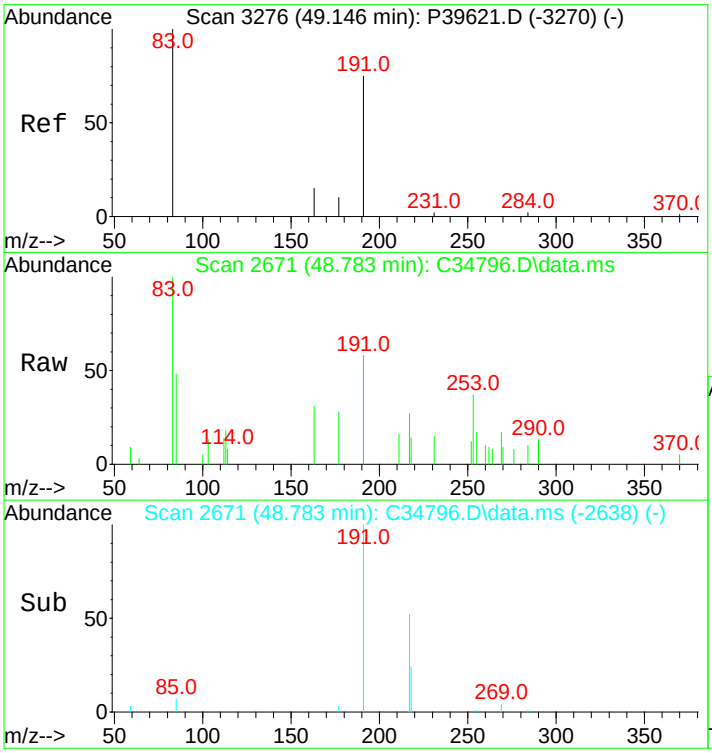




#105
C30 Tricyclic Terpane-22S
Concen: 65.73 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

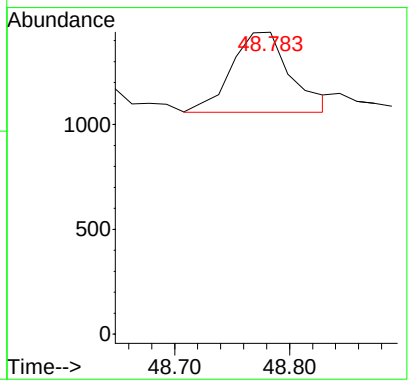
Tgt Ion:191 Resp: 1453

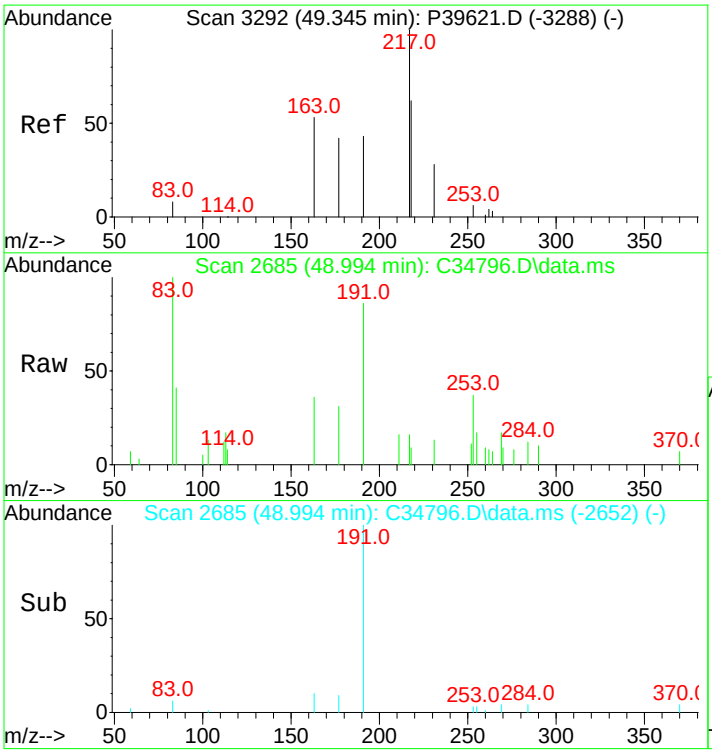




#106
C30 Tricyclic Terpane-22R
Concen: 62.38 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

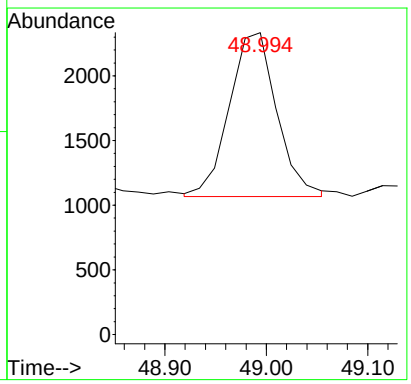
Tgt Ion:191 Resp: 1379

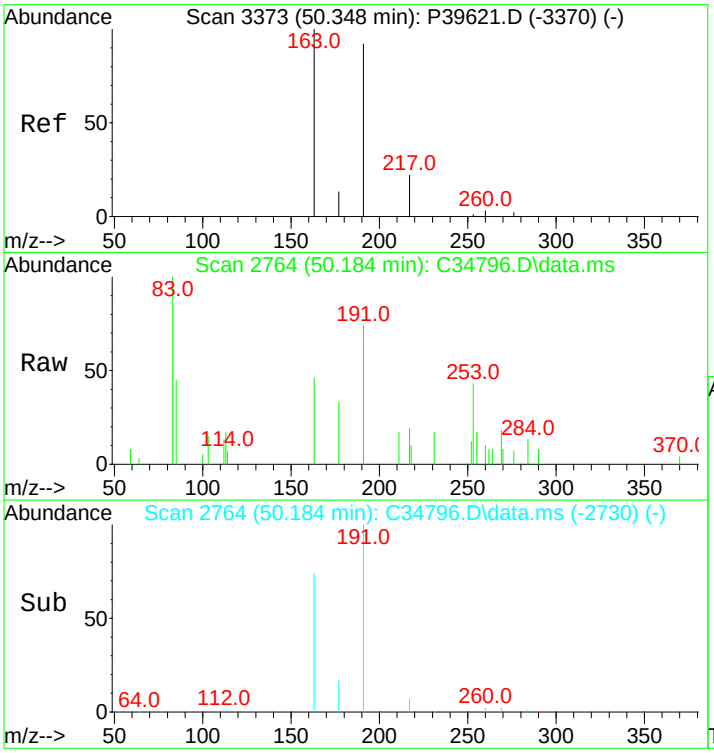




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 186.87 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

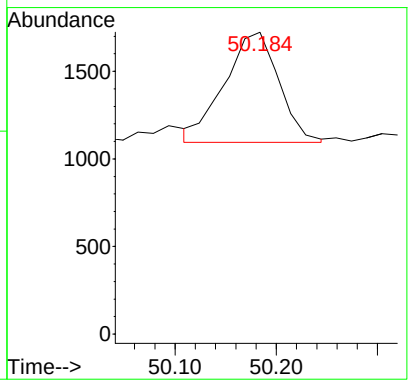
Tgt Ion:191 Resp: 4131

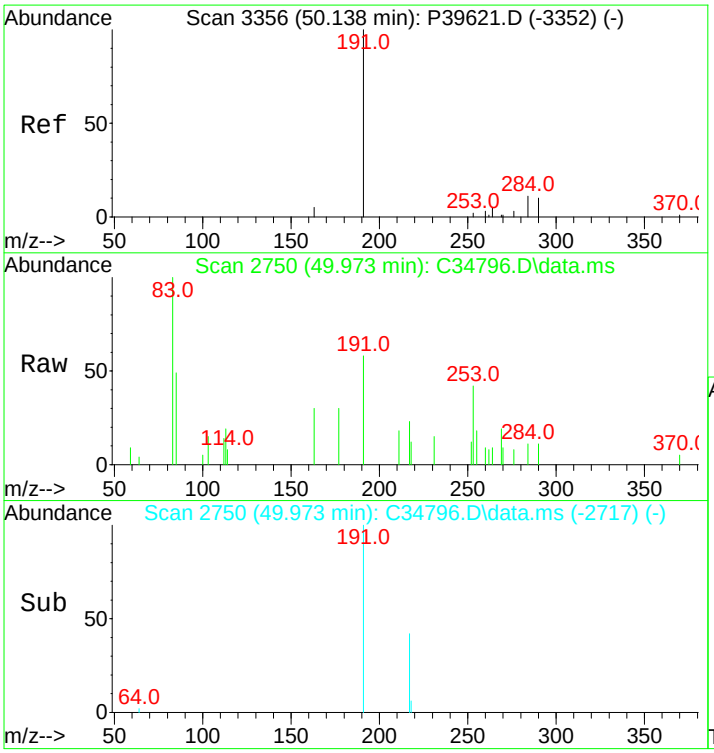




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 105.53 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

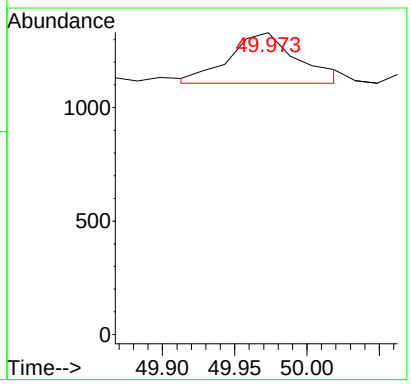
Tgt Ion:191 Resp: 2333

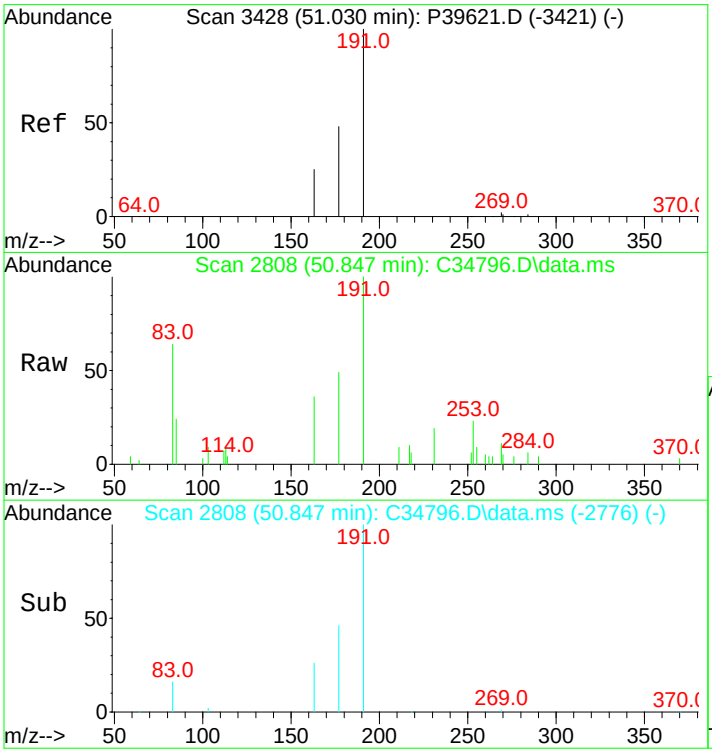




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 33.20 ng/ml m
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

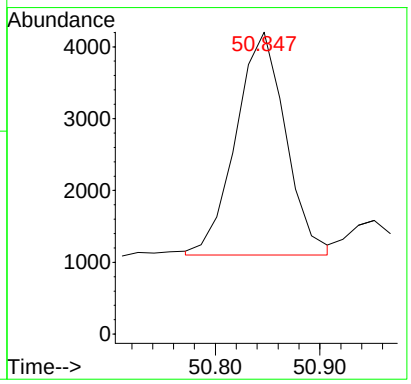
Tgt Ion:191 Resp: 734

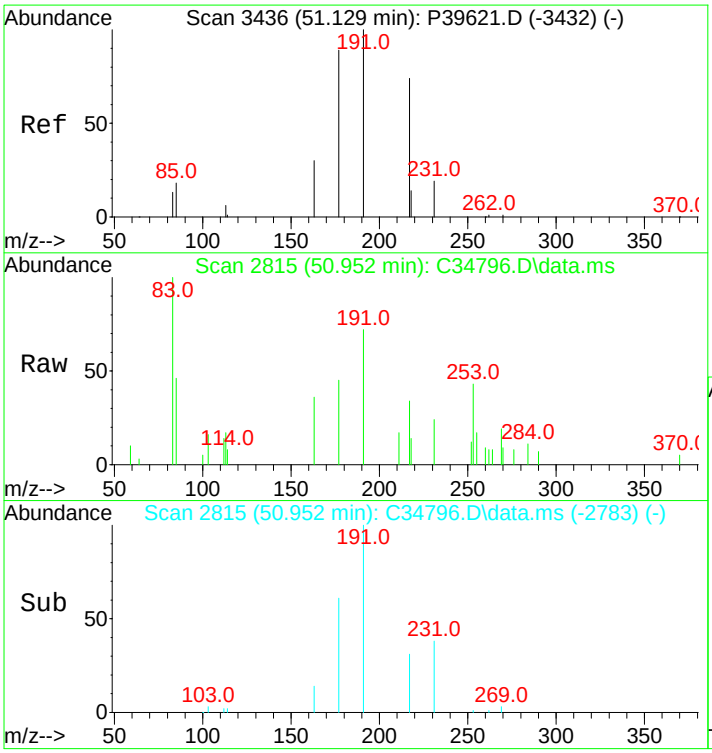




#110
30-Norhopane (T15)
Concen: 463.71 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

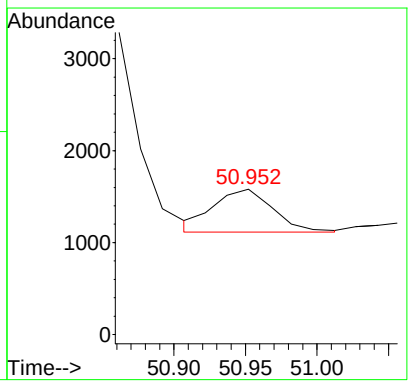
Tgt Ion:191 Resp: 10251

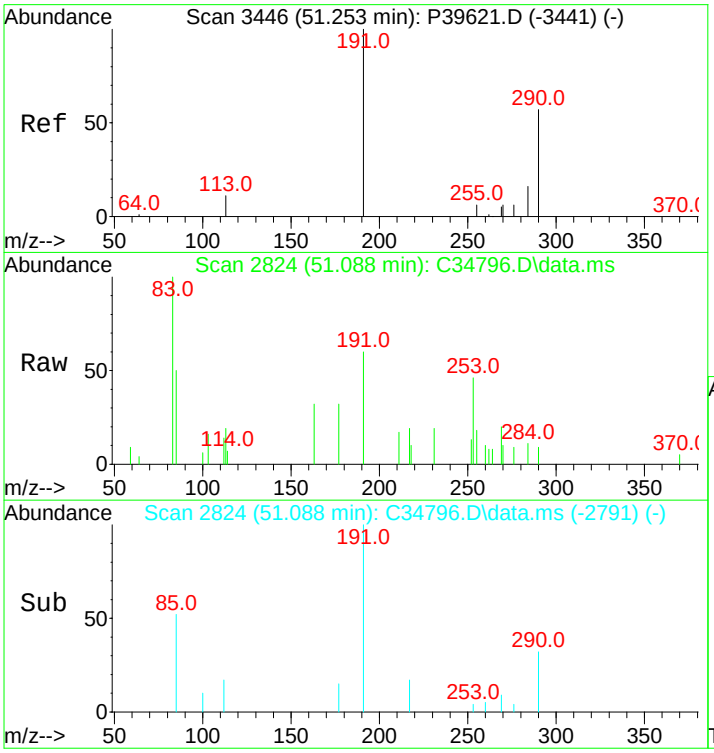




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 61.34 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

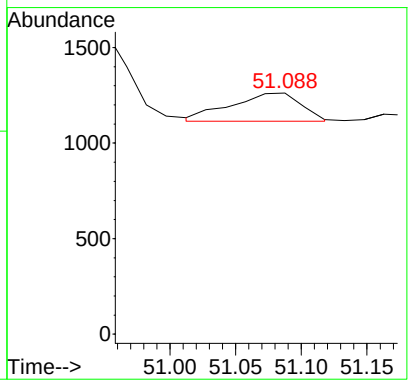
Tgt Ion:191 Resp: 1356

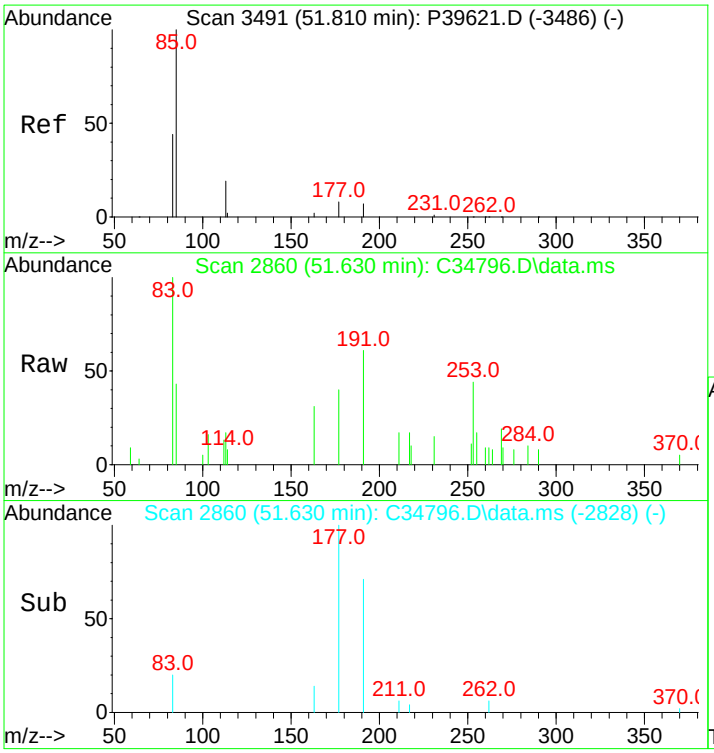




#112
17a(H)-Diahopane (X)
Concen: 24.70 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

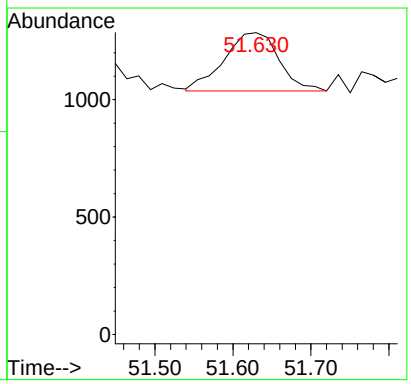
Tgt Ion:191 Resp: 546

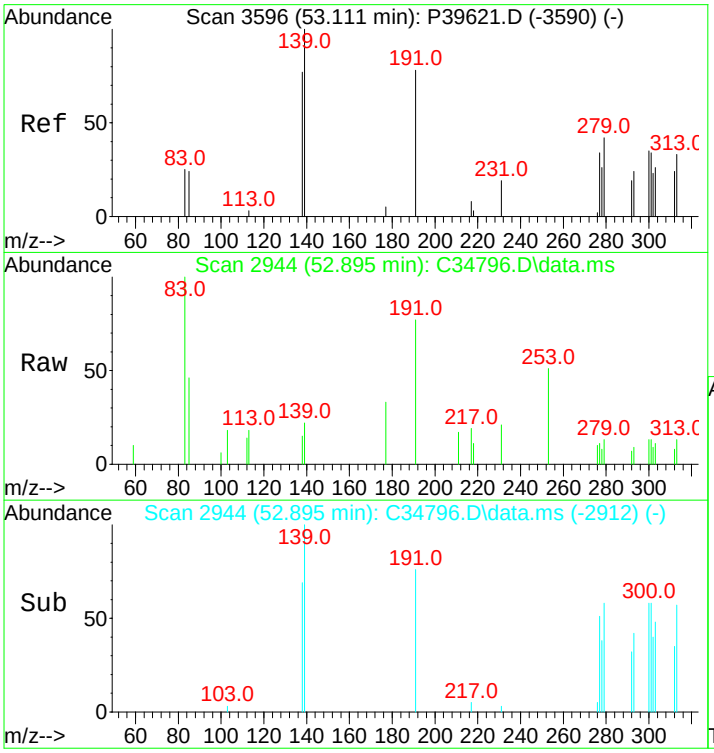




#113
30-Normoretane (T17)
Concen: 55.28 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

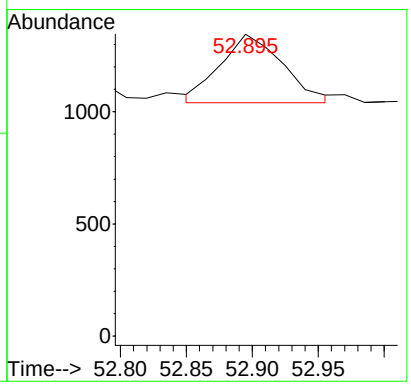
Tgt Ion:191 Resp: 1222

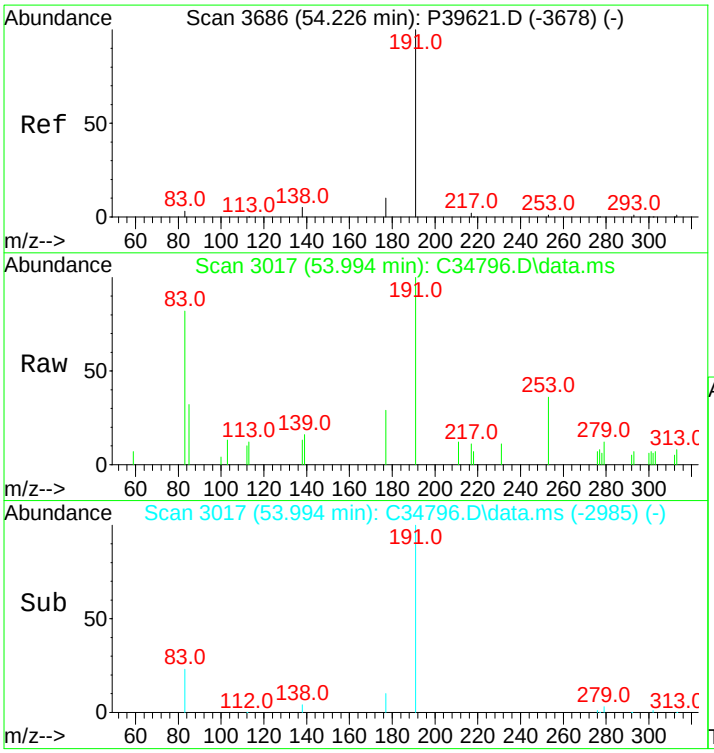




#115
Moretane (T20)
Concen: 45.33 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

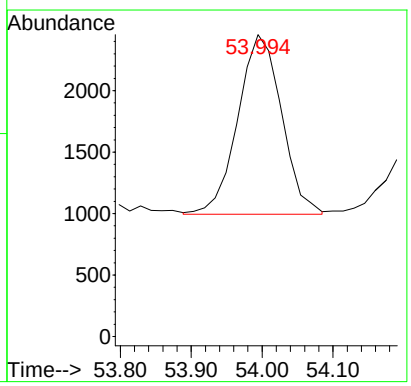
Tgt Ion:191 Resp: 1002

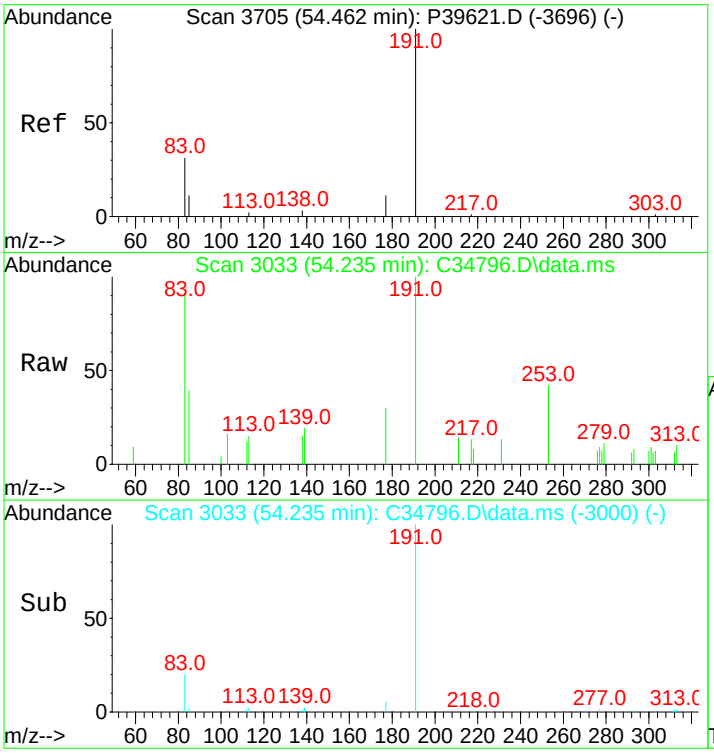




#116
30-Homohopane-22S (T21)
Concen: 282.95 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

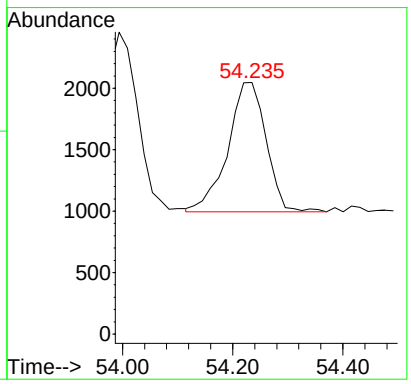
Tgt Ion:191 Resp: 6255

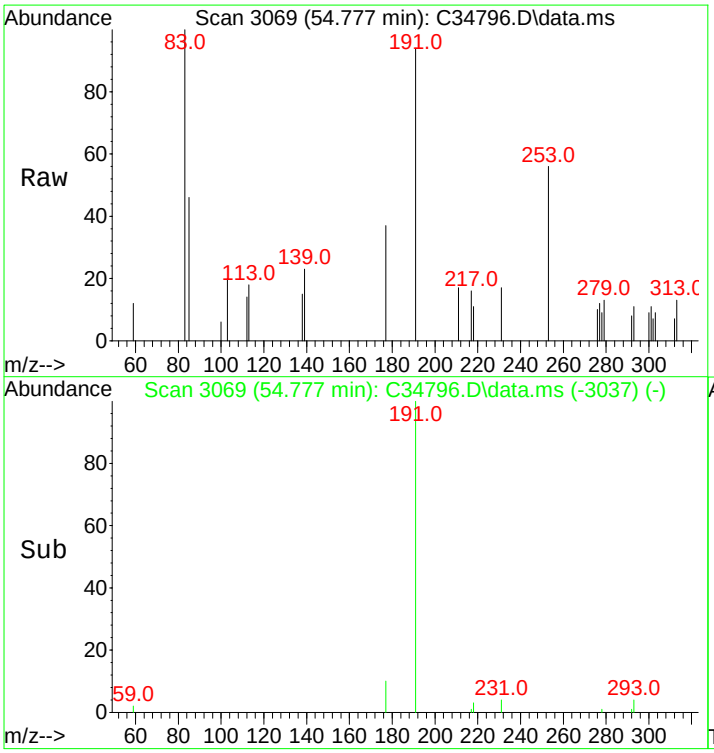




#117
30-Homohopane-22R (T22)
Concen: 229.39 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

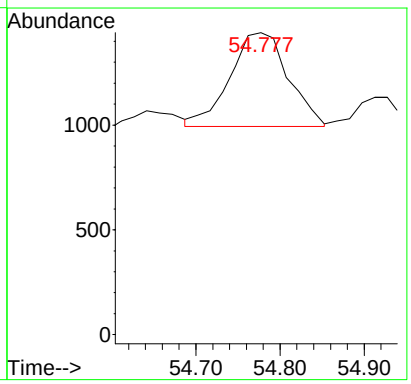
Tgt Ion:191 Resp: 5071

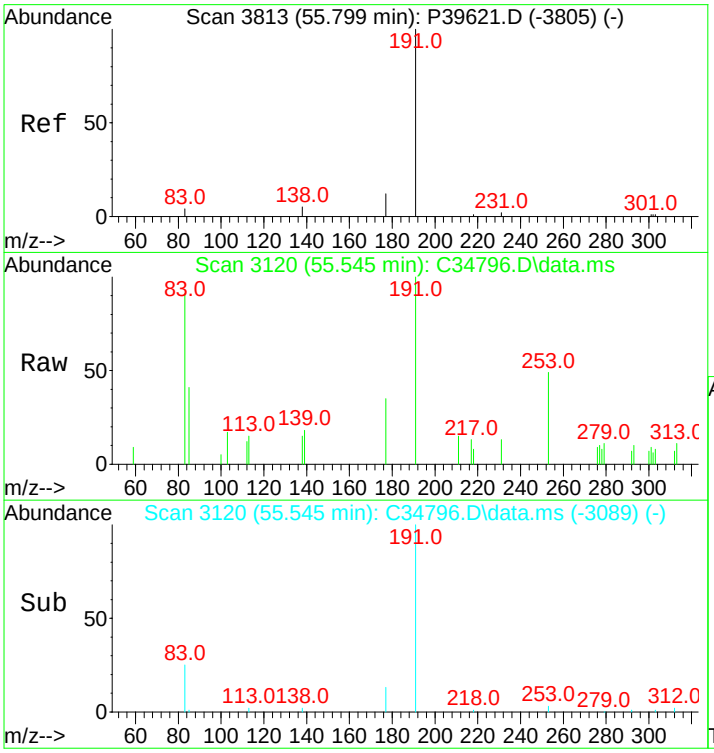




#118
Gammacerane/C32-diahopane
Concen: 97.17 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

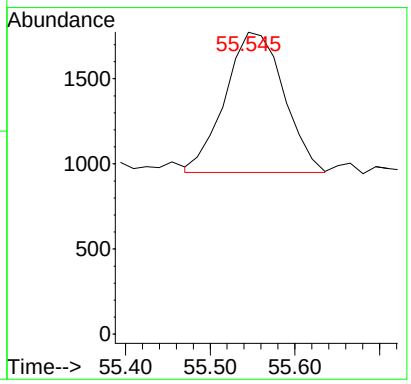
Tgt Ion:191 Resp: 2148

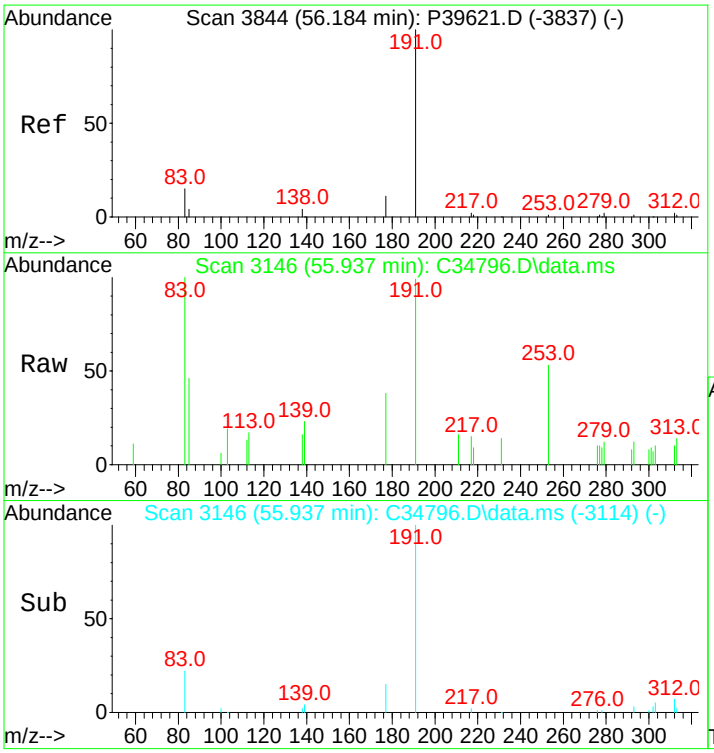




#119
30,31-Bishomohopane-22S (T26)
Concen: 179.27 ng/ml m
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

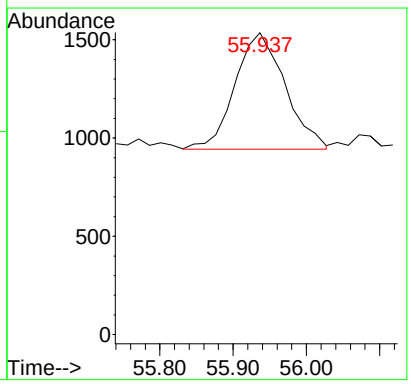
Tgt Ion:191 Resp: 3963

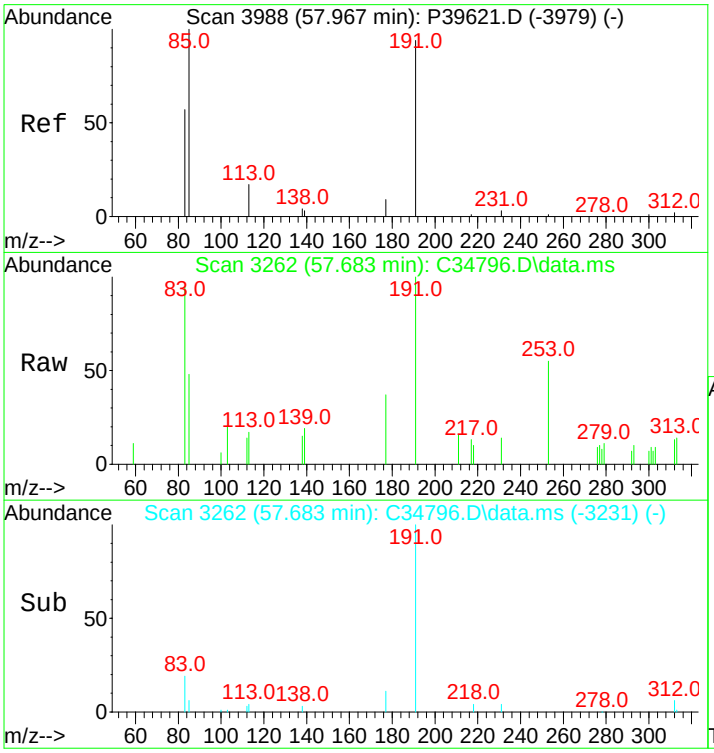




#120
30,31-Bishomohopane-22R (T27)
Concen: 127.29 ng/ml m
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

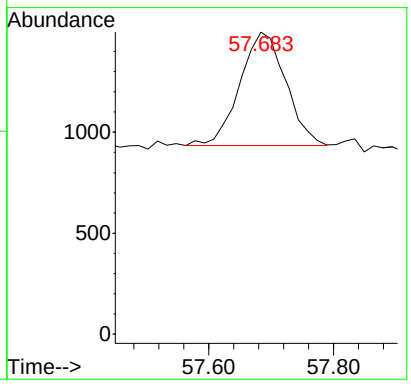
Tgt Ion:191 Resp: 2814

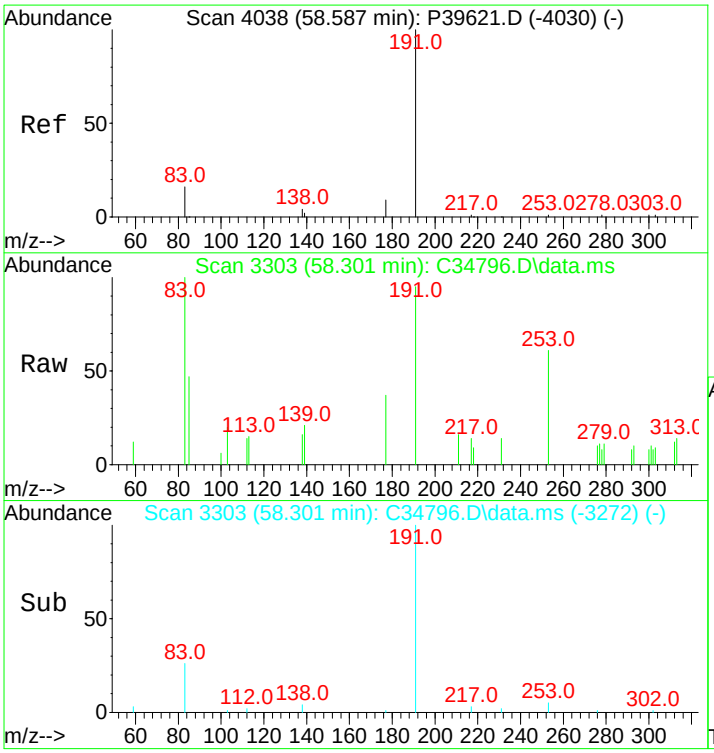




#121
30,31-Trishomohopane-22S (T30)
Concen: 129.87 ng/ml
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

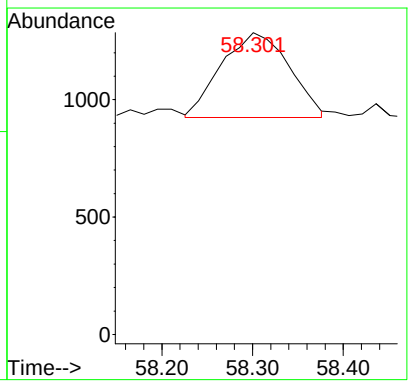
Tgt Ion:191 Resp: 2871

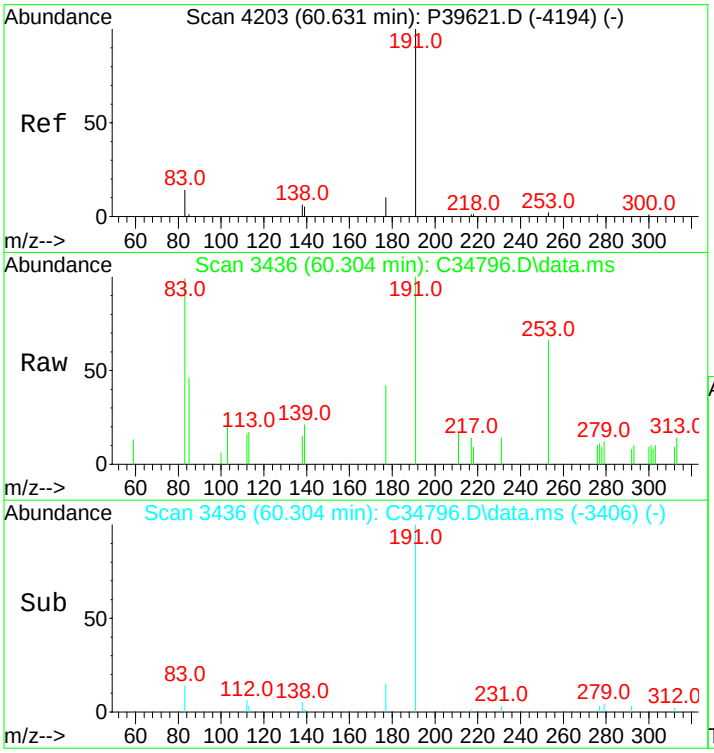




#122
30,31-Trishomohopane-22R (T31)
Concen: 85.00 ng/ml m
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

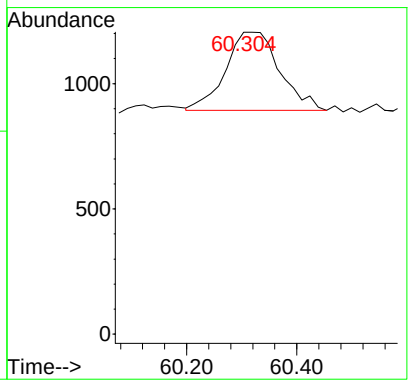
Tgt Ion:191 Resp: 1879

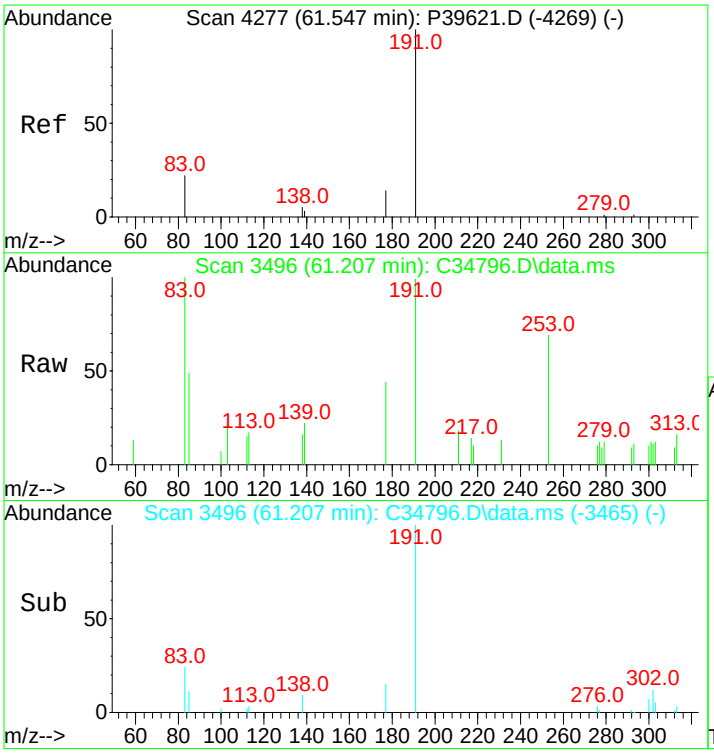




#123
Tetrakishomohopane-22S (T32)
Concen: 96.62 ng/ml
RT: 60.304 min Scan# 3436
Delta R.T. -0.045 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

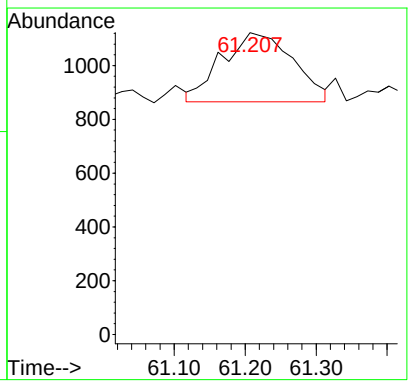
Tgt Ion:191 Resp: 2136

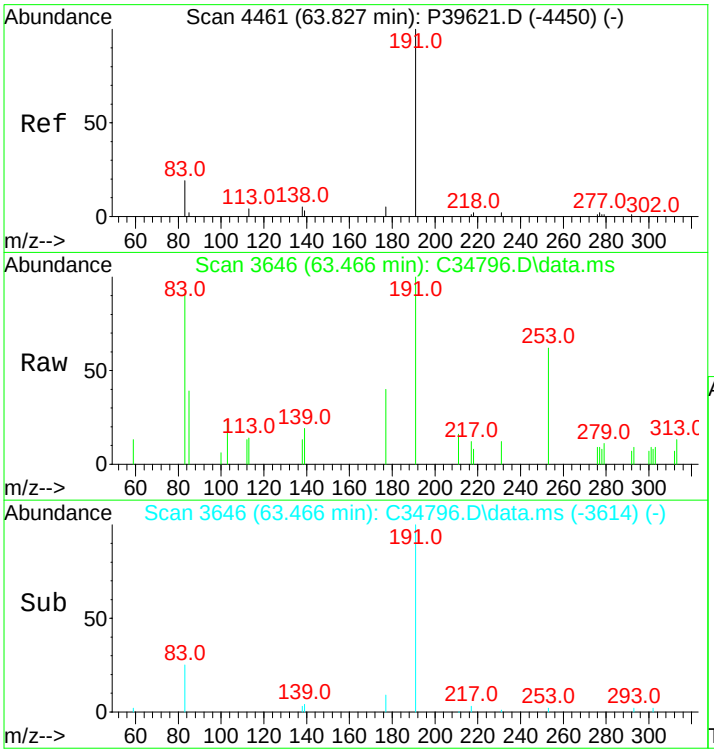




#124
Tetrakishomohopane-22R (T33)
Concen: 81.15 ng/ml m
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

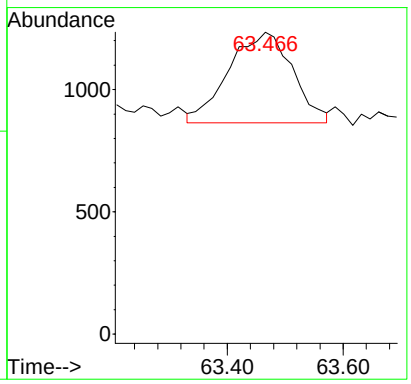
Tgt Ion:191 Resp: 1794

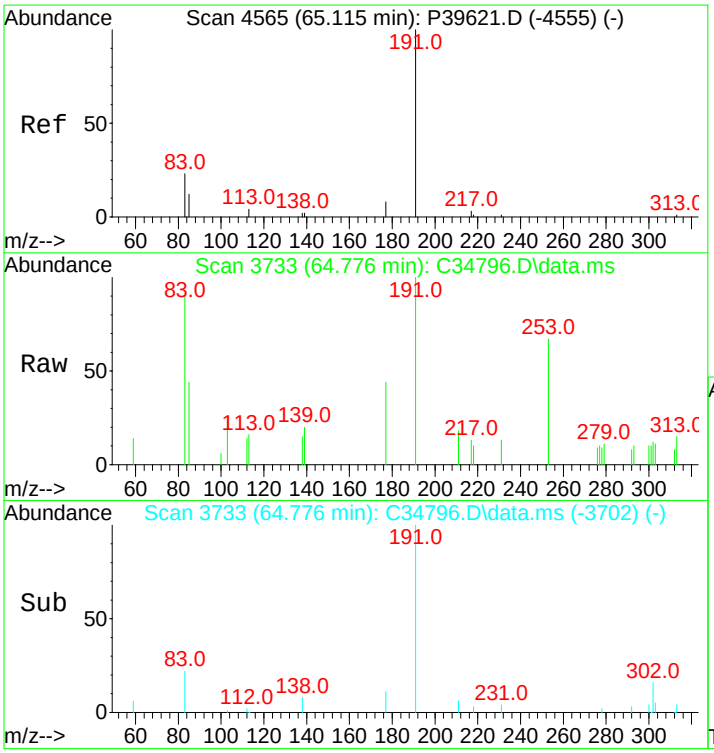




#125
Pentakishomohopane-22S (T34)
Concen: 127.79 ng/ml m
RT: 63.466 min Scan# 3646
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

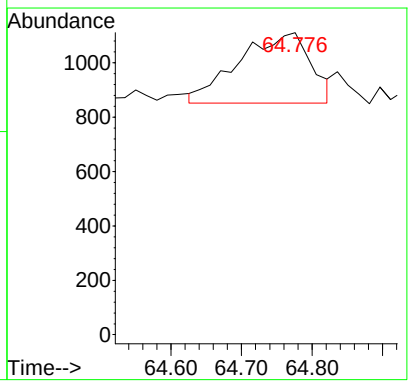
Tgt Ion:191 Resp: 2825

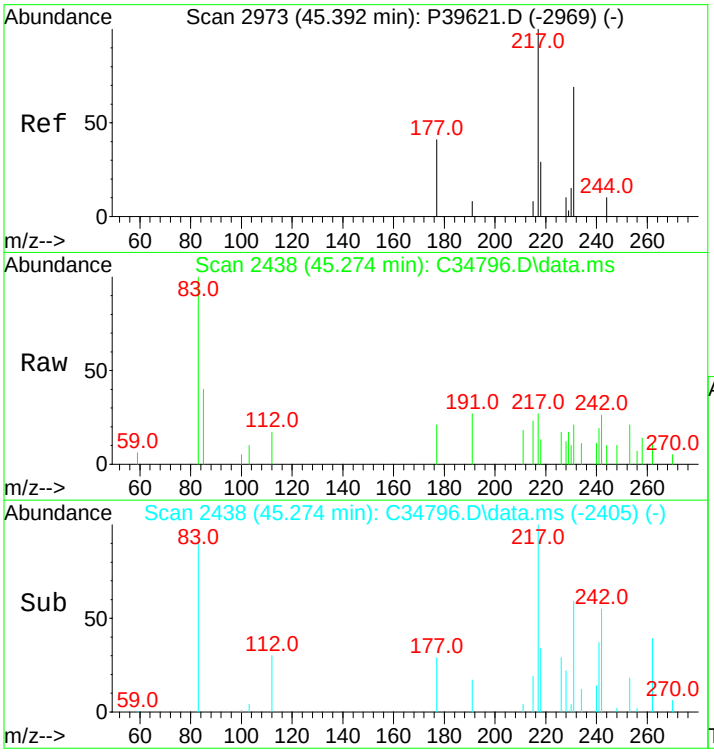




#126
Pentakishomohopane-22R (T35)
Concen: 83.05 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

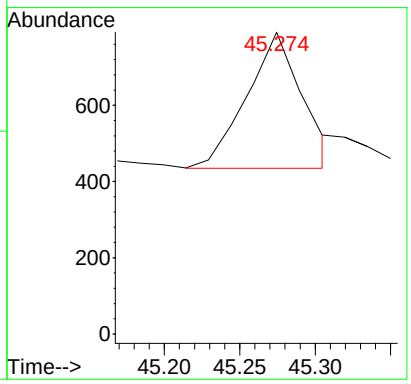
Tgt Ion:191 Resp: 1836

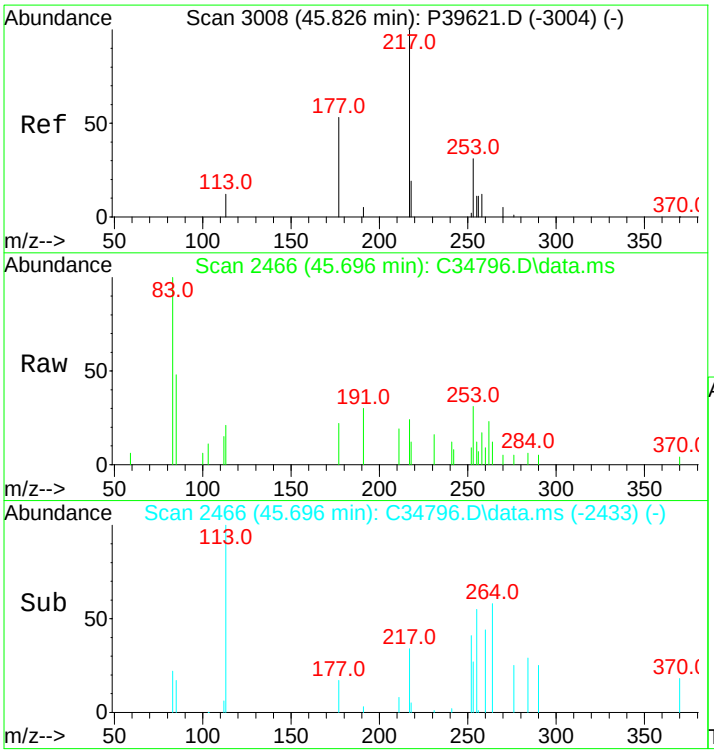




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 86.68 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

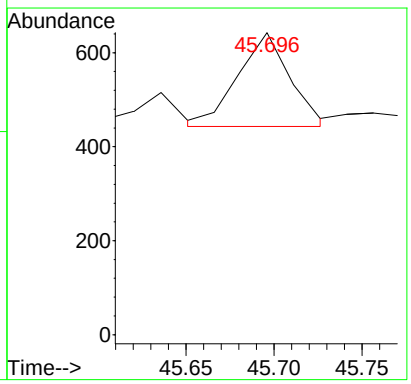
Tgt Ion:217 Resp: 909

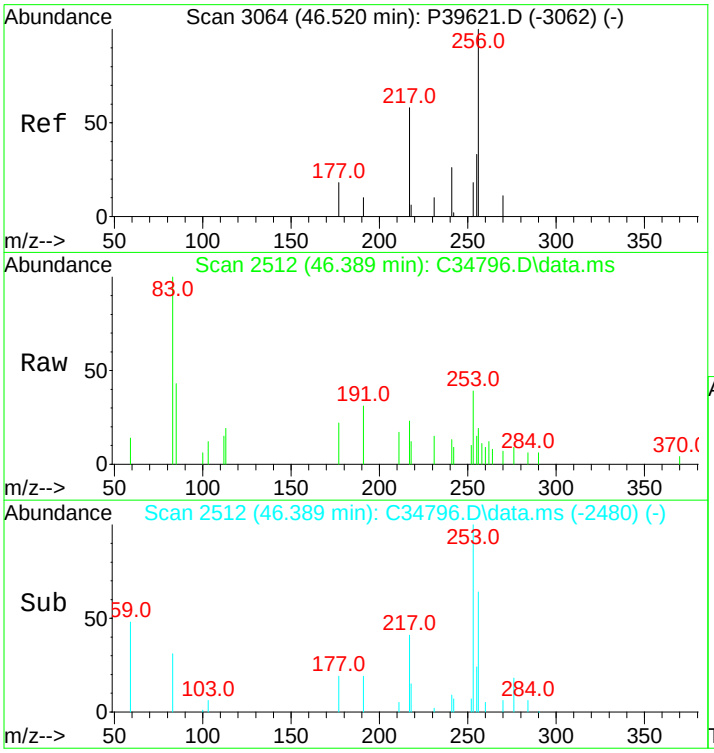




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 39.00 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

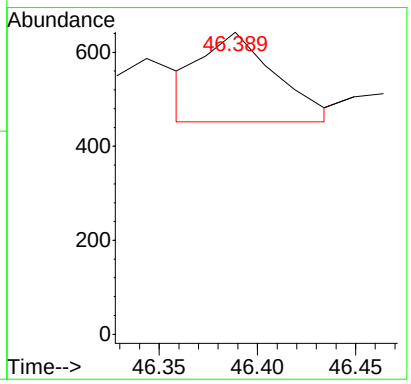
Tgt Ion:217 Resp: 409

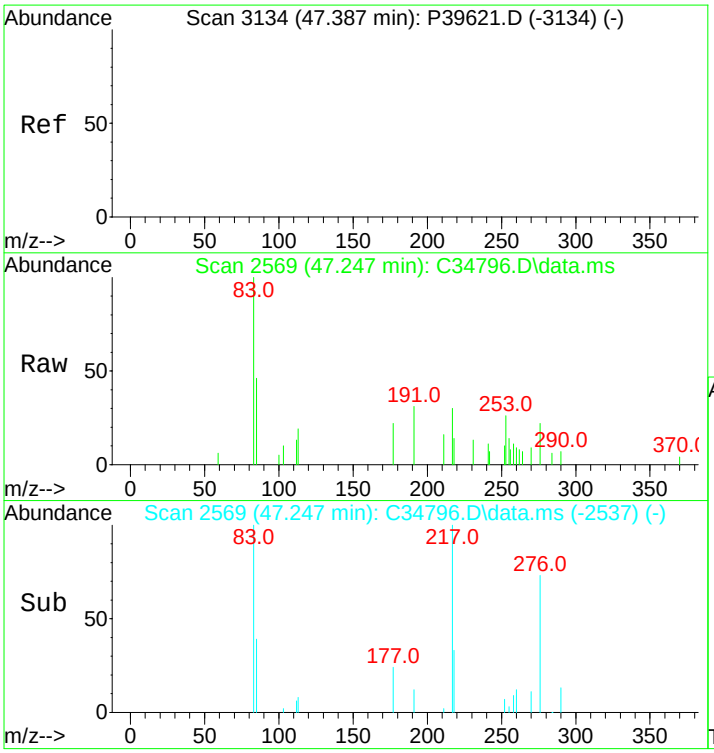




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 47.39 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

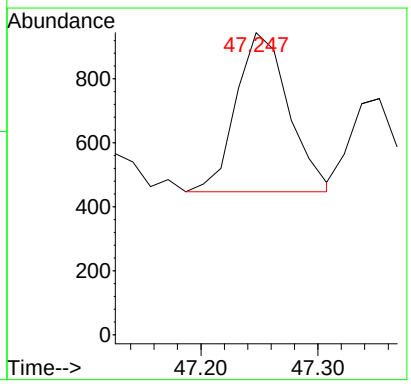
Tgt Ion:217 Resp: 497

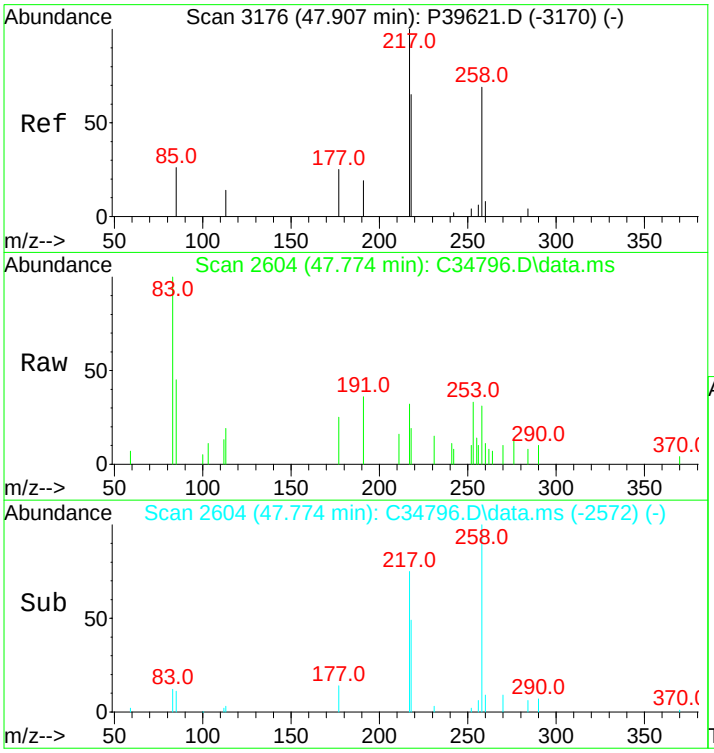




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 148.09 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

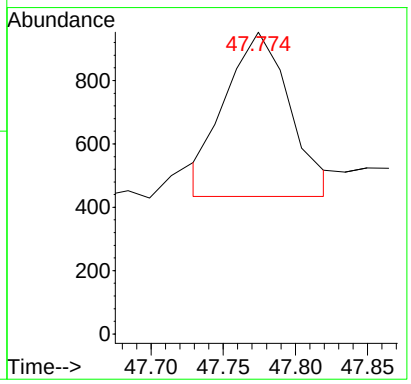
Tgt Ion:217 Resp: 1553

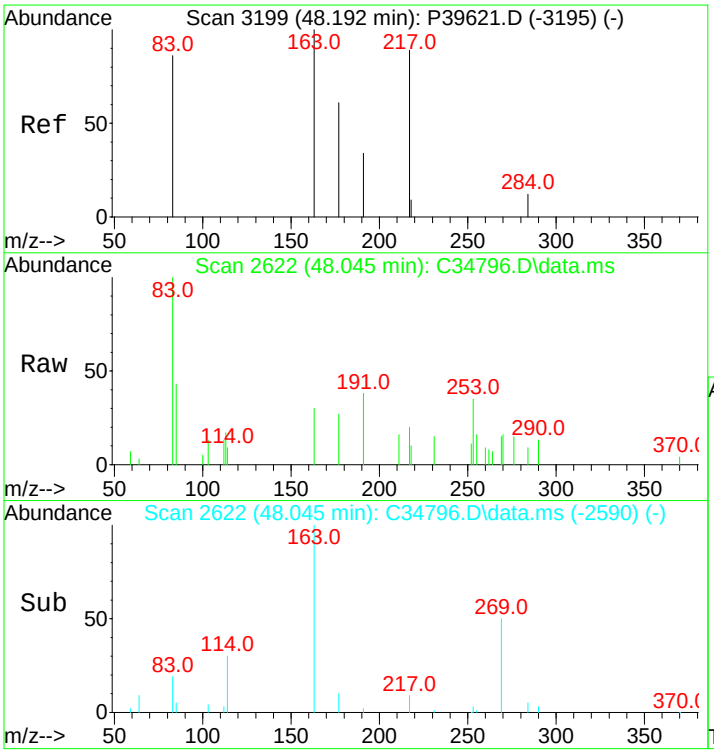




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 153.81 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

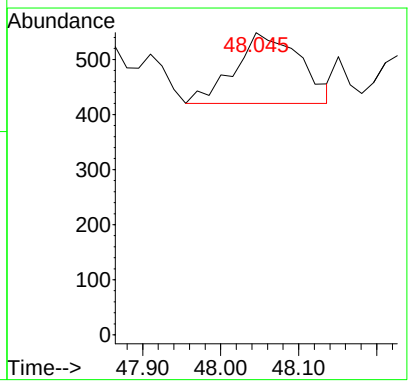
Tgt Ion:217 Resp: 1613

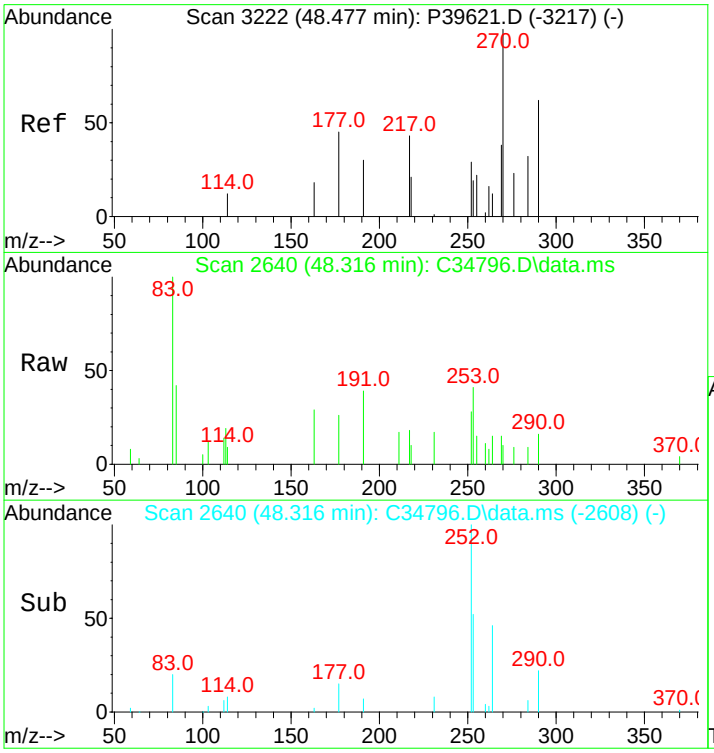




#133
Unknown Sterane (S18)
Concen: 71.42 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

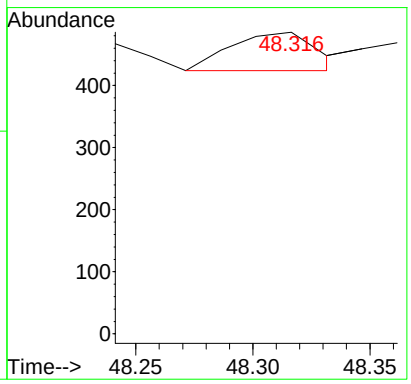
Tgt Ion:217 Resp: 749

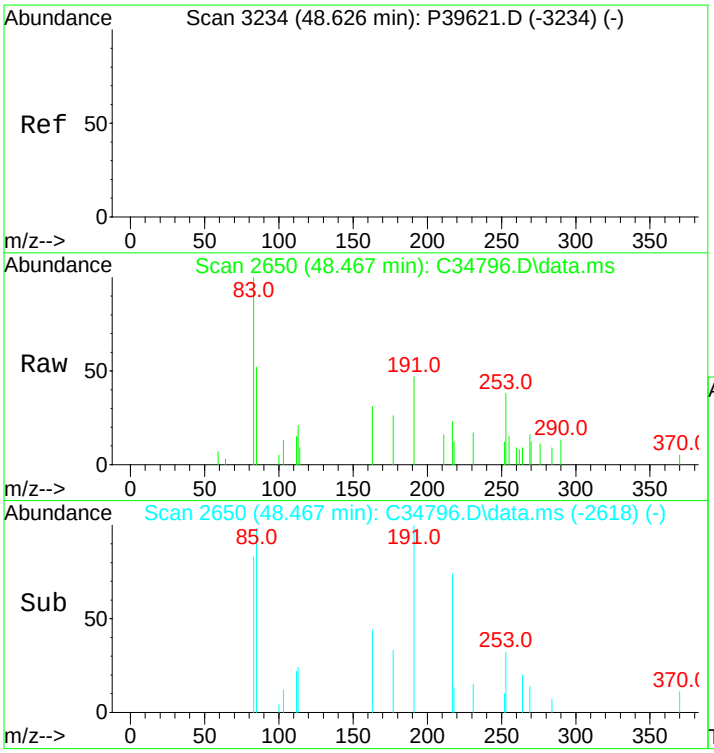




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 14.97 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

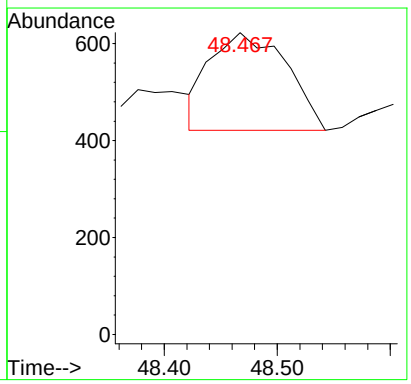
Tgt Ion:217 Resp: 157

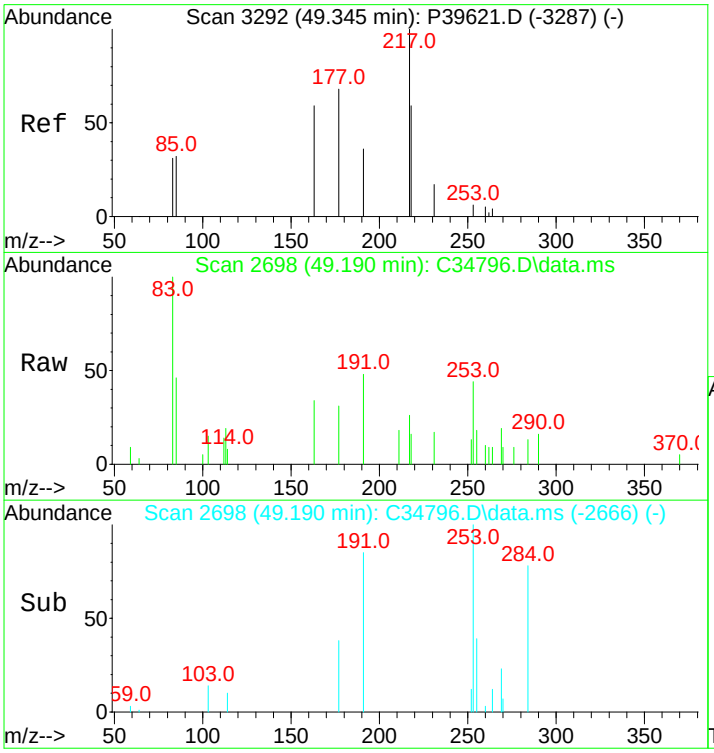




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 90.02 ng/ml m
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

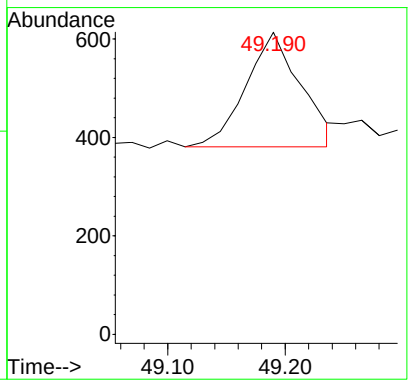
Tgt Ion:217 Resp: 944

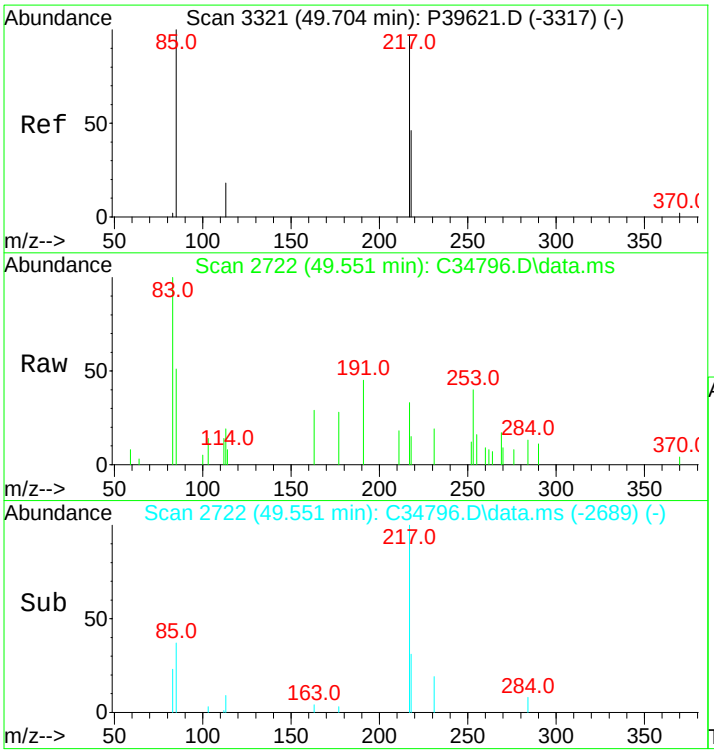




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 71.99 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

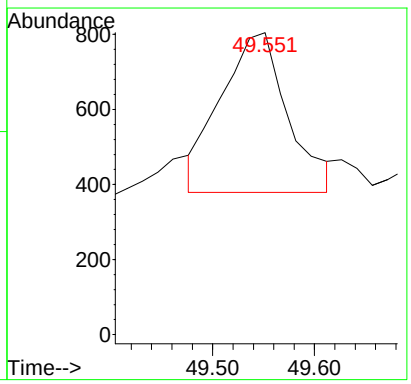
Tgt Ion:217 Resp: 755

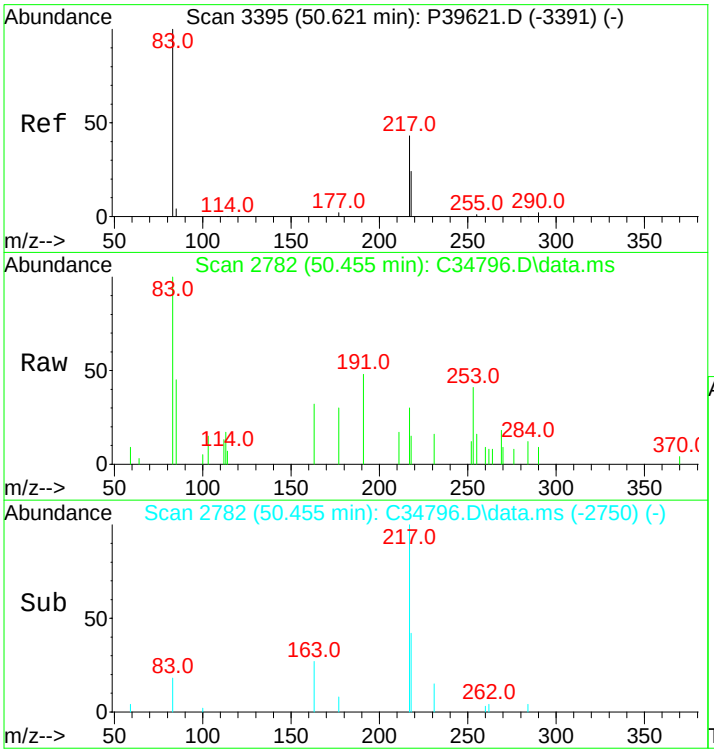




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 185.28 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

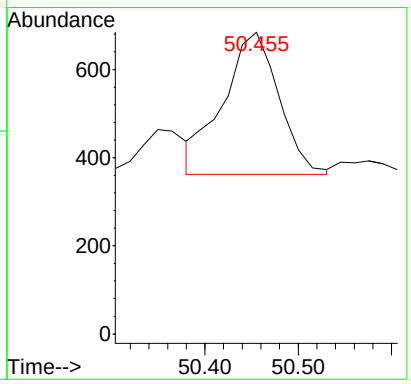
Tgt Ion:217 Resp: 1943

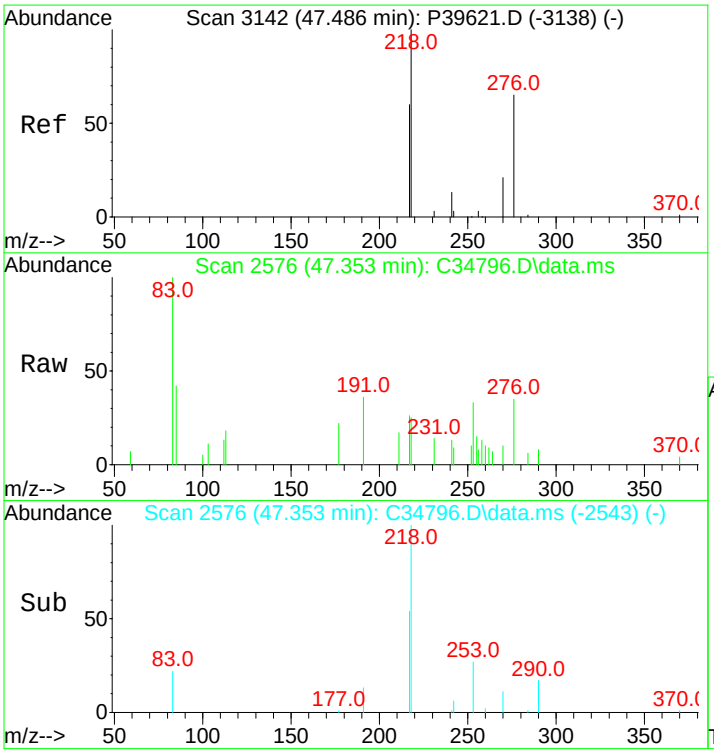




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 127.97 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

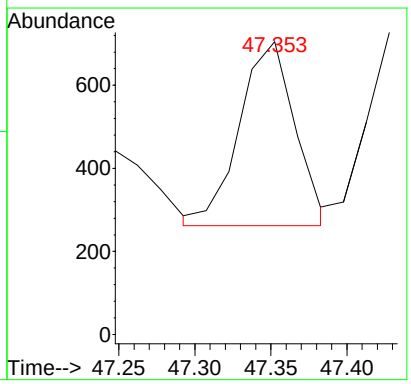
Tgt Ion:217 Resp: 1342

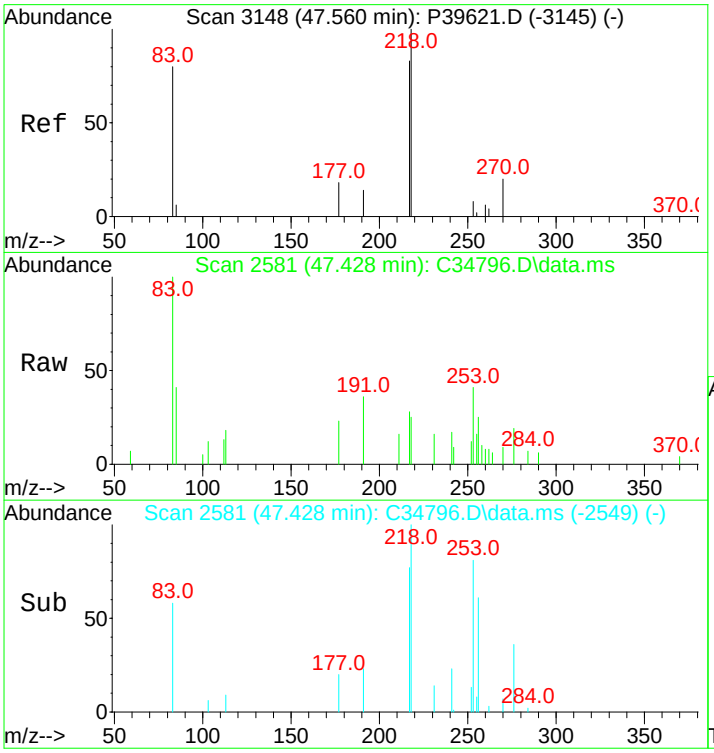




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 107.28 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

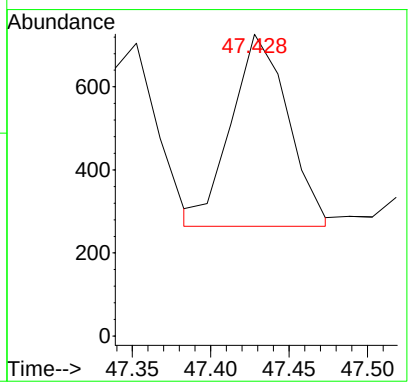
Tgt Ion:218 Resp: 1125

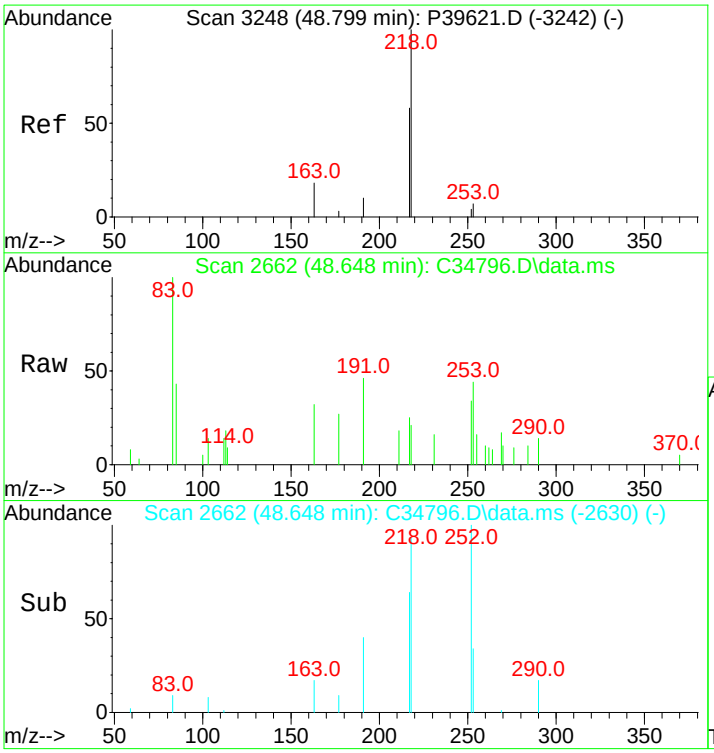




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 111.00 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

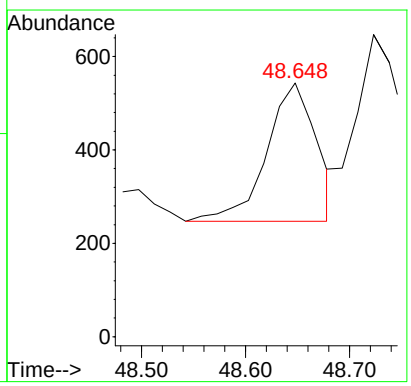
Tgt Ion:218 Resp: 1164

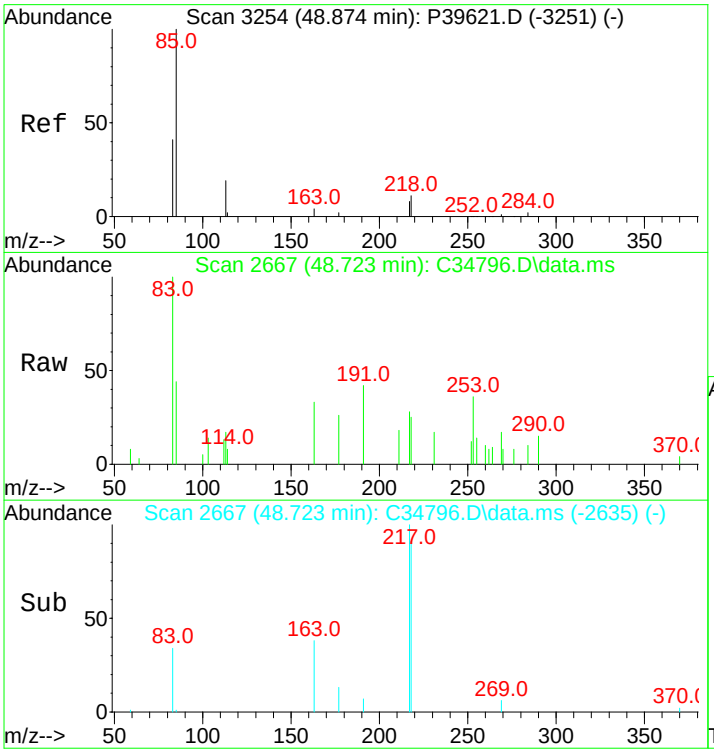




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 94.02 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

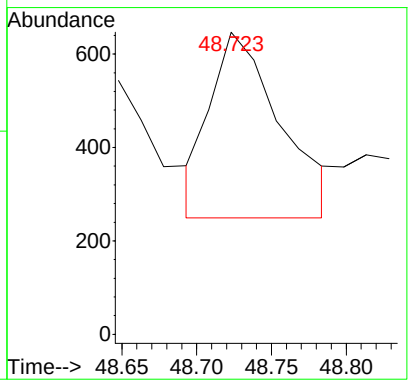
Tgt Ion:218 Resp: 986

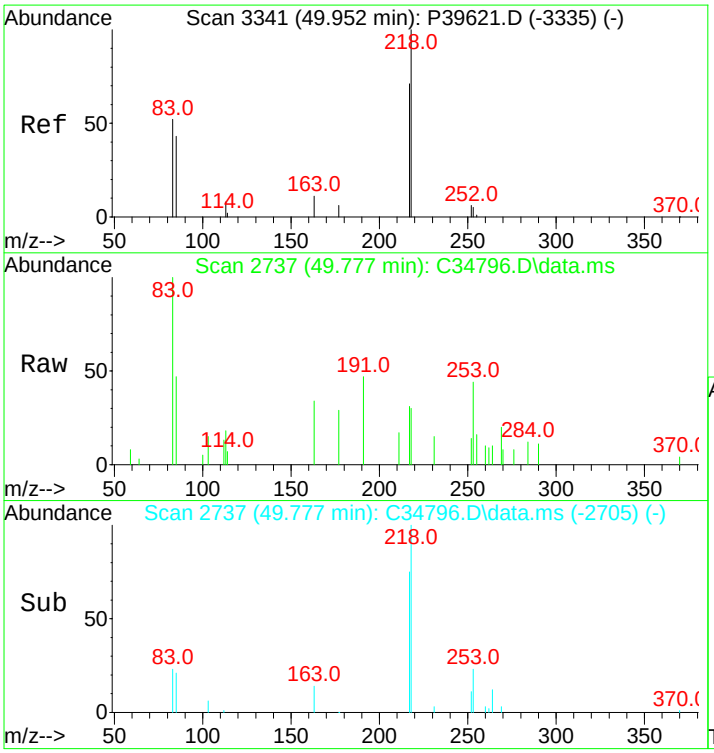




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 123.68 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

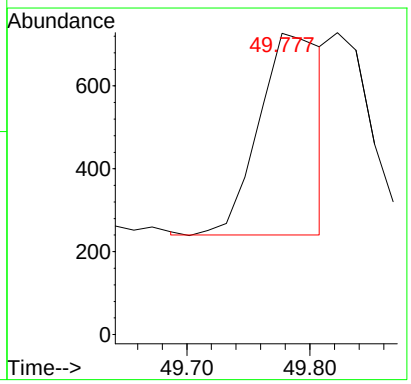
Tgt Ion:218 Resp: 1297

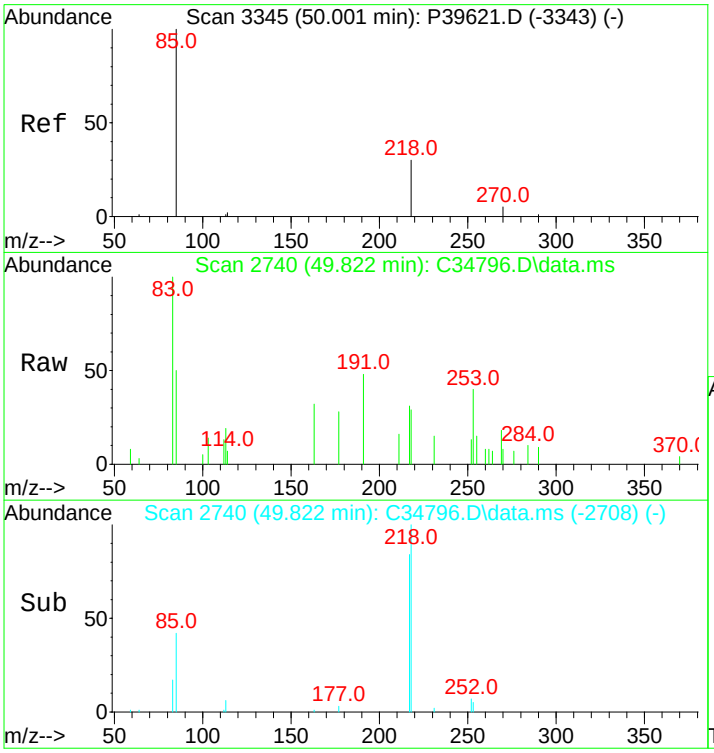




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 164.59 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

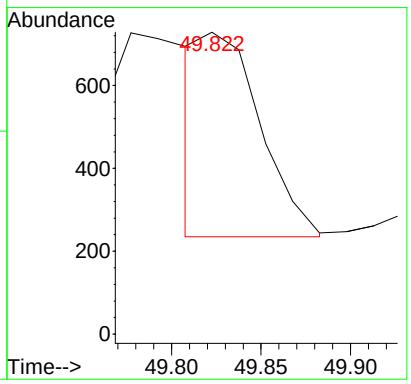
Tgt Ion:218 Resp: 1726

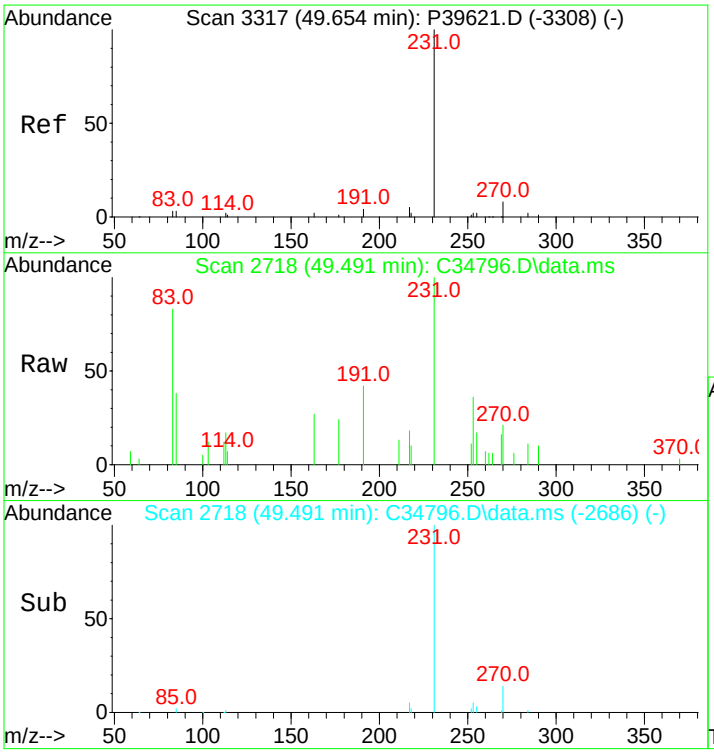




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 108.99 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

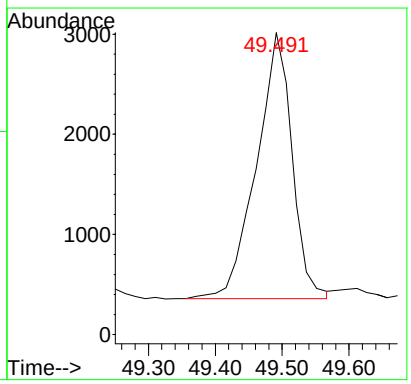
Tgt Ion:218 Resp: 1143

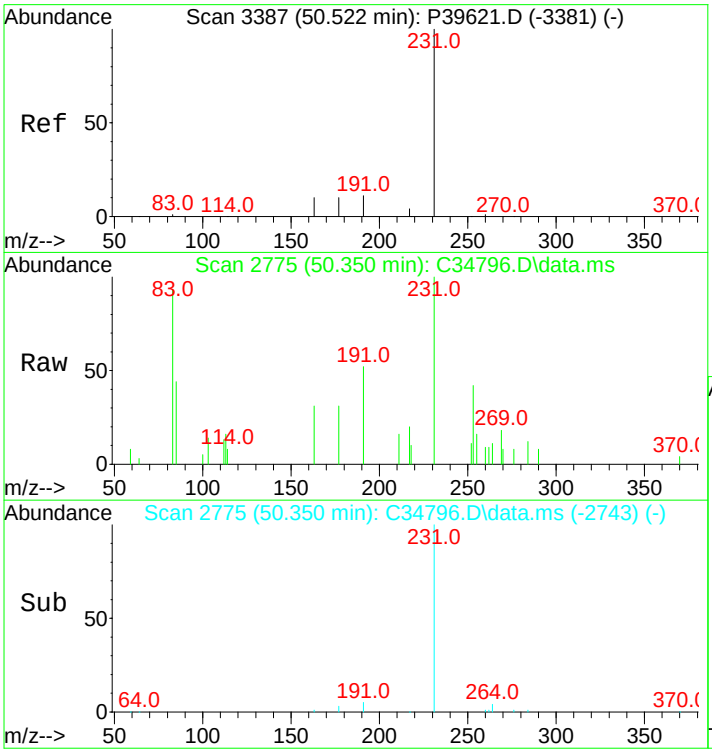




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 935.74 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

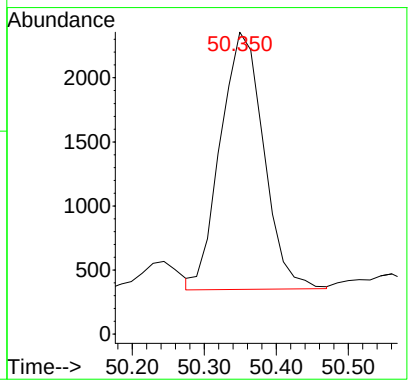
Tgt Ion:231 Resp: 9813

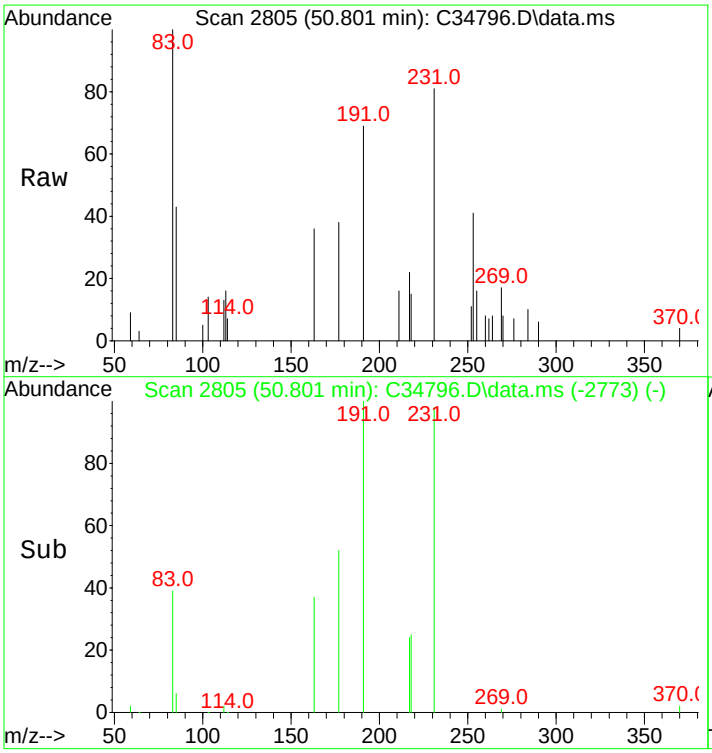




#146
C28,20S-triaromatic steroid
Concen: 799.47 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

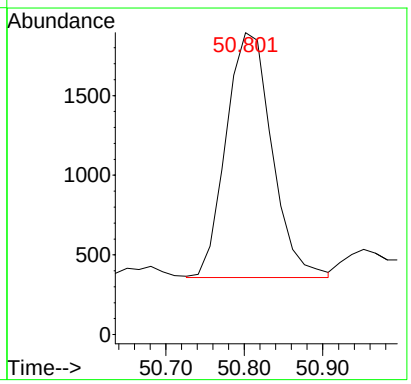
Tgt Ion:231 Resp: 8384

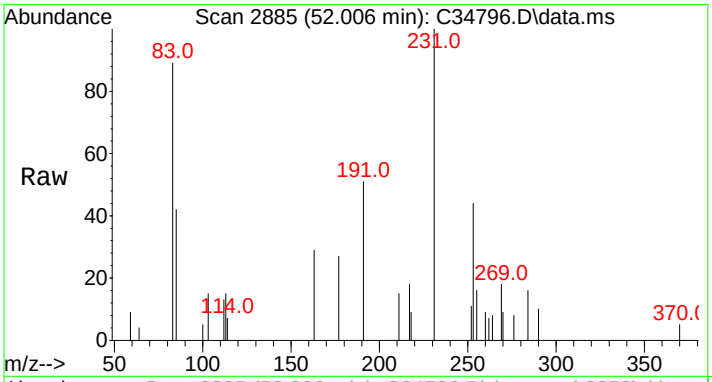




#147
C27,20R-triaromatic steroid
Concen: 595.03 ng/mL m
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

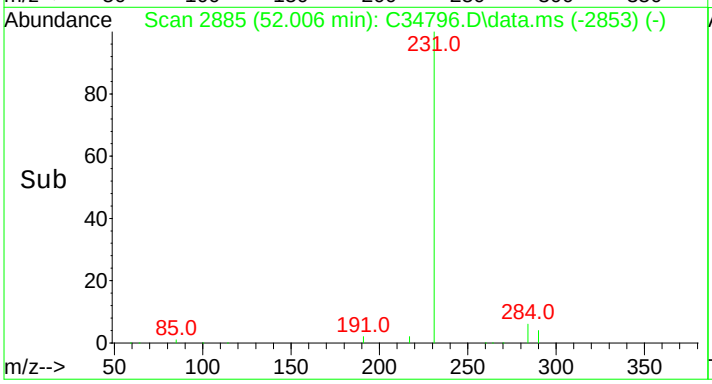
Tgt Ion:231 Resp: 6240

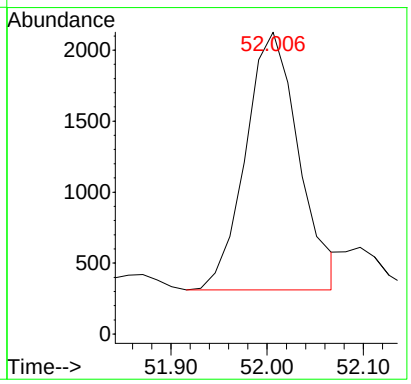




#148
C28,20R-triaromatic steroid
Concen: 666.54 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34796.D
Acq: 3 May 2012 2:56 am

Tgt Ion:231 Resp: 6990





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17663M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33128	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	62526	815.607	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 81.56%			
42) Phenanthrene-d10	32.567	188	57641	951.254	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.13%			
86) Benzo[a]pyrene-d12	48.241	264	62073	904.127	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.41%			
127) 5B(H)Cholane - Surr	43.769	217	10606	1023.993	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.40%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	89M3	6.383	ng/mL	
5) C1-Decalins	17.859	152	329M5	23.596	ng/mL	
6) C2-Decalins	19.650	166	810M5	58.092	ng/mL	
7) C3-Decalins	22.119	180	918M5	65.838	ng/mL	
8) C4-Decalins	25.507	194	3125M5	224.122	ng/mL	
10) Naphthalene	19.801	128	4502	39.991	ng/mL#	100
11) C1-Naphthalenes	22.496	142	2932M5	26.045	ng/mL	
12) C2-Naphthalenes	25.341	156	5550M5	49.301	ng/mL	
13) C3-Naphthalenes	28.021	170	21821M5	193.836	ng/mL	
14) C4-Naphthalenes	30.444	184	41085M5	364.959	ng/mL	
16) 2-Methylnaphthalene	22.496	142	1844	27.703	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	1158	17.749	ng/mL#	100
18) Benzothiophene	20.027	134	95M3	0.938	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	1004M5	9.911	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5711M5	56.375	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	12632M5	124.695	ng/mL	
23) Biphenyl	24.377	154	115M3	1.366	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	1240	22.674	ng/mL#	100
25) Dibenzofuran	27.464	168	143	1.479	ng/mL#	47
26) Acenaphthylene	26.079	152	100M3	0.895	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	1248M3	28.309	ng/mL	
29) Fluorene	28.834	166	362M3	4.988	ng/mL	
30) C1-Fluorenes	31.197	180	3796M5	52.310	ng/mL	
31) C2-Fluorenes	33.395	194	16613M5	228.931	ng/mL	
32) C3-Fluorenes	35.232	208	29788M5	410.486	ng/mL	
33) Dibenzothiophene	32.160	184	2764	23.761	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	9806	84.298	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	8261M3	71.016	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	5610	48.227	ng/mL#	100
37) OTP	34.343	198	11500M3	98.861	ng/mL	
38) C1-Dibenzothiophenes	34.343	198	37358M5	321.152	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	82513M5	709.331	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	117059M5	1006.309	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	87384M5	751.205	ng/mL	
43) Phenanthrene	32.657	178	3791	37.093	ng/mL#	1
44) 3-Methylphenanthrene(3MP)	34.614	192	4571M3	44.725	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	5425M3	53.081	ng/mL	
46) 2-Methylanthracene(2MA)	34.885	192	780M3	7.632	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	8853	86.623	ng/mL	92
48) 1-Methylphenanthrene(1MP)	35.156	192	5076M3	49.667	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	24798M5	242.638	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	64097M5	627.163	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	71355M5	698.180	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	38619M5	377.871	ng/mL	
56) Carbazole	33.485	167	1032M3	10.234	ng/mL	
57) 1-Methylphenanthrene	35.156	192	5060M3	78.126	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
58) Fluoranthene	37.430	202	2111M3	20.797	ng/mL	
60) Pyrene	38.303	202	5191M3	50.310	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	18729M5	181.517	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	28438M5	275.614	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	33886M5	328.414	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	37728M5	365.650	ng/mL	
66) Naphthobenzothiophene	42.158	234	8319	74.890	ng/ml	97
67) Naphthobenzothiophene-...	42.158	234	8319	74.890	ng/mL	97
68) Naphthobenzothiophene-...	42.504	234	2004M3	18.040	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1404M3	12.639	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	45234M5	407.207	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	68317M5	615.005	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	61782M5	556.176	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	45897M5	413.175	ng/mL	
75) Benz[a]anthracene	43.091	228	1172M3	11.146	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5784M3	54.486	ng/mL	
78) C1-Chrysenes	44.717	242	16315M5	153.690	ng/mL	
79) C2-Chrysenes	46.795	256	26170M5	246.525	ng/mL	
80) C3-Chrysenes	49.491	270	32919M5	310.102	ng/mL	
81) C4-Chrysenes	49.506	284	20615M5	194.197	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	2409M3	20.851	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1153M3	9.166	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	333M2	2.647	ng/mL	
85) Benzo[e]pyrene	48.136	252	3615M3	31.633	ng/mL	
87) Benzo[a]pyrene	48.331	252	1889M3	17.168	ng/mL	
88) Perylene	48.633	252	3245M3	27.596	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1822M3	14.230	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	702M3	5.763	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3868	28.593	ng/mL#	82
92) Hopane (T19)	52.217	191	19056	872.779	ng/mL#	77
94) C23 Tricyclic Terpane ...	40.787	191	7849M3	359.490	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4611	211.187	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	4222M3	193.371	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1405M3	64.350	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	1581M3	72.411	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1452M3	66.503	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1677M3	76.808	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1792	82.075	ng/ml	100
102) C29 Tricyclic Terpane-...	47.111	191	2277	104.288	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	1937M3	88.716	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2343	107.311	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2127M3	97.418	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1816	83.174	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.994	191	5252	240.546	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	2885M3	132.135	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	935	42.824	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	13374M3	612.539	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2134M3	97.739	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	758	34.717	ng/ml	100
113) 30-Normoretane (T17)	51.615	191	1186M3	54.320	ng/ml	
115) Moretane (T20)	52.895	191	1421M3	65.083	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	8269	378.726	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	6835	313.048	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2903	132.960	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	5446	249.431	ng/ml	100
120) 30,31-Bishomohopane-22...	55.936	191	4209M3	192.775	ng/ml	
121) 30,31-Trishomohopane-2...	57.698	191	4183M3	191.585	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	2455M3	112.441	ng/ml	
123) Tetrakishomohopane-22S...	60.318	191	2778	127.234	ng/ml	100
124) Tetrakishomohopane-22R...	61.222	191	1826	83.632	ng/ml	100
125) Pentakishomohopane-22S...	63.451	191	3242M3	148.486	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126) Pentakishomohopane-22R...	64.746	191	2220M3	101.678	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1581	152.643	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	614M3	59.281	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	570M3	55.033	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217	1997	192.807	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	2532	244.461	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	552M3	53.295	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	191	18.441	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1190	114.893	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	928M3	89.597	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	2767M3	267.150	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	1891M3	182.573	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	1498M3	144.630	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1583M3	152.836	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1366M3	131.885	ng/ml	
142) 14b,17b-20S-Methylchol...	48.723	218	1696M3	163.746	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	2355M3	227.372	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.807	218	1529M3	147.623	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	12953	1250.592	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	10761M3	1038.958	ng/mL	
147) C27,20R-triaromatic st...	50.801	231	8224	794.014	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	9122M3	880.715	ng/mL	

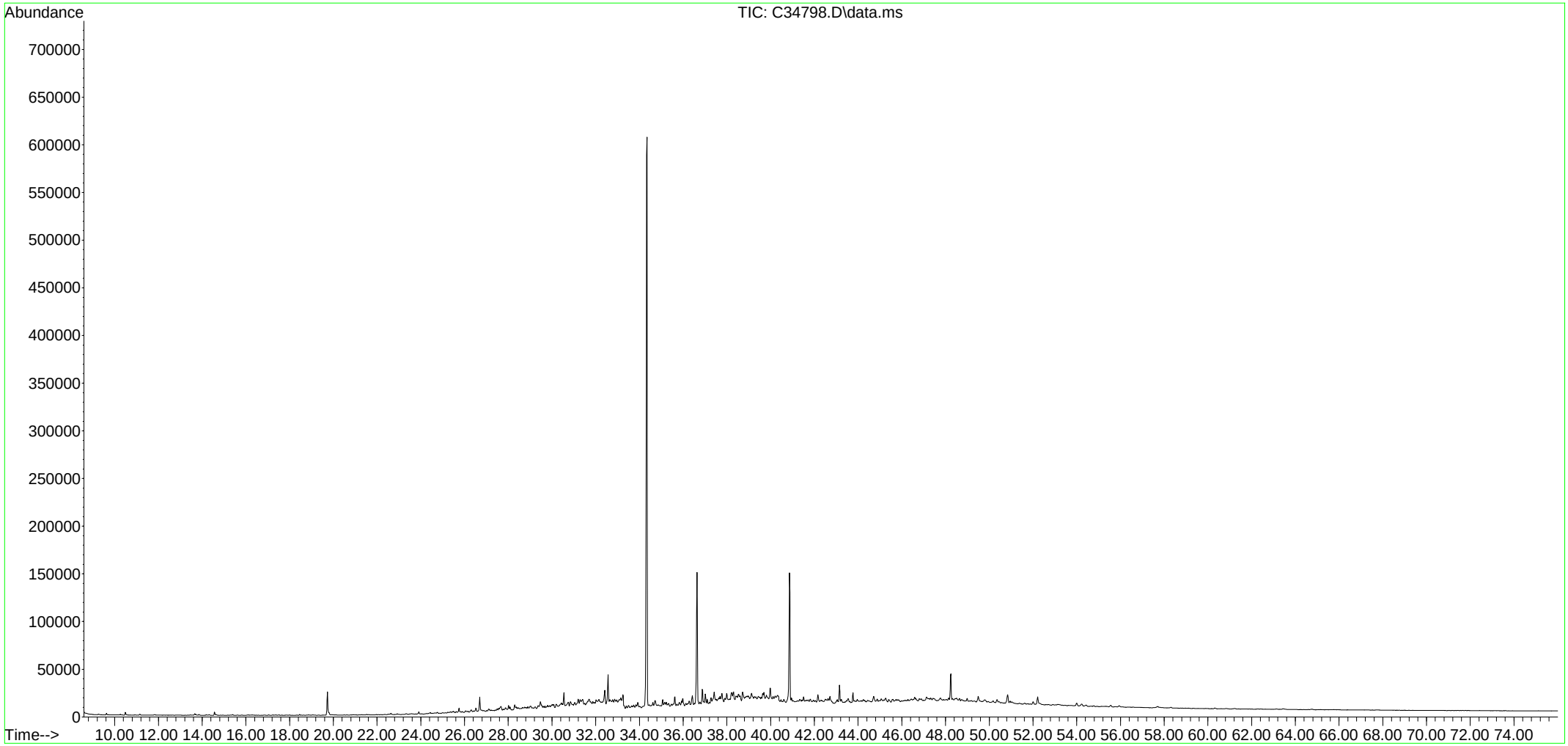
(#) = qualifier out of range (m) = manual integration (+) = signals summed

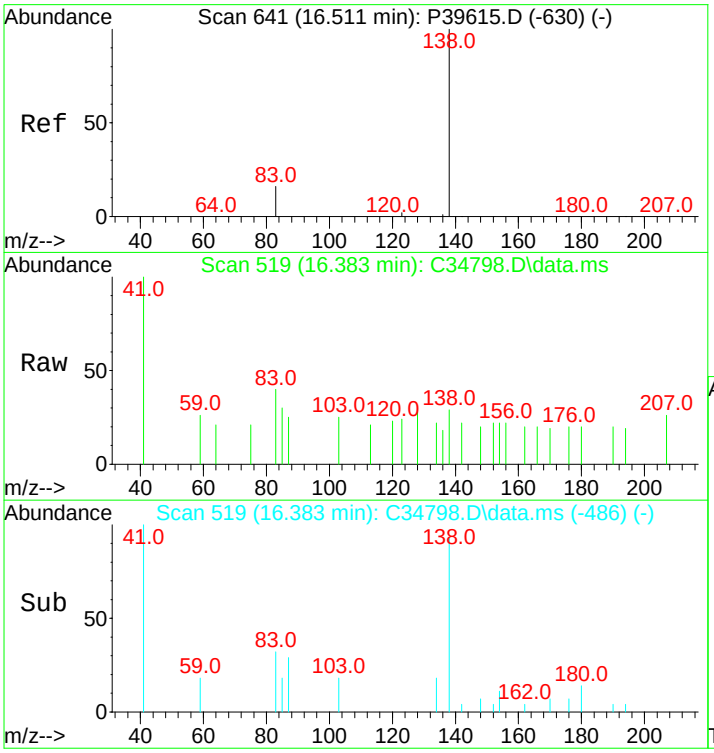
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34798.D
Acq On : 3 May 2012 4:27 am
Operator : AC
Sample : 1204031-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 05 12:45:13 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

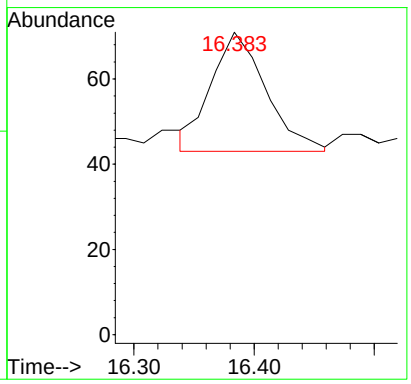
Sub List : Gulf_NEW_POIB_Default - All compounds listed

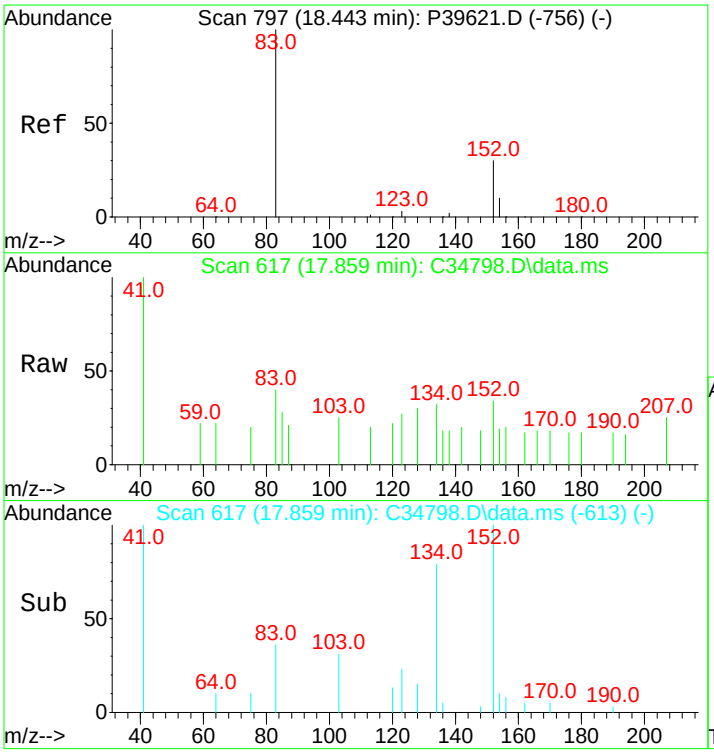




#3
trans-Decalin
Concen: 6.38 ng/mL m
RT: 16.383 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

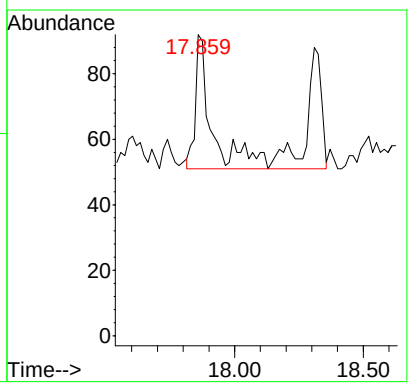
Tgt Ion:138 Resp: 89

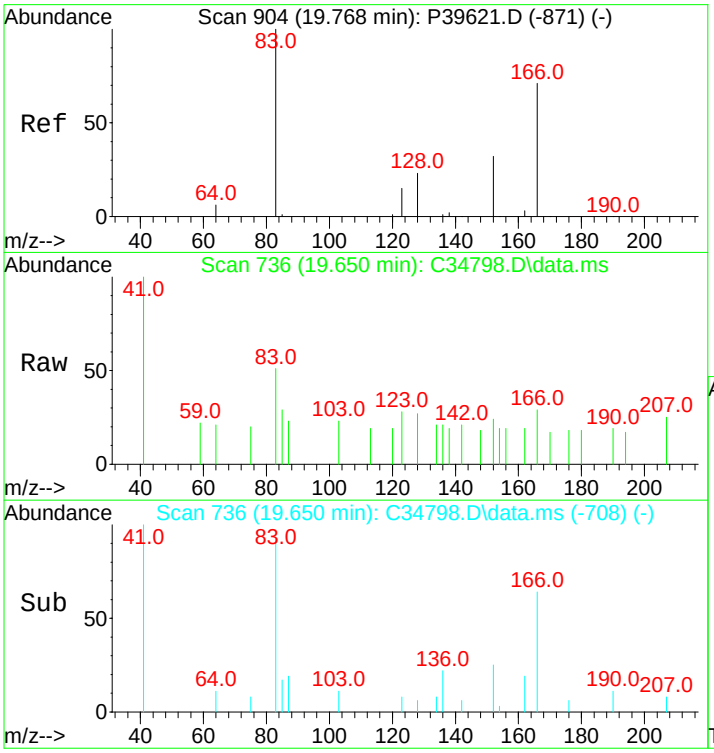




#5
C1-Decalins
Concen: 23.60 ng/mL m
RT: 17.859 min Scan# 617
Delta R.T. -0.489 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

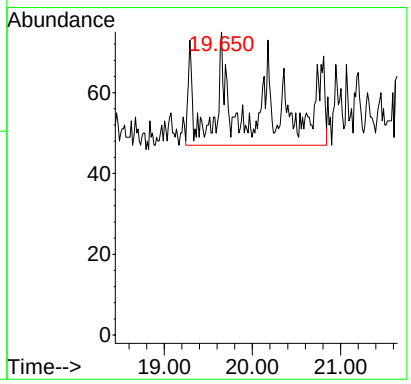
Tgt Ion:152 Resp: 329

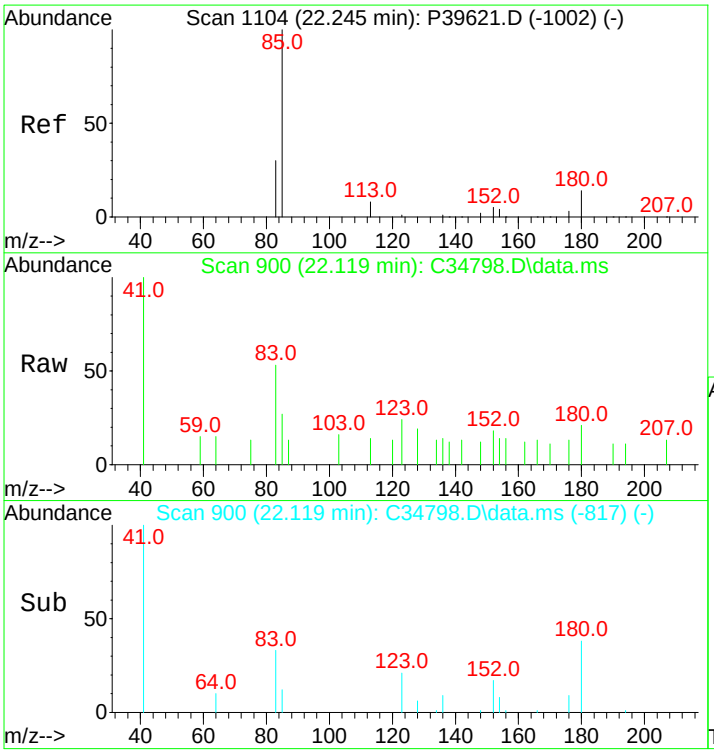




#6
C2-Decalins
Concen: 58.09 ng/mL m
RT: 19.650 min Scan# 736
Delta R.T. -0.032 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

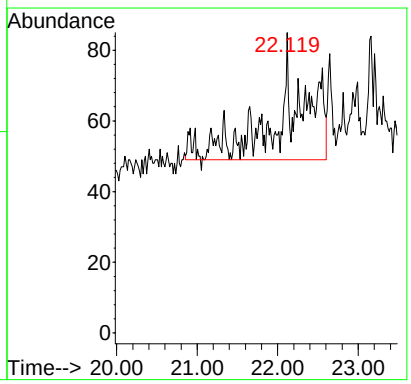
Tgt Ion:166 Resp: 810

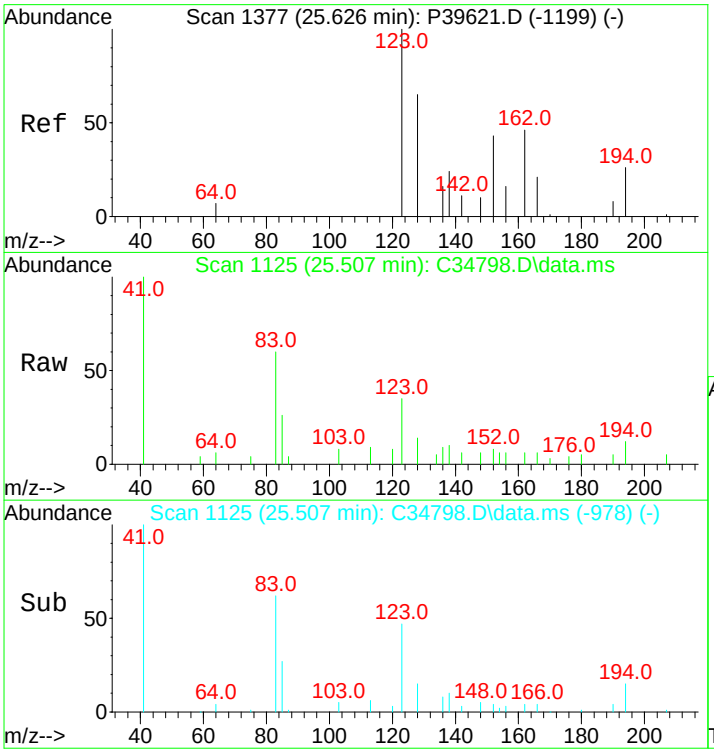




#7
C3-Decalins
Concen: 65.84 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

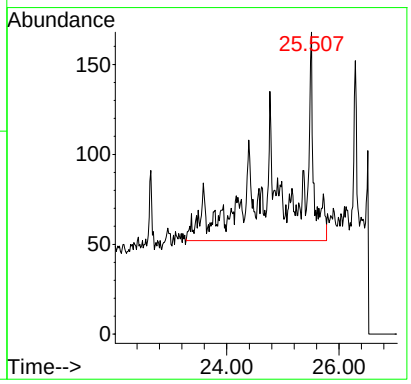
Tgt Ion:180 Resp: 918

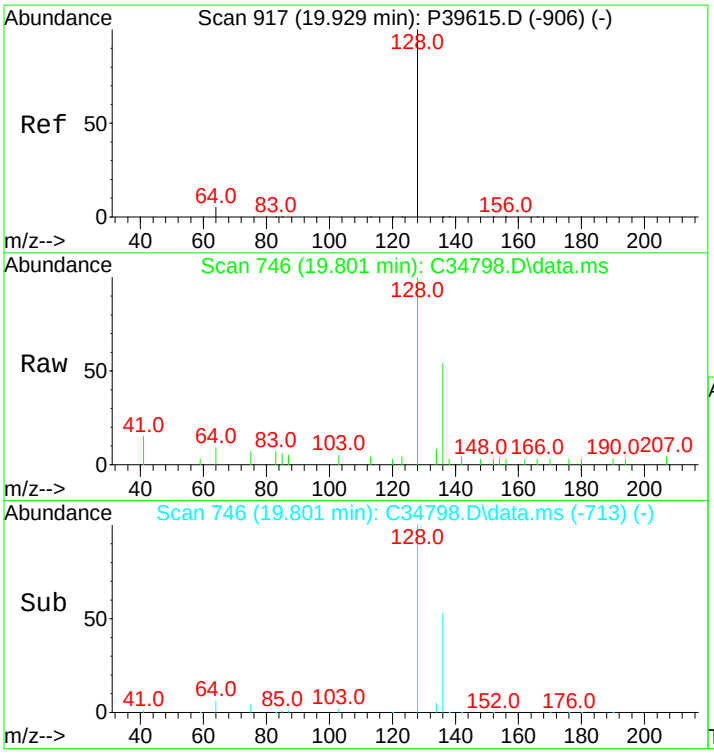




#8
C4-Decalins
Concen: 224.12 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.006 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:194 Resp: 3125

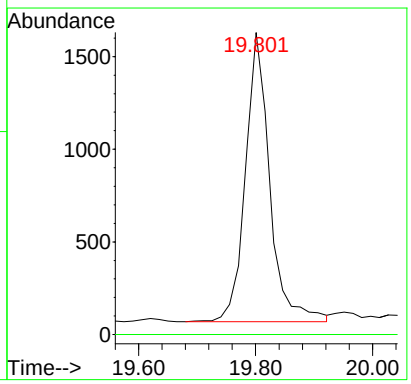


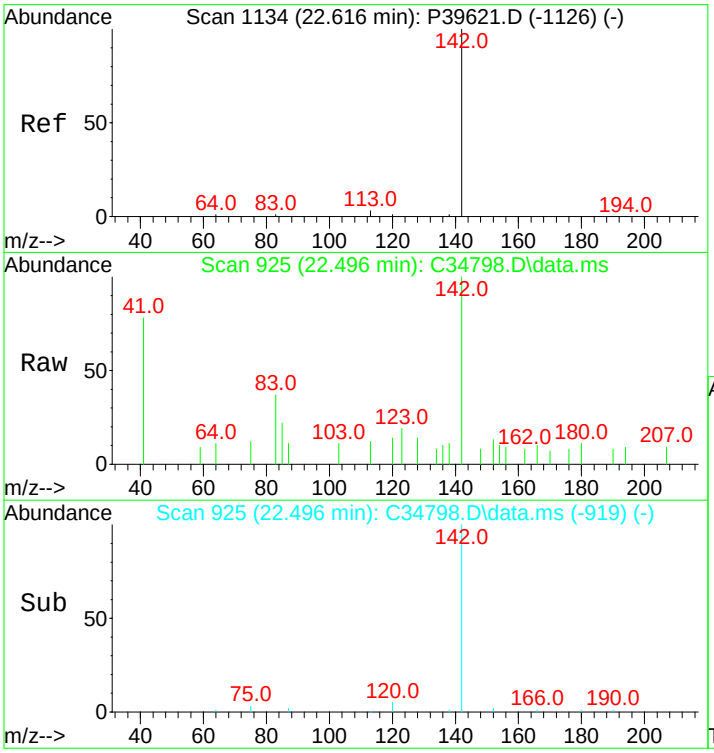


#10
Naphthalene
Concen: 39.99 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:128 Resp: 4502

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

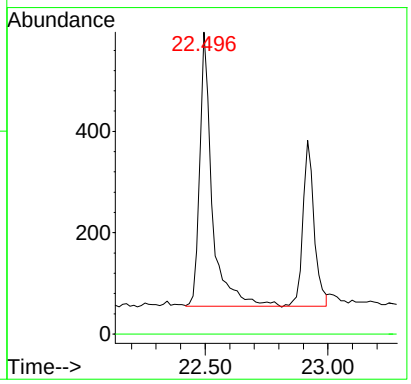


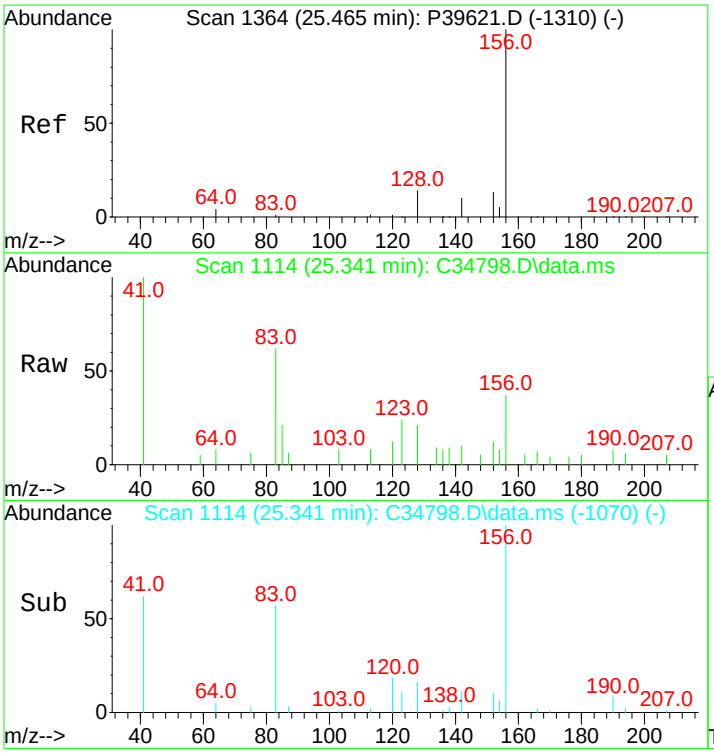


#11
C1-Naphthalenes
Concen: 26.04 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:142 Resp: 2932

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

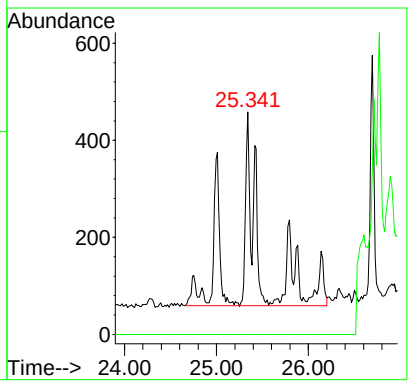


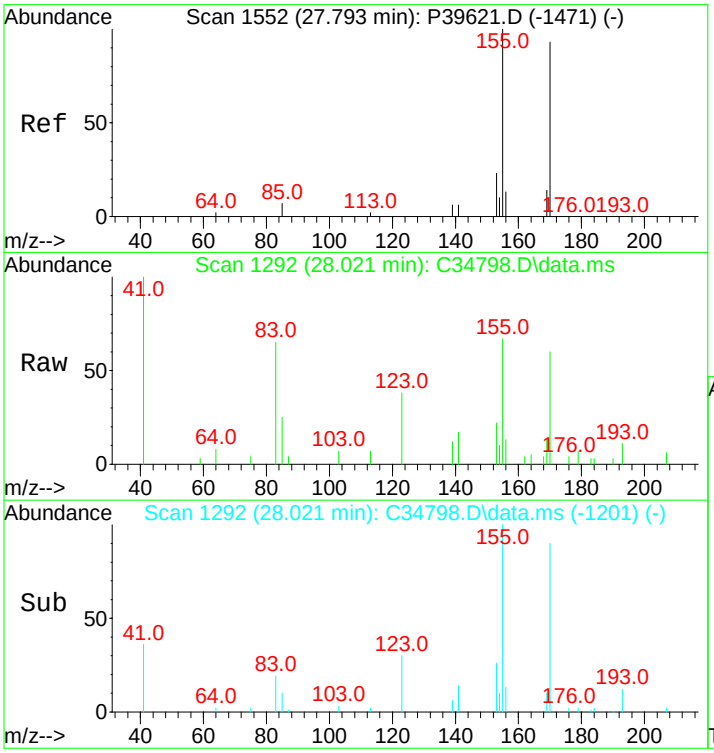


#12
C2-Naphthalenes
Concen: 49.30 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:156 Resp: 5550

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

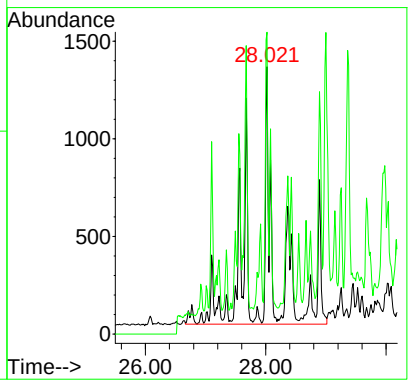


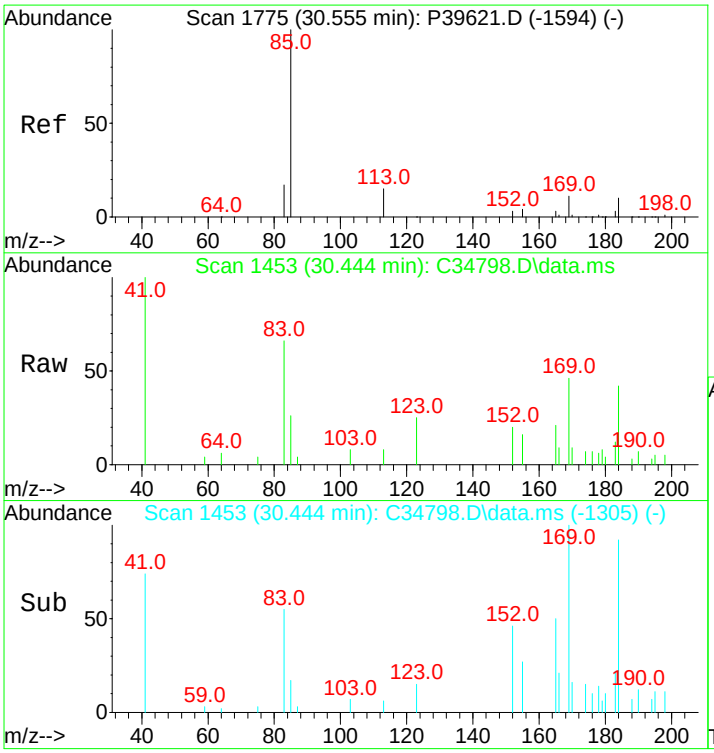


#13
C3-Naphthalenes
Concen: 193.84 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.350 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:170 Resp: 21821

Ion	Ratio	Lower	Upper
170	100		
155	17.1	81.8	122.6#

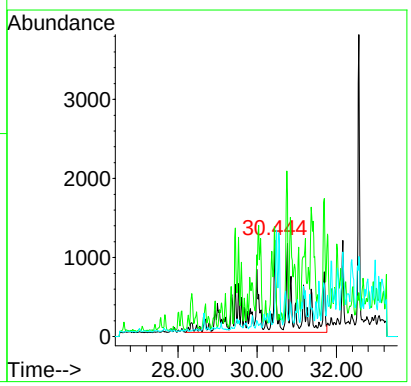


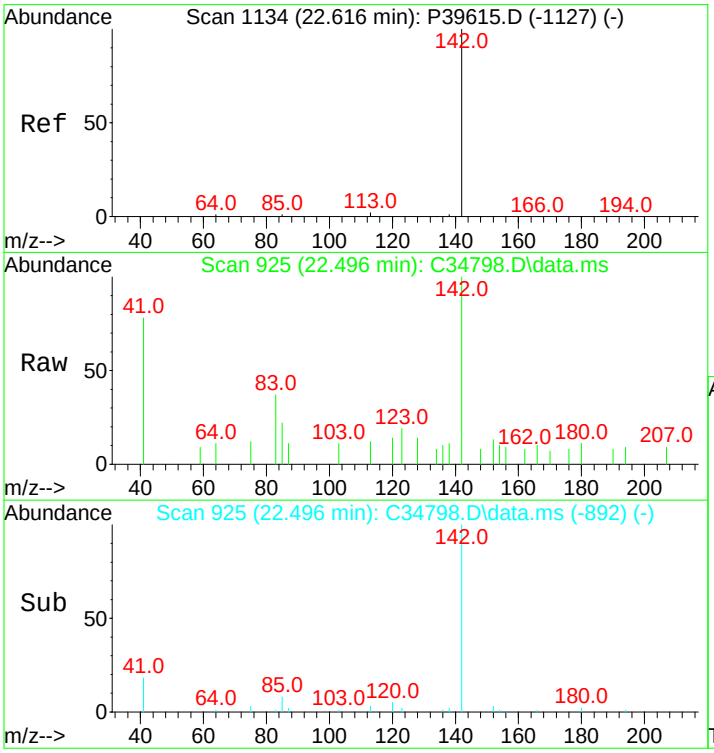


#14
C4-Naphthalenes
Concen: 364.96 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:184 Resp: 41085

Ion	Ratio	Lower	Upper
184	100		
169	9.6	77.4	116.0#
183	0.0	14.8	22.2#

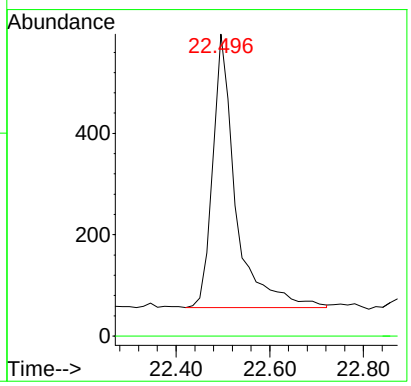


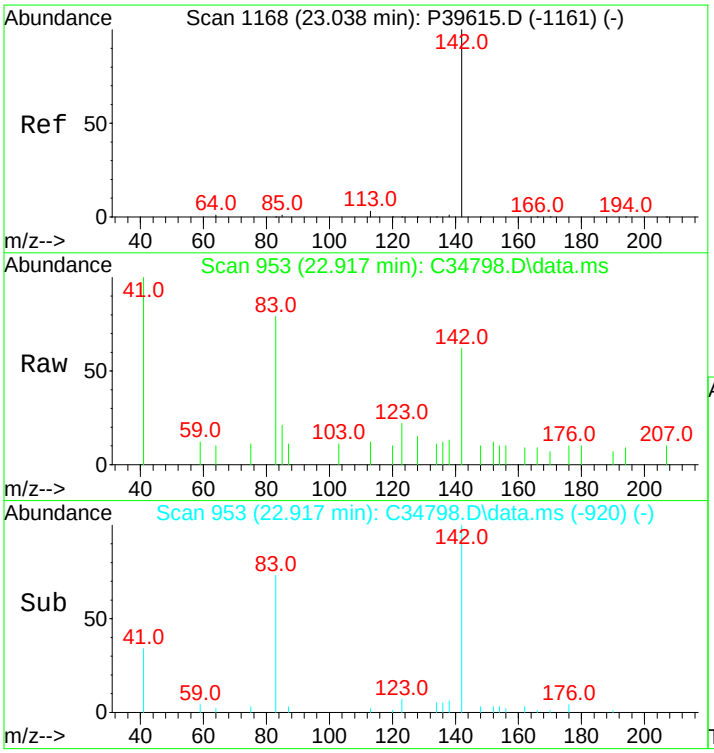


#16
2-Methylnaphthalene
Concen: 27.70 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:142 Resp: 1844

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

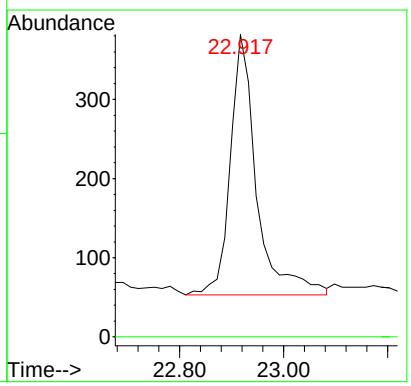


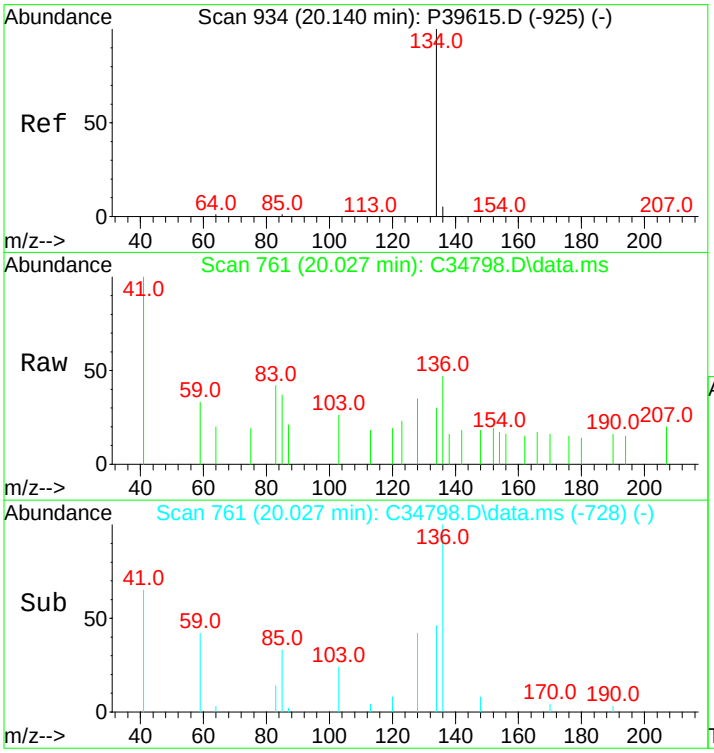


#17
1-Methylnaphthalene
Concen: 17.75 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:142 Resp: 1158

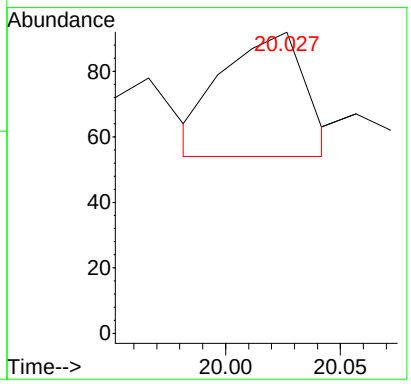
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

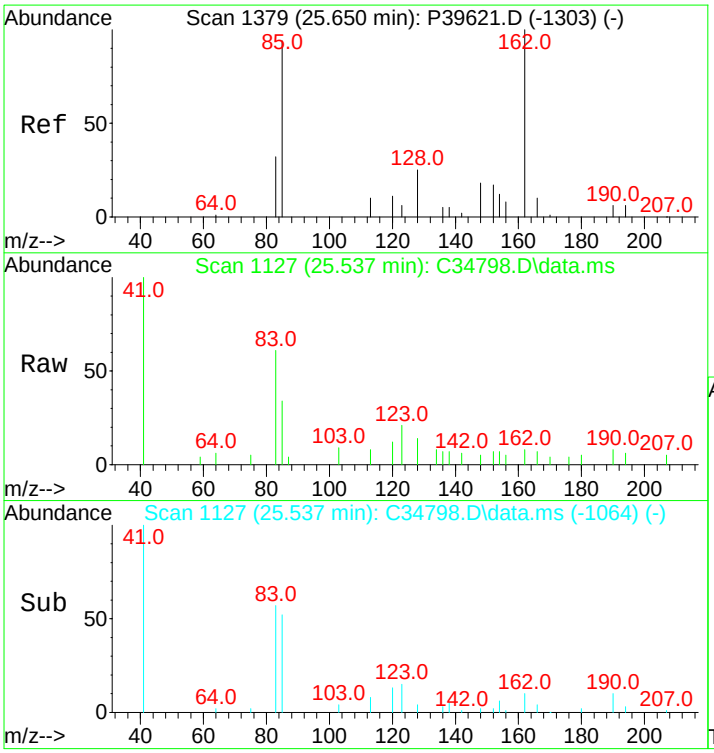




#18
Benzothiophene
Concen: 0.94 ng/mL m
RT: 20.027 min Scan# 761
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

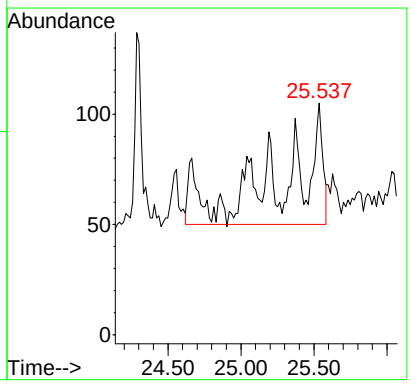
Tgt Ion:134 Resp: 95

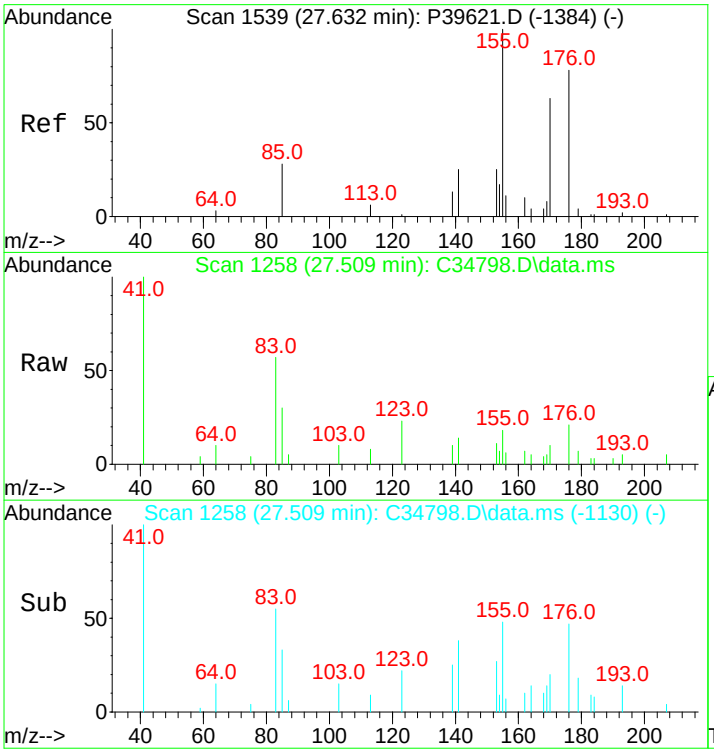




#20
C2-Benzo(b)thiophenes
Concen: 9.91 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

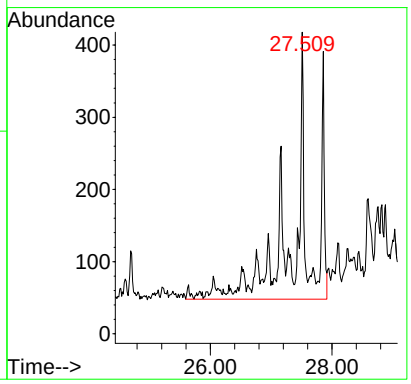
Tgt Ion:162 Resp: 1004

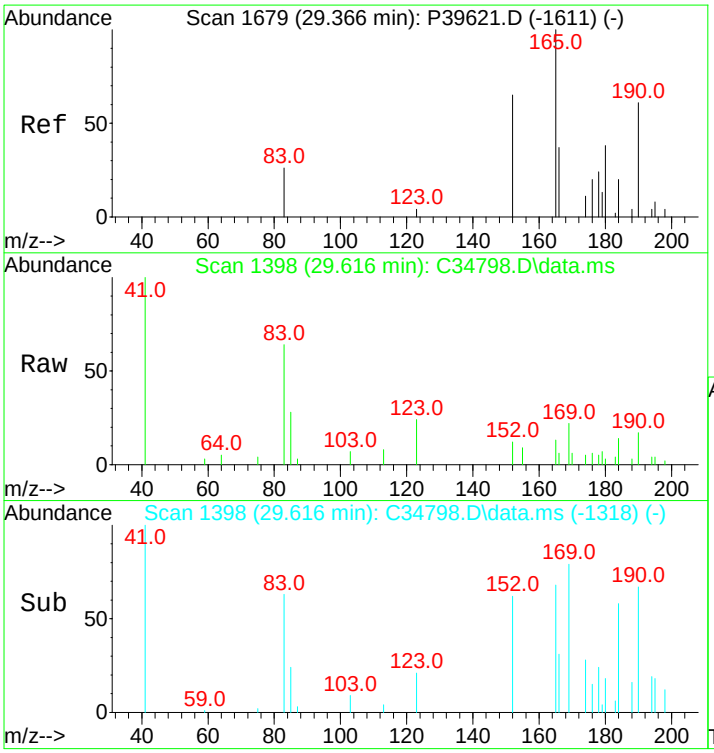




#21
C3-Benzo(b)thiophenes
Concen: 56.38 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.003 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

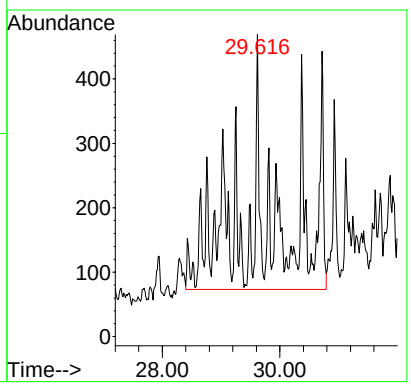
Tgt Ion:176 Resp: 5711

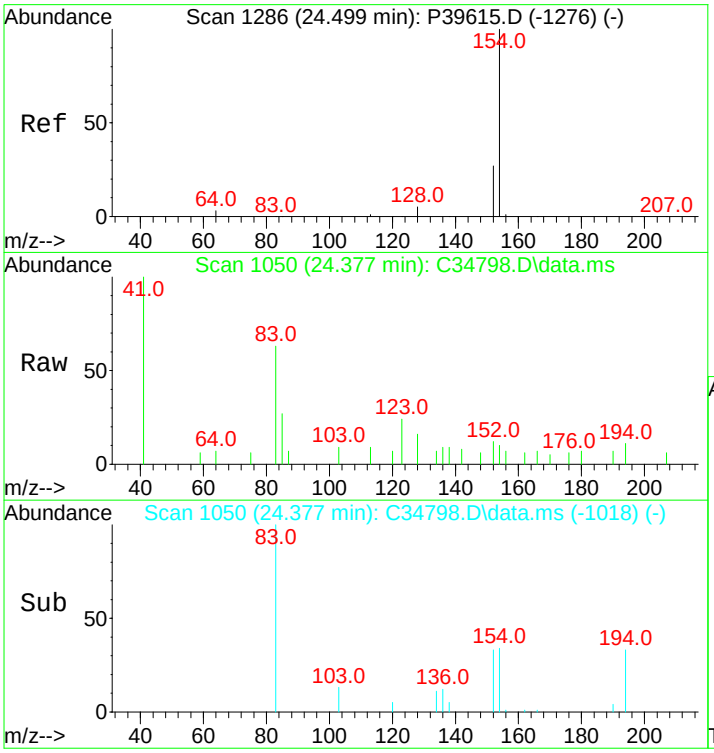




#22
C4-Benzo(b)thiophenes
Concen: 124.70 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:190 Resp: 12632

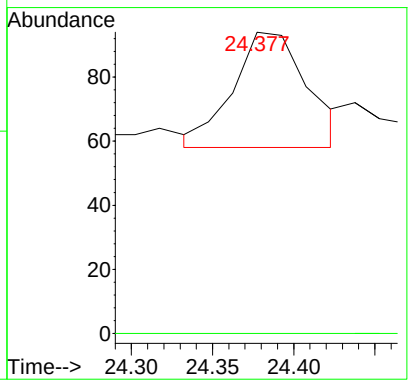


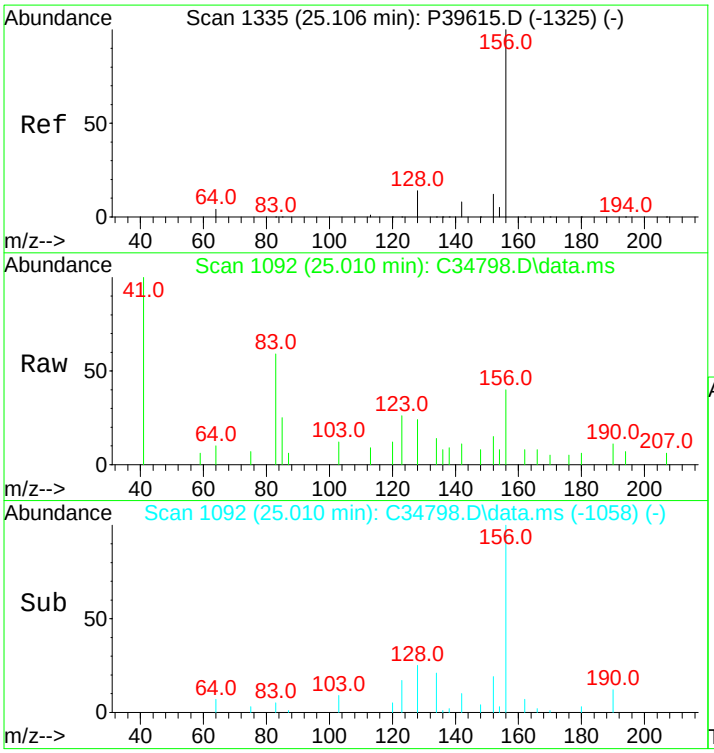


#23
Biphenyl
Concen: 1.37 ng/mL m
RT: 24.377 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:154 Resp: 115

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

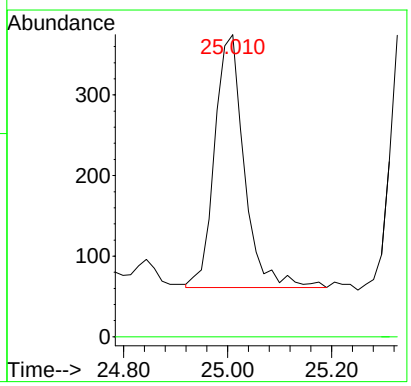


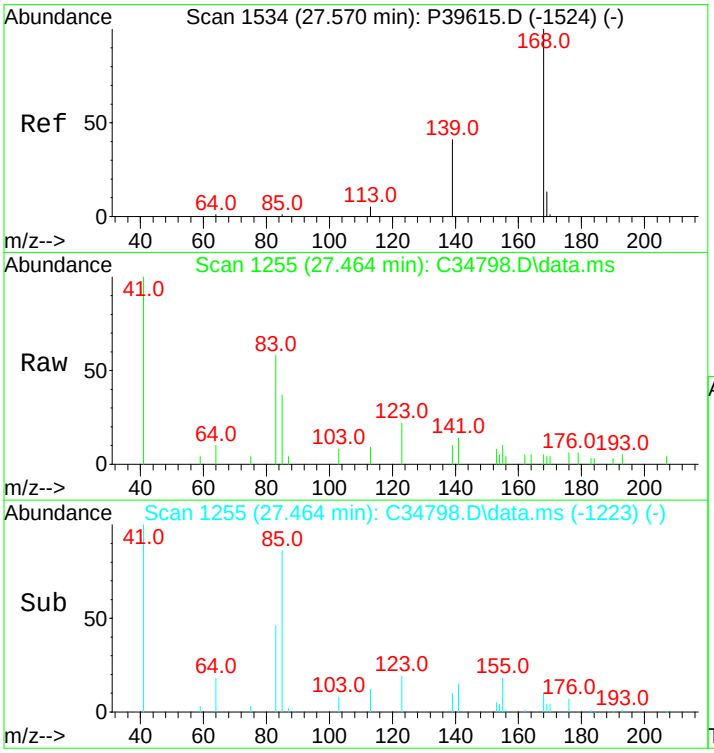


#24
2,6-Dimethylnaphthalene
Concen: 22.67 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:156 Resp: 1240

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

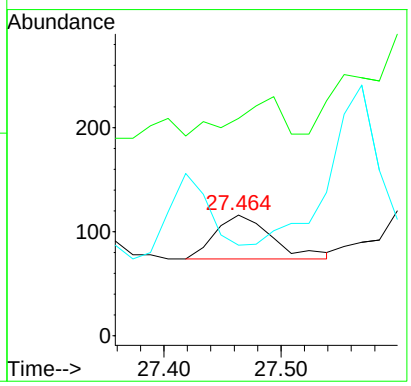


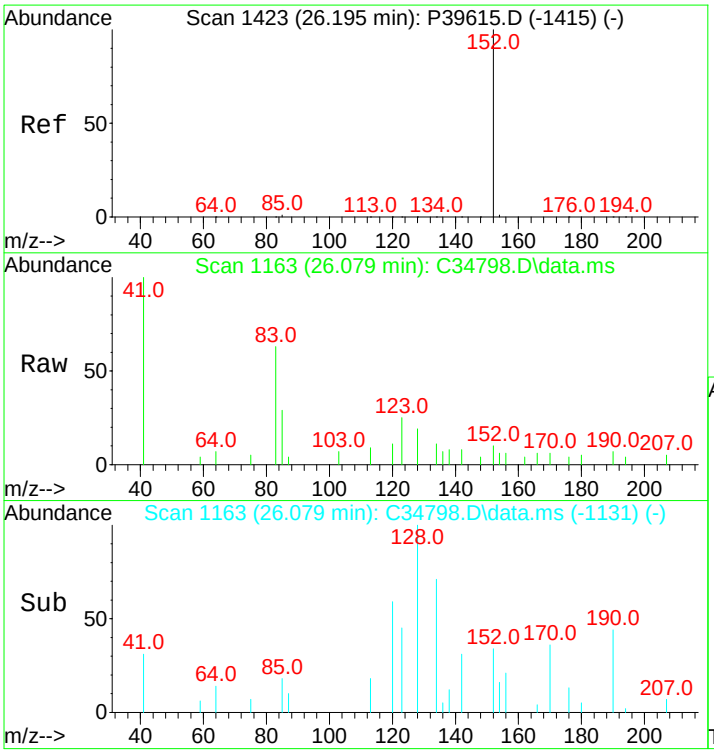


#25
Dibenzofuran
Concen: 1.48 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:168 Resp: 143

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

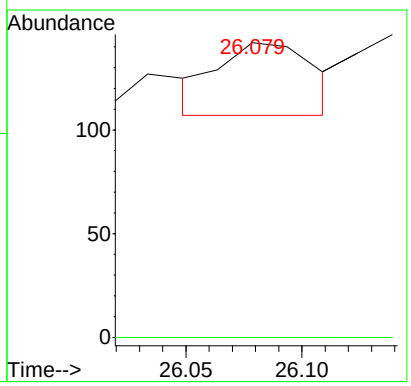


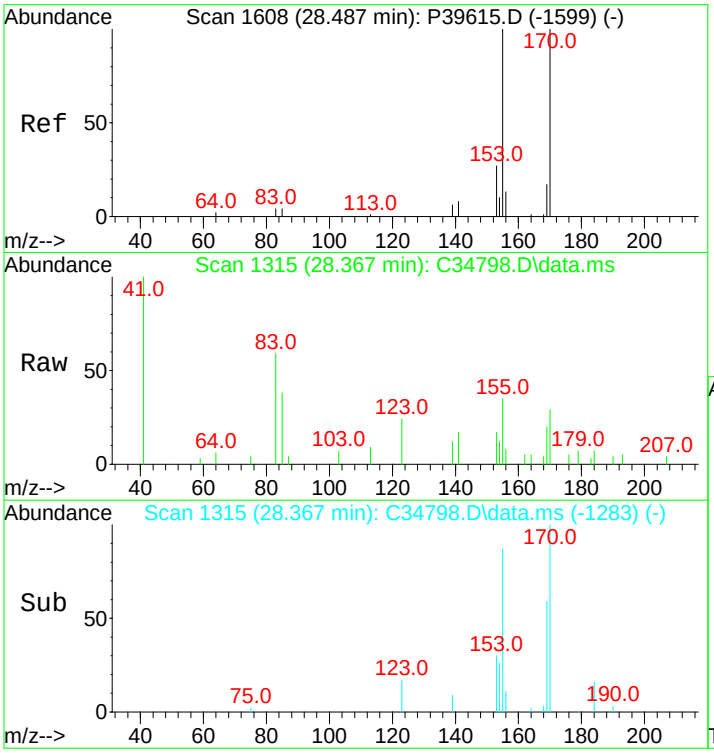


#26
Acenaphthylene
Concen: 0.89 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:152 Resp: 100

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

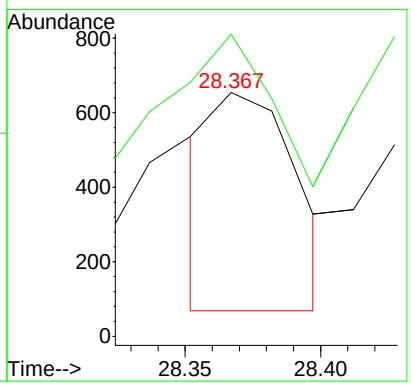


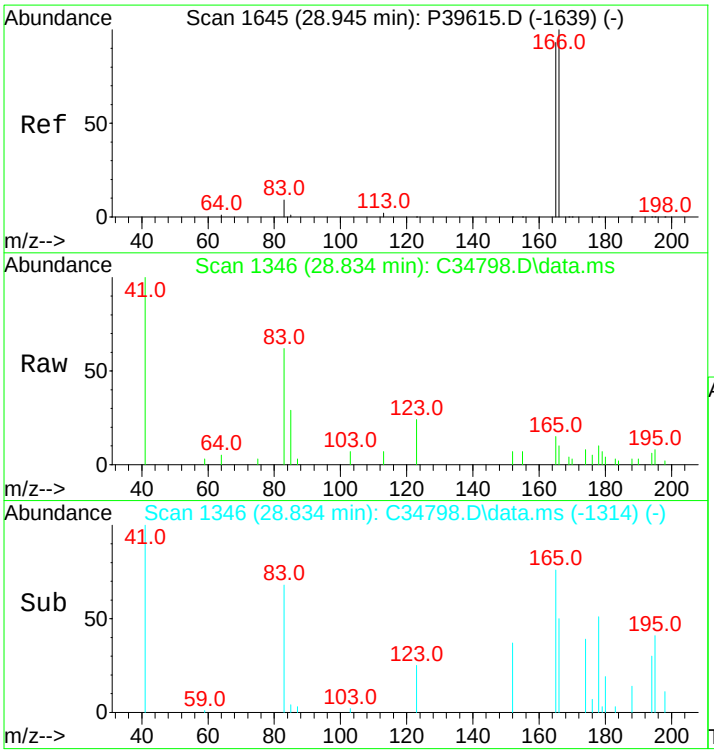


#28
2,3,5-Trimethylnaphthalene
Concen: 28.31 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:170 Resp: 1248

Ion	Ratio	Lower	Upper
170	100		
155	219.0	87.3	130.9#

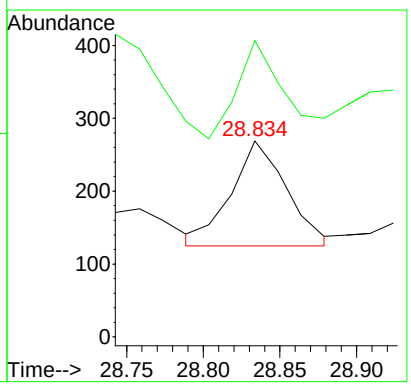


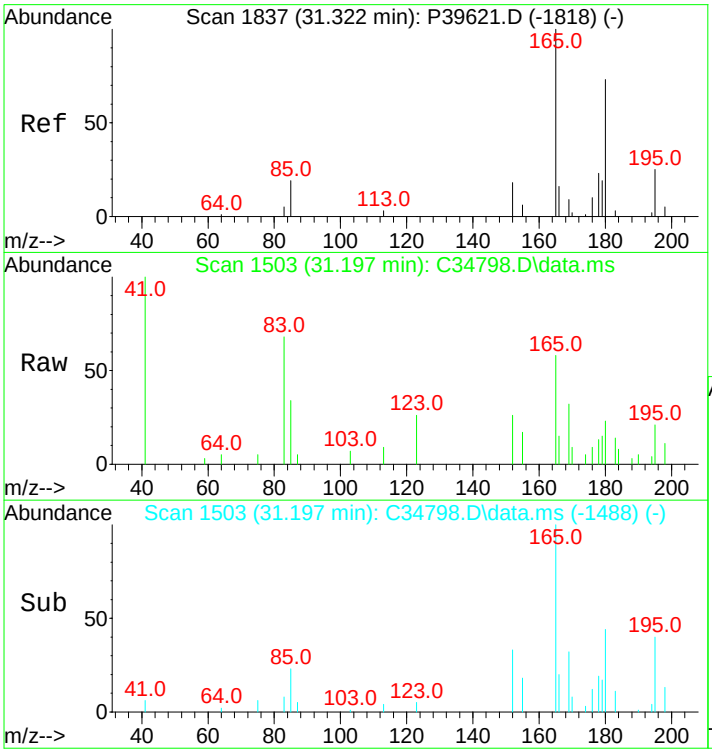


#29
Fluorene
Concen: 4.99 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:166 Resp: 362

Ion	Ratio	Lower	Upper
166	100		
165	121.5	77.3	115.9#

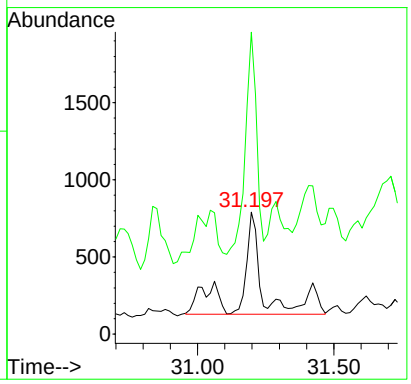


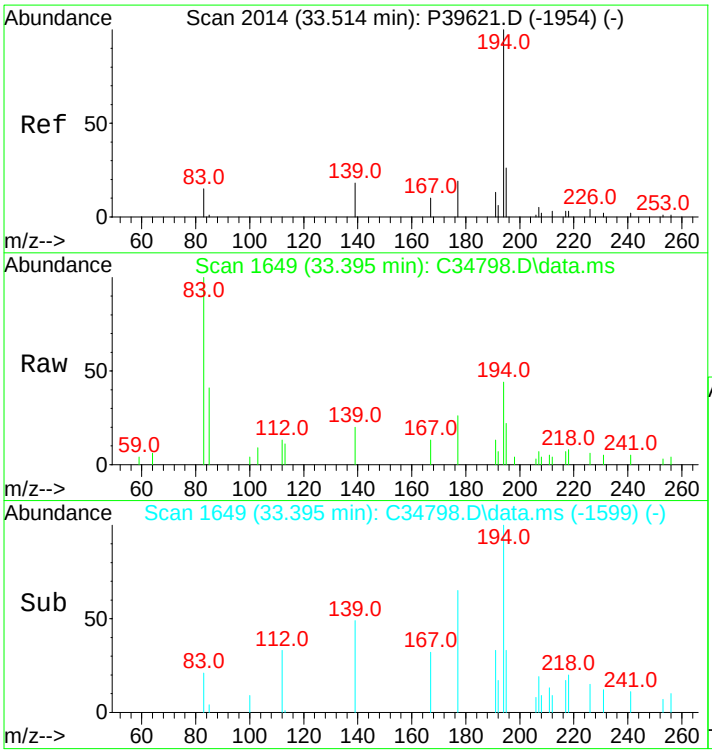


#30
C1-Fluorenes
Concen: 52.31 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:180 Resp: 3796

Ion	Ratio	Lower	Upper
180	100		
165	108.1	111.4	167.2#

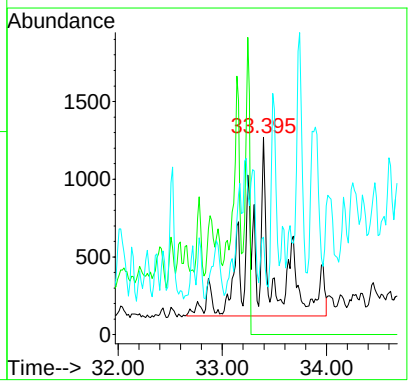


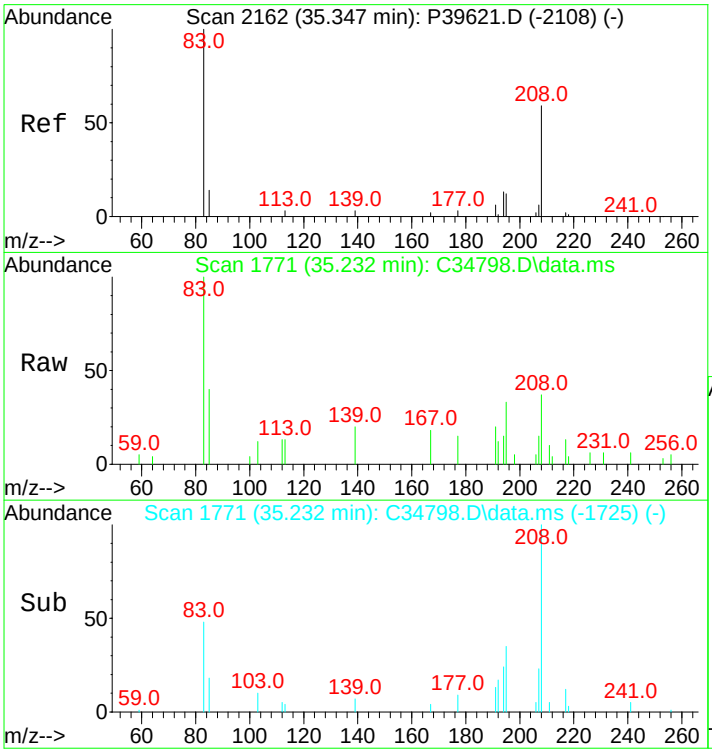


#31
C2-Fluorenes
Concen: 228.93 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:194 Resp: 16613

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.2	27.3	40.9#

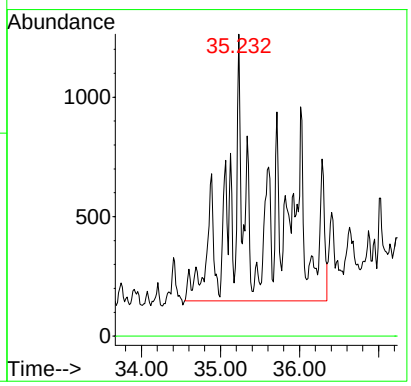


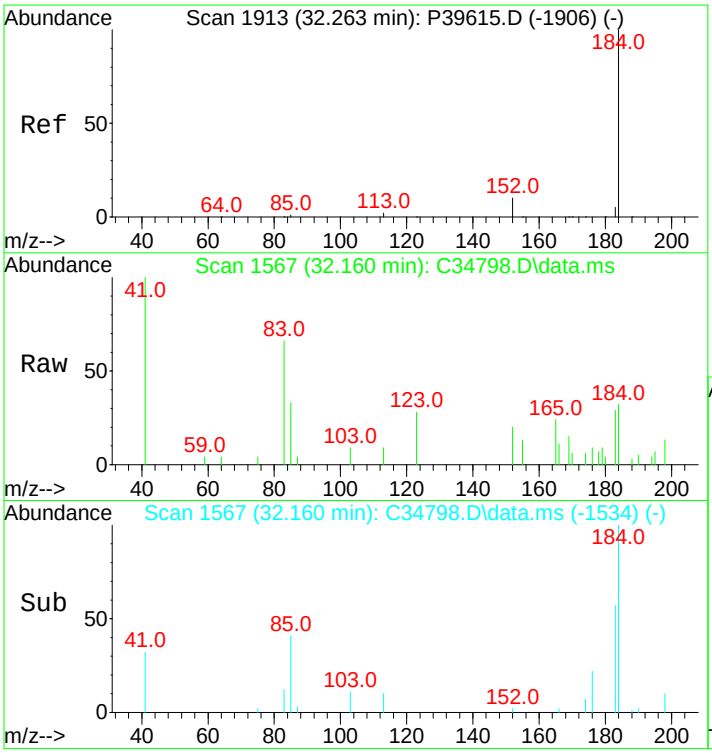


#32
C3-Fluorenes
Concen: 410.49 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:208 Resp: 29788

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

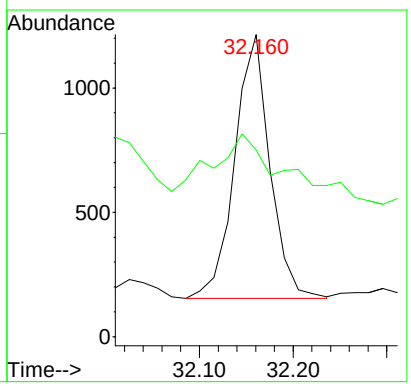


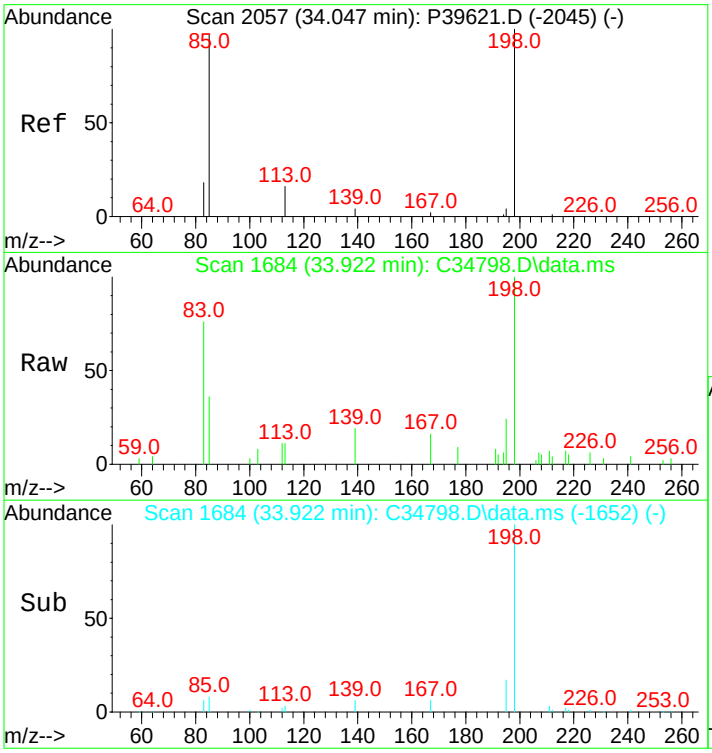


#33
Dibenzothiophene
Concen: 23.76 ng/mL
RT: 32.160 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:184 Resp: 2764

Ion	Ratio	Lower	Upper
184	100		
152	66.3	7.5	11.3#

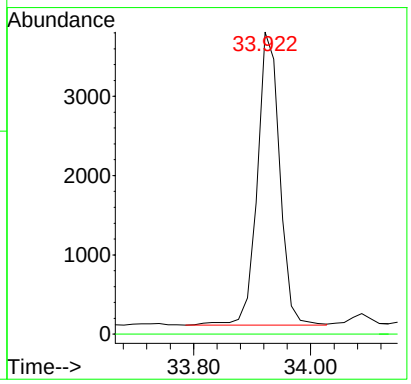


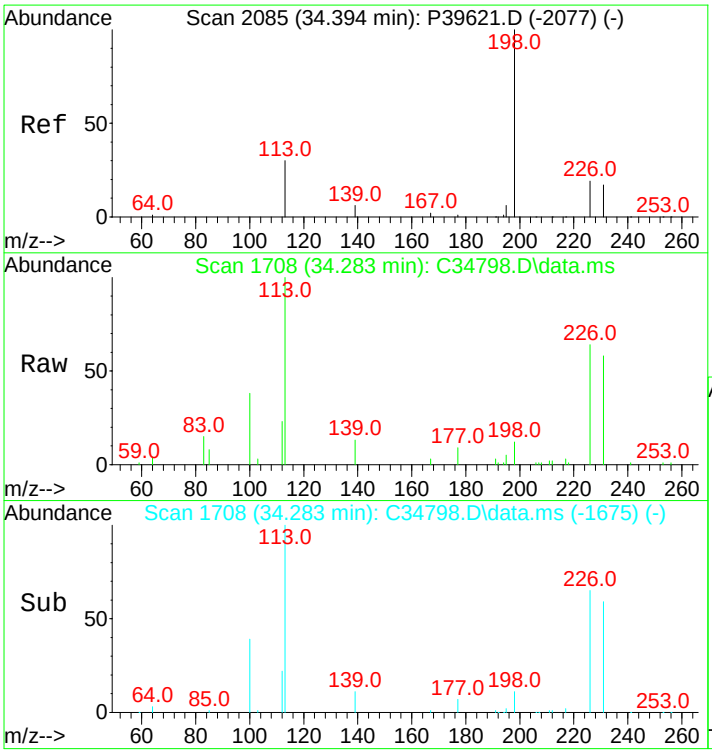


#34
4-Methyldibenzothiophene(4MDT)
Concen: 84.30 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:198 Resp: 9806

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

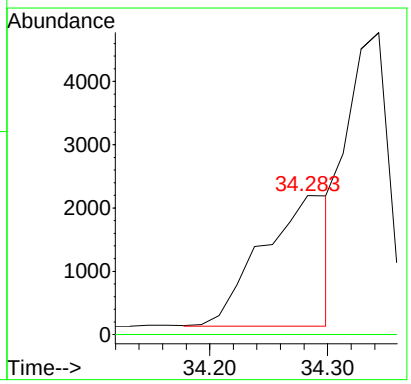


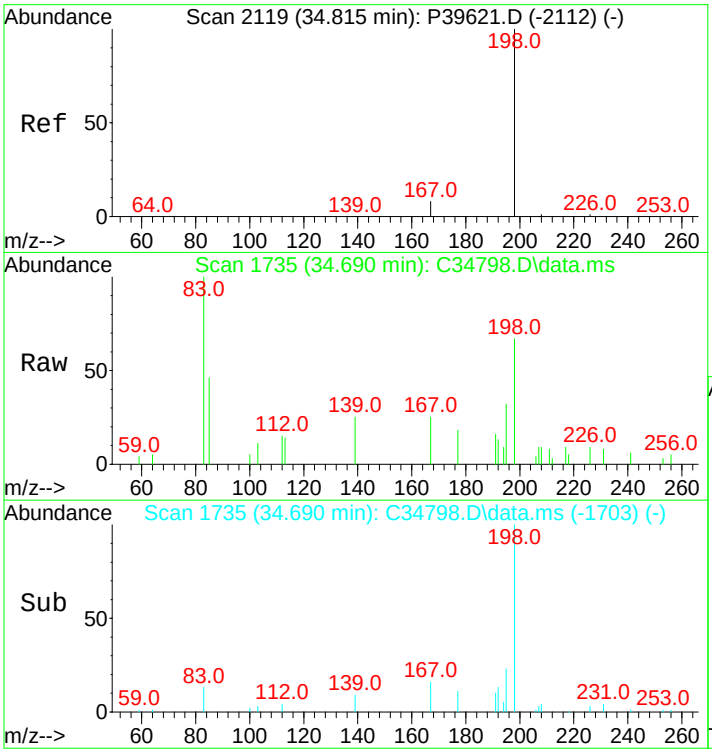


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 71.02 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:198 Resp: 8261

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

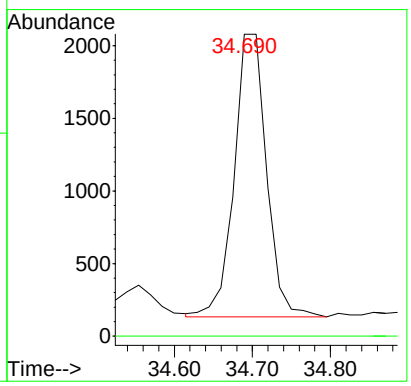


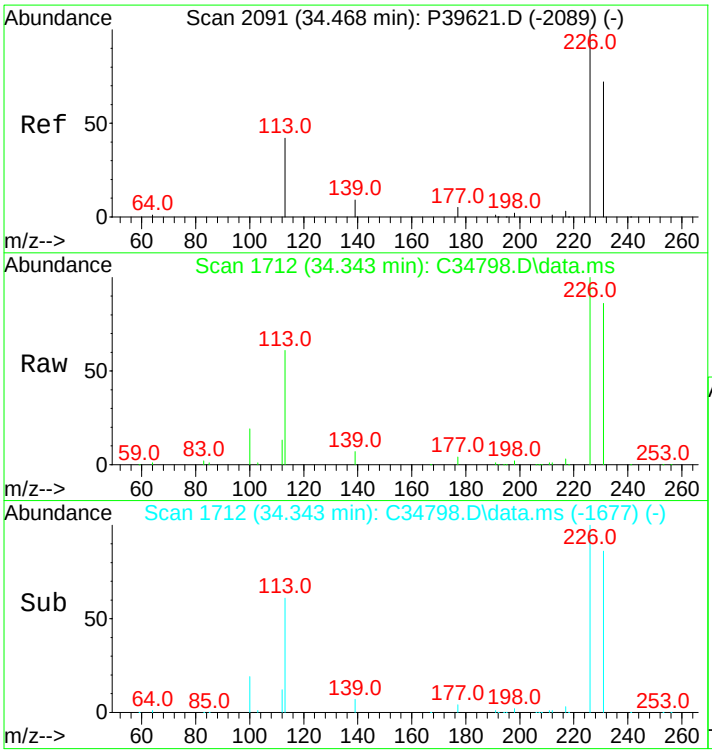


#36
1-Methyldibenzothiophene(1MDT)
Concen: 48.23 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:198 Resp: 5610

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

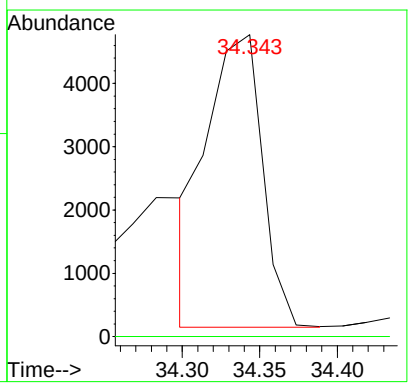


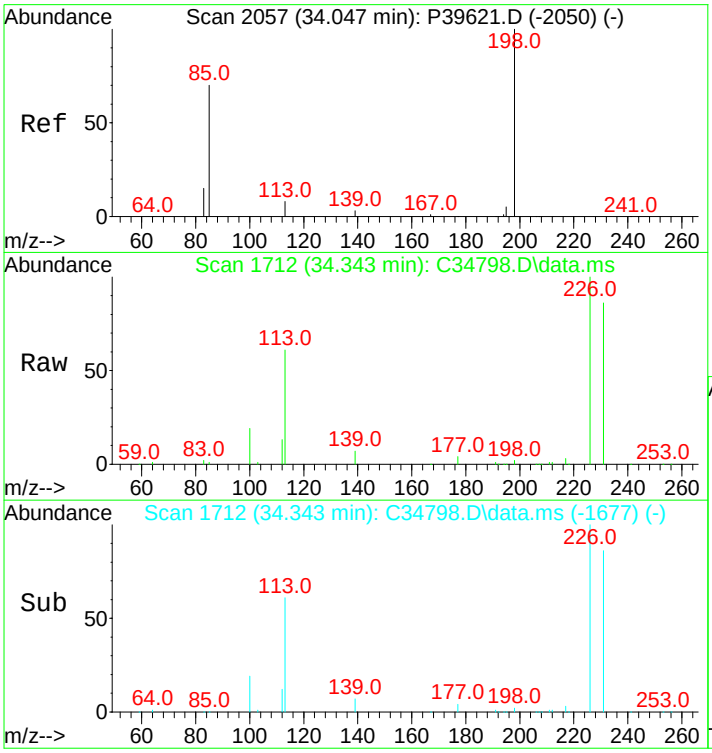


#37
OTP
Concen: 98.86 ng/mL m
RT: 34.343 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:198 Resp: 11500

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

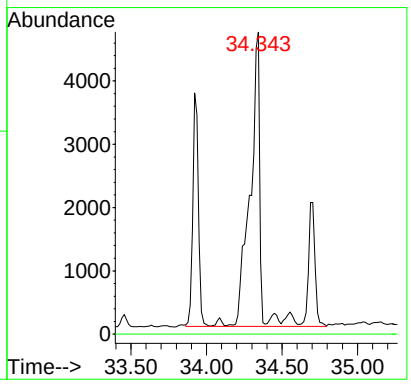


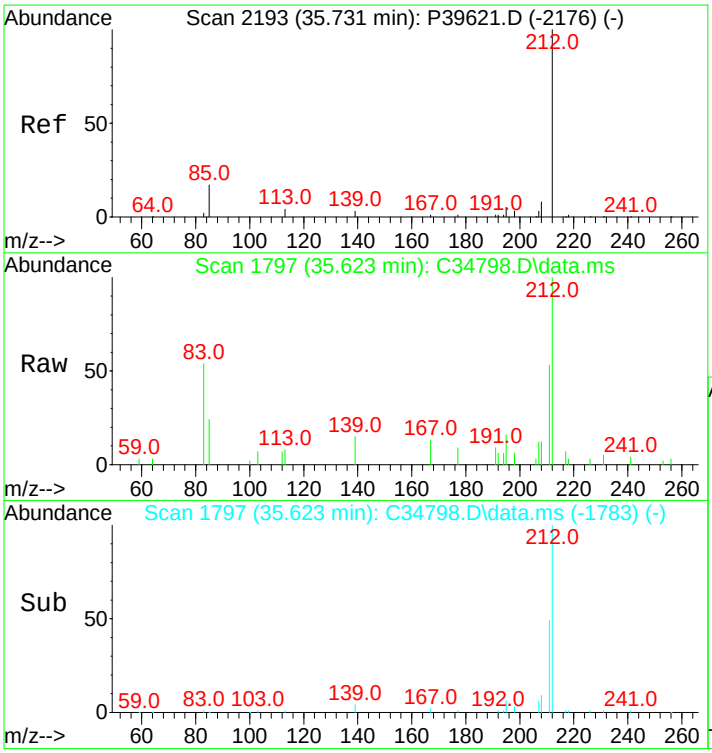


#38
C1-Dibenzothiophenes
Concen: 321.15 ng/mL m
RT: 34.343 min Scan# 1712
Delta R.T. 0.469 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:198 Resp: 37358

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

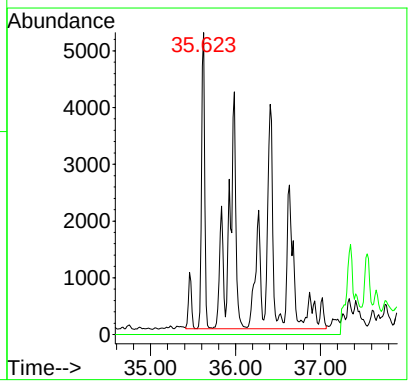


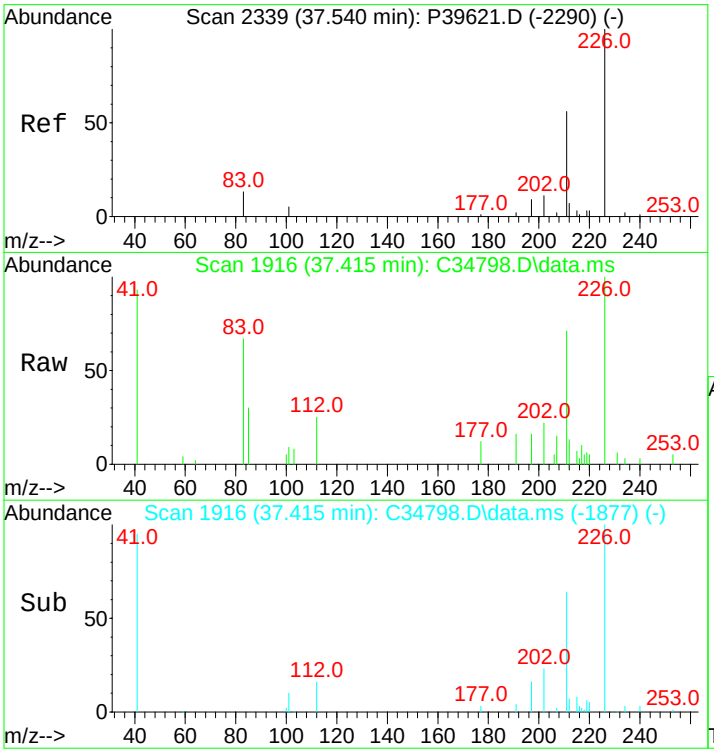


#39
C2-Dibenzothiophenes
Concen: 709.33 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:212 Resp: 82513

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

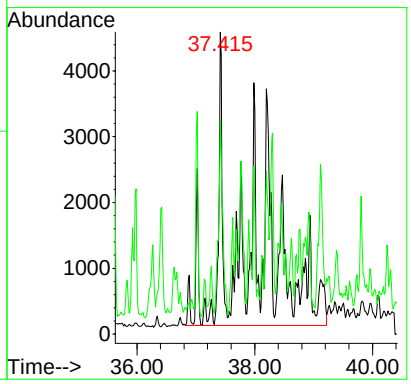


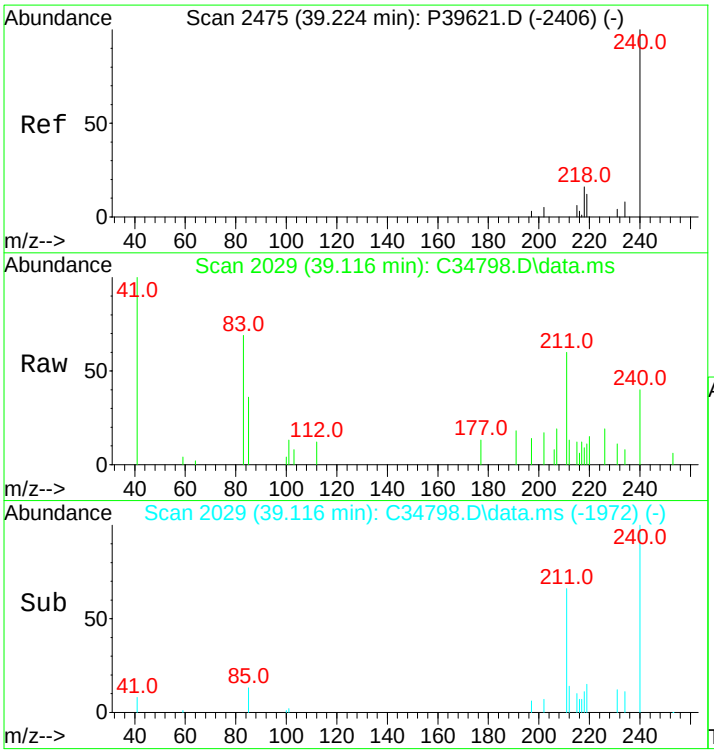


#40
C3-Dibenzothiophenes
Concen: 1006.31 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:226 Resp: 117059

Ion	Ratio	Lower	Upper
226	100		
211	12.3	45.0	67.6#

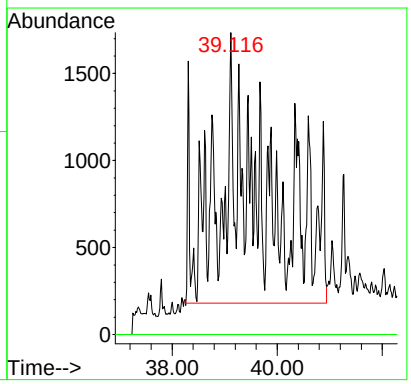


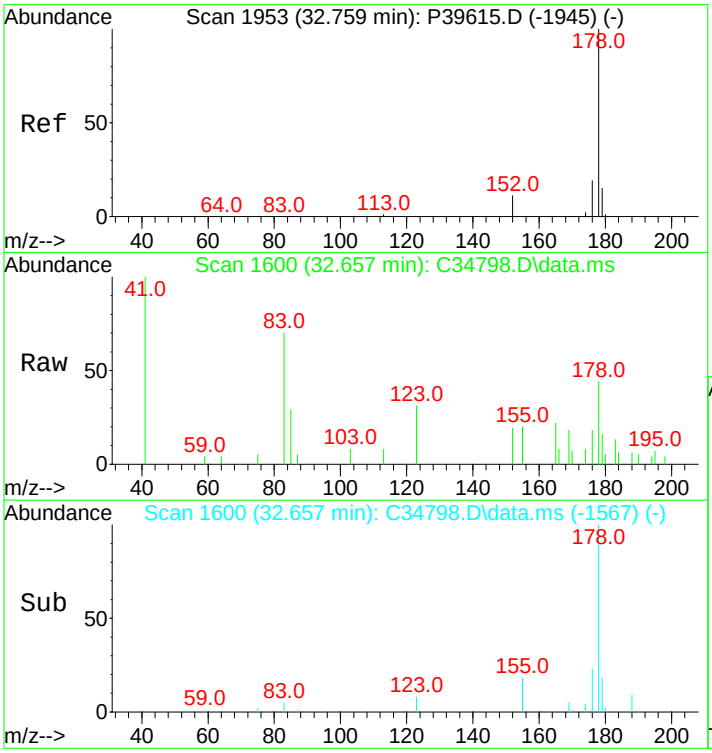


#41
C4-Dibenzothiophenes
Concen: 751.20 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:240 Resp: 87384

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

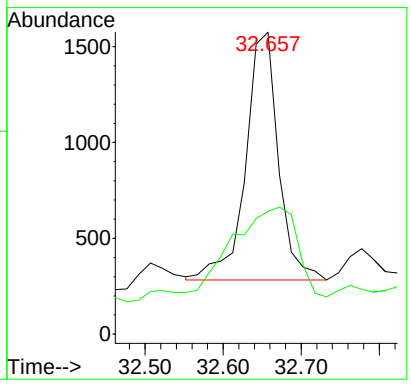


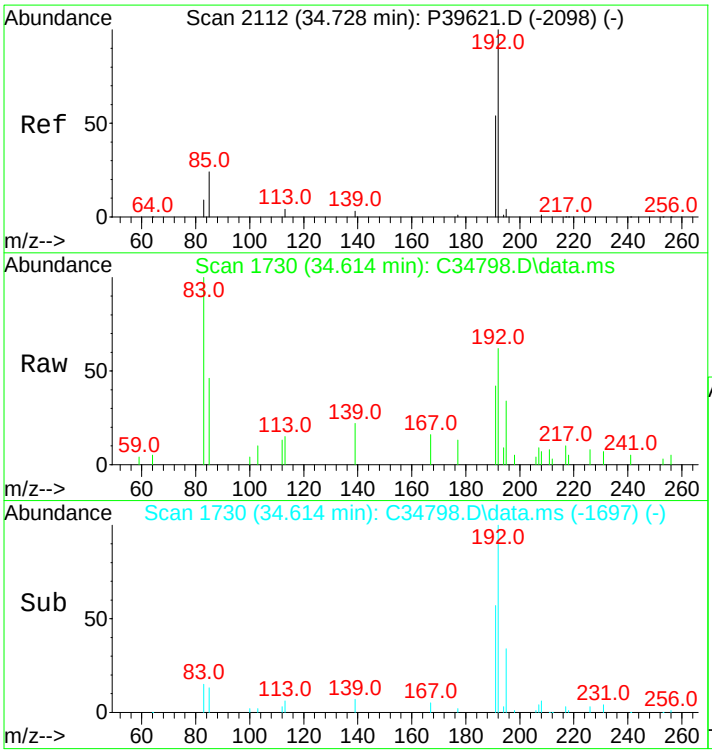


#43
Phenanthrene
Concen: 37.09 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:178 Resp: 3791

Ion	Ratio	Lower	Upper
178	100		
176	70.9	16.1	24.1#

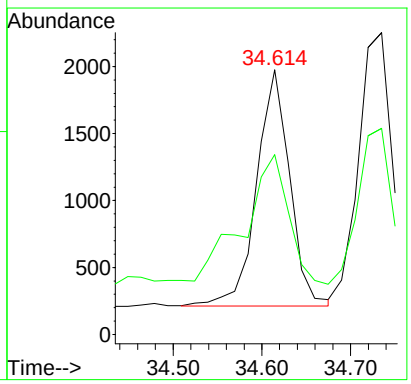


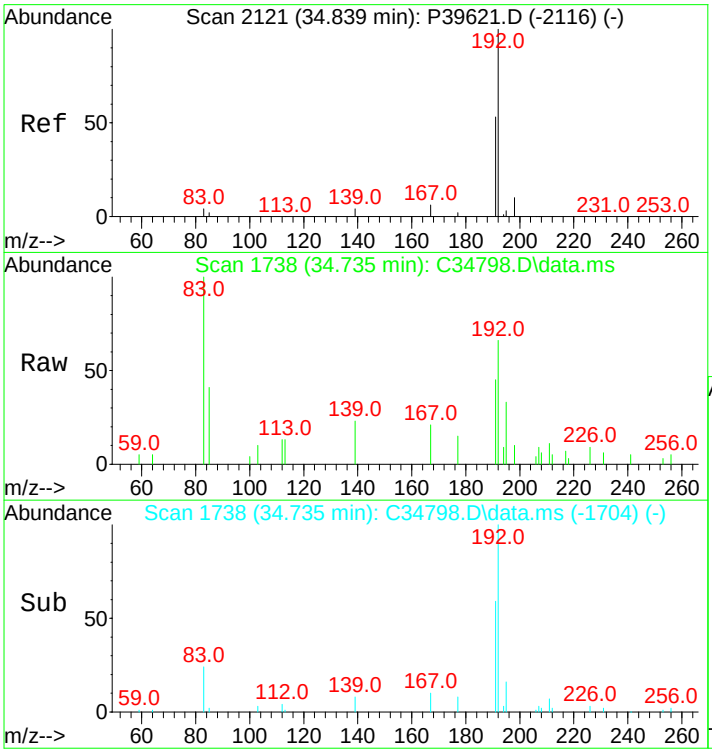


#44
3-Methylphenanthrene(3MP)
Concen: 44.73 ng/mL m
RT: 34.614 min Scan# 1730
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 4571

Ion	Ratio	Lower	Upper
192	100		
191	74.0	46.9	70.3#

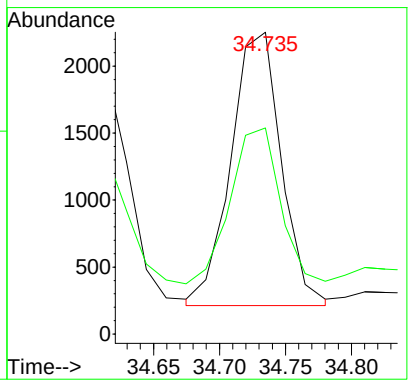


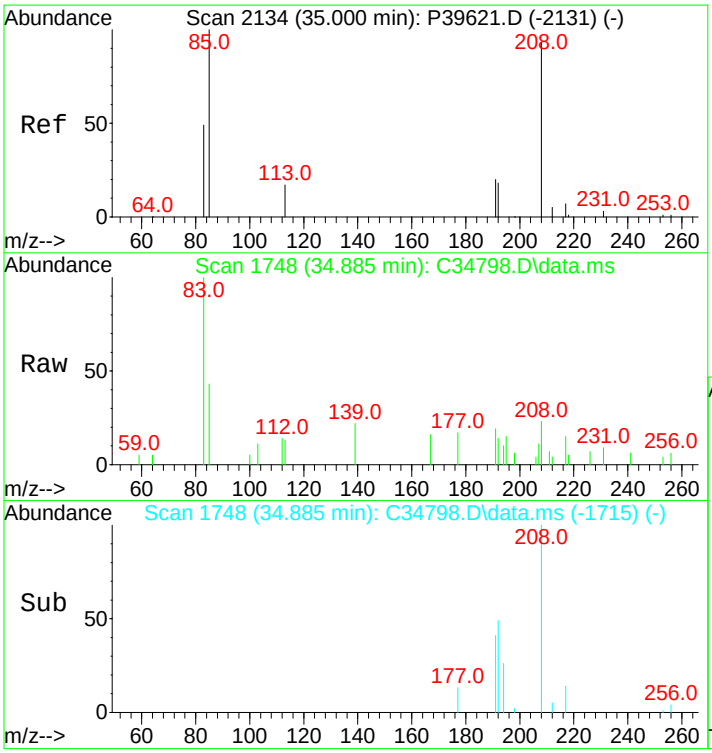


#45
2/4-Methylphenanthrene(2MP)
Concen: 53.08 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 5425

Ion	Ratio	Lower	Upper
192	100		
191	56.4	46.1	69.1

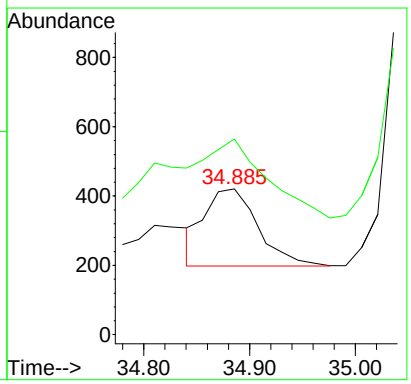


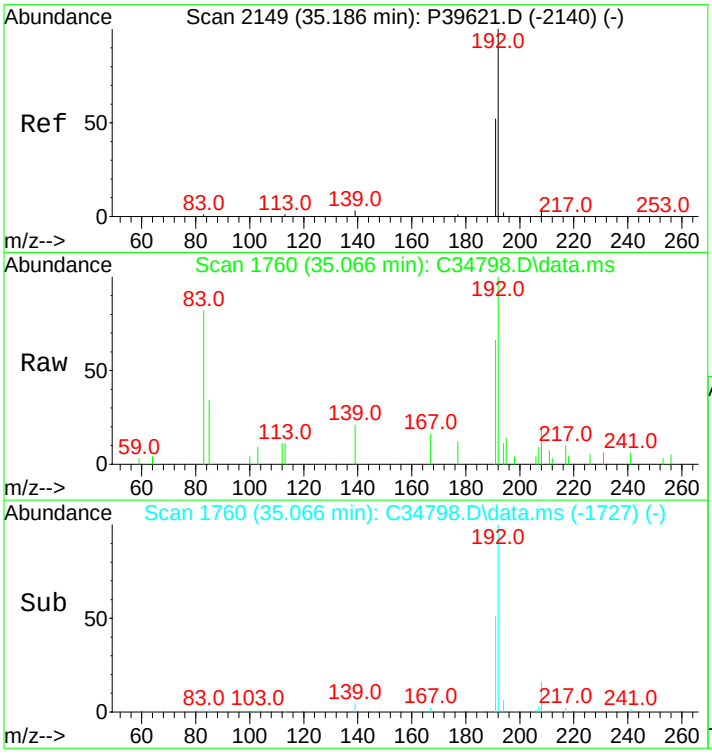


#46
2-Methylanthracene(2MA)
Concen: 7.63 ng/mL m
RT: 34.885 min Scan# 1748
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 780

Ion	Ratio	Lower	Upper
192	100		
191	182.7	93.4	140.0#

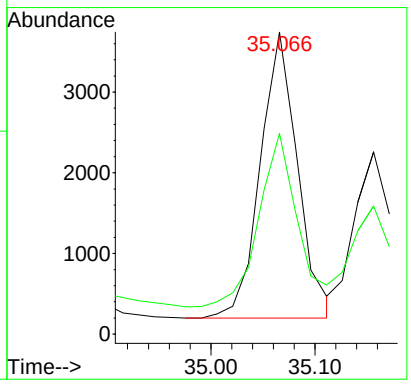


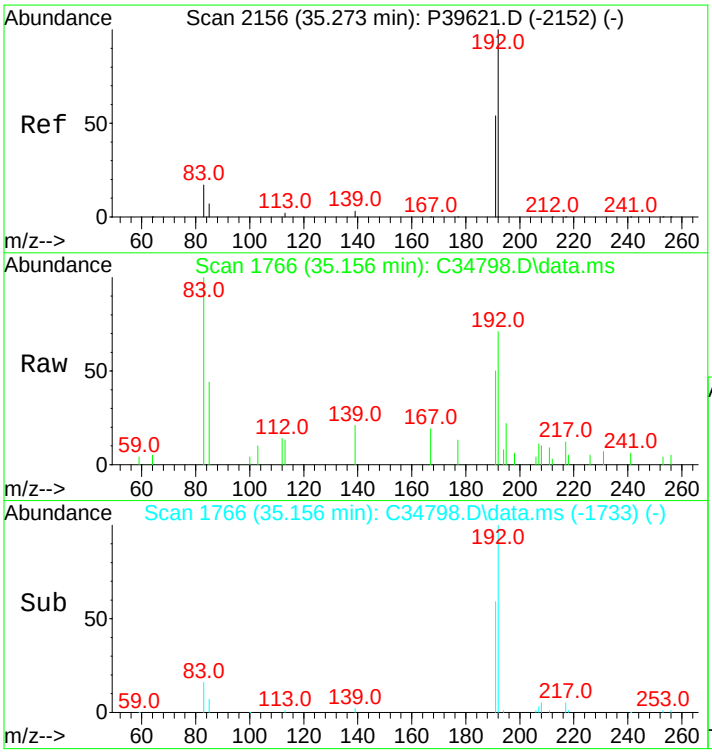


#47
9-Methylphenanthrene(9MP)
Concen: 86.62 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 8853

Ion	Ratio	Lower	Upper
192	100		
191	63.1	45.9	68.9

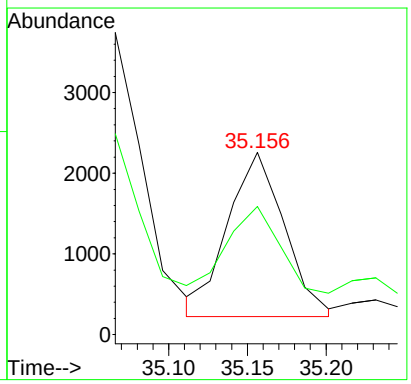


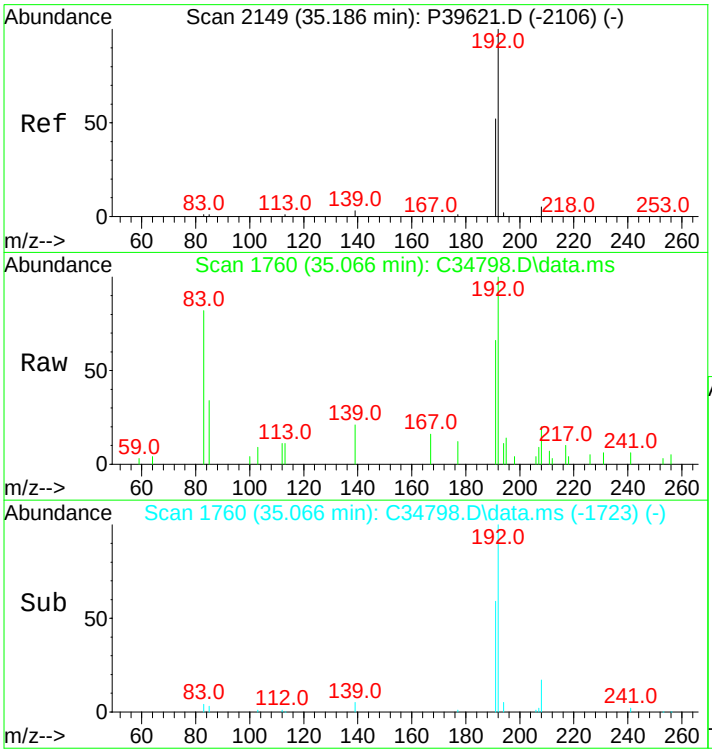


#48
1-Methylphenanthrene(1MP)
Concen: 49.67 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 5076

Ion	Ratio	Lower	Upper
192	100		
191	50.7	49.0	73.4

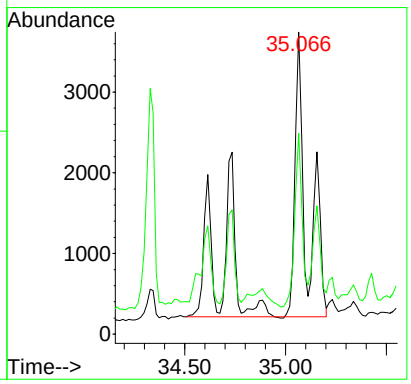


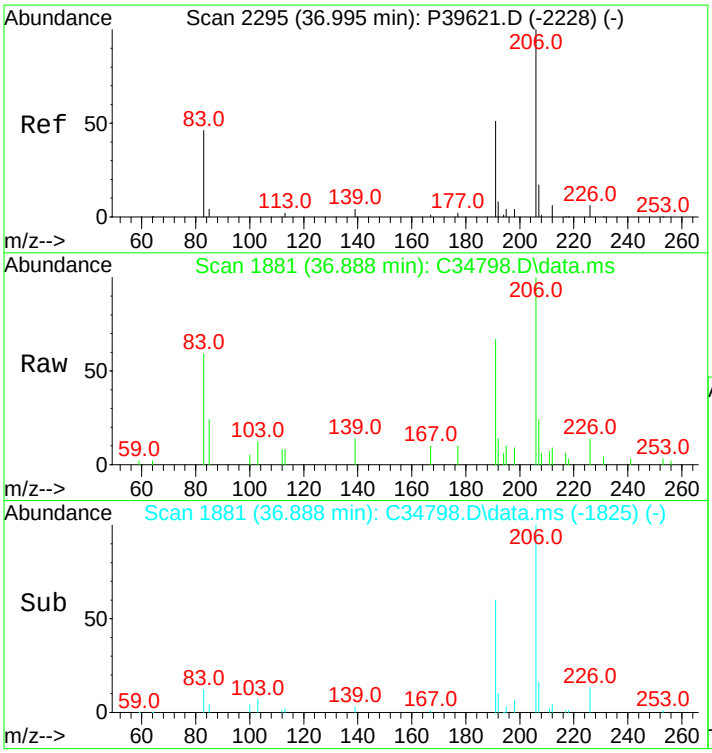


#49
C1-Phenanthrenes/Anthracenes
Concen: 242.64 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 24798

Ion	Ratio	Lower	Upper
192	100		
191	22.5	44.2	66.2#

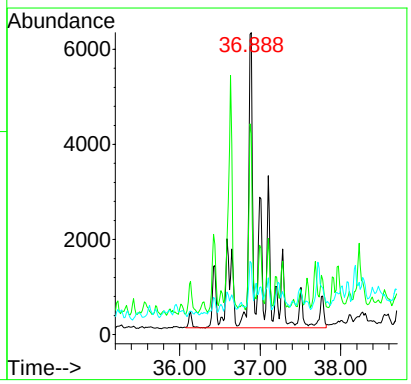


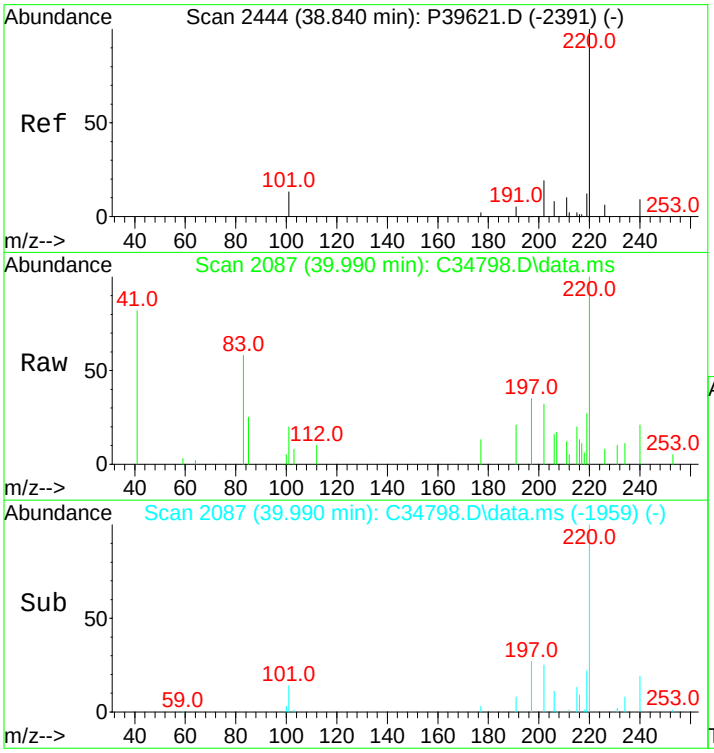


#50
C2-Phenanthrenes/Anthracenes
Concen: 627.16 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.075 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:206 Resp: 64097

Ion	Ratio	Lower	Upper
206	100		
191	18.3	44.0	66.0#
207	4.3	15.1	22.7#

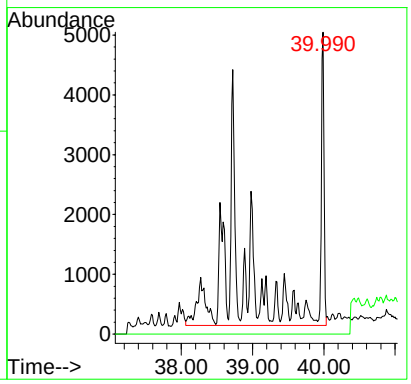


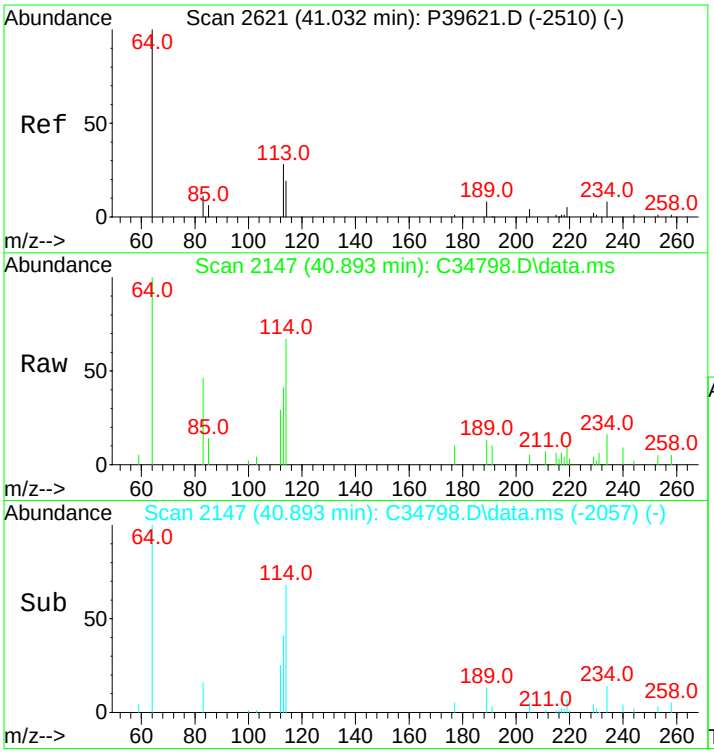


#52
C3-Phenanthrenes/Anthracenes
Concen: 698.18 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:220 Resp: 71355

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

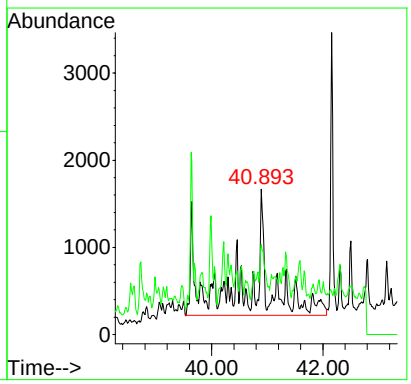


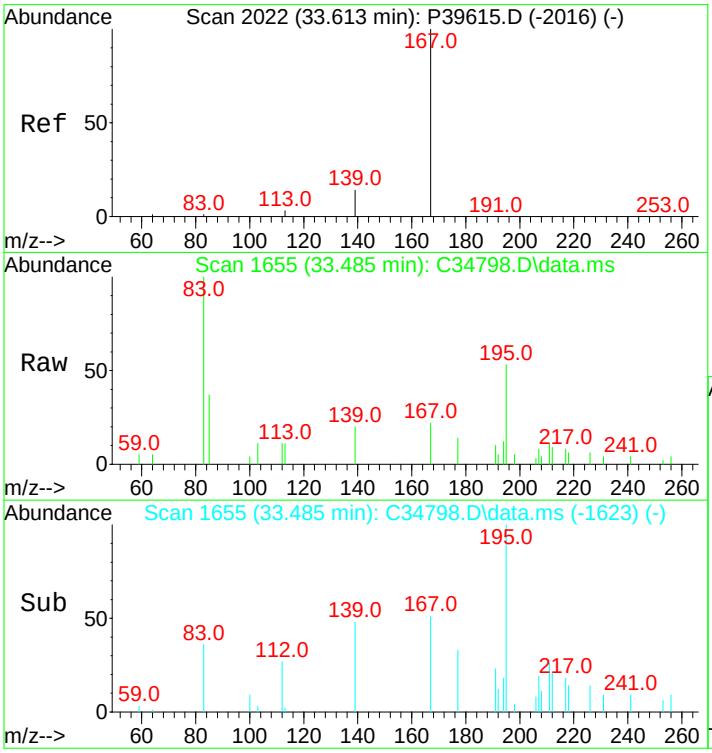


#53
C4-Phenanthrenes/Anthracenes
Concen: 377.87 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.093 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:234 Resp: 38619

Ion	Ratio	Lower	Upper
234	100		
219	7.4	46.9	70.3#

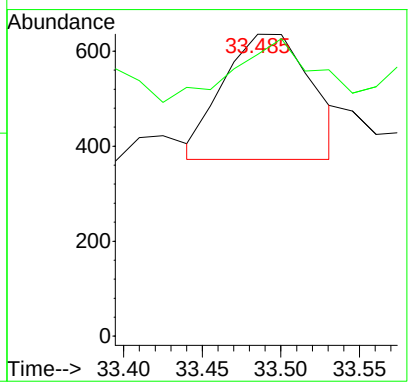


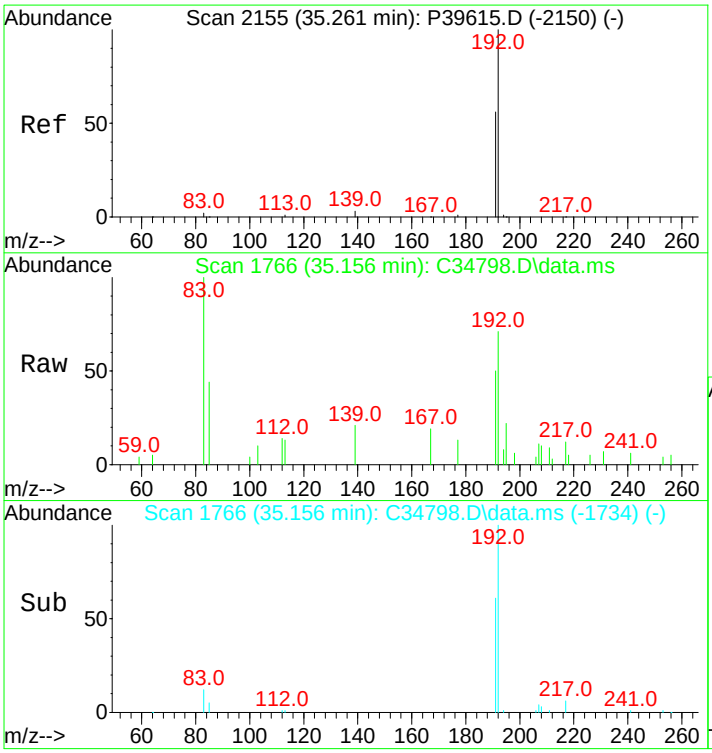


#56
Carbazole
Concen: 10.23 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:167 Resp: 1032

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

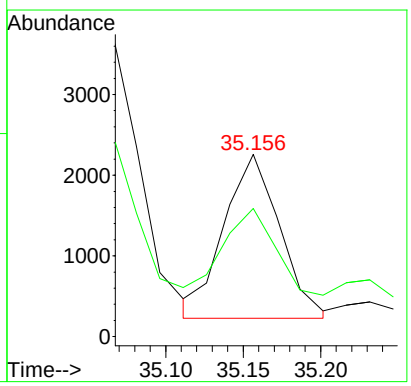


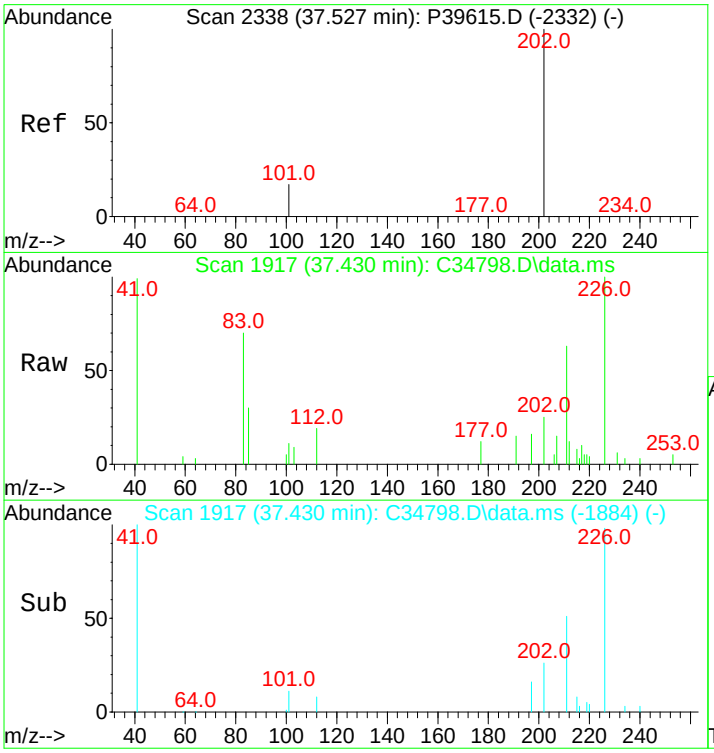


#57
1-Methylphenanthrene
Concen: 78.13 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:192 Resp: 5060

Ion	Ratio	Lower	Upper
192	100		
191	53.0	45.9	68.9

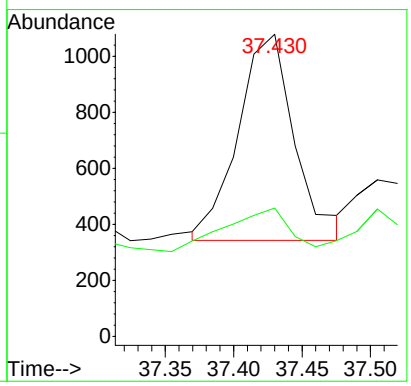


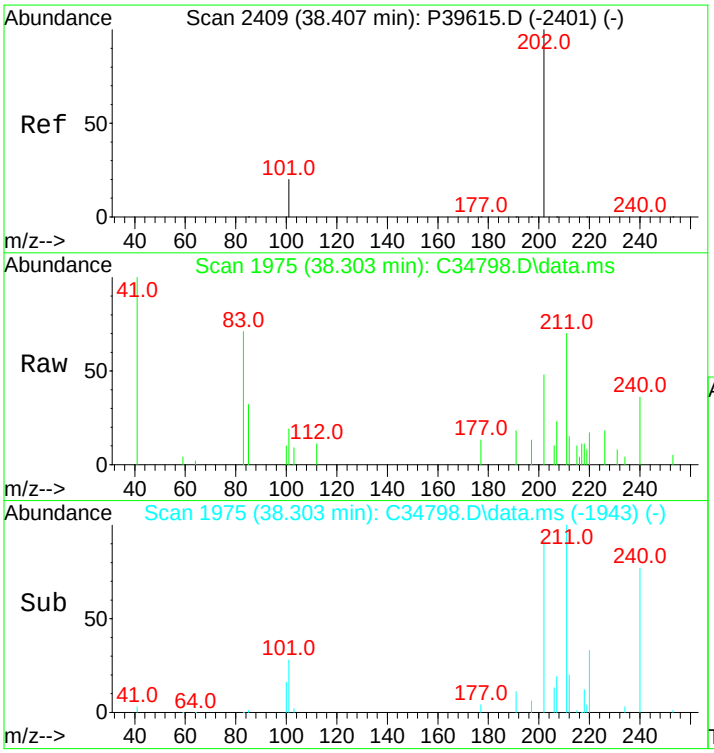


#58
Fluoranthene
Concen: 20.80 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:202 Resp: 2111

Ion	Ratio	Lower	Upper
202	100		
101	75.5	12.9	19.3#

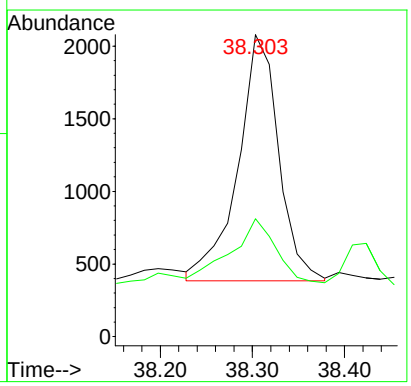


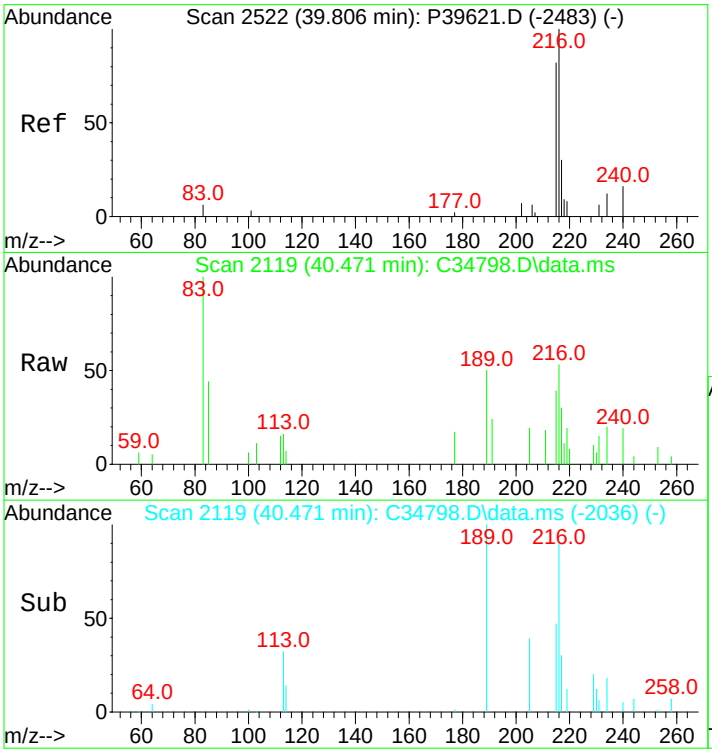


#60
Pyrene
Concen: 50.31 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:202 Resp: 5191

Ion	Ratio	Lower	Upper
202	100		
101	43.9	15.0	22.4#

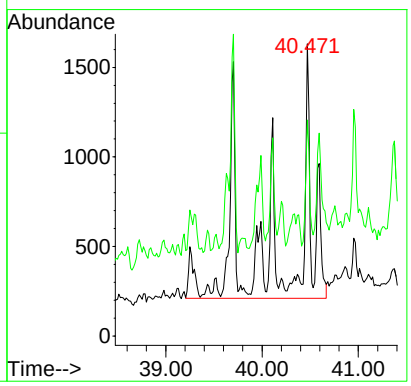


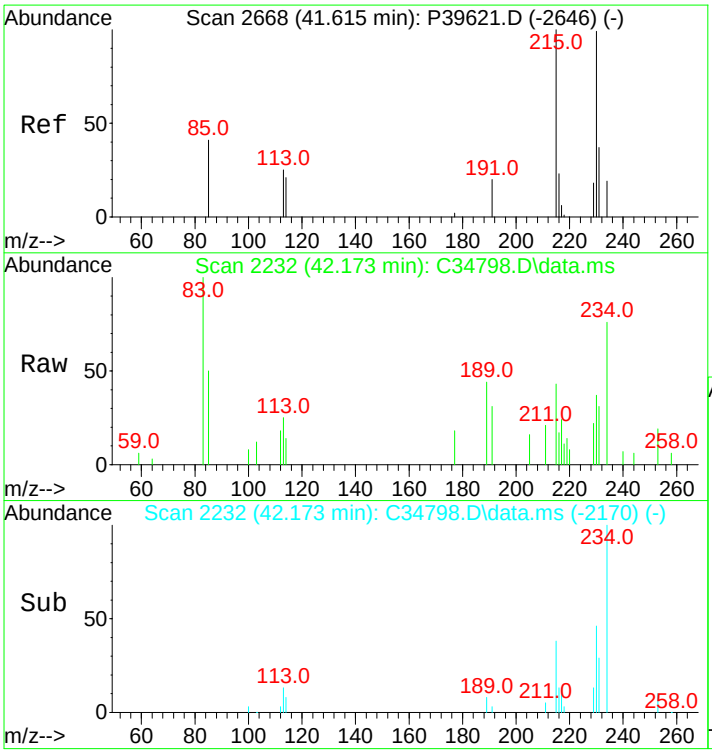


#61
C1-Fluoranthenes/Pyrenes
Concen: 181.52 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:216 Resp: 18729

Ion	Ratio	Lower	Upper
216	100		
215	1.1	71.8	107.6#

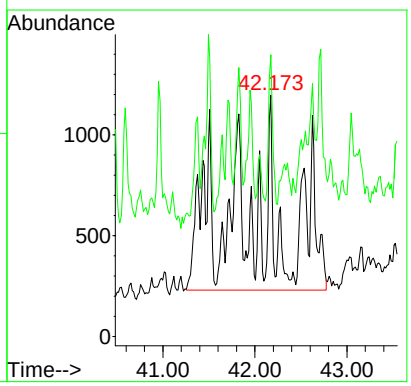


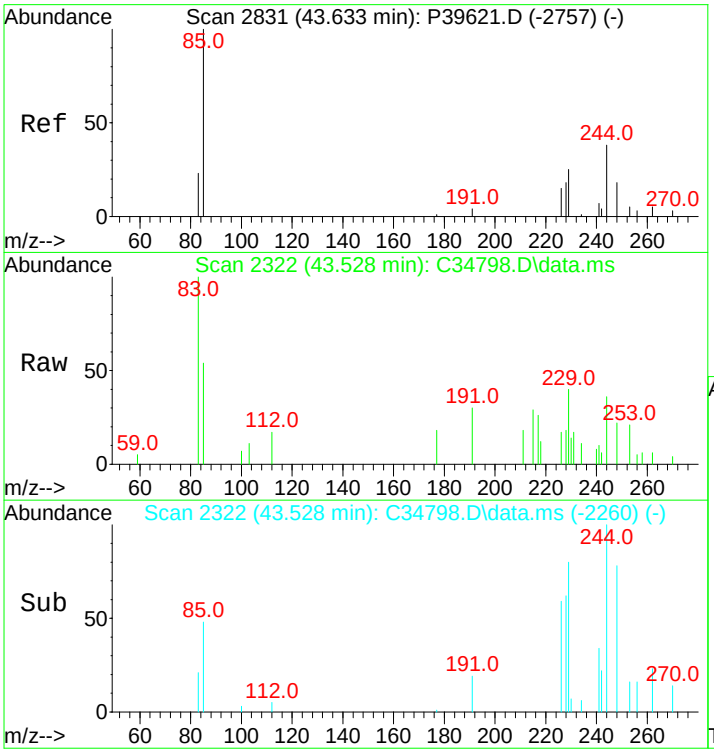


#62
C2-Fluoranthenes/Pyrenes
Concen: 275.61 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:230 Resp: 28438

Ion	Ratio	Lower	Upper
230	100		
215	11.9	99.0	148.4#

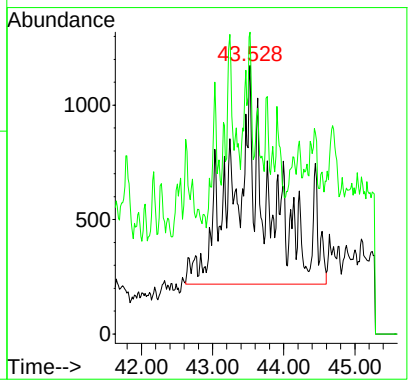


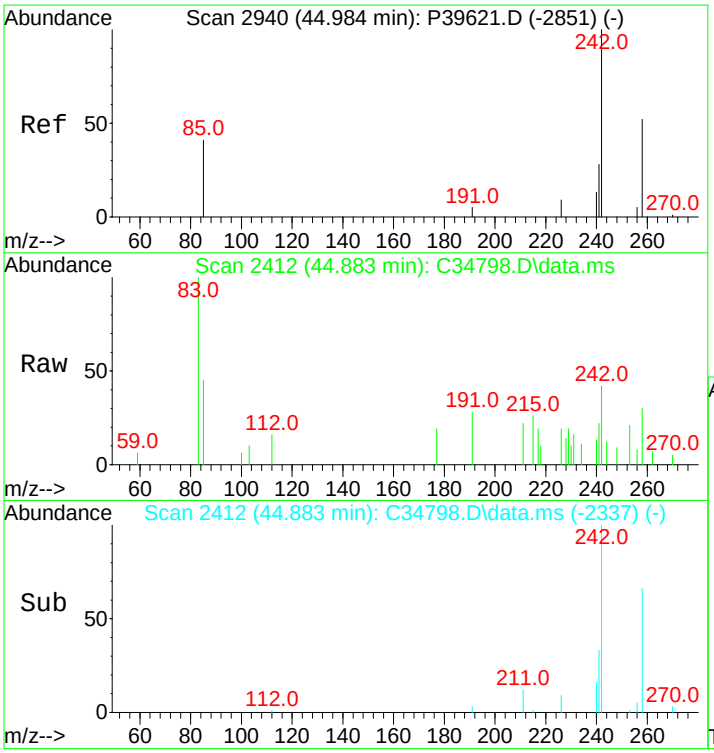


#63
C3-Fluoranthenes/Pyrenes
Concen: 328.41 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:244 Resp: 33886

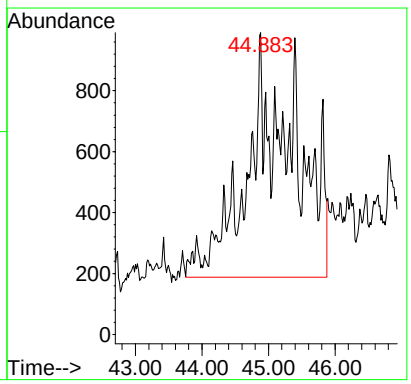
Ion	Ratio	Lower	Upper
244	100		
229	1.9	73.3	109.9#

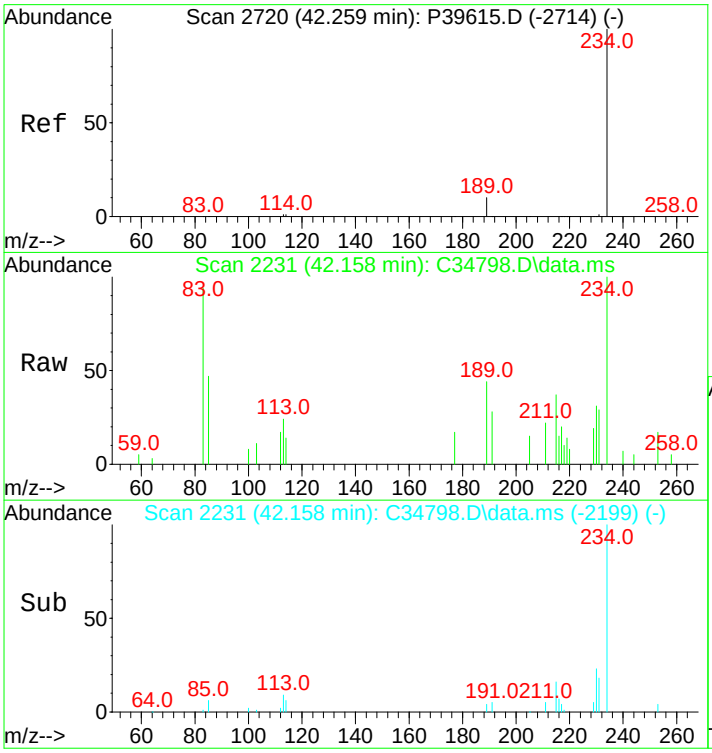




#64
C4-Fluoranthenes/Pyrenes
Concen: 365.65 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.126 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:258 Resp: 37728

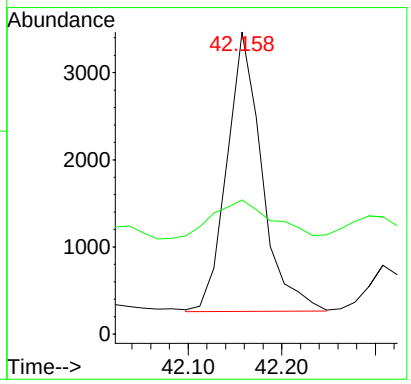


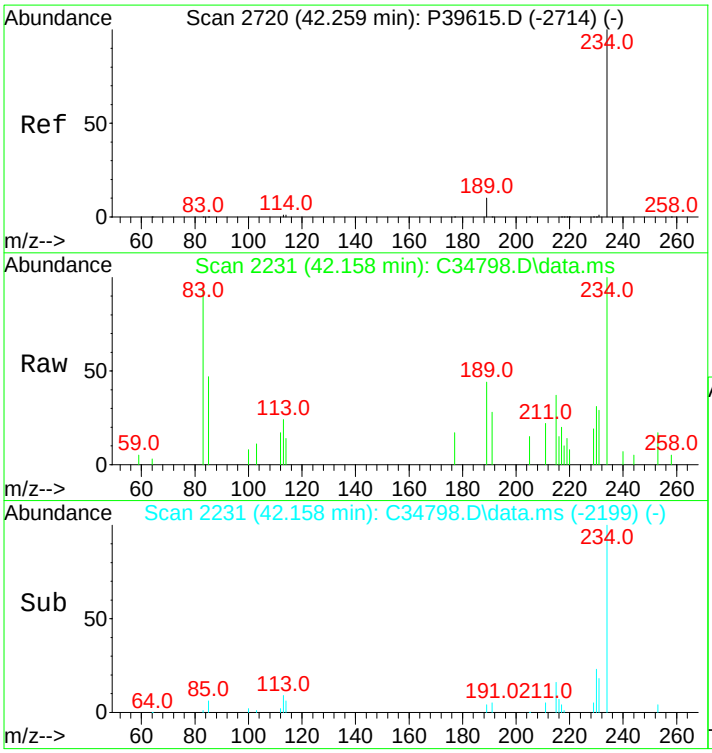


#66
Naphthobenzothiophene
Concen: 74.89 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:234 Resp: 8319

Ion	Ratio	Lower	Upper
234	100		
189	24.0	20.5	30.7

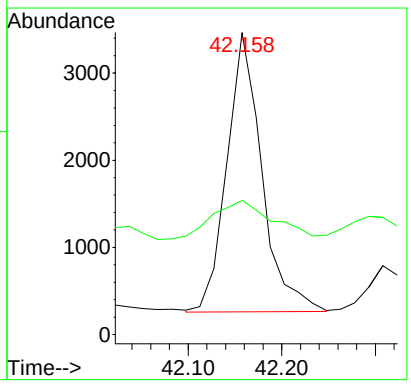


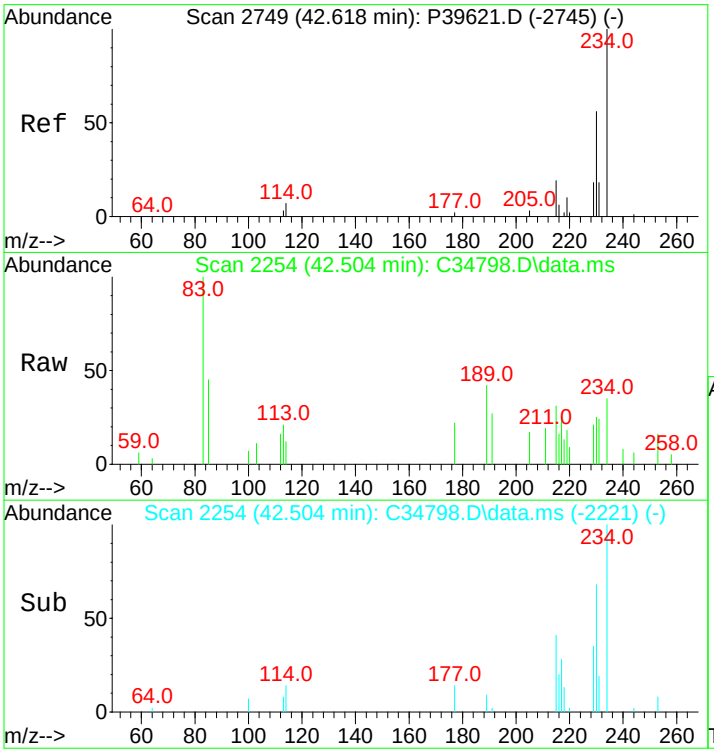


#67
Naphthobenzothiophene-2,1-D
Concen: 74.89 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:234 Resp: 8319

Ion	Ratio	Lower	Upper
234	100		
189	24.0	20.5	30.7

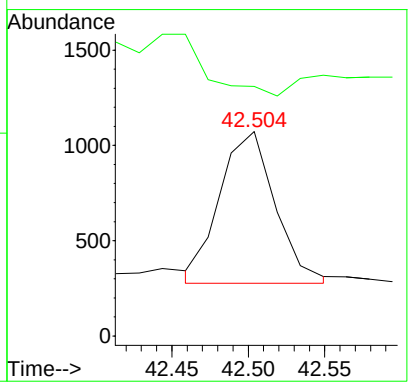


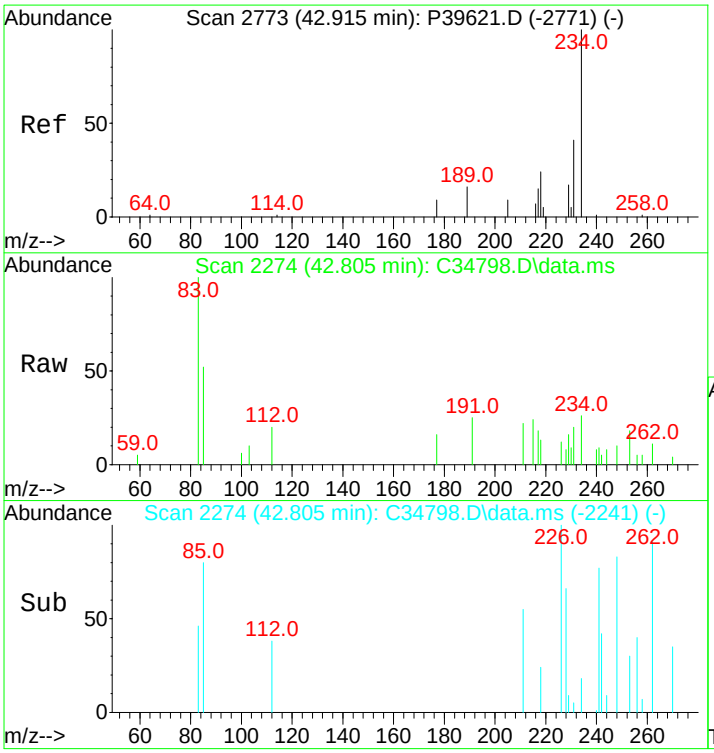


#68
Naphthobenzothiophene-1,2-D
Concen: 18.04 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:234 Resp: 2004

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

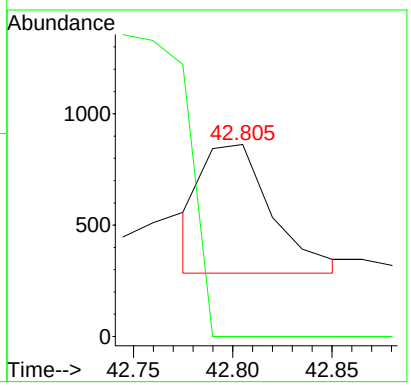


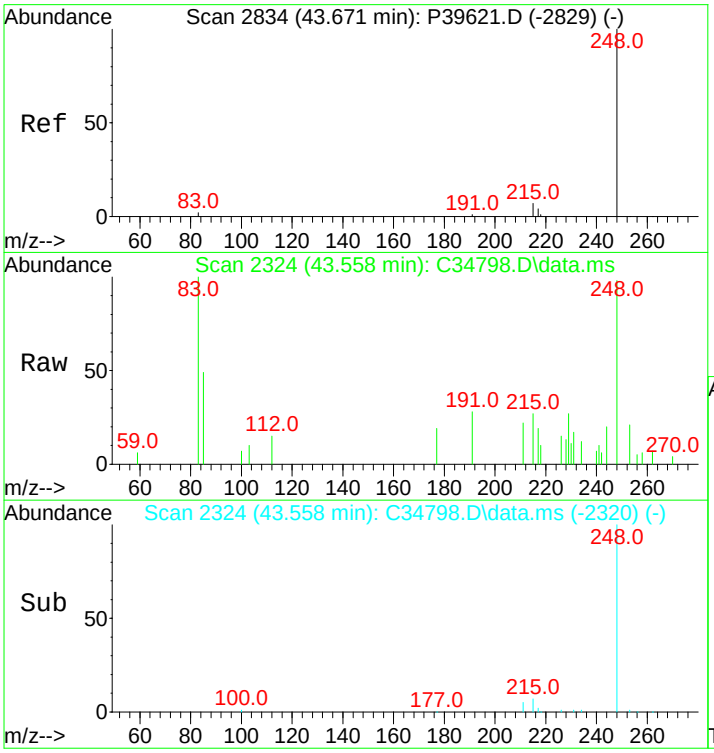


#69
Naphthobenzothiophene-2,3-D
Concen: 12.64 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:234 Resp: 1404

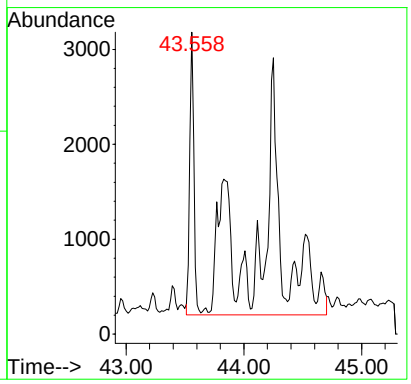
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

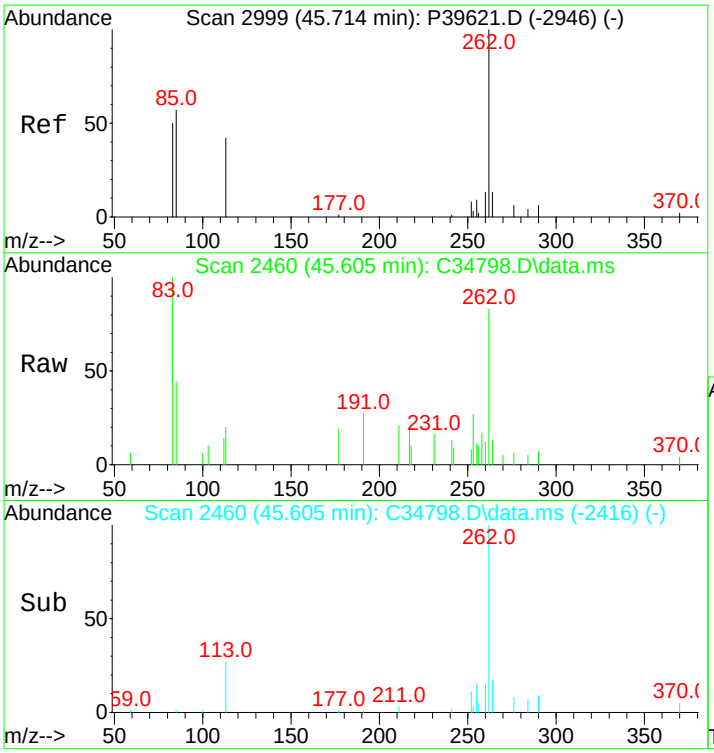




#70
C1-Naphthobenzothiophenes
Concen: 407.21 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

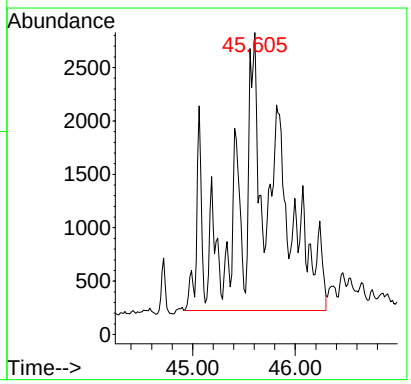
Tgt Ion:248 Resp: 45234

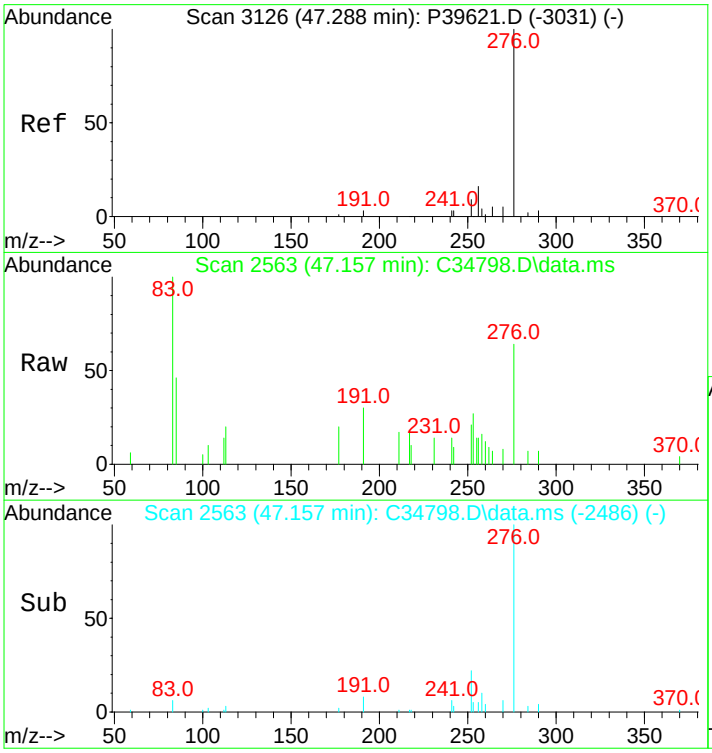




#71
C2-Naphthobenzothiophenes
Concen: 615.01 ng/ml m
RT: 45.605 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

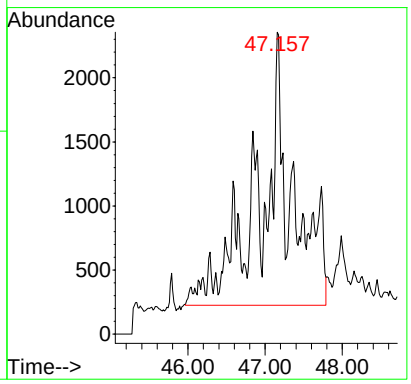
Tgt Ion:262 Resp: 68317

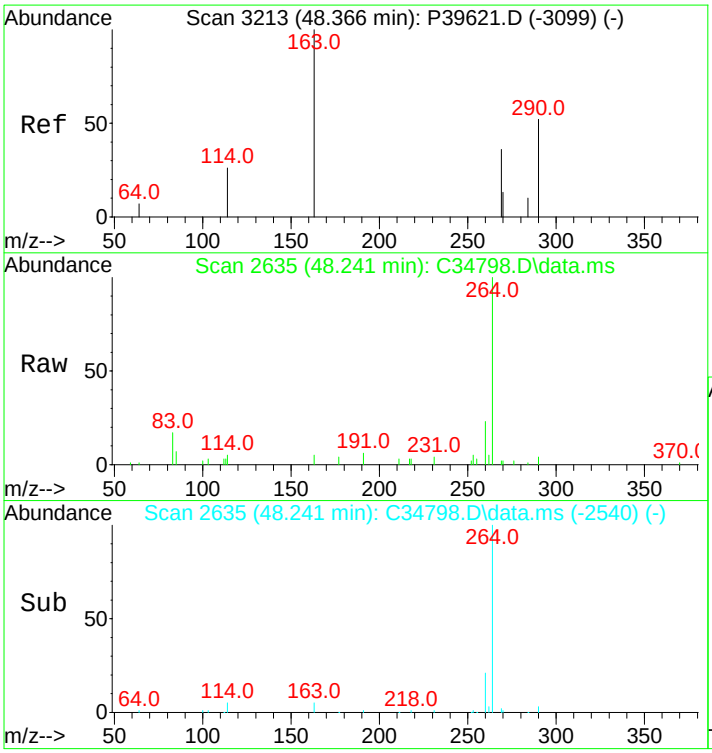




#72
C3-Naphthobenzothiophenes
Concen: 556.18 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

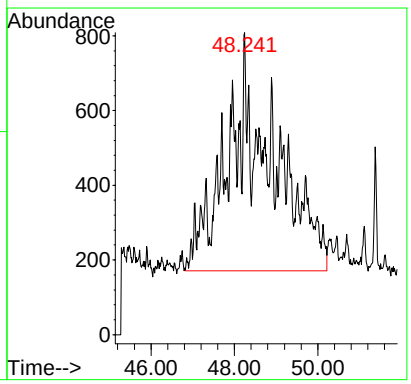
Tgt Ion:276 Resp: 61782

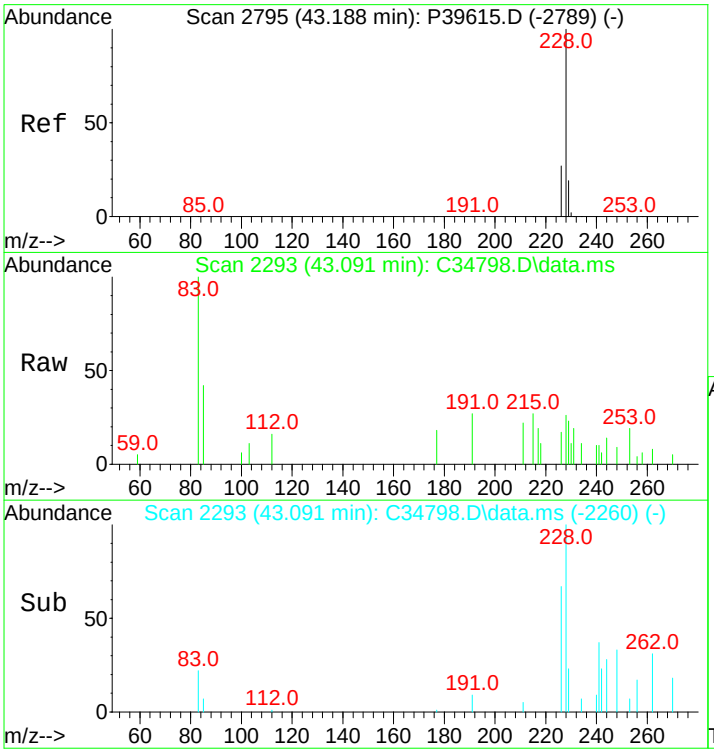




#73
C4-Naphthobenzothiophenes
Concen: 413.18 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:290 Resp: 45897

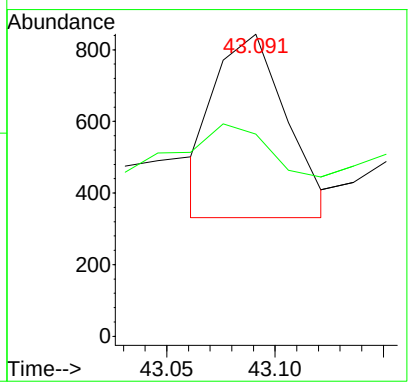


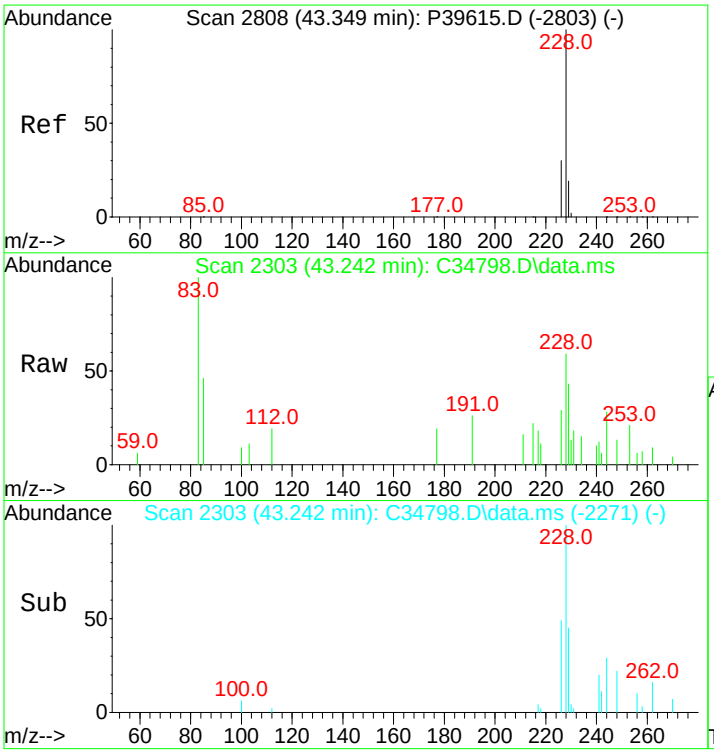


#75
Benz[a]anthracene
Concen: 11.15 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:228 Resp: 1172

Ion	Ratio	Lower	Upper
228	100		
226	66.8	21.4	32.0#

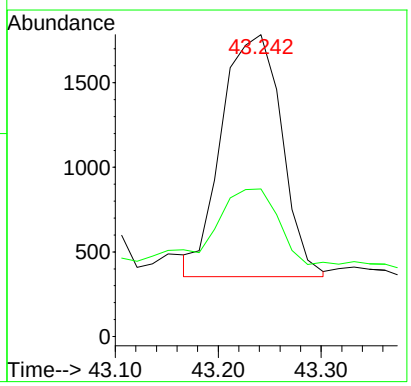


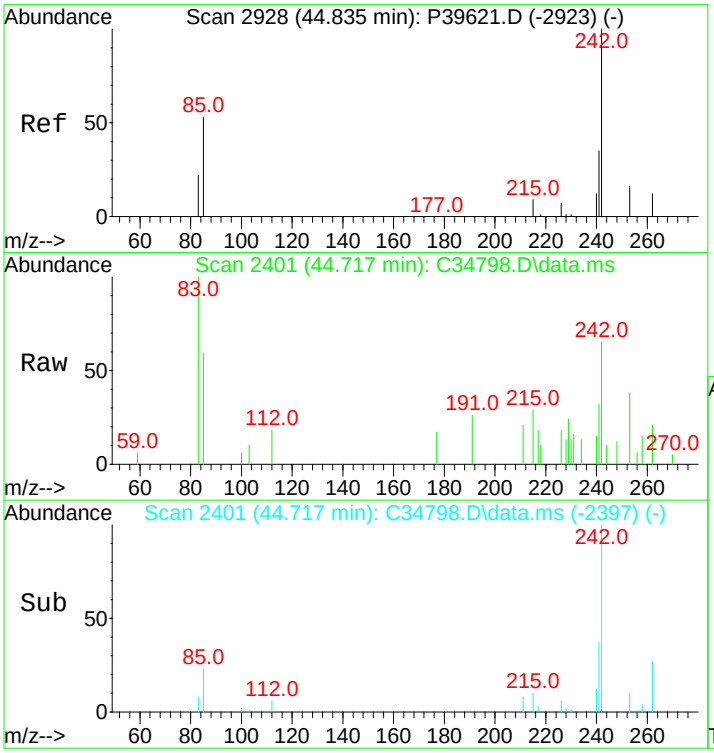


#77
Chrysene/Triphenylene
Concen: 54.49 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:228 Resp: 5784

Ion	Ratio	Lower	Upper
228	100		
226	31.3	23.7	35.5

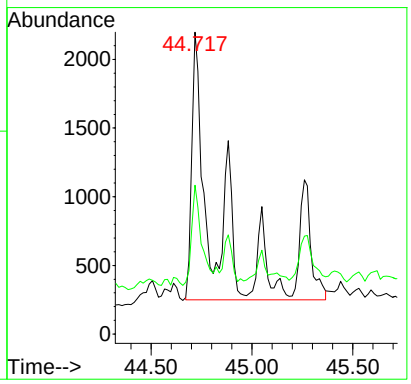


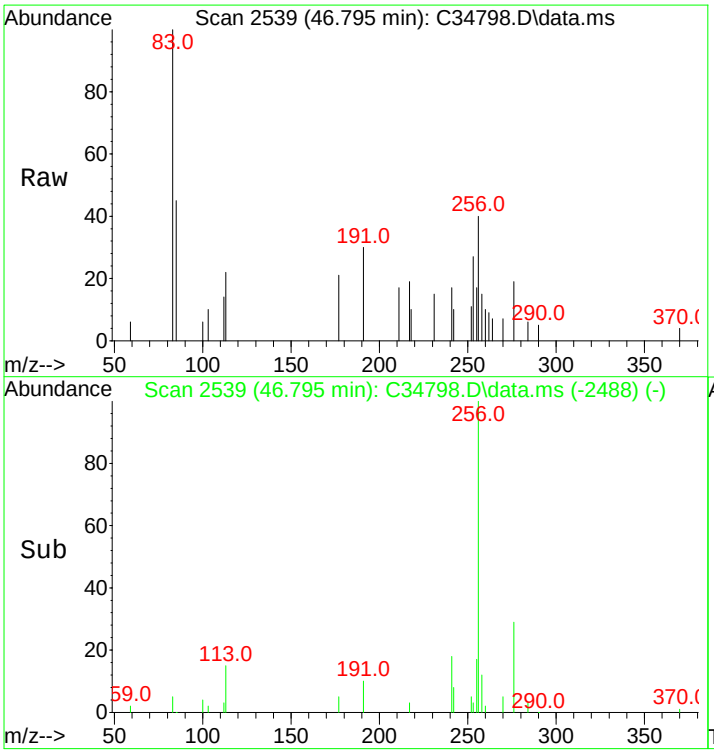


#78
C1-Chrysenes
Concen: 153.69 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:242 Resp: 16315

Ion	Ratio	Lower	Upper
242	100		
241	10.7	31.4	47.2#

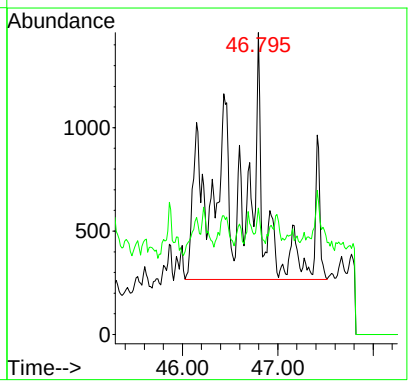


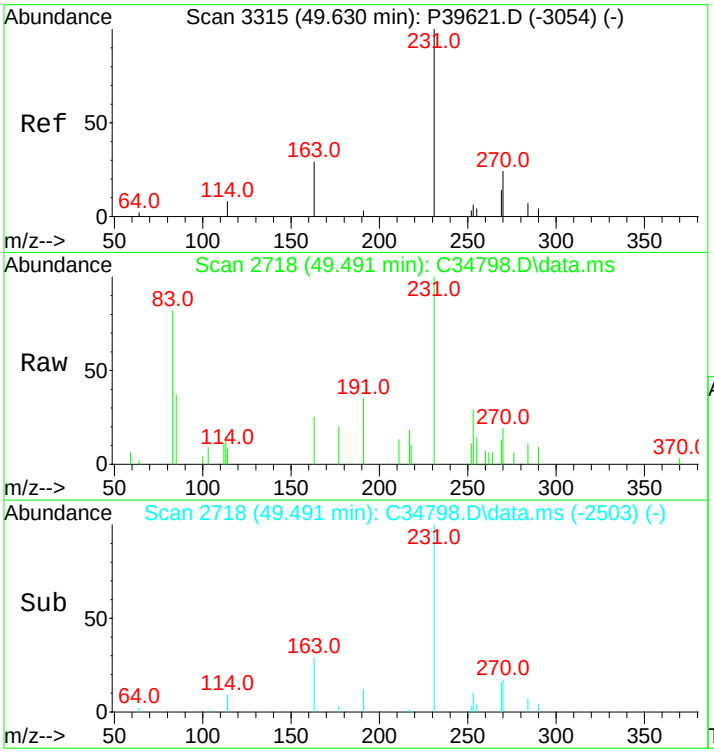


#79
C2-Chrysenes
Concen: 246.53 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:256 Resp: 26170

Ion	Ratio	Lower	Upper
256	100		
241	1.9	21.2	31.8#

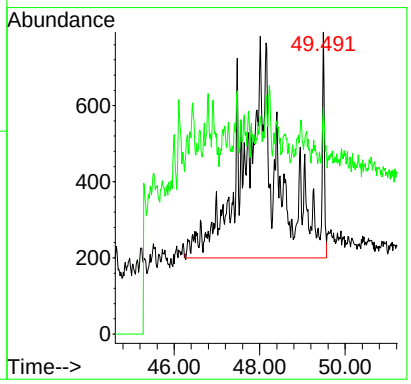


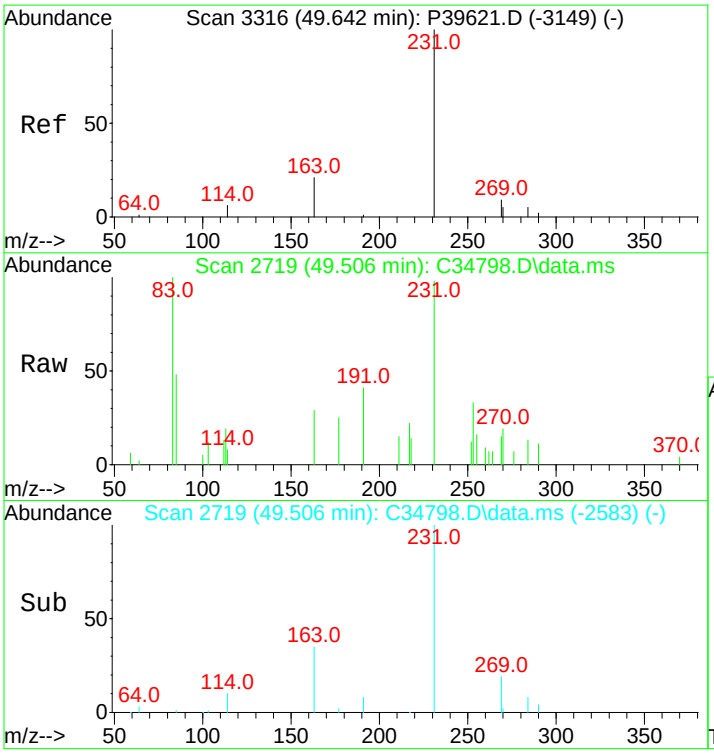


#80
C3-Chrysenes
Concen: 310.10 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:270 Resp: 32919

Ion	Ratio	Lower	Upper
270	100		
255	1.4	33.8	50.8#

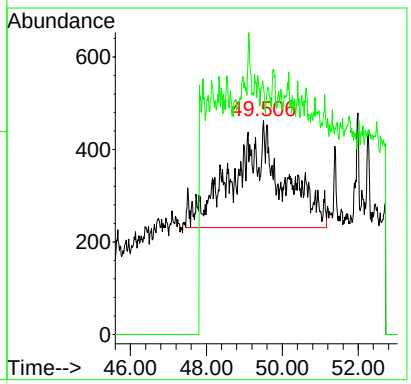


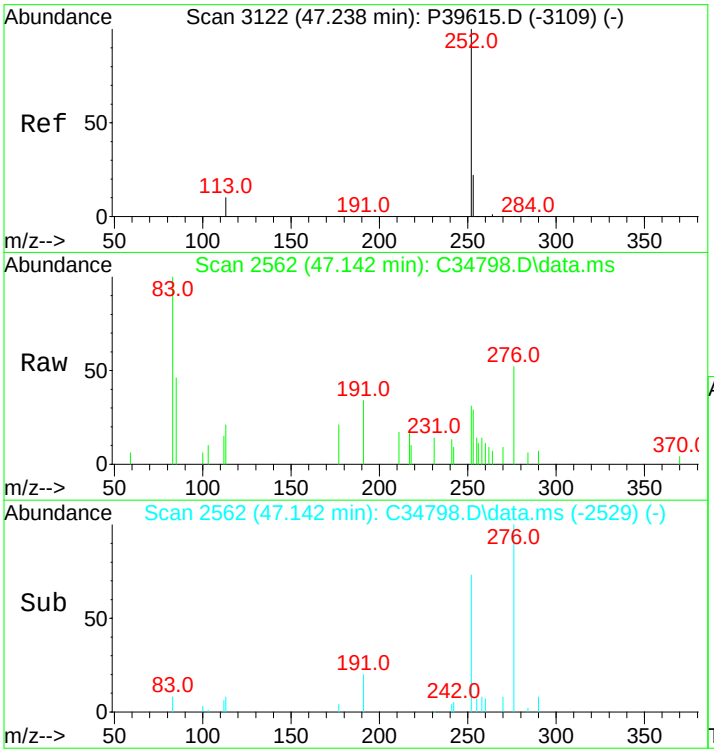


#81
C4-Chrysenes
Concen: 194.20 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:284 Resp: 20615

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

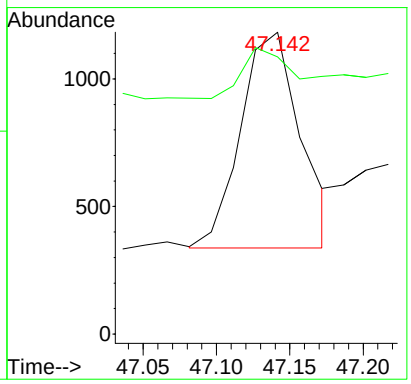


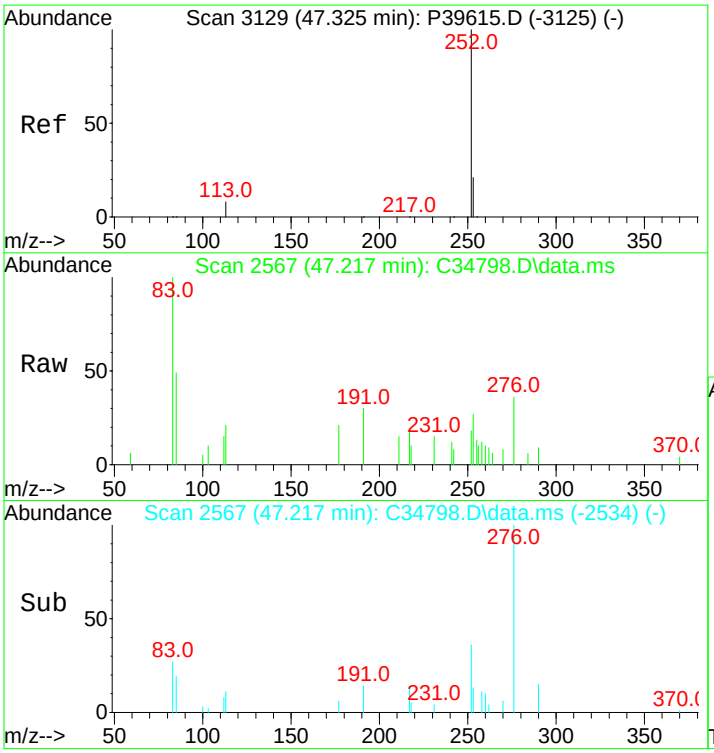


#82
Benzo[b]fluoranthene
Concen: 20.85 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 2409

Ion	Ratio	Lower	Upper
252	100		
253	21.3	19.0	28.4

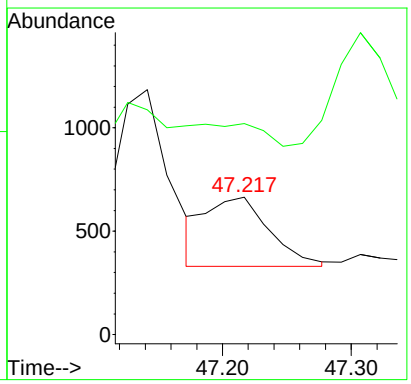


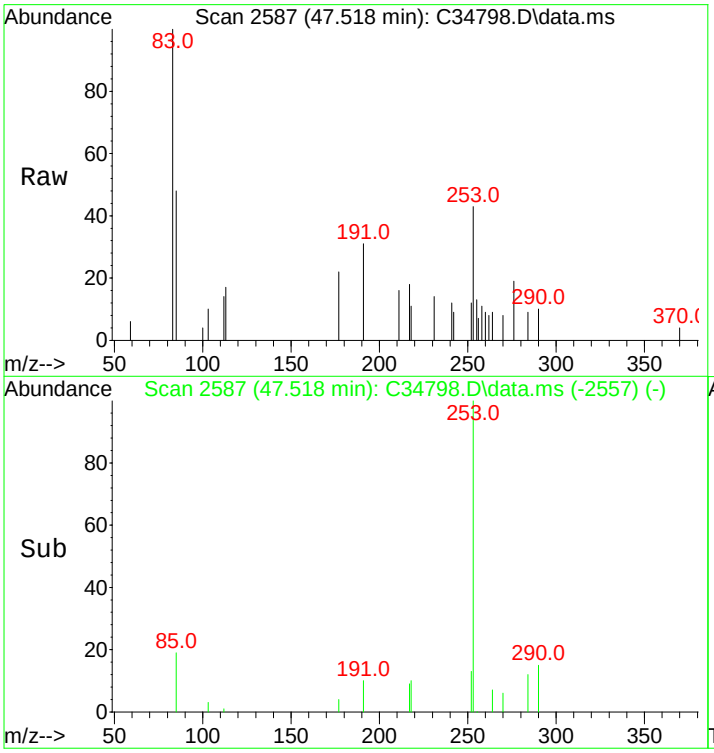


#83
Benzo[j]+[k]fluoranthene
Concen: 9.17 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 1153

Ion	Ratio	Lower	Upper
252	100		
253	44.5	19.0	28.4#

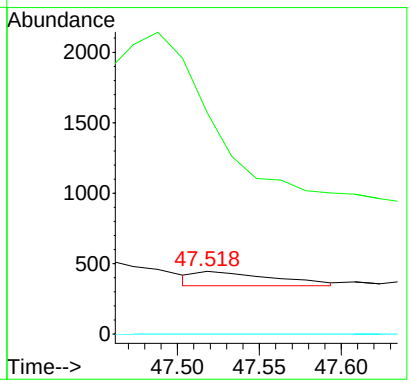


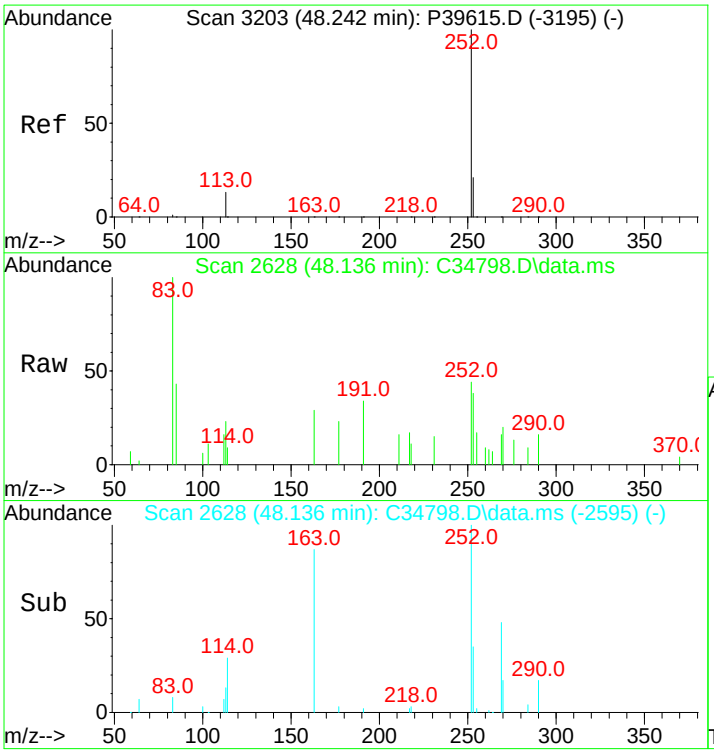


#84
Benzo[a]fluoranthene
Concen: 2.65 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.051 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 333

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

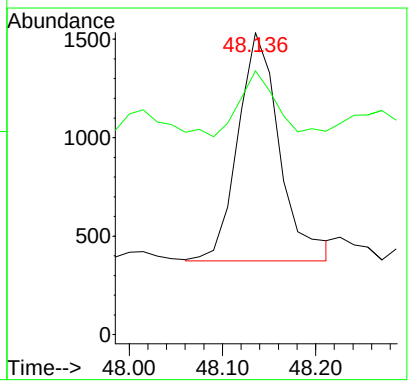


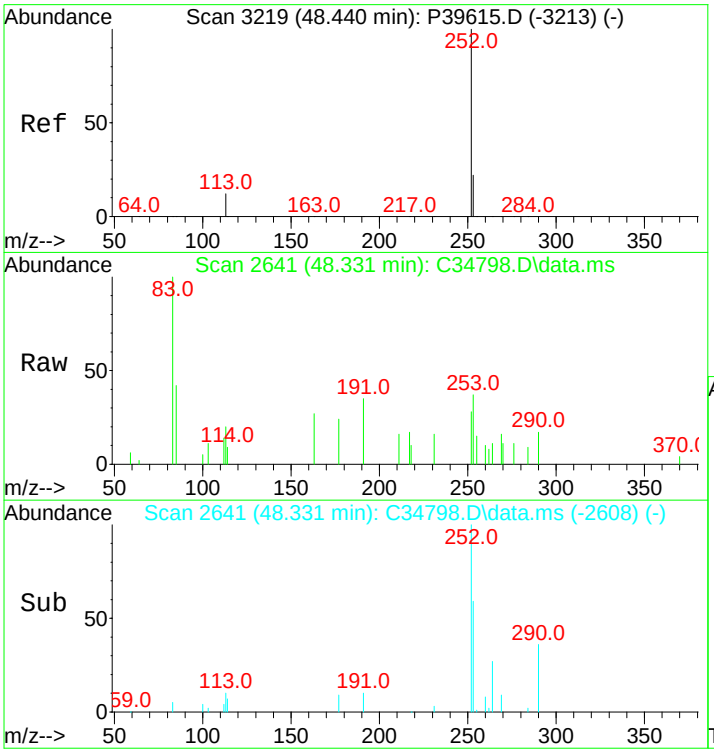


#85
Benzo[e]pyrene
Concen: 31.63 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 3615

Ion	Ratio	Lower	Upper
252	100		
253	26.1	19.2	28.8

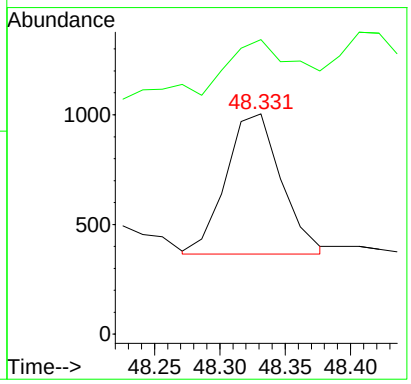


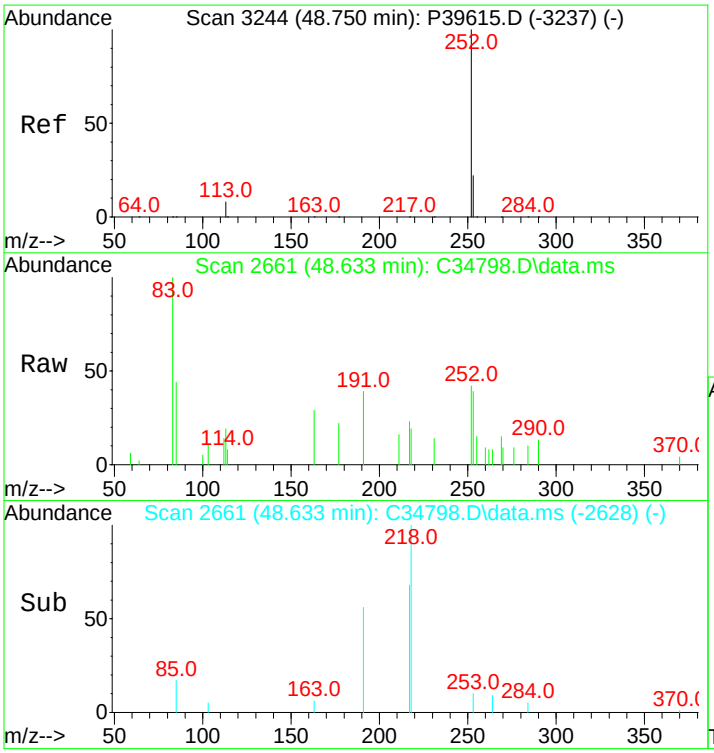


#87
Benzo[a]pyrene
Concen: 17.17 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 1889

Ion	Ratio	Lower	Upper
252	100		
253	49.5	19.5	29.3#

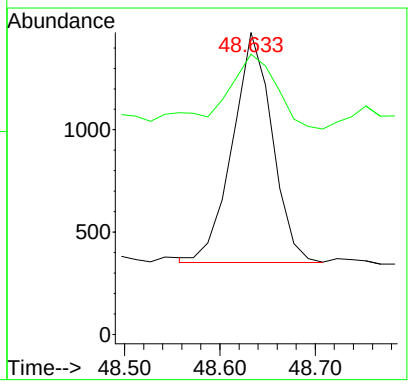


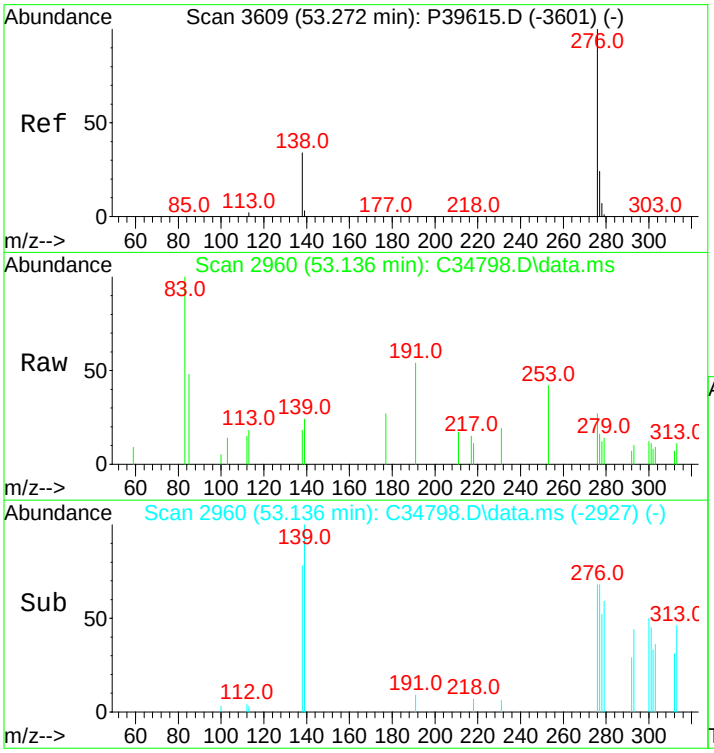


#88
Perylene
Concen: 27.60 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:252 Resp: 3245

Ion	Ratio	Lower	Upper
252	100		
253	44.6	19.6	29.4#

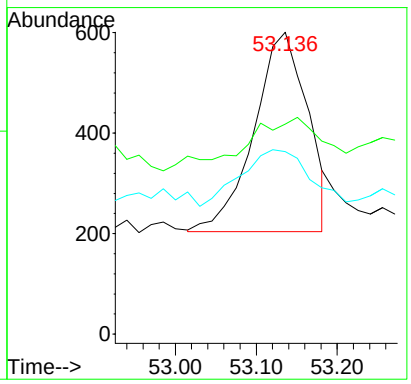


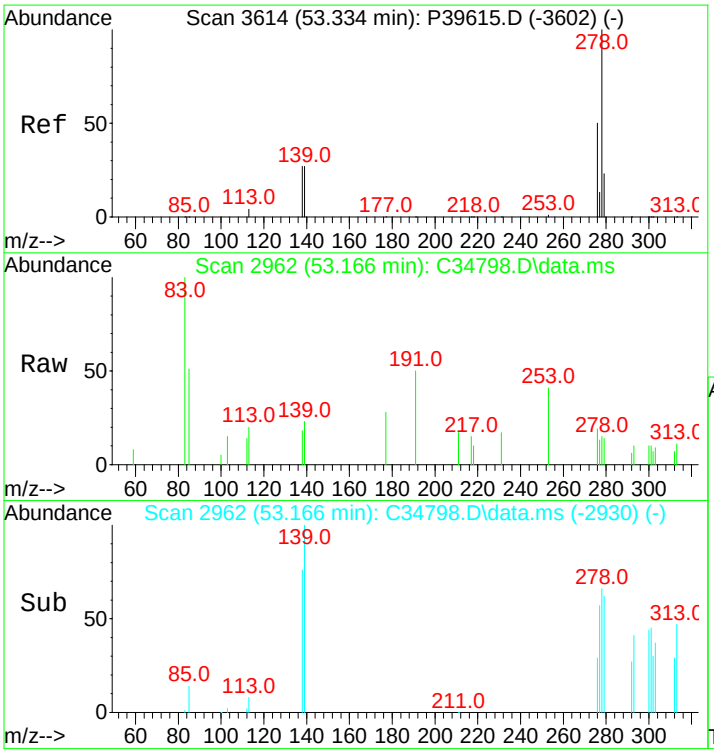


#89
Indeno[1,2,3-cd]pyrene
Concen: 14.23 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:276 Resp: 1822

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

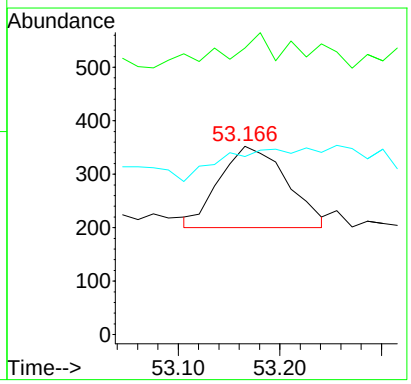


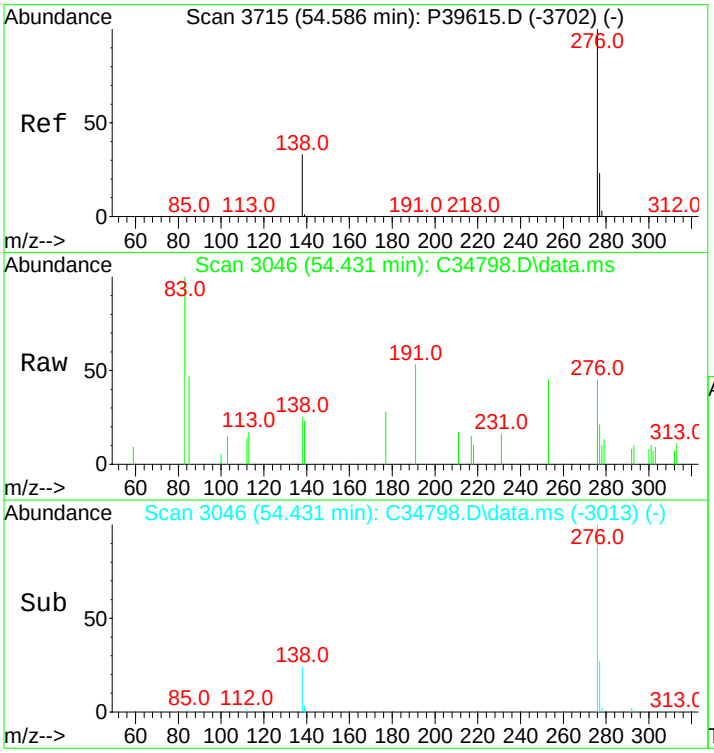


#90
Dibenz[ah]+[ac]anthracene
Concen: 5.76 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:278 Resp: 702

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

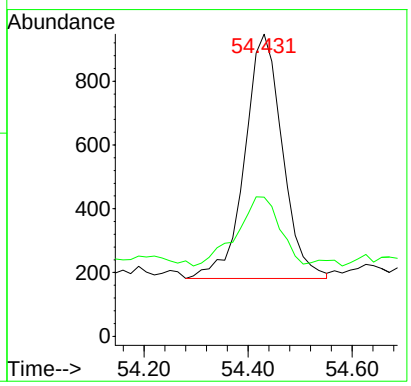


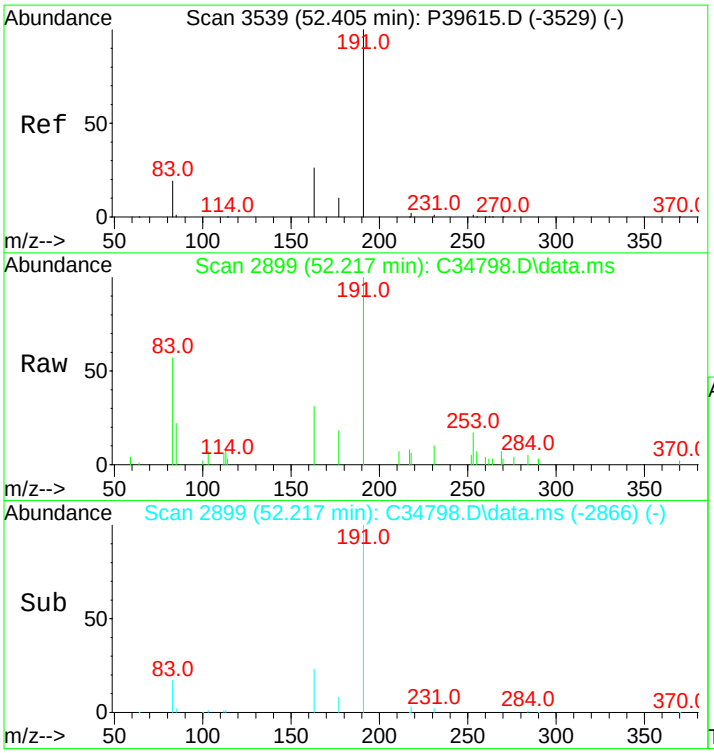


#91
Benzo[g,h,i]perylene
Concen: 28.59 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:276 Resp: 3868

Ion	Ratio	Lower	Upper
276	100		
277	32.3	18.9	28.3#

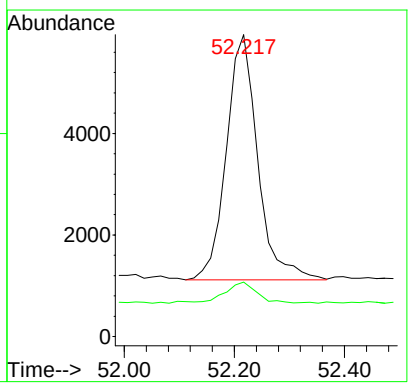


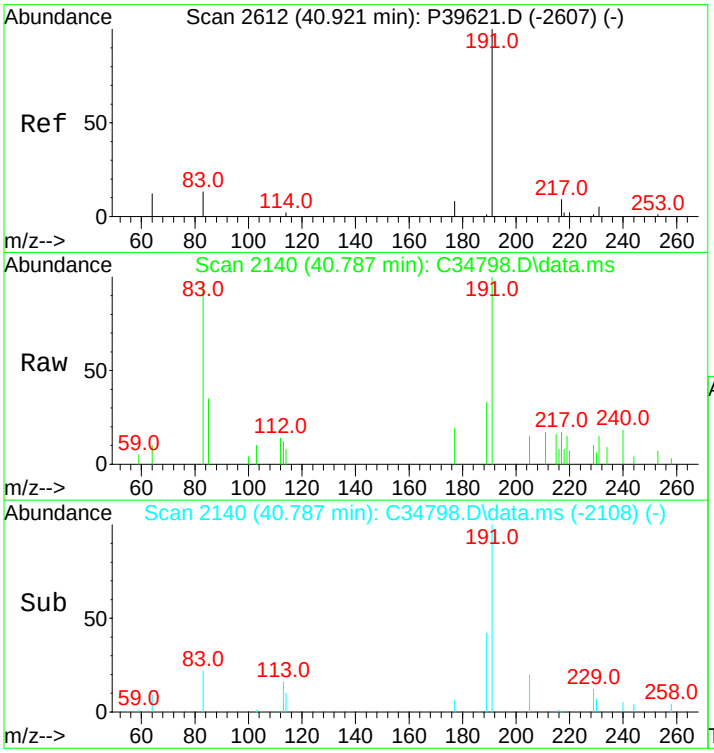


#92
Hopane (T19)
Concen: 872.78 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:191 Resp: 19056

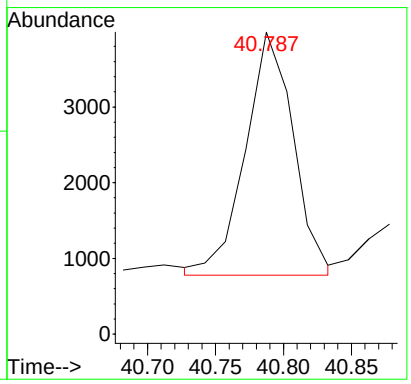
Ion	Ratio	Lower	Upper
191	100		
177	8.1	14.6	21.8#

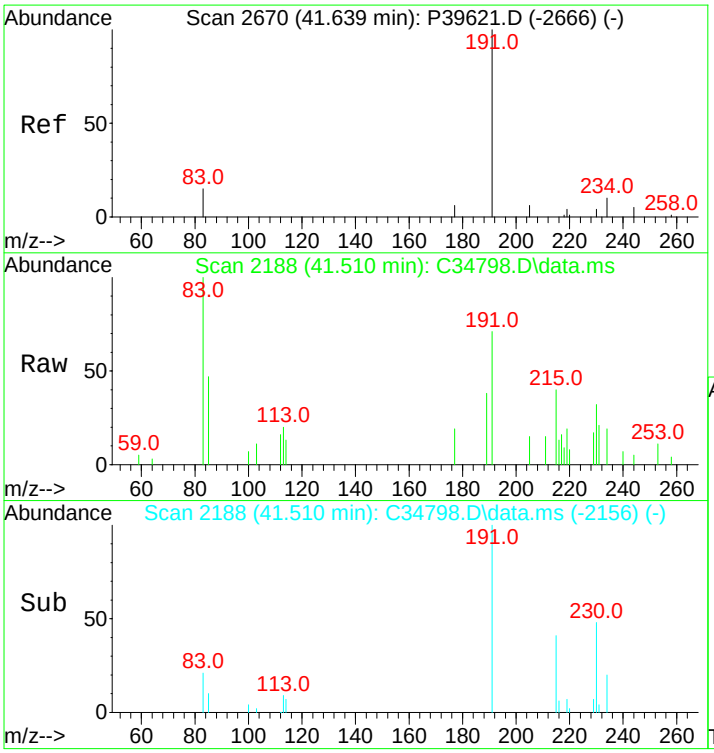




#94
C23 Tricyclic Terpane (T4)
Concen: 359.49 ng/ml m
RT: 40.787 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

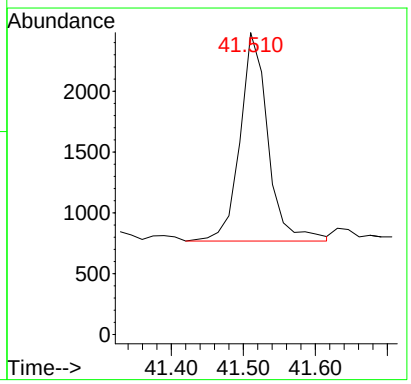
Tgt Ion:191 Resp: 7849

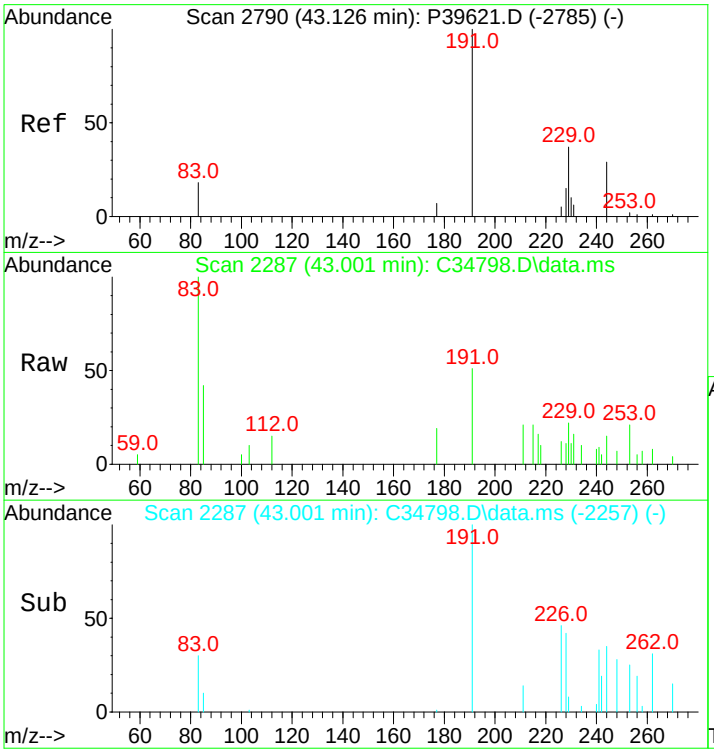




#95
C24 Tricyclic Terpane (T5)
Concen: 211.19 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

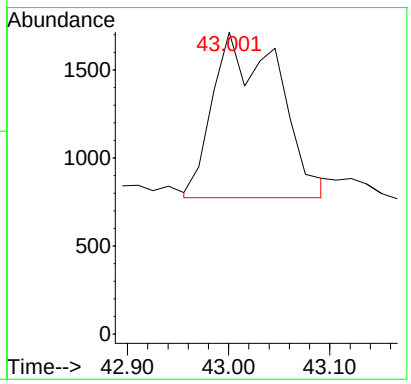
Tgt Ion:191 Resp: 4611

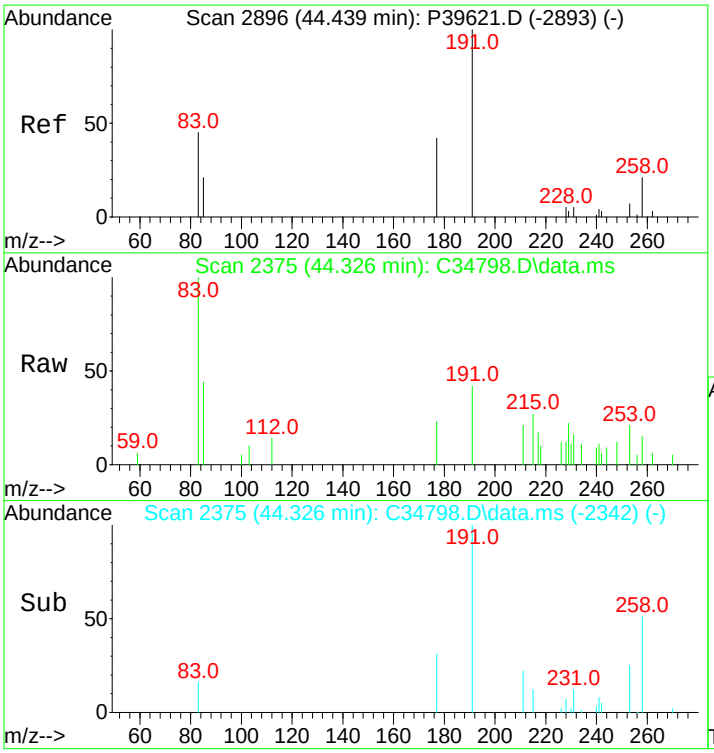




#96
C25 Tricyclic Terpane (T6)
Concen: 193.37 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

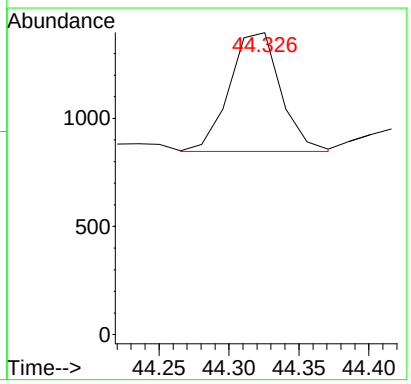
Tgt Ion:191 Resp: 4222

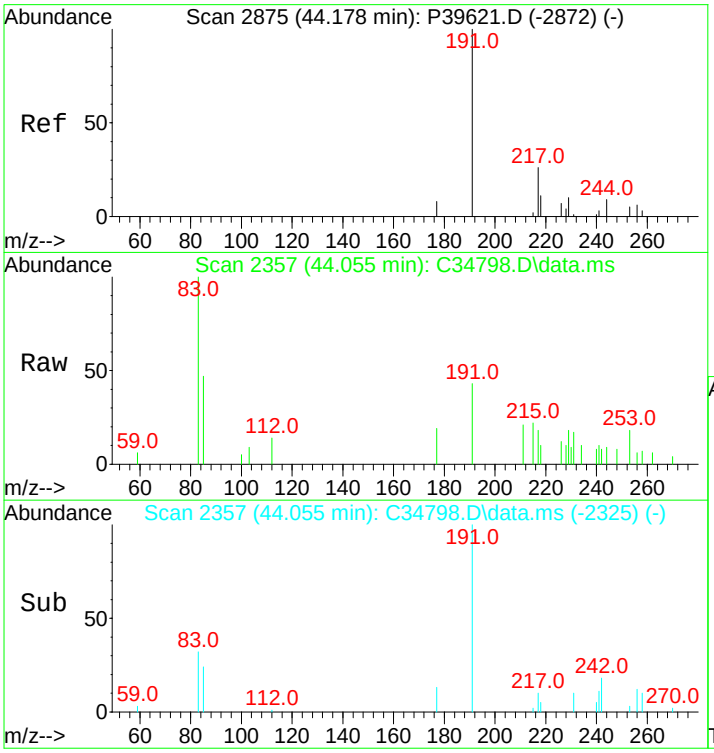




#97
C24 Tetracyclic Terpane (T6a)
Concen: 64.35 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

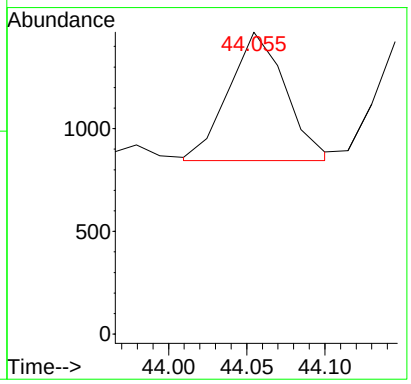
Tgt Ion:191 Resp: 1405

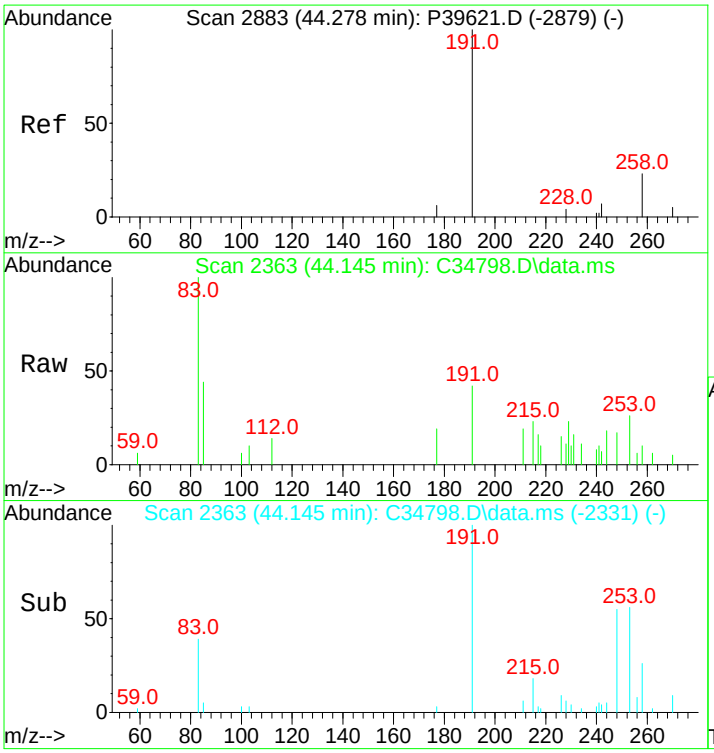




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 72.41 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

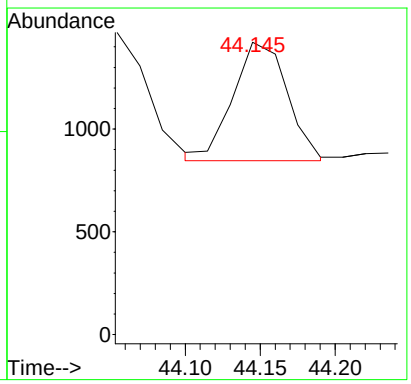
Tgt Ion:191 Resp: 1581

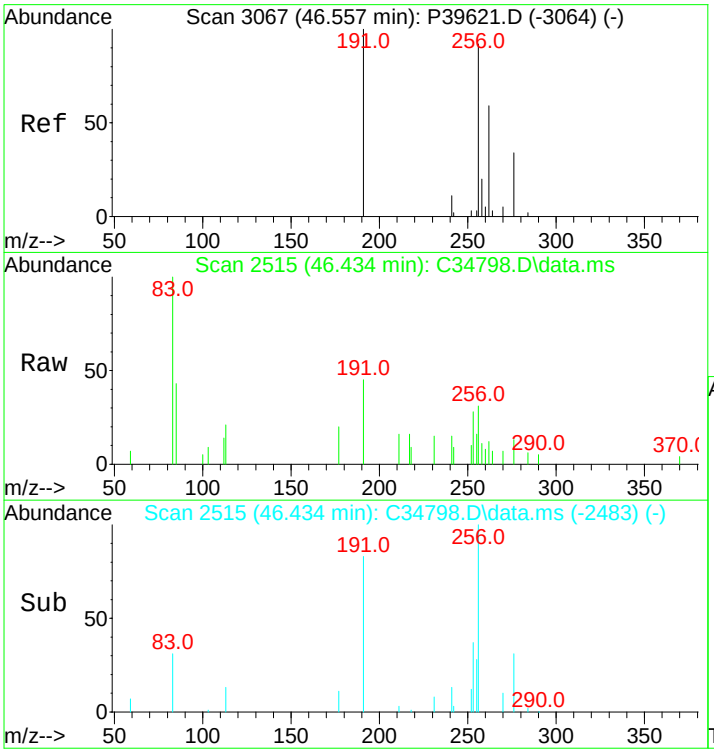




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 66.50 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

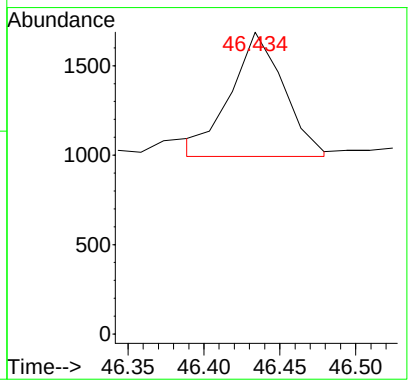
Tgt Ion:191 Resp: 1452

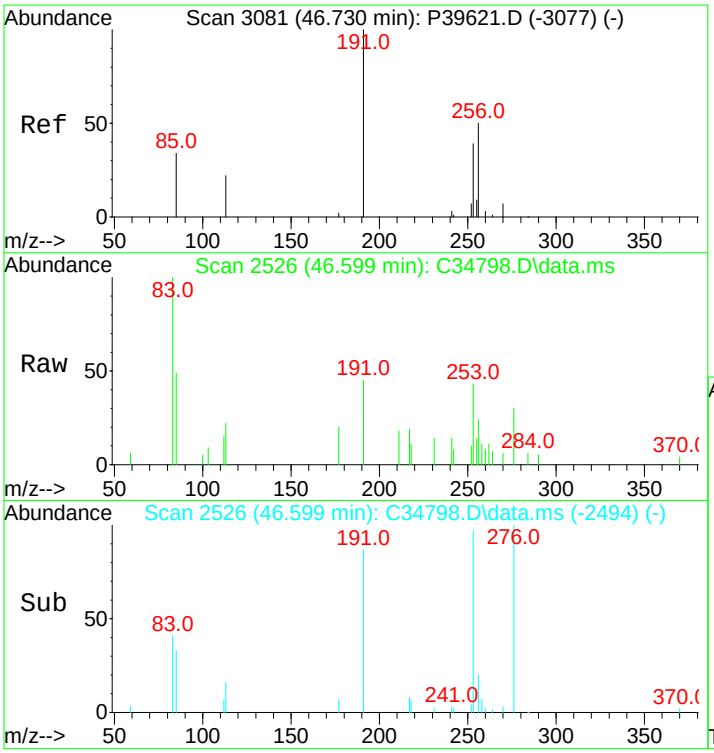




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 76.81 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

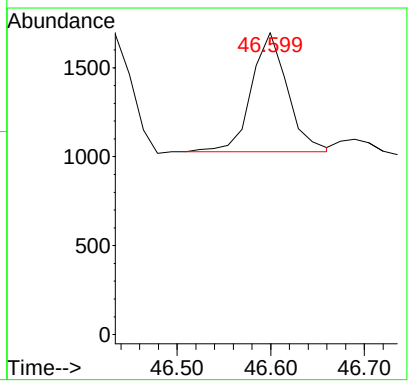
Tgt Ion:191 Resp: 1677

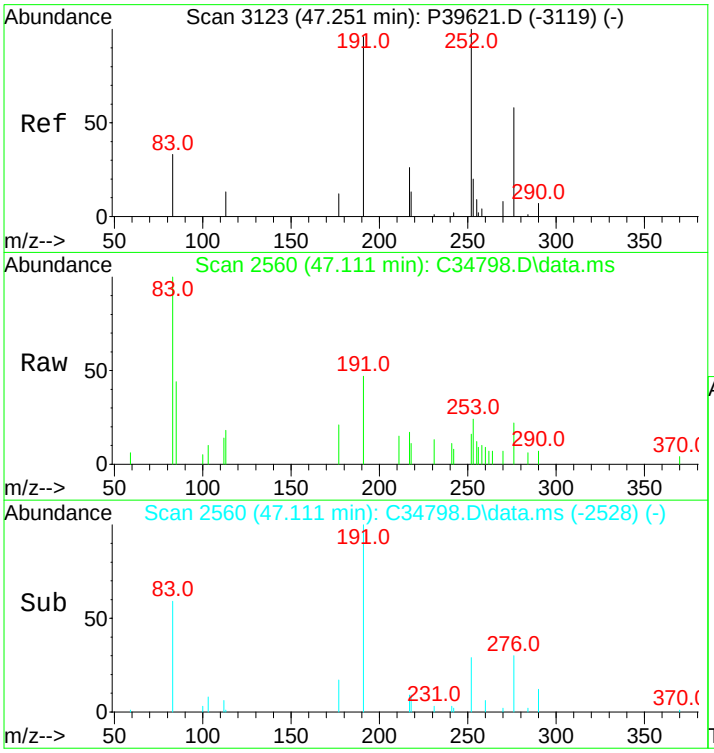




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 82.07 ng/ml
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

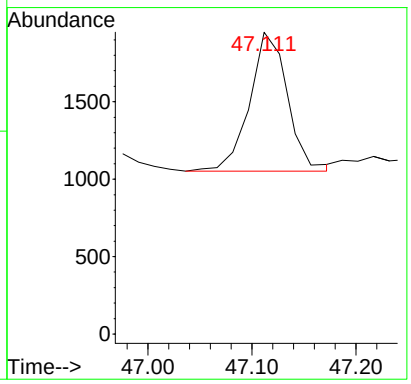
Tgt Ion:191 Resp: 1792

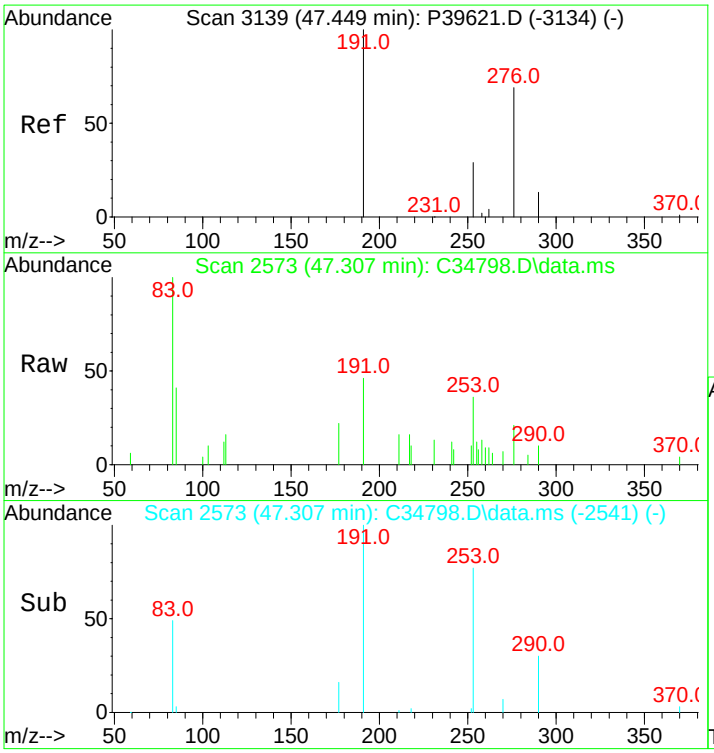




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 104.29 ng/ml
RT: 47.111 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

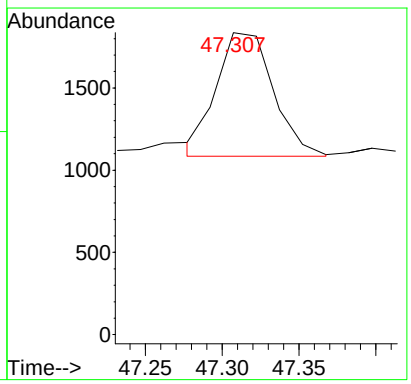
Tgt Ion:191 Resp: 2277

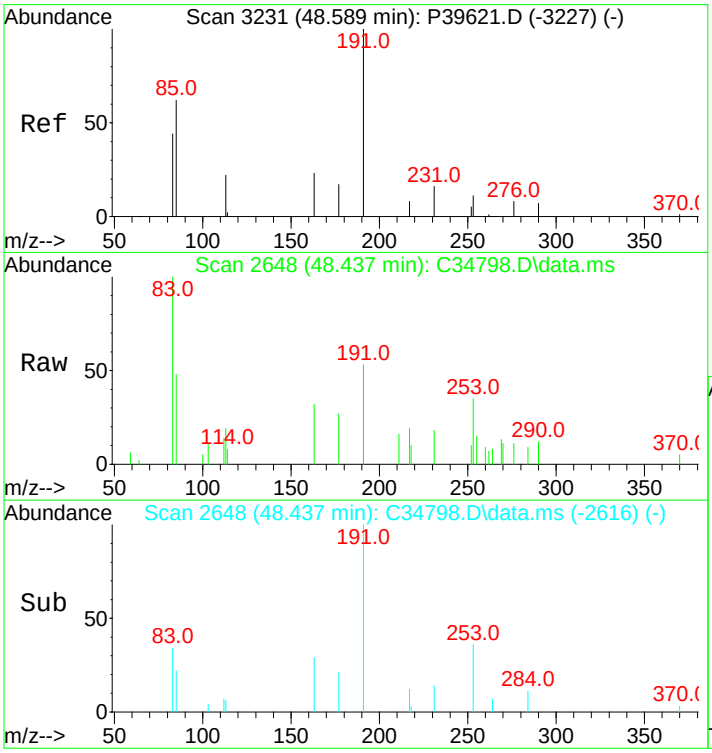




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 88.72 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

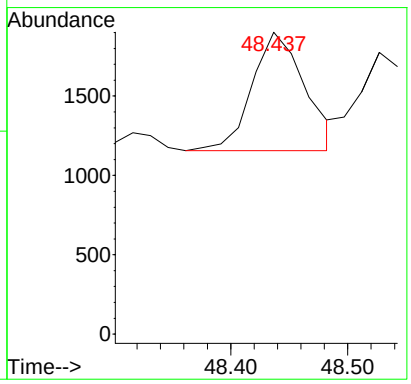
Tgt Ion:191 Resp: 1937

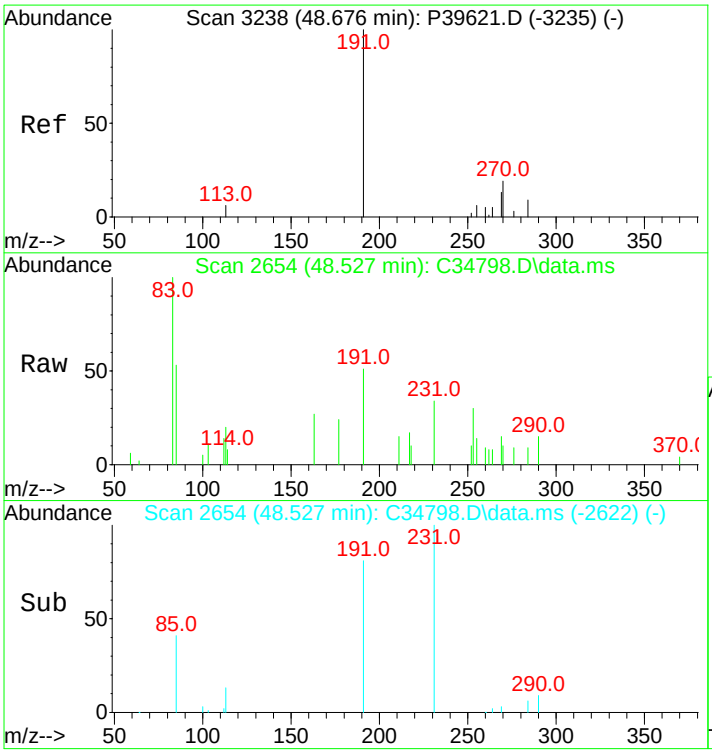




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 107.31 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

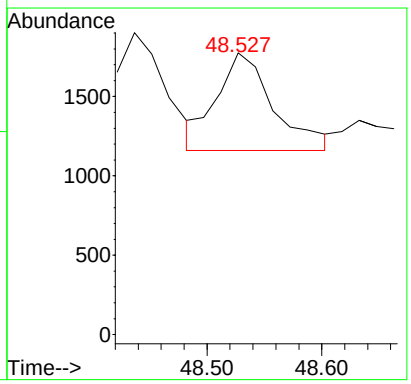
Tgt Ion:191 Resp: 2343

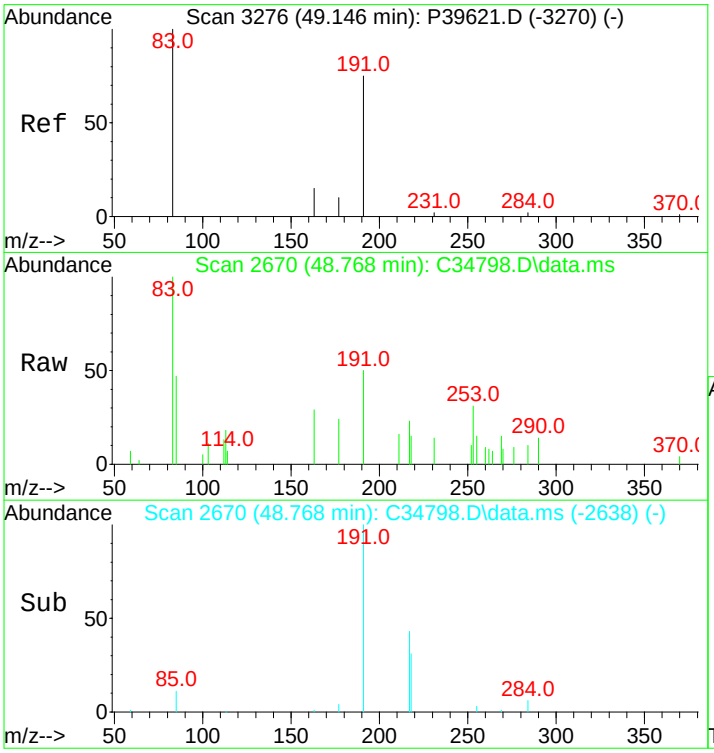




#105
C30 Tricyclic Terpane-22S
Concen: 97.42 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

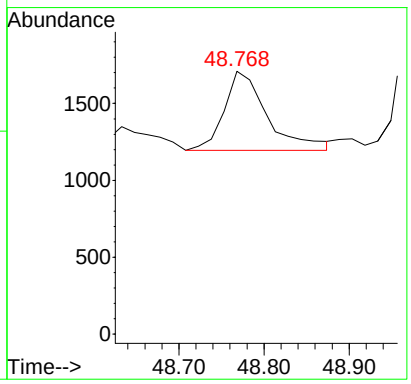
Tgt Ion:191 Resp: 2127

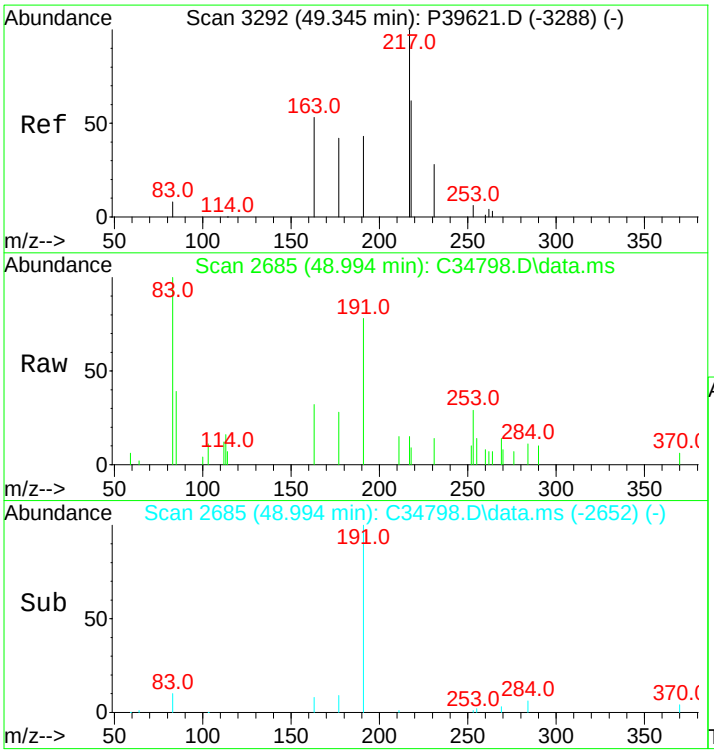




#106
C30 Tricyclic Terpane-22R
Concen: 83.17 ng/mL
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

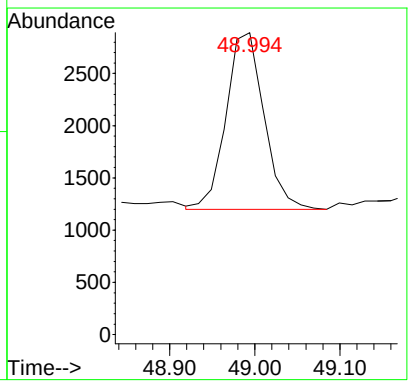
Tgt Ion:191 Resp: 1816

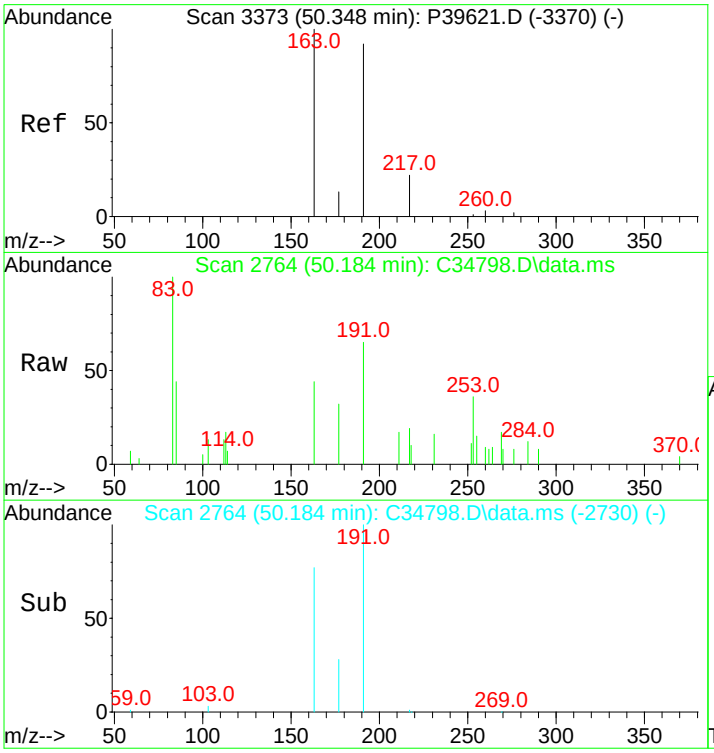




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 240.55 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

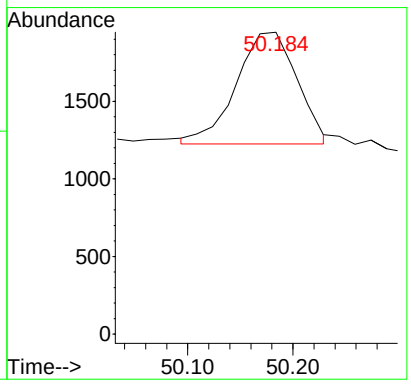
Tgt Ion:191 Resp: 5252

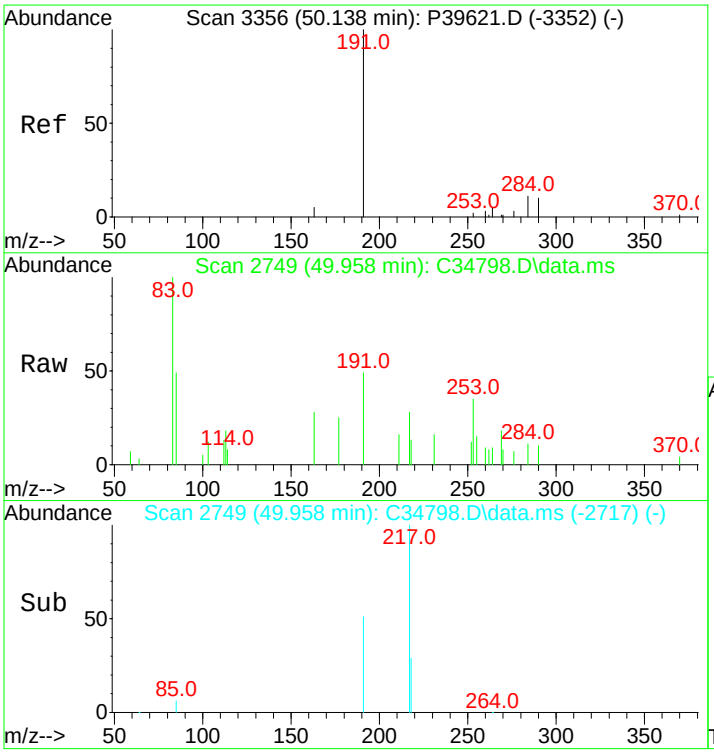




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 132.14 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

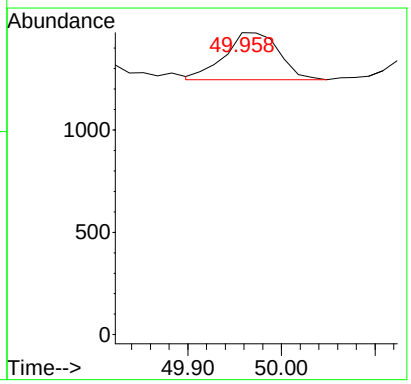
Tgt Ion:191 Resp: 2885

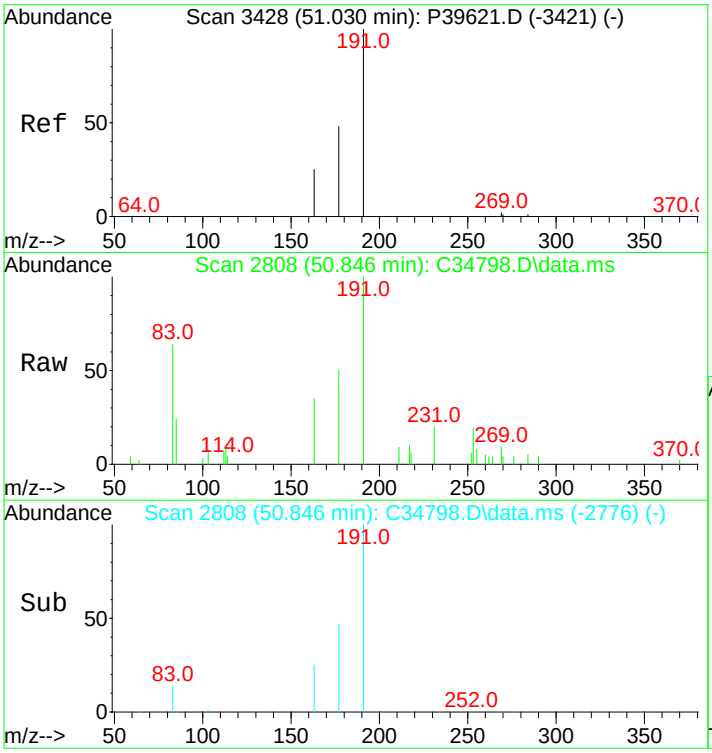




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 42.82 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

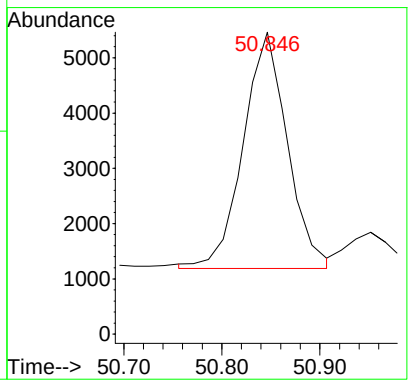
Tgt Ion:191 Resp: 935

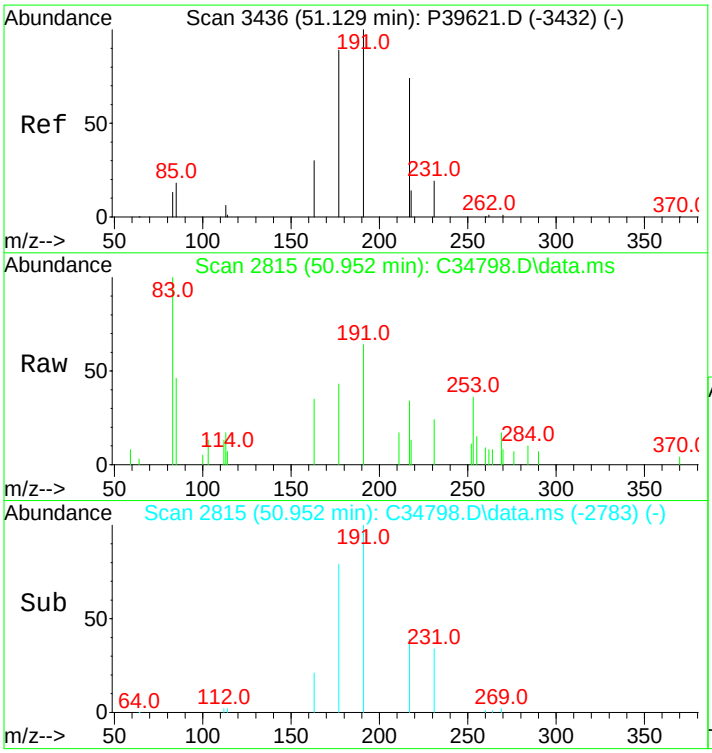




#110
30-Norhopane (T15)
Concen: 612.54 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

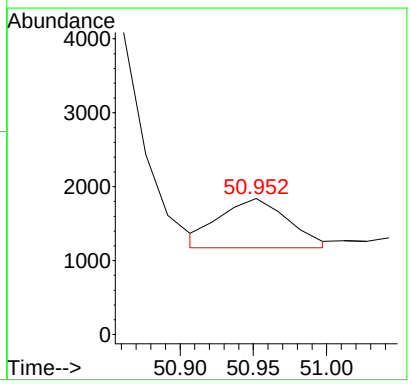
Tgt Ion:191 Resp: 13374

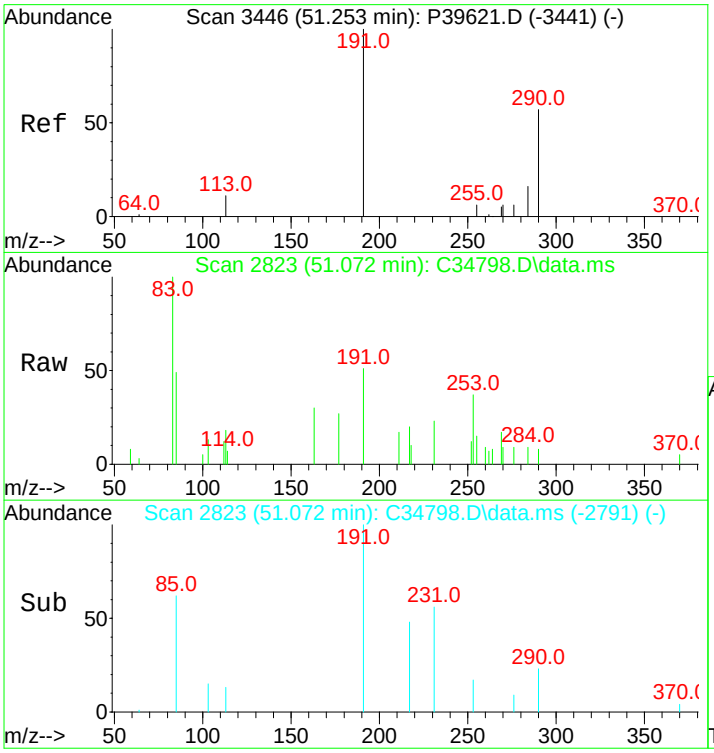




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 97.74 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

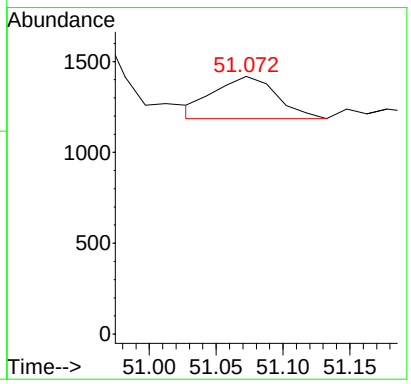
Tgt Ion:191 Resp: 2134

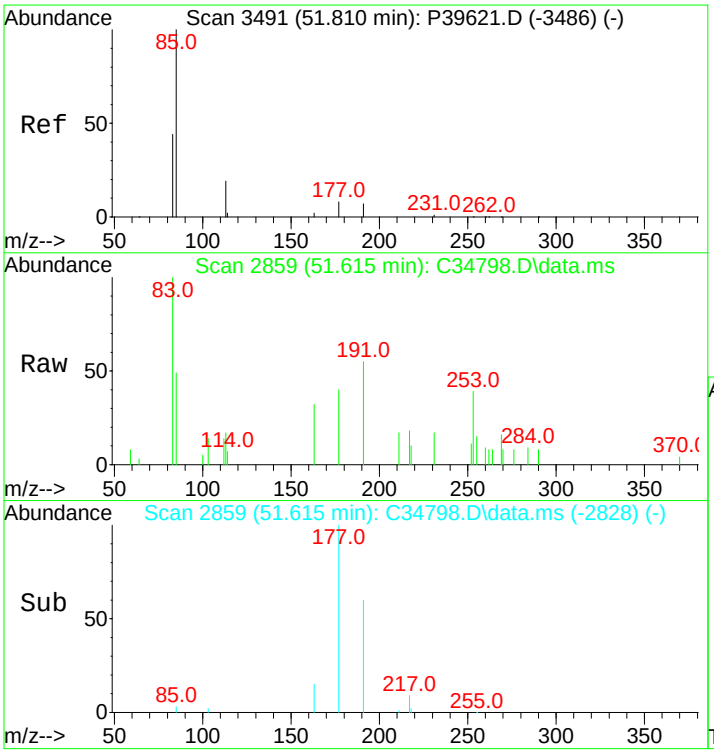




#112
17a(H)-Diahopane (X)
Concen: 34.72 ng/ml
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

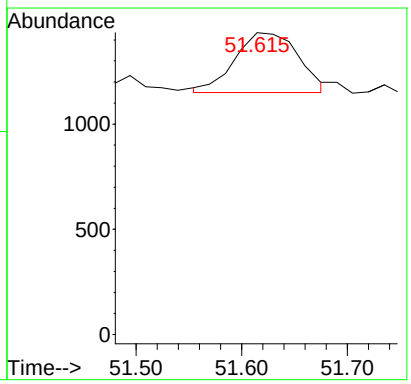
Tgt Ion:191 Resp: 758

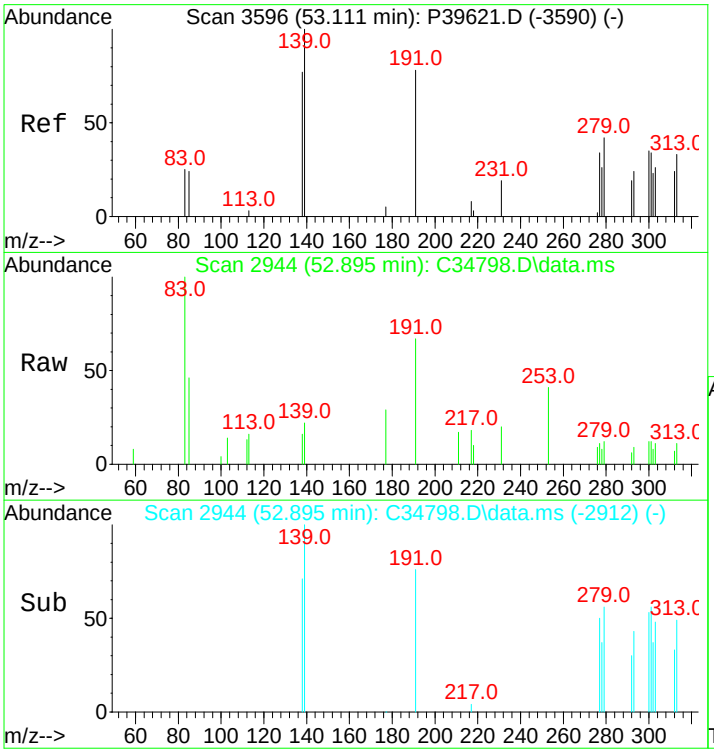




#113
30-Normoretane (T17)
Concen: 54.32 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

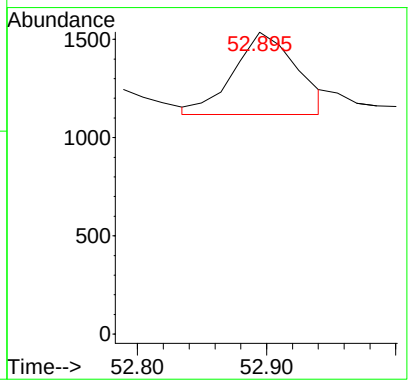
Tgt Ion:191 Resp: 1186

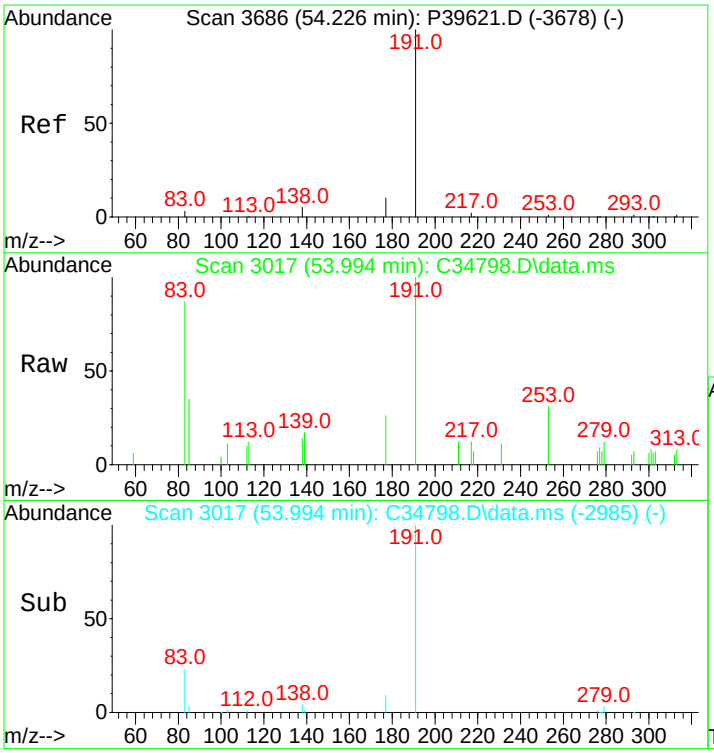




#115
Moretane (T20)
Concen: 65.08 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

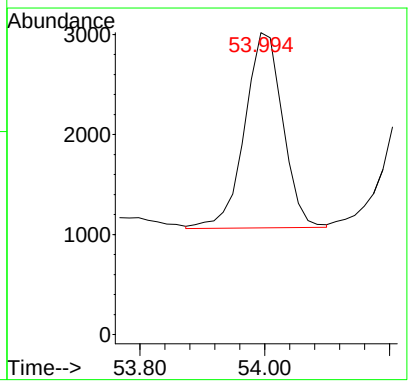
Tgt Ion:191 Resp: 1421

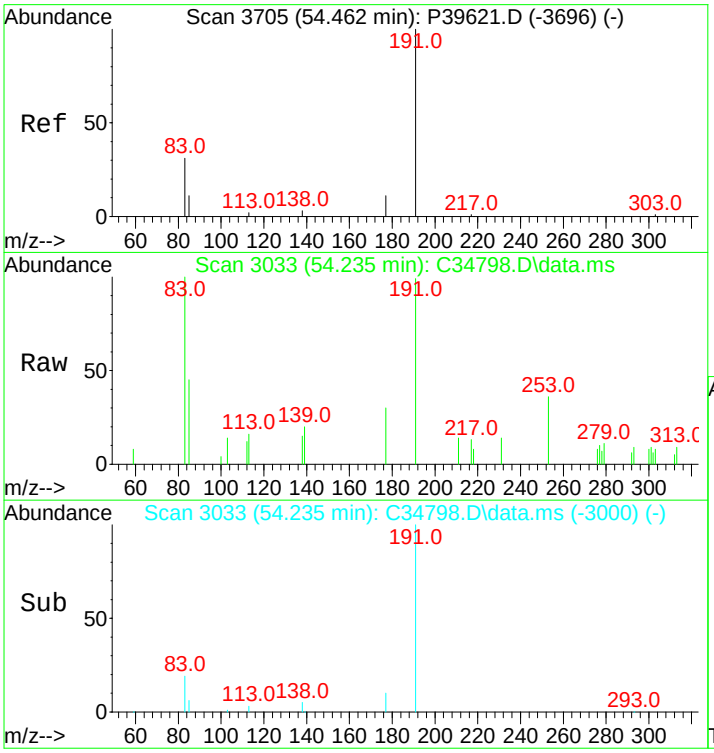




#116
30-Homohopane-22S (T21)
Concen: 378.73 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

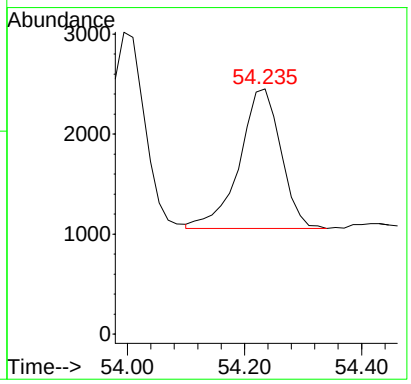
Tgt Ion:191 Resp: 8269

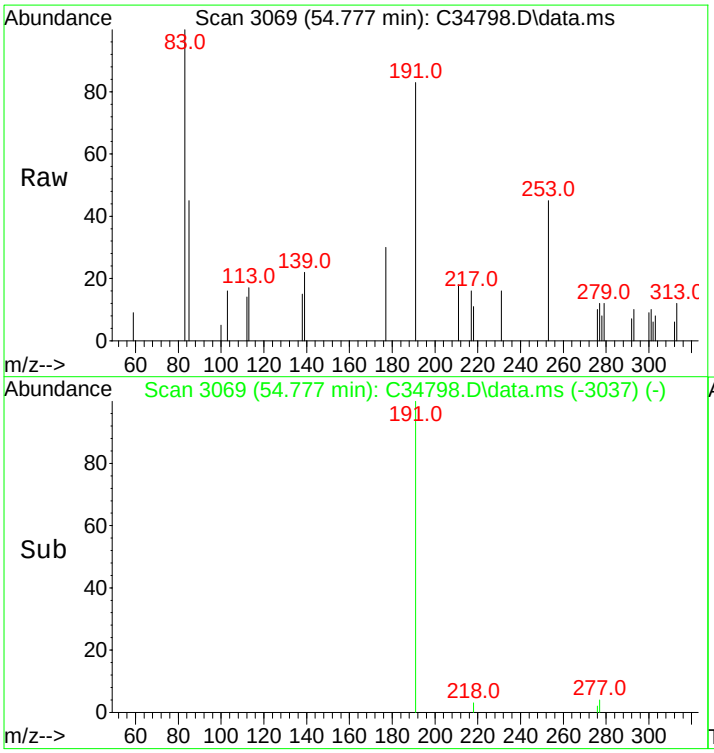




#117
30-Homohopane-22R (T22)
Concen: 313.05 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

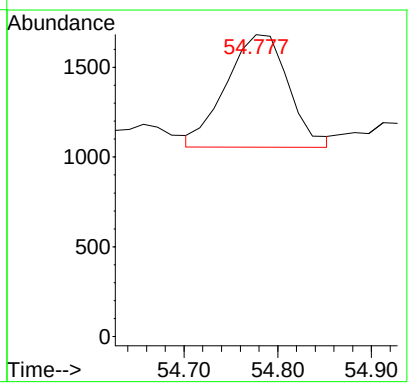
Tgt Ion:191 Resp: 6835

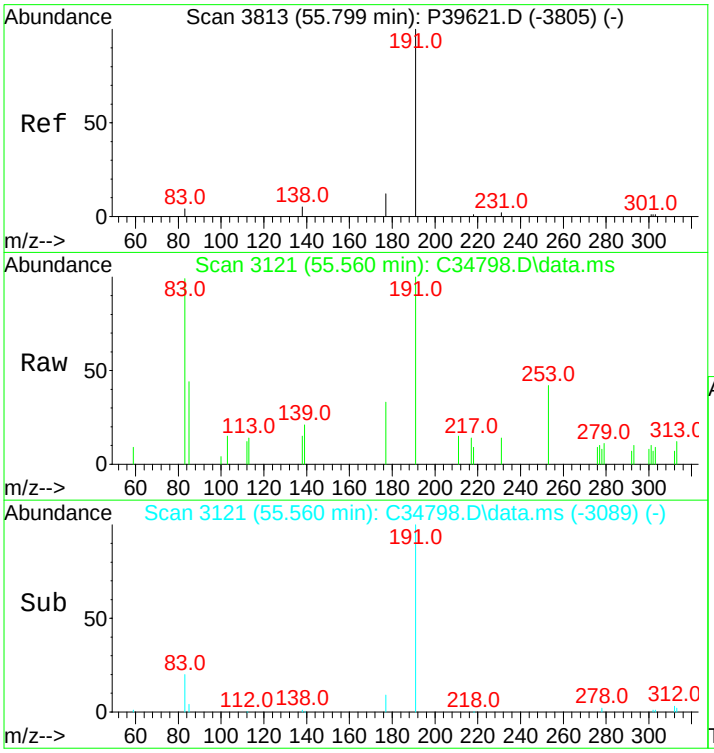




#118
Gammacerane/C32-diahopane
Concen: 132.96 ng/mL
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

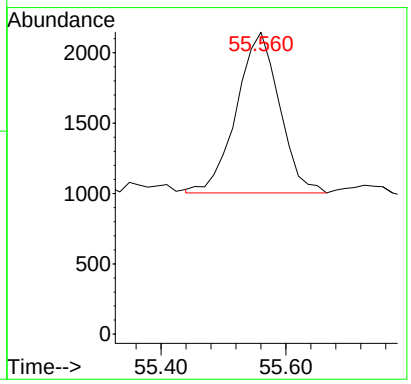
Tgt Ion:191 Resp: 2903

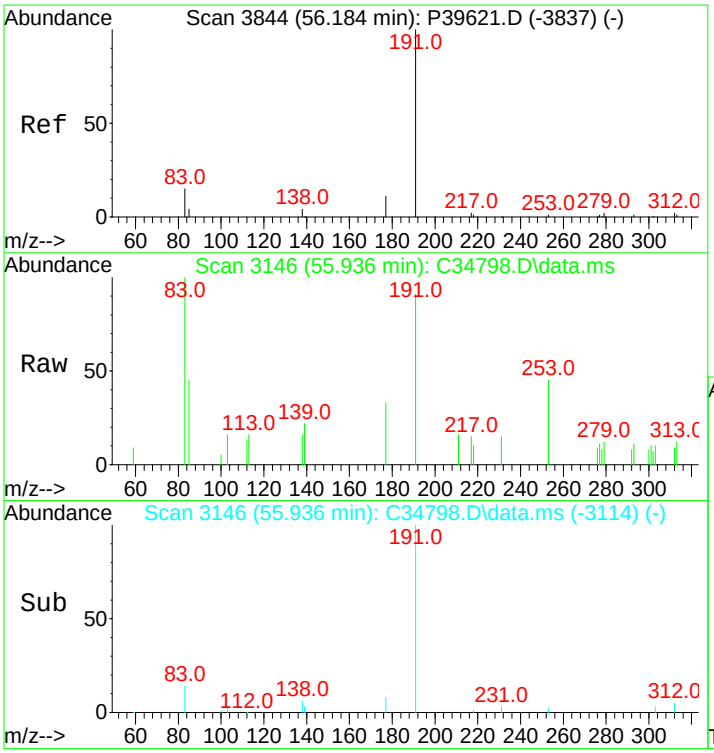




#119
30,31-Bishomohopane-22S (T26)
Concen: 249.43 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

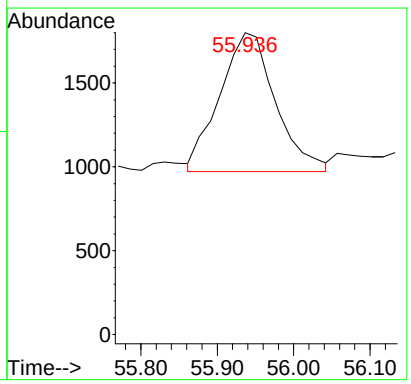
Tgt Ion:191 Resp: 5446

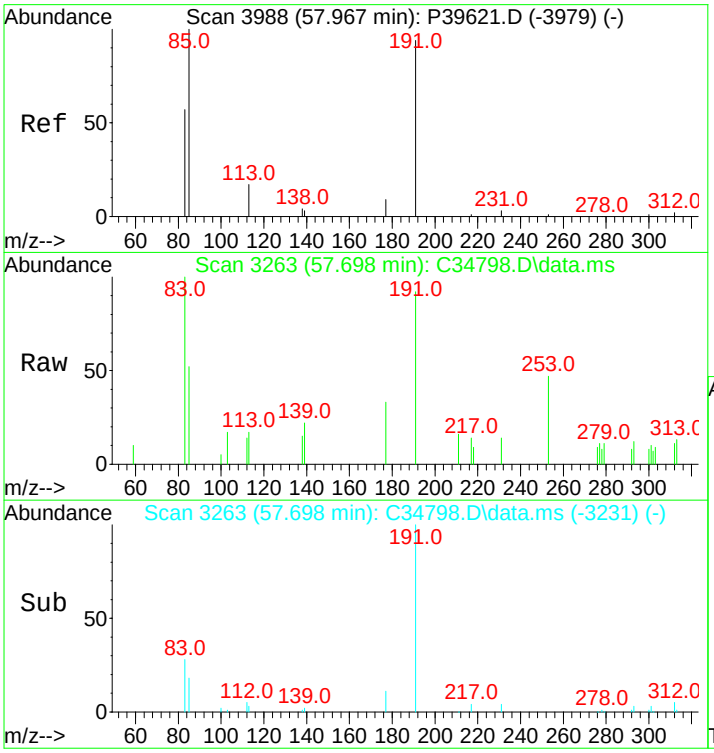




#120
30,31-Bishomohopane-22R (T27)
Concen: 192.78 ng/ml m
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

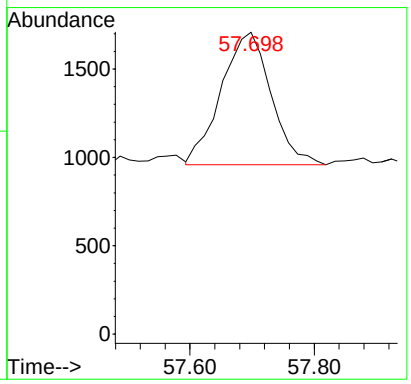
Tgt Ion:191 Resp: 4209

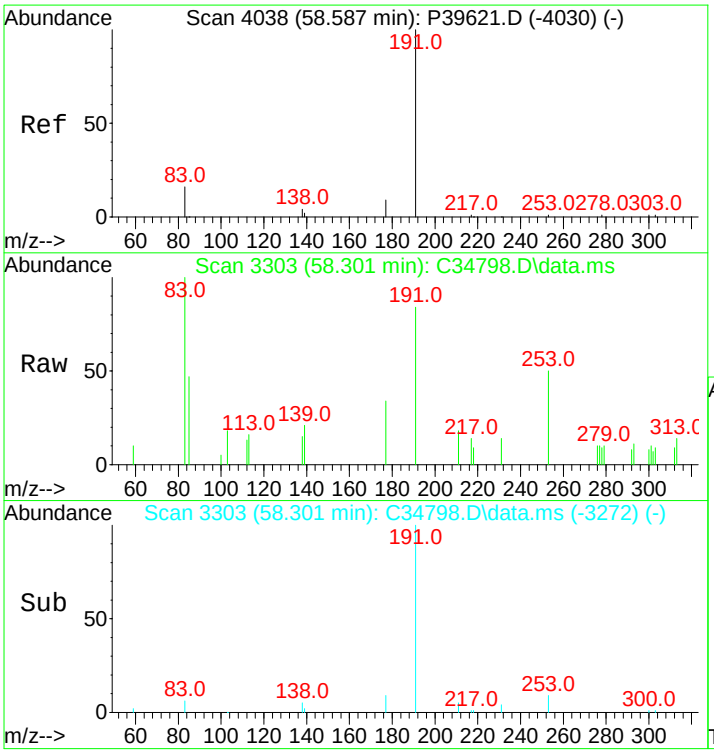




#121
30,31-Trishomohopane-22S (T30)
Concen: 191.58 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

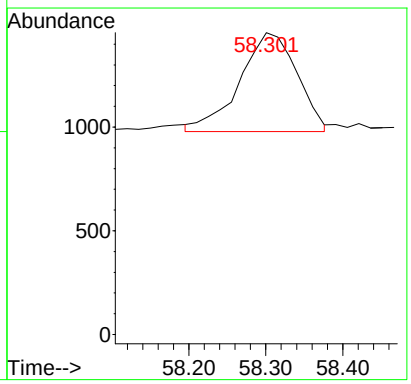
Tgt Ion:191 Resp: 4183

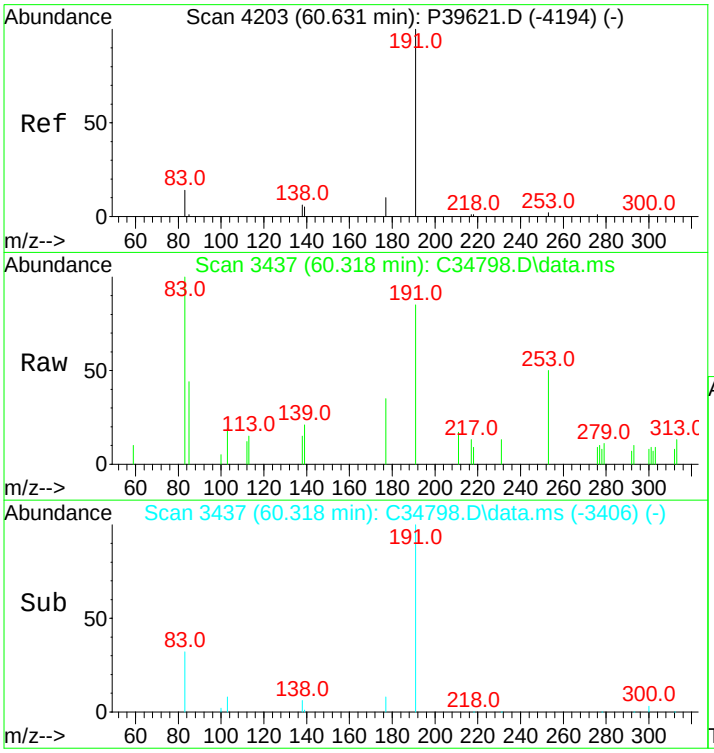




#122
30,31-Trishomohopane-22R (T31)
Concen: 112.44 ng/ml m
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

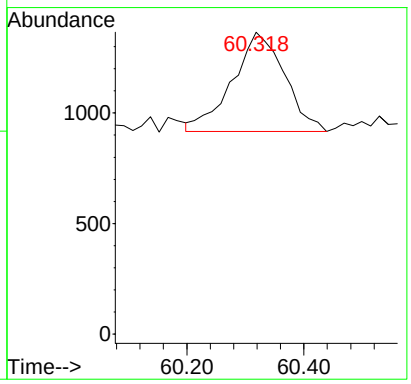
Tgt Ion:191 Resp: 2455

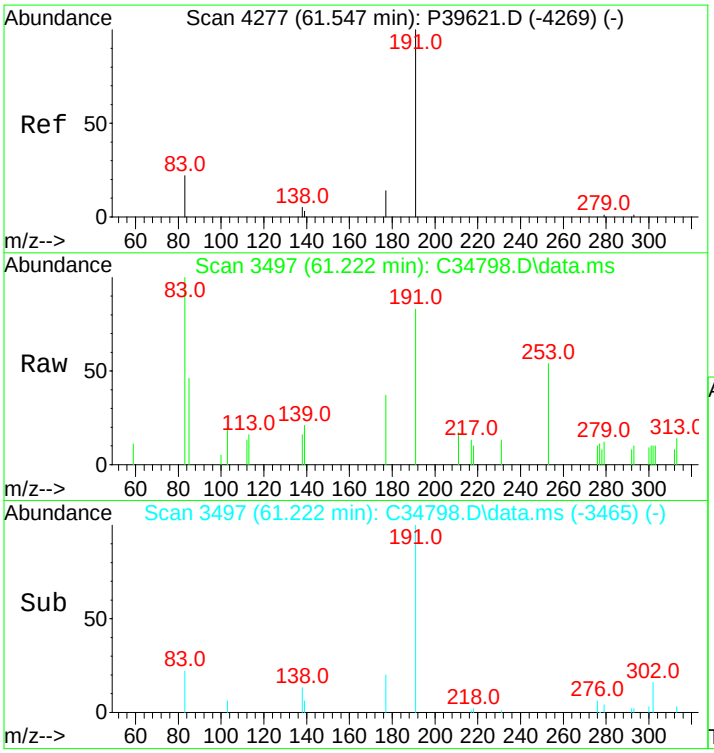




#123
Tetrakishomohopane-22S (T32)
Concen: 127.23 ng/ml
RT: 60.318 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

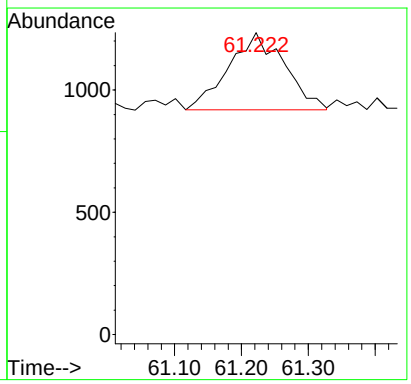
Tgt Ion:191 Resp: 2778

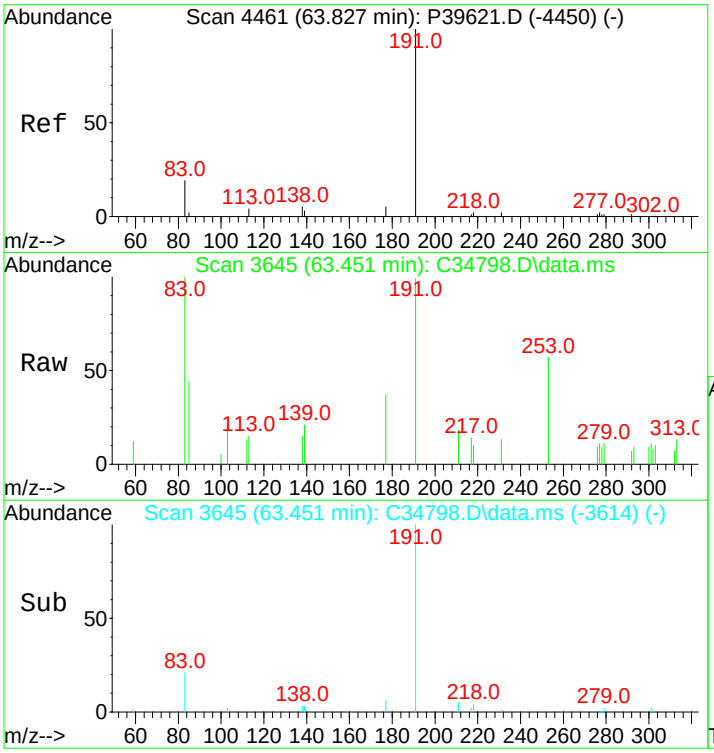




#124
Tetrakishomohopane-22R (T33)
Concen: 83.63 ng/ml
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

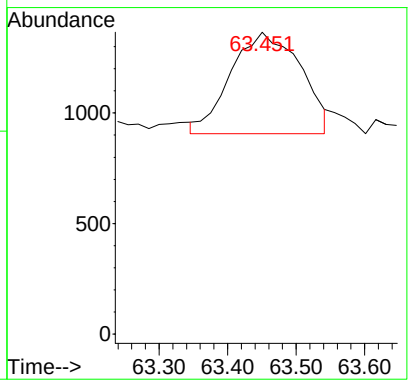
Tgt Ion:191 Resp: 1826

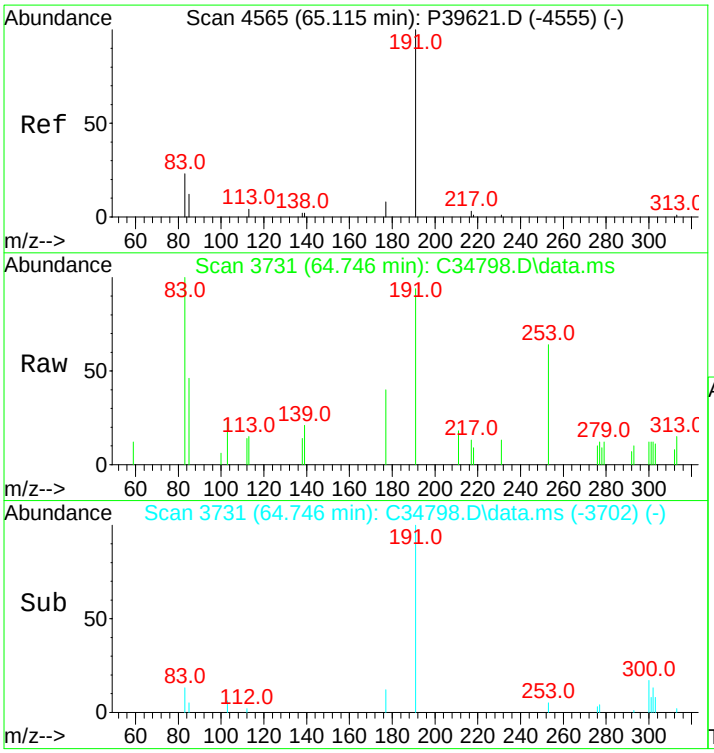




#125
Pentakishomohopane-22S (T34)
Concen: 148.49 ng/ml m
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

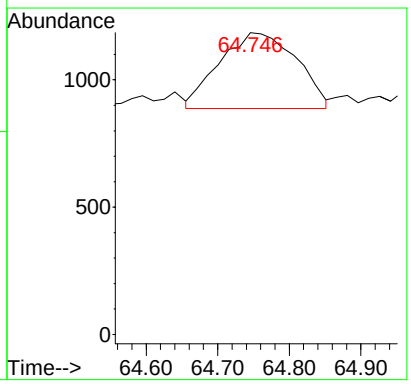
Tgt Ion:191 Resp: 3242

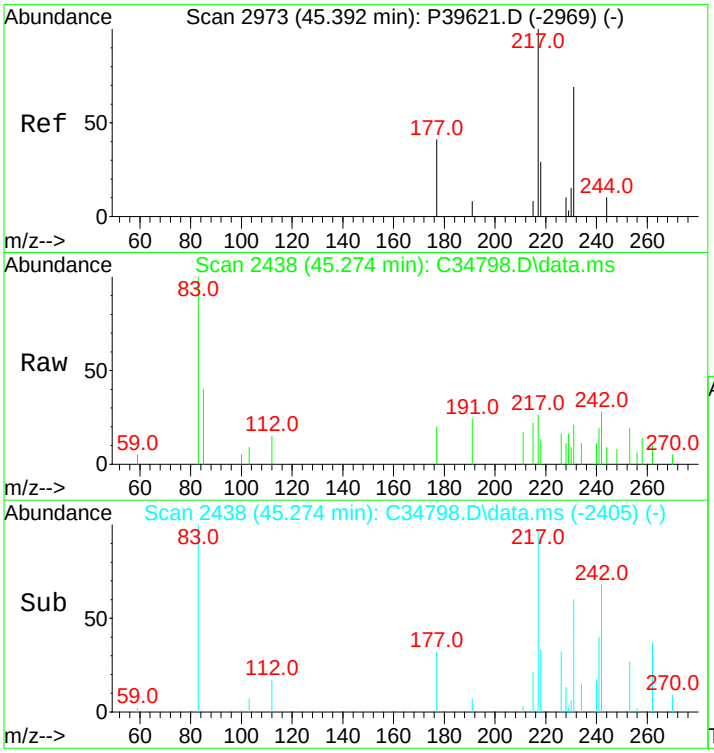




#126
Pentakishomohopane-22R (T35)
Concen: 101.68 ng/ml m
RT: 64.746 min Scan# 3731
Delta R.T. -0.060 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

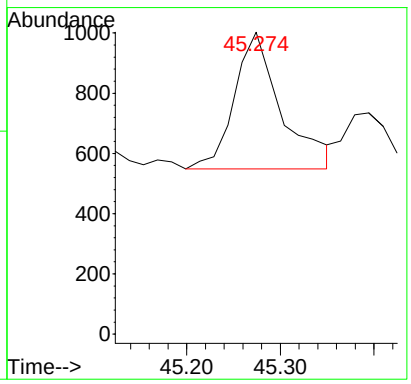
Tgt Ion:191 Resp: 2220

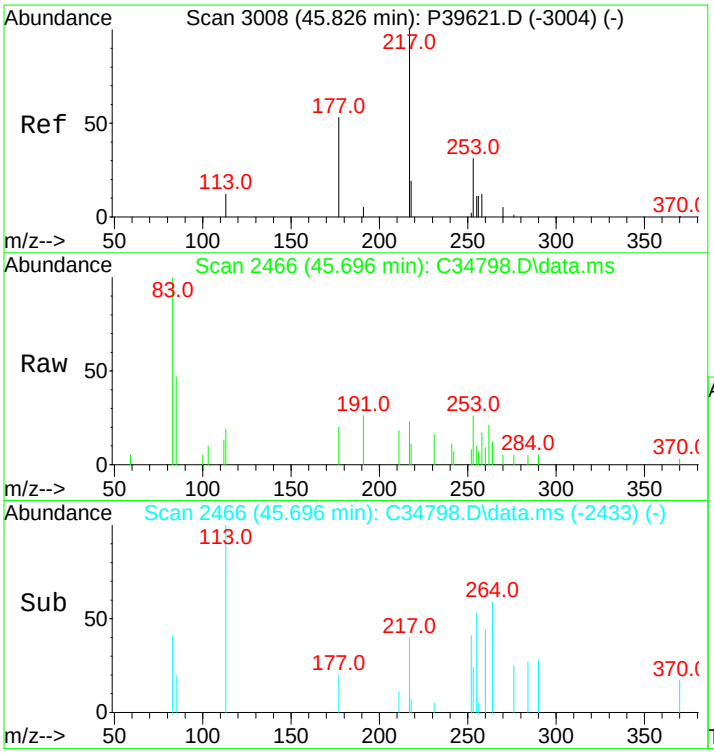




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 152.64 ng/ml
RT: 45.274 min Scan# 2438
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

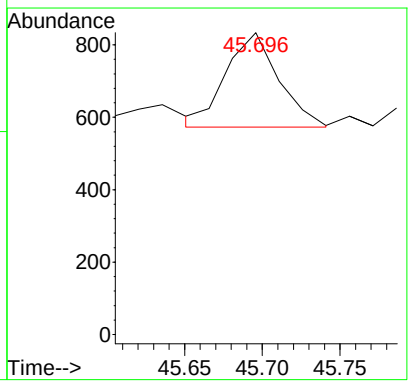
Tgt Ion:217 Resp: 1581

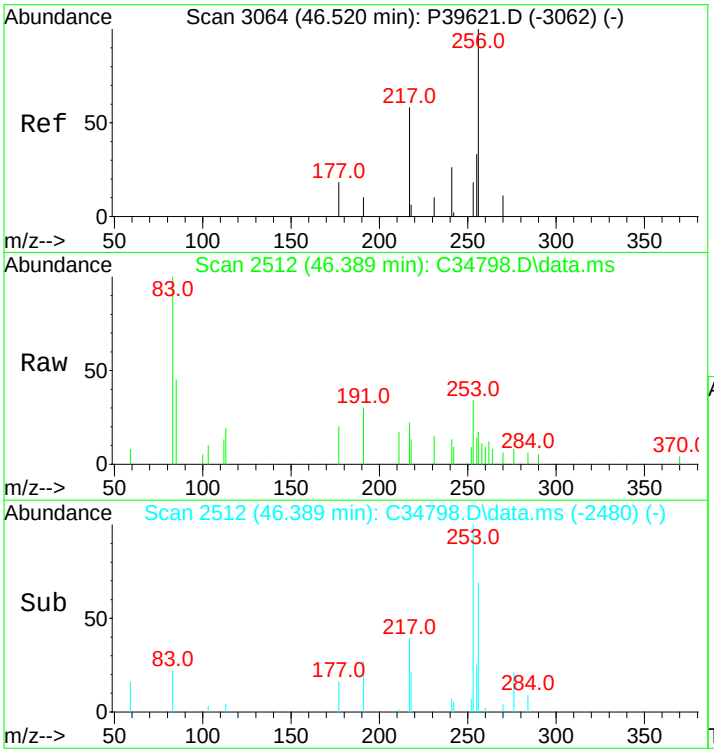




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 59.28 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

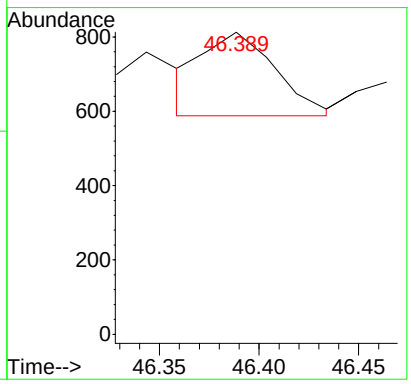
Tgt Ion:217 Resp: 614

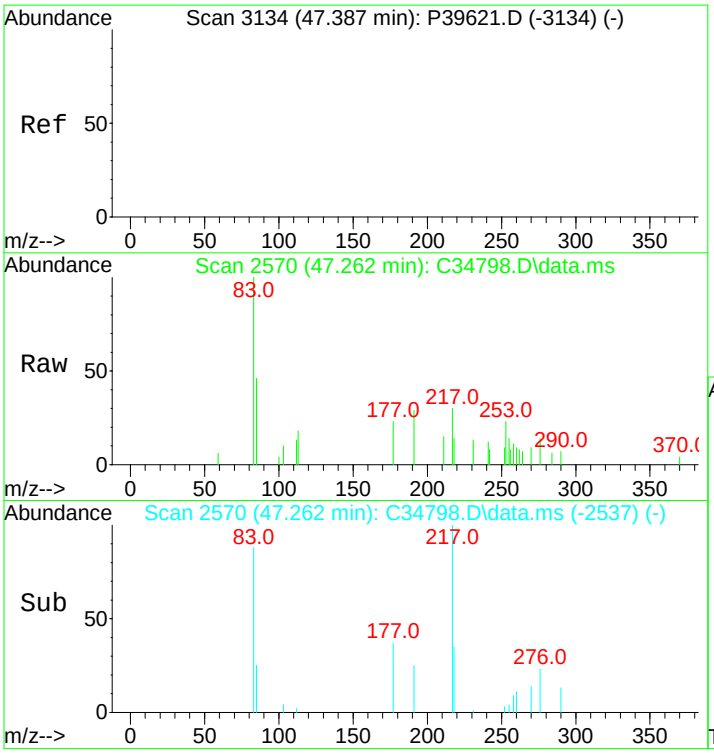




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 55.03 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

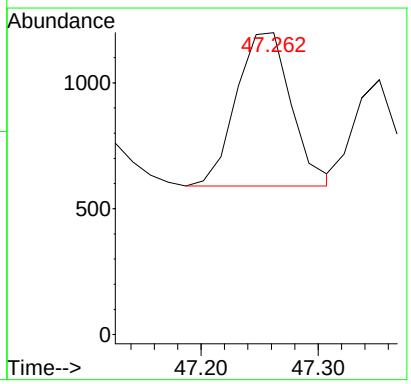
Tgt Ion:217 Resp: 570

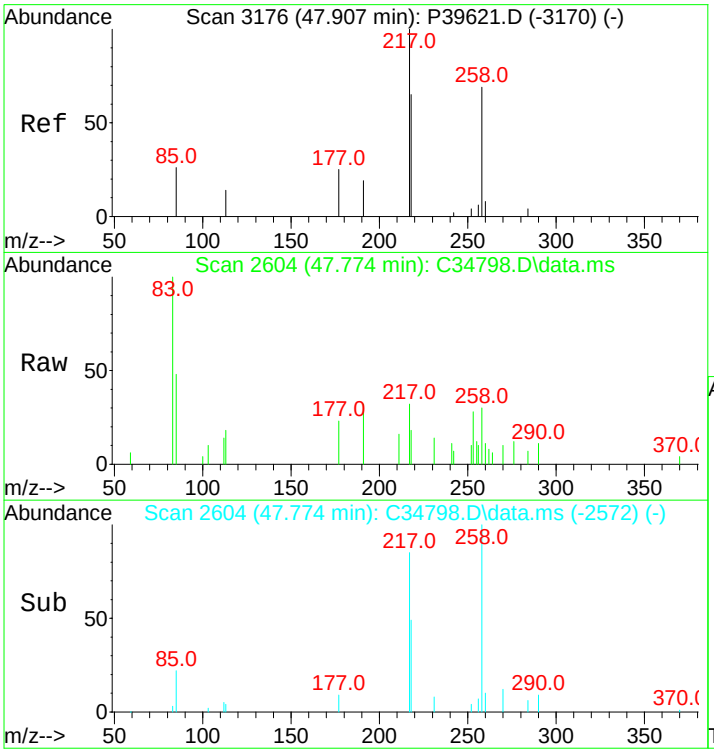




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 192.81 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

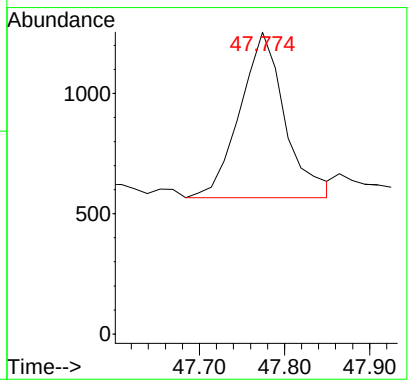
Tgt Ion:217 Resp: 1997

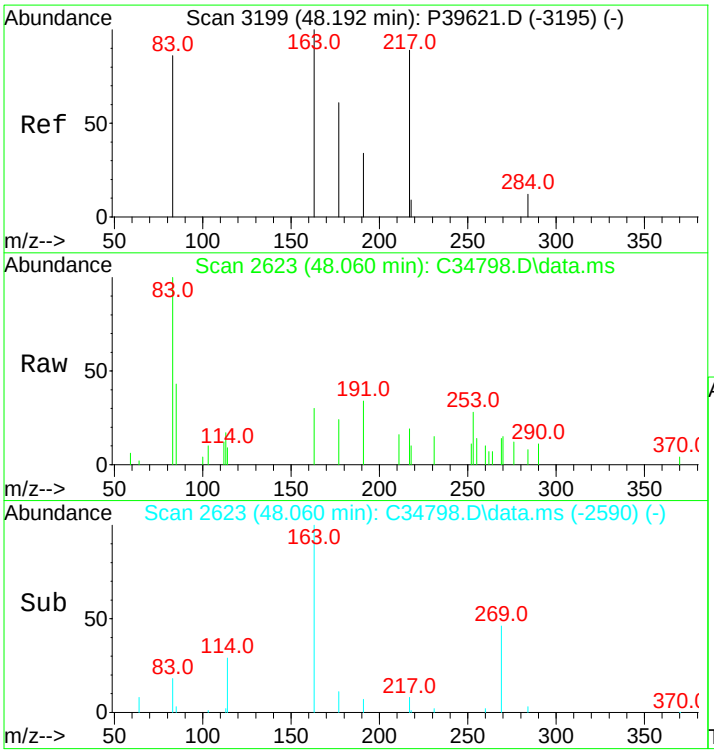




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 244.46 ng/ml
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

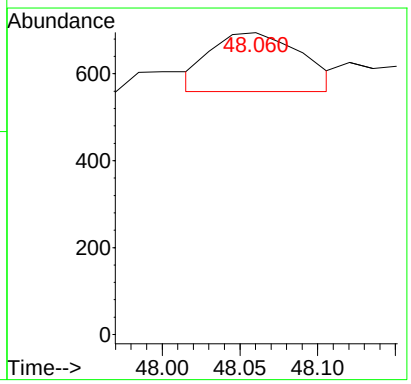
Tgt Ion:217 Resp: 2532

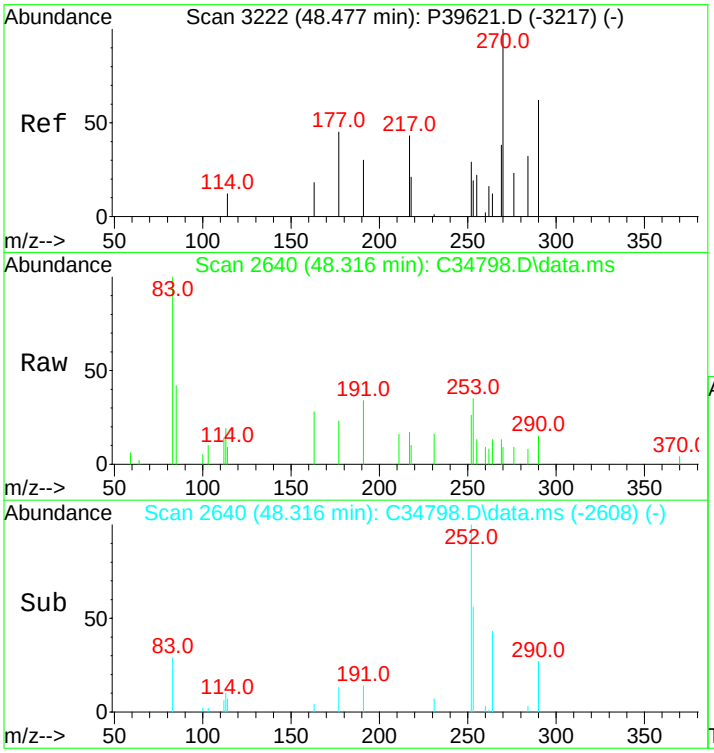




#133
Unknown Sterane (S18)
Concen: 53.29 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

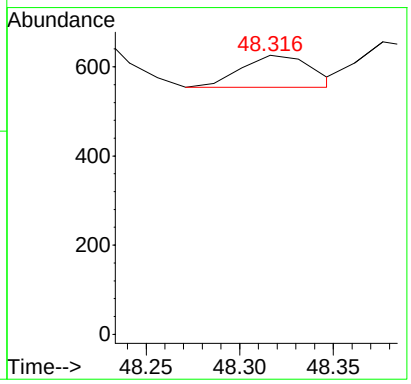
Tgt Ion:217 Resp: 552

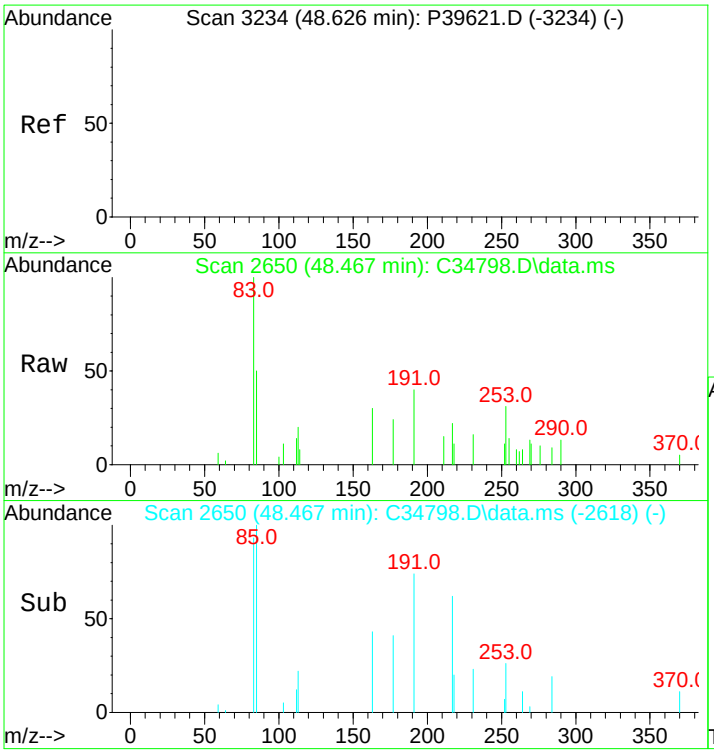




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.44 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

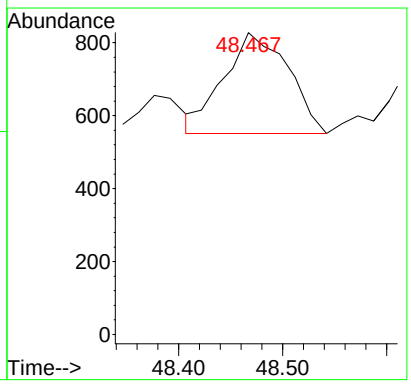
Tgt Ion:217 Resp: 191

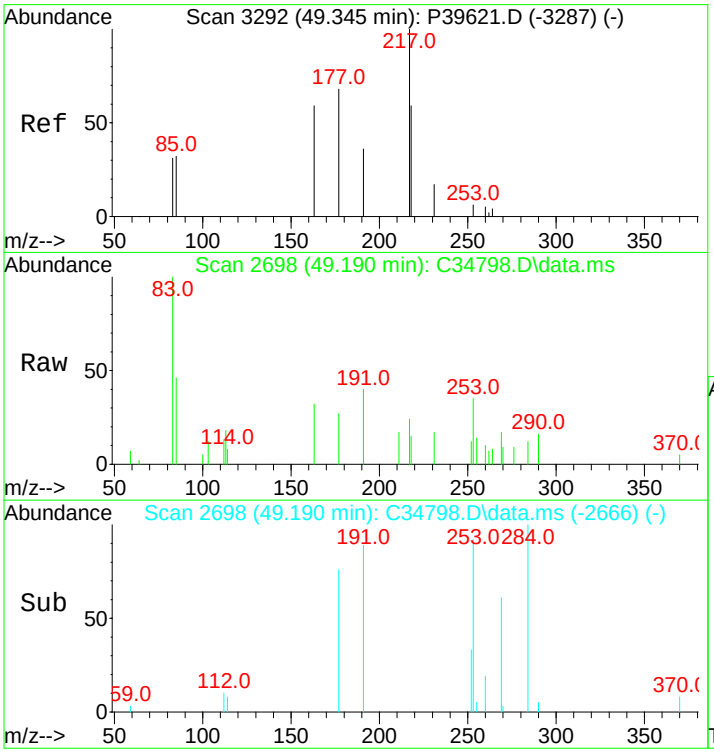




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 114.89 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

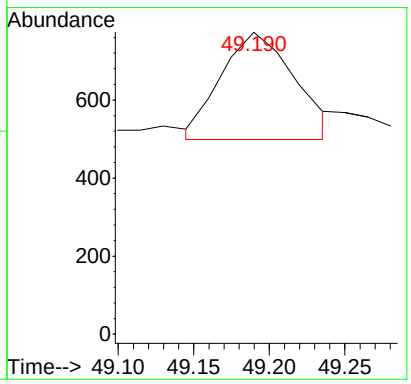
Tgt Ion:217 Resp: 1190

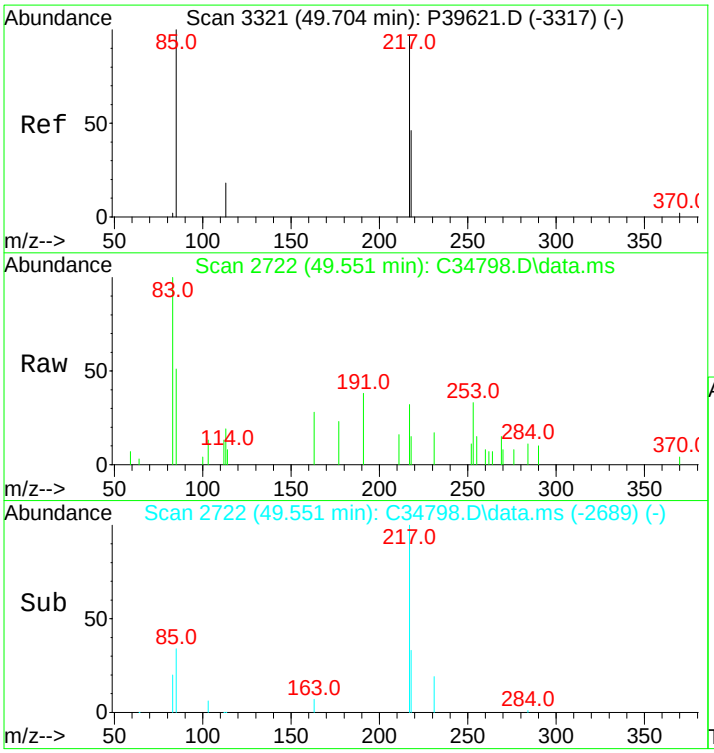




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 89.60 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

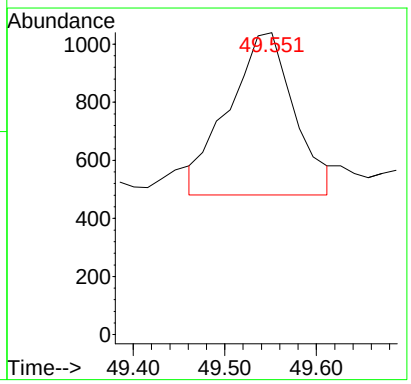
Tgt Ion:217 Resp: 928

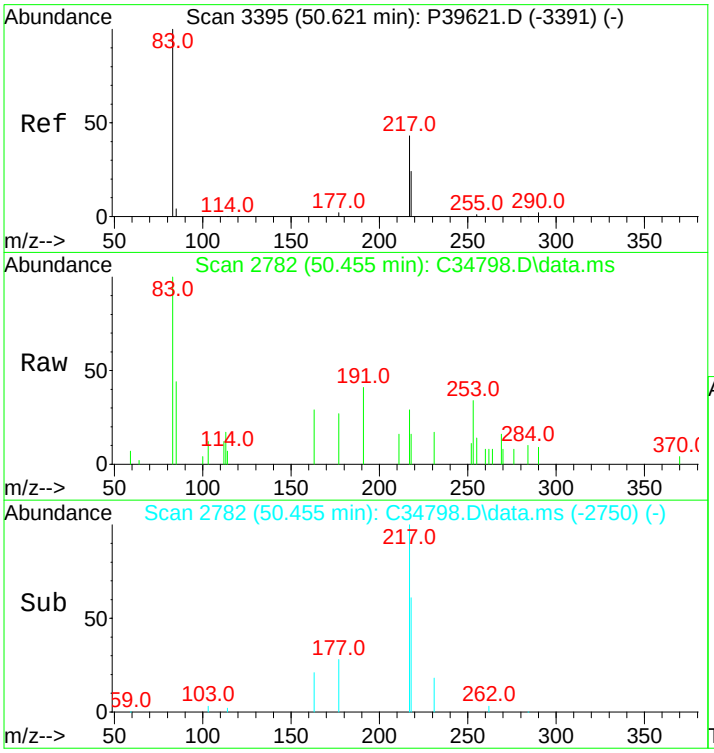




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 267.15 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

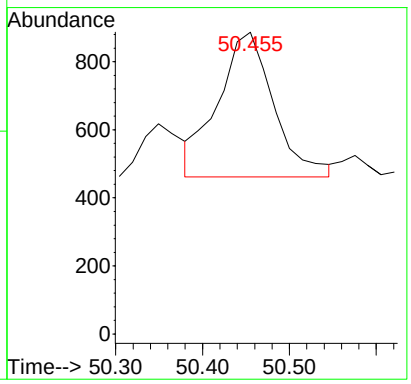
Tgt Ion:217 Resp: 2767

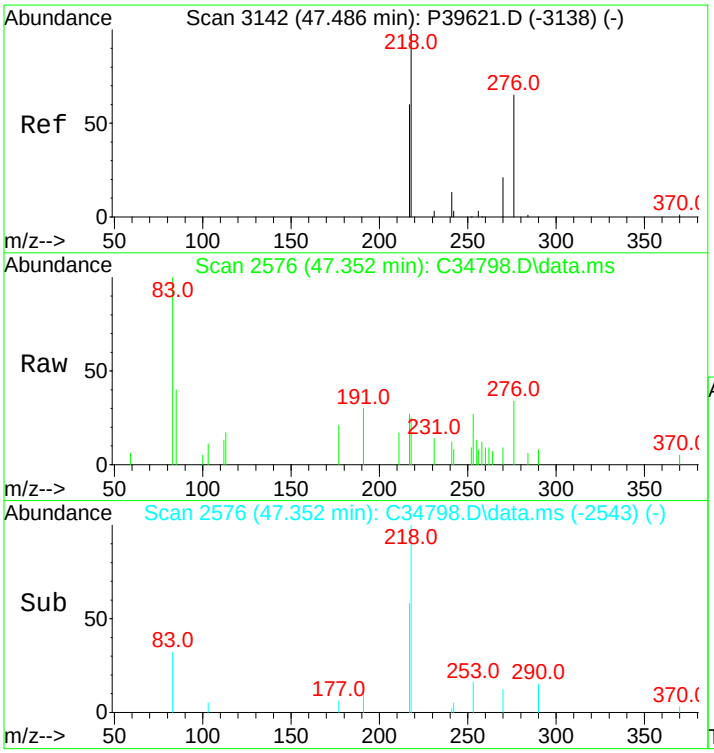




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 182.57 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

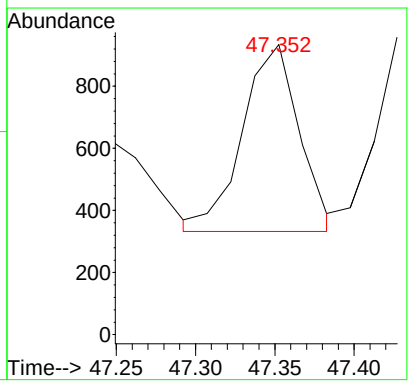
Tgt Ion:217 Resp: 1891

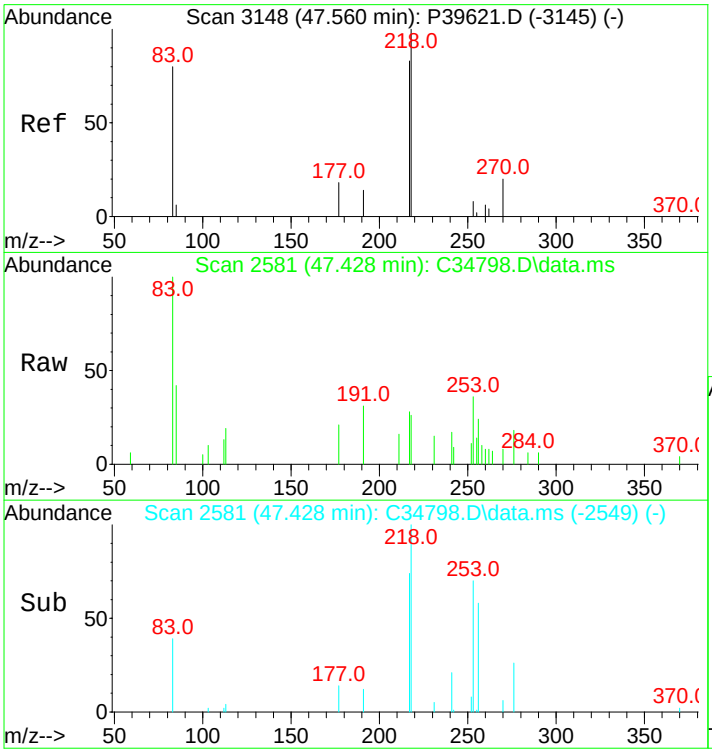




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 144.63 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

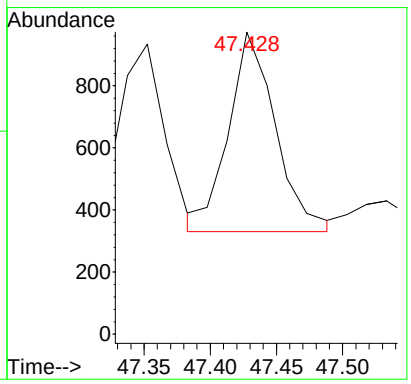
Tgt Ion:218 Resp: 1498

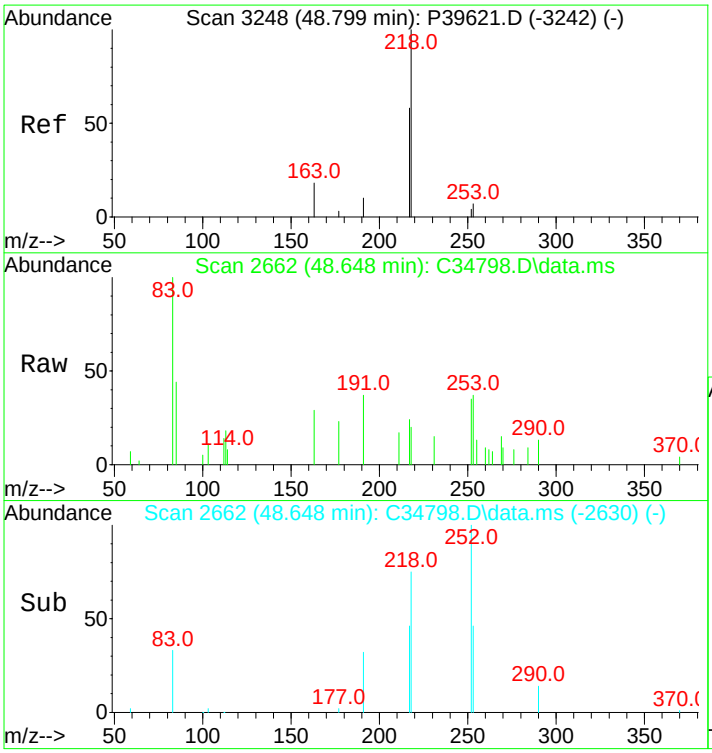




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 152.84 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

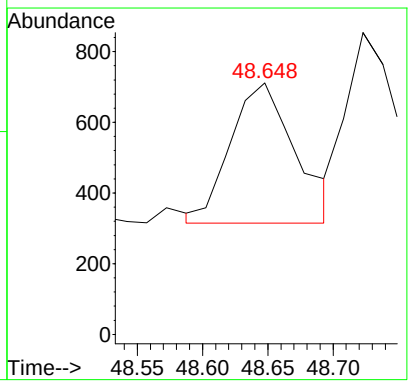
Tgt Ion:218 Resp: 1583

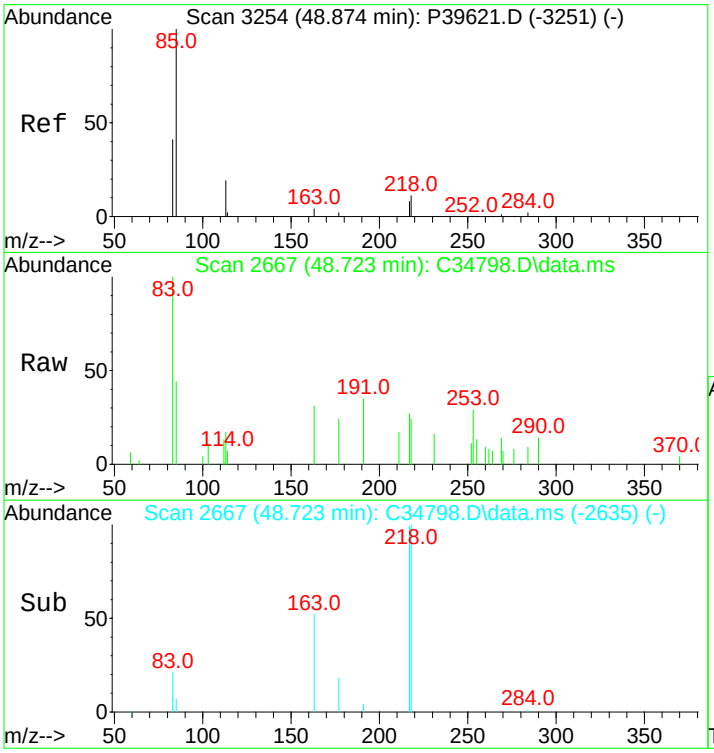




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 131.89 ng/ml m
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

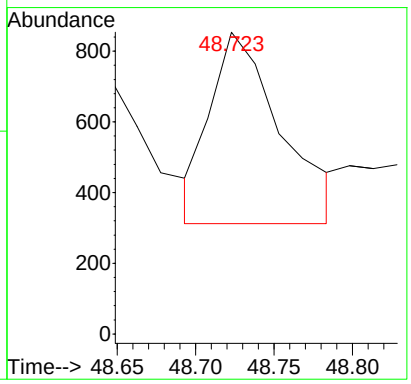
Tgt Ion:218 Resp: 1366

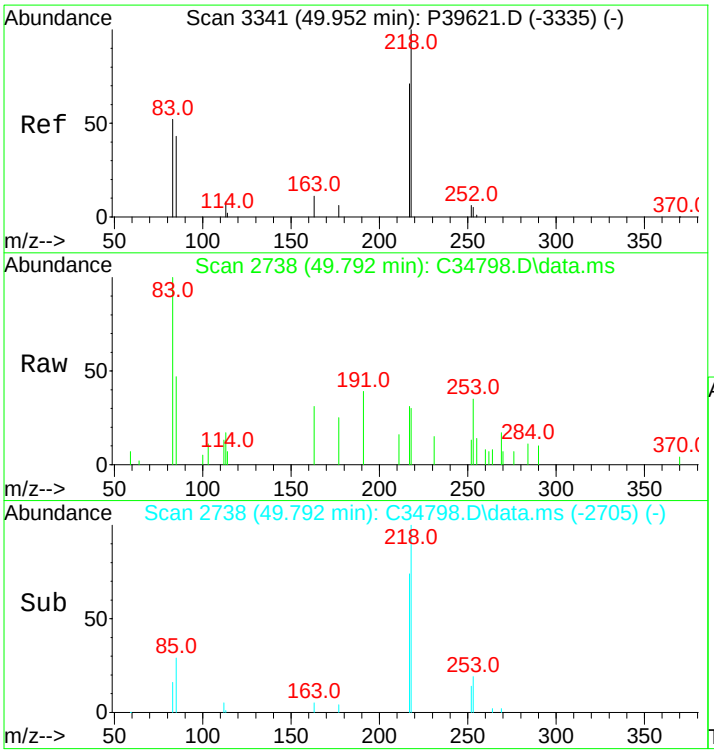




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 163.75 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

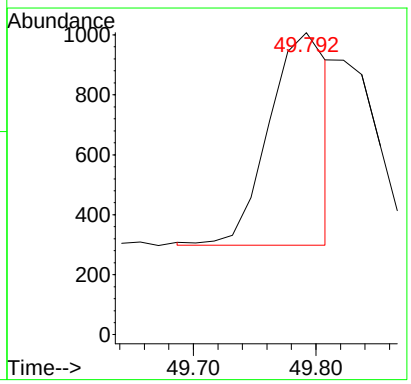
Tgt Ion:218 Resp: 1696

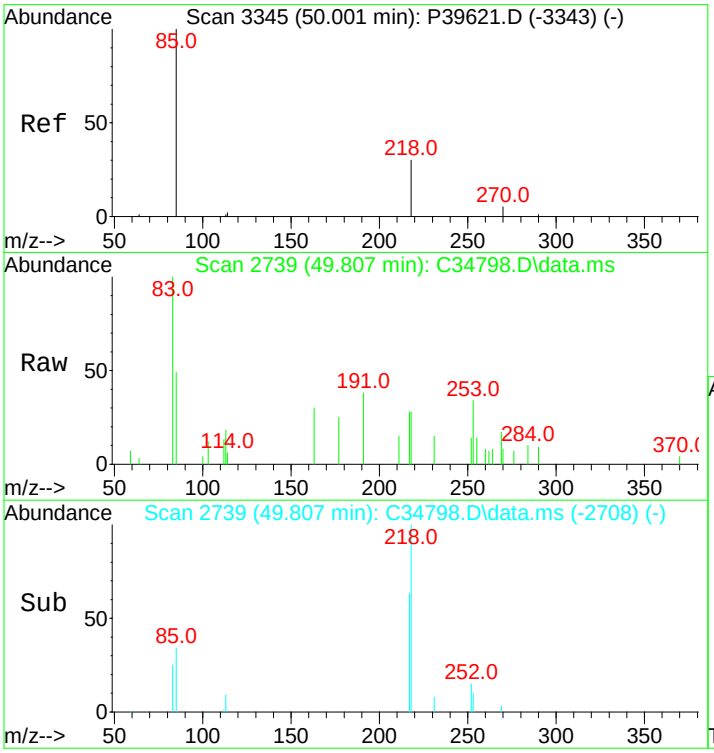




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 227.37 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. -0.000 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

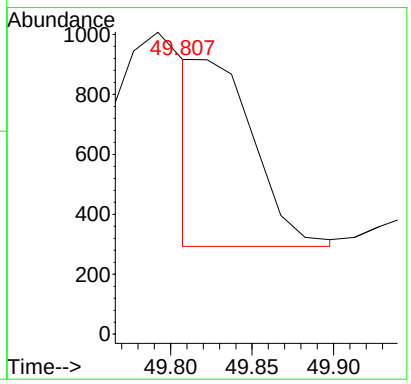
Tgt Ion:218 Resp: 2355

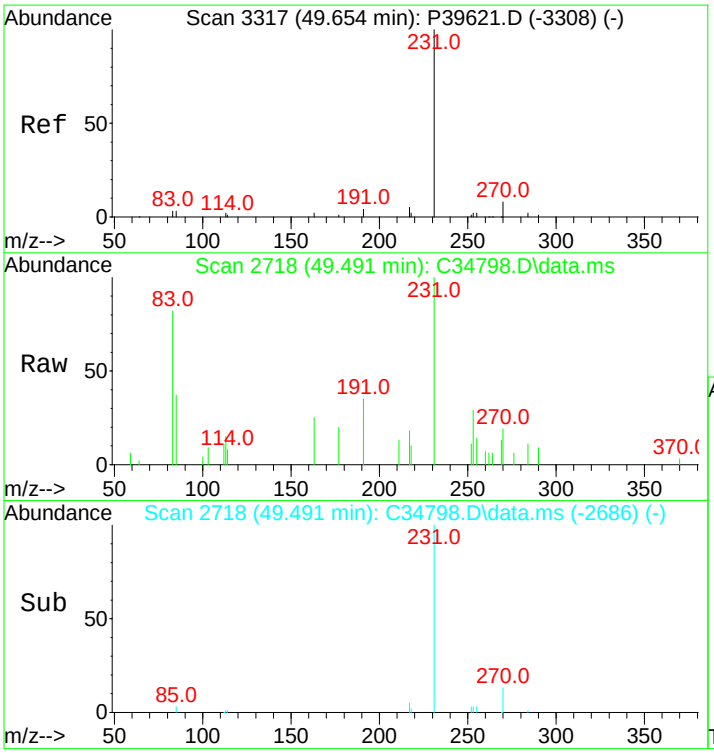




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 147.62 ng/ml m
RT: 49.807 min Scan# 2739
Delta R.T. -0.030 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

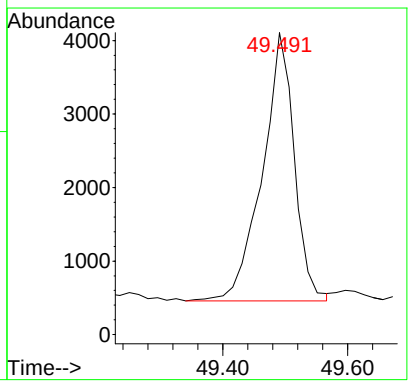
Tgt Ion:218 Resp: 1529

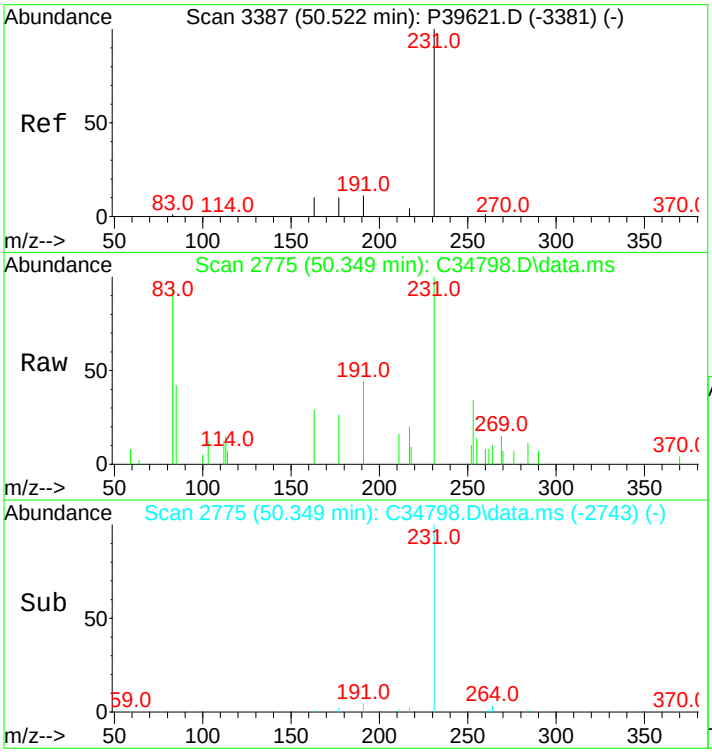




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1250.59 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

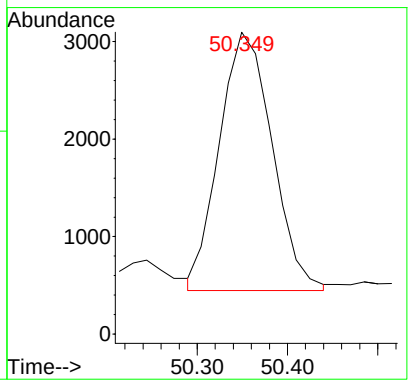
Tgt Ion:231 Resp: 12953

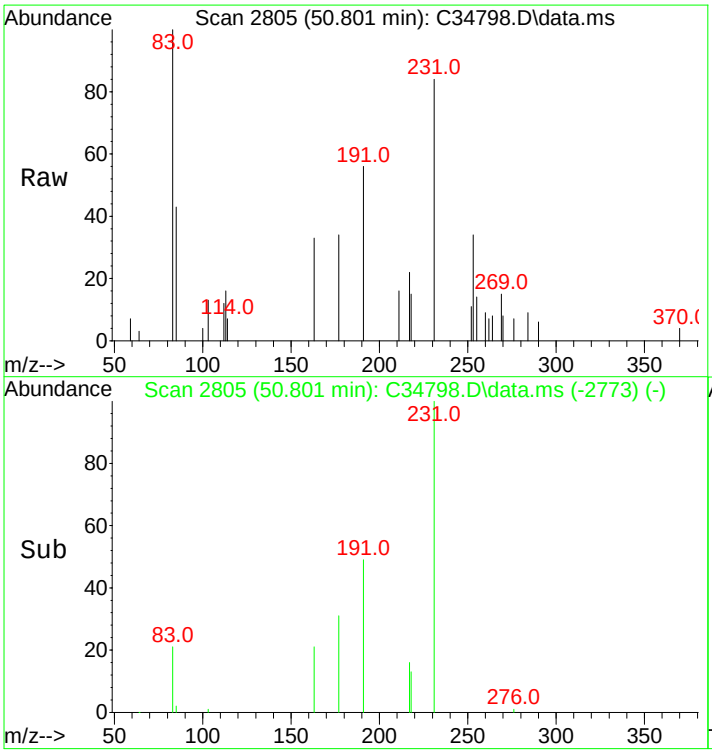




#146
C28,20S-triaromatic steroid
Concen: 1038.96 ng/mL m
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

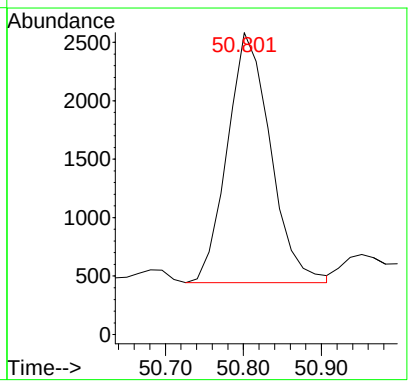
Tgt Ion:231 Resp: 10761

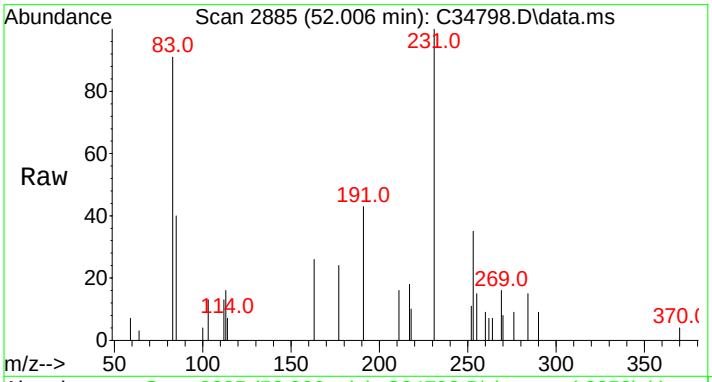




#147
C27,20R-triaromatic steroid
Concen: 794.01 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

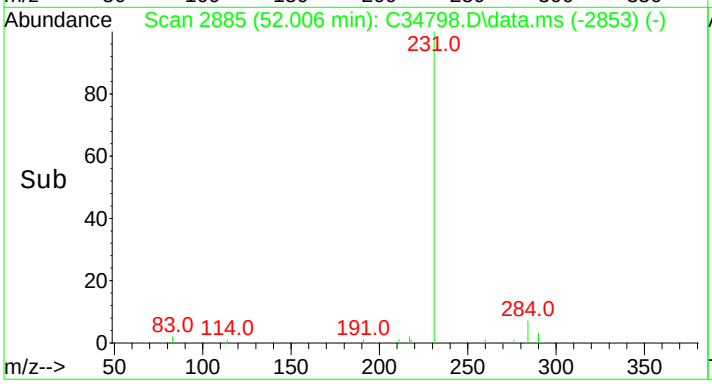
Tgt Ion:231 Resp: 8224

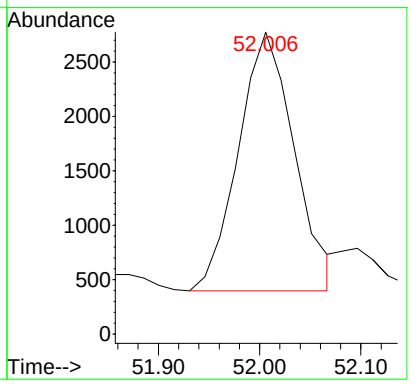




#148
C28,20R-triaromatic steroid
Concen: 880.71 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34798.D
Acq: 3 May 2012 4:27 am

Tgt Ion:231 Resp: 9122





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18393M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34739	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	16497	206.651	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 20.67%#			
42) Phenanthrene-d10	32.567	188	14917	236.406	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 23.64%#			
86) Benzo[a]pyrene-d12	48.241	264	15941	221.422	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 22.14%#			
127) 5B(H)Cholane - Surr	43.769	217	3094M3	284.868	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 28.49%#			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	87M3	5.992	ng/mL	
5) C1-Decalins	18.311	152	535M5	36.847	ng/mL	
6) C2-Decalins	19.635	166	1577M5	108.612	ng/mL	
7) C3-Decalins	22.119	180	2065M5	142.222	ng/mL	
8) C4-Decalins	25.492	194	4075M5	280.655	ng/mL	
10) Naphthalene	19.801	128	126	1.075	ng/mL#	100
11) C1-Naphthalenes	22.496	142	684M5	5.835	ng/mL	
12) C2-Naphthalenes	25.341	156	8411M5	71.750	ng/mL	
13) C3-Naphthalenes	28.021	170	33484M5	285.634	ng/mL	
14) C4-Naphthalenes	30.445	184	52749M5	449.973	ng/mL	
16) 2-Methylnaphthalene	22.496	142	280M3	4.040	ng/mL	
17) 1-Methylnaphthalene	22.917	142	294	4.327	ng/mL#	100
20) C2-Benzo(b)thiophenes	25.537	162	1331M5	12.617	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	8396M5	79.591	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	16890M5	160.110	ng/mL	
23) Biphenyl	24.378	154	111	1.266	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	1820	31.959	ng/mL#	100
25) Dibenzofuran	27.464	168	129M3	1.281	ng/mL	
26) Acenaphthylene	26.079	152	294M3	2.526	ng/mL	
27) Acenaphthene	26.831	153	211M3	3.079	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	1893M3	41.236	ng/mL	
29) Fluorene	28.834	166	574M3	7.596	ng/mL	
30) C1-Fluorenes	31.197	180	5767M5	76.317	ng/mL	
31) C2-Fluorenes	33.395	194	20384M5	269.748	ng/mL	
32) C3-Fluorenes	35.232	208	34713M5	459.368	ng/mL	
33) Dibenzothiophene	32.161	184	4624M3	38.173	ng/mL	
34) 4-Methyldibenzothiophe...	33.922	198	13213	109.079	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	10309M3	85.105	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	7399	61.082	ng/mL#	100
37) OTP	34.298	198	2605M3	21.505	ng/mL	
38) C1-Dibenzothiophenes	33.922	198	36331M5	299.927	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	97133M5	801.872	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	136289M5	1125.121	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	104255M5	860.667	ng/mL	
43) Phenanthrene	32.657	178	6207	58.323	ng/mL#	22
44) 3-Methylphenanthrene(3MP)	34.615	192	5801M3	54.508	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	6964	65.435	ng/mL	100
46) 2-Methylanthracene(2MA)	34.886	192	927M3	8.710	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	11390	107.023	ng/mL	93
48) 1-Methylphenanthrene(1MP)	35.157	192	6376M3	59.910	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	33220M5	312.143	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	73641M5	691.949	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	81044M5	761.510	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	45076M5	423.545	ng/mL	
56) Carbazole	33.485	167	1155M3	10.999	ng/mL	
57) 1-Methylphenanthrene	35.157	192	6511M3	96.540	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
58) Fluoranthene	37.430	202	2896M3	27.399	ng/mL	
60) Pyrene	38.303	202	6225M3	57.937	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	23113M5	215.115	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	35410M5	329.564	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	41048M5	382.037	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	42958M5	399.814	ng/mL	
66) Naphthobenzothiophene	42.158	234	9513	82.239	ng/ml	98
67) Naphthobenzothiophene-...	42.158	234	9513	82.239	ng/mL	98
68) Naphthobenzothiophene-...	42.504	234	2287M3	19.771	ng/mL	
69) Naphthobenzothiophene-...	42.790	234	2345M3	20.272	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	50854M5	439.630	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	83662M5	723.253	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	74291M5	642.241	ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	54615M5	472.143	ng/mL	
75) Benz[a]anthracene	43.091	228	1585M3	14.375	ng/mL	
77) Chrysene/Triphenylene	43.227	228	7490M3	67.285	ng/mL	
78) C1-Chrysenes	44.717	242	19063M5	171.249	ng/mL	
79) C2-Chrysenes	46.795	256	31582M5	283.711	ng/mL	
80) C3-Chrysenes	49.491	270	40900M5	367.417	ng/mL	
81) C4-Chrysenes	49.597	284	25934M5	232.973	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3171M3	26.173	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1509M3	11.440	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	292M2	2.214	ng/mL	
85) Benzo[e]pyrene	48.136	252	4778M3	39.871	ng/mL	
87) Benzo[a]pyrene	48.331	252	2450M3	21.234	ng/mL	
88) Perylene	48.633	252	4127M3	33.469	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	2310M3	17.204	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1075M3	8.416	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	4677	32.970	ng/mL#	83
92) Hopane (T19)	52.217	191	23182M3	1012.515	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	9935M3	433.929	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	5660	247.211	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	5453M3	238.169	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1829	79.885	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	2106M3	91.983	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1968M3	85.956	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1917M3	83.728	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	2306M3	100.719	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	2774M3	121.159	ng/ml	
103) C29 Tricyclic Terpane-...	47.307	191	2641M3	115.350	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2836M3	123.867	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	2125M3	92.813	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1854M3	80.977	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	6619	289.097	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	4208M3	183.792	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.973	191	1095M3	47.826	ng/ml	
110) 30-Norhopane (T15)	50.847	191	17163M3	749.624	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2431M3	106.178	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	863M3	37.693	ng/ml	
113) 30-Normoretane (T17)	51.615	191	1759M3	76.827	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.006	191	302M3	13.190	ng/ml	
115) Moretane (T20)	52.895	191	1737M3	75.867	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	10508	458.956	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	8300	362.517	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	3632	158.634	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	6874	300.234	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	4827	210.828	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	5231	228.473	ng/ml	100
122) 30,31-Trishomohopane-2...	58.301	191	3345M3	146.099	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	3336M3	145.706	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2411	105.305	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S...	63.451	191	4239	185.146	ng/ml	100
126) Pentakishomohopane-22R...	64.746	191	2966M3	129.545	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1669M3	153.667	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	722M3	66.475	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	749M3	68.961	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	2442	224.838	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	3128M3	287.998	ng/ml	
133) Unknown Sterane (S18)	48.060	217	613	56.440	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	232	21.360	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217	1580M3	145.472	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	1089M3	100.265	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	3148M3	289.840	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2147M3	197.677	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1737M3	159.927	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1901M3	175.027	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1475	135.805	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2264M3	208.449	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	3070M3	282.658	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1840M3	169.411	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	16019	1474.886	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	13843	1274.540	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	10235	942.347	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	11300M3	1040.403	ng/mL	

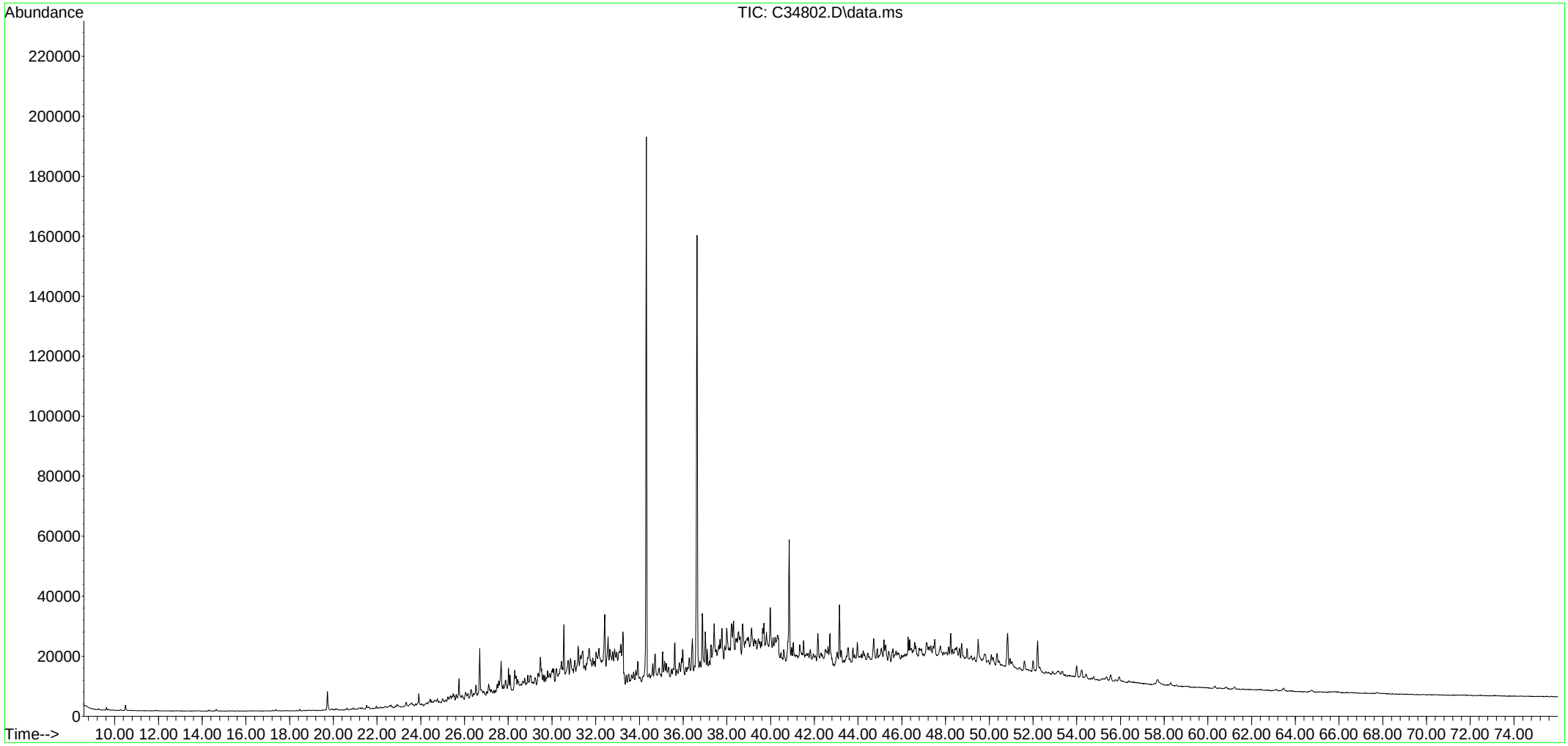
(#) = qualifier out of range (m) = manual integration (+) = signals summed

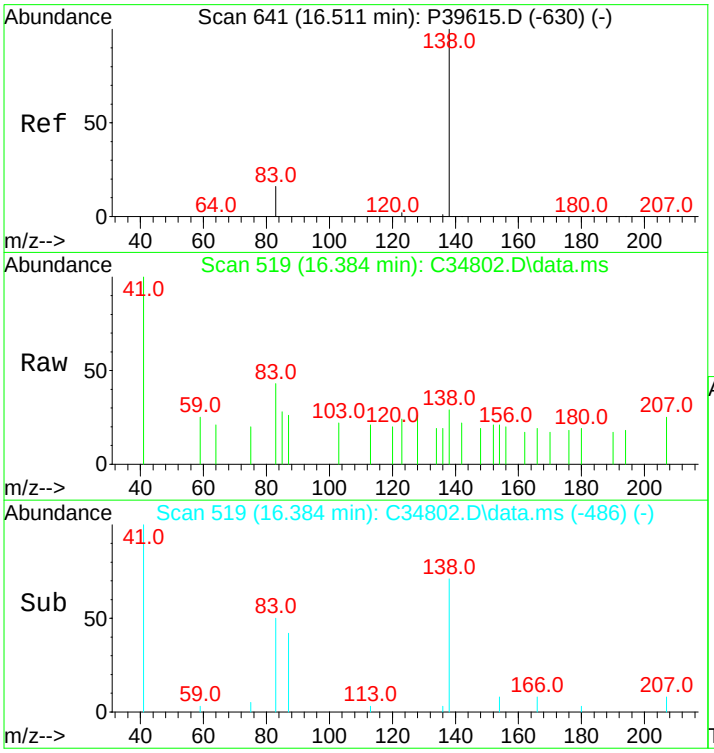
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34802.D
Acq On : 3 May 2012 7:27 am
Operator : AC
Sample : 1204031-06
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 05 12:45:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

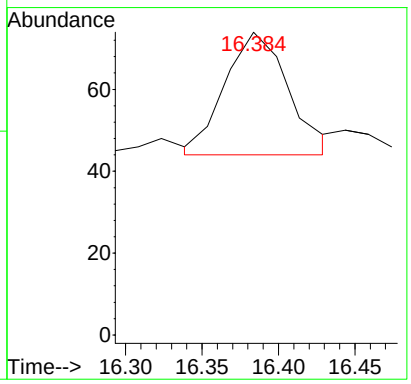
Sub List : Gulf_NEW_POIB_Default - All compounds listed

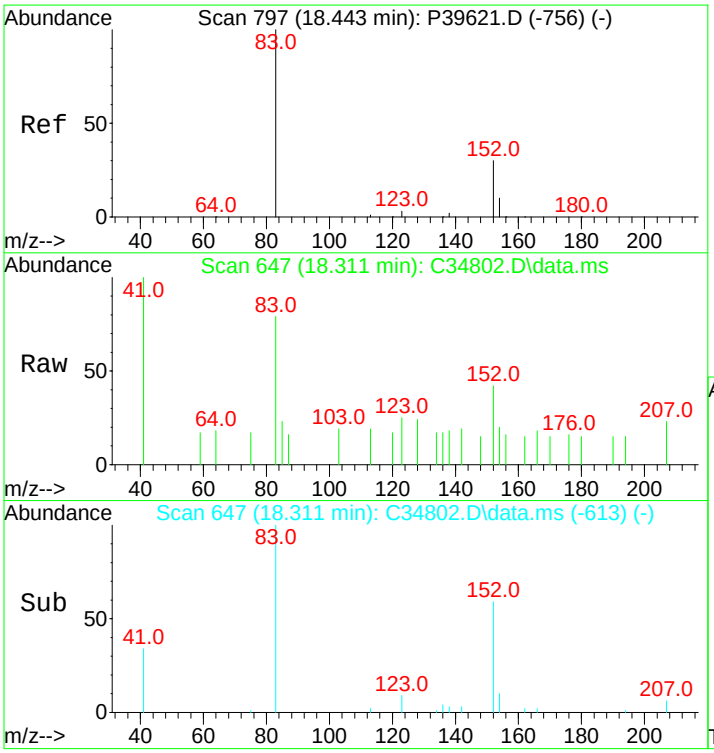




#3
trans-Decalin
Concen: 5.99 ng/mL m
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

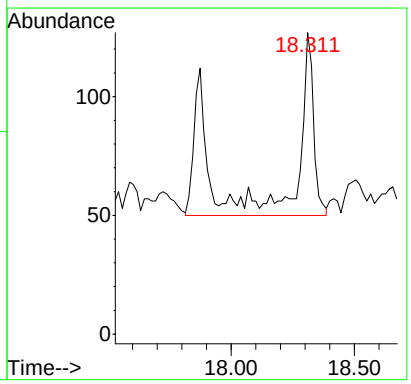
Tgt Ion:138 Resp: 87

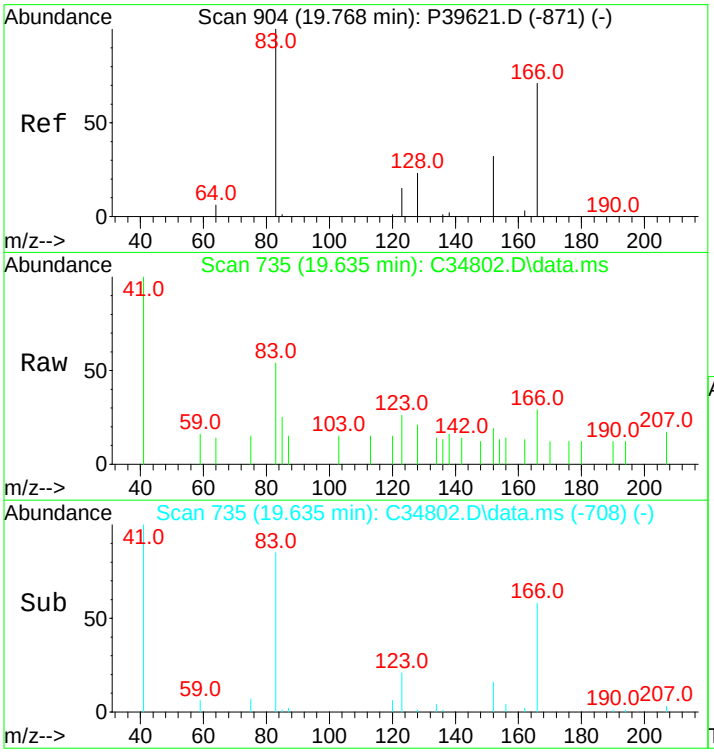




#5
C1-Decalins
Concen: 36.85 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.037 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

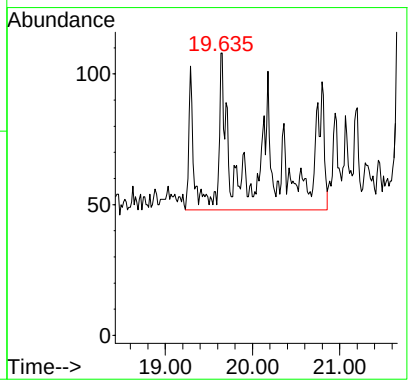
Tgt Ion:152 Resp: 535

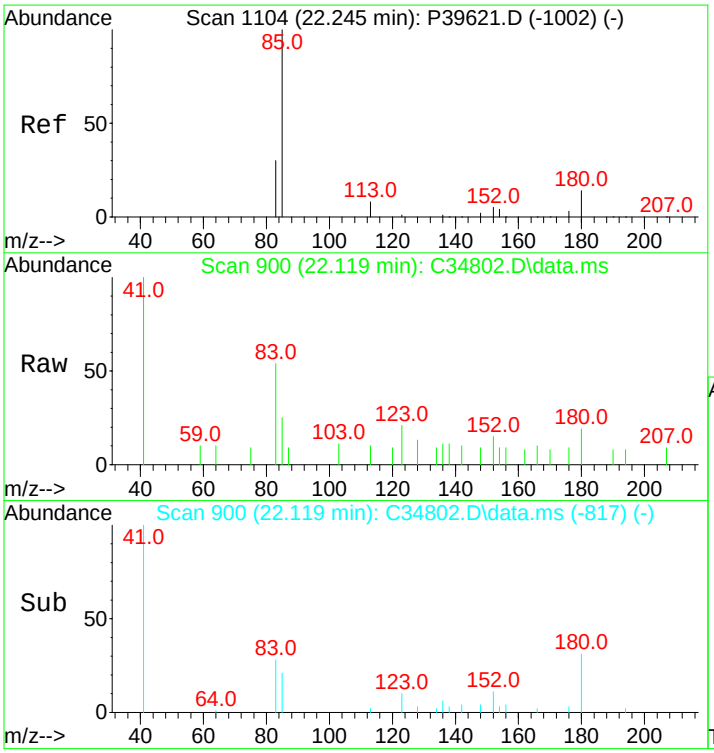




#6
C2-Decalins
Concen: 108.61 ng/mL m
RT: 19.635 min Scan# 735
Delta R.T. -0.047 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

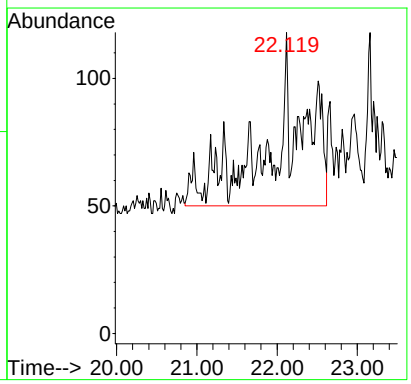
Tgt Ion:166 Resp: 1577

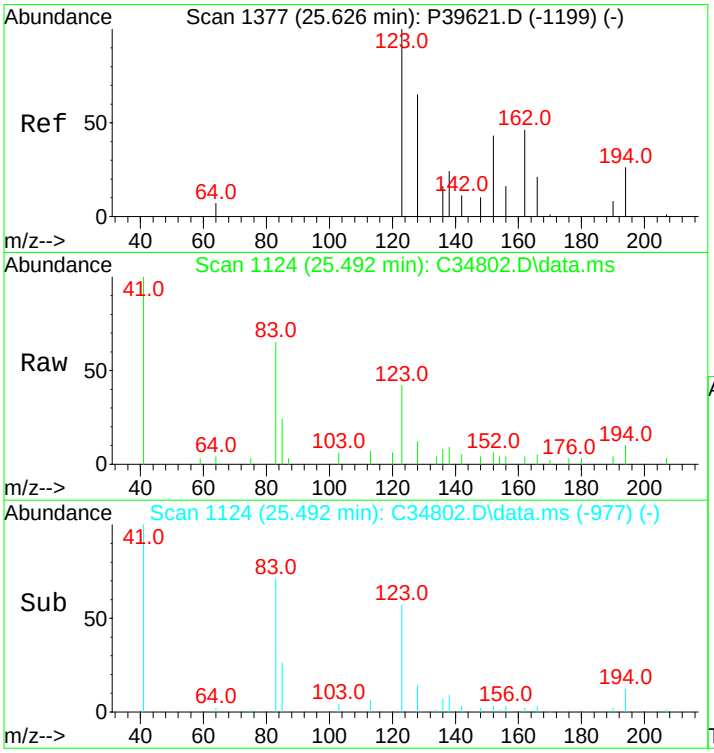




#7
C3-Decalins
Concen: 142.22 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

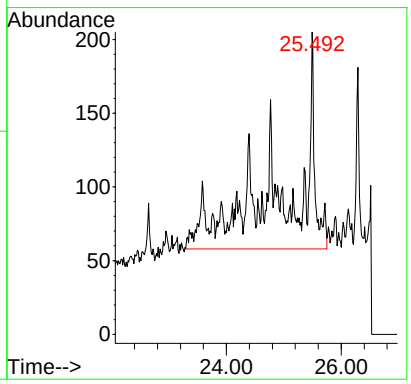
Tgt Ion:180 Resp: 2065

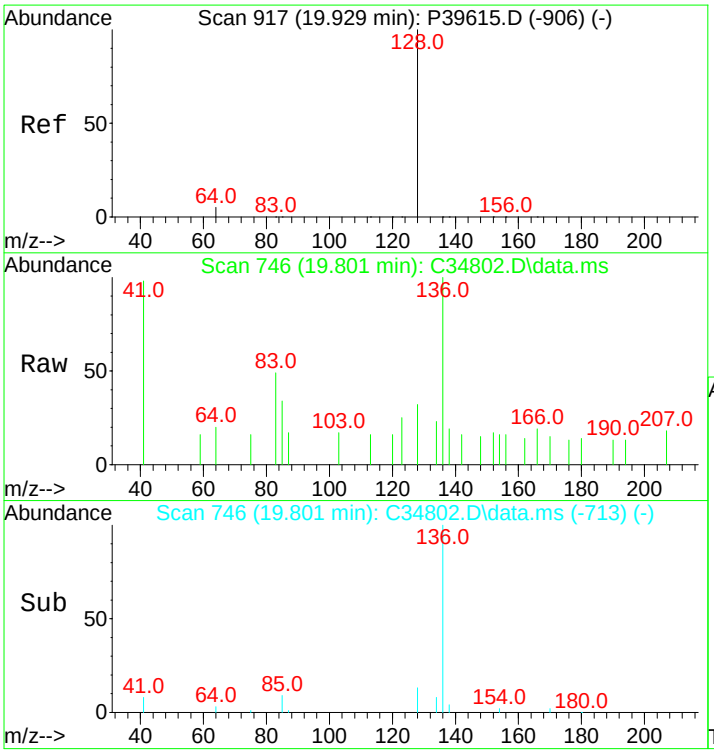




#8
C4-Decalins
Concen: 280.66 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:194 Resp: 4075

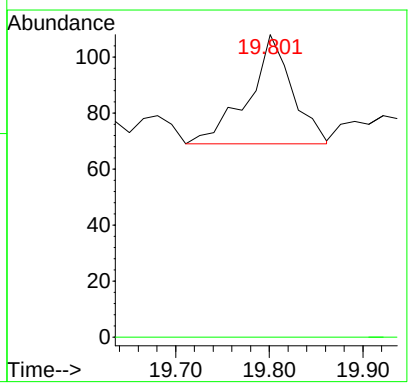


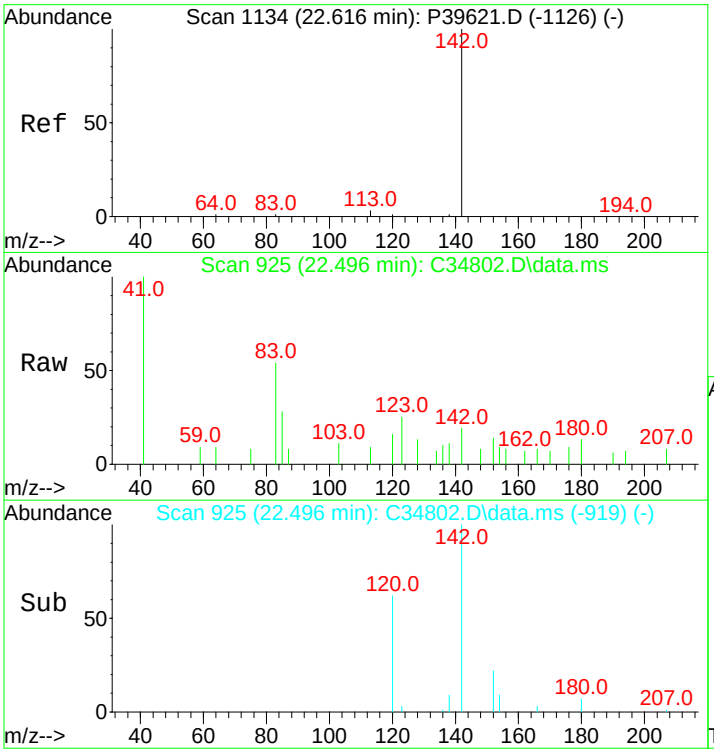


#10
Naphthalene
Concen: 1.07 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:128 Resp: 126

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

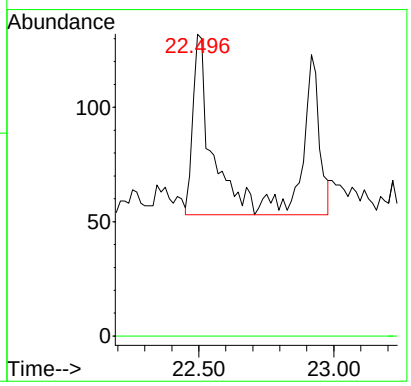


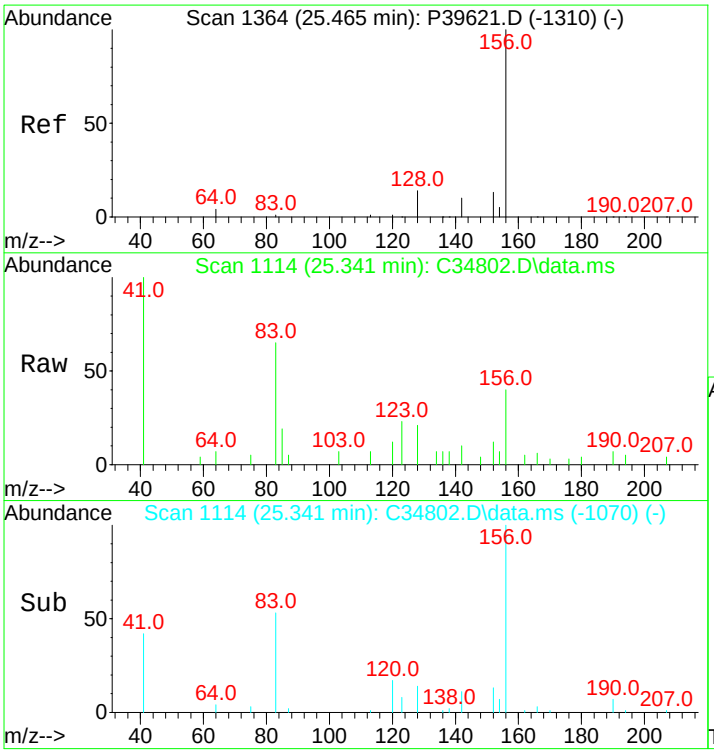


#11
C1-Naphthalenes
Concen: 5.83 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:142 Resp: 684

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

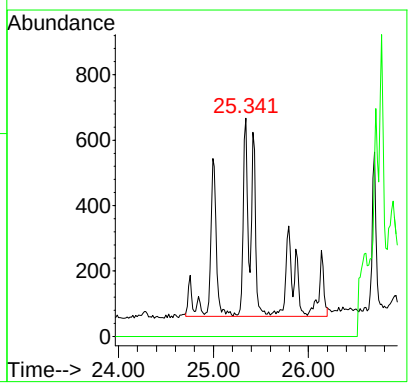


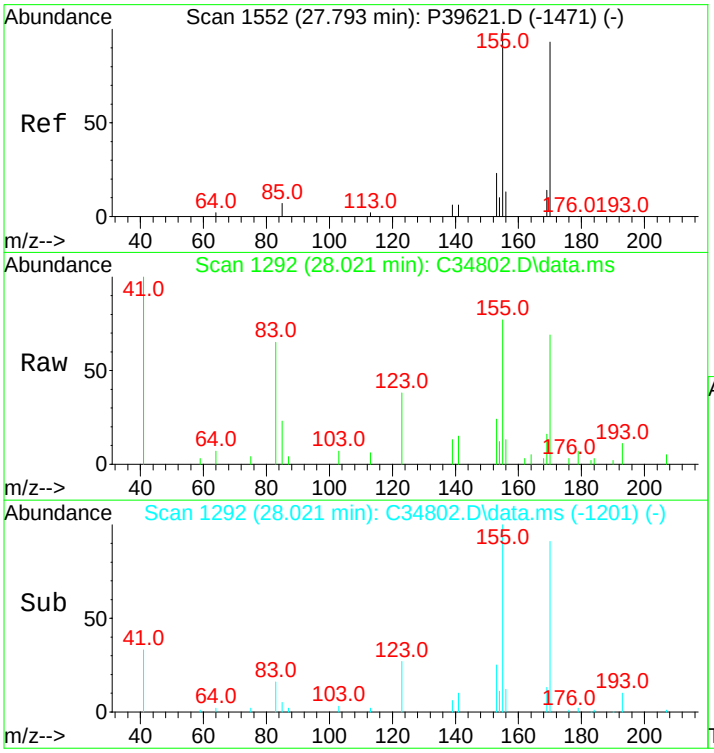


#12
C2-Naphthalenes
Concen: 71.75 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:156 Resp: 8411

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

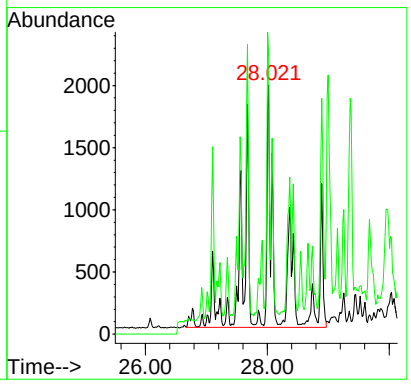


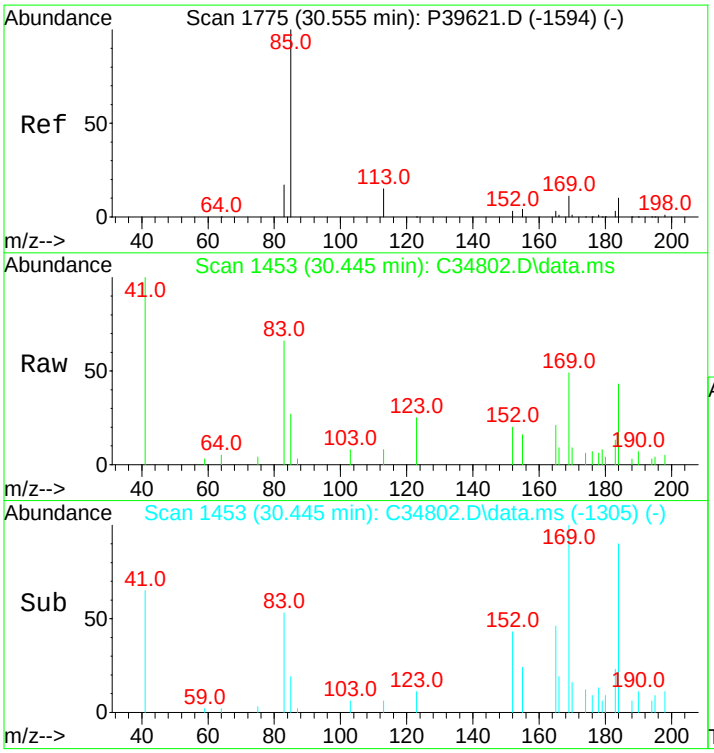


#13
C3-Naphthalenes
Concen: 285.63 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:170 Resp: 33484

Ion	Ratio	Lower	Upper
170	100		
155	17.6	81.8	122.6#

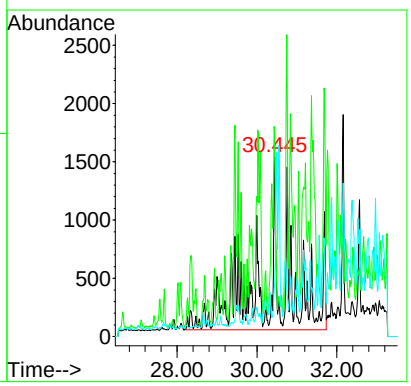


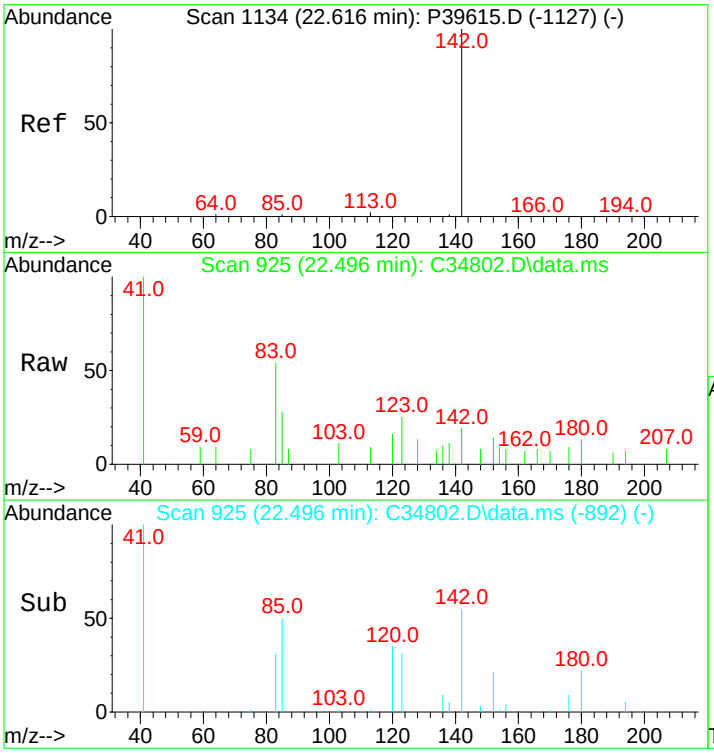


#14
C4-Naphthalenes
Concen: 449.97 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:184 Resp: 52749

Ion	Ratio	Lower	Upper
184	100		
169	10.0	77.4	116.0#
183	0.0	14.8	22.2#

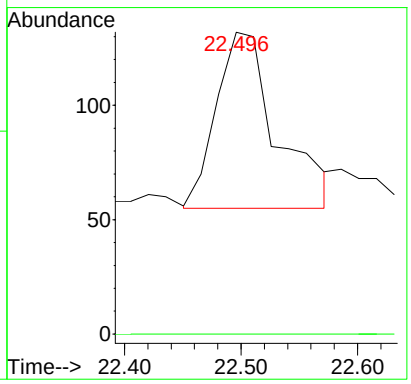


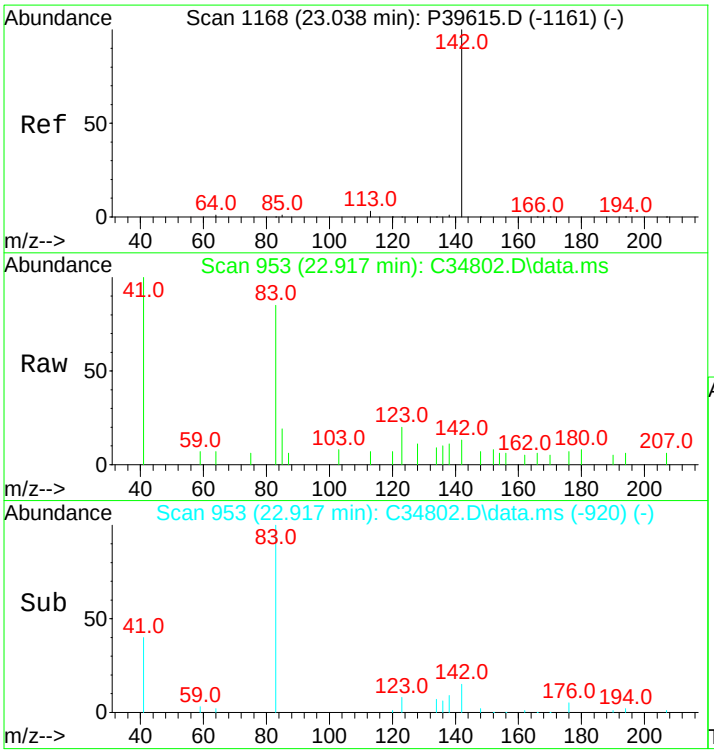


#16
2-Methylnaphthalene
Concen: 4.04 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:142 Resp: 280

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

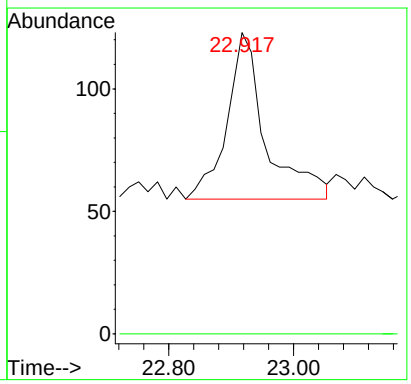


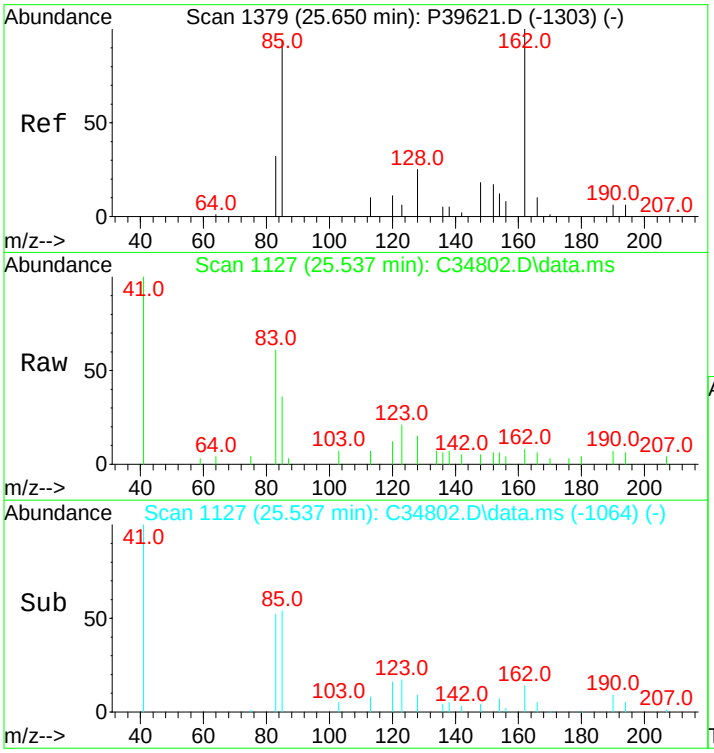


#17
1-Methylnaphthalene
Concen: 4.33 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:142 Resp: 294

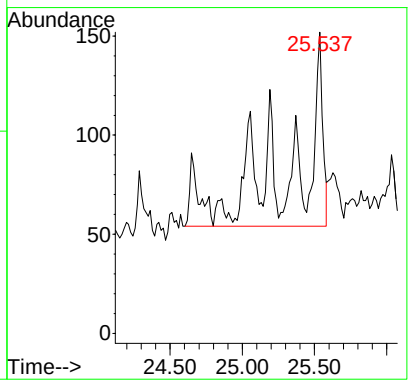
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

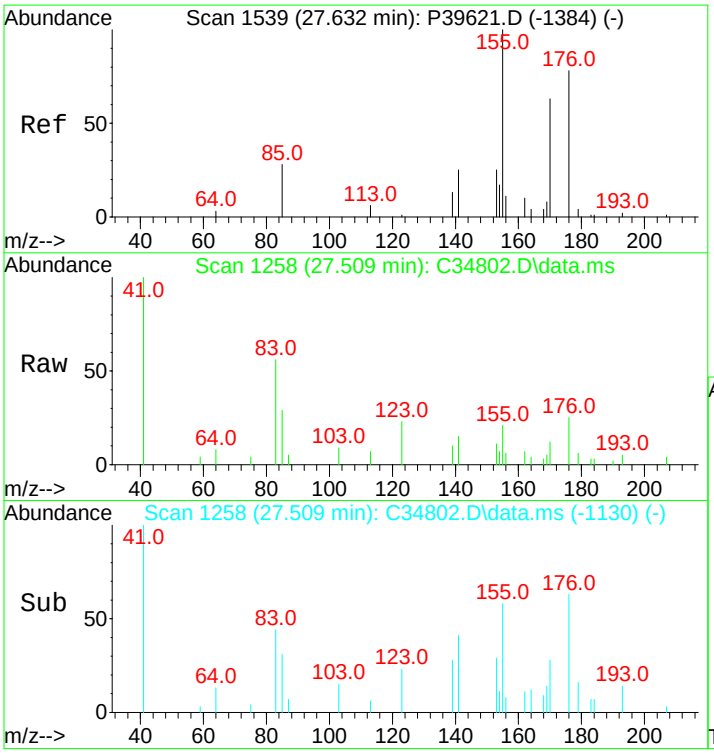




#20
C2-Benzo(b)thiophenes
Concen: 12.62 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

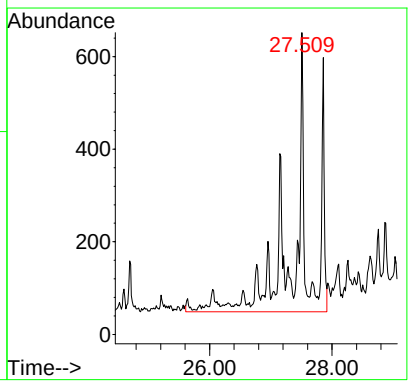
Tgt Ion:162 Resp: 1331

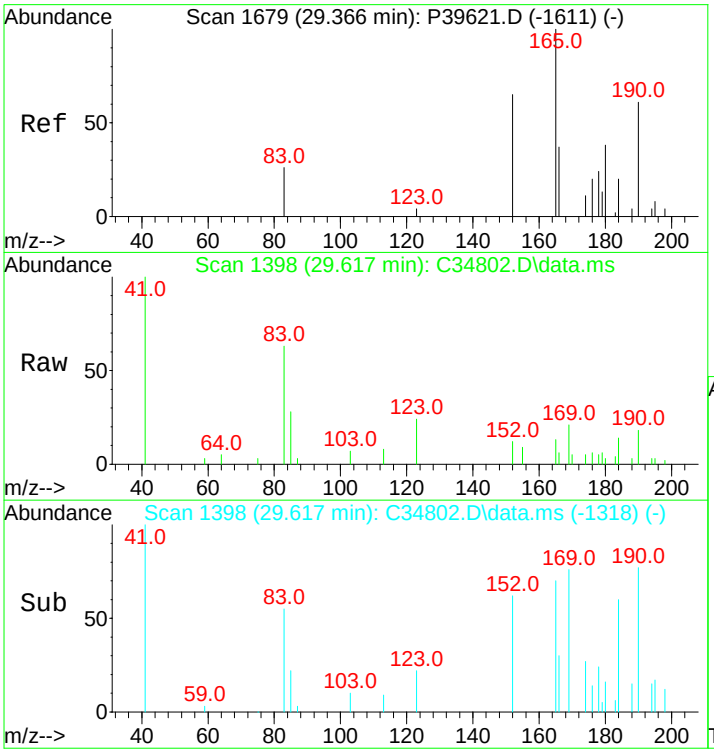




#21
C3-Benzo(b)thiophenes
Concen: 79.59 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

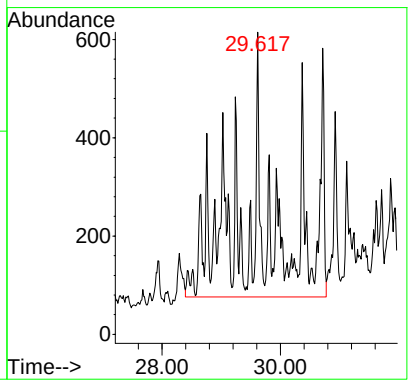
Tgt Ion:176 Resp: 8396

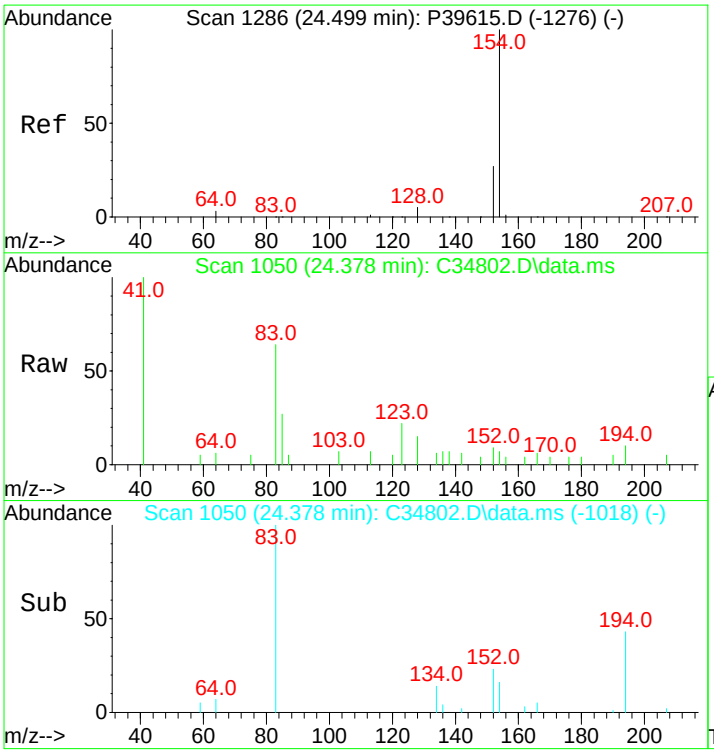




#22
C4-Benzo(b)thiophenes
Concen: 160.11 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:190 Resp: 16890

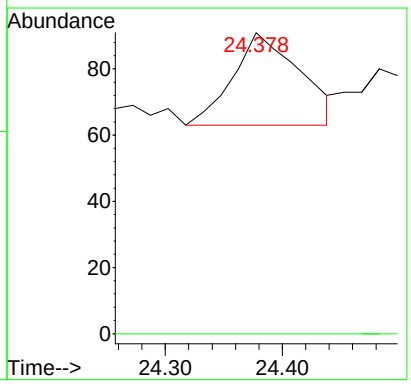


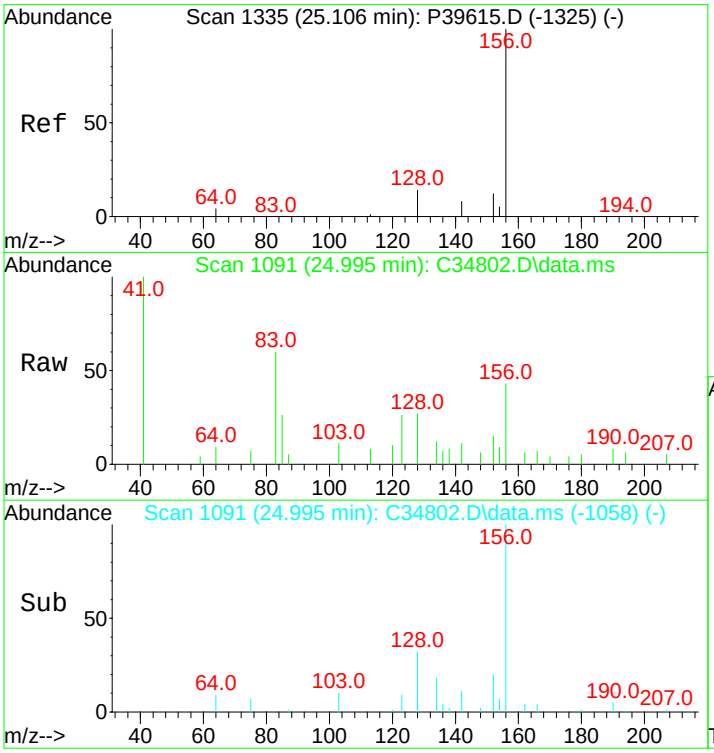


#23
Biphenyl
Concen: 1.27 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:154 Resp: 111

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

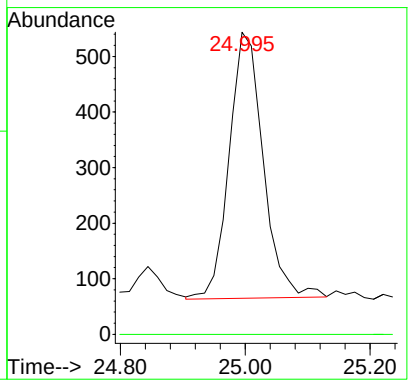


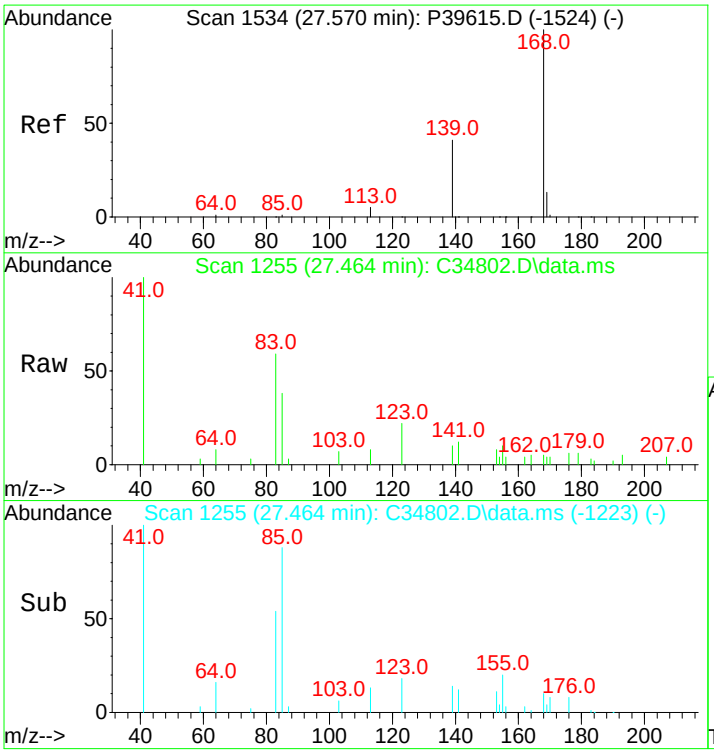


#24
2,6-Dimethylnaphthalene
Concen: 31.96 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:156 Resp: 1820

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

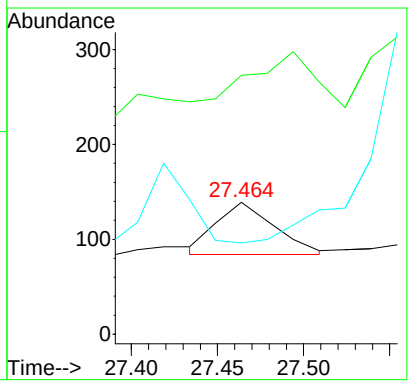


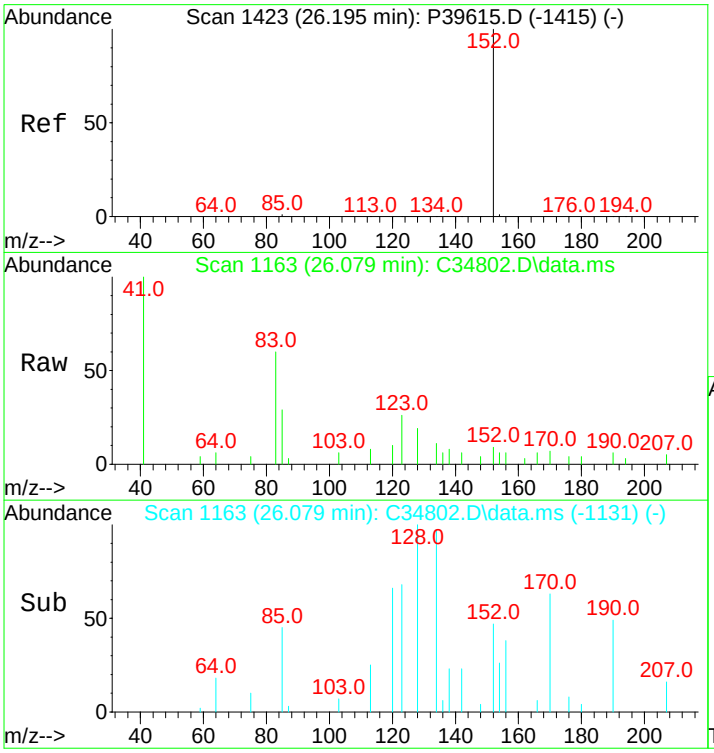


#25
Dibenzofuran
Concen: 1.28 ng/mL m
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:168 Resp: 129

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

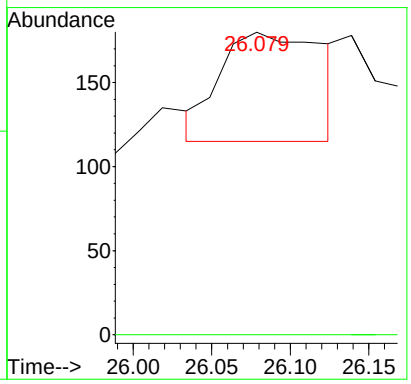


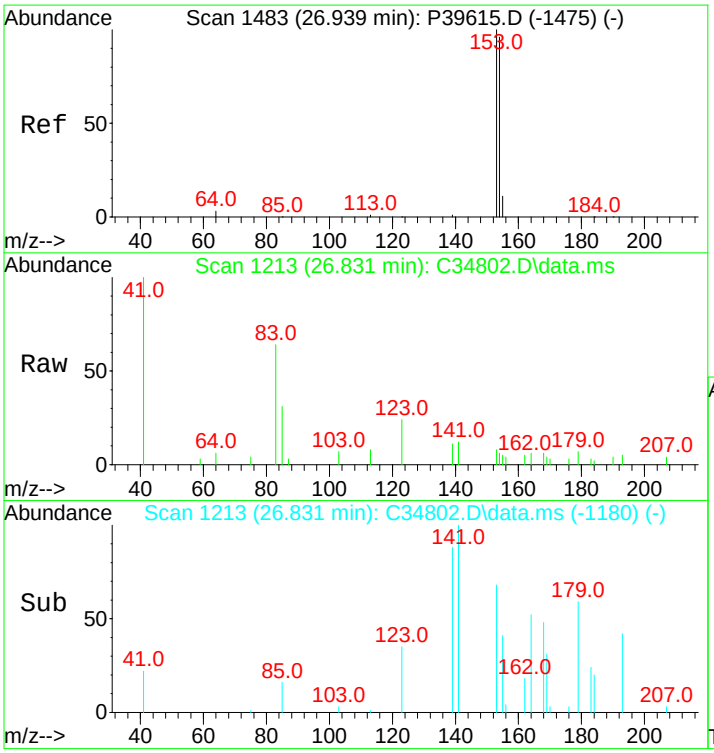


#26
Acenaphthylene
Concen: 2.53 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:152 Resp: 294

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

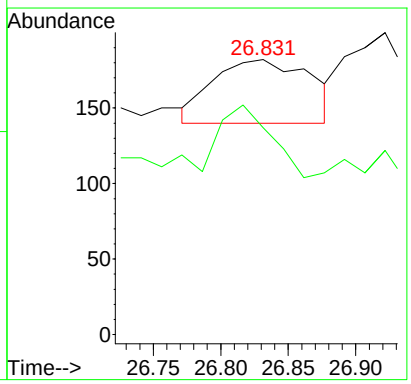


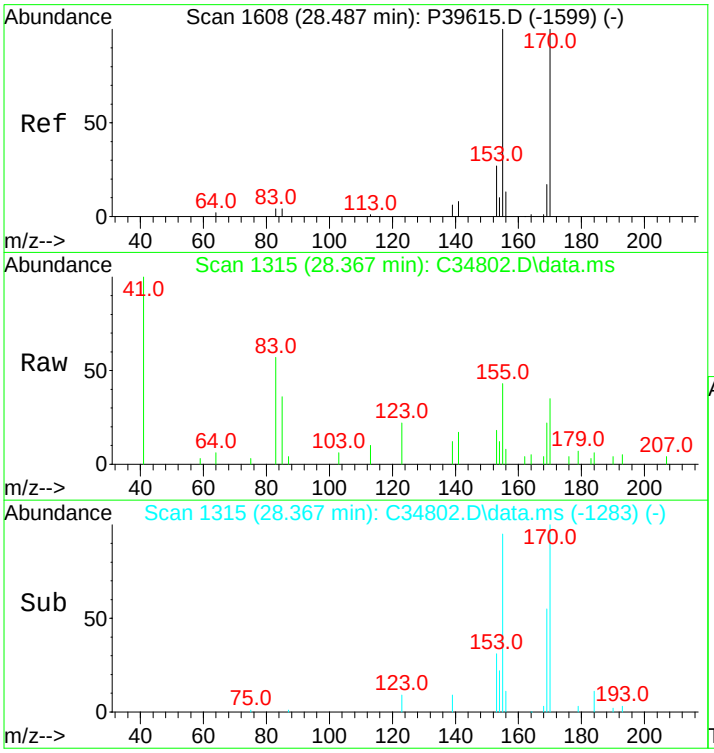


#27
Acenaphthene
Concen: 3.08 ng/mL m
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:153 Resp: 211

Ion	Ratio	Lower	Upper
153	100		
154	0.0	73.6	110.4#

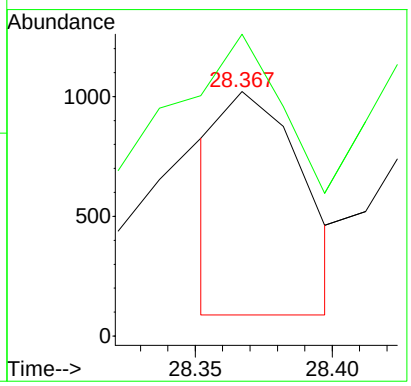


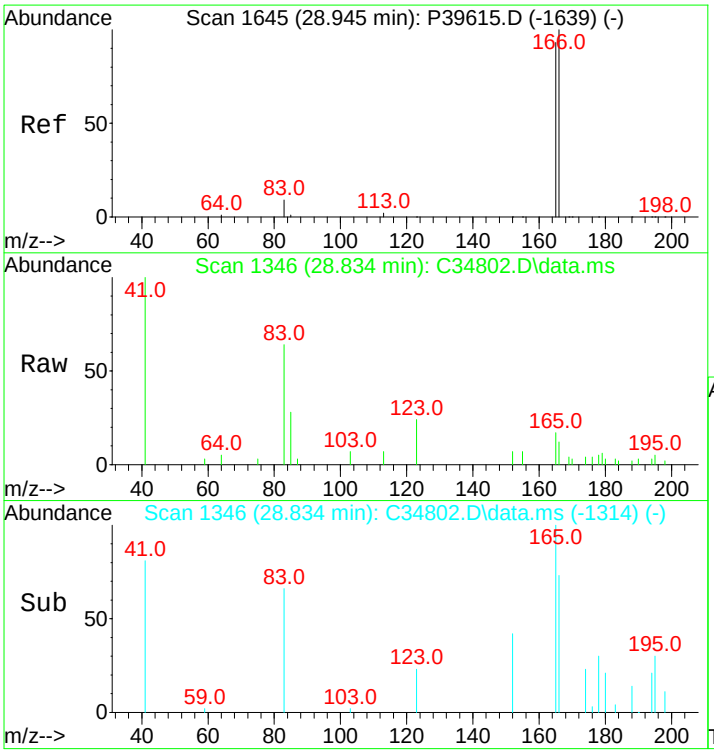


#28
2,3,5-Trimethylnaphthalene
Concen: 41.24 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:170 Resp: 1893

Ion	Ratio	Lower	Upper
170	100		
155	231.4	87.3	130.9#

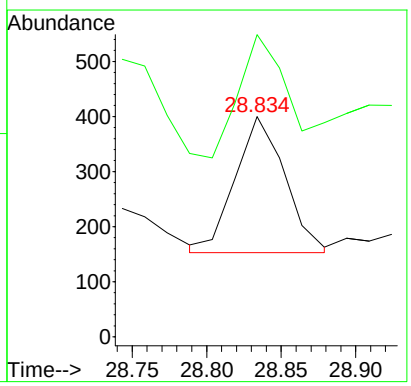


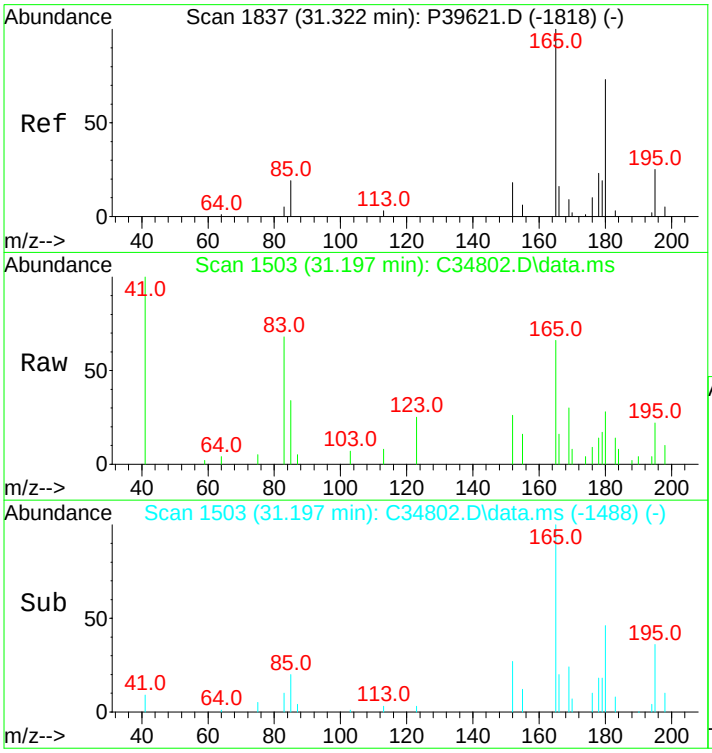


#29
Fluorene
Concen: 7.60 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:166 Resp: 574

Ion	Ratio	Lower	Upper
166	100		
165	116.9	77.3	115.9#

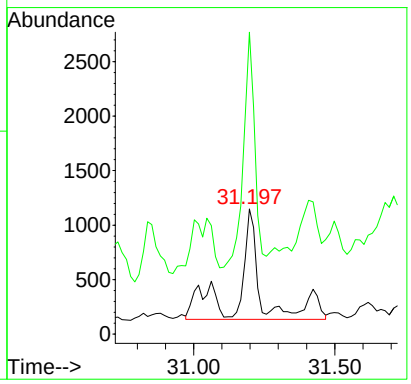


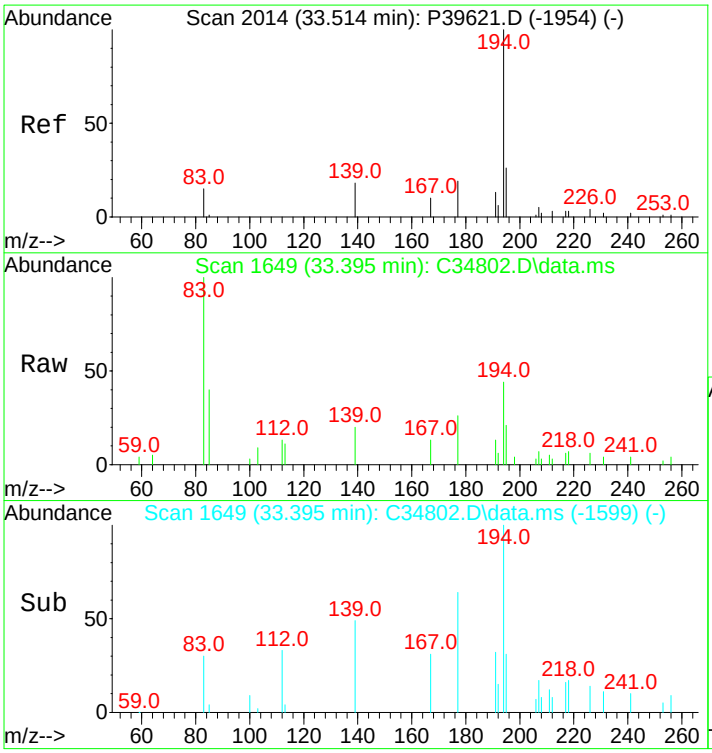


#30
C1-Fluorenes
Concen: 76.32 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:180 Resp: 5767

Ion	Ratio	Lower	Upper
180	100		
165	105.9	111.4	167.2#

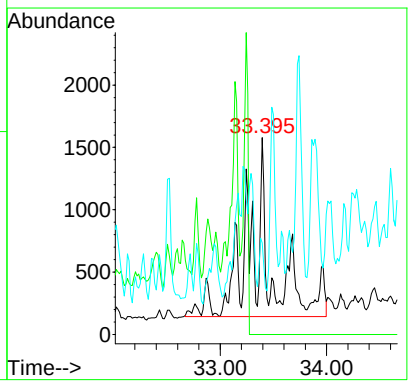


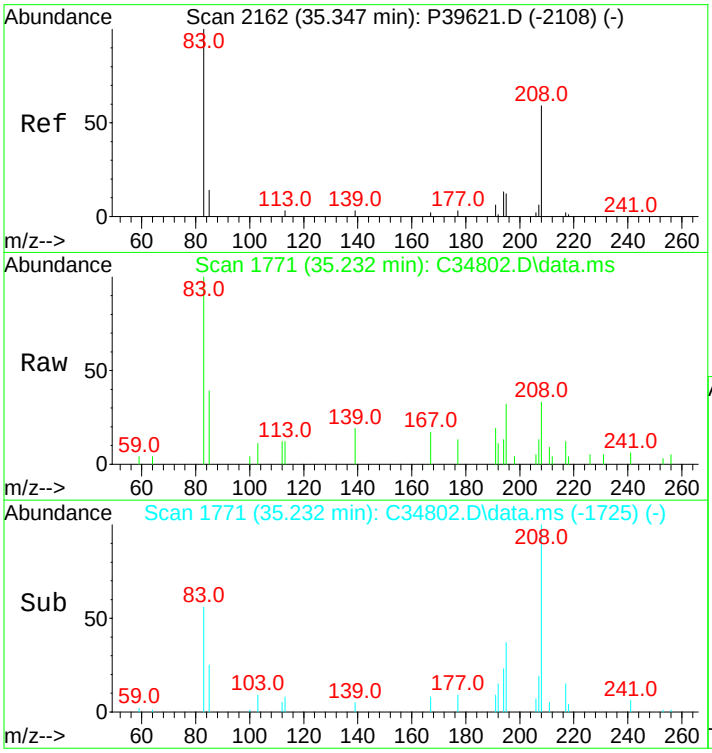


#31
C2-Fluorenes
Concen: 269.75 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:194 Resp: 20384

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.4	27.3	40.9#

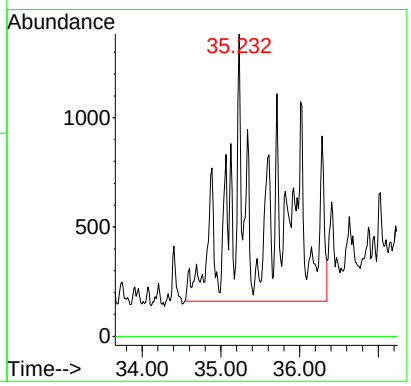


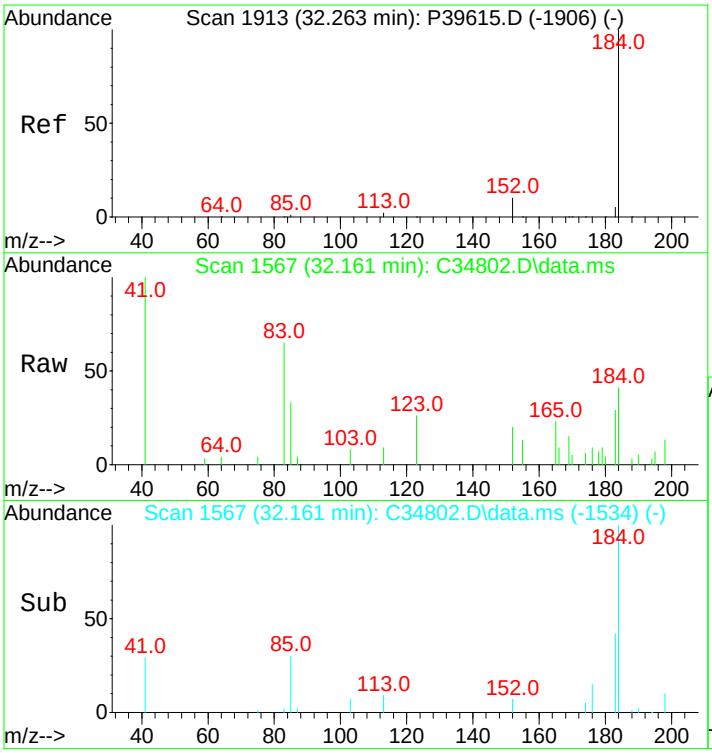


#32
C3-Fluorenes
Concen: 459.37 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:208 Resp: 34713

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

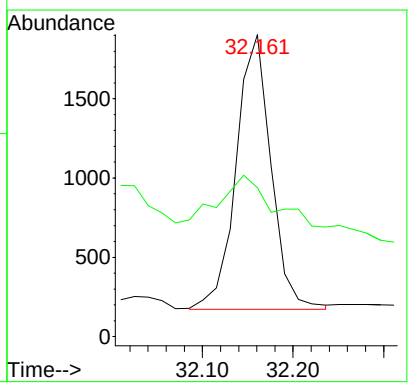


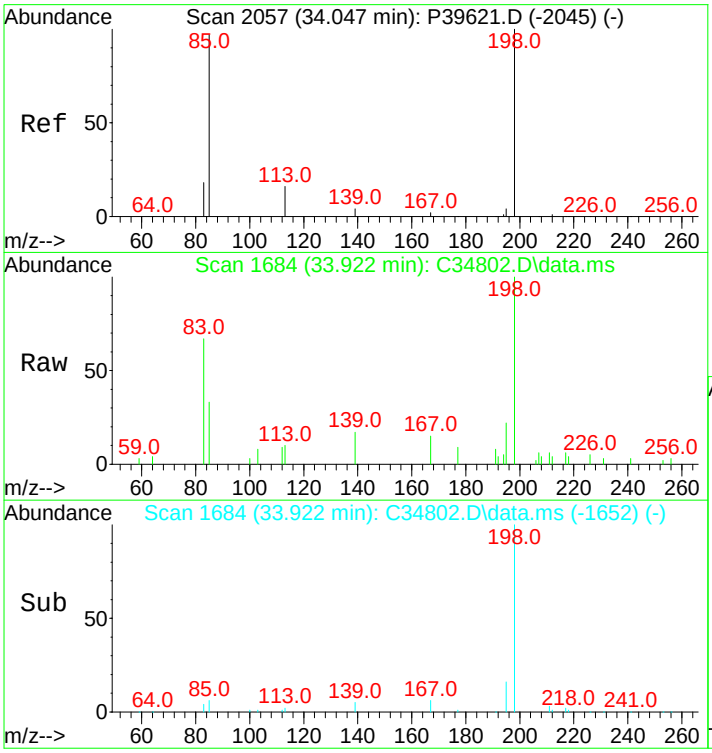


#33
Dibenzothiophene
Concen: 38.17 ng/mL m
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:184 Resp: 4624

Ion	Ratio	Lower	Upper
184	100		
152	4.9	7.5	11.3#

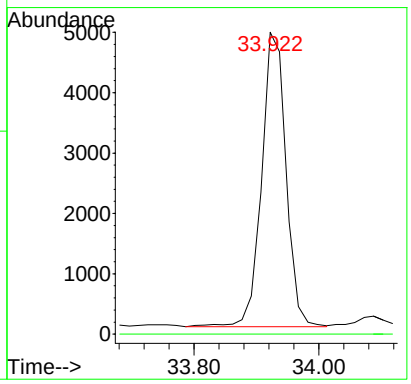


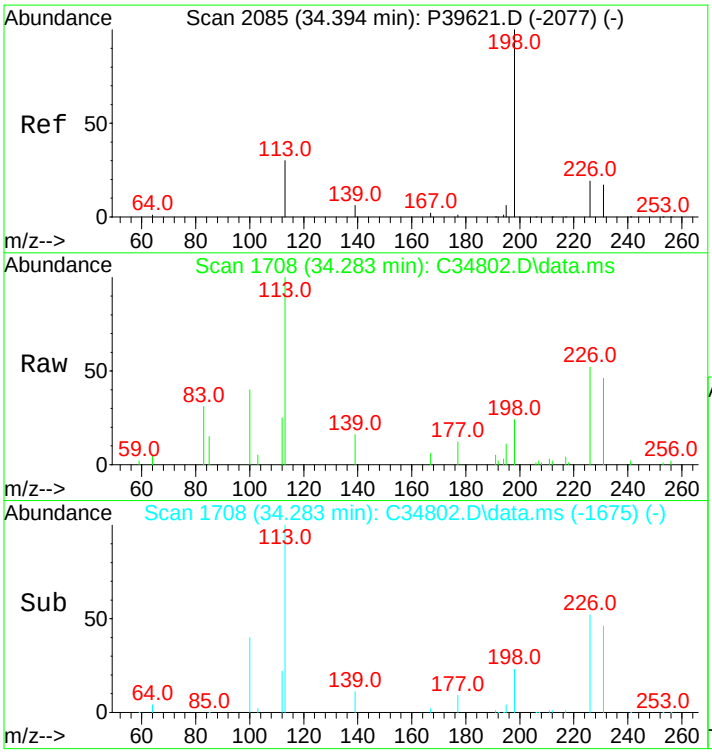


#34
4-Methyldibenzothiophene(4MDT)
Concen: 109.08 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:198 Resp: 13213

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

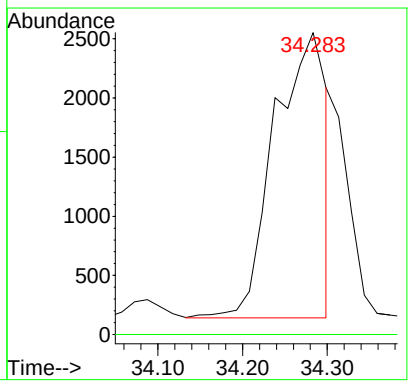


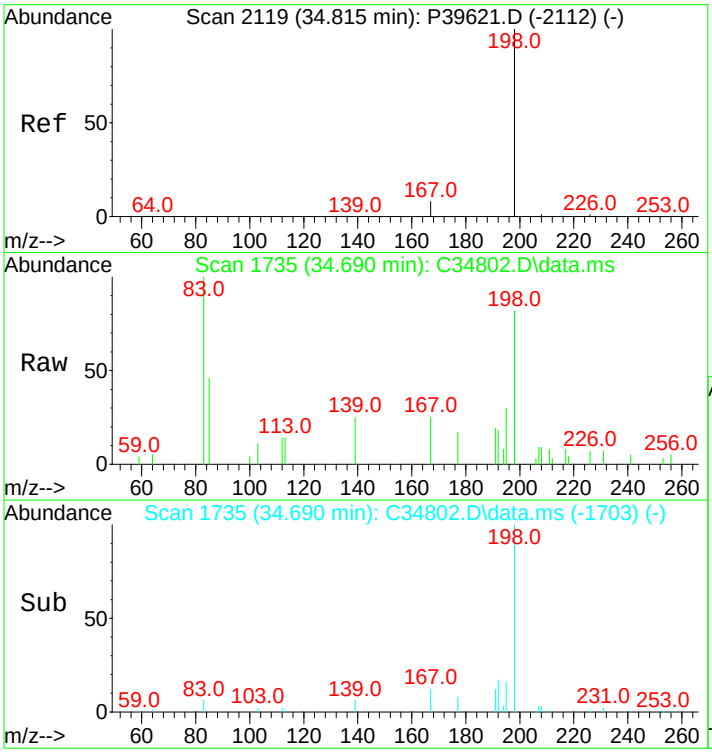


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 85.10 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:198 Resp: 10309

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

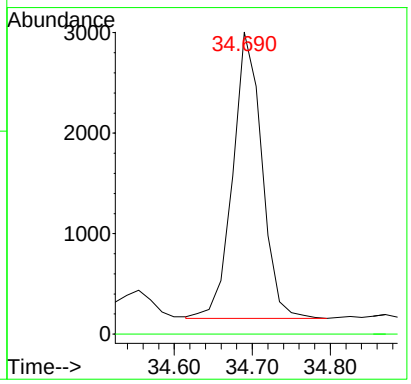


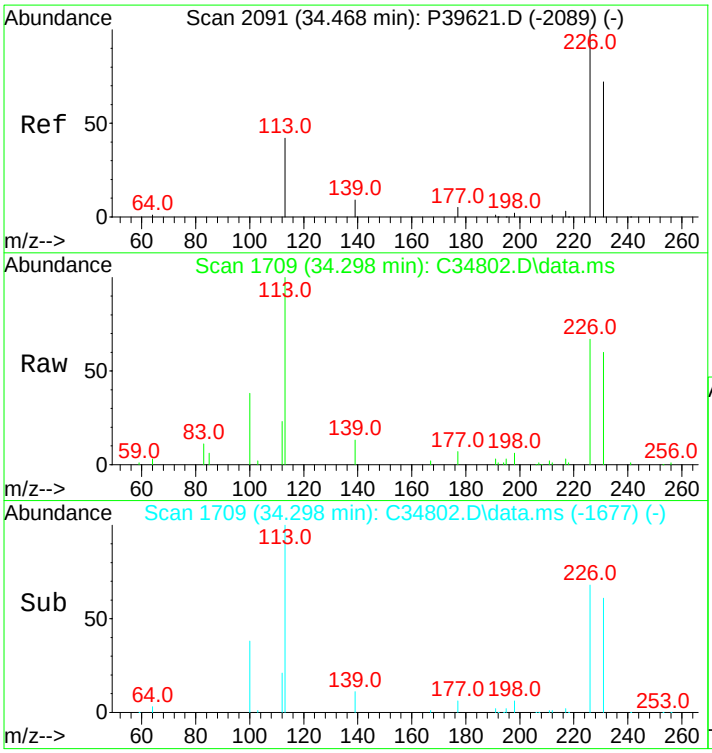


#36
1-Methyldibenzothiophene(1MDT)
Concen: 61.08 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:198 Resp: 7399

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

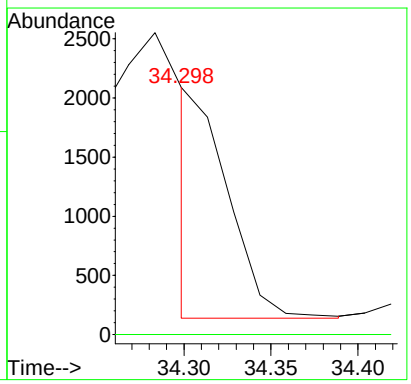


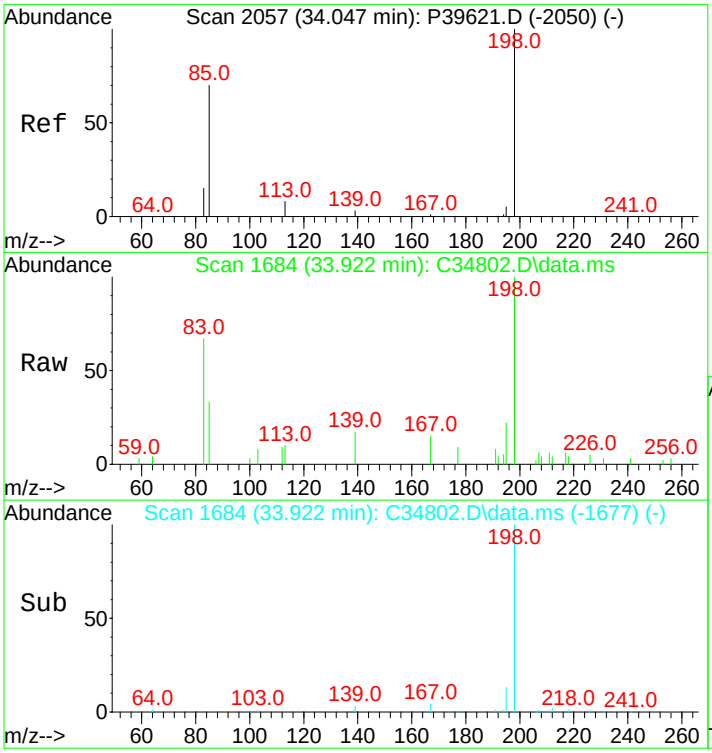


#37
OTP
Concen: 21.51 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:198 Resp: 2605

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

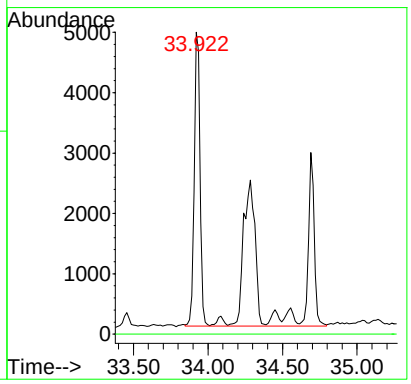


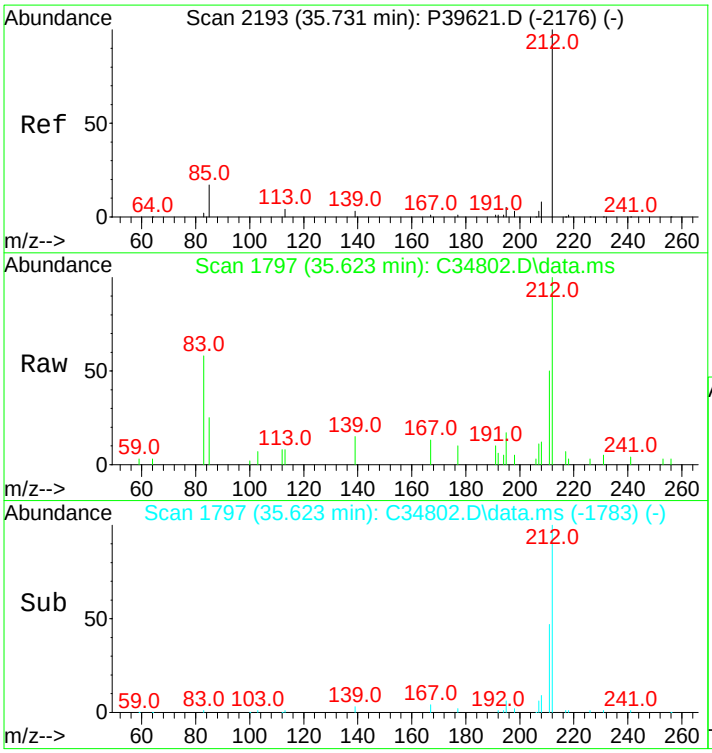


#38
C1-Dibenzothiophenes
Concen: 299.93 ng/mL m
RT: 33.922 min Scan# 1684
Delta R.T. 0.047 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:198 Resp: 36331

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

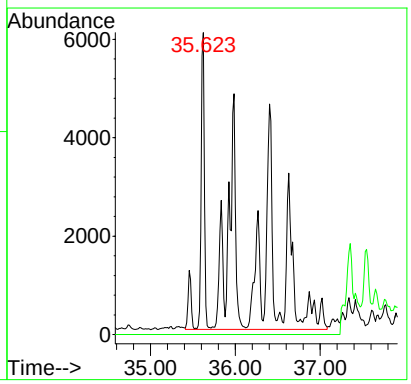


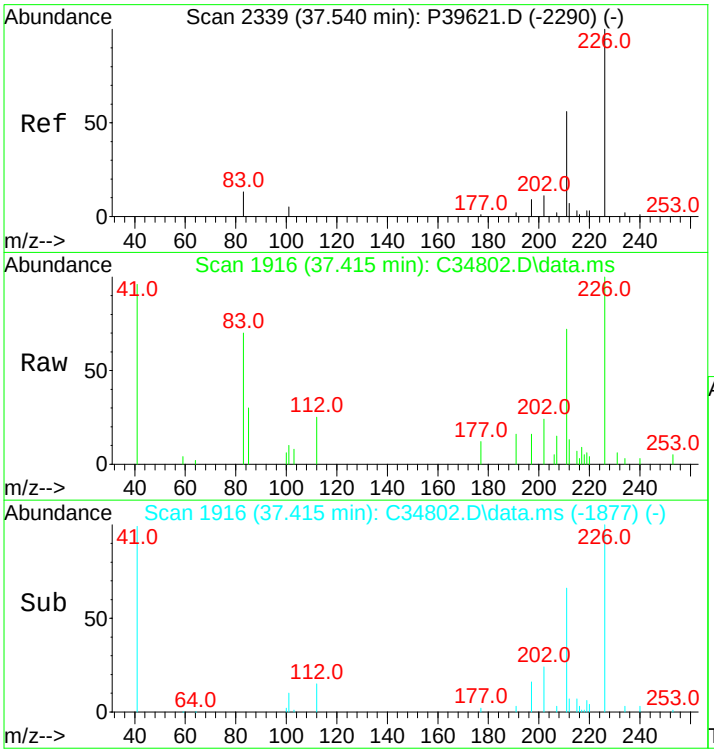


#39
C2-Dibenzothiophenes
Concen: 801.87 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:212 Resp: 97133

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

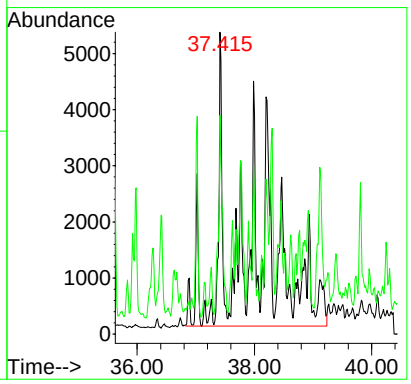


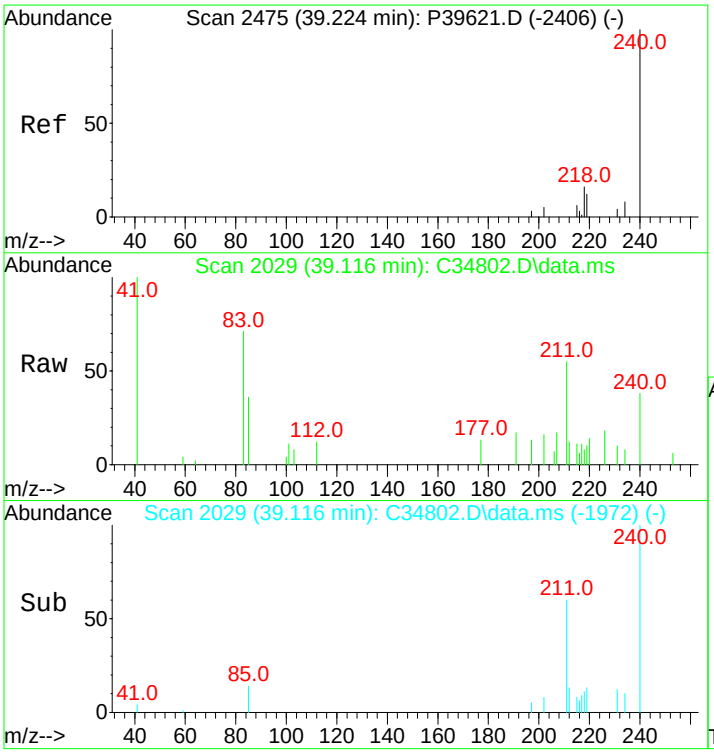


#40
C3-Dibenzothiophenes
Concen: 1125.12 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:226 Resp: 136289

Ion	Ratio	Lower	Upper
226	100		
211	12.2	45.0	67.6#

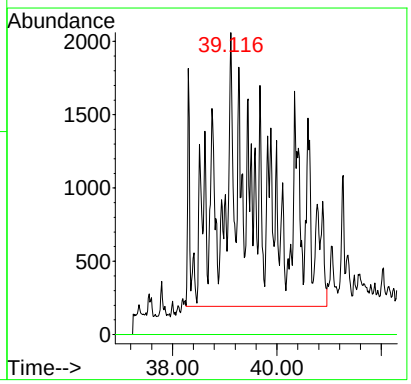


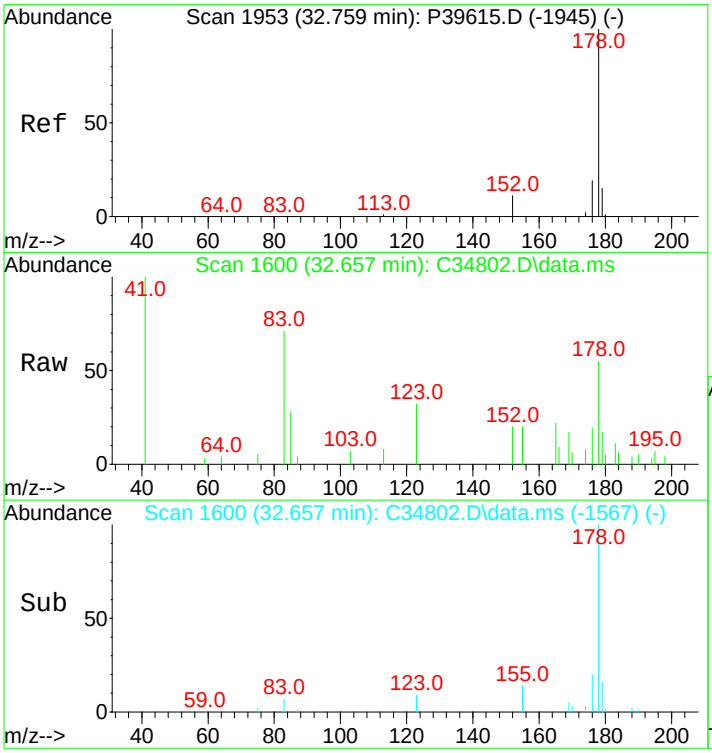


#41
C4-Dibenzothiophenes
Concen: 860.67 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:240 Resp: 104255

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

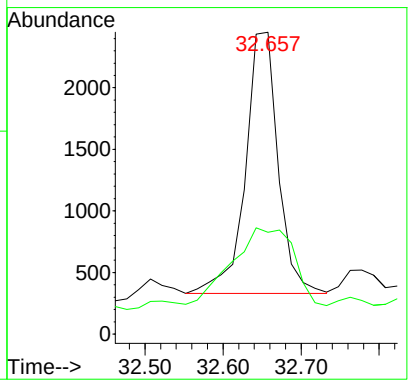


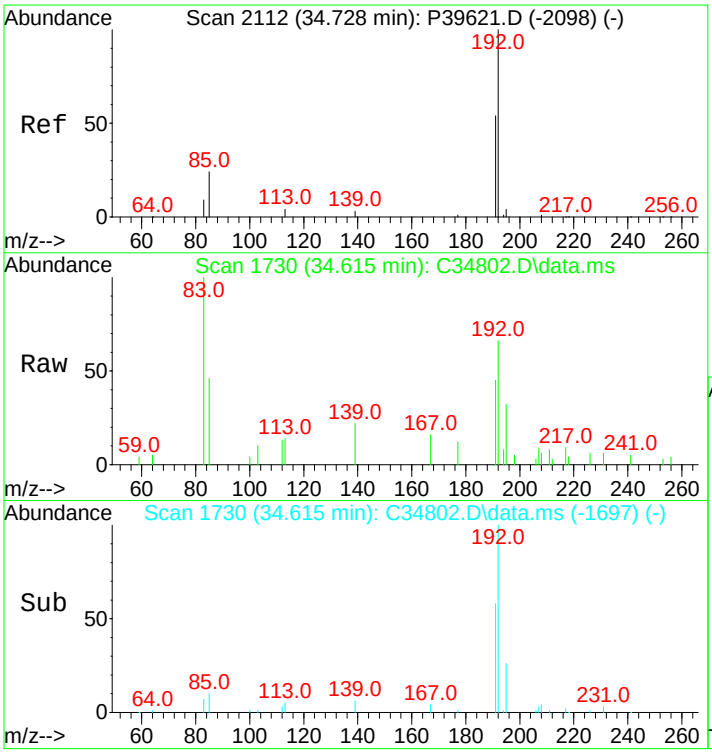


#43
Phenanthrene
Concen: 58.32 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:178 Resp: 6207

Ion	Ratio	Lower	Upper
178	100		
176	56.0	16.1	24.1#

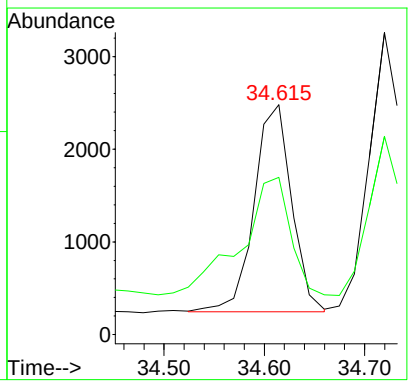


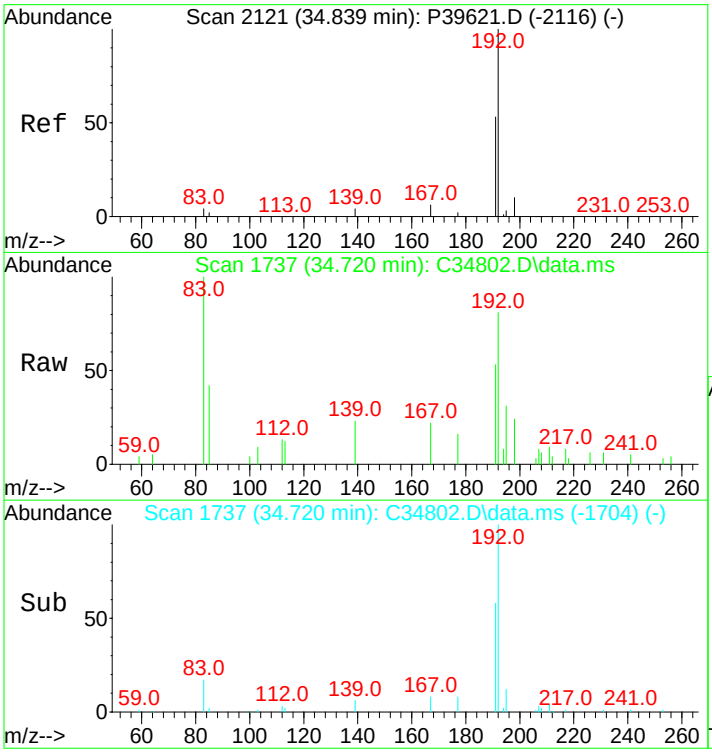


#44
3-Methylphenanthrene(3MP)
Concen: 54.51 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 5801

Ion	Ratio	Lower	Upper
192	100		
191	74.1	46.9	70.3#

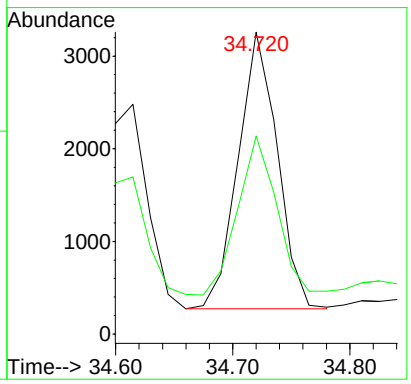


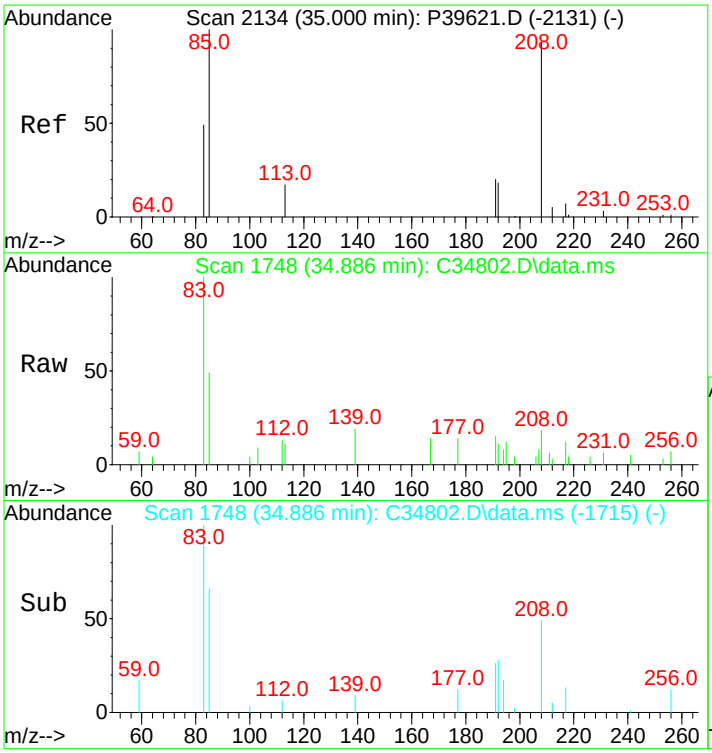


#45
2/4-Methylphenanthrene(2MP)
Concen: 65.44 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 6964

Ion	Ratio	Lower	Upper
192	100		
191	57.4	46.1	69.1

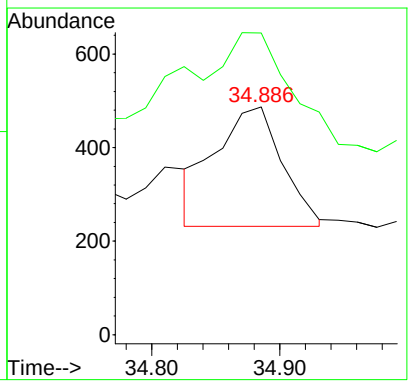


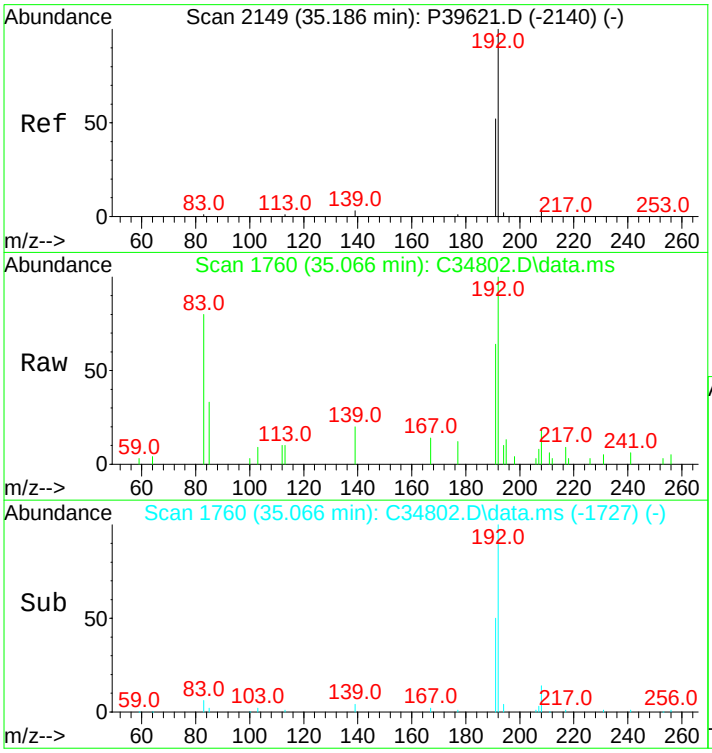


#46
2-Methylanthracene(2MA)
Concen: 8.71 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 927

Ion	Ratio	Lower	Upper
192	100		
191	162.1	93.4	140.0#

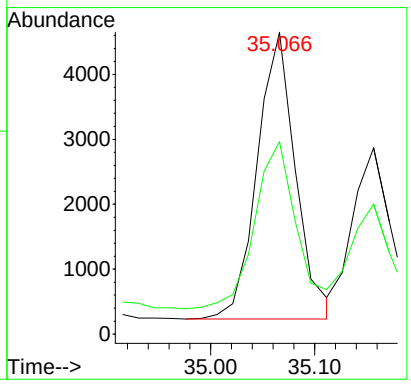


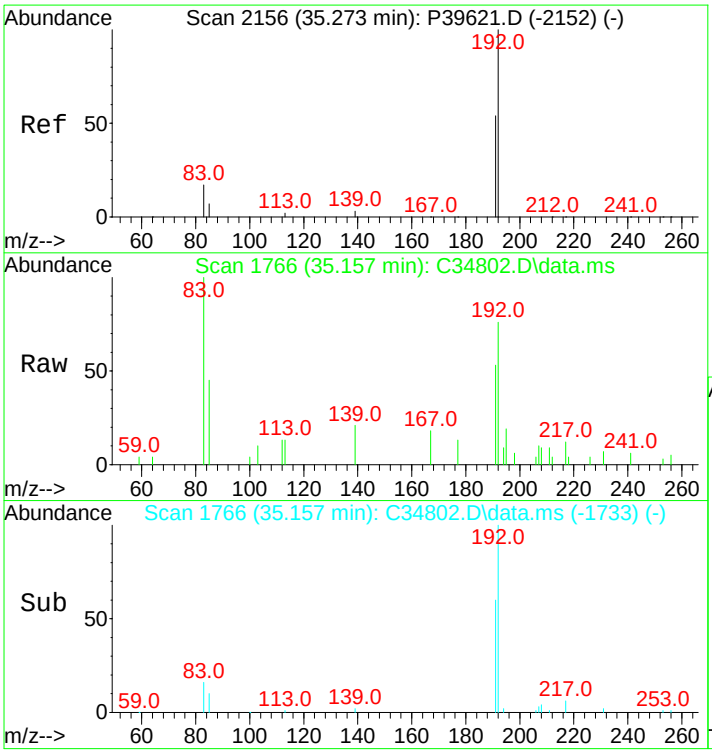


#47
9-Methylphenanthrene(9MP)
Concen: 107.02 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 11390

Ion	Ratio	Lower	Upper
192	100		
191	62.6	45.9	68.9

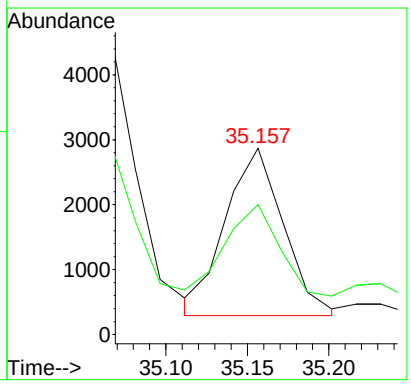


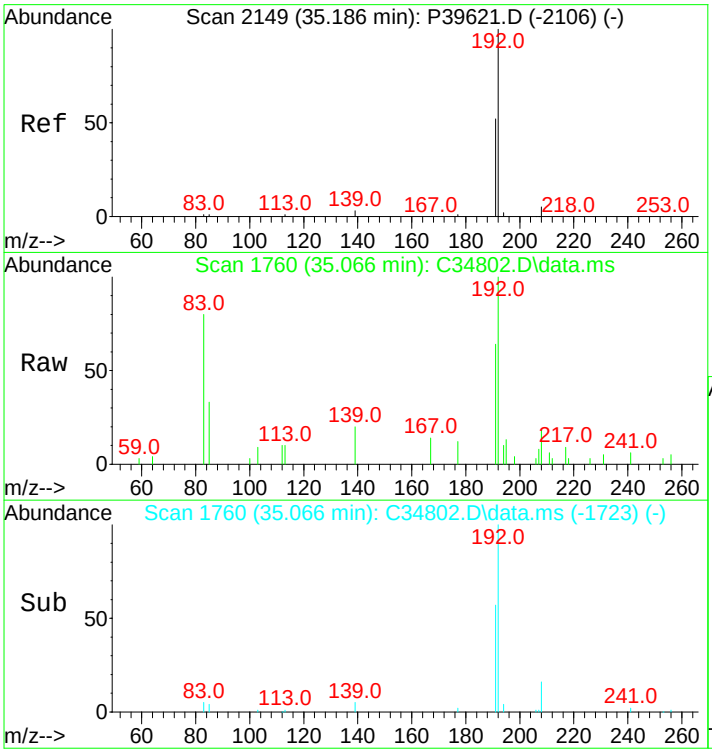


#48
1-Methylphenanthrene(1MP)
Concen: 59.91 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 6376

Ion	Ratio	Lower	Upper
192	100		
191	53.7	49.0	73.4

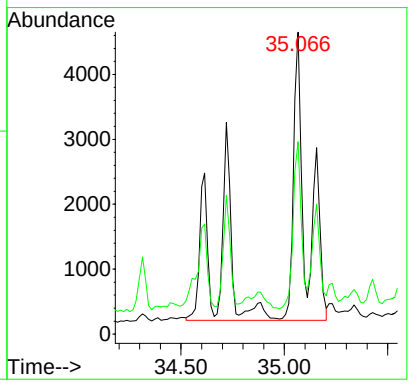


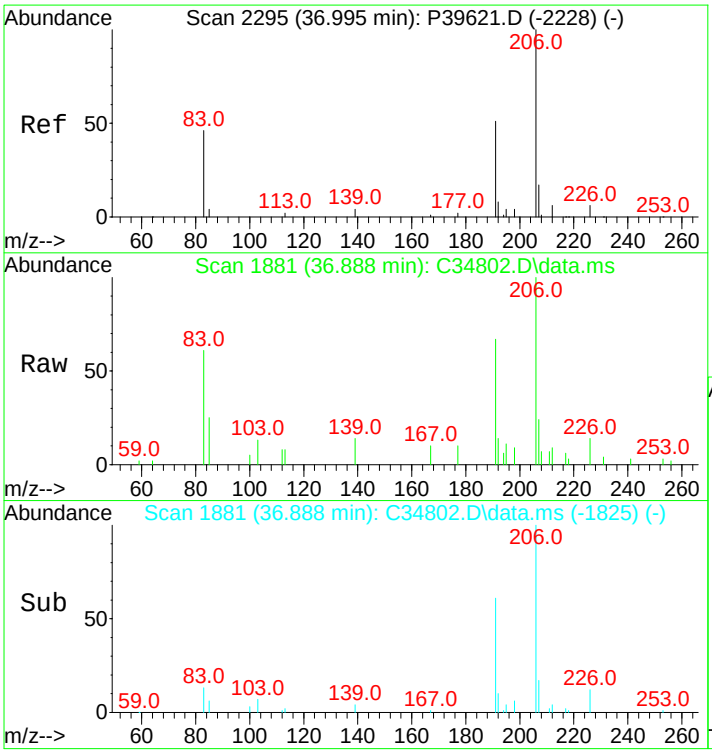


#49
C1-Phenanthrenes/Anthracenes
Concen: 312.14 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 33220

Ion	Ratio	Lower	Upper
192	100		
191	21.5	44.2	66.2#

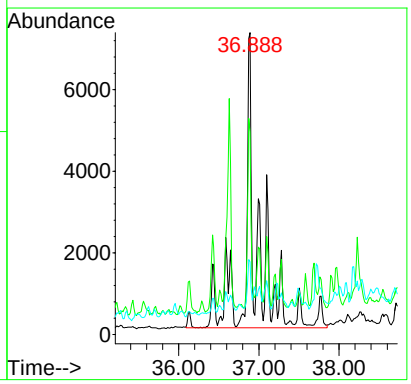


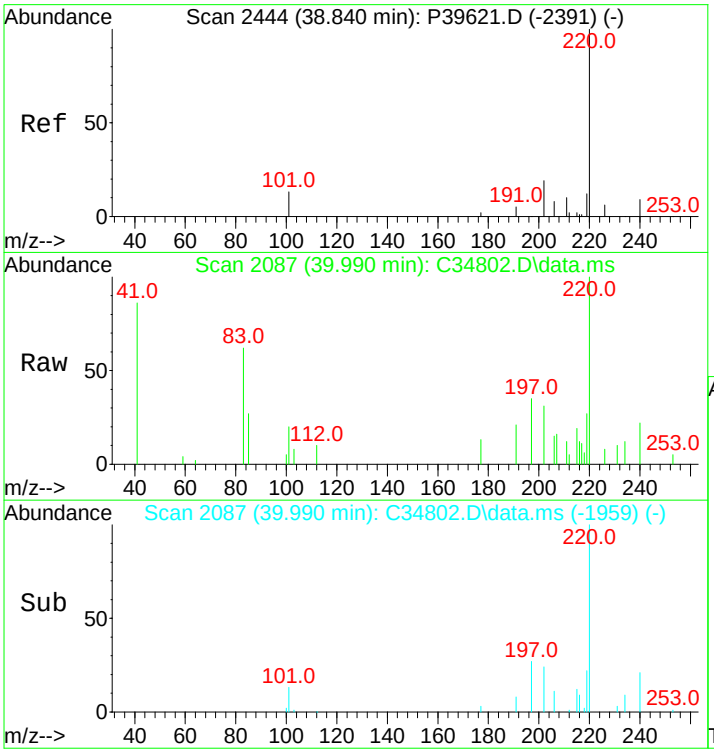


#50
C2-Phenanthrenes/Anthracenes
Concen: 691.95 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:206 Resp: 73641

Ion	Ratio	Lower	Upper
206	100		
191	18.5	44.0	66.0#
207	4.7	15.1	22.7#

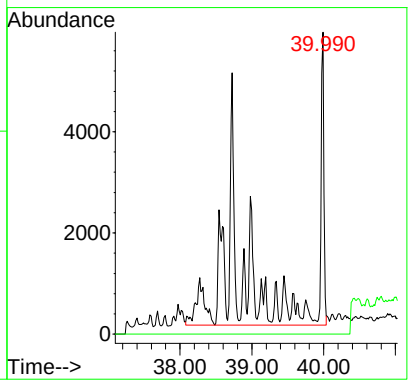


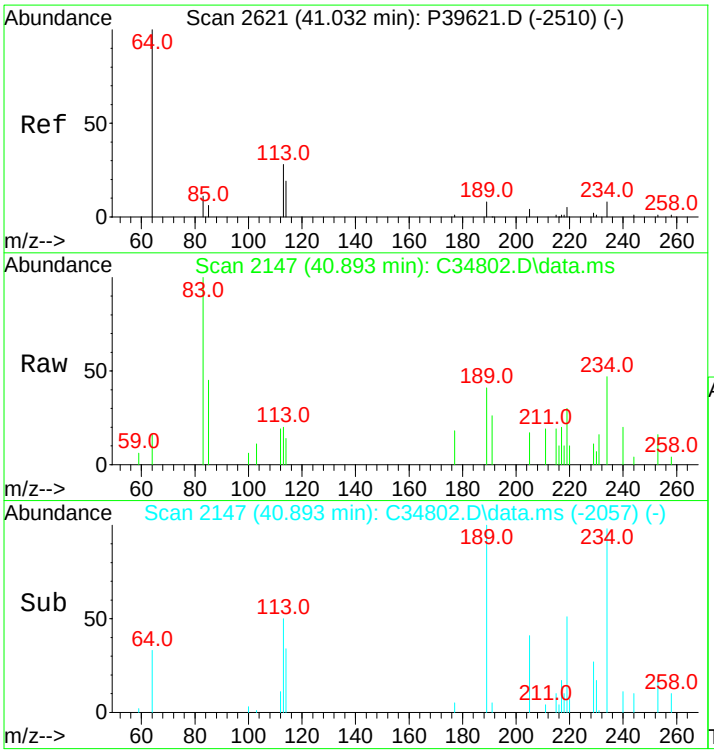


#52
C3-Phenanthrenes/Anthracenes
Concen: 761.51 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:220 Resp: 81044

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

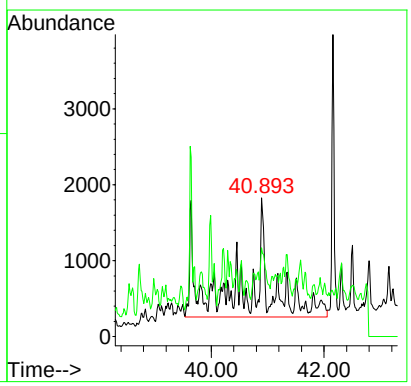


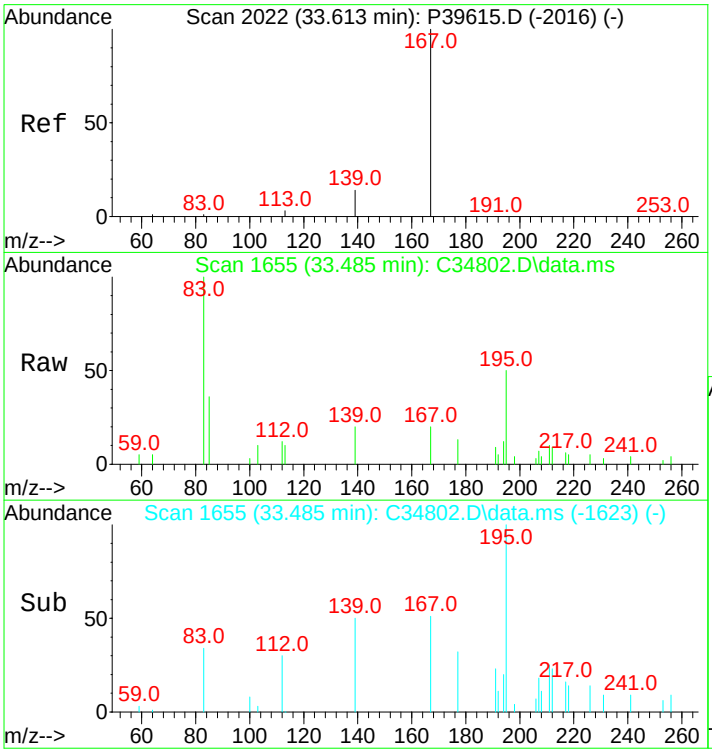


#53
C4-Phenanthrenes/Anthracenes
Concen: 423.55 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:234 Resp: 45076

Ion	Ratio	Lower	Upper
234	100		
219	1.0	46.9	70.3#

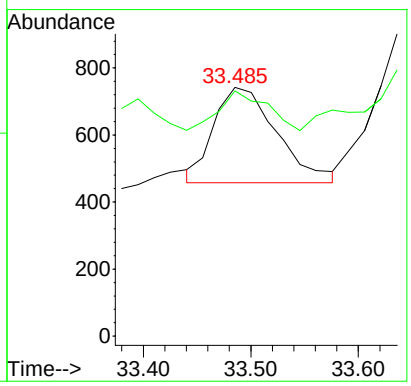


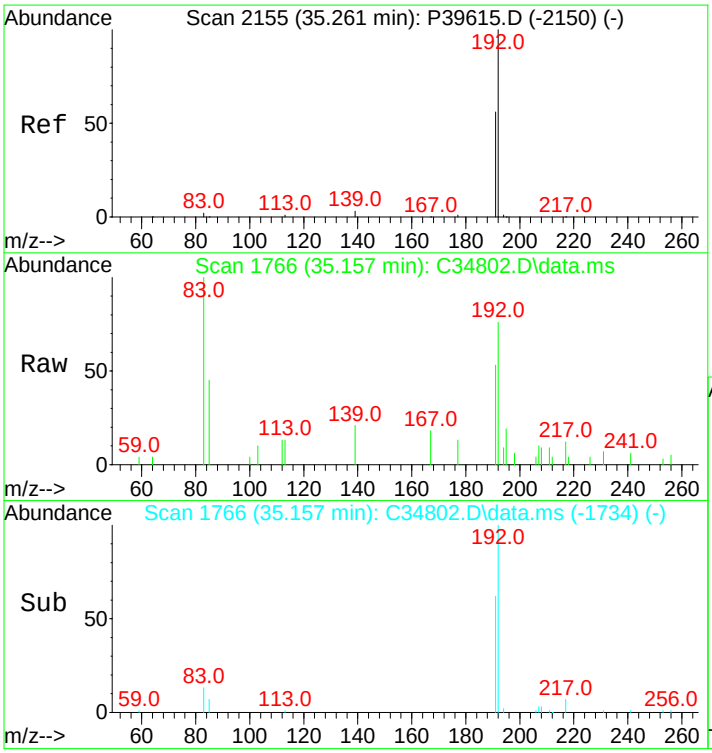


#56
Carbazole
Concen: 11.00 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:167 Resp: 1155

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

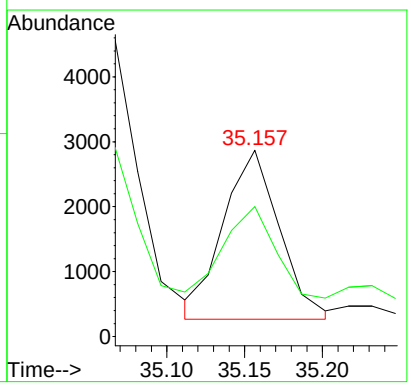


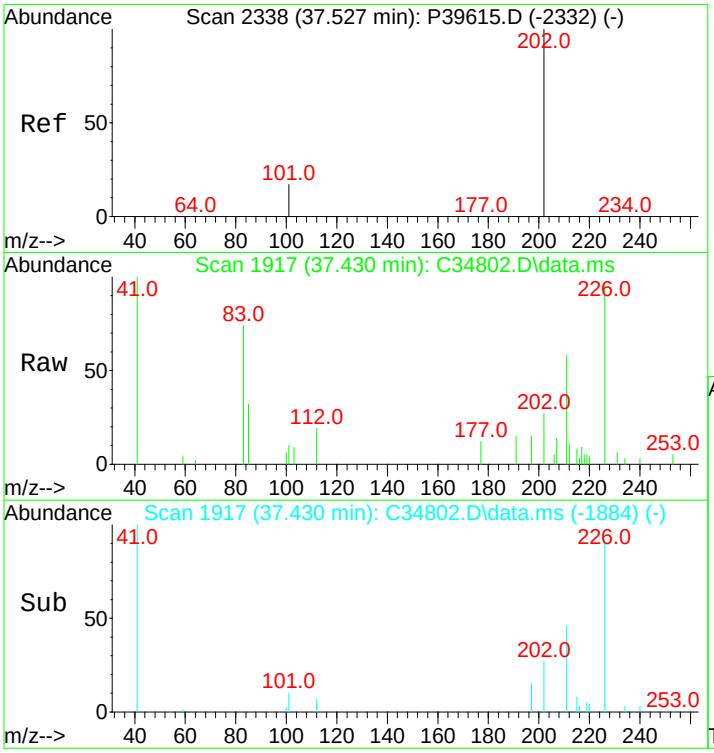


#57
1-Methylphenanthrene
Concen: 96.54 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:192 Resp: 6511

Ion	Ratio	Lower	Upper
192	100		
191	54.8	45.9	68.9

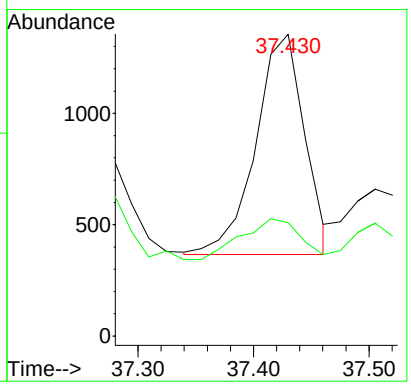


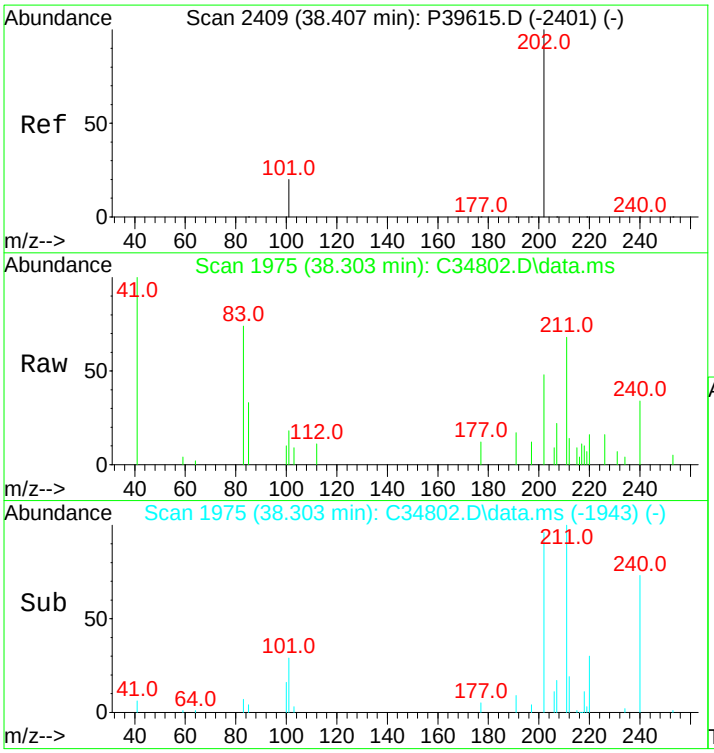


#58
Fluoranthene
Concen: 27.40 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:202 Resp: 2896

Ion	Ratio	Lower	Upper
202	100		
101	48.0	12.9	19.3#

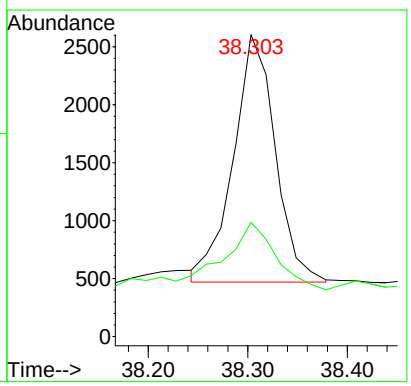


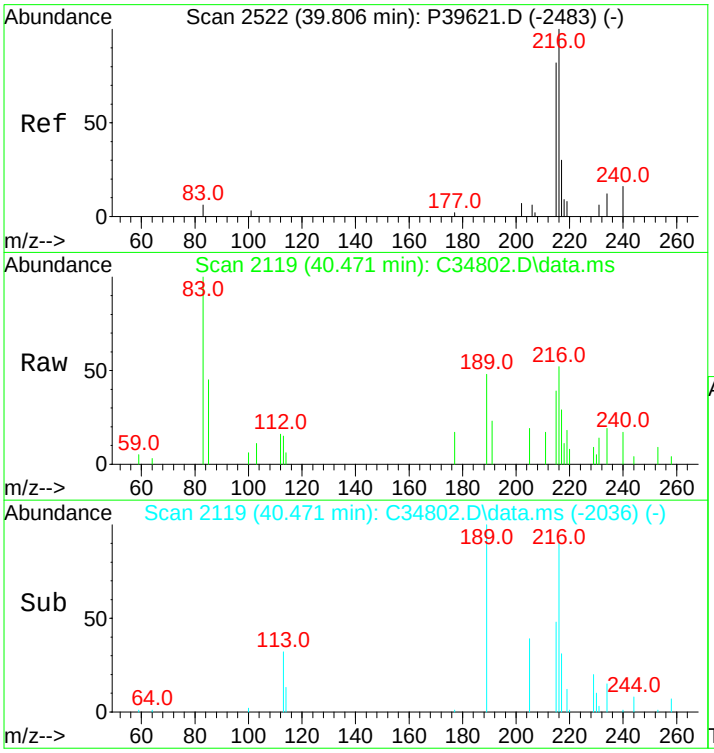


#60
Pyrene
Concen: 57.94 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:202 Resp: 6225

Ion	Ratio	Lower	Upper
202	100		
101	40.7	15.0	22.4#

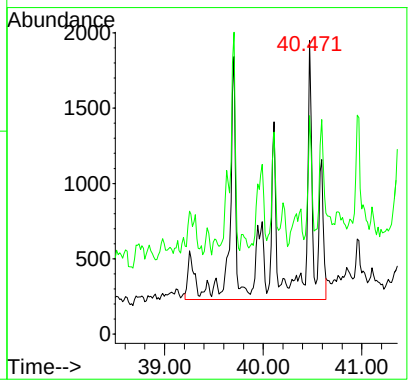


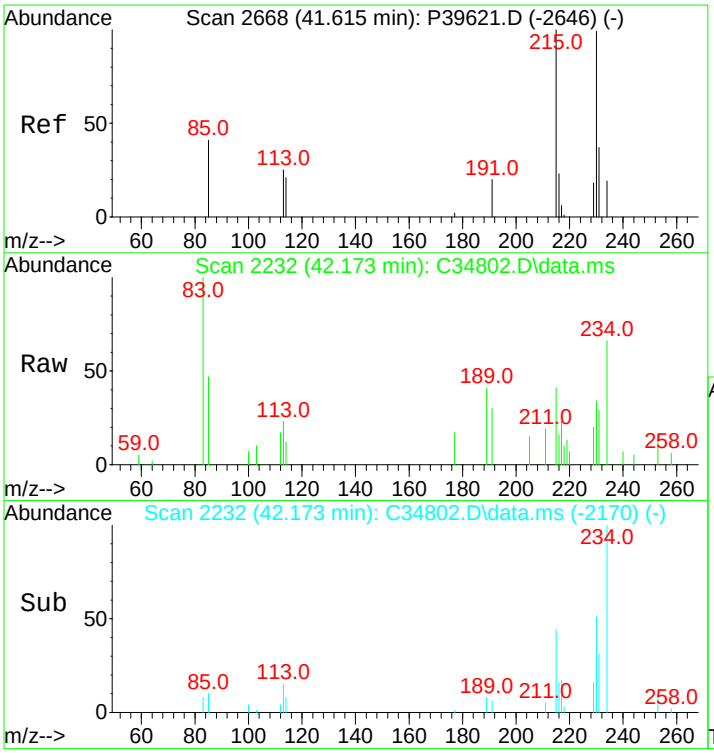


#61
C1-Fluoranthenes/Pyrenes
Concen: 215.11 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:216 Resp: 23113

Ion	Ratio	Lower	Upper
216	100		
215	1.6	71.8	107.6#

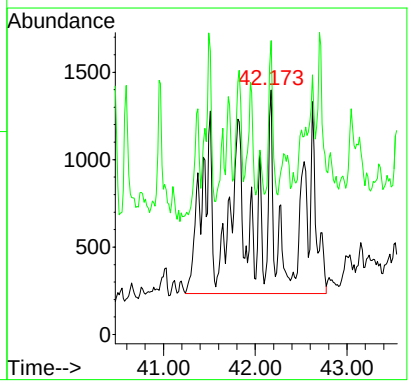


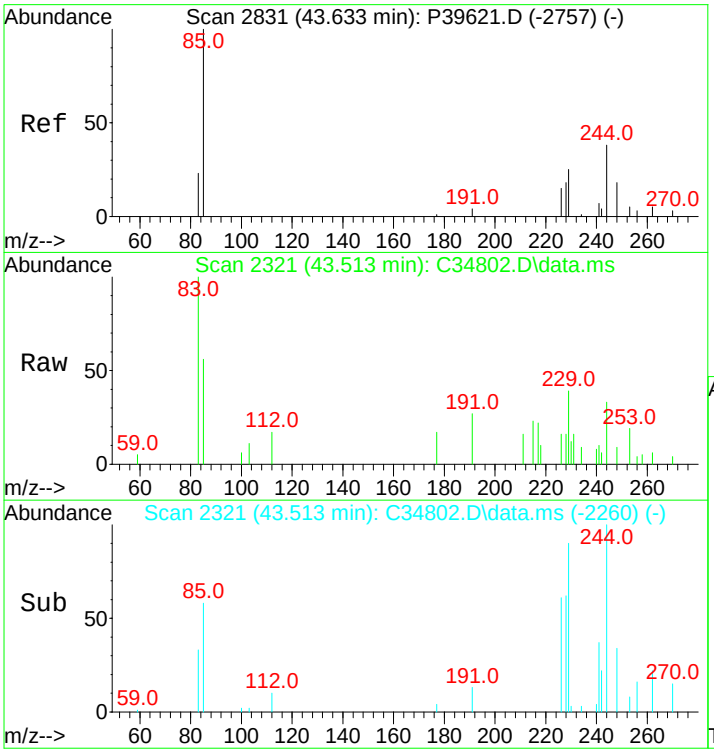


#62
C2-Fluoranthenes/Pyrenes
Concen: 329.56 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:230 Resp: 35410

Ion	Ratio	Lower	Upper
230	100		
215	10.8	99.0	148.4#

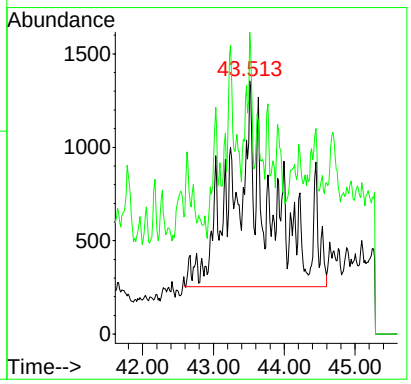


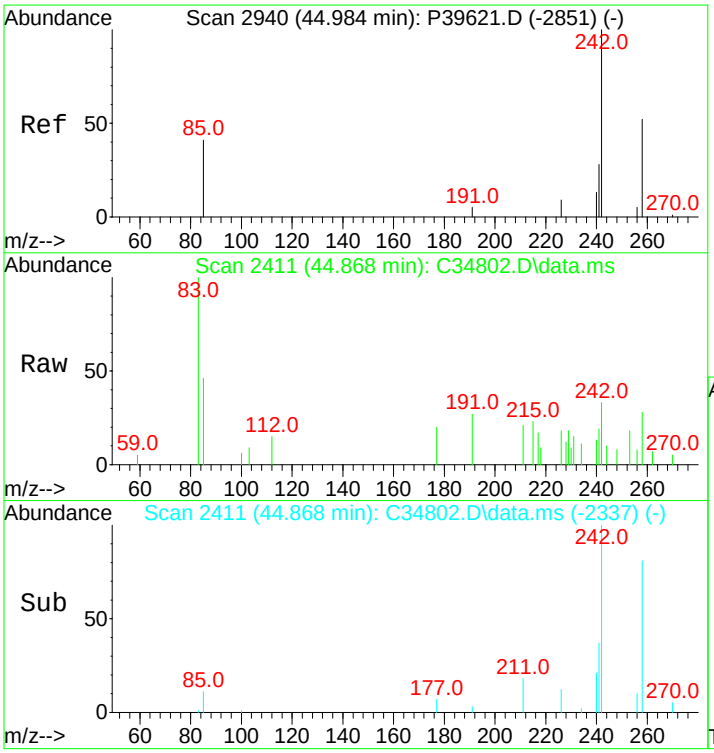


#63
C3-Fluoranthenes/Pyrenes
Concen: 382.04 ng/mL m
RT: 43.513 min Scan# 2321
Delta R.T. 0.105 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:244 Resp: 41048

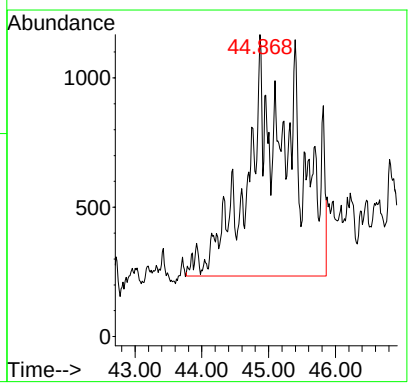
Ion	Ratio	Lower	Upper
244	100		
229	10.1	73.3	109.9#

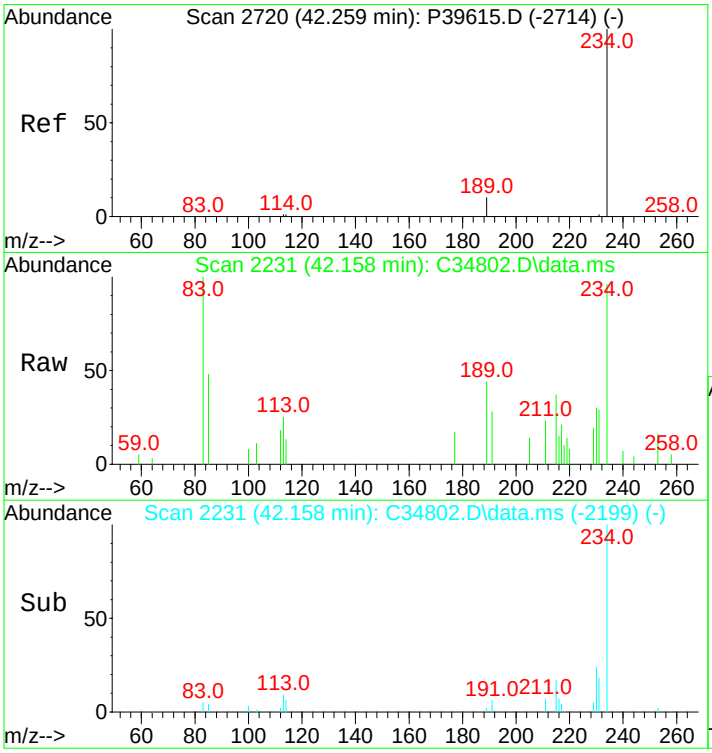




#64
C4-Fluoranthenes/Pyrenes
Concen: 399.81 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.111 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:258 Resp: 42958

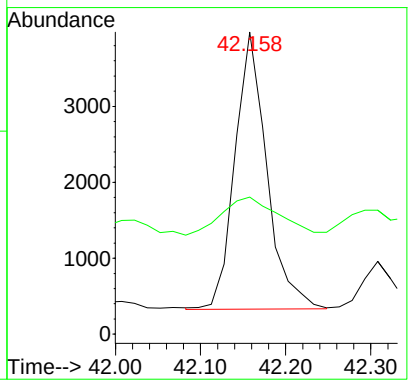


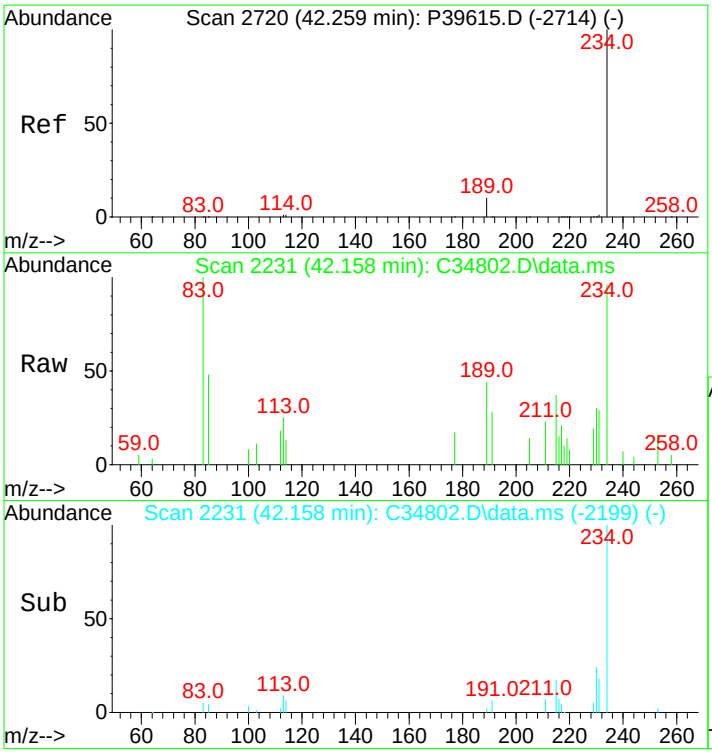


#66
Naphthobenzothiophene
Concen: 82.24 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:234 Resp: 9513

Ion	Ratio	Lower	Upper
234	100		
189	24.5	20.5	30.7

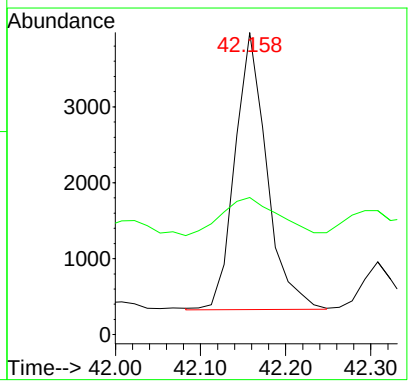


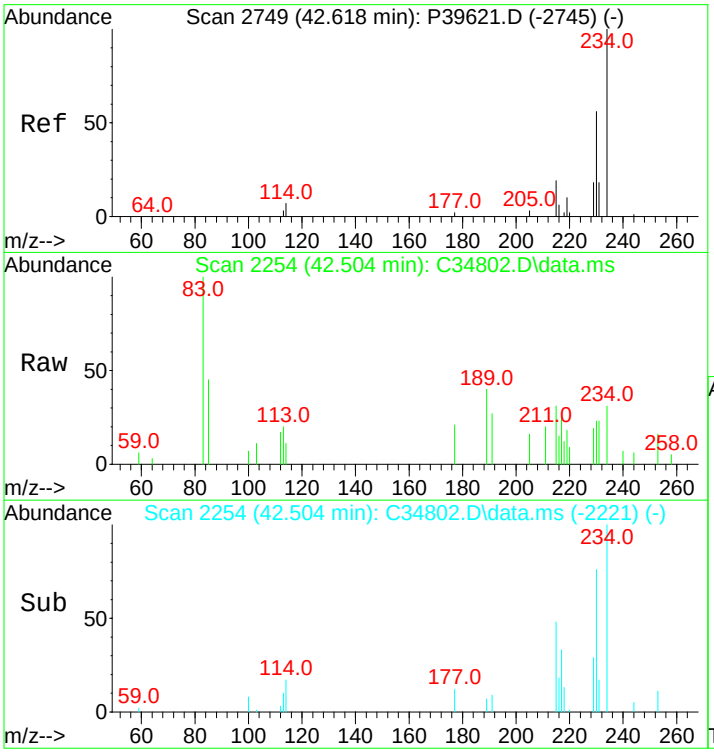


#67
Naphthobenzothiophene-2,1-D
Concen: 82.24 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:234 Resp: 9513

Ion	Ratio	Lower	Upper
234	100		
189	24.5	20.5	30.7

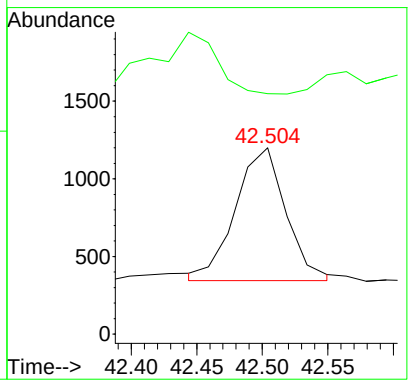


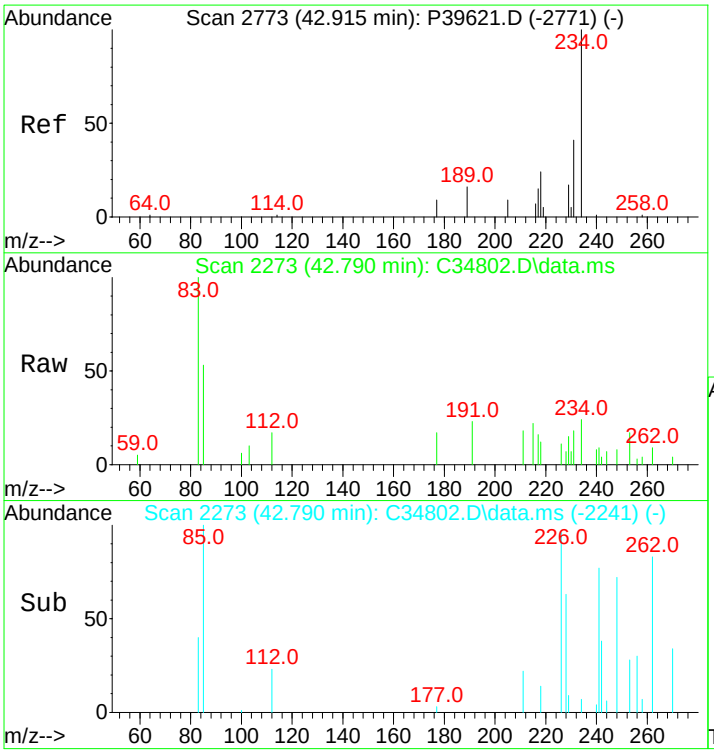


#68
Naphthobenzothiophene-1,2-D
Concen: 19.77 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:234 Resp: 2287

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

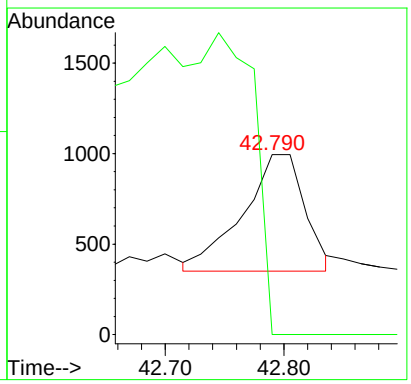


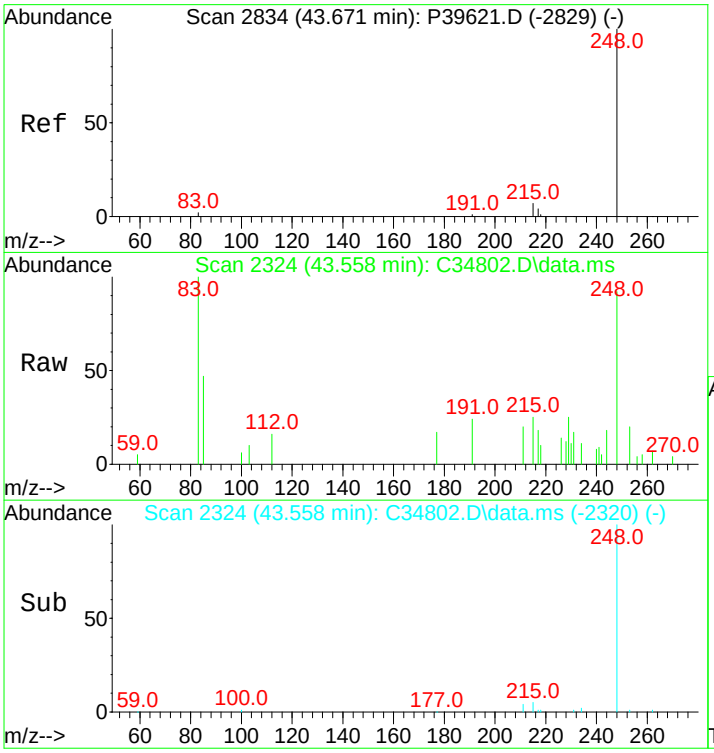


#69
Naphthobenzothiophene-2,3-D
Concen: 20.27 ng/mL m
RT: 42.790 min Scan# 2273
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:234 Resp: 2345

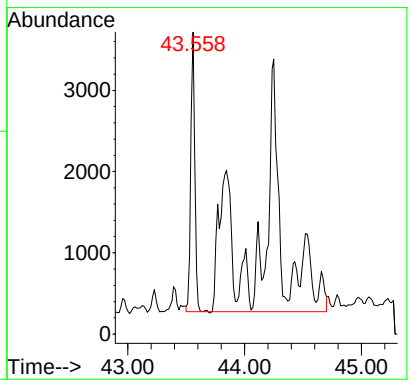
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

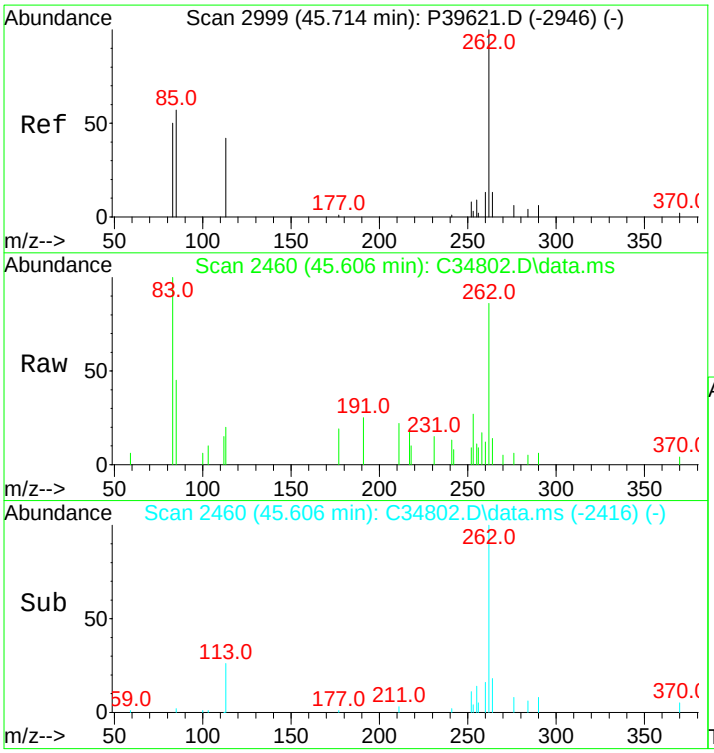




#70
C1-Naphthobenzothiophenes
Concen: 439.63 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

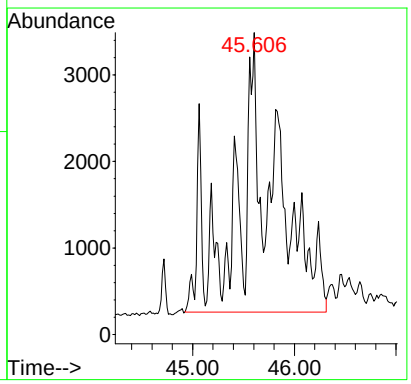
Tgt Ion:248 Resp: 50854

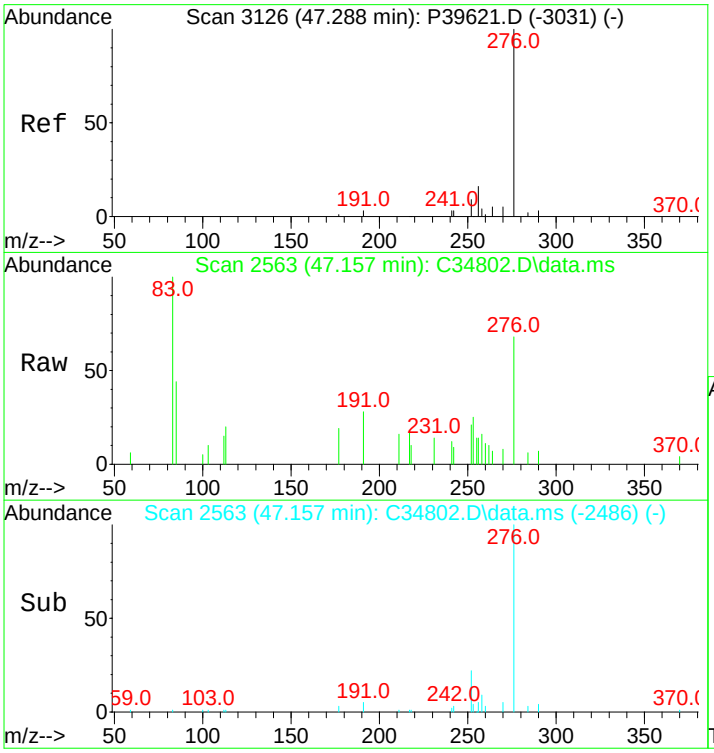




#71
C2-Naphthobenzothiophenes
Concen: 723.25 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

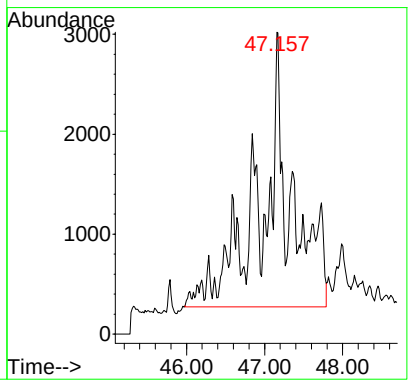
Tgt Ion:262 Resp: 83662

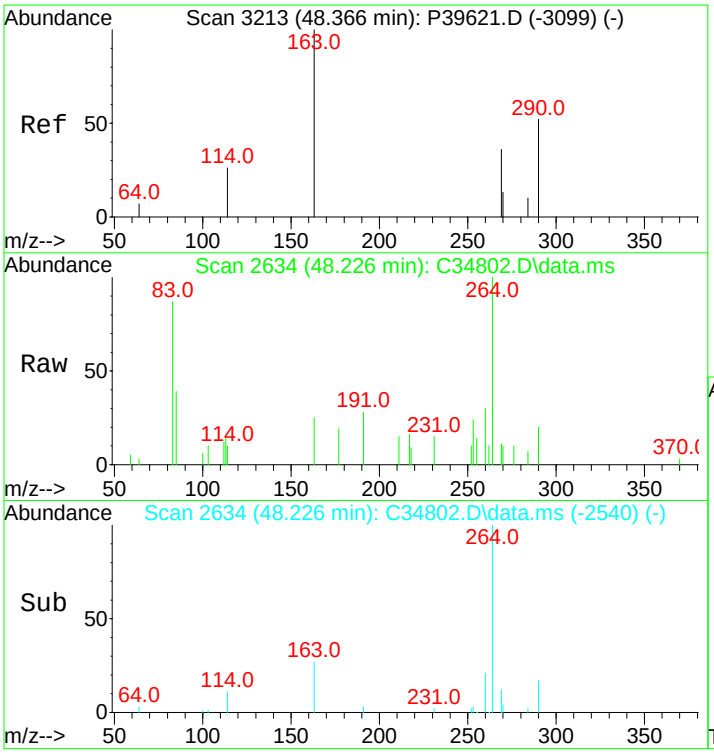




#72
C3-Naphthobenzothiophenes
Concen: 642.24 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

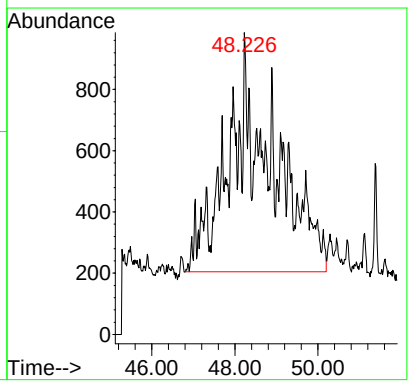
Tgt Ion:276 Resp: 74291

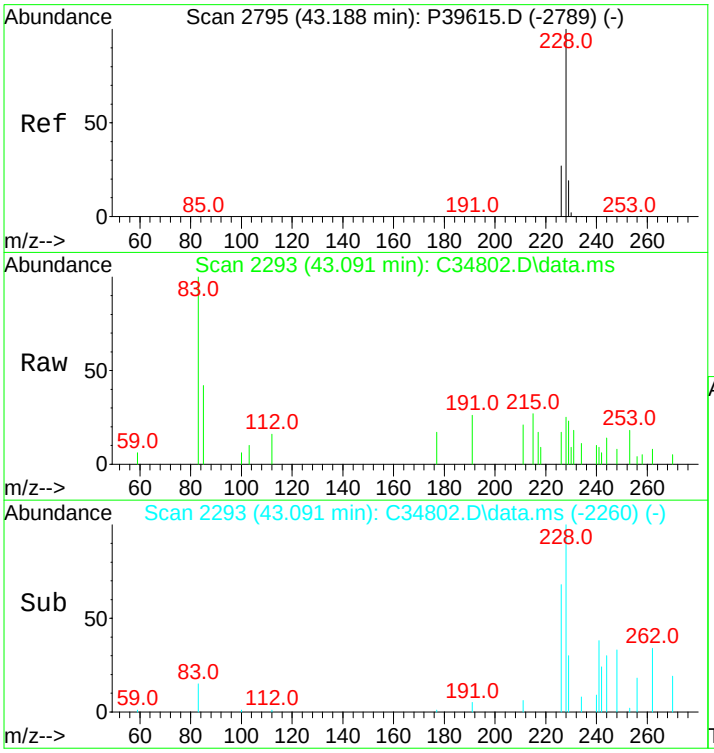




#73
C4-Naphthobenzothiophenes
Concen: 472.14 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.127 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:290 Resp: 54615

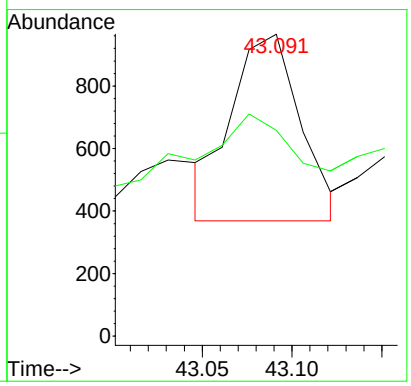


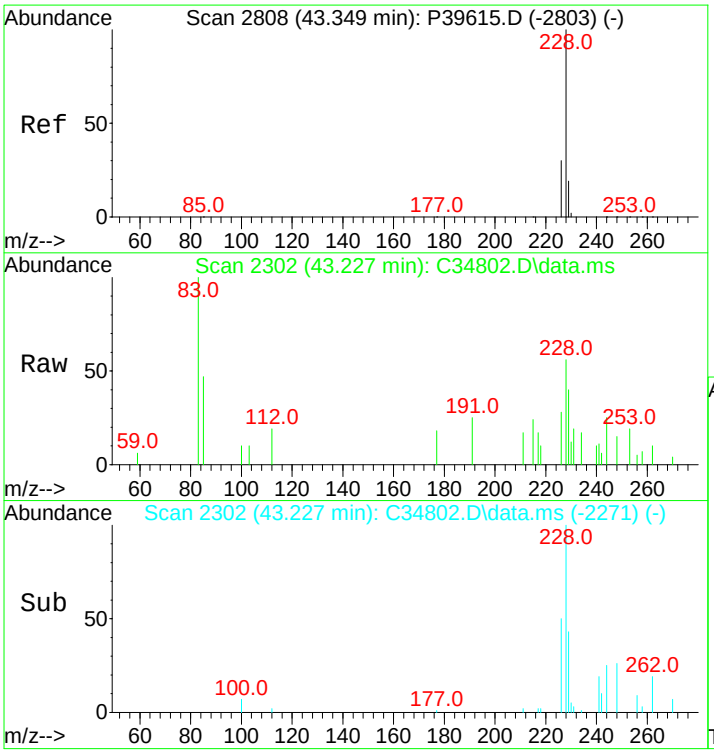


#75
Benz[a]anthracene
Concen: 14.37 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:228 Resp: 1585

Ion	Ratio	Lower	Upper
228	100		
226	130.6	21.4	32.0#

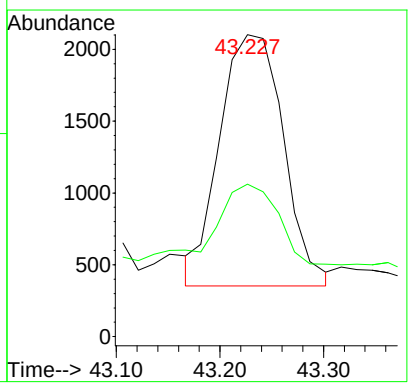


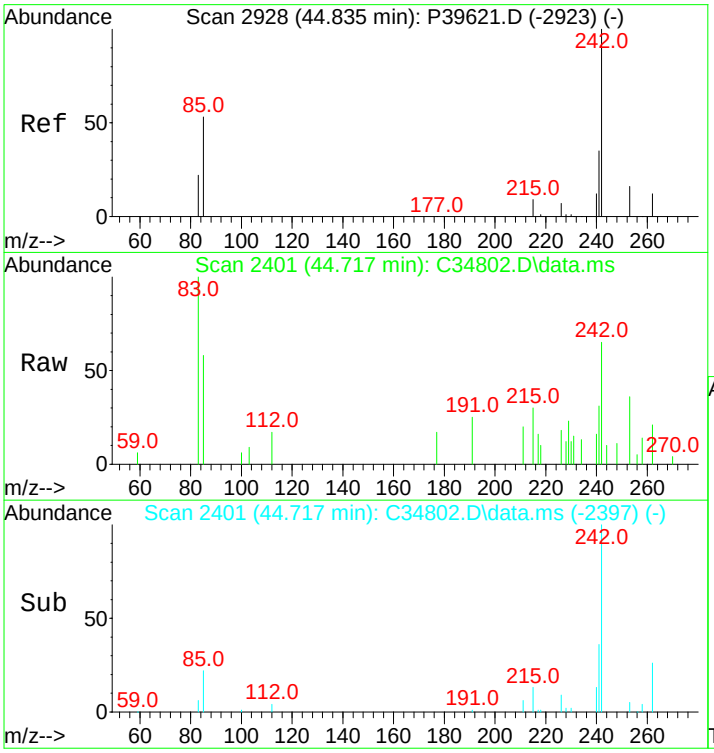


#77
Chrysene/Triphenylene
Concen: 67.28 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:228 Resp: 7490

Ion	Ratio	Lower	Upper
228	100		
226	27.6	23.7	35.5

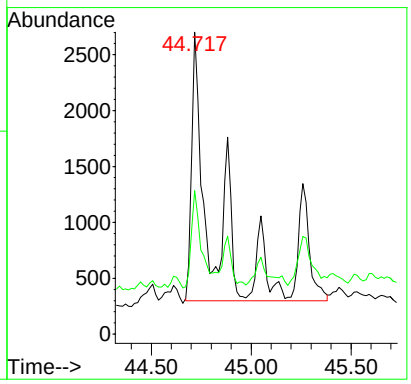


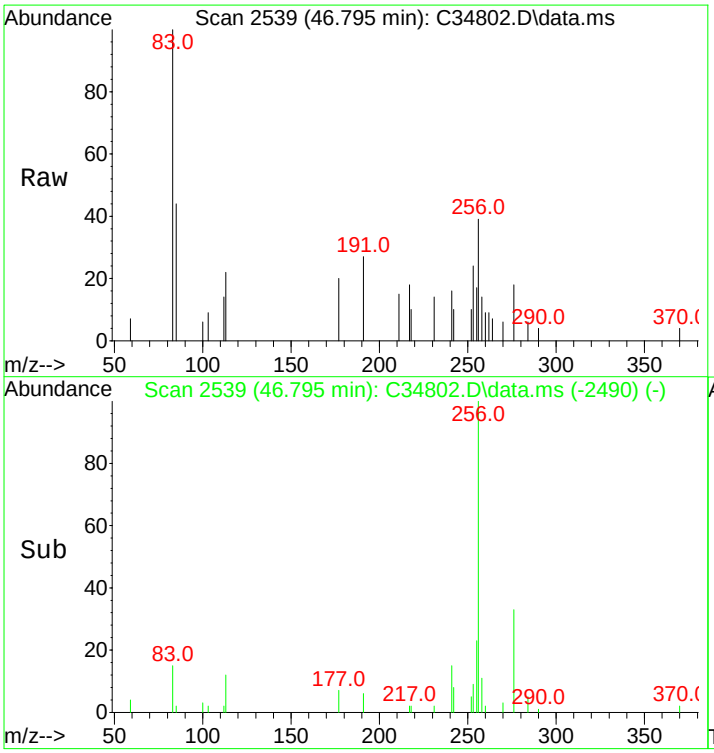


#78
C1-Chrysenes
Concen: 171.25 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:242 Resp: 19063

Ion	Ratio	Lower	Upper
242	100		
241	10.2	31.4	47.2#

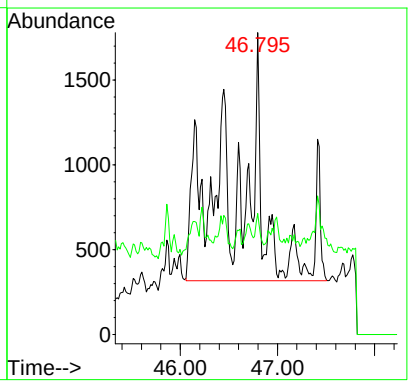


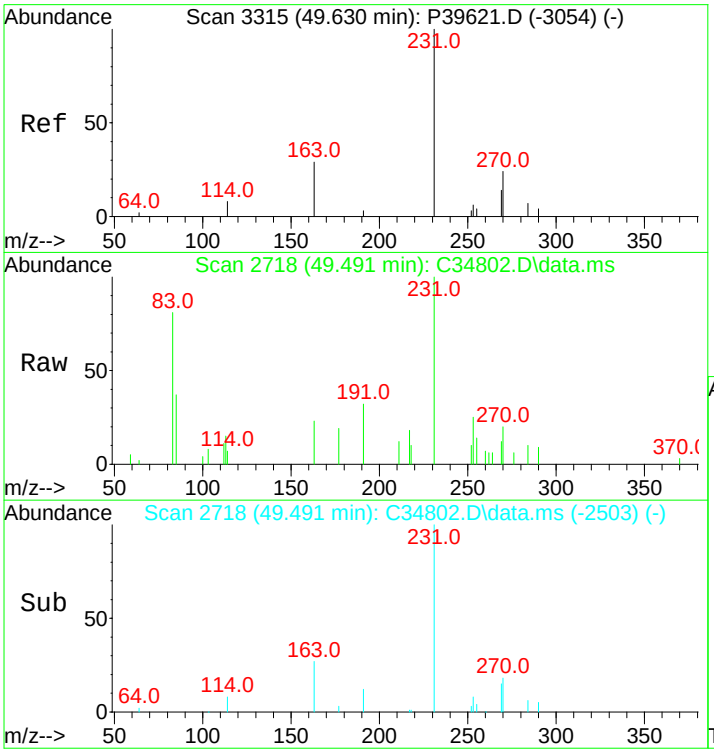


#79
C2-Chrysenes
Concen: 283.71 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:256 Resp: 31582

Ion	Ratio	Lower	Upper
256	100		
241	3.5	21.2	31.8#

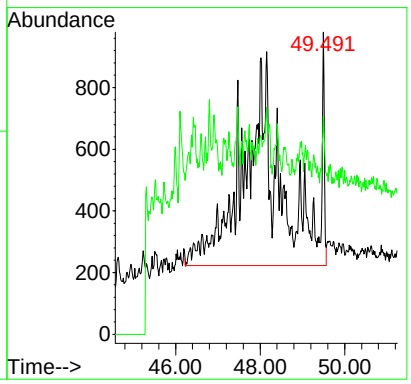


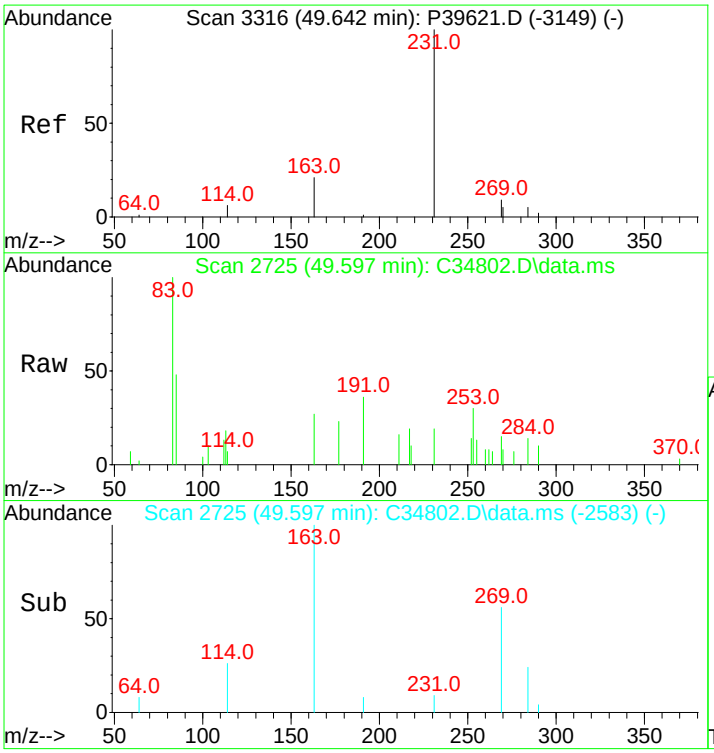


#80
C3-Chrysenes
Concen: 367.42 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:270 Resp: 40900

Ion	Ratio	Lower	Upper
270	100		
255	2.1	33.8	50.8#

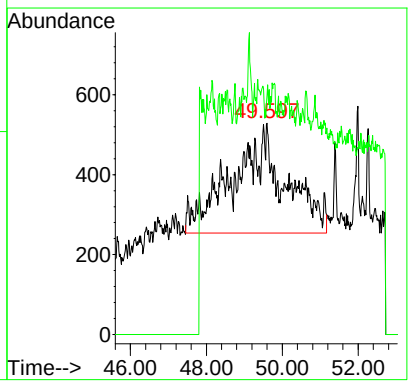


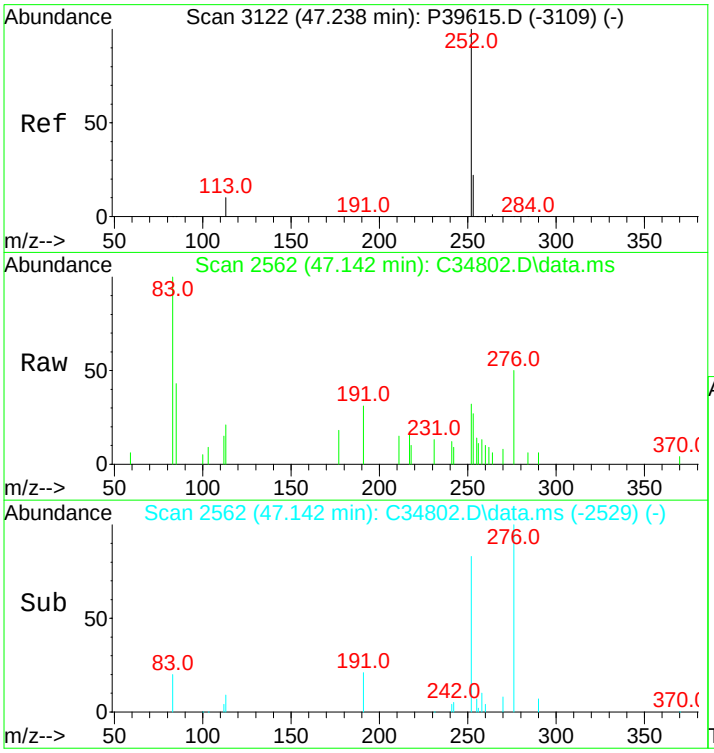


#81
C4-Chrysenes
Concen: 232.97 ng/mL m
RT: 49.597 min Scan# 2725
Delta R.T. -0.004 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:284 Resp: 25934

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

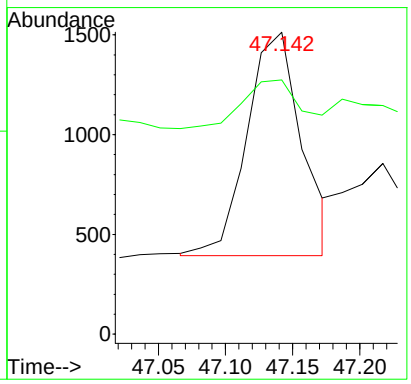


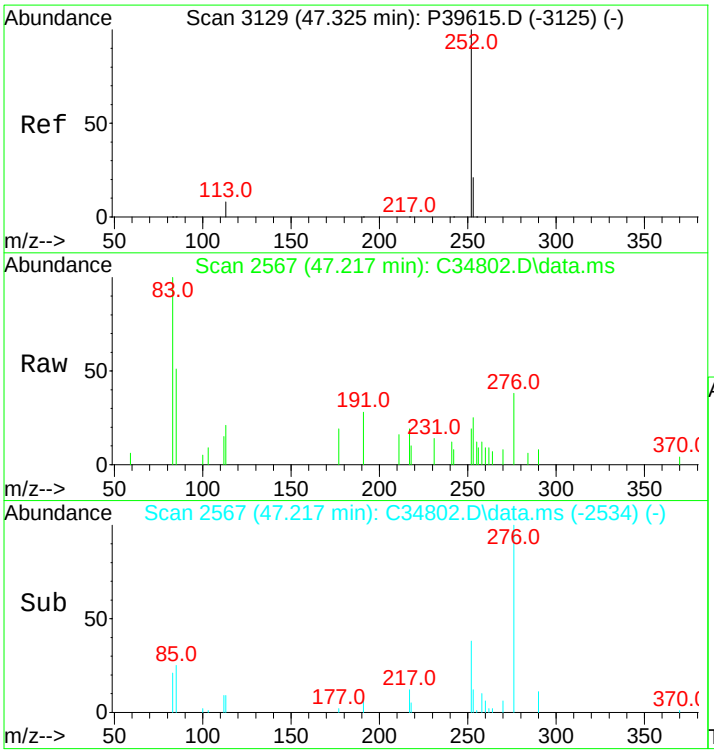


#82
Benzo[b]fluoranthene
Concen: 26.17 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 3171

Ion	Ratio	Lower	Upper
252	100		
253	22.9	19.0	28.4

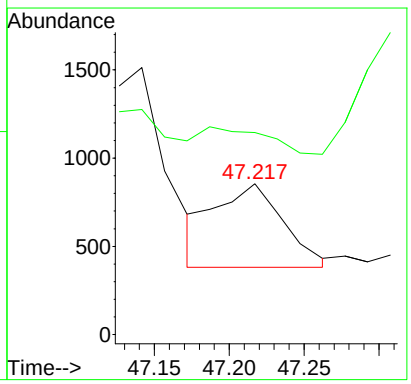


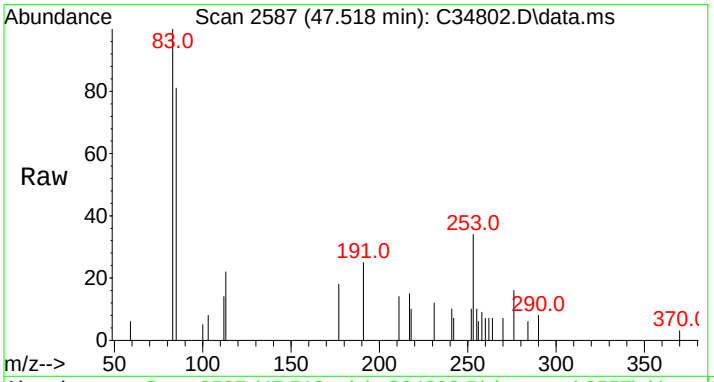


#83
Benzo[j]+[k]fluoranthene
Concen: 11.44 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 1509

Ion	Ratio	Lower	Upper
252	100		
253	48.0	19.0	28.4#

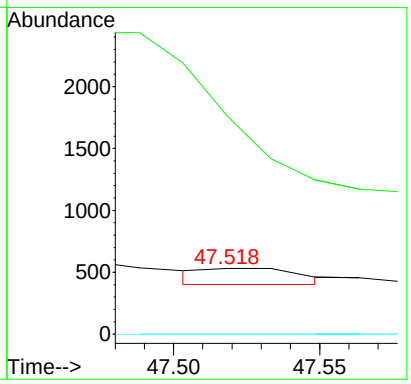


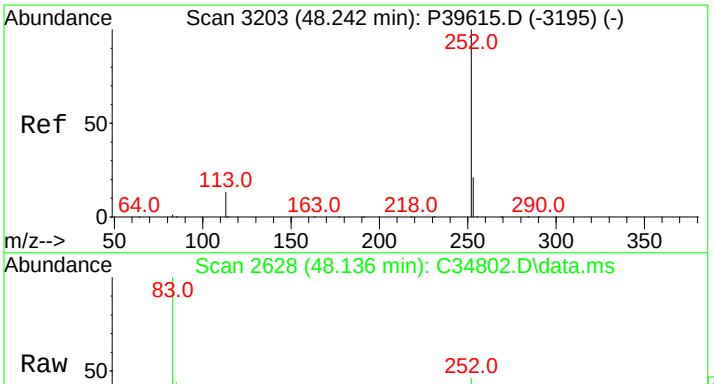


#84
Benzo[a]fluoranthene
Concen: 2.21 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 292

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

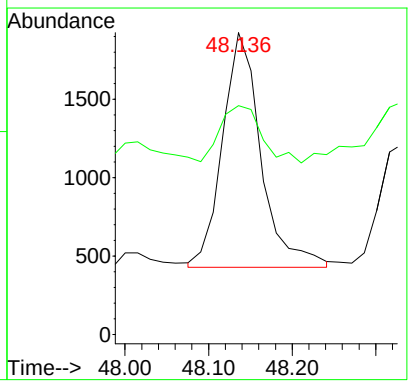


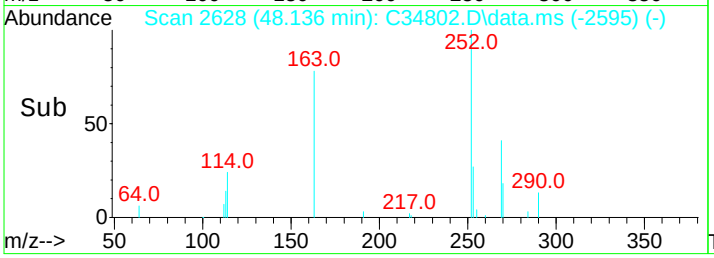


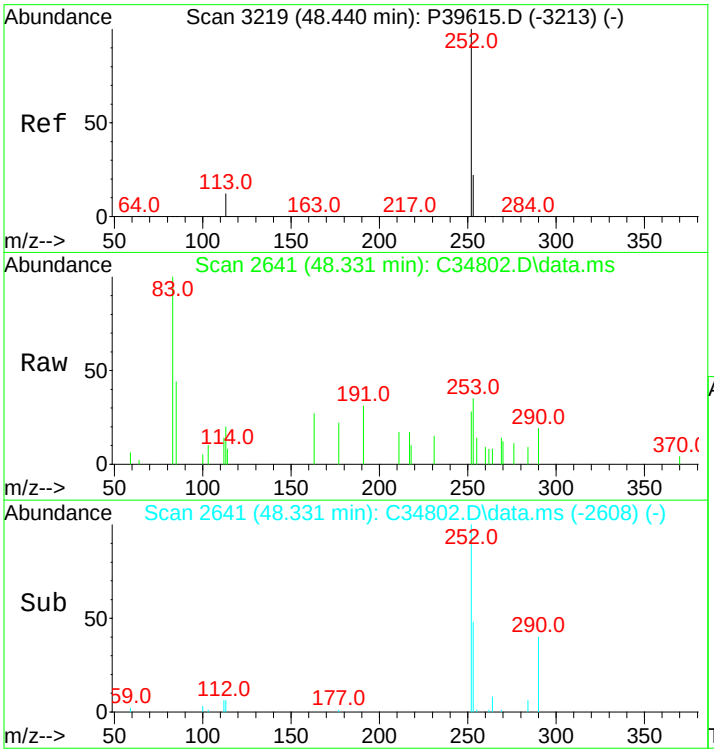
#85
Benzo[e]pyrene
Concen: 39.87 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 4778

Ion	Ratio	Lower	Upper
252	100		
253	26.7	19.2	28.8



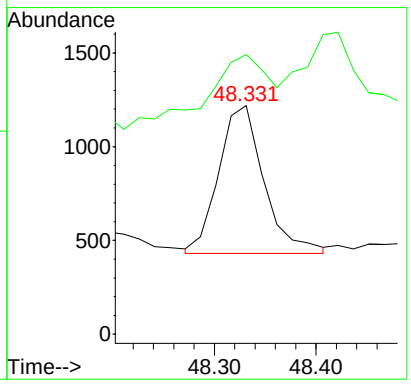


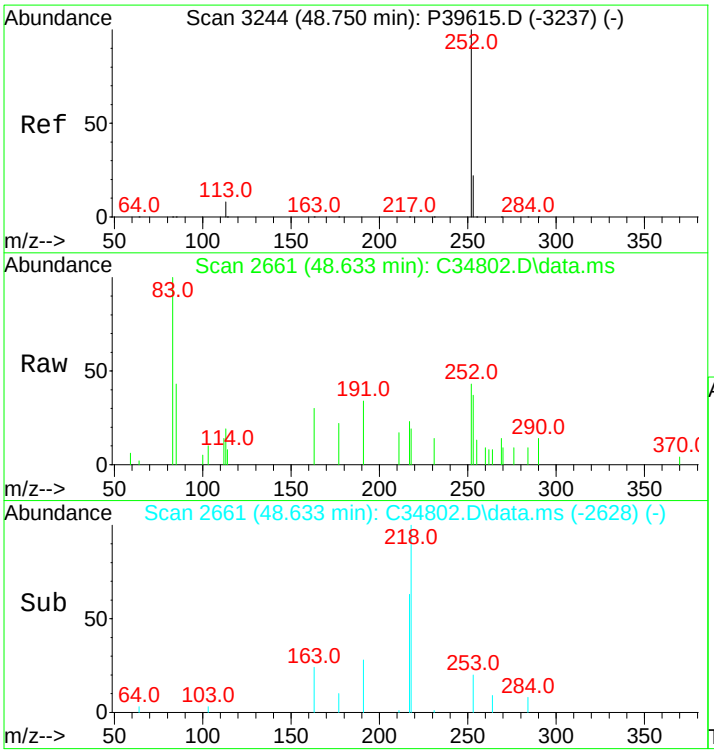


#87
Benzo[a]pyrene
Concen: 21.23 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 2450

Ion	Ratio	Lower	Upper
252	100		
253	51.2	19.5	29.3#

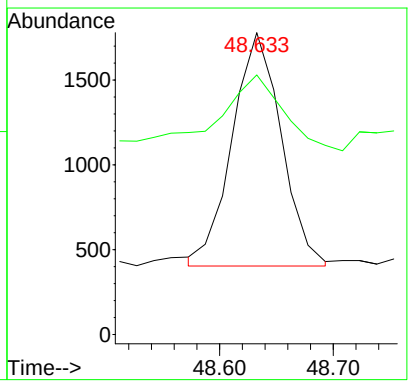


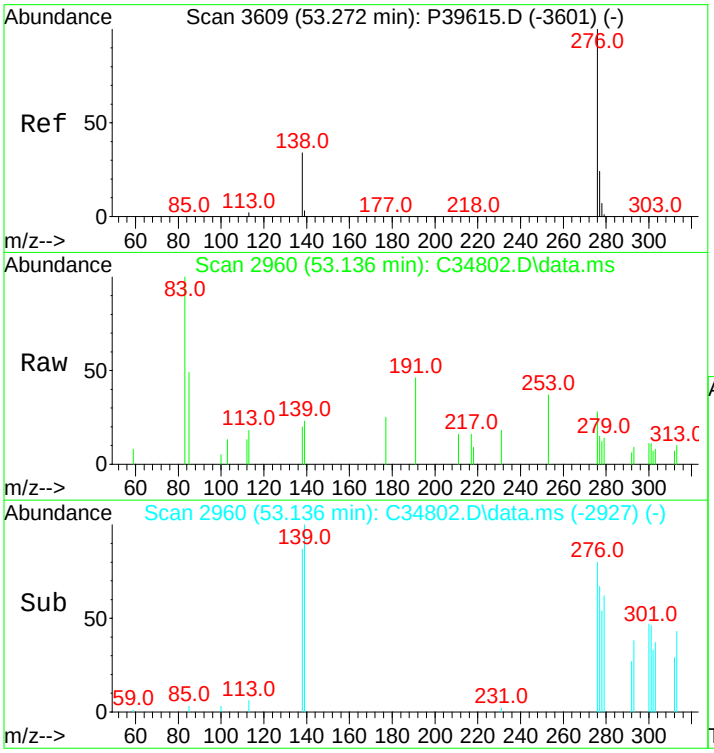


#88
Perylene
Concen: 33.47 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:252 Resp: 4127

Ion	Ratio	Lower	Upper
252	100		
253	43.5	19.6	29.4#

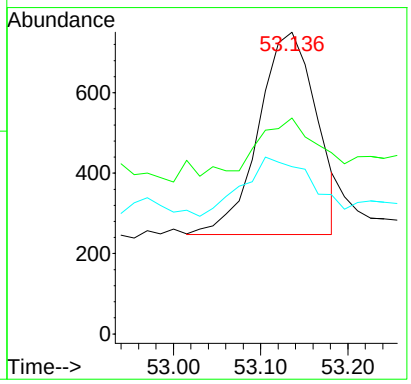


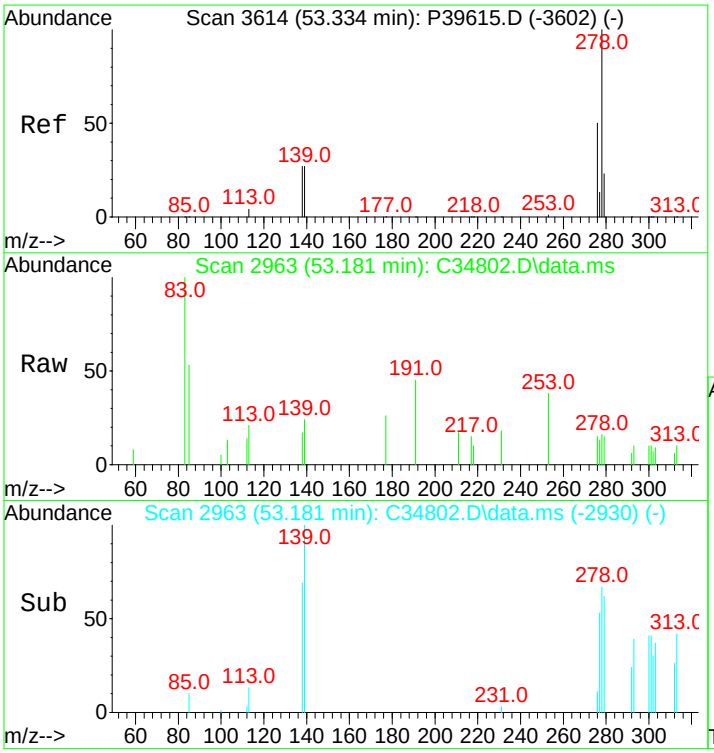


#89
Indeno[1,2,3-cd]pyrene
Concen: 17.20 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:276 Resp: 2310

Ion	Ratio	Lower	Upper
276	100		
138	23.5	23.3	34.9
277	0.0	19.0	28.4#

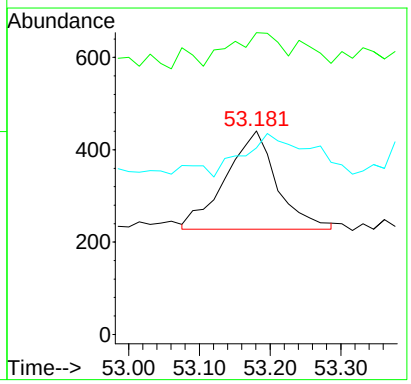


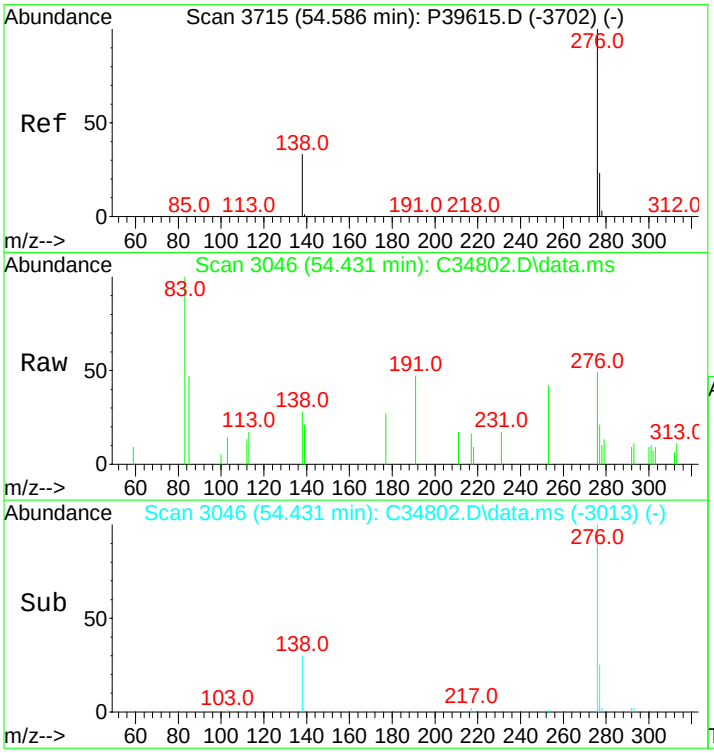


#90
Dibenz[ah]+[ac]anthracene
Concen: 8.42 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:278 Resp: 1075

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

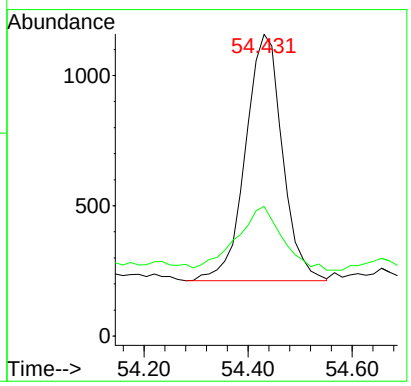


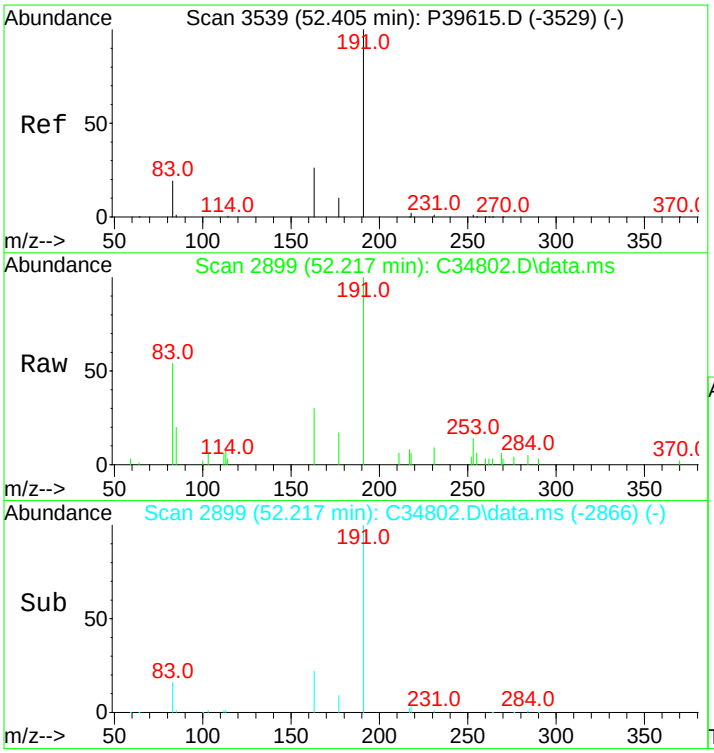


#91
Benzo[g,h,i]perylene
Concen: 32.97 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:276 Resp: 4677

Ion	Ratio	Lower	Upper
276	100		
277	31.8	18.9	28.3#

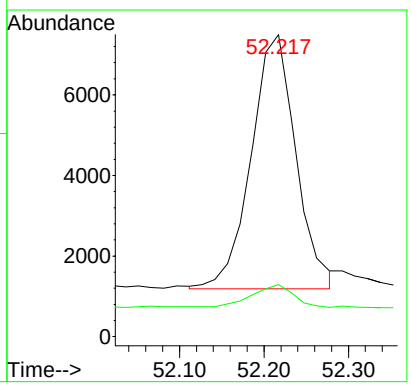


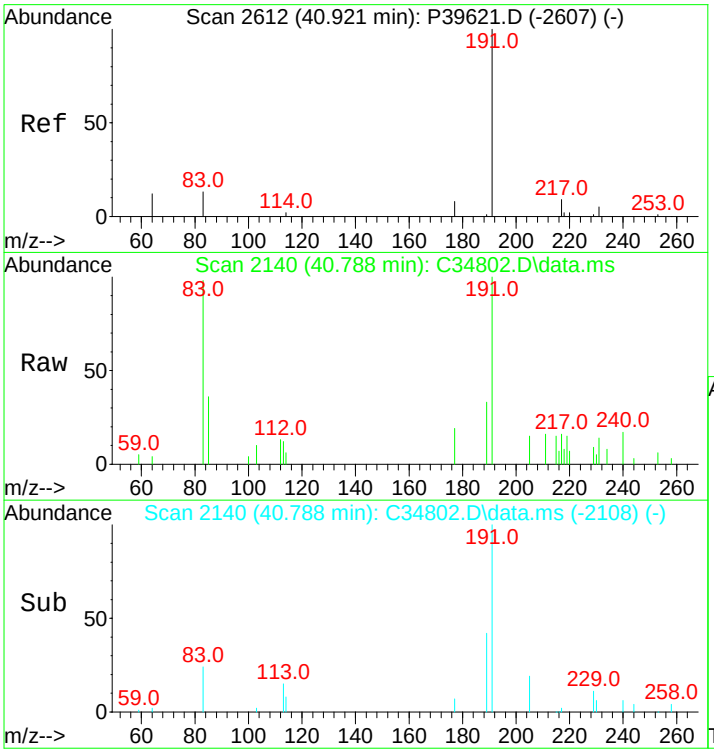


#92
Hopane (T19)
Concen: 1012.51 ng/mL m
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:191 Resp: 23182

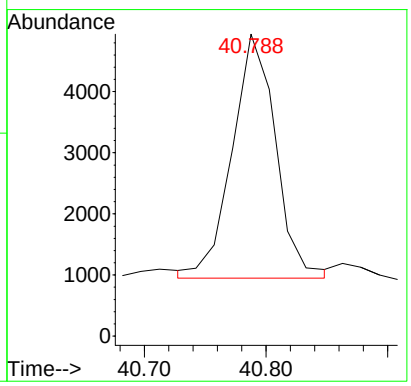
Ion	Ratio	Lower	Upper
191	100		
177	0.7	14.6	21.8#

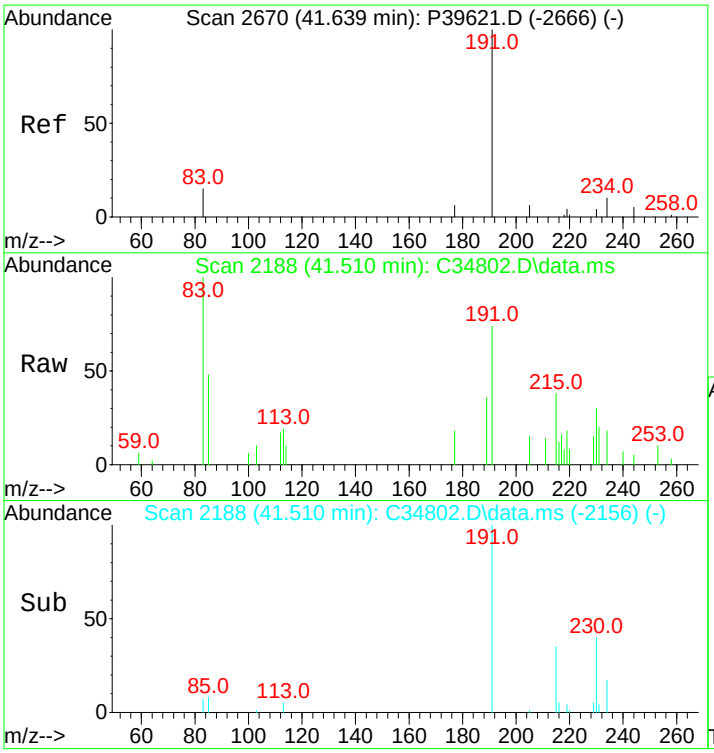




#94
C23 Tricyclic Terpane (T4)
Concen: 433.93 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

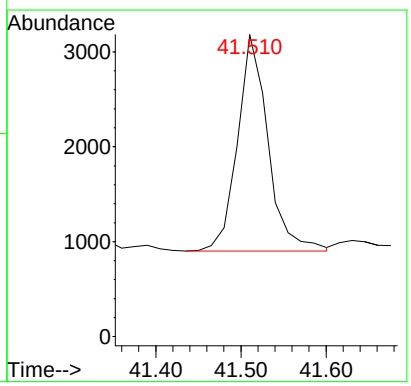
Tgt Ion:191 Resp: 9935

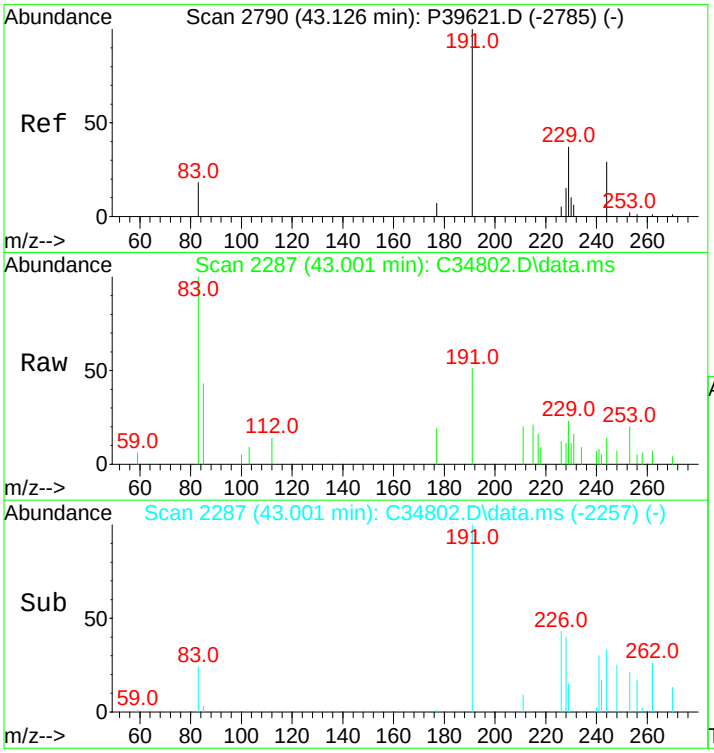




#95
C24 Tricyclic Terpane (T5)
Concen: 247.21 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

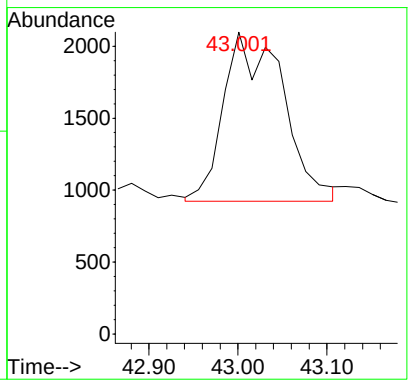
Tgt Ion:191 Resp: 5660

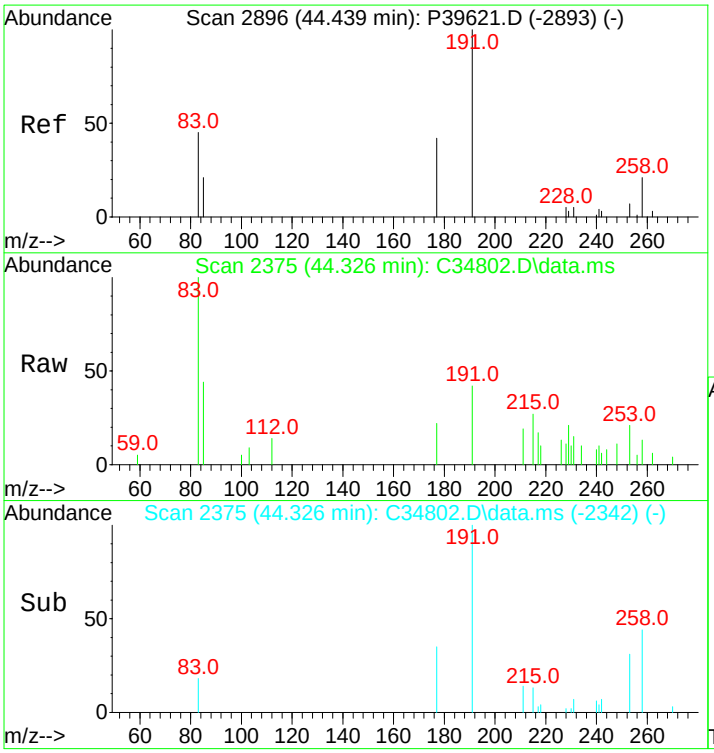




#96
C25 Tricyclic Terpane (T6)
Concen: 238.17 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

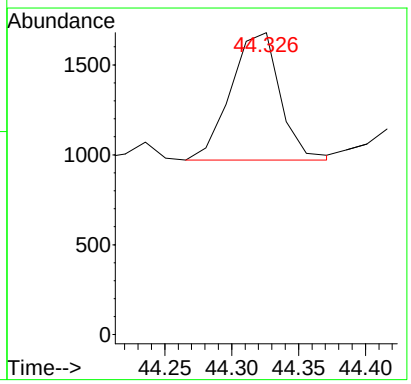
Tgt Ion:191 Resp: 5453

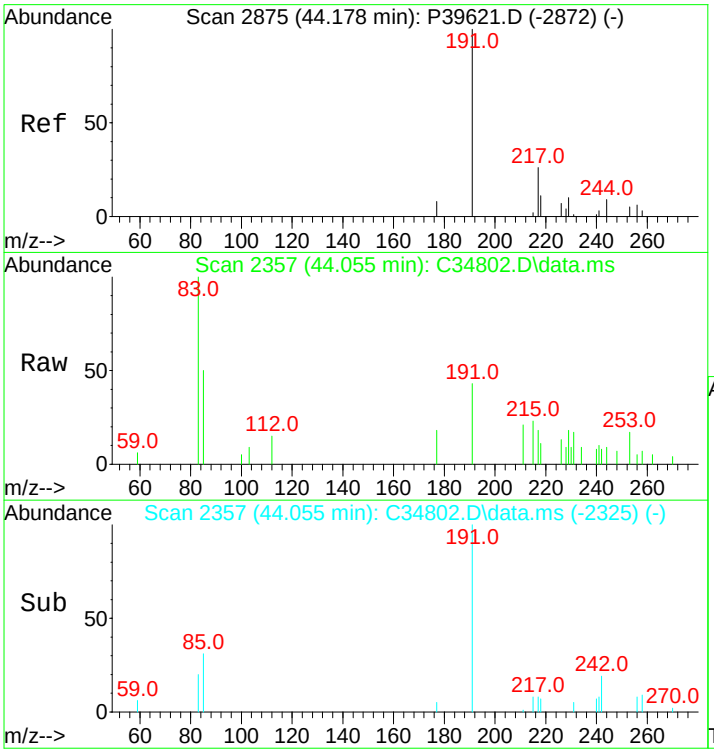




#97
C24 Tetracyclic Terpane (T6a)
Concen: 79.88 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

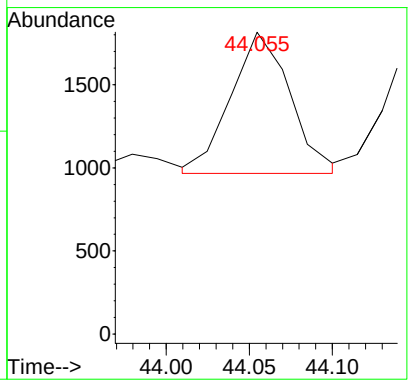
Tgt Ion:191 Resp: 1829

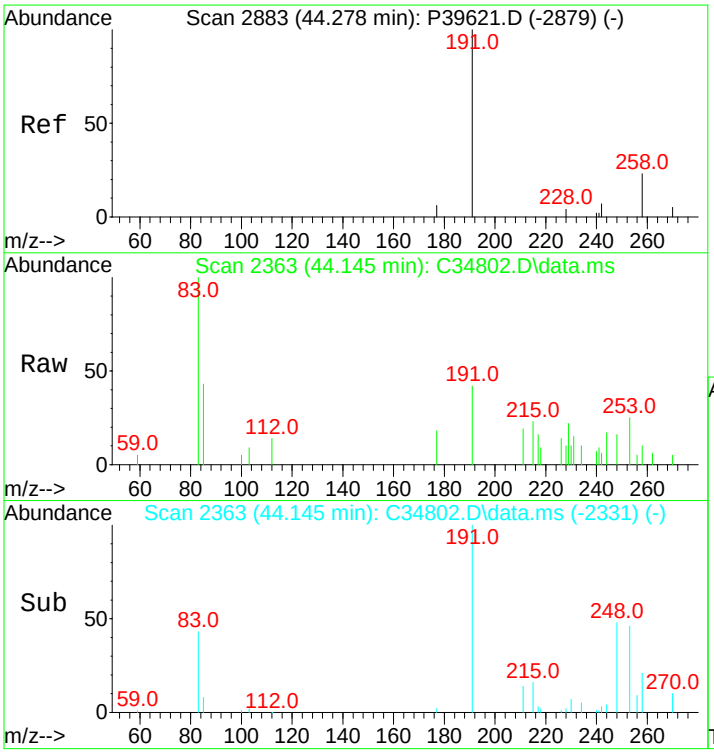




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.98 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

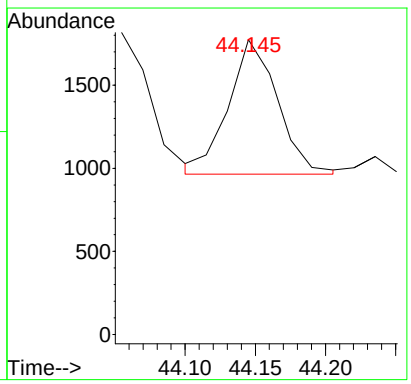
Tgt Ion:191 Resp: 2106

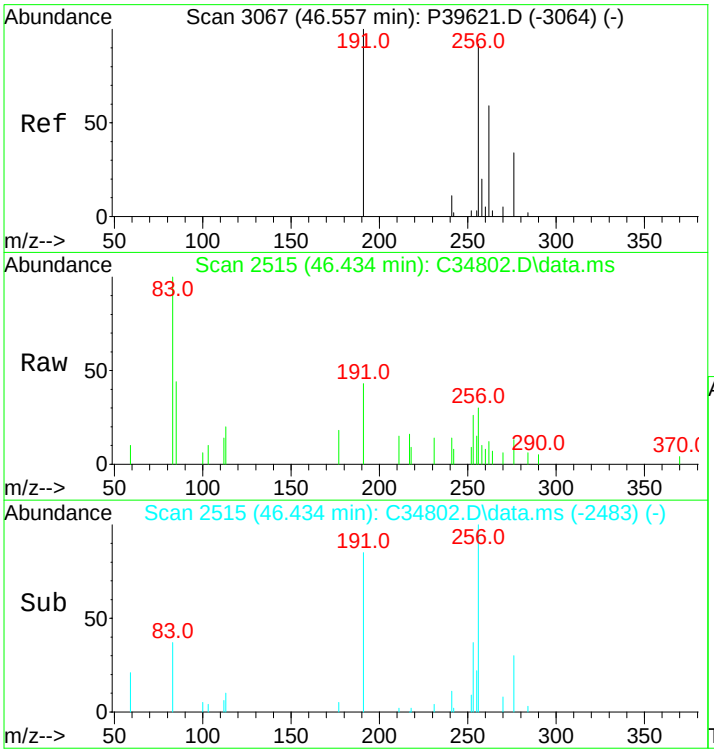




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 85.96 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

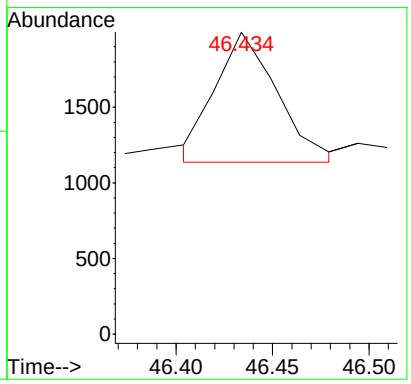
Tgt Ion:191 Resp: 1968

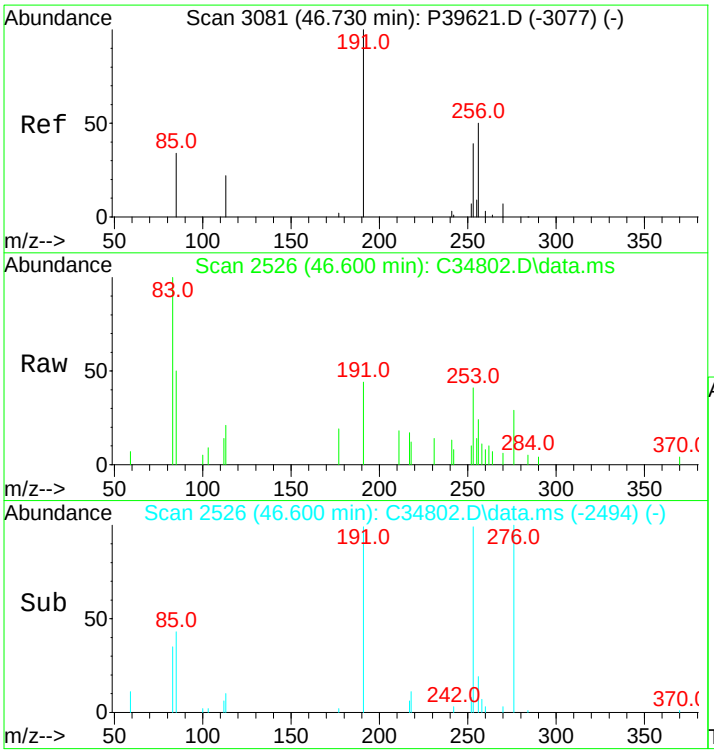




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 83.73 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

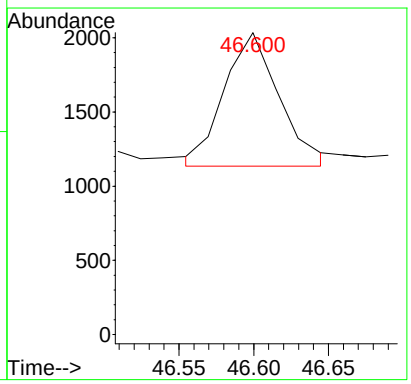
Tgt Ion:191 Resp: 1917

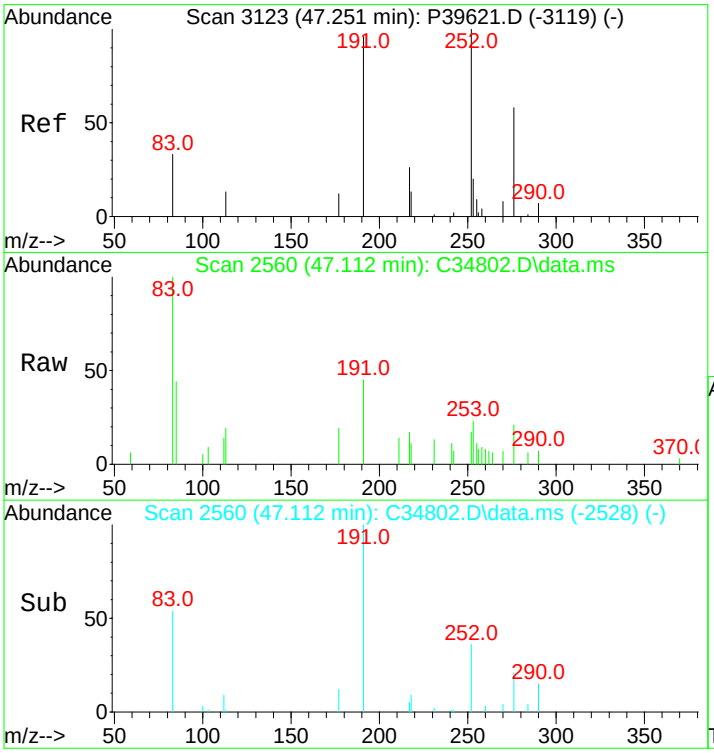




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 100.72 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

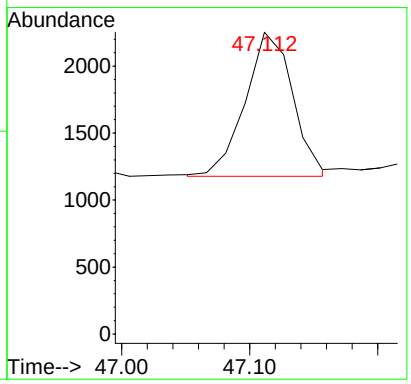
Tgt Ion:191 Resp: 2306

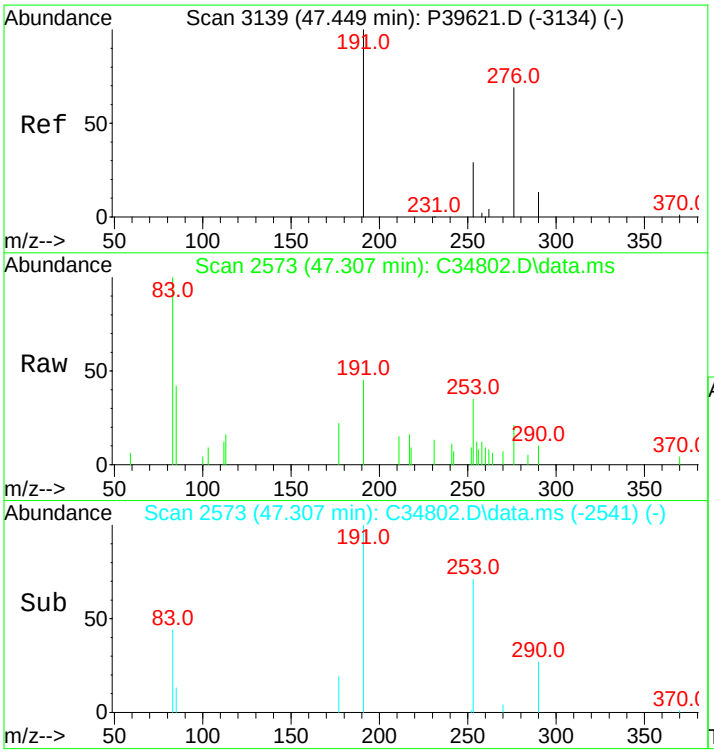




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 121.16 ng/ml m
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

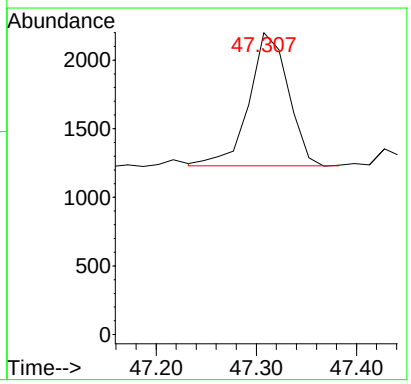
Tgt Ion:191 Resp: 2774

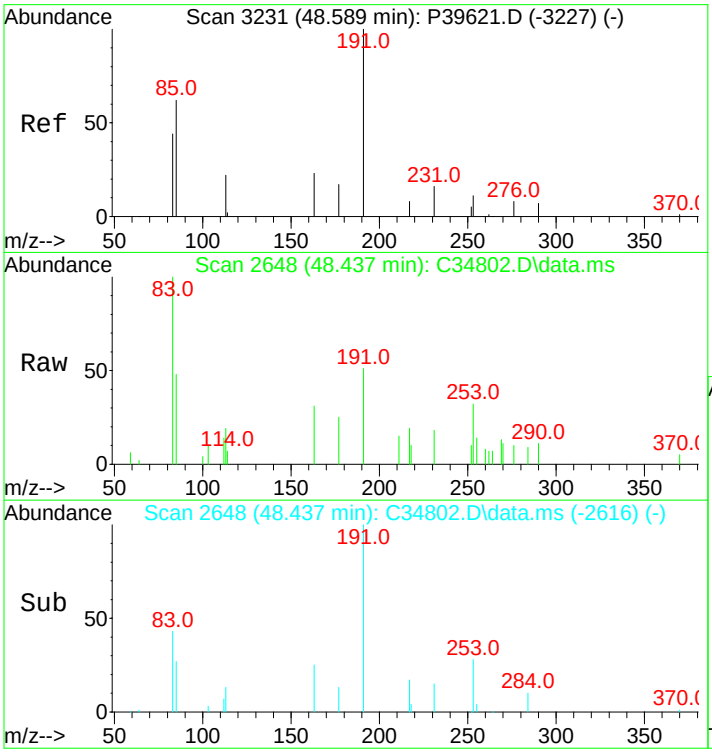




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 115.35 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

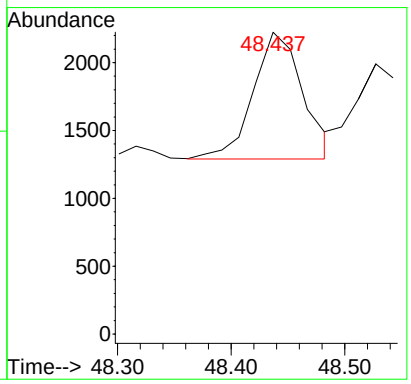
Tgt Ion:191 Resp: 2641

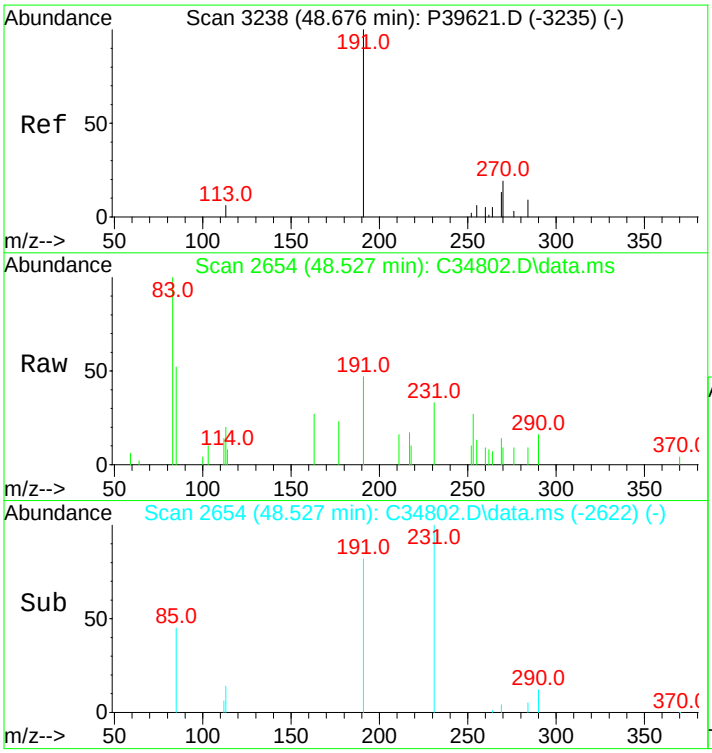




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 123.87 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

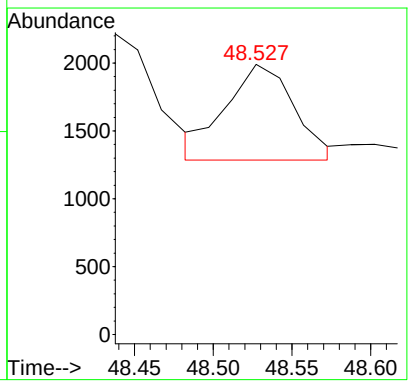
Tgt Ion:191 Resp: 2836

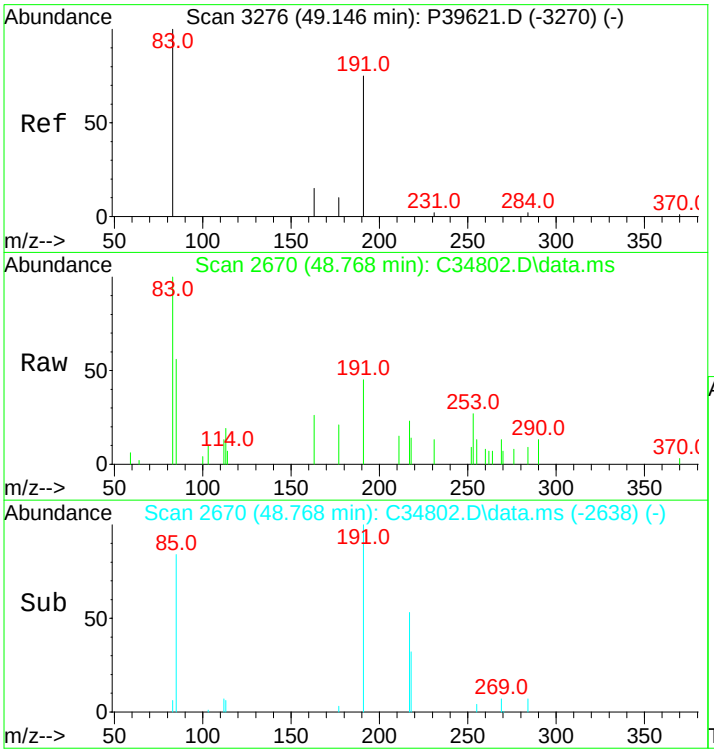




#105
C30 Tricyclic Terpane-22S
Concen: 92.81 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

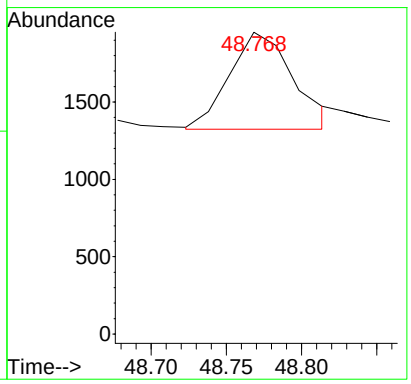
Tgt Ion:191 Resp: 2125

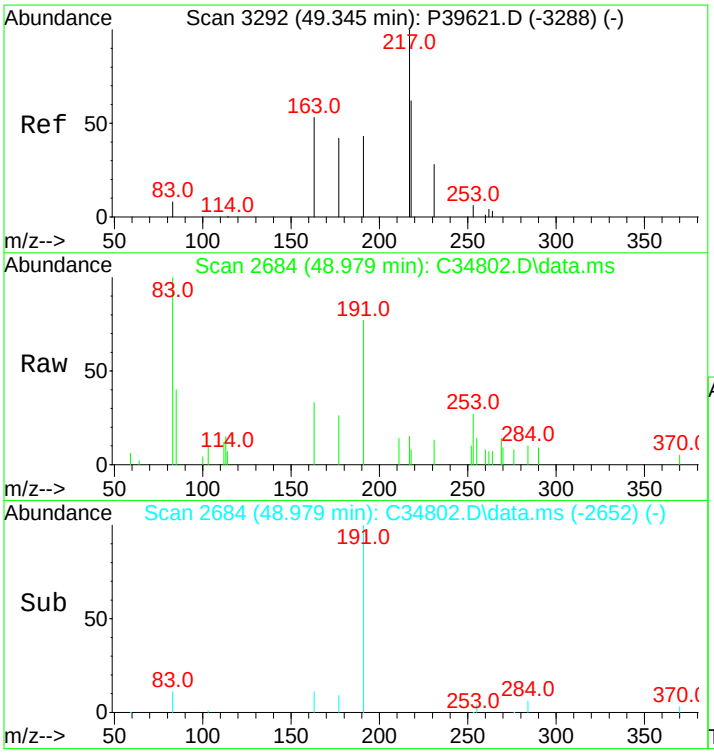




#106
C30 Tricyclic Terpane-22R
Concen: 80.98 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

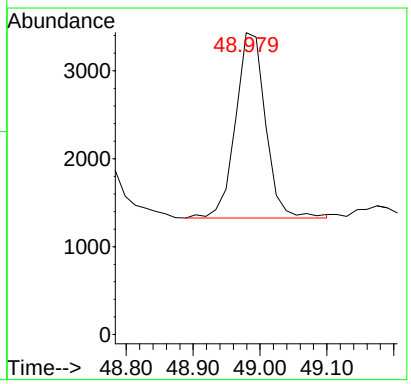
Tgt Ion:191 Resp: 1854

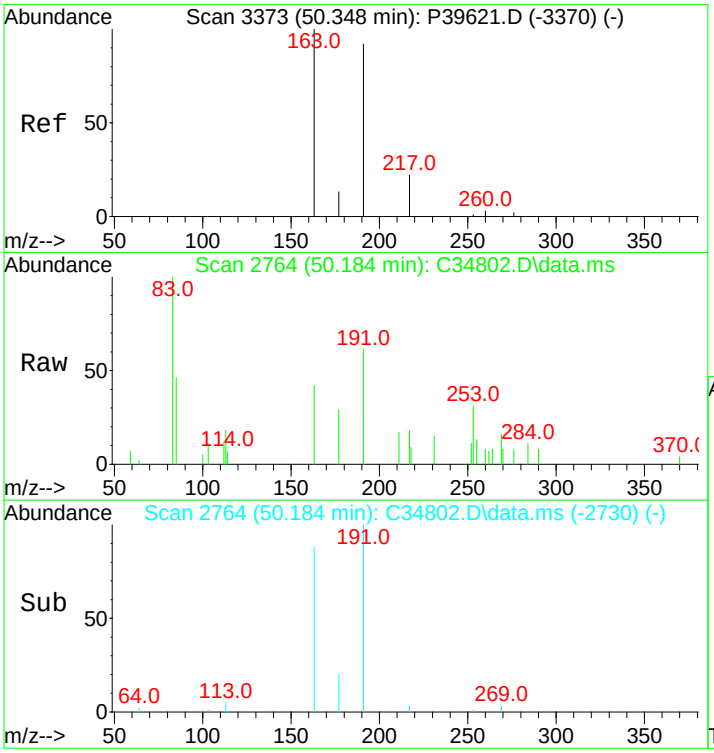




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 289.10 ng/ml
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

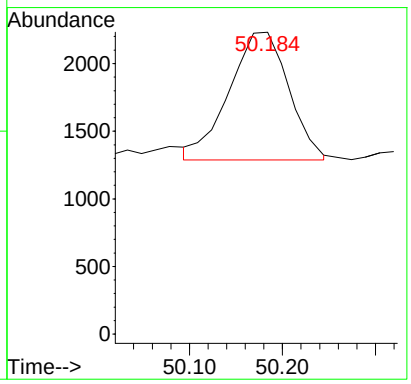
Tgt Ion:191 Resp: 6619

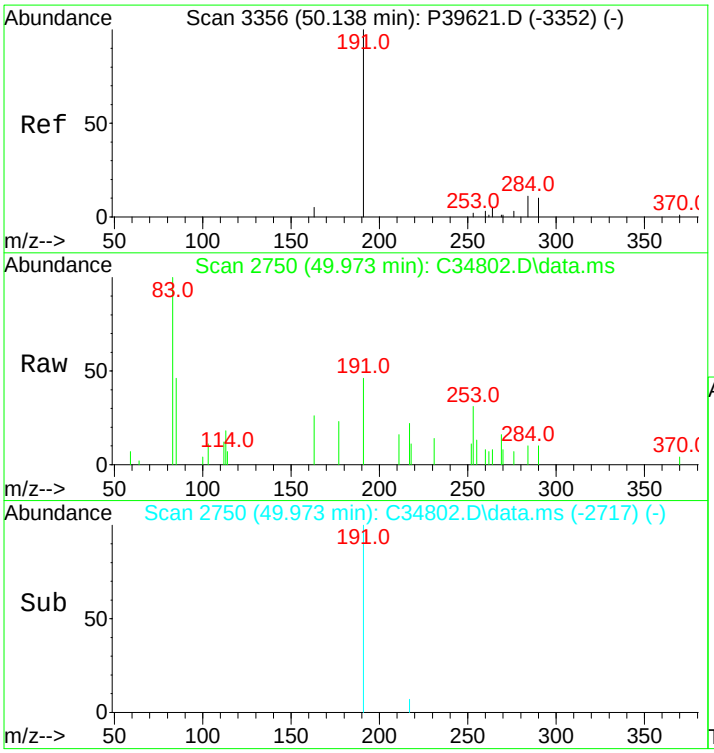




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 183.79 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

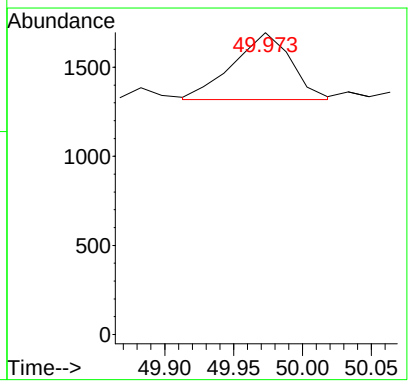
Tgt Ion:191 Resp: 4208

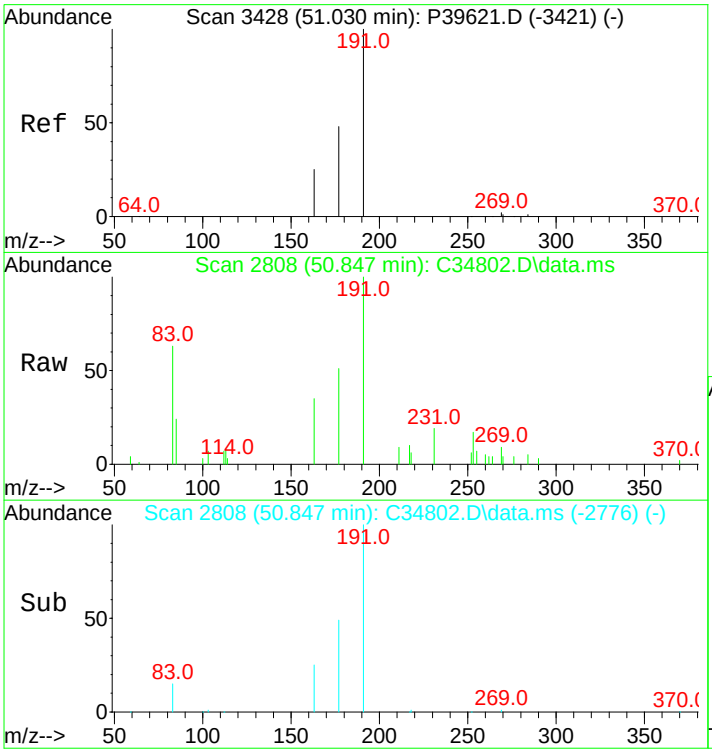




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 47.83 ng/ml m
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

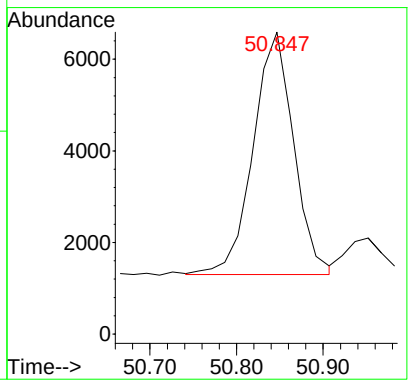
Tgt Ion:191 Resp: 1095

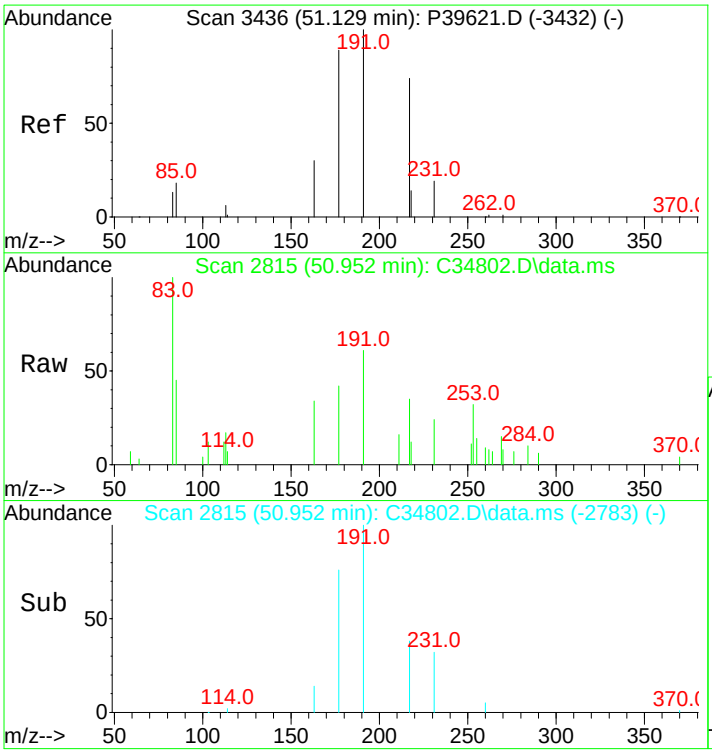




#110
30-Norhopane (T15)
Concen: 749.62 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

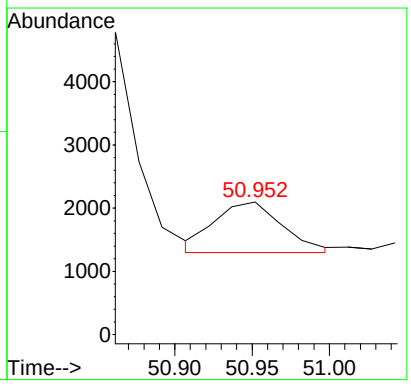
Tgt Ion:191 Resp: 17163

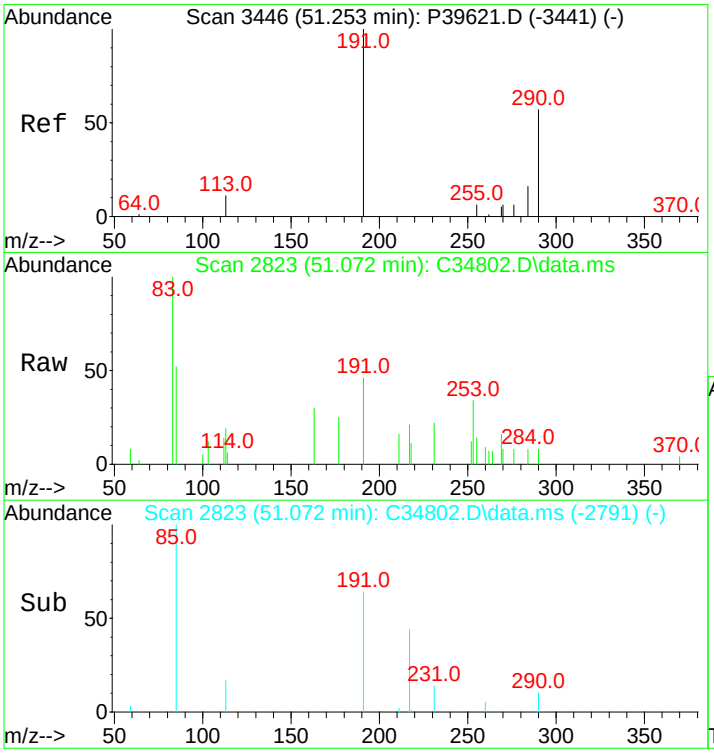




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 106.18 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

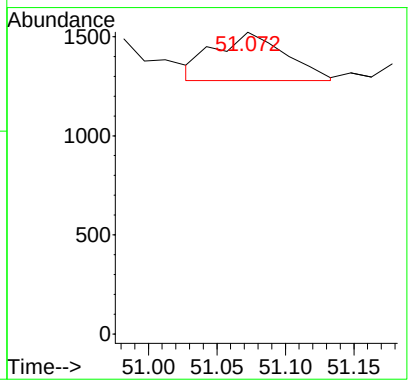
Tgt Ion:191 Resp: 2431

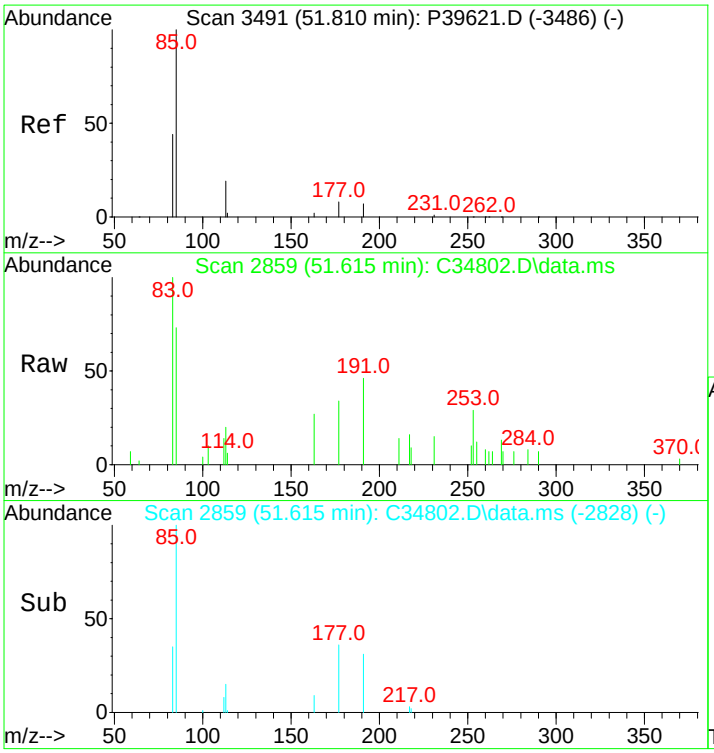




#112
17a(H)-Diahopane (X)
Concen: 37.69 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

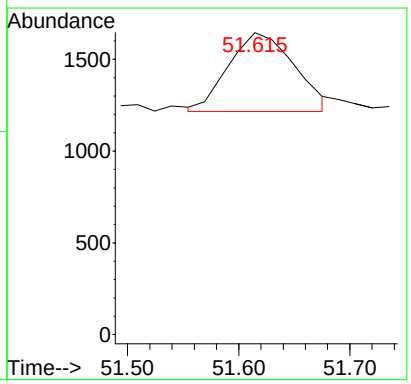
Tgt Ion:191 Resp: 863

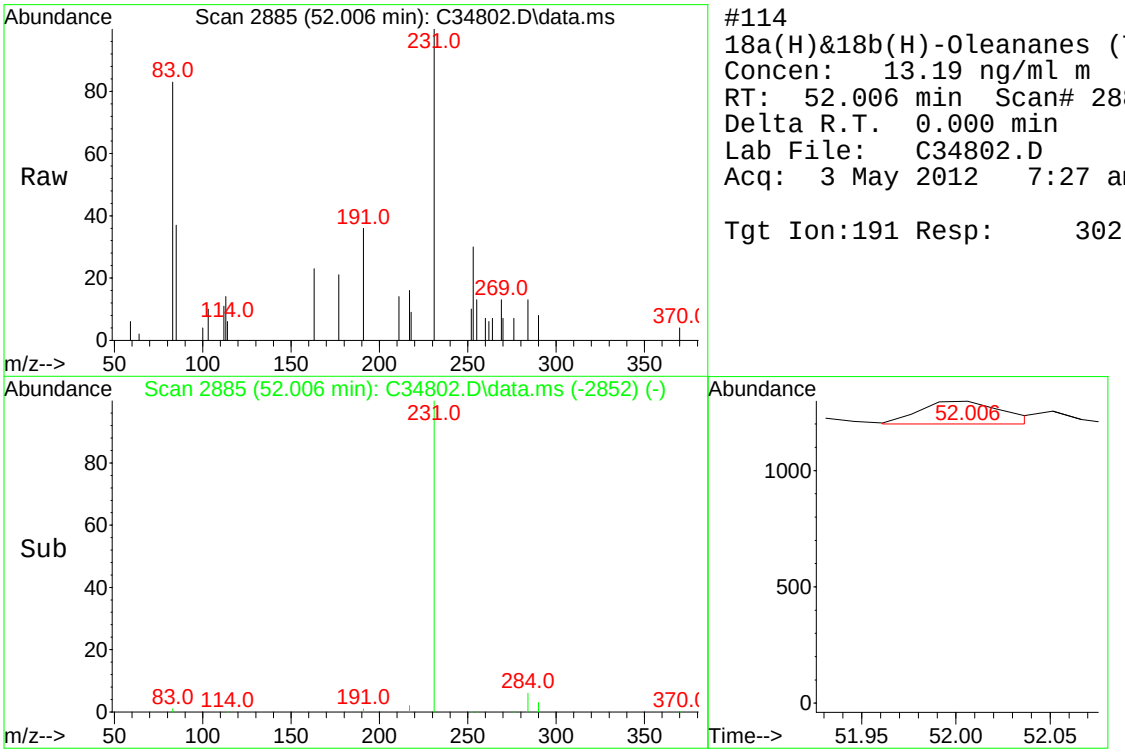




#113
30-Normoretane (T17)
Concen: 76.83 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

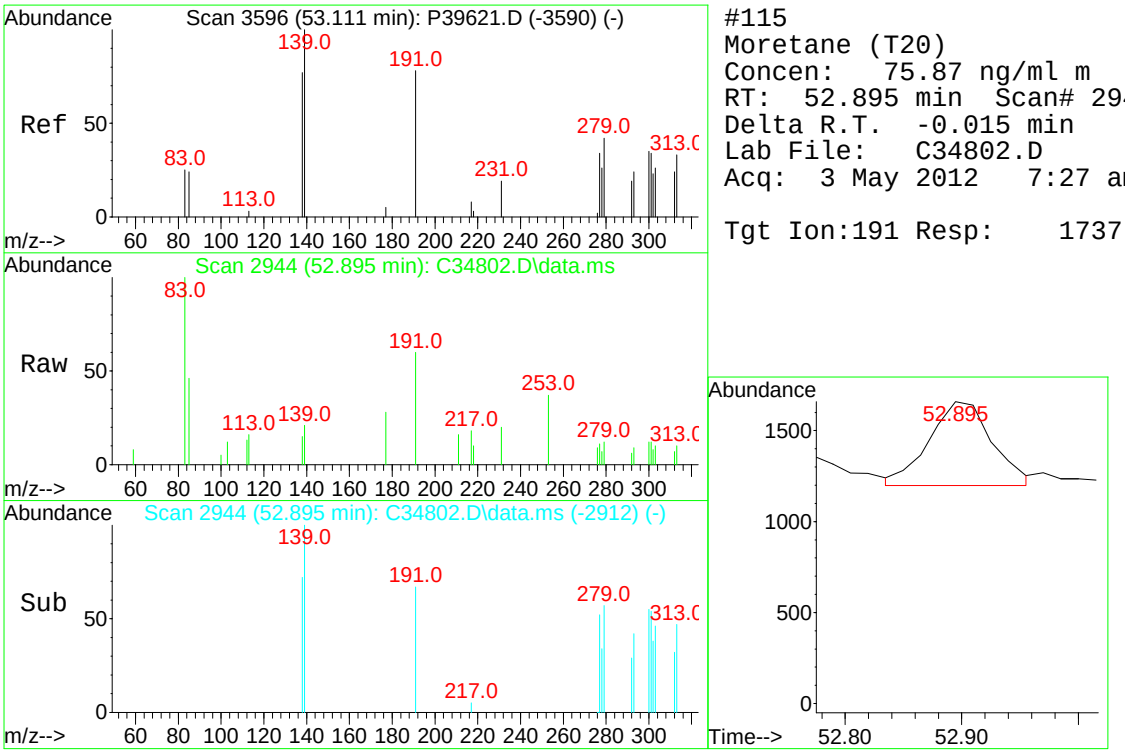
Tgt Ion:191 Resp: 1759





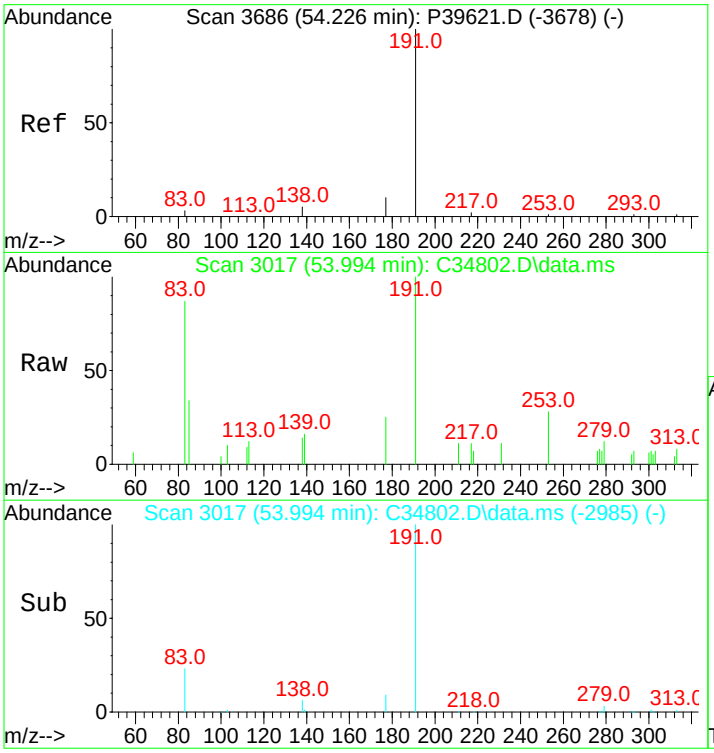
#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 13.19 ng/ml m
RT: 52.006 min Scan# 2885
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:191 Resp: 302



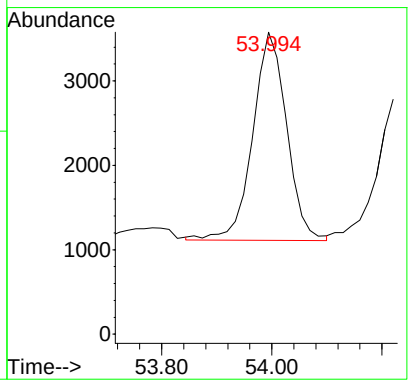
#115
Moretane (T20)
Concen: 75.87 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

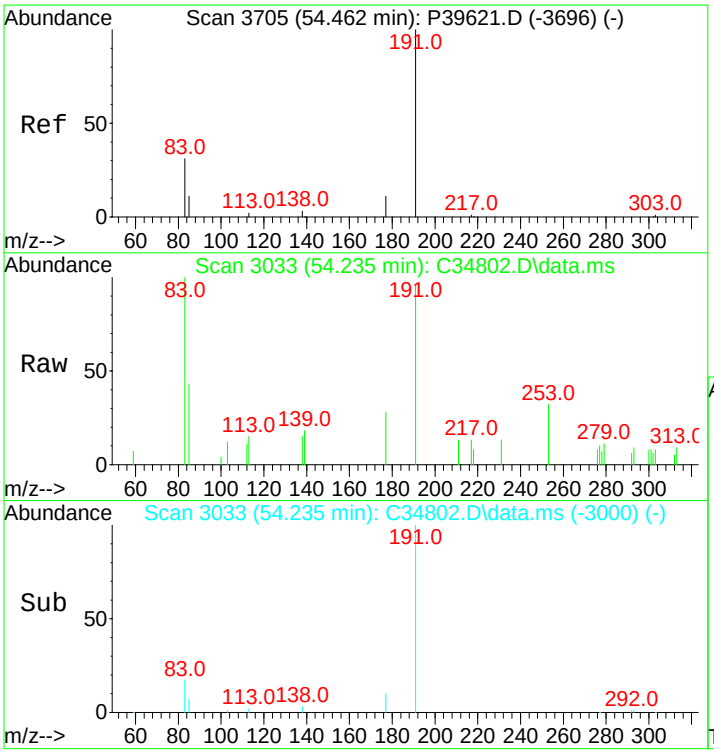
Tgt Ion:191 Resp: 1737



#116
30-Homohopane-22S (T21)
Concen: 458.96 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

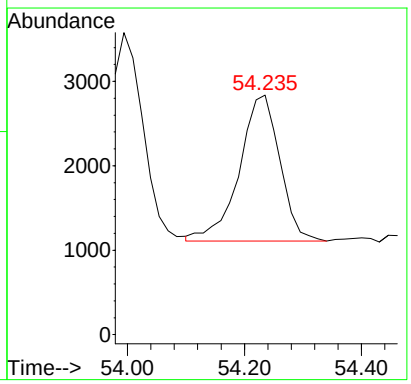
Tgt Ion:191 Resp: 10508

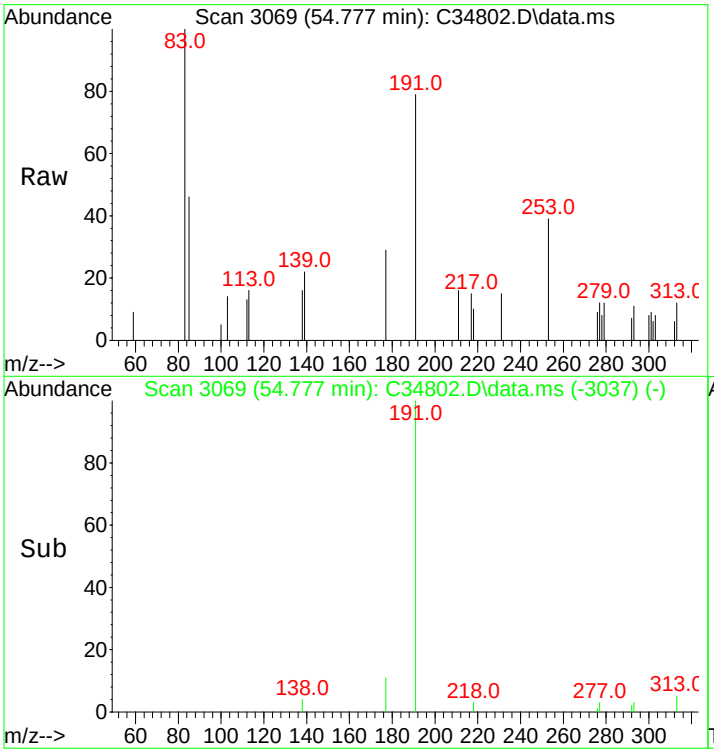




#117
30-Homohopane-22R (T22)
Concen: 362.52 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

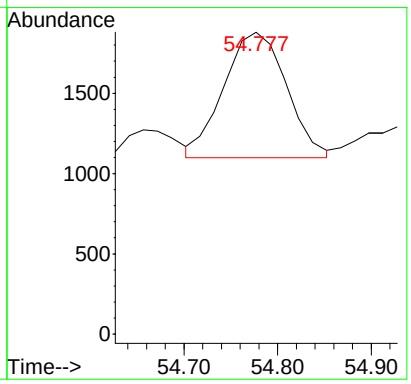
Tgt Ion:191 Resp: 8300

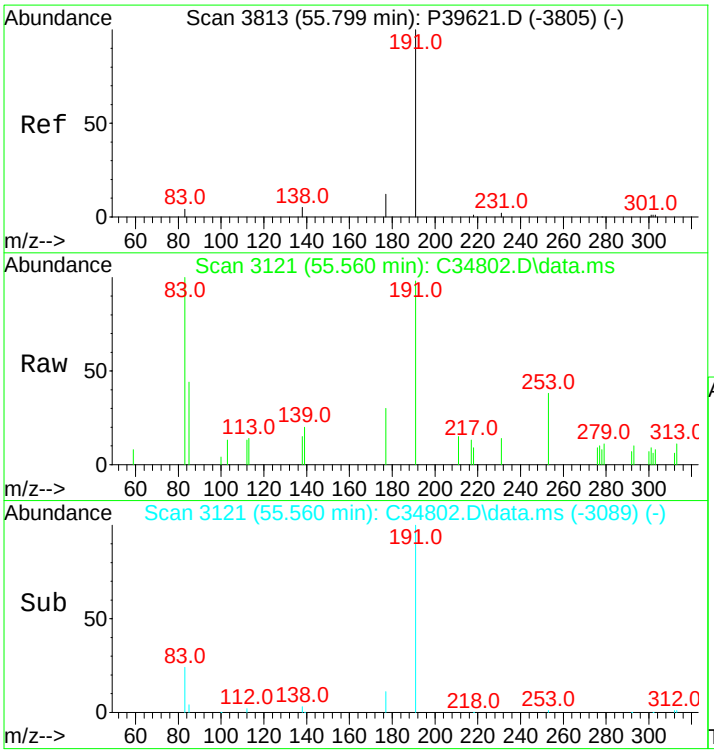




#118
Gammacerane/C32-diahopane
Concen: 158.63 ng/mL
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

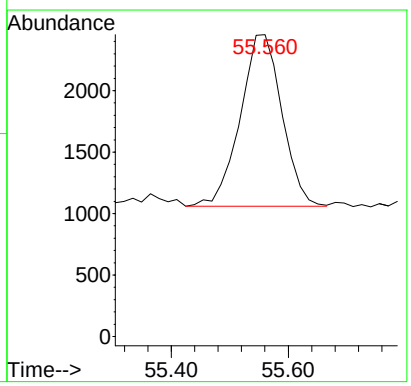
Tgt Ion:191 Resp: 3632

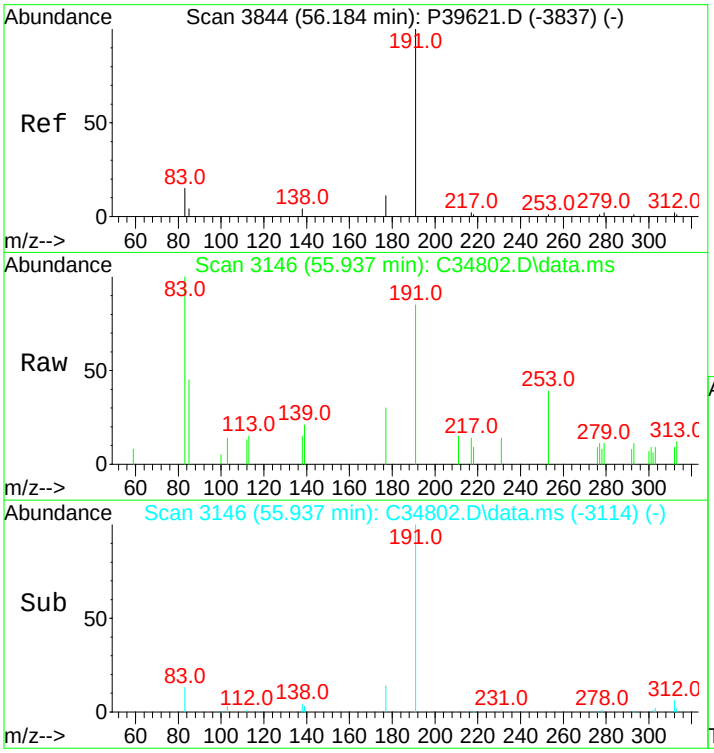




#119
30,31-Bishomohopane-22S (T26)
Concen: 300.23 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

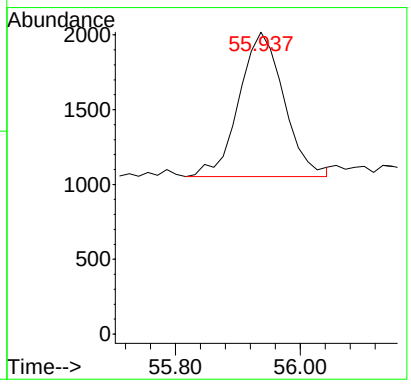
Tgt Ion:191 Resp: 6874

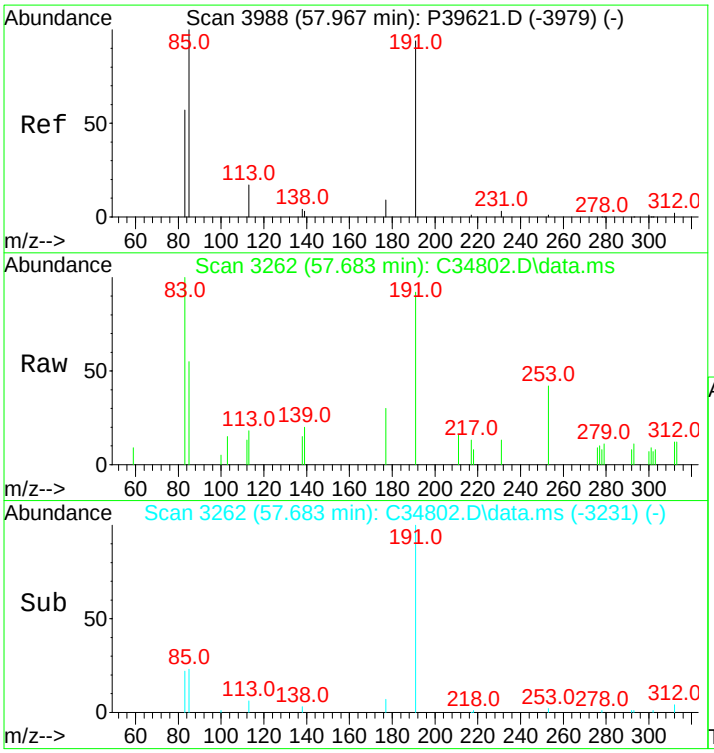




#120
30,31-Bishomohopane-22R (T27)
Concen: 210.83 ng/ml
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

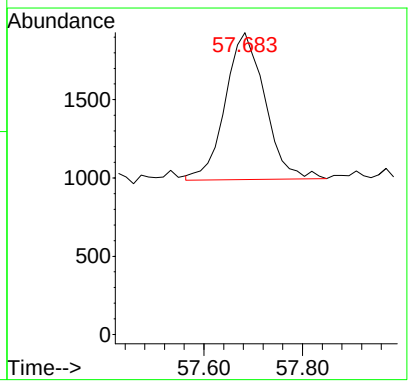
Tgt Ion:191 Resp: 4827

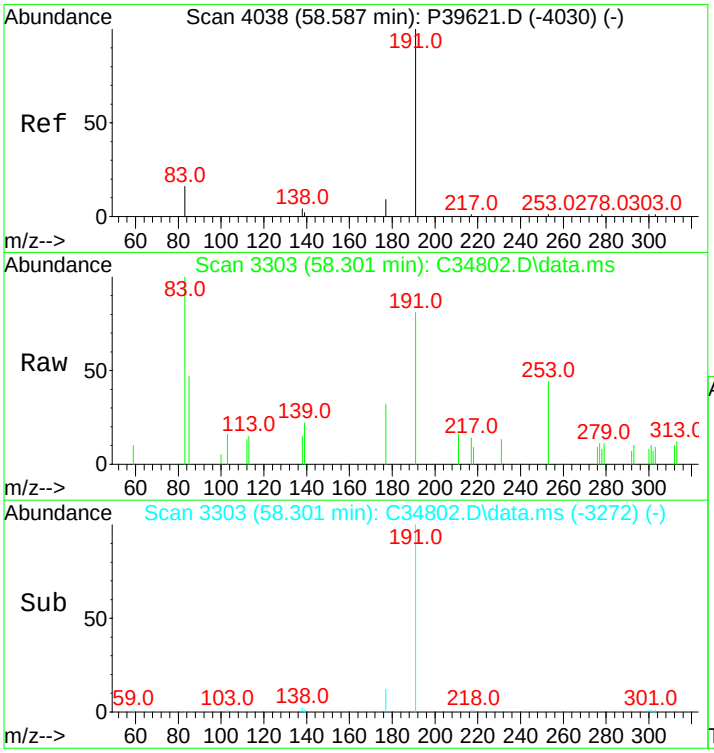




#121
30,31-Trishomohopane-22S (T30)
Concen: 228.47 ng/ml
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

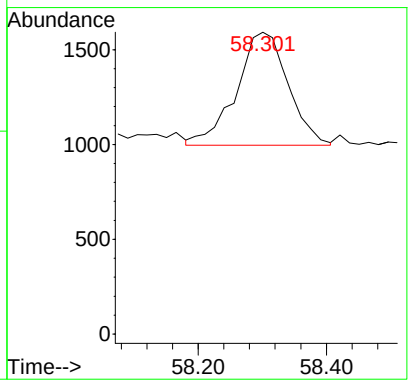
Tgt Ion:191 Resp: 5231

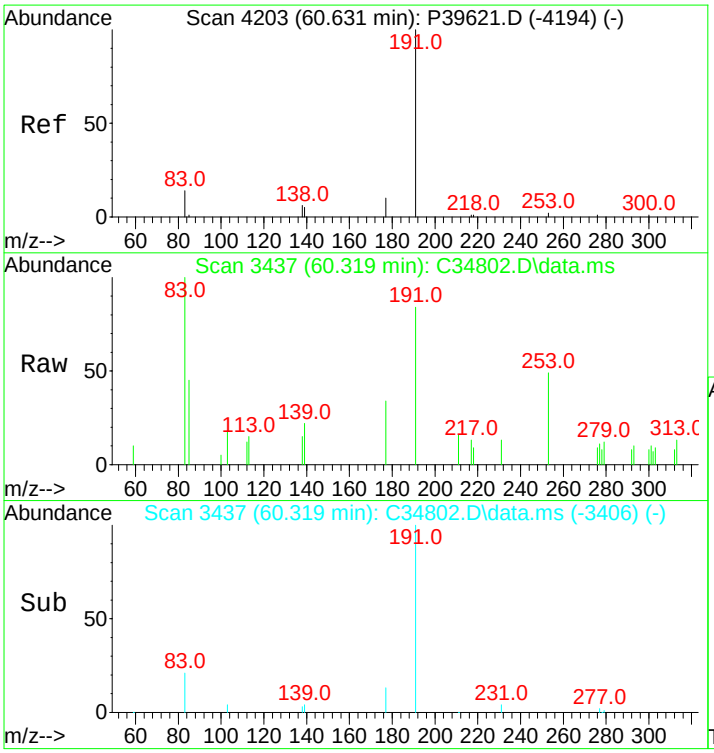




#122
30,31-Trishomohopane-22R (T31)
Concen: 146.10 ng/ml m
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

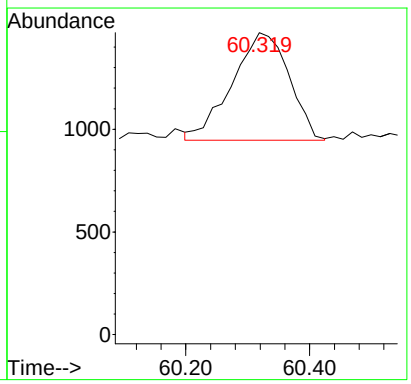
Tgt Ion:191 Resp: 3345

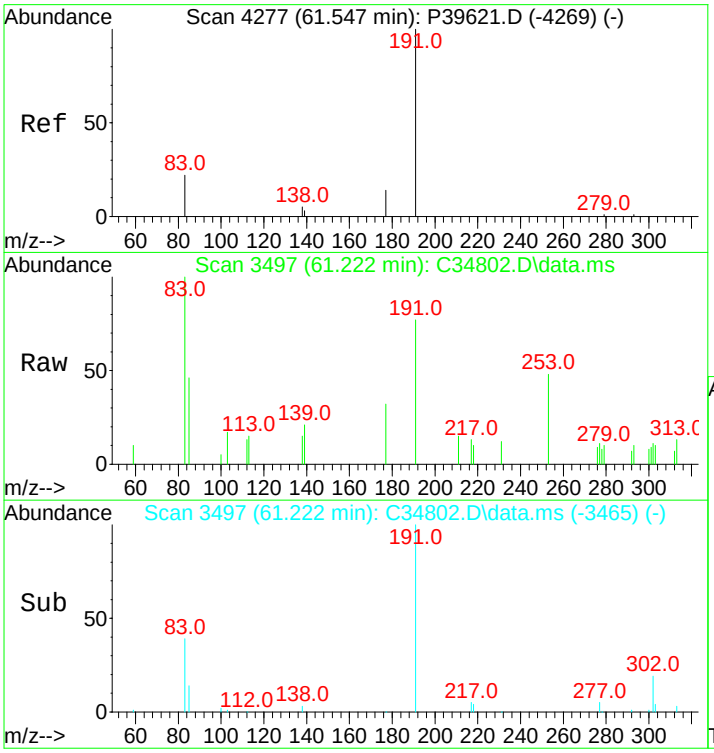




#123
Tetrakishomohopane-22S (T32)
Concen: 145.71 ng/ml m
RT: 60.319 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

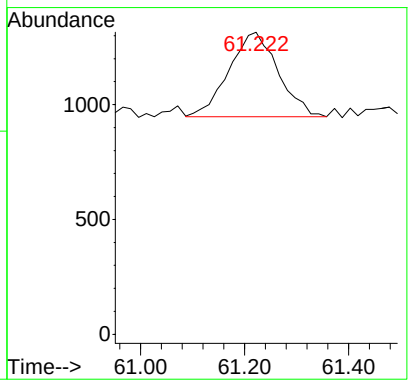
Tgt Ion:191 Resp: 3336

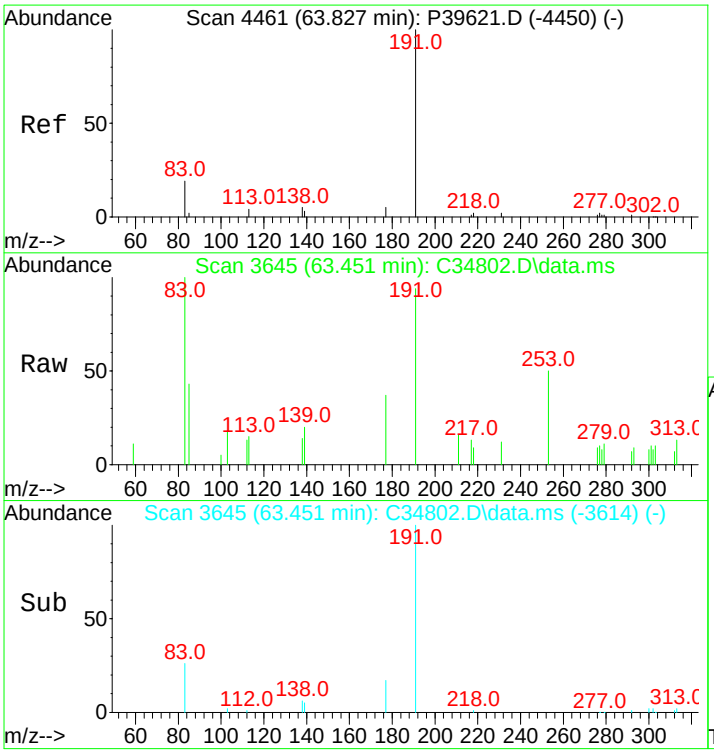




#124
Tetrakishomohopane-22R (T33)
Concen: 105.30 ng/ml
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

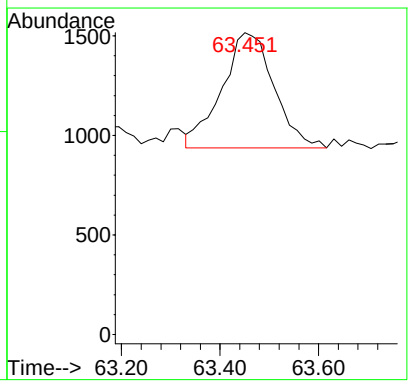
Tgt Ion:191 Resp: 2411

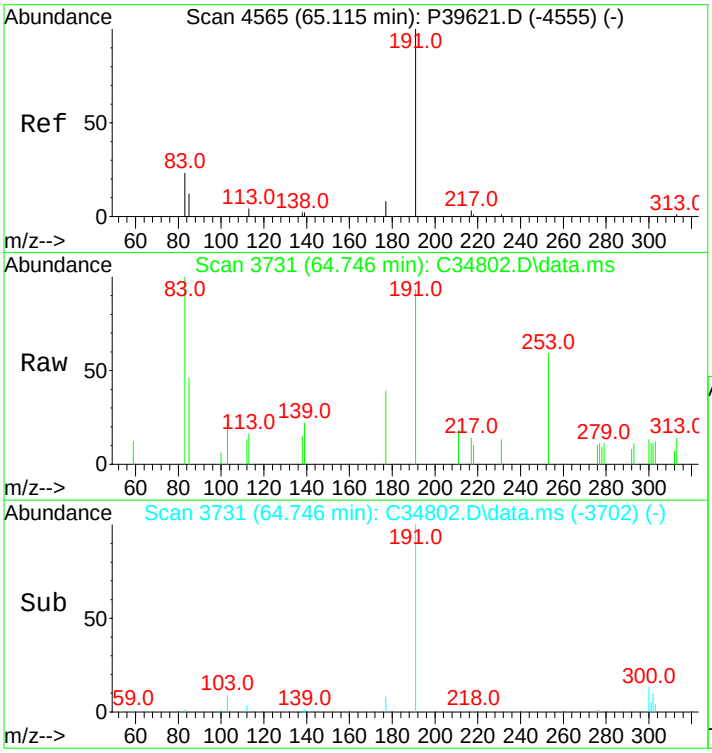




#125
Pentakishomohopane-22S (T34)
Concen: 185.15 ng/ml
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

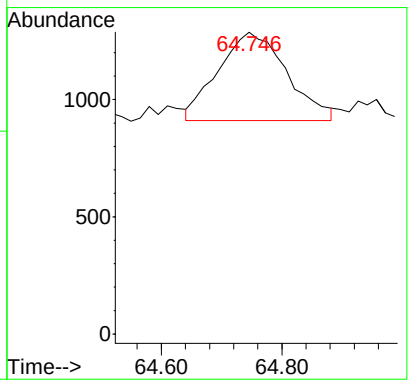
Tgt Ion:191 Resp: 4239

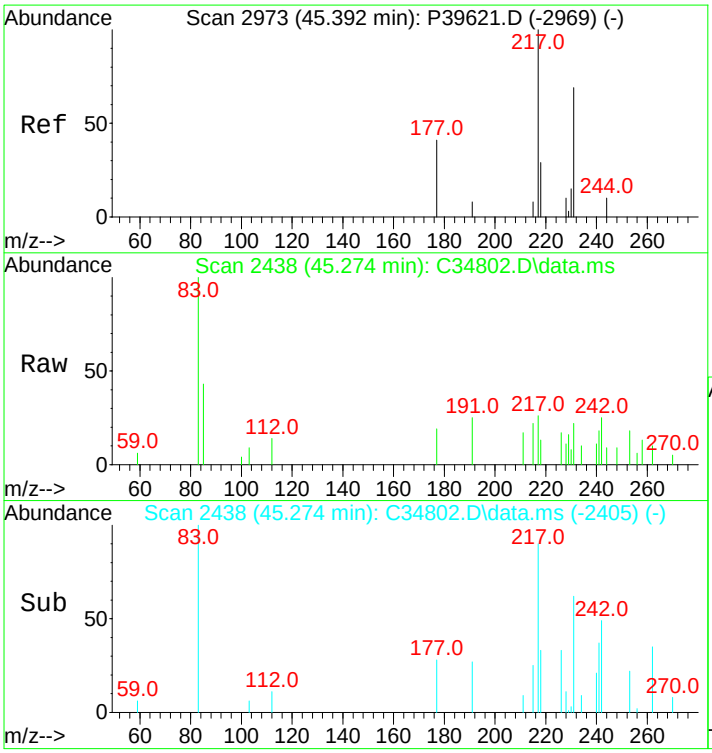




#126
Pentakishomohopane-22R (T35)
Concen: 129.55 ng/ml m
RT: 64.746 min Scan# 3731
Delta R.T. -0.060 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

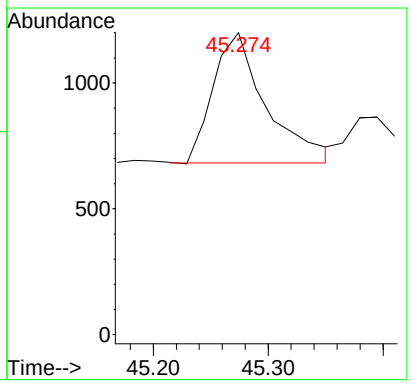
Tgt Ion:191 Resp: 2966

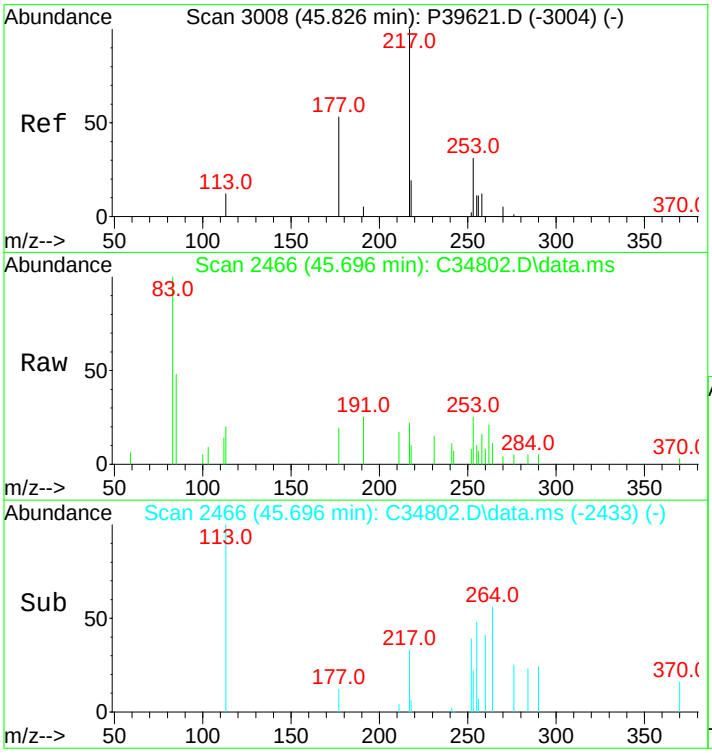




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 153.67 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

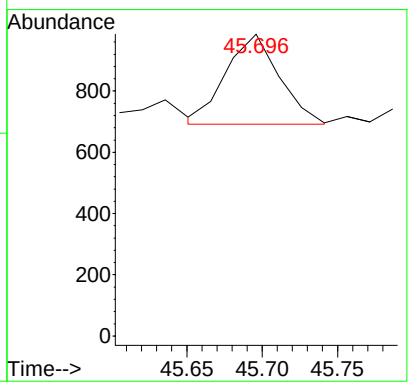
Tgt Ion:217 Resp: 1669

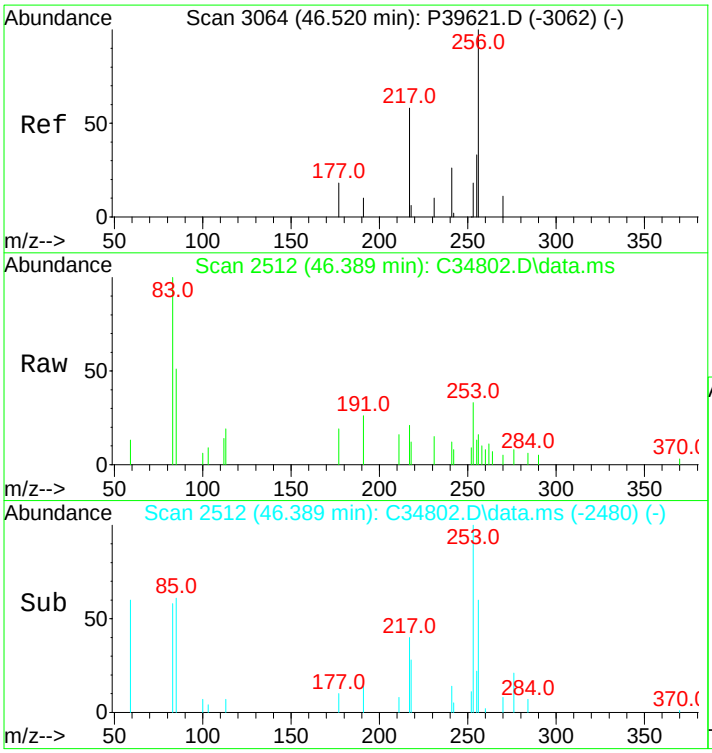




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 66.48 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

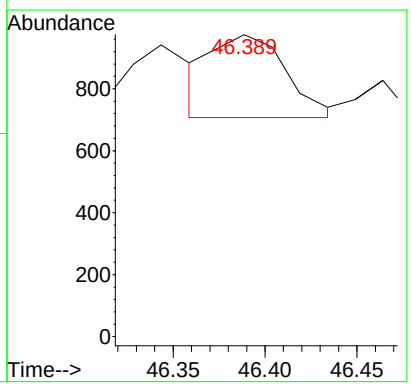
Tgt Ion:217 Resp: 722

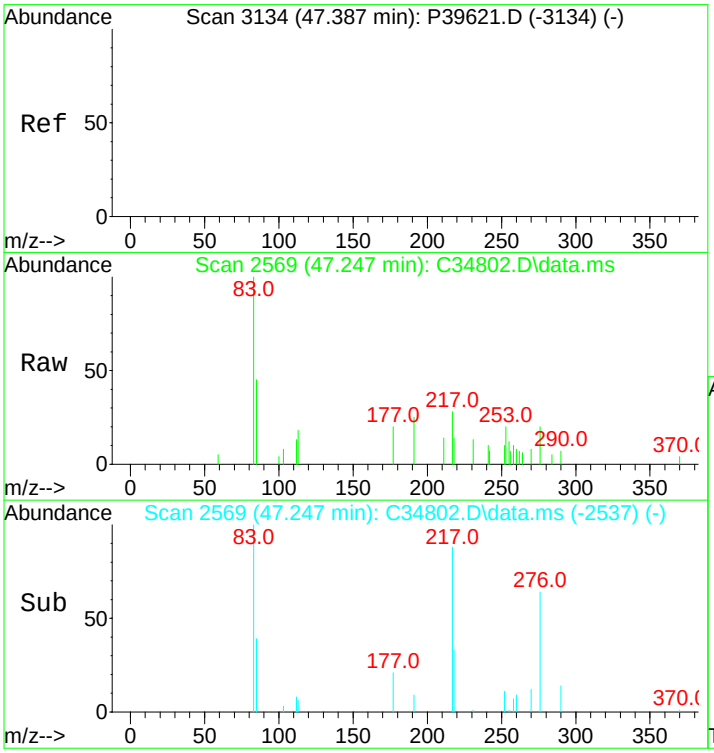




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 68.96 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

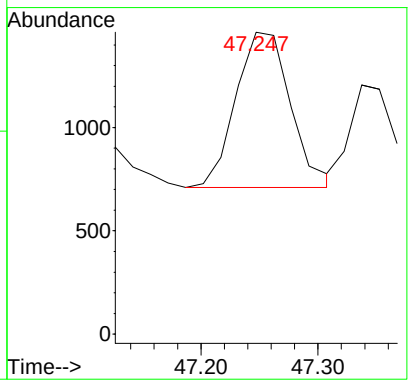
Tgt Ion:217 Resp: 749

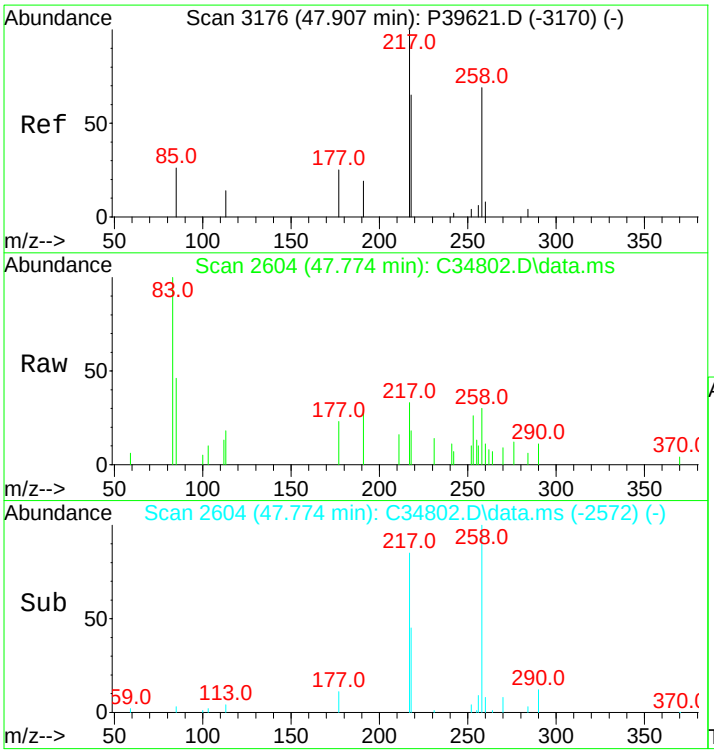




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 224.84 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

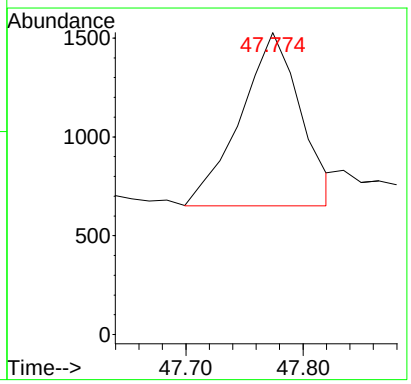
Tgt Ion:217 Resp: 2442

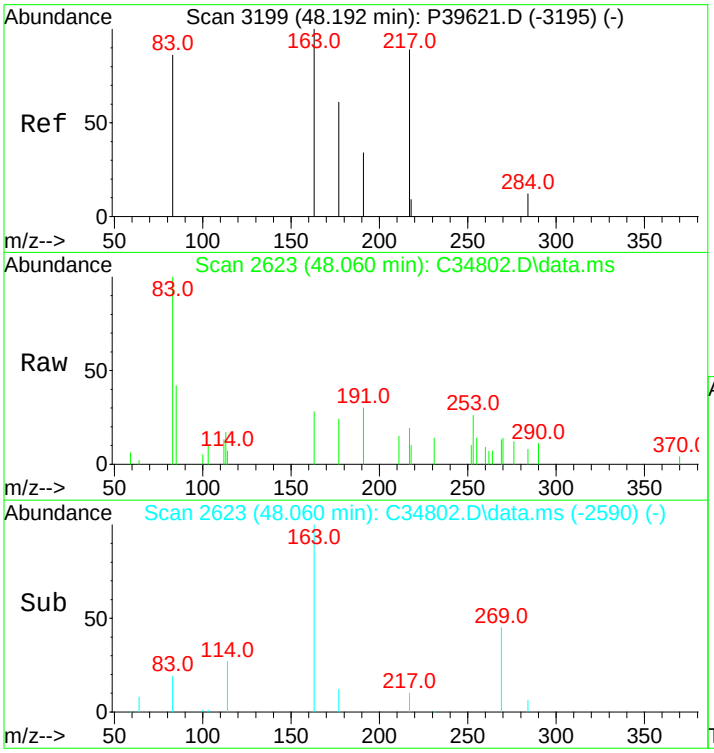




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 288.00 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

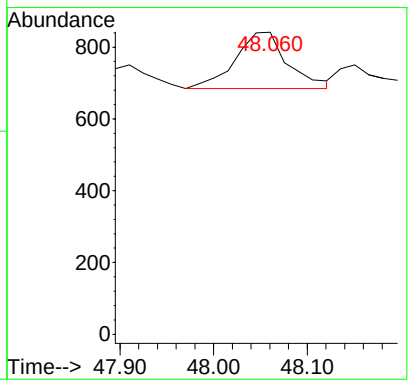
Tgt Ion:217 Resp: 3128

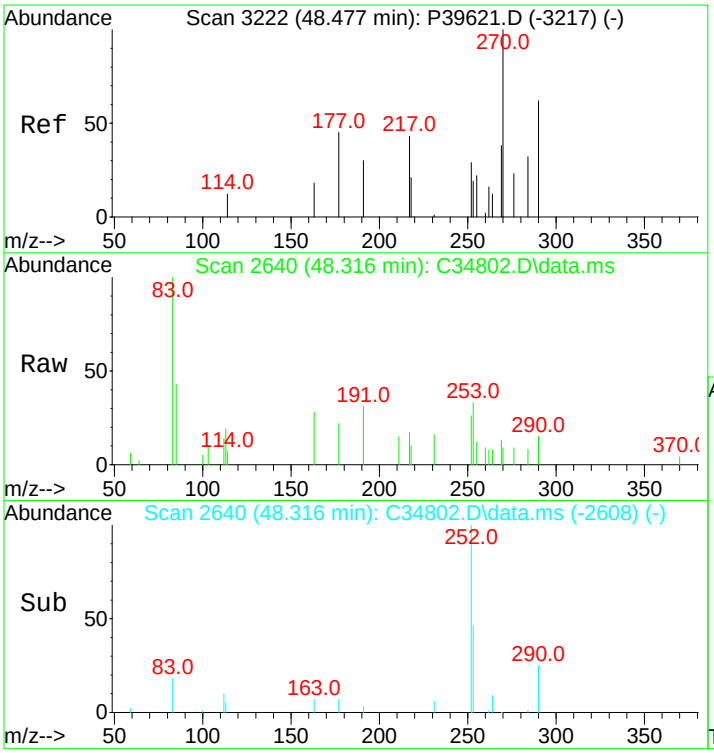




#133
Unknown Sterane (S18)
Concen: 56.44 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

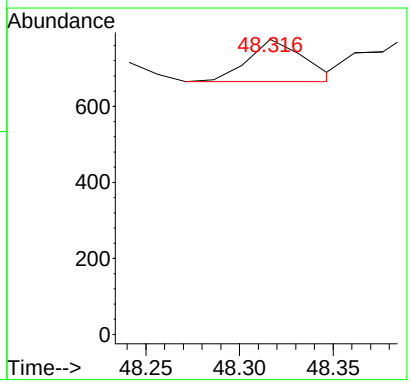
Tgt Ion:217 Resp: 613

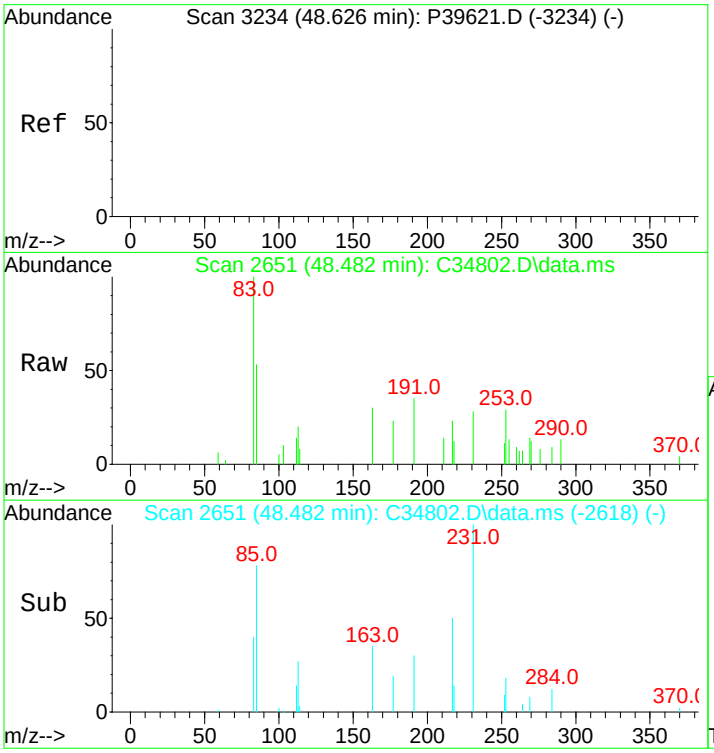




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 21.36 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

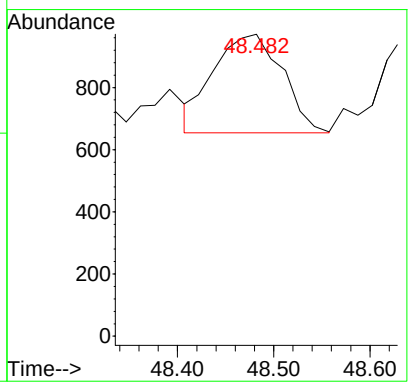
Tgt Ion:217 Resp: 232

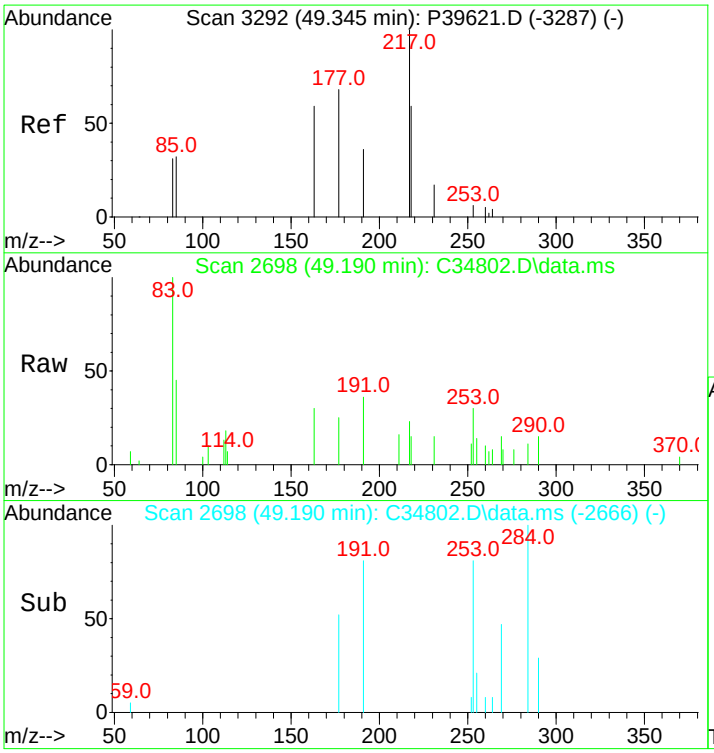




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 145.47 ng/ml m
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

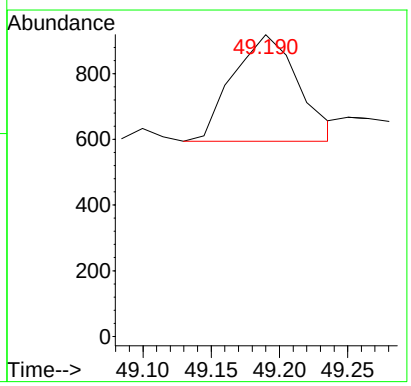
Tgt Ion:217 Resp: 1580

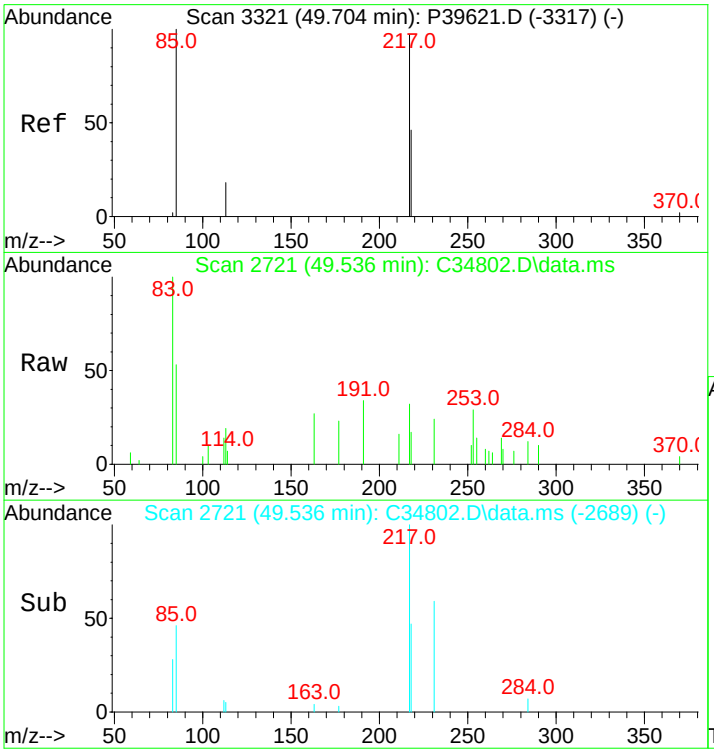




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 100.27 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

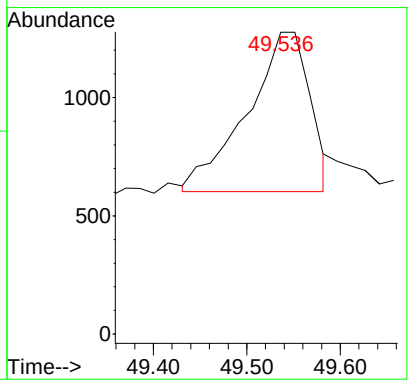
Tgt Ion:217 Resp: 1089

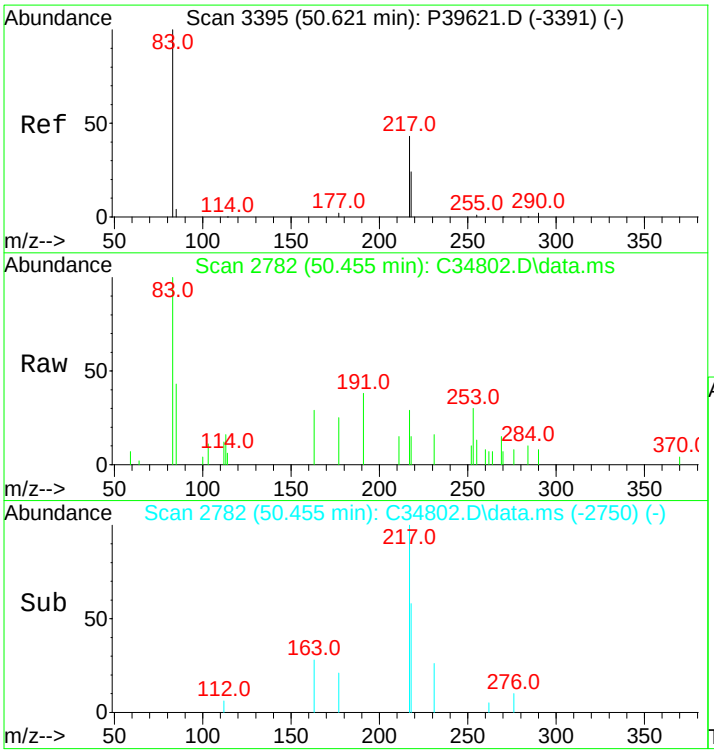




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 289.84 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

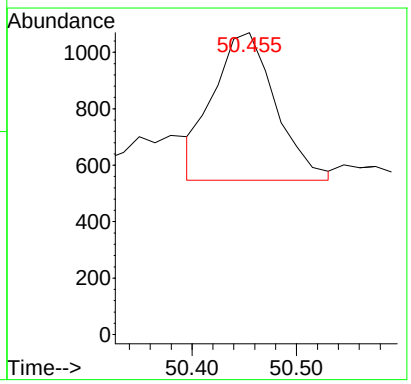
Tgt Ion:217 Resp: 3148

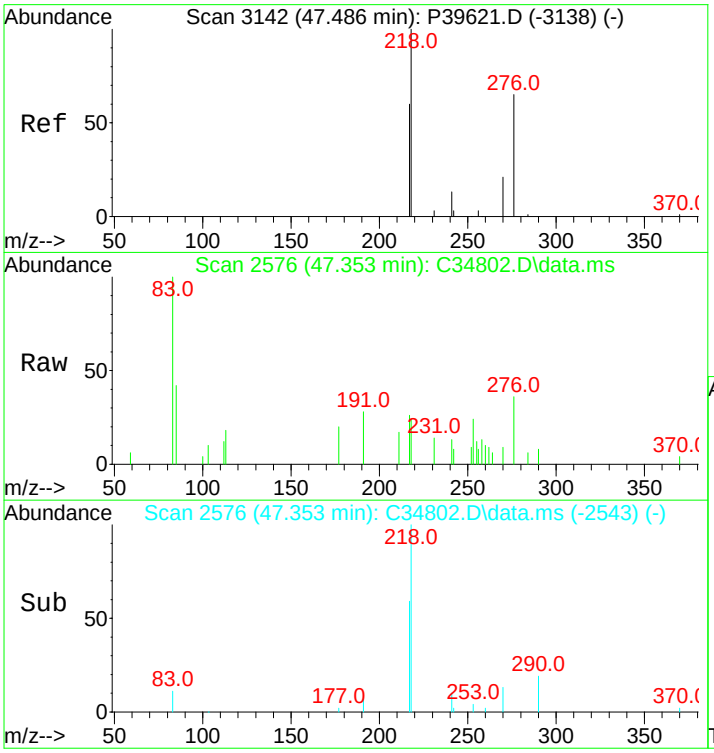




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 197.68 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

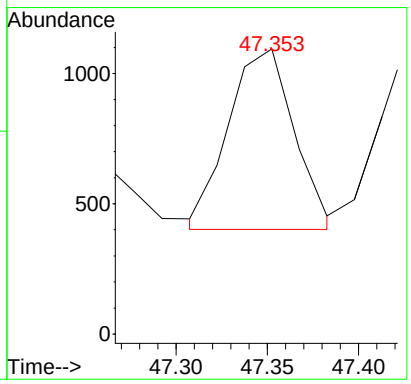
Tgt Ion:217 Resp: 2147

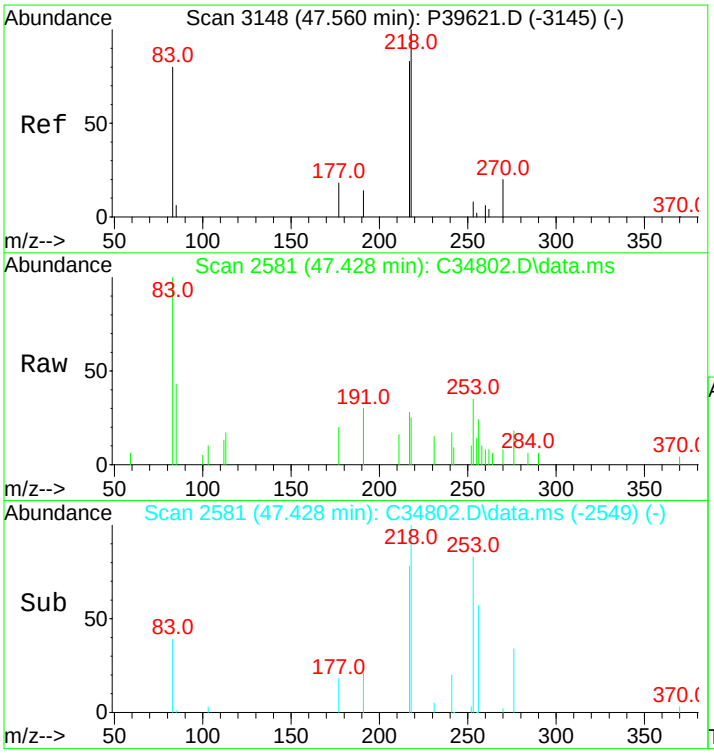




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 159.93 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

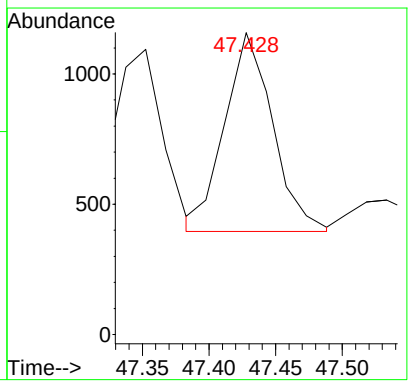
Tgt Ion:218 Resp: 1737

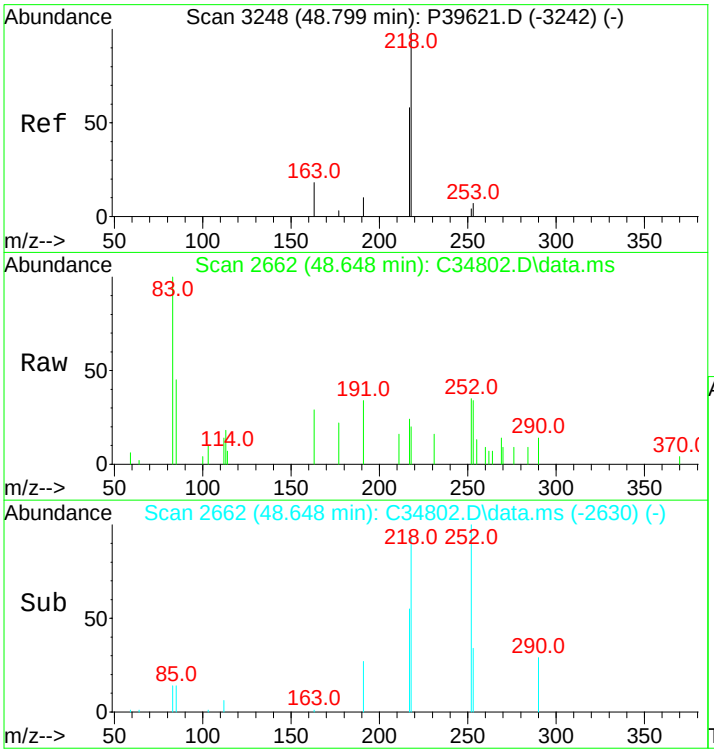




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 175.03 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

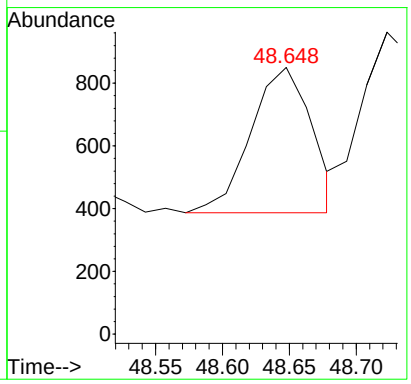
Tgt Ion:218 Resp: 1901

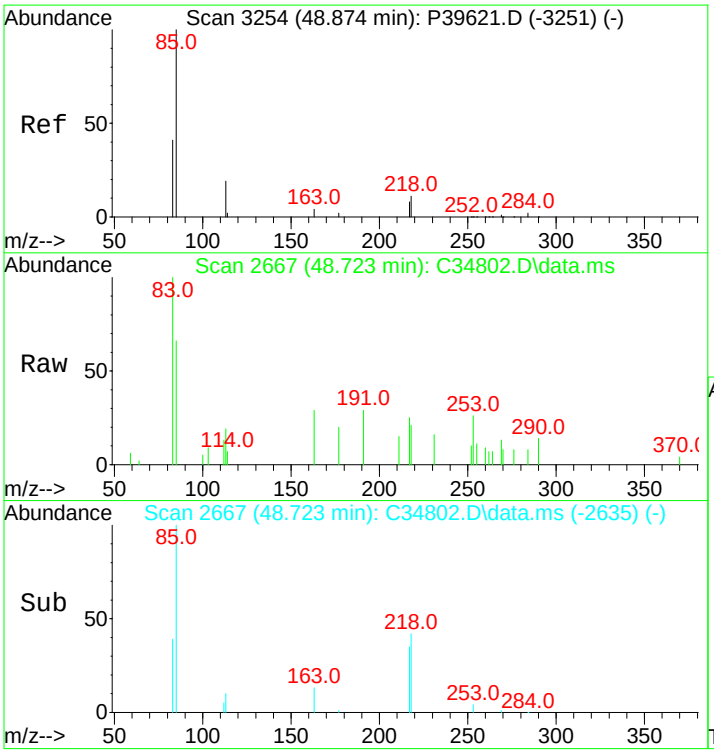




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 135.80 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

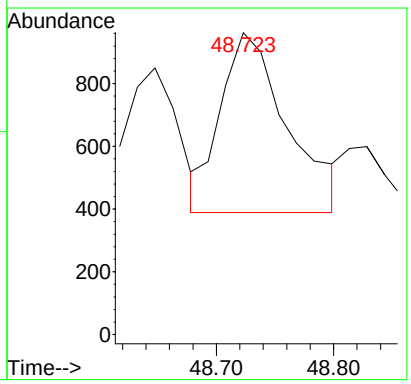
Tgt Ion:218 Resp: 1475

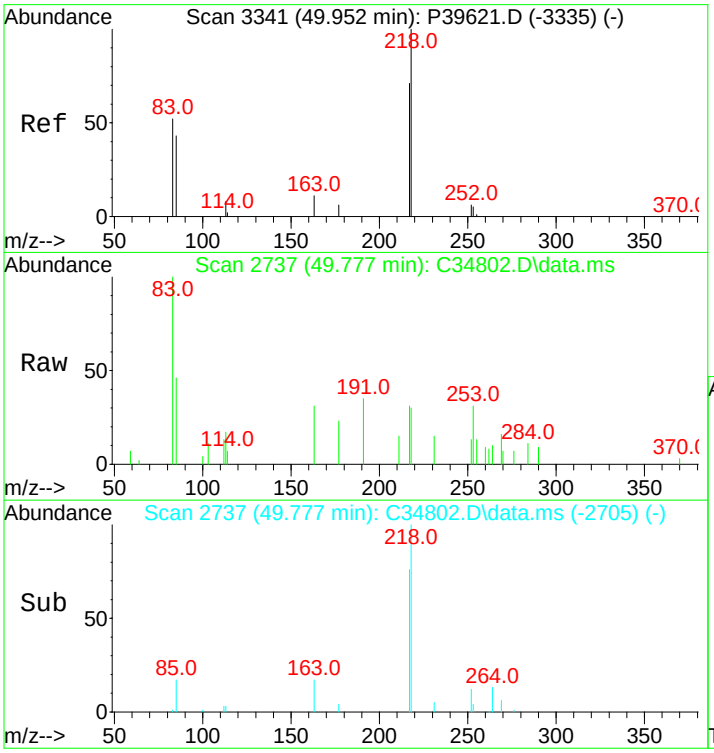




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 208.45 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

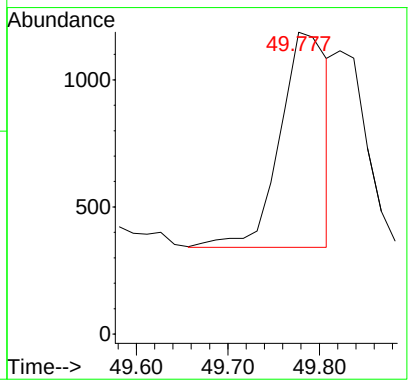
Tgt Ion:218 Resp: 2264

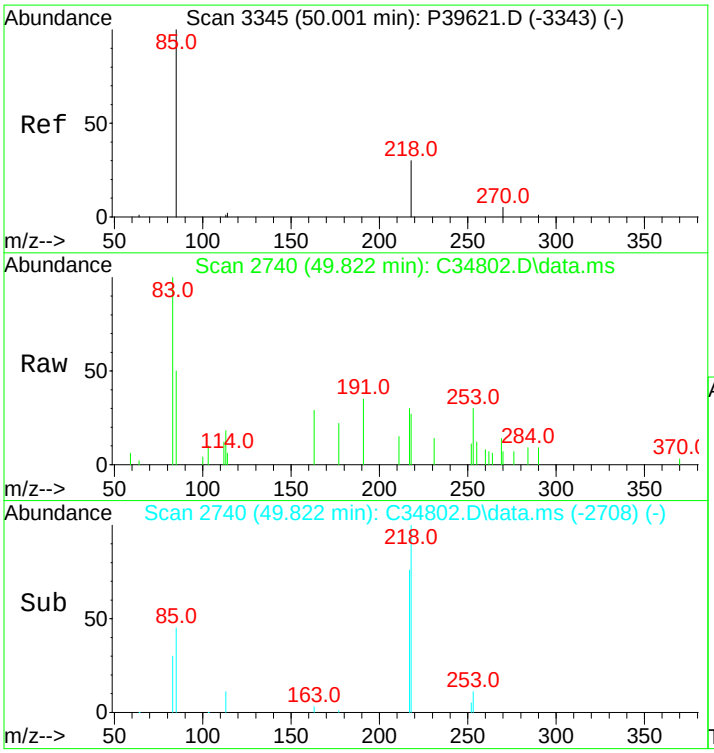




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 282.66 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

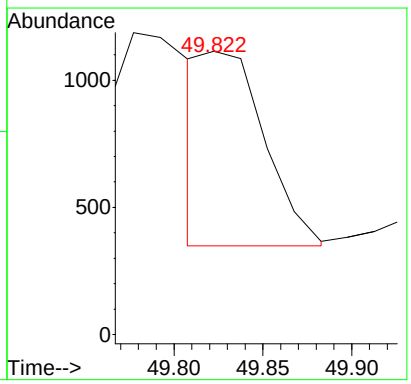
Tgt Ion:218 Resp: 3070

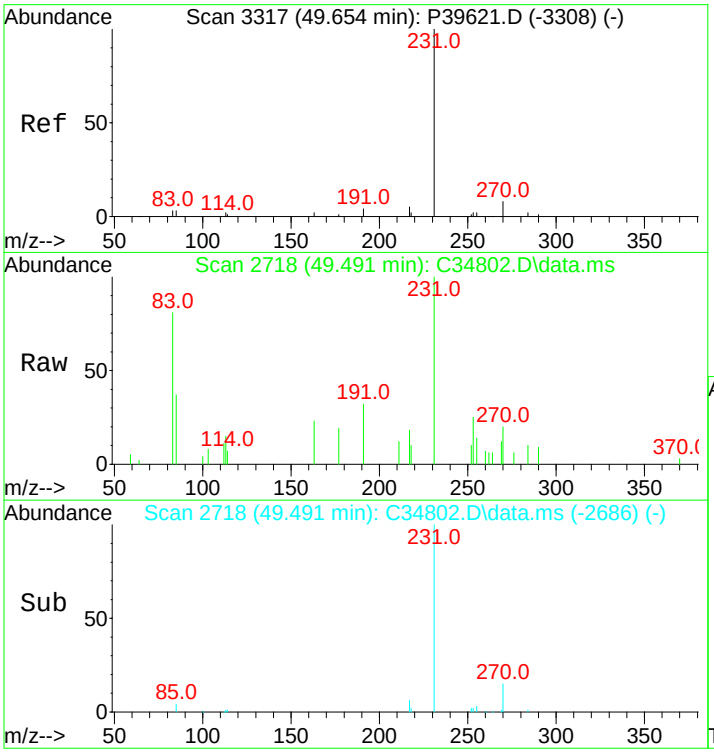




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 169.41 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

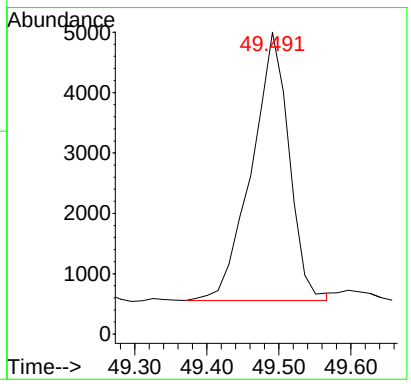
Tgt Ion:218 Resp: 1840

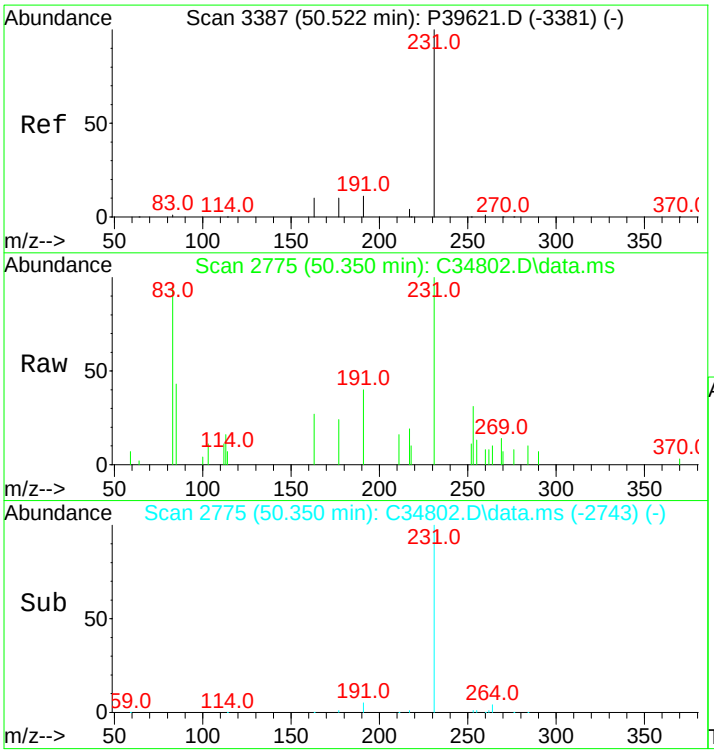




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1474.89 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

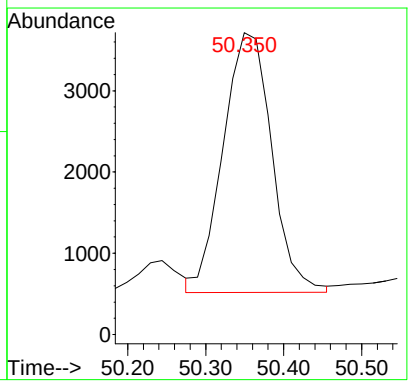
Tgt Ion:231 Resp: 16019

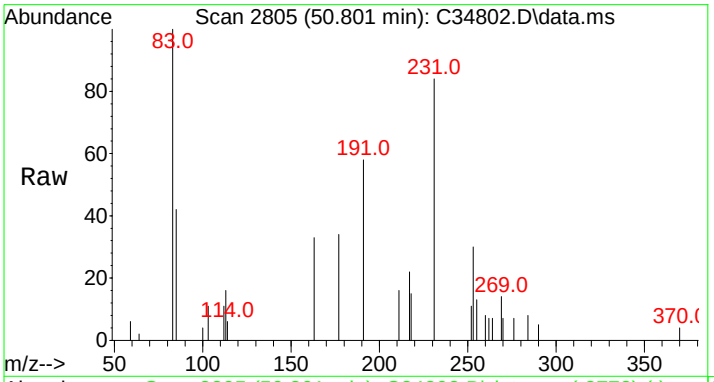




#146
C28,20S-triaromatic steroid
Concen: 1274.54 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

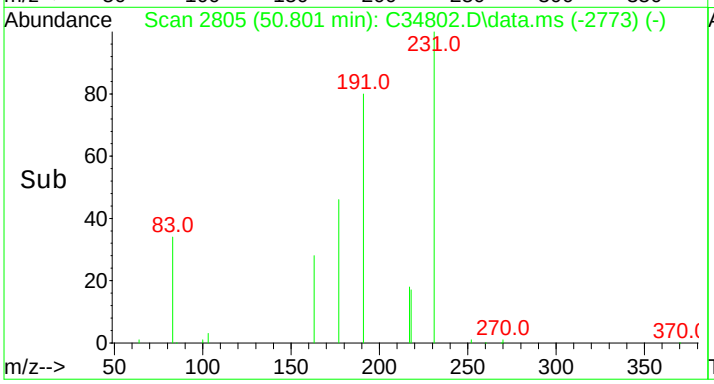
Tgt Ion:231 Resp: 13843

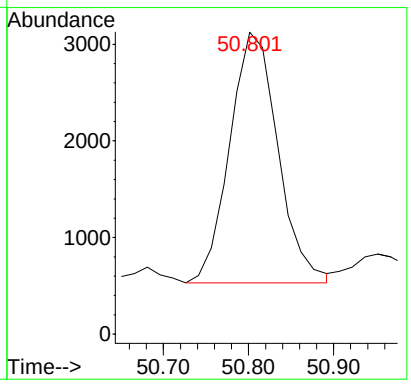


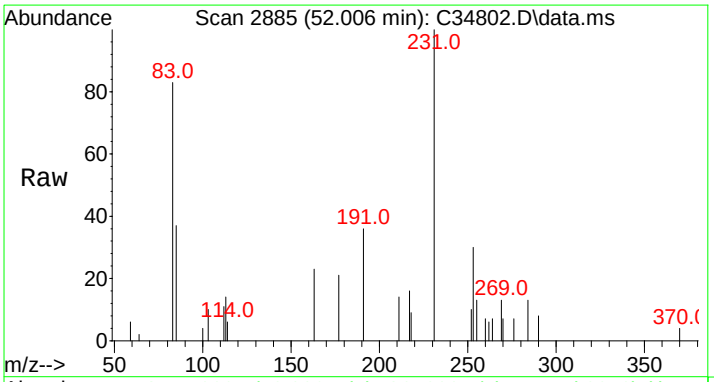


#147
C27,20R-triaromatic steroid
Concen: 942.35 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:231 Resp: 10235

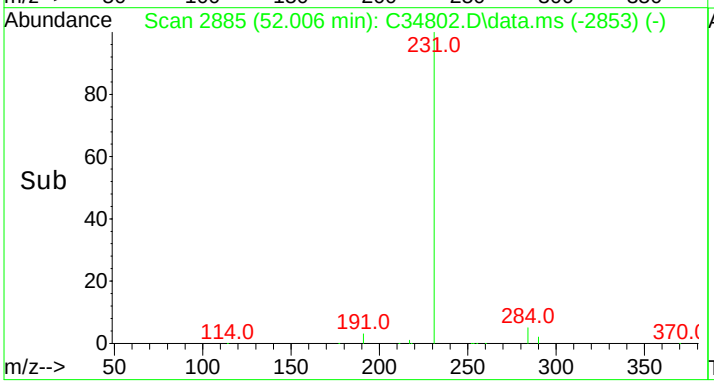


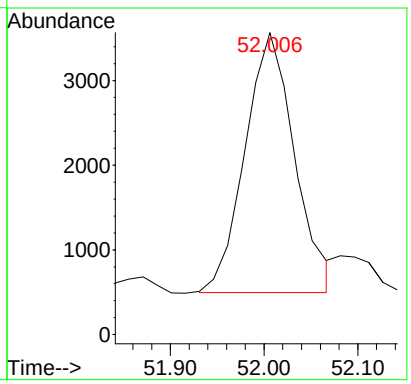




#148
C28,20R-triaromatic steroid
Concen: 1040.40 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34802.D
Acq: 3 May 2012 7:27 am

Tgt Ion:231 Resp: 11300





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19418M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34376M3	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	80850	959.313	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.93%			
42) Phenanthrene-d10	32.567	188	68998M3	1035.766	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 103.58%			
86) Benzo[a]pyrene-d12	48.241	264	67556	948.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.83%			
127) 5B(H)Cholane - Surr	43.769	217	11999M3	1116.427	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 111.64%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	37830	2467.915	ng/mL	100
4) cis-Decalin	17.603	138	1736M3	150.266	ng/mL	
5) C1-Decalins	17.874	152	56364M5	3677.017	ng/mL	
6) C2-Decalins	19.650	166	48878M5	3188.653	ng/mL	
7) C3-Decalins	22.119	180	23640M5	1542.202	ng/mL	
8) C4-Decalins	25.507	194	21514M5	1403.508	ng/mL	
10) Naphthalene	19.801	128	347250	2805.837	ng/mL#	100
11) C1-Naphthalenes	22.496	142	713023M5	5761.343	ng/mL	
12) C2-Naphthalenes	25.341	156	840799M5	6793.794	ng/mL	
13) C3-Naphthalenes	27.674	170	586624M5	4740.019	ng/mL	
14) C4-Naphthalenes	30.444	184	306047M5	2472.910	ng/mL	
16) 2-Methylnaphthalene	22.496	142	419181	5728.367	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	292319	4075.412	ng/mL#	100
18) Benzothiophene	20.012	134	2812M3	25.250	ng/mL	
19) C1-Benzo(b)thiophenes	22.059	148	11933M5	107.149	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	26686M5	239.619	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	53082M5	476.634	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	45732M5	410.637	ng/mL	
23) Biphenyl	24.377	154	70355	760.049	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	207397	3449.646	ng/mL#	100
25) Dibenzofuran	27.464	168	28118	264.527	ng/mL#	79
26) Acenaphthylene	26.079	152	3994	32.510	ng/mL#	100
27) Acenaphthene	26.831	153	7301M3	100.932	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	44057M3	909.051	ng/mL	
29) Fluorene	28.834	166	30318M3	380.029	ng/mL	
30) C1-Fluorenes	31.197	180	68981M5	864.662	ng/mL	
31) C2-Fluorenes	33.395	194	96290M5	1206.974	ng/mL	
32) C3-Fluorenes	35.232	208	88864M5	1113.891	ng/mL	
33) Dibenzothiophene	32.161	184	91894	718.577	ng/mL#	76
34) 4-Methyldibenzothiophe...	33.937	198	85707	670.197	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	58309	455.955	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	27871	217.941	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	174531M5	1364.768	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	231715M5	1811.926	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	208634M5	1631.441	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	107824M5	843.144	ng/mL	
43) Phenanthrene	32.657	178	126106	1122.376	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.614	192	49733M3	442.637	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	55654M3	495.335	ng/mL	
46) 2-Methylanthracene(2MA)	34.870	192	1990M3	17.712	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	78236	696.321	ng/mL	99
48) 1-Methylphenanthrene(1MP)	35.156	192	55713M3	495.860	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	239866M5	2134.870	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	249544M5	2221.006	ng/mL	
52) C3-Phenanthrenes/Anthr...	38.725	220	165093M5	1469.371	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	67229M5	598.356	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.500	167	3838M3	34.621	ng/mL	
57) 1-Methylphenanthrene	35.156	192	54663M3	767.715	ng/mL	
58) Fluoranthene	37.430	202	2744M3	24.590	ng/mL	
59) Benzo(b)fluorene	39.944	216	2748M3	42.447	ng/mL	
60) Pyrene	38.303	202	8739M3	77.041	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	38064M5	335.565	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	61720M5	544.111	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	68069M5	600.083	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	58826M5	518.598	ng/mL	
66) Naphthobenzothiophene	42.158	234	21528M3	176.284	ng/ml	
67) Naphthobenzothiophene-...	42.158	234	21519M3	176.211	ng/mL	
68) Naphthobenzothiophene-...	42.504	234	4884M3	39.993	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2419M3	19.808	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	73495M5	601.822	ng/ml	
71) C2-Naphthobenzothiophenes	45.560	262	96416M5	789.513	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	76135M5	623.440	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	49996M5	409.398	ng/mL	
75) Benz[a]anthracene	43.091	228	1369M3	12.547	ng/mL	
77) Chrysene/Triphenylene	43.227	228	20557M3	186.620	ng/mL	
78) C1-Chrysenes	44.717	242	34901M5	316.837	ng/mL	
79) C2-Chrysenes	46.795	256	46293M5	420.255	ng/mL	
80) C3-Chrysenes	49.491	270	51416M5	466.763	ng/mL	
81) C4-Chrysenes	49.611	284	29667M5	269.322	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4074	33.981	ng/mL#	90
83) Benzo[j]+[k]fluoranthene	47.217	252	967M3	7.408	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	539M2	4.129	ng/mL	
85) Benzo[e]pyrene	48.136	252	6659M3	56.154	ng/mL	
87) Benzo[a]pyrene	48.331	252	1329M3	11.640	ng/mL	
88) Perylene	48.633	252	2058M3	16.866	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1518M3	11.425	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1349M3	10.673	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3235M3	23.046	ng/mL	
92) Hopane (T19)	52.217	191	17821M3	786.583	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	7643M3	337.347	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4640M3	204.800	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	4752M3	209.744	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1617M3	71.371	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2064M3	91.101	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1773M3	78.257	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1699M3	74.990	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1940M3	85.628	ng/ml	
102) C29 Tricyclic Terpane-...	47.111	191	2402	106.019	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	2214M3	97.721	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3225M3	142.345	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	2186M3	96.486	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1881M3	83.024	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	4052	178.847	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	678	29.926	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.973	191	1205	53.186	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	10783M3	475.940	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2594M3	114.494	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	1663M3	73.401	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1347M3	59.454	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	51.976	191	350	15.448	ng/ml	100
115) Moretane (T20)	52.910	191	1846M3	81.479	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	7714M3	340.480	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	6547	288.971	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	1292	57.026	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	5517M3	243.509	ng/ml	
120) 30,31-Bishomohopane-22...	55.936	191	4015M3	177.214	ng/ml	
121) 30,31-Trishomohopane-2...	57.698	191	4281M3	188.955	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
122)	30,31-Trishomohopane-2...	58.316	191	2611M3	115.244	ng/ml	
123)	Tetrakishomohopane-22S...	60.333	191	3217M3	141.992	ng/ml	
124)	Tetrakishomohopane-22R...	61.222	191	2254M3	99.487	ng/ml	
125)	Pentakishomohopane-22S...	63.451	191	3287M3	145.082	ng/ml	
126)	Pentakishomohopane-22R...	64.761	191	2203M3	97.236	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217	2537M3	236.051	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	1457M3	135.564	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.389	217	1677M3	156.034	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	3192	296.994	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	4303M3	400.365	ng/ml	
133)	Unknown Sterane (S18)	48.045	217	1082	100.673	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217	201M3	18.702	ng/ml	
135)	14a,17a-20S-Methylchol...	48.467	217	1941	180.597	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217	1815M3	168.874	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217	2802M3	260.707	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.455	217	2030M3	188.878	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.352	218	2192M3	203.951	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218	2237M3	208.138	ng/ml	
141)	14b,17b-20R-Methylchol...	48.648	218	2244	208.789	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.723	218	2814M3	261.824	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218	3049M3	283.689	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.822	218	2133M3	198.461	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231	21599	2009.642	ng/mL	100
146)	C28,20S-triaromatic st...	50.349	231	13888	1292.185	ng/mL	100
147)	C27,20R-triaromatic st...	50.801	231	12980	1207.702	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231	11498M3	1069.812	ng/mL	

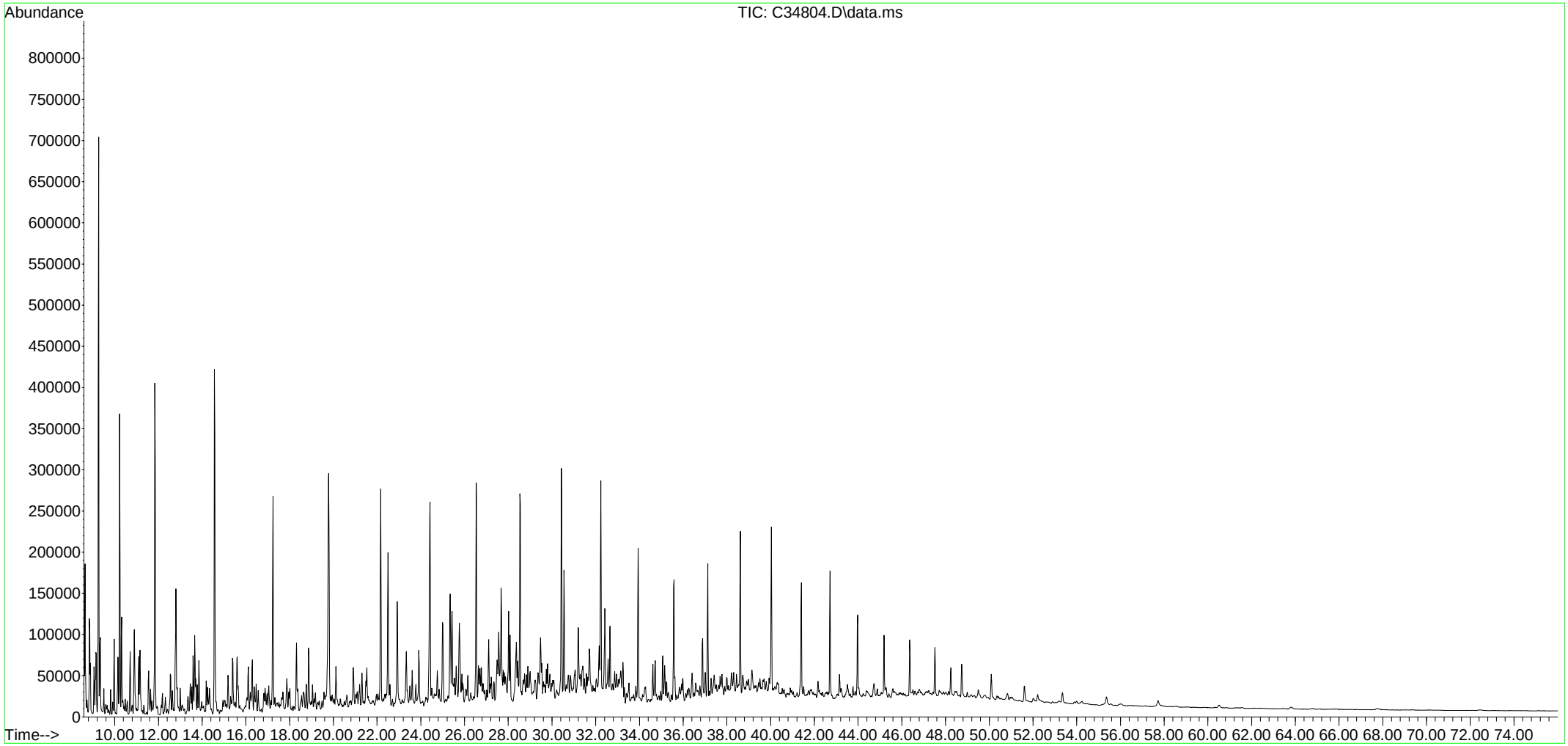
(#) = qualifier out of range (m) = manual integration (+) = signals summed

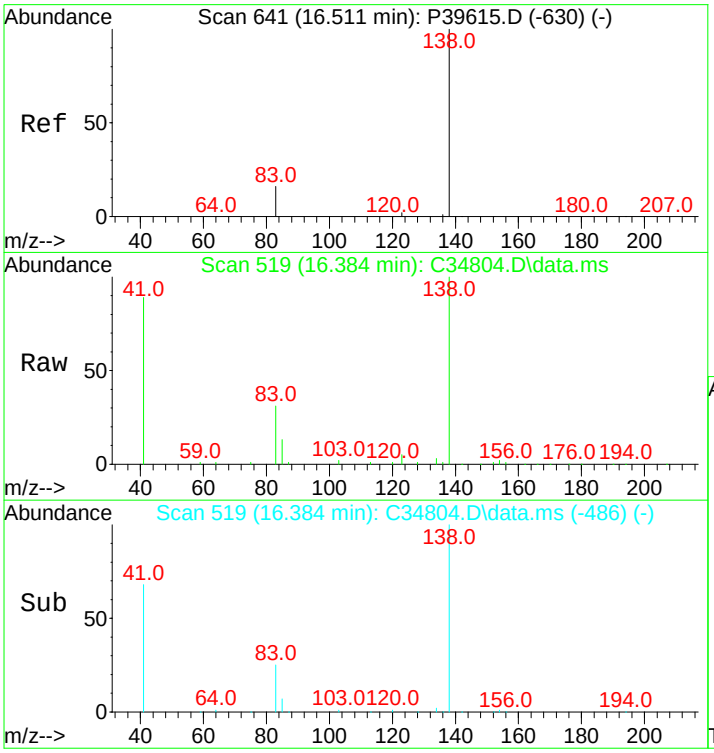
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

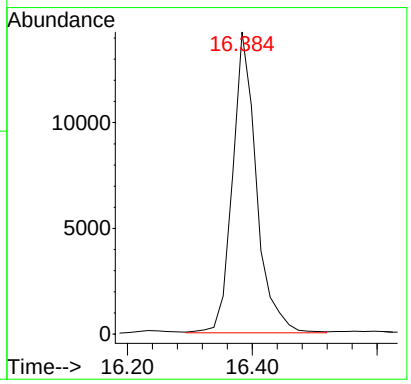
Sub List : Gulf_NEW_POIB_Default - All compounds listed

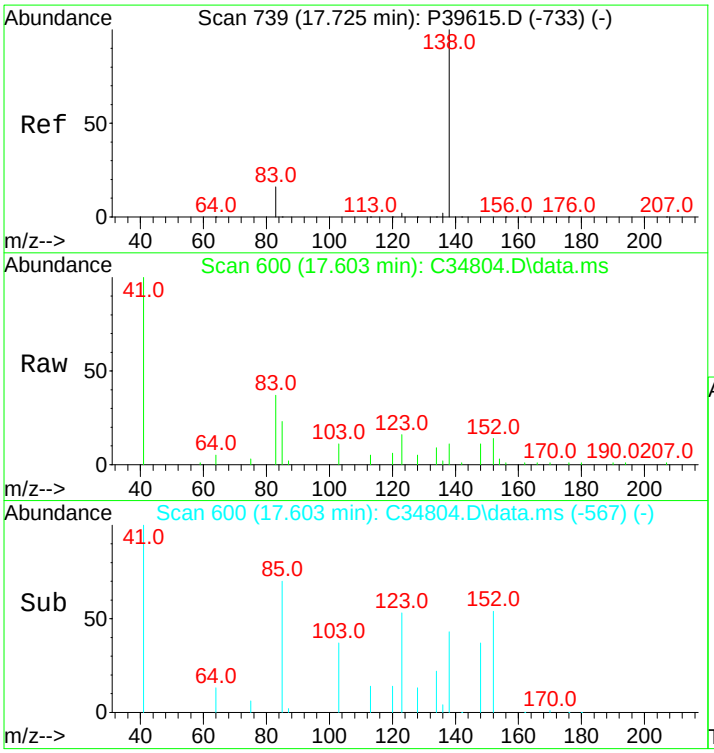




#3
trans-Decalin
Concen: 2467.91 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

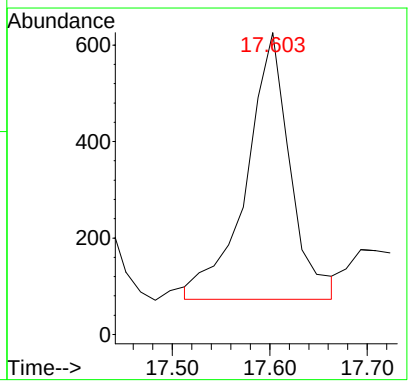
Tgt Ion:138 Resp: 37830

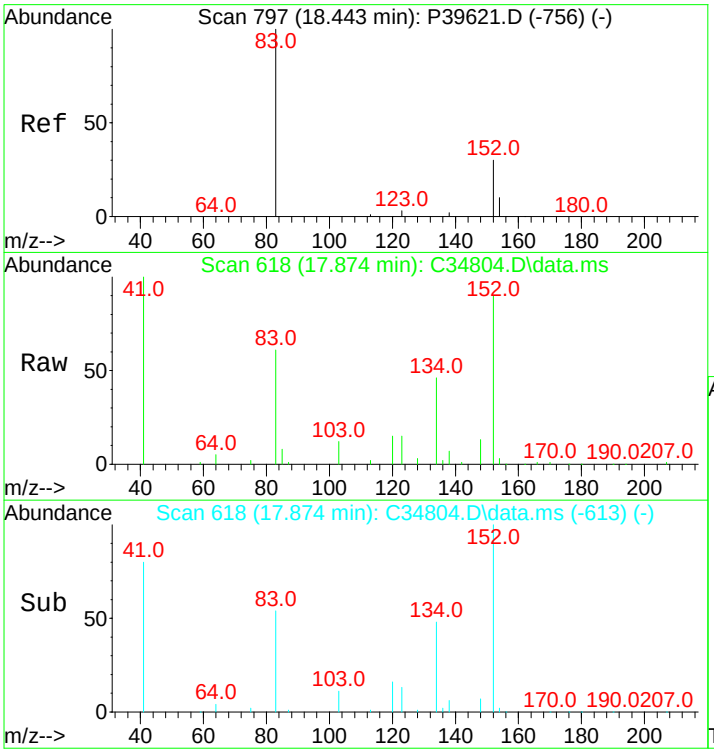




#4
cis-Decalin
Concen: 150.27 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

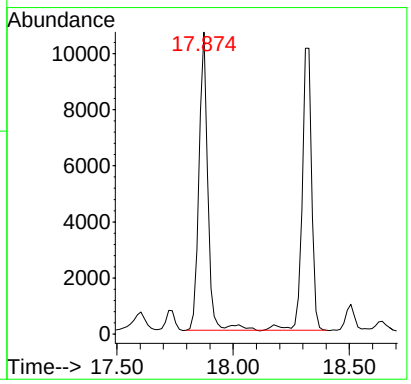
Tgt Ion:138 Resp: 1736

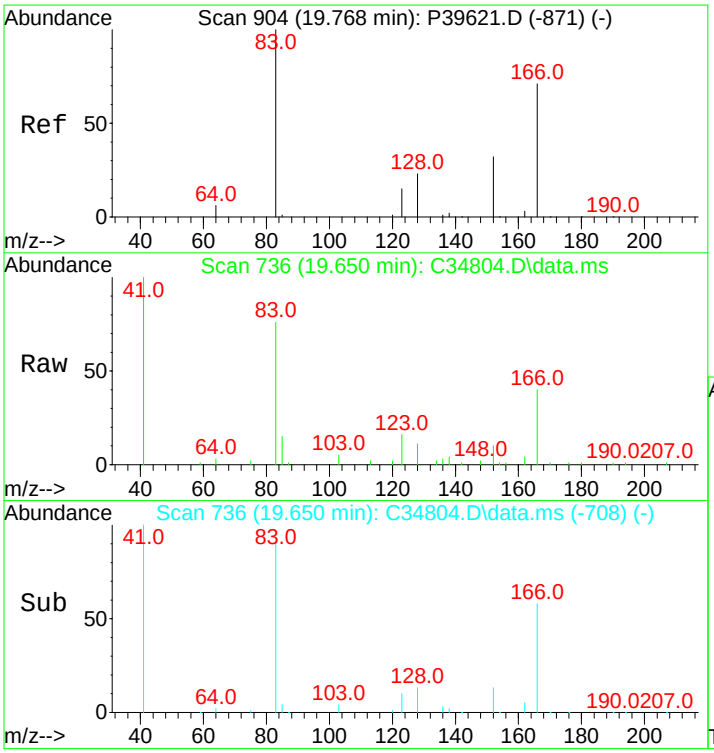




#5
C1-Decalins
Concen: 3677.02 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

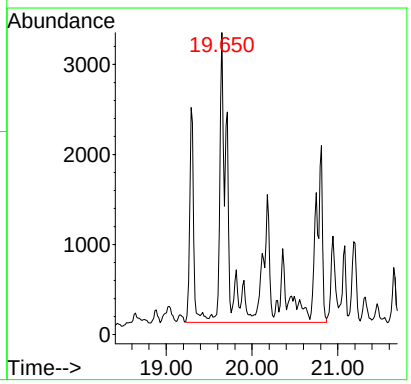
Tgt Ion:152 Resp: 56364

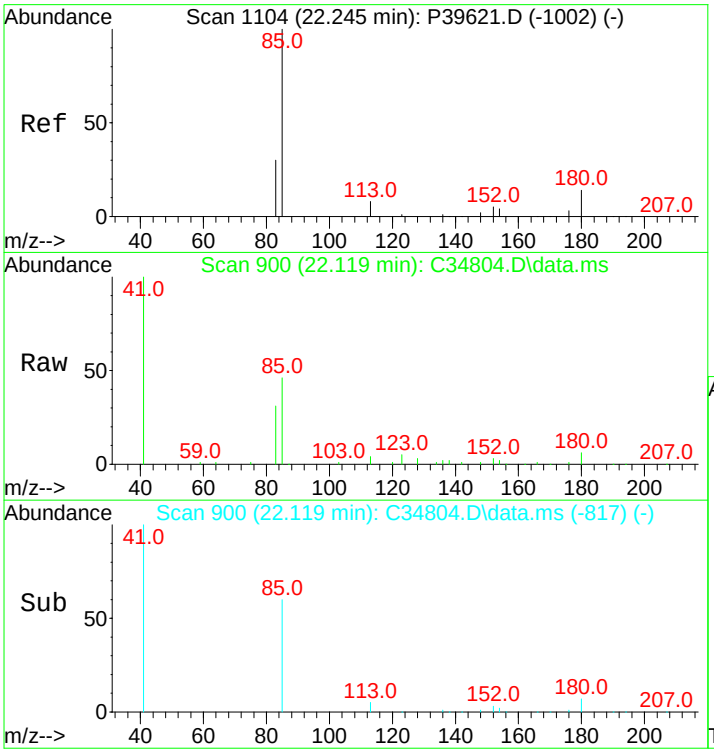




#6
C2-Decalins
Concen: 3188.65 ng/mL m
RT: 19.650 min Scan# 736
Delta R.T. -0.032 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

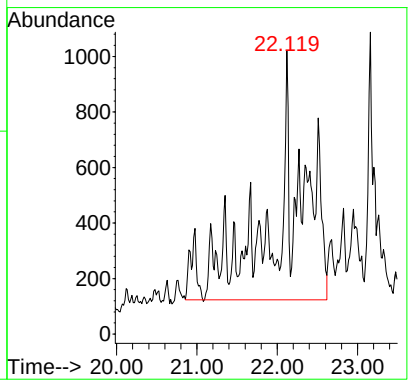
Tgt Ion:166 Resp: 48878

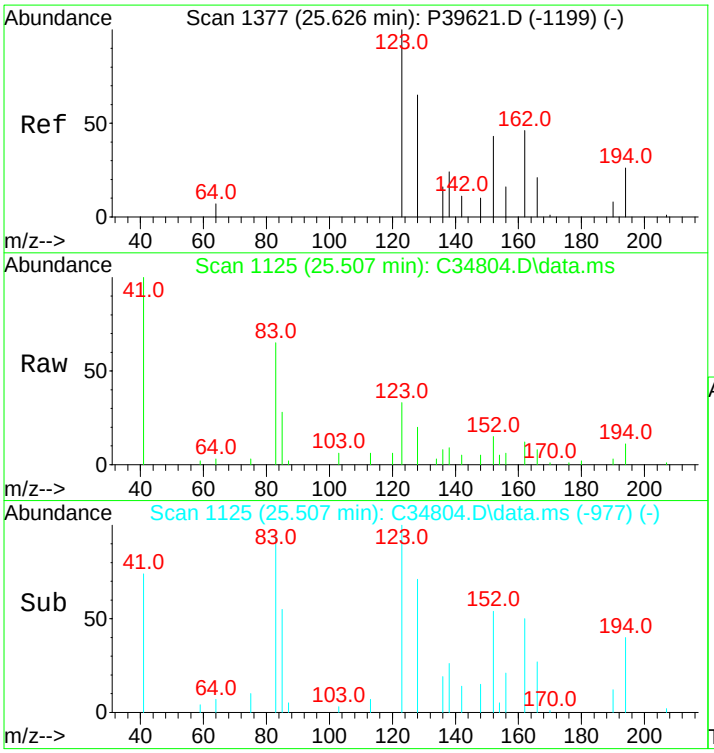




#7
C3-Decalins
Concen: 1542.20 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

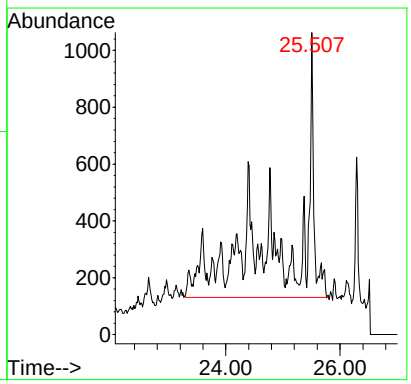
Tgt Ion:180 Resp: 23640

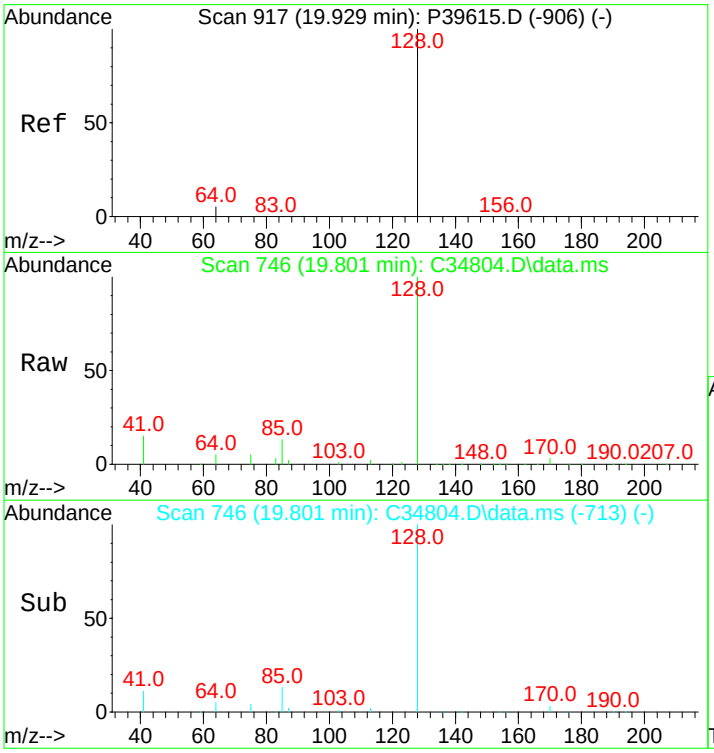




#8
C4-Decalins
Concen: 1403.51 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:194 Resp: 21514

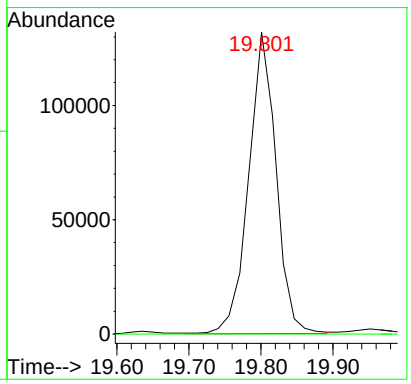


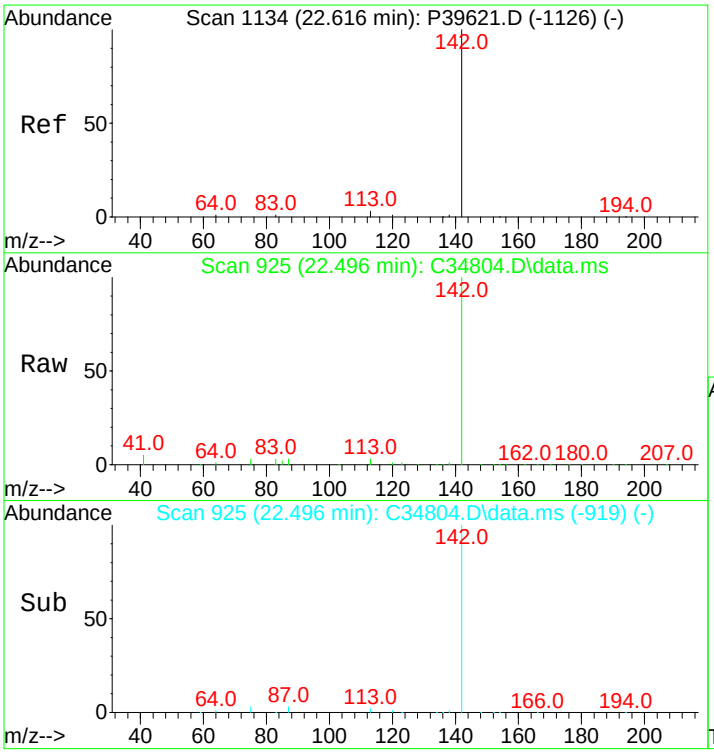


#10
Naphthalene
Concen: 2805.84 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:128 Resp: 347250

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

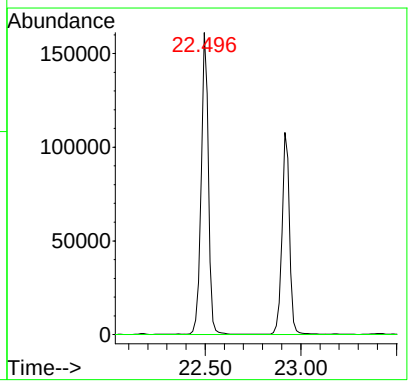


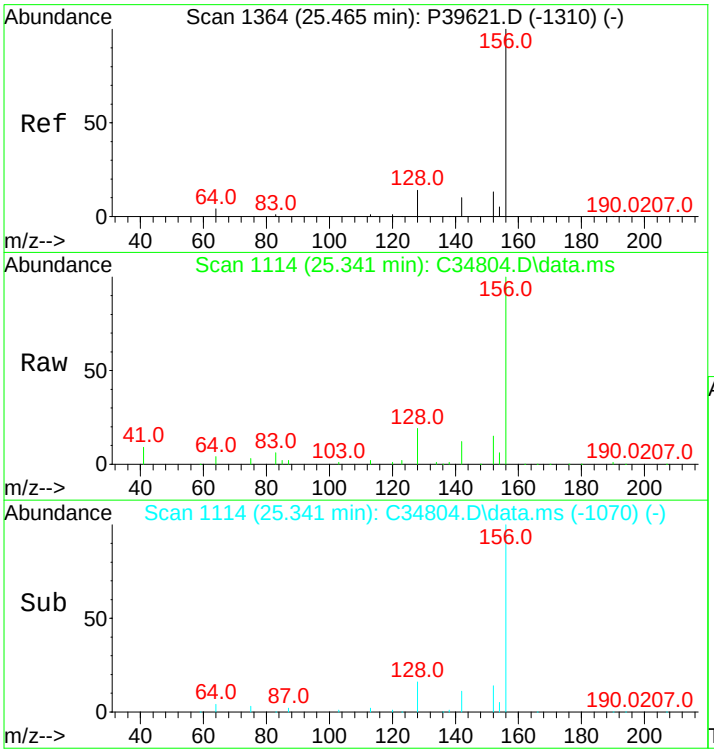


#11
C1-Naphthalenes
Concen: 5761.34 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 713023

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

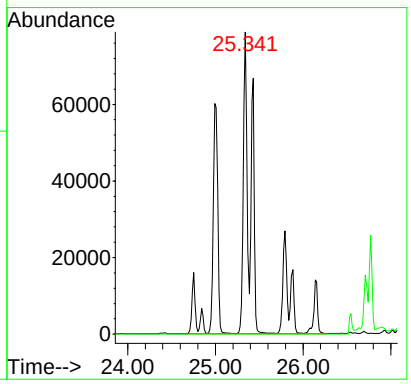


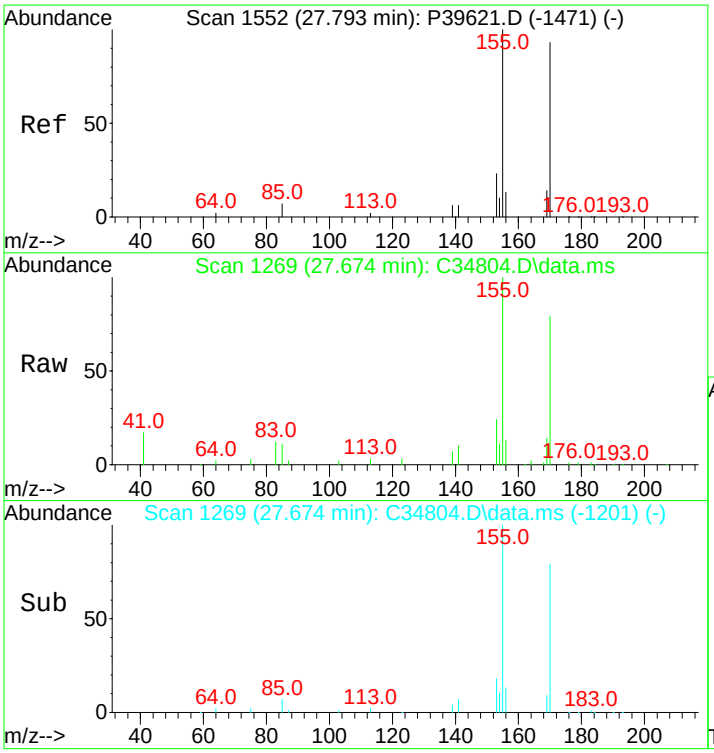


#12
C2-Naphthalenes
Concen: 6793.79 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:156 Resp: 840799

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

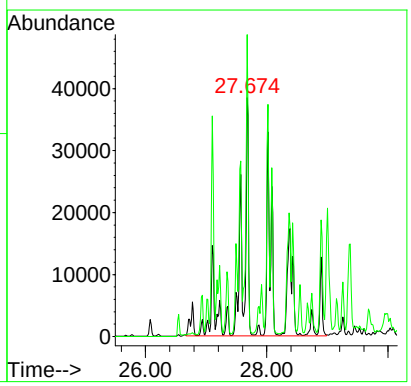


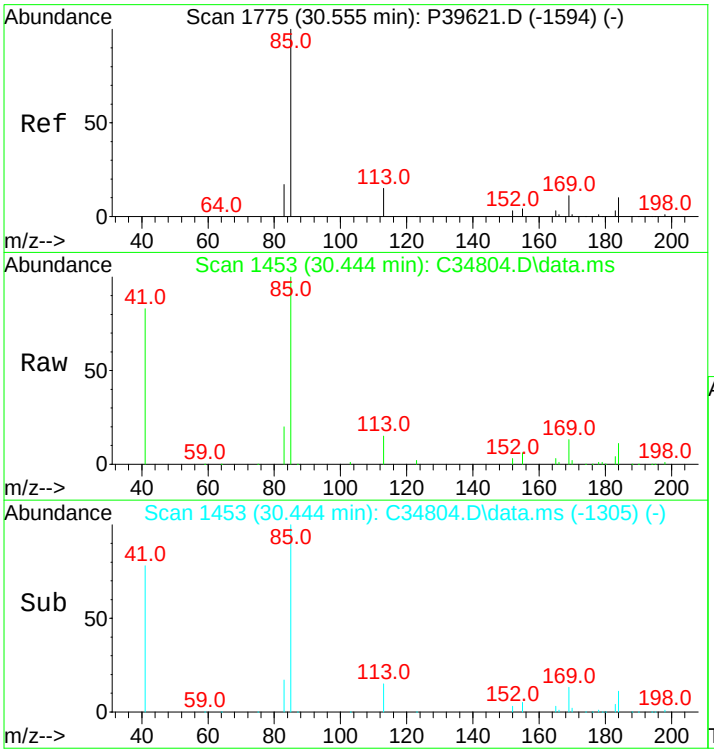


#13
C3-Naphthalenes
Concen: 4740.02 ng/mL m
RT: 27.674 min Scan# 1269
Delta R.T. 0.004 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:170 Resp: 586624

Ion	Ratio	Lower	Upper
170	100		
155	21.3	81.8	122.6#

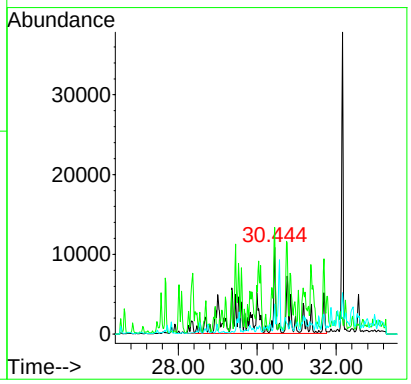


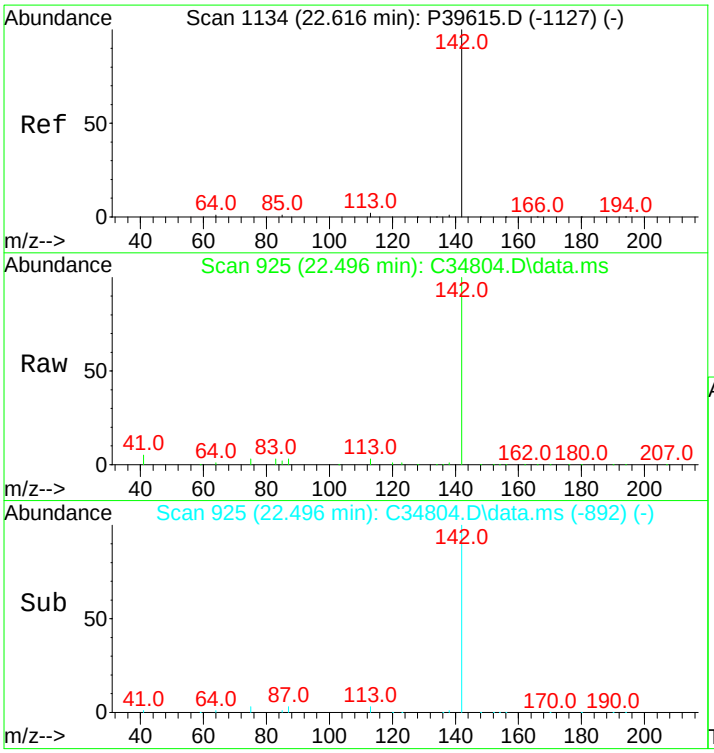


#14
C4-Naphthalenes
Concen: 2472.91 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:184 Resp: 306047

Ion	Ratio	Lower	Upper
184	100		
169	3.3	77.4	116.0#
183	0.6	14.8	22.2#

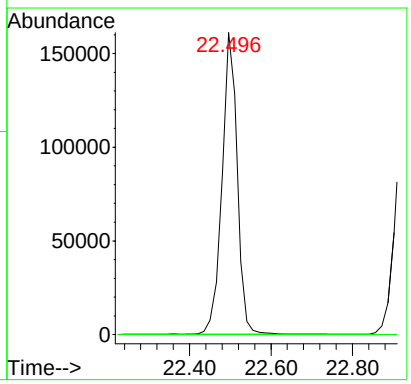


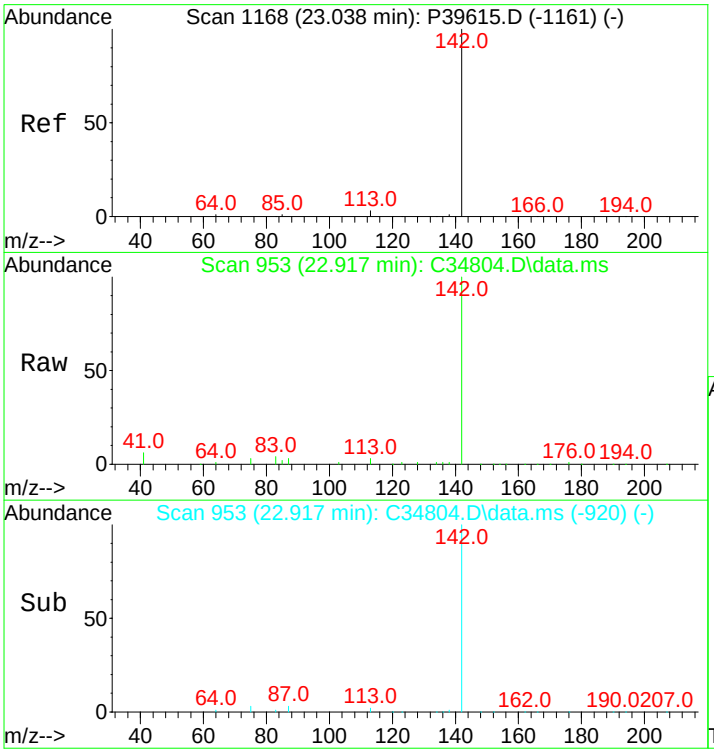


#16
2-Methylnaphthalene
Concen: 5728.37 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 419181

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

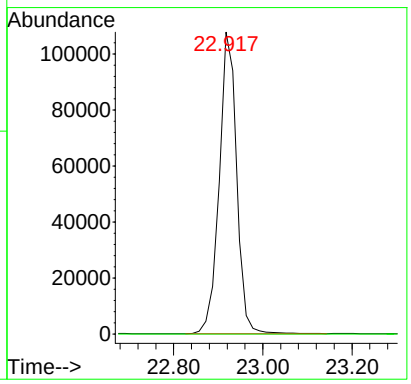


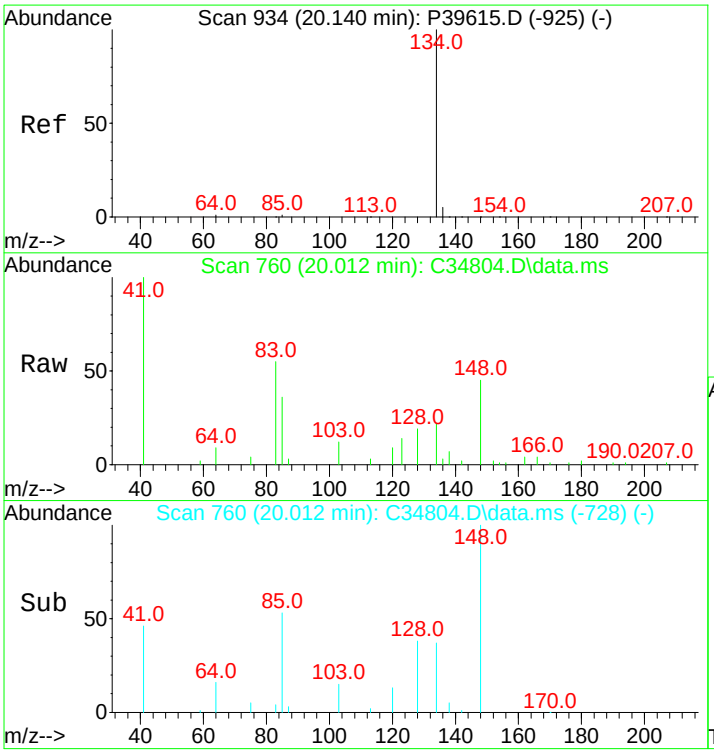


#17
1-Methylnaphthalene
Concen: 4075.41 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 292319

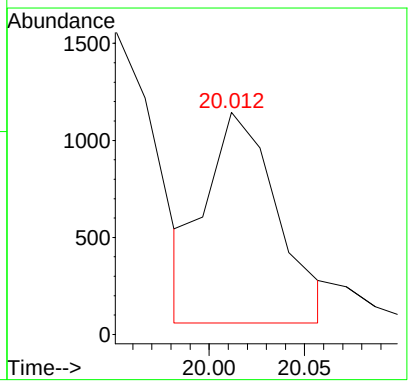
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

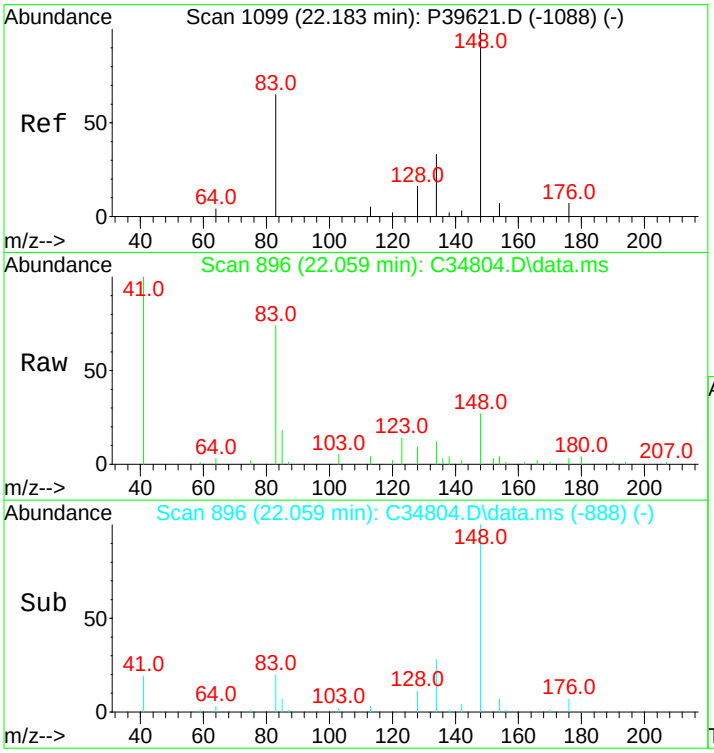




#18
Benzothiophene
Concen: 25.25 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

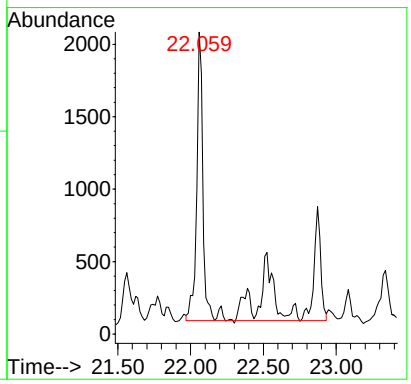
Tgt Ion:134 Resp: 2812

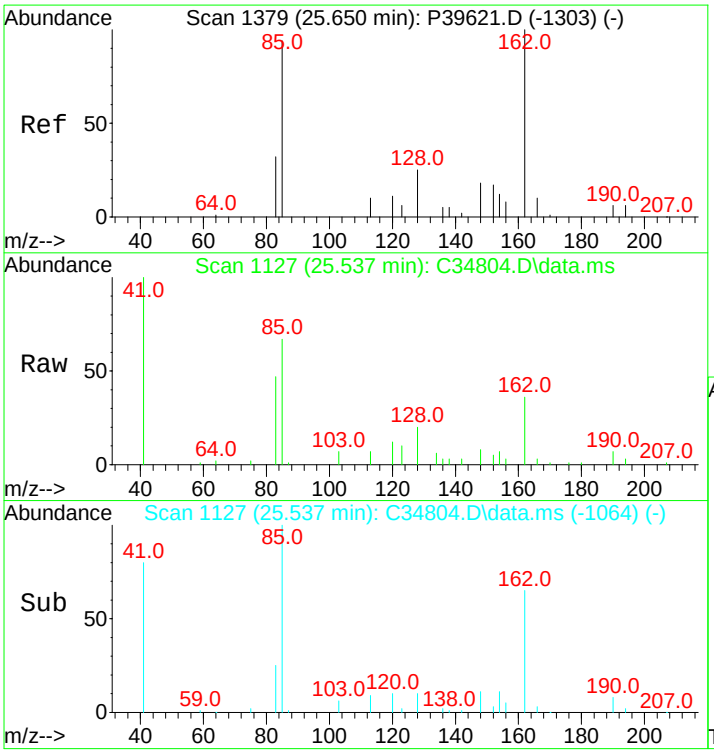




#19
C1-Benzo(b)thiophenes
Concen: 107.15 ng/mL m
RT: 22.059 min Scan# 896
Delta R.T. -0.021 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

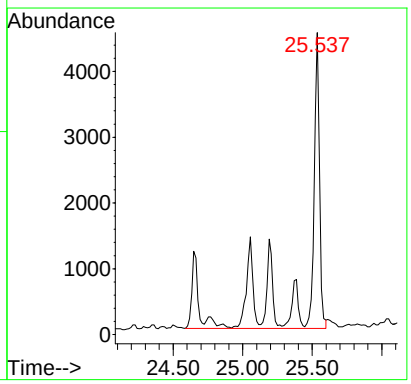
Tgt Ion:148 Resp: 11933

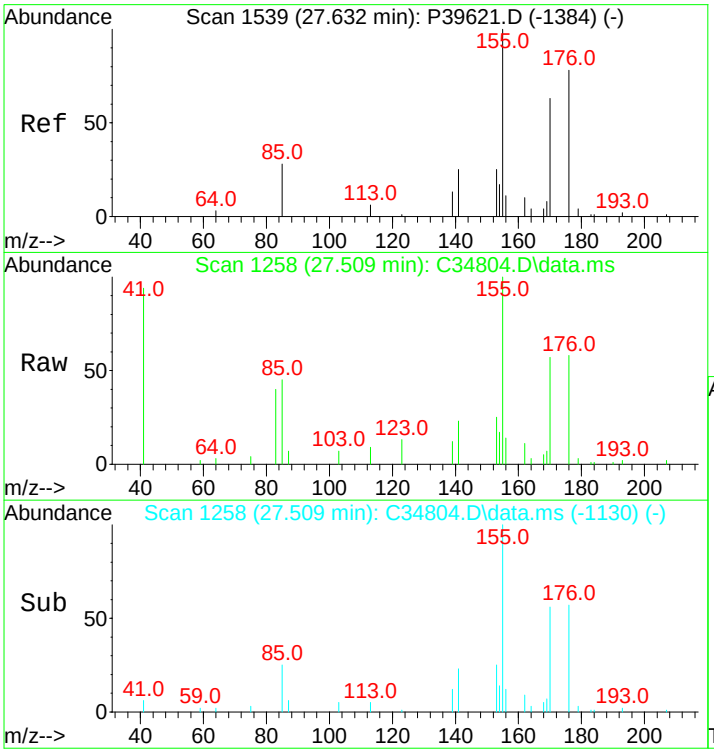




#20
C2-Benzo(b)thiophenes
Concen: 239.62 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

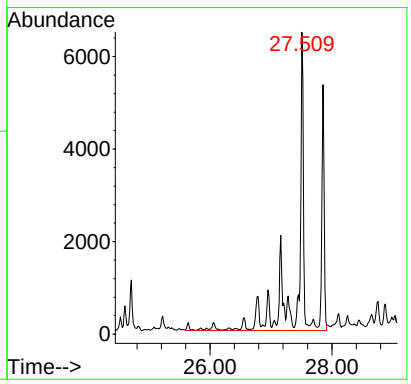
Tgt Ion:162 Resp: 26686

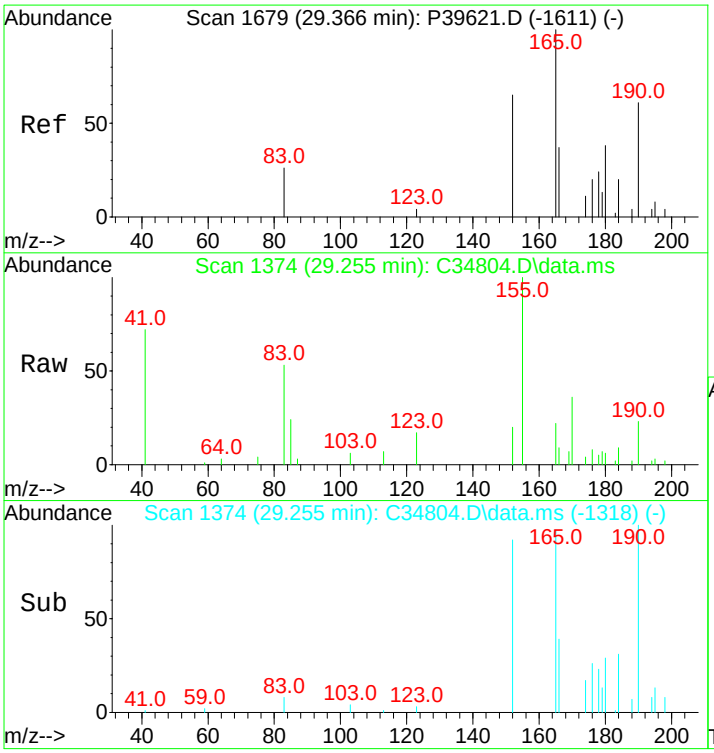




#21
C3-Benzo(b)thiophenes
Concen: 476.63 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.003 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

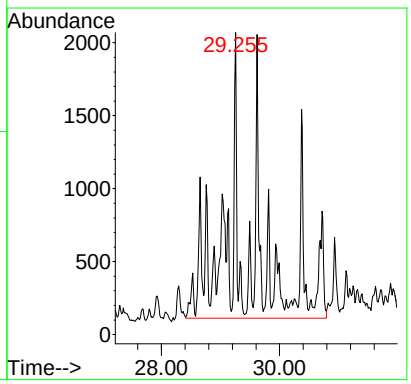
Tgt Ion:176 Resp: 53082

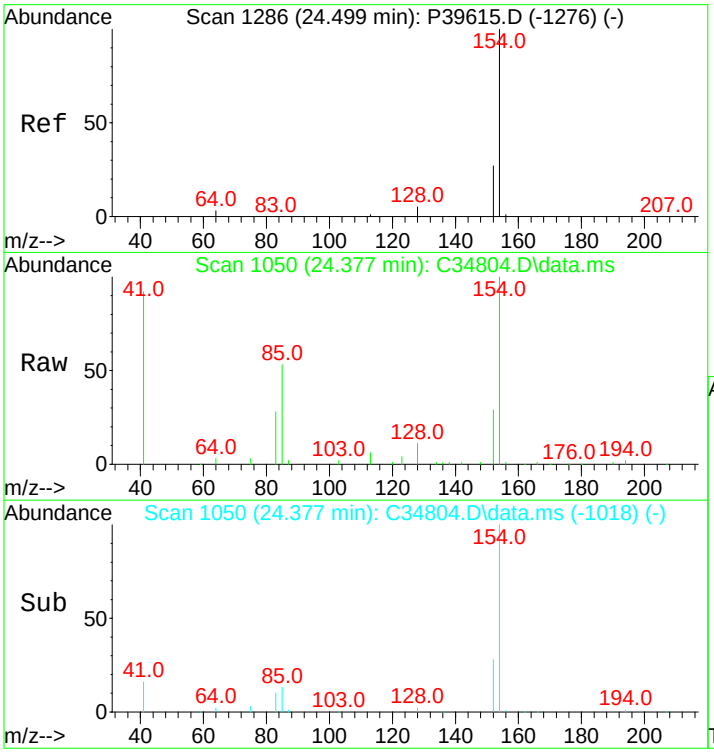




#22
C4-Benzo(b)thiophenes
Concen: 410.64 ng/mL m
RT: 29.255 min Scan# 1374
Delta R.T. 0.026 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:190 Resp: 45732

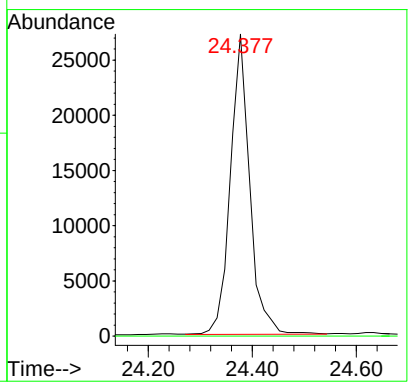


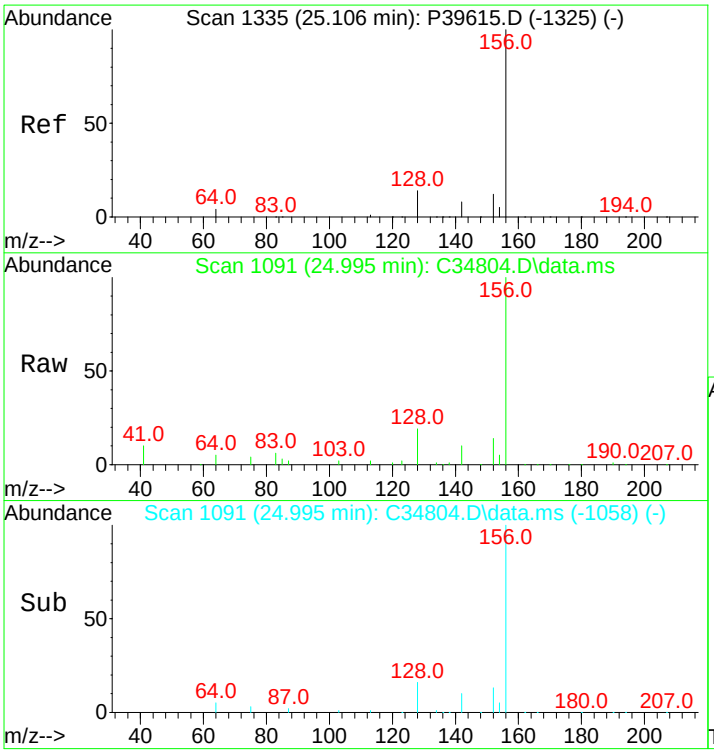


#23
Biphenyl
Concen: 760.05 ng/mL
RT: 24.377 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:154 Resp: 70355

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

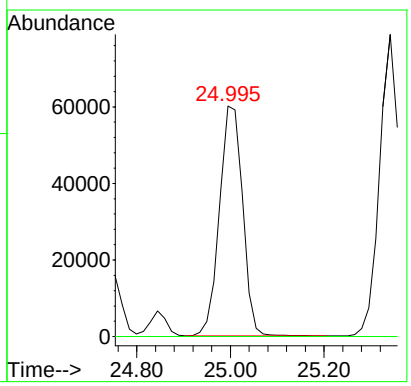


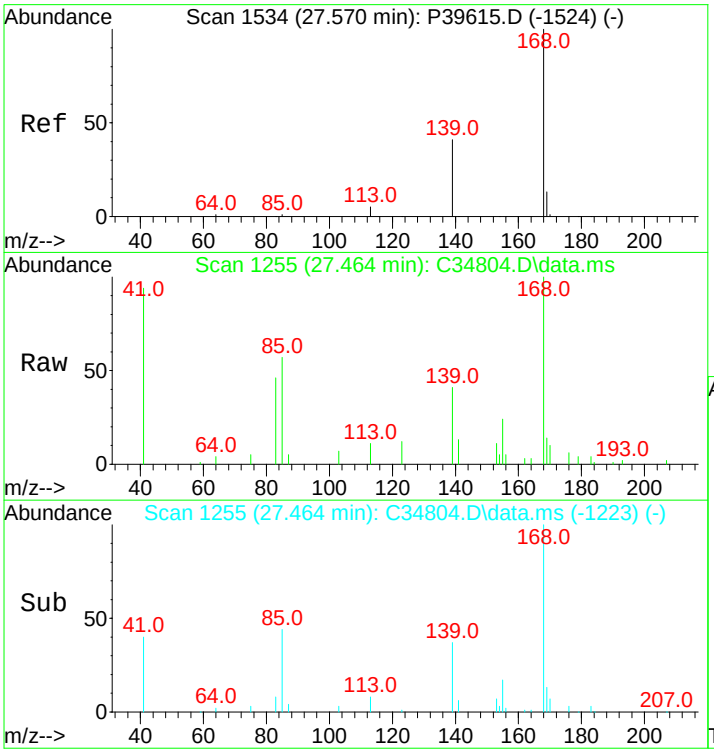


#24
2,6-Dimethylnaphthalene
Concen: 3449.65 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:156 Resp: 207397

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

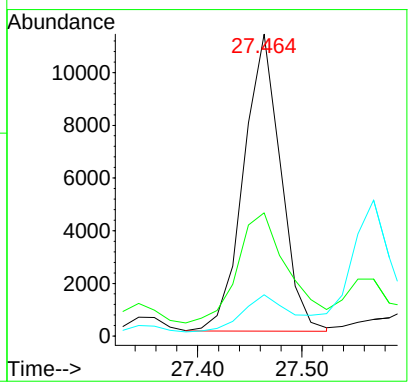


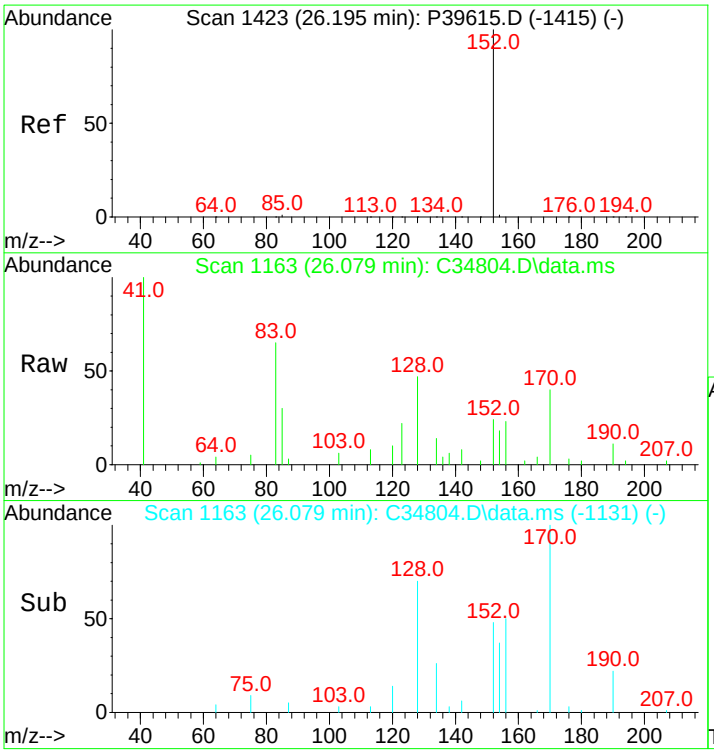


#25
Dibenzofuran
Concen: 264.53 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:168 Resp: 28118

Ion	Ratio	Lower	Upper
168	100		
139	50.2	28.4	42.6#
169	16.9	10.8	16.2#

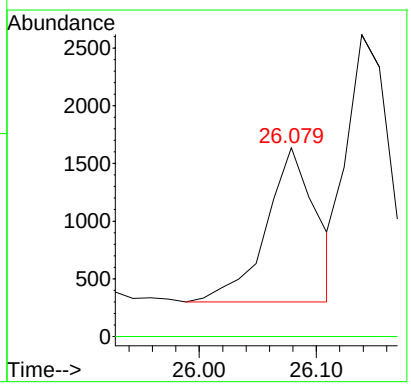


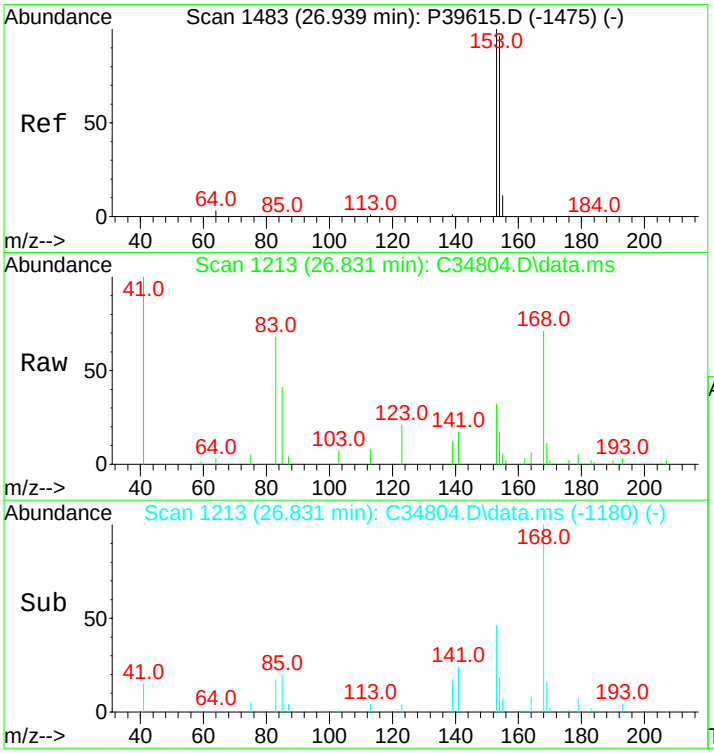


#26
Acenaphthylene
Concen: 32.51 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:152 Resp: 3994

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

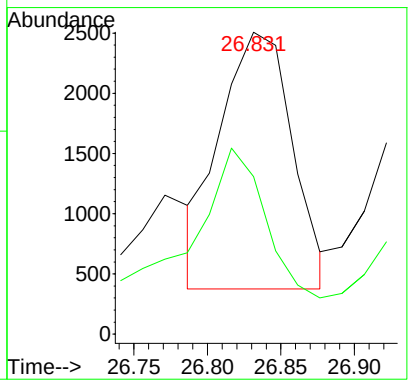


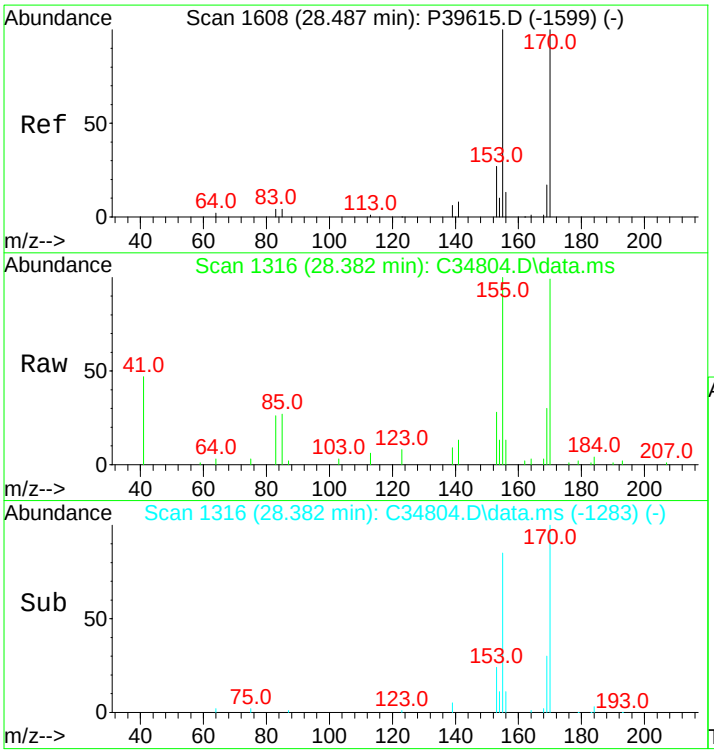


#27
Acenaphthene
Concen: 100.93 ng/mL m
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:153 Resp: 7301

Ion	Ratio	Lower	Upper
153	100		
154	70.0	73.6	110.4#

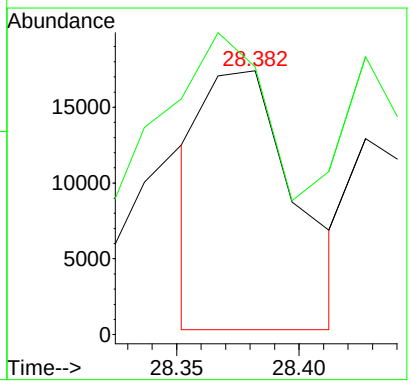


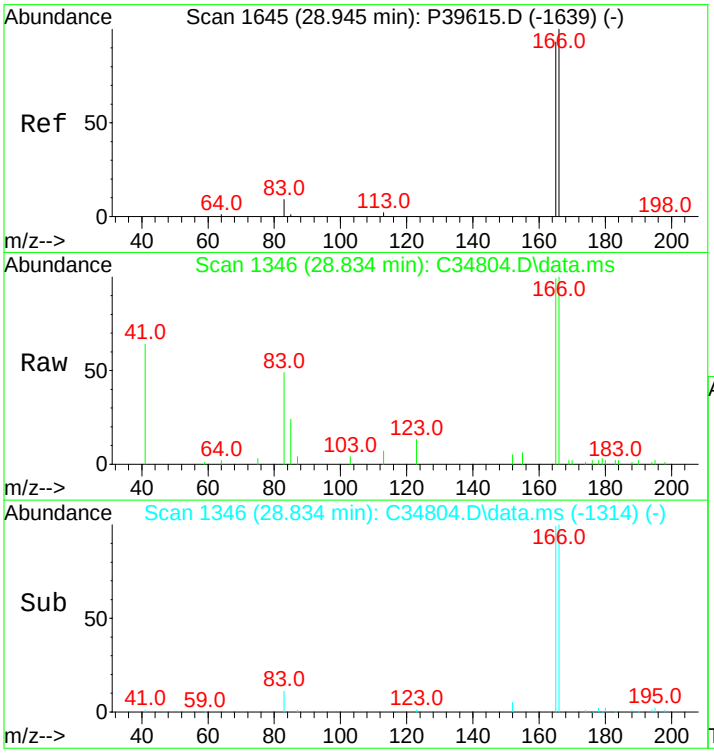


#28
2,3,5-Trimethylnaphthalene
Concen: 909.05 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:170 Resp: 44057

Ion	Ratio	Lower	Upper
170	100		
155	171.6	87.3	130.9#

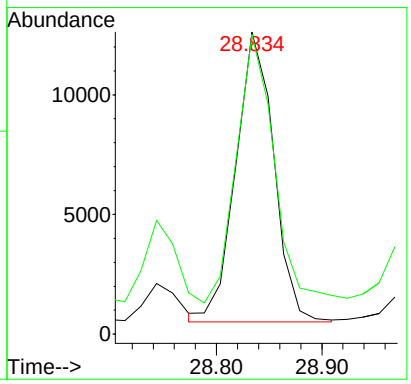


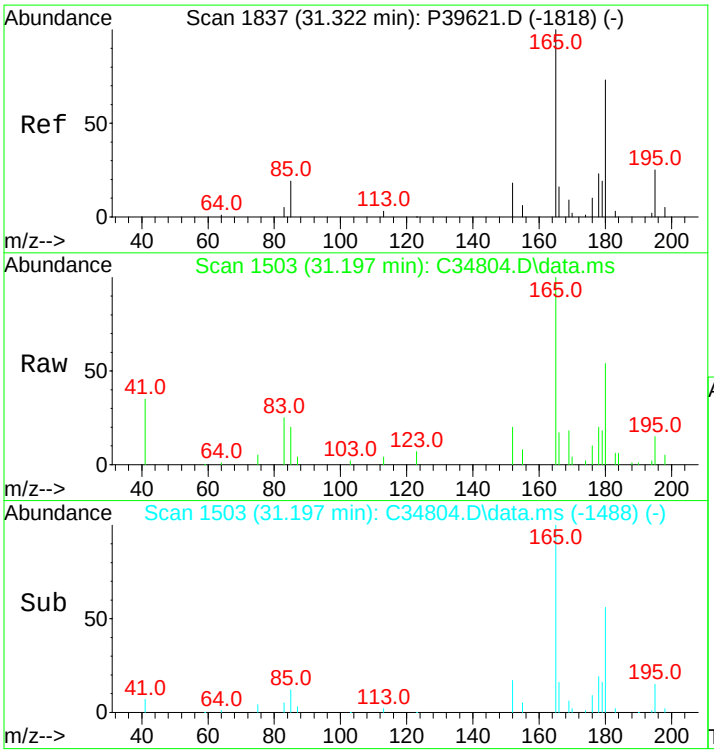


#29
Fluorene
Concen: 380.03 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:166 Resp: 30318

Ion	Ratio	Lower	Upper
166	100		
165	119.0	77.3	115.9#

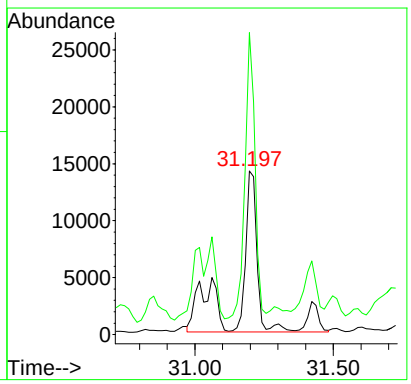


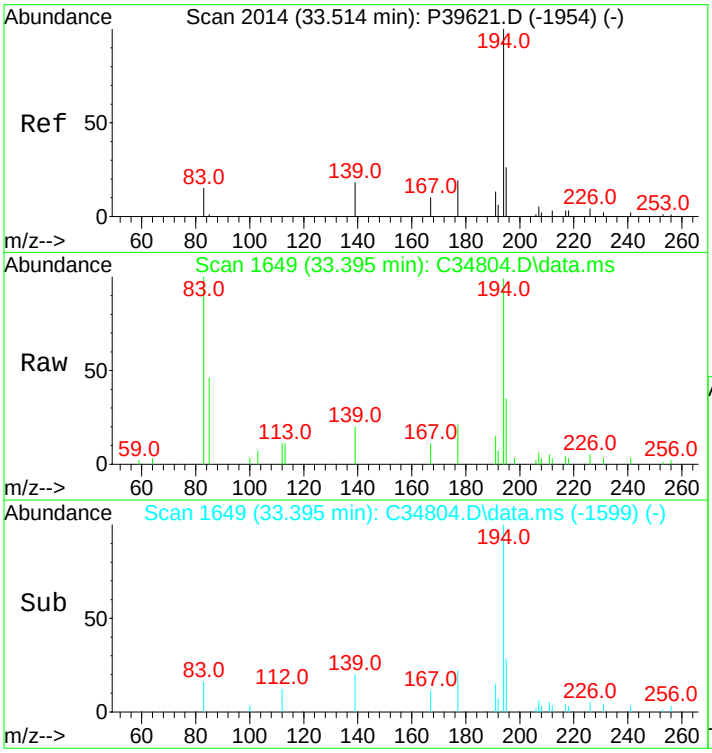


#30
C1-Fluorenes
Concen: 864.66 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:180 Resp: 68981

Ion	Ratio	Lower	Upper
180	100		
165	2.8	111.4	167.2#

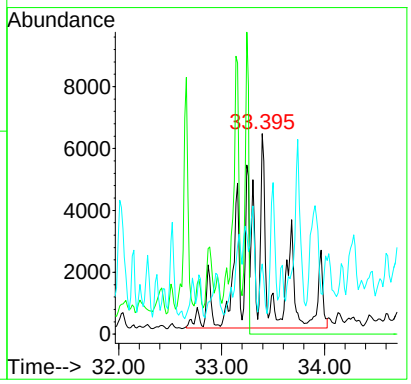


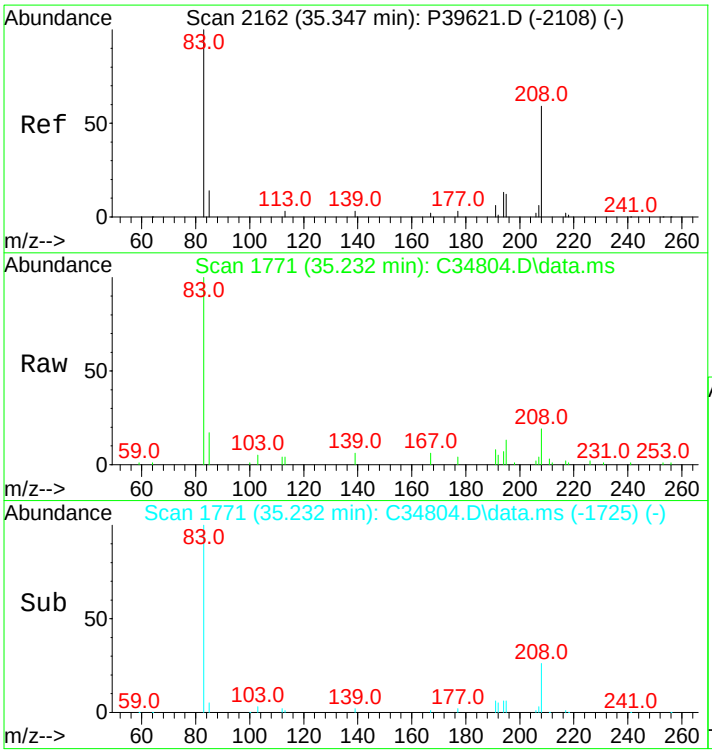


#31
C2-Fluorenes
Concen: 1206.97 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:194 Resp: 96290

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.5	27.3	40.9#

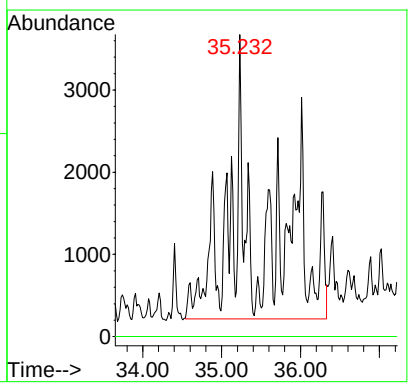


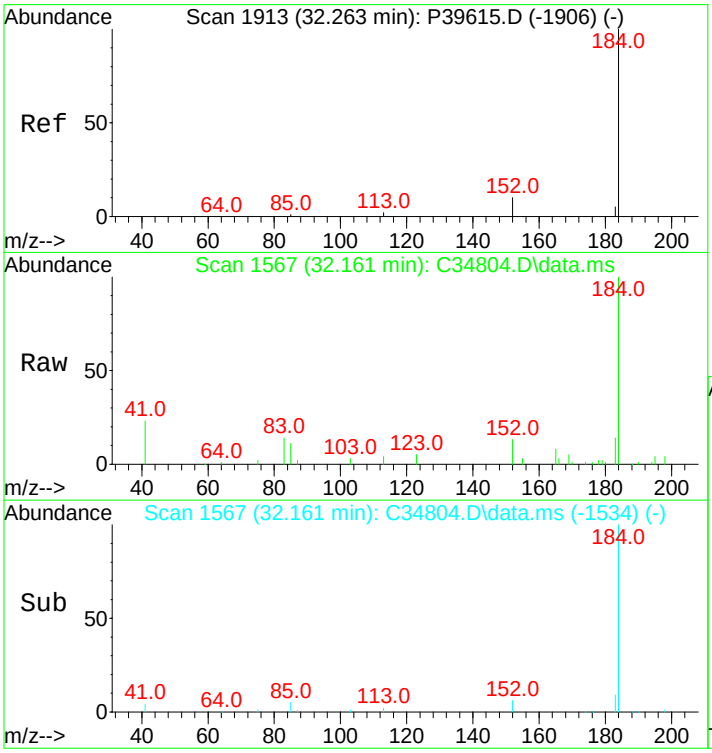


#32
C3-Fluorenes
Concen: 1113.89 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:208 Resp: 88864

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

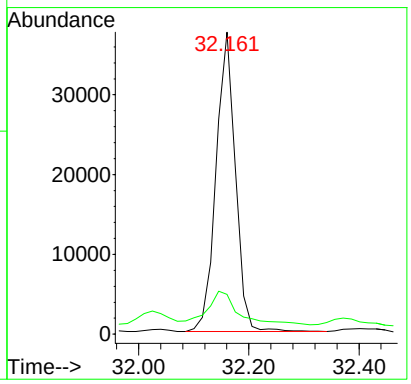


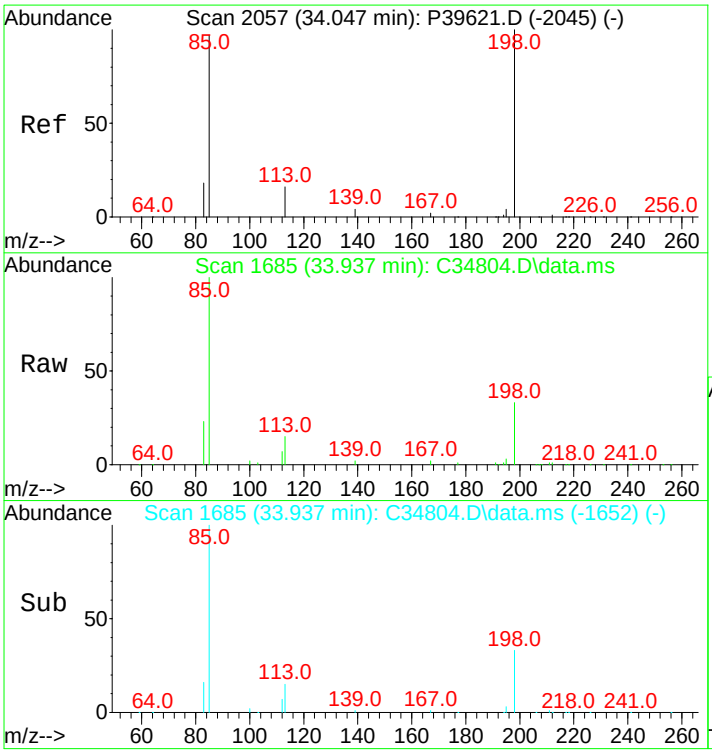


#33
Dibenzothiophene
Concen: 718.58 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:184 Resp: 91894

Ion	Ratio	Lower	Upper
184	100		
152	18.0	7.5	11.3#

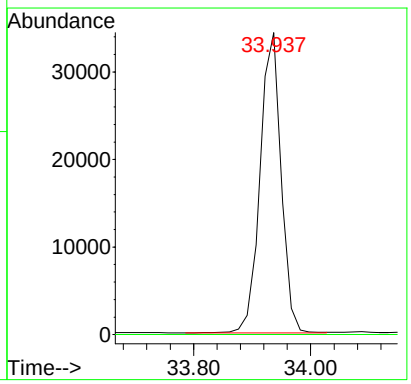


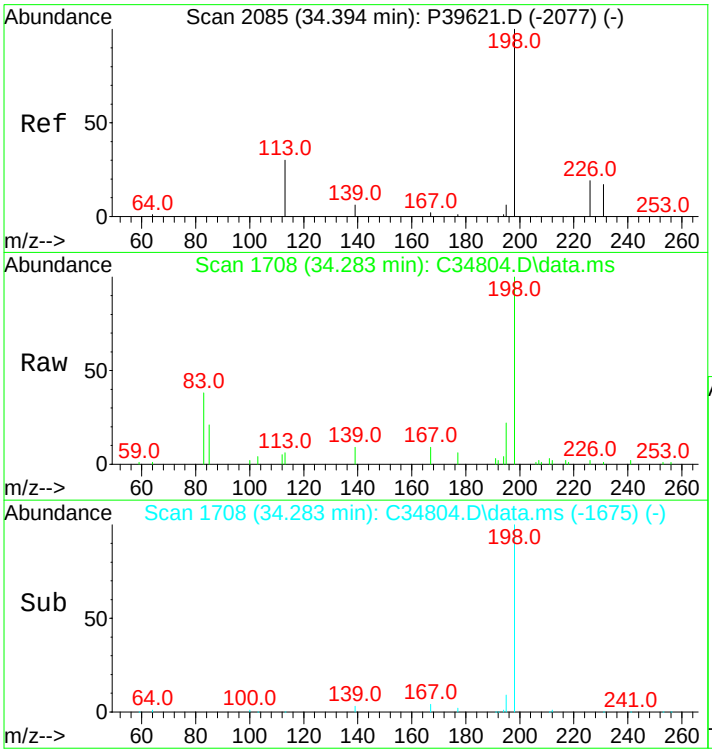


#34
4-Methyldibenzothiophene(4MDT)
Concen: 670.20 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 85707

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

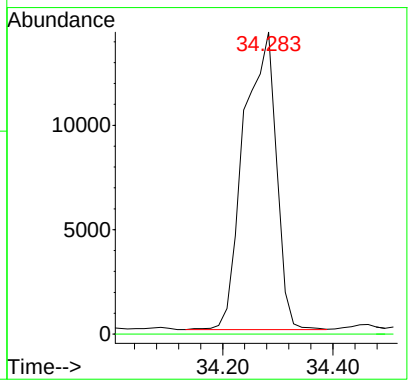


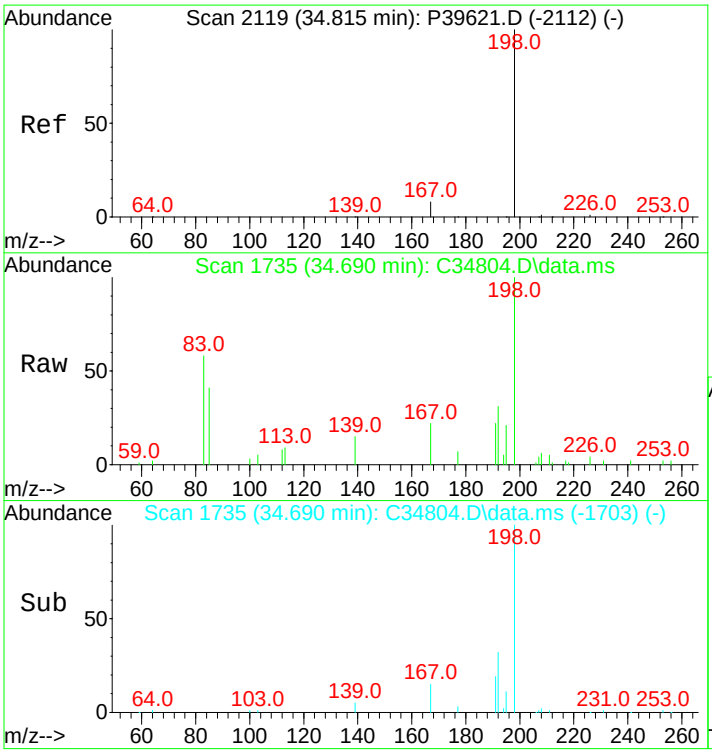


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 455.95 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 58309

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

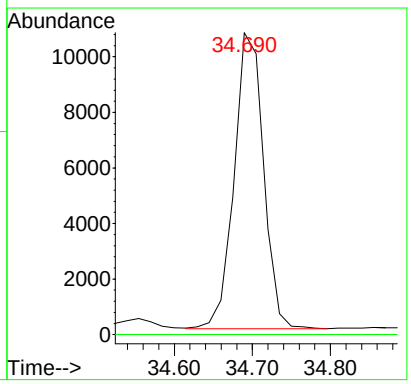


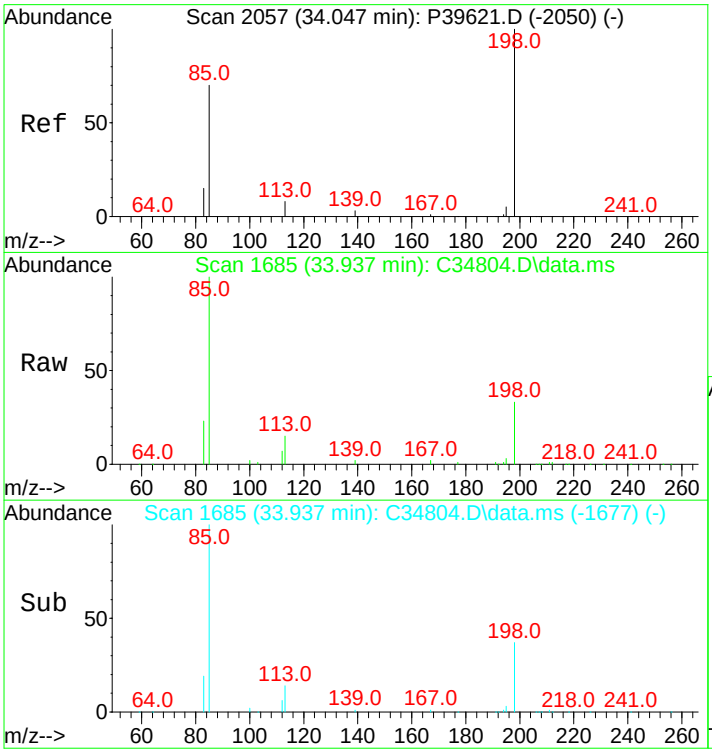


#36
1-Methyldibenzothiophene(1MDT)
Concen: 217.94 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 27871

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

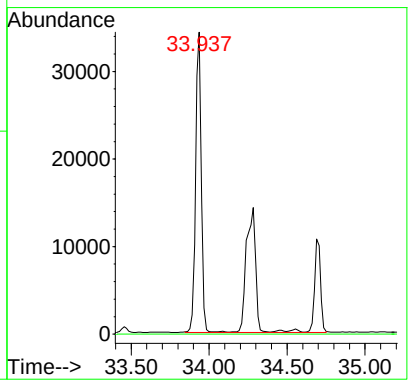


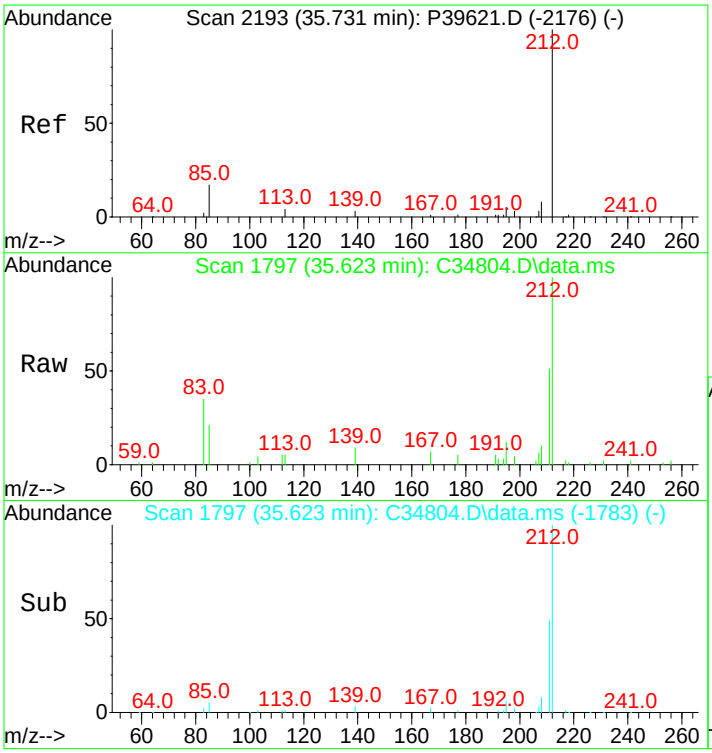


#38
C1-Dibenzothiophenes
Concen: 1364.77 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 174531

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

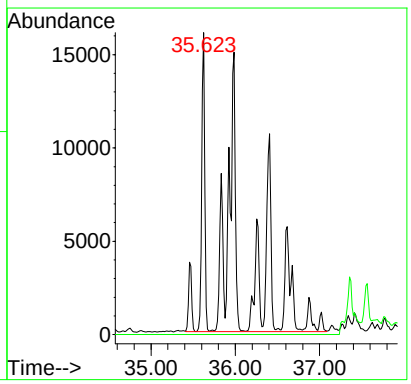


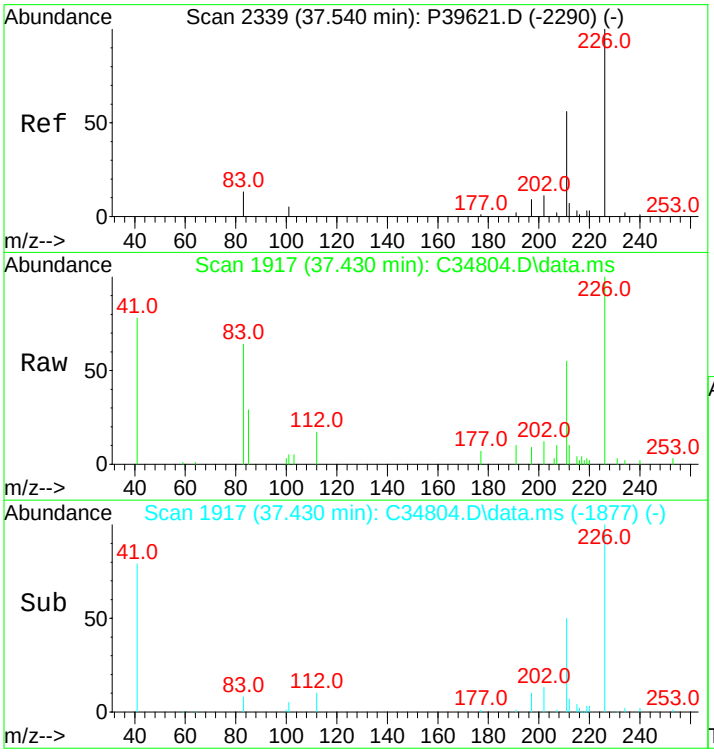


#39
C2-Dibenzothiophenes
Concen: 1811.93 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:212 Resp: 231715

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

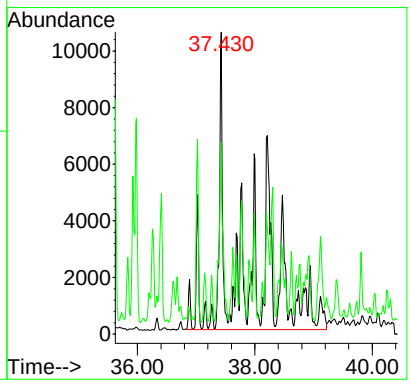


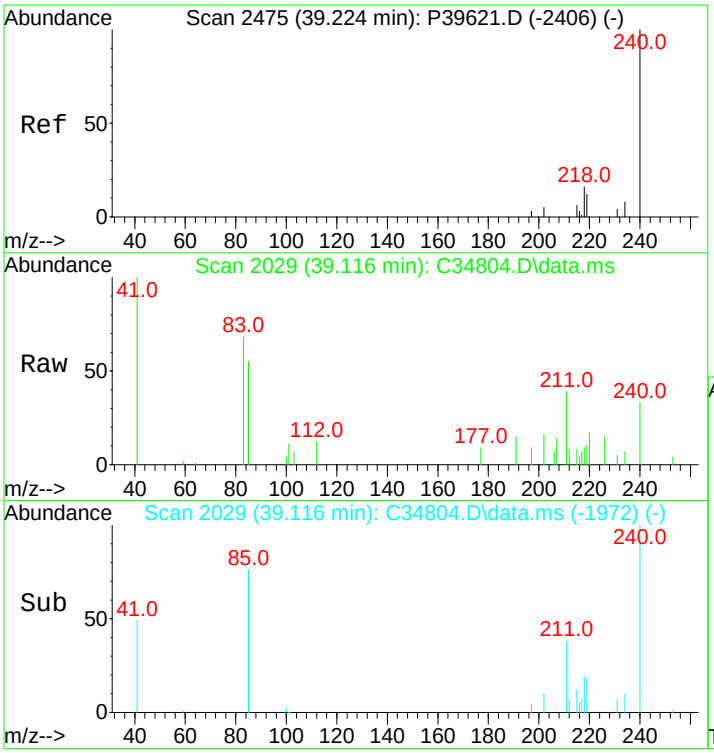


#40
C3-Dibenzothiophenes
Concen: 1631.44 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:226 Resp: 208634

Ion	Ratio	Lower	Upper
226	100		
211	13.7	45.0	67.6#

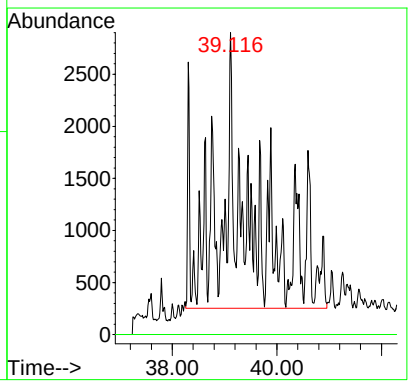


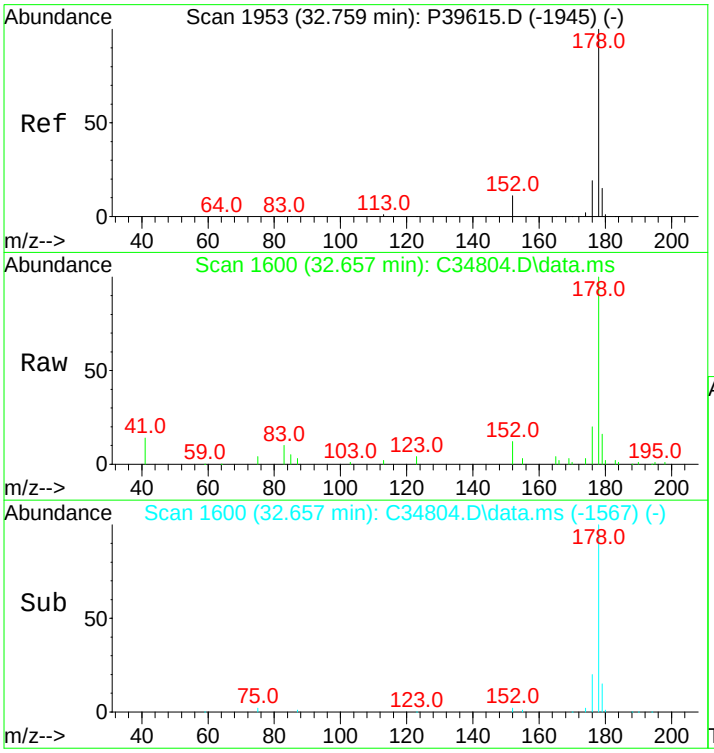


#41
C4-Dibenzothiophenes
Concen: 843.14 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:240 Resp: 107824

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

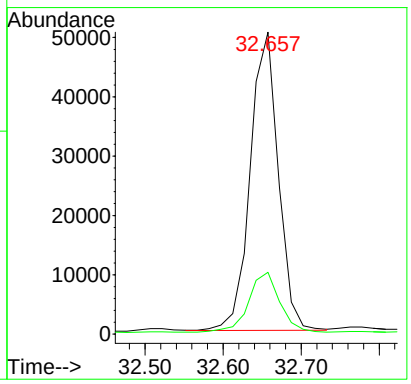


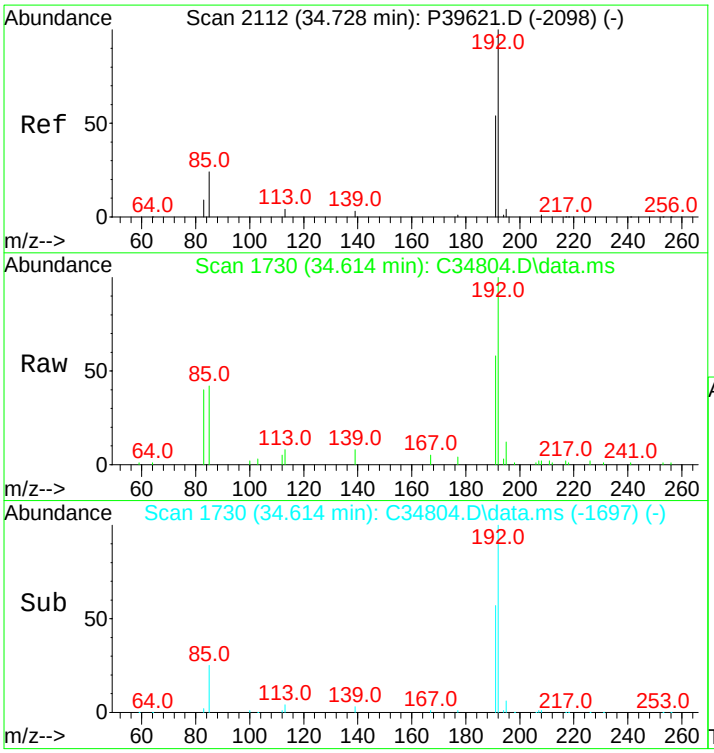


#43
Phenanthrene
Concen: 1122.38 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:178 Resp: 126106

Ion	Ratio	Lower	Upper
178	100		
176	22.1	16.1	24.1

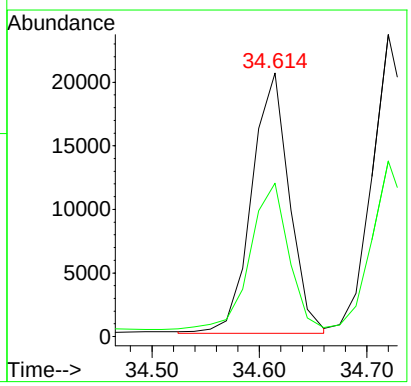


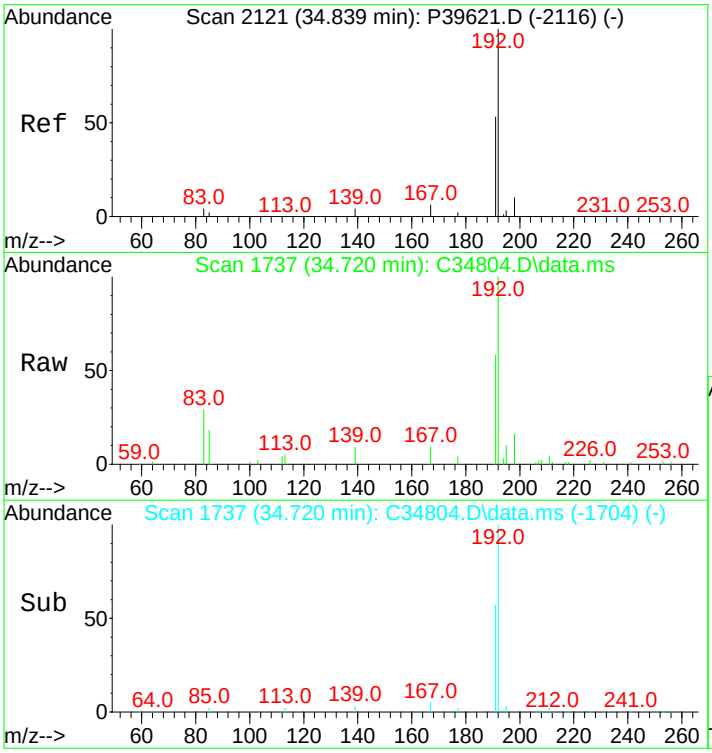


#44
3-Methylphenanthrene(3MP)
Concen: 442.64 ng/mL m
RT: 34.614 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 49733

Ion	Ratio	Lower	Upper
192	100		
191	58.1	46.9	70.3

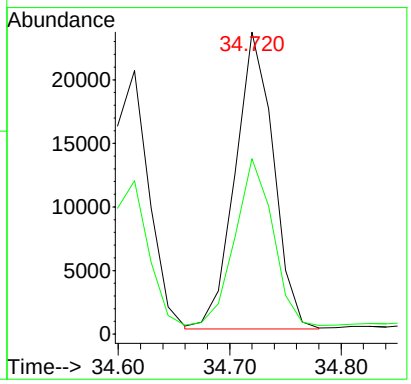


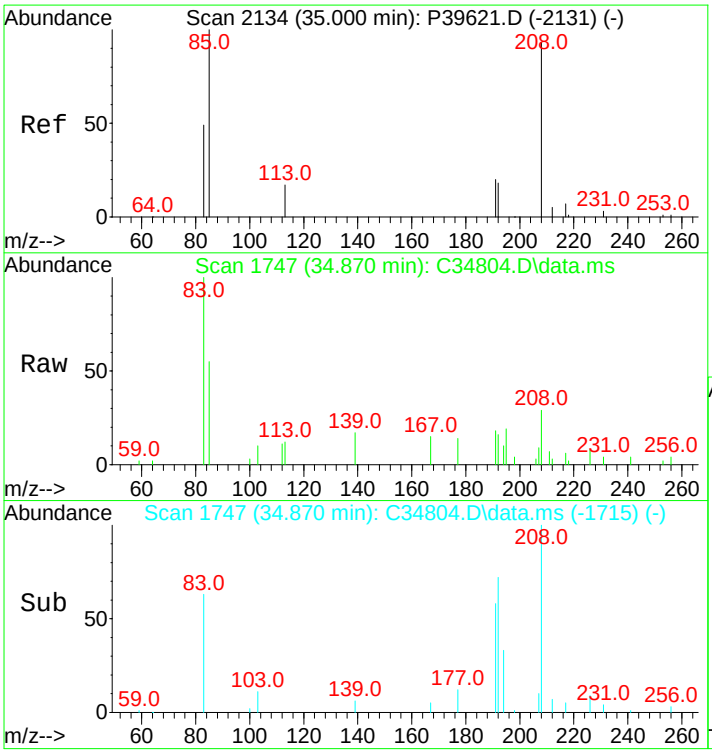


#45
2/4-Methylphenanthrene(2MP)
Concen: 495.34 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 55654

Ion	Ratio	Lower	Upper
192	100		
191	54.8	46.1	69.1

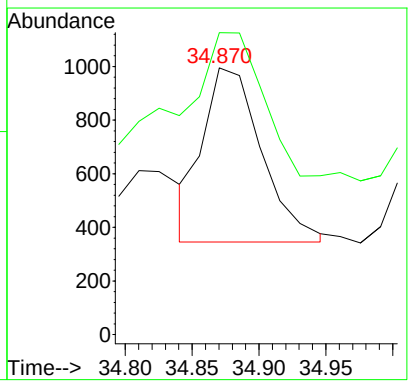


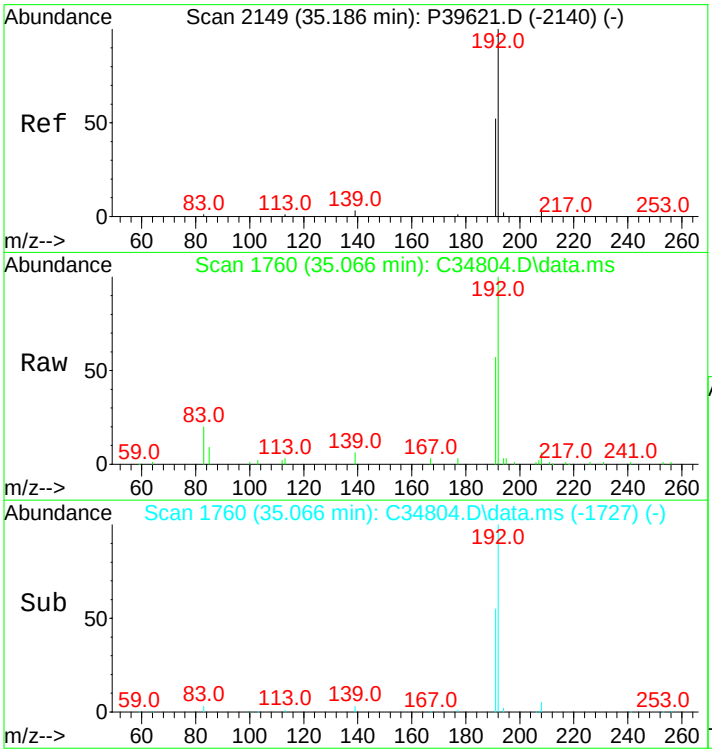


#46
2-Methylanthracene(2MA)
Concen: 17.71 ng/mL m
RT: 34.870 min Scan# 1747
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 1990

Ion	Ratio	Lower	Upper
192	100		
191	124.3	93.4	140.0

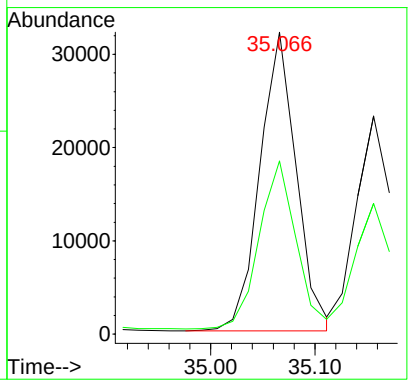


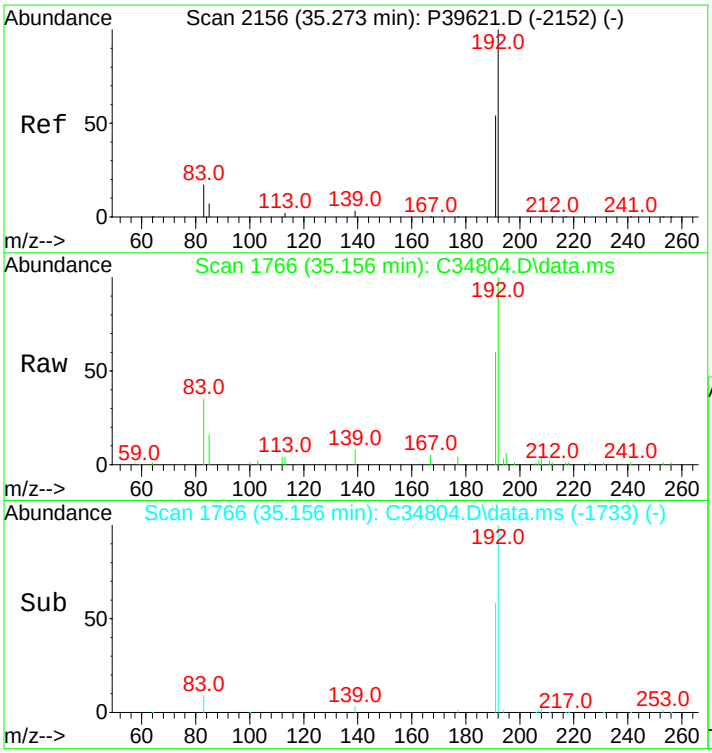


#47
9-Methylphenanthrene(9MP)
Concen: 696.32 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 78236

Ion	Ratio	Lower	Upper
192	100		
191	56.9	45.9	68.9

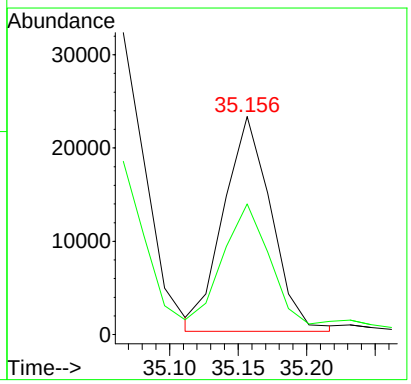


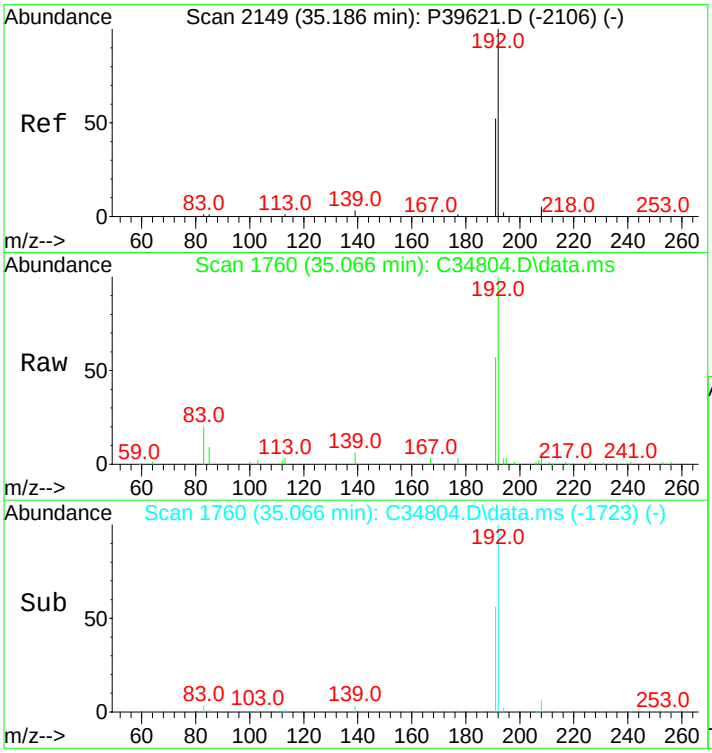


#48
1-Methylphenanthrene(1MP)
Concen: 495.86 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 55713

Ion	Ratio	Lower	Upper
192	100		
191	58.5	49.0	73.4

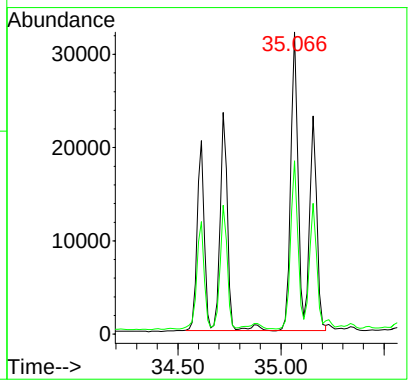


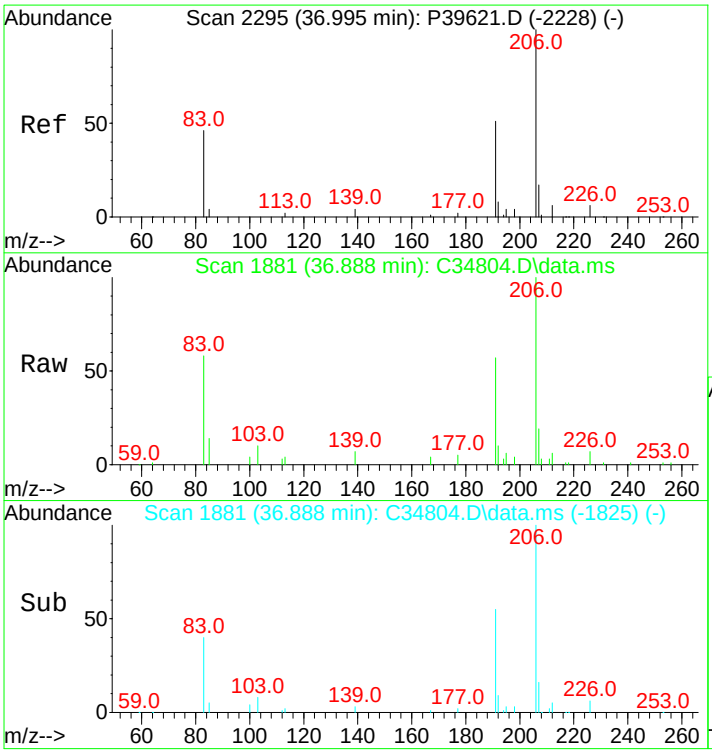


#49
C1-Phenanthrenes/Anthracenes
Concen: 2134.87 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 239866

Ion	Ratio	Lower	Upper
192	100		
191	18.6	44.2	66.2#

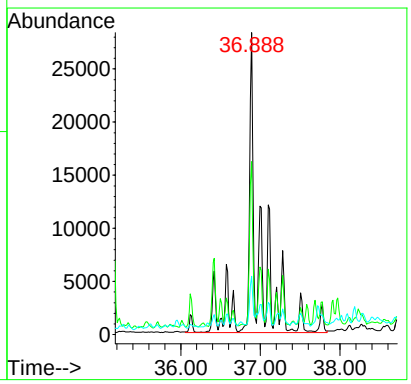


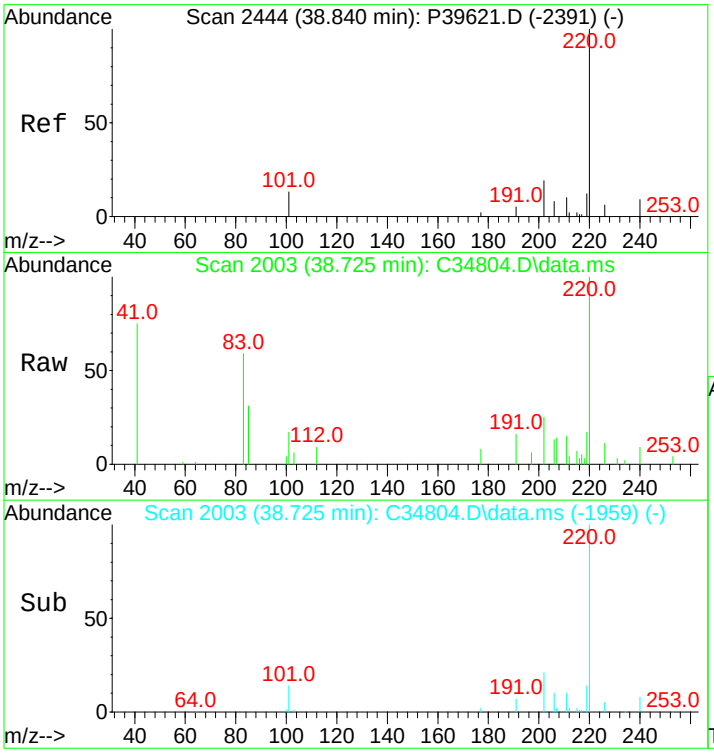


#50
C2-Phenanthrenes/Anthracenes
Concen: 2221.01 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:206 Resp: 249544

Ion	Ratio	Lower	Upper
206	100		
191	17.6	44.0	66.0#
207	5.2	15.1	22.7#

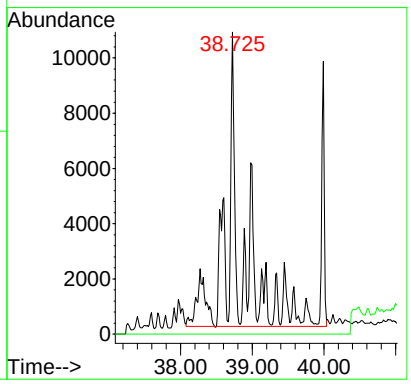


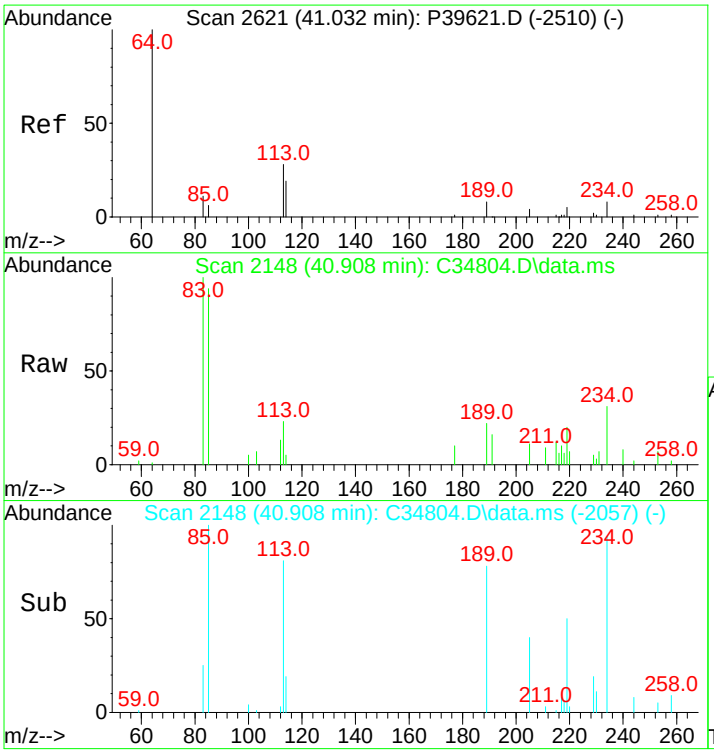


#52
C3-Phenanthrenes/Anthracenes
Concen: 1469.37 ng/mL m
RT: 38.725 min Scan# 2003
Delta R.T. 0.084 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:220 Resp: 165093

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

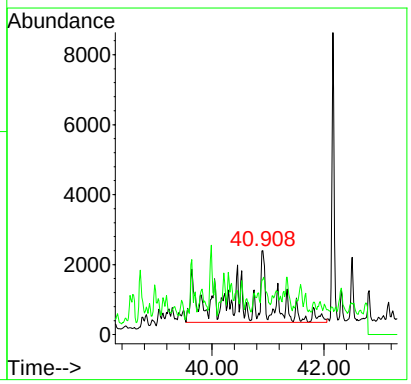


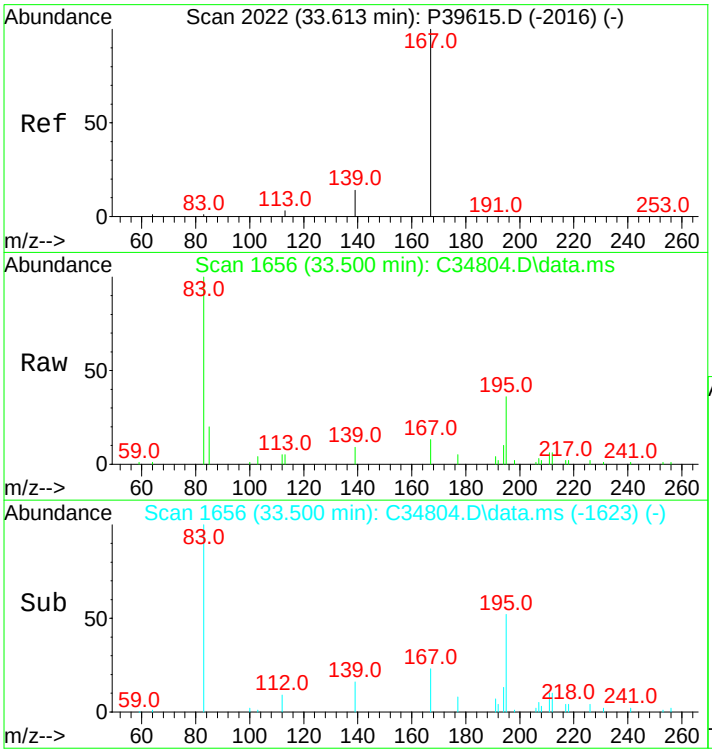


#53
C4-Phenanthrenes/Anthracenes
Concen: 598.36 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 67229

Ion	Ratio	Lower	Upper
234	100		
219	8.1	46.9	70.3#

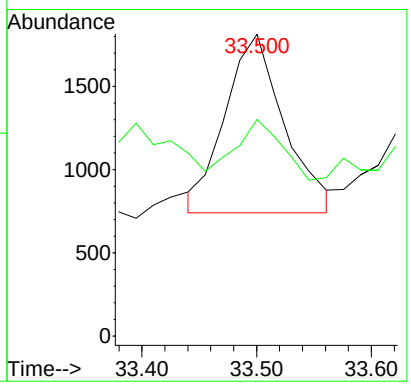


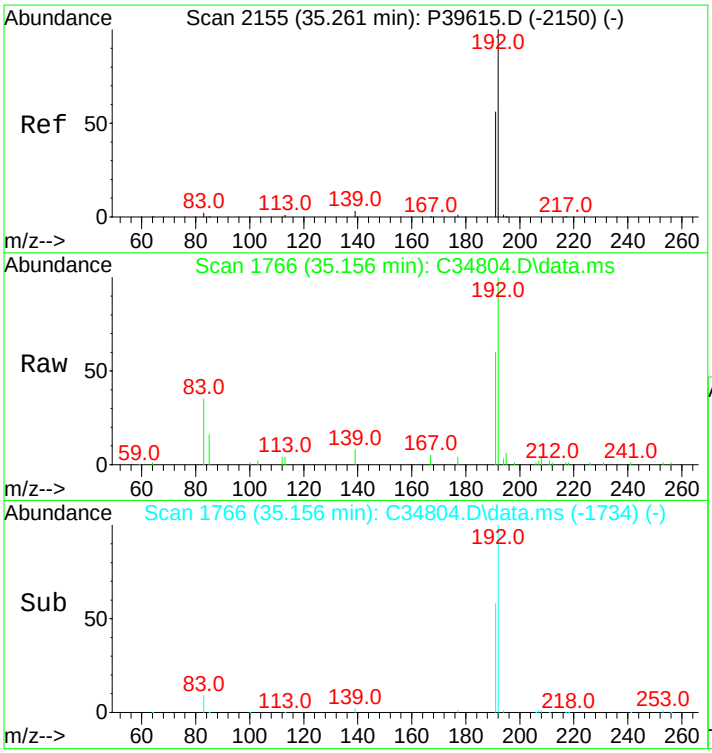


#56
Carbazole
Concen: 34.62 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:167 Resp: 3838

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

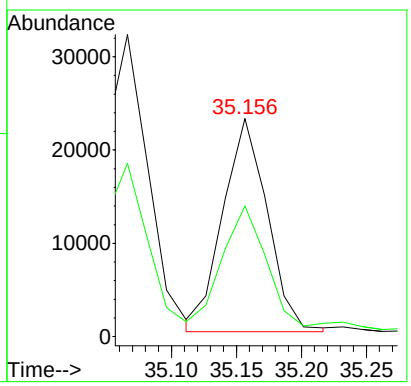


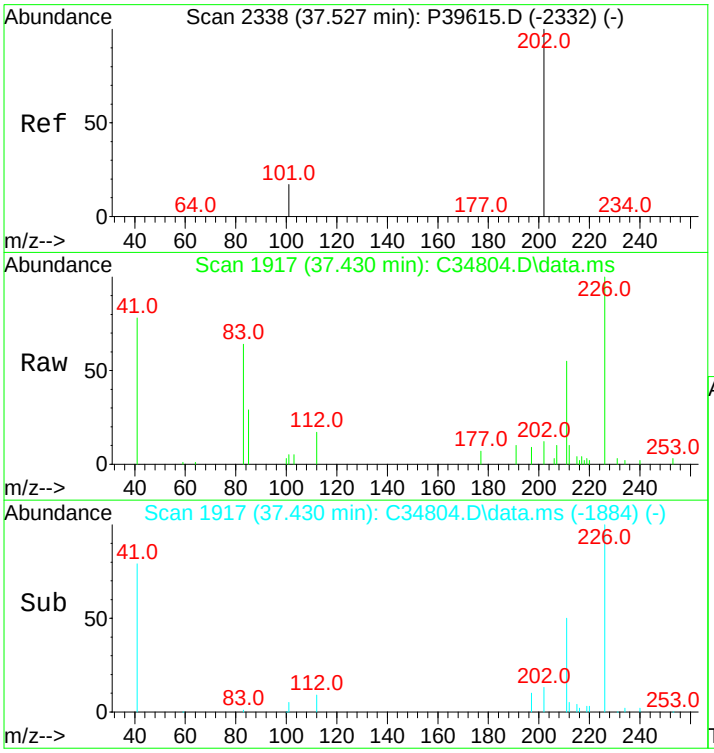


#57
1-Methylphenanthrene
Concen: 767.72 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 54663

Ion	Ratio	Lower	Upper
192	100		
191	60.3	45.9	68.9

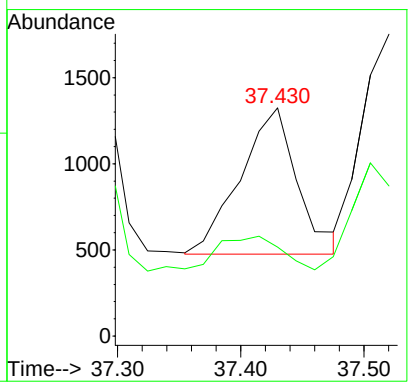


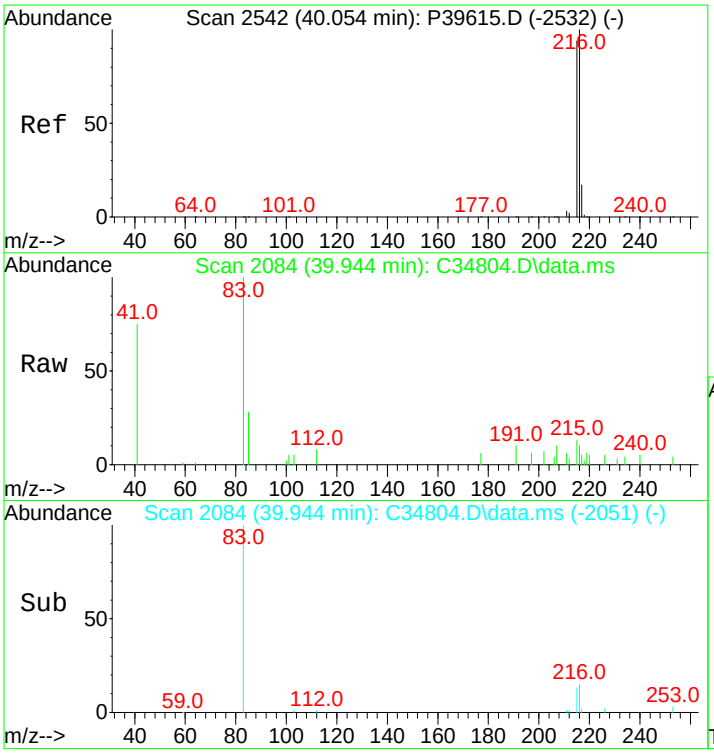


#58
Fluoranthene
Concen: 24.59 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:202 Resp: 2744

Ion	Ratio	Lower	Upper
202	100		
101	91.9	12.9	19.3#

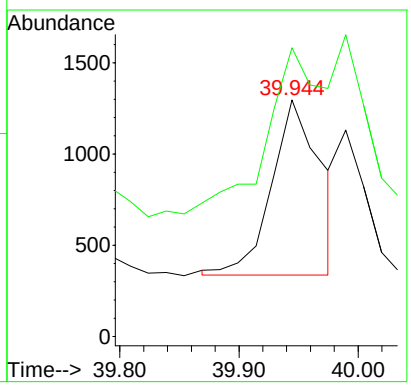


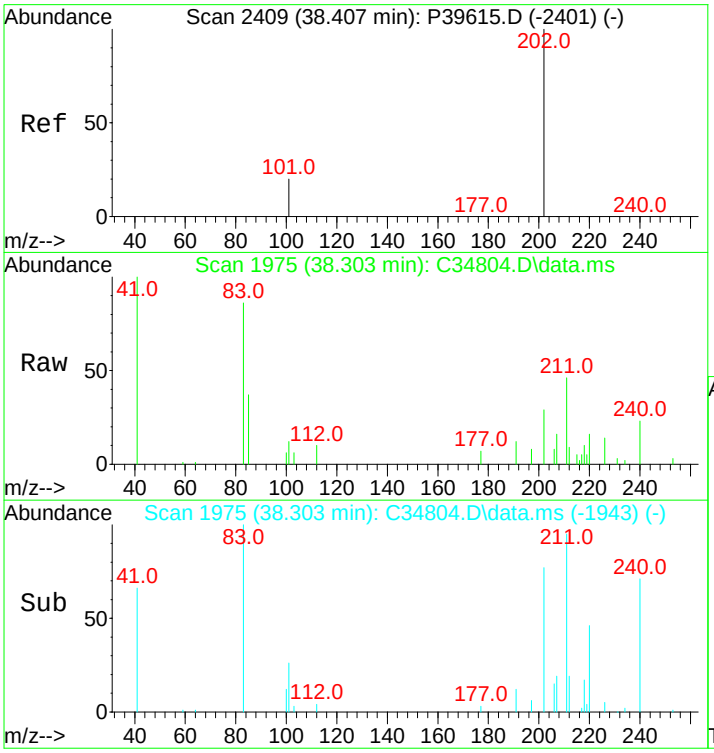


#59
Benzo(b)fluorene
Concen: 42.45 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:216 Resp: 2748

Ion	Ratio	Lower	Upper
216	100		
215	435.5	76.3	114.5#

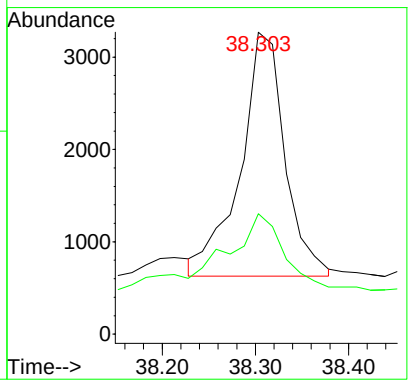


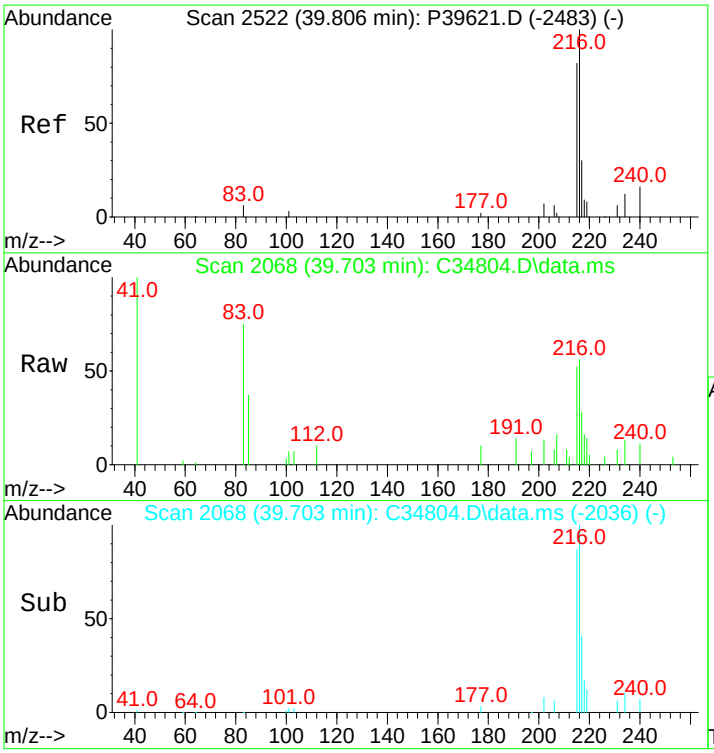


#60
Pyrene
Concen: 77.04 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:202 Resp: 8739

Ion	Ratio	Lower	Upper
202	100		
101	59.6	15.0	22.4#

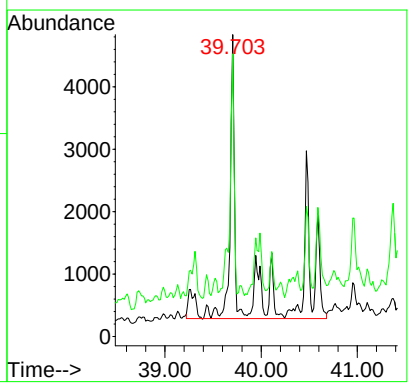


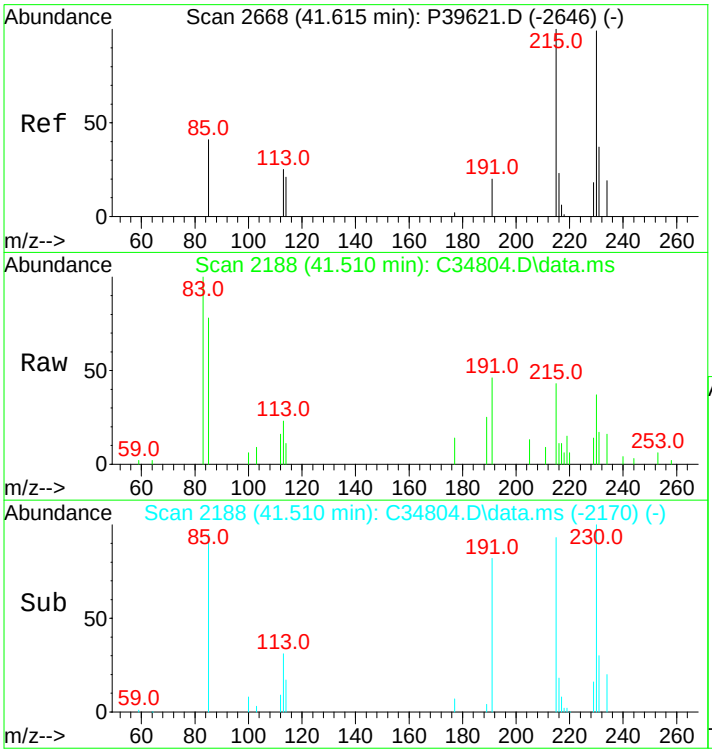


#61
C1-Fluoranthenes/Pyrenes
Concen: 335.56 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:216 Resp: 38064

Ion	Ratio	Lower	Upper
216	100		
215	29.8	71.8	107.6#

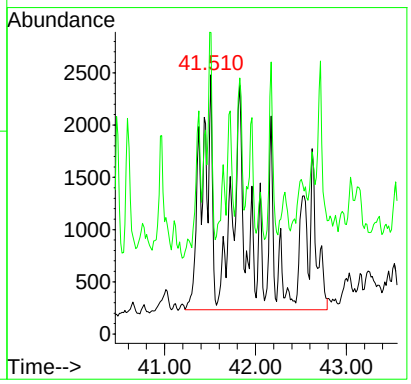


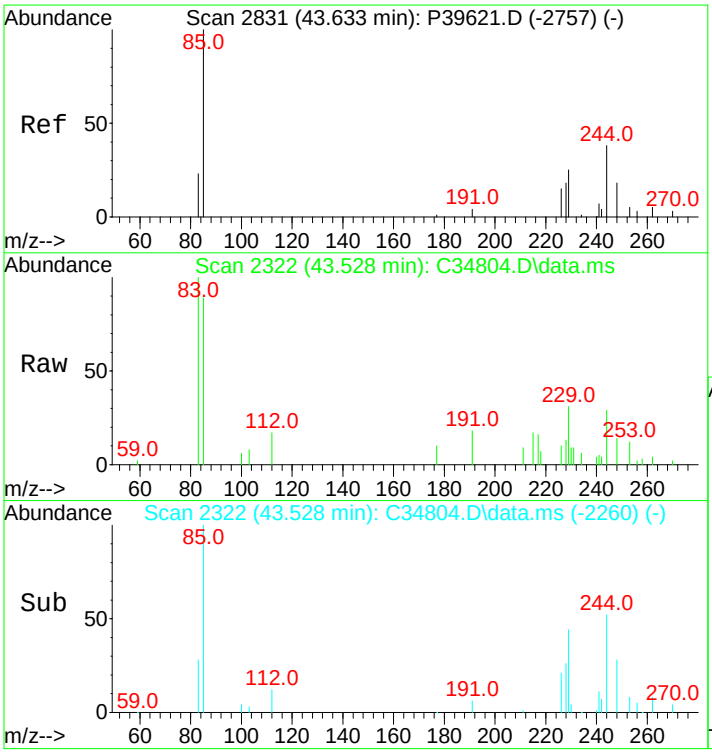


#62
C2-Fluoranthenes/Pyrenes
Concen: 544.11 ng/mL m
RT: 41.510 min Scan# 2188
Delta R.T. 0.111 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:230 Resp: 61720

Ion	Ratio	Lower	Upper
230	100		
215	3.5	99.0	148.4#

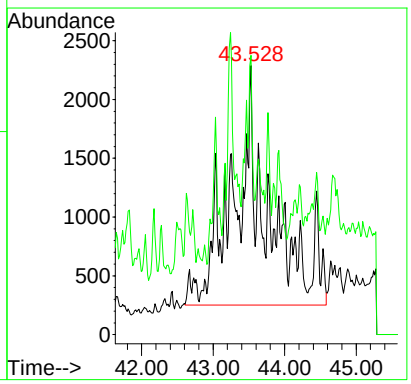


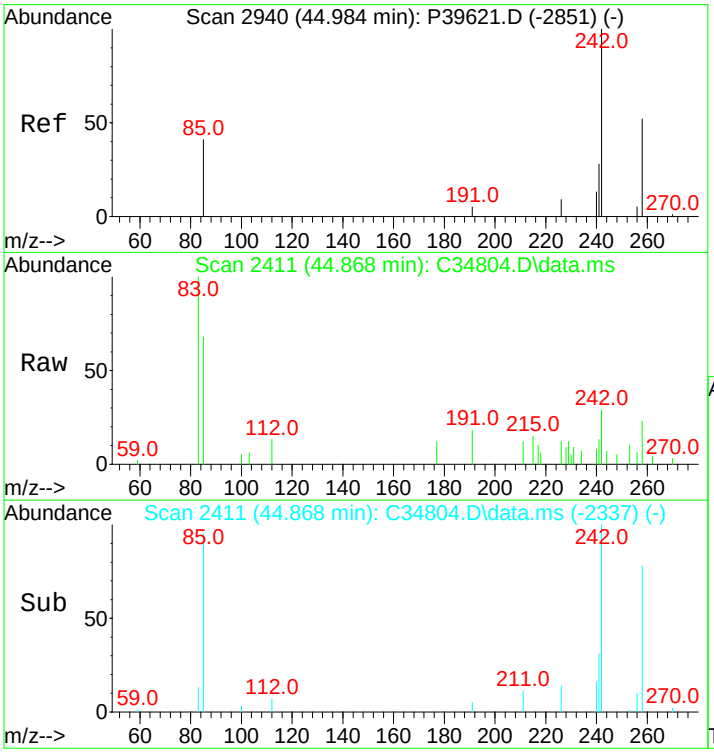


#63
C3-Fluoranthenes/Pyrenes
Concen: 600.08 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:244 Resp: 68069

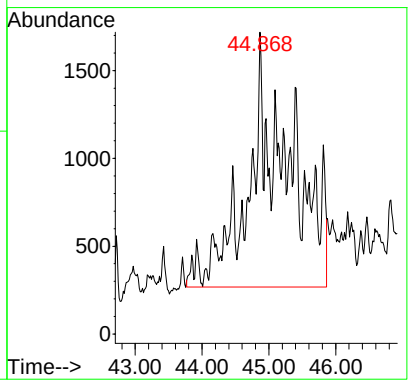
Ion	Ratio	Lower	Upper
244	100		
229	5.8	73.3	109.9#

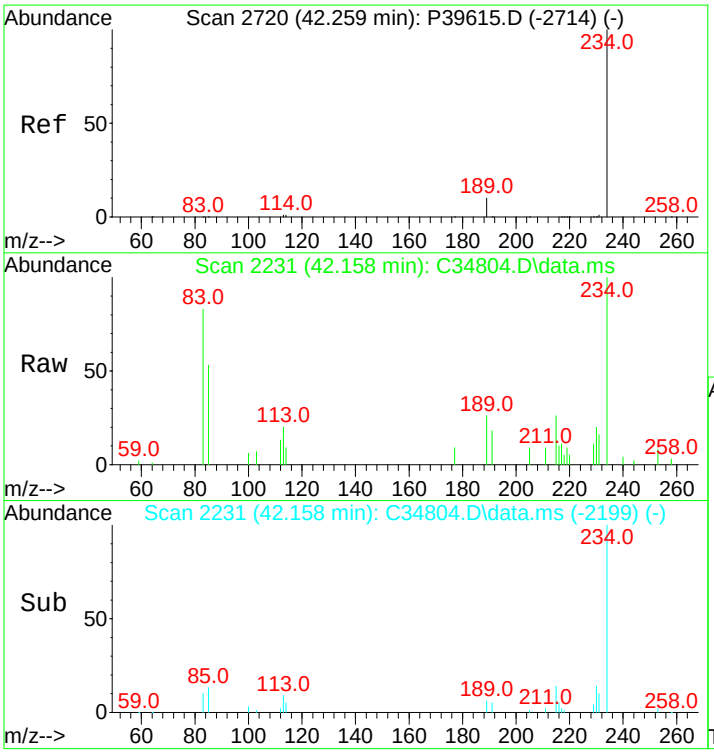




#64
C4-Fluoranthenes/Pyrenes
Concen: 518.60 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.111 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:258 Resp: 58826

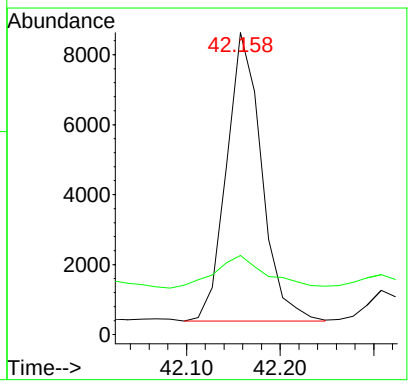


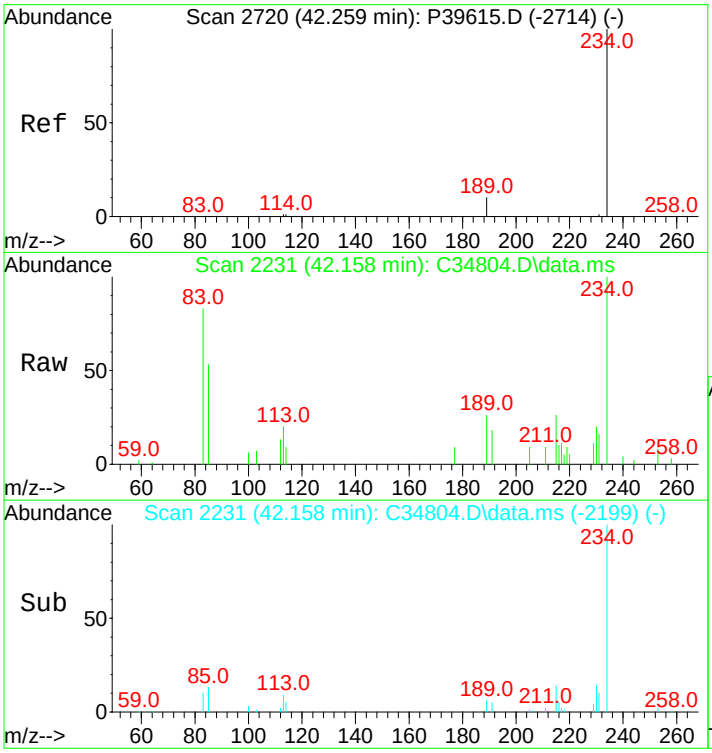


#66
Naphthobenzothiophene
Concen: 176.28 ng/ml m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 21528

Ion	Ratio	Lower	Upper
234	100		
189	1.8	20.5	30.7#

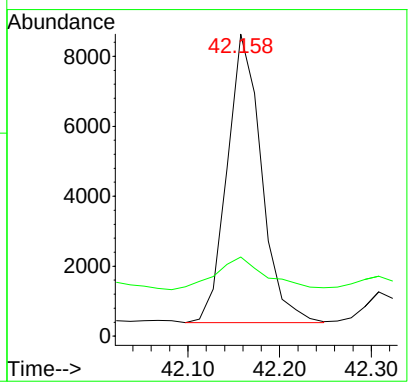


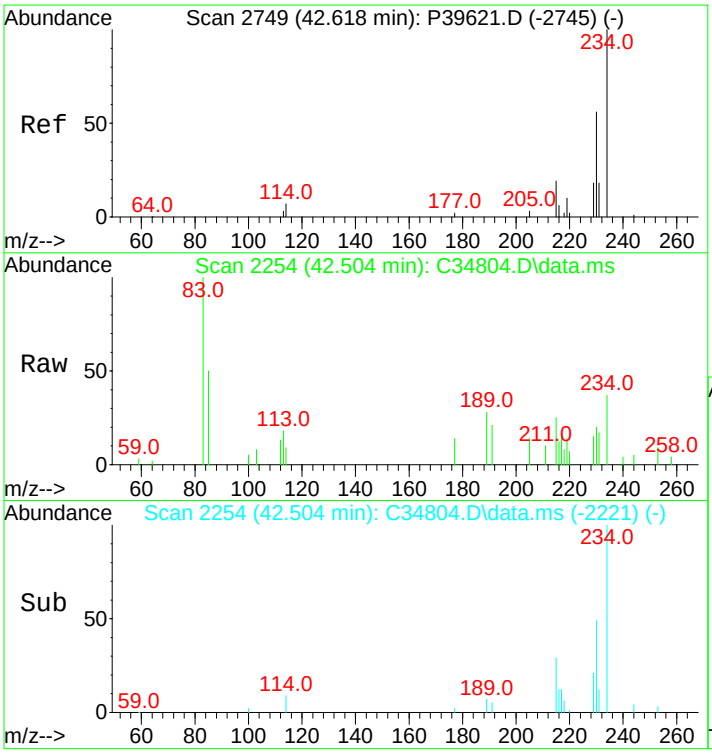


#67
Naphthobenzothiophene-2,1-D
Concen: 176.21 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 21519

Ion	Ratio	Lower	Upper
234	100		
189	1.8	20.5	30.7#

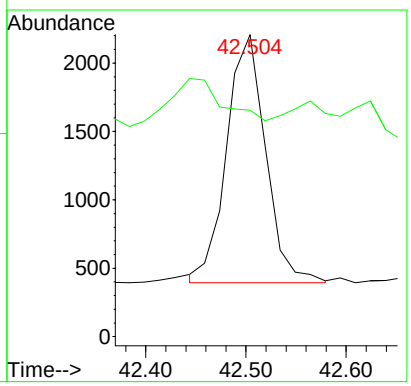


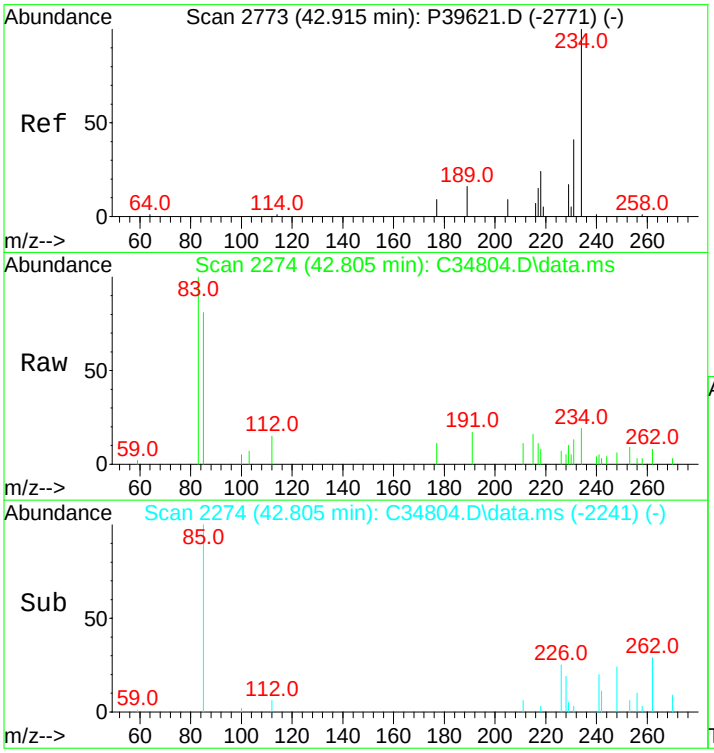


#68
Naphthobenzothiophene-1,2-D
Concen: 39.99 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 4884

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

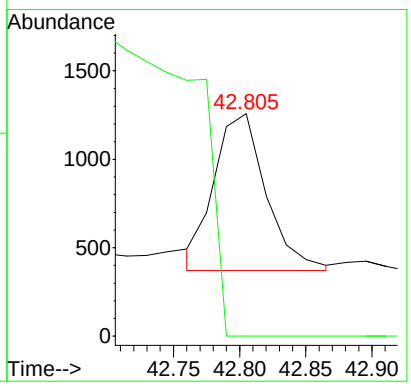


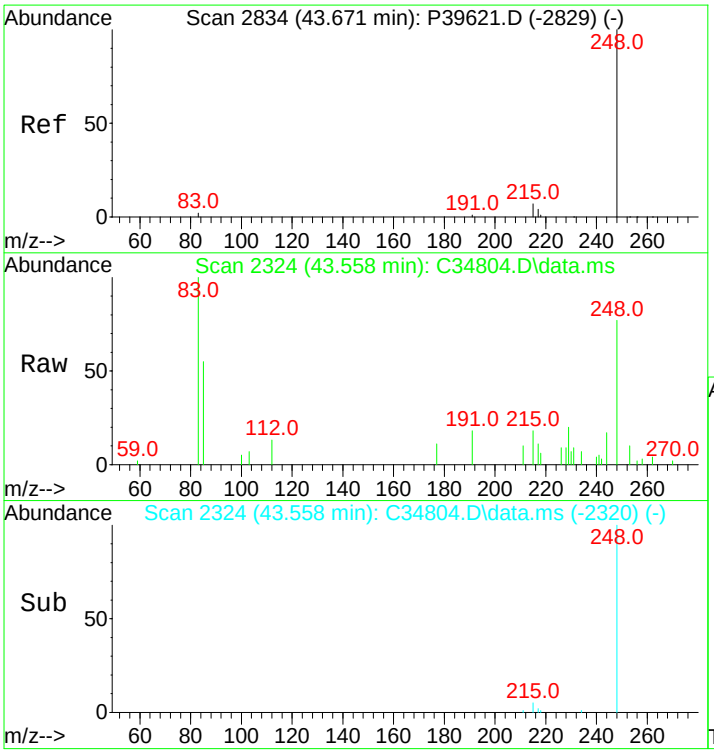


#69
Naphthobenzothiophene-2,3-D
Concen: 19.81 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 2419

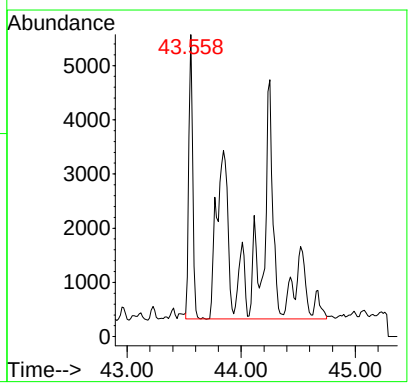
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

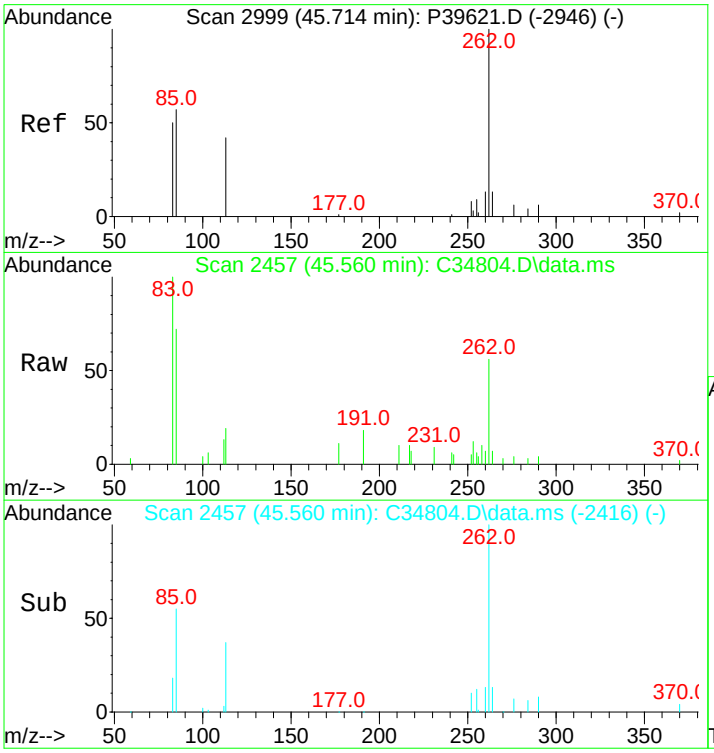




#70
C1-Naphthobenzothiophenes
Concen: 601.82 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

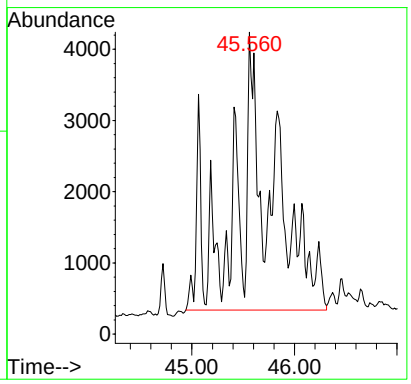
Tgt Ion:248 Resp: 73495

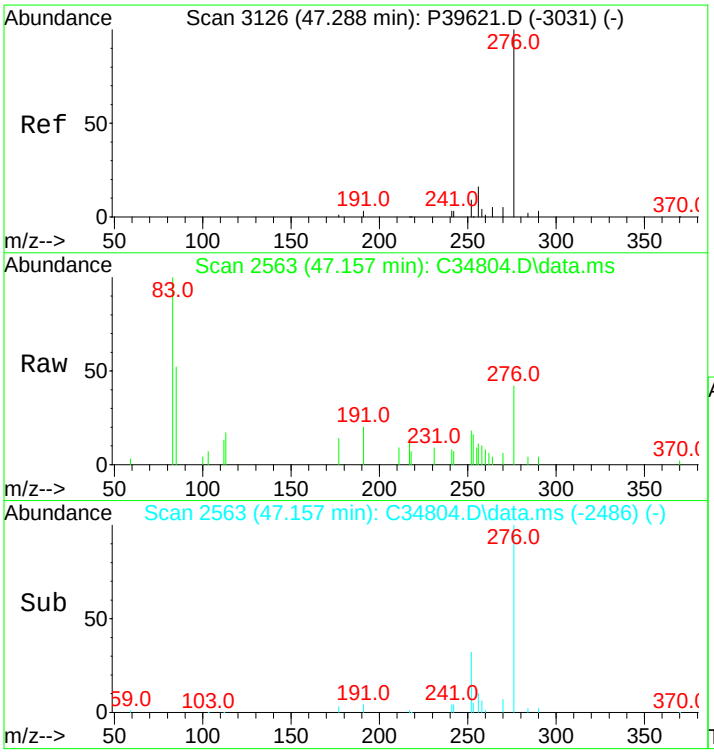




#71
C2-Naphthobenzothiophenes
Concen: 789.51 ng/ml m
RT: 45.560 min Scan# 2457
Delta R.T. 0.129 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

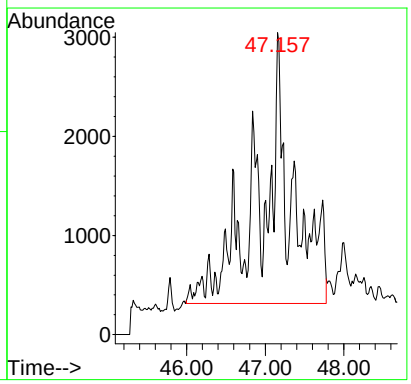
Tgt Ion:262 Resp: 96416

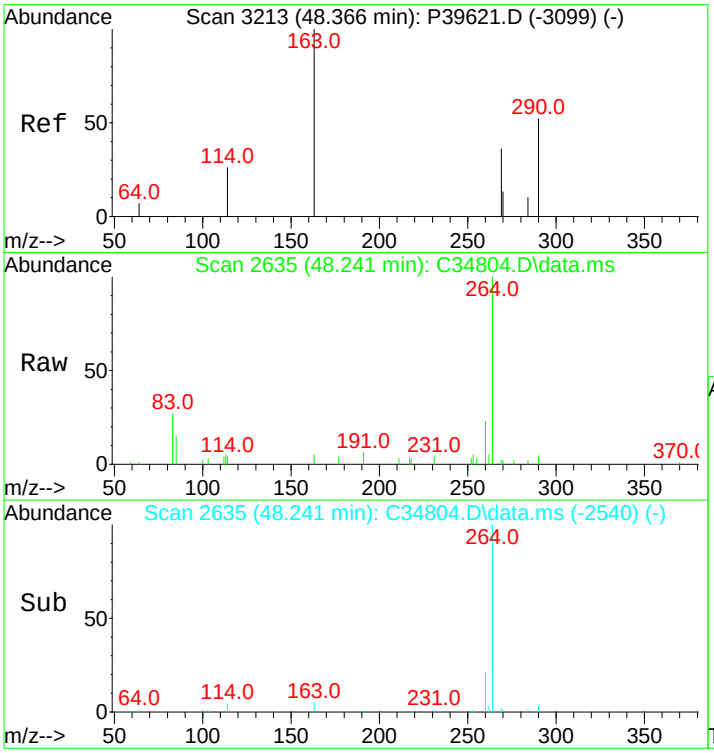




#72
C3-Naphthobenzothiophenes
Concen: 623.44 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

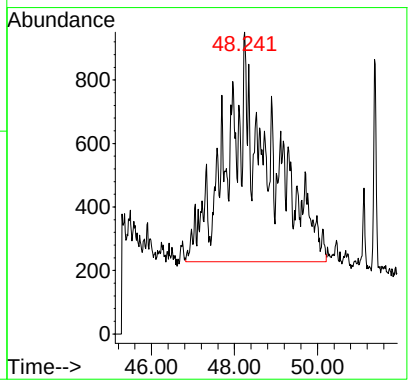
Tgt Ion:276 Resp: 76135

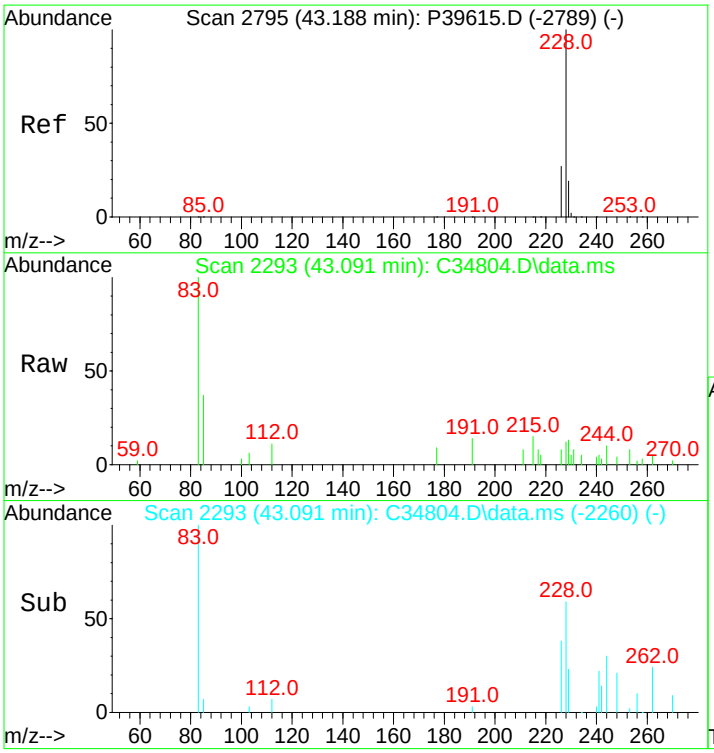




#73
C4-Naphthobenzothiophenes
Concen: 409.40 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:290 Resp: 49996

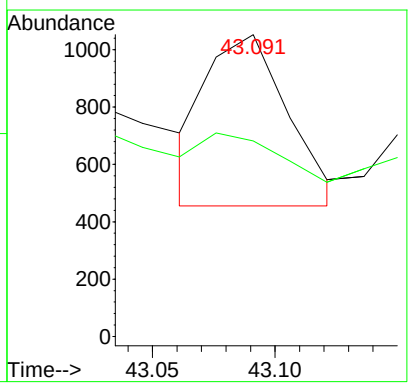


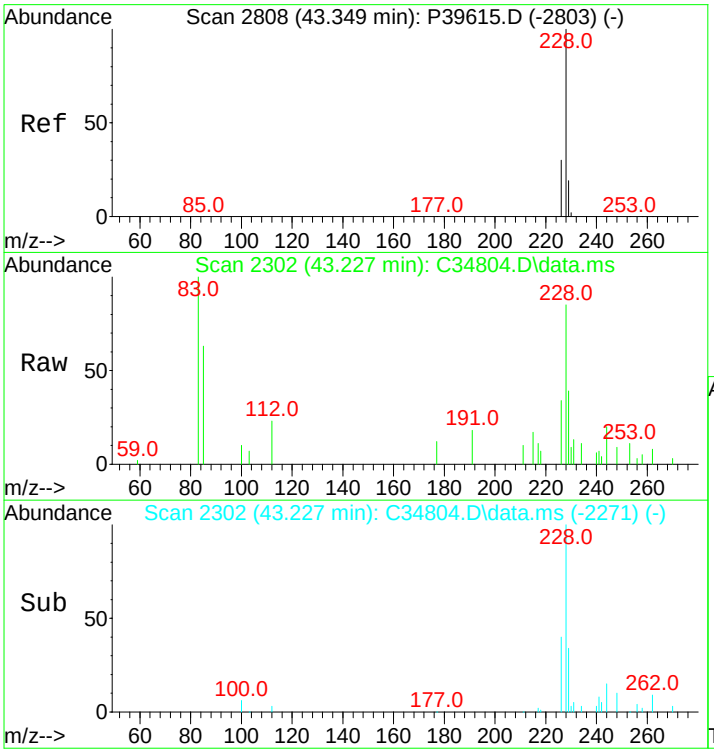


#75
Benz[a]anthracene
Concen: 12.55 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:228 Resp: 1369

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

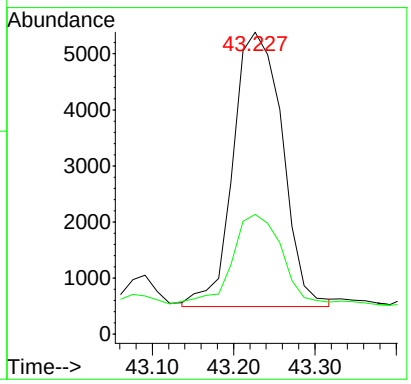


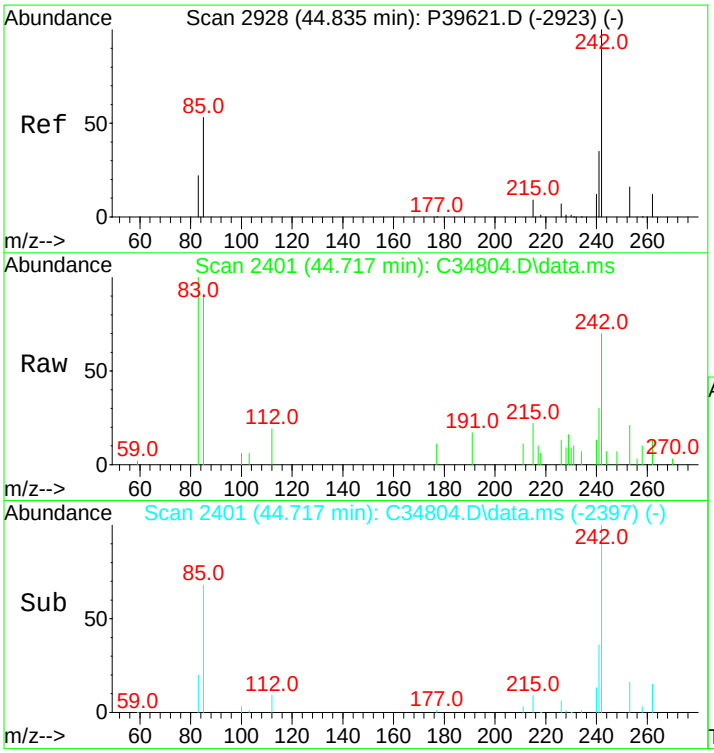


#77
Chrysene/Triphenylene
Concen: 186.62 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:228 Resp: 20557

Ion	Ratio	Lower	Upper
228	100		
226	36.3	23.7	35.5#

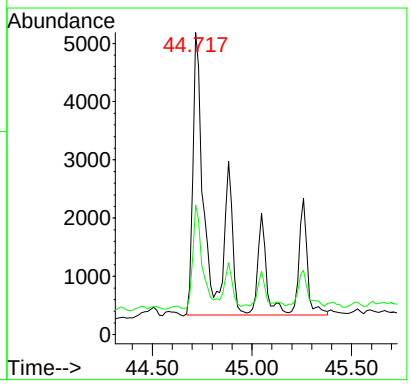


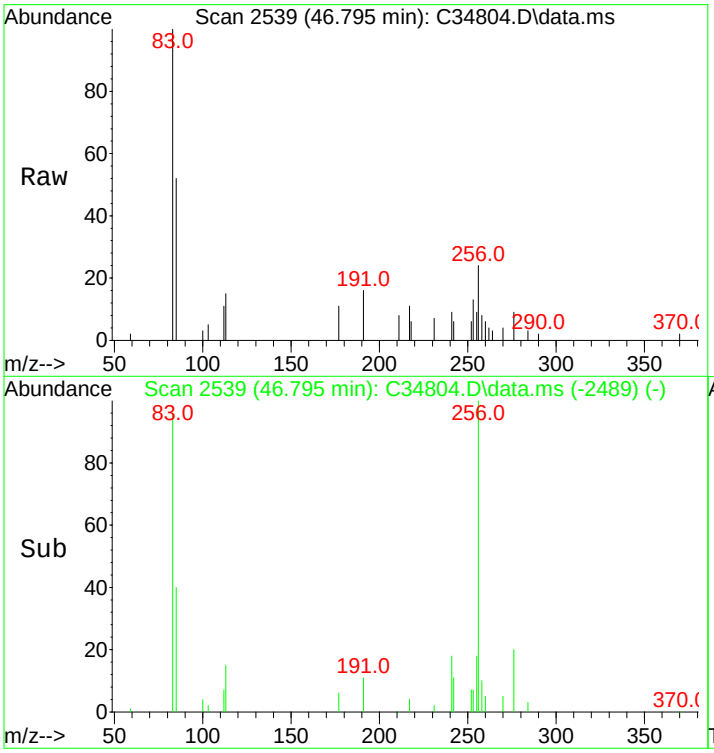


#78
C1-Chrysenes
Concen: 316.84 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:242 Resp: 34901

Ion	Ratio	Lower	Upper
242	100		
241	13.0	31.4	47.2#

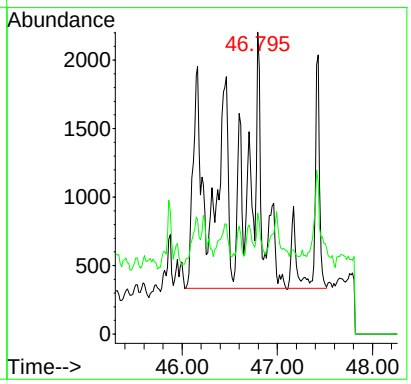


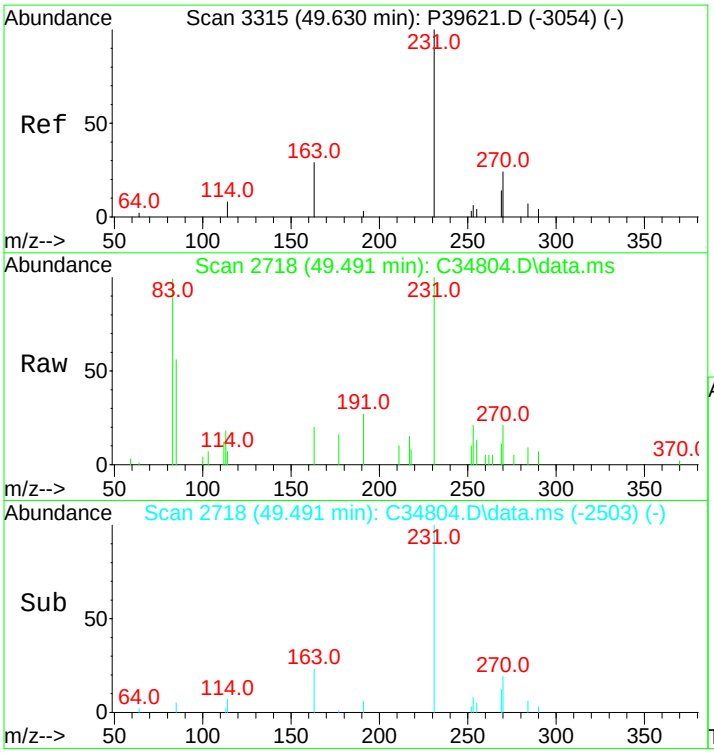


#79
C2-Chrysenes
Concen: 420.26 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:256 Resp: 46293

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

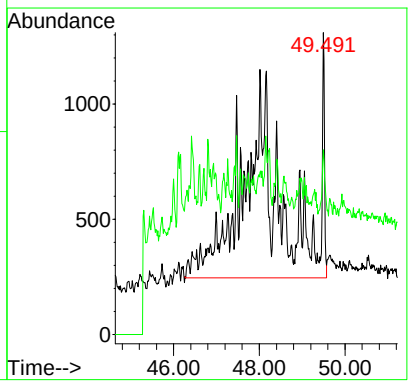


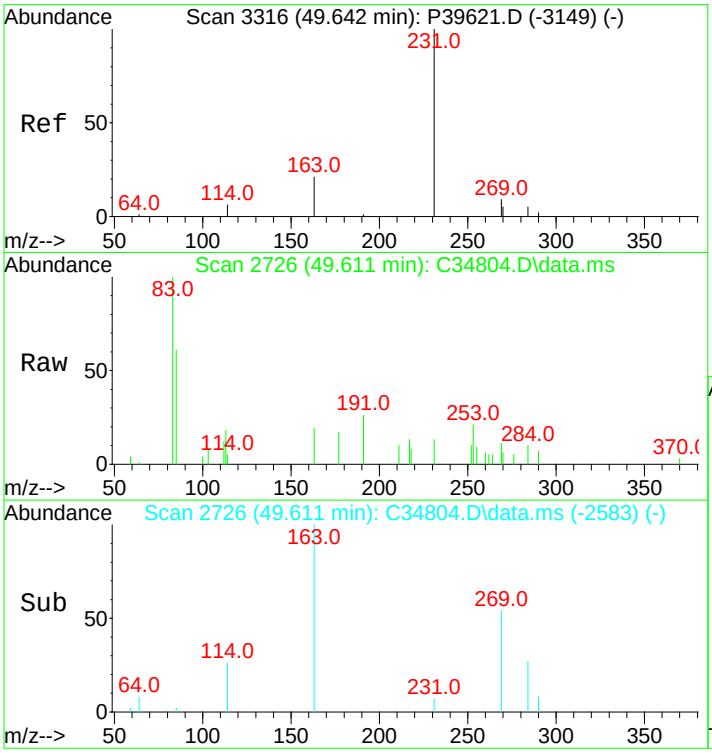


#80
C3-Chrysenes
Concen: 466.76 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:270 Resp: 51416

Ion	Ratio	Lower	Upper
270	100		
255	1.5	33.8	50.8#

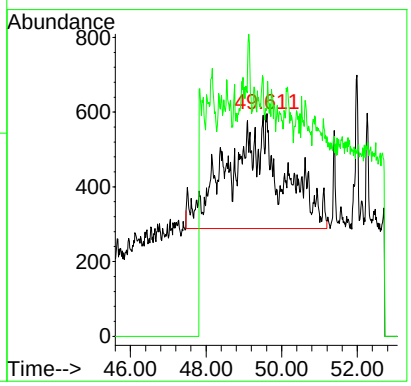


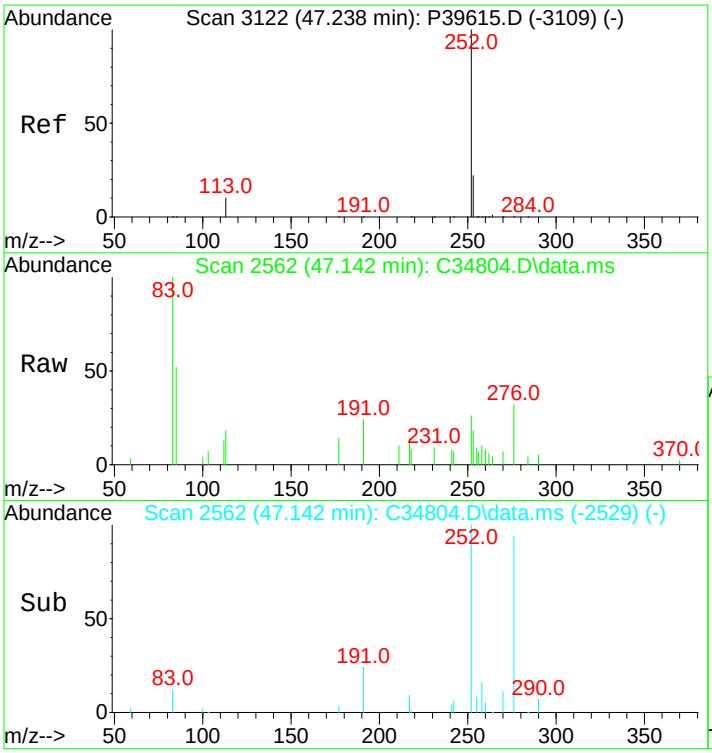


#81
C4-Chrysenes
Concen: 269.32 ng/mL m
RT: 49.611 min Scan# 2726
Delta R.T. 0.011 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:284 Resp: 29667

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

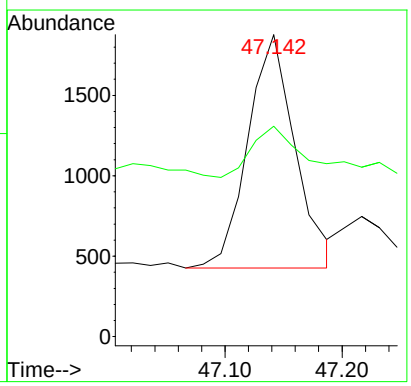


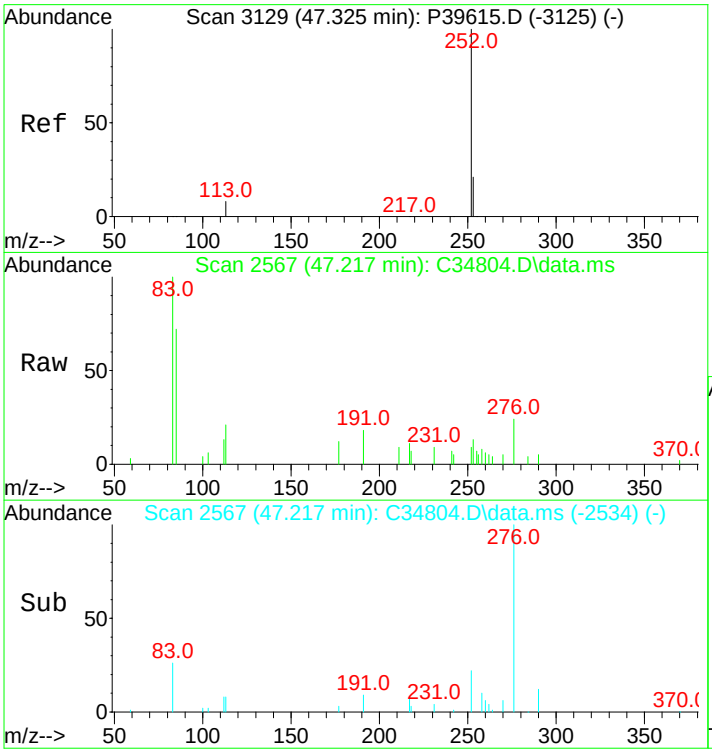


#82
Benzo[b]fluoranthene
Concen: 33.98 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 4074

Ion	Ratio	Lower	Upper
252	100		
253	28.8	19.0	28.4#

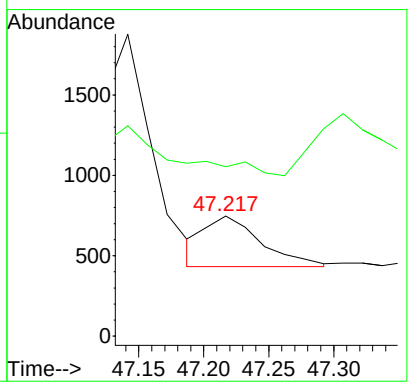


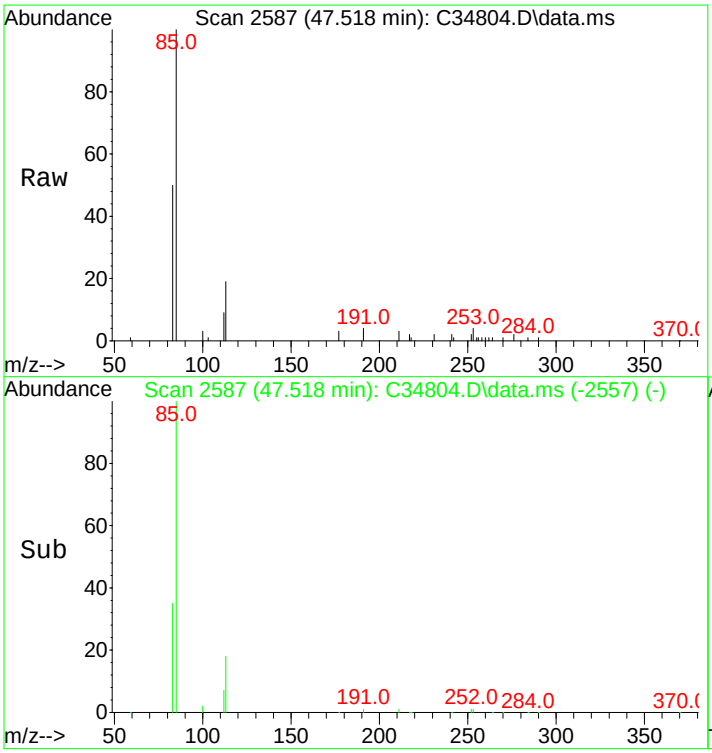


#83
Benzo[j]+[k]fluoranthene
Concen: 7.41 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 967

Ion	Ratio	Lower	Upper
252	100		
253	121.4	19.0	28.4#

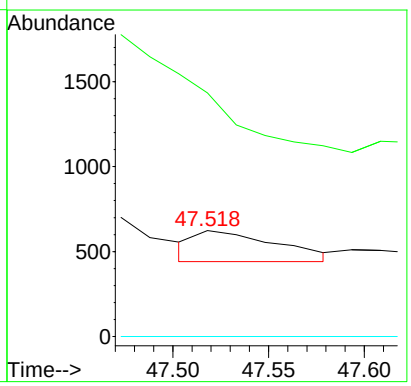


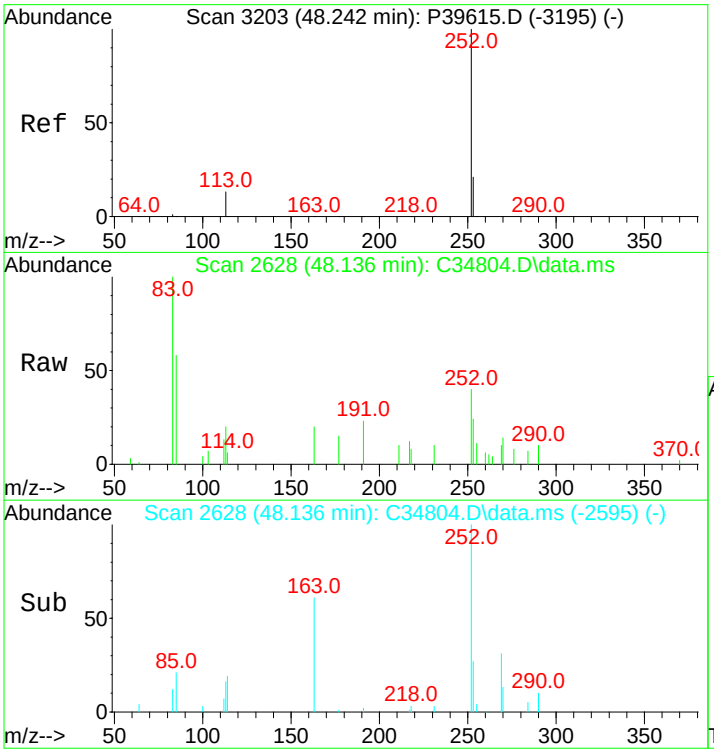


#84
Benzo[a]fluoranthene
Concen: 4.13 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.051 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 539

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

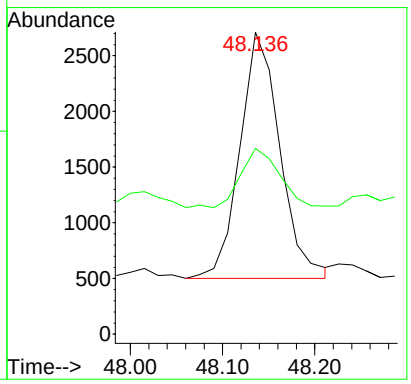


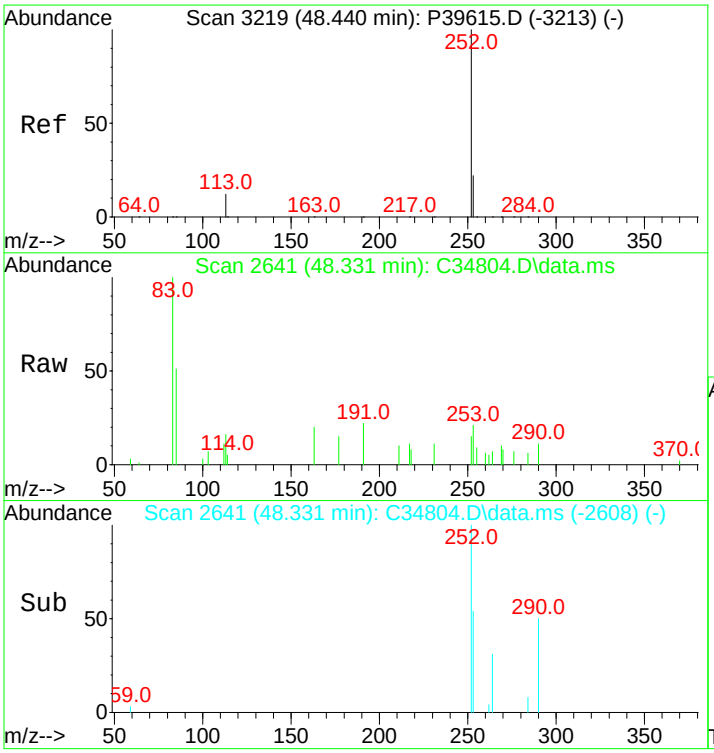


#85
Benzo[e]pyrene
Concen: 56.15 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 6659

Ion	Ratio	Lower	Upper
252	100		
253	23.6	19.2	28.8

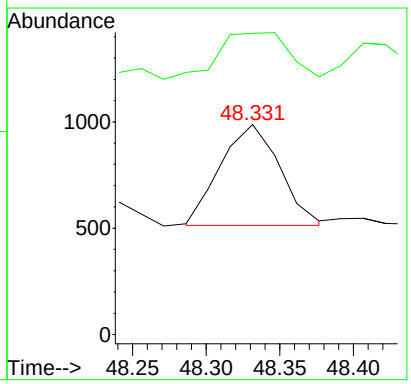


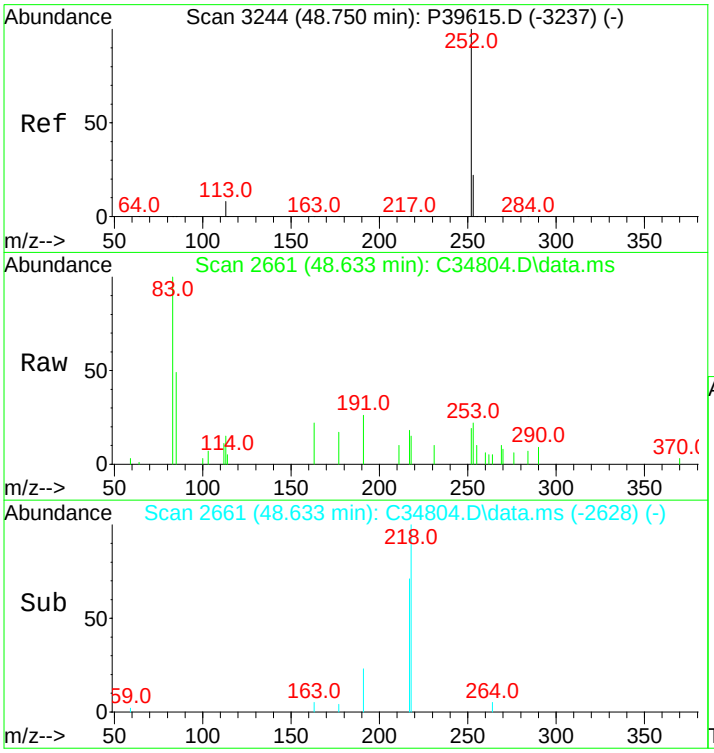


#87
Benzo[a]pyrene
Concen: 11.64 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 1329

Ion	Ratio	Lower	Upper
252	100		
253	118.2	19.5	29.3#

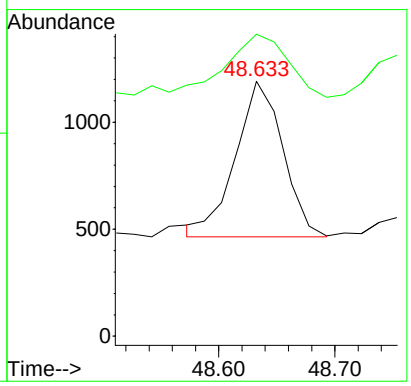


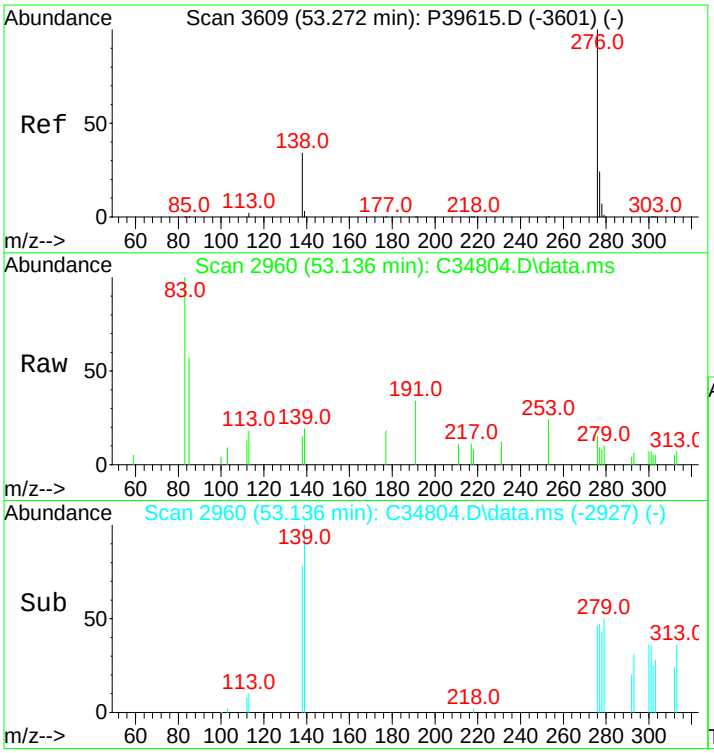


#88
Perylene
Concen: 16.87 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 2058

Ion	Ratio	Lower	Upper
252	100		
253	57.2	19.6	29.4#

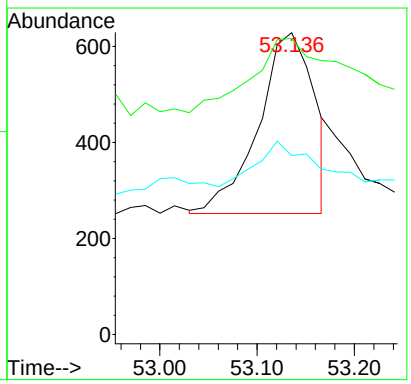


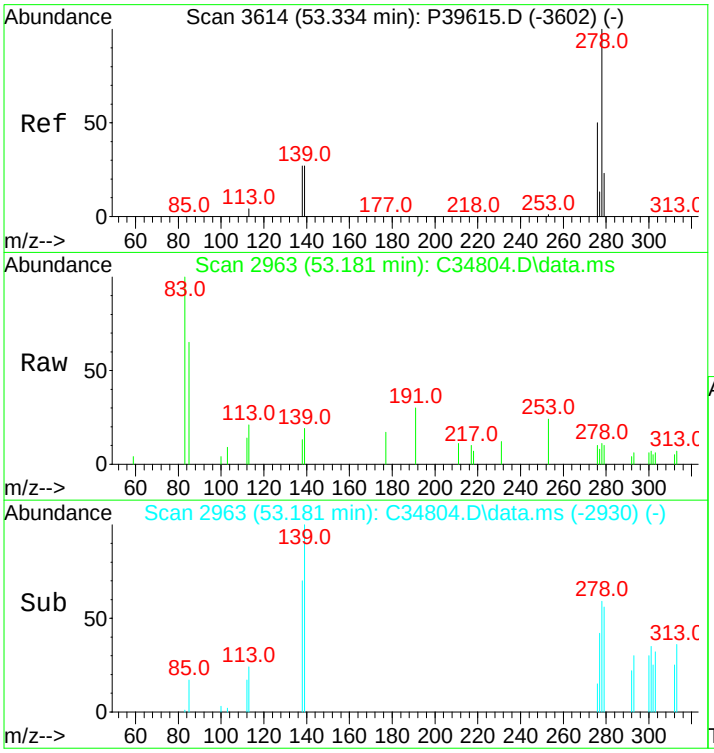


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.43 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:276 Resp: 1518

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

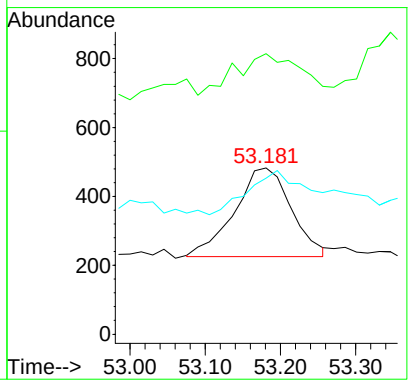


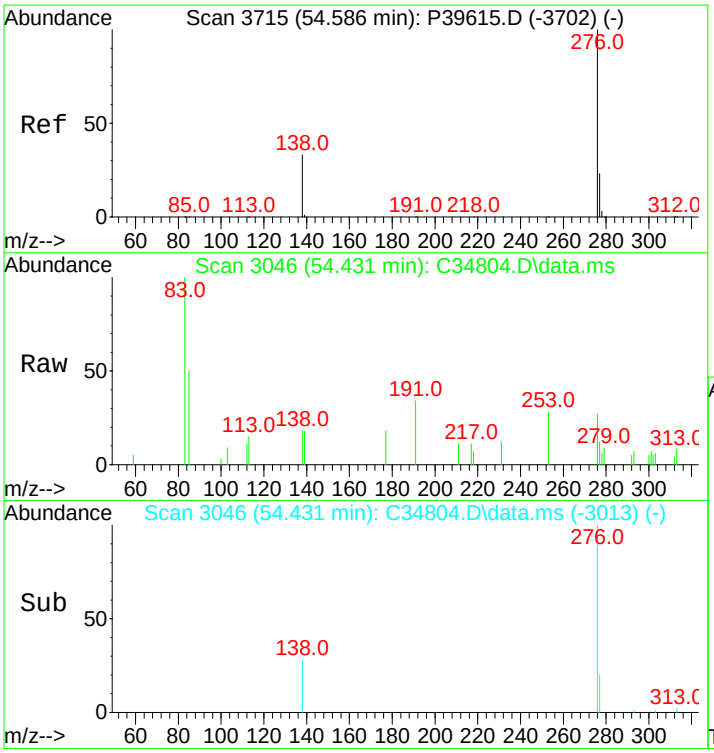


#90
Dibenz[ah]+[ac]anthracene
Concen: 10.67 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:278 Resp: 1349

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

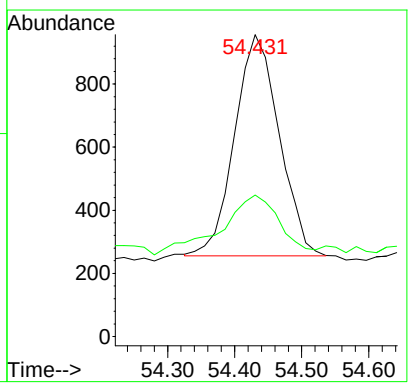


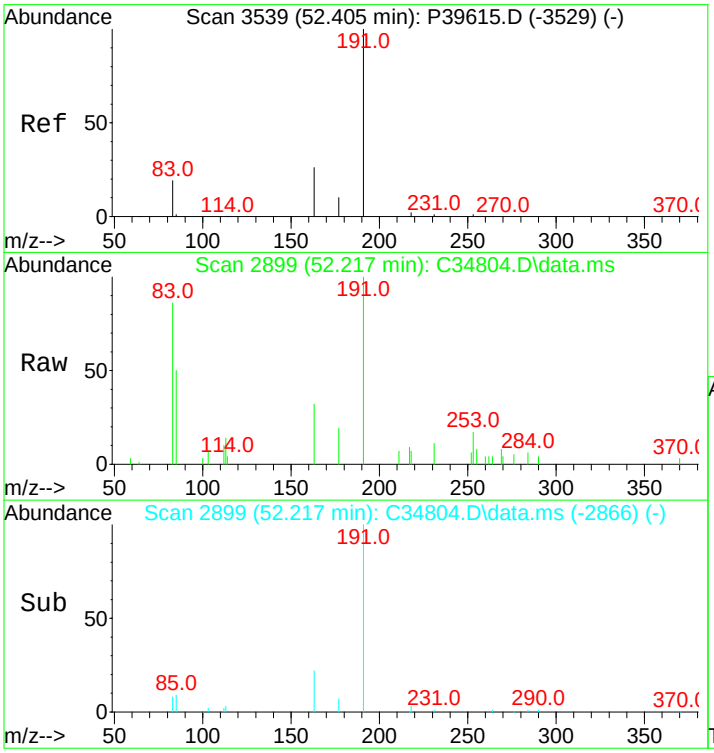


#91
Benzo[g,h,i]perylene
Concen: 23.05 ng/mL m
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:276 Resp: 3235

Ion	Ratio	Lower	Upper
276	100		
277	35.7	18.9	28.3#

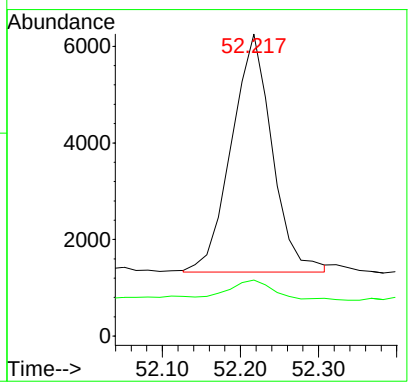


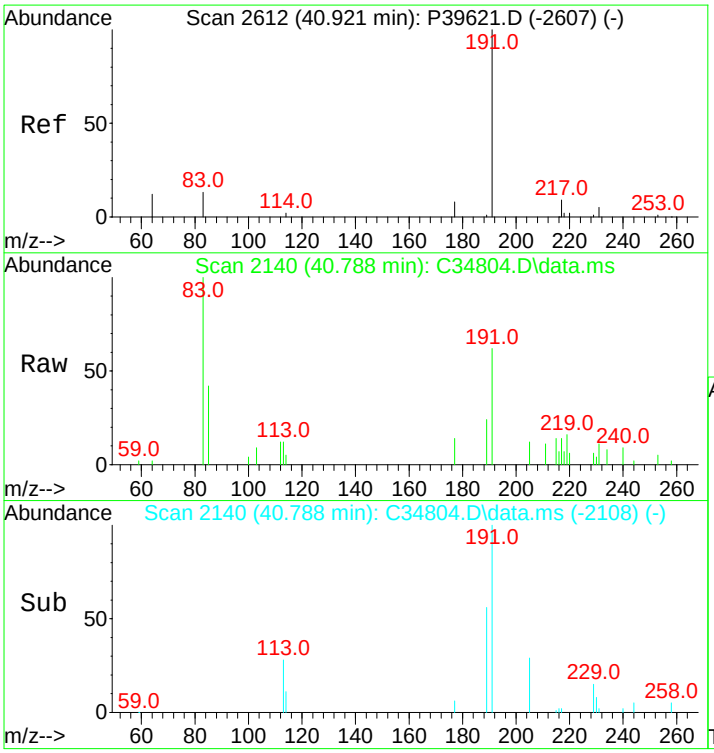


#92
Hopane (T19)
Concen: 786.58 ng/mL m
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:191 Resp: 17821

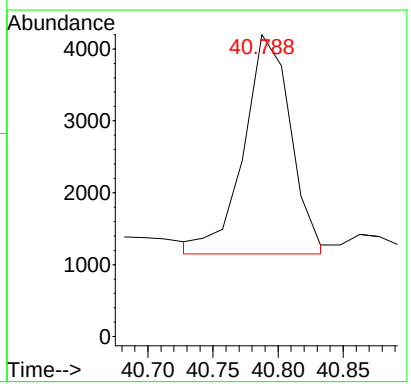
Ion	Ratio	Lower	Upper
191	100		
177	9.6	14.6	21.8#

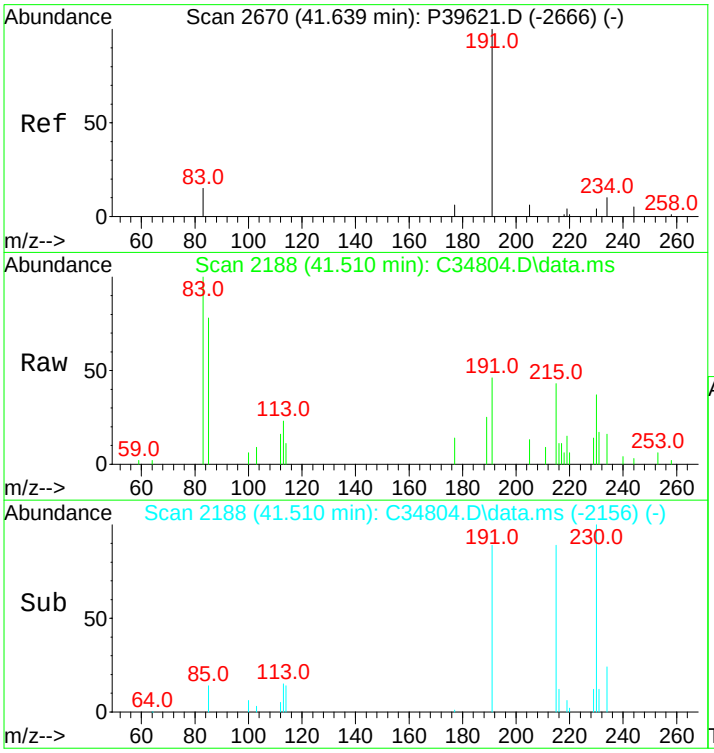




#94
C23 Tricyclic Terpane (T4)
Concen: 337.35 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

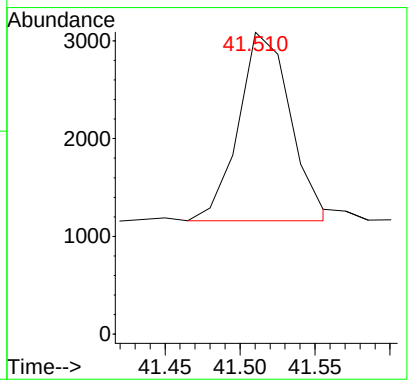
Tgt Ion:191 Resp: 7643

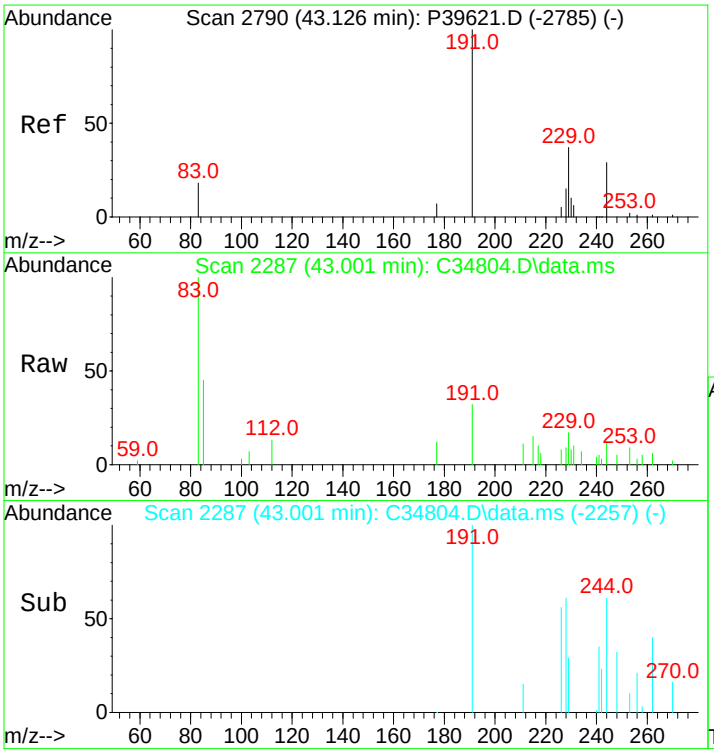




#95
C24 Tricyclic Terpane (T5)
Concen: 204.80 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

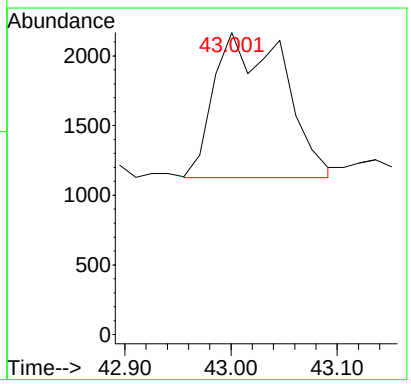
Tgt Ion:191 Resp: 4640

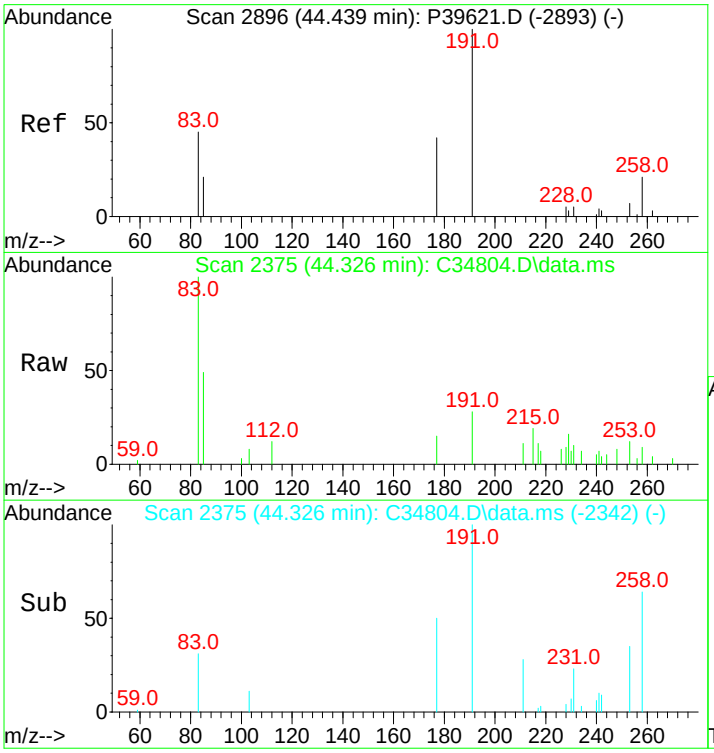




#96
C25 Tricyclic Terpane (T6)
Concen: 209.74 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

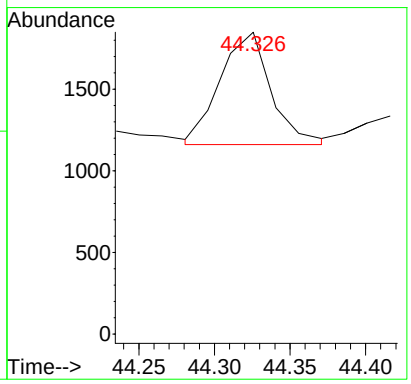
Tgt Ion:191 Resp: 4752

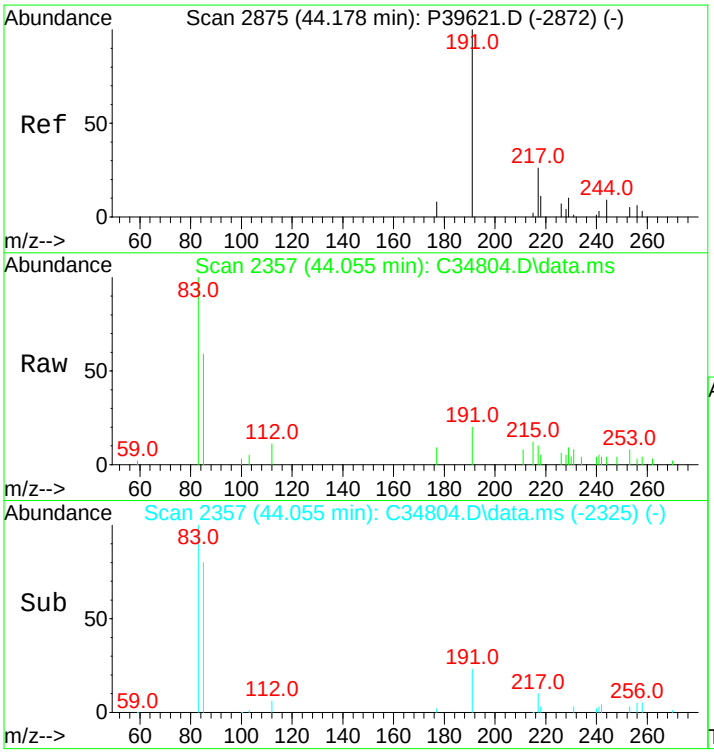




#97
C24 Tetracyclic Terpane (T6a)
Concen: 71.37 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

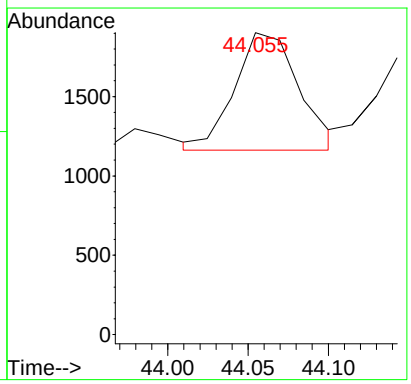
Tgt Ion:191 Resp: 1617

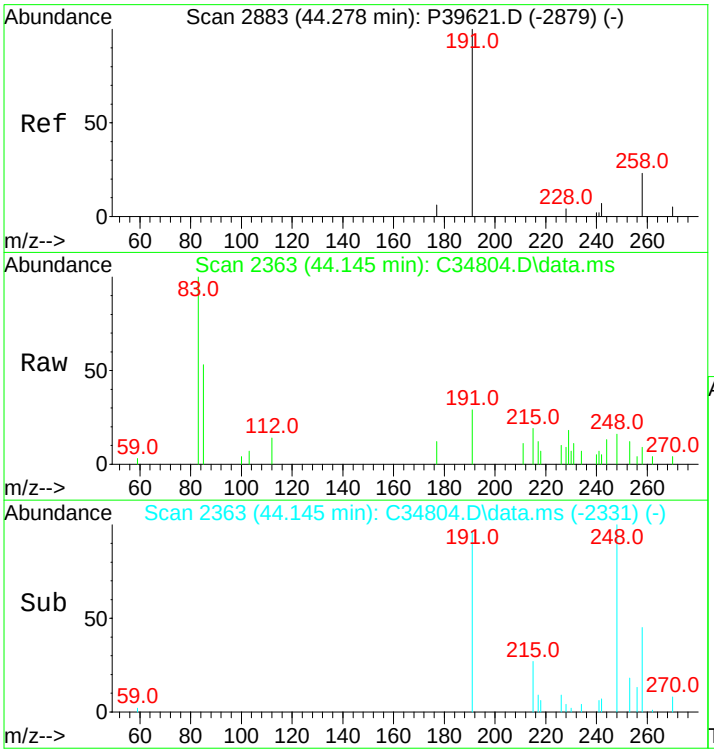




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.10 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

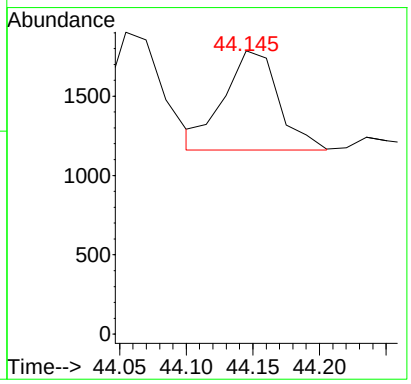
Tgt Ion:191 Resp: 2064

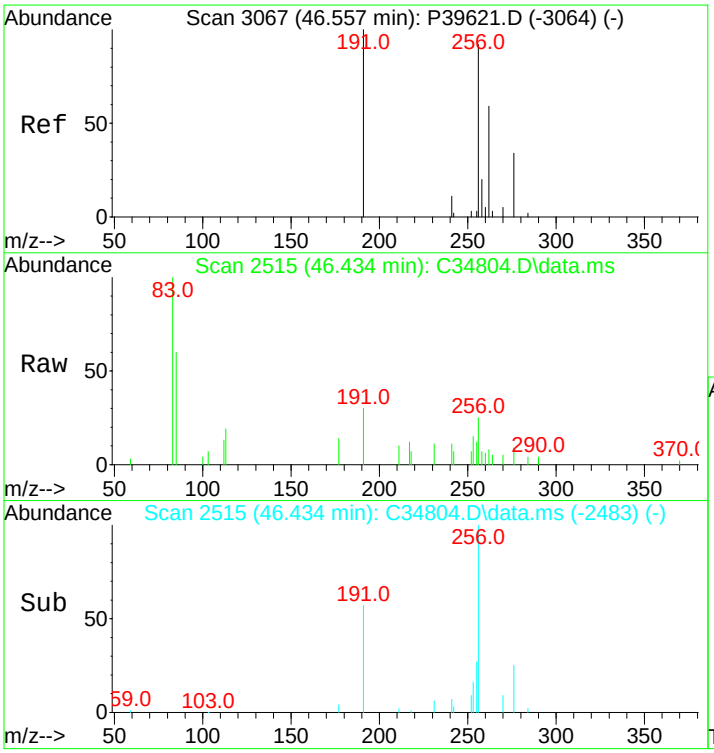




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 78.26 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

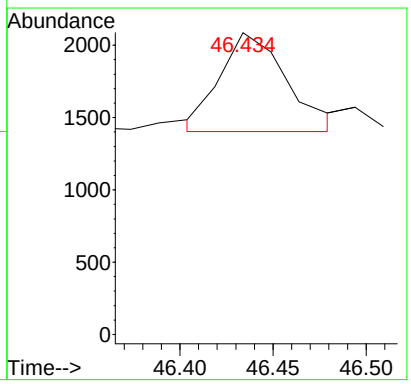
Tgt Ion:191 Resp: 1773

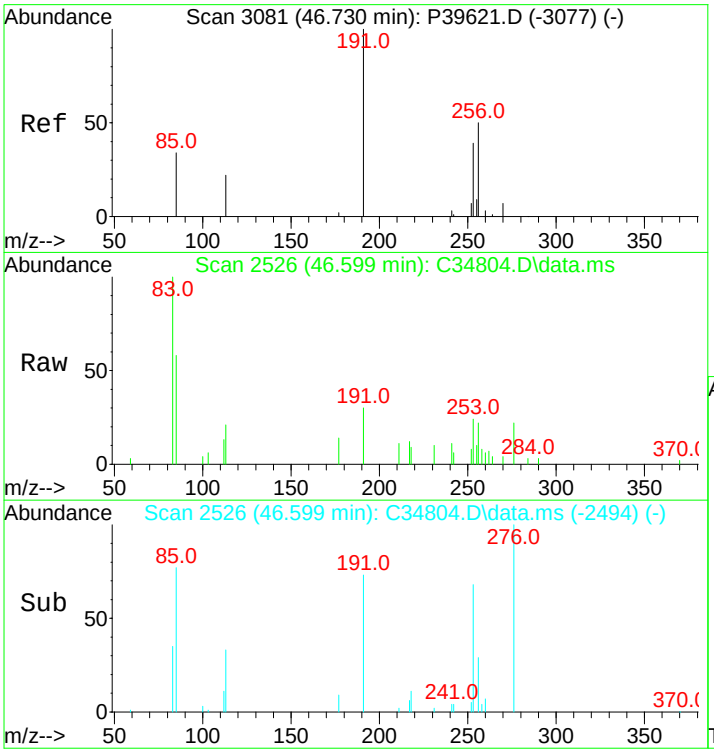




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 74.99 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

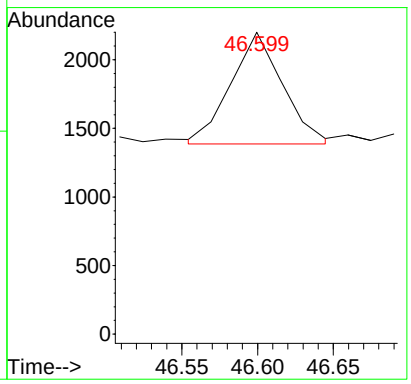
Tgt Ion:191 Resp: 1699

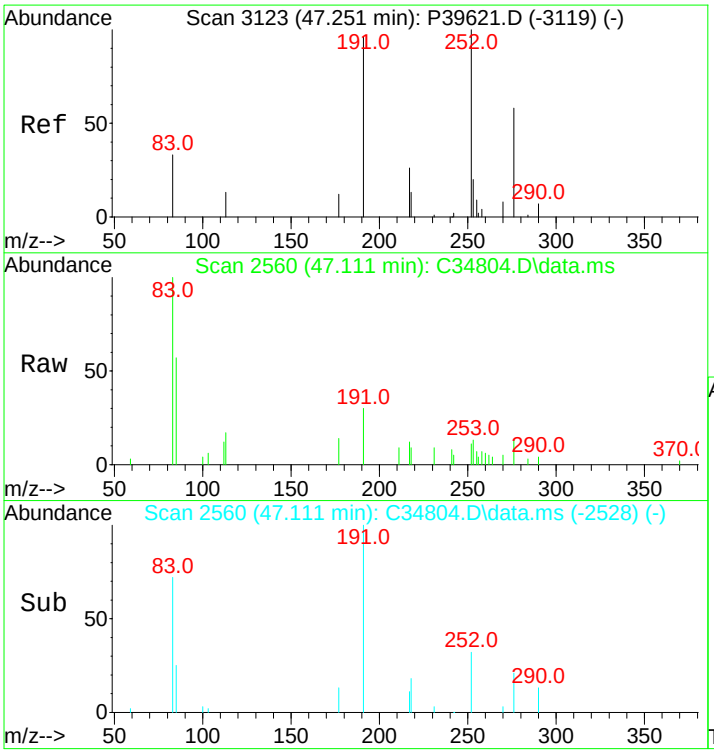




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 85.63 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

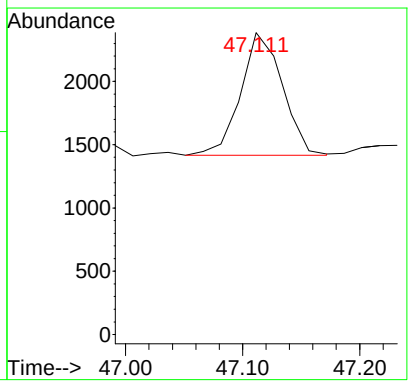
Tgt Ion:191 Resp: 1940

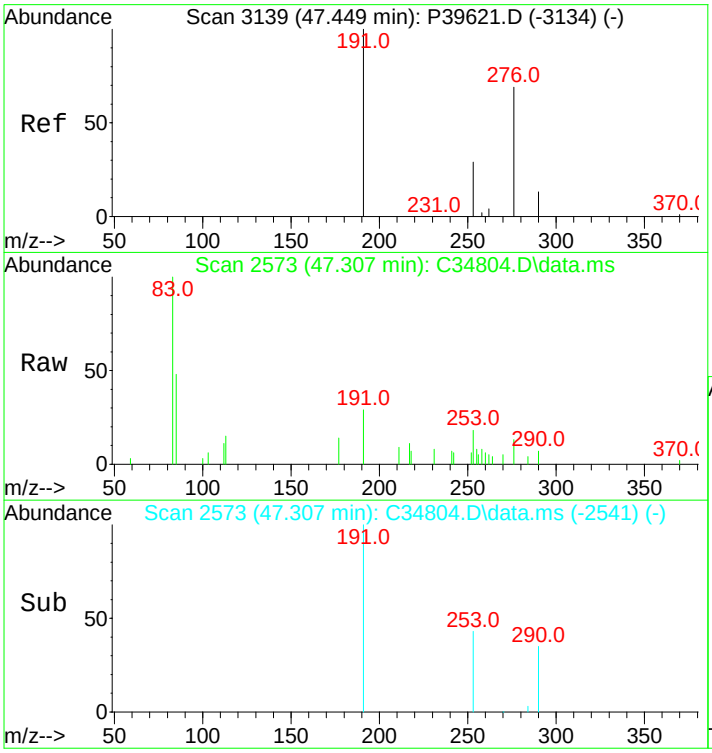




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 106.02 ng/ml
RT: 47.111 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

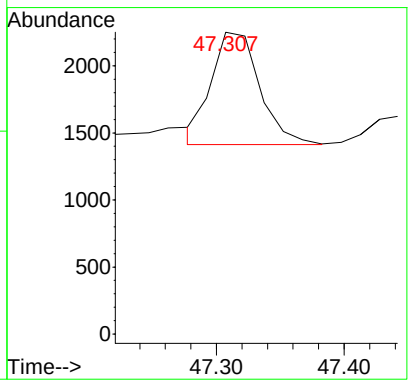
Tgt Ion:191 Resp: 2402

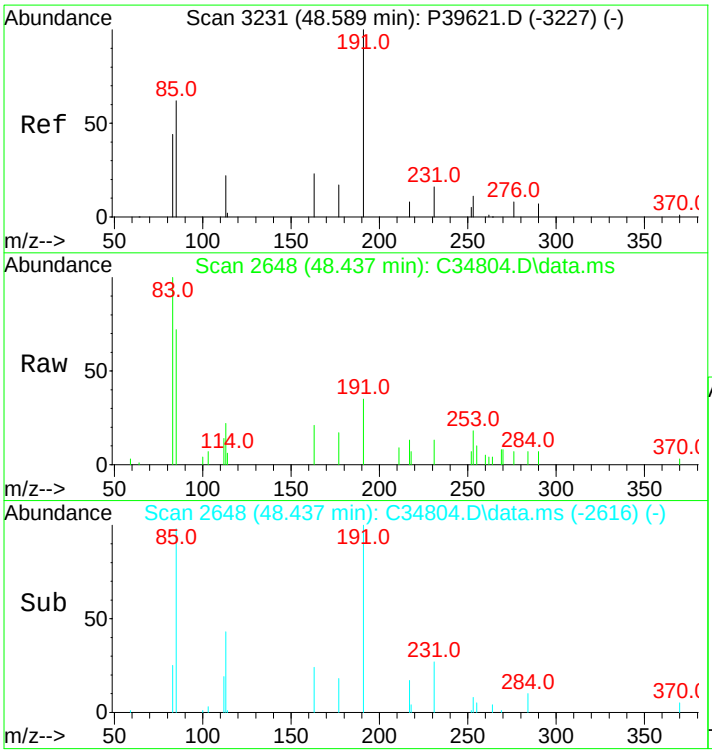




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 97.72 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

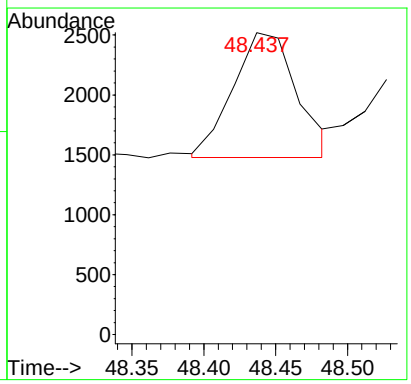
Tgt Ion:191 Resp: 2214

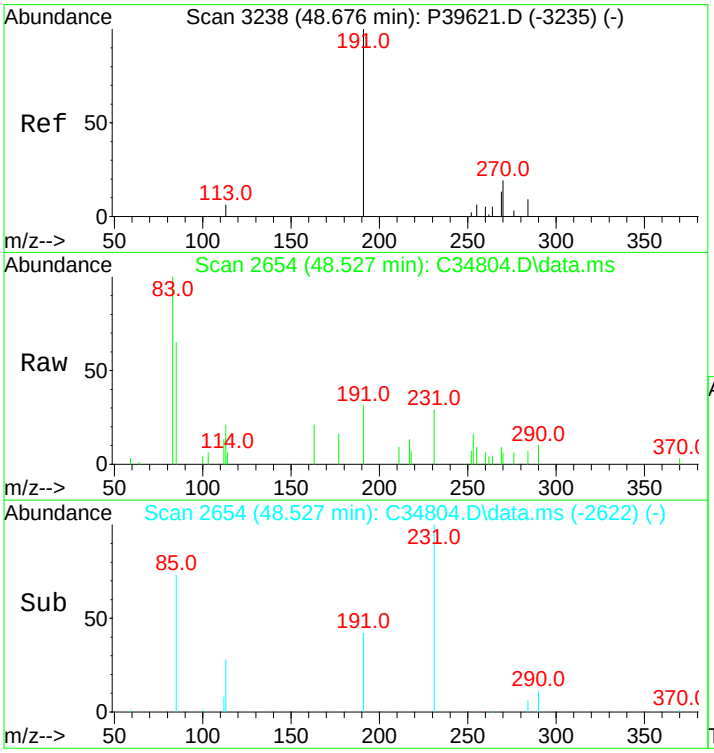




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 142.34 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

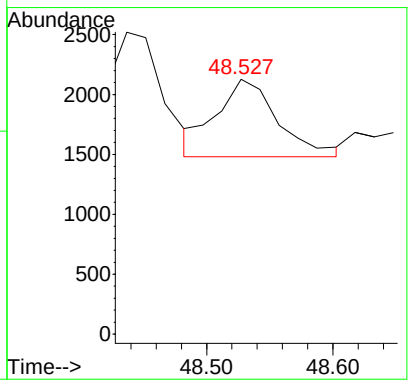
Tgt Ion:191 Resp: 3225

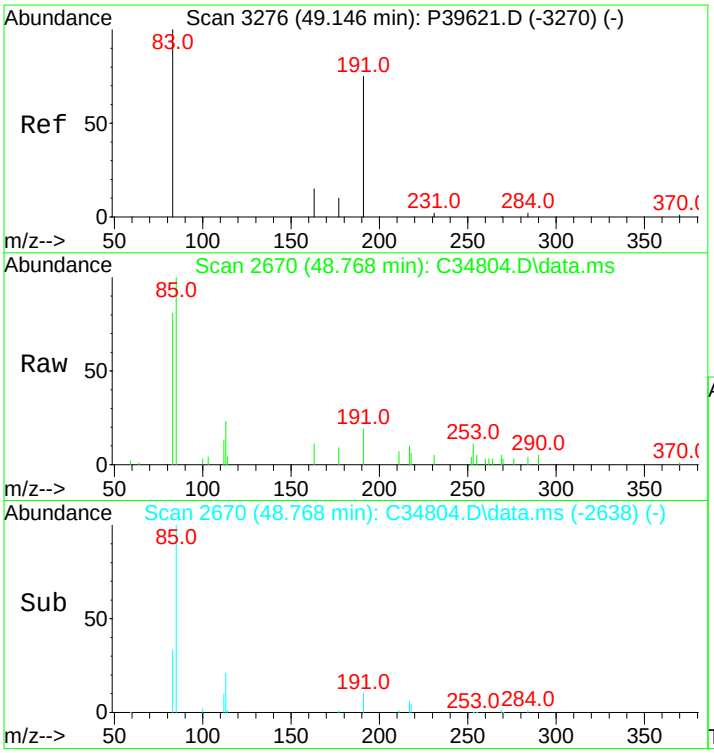




#105
C30 Tricyclic Terpane-22S
Concen: 96.49 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

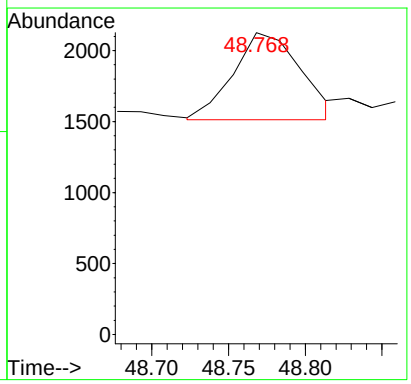
Tgt Ion:191 Resp: 2186

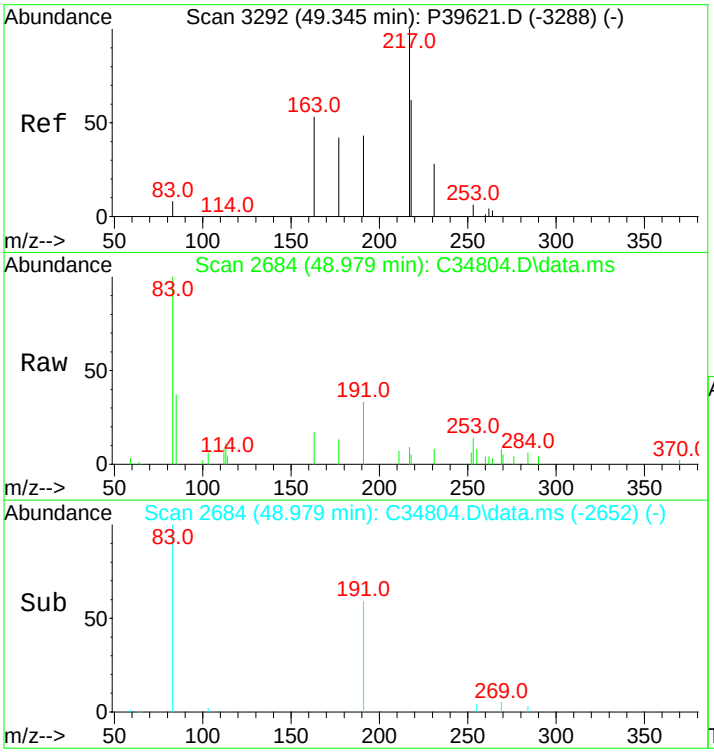




#106
C30 Tricyclic Terpane-22R
Concen: 83.02 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

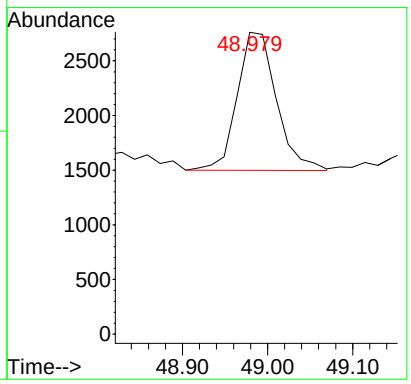
Tgt Ion:191 Resp: 1881

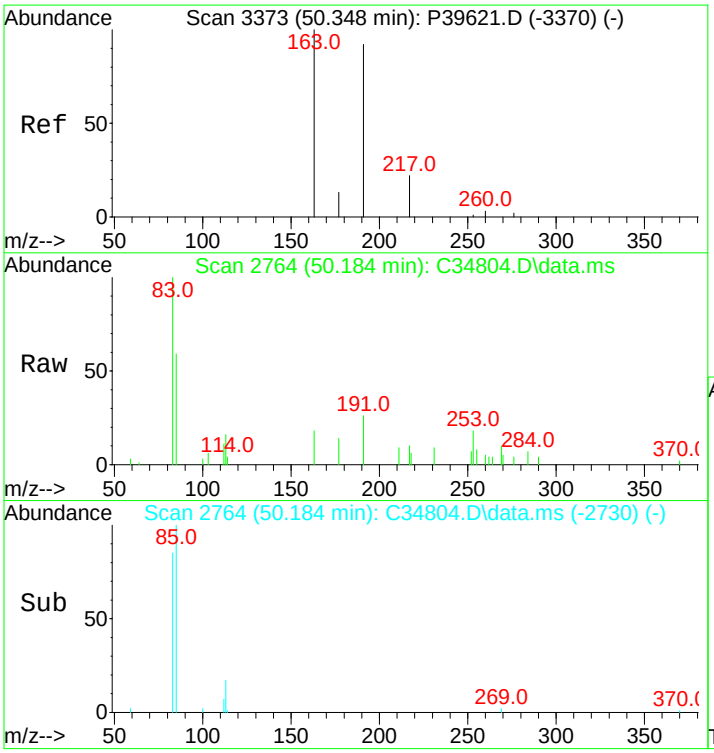




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 178.85 ng/ml
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

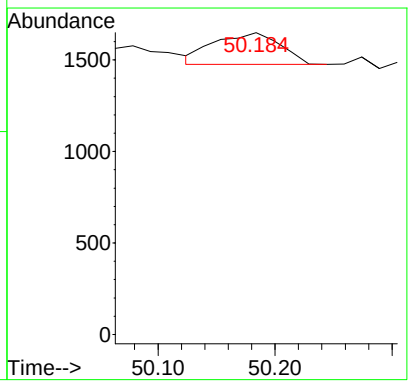
Tgt Ion:191 Resp: 4052

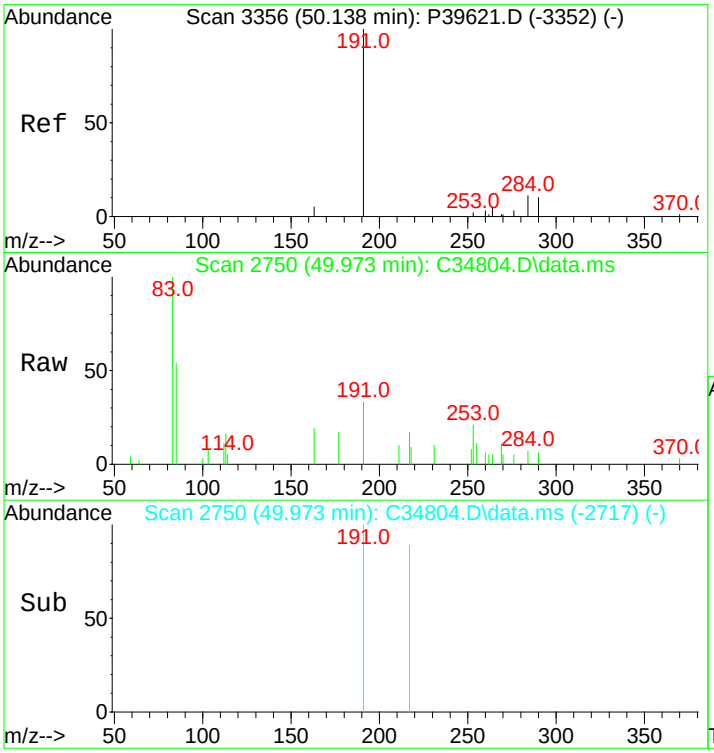




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 29.93 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

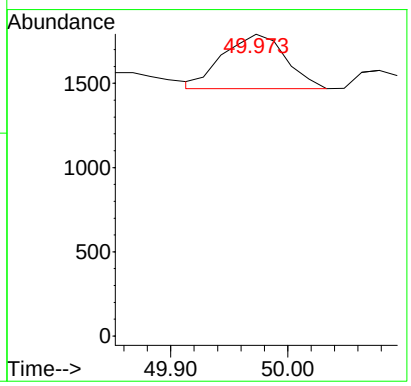
Tgt Ion:191 Resp: 678

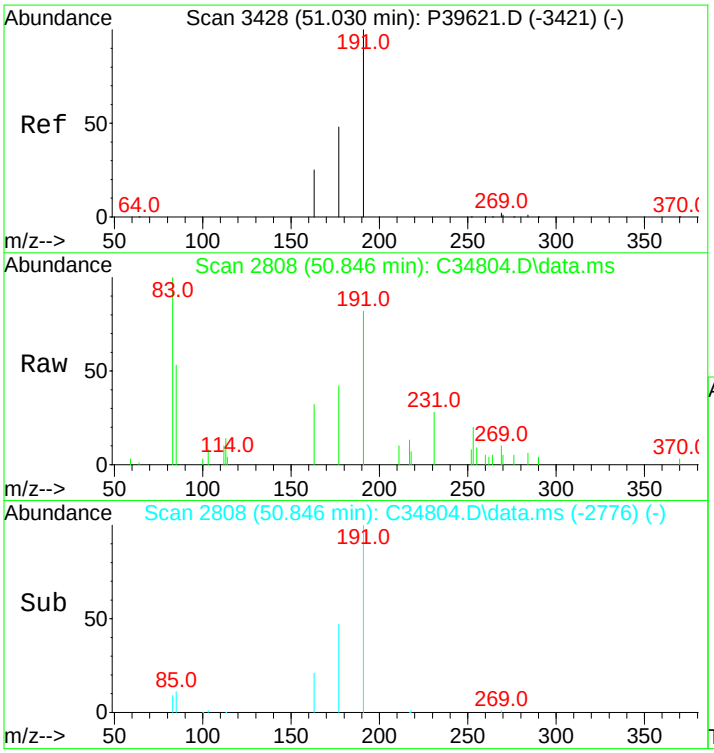




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 53.19 ng/ml
RT: 49.973 min Scan# 2750
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

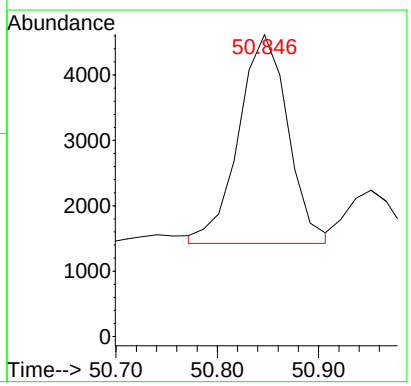
Tgt Ion:191 Resp: 1205

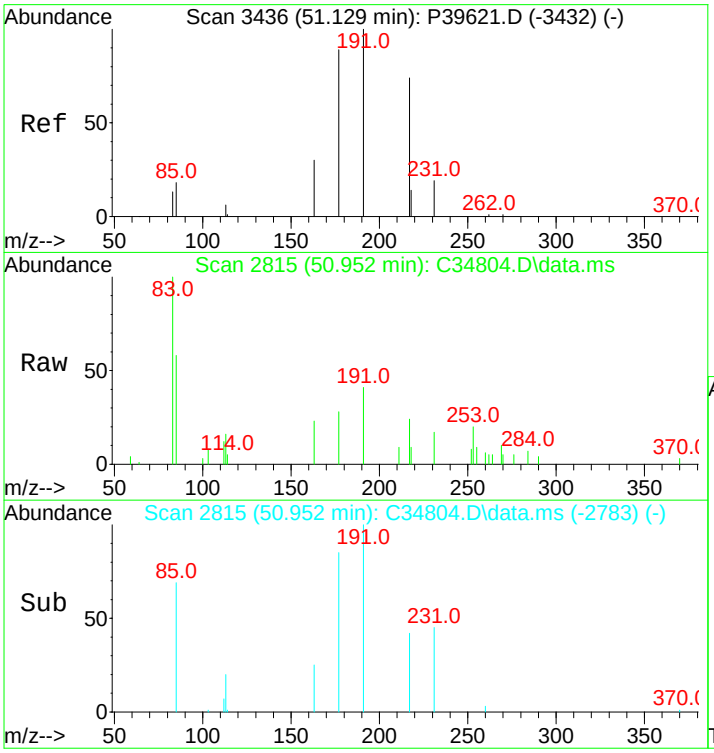




#110
30-Norhopane (T15)
Concen: 475.94 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

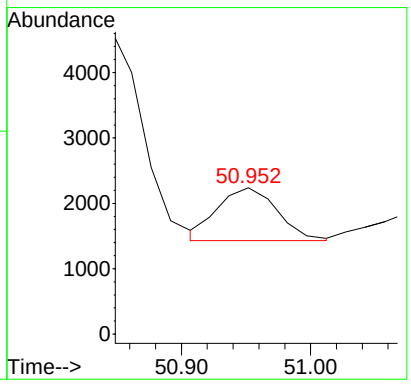
Tgt Ion:191 Resp: 10783

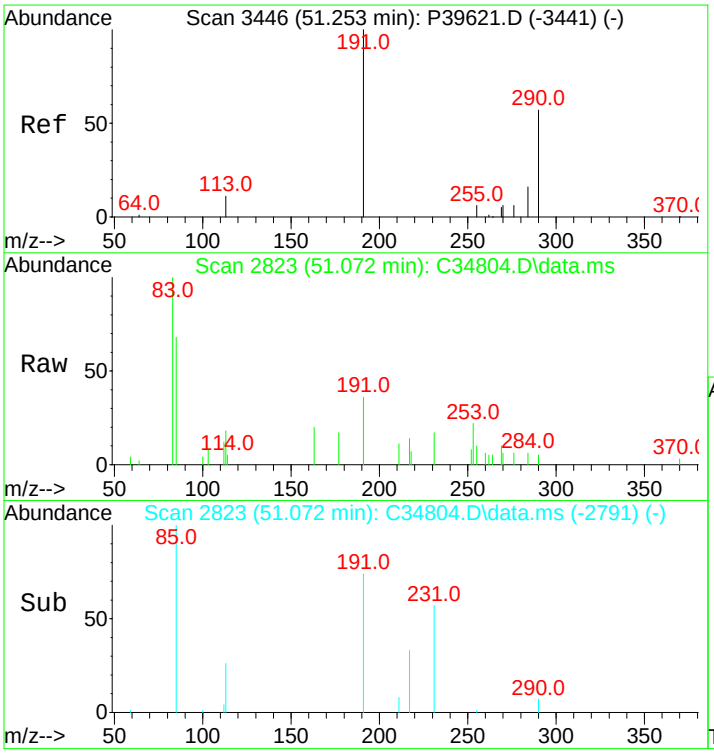




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 114.49 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

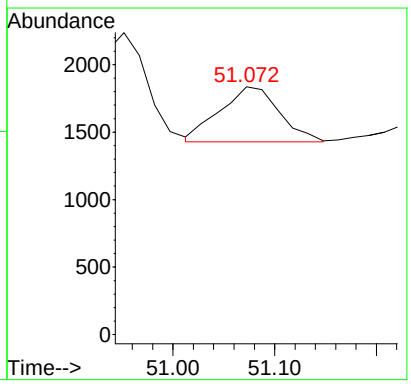
Tgt Ion:191 Resp: 2594

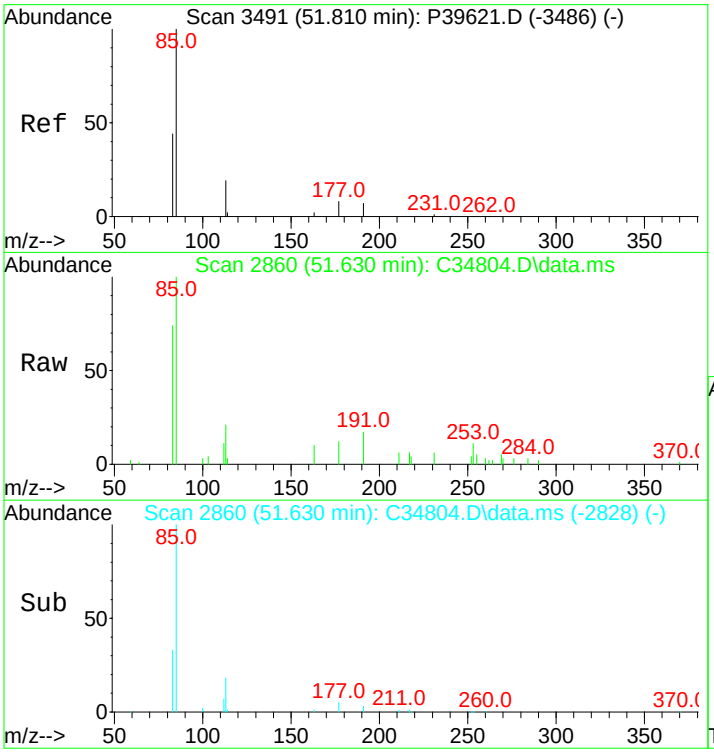




#112
17a(H)-Diahopane (X)
Concen: 73.40 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

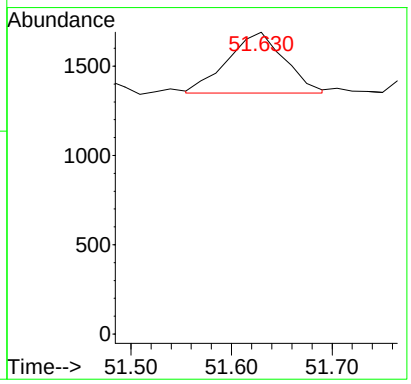
Tgt Ion:191 Resp: 1663

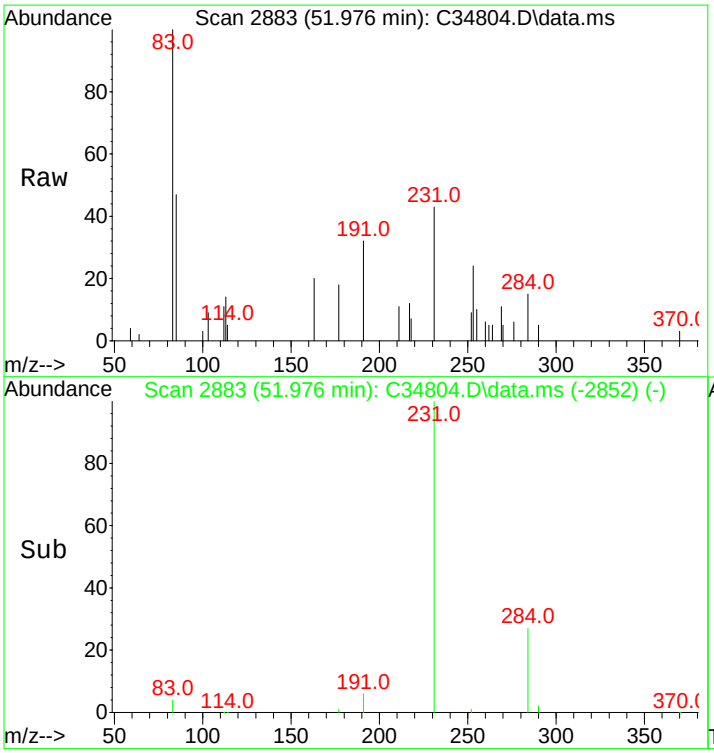




#113
30-Normoretane (T17)
Concen: 59.45 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

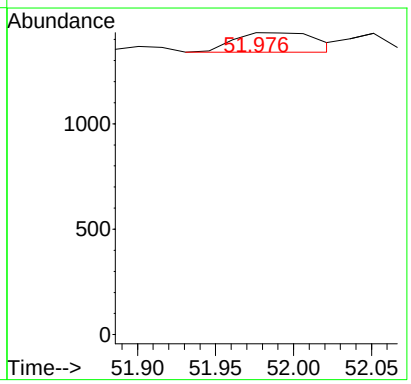
Tgt Ion:191 Resp: 1347

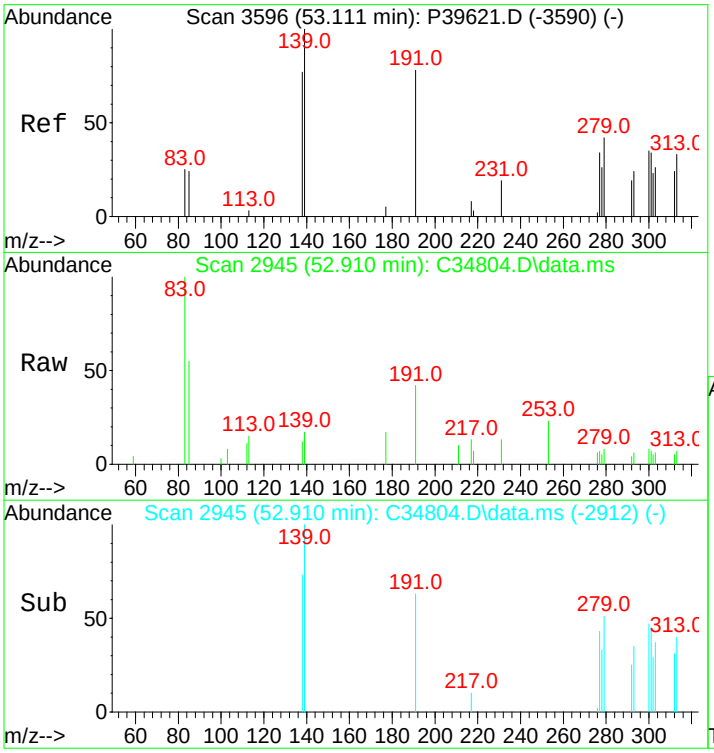




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 15.45 ng/ml
RT: 51.976 min Scan# 2883
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

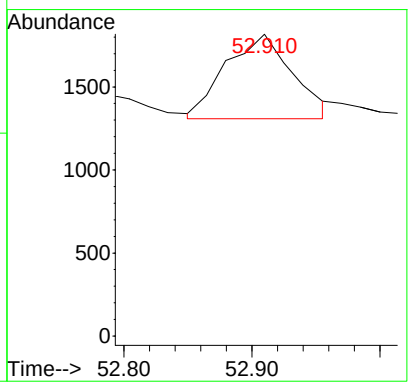
Tgt Ion:191 Resp: 350

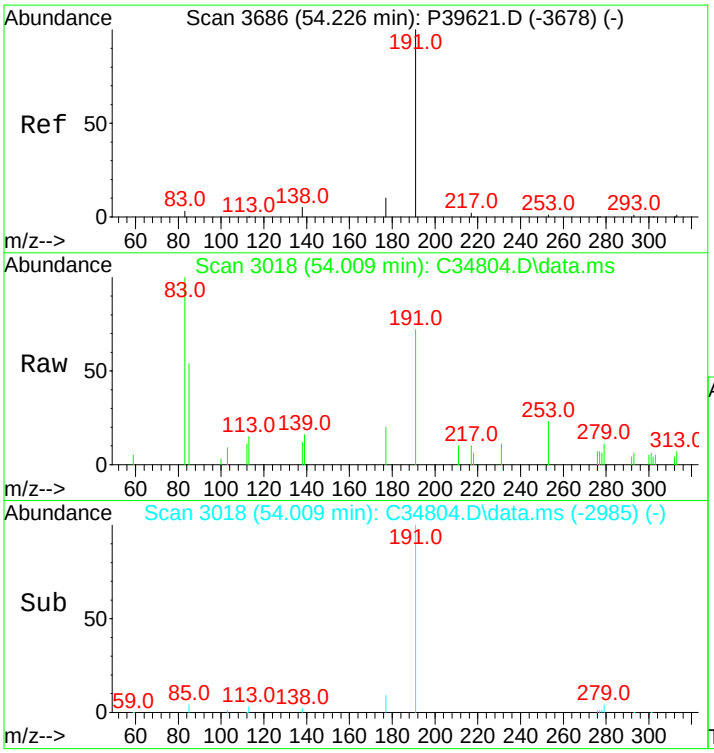




#115
Moretane (T20)
Concen: 81.48 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

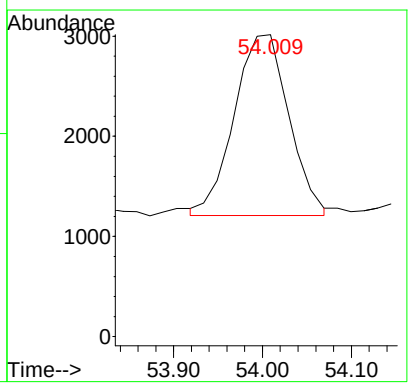
Tgt Ion:191 Resp: 1846

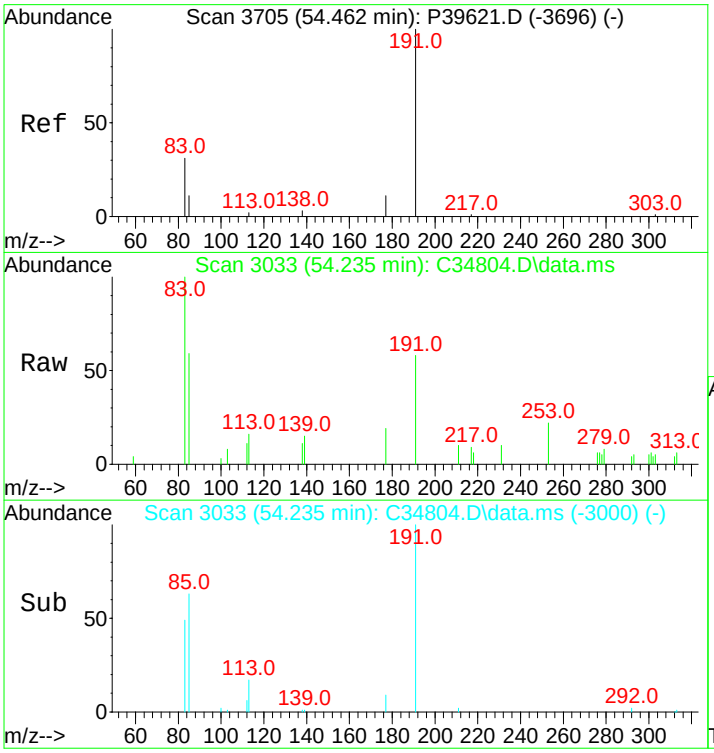




#116
30-Homohopane-22S (T21)
Concen: 340.48 ng/ml m
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

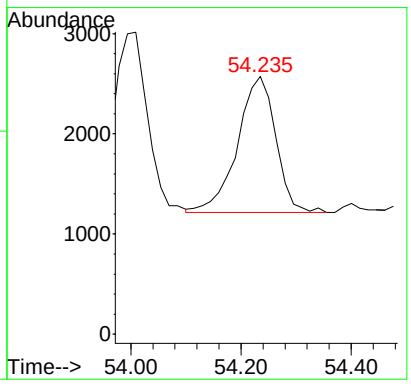
Tgt Ion:191 Resp: 7714

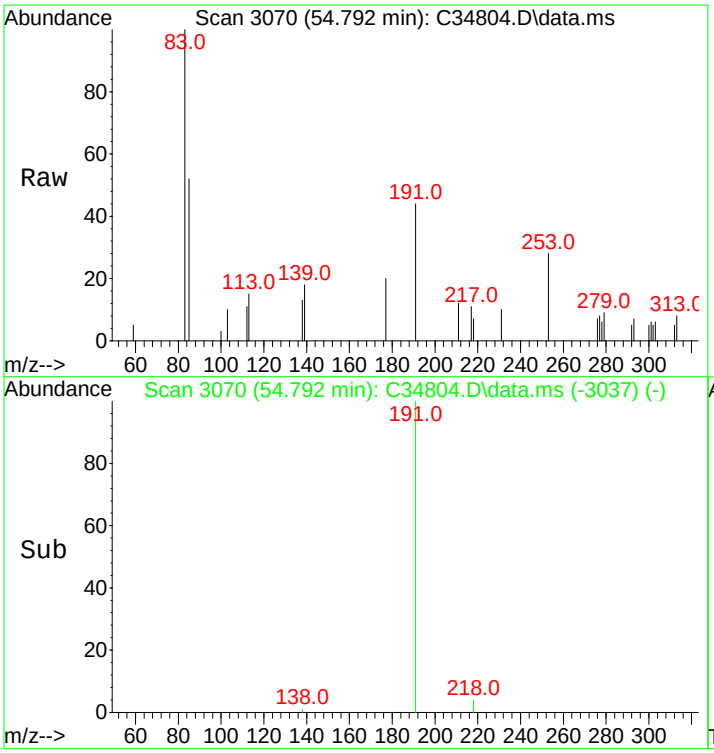




#117
30-Homohopane-22R (T22)
Concen: 288.97 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

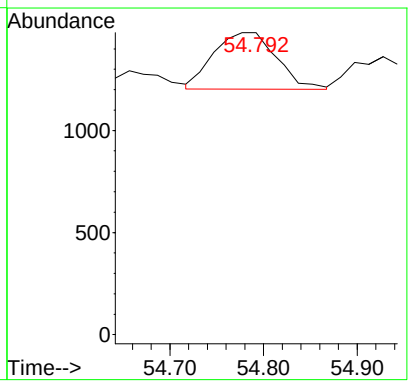
Tgt Ion:191 Resp: 6547

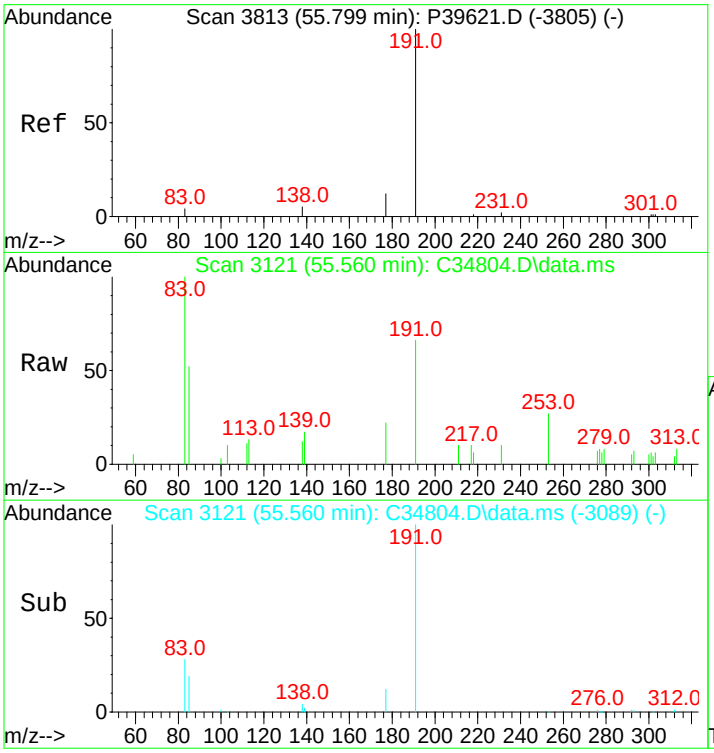




#118
Gammacerane/C32-diahopane
Concen: 57.03 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

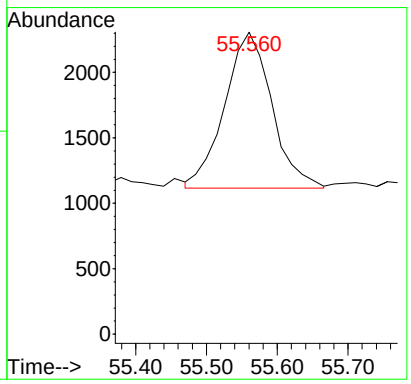
Tgt Ion:191 Resp: 1292

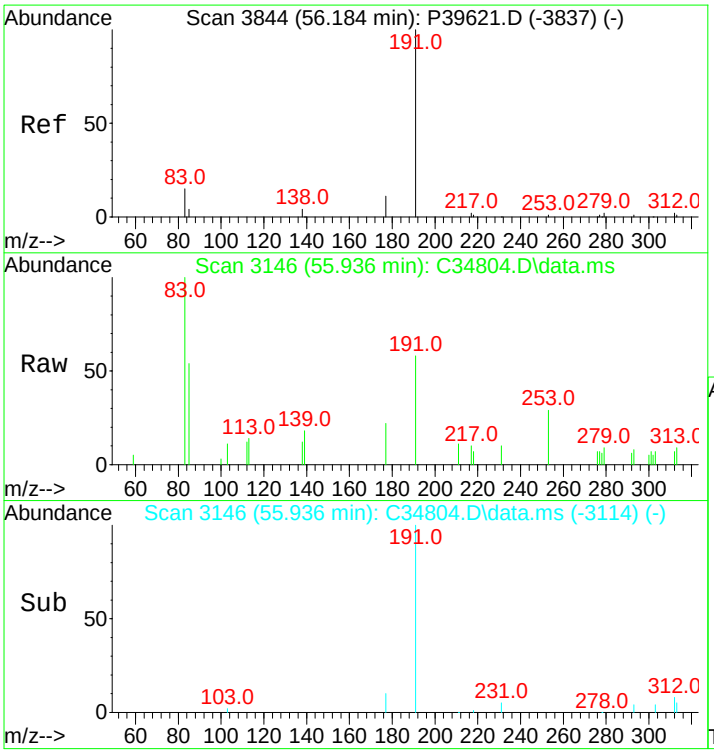




#119
30,31-Bishomohopane-22S (T26)
Concen: 243.51 ng/ml m
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

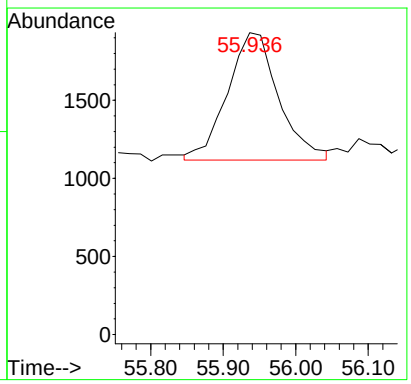
Tgt Ion:191 Resp: 5517

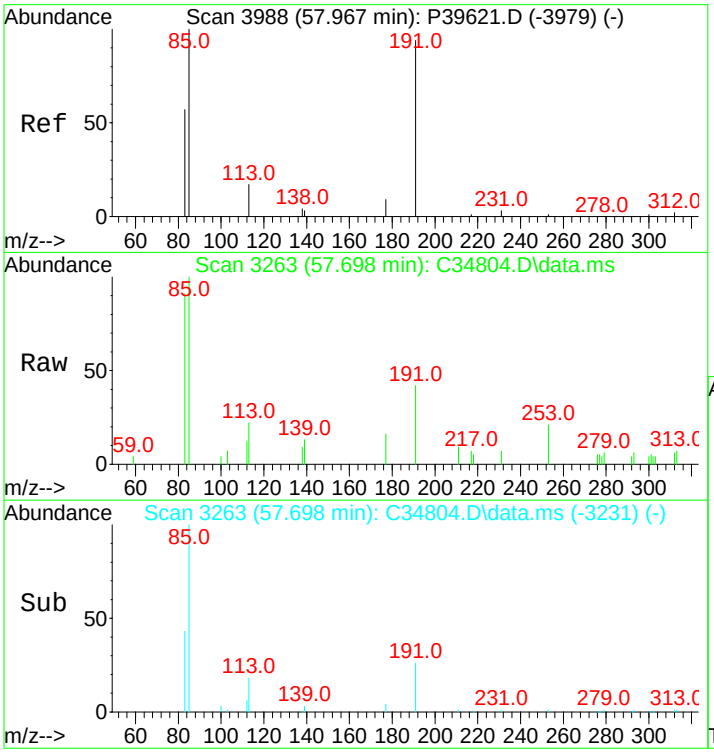




#120
30,31-Bishomohopane-22R (T27)
Concen: 177.21 ng/ml m
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

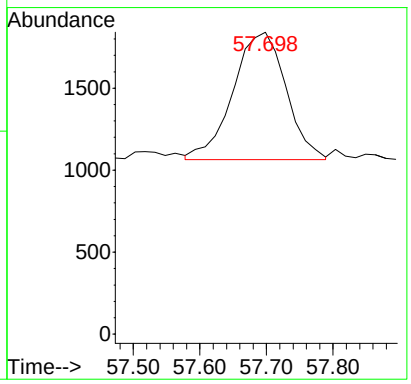
Tgt Ion:191 Resp: 4015

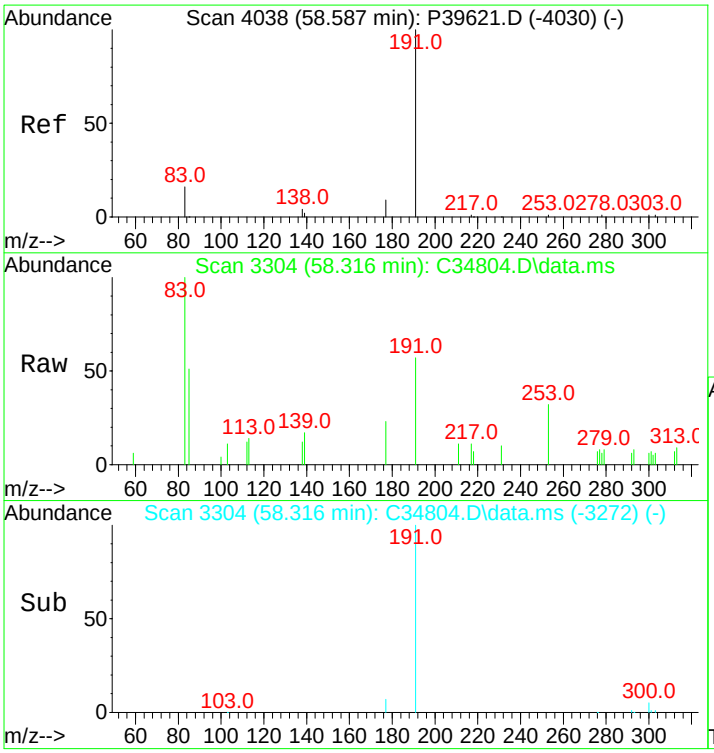




#121
30,31-Trishomohopane-22S (T30)
Concen: 188.95 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

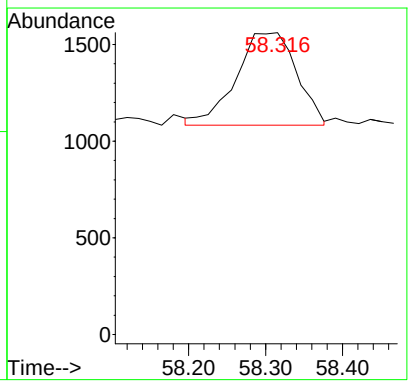
Tgt Ion:191 Resp: 4281

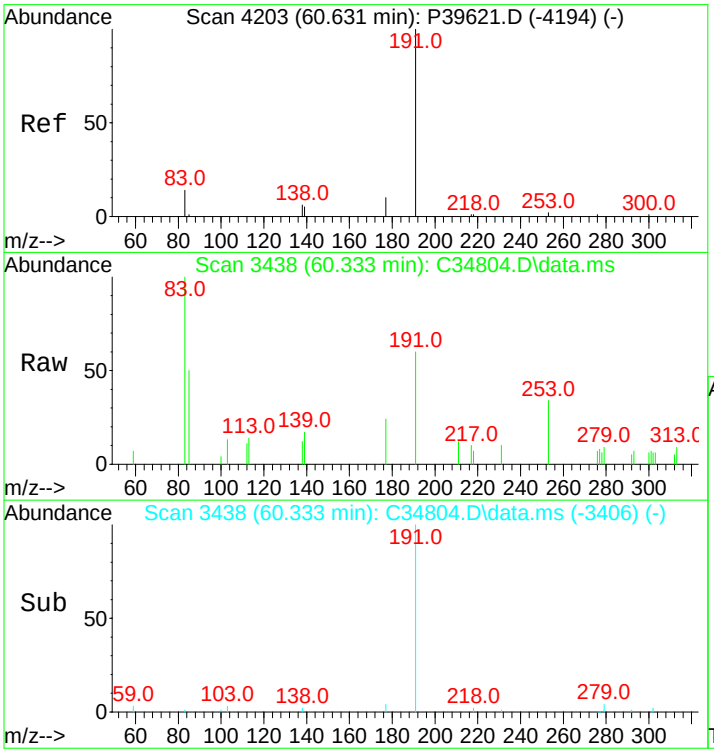




#122
30,31-Trishomohopane-22R (T31)
Concen: 115.24 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

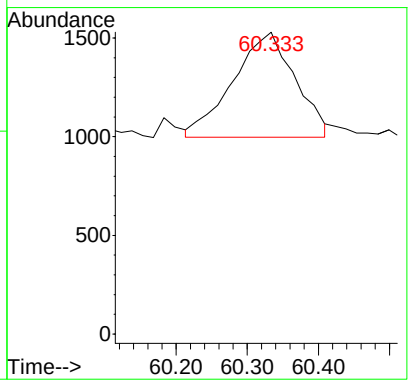
Tgt Ion:191 Resp: 2611

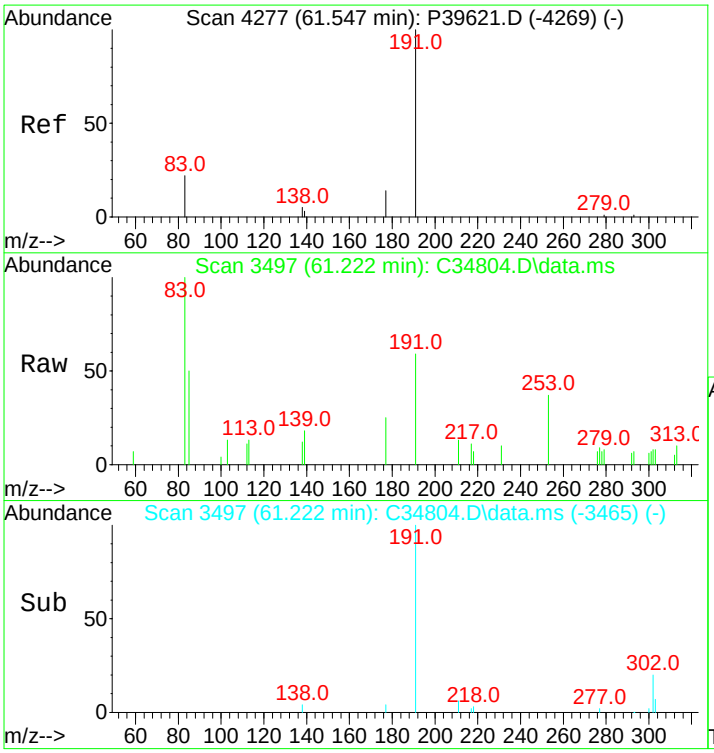




#123
Tetrakishomohopane-22S (T32)
Concen: 141.99 ng/ml m
RT: 60.333 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

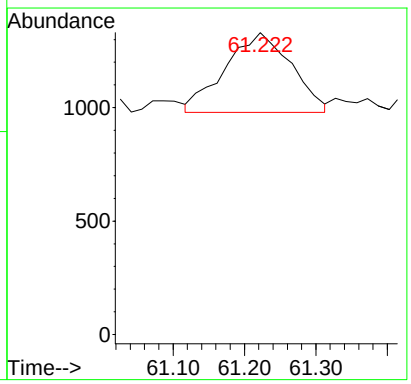
Tgt Ion:191 Resp: 3217

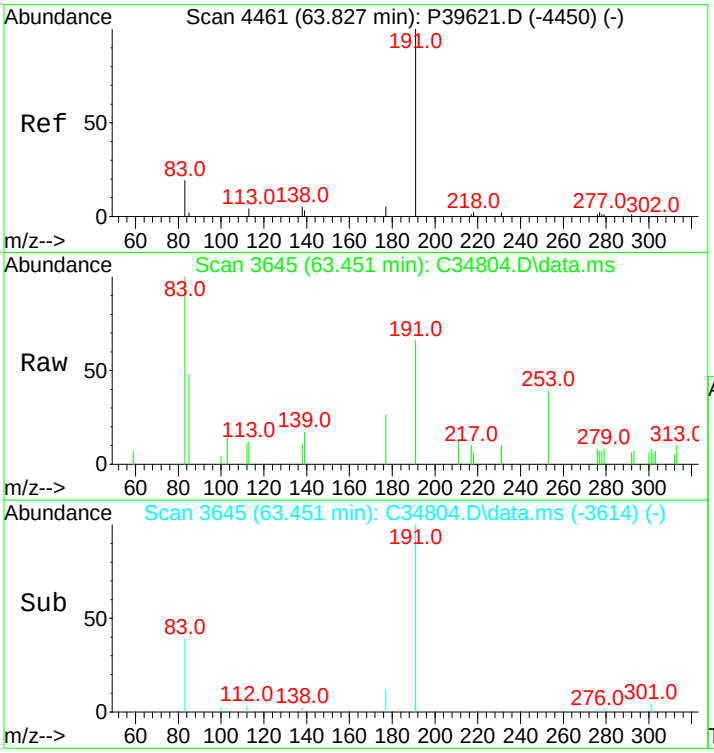




#124
Tetrakishomohopane-22R (T33)
Concen: 99.49 ng/ml m
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

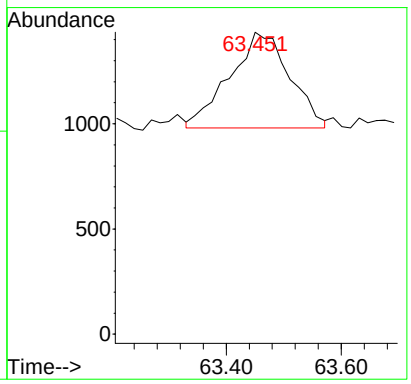
Tgt Ion:191 Resp: 2254

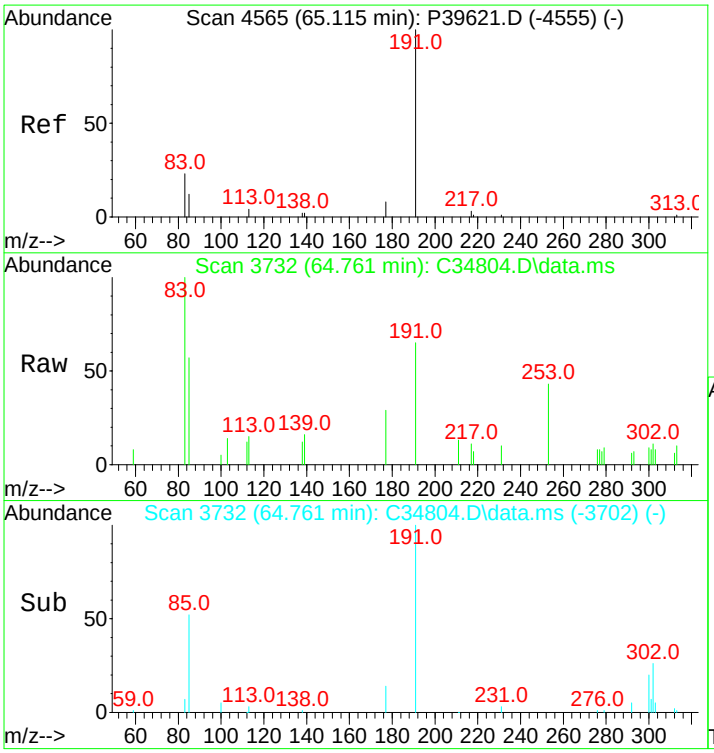




#125
Pentakishomohopane-22S (T34)
Concen: 145.08 ng/ml m
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

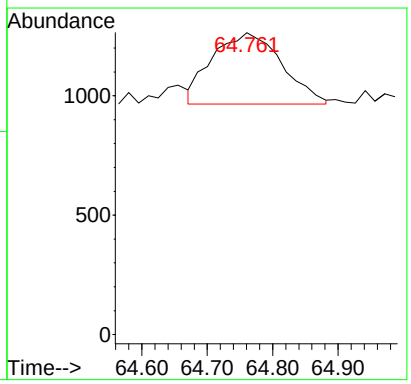
Tgt Ion:191 Resp: 3287

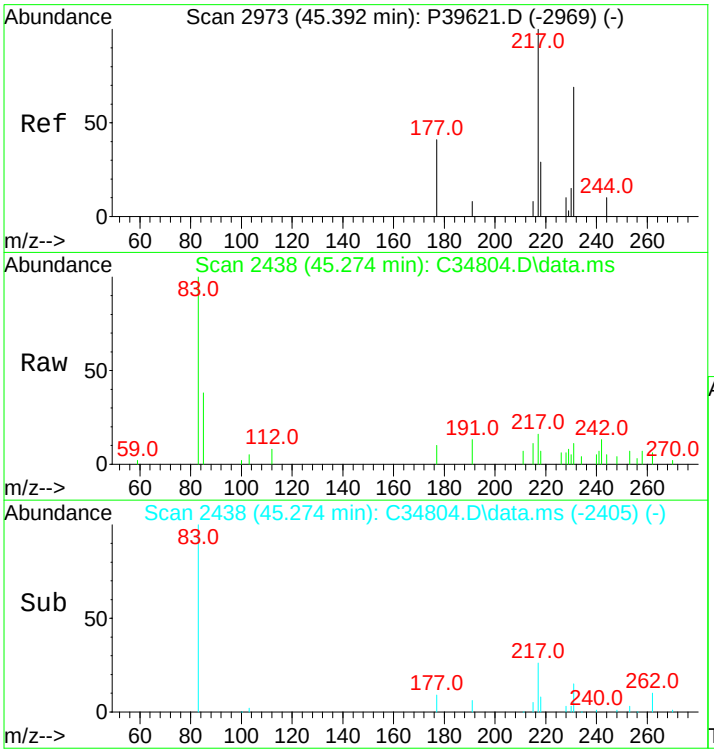




#126
Pentakishomohopane-22R (T35)
Concen: 97.24 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

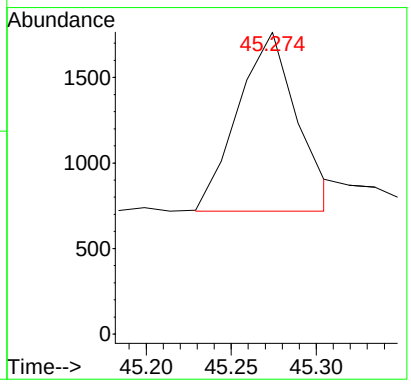
Tgt Ion:191 Resp: 2203

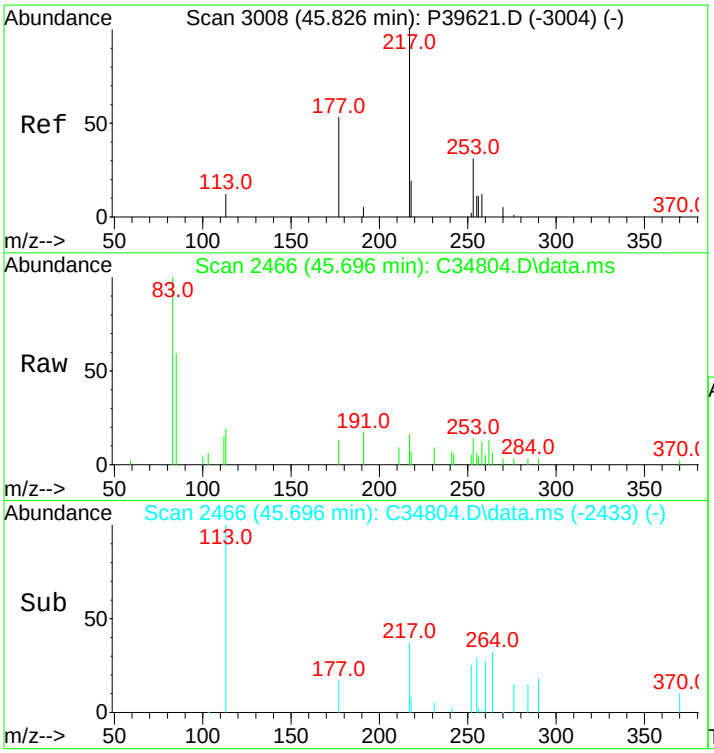




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 236.05 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

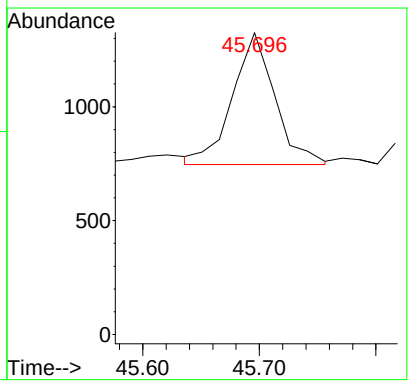
Tgt Ion:217 Resp: 2537

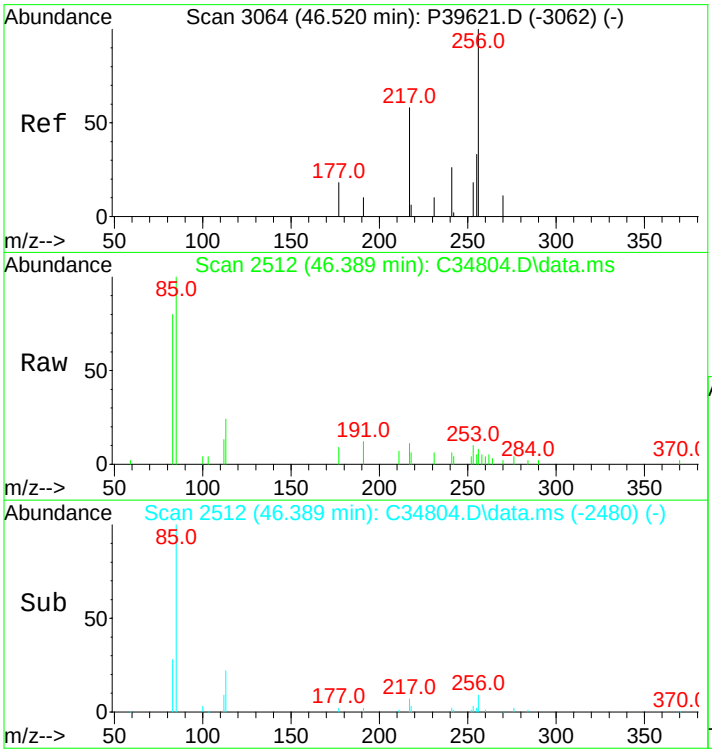




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 135.56 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

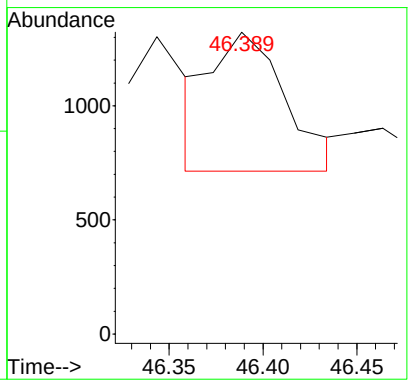
Tgt Ion:217 Resp: 1457

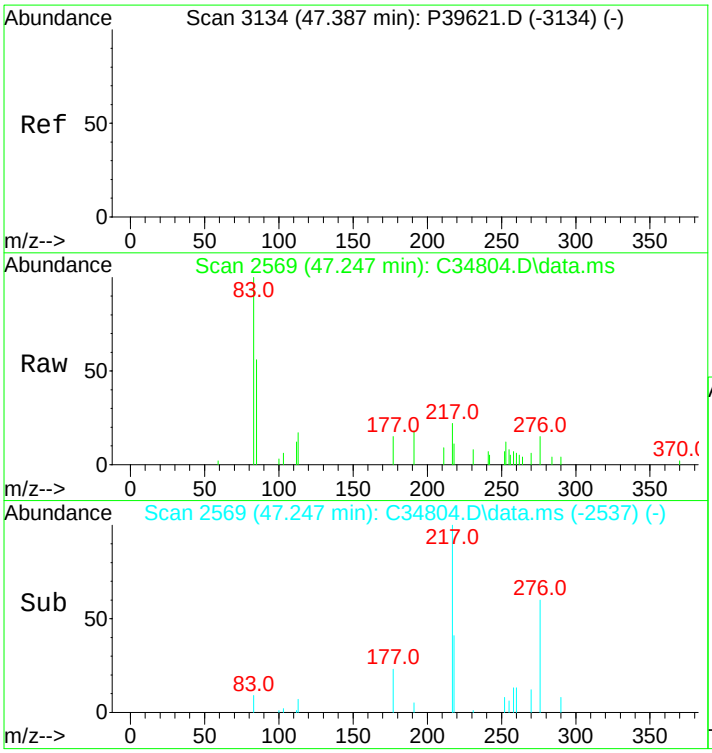




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 156.03 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

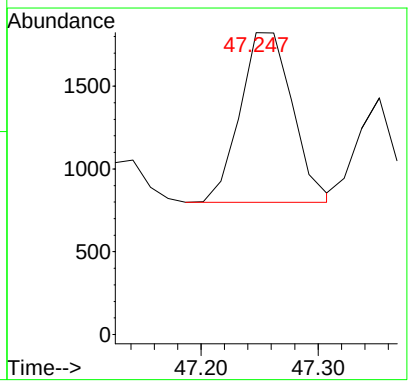
Tgt Ion:217 Resp: 1677

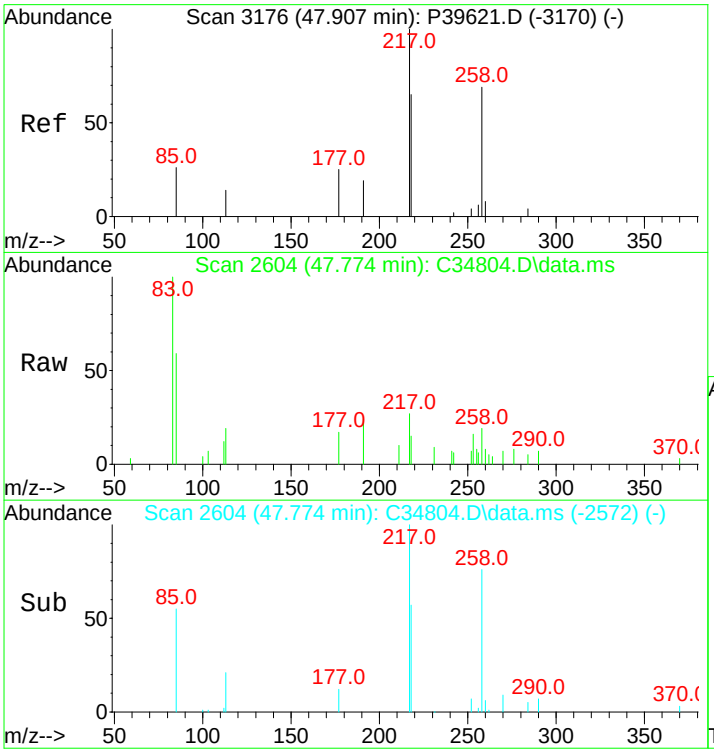




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 296.99 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

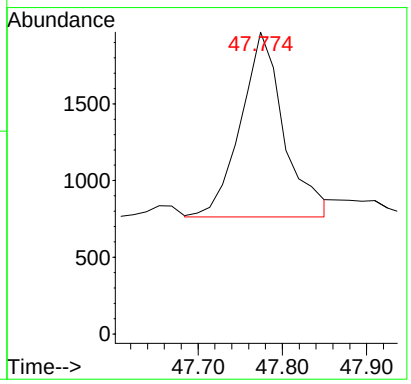
Tgt Ion:217 Resp: 3192

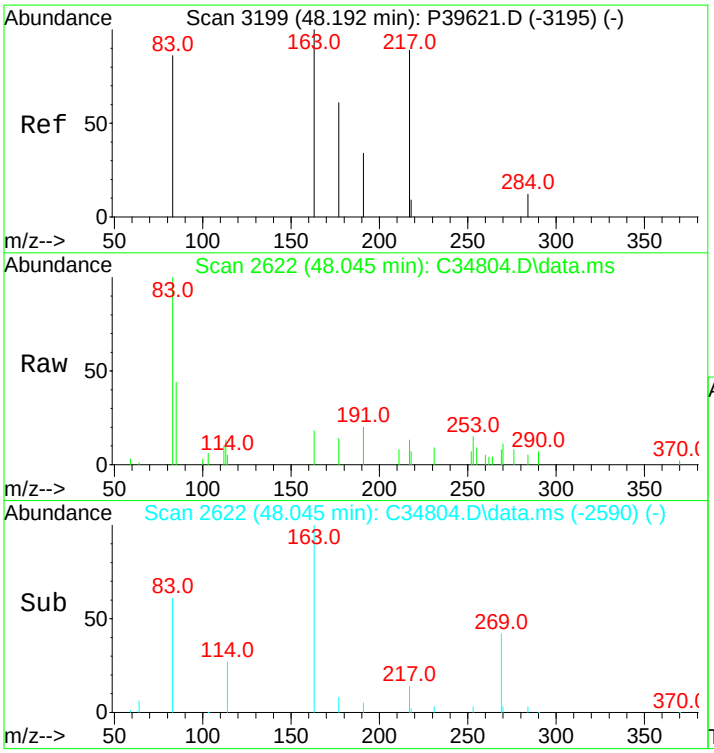




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 400.37 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

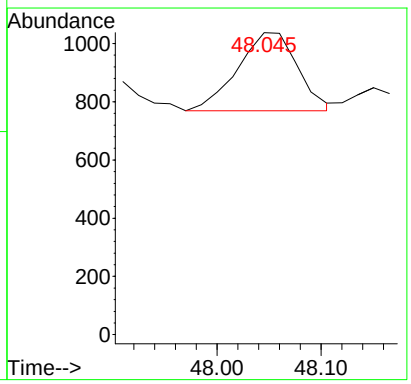
Tgt Ion:217 Resp: 4303

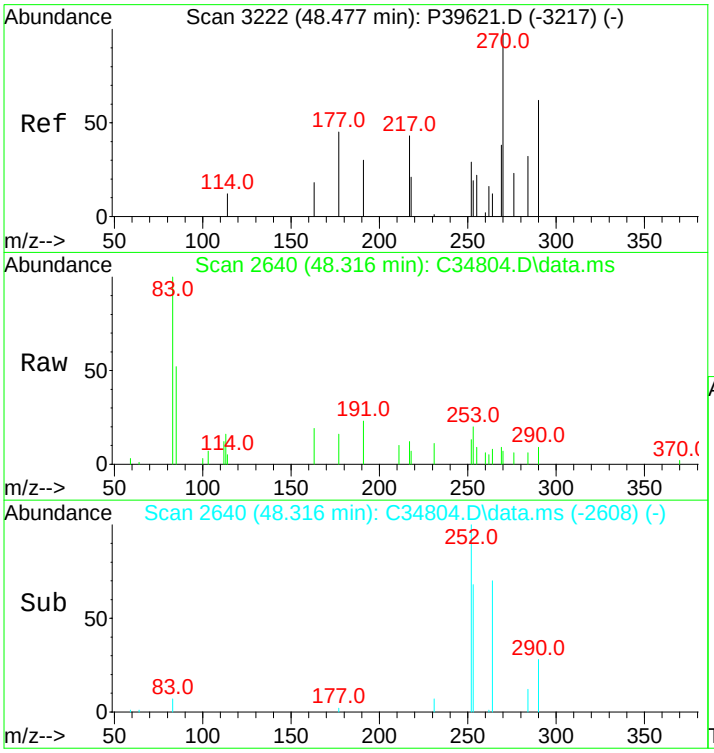




#133
Unknown Sterane (S18)
Concen: 100.67 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

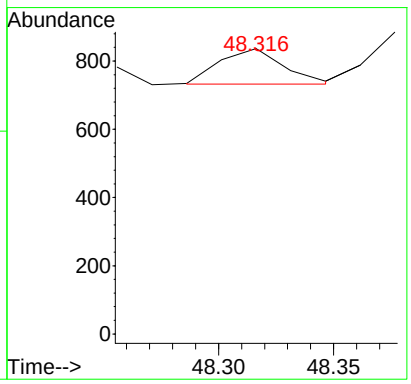
Tgt Ion:217 Resp: 1082

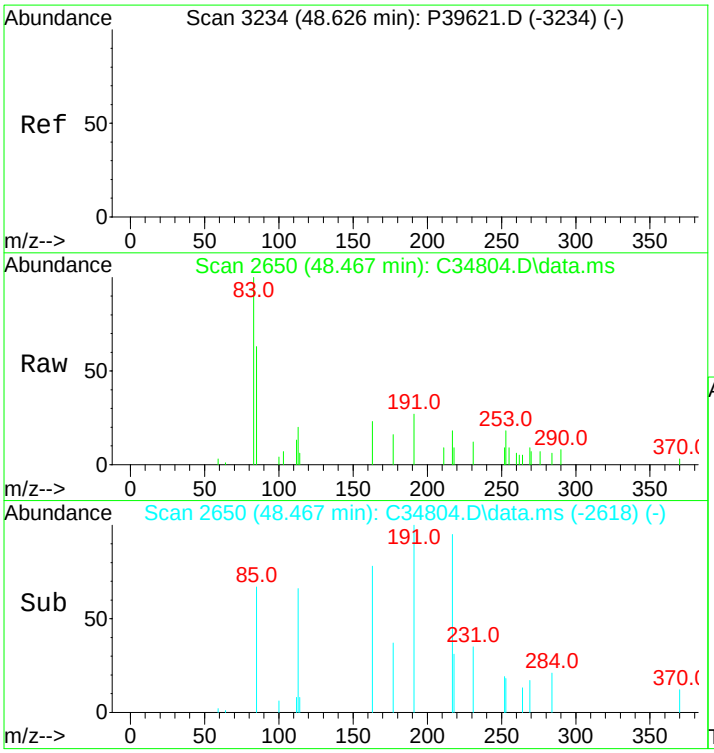




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.70 ng/ml m
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

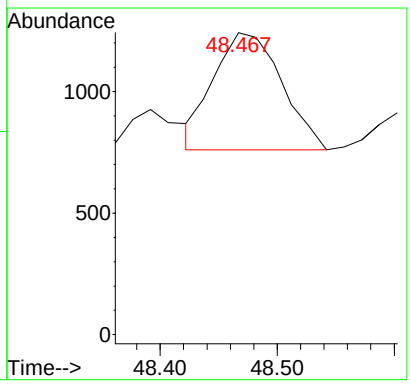
Tgt Ion:217 Resp: 201

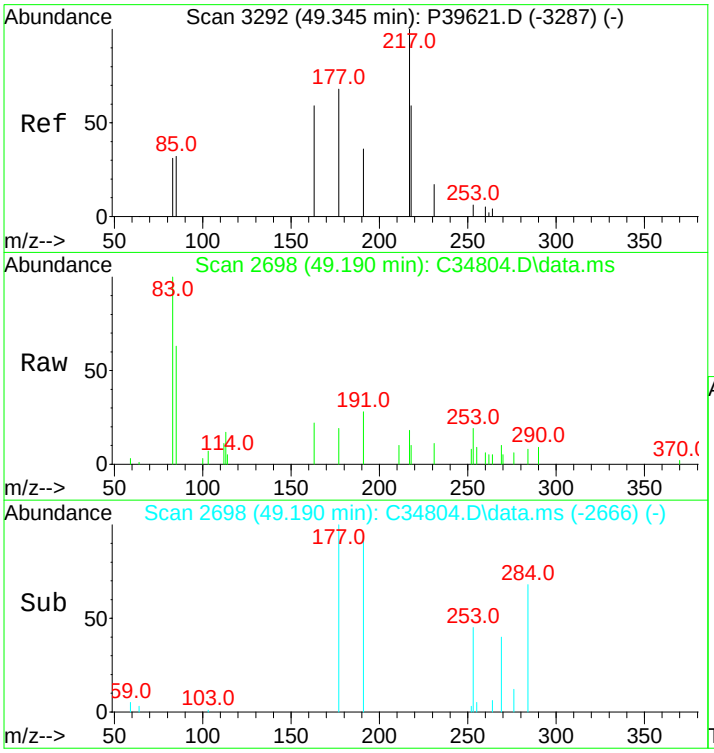




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 180.60 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

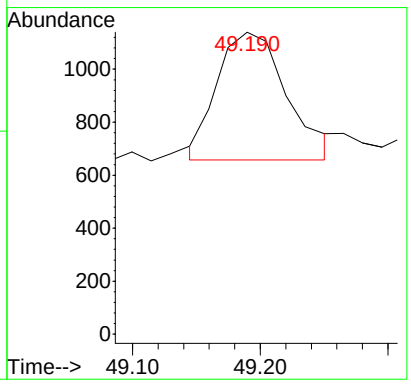
Tgt Ion:217 Resp: 1941

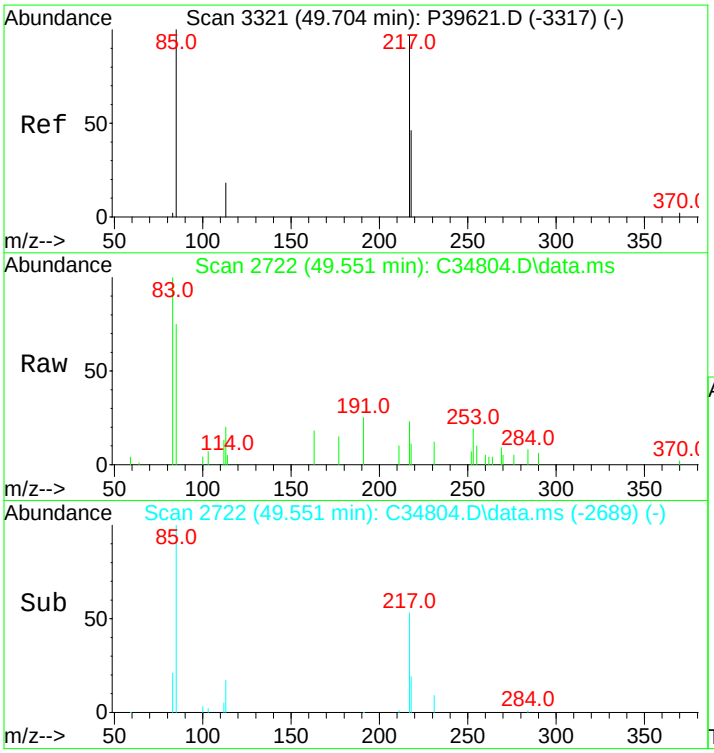




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 168.87 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

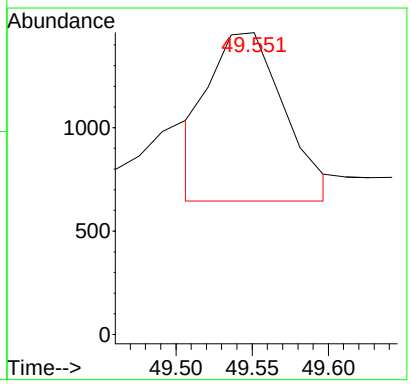
Tgt Ion:217 Resp: 1815

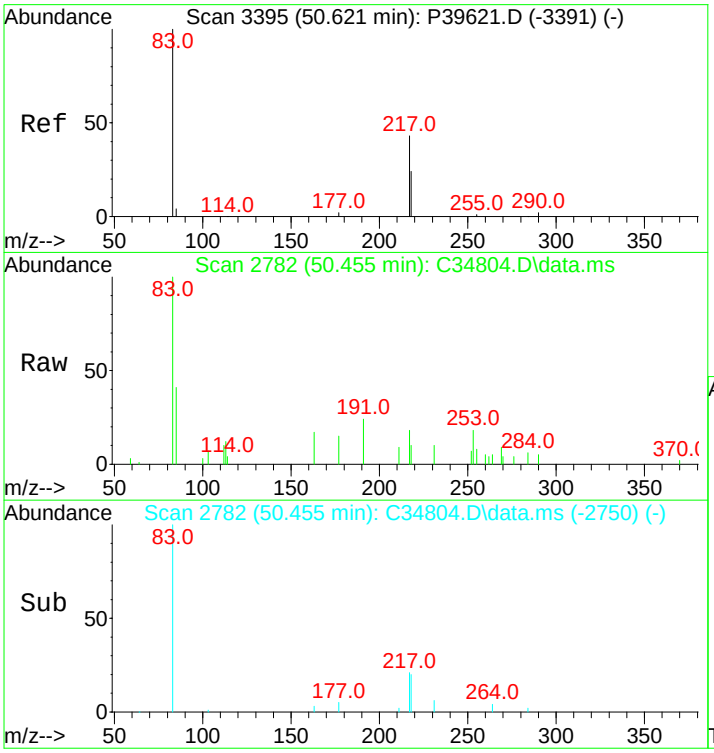




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 260.71 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

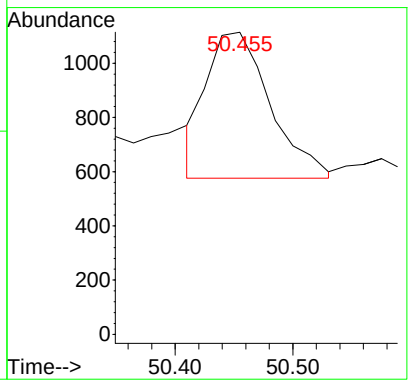
Tgt Ion:217 Resp: 2802

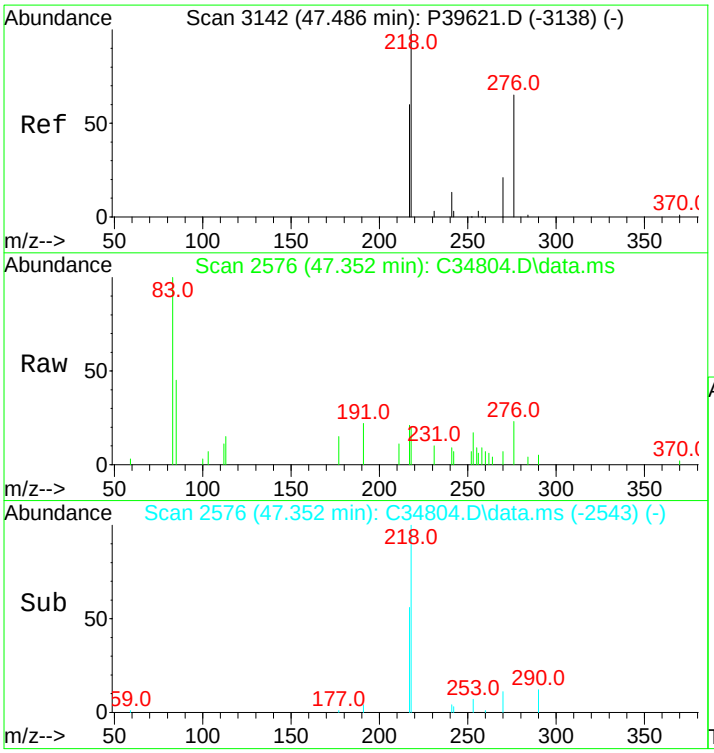




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 188.88 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

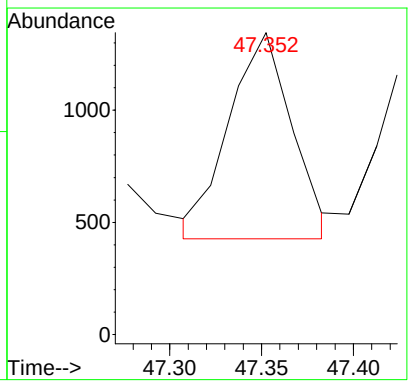
Tgt Ion:217 Resp: 2030

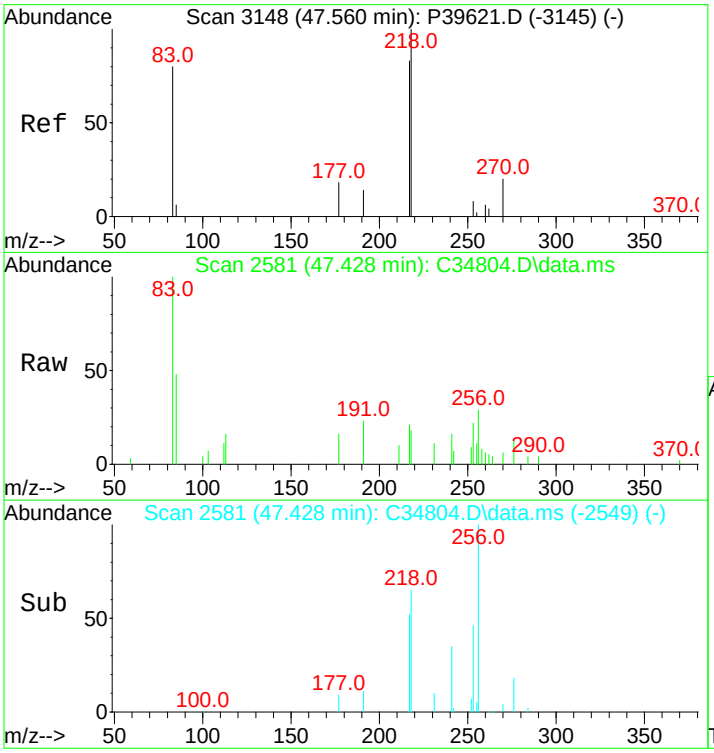




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 203.95 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

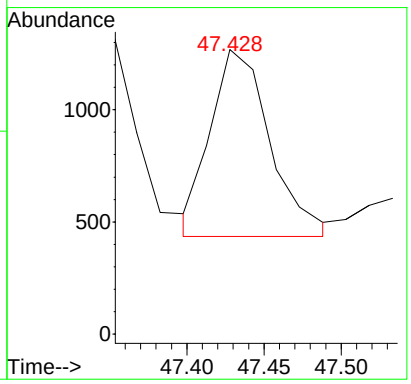
Tgt Ion:218 Resp: 2192

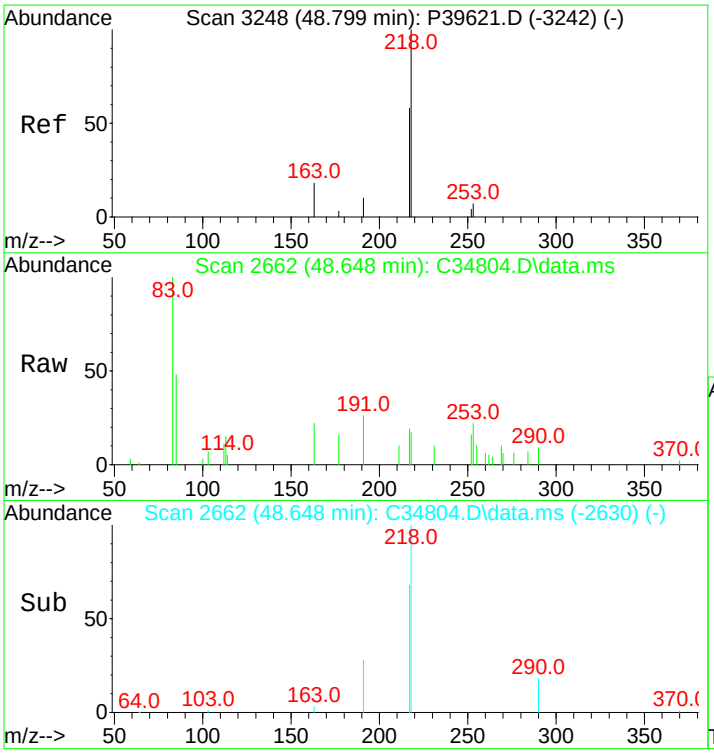




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 208.14 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

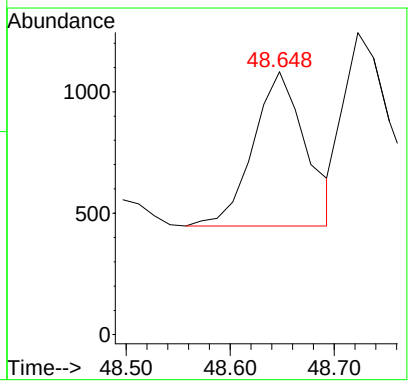
Tgt Ion:218 Resp: 2237

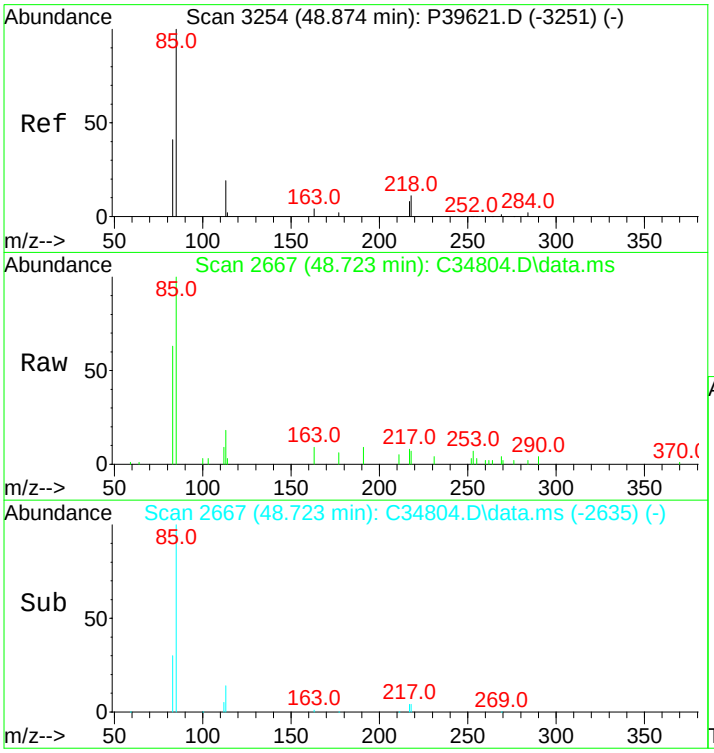




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 208.79 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

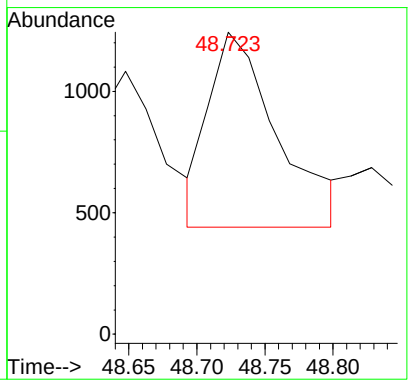
Tgt Ion:218 Resp: 2244

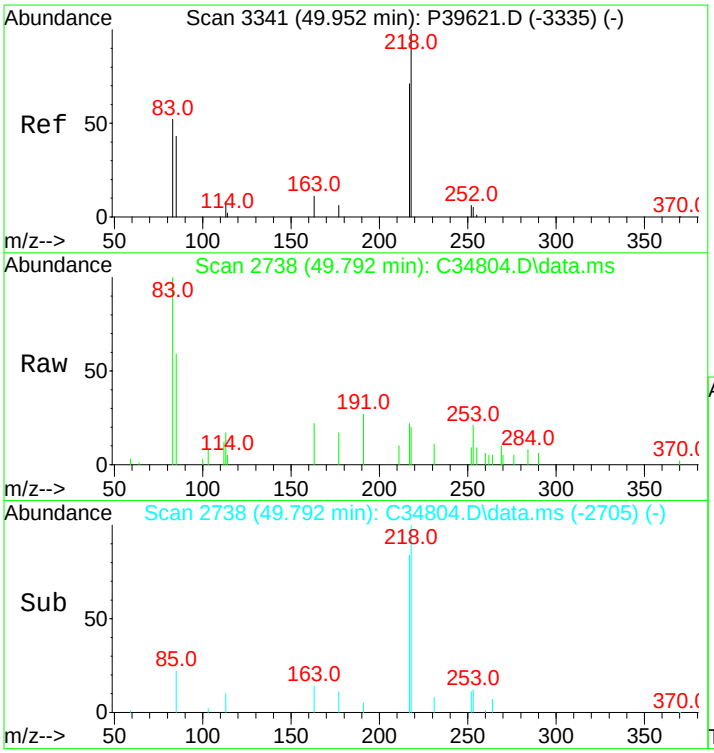




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 261.82 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

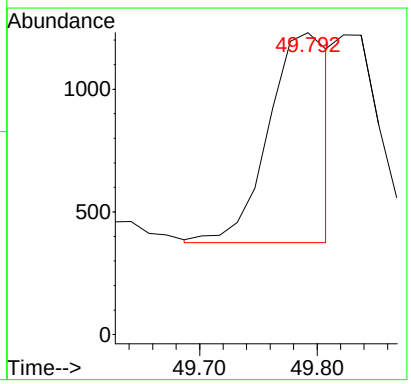
Tgt Ion:218 Resp: 2814

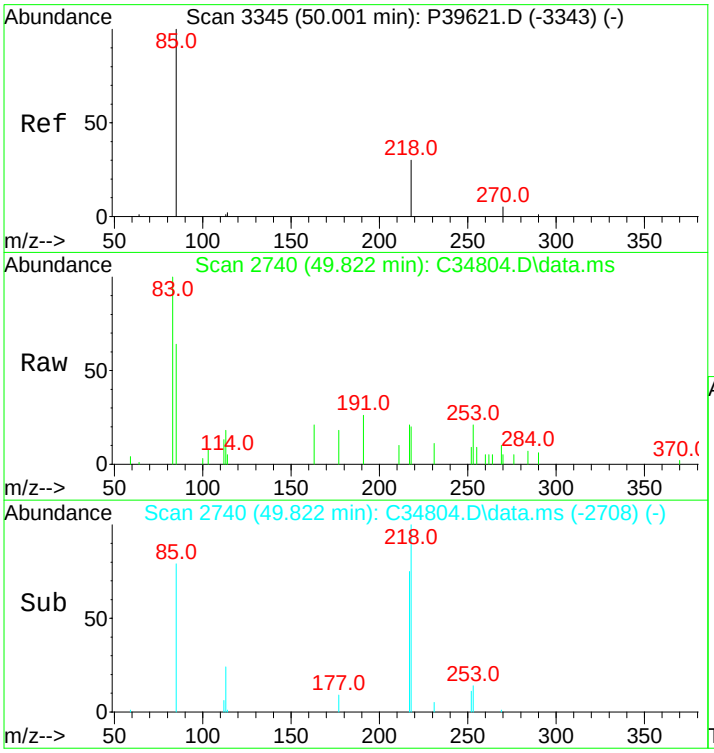




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 283.69 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

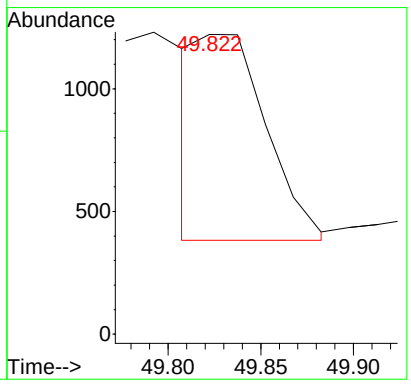
Tgt Ion:218 Resp: 3049

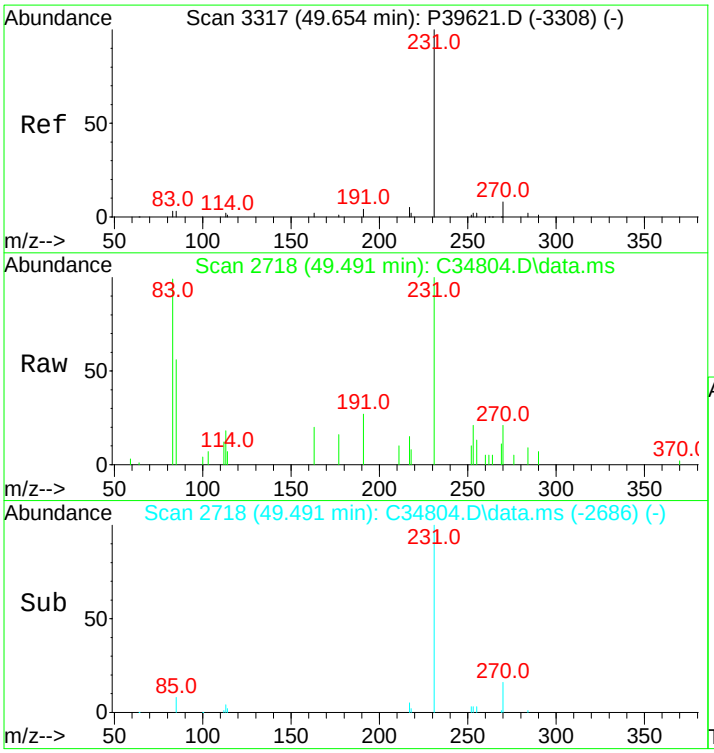




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 198.46 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

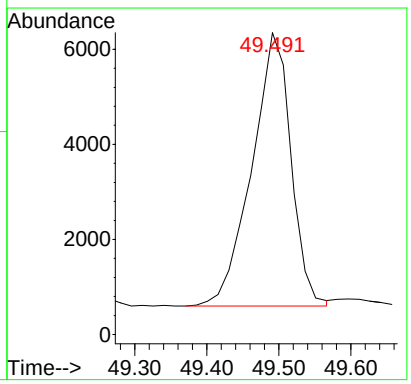
Tgt Ion:218 Resp: 2133

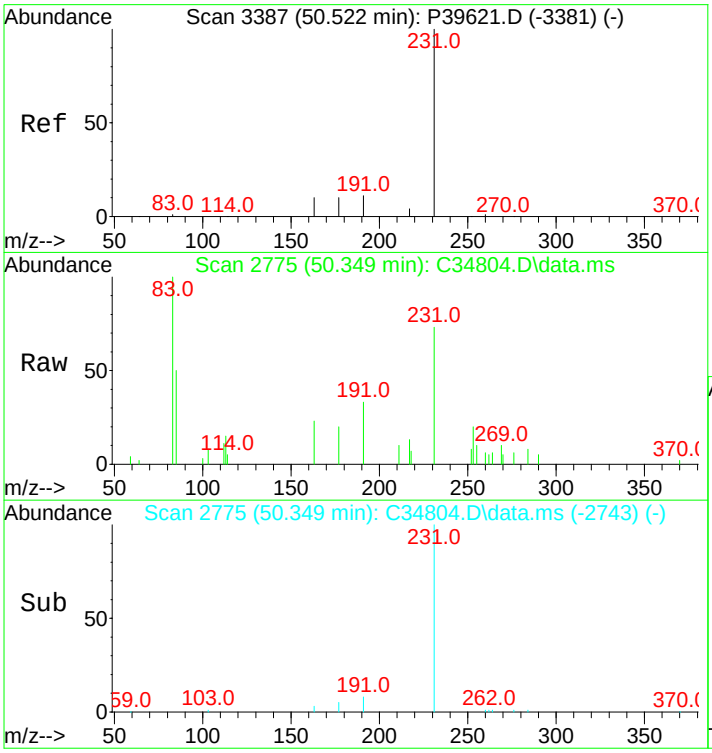




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2009.64 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

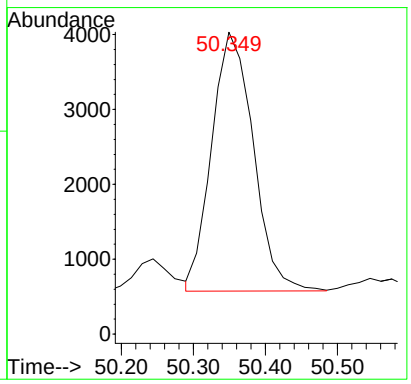
Tgt Ion:231 Resp: 21599

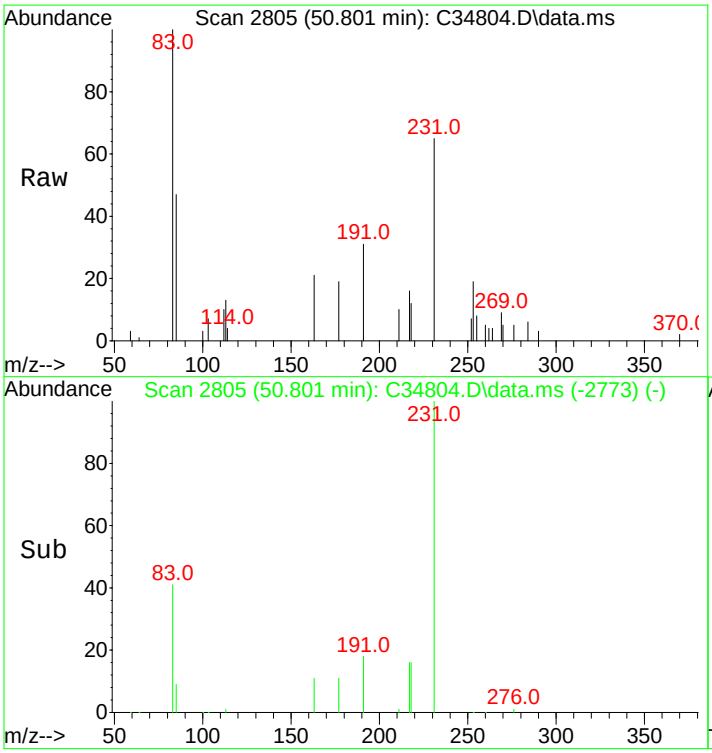




#146
C28,20S-triaromatic steroid
Concen: 1292.19 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

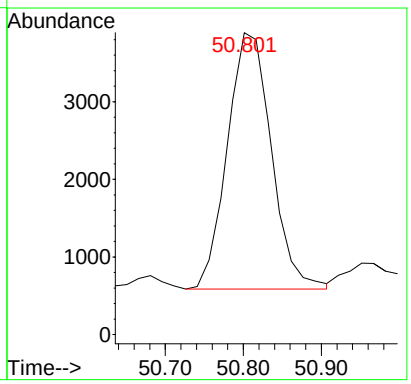
Tgt Ion:231 Resp: 13888

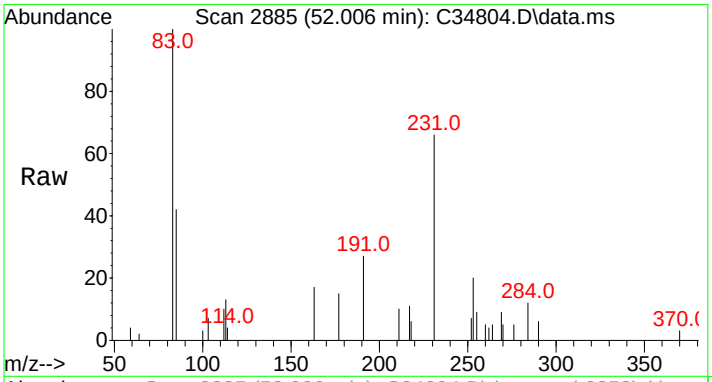




#147
C27,20R-triaromatic steroid
Concen: 1207.70 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

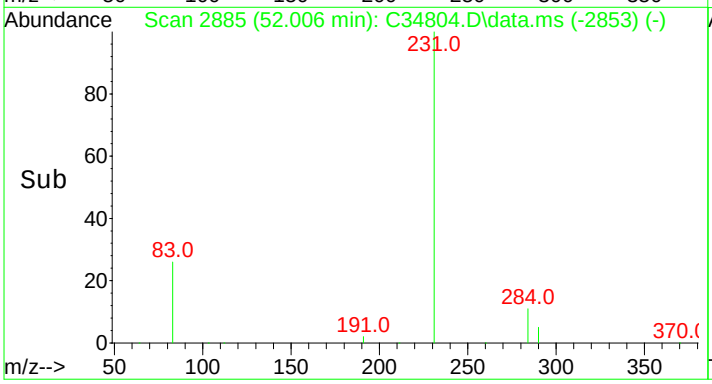
Tgt Ion:231 Resp: 12980

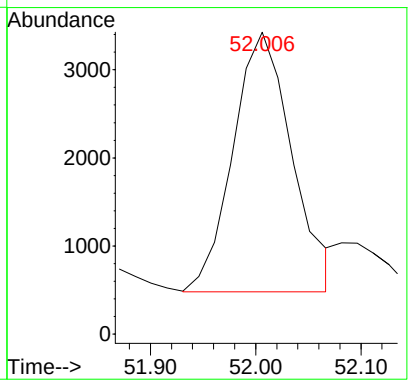




#148
C28,20R-triaromatic steroid
Concen: 1069.81 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:231 Resp: 11498





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20629M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	39002	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	13351	149.115	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 14.91%#			
42) Phenanthrene-d10	32.567	188	12651	178.762	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 17.88%#			
86) Benzo[a]pyrene-d12	48.241	264	12951	160.228	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 16.02%#			
127) 5B(H)Cholane - Surr	43.769	217	2547M3	208.873	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 20.89%#			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	186	11.422	ng/mL	100
5) C1-Decalins	18.311	152	742M5	45.564	ng/mL	
6) C2-Decalins	19.289	166	2279M5	139.947	ng/mL	
7) C3-Decalins	22.119	180	3183M5	195.459	ng/mL	
8) C4-Decalins	25.492	194	5881M5	361.136	ng/mL	
10) Naphthalene	19.801	128	95M3	0.723	ng/mL	
11) C1-Naphthalenes	22.496	142	907M5	6.898	ng/mL	
12) C2-Naphthalenes	25.416	156	14509M5	110.353	ng/mL	
13) C3-Naphthalenes	28.021	170	56018M5	426.063	ng/mL	
14) C4-Naphthalenes	30.444	184	84830M5	645.202	ng/mL	
16) 2-Methylnaphthalene	22.496	142	354	4.554	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	374	4.908	ng/mL#	100
19) C1-Benzo(b)thiophenes	22.631	148	823M5	6.956	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2293M5	19.381	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	13240M5	111.906	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	26999M5	228.198	ng/mL	
23) Biphenyl	24.378	154	173	1.759	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	3240	50.727	ng/mL#	100
25) Dibenzofuran	27.464	168	264	2.338	ng/mL#	47
26) Acenaphthylene	26.079	152	410	3.141	ng/mL#	100
27) Acenaphthene	26.816	153	407M3	5.296	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	3280M3	63.705	ng/mL	
29) Fluorene	28.834	166	900M3	10.619	ng/mL	
30) C1-Fluorenes	31.197	180	9043M5	106.698	ng/mL	
31) C2-Fluorenes	33.395	194	32667M5	385.436	ng/mL	
32) C3-Fluorenes	35.232	208	51172M5	603.775	ng/mL	
33) Dibenzothiophene	32.161	184	7635M3	56.198	ng/mL	
34) 4-Methyldibenzothiophe...	33.937	198	21406	157.561	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	18302	134.714	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	11598	85.368	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	54632M5	402.124	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	141769M5	1043.504	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	187466M5	1379.861	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	135309M5	995.954	ng/mL	
43) Phenanthrene	32.657	178	10110M3	84.699	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	9557M3	80.066	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	11334	94.954	ng/mL	99
46) 2-Methylanthracene(2MA)	34.870	192	1451M3	12.156	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	17893	149.904	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.157	192	10172M3	85.219	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	51075M5	427.895	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	108815M5	911.628	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	114091M5	955.829	ng/mL	
53) C4-Phenanthrenes/Anthr...	39.643	234	58884M5	493.317	ng/mL	
54) Retene	39.643	234	7033M3	302.052	ng/mL	
56) Carbazole	33.485	167	1650M3	14.010	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
57) 1-Methylphenanthrene	35.157	192	10193M3	134.752	ng/mL	
58) Fluoranthene	37.430	202	3645M3	30.747	ng/mL	
60) Pyrene	38.303	202	9035M3	74.975	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	29502M5	244.816	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	45562M5	378.086	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	56508M5	468.919	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	57481M5	476.994	ng/mL	
66) Naphthobenzothiophene	42.158	234	13359	102.970	ng/ml	91
67) Naphthobenzothiophene-...	42.158	234	13359	102.970	ng/mL	91
68) Naphthobenzothiophene-...	42.504	234	3244M3	25.004	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2226M3	17.158	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	69517M5	535.830	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	107669M5	829.902	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	94849M5	731.087	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	68511M5	528.076	ng/mL	
75) Benz[a]anthracene	43.091	228	1834M3	14.815	ng/mL	
77) Chrysene/Triphenylene	43.227	228	9425M3	75.413	ng/mL	
78) C1-Chrysenes	44.717	242	24521M5	196.203	ng/mL	
79) C2-Chrysenes	46.795	256	39332M5	314.711	ng/mL	
80) C3-Chrysenes	48.015	270	50107M5	400.927	ng/mL	
81) C4-Chrysenes	49.596	284	29538M5	236.346	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4173	30.679	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.202	252	1452M3	9.805	ng/mL	
85) Benzo[e]pyrene	48.136	252	5983	44.469	ng/mL	97
87) Benzo[a]pyrene	48.331	252	2863M3	22.102	ng/mL	
88) Perylene	48.633	252	5296	38.255	ng/mL#	65
89) Indeno[1,2,3-cd]pyrene	53.136	276	2467M3	16.365	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	956M3	6.667	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	5364	33.680	ng/mL#	82
92) Hopane (T19)	52.217	191	29170	1134.795	ng/mL#	81
94) C23 Tricyclic Terpane ...	40.788	191	12453M3	484.457	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	6967	271.036	ng/ml	100
96) C25 Tricyclic Terpane ...	43.046	191	6679M3	259.832	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	2352M3	91.499	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2519M3	97.996	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2657M3	103.365	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2878M3	111.962	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	3014	117.253	ng/ml	100
102) C29 Tricyclic Terpane-...	47.112	191	3747	145.769	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3132M3	121.844	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3668	142.696	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2396M3	93.211	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	2592	100.836	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.994	191	8009M3	311.573	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	5489M3	213.538	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	1759	68.430	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	21337M3	830.069	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	3368M3	131.025	ng/ml	
112) 17a(H)-Diahopane (X)	51.087	191	1173M3	45.633	ng/ml	
113) 30-Normoretane (T17)	51.630	191	2437	94.806	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.021	191	574	22.330	ng/ml	100
115) Moretane (T20)	52.895	191	2364M3	91.966	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	12968	504.492	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	10369	403.383	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	4566M3	177.630	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	8257	321.220	ng/ml	100
120) 30,31-Bishomohopane-22...	55.952	191	6391	248.628	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	6398M3	248.900	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	3840M3	149.387	ng/ml	
123) Tetrakishomohopane-22S...	60.334	191	4201M3	163.431	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2954M3	114.919	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S...	63.451	191	5572	216.766	ng/ml	100
126) Pentakishomohopane-22R...	64.761	191	3395	132.075	ng/ml	100
128) 13b(H),17a(H)-20S-Diac...	45.274	217	2154M3	176.644	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	818	67.082	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	797M3	65.360	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	3063M3	251.189	ng/ml	
132) 14a,17a-20R-Chol/13b,1...	47.774	217	4023M3	329.916	ng/ml	
133) Unknown Sterane (S18)	48.060	217	642M3	52.649	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	434	35.591	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1535	125.882	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1508M3	123.667	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	3718M3	304.904	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2383M3	195.424	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	2296M3	188.289	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	2402M3	196.982	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	2094	171.724	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2804M3	229.949	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	3595M3	294.817	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	2526M3	207.151	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	20282	1663.276	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	17435	1429.801	ng/mL	100
147) C27,20R-triaromatic st...	50.816	231	12809	1050.434	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	14053M3	1152.451	ng/mL	

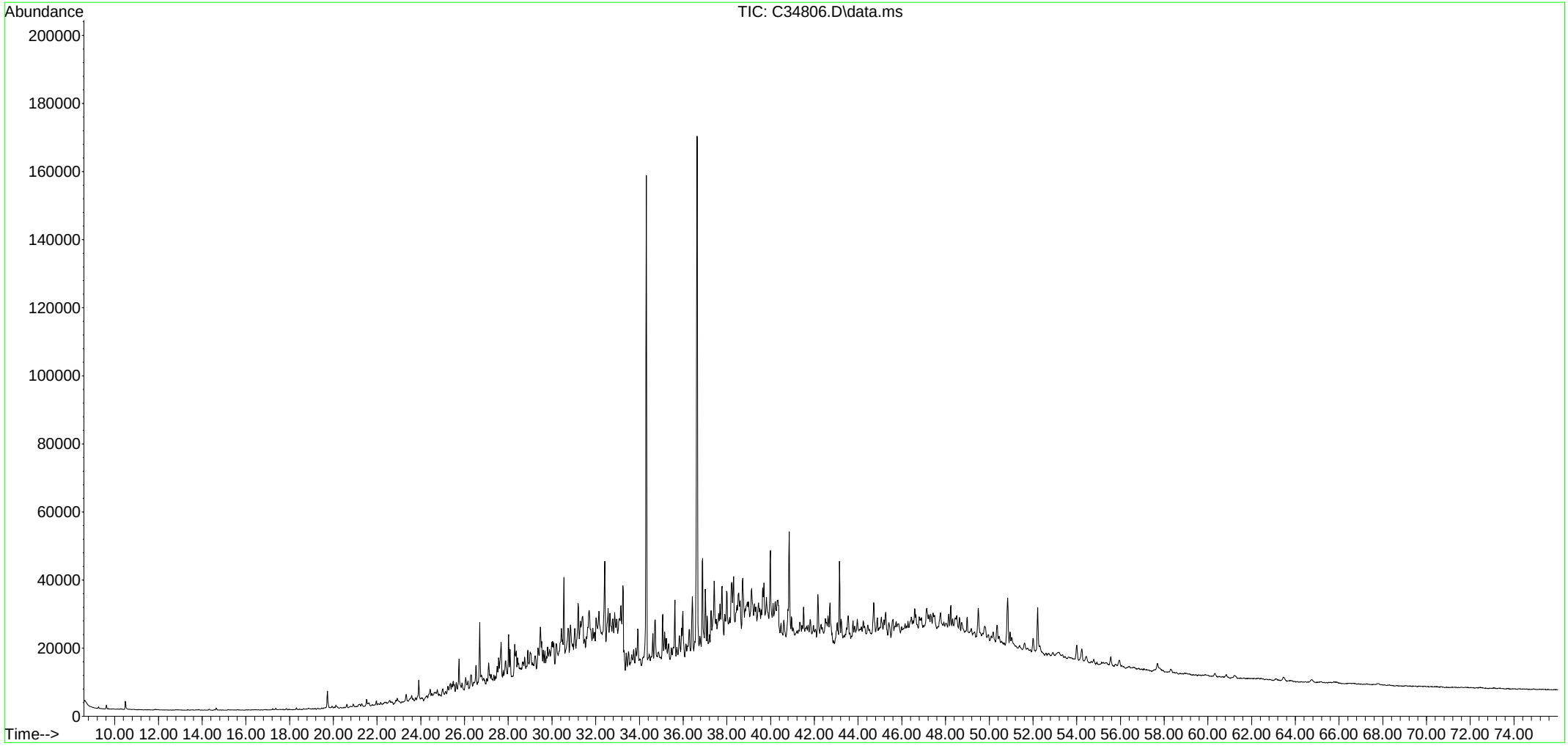
(#) = qualifier out of range (m) = manual integration (+) = signals summed

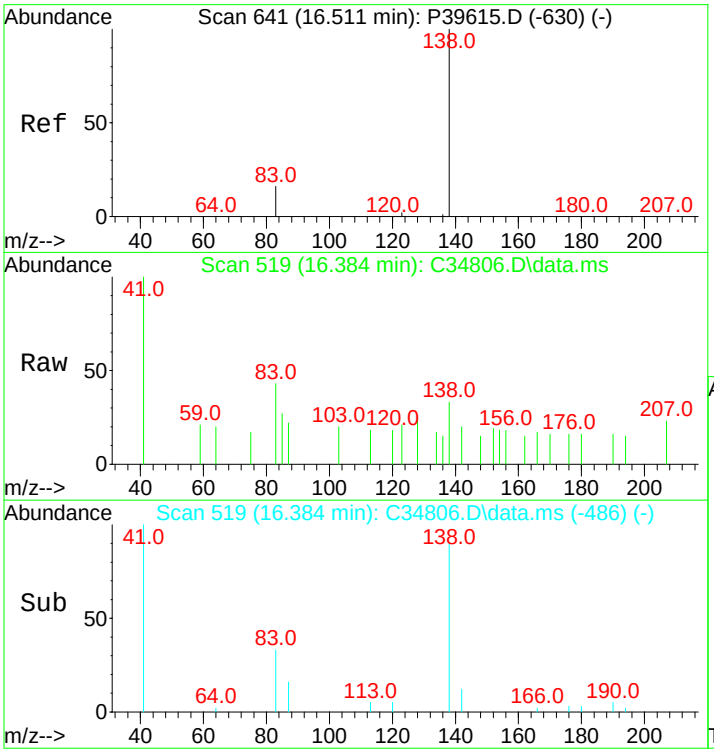
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34806.D
Acq On : 3 May 2012 10:29 am
Operator : AC
Sample : 1204031-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 05 12:45:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

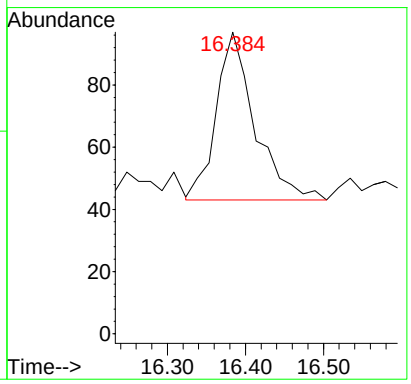
Sub List : Gulf_NEW_POIB_Default - All compounds listed

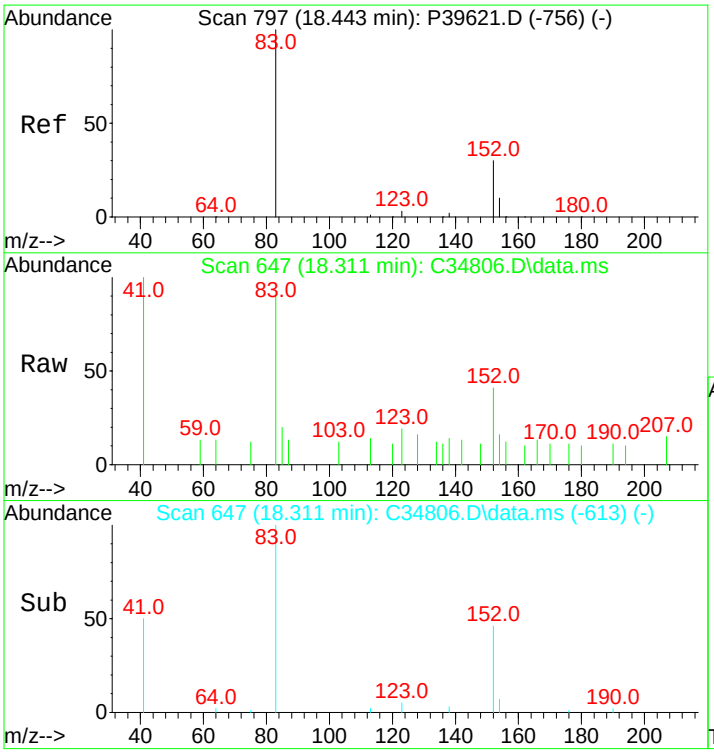




#3
trans-Decalin
Concen: 11.42 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

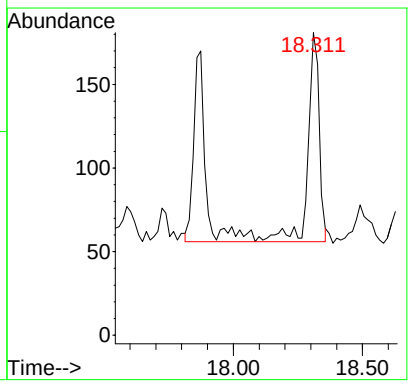
Tgt Ion:138 Resp: 186

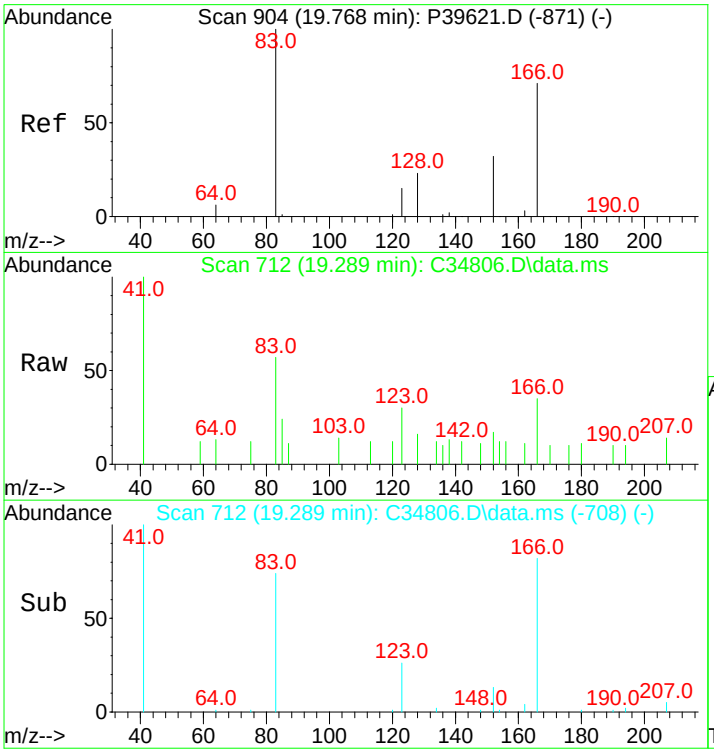




#5
C1-Decalins
Concen: 45.56 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.038 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

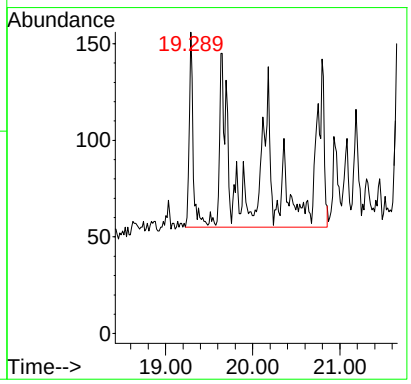
Tgt Ion:152 Resp: 742

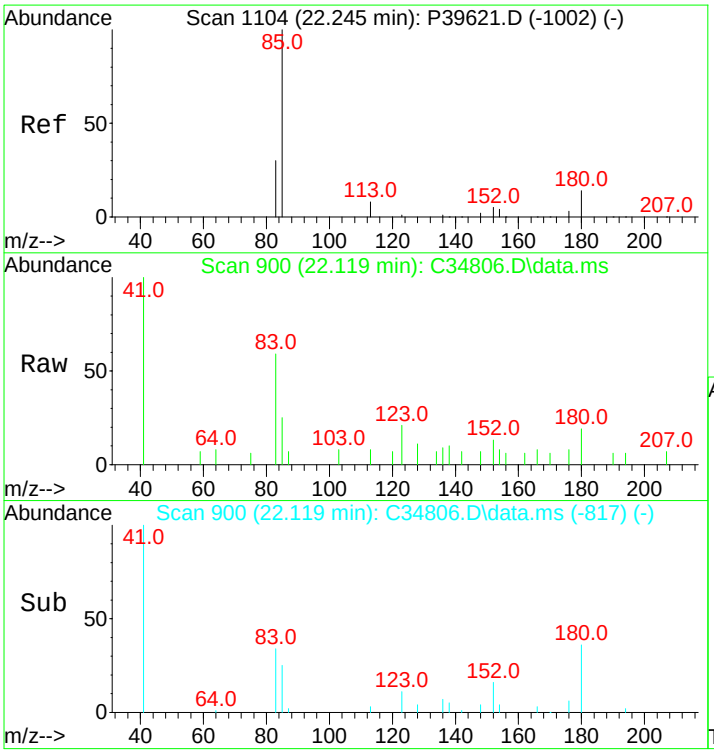




#6
C2-Decalins
Concen: 139.95 ng/mL m
RT: 19.289 min Scan# 712
Delta R.T. -0.393 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

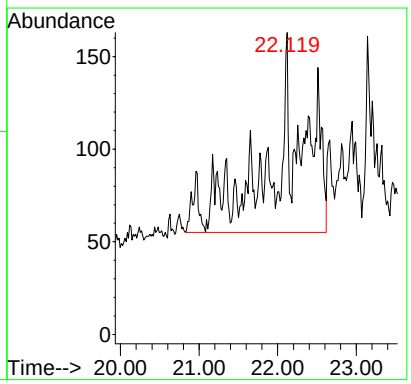
Tgt Ion:166 Resp: 2279

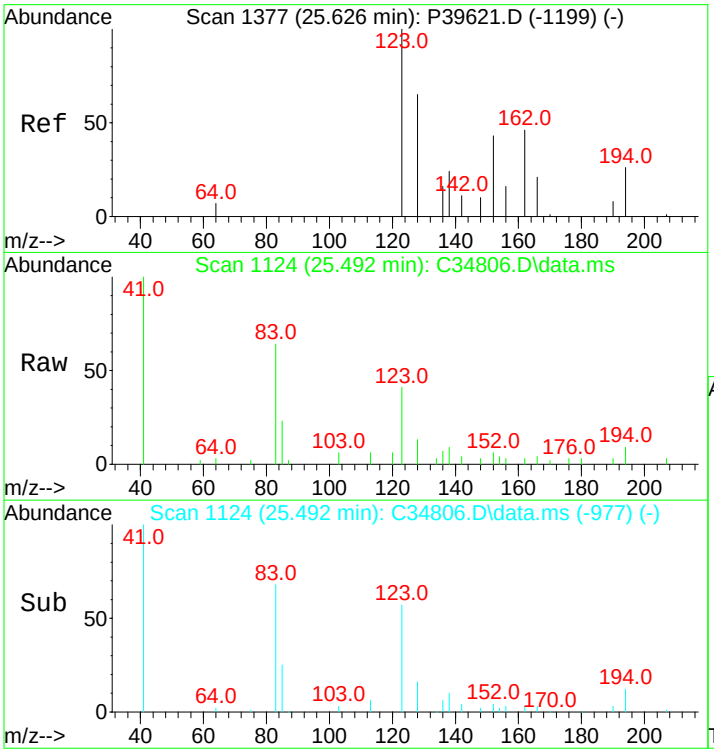




#7
C3-Decalins
Concen: 195.46 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

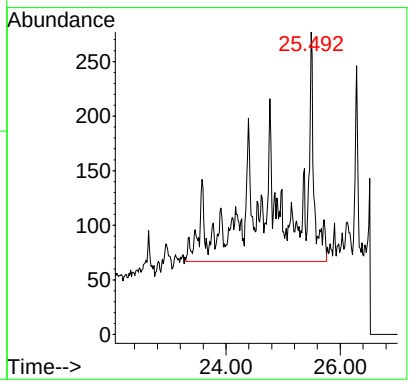
Tgt Ion:180 Resp: 3183

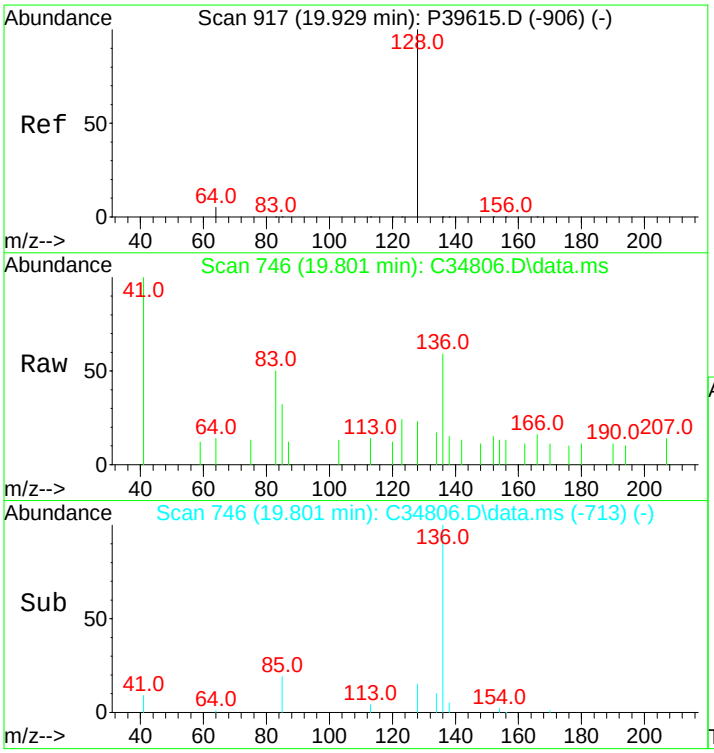




#8
C4-Decalins
Concen: 361.14 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.021 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:194 Resp: 5881

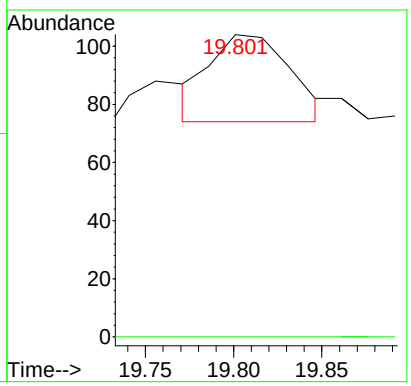


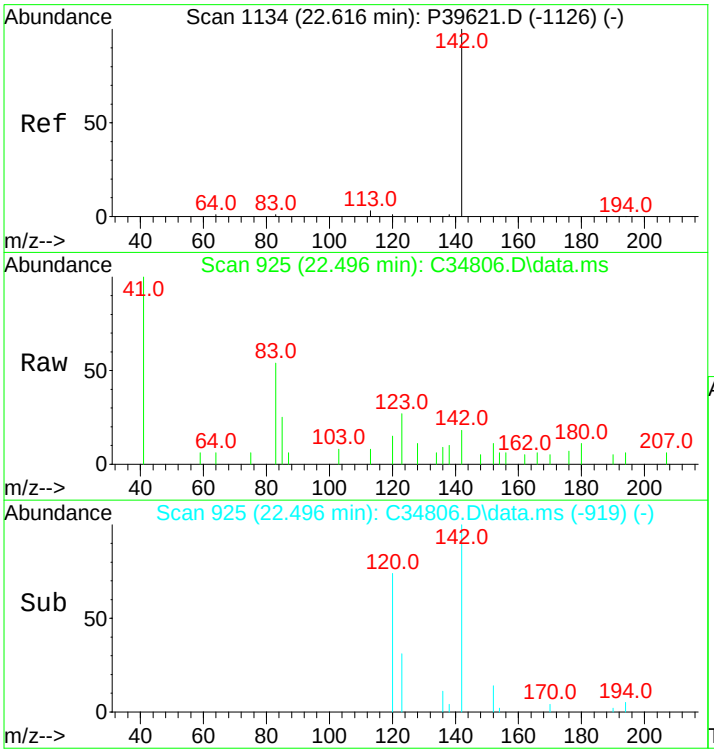


#10
Naphthalene
Concen: 0.72 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:128 Resp: 95

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

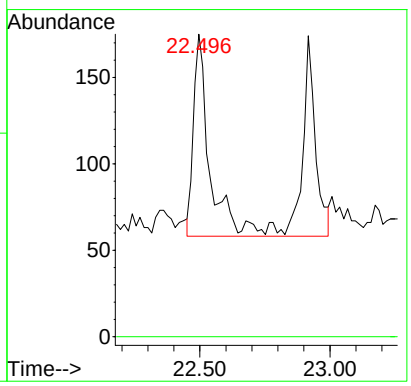


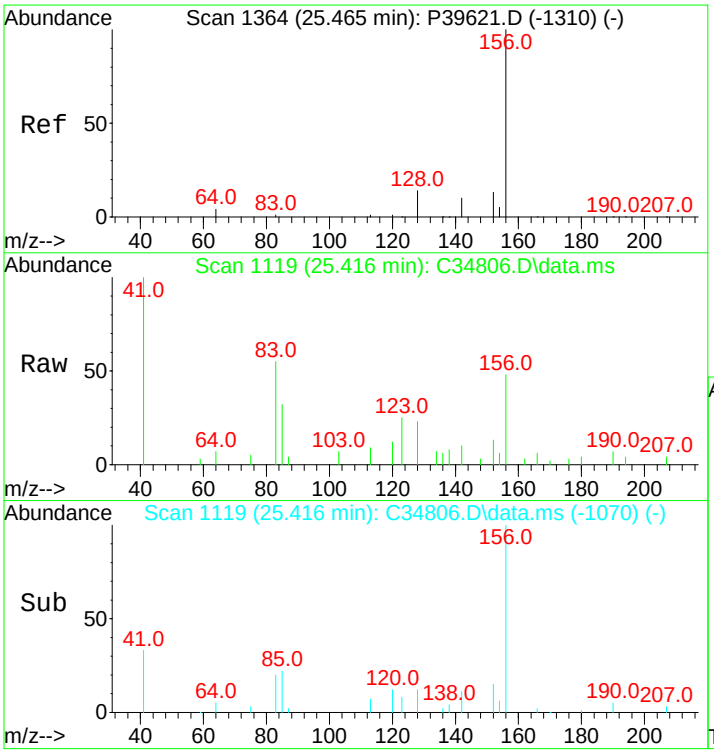


#11
C1-Naphthalenes
Concen: 6.90 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:142 Resp: 907

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

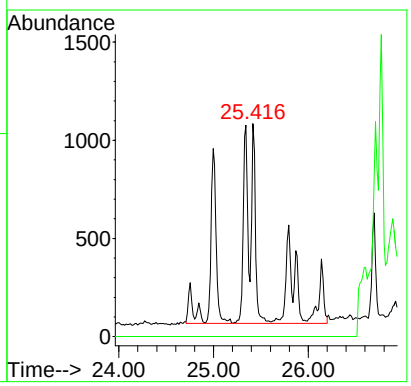


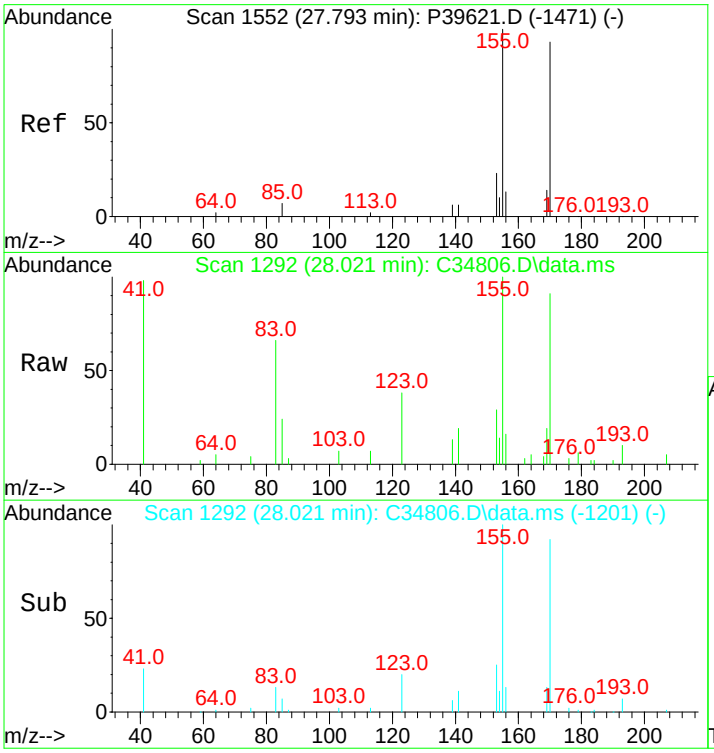


#12
C2-Naphthalenes
Concen: 110.35 ng/mL m
RT: 25.416 min Scan# 1119
Delta R.T. 0.069 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:156 Resp: 14509

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

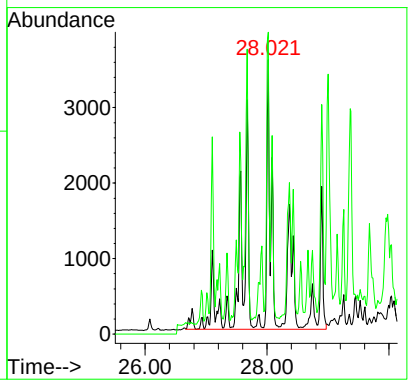


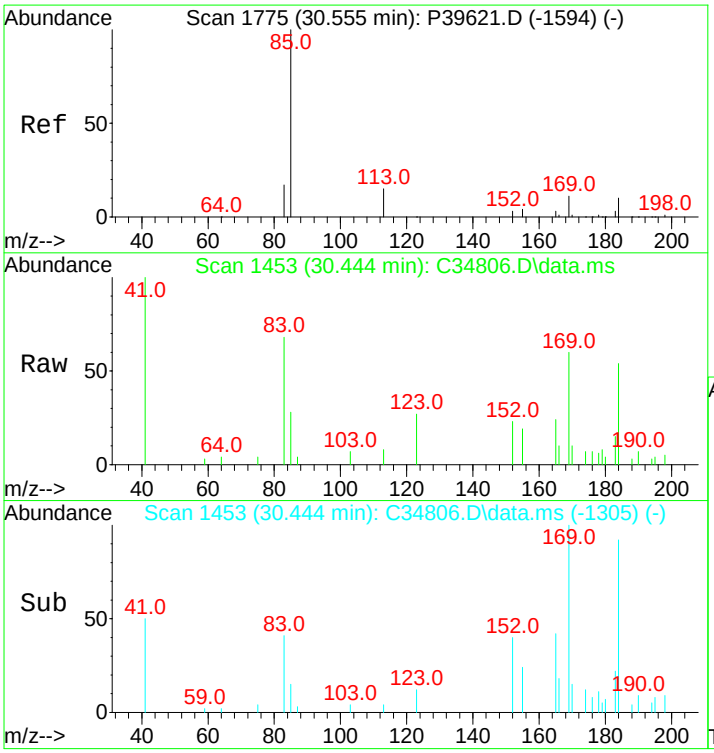


#13
C3-Naphthalenes
Concen: 426.06 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:170 Resp: 56018

Ion	Ratio	Lower	Upper
170	100		
155	16.2	81.8	122.6#

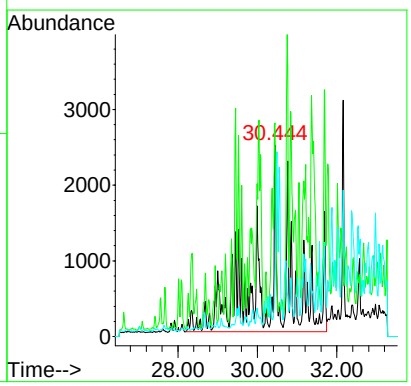


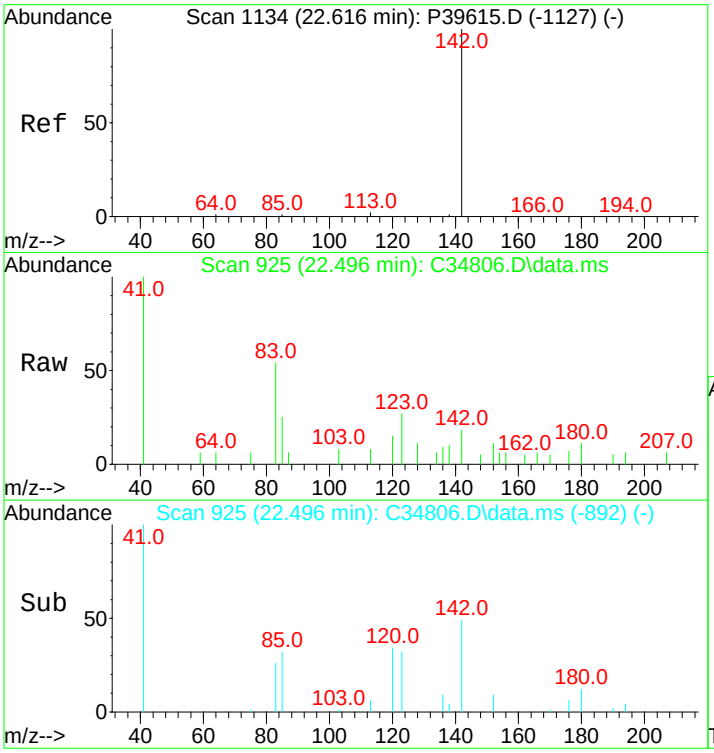


#14
C4-Naphthalenes
Concen: 645.20 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:184 Resp: 84830

Ion	Ratio	Lower	Upper
184	100		
169	10.1	77.4	116.0#
183	0.0	14.8	22.2#

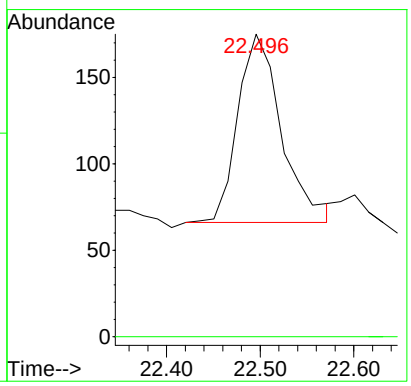


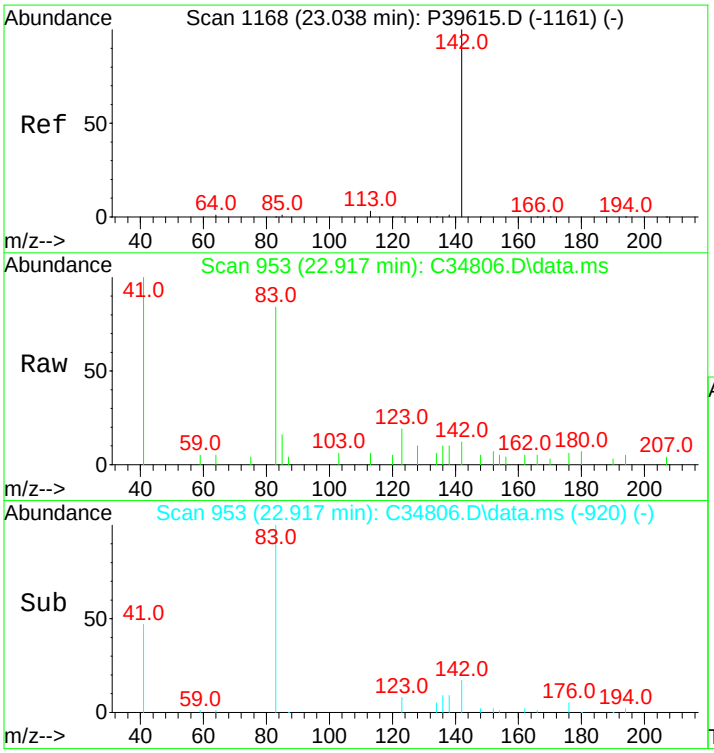


#16
2-Methylnaphthalene
Concen: 4.55 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:142 Resp: 354

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

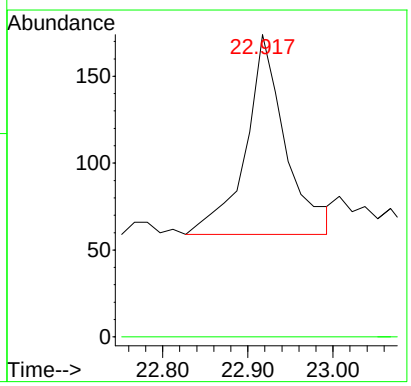


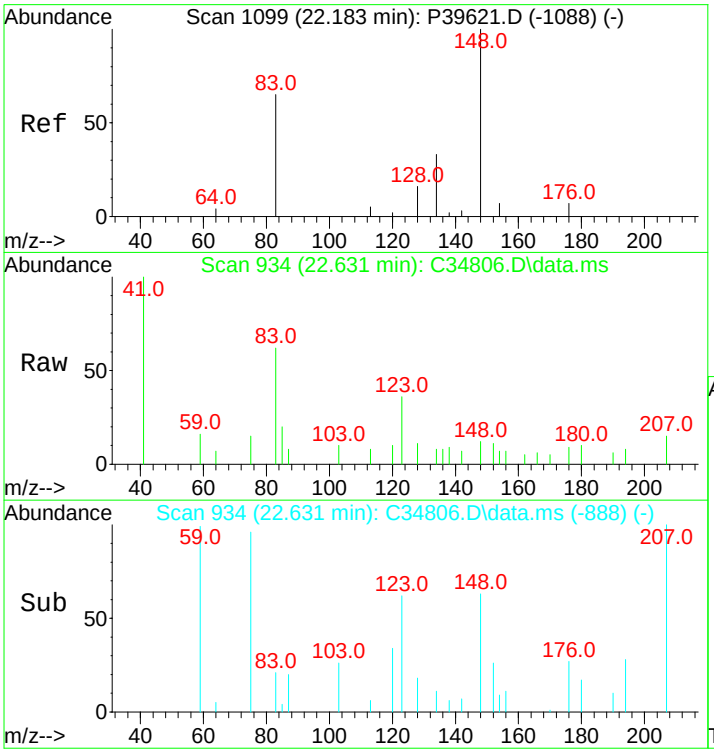


#17
1-Methylnaphthalene
Concen: 4.91 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:142 Resp: 374

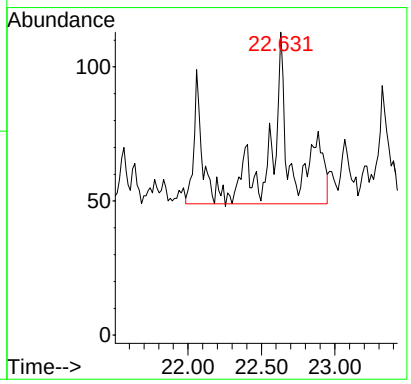
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

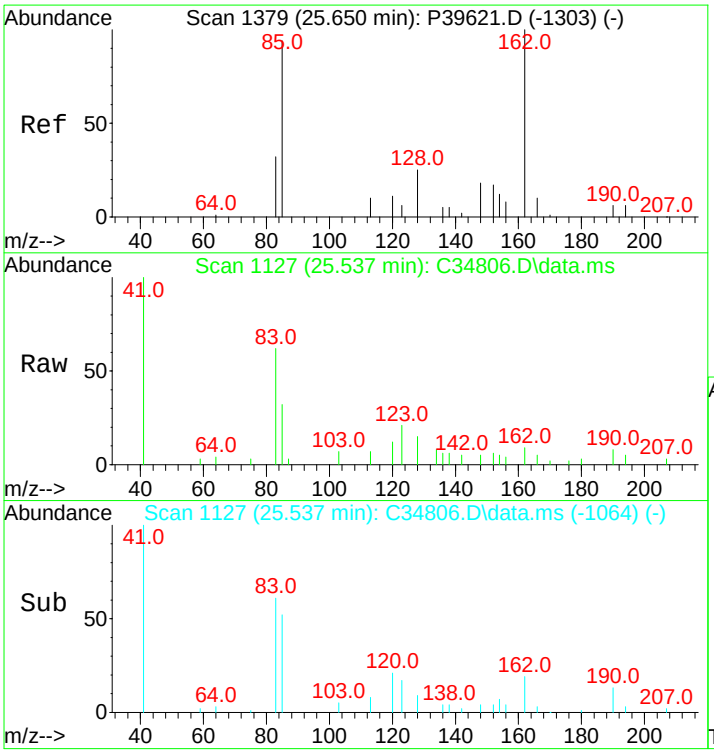




#19
C1-Benzo(b)thiophenes
Concen: 6.96 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

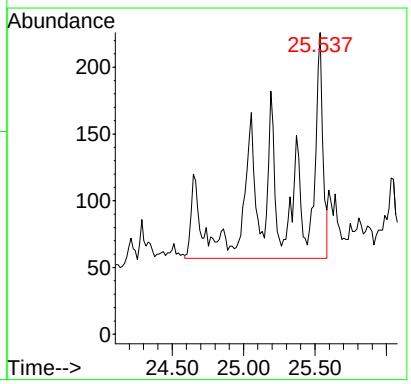
Tgt Ion:148 Resp: 823

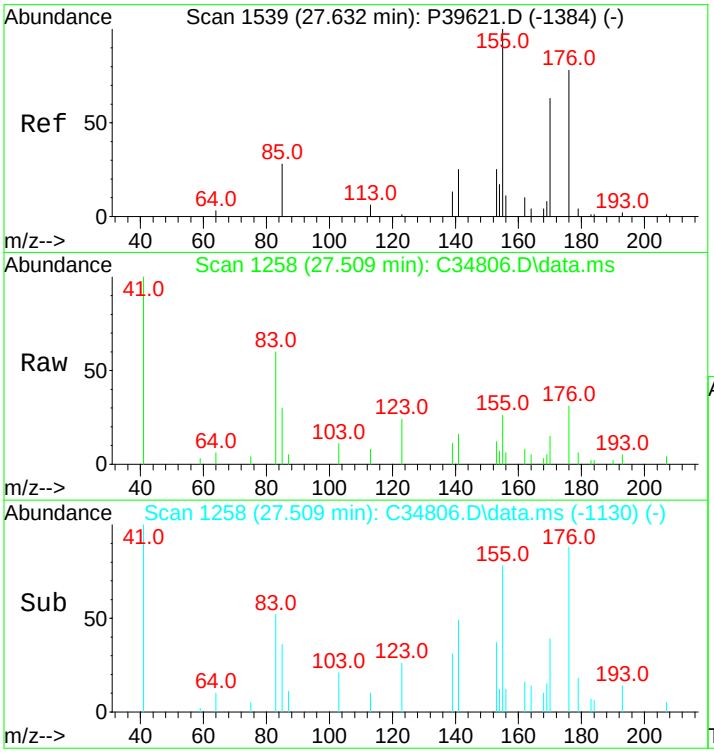




#20
C2-Benzo(b)thiophenes
Concen: 19.38 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

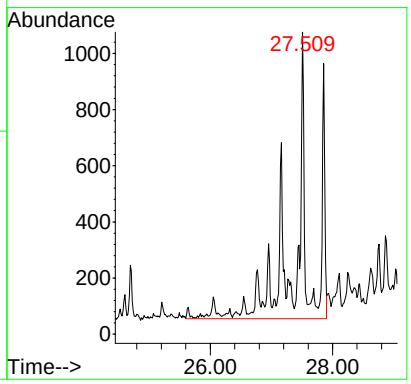
Tgt Ion:162 Resp: 2293

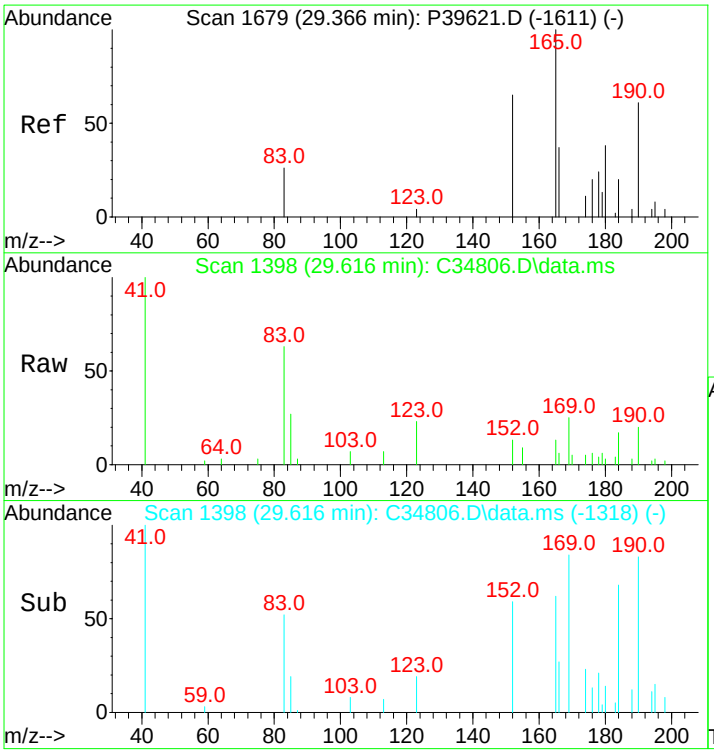




#21
C3-Benzo(b)thiophenes
Concen: 111.91 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

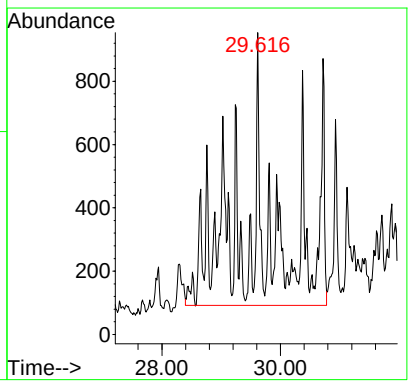
Tgt Ion:176 Resp: 13240

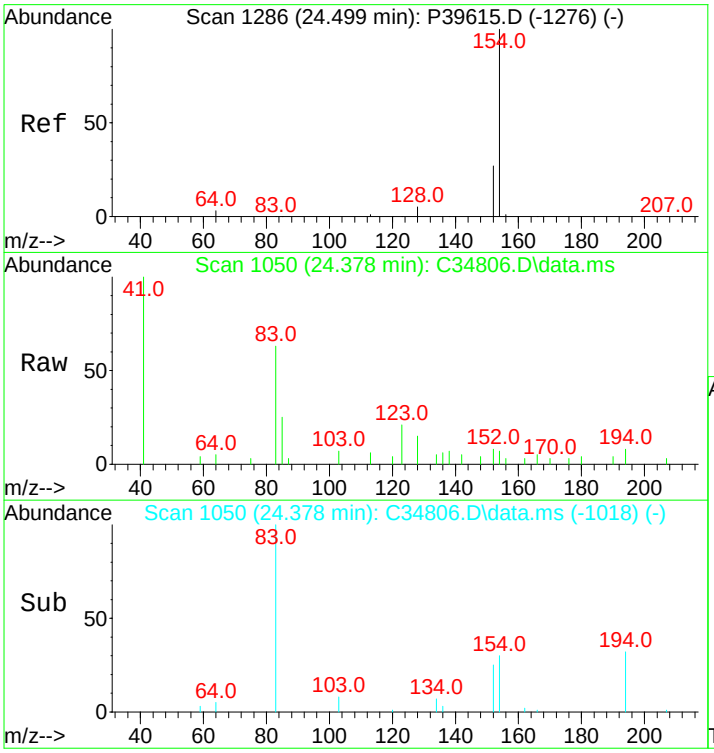




#22
C4-Benzo(b)thiophenes
Concen: 228.20 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:190 Resp: 26999

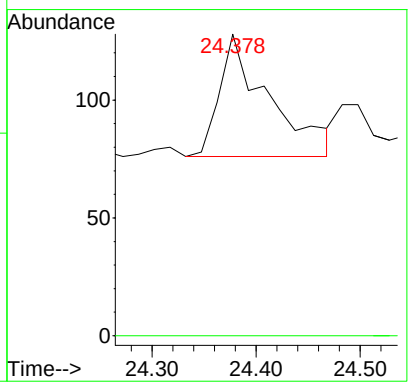


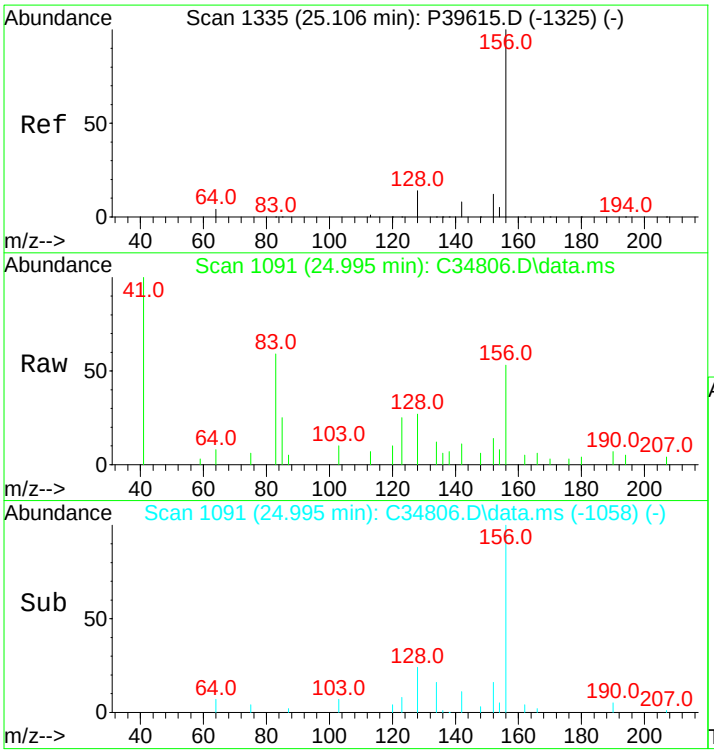


#23
Biphenyl
Concen: 1.76 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:154 Resp: 173

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

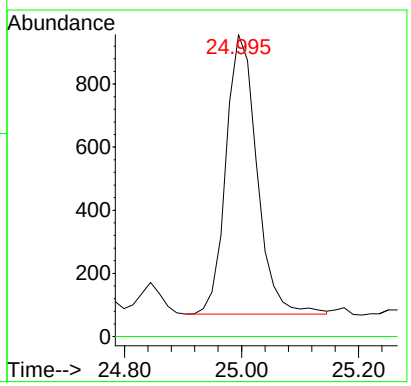


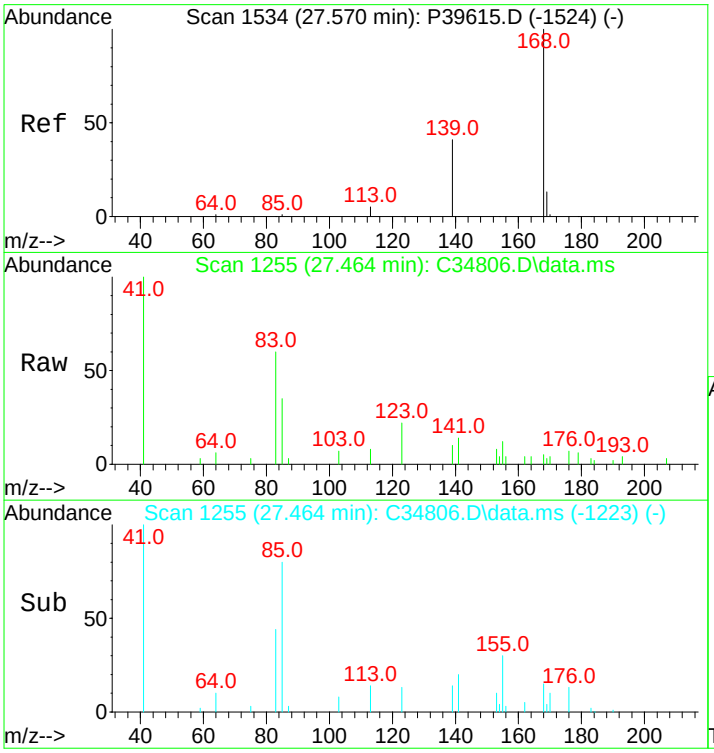


#24
2,6-Dimethylnaphthalene
Concen: 50.73 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:156 Resp: 3240

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

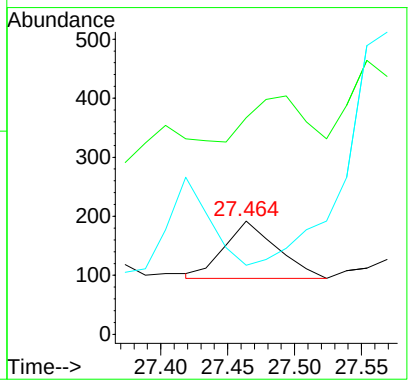


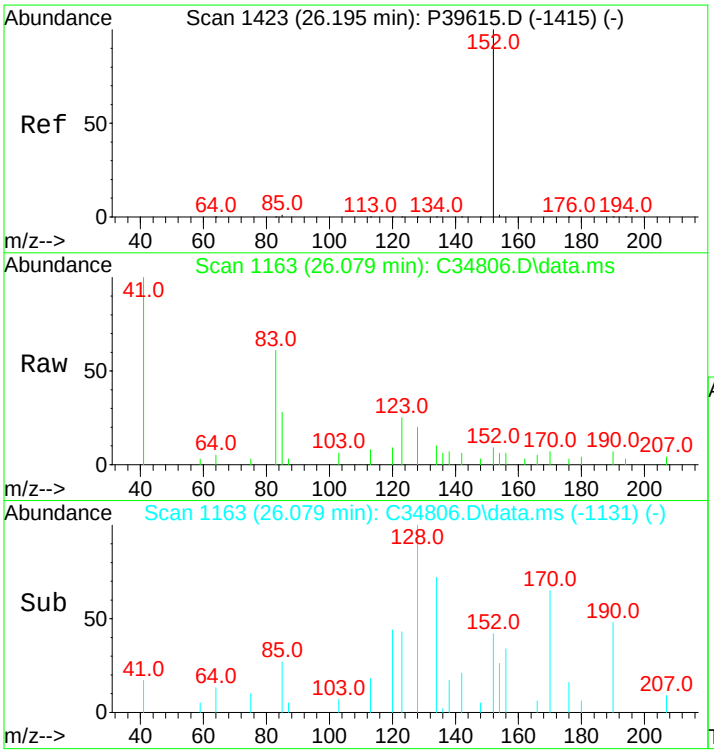


#25
Dibenzofuran
Concen: 2.34 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:168 Resp: 264

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

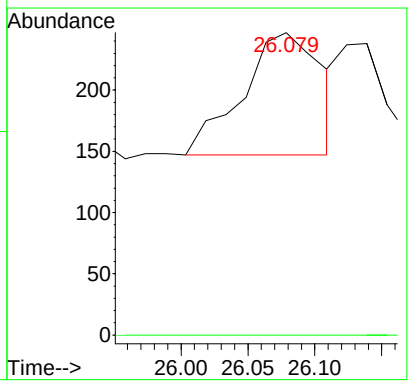


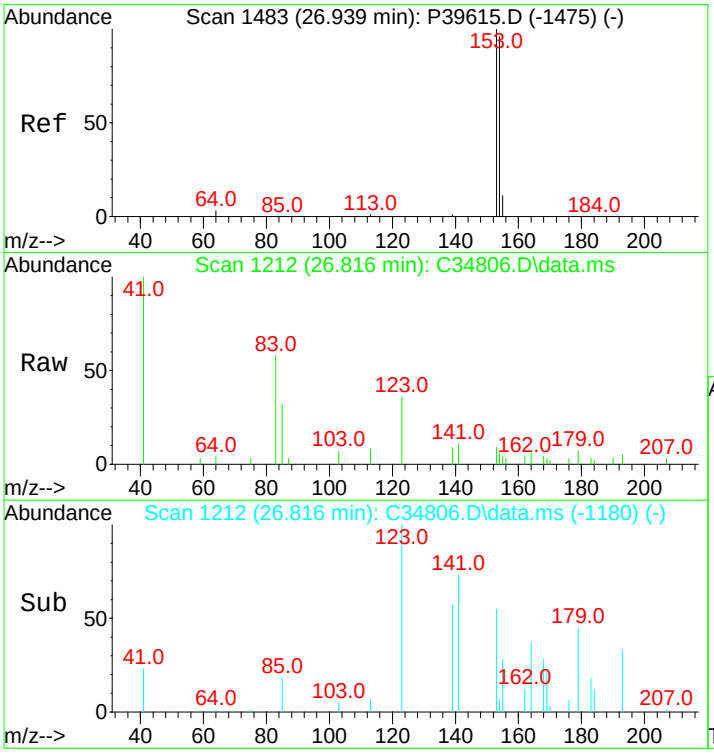


#26
Acenaphthylene
Concen: 3.14 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:152 Resp: 410

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

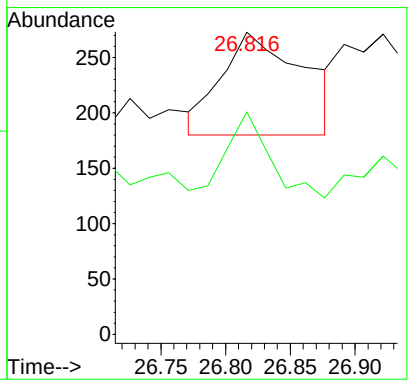


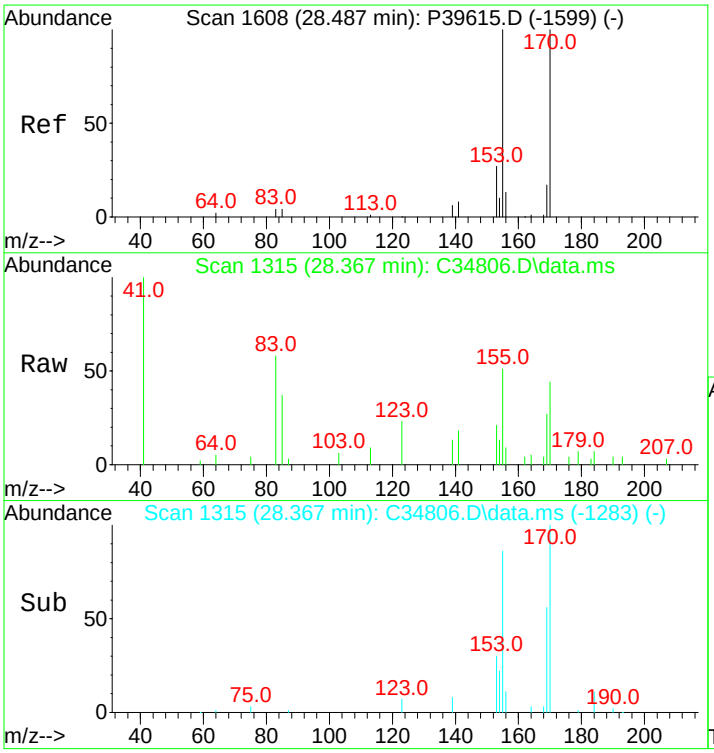


#27
Acenaphthene
Concen: 5.30 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:153 Resp: 407

Ion	Ratio	Lower	Upper
153	100		
154	56.0	73.6	110.4#

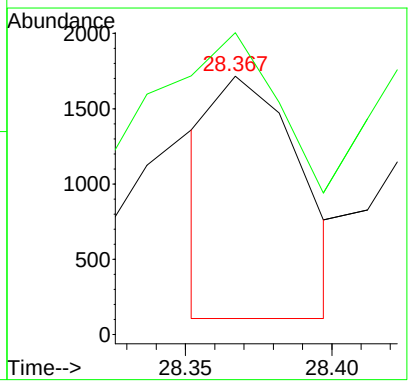


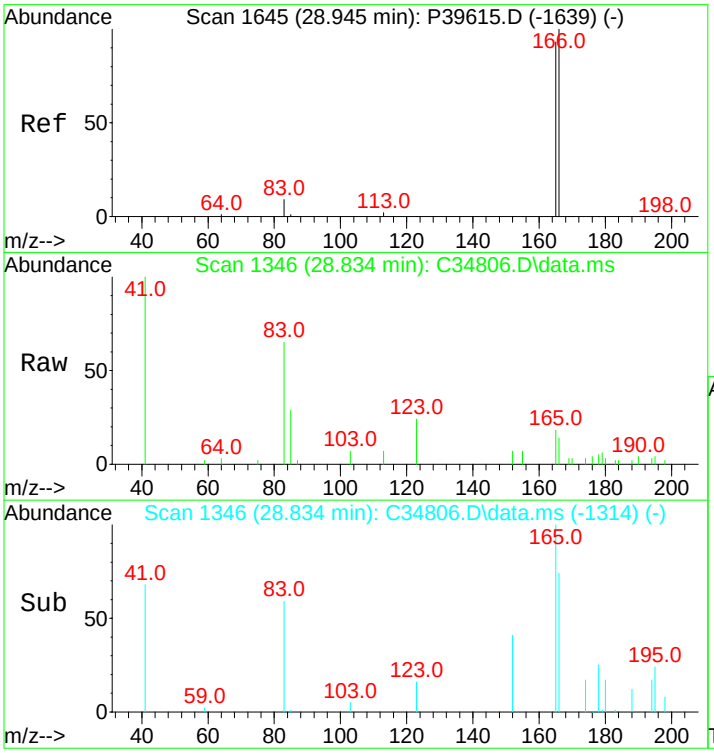


#28
2,3,5-Trimethylnaphthalene
Concen: 63.70 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:170 Resp: 3280

Ion	Ratio	Lower	Upper
170	100		
155	226.3	87.3	130.9#

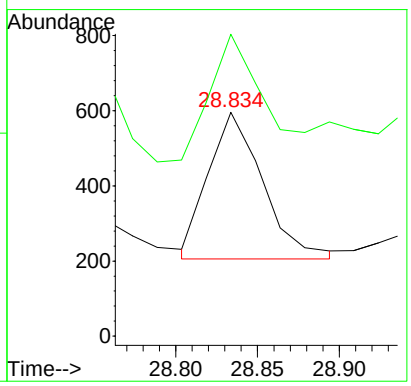


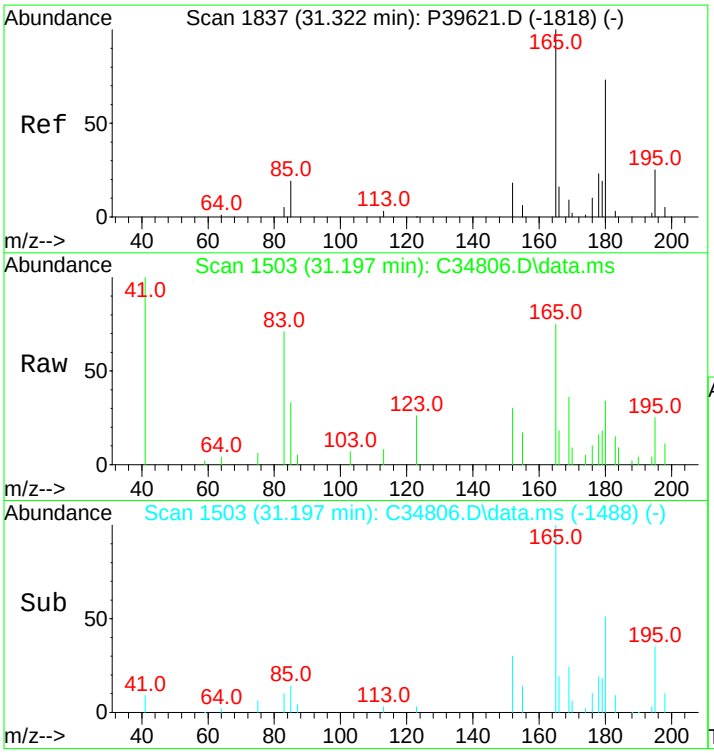


#29
Fluorene
Concen: 10.62 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:166 Resp: 900

Ion	Ratio	Lower	Upper
166	100		
165	125.6	77.3	115.9#

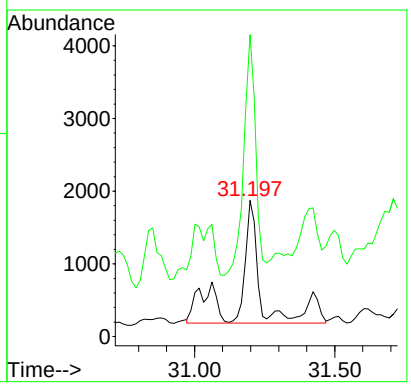


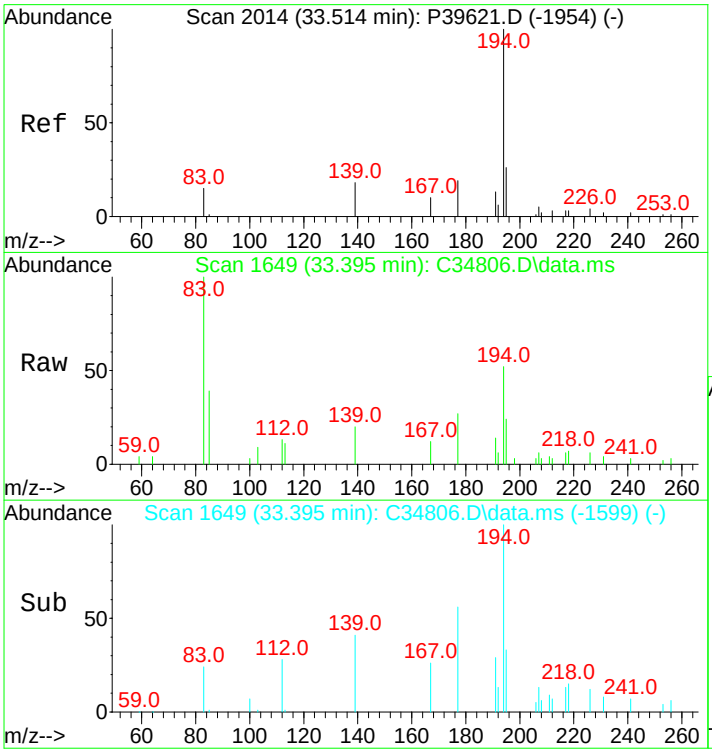


#30
C1-Fluorenes
Concen: 106.70 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:180 Resp: 9043

Ion	Ratio	Lower	Upper
180	100		
165	4.0	111.4	167.2#

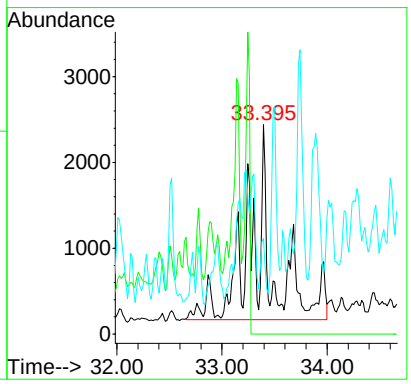


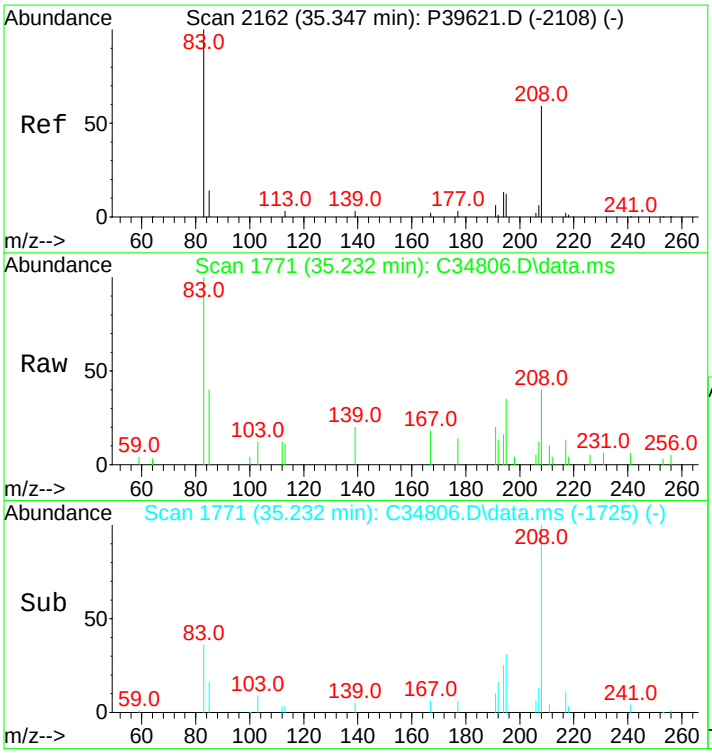


#31
C2-Fluorenes
Concen: 385.44 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:194 Resp: 32667

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.2	27.3	40.9#

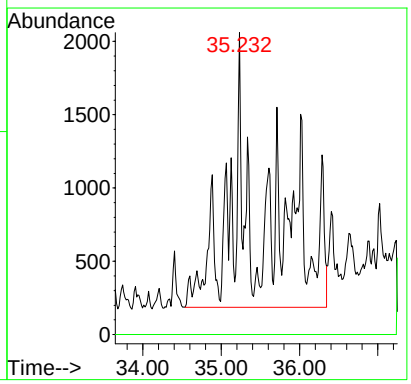


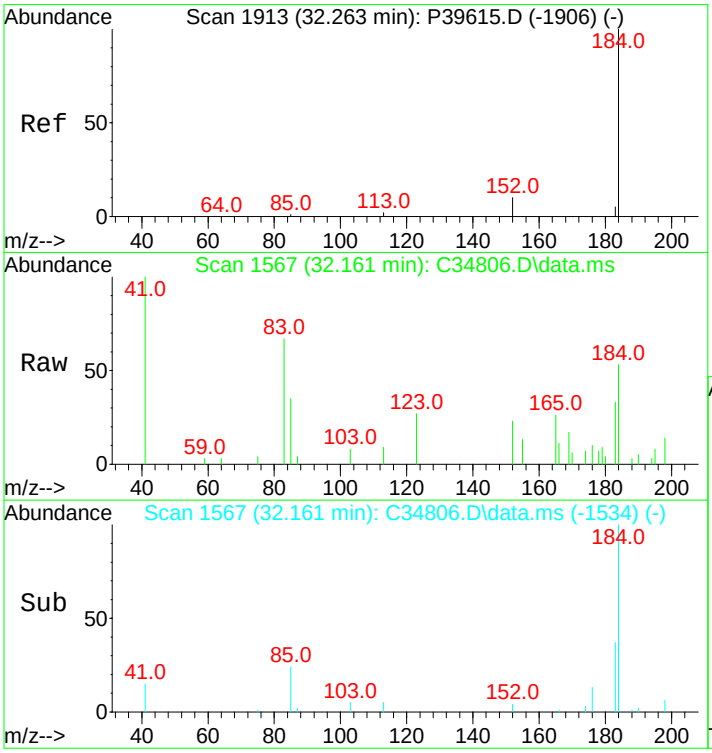


#32
C3-Fluorenes
Concen: 603.78 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:208 Resp: 51172

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

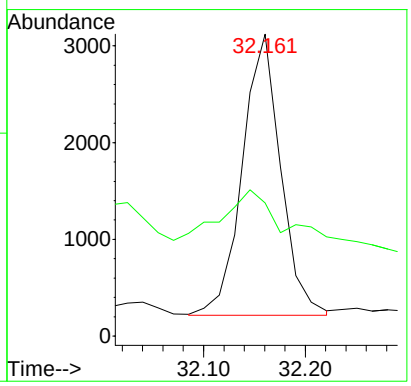


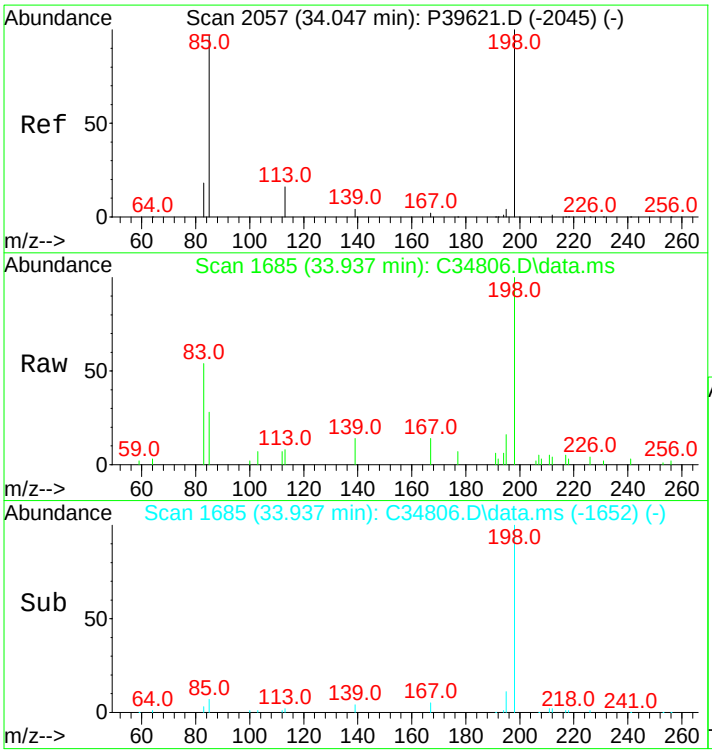


#33
Dibenzothiophene
Concen: 56.20 ng/mL m
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:184 Resp: 7635

Ion	Ratio	Lower	Upper
184	100		
152	3.3	7.5	11.3#

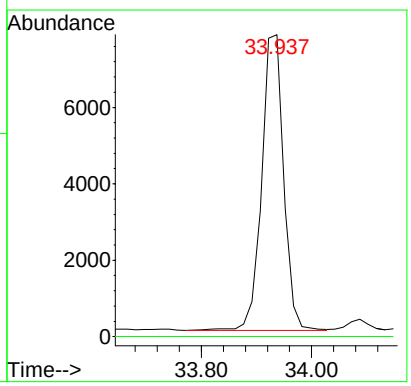


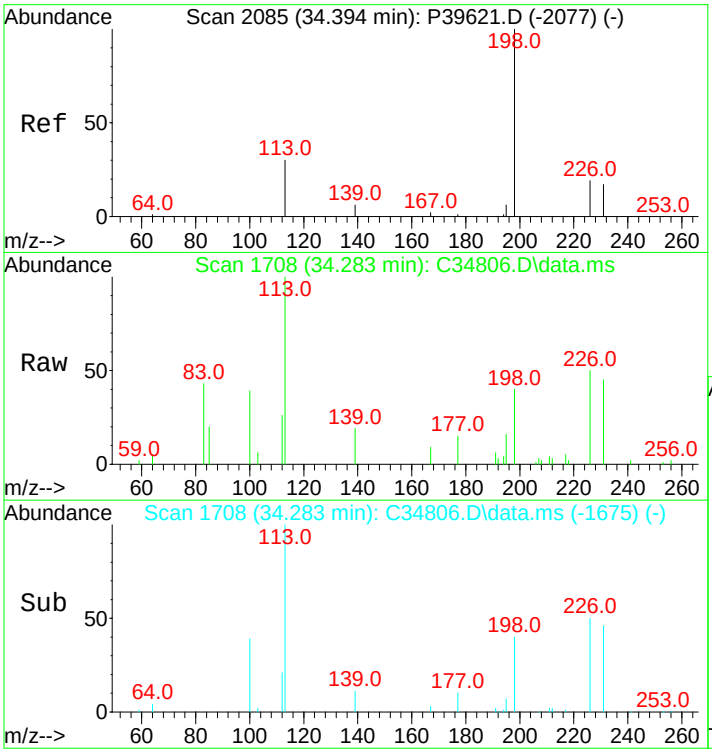


#34
4-Methyldibenzothiophene(4MDT)
Concen: 157.56 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:198 Resp: 21406

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

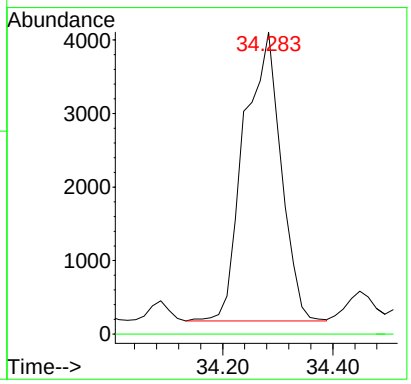


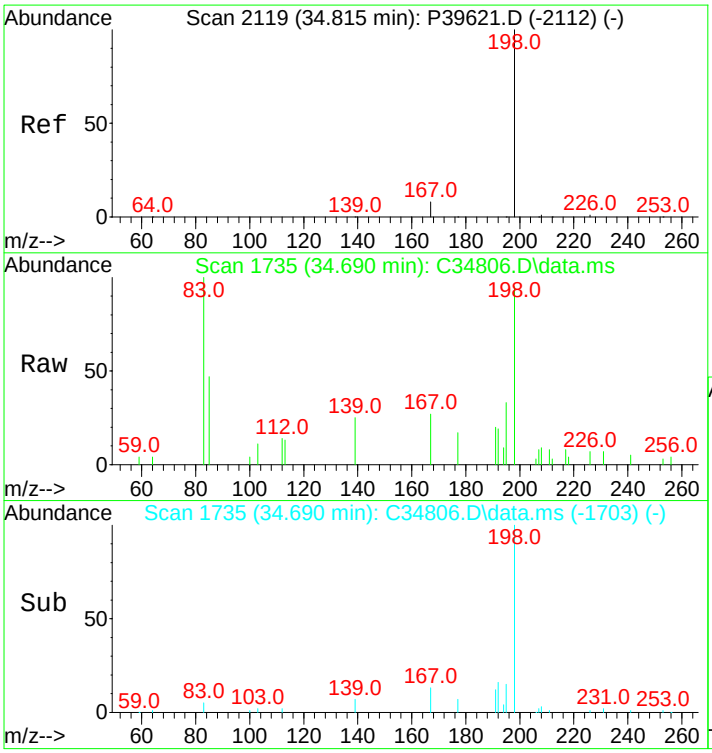


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 134.71 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:198 Resp: 18302

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

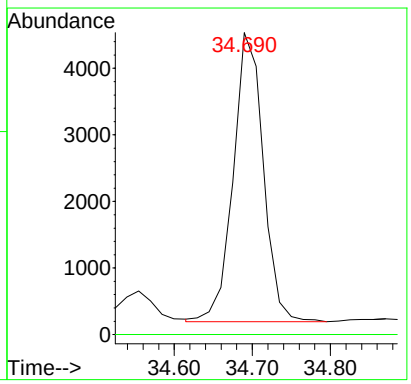


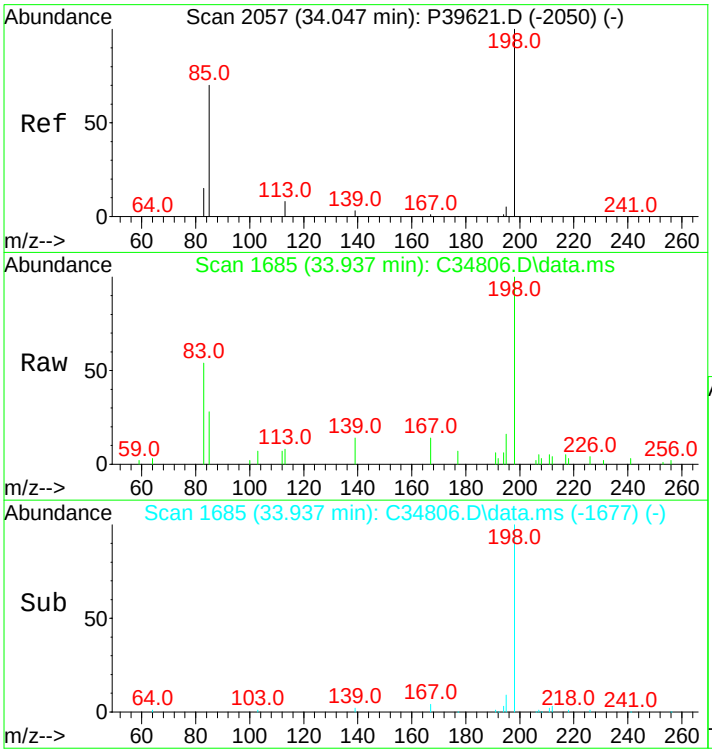


#36
1-Methyldibenzothiophene(1MDT)
Concen: 85.37 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:198 Resp: 11598

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

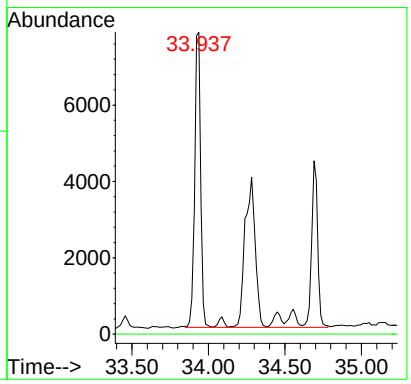


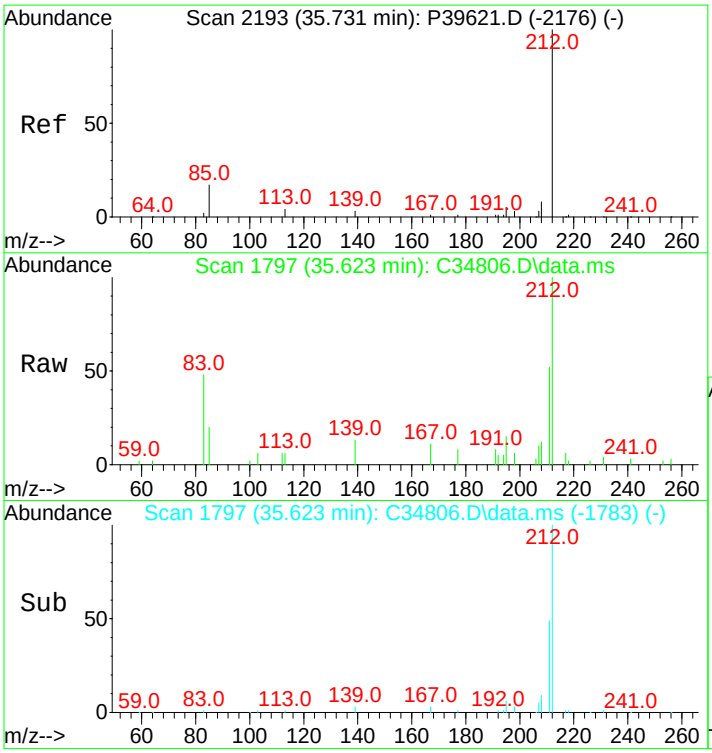


#38
C1-Dibenzothiophenes
Concen: 402.12 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:198 Resp: 54632

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

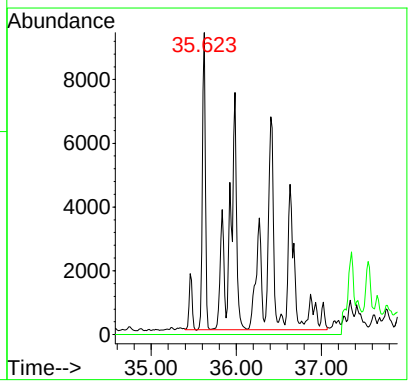


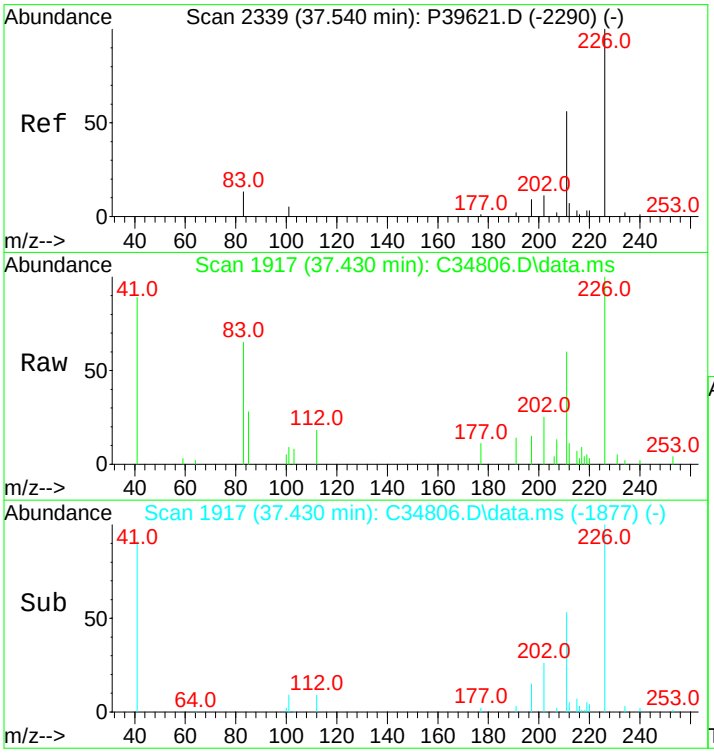


#39
C2-Dibenzothiophenes
Concen: 1043.50 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:212 Resp: 141769

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

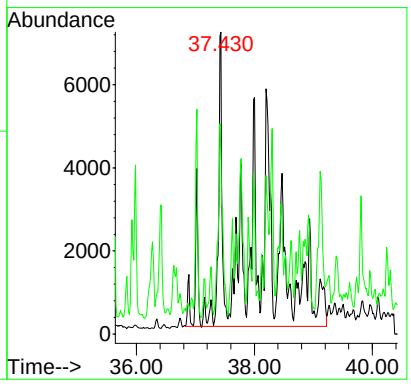


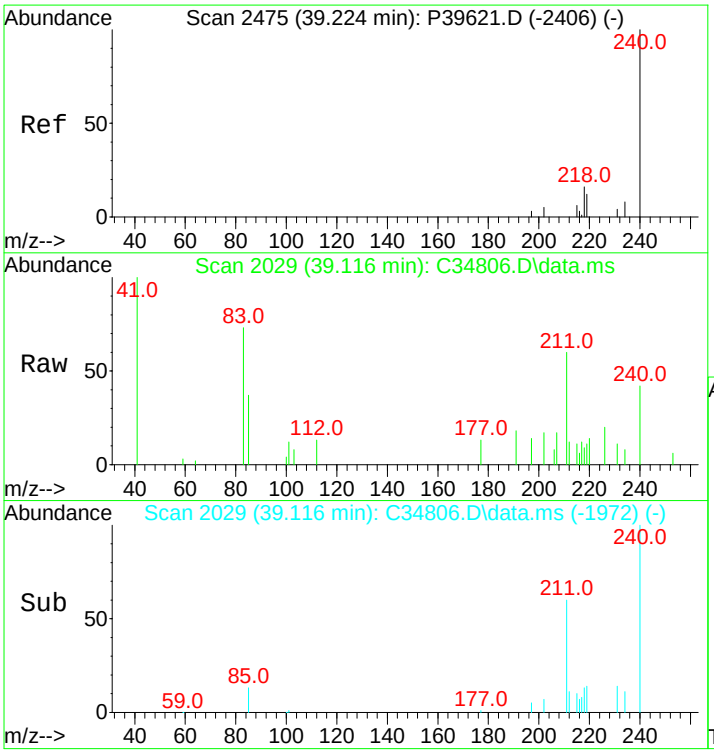


#40
C3-Dibenzothiophenes
Concen: 1379.86 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:226 Resp: 187466

Ion	Ratio	Lower	Upper
226	100		
211	12.2	45.0	67.6#

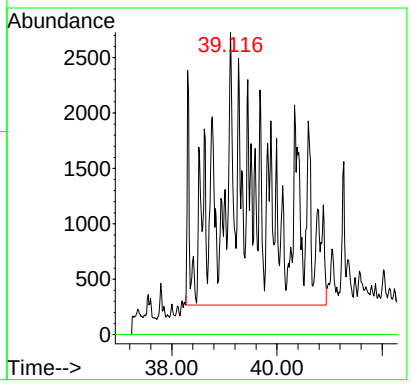


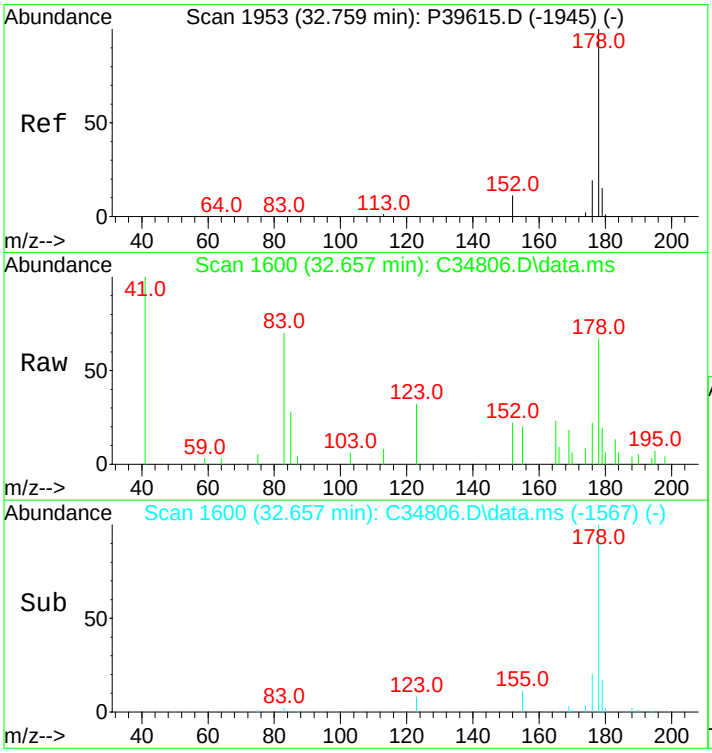


#41
C4-Dibenzothiophenes
Concen: 995.95 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:240 Resp: 135309

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

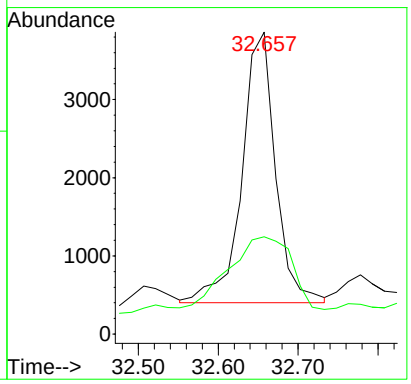


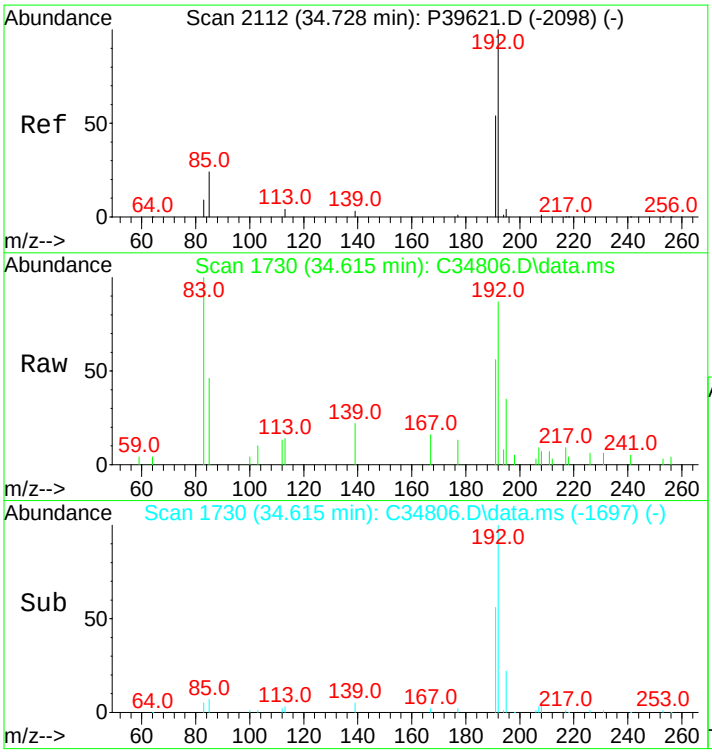


#43
Phenanthrene
Concen: 84.70 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:178 Resp: 10110

Ion	Ratio	Lower	Upper
178	100		
176	1.8	16.1	24.1#

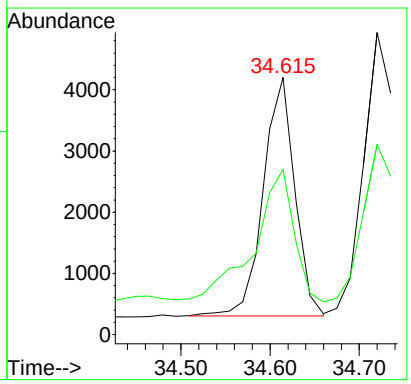


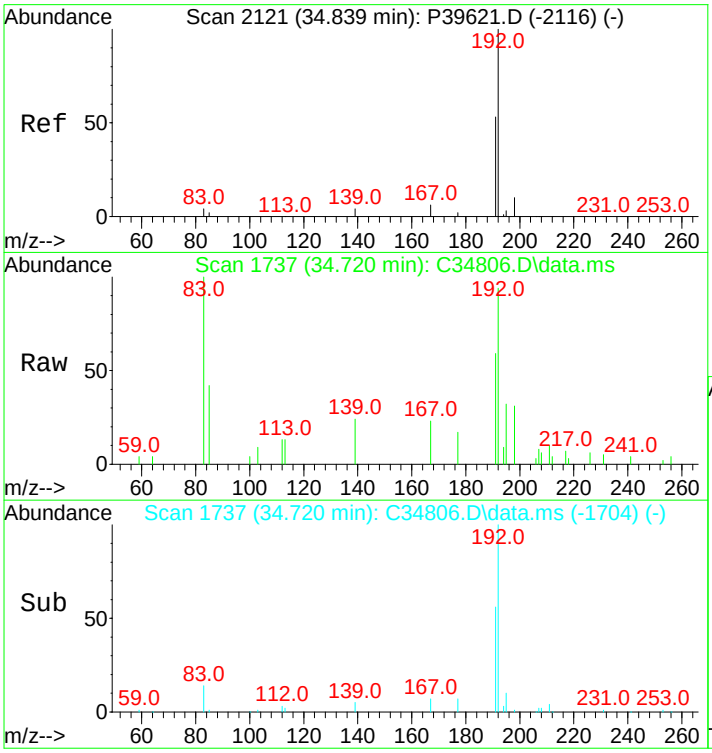


#44
3-Methylphenanthrene(3MP)
Concen: 80.07 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 9557

Ion	Ratio	Lower	Upper
192	100		
191	71.7	46.9	70.3#

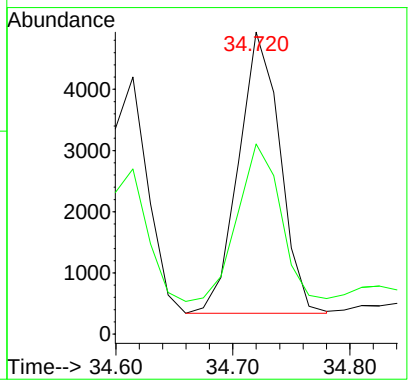


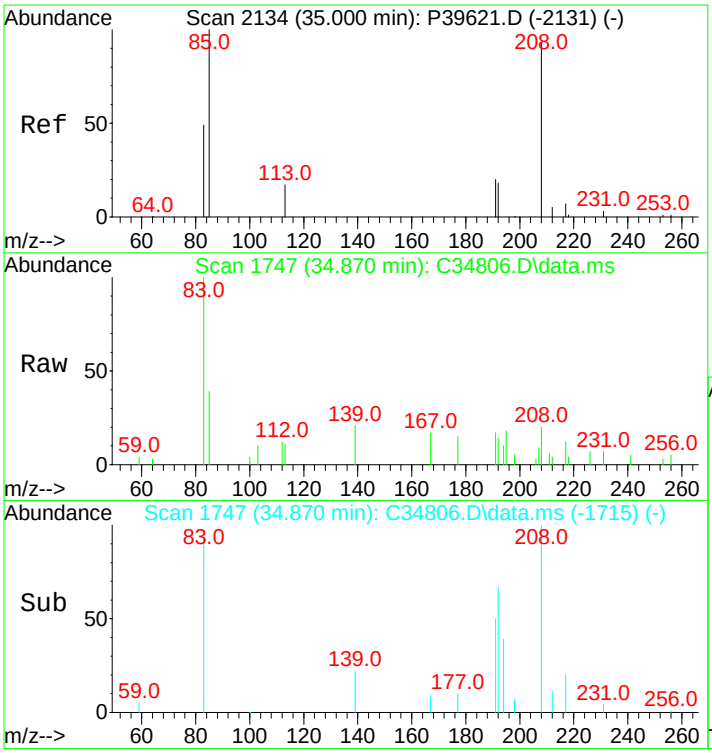


#45
2/4-Methylphenanthrene(2MP)
Concen: 94.95 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 11334

Ion	Ratio	Lower	Upper
192	100		
191	58.4	46.1	69.1

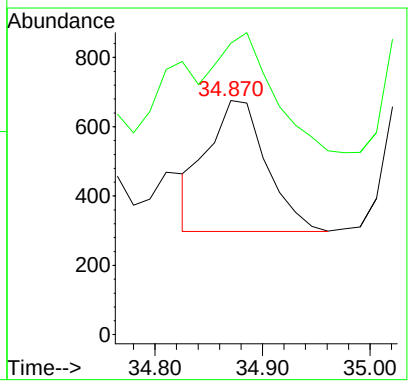


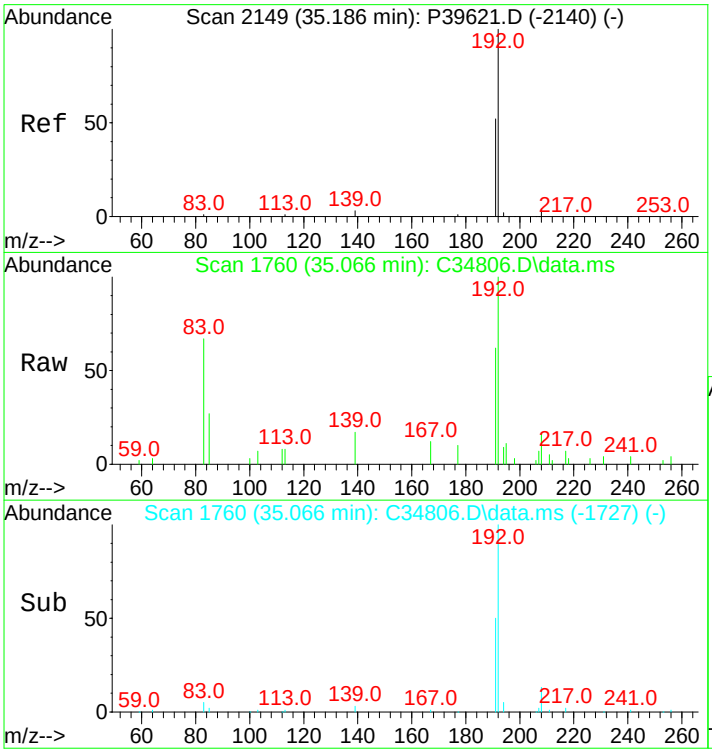


#46
2-Methylanthracene(2MA)
Concen: 12.16 ng/mL m
RT: 34.870 min Scan# 1747
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 1451

Ion	Ratio	Lower	Upper
192	100		
191	87.8	93.4	140.0#

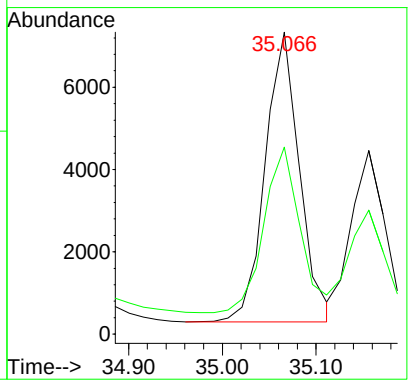


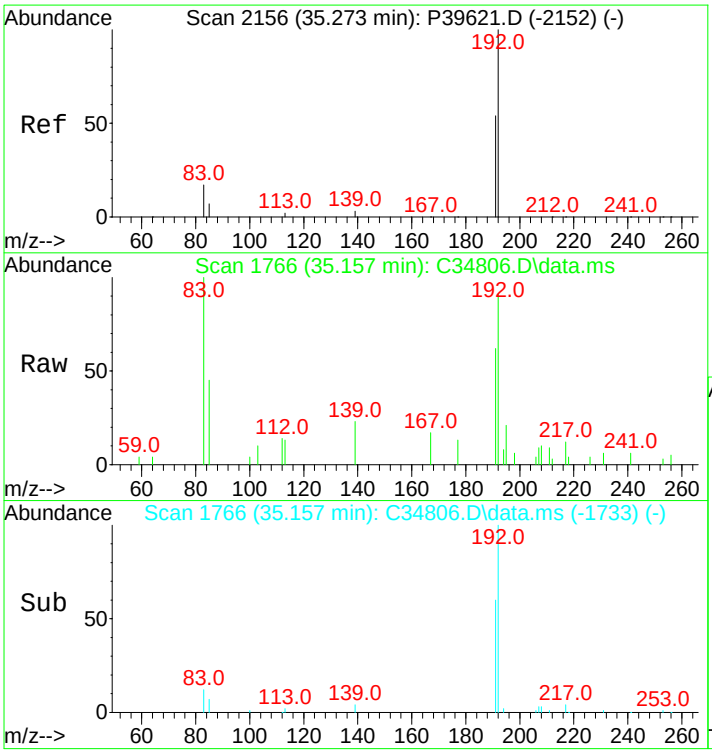


#47
9-Methylphenanthrene(9MP)
Concen: 149.90 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 17893

Ion	Ratio	Lower	Upper
192	100		
191	60.2	45.9	68.9

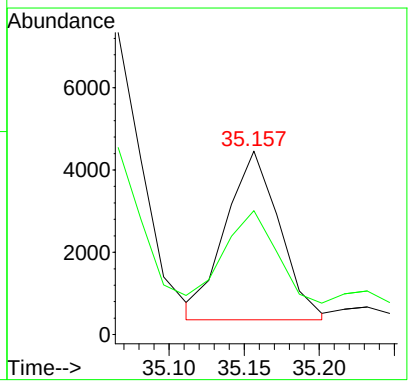


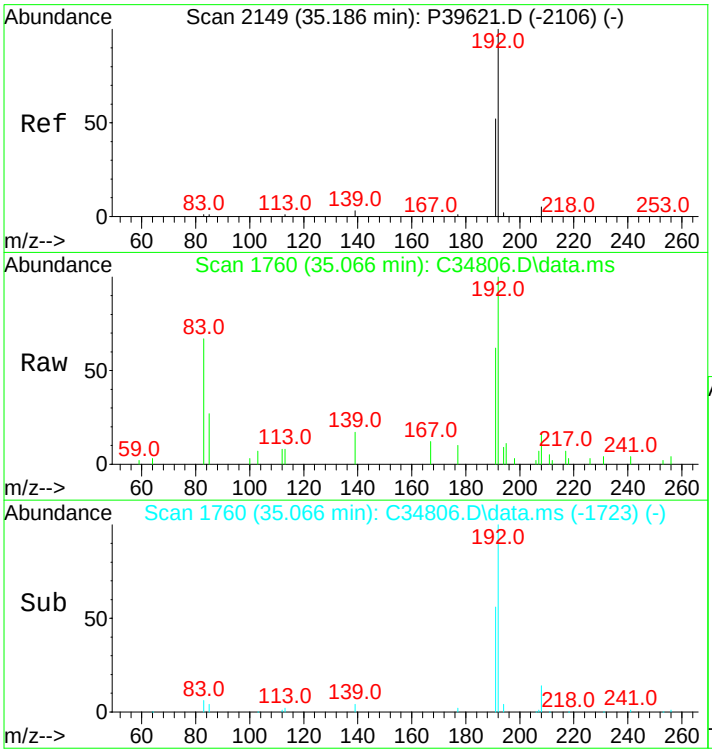


#48
1-Methylphenanthrene(1MP)
Concen: 85.22 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 10172

Ion	Ratio	Lower	Upper
192	100		
191	53.4	49.0	73.4

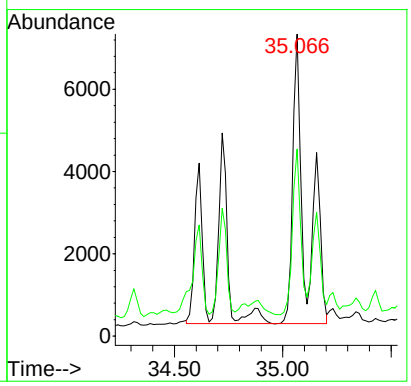


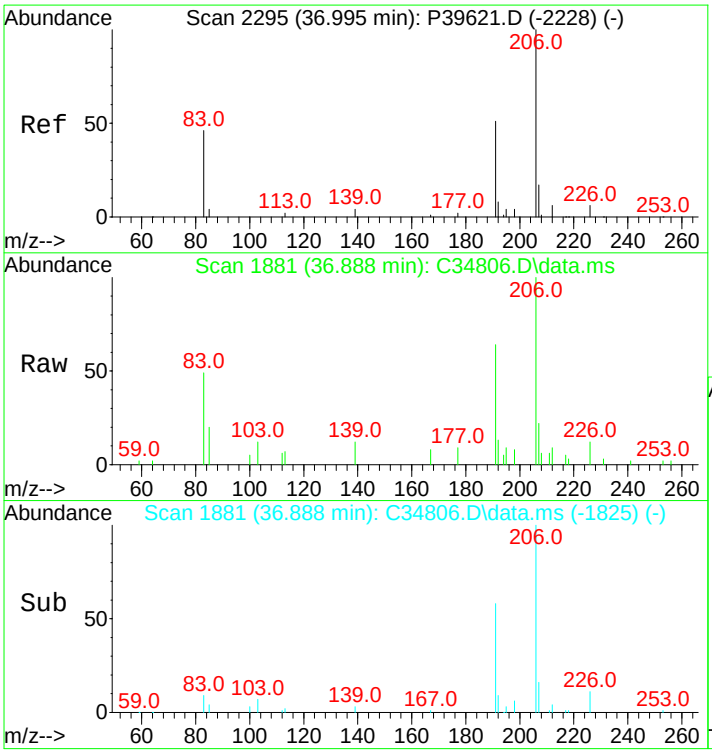


#49
C1-Phenanthrenes/Anthracenes
Concen: 427.90 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 51075

Ion	Ratio	Lower	Upper
192	100		
191	21.1	44.2	66.2#

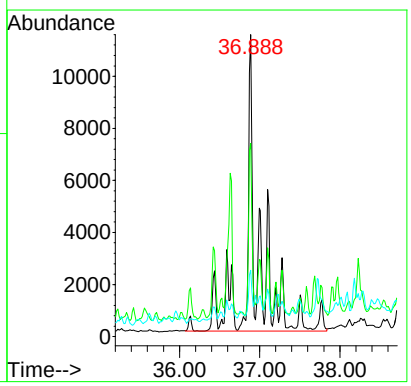


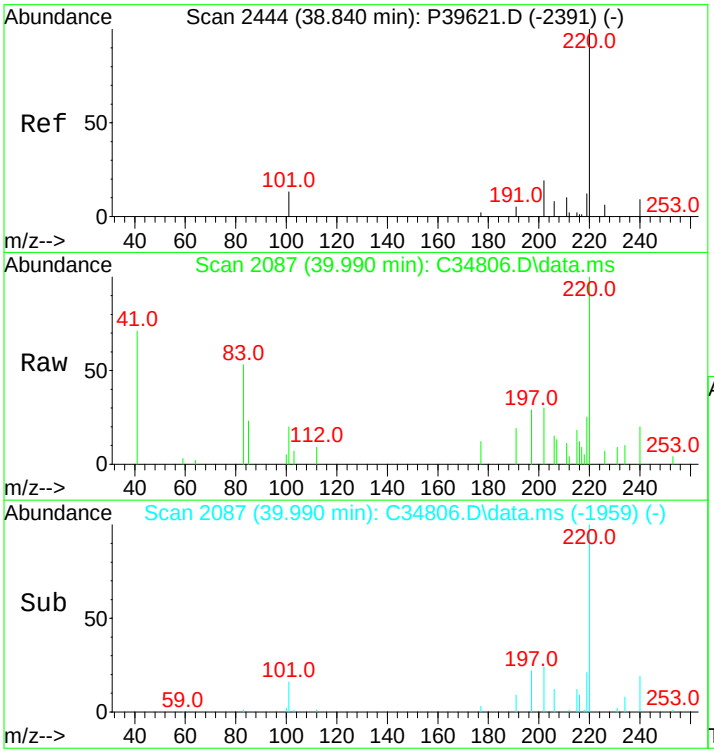


#50
C2-Phenanthrenes/Anthracenes
Concen: 911.63 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:206 Resp: 108815

Ion	Ratio	Lower	Upper
206	100		
191	18.3	44.0	66.0#
207	4.6	15.1	22.7#

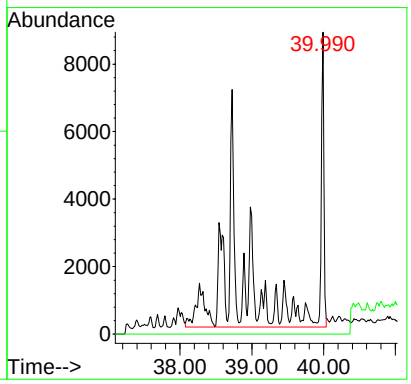


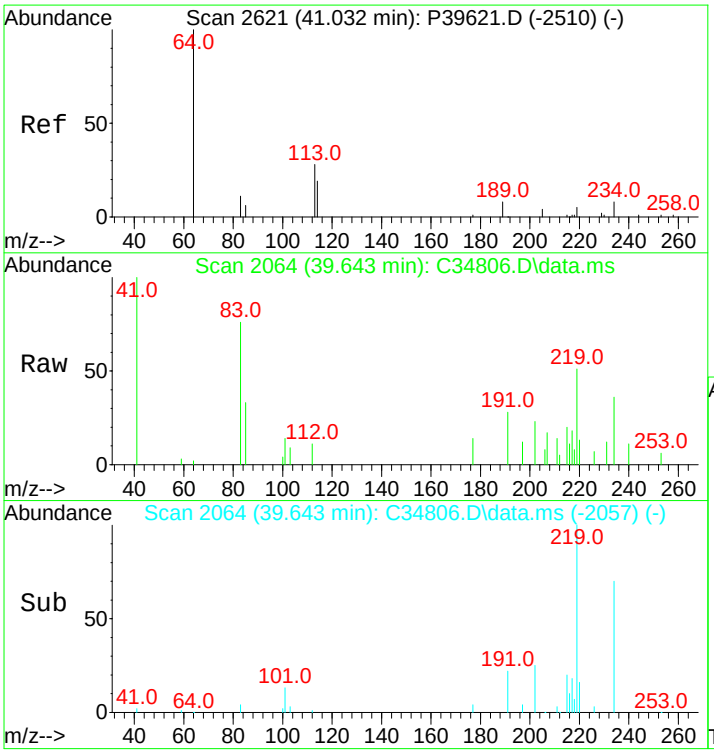


#52
C3-Phenanthrenes/Anthracenes
Concen: 955.83 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:220 Resp: 114091

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

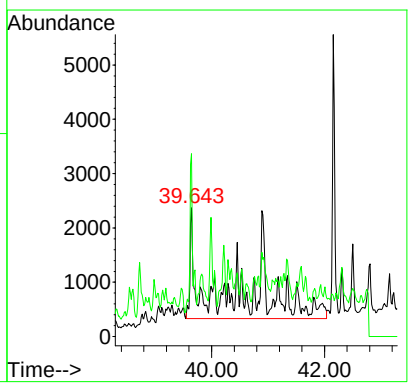


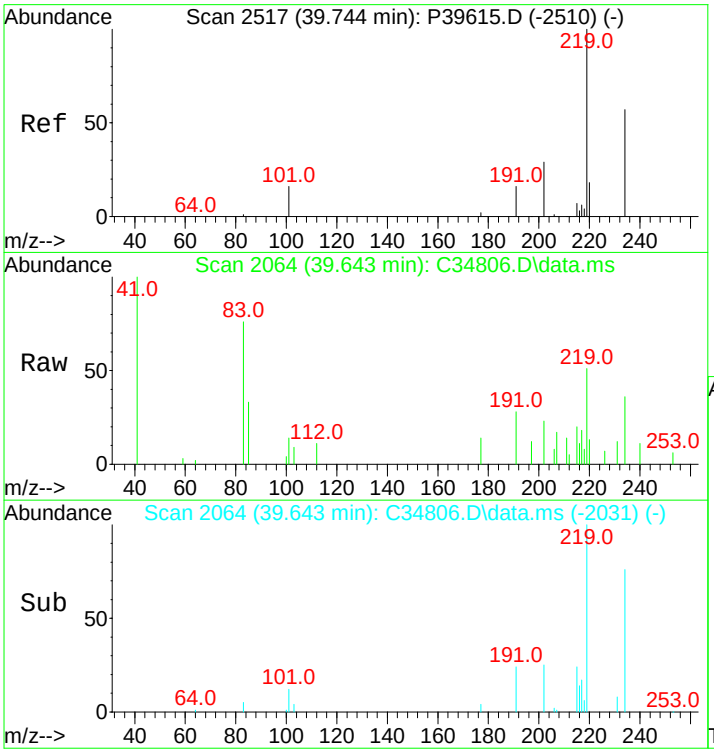


#53
C4-Phenanthrenes/Anthracenes
Concen: 493.32 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. -1.156 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 58884

Ion	Ratio	Lower	Upper
234	100		
219	1.2	46.9	70.3#

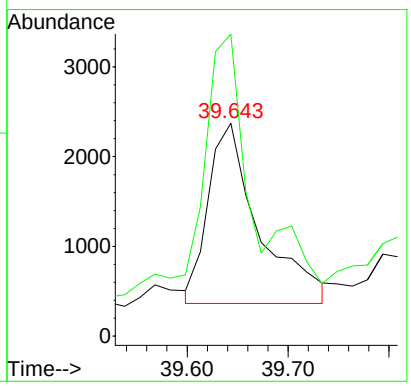


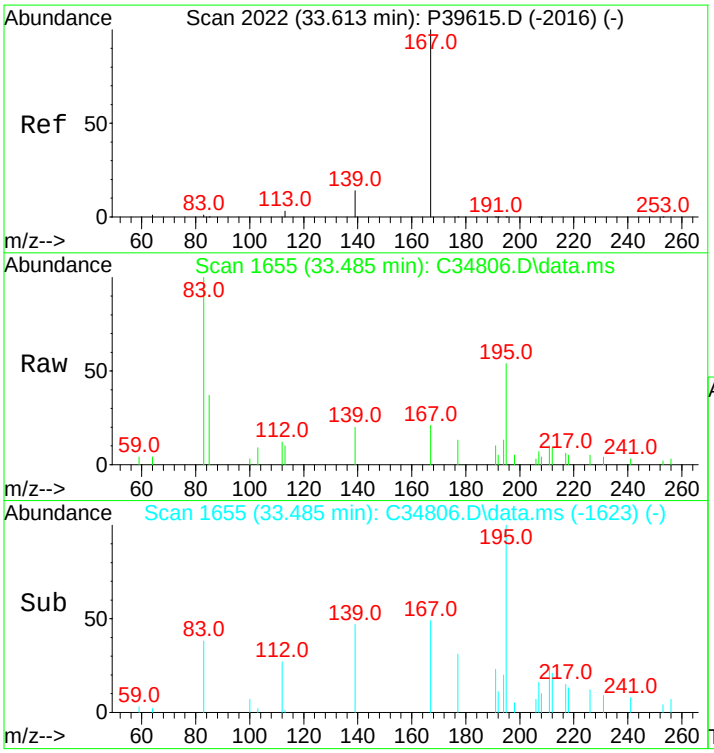


#54
Retene
Concen: 302.05 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 7033

Ion	Ratio	Lower	Upper
234	100		
219	144.7	127.8	191.8

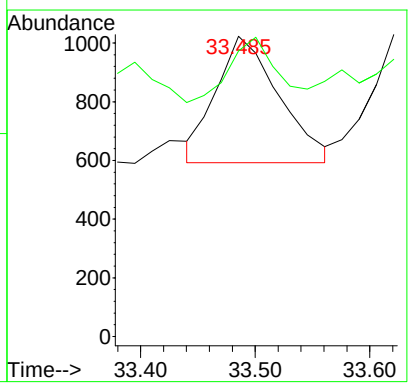


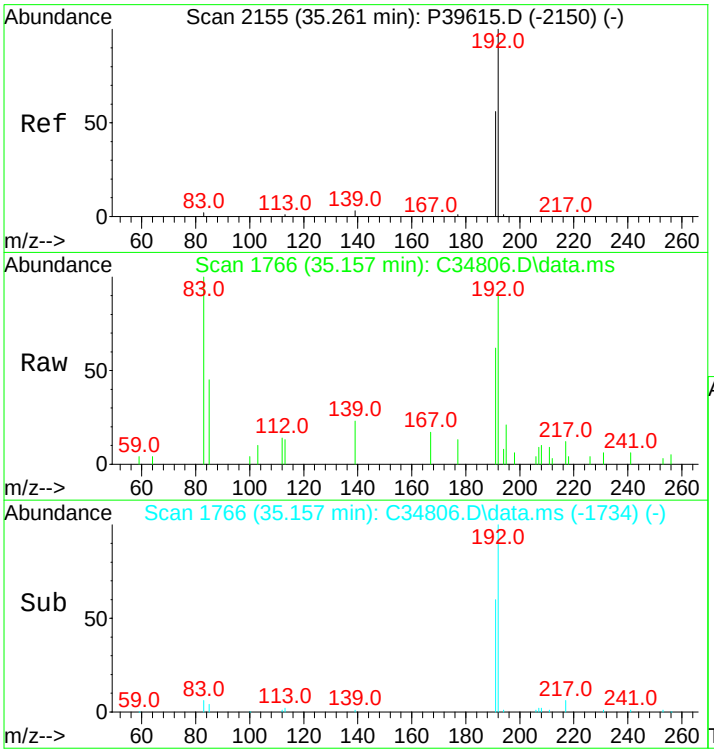


#56
Carbazole
Concen: 14.01 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:167 Resp: 1650

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

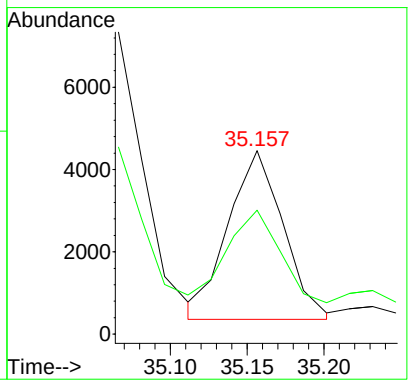


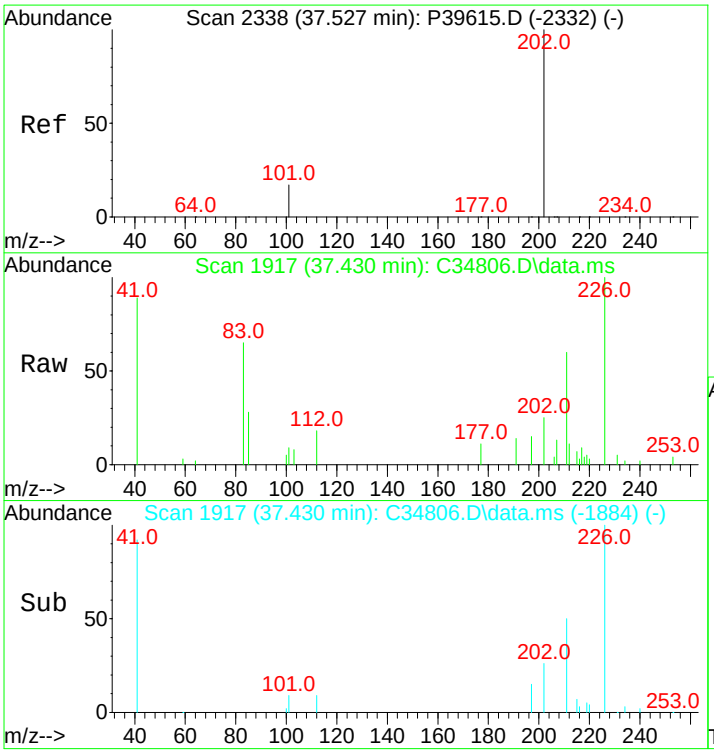


#57
1-Methylphenanthrene
Concen: 134.75 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:192 Resp: 10193

Ion	Ratio	Lower	Upper
192	100		
191	55.8	45.9	68.9

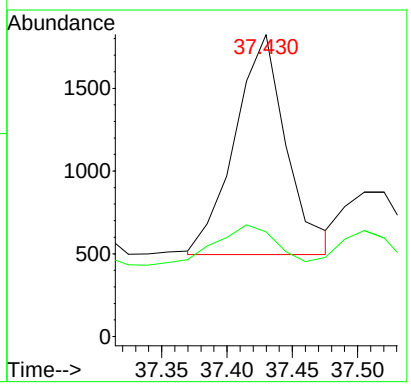


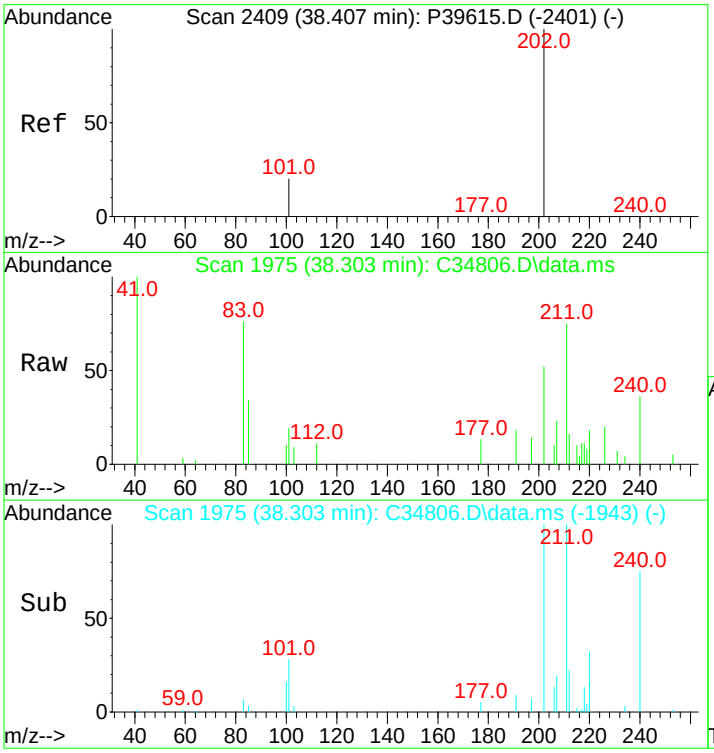


#58
Fluoranthene
Concen: 30.75 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:202 Resp: 3645

Ion	Ratio	Lower	Upper
202	100		
101	16.2	12.9	19.3

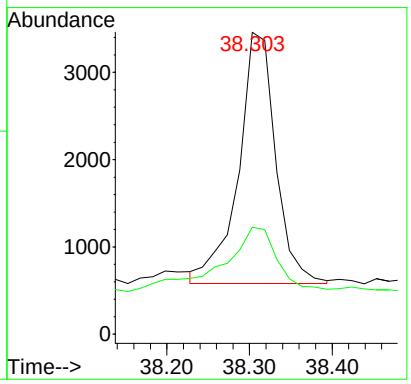


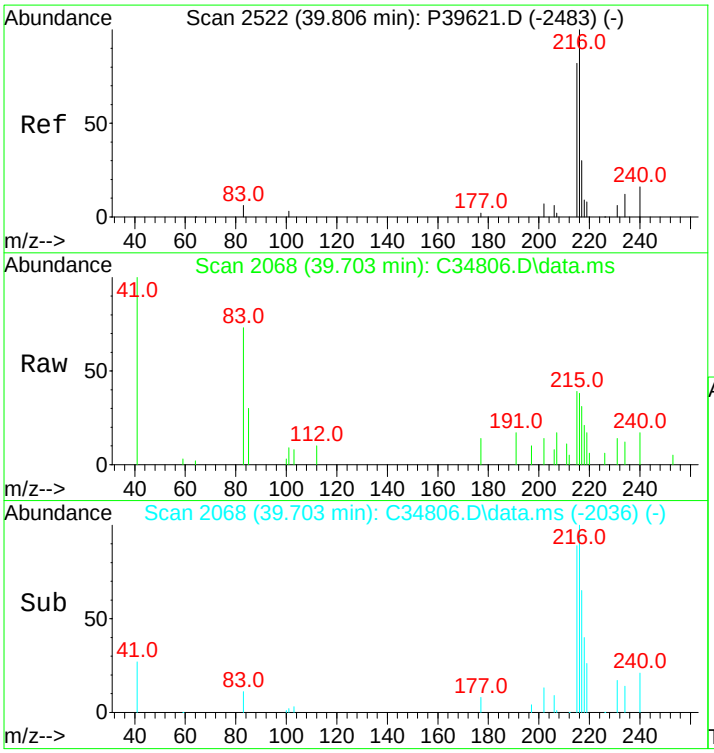


#60
Pyrene
Concen: 74.97 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:202 Resp: 9035

Ion	Ratio	Lower	Upper
202	100		
101	41.3	15.0	22.4#

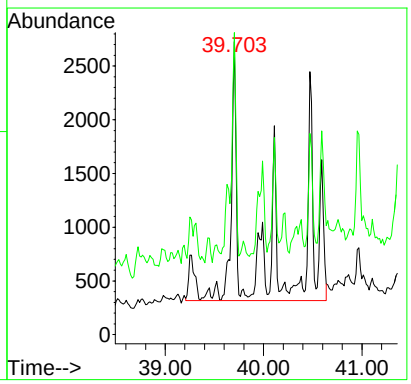


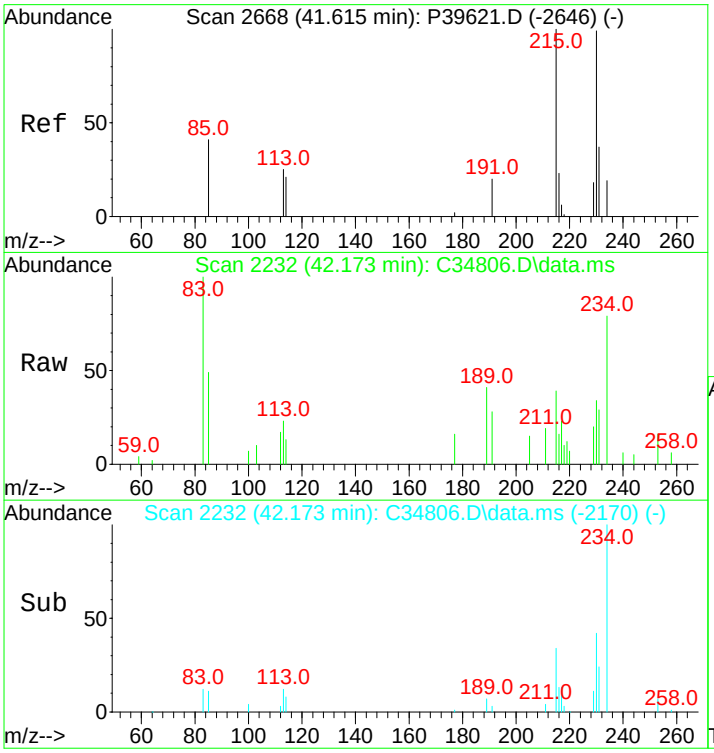


#61
C1-Fluoranthenes/Pyrenes
Concen: 244.82 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:216 Resp: 29502

Ion	Ratio	Lower	Upper
216	100		
215	24.5	71.8	107.6#

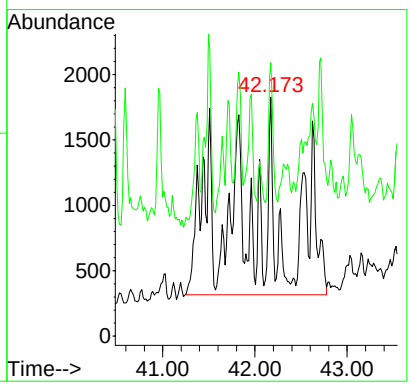


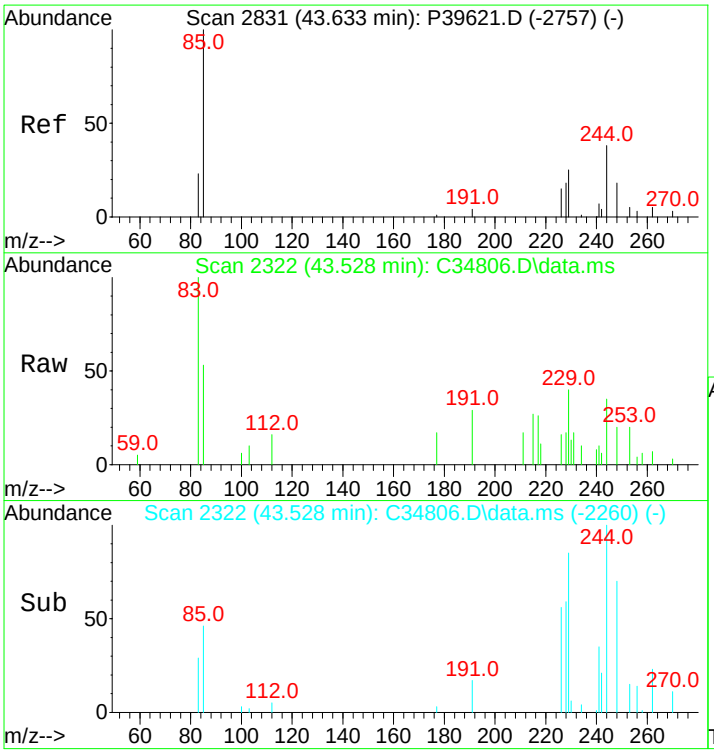


#62
C2-Fluoranthenes/Pyrenes
Concen: 378.09 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:230 Resp: 45562

Ion	Ratio	Lower	Upper
230	100		
215	4.1	99.0	148.4#

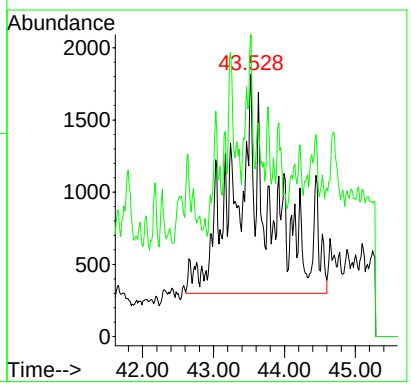


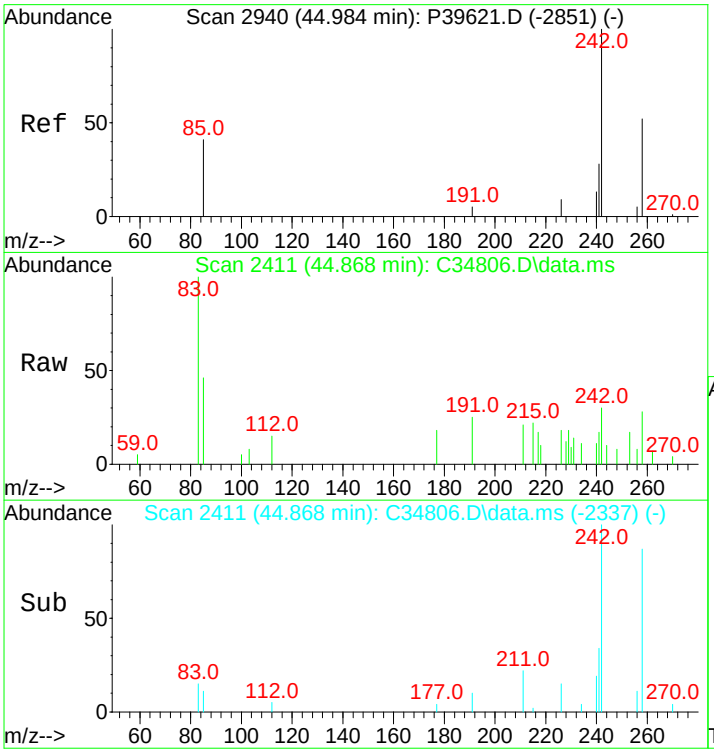


#63
C3-Fluoranthenes/Pyrenes
Concen: 468.92 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:244 Resp: 56508

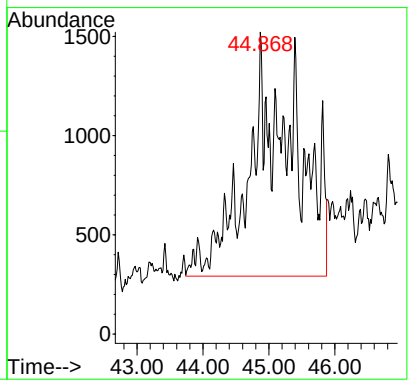
Ion	Ratio	Lower	Upper
244	100		
229	2.5	73.3	109.9#

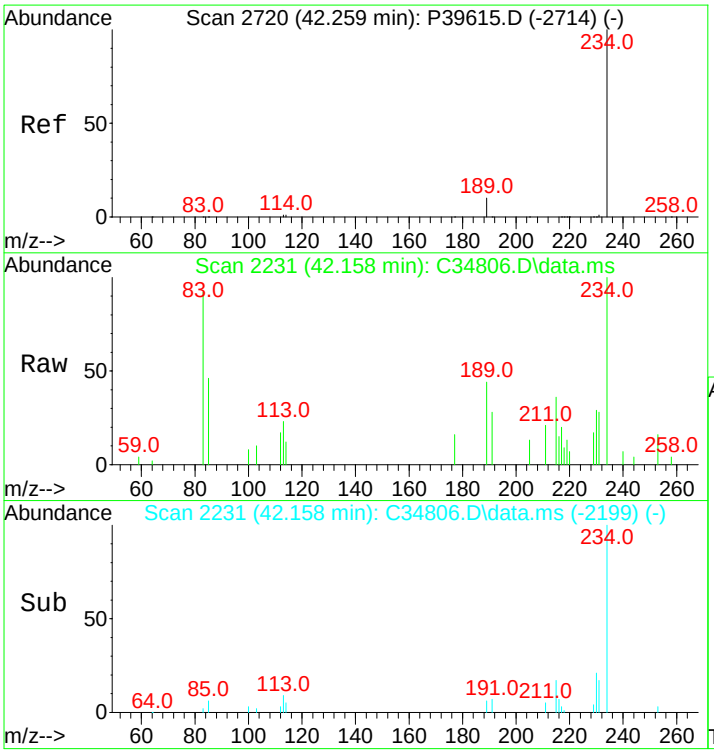




#64
C4-Fluoranthenes/Pyrenes
Concen: 476.99 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.111 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:258 Resp: 57481

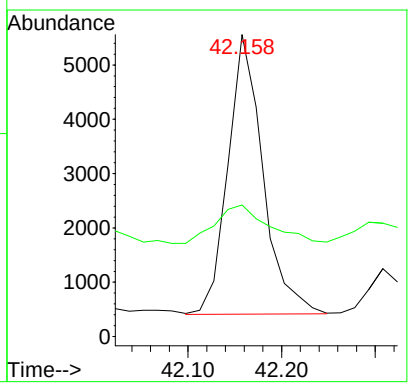


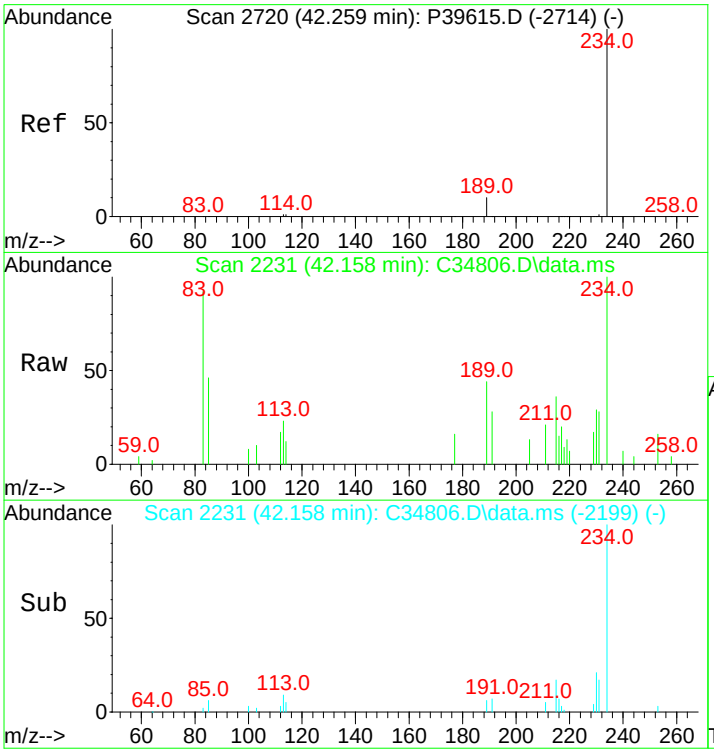


#66
Naphthobenzothiophene
Concen: 102.97 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 13359

Ion	Ratio	Lower	Upper
234	100		
189	20.8	20.5	30.7

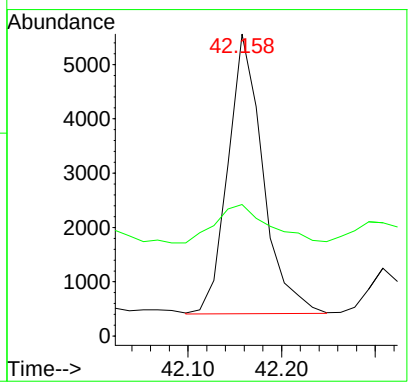


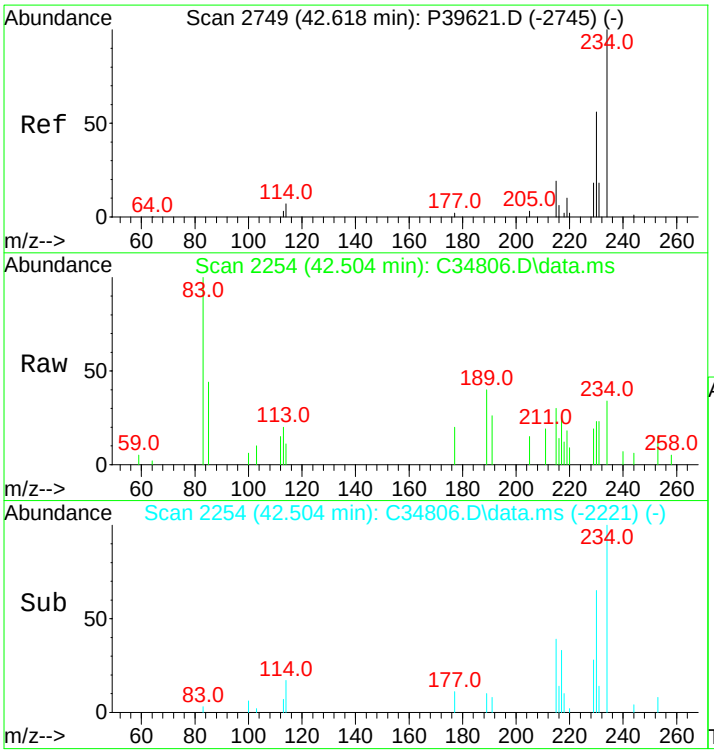


#67
Naphthobenzothiophene-2,1-D
Concen: 102.97 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 13359

Ion	Ratio	Lower	Upper
234	100		
189	20.8	20.5	30.7

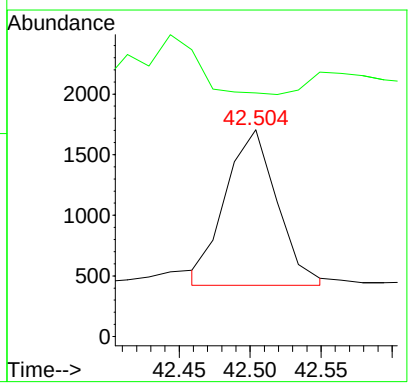


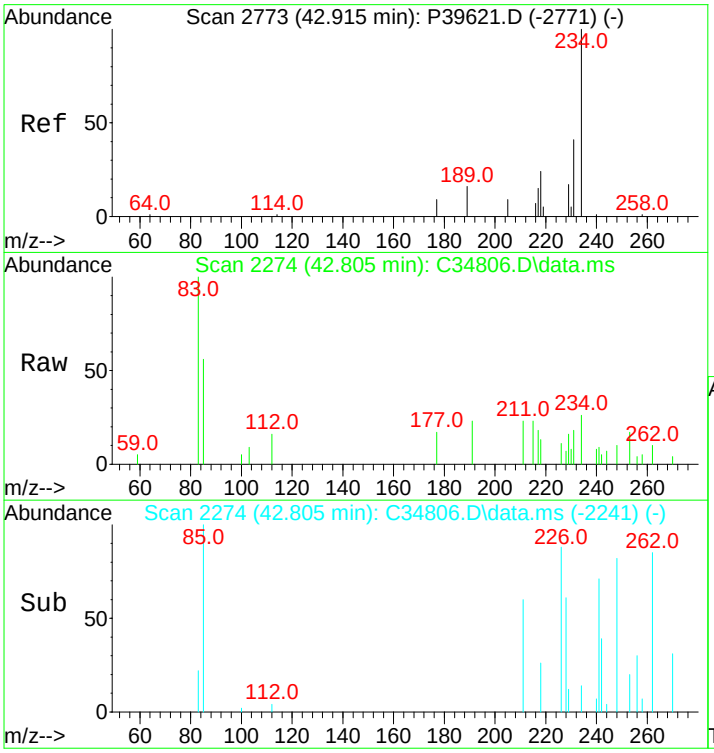


#68
Naphthobenzothiophene-1,2-D
Concen: 25.00 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 3244

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

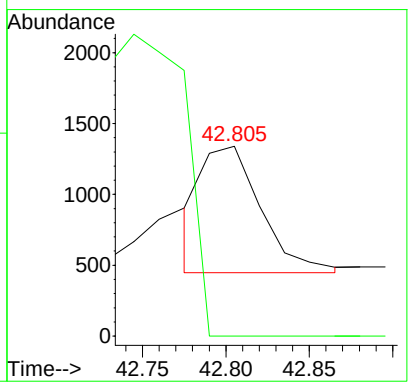


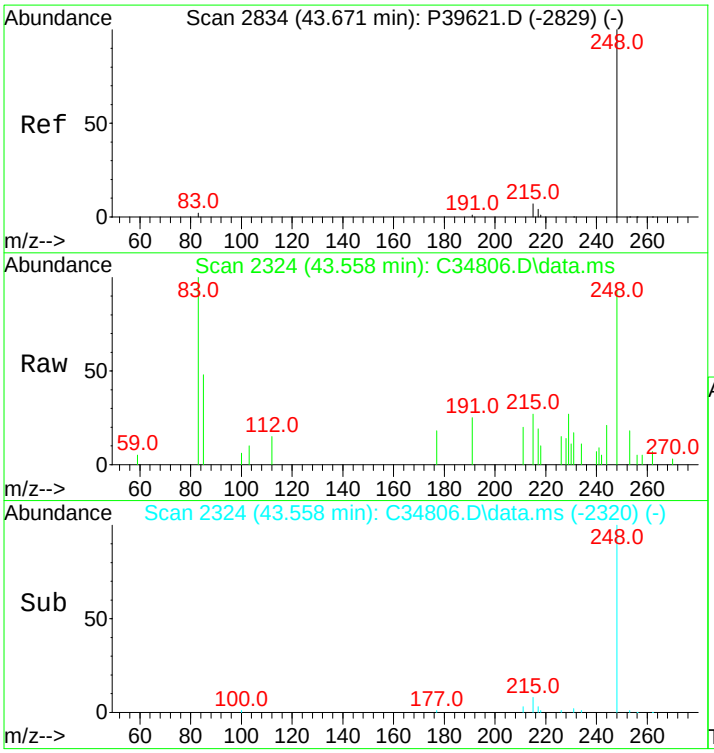


#69
Naphthobenzothiophene-2,3-D
Concen: 17.16 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:234 Resp: 2226

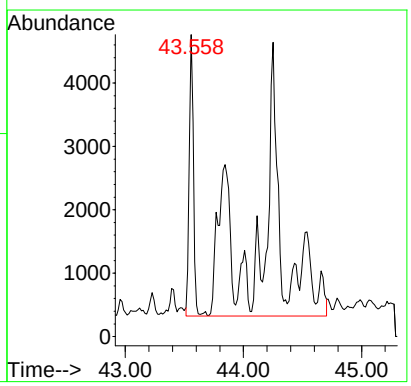
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

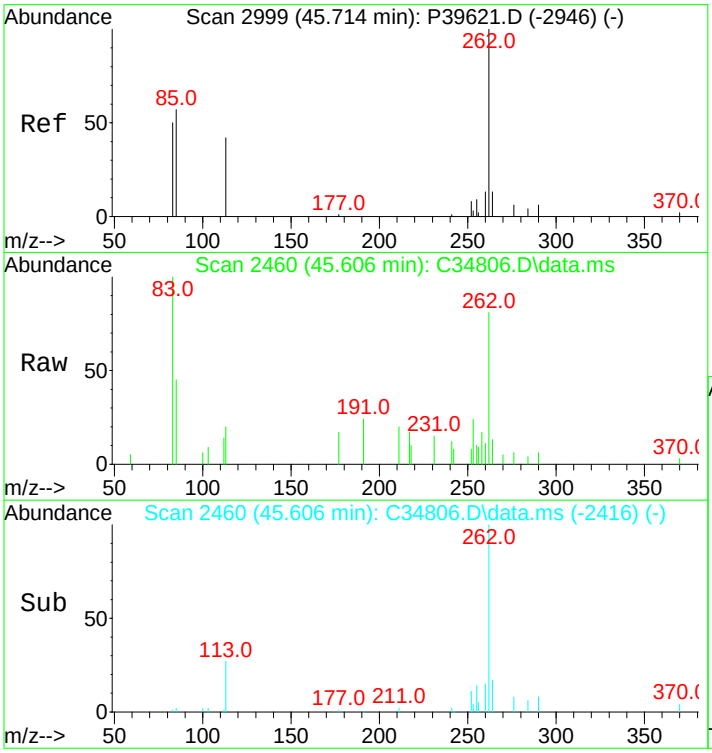




#70
C1-Naphthobenzothiophenes
Concen: 535.83 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

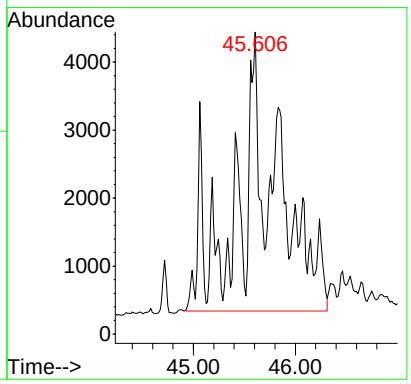
Tgt Ion:248 Resp: 69517

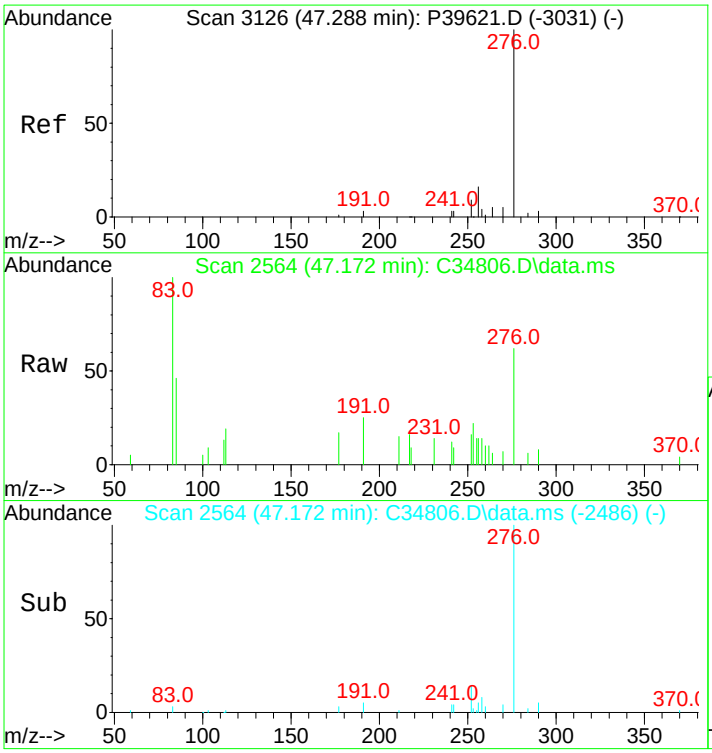




#71
C2-Naphthobenzothiophenes
Concen: 829.90 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

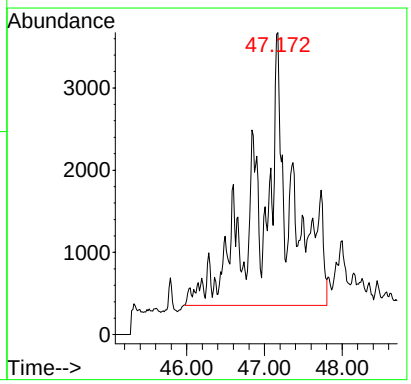
Tgt Ion:262 Resp: 107669

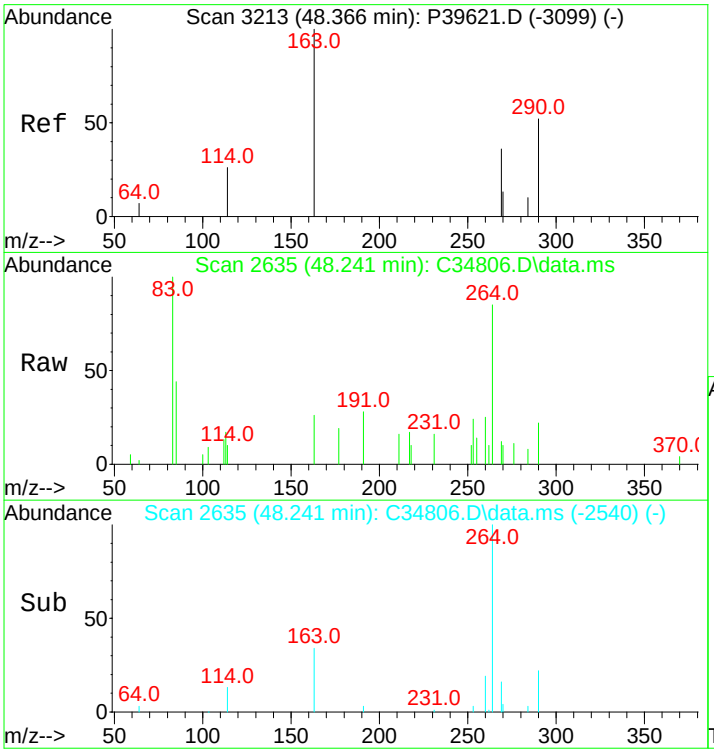




#72
C3-Naphthobenzothiophenes
Concen: 731.09 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

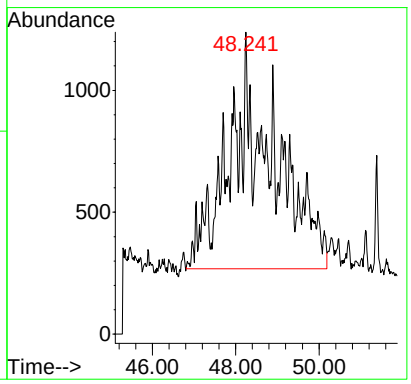
Tgt Ion:276 Resp: 94849

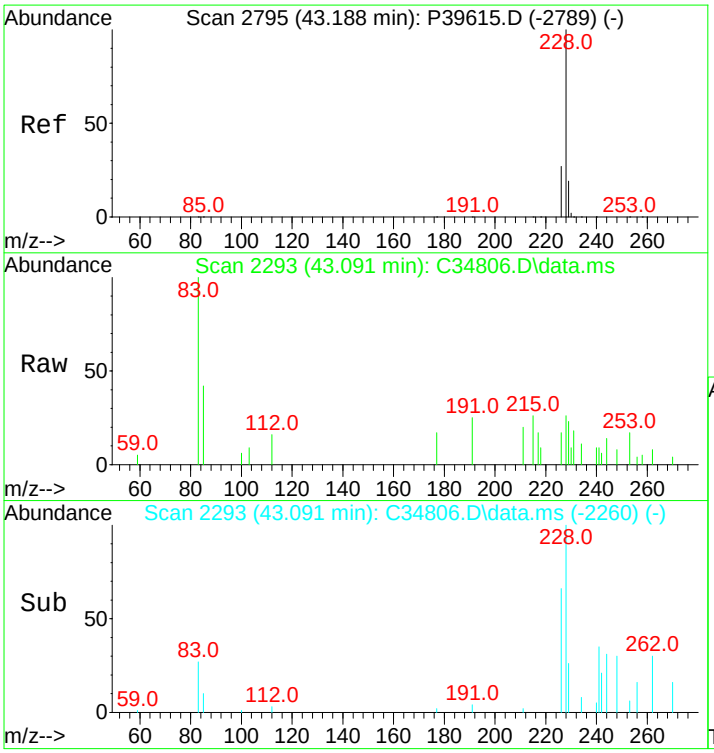




#73
C4-Naphthobenzothiophenes
Concen: 528.08 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:290 Resp: 68511

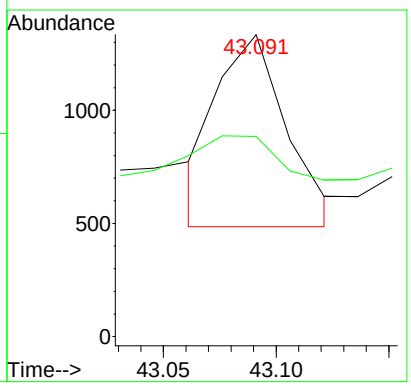


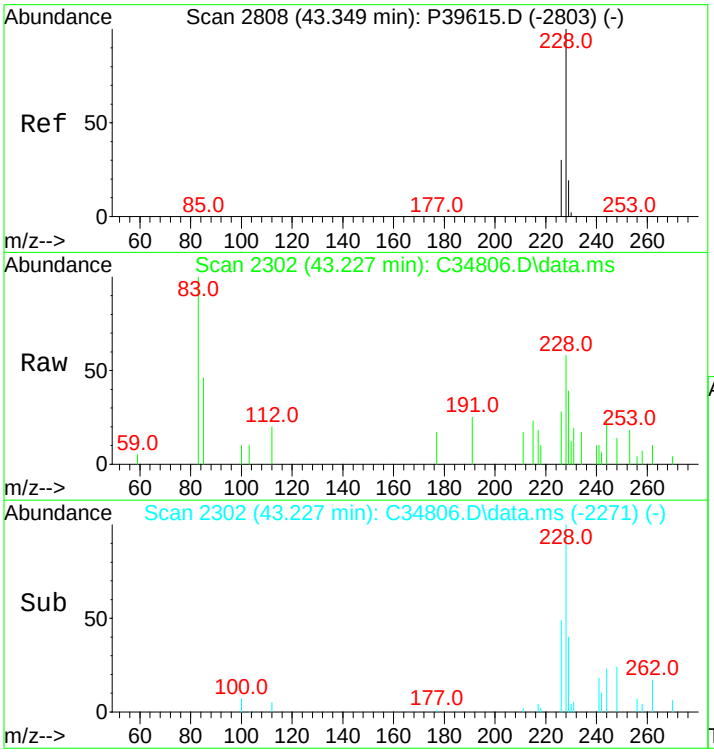


#75
Benz[a]anthracene
Concen: 14.82 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:228 Resp: 1834

Ion	Ratio	Lower	Upper
228	100		
226	157.8	21.4	32.0#

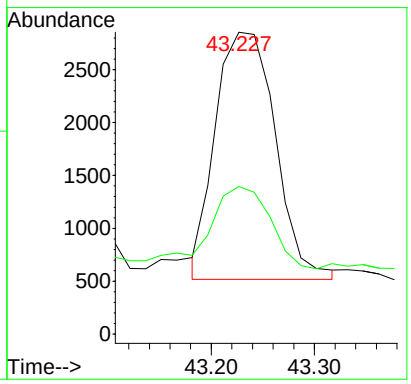


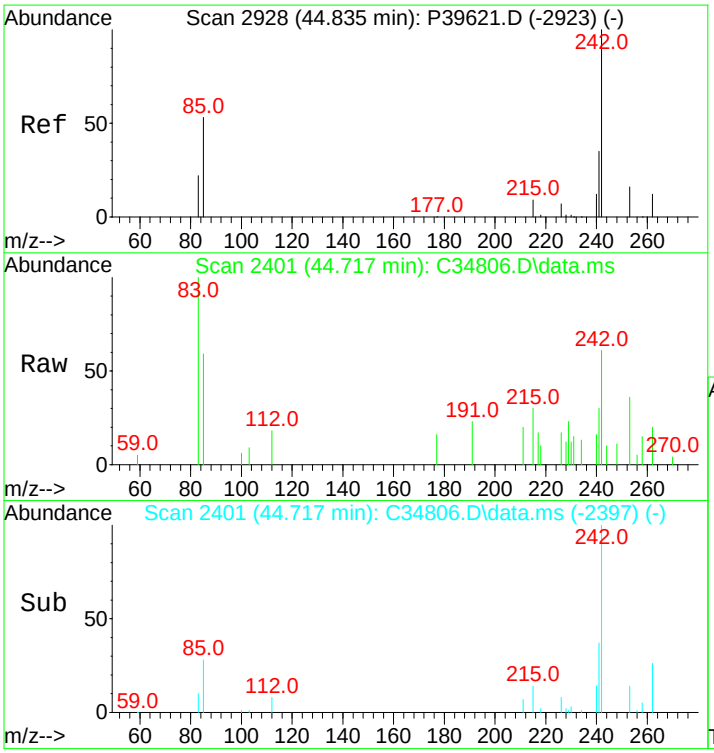


#77
Chrysene/Triphenylene
Concen: 75.41 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:228 Resp: 9425

Ion	Ratio	Lower	Upper
228	100		
226	30.7	23.7	35.5

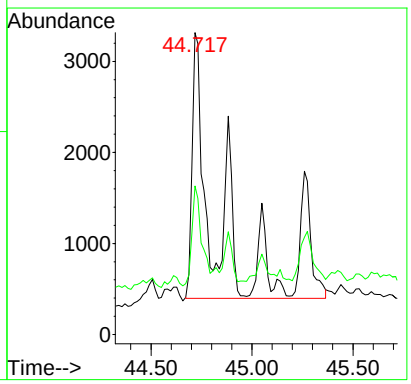


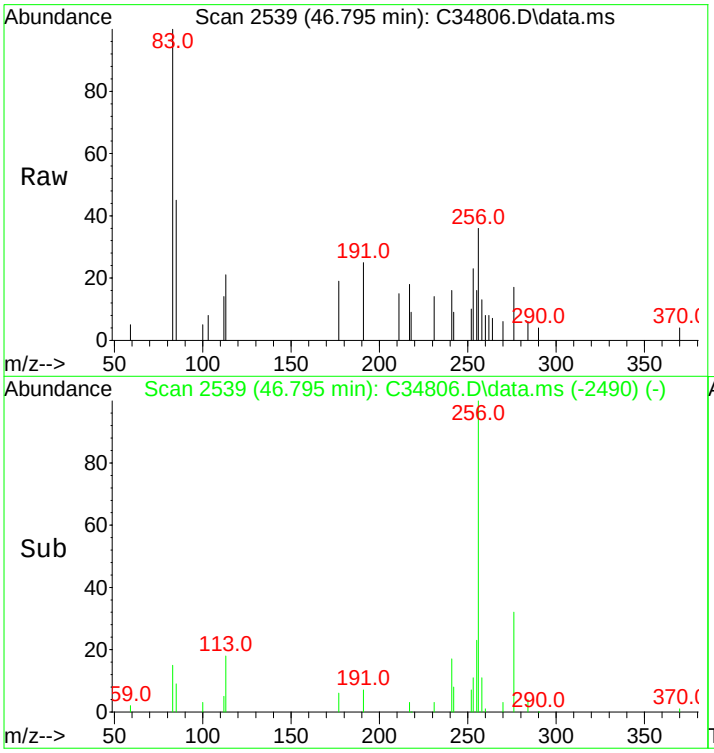


#78
C1-Chrysenes
Concen: 196.20 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:242 Resp: 24521

Ion	Ratio	Lower	Upper
242	100		
241	11.6	31.4	47.2#

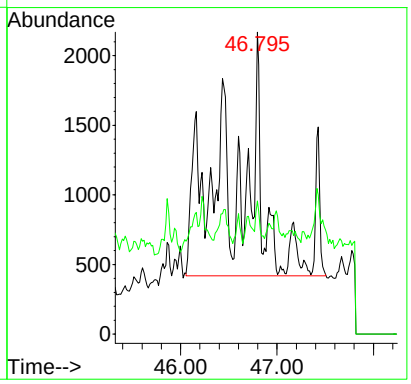


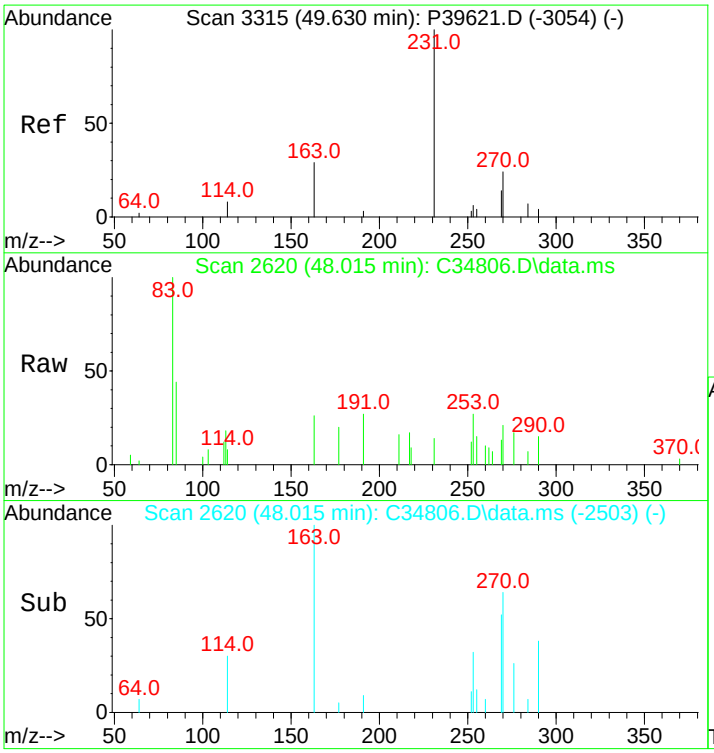


#79
C2-Chrysenes
Concen: 314.71 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:256 Resp: 39332

Ion	Ratio	Lower	Upper
256	100		
241	2.1	21.2	31.8#

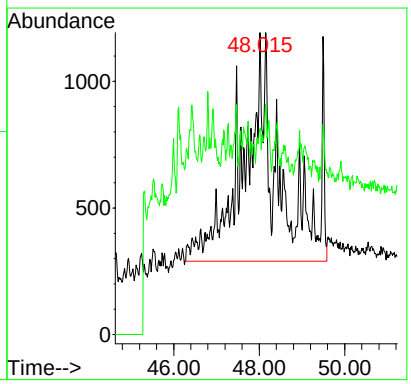


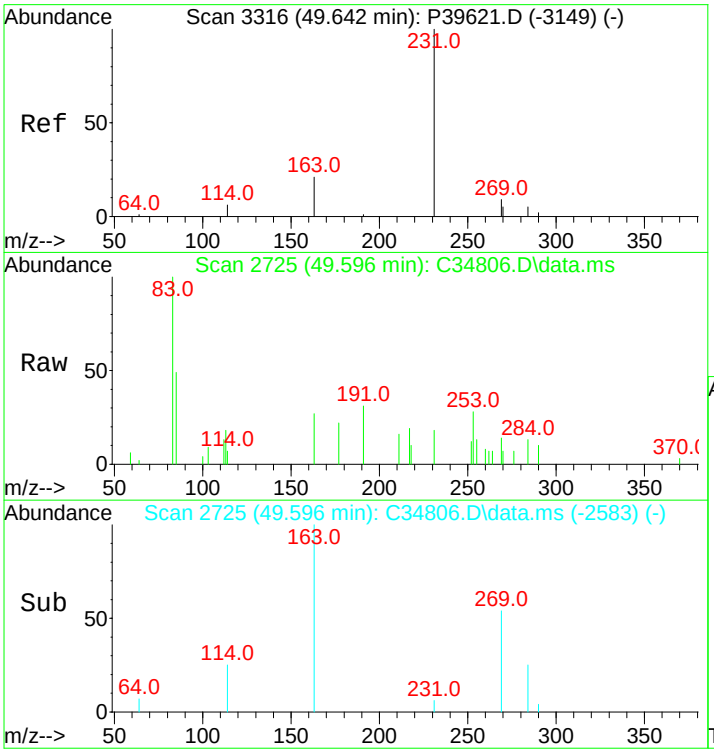


#80
C3-Chrysenes
Concen: 400.93 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:270 Resp: 50107

Ion	Ratio	Lower	Upper
270	100		
255	2.0	33.8	50.8#

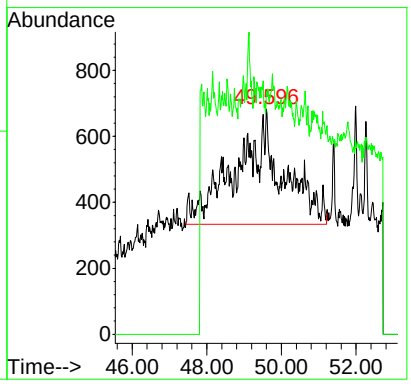


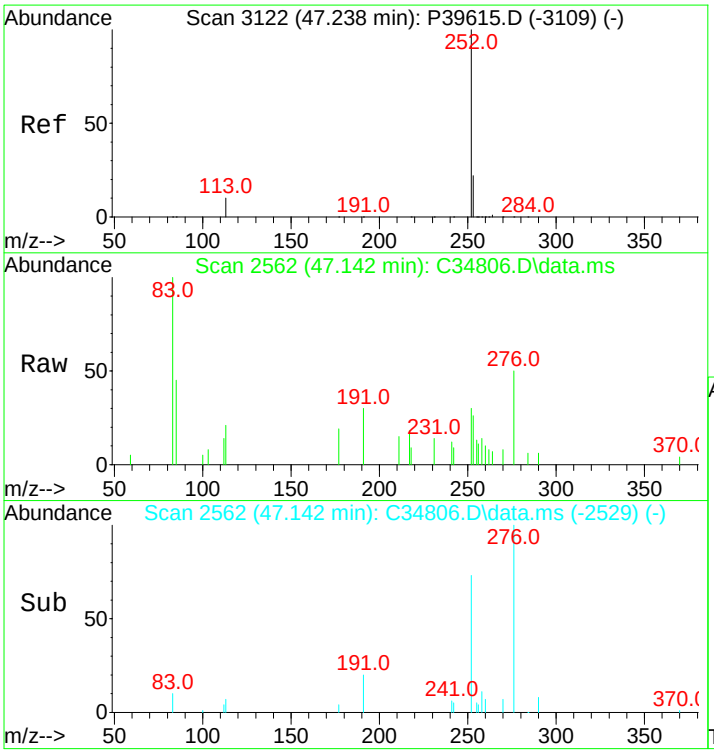


#81
C4-Chrysenes
Concen: 236.35 ng/mL m
RT: 49.596 min Scan# 2725
Delta R.T. -0.004 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:284 Resp: 29538

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

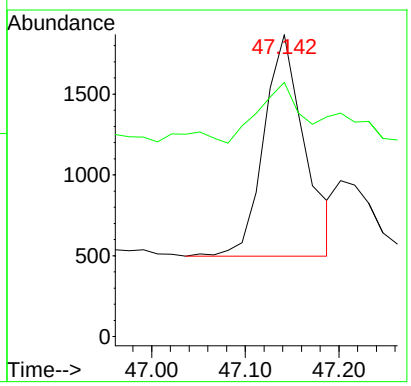


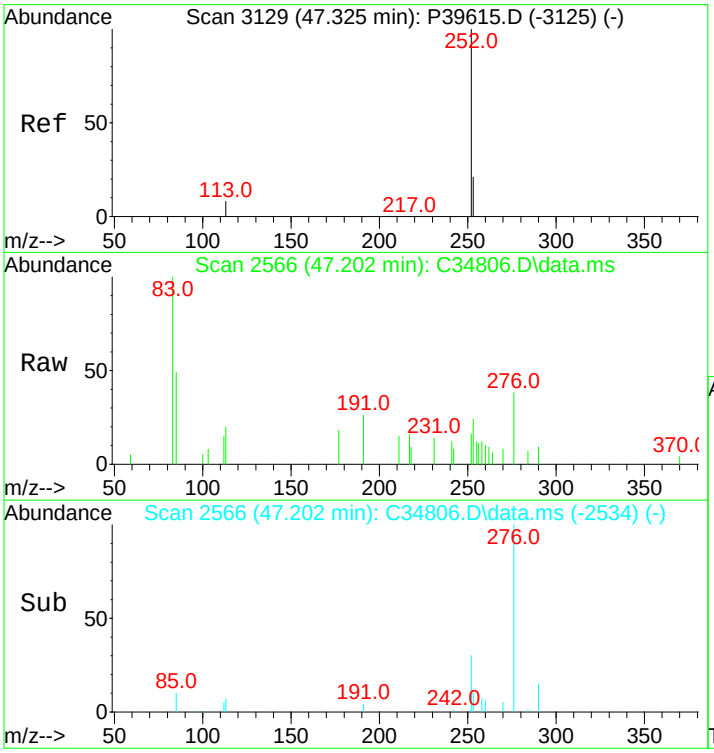


#82
Benzo[b]fluoranthene
Concen: 30.68 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:252 Resp: 4173

Ion	Ratio	Lower	Upper
252	100		
253	27.1	19.0	28.4

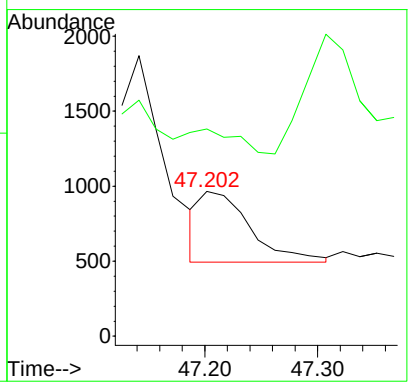


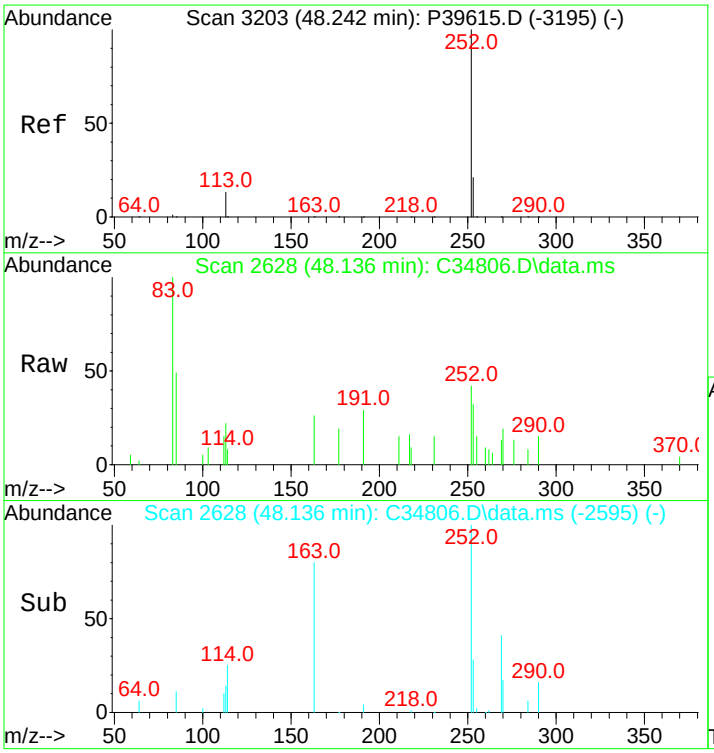


#83
Benzo[j]+[k]fluoranthene
Concen: 9.80 ng/mL m
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:252 Resp: 1452

Ion	Ratio	Lower	Upper
252	100		
253	77.8	19.0	28.4#

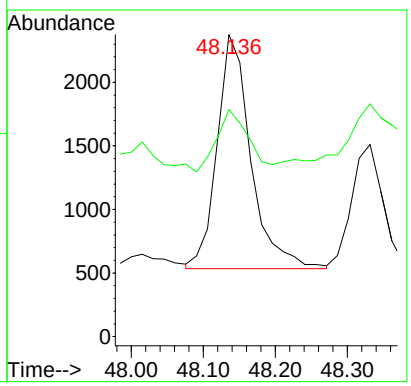


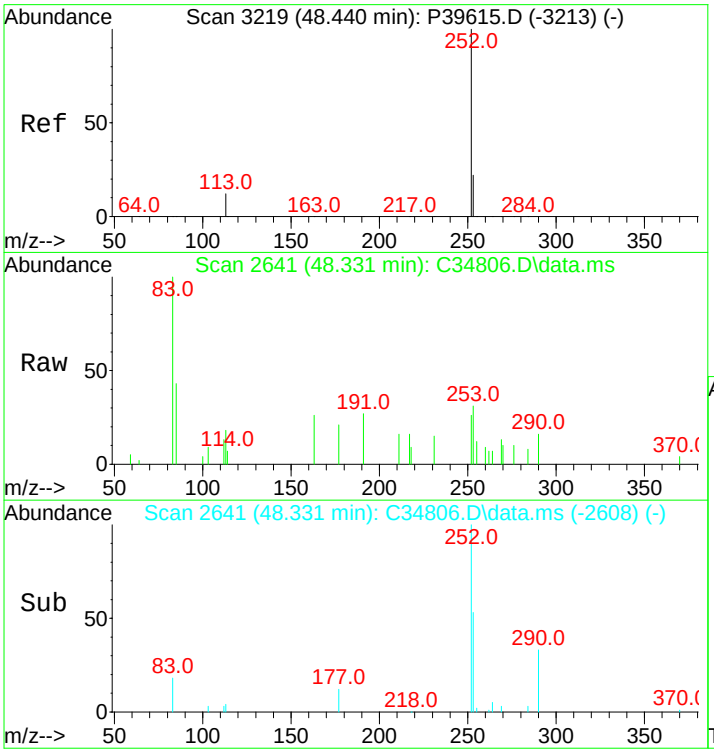


#85
Benzo[e]pyrene
Concen: 44.47 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:252 Resp: 5983

Ion	Ratio	Lower	Upper
252	100		
253	25.4	19.2	28.8

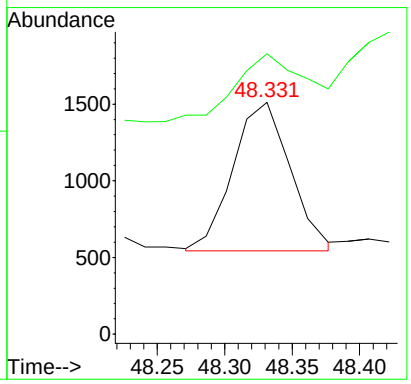


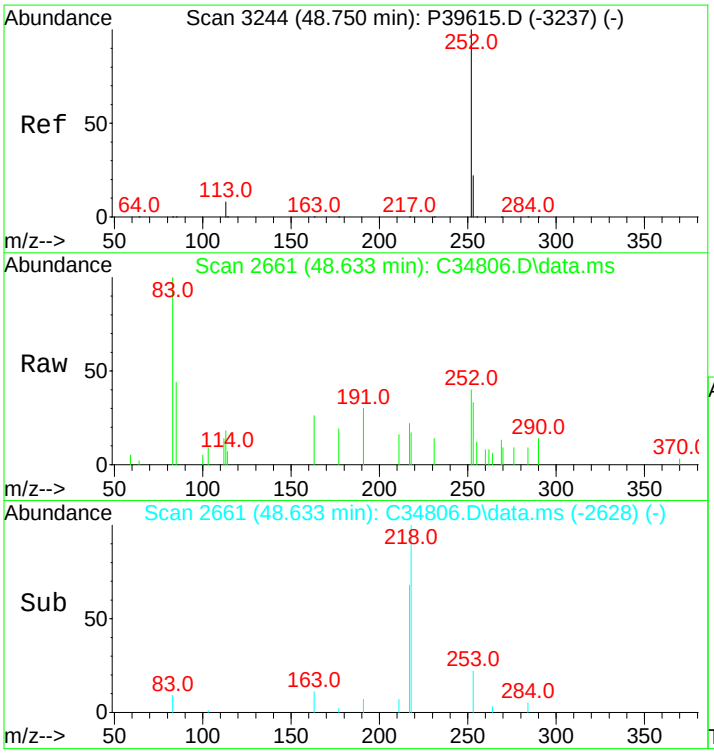


#87
Benzo[a]pyrene
Concen: 22.10 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:252 Resp: 2863

Ion	Ratio	Lower	Upper
252	100		
253	52.3	19.5	29.3#

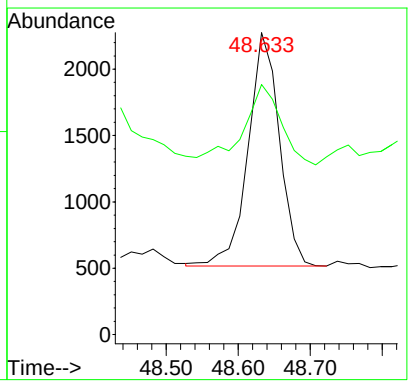


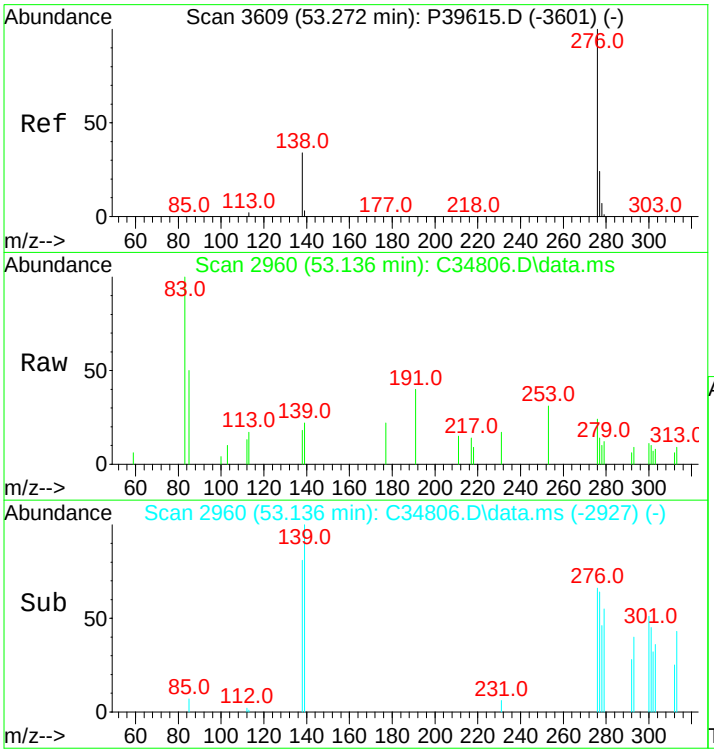


#88
Perylene
Concen: 38.26 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:252 Resp: 5296

Ion	Ratio	Lower	Upper
252	100		
253	41.7	19.6	29.4#

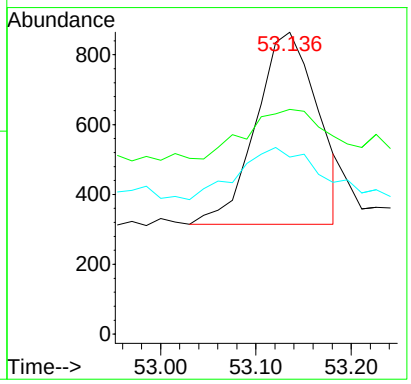


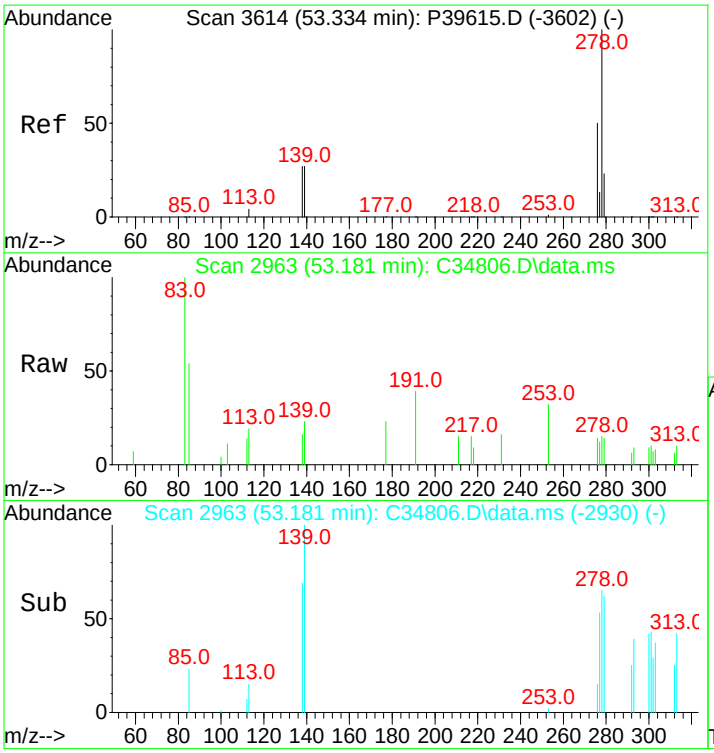


#89
Indeno[1,2,3-cd]pyrene
Concen: 16.37 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:276 Resp: 2467

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

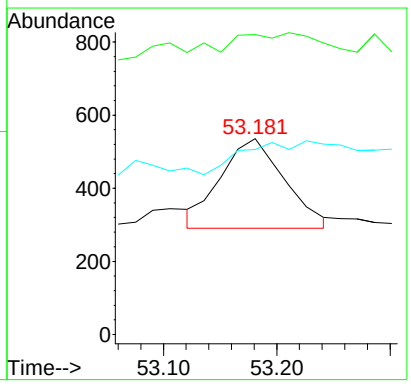


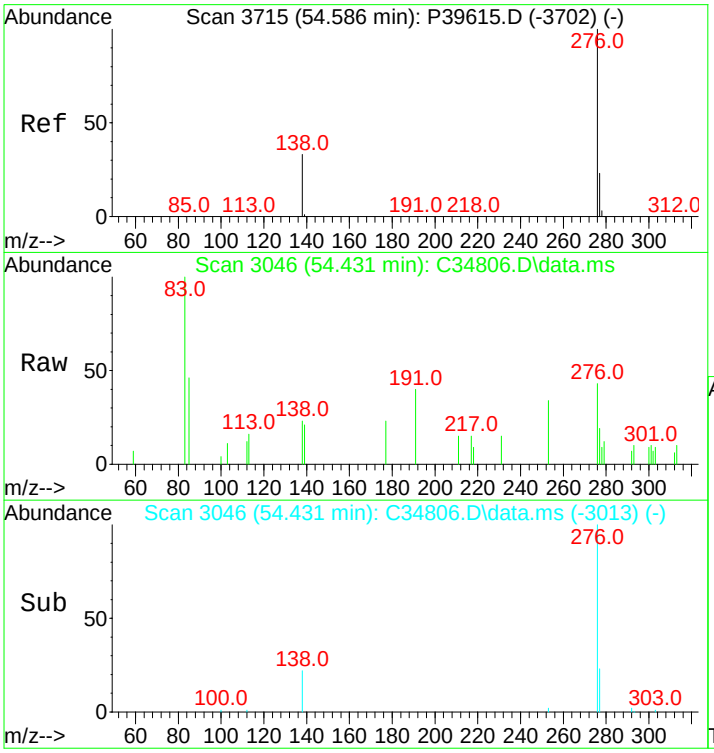


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.67 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:278 Resp: 956

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

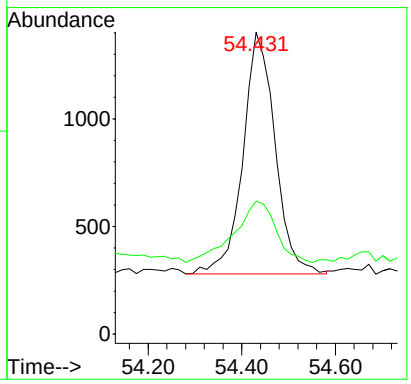


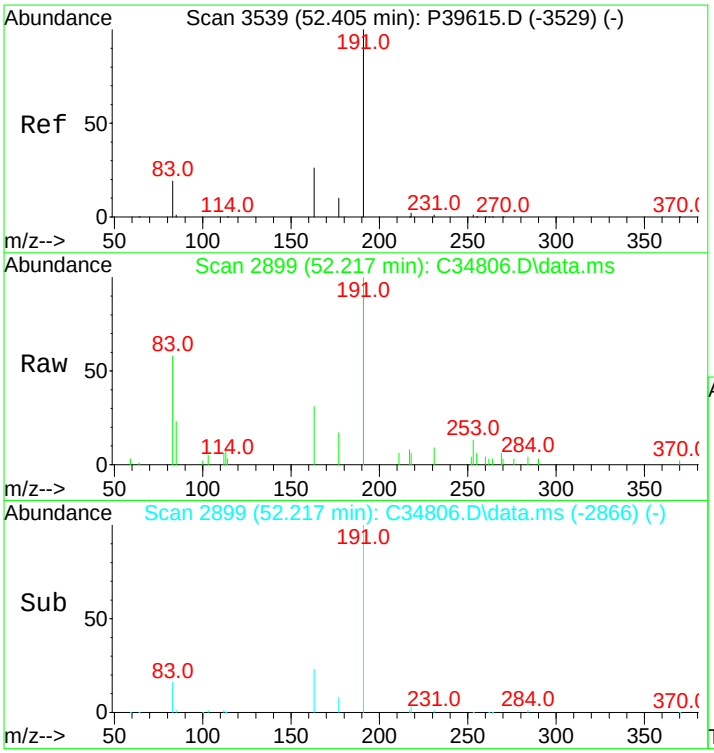


#91
Benzo[g,h,i]perylene
Concen: 33.68 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:276 Resp: 5364

Ion	Ratio	Lower	Upper
276	100		
277	32.6	18.9	28.3#

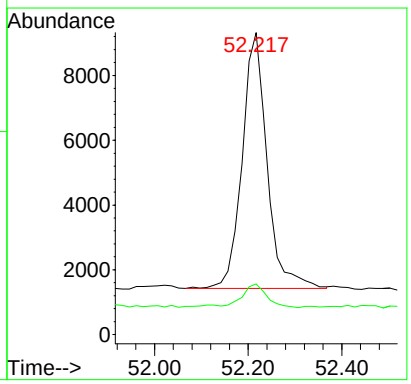


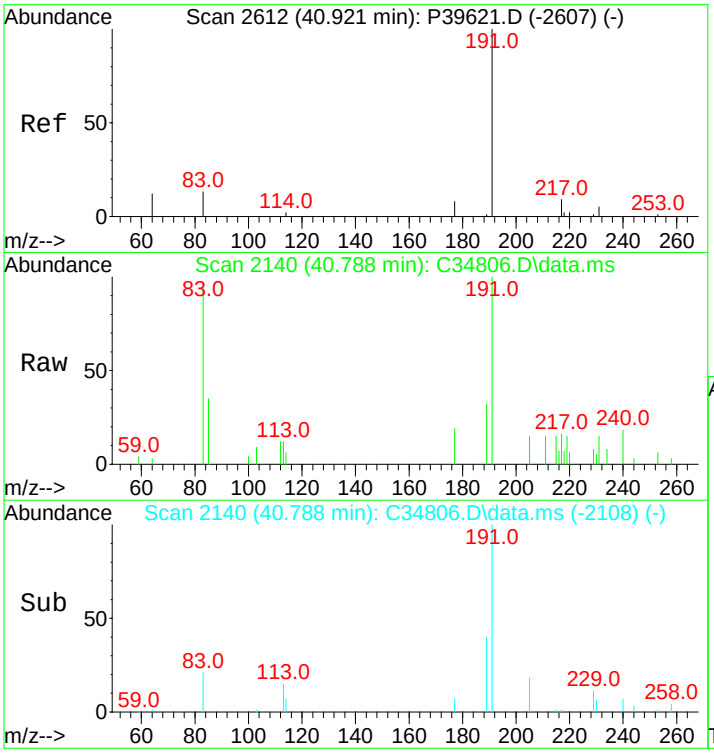


#92
Hopane (T19)
Concen: 1134.79 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:191 Resp: 29170

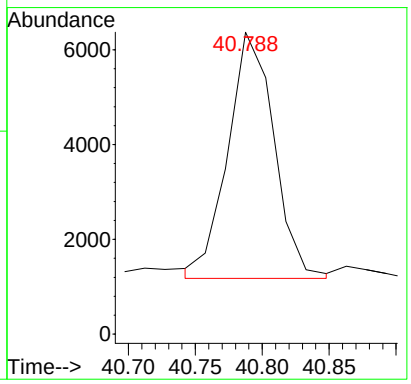
Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#

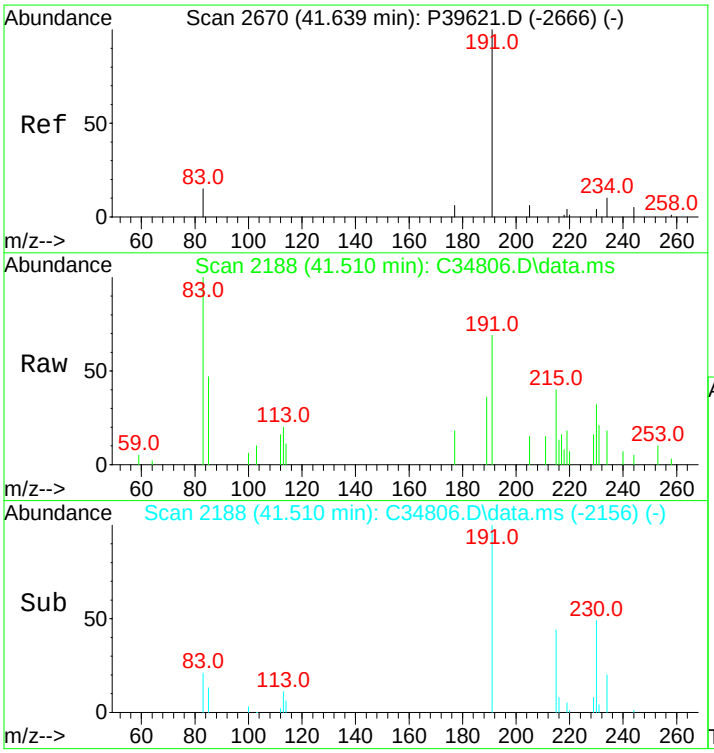




#94
C23 Tricyclic Terpane (T4)
Concen: 484.46 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

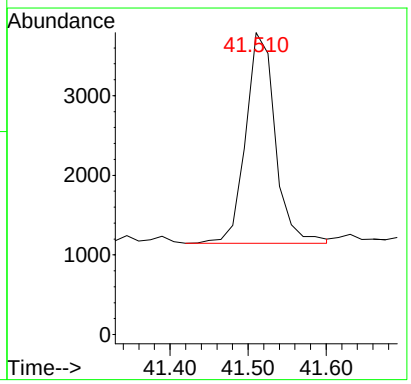
Tgt Ion:191 Resp: 12453

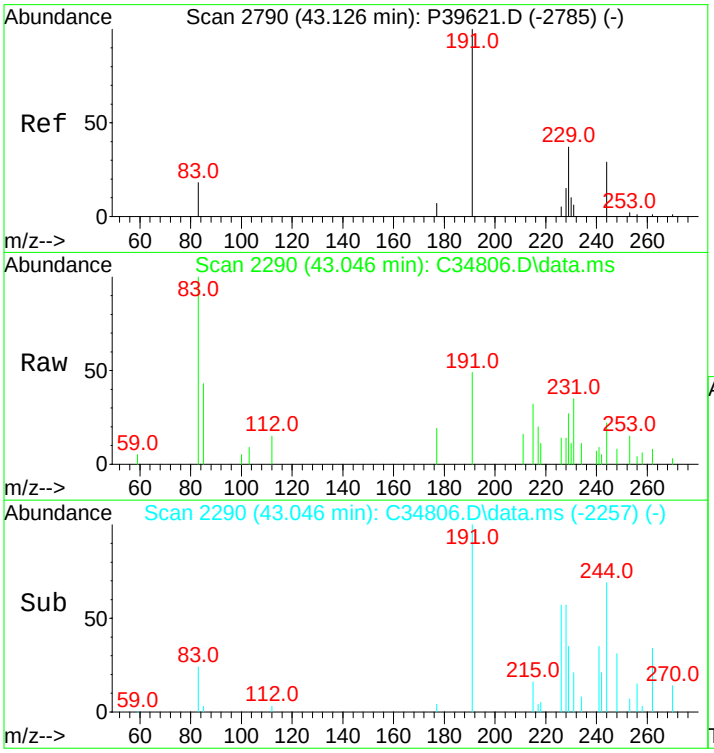




#95
C24 Tricyclic Terpane (T5)
Concen: 271.04 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

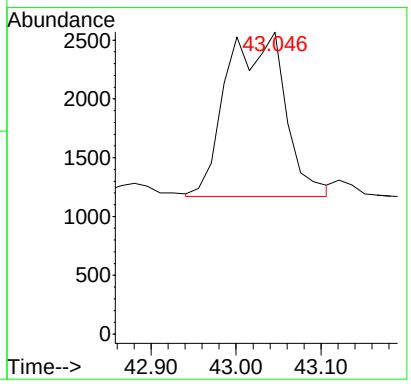
Tgt Ion:191 Resp: 6967

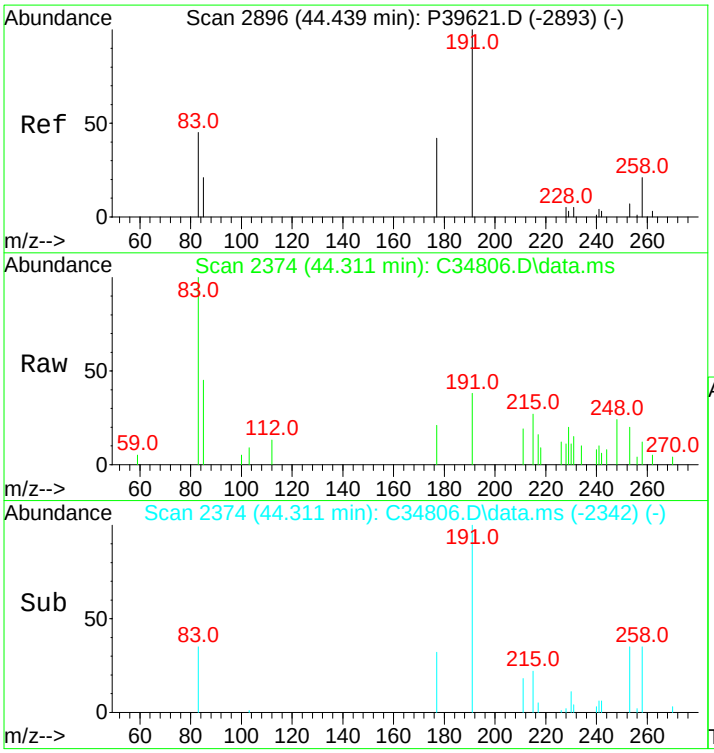




#96
C25 Tricyclic Terpane (T6)
Concen: 259.83 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

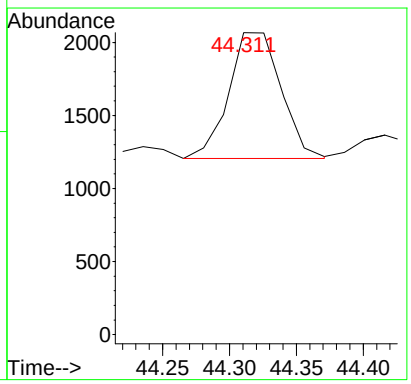
Tgt Ion:191 Resp: 6679

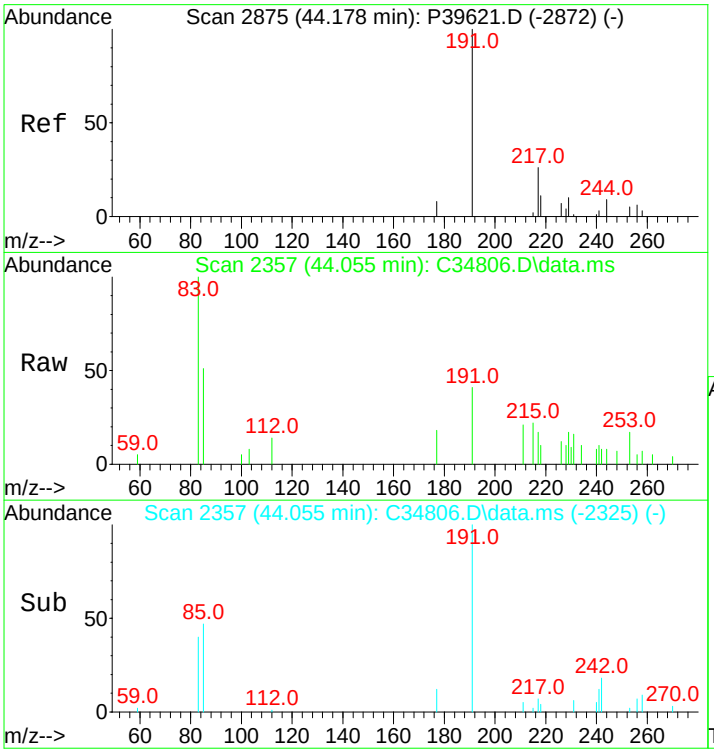




#97
C24 Tetracyclic Terpane (T6a)
Concen: 91.50 ng/ml m
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

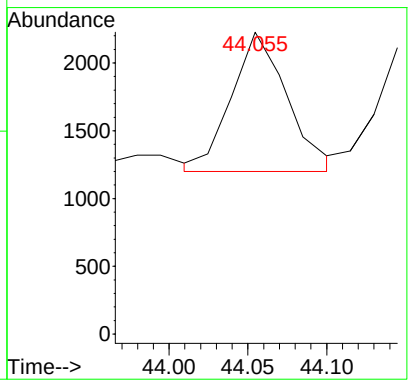
Tgt Ion:191 Resp: 2352

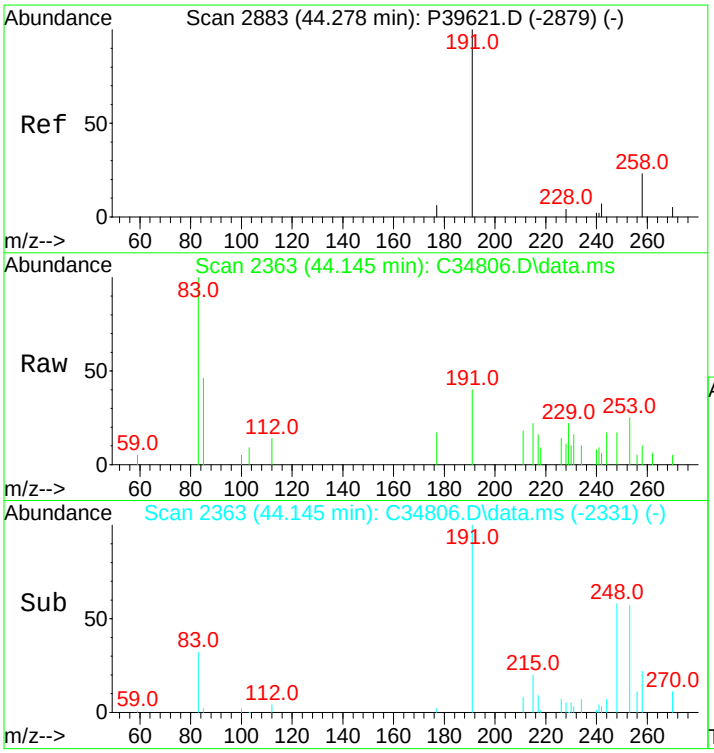




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 98.00 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

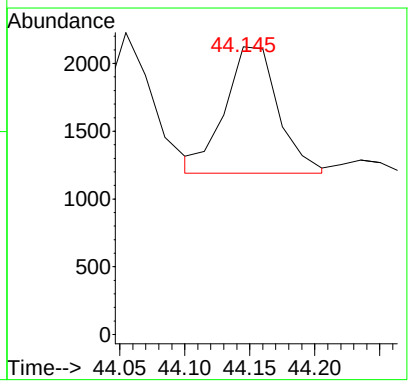
Tgt Ion:191 Resp: 2519

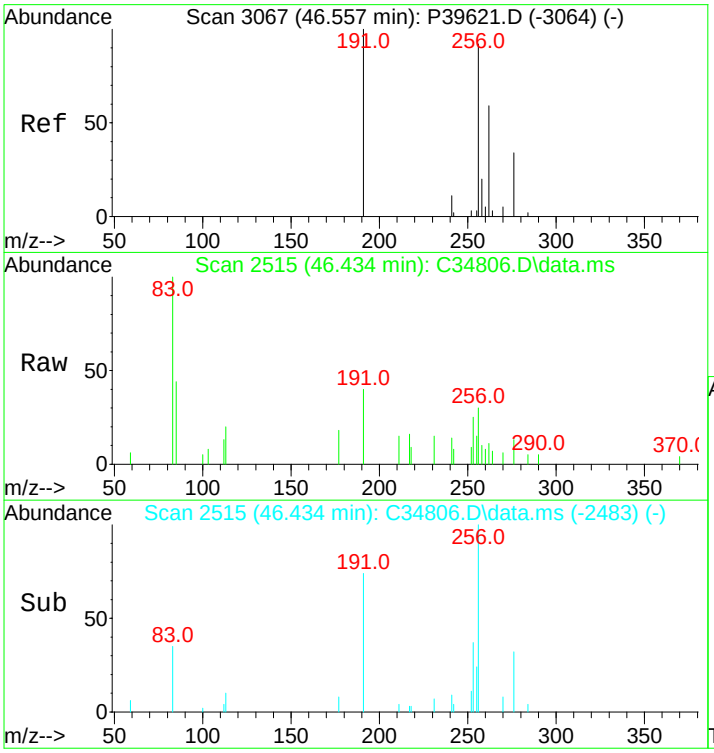




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 103.36 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

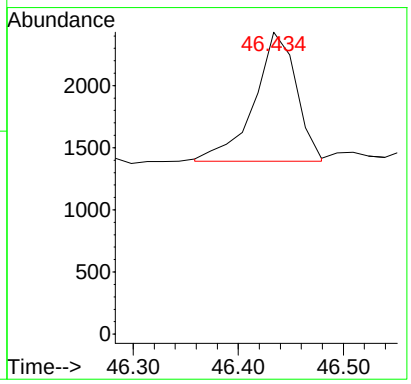
Tgt Ion:191 Resp: 2657

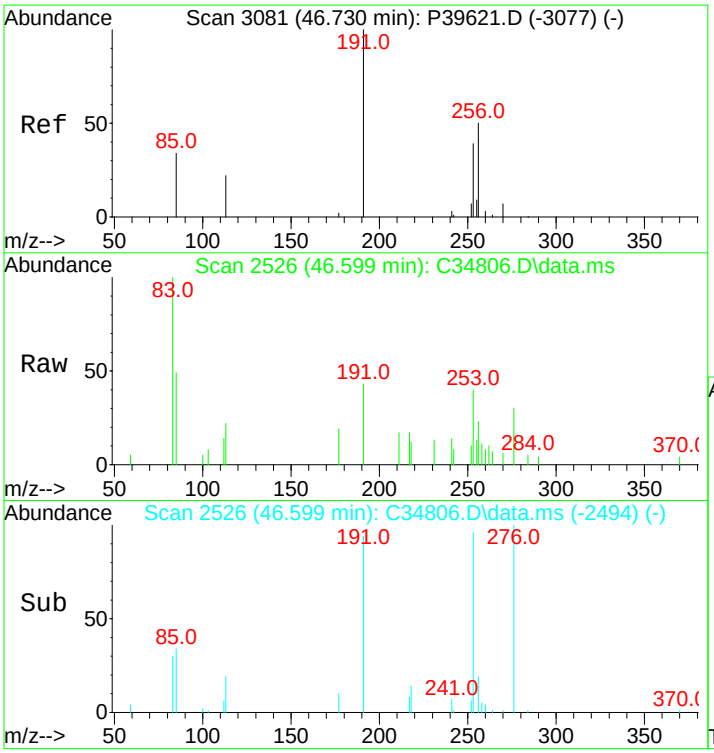




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 111.96 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

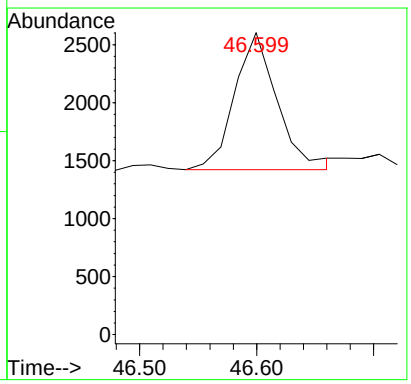
Tgt Ion:191 Resp: 2878

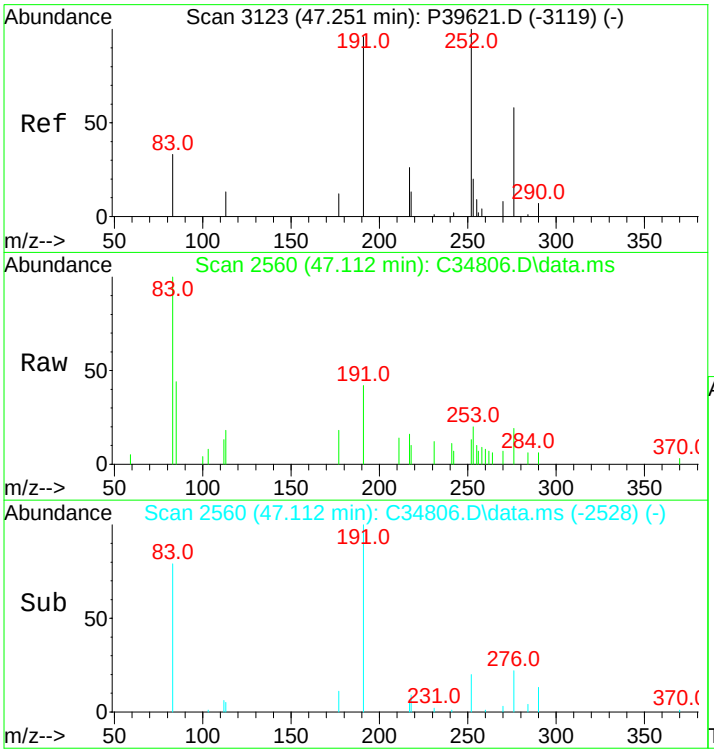




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 117.25 ng/ml
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

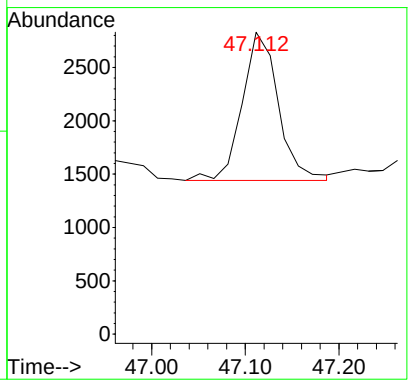
Tgt Ion:191 Resp: 3014

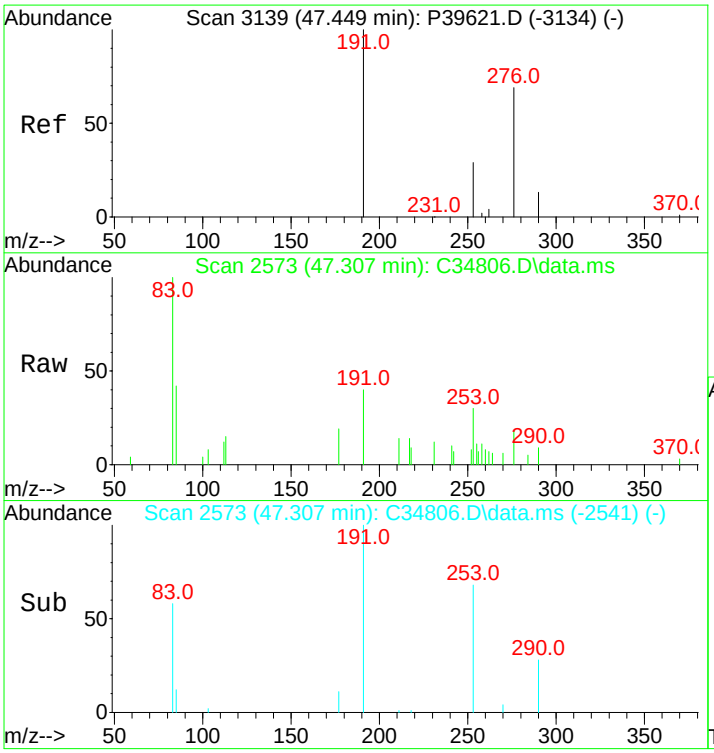




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 145.77 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

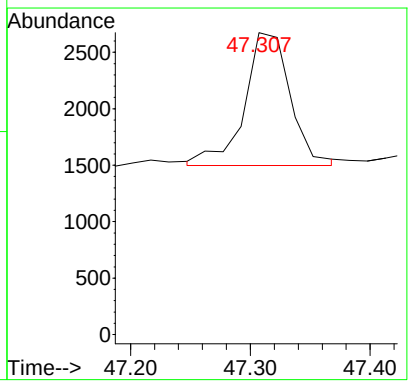
Tgt Ion:191 Resp: 3747

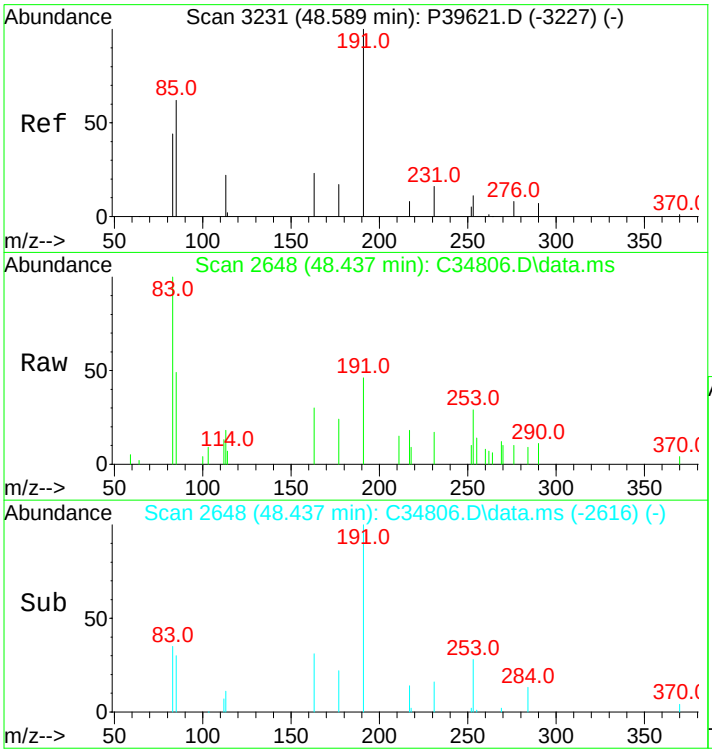




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 121.84 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

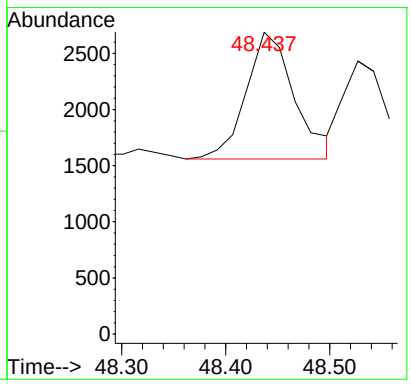
Tgt Ion:191 Resp: 3132

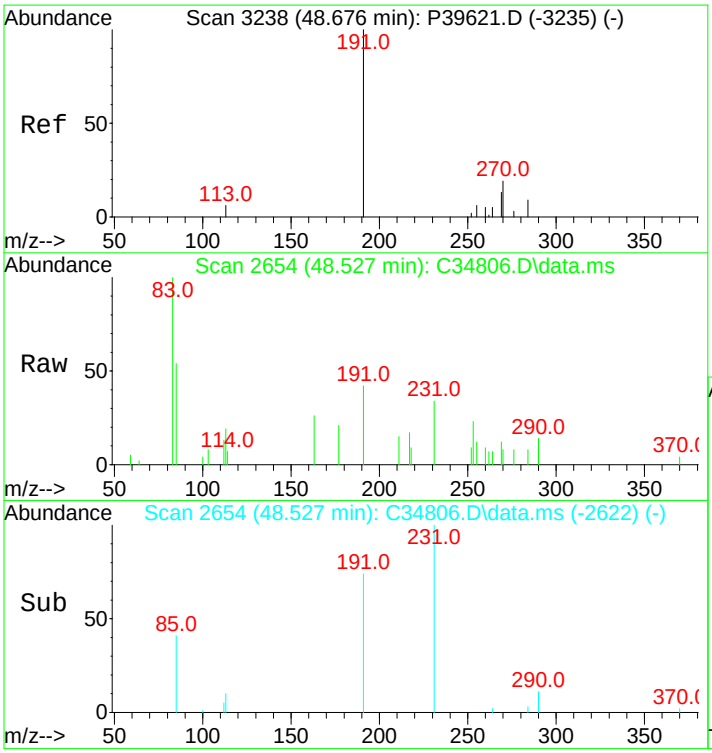




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 142.70 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

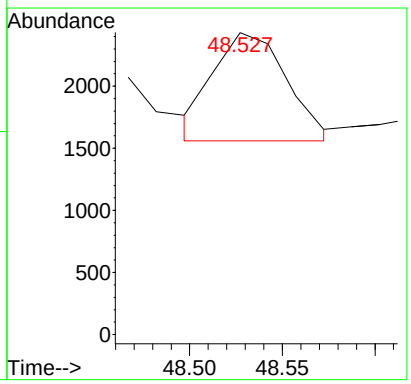
Tgt Ion:191 Resp: 3668

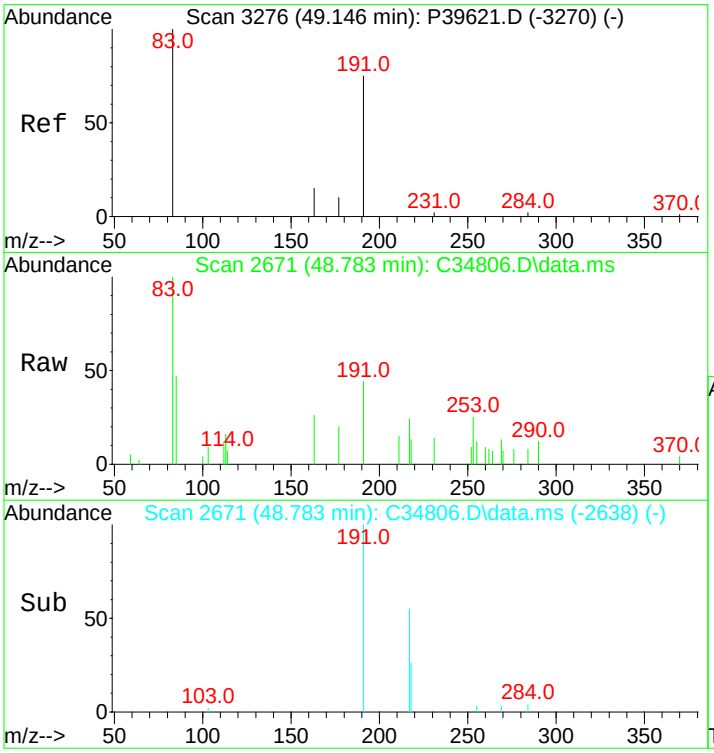




#105
C30 Tricyclic Terpane-22S
Concen: 93.21 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

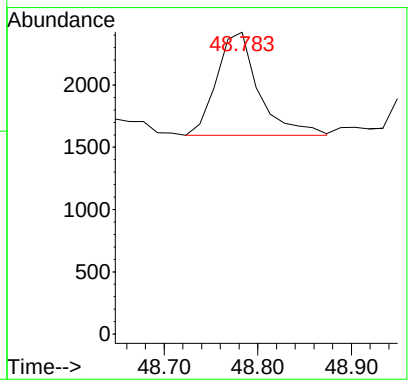
Tgt Ion:191 Resp: 2396

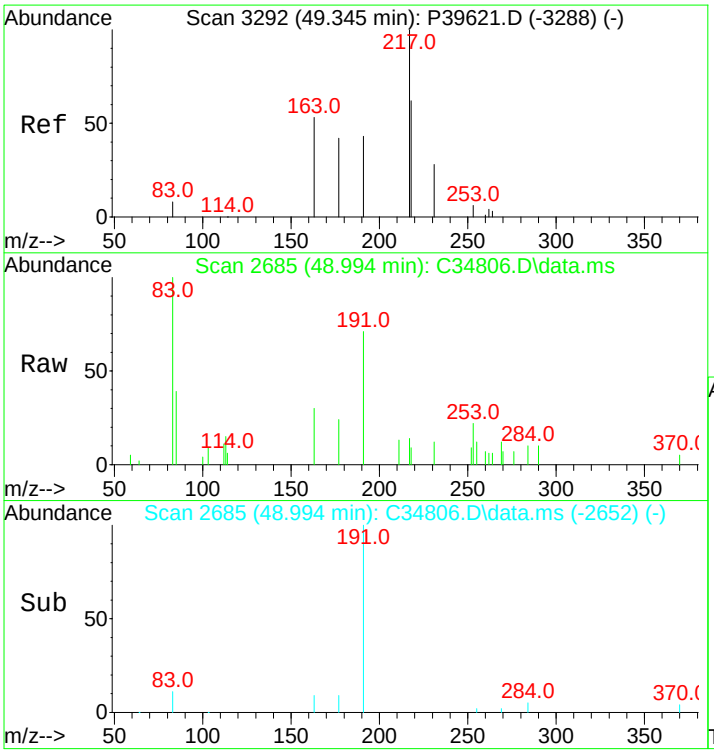




#106
C30 Tricyclic Terpane-22R
Concen: 100.84 ng/mL
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

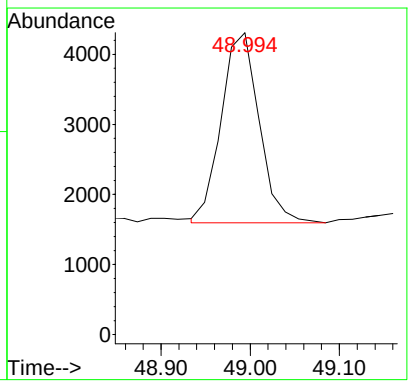
Tgt Ion:191 Resp: 2592

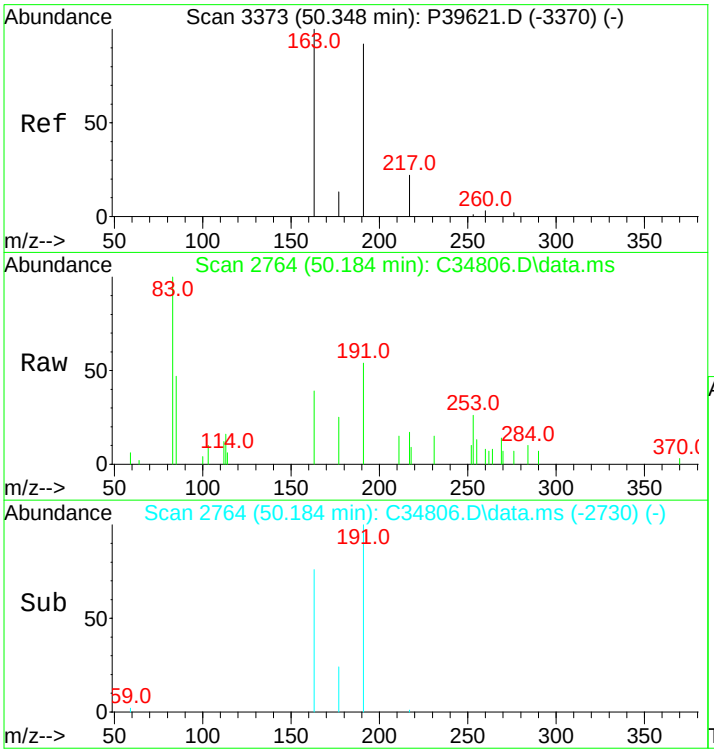




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 311.57 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

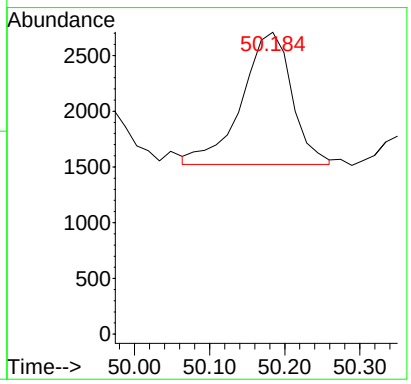
Tgt Ion:191 Resp: 8009

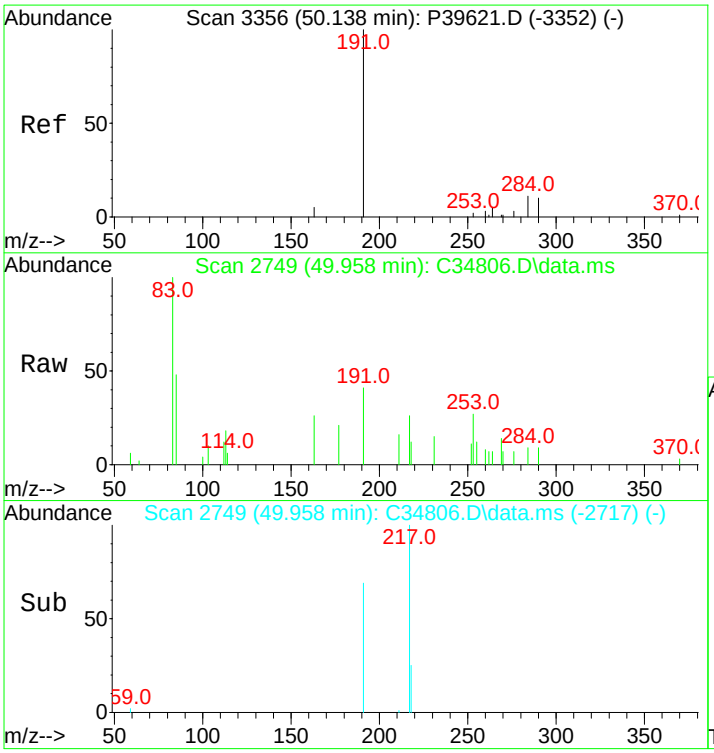




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 213.54 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

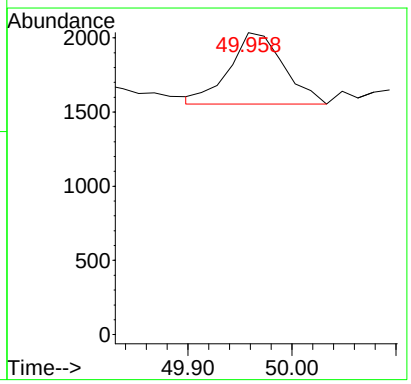
Tgt Ion:191 Resp: 5489

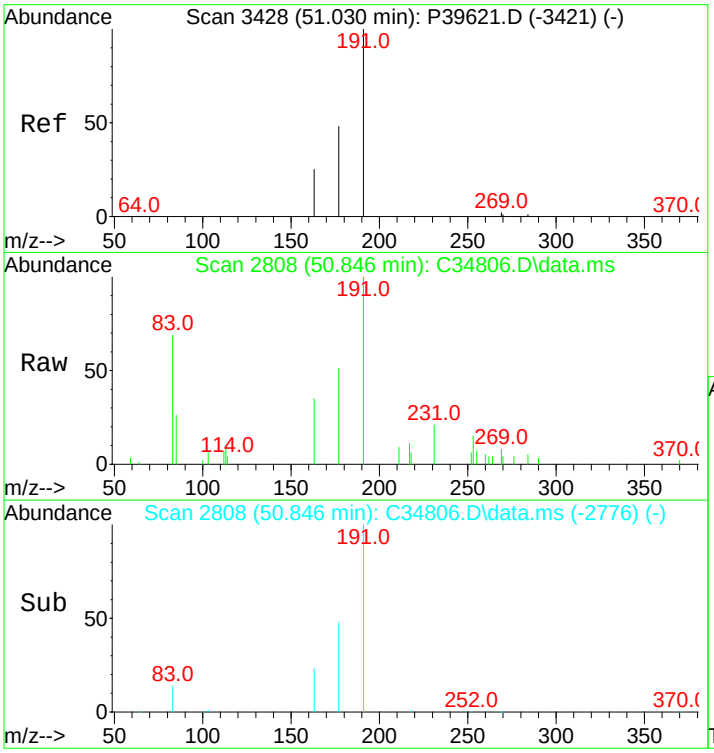




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 68.43 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

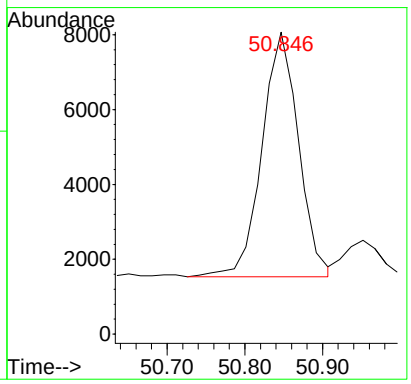
Tgt Ion:191 Resp: 1759

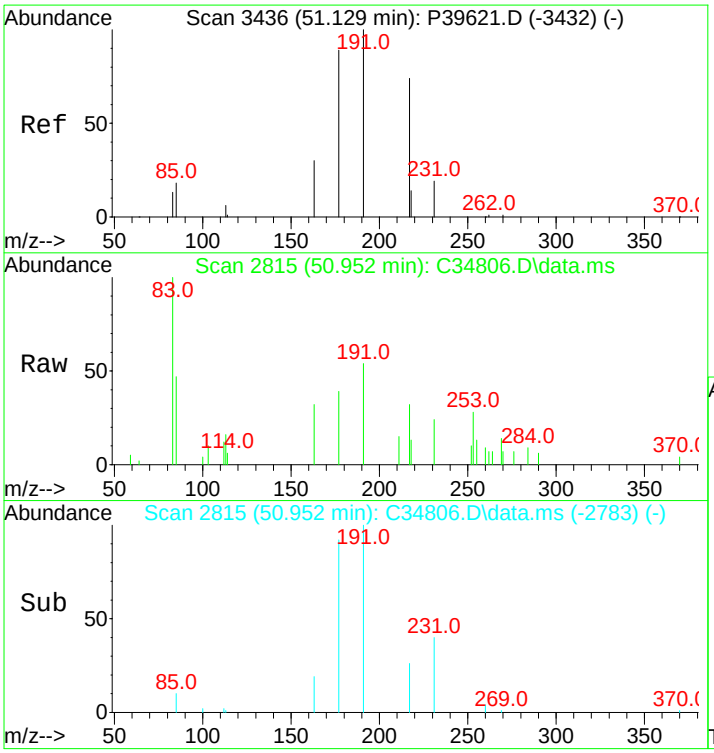




#110
30-Norhopane (T15)
Concen: 830.07 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

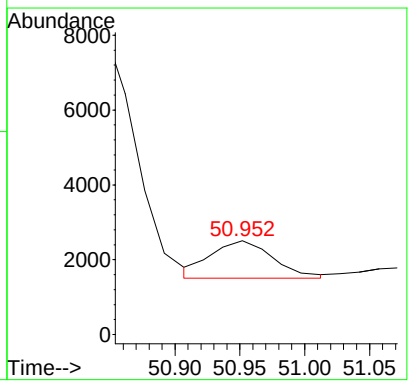
Tgt Ion:191 Resp: 21337

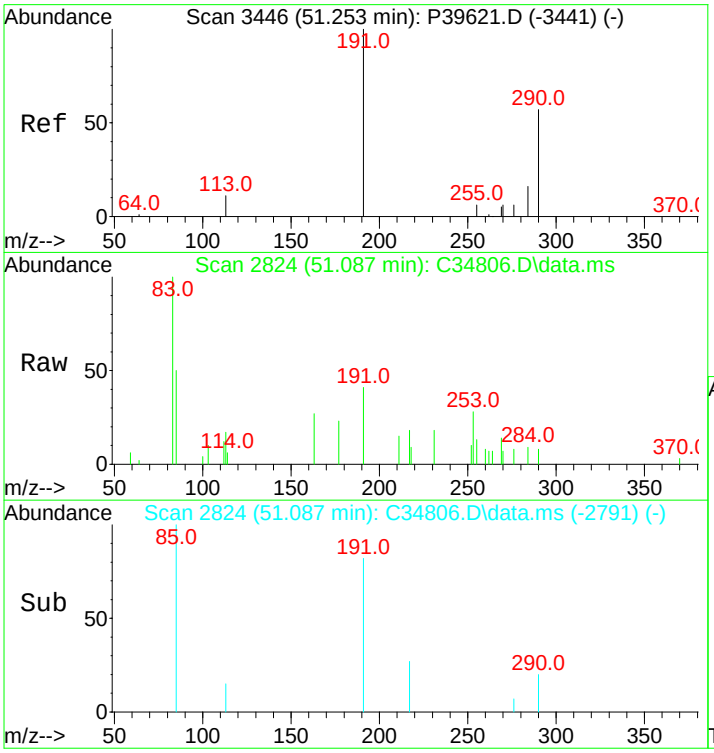




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 131.02 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

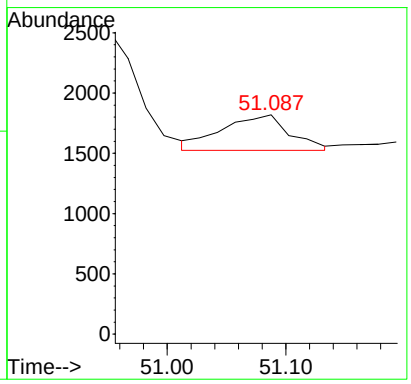
Tgt Ion:191 Resp: 3368

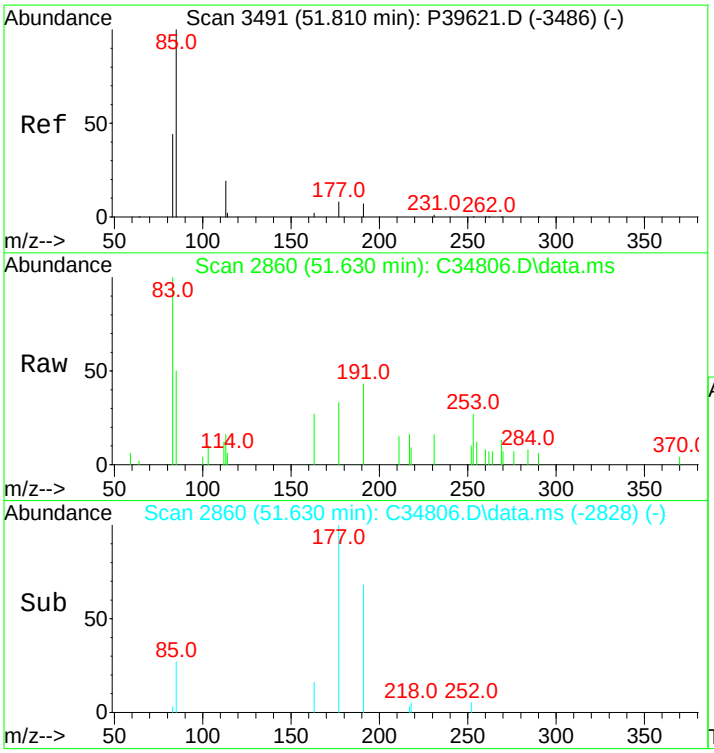




#112
17a(H)-Diahopane (X)
Concen: 45.63 ng/ml m
RT: 51.087 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

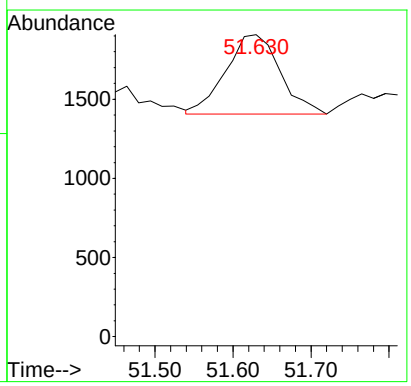
Tgt Ion:191 Resp: 1173

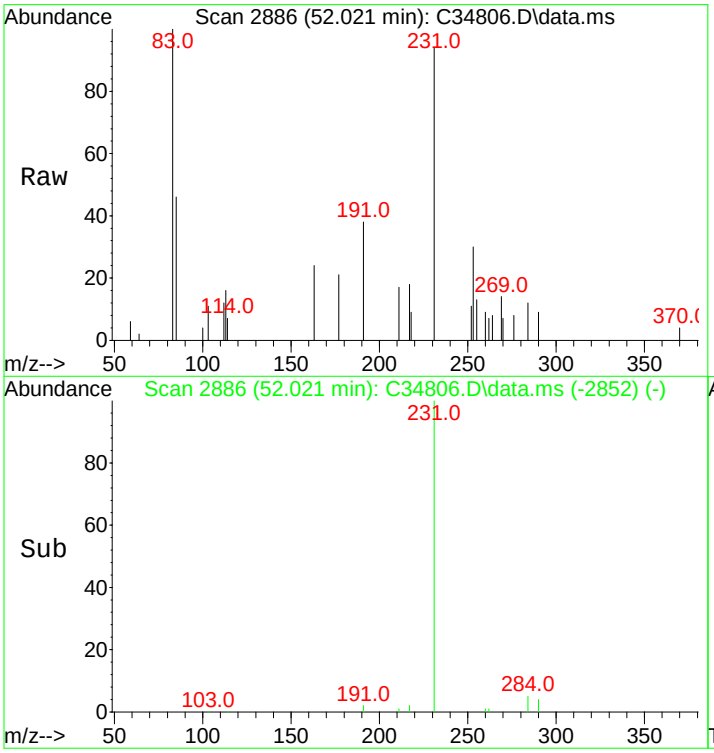




#113
30-Normoretane (T17)
Concen: 94.81 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

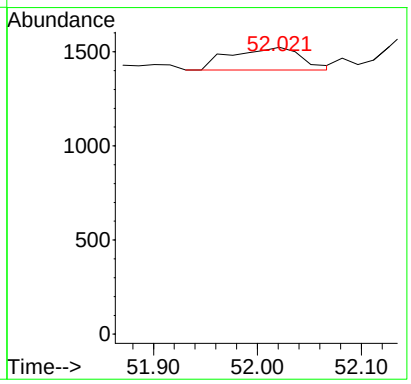
Tgt Ion:191 Resp: 2437

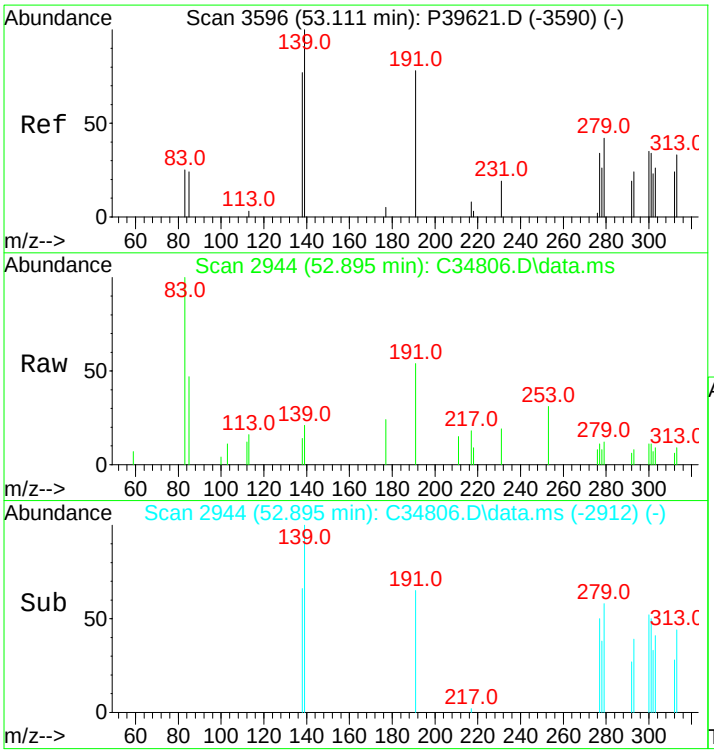




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 22.33 ng/ml
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

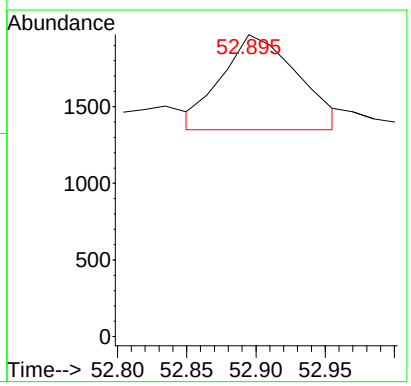
Tgt Ion:191 Resp: 574

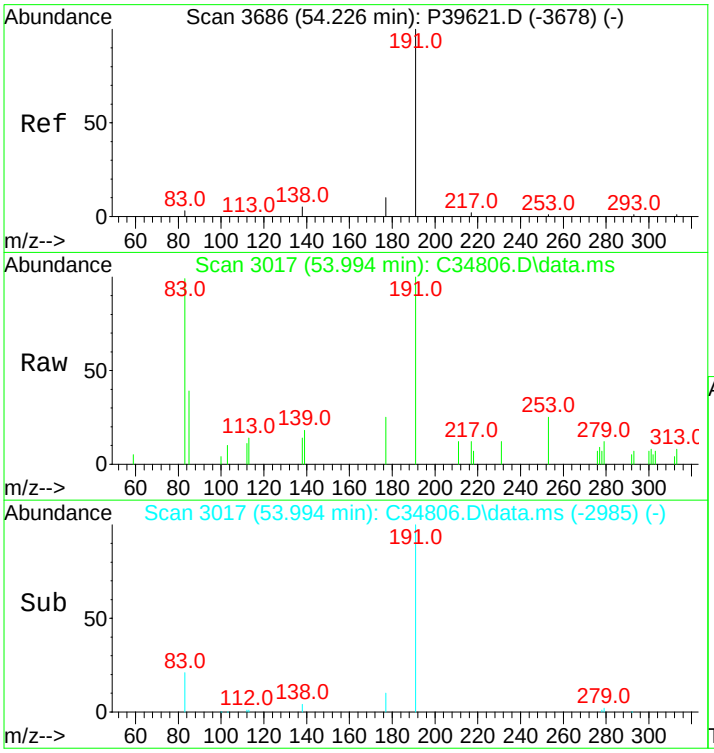




#115
Moretane (T20)
Concen: 91.97 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

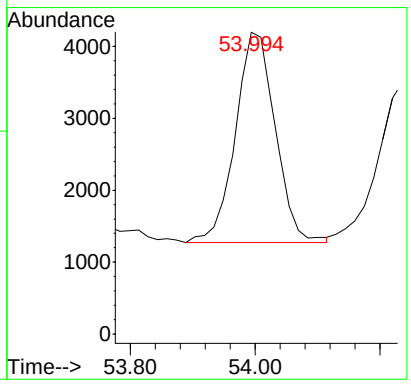
Tgt Ion:191 Resp: 2364

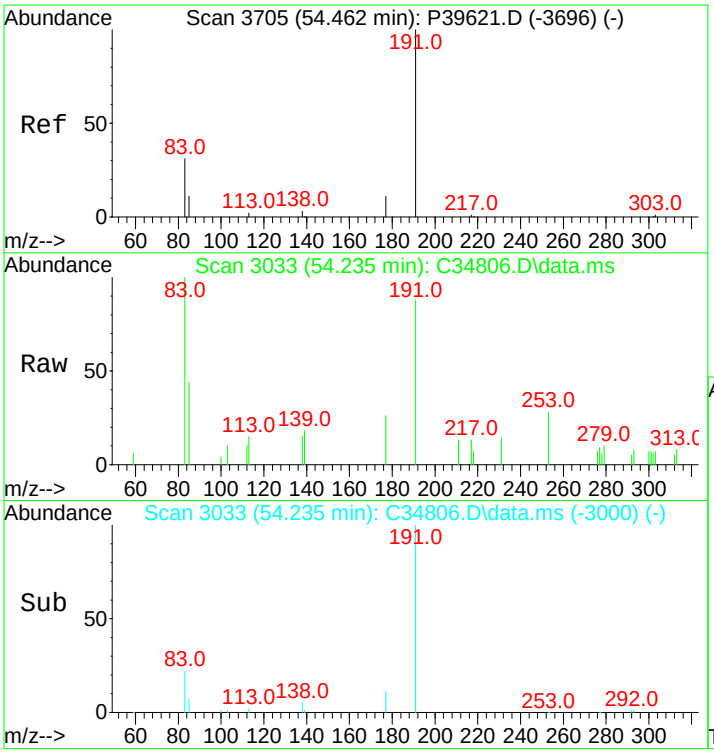




#116
30-Homohopane-22S (T21)
Concen: 504.49 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

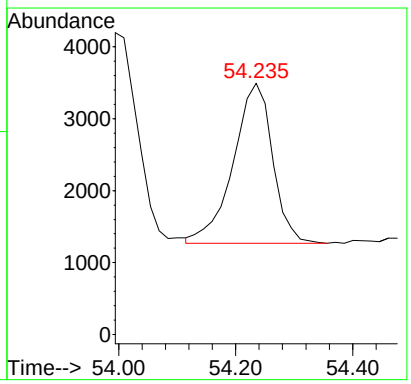
Tgt Ion:191 Resp: 12968

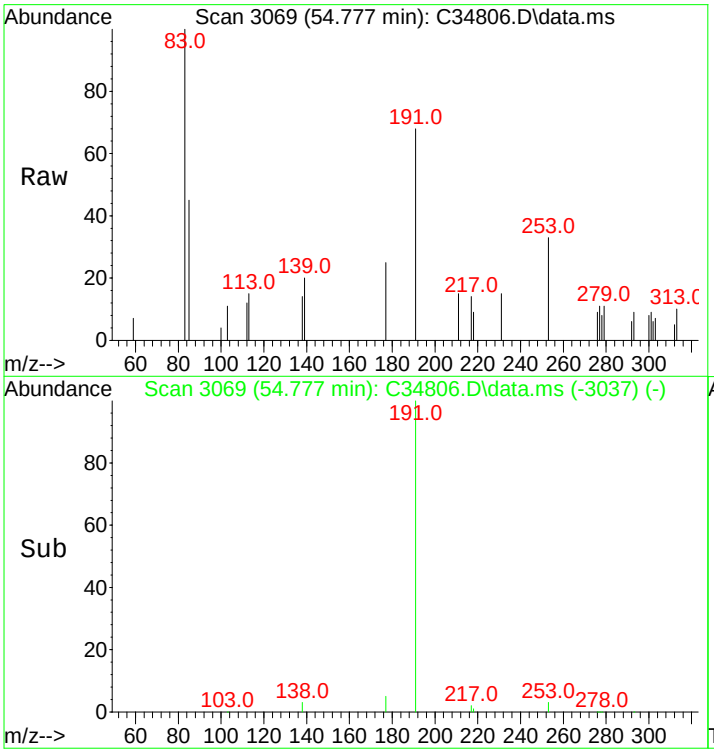




#117
30-Homohopane-22R (T22)
Concen: 403.38 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

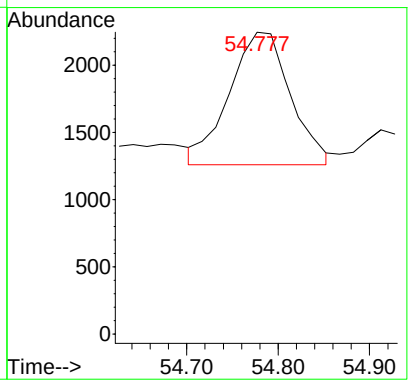
Tgt Ion:191 Resp: 10369

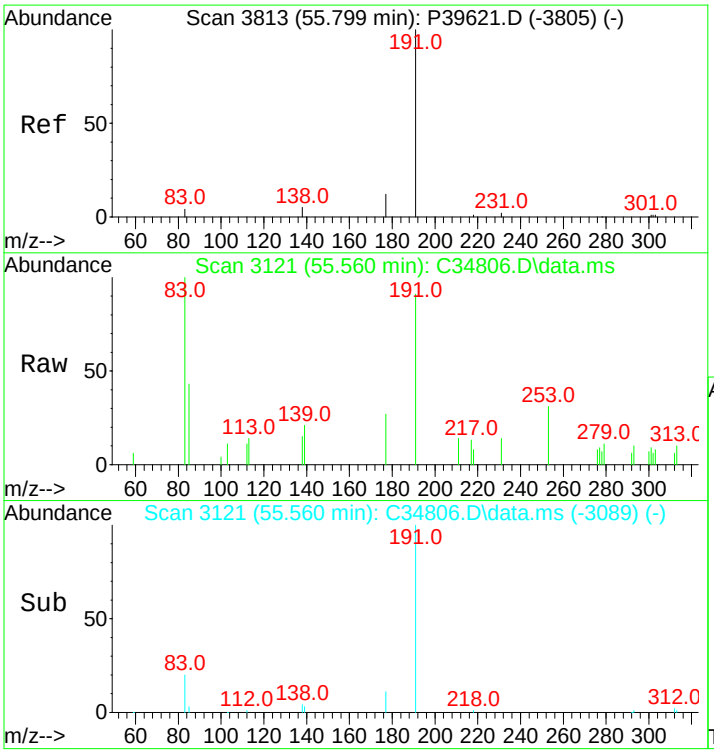




#118
Gammacerane/C32-diahopane
Concen: 177.63 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

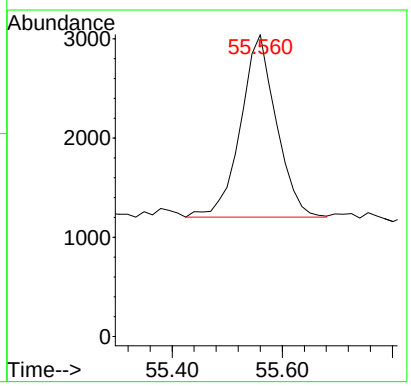
Tgt Ion:191 Resp: 4566

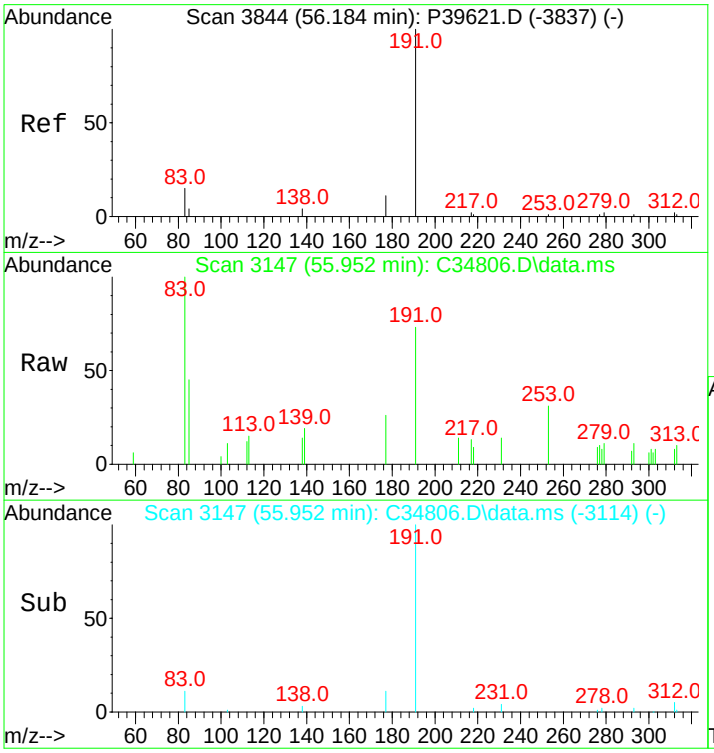




#119
30,31-Bishomohopane-22S (T26)
Concen: 321.22 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

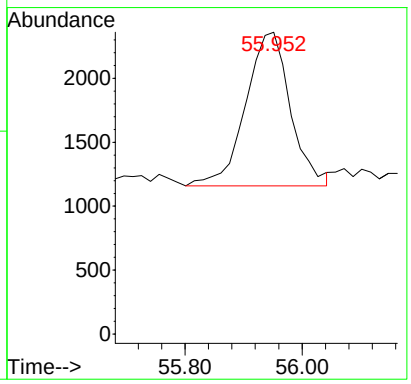
Tgt Ion:191 Resp: 8257

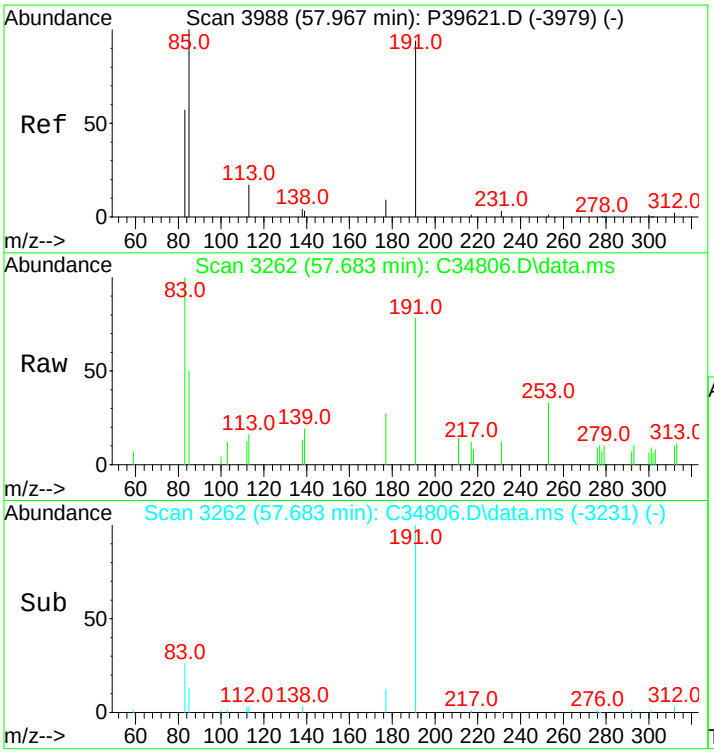




#120
30,31-Bishomohopane-22R (T27)
Concen: 248.63 ng/ml
RT: 55.952 min Scan# 3147
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

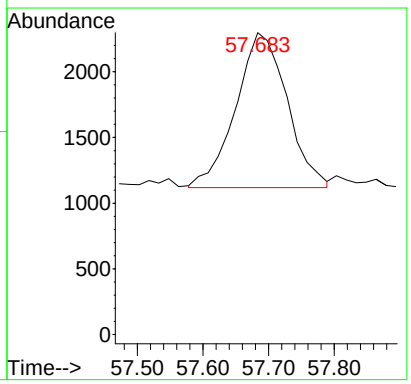
Tgt Ion:191 Resp: 6391

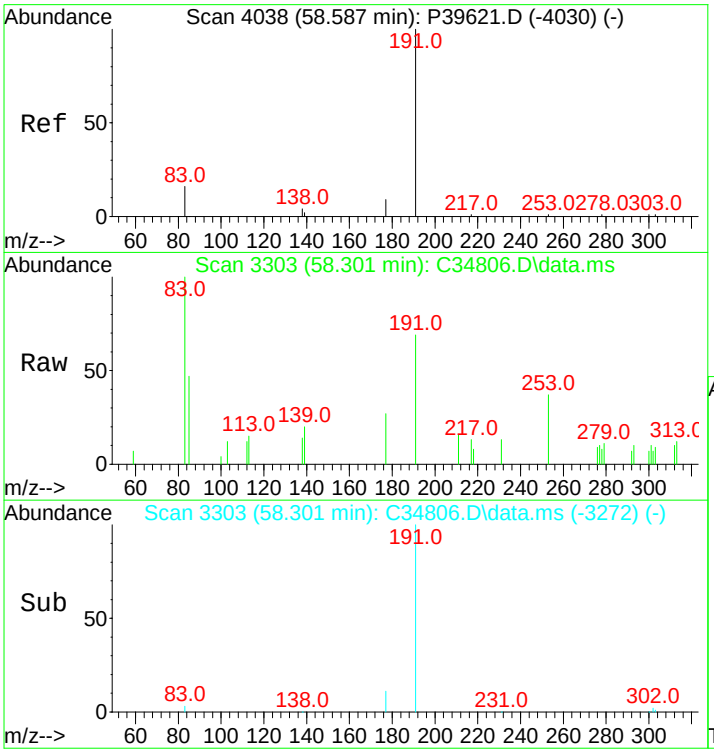




#121
30,31-Trishomohopane-22S (T30)
Concen: 248.90 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

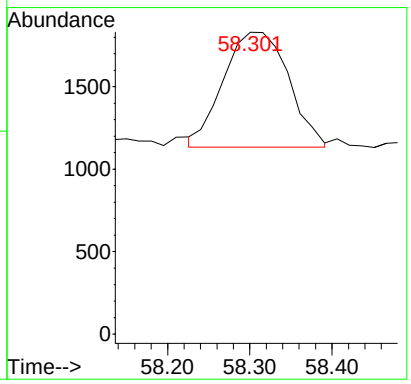
Tgt Ion:191 Resp: 6398

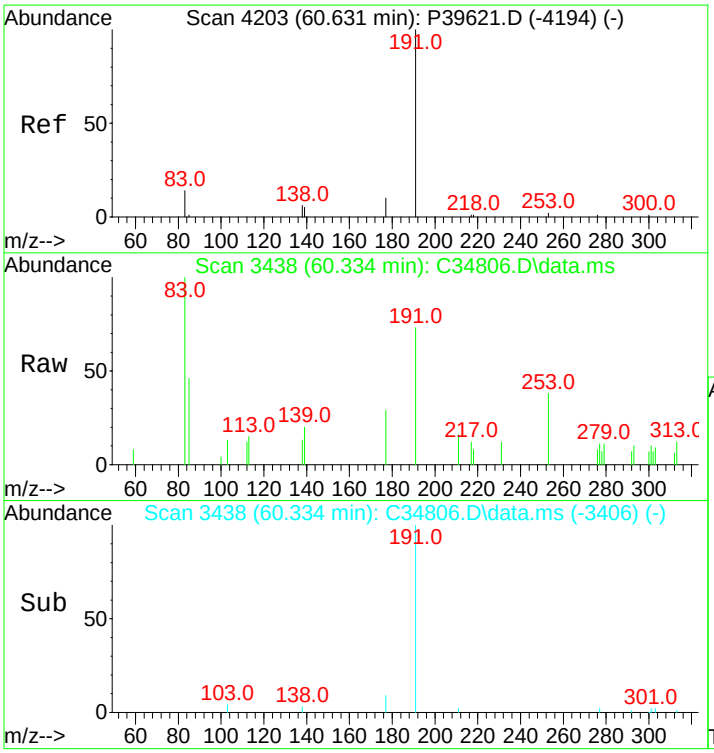




#122
30,31-Trishomohopane-22R (T31)
Concen: 149.39 ng/ml m
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

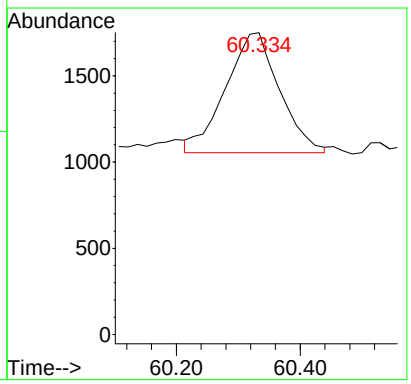
Tgt Ion:191 Resp: 3840

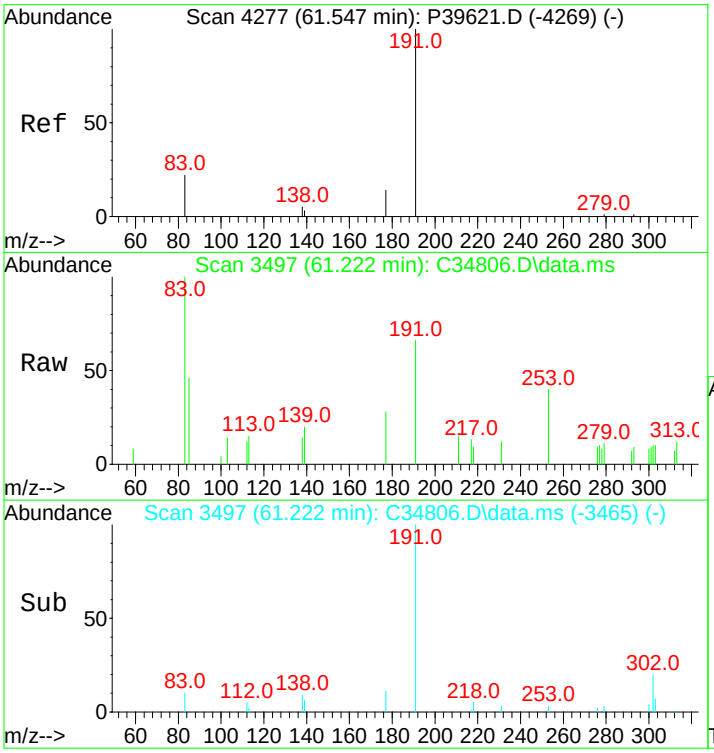




#123
Tetrakishomohopane-22S (T32)
Concen: 163.43 ng/ml m
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

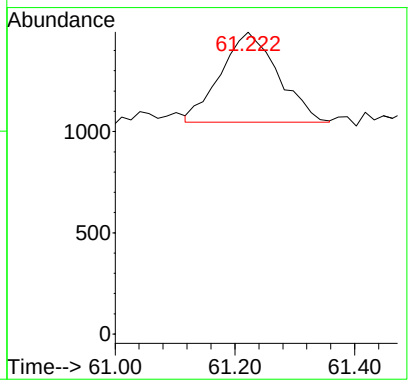
Tgt Ion:191 Resp: 4201

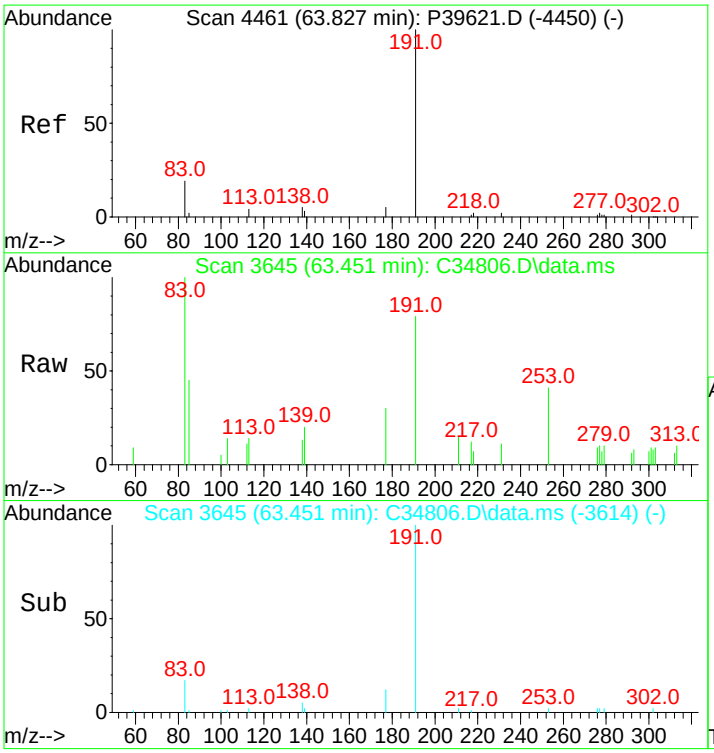




#124
Tetrakishomohopane-22R (T33)
Concen: 114.92 ng/ml m
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

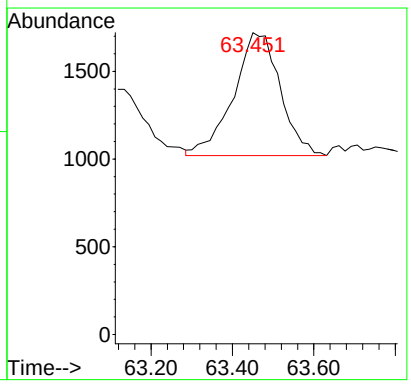
Tgt Ion:191 Resp: 2954

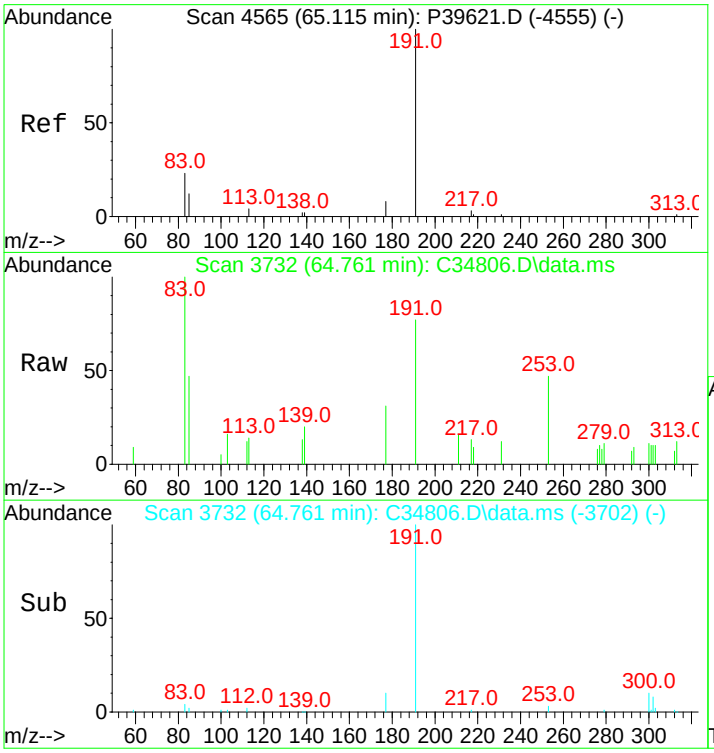




#125
Pentakishomohopane-22S (T34)
Concen: 216.77 ng/ml
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

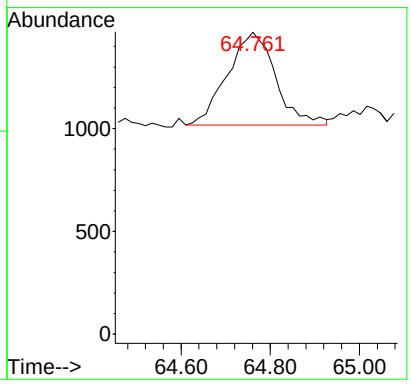
Tgt Ion:191 Resp: 5572

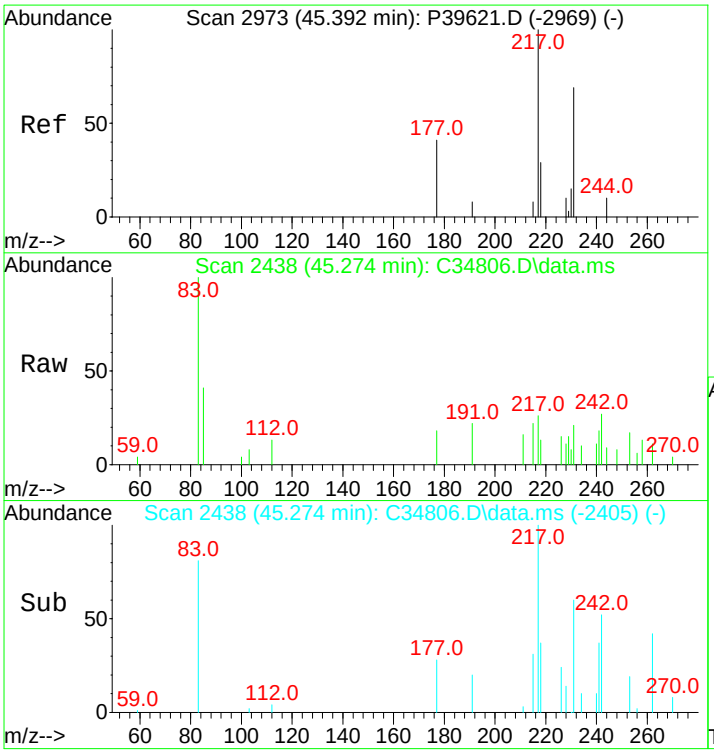




#126
Pentakishomohopane-22R (T35)
Concen: 132.08 ng/ml
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

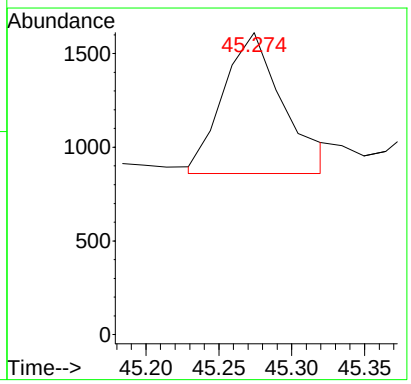
Tgt Ion:191 Resp: 3395

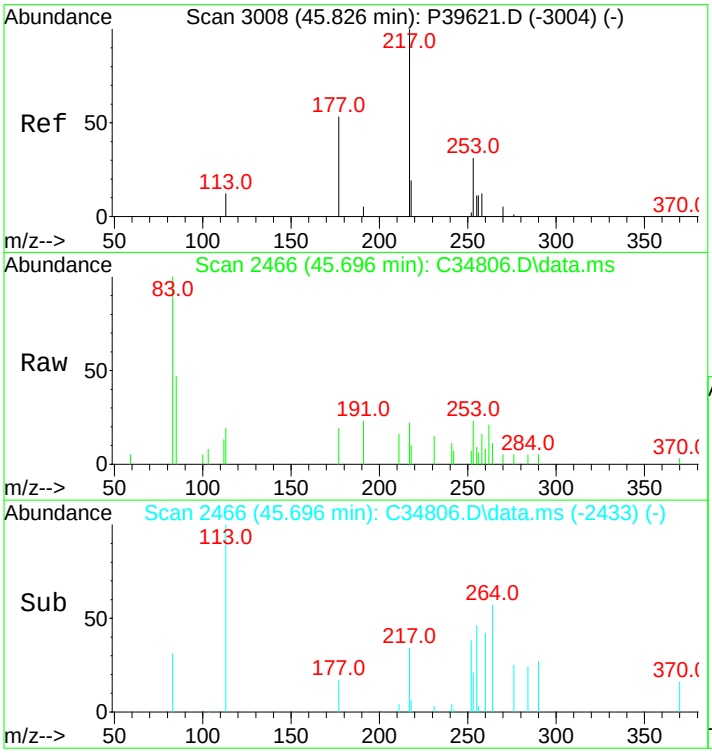




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 176.64 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

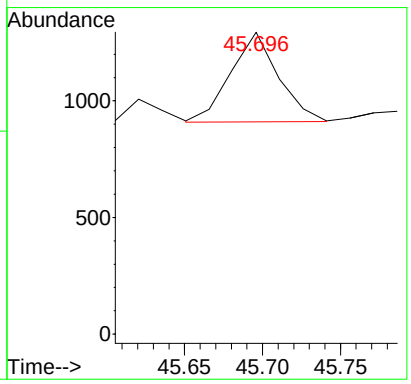
Tgt Ion:217 Resp: 2154

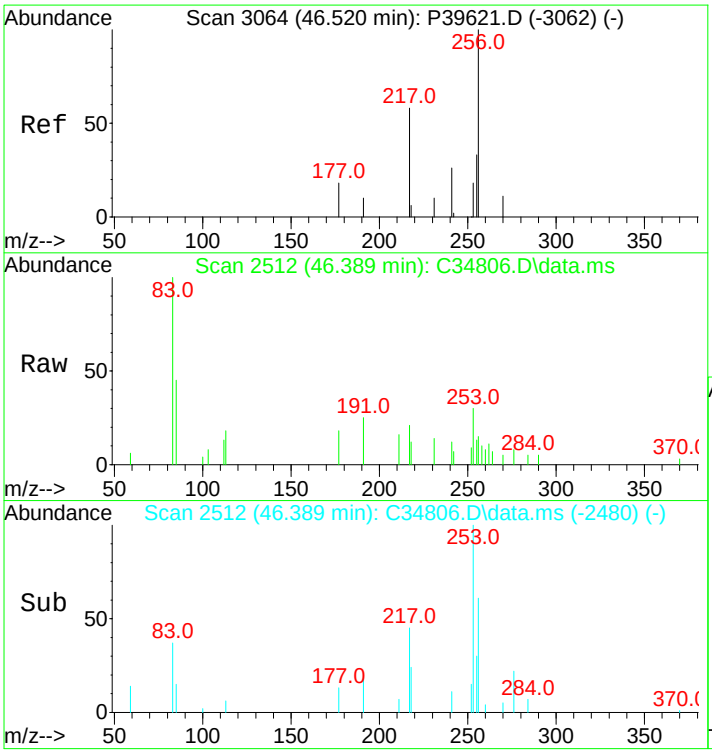




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 67.08 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

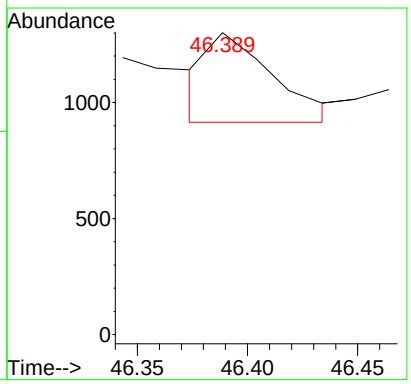
Tgt Ion:217 Resp: 818

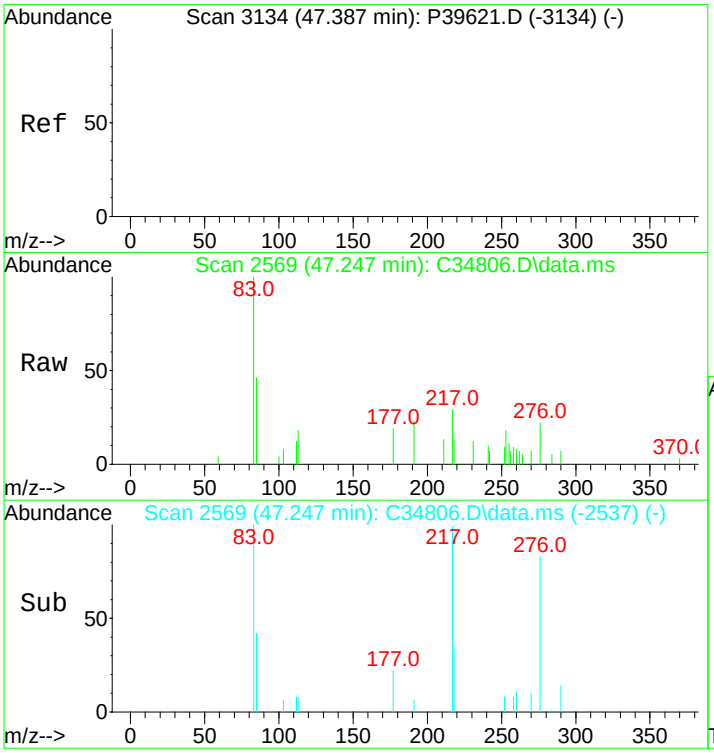




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 65.36 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

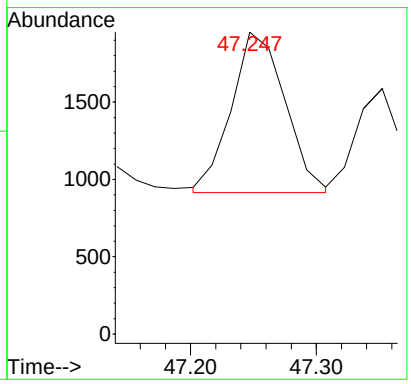
Tgt Ion:217 Resp: 797

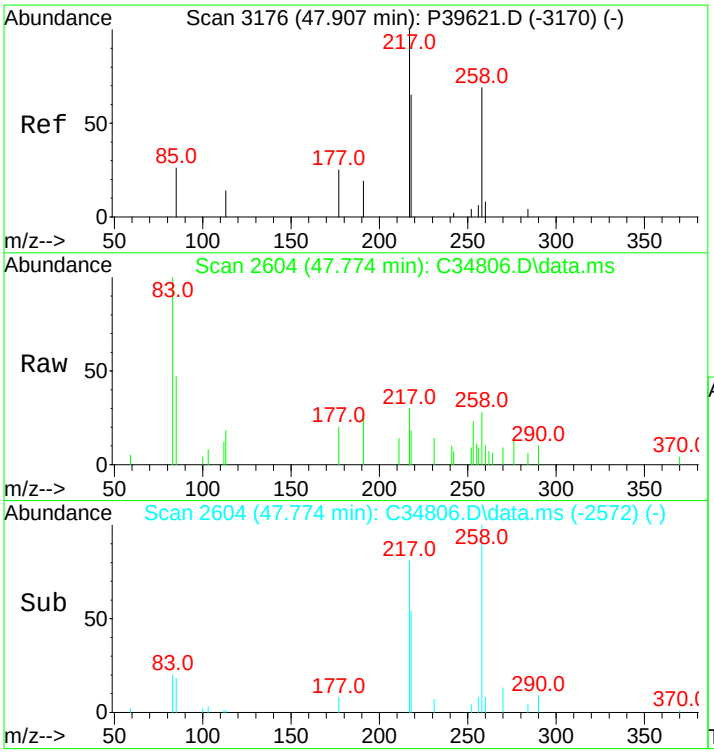




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 251.19 ng/ml m
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

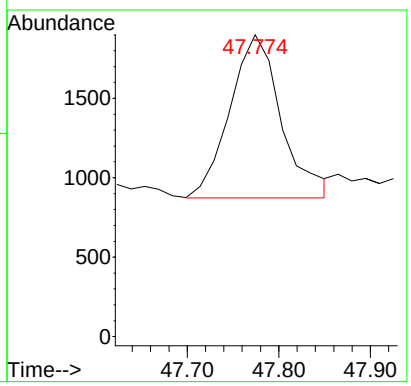
Tgt Ion:217 Resp: 3063

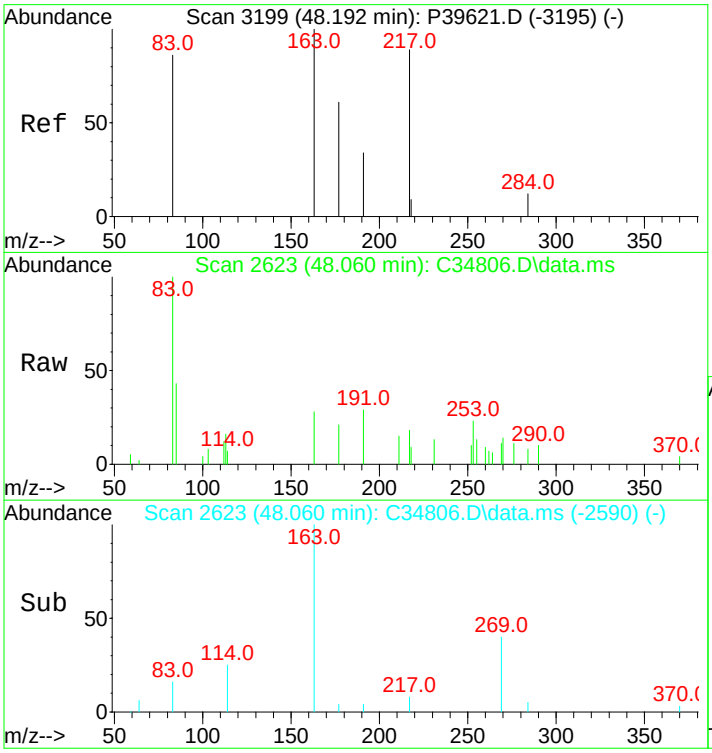




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 329.92 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

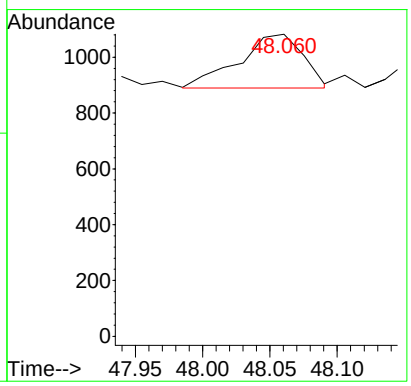
Tgt Ion:217 Resp: 4023

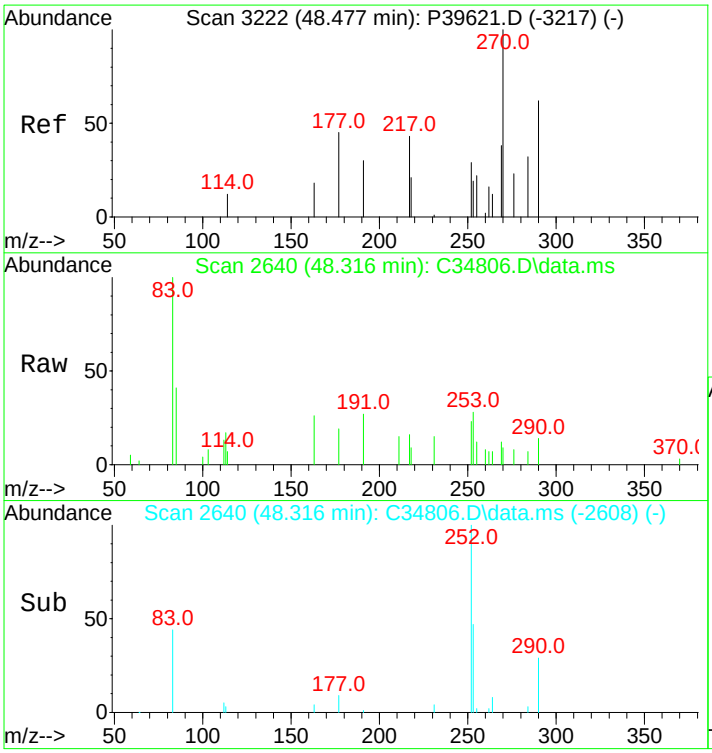




#133
Unknown Sterane (S18)
Concen: 52.65 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

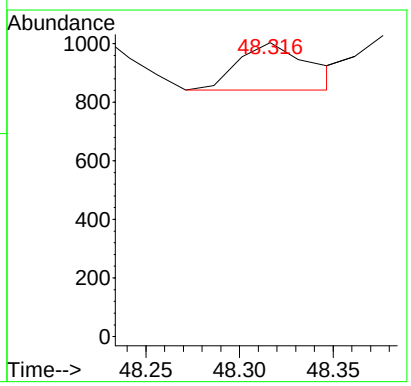
Tgt Ion:217 Resp: 642

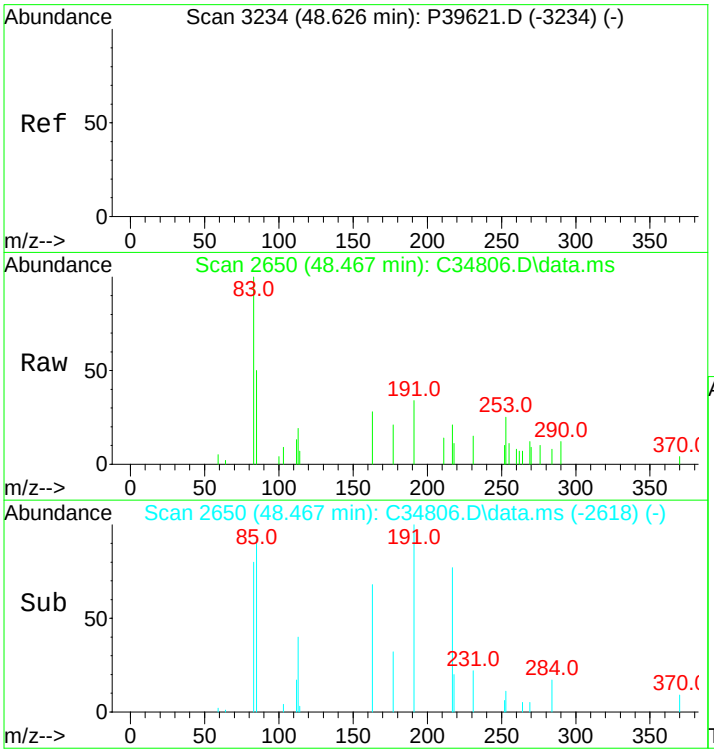




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 35.59 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

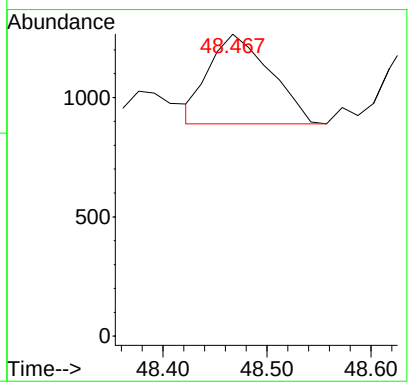
Tgt Ion:217 Resp: 434

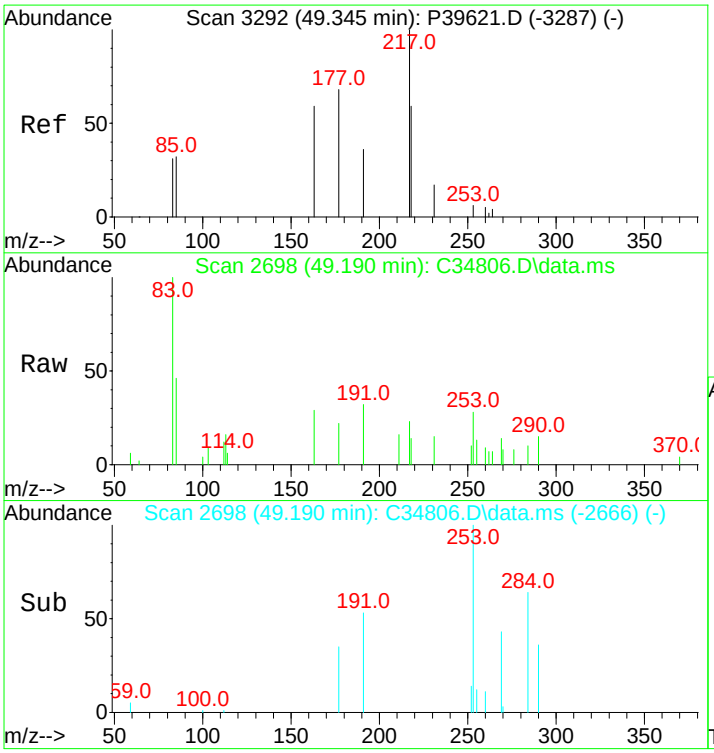




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 125.88 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

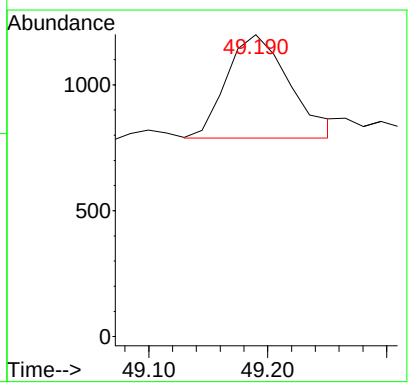
Tgt Ion:217 Resp: 1535

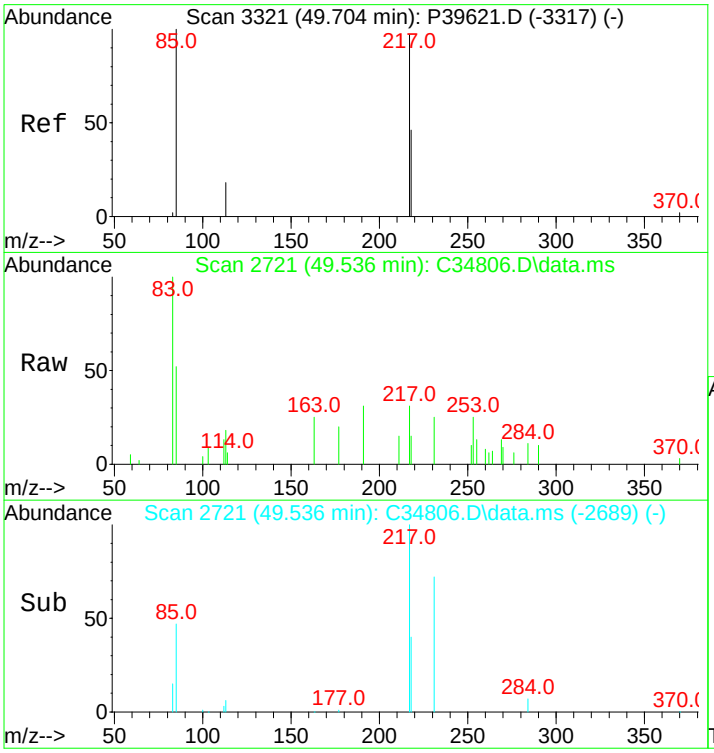




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 123.67 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

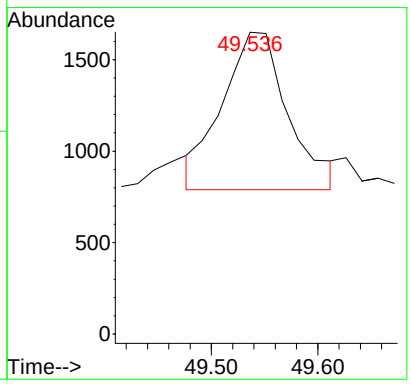
Tgt Ion:217 Resp: 1508

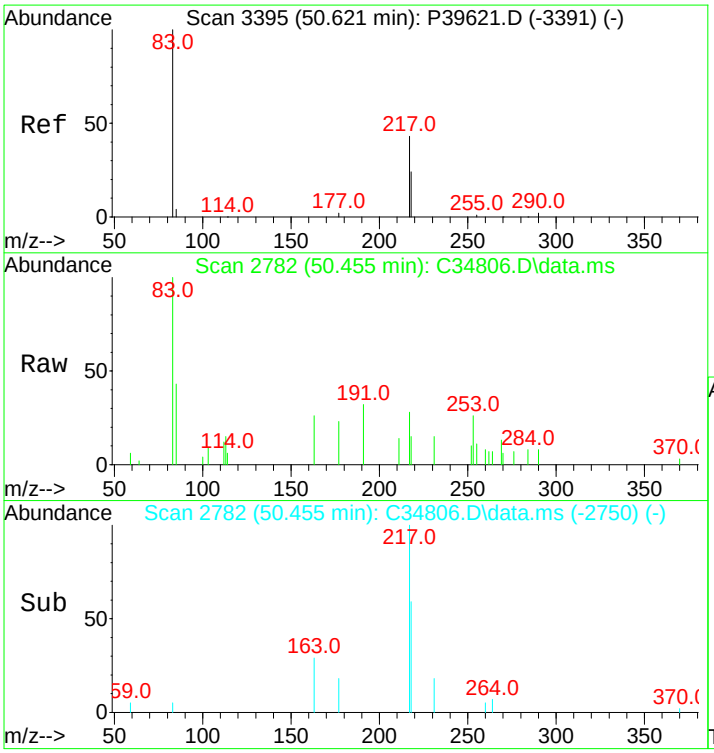




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 304.90 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

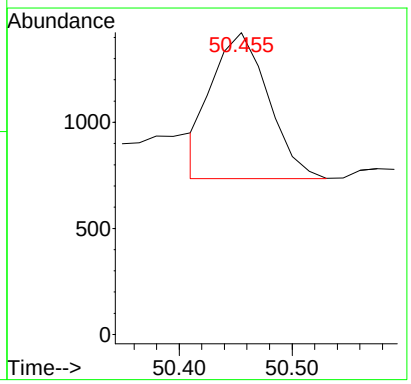
Tgt Ion:217 Resp: 3718

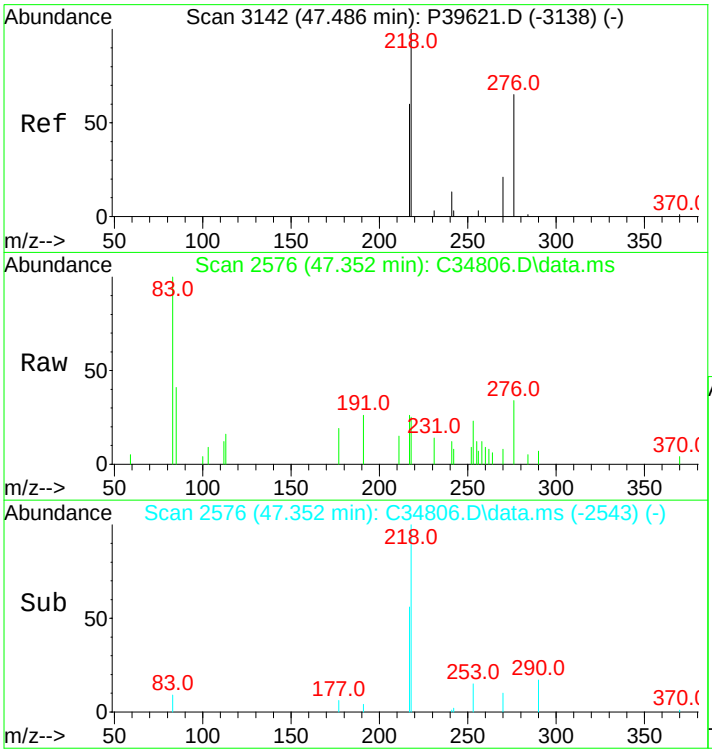




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 195.42 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

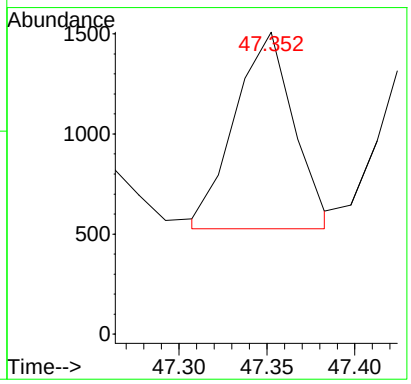
Tgt Ion:217 Resp: 2383

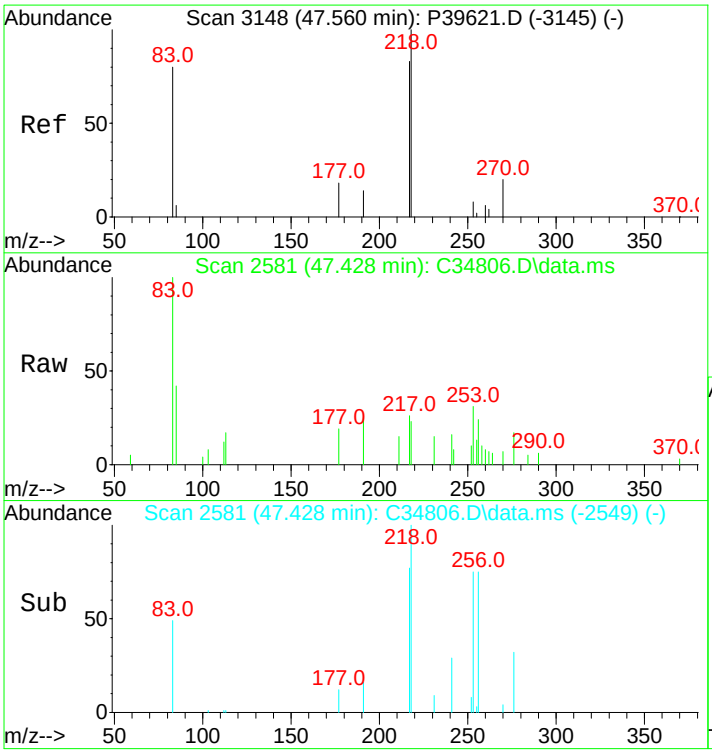




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 188.29 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

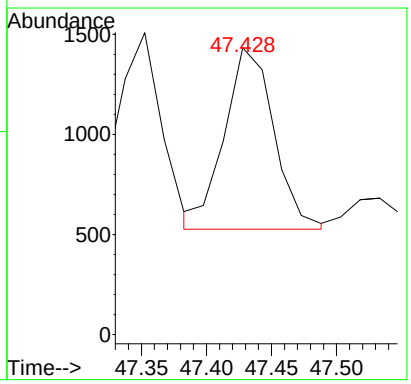
Tgt Ion:218 Resp: 2296

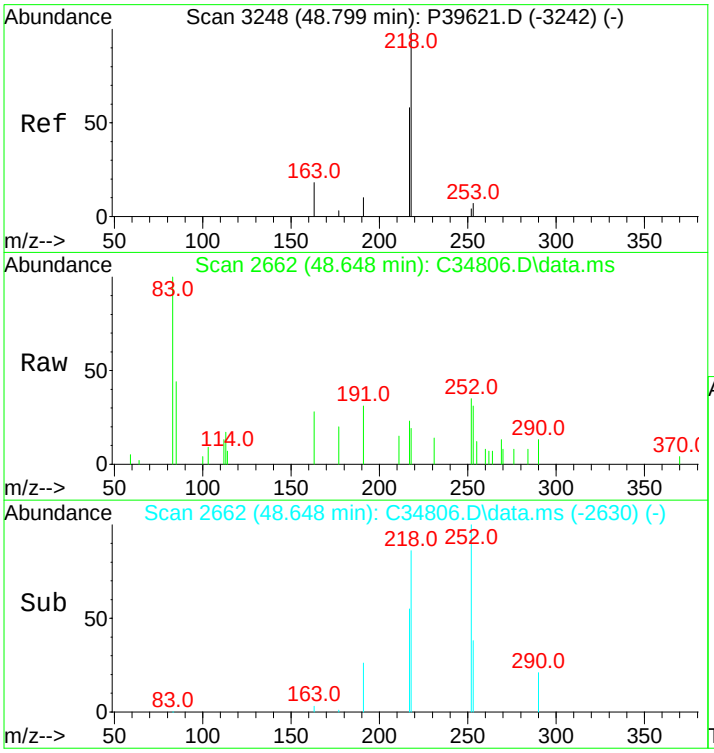




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 196.98 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

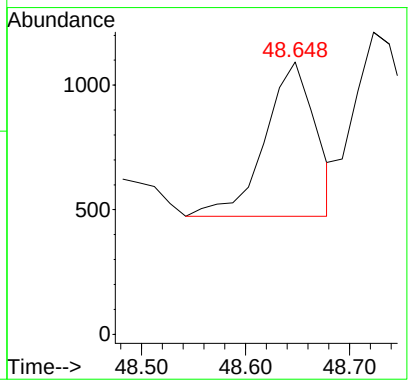
Tgt Ion:218 Resp: 2402

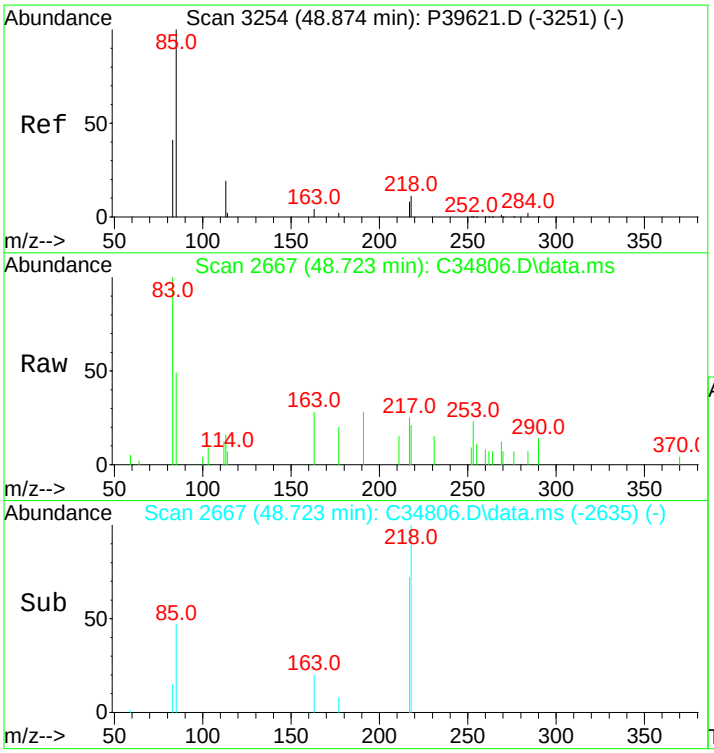




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 171.72 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

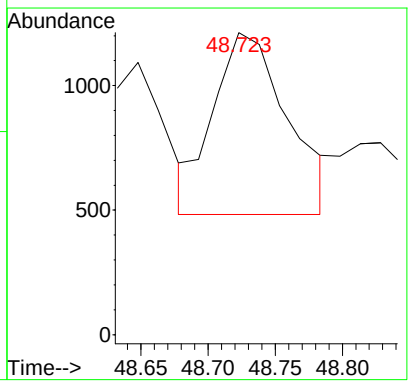
Tgt Ion:218 Resp: 2094

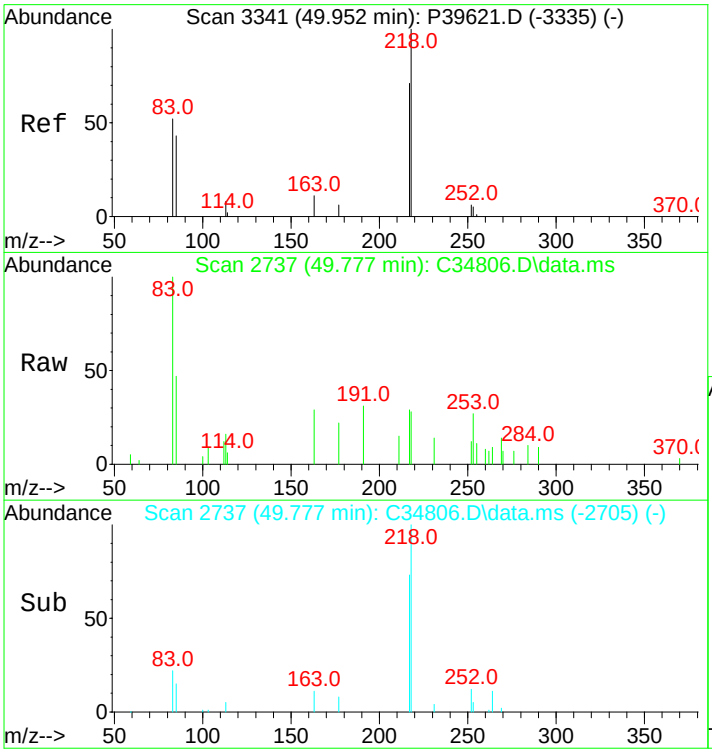




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 229.95 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

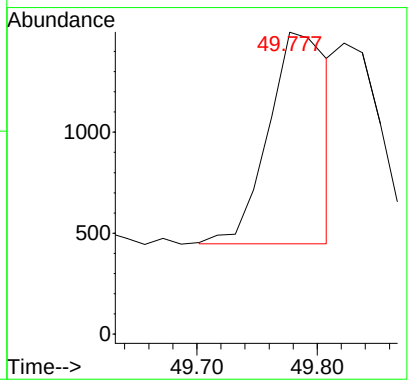
Tgt Ion:218 Resp: 2804

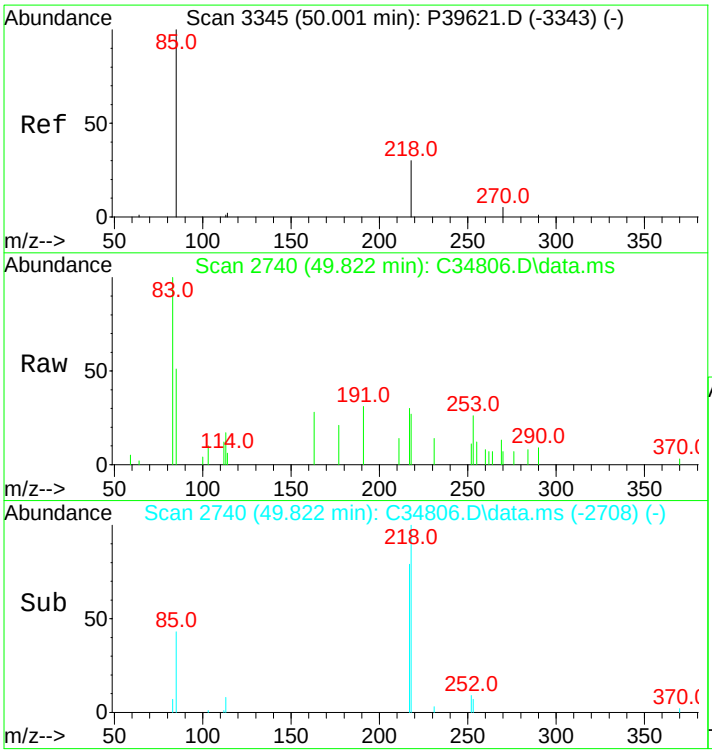




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 294.82 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

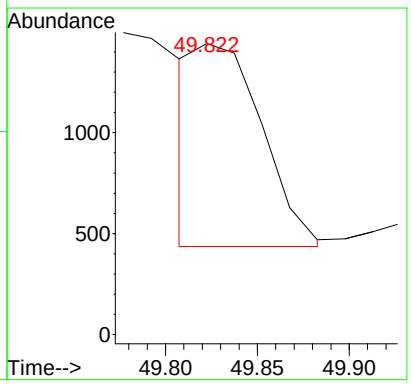
Tgt Ion:218 Resp: 3595

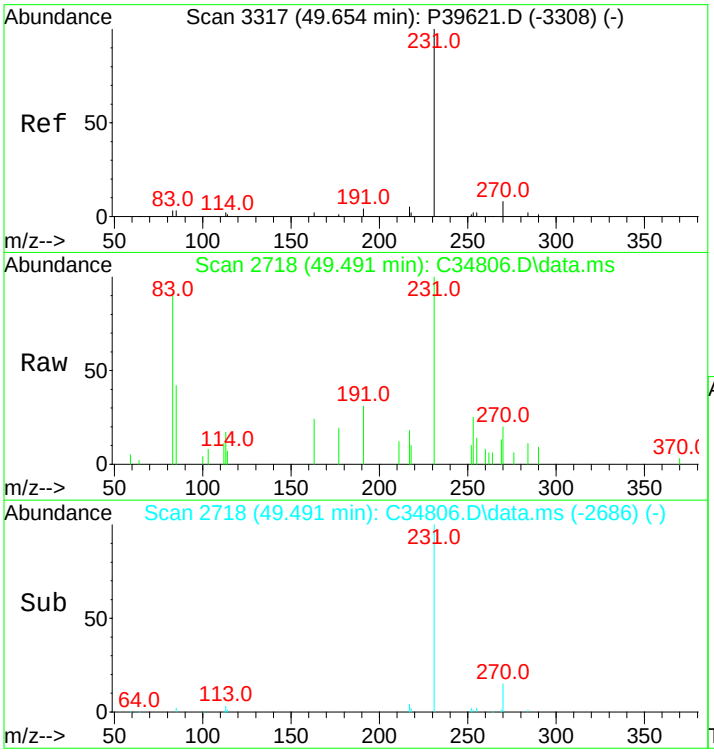




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 207.15 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

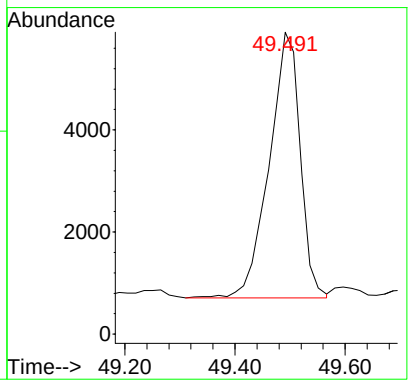
Tgt Ion:218 Resp: 2526

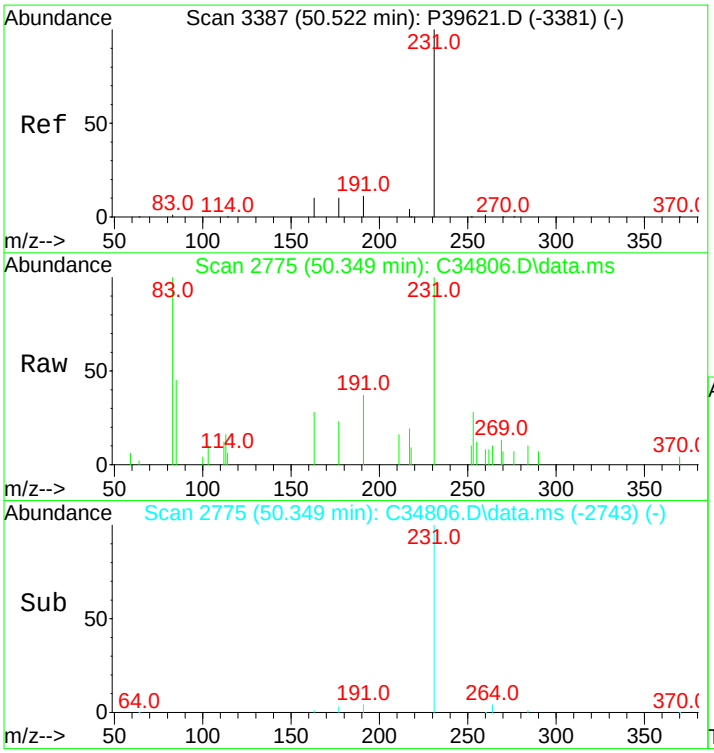




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1663.28 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

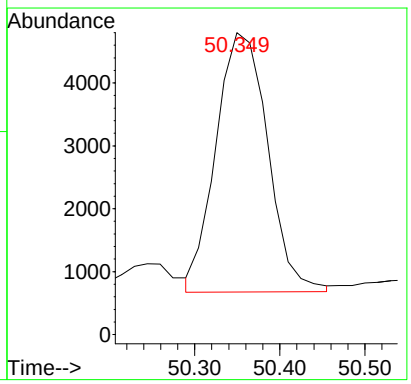
Tgt Ion:231 Resp: 20282

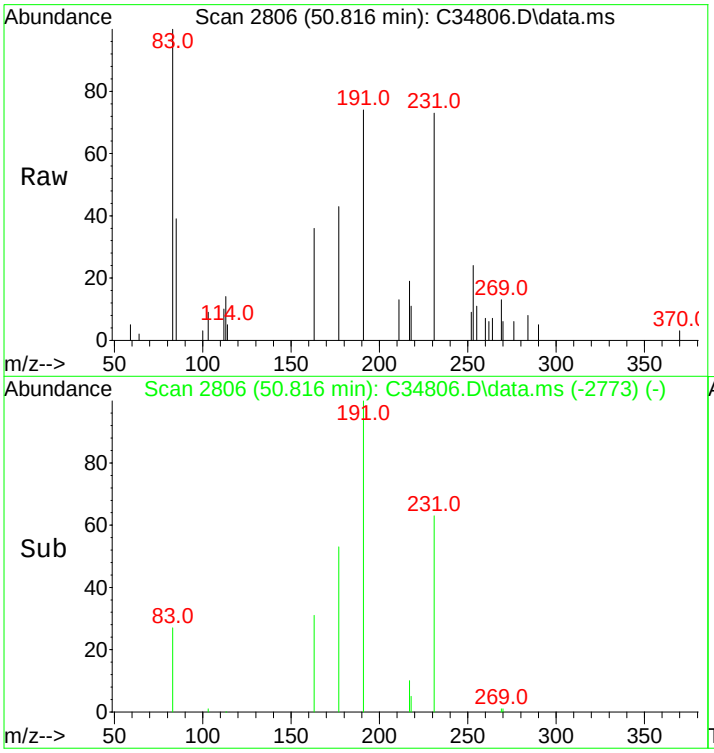




#146
C28,20S-triaromatic steroid
Concen: 1429.80 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

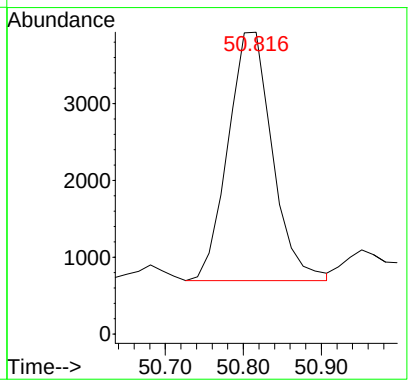
Tgt Ion:231 Resp: 17435

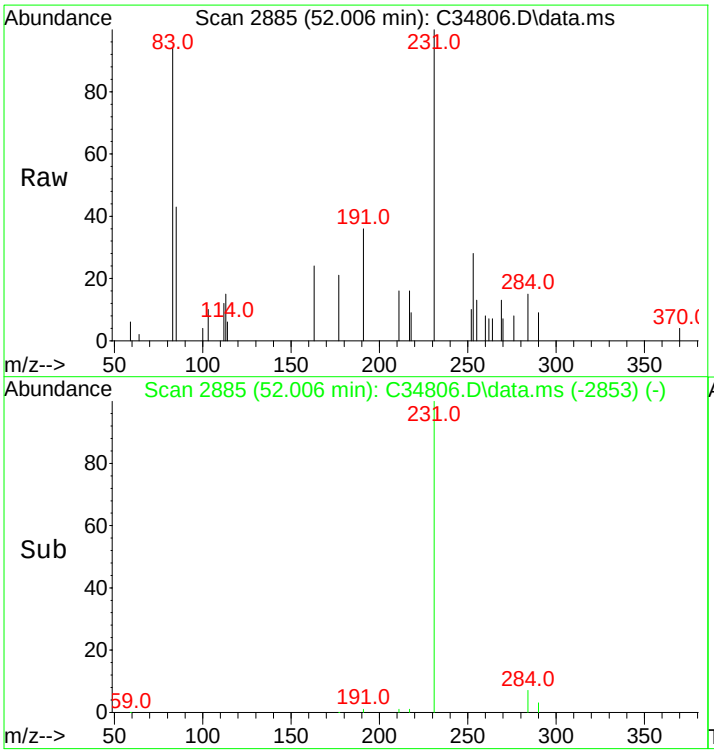




#147
C27,20R-triaromatic steroid
Concen: 1050.43 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

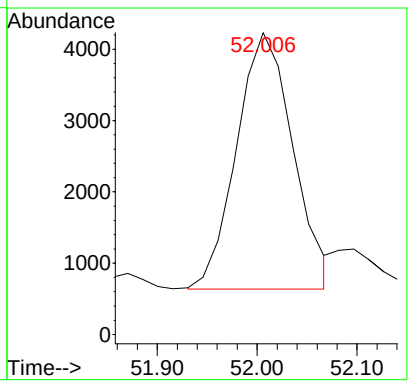
Tgt Ion:231 Resp: 12809





#148
C28,20R-triaromatic steroid
Concen: 1152.45 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34806.D
Acq: 3 May 2012 10:29 am

Tgt Ion:231 Resp: 14053



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18874M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33820	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60930	743.793	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 74.38%			
42) Phenanthrene-d10	32.567	188	55249	853.277	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.33%			
86) Benzo[a]pyrene-d12	48.241	264	58647	836.747	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.67%			
127) 5B(H)Cholane - Surr	43.769	217	9689	916.317	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.63%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	737M3	6.127	ng/mL	
11) C1-Naphthalenes	22.511	142	659M5	5.478	ng/mL	
12) C2-Naphthalenes	25.010	156	963M5	8.005	ng/mL	
13) C3-Naphthalenes	27.674	170	1715M5	14.257	ng/mL	
14) C4-Naphthalenes	30.444	184	5110M5	42.480	ng/mL	
16) 2-Methylnaphthalene	22.511	142	369M3	5.188	ng/mL	
17) 1-Methylnaphthalene	22.932	142	167M3	2.395	ng/mL	
21) C3-Benzo(b)thiophenes	26.139	176	1501M5	13.866	ng/mL	
22) C4-Benzo(b)thiophenes	30.369	190	1361M5	12.573	ng/mL	
23) Biphenyl	24.378	154	154M3	1.712	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	168M3	2.875	ng/mL	
25) Dibenzofuran	27.464	168	463	4.481	ng/mL#	90
26) Acenaphthylene	26.079	152	152	1.273	ng/mL#	100
27) Acenaphthene	26.816	153	150M3	2.133	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	50M3	1.061	ng/mL	
29) Fluorene	28.834	166	173M3	2.231	ng/mL	
31) C2-Fluorenes	33.244	194	2201M5	28.384	ng/mL	
32) C3-Fluorenes	35.232	208	5494M5	70.851	ng/mL	
33) Dibenzothiophene	32.161	184	250M3	2.011	ng/mL	
34) 4-Methyldibenzothiophe...	33.937	198	724	5.825	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.268	198	489M3	3.934	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	397M3	3.194	ng/mL	
37) OTP	34.328	198	12297M3	98.930	ng/mL	
38) C1-Dibenzothiophenes	34.328	198	14623M5	117.642	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	12260M5	98.632	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	24068M5	193.627	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	22070M5	177.554	ng/mL	
43) Phenanthrene	32.657	178	1239	11.345	ng/mL#	21
44) 3-Methylphenanthrene(3MP)	34.615	192	388M3	3.553	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	499	4.569	ng/mL	98
46) 2-Methylanthracene(2MA)	34.886	192	215M3	1.969	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	772M3	7.069	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	425M3	3.892	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	2444M5	22.379	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	12284M5	112.482	ng/mL	
51) 5AA IS BKGD	36.632	206	1676M6	15.347	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	14854M5	136.015	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	12476M5	114.240	ng/mL	
55) Anthracene	32.838	178	344M3	3.225	ng/mL	
56) Carbazole	33.515	167	255	2.367	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	431M3	6.228	ng/mL	
58) Fluoranthene	37.430	202	3399M3	31.338	ng/mL	
59) Benzo(b)fluorene	39.944	216	308M3	4.895	ng/mL	
60) Pyrene	38.303	202	3423	31.046	ng/mL#	90
61) C1-Fluoranthenes/Pyrenes	39.703	216	5079M5	46.066	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	7348M5	66.646	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
63)	C3-Fluoranthenes/Pyrenes	43.633	244		10624M5	96.359	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	45.395	258		11546M5	104.721	ng/mL	
66)	Naphthobenzothiophene	42.158	234		1869	15.746	ng/ml#	87
67)	Naphthobenzothiophene-...	42.158	234		1869	15.746	ng/mL#	87
68)	Naphthobenzothiophene-...	42.504	234		428M3	3.606	ng/mL	
69)	Naphthobenzothiophene-...	42.805	234		425M3	3.580	ng/mL	
70)	C1-Naphthobenzothiophenes	43.558	248		11872M5	100.017	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262		21029M5	177.161	ng/ml	
72)	C3-Naphthobenzothiophenes	47.157	276		21373M5	180.060	ng/ml	
73)	C4-Naphthobenzothiophenes	48.226	290		18112M5	152.587	ng/mL	
75)	Benz[a]anthracene	43.091	228		1049M3	9.772	ng/mL	
77)	Chrysene/Triphenylene	43.242	228		2420M3	22.330	ng/mL	
78)	C1-Chrysenes	44.717	242		4137M5	38.174	ng/mL	
79)	C2-Chrysenes	46.795	256		9028M5	83.305	ng/mL	
80)	C3-Chrysenes	48.015	270		12945M5	119.449	ng/mL	
81)	C4-Chrysenes	49.596	284		10346M5	95.467	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252		2504	21.229	ng/mL	97
83)	Benzo[j]+[k]fluoranthene	47.202	252		1676M3	13.051	ng/mL	
84)	Benzo[a]fluoranthene	47.518	252		386M2	3.006	ng/mL	
85)	Benzo[e]pyrene	48.136	252		2354	20.177	ng/mL	91
87)	Benzo[a]pyrene	48.331	252		1631M3	14.520	ng/mL	
88)	Perylene	48.633	252		1580M3	13.162	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	53.136	276		2112M3	16.157	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.181	278		548M3	4.407	ng/mL	
91)	Benzo[g,h,i]perylene	54.431	276		2911	21.078	ng/mL#	89
92)	Hopane (T19)	52.202	191		9120M3	409.156	ng/mL	
94)	C23 Tricyclic Terpane ...	40.788	191		3400	152.536	ng/ml	100
95)	C24 Tricyclic Terpane ...	41.510	191		1949M3	87.439	ng/ml	
96)	C25 Tricyclic Terpane ...	43.001	191		2106M3	94.483	ng/ml	
97)	C24 Tetracyclic Terpan...	44.311	191		845	37.910	ng/ml	100
98)	C26 Tricyclic Terpane-...	44.055	191		773M3	34.680	ng/ml	
99)	C26 Tricyclic Terpane-...	44.145	191		681M3	30.552	ng/ml	
100)	C28 Tricyclic Terpane-...	46.434	191		679M3	30.462	ng/ml	
101)	C28 Tricyclic Terpane-...	46.599	191		1000M3	44.864	ng/ml	
102)	C29 Tricyclic Terpane-...	47.112	191		1153	51.728	ng/ml	100
103)	C29 Tricyclic Terpane-...	47.307	191		900	40.377	ng/ml	100
104)	18a-22,29,30-Trisnorne...	48.437	191		1159M3	51.997	ng/ml	
105)	C30 Tricyclic Terpane-22S	48.527	191		703M3	31.539	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.768	191		888M3	39.839	ng/mL	
107)	17a(H)-22,29,30-Trisno...	48.979	191		2775M3	124.497	ng/ml	
108)	17a/b,21b/a 28,30-Bisn...	50.184	191		1355	60.790	ng/ml	100
109)	17a(H),21b(H)-25-Norho...	49.958	191		785	35.218	ng/ml	100
110)	30-Norhopane (T15)	50.846	191		6441M3	288.967	ng/ml	
111)	18a(H)-30-Norneohopane...	50.937	191		1276M3	57.246	ng/ml	
112)	17a(H)-Diahopane (X)	51.072	191		575	25.797	ng/ml	100
113)	30-Normoretane (T17)	51.615	191		972M3	43.607	ng/ml	
114)	18a(H)&18b(H)-Oleanane...	52.021	191		332M3	14.895	ng/ml	
115)	Moretane (T20)	52.895	191		1037M3	46.524	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191		3820	171.379	ng/ml	100
117)	30-Homohopane-22R (T22)	54.235	191		3477	155.991	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191		1336M3	59.938	ng/mL	
119)	30,31-Bishomohopane-22...	55.545	191		3160	141.769	ng/ml	100
120)	30,31-Bishomohopane-22...	55.952	191		1906M3	85.510	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191		2233	100.180	ng/ml	100
122)	30,31-Trishomohopane-2...	58.316	191		1284	57.605	ng/ml	100
123)	Tetrakishomohopane-22S...	60.318	191		1314M3	58.951	ng/ml	
124)	Tetrakishomohopane-22R...	61.162	191	G	1848M3	82.908	ng/ml	
125)	Pentakishomohopane-22S...	63.436	191		1535M3	68.866	ng/ml	
126)	Pentakishomohopane-22R...	64.716	191		1221M3	54.778	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217		660M3	62.418	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217		393M3	37.167	ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
130) 13b,17a-20S-Methyldiac...	46.374	217	337M3	31.871	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1139	107.719	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1340	126.728	ng/ml	100
133) Unknown Sterane (S18)	48.045	217	405	38.302	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	133	12.578	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.452	217	570M3	53.907	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	421M3	39.815	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	1123M3	106.205	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	776M3	73.389	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	672M3	63.553	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	747M3	70.646	ng/ml	
141) 14b,17b-20R-Methylchol...	48.633	218	556	52.583	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	758M3	71.686	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	1218M3	115.190	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	699M3	66.106	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	5170M3	488.942	ng/mL	
146) C28,20S-triaromatic st...	50.350	231	4478M3	423.498	ng/mL	
147) C27,20R-triaromatic st...	50.801	231	3155	298.378	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	3757M3	355.310	ng/mL	

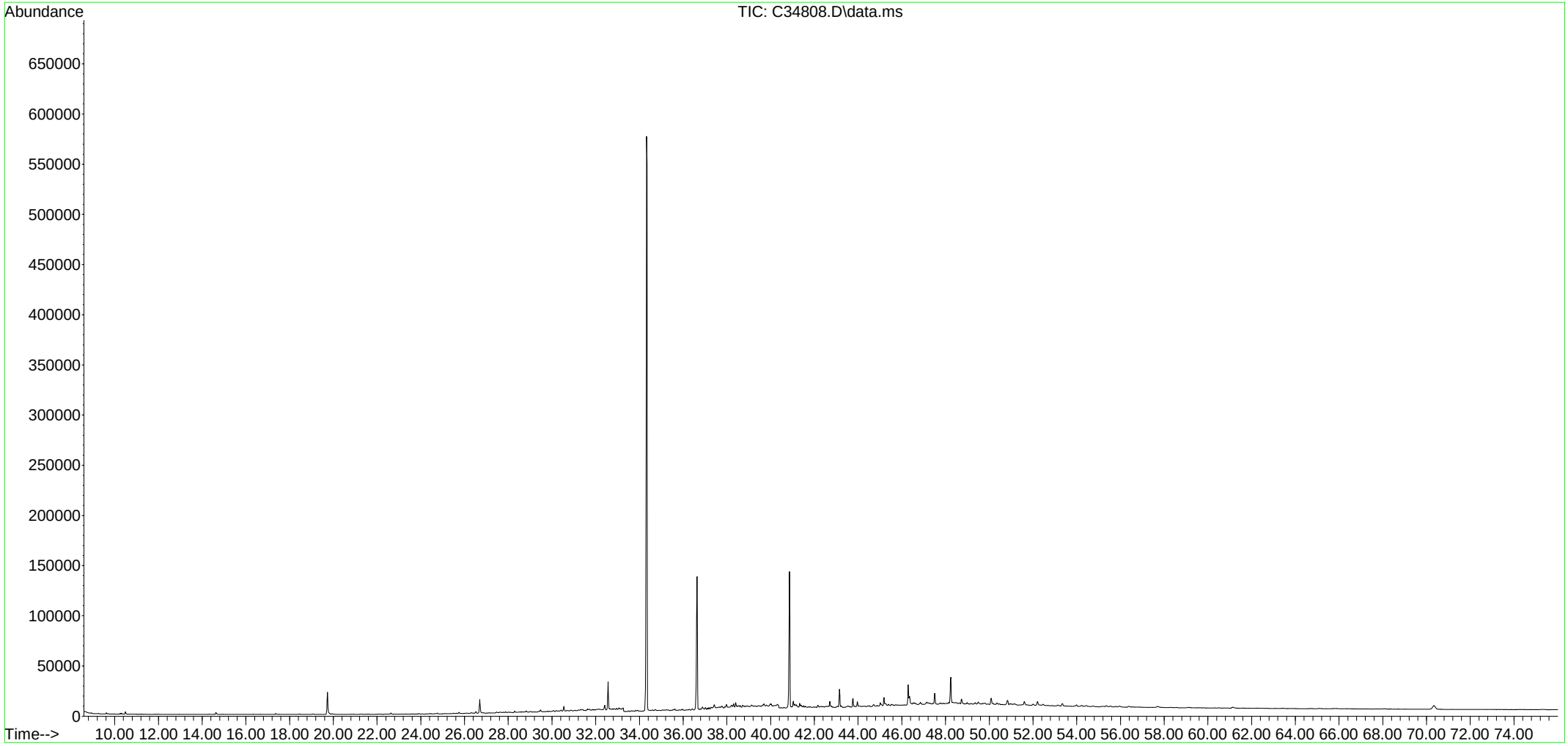
(#) = qualifier out of range (m) = manual integration (+) = signals summed

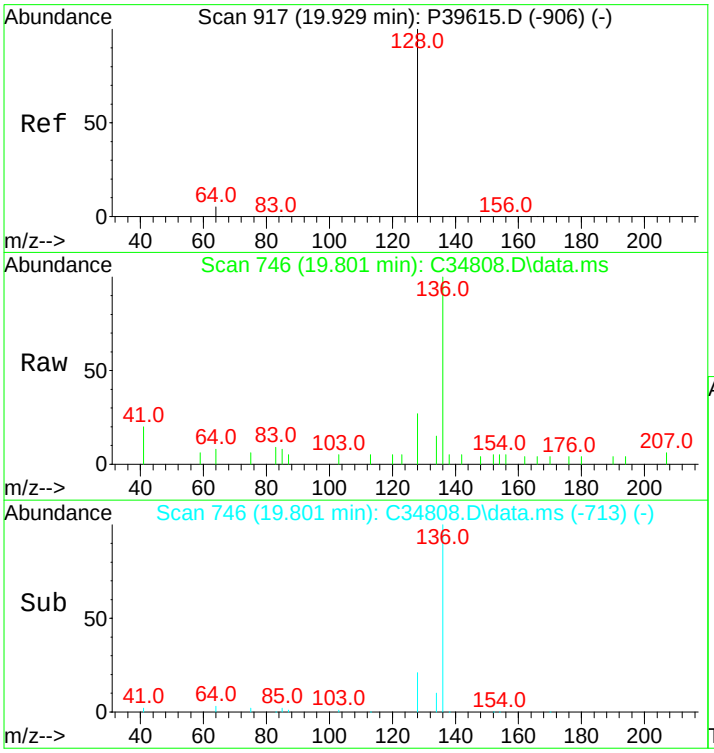
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34808.D
Acq On : 3 May 2012 12:00 pm
Operator : AC
Sample : 1204031-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 13:19:21 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

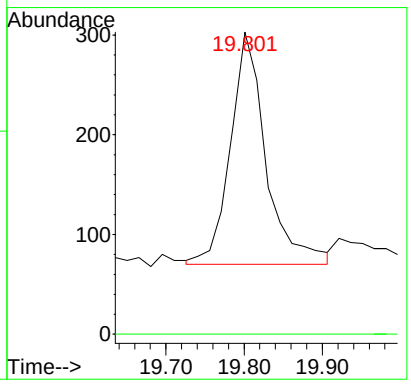


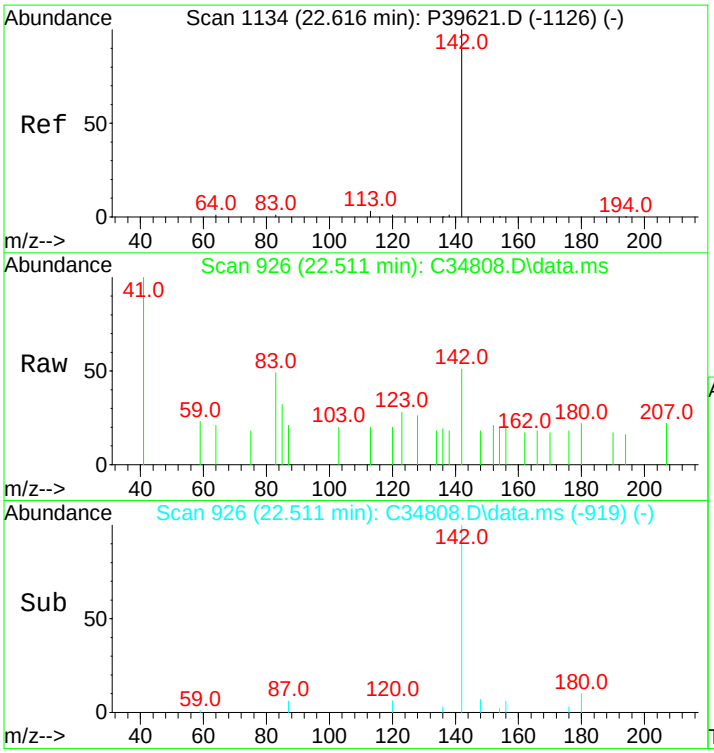


#10
Naphthalene
Concen: 6.13 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:128 Resp: 737

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

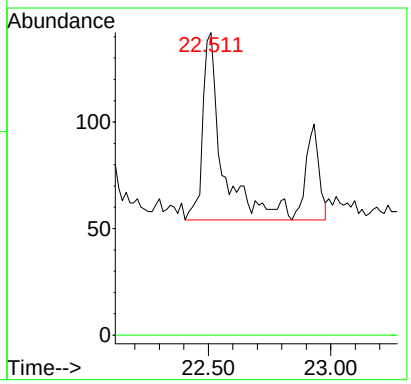


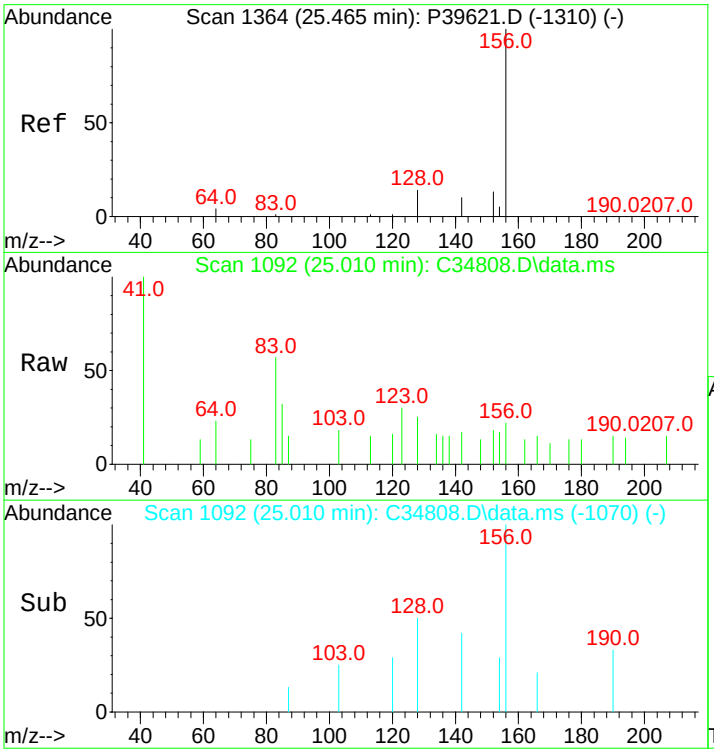


#11
C1-Naphthalenes
Concen: 5.48 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:142 Resp: 659

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

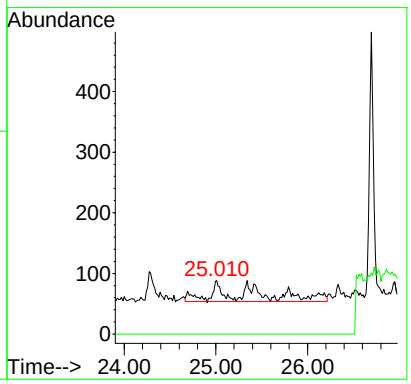


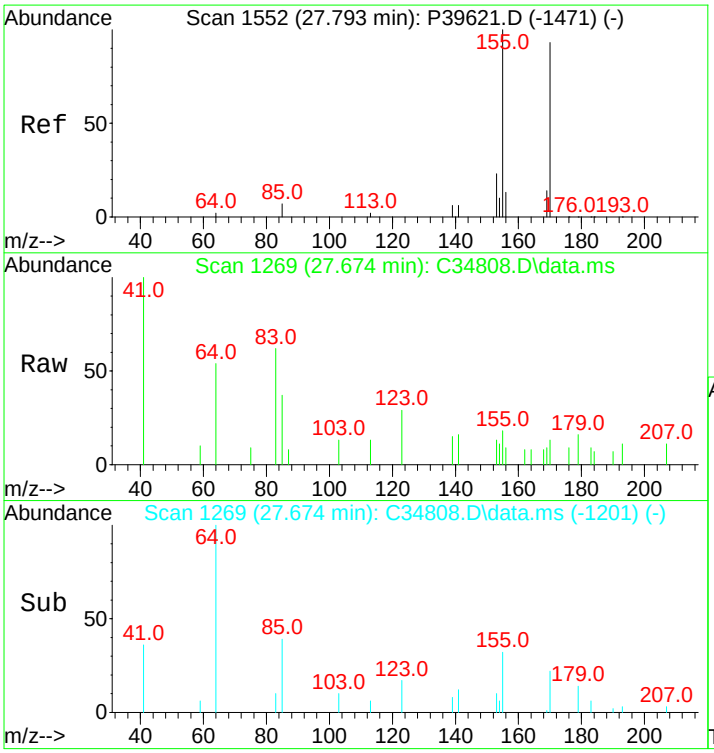


#12
C2-Naphthalenes
Concen: 8.01 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.337 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:156 Resp: 963

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

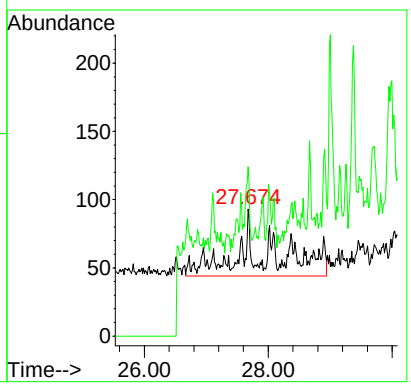


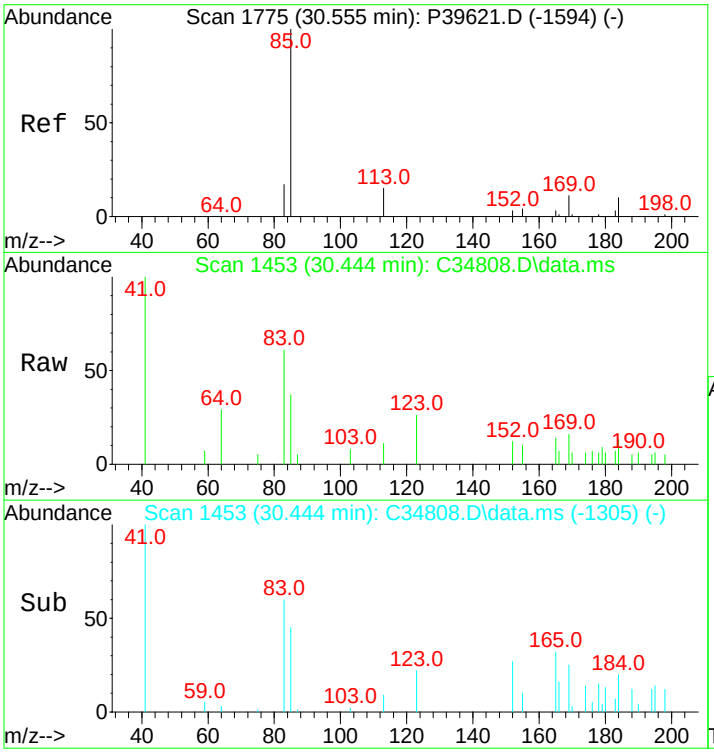


#13
C3-Naphthalenes
Concen: 14.26 ng/mL m
RT: 27.674 min Scan# 1269
Delta R.T. 0.004 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:170 Resp: 1715

Ion	Ratio	Lower	Upper
170	100		
155	11.4	81.8	122.6#

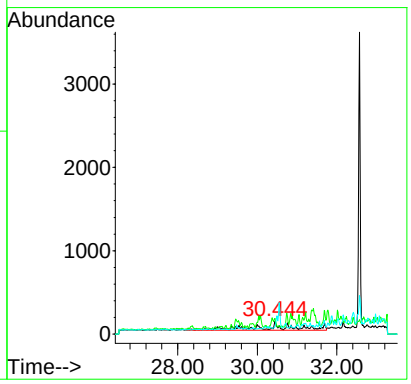


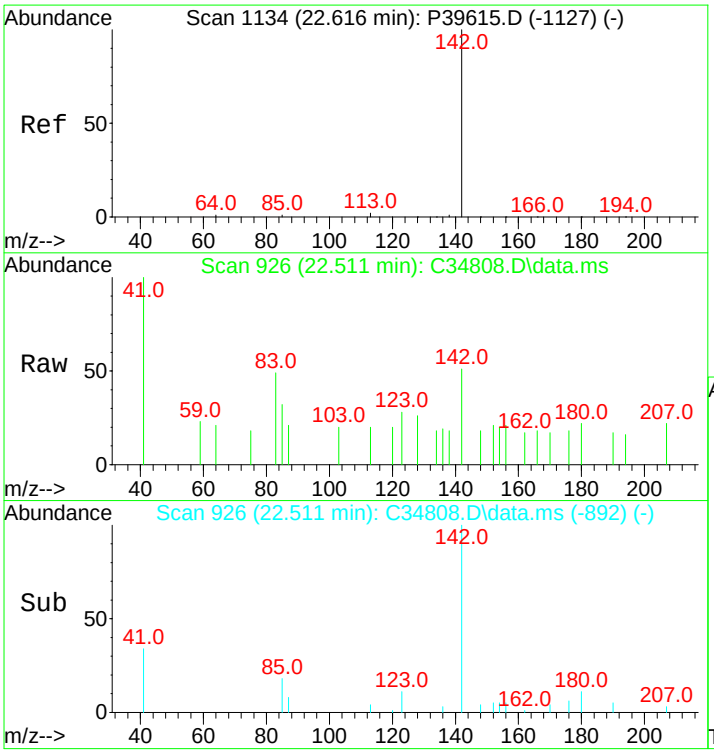


#14
C4-Naphthalenes
Concen: 42.48 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:184 Resp: 5110

Ion	Ratio	Lower	Upper
184	100		
169	0.0	77.4	116.0#
183	0.0	14.8	22.2#

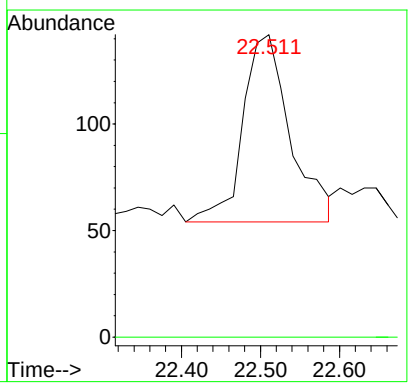


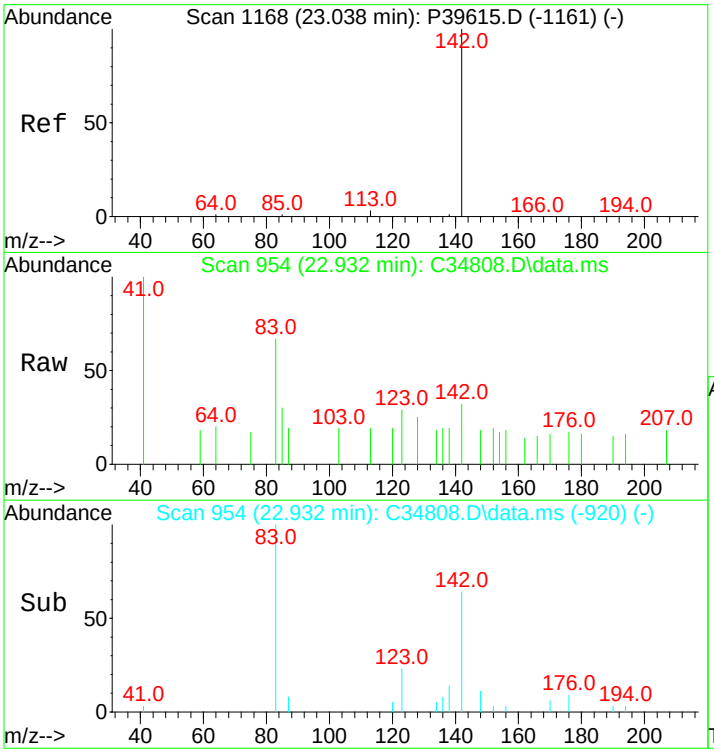


#16
2-Methylnaphthalene
Concen: 5.19 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:142 Resp: 369

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

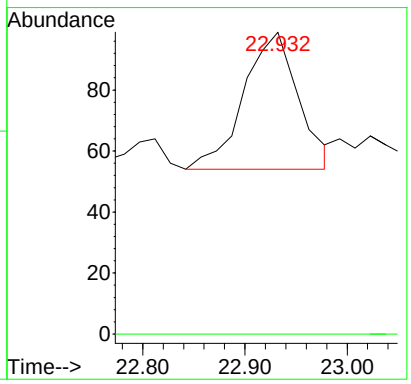


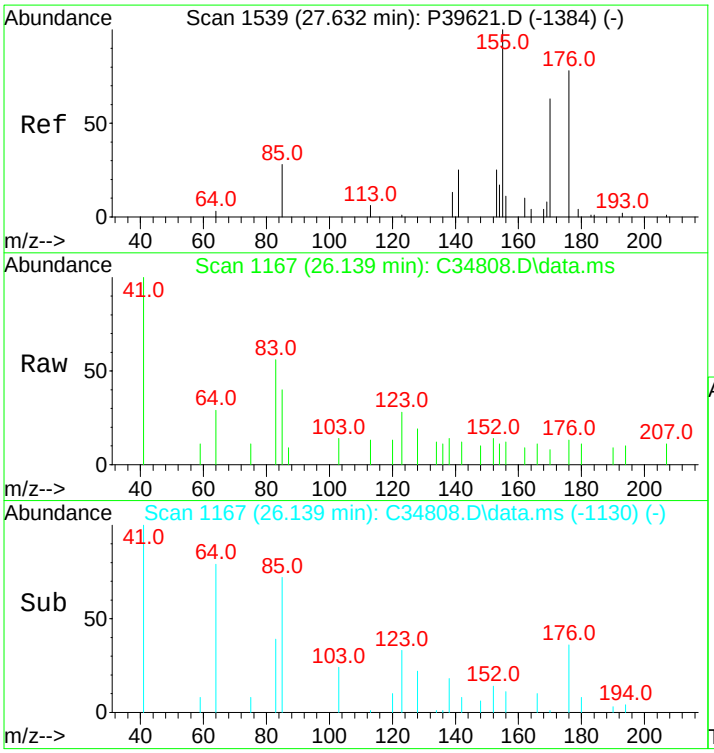


#17
1-Methylnaphthalene
Concen: 2.40 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:142 Resp: 167

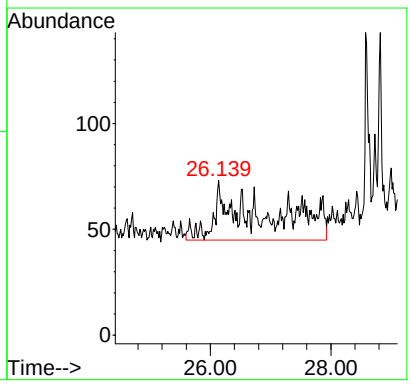
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

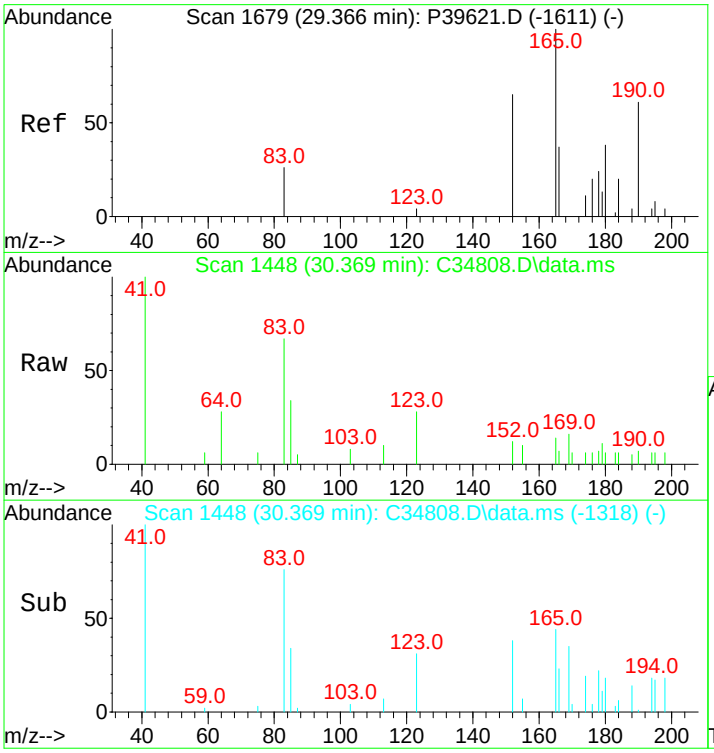




#21
C3-Benzo(b)thiophenes
Concen: 13.87 ng/mL m
RT: 26.139 min Scan# 1167
Delta R.T. -1.366 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

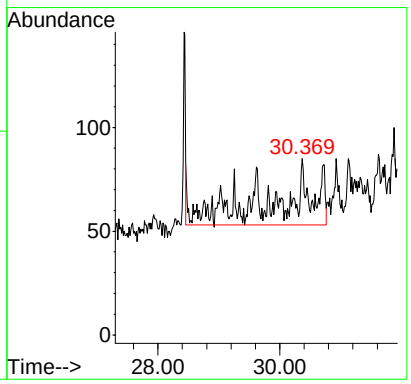
Tgt Ion:176 Resp: 1501

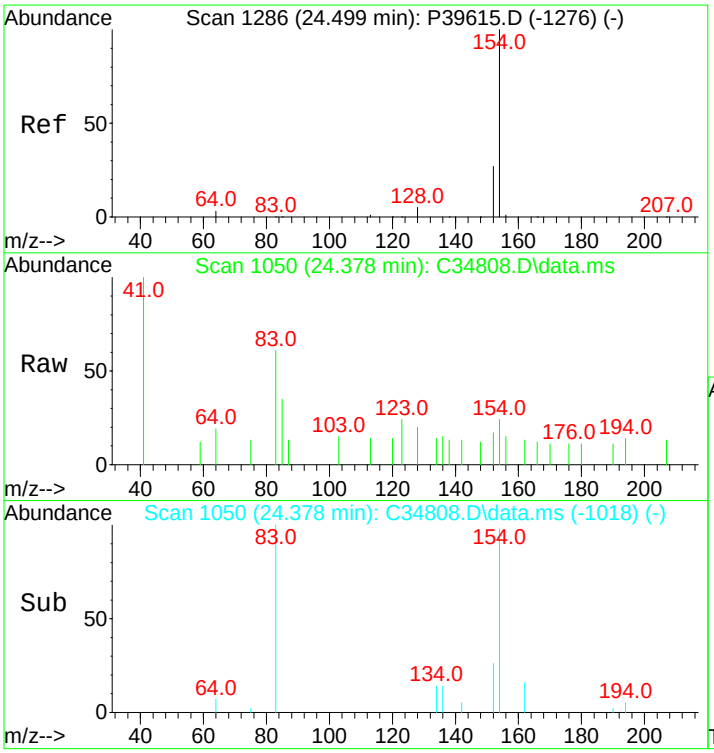




#22
C4-Benzo(b)thiophenes
Concen: 12.57 ng/mL m
RT: 30.369 min Scan# 1448
Delta R.T. 1.140 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:190 Resp: 1361

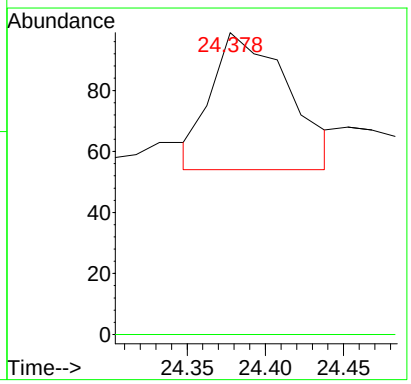


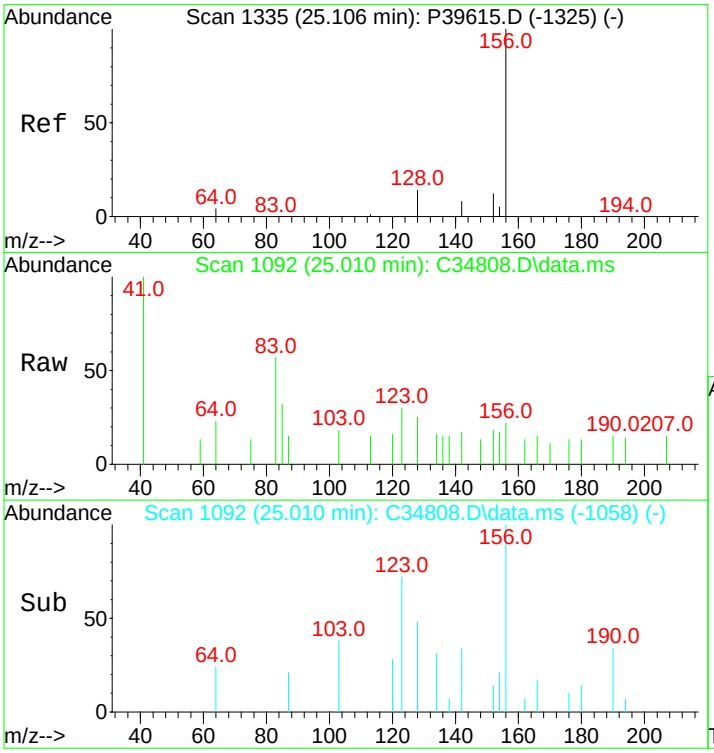


#23
Biphenyl
Concen: 1.71 ng/mL m
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:154 Resp: 154

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

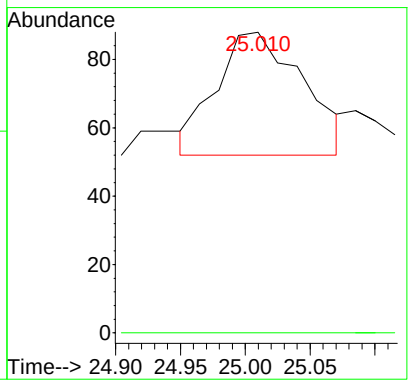


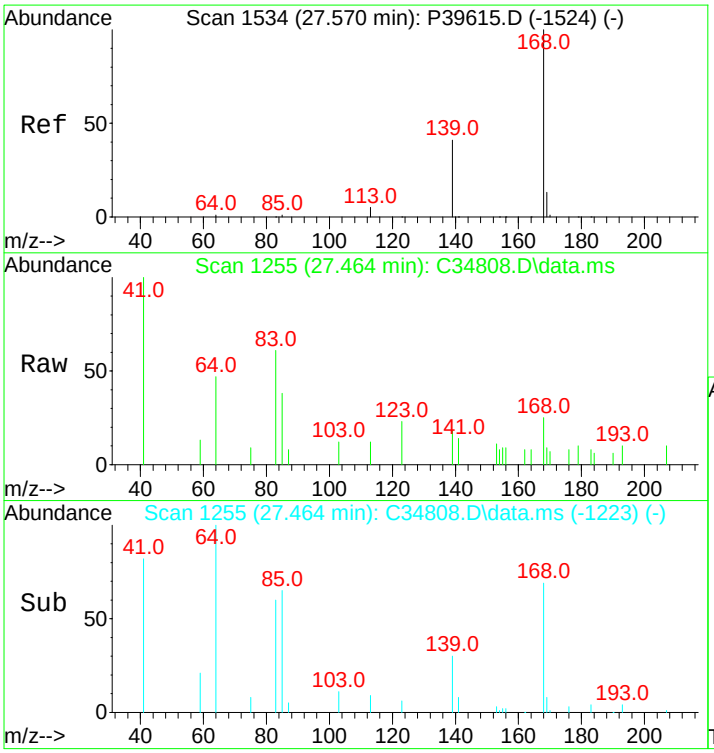


#24
2,6-Dimethylnaphthalene
Concen: 2.87 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:156 Resp: 168

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

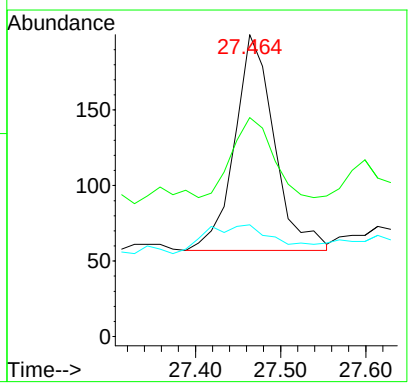


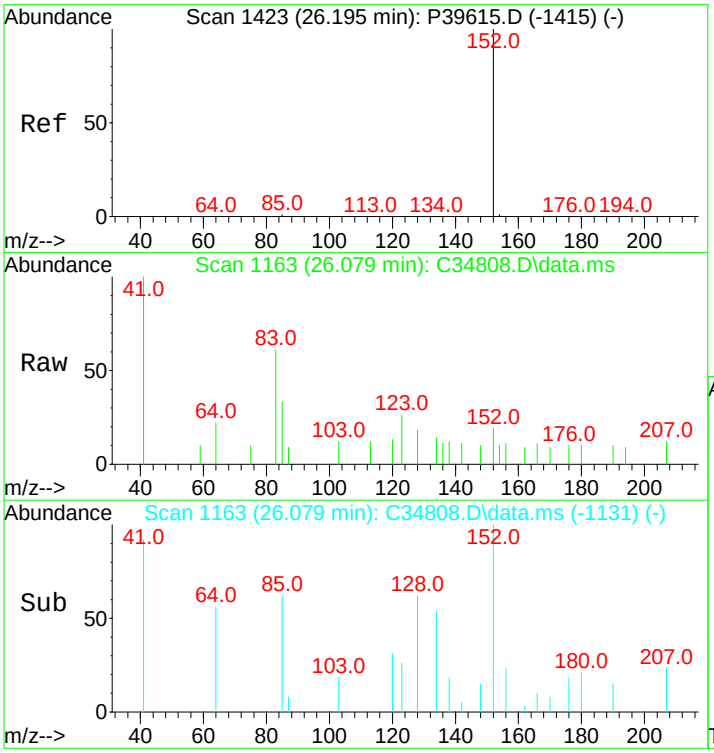


#25
Dibenzofuran
Concen: 4.48 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:168 Resp: 463

Ion	Ratio	Lower	Upper
168	100		
139	37.4	28.4	42.6
169	24.2	10.8	16.2#

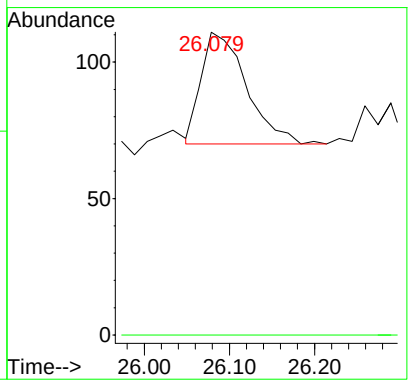


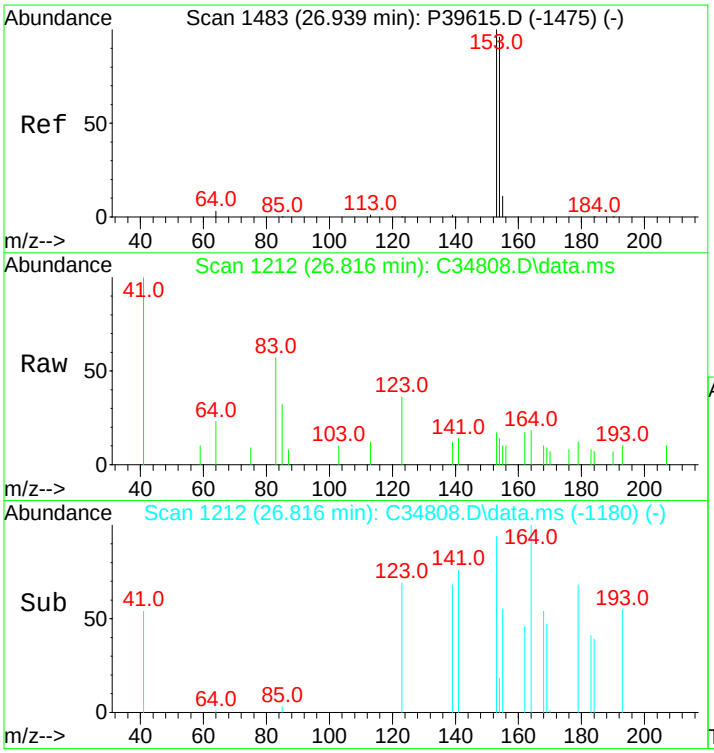


#26
Acenaphthylene
Concen: 1.27 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:152 Resp: 152

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

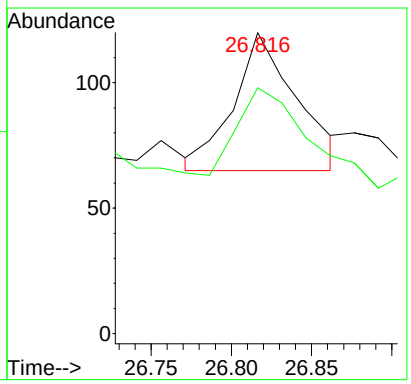


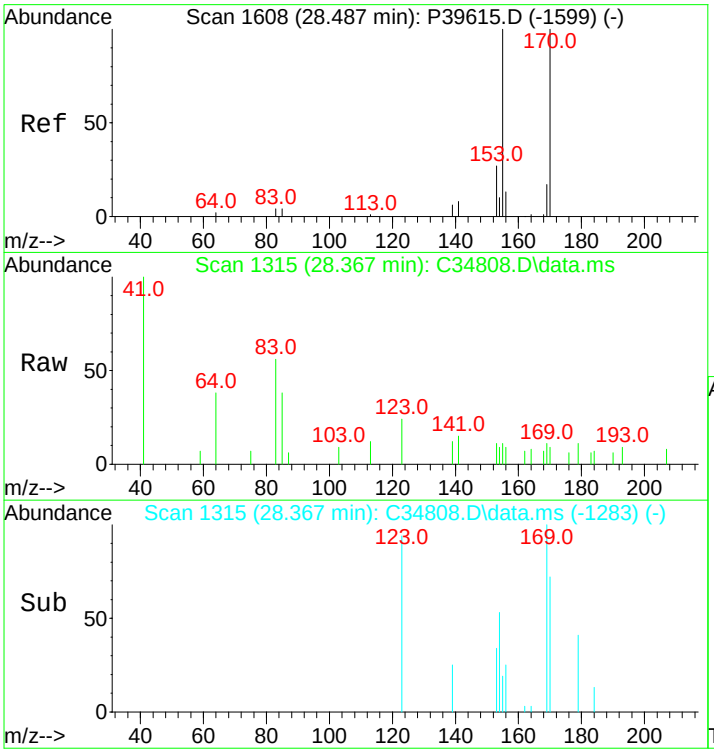


#27
Acenaphthene
Concen: 2.13 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:153 Resp: 150

Ion	Ratio	Lower	Upper
153	100		
154	84.0	73.6	110.4

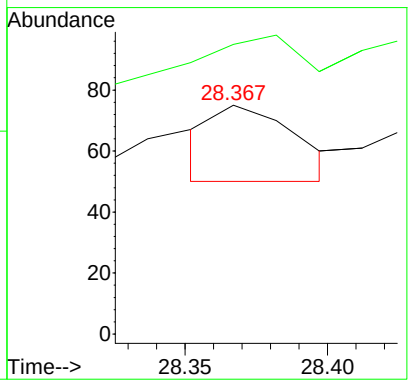


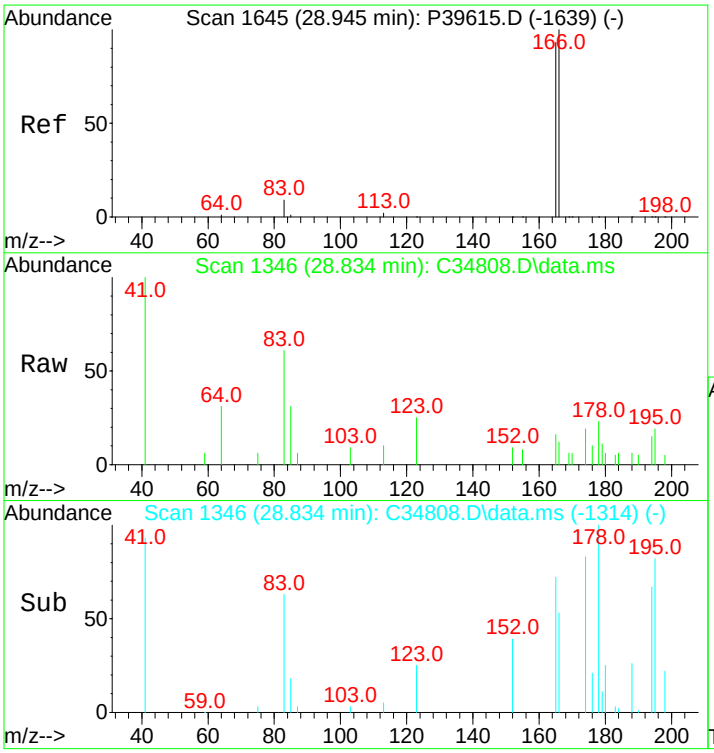


#28
2,3,5-Trimethylnaphthalene
Concen: 1.06 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:170 Resp: 50

Ion	Ratio	Lower	Upper
170	100		
155	0.0	87.3	130.9#

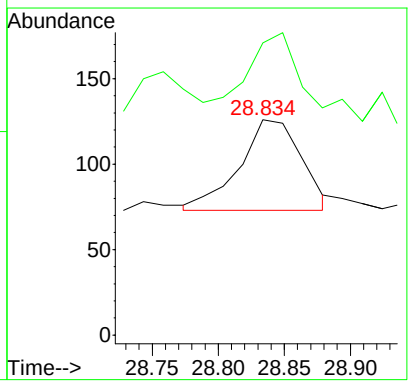


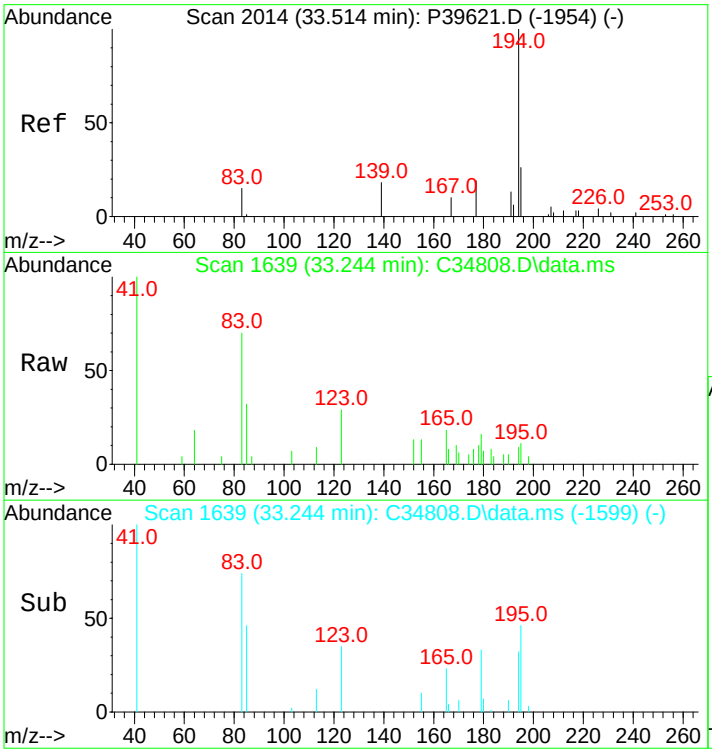


#29
Fluorene
Concen: 2.23 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:166 Resp: 173

Ion	Ratio	Lower	Upper
166	100		
165	174.0	77.3	115.9#

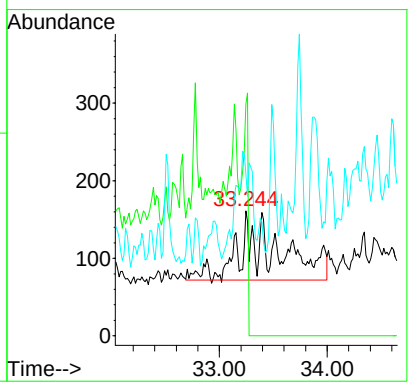


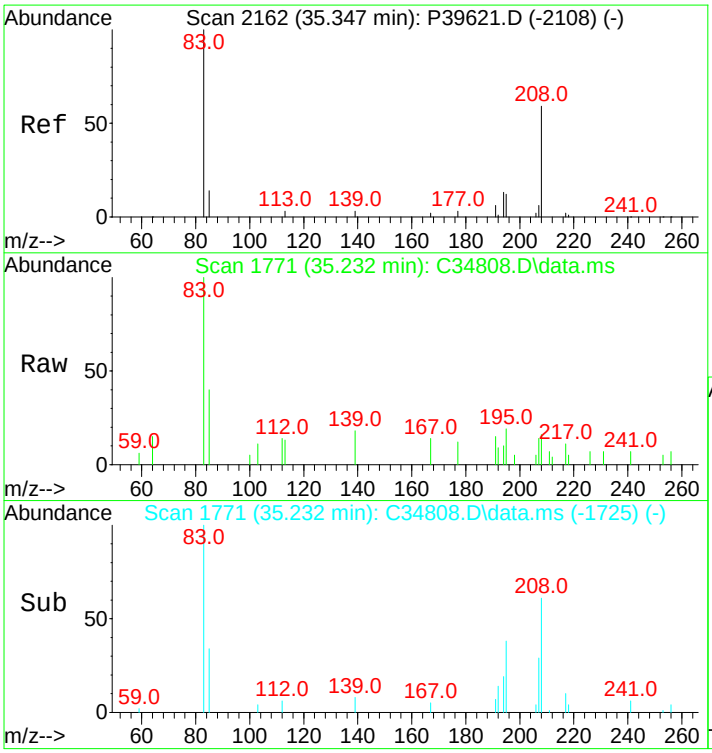


#31
C2-Fluorenes
Concen: 28.38 ng/mL m
RT: 33.244 min Scan# 1639
Delta R.T. -0.106 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:194 Resp: 2201

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.2	27.3	40.9#

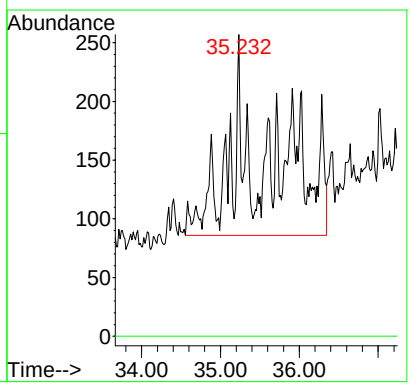


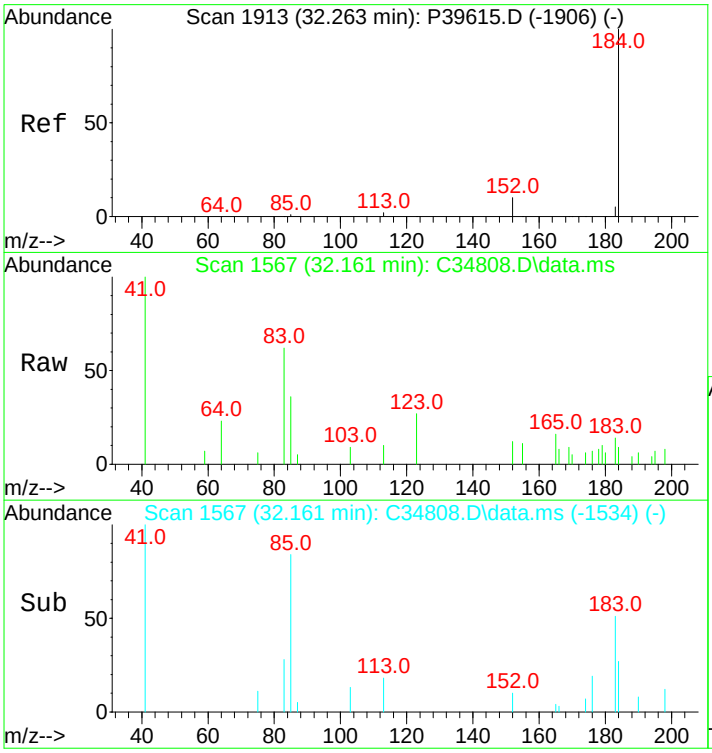


#32
C3-Fluorenes
Concen: 70.85 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:208 Resp: 5494

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

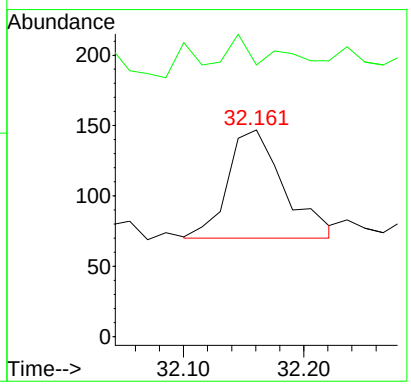


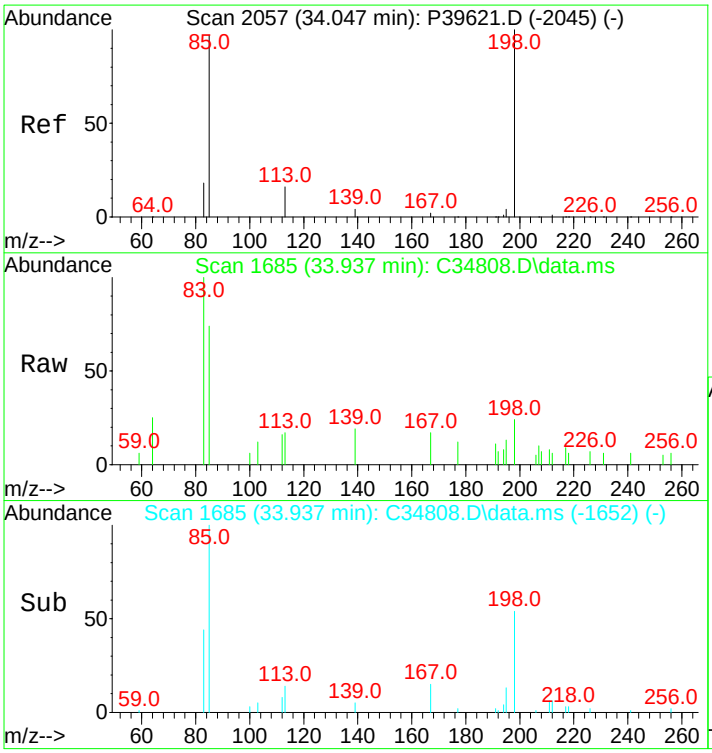


#33
Dibenzothiophene
Concen: 2.01 ng/mL m
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:184 Resp: 250

Ion	Ratio	Lower	Upper
184	100		
152	49.6	7.5	11.3#

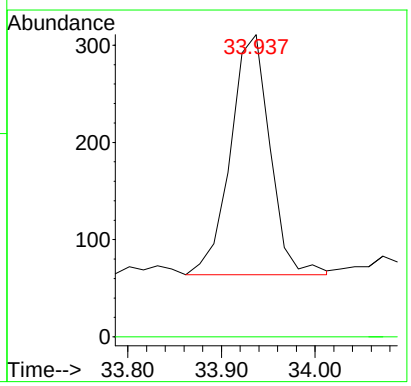


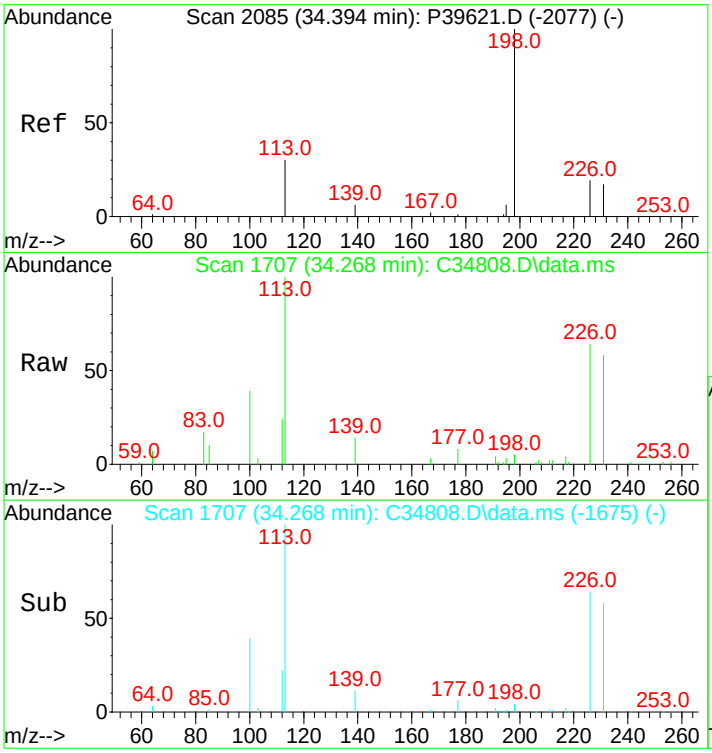


#34
4-Methyldibenzothiophene(4MDT)
Concen: 5.82 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:198 Resp: 724

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

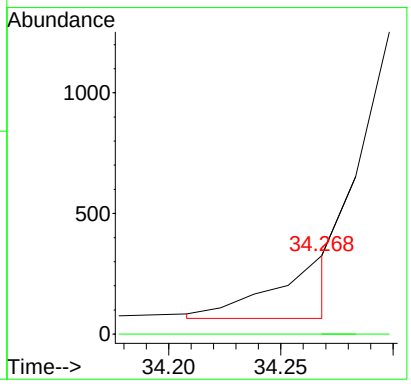


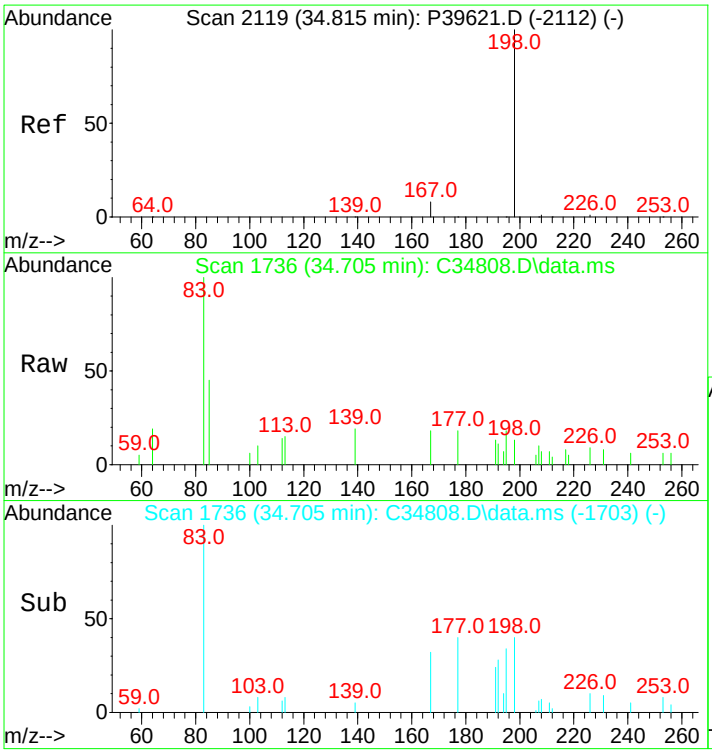


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 3.93 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:198 Resp: 489

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

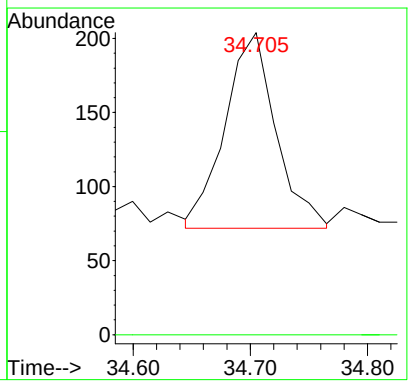


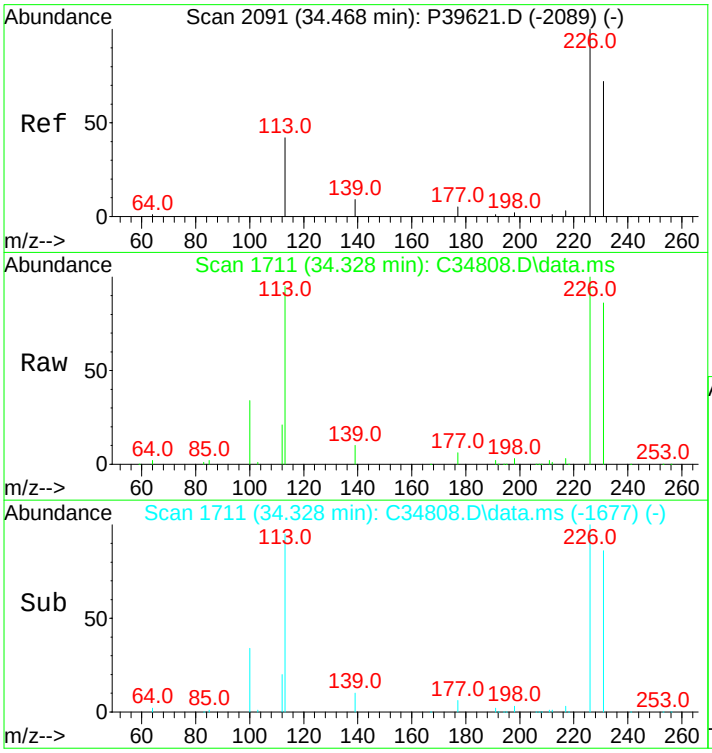


#36
1-Methyldibenzothiophene(1MDT)
Concen: 3.19 ng/mL m
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:198 Resp: 397

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

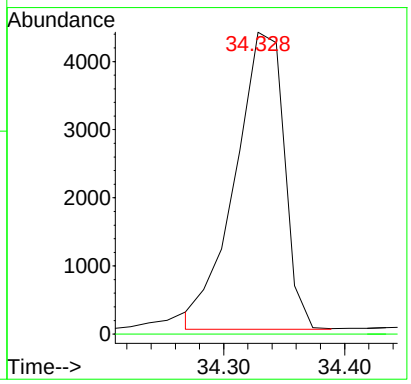


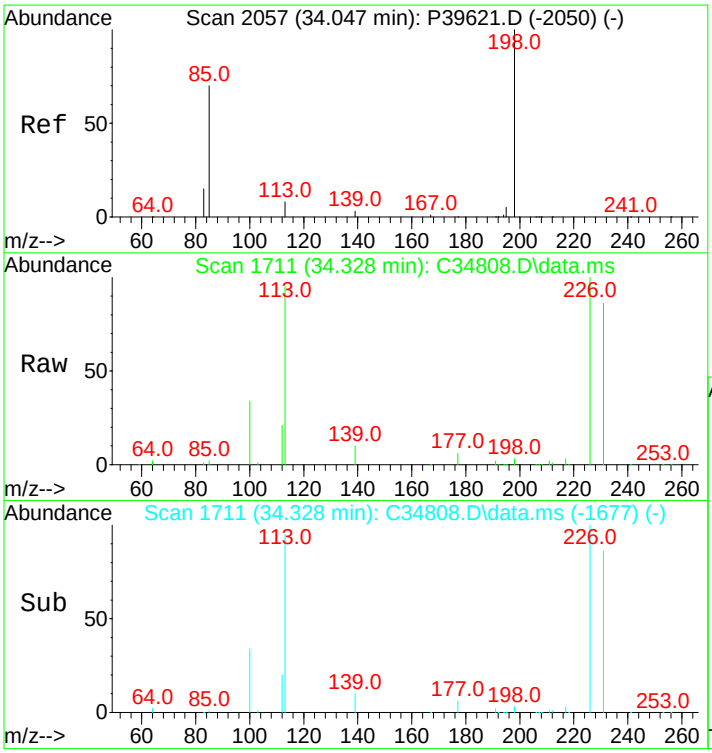


#37
OTP
Concen: 98.93 ng/mL m
RT: 34.328 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:198 Resp: 12297

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

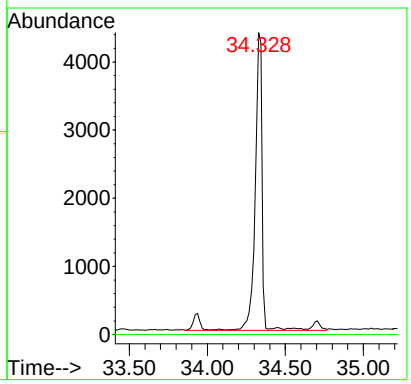


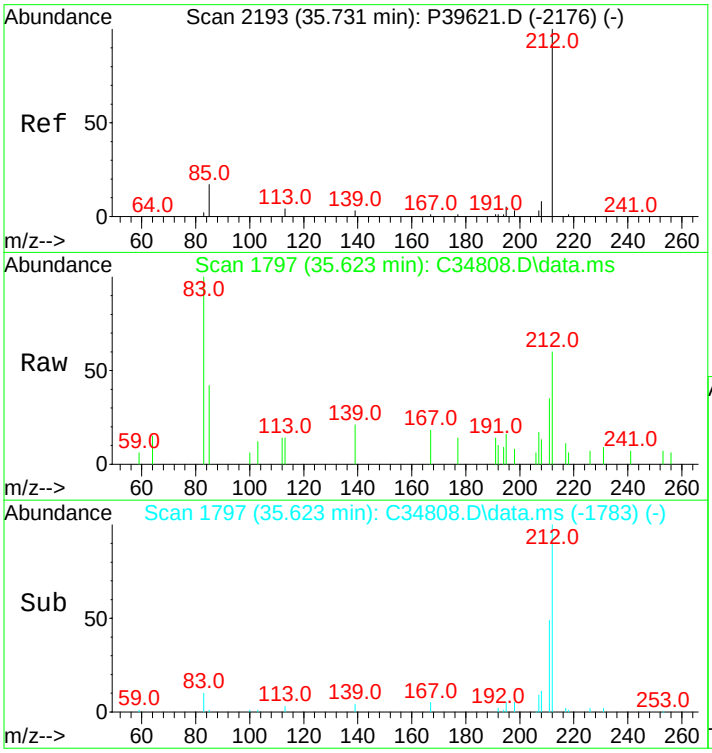


#38
C1-Dibenzothiophenes
Concen: 117.64 ng/mL m
RT: 34.328 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:198 Resp: 14623

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

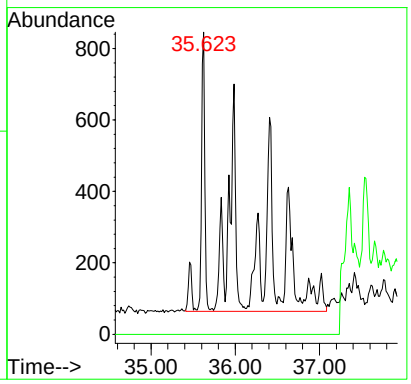


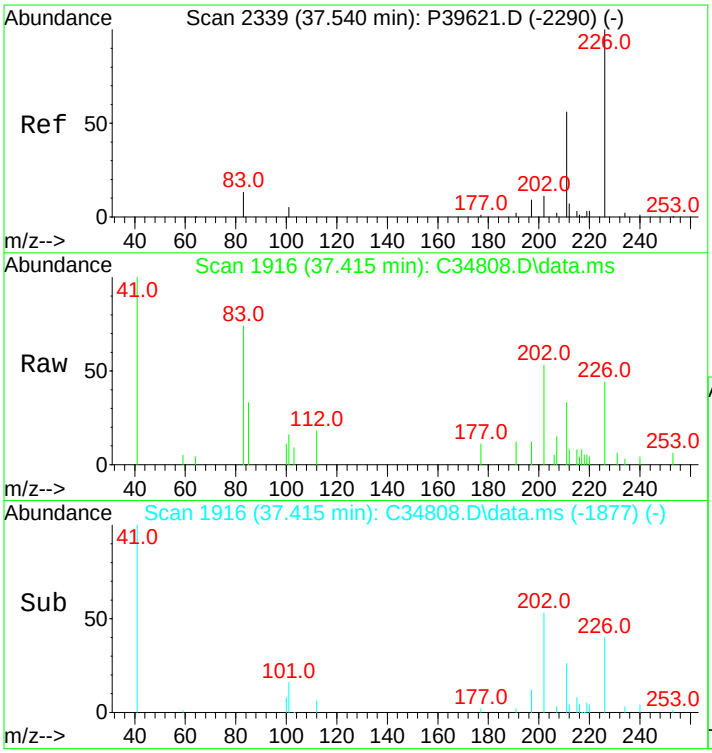


#39
C2-Dibenzothiophenes
Concen: 98.63 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:212 Resp: 12260

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

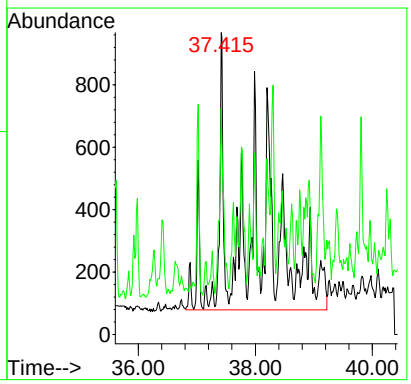


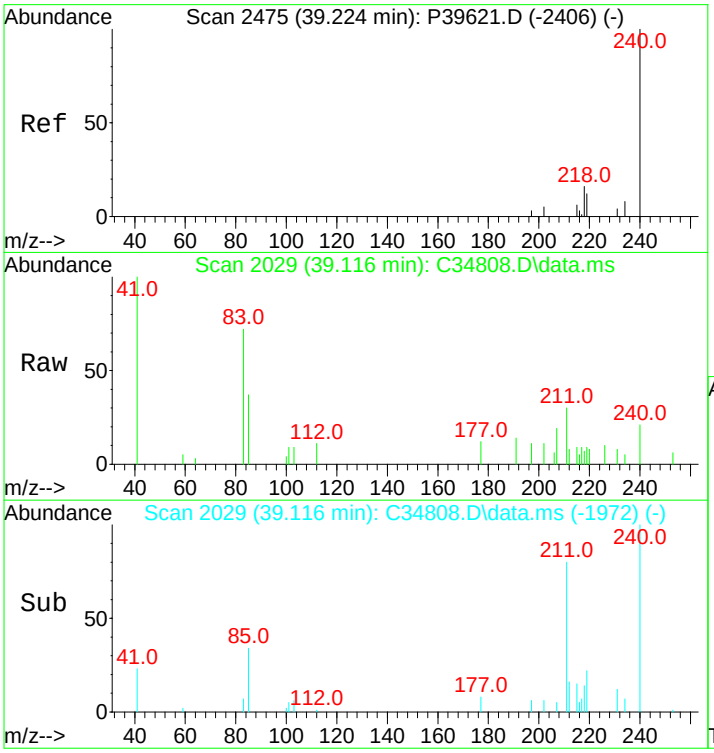


#40
C3-Dibenzothiophenes
Concen: 193.63 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:226 Resp: 24068

Ion	Ratio	Lower	Upper
226	100		
211	12.2	45.0	67.6#

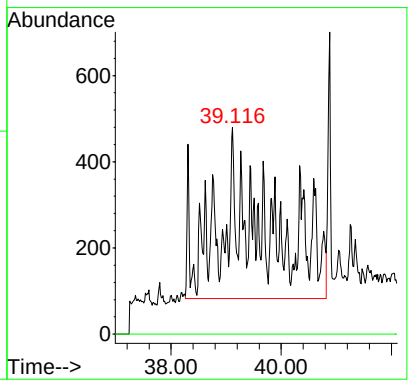


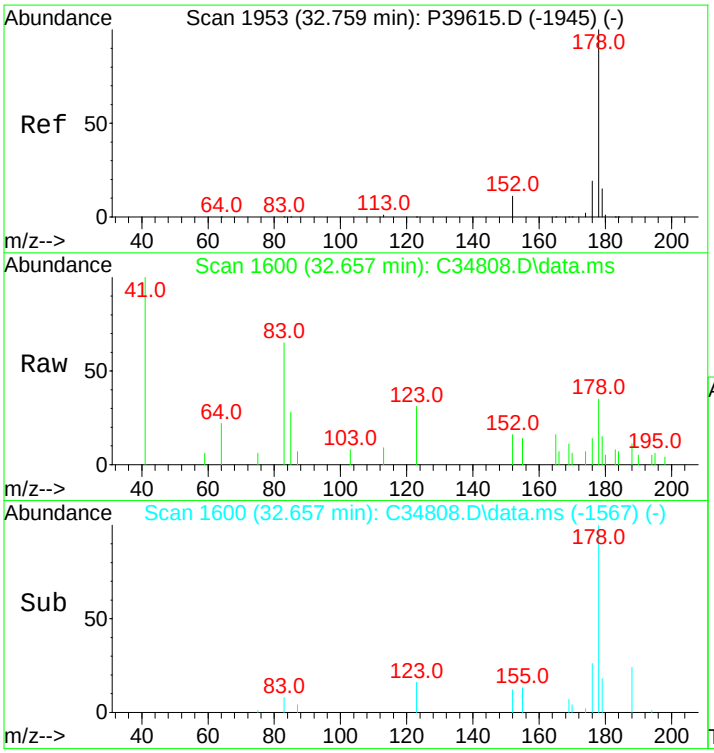


#41
C4-Dibenzothiophenes
Concen: 177.55 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:240 Resp: 22070

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

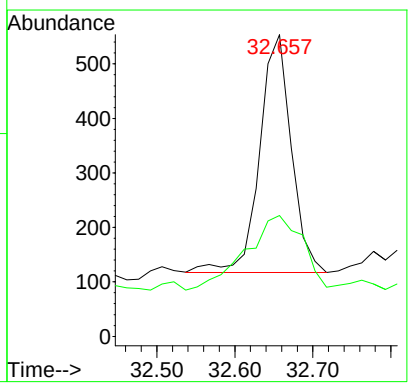


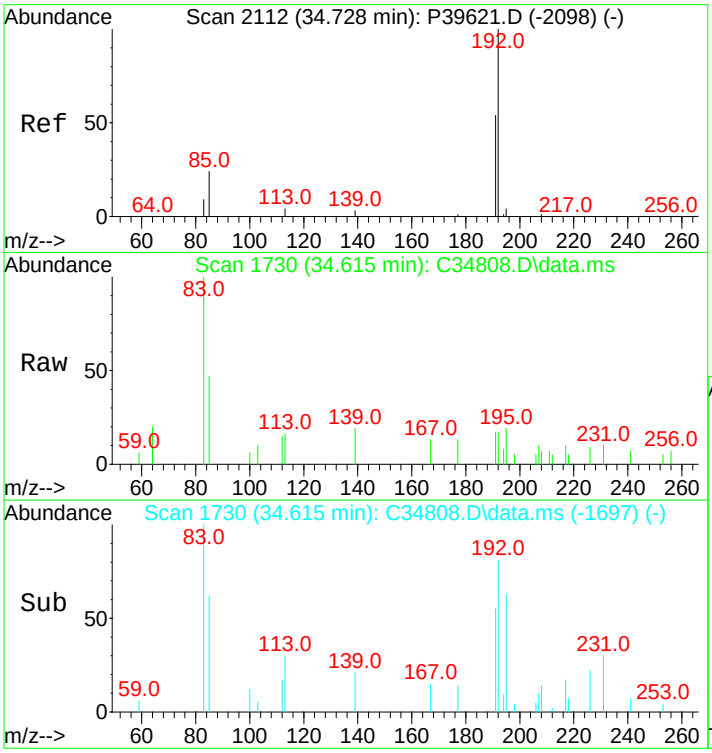


#43
Phenanthrene
Concen: 11.35 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:178 Resp: 1239

Ion	Ratio	Lower	Upper
178	100		
176	56.7	16.1	24.1#

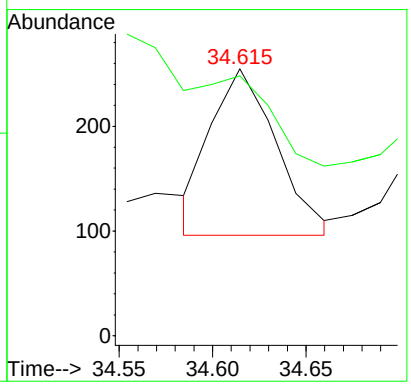


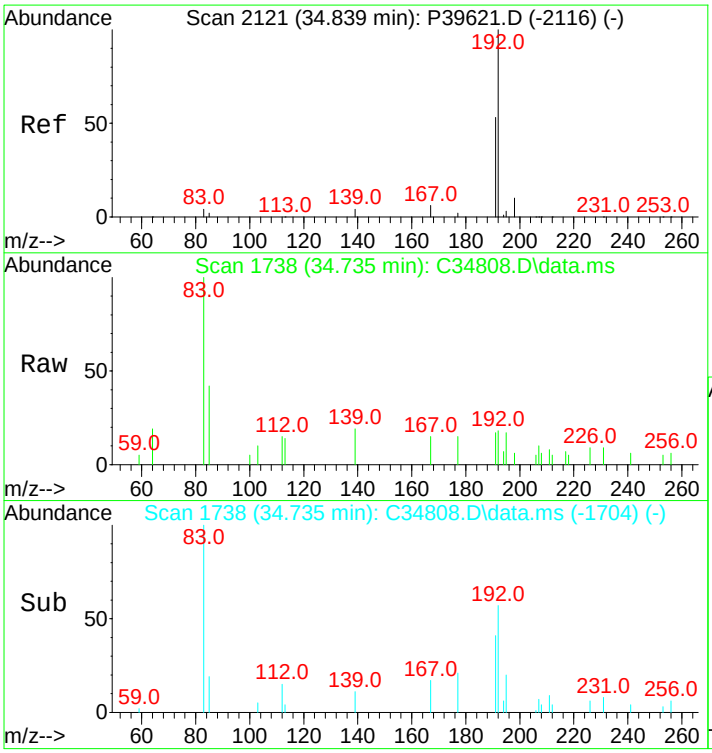


#44
3-Methylphenanthrene(3MP)
Concen: 3.55 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 388

Ion	Ratio	Lower	Upper
192	100		
191	75.5	46.9	70.3#

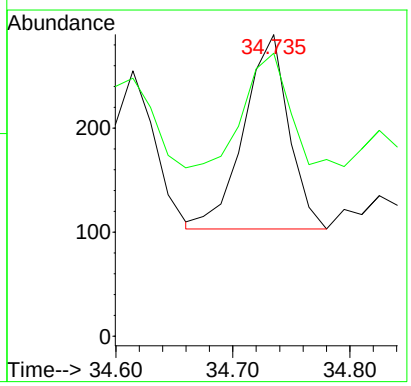


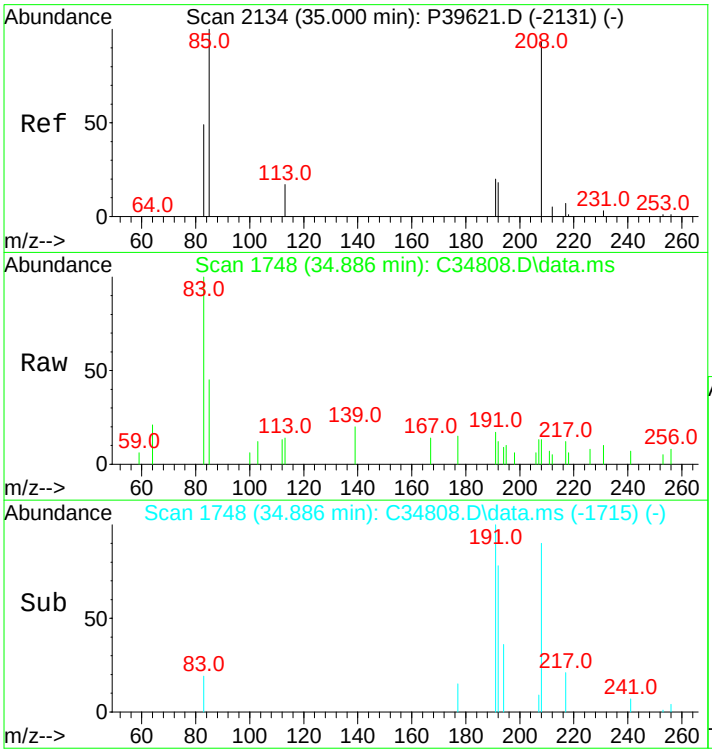


#45
2/4-Methylphenanthrene(2MP)
Concen: 4.57 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 499

Ion	Ratio	Lower	Upper
192	100		
191	58.7	46.1	69.1

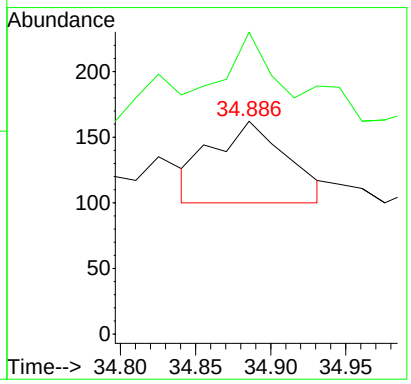


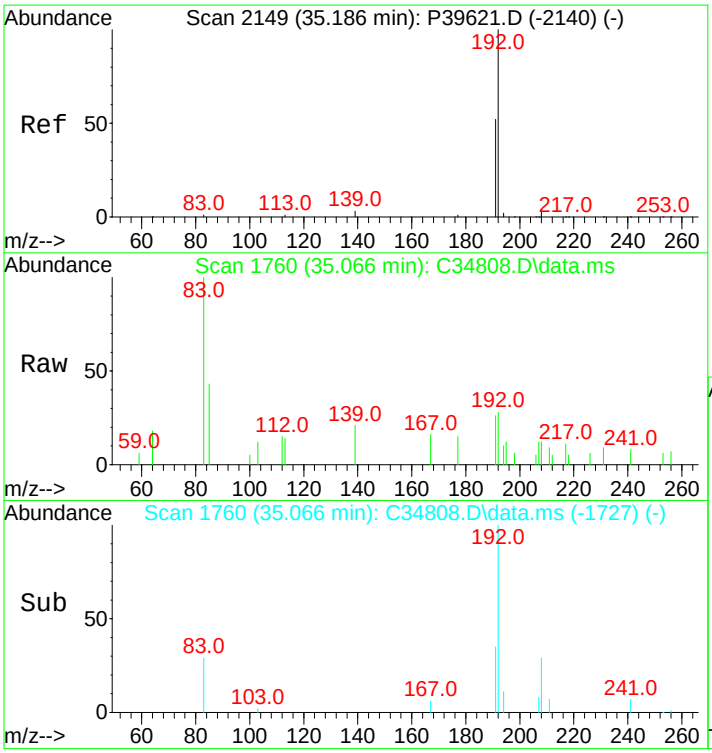


#46
2-Methylanthracene(2MA)
Concen: 1.97 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 215

Ion	Ratio	Lower	Upper
192	100		
191	94.4	93.4	140.0

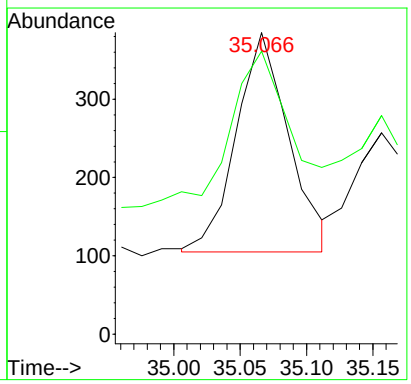


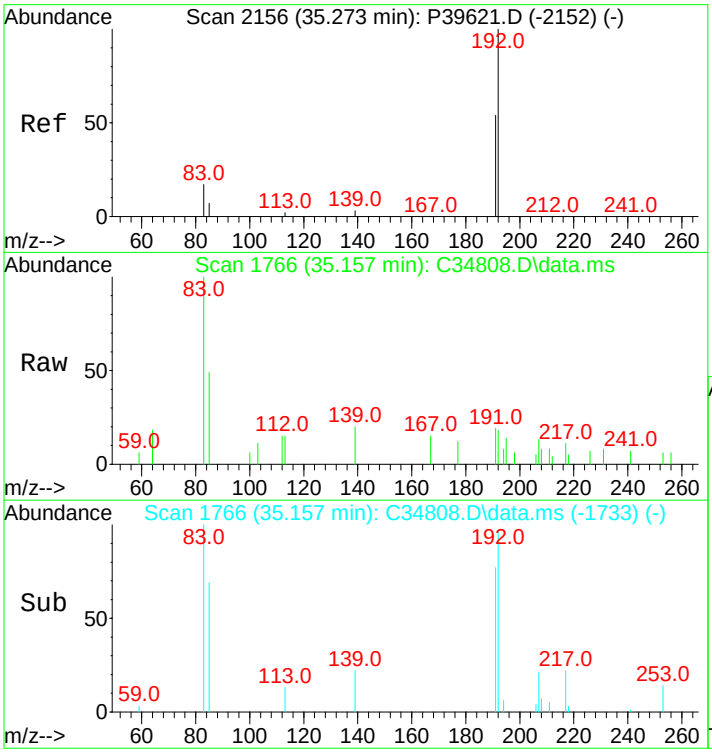


#47
9-Methylphenanthrene(9MP)
Concen: 7.07 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 772

Ion	Ratio	Lower	Upper
192	100		
191	24.9	45.9	68.9#

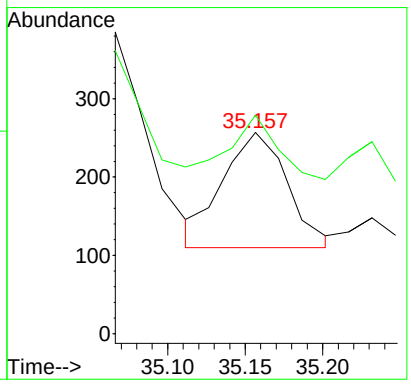


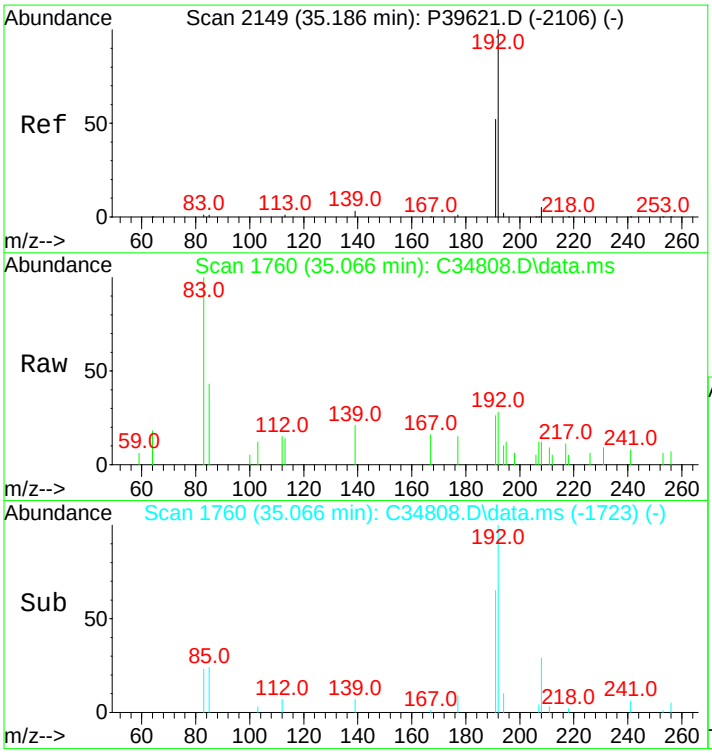


#48
1-Methylphenanthrene(1MP)
Concen: 3.89 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 425

Ion	Ratio	Lower	Upper
192	100		
191	45.2	49.0	73.4#

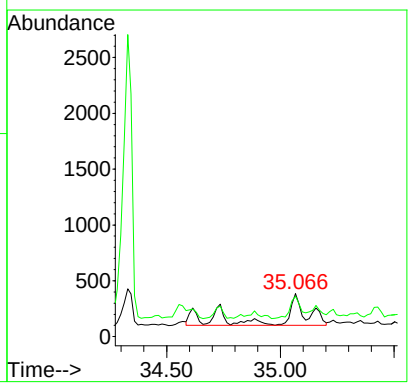


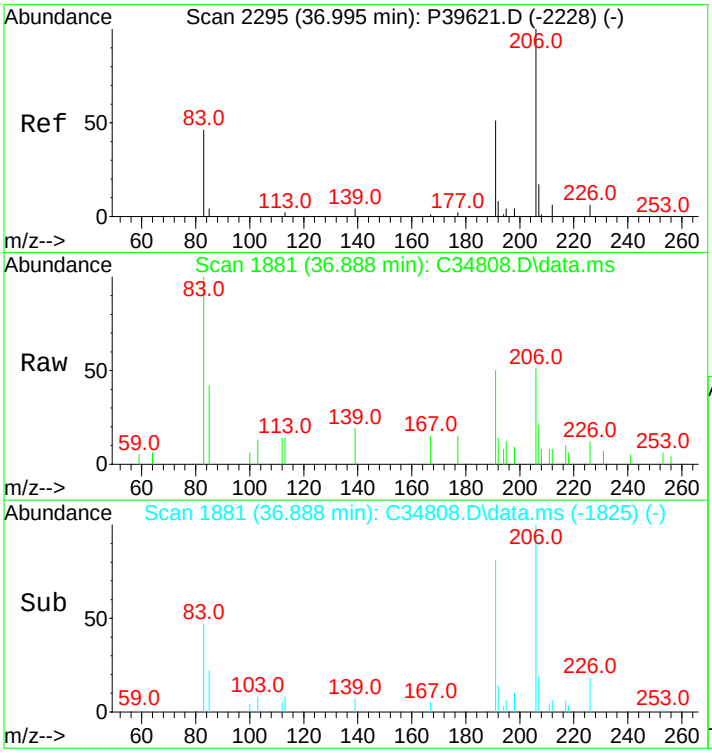


#49
C1-Phenanthrenes/Anthracenes
Concen: 22.38 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 2444

Ion	Ratio	Lower	Upper
192	100		
191	8.3	44.2	66.2#

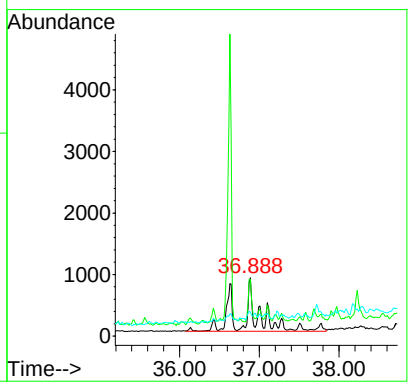


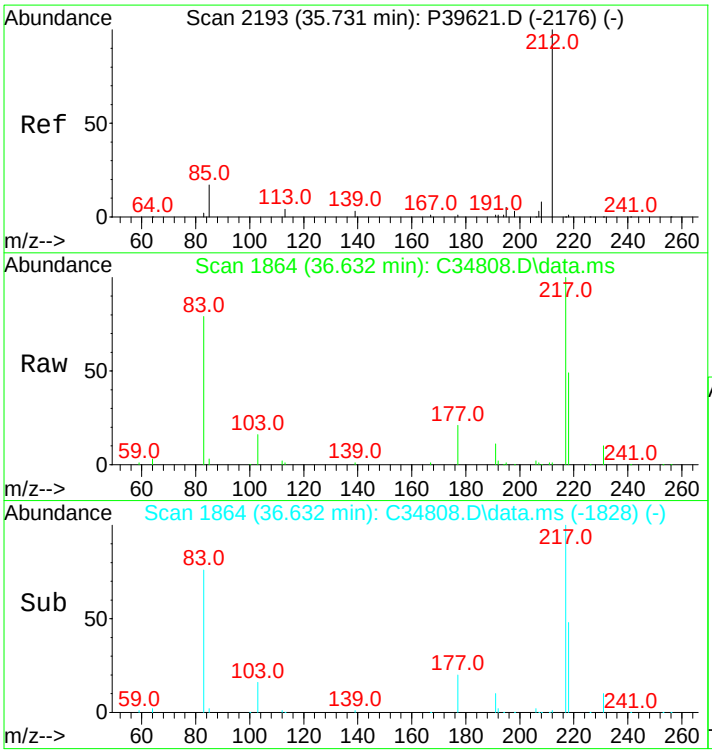


#50
C2-Phenanthrenes/Anthracenes
Concen: 112.48 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:206 Resp: 12284

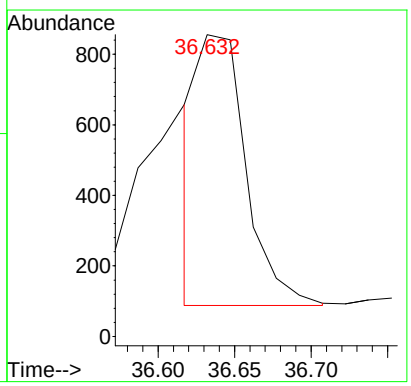
Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	0.0	15.1	22.7#

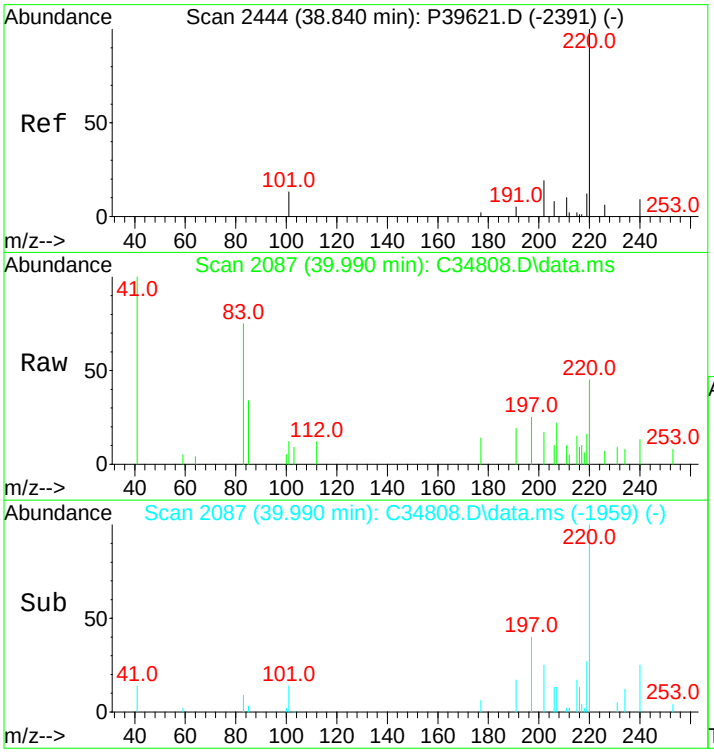




#51
5AA IS BKGD
Concen: 15.35 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. 0.045 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:206 Resp: 1676

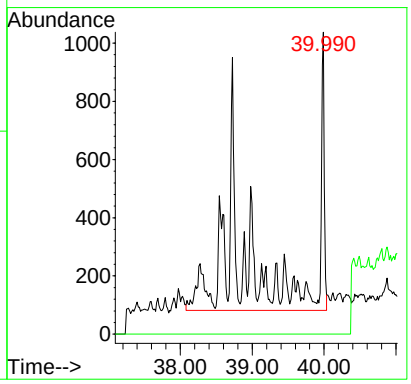


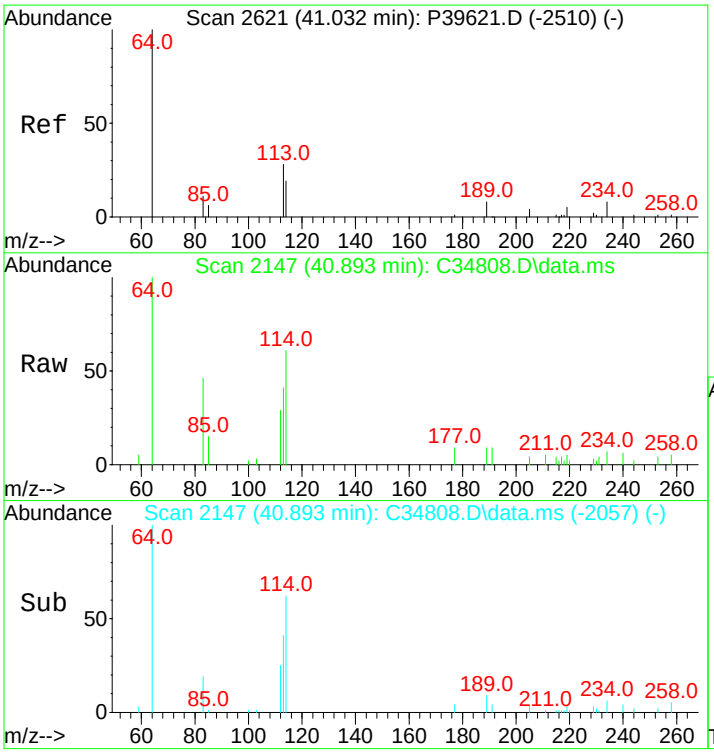


#52
C3-Phenanthrenes/Anthracenes
Concen: 136.01 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:220 Resp: 14854

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

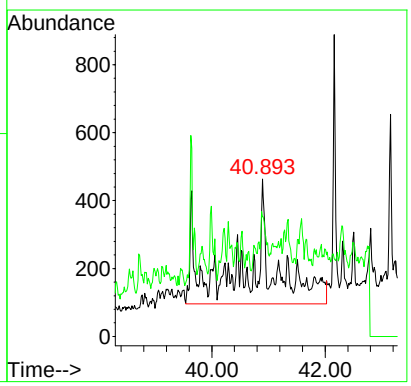


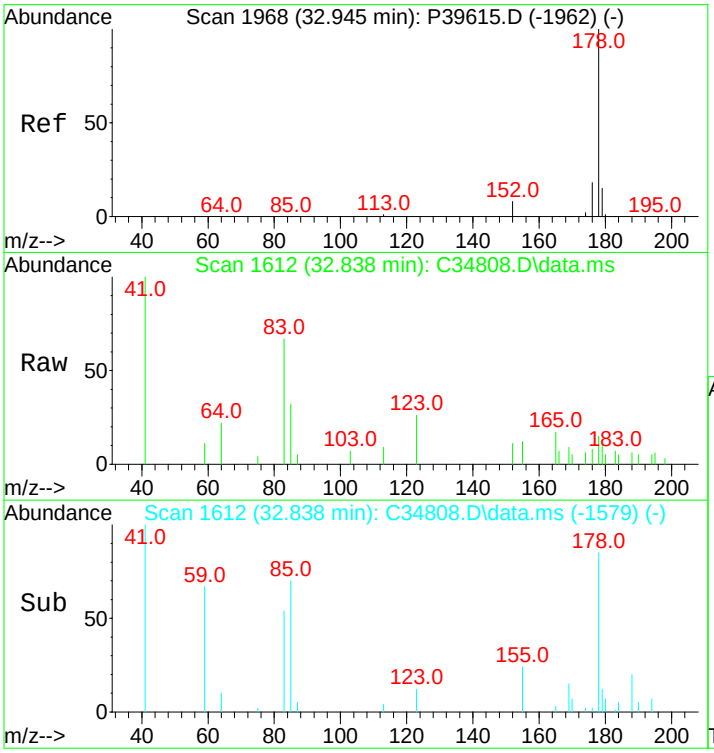


#53
C4-Phenanthrenes/Anthracenes
Concen: 114.24 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:234 Resp: 12476

Ion	Ratio	Lower	Upper
234	100		
219	5.9	46.9	70.3#

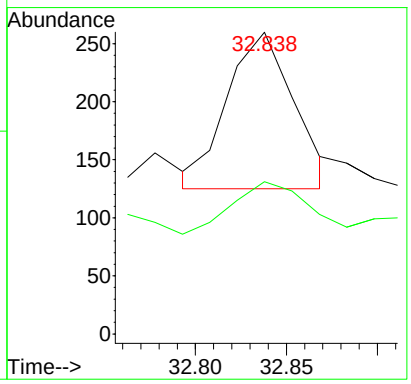


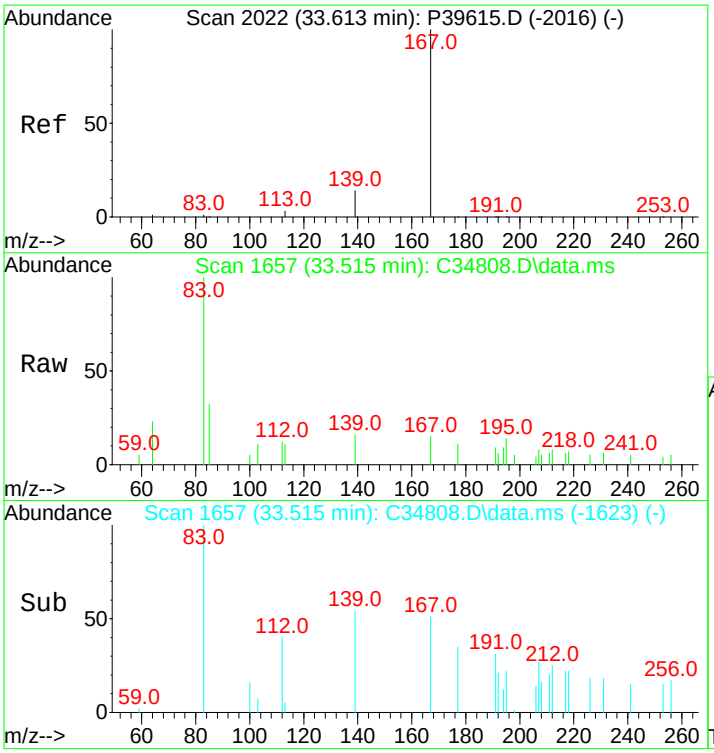


#55
Anthracene
Concen: 3.22 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:178 Resp: 344

Ion	Ratio	Lower	Upper
178	100		
176	37.8	15.5	23.3#

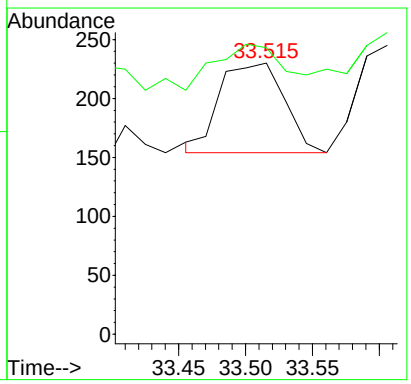


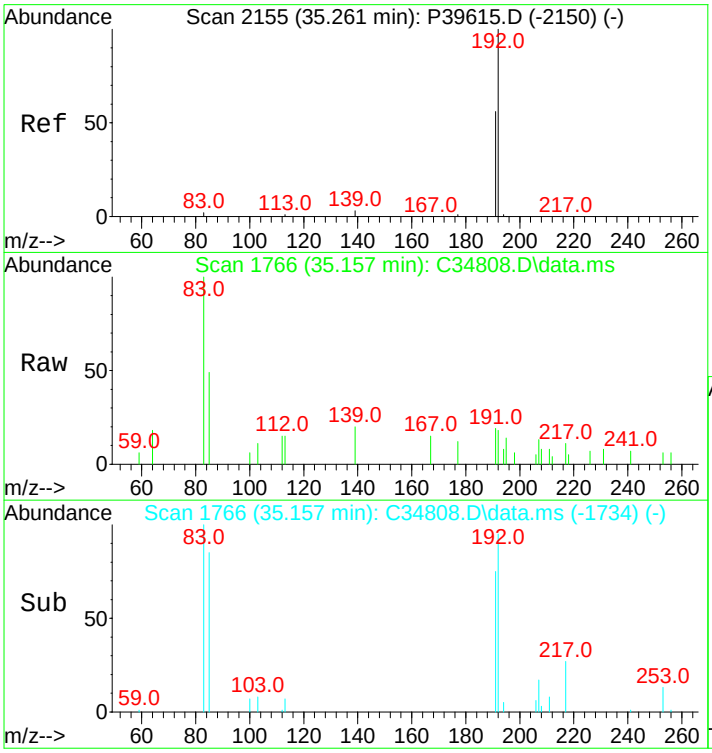


#56
Carbazole
Concen: 2.37 ng/mL
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:167 Resp: 255

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

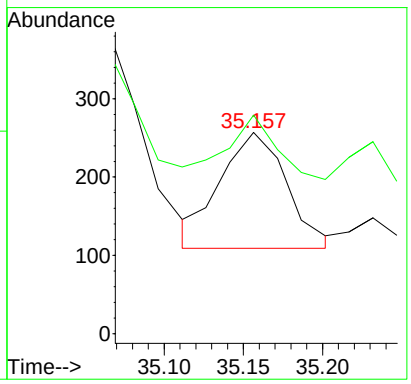


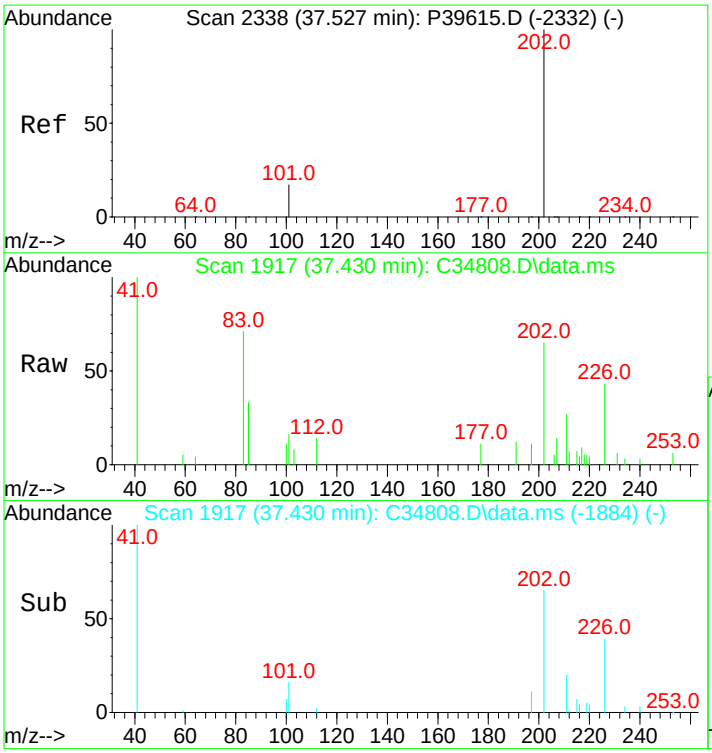


#57
1-Methylphenanthrene
Concen: 6.23 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:192 Resp: 431

Ion	Ratio	Lower	Upper
192	100		
191	44.5	45.9	68.9#

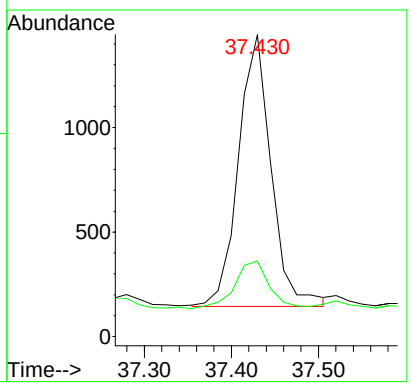


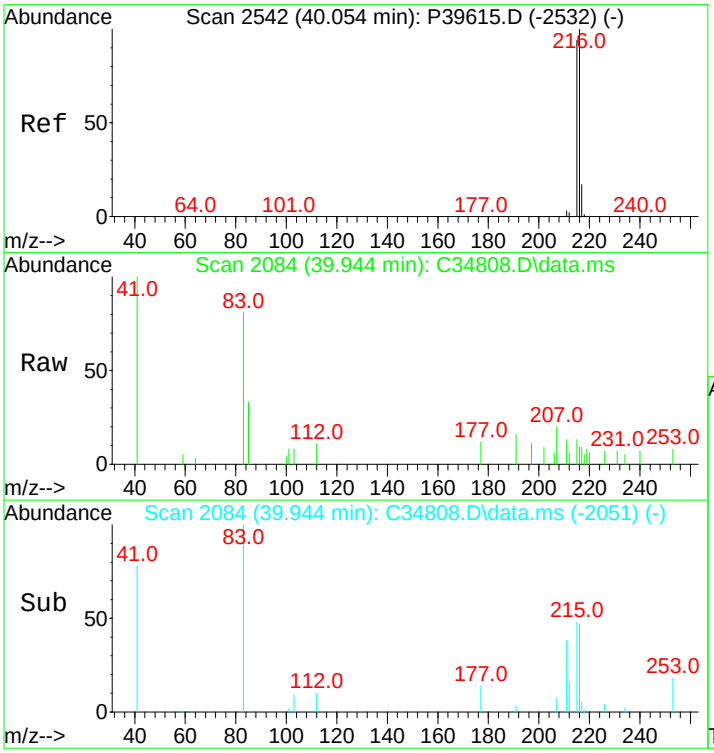


#58
Fluoranthene
Concen: 31.34 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:202 Resp: 3399

Ion	Ratio	Lower	Upper
202	100		
101	26.1	12.9	19.3#

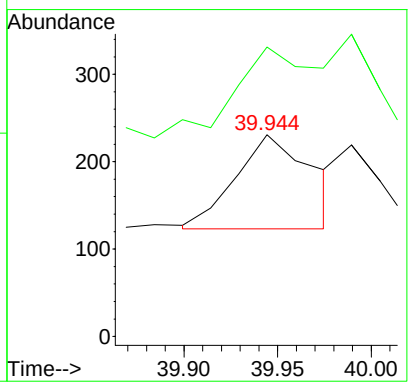


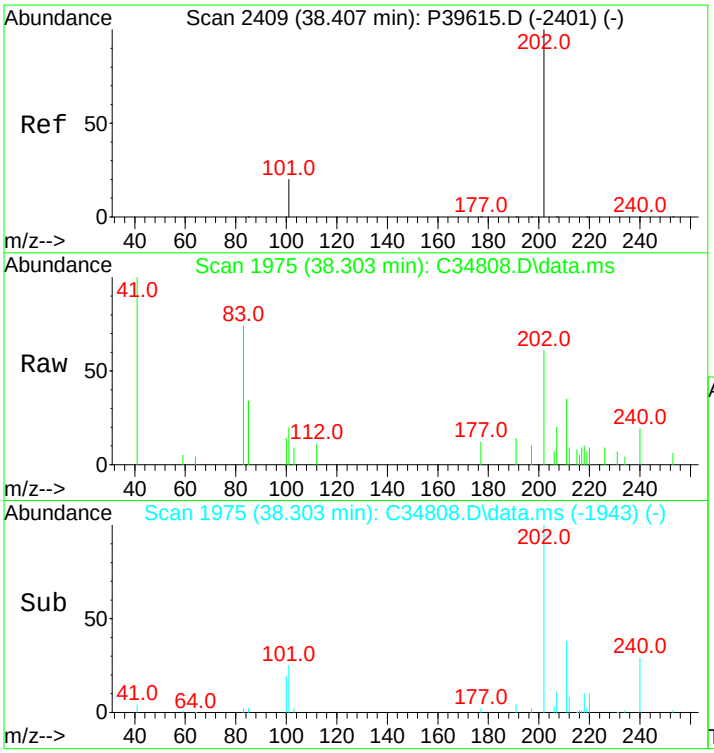


#59
Benzo(b)fluorene
Concen: 4.89 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:216 Resp: 308

Ion	Ratio	Lower	Upper
216	100		
215	136.7	76.3	114.5#

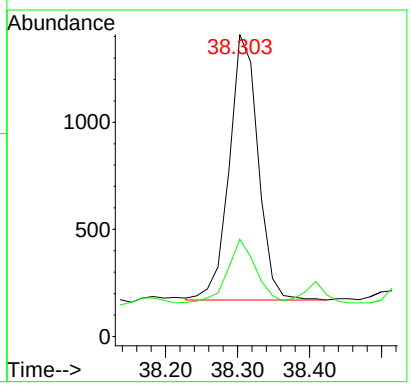


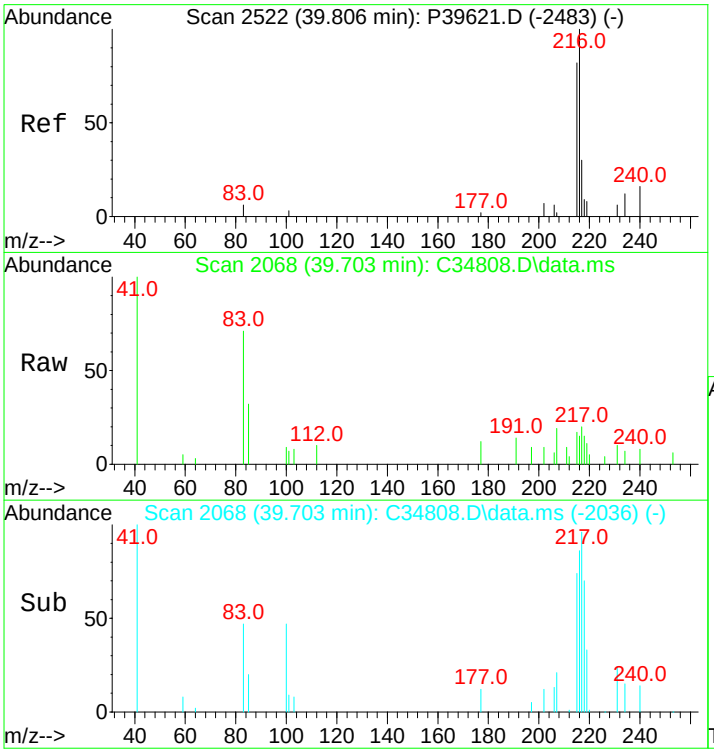


#60
Pyrene
Concen: 31.05 ng/mL
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:202 Resp: 3423

Ion	Ratio	Lower	Upper
202	100		
101	23.1	15.0	22.4#

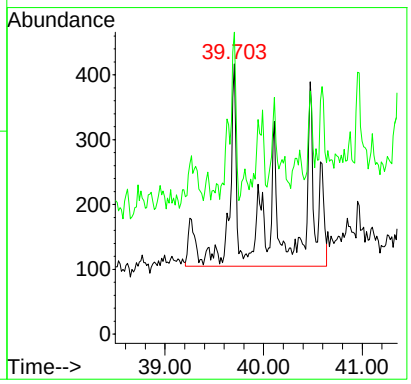


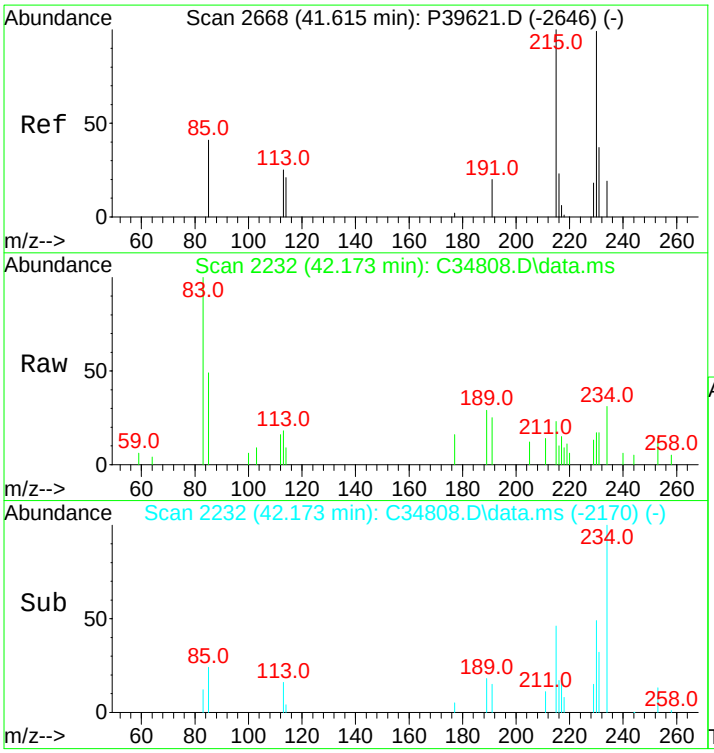


#61
C1-Fluoranthenes/Pyrenes
Concen: 46.07 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:216 Resp: 5079

Ion	Ratio	Lower	Upper
216	100		
215	23.0	71.8	107.6#

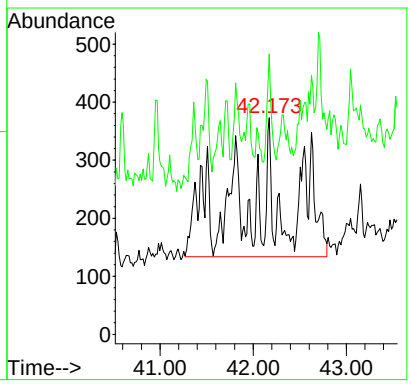


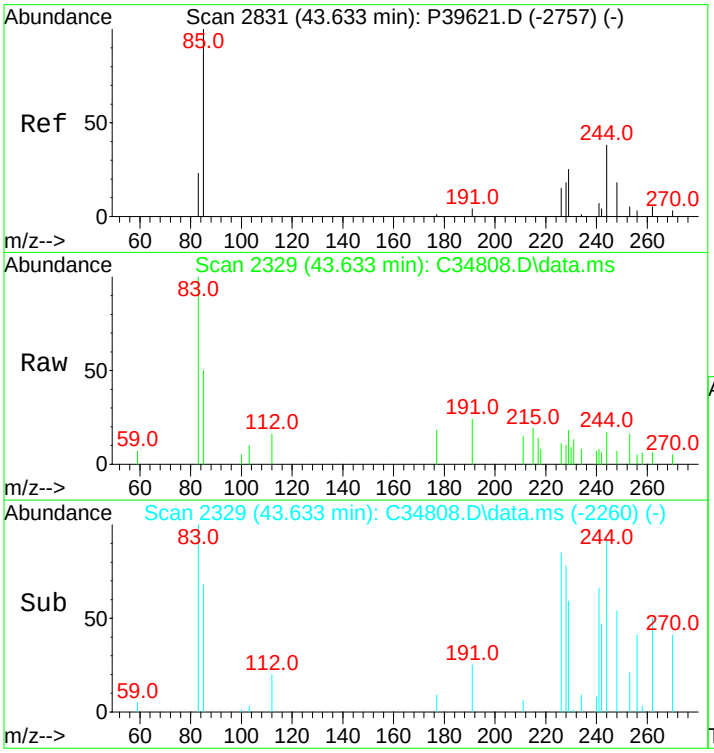


#62
C2-Fluoranthenes/Pyrenes
Concen: 66.65 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:230 Resp: 7348

Ion	Ratio	Lower	Upper
230	100		
215	4.8	99.0	148.4#

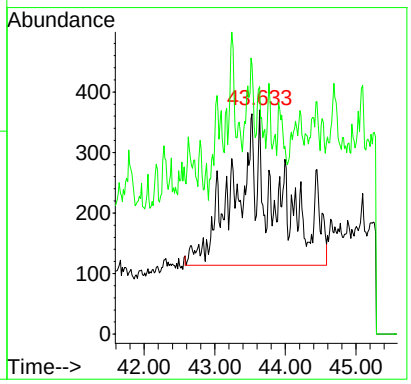


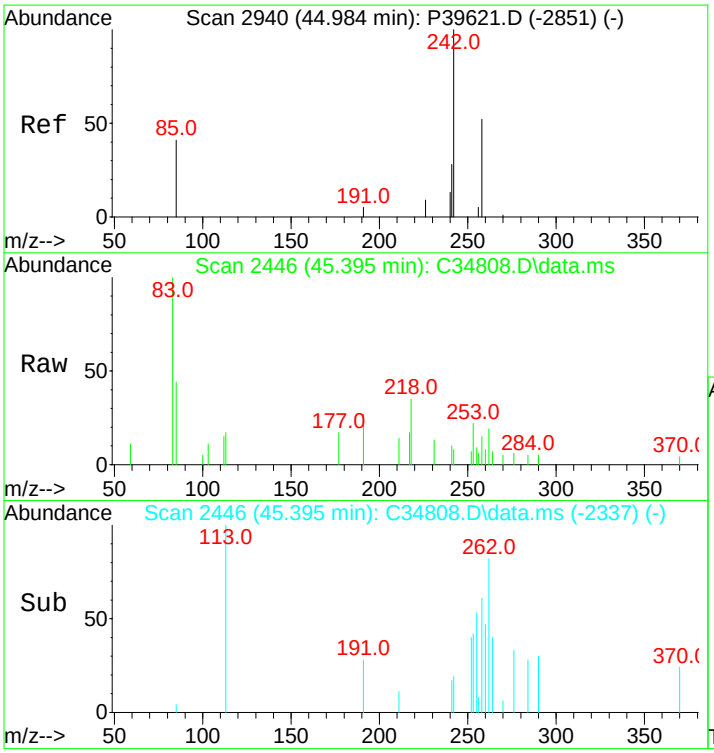


#63
C3-Fluoranthenes/Pyrenes
Concen: 96.36 ng/mL m
RT: 43.633 min Scan# 2329
Delta R.T. 0.226 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:244 Resp: 10624

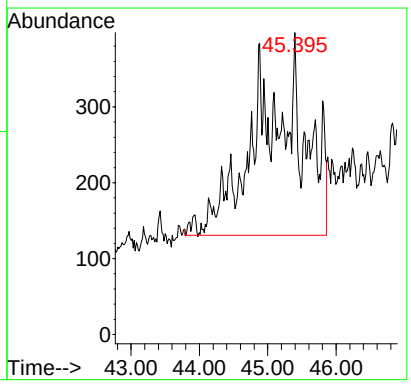
Ion	Ratio	Lower	Upper
244	100		
229	8.4	73.3	109.9#

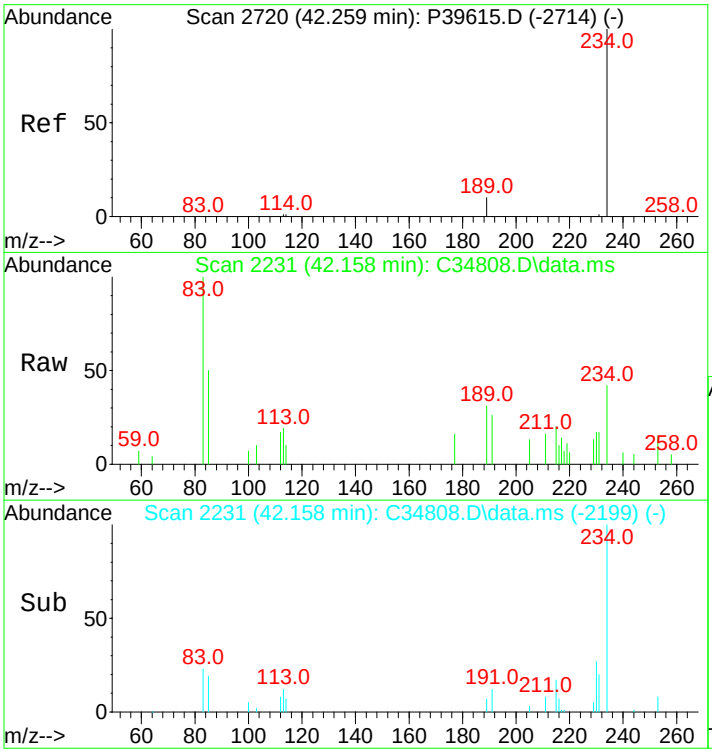




#64
C4-Fluoranthenes/Pyrenes
Concen: 104.72 ng/mL m
RT: 45.395 min Scan# 2446
Delta R.T. 0.638 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:258 Resp: 11546

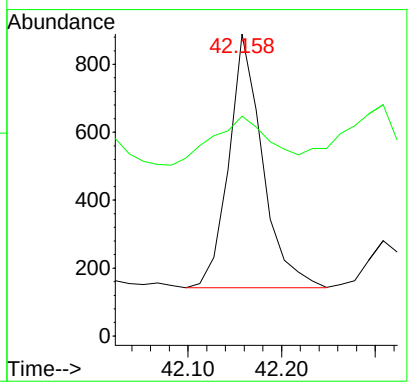


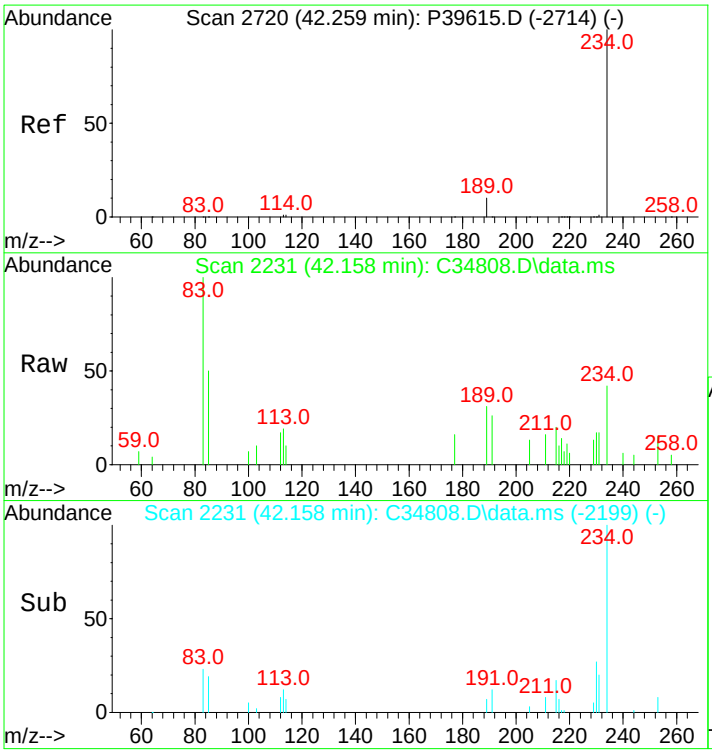


#66
Naphthobenzothiophene
Concen: 15.75 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:234 Resp: 1869

Ion	Ratio	Lower	Upper
234	100		
189	32.3	20.5	30.7#

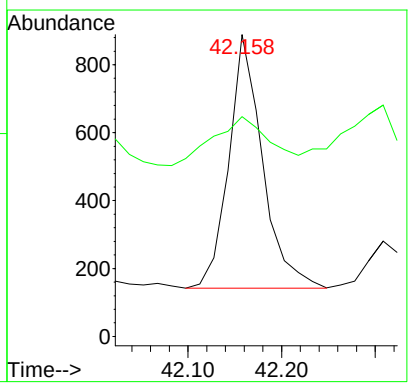


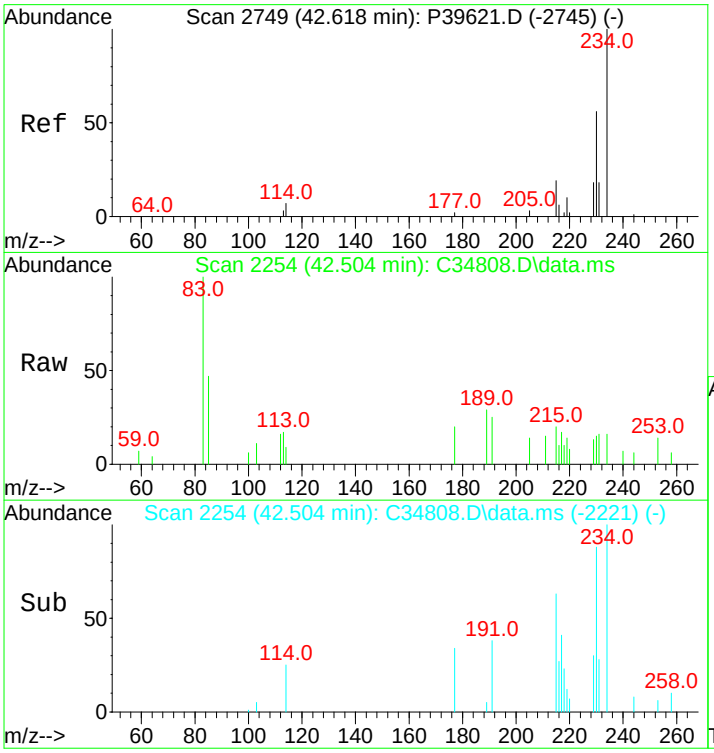


#67
Naphthobenzothiophene-2,1-D
Concen: 15.75 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:234 Resp: 1869

Ion	Ratio	Lower	Upper
234	100		
189	32.3	20.5	30.7#

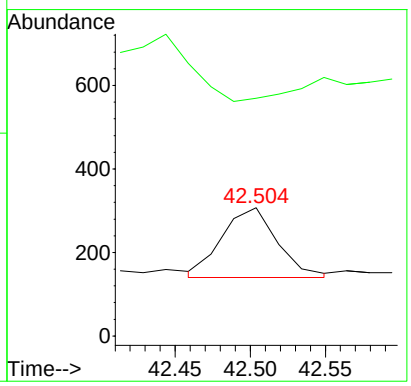


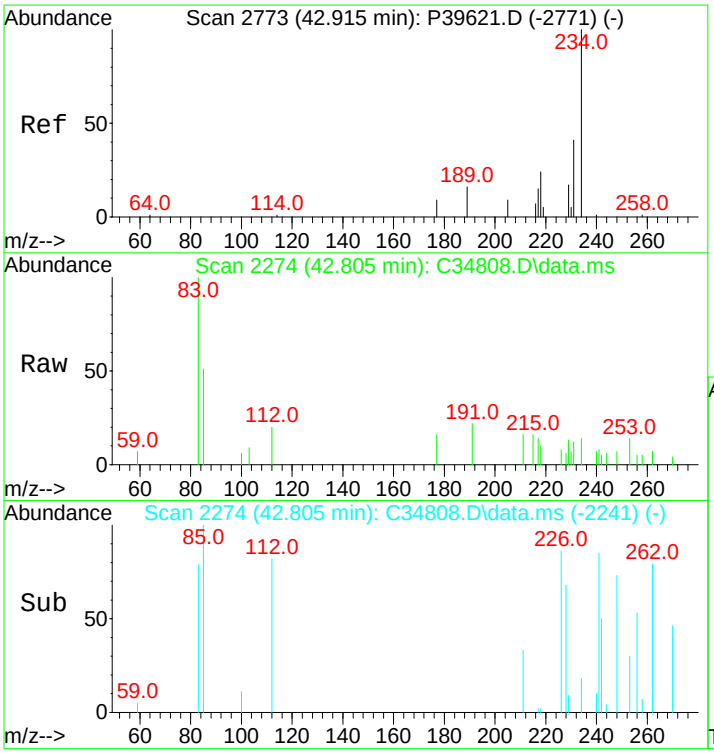


#68
Naphthobenzothiophene-1,2-D
Concen: 3.61 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:234 Resp: 428

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

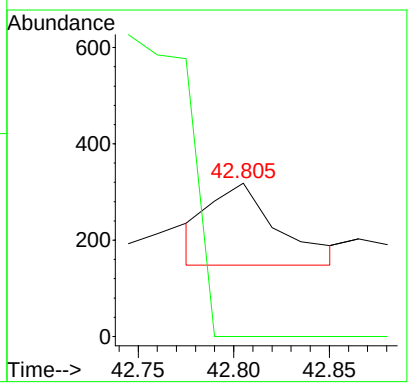


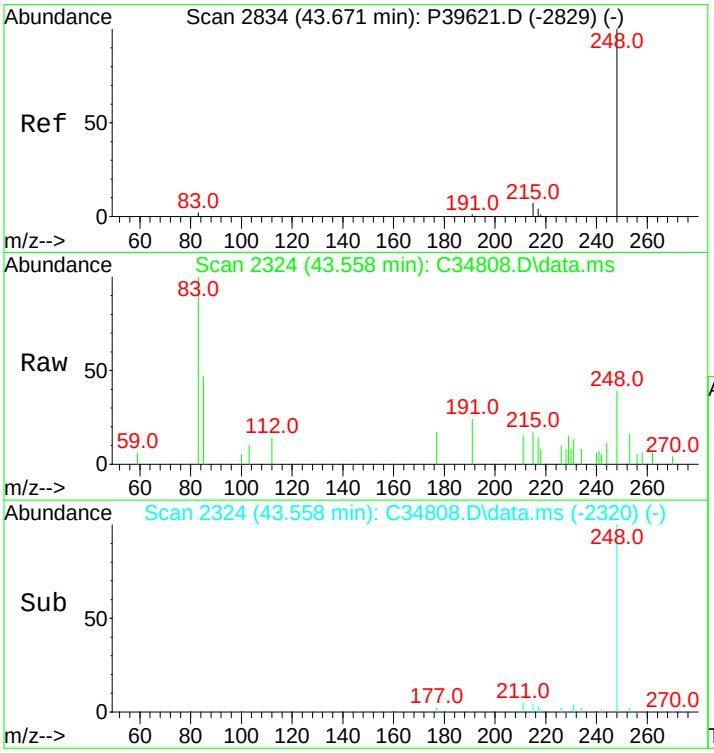


#69
Naphthobenzothiophene-2,3-D
Concen: 3.58 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:234 Resp: 425

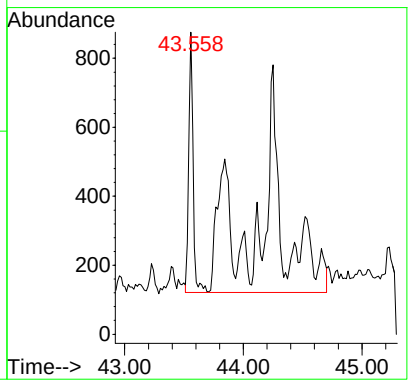
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

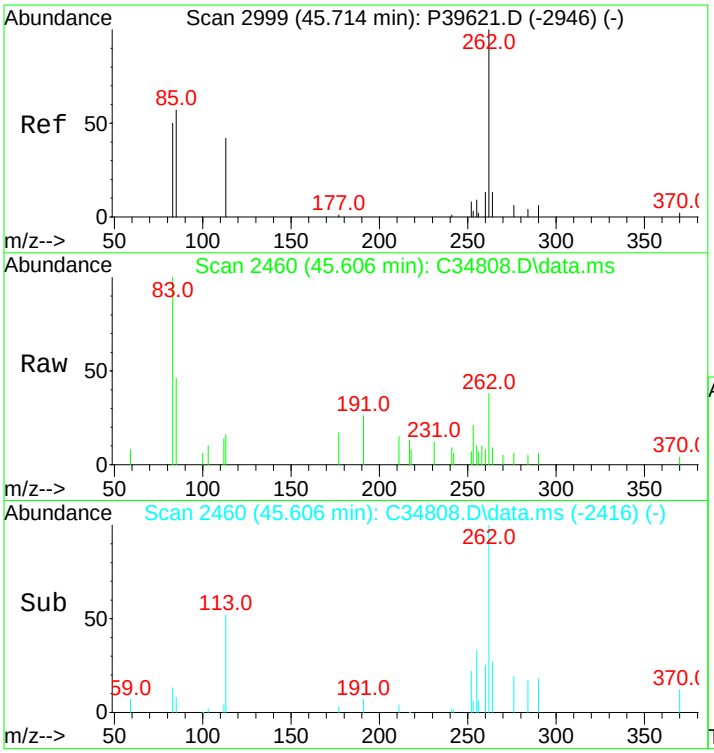




#70
C1-Naphthobenzothiophenes
Concen: 100.02 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

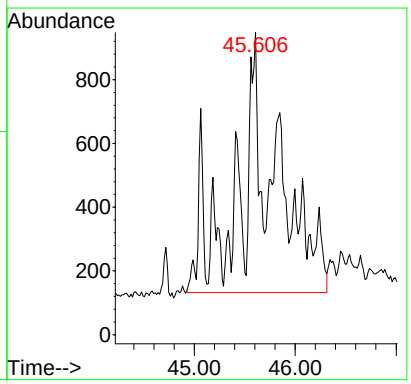
Tgt Ion:248 Resp: 11872

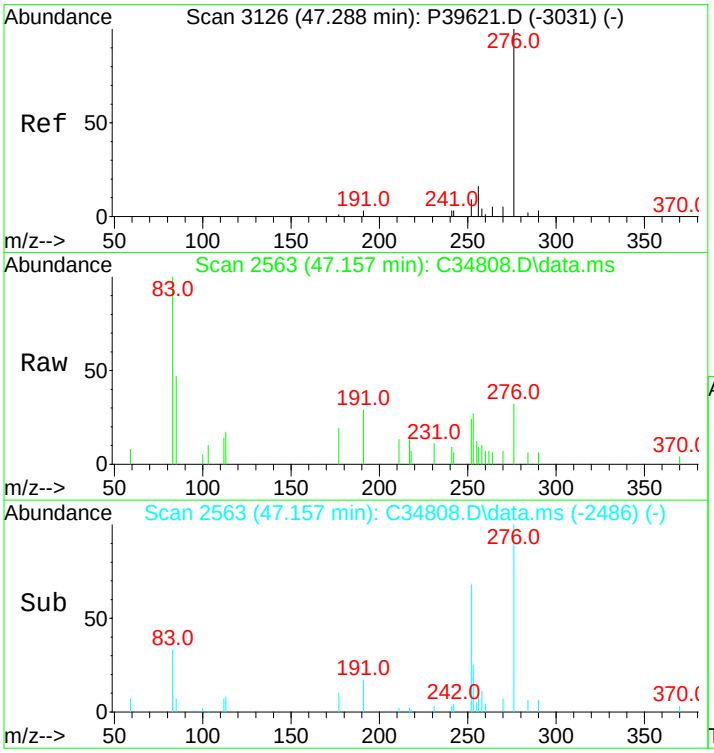




#71
C2-Naphthobenzothiophenes
Concen: 177.16 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

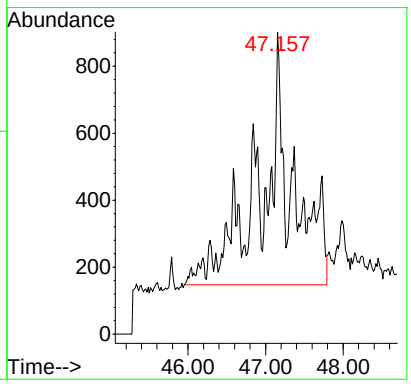
Tgt Ion:262 Resp: 21029

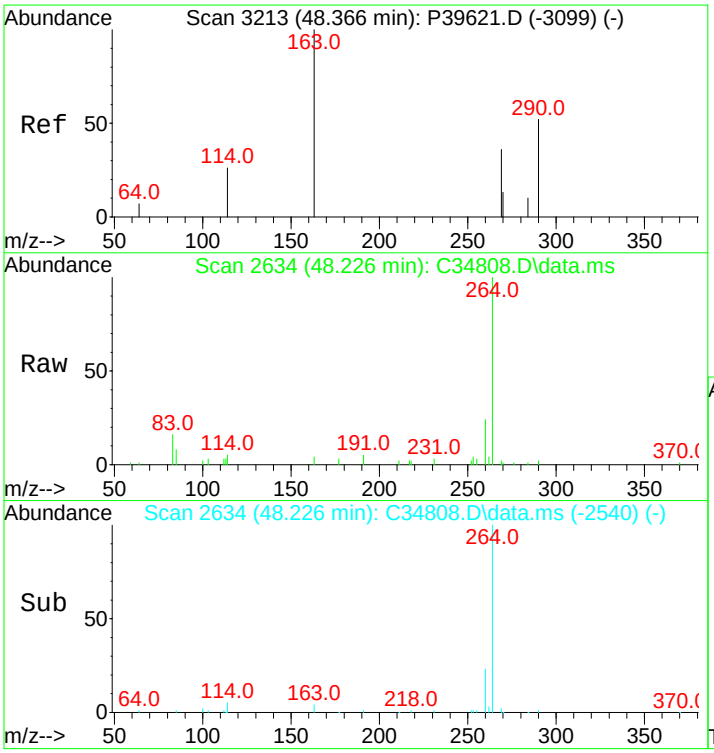




#72
C3-Naphthobenzothiophenes
Concen: 180.06 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

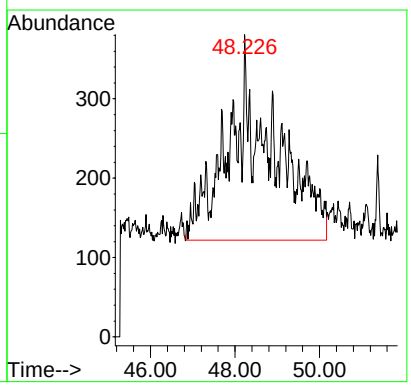
Tgt Ion:276 Resp: 21373

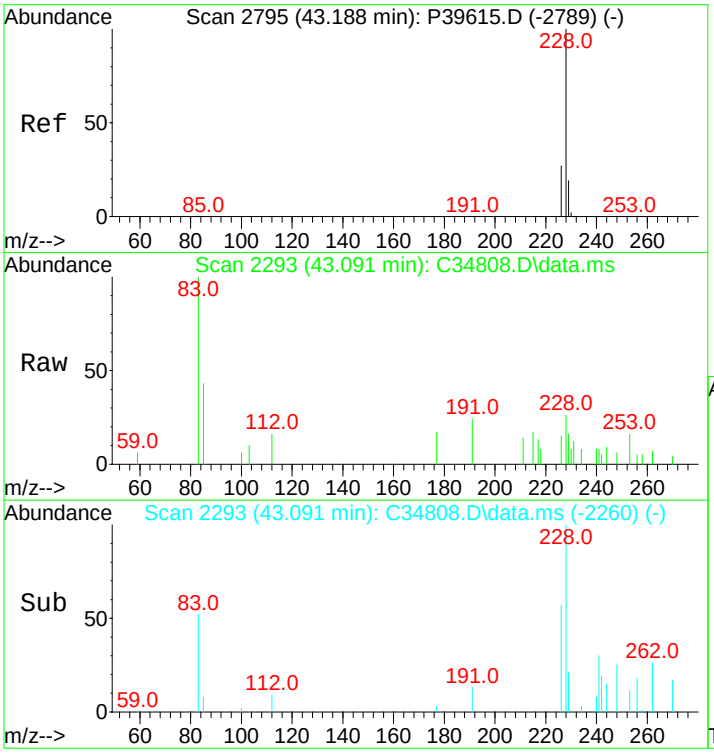




#73
C4-Naphthobenzothiophenes
Concen: 152.59 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.126 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:290 Resp: 18112

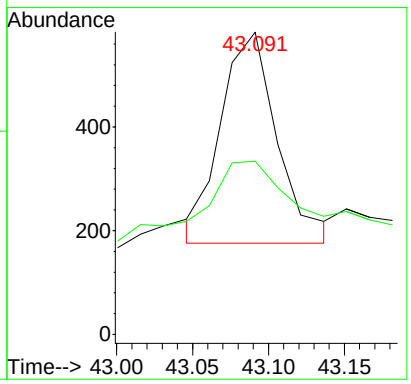


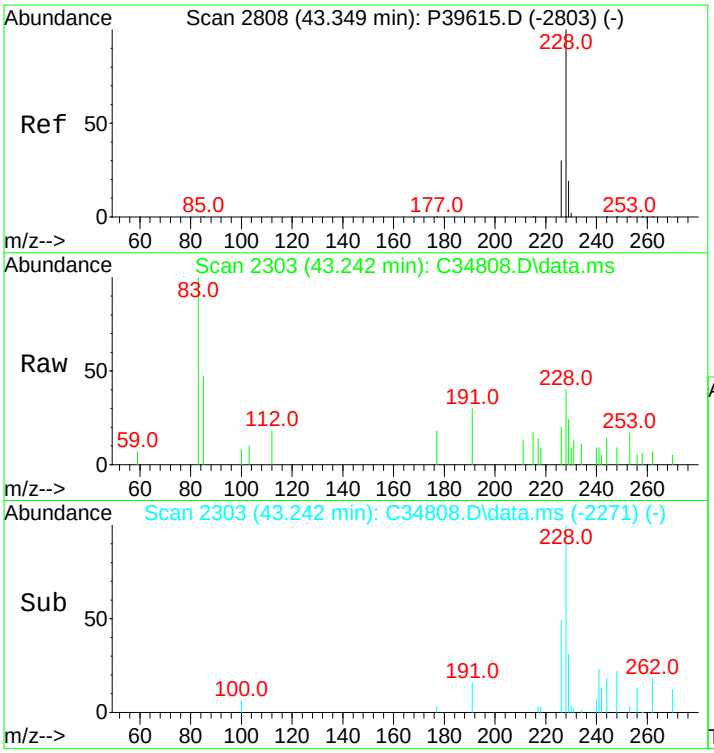


#75
Benz[a]anthracene
Concen: 9.77 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:228 Resp: 1049

Ion	Ratio	Lower	Upper
228	100		
226	45.2	21.4	32.0#

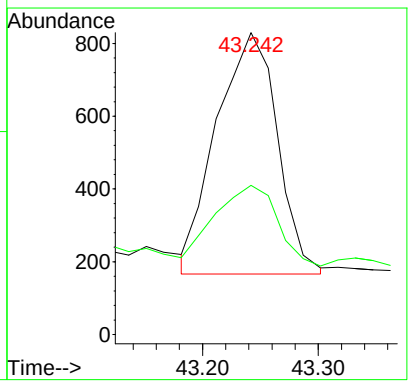


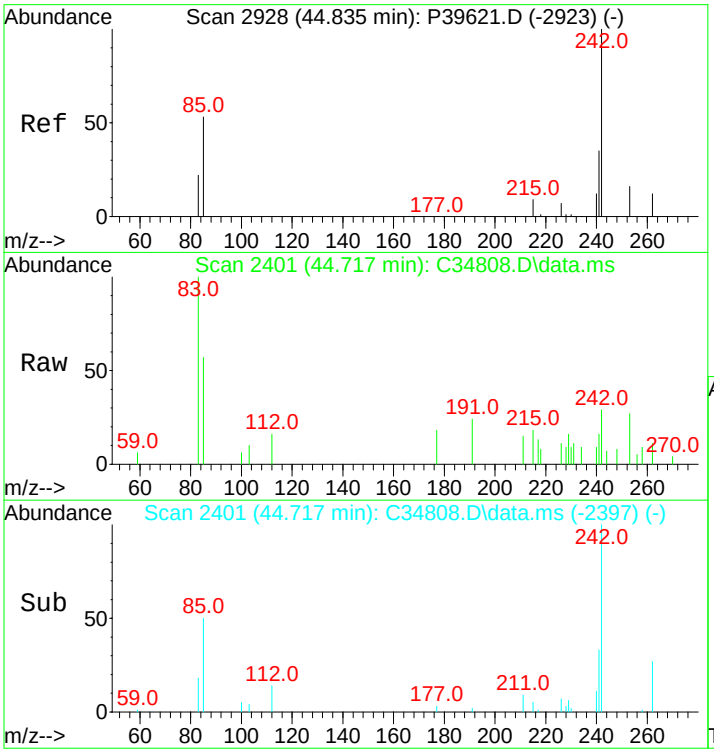


#77
Chrysene/Triphenylene
Concen: 22.33 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:228 Resp: 2420

Ion	Ratio	Lower	Upper
228	100		
226	34.6	23.7	35.5

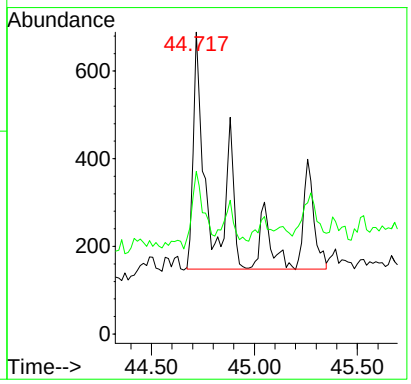


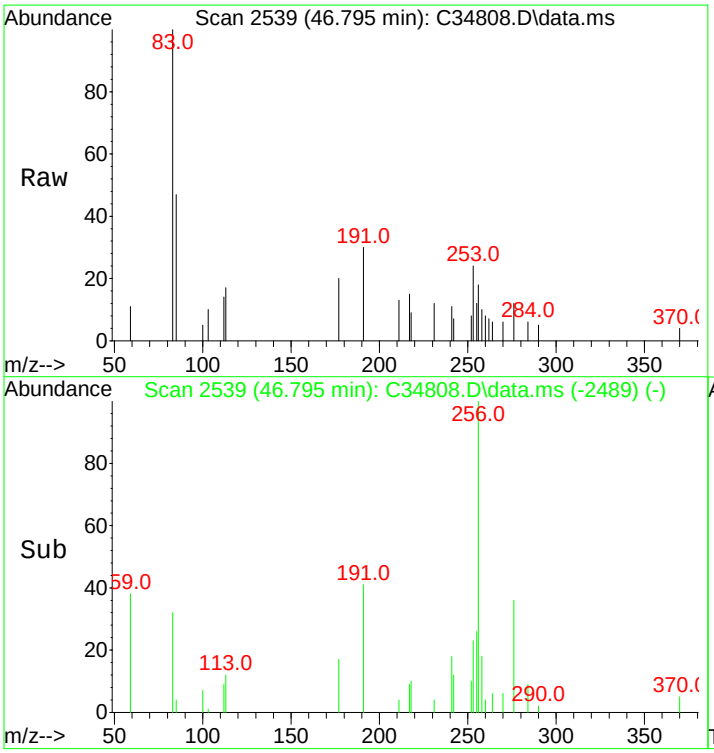


#78
C1-Chrysenes
Concen: 38.17 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:242 Resp: 4137

Ion	Ratio	Lower	Upper
242	100		
241	10.9	31.4	47.2#

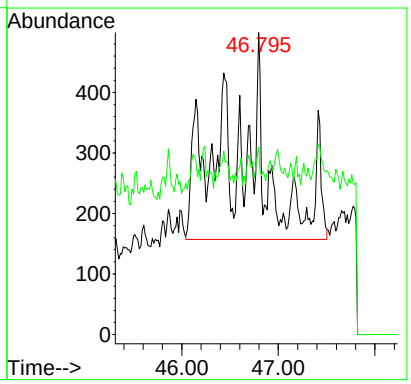


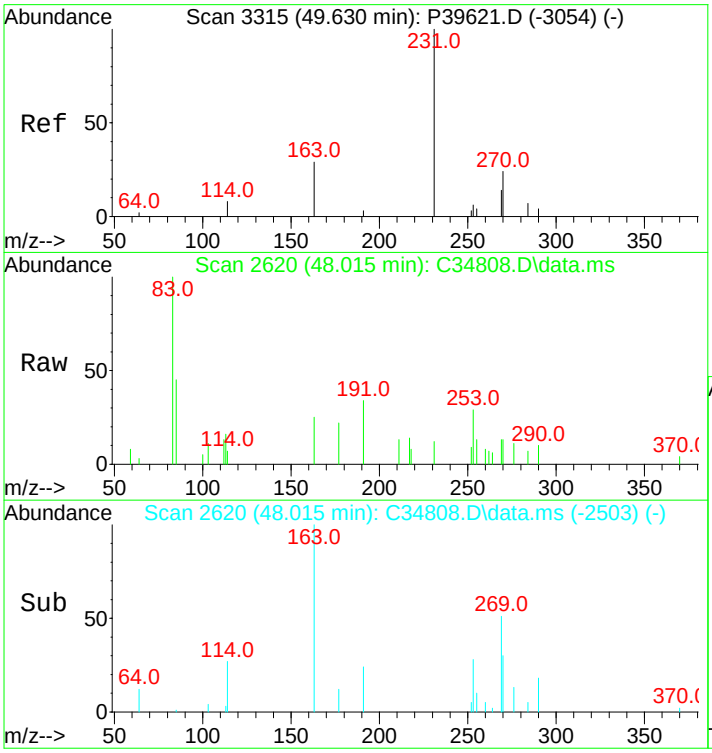


#79
C2-Chrysenes
Concen: 83.31 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:256 Resp: 9028

Ion	Ratio	Lower	Upper
256	100		
241	1.9	21.2	31.8#

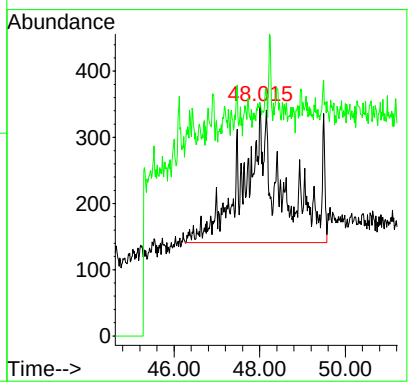


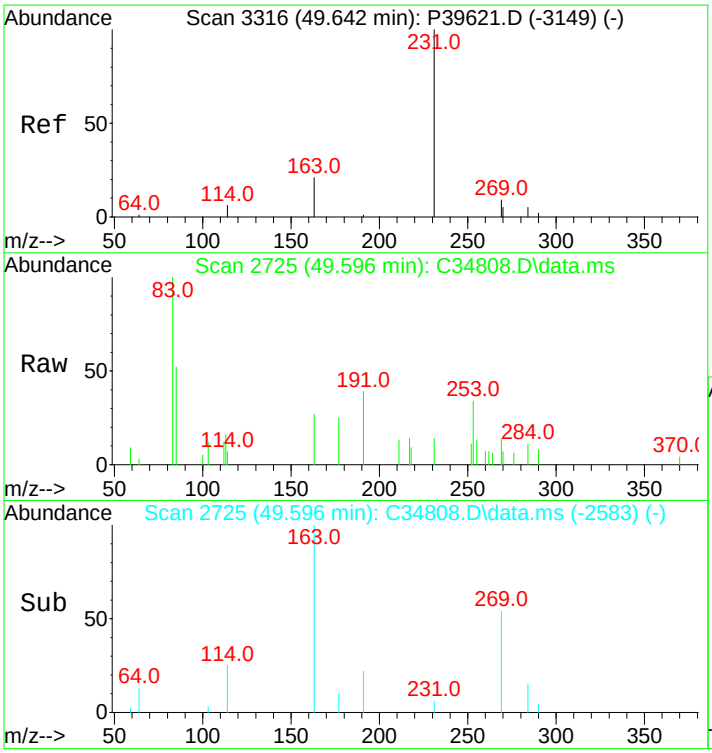


#80
C3-Chrysenes
Concen: 119.45 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:270 Resp: 12945

Ion	Ratio	Lower	Upper
270	100		
255	1.6	33.8	50.8#

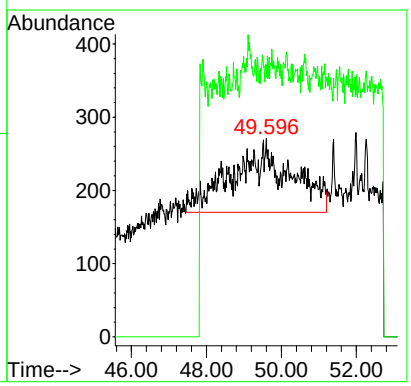


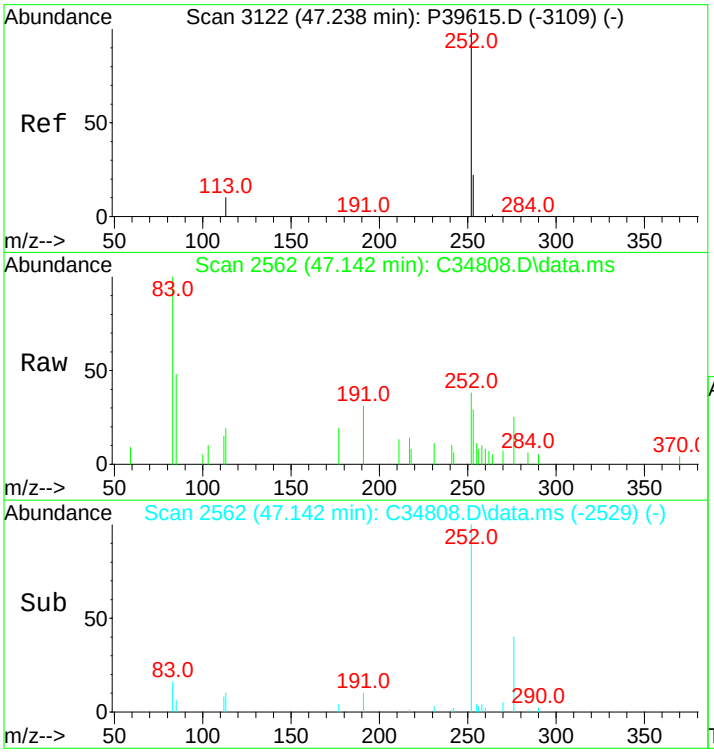


#81
C4-Chrysenes
Concen: 95.47 ng/mL m
RT: 49.596 min Scan# 2725
Delta R.T. -0.004 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:284 Resp: 10346

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

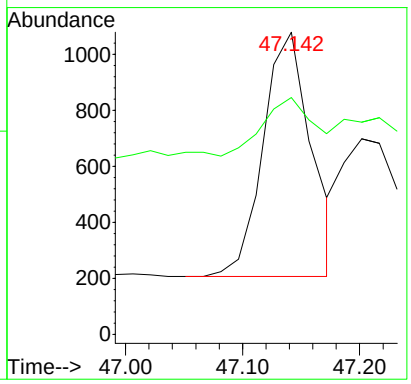


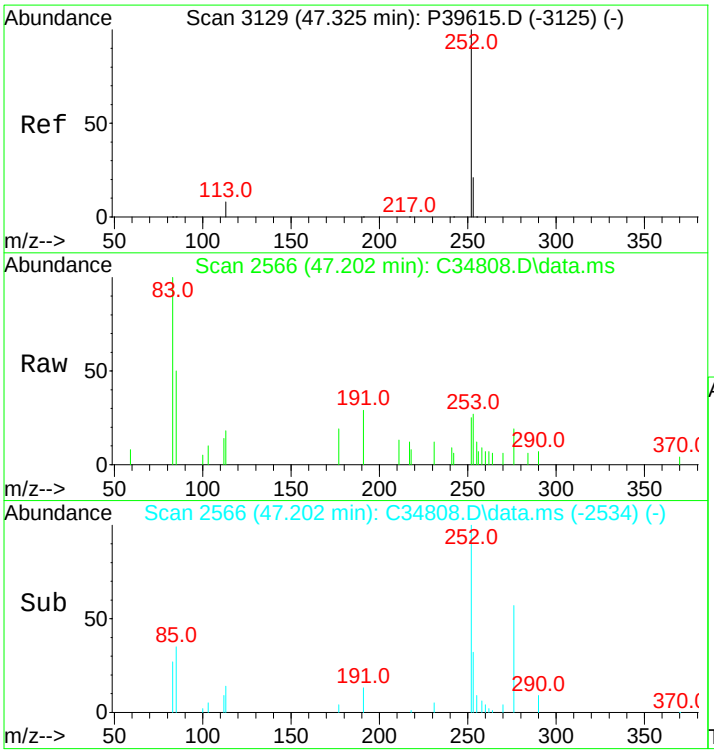


#82
Benzo[b]fluoranthene
Concen: 21.23 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 2504

Ion	Ratio	Lower	Upper
252	100		
253	25.1	19.0	28.4

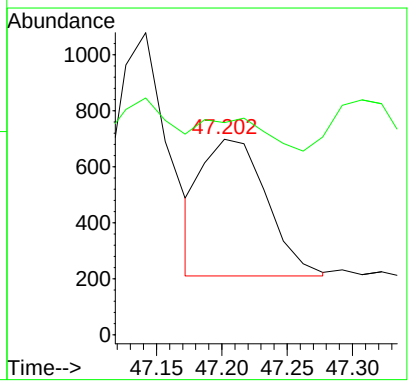


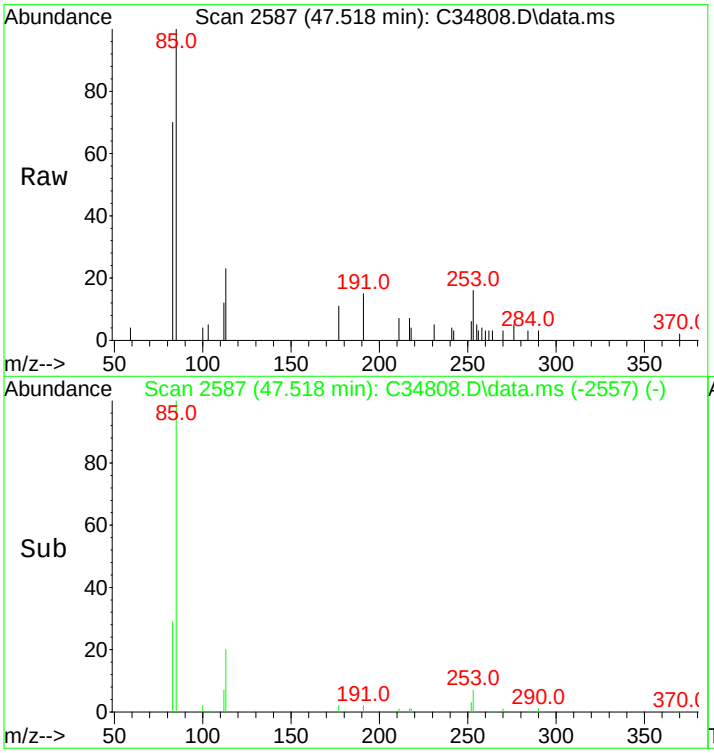


#83
Benzo[j]+[k]fluoranthene
Concen: 13.05 ng/mL m
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 1676

Ion	Ratio	Lower	Upper
252	100		
253	37.5	19.0	28.4#

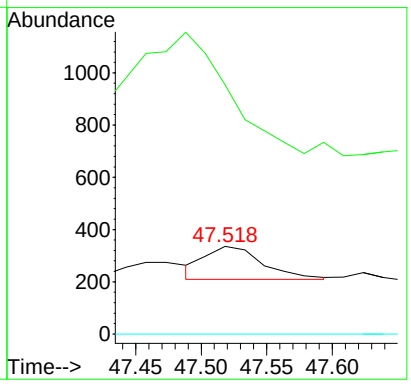


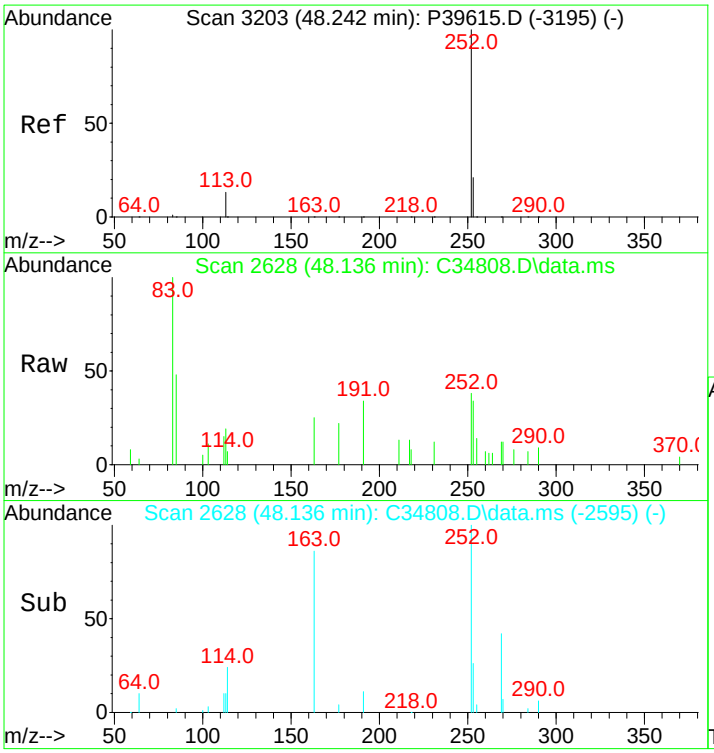


#84
Benzo[a]fluoranthene
Concen: 3.01 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.051 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 386

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

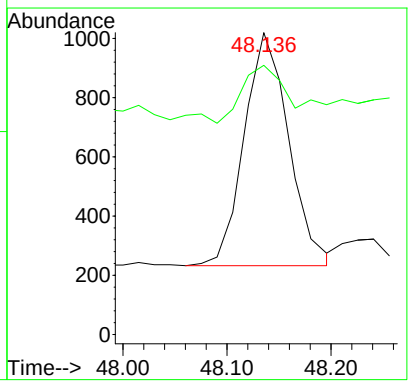


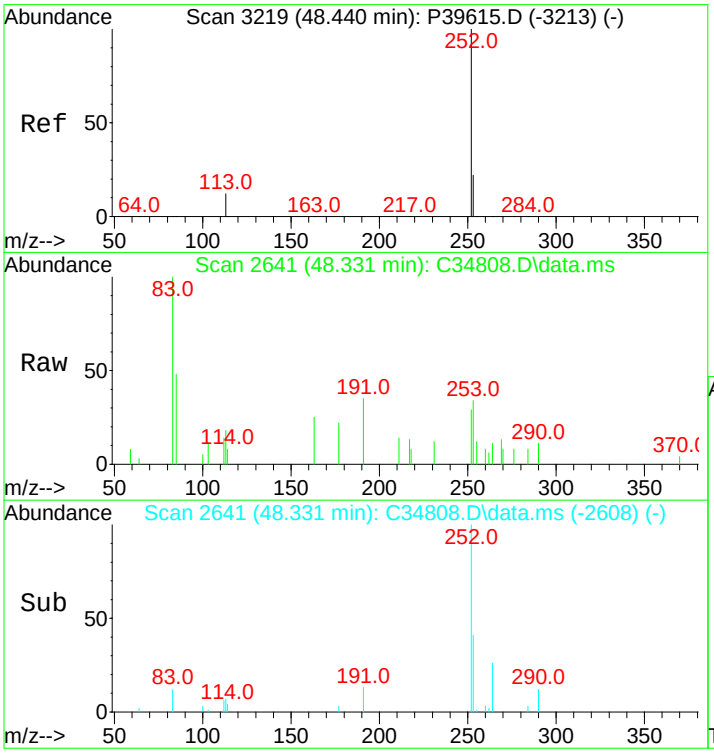


#85
Benzo[e]pyrene
Concen: 20.18 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 2354

Ion	Ratio	Lower	Upper
252	100		
253	28.6	19.2	28.8

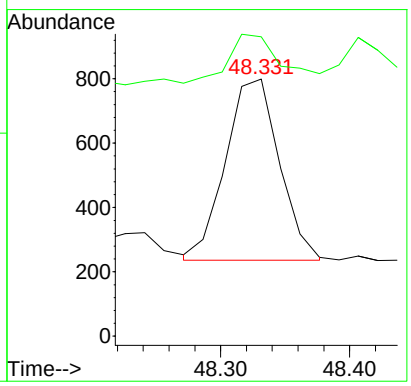


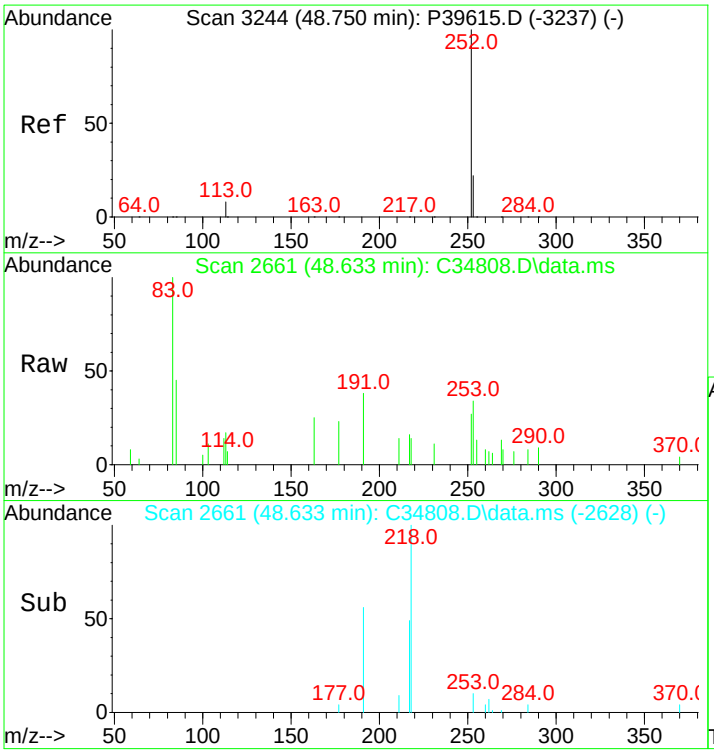


#87
Benzo[a]pyrene
Concen: 14.52 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 1631

Ion	Ratio	Lower	Upper
252	100		
253	41.3	19.5	29.3#

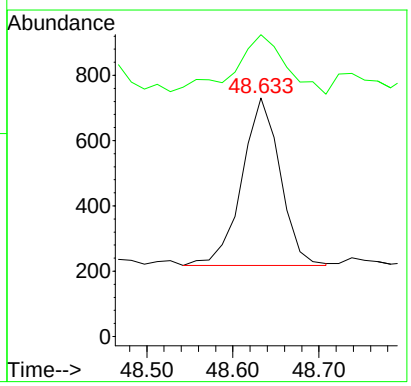


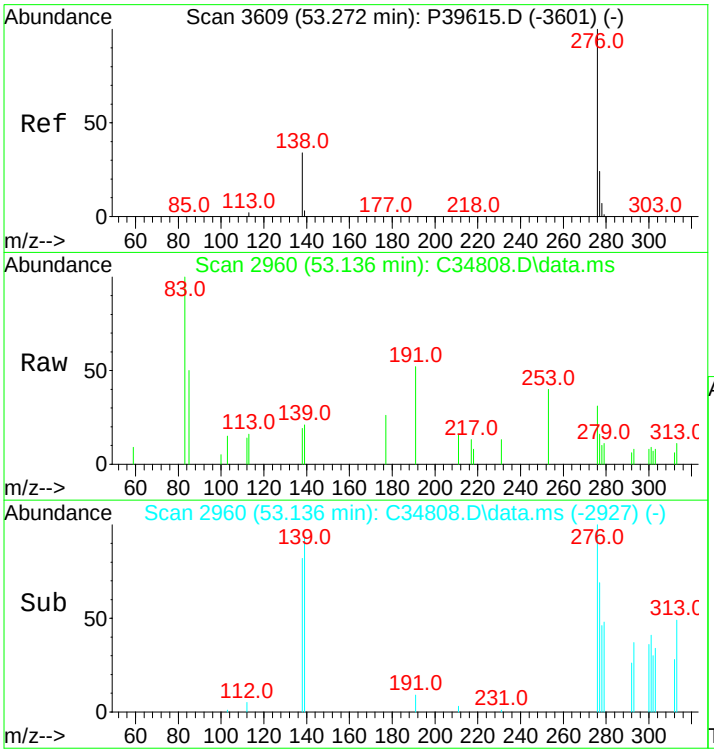


#88
Perylene
Concen: 13.16 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:252 Resp: 1580

Ion	Ratio	Lower	Upper
252	100		
253	27.6	19.6	29.4

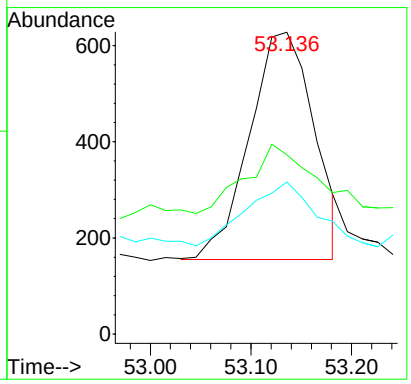


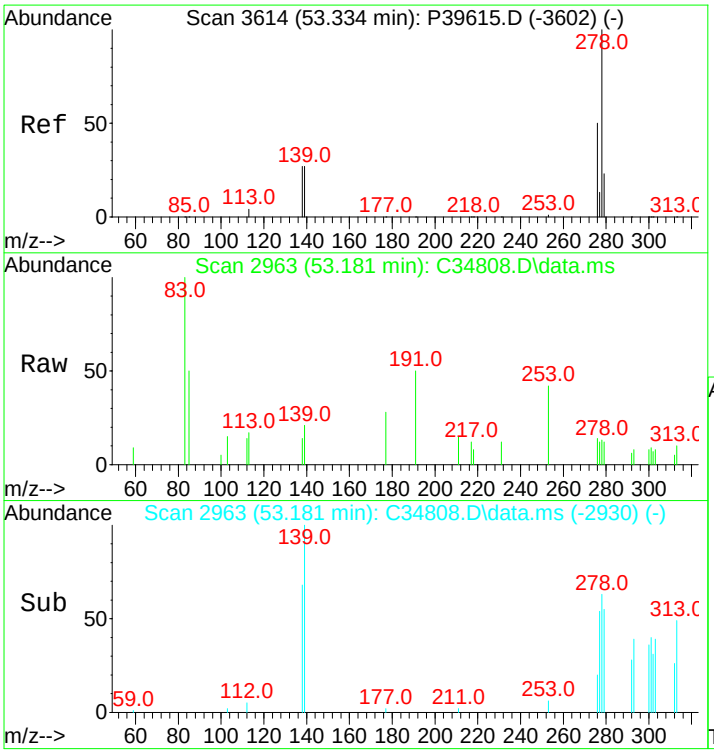


#89
Indeno[1,2,3-cd]pyrene
Concen: 16.16 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:276 Resp: 2112

Ion	Ratio	Lower	Upper
276	100		
138	27.0	23.3	34.9
277	30.7	19.0	28.4#

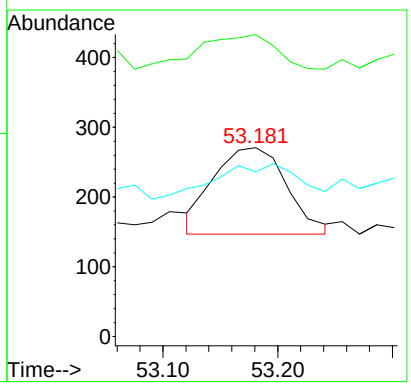


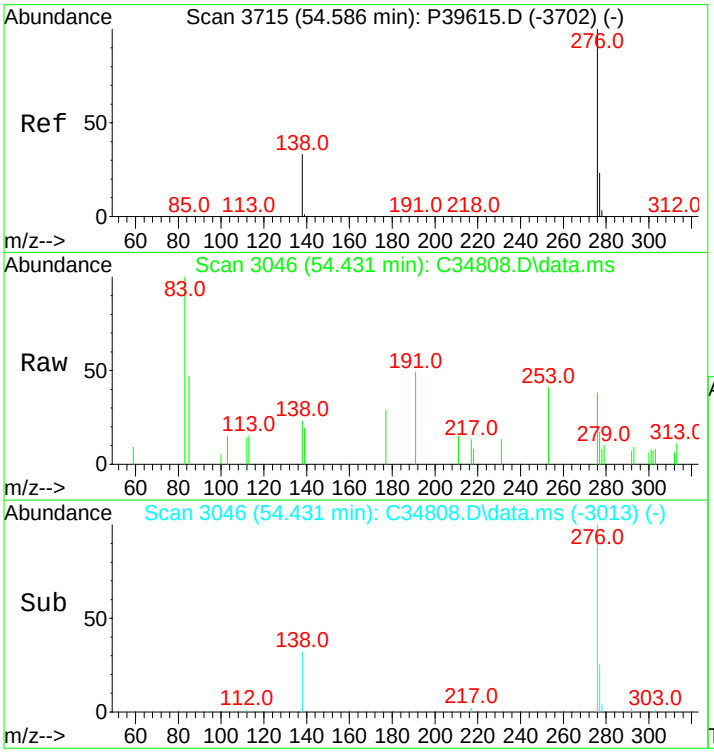


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.41 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:278 Resp: 548

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

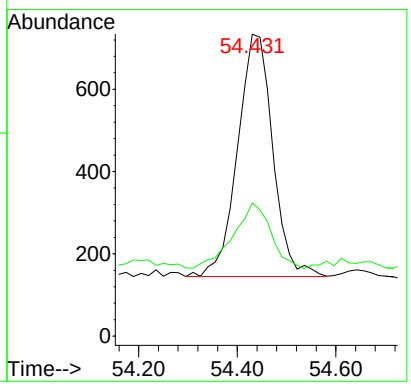


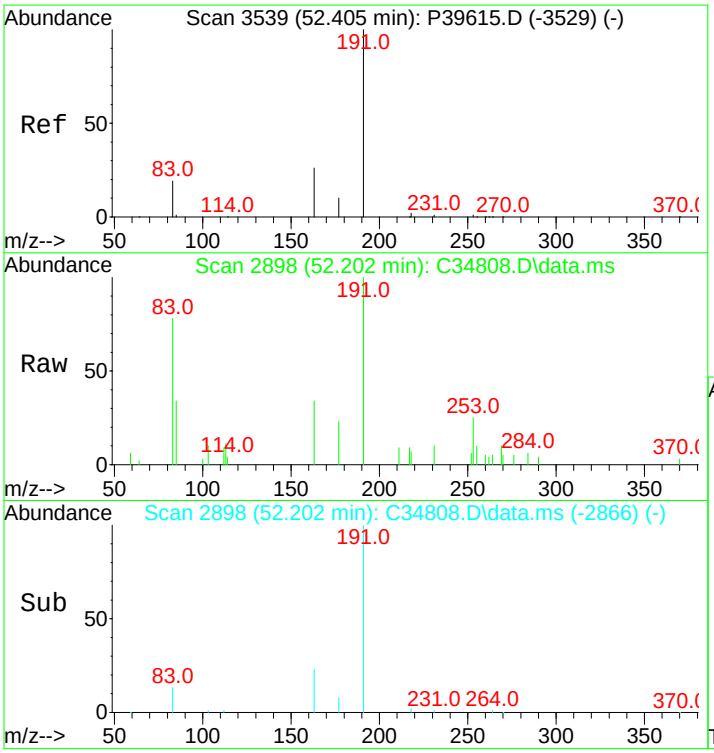


#91
Benzo[g,h,i]perylene
Concen: 21.08 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:276 Resp: 2911

Ion	Ratio	Lower	Upper
276	100		
277	29.0	18.9	28.3#

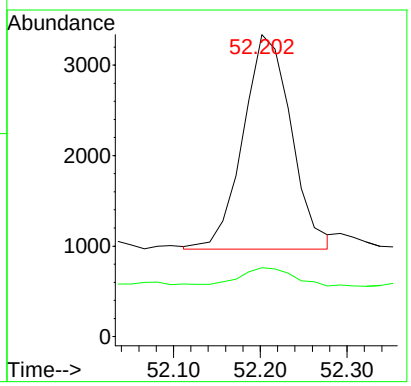


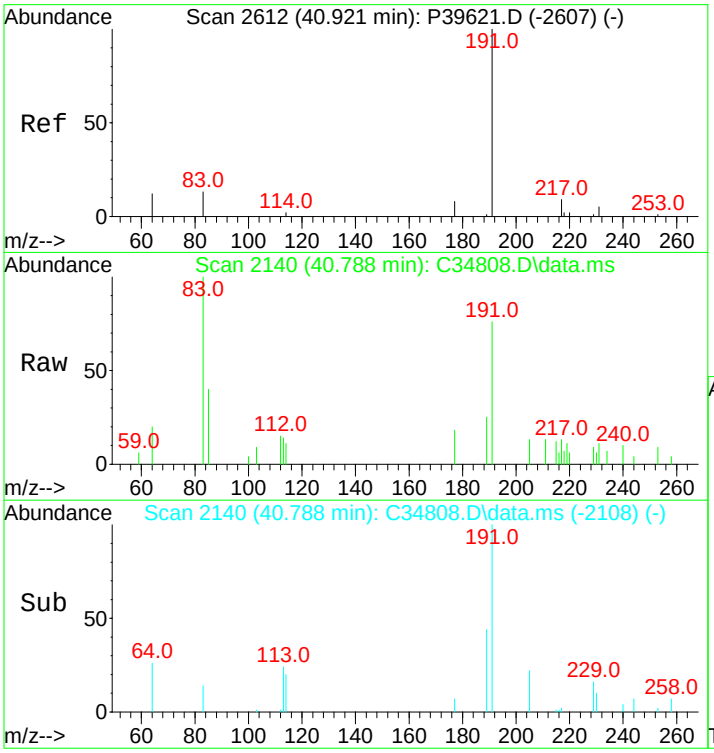


#92
Hopane (T19)
Concen: 409.16 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:191 Resp: 9120

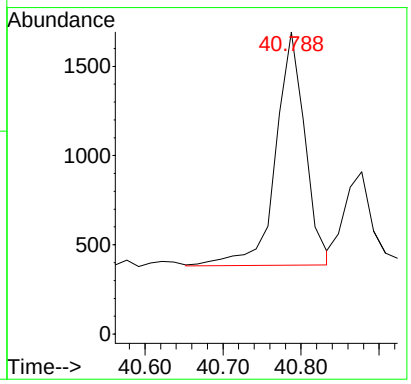
Ion	Ratio	Lower	Upper
191	100		
177	9.7	14.6	21.8#

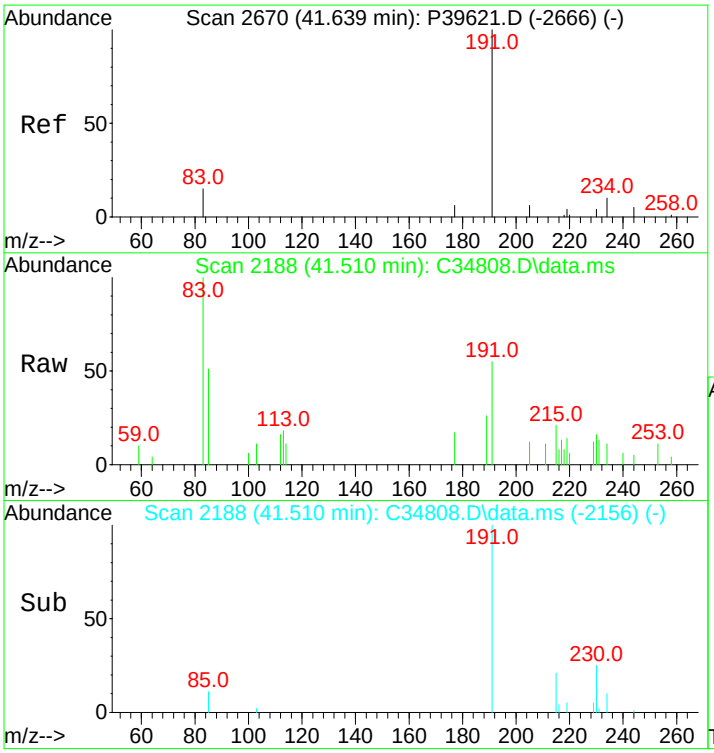




#94
C23 Tricyclic Terpane (T4)
Concen: 152.54 ng/ml
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

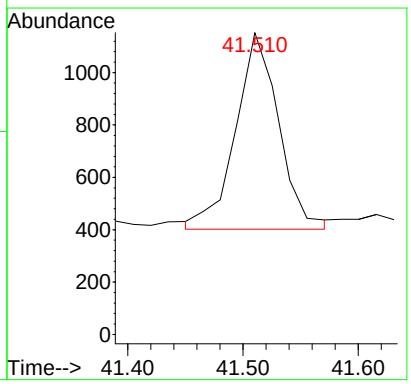
Tgt Ion:191 Resp: 3400

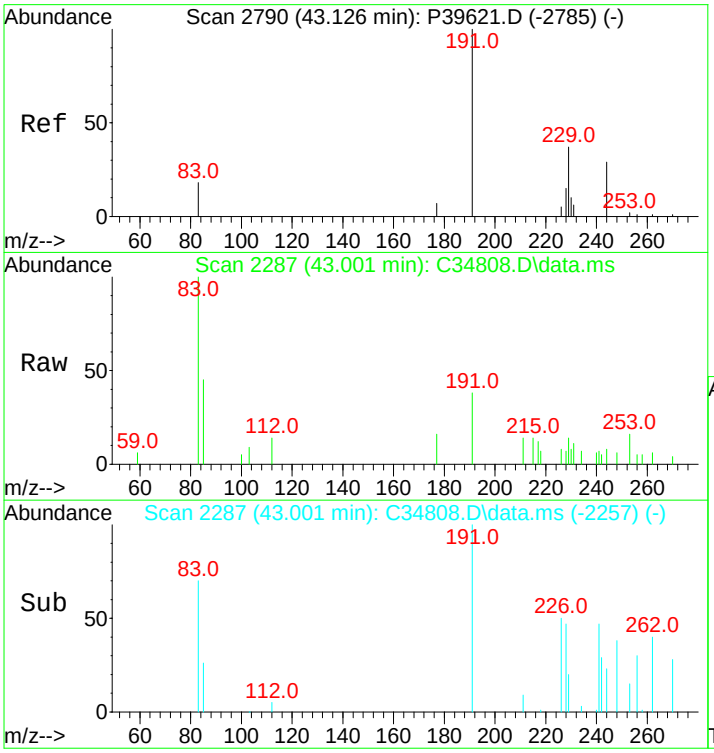




#95
C24 Tricyclic Terpane (T5)
Concen: 87.44 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

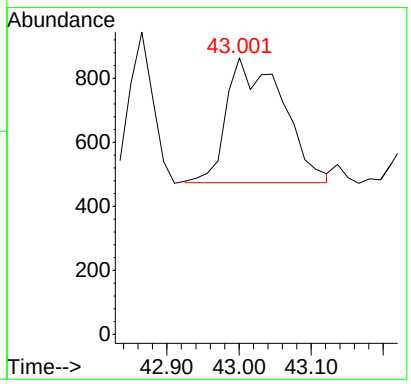
Tgt Ion:191 Resp: 1949

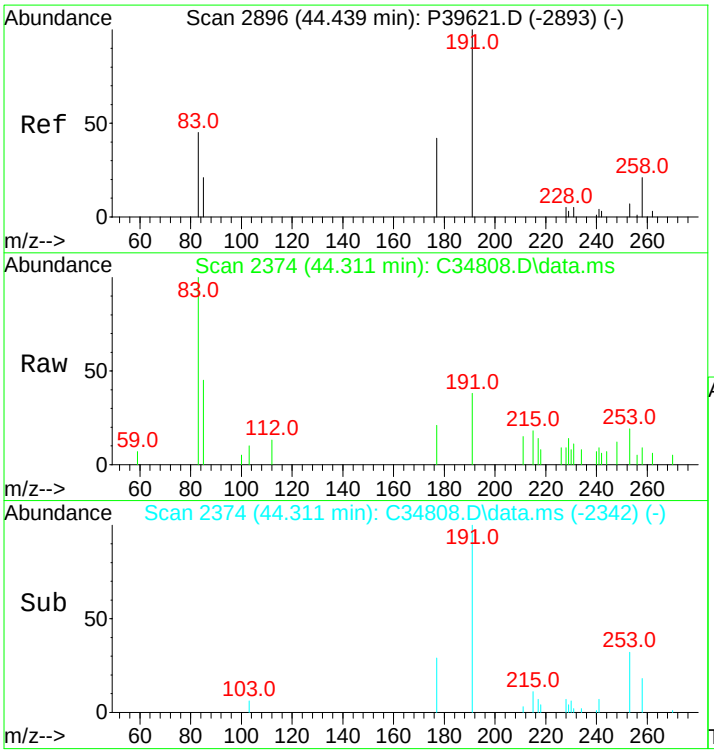




#96
C25 Tricyclic Terpane (T6)
Concen: 94.48 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

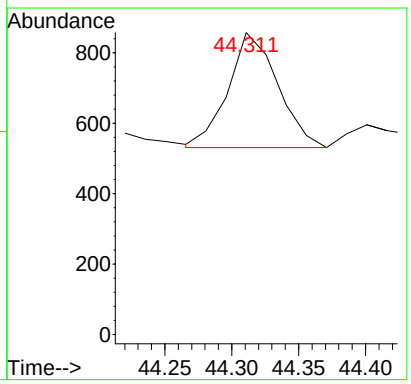
Tgt Ion:191 Resp: 2106

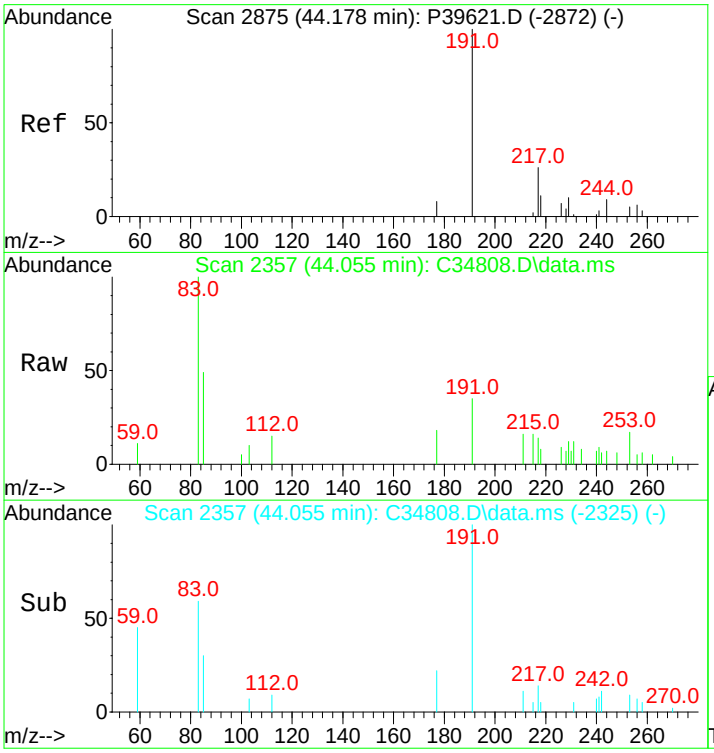




#97
C24 Tetracyclic Terpane (T6a)
Concen: 37.91 ng/ml
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

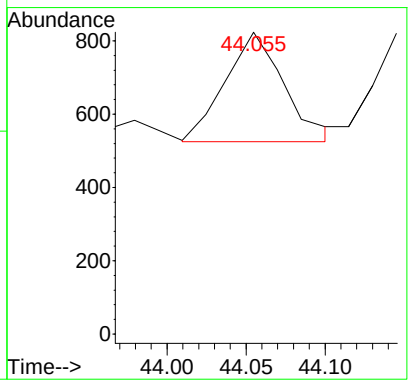
Tgt Ion:191 Resp: 845

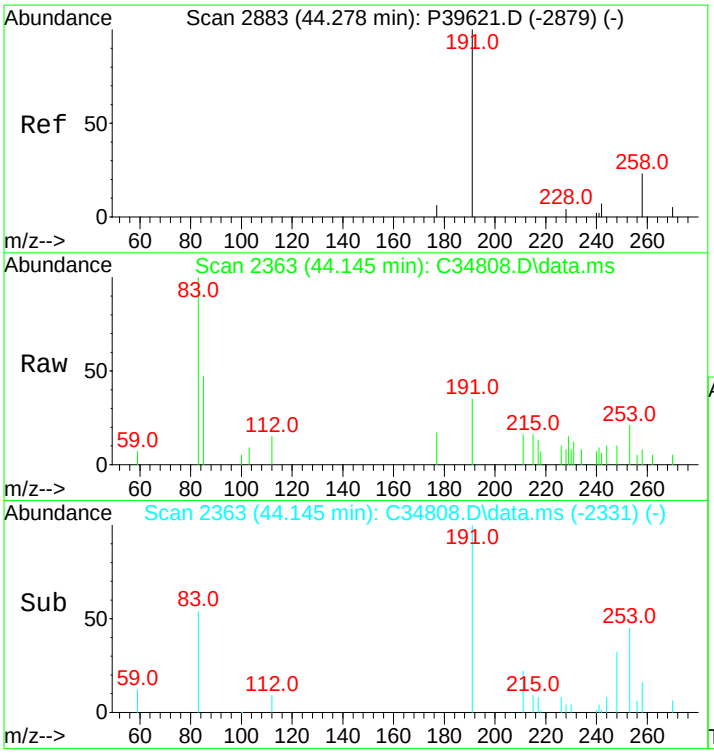




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 34.68 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

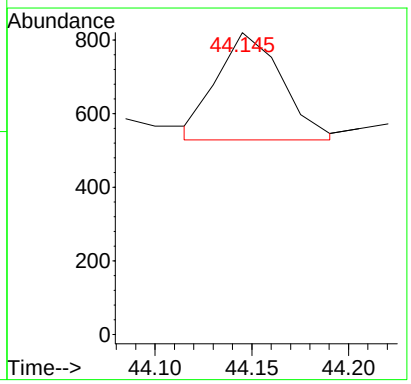
Tgt Ion:191 Resp: 773

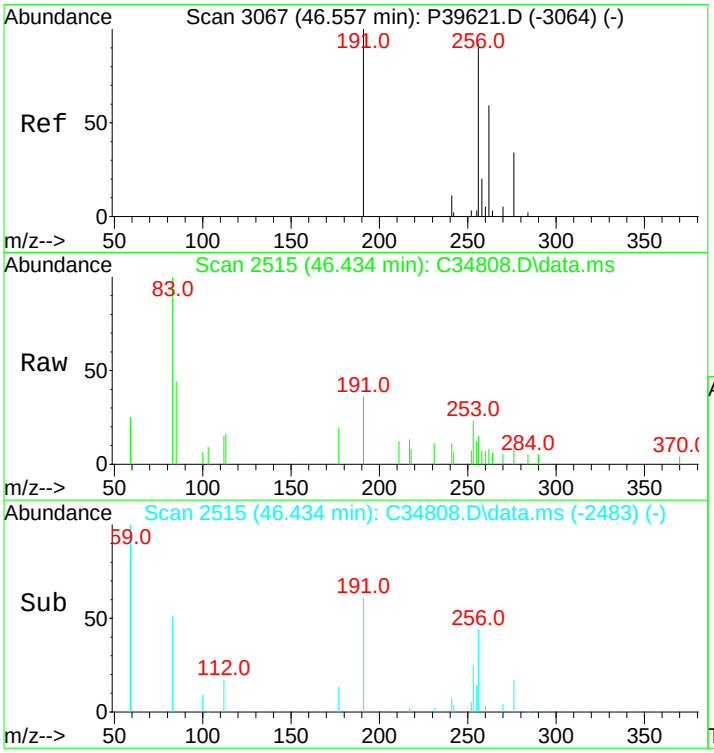




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 30.55 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

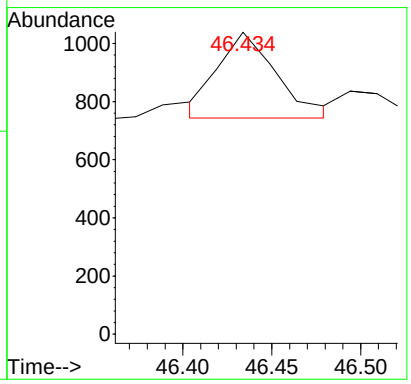
Tgt Ion:191 Resp: 681

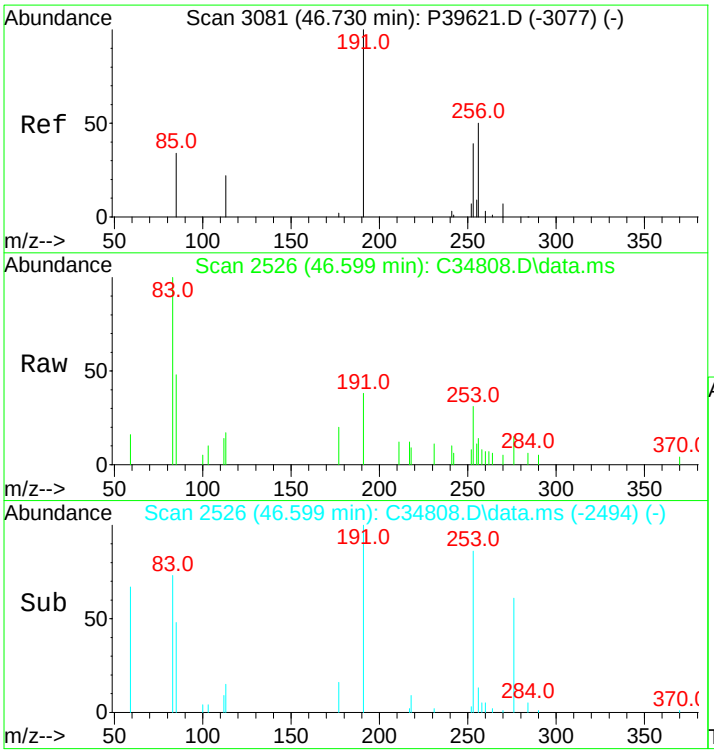




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 30.46 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

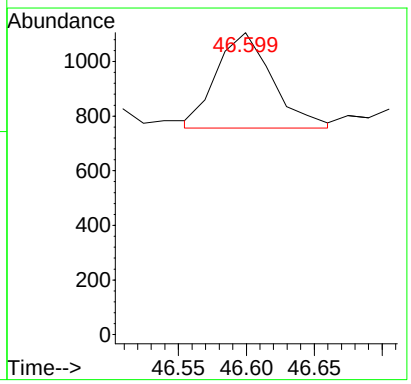
Tgt Ion:191 Resp: 679

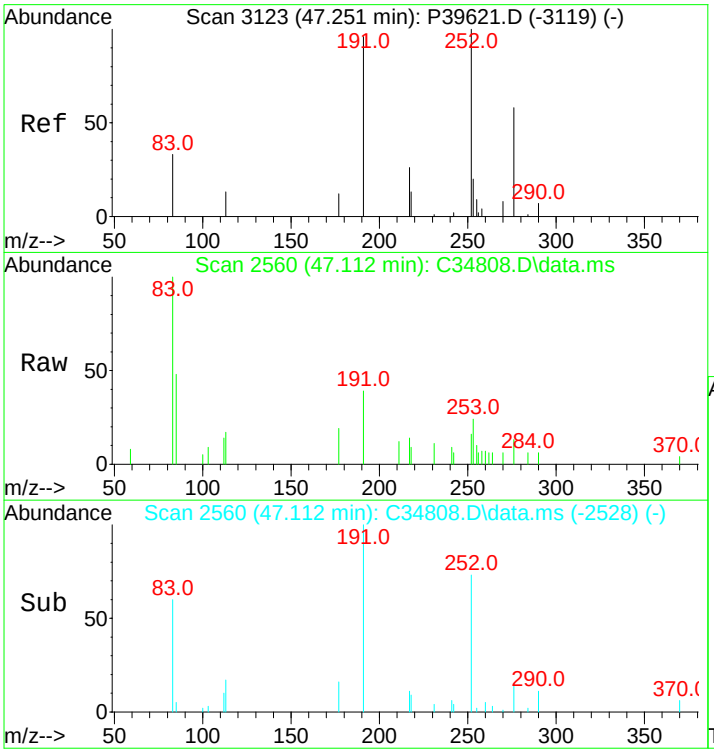




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 44.86 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

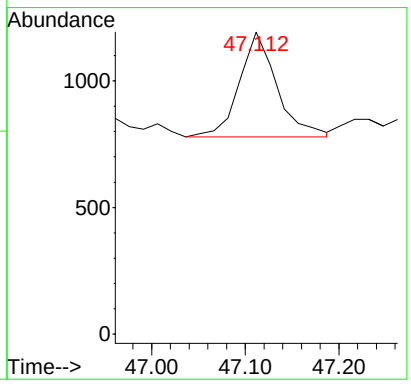
Tgt Ion:191 Resp: 1000

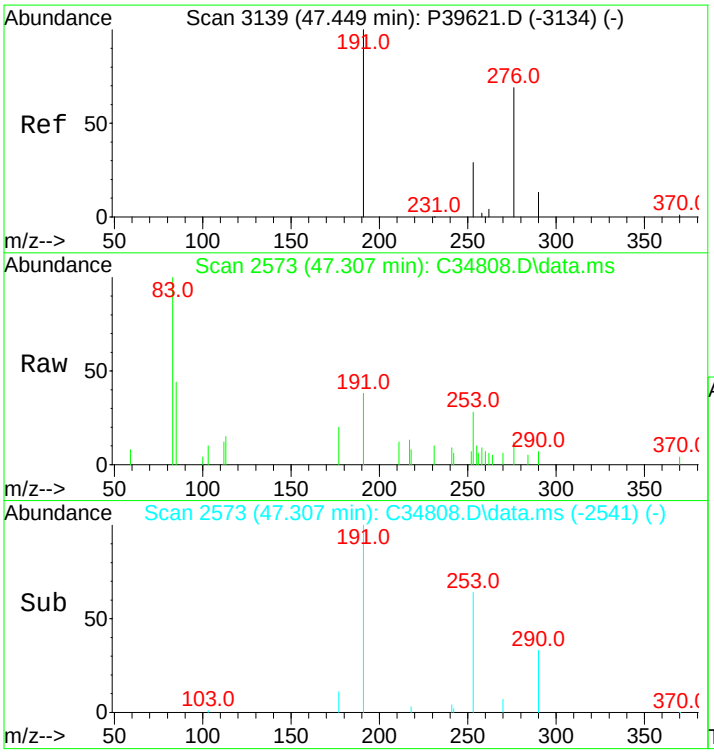




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 51.73 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

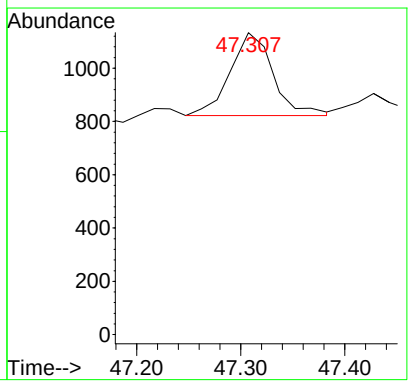
Tgt Ion:191 Resp: 1153

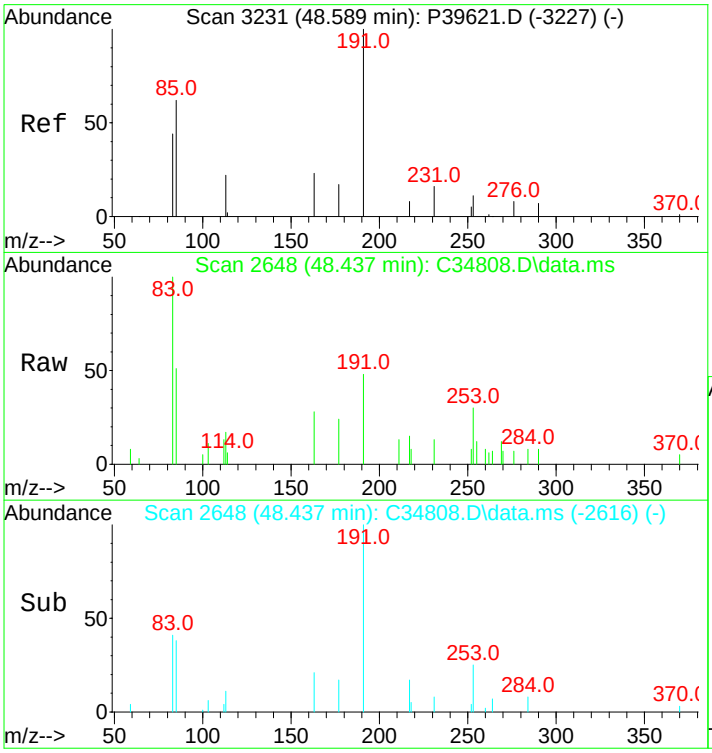




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 40.38 ng/ml
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

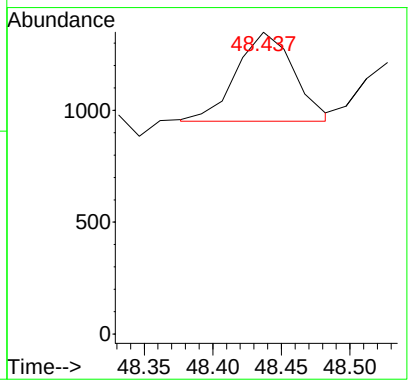
Tgt Ion:191 Resp: 900

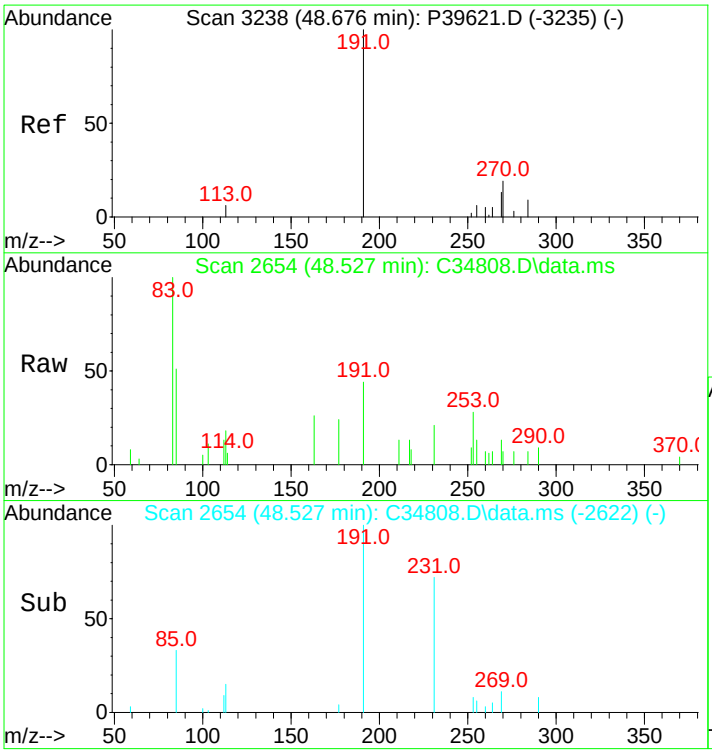




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 52.00 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

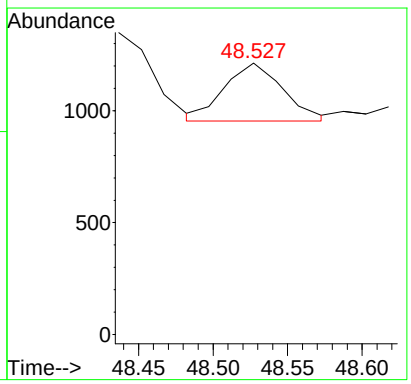
Tgt Ion:191 Resp: 1159

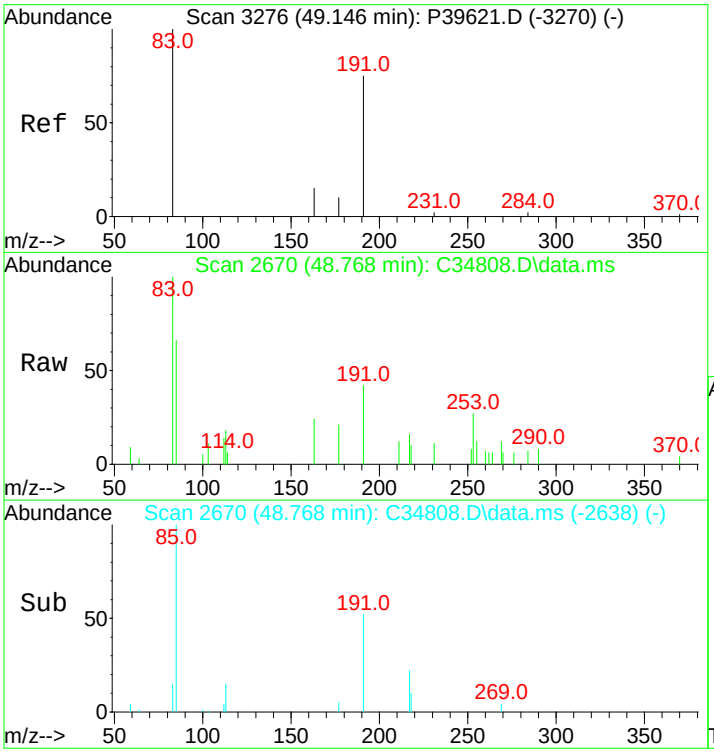




#105
C30 Tricyclic Terpane-22S
Concen: 31.54 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

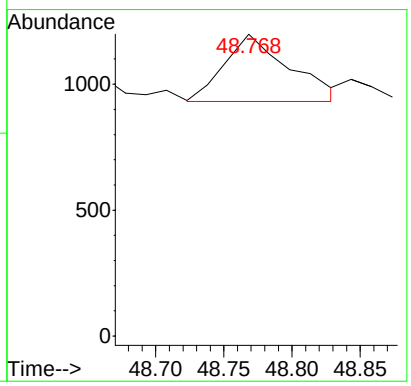
Tgt Ion:191 Resp: 703

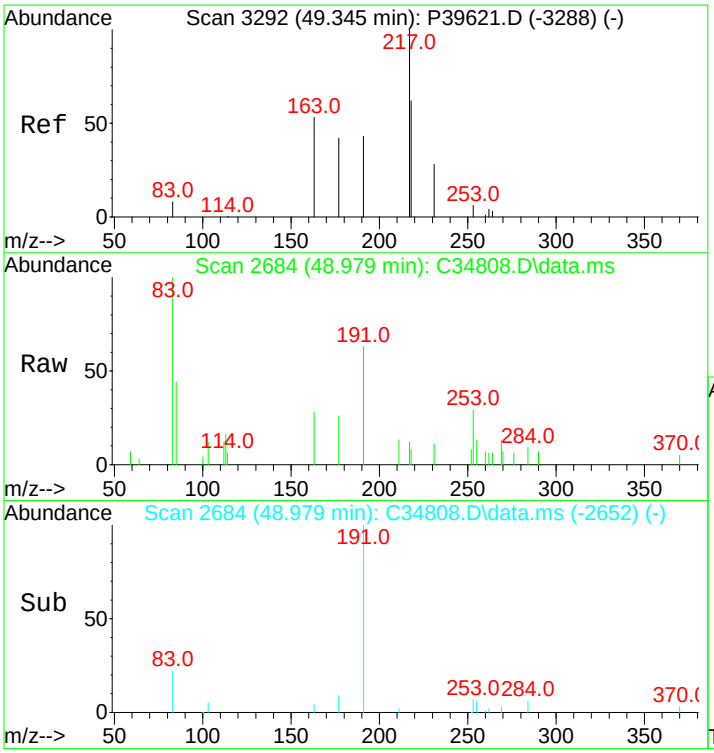




#106
C30 Tricyclic Terpane-22R
Concen: 39.84 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

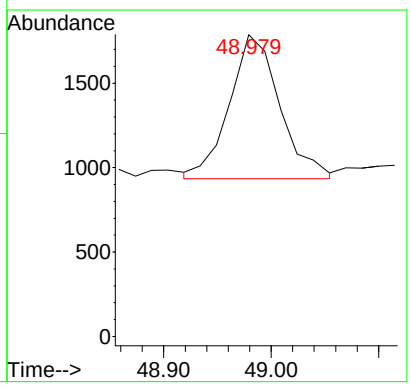
Tgt Ion:191 Resp: 888

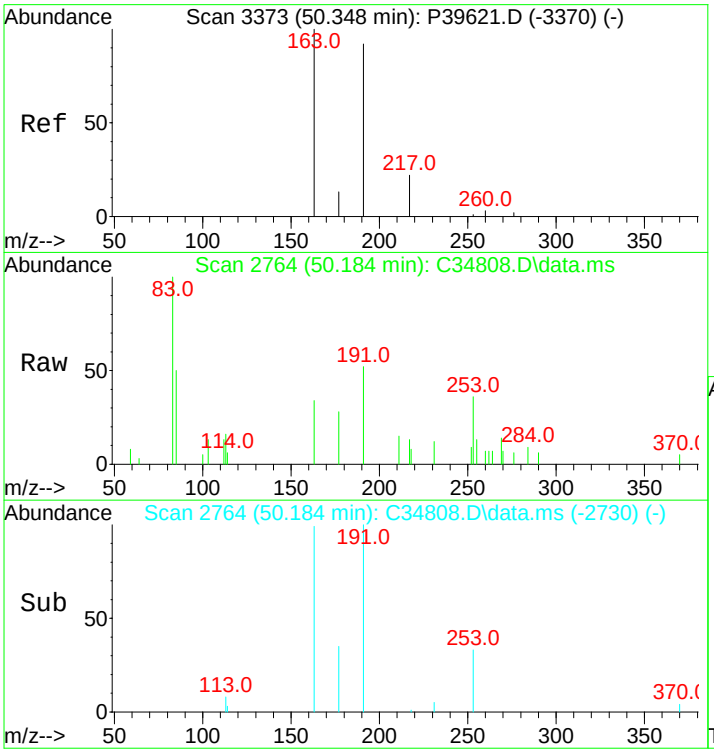




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 124.50 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

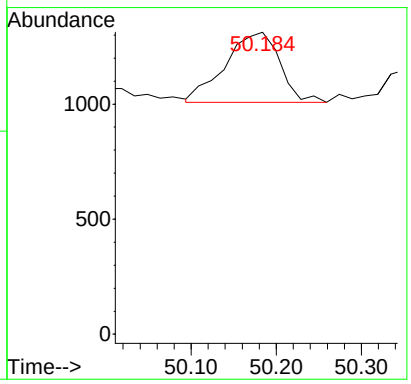
Tgt Ion:191 Resp: 2775

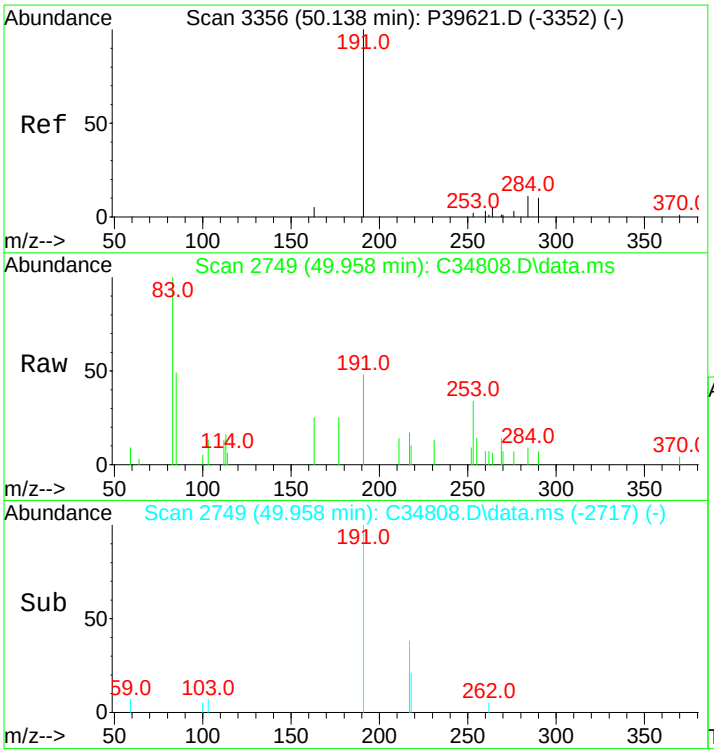




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 60.79 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

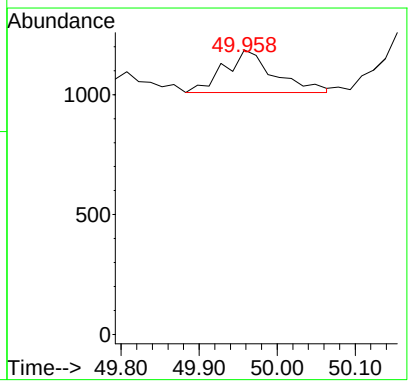
Tgt Ion:191 Resp: 1355

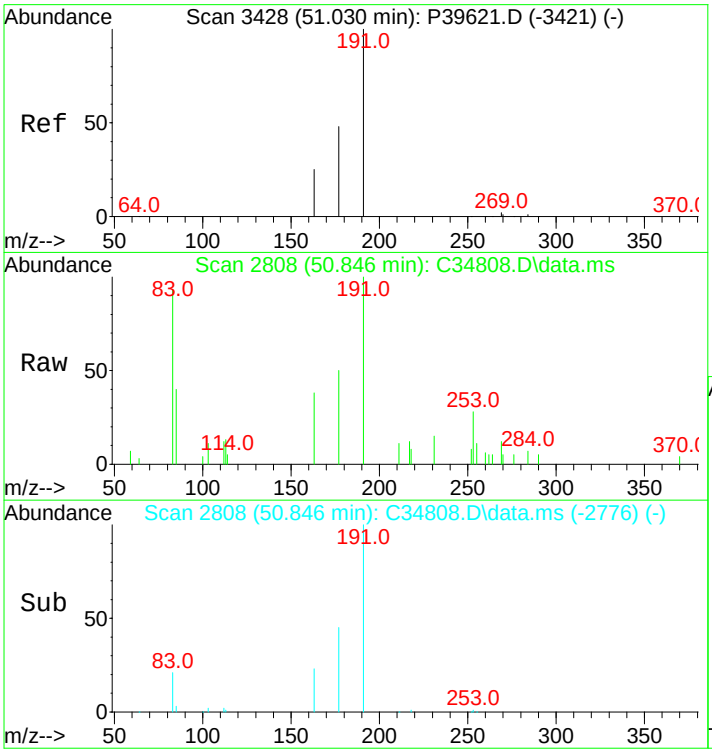




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 35.22 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

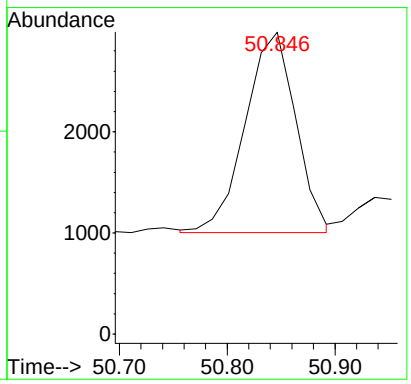
Tgt Ion:191 Resp: 785

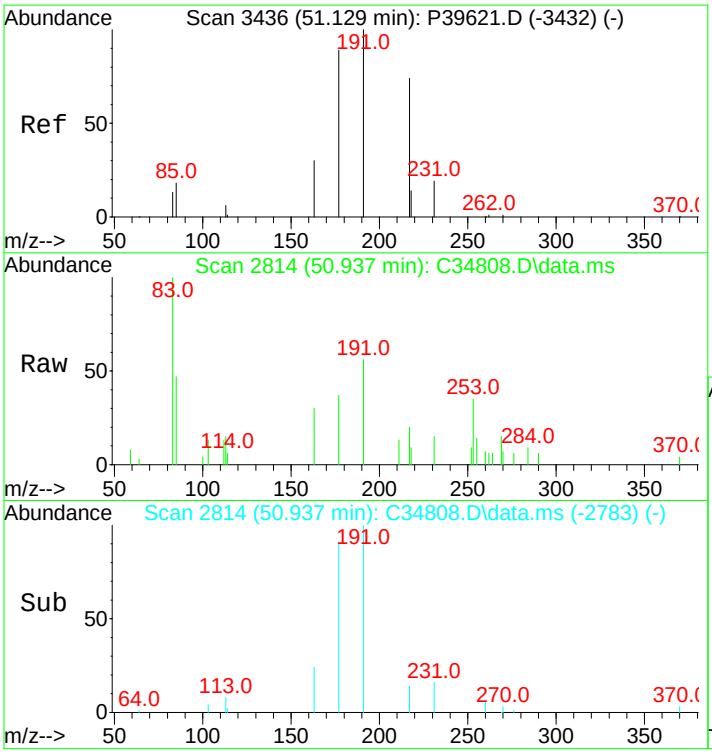




#110
30-Norhopane (T15)
Concen: 288.97 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

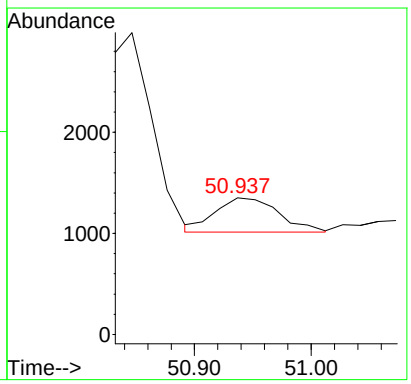
Tgt Ion:191 Resp: 6441

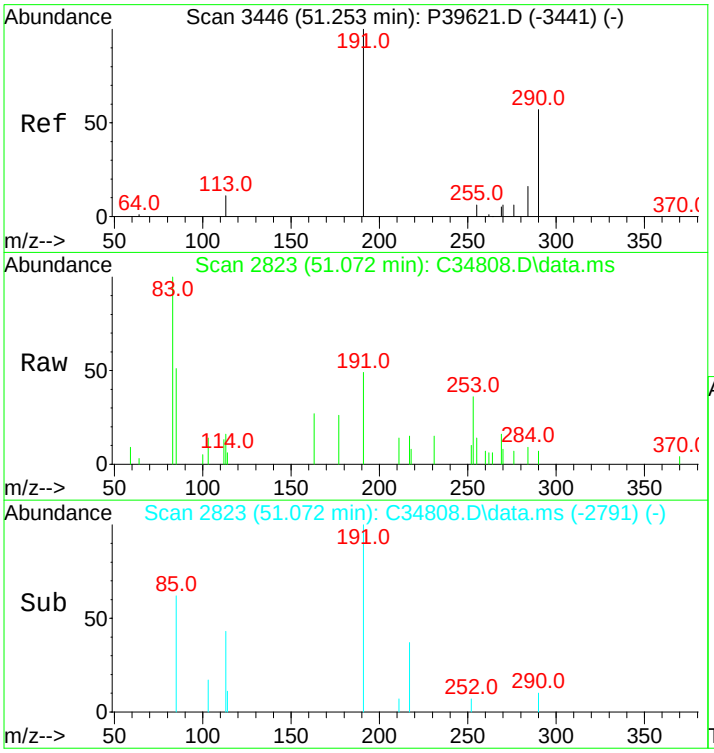




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 57.25 ng/ml m
RT: 50.937 min Scan# 2814
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

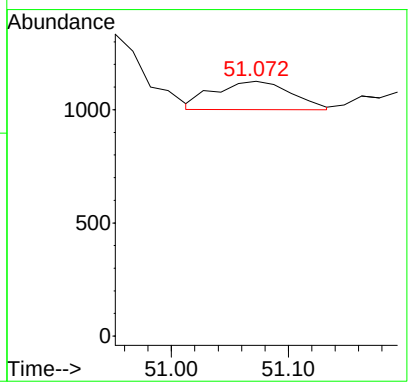
Tgt Ion:191 Resp: 1276

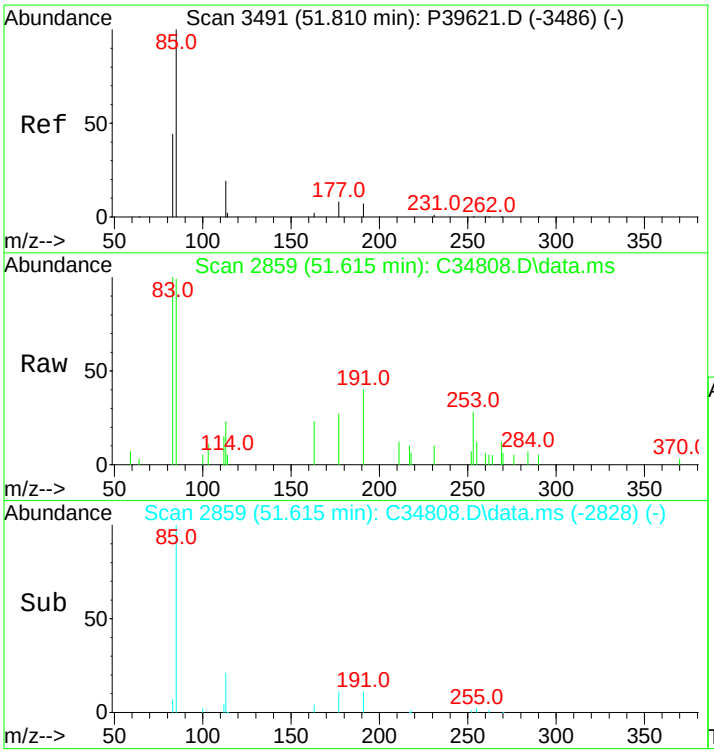




#112
17a(H)-Diahopane (X)
Concen: 25.80 ng/ml
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

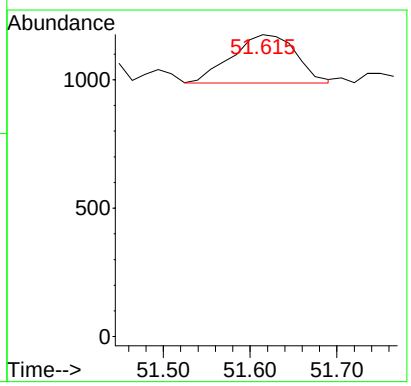
Tgt Ion:191 Resp: 575

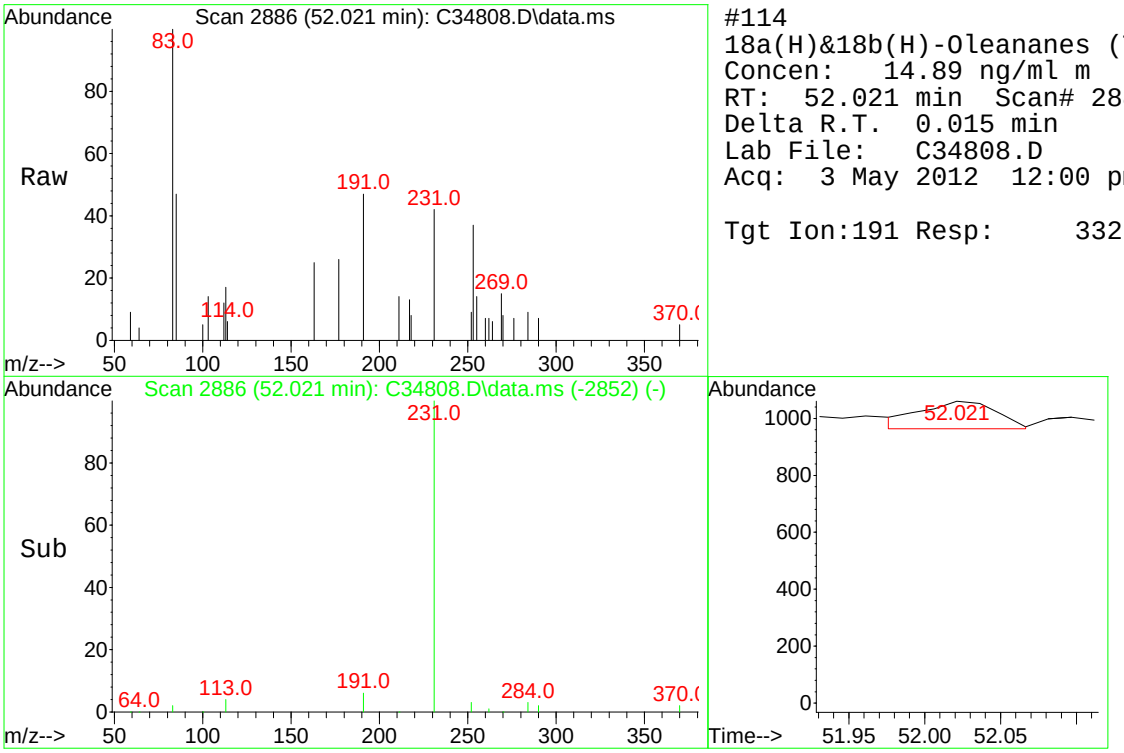




#113
30-Normoretane (T17)
Concen: 43.61 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

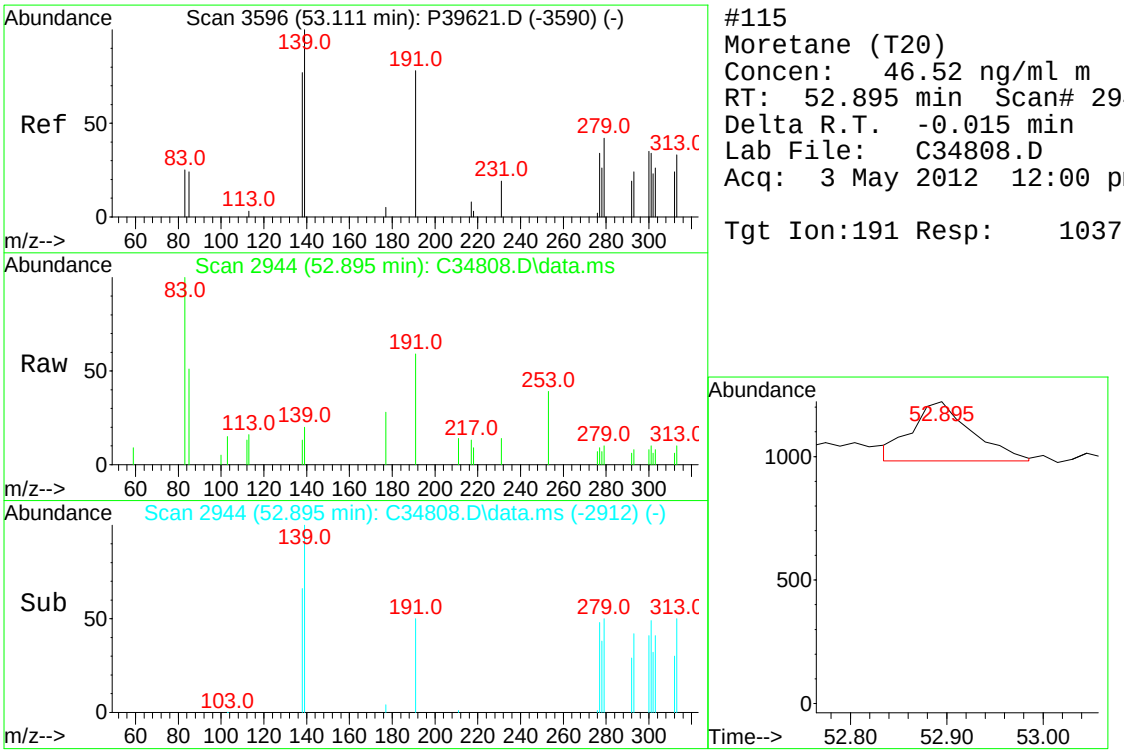
Tgt Ion:191 Resp: 972





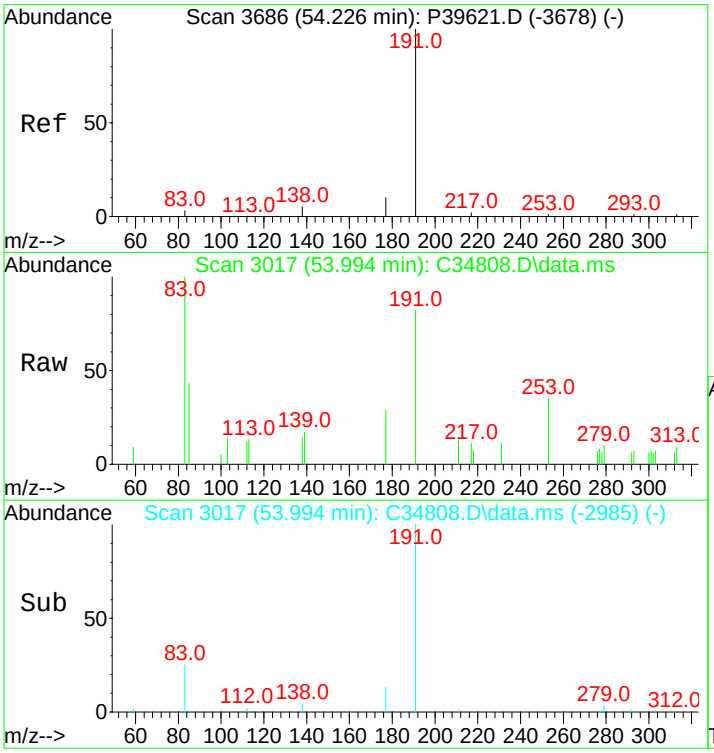
#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 14.89 ng/ml m
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:191 Resp: 332



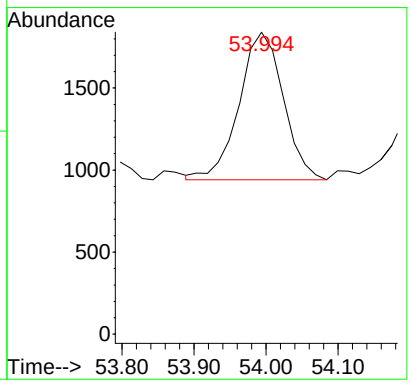
#115
Moretane (T20)
Concen: 46.52 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

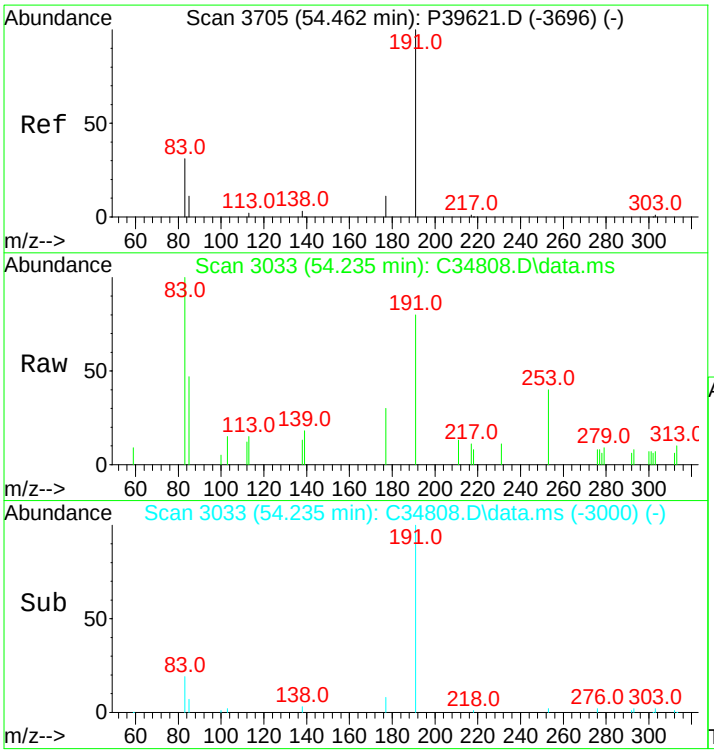
Tgt Ion:191 Resp: 1037



#116
30-Homohopane-22S (T21)
Concen: 171.38 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

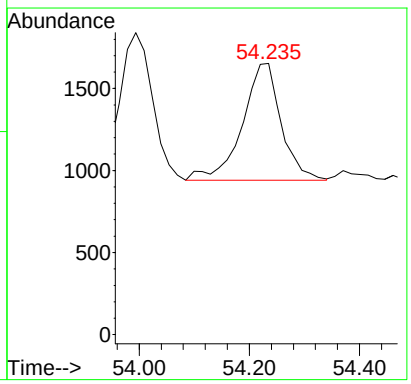
Tgt Ion:191 Resp: 3820

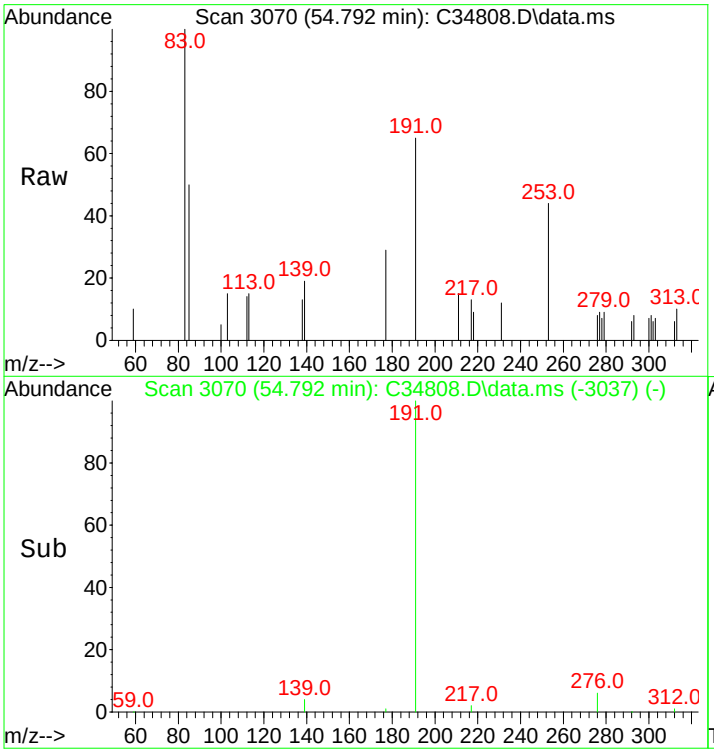




#117
30-Homohopane-22R (T22)
Concen: 155.99 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

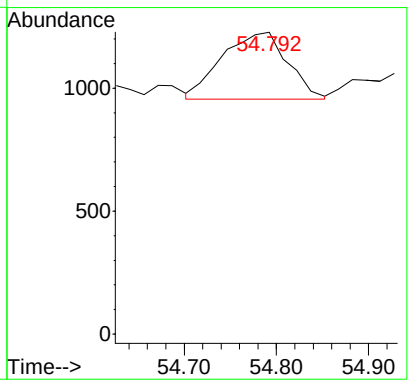
Tgt Ion:191 Resp: 3477

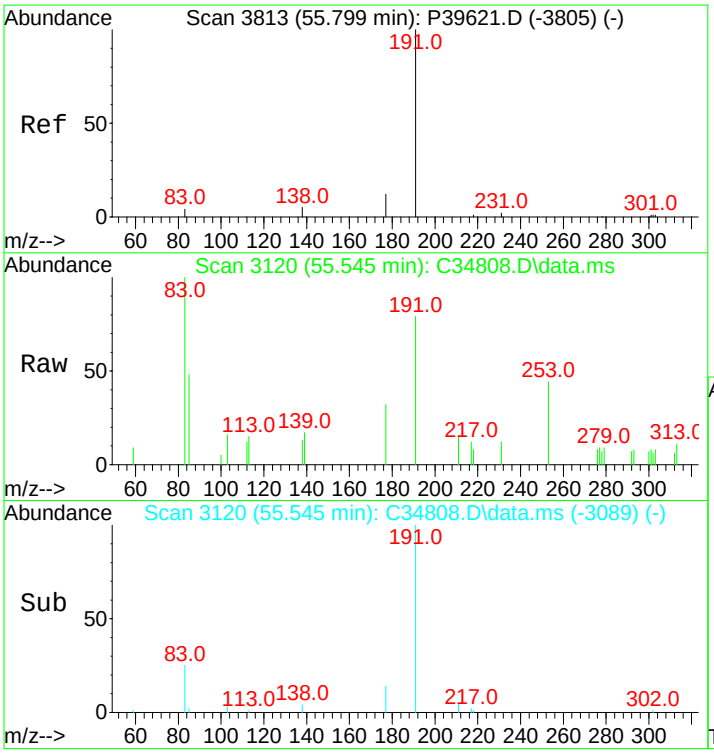




#118
Gammacerane/C32-diahopane
Concen: 59.94 ng/mL m
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

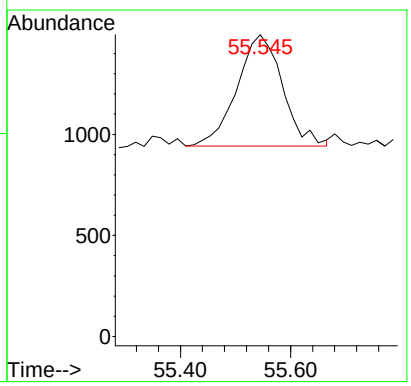
Tgt Ion:191 Resp: 1336

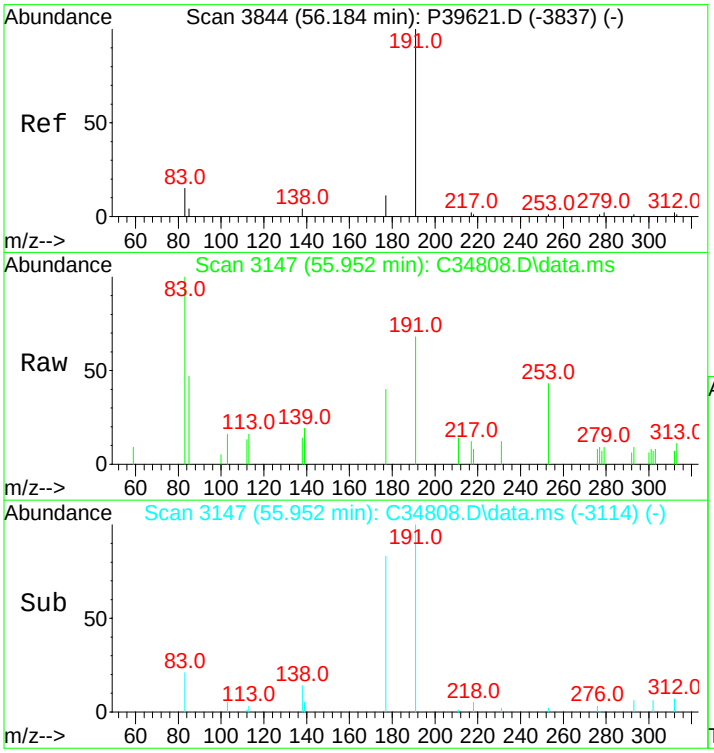




#119
30,31-Bishomohopane-22S (T26)
Concen: 141.77 ng/ml
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

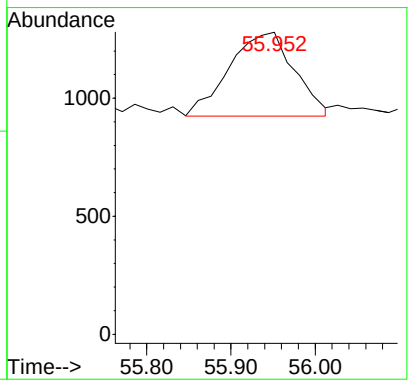
Tgt Ion:191 Resp: 3160

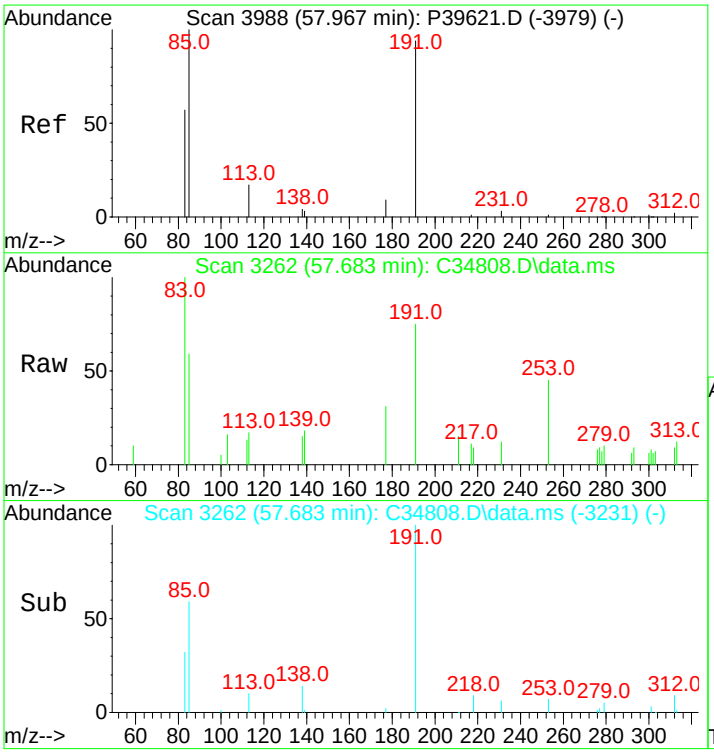




#120
30,31-Bishomohopane-22R (T27)
Concen: 85.51 ng/ml m
RT: 55.952 min Scan# 3147
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

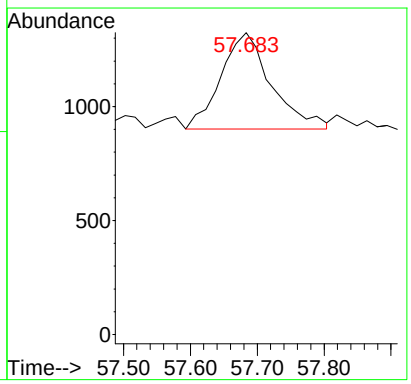
Tgt Ion:191 Resp: 1906

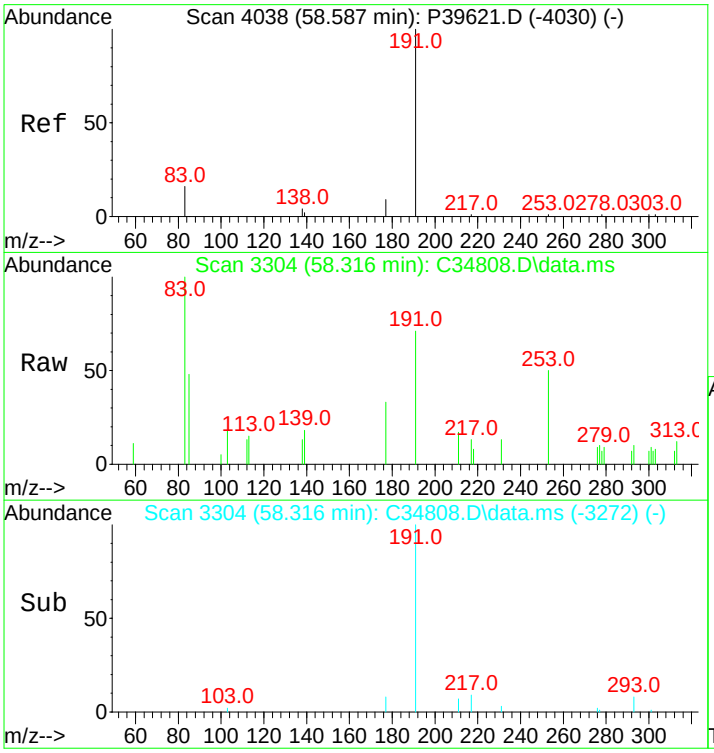




#121
30,31-Trishomohopane-22S (T30)
Concen: 100.18 ng/ml
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

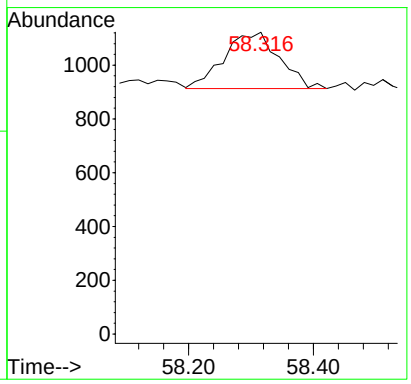
Tgt Ion:191 Resp: 2233

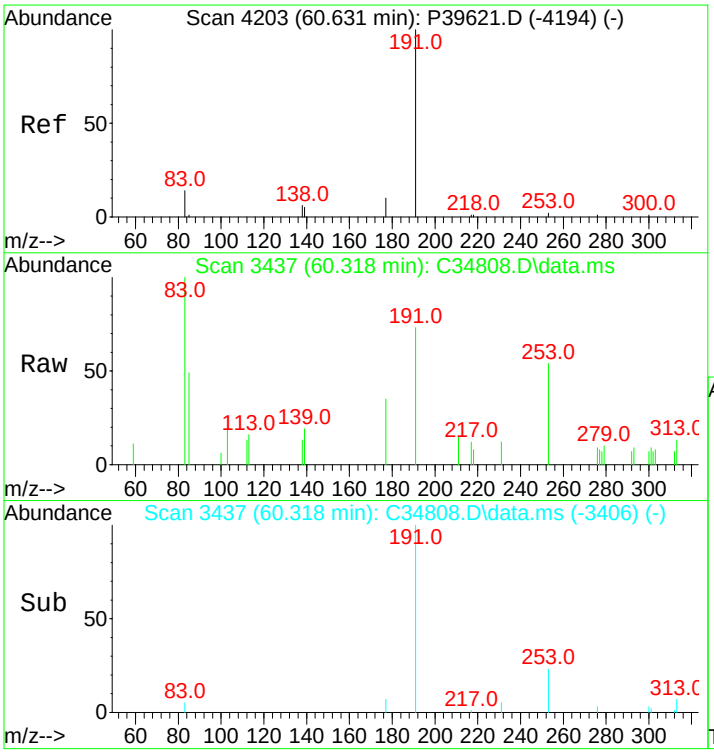




#122
30,31-Trishomohopane-22R (T31)
Concen: 57.60 ng/ml
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

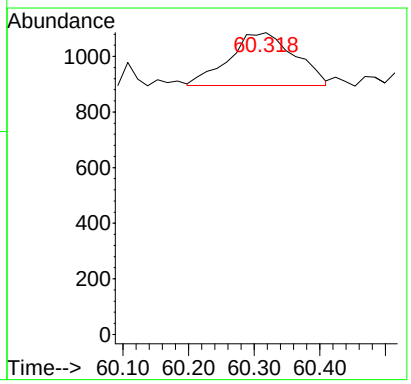
Tgt Ion:191 Resp: 1284

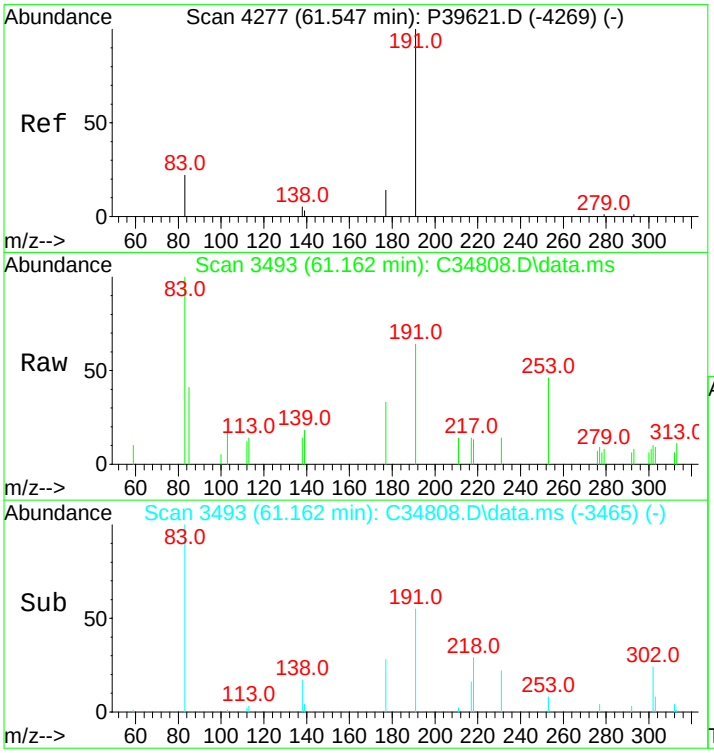




#123
Tetrakishomohopane-22S (T32)
Concen: 58.95 ng/ml m
RT: 60.318 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

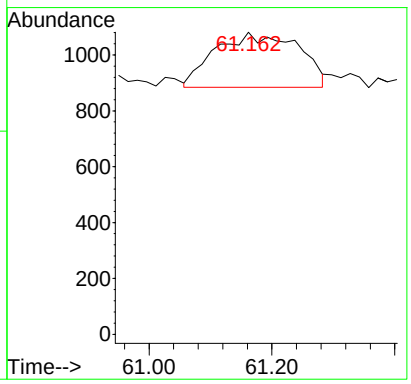
Tgt Ion:191 Resp: 1314

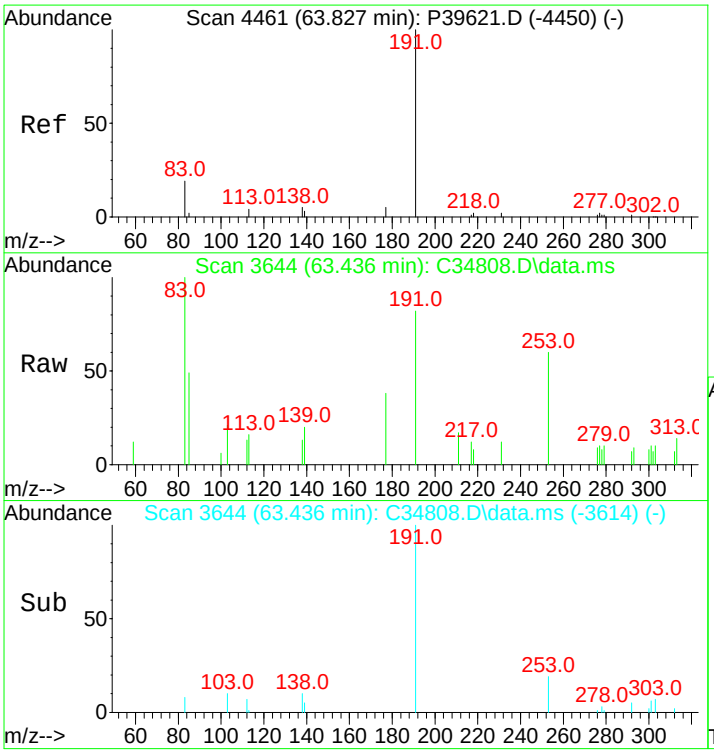




#124
Tetrakishomohopane-22R (T33)
Concen: 82.91 ng/ml m
RT: 61.162 min Scan# 3493
Delta R.T. -0.075 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

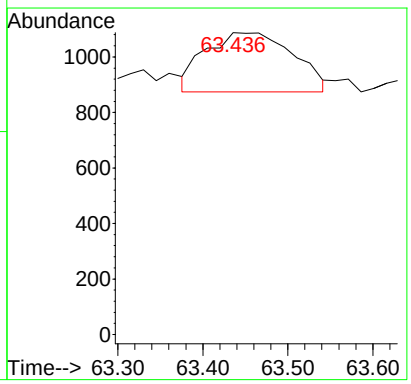
Tgt Ion:191 Resp: 1848

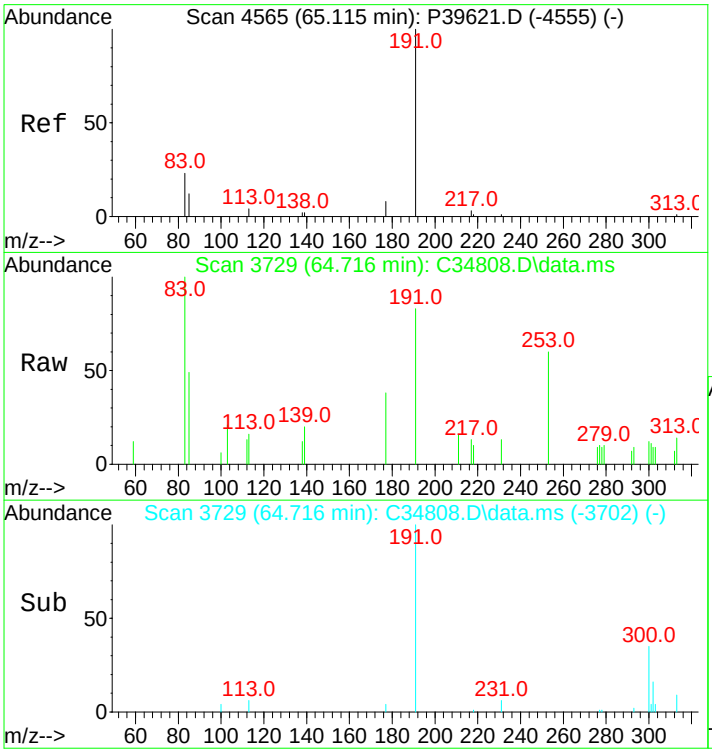




#125
Pentakishomohopane-22S (T34)
Concen: 68.87 ng/ml m
RT: 63.436 min Scan# 3644
Delta R.T. -0.045 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

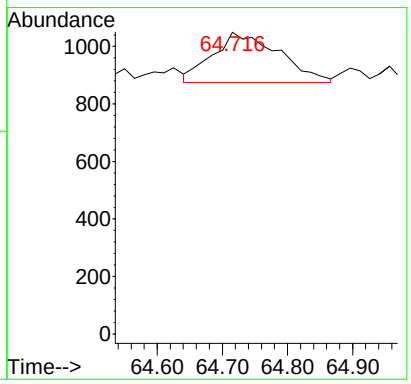
Tgt Ion:191 Resp: 1535

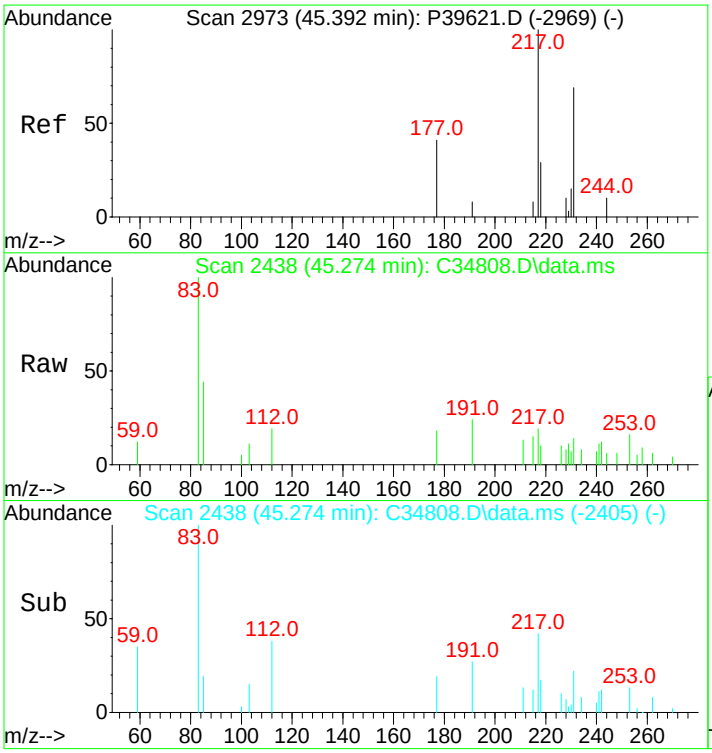




#126
Pentakishomohopane-22R (T35)
Concen: 54.78 ng/ml m
RT: 64.716 min Scan# 3729
Delta R.T. -0.090 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

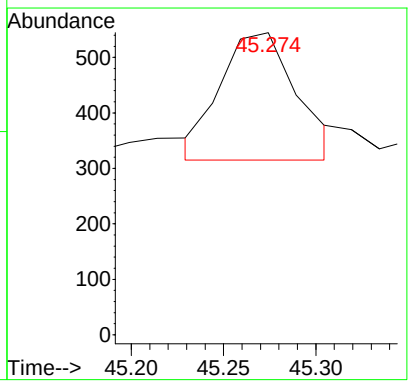
Tgt Ion:191 Resp: 1221

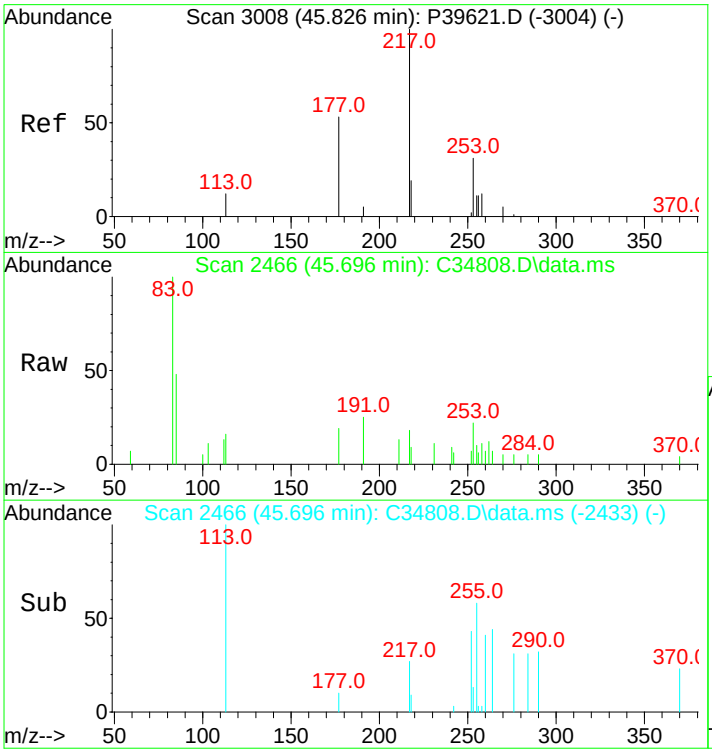




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 62.42 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

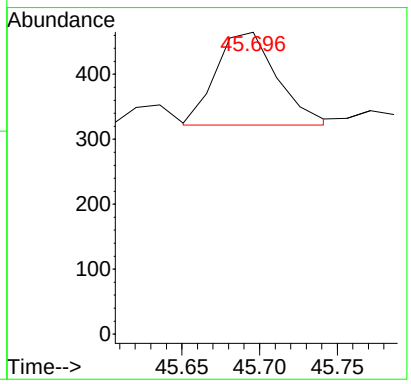
Tgt Ion:217 Resp: 660

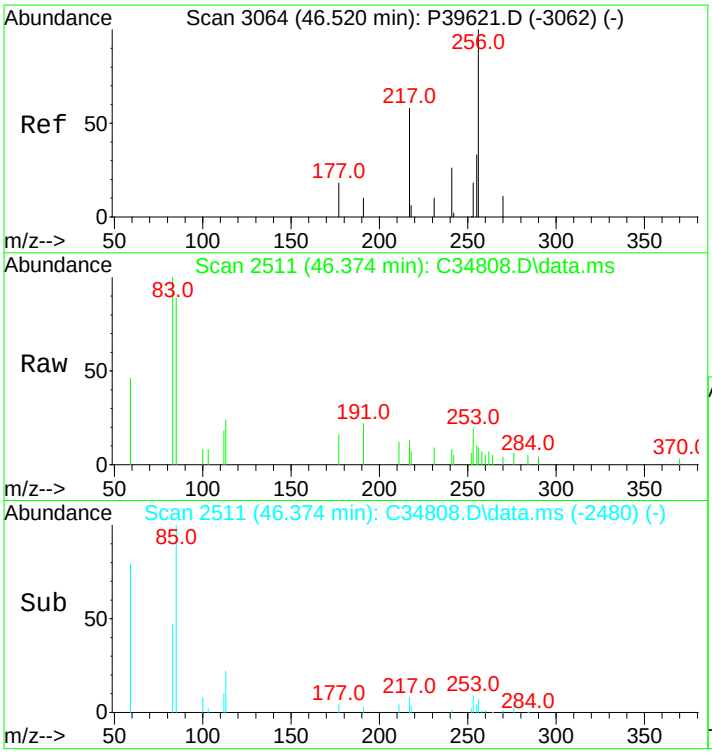




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 37.17 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

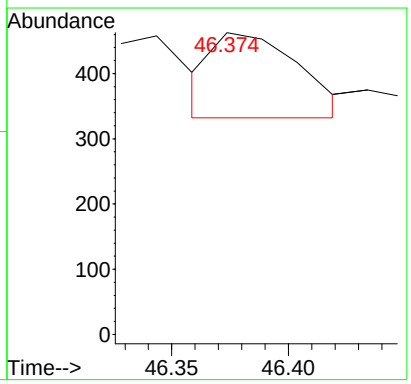
Tgt Ion:217 Resp: 393

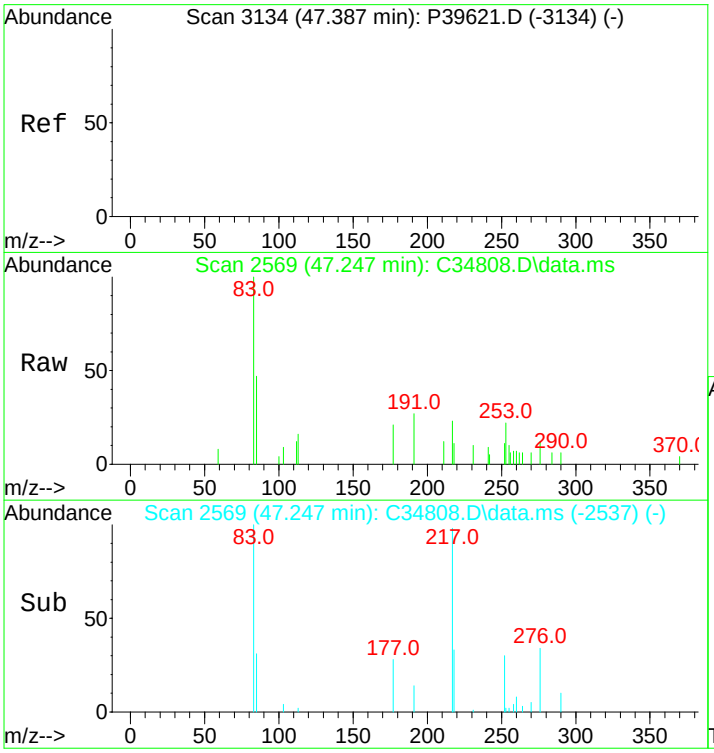




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 31.87 ng/ml m
RT: 46.374 min Scan# 2511
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

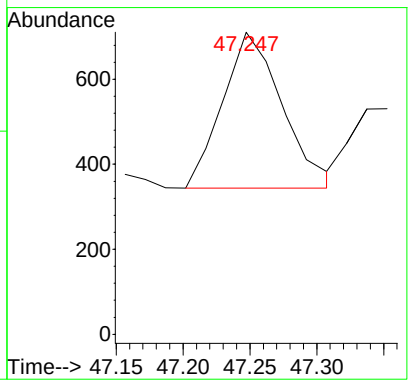
Tgt Ion:217 Resp: 337

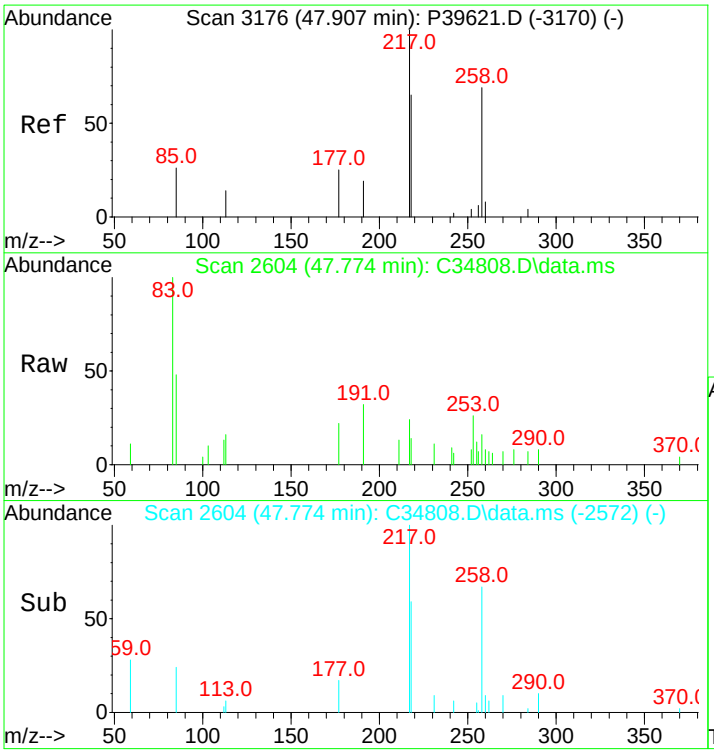




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 107.72 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

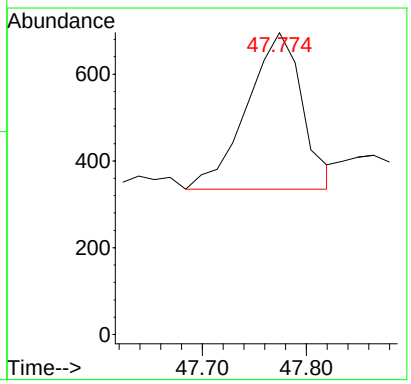
Tgt Ion:217 Resp: 1139

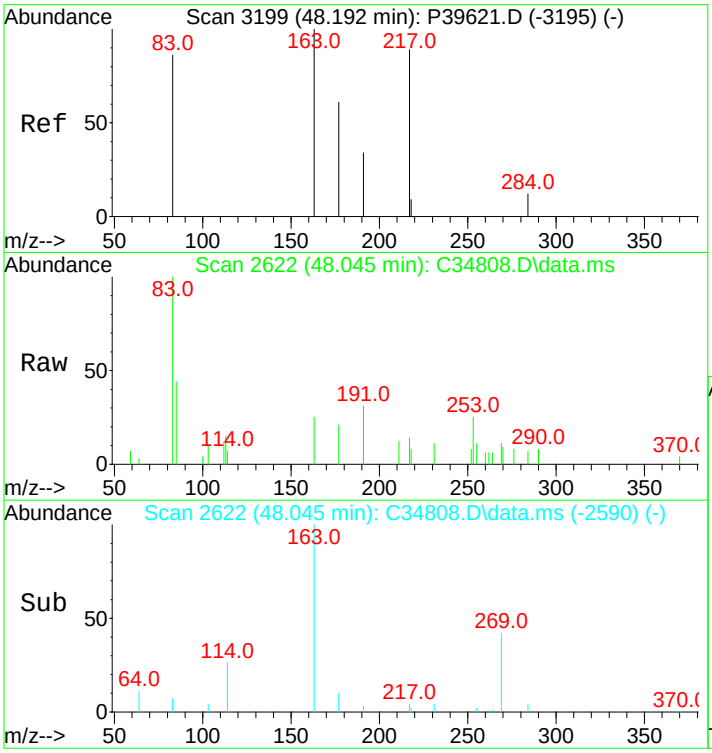




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 126.73 ng/ml
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

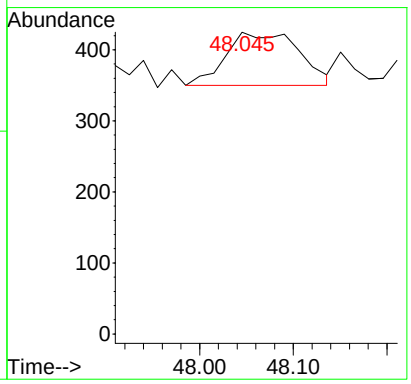
Tgt Ion:217 Resp: 1340

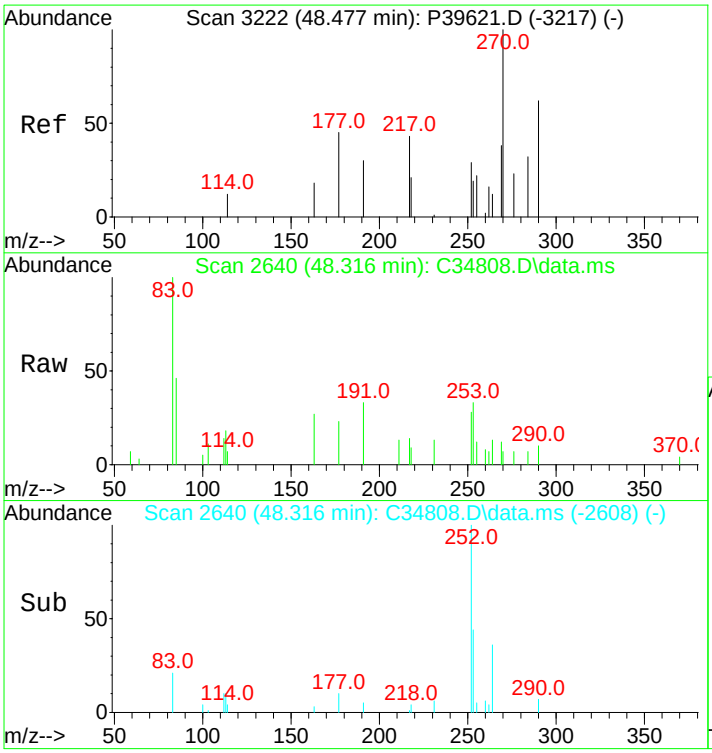




#133
Unknown Sterane (S18)
Concen: 38.30 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

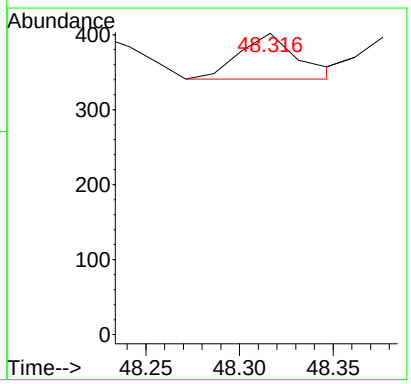
Tgt Ion:217 Resp: 405

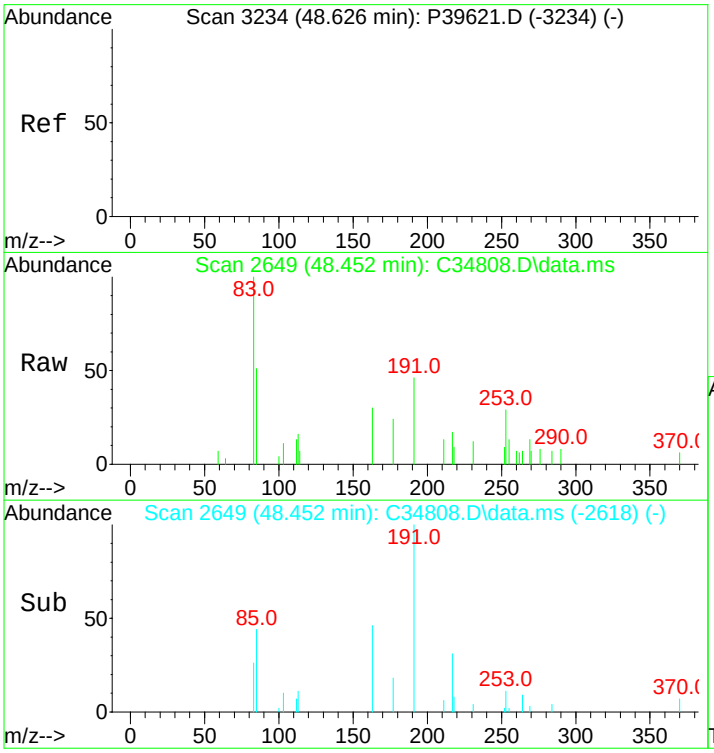




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 12.58 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

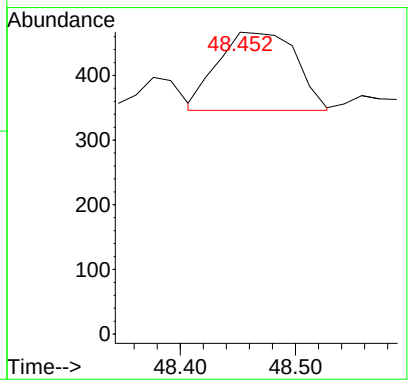
Tgt Ion:217 Resp: 133

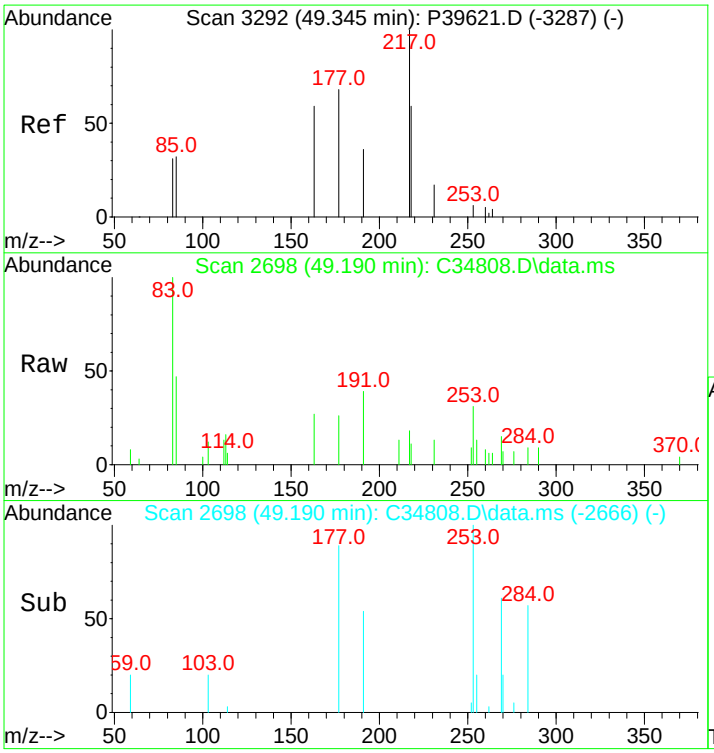




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 53.91 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

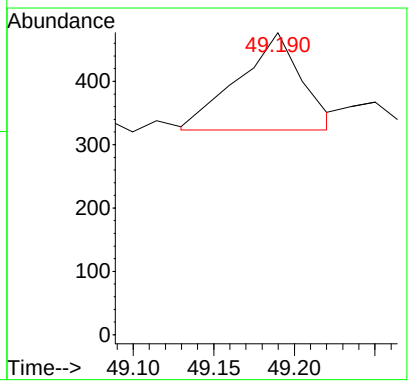
Tgt Ion:217 Resp: 570

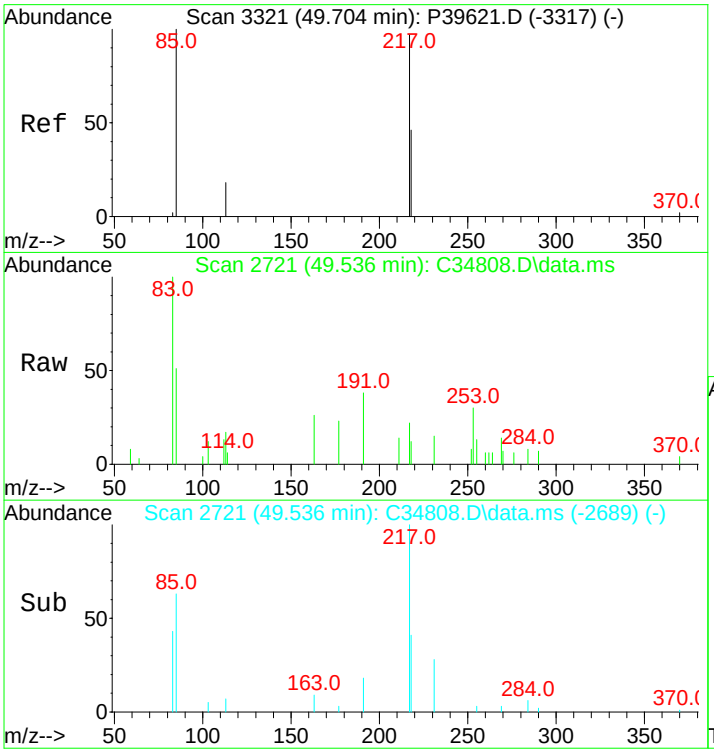




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 39.82 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

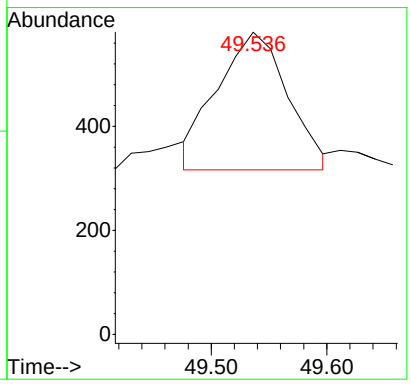
Tgt Ion:217 Resp: 421

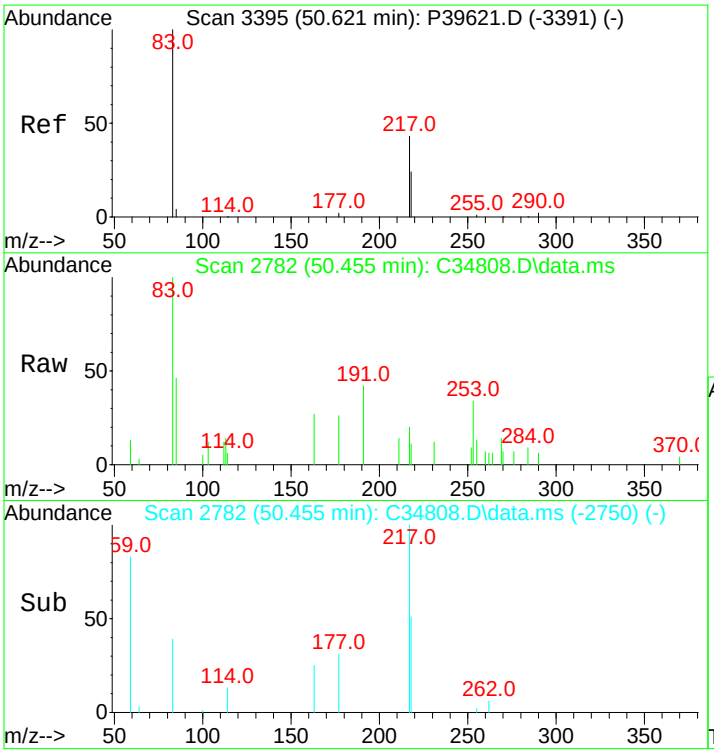




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 106.21 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

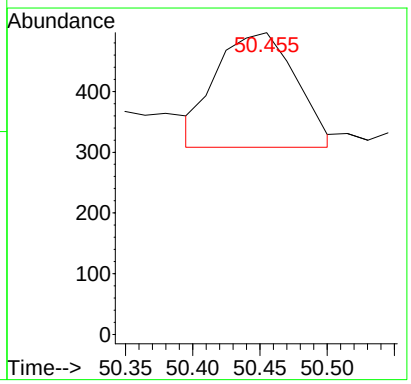
Tgt Ion:217 Resp: 1123

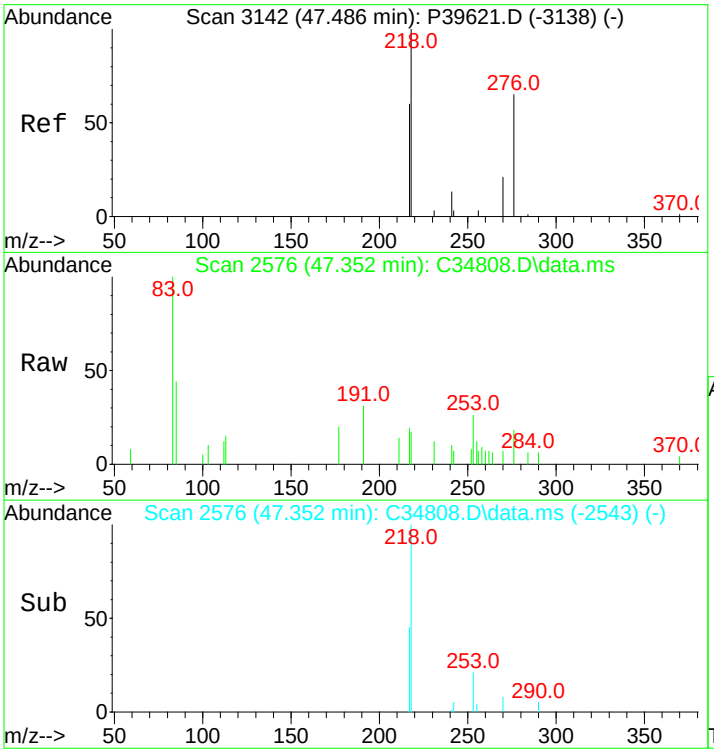




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 73.39 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

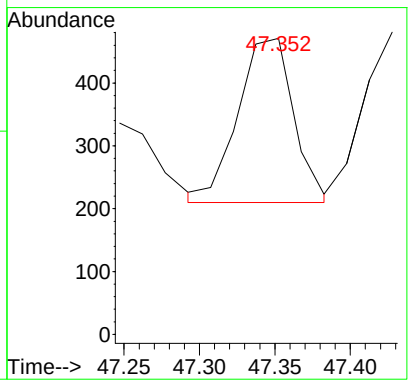
Tgt Ion:217 Resp: 776

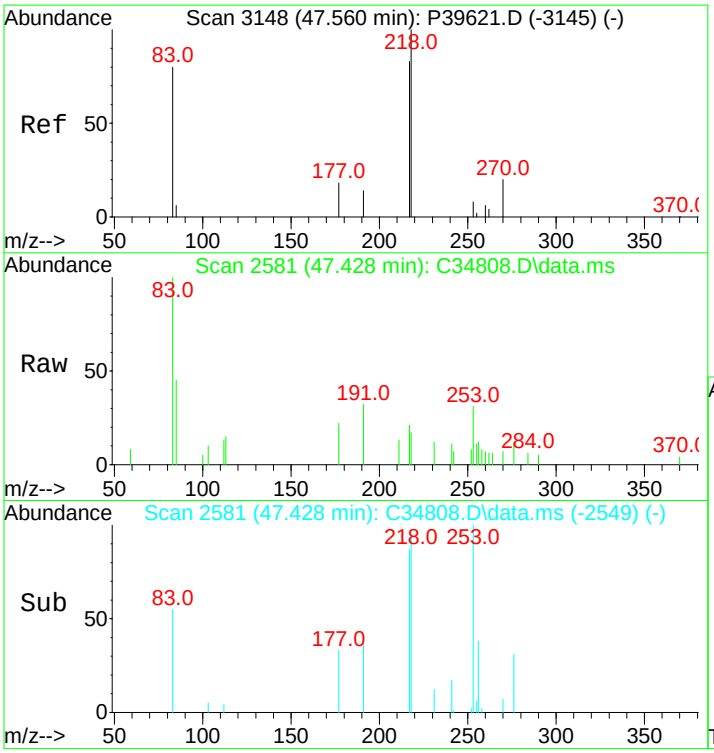




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 63.55 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

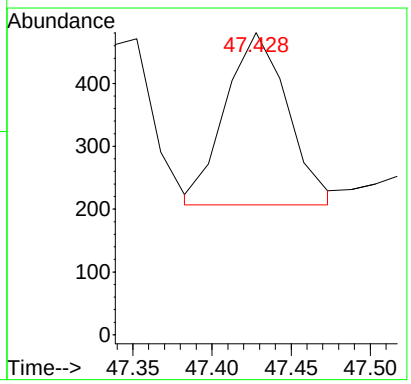
Tgt Ion:218 Resp: 672

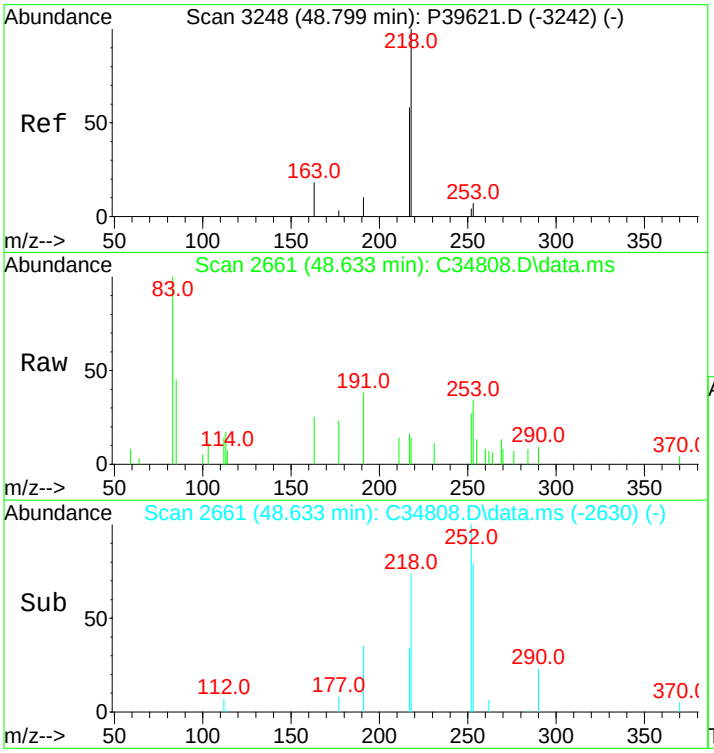




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 70.65 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

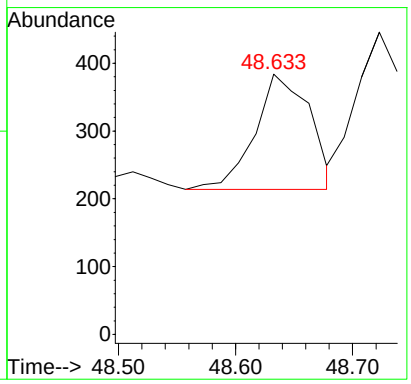
Tgt Ion:218 Resp: 747

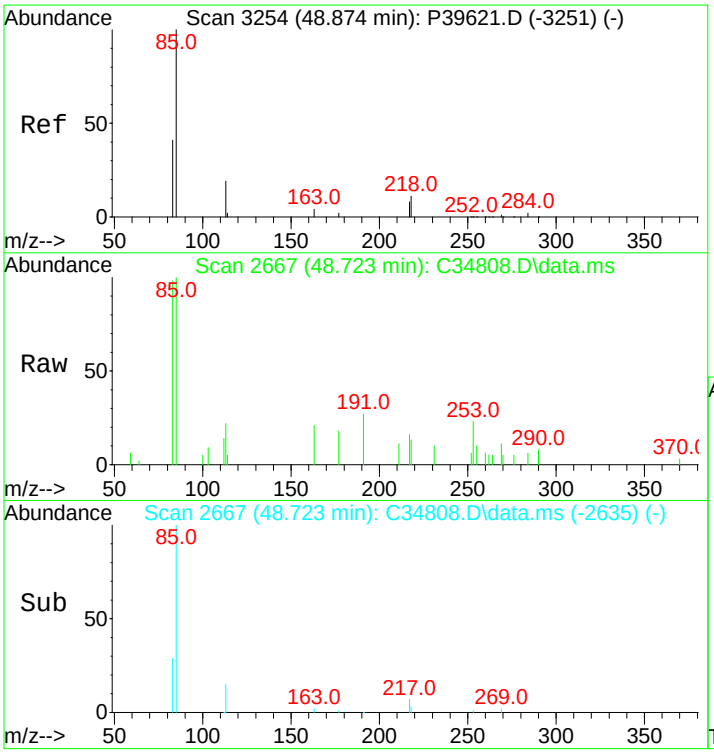




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 52.58 ng/ml
RT: 48.633 min Scan# 2661
Delta R.T. -0.030 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

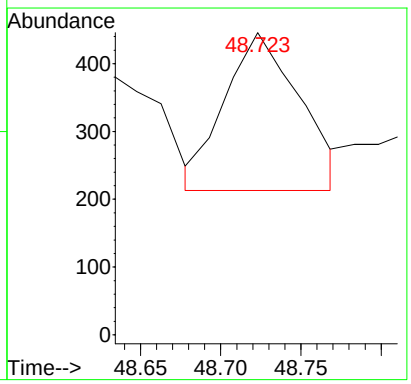
Tgt Ion:218 Resp: 556

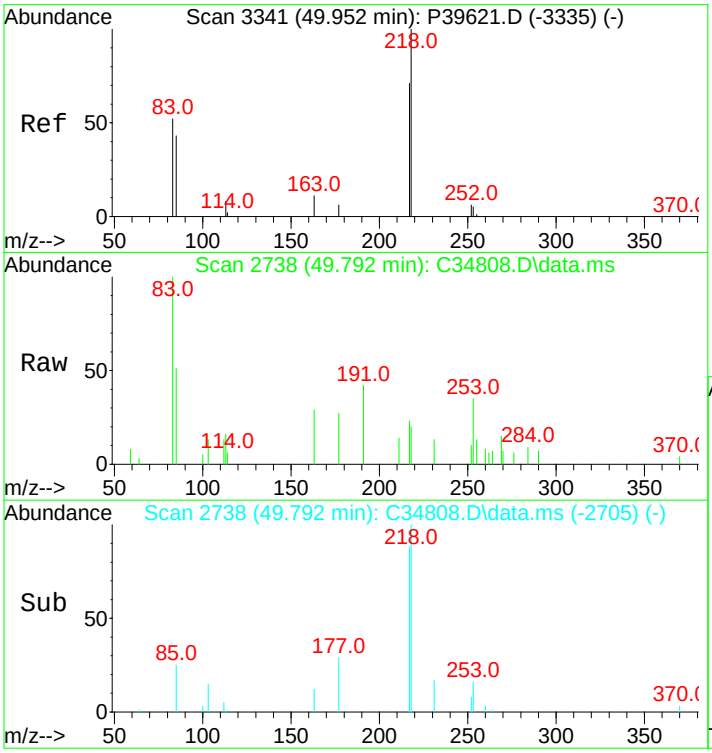




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 71.69 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

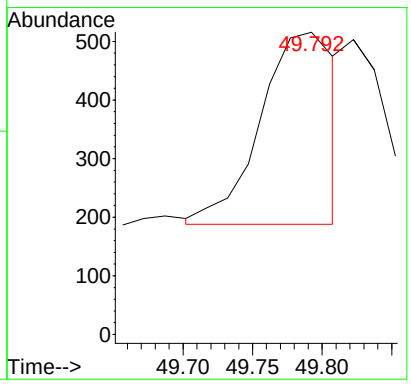
Tgt Ion:218 Resp: 758

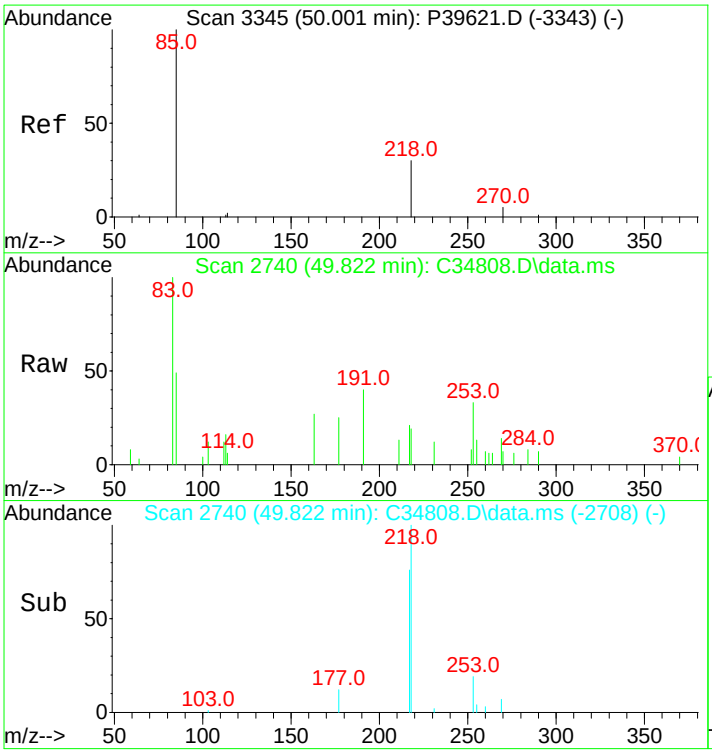




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 115.19 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

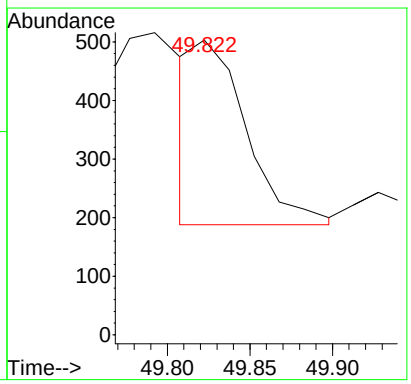
Tgt Ion:218 Resp: 1218

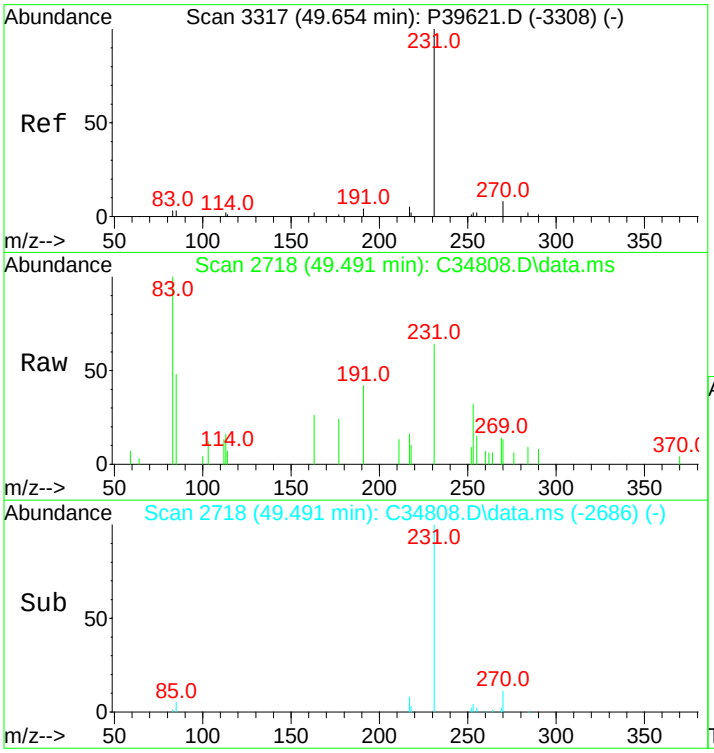




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 66.11 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

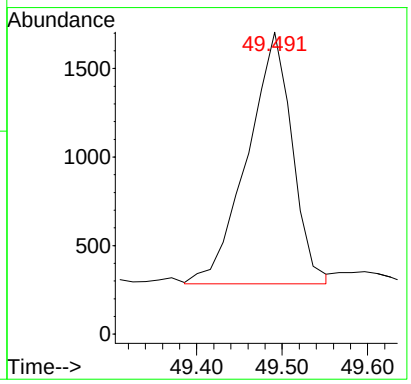
Tgt Ion:218 Resp: 699

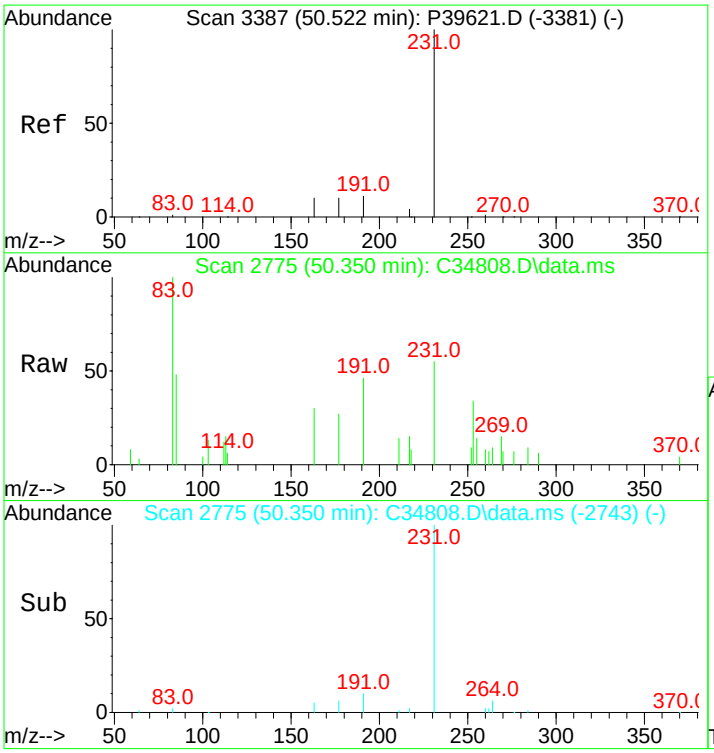




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 488.94 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

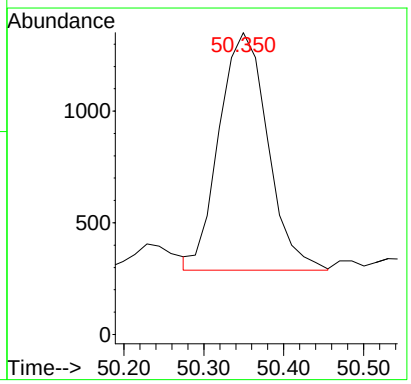
Tgt Ion:231 Resp: 5170

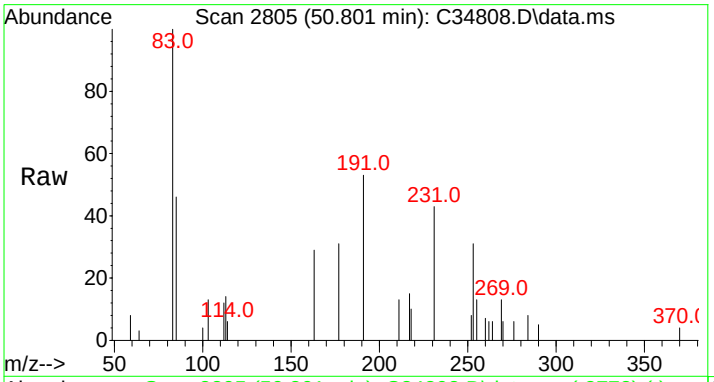




#146
C28,20S-triaromatic steroid
Concen: 423.50 ng/mL m
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

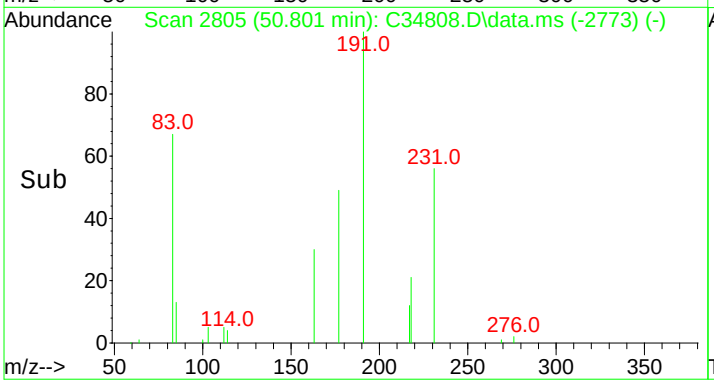
Tgt Ion:231 Resp: 4478

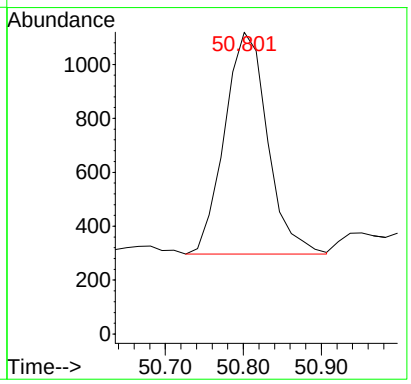


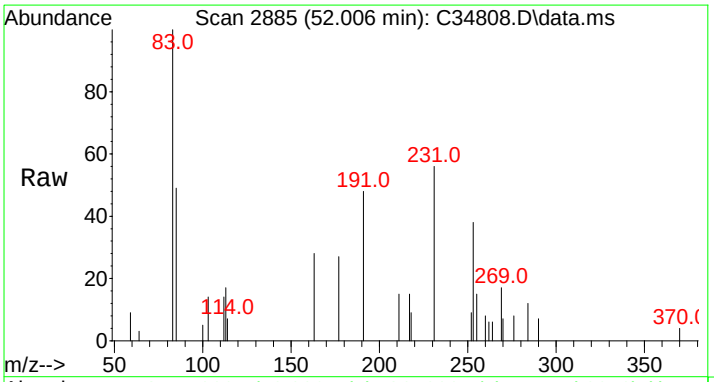


#147
C27,20R-triaromatic steroid
Concen: 298.38 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:231 Resp: 3155

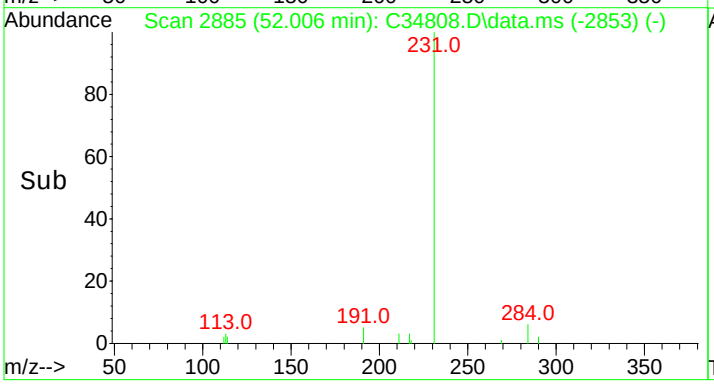


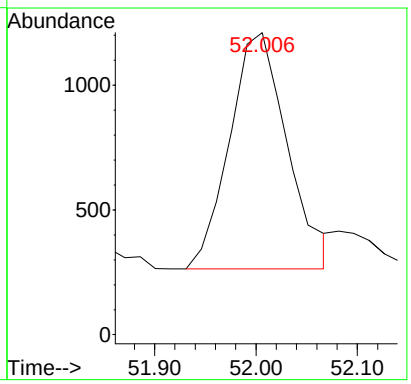




#148
C28,20R-triaromatic steroid
Concen: 355.31 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34808.D
Acq: 3 May 2012 12:00 pm

Tgt Ion:231 Resp: 3757





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

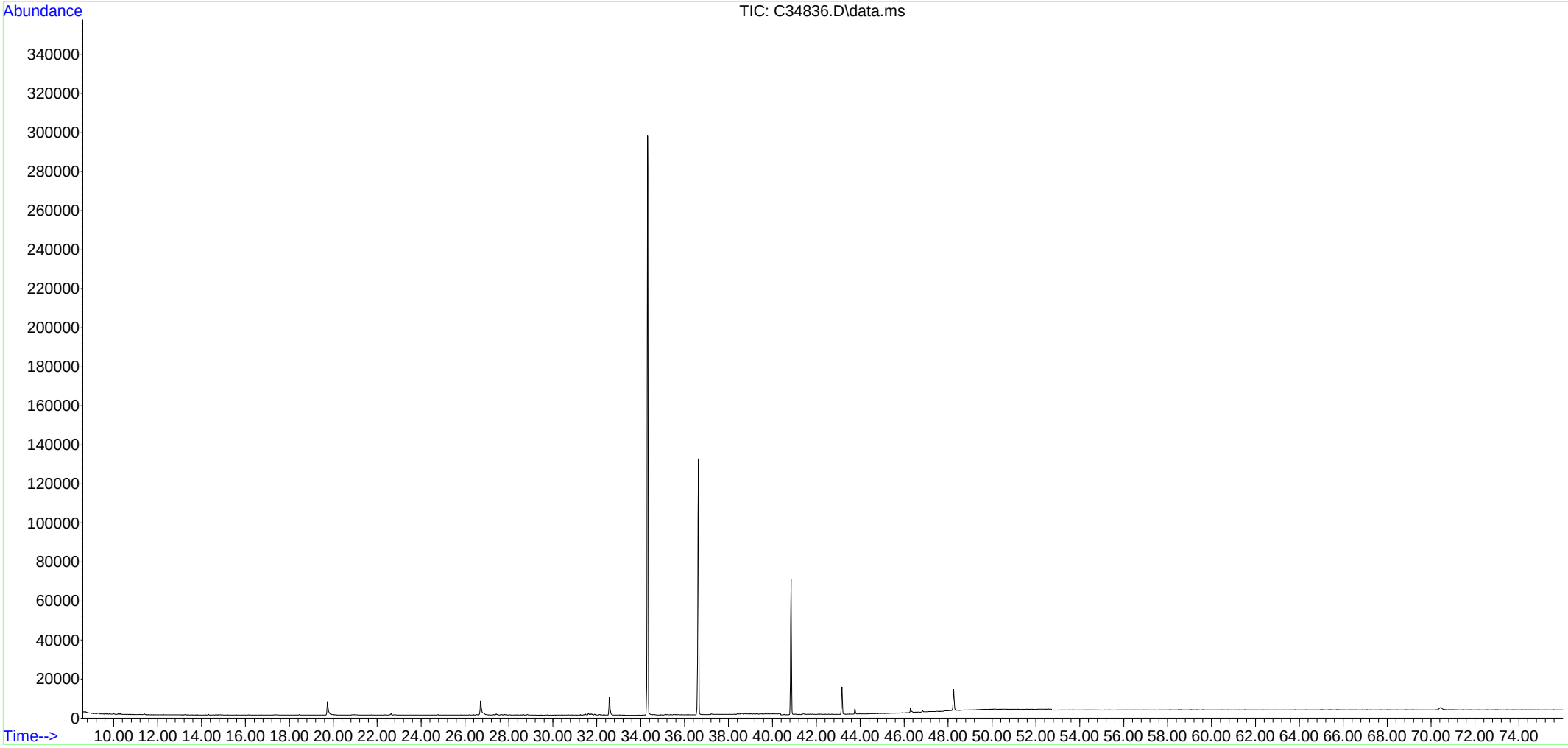
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17315M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30629	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	28930	384.956	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	26282	442.451	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.25%#			
86) Benzo[a]pyrene-d12	48.256	264	27389	431.484	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.15%#			
127) 5B(H)Cholane - Surr	43.754	217	4348	454.043	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.40%#			
Target Compounds						Qvalue
43) Phenanthrene	32.658	178	56M2	0.559	ng/mL	
58) Fluoranthene	37.445	202	62M3	0.623	ng/mL	
75) Benz[a]anthracene	43.091	228	37M3	0.381	ng/mL	
77) Chrysene/Triphenylene	43.257	228	61M3	0.622	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	109M2	1.020	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.232	252	66M2	0.567	ng/mL	
85) Benzo[e]pyrene	48.151	252	118	1.117	ng/mL#	1
87) Benzo[a]pyrene	48.347	252	73M2	0.718	ng/mL	
88) Perylene	48.648	252	85M4	0.782	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	273M3	2.306	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	154M4	1.367	ng/mL	
91) Benzo[g,h,i]perylene	54.476	276	441	3.526	ng/mL#	69
133) Unknown Sterane (S18)	48.091	217	76M2	7.936	ng/ml	

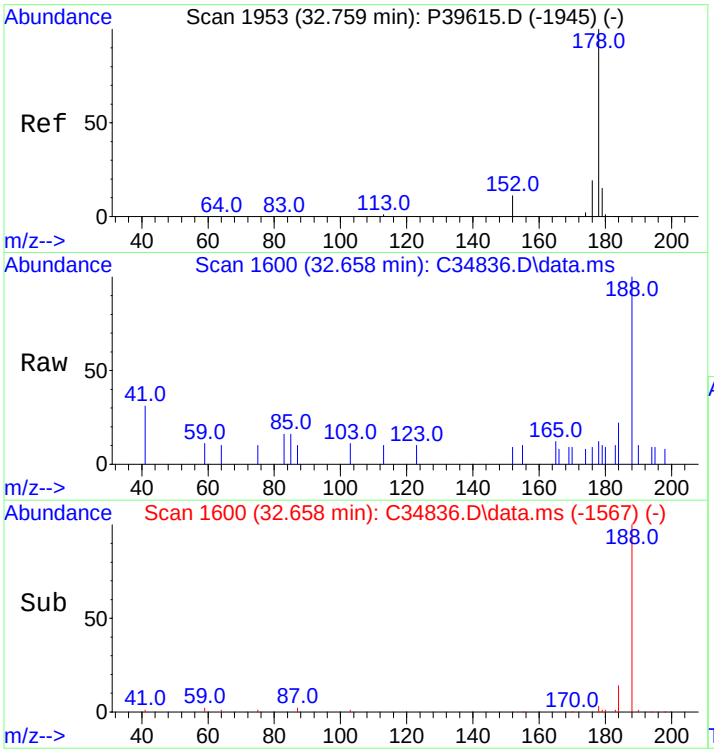
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

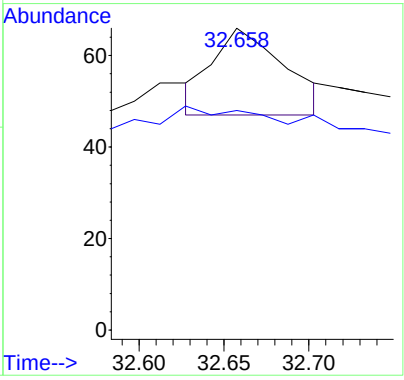


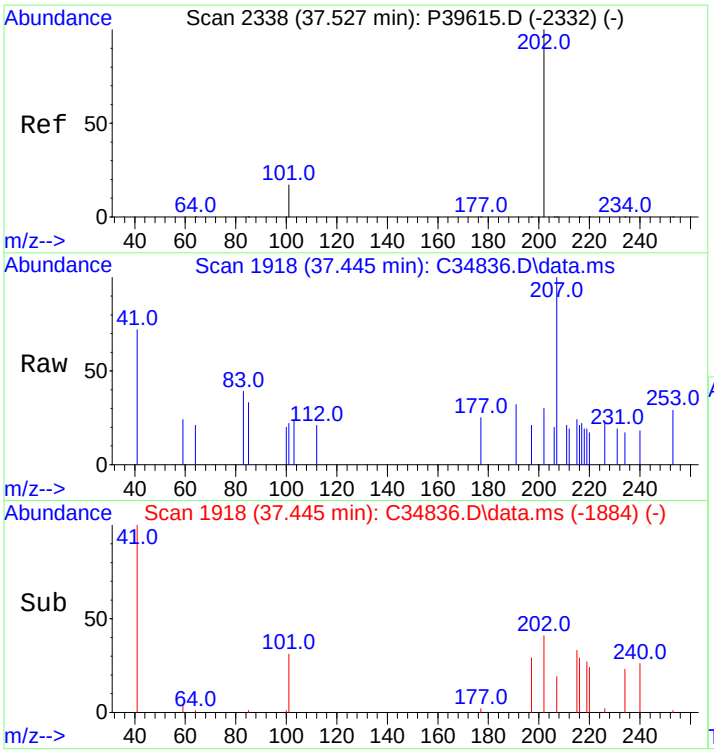


#43
Phenanthrene
Concen: 0.56 ng/mL m
RT: 32.658 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:178 Resp: 56

Ion	Ratio	Lower	Upper
178	100		
176	0.0	16.1	24.1#

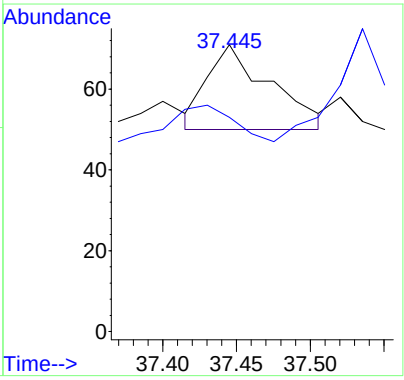


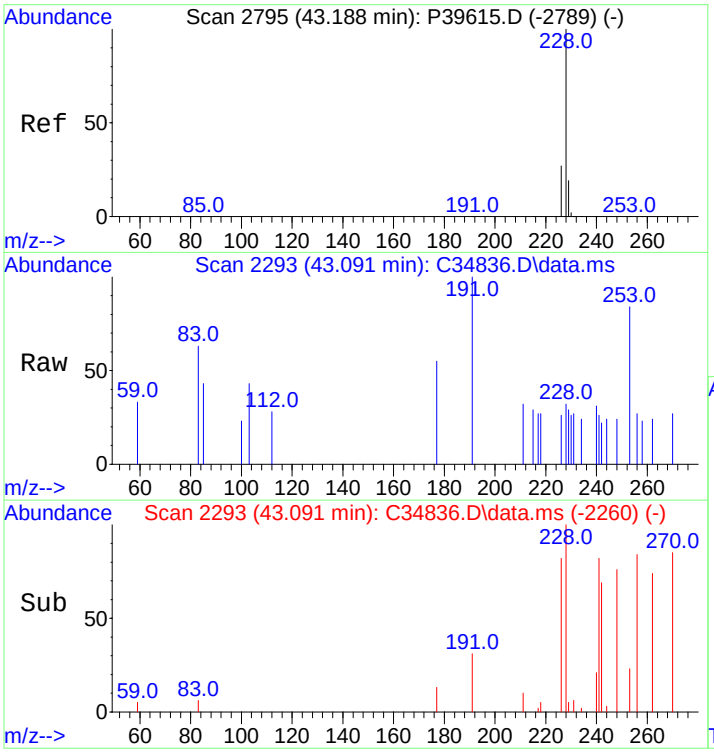


#58
Fluoranthene
Concen: 0.62 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:202 Resp: 62

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

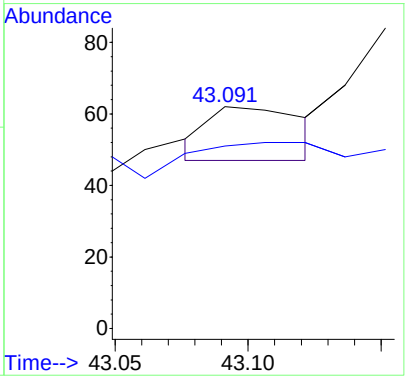


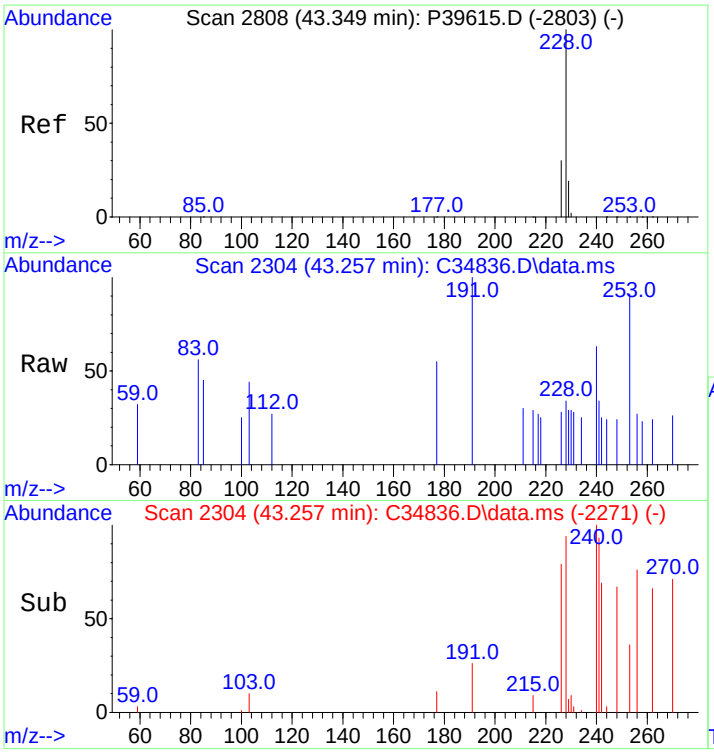


#75
Benz[a]anthracene
Concen: 0.38 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:228 Resp: 37

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

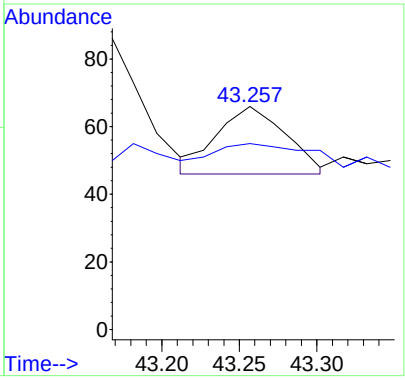


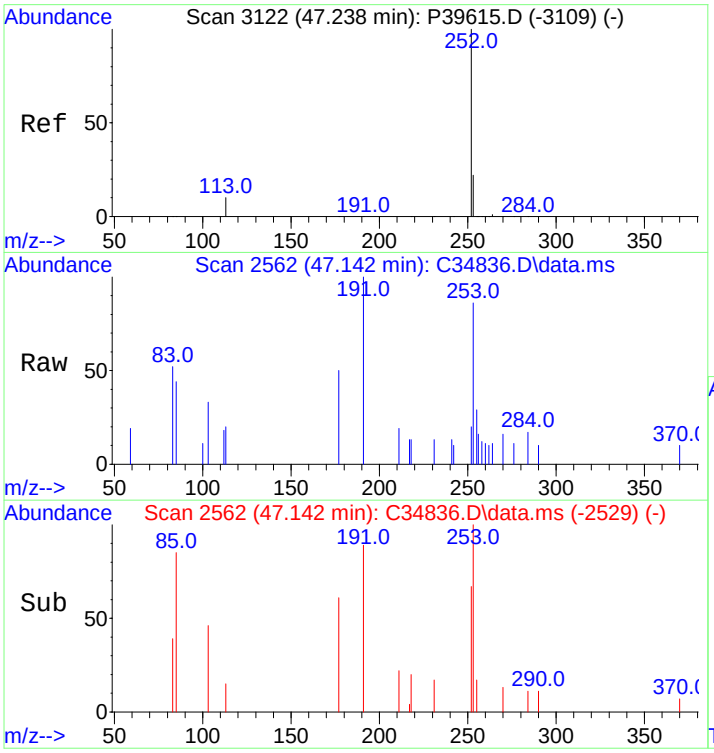


#77
Chrysene/Triphenylene
Concen: 0.62 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:228 Resp: 61

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

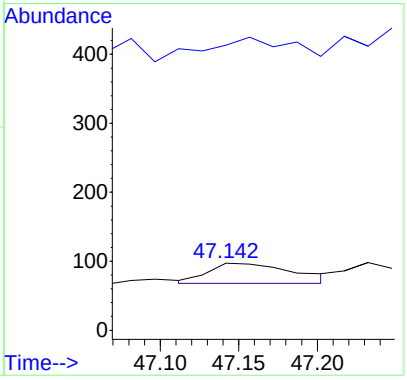


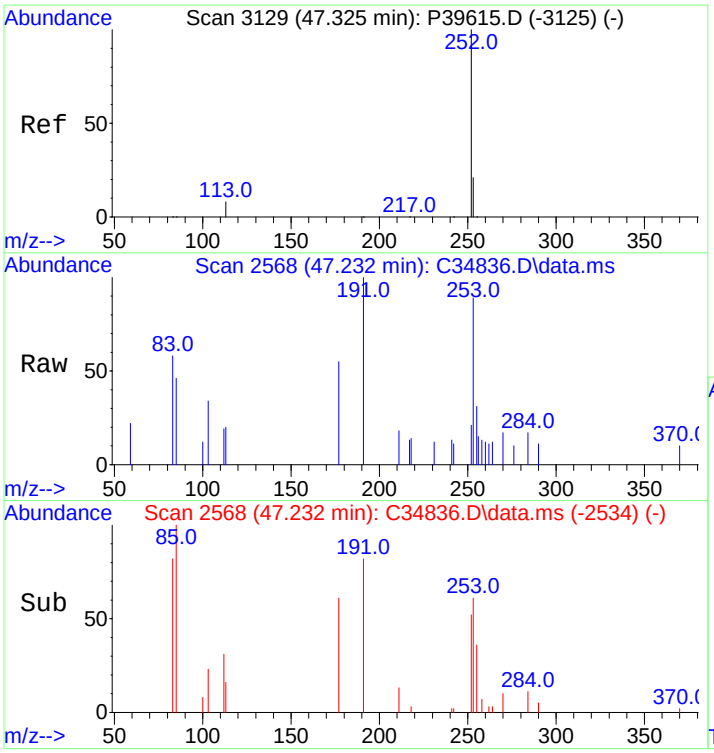


#82
Benzo[b]fluoranthene
Concen: 1.02 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 109

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

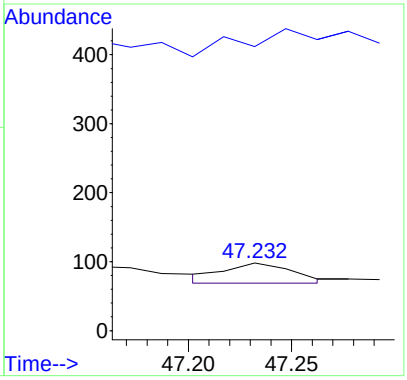


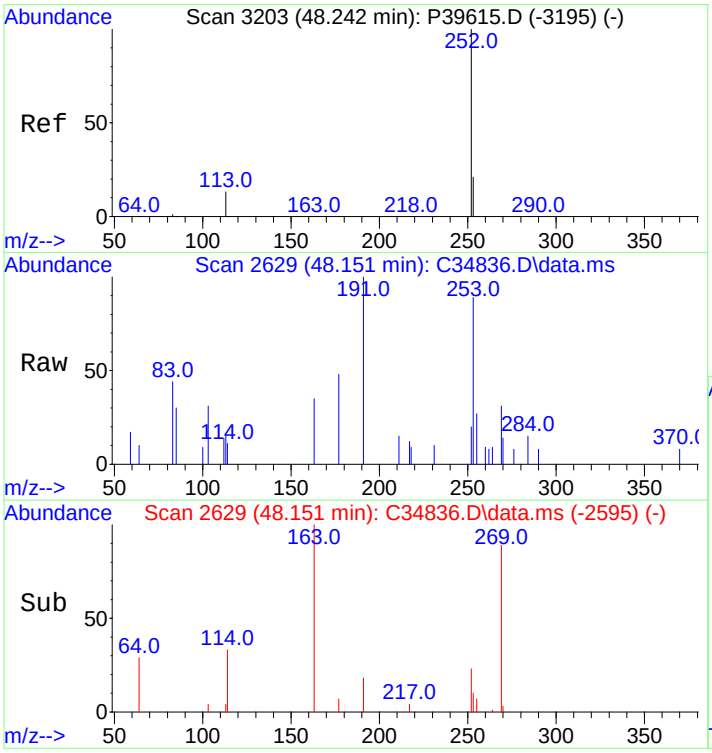


#83
Benzo[j]+[k]fluoranthene
Concen: 0.57 ng/mL m
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 66

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

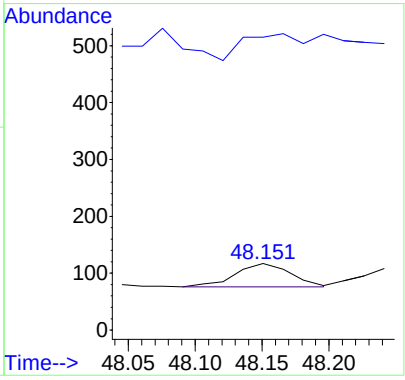


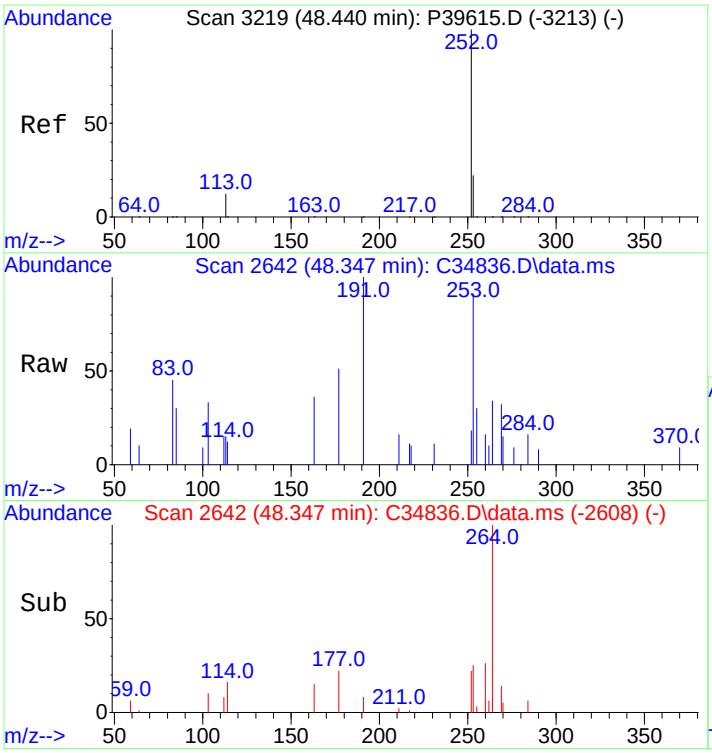


#85
Benzo[e]pyrene
Concen: 1.12 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 118

Ion	Ratio	Lower	Upper
252	100		
253	122.0	19.2	28.8#

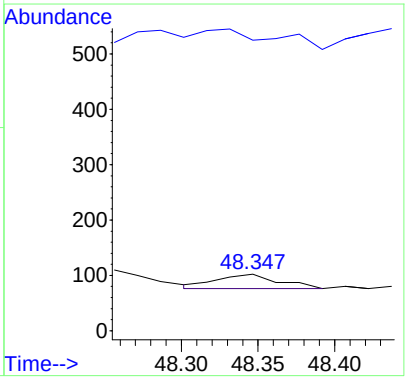


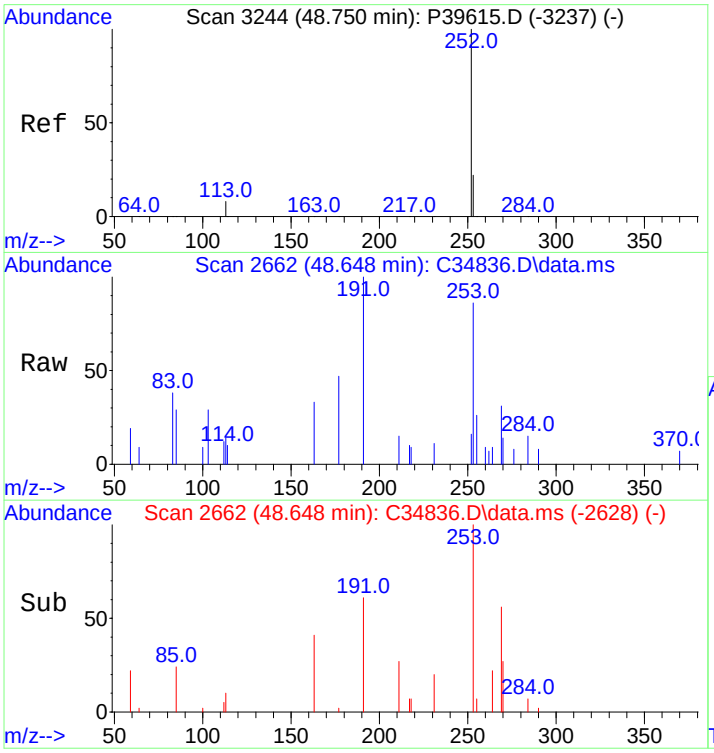


#87
Benzo[a]pyrene
Concen: 0.72 ng/mL m
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 73

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.5	29.3#

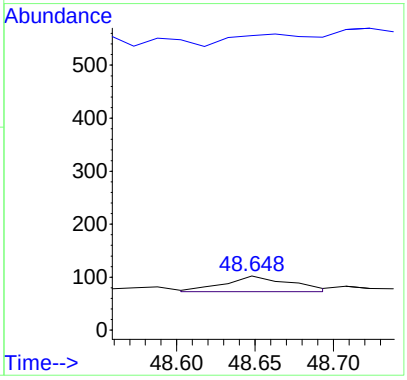


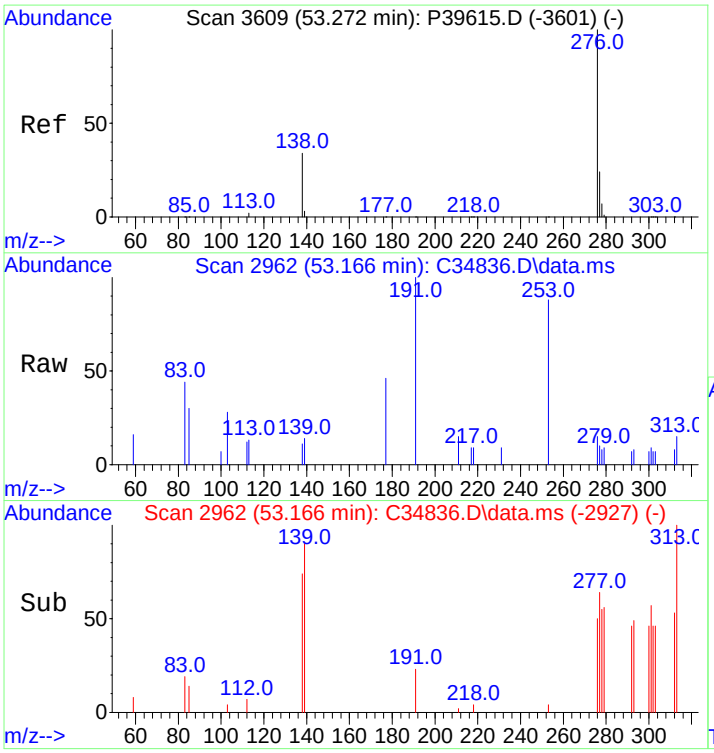


#88
Perylene
Concen: 0.78 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 85

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.6	29.4#

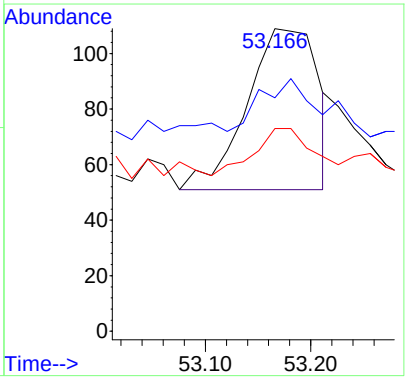


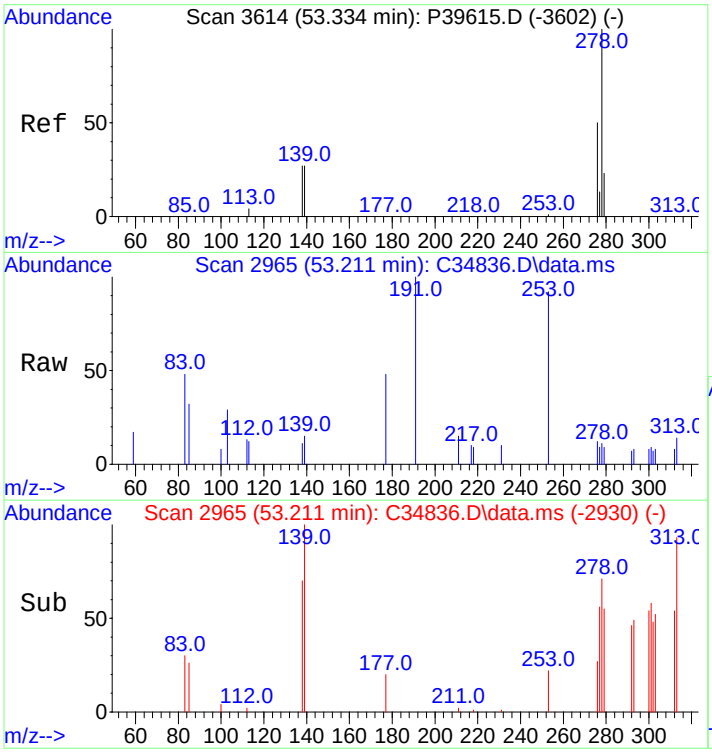


#89
Indeno[1,2,3-cd]pyrene
Concen: 2.31 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:276 Resp: 273

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

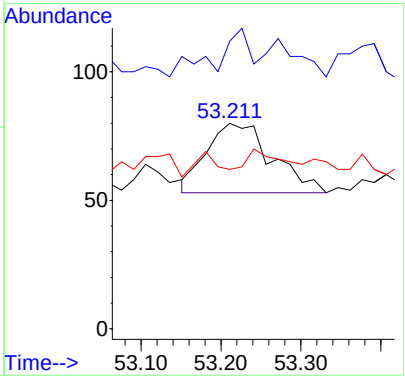


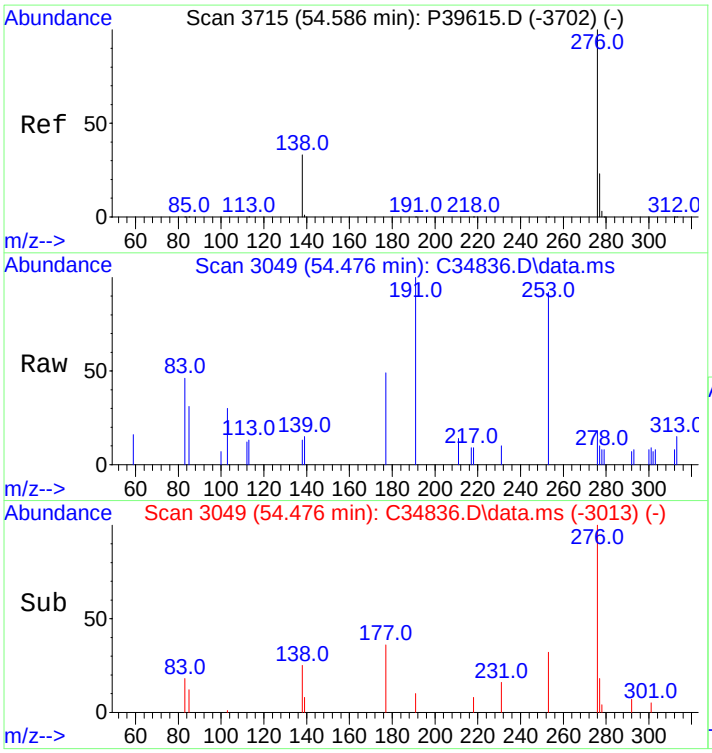


#90
Dibenz[ah]+[ac]anthracene
Concen: 1.37 ng/mL m
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:278 Resp: 154

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

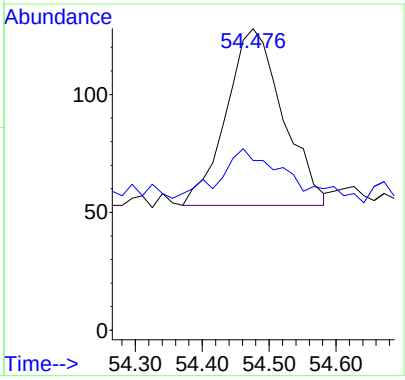


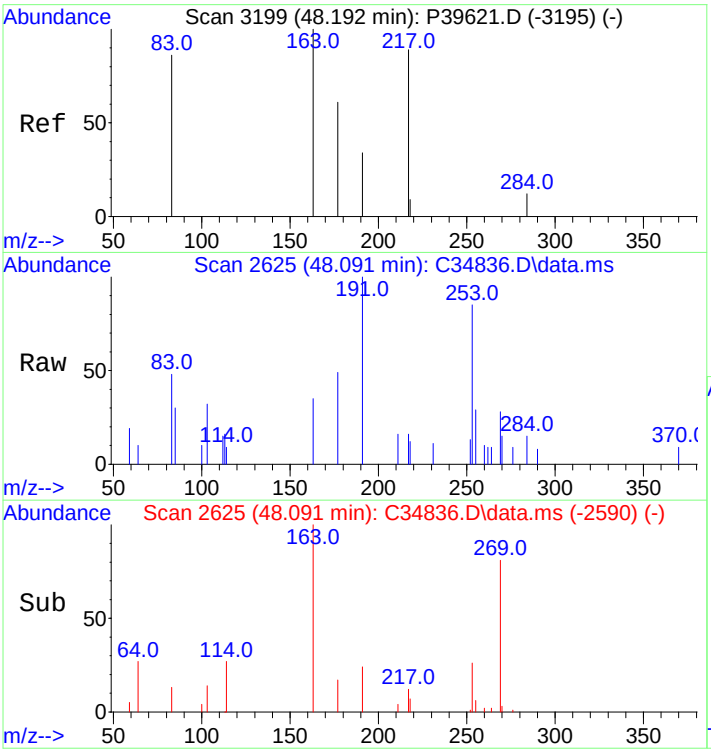


#91
Benzo[g,h,i]perylene
Concen: 3.53 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:276 Resp: 441

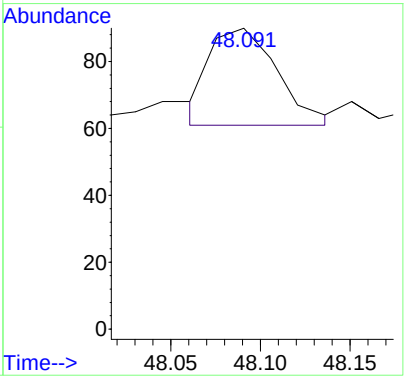
Ion	Ratio	Lower	Upper
276	100		
277	38.5	18.9	28.3#





#133
Unknown Sterane (S18)
Concen: 7.94 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:217 Resp: 76



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

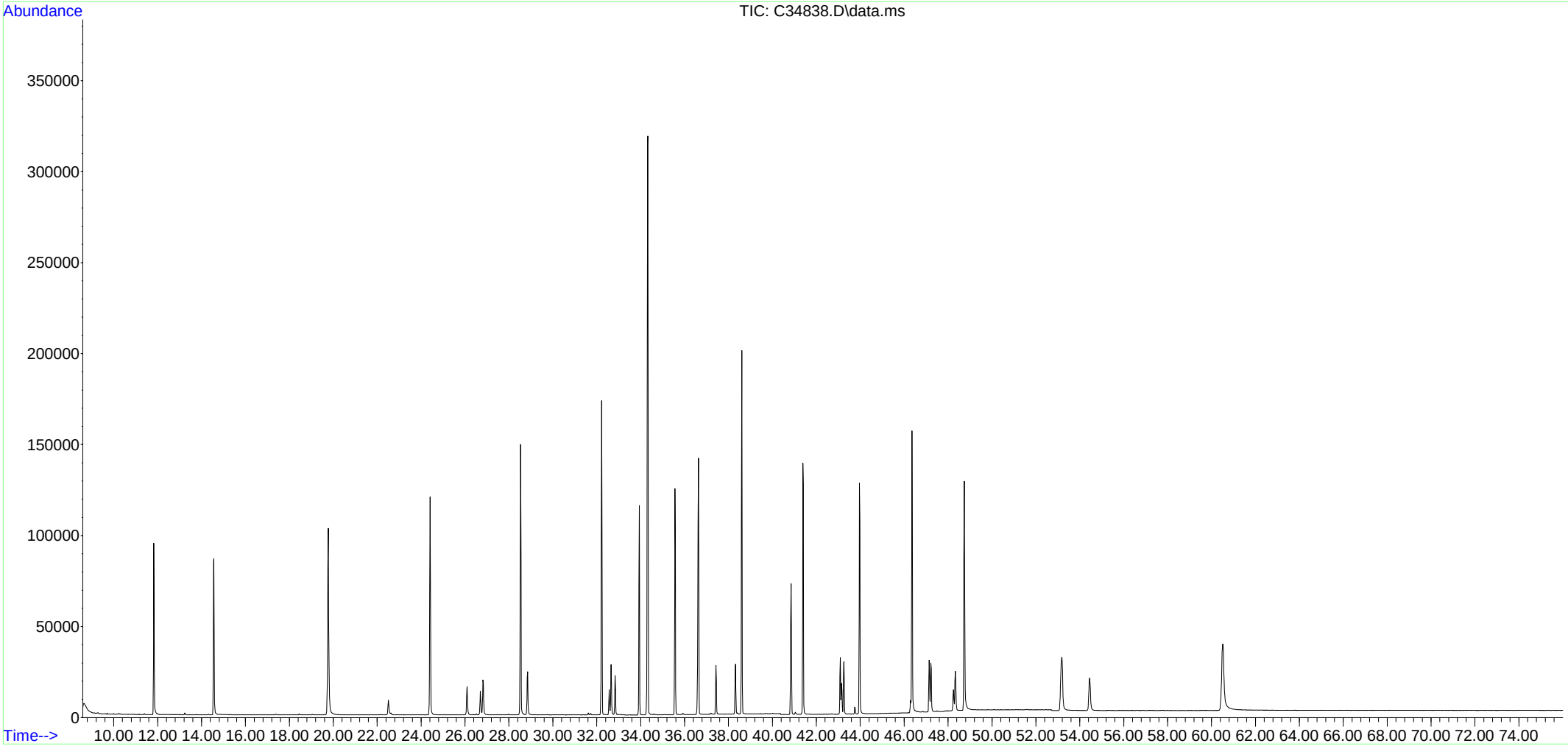
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18337M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33254	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32814	412.302	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.23%#			
42) Phenanthrene-d10	32.567	188	28601	454.656	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28767	417.419	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.74%#			
127) 5B(H)Cholane - Surr	43.754	217	4648	447.057	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.71%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47023	402.353	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28114	406.844	ng/mL#	100
26) Acenaphthylene	26.094	152	45575	392.841	ng/mL#	100
27) Acenaphthene	26.816	153	27866M3	407.940	ng/mL	
29) Fluorene	28.849	166	32136M3	426.565	ng/mL	
43) Phenanthrene	32.657	178	46538	438.618	ng/mL	99
55) Anthracene	32.838	178	36708M3	354.197	ng/mL	
58) Fluoranthene	37.430	202	52667M3	499.798	ng/mL	
60) Pyrene	38.318	202	54521	508.981	ng/mL	95
75) Benz[a]anthracene	43.091	228	47507	450.100	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47220	443.134	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	55443	478.057	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	53206	421.375	ng/mL	96
87) Benzo[a]pyrene	48.331	252	47749	432.328	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.151	276	62256M3	484.372	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	54640	446.892	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	57920	426.535	ng/mL	99

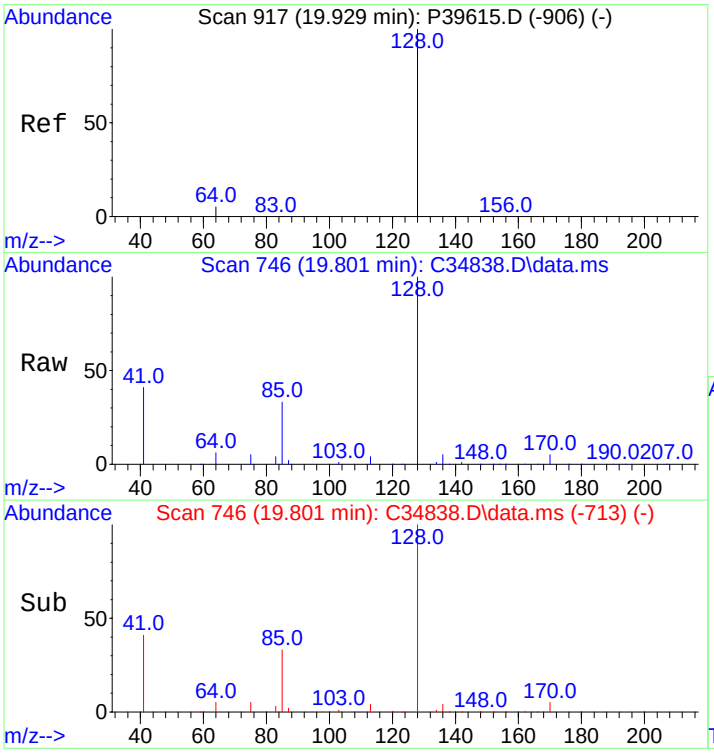
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

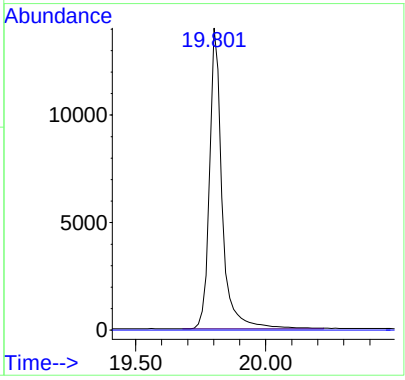


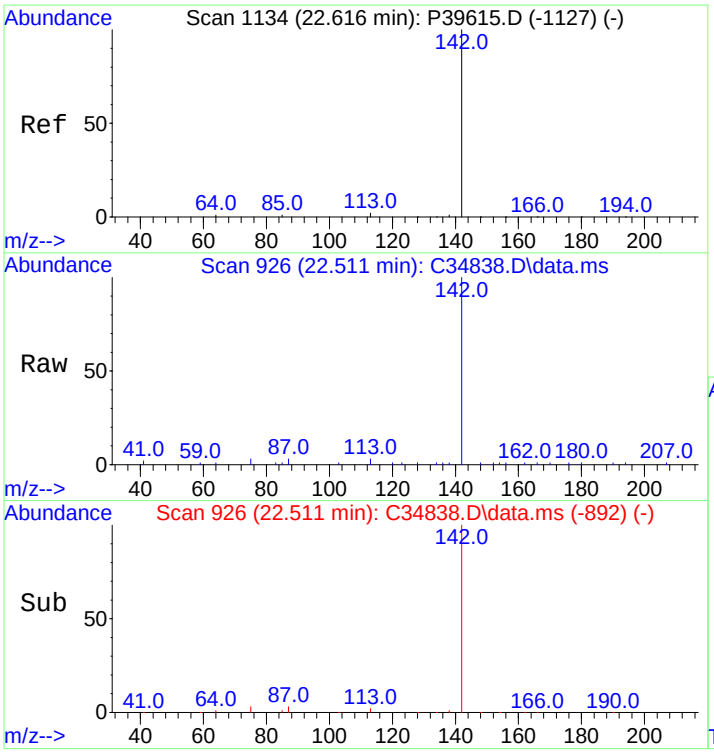


#10
Naphthalene
Concen: 402.35 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:128 Resp: 47023

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

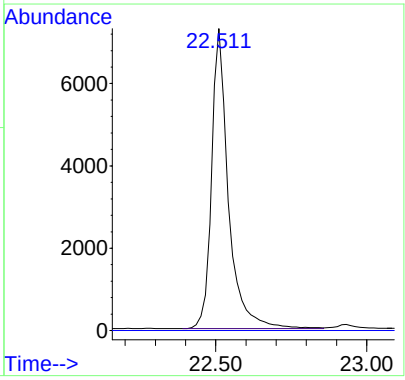


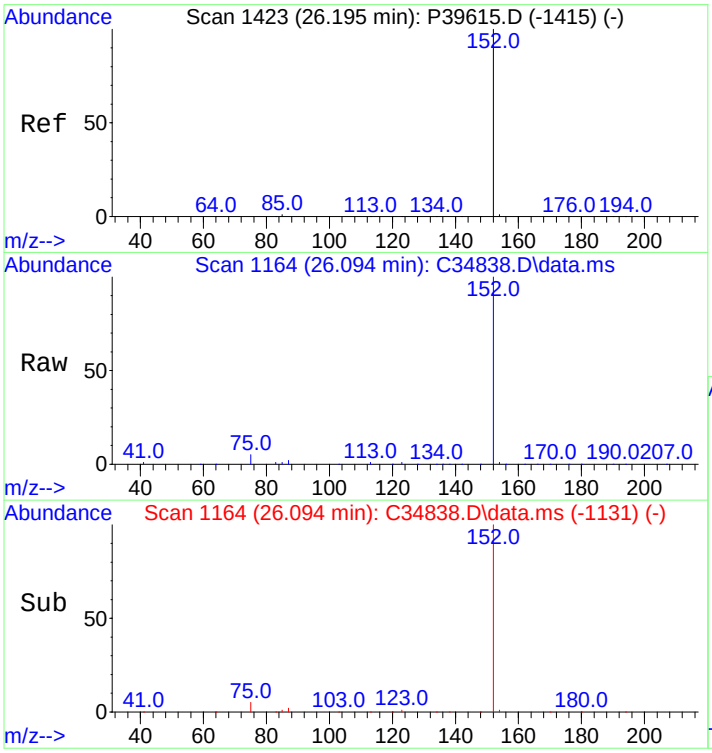


#16
2-Methylnaphthalene
Concen: 406.84 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:142 Resp: 28114

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

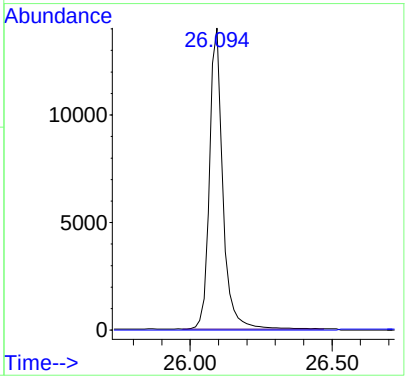


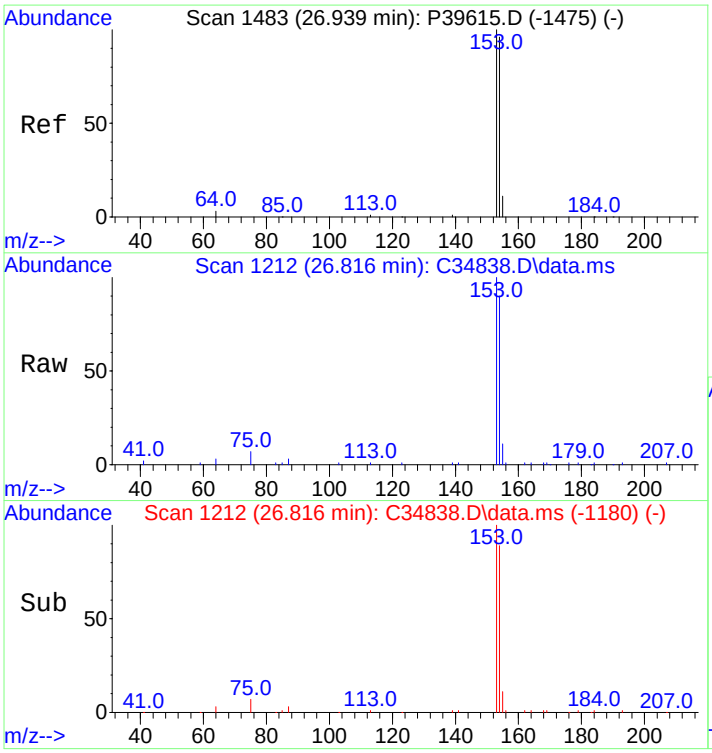


#26
Acenaphthylene
Concen: 392.84 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:152 Resp: 45575

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

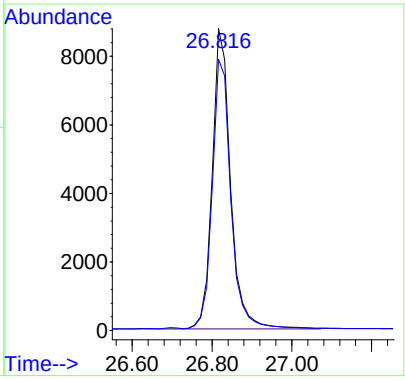


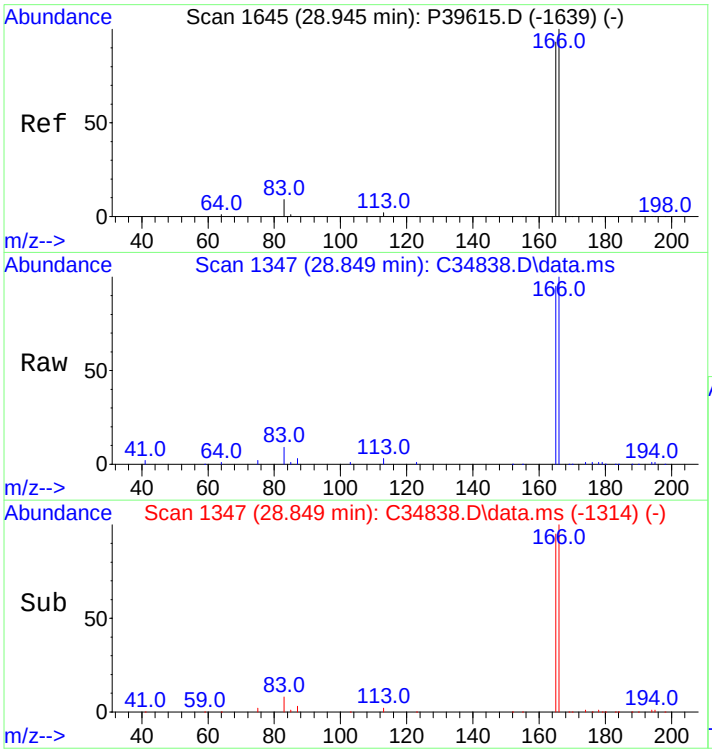


#27
Acenaphthene
Concen: 407.94 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:153 Resp: 27866

Ion	Ratio	Lower	Upper
153	100		
154	91.5	73.6	110.4

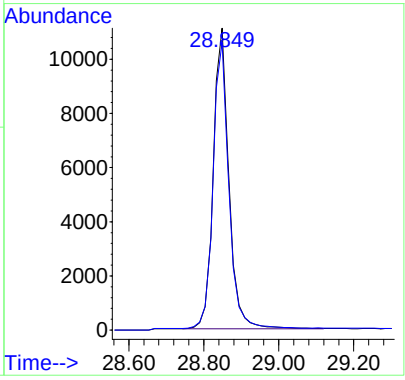


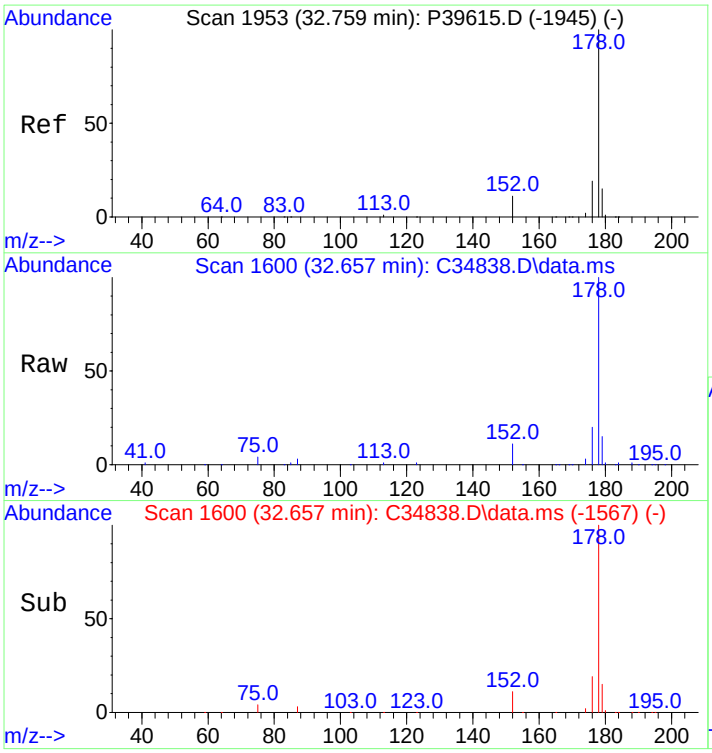


#29
Fluorene
Concen: 426.56 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:166 Resp: 32136

Ion	Ratio	Lower	Upper
166	100		
165	100.3	77.3	115.9

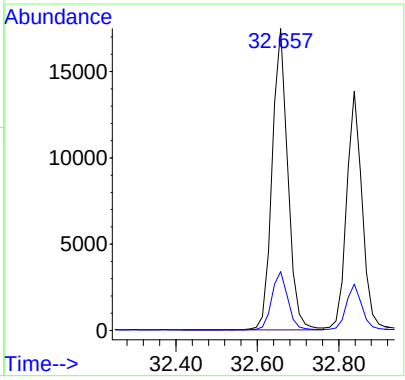


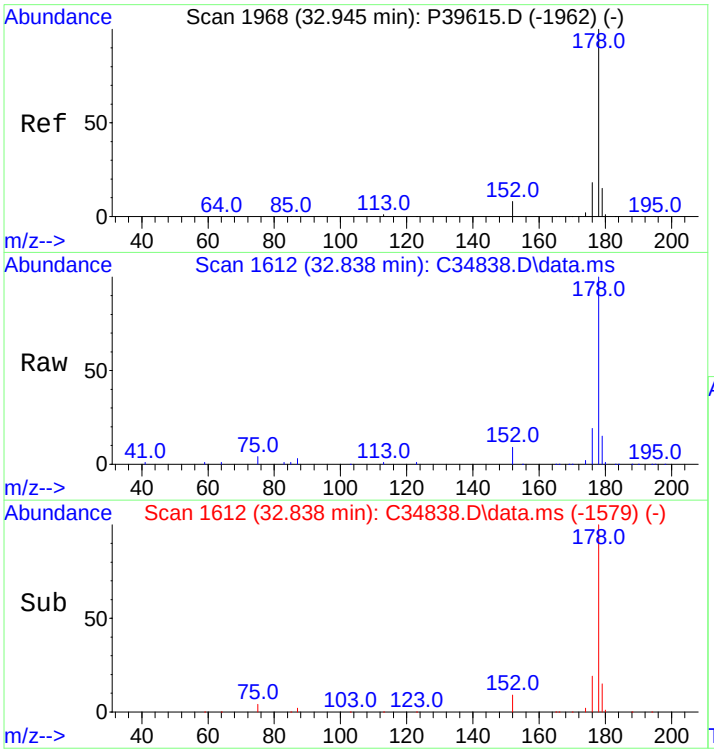


#43
Phenanthrene
Concen: 438.62 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:178 Resp: 46538

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

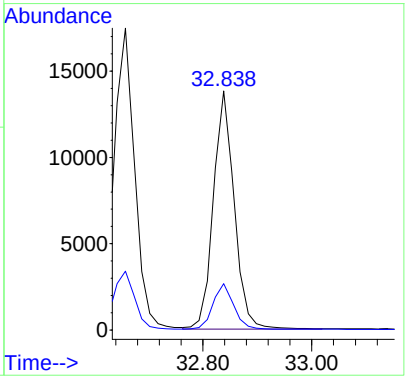


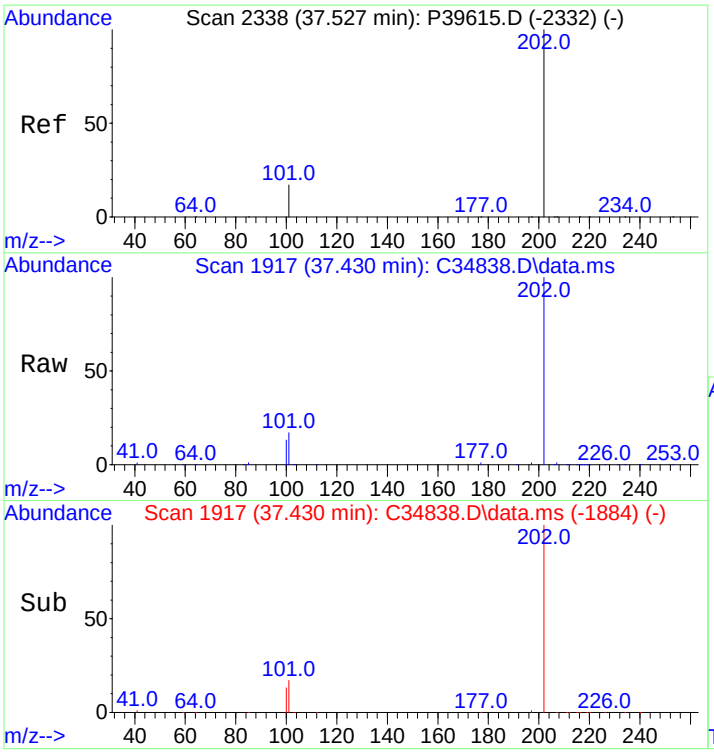


#55
Anthracene
Concen: 354.20 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:178 Resp: 36708

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

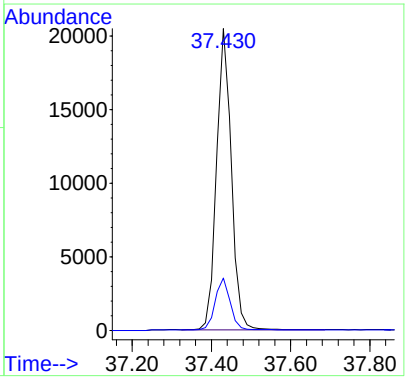


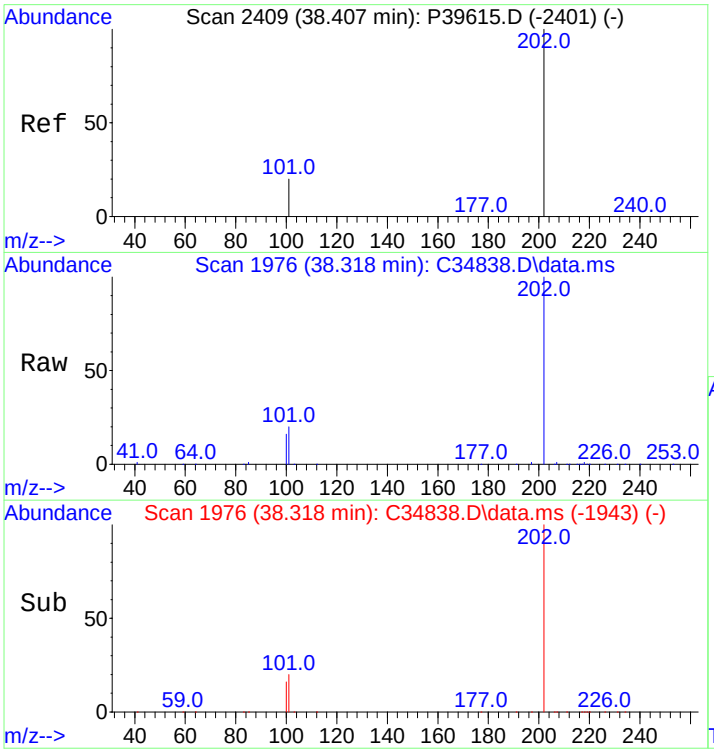


#58
Fluoranthene
Concen: 499.80 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:202 Resp: 52667

Ion	Ratio	Lower	Upper
202	100		
101	17.8	12.9	19.3

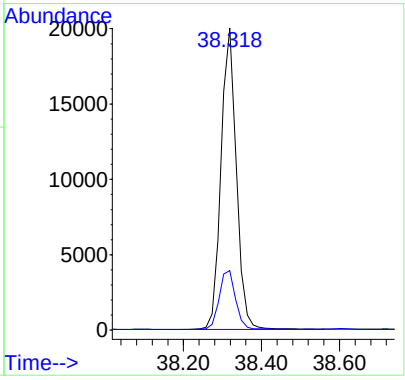


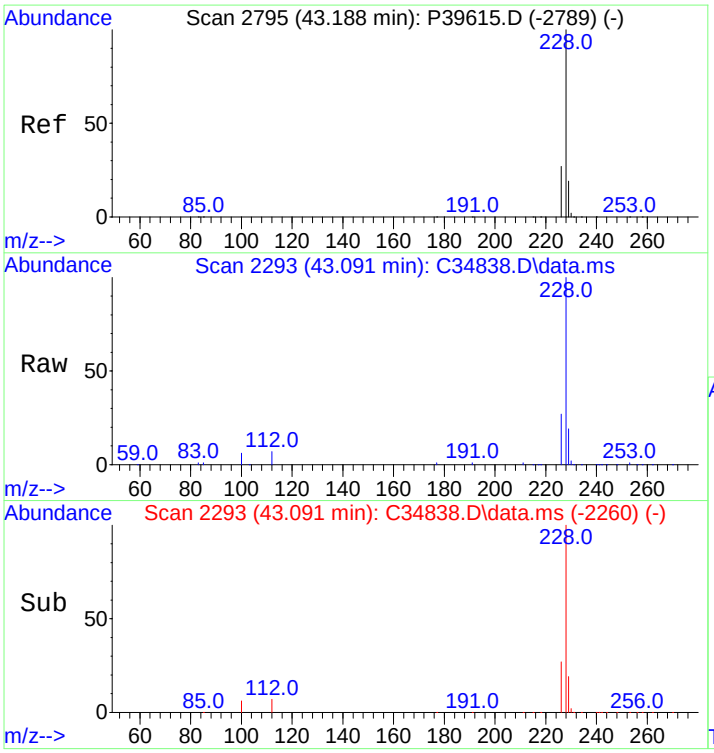


#60
Pyrene
Concen: 508.98 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:202 Resp: 54521

Ion	Ratio	Lower	Upper
202	100		
101	20.9	15.0	22.4

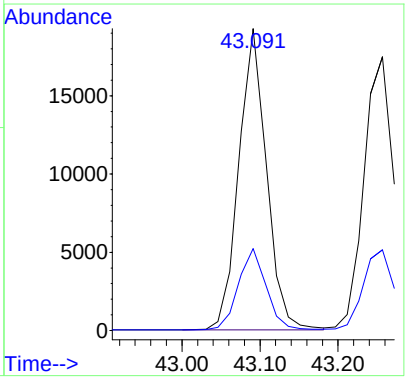


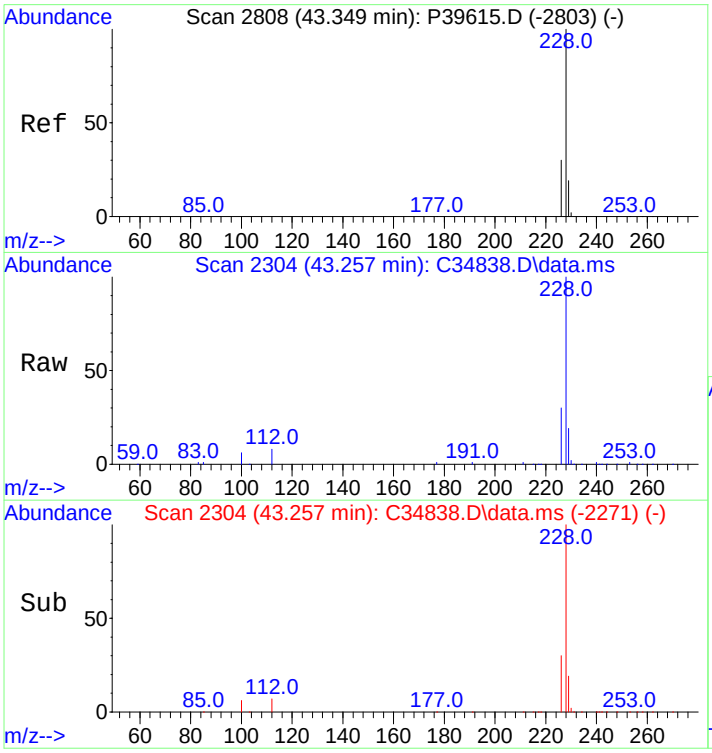


#75
Benz[a]anthracene
Concen: 450.10 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:228 Resp: 47507

Ion	Ratio	Lower	Upper
228	100		
226	27.1	21.4	32.0

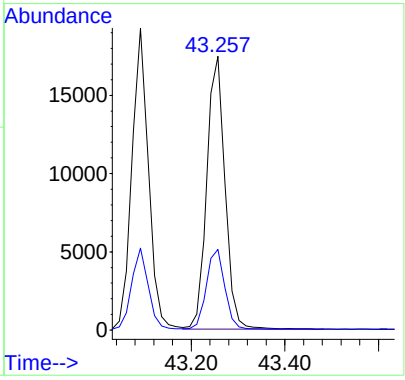


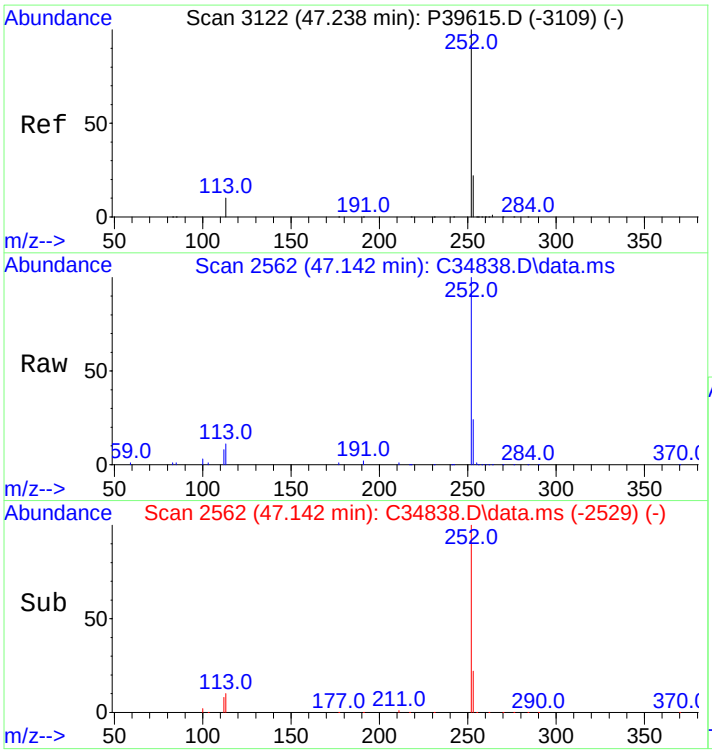


#77
Chrysene/Triphenylene
Concen: 443.13 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:228 Resp: 47220

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.7	35.5

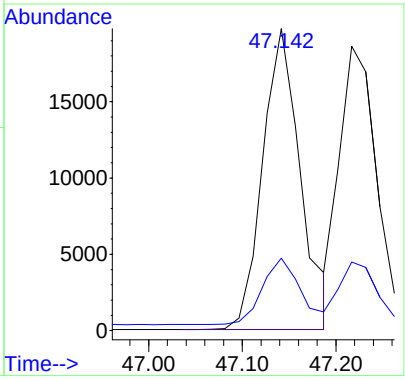


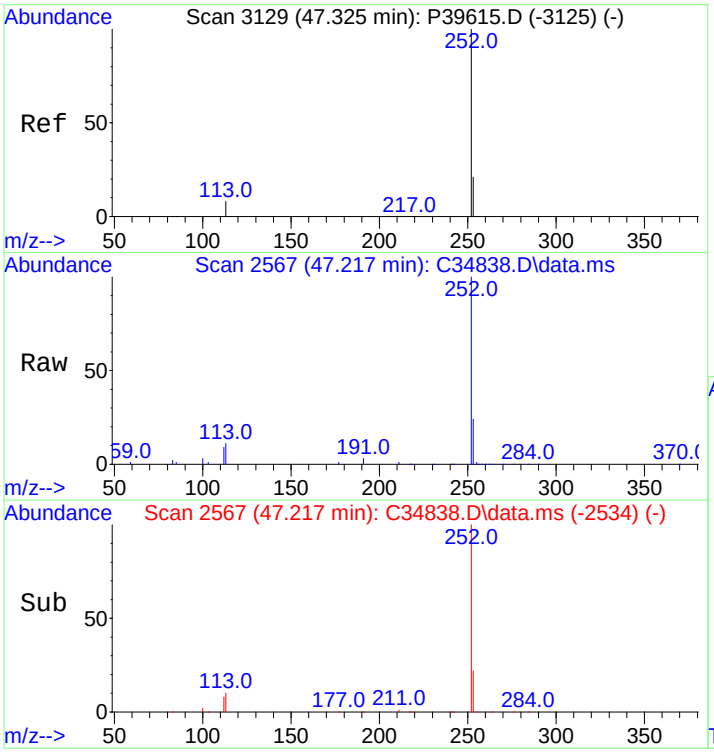


#82
Benzo[b]fluoranthene
Concen: 478.06 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 55443

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

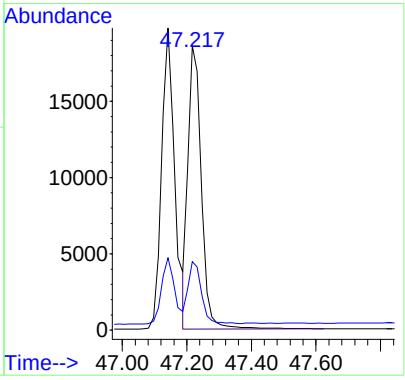


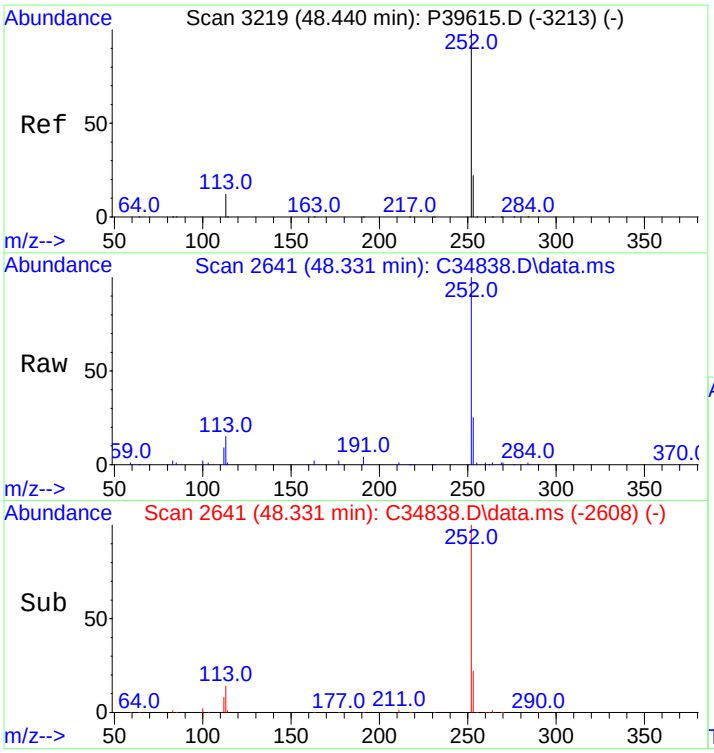


#83
Benzo[j]+[k]fluoranthene
Concen: 421.37 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 53206

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.0	28.4

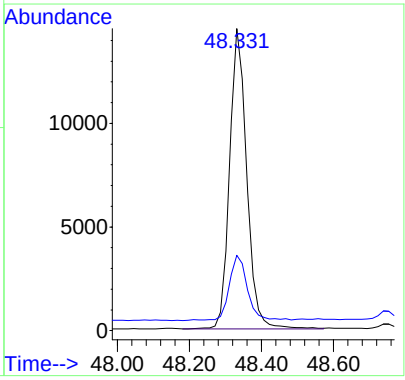


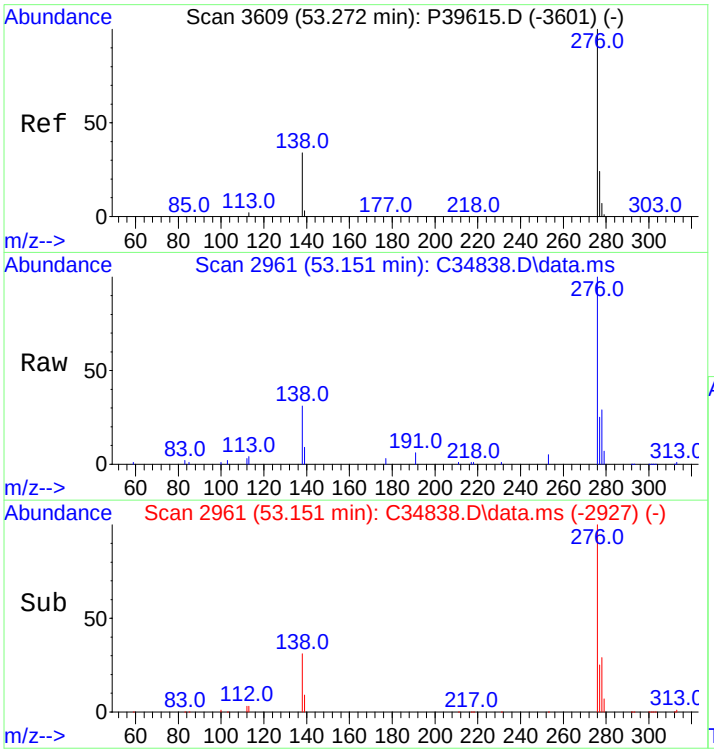


#87
Benzo[a]pyrene
Concen: 432.33 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 47749

Ion	Ratio	Lower	Upper
252	100		
253	23.1	19.5	29.3

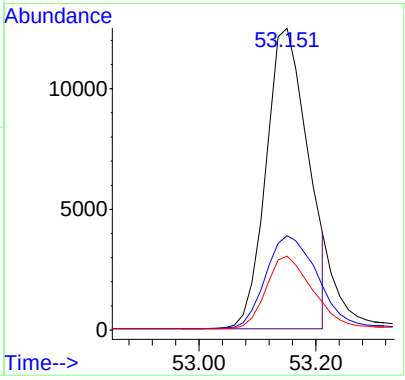


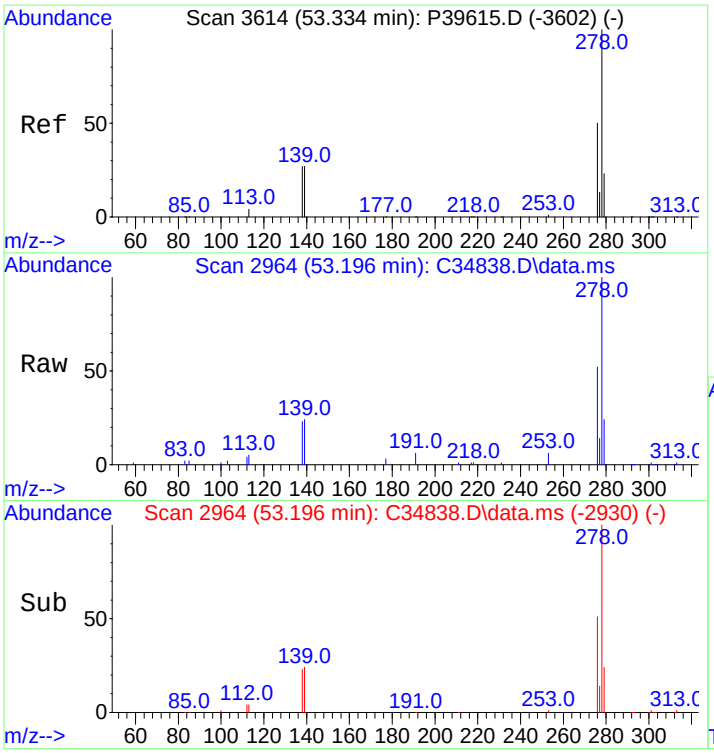


#89
Indeno[1,2,3-cd]pyrene
Concen: 484.37 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:276 Resp: 62256

Ion	Ratio	Lower	Upper
276	100		
138	39.4	23.3	34.9#
277	27.7	19.0	28.4

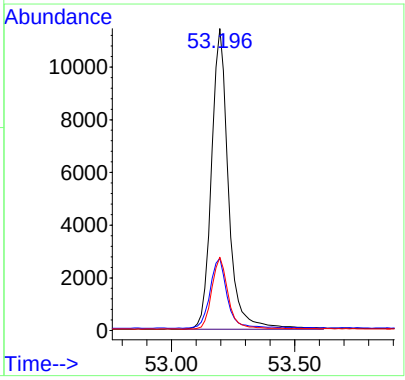


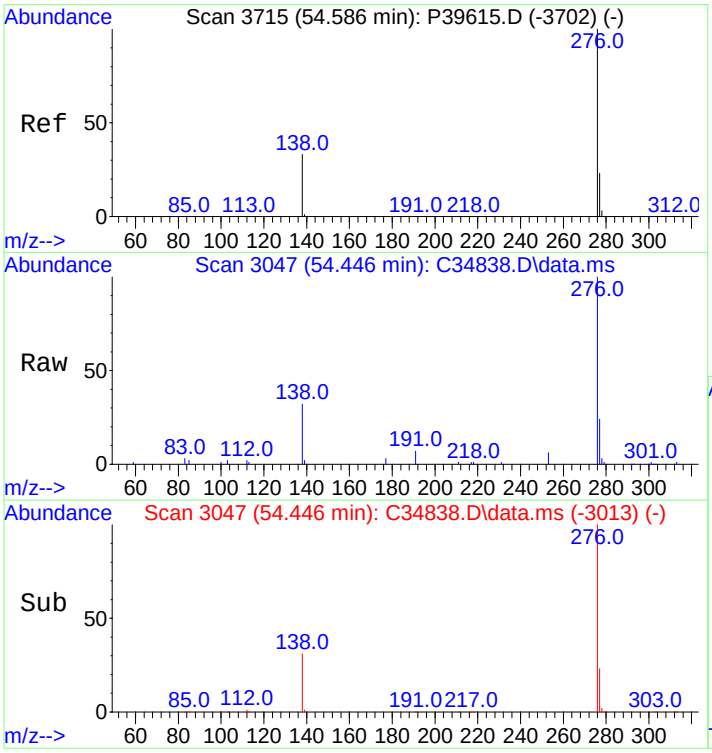


#90
Dibenz[ah]+[ac]anthracene
Concen: 446.89 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:278 Resp: 54640

Ion	Ratio	Lower	Upper
278	100		
139	23.3	19.1	28.7
279	22.7	19.2	28.8

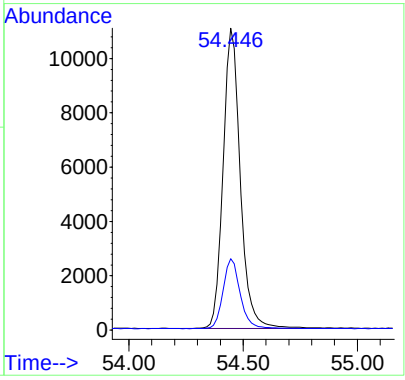




#91
Benzo[g,h,i]perylene
Concen: 426.54 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:276 Resp: 57920

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

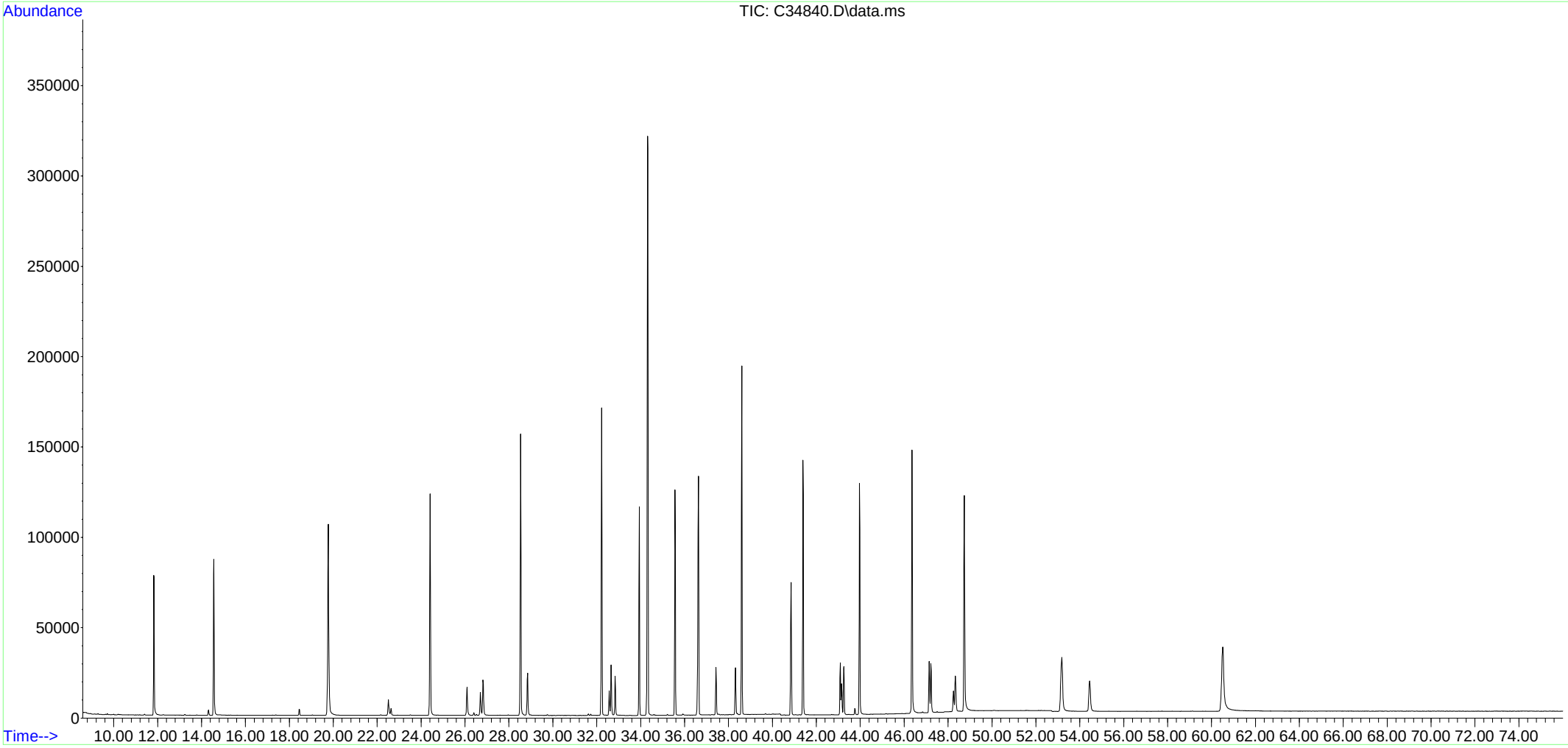
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18527M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32423	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	30958	384.993	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	28827	453.549	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.35%#			
86) Benzo[a]pyrene-d12	48.241	264	28441	423.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.33%#			
127) 5B(H)Cholane - Surr	43.754	217	4632	456.936	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.69%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47851	405.238	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28766	412.010	ng/mL#	100
26) Acenaphthylene	26.094	152	46895M3	400.073	ng/mL	
27) Acenaphthene	26.816	153	28581	414.117	ng/mL	99
29) Fluorene	28.849	166	32410M4	425.790	ng/mL	
43) Phenanthrene	32.657	178	45989	428.999	ng/mL	99
55) Anthracene	32.838	178	36580M3	349.342	ng/mL	
58) Fluoranthene	37.430	202	50677M3	475.982	ng/mL	
60) Pyrene	38.318	202	53251	492.027	ng/mL	95
75) Benz[a]anthracene	43.091	228	45909	446.108	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45853	441.334	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	54206	479.370	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	52374	425.417	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46433	431.188	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	59936M3	478.273	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	52761	442.584	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	56235	424.741	ng/mL	99

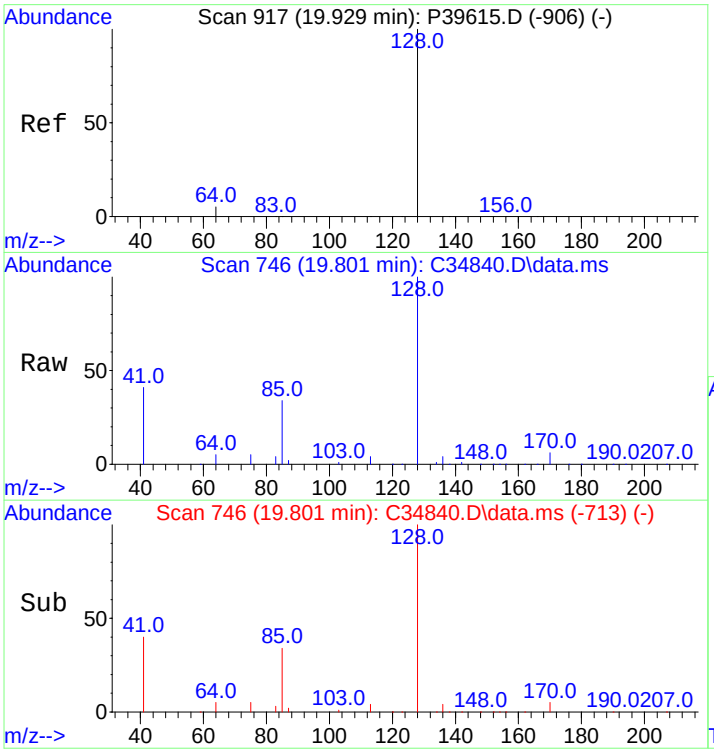
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

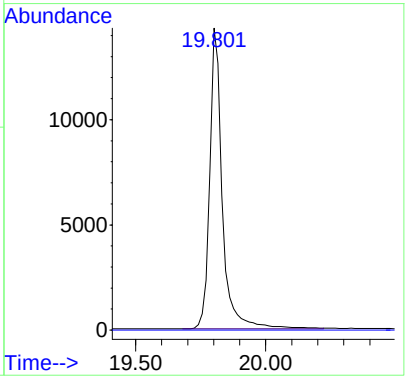


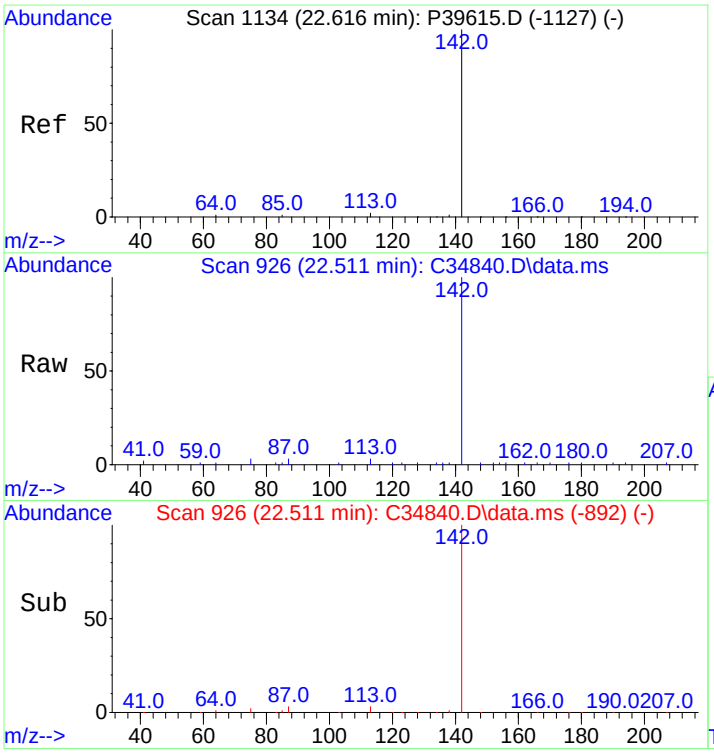


#10
Naphthalene
Concen: 405.24 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:128 Resp: 47851

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

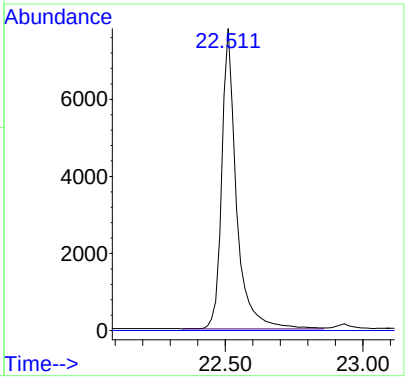


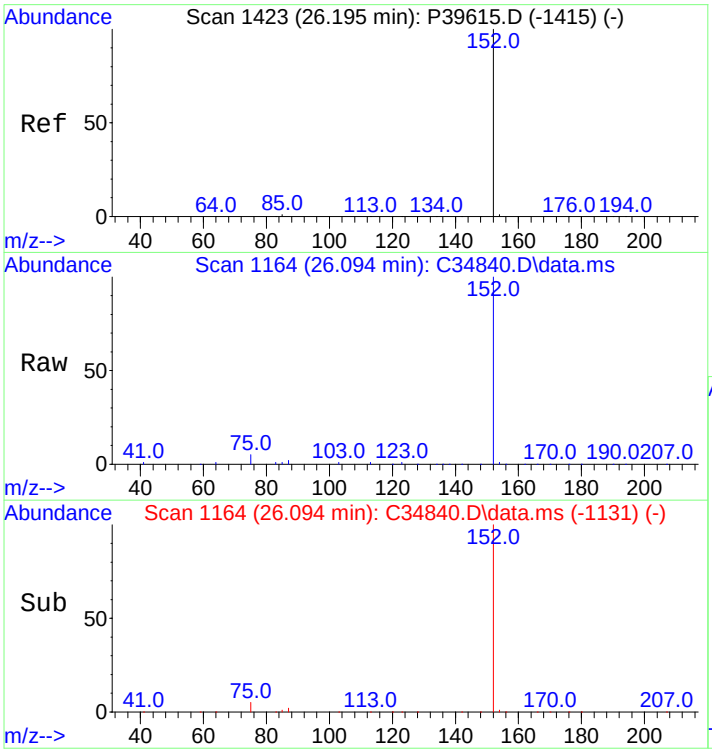


#16
2-Methylnaphthalene
Concen: 412.01 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:142 Resp: 28766

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

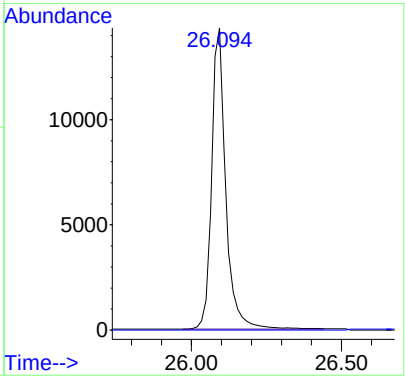


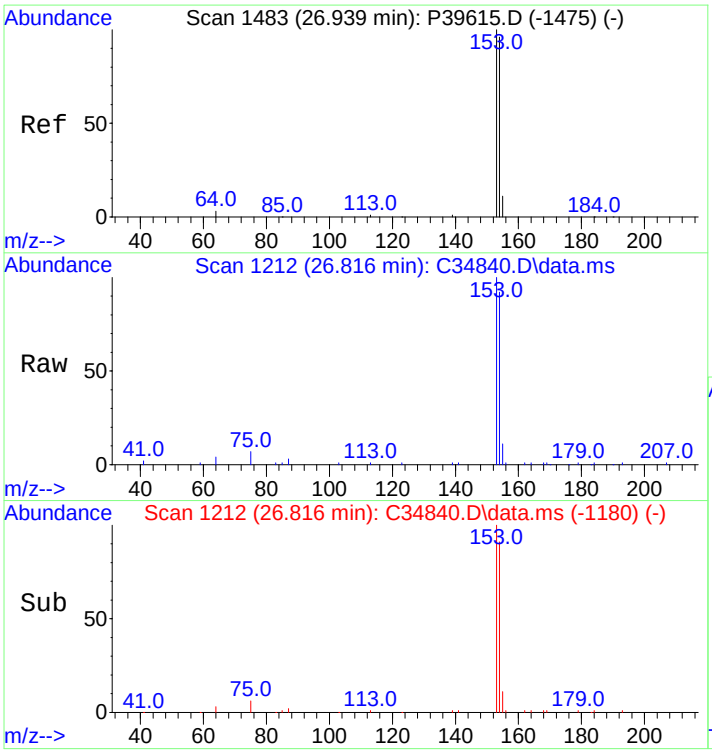


#26
Acenaphthylene
Concen: 400.07 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:152 Resp: 46895

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

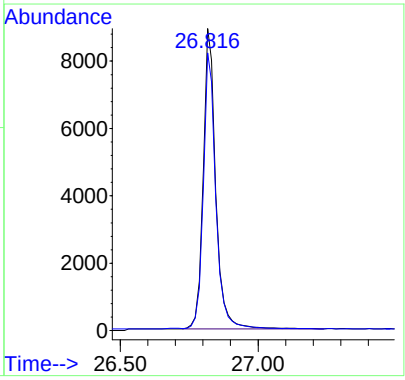


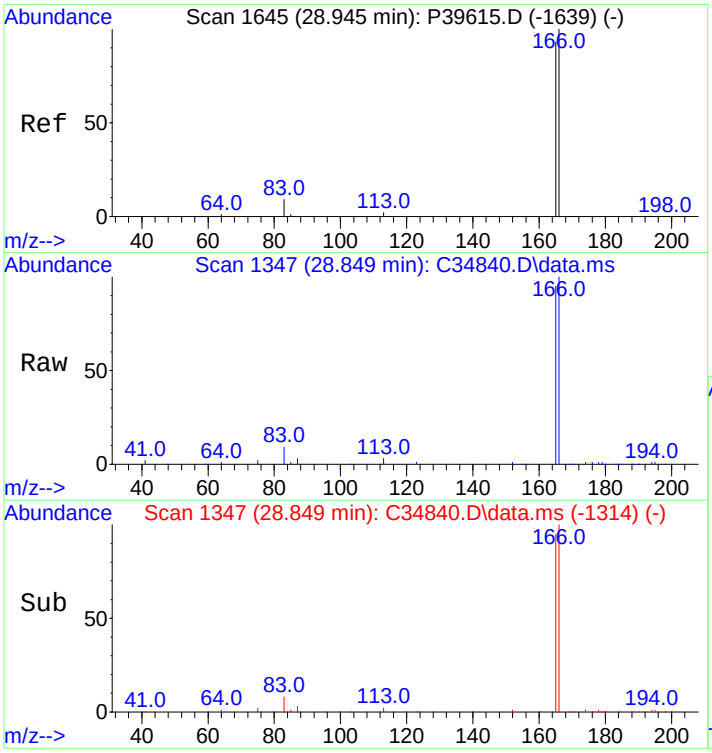


#27
Acenaphthene
Concen: 414.12 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:153 Resp: 28581

Ion	Ratio	Lower	Upper
153	100		
154	91.3	73.6	110.4

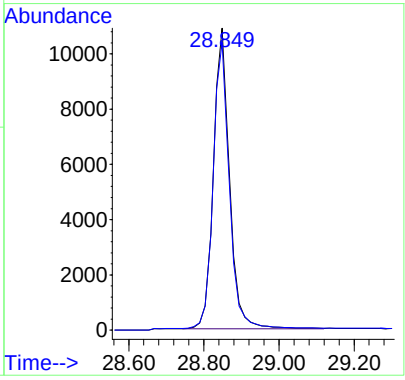


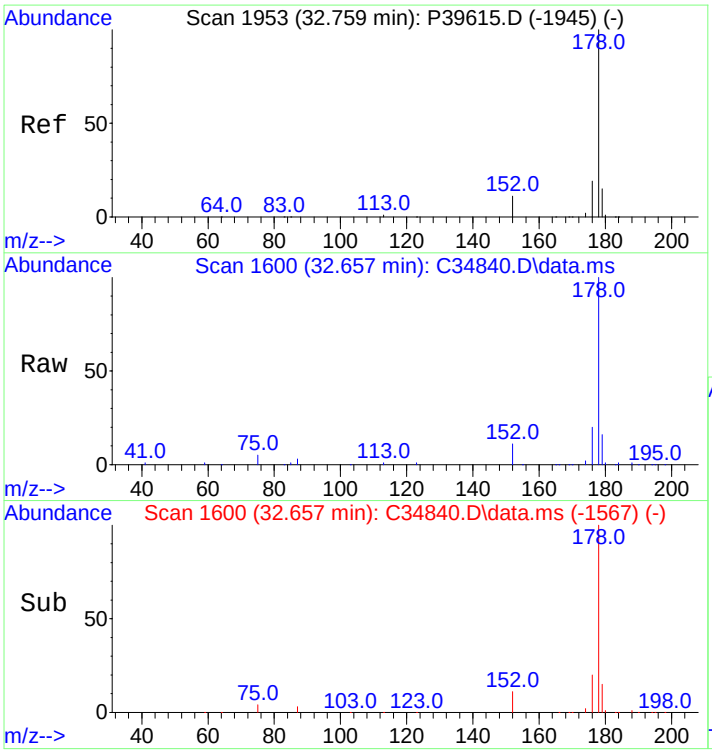


#29
Fluorene
Concen: 425.79 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:166 Resp: 32410

Ion	Ratio	Lower	Upper
166	100		
165	101.0	77.3	115.9

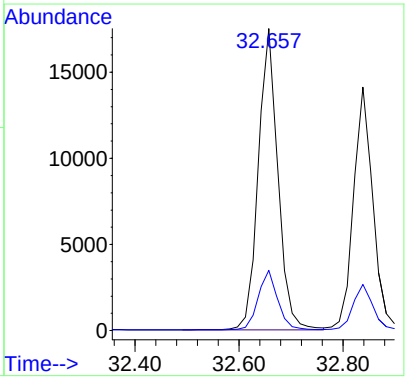


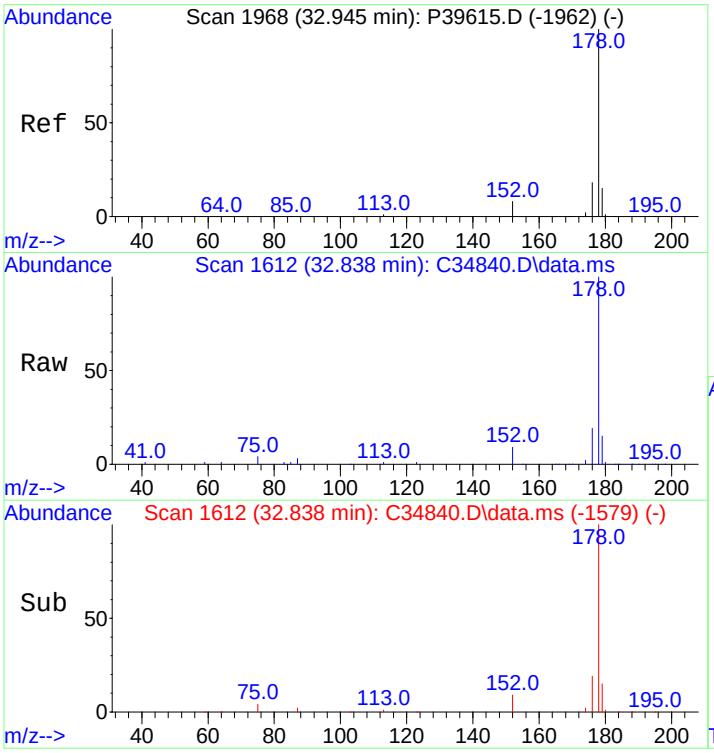


#43
Phenanthrene
Concen: 429.00 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:178 Resp: 45989

Ion	Ratio	Lower	Upper
178	100		
176	19.6	16.1	24.1

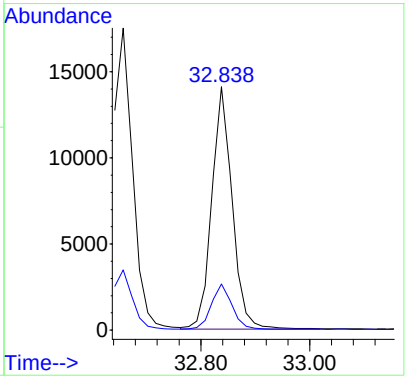


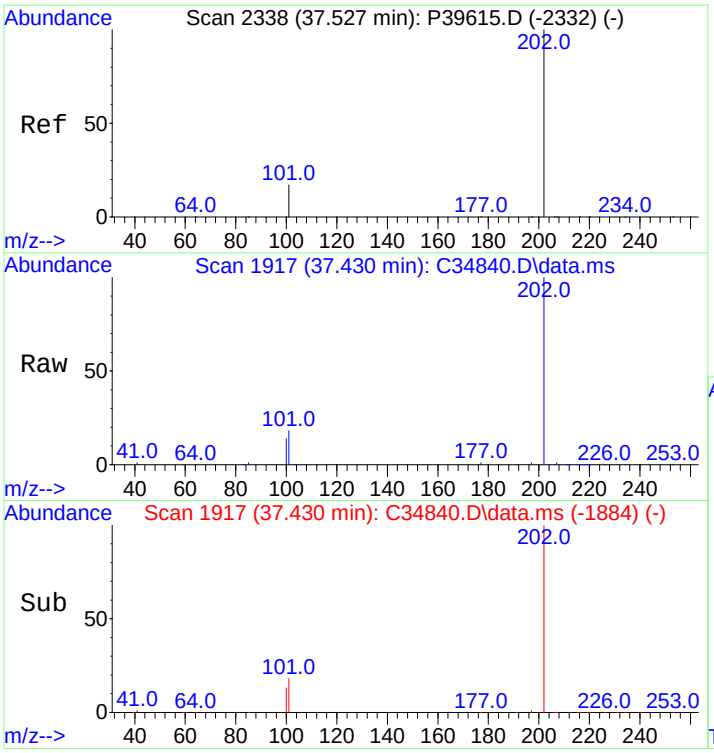


#55
Anthracene
Concen: 349.34 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:178 Resp: 36580

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

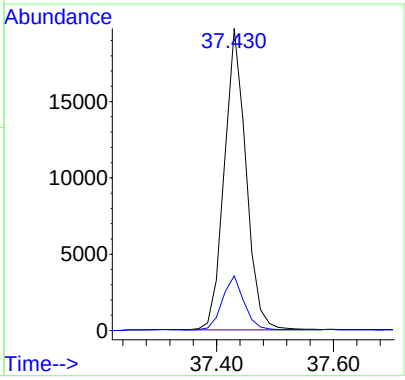


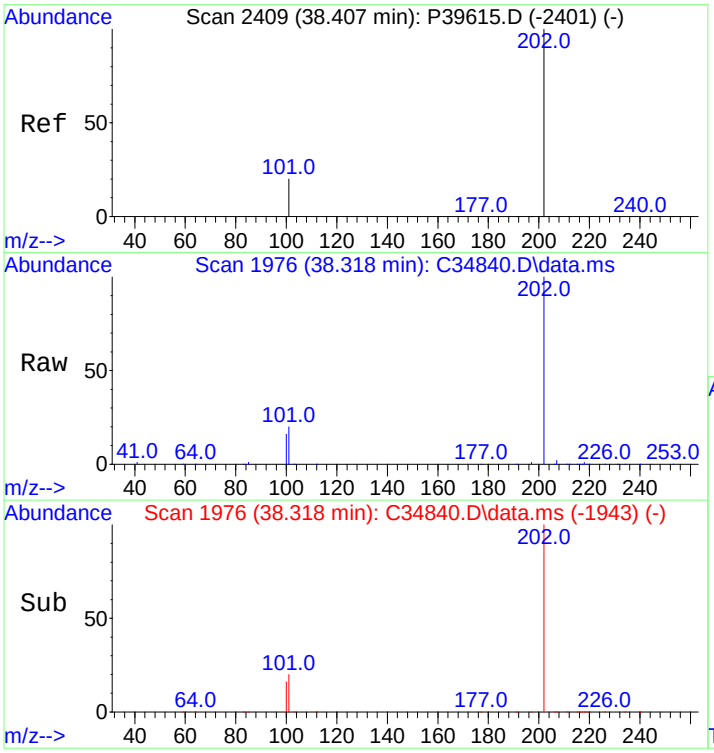


#58
Fluoranthene
Concen: 475.98 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:202 Resp: 50677

Ion	Ratio	Lower	Upper
202	100		
101	18.5	12.9	19.3

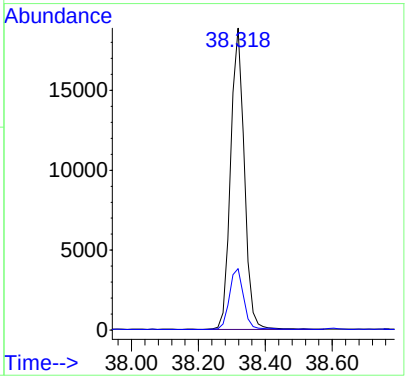


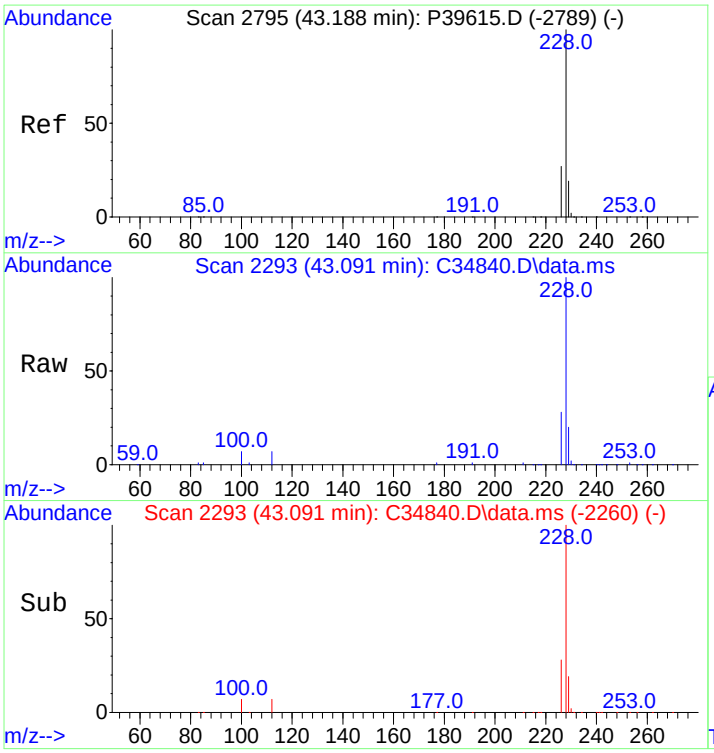


#60
Pyrene
Concen: 492.03 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:202 Resp: 53251

Ion	Ratio	Lower	Upper
202	100		
101	21.1	15.0	22.4

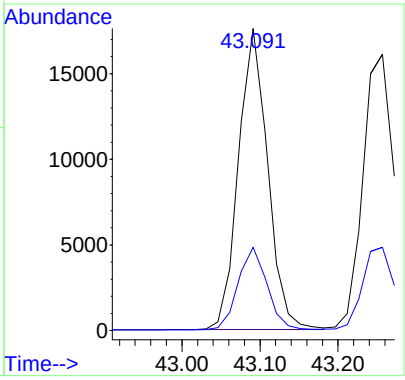


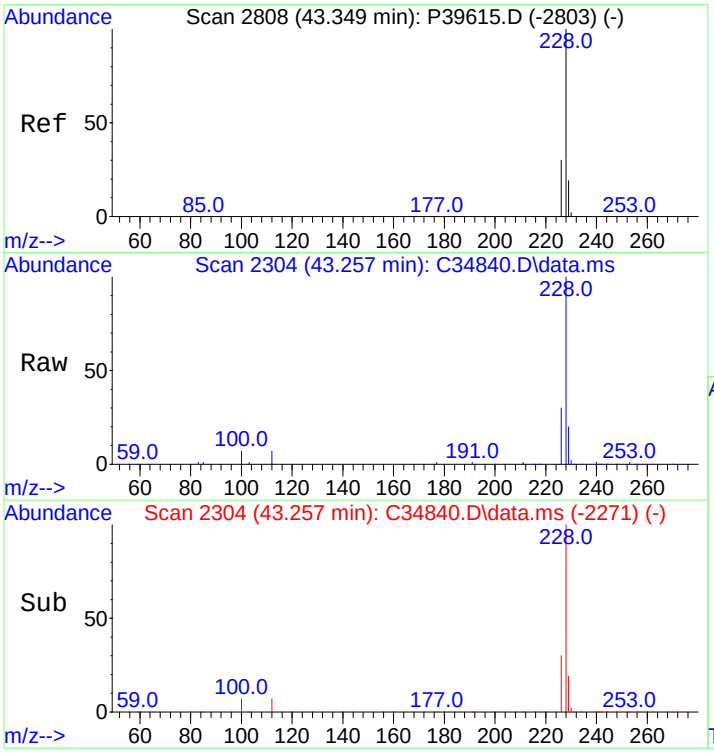


#75
Benz[a]anthracene
Concen: 446.11 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:228 Resp: 45909

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

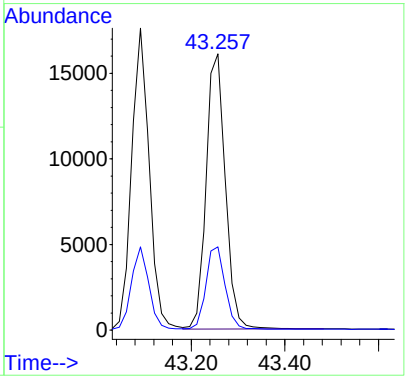


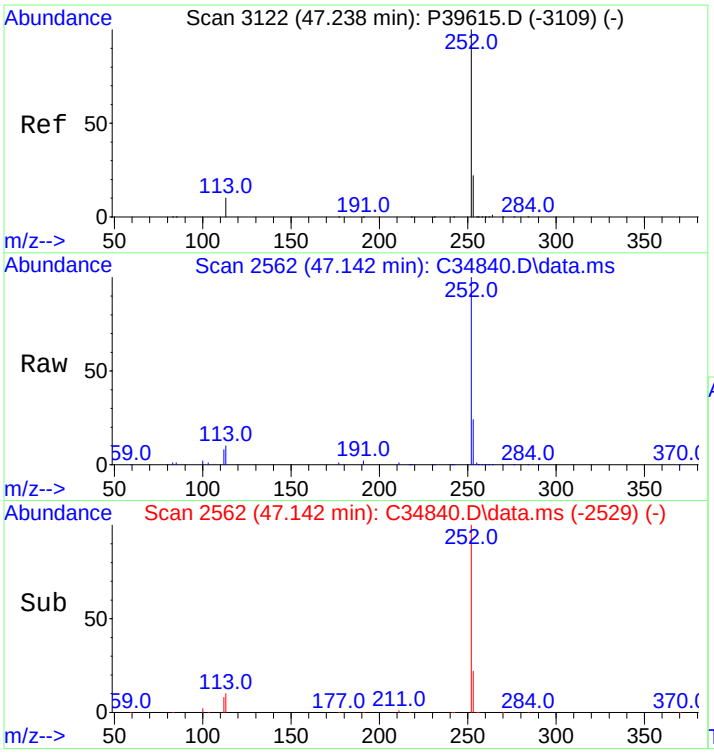


#77
Chrysene/Triphenylene
Concen: 441.33 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:228 Resp: 45853

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

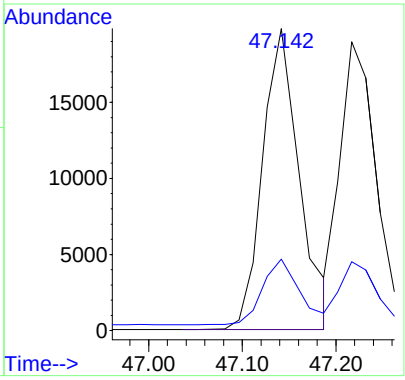


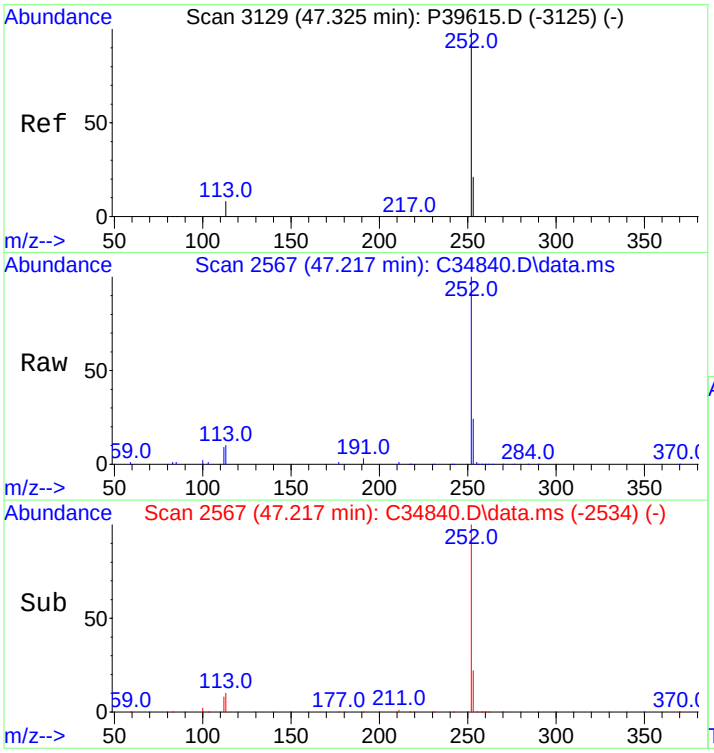


#82
Benzo[b]fluoranthene
Concen: 479.37 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 54206

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

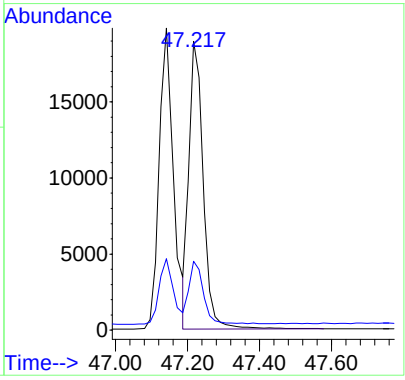


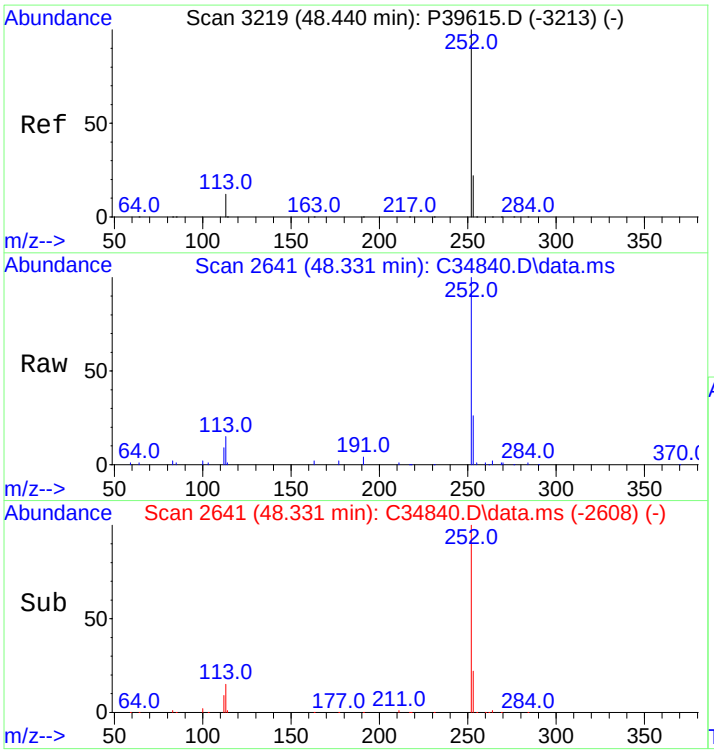


#83
Benzo[j]+[k]fluoranthene
Concen: 425.42 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 52374

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

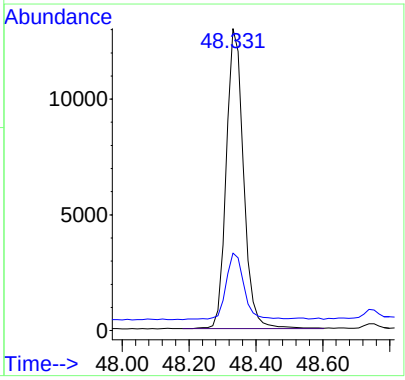


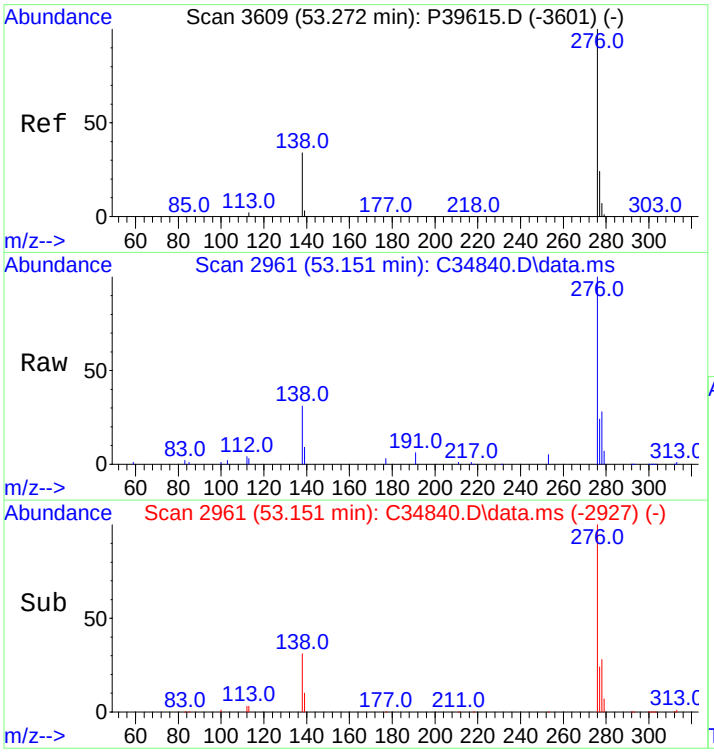


#87
Benzo[a]pyrene
Concen: 431.19 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 46433

Ion	Ratio	Lower	Upper
252	100		
253	23.3	19.5	29.3

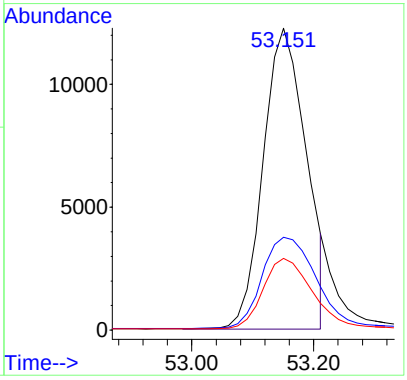


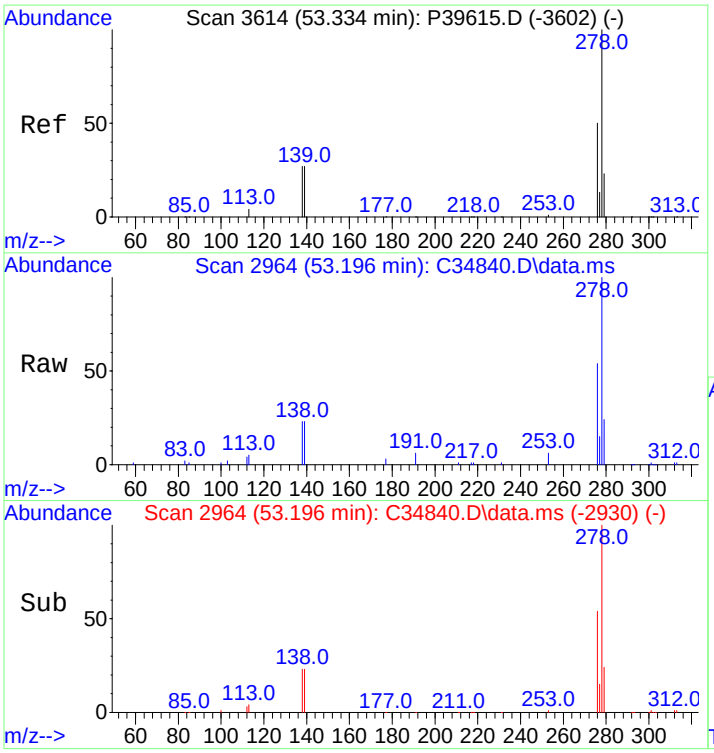


#89
Indeno[1,2,3-cd]pyrene
Concen: 478.27 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:276 Resp: 59936

Ion	Ratio	Lower	Upper
276	100		
138	38.8	23.3	34.9#
277	27.6	19.0	28.4

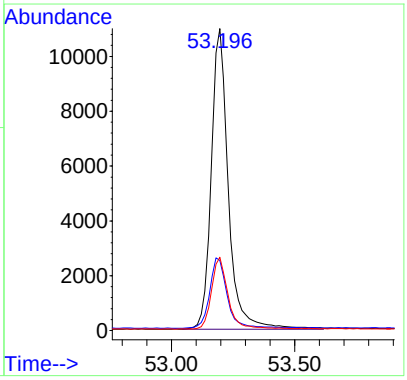


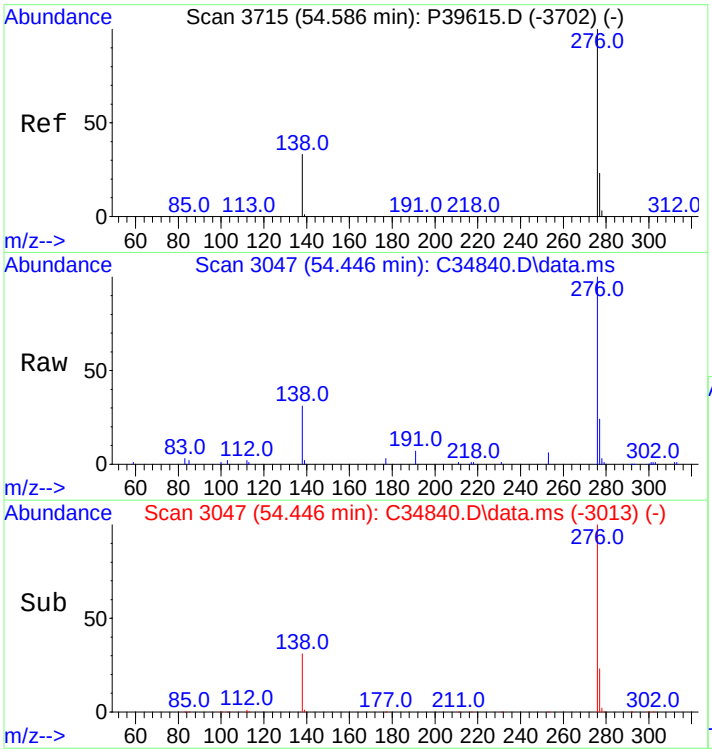


#90
Dibenz[ah]+[ac]anthracene
Concen: 442.58 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:278 Resp: 52761

Ion	Ratio	Lower	Upper
278	100		
139	23.5	19.1	28.7
279	22.7	19.2	28.8

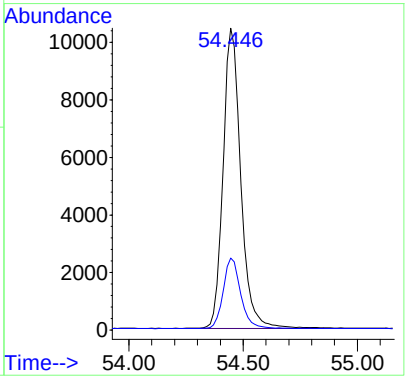




#91
Benzo[g,h,i]perylene
Concen: 424.74 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:276 Resp: 56235

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18890M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	43097	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	155637	1898.303	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 189.83%#			
42) Phenanthrene-d10	32.567	188	157811	2435.202	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 243.52%#			
86) Benzo[a]pyrene-d12	48.256	264	188107	2106.103	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 210.61%#			
127) 5B(H)Cholane - Surr	43.769	217	31360	2327.392	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 232.74%#			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	183M3	12.272	ng/mL	
7) C3-Decalins	22.511	180	1099m	73.699	ng/mL	
8) C4-Decalins	25.492	194	3787M5	253.958	ng/mL	
10) Naphthalene	19.801	128	9463M3	78.600	ng/mL	
11) C1-Naphthalenes	22.496	142	9286M5	77.130	ng/mL	
12) C2-Naphthalenes	24.995	156	12979M5	107.804	ng/mL	
13) C3-Naphthalenes	27.675	170	14006M5	116.334	ng/mL	
14) C4-Naphthalenes	31.694	184	25809M5	214.370	ng/mL	
16) 2-Methylnaphthalene	22.496	142	5761	80.928	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	3447	49.400	ng/mL#	100
18) Benzothiophene	20.012	134	426M3	3.932	ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	910M5	8.399	ng/mL	
20) C2-Benzo(b)thiophenes	24.664	162	1452M5	13.402	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	4939M5	45.588	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	6661M5	61.482	ng/mL	
23) Biphenyl	24.378	154	1400M3	15.547	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	3612	61.758	ng/mL#	100
25) Dibenzofuran	27.464	168	4619	44.669	ng/mL	94
26) Acenaphthylene	26.079	152	13271	111.043	ng/mL#	100
27) Acenaphthene	26.816	153	3800M3	54.001	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	780M3	16.544	ng/mL	
29) Fluorene	28.834	166	4744M3	61.127	ng/mL	
30) C1-Fluorenes	31.197	180	5295M5	68.227	ng/mL	
31) C2-Fluorenes	33.395	194	21884M5	281.978	ng/mL	
32) C3-Fluorenes	35.909	208	55128M5	710.332	ng/mL	
33) Dibenzothiophene	32.161	184	6739	54.169	ng/mL#	42
34) 4-Methyldibenzothiophe...	33.937	198	4277	34.379	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	6587M3	52.948	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	2393	19.235	ng/mL#	100
37) OTP	34.374	198	32695M3	262.809	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	50223M5	403.703	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	39903M5	320.748	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	65577M5	527.121	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	53445M5	429.602	ng/mL	
43) Phenanthrene	32.657	178	77809	711.877	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	13735	125.662	ng/mL	91
45) 2/4-Methylphenanthrene...	34.750	192	16578M3	151.673	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	7451M3	68.169	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	16695M3	152.743	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	10359M3	94.775	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.750	192	67230M5	615.090	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	63066M5	576.993	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	70842M5	648.136	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	54425M5	497.936	ng/mL	
55) Anthracene	32.838	178	23067	216.058	ng/mL	98
56) Carbazole	33.500	167	7822	72.532	ng/mL#	92

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
57) 1-Methylphenanthrene	35.157	192		10311M3	148.861	ng/mL	
58) Fluoranthene	37.430	202		260243M3	2397.351	ng/mL	
59) Benzo(b)fluorene	39.960	216		16537M3	262.580	ng/mL	
60) Pyrene	38.318	202		270584	2452.091	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.704	216		155824M5	1412.111	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230		108959M5	987.410	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244		61401M5	556.429	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258		50923M5	461.475	ng/mL	
66) Naphthobenzothiophene	42.173	234		24315	204.671	ng/ml#	75
67) Naphthobenzothiophene-...	42.173	234		24315	204.671	ng/mL#	75
68) Naphthobenzothiophene-...	42.519	234		5877	49.470	ng/mL#	13
69) Naphthobenzothiophene-...	42.805	234		11306M3	95.168	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248		37942M5	319.376	ng/ml	
71) C2-Naphthobenzothiophenes	45.576	262		45254M5	380.925	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276		36113M5	303.981	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290		32075M5	269.991	ng/mL	
75) Benz[a]anthracene	43.106	228		117626M3	859.908	ng/mL	
77) Chrysene/Triphenylene	43.257	228		134035	970.565	ng/mL	99
78) C1-Chrysenes	44.732	242		68570M5	496.524	ng/mL	
79) C2-Chrysenes	46.148	256		49726M5	360.072	ng/mL	
80) C3-Chrysenes	47.488	270		45193M5	327.248	ng/mL	
81) C4-Chrysenes	49.521	284		23337M5	168.986	ng/mL	
82) Benzo[b]fluoranthene	47.157	252		144890	963.980	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252		124223	759.114	ng/mL	97
84) Benzo[a]fluoranthene	47.533	252		31836M3	194.547	ng/mL	
85) Benzo[e]pyrene	48.151	252		108827	732.007	ng/mL	99
87) Benzo[a]pyrene	48.347	252		143130	999.946	ng/mL	99
88) Perylene	48.648	252		52294	341.848	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276		105444M3	633.019	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278		28978	182.876	ng/mL#	88
91) Benzo[g,h,i]perylene	54.476	276		114157	648.673	ng/mL	100
92) Hopane (T19)	52.232	191		86980	3062.247	ng/mL#	81
94) C23 Tricyclic Terpane ...	40.803	191		14013M3	493.346	ng/ml	
95) C24 Tricyclic Terpane ...	41.525	191		8997	316.751	ng/ml	100
96) C25 Tricyclic Terpane ...	43.061	191		10041M3	353.507	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191		9210	324.250	ng/ml	100
98) C26 Tricyclic Terpane-...	44.070	191		4827M3	169.941	ng/ml	
99) C26 Tricyclic Terpane-...	44.160	191		4614M3	162.442	ng/ml	
100) C28 Tricyclic Terpane-...	46.449	191		3269M3	115.090	ng/ml	
101) C28 Tricyclic Terpane-...	46.615	191		6326	222.715	ng/ml	100
102) C29 Tricyclic Terpane-...	47.127	191		3958	139.347	ng/ml	100
103) C29 Tricyclic Terpane-...	47.322	191		4731	166.561	ng/ml	100
104) 18a-22,29,30-Trisnorne...	48.452	191		19500M3	686.523	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191		4112M3	144.768	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191		3341M3	117.624	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191		21583	759.858	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.169	191		3135	110.372	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.973	191		5903M3	207.823	ng/ml	
110) 30-Norhopane (T15)	50.862	191		58691M3	2066.295	ng/ml	
111) 18a(H)-30-Norneohopane...	50.967	191		18676M3	657.513	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191		4737M3	166.772	ng/ml	
113) 30-Normoretane (T17)	51.645	191		9563	336.678	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.036	191		6586M3	231.869	ng/ml	
115) Moretane (T20)	52.910	191		12651M3	445.395	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191		27310M3	961.485	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191		23324	821.153	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191		6049	212.963	ng/mL	100
119) 30,31-Bishomohopane-22...	55.530	191	G	55890	1967.682	ng/ml	100
120) 30,31-Bishomohopane-22...	55.967	191		14115	496.937	ng/ml	100
121) 30,31-Trishomohopane-2...	57.698	191		16039M3	564.674	ng/ml	
122) 30,31-Trishomohopane-2...	58.331	191		6702M3	235.953	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

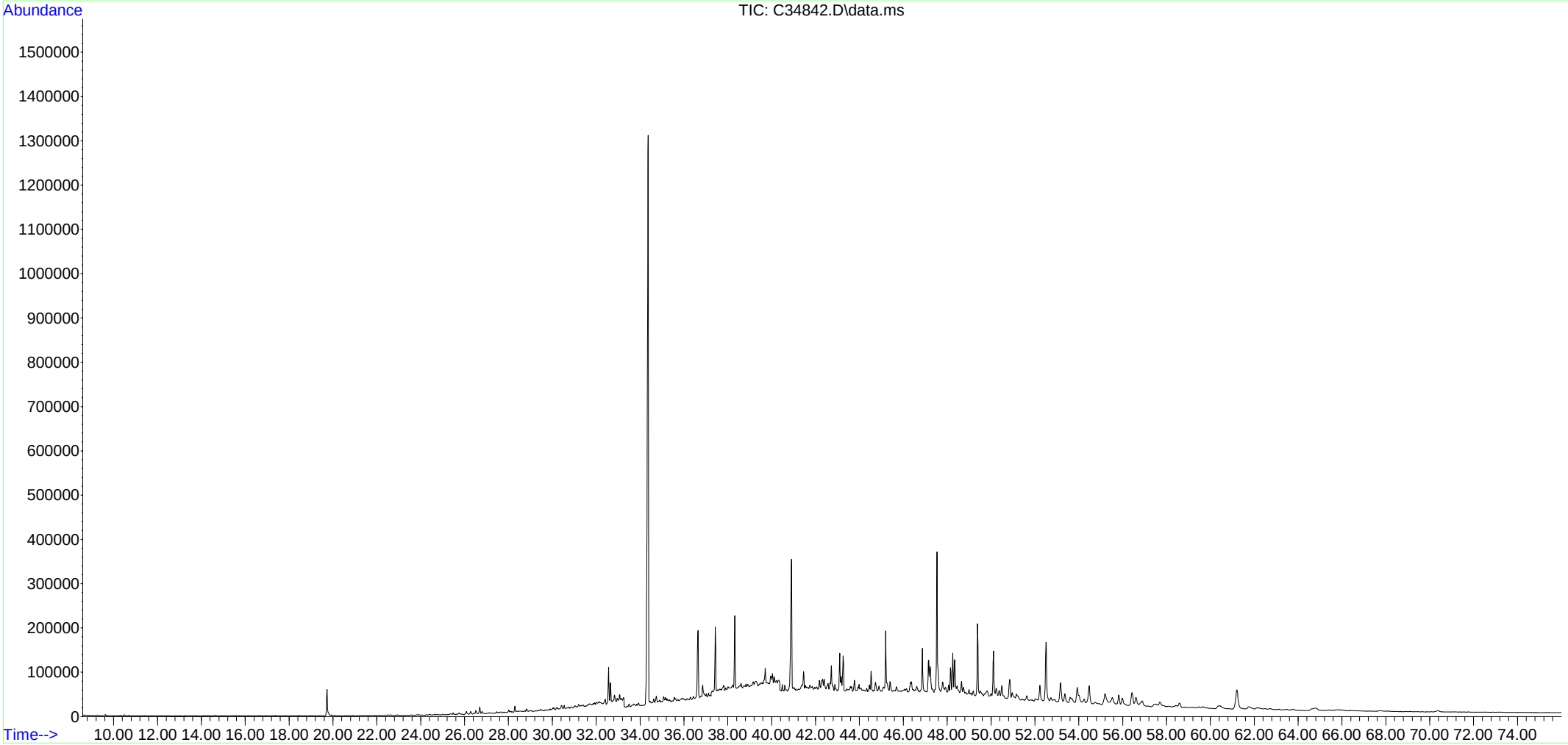
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
123) Tetrakishomohopane-22S...	60.364	191	12743M3	448.634	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191 G	38039	1339.214	ng/ml	100
125) Pentakishomohopane-22S...	63.466	191	7218M3	254.119	ng/ml	
126) Pentakishomohopane-22R...	64.761	191	5082M3	178.919	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	6416	476.165	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	3533	262.203	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.404	217	3980M3	295.377	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217	11676	866.538	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.789	217	11507	853.995	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	3246	240.903	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.332	217	326	24.194	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217	5590M3	414.863	ng/ml	
136) 14a,17a-20R-Methylchol...	49.205	217	4640M3	344.359	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	6692M3	496.649	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.470	217	6210	460.877	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.353	218	5205M3	386.291	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.443	218	5702M3	423.176	ng/ml	
141) 14b,17b-20R-Methylchol...	48.663	218	5828	432.527	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.738	218	8060M3	598.175	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	11267M3	836.184	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.838	218	6538M3	485.220	ng/ml	
145) C26,20R- +C27,20S- tri...	49.506	231	14404	1068.997	ng/mL	100
146) C28,20S-triaromatic st...	50.365	231	16620	1233.458	ng/mL	100
147) C27,20R-triaromatic st...	50.816	231	9121M3	676.918	ng/mL	
148) C28,20R-triaromatic st...	52.021	231	10433M3	774.288	ng/mL	

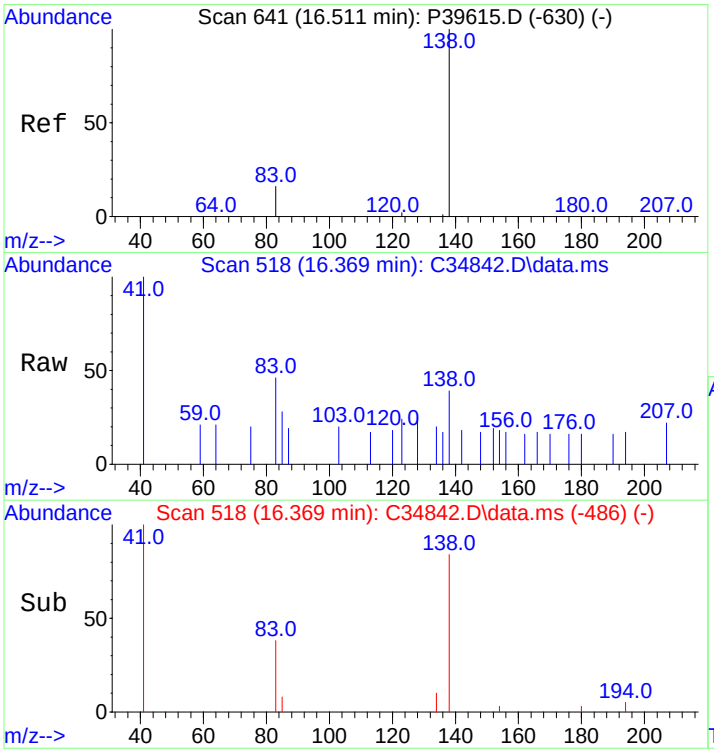
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34842.D
Acq On : 4 May 2012 4:37 pm
Operator : AC
Sample : 1204031-01
Misc : 1X
ALS Vial : 34 Sample Multiplier: 1

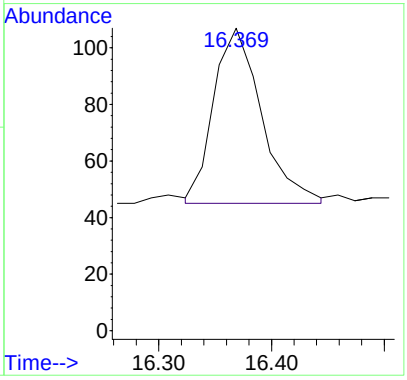
Quant Time: May 06 15:06:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

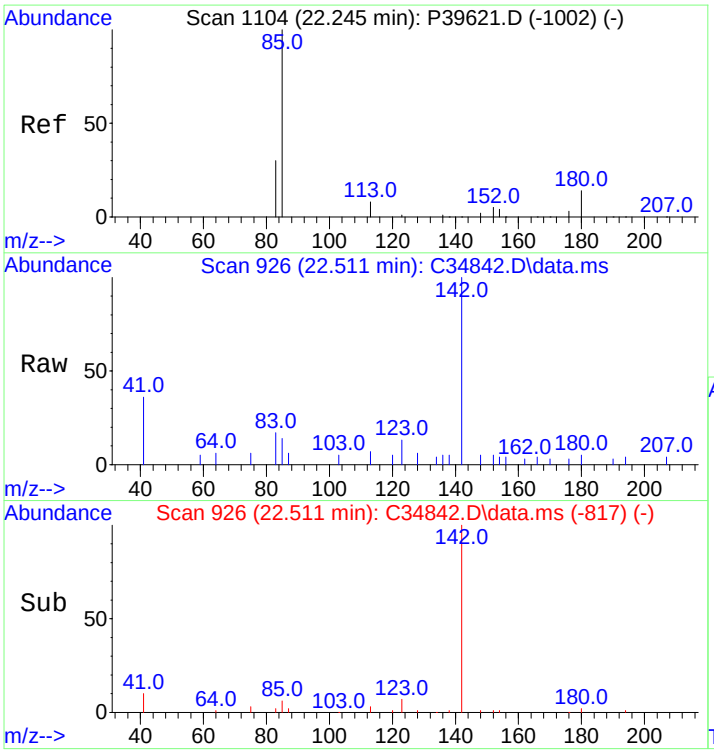




#3
trans-Decalin
Concen: 12.27 ng/mL m
RT: 16.369 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

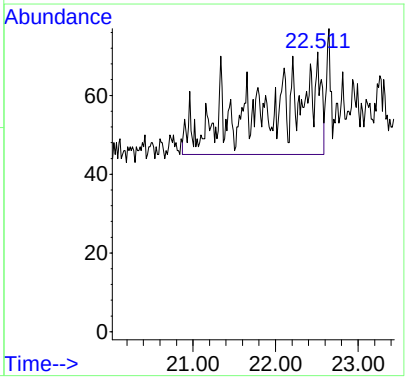
Tgt Ion:138 Resp: 183

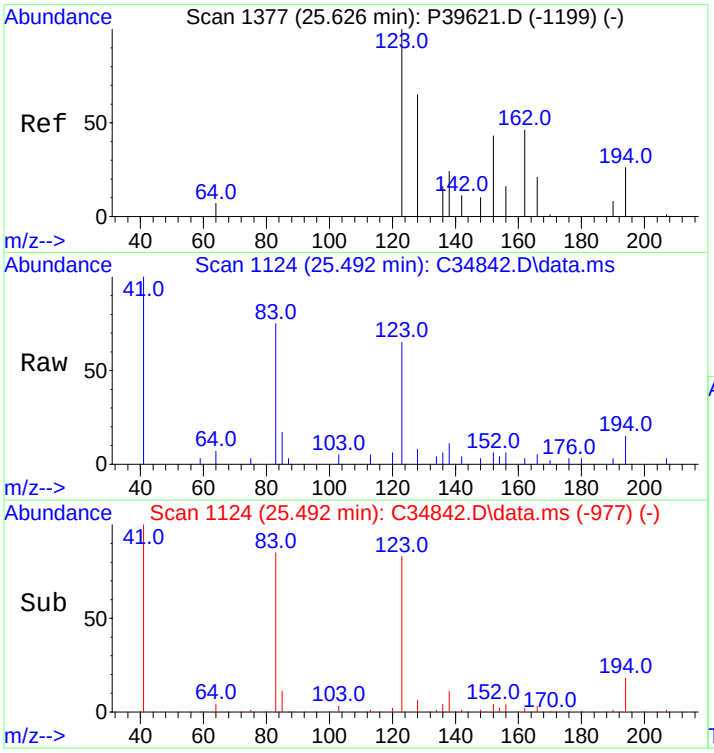




#7
C3-Decalins
Concen: 73.70 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.371 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

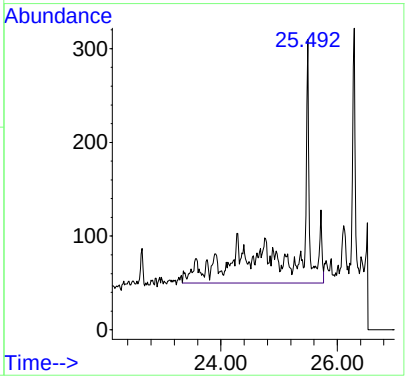
Tgt Ion:180 Resp: 1099

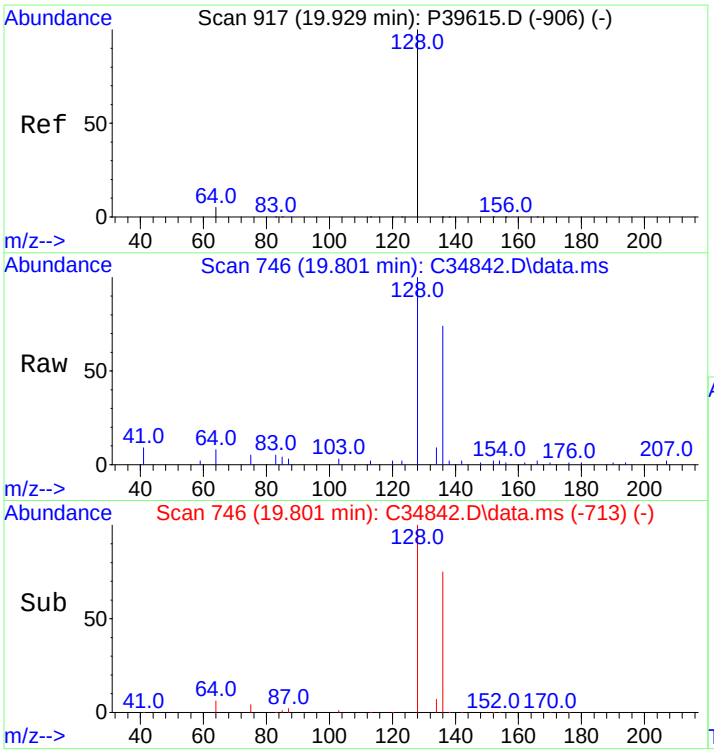




#8
C4-Decalins
Concen: 253.96 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:194 Resp: 3787

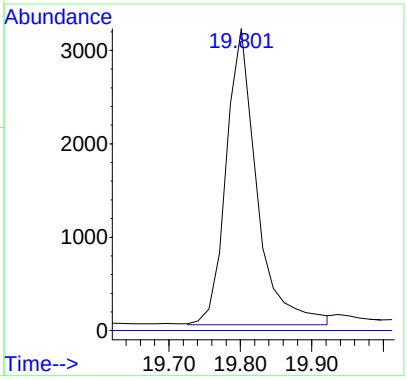


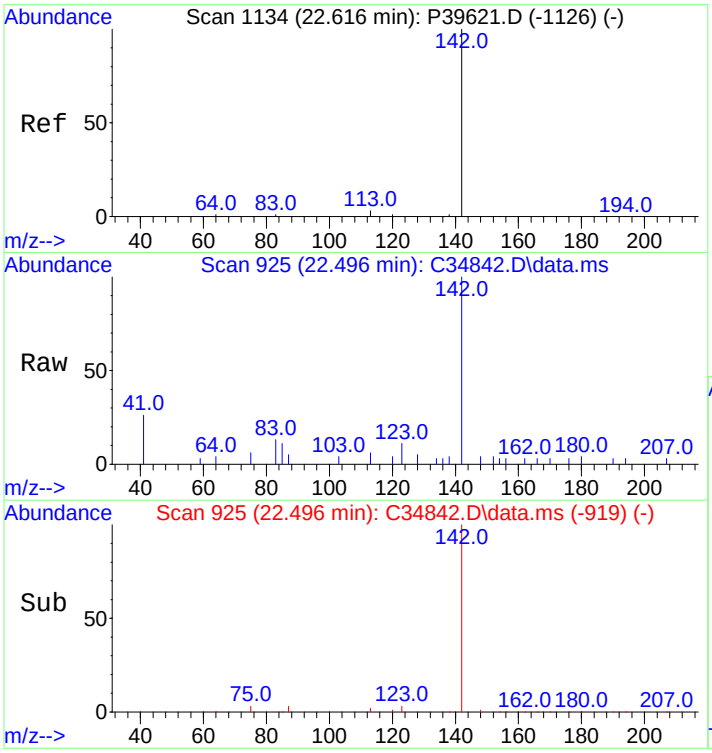


#10
Naphthalene
Concen: 78.60 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:128 Resp: 9463

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

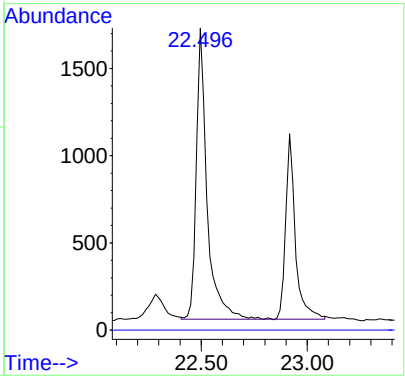


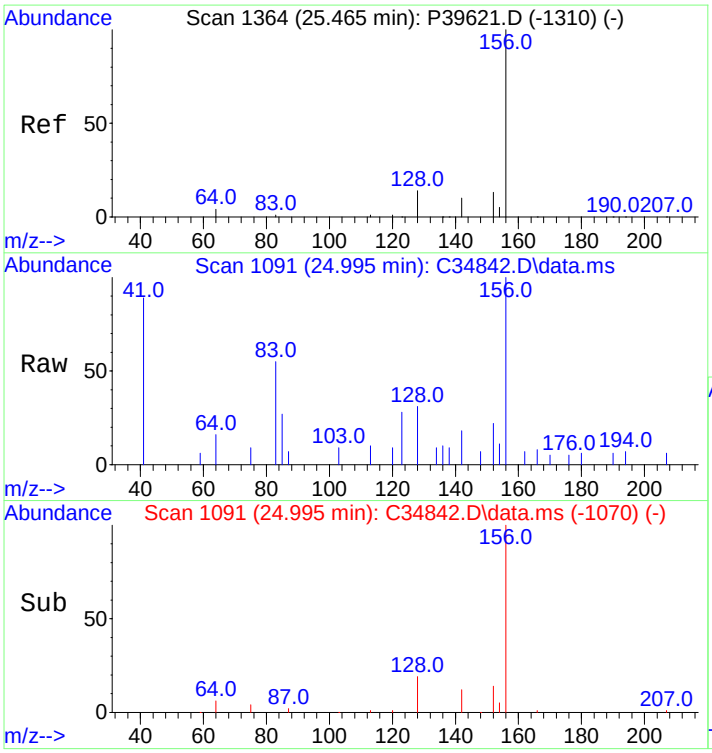


#11
C1-Naphthalenes
Concen: 77.13 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:142 Resp: 9286

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

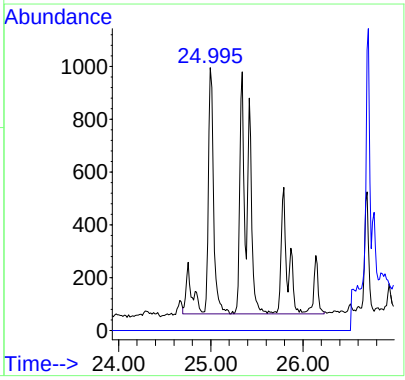


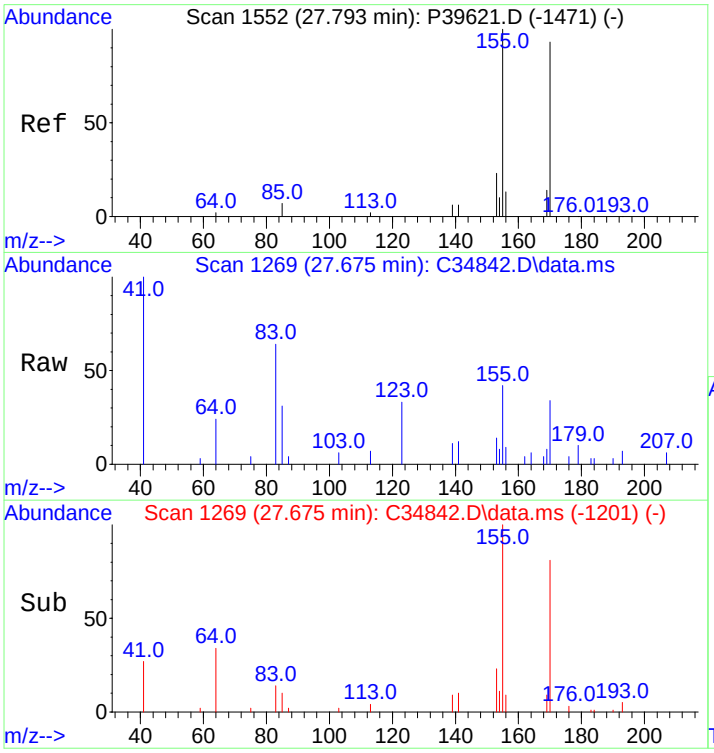


#12
C2-Naphthalenes
Concen: 107.80 ng/mL m
RT: 24.995 min Scan# 1091
Delta R.T. -0.352 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:156 Resp: 12979

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

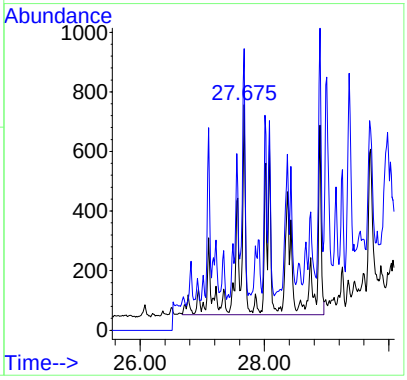


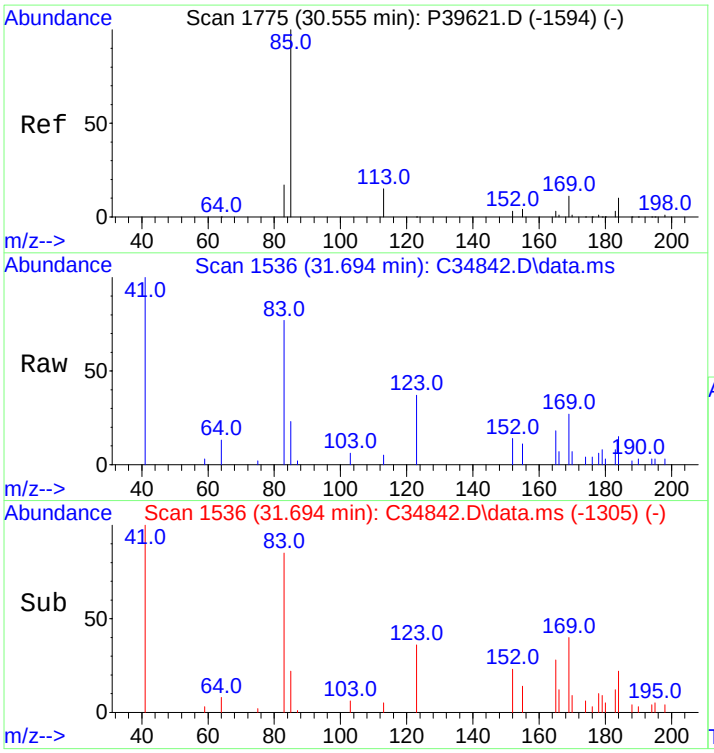


#13
C3-Naphthalenes
Concen: 116.33 ng/mL m
RT: 27.675 min Scan# 1269
Delta R.T. 0.004 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:170 Resp: 14006

Ion	Ratio	Lower	Upper
170	100		
155	11.9	81.8	122.6#

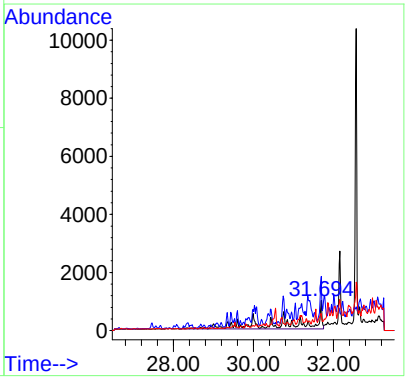


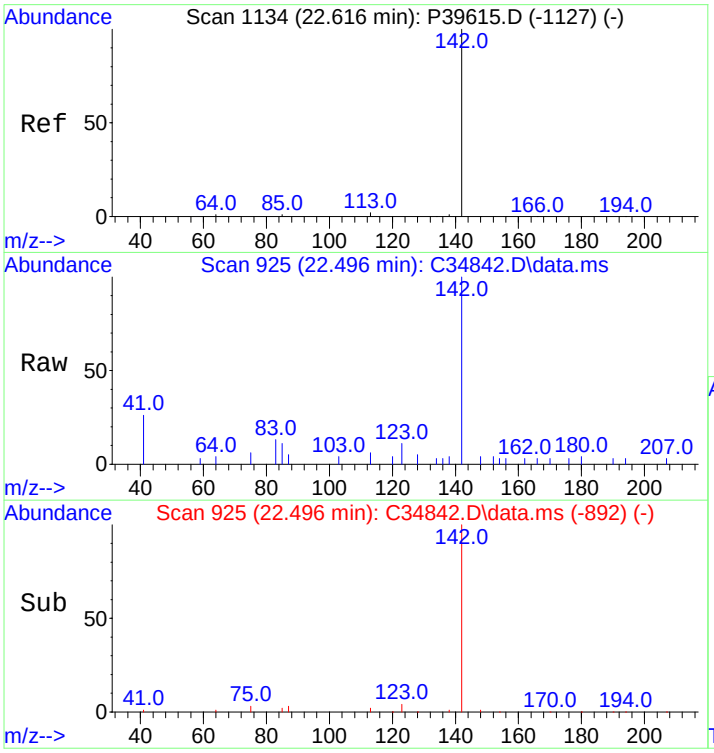


#14
C4-Naphthalenes
Concen: 214.37 ng/mL m
RT: 31.694 min Scan# 1536
Delta R.T. 1.281 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:184 Resp: 25809

Ion	Ratio	Lower	Upper
184	100		
169	6.6	77.4	116.0#
183	0.0	14.8	22.2#

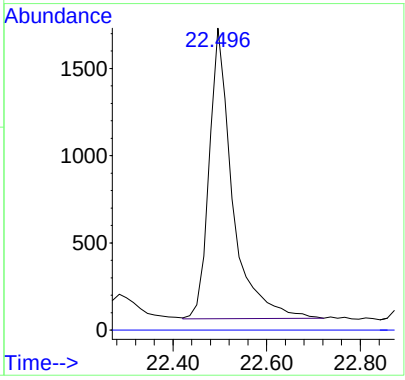


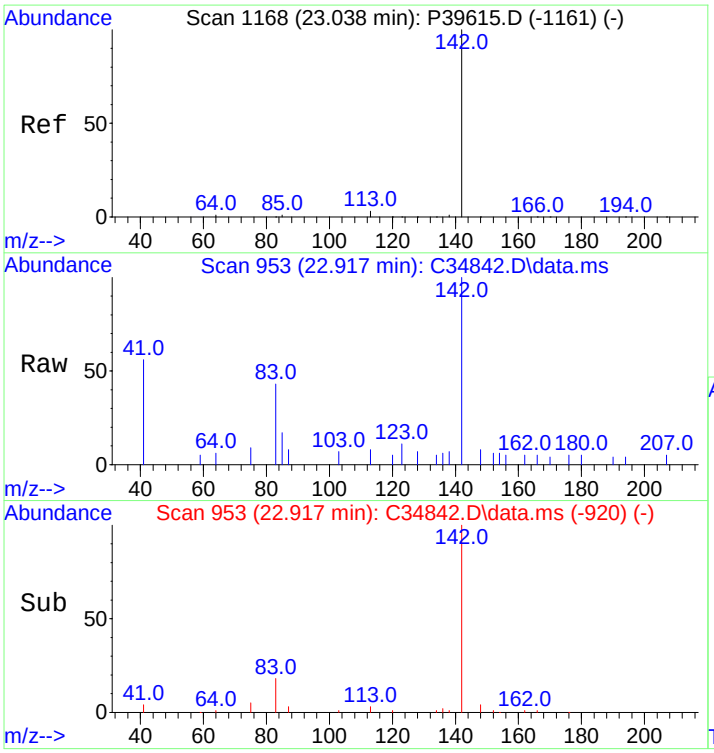


#16
2-Methylnaphthalene
Concen: 80.93 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:142 Resp: 5761

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

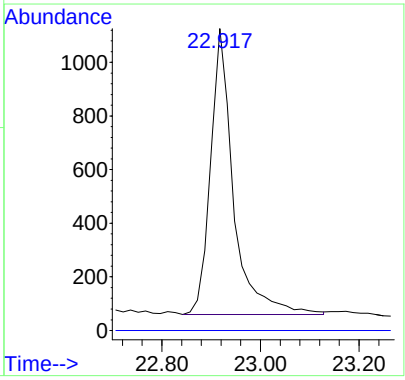


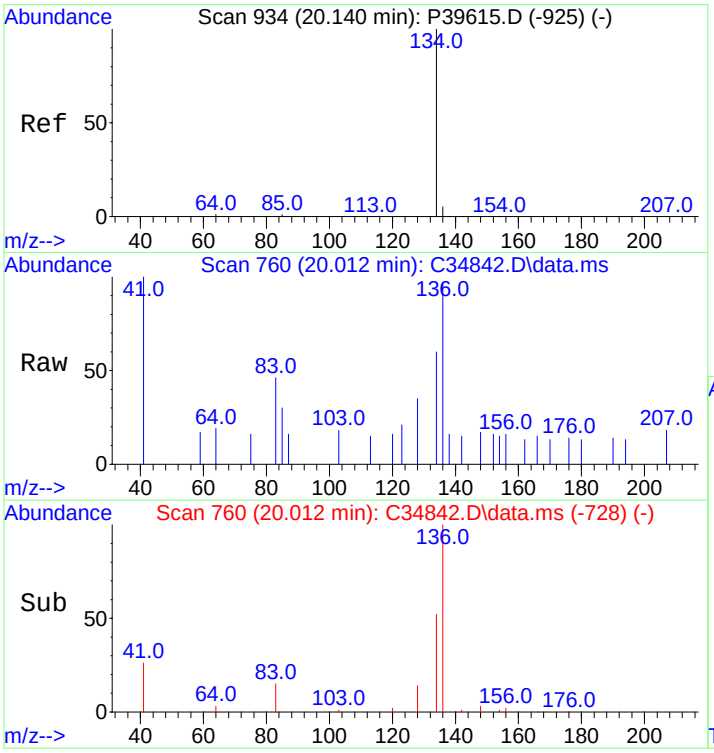


#17
1-Methylnaphthalene
Concen: 49.40 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:142 Resp: 3447

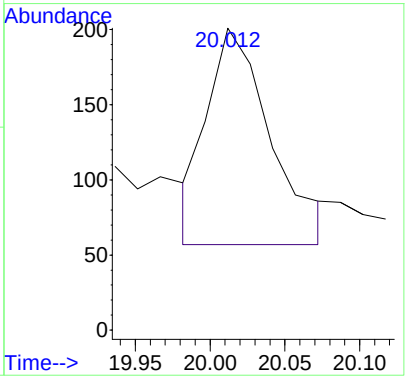
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

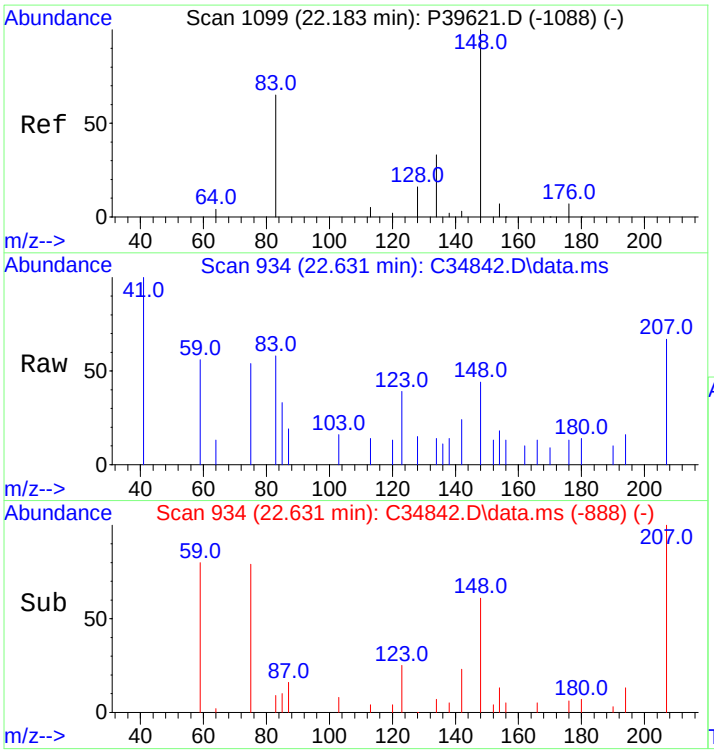




#18
Benzothiophene
Concen: 3.93 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

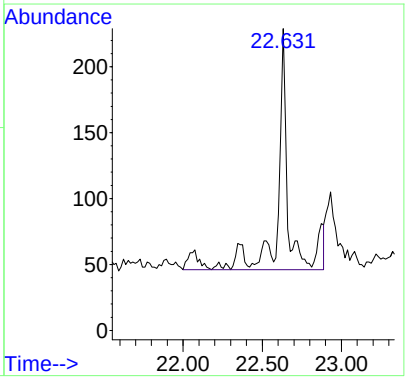
Tgt Ion:134 Resp: 426

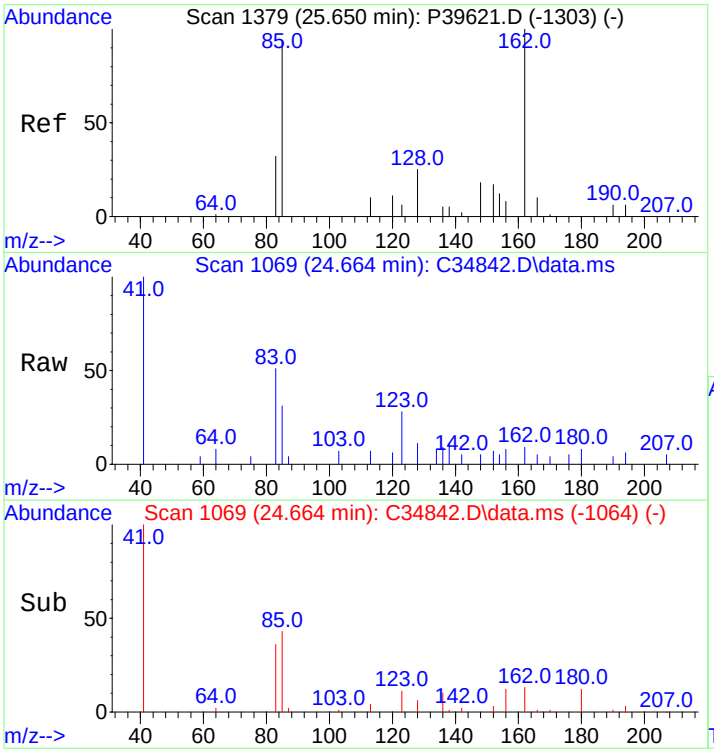




#19
C1-Benzo(b)thiophenes
Concen: 8.40 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

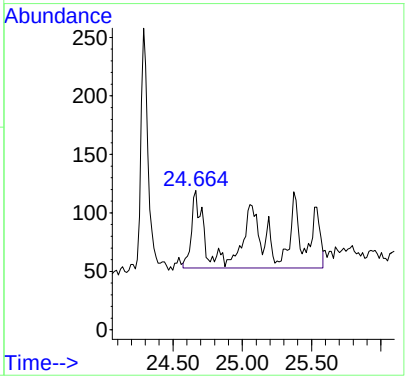
Tgt Ion:148 Resp: 910

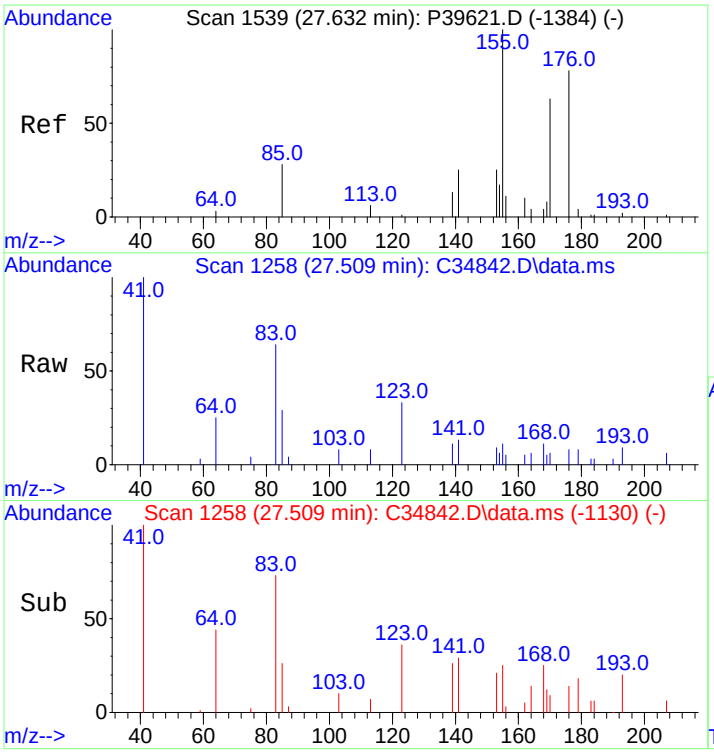




#20
C2-Benzo(b)thiophenes
Concen: 13.40 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.878 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

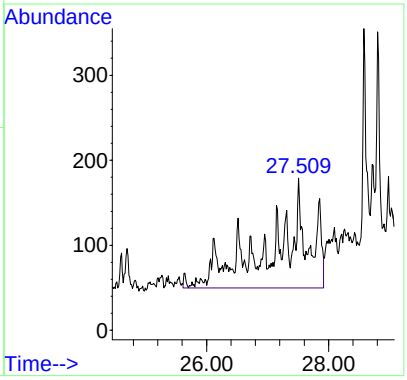
Tgt Ion:162 Resp: 1452

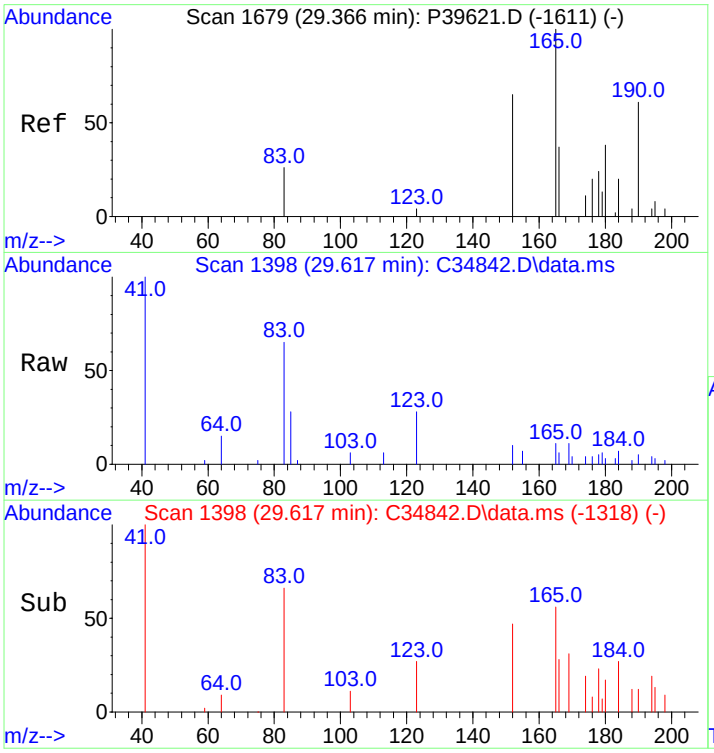




#21
C3-Benzo(b)thiophenes
Concen: 45.59 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

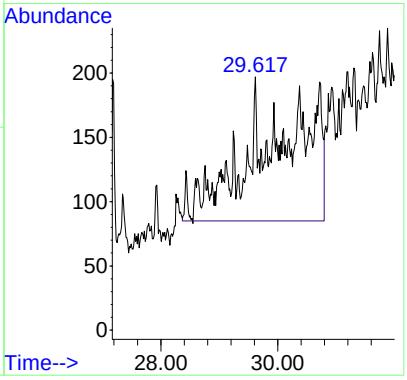
Tgt Ion:176 Resp: 4939

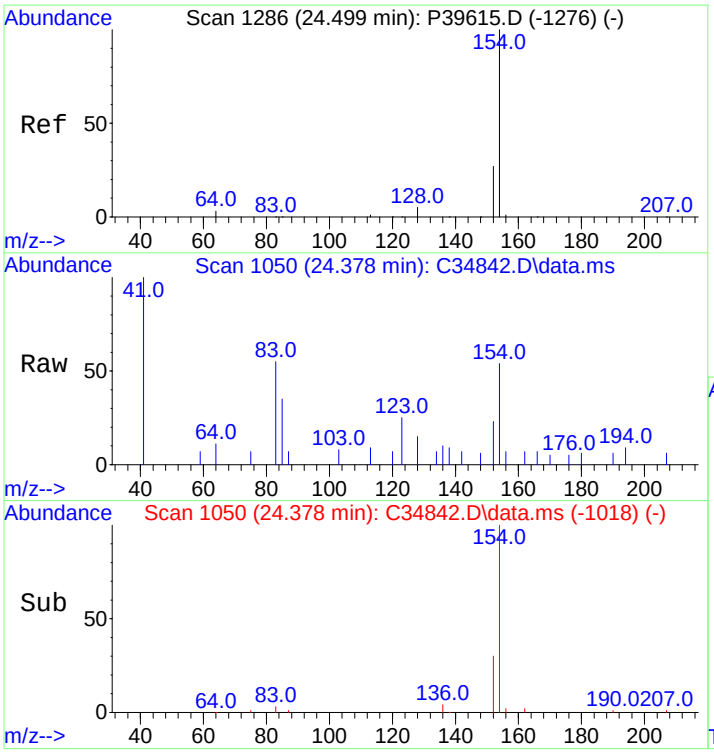




#22
C4-Benzo(b)thiophenes
Concen: 61.48 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:190 Resp: 6661

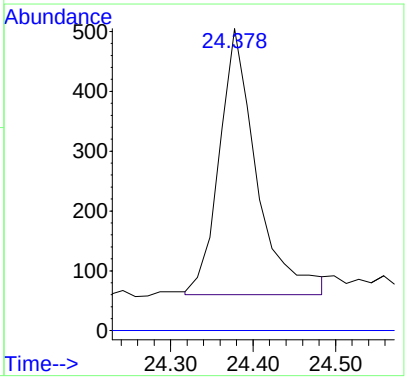


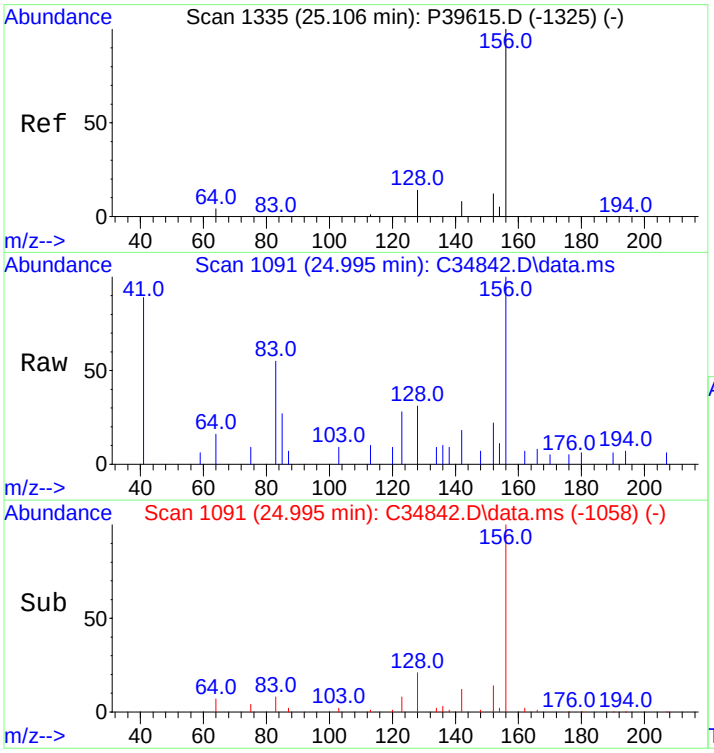


#23
Biphenyl
Concen: 15.55 ng/mL m
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:154 Resp: 1400

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

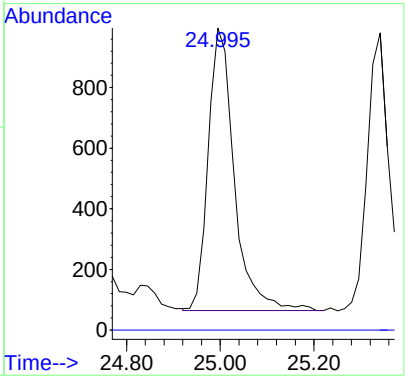


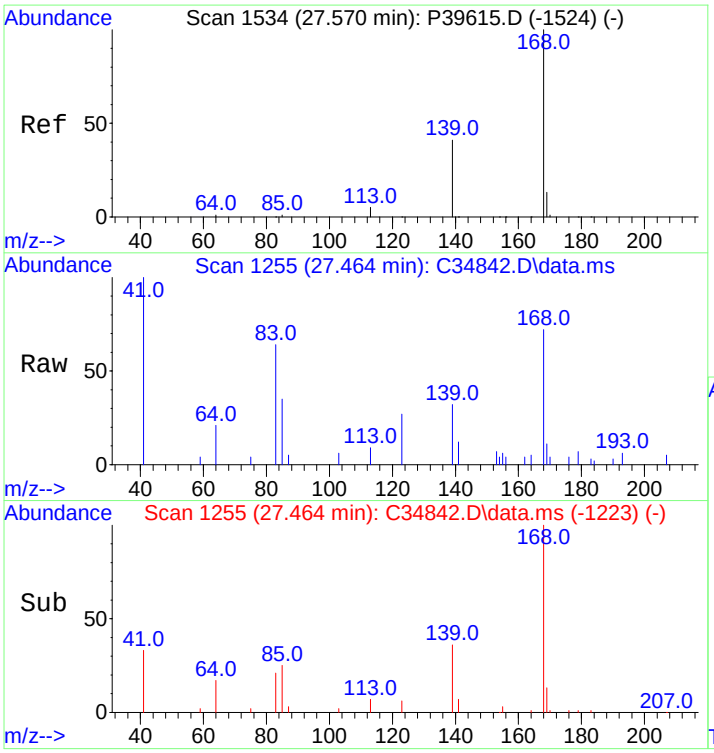


#24
2,6-Dimethylnaphthalene
Concen: 61.76 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:156 Resp: 3612

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

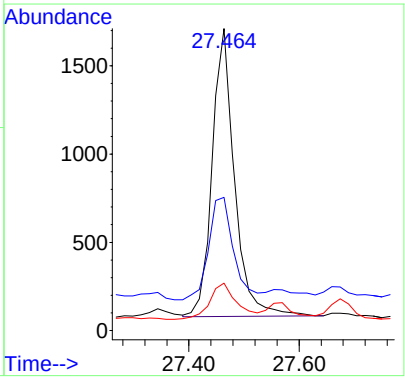


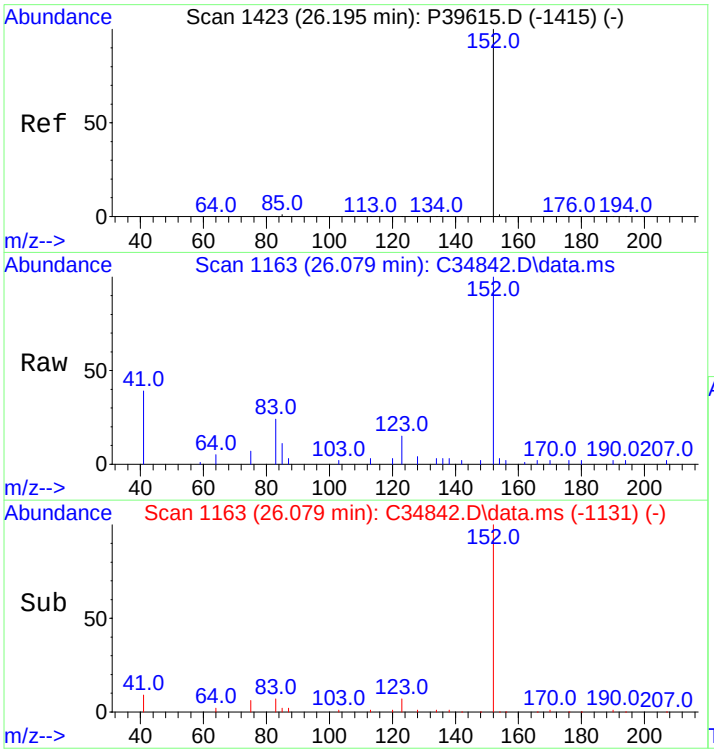


#25
Dibenzofuran
Concen: 44.67 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:168 Resp: 4619

Ion	Ratio	Lower	Upper
168	100		
139	39.1	28.4	42.6
169	15.1	10.8	16.2

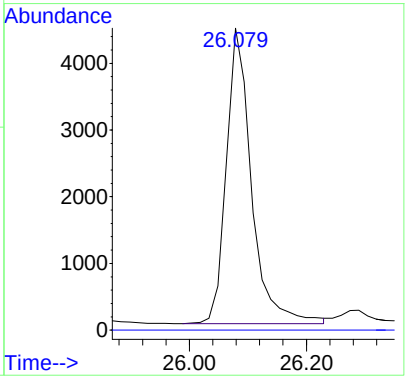


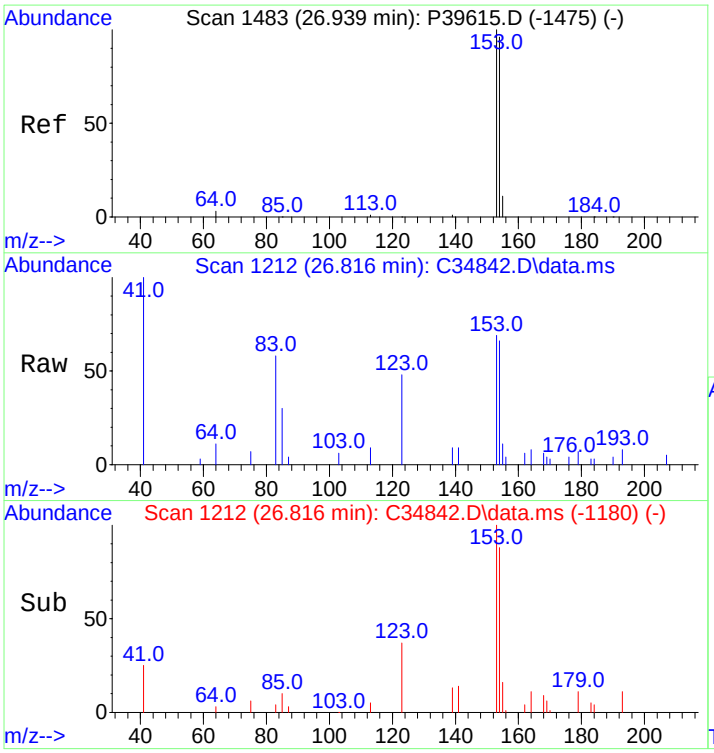


#26
Acenaphthylene
Concen: 111.04 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:152 Resp: 13271

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

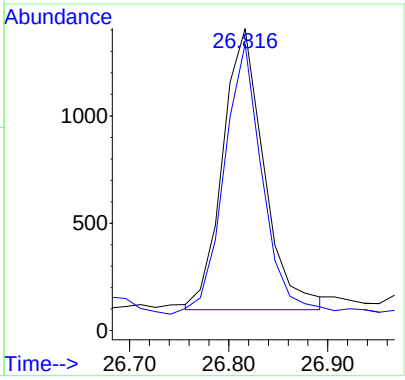


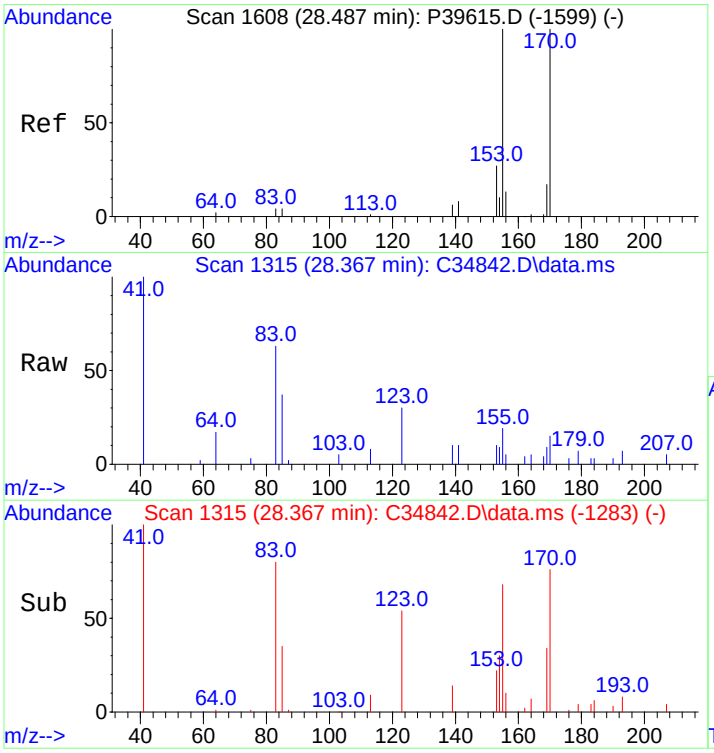


#27
Acenaphthene
Concen: 54.00 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:153 Resp: 3800

Ion	Ratio	Lower	Upper
153	100		
154	91.0	73.6	110.4

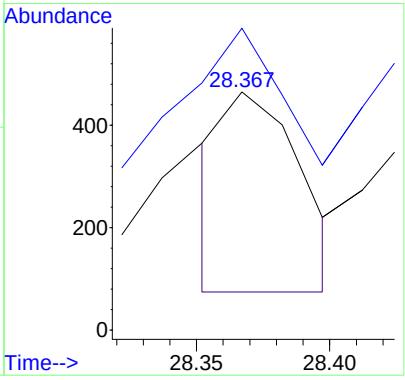


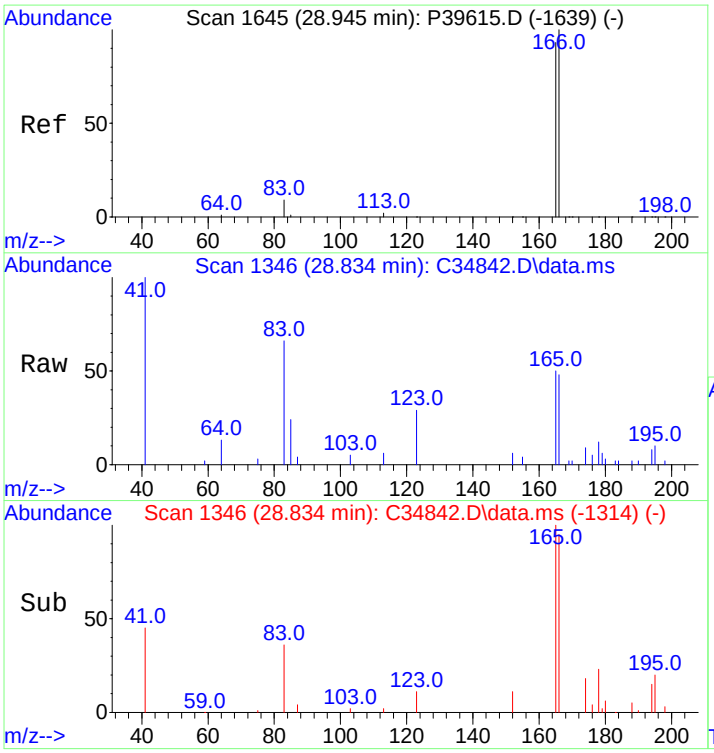


#28
2,3,5-Trimethylnaphthalene
Concen: 16.54 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:170 Resp: 780

Ion	Ratio	Lower	Upper
170	100		
155	172.7	87.3	130.9#

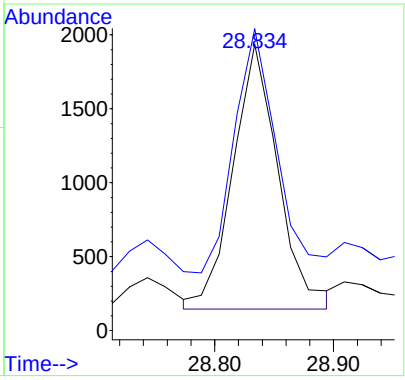


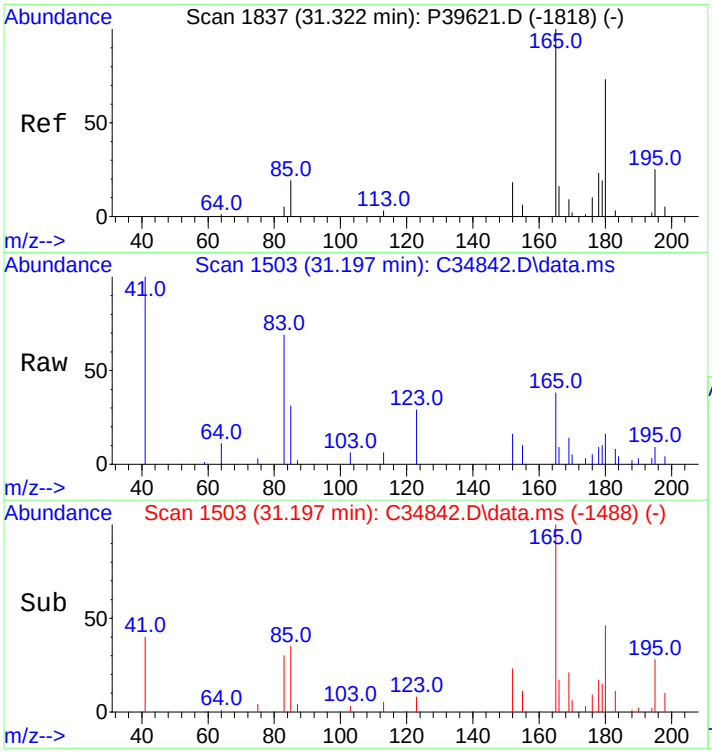


#29
Fluorene
Concen: 61.13 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:166 Resp: 4744

Ion	Ratio	Lower	Upper
166	100		
165	92.7	77.3	115.9

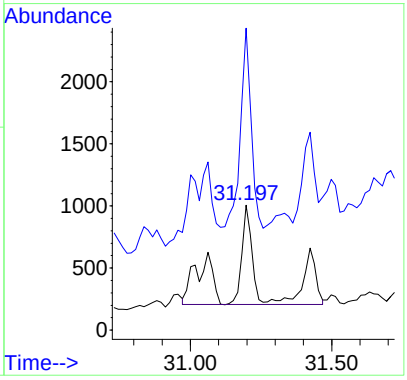


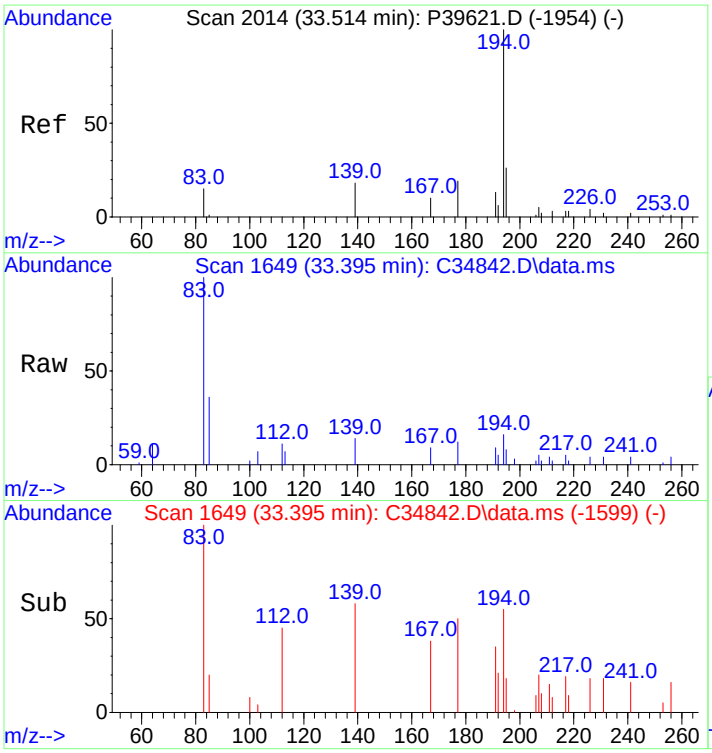


#30
C1-Fluorenes
Concen: 68.23 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:180 Resp: 5295

Ion	Ratio	Lower	Upper
180	100		
165	80.4	111.4	167.2#

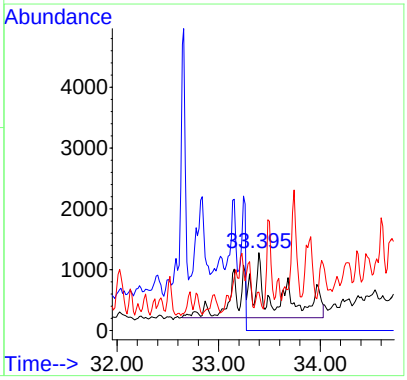


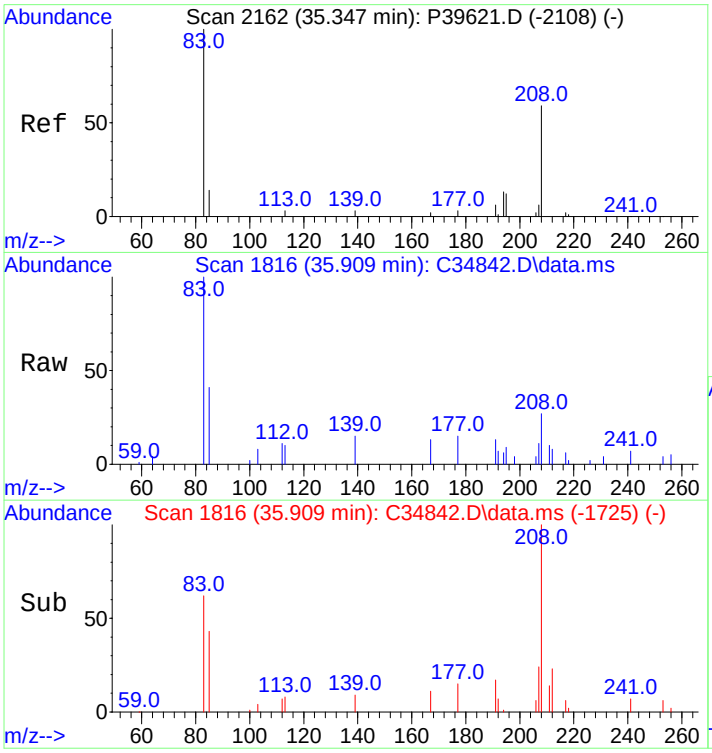


#31
C2-Fluorenes
Concen: 281.98 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:194 Resp: 21884

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	3.8	27.3	40.9#

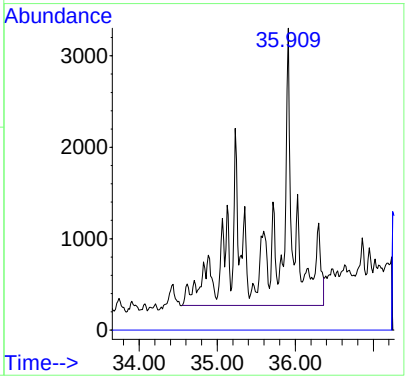


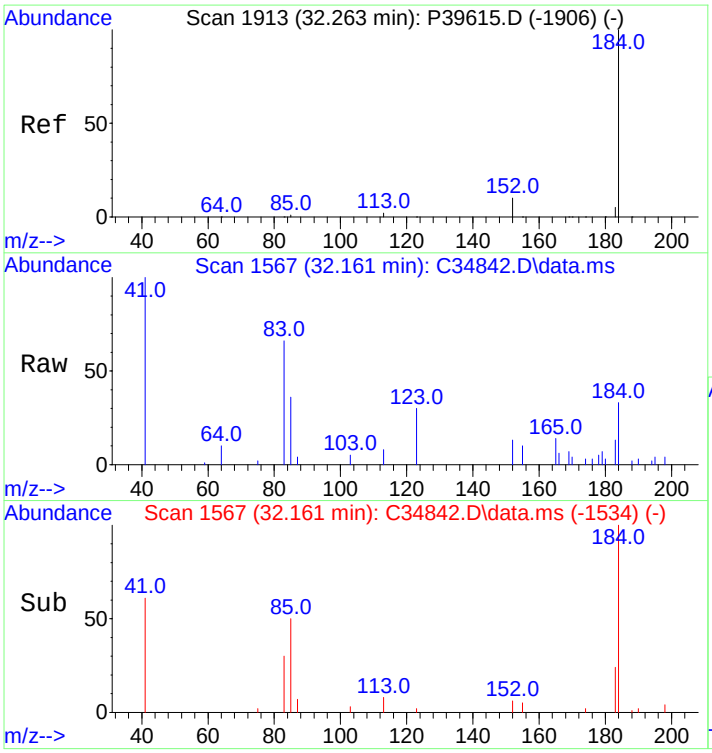


#32
C3-Fluorenes
Concen: 710.33 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:208 Resp: 55128

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

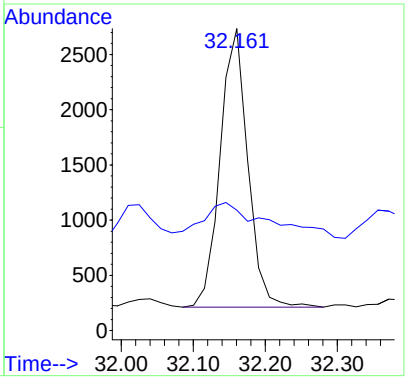


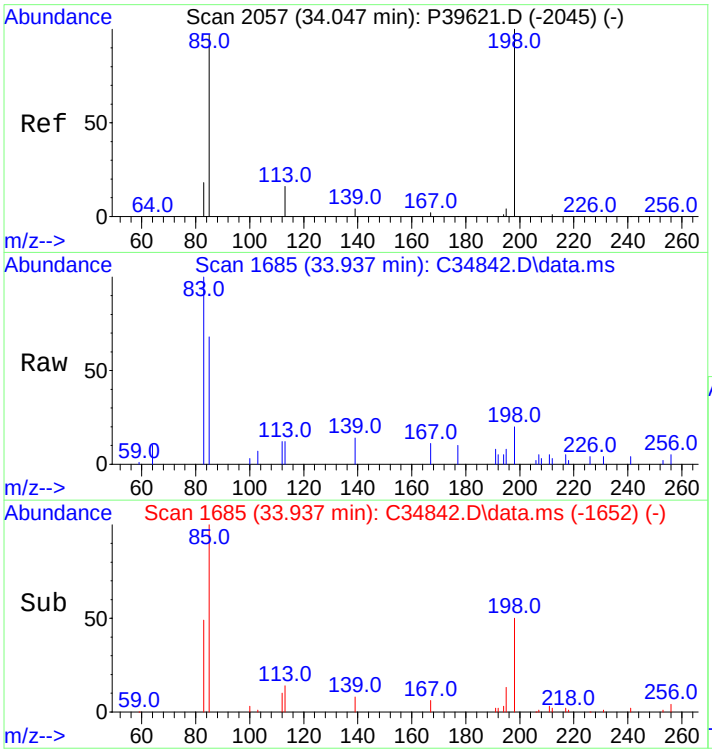


#33
Dibenzothiophene
Concen: 54.17 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:184 Resp: 6739

Ion	Ratio	Lower	Upper
184	100		
152	30.6	7.5	11.3#

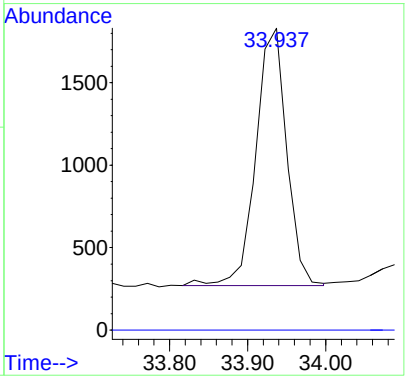


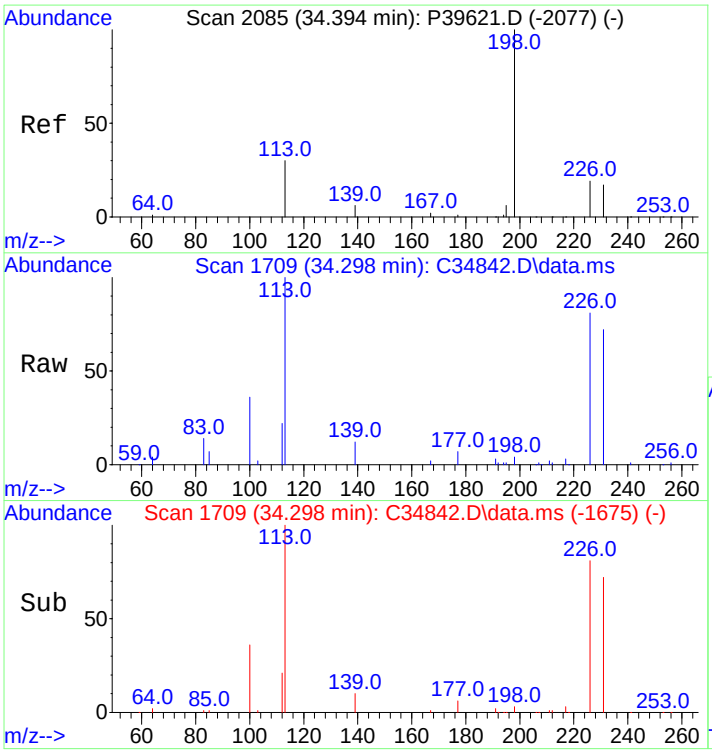


#34
4-Methyldibenzothiophene(4MDT)
Concen: 34.38 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:198 Resp: 4277

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

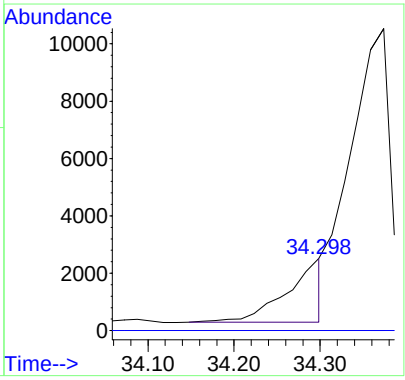


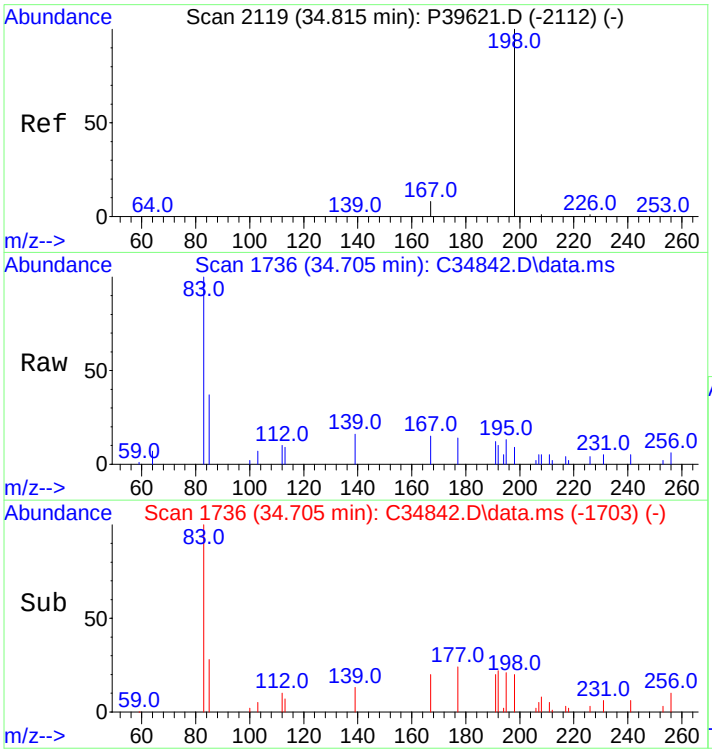


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 52.95 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:198 Resp: 6587

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

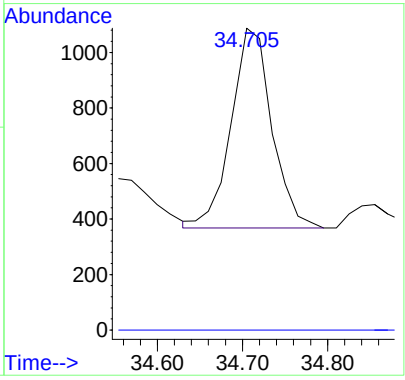


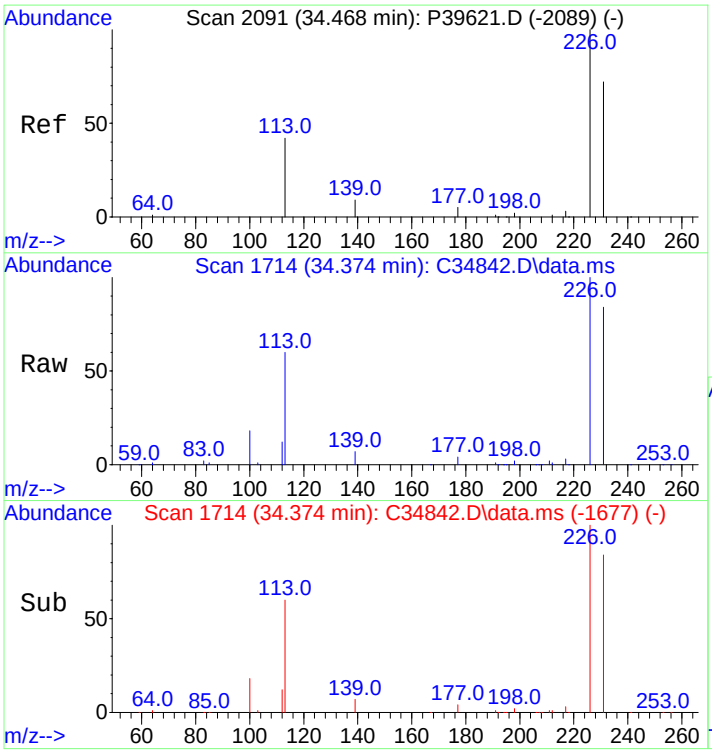


#36
1-Methyldibenzothiophene(1MDT)
Concen: 19.24 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:198 Resp: 2393

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

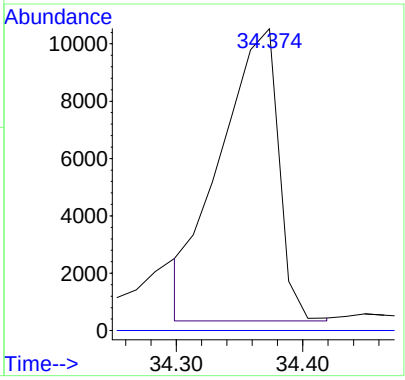


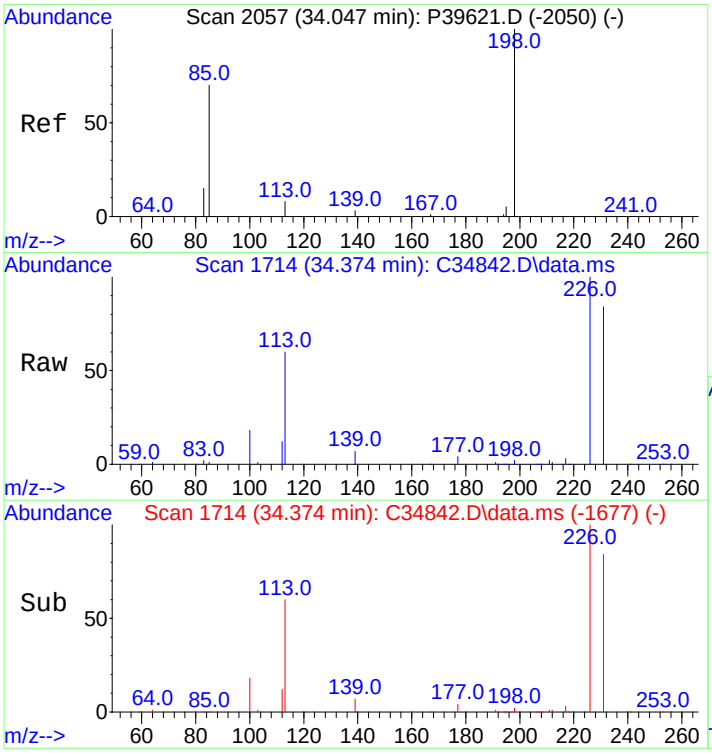


#37
OTP
Concen: 262.81 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:198 Resp: 32695

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

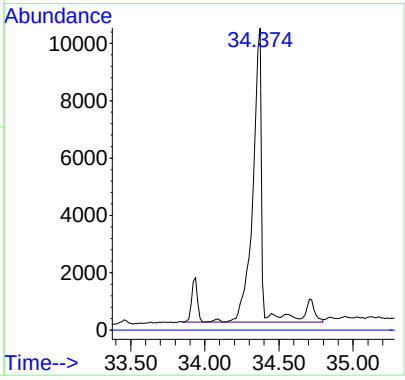


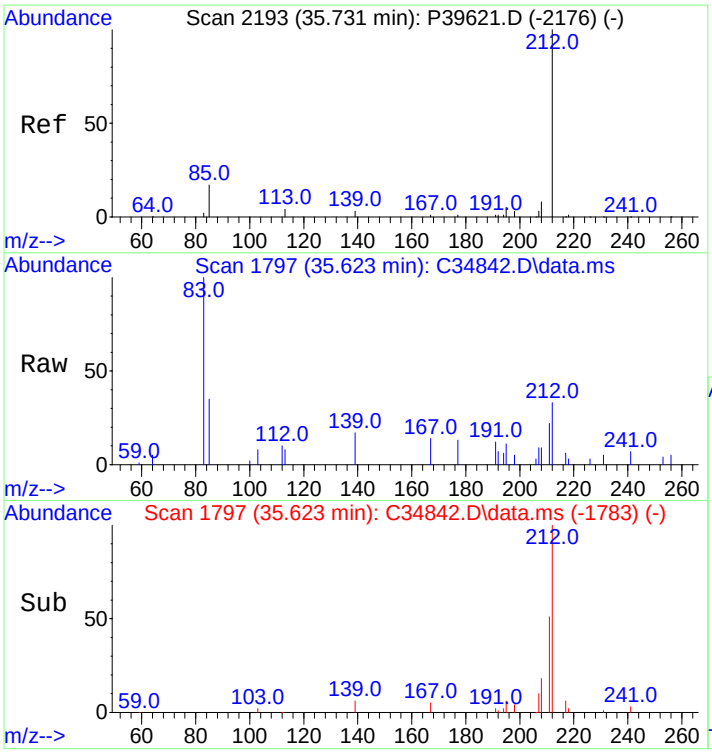


#38
C1-Dibenzothiophenes
Concen: 403.70 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:198 Resp: 50223

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

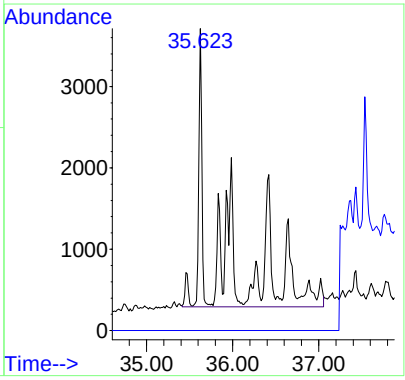


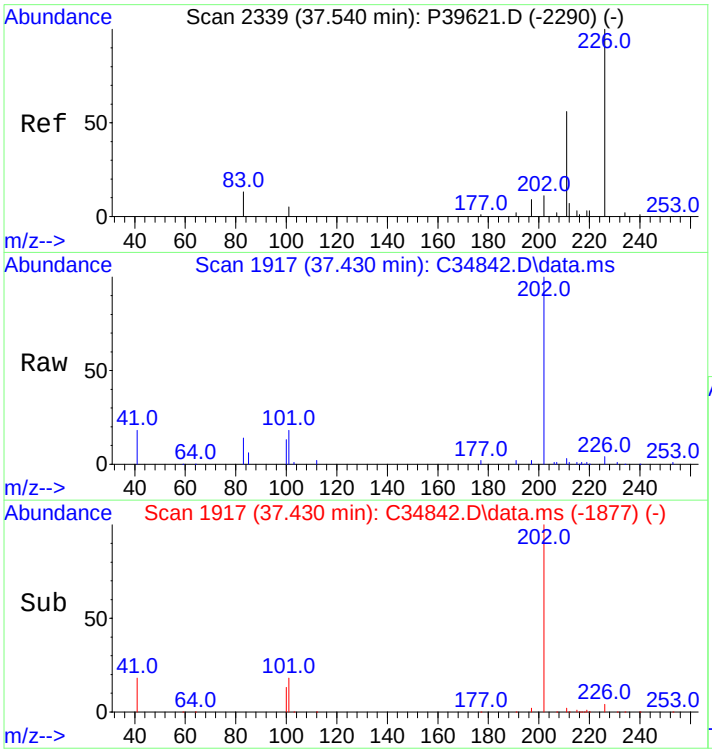


#39
C2-Dibenzothiophenes
Concen: 320.75 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:212 Resp: 39903

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

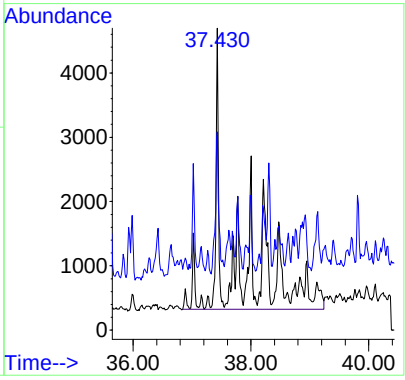


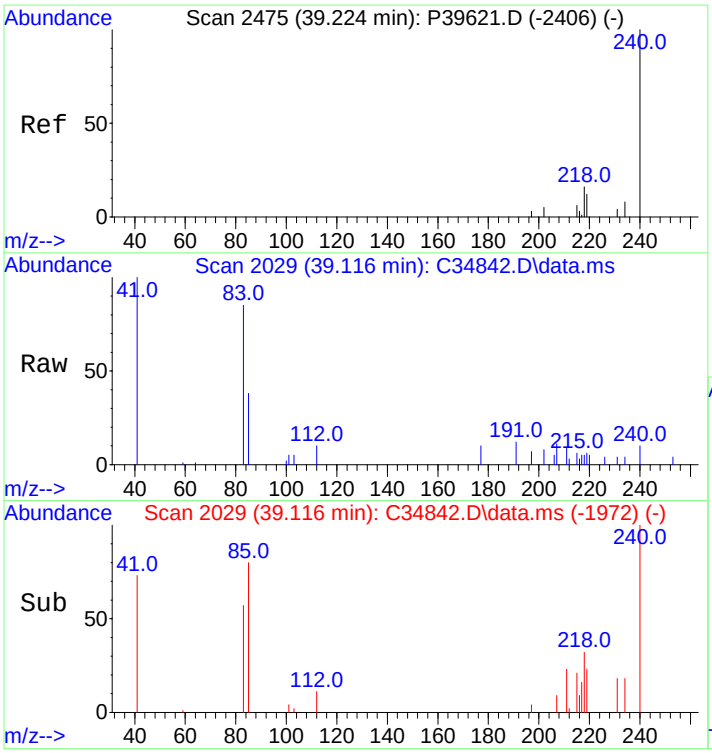


#40
C3-Dibenzothiophenes
Concen: 527.12 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:226 Resp: 65577

Ion	Ratio	Lower	Upper
226	100		
211	0.7	45.0	67.6#

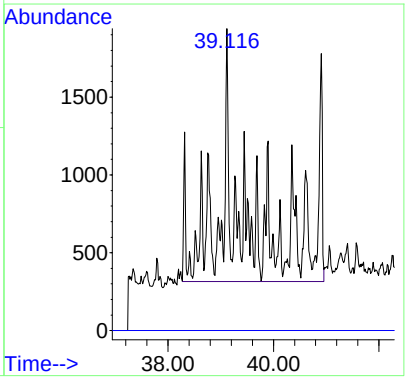


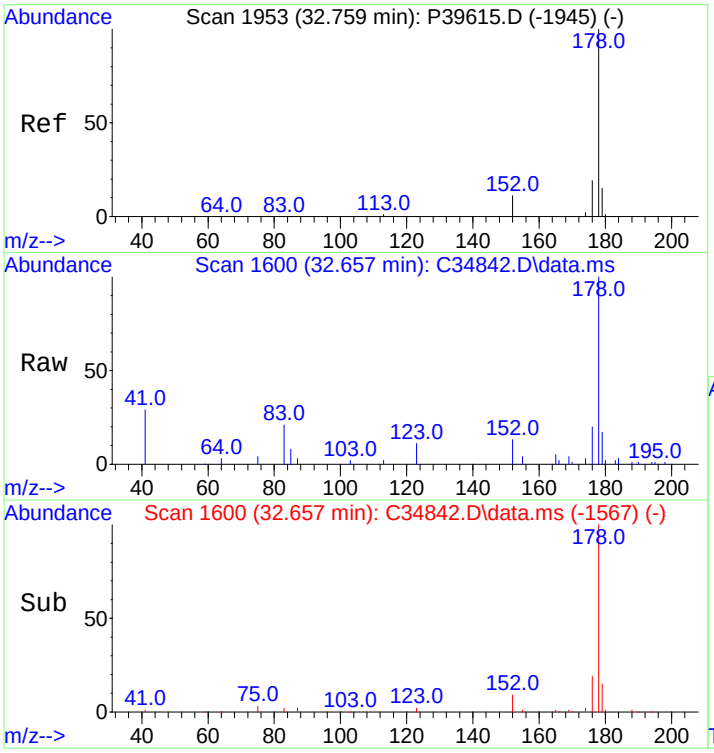


#41
C4-Dibenzothiophenes
Concen: 429.60 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:240 Resp: 53445

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

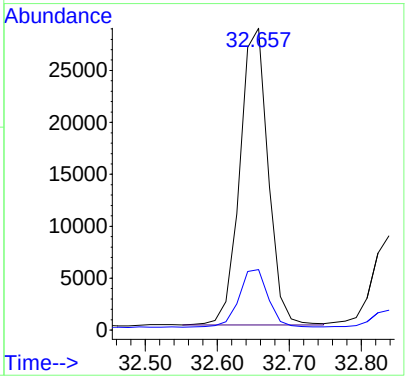


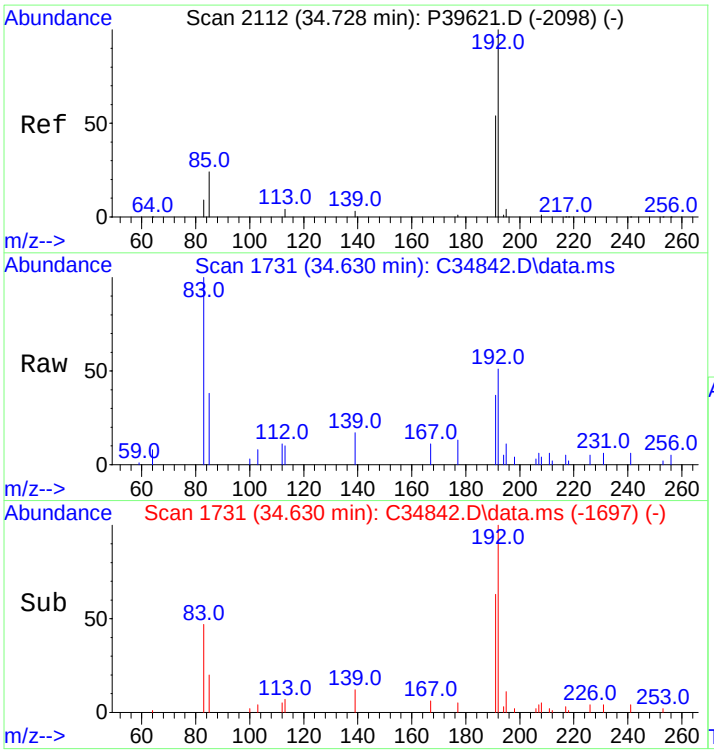


#43
Phenanthrene
Concen: 711.88 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:178 Resp: 77809

Ion	Ratio	Lower	Upper
178	100		
176	20.6	16.1	24.1

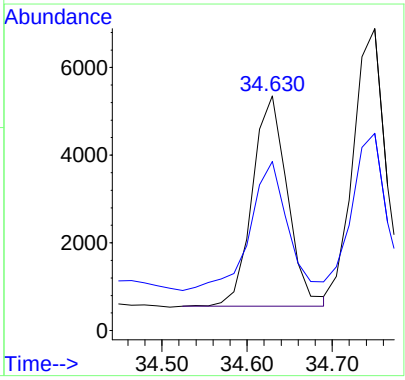


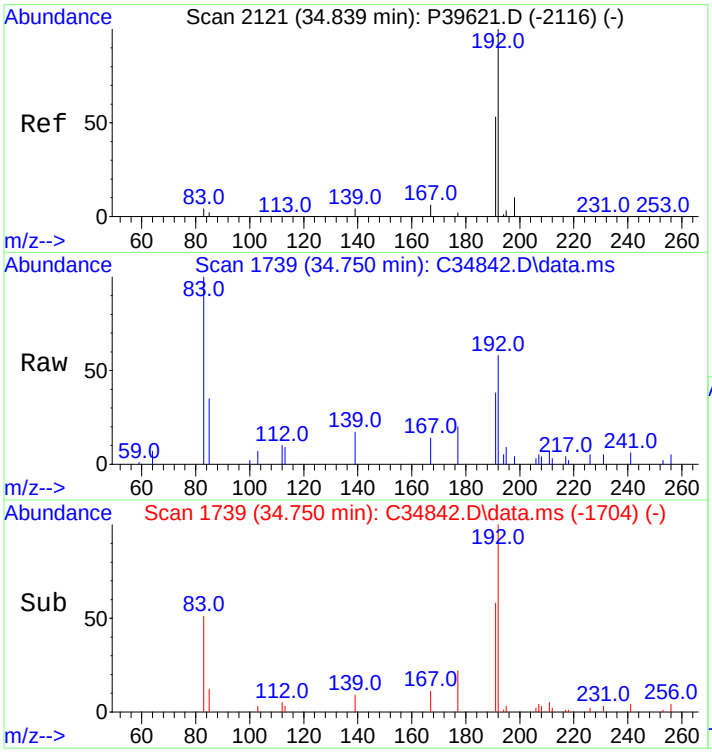


#44
3-Methylphenanthrene(3MP)
Concen: 125.66 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 13735

Ion	Ratio	Lower	Upper
192	100		
191	65.6	46.9	70.3

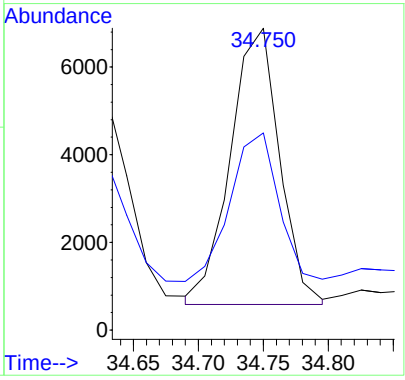


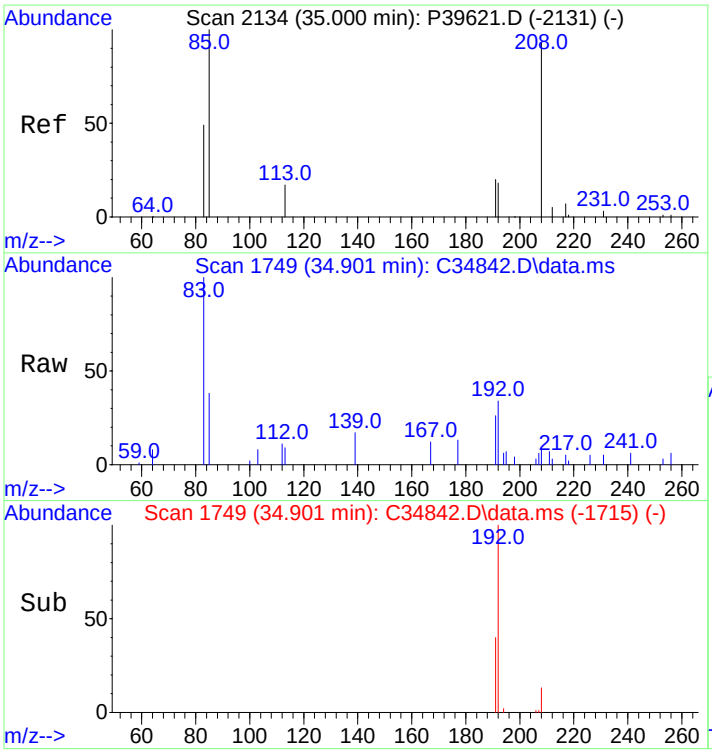


#45
2/4-Methylphenanthrene(2MP)
Concen: 151.67 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. 0.030 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 16578

Ion	Ratio	Lower	Upper
192	100		
191	52.6	46.1	69.1

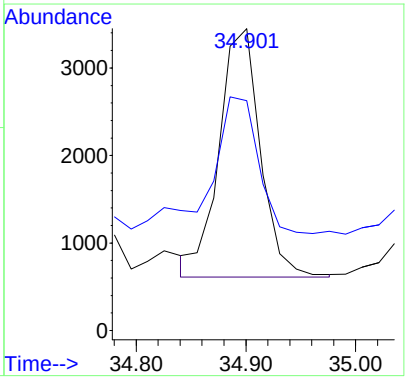


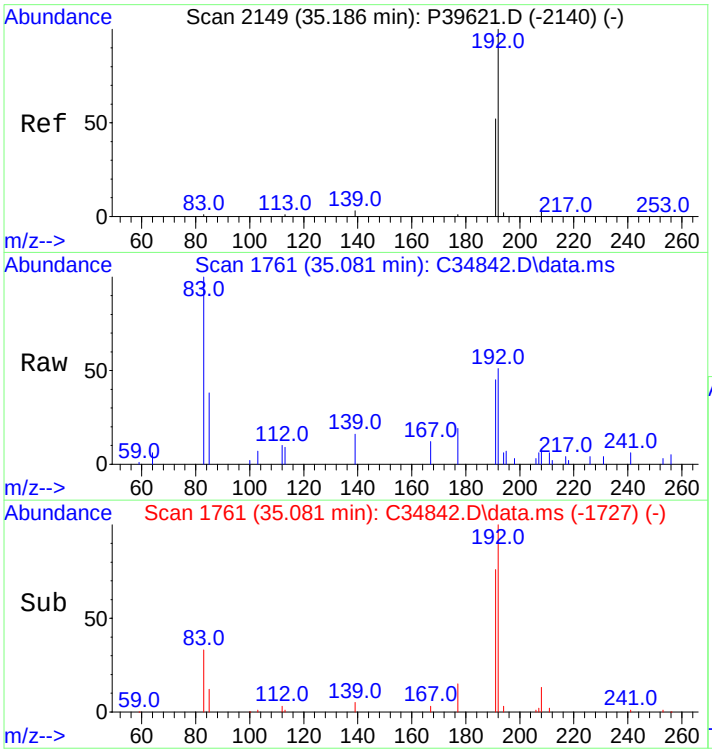


#46
2-Methylanthracene(2MA)
Concen: 68.17 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 7451

Ion	Ratio	Lower	Upper
192	100		
191	64.4	93.4	140.0#

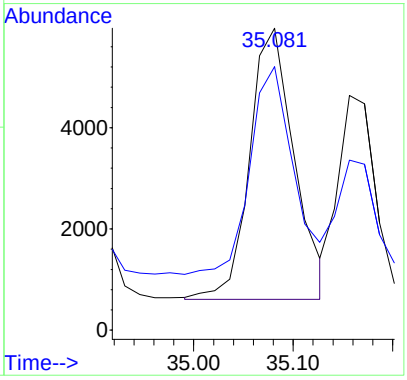


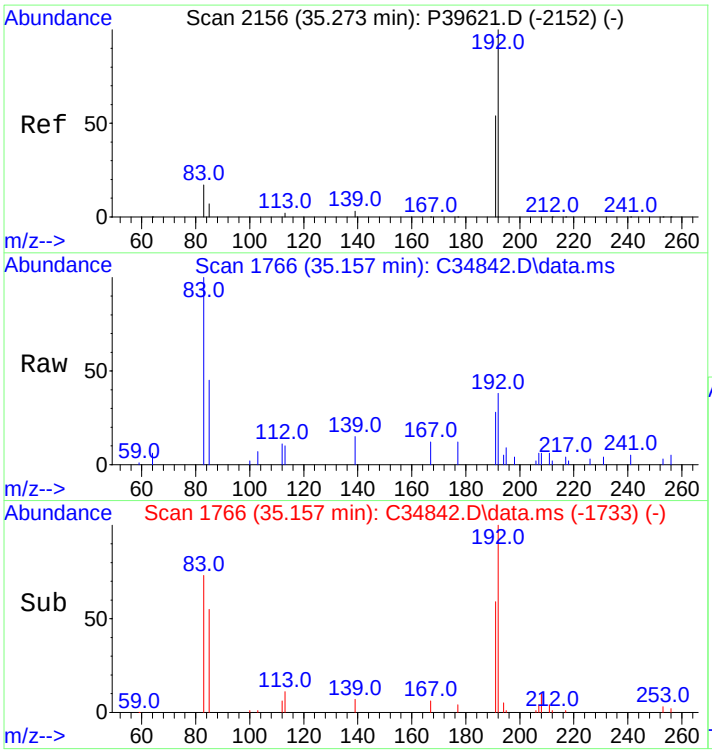


#47
9-Methylphenanthrene(9MP)
Concen: 152.74 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 16695

Ion	Ratio	Lower	Upper
192	100		
191	26.8	45.9	68.9#

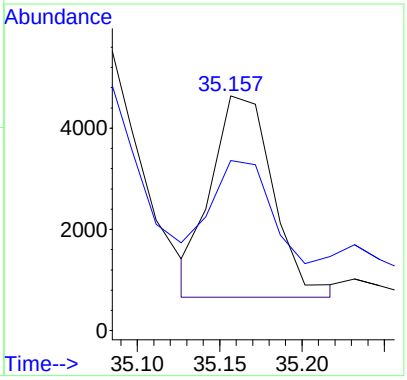


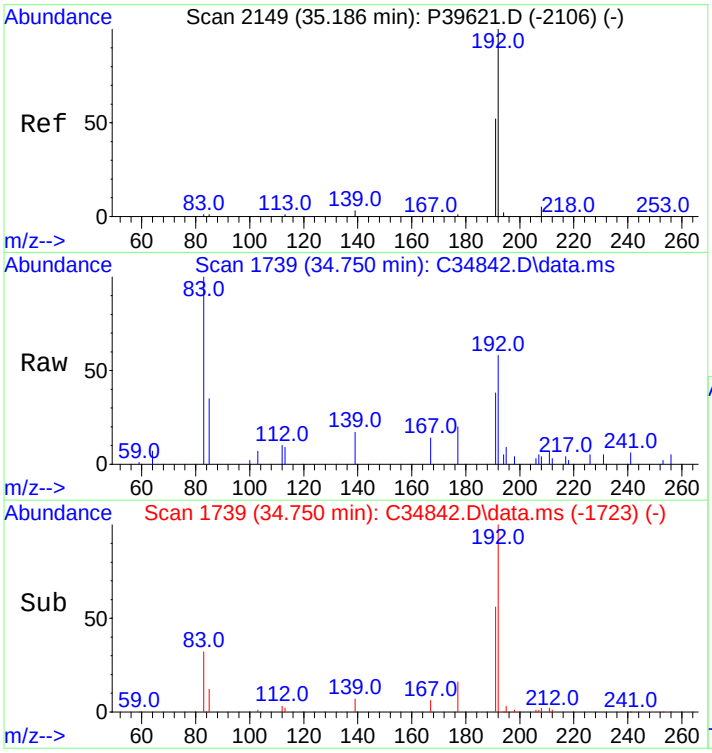


#48
1-Methylphenanthrene(1MP)
Concen: 94.77 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 10359

Ion	Ratio	Lower	Upper
192	100		
191	43.3	49.0	73.4#

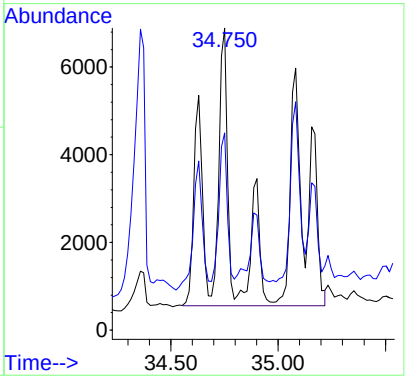


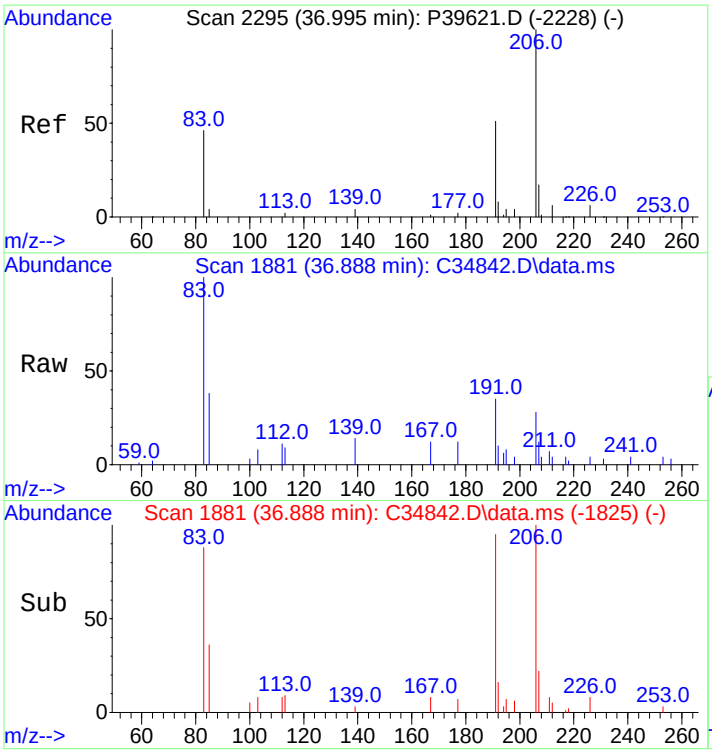


#49
C1-Phenanthrenes/Anthracenes
Concen: 615.09 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. -0.264 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 67230

Ion	Ratio	Lower	Upper
192	100		
191	7.1	44.2	66.2#

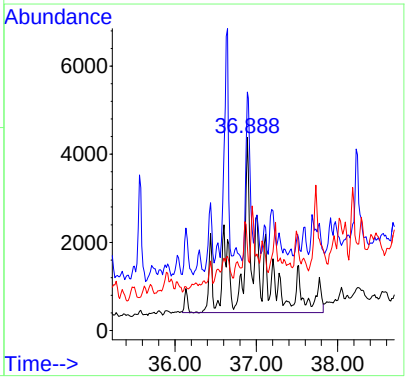


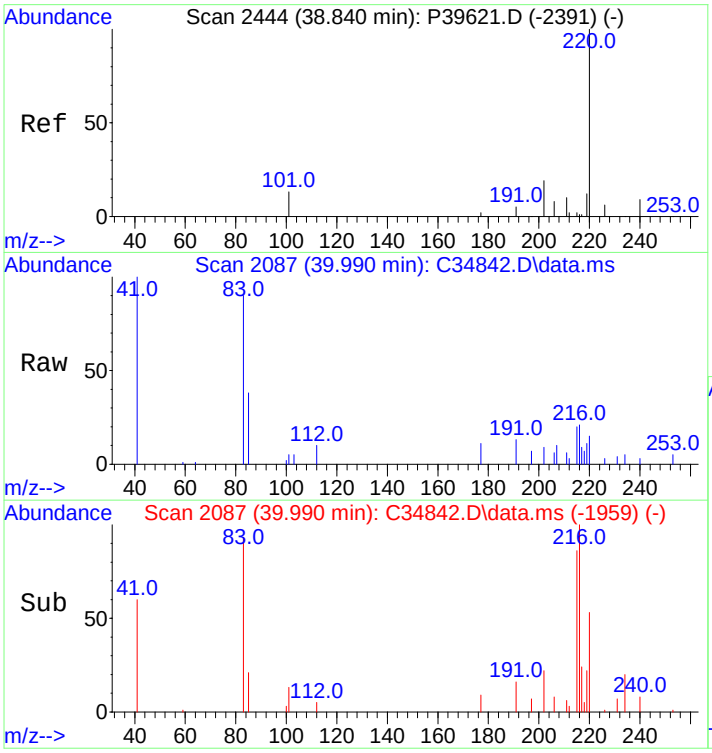


#50
C2-Phenanthrenes/Anthracenes
Concen: 576.99 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:206 Resp: 63066

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	0.0	15.1	22.7#

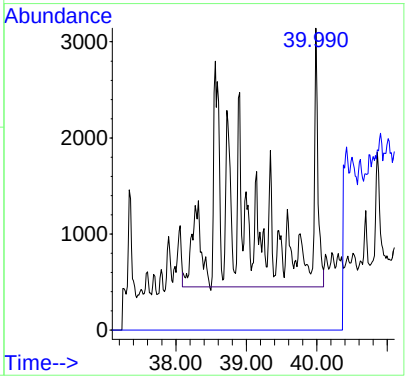


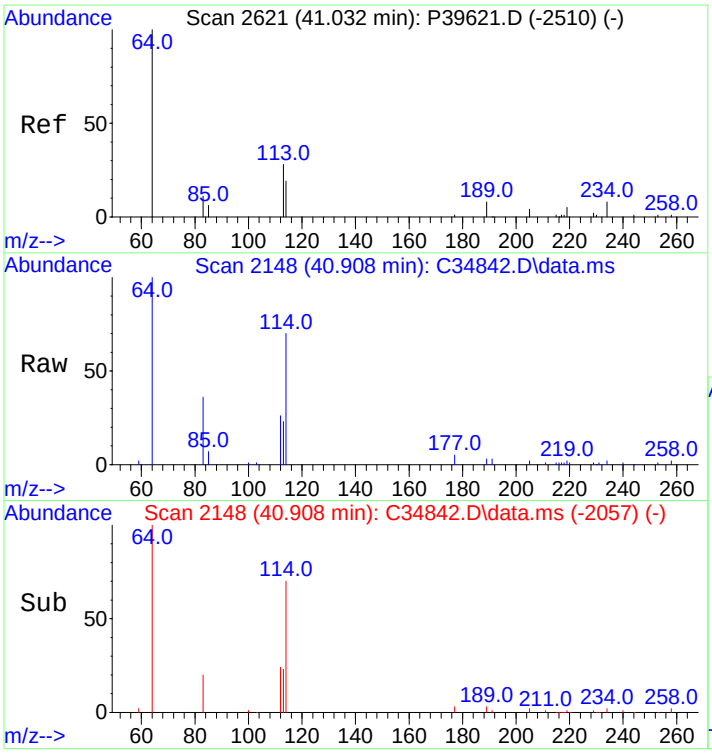


#52
C3-Phenanthrenes/Anthracenes
Concen: 648.14 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:220 Resp: 70842

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

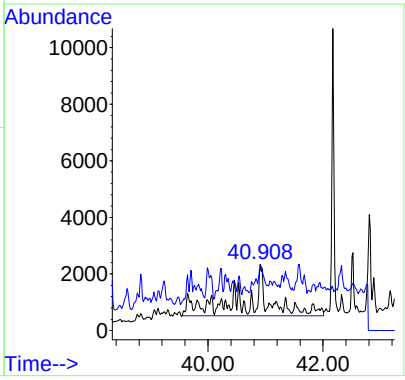


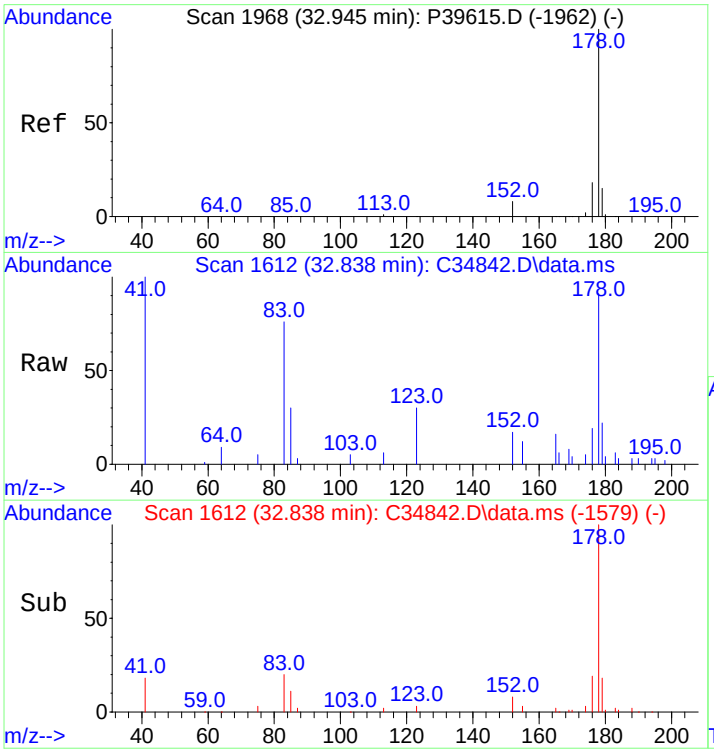


#53
C4-Phenanthrenes/Anthracenes
Concen: 497.94 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:234 Resp: 54425

Ion	Ratio	Lower	Upper
234	100		
219	2.0	46.9	70.3#

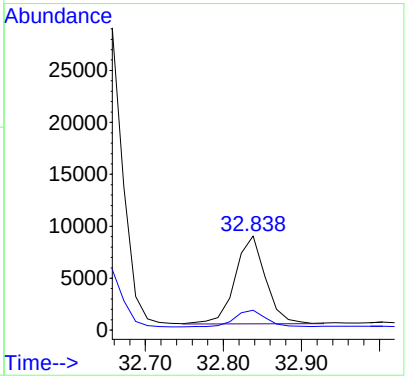


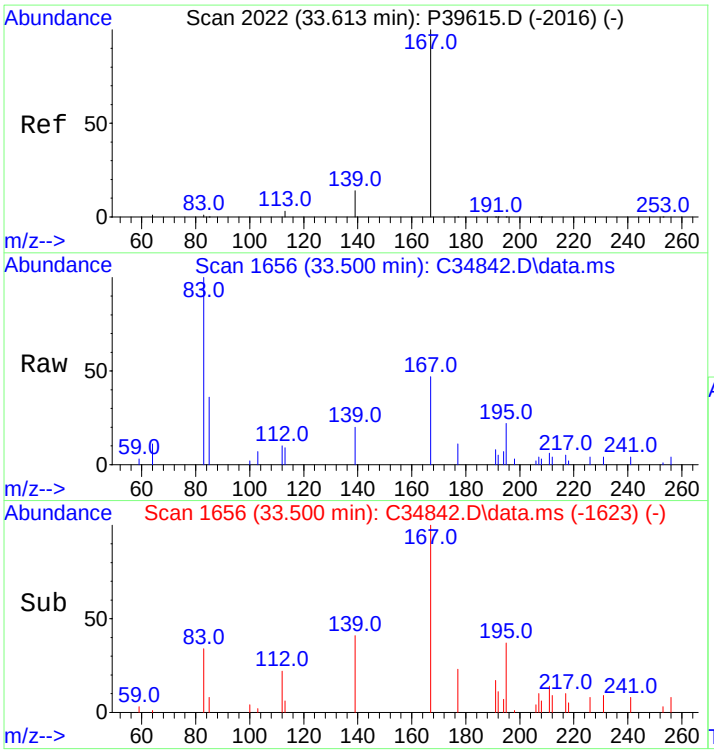


#55
Anthracene
Concen: 216.06 ng/mL
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:178 Resp: 23067

Ion	Ratio	Lower	Upper
178	100		
176	18.5	15.5	23.3

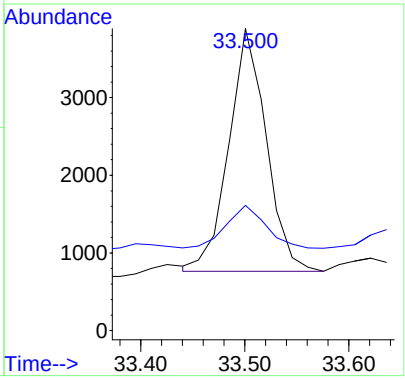


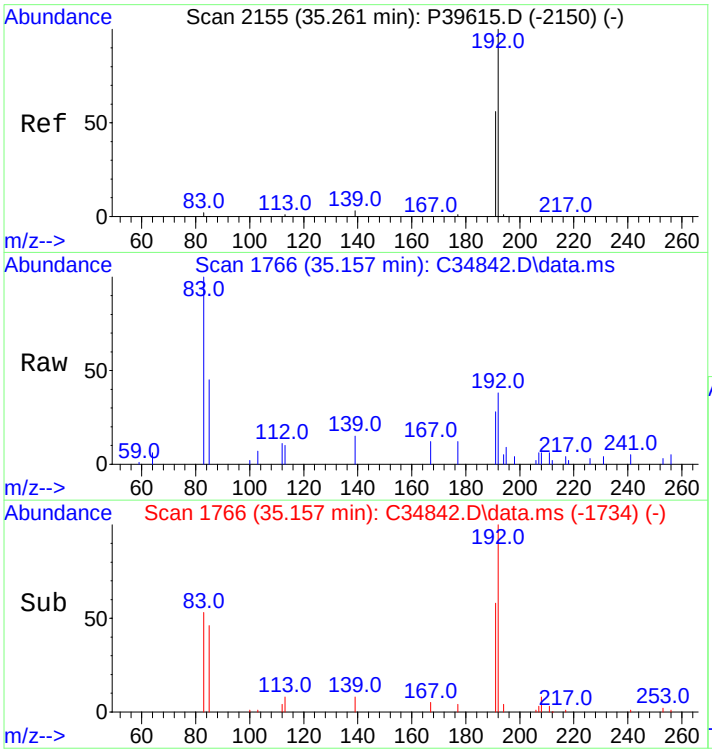


#56
Carbazole
Concen: 72.53 ng/mL
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:167 Resp: 7822

Ion	Ratio	Lower	Upper
167	100		
139	18.3	11.8	17.8#

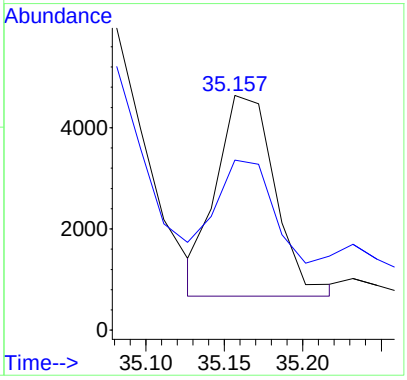


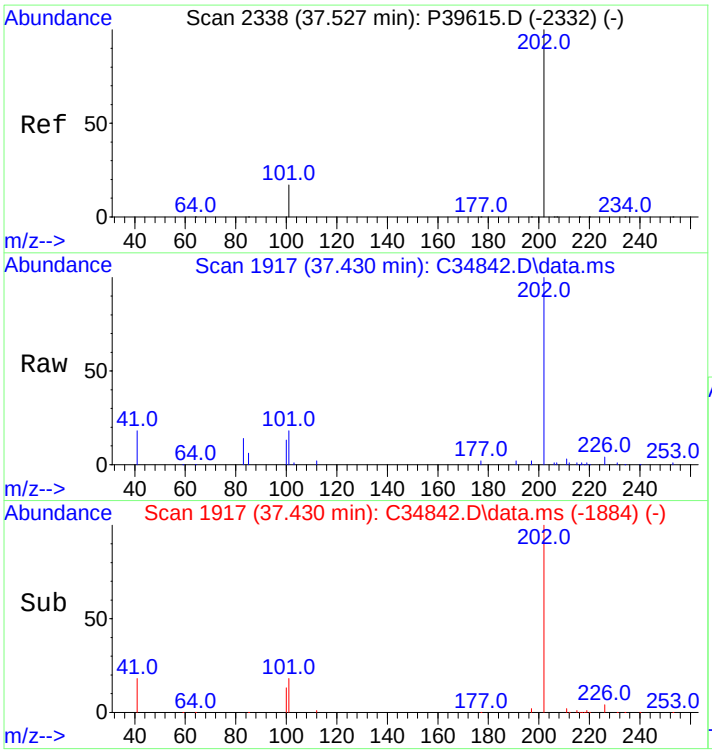


#57
1-Methylphenanthrene
Concen: 148.86 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:192 Resp: 10311

Ion	Ratio	Lower	Upper
192	100		
191	43.4	45.9	68.9#

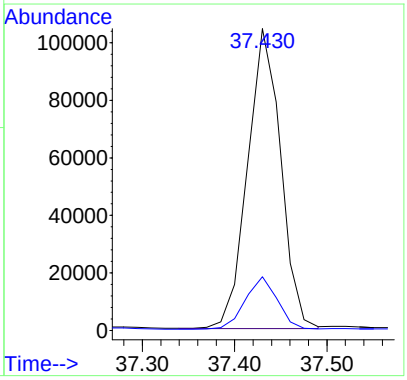


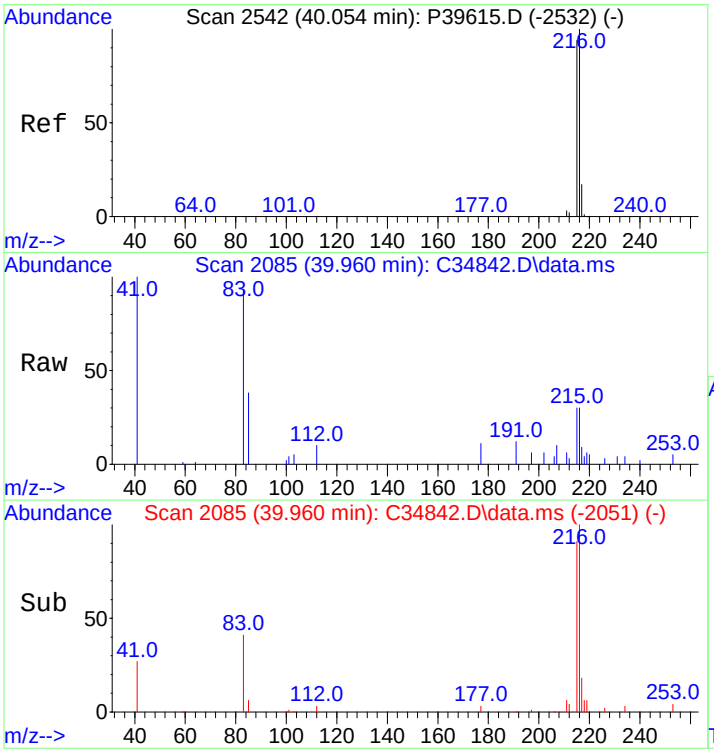


#58
Fluoranthene
Concen: 2397.35 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:202 Resp: 260243

Ion	Ratio	Lower	Upper
202	100		
101	18.4	12.9	19.3

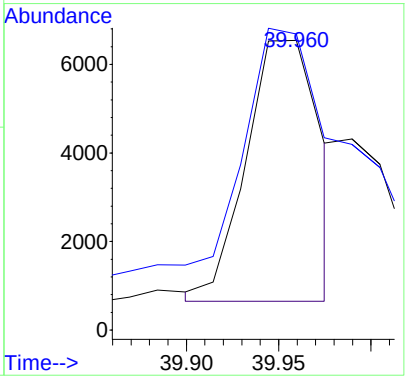


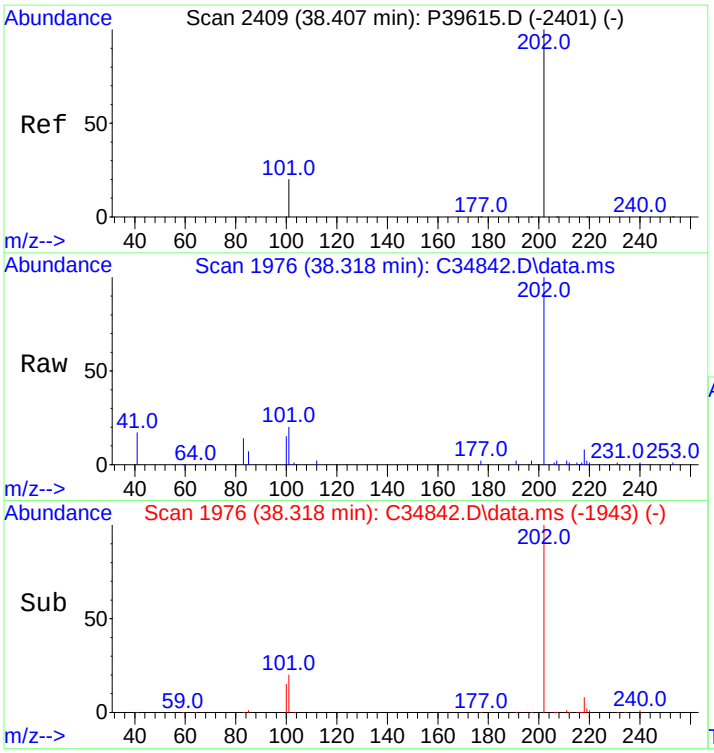


#59
Benzo(b)fluorene
Concen: 262.58 ng/mL m
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:216 Resp: 16537

Ion	Ratio	Lower	Upper
216	100		
215	139.5	76.3	114.5#

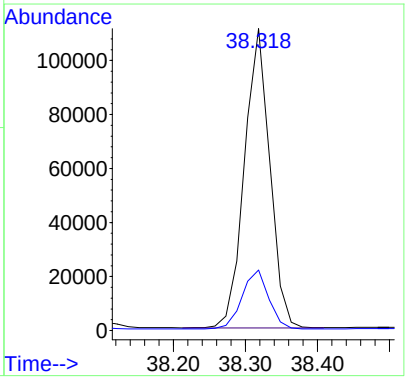


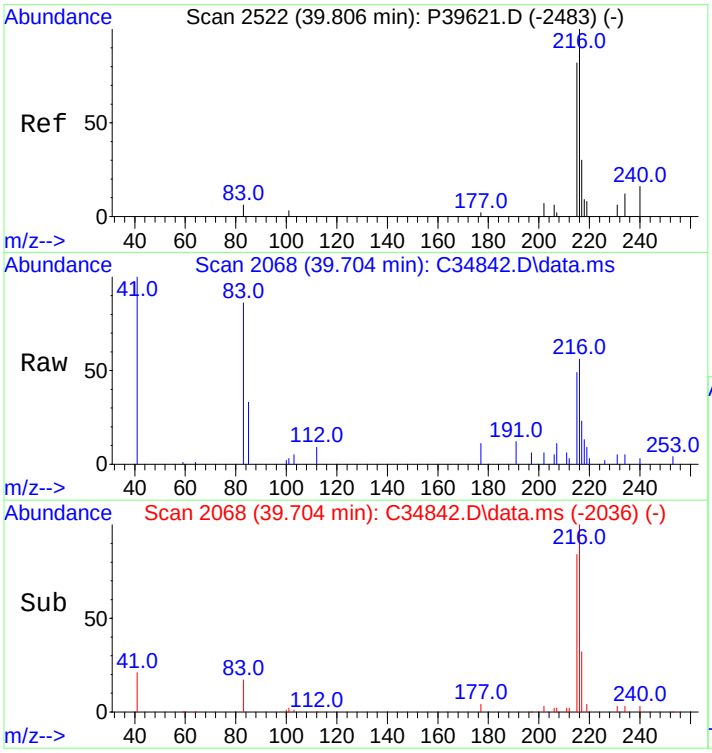


#60
Pyrene
Concen: 2452.09 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:202 Resp: 270584

Ion	Ratio	Lower	Upper
202	100		
101	20.7	15.0	22.4

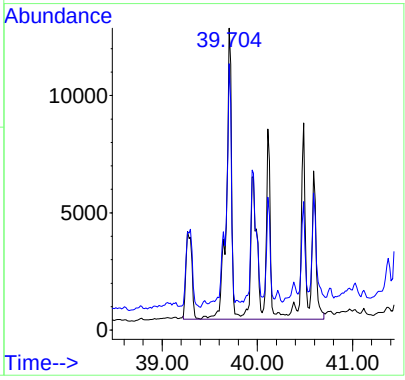


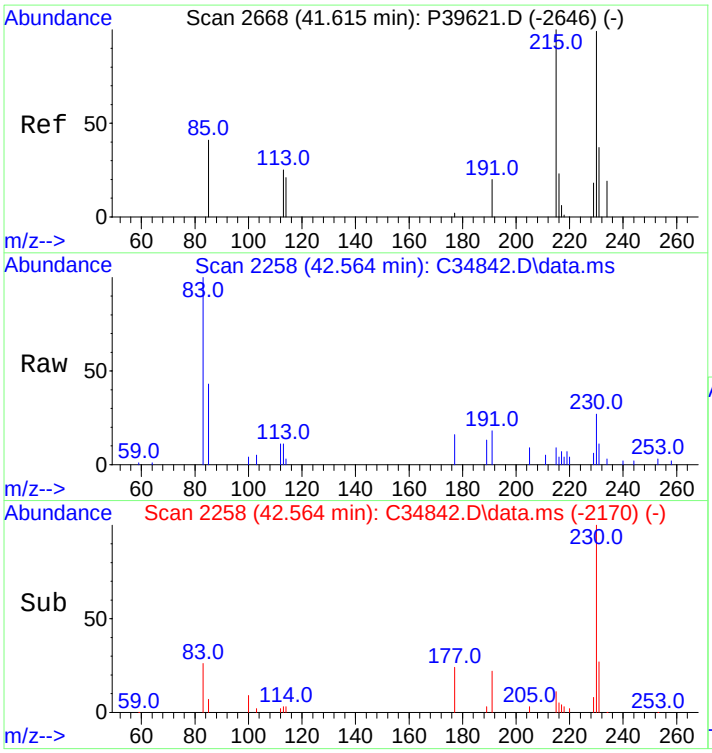


#61
C1-Fluoranthenes/Pyrenes
Concen: 1412.11 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:216 Resp: 155824

Ion	Ratio	Lower	Upper
216	100		
215	24.7	71.8	107.6#

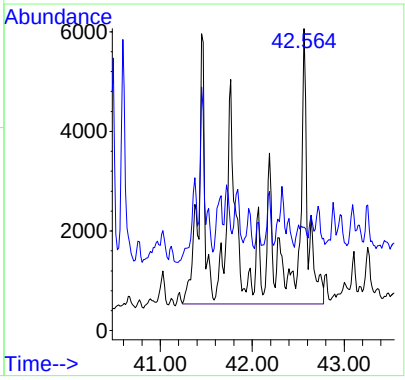


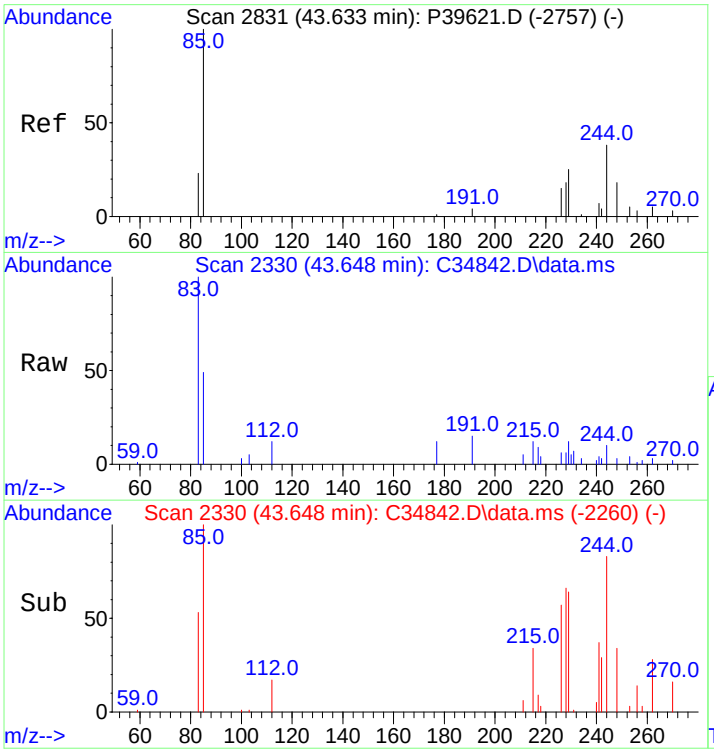


#62
C2-Fluoranthenes/Pyrenes
Concen: 987.41 ng/mL m
RT: 42.564 min Scan# 2258
Delta R.T. 1.165 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:230 Resp: 108959

Ion	Ratio	Lower	Upper
230	100		
215	4.7	99.0	148.4#

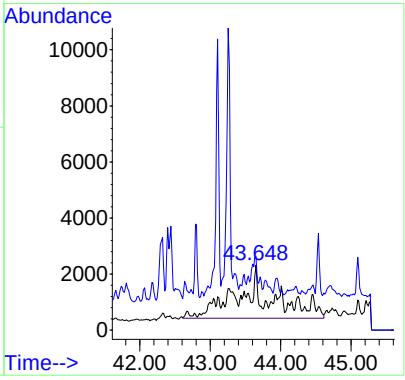


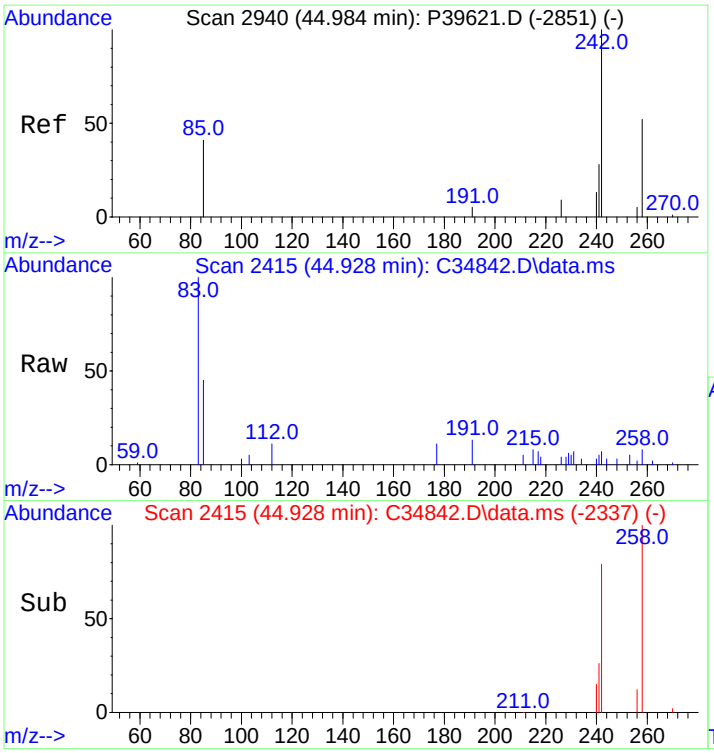


#63
C3-Fluoranthenes/Pyrenes
Concen: 556.43 ng/mL m
RT: 43.648 min Scan# 2330
Delta R.T. 0.241 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:244 Resp: 61401

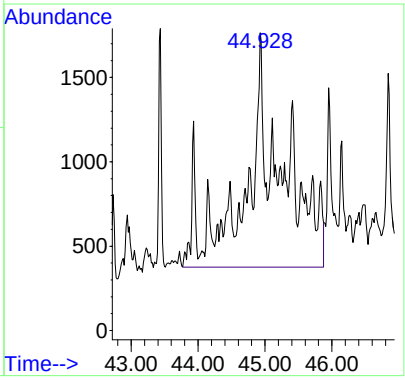
Ion	Ratio	Lower	Upper
244	100		
229	2.8	73.3	109.9#

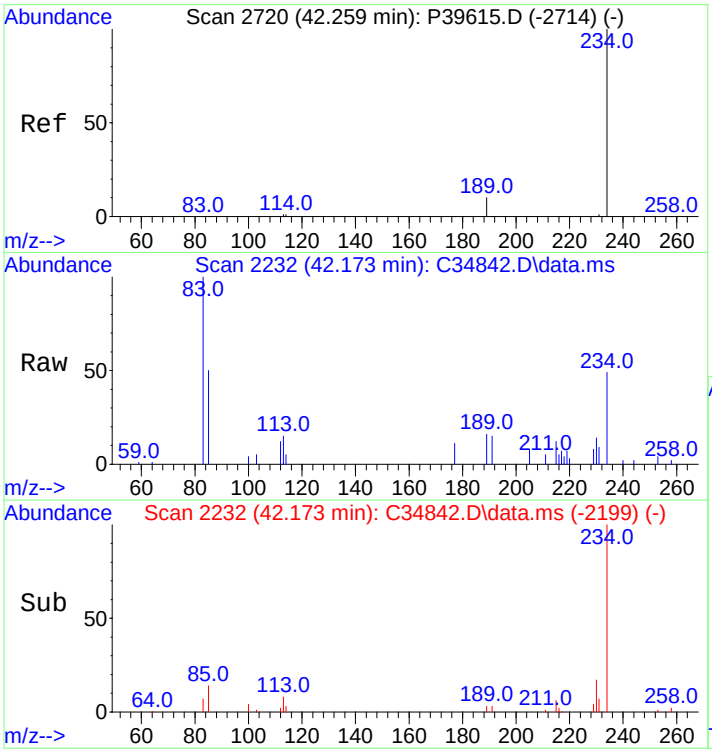




#64
C4-Fluoranthenes/Pyrenes
Concen: 461.48 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:258 Resp: 50923

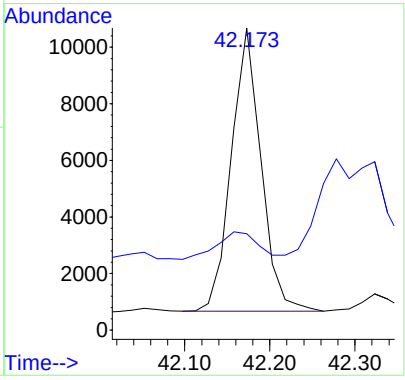


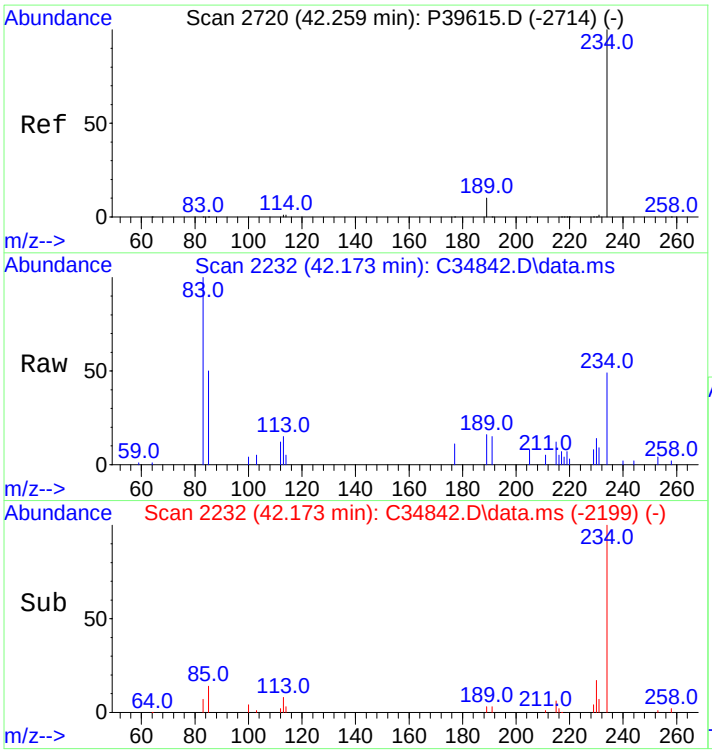


#66
Naphthobenzothiophene
Concen: 204.67 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:234 Resp: 24315

Ion	Ratio	Lower	Upper
234	100		
189	13.1	20.5	30.7#

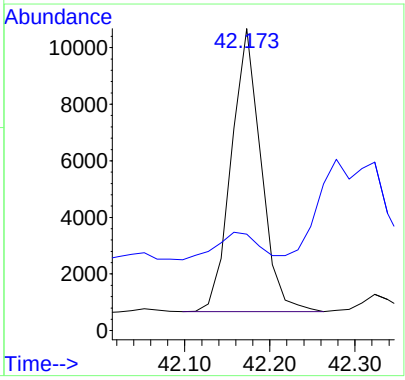


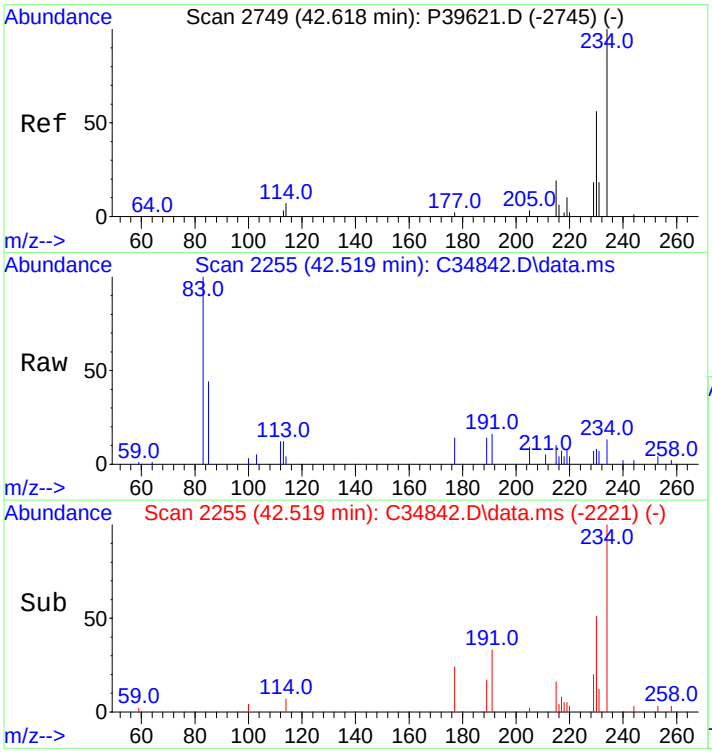


#67
Naphthobenzothiophene-2,1-D
Concen: 204.67 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:234 Resp: 24315

Ion	Ratio	Lower	Upper
234	100		
189	13.1	20.5	30.7#

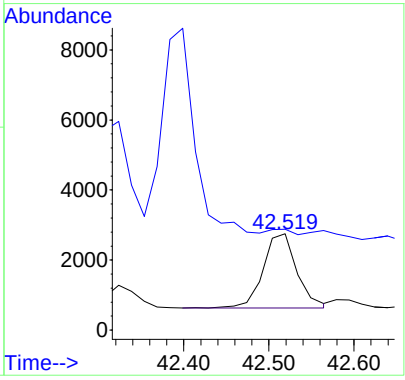


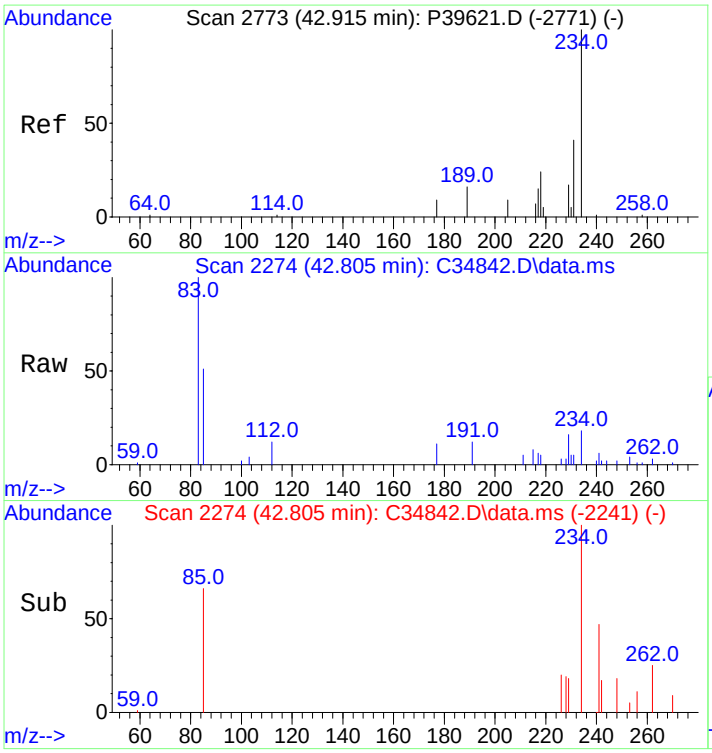


#68
Naphthobenzothiophene-1,2-D
Concen: 49.47 ng/mL
RT: 42.519 min Scan# 2255
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:234 Resp: 5877

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

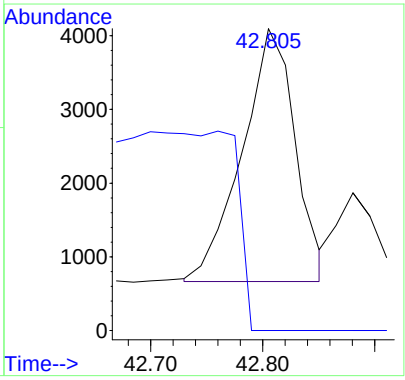


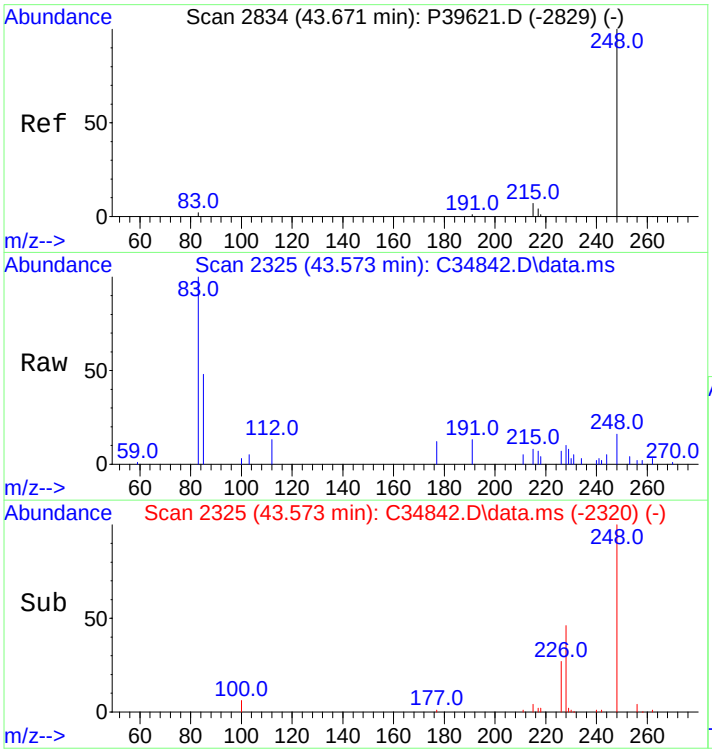


#69
Naphthobenzothiophene-2,3-D
Concen: 95.17 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:234 Resp: 11306

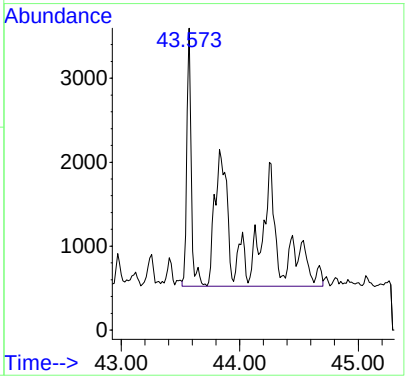
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

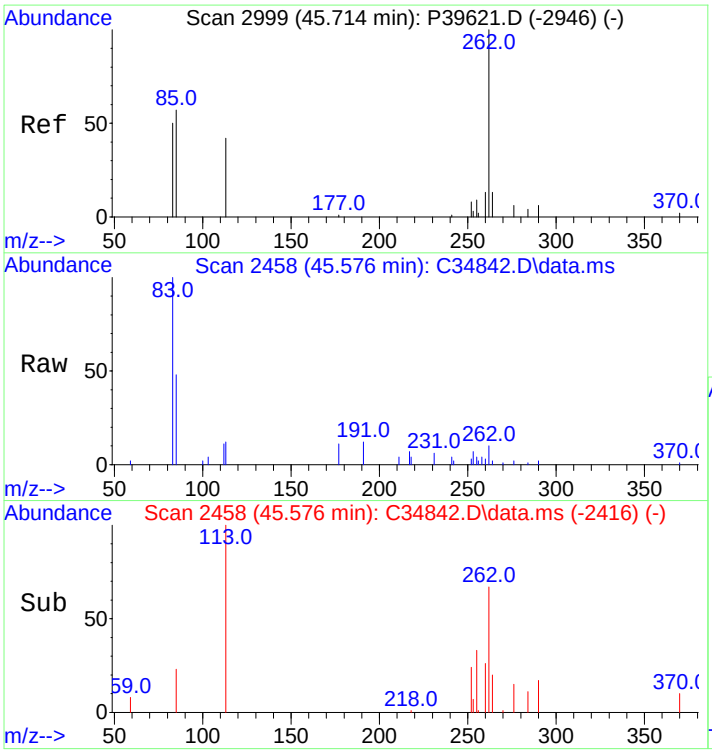




#70
C1-Naphthobenzothiophenes
Concen: 319.38 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

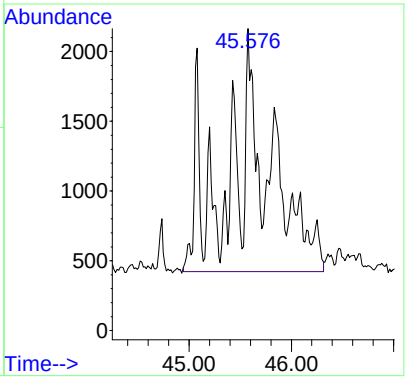
Tgt Ion:248 Resp: 37942

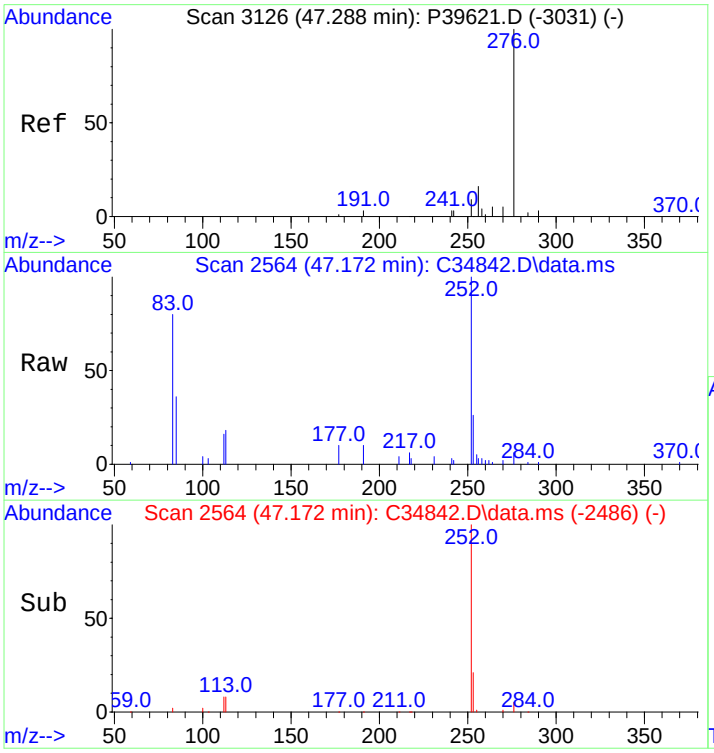




#71
C2-Naphthobenzothiophenes
Concen: 380.93 ng/ml m
RT: 45.576 min Scan# 2458
Delta R.T. 0.145 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

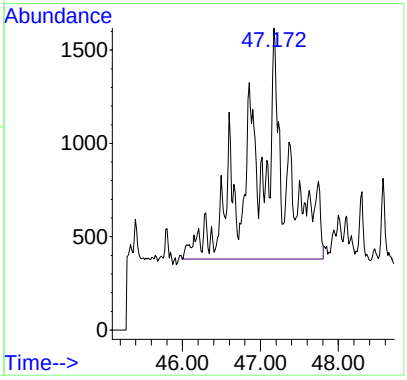
Tgt Ion:262 Resp: 45254

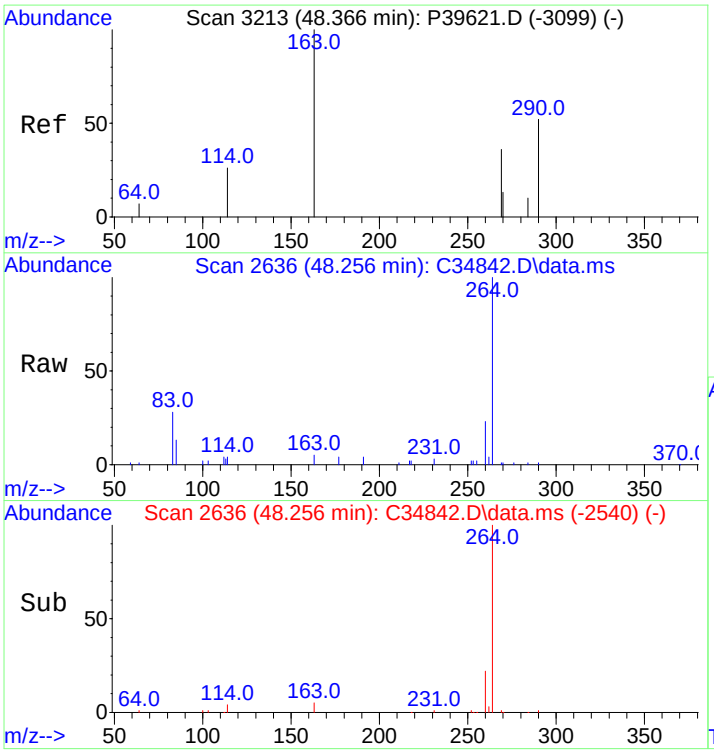




#72
C3-Naphthobenzothiophenes
Concen: 303.98 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

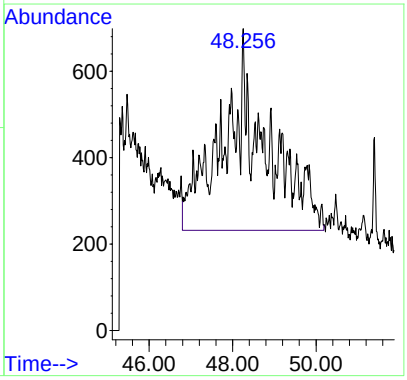
Tgt Ion:276 Resp: 36113

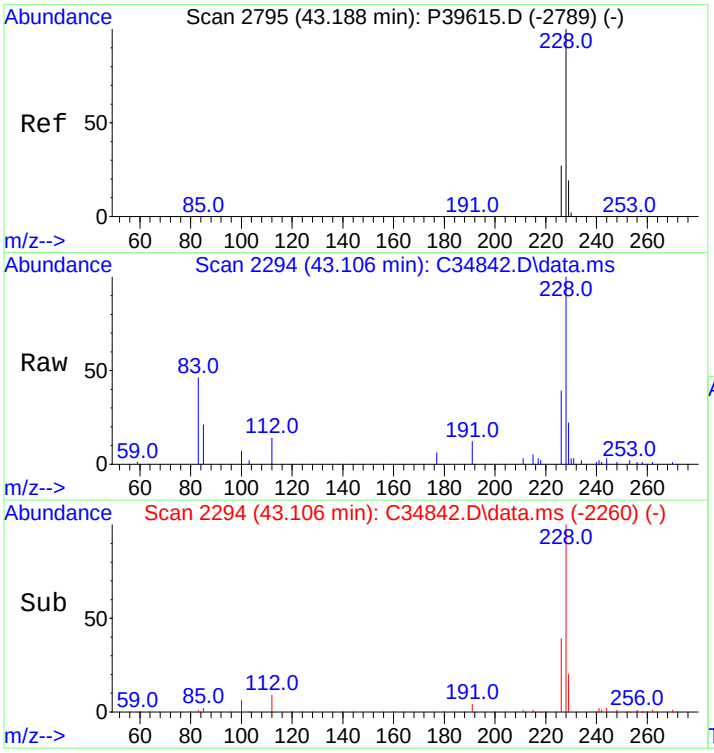




#73
C4-Naphthobenzothiophenes
Concen: 269.99 ng/mL m
RT: 48.256 min Scan# 2636
Delta R.T. 0.157 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:290 Resp: 32075

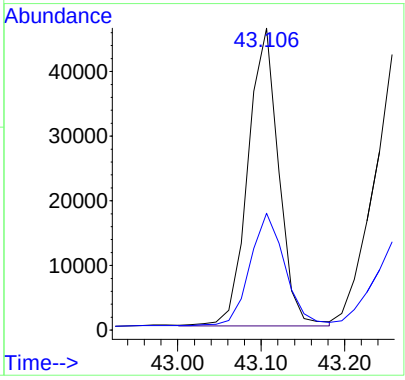


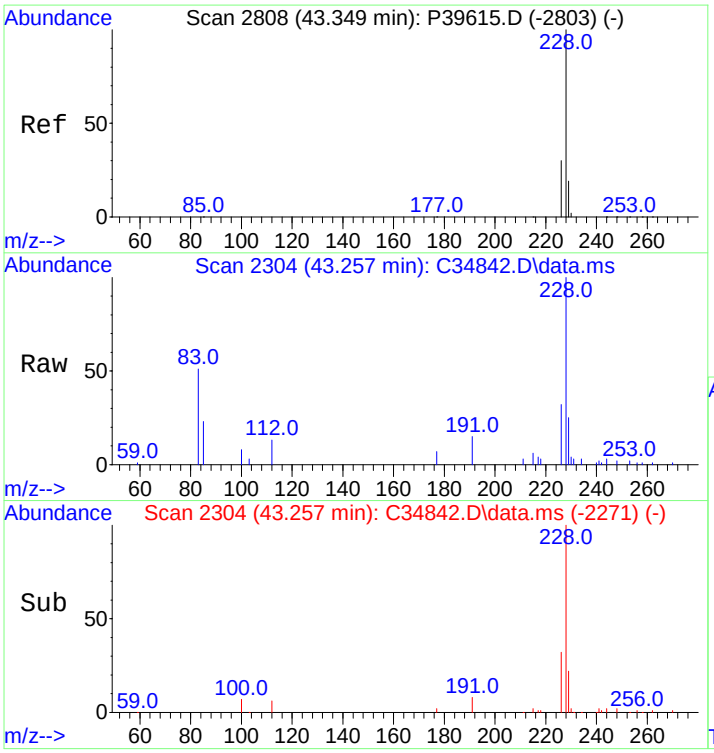


#75
Benz[a]anthracene
Concen: 859.91 ng/mL m
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:228 Resp: 117626

Ion	Ratio	Lower	Upper
228	100		
226	34.4	21.4	32.0#

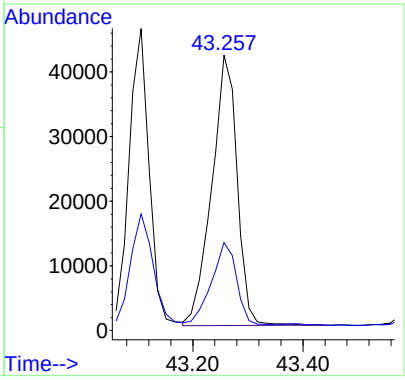


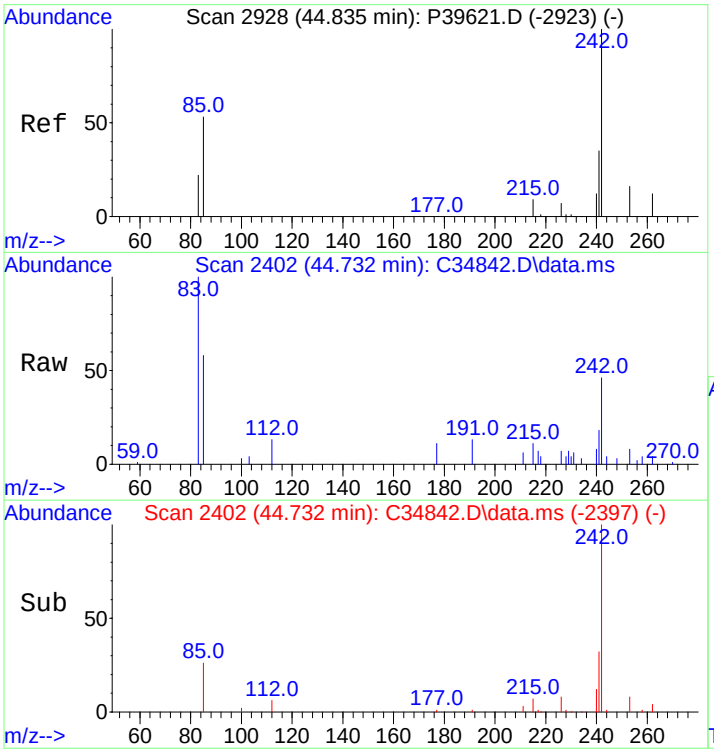


#77
Chrysene/Triphenylene
Concen: 970.56 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:228 Resp: 134035

Ion	Ratio	Lower	Upper
228	100		
226	30.2	23.7	35.5

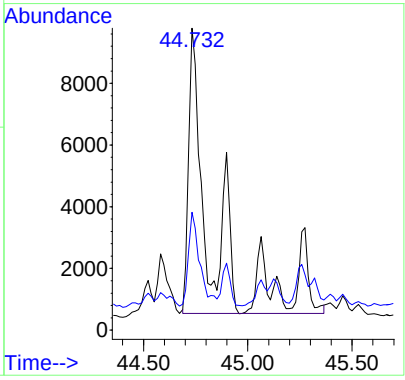


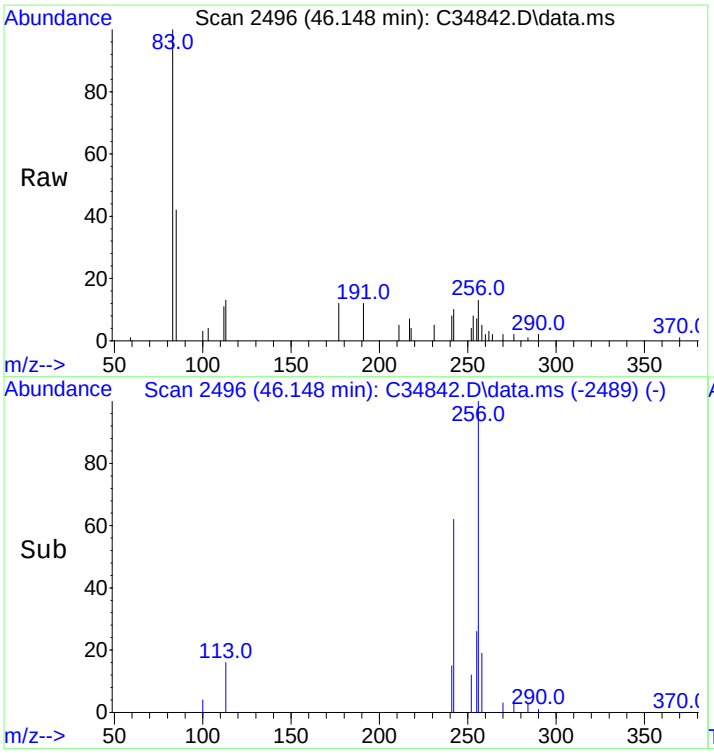


#78
C1-Chrysenes
Concen: 496.52 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:242 Resp: 68570

Ion	Ratio	Lower	Upper
242	100		
241	12.9	31.4	47.2#

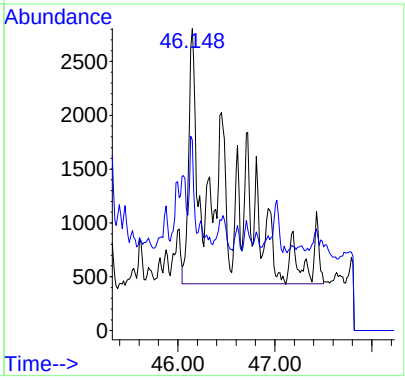


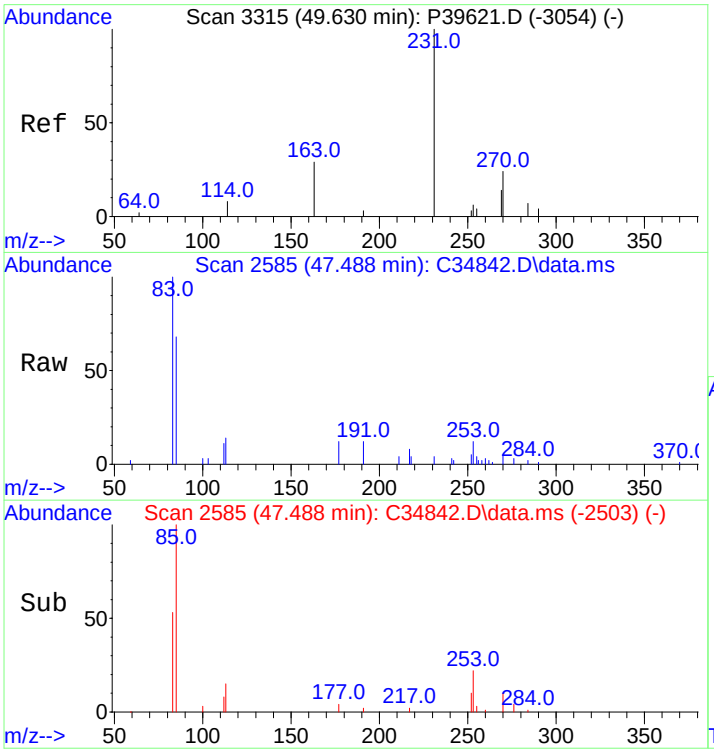


#79
C2-Chrysenes
Concen: 360.07 ng/mL m
RT: 46.148 min Scan# 2496
Delta R.T. -0.641 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:256 Resp: 49726

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

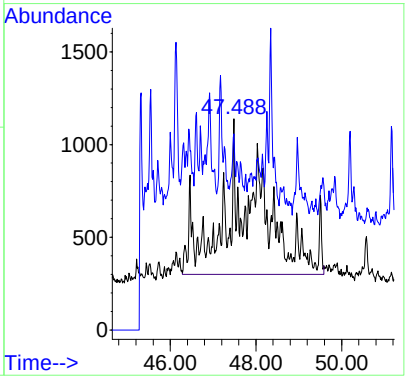


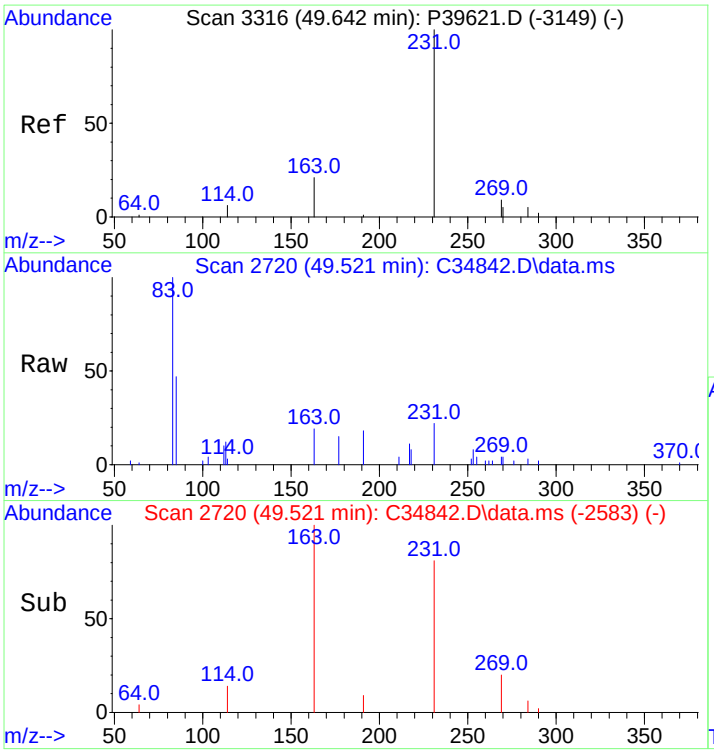


#80
C3-Chrysenes
Concen: 327.25 ng/mL m
RT: 47.488 min Scan# 2585
Delta R.T. -2.007 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:270 Resp: 45193

Ion	Ratio	Lower	Upper
270	100		
255	0.0	33.8	50.8#

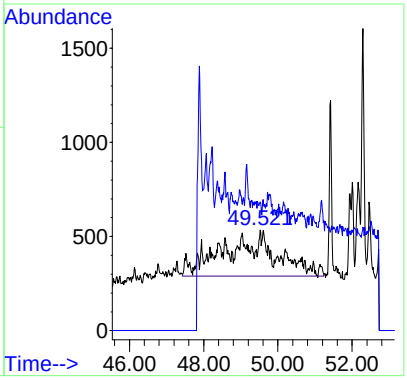


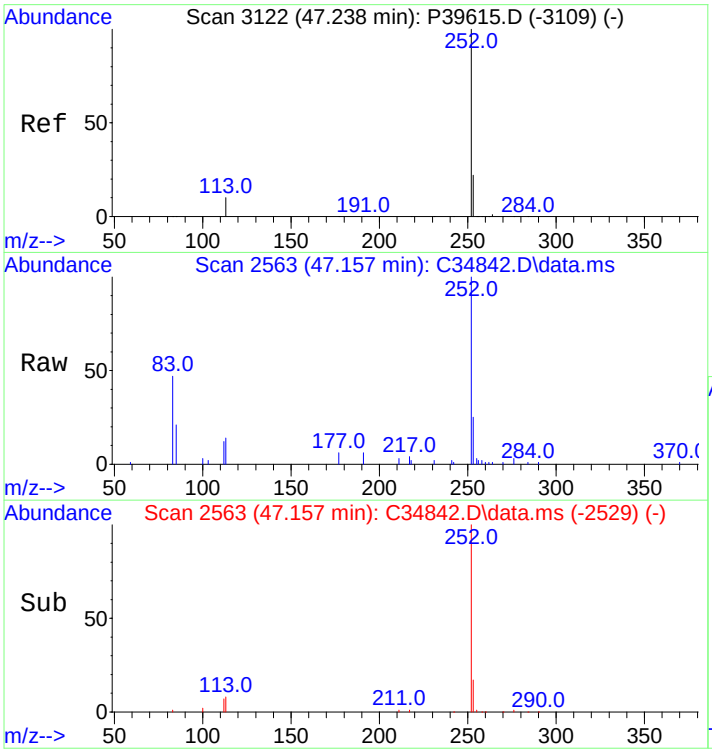


#81
C4-Chrysenes
Concen: 168.99 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:284 Resp: 23337

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

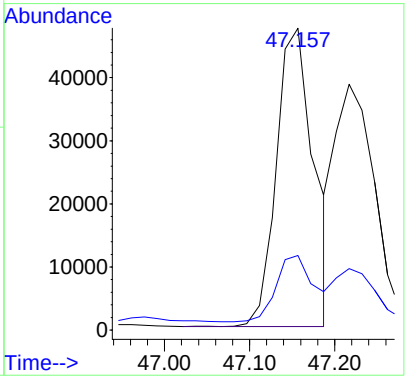


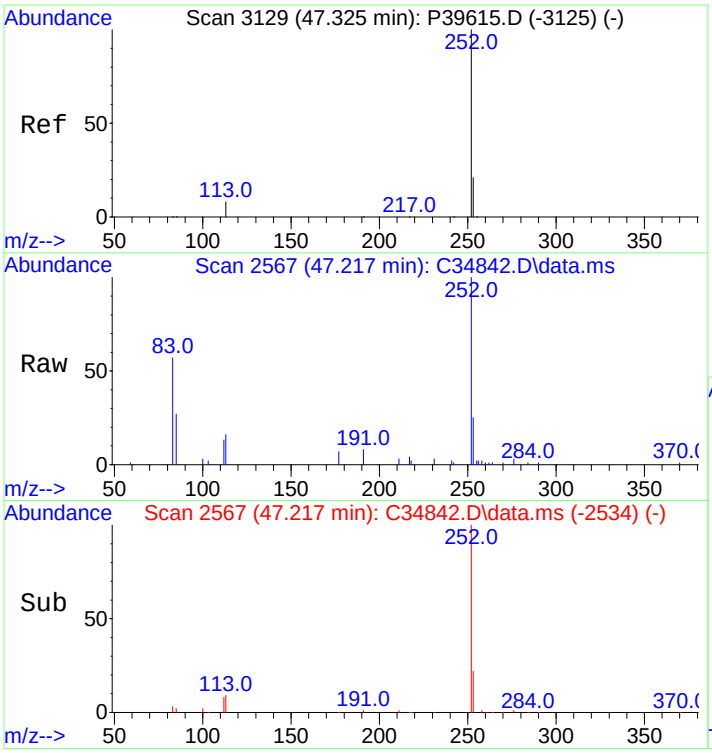


#82
Benzo[b]fluoranthene
Concen: 963.98 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 144890

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.0	28.4

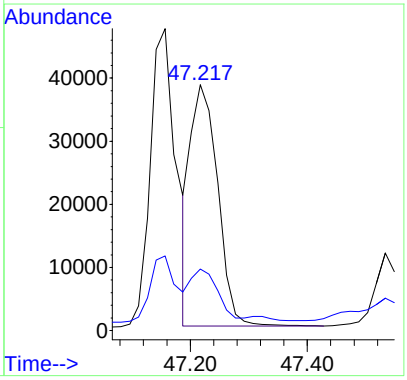


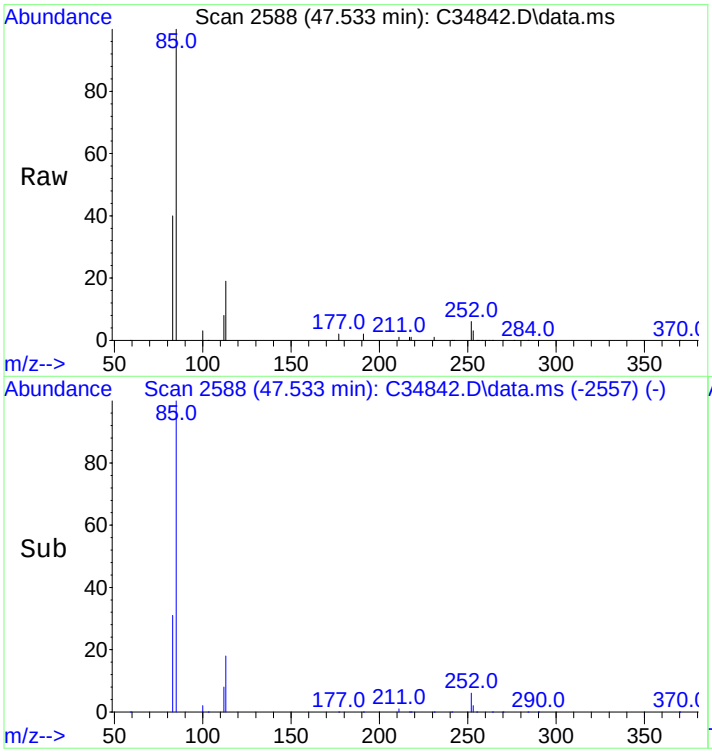


#83
Benzo[j]+[k]fluoranthene
Concen: 759.11 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 124223

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

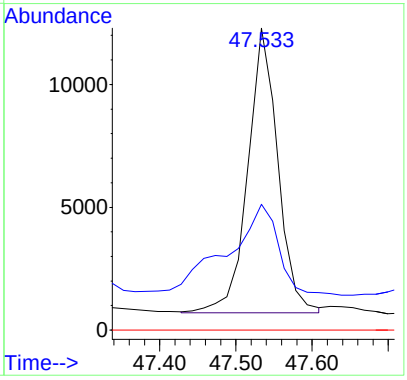


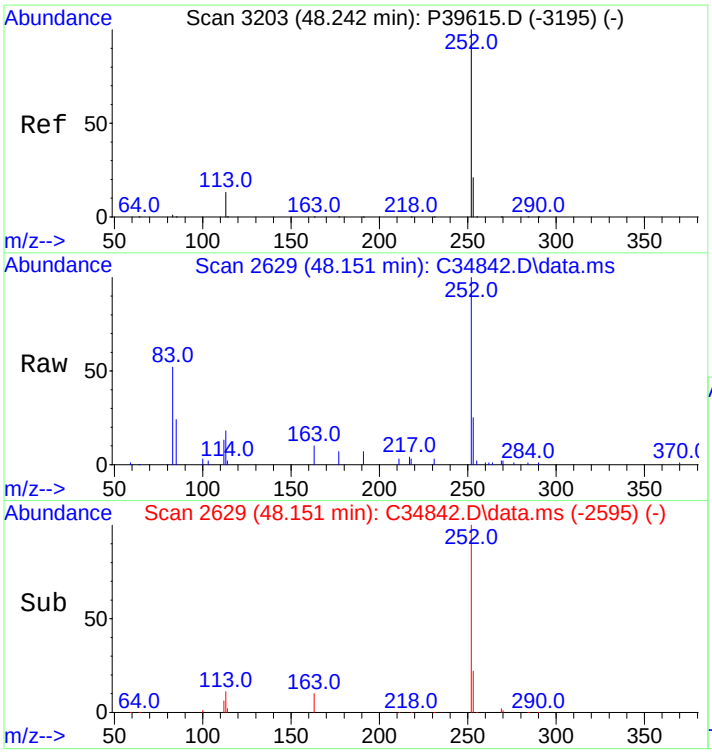


#84
Benzo[a]fluoranthene
Concen: 194.55 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 31836

Ion	Ratio	Lower	Upper
252	100		
253	55.8	146.1	219.1#
125	0.0	0.0	0.0

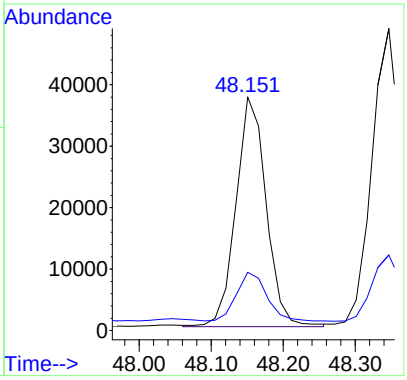


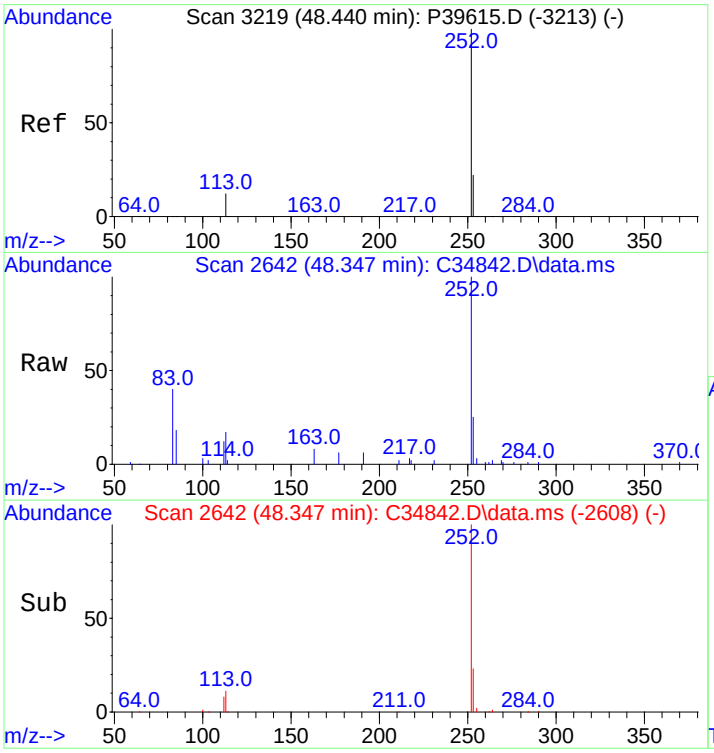


#85
Benzo[e]pyrene
Concen: 732.01 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 108827

Ion	Ratio	Lower	Upper
252	100		
253	23.5	19.2	28.8

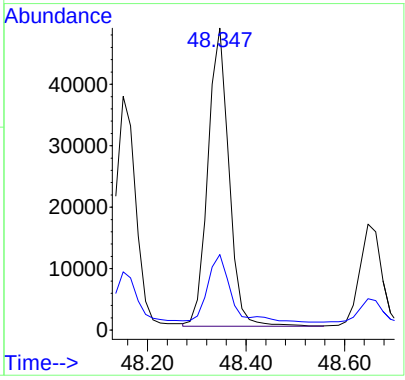


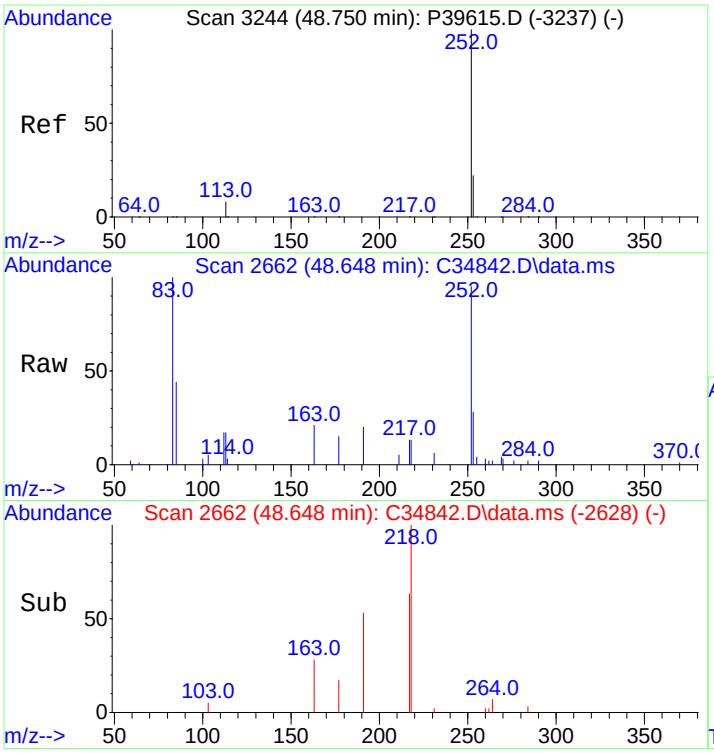


#87
Benzo[a]pyrene
Concen: 999.95 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 143130

Ion	Ratio	Lower	Upper
252	100		
253	25.0	19.5	29.3

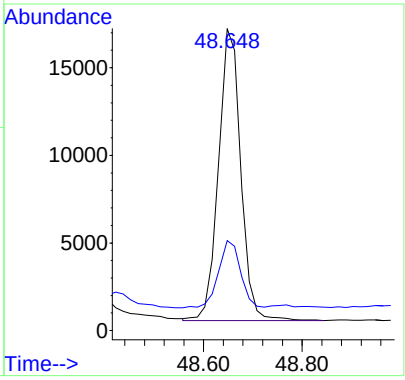


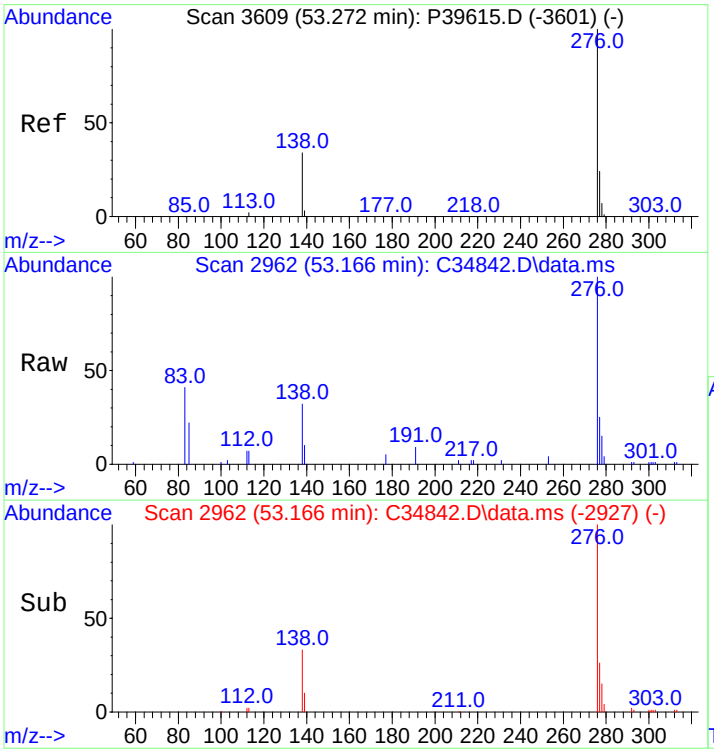


#88
Perylene
Concen: 341.85 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:252 Resp: 52294

Ion	Ratio	Lower	Upper
252	100		
253	22.7	19.6	29.4

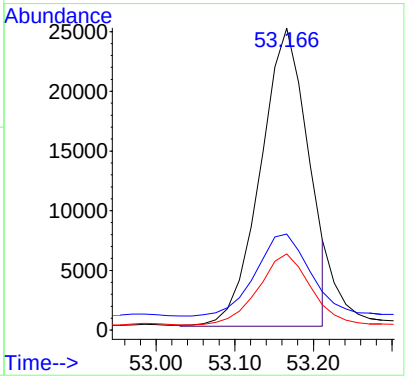


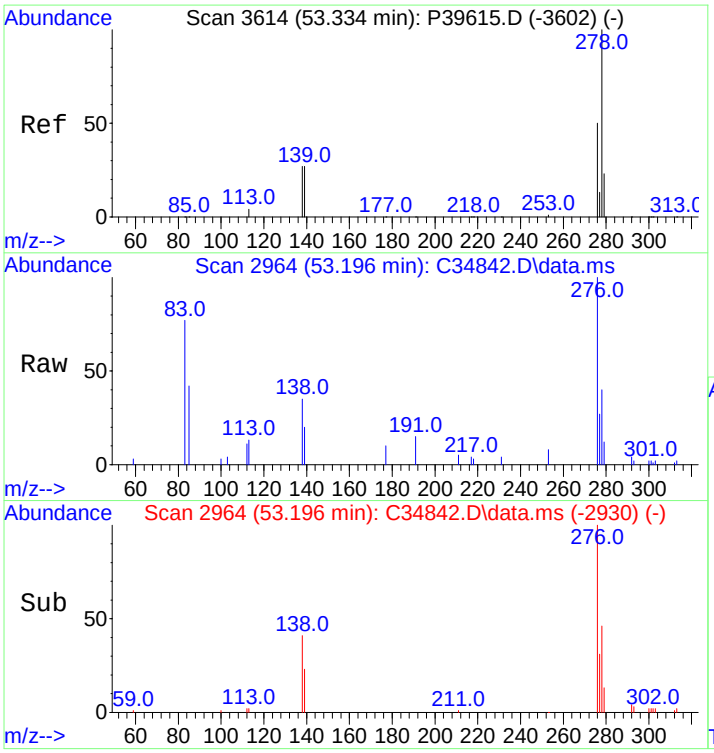


#89
Indeno[1,2,3-cd]pyrene
Concen: 633.02 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:276 Resp: 105444

Ion	Ratio	Lower	Upper
276	100		
138	31.9	23.3	34.9
277	26.0	19.0	28.4

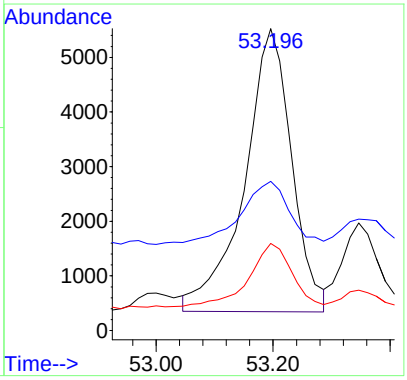


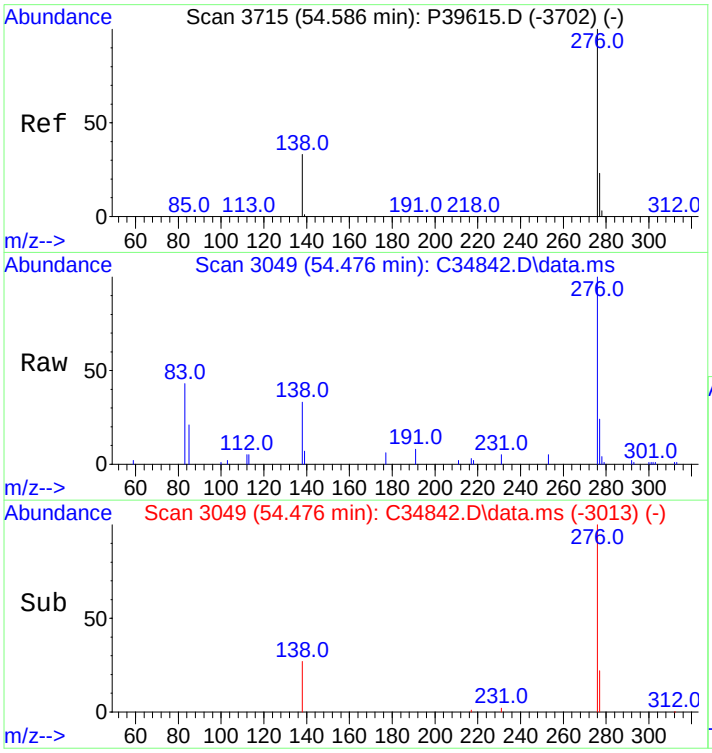


#90
Dibenz[ah]+[ac]anthracene
Concen: 182.88 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:278 Resp: 28978

Ion	Ratio	Lower	Upper
278	100		
139	18.1	19.1	28.7#
279	17.8	19.2	28.8#

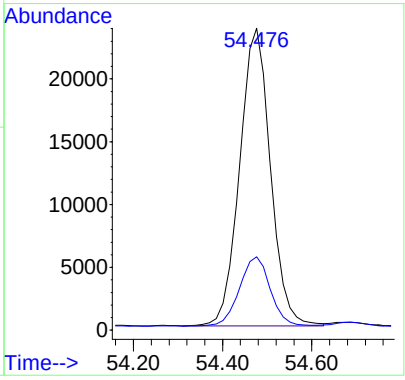


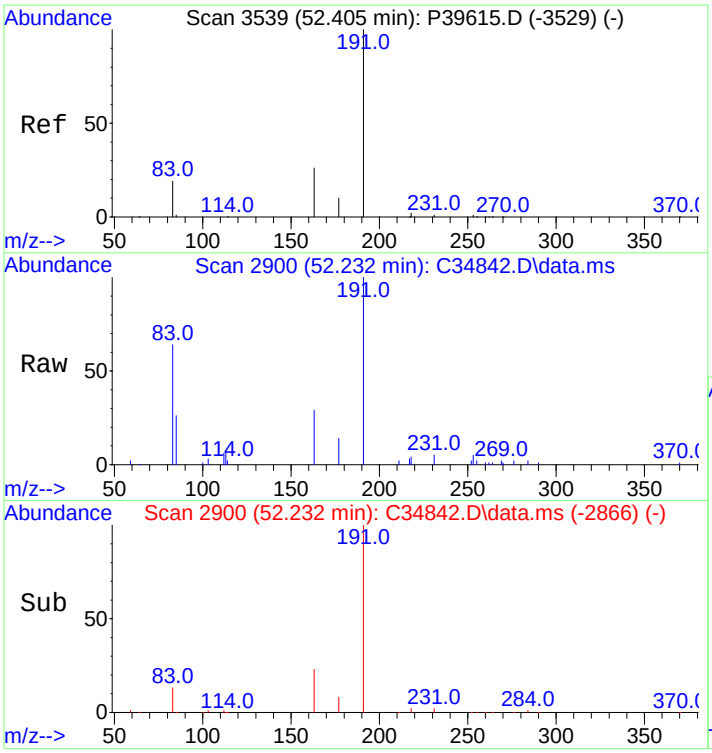


#91
Benzo[g,h,i]perylene
Concen: 648.67 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:276 Resp: 114157

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

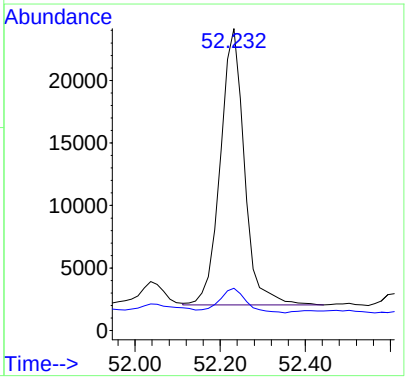


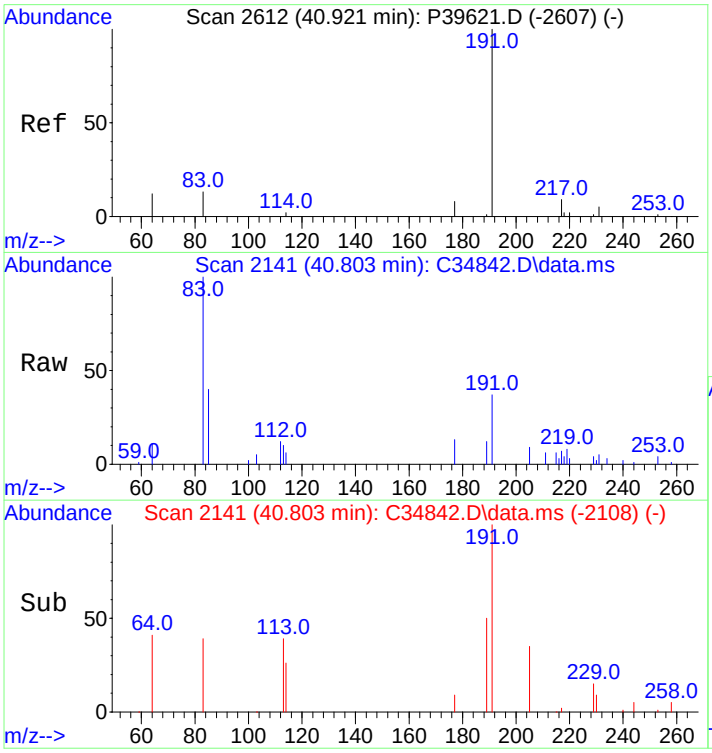


#92
Hopane (T19)
Concen: 3062.25 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:191 Resp: 86980

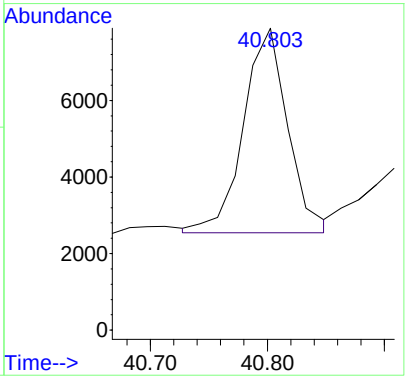
Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#

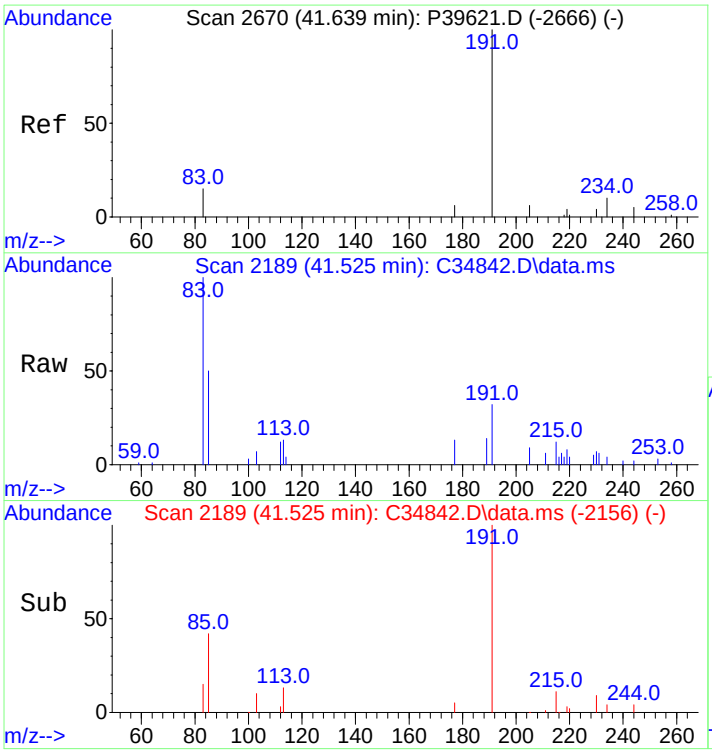




#94
C23 Tricyclic Terpane (T4)
Concen: 493.35 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

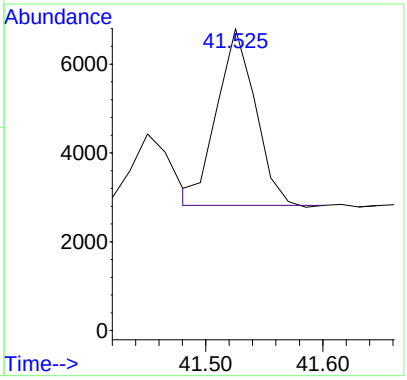
Tgt Ion:191 Resp: 14013

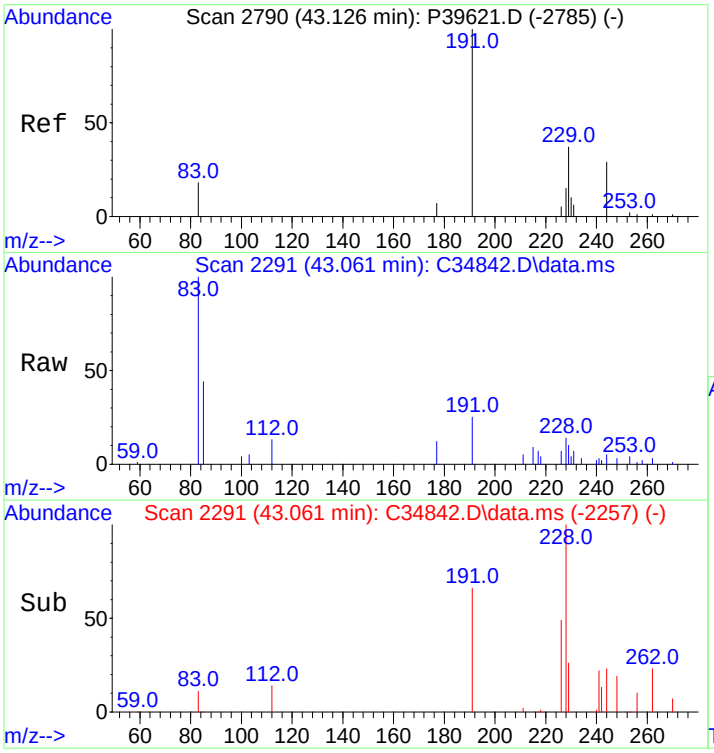




#95
C24 Tricyclic Terpane (T5)
Concen: 316.75 ng/ml
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

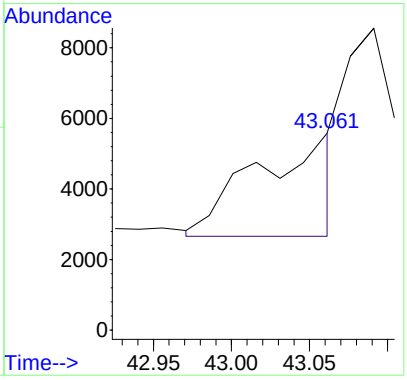
Tgt Ion:191 Resp: 8997

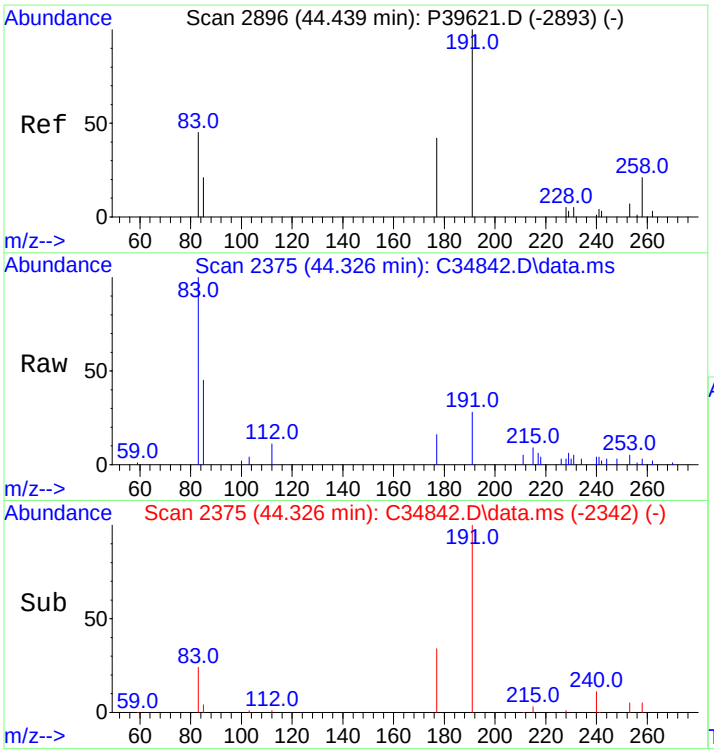




#96
C25 Tricyclic Terpane (T6)
Concen: 353.51 ng/ml m
RT: 43.061 min Scan# 2291
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

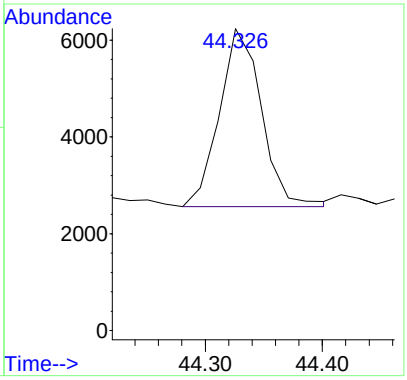
Tgt Ion:191 Resp: 10041

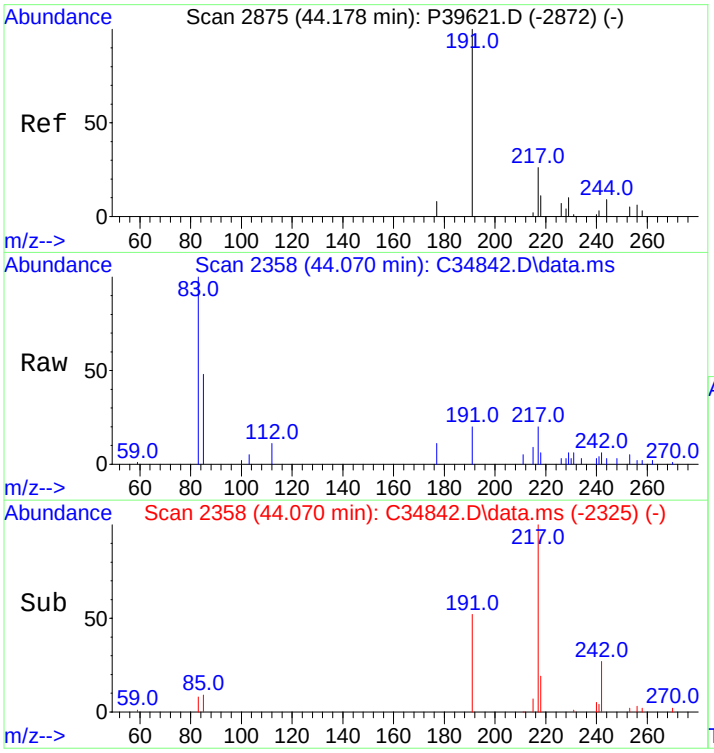




#97
C24 Tetracyclic Terpane (T6a)
Concen: 324.25 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

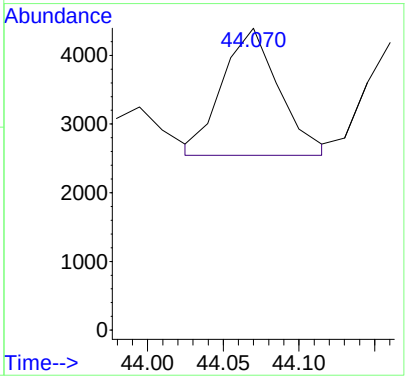
Tgt Ion:191 Resp: 9210

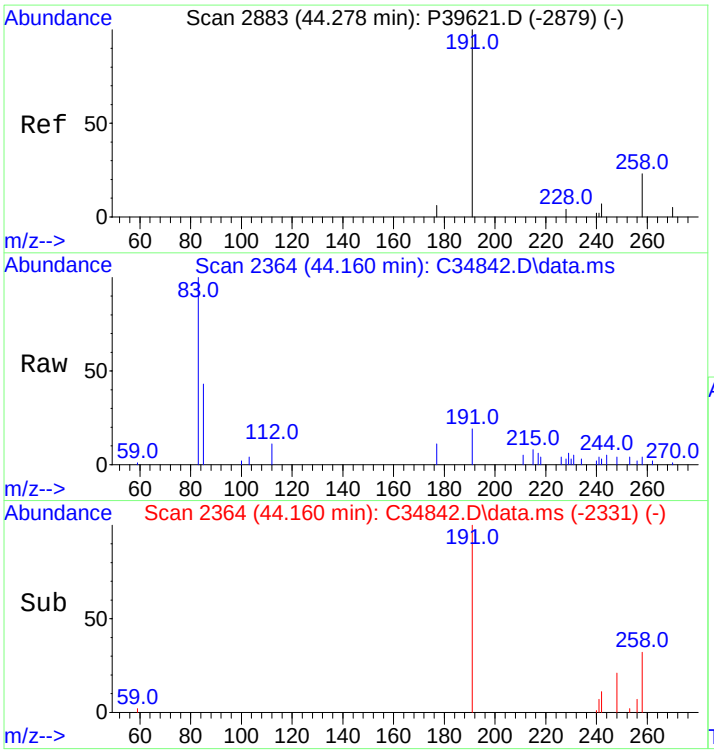




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 169.94 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

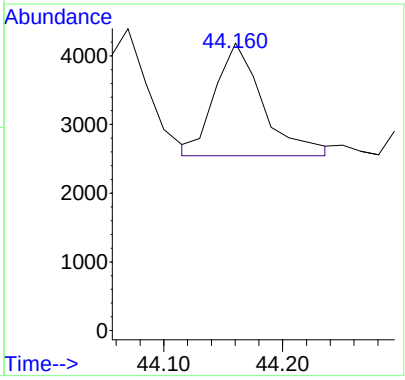
Tgt Ion:191 Resp: 4827

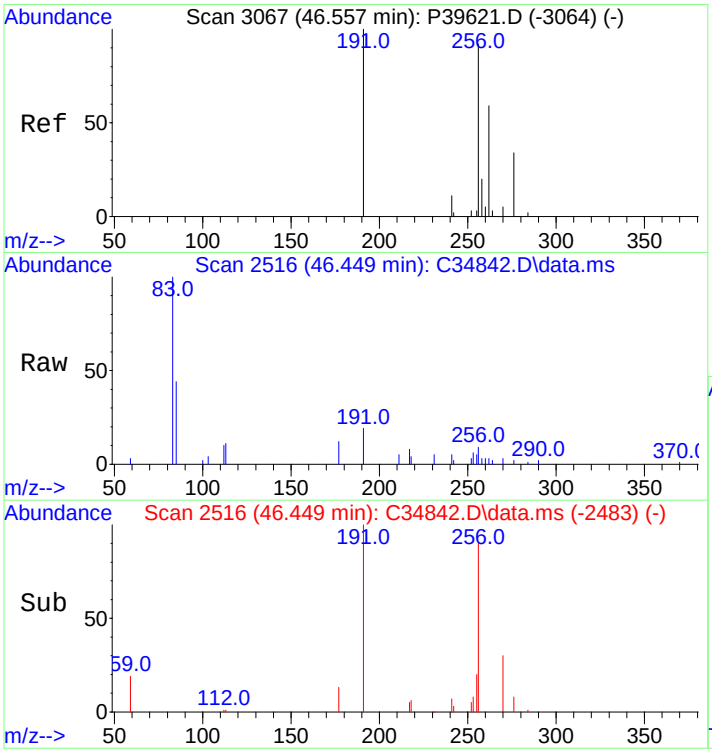




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 162.44 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

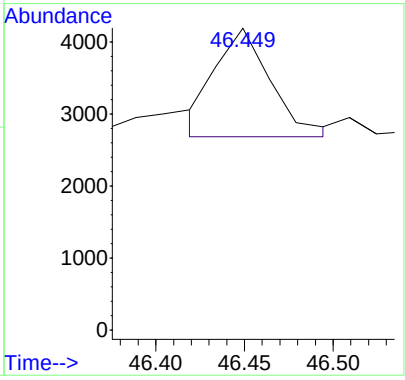
Tgt Ion:191 Resp: 4614

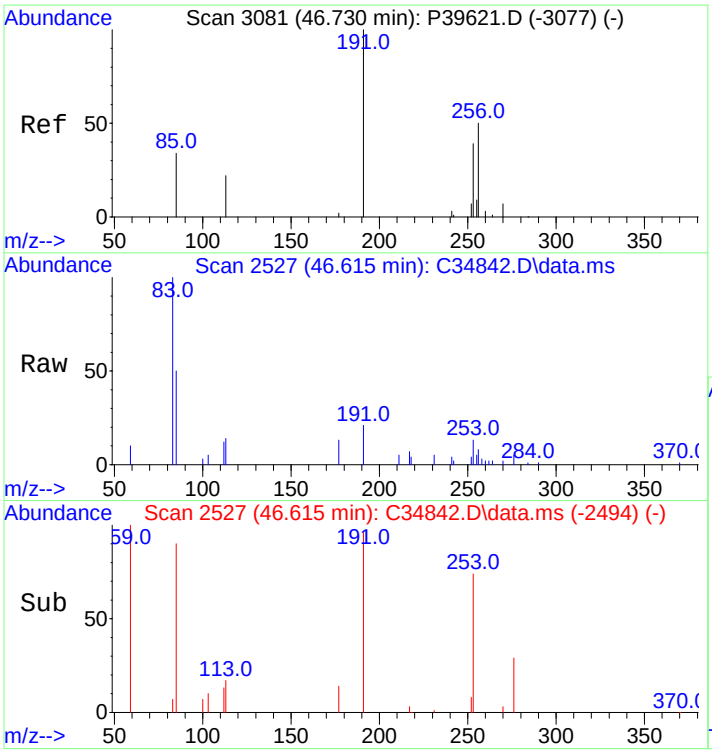




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 115.09 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

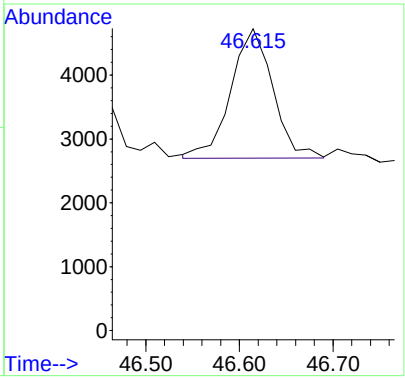
Tgt Ion:191 Resp: 3269

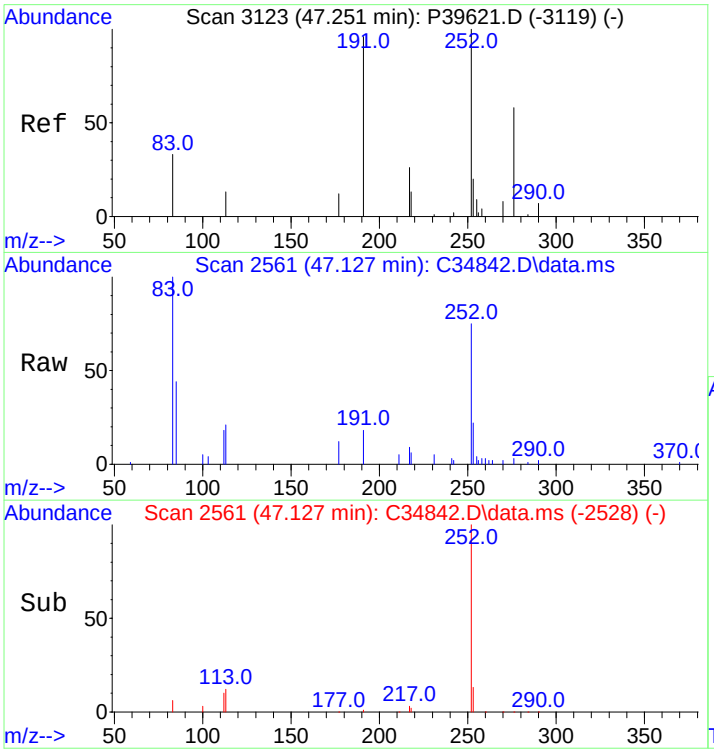




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 222.72 ng/ml
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

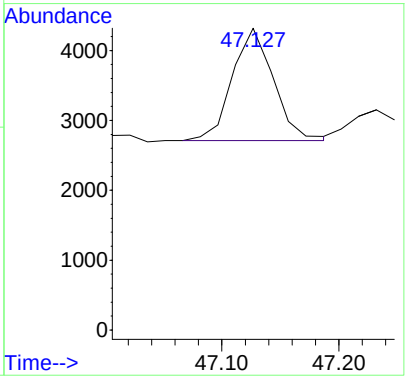
Tgt Ion:191 Resp: 6326

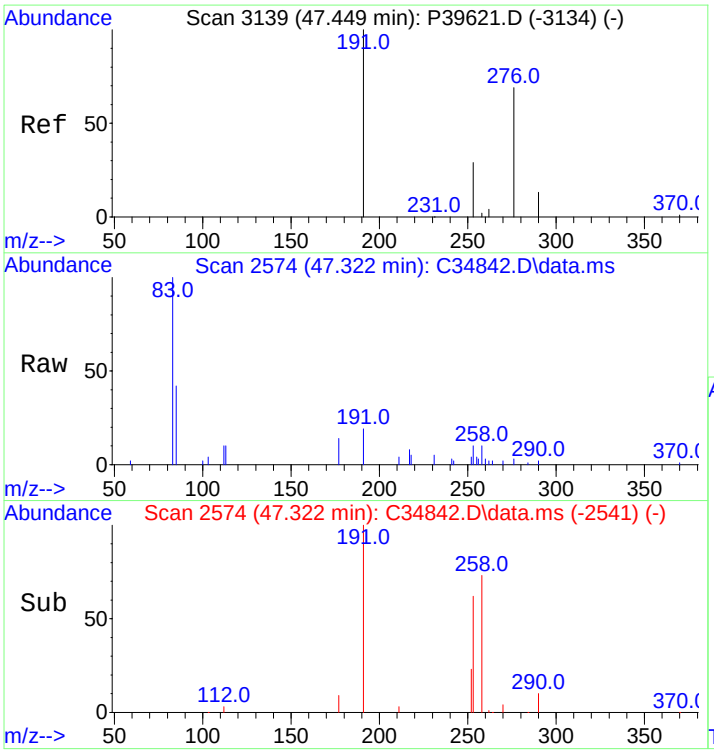




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 139.35 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

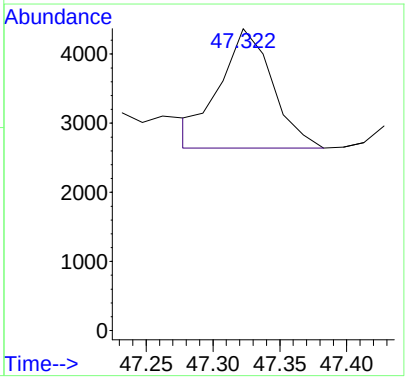
Tgt Ion:191 Resp: 3958

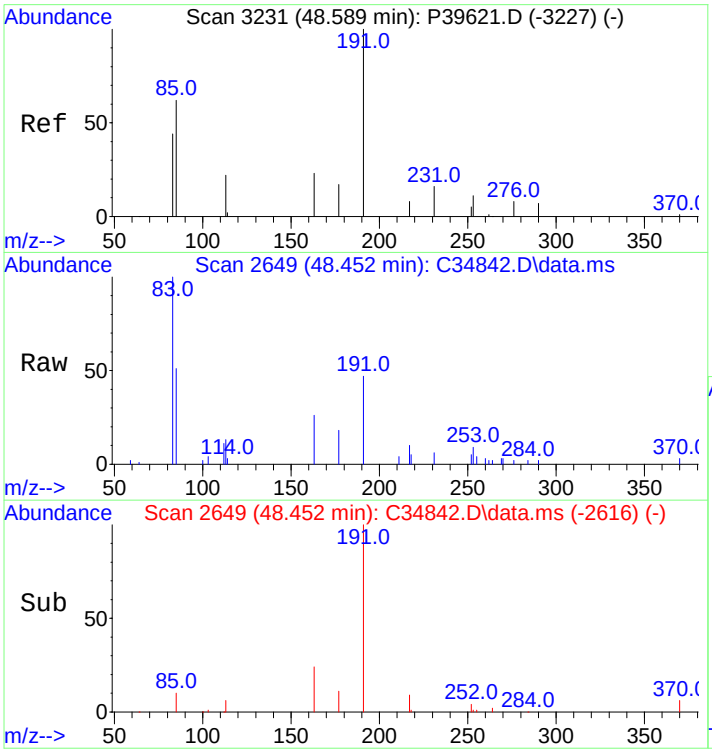




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 166.56 ng/ml
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

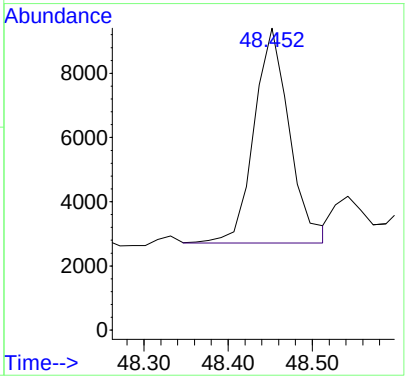
Tgt Ion:191 Resp: 4731

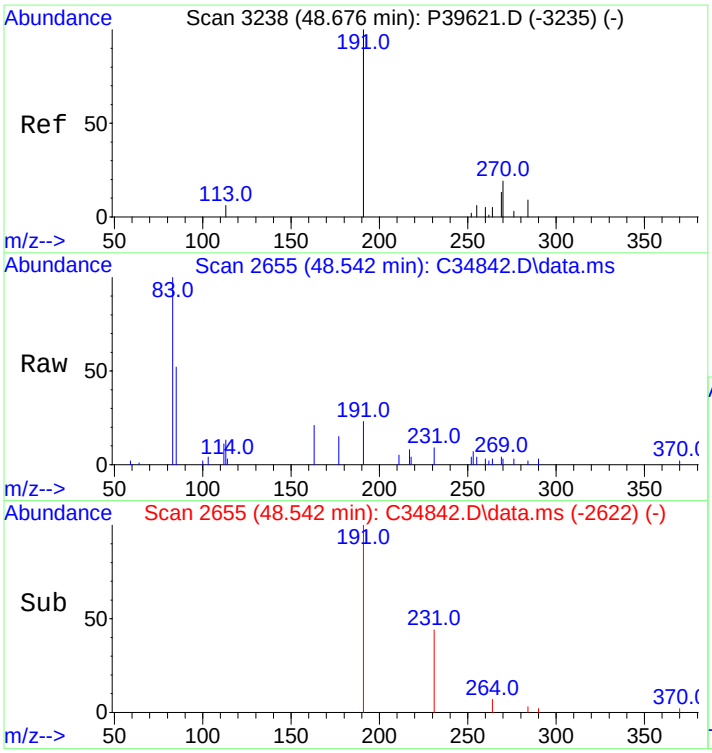




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 686.52 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

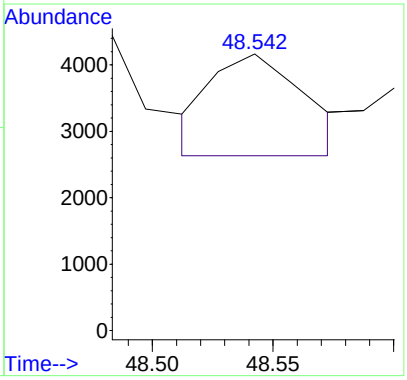
Tgt Ion:191 Resp: 19500

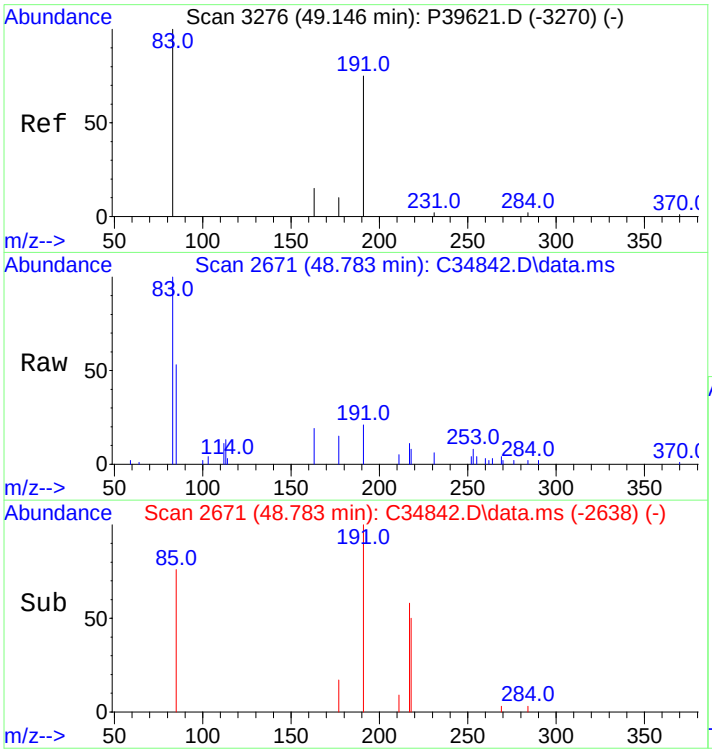




#105
C30 Tricyclic Terpane-22S
Concen: 144.77 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

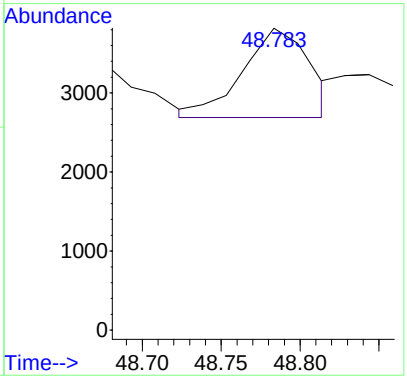
Tgt Ion:191 Resp: 4112

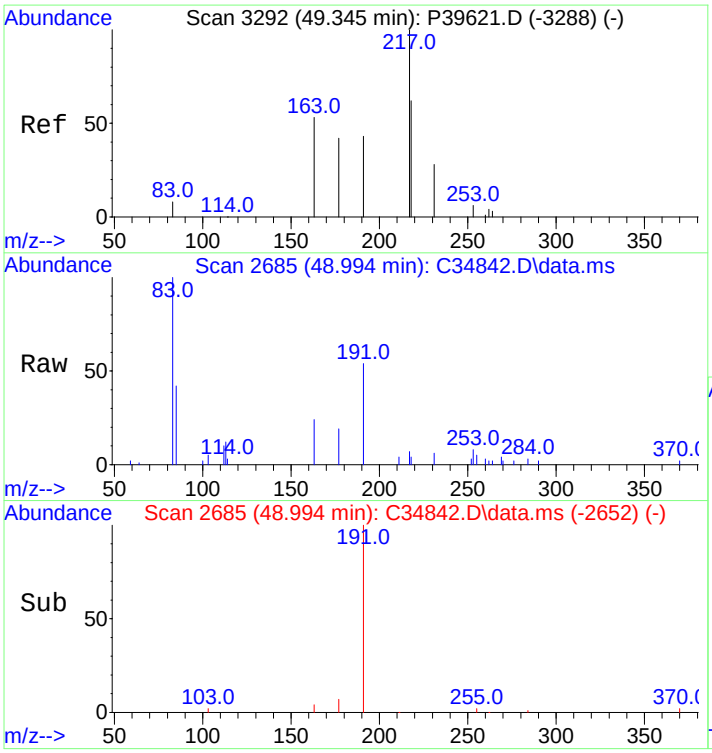




#106
C30 Tricyclic Terpane-22R
Concen: 117.62 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

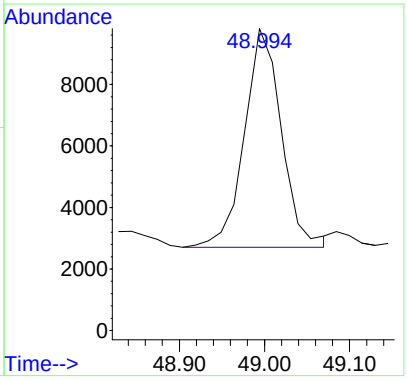
Tgt Ion:191 Resp: 3341

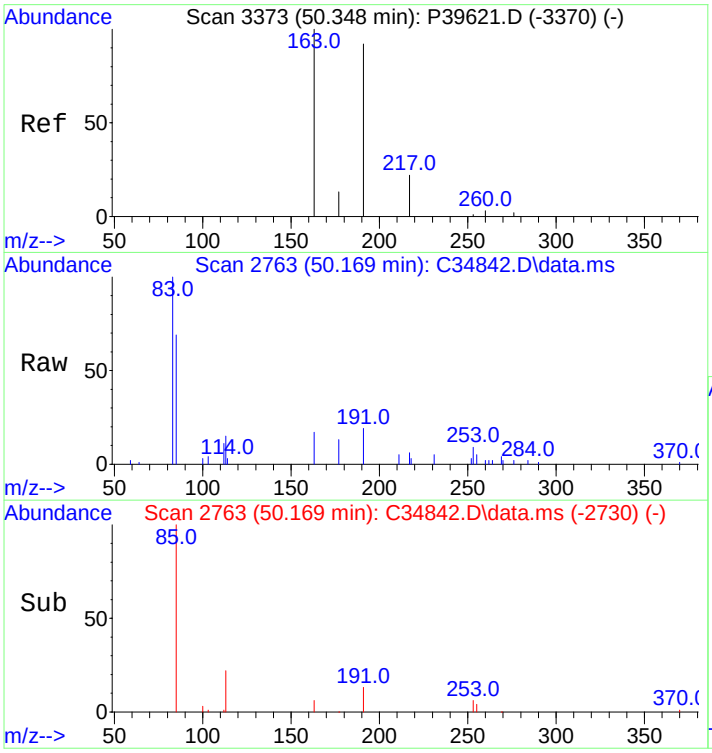




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 759.86 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

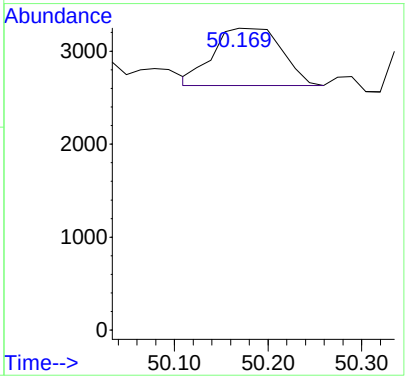
Tgt Ion:191 Resp: 21583

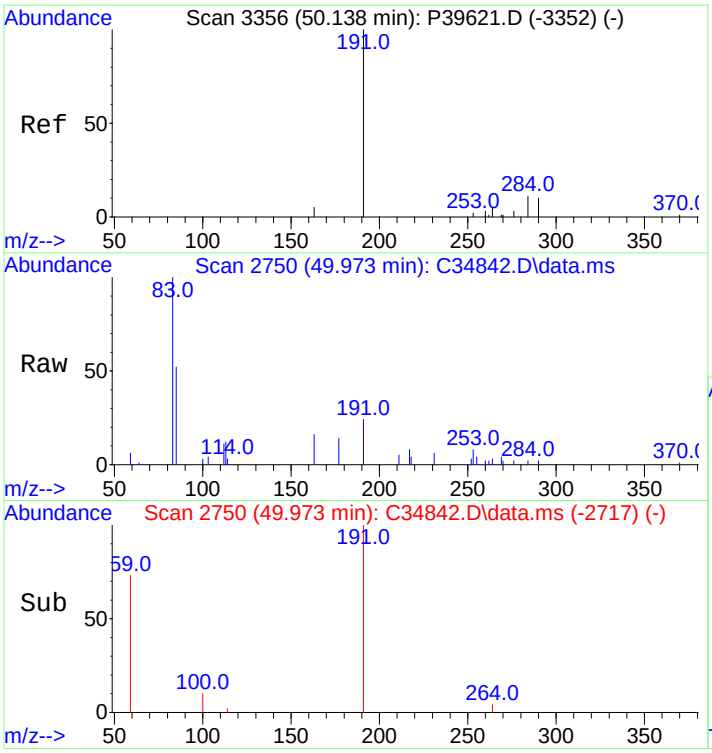




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 110.37 ng/ml
RT: 50.169 min Scan# 2763
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

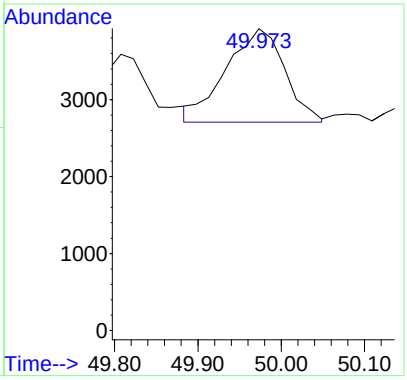
Tgt Ion:191 Resp: 3135

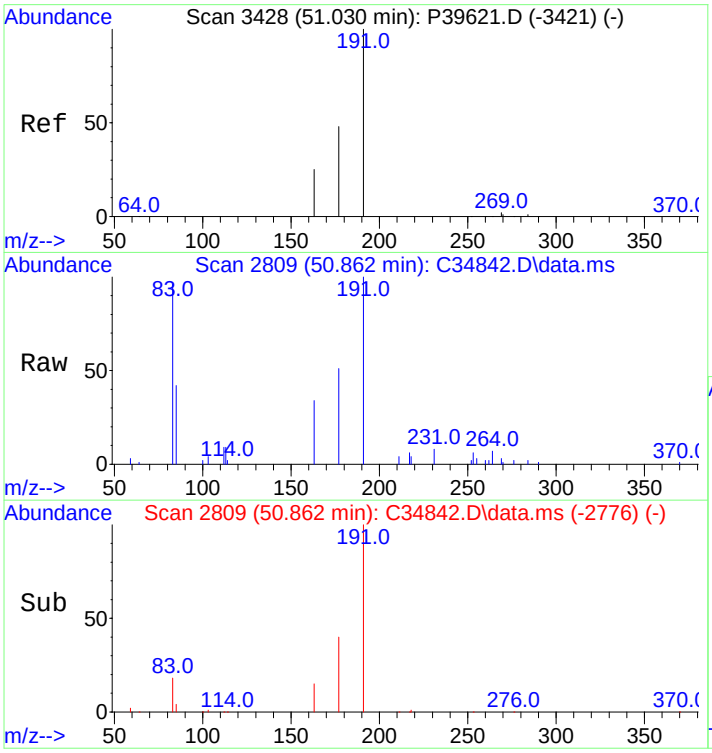




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 207.82 ng/ml m
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

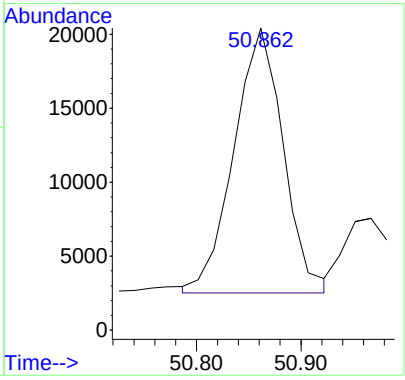
Tgt Ion:191 Resp: 5903

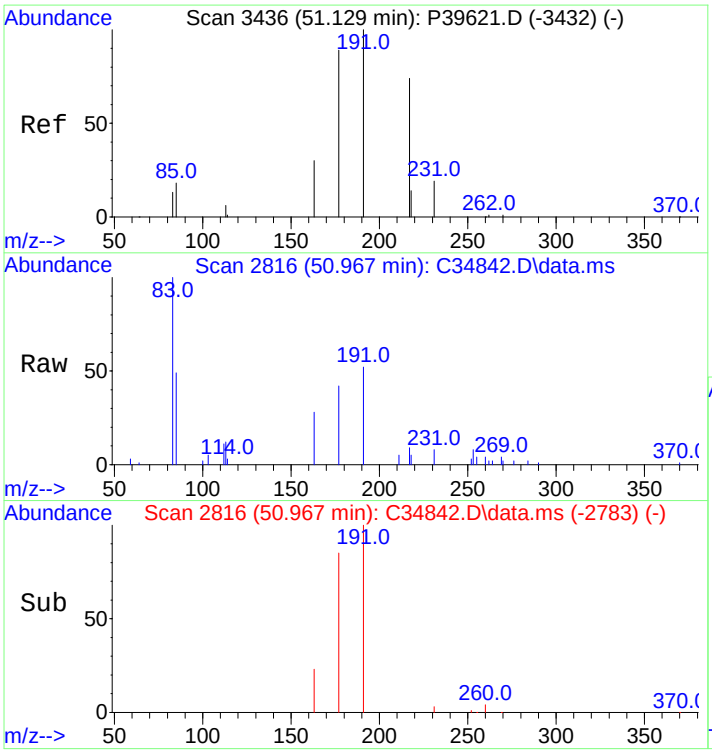




#110
30-Norhopane (T15)
Concen: 2066.29 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

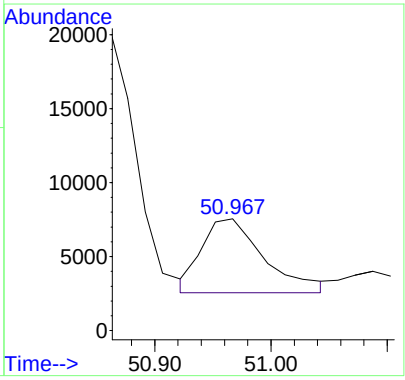
Tgt Ion:191 Resp: 58691

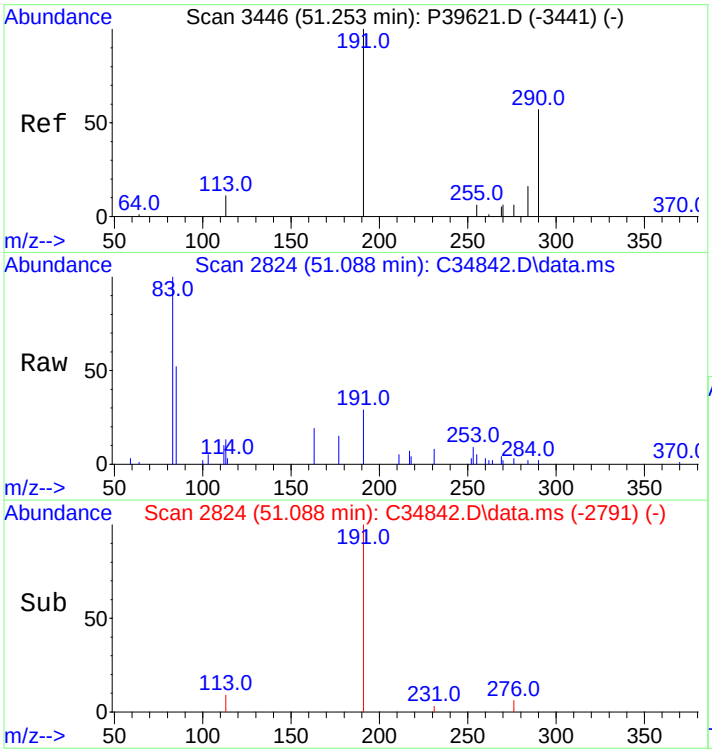




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 657.51 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

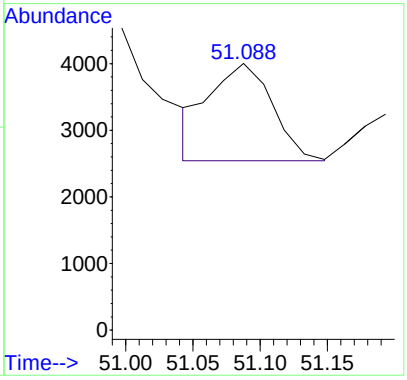
Tgt Ion:191 Resp: 18676

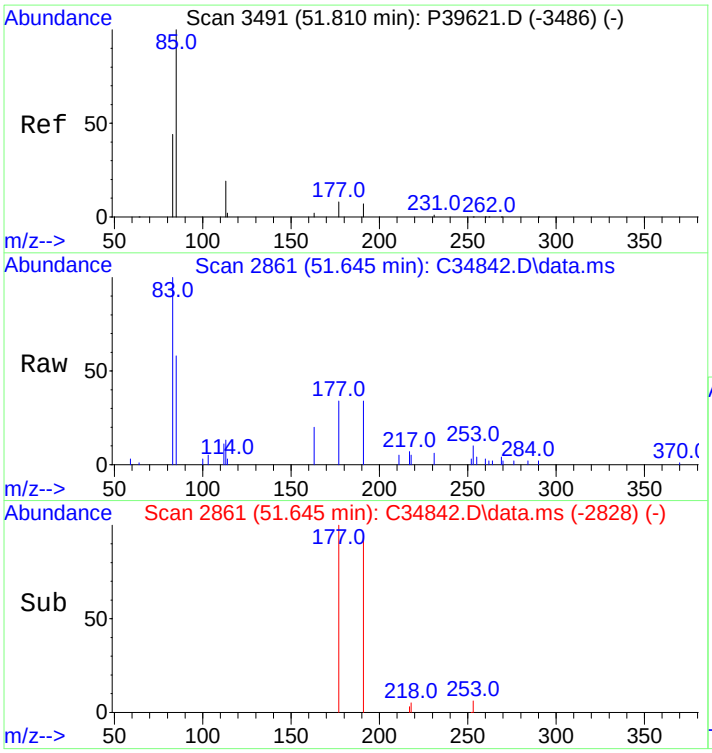




#112
17a(H)-Diahopane (X)
Concen: 166.77 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

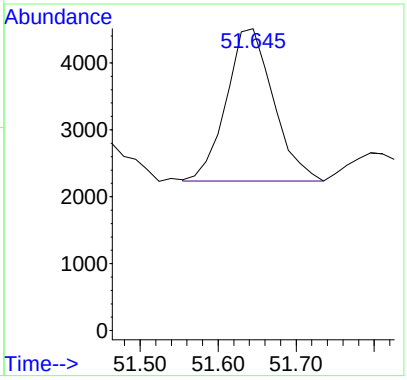
Tgt Ion:191 Resp: 4737

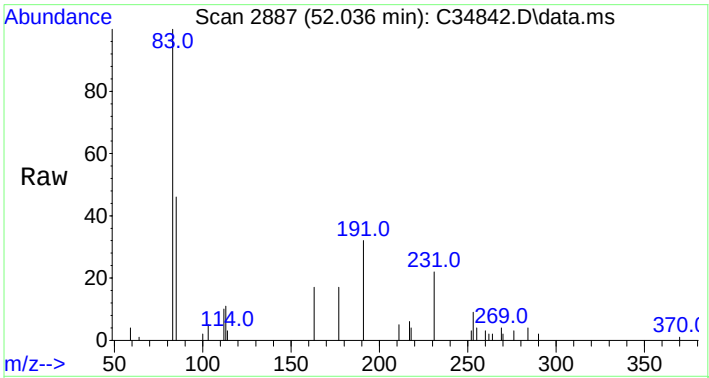




#113
30-Normoretane (T17)
Concen: 336.68 ng/ml
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

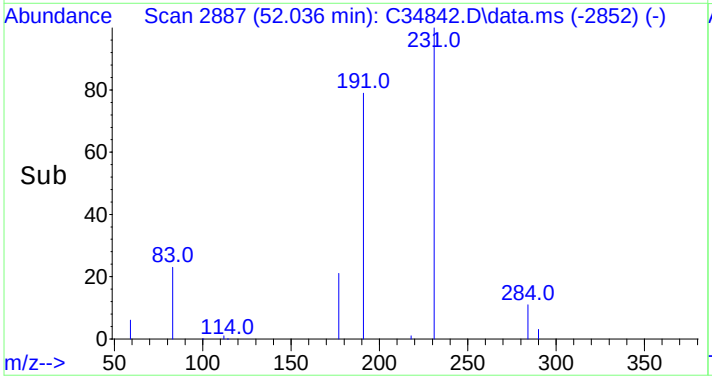
Tgt Ion:191 Resp: 9563

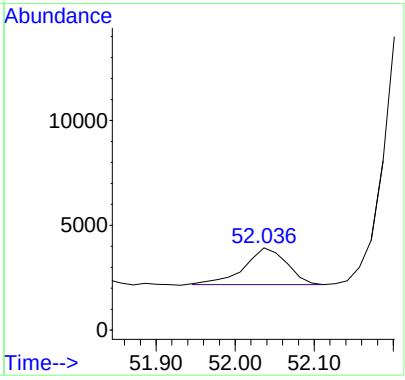


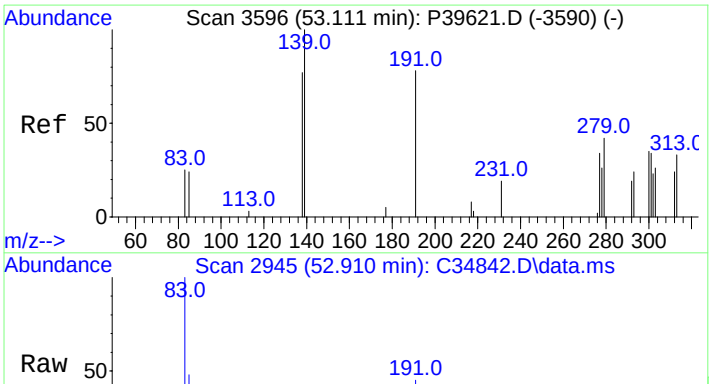


#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 231.87 ng/ml m
RT: 52.036 min Scan# 2887
Delta R.T. 0.030 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:191 Resp: 6586

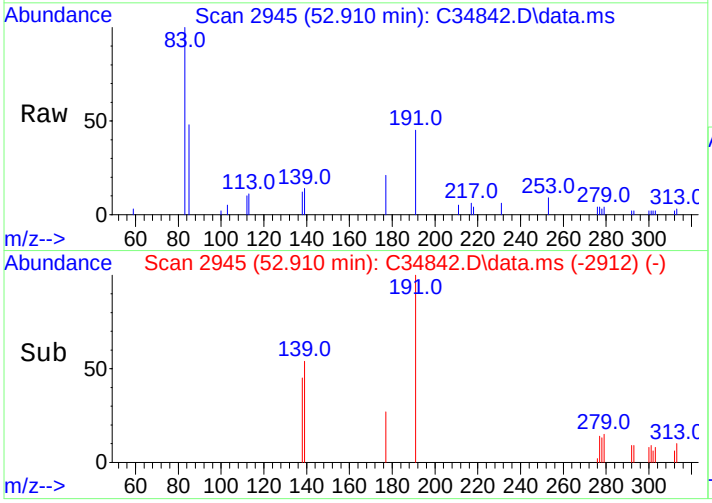


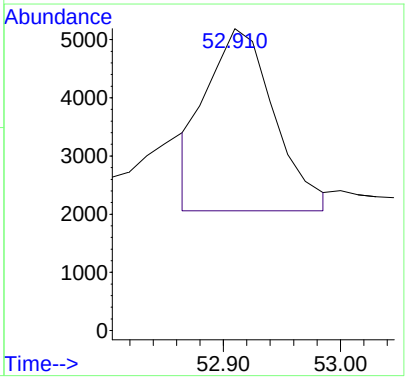


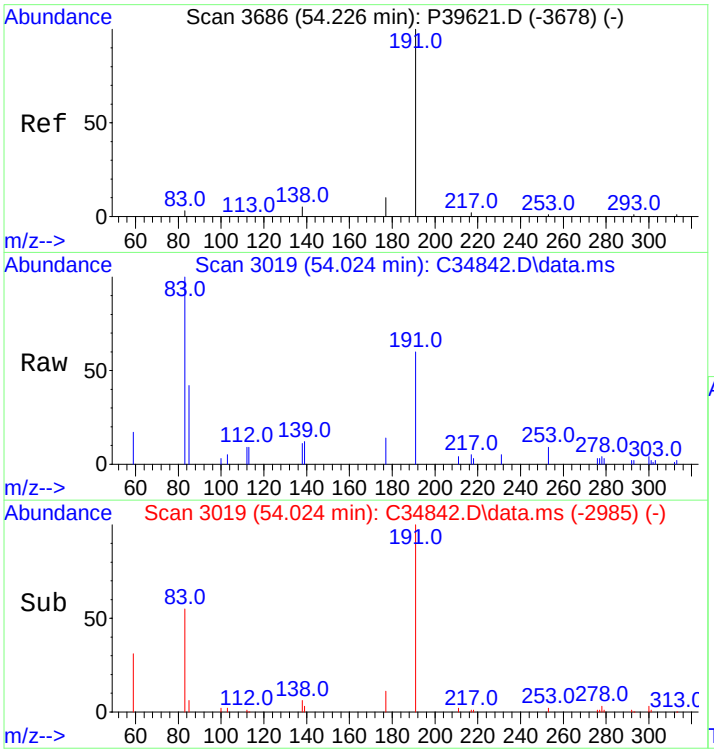


#115
Moretane (T20)
Concen: 445.40 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:191 Resp: 12651

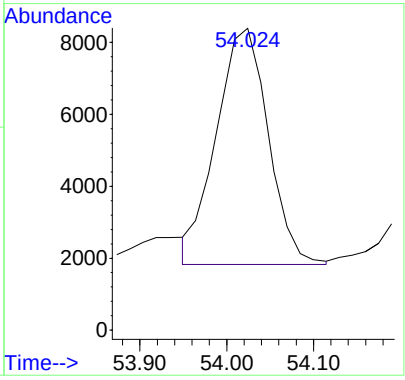


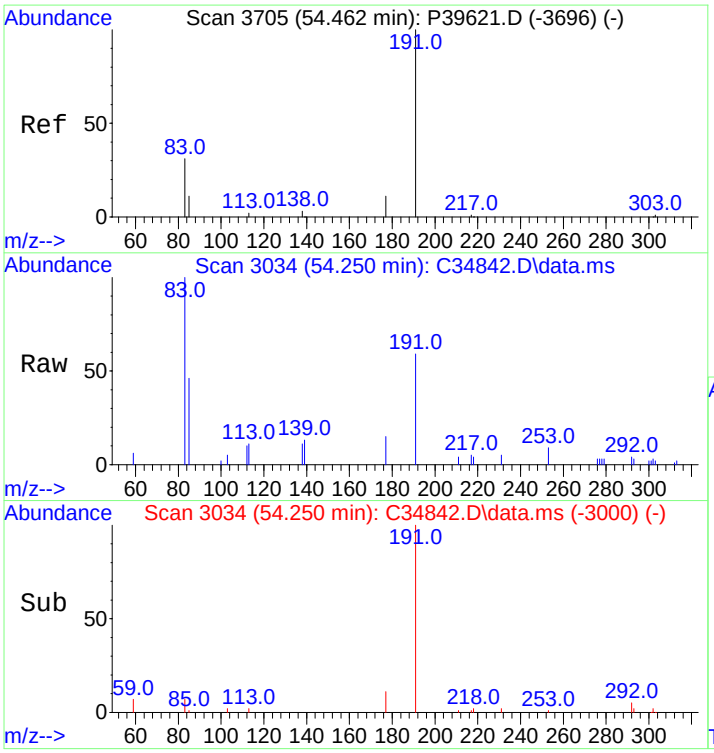




#116
30-Homohopane-22S (T21)
Concen: 961.48 ng/ml m
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

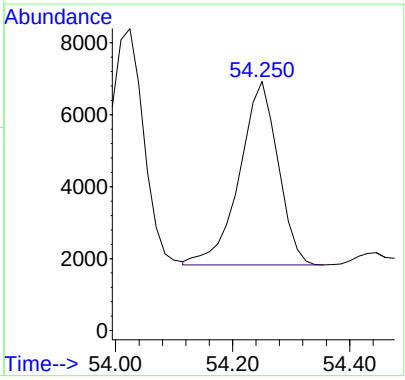
Tgt Ion:191 Resp: 27310

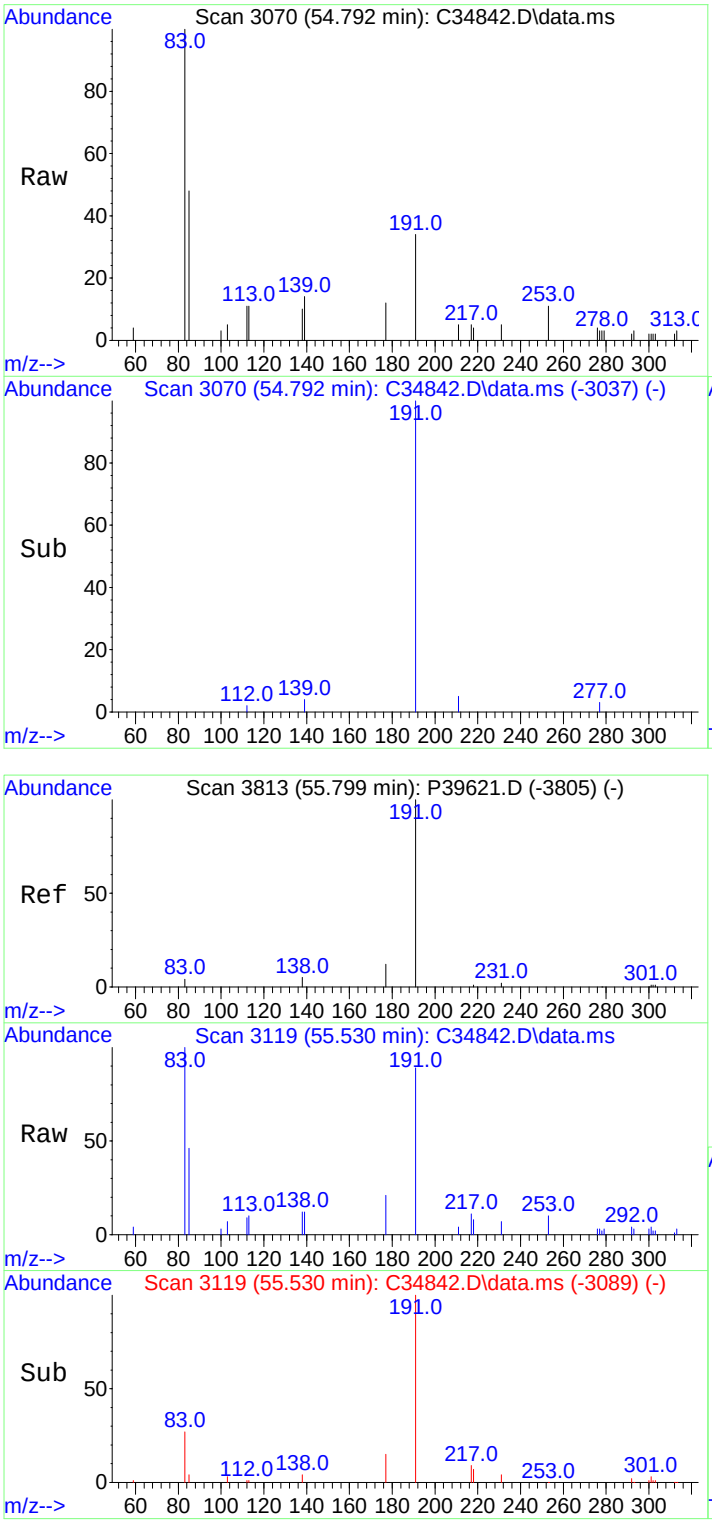




#117
30-Homohopane-22R (T22)
Concen: 821.15 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

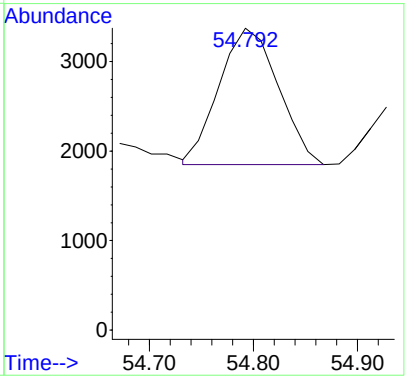
Tgt Ion:191 Resp: 23324





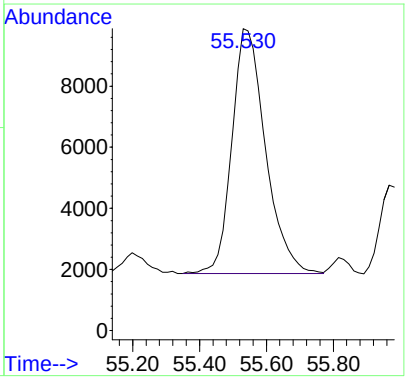
#118
Gammacerane/C32-diahopane
Concen: 212.96 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

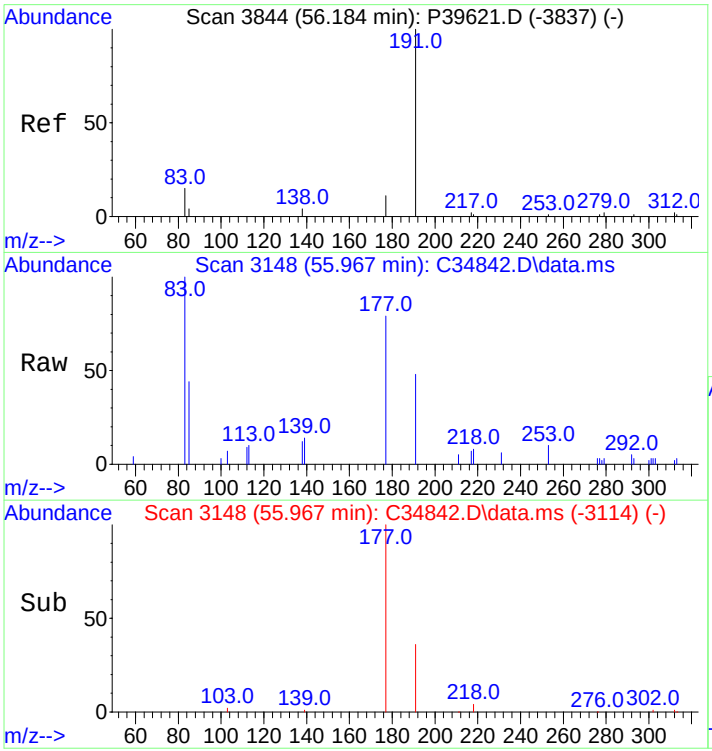
Tgt Ion:191 Resp: 6049



#119
30,31-Bishomohopane-22S (T26)
Concen: 1967.68 ng/ml
RT: 55.530 min Scan# 3119
Delta R.T. -0.045 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

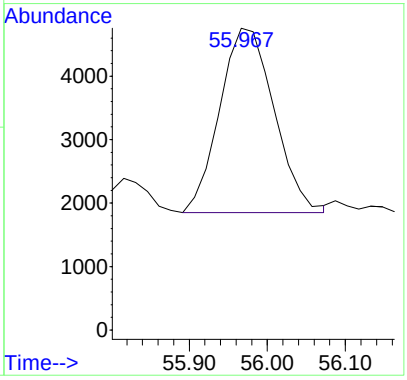
Tgt Ion:191 Resp: 55890

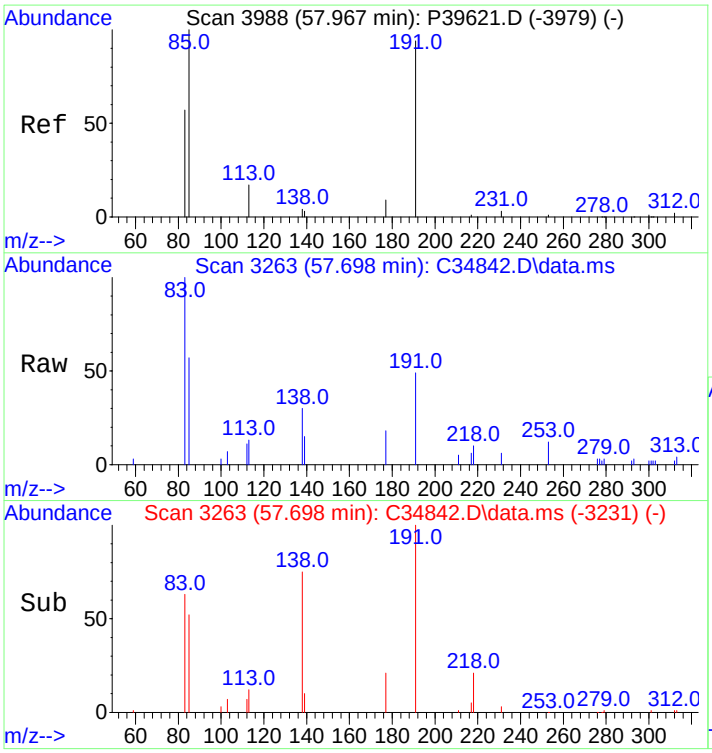




#120
30,31-Bishomohopane-22R (T27)
Concen: 496.94 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

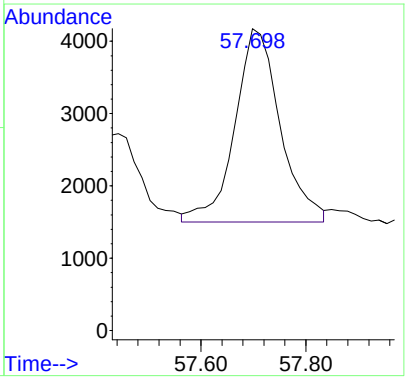
Tgt Ion:191 Resp: 14115

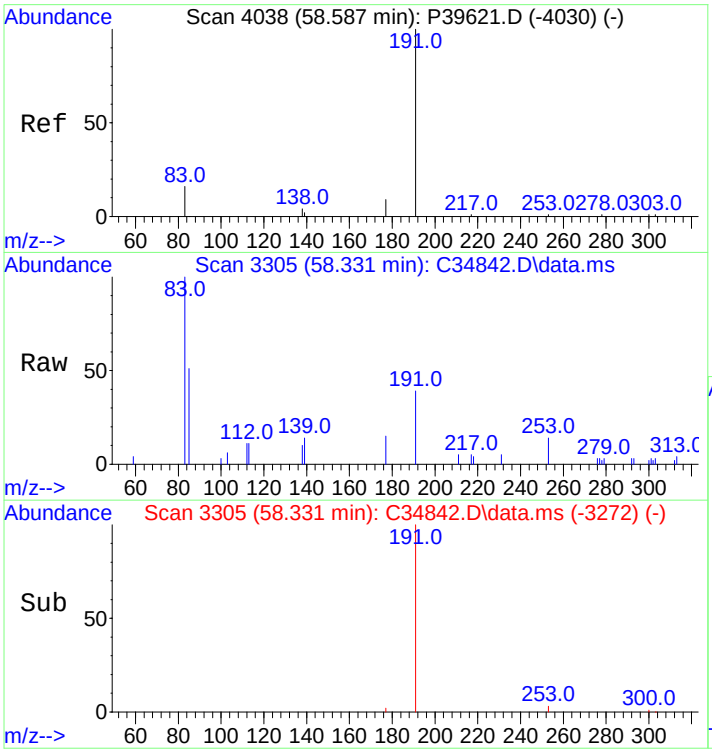




#121
30,31-Trishomohopane-22S (T30)
Concen: 564.67 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

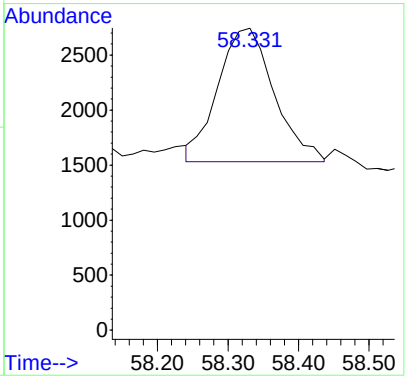
Tgt Ion:191 Resp: 16039

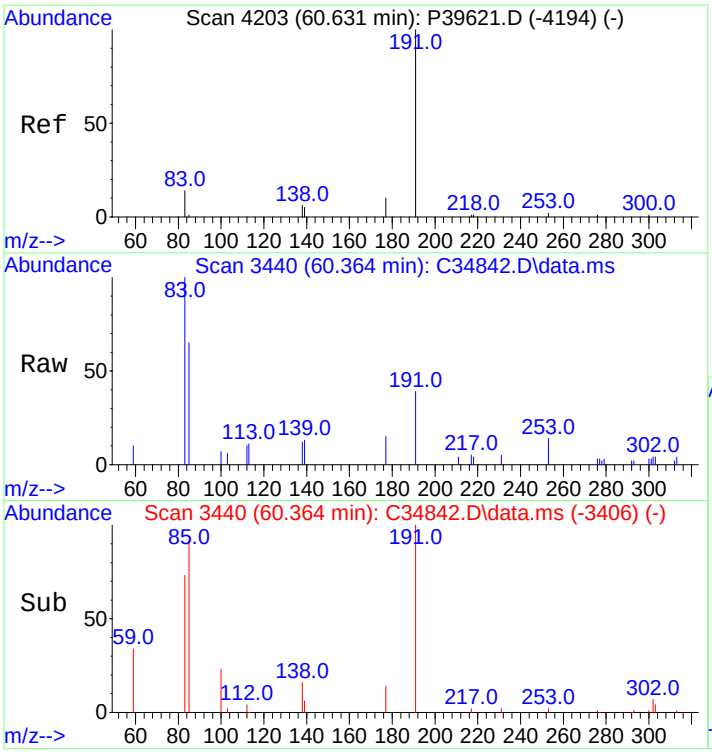




#122
30,31-Trishomohopane-22R (T31)
Concen: 235.95 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

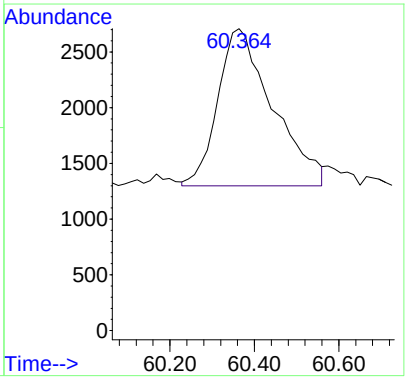
Tgt Ion:191 Resp: 6702

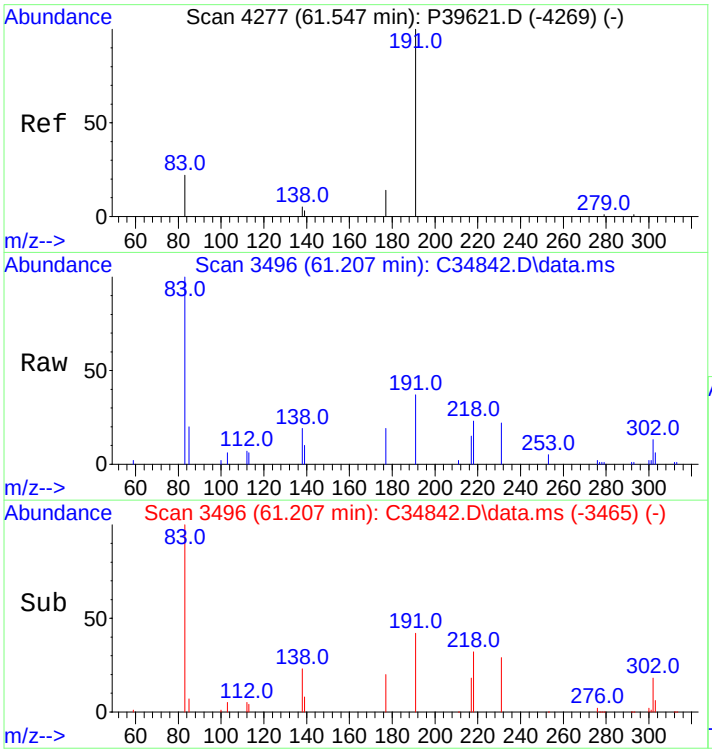




#123
Tetrakishomohopane-22S (T32)
Concen: 448.63 ng/ml m
RT: 60.364 min Scan# 3440
Delta R.T. 0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

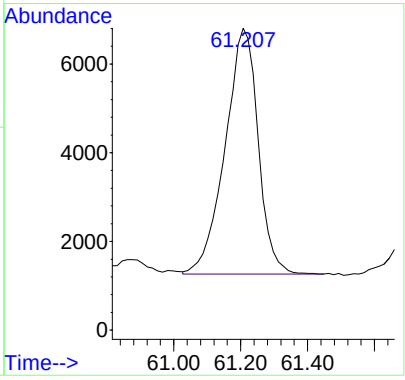
Tgt Ion:191 Resp: 12743

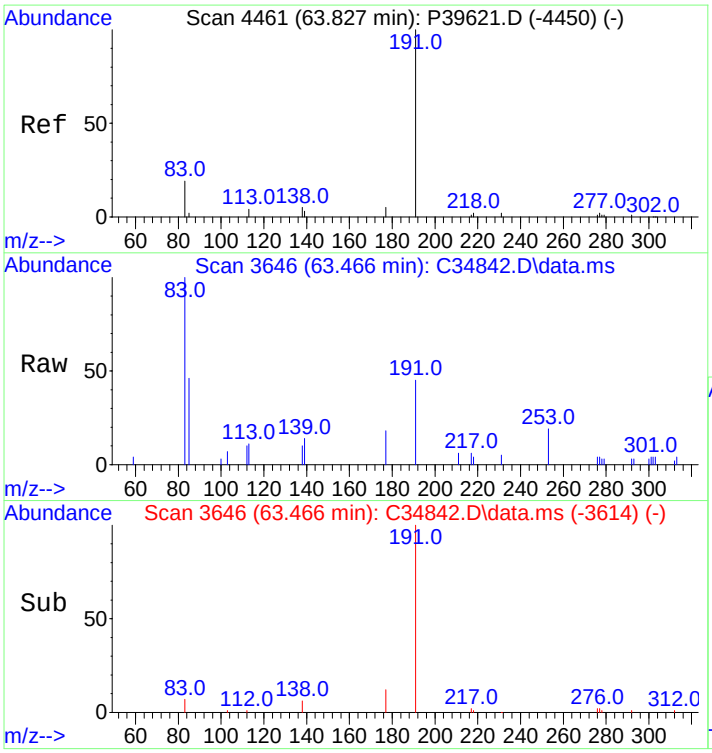




#124
Tetrakishomohopane-22R (T33)
Concen: 1339.21 ng/ml
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

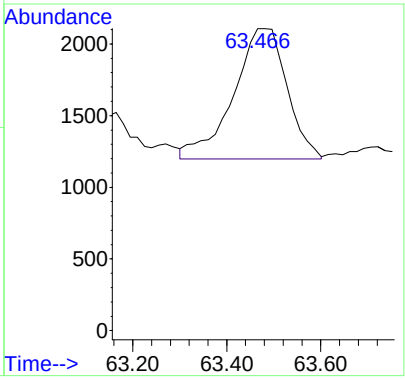
Tgt Ion:191 Resp: 38039

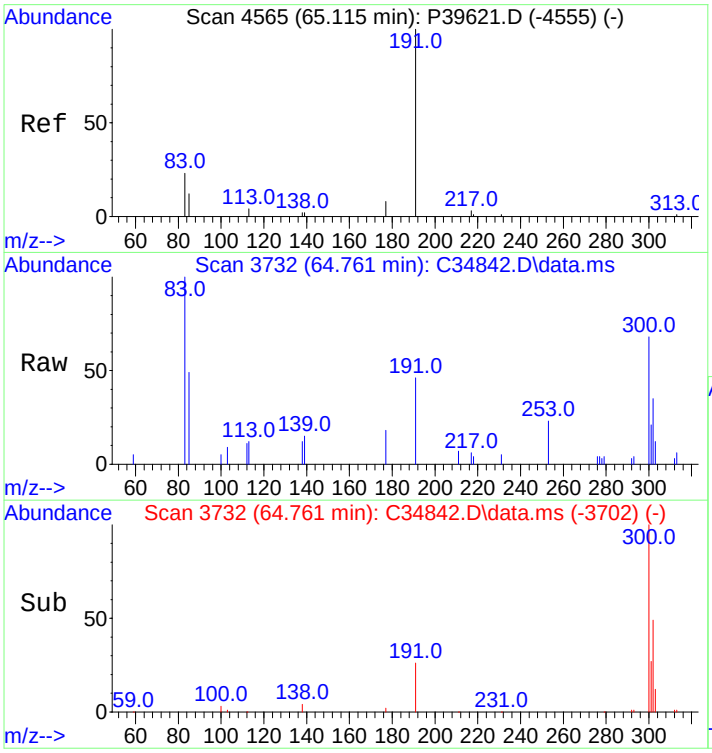




#125
Pentakishomohopane-22S (T34)
Concen: 254.12 ng/ml m
RT: 63.466 min Scan# 3646
Delta R.T. -0.015 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

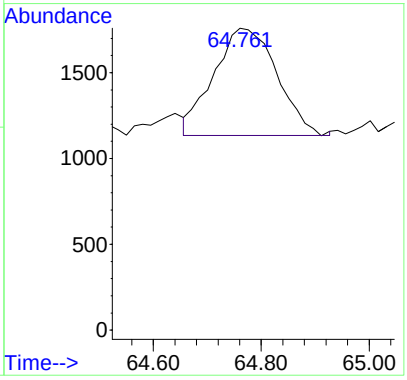
Tgt Ion:191 Resp: 7218

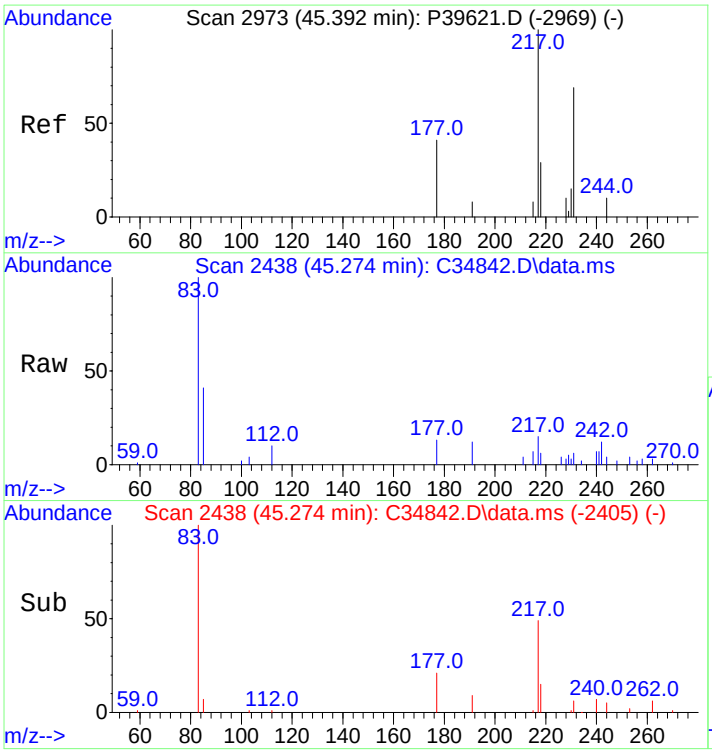




#126
Pentakishomohopane-22R (T35)
Concen: 178.92 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

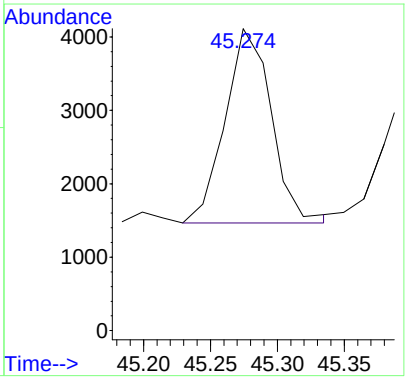
Tgt Ion:191 Resp: 5082

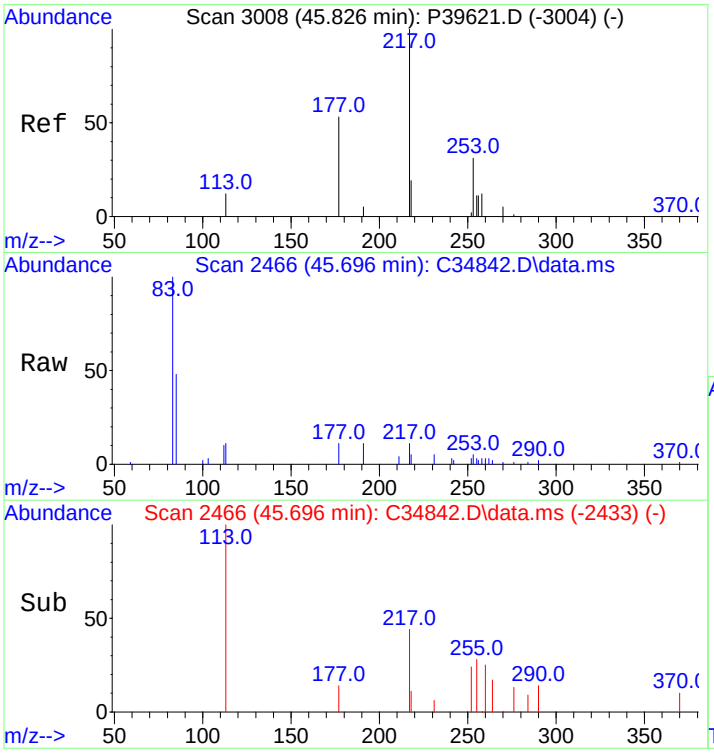




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 476.17 ng/ml
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

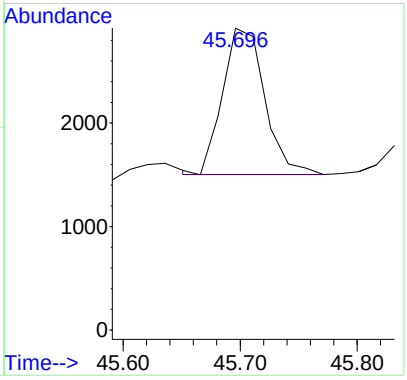
Tgt Ion:217 Resp: 6416

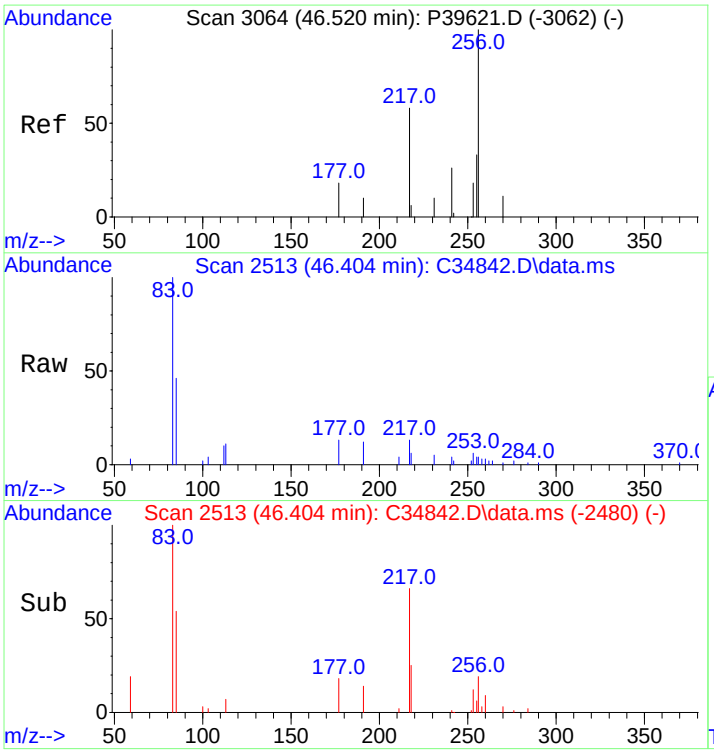




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 262.20 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

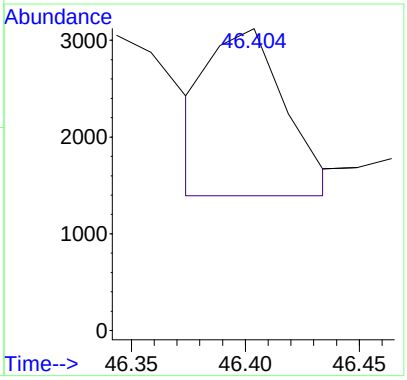
Tgt Ion:217 Resp: 3533

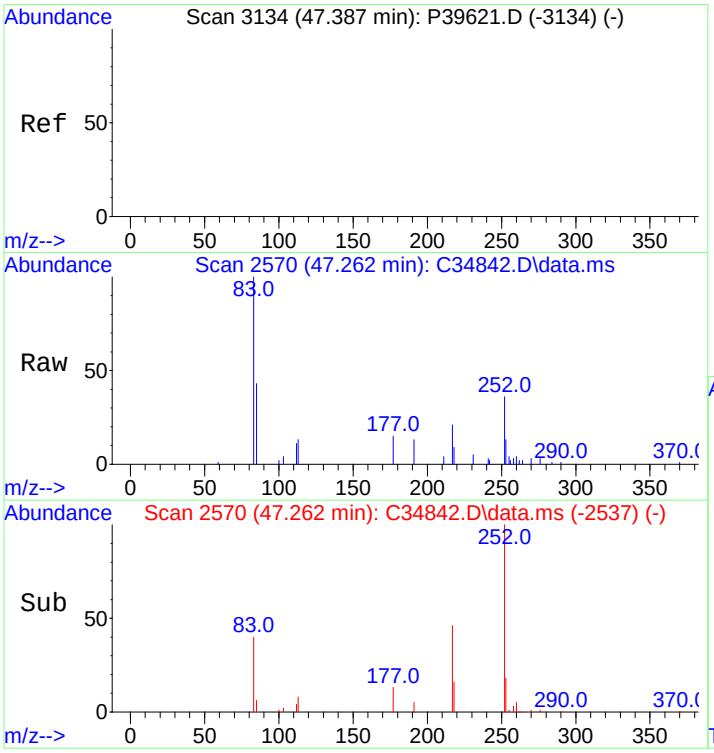




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 295.38 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

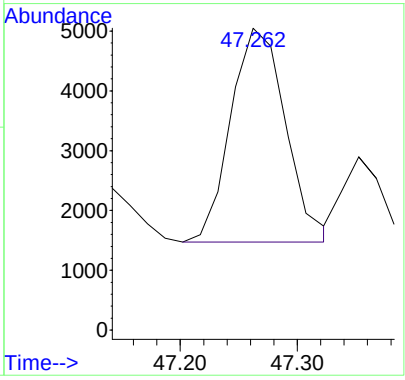
Tgt Ion:217 Resp: 3980

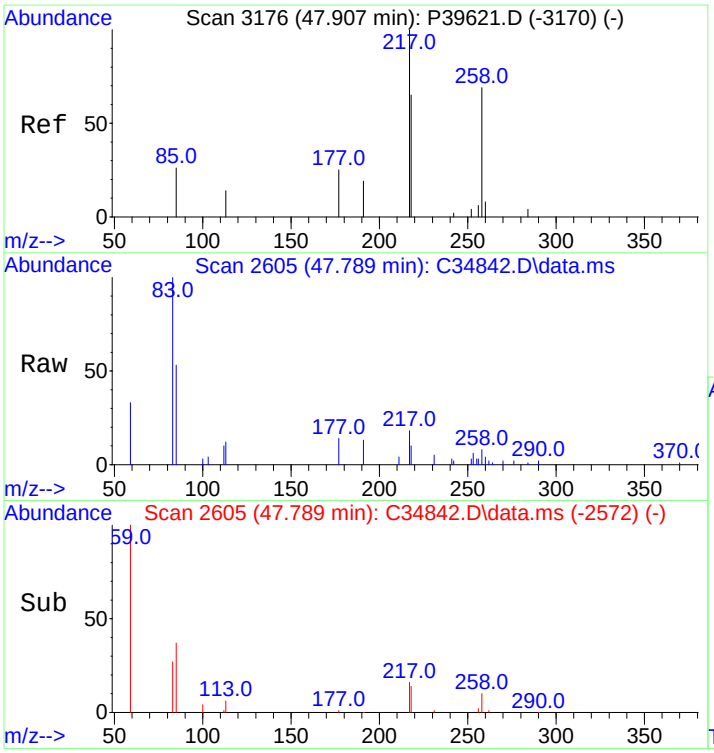




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 866.54 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

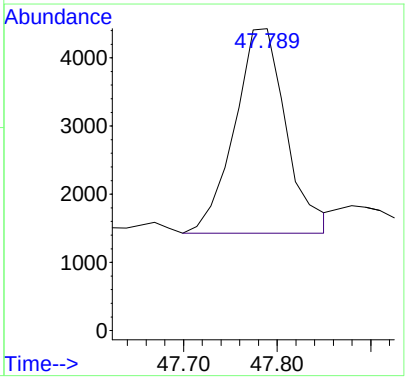
Tgt Ion:217 Resp: 11676

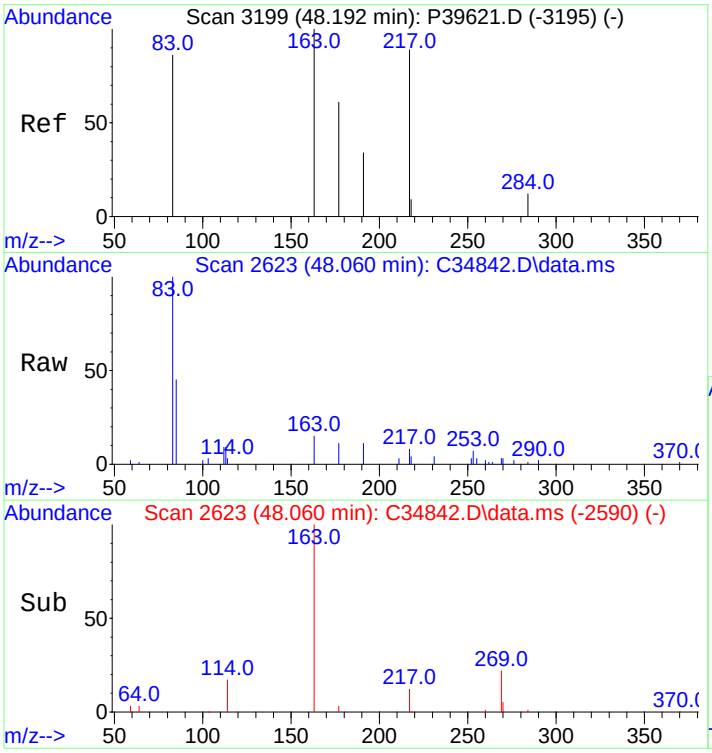




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 854.00 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

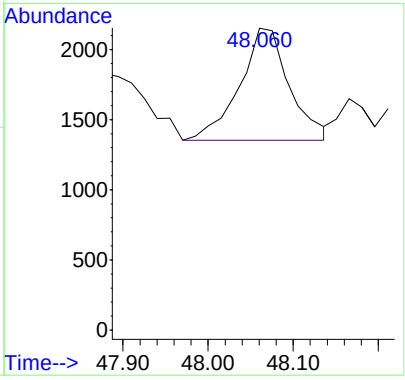
Tgt Ion:217 Resp: 11507

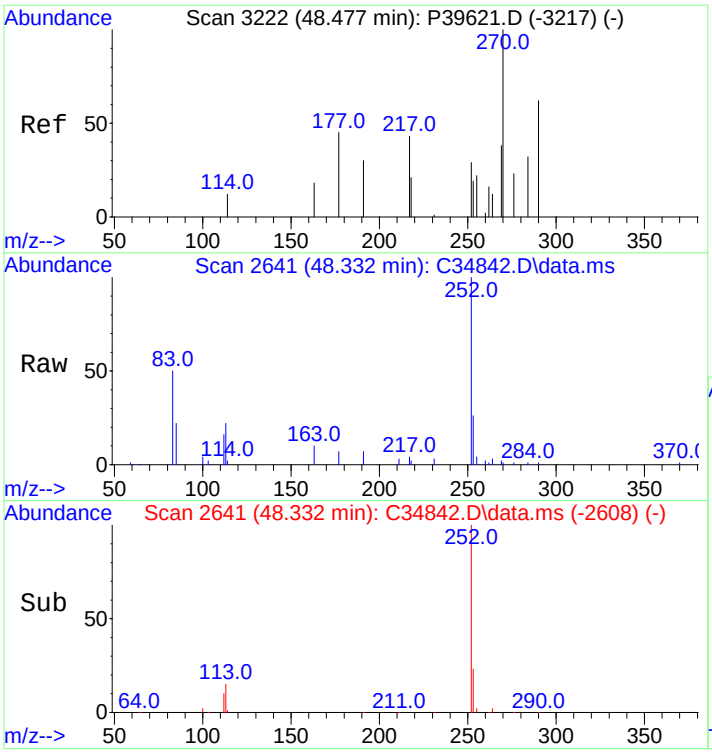




#133
Unknown Sterane (S18)
Concen: 240.90 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

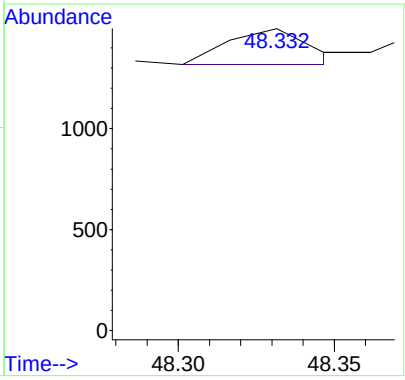
Tgt Ion:217 Resp: 3246

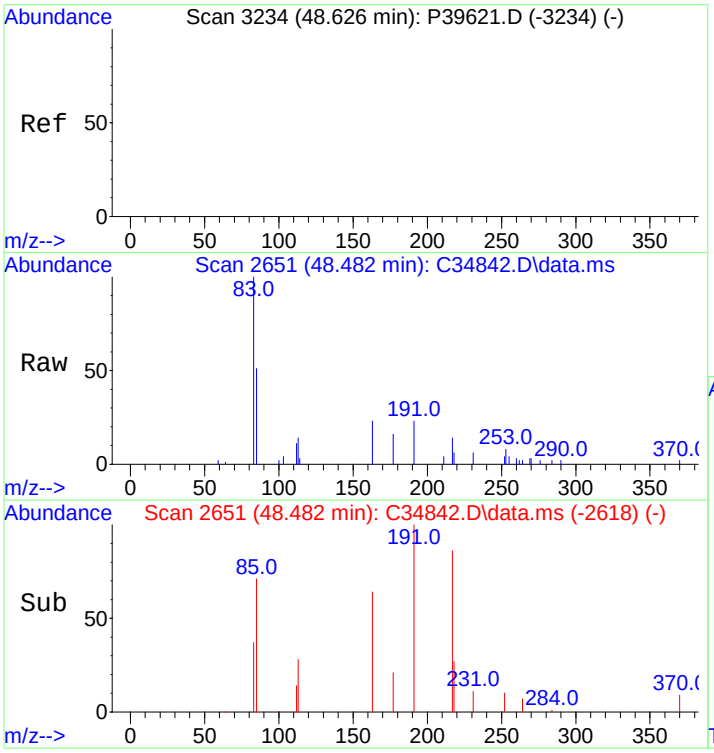




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 24.19 ng/ml
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

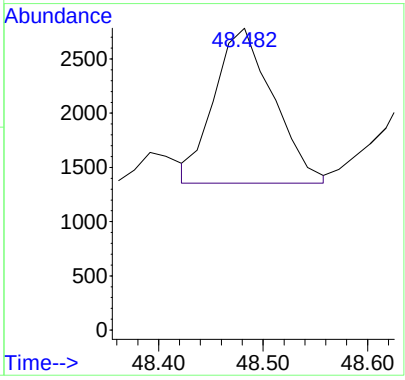
Tgt Ion:217 Resp: 326

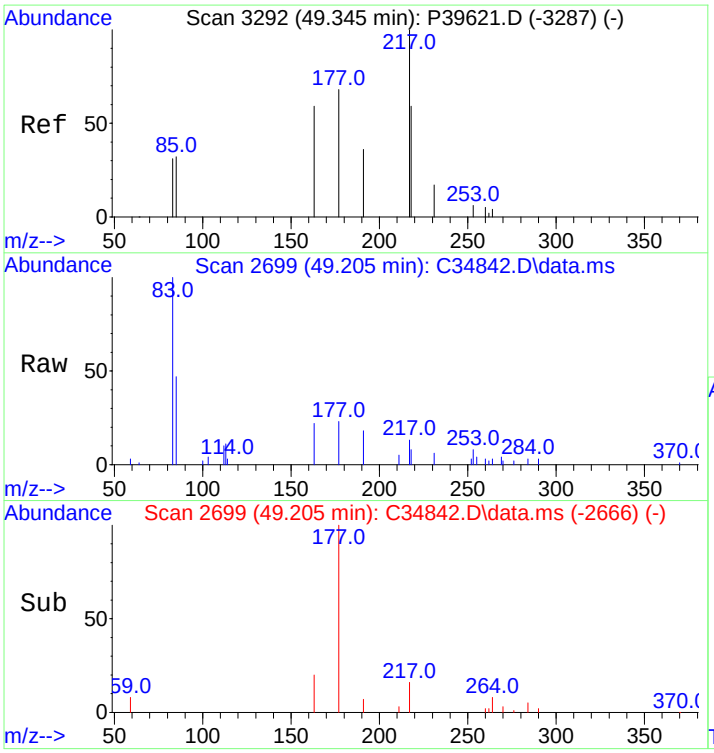




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 414.86 ng/ml m
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

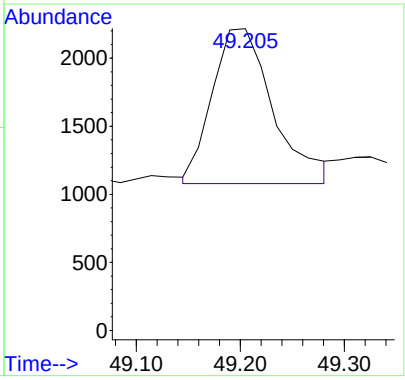
Tgt Ion:217 Resp: 5590

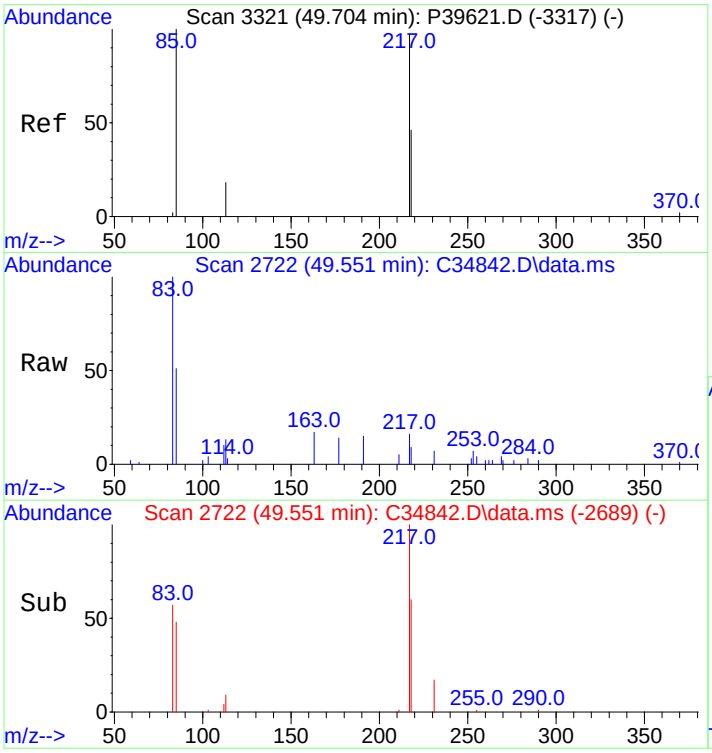




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 344.36 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

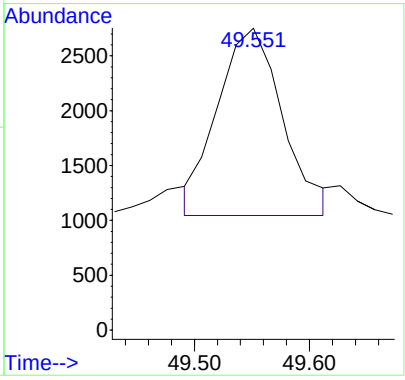
Tgt Ion:217 Resp: 4640

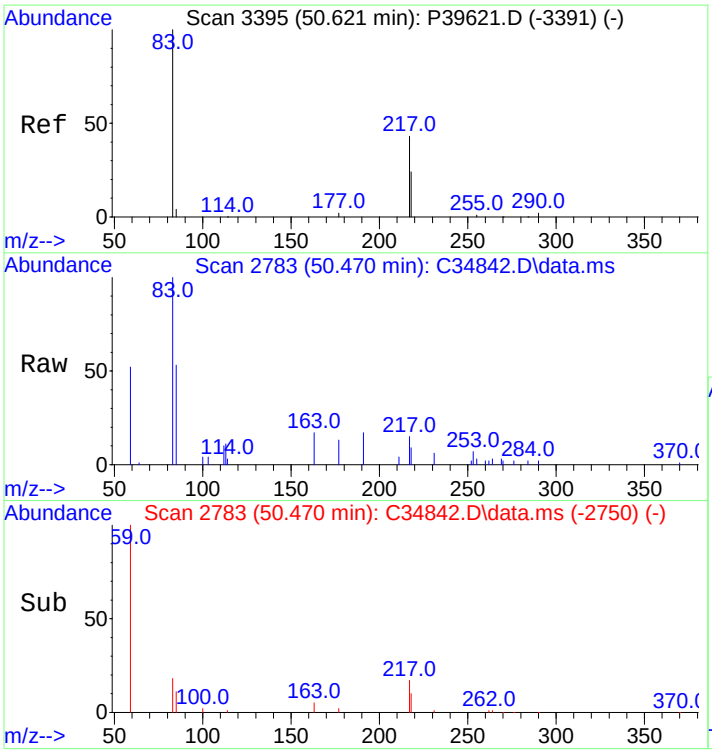




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 496.65 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

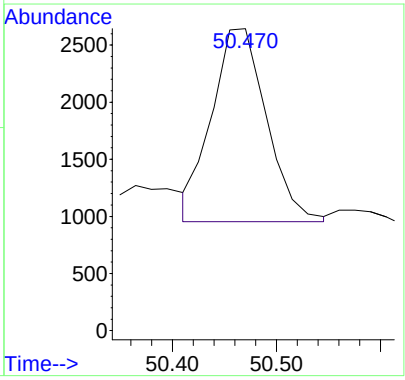
Tgt Ion:217 Resp: 6692

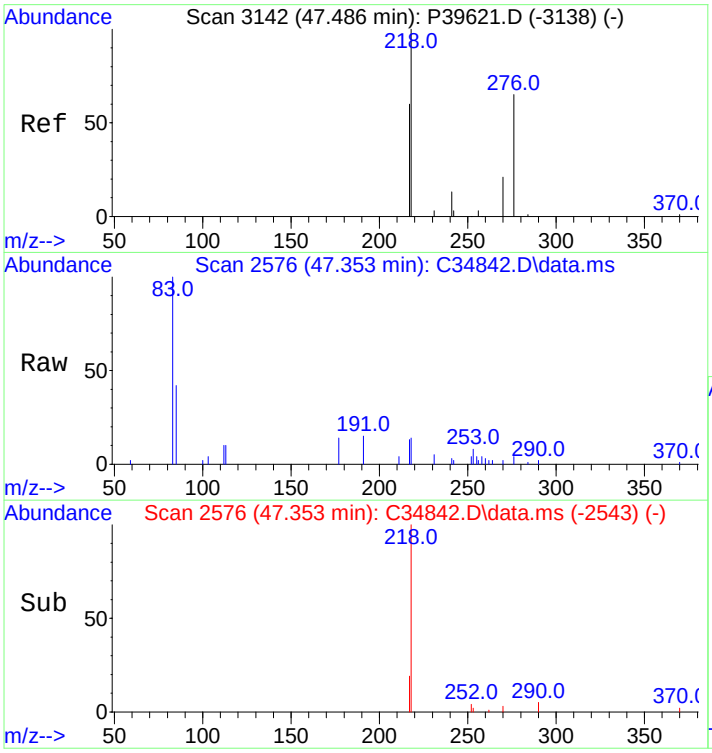




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 460.88 ng/ml
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

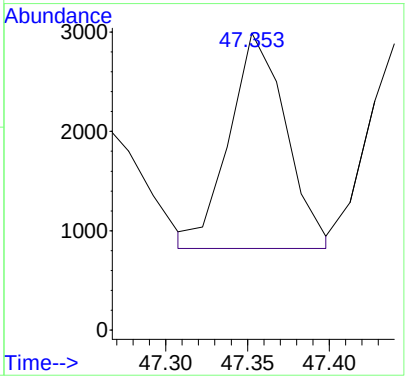
Tgt Ion:217 Resp: 6210

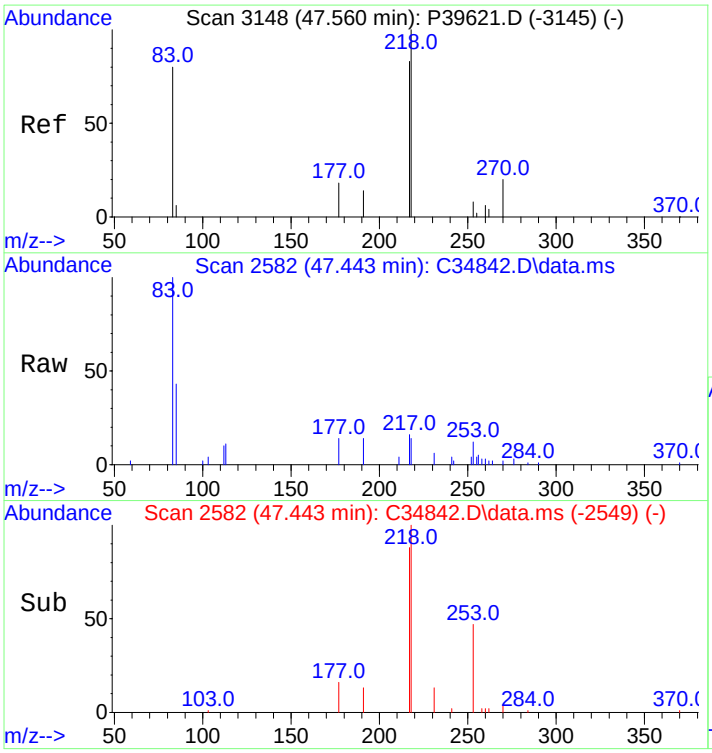




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 386.29 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

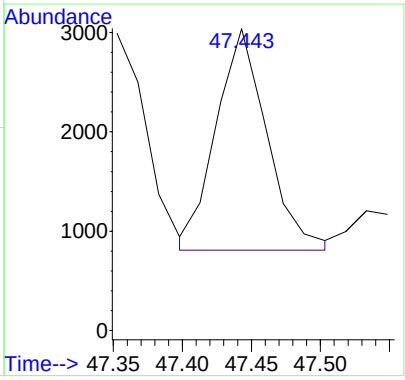
Tgt Ion:218 Resp: 5205

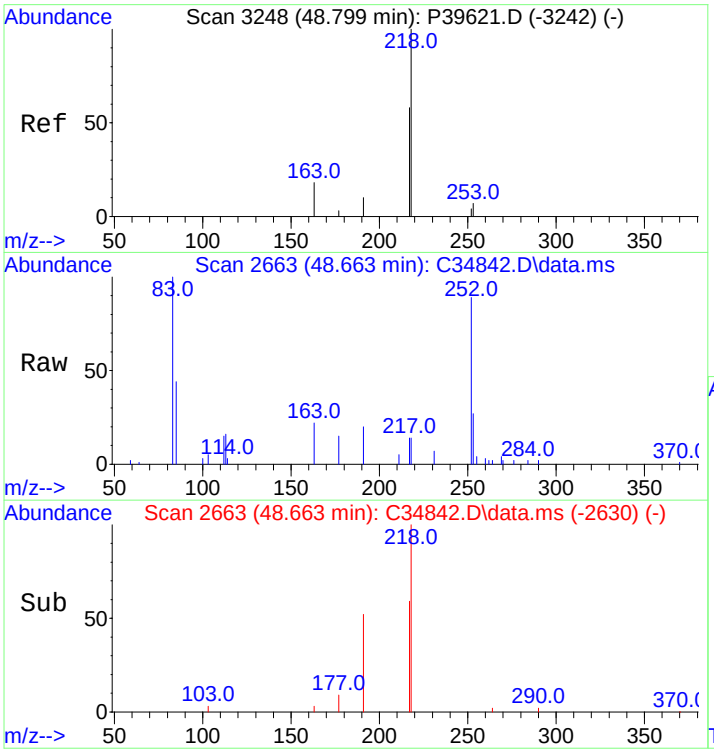




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 423.18 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

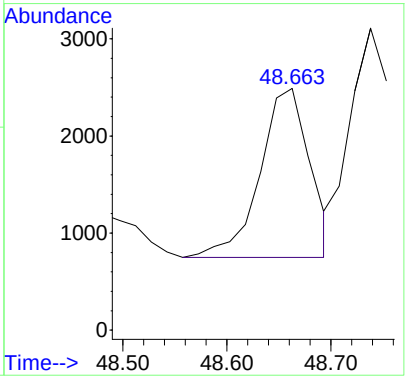
Tgt Ion:218 Resp: 5702

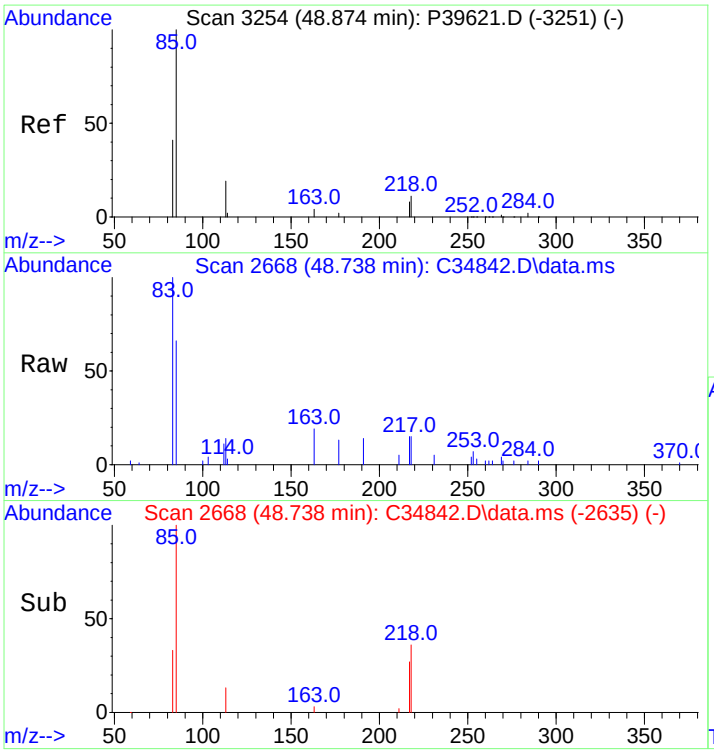




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 432.53 ng/ml
RT: 48.663 min Scan# 2663
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

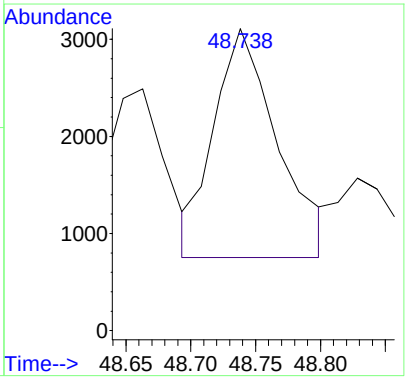
Tgt Ion:218 Resp: 5828

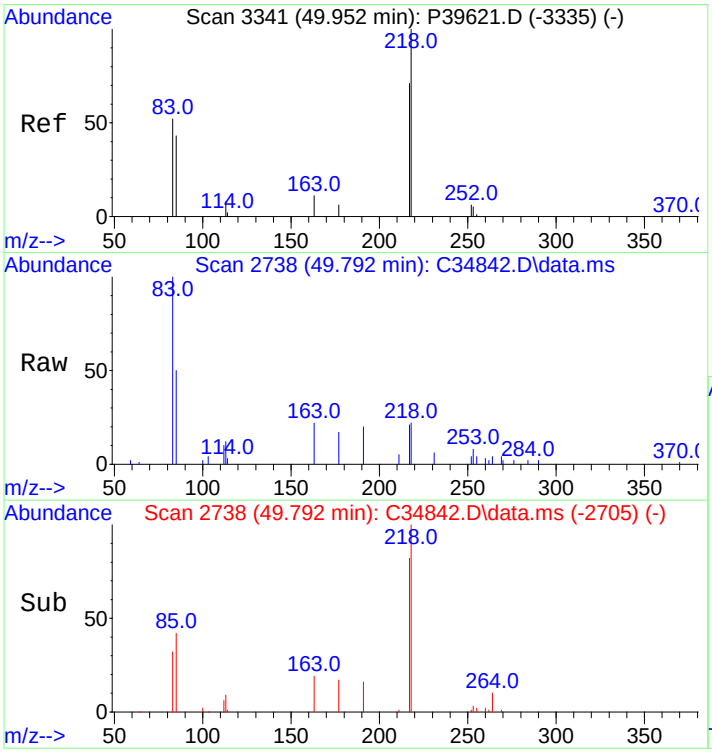




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 598.18 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

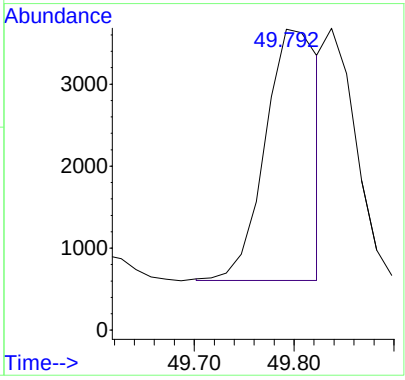
Tgt Ion:218 Resp: 8060

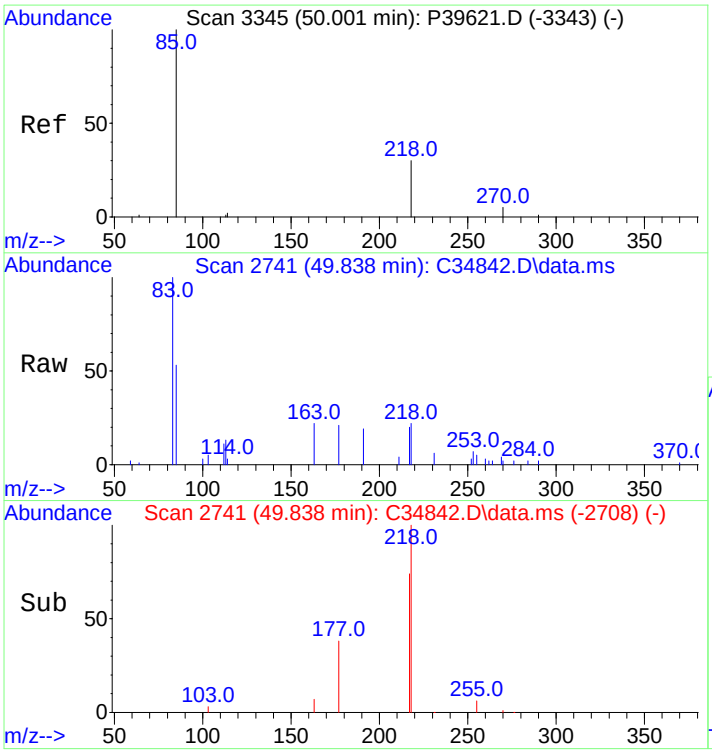




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 836.18 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

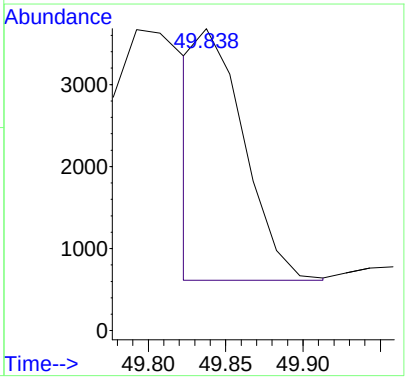
Tgt Ion:218 Resp: 11267

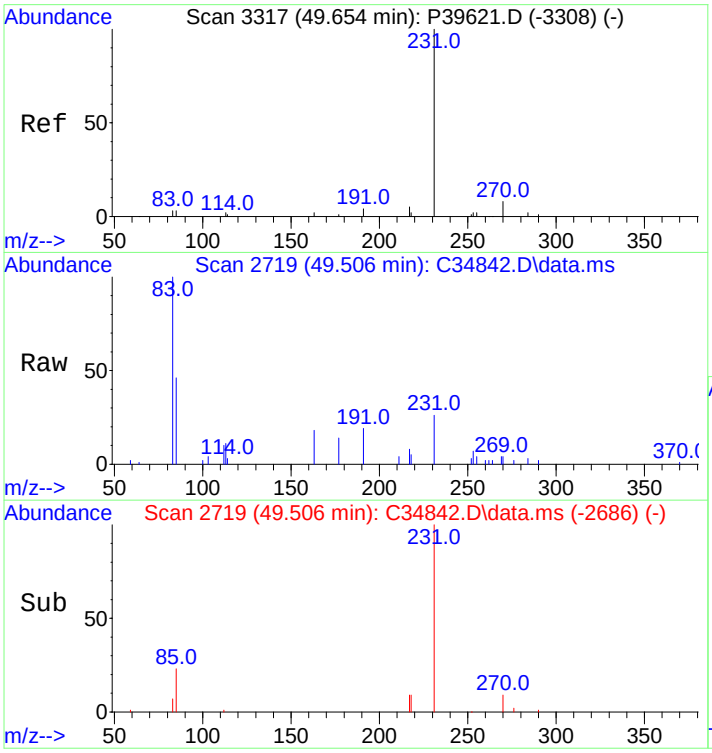




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 485.22 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

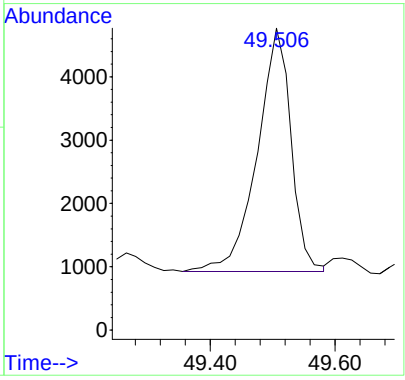
Tgt Ion:218 Resp: 6538

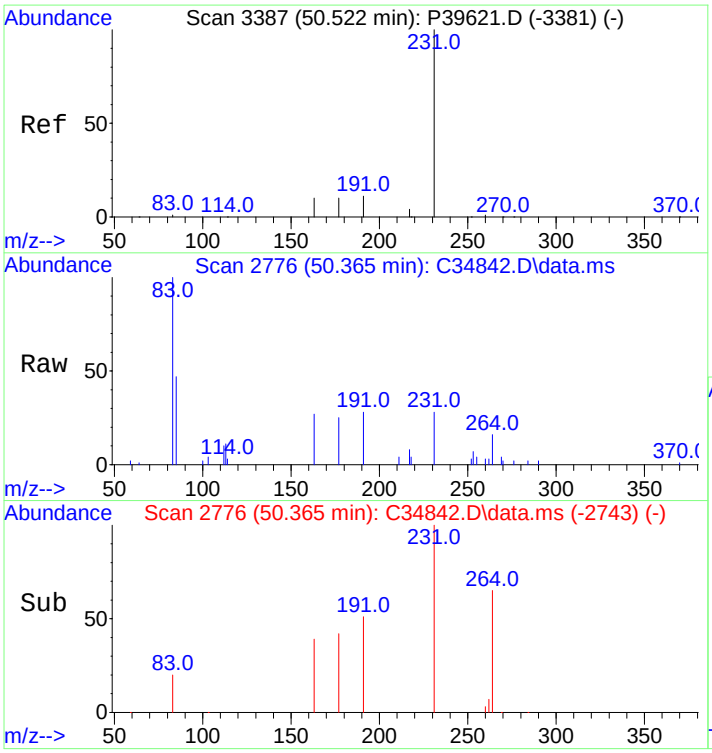




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1069.00 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

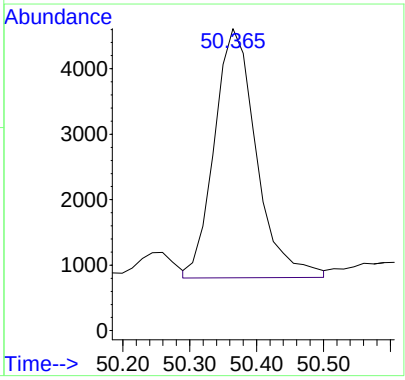
Tgt Ion:231 Resp: 14404

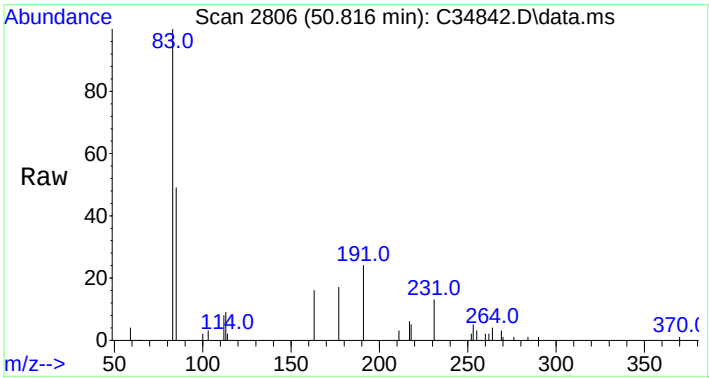




#146
C28,20S-triaromatic steroid
Concen: 1233.46 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

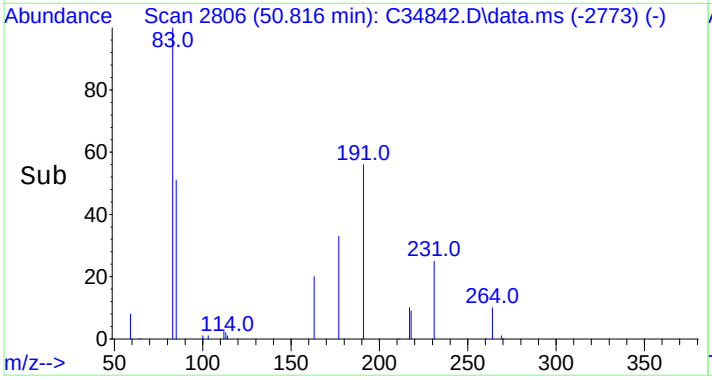
Tgt Ion:231 Resp: 16620

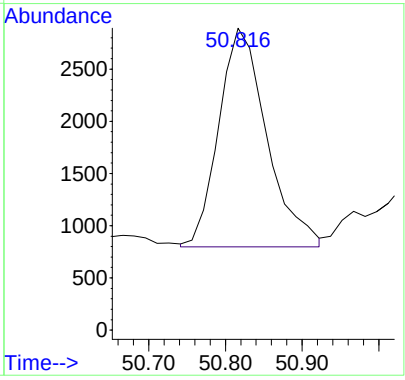


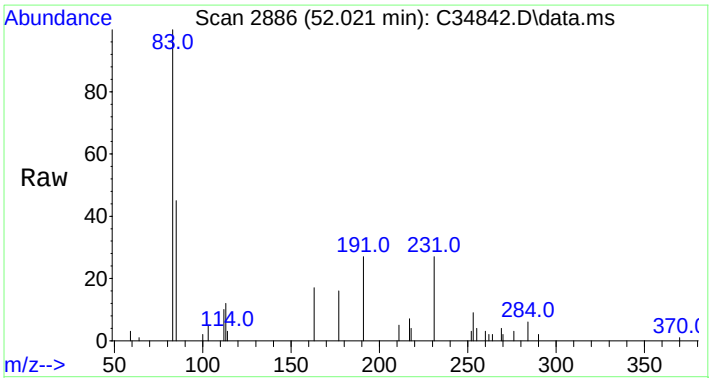


#147
C27,20R-triaromatic steroid
Concen: 676.92 ng/mL m
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:231 Resp: 9121

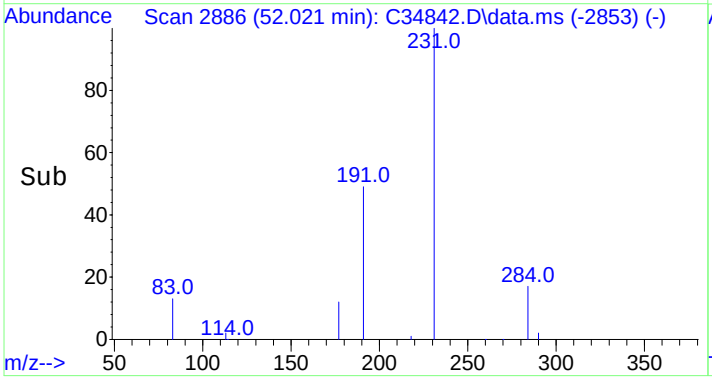


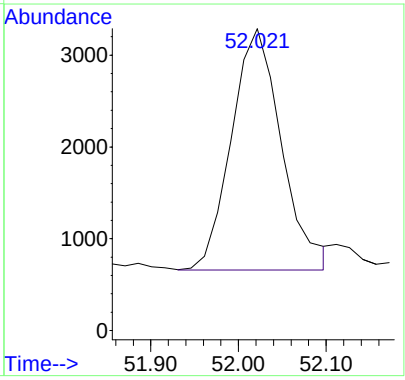




#148
C28,20R-triaromatic steroid
Concen: 774.29 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34842.D
Acq: 4 May 2012 4:37 pm

Tgt Ion:231 Resp: 10433





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20993M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.167	240	43284	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	163036	1789.344	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 178.93%#			
42) Phenanthrene-d10	32.567	188	160274	2225.452	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 222.55%#			
86) Benzo[a]pyrene-d12	48.256	264	181859	2027.352	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 202.74%#			
127) 5B(H)Cholane - Surr	43.784	217	29692	2194.080	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 219.41%#			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	210M3	12.672	ng/mL	
5) C1-Decalins	18.311	152	275M5	16.594	ng/mL	
6) C2-Decalins	20.177	166	844M5	50.929	ng/mL	
7) C3-Decalins	22.104	180	1021M5	61.610	ng/mL	
8) C4-Decalins	25.492	194	4240M5	255.853	ng/mL	
10) Naphthalene	19.801	128	233569	1745.683	ng/mL#	100
11) C1-Naphthalenes	22.496	142	154636M5	1155.742	ng/mL	
12) C2-Naphthalenes	24.995	156	15427M5	115.301	ng/mL	
13) C3-Naphthalenes	28.894	170	17458M5	130.480	ng/mL	
14) C4-Naphthalenes	31.694	184	28094M5	209.973	ng/mL	
16) 2-Methylnaphthalene	22.496	142	148530	1877.472	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	6092	78.561	ng/mL#	100
18) Benzothiophene	20.027	134	608M3	5.050	ng/mL	
19) C1-Benzo(b)thiophenes	22.360	148	3465M5	28.779	ng/mL	
20) C2-Benzo(b)thiophenes	24.664	162	1740M5	14.452	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5240M5	43.521	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	6994M5	58.089	ng/mL	
23) Biphenyl	24.393	154	2433M3	24.312	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	4100	63.079	ng/mL#	100
25) Dibenzofuran	27.464	168	5817	50.619	ng/mL	92
26) Acenaphthylene	26.079	152	251109	1890.628	ng/mL#	100
27) Acenaphthene	26.817	153	153482	1962.606	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.367	170	937M3	17.883	ng/mL	
29) Fluorene	28.834	166	180619M3	2094.161	ng/mL	
30) C1-Fluorenes	31.197	180	6745M5	78.204	ng/mL	
31) C2-Fluorenes	33.410	194	21914M5	254.079	ng/mL	
32) C3-Fluorenes	35.909	208	71232M5	825.889	ng/mL	
33) Dibenzothiophene	32.161	184	11144	80.604	ng/mL#	89
34) 4-Methyldibenzothiophe...	33.937	198	5811	42.031	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.299	198	6374M3	46.103	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	2608	18.864	ng/mL#	100
37) OTP	34.374	198	32814M3	237.343	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	51353M5	371.434	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	39538M5	285.977	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	66934M5	484.131	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	55414M5	400.808	ng/mL	
43) Phenanthrene	32.658	178	397154	3269.577	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.630	192	15961	131.399	ng/mL	96
45) 2/4-Methylphenanthrene...	34.750	192	19650M3	161.769	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	7614M3	62.682	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	16422M3	135.194	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.172	192	10874M3	89.520	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.750	192	73355M5	603.896	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	64992M5	535.048	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	73246M5	602.999	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	58209M5	479.207	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
55)	Anthracene	32.838	178		242148M3	2040.885	ng/mL	
56)	Carbazole	33.501	167		18382M3	153.378	ng/mL	
57)	1-Methylphenanthrene	35.172	192		10679M3	138.729	ng/mL	
58)	Fluoranthene	37.445	202		609198M3	5049.735	ng/mL	
59)	Benzo(b)fluorene	39.960	216		22112M3	315.930	ng/mL	
60)	Pyrene	38.318	202		595777	4858.203	ng/mL	97
61)	C1-Fluoranthenes/Pyrenes	39.704	216		163059M5	1329.648	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.450	230		117557M5	958.607	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.648	244		65009M5	530.109	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.928	258		56849M5	463.569	ng/mL	
66)	Naphthobenzothiophene	42.173	234		27043	204.831	ng/ml#	76
67)	Naphthobenzothiophene-...	42.173	234		27043	204.831	ng/mL#	76
68)	Naphthobenzothiophene-...	42.519	234		6296	47.688	ng/mL#	13
69)	Naphthobenzothiophene-...	42.805	234		13096M3	99.192	ng/mL	
70)	C1-Naphthobenzothiophenes	43.573	248		38946M5	294.987	ng/ml	
71)	C2-Naphthobenzothiophenes	45.576	262		44935M5	340.349	ng/ml	
72)	C3-Naphthobenzothiophenes	47.187	276		37288M5	282.429	ng/ml	
73)	C4-Naphthobenzothiophenes	48.256	290		29836M5	225.986	ng/mL	
75)	Benz[a]anthracene	43.106	228		420272	3059.135	ng/mL	95
77)	Chrysene/Triphenylene	43.272	228		433581	3126.052	ng/mL	99
78)	C1-Chrysenes	44.732	242		76605M5	552.310	ng/mL	
79)	C2-Chrysenes	46.148	256		56940M5	410.529	ng/mL	
80)	C3-Chrysenes	47.488	270		55104M5	397.291	ng/mL	
81)	C4-Chrysenes	49.024	284		24320M5	175.343	ng/mL	
82)	Benzo[b]fluoranthene	47.157	252		512100	3392.375	ng/mL	97
83)	Benzo[j]+[k]fluoranthene	47.232	252		433345	2636.686	ng/mL	98
84)	Benzo[a]fluoranthene	47.533	252		34684M3	211.035	ng/mL	
85)	Benzo[e]pyrene	48.166	252		112595	754.080	ng/mL	99
87)	Benzo[a]pyrene	48.347	252		437841	3045.665	ng/mL	97
88)	Perylene	48.663	252		54022	351.619	ng/mL	97
89)	Indeno[1,2,3-cd]pyrene	53.181	276		444487M3	2656.889	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.226	278		355677	2234.930	ng/mL	96
91)	Benzo[g,h,i]perylene	54.491	276		443114	2507.024	ng/mL	99
92)	Hopane (T19)	52.232	191		82572	2894.498	ng/mL#	79
94)	C23 Tricyclic Terpane ...	40.803	191		12819M3	449.360	ng/ml	
95)	C24 Tricyclic Terpane ...	41.525	191		9342	327.477	ng/ml	100
96)	C25 Tricyclic Terpane ...	43.061	191		8135M3	285.166	ng/ml	
97)	C24 Tetracyclic Terpan...	44.326	191		8565	300.239	ng/ml	100
98)	C26 Tricyclic Terpane-...	44.070	191		4443M3	155.746	ng/ml	
99)	C26 Tricyclic Terpane-...	44.160	191		3962M3	138.885	ng/ml	
100)	C28 Tricyclic Terpane-...	46.449	191		3388M3	118.764	ng/ml	
101)	C28 Tricyclic Terpane-...	46.615	191		5609M3	196.619	ng/ml	
102)	C29 Tricyclic Terpane-...	47.127	191		3857	135.204	ng/ml	100
103)	C29 Tricyclic Terpane-...	47.323	191		4011	140.603	ng/ml	100
104)	18a-22,29,30-Trisnorne...	48.452	191		18530	649.555	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.542	191		4036M3	141.479	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.783	191		3783	132.610	ng/mL	100
107)	17a(H)-22,29,30-Trisno...	49.009	191		21220	743.851	ng/ml	100
108)	17a/b,21b/a 28,30-Bisn...	50.184	191		3028	106.144	ng/ml	100
109)	17a(H),21b(H)-25-Norho...	49.958	191		7503	263.012	ng/ml	100
110)	30-Norhopane (T15)	50.862	191		56026M3	1963.948	ng/ml	
111)	18a(H)-30-Norneohopane...	50.967	191		18284M3	640.932	ng/ml	
112)	17a(H)-Diahopane (X)	51.088	191		4179M3	146.492	ng/ml	
113)	30-Normoretane (T17)	51.645	191		9414	330.001	ng/ml	100
114)	18a(H)&18b(H)-Oleanane...	52.052	191		6614M3	231.849	ng/ml	
115)	Moretane (T20)	52.925	191		10522M3	368.841	ng/ml	
116)	30-Homohopane-22S (T21)	54.024	191		26192M3	918.140	ng/ml	
117)	30-Homohopane-22R (T22)	54.250	191		23090	809.402	ng/ml	100
118)	Gammacerane/C32-diahopane	54.807	191		5718	200.440	ng/mL	100
119)	30,31-Bishomohopane-22...	55.545	191	G	55851	1957.814	ng/ml	100
120)	30,31-Bishomohopane-22...	55.982	191		16145M3	565.951	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

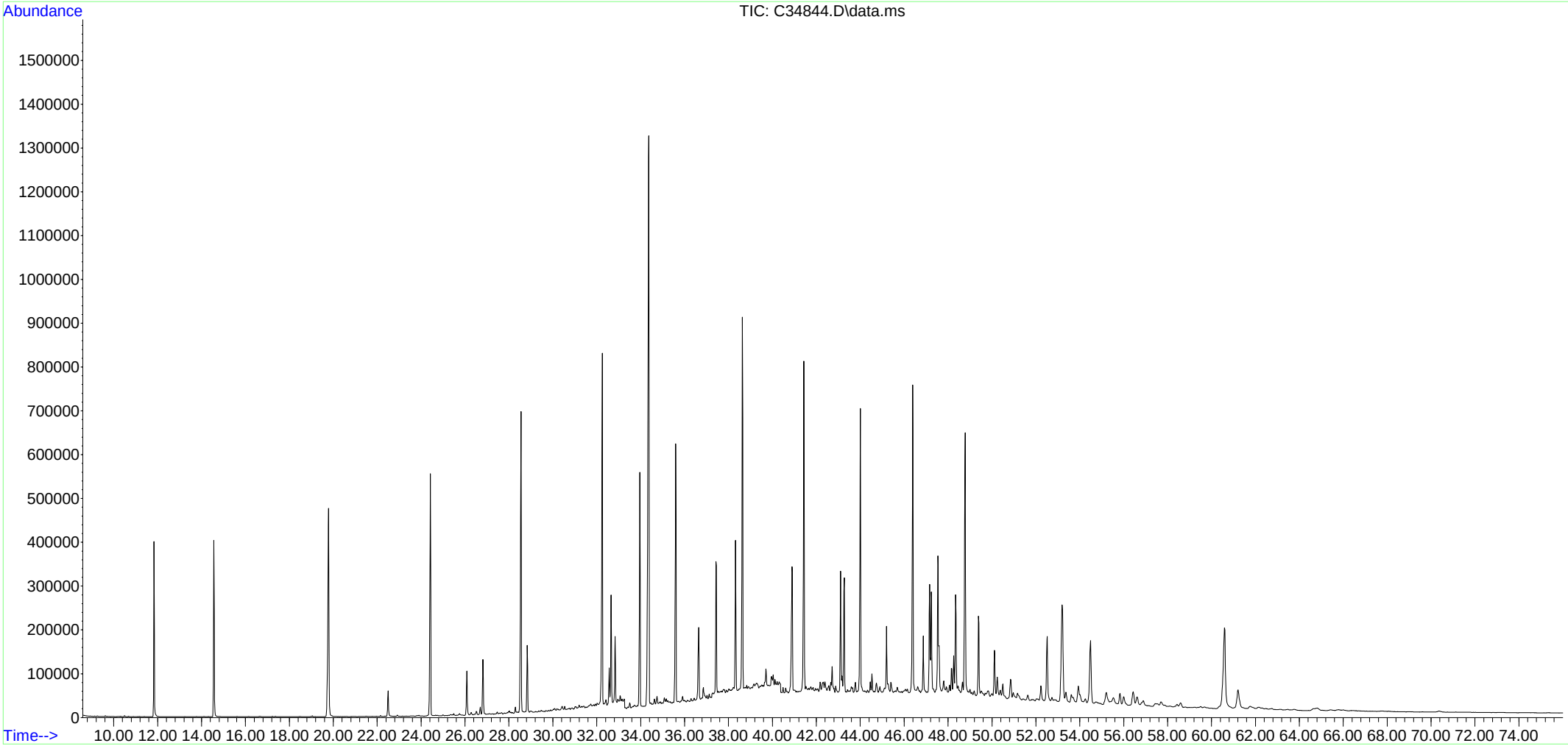
	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
121)	30,31-Trishomohopane-2...	57.714	191		14653M3	513.650	ng/ml	
122)	30,31-Trishomohopane-2...	58.316	191		6119M3	214.497	ng/ml	
123)	Tetrakishomohopane-22S...	60.364	191		8794M3	308.267	ng/ml	
124)	Tetrakishomohopane-22R...	61.207	191	G	35669	1250.349	ng/ml	100
125)	Pentakishomohopane-22S...	63.481	191		7091	248.570	ng/ml	100
126)	Pentakishomohopane-22R...	64.776	191		5124M3	179.618	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217		6687M3	494.134	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.711	217		3790M3	280.061	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.404	217		4545M3	335.851	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.262	217		11470	847.572	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.789	217		11723	866.267	ng/ml	100
133)	Unknown Sterane (S18)	48.060	217		3103	229.295	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.332	217		502M3	37.095	ng/ml	
135)	14a,17a-20S-Methylchol...	48.482	217		5811M3	429.402	ng/ml	
136)	14a,17a-20R-Methylchol...	49.205	217		4108M3	303.559	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217		5624M3	415.584	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.470	217		6308M3	466.128	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.353	218		4949M3	365.705	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.443	218		5269M3	389.351	ng/ml	
141)	14b,17b-20R-Methylchol...	48.663	218		5080	375.385	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.738	218		8337M3	616.060	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.808	218		10180M3	752.248	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.838	218		7241M3	535.071	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.506	231		13837	1022.480	ng/mL	100
146)	C28,20S-triaromatic st...	50.365	231		14341M3	1059.723	ng/mL	
147)	C27,20R-triaromatic st...	50.817	231		8614	636.529	ng/mL	100
148)	C28,20R-triaromatic st...	52.021	231		9922M3	733.183	ng/mL	

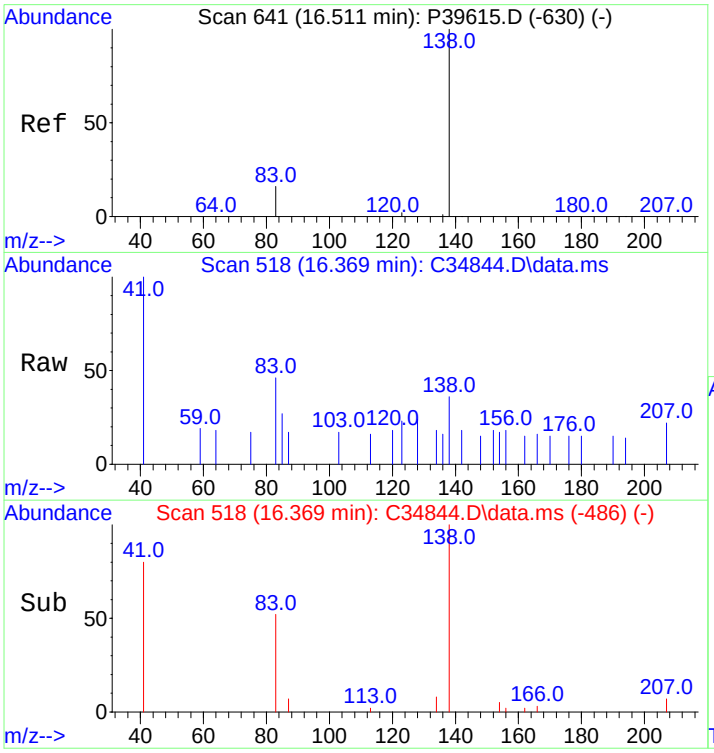
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34844.D
Acq On : 4 May 2012 6:09 pm
Operator : AC
Sample : 1204031-01M
Misc : 1X
ALS Vial : 35 Sample Multiplier: 1

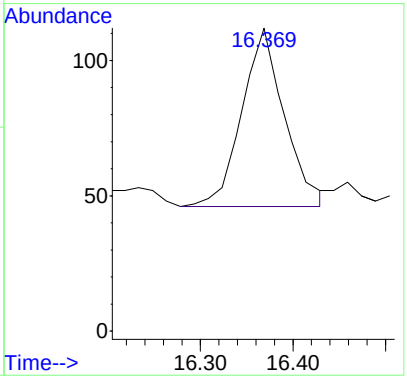
Quant Time: May 06 15:08:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

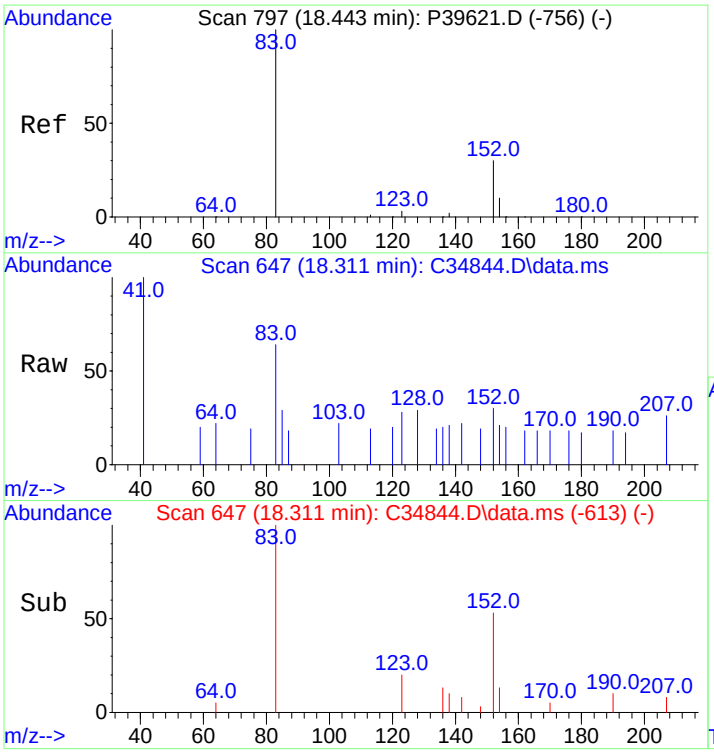




#3
trans-Decalin
Concen: 12.67 ng/mL m
RT: 16.369 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

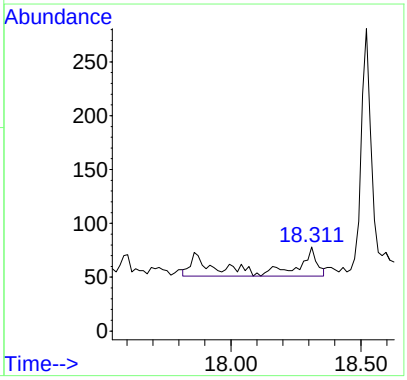
Tgt Ion:138 Resp: 210

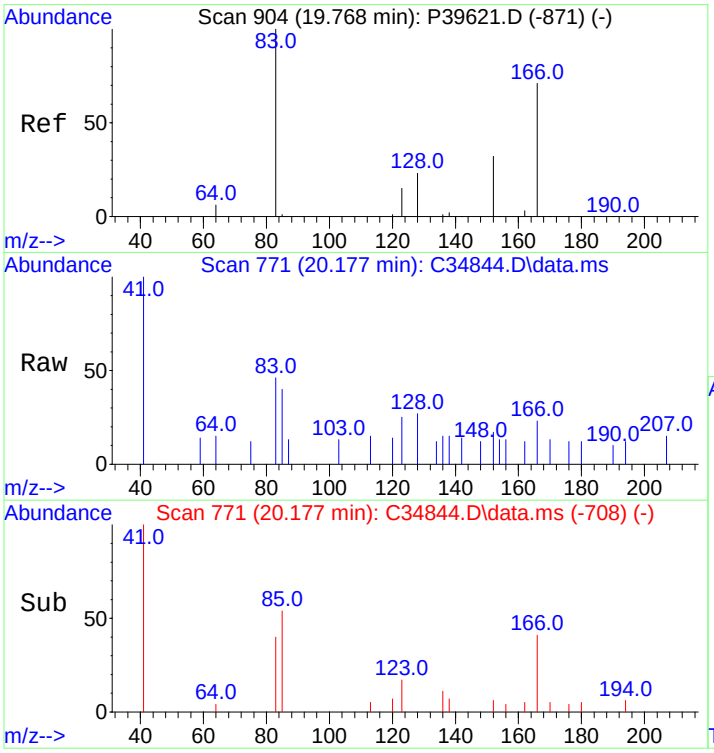




#5
C1-Decalins
Concen: 16.59 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.037 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

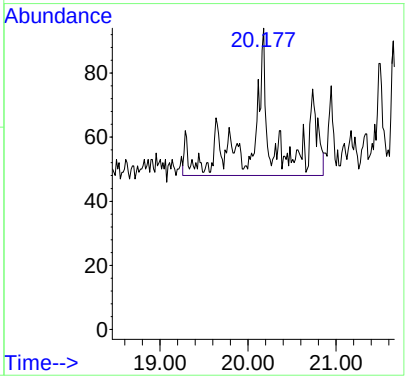
Tgt Ion:152 Resp: 275

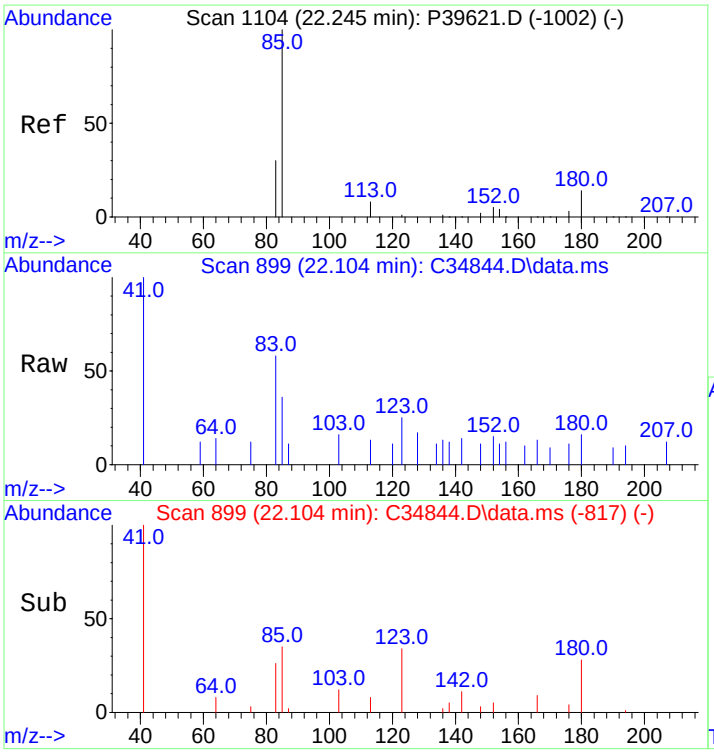




#6
C2-Decalins
Concen: 50.93 ng/mL m
RT: 20.177 min Scan# 771
Delta R.T. 0.495 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

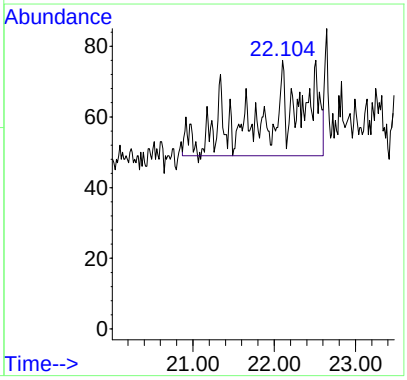
Tgt Ion:166 Resp: 844

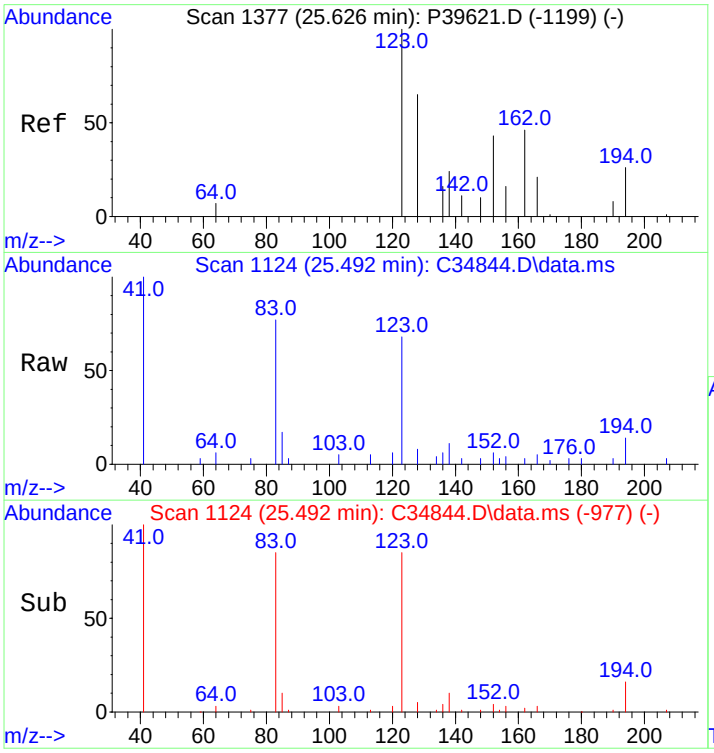




#7
C3-Decalins
Concen: 61.61 ng/mL m
RT: 22.104 min Scan# 899
Delta R.T. -0.036 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

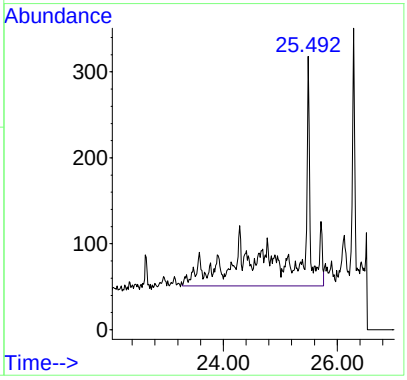
Tgt Ion:180 Resp: 1021

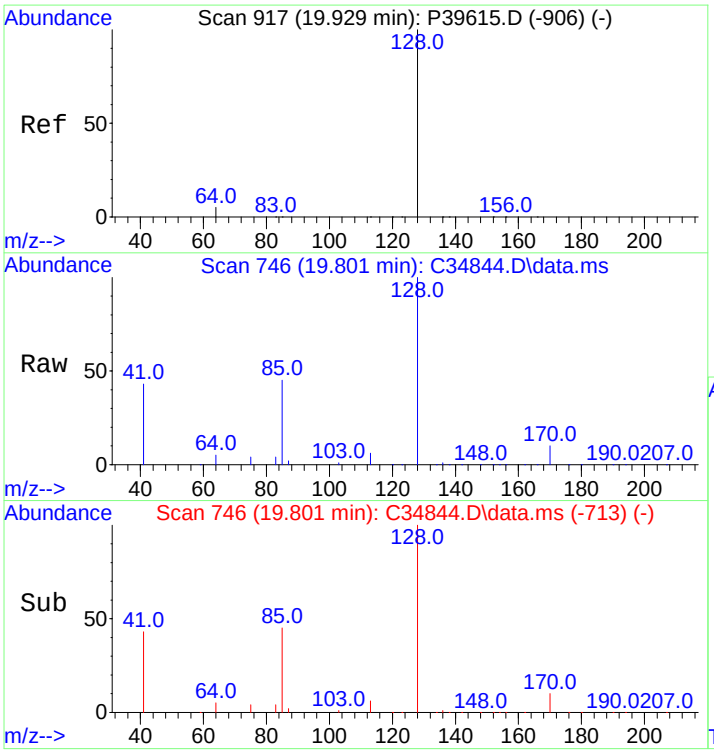




#8
C4-Decalins
Concen: 255.85 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:194 Resp: 4240

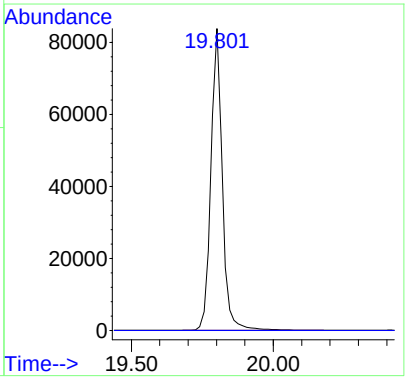


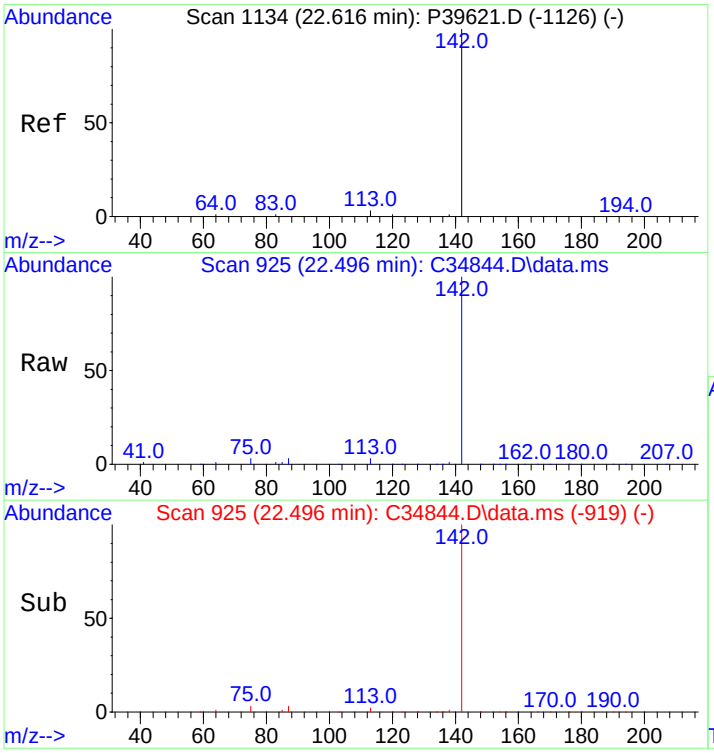


#10
Naphthalene
Concen: 1745.68 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:128 Resp: 233569

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

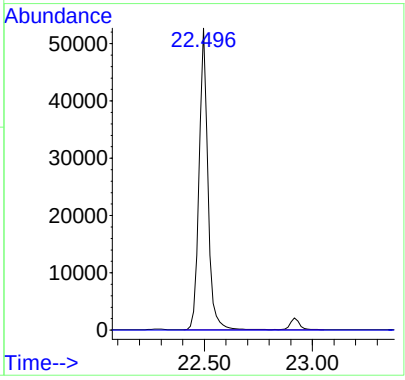


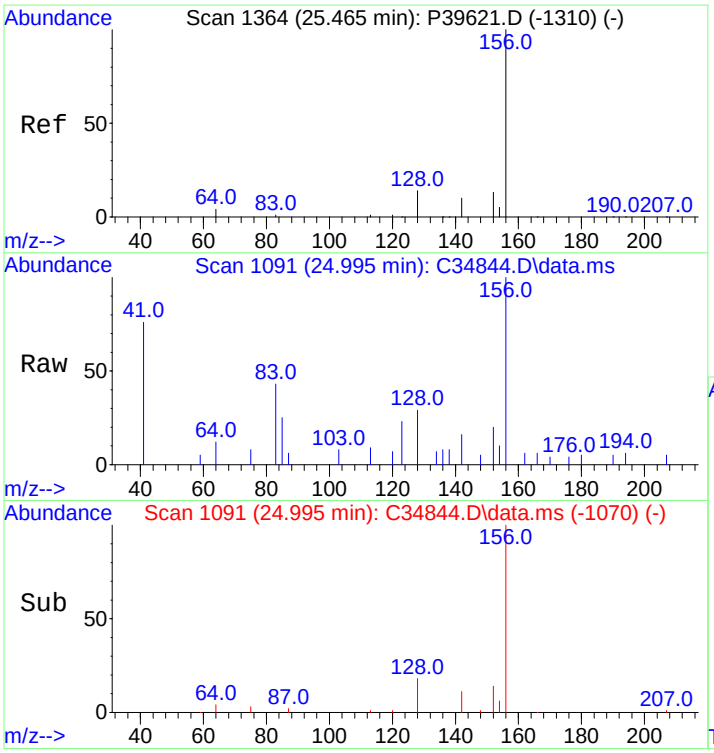


#11
C1-Naphthalenes
Concen: 1155.74 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:142 Resp: 154636

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

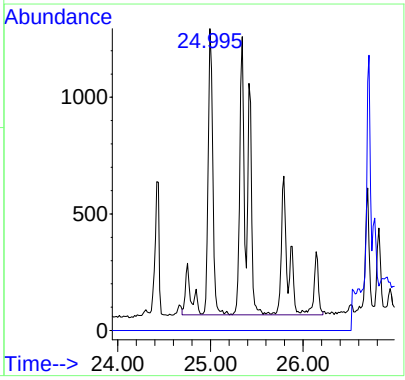


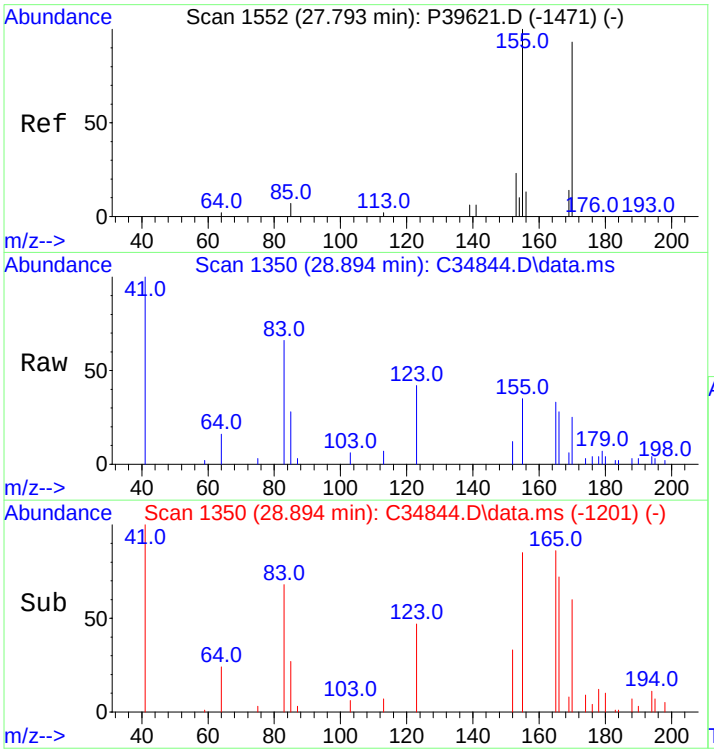


#12
C2-Naphthalenes
Concen: 115.30 ng/mL m
RT: 24.995 min Scan# 1091
Delta R.T. -0.352 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:156 Resp: 15427

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

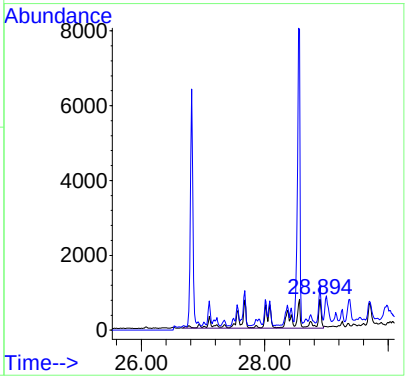


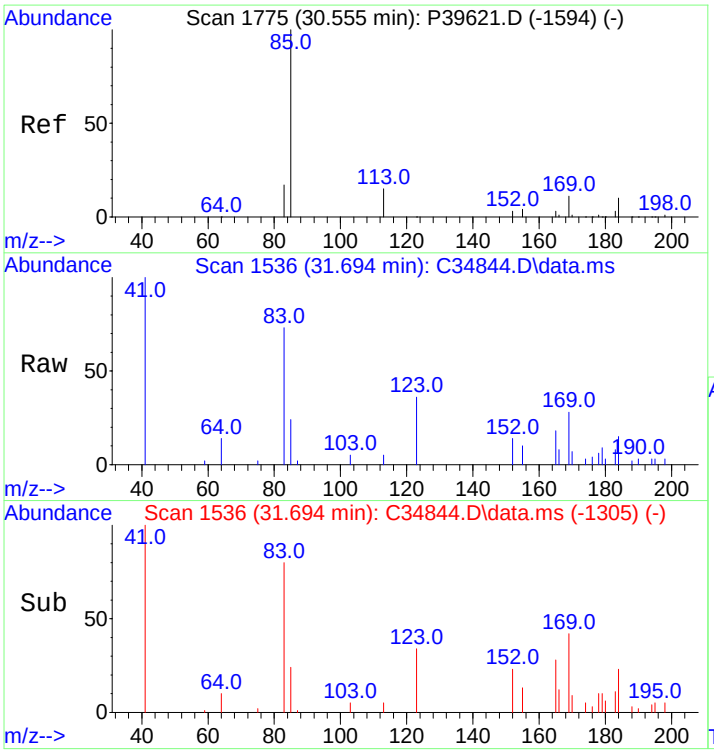


#13
C3-Naphthalenes
Concen: 130.48 ng/mL m
RT: 28.894 min Scan# 1350
Delta R.T. 1.224 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:170 Resp: 17458

Ion	Ratio	Lower	Upper
170	100		
155	11.8	81.8	122.6#

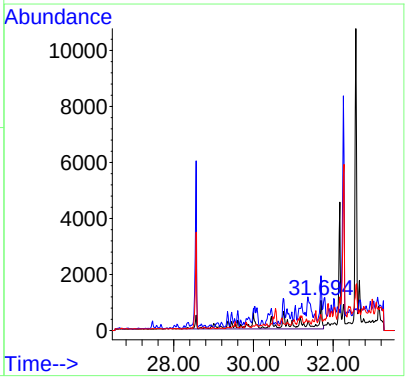


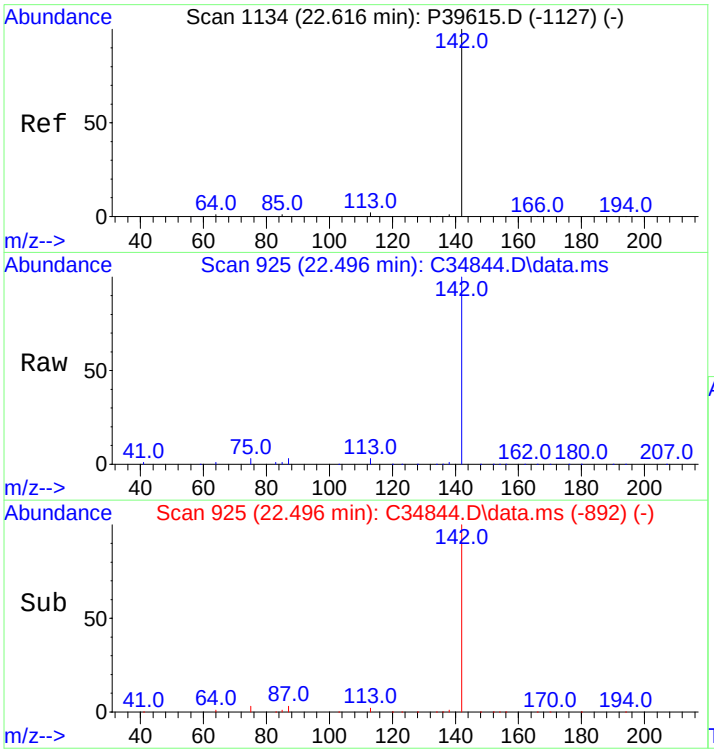


#14
C4-Naphthalenes
Concen: 209.97 ng/mL m
RT: 31.694 min Scan# 1536
Delta R.T. 1.281 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:184 Resp: 28094

Ion	Ratio	Lower	Upper
184	100		
169	6.8	77.4	116.0#
183	0.0	14.8	22.2#

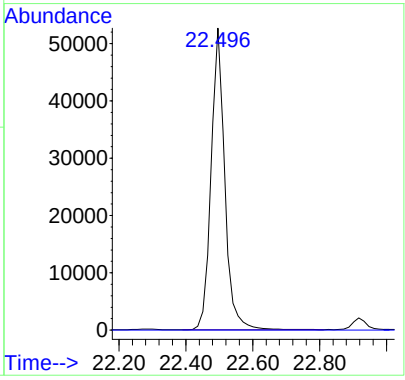


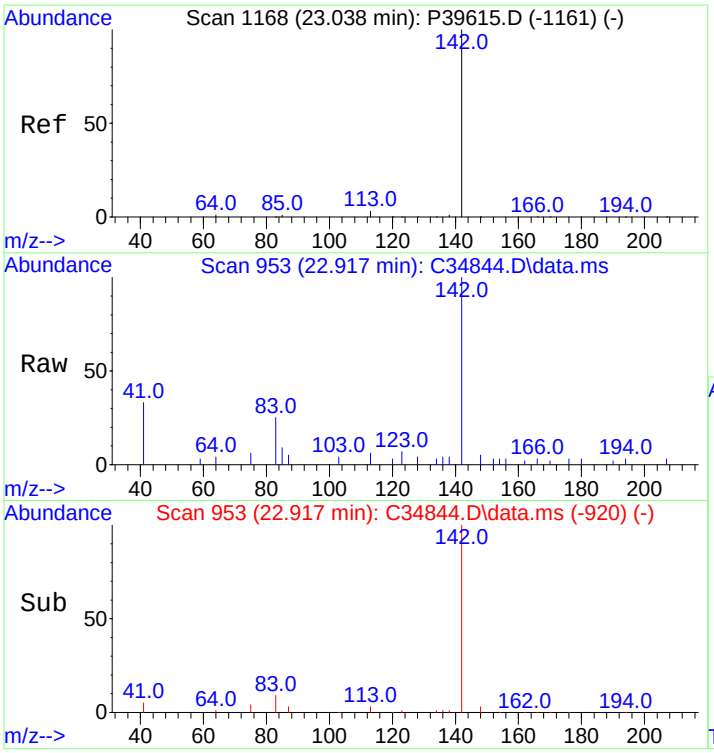


#16
2-Methylnaphthalene
Concen: 1877.47 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:142 Resp: 148530

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

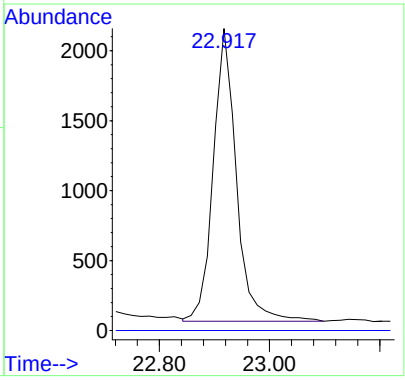


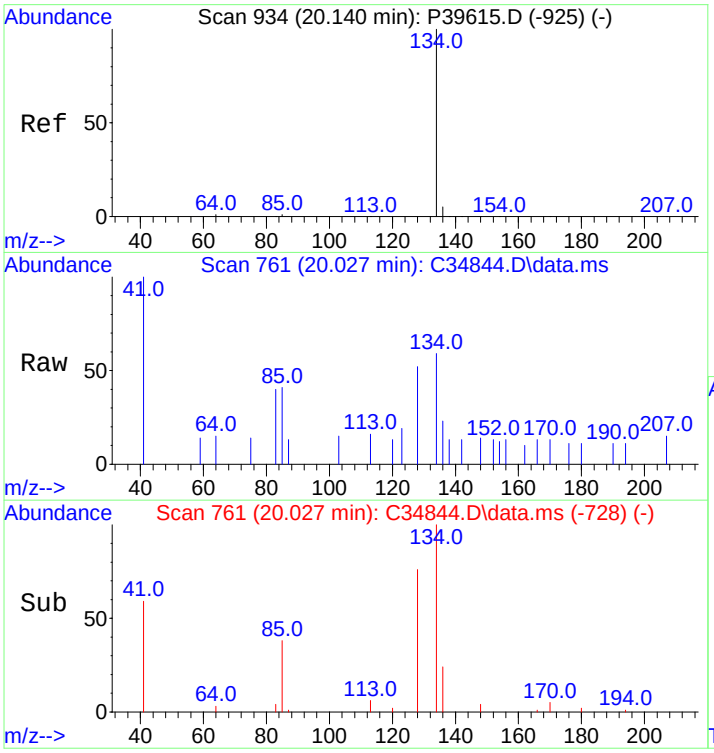


#17
1-Methylnaphthalene
Concen: 78.56 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:142 Resp: 6092

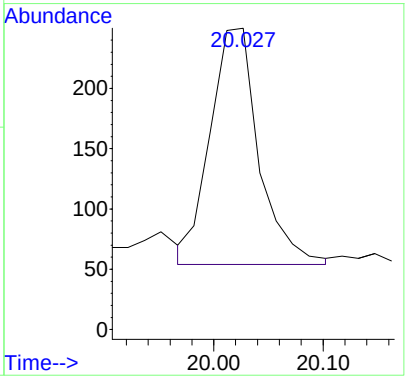
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

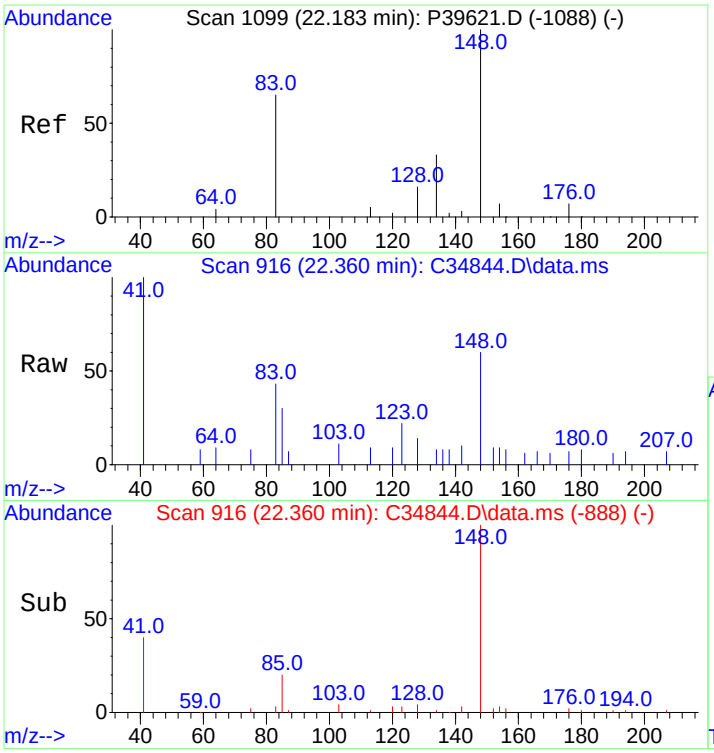




#18
Benzothiophene
Concen: 5.05 ng/mL m
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

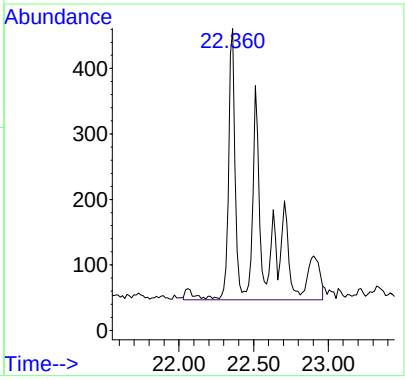
Tgt Ion:134 Resp: 608

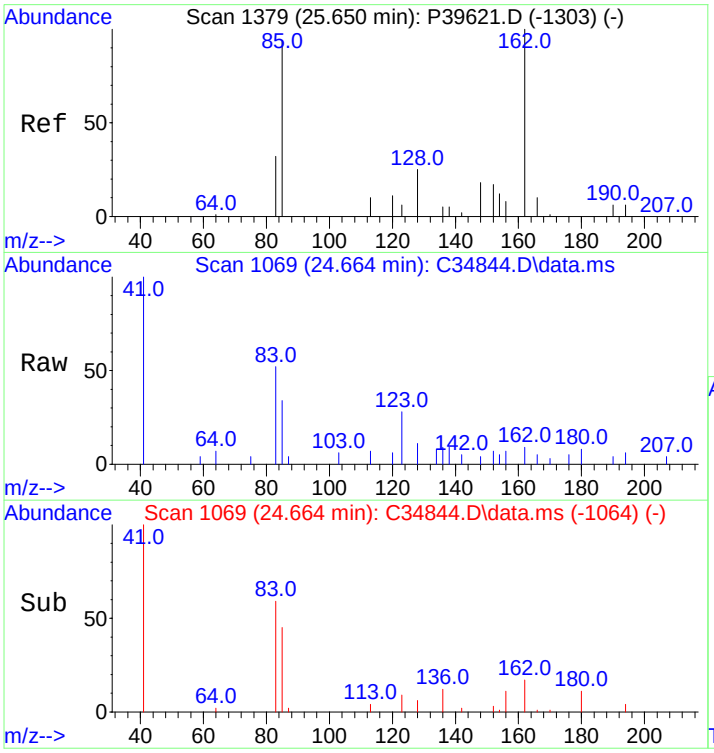




#19
C1-Benzo(b)thiophenes
Concen: 28.78 ng/mL m
RT: 22.360 min Scan# 916
Delta R.T. 0.280 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

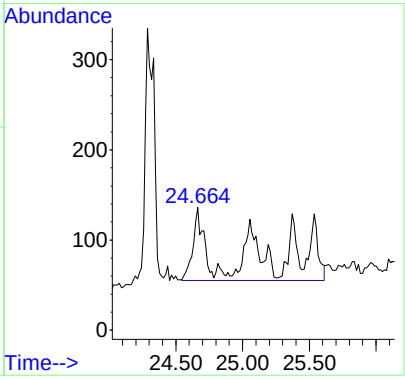
Tgt Ion:148 Resp: 3465

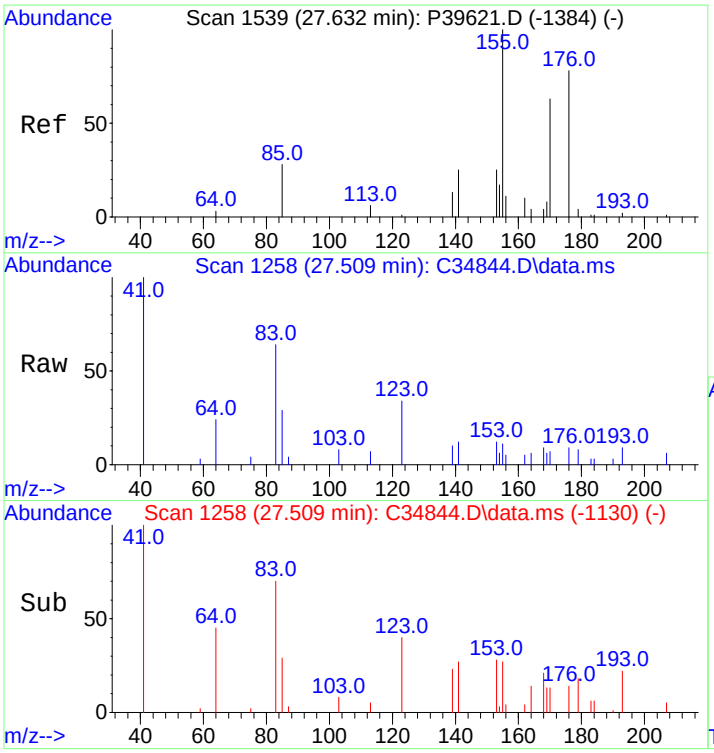




#20
C2-Benzo(b)thiophenes
Concen: 14.45 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.878 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

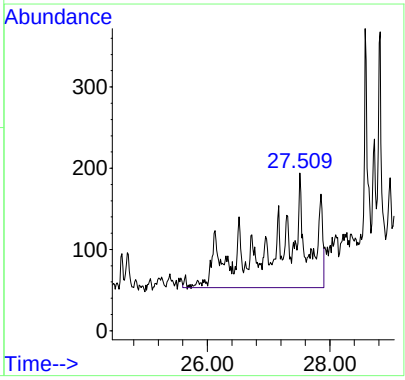
Tgt Ion:162 Resp: 1740

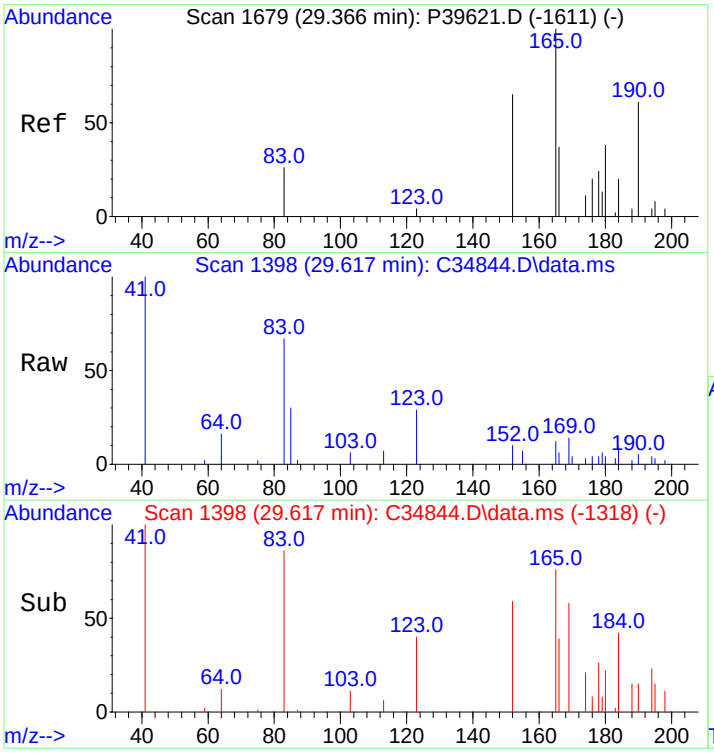




#21
C3-Benzo(b)thiophenes
Concen: 43.52 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

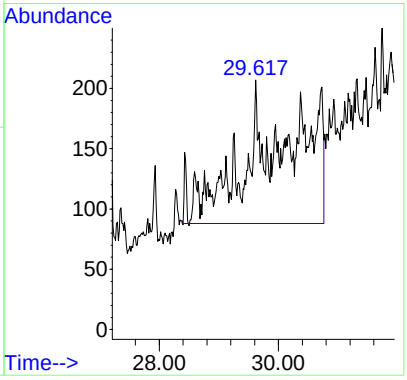
Tgt Ion:176 Resp: 5240

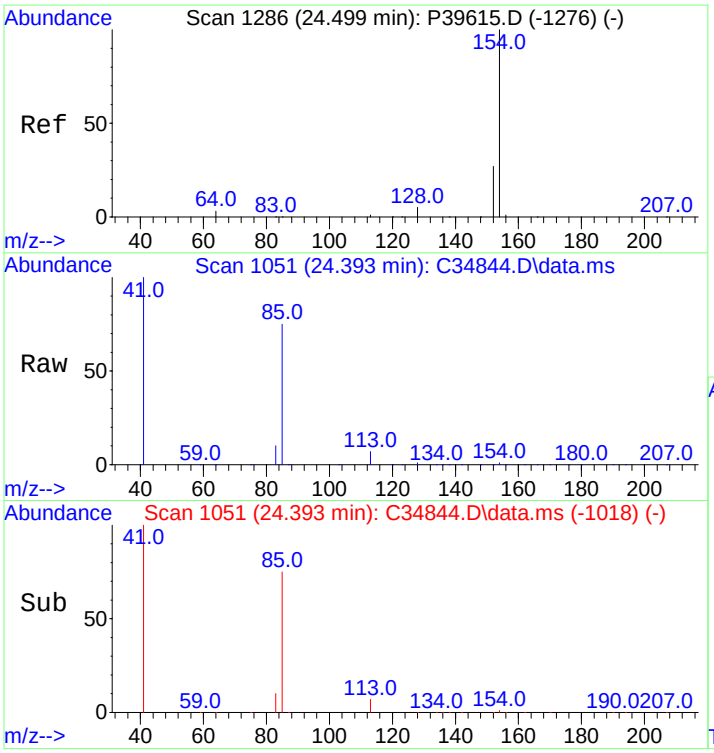




#22
C4-Benzo(b)thiophenes
Concen: 58.09 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:190 Resp: 6994

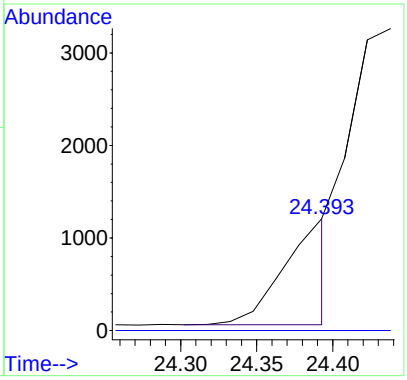


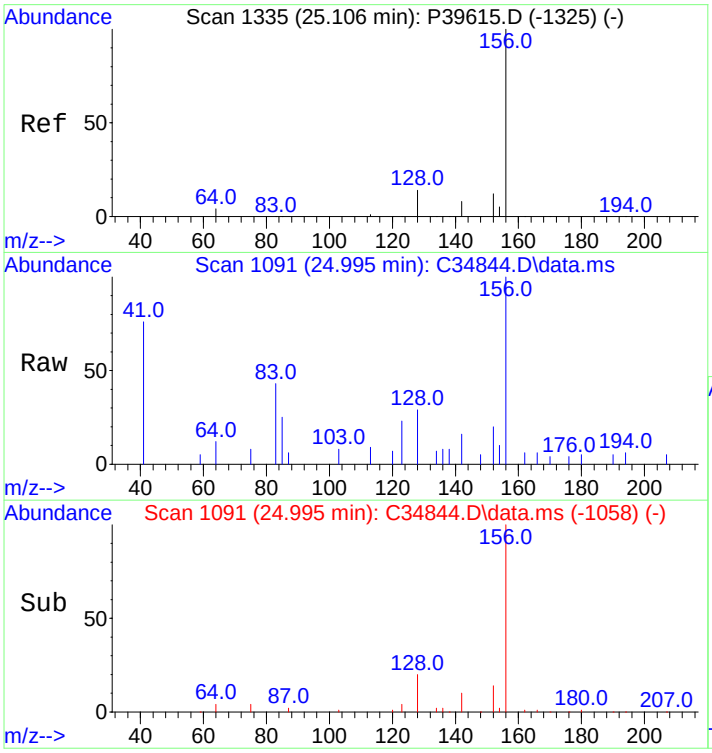


#23
Biphenyl
Concen: 24.31 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:154 Resp: 2433

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

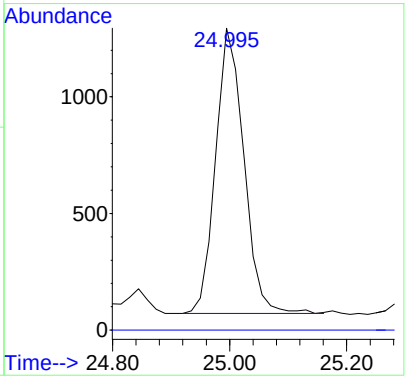


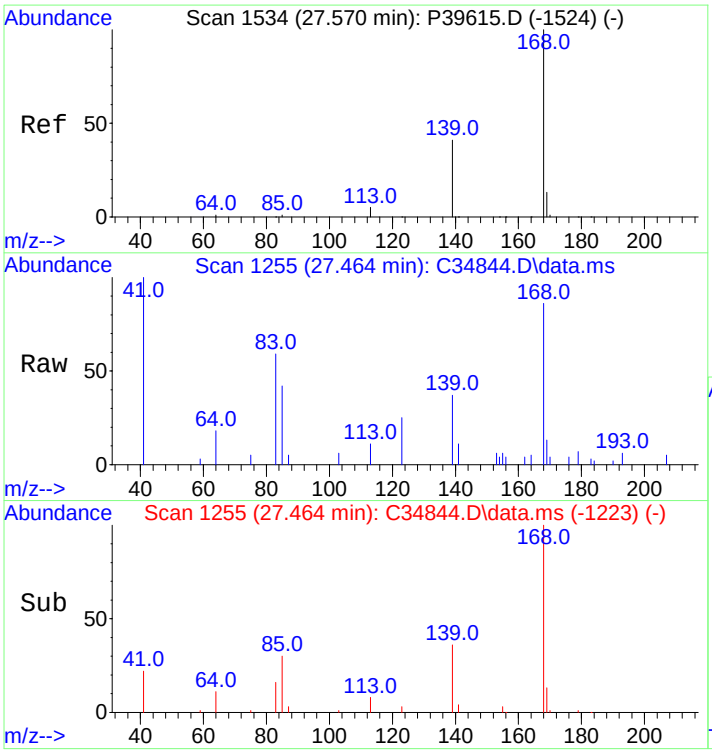


#24
2,6-Dimethylnaphthalene
Concen: 63.08 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:156 Resp: 4100

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

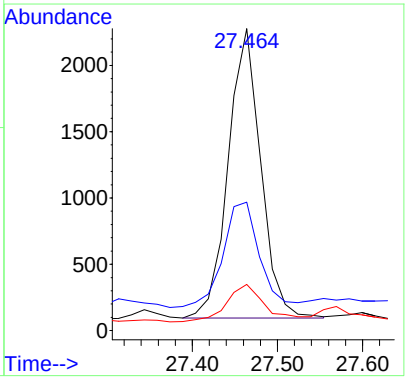


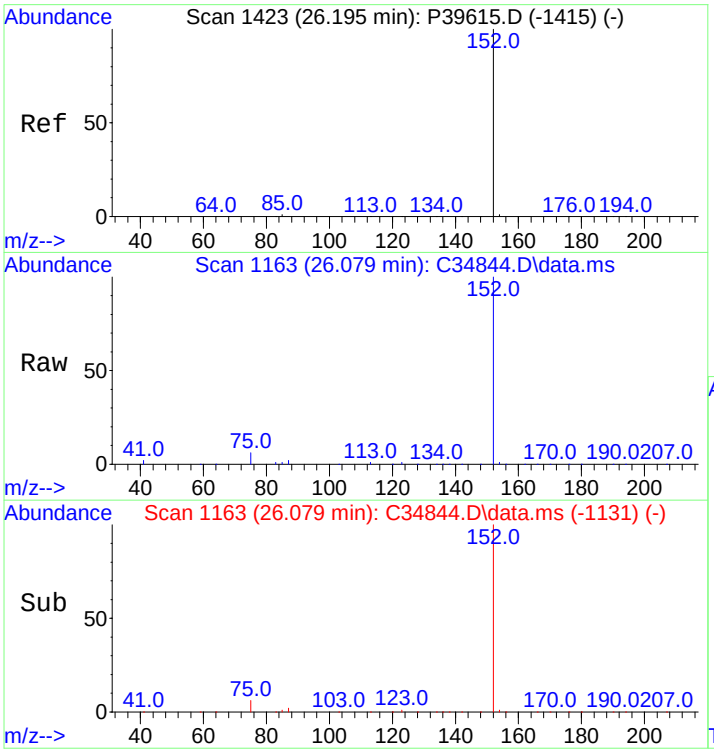


#25
Dibenzofuran
Concen: 50.62 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:168 Resp: 5817

Ion	Ratio	Lower	Upper
168	100		
139	40.6	28.4	42.6
169	15.4	10.8	16.2

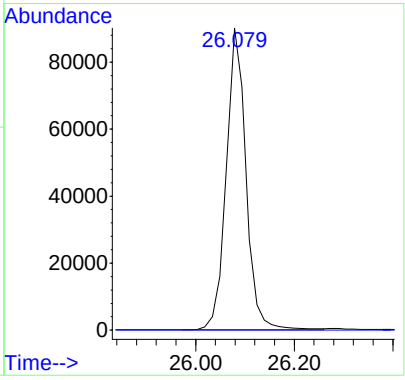


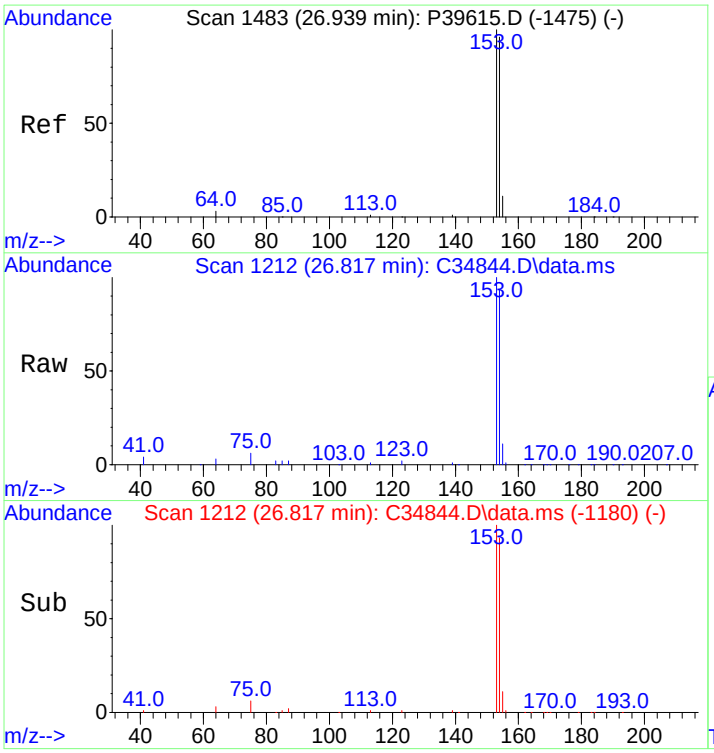


#26
Acenaphthylene
Concen: 1890.63 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:152 Resp: 251109

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

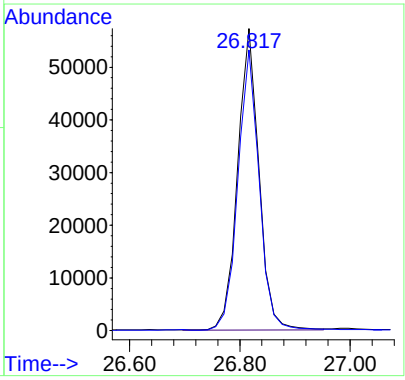


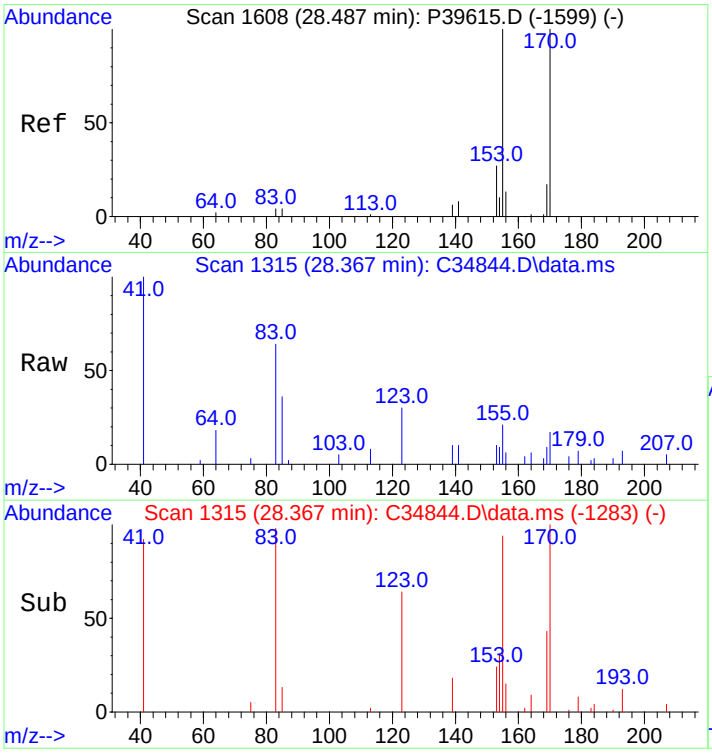


#27
Acenaphthene
Concen: 1962.61 ng/mL
RT: 26.817 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:153 Resp: 153482

Ion	Ratio	Lower	Upper
153	100		
154	92.7	73.6	110.4

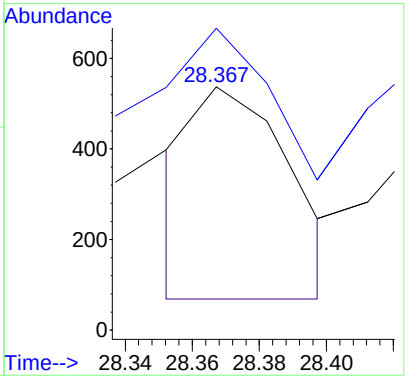


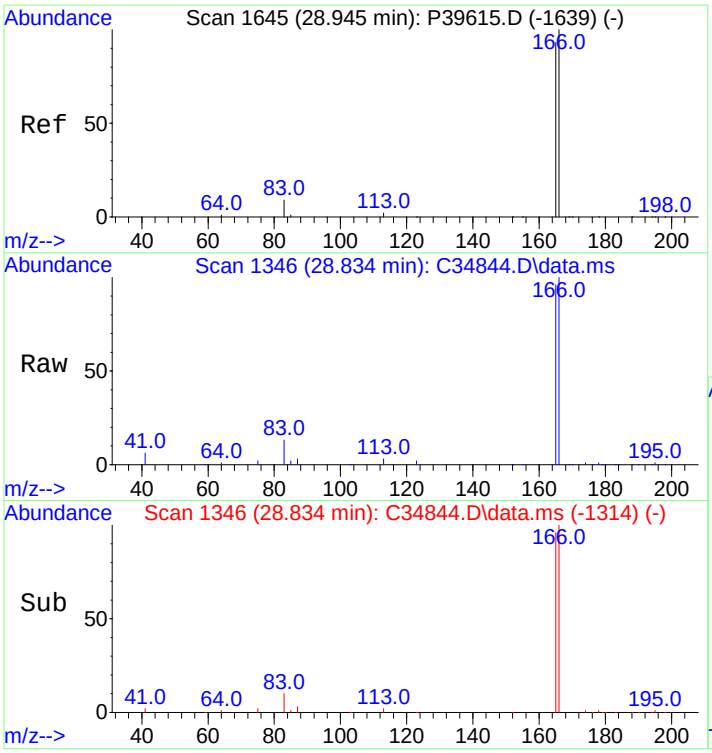


#28
2,3,5-Trimethylnaphthalene
Concen: 17.88 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:170 Resp: 937

Ion	Ratio	Lower	Upper
170	100		
155	218.4	87.3	130.9#

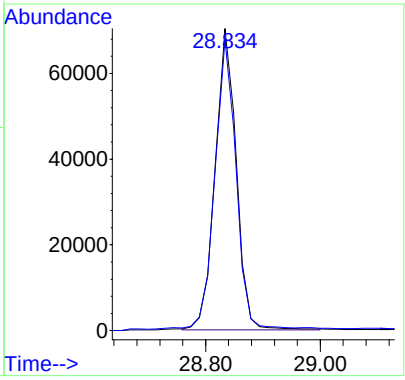


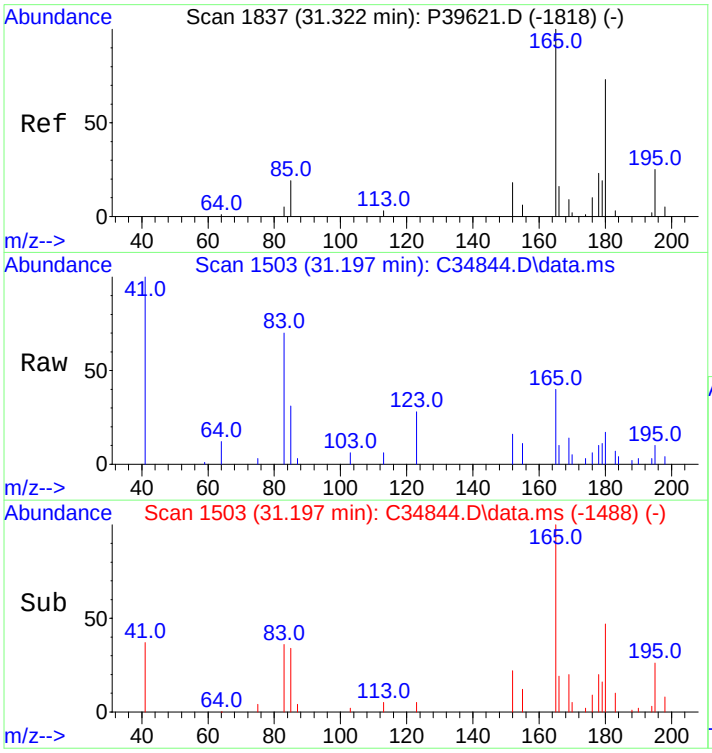


#29
Fluorene
Concen: 2094.16 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:166 Resp: 180619

Ion	Ratio	Lower	Upper
166	100		
165	101.0	77.3	115.9

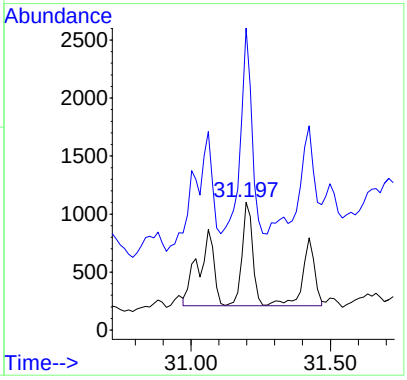


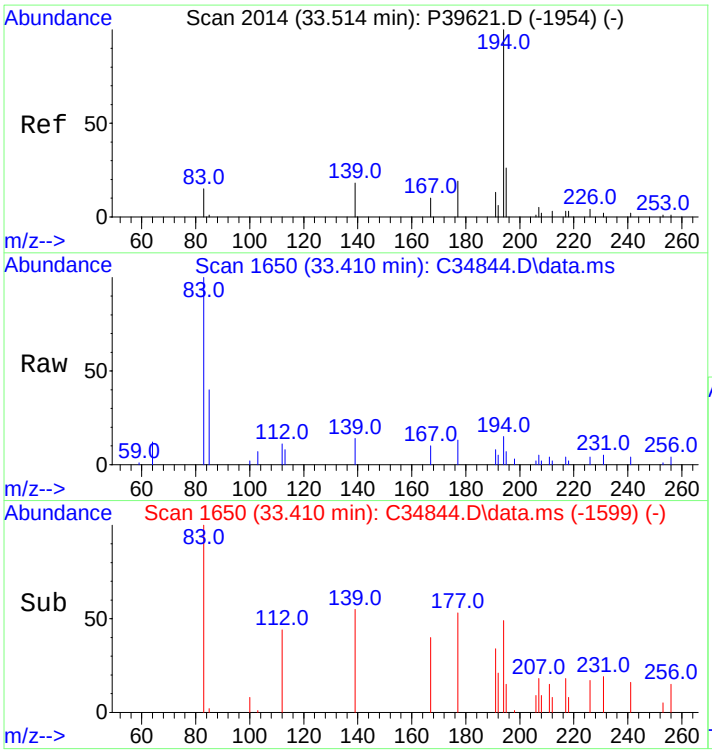


#30
C1-Fluorenes
Concen: 78.20 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:180 Resp: 6745

Ion	Ratio	Lower	Upper
180	100		
165	72.4	111.4	167.2#

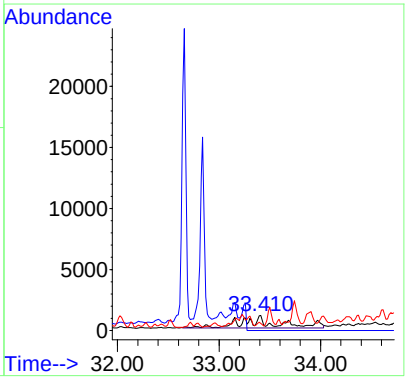


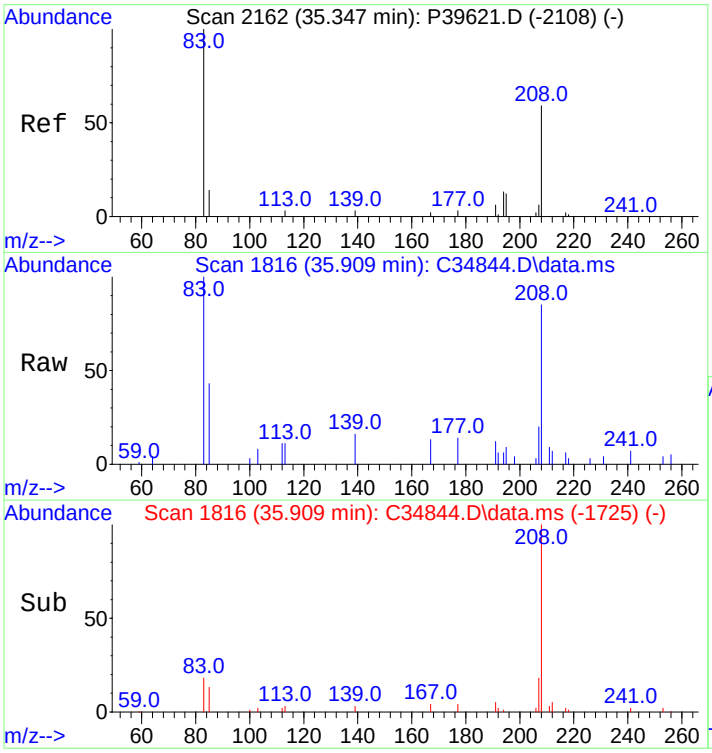


#31
C2-Fluorenes
Concen: 254.08 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:194 Resp: 21914

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	8.6	27.3	40.9#

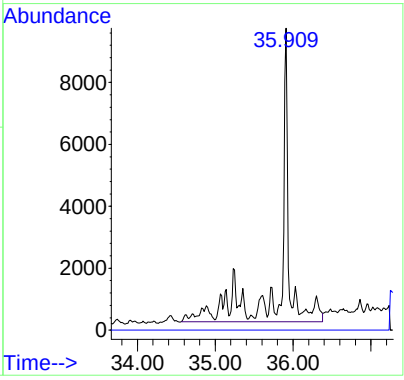


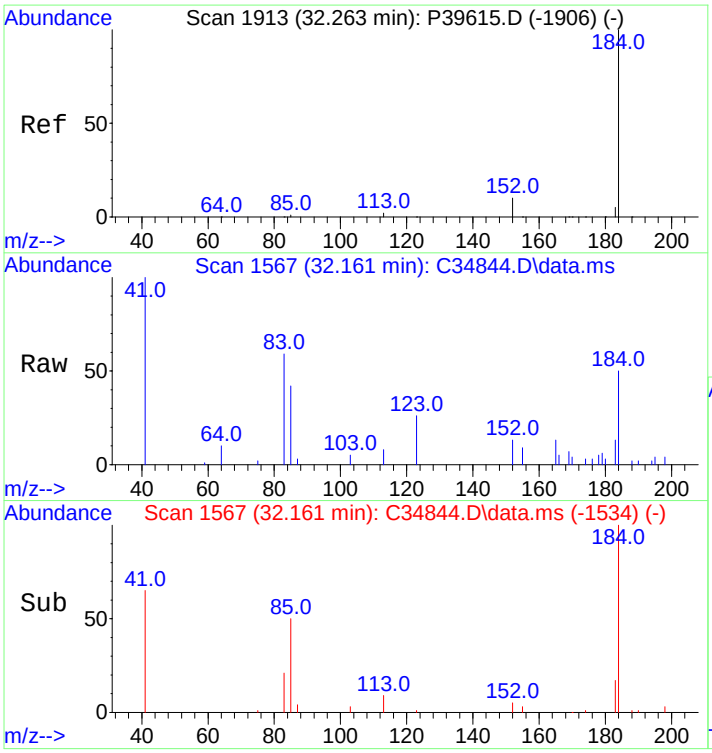


#32
C3-Fluorenes
Concen: 825.89 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:208 Resp: 71232

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

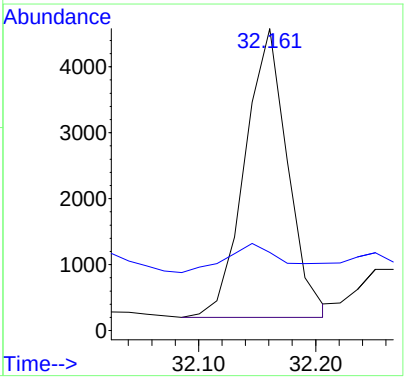


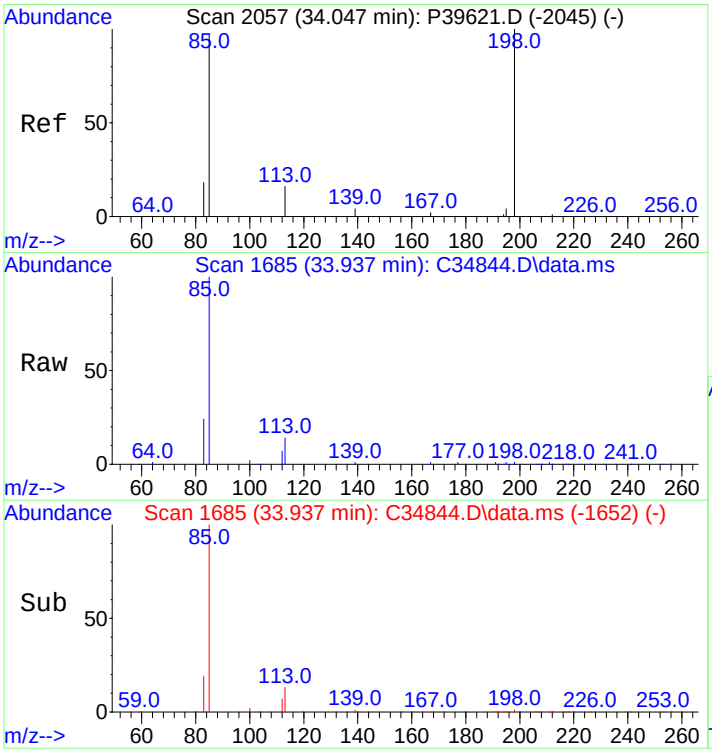


#33
Dibenzothiophene
Concen: 80.60 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:184 Resp: 11144

Ion	Ratio	Lower	Upper
184	100		
152	13.6	7.5	11.3#

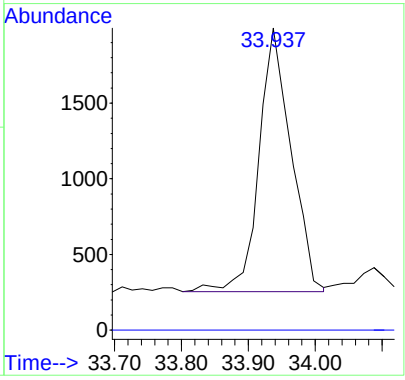


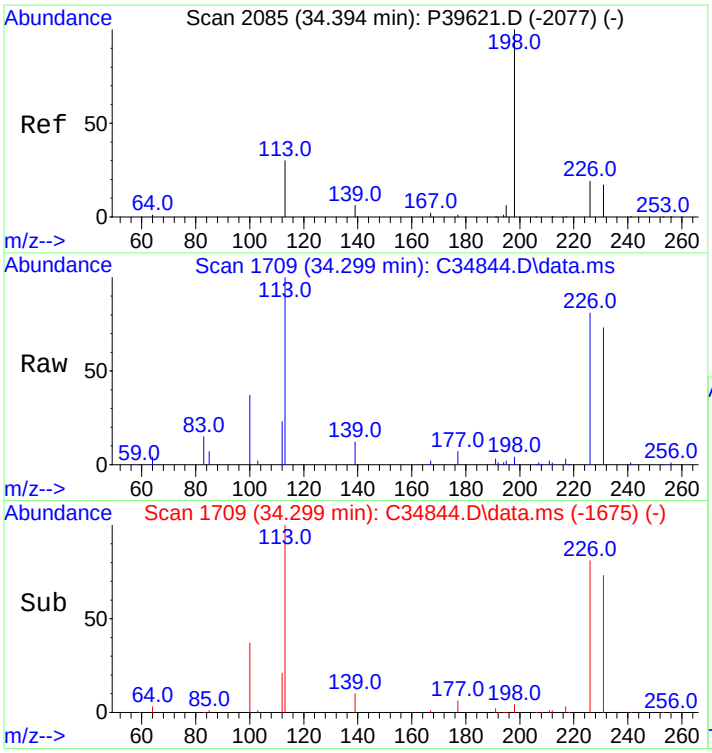


#34
4-Methyldibenzothiophene(4MDT)
Concen: 42.03 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:198 Resp: 5811

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

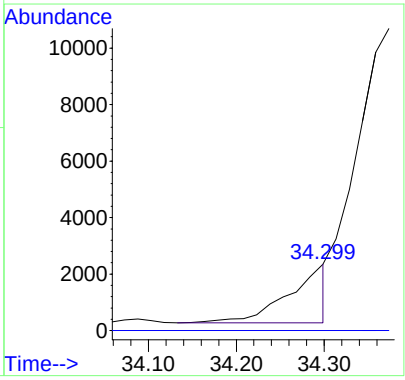


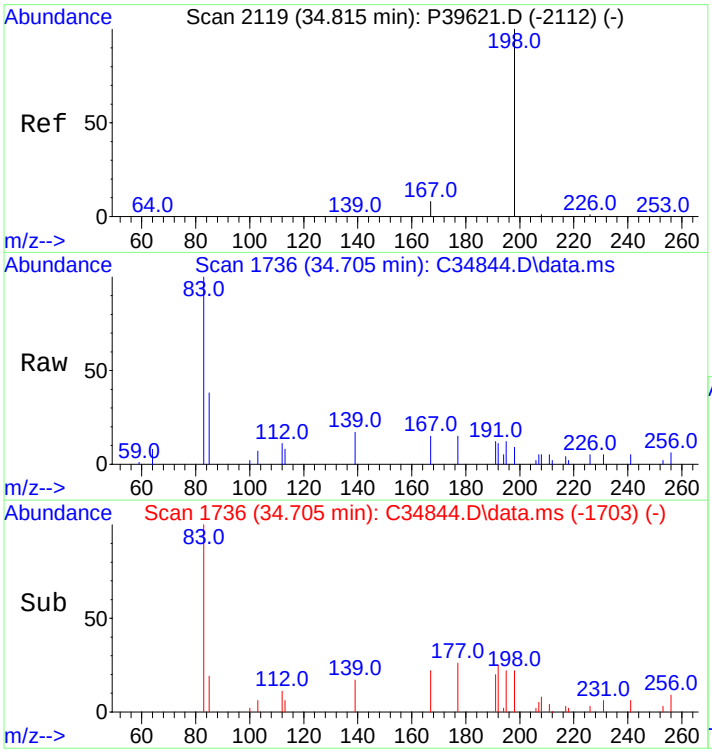


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 46.10 ng/mL m
RT: 34.299 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:198 Resp: 6374

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

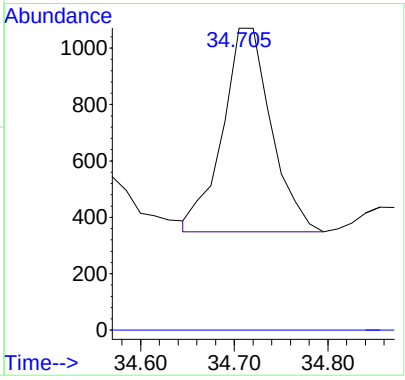


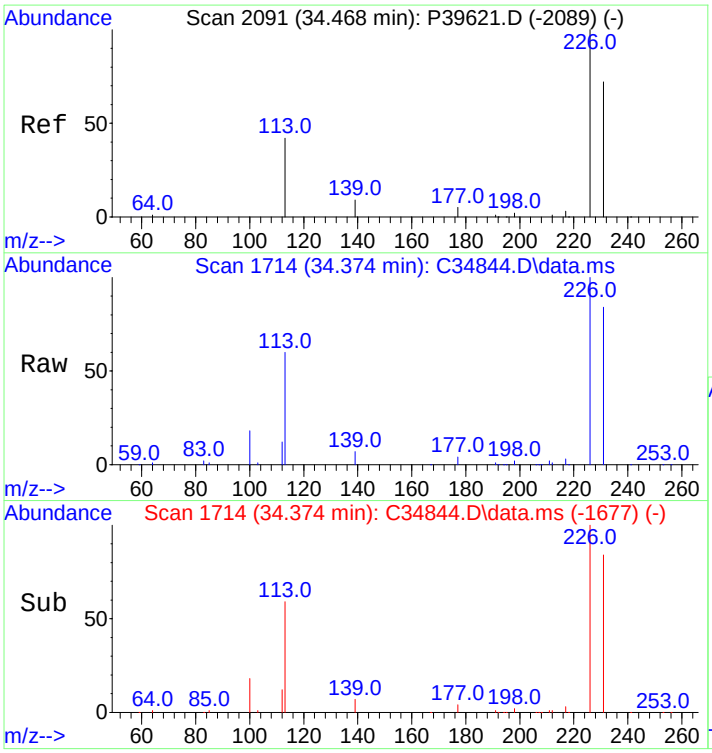


#36
1-Methyldibenzothiophene(1MDT)
Concen: 18.86 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:198 Resp: 2608

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

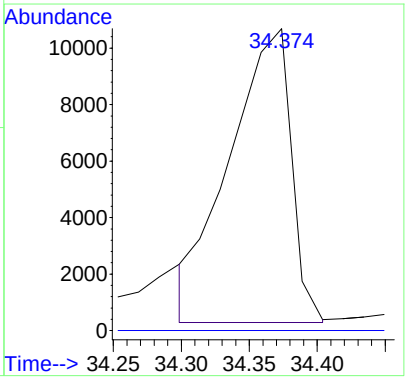


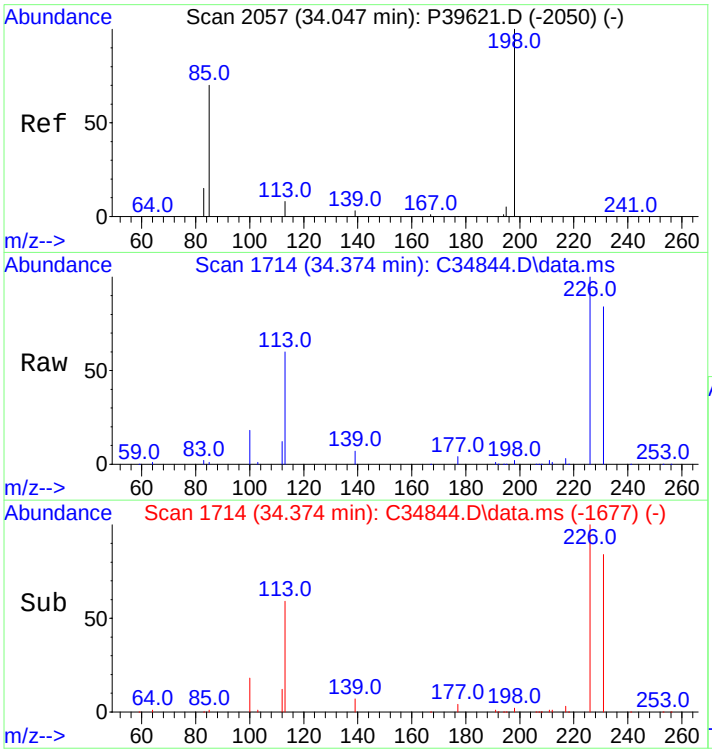


#37
OTP
Concen: 237.34 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:198 Resp: 32814

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

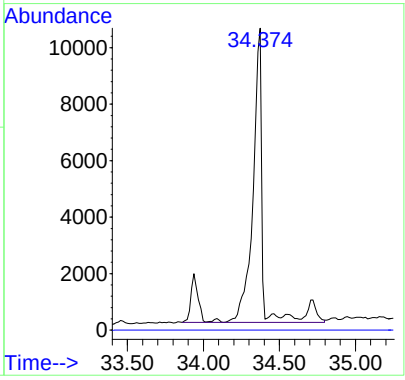


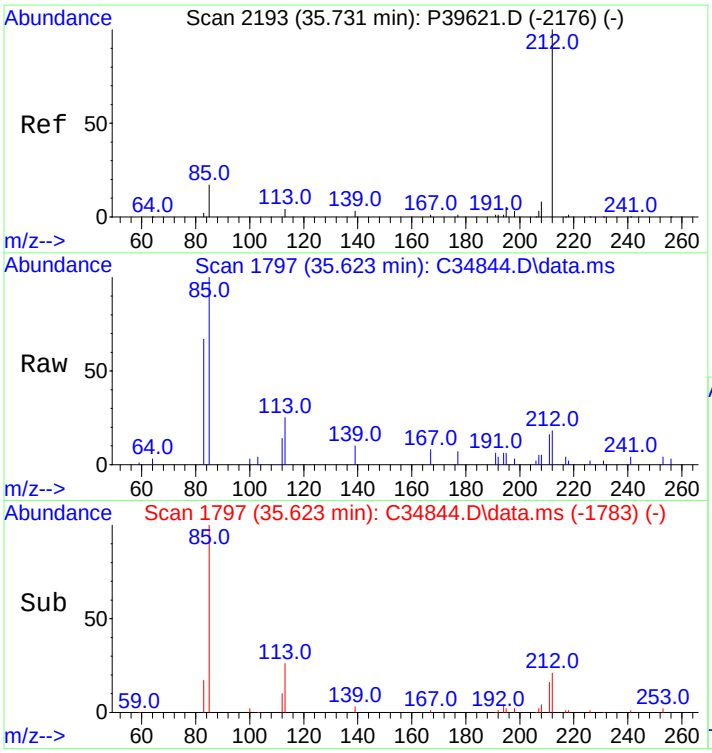


#38
C1-Dibenzothiophenes
Concen: 371.43 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:198 Resp: 51353

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

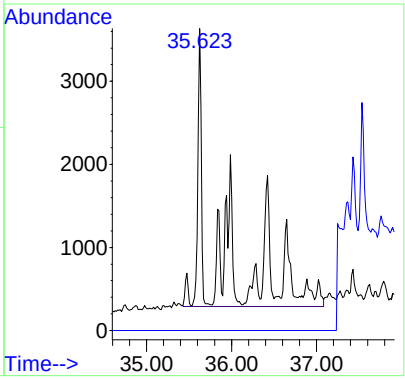


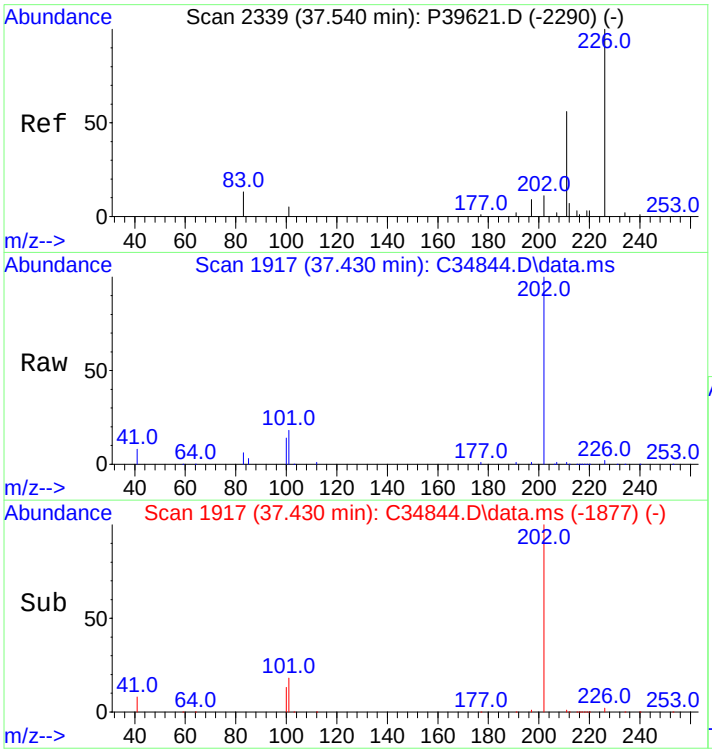


#39
C2-Dibenzothiophenes
Concen: 285.98 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:212 Resp: 39538

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

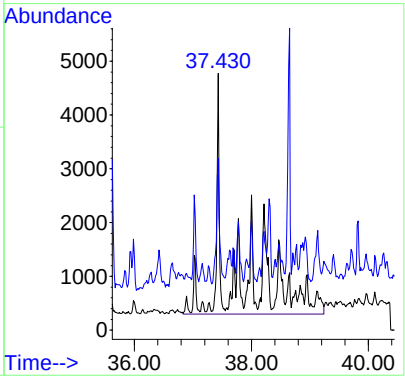


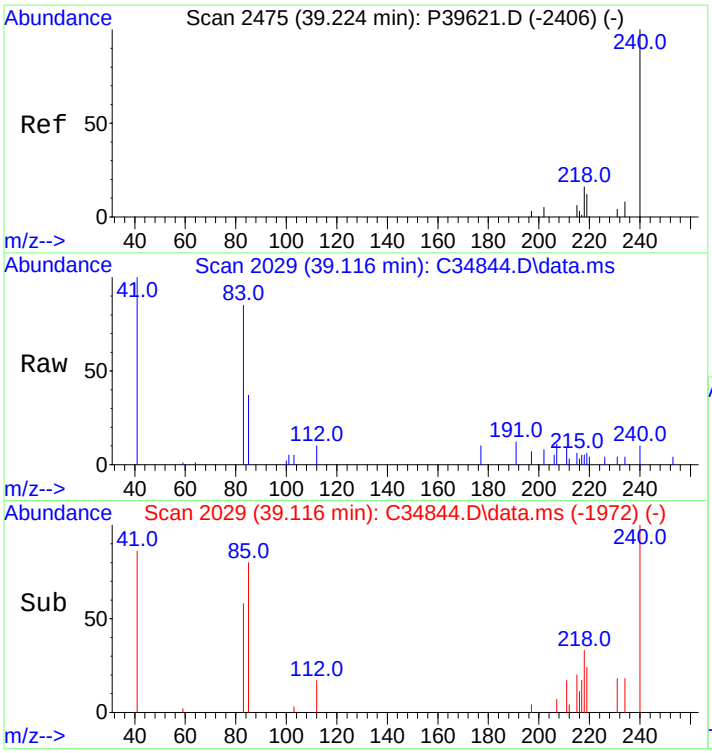


#40
C3-Dibenzothiophenes
Concen: 484.13 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:226 Resp: 66934

Ion	Ratio	Lower	Upper
226	100		
211	0.6	45.0	67.6#

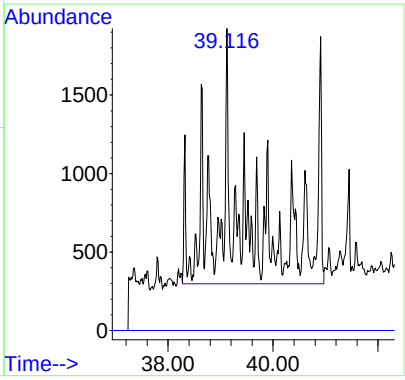


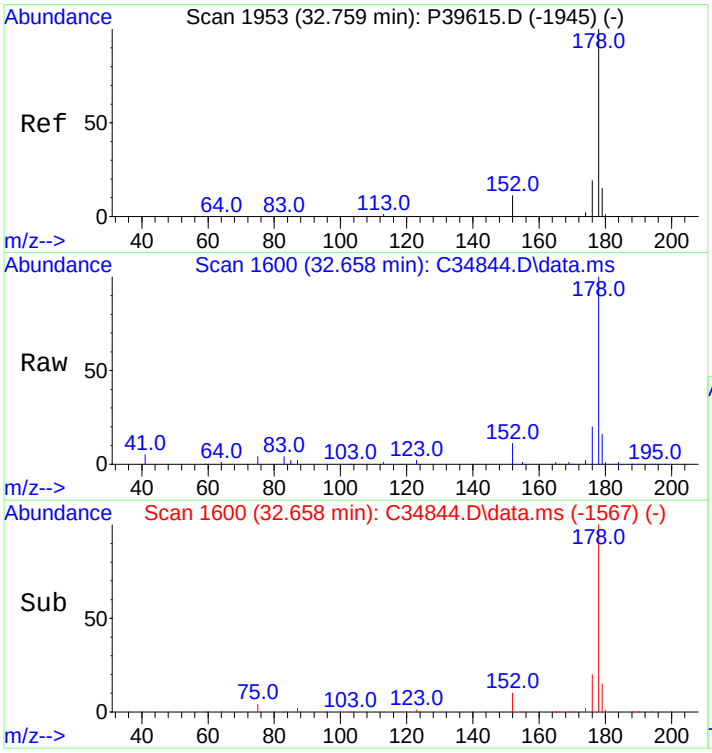


#41
C4-Dibenzothiophenes
Concen: 400.81 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:240 Resp: 55414

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

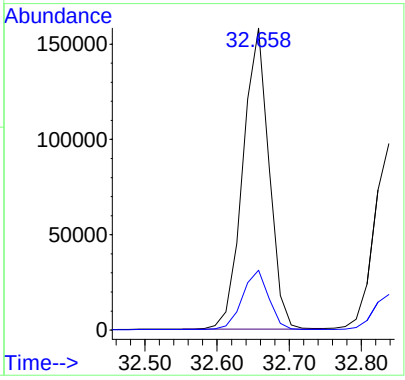


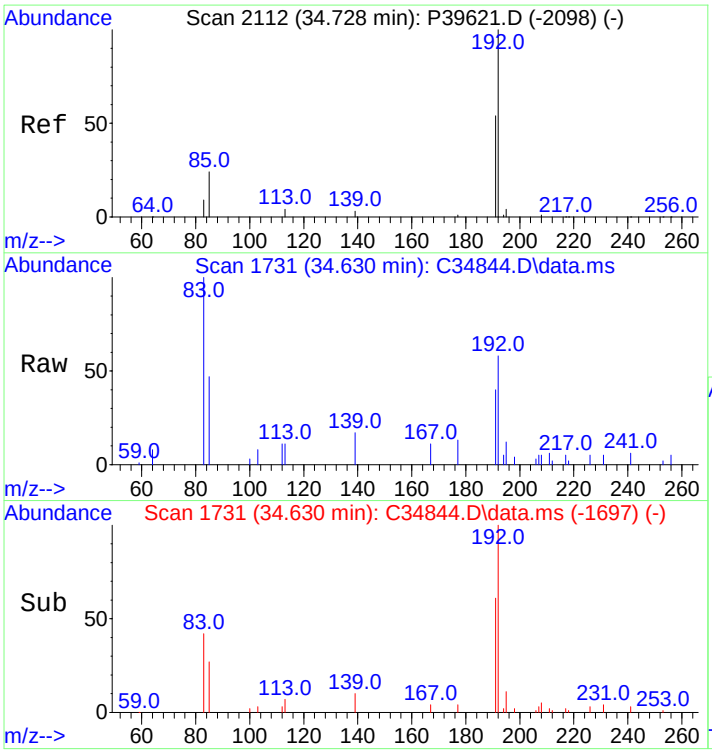


#43
Phenanthrene
Concen: 3269.58 ng/mL
RT: 32.658 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:178 Resp: 397154

Ion	Ratio	Lower	Upper
178	100		
176	20.0	16.1	24.1

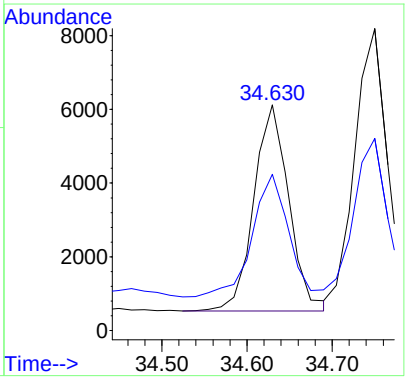


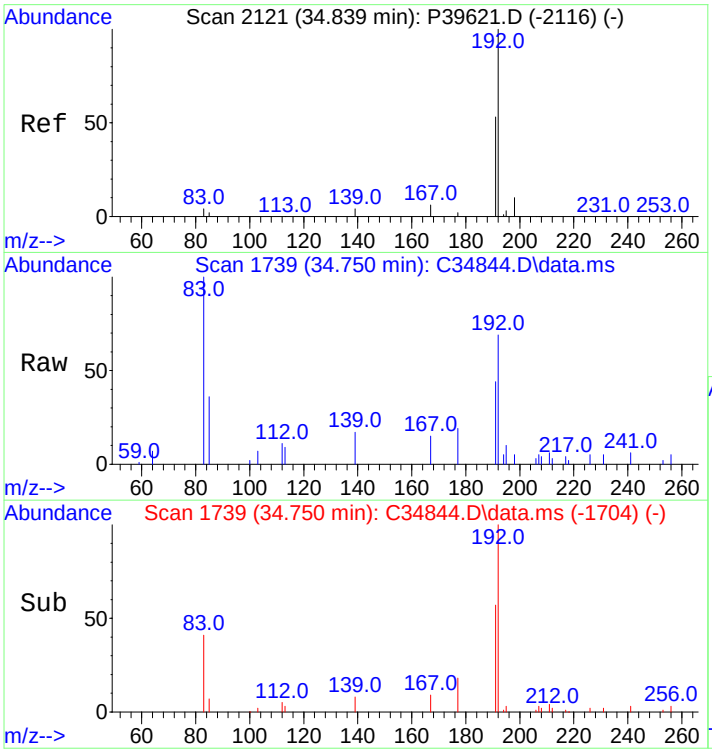


#44
3-Methylphenanthrene(3MP)
Concen: 131.40 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 15961

Ion	Ratio	Lower	Upper
192	100		
191	61.7	46.9	70.3

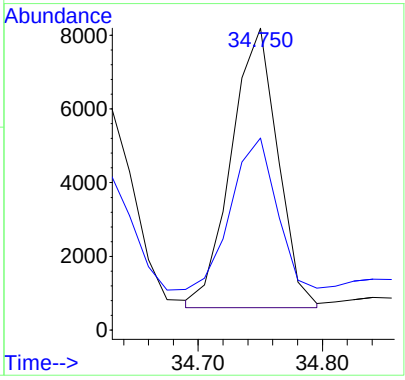


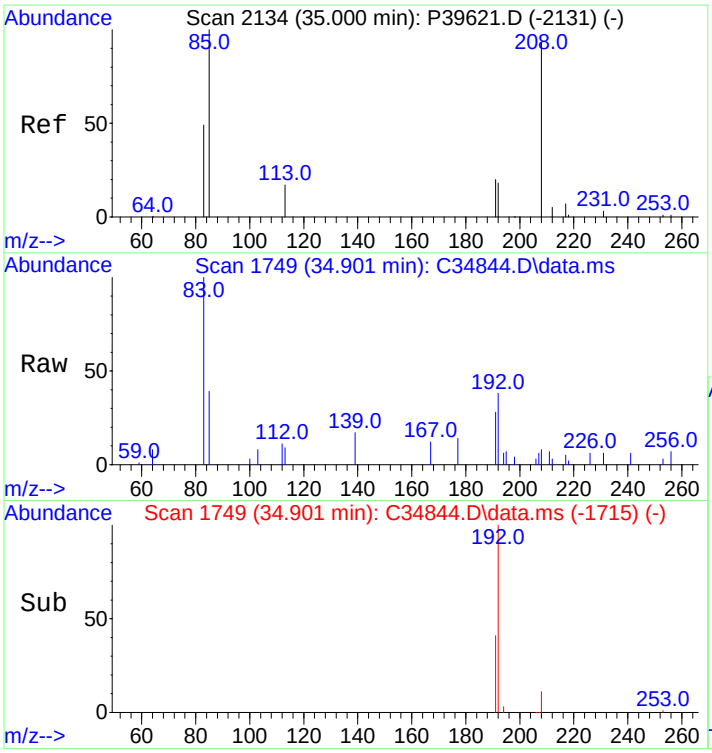


#45
2/4-Methylphenanthrene(2MP)
Concen: 161.77 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. 0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 19650

Ion	Ratio	Lower	Upper
192	100		
191	53.1	46.1	69.1

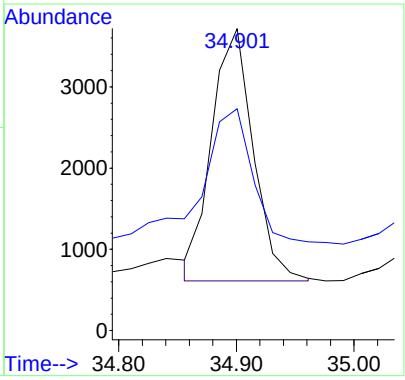


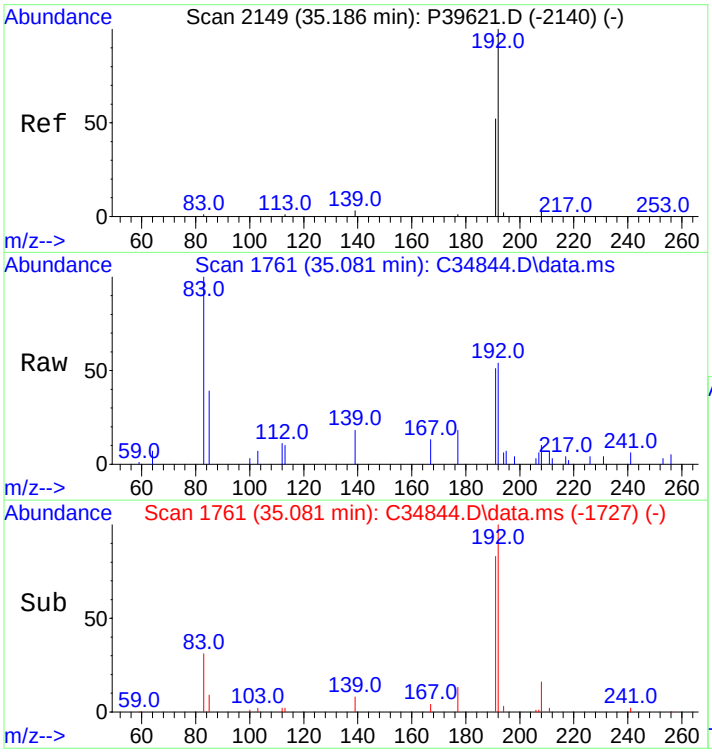


#46
2-Methylanthracene(2MA)
Concen: 62.68 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 7614

Ion	Ratio	Lower	Upper
192	100		
191	68.5	93.4	140.0#

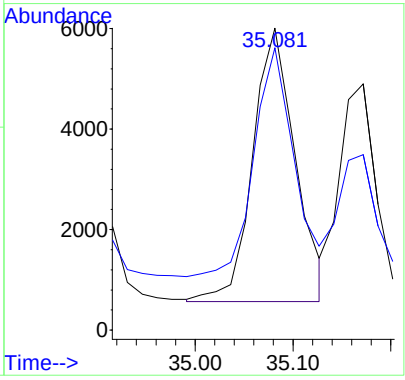


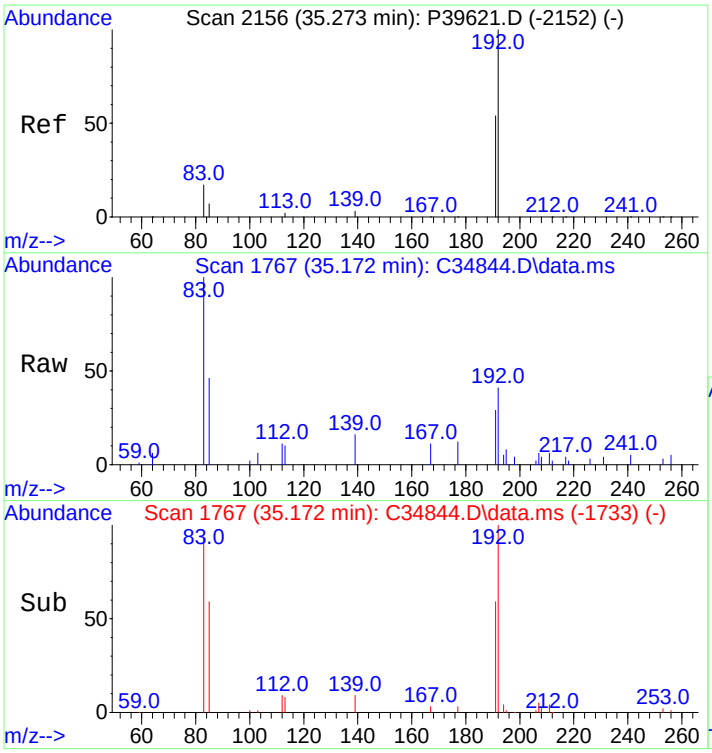


#47
9-Methylphenanthrene(9MP)
Concen: 135.19 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 16422

Ion	Ratio	Lower	Upper
192	100		
191	31.7	45.9	68.9#

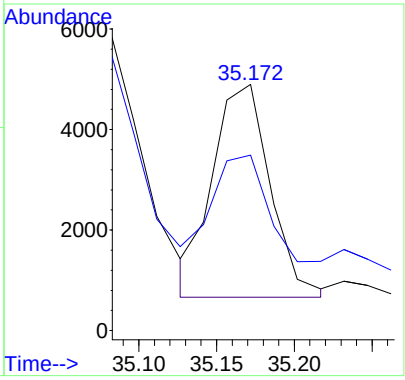


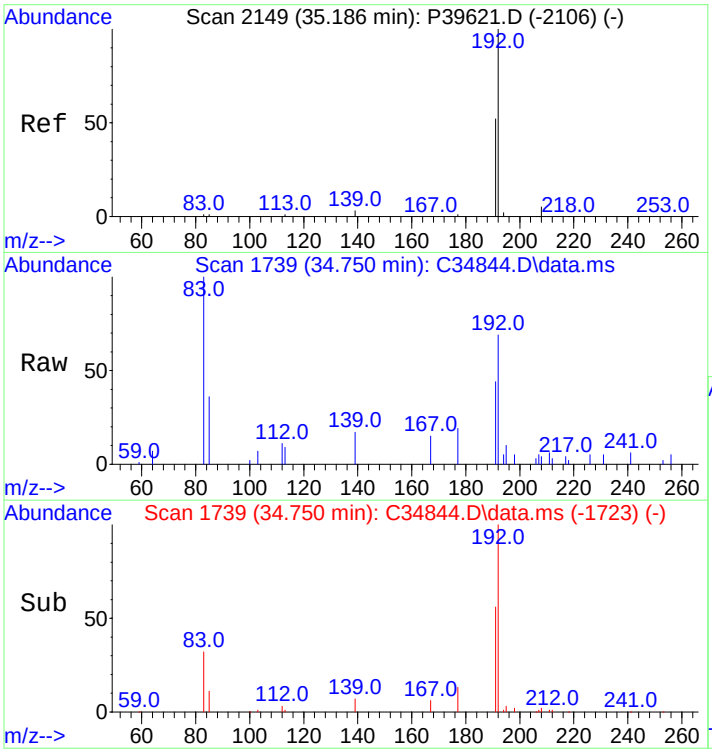


#48
1-Methylphenanthrene(1MP)
Concen: 89.52 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 10874

Ion	Ratio	Lower	Upper
192	100		
191	47.9	49.0	73.4#

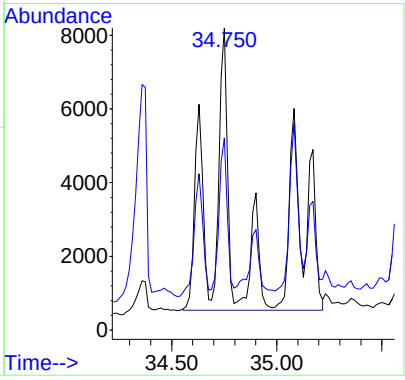


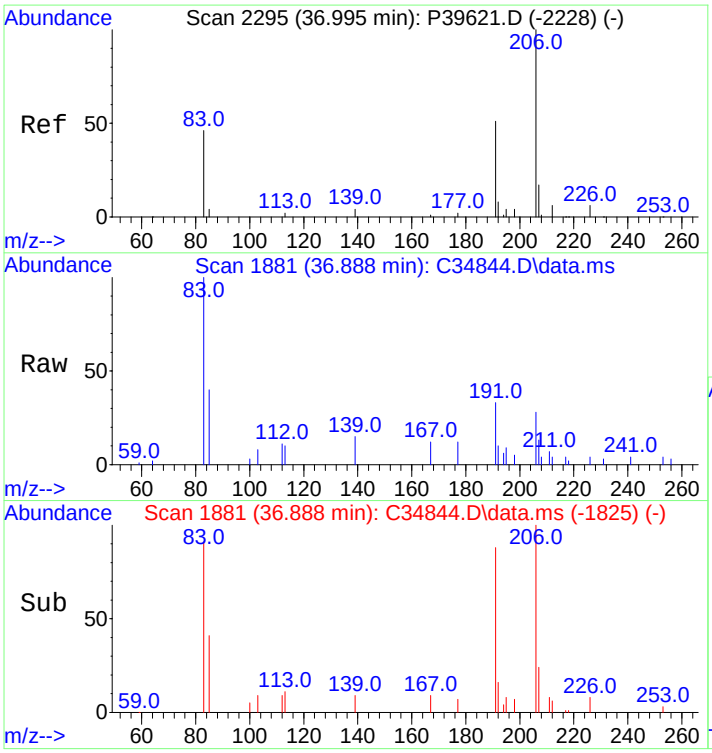


#49
C1-Phenanthrenes/Anthracenes
Concen: 603.90 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. -0.264 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 73355

Ion	Ratio	Lower	Upper
192	100		
191	7.1	44.2	66.2#

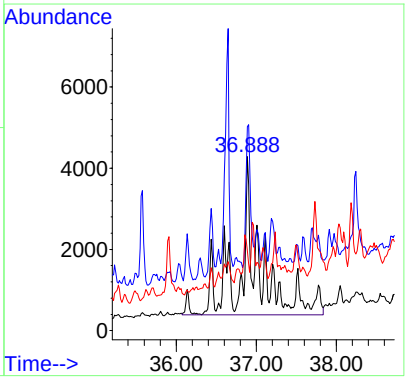


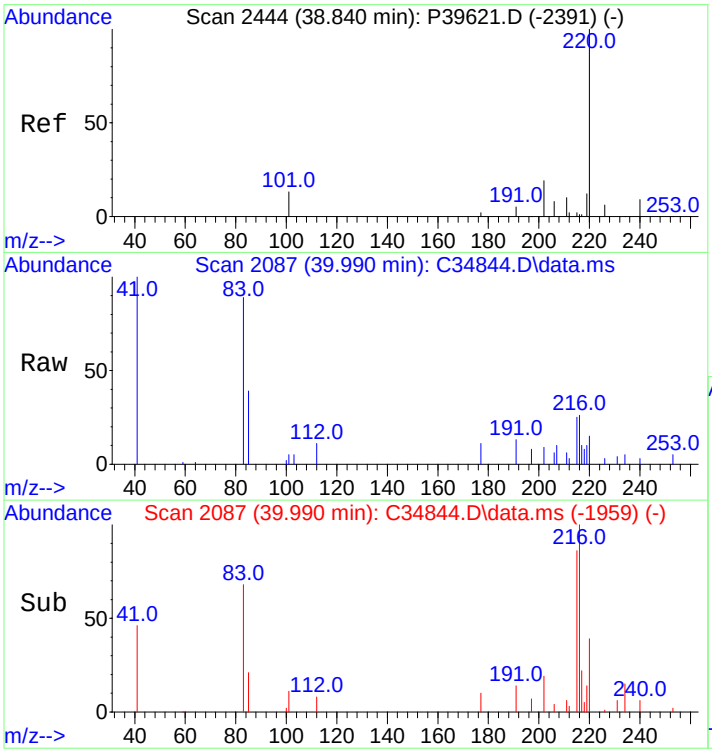


#50
C2-Phenanthrenes/Anthracenes
Concen: 535.05 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:206 Resp: 64992

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	0.0	15.1	22.7#

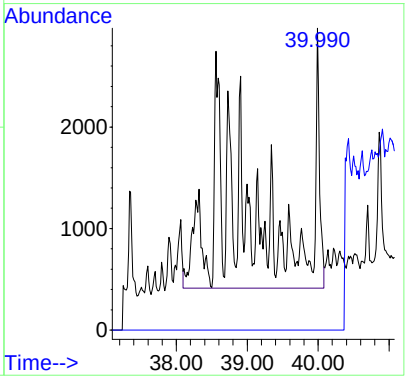


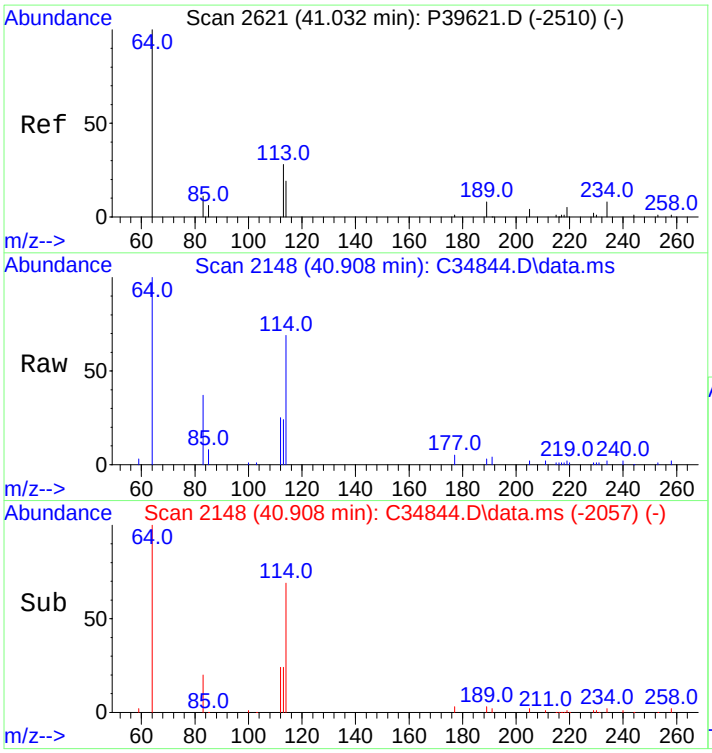


#52
C3-Phenanthrenes/Anthracenes
Concen: 603.00 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:220 Resp: 73246

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

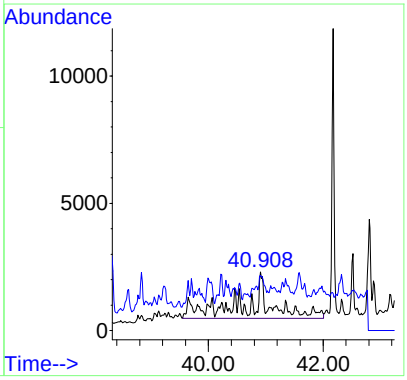


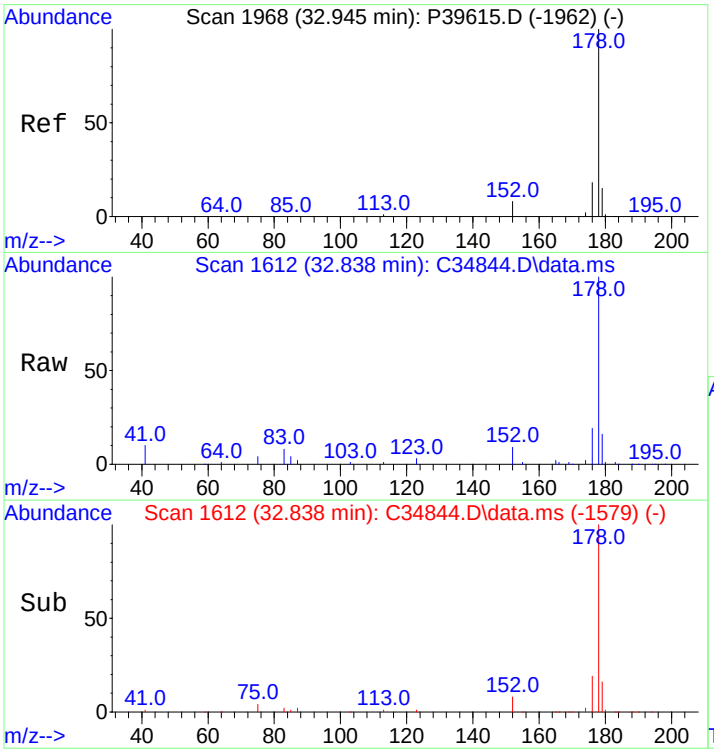


#53
C4-Phenanthrenes/Anthracenes
Concen: 479.21 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:234 Resp: 58209

Ion	Ratio	Lower	Upper
234	100		
219	2.2	46.9	70.3#

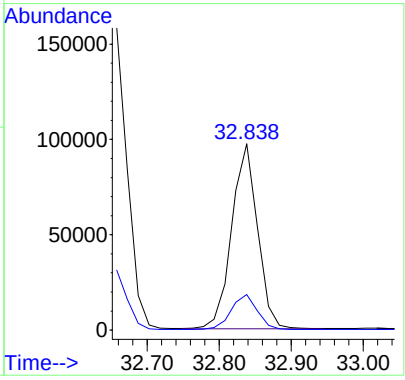


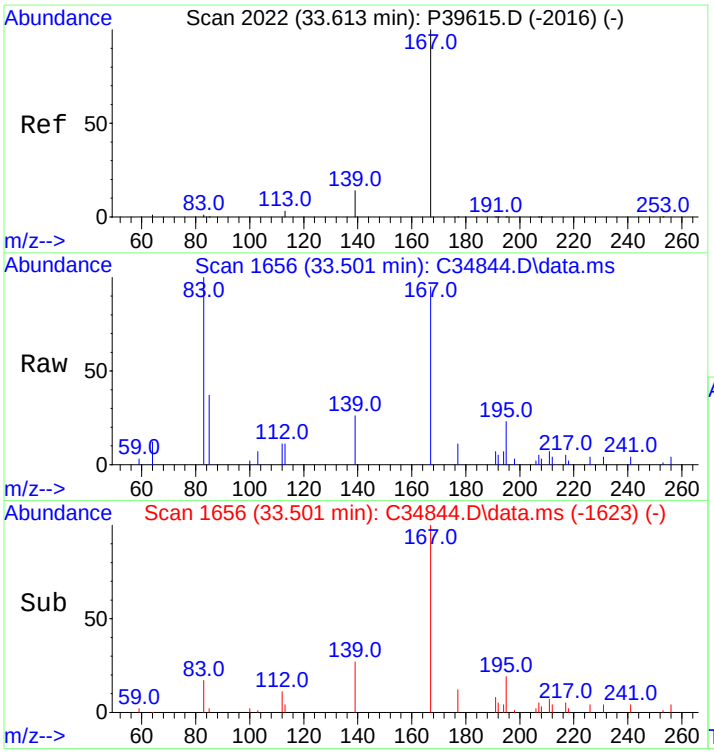


#55
Anthracene
Concen: 2040.88 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:178 Resp: 242148

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.5	23.3

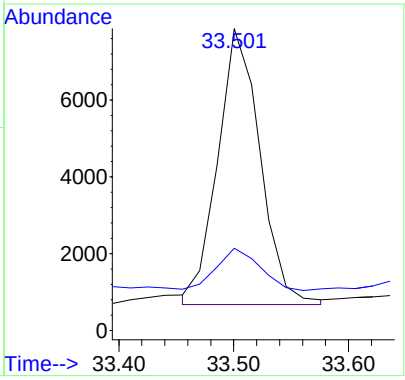


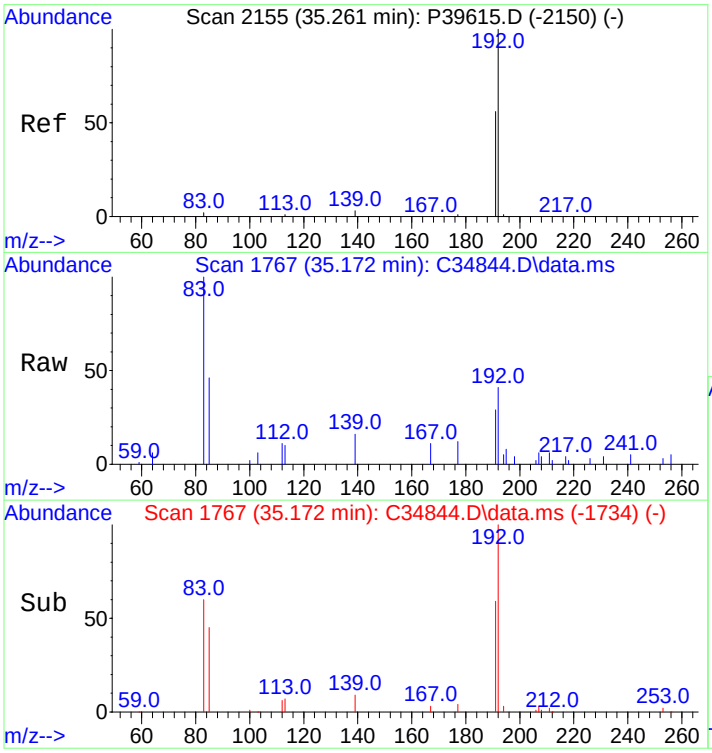


#56
Carbazole
Concen: 153.38 ng/mL m
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:167 Resp: 18382

Ion	Ratio	Lower	Upper
167	100		
139	15.6	11.8	17.8

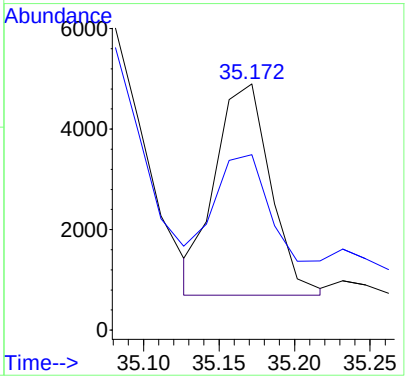


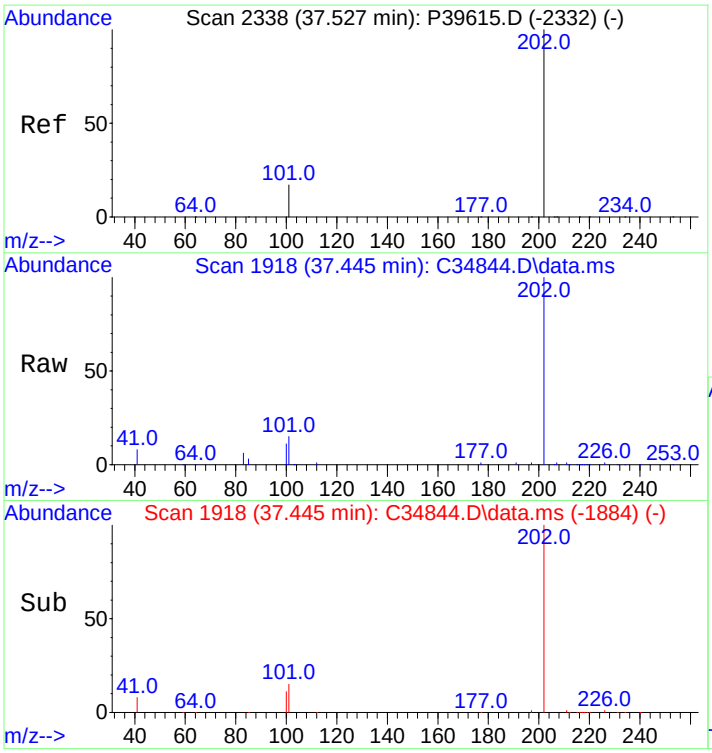


#57
1-Methylphenanthrene
Concen: 138.73 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:192 Resp: 10679

Ion	Ratio	Lower	Upper
192	100		
191	47.9	45.9	68.9

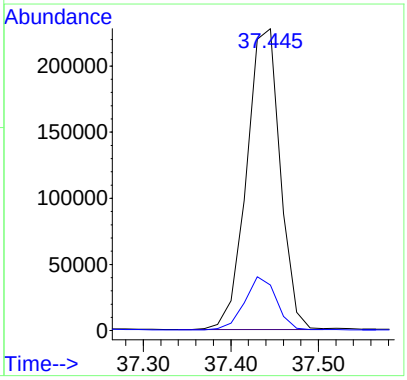


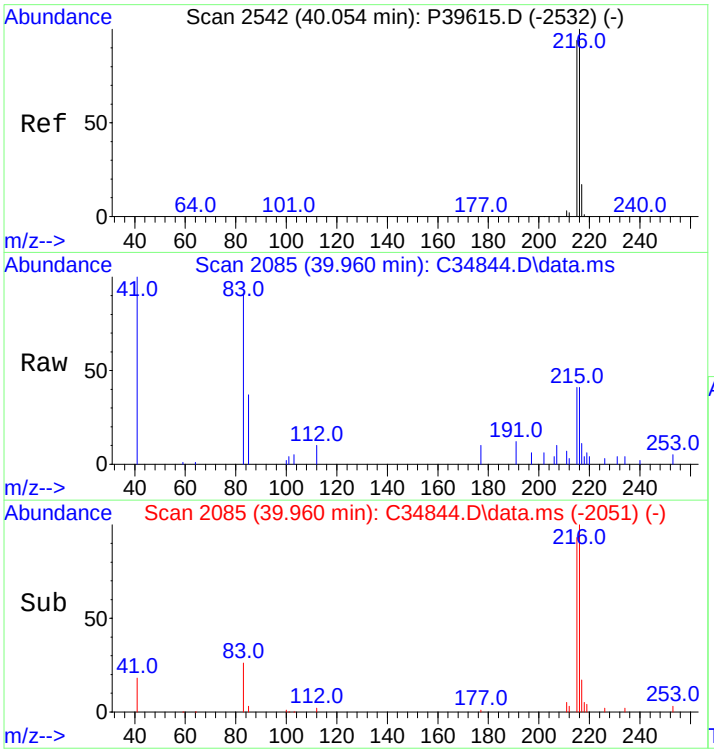


#58
Fluoranthene
Concen: 5049.73 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:202 Resp: 609198

Ion	Ratio	Lower	Upper
202	100		
101	17.4	12.9	19.3

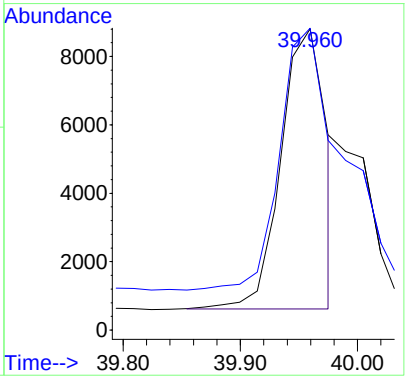


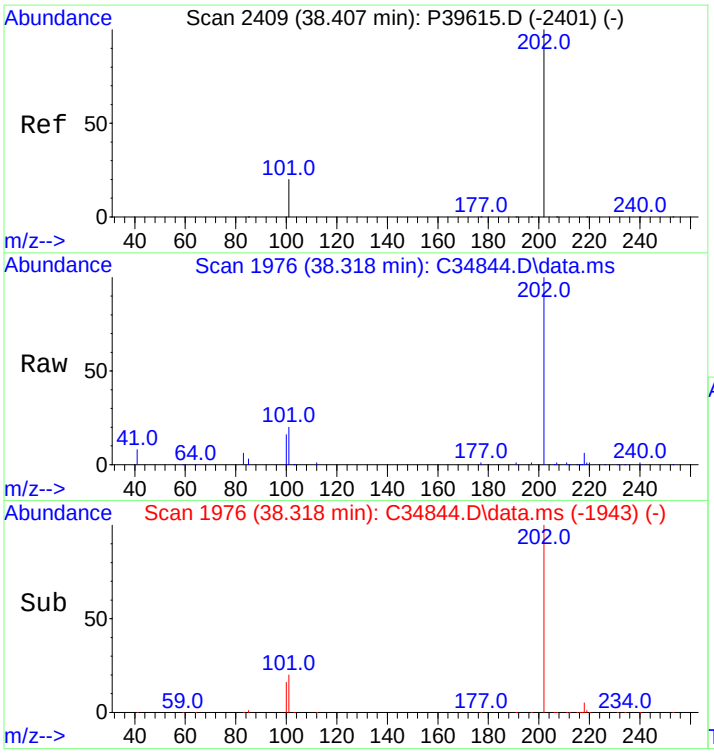


#59
Benzo(b)fluorene
Concen: 315.93 ng/mL m
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:216 Resp: 22112

Ion	Ratio	Lower	Upper
216	100		
215	132.1	76.3	114.5#

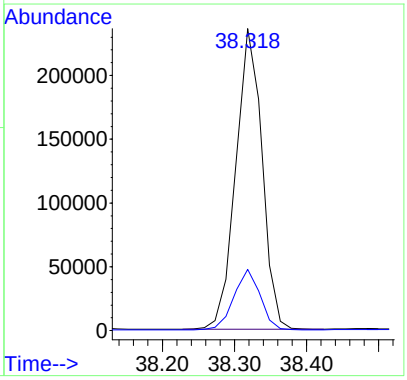


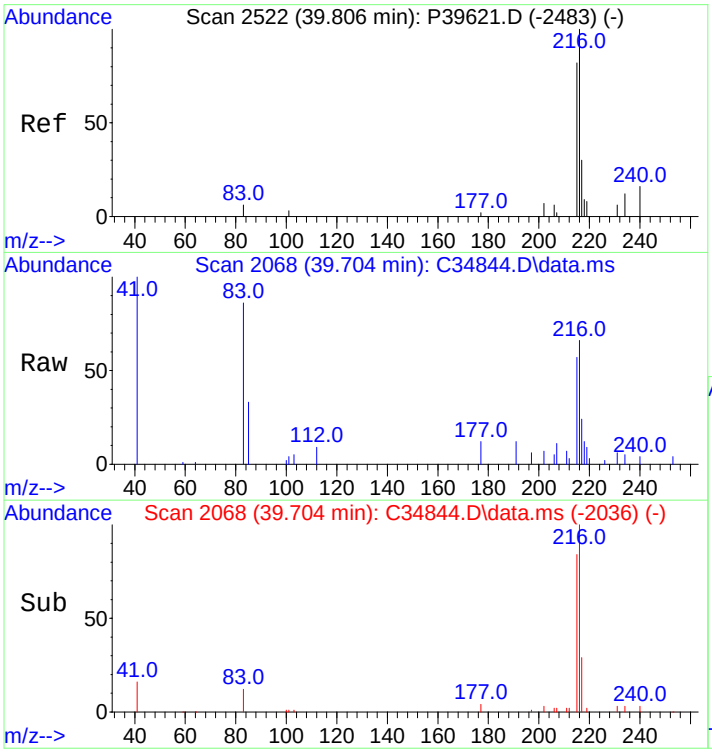


#60
Pyrene
Concen: 4858.20 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:202 Resp: 595777

Ion	Ratio	Lower	Upper
202	100		
101	20.1	15.0	22.4

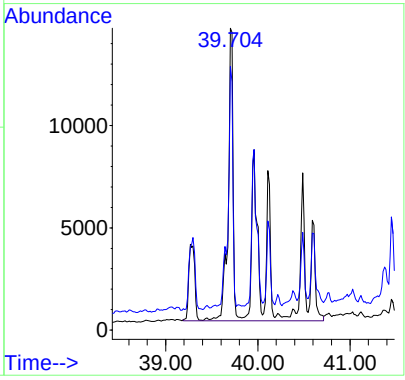


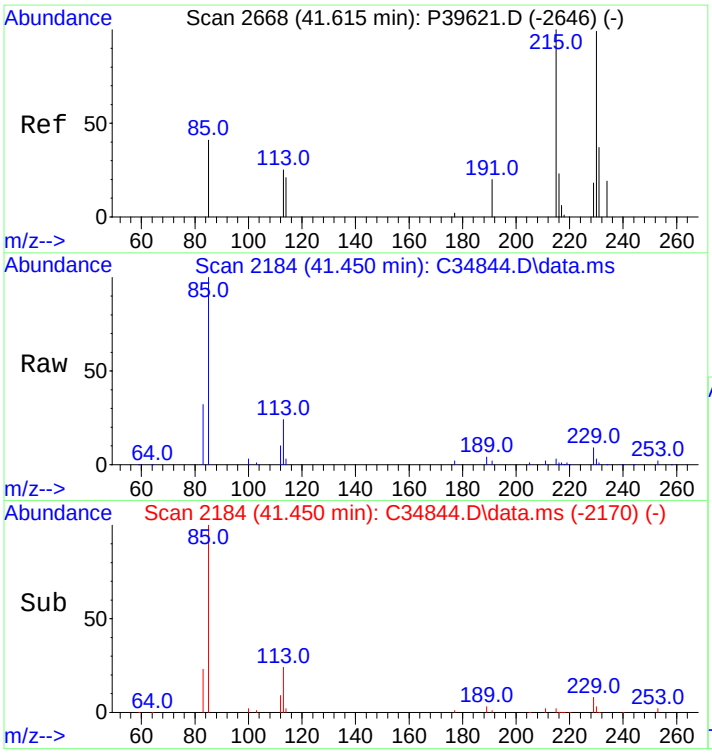


#61
C1-Fluoranthenes/Pyrenes
Concen: 1329.65 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:216 Resp: 163059

Ion	Ratio	Lower	Upper
216	100		
215	25.7	71.8	107.6#

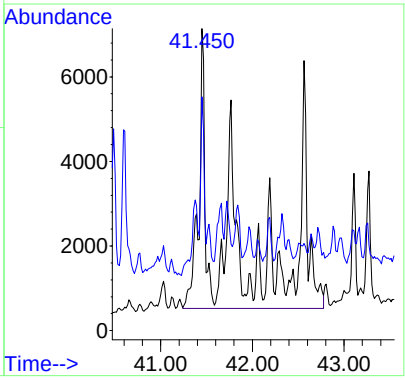


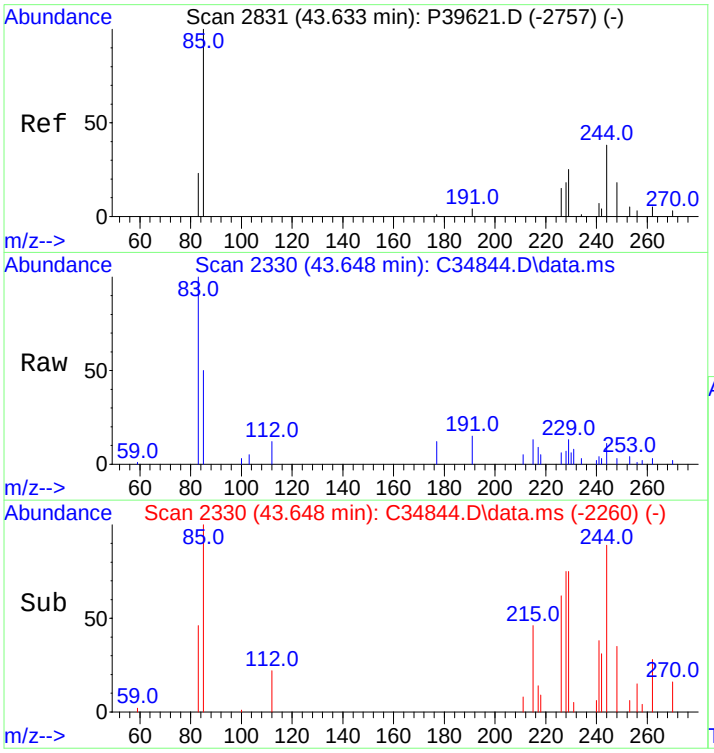


#62
C2-Fluoranthenes/Pyrenes
Concen: 958.61 ng/mL m
RT: 41.450 min Scan# 2184
Delta R.T. 0.051 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:230 Resp: 117557

Ion	Ratio	Lower	Upper
230	100		
215	4.6	99.0	148.4#

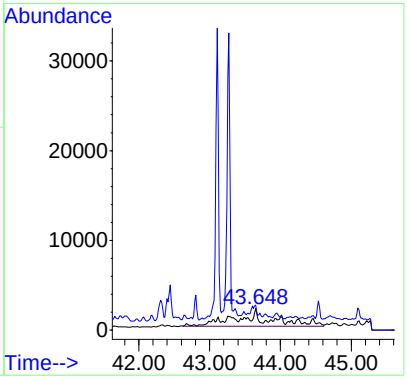


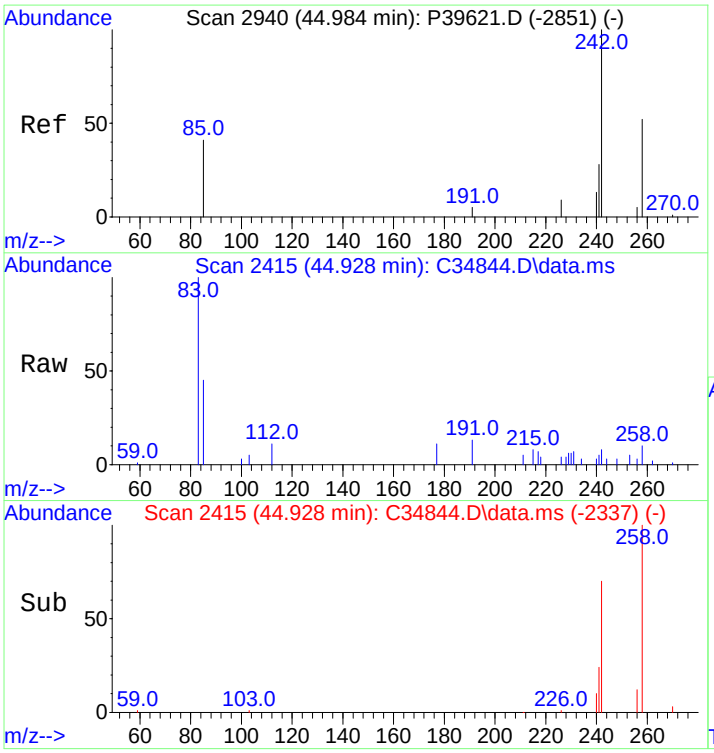


#63
C3-Fluoranthenes/Pyrenes
Concen: 530.11 ng/mL m
RT: 43.648 min Scan# 2330
Delta R.T. 0.241 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:244 Resp: 65009

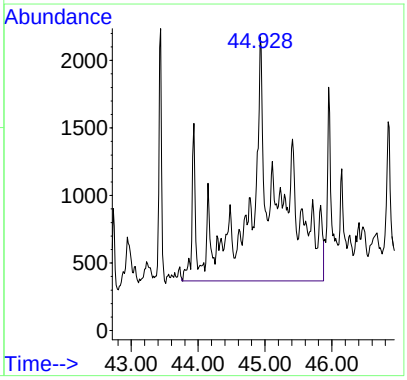
Ion	Ratio	Lower	Upper
244	100		
229	2.2	73.3	109.9#

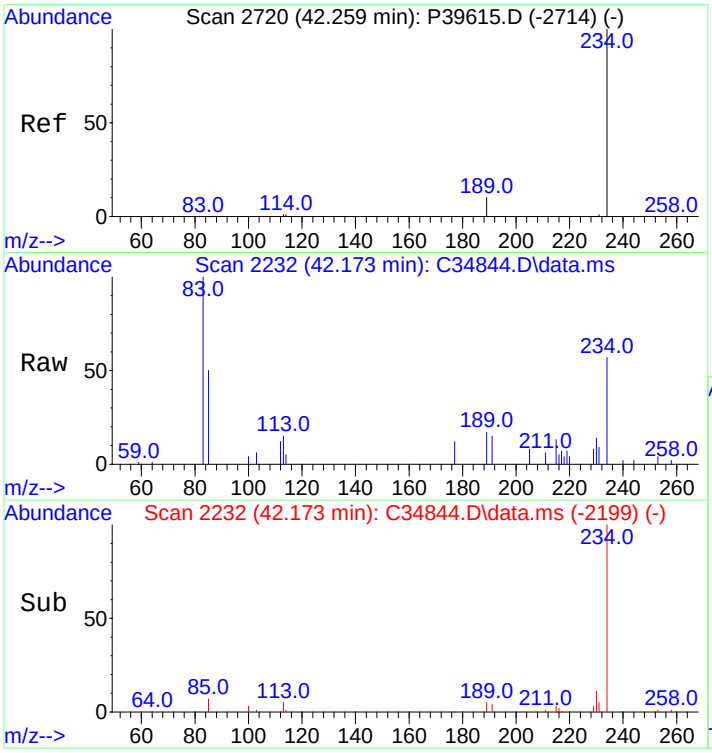




#64
C4-Fluoranthenes/Pyrenes
Concen: 463.57 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:258 Resp: 56849

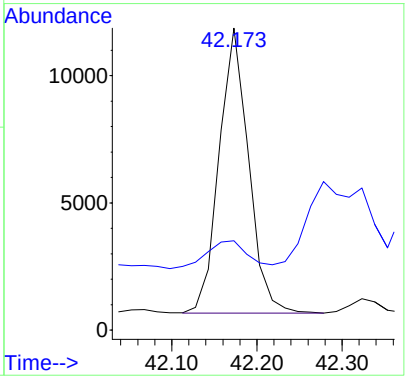


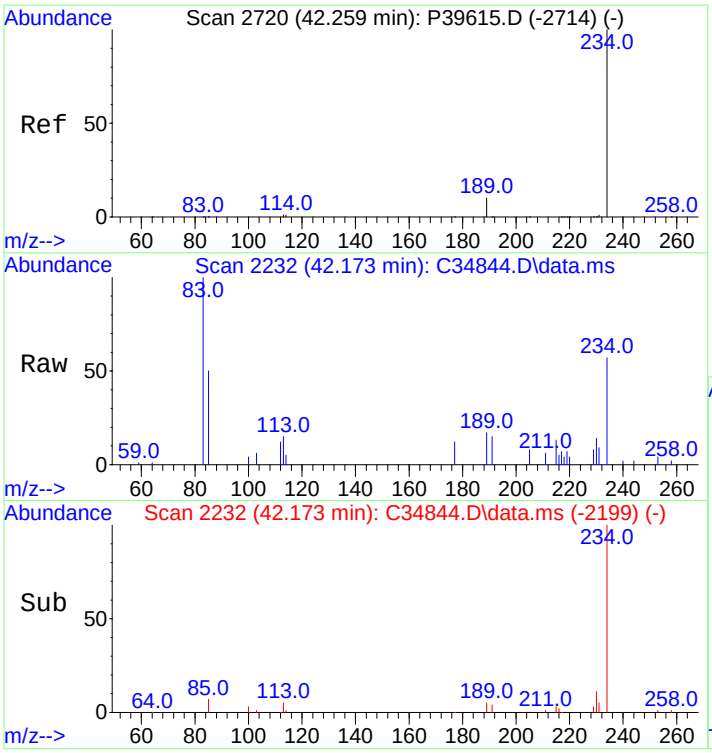


#66
Naphthobenzothiophene
Concen: 204.83 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:234 Resp: 27043

Ion	Ratio	Lower	Upper
234	100		
189	13.7	20.5	30.7#

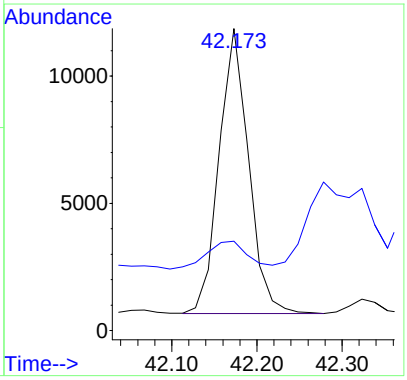


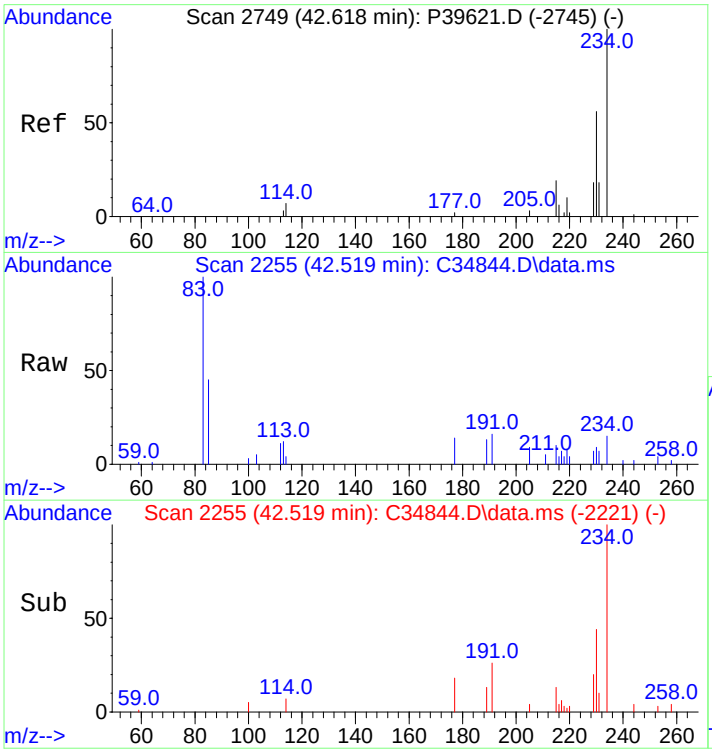


#67
Naphthobenzothiophene-2,1-D
Concen: 204.83 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:234 Resp: 27043

Ion	Ratio	Lower	Upper
234	100		
189	13.7	20.5	30.7#

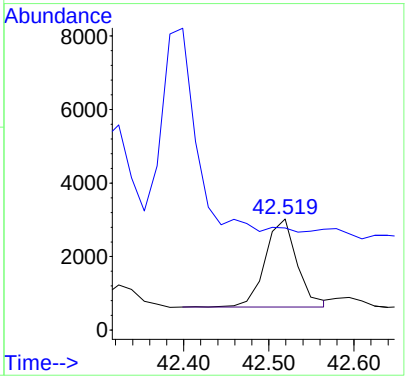


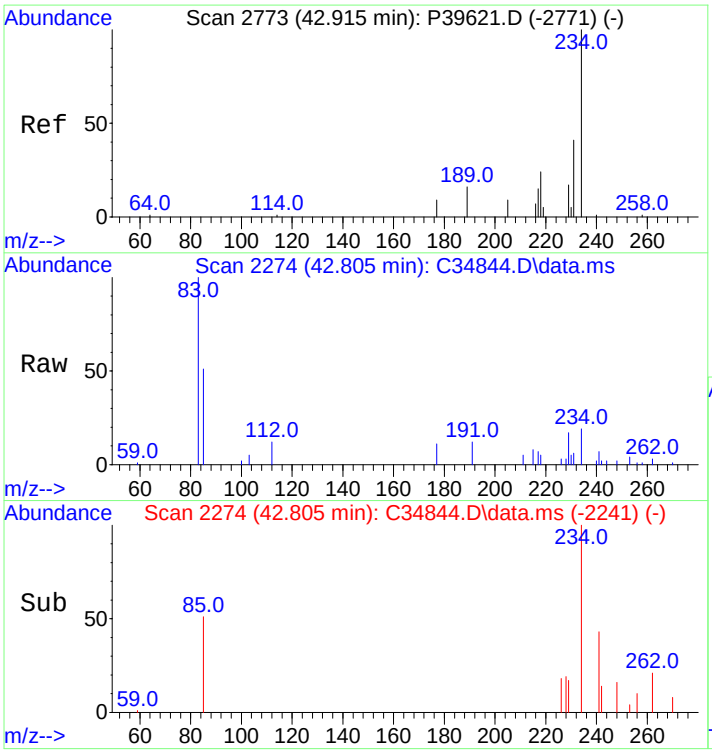


#68
Naphthobenzothiophene-1,2-D
Concen: 47.69 ng/mL
RT: 42.519 min Scan# 2255
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:234 Resp: 6296

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

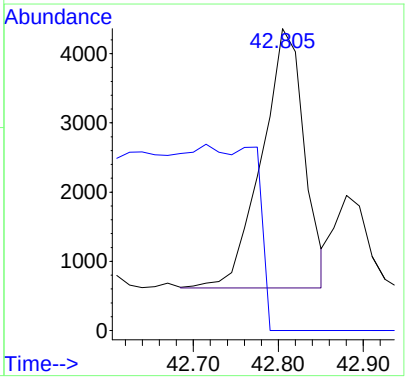


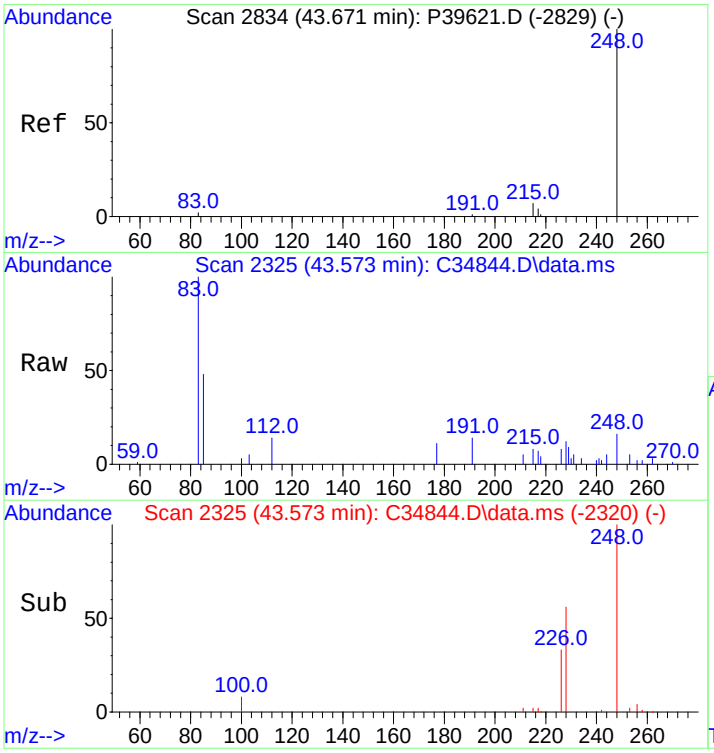


#69
Naphthobenzothiophene-2,3-D
Concen: 99.19 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:234 Resp: 13096

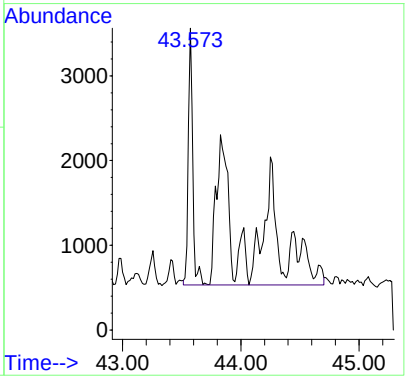
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

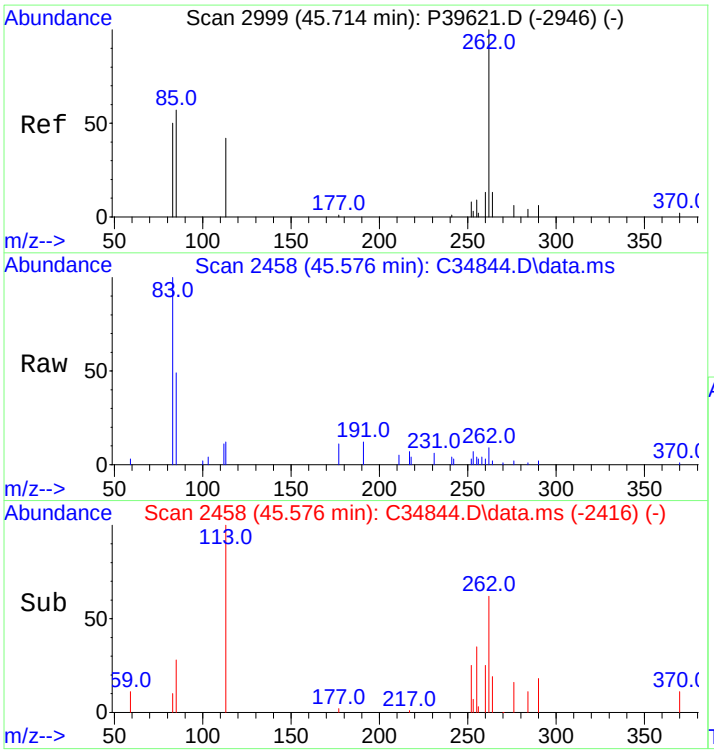




#70
C1-Naphthobenzothiophenes
Concen: 294.99 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

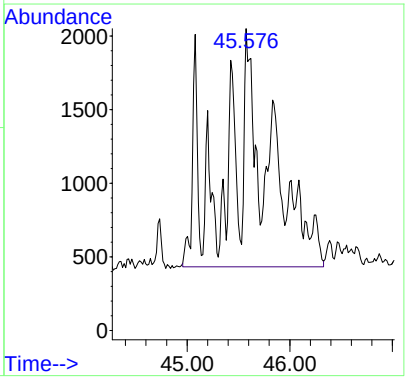
Tgt Ion:248 Resp: 38946

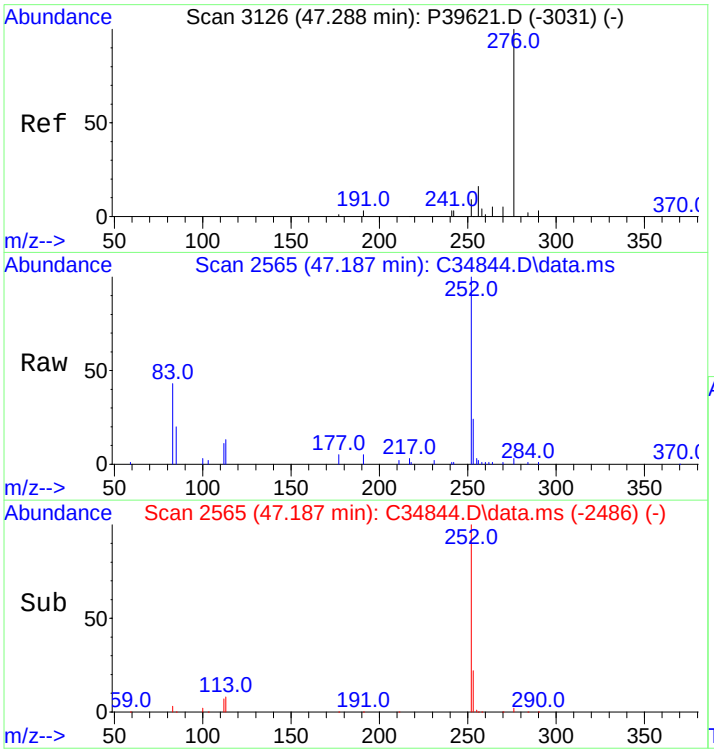




#71
C2-Naphthobenzothiophenes
Concen: 340.35 ng/ml m
RT: 45.576 min Scan# 2458
Delta R.T. 0.145 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

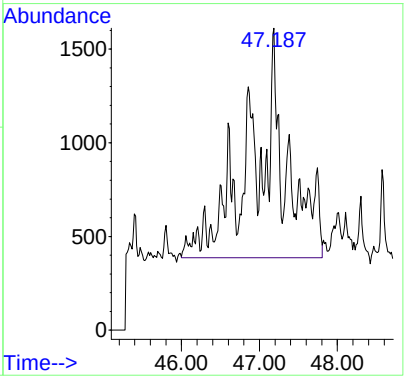
Tgt Ion:262 Resp: 44935

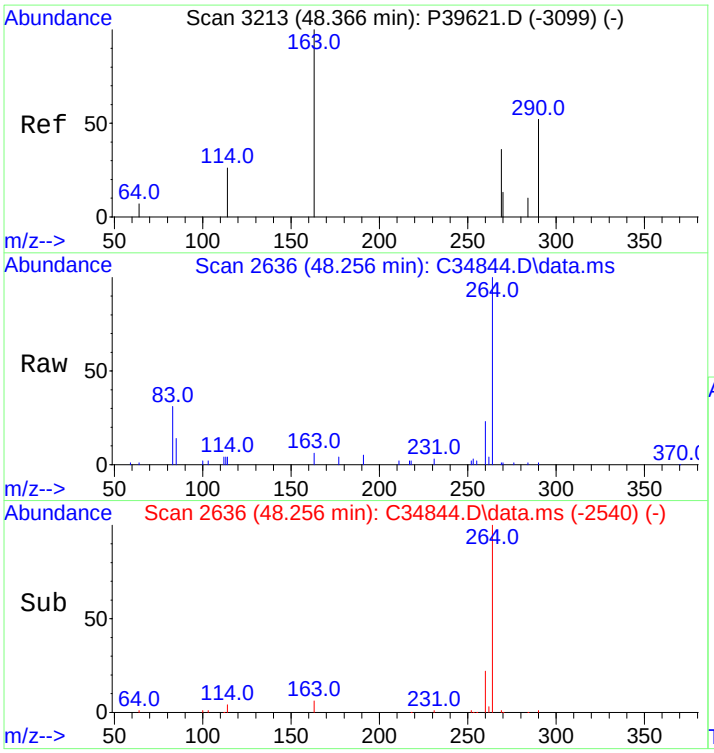




#72
C3-Naphthobenzothiophenes
Concen: 282.43 ng/ml m
RT: 47.187 min Scan# 2565
Delta R.T. 0.152 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

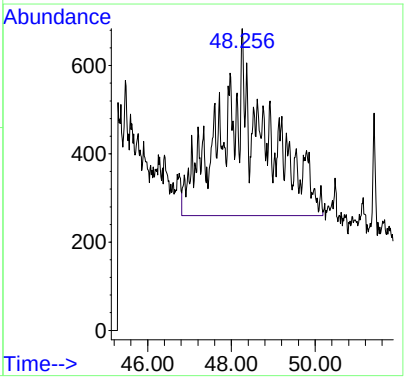
Tgt Ion:276 Resp: 37288

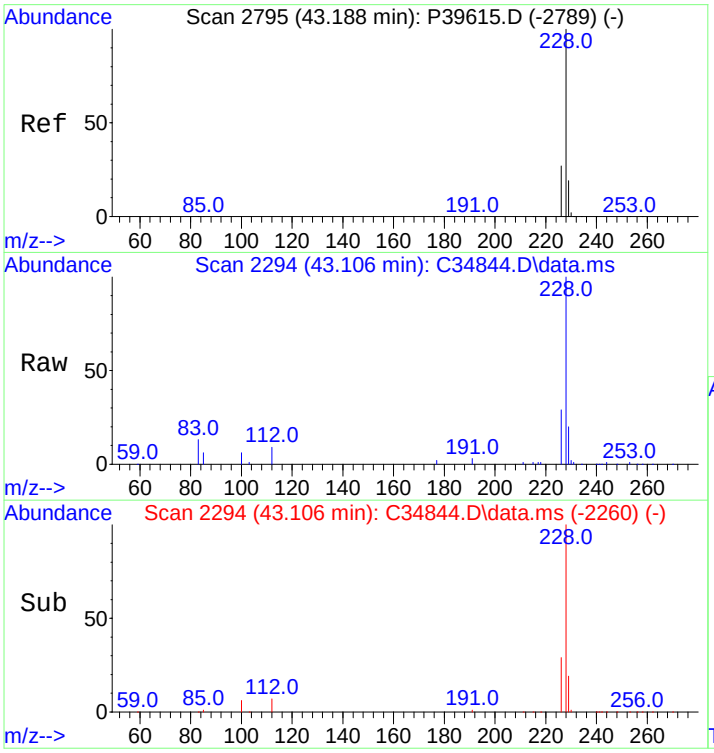




#73
C4-Naphthobenzothiophenes
Concen: 225.99 ng/mL m
RT: 48.256 min Scan# 2636
Delta R.T. 0.157 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:290 Resp: 29836

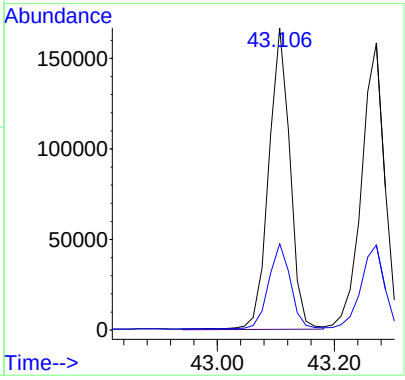


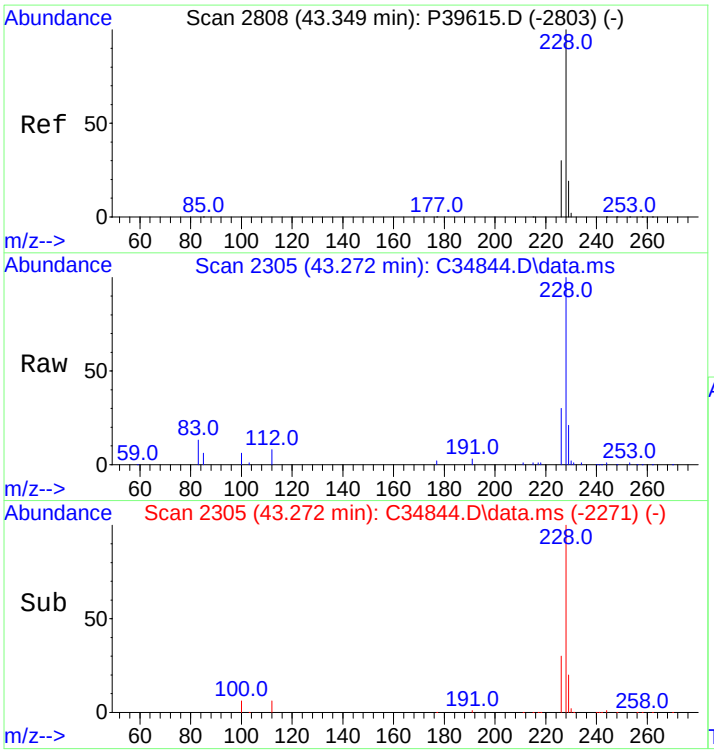


#75
Benz[a]anthracene
Concen: 3059.13 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:228 Resp: 420272

Ion	Ratio	Lower	Upper
228	100		
226	29.4	21.4	32.0

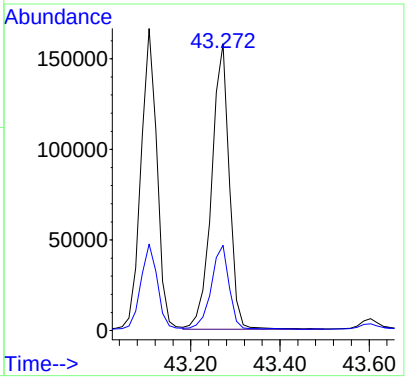


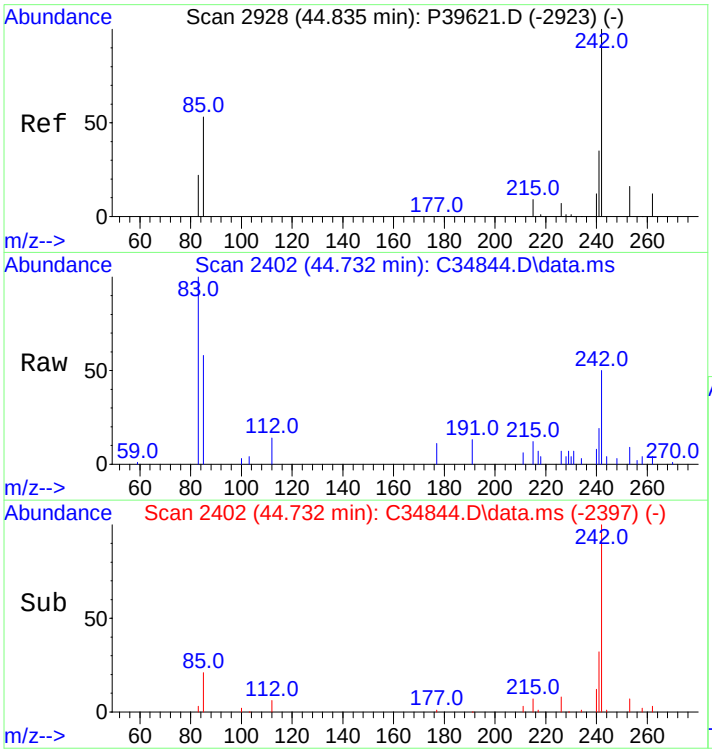


#77
Chrysene/Triphenylene
Concen: 3126.05 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:228 Resp: 433581

Ion	Ratio	Lower	Upper
228	100		
226	29.1	23.7	35.5

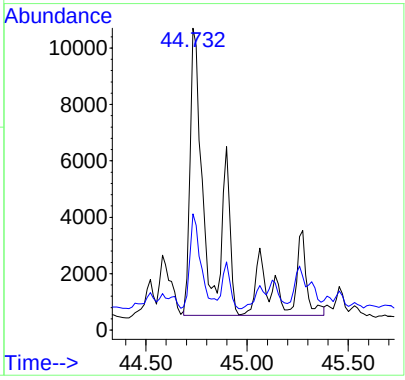


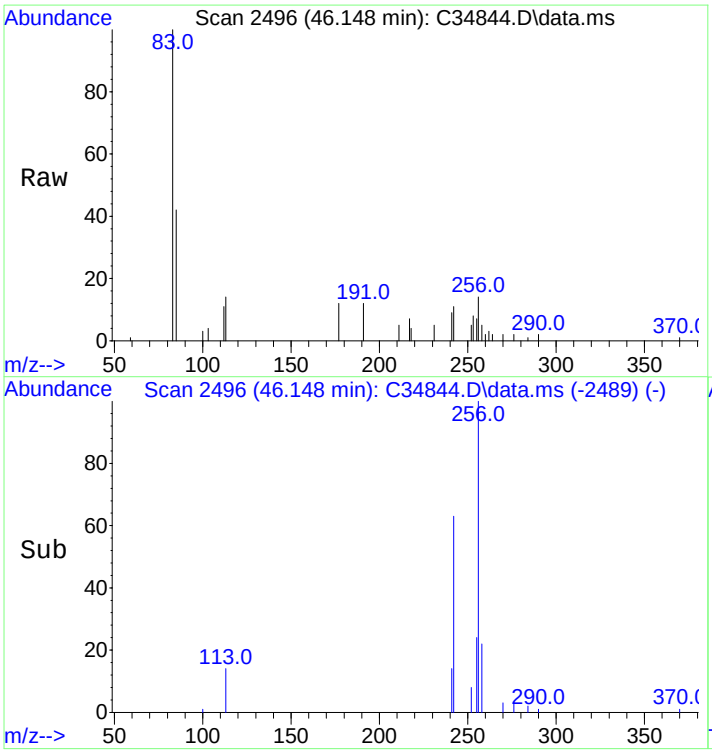


#78
C1-Chrysenes
Concen: 552.31 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:242 Resp: 76605

Ion	Ratio	Lower	Upper
242	100		
241	3.7	31.4	47.2#

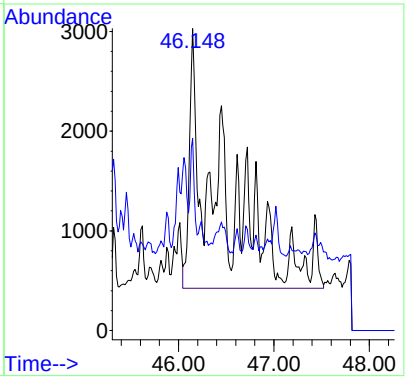


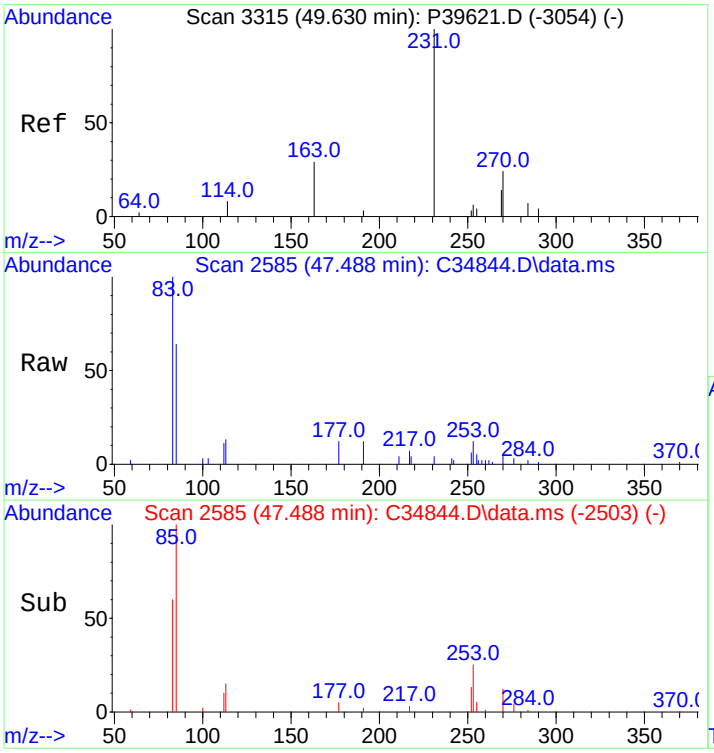


#79
C2-Chrysenes
Concen: 410.53 ng/mL m
RT: 46.148 min Scan# 2496
Delta R.T. -0.641 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:256 Resp: 56940

Ion	Ratio	Lower	Upper
256	100		
241	3.8	21.2	31.8#

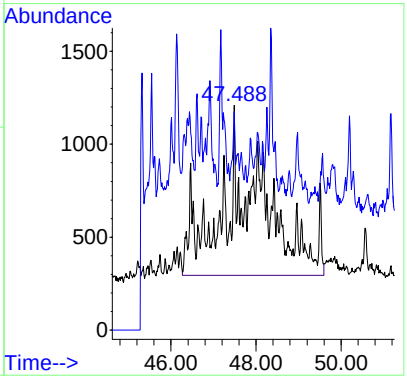


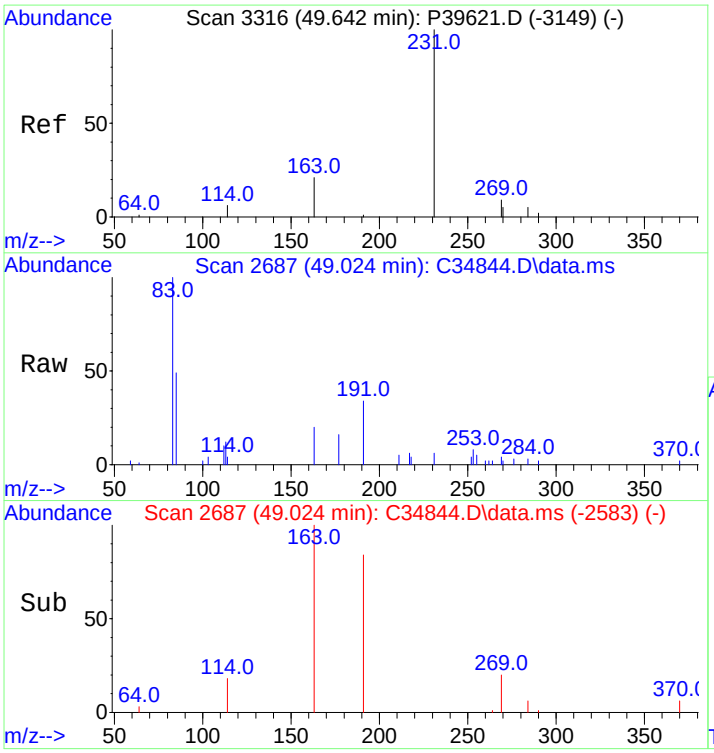


#80
C3-Chrysenes
Concen: 397.29 ng/mL m
RT: 47.488 min Scan# 2585
Delta R.T. -2.007 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:270 Resp: 55104

Ion	Ratio	Lower	Upper
270	100		
255	0.0	33.8	50.8#

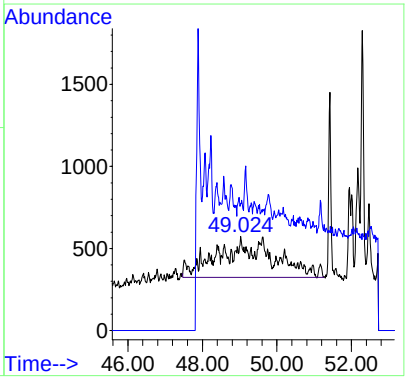


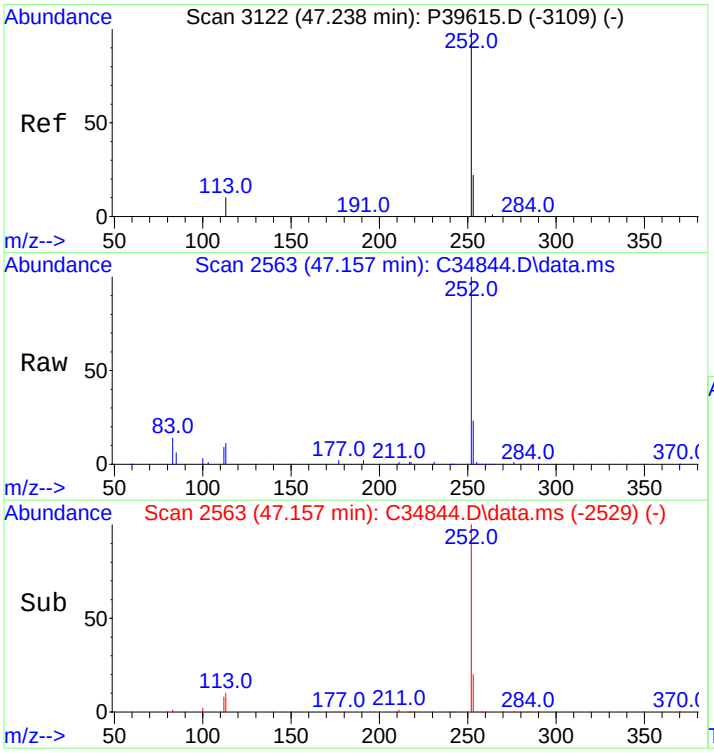


#81
C4-Chrysenes
Concen: 175.34 ng/mL m
RT: 49.024 min Scan# 2687
Delta R.T. -0.576 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:284 Resp: 24320

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

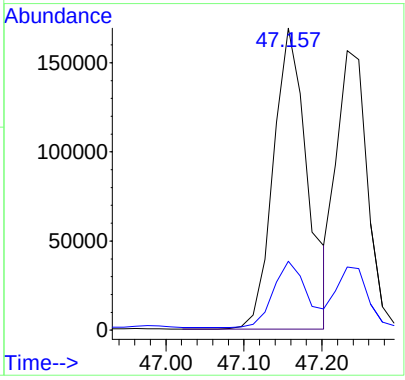


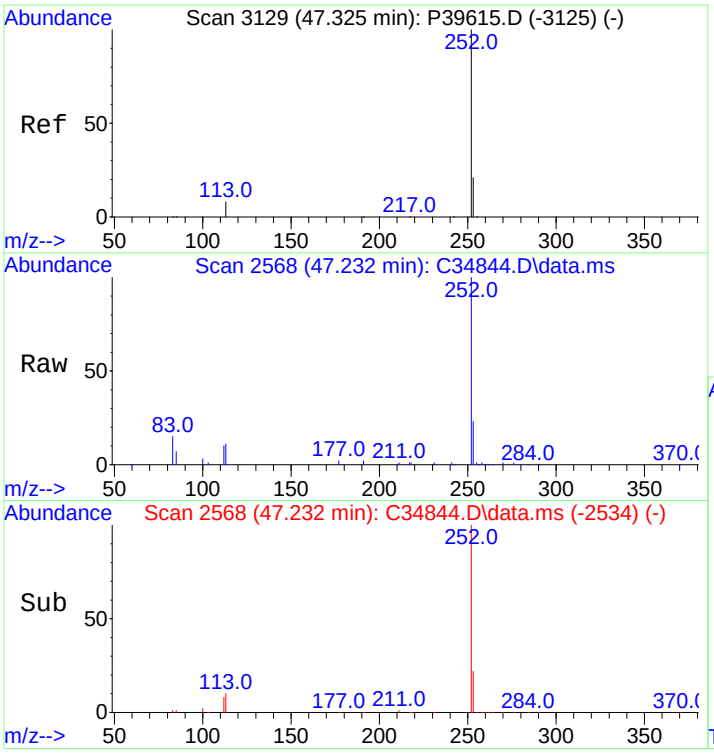


#82
Benzo[b]fluoranthene
Concen: 3392.38 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 512100

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.0	28.4

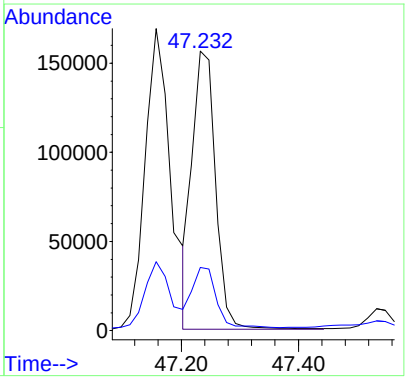


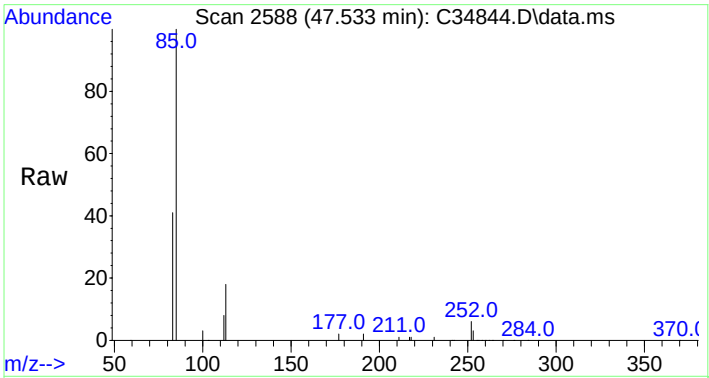


#83
Benzo[j]+[k]fluoranthene
Concen: 2636.69 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 433345

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.0	28.4

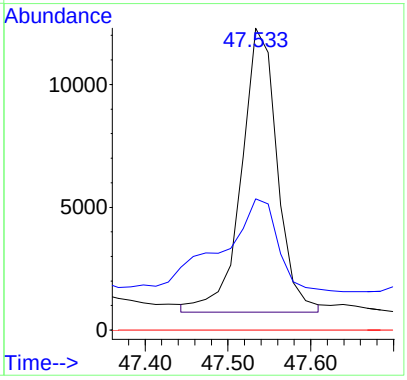


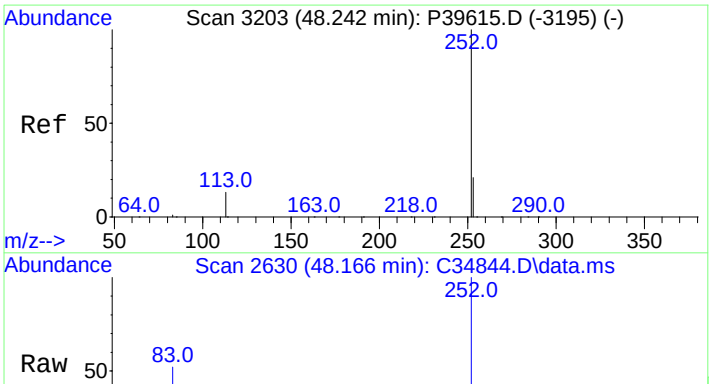


#84
Benzo[a]fluoranthene
Concen: 211.03 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 34684

Ion	Ratio	Lower	Upper
252	100		
253	53.3	146.1	219.1#
125	0.0	0.0	0.0

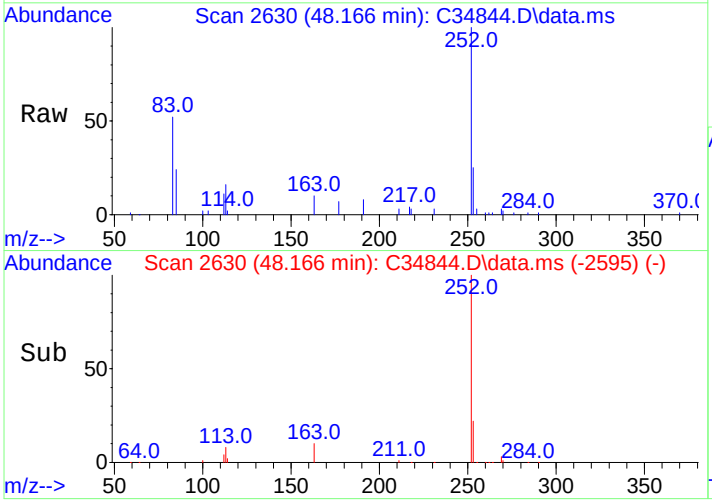


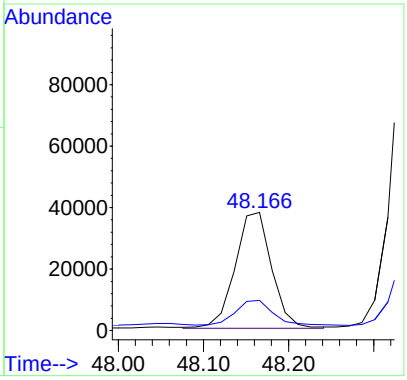


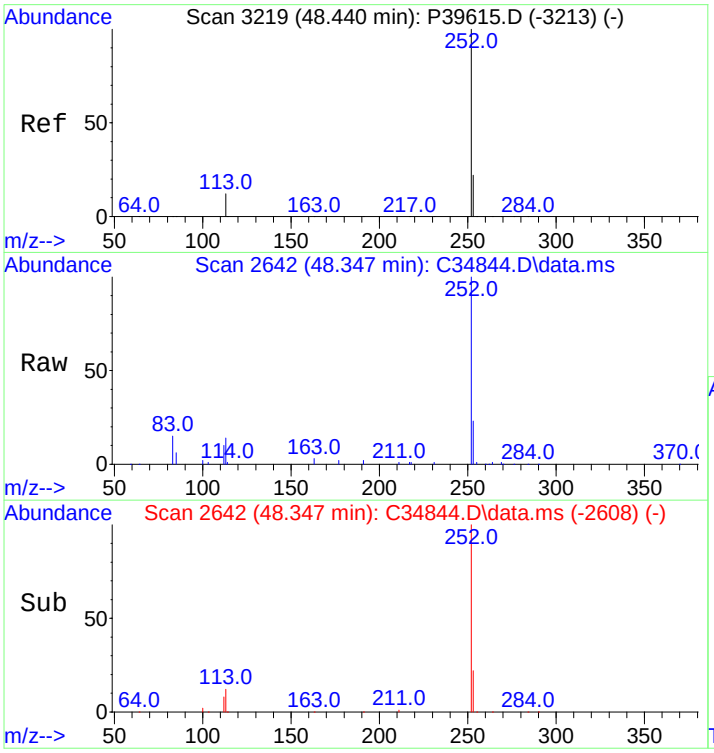
#85
Benzo[e]pyrene
Concen: 754.08 ng/mL
RT: 48.166 min Scan# 2630
Delta R.T. 0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 112595

Ion	Ratio	Lower	Upper
252	100		
253	24.3	19.2	28.8



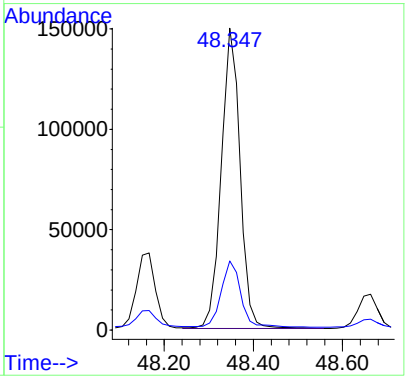


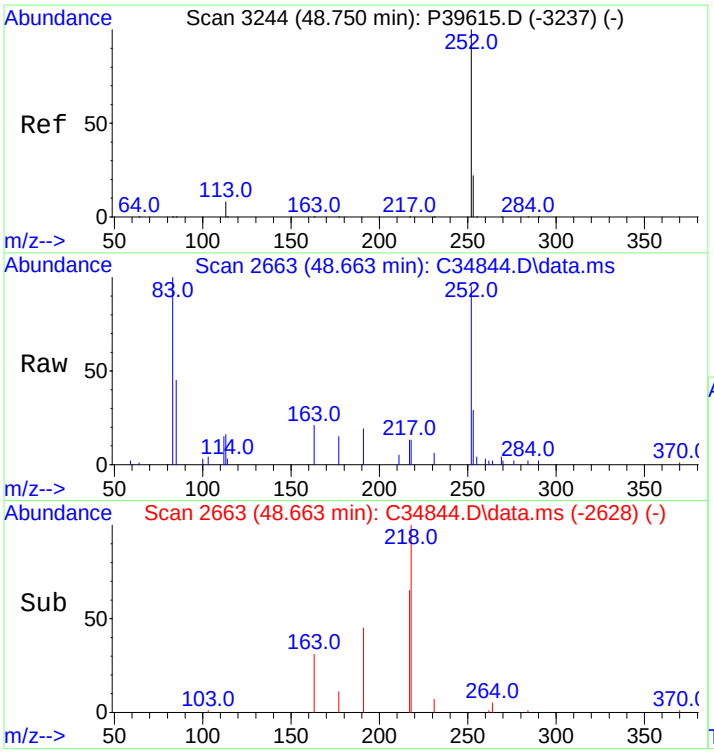


#87
Benzo[a]pyrene
Concen: 3045.67 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 437841

Ion	Ratio	Lower	Upper
252	100		
253	22.9	19.5	29.3

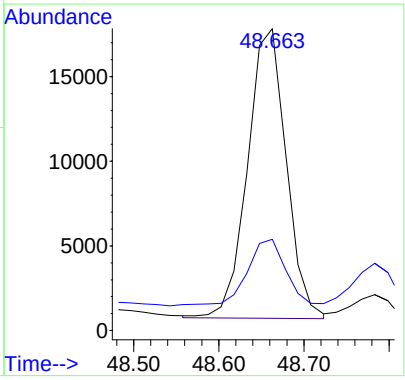


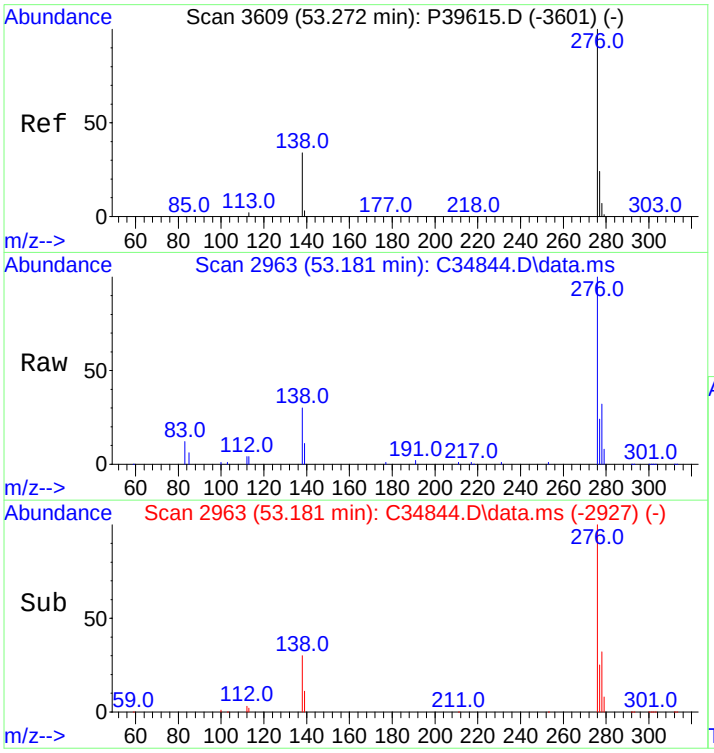


#88
Perylene
Concen: 351.62 ng/mL
RT: 48.663 min Scan# 2663
Delta R.T. 0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:252 Resp: 54022

Ion	Ratio	Lower	Upper
252	100		
253	23.1	19.6	29.4

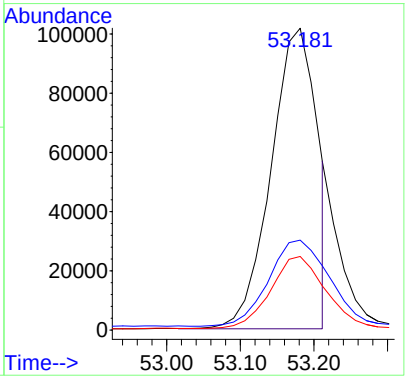


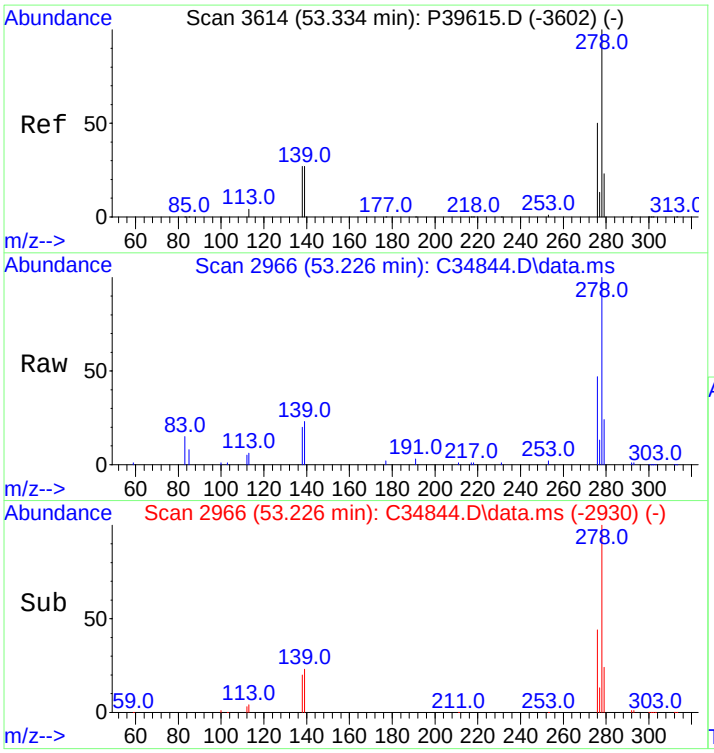


#89
Indeno[1,2,3-cd]pyrene
Concen: 2656.89 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.045 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:276 Resp: 444487

Ion	Ratio	Lower	Upper
276	100		
138	38.8	23.3	34.9#
277	29.7	19.0	28.4#

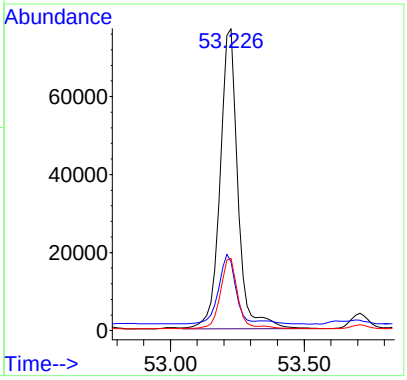


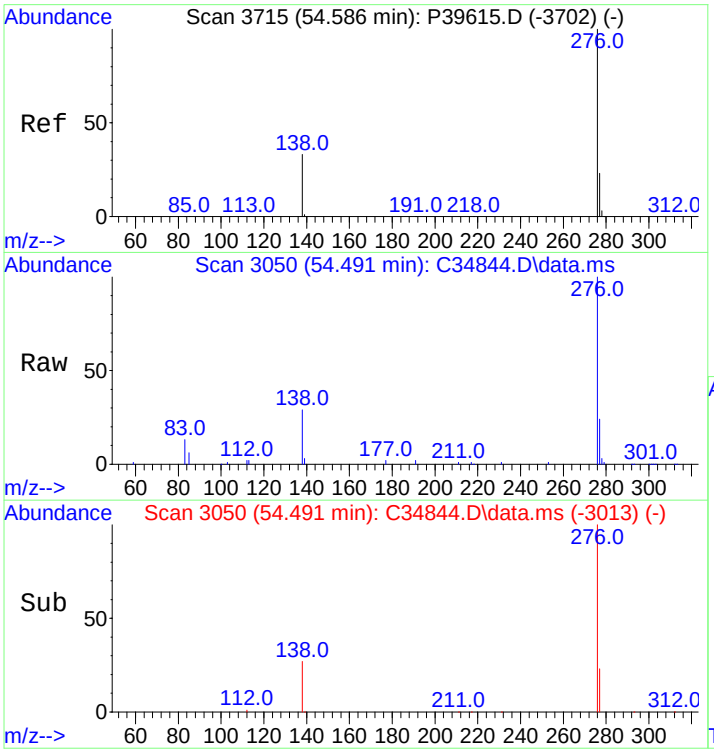


#90
Dibenz[ah]+[ac]anthracene
Concen: 2234.93 ng/mL
RT: 53.226 min Scan# 2966
Delta R.T. 0.045 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:278 Resp: 355677

Ion	Ratio	Lower	Upper
278	100		
139	21.3	19.1	28.7
279	22.8	19.2	28.8

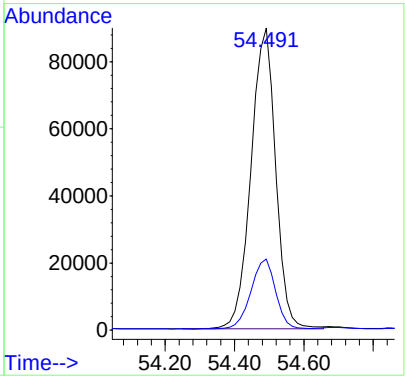


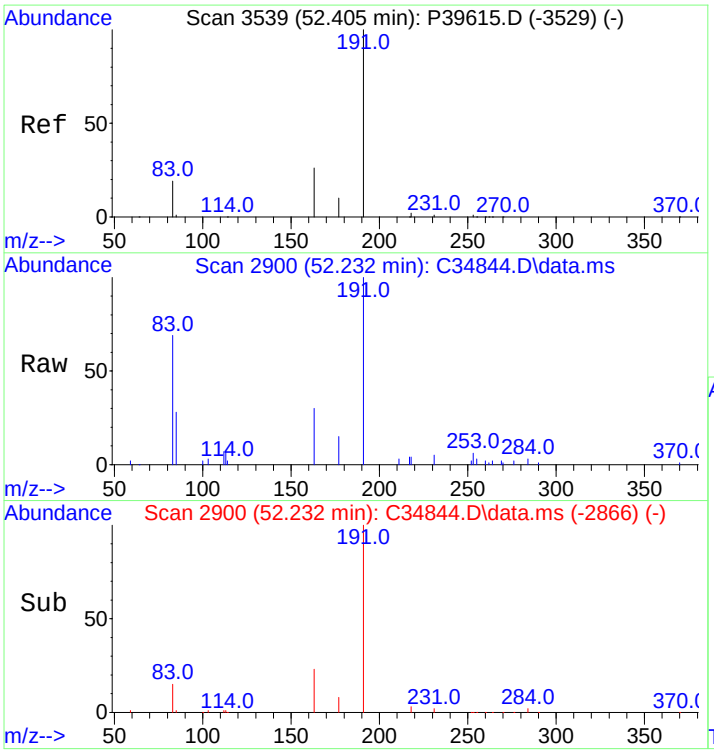


#91
Benzo[g,h,i]perylene
Concen: 2507.02 ng/mL
RT: 54.491 min Scan# 3050
Delta R.T. 0.060 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:276 Resp: 443114

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

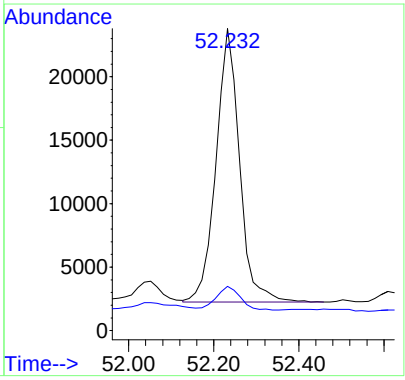


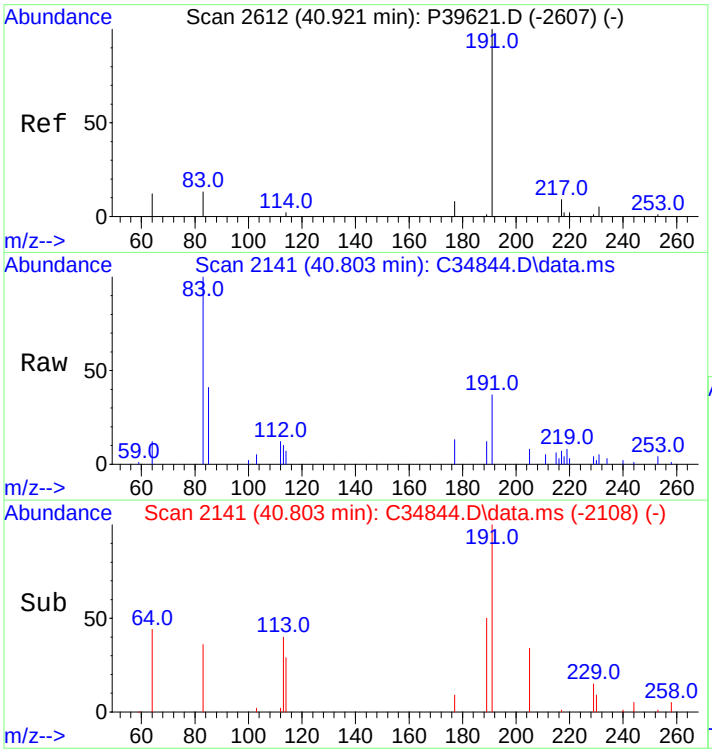


#92
Hopane (T19)
Concen: 2894.50 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:191 Resp: 82572

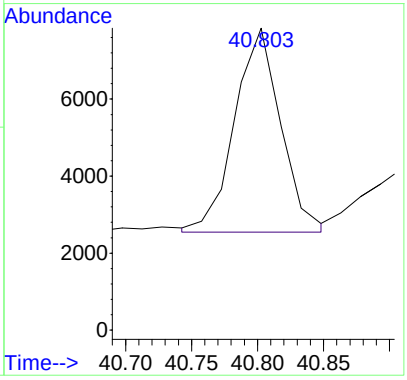
Ion	Ratio	Lower	Upper
191	100		
177	9.0	14.6	21.8#

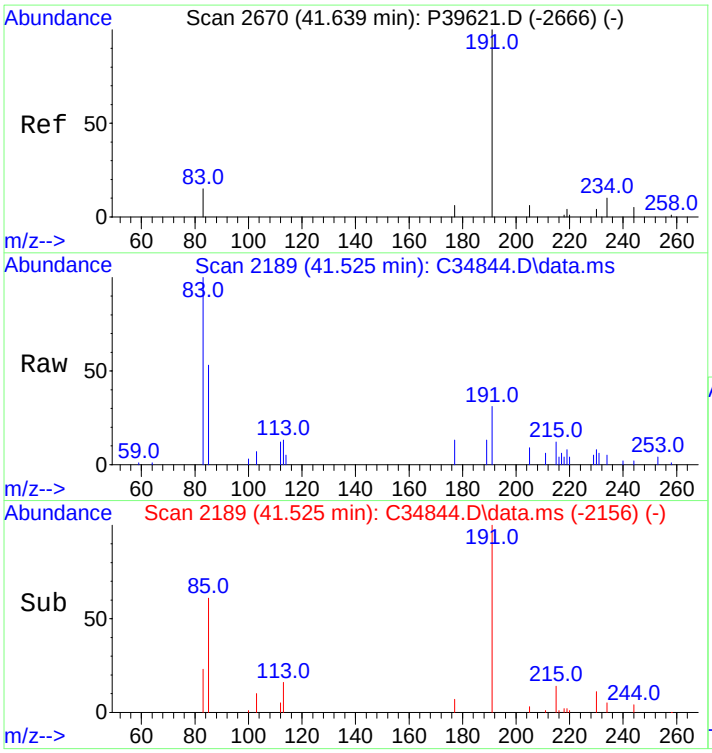




#94
C23 Tricyclic Terpane (T4)
Concen: 449.36 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

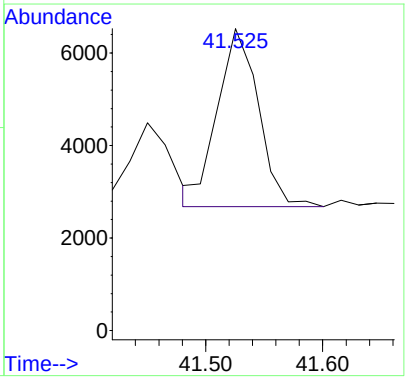
Tgt Ion:191 Resp: 12819

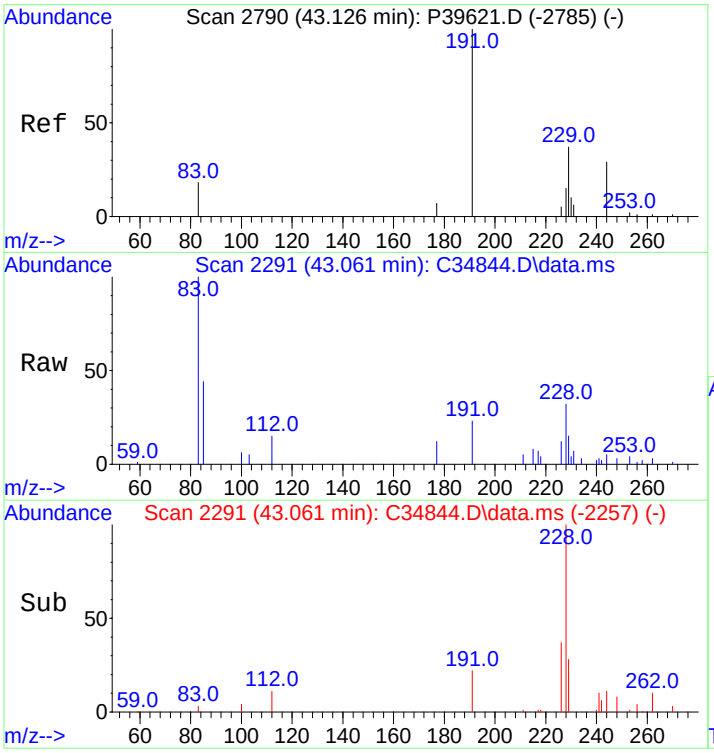




#95
C24 Tricyclic Terpane (T5)
Concen: 327.48 ng/ml
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

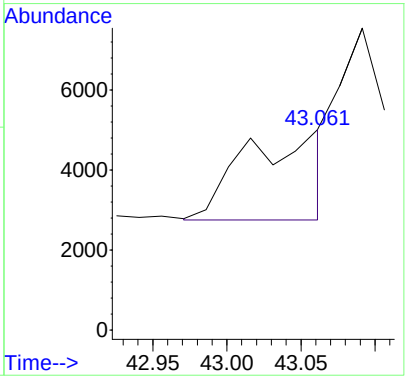
Tgt Ion:191 Resp: 9342

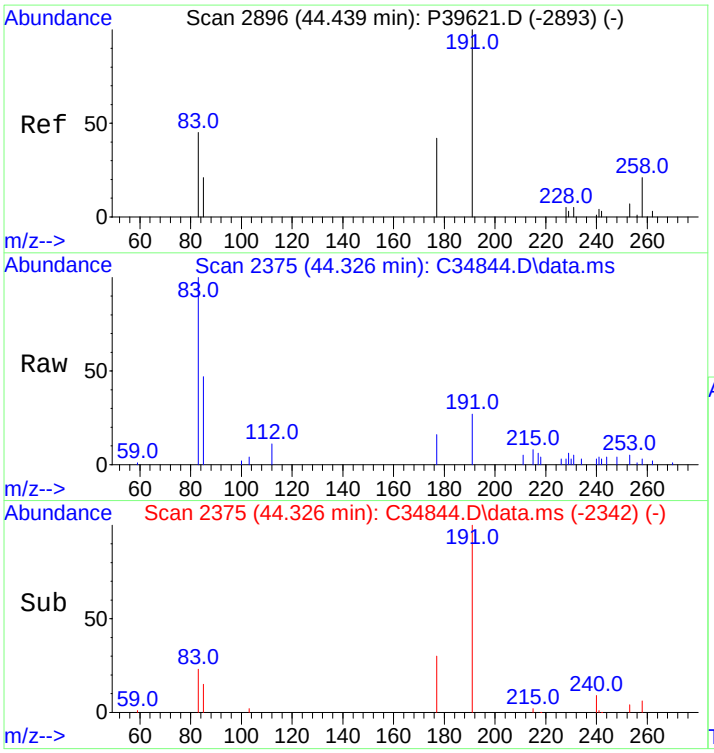




#96
C25 Tricyclic Terpane (T6)
Concen: 285.17 ng/ml m
RT: 43.061 min Scan# 2291
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

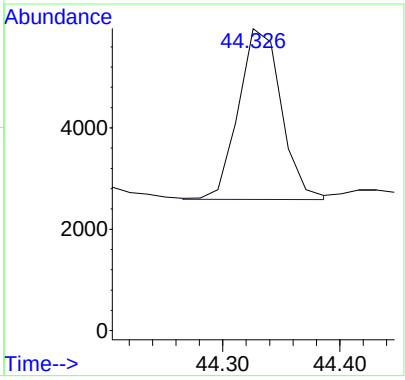
Tgt Ion:191 Resp: 8135

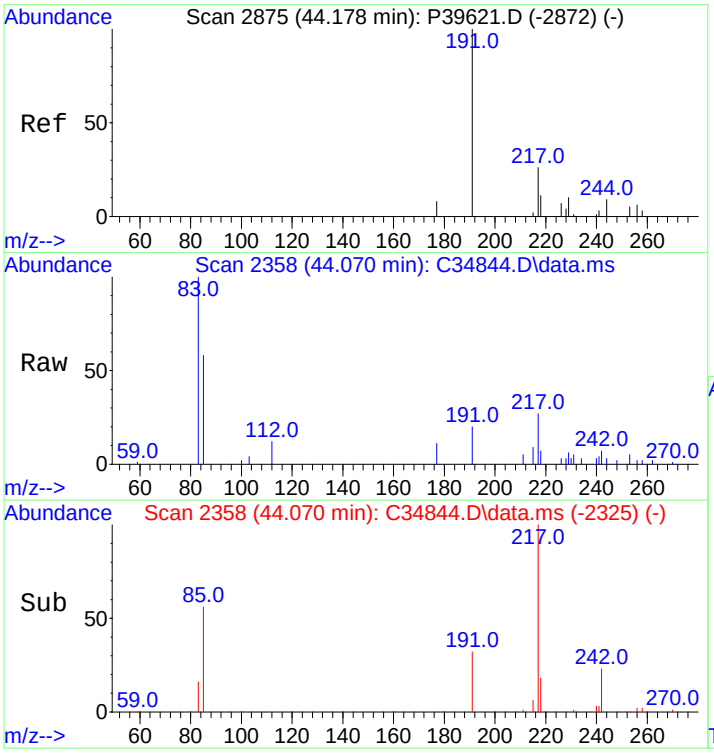




#97
C24 Tetracyclic Terpane (T6a)
Concen: 300.24 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

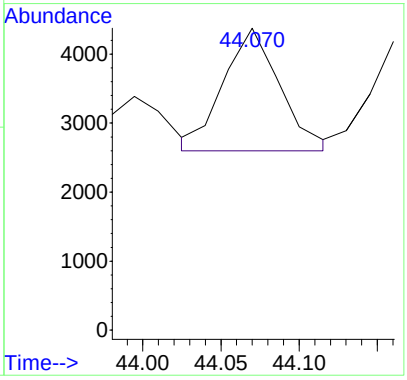
Tgt Ion:191 Resp: 8565

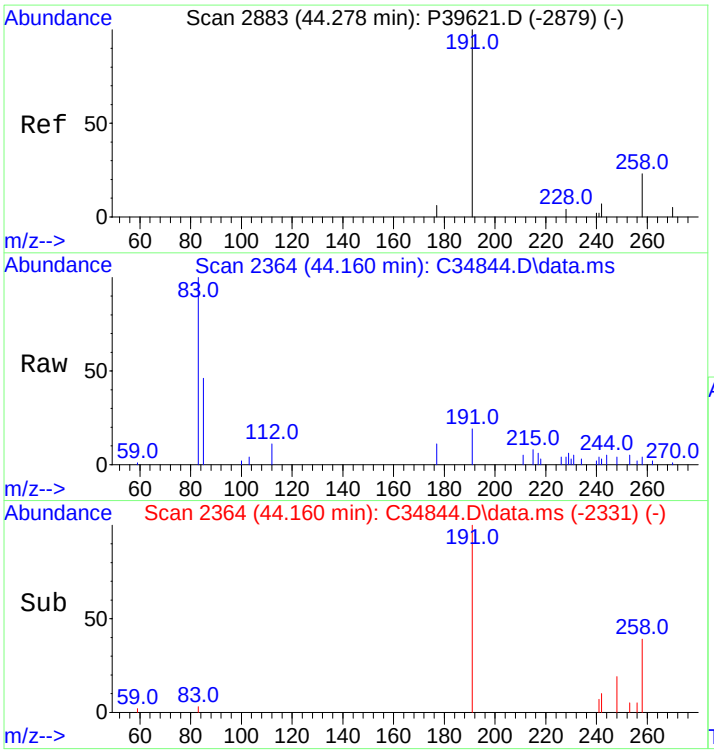




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 155.75 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

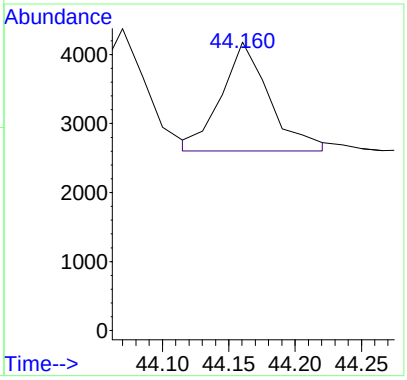
Tgt Ion:191 Resp: 4443

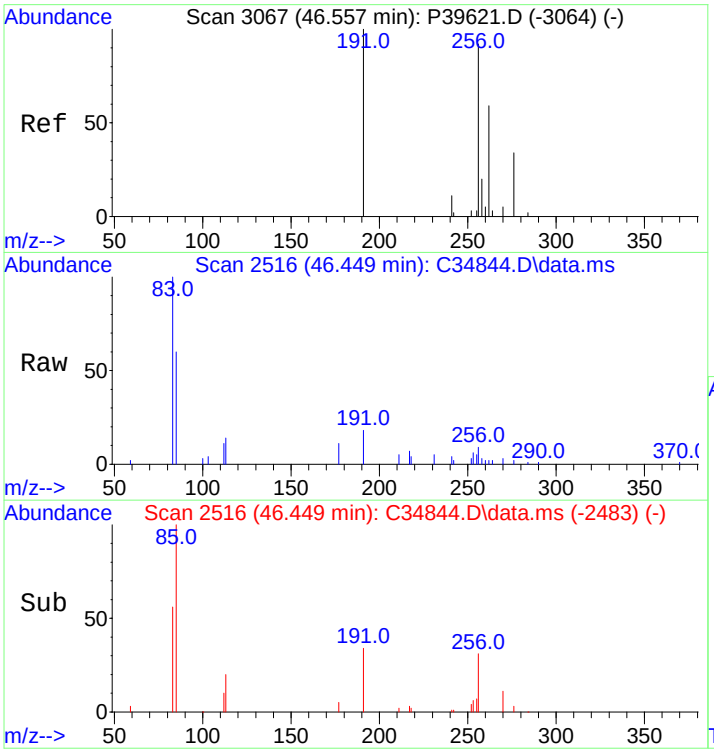




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 138.88 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

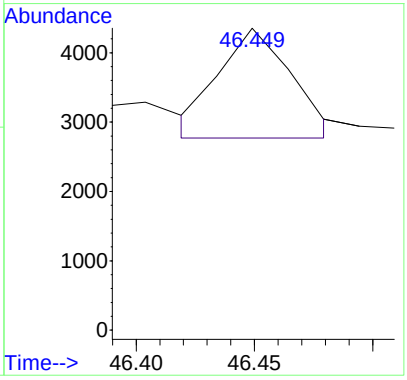
Tgt Ion:191 Resp: 3962

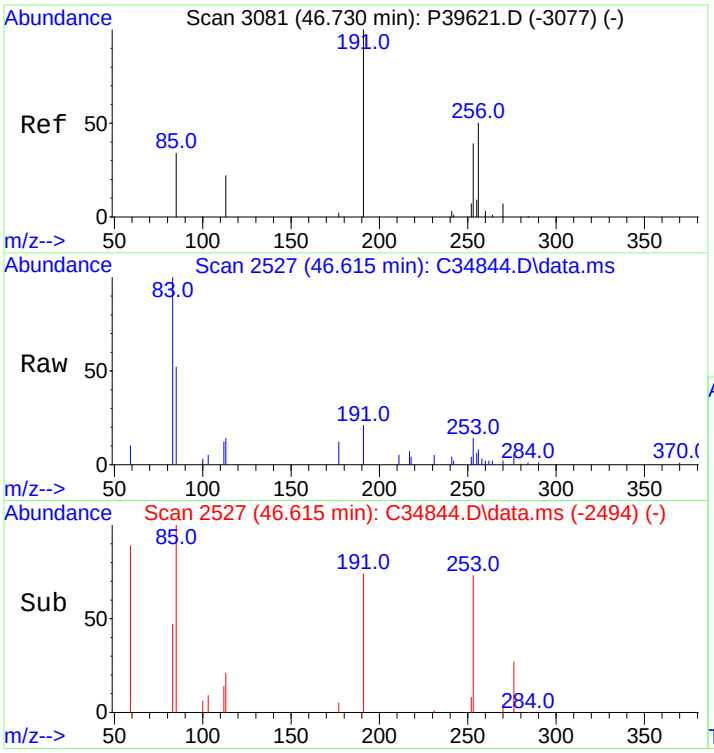




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 118.76 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

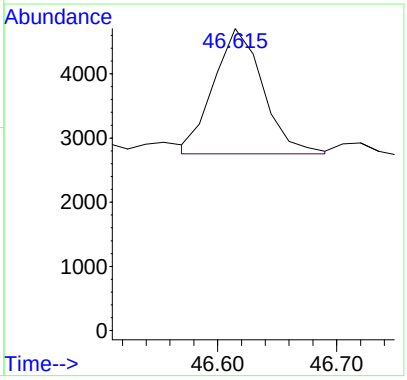
Tgt Ion:191 Resp: 3388

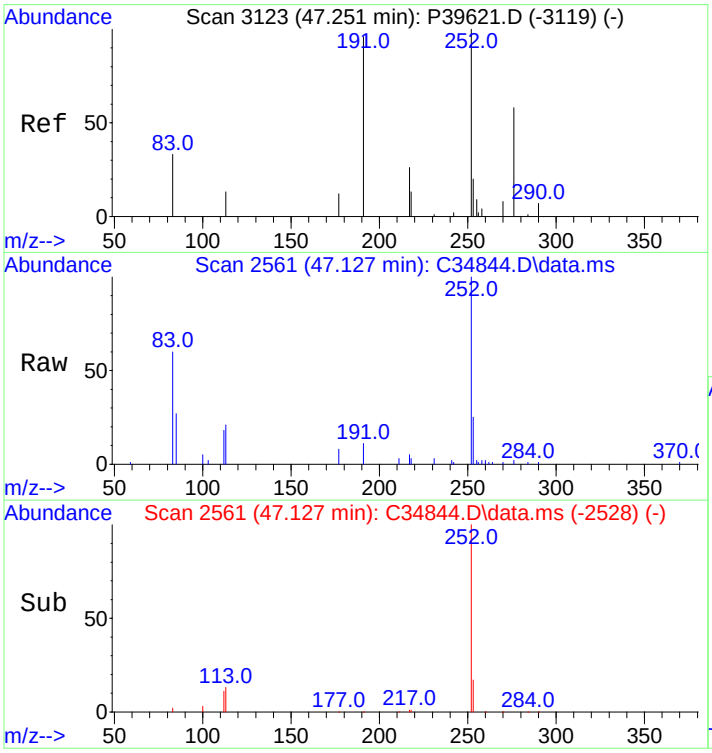




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 196.62 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

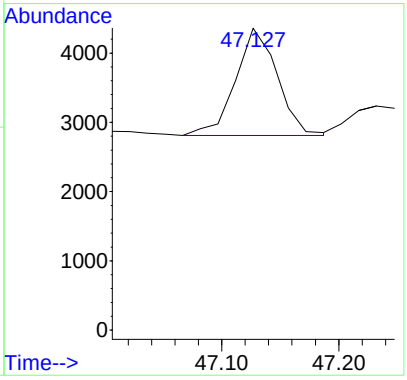
Tgt Ion:191 Resp: 5609

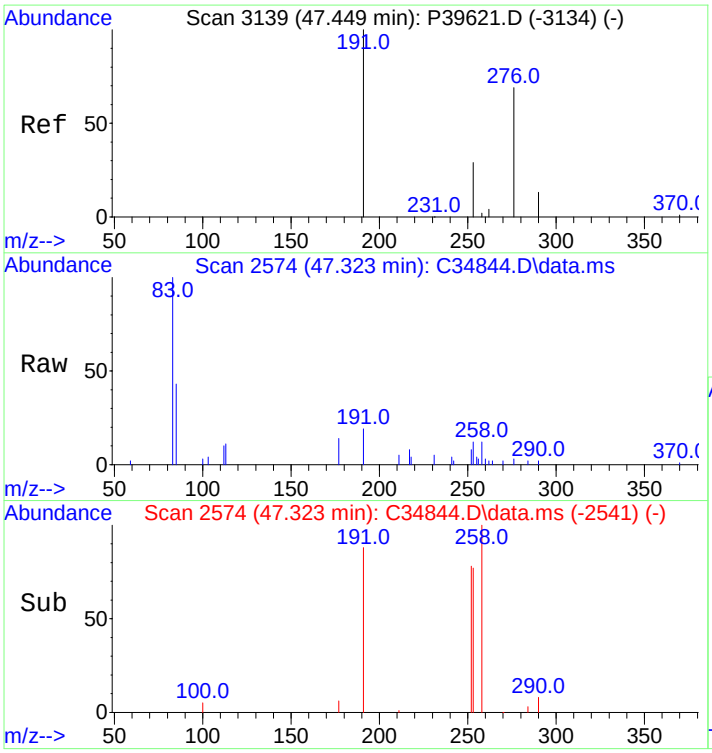




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 135.20 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

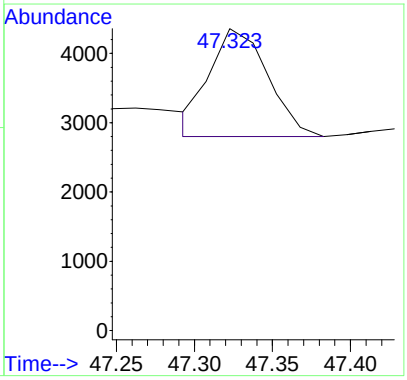
Tgt Ion:191 Resp: 3857

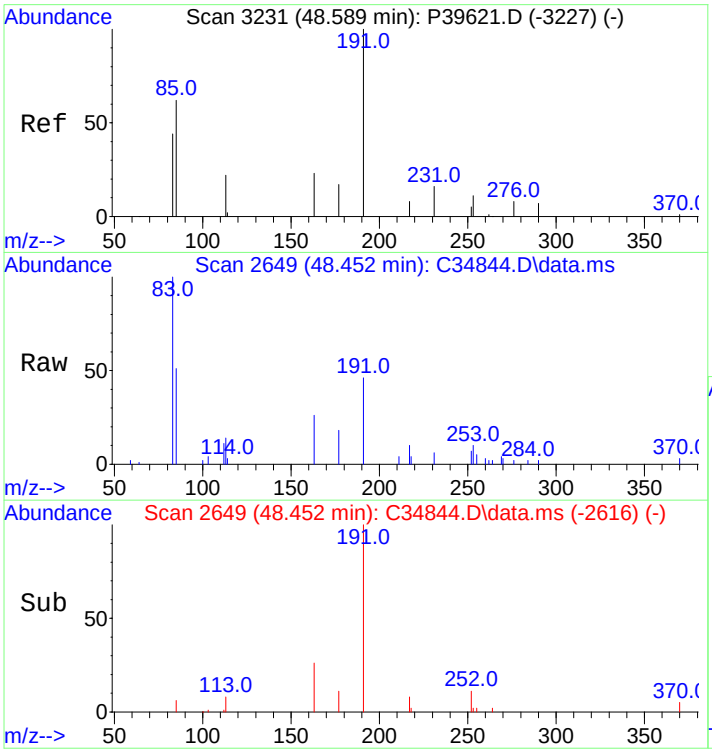




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 140.60 ng/ml
RT: 47.323 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

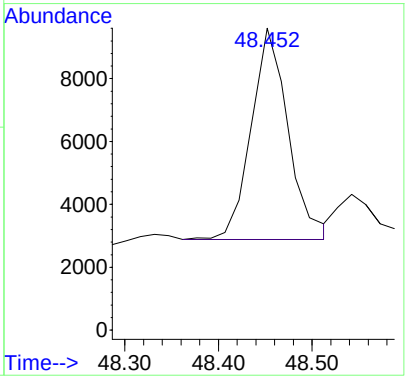
Tgt Ion:191 Resp: 4011

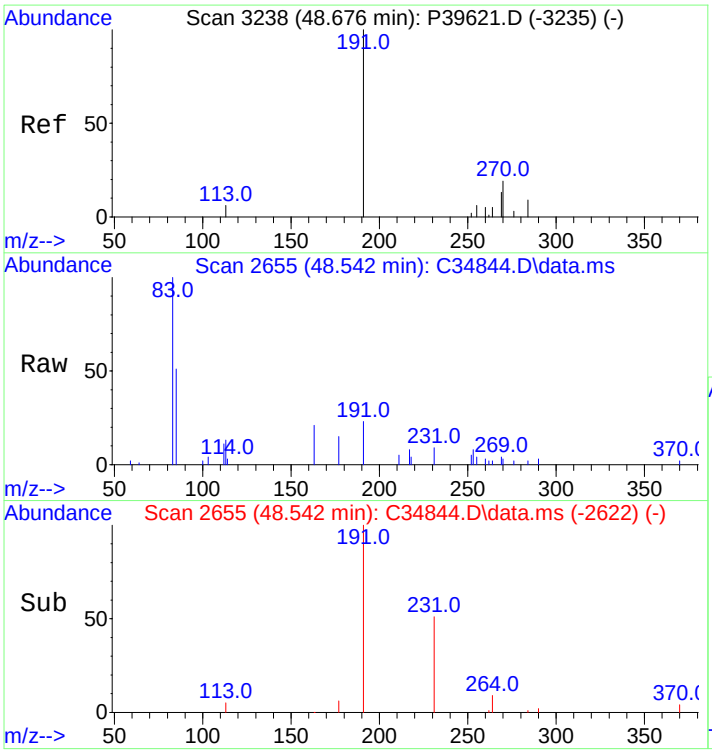




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 649.55 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

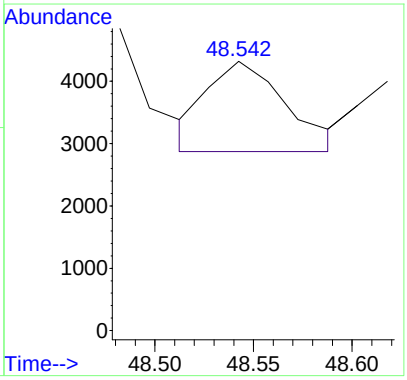
Tgt Ion:191 Resp: 18530

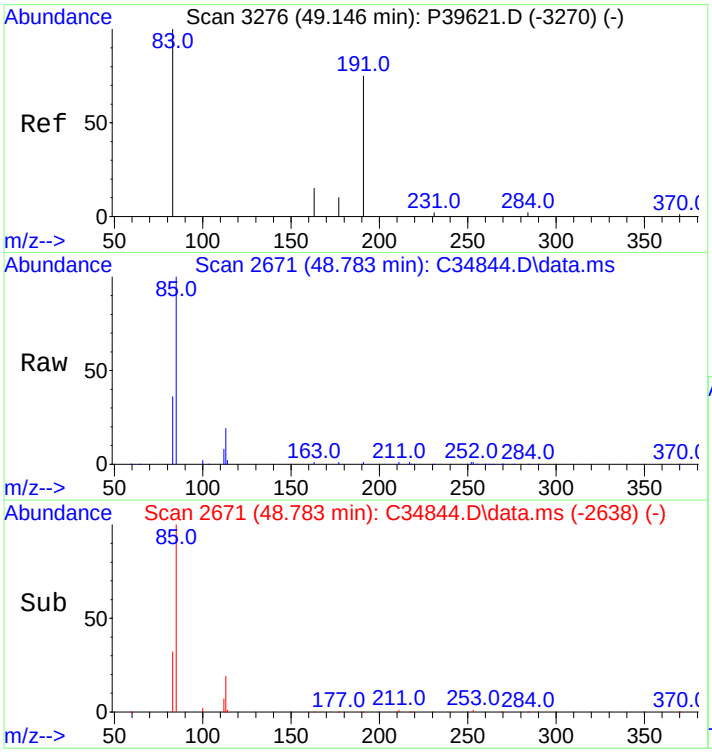




#105
C30 Tricyclic Terpane-22S
Concen: 141.48 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

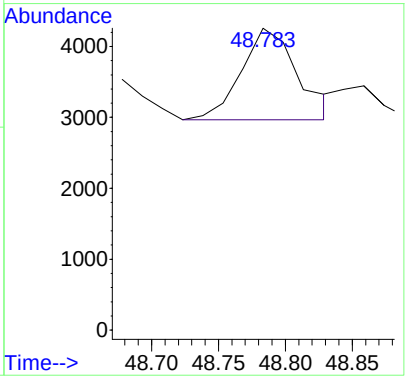
Tgt Ion:191 Resp: 4036

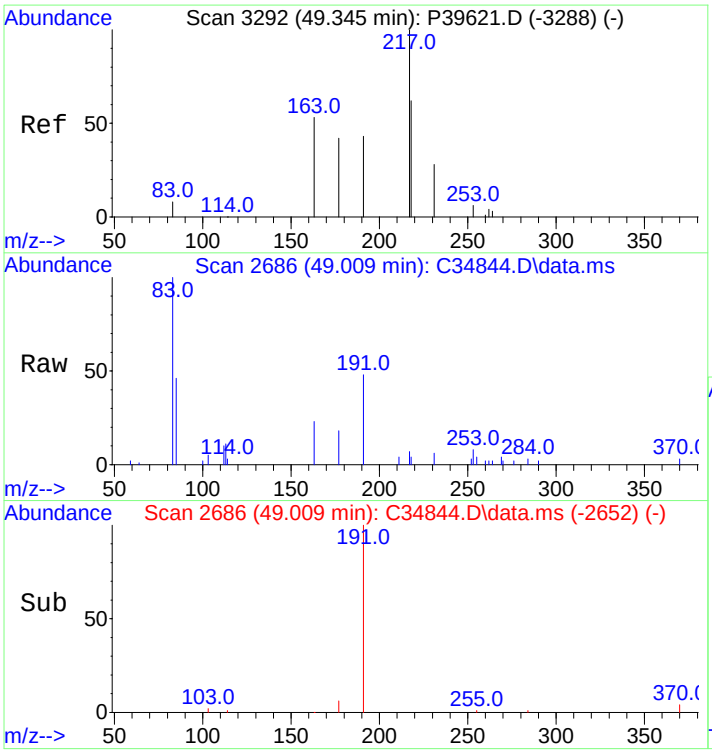




#106
C30 Tricyclic Terpane-22R
Concen: 132.61 ng/mL
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

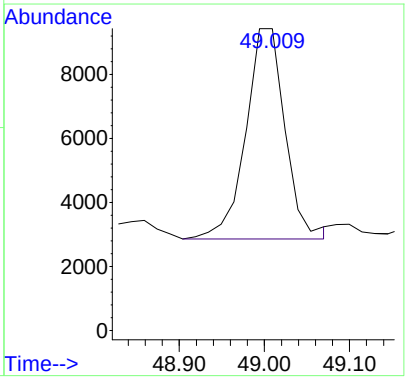
Tgt Ion:191 Resp: 3783

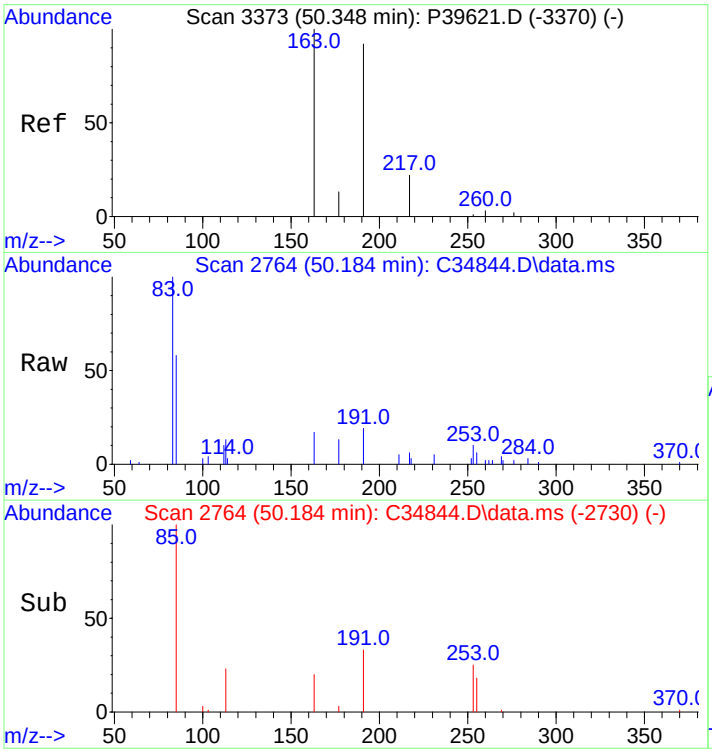




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 743.85 ng/ml
RT: 49.009 min Scan# 2686
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

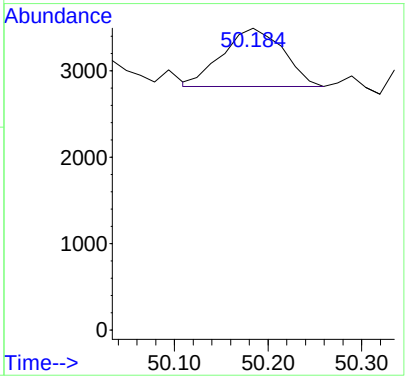
Tgt Ion:191 Resp: 21220

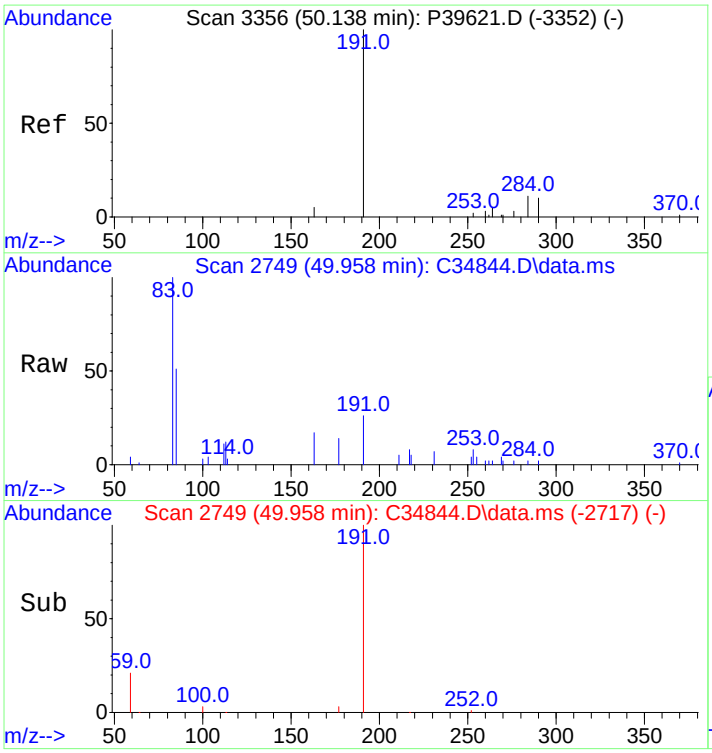




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 106.14 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

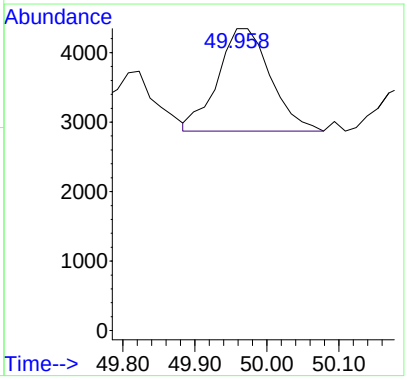
Tgt Ion:191 Resp: 3028

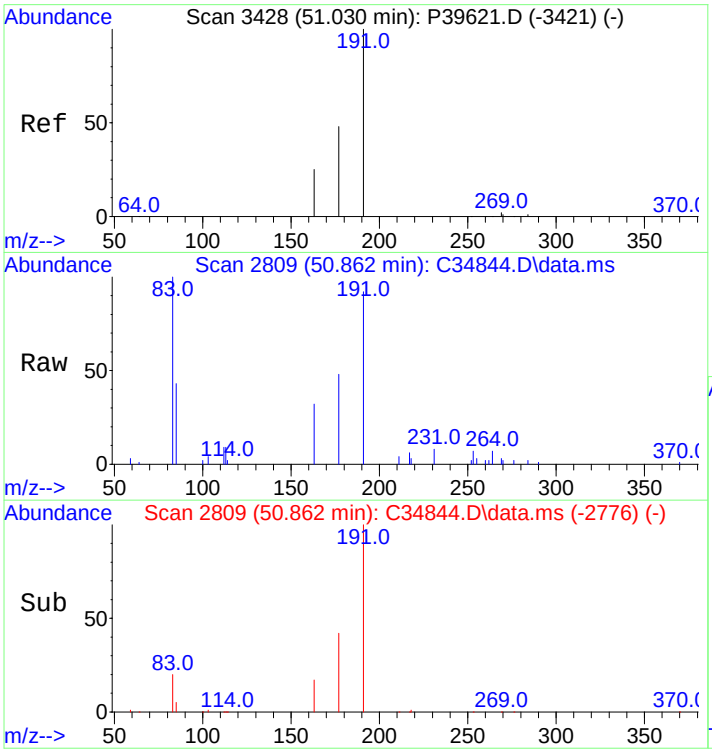




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 263.01 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

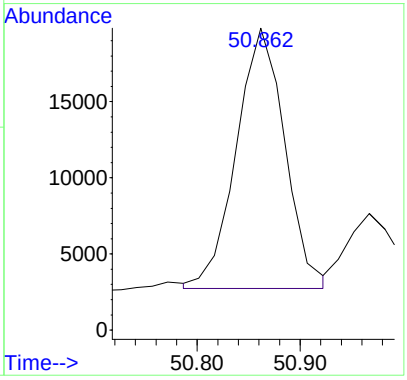
Tgt Ion:191 Resp: 7503

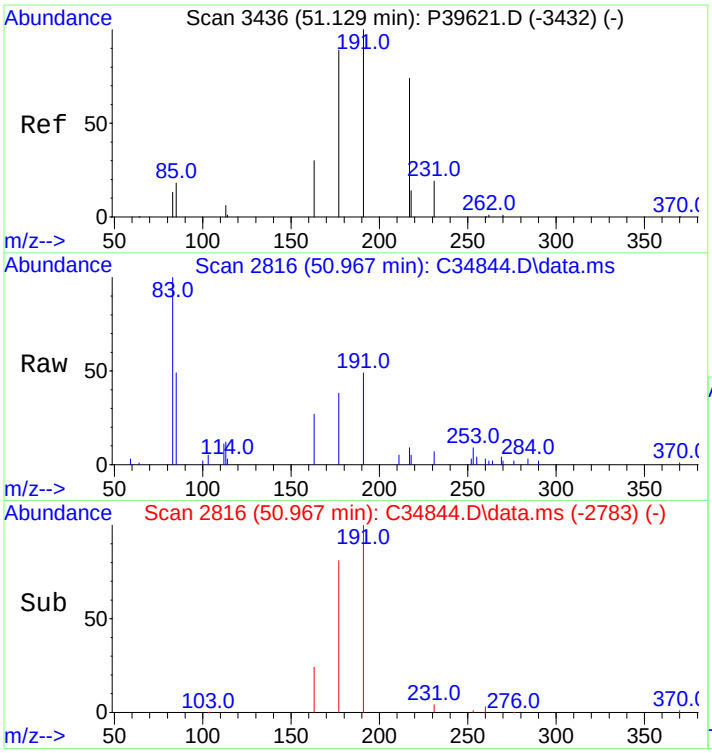




#110
30-Norhopane (T15)
Concen: 1963.95 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

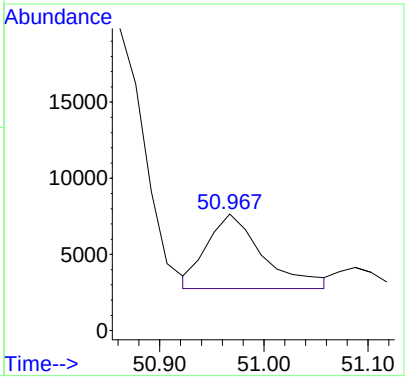
Tgt Ion:191 Resp: 56026

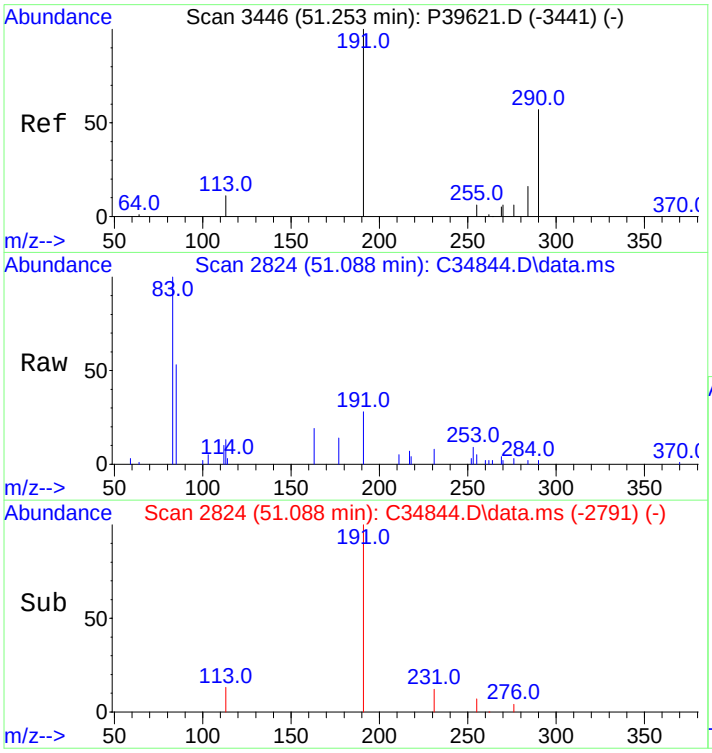




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 640.93 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

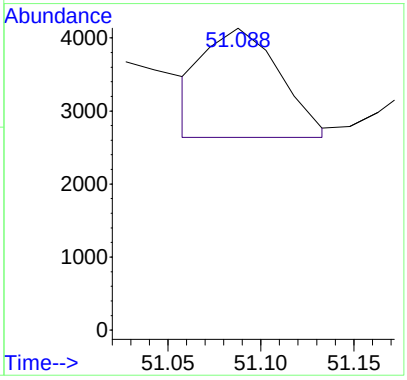
Tgt Ion:191 Resp: 18284

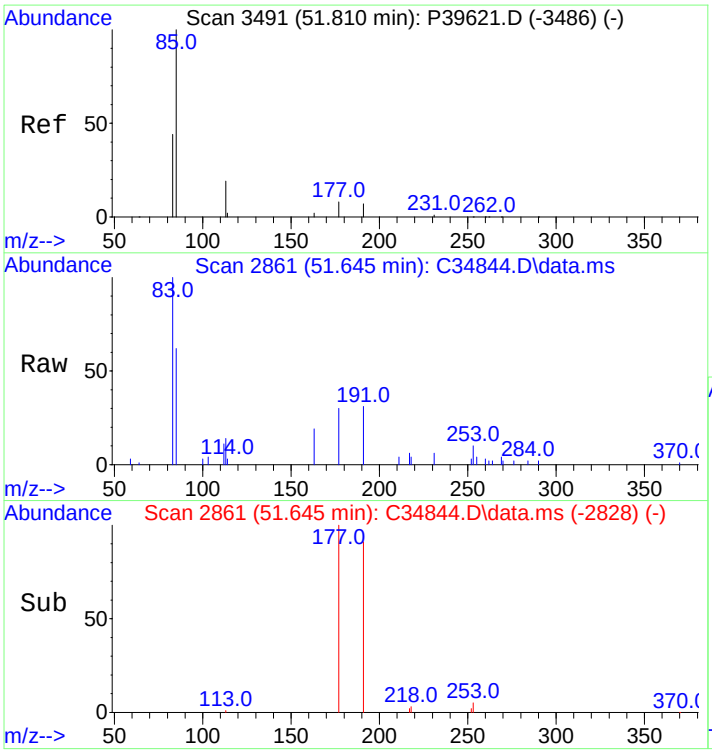




#112
17a(H)-Diahopane (X)
Concen: 146.49 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

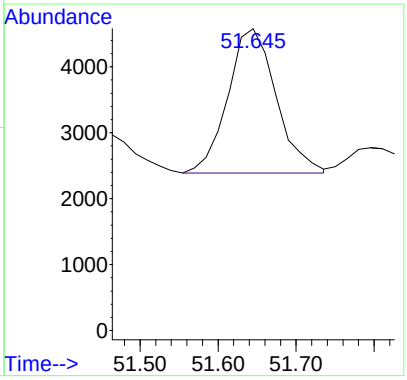
Tgt Ion:191 Resp: 4179

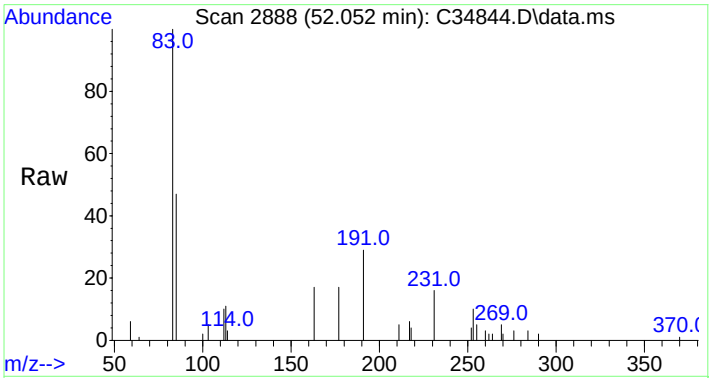




#113
30-Normoretane (T17)
Concen: 330.00 ng/ml
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

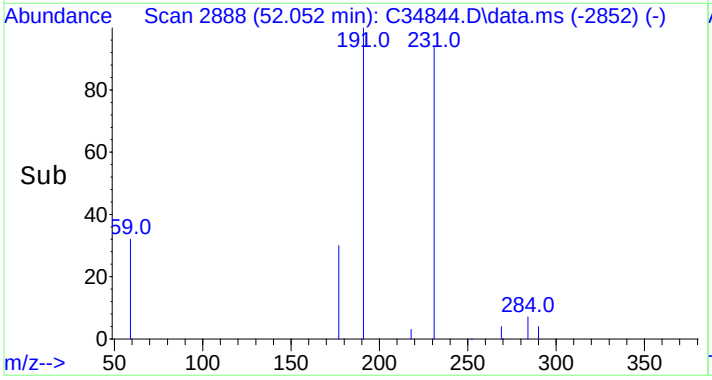
Tgt Ion:191 Resp: 9414

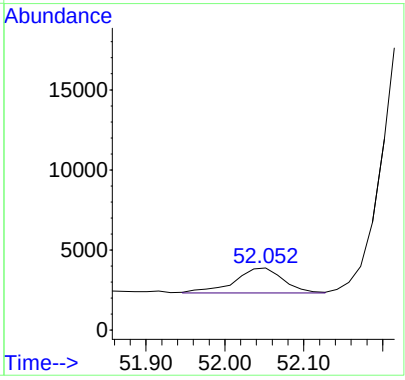


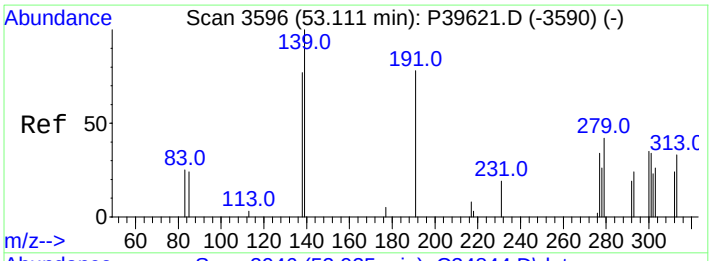


#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 231.85 ng/ml m
RT: 52.052 min Scan# 2888
Delta R.T. 0.045 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:191 Resp: 6614

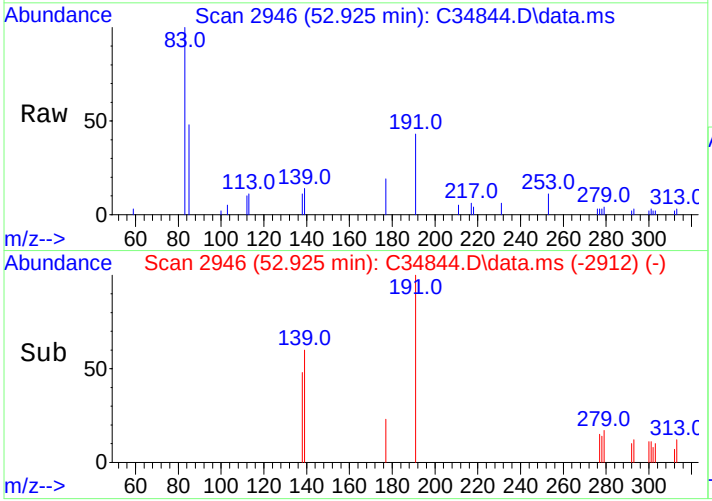


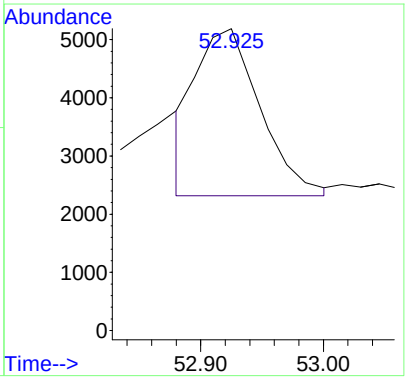


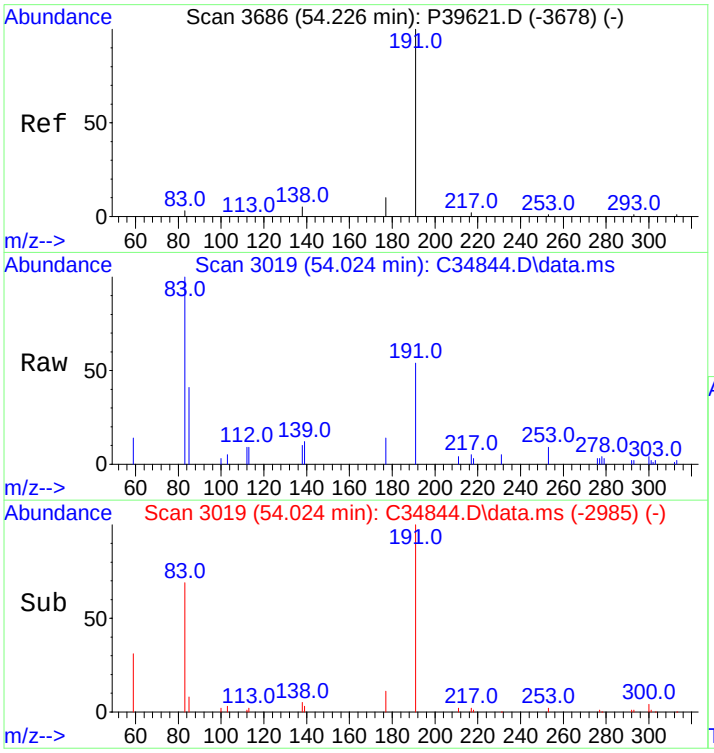


#115
Moretane (T20)
Concen: 368.84 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:191 Resp: 10522

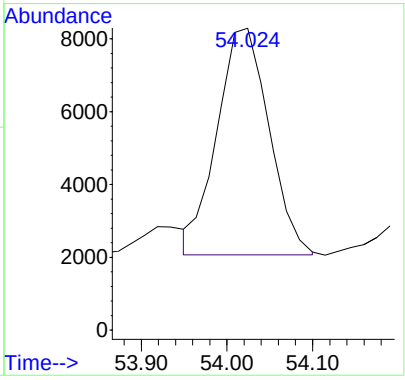


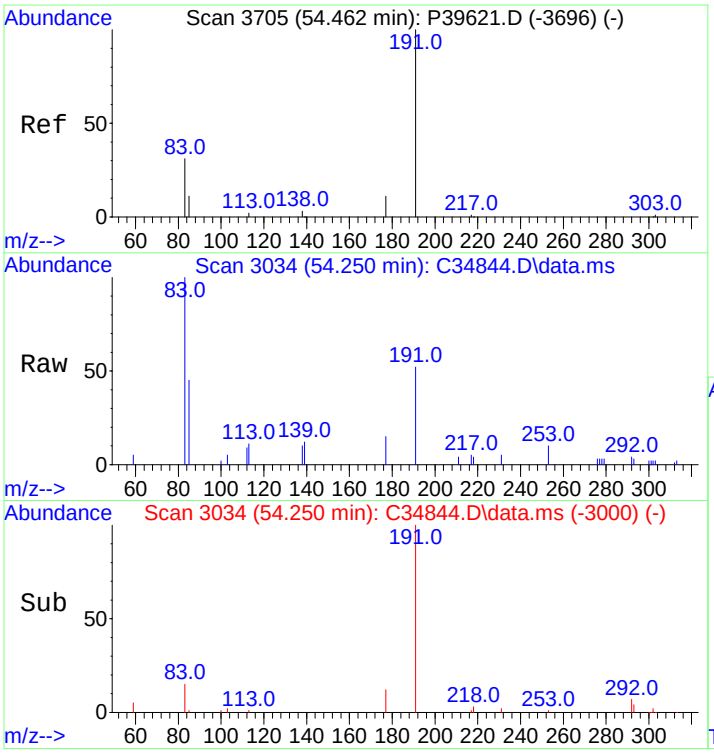




#116
30-Homohopane-22S (T21)
Concen: 918.14 ng/ml m
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

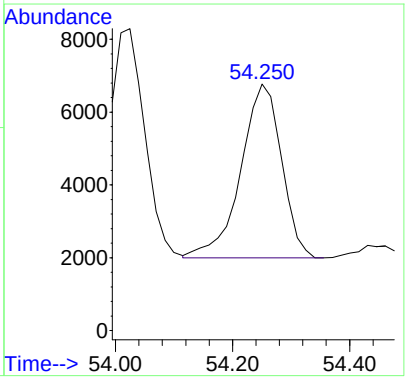
Tgt Ion:191 Resp: 26192

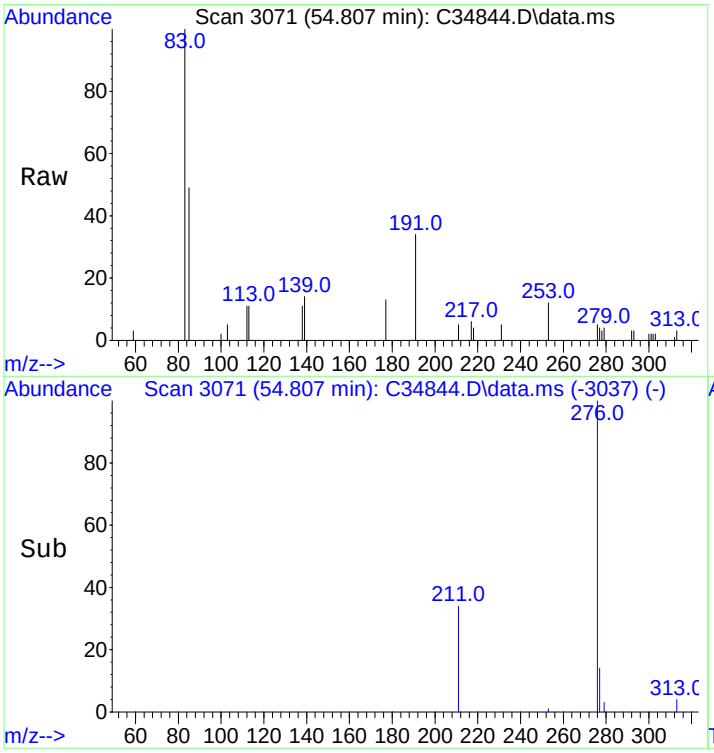




#117
30-Homohopane-22R (T22)
Concen: 809.40 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

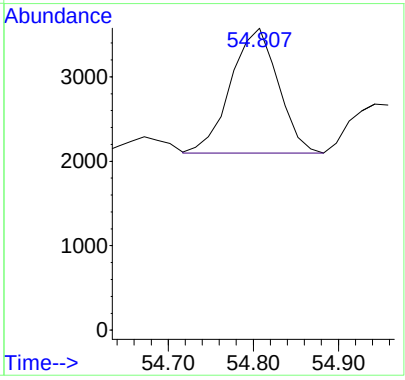
Tgt Ion:191 Resp: 23090

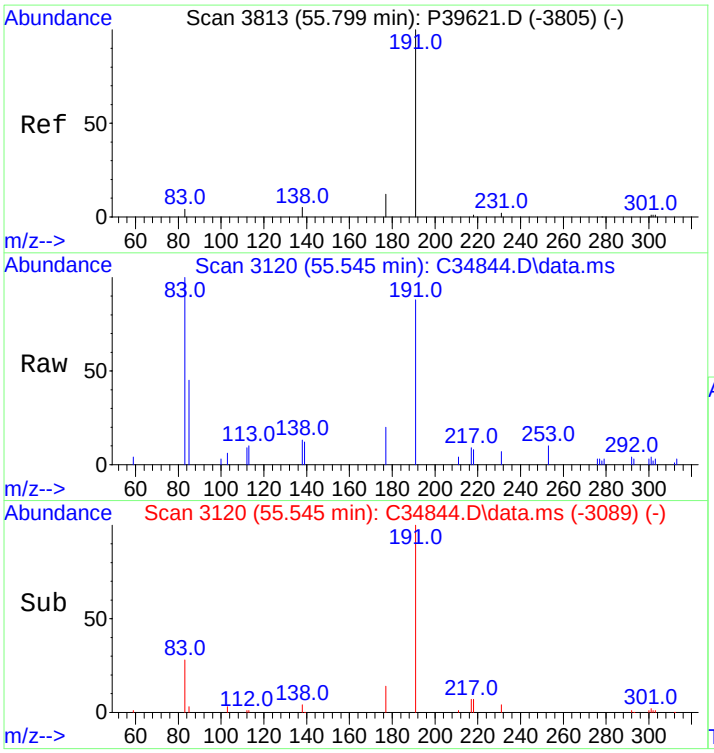




#118
Gammacerane/C32-diahopane
Concen: 200.44 ng/mL
RT: 54.807 min Scan# 3071
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

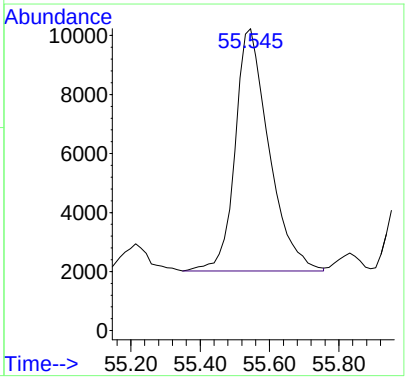
Tgt Ion:191 Resp: 5718

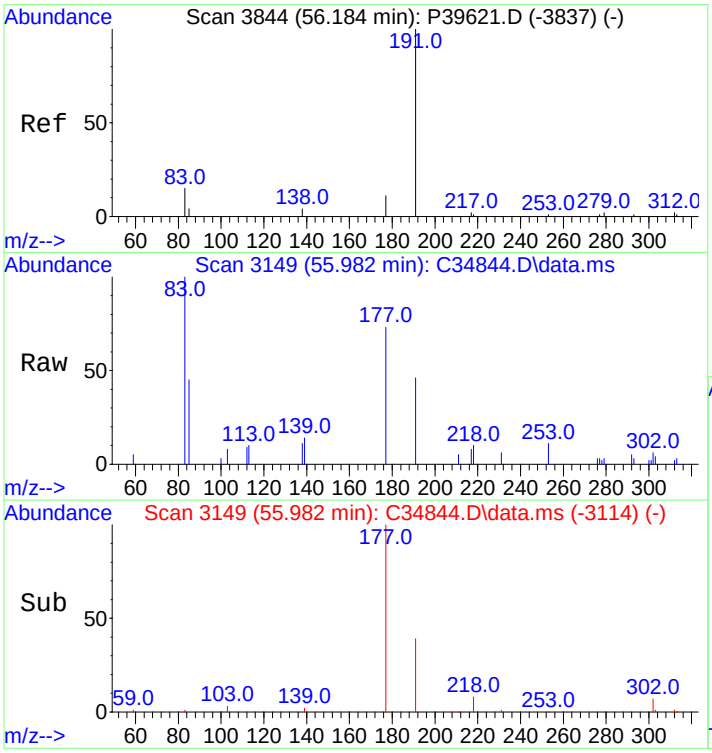




#119
30,31-Bishomohopane-22S (T26)
Concen: 1957.81 ng/ml
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

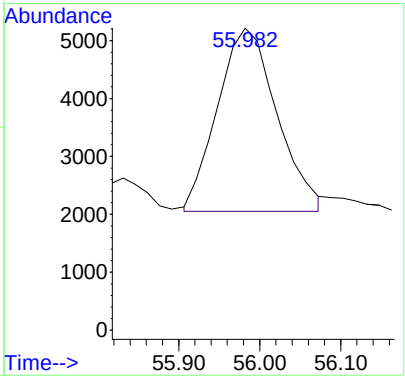
Tgt Ion:191 Resp: 55851

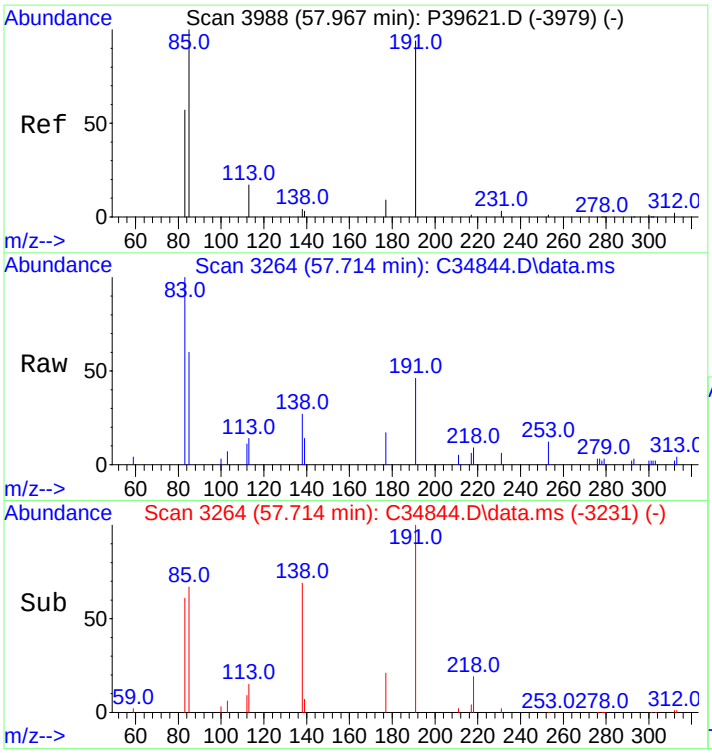




#120
30,31-Bishomohopane-22R (T27)
Concen: 565.95 ng/ml m
RT: 55.982 min Scan# 3149
Delta R.T. 0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

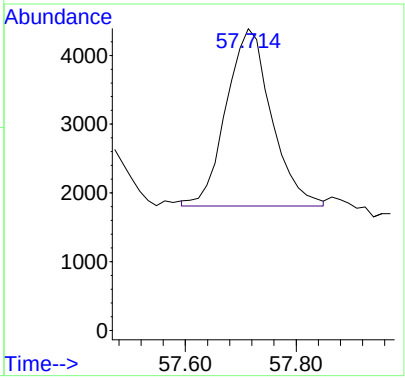
Tgt Ion:191 Resp: 16145

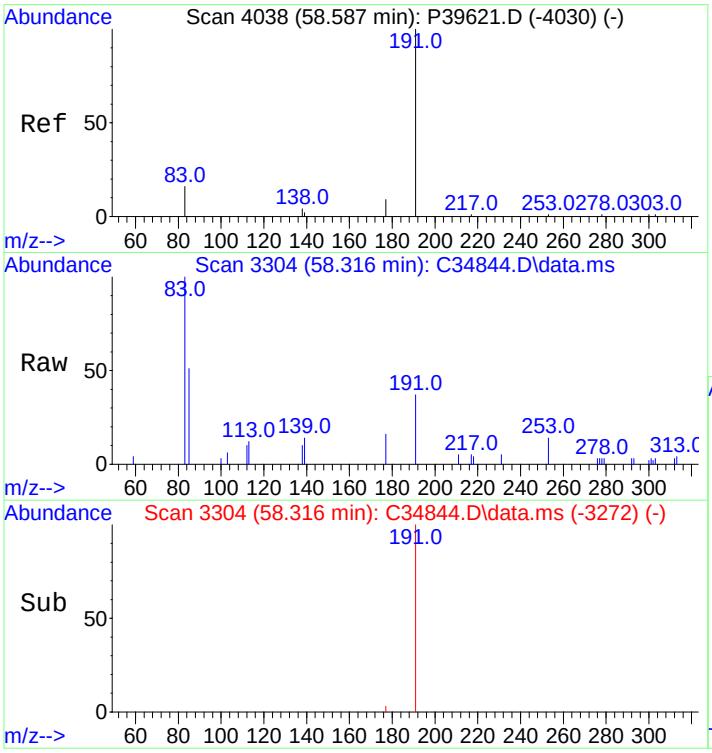




#121
30,31-Trishomohopane-22S (T30)
Concen: 513.65 ng/ml m
RT: 57.714 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

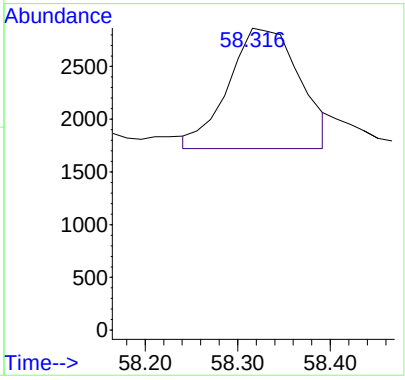
Tgt Ion:191 Resp: 14653

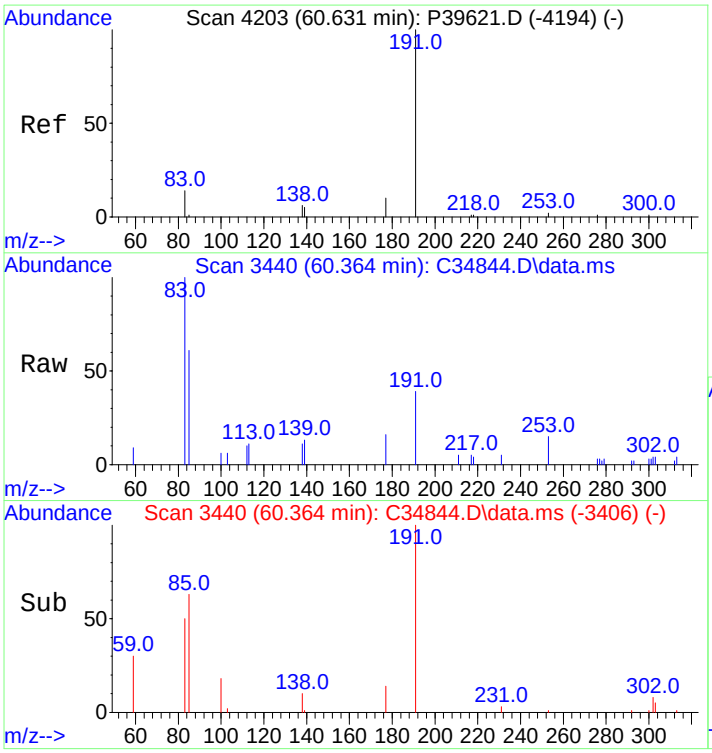




#122
30,31-Trishomohopane-22R (T31)
Concen: 214.50 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

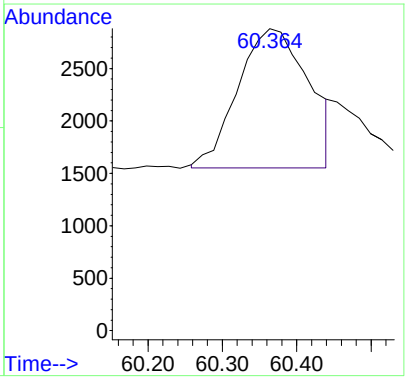
Tgt Ion:191 Resp: 6119

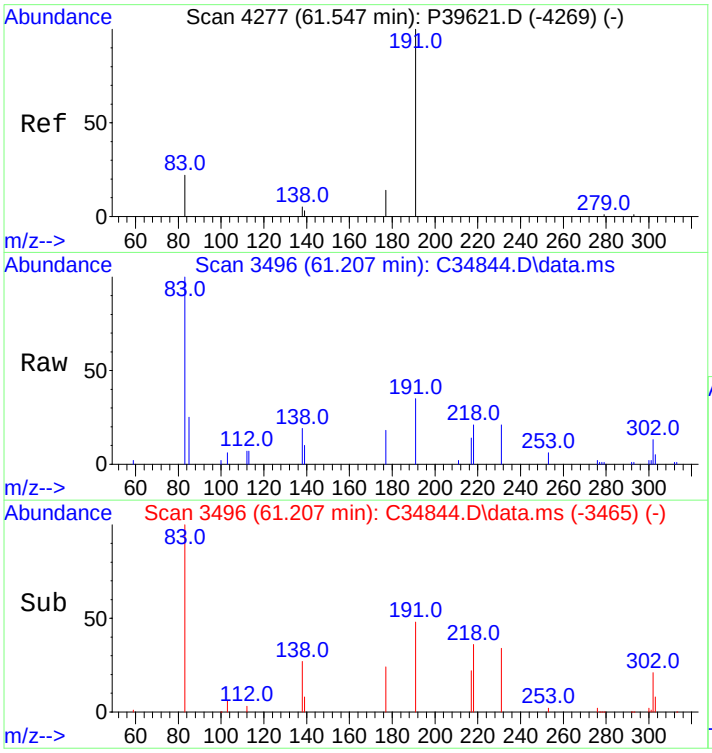




#123
Tetrakishomohopane-22S (T32)
Concen: 308.27 ng/ml m
RT: 60.364 min Scan# 3440
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

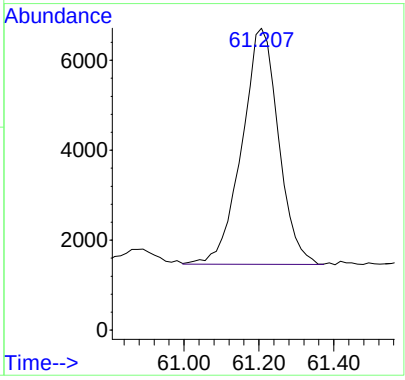
Tgt Ion:191 Resp: 8794

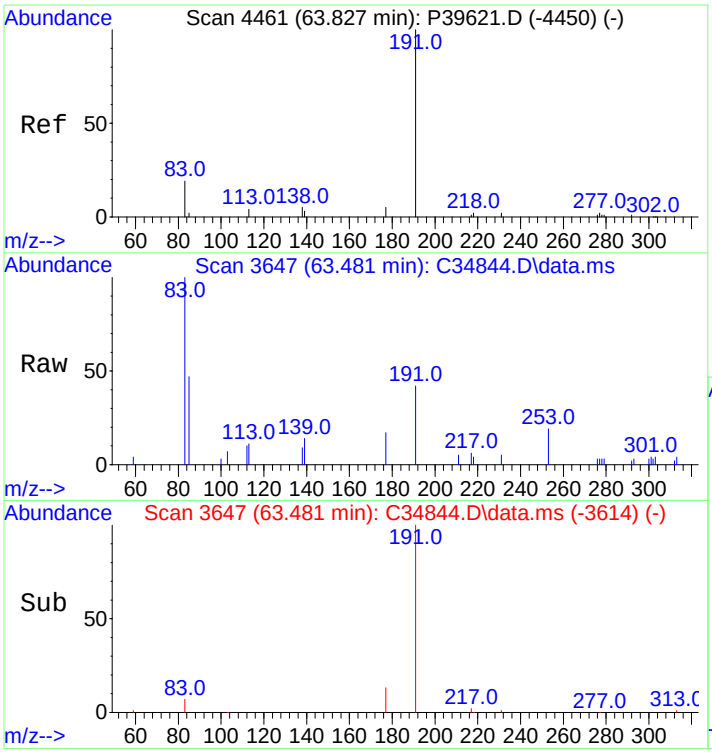




#124
Tetrakishomohopane-22R (T33)
Concen: 1250.35 ng/ml
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

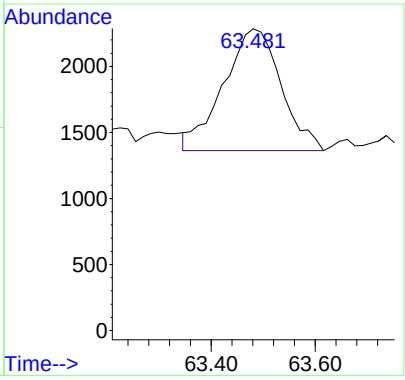
Tgt Ion:191 Resp: 35669

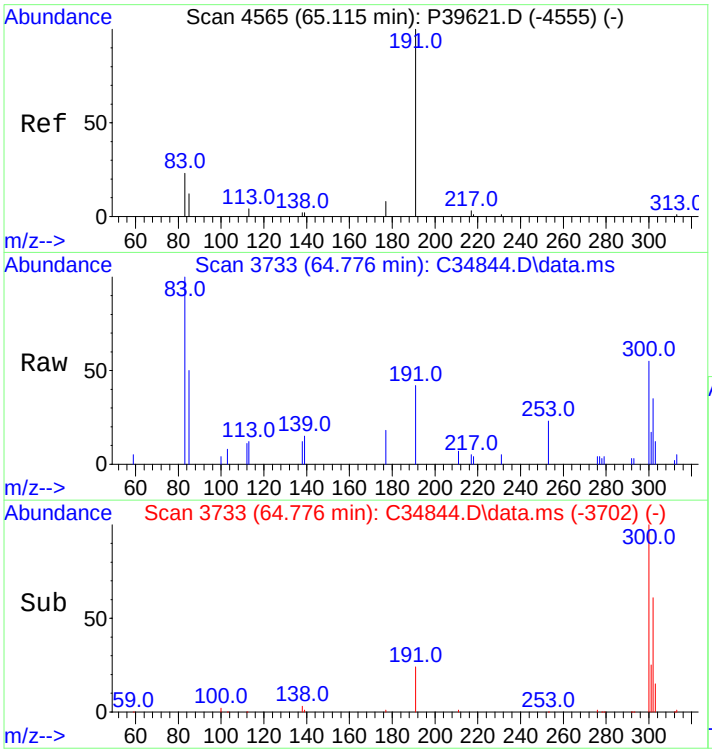




#125
Pentakishomohopane-22S (T34)
Concen: 248.57 ng/ml
RT: 63.481 min Scan# 3647
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

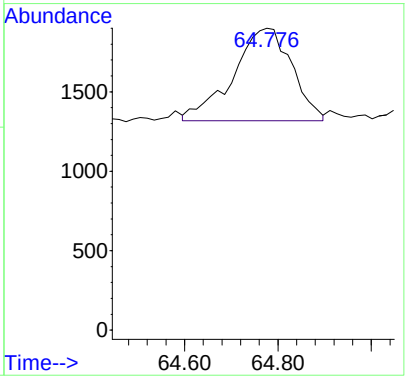
Tgt Ion:191 Resp: 7091

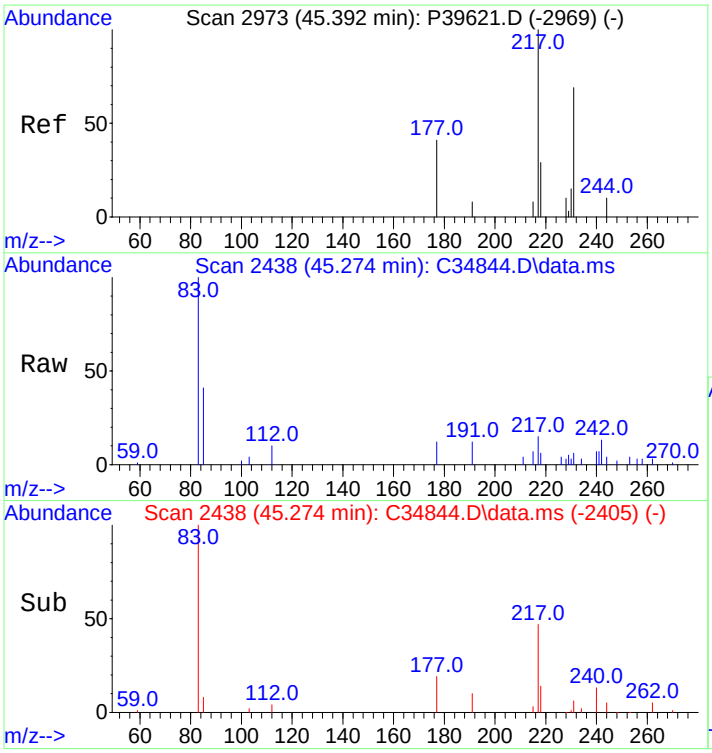




#126
Pentakishomohopane-22R (T35)
Concen: 179.62 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

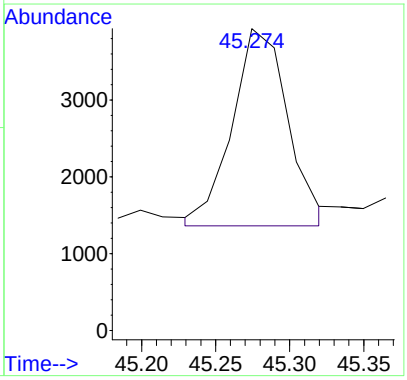
Tgt Ion:191 Resp: 5124

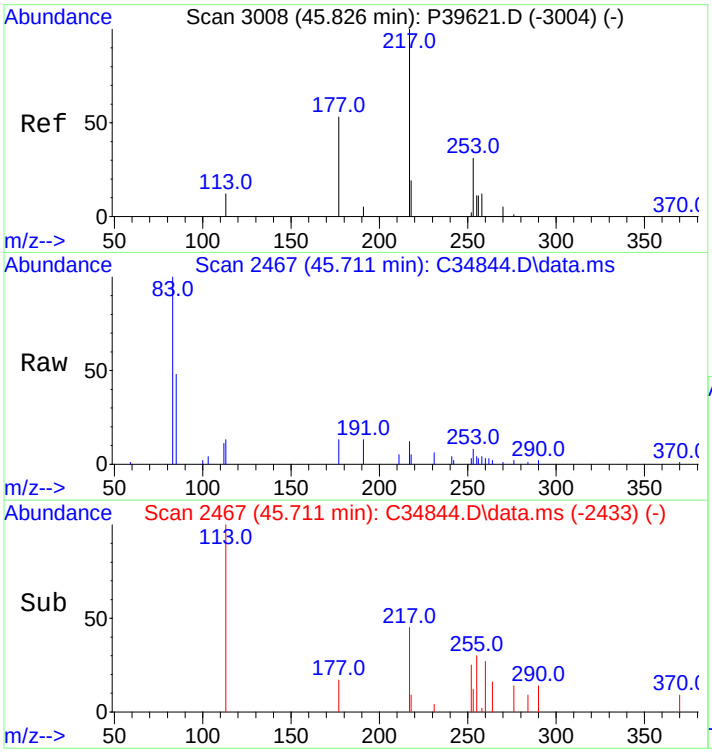




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 494.13 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

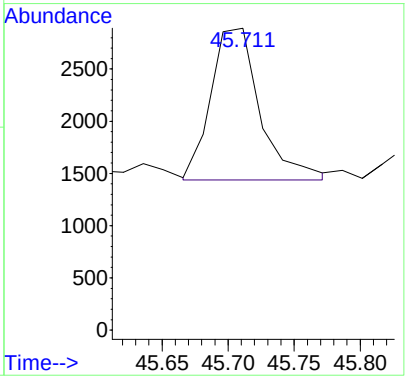
Tgt Ion:217 Resp: 6687

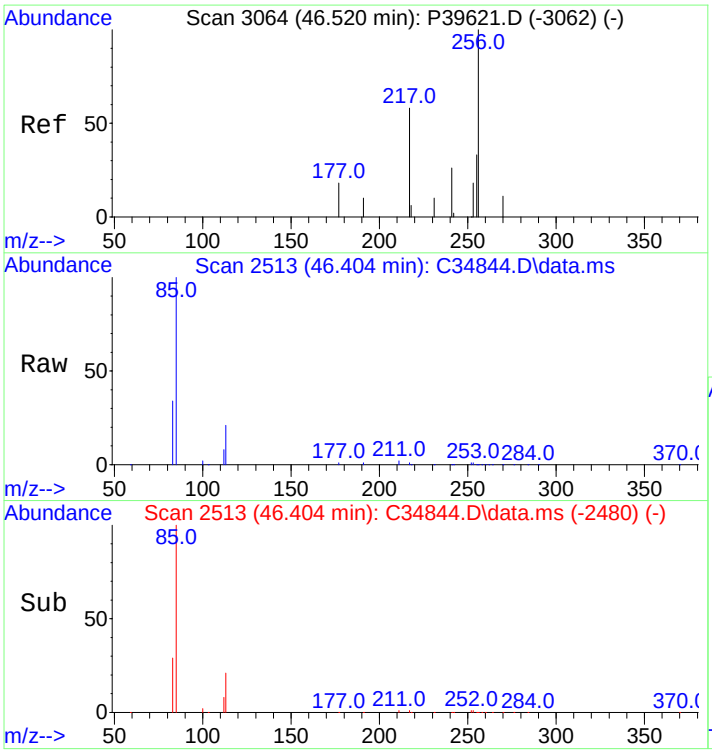




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 280.06 ng/ml m
RT: 45.711 min Scan# 2467
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

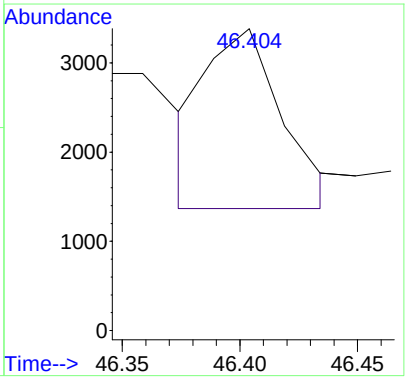
Tgt Ion:217 Resp: 3790

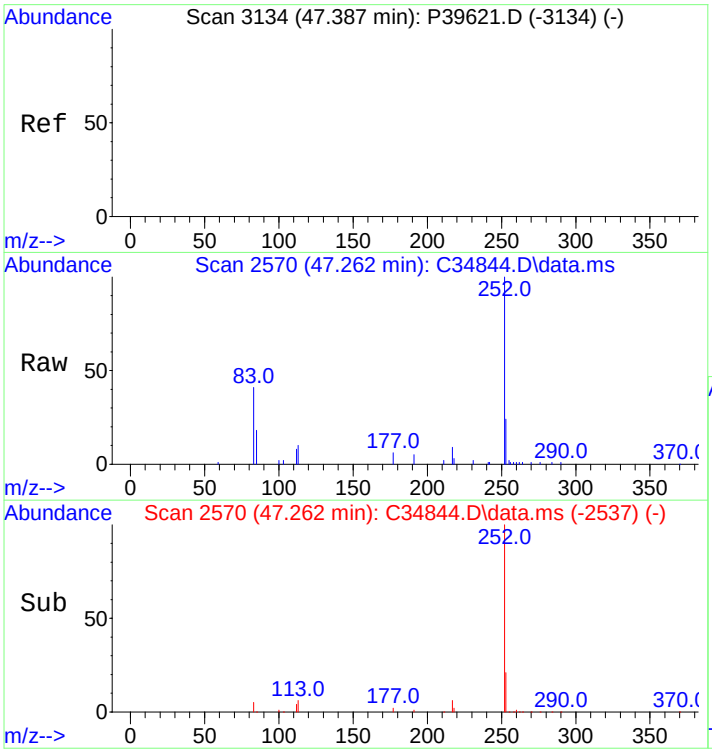




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 335.85 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

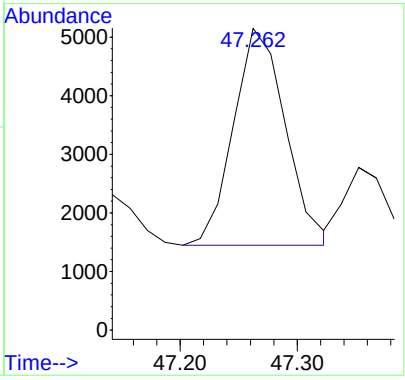
Tgt Ion:217 Resp: 4545

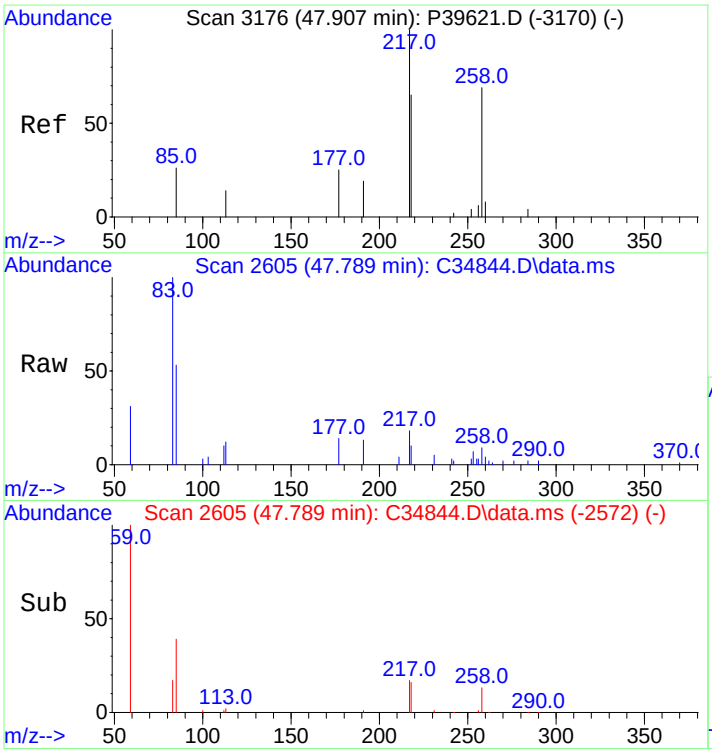




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 847.57 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

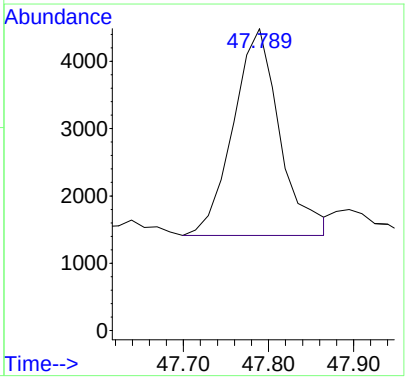
Tgt Ion:217 Resp: 11470

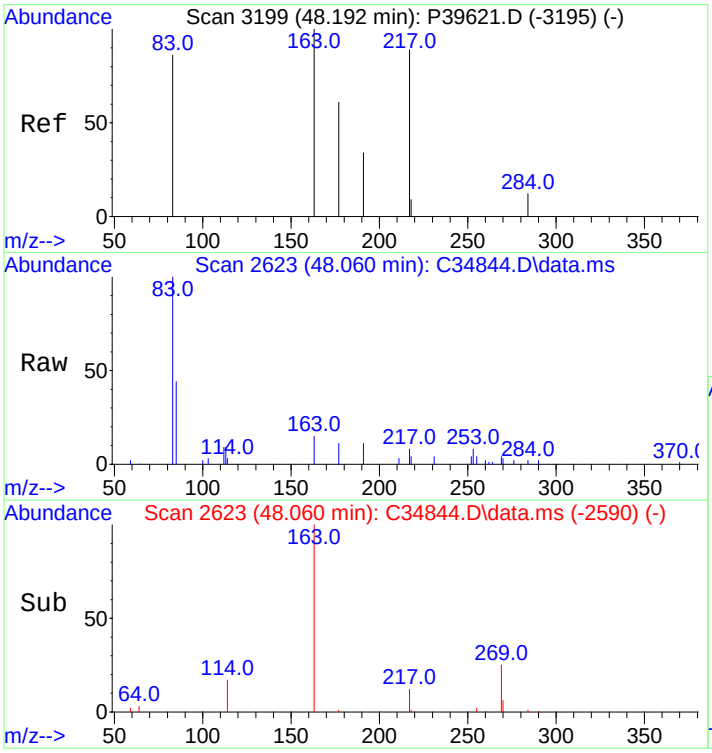




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 866.27 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

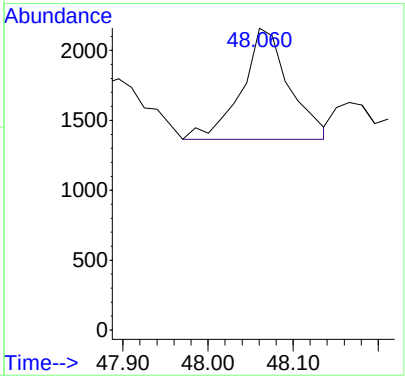
Tgt Ion:217 Resp: 11723

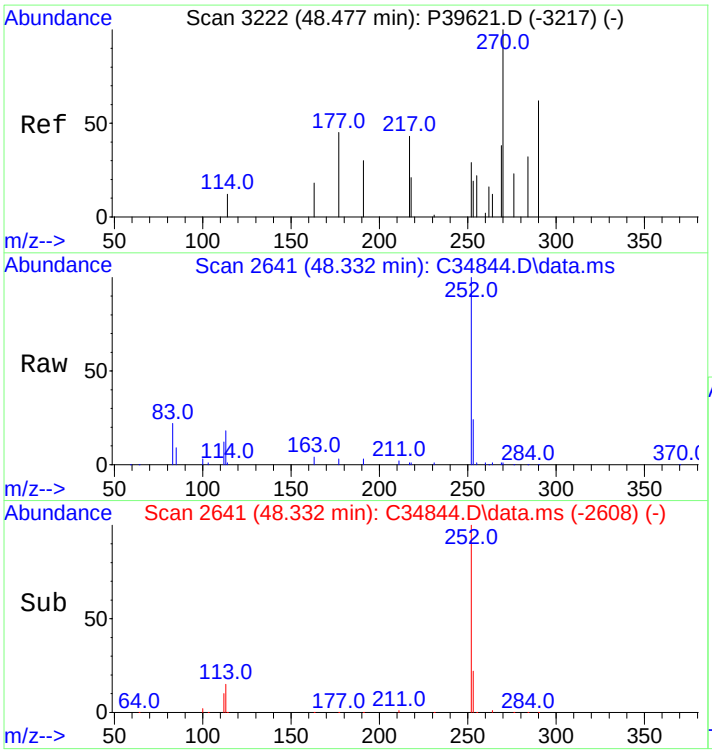




#133
Unknown Sterane (S18)
Concen: 229.30 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

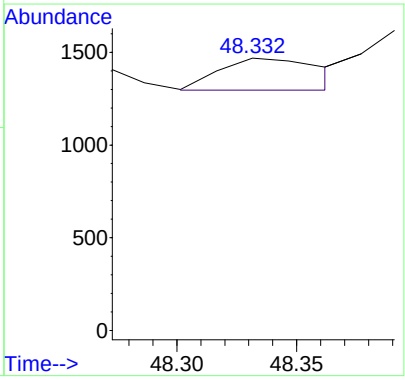
Tgt Ion:217 Resp: 3103

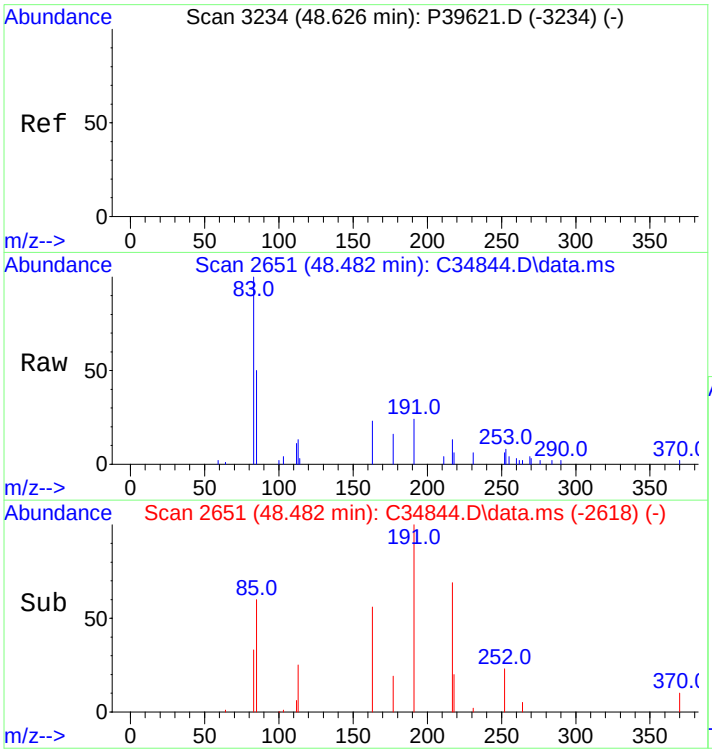




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 37.10 ng/ml m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

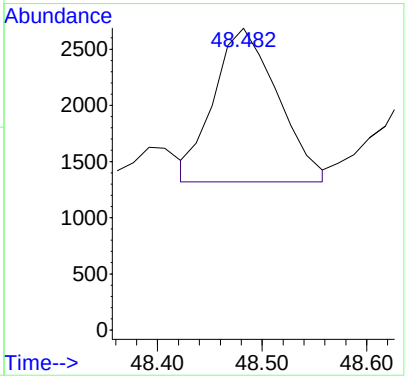
Tgt Ion:217 Resp: 502

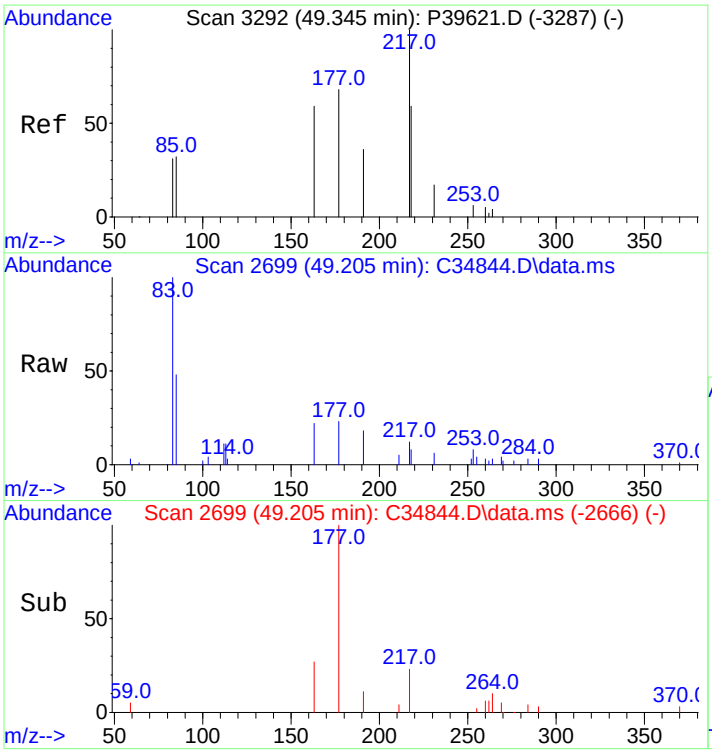




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 429.40 ng/ml m
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

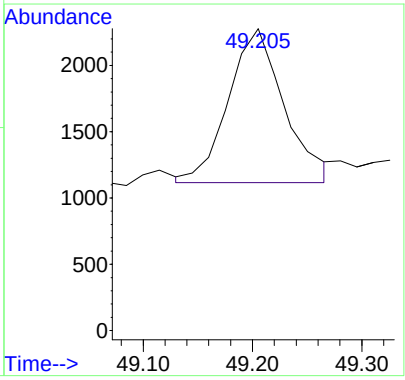
Tgt Ion:217 Resp: 5811

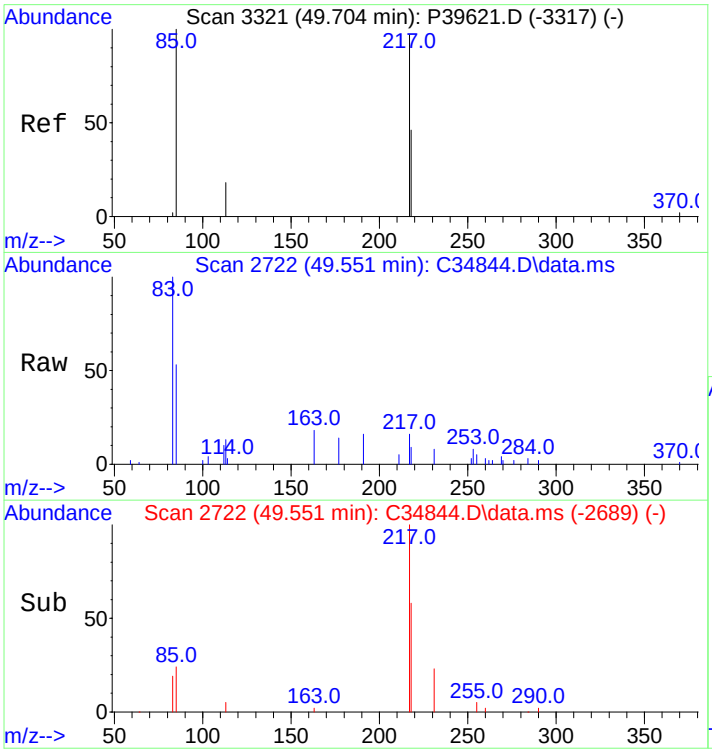




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 303.56 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

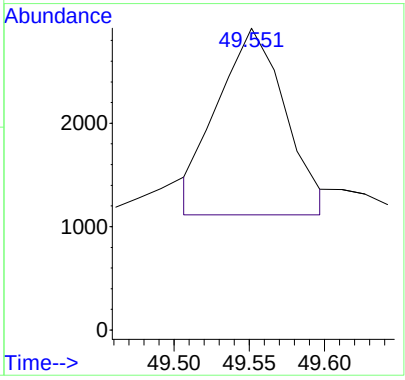
Tgt Ion:217 Resp: 4108

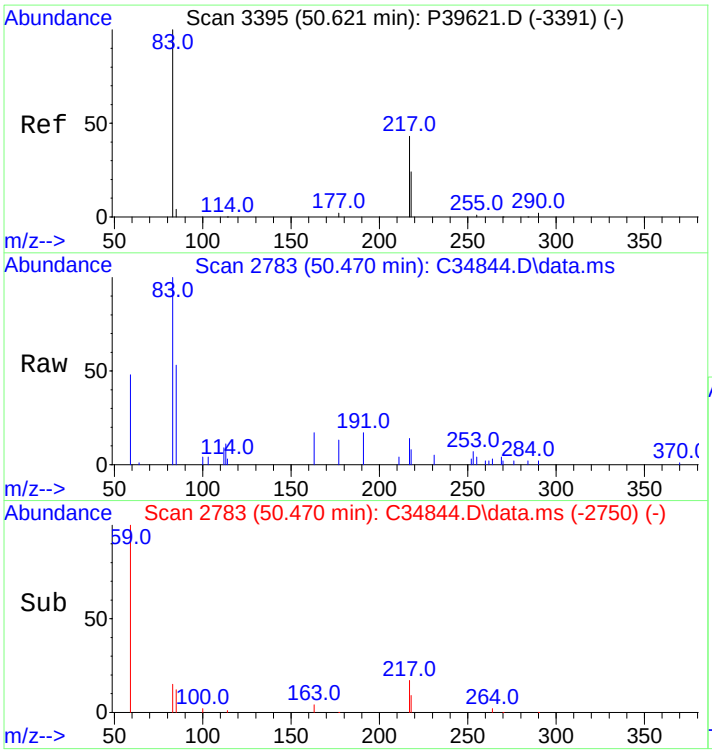




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 415.58 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

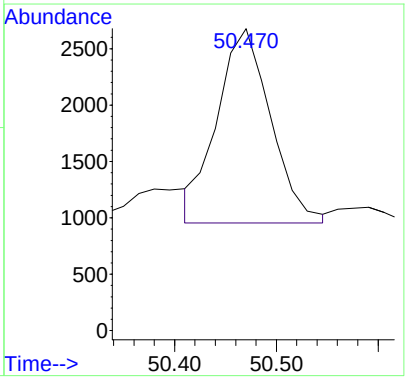
Tgt Ion:217 Resp: 5624

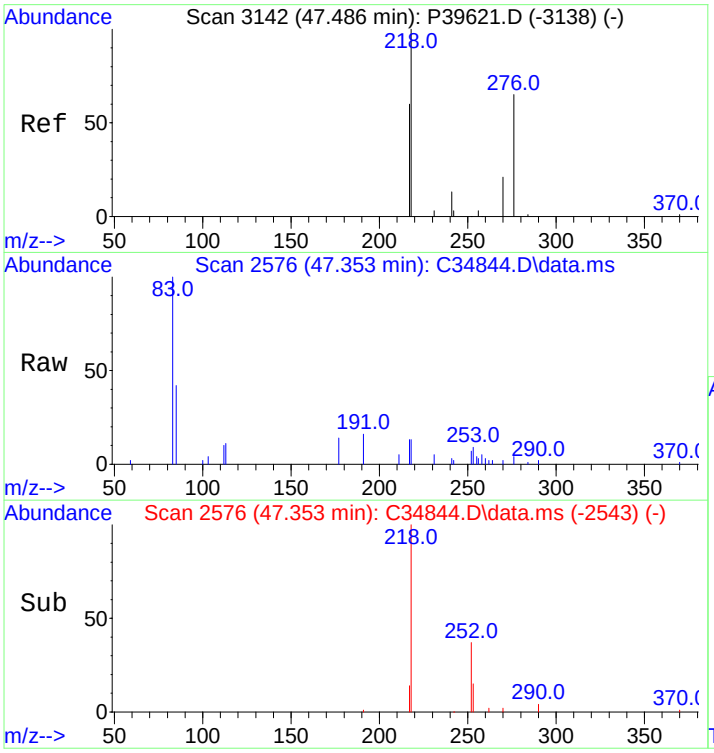




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 466.13 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

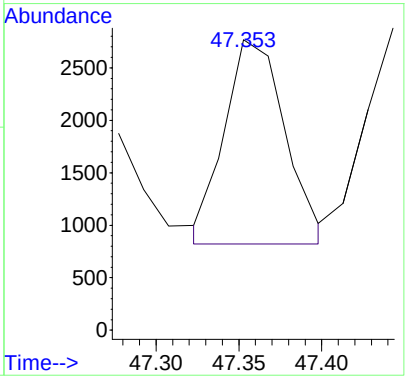
Tgt Ion:217 Resp: 6308

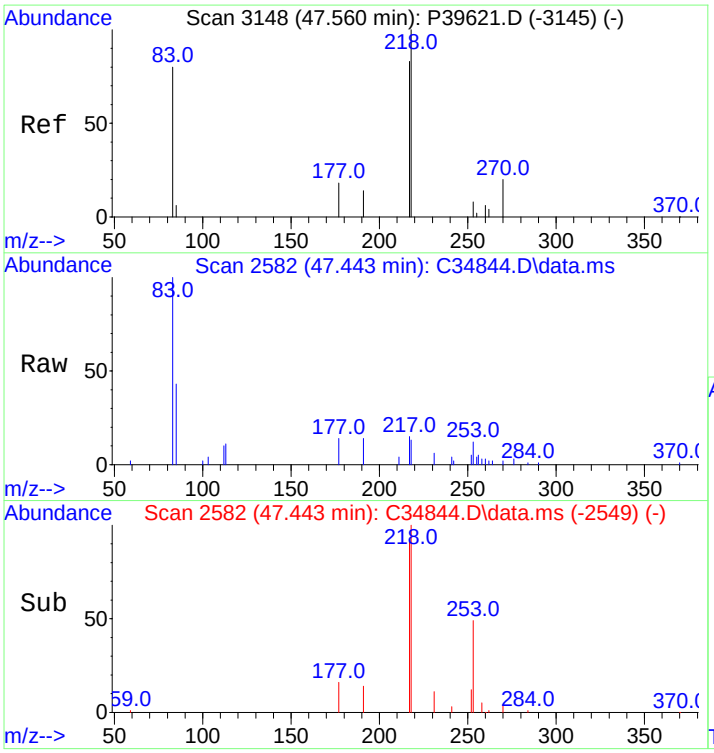




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 365.70 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

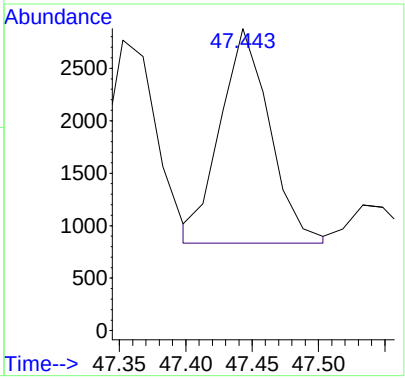
Tgt Ion:218 Resp: 4949

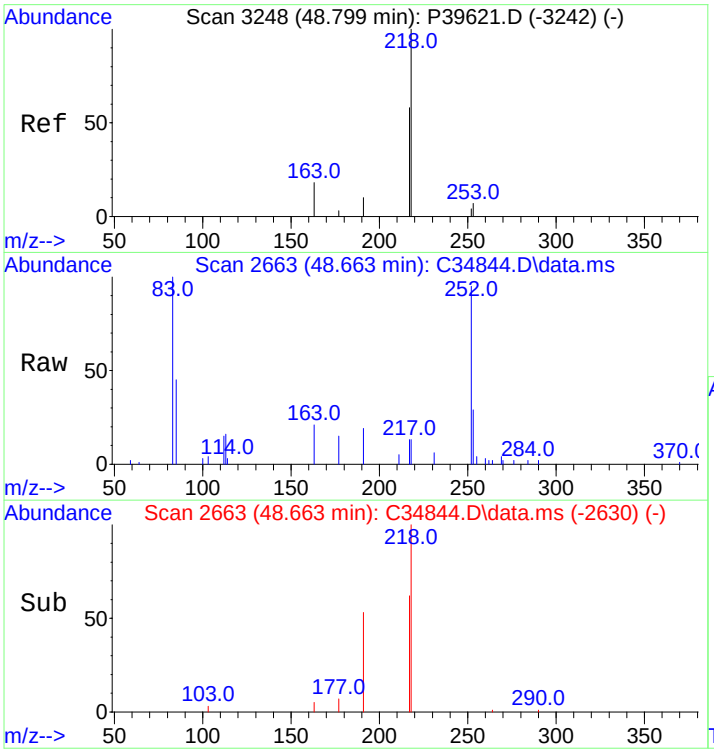




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 389.35 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

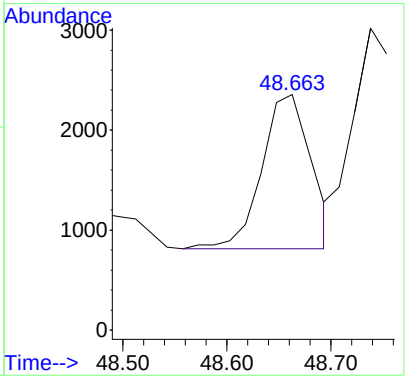
Tgt Ion:218 Resp: 5269

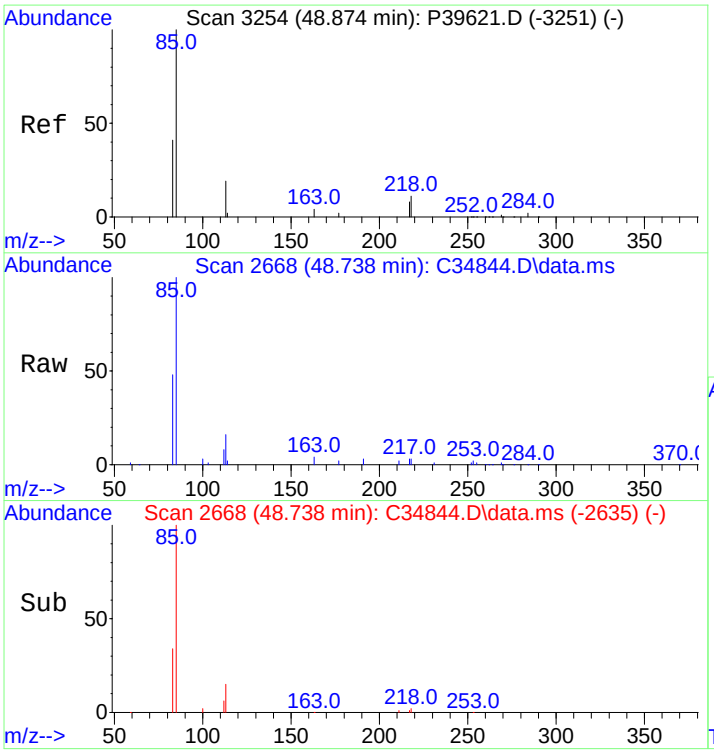




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 375.38 ng/ml
RT: 48.663 min Scan# 2663
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

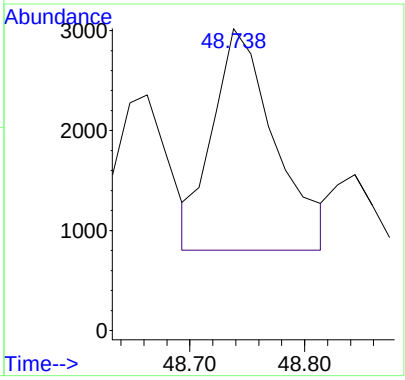
Tgt Ion:218 Resp: 5080

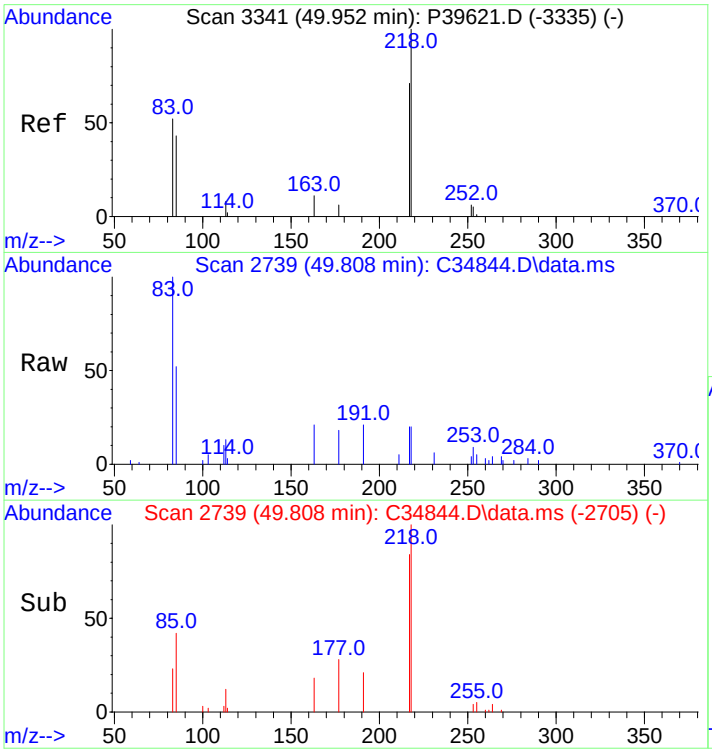




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 616.06 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

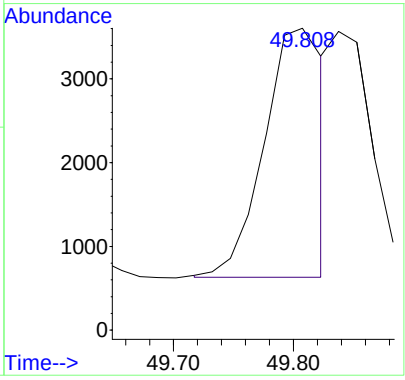
Tgt Ion:218 Resp: 8337

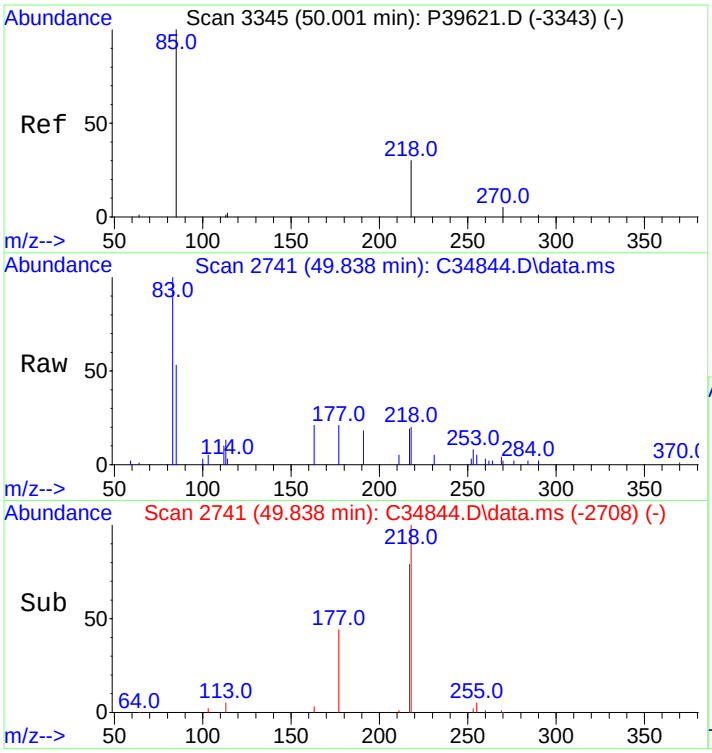




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 752.25 ng/ml m
RT: 49.808 min Scan# 2739
Delta R.T. 0.015 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

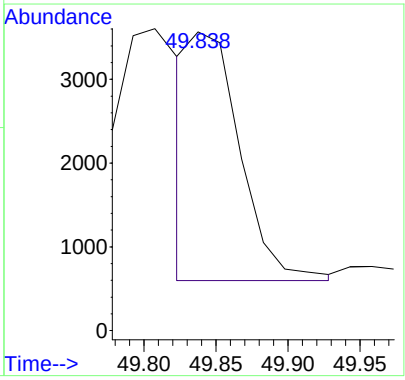
Tgt Ion:218 Resp: 10180

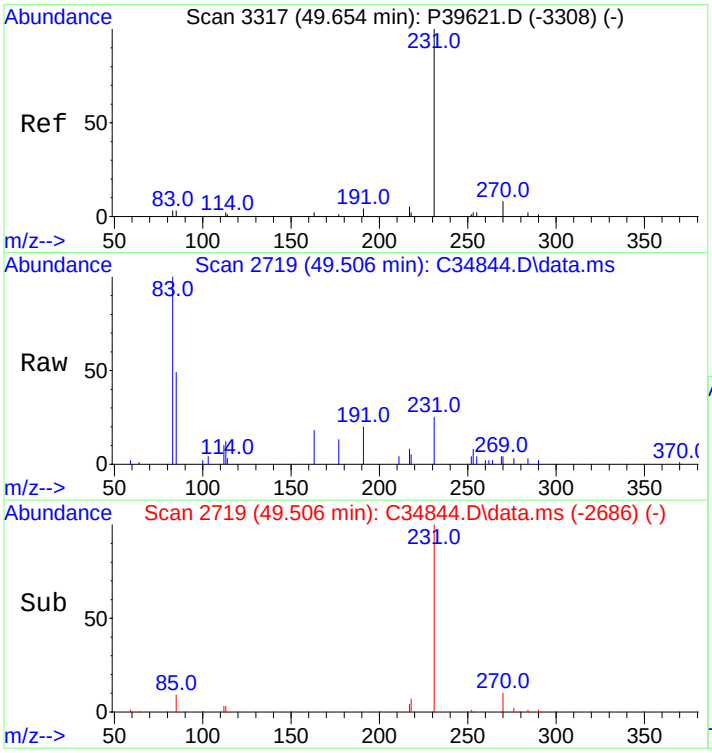




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 535.07 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

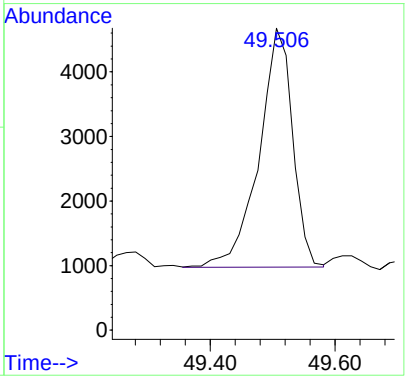
Tgt Ion:218 Resp: 7241

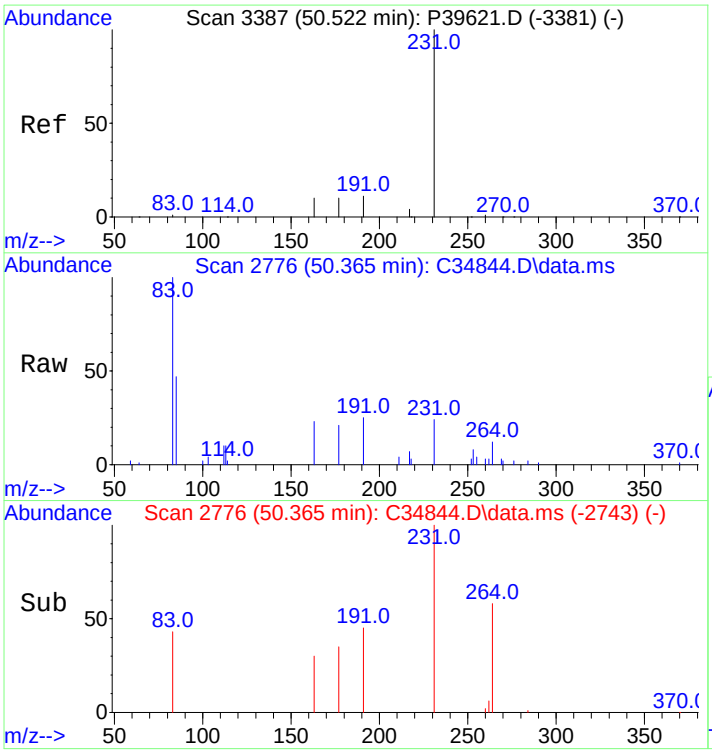




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1022.48 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

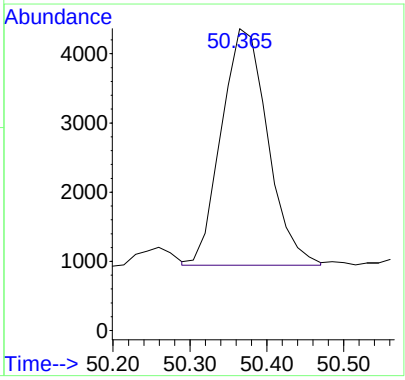
Tgt Ion:231 Resp: 13837

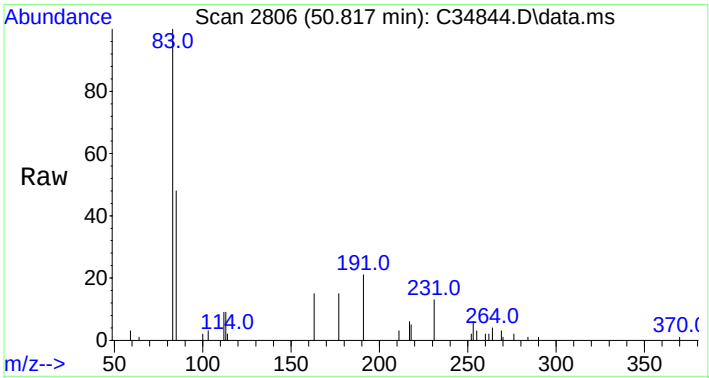




#146
C28,20S-triaromatic steroid
Concen: 1059.72 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

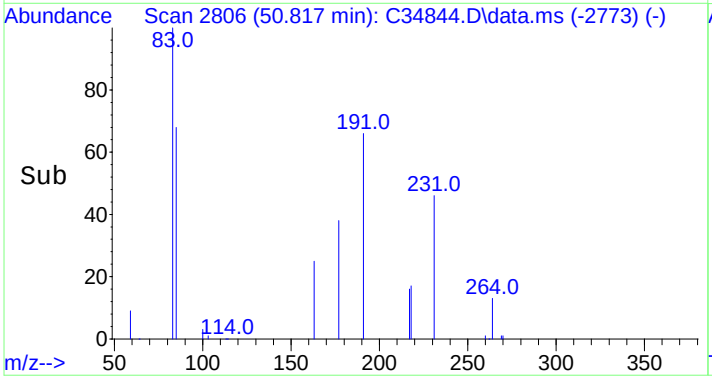
Tgt Ion:231 Resp: 14341

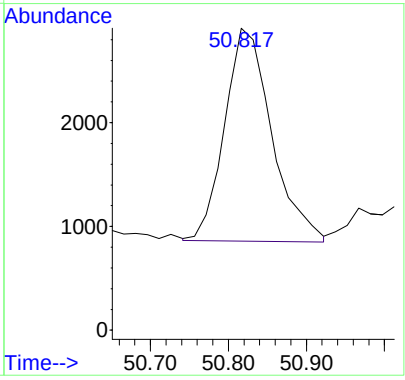


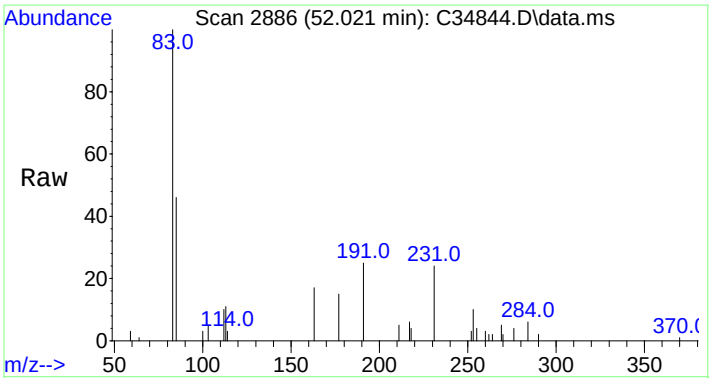


#147
C27,20R-triaromatic steroid
Concen: 636.53 ng/mL
RT: 50.817 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:231 Resp: 8614

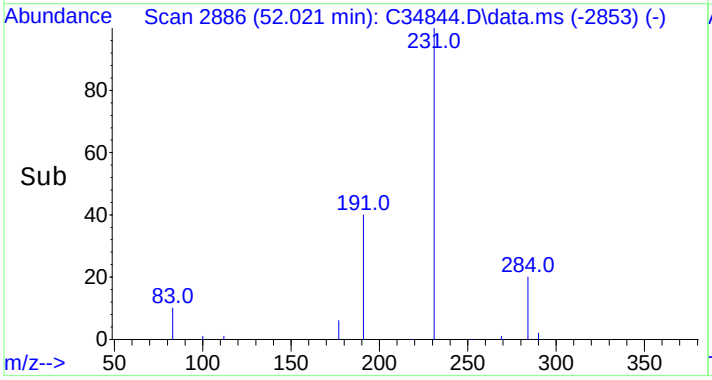


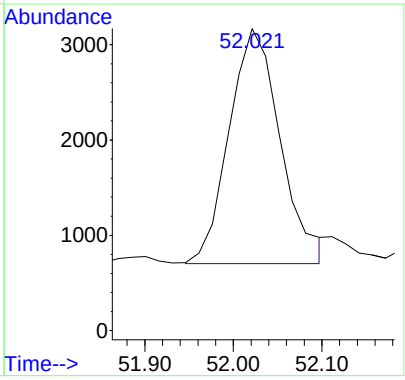




#148
C28,20R-triaromatic steroid
Concen: 733.18 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34844.D
Acq: 4 May 2012 6:09 pm

Tgt Ion:231 Resp: 9922





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	21659M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	45922	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	177222	1885.228	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 188.52%#			
42) Phenanthrene-d10	32.567	188	167578	2255.320	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 225.53%#			
86) Benzo[a]pyrene-d12	48.256	264	186805	1962.861	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 196.29%#			
127) 5B(H)Cholane - Surr	43.784	217	31494	2193.550	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 219.36%#			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	240	14.037	ng/mL	100
5) C1-Decalins	18.311	152	252M5	14.739	ng/mL	
6) C2-Decalins	20.177	166	798M5	46.673	ng/mL	
7) C3-Decalins	22.104	180	1118M5	65.389	ng/mL	
8) C4-Decalins	25.492	194	3788M5	221.549	ng/mL	
10) Naphthalene	19.801	128	247658	1794.067	ng/mL#	100
11) C1-Naphthalenes	22.496	142	161817M5	1172.224	ng/mL	
12) C2-Naphthalenes	24.995	156	12806M5	92.768	ng/mL	
13) C3-Naphthalenes	28.563	170	15715M5	113.842	ng/mL	
14) C4-Naphthalenes	31.694	184	26495M5	191.933	ng/mL	
16) 2-Methylnaphthalene	22.496	142	156382	1915.941	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	5208	65.096	ng/mL#	100
18) Benzothiophene	20.012	134	645M3	5.192	ng/mL	
19) C1-Benzo(b)thiophenes	22.360	148	3408M5	27.435	ng/mL	
20) C2-Benzo(b)thiophenes	24.649	162	1275M5	10.264	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	5505M5	44.316	ng/mL	
22) C4-Benzo(b)thiophenes	30.731	190	7607M5	61.238	ng/mL	
23) Biphenyl	24.393	154	2320M3	22.470	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	3495	52.118	ng/mL#	100
25) Dibenzofuran	27.464	168	4050	34.159	ng/mL#	93
26) Acenaphthylene	26.079	152	262621	1916.502	ng/mL#	100
27) Acenaphthene	26.816	153	158178	1960.460	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.367	170	793M3	14.669	ng/mL	
29) Fluorene	28.834	166	184469M3	2073.033	ng/mL	
30) C1-Fluorenes	31.197	180	5159M5	57.976	ng/mL	
31) C2-Fluorenes	33.410	194	21795M5	244.929	ng/mL	
32) C3-Fluorenes	35.909	208	64399M5	723.706	ng/mL	
33) Dibenzothiophene	32.161	184	7441	52.166	ng/mL#	87
34) 4-Methyldibenzothiophe...	33.937	198	5054M3	35.431	ng/mL	
35) 2/3-Methyldibenzothiop...	34.298	198	5509M3	38.621	ng/mL	
36) 1-Methyldibenzothiophe...	34.720	198	2054	14.400	ng/mL#	100
37) OTP	34.374	198	31455M3	220.517	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	50490M5	353.963	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	38666M5	271.070	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	64470M5	451.971	ng/mL	
41) C4-Dibenzothiophenes	40.908	240	55790M5	391.119	ng/mL	
43) Phenanthrene	32.657	178	331901	2648.362	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	8582	68.479	ng/mL	89
45) 2/4-Methylphenanthrene...	34.750	192	10086	80.480	ng/mL	98
46) 2-Methylanthracene(2MA)	34.901	192	5506M3	43.934	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	12062M3	96.247	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.172	192	6637M3	52.959	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.081	192	45030M5	359.311	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	55003M5	438.889	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	66624M5	531.618	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	57639M5	459.923	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
55) Anthracene	32.838	178		235534M3	1924.098	ng/mL	
56) Carbazole	33.500	167		7358M3	59.507	ng/mL	
57) 1-Methylphenanthrene	35.172	192		6658M3	83.833	ng/mL	
58) Fluoranthene	37.445	202		505726M3	4063.137	ng/mL	
59) Benzo(b)fluorene	39.960	216		15157M3	209.900	ng/mL	
60) Pyrene	38.318	202		518687	4099.523	ng/mL	96
61) C1-Fluoranthenes/Pyrenes	39.719	216		119752M5	946.479	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.465	230		94683M5	748.342	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244		58267M5	460.522	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.943	258		48848M5	386.078	ng/mL	
66) Naphthobenzothiophene	42.173	234		19521	143.311	ng/ml#	76
67) Naphthobenzothiophene-...	42.173	234		19521	143.311	ng/mL#	76
68) Naphthobenzothiophene-...	42.519	234		4709M3	34.570	ng/mL	
69) Naphthobenzothiophene-...	42.805	234		9121M3	66.960	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248		33633M5	246.912	ng/ml	
71) C2-Naphthobenzothiophenes	45.576	262		42626M5	312.933	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276		33904M5	248.901	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290		30253M5	222.098	ng/mL	
75) Benz[a]anthracene	43.106	228		378704	2598.212	ng/mL	95
77) Chrysene/Triphenylene	43.272	228		394777	2682.776	ng/mL	100
78) C1-Chrysenes	44.732	242		57669M5	391.900	ng/mL	
79) C2-Chrysenes	46.148	256		45802M5	311.255	ng/mL	
80) C3-Chrysenes	47.488	270		42537M5	289.068	ng/mL	
81) C4-Chrysenes	49.612	284		25173M5	171.067	ng/mL	
82) Benzo[b]fluoranthene	47.157	252		472681	2951.371	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.232	252		412920	2368.084	ng/mL	98
84) Benzo[a]fluoranthene	47.533	252		24037M3	137.851	ng/mL	
85) Benzo[e]pyrene	48.166	252		85197	537.811	ng/mL	98
87) Benzo[a]pyrene	48.347	252		403767	2647.300	ng/mL	97
88) Perylene	48.663	252		42812	262.648	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.181	276		426700M3	2404.050	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278		350859M3	2078.008	ng/mL	
91) Benzo[g,h,i]perylene	54.491	276		430253	2294.423	ng/mL	99
92) Hopane (T19)	52.232	191		81685	2698.916	ng/mL#	80
94) C23 Tricyclic Terpane ...	40.803	191		12946M3	427.743	ng/ml	
95) C24 Tricyclic Terpane ...	41.525	191		8246	272.452	ng/ml	100
96) C25 Tricyclic Terpane ...	43.061	191		8259M3	272.882	ng/ml	
97) C24 Tetracyclic Terpan...	44.341	191		8699M3	287.420	ng/ml	
98) C26 Tricyclic Terpane-...	44.070	191		4617M3	152.548	ng/ml	
99) C26 Tricyclic Terpane-...	44.160	191		3774M3	124.695	ng/ml	
100) C28 Tricyclic Terpane-...	46.449	191		3108M3	102.690	ng/ml	
101) C28 Tricyclic Terpane-...	46.615	191		5701M3	188.364	ng/ml	
102) C29 Tricyclic Terpane-...	47.127	191		3981M3	131.534	ng/ml	
103) C29 Tricyclic Terpane-...	47.338	191		4703	155.390	ng/ml	100
104) 18a-22,29,30-Trisnorne...	48.452	191		17974	593.871	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191		3643M3	120.367	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191		3937M3	130.081	ng/mL	
107) 17a(H)-22,29,30-Trisno...	49.009	191		19710M3	651.229	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.169	191		2803	92.613	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.973	191		7010M3	231.614	ng/ml	
110) 30-Norhopane (T15)	50.862	191		53671M3	1773.318	ng/ml	
111) 18a(H)-30-Norneohopane...	50.967	191		17424M3	575.698	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191		3569M3	117.922	ng/ml	
113) 30-Normoretane (T17)	51.645	191		8705	287.618	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.051	191		6680	220.711	ng/ml	100
115) Moretane (T20)	52.925	191		11354M3	375.142	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191		25324M3	836.718	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191		22575	745.890	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191		5557	183.606	ng/mL	100
119) 30,31-Bishomohopane-22...	55.545	191	G	52474	1733.769	ng/ml	100
120) 30,31-Bishomohopane-22...	55.967	191		13342	440.827	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

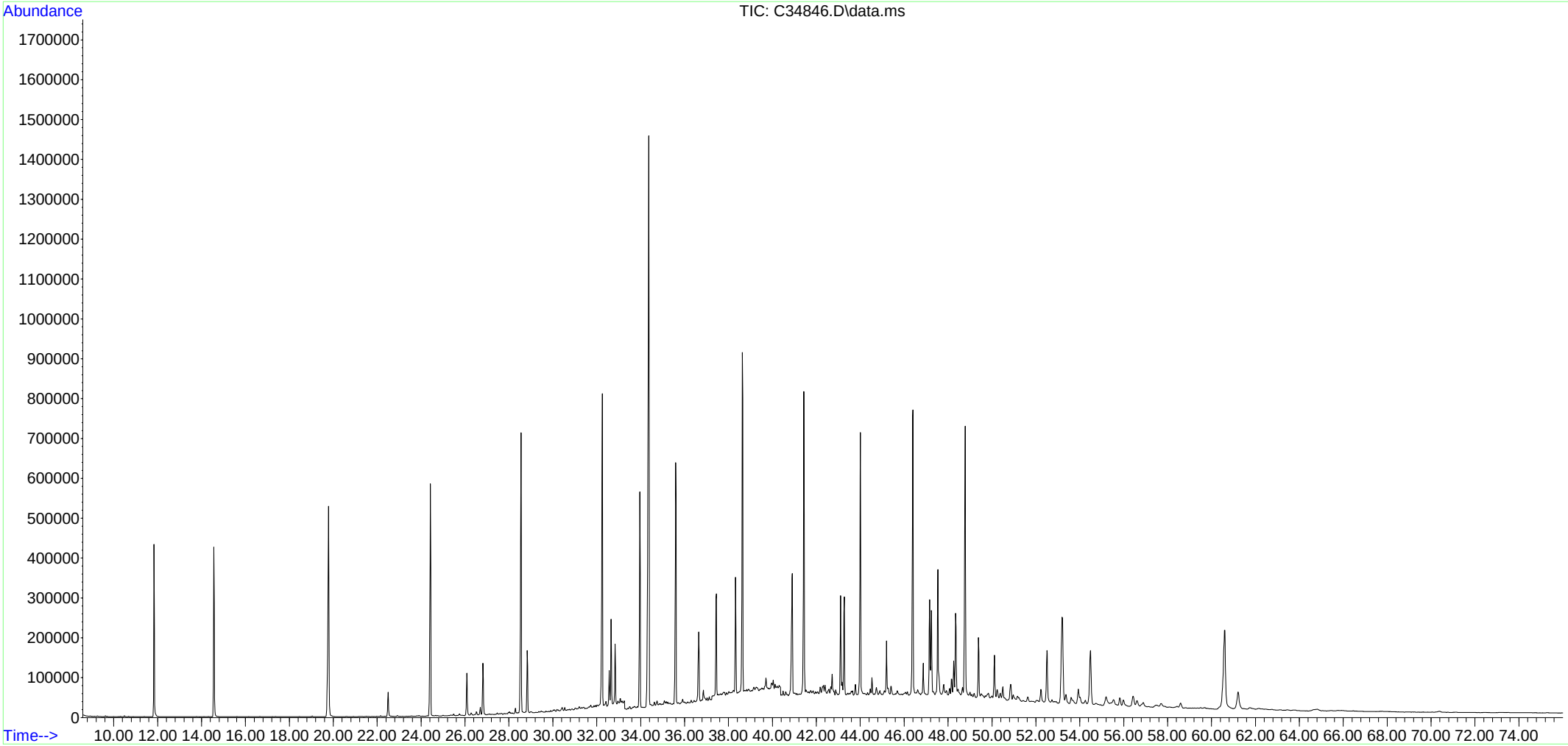
Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
121) 30,31-Trishomohopane-2...	57.713	191		15116M3	499.441	ng/ml	
122) 30,31-Trishomohopane-2...	58.316	191		7077M3	233.828	ng/ml	
123) Tetrakishomohopane-22S...	60.364	191		11977M3	395.726	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191	G	36833	1216.982	ng/ml	100
125) Pentakishomohopane-22S...	63.481	191		6615M3	218.563	ng/ml	
126) Pentakishomohopane-22R...	64.761	191		5083M3	167.945	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217		6314M3	439.769	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.711	217		3892M3	271.077	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.404	217		4728M3	329.304	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217		11411	794.773	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.789	217		11197	779.868	ng/ml	100
133) Unknown Sterane (S18)	48.075	217		3023	210.551	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.331	217		565	39.352	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217		5894M3	410.516	ng/ml	
136) 14a,17a-20R-Methylchol...	49.205	217		3982M3	277.345	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217		6024M3	419.570	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.470	217		5755M3	400.834	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218		4962M3	345.602	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.443	218		5620M3	391.432	ng/ml	
141) 14b,17b-20R-Methylchol...	48.663	218		4860M4	338.498	ng/ml	
142) 14b,17b-20S-Methylchol...	48.738	218		8055M3	561.029	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.807	218		10162M3	707.781	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.838	218		6853M3	477.310	ng/ml	
145) C26,20R- +C27,20S- tri...	49.506	231		13053M3	909.138	ng/mL	
146) C28,20S-triaromatic st...	50.365	231		15070	1049.622	ng/mL	100
147) C27,20R-triaromatic st...	50.832	231		8632M3	601.217	ng/mL	
148) C28,20R-triaromatic st...	52.021	231		9551M3	665.225	ng/mL	

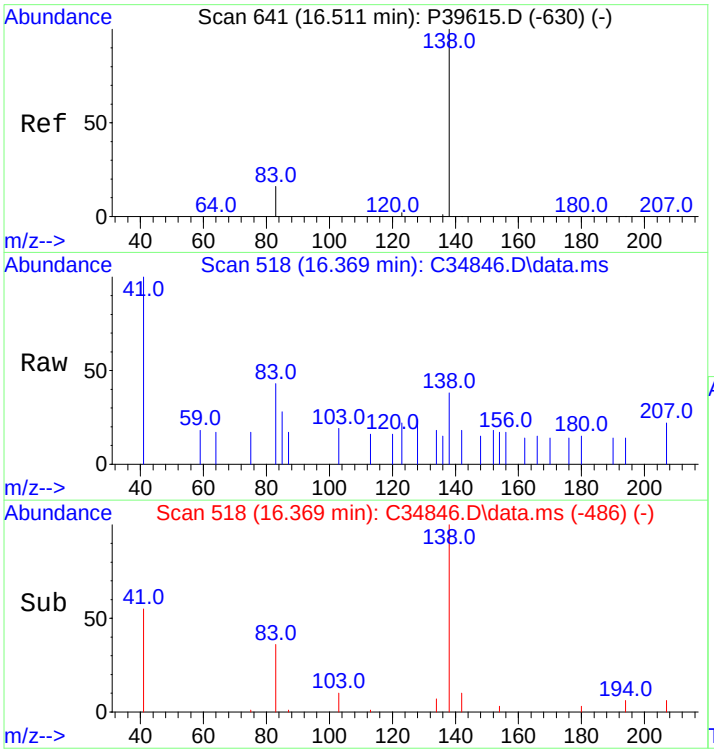
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34846.D
Acq On : 4 May 2012 7:41 pm
Operator : AC
Sample : 1204031-01S
Misc : 1X
ALS Vial : 36 Sample Multiplier: 1

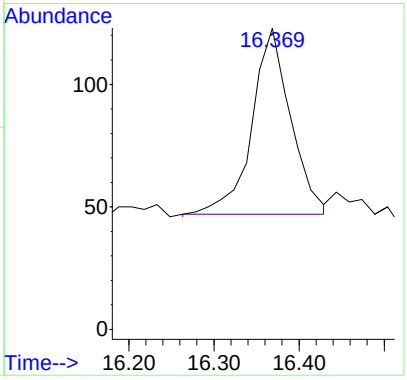
Quant Time: May 06 15:10:14 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

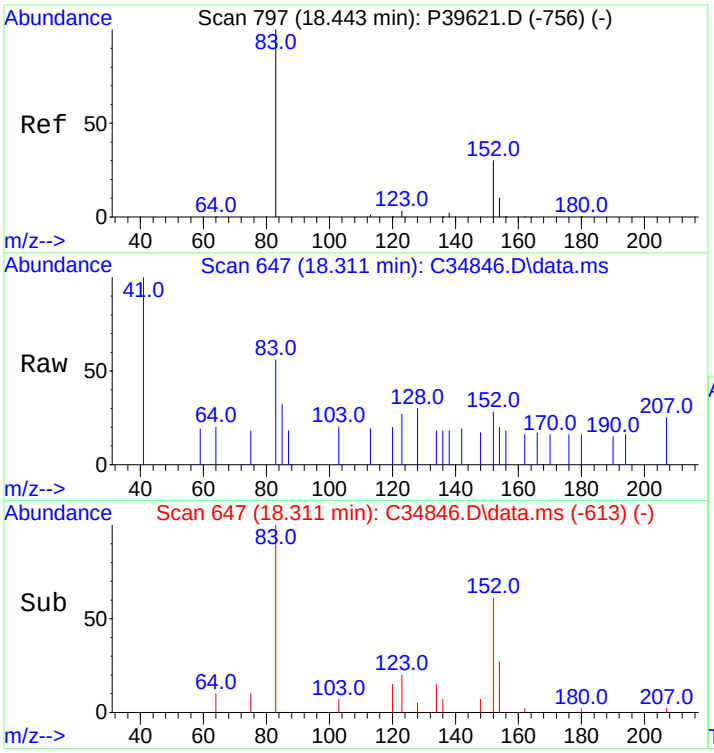




#3
trans-Decalin
Concen: 14.04 ng/mL
RT: 16.369 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

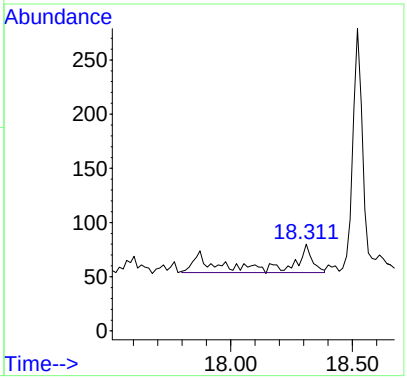
Tgt Ion:138 Resp: 240

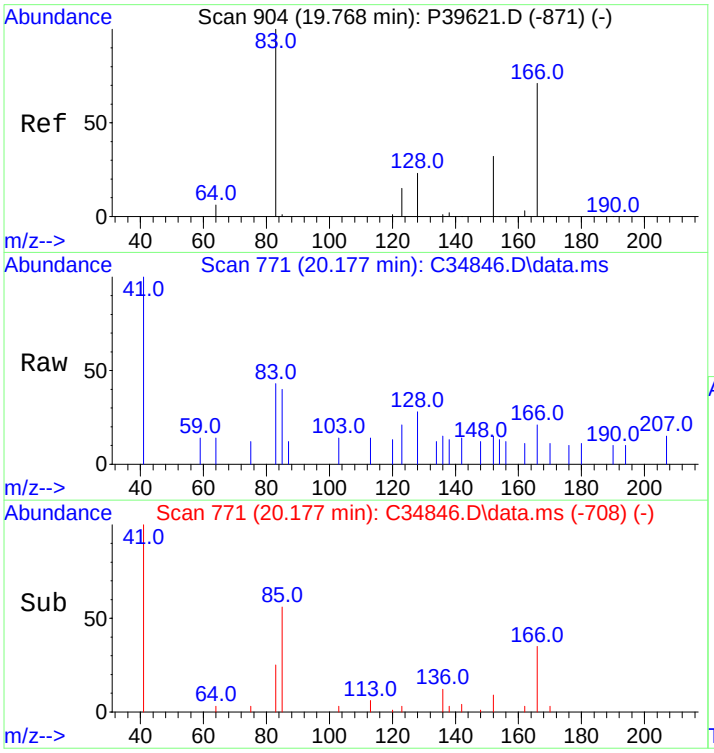




#5
C1-Decalins
Concen: 14.74 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.037 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

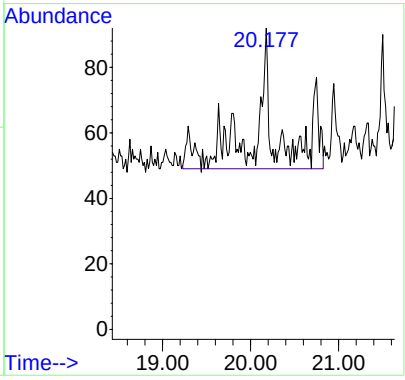
Tgt Ion:152 Resp: 252

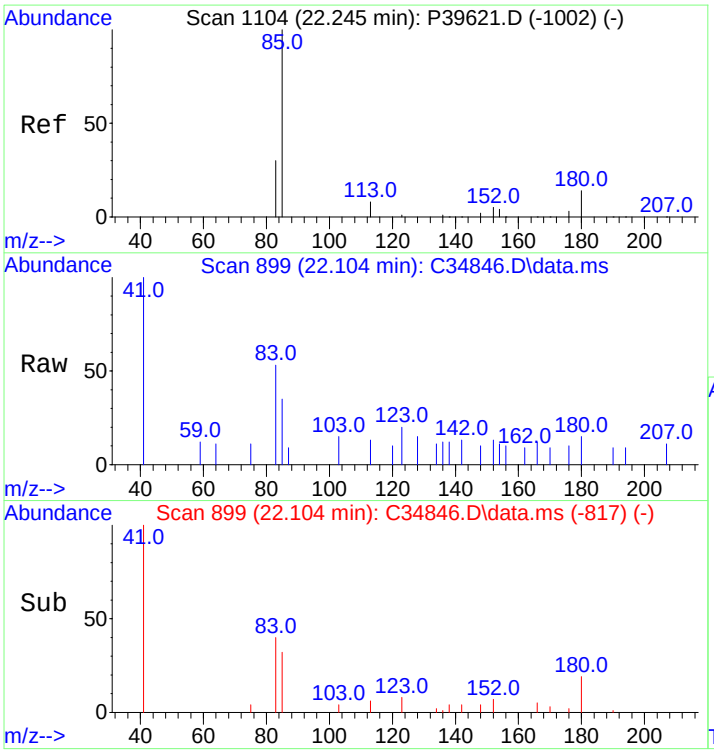




#6
C2-Decalins
Concen: 46.67 ng/mL m
RT: 20.177 min Scan# 771
Delta R.T. 0.495 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

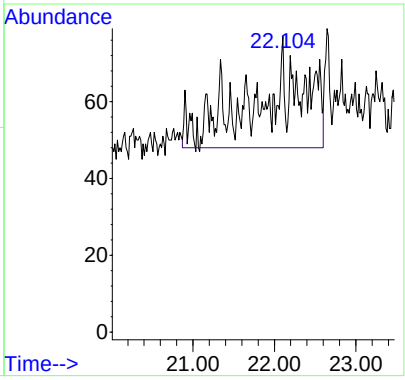
Tgt Ion:166 Resp: 798

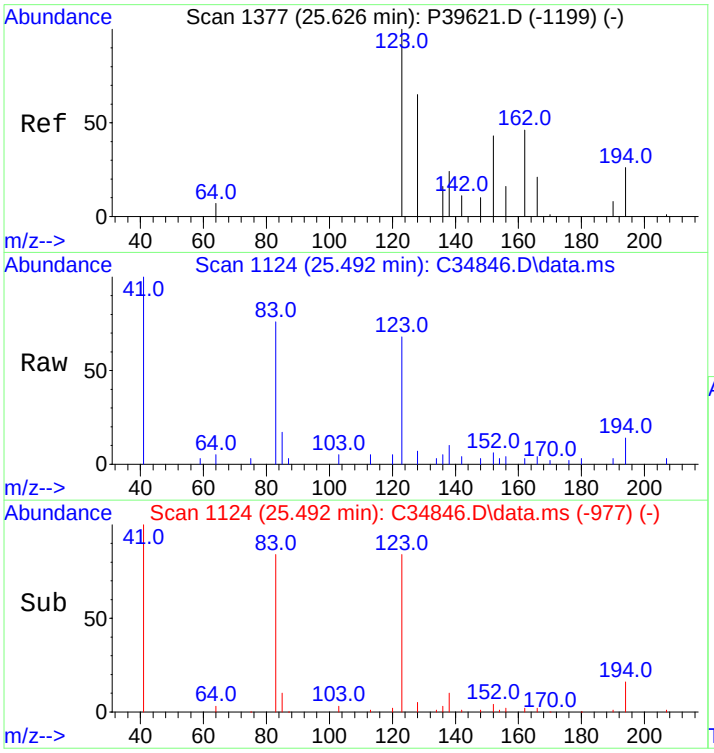




#7
C3-Decalins
Concen: 65.39 ng/mL m
RT: 22.104 min Scan# 899
Delta R.T. -0.036 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

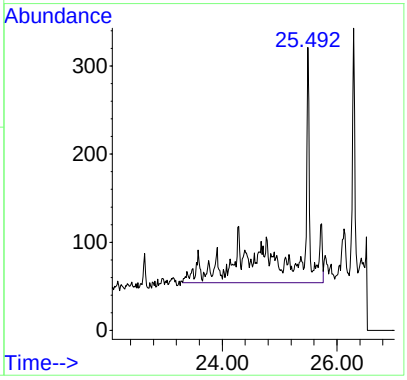
Tgt Ion:180 Resp: 1118

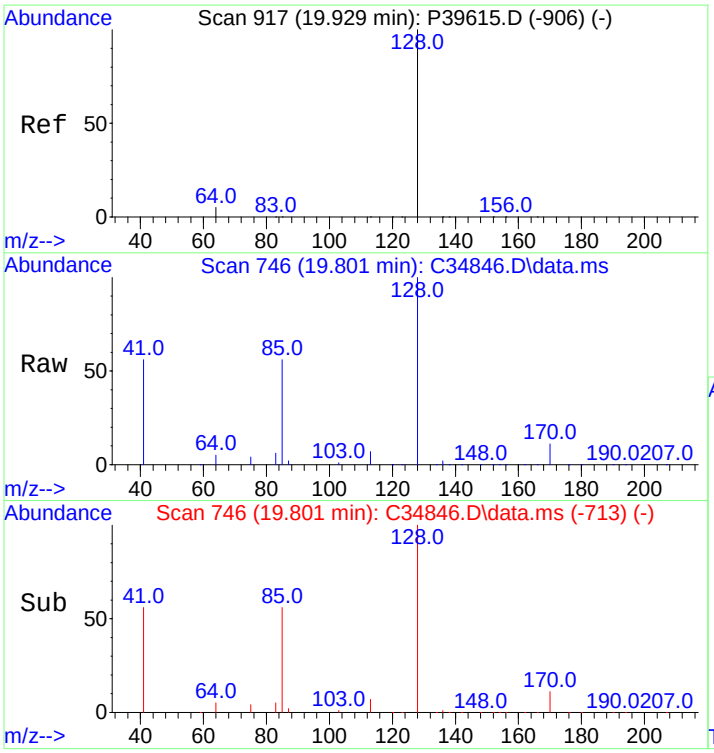




#8
C4-Decalins
Concen: 221.55 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:194 Resp: 3788

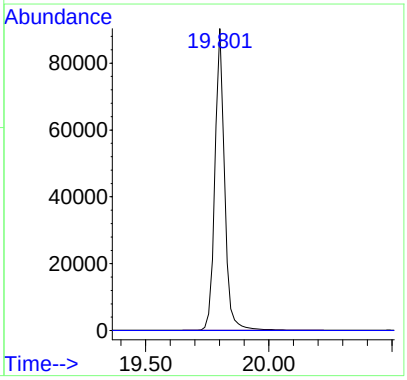


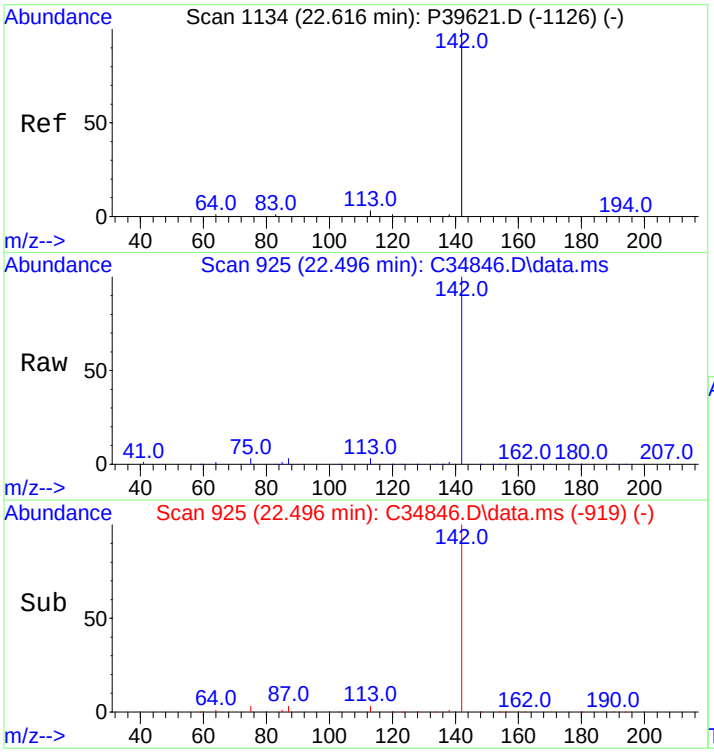


#10
Naphthalene
Concen: 1794.07 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:128 Resp: 247658

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

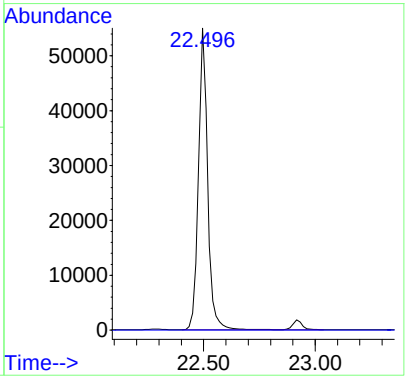


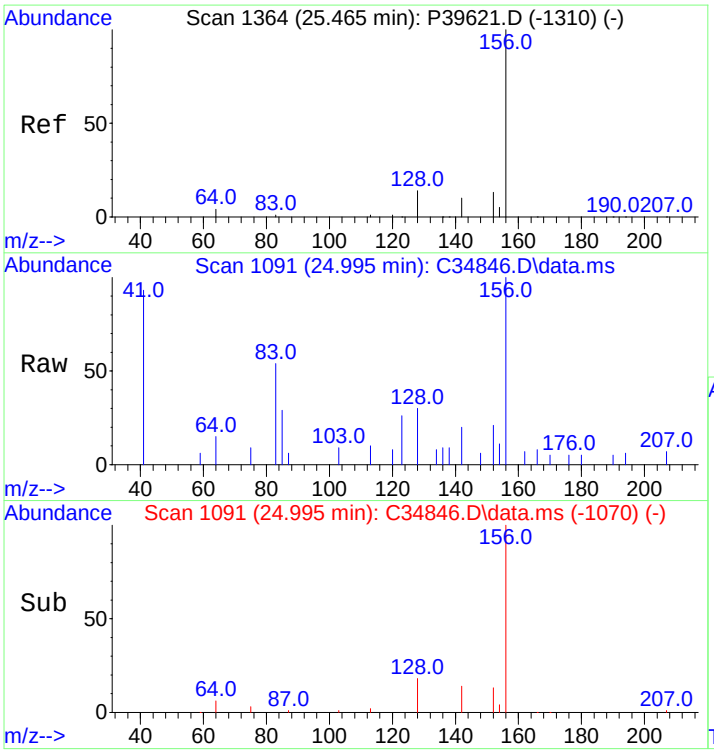


#11
C1-Naphthalenes
Concen: 1172.22 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:142 Resp: 161817

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

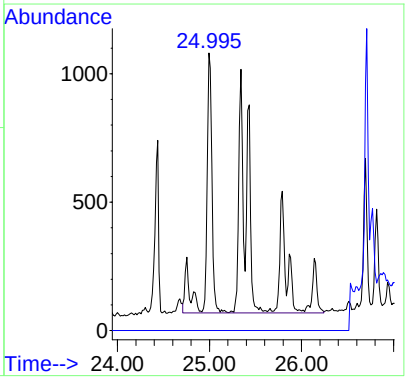


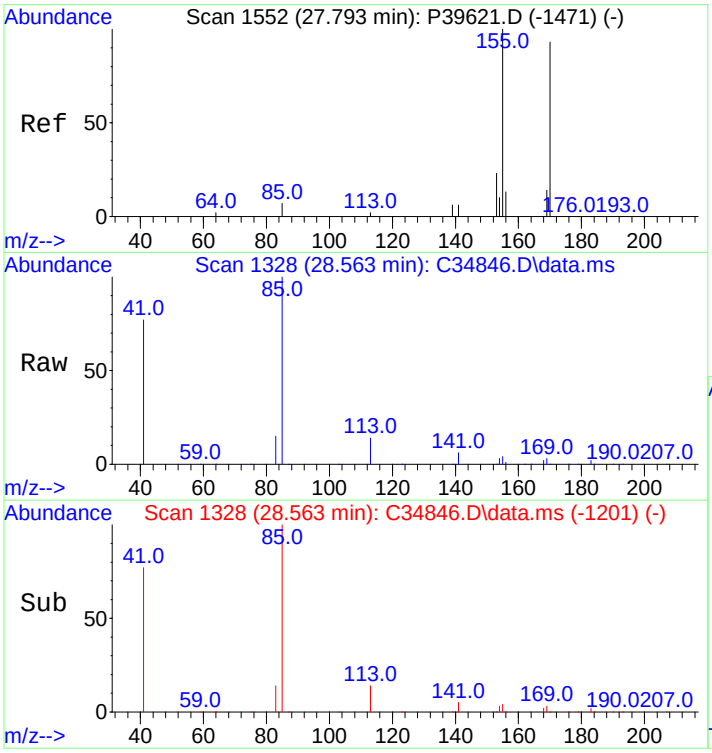


#12
C2-Naphthalenes
Concen: 92.77 ng/mL m
RT: 24.995 min Scan# 1091
Delta R.T. -0.352 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:156 Resp: 12806

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

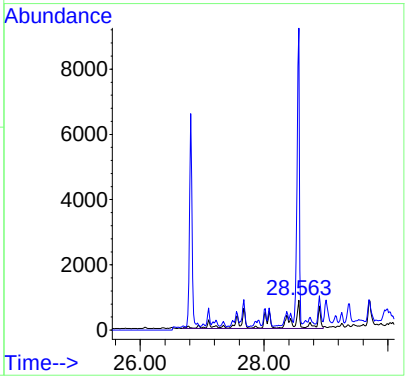


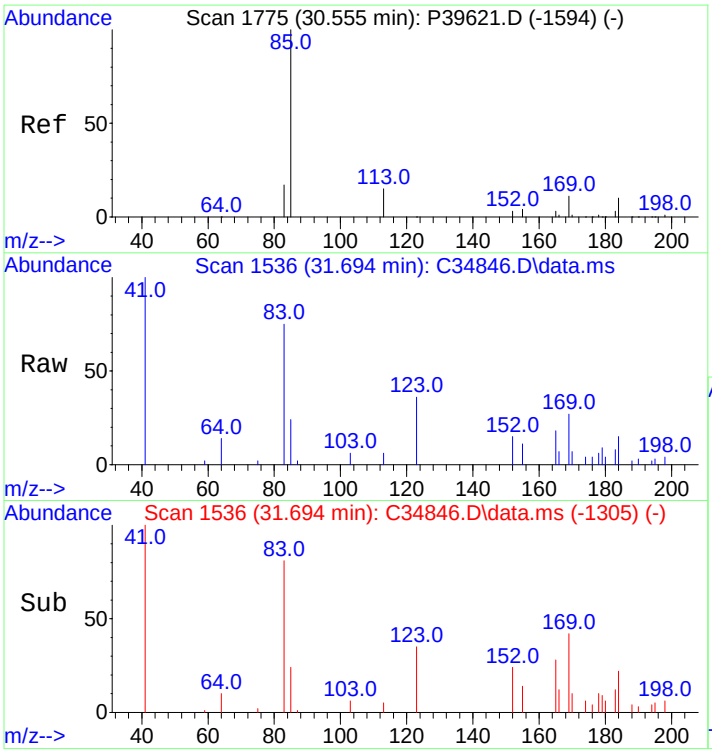


#13
C3-Naphthalenes
Concen: 113.84 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 0.893 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:170 Resp: 15715

Ion	Ratio	Lower	Upper
170	100		
155	10.2	81.8	122.6#

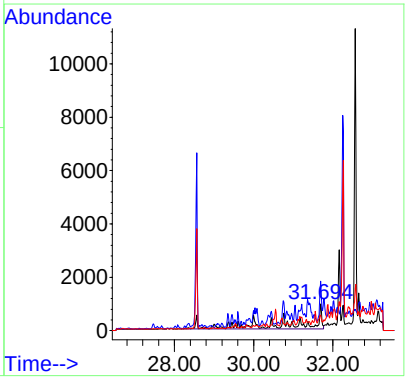


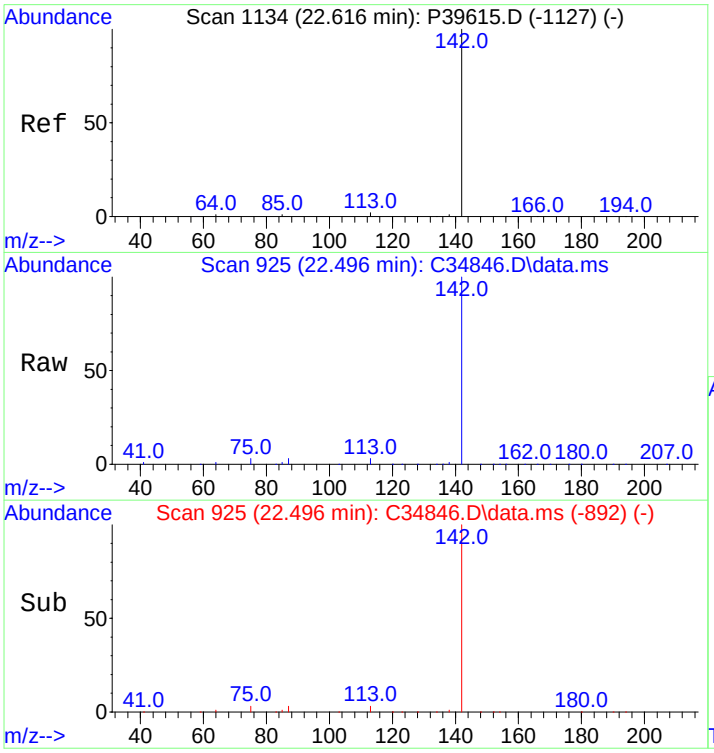


#14
C4-Naphthalenes
Concen: 191.93 ng/mL m
RT: 31.694 min Scan# 1536
Delta R.T. 1.281 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:184 Resp: 26495

Ion	Ratio	Lower	Upper
184	100		
169	5.1	77.4	116.0#
183	0.0	14.8	22.2#

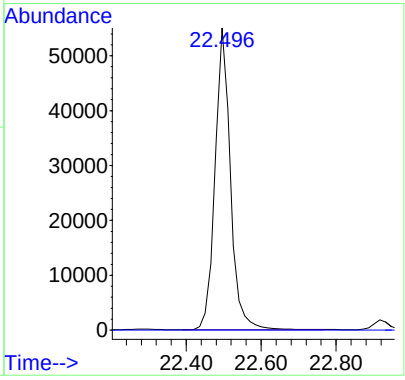


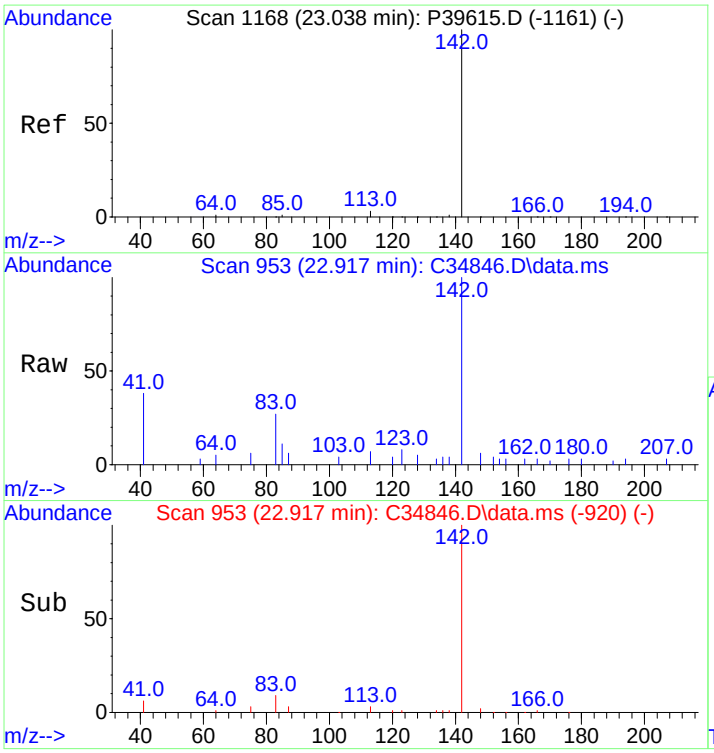


#16
2-Methylnaphthalene
Concen: 1915.94 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:142 Resp: 156382

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

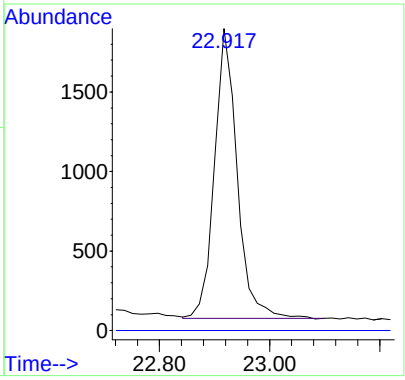


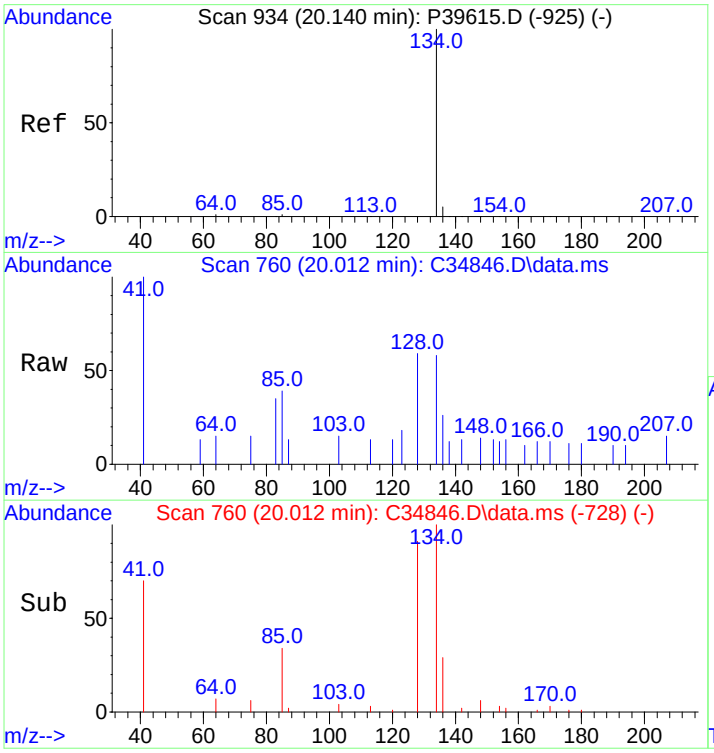


#17
1-Methylnaphthalene
Concen: 65.10 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:142 Resp: 5208

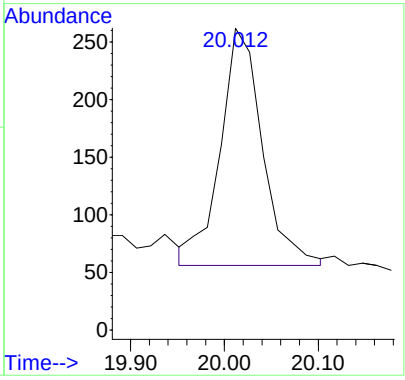
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

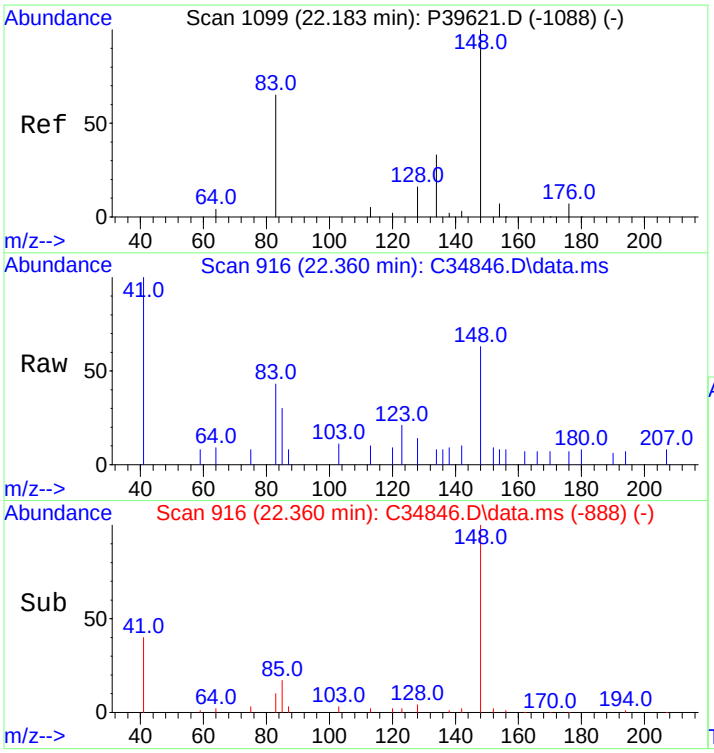




#18
Benzothiophene
Concen: 5.19 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

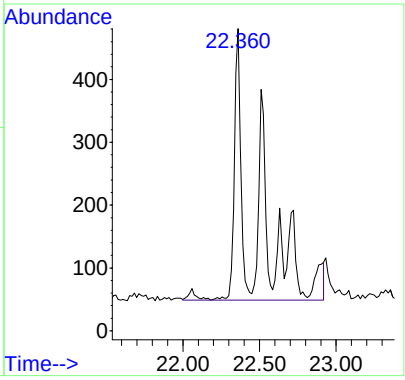
Tgt Ion:134 Resp: 645

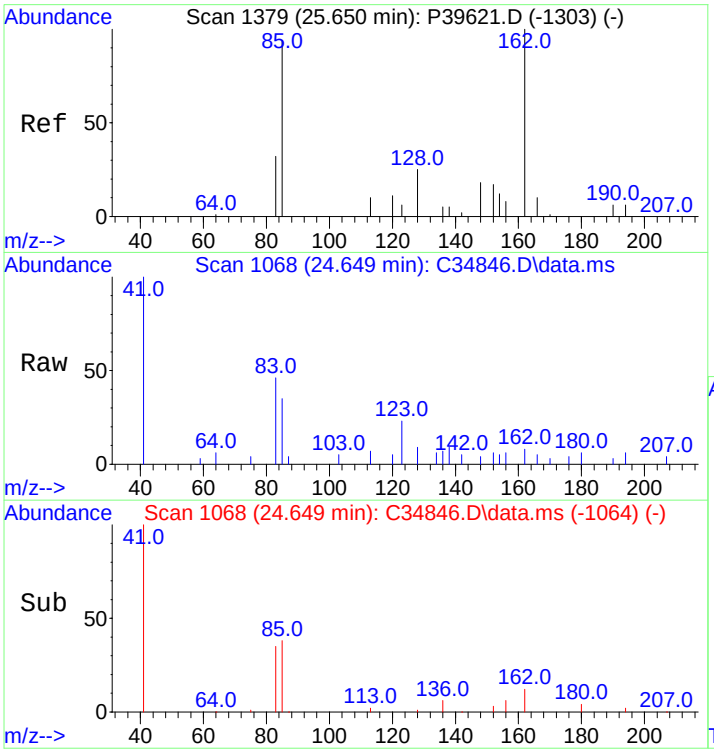




#19
C1-Benzo(b)thiophenes
Concen: 27.43 ng/mL m
RT: 22.360 min Scan# 916
Delta R.T. 0.280 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

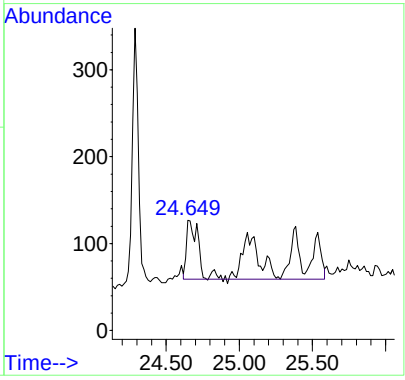
Tgt Ion:148 Resp: 3408

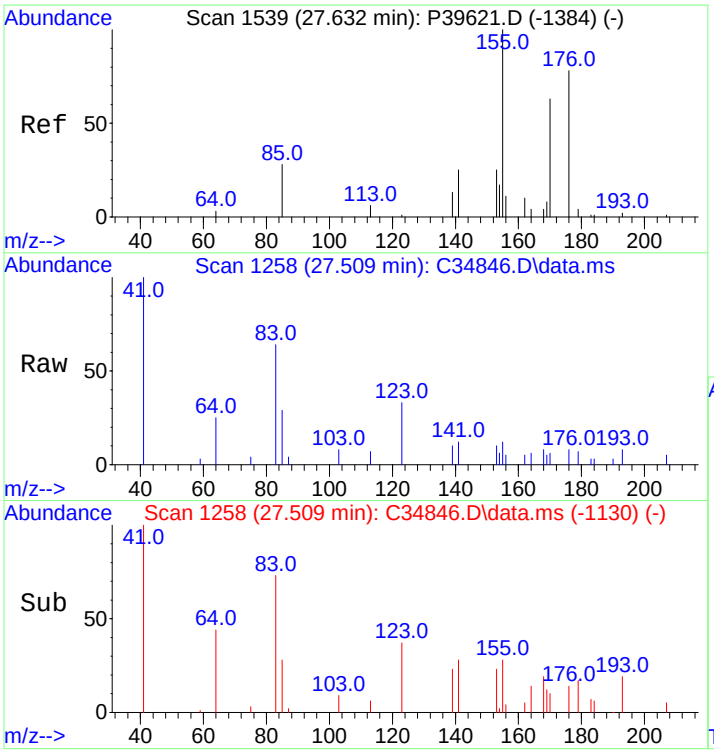




#20
C2-Benzo(b)thiophenes
Concen: 10.26 ng/mL m
RT: 24.649 min Scan# 1068
Delta R.T. -0.893 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

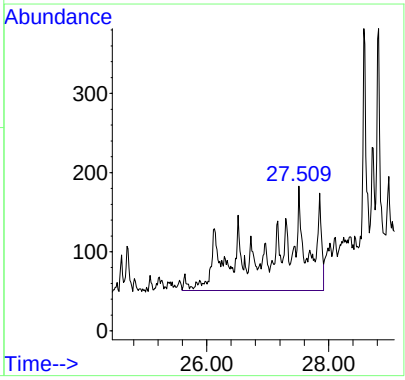
Tgt Ion:162 Resp: 1275

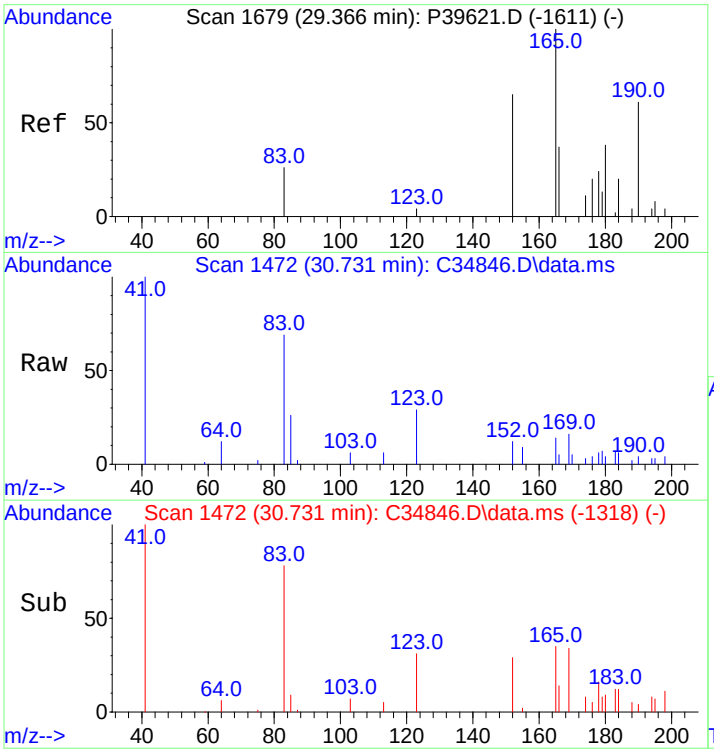




#21
C3-Benzo(b)thiophenes
Concen: 44.32 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

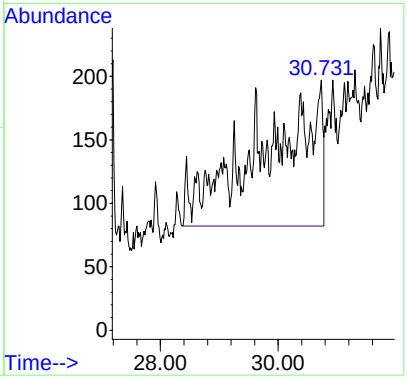
Tgt Ion:176 Resp: 5505

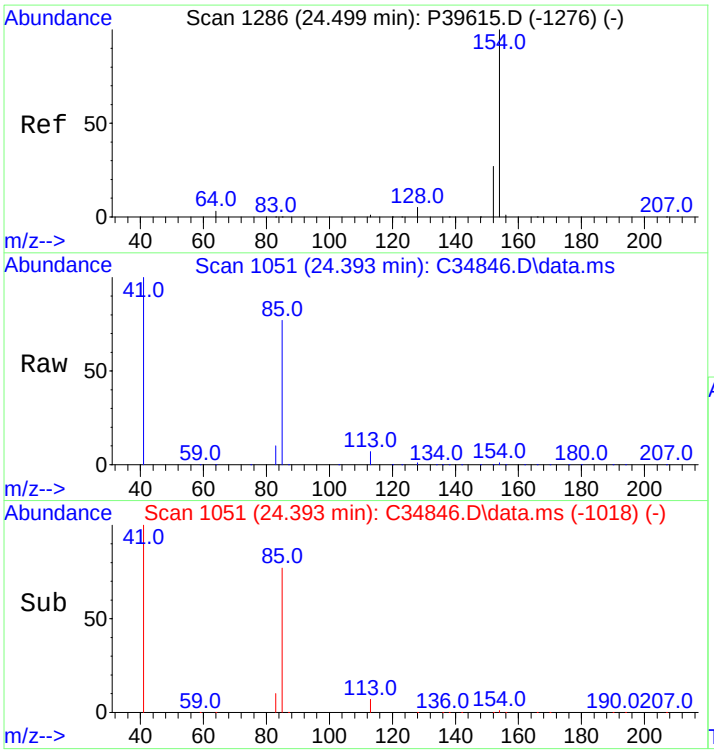




#22
C4-Benzo(b)thiophenes
Concen: 61.24 ng/mL m
RT: 30.731 min Scan# 1472
Delta R.T. 1.502 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:190 Resp: 7607

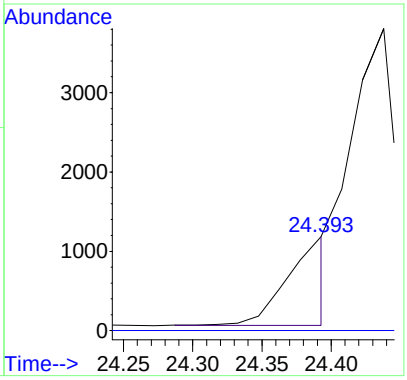


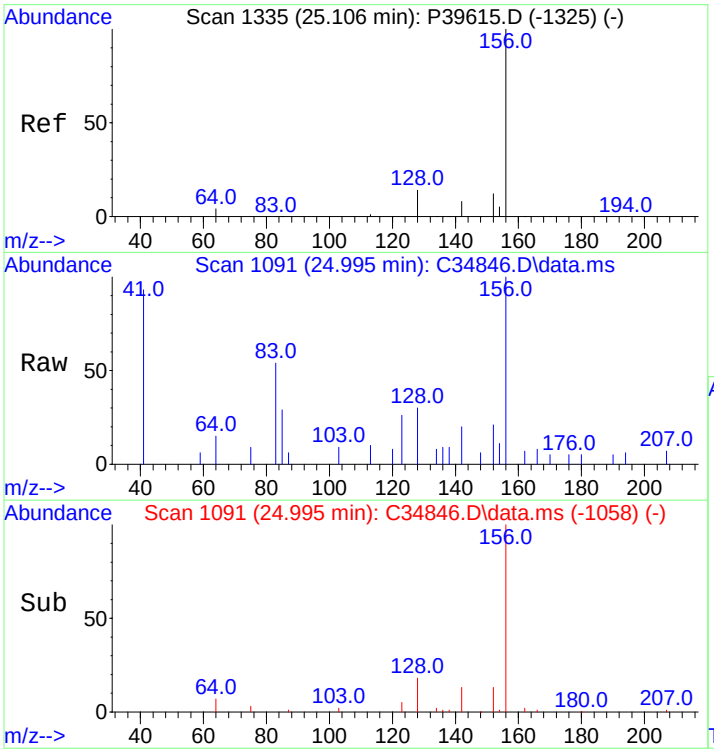


#23
Biphenyl
Concen: 22.47 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:154 Resp: 2320

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

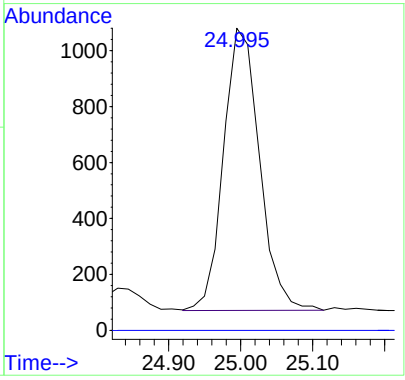


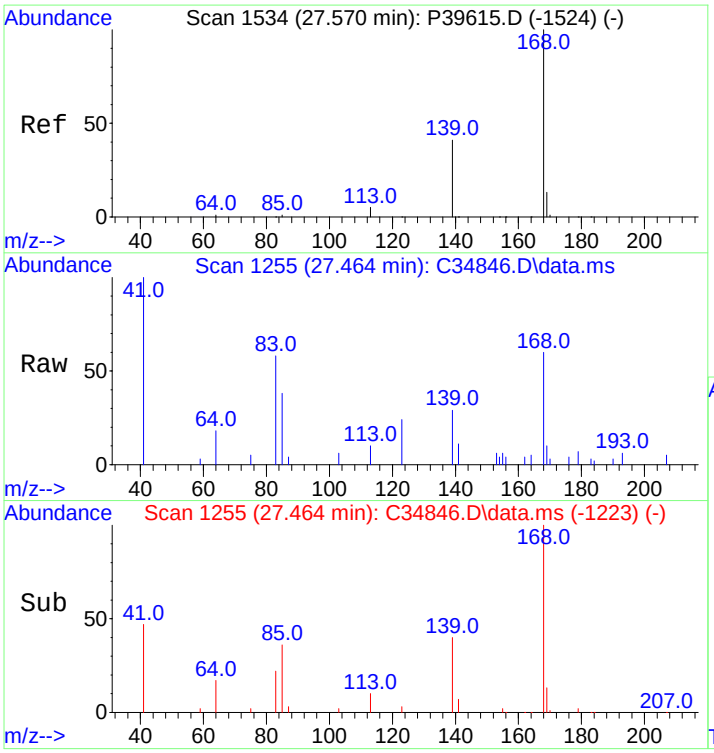


#24
2,6-Dimethylnaphthalene
Concen: 52.12 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:156 Resp: 3495

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

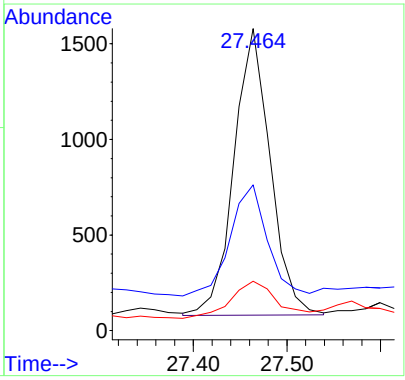


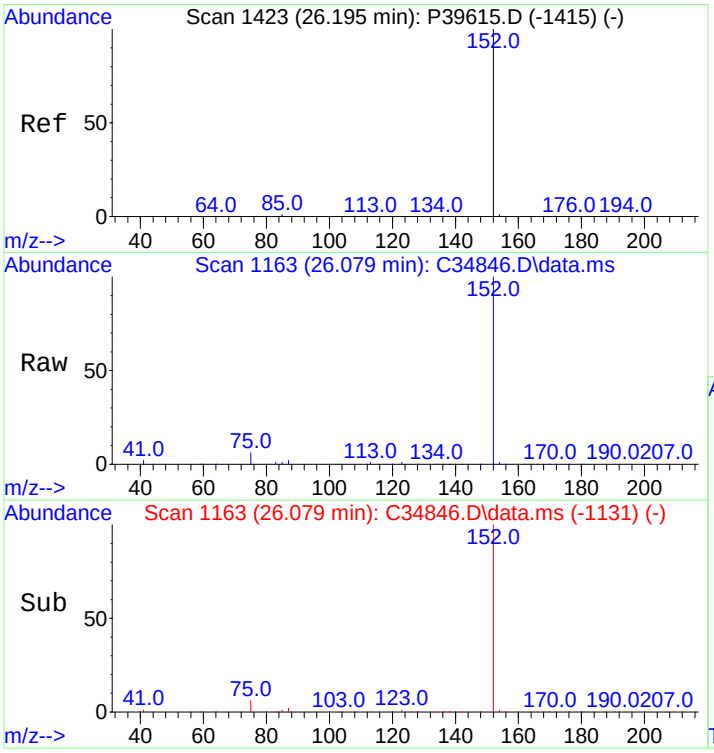


#25
Dibenzofuran
Concen: 34.16 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:168 Resp: 4050

Ion	Ratio	Lower	Upper
168	100		
139	39.6	28.4	42.6
169	16.7	10.8	16.2#

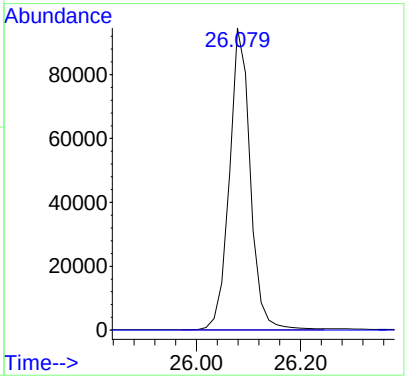


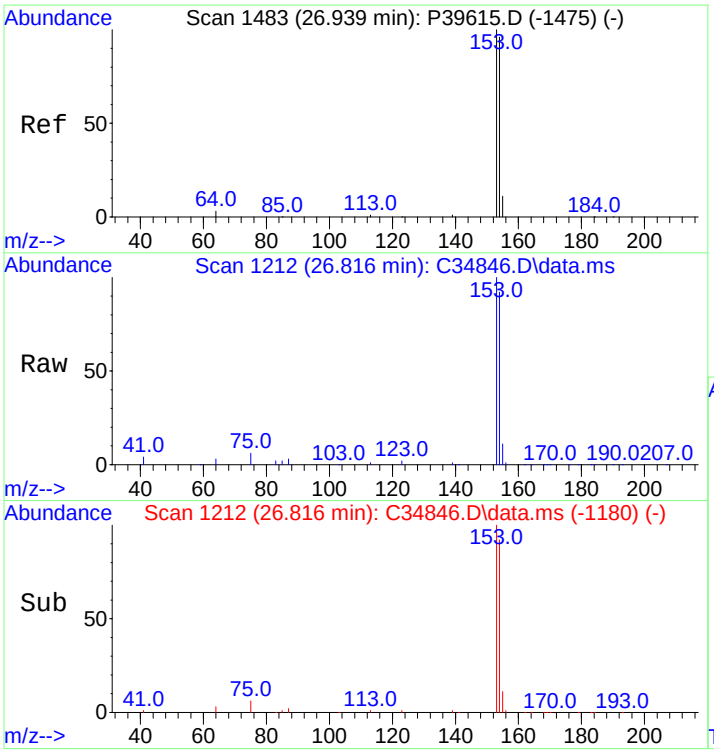


#26
Acenaphthylene
Concen: 1916.50 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:152 Resp: 262621

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

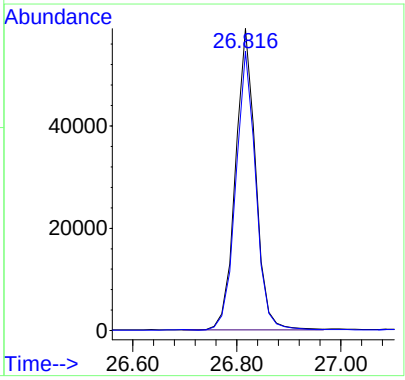


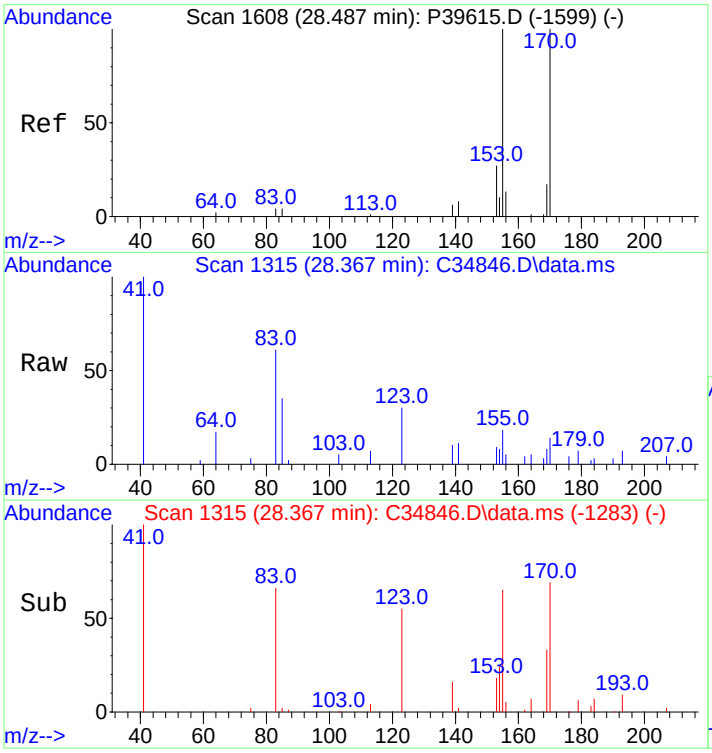


#27
Acenaphthene
Concen: 1960.46 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:153 Resp: 158178

Ion	Ratio	Lower	Upper
153	100		
154	91.7	73.6	110.4

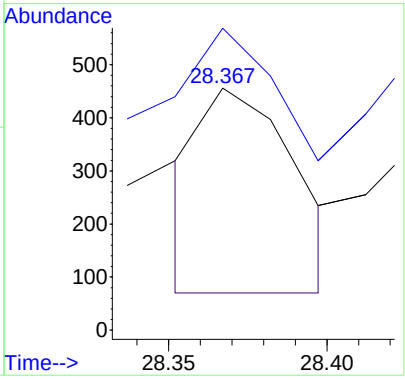


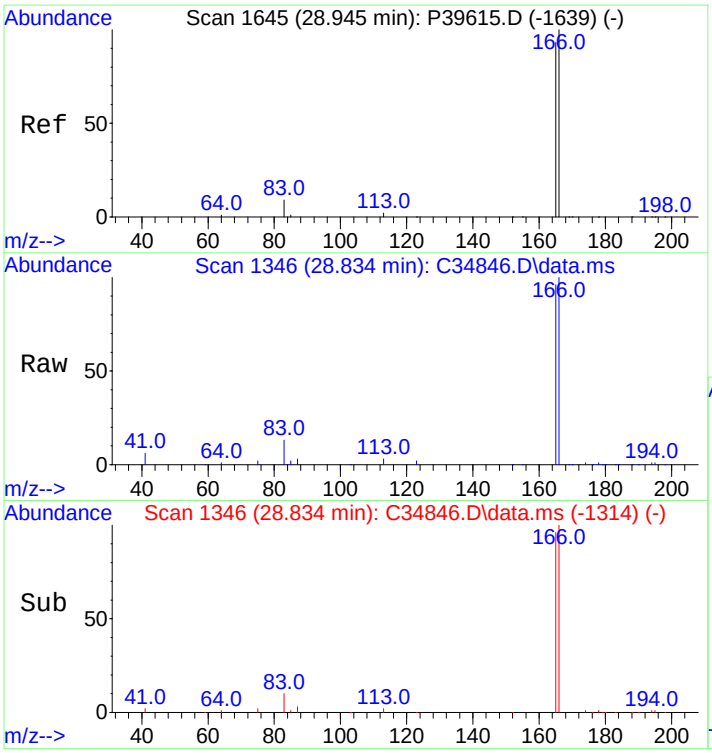


#28
2,3,5-Trimethylnaphthalene
Concen: 14.67 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:170 Resp: 793

Ion	Ratio	Lower	Upper
170	100		
155	197.7	87.3	130.9#

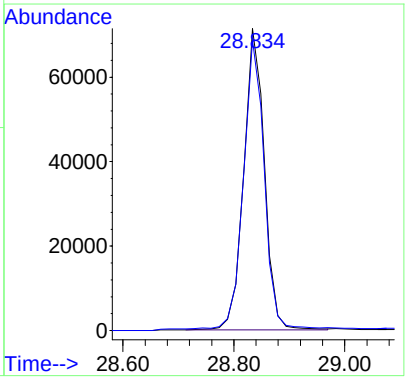


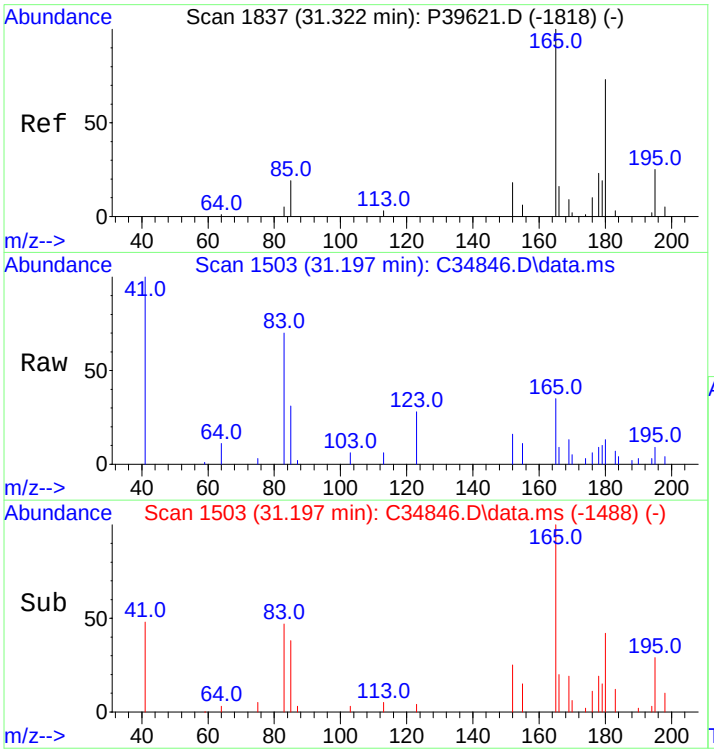


#29
Fluorene
Concen: 2073.03 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:166 Resp: 184469

Ion	Ratio	Lower	Upper
166	100		
165	100.7	77.3	115.9

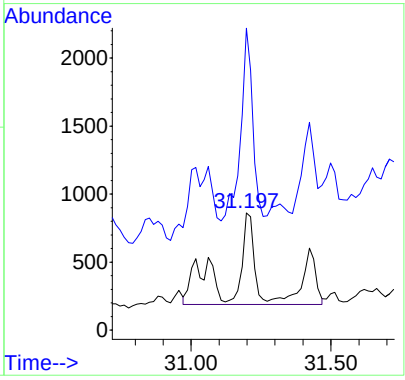


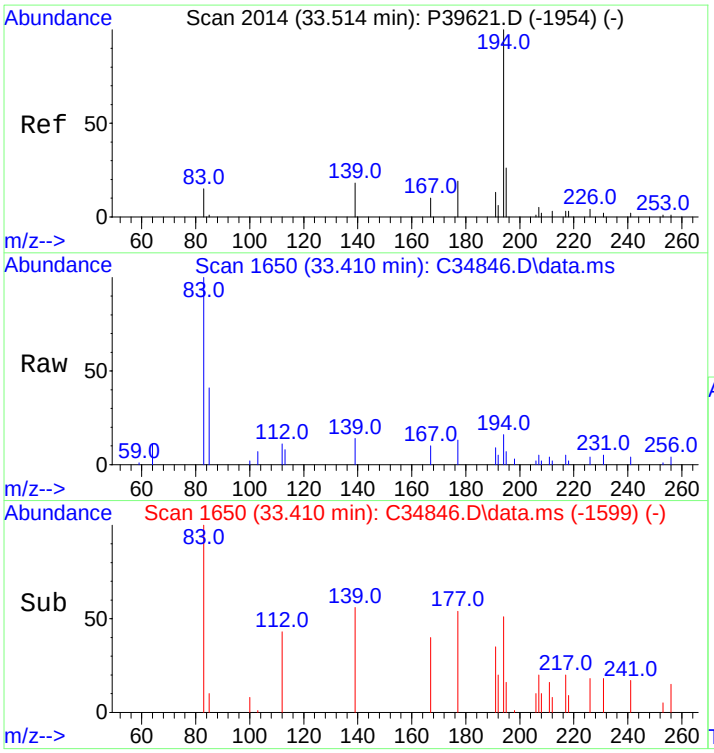


#30
C1-Fluorenes
Concen: 57.98 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:180 Resp: 5159

Ion	Ratio	Lower	Upper
180	100		
165	82.3	111.4	167.2#

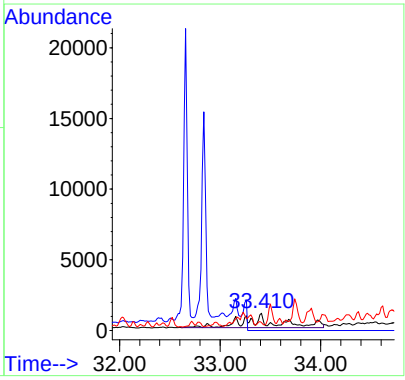


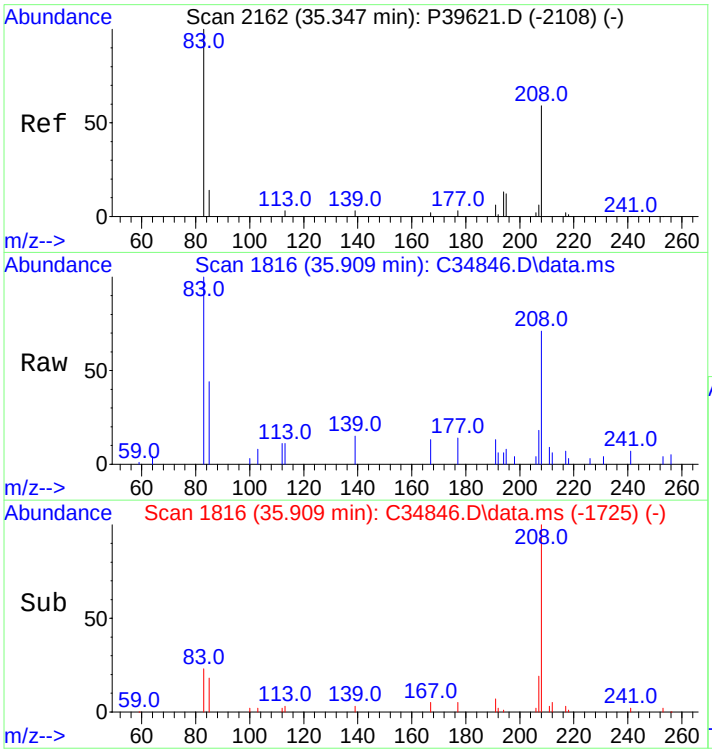


#31
C2-Fluorenes
Concen: 244.93 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:194 Resp: 21795

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	8.5	27.3	40.9#

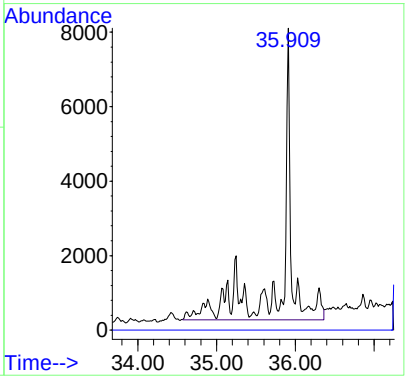


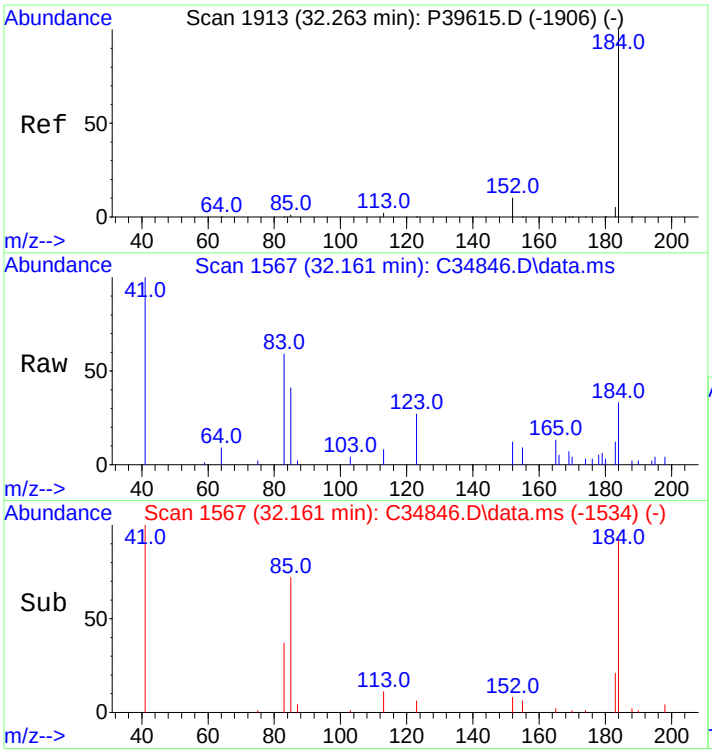


#32
C3-Fluorenes
Concen: 723.71 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:208 Resp: 64399

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

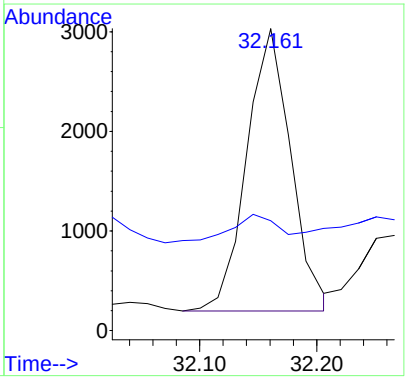


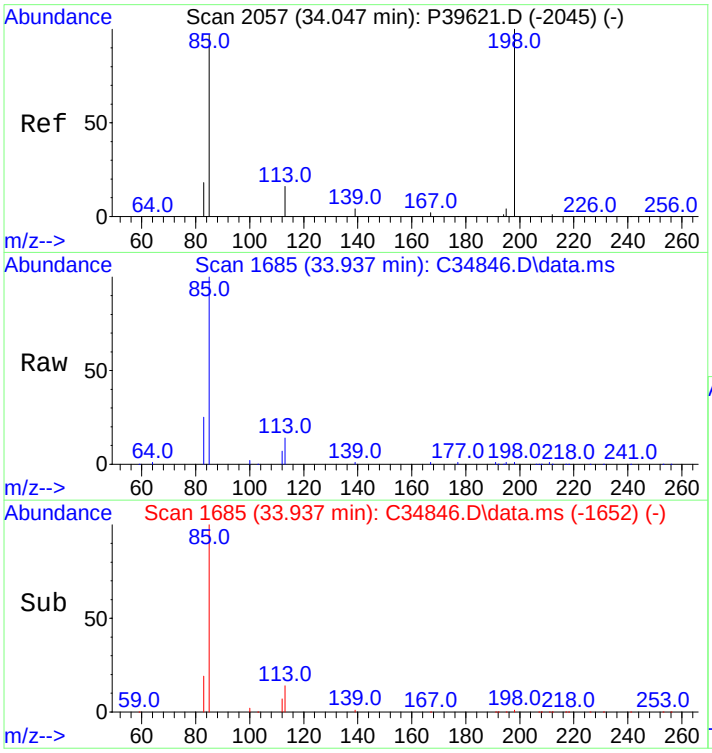


#33
Dibenzothiophene
Concen: 52.17 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:184 Resp: 7441

Ion	Ratio	Lower	Upper
184	100		
152	14.3	7.5	11.3#

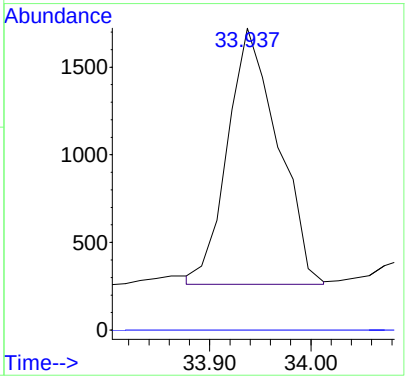


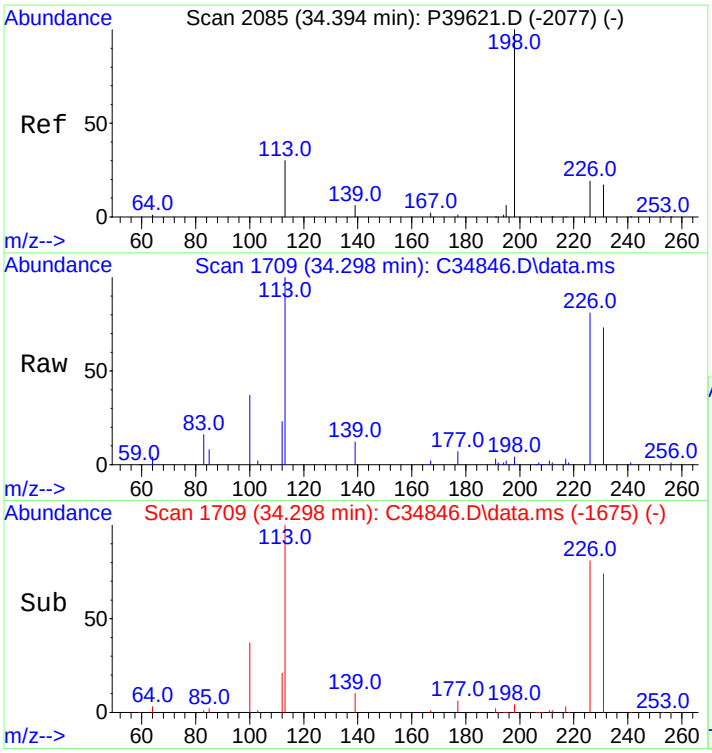


#34
4-Methyldibenzothiophene(4MDT)
Concen: 35.43 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:198 Resp: 5054

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

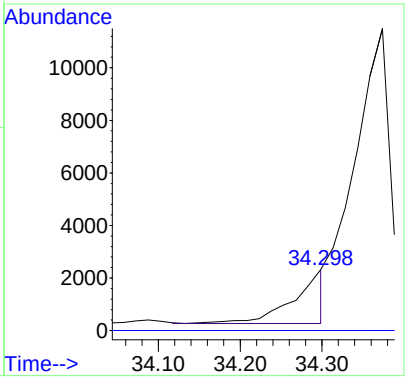


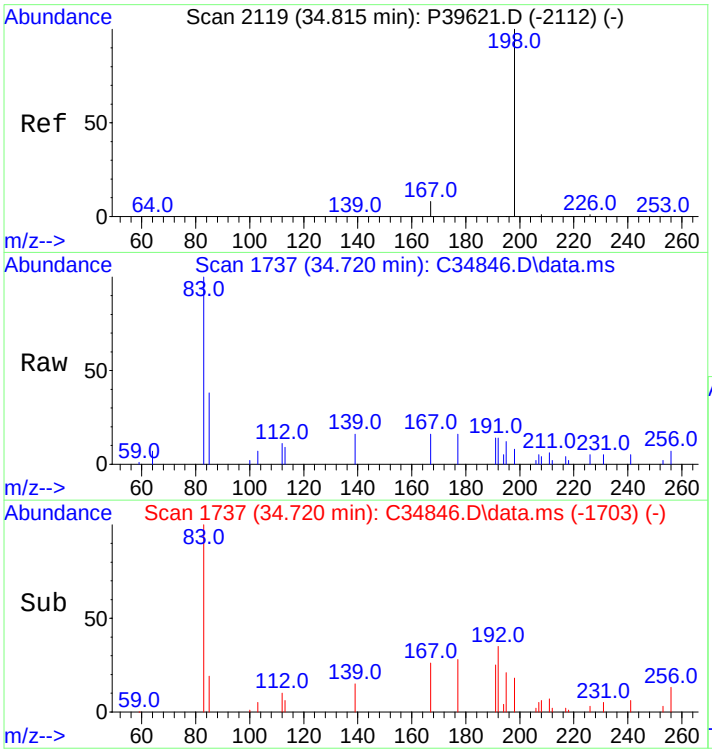


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 38.62 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:198 Resp: 5509

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

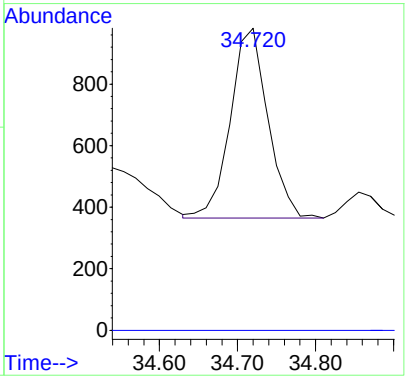


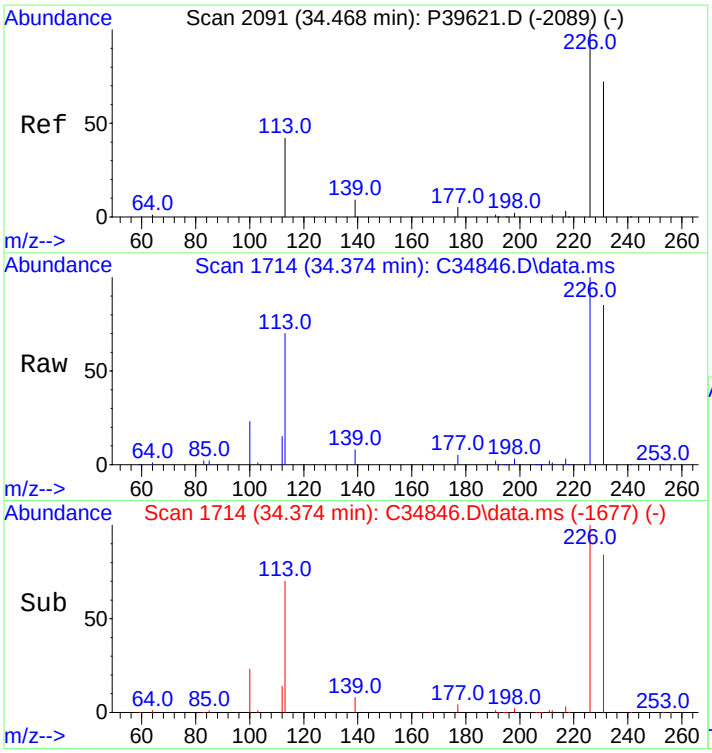


#36
1-Methyldibenzothiophene(1MDT)
Concen: 14.40 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:198 Resp: 2054

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

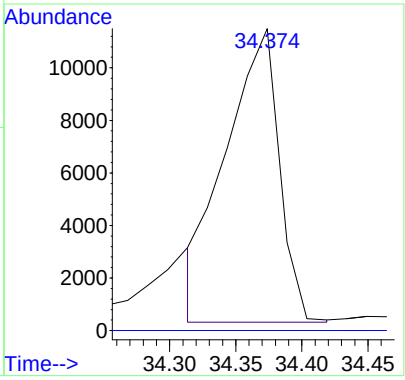


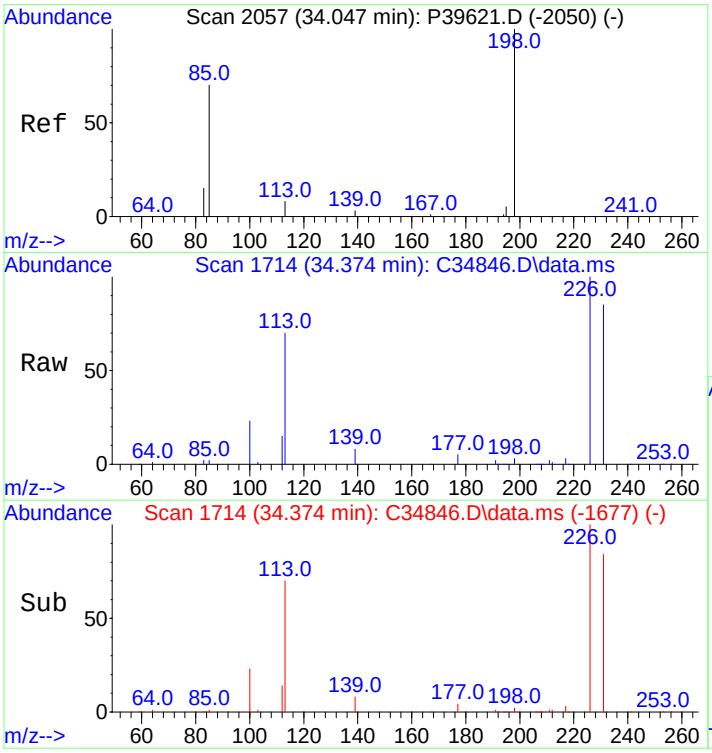


#37
OTP
Concen: 220.52 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:198 Resp: 31455

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

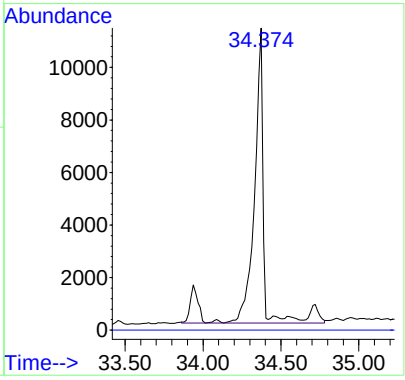


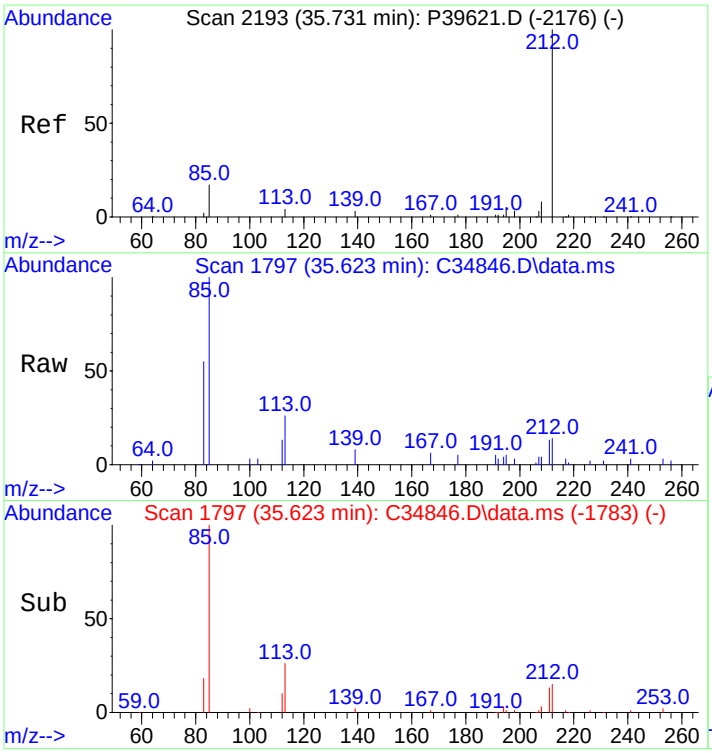


#38
C1-Dibenzothiophenes
Concen: 353.96 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:198 Resp: 50490

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

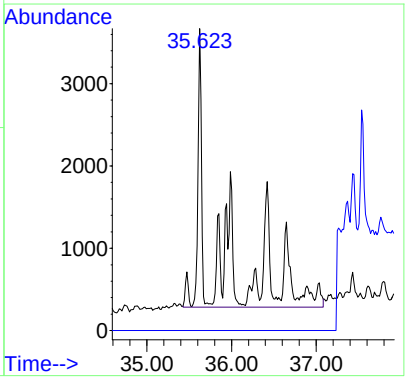


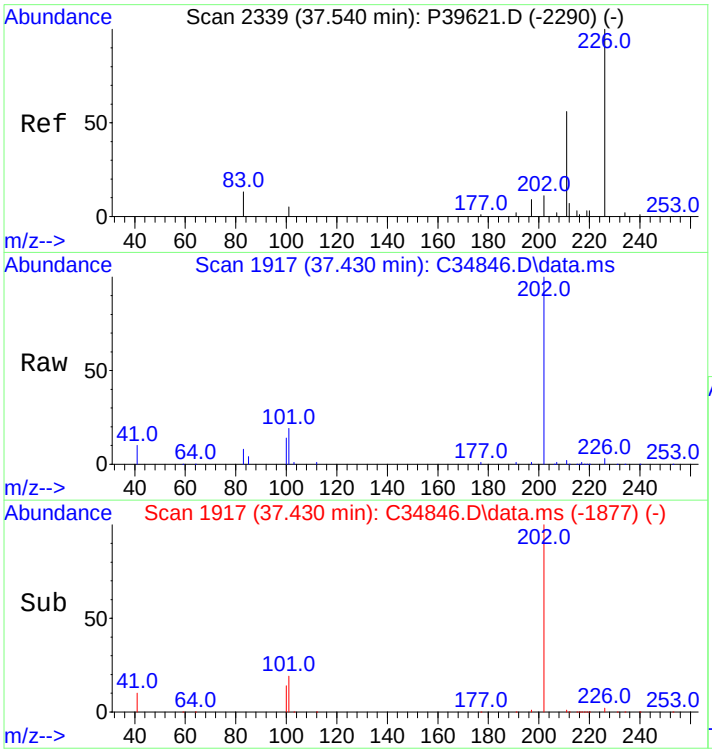


#39
C2-Dibenzothiophenes
Concen: 271.07 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:212 Resp: 38666

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

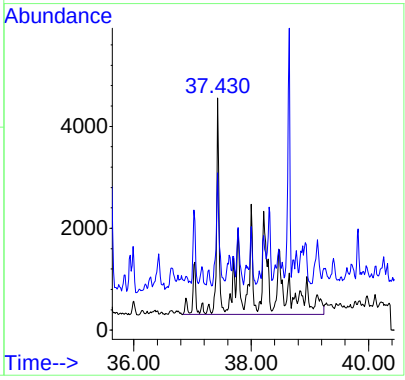


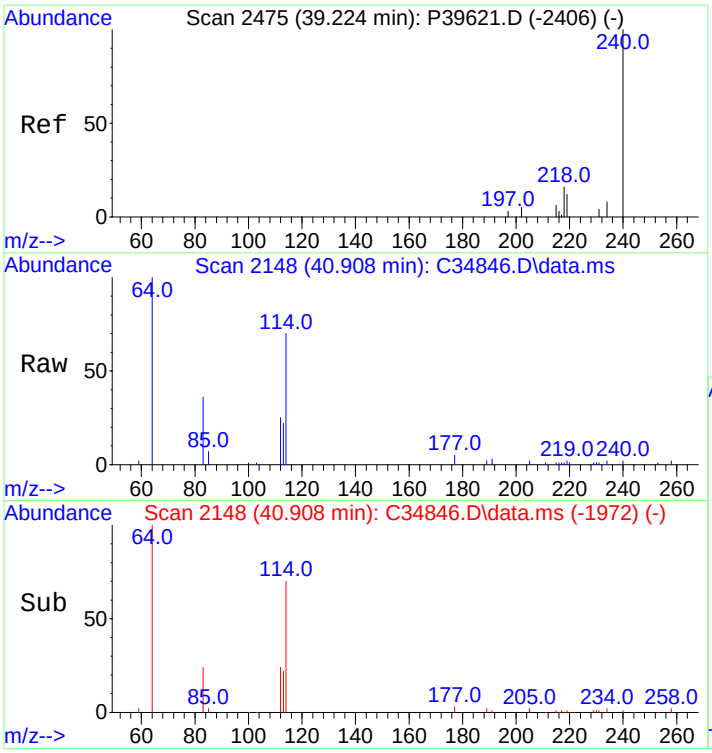


#40
C3-Dibenzothiophenes
Concen: 451.97 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:226 Resp: 64470

Ion	Ratio	Lower	Upper
226	100		
211	1.3	45.0	67.6#

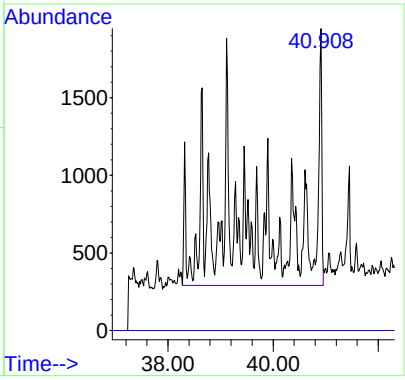


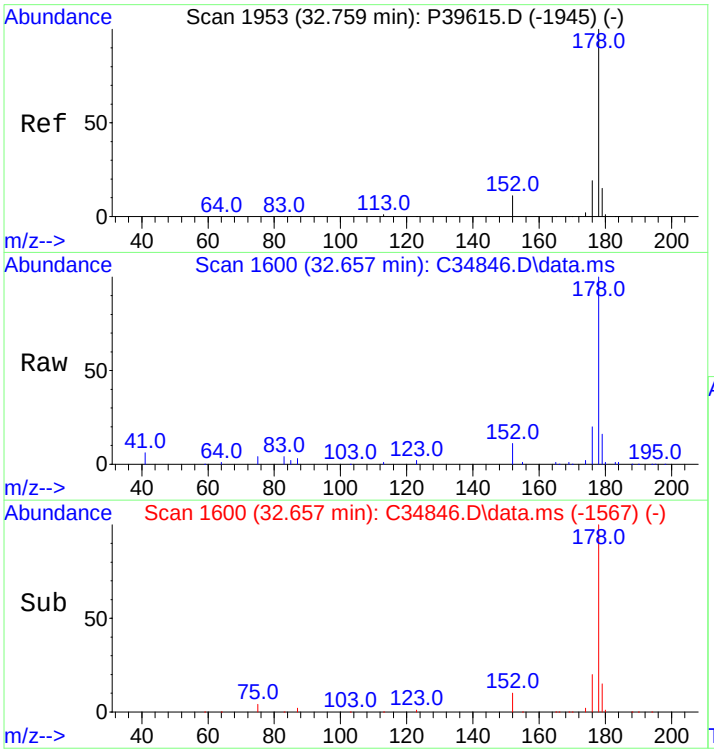


#41
C4-Dibenzothiophenes
Concen: 391.12 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 1.792 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:240 Resp: 55790

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

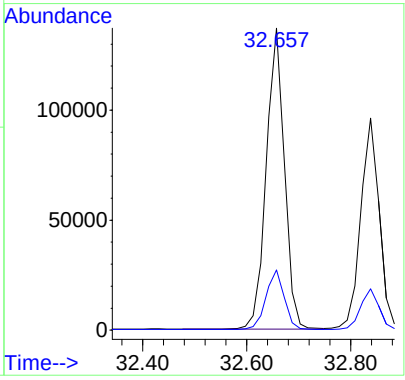


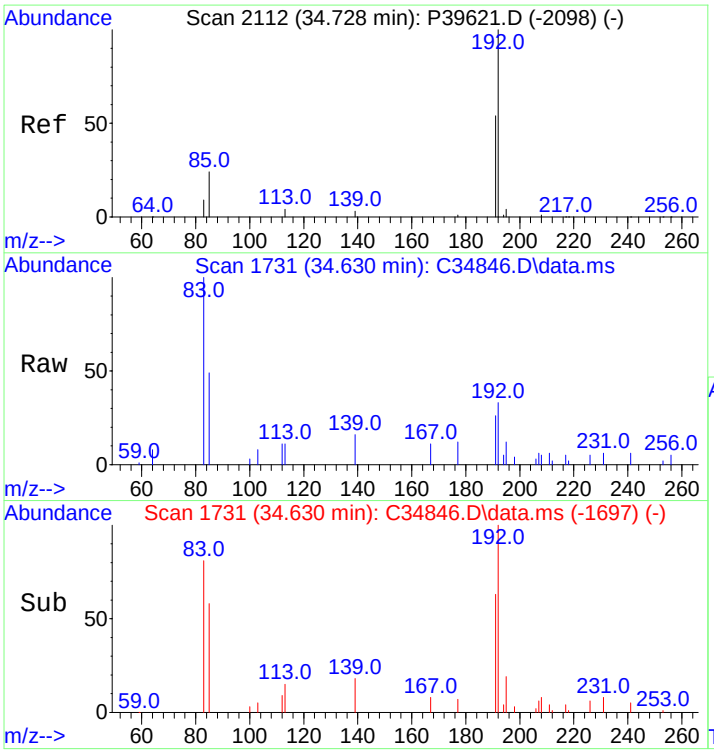


#43
Phenanthrene
Concen: 2648.36 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:178 Resp: 331901

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

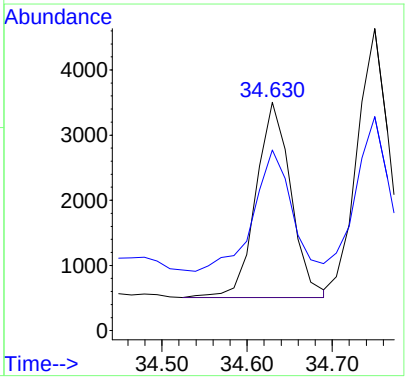


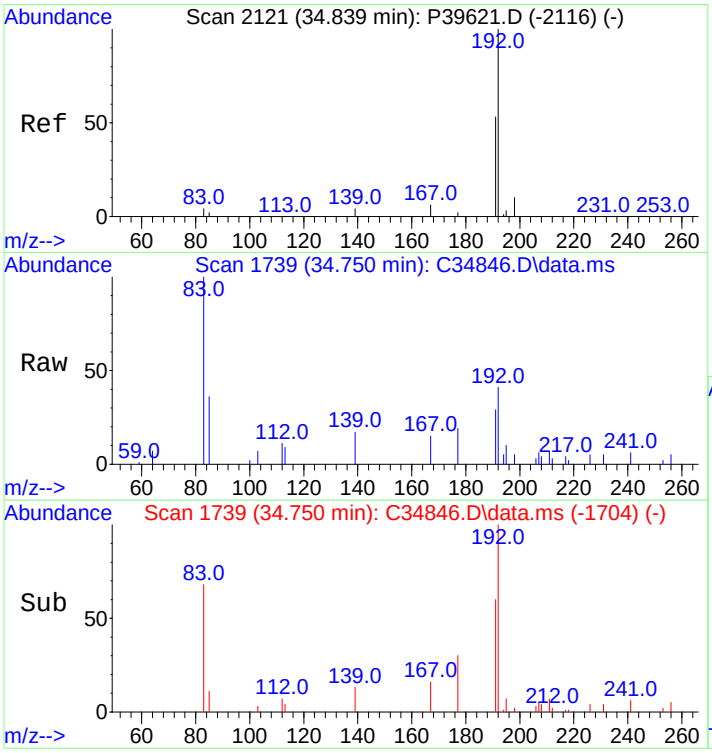


#44
3-Methylphenanthrene(3MP)
Concen: 68.48 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 8582

Ion	Ratio	Lower	Upper
192	100		
191	67.1	46.9	70.3

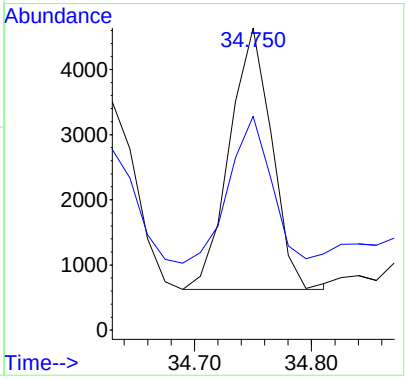


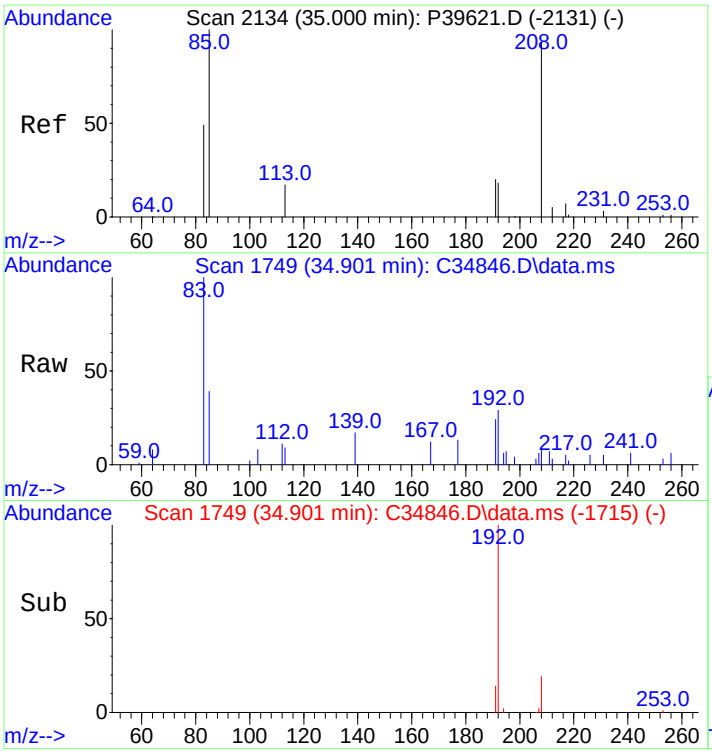


#45
2/4-Methylphenanthrene(2MP)
Concen: 80.48 ng/mL
RT: 34.750 min Scan# 1739
Delta R.T. 0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 10086

Ion	Ratio	Lower	Upper
192	100		
191	55.8	46.1	69.1

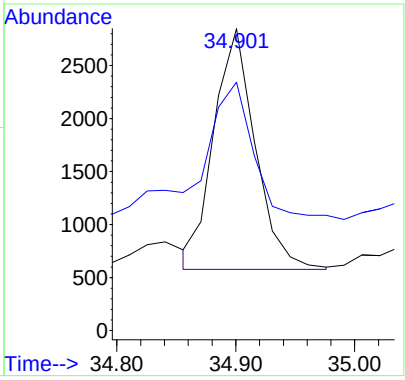


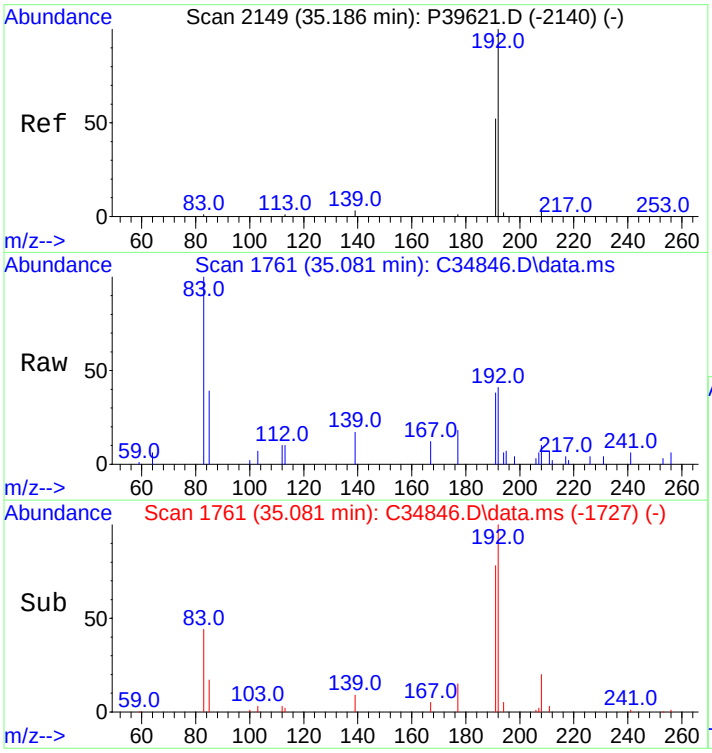


#46
2-Methylanthracene(2MA)
Concen: 43.93 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 5506

Ion	Ratio	Lower	Upper
192	100		
191	73.5	93.4	140.0#

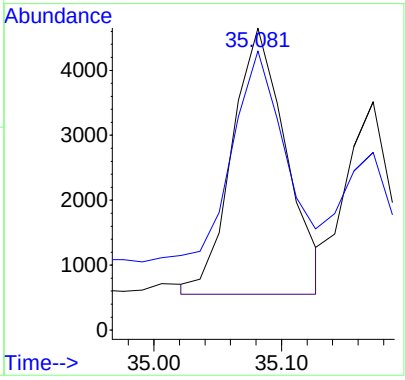


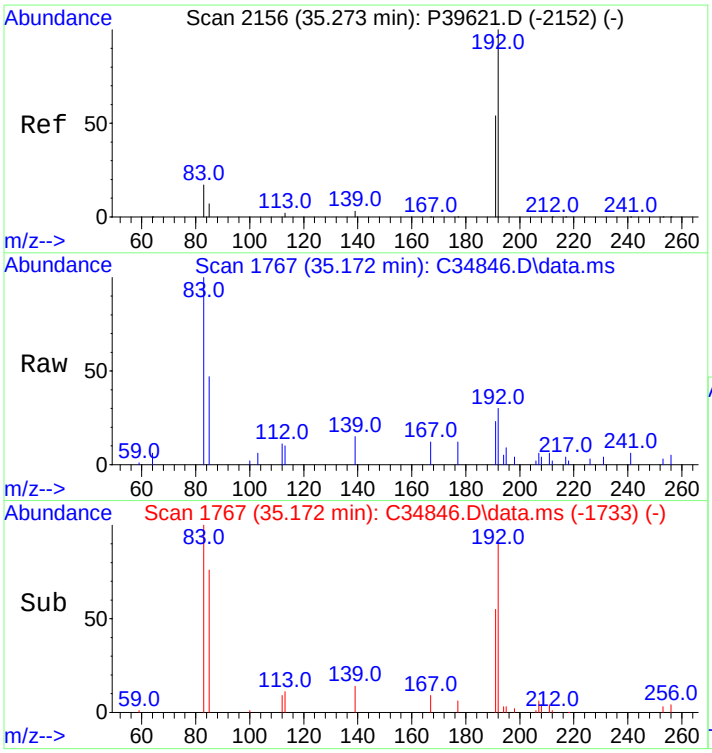


#47
9-Methylphenanthrene(9MP)
Concen: 96.25 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 12062

Ion	Ratio	Lower	Upper
192	100		
191	33.6	45.9	68.9#

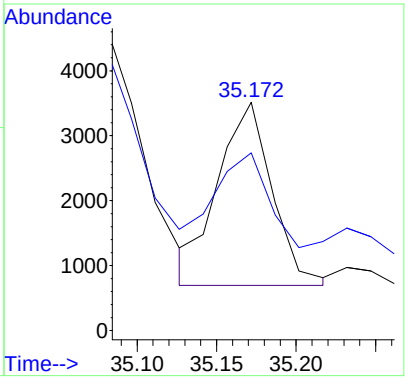


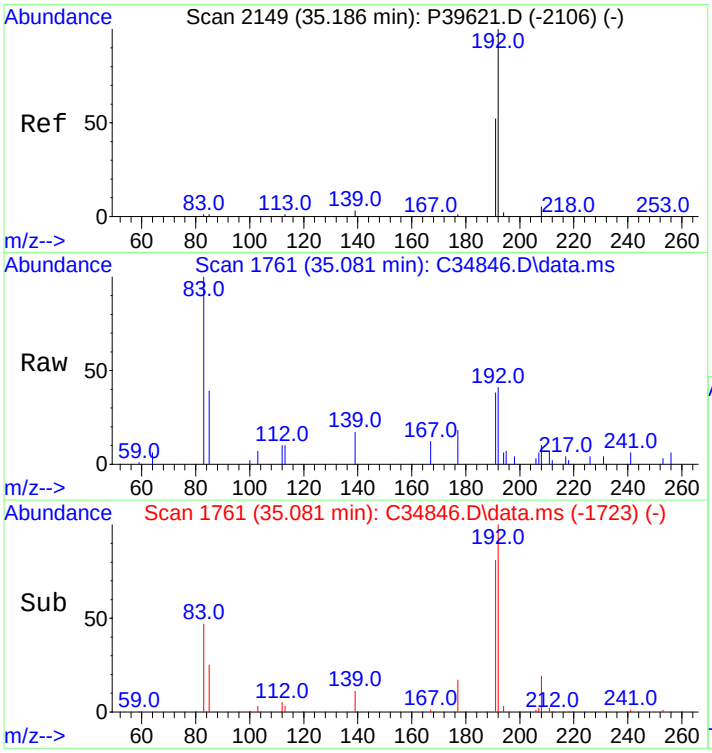


#48
1-Methylphenanthrene(1MP)
Concen: 52.96 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 6637

Ion	Ratio	Lower	Upper
192	100		
191	61.0	49.0	73.4

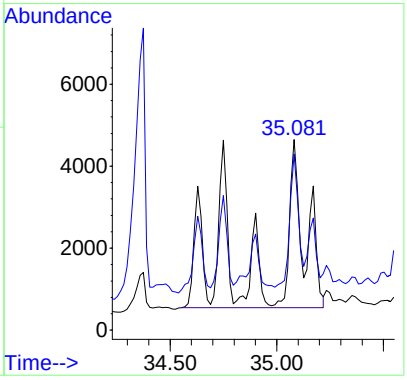


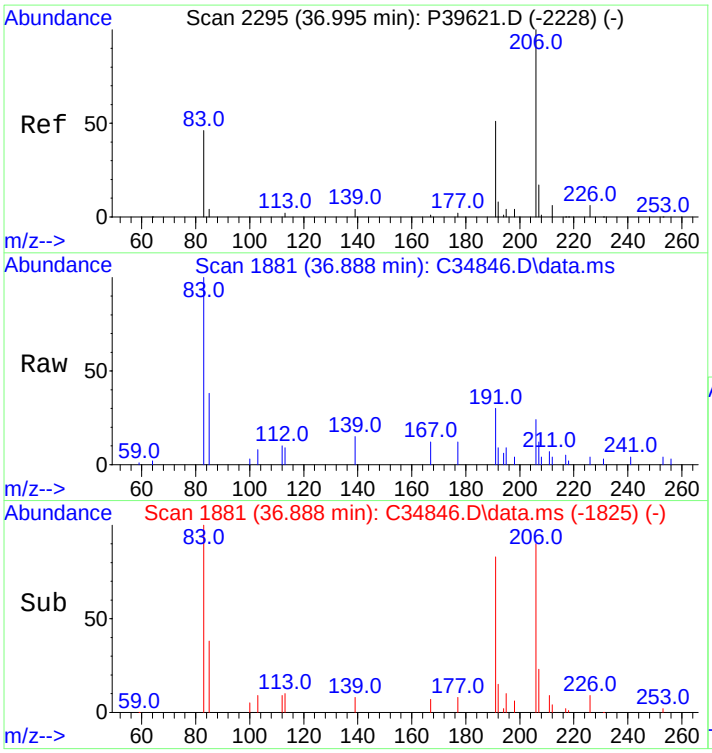


#49
C1-Phenanthrenes/Anthracenes
Concen: 359.31 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.068 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 45030

Ion	Ratio	Lower	Upper
192	100		
191	12.5	44.2	66.2#

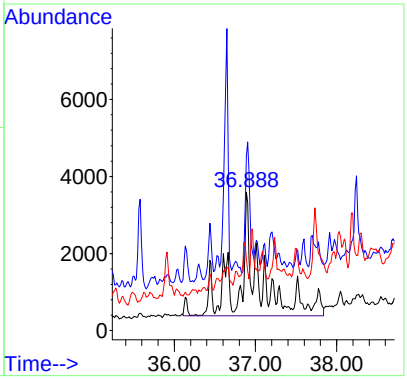


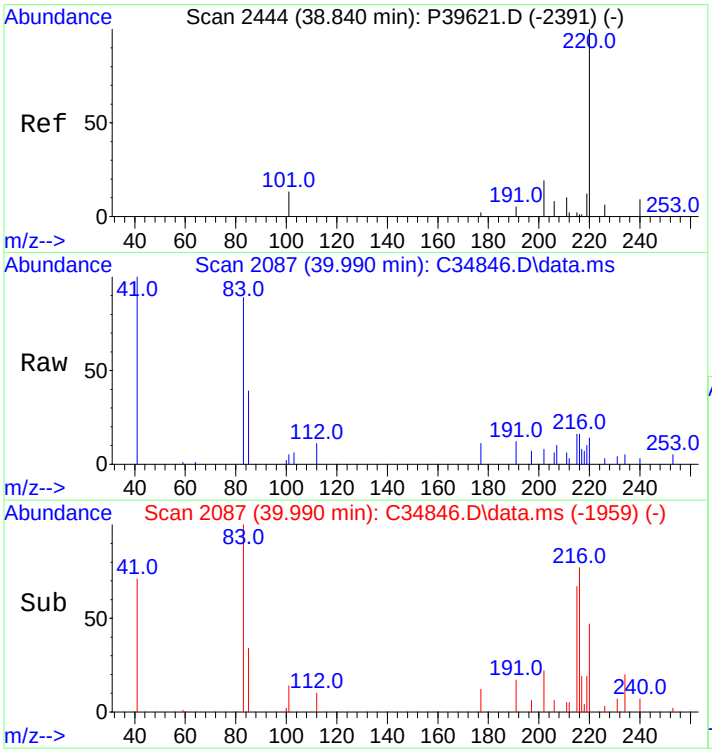


#50
C2-Phenanthrenes/Anthracenes
Concen: 438.89 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:206 Resp: 55003

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	0.0	15.1	22.7#

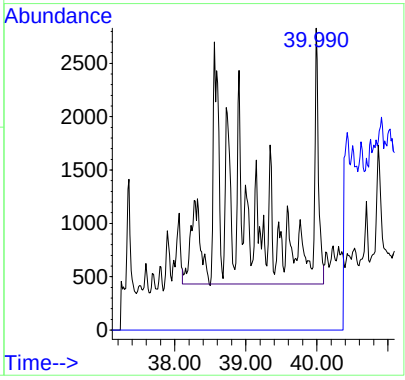


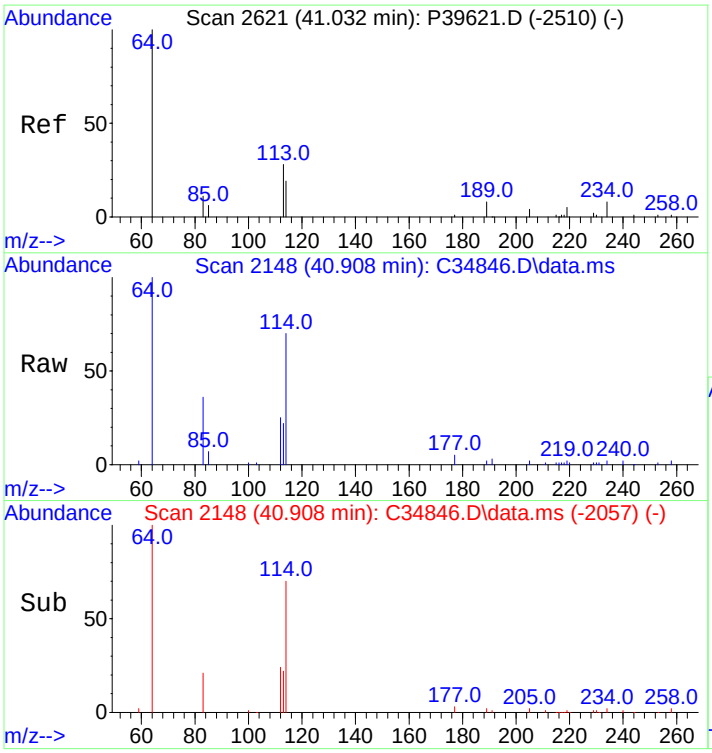


#52
C3-Phenanthrenes/Anthracenes
Concen: 531.62 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:220 Resp: 66624

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

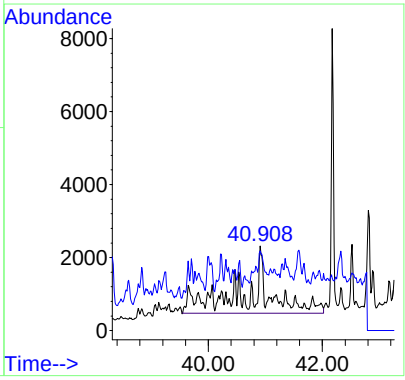


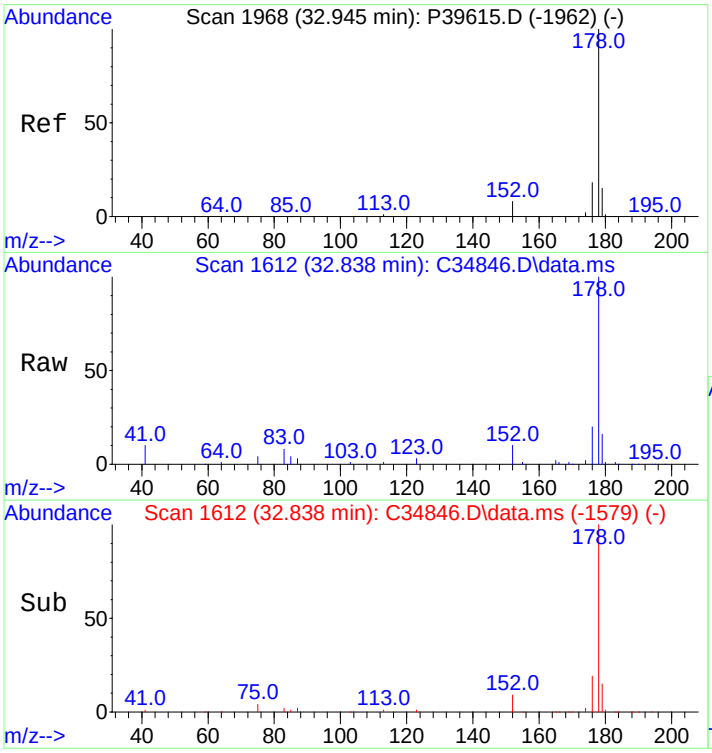


#53
C4-Phenanthrenes/Anthracenes
Concen: 459.92 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:234 Resp: 57639

Ion	Ratio	Lower	Upper
234	100		
219	1.6	46.9	70.3#

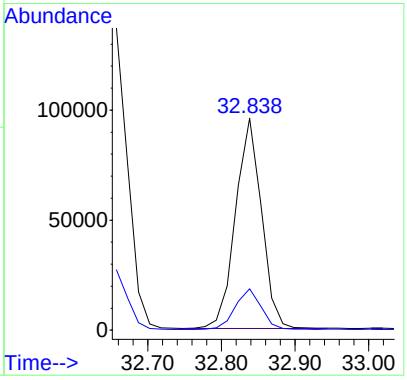


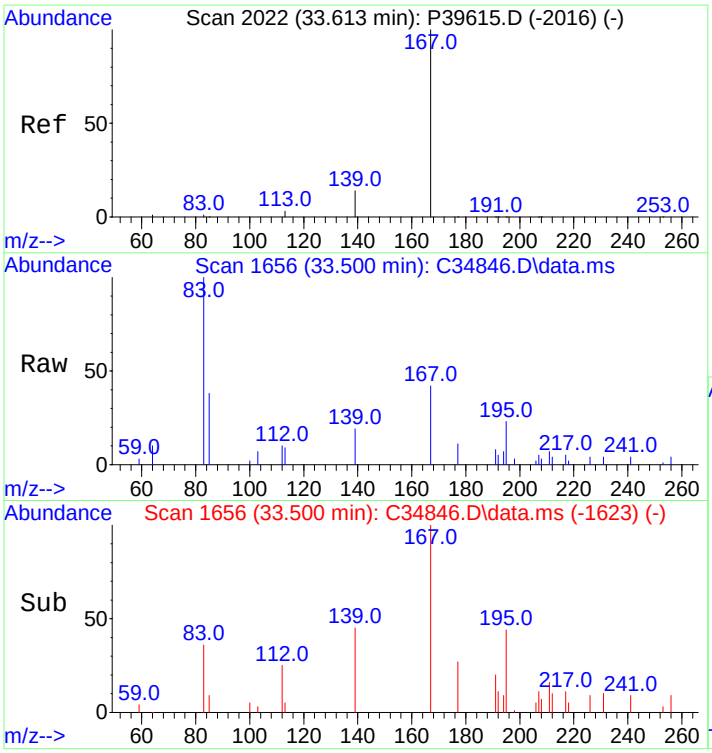


#55
Anthracene
Concen: 1924.10 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:178 Resp: 235534

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

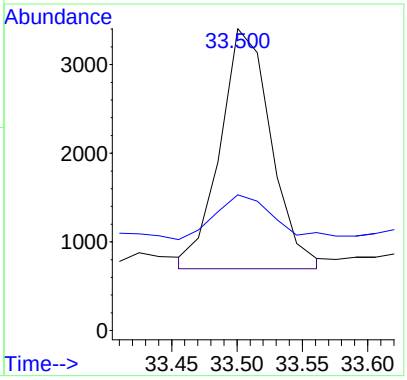


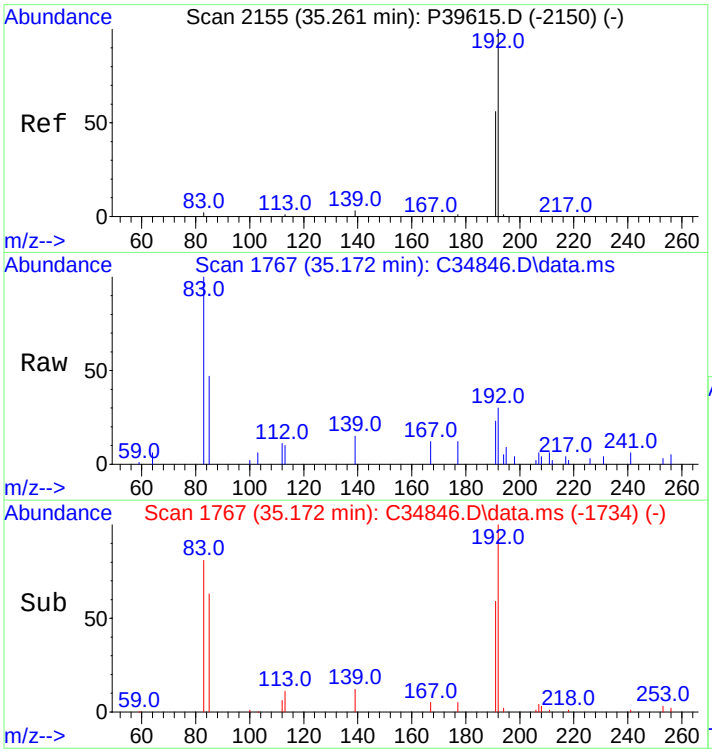


#56
Carbazole
Concen: 59.51 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:167 Resp: 7358

Ion	Ratio	Lower	Upper
167	100		
139	21.6	11.8	17.8#

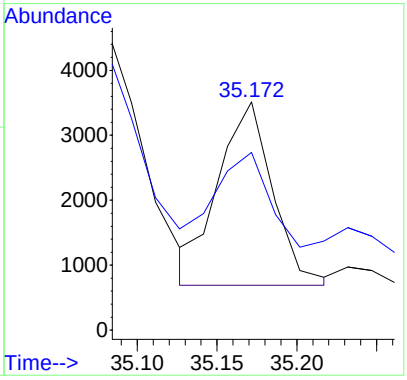


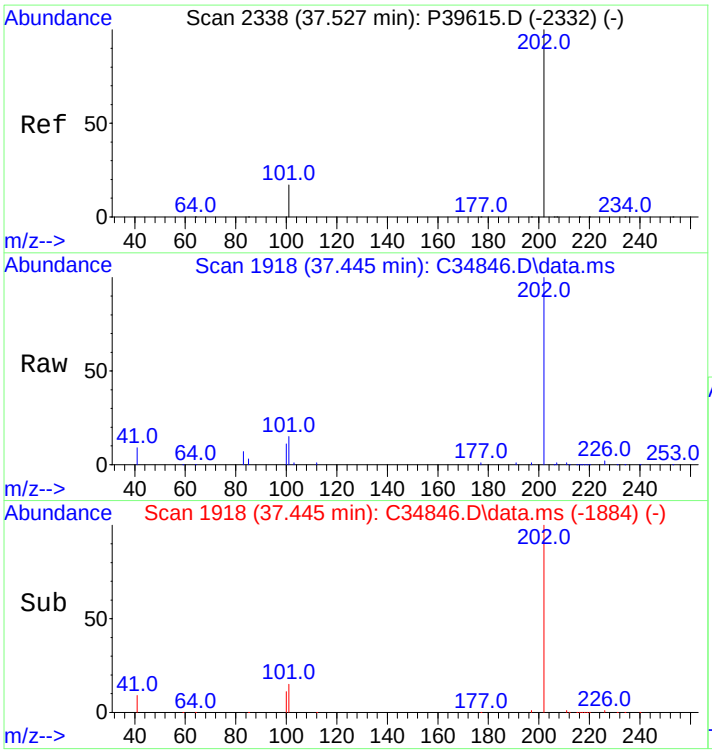


#57
1-Methylphenanthrene
Concen: 83.83 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:192 Resp: 6658

Ion	Ratio	Lower	Upper
192	100		
191	46.2	45.9	68.9

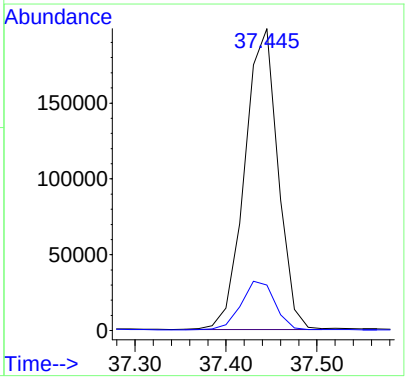


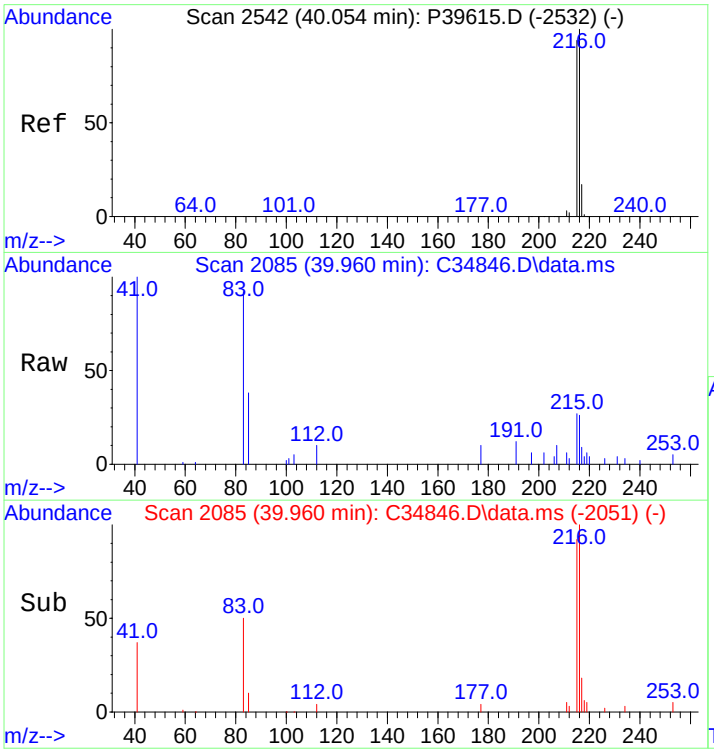


#58
Fluoranthene
Concen: 4063.14 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:202 Resp: 505726

Ion	Ratio	Lower	Upper
202	100		
101	17.6	12.9	19.3

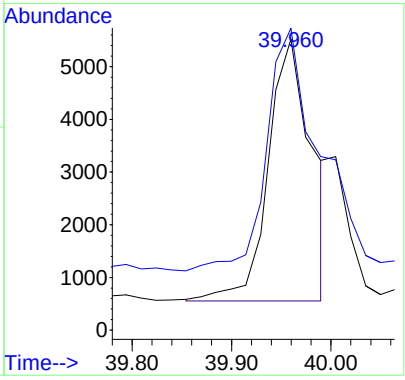


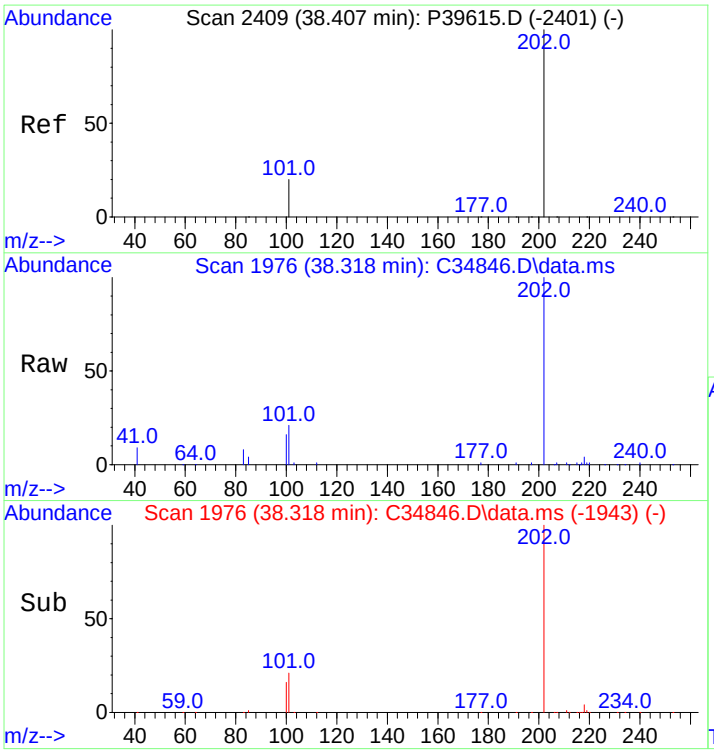


#59
Benzo(b)fluorene
Concen: 209.90 ng/mL m
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:216 Resp: 15157

Ion	Ratio	Lower	Upper
216	100		
215	113.1	76.3	114.5

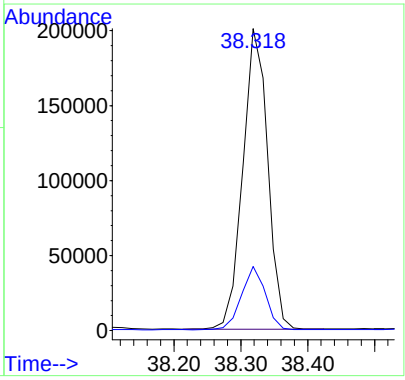


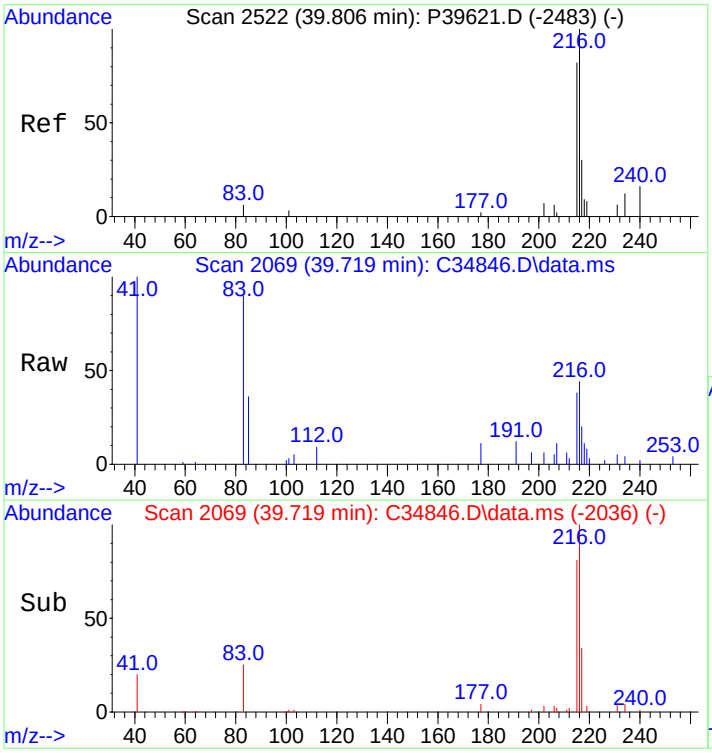


#60
Pyrene
Concen: 4099.52 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:202 Resp: 518687

Ion	Ratio	Lower	Upper
202	100		
101	20.3	15.0	22.4

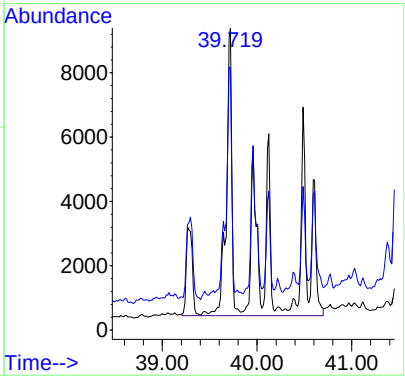


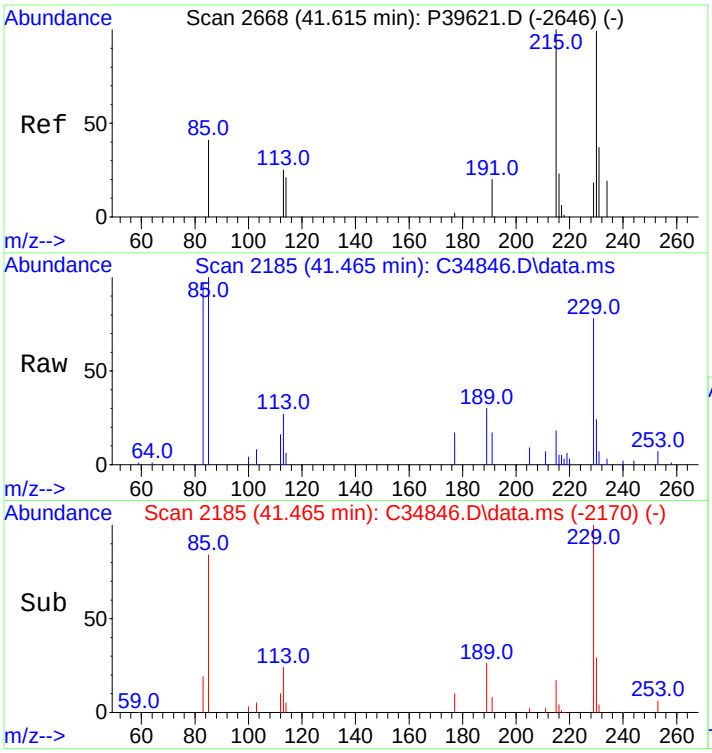


#61
C1-Fluoranthenes/Pyrenes
Concen: 946.48 ng/mL m
RT: 39.719 min Scan# 2069
Delta R.T. 0.103 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:216 Resp: 119752

Ion	Ratio	Lower	Upper
216	100		
215	23.3	71.8	107.6#

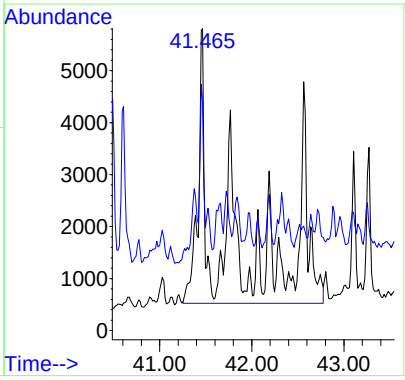


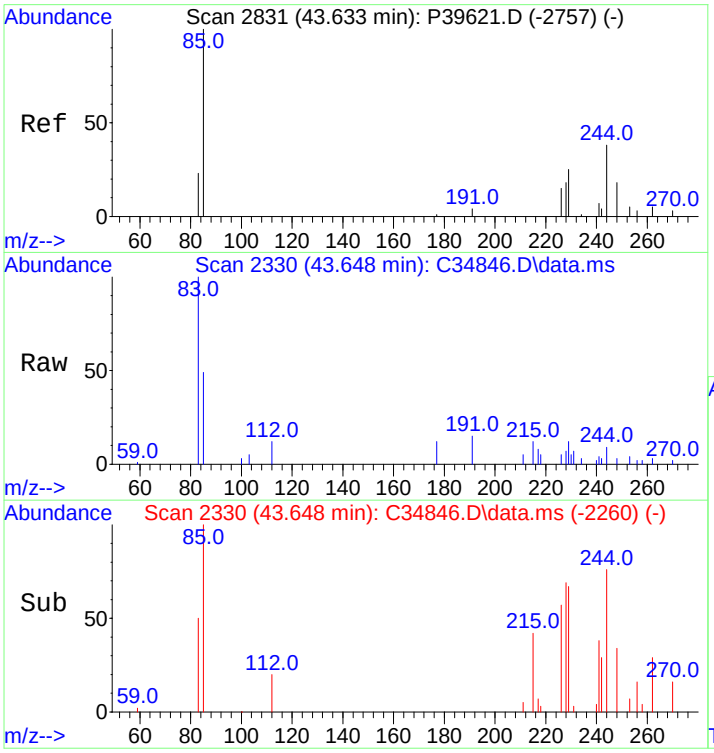


#62
C2-Fluoranthenes/Pyrenes
Concen: 748.34 ng/mL m
RT: 41.465 min Scan# 2185
Delta R.T. 0.066 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:230 Resp: 94683

Ion	Ratio	Lower	Upper
230	100		
215	4.2	99.0	148.4#

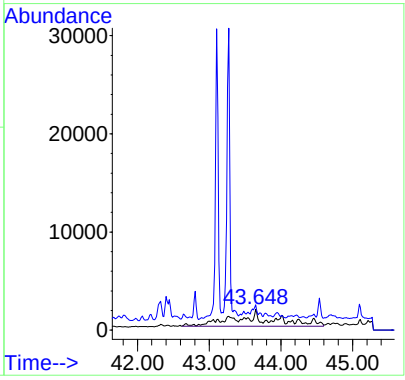


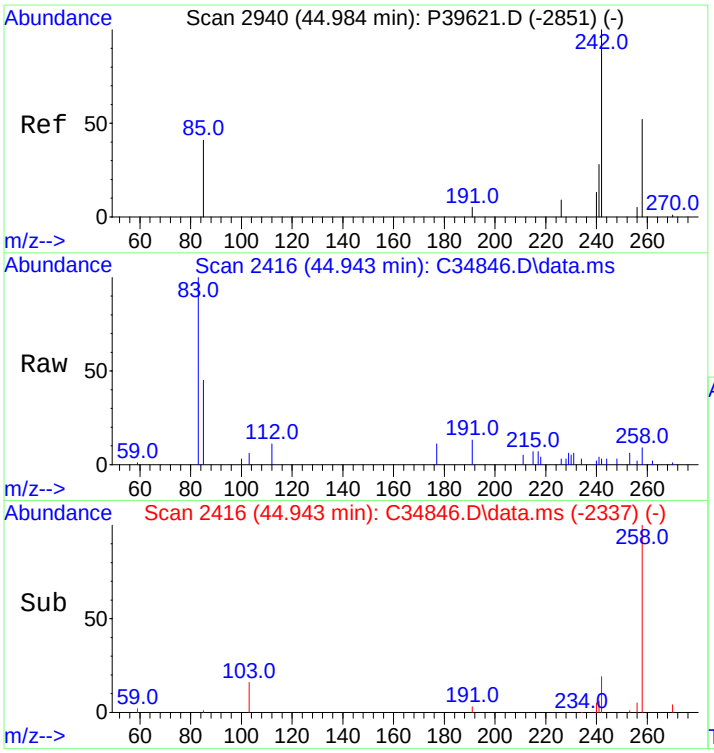


#63
C3-Fluoranthenes/Pyrenes
Concen: 460.52 ng/mL m
RT: 43.648 min Scan# 2330
Delta R.T. 0.241 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:244 Resp: 58267

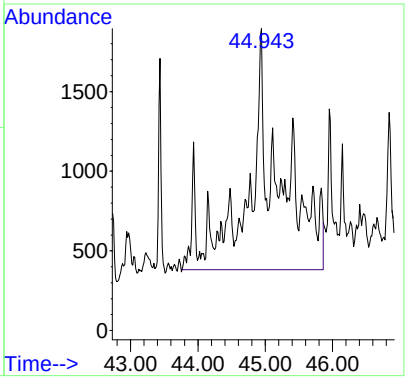
Ion	Ratio	Lower	Upper
244	100		
229	2.6	73.3	109.9#

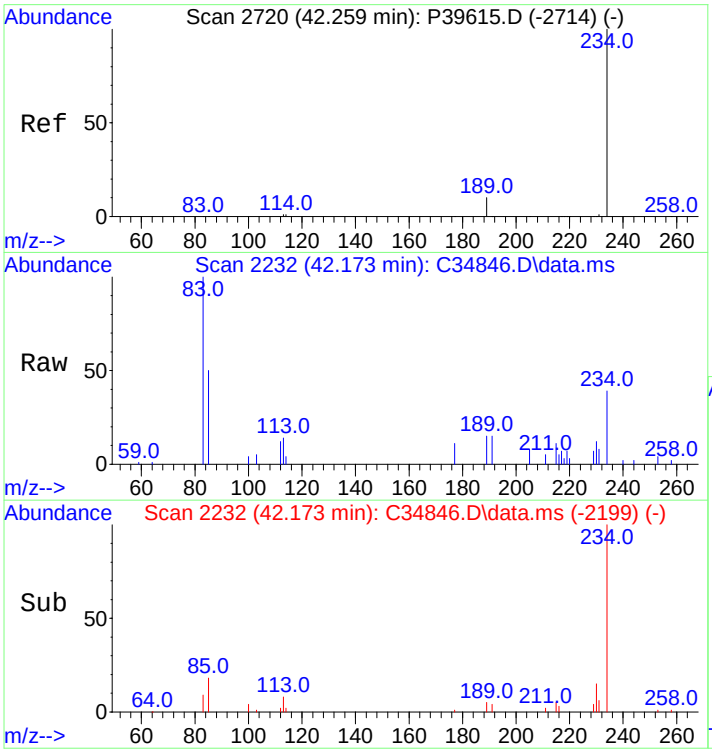




#64
C4-Fluoranthenes/Pyrenes
Concen: 386.08 ng/mL m
RT: 44.943 min Scan# 2416
Delta R.T. 0.187 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:258 Resp: 48848

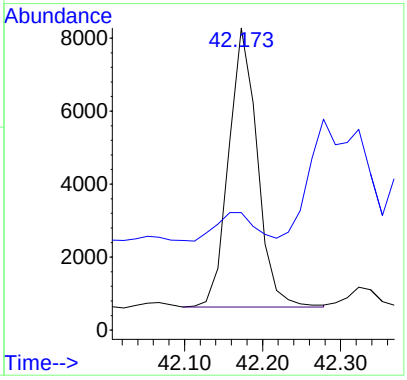


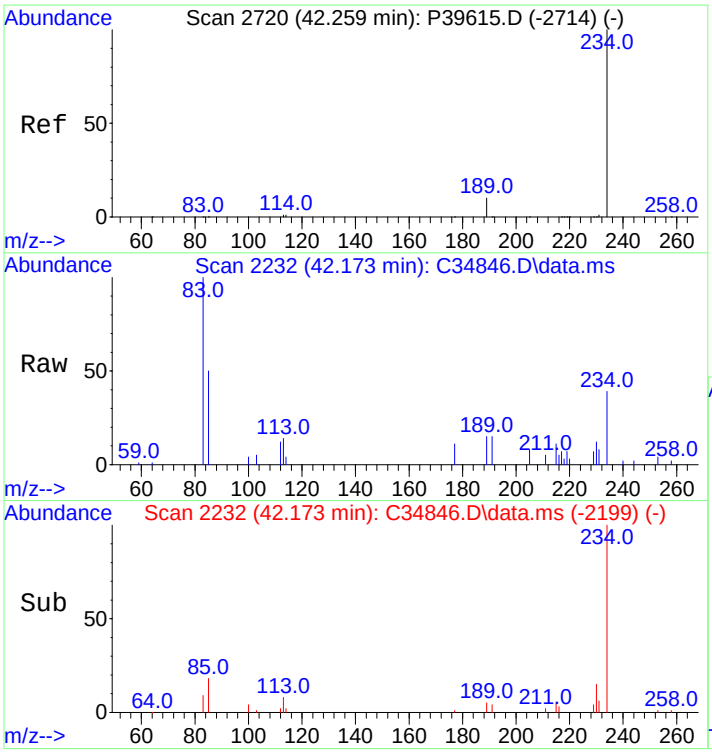


#66
Naphthobenzothiophene
Concen: 143.31 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:234 Resp: 19521

Ion	Ratio	Lower	Upper
234	100		
189	13.4	20.5	30.7#

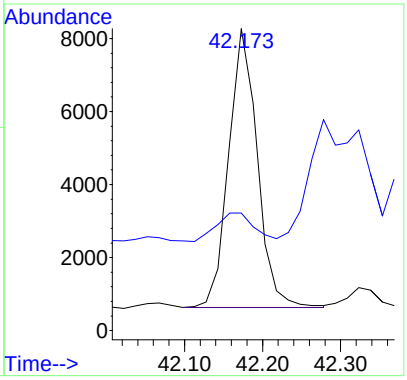


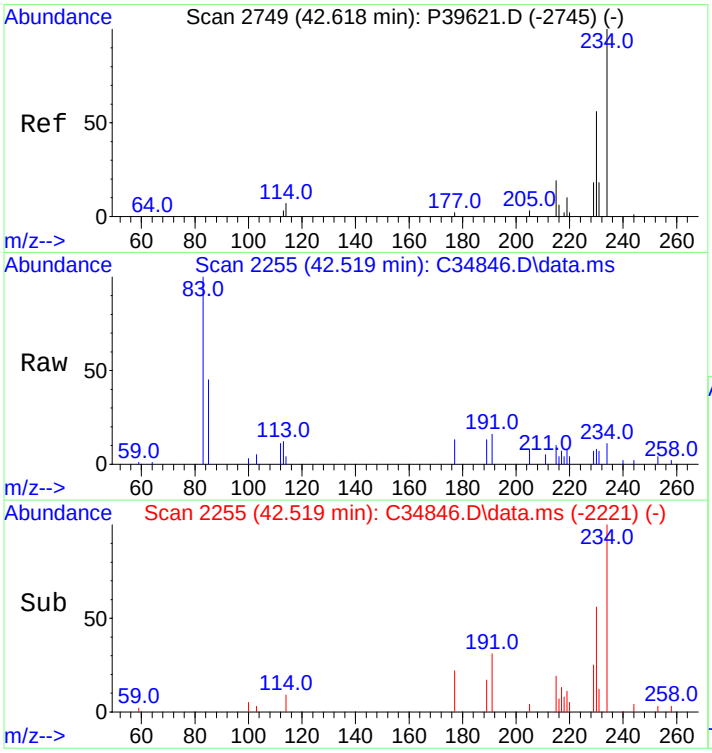


#67
Naphthobenzothiophene-2,1-D
Concen: 143.31 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:234 Resp: 19521

Ion	Ratio	Lower	Upper
234	100		
189	13.4	20.5	30.7#

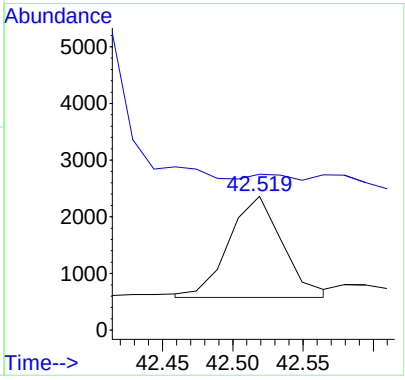


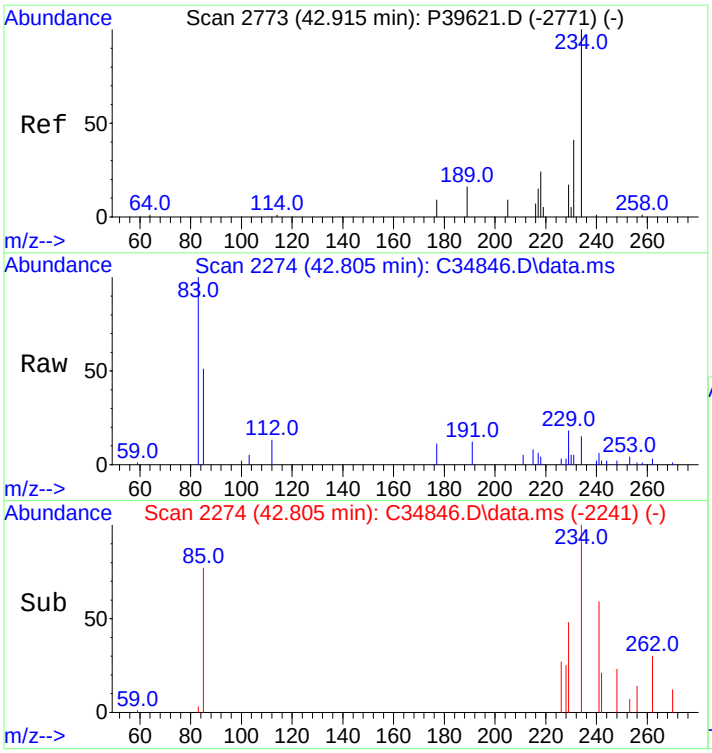


#68
Naphthobenzothiophene-1,2-D
Concen: 34.57 ng/mL m
RT: 42.519 min Scan# 2255
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:234 Resp: 4709

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

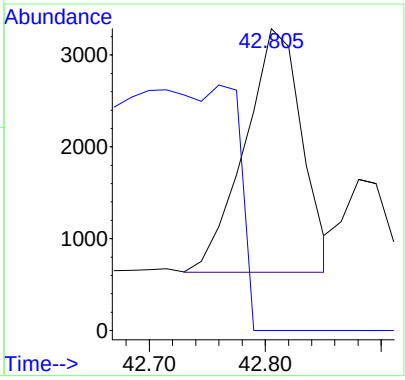


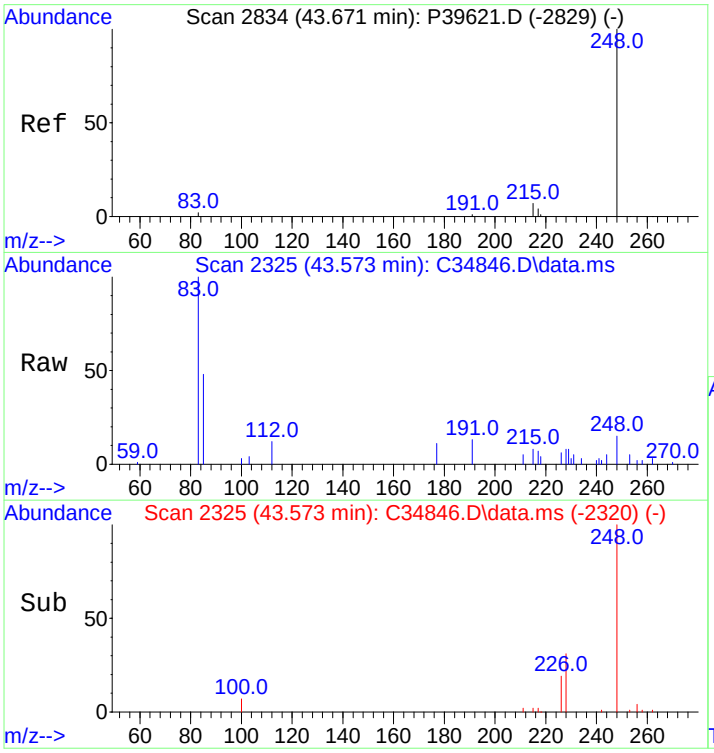


#69
Naphthobenzothiophene-2,3-D
Concen: 66.96 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:234 Resp: 9121

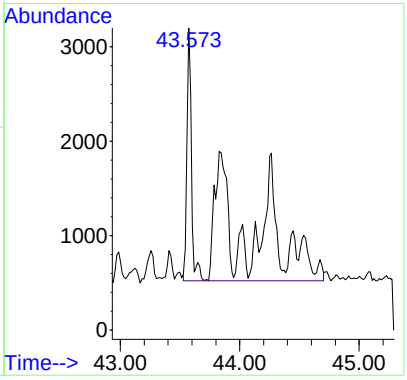
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

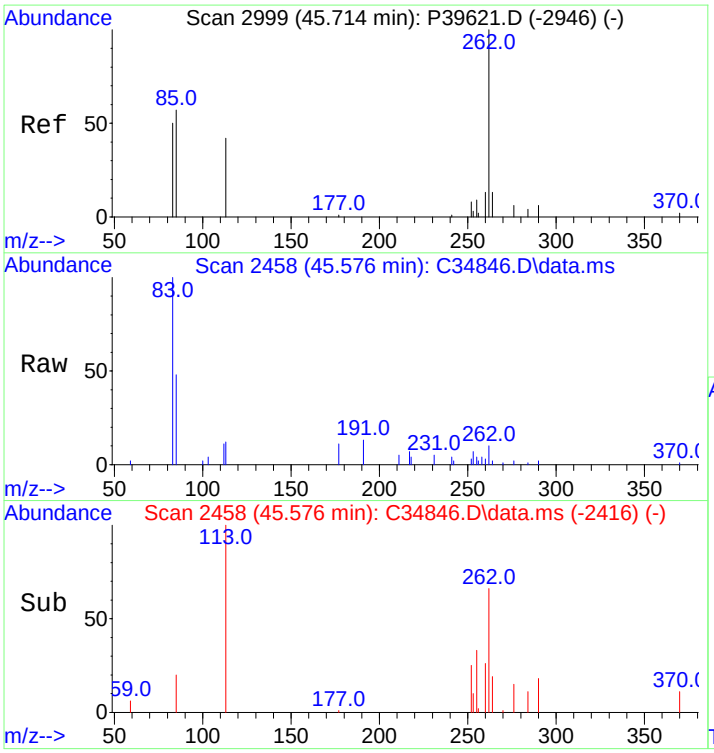




#70
C1-Naphthobenzothiophenes
Concen: 246.91 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

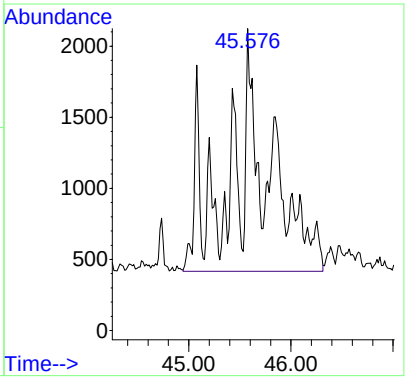
Tgt Ion:248 Resp: 33633

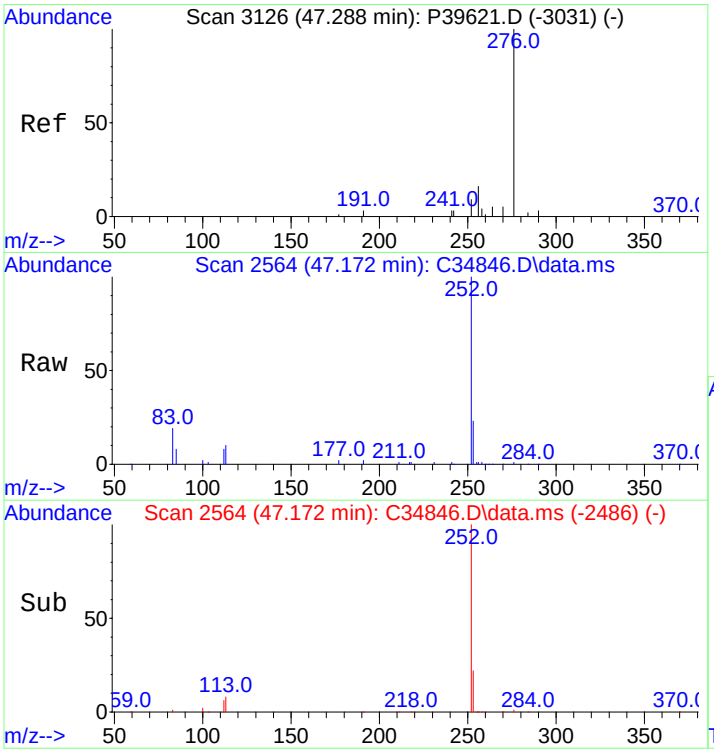




#71
C2-Naphthobenzothiophenes
Concen: 312.93 ng/ml m
RT: 45.576 min Scan# 2458
Delta R.T. 0.145 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

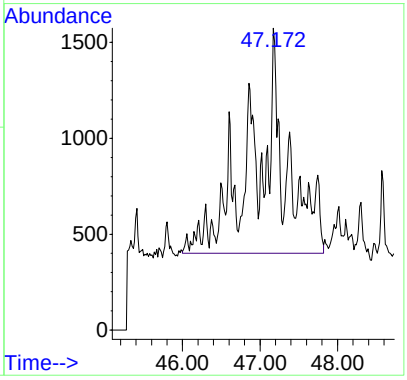
Tgt Ion:262 Resp: 42626

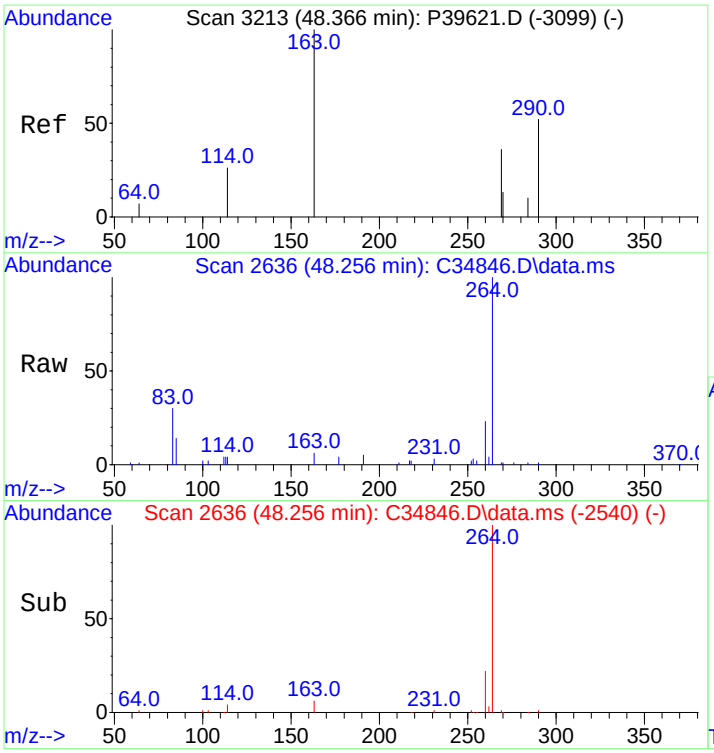




#72
C3-Naphthobenzothiophenes
Concen: 248.90 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

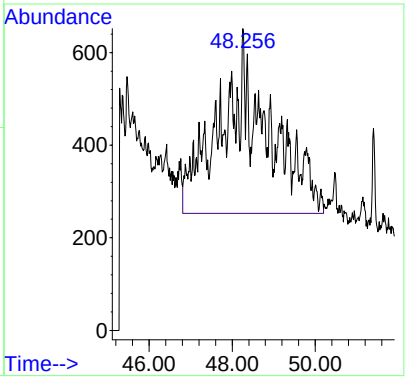
Tgt Ion:276 Resp: 33904

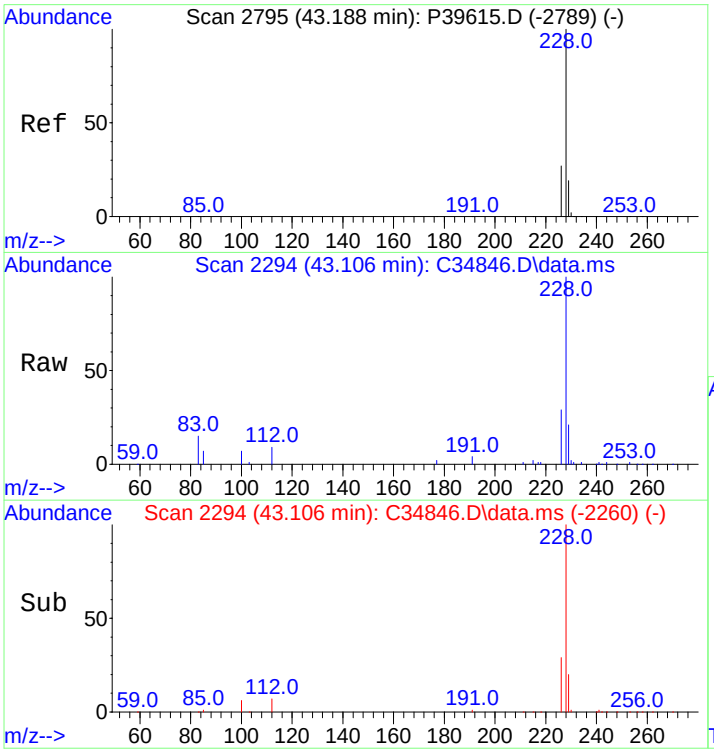




#73
C4-Naphthobenzothiophenes
Concen: 222.10 ng/mL m
RT: 48.256 min Scan# 2636
Delta R.T. 0.157 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:290 Resp: 30253

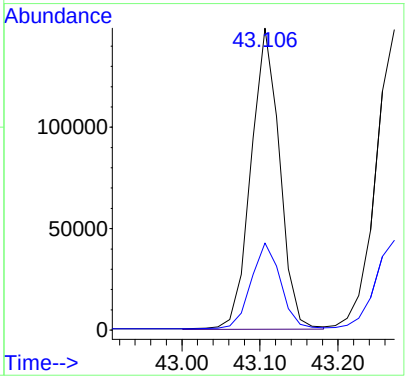


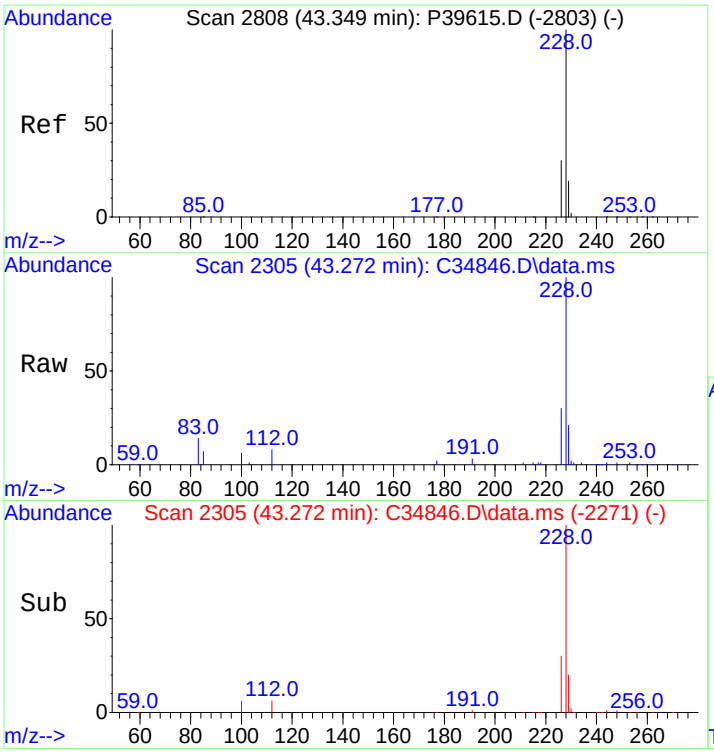


#75
Benz[a]anthracene
Concen: 2598.21 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:228 Resp: 378704

Ion	Ratio	Lower	Upper
228	100		
226	29.2	21.4	32.0

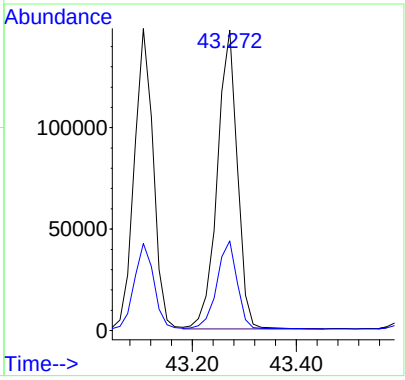


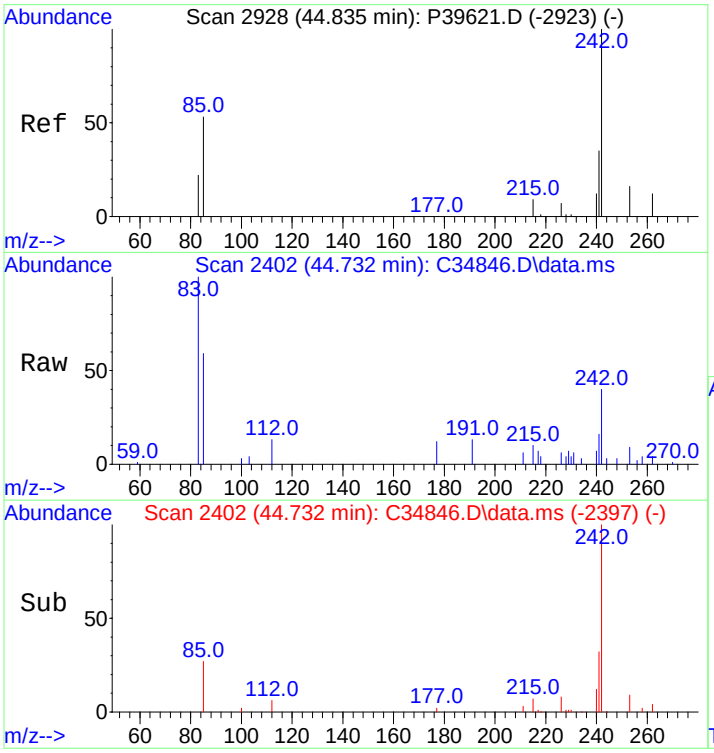


#77
Chrysene/Triphenylene
Concen: 2682.78 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:228 Resp: 394777

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

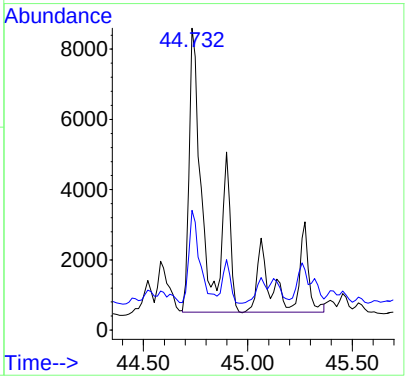


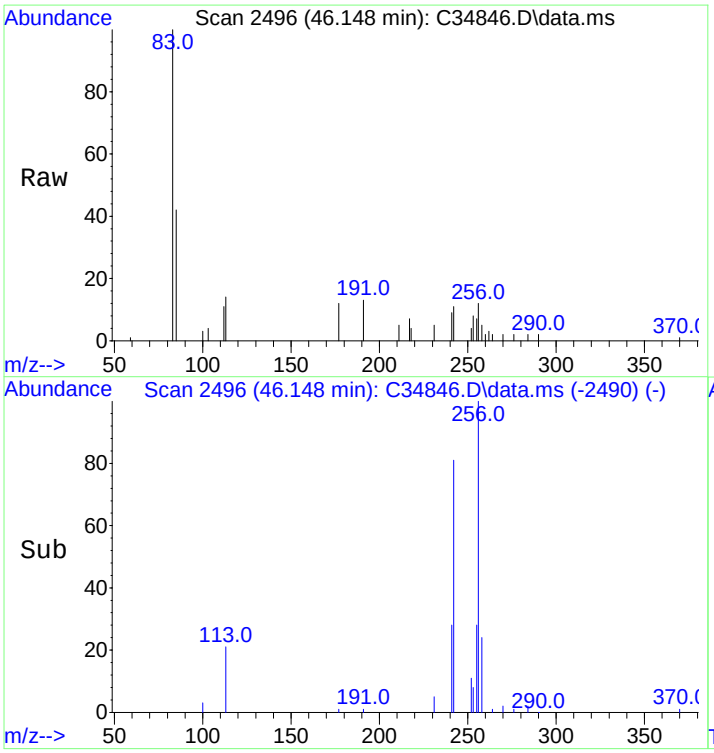


#78
C1-Chrysenes
Concen: 391.90 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:242 Resp: 57669

Ion	Ratio	Lower	Upper
242	100		
241	13.0	31.4	47.2#

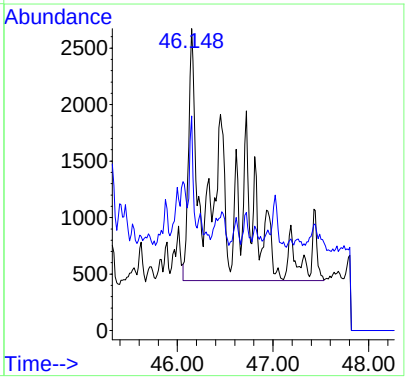


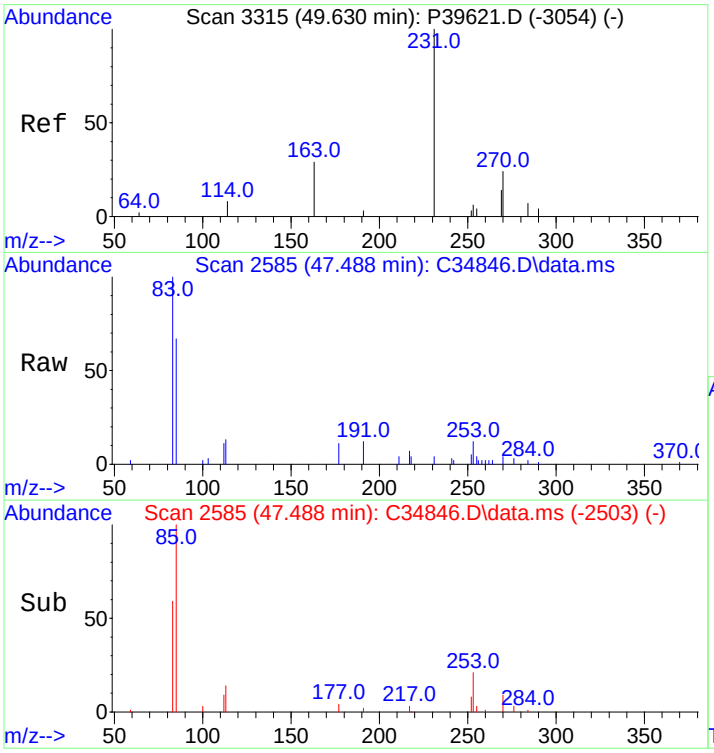


#79
C2-Chrysenes
Concen: 311.26 ng/mL m
RT: 46.148 min Scan# 2496
Delta R.T. -0.641 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:256 Resp: 45802

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

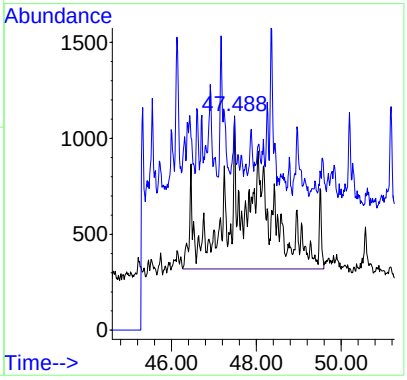


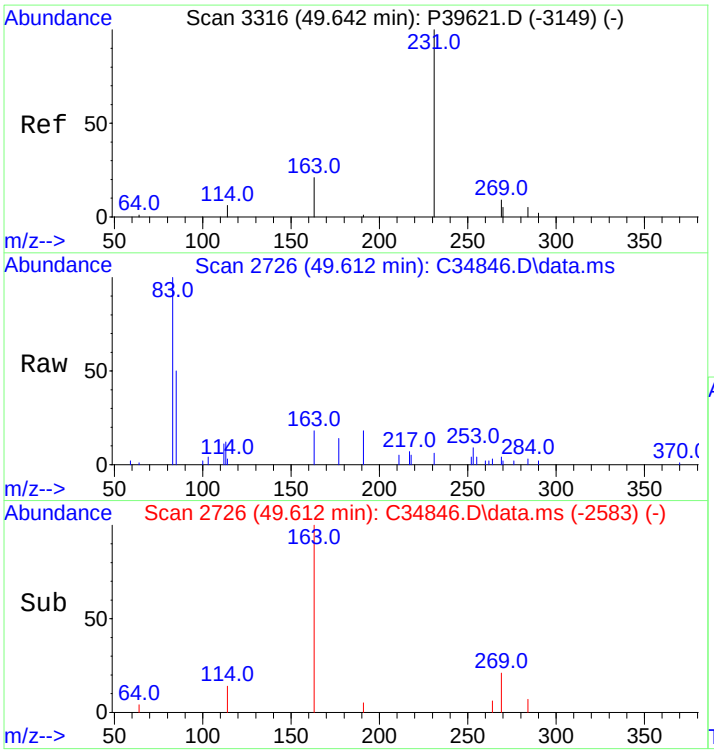


#80
C3-Chrysenes
Concen: 289.07 ng/mL m
RT: 47.488 min Scan# 2585
Delta R.T. -2.007 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:270 Resp: 42537

Ion	Ratio	Lower	Upper
270	100		
255	0.0	33.8	50.8#

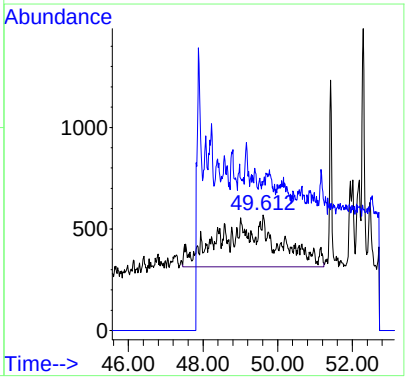


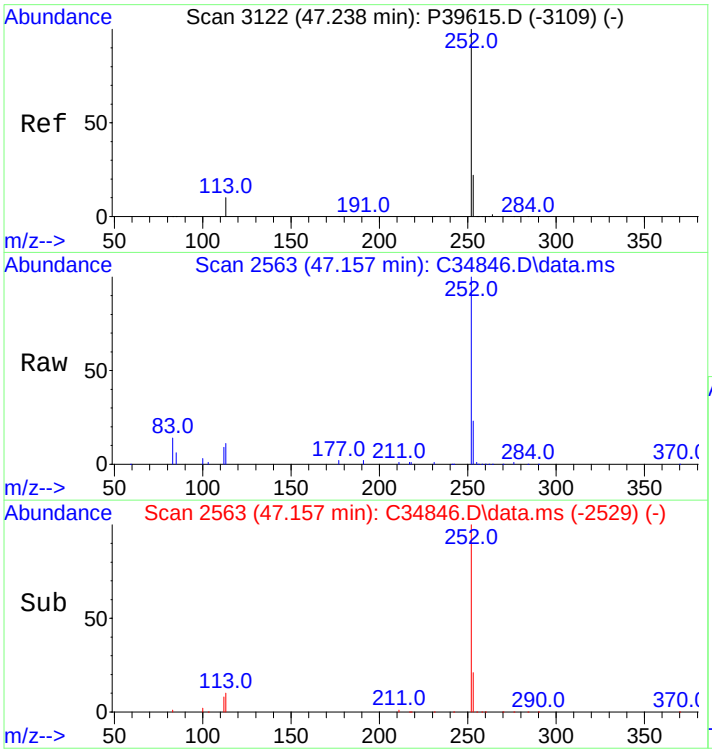


#81
C4-Chrysenes
Concen: 171.07 ng/mL m
RT: 49.612 min Scan# 2726
Delta R.T. 0.011 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:284 Resp: 25173

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

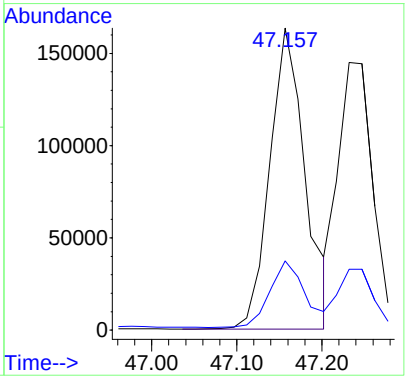


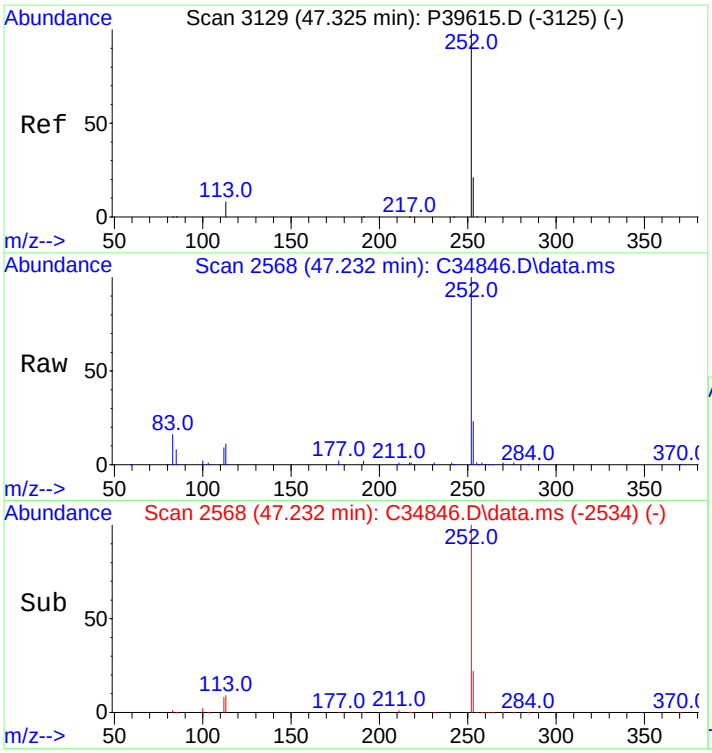


#82
Benzo[b]fluoranthene
Concen: 2951.37 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 472681

Ion	Ratio	Lower	Upper
252	100		
253	21.9	19.0	28.4

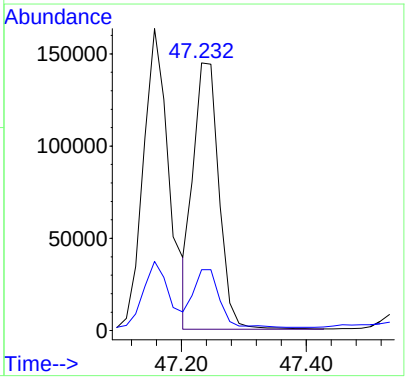


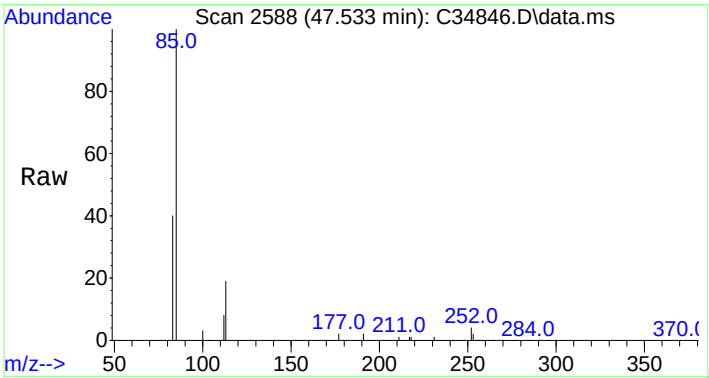


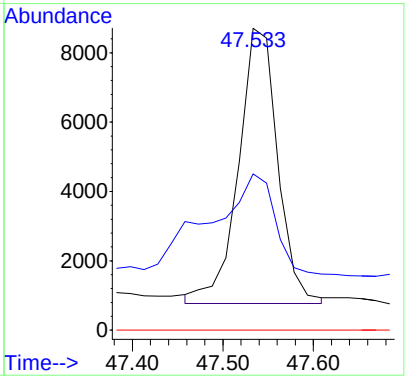
#83
Benzo[j]+[k]fluoranthene
Concen: 2368.08 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 412920

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.0	28.4



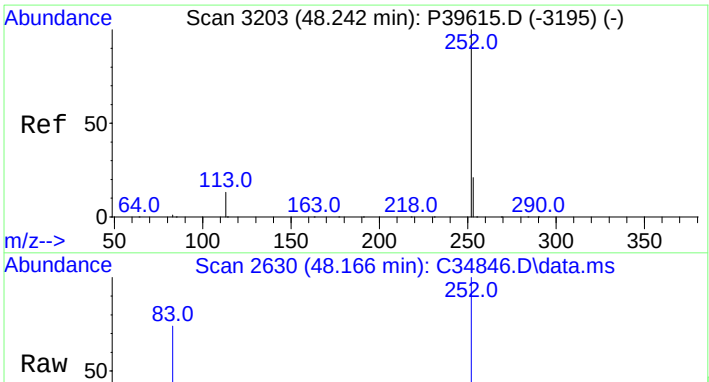


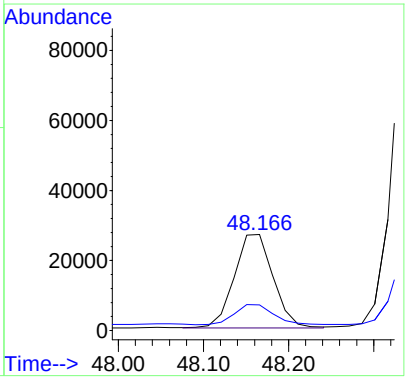


#84
Benzo[a]fluoranthene
Concen: 137.85 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 24037

Ion	Ratio	Lower	Upper
252	100		
253	63.6	146.1	219.1#
125	0.0	0.0	0.0

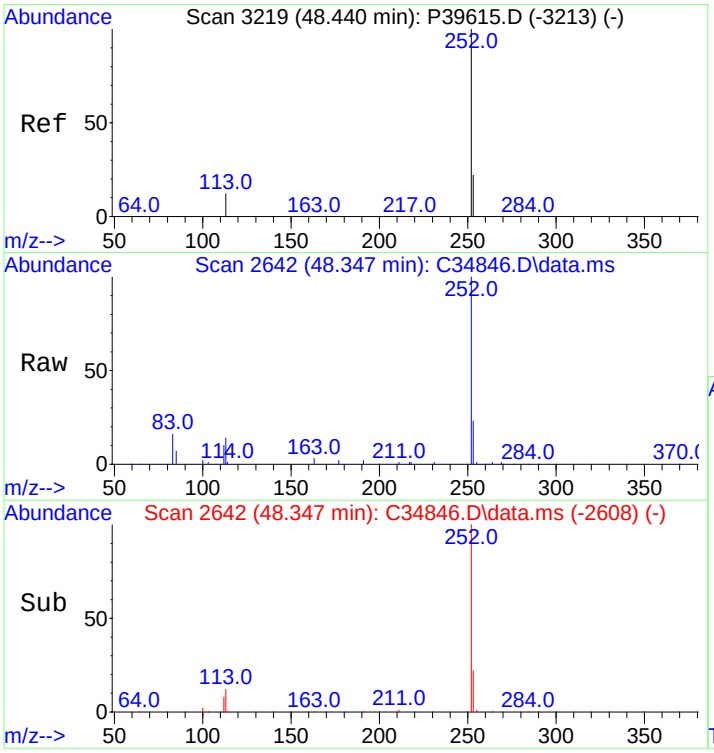




#85
Benzo[e]pyrene
Concen: 537.81 ng/mL
RT: 48.166 min Scan# 2630
Delta R.T. 0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 85197

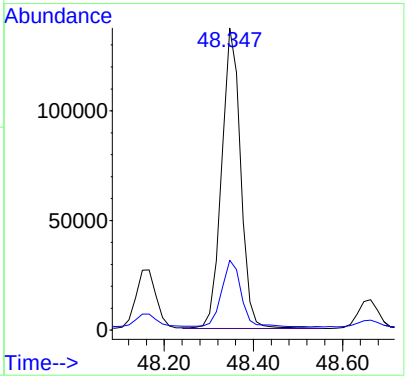
Ion	Ratio	Lower	Upper
252	100		
253	23.0	19.2	28.8

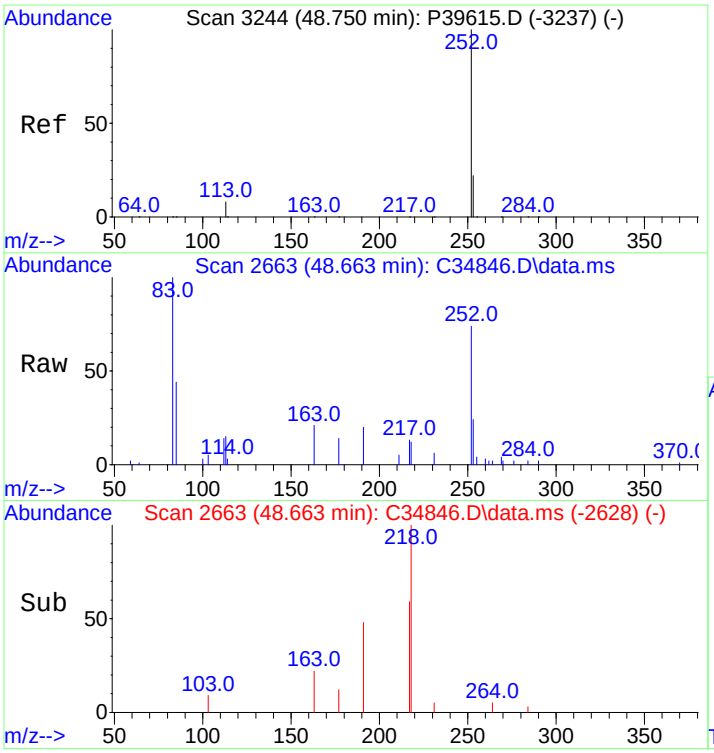


#87
Benzo[a]pyrene
Concen: 2647.30 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 403767

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.5	29.3

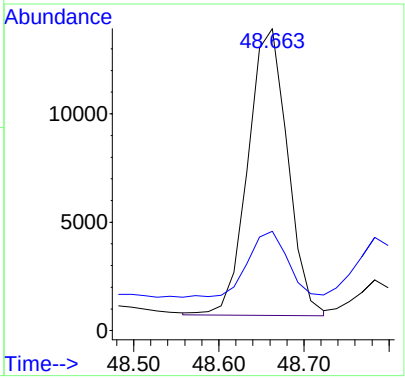


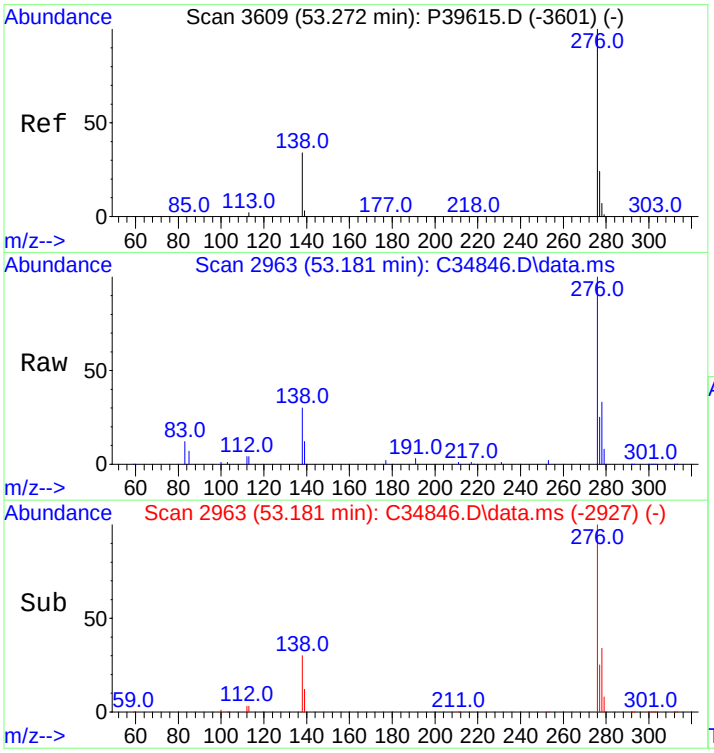


#88
Perylene
Concen: 262.65 ng/mL
RT: 48.663 min Scan# 2663
Delta R.T. 0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:252 Resp: 42812

Ion	Ratio	Lower	Upper
252	100		
253	23.2	19.6	29.4

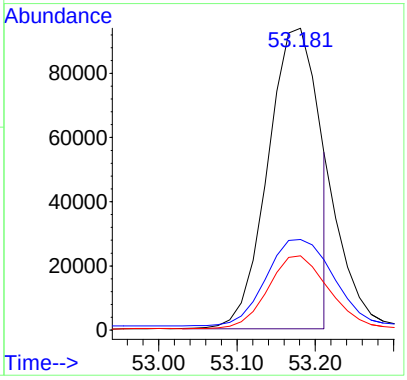


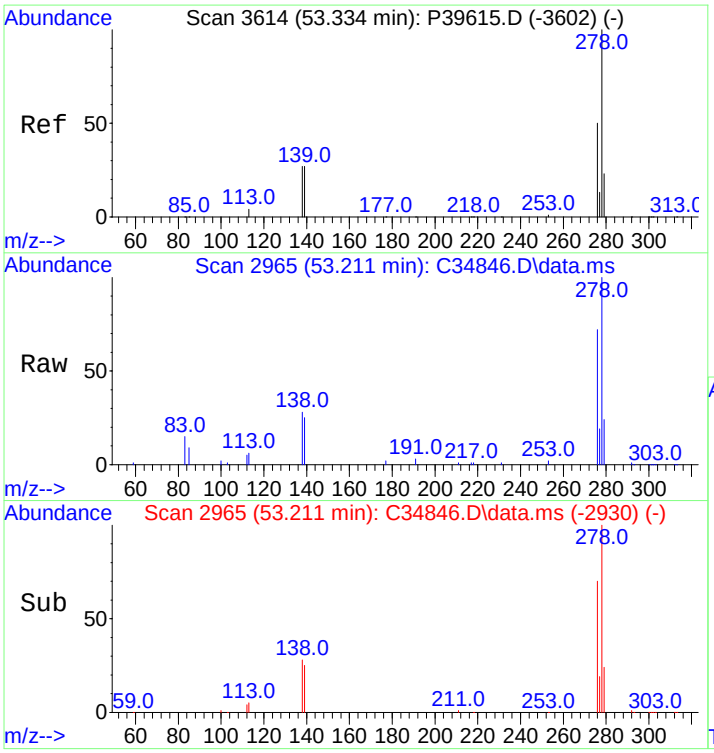


#89
Indeno[1,2,3-cd]pyrene
Concen: 2404.05 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.045 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:276 Resp: 426700

Ion	Ratio	Lower	Upper
276	100		
138	39.0	23.3	34.9#
277	29.5	19.0	28.4#

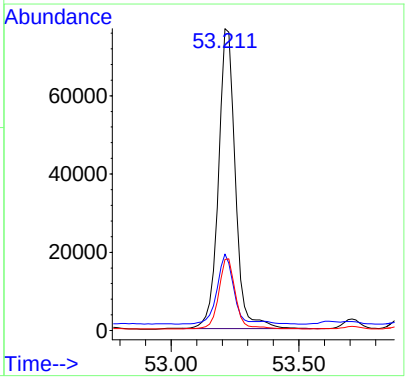


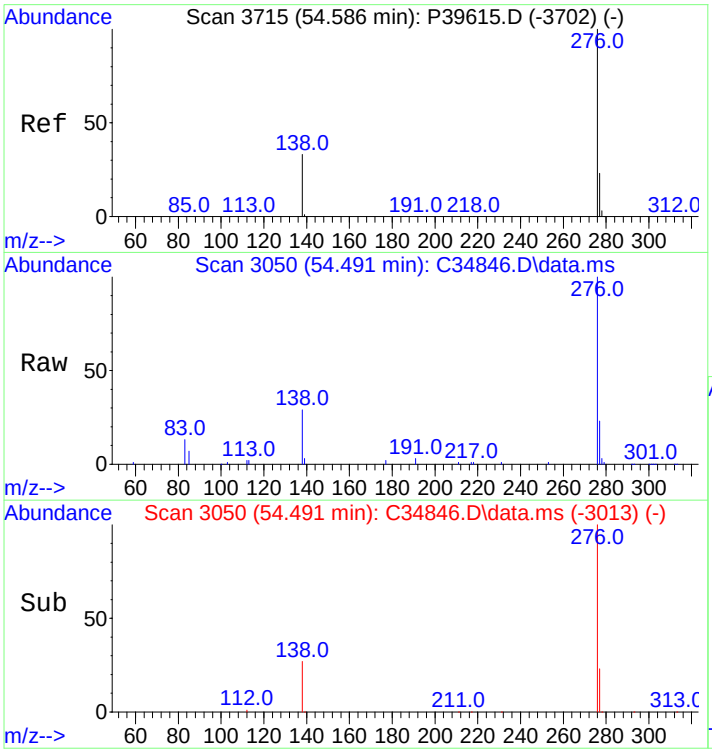


#90
Dibenz[ah]+[ac]anthracene
Concen: 2078.01 ng/mL m
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:278 Resp: 350859

Ion	Ratio	Lower	Upper
278	100		
139	21.7	19.1	28.7
279	23.0	19.2	28.8

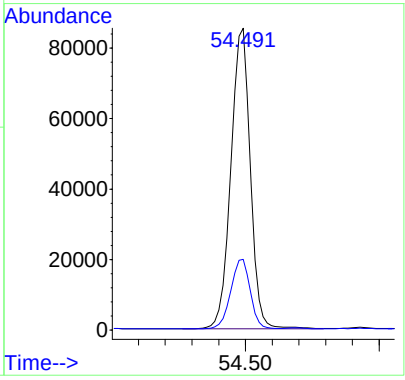


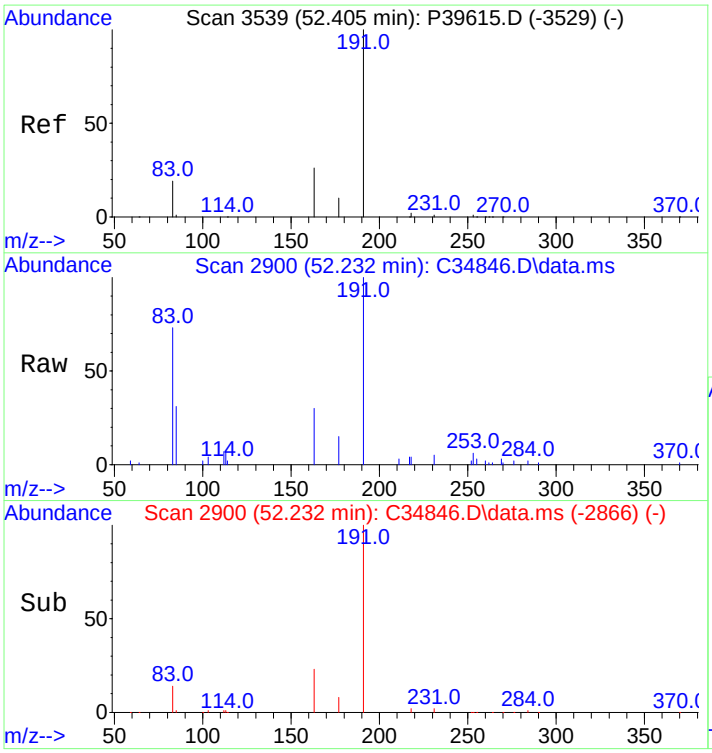


#91
Benzo[g,h,i]perylene
Concen: 2294.42 ng/mL
RT: 54.491 min Scan# 3050
Delta R.T. 0.060 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:276 Resp: 430253

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

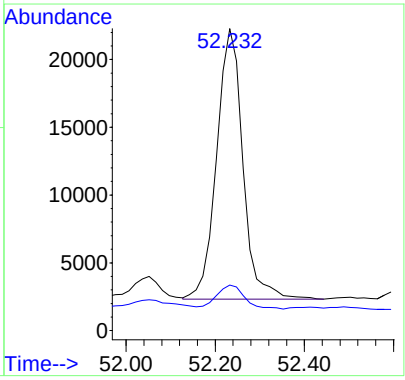


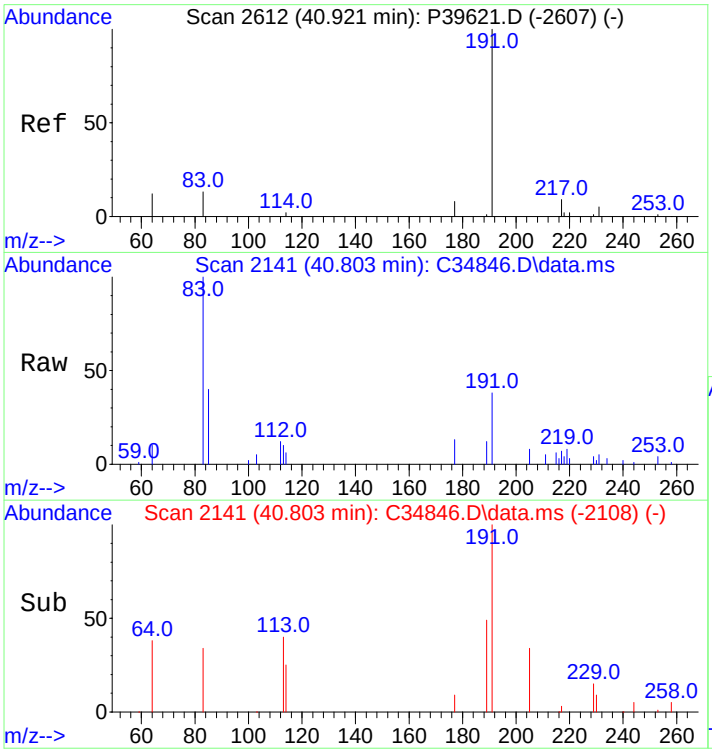


#92
Hopane (T19)
Concen: 2698.92 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:191 Resp: 81685

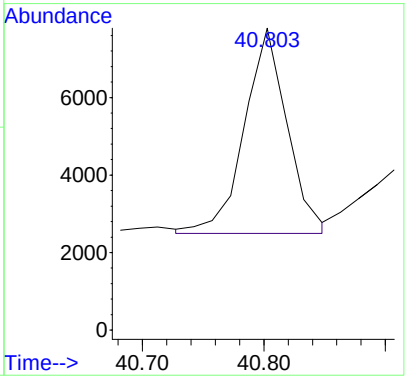
Ion	Ratio	Lower	Upper
191	100		
177	9.3	14.6	21.8#

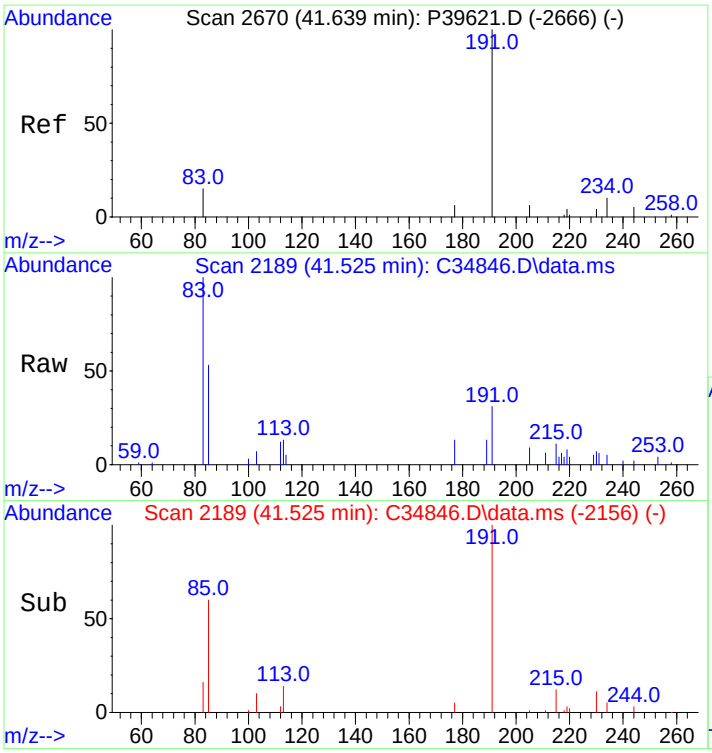




#94
C23 Tricyclic Terpane (T4)
Concen: 427.74 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

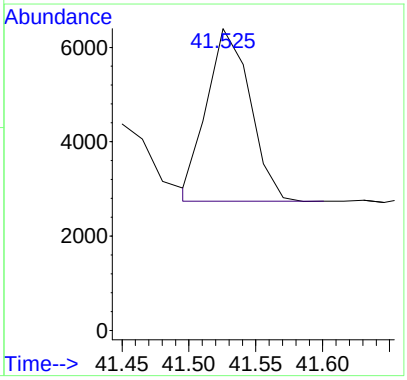
Tgt Ion:191 Resp: 12946

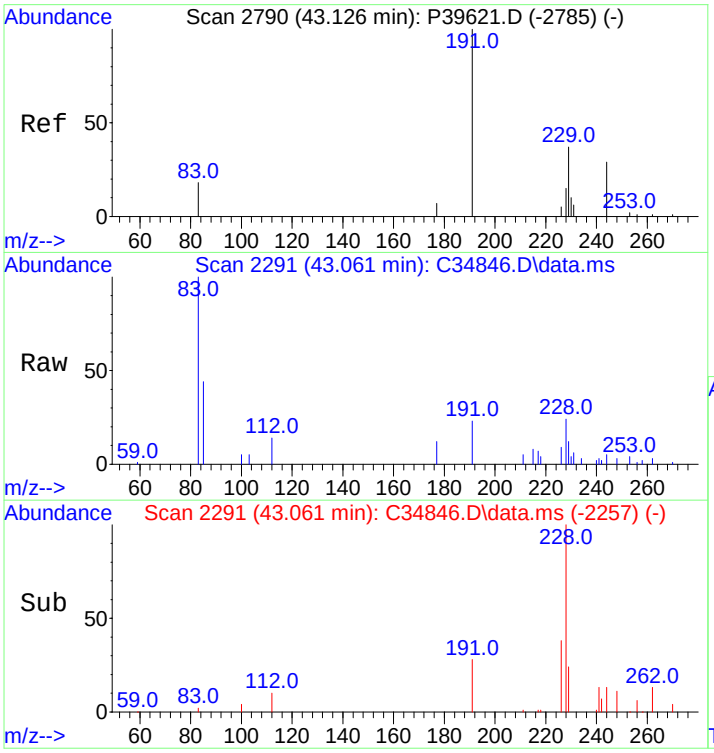




#95
C24 Tricyclic Terpane (T5)
Concen: 272.45 ng/ml
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

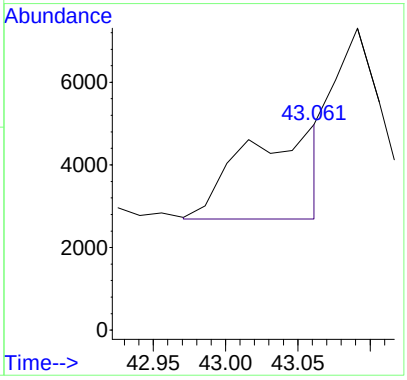
Tgt Ion:191 Resp: 8246

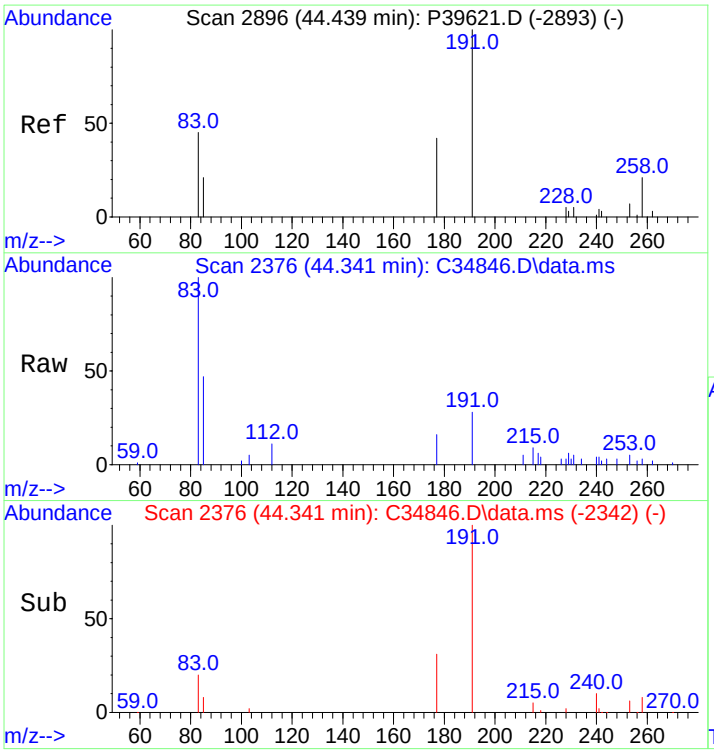




#96
C25 Tricyclic Terpane (T6)
Concen: 272.88 ng/ml m
RT: 43.061 min Scan# 2291
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

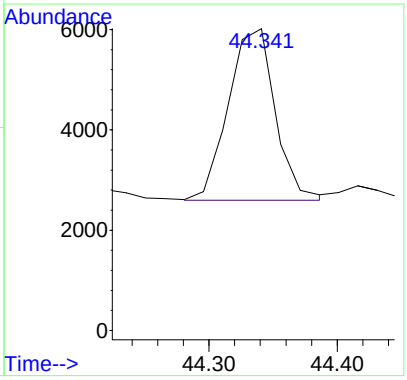
Tgt Ion:191 Resp: 8259

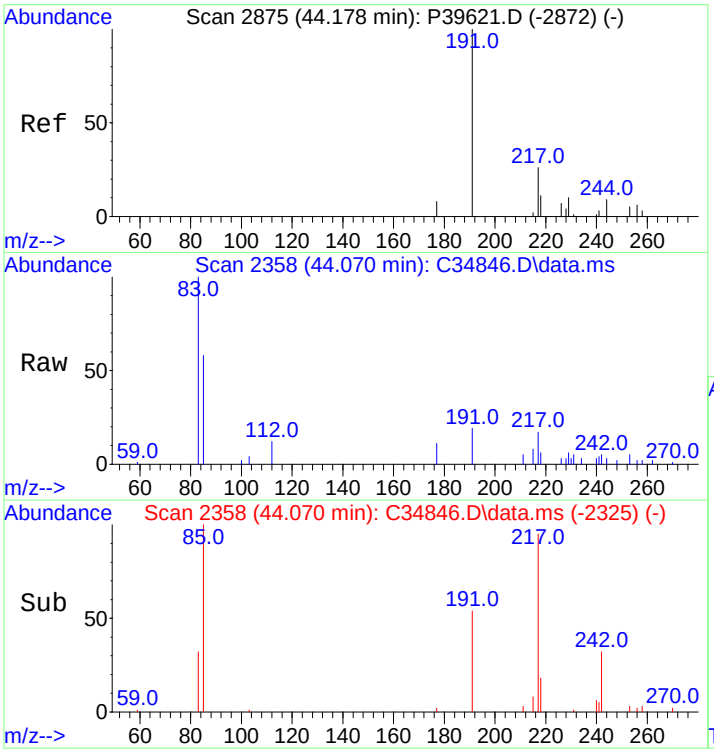




#97
C24 Tetracyclic Terpane (T6a)
Concen: 287.42 ng/ml m
RT: 44.341 min Scan# 2376
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

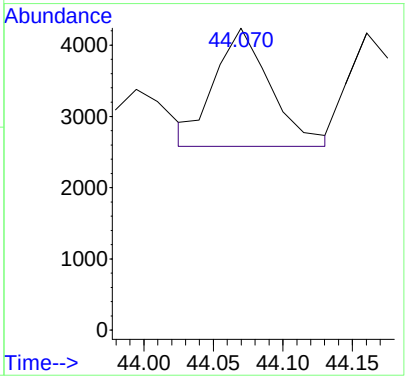
Tgt Ion:191 Resp: 8699

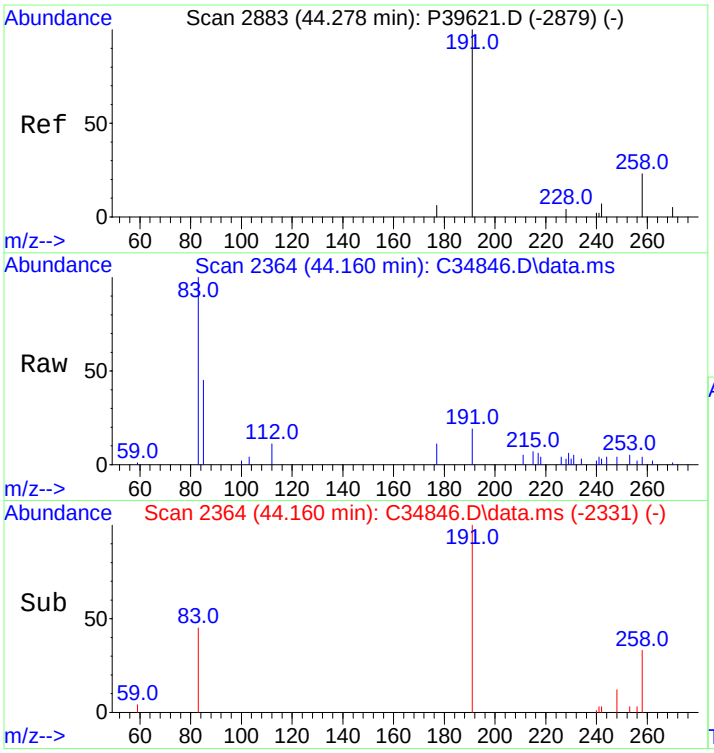




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 152.55 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

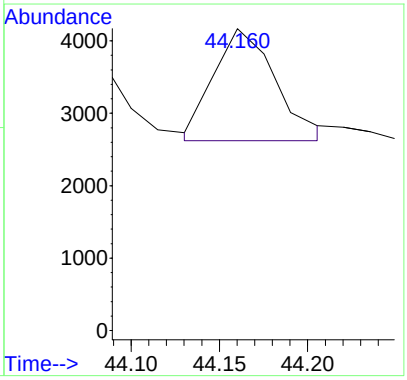
Tgt Ion:191 Resp: 4617

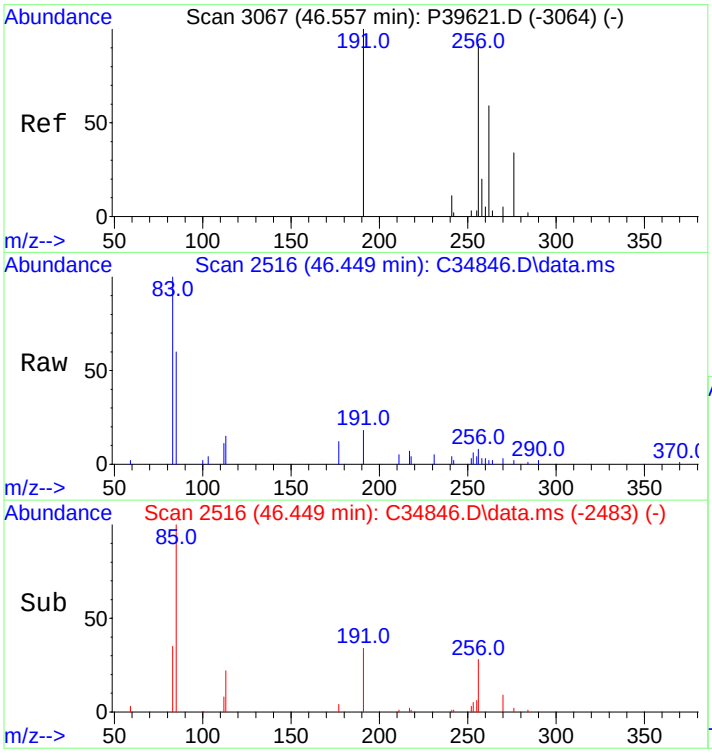




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 124.69 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

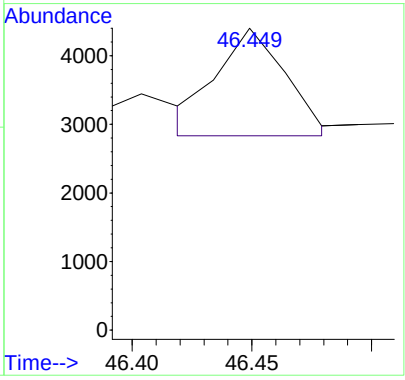
Tgt Ion:191 Resp: 3774

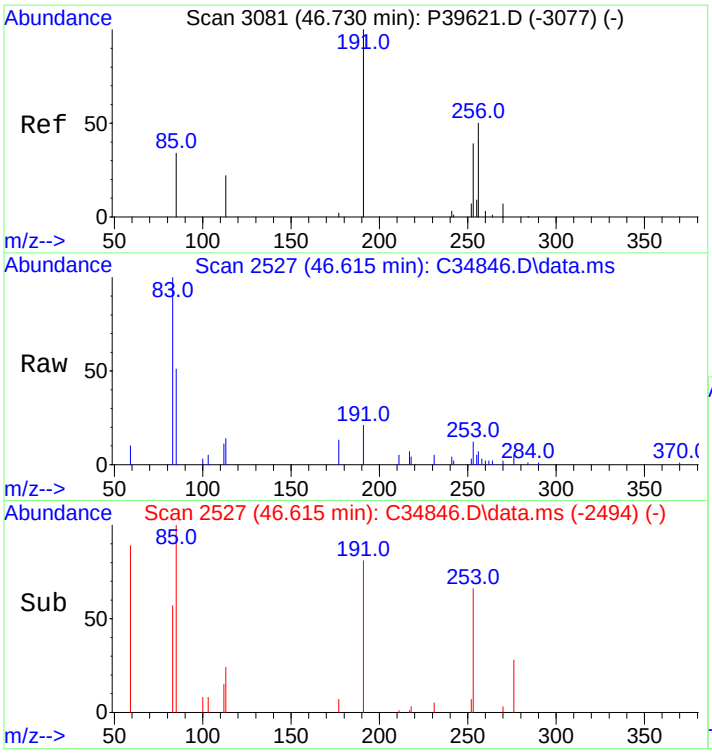




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 102.69 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

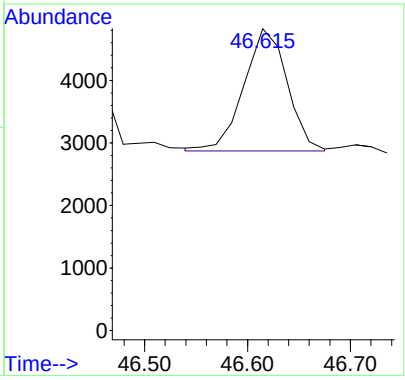
Tgt Ion:191 Resp: 3108

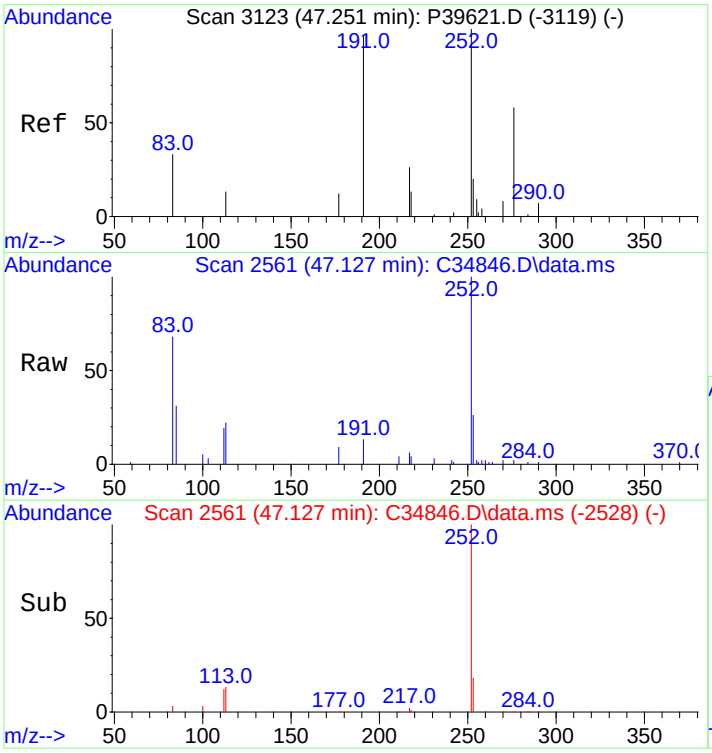




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 188.36 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

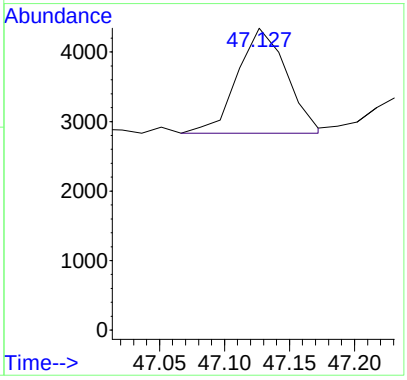
Tgt Ion:191 Resp: 5701

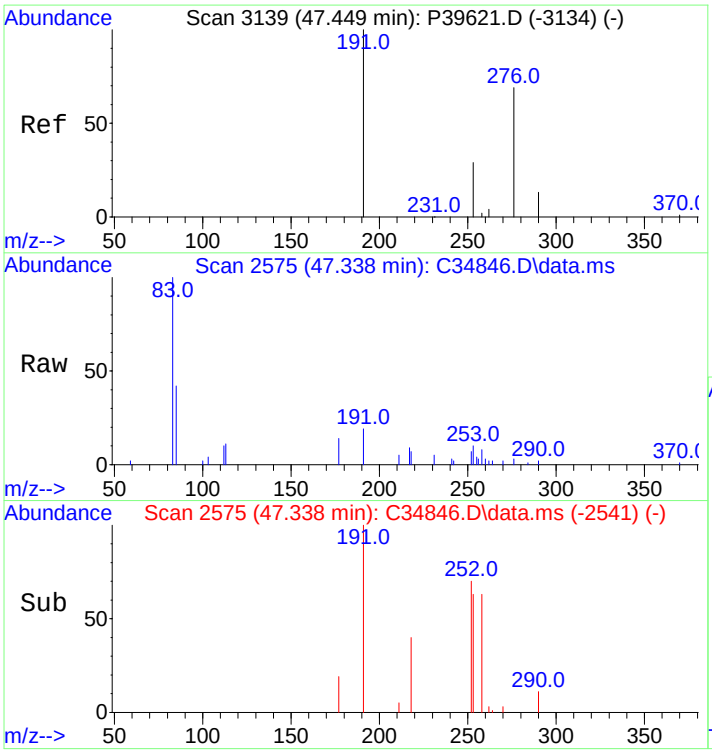




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 131.53 ng/ml m
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

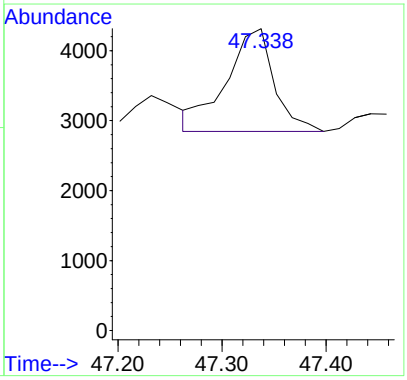
Tgt Ion:191 Resp: 3981

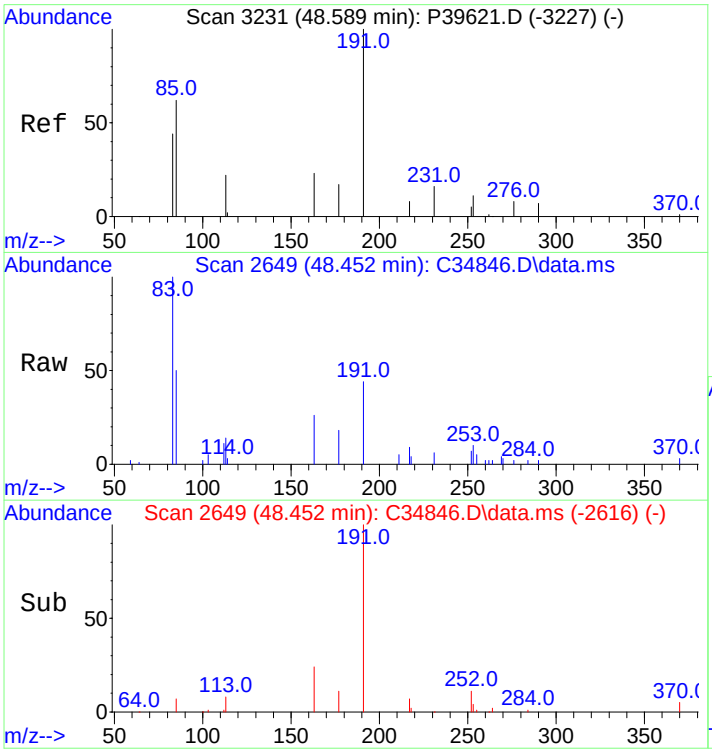




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 155.39 ng/ml
RT: 47.338 min Scan# 2575
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

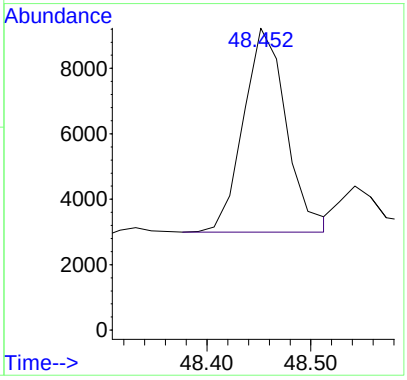
Tgt Ion:191 Resp: 4703

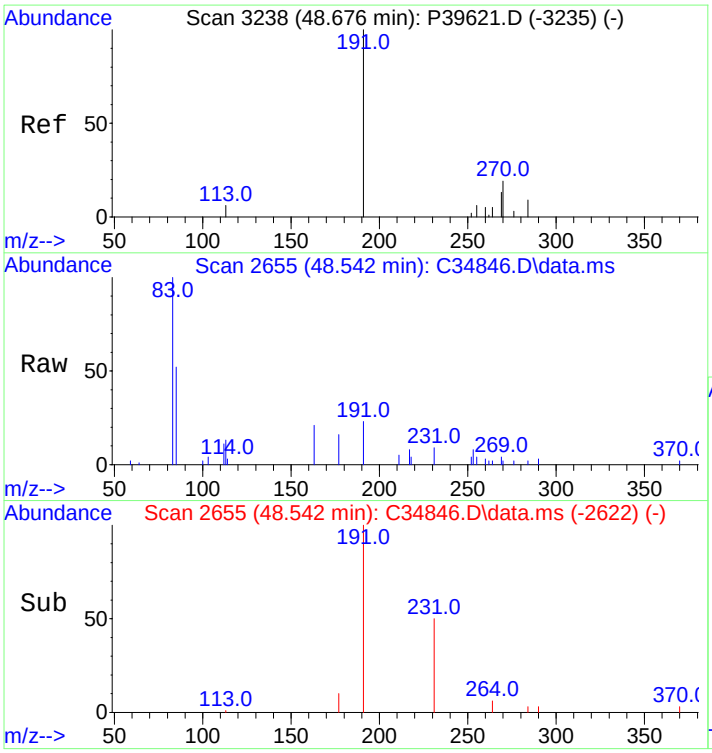




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 593.87 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

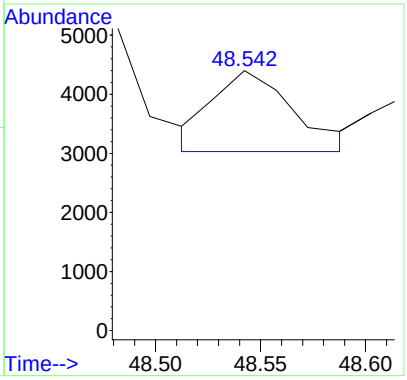
Tgt Ion:191 Resp: 17974

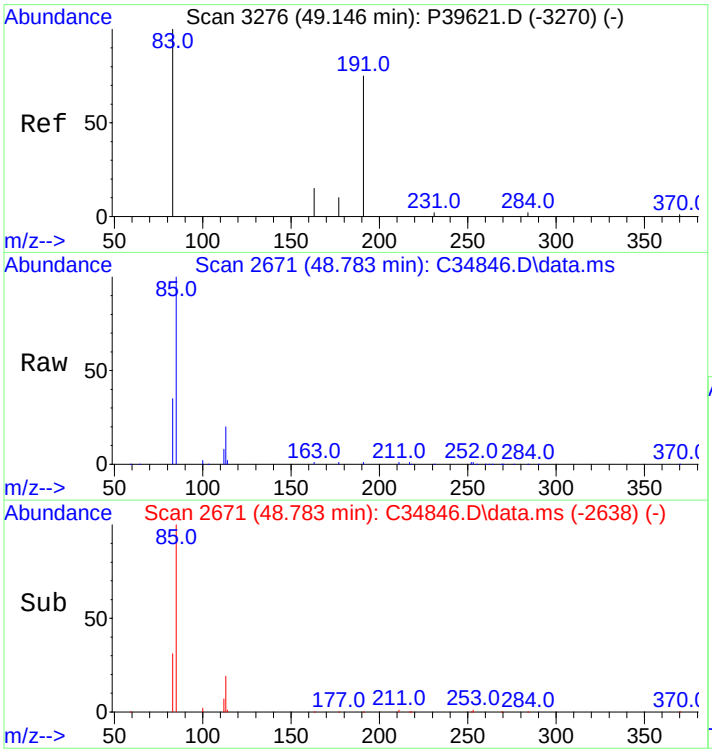




#105
C30 Tricyclic Terpane-22S
Concen: 120.37 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

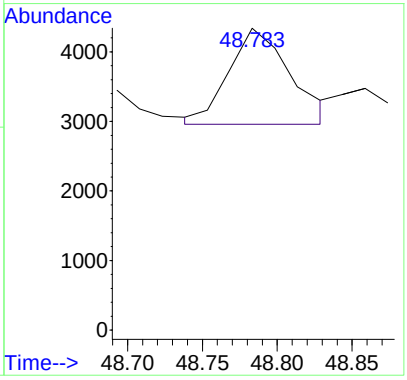
Tgt Ion:191 Resp: 3643

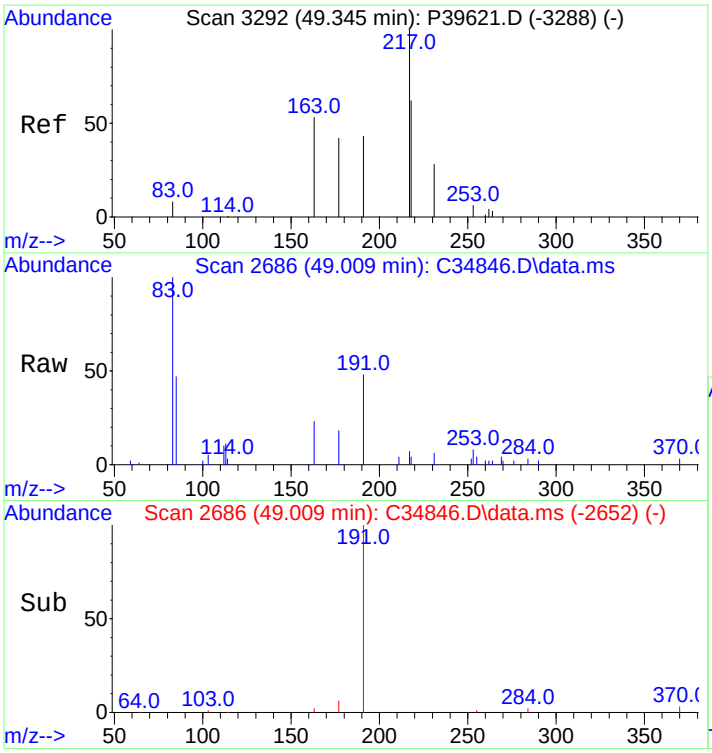




#106
C30 Tricyclic Terpane-22R
Concen: 130.08 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

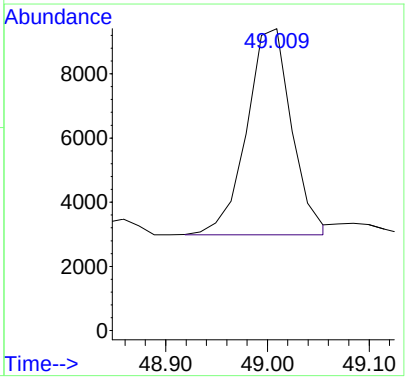
Tgt Ion:191 Resp: 3937

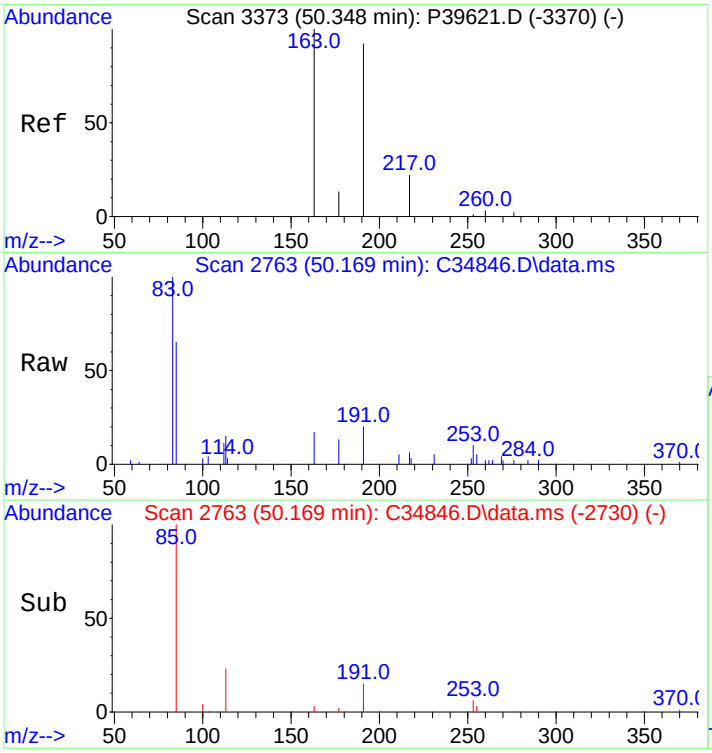




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 651.23 ng/ml m
RT: 49.009 min Scan# 2686
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

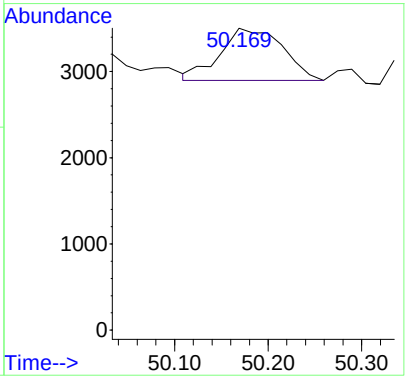
Tgt Ion:191 Resp: 19710

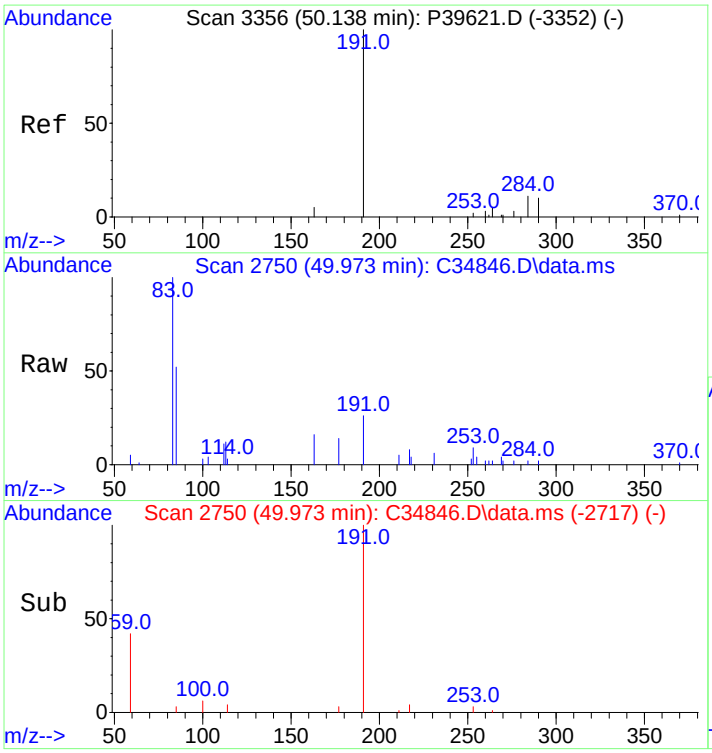




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 92.61 ng/ml
RT: 50.169 min Scan# 2763
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

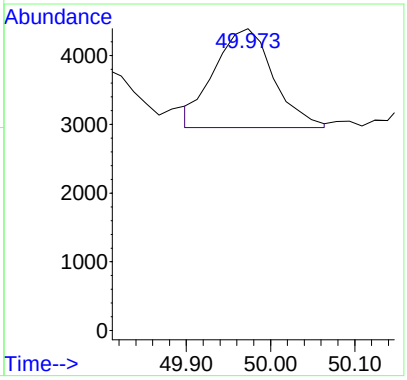
Tgt Ion:191 Resp: 2803

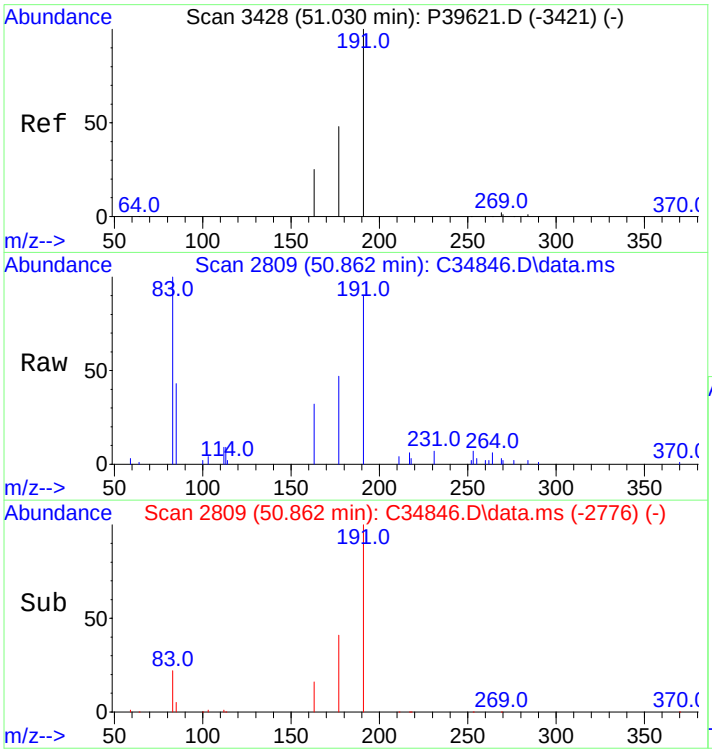




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 231.61 ng/ml m
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

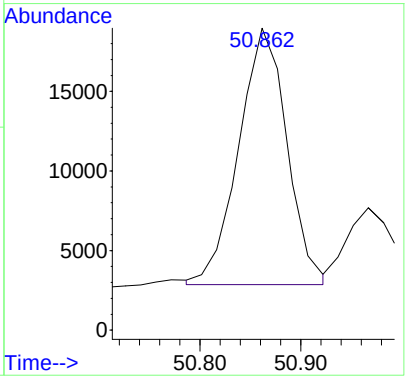
Tgt Ion:191 Resp: 7010

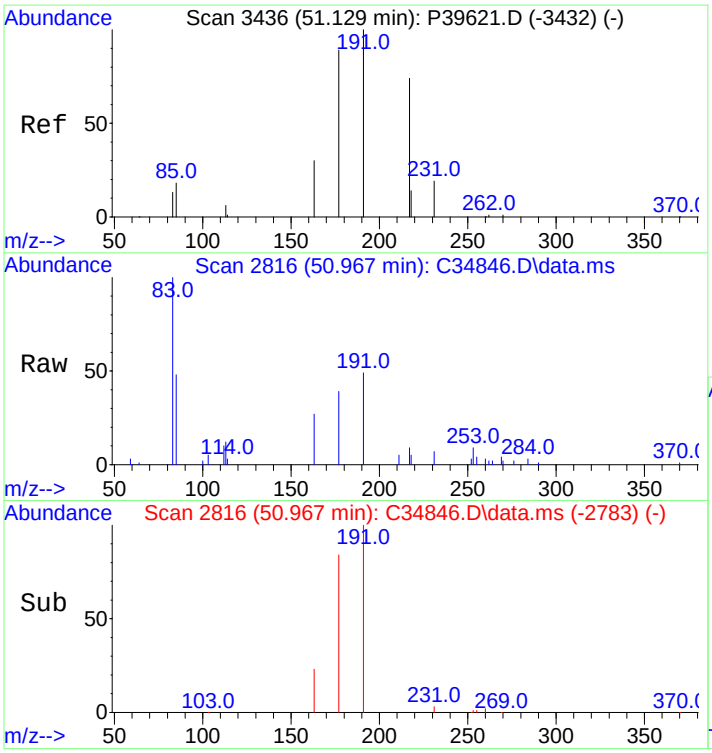




#110
30-Norhopane (T15)
Concen: 1773.32 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

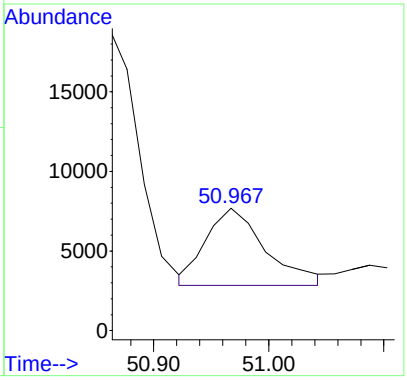
Tgt Ion:191 Resp: 53671

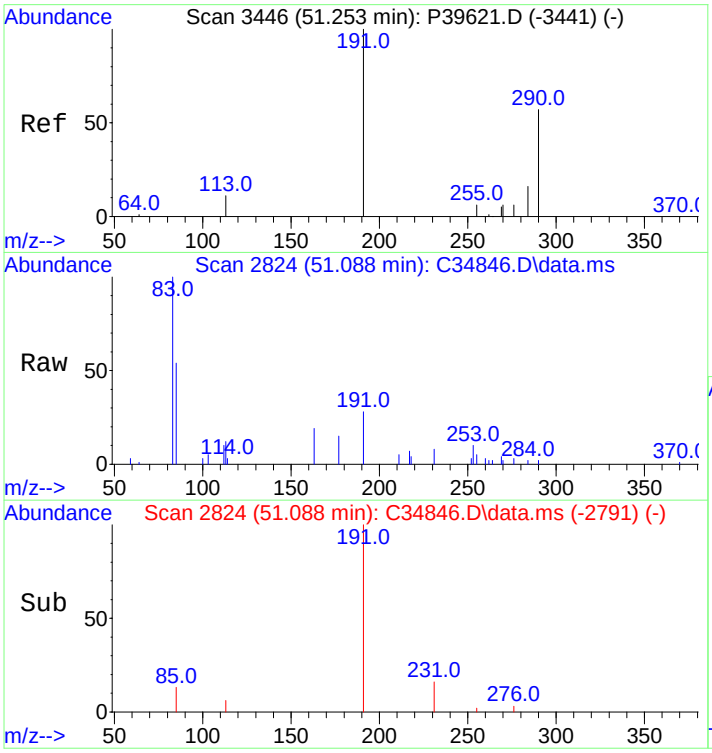




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 575.70 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

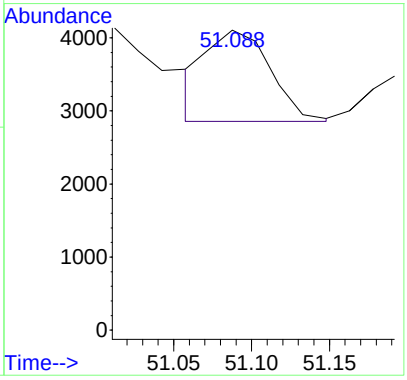
Tgt Ion:191 Resp: 17424

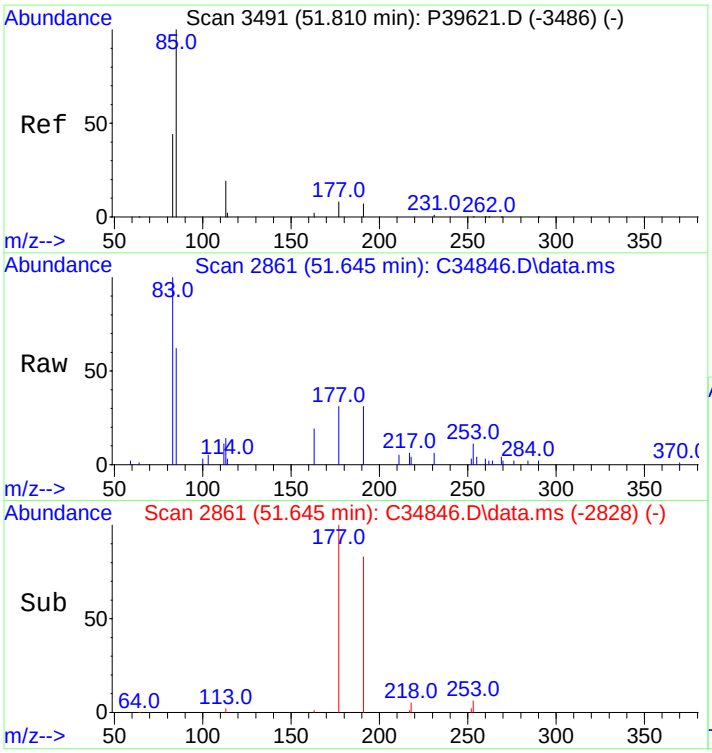




#112
17a(H)-Diahopane (X)
Concen: 117.92 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

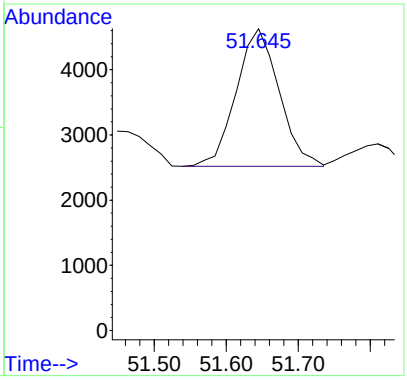
Tgt Ion:191 Resp: 3569

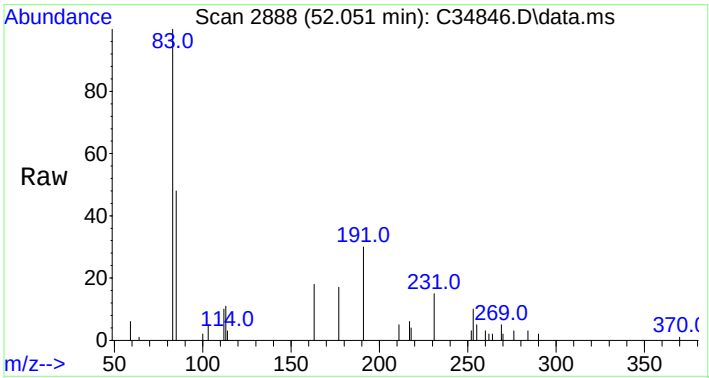




#113
30-Normoretane (T17)
Concen: 287.62 ng/ml
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

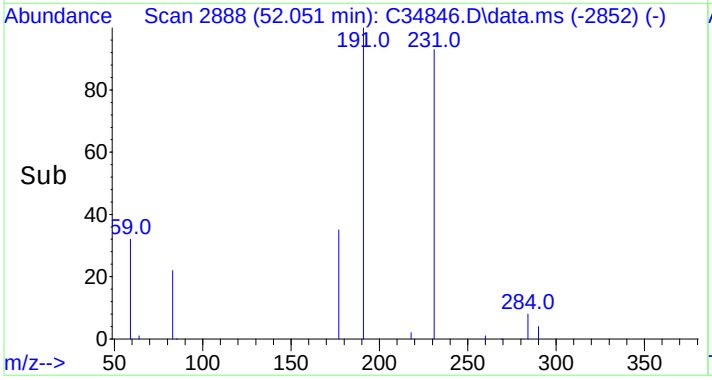
Tgt Ion:191 Resp: 8705

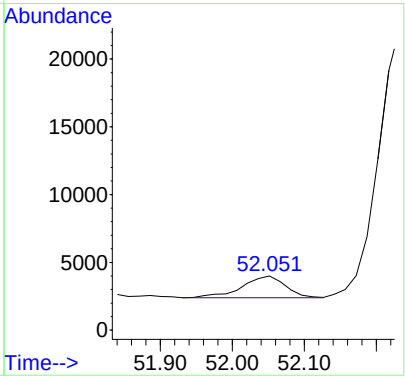


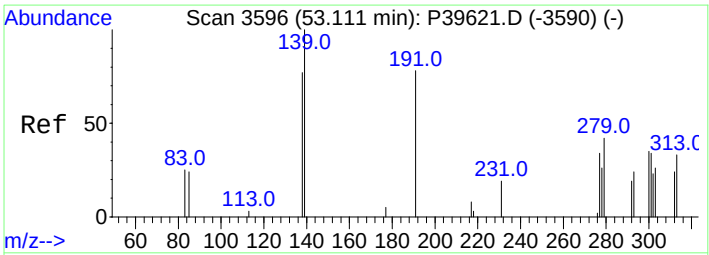


#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 220.71 ng/ml
RT: 52.051 min Scan# 2888
Delta R.T. 0.045 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:191 Resp: 6680

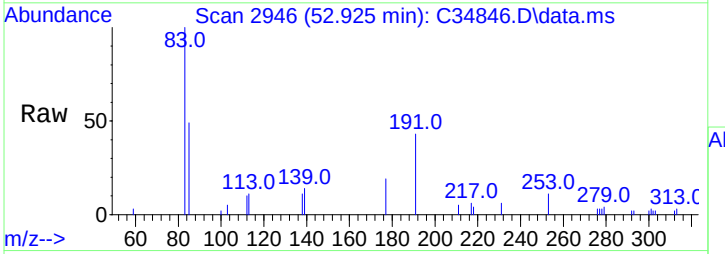


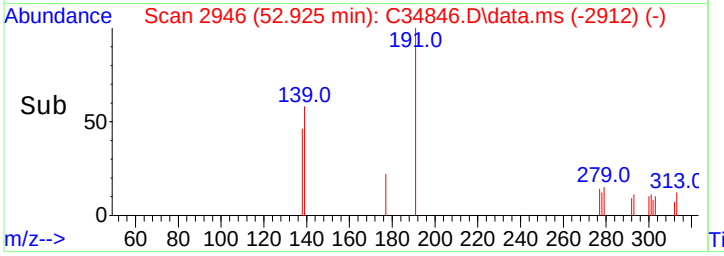


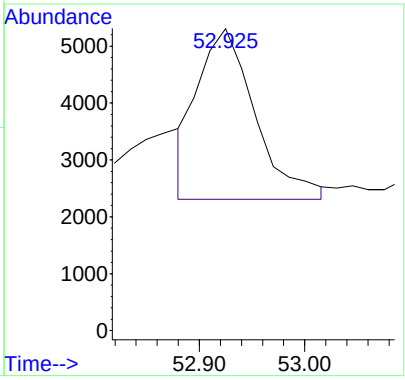


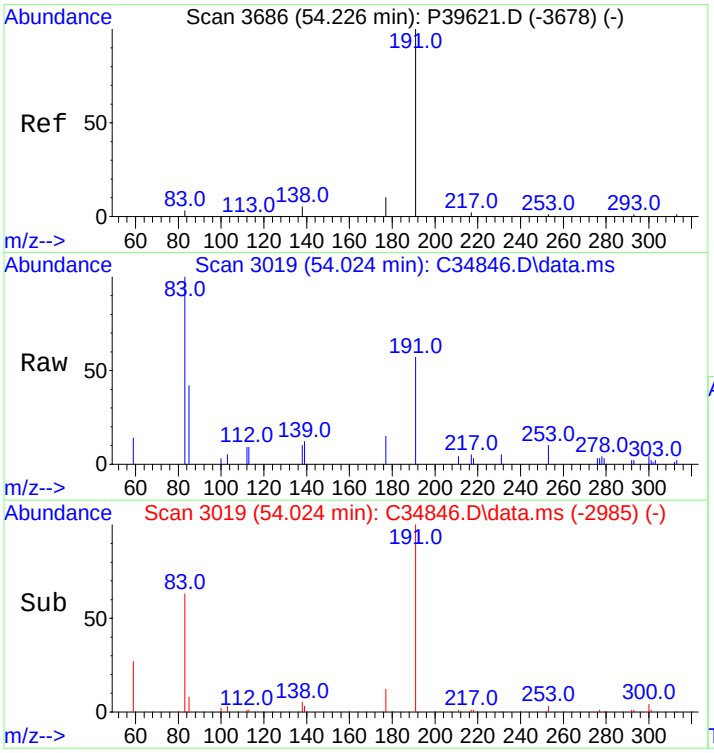
#115
Moretane (T20)
Concen: 375.14 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:191 Resp: 11354



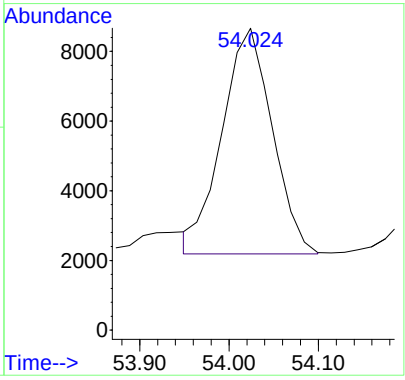


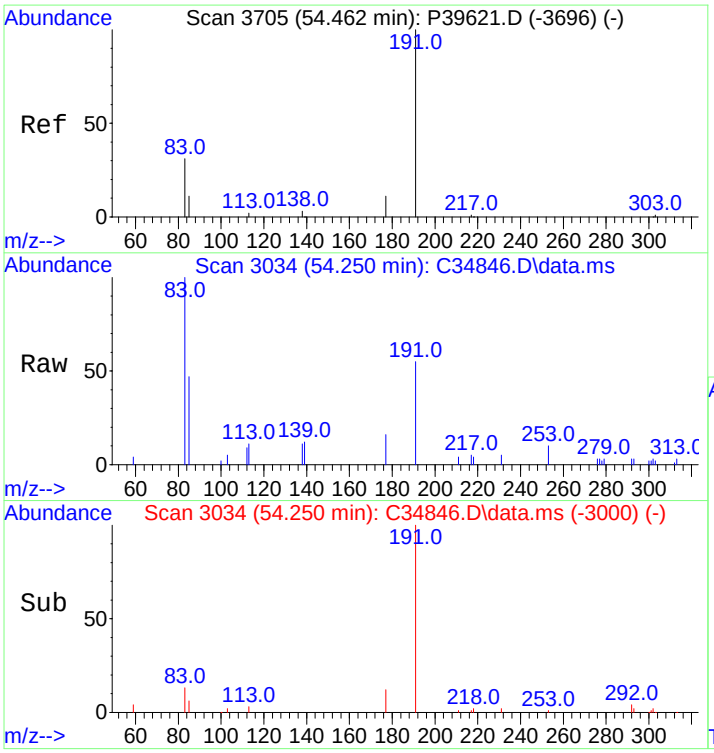




#116
30-Homohopane-22S (T21)
Concen: 836.72 ng/ml m
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

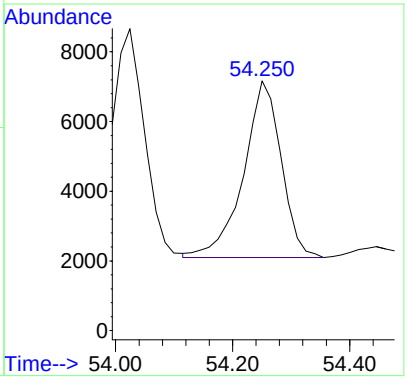
Tgt Ion:191 Resp: 25324

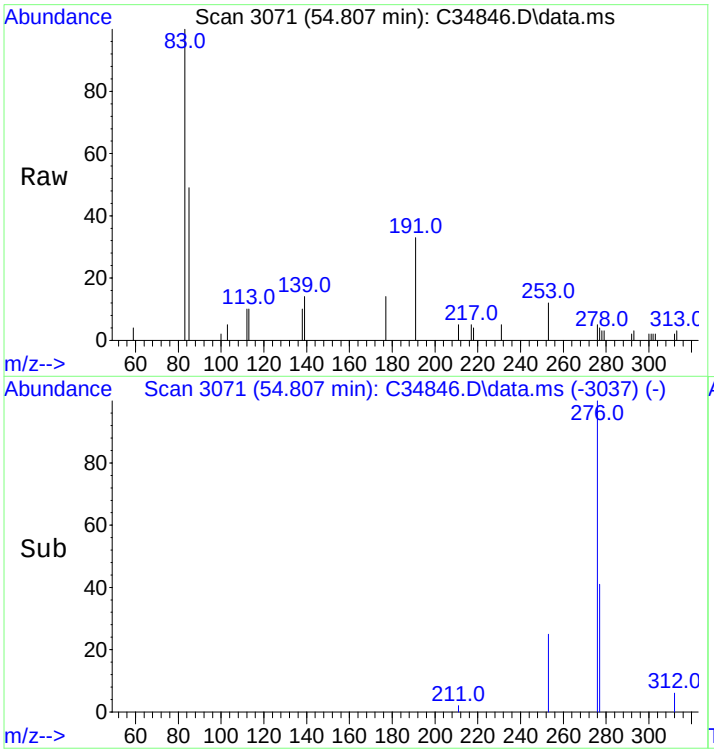




#117
30-Homohopane-22R (T22)
Concen: 745.89 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

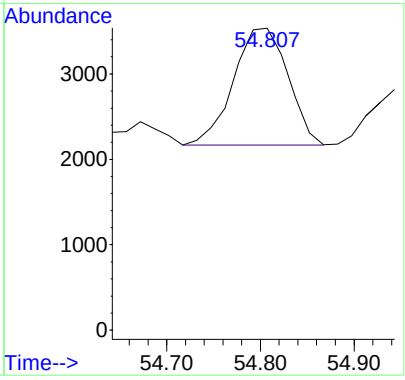
Tgt Ion:191 Resp: 22575

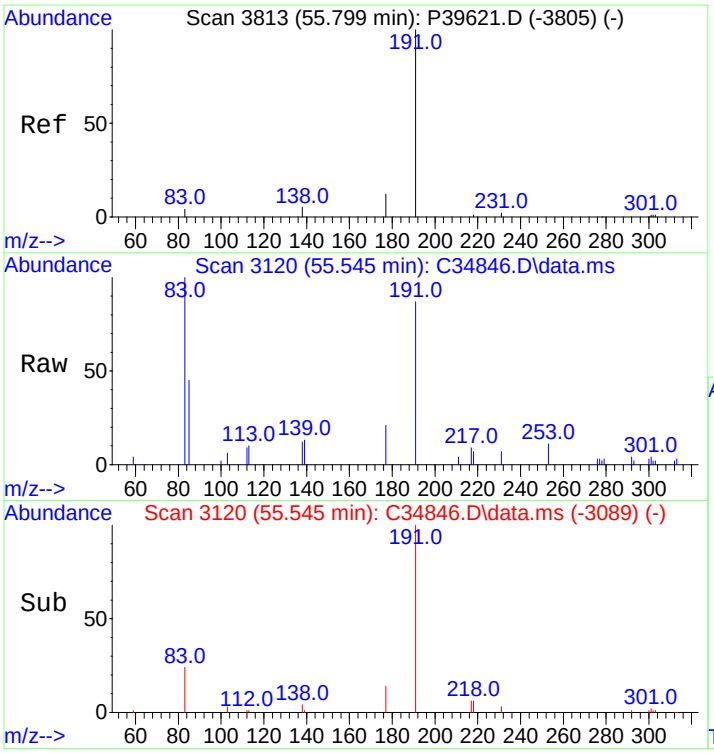




#118
Gammacerane/C32-diahopane
Concen: 183.61 ng/mL
RT: 54.807 min Scan# 3071
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

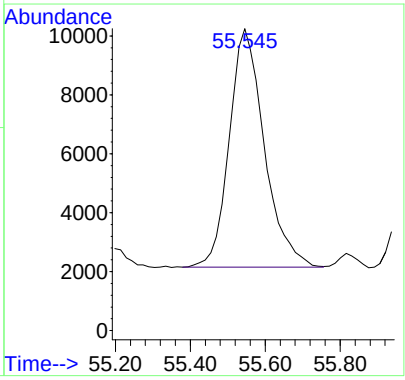
Tgt Ion:191 Resp: 5557

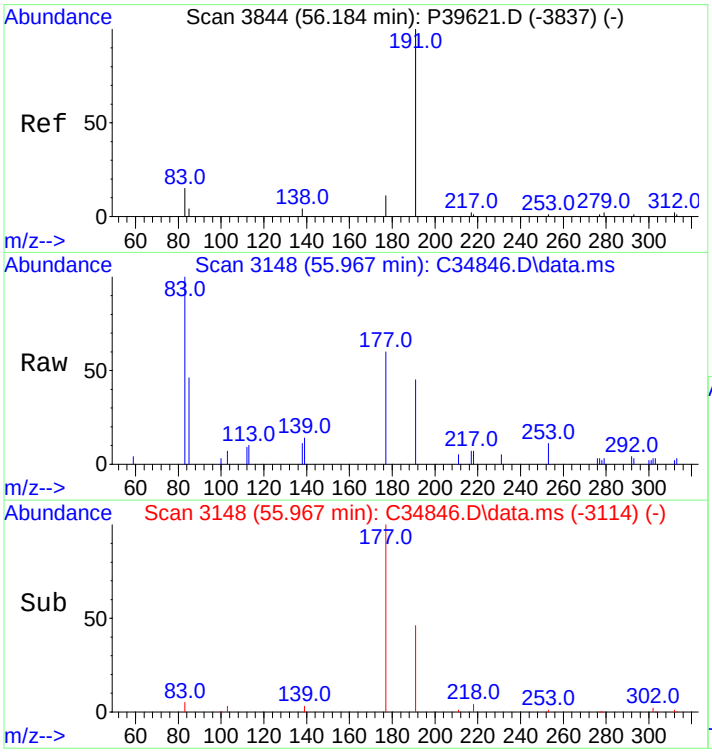




#119
30,31-Bishomohopane-22S (T26)
Concen: 1733.77 ng/ml
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

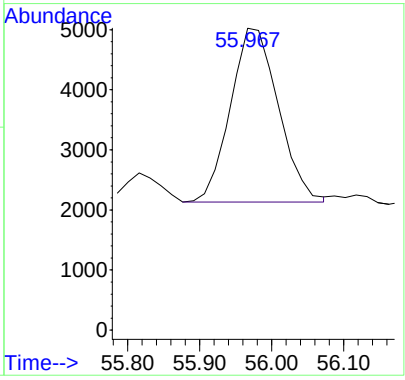
Tgt Ion:191 Resp: 52474

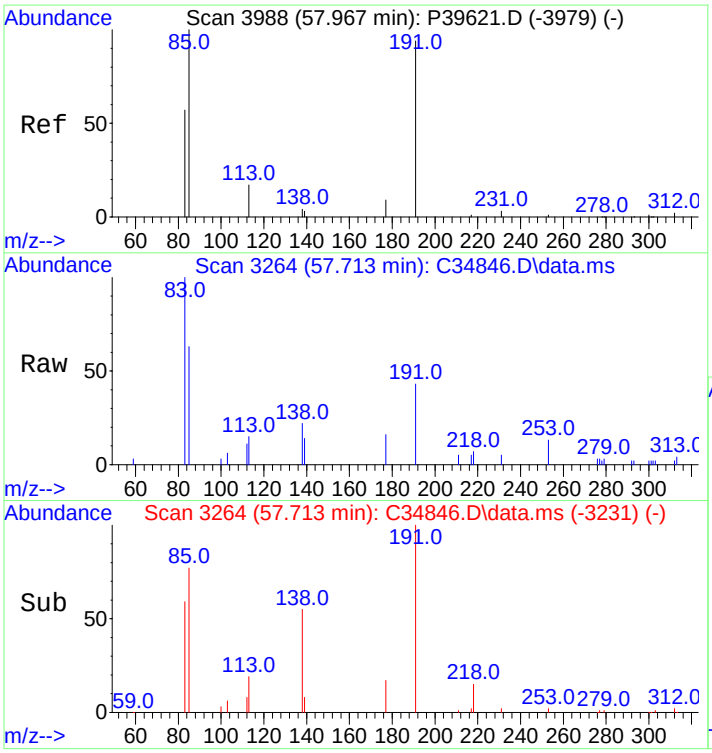




#120
30,31-Bishomohopane-22R (T27)
Concen: 440.83 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

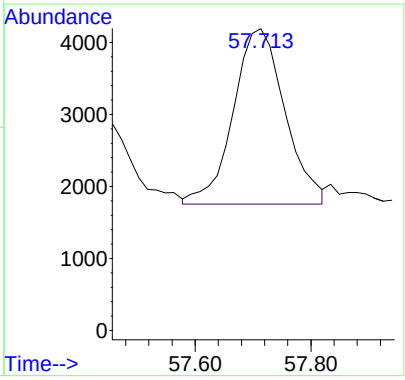
Tgt Ion:191 Resp: 13342

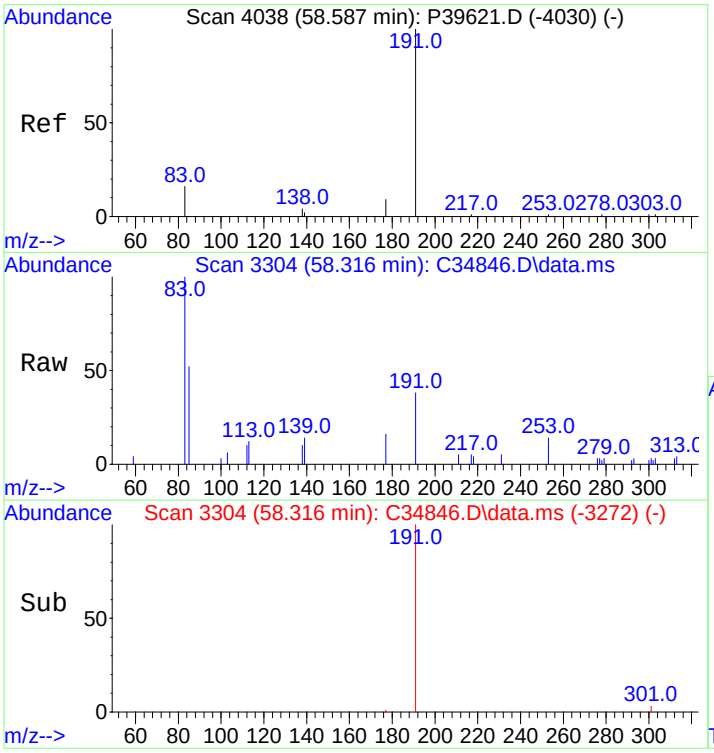




#121
30,31-Trishomohopane-22S (T30)
Concen: 499.44 ng/ml m
RT: 57.713 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

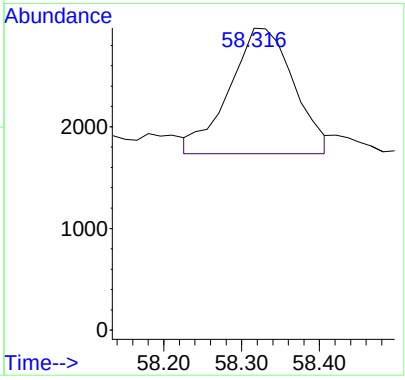
Tgt Ion:191 Resp: 15116

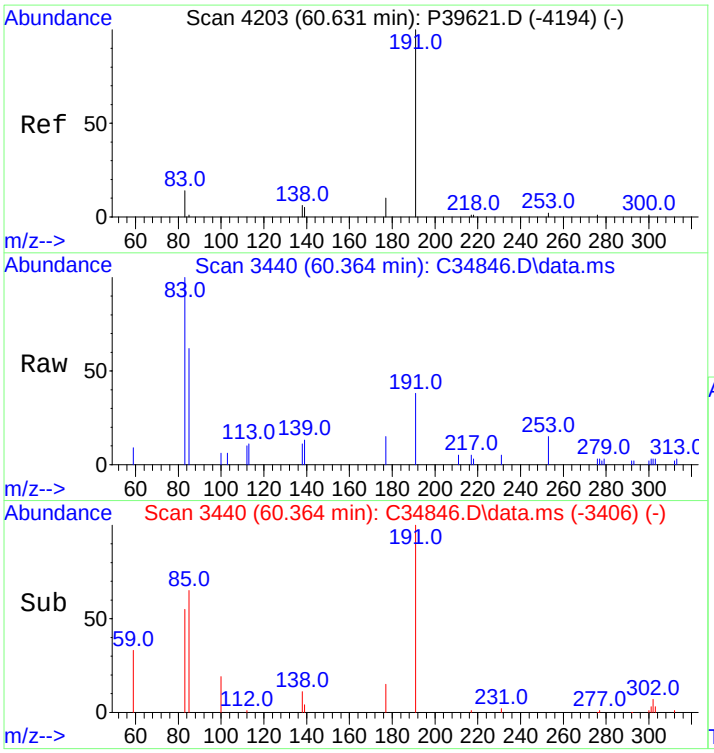




#122
30,31-Trishomohopane-22R (T31)
Concen: 233.83 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

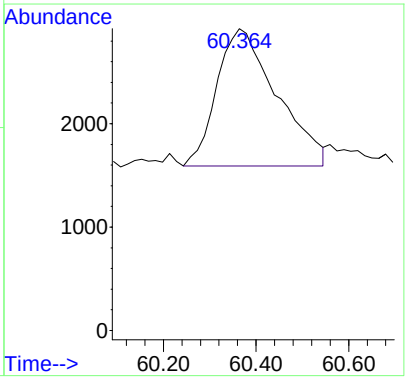
Tgt Ion:191 Resp: 7077

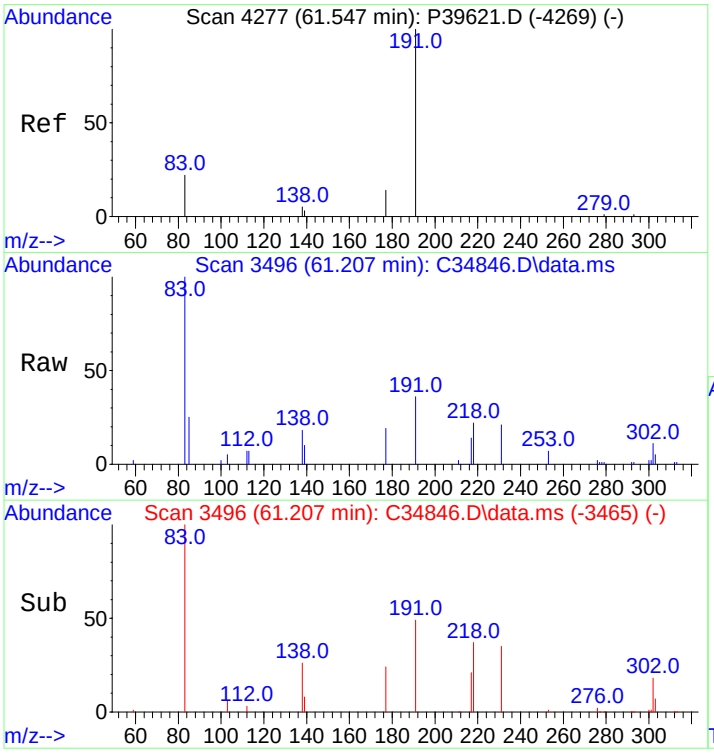




#123
Tetrakishomohopane-22S (T32)
Concen: 395.73 ng/ml m
RT: 60.364 min Scan# 3440
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

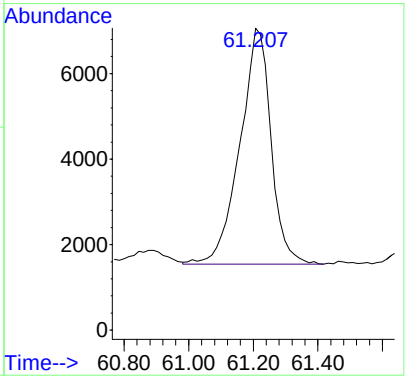
Tgt Ion:191 Resp: 11977

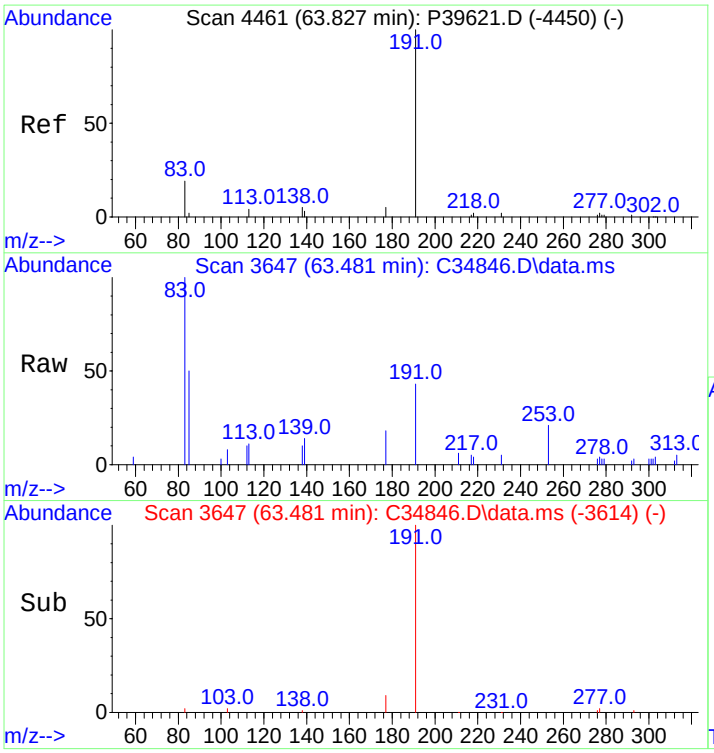




#124
Tetrakishomohopane-22R (T33)
Concen: 1216.98 ng/ml
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

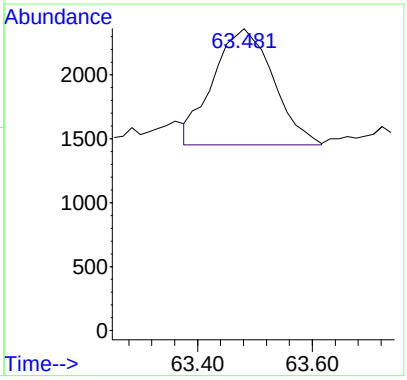
Tgt Ion:191 Resp: 36833

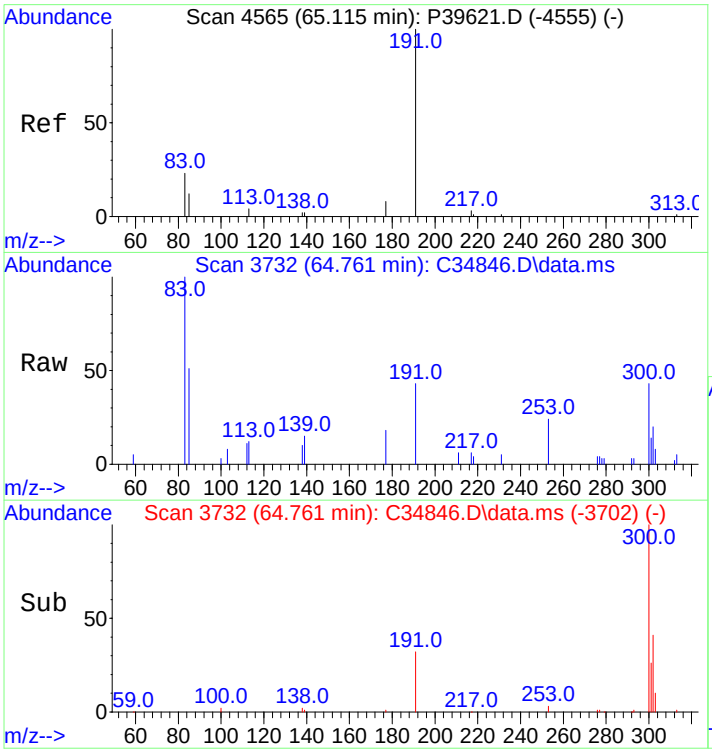




#125
Pentakishomohopane-22S (T34)
Concen: 218.56 ng/ml m
RT: 63.481 min Scan# 3647
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

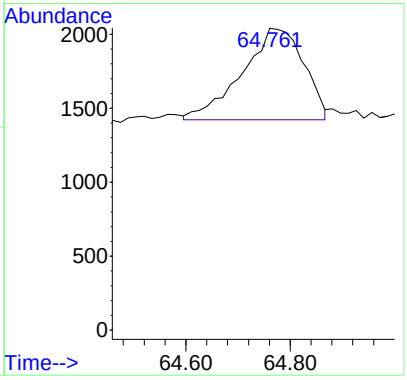
Tgt Ion:191 Resp: 6615

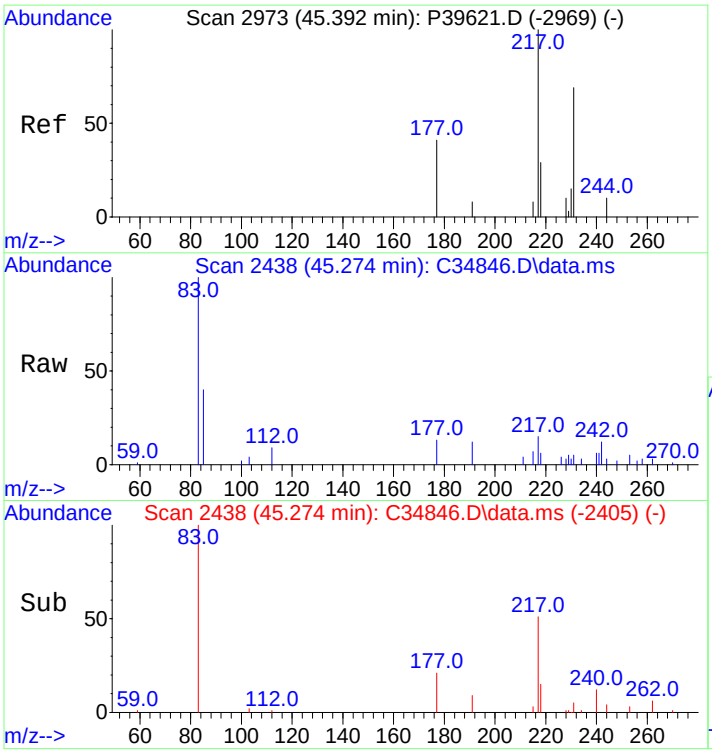




#126
Pentakishomohopane-22R (T35)
Concen: 167.95 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

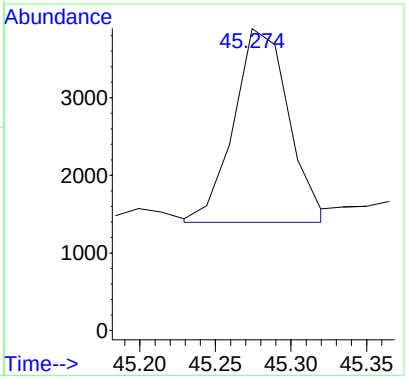
Tgt Ion:191 Resp: 5083

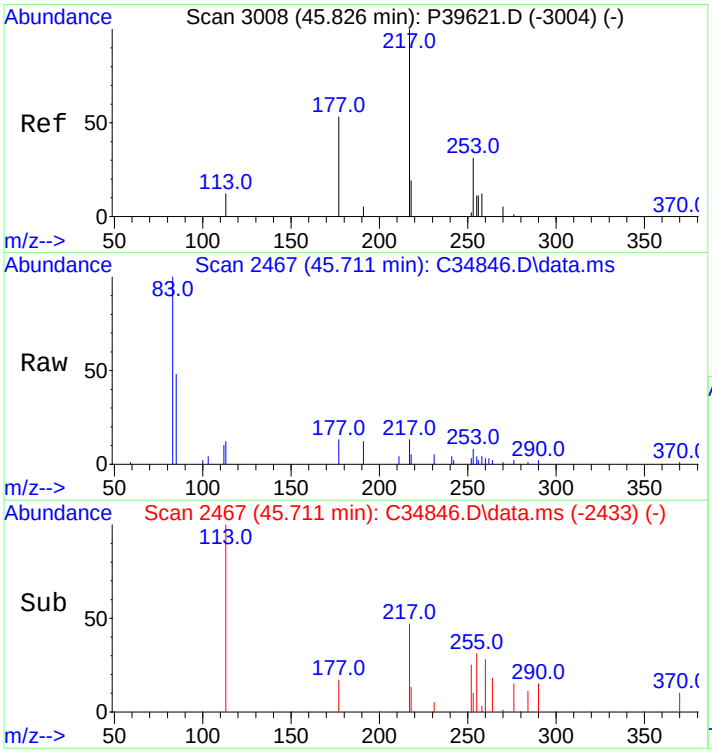




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 439.77 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

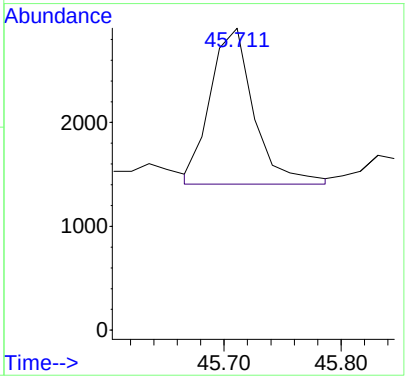
Tgt Ion:217 Resp: 6314

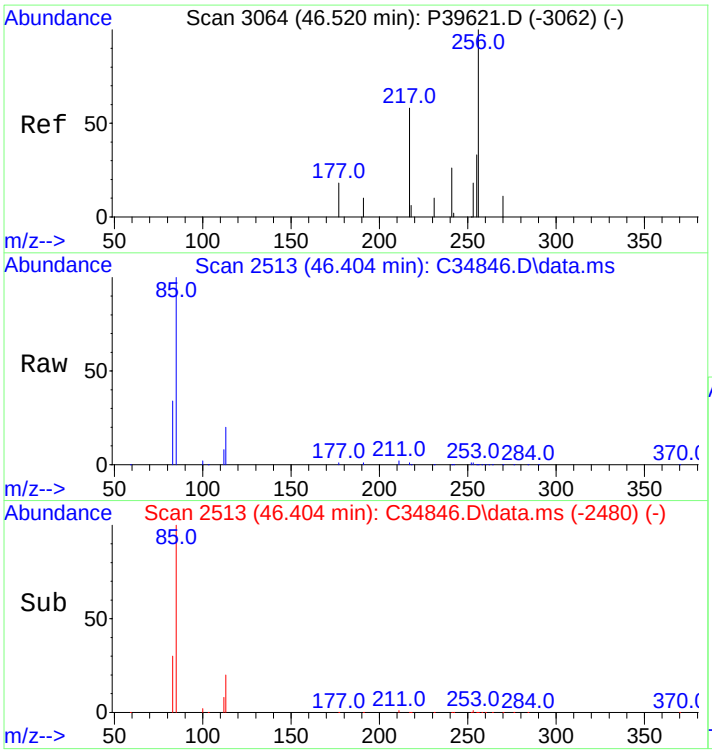




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 271.08 ng/ml m
RT: 45.711 min Scan# 2467
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

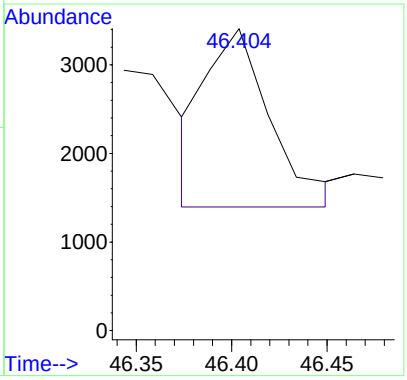
Tgt Ion:217 Resp: 3892

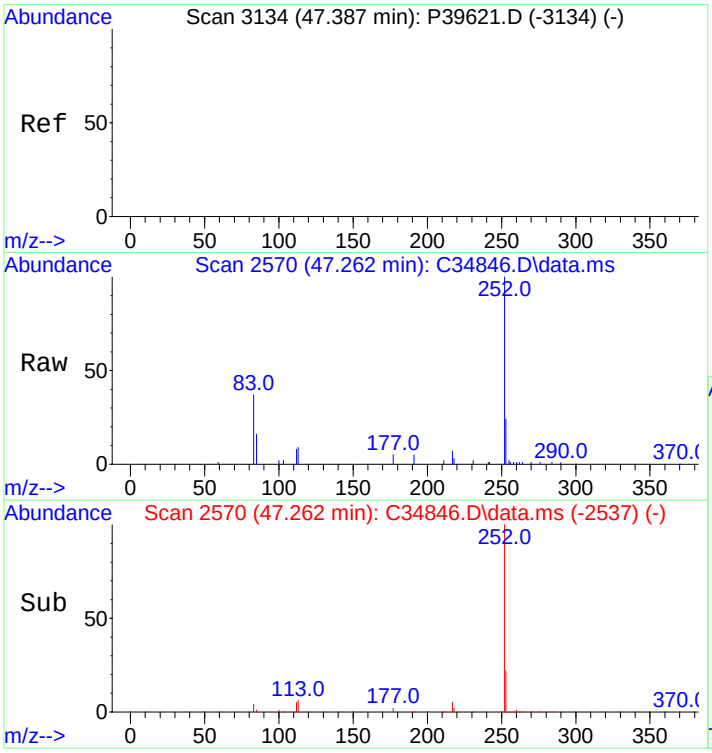




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 329.30 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

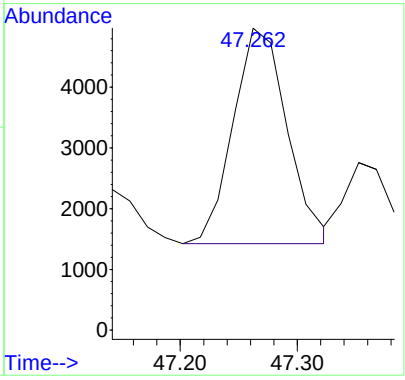
Tgt Ion:217 Resp: 4728

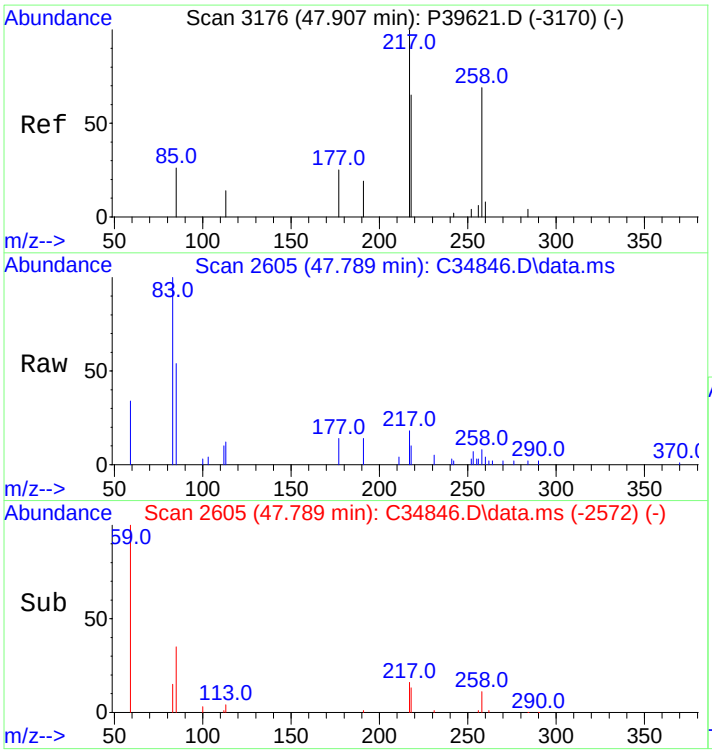




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 794.77 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

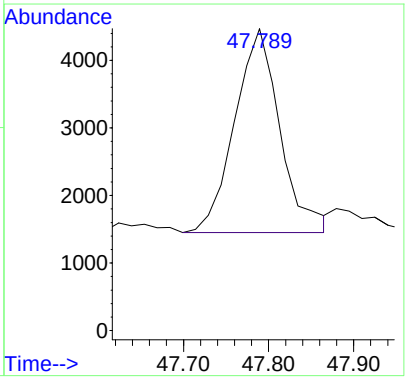
Tgt Ion:217 Resp: 11411

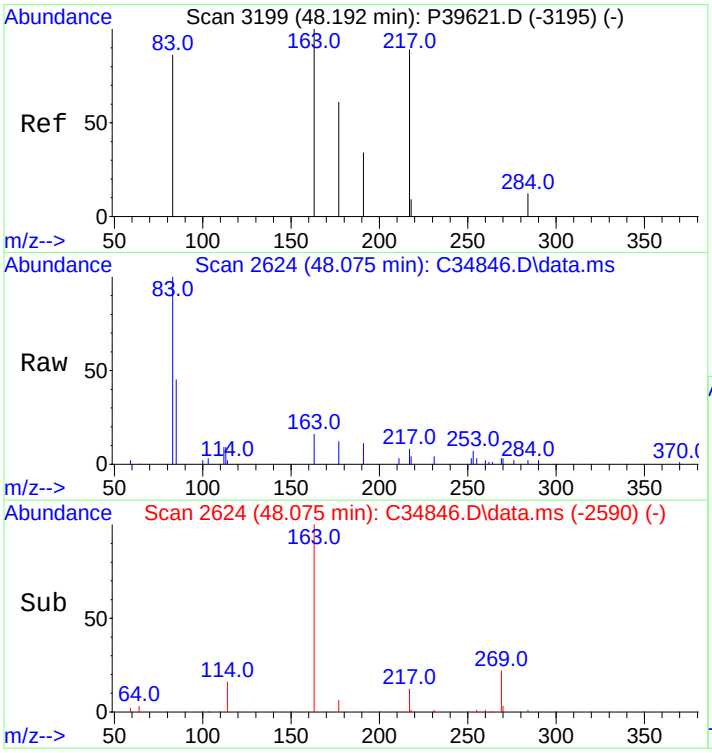




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 779.87 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

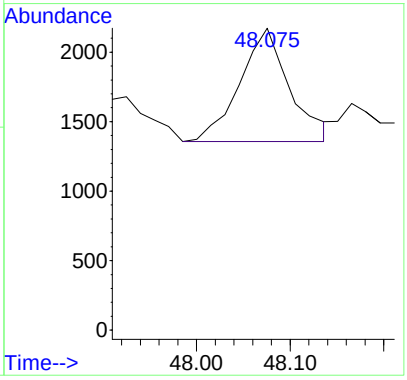
Tgt Ion:217 Resp: 11197

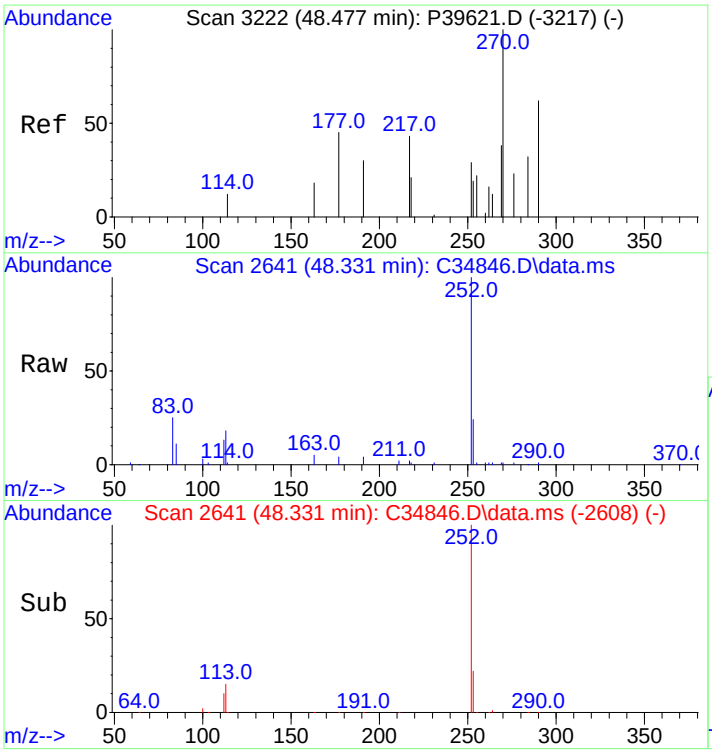




#133
Unknown Sterane (S18)
Concen: 210.55 ng/ml
RT: 48.075 min Scan# 2624
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

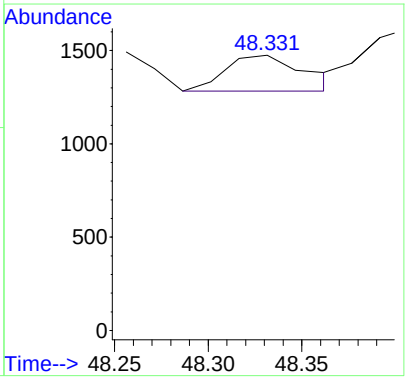
Tgt Ion:217 Resp: 3023

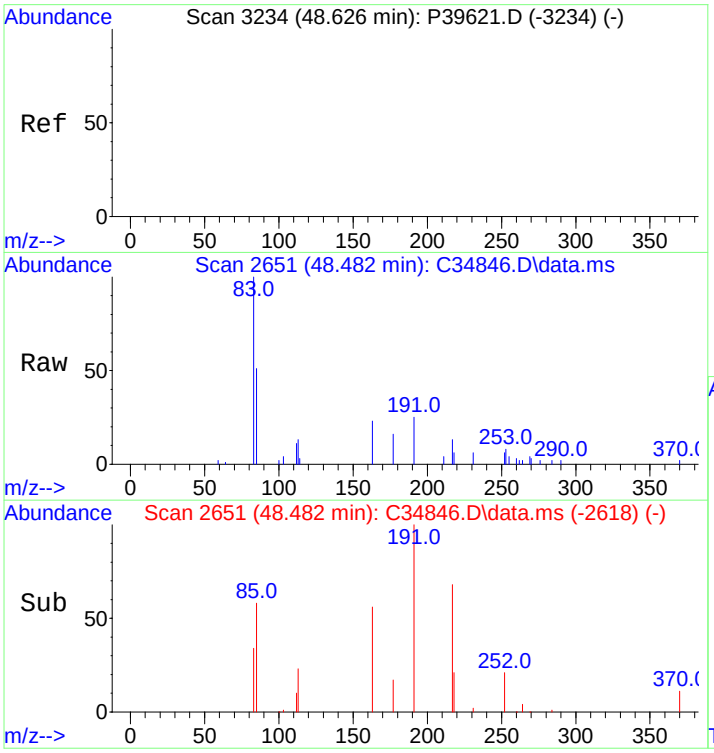




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 39.35 ng/ml
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

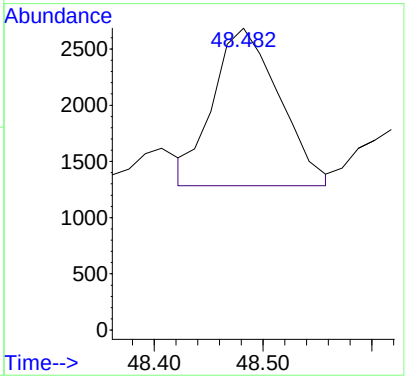
Tgt Ion:217 Resp: 565

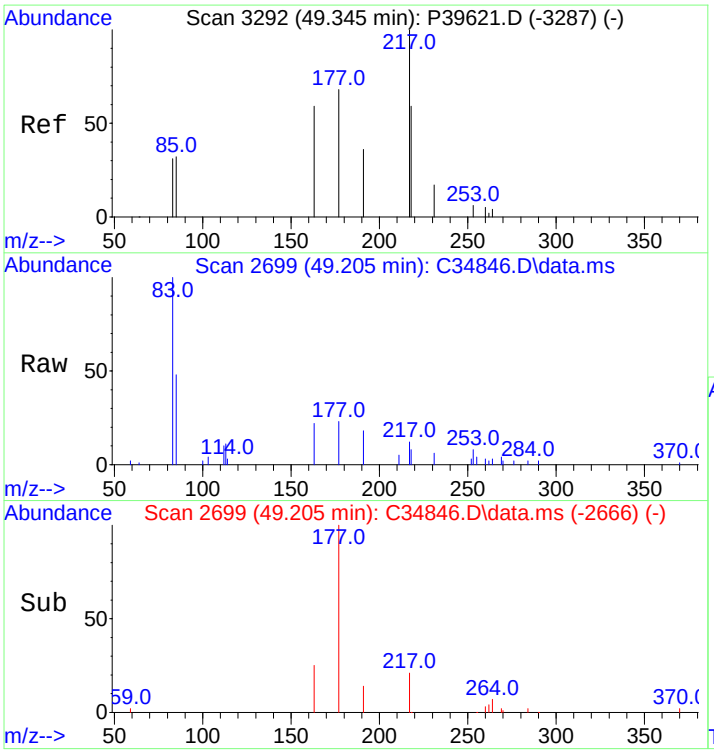




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 410.52 ng/ml m
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

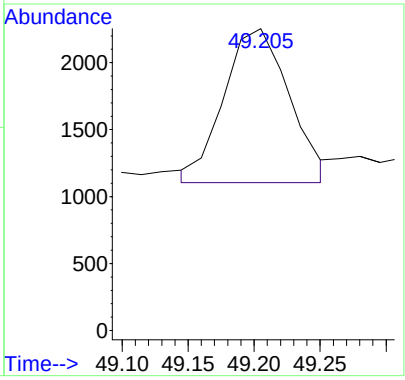
Tgt Ion:217 Resp: 5894

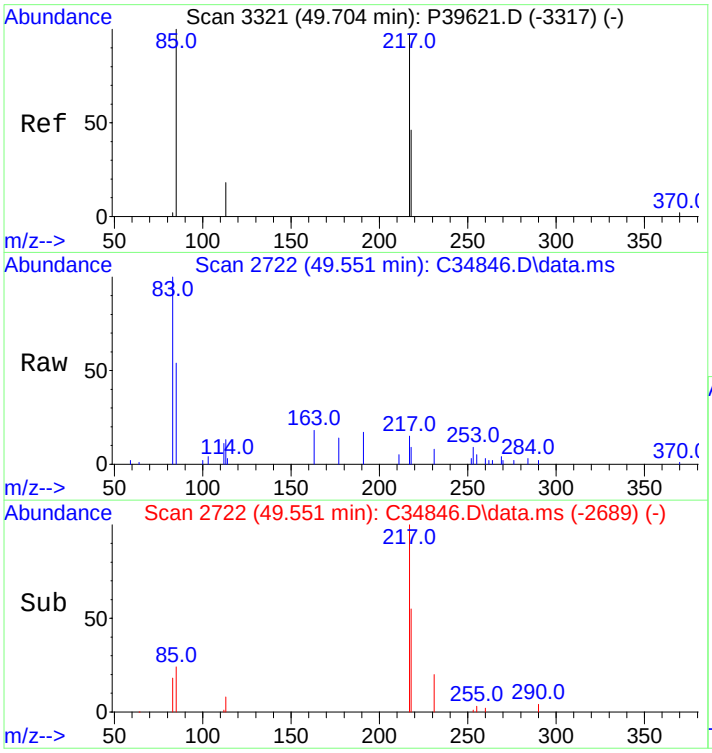




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 277.35 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

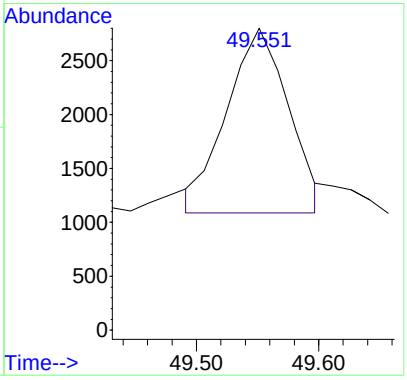
Tgt Ion:217 Resp: 3982

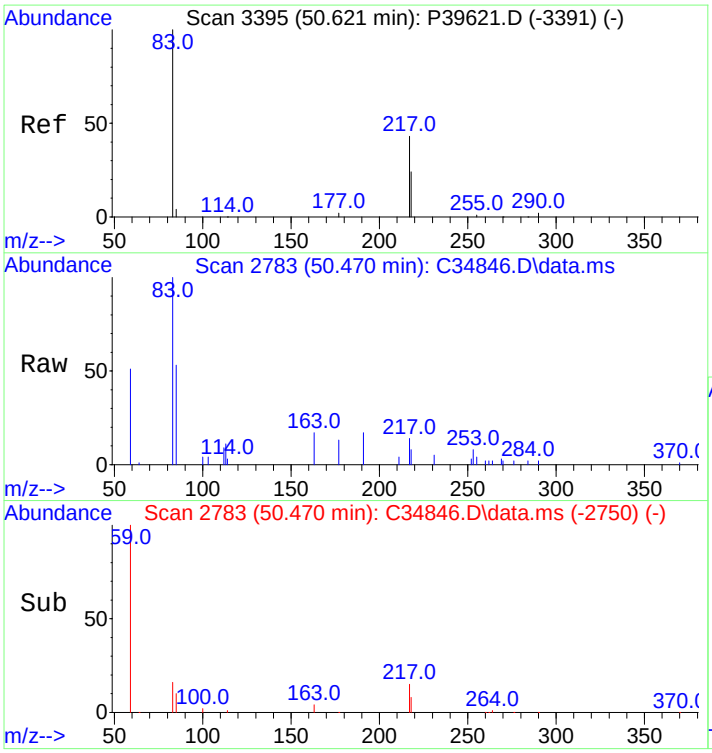




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 419.57 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

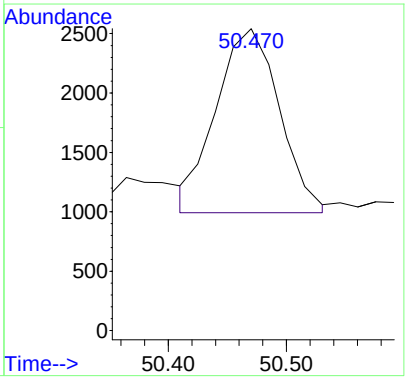
Tgt Ion:217 Resp: 6024

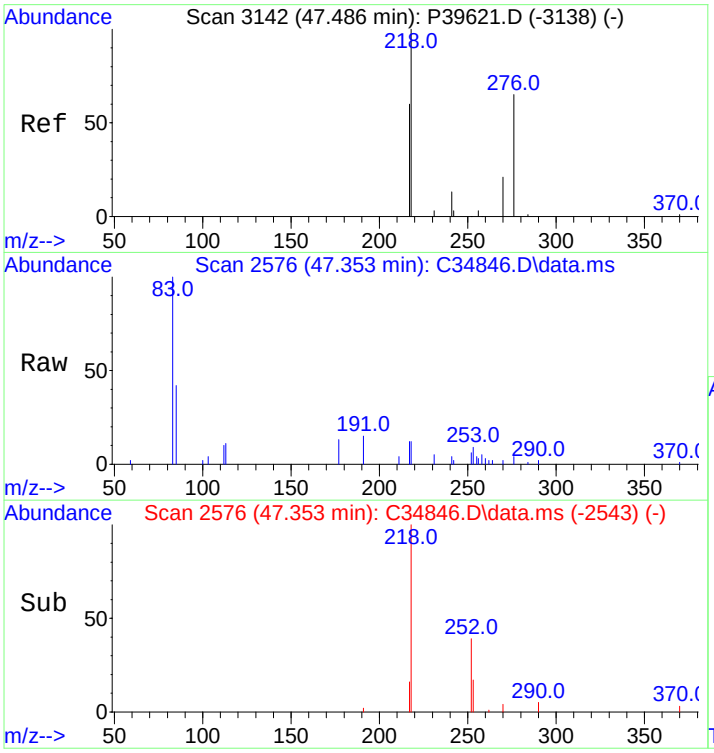




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 400.83 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

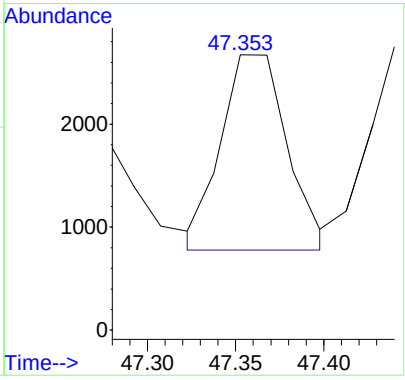
Tgt Ion:217 Resp: 5755

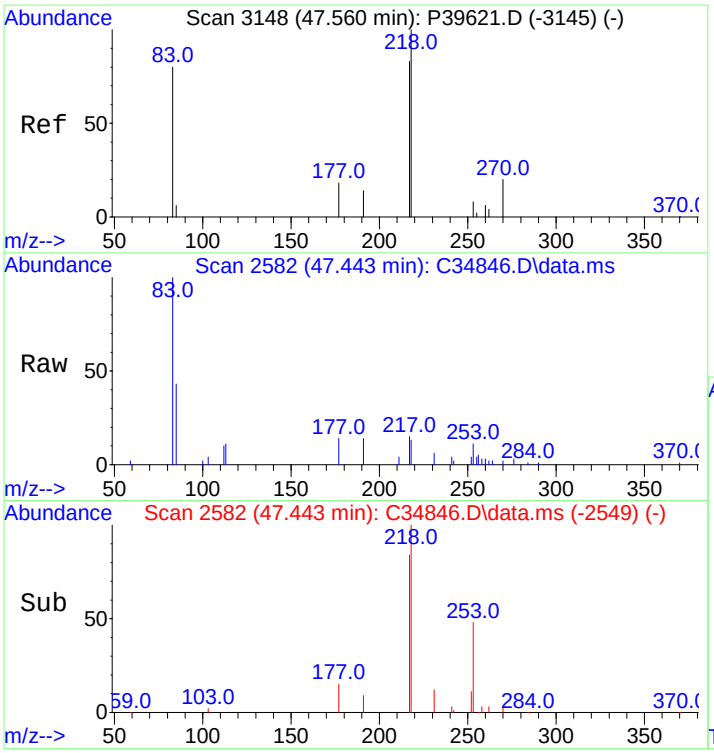




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 345.60 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

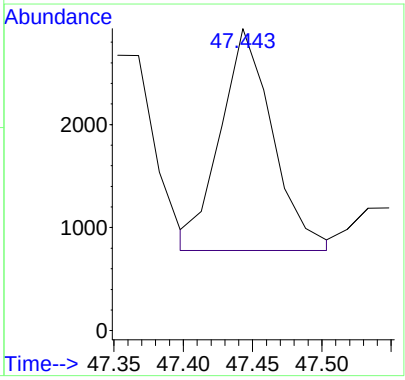
Tgt Ion:218 Resp: 4962

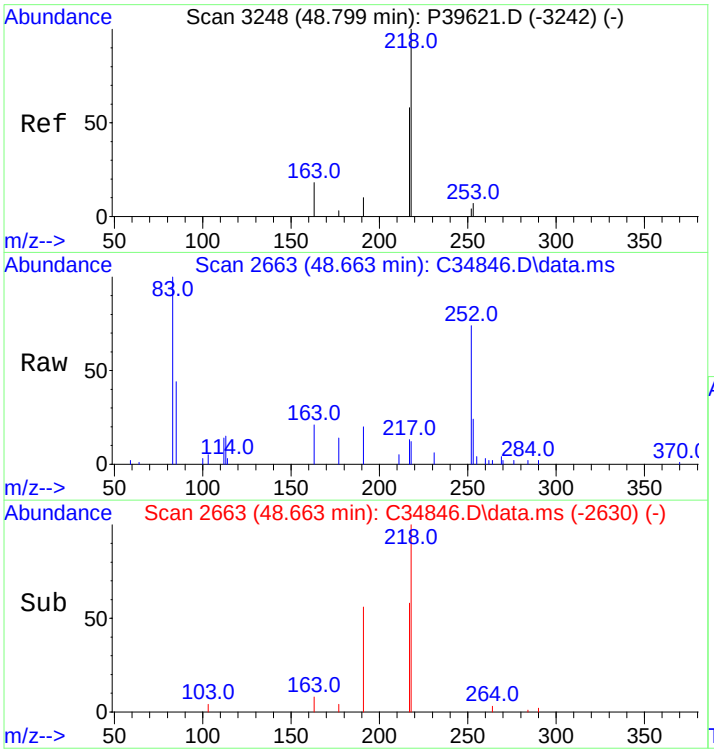




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 391.43 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

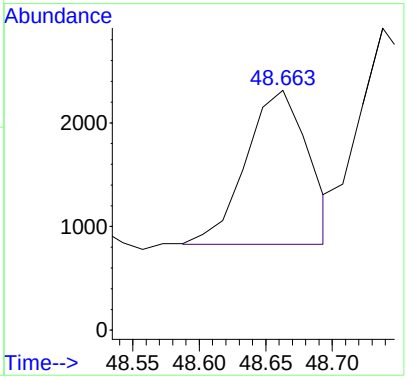
Tgt Ion:218 Resp: 5620

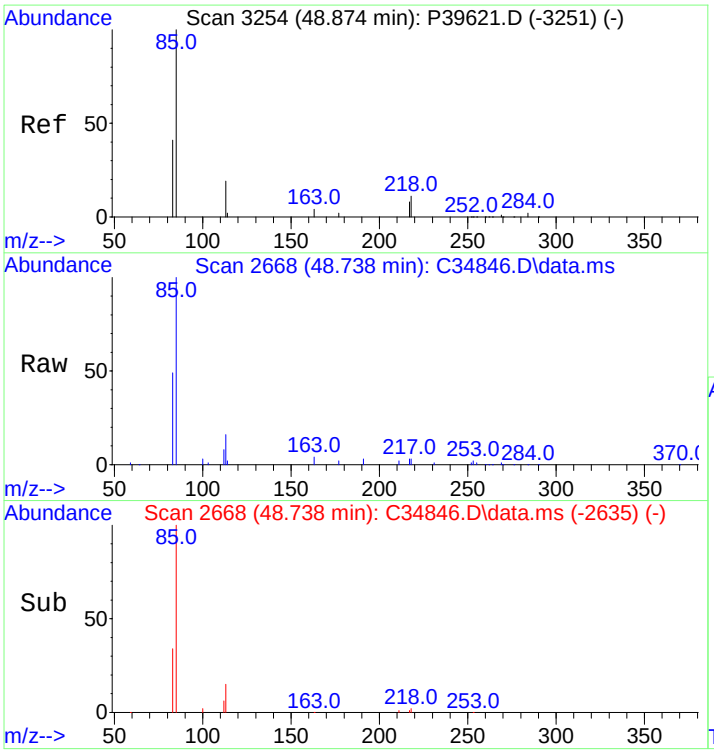




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 338.50 ng/ml m
RT: 48.663 min Scan# 2663
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

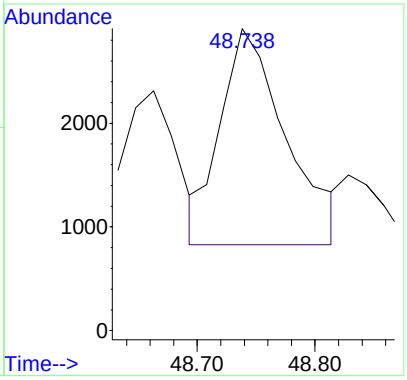
Tgt Ion:218 Resp: 4860

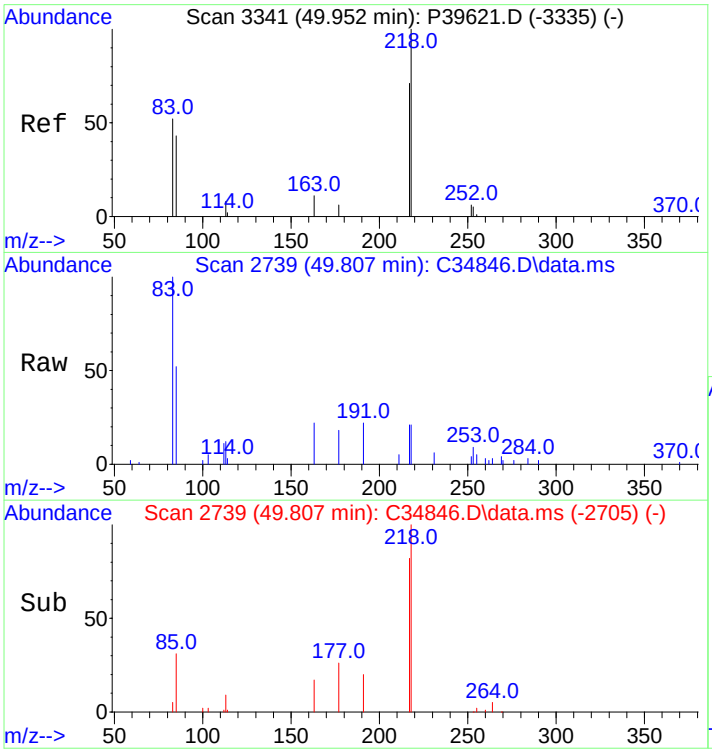




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 561.03 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

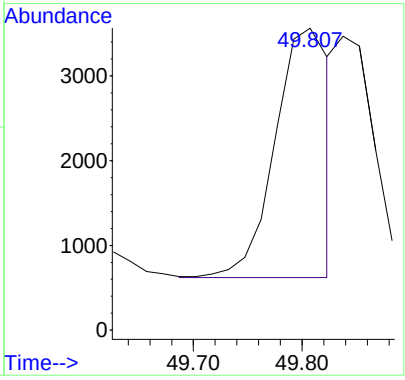
Tgt Ion:218 Resp: 8055

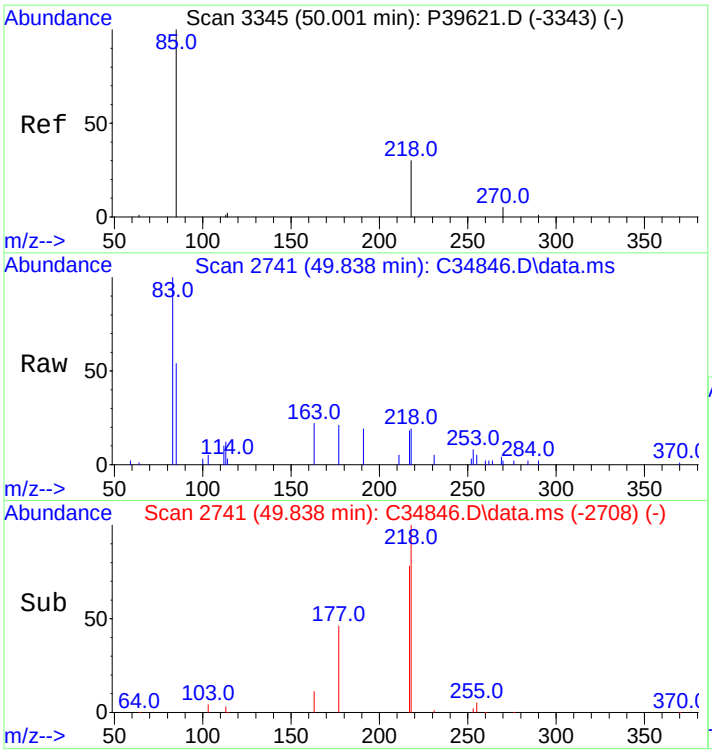




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 707.78 ng/ml m
RT: 49.807 min Scan# 2739
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

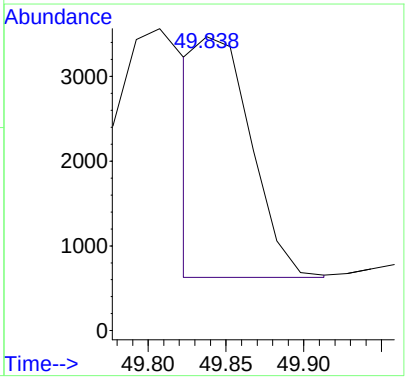
Tgt Ion:218 Resp: 10162

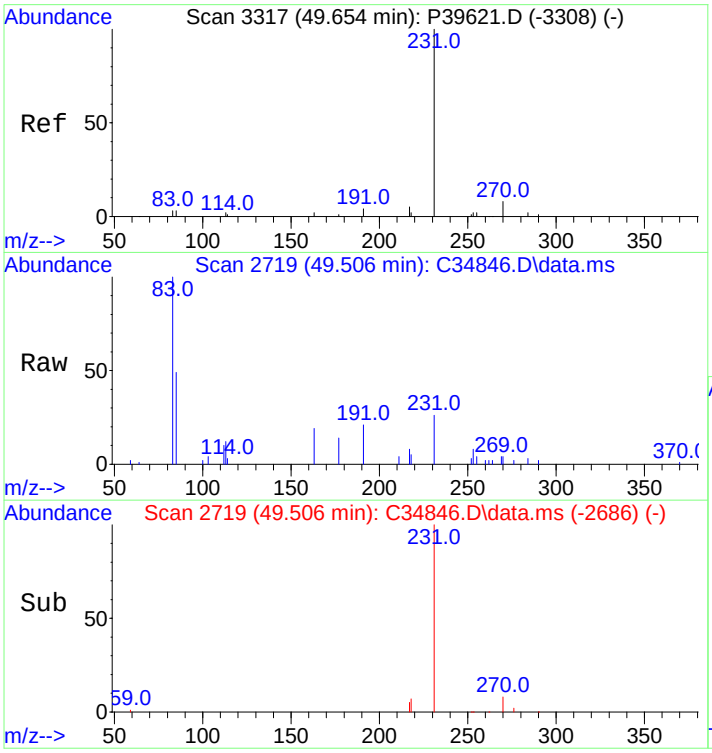




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 477.31 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

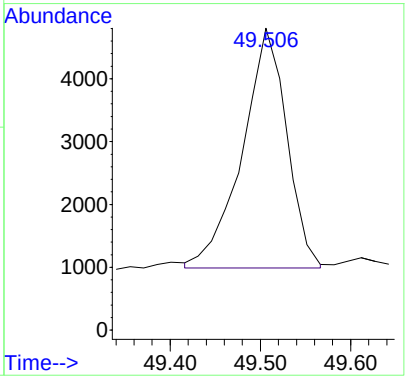
Tgt Ion:218 Resp: 6853

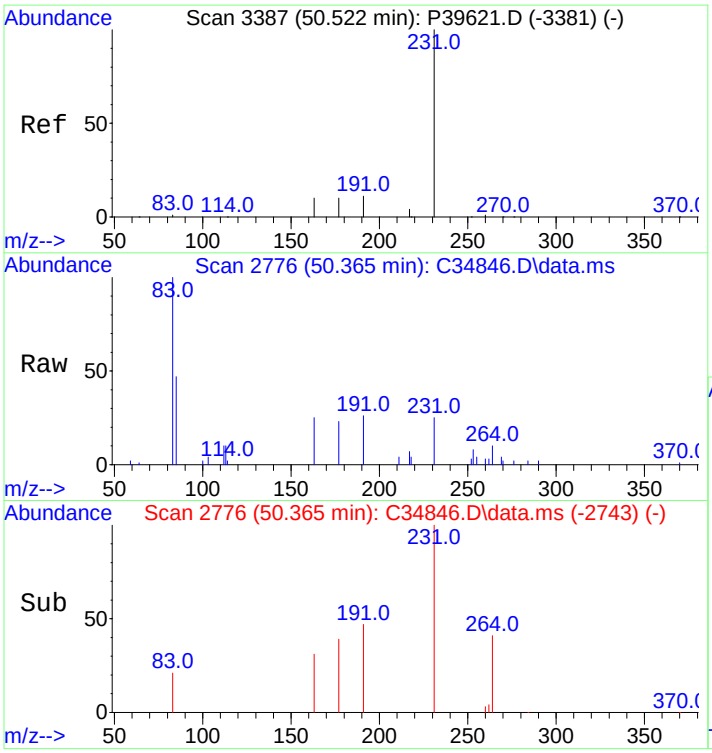




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 909.14 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

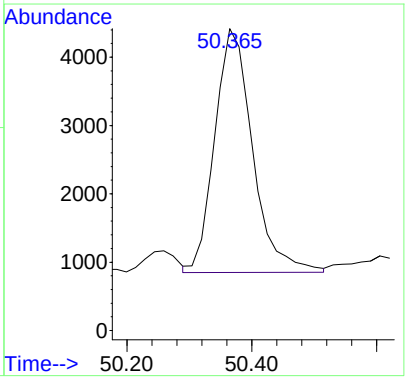
Tgt Ion:231 Resp: 13053

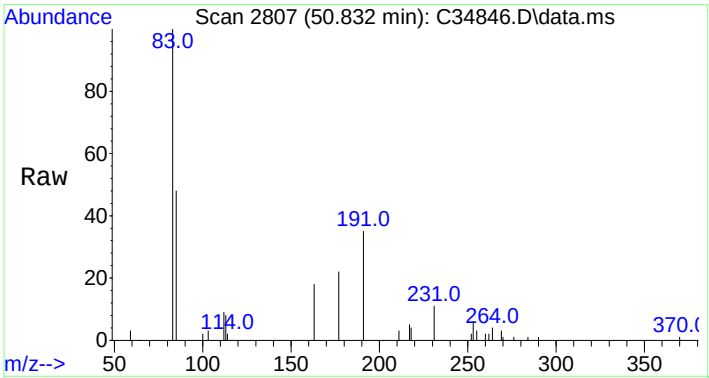




#146
C28,20S-triaromatic steroid
Concen: 1049.62 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

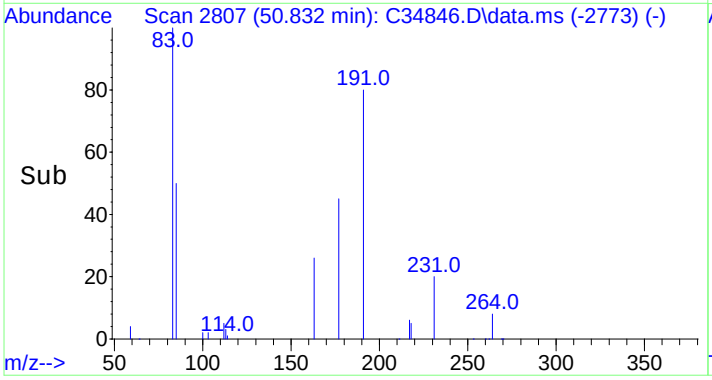
Tgt Ion:231 Resp: 15070

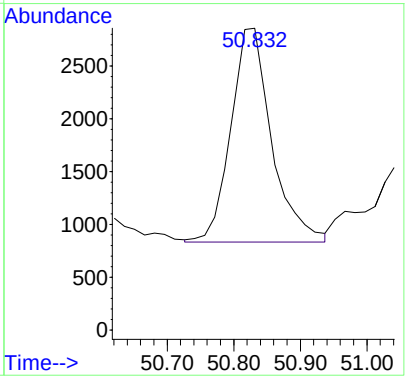


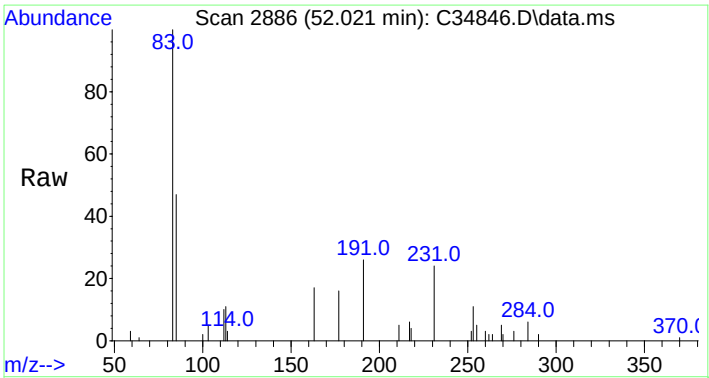


#147
C27,20R-triaromatic steroid
Concen: 601.22 ng/mL m
RT: 50.832 min Scan# 2807
Delta R.T. 0.015 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:231 Resp: 8632

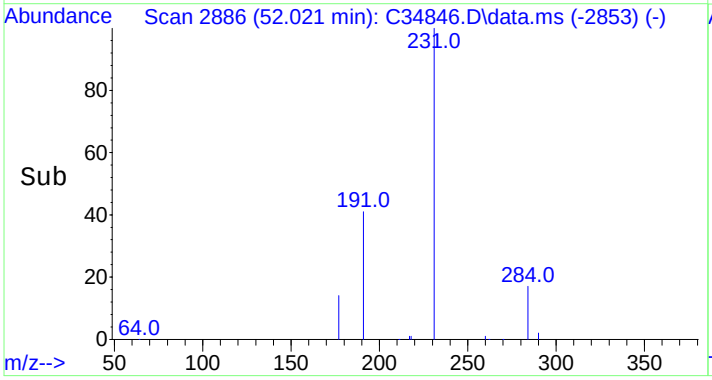


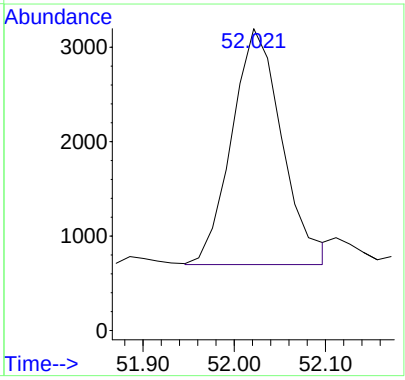




#148
C28,20R-triaromatic steroid
Concen: 665.22 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34846.D
Acq: 4 May 2012 7:41 pm

Tgt Ion:231 Resp: 9551





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	21641M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	43533	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	161305	1717.336	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 171.73%#			
42) Phenanthrene-d10	32.567	188	160111	2156.619	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 215.66%#			
86) Benzo[a]pyrene-d12	48.256	264	176027	1951.113	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 195.11%#			
127) 5B(H)Cholane - Surr	43.769	217	29254	2149.350	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 214.94%#			
Target Compounds						Qvalue
3) trans-Decalin	16.368	138	234	13.697	ng/mL	100
5) C1-Decalins	18.311	152	556M5	32.546	ng/mL	
6) C2-Decalins	19.289	166	1477M5	86.457	ng/mL	
7) C3-Decalins	22.511	180	1780M5	104.194	ng/mL	
8) C4-Decalins	25.492	194	3684M5	215.646	ng/mL	
10) Naphthalene	19.801	128	18136	131.489	ng/mL#	100
11) C1-Naphthalenes	22.496	142	12558M5	91.047	ng/mL	
12) C2-Naphthalenes	25.341	156	27135M5	196.733	ng/mL	
13) C3-Naphthalenes	28.021	170	49505M5	358.919	ng/mL	
14) C4-Naphthalenes	30.444	184	53837M5	390.327	ng/mL	
16) 2-Methylnaphthalene	22.496	142	7925	97.175	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	4490	56.168	ng/mL#	100
18) Benzothiophene	20.012	134	975	7.855	ng/mL	100
19) C1-Benzo(b)thiophenes	22.631	148	2054M5	16.549	ng/mL	
20) C2-Benzo(b)thiophenes	25.371	162	3020M5	24.332	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	9422M5	75.912	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	13386M5	107.849	ng/mL	
23) Biphenyl	24.378	154	2731	26.473	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	6082	90.771	ng/mL#	100
25) Dibenzofuran	27.464	168	7606	64.205	ng/mL	94
26) Acenaphthylene	26.079	152	31046	226.750	ng/mL#	100
27) Acenaphthene	26.816	153	5964M3	73.979	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	3058M3	56.616	ng/mL	
29) Fluorene	28.834	166	10376M3	116.701	ng/mL	
30) C1-Fluorenes	31.197	180	14387M5	161.813	ng/mL	
31) C2-Fluorenes	33.395	194	31768M5	357.301	ng/mL	
32) C3-Fluorenes	35.909	208	46914M5	527.650	ng/mL	
33) Dibenzothiophene	32.161	184	15335	107.596	ng/mL#	67
34) 4-Methyldibenzothiophe...	33.937	198	16012	112.346	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	18375M3	128.926	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	9099	63.842	ng/mL#	100
37) OTP	34.374	198	30187M3	211.804	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	79271M5	556.196	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	94804M5	665.182	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	121460M5	852.210	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	94161M5	660.670	ng/mL	
43) Phenanthrene	32.657	178	188332	1504.021	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	38627	308.476	ng/mL	100
45) 2/4-Methylphenanthrene...	34.735	192	48578	387.944	ng/mL	95
46) 2-Methylanthracene(2MA)	34.886	192	27193	217.164	ng/mL#	39
47) 9-Methylphenanthrene(9MP)	35.066	192	51505	411.319	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.157	192	31531M3	251.807	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.735	192	200359M5	1600.069	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	166598M5	1330.453	ng/mL	
52) C3-Phenanthrenes/Anthr...	38.725	220	105024M5	838.723	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	56099M5	448.007	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
55) Anthracene	32.838	178		66569M3	544.260	ng/mL	
56) Carbazole	33.500	167		9686M3	78.399	ng/mL	
57) 1-Methylphenanthrene	35.157	192		31412M3	395.849	ng/mL	
58) Fluoranthene	37.430	202		648368M3	5213.494	ng/mL	
59) Benzo(b)fluorene	39.944	216		54331M3	753.021	ng/mL	
60) Pyrene	38.318	202		627390	4962.799	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.703	216		394663M5	3121.875	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230		194141M5	1535.700	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244		100382M5	794.045	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258		78743M5	622.875	ng/mL	
66) Naphthobenzothiophene	42.158	234		60868	447.225	ng/ml#	69
67) Naphthobenzothiophene-...	42.158	234		60868	447.225	ng/mL#	69
68) Naphthobenzothiophene-...	42.504	234		13409M3	98.522	ng/mL	
69) Naphthobenzothiophene-...	42.805	234		30504M3	224.127	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248		95525M5	701.866	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262		102269M5	751.417	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276		85905M5	631.184	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290		62511M5	459.297	ng/mL	
75) Benz[a]anthracene	43.106	228		352348M3	2550.050	ng/mL	
77) Chrysene/Triphenylene	43.257	228		360545M3	2584.605	ng/mL	
78) C1-Chrysenes	44.732	242		180811M5	1296.163	ng/mL	
79) C2-Chrysenes	46.434	256		104501M5	749.126	ng/mL	
80) C3-Chrysenes	47.473	270		94670M5	678.652	ng/mL	
81) C4-Chrysenes	49.024	284		52133M5	373.721	ng/mL	
82) Benzo[b]fluoranthene	47.157	252		380462	2505.931	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.217	252		331463	2005.250	ng/mL	98
84) Benzo[a]fluoranthene	47.533	252		104079	629.646	ng/mL#	1
85) Benzo[e]pyrene	48.151	252		286193	1905.751	ng/mL	98
87) Benzo[a]pyrene	48.346	252		416174	2878.389	ng/mL	99
88) Perylene	48.648	252		122512	792.846	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.181	276		313018M3	1860.340	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278		83402	521.067	ng/mL#	92
91) Benzo[g,h,i]perylene	54.491	276		317733	1787.369	ng/mL	100
92) Hopane (T19)	52.217	191		40517M3	1412.169	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191		10254	357.390	ng/ml	100
95) C24 Tricyclic Terpane ...	41.510	191		6097M3	212.503	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191		6369M3	221.983	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191		3027	105.502	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191		2882M3	100.448	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191		2976	103.725	ng/ml	100
100) C28 Tricyclic Terpane-...	46.434	191		2533M3	88.284	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191		4221M3	147.118	ng/ml	
102) C29 Tricyclic Terpane-...	47.127	191		2966	103.376	ng/ml	100
103) C29 Tricyclic Terpane-...	47.322	191		3135M3	109.266	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.452	191		5855M3	204.069	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191		2959M3	103.132	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191		2602M3	90.689	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191		11014	383.879	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191		5577	194.379	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191		7943M3	276.843	ng/ml	
110) 30-Norhopane (T15)	50.846	191		33222M3	1157.911	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191		8400M3	292.771	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191		1694M3	59.042	ng/ml	
113) 30-Normoretane (T17)	51.630	191		4041M3	140.844	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.036	191		1724M3	60.088	ng/ml	
115) Moretane (T20)	52.895	191		5468M3	190.580	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191		17040M3	593.908	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191		14053	489.799	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191		5654	197.063	ng/mL	100
119) 30,31-Bishomohopane-22...	55.530	191	G	44760M3	1560.053	ng/ml	
120) 30,31-Bishomohopane-22...	55.982	191		12772	445.152	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

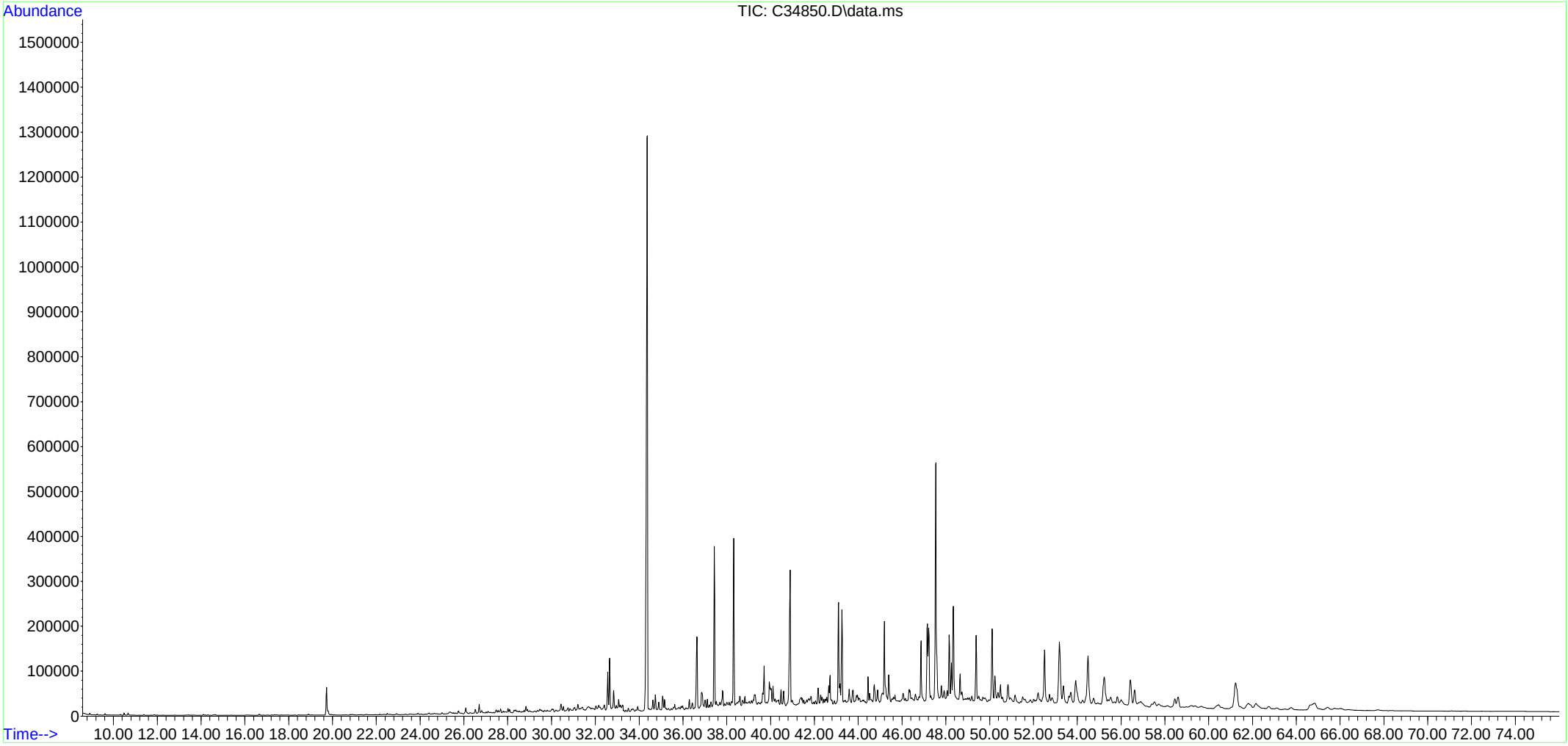
Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
121) 30,31-Trishomohopane-2...	57.713	191		11360M3	395.938	ng/ml	
122) 30,31-Trishomohopane-2...	58.331	191		4561M3	158.968	ng/ml	
123) Tetrakishomohopane-22S...	60.379	191	G	13062M3	455.259	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	G	49894	1738.992	ng/ml	100
125) Pentakishomohopane-22S...	63.466	191		5605M3	195.355	ng/ml	
126) Pentakishomohopane-22R...	64.761	191		3820M3	133.141	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217		2231M3	163.916	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217		1215	89.268	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217		1128M3	82.876	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217		4961	364.495	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217		5424M3	398.512	ng/ml	
133) Unknown Sterane (S18)	48.060	217		1525M3	112.045	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217		337	24.760	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217		2615M3	192.129	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217		1978M3	145.328	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217		3911M3	287.349	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217		3348M3	245.984	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218		2564M2	188.382	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218		2576M3	189.264	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218		2848M3	209.248	ng/ml	
142) 14b,17b-20S-Methylchol...	48.738	218		3867M3	284.116	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218		6331M3	465.151	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.837	218		2849M3	209.322	ng/ml	
145) C26,20R- +C27,20S- tri...	49.506	231		17027	1251.008	ng/mL	100
146) C28,20S-triaromatic st...	50.365	231		16585	1218.533	ng/mL	100
147) C27,20R-triaromatic st...	50.816	231		11379	836.038	ng/mL	100
148) C28,20R-triaromatic st...	52.021	231		12879M3	946.246	ng/mL	

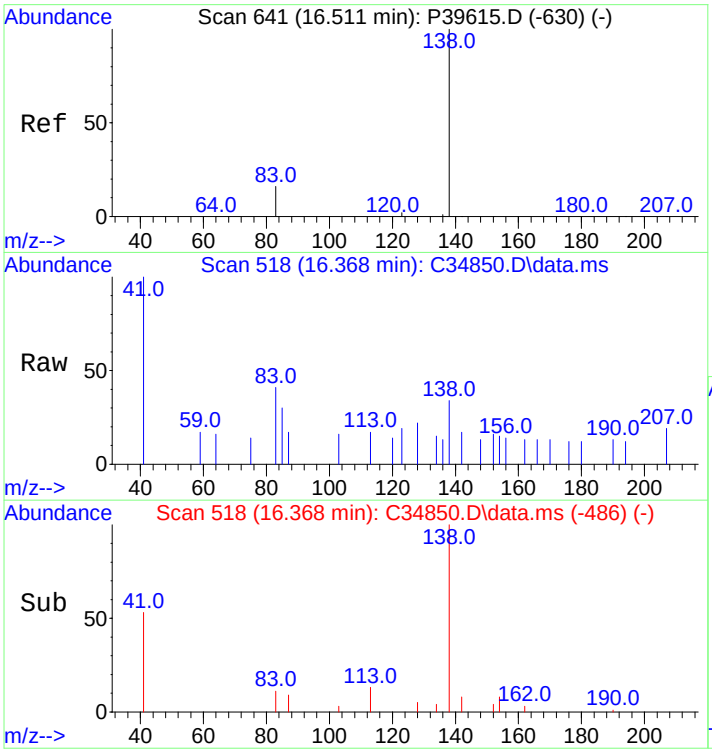
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34850.D
Acq On : 4 May 2012 10:54 pm
Operator : AC
Sample : 1204031-02
Misc : 1X
ALS Vial : 38 Sample Multiplier: 1

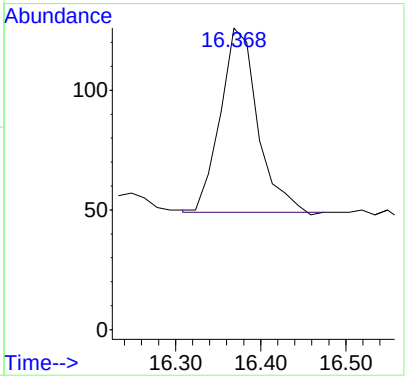
Quant Time: May 06 15:13:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

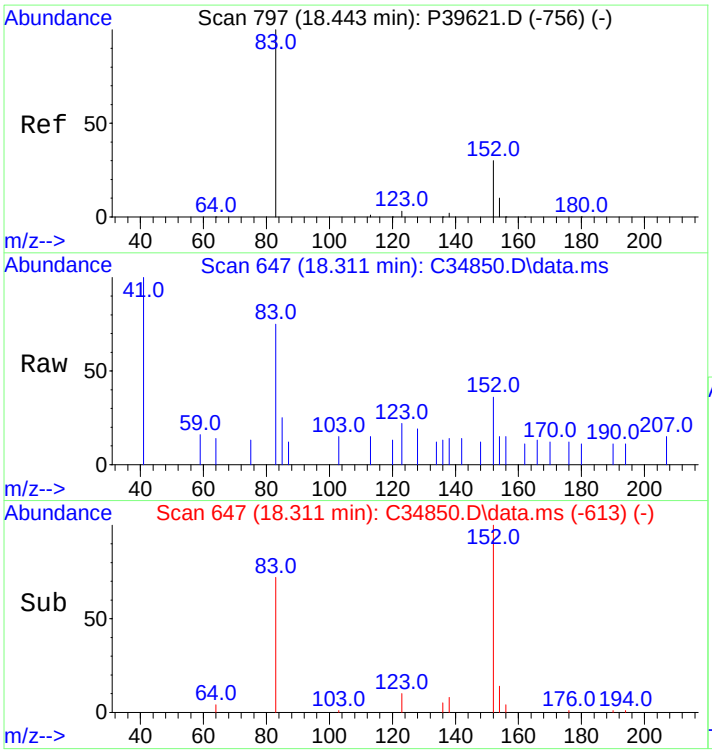




#3
trans-Decalin
Concen: 13.70 ng/mL
RT: 16.368 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

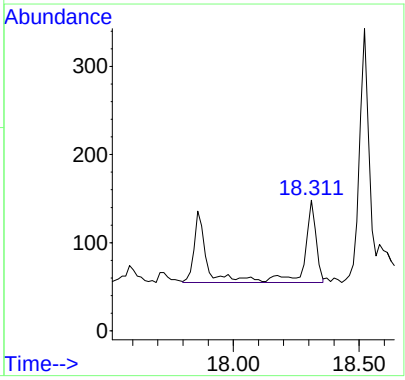
Tgt Ion:138 Resp: 234

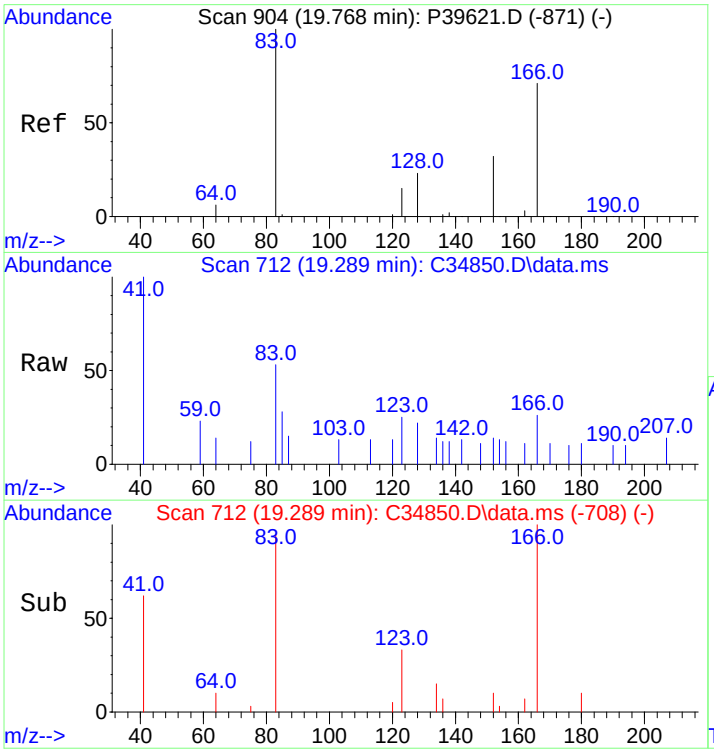




#5
C1-Decalins
Concen: 32.55 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.038 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

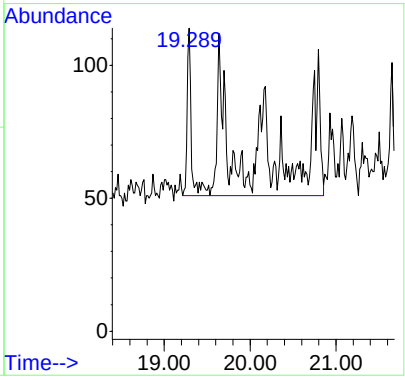
Tgt Ion:152 Resp: 556

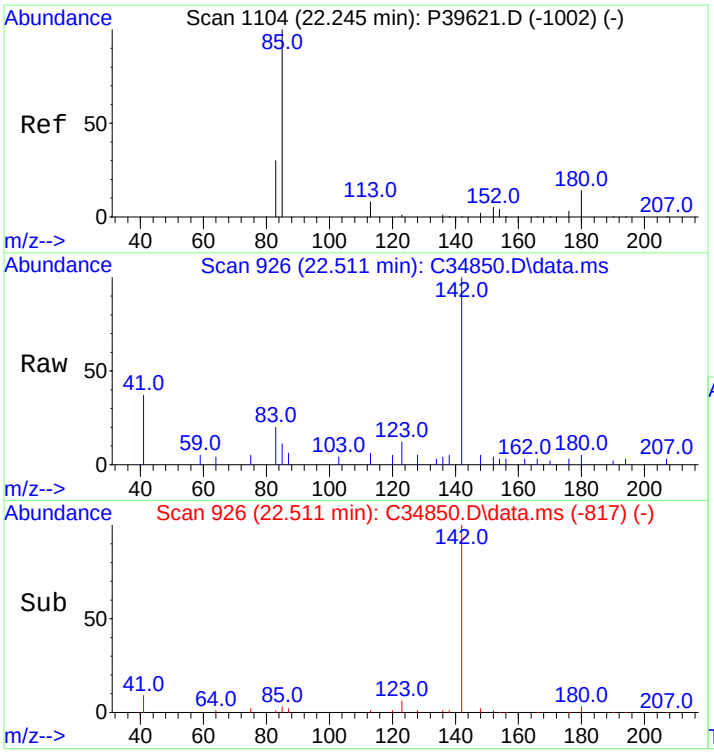




#6
C2-Decalins
Concen: 86.46 ng/mL m
RT: 19.289 min Scan# 712
Delta R.T. -0.393 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

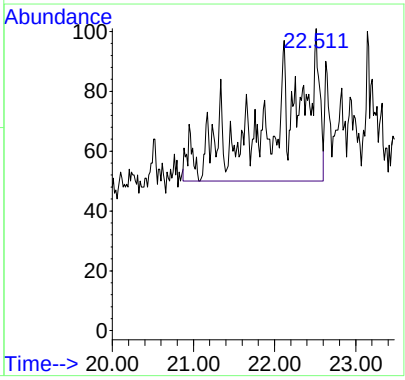
Tgt Ion:166 Resp: 1477

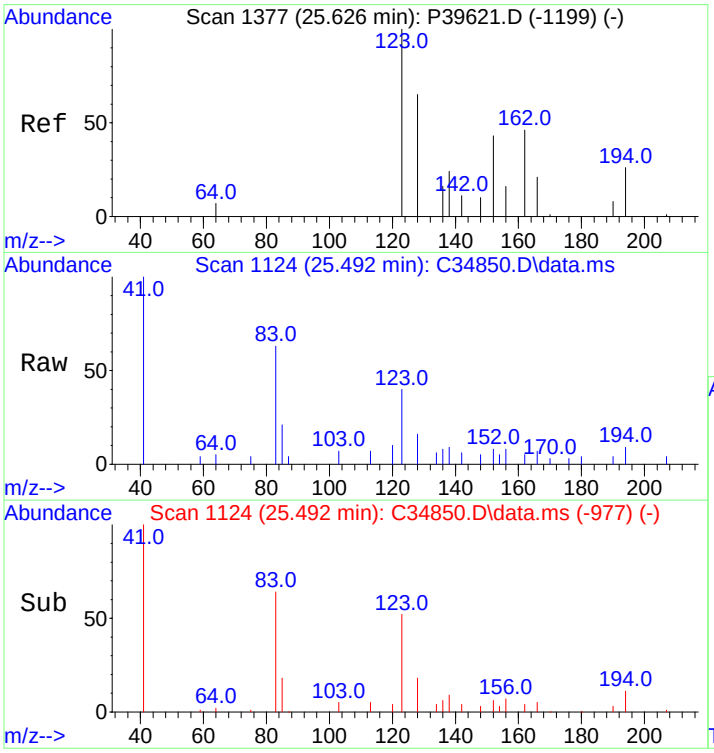




#7
C3-Decalins
Concen: 104.19 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.371 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

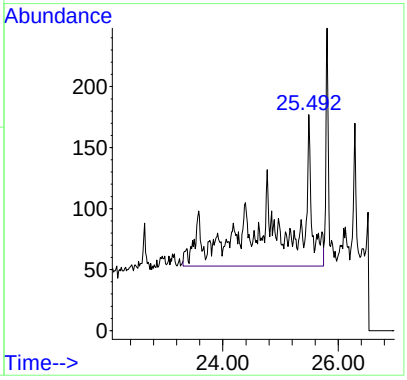
Tgt Ion:180 Resp: 1780

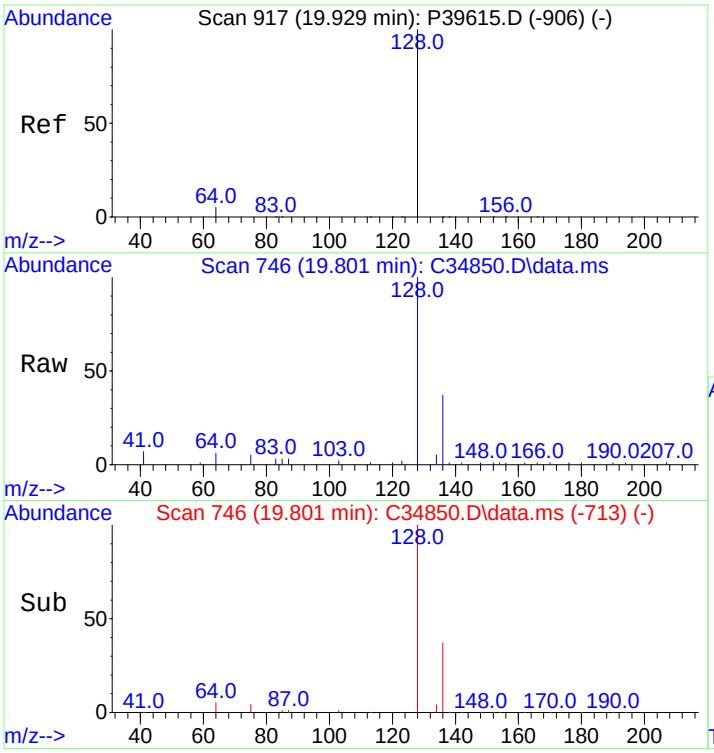




#8
C4-Decalins
Concen: 215.65 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.021 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:194 Resp: 3684

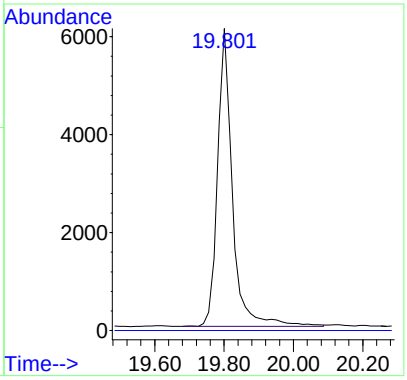


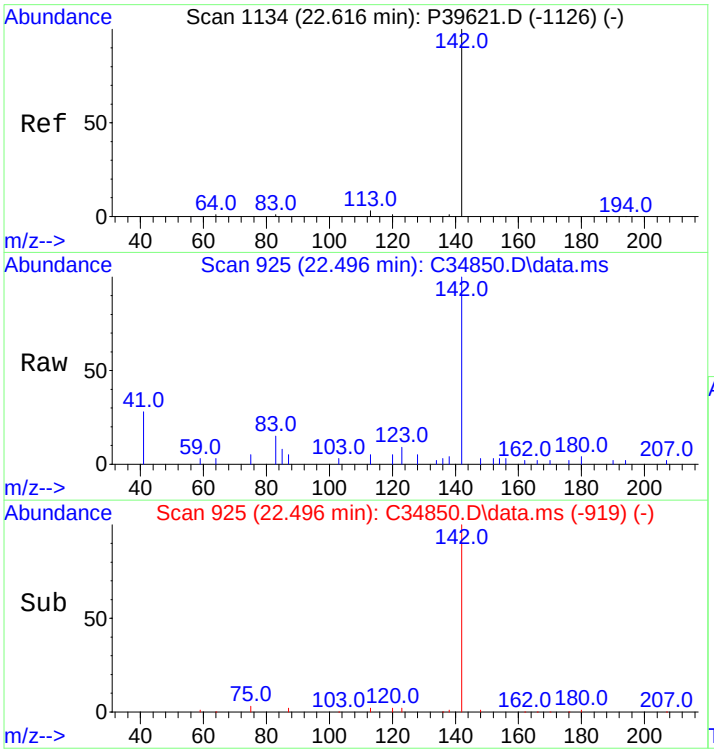


#10
Naphthalene
Concen: 131.49 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:128 Resp: 18136

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

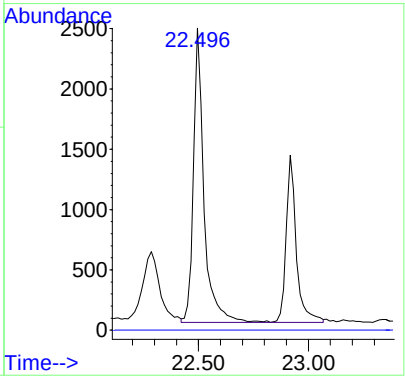


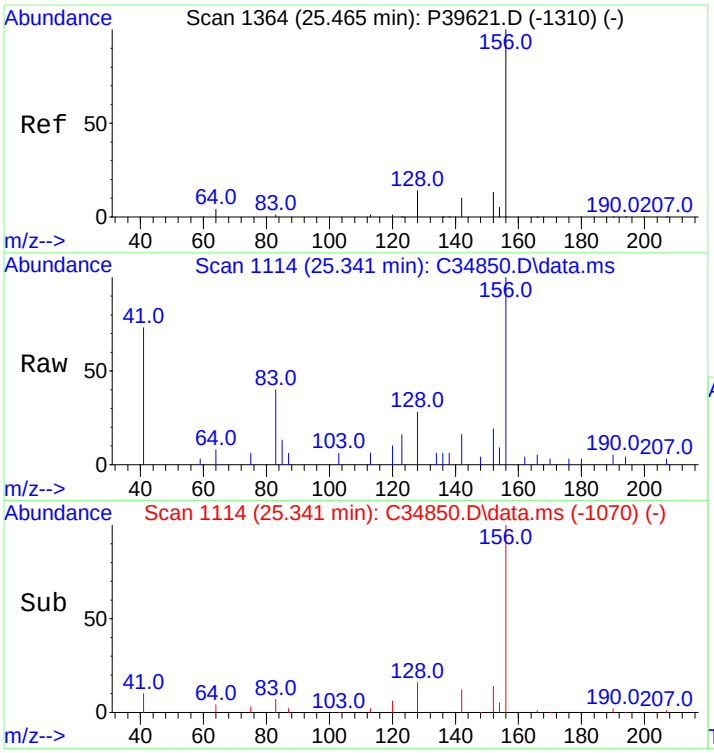


#11
C1-Naphthalenes
Concen: 91.05 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:142 Resp: 12558

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

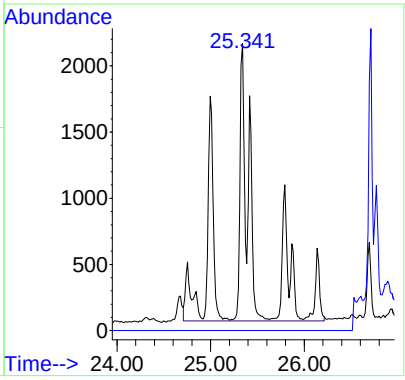


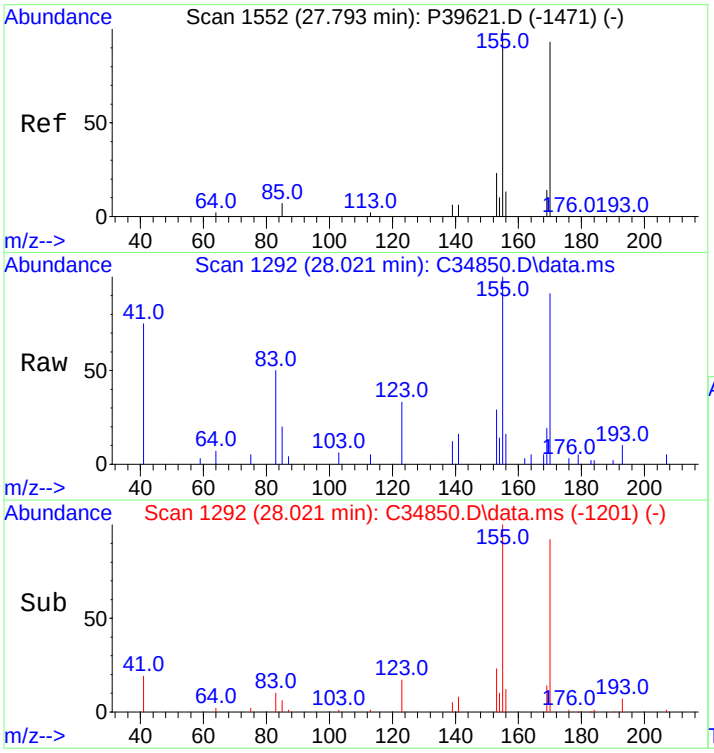


#12
C2-Naphthalenes
Concen: 196.73 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:156 Resp: 27135

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

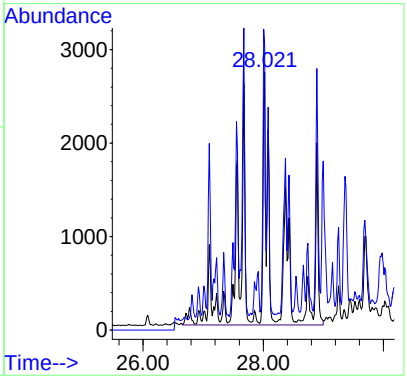


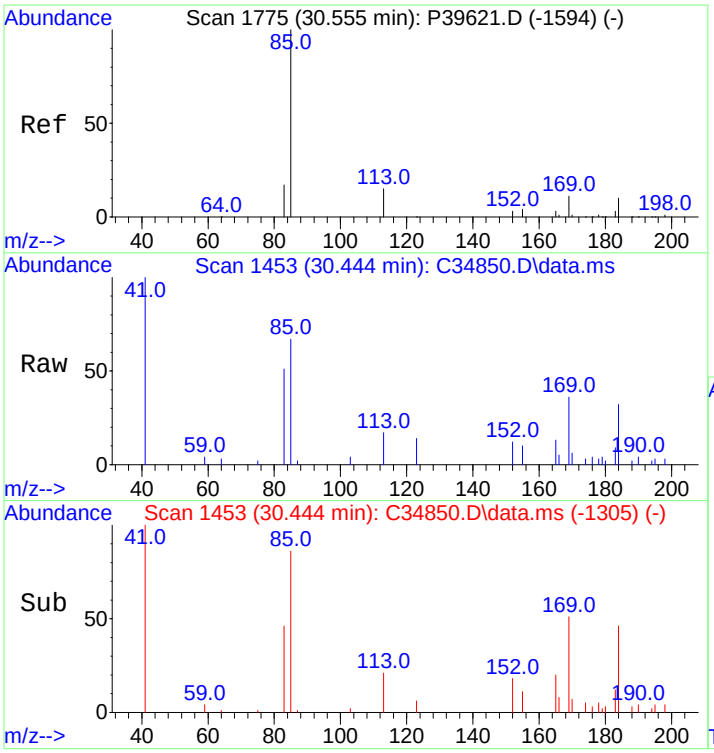


#13
C3-Naphthalenes
Concen: 358.92 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:170 Resp: 49505

Ion	Ratio	Lower	Upper
170	100		
155	15.9	81.8	122.6#

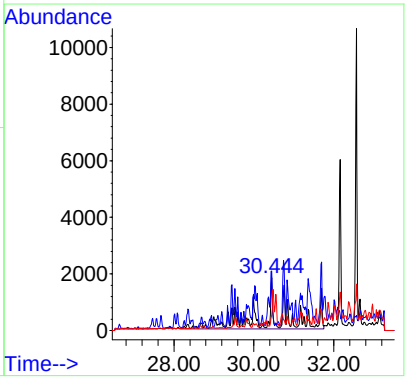


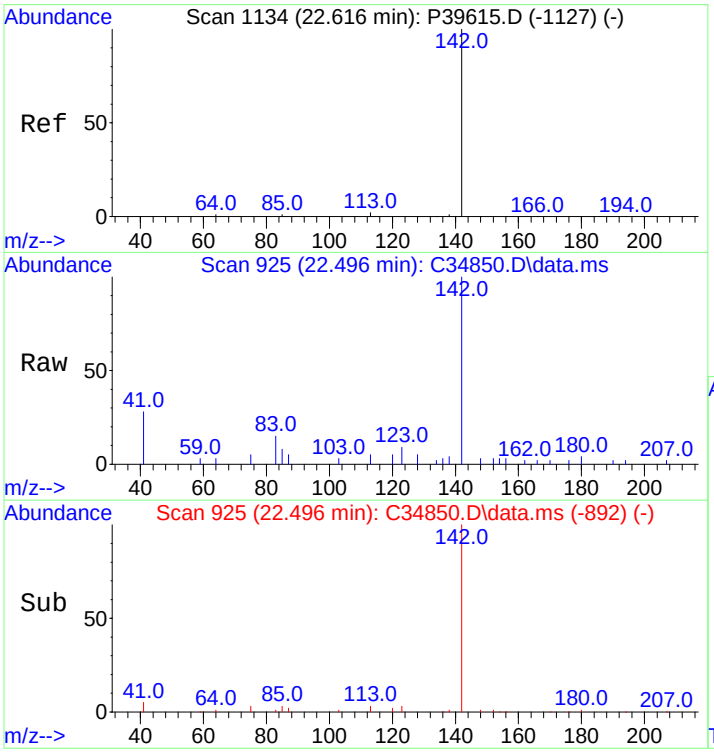


#14
C4-Naphthalenes
Concen: 390.33 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:184 Resp: 53837

Ion	Ratio	Lower	Upper
184	100		
169	11.5	77.4	116.0#
183	0.0	14.8	22.2#

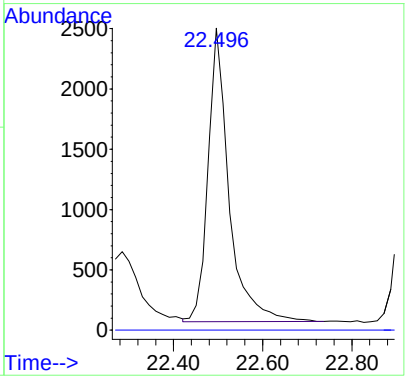


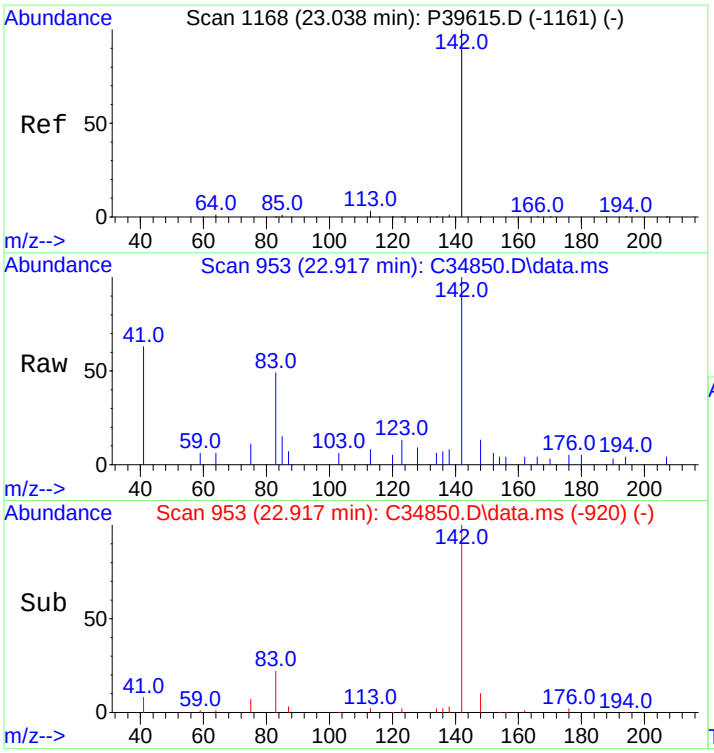


#16
2-Methylnaphthalene
Concen: 97.18 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:142 Resp: 7925

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

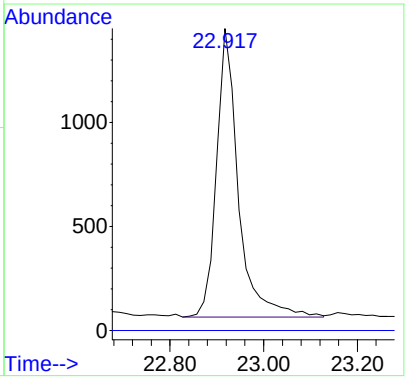


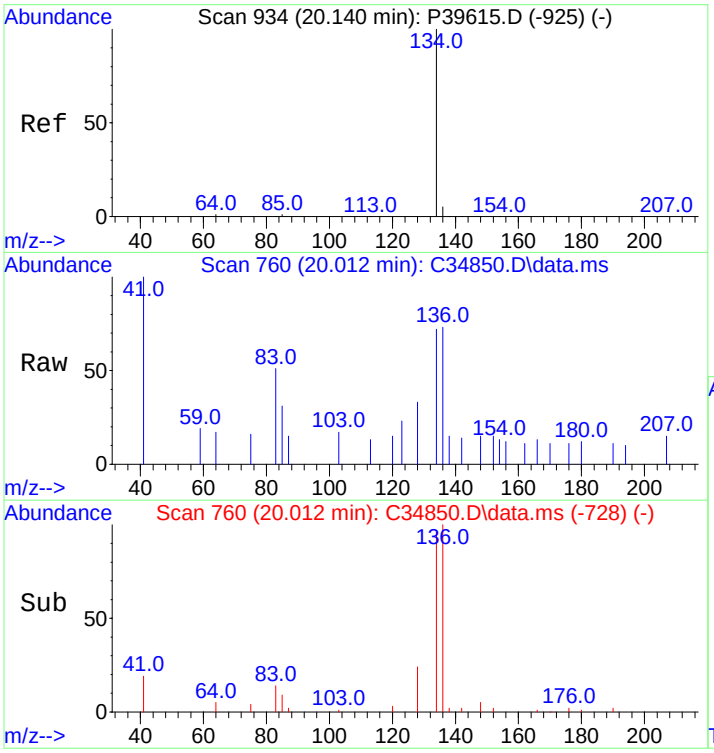


#17
1-Methylnaphthalene
Concen: 56.17 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:142 Resp: 4490

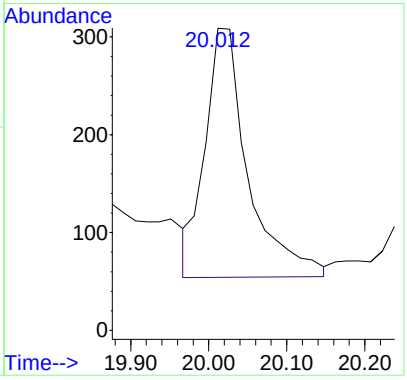
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

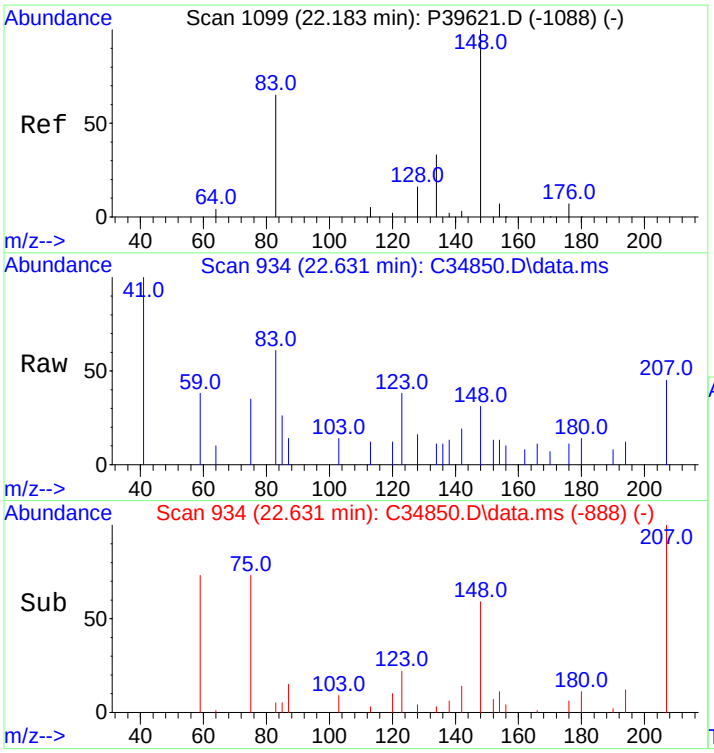




#18
Benzothiophene
Concen: 7.86 ng/mL
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

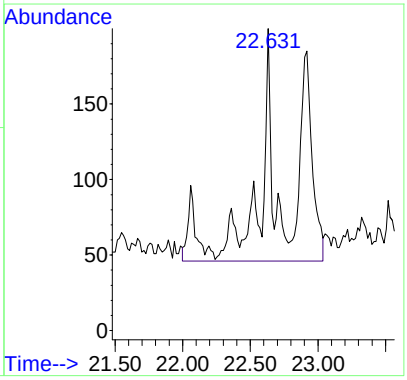
Tgt Ion:134 Resp: 975

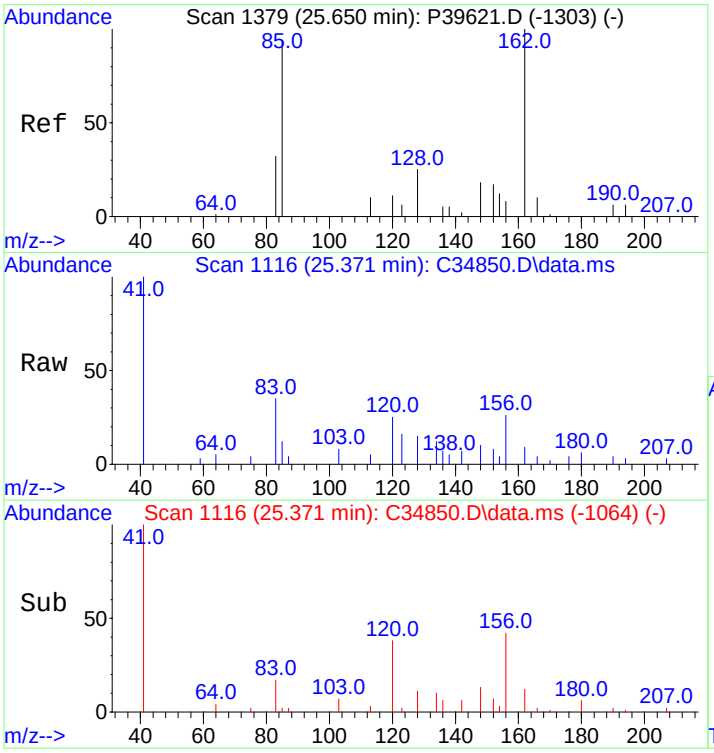




#19
C1-Benzo(b)thiophenes
Concen: 16.55 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

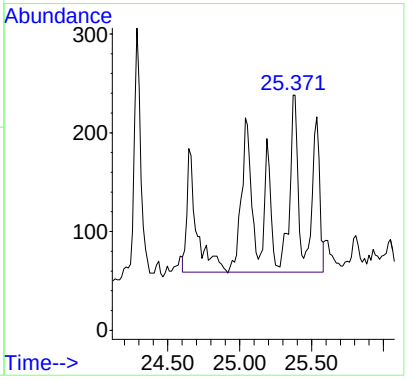
Tgt Ion:148 Resp: 2054

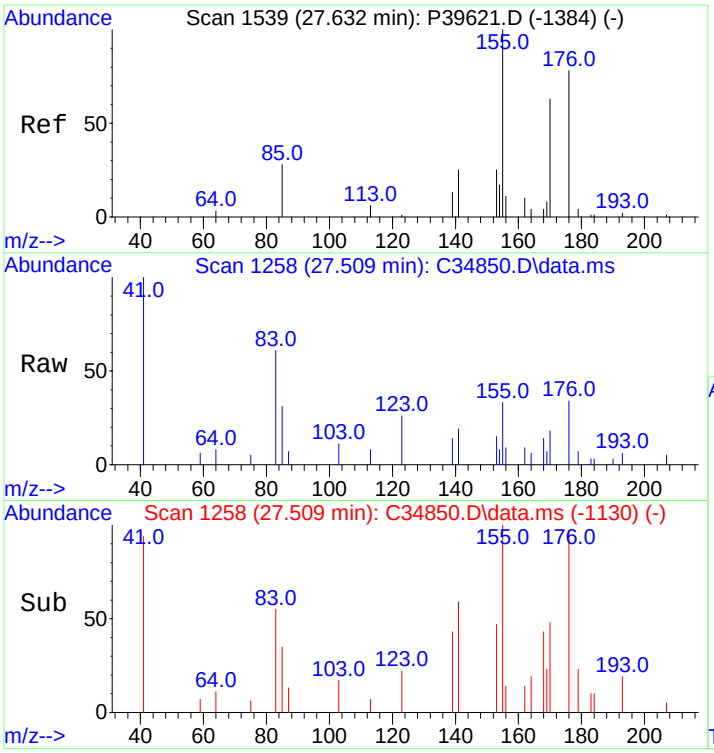




#20
C2-Benzo(b)thiophenes
Concen: 24.33 ng/mL m
RT: 25.371 min Scan# 1116
Delta R.T. -0.171 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

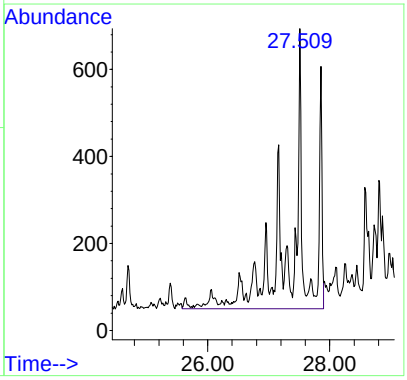
Tgt Ion:162 Resp: 3020

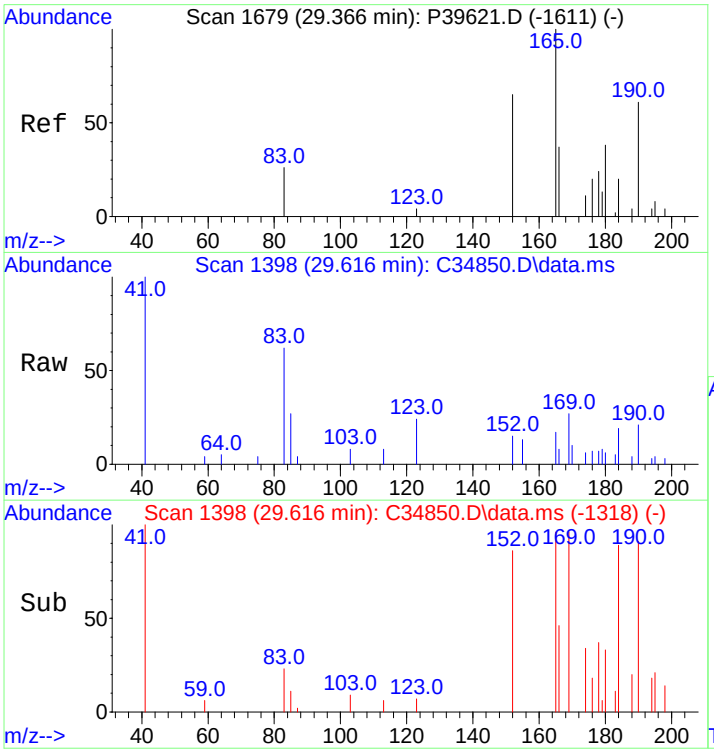




#21
C3-Benzo(b)thiophenes
Concen: 75.91 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

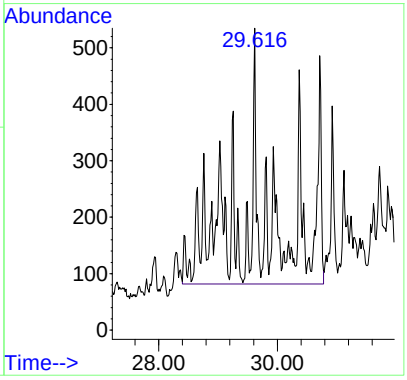
Tgt Ion:176 Resp: 9422

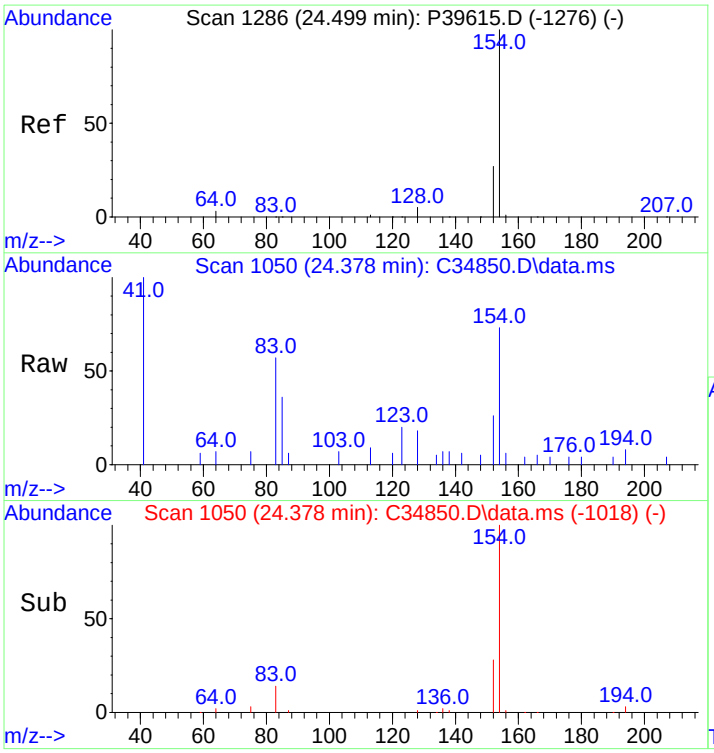




#22
C4-Benzo(b)thiophenes
Concen: 107.85 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:190 Resp: 13386

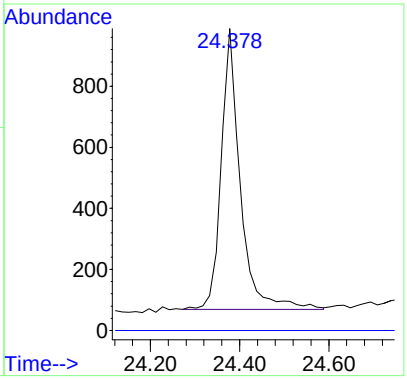


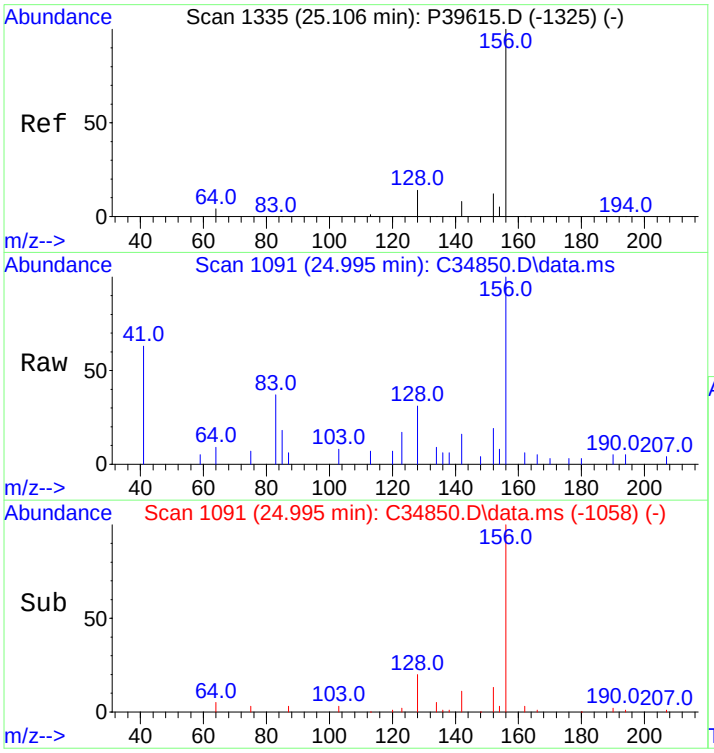


#23
Biphenyl
Concen: 26.47 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:154 Resp: 2731

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

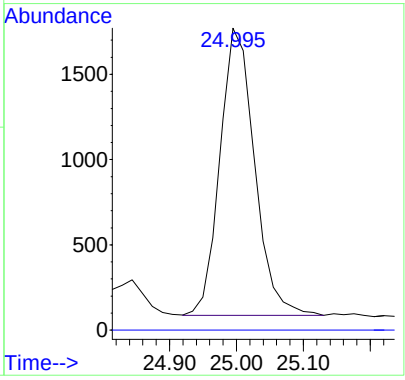


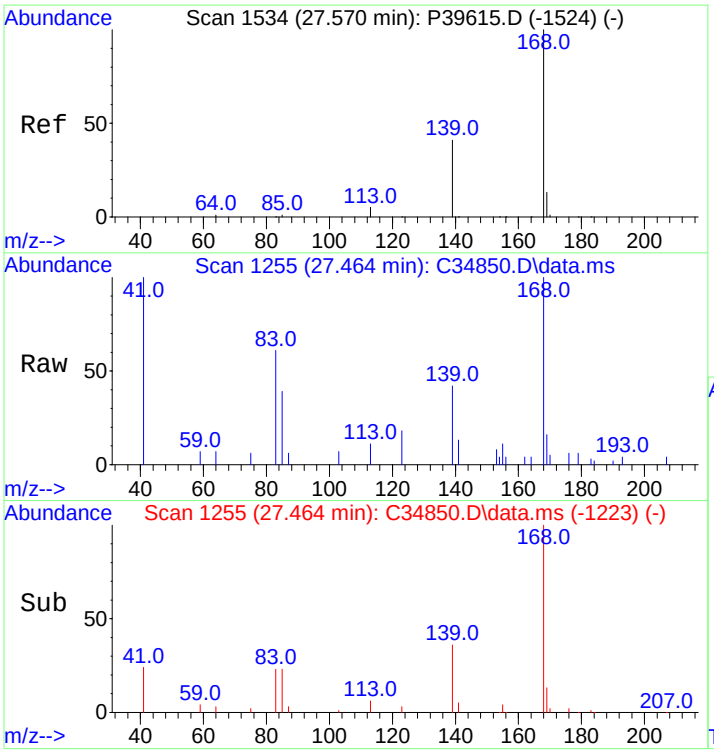


#24
2,6-Dimethylnaphthalene
Concen: 90.77 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:156 Resp: 6082

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

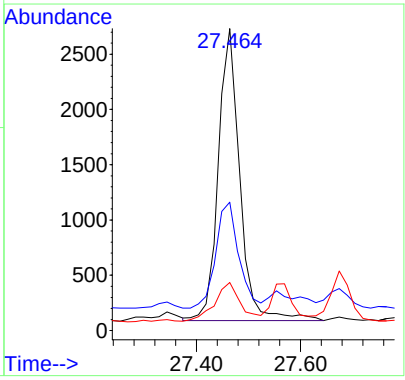


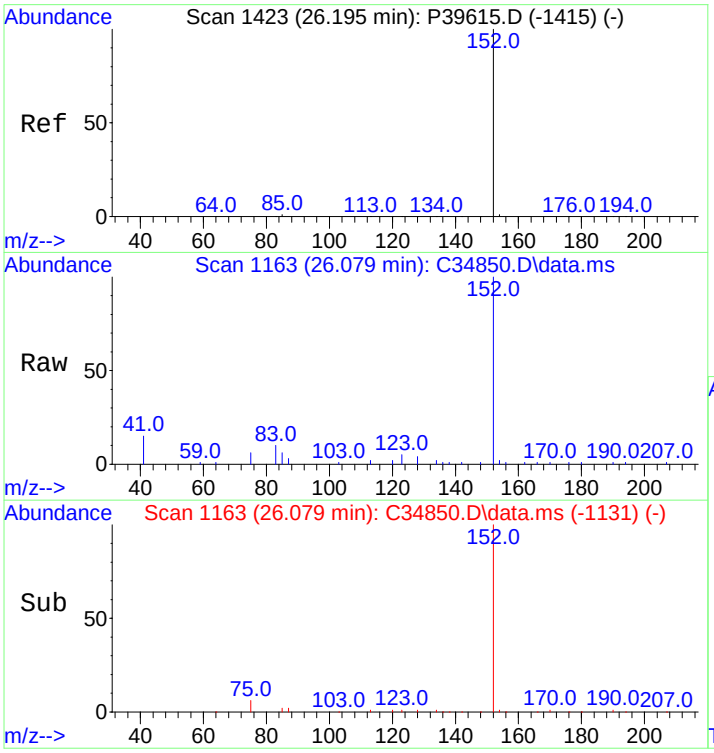


#25
Dibenzofuran
Concen: 64.20 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:168 Resp: 7606

Ion	Ratio	Lower	Upper
168	100		
139	38.7	28.4	42.6
169	15.9	10.8	16.2

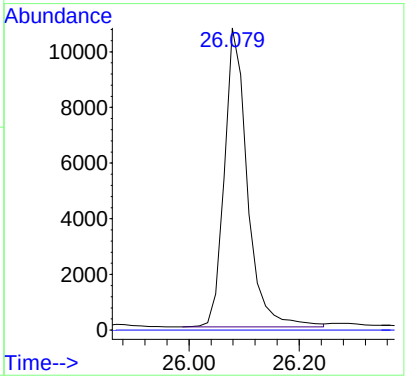


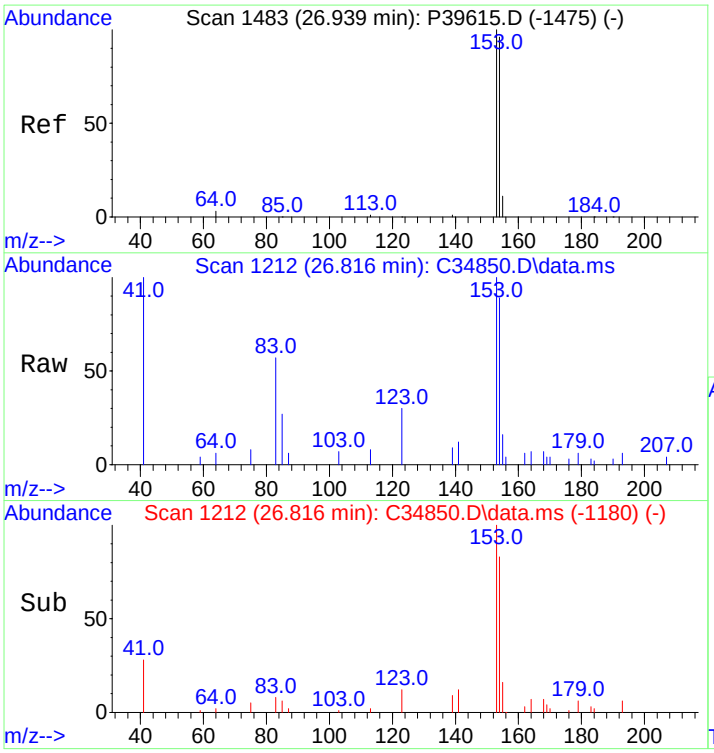


#26
Acenaphthylene
Concen: 226.75 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:152 Resp: 31046

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

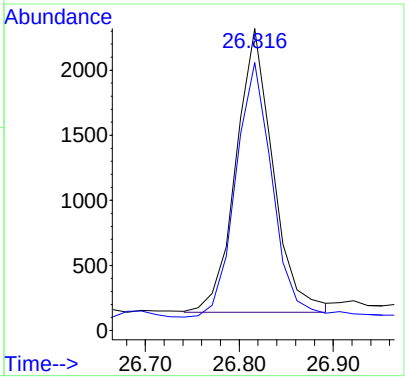


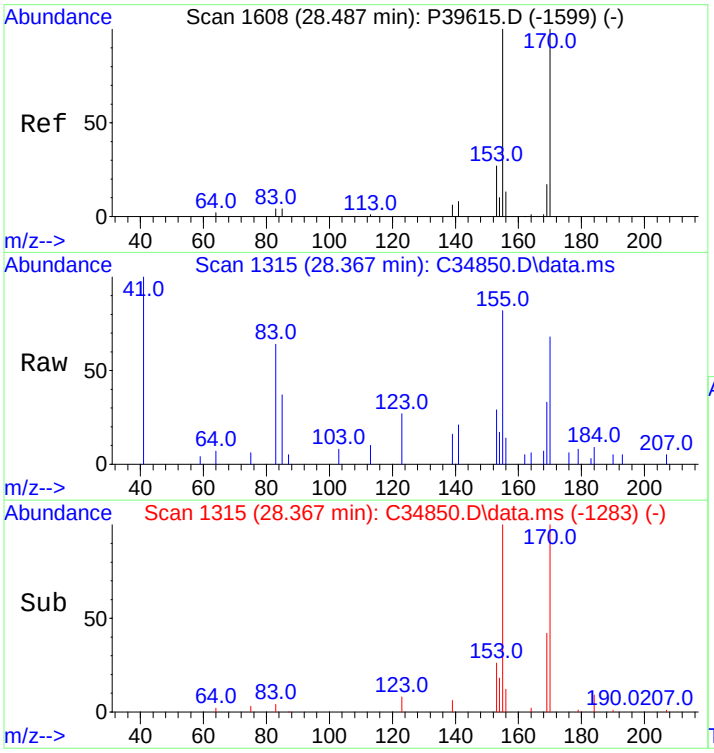


#27
Acenaphthene
Concen: 73.98 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:153 Resp: 5964

Ion	Ratio	Lower	Upper
153	100		
154	90.1	73.6	110.4

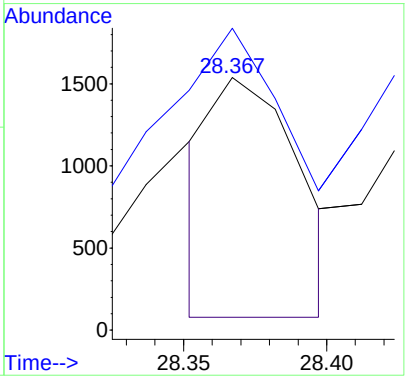


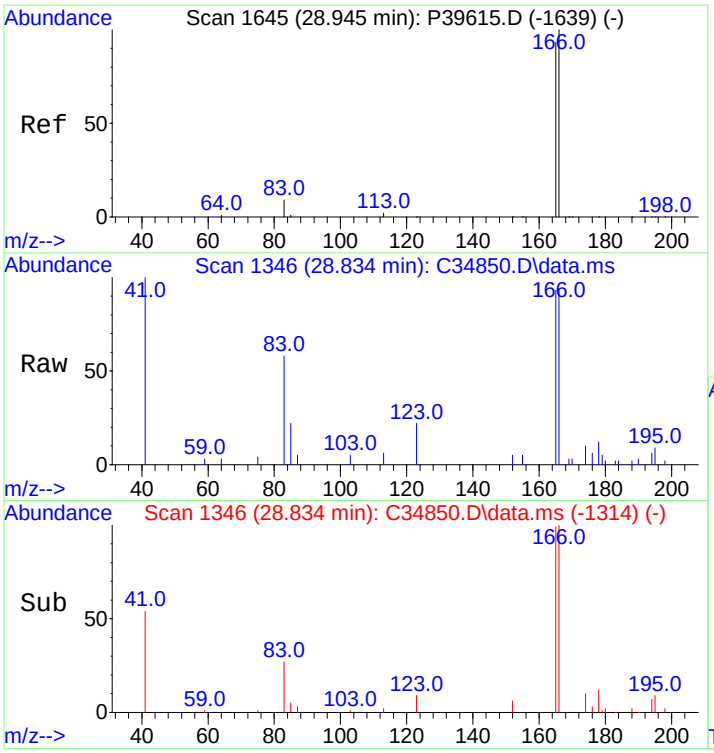


#28
2,3,5-Trimethylnaphthalene
Concen: 56.62 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:170 Resp: 3058

Ion	Ratio	Lower	Upper
170	100		
155	202.0	87.3	130.9#

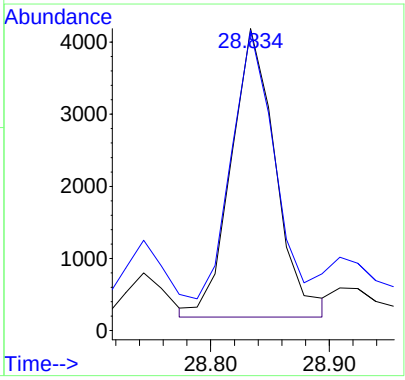


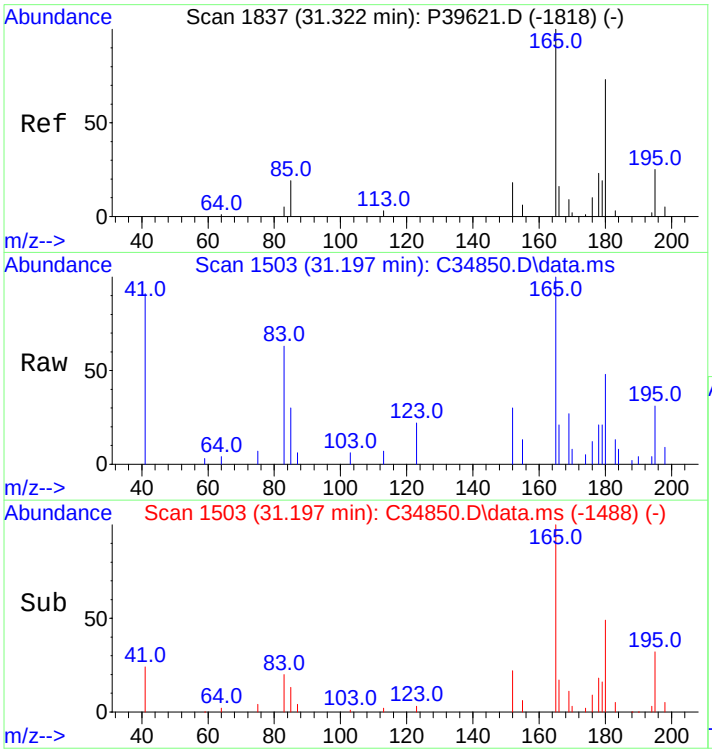


#29
Fluorene
Concen: 116.70 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:166 Resp: 10376

Ion	Ratio	Lower	Upper
166	100		
165	103.1	77.3	115.9

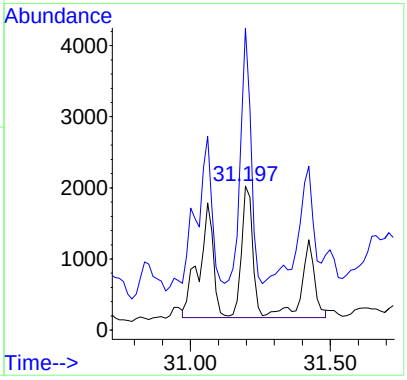


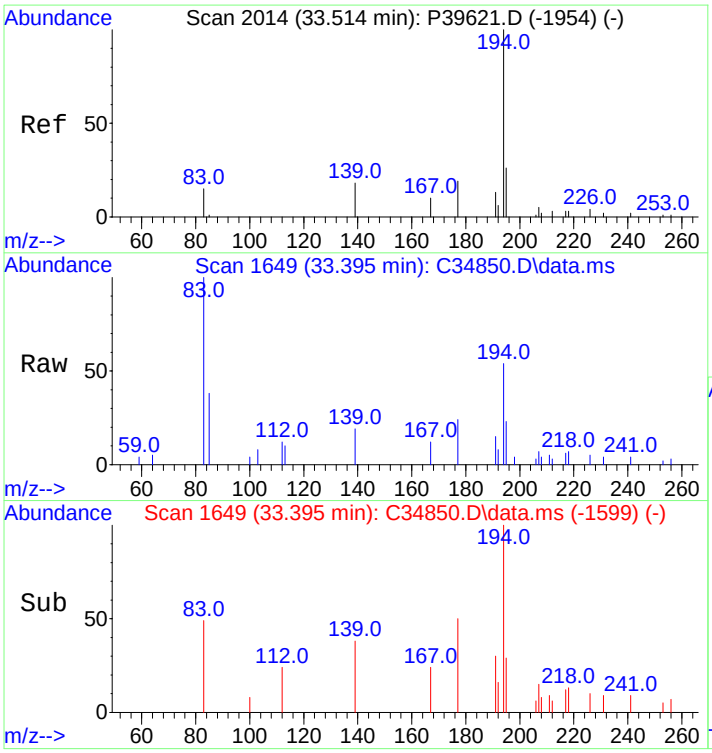


#30
C1-Fluorenes
Concen: 161.81 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:180 Resp: 14387

Ion	Ratio	Lower	Upper
180	100		
165	62.5	111.4	167.2#

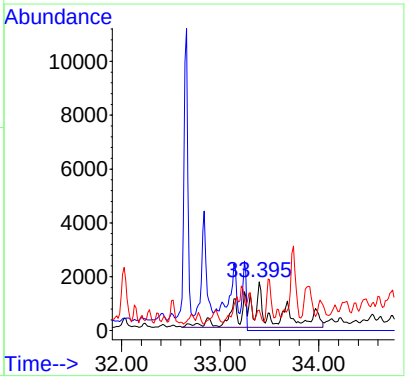


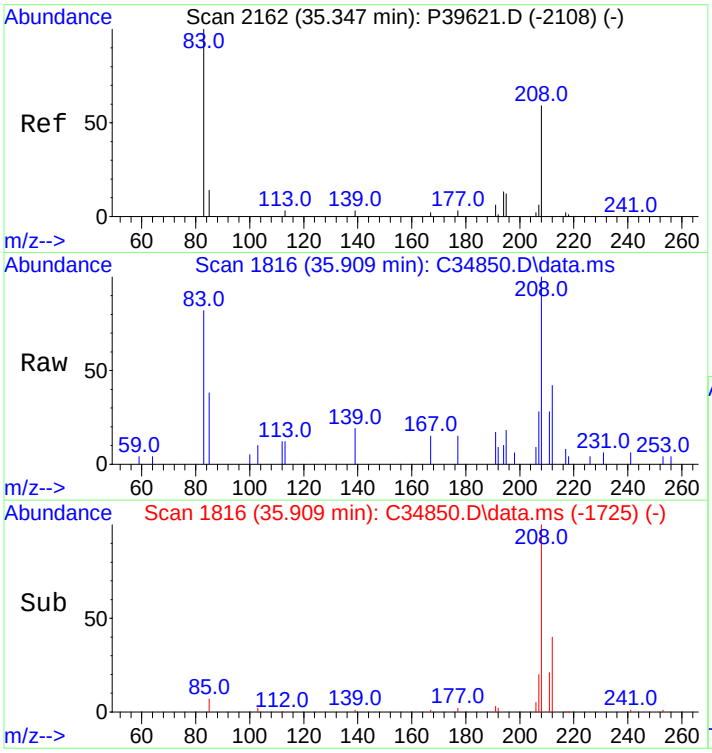


#31
C2-Fluorenes
Concen: 357.30 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:194 Resp: 31768

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.0	27.3	40.9#

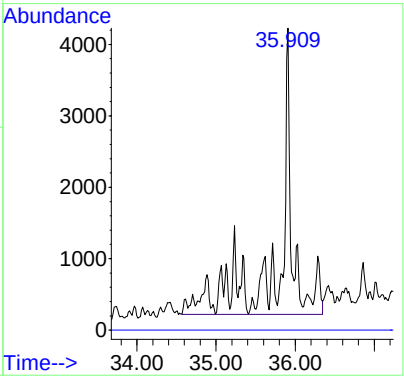


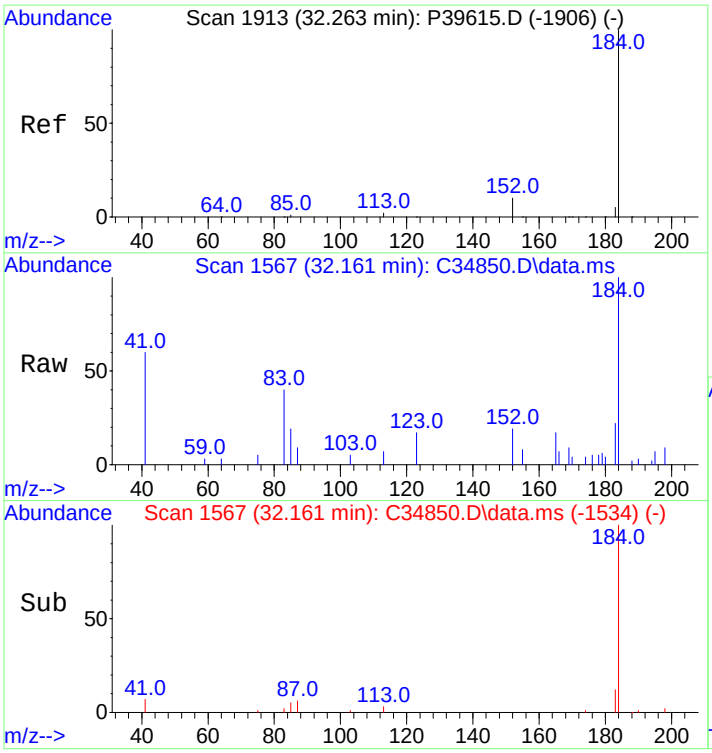


#32
C3-Fluorenes
Concen: 527.65 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:208 Resp: 46914

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

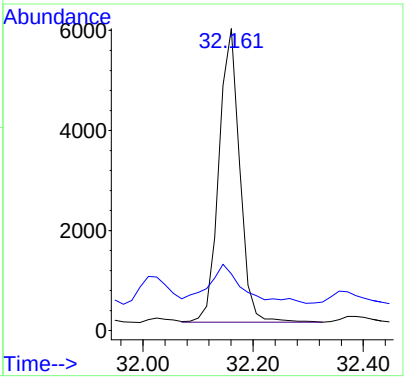


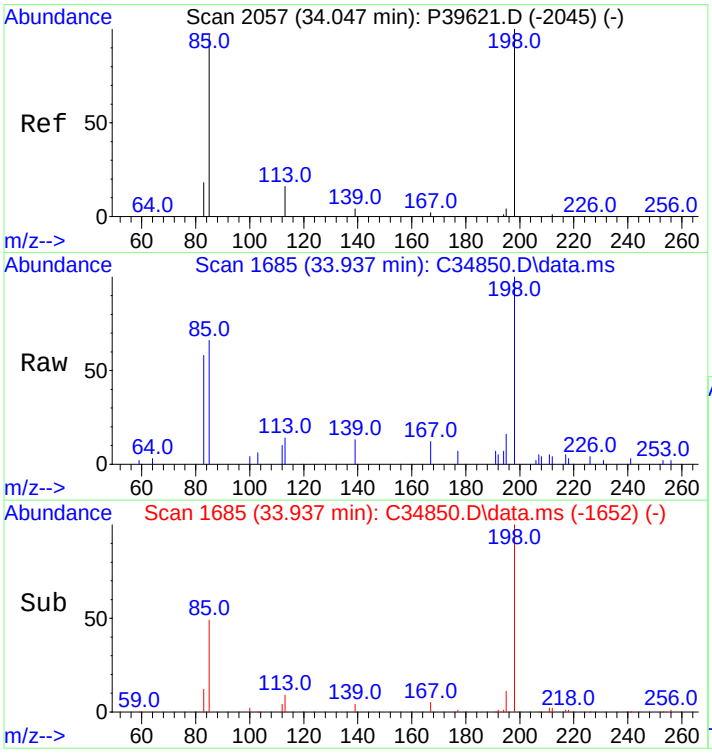


#33
Dibenzothiophene
Concen: 107.60 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:184 Resp: 15335

Ion	Ratio	Lower	Upper
184	100		
152	21.4	7.5	11.3#

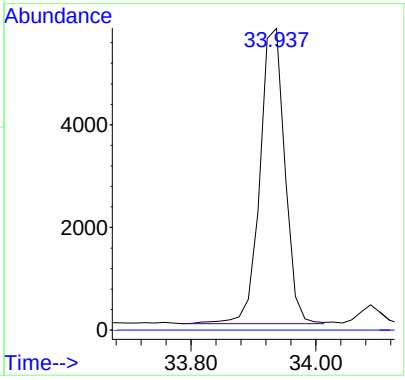


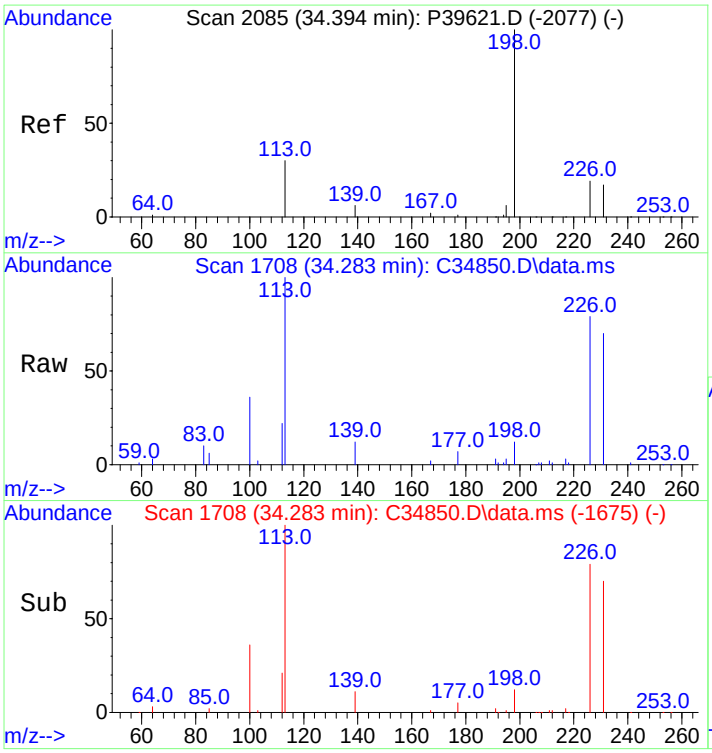


#34
4-Methyldibenzothiophene(4MDT)
Concen: 112.35 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:198 Resp: 16012

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

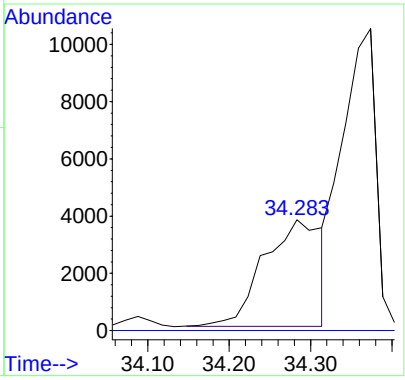


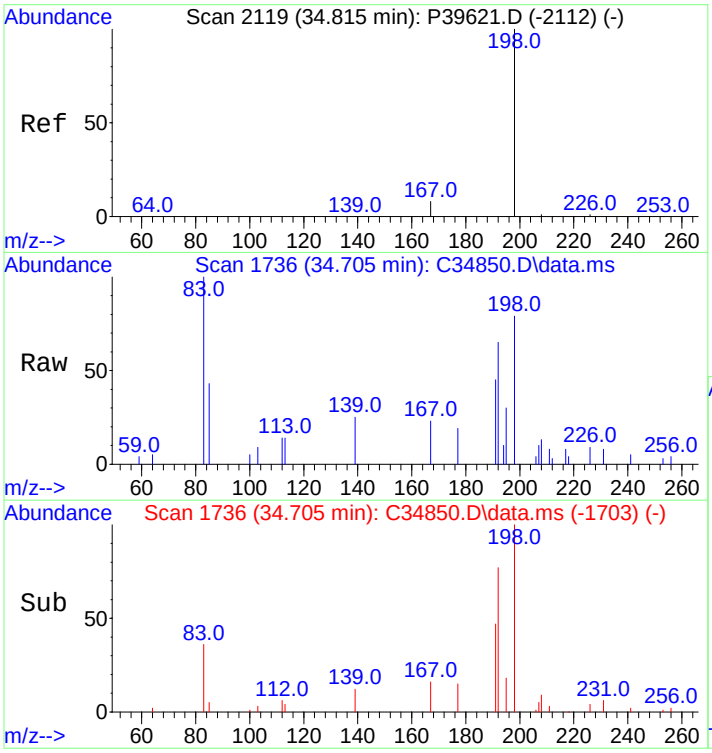


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 128.93 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:198 Resp: 18375

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

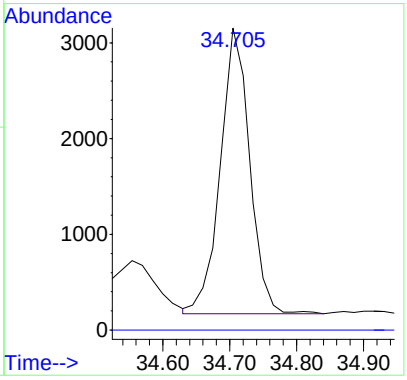


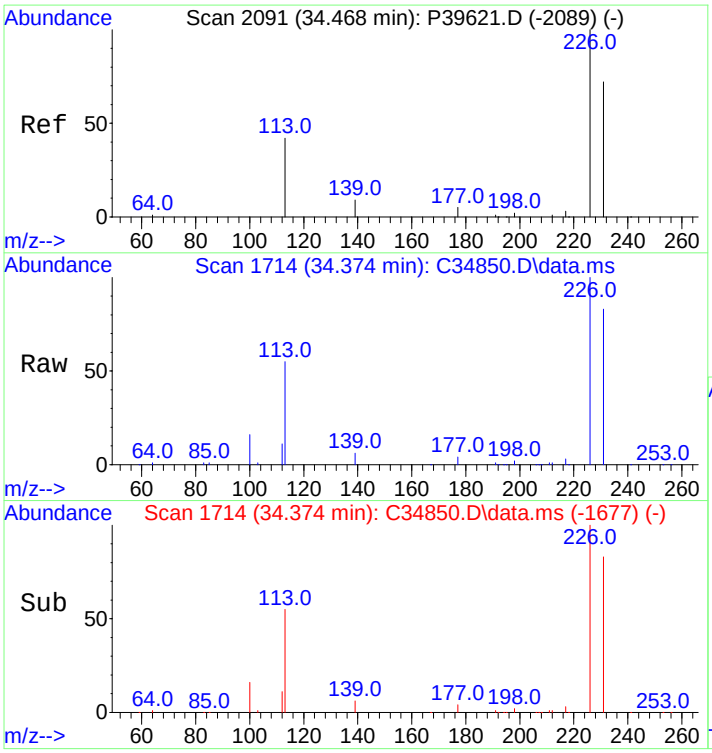


#36
1-Methyldibenzothiophene(1MDT)
Concen: 63.84 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:198 Resp: 9099

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

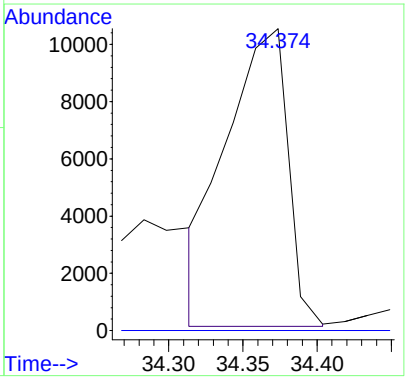


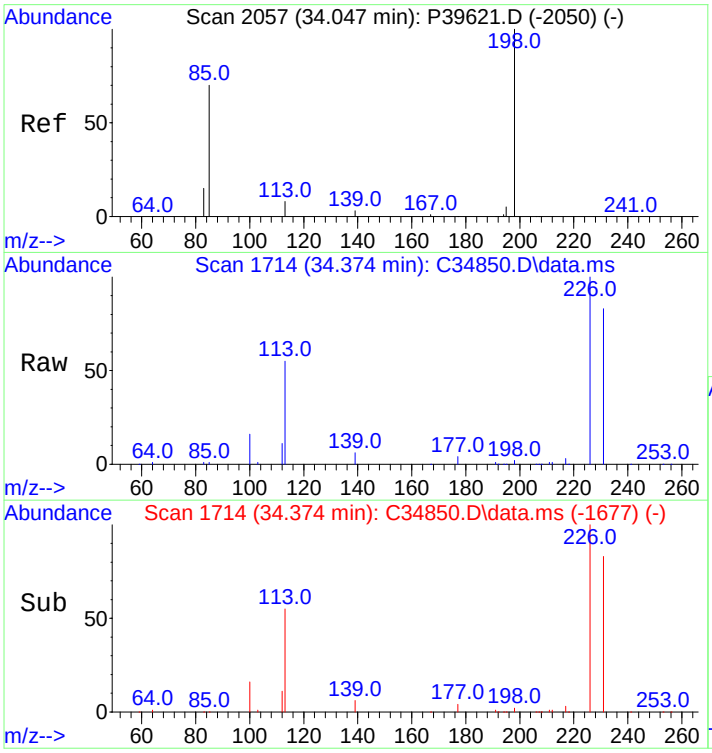


#37
OTP
Concen: 211.80 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:198 Resp: 30187

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

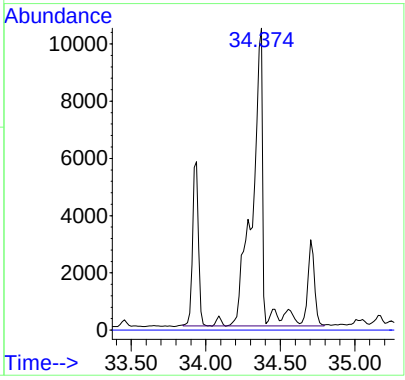


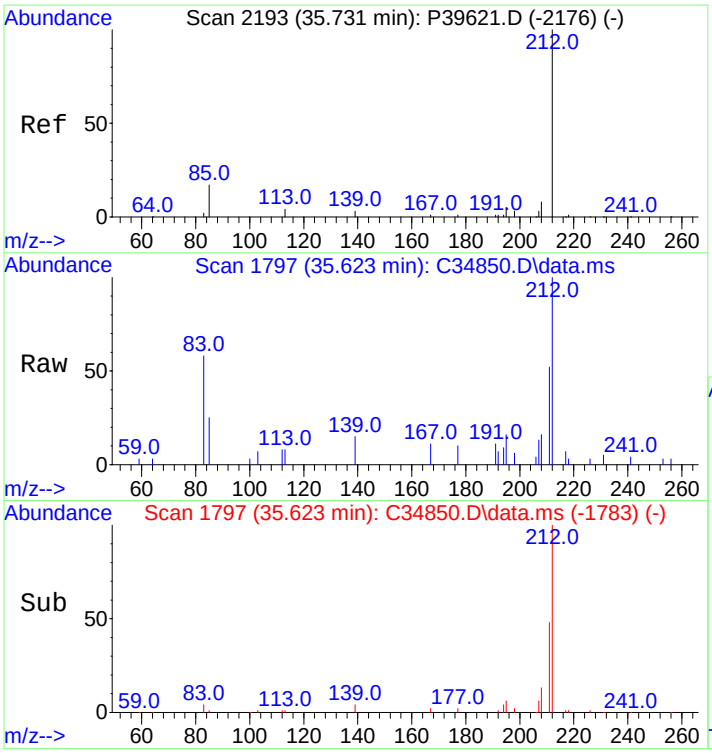


#38
C1-Dibenzothiophenes
Concen: 556.20 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:198 Resp: 79271

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

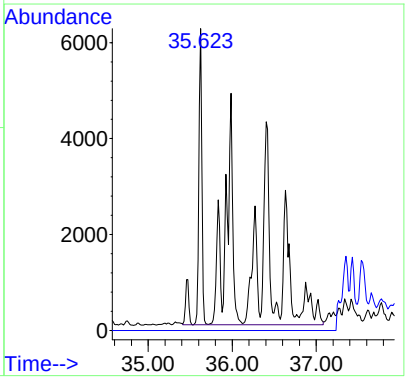


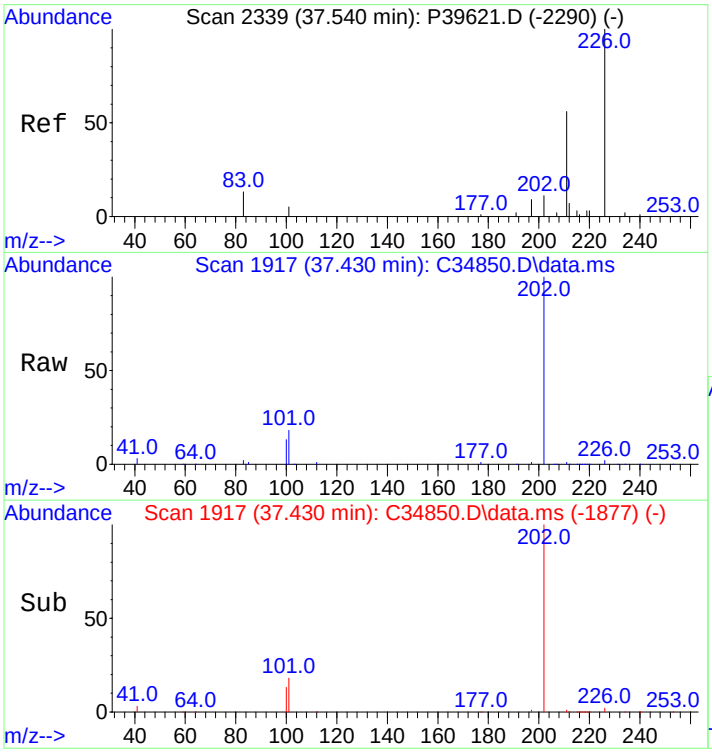


#39
C2-Dibenzothiophenes
Concen: 665.18 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:212 Resp: 94804

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

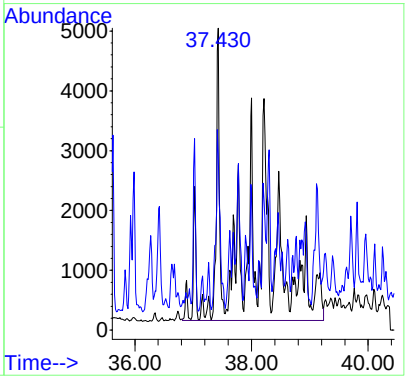


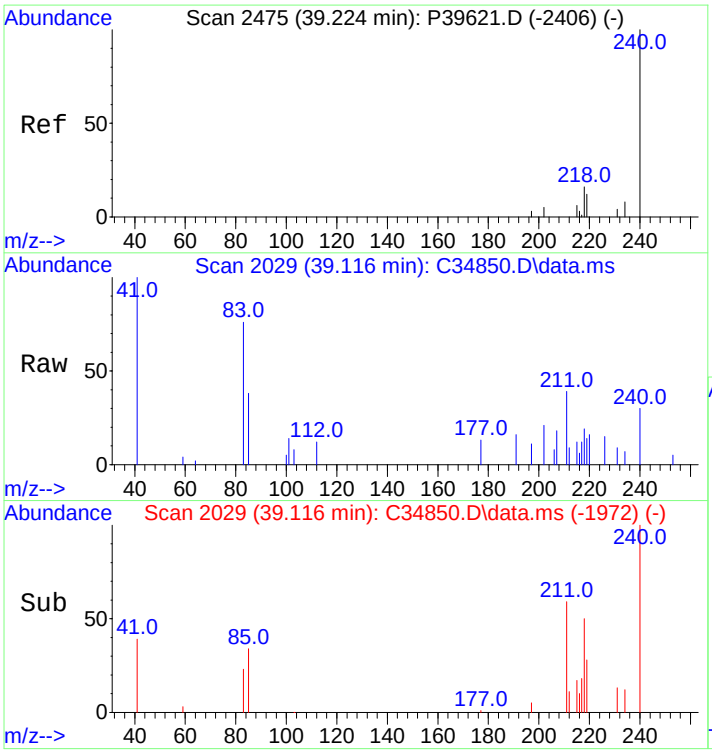


#40
C3-Dibenzothiophenes
Concen: 852.21 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:226 Resp: 121460

Ion	Ratio	Lower	Upper
226	100		
211	11.8	45.0	67.6#

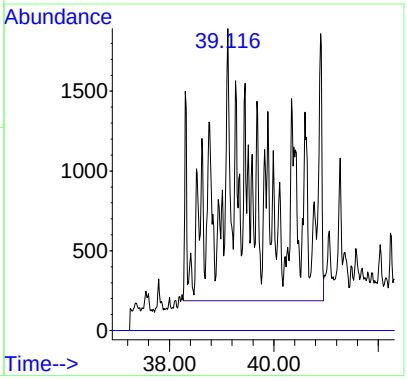


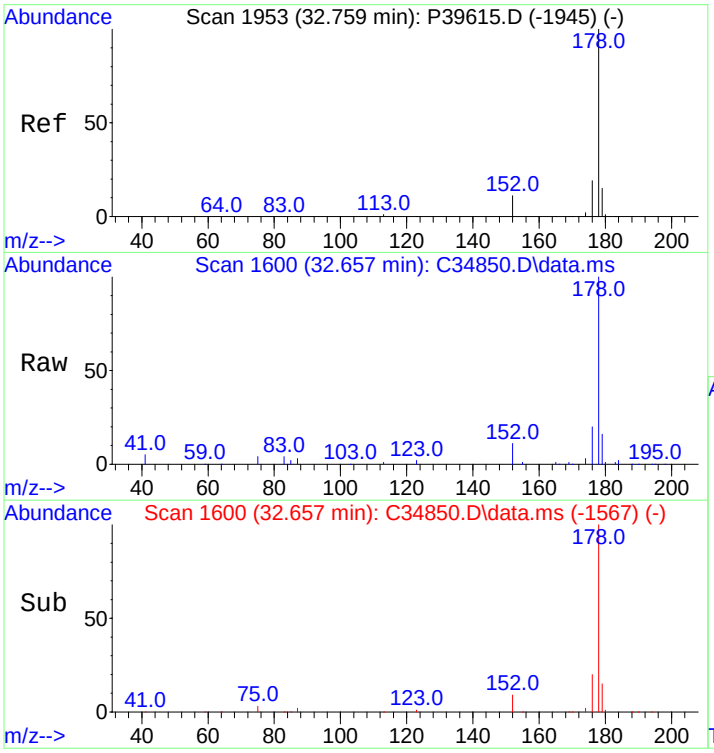


#41
C4-Dibenzothiophenes
Concen: 660.67 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:240 Resp: 94161

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

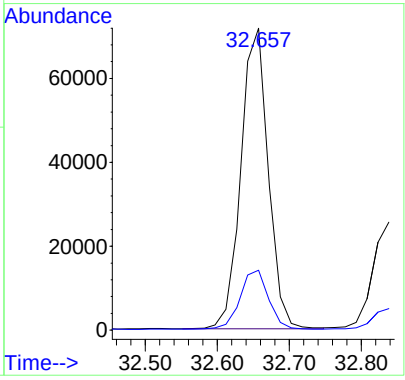


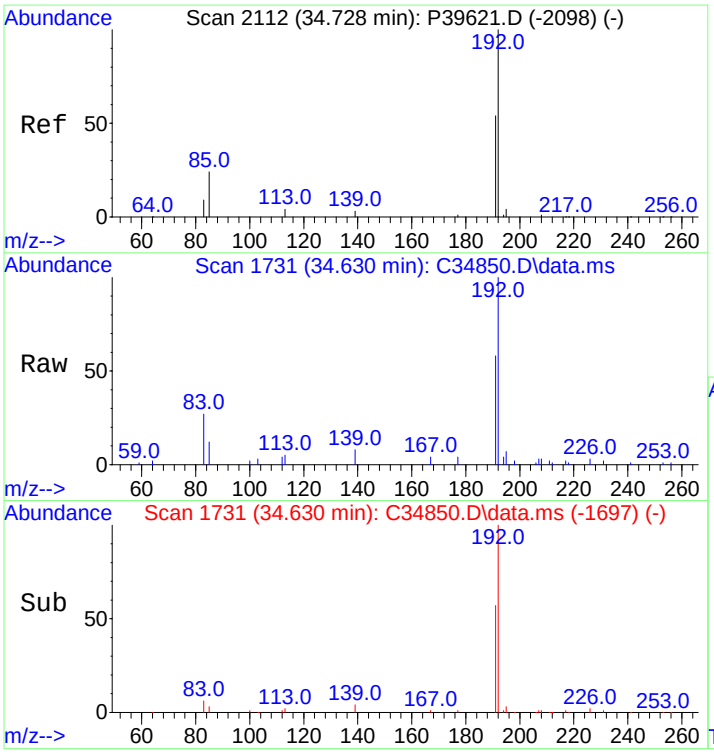


#43
Phenanthrene
Concen: 1504.02 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:178 Resp: 188332

Ion	Ratio	Lower	Upper
178	100		
176	20.5	16.1	24.1

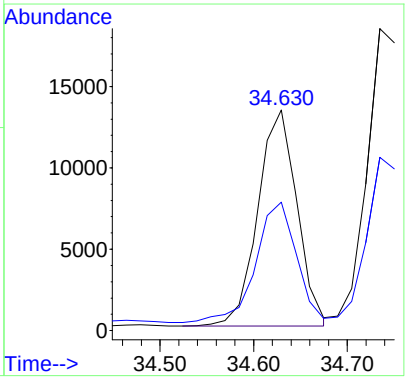


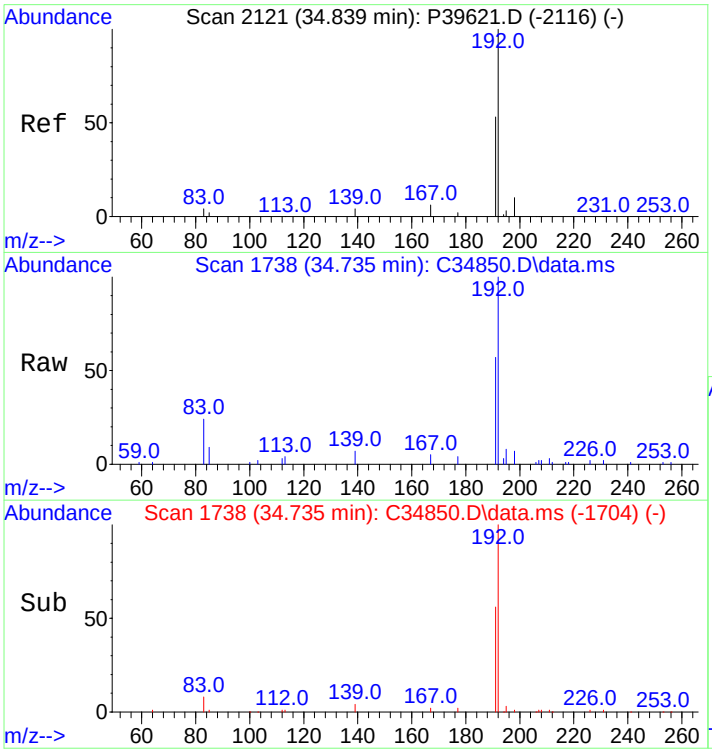


#44
3-Methylphenanthrene(3MP)
Concen: 308.48 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 38627

Ion	Ratio	Lower	Upper
192	100		
191	58.5	46.9	70.3

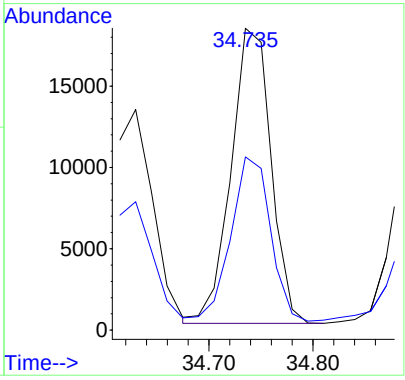


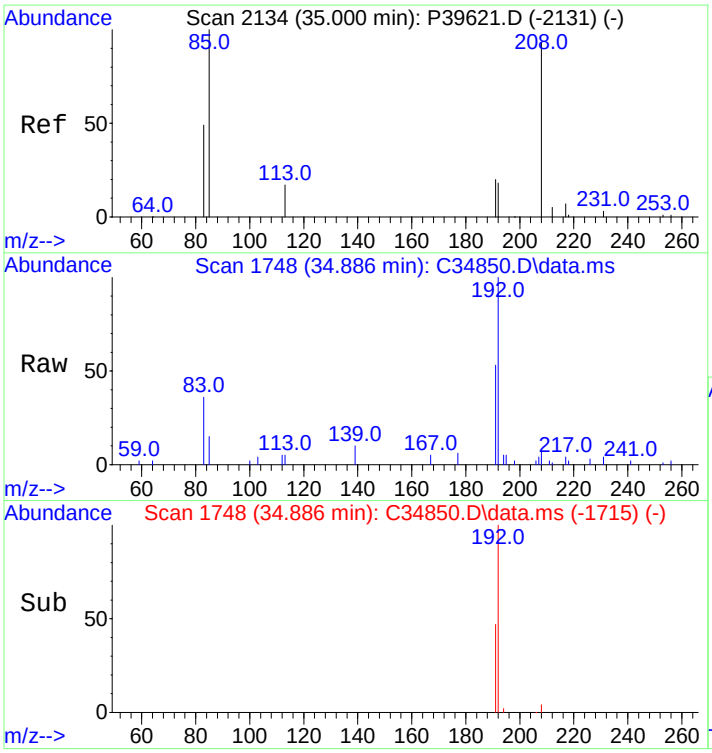


#45
2/4-Methylphenanthrene(2MP)
Concen: 387.94 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 48578

Ion	Ratio	Lower	Upper
192	100		
191	54.1	46.1	69.1

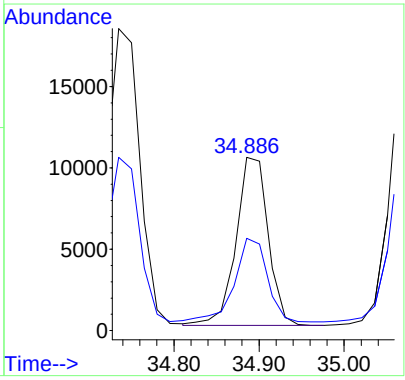


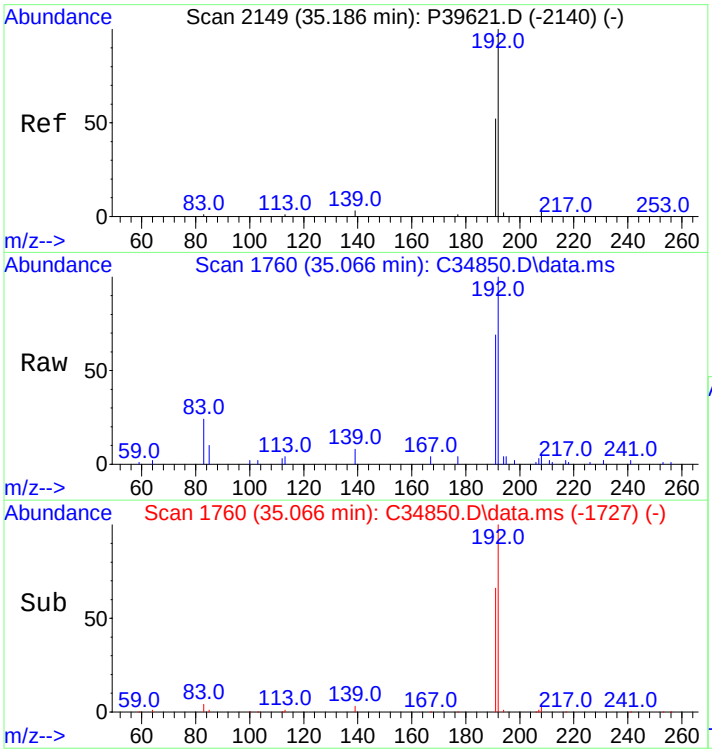


#46
2-Methylanthracene(2MA)
Concen: 217.16 ng/mL
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 27193

Ion	Ratio	Lower	Upper
192	100		
191	50.5	93.4	140.0#

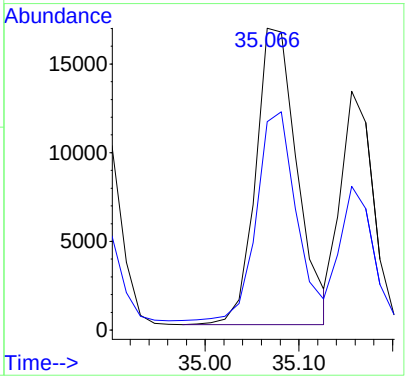


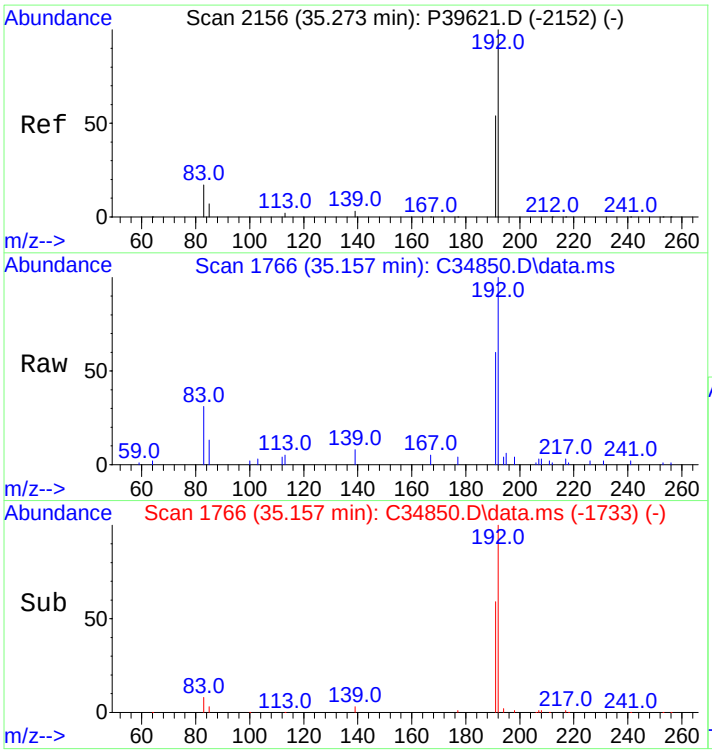


#47
9-Methylphenanthrene(9MP)
Concen: 411.32 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 51505

Ion	Ratio	Lower	Upper
192	100		
191	67.5	45.9	68.9

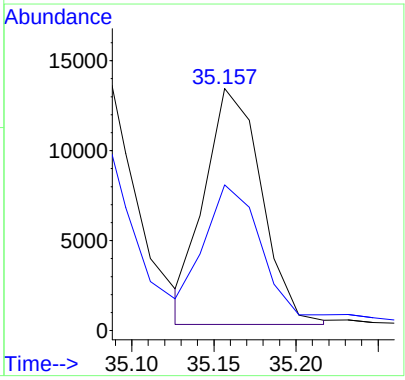


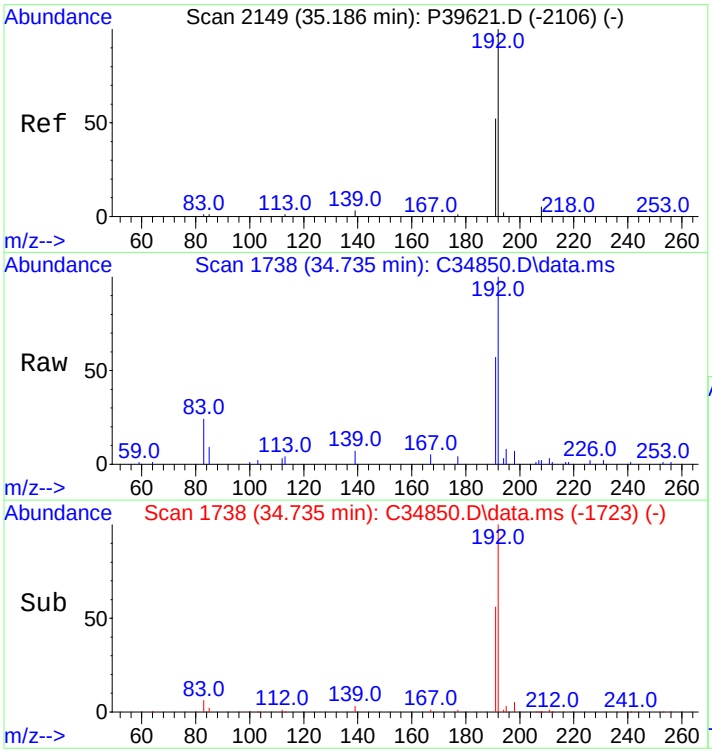


#48
1-Methylphenanthrene(1MP)
Concen: 251.81 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 31531

Ion	Ratio	Lower	Upper
192	100		
191	57.7	49.0	73.4

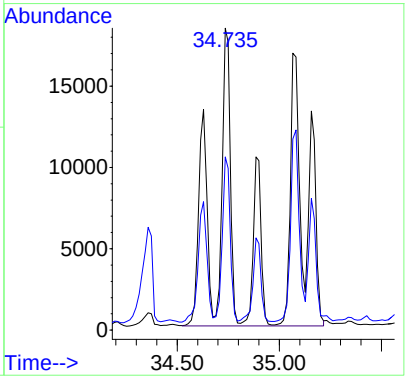


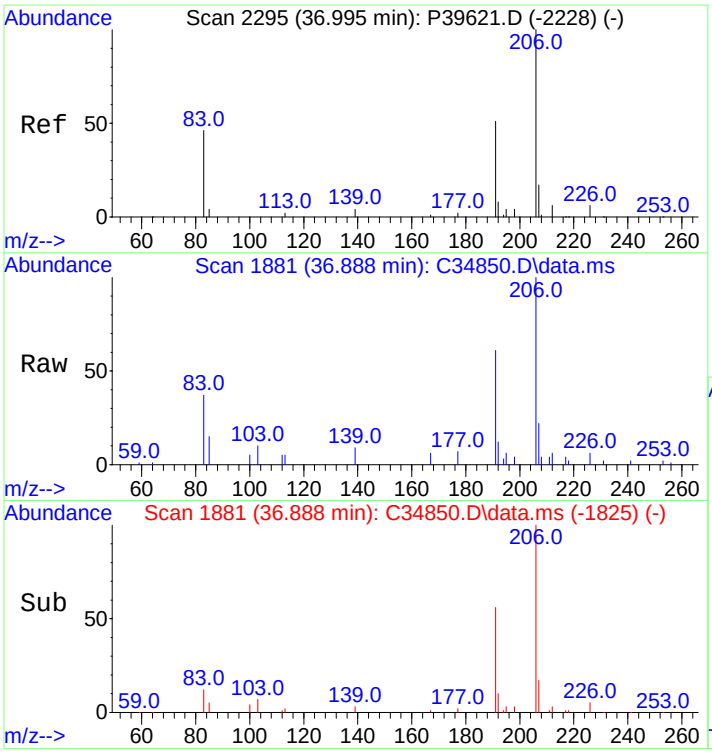


#49
C1-Phenanthrenes/Anthracenes
Concen: 1600.07 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. -0.279 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 200359

Ion	Ratio	Lower	Upper
192	100		
191	6.9	44.2	66.2#

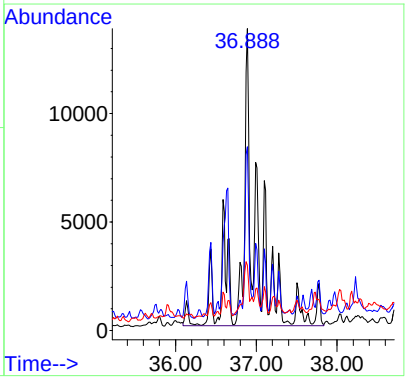


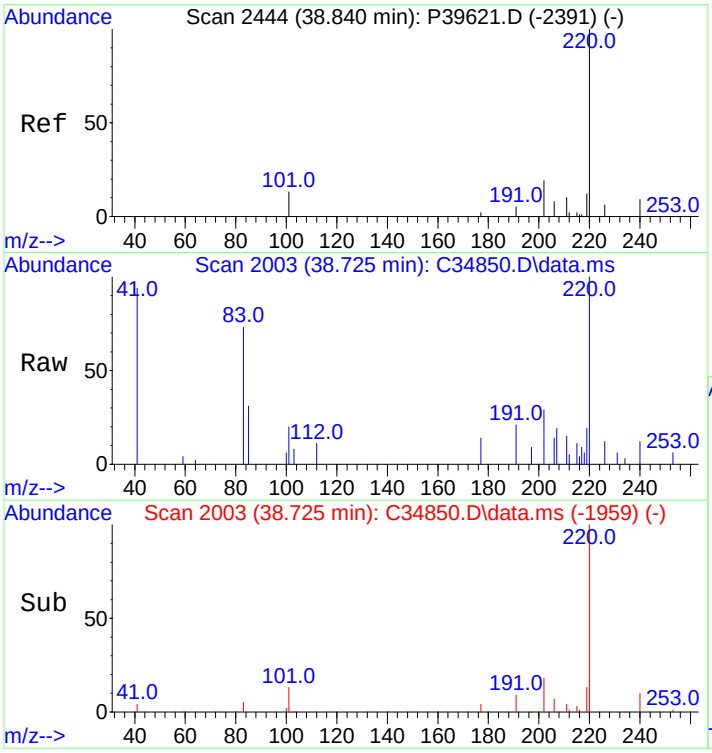


#50
C2-Phenanthrenes/Anthracenes
Concen: 1330.45 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:206 Resp: 166598

Ion	Ratio	Lower	Upper
206	100		
191	1.2	44.0	66.0#
207	0.0	15.1	22.7#

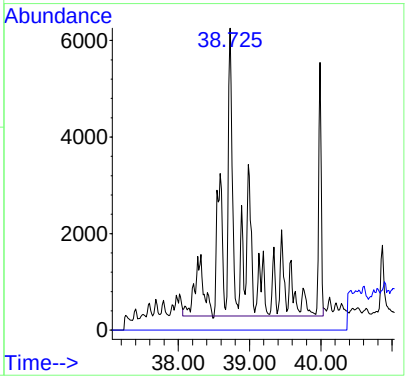


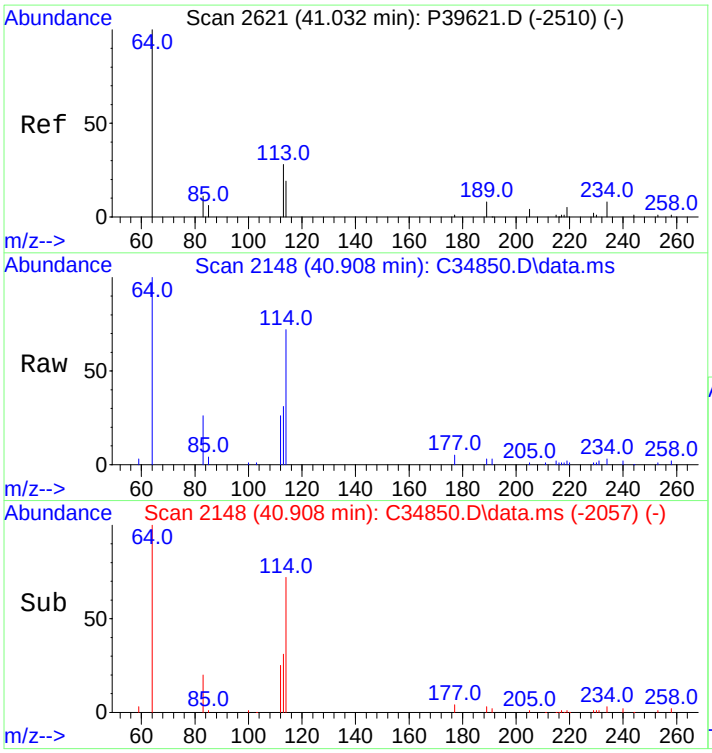


#52
C3-Phenanthrenes/Anthracenes
Concen: 838.72 ng/mL m
RT: 38.725 min Scan# 2003
Delta R.T. 0.084 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:220 Resp: 105024

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

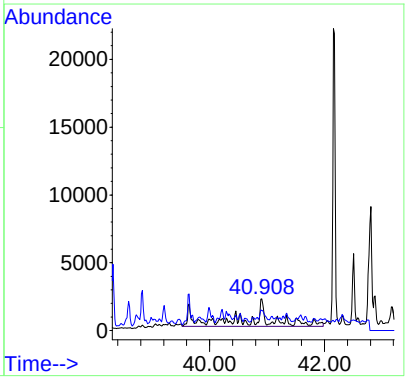


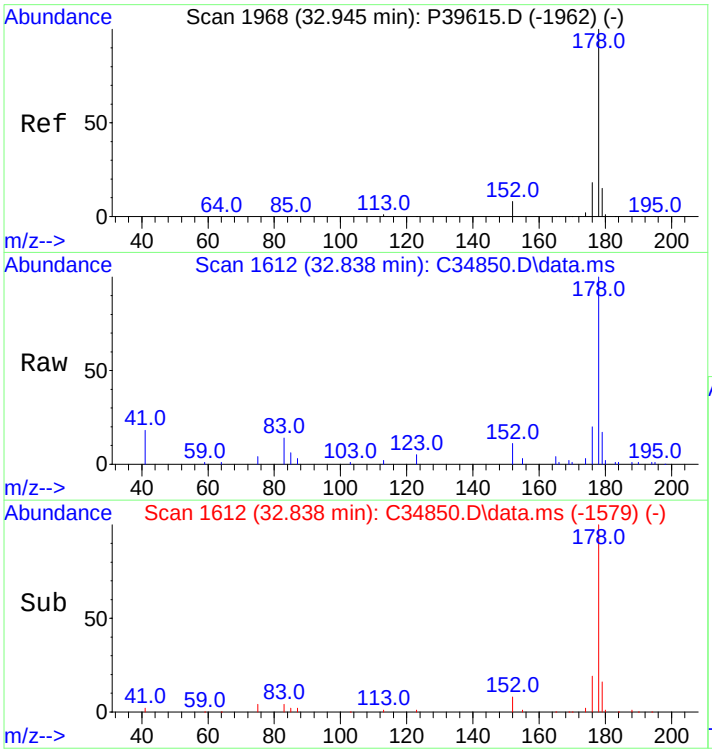


#53
C4-Phenanthrenes/Anthracenes
Concen: 448.01 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:234 Resp: 56099

Ion	Ratio	Lower	Upper
234	100		
219	7.2	46.9	70.3#

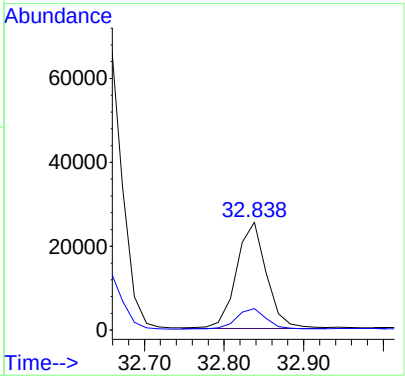


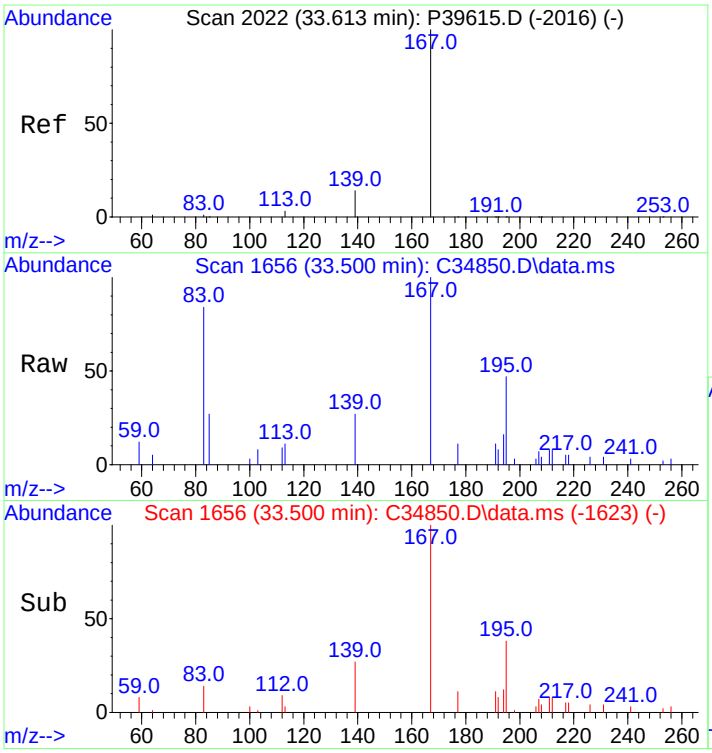


#55
Anthracene
Concen: 544.26 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:178 Resp: 66569

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.5	23.3

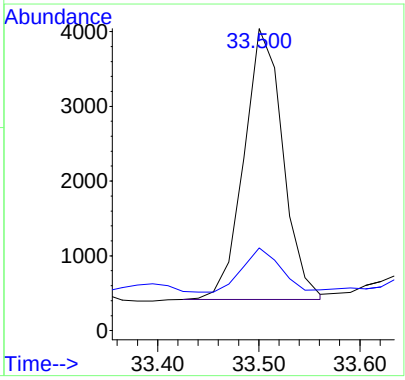


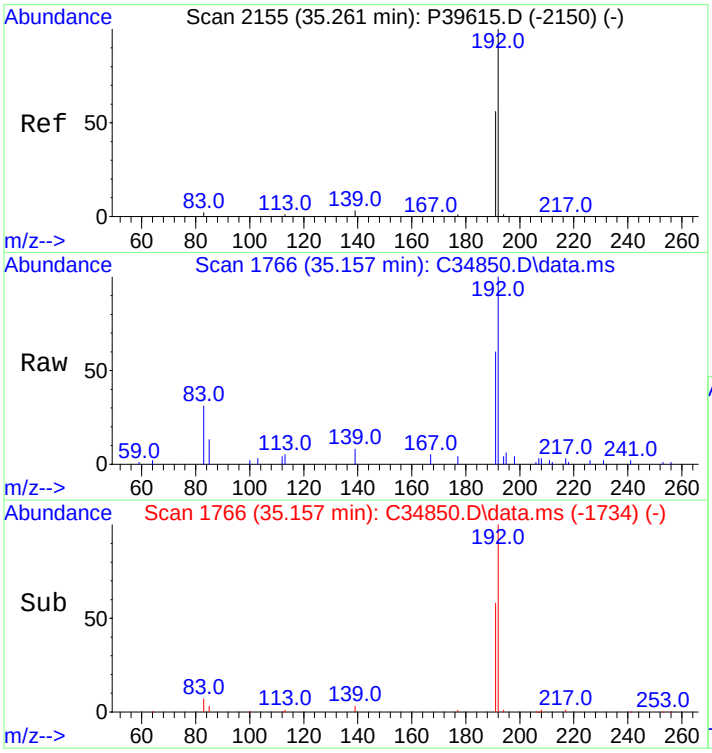


#56
Carbazole
Concen: 78.40 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:167 Resp: 9686

Ion	Ratio	Lower	Upper
167	100		
139	15.9	11.8	17.8

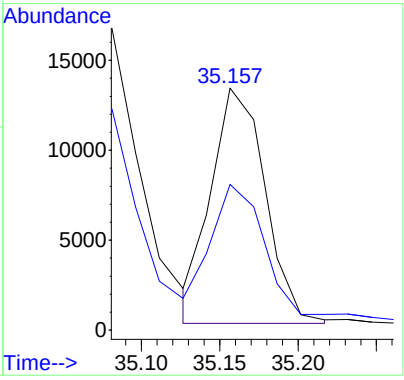


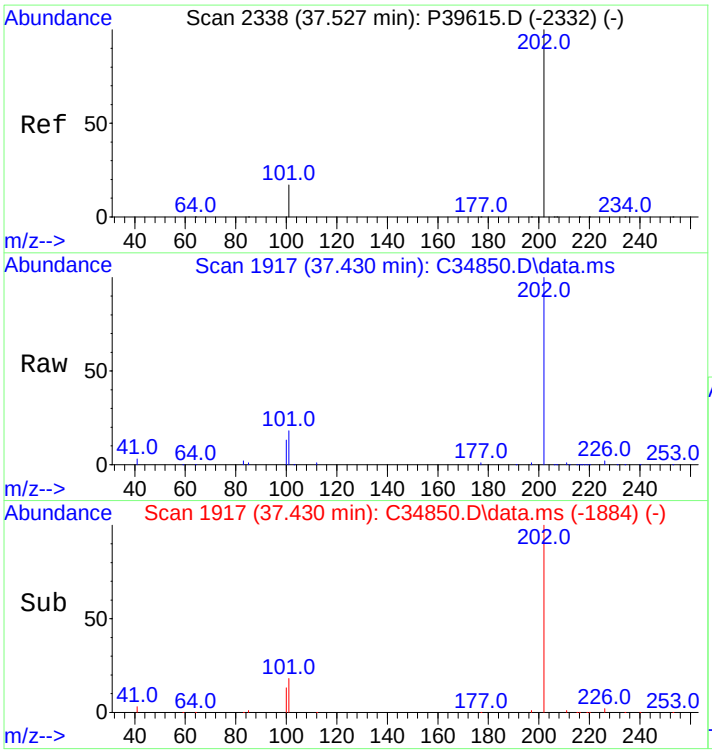


#57
1-Methylphenanthrene
Concen: 395.85 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:192 Resp: 31412

Ion	Ratio	Lower	Upper
192	100		
191	57.9	45.9	68.9

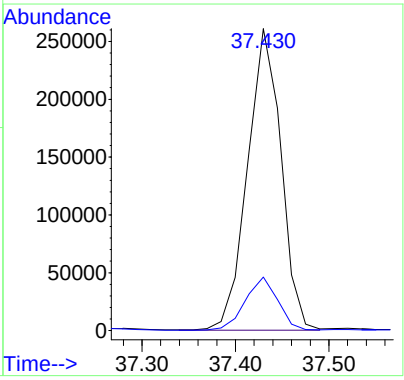


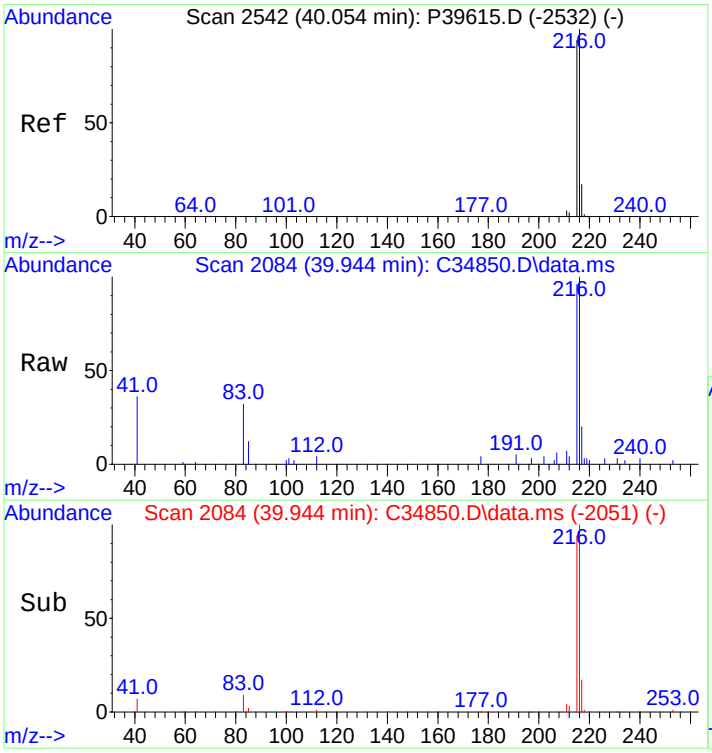


#58
Fluoranthene
Concen: 5213.49 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:202 Resp: 648368

Ion	Ratio	Lower	Upper
202	100		
101	17.1	12.9	19.3

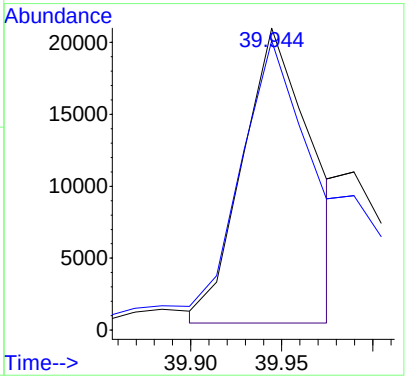


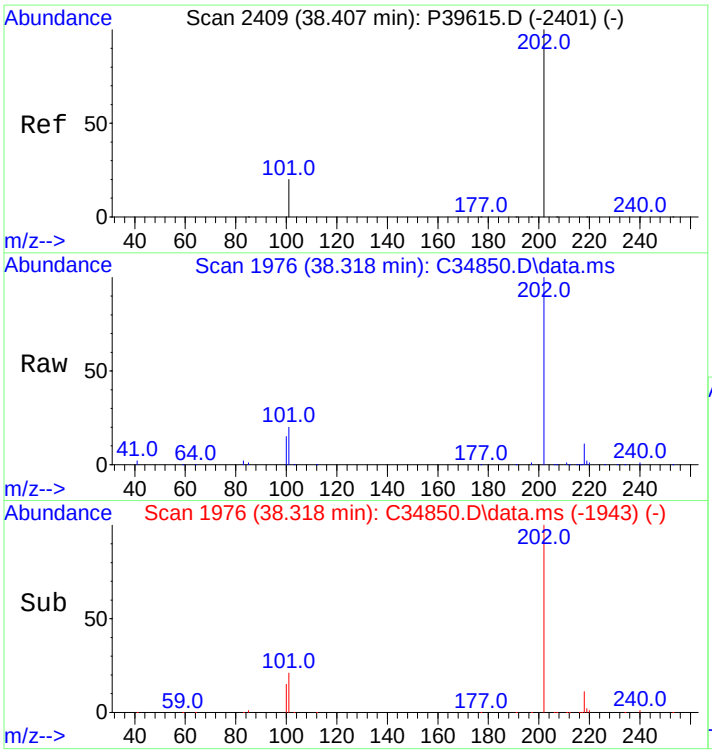


#59
Benzo(b)fluorene
Concen: 753.02 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:216 Resp: 54331

Ion	Ratio	Lower	Upper
216	100		
215	126.1	76.3	114.5#

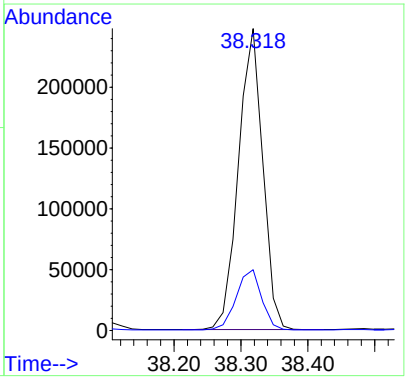


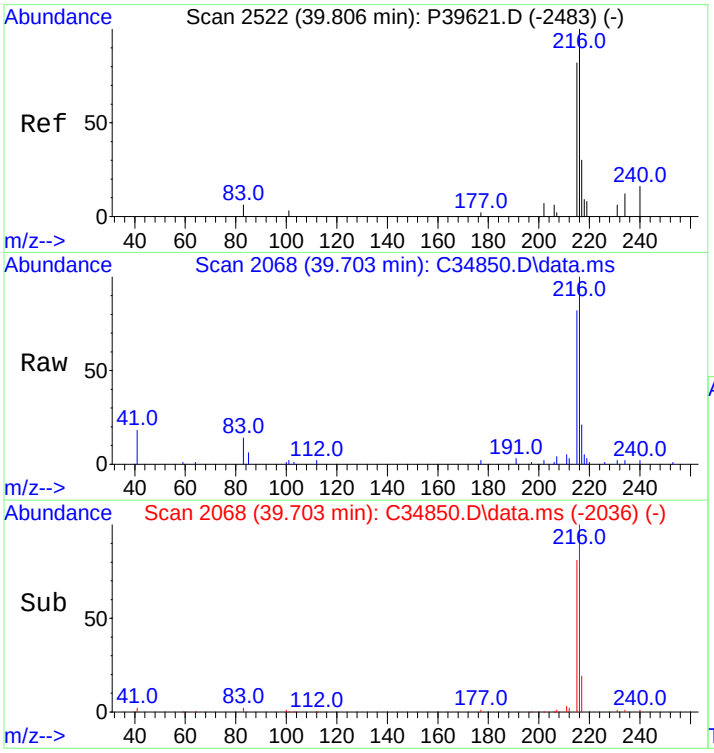


#60
Pyrene
Concen: 4962.80 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:202 Resp: 627390

Ion	Ratio	Lower	Upper
202	100		
101	20.9	15.0	22.4

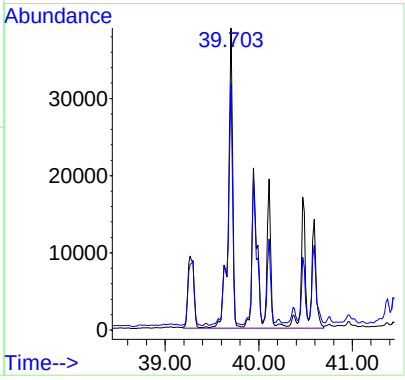


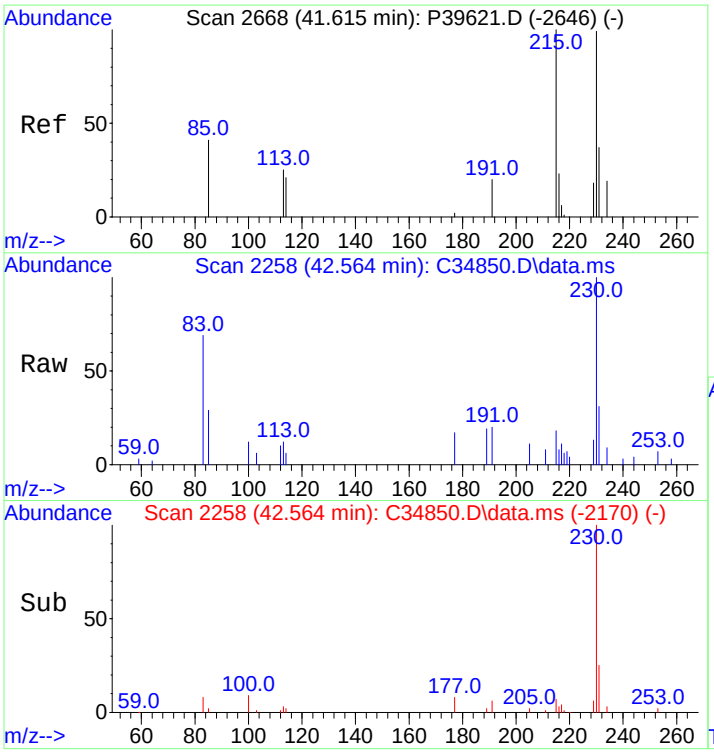


#61
C1-Fluoranthenes/Pyrenes
Concen: 3121.87 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:216 Resp: 394663

Ion	Ratio	Lower	Upper
216	100		
215	27.0	71.8	107.6#

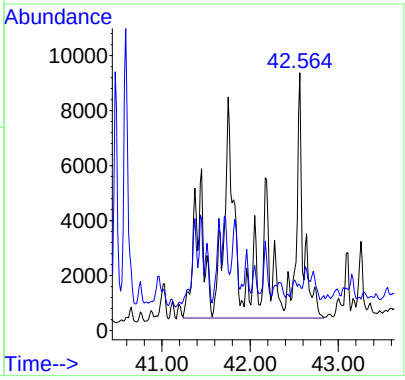


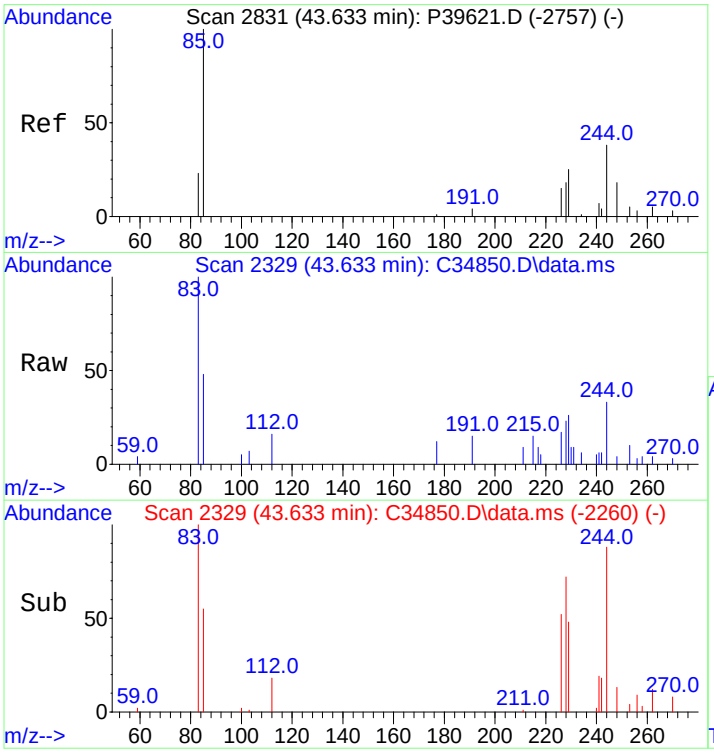


#62
C2-Fluoranthenes/Pyrenes
Concen: 1535.70 ng/mL m
RT: 42.564 min Scan# 2258
Delta R.T. 1.165 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:230 Resp: 194141

Ion	Ratio	Lower	Upper
230	100		
215	2.9	99.0	148.4#

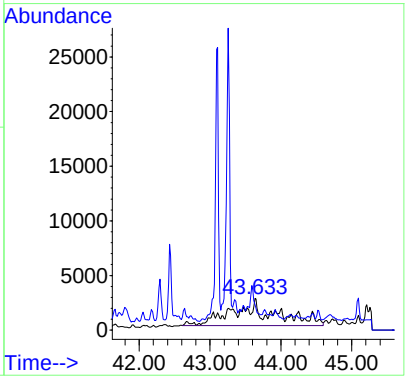


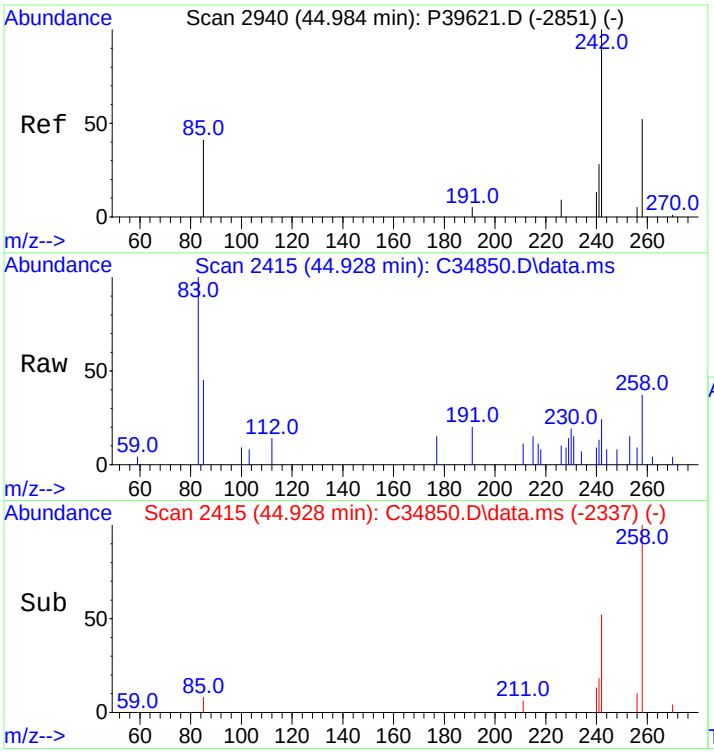


#63
C3-Fluoranthenes/Pyrenes
Concen: 794.04 ng/mL m
RT: 43.633 min Scan# 2329
Delta R.T. 0.226 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:244 Resp: 100382

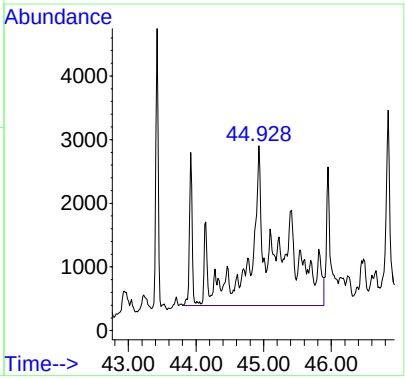
Ion	Ratio	Lower	Upper
244	100		
229	3.9	73.3	109.9#

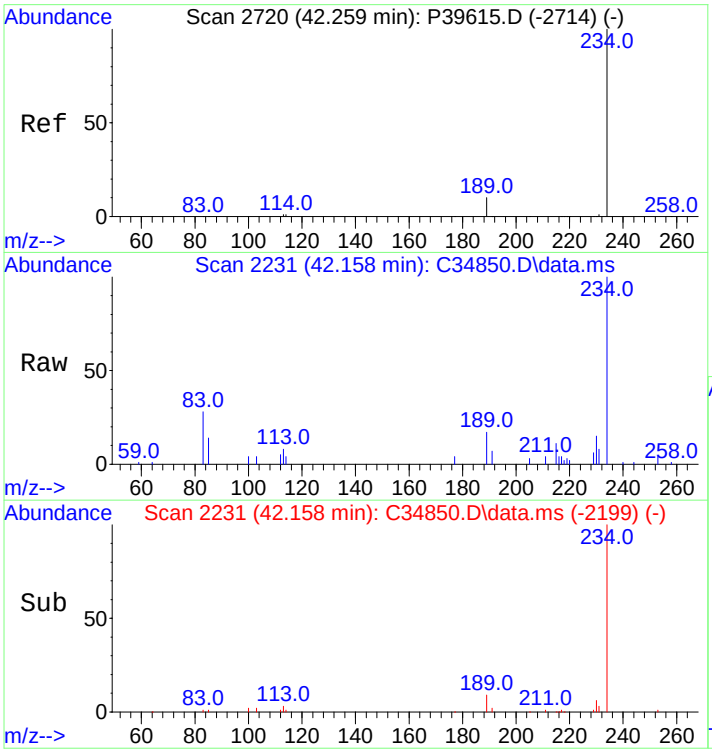




#64
C4-Fluoranthenes/Pyrenes
Concen: 622.88 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:258 Resp: 78743

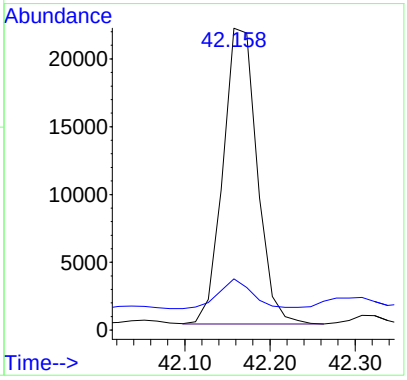


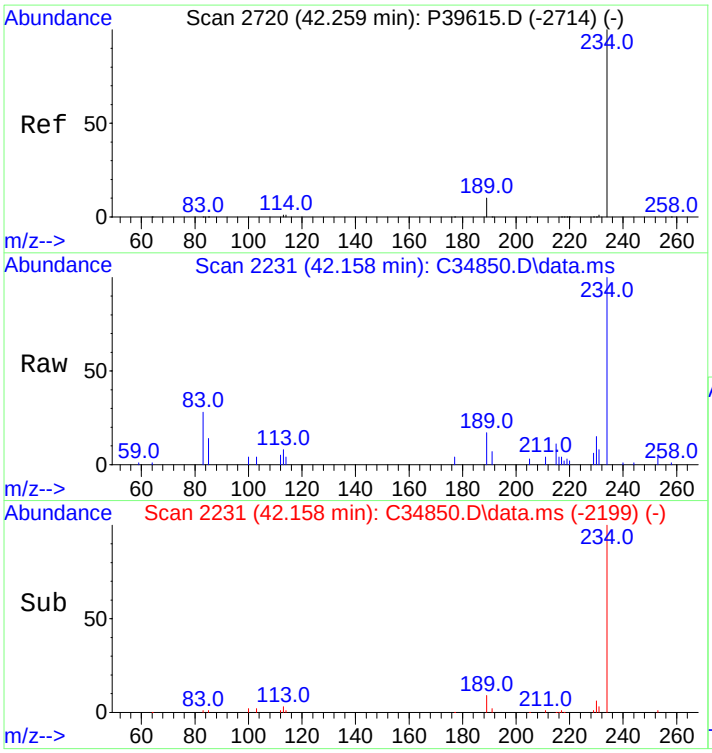


#66
Naphthobenzothiophene
Concen: 447.23 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:234 Resp: 60868

Ion	Ratio	Lower	Upper
234	100		
189	9.8	20.5	30.7#

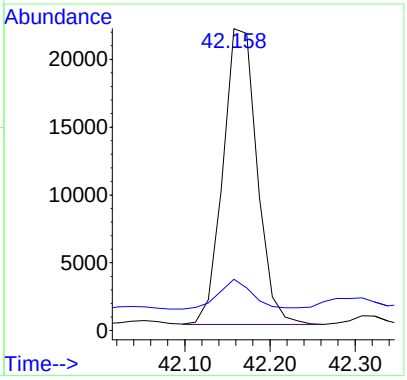


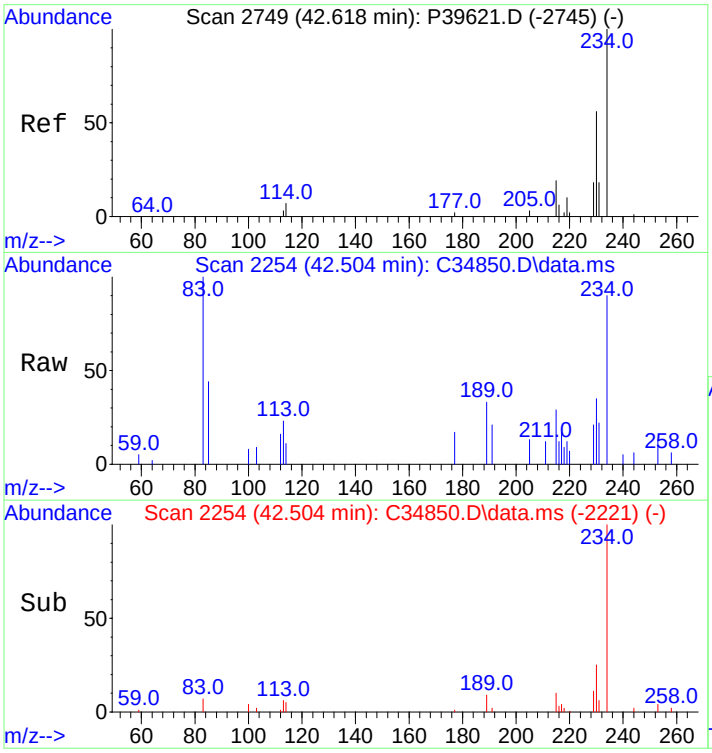


#67
Naphthobenzothiophene-2,1-D
Concen: 447.23 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:234 Resp: 60868

Ion	Ratio	Lower	Upper
234	100		
189	9.8	20.5	30.7#

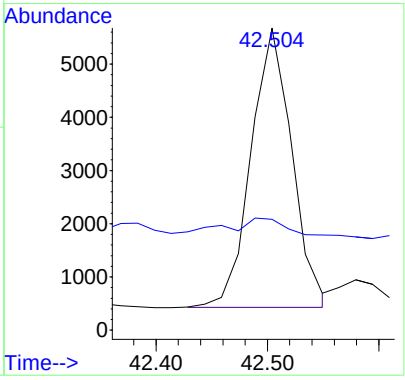


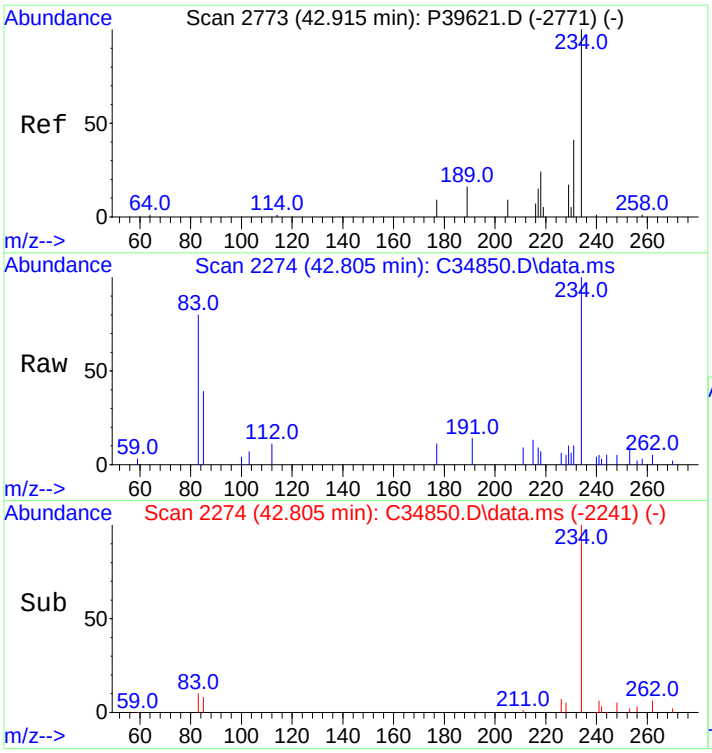


#68
Naphthobenzothiophene-1,2-D
Concen: 98.52 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:234 Resp: 13409

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

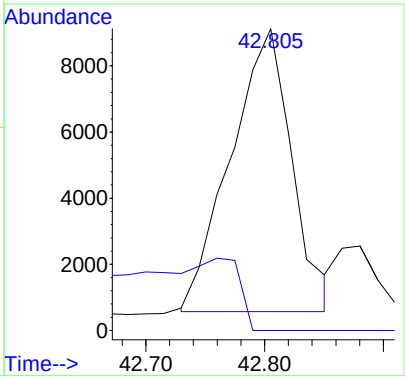


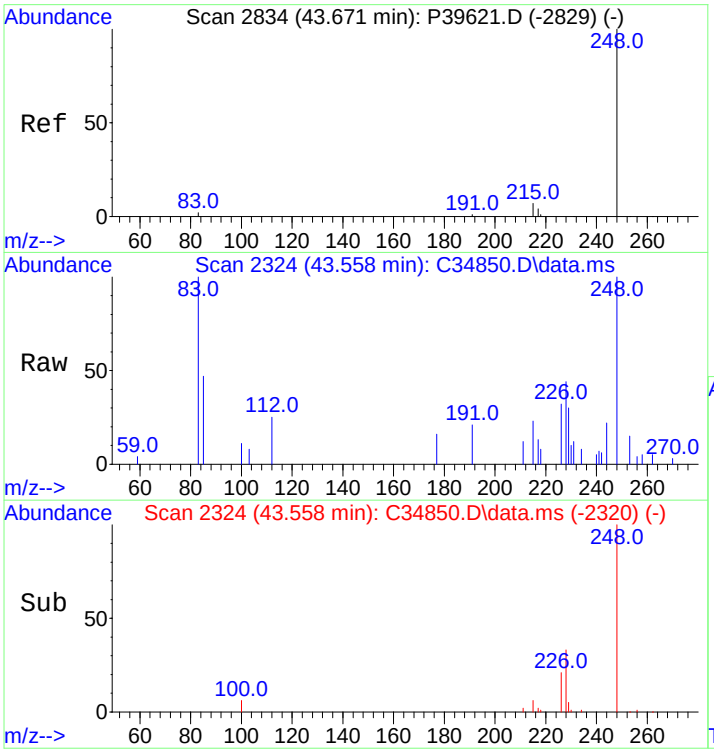


#69
Naphthobenzothiophene-2,3-D
Concen: 224.13 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:234 Resp: 30504

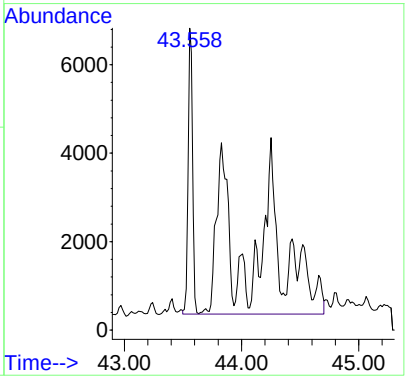
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

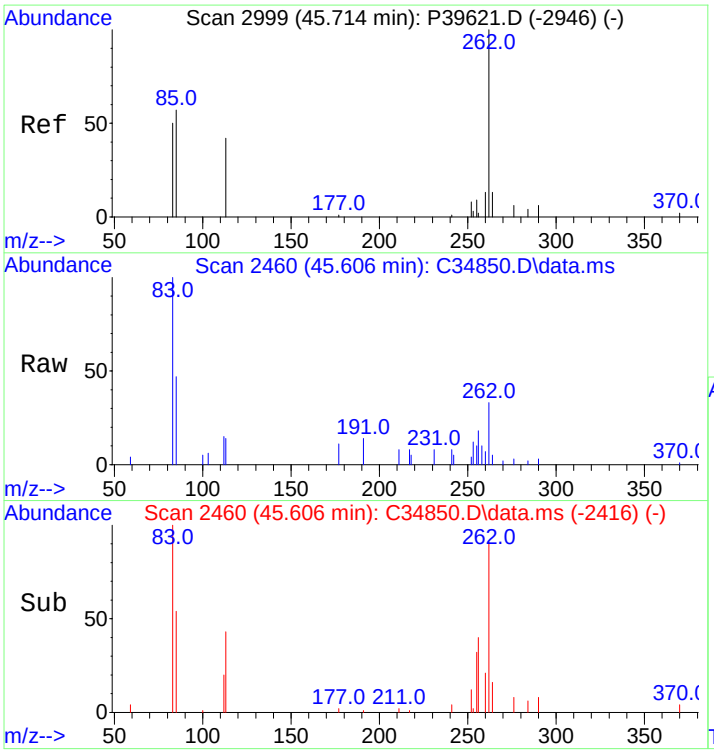




#70
C1-Naphthobenzothiophenes
Concen: 701.87 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

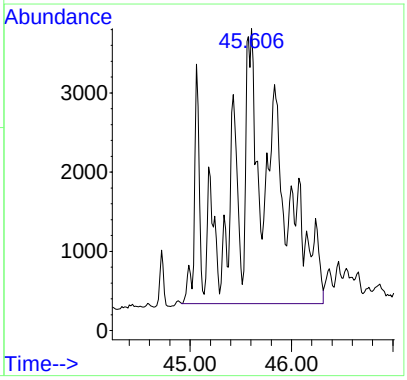
Tgt Ion:248 Resp: 95525

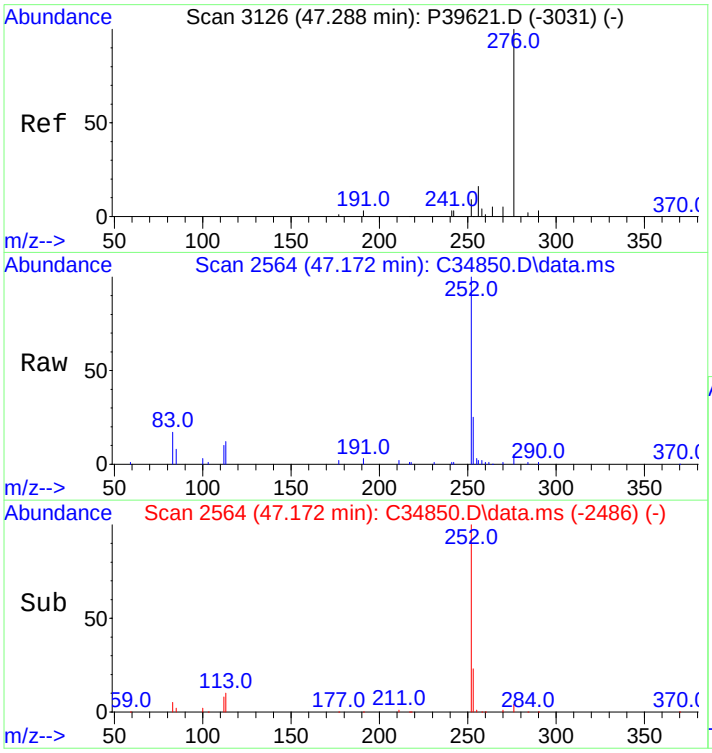




#71
C2-Naphthobenzothiophenes
Concen: 751.42 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

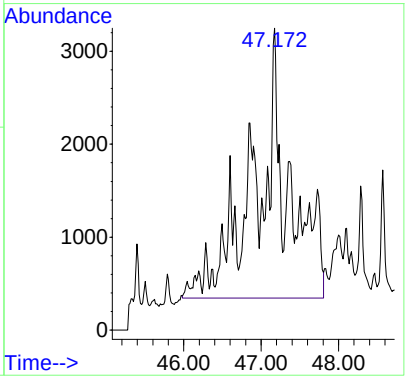
Tgt Ion:262 Resp: 102269

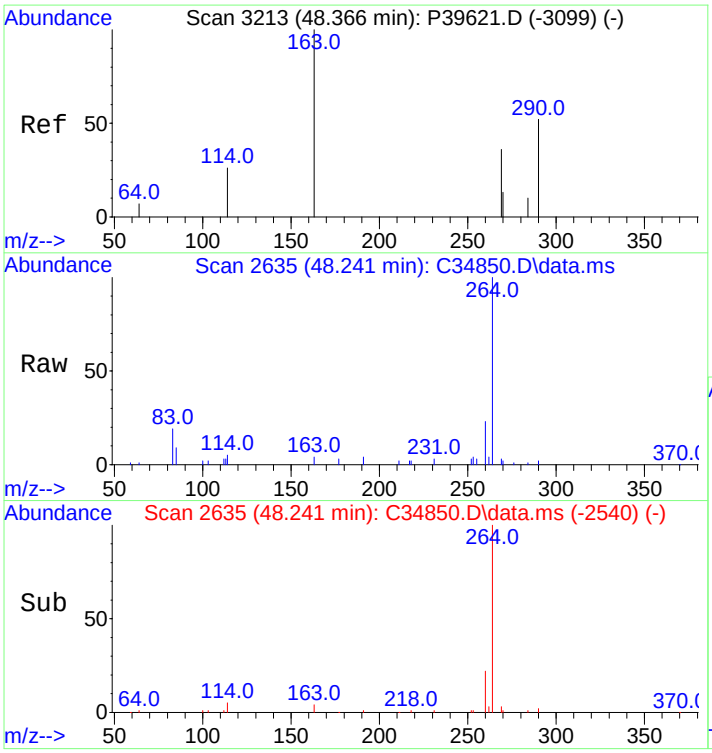




#72
C3-Naphthobenzothiophenes
Concen: 631.18 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

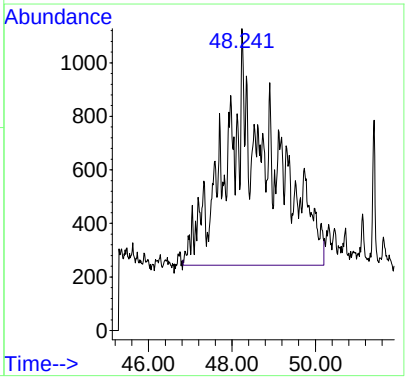
Tgt Ion:276 Resp: 85905

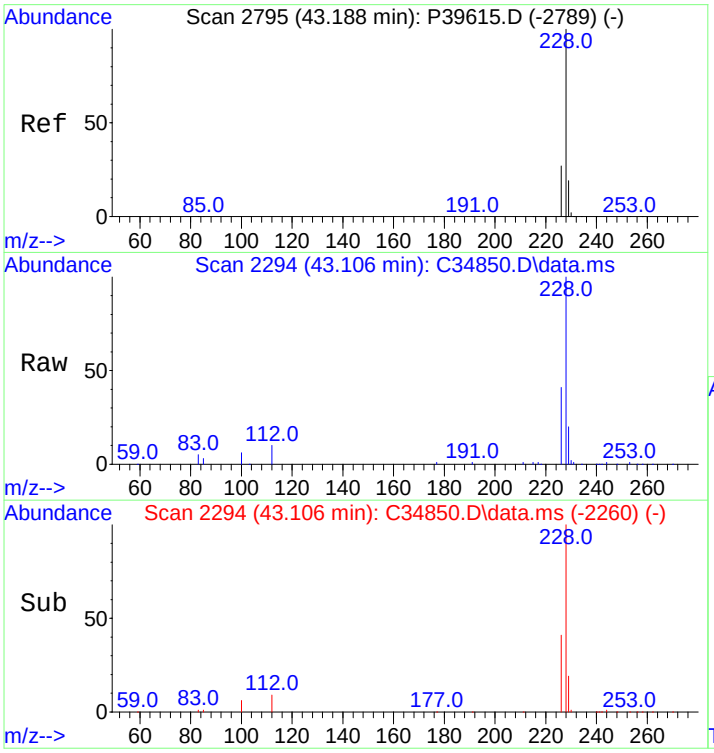




#73
C4-Naphthobenzothiophenes
Concen: 459.30 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:290 Resp: 62511

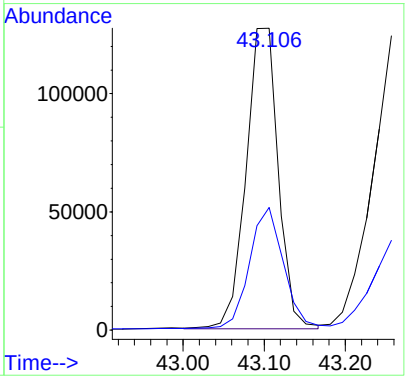


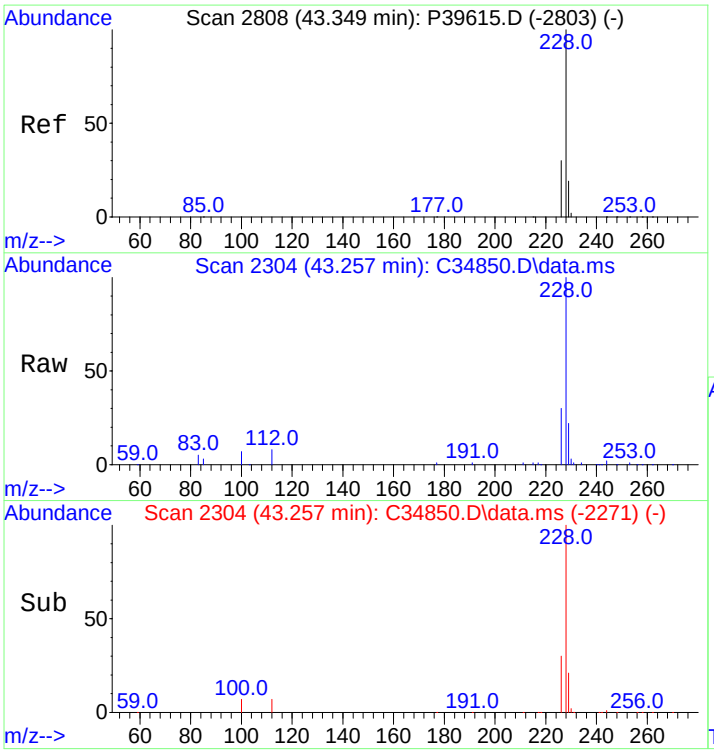


#75
Benz[a]anthracene
Concen: 2550.05 ng/mL m
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:228 Resp: 352348

Ion	Ratio	Lower	Upper
228	100		
226	30.6	21.4	32.0

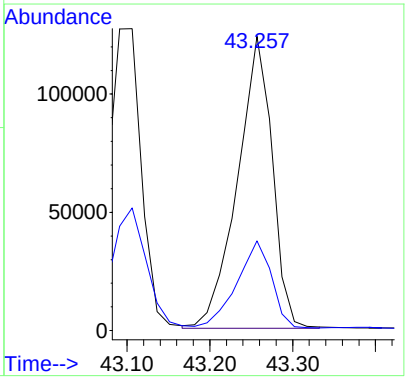


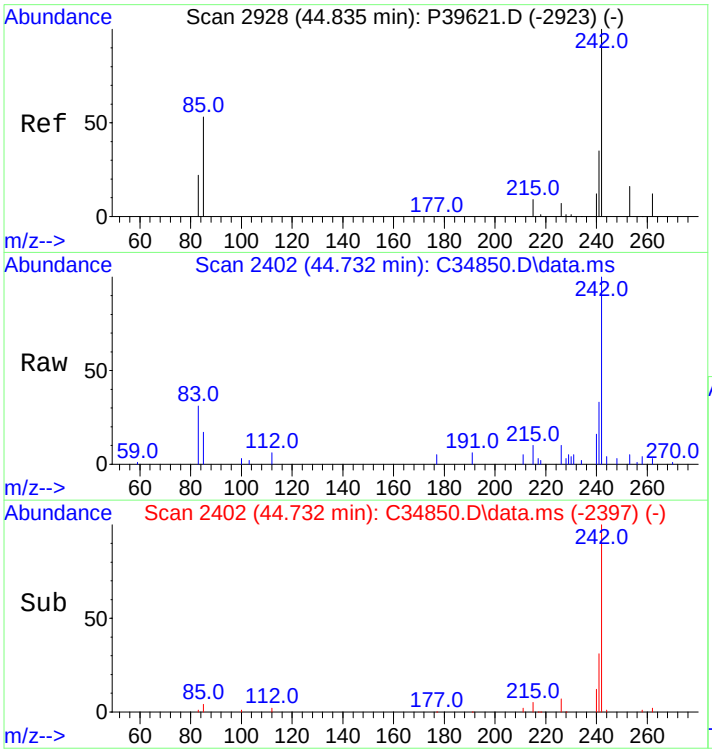


#77
Chrysene/Triphenylene
Concen: 2584.60 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:228 Resp: 360545

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

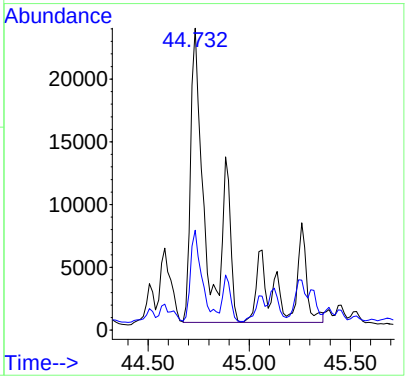


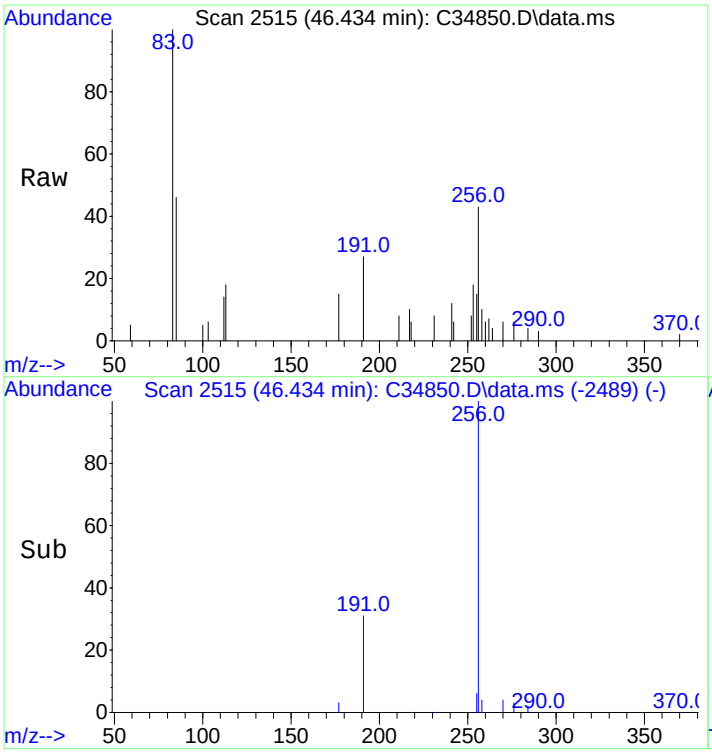


#78
C1-Chrysenes
Concen: 1296.16 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:242 Resp: 180811

Ion	Ratio	Lower	Upper
242	100		
241	3.7	31.4	47.2#

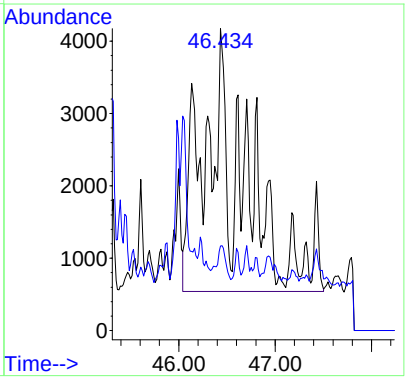


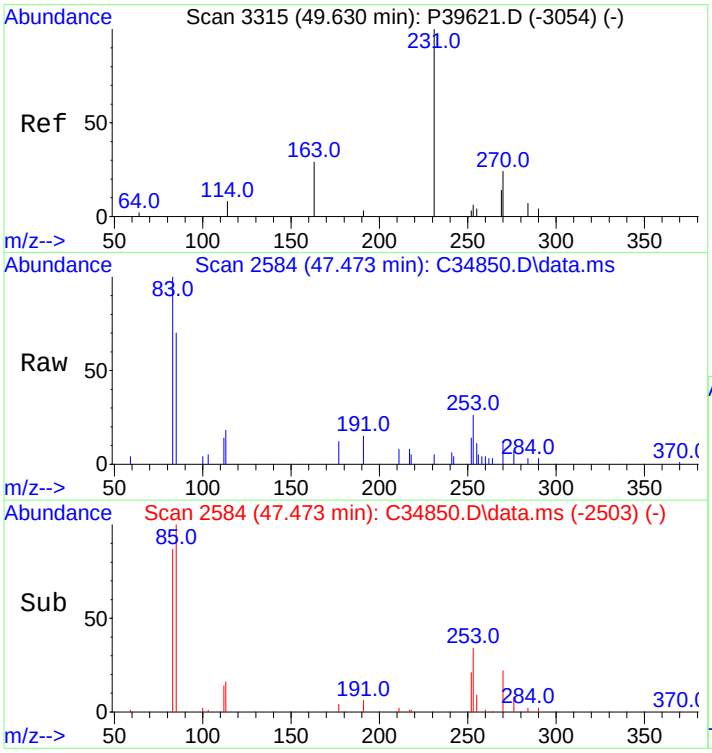


#79
C2-Chrysenes
Concen: 749.13 ng/mL m
RT: 46.434 min Scan# 2515
Delta R.T. -0.355 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:256 Resp: 104501

Ion	Ratio	Lower	Upper
256	100		
241	2.2	21.2	31.8#

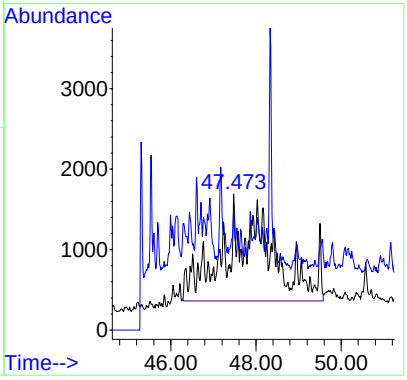


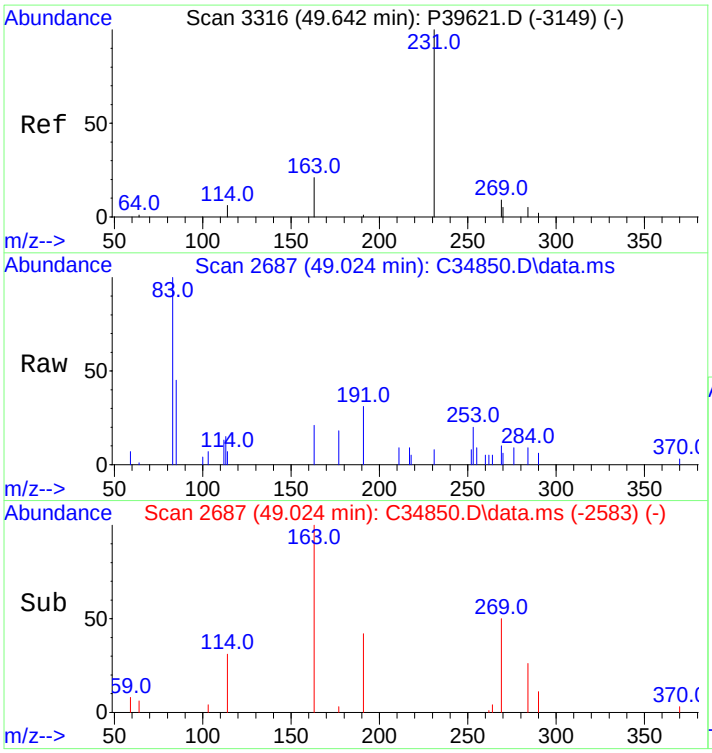


#80
C3-Chrysenes
Concen: 678.65 ng/mL m
RT: 47.473 min Scan# 2584
Delta R.T. -2.022 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:270 Resp: 94670

Ion	Ratio	Lower	Upper
270	100		
255	0.2	33.8	50.8#

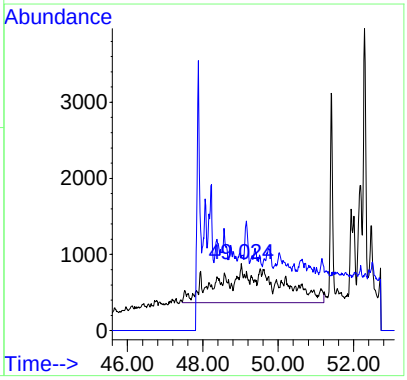


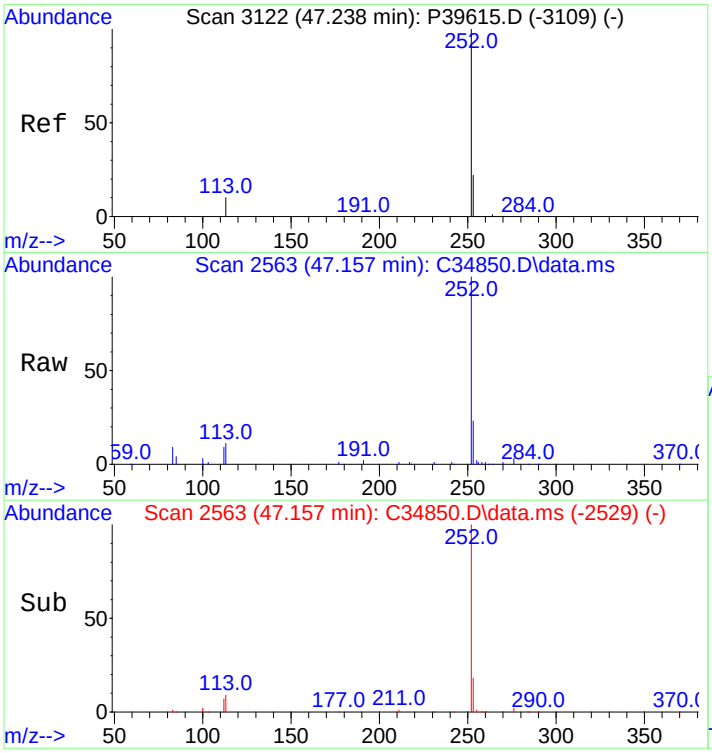


#81
C4-Chrysenes
Concen: 373.72 ng/mL m
RT: 49.024 min Scan# 2687
Delta R.T. -0.576 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:284 Resp: 52133

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

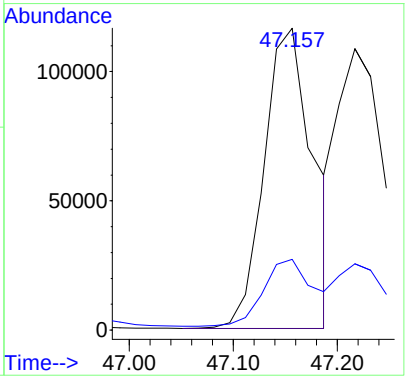


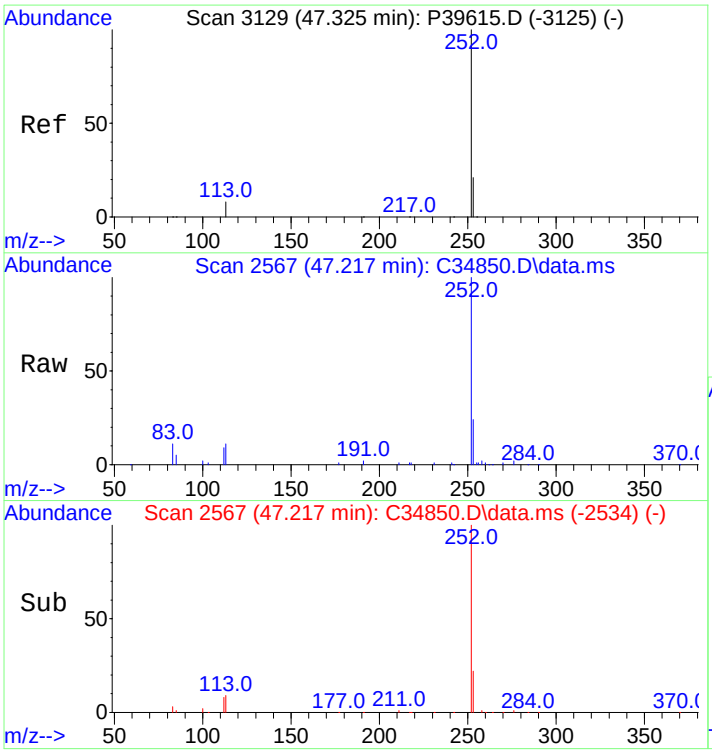


#82
Benzo[b]fluoranthene
Concen: 2505.93 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 380462

Ion	Ratio	Lower	Upper
252	100		
253	22.6	19.0	28.4

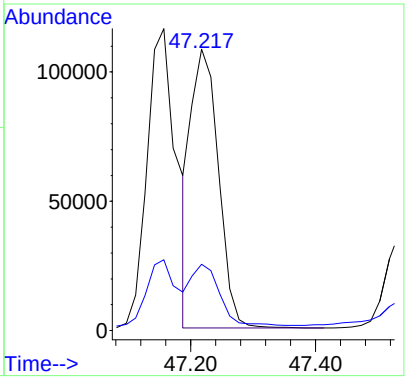


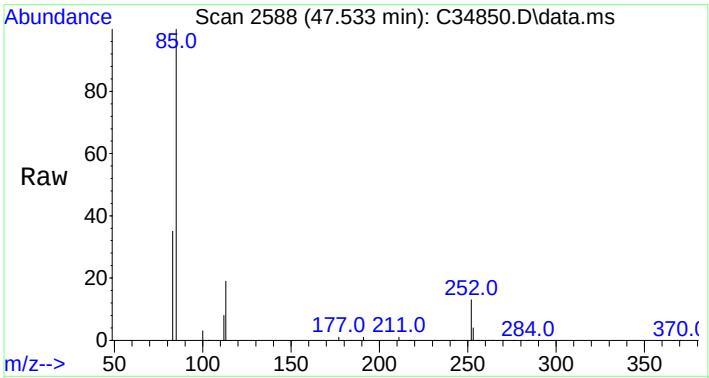


#83
Benzo[j]+[k]fluoranthene
Concen: 2005.25 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 331463

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.0	28.4

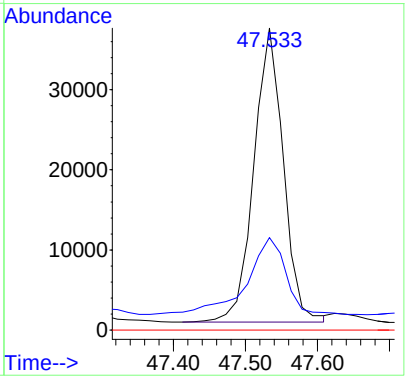


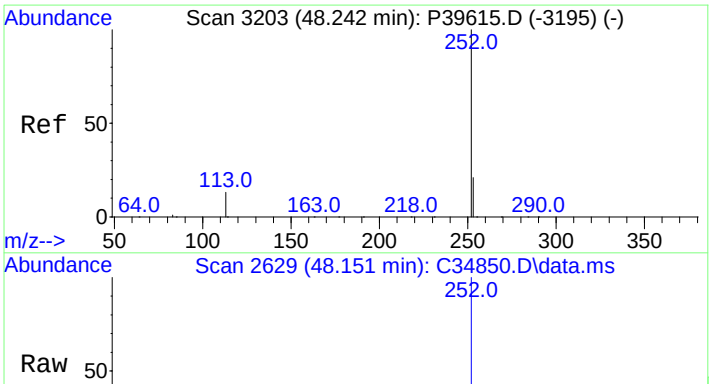


#84
Benzo[a]fluoranthene
Concen: 629.65 ng/mL
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 104079

Ion	Ratio	Lower	Upper
252	100		
253	35.2	146.1	219.1#
125	0.0	0.0	0.0

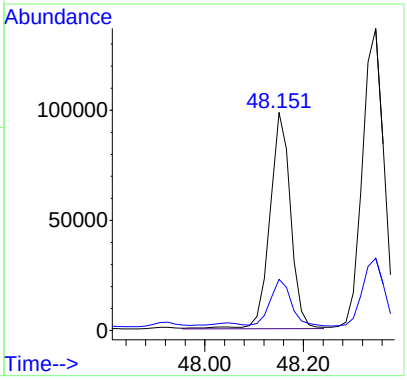


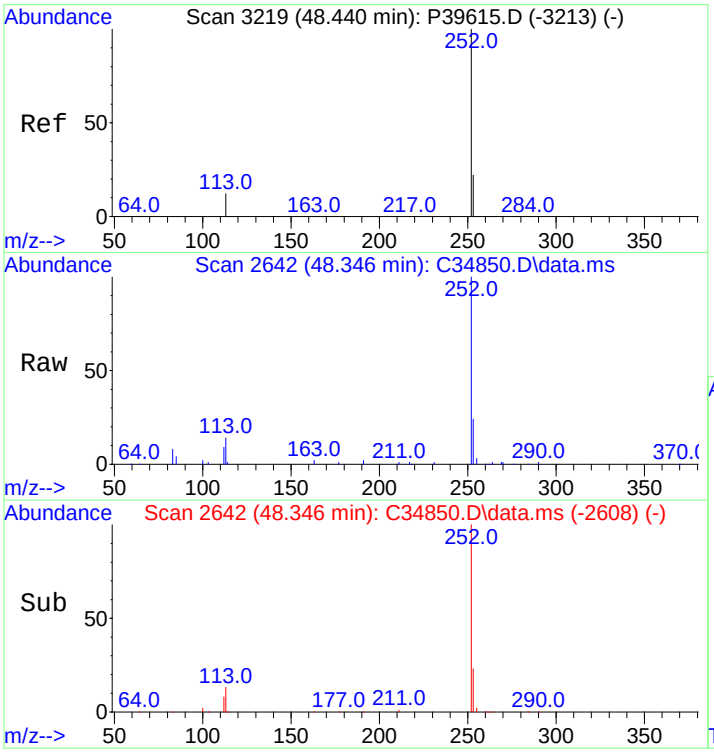


#85
Benzo[e]pyrene
Concen: 1905.75 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 286193

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.2	28.8

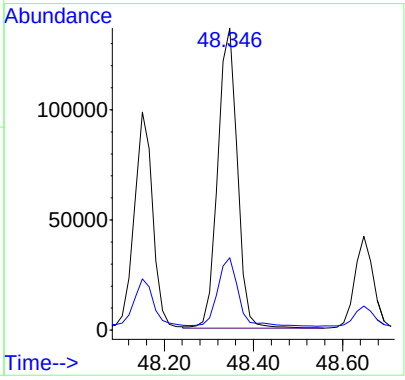


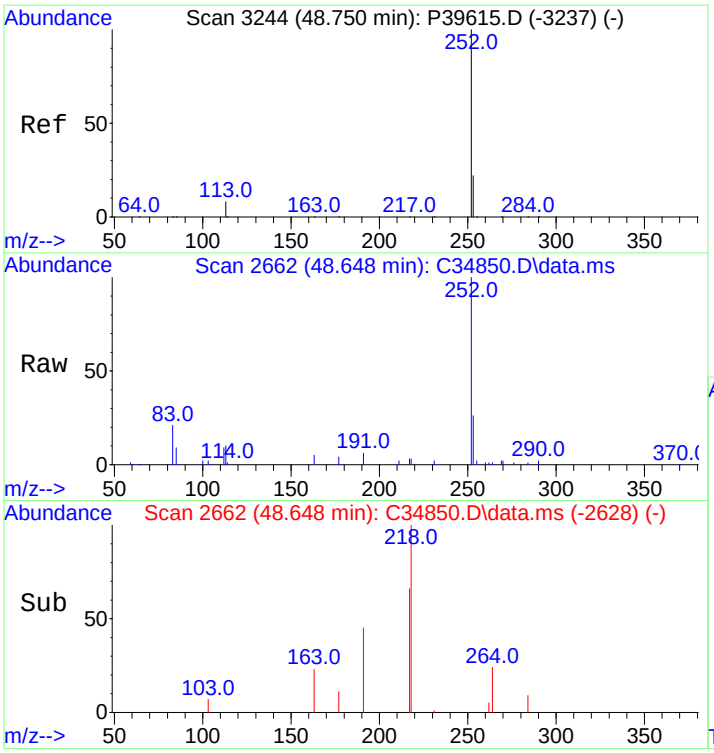


#87
Benzo[a]pyrene
Concen: 2878.39 ng/mL
RT: 48.346 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 416174

Ion	Ratio	Lower	Upper
252	100		
253	23.8	19.5	29.3

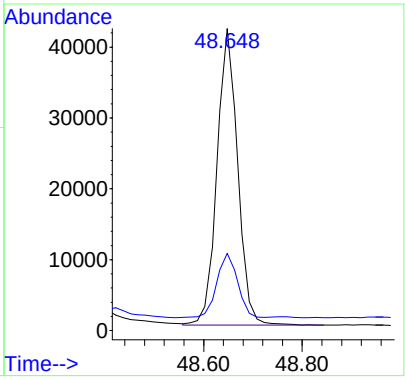


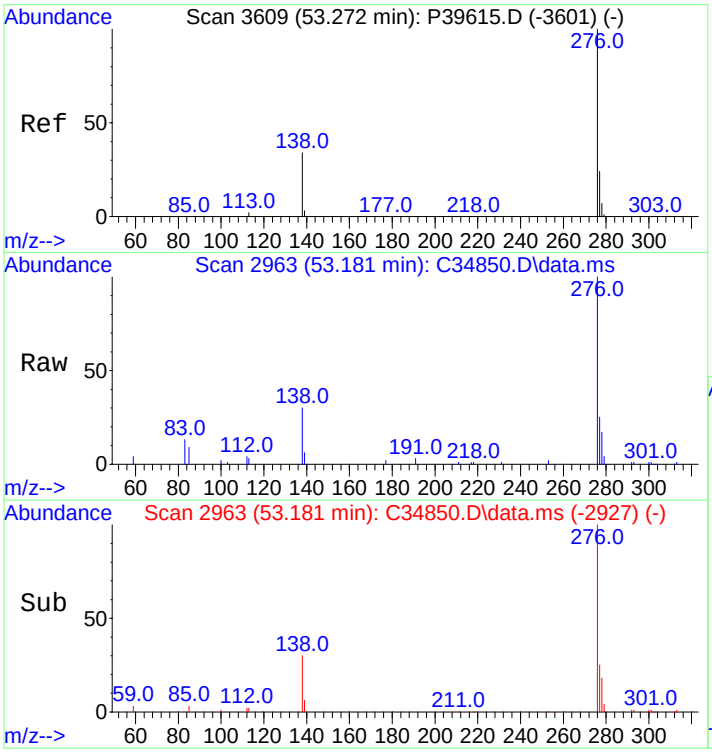


#88
Perylene
Concen: 792.85 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:252 Resp: 122512

Ion	Ratio	Lower	Upper
252	100		
253	21.9	19.6	29.4

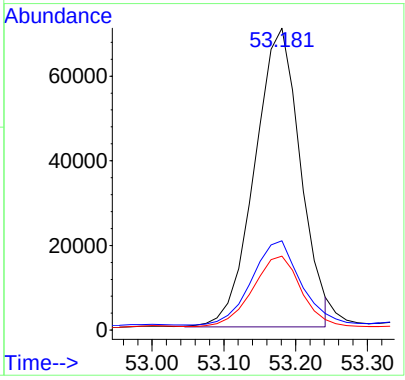


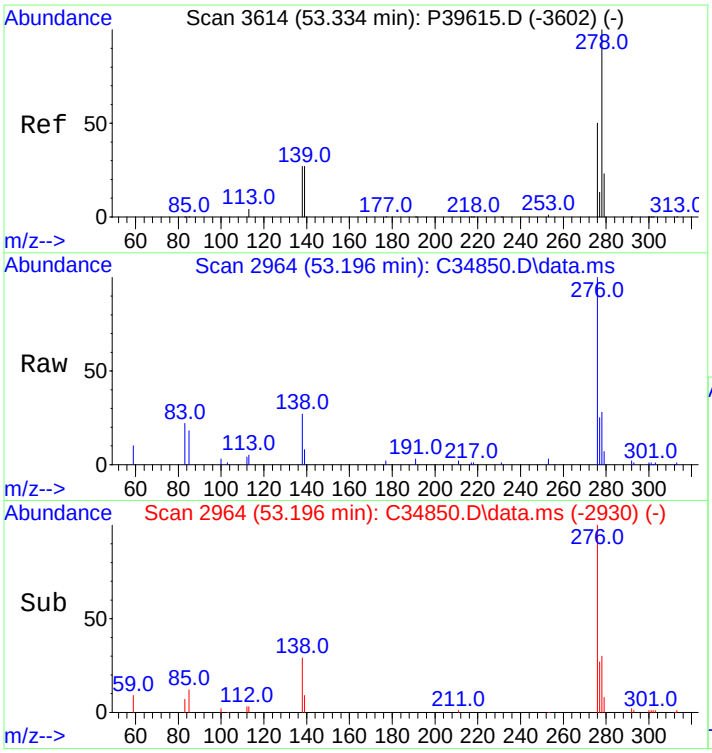


#89
Indeno[1,2,3-cd]pyrene
Concen: 1860.34 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.045 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:276 Resp: 313018

Ion	Ratio	Lower	Upper
276	100		
138	30.8	23.3	34.9
277	25.8	19.0	28.4

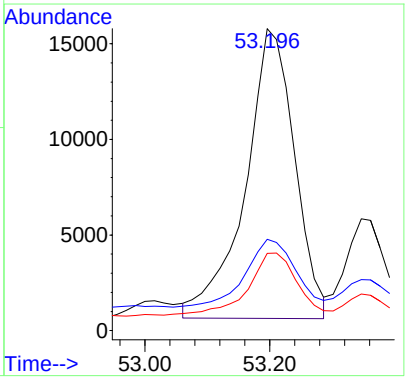


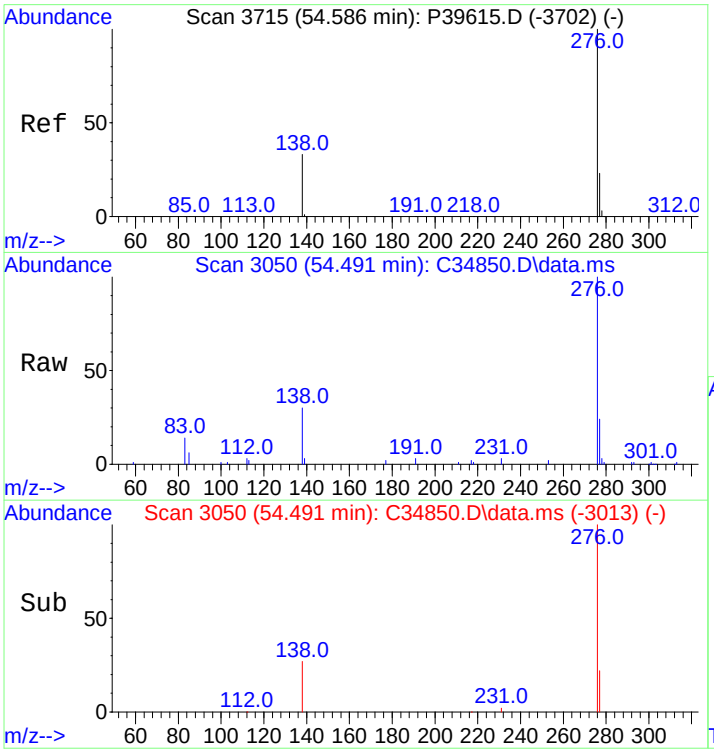


#90
Dibenz[ah]+[ac]anthracene
Concen: 521.07 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:278 Resp: 83402

Ion	Ratio	Lower	Upper
278	100		
139	21.1	19.1	28.7
279	18.7	19.2	28.8#

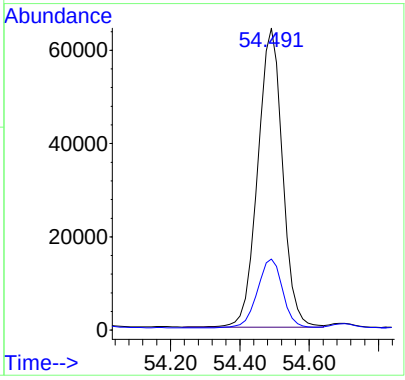


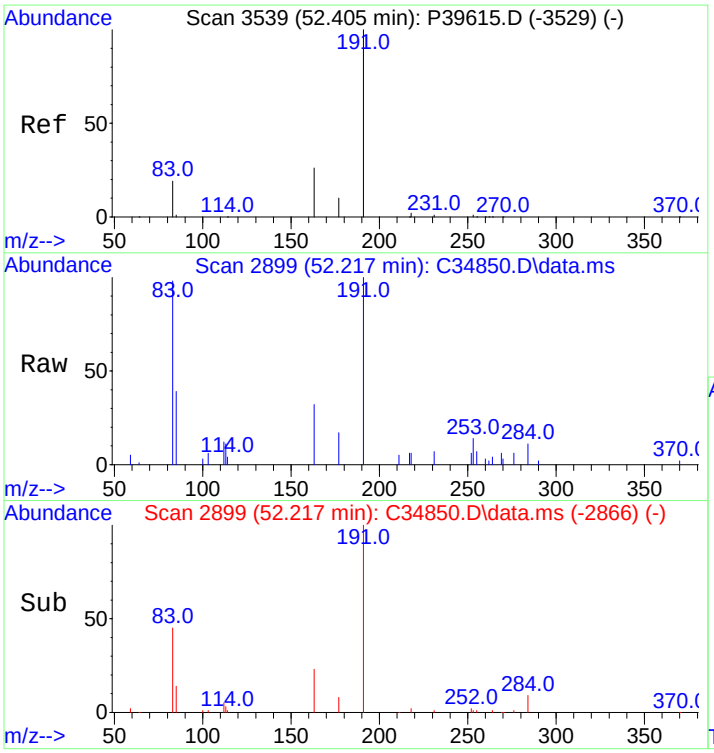


#91
Benzo[g,h,i]perylene
Concen: 1787.37 ng/mL
RT: 54.491 min Scan# 3050
Delta R.T. 0.060 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:276 Resp: 317733

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3

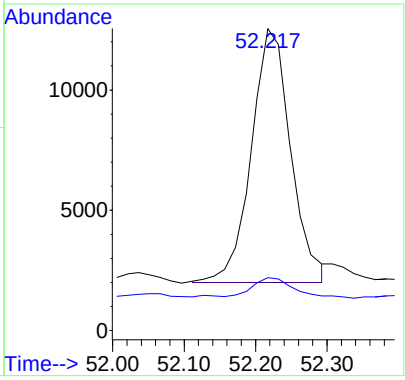


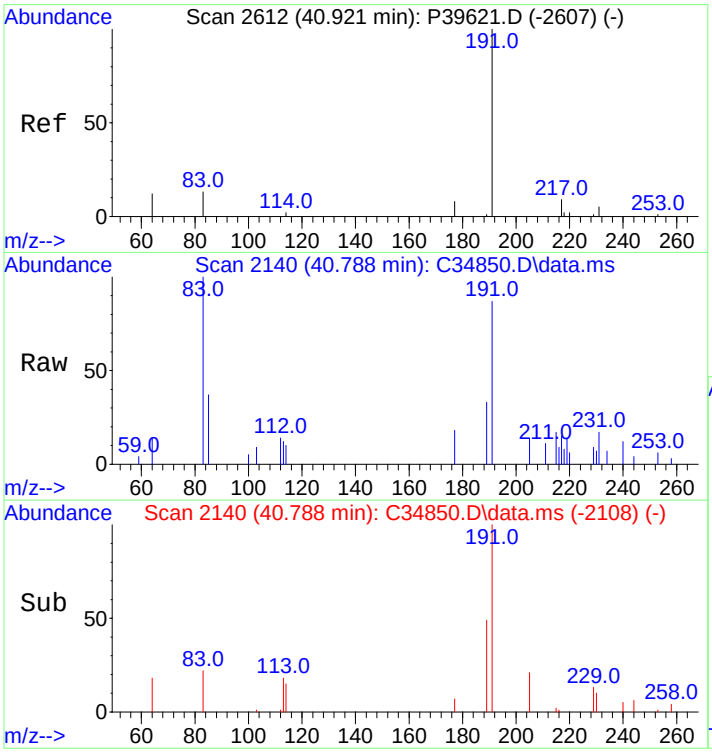


#92
Hopane (T19)
Concen: 1412.17 ng/mL m
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:191 Resp: 40517

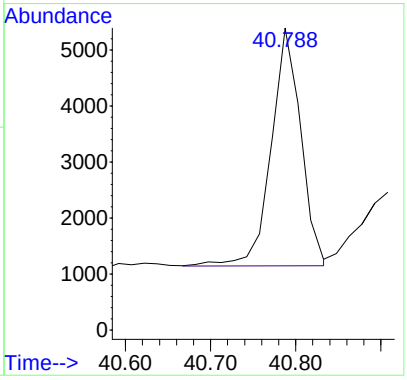
Ion	Ratio	Lower	Upper
191	100		
177	8.9	14.6	21.8#

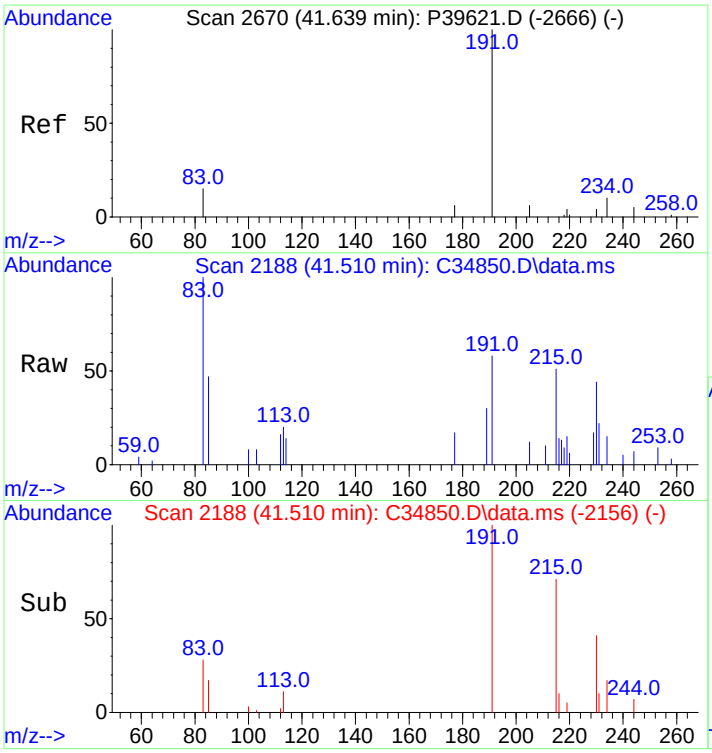




#94
C23 Tricyclic Terpane (T4)
Concen: 357.39 ng/ml
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

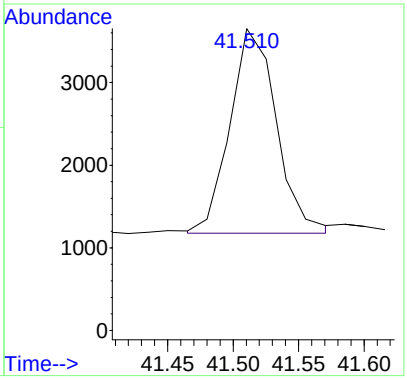
Tgt Ion:191 Resp: 10254

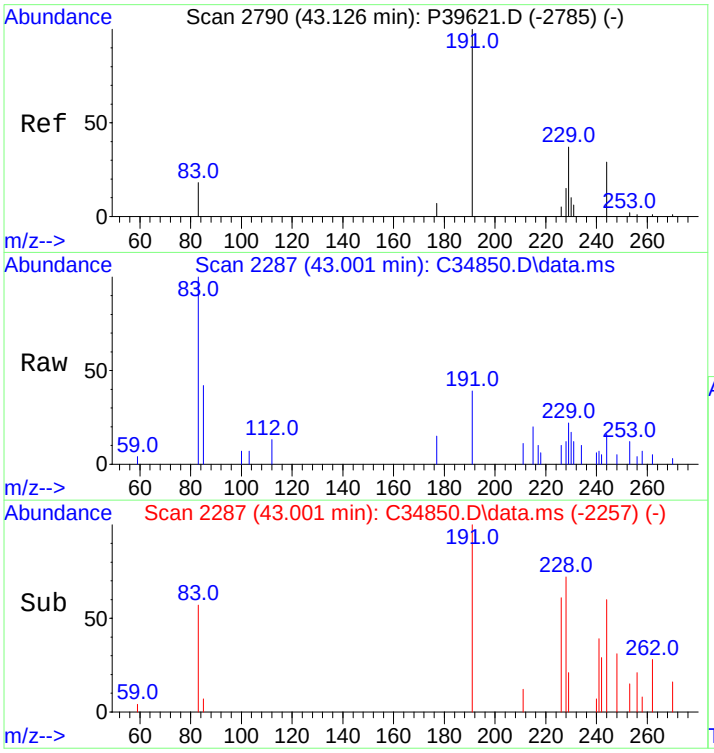




#95
C24 Tricyclic Terpane (T5)
Concen: 212.50 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

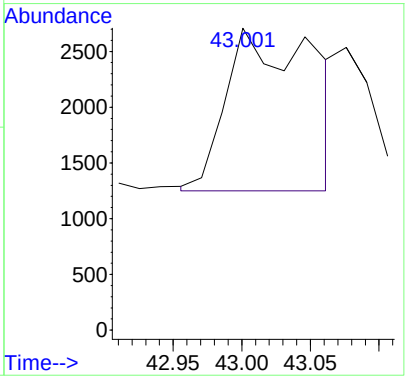
Tgt Ion:191 Resp: 6097

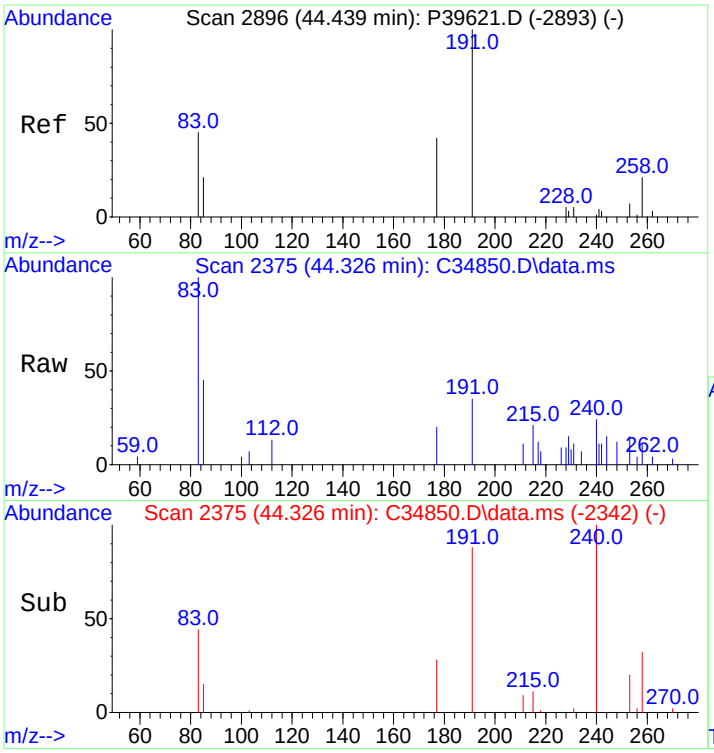




#96
C25 Tricyclic Terpane (T6)
Concen: 221.98 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

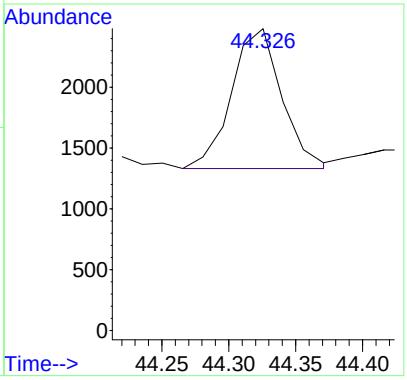
Tgt Ion:191 Resp: 6369

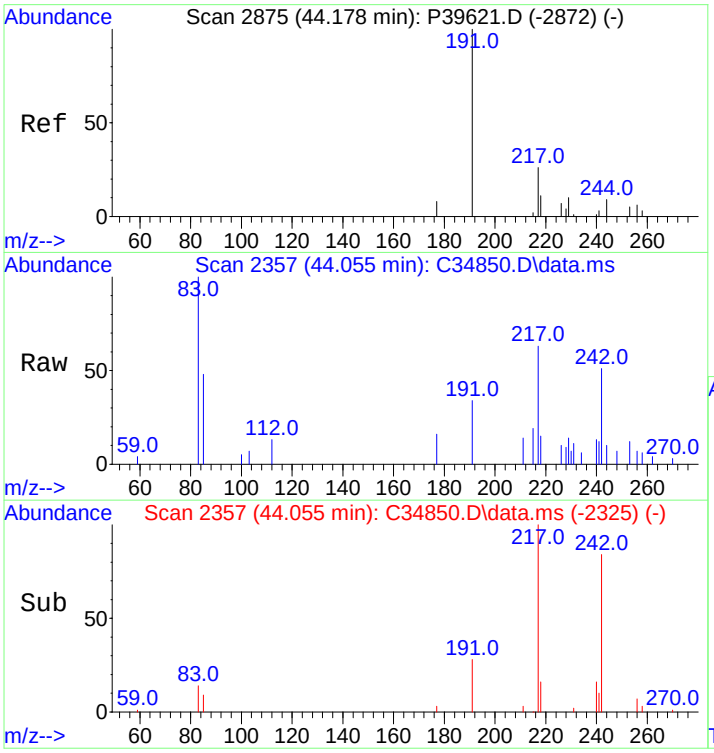




#97
C24 Tetracyclic Terpane (T6a)
Concen: 105.50 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

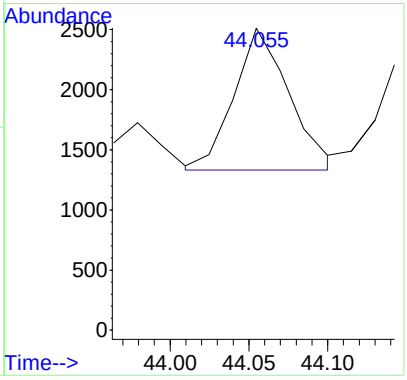
Tgt Ion:191 Resp: 3027

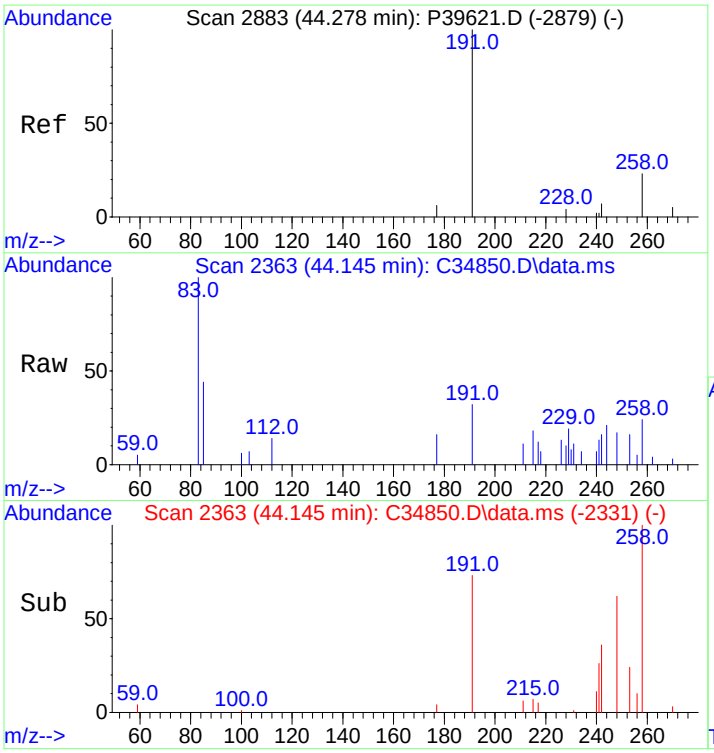




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 100.45 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

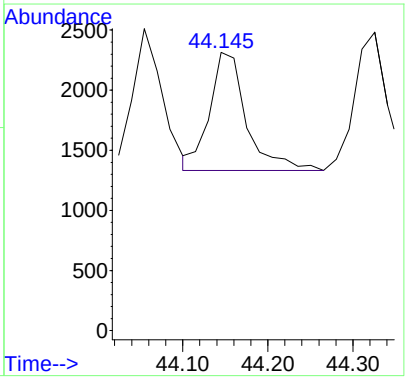
Tgt Ion:191 Resp: 2882

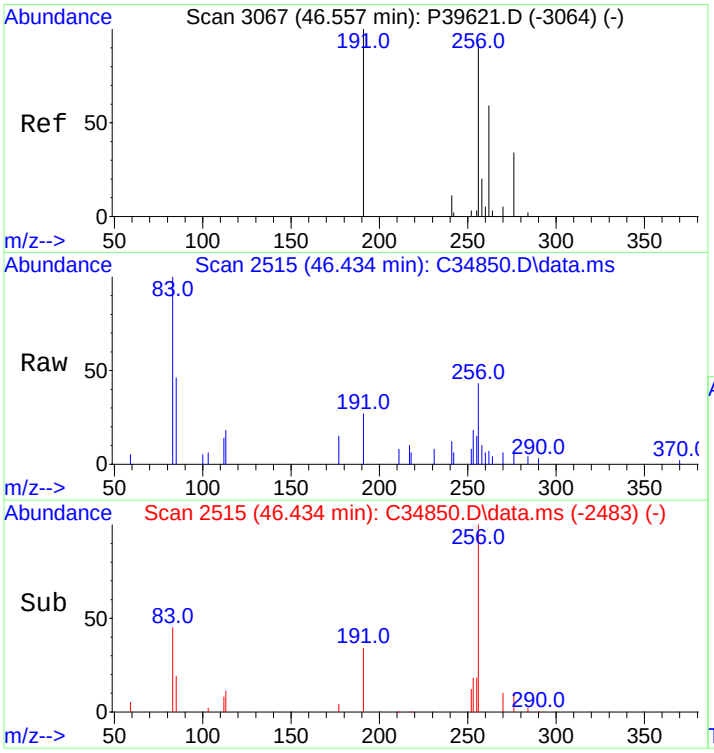




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 103.72 ng/ml
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

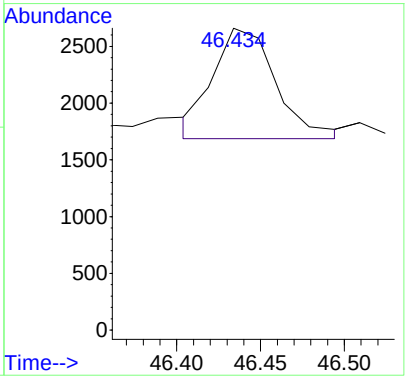
Tgt Ion:191 Resp: 2976

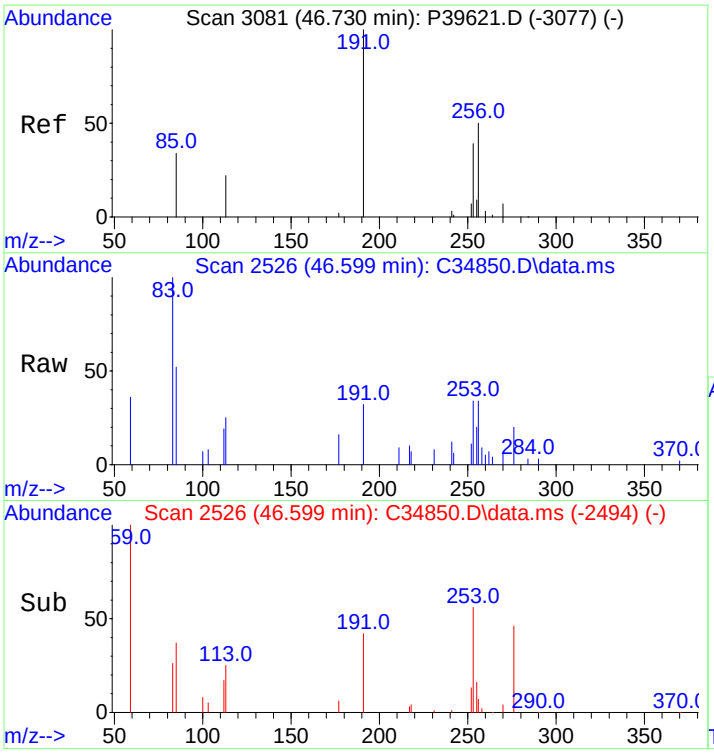




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 88.28 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

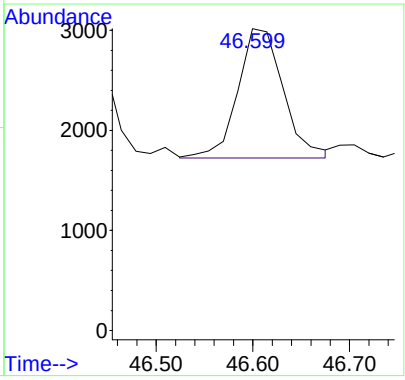
Tgt Ion:191 Resp: 2533

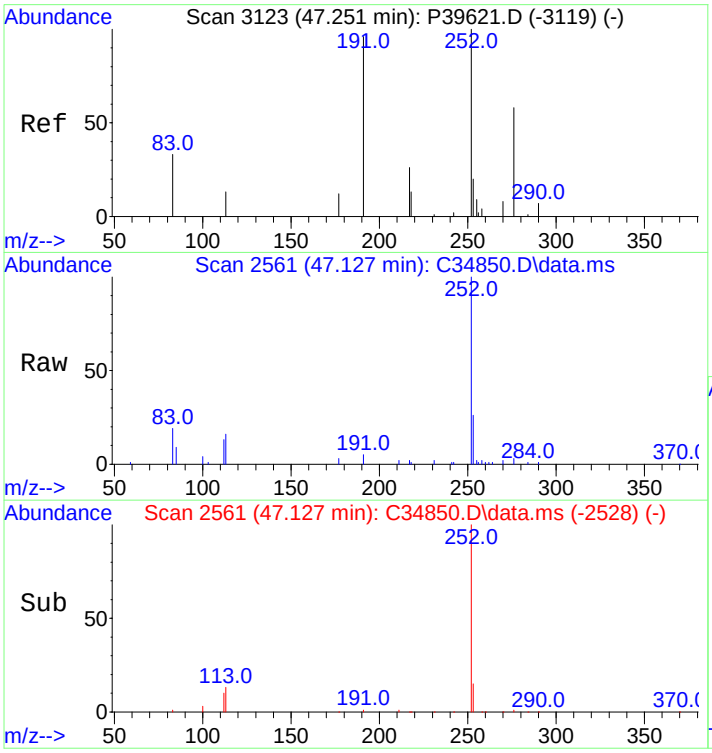




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 147.12 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

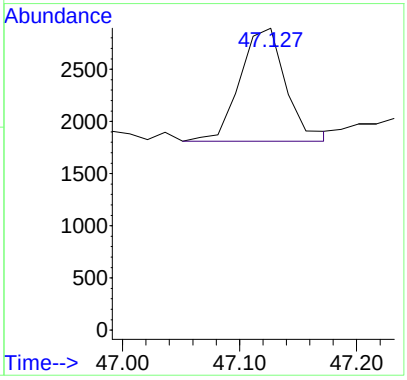
Tgt Ion:191 Resp: 4221

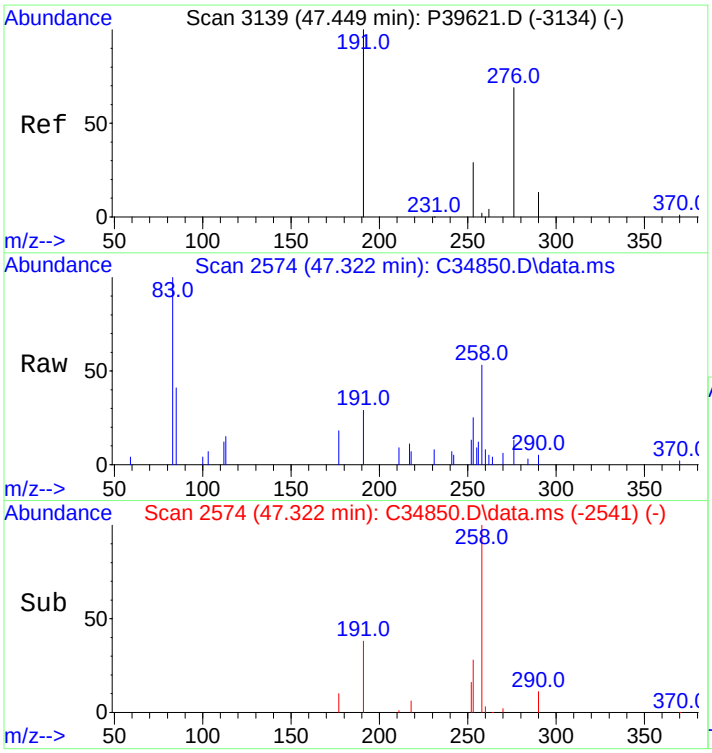




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 103.38 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

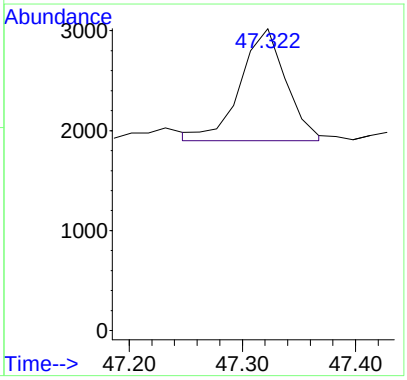
Tgt Ion:191 Resp: 2966

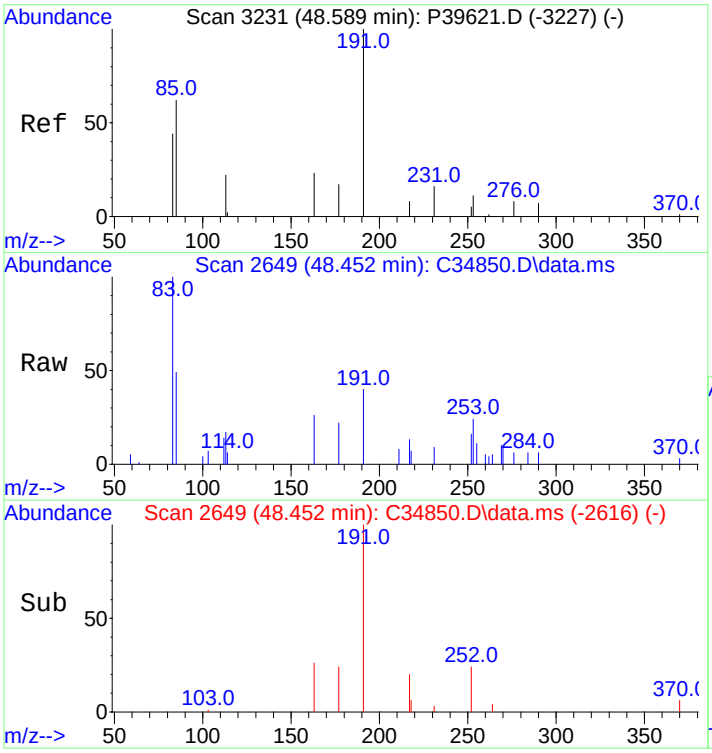




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 109.27 ng/ml m
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

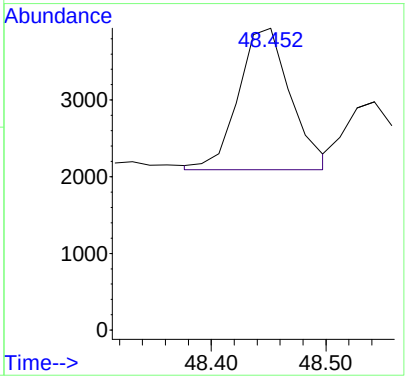
Tgt Ion:191 Resp: 3135

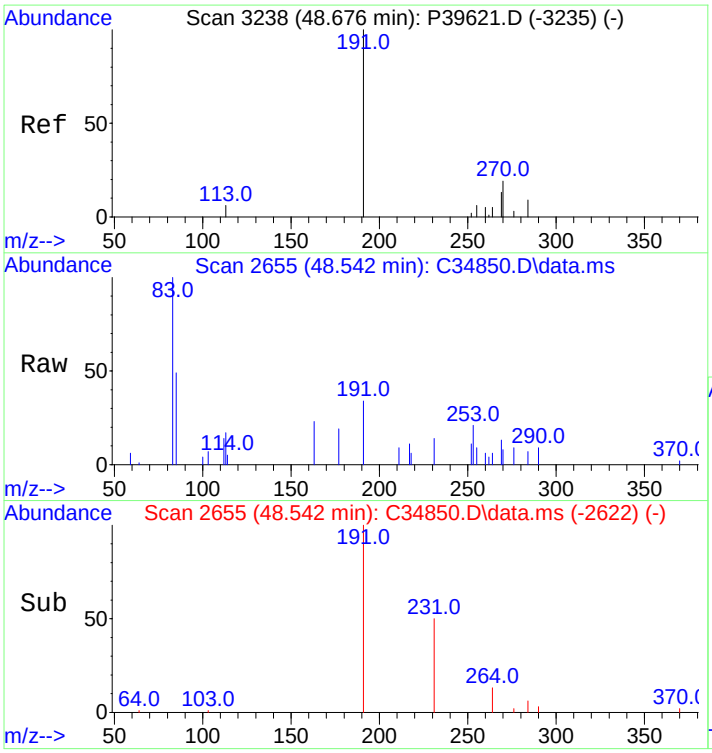




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 204.07 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

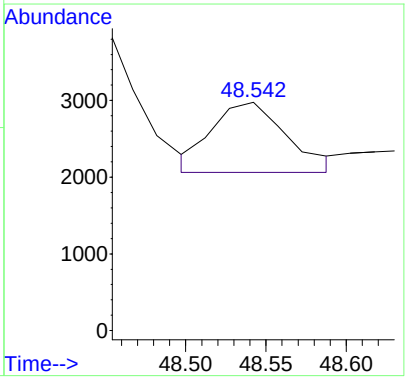
Tgt Ion:191 Resp: 5855

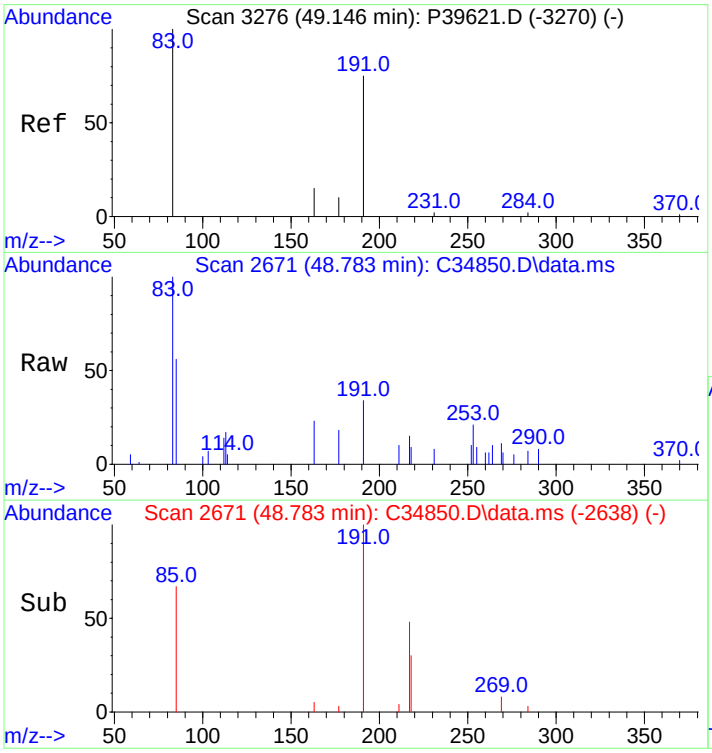




#105
C30 Tricyclic Terpane-22S
Concen: 103.13 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

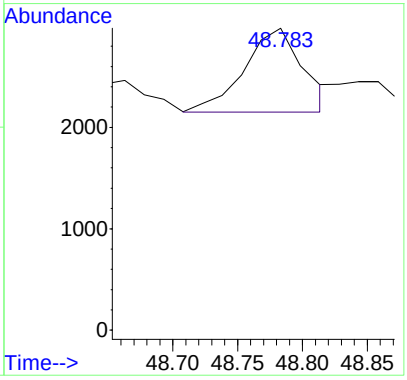
Tgt Ion:191 Resp: 2959

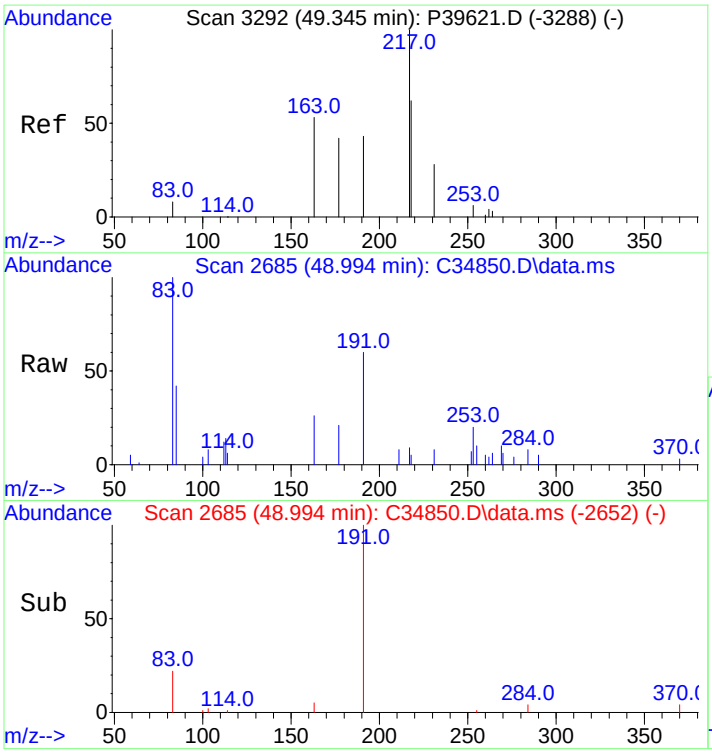




#106
C30 Tricyclic Terpane-22R
Concen: 90.69 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

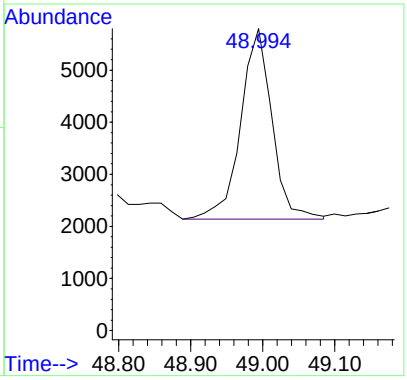
Tgt Ion:191 Resp: 2602

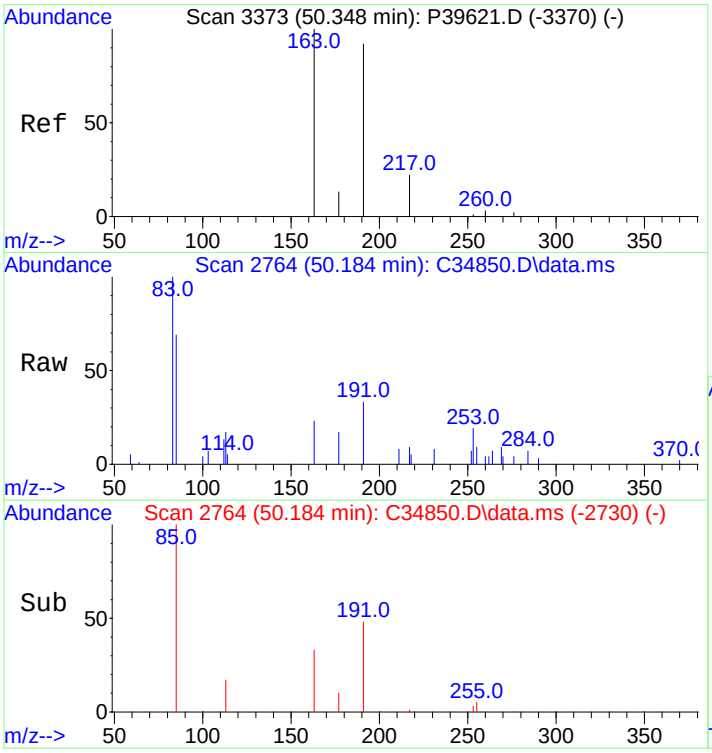




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 383.88 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

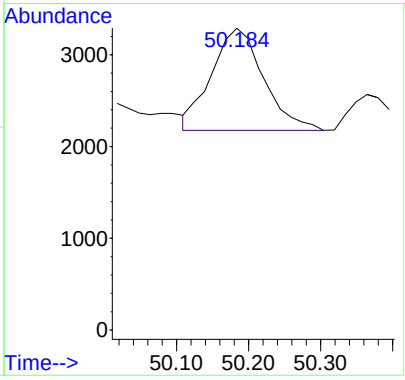
Tgt Ion:191 Resp: 11014

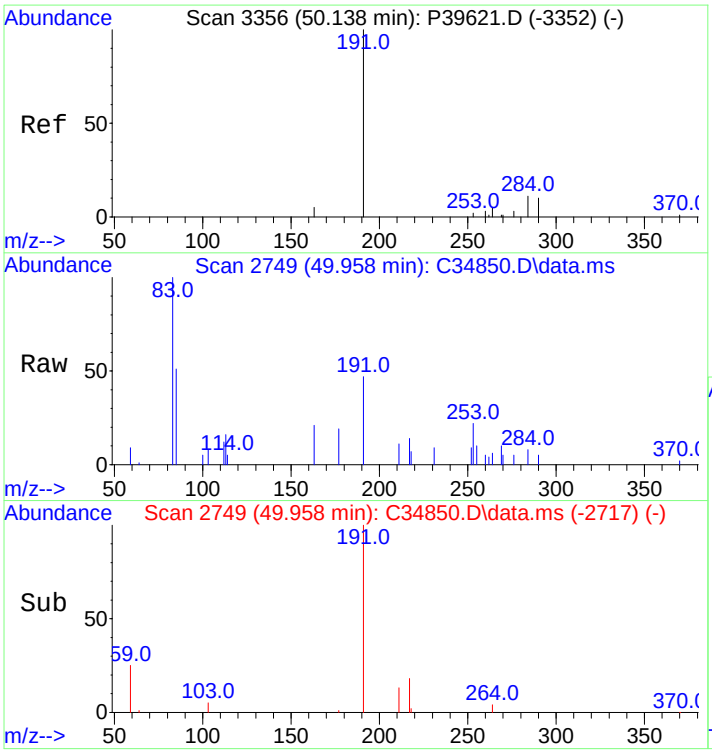




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 194.38 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

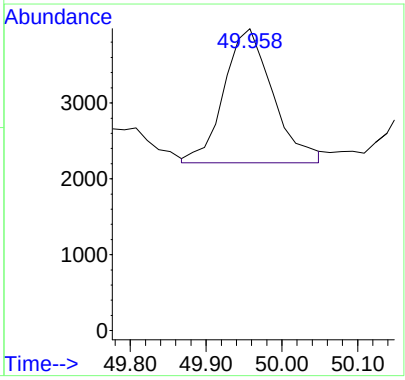
Tgt Ion:191 Resp: 5577

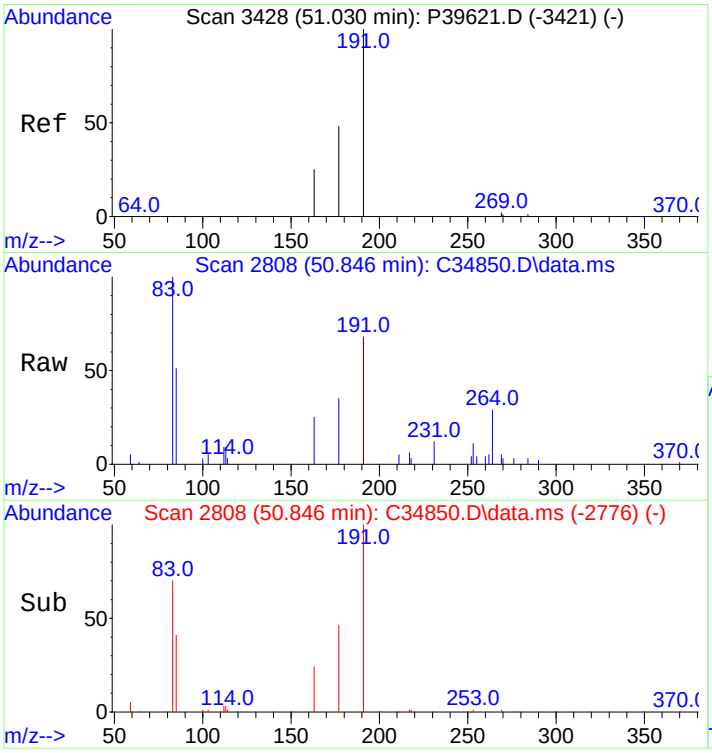




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 276.84 ng/ml m
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

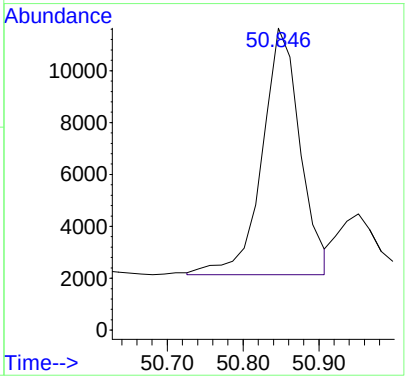
Tgt Ion:191 Resp: 7943

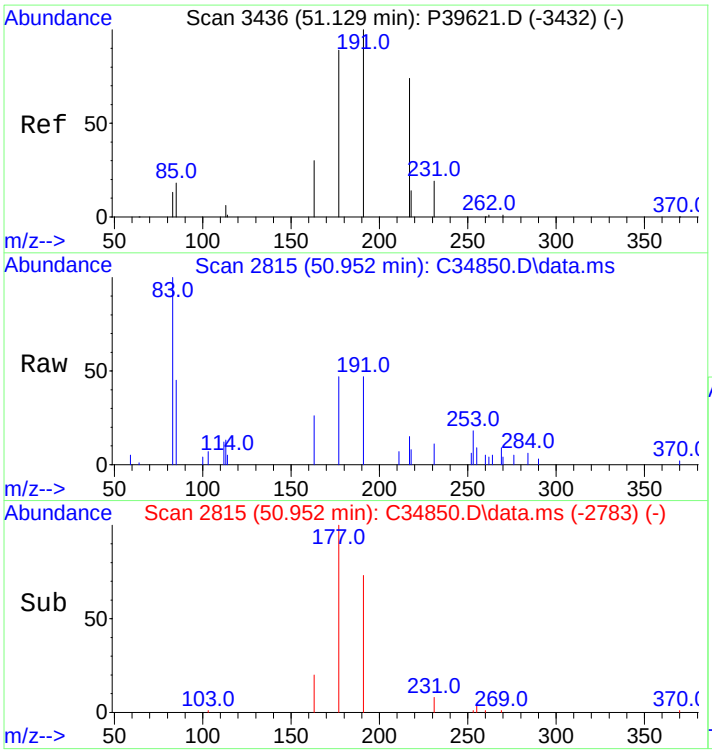




#110
30-Norhopane (T15)
Concen: 1157.91 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

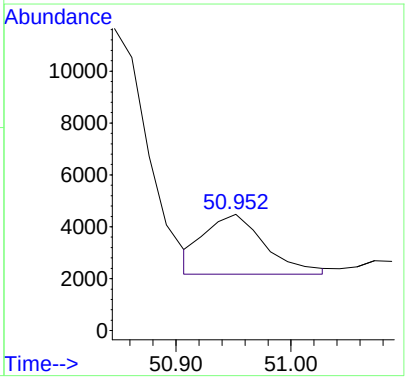
Tgt Ion:191 Resp: 33222

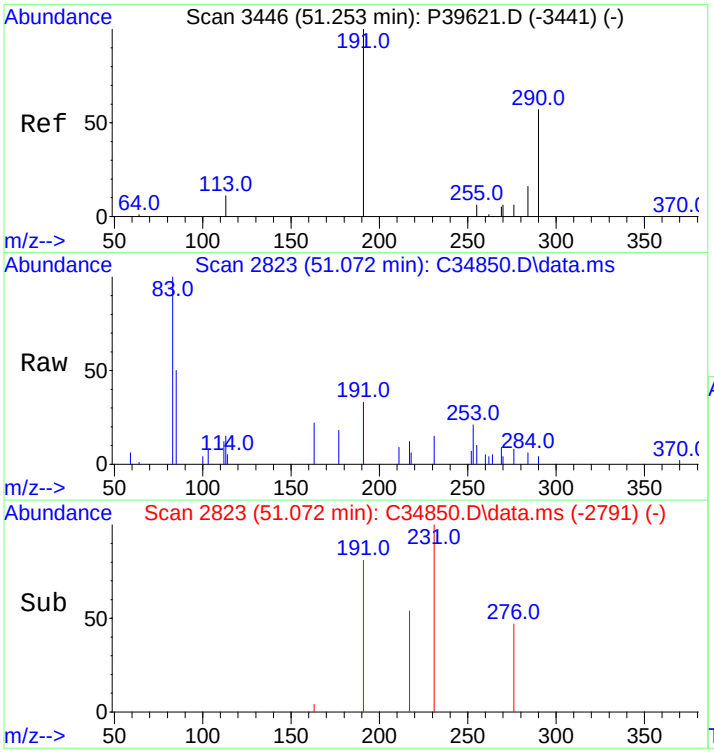




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 292.77 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

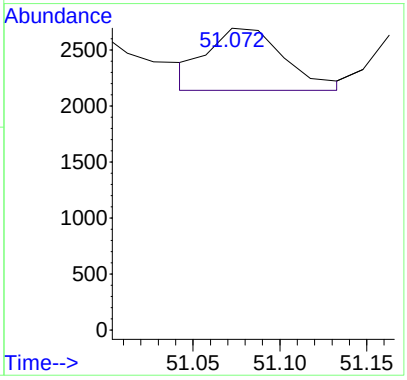
Tgt Ion:191 Resp: 8400

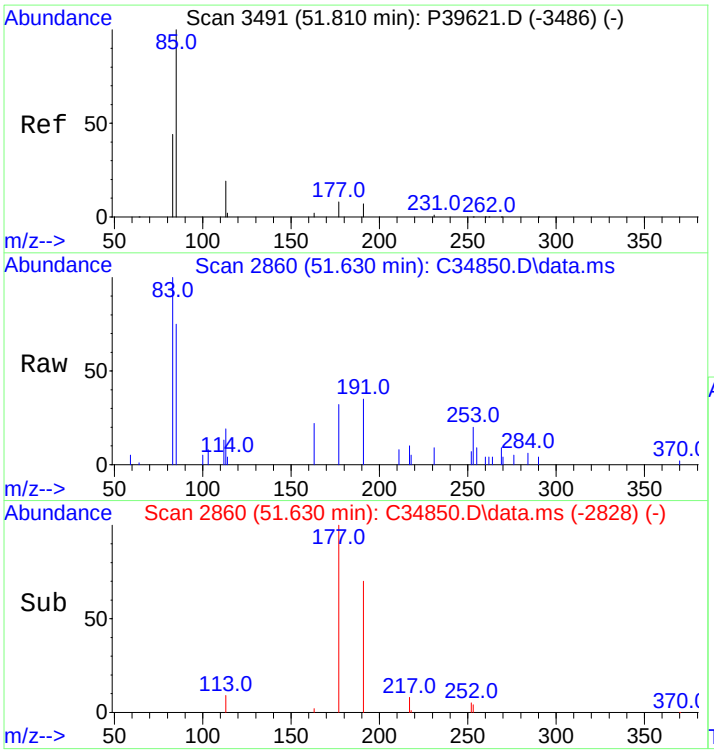




#112
17a(H)-Diahopane (X)
Concen: 59.04 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

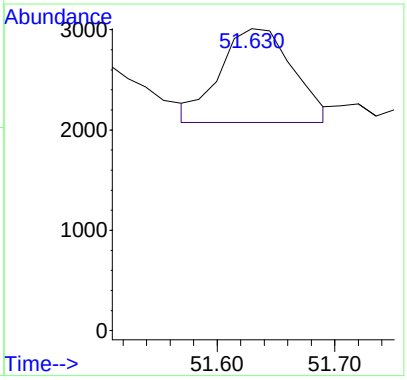
Tgt Ion:191 Resp: 1694

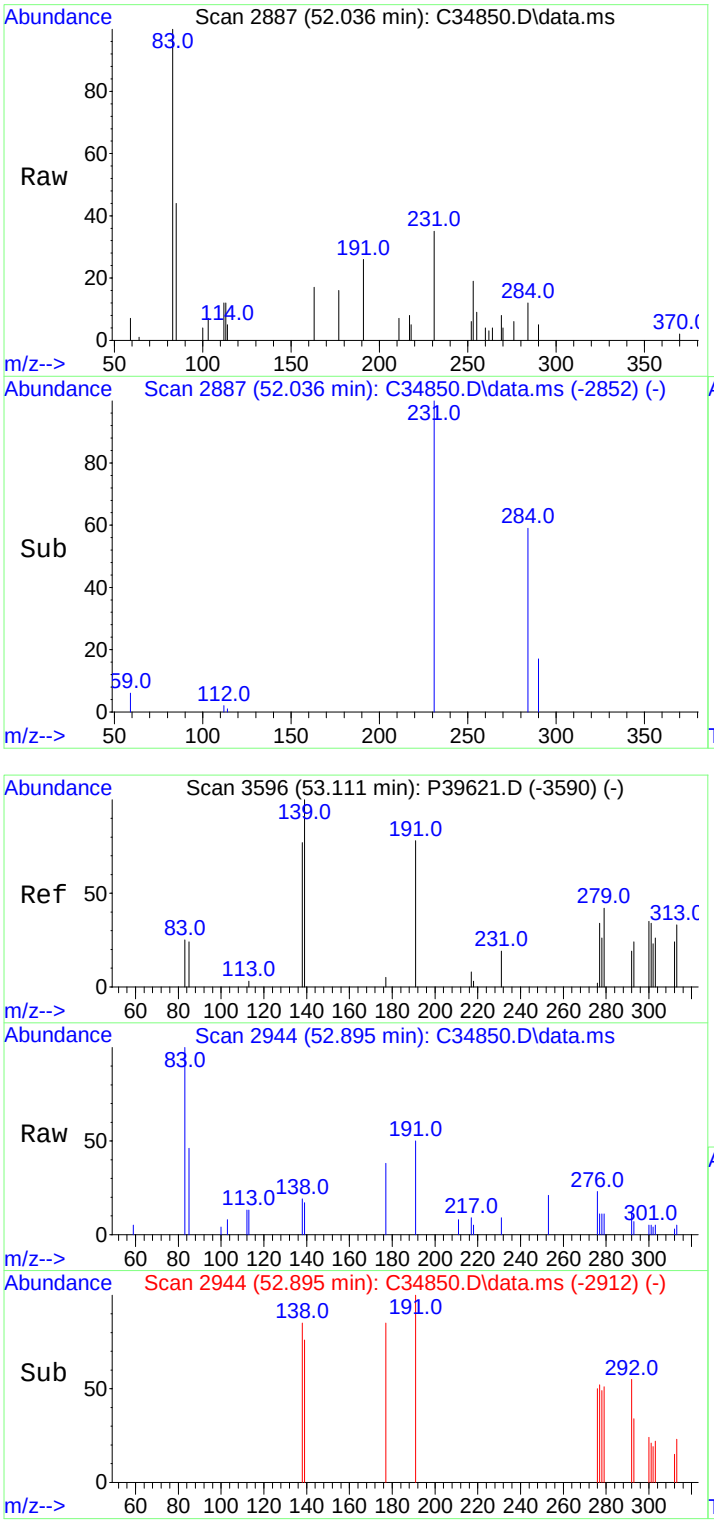




#113
30-Normoretane (T17)
Concen: 140.84 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

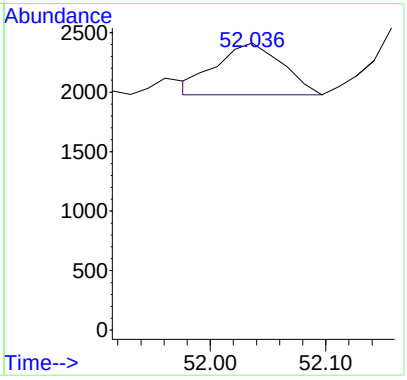
Tgt Ion:191 Resp: 4041





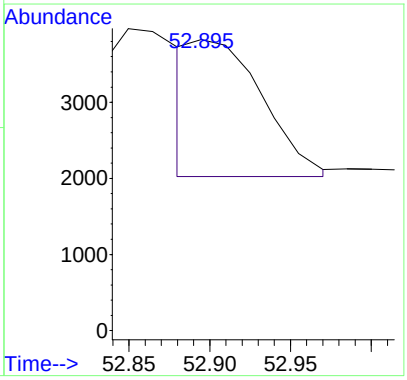
#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 60.09 ng/ml m
RT: 52.036 min Scan# 2887
Delta R.T. 0.030 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

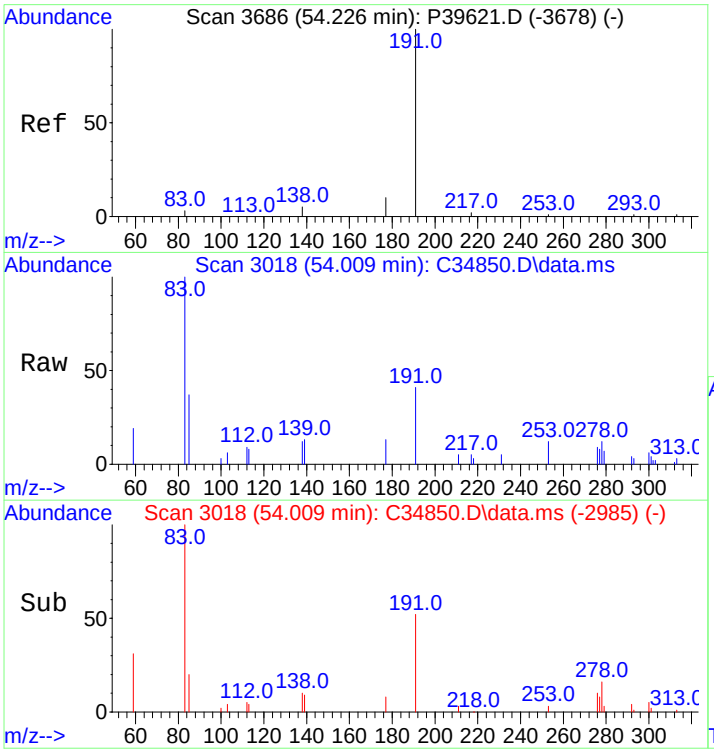
Tgt Ion:191 Resp: 1724



#115
Moretane (T20)
Concen: 190.58 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

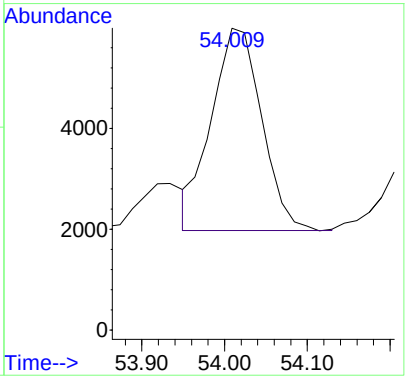
Tgt Ion:191 Resp: 5468

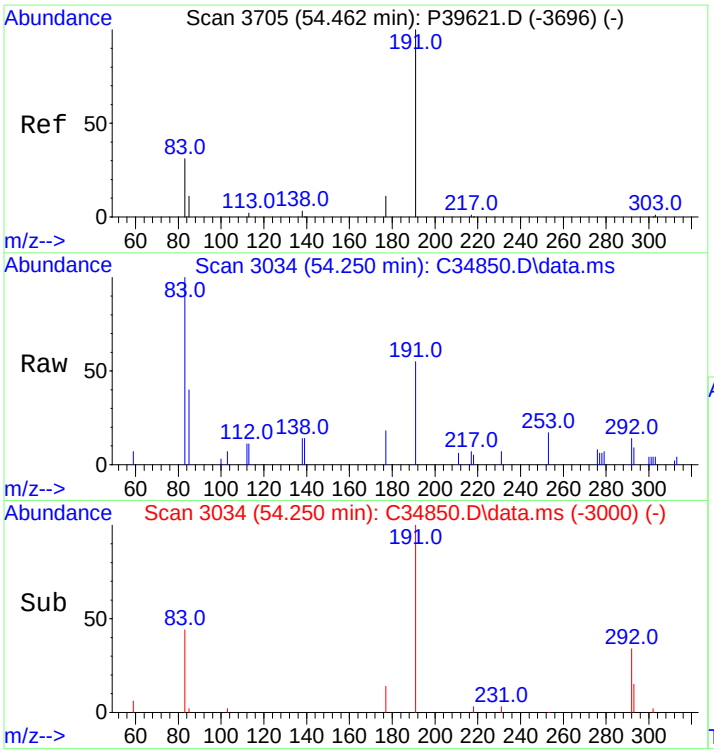




#116
30-Homohopane-22S (T21)
Concen: 593.91 ng/ml m
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

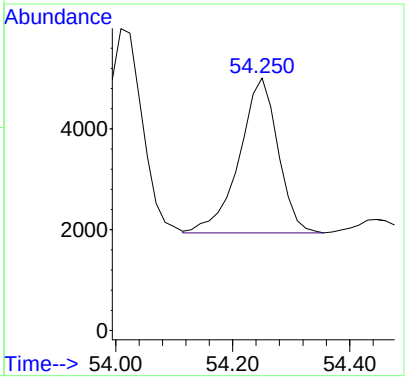
Tgt Ion:191 Resp: 17040

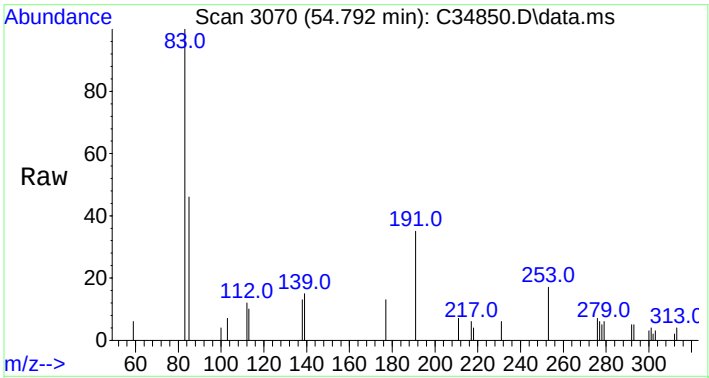




#117
30-Homohopane-22R (T22)
Concen: 489.80 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

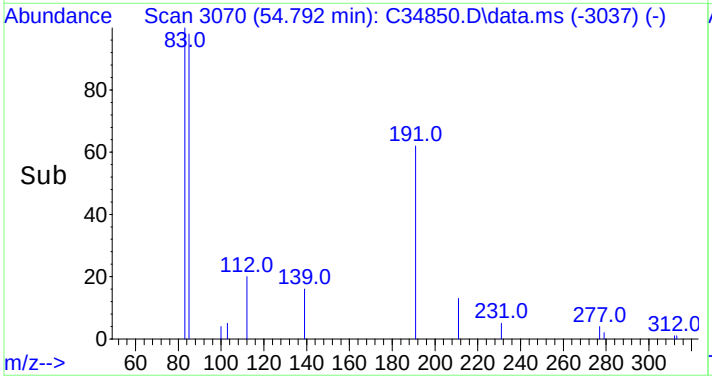
Tgt Ion:191 Resp: 14053

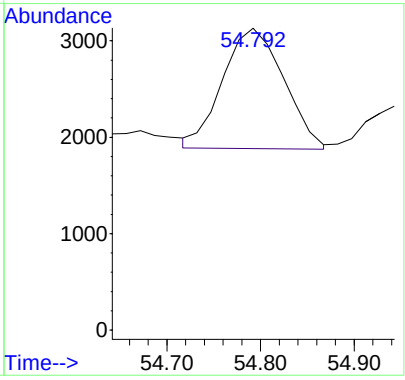


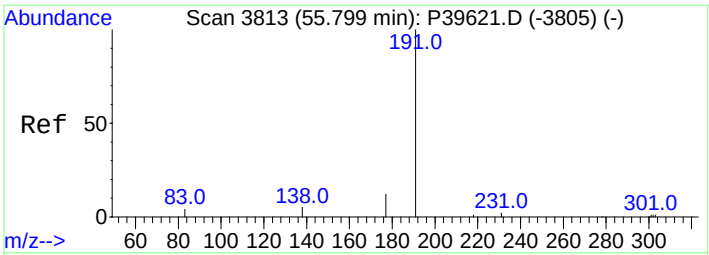


#118
Gammacerane/C32-diahopane
Concen: 197.06 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:191 Resp: 5654

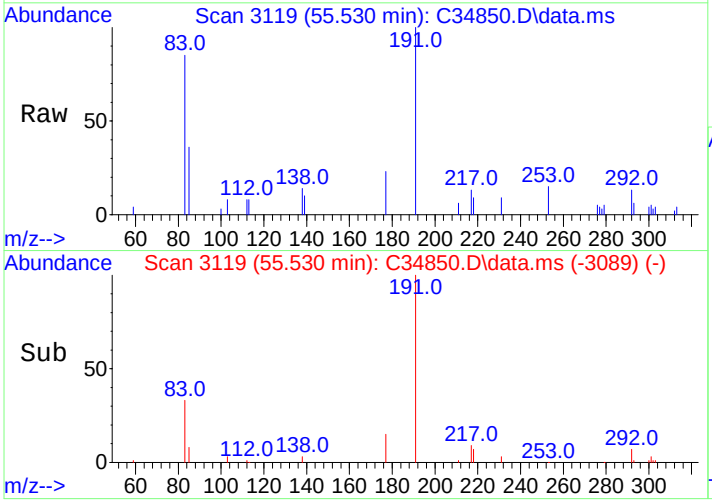


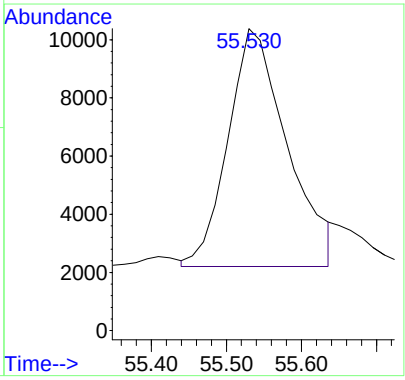


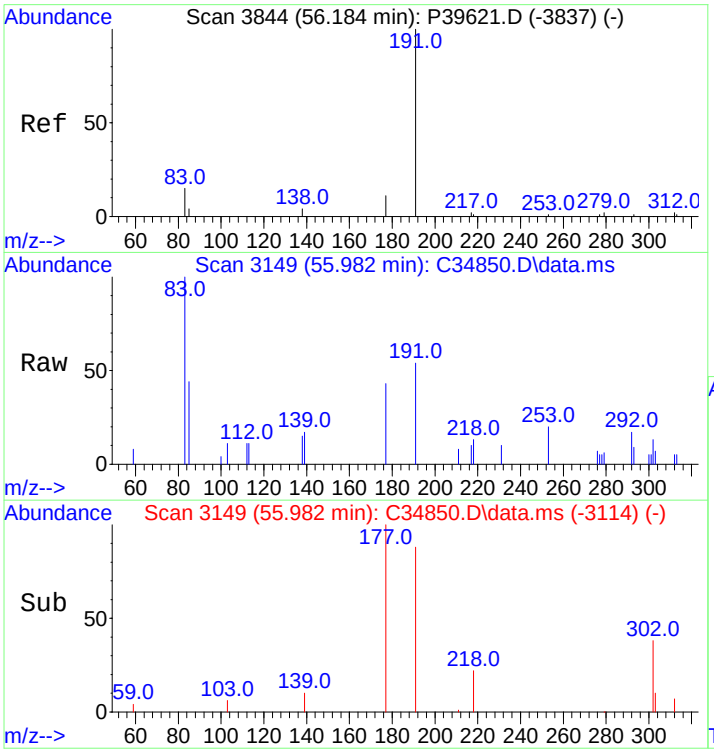


#119
30,31-Bishomohopane-22S (T26)
Concen: 1560.05 ng/ml m
RT: 55.530 min Scan# 3119
Delta R.T. -0.045 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:191 Resp: 44760

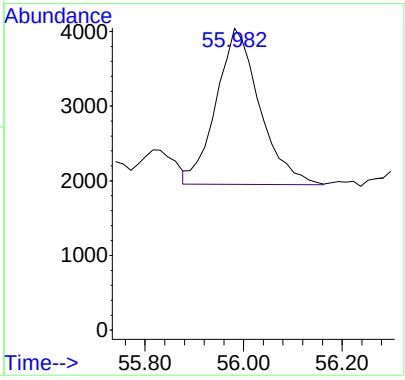


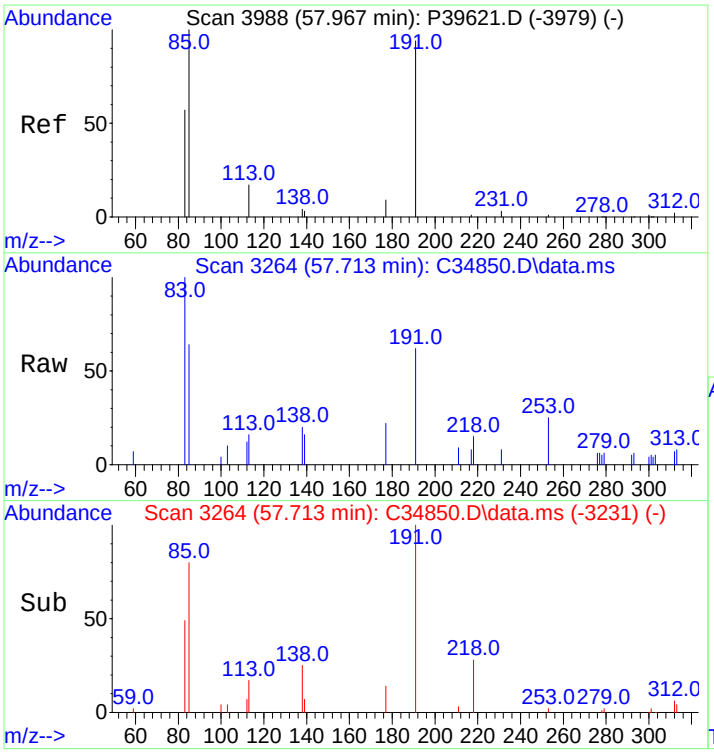




#120
30,31-Bishomohopane-22R (T27)
Concen: 445.15 ng/ml
RT: 55.982 min Scan# 3149
Delta R.T. 0.030 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

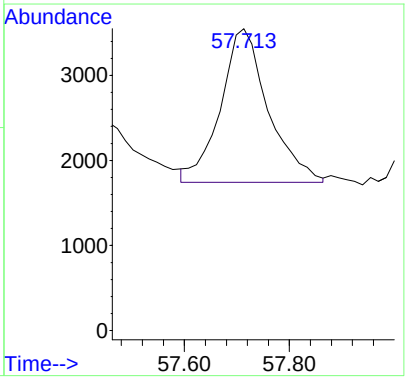
Tgt Ion:191 Resp: 12772

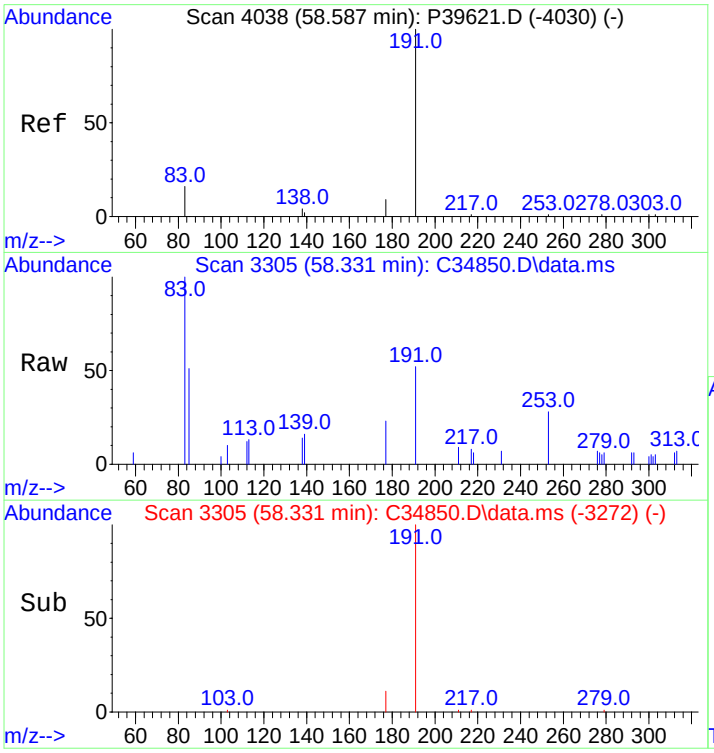




#121
30,31-Trishomohopane-22S (T30)
Concen: 395.94 ng/ml m
RT: 57.713 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

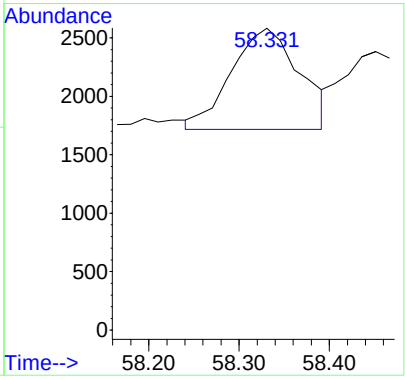
Tgt Ion:191 Resp: 11360

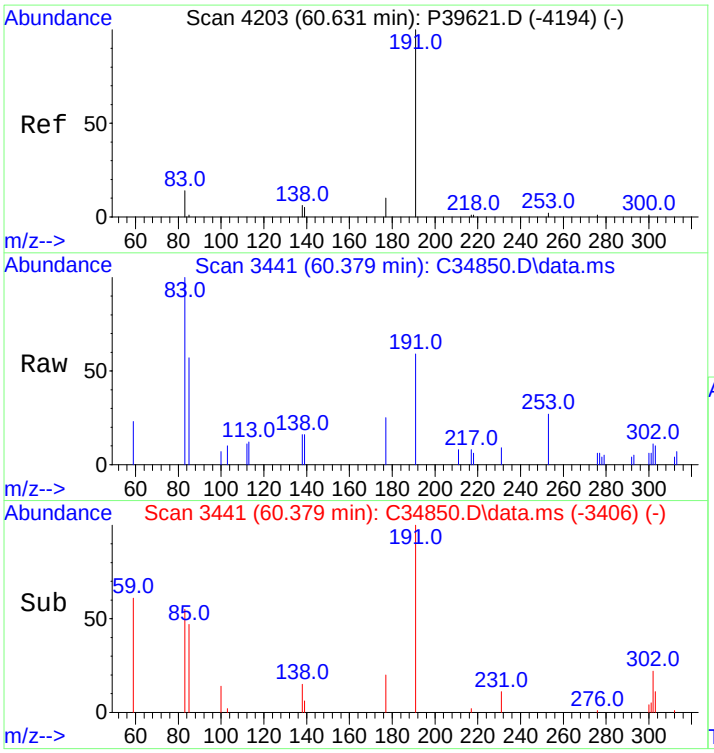




#122
30,31-Trishomohopane-22R (T31)
Concen: 158.97 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

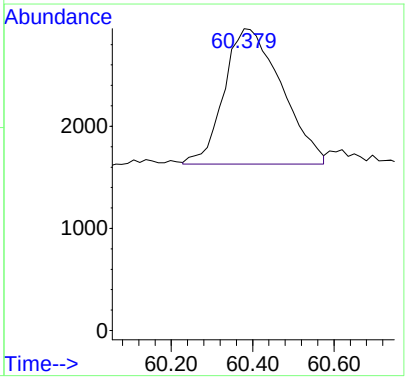
Tgt Ion:191 Resp: 4561

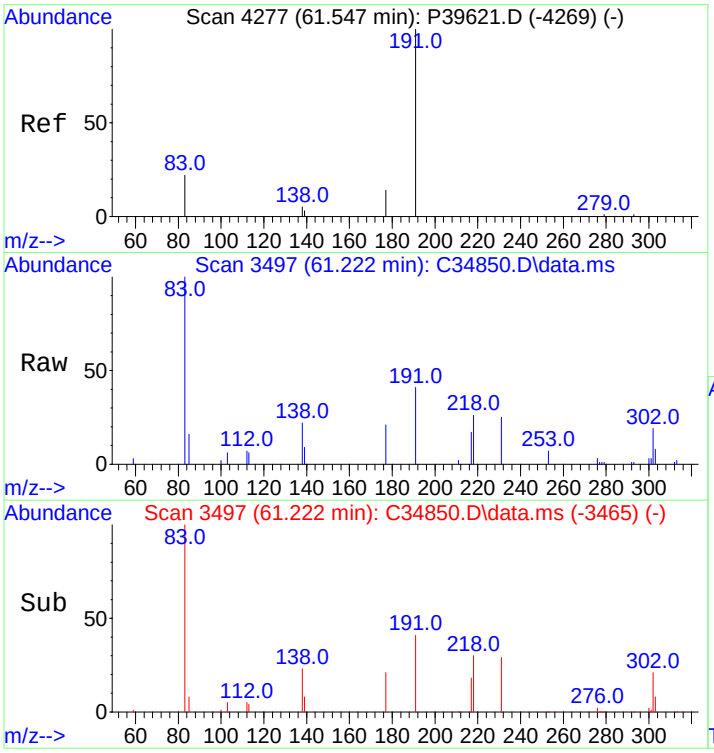




#123
Tetrakishomohopane-22S (T32)
Concen: 455.26 ng/ml m
RT: 60.379 min Scan# 3441
Delta R.T. 0.030 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

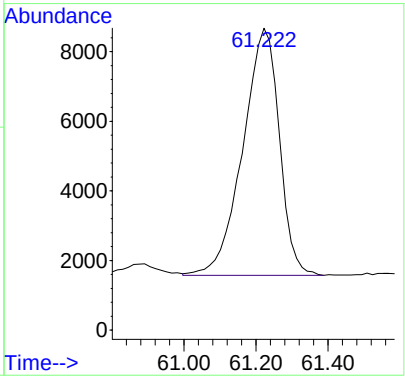
Tgt Ion:191 Resp: 13062

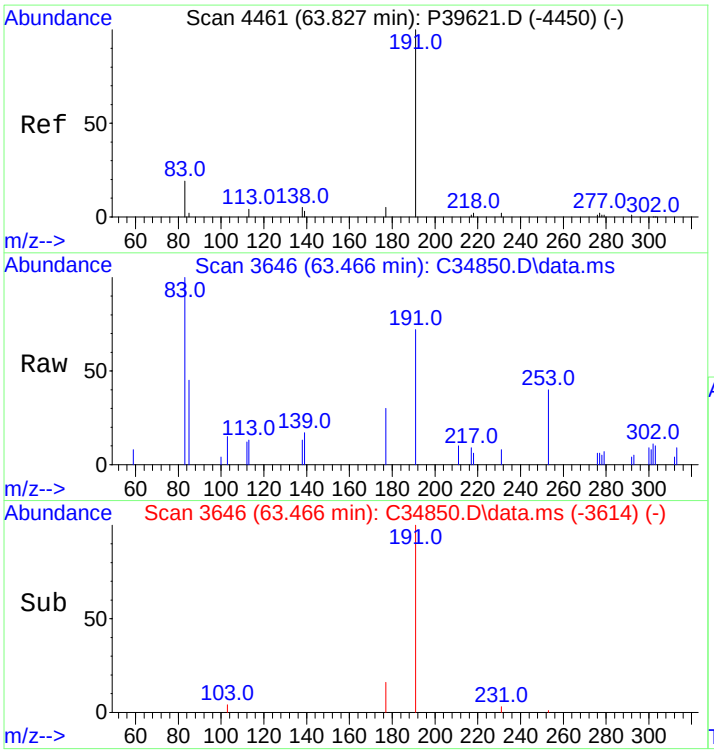




#124
Tetrakishomohopane-22R (T33)
Concen: 1738.99 ng/ml
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

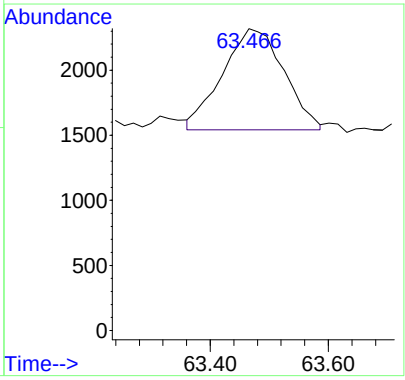
Tgt Ion:191 Resp: 49894

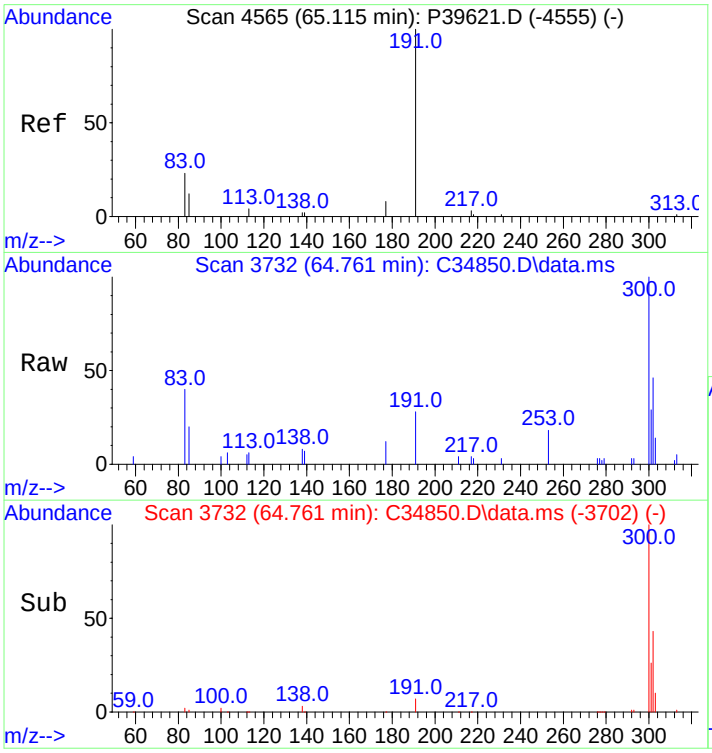




#125
Pentakishomohopane-22S (T34)
Concen: 195.36 ng/ml m
RT: 63.466 min Scan# 3646
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

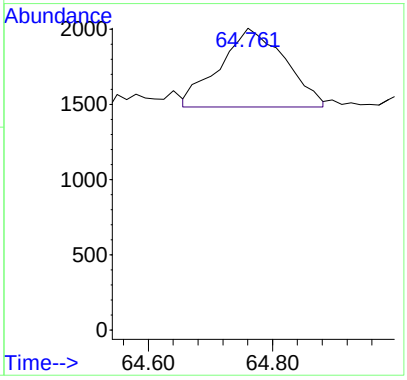
Tgt Ion:191 Resp: 5605

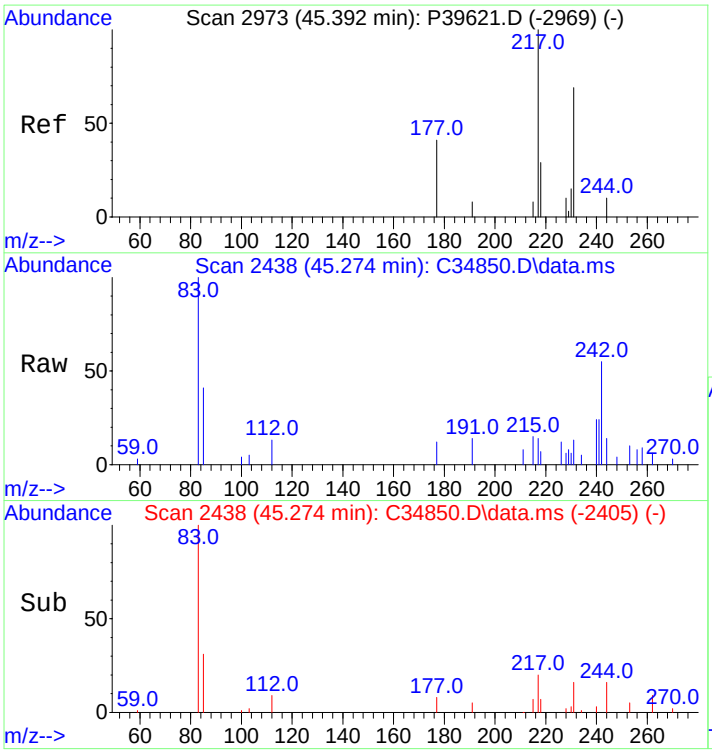




#126
Pentakishomohopane-22R (T35)
Concen: 133.14 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

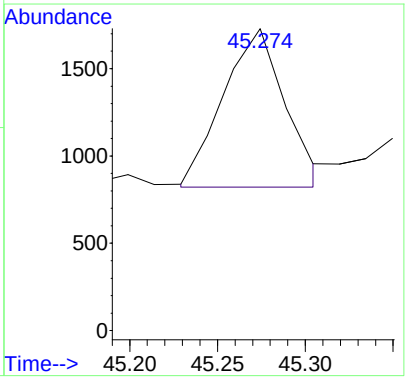
Tgt Ion:191 Resp: 3820

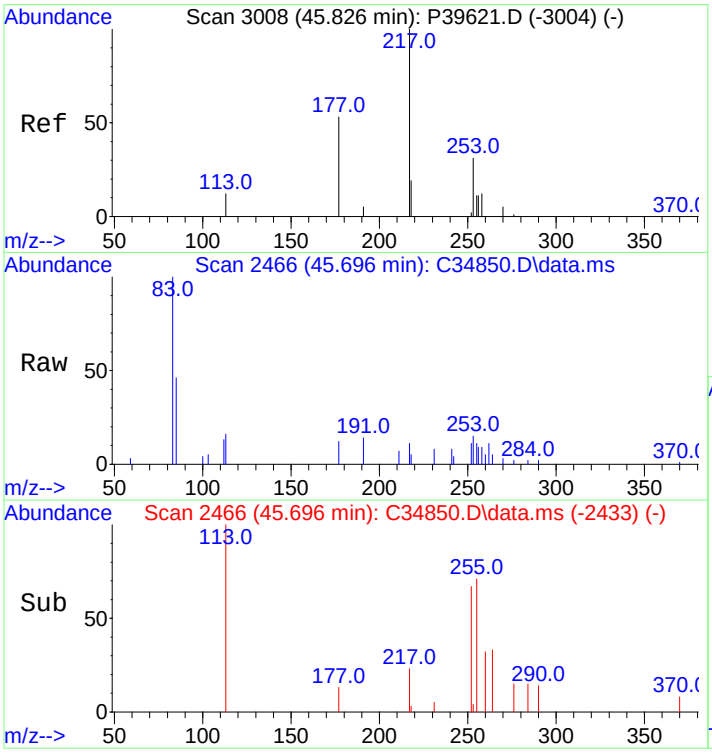




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 163.92 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

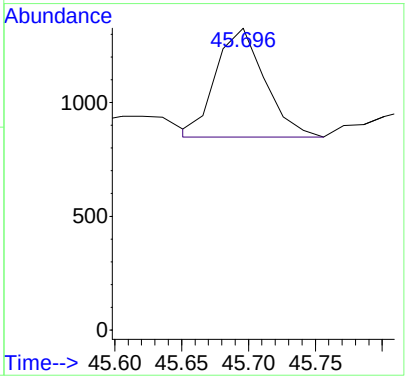
Tgt Ion:217 Resp: 2231

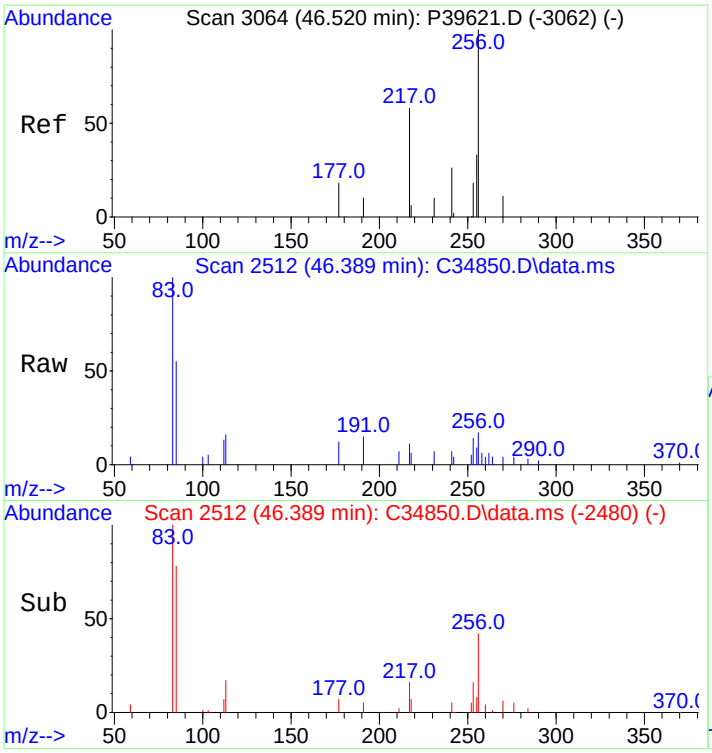




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 89.27 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

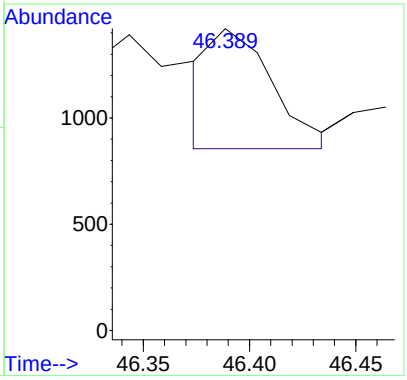
Tgt Ion:217 Resp: 1215

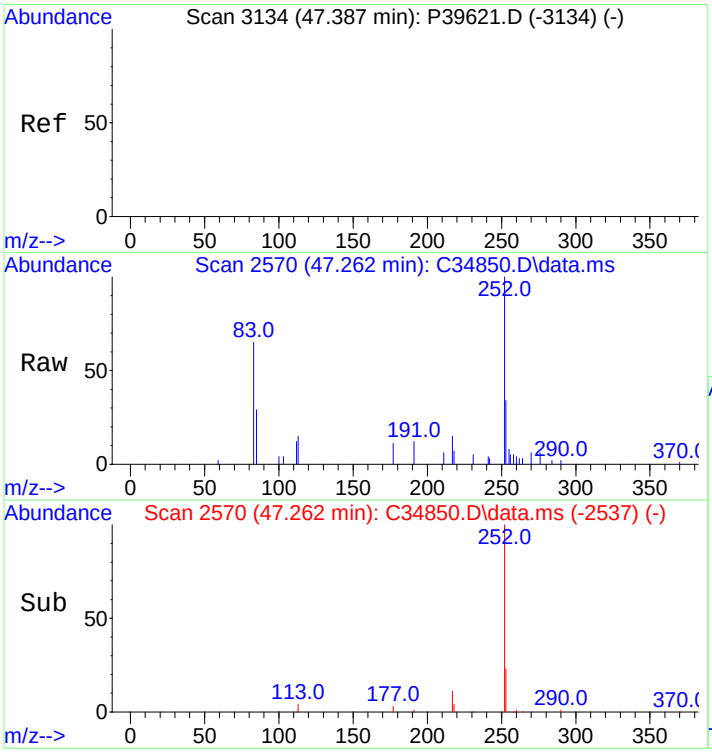




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 82.88 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

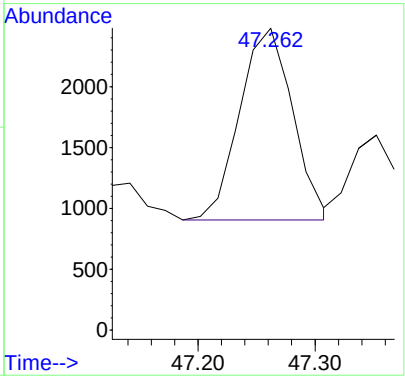
Tgt Ion:217 Resp: 1128

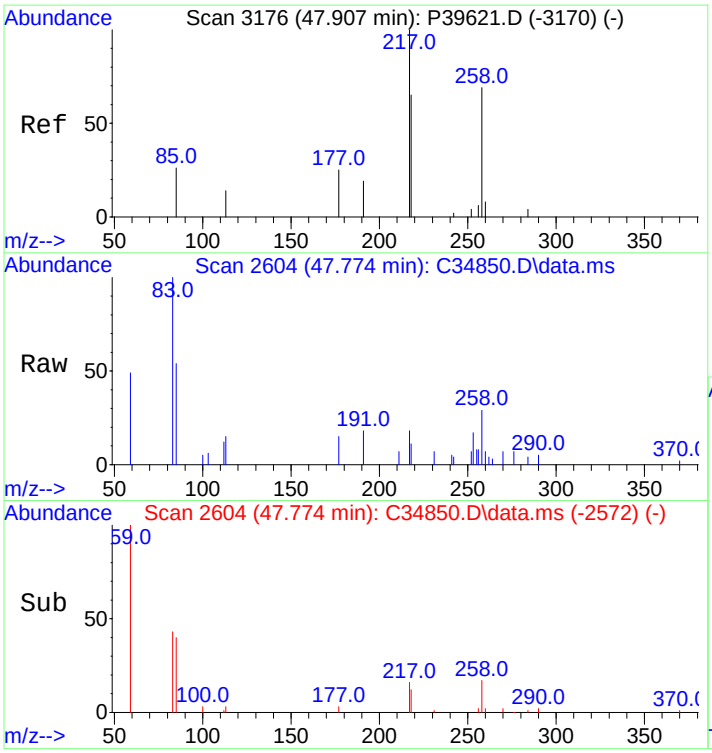




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 364.49 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

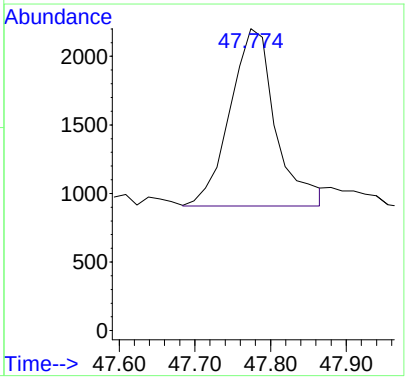
Tgt Ion:217 Resp: 4961

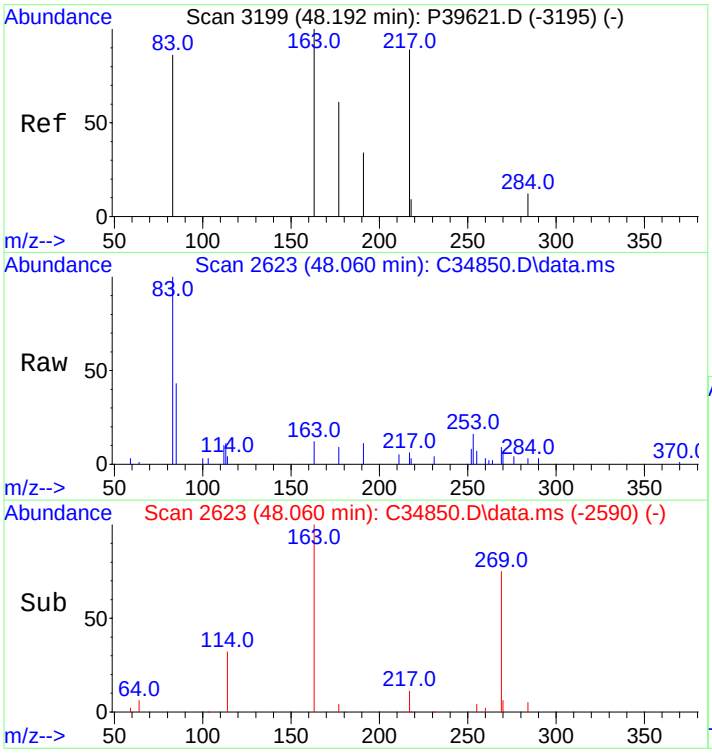




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 398.51 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

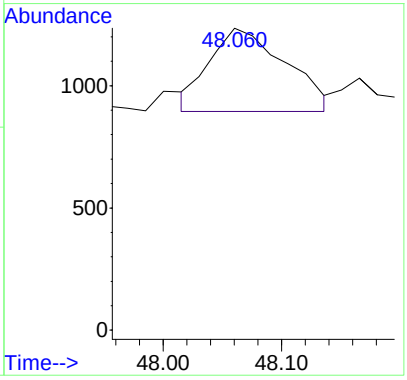
Tgt Ion:217 Resp: 5424

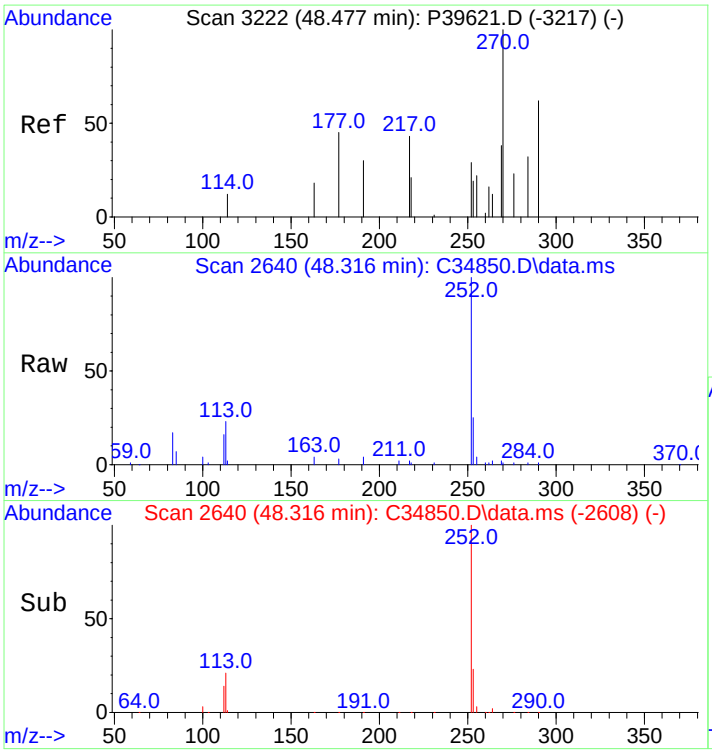




#133
Unknown Sterane (S18)
Concen: 112.04 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

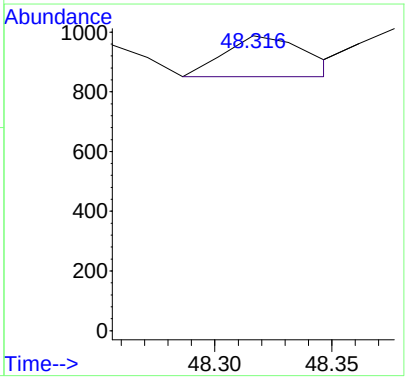
Tgt Ion:217 Resp: 1525

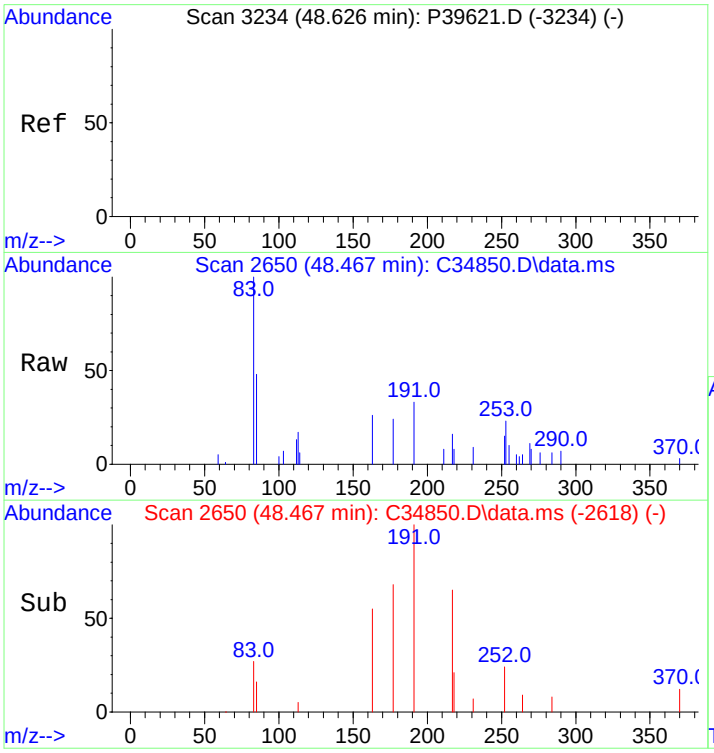




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 24.76 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

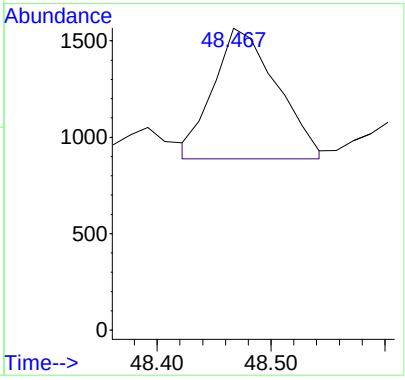
Tgt Ion:217 Resp: 337

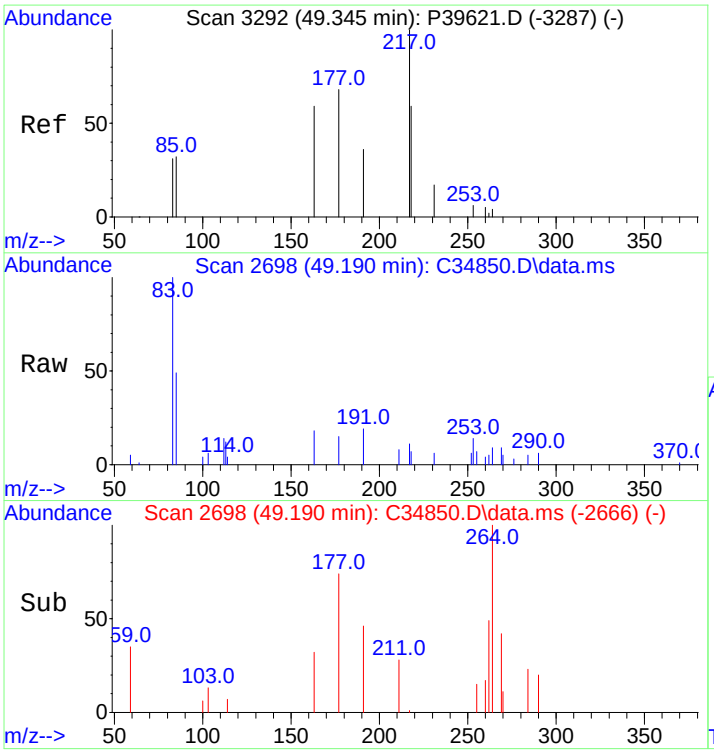




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 192.13 ng/ml m
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

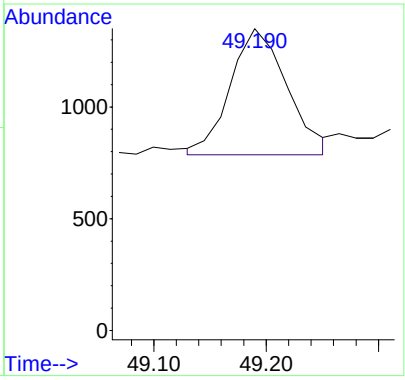
Tgt Ion:217 Resp: 2615

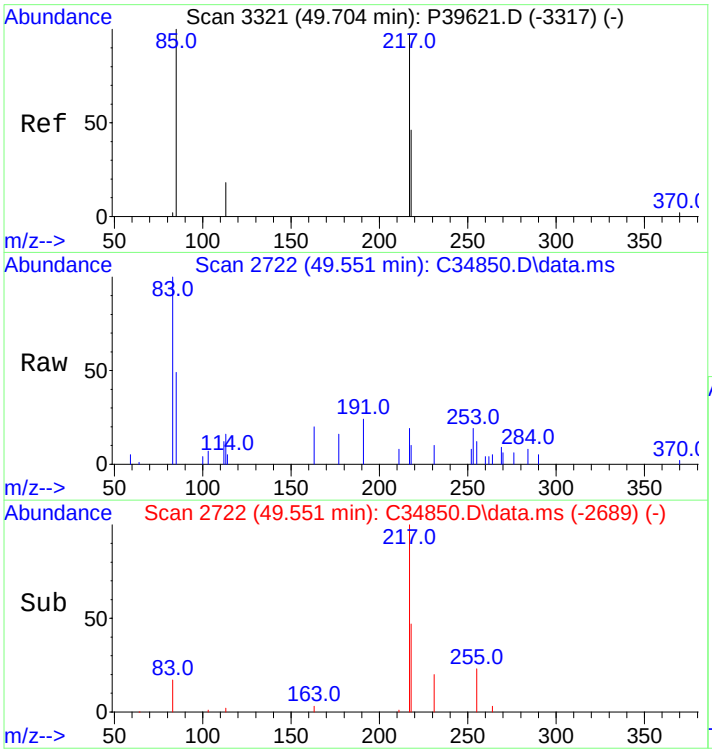




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 145.33 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

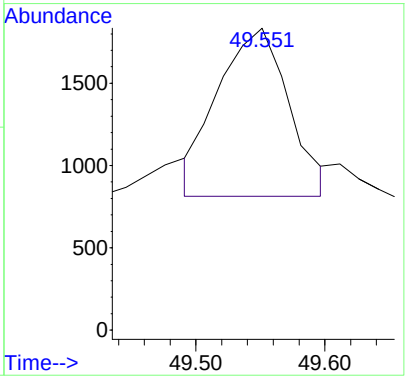
Tgt Ion:217 Resp: 1978

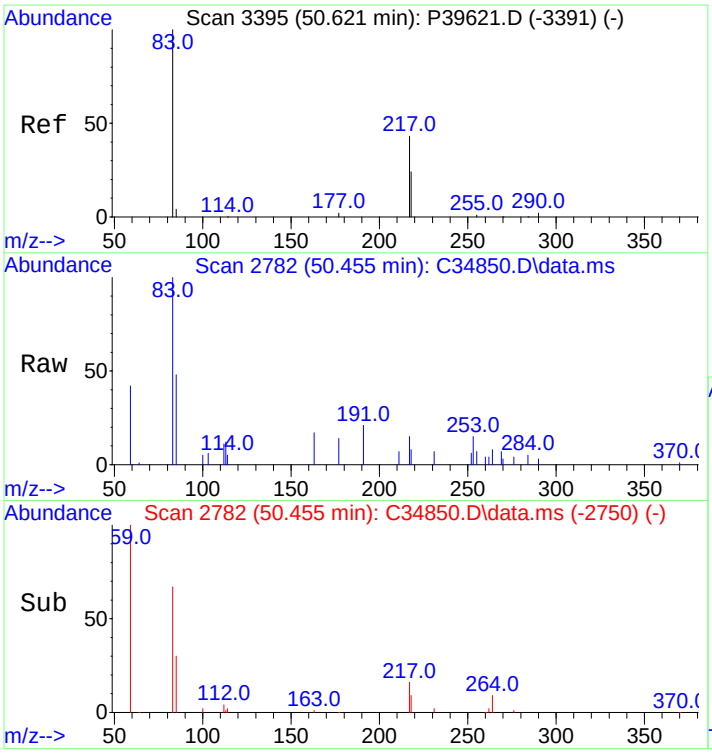




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 287.35 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

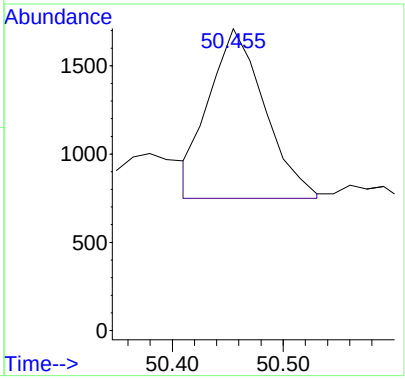
Tgt Ion:217 Resp: 3911

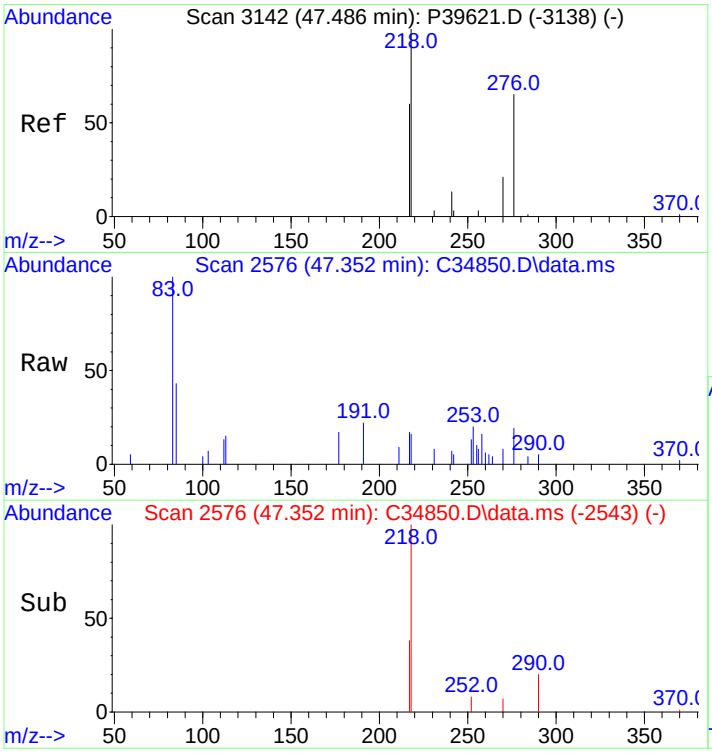




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 245.98 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

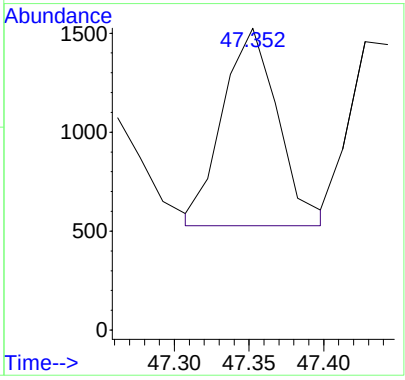
Tgt Ion:217 Resp: 3348

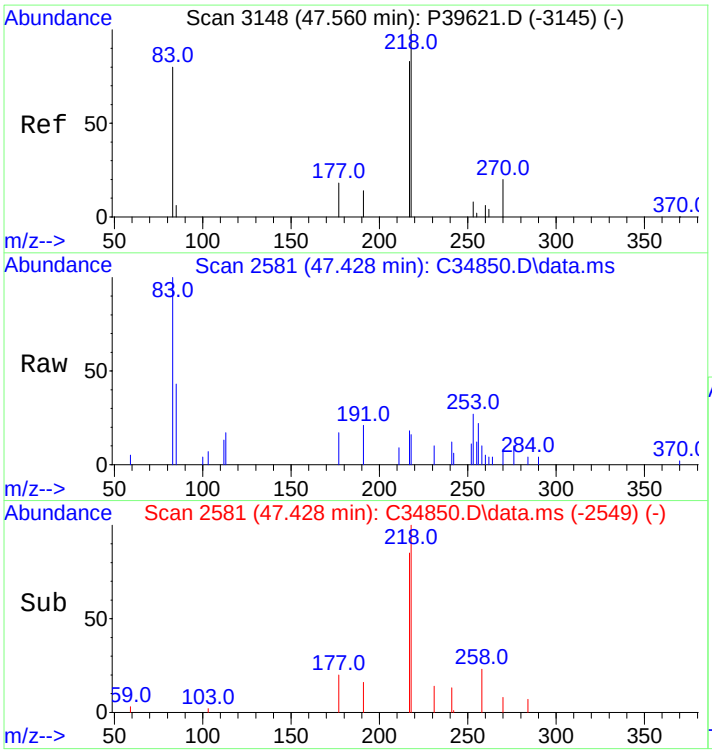




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 188.38 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

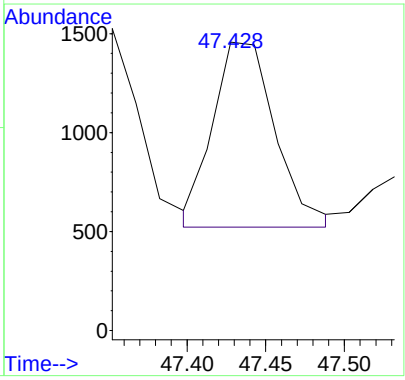
Tgt Ion:218 Resp: 2564

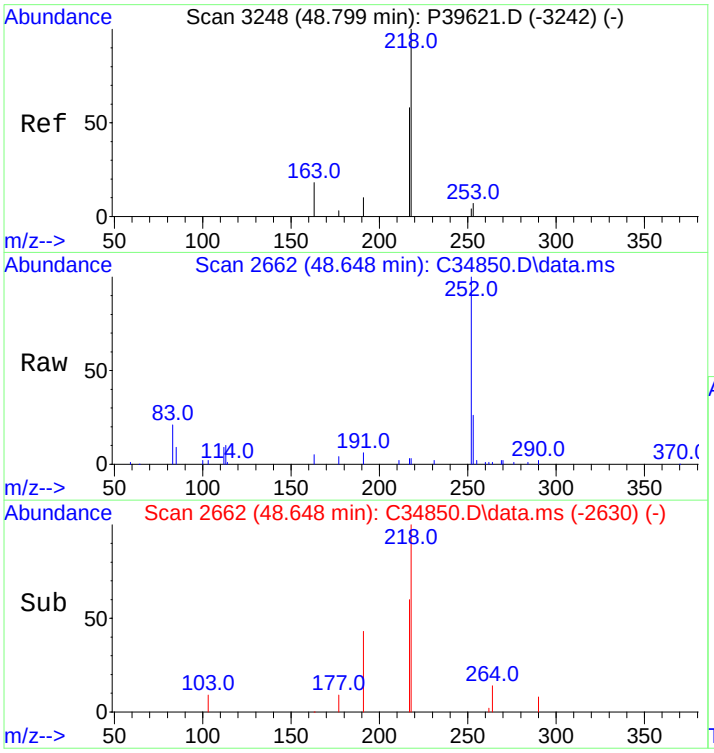




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 189.26 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

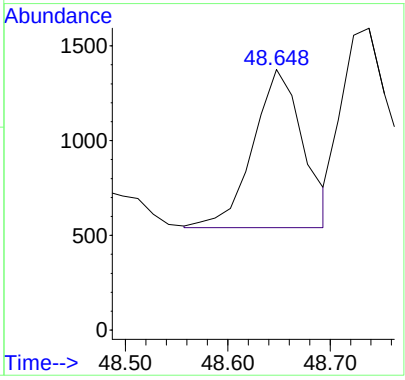
Tgt Ion:218 Resp: 2576

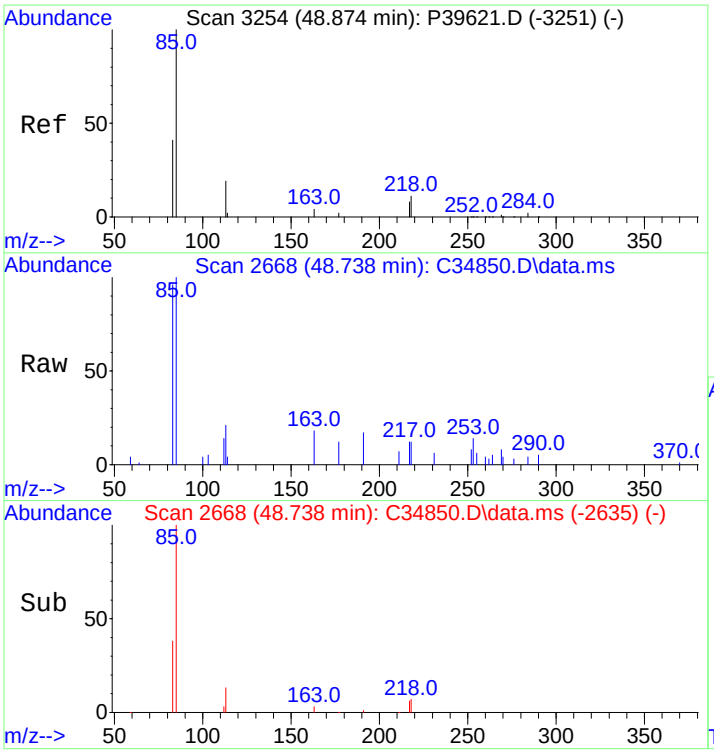




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 209.25 ng/ml m
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

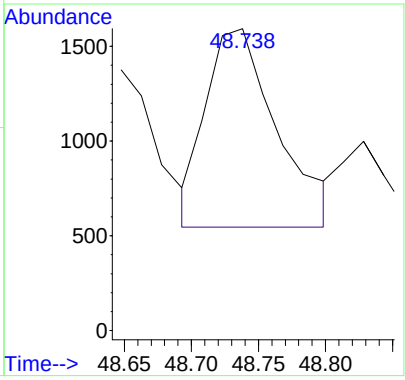
Tgt Ion:218 Resp: 2848

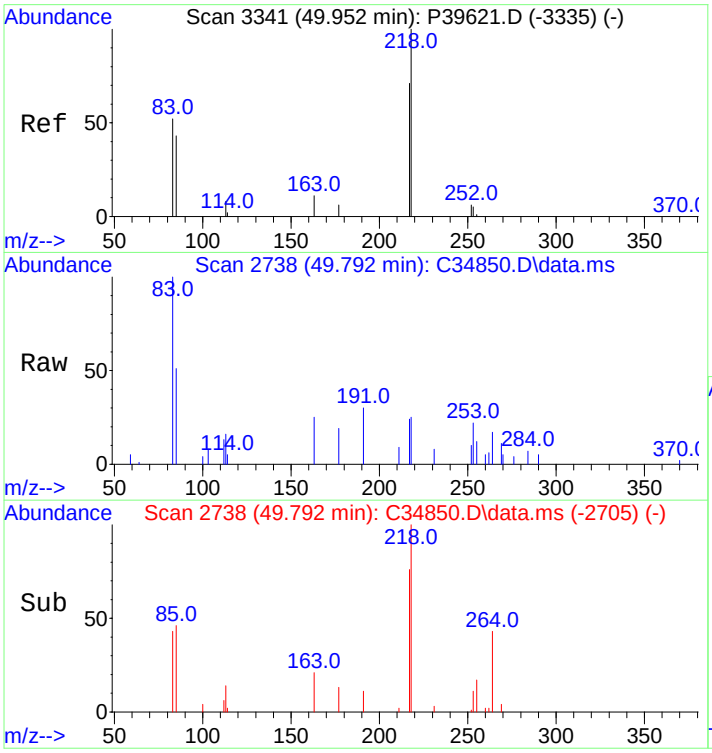




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 284.12 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

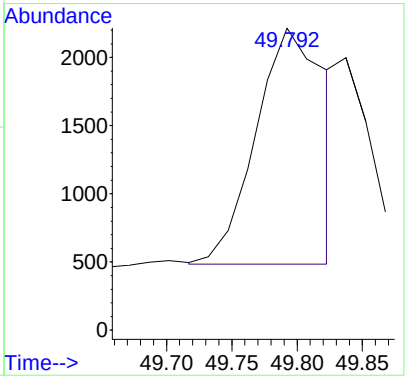
Tgt Ion:218 Resp: 3867

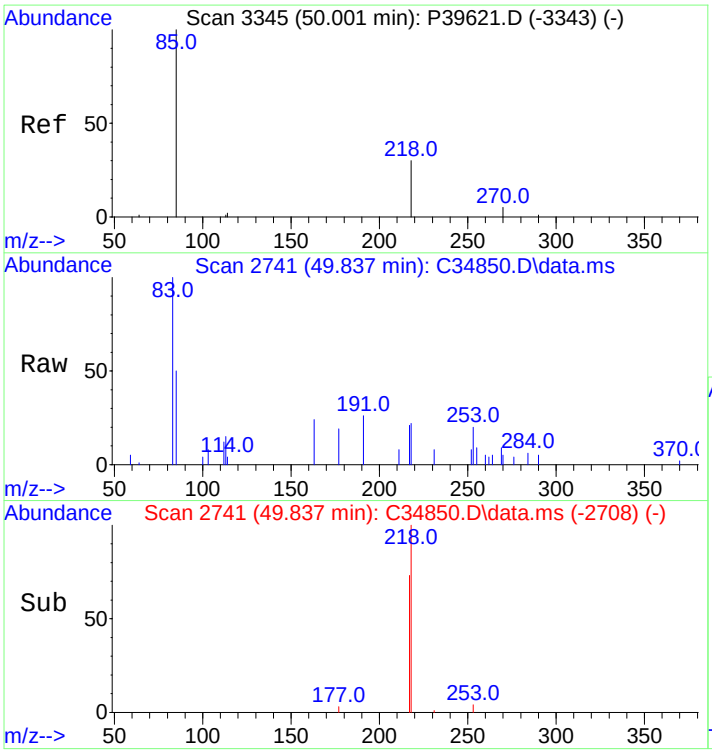




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 465.15 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

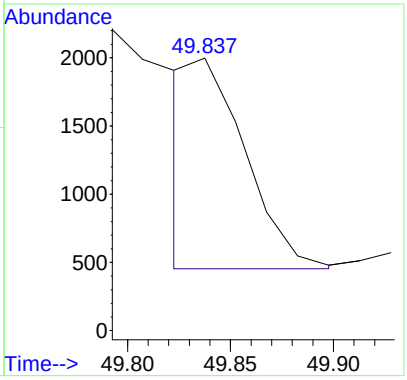
Tgt Ion:218 Resp: 6331

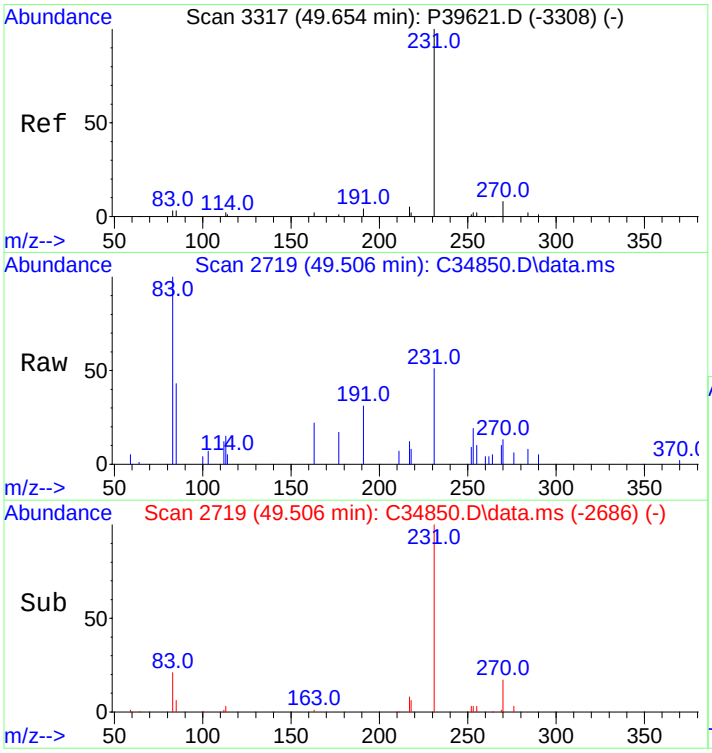




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 209.32 ng/ml m
RT: 49.837 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

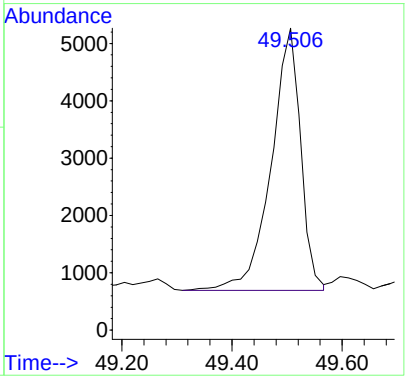
Tgt Ion:218 Resp: 2849

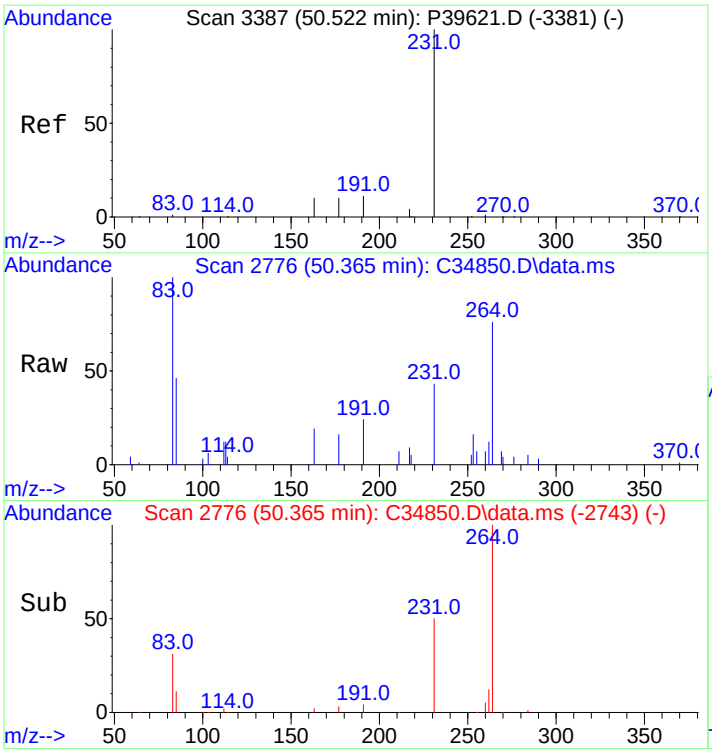




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1251.01 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

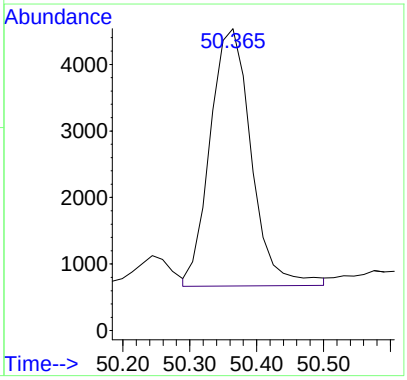
Tgt Ion:231 Resp: 17027

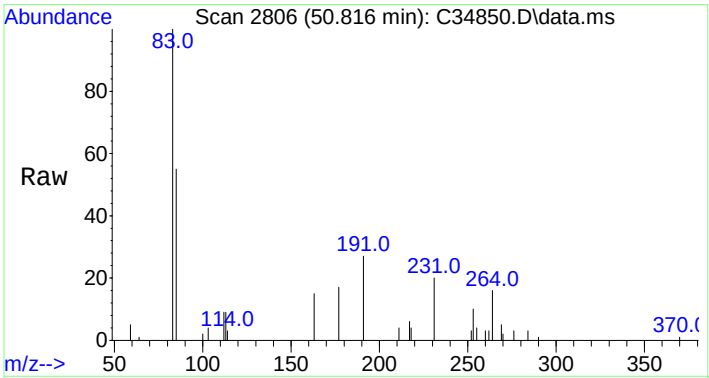




#146
C28,20S-triaromatic steroid
Concen: 1218.53 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

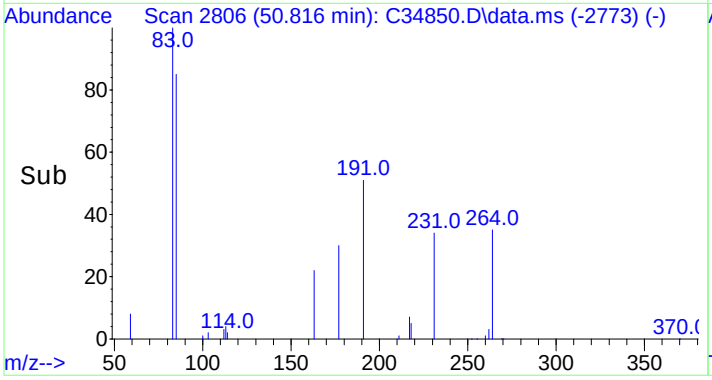
Tgt Ion:231 Resp: 16585

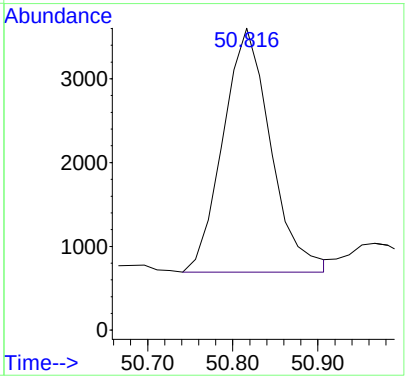


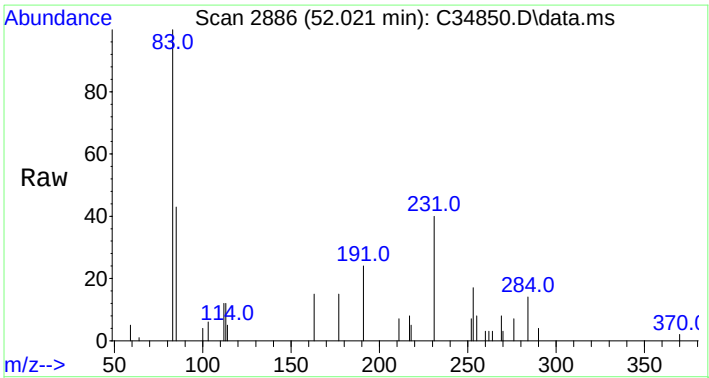


#147
C27,20R-triaromatic steroid
Concen: 836.04 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:231 Resp: 11379

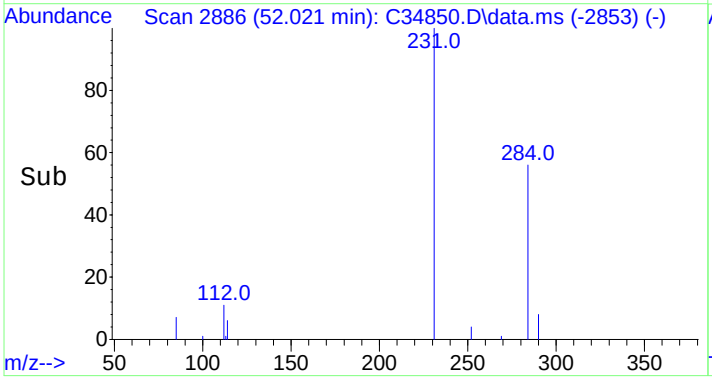


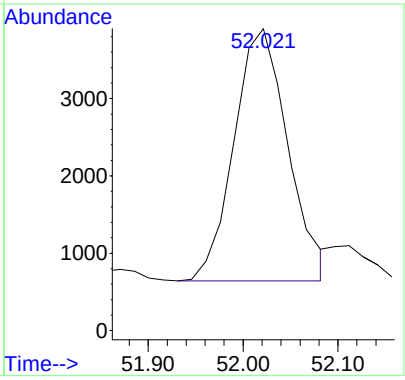




#148
C28,20R-triaromatic steroid
Concen: 946.25 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34850.D
Acq: 4 May 2012 10:54 pm

Tgt Ion:231 Resp: 12879

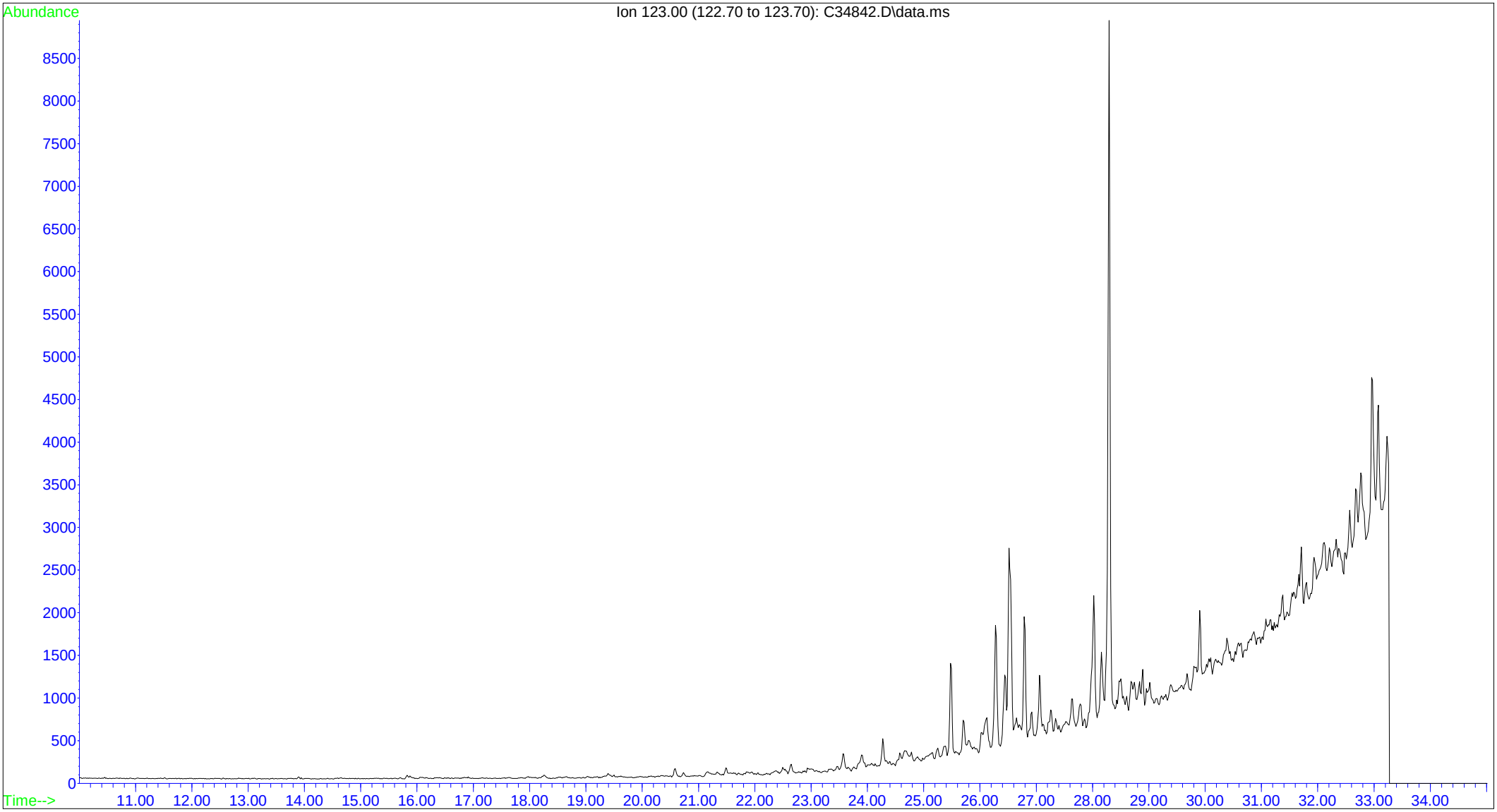




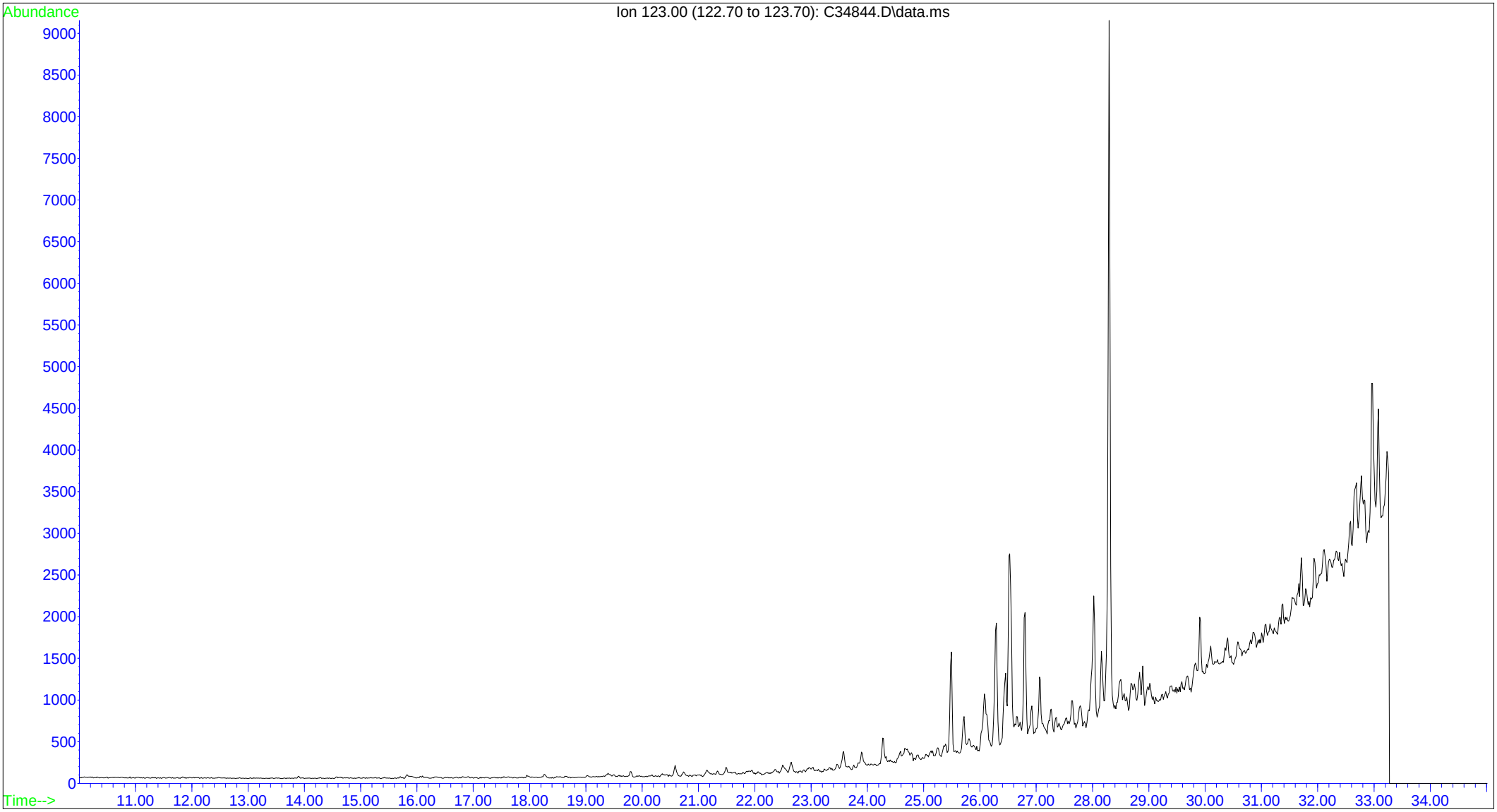
EIP

Ion 123

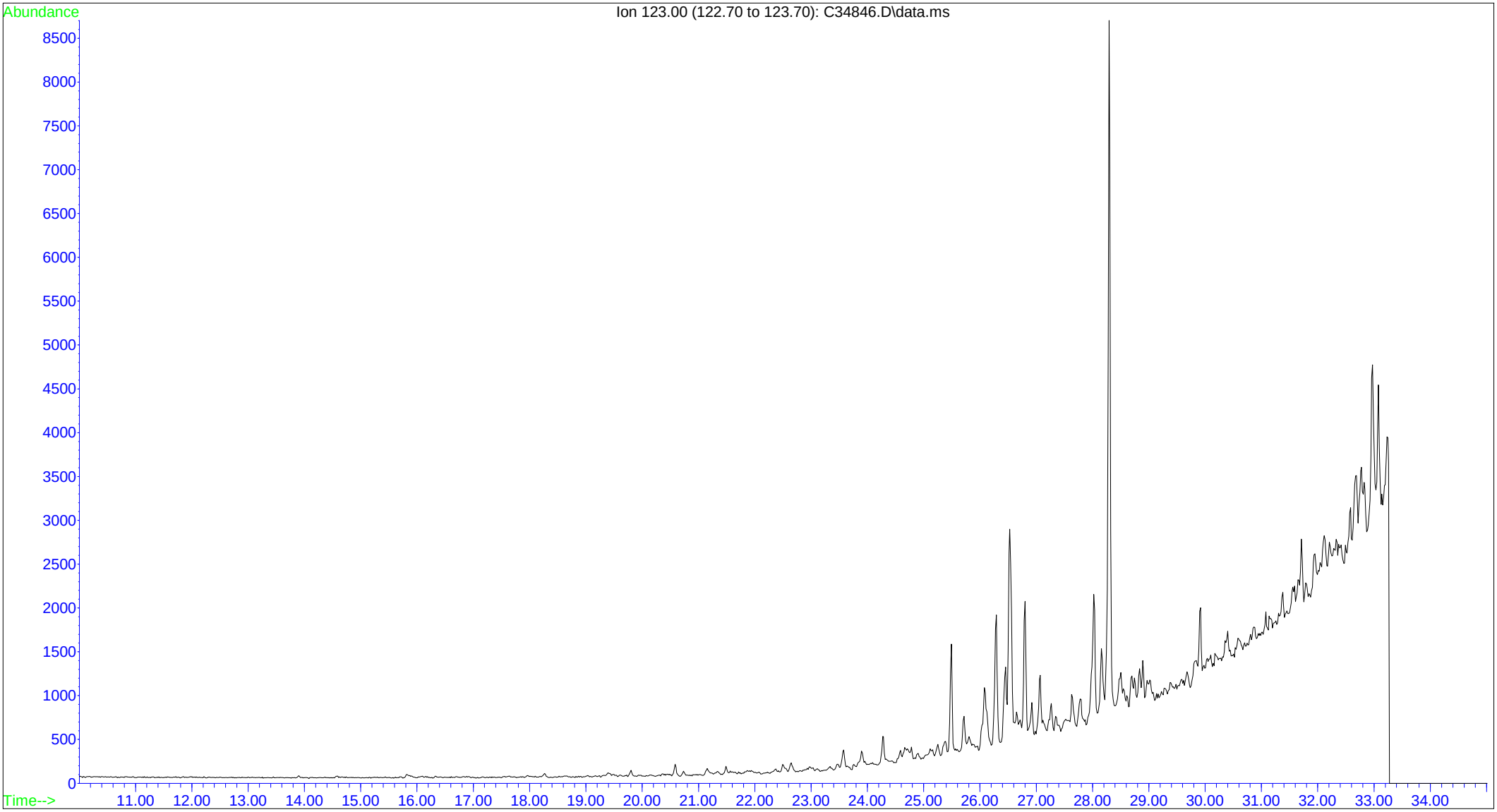
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34842.D
Operator : AC
Acquired : 4 May 2012 4:37 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-01
Misc Info : 1X
ALS Vial : 34



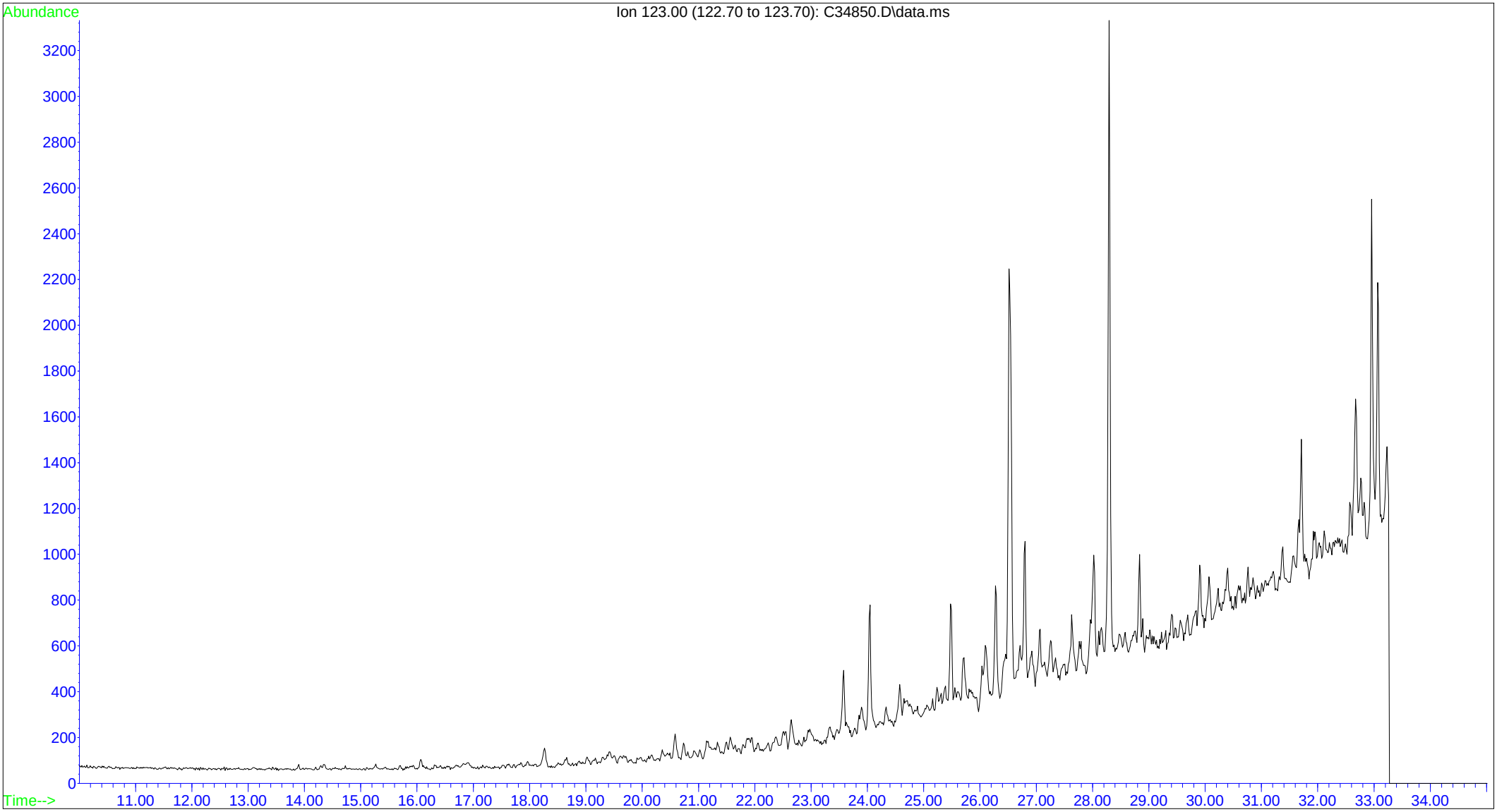
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34844.D
Operator : AC
Acquired : 4 May 2012 6:09 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-01M
Misc Info : 1X
ALS Vial : 35



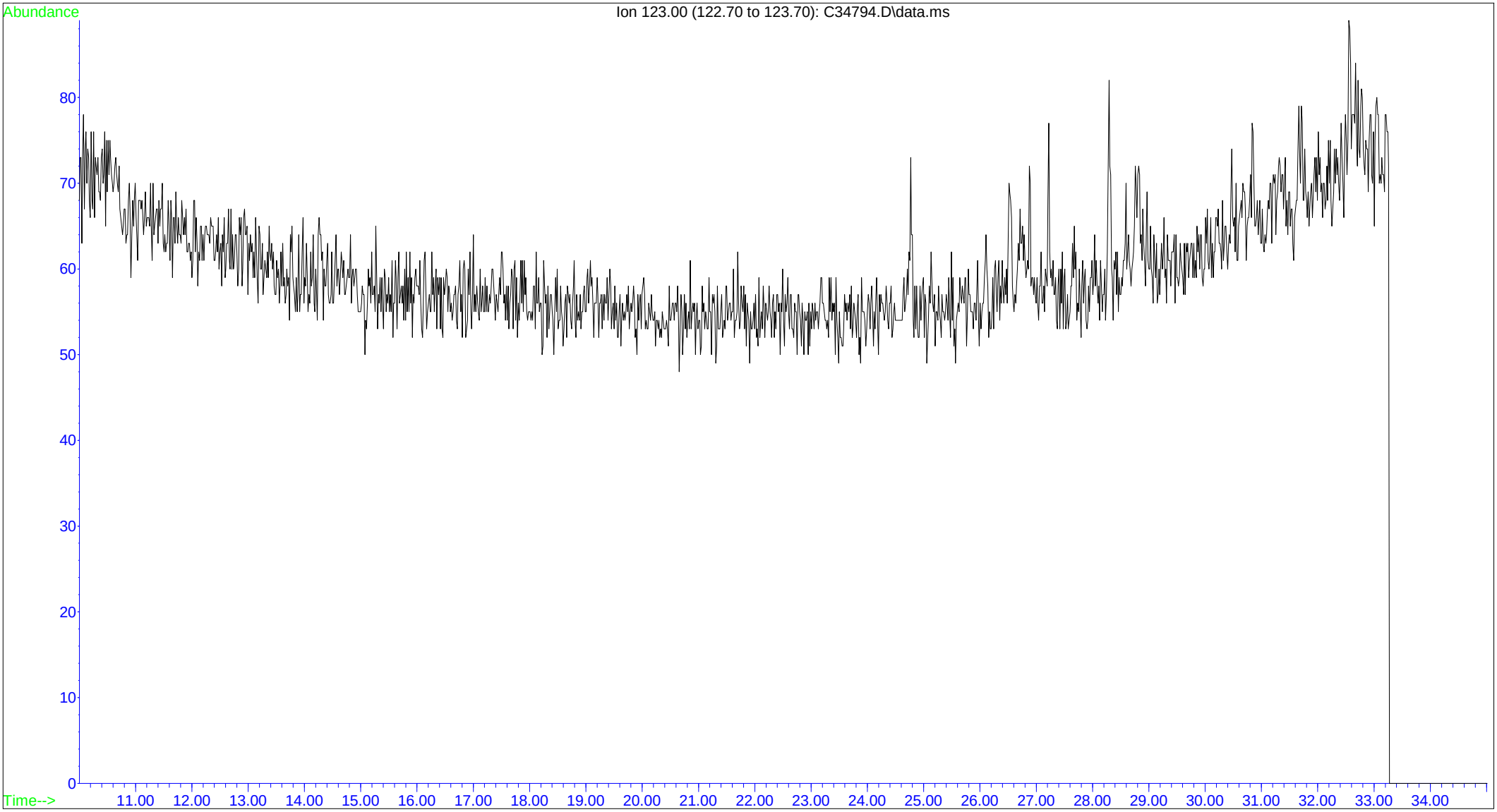
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34846.D
Operator : AC
Acquired : 4 May 2012 7:41 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-01S
Misc Info : 1X
ALS Vial : 36



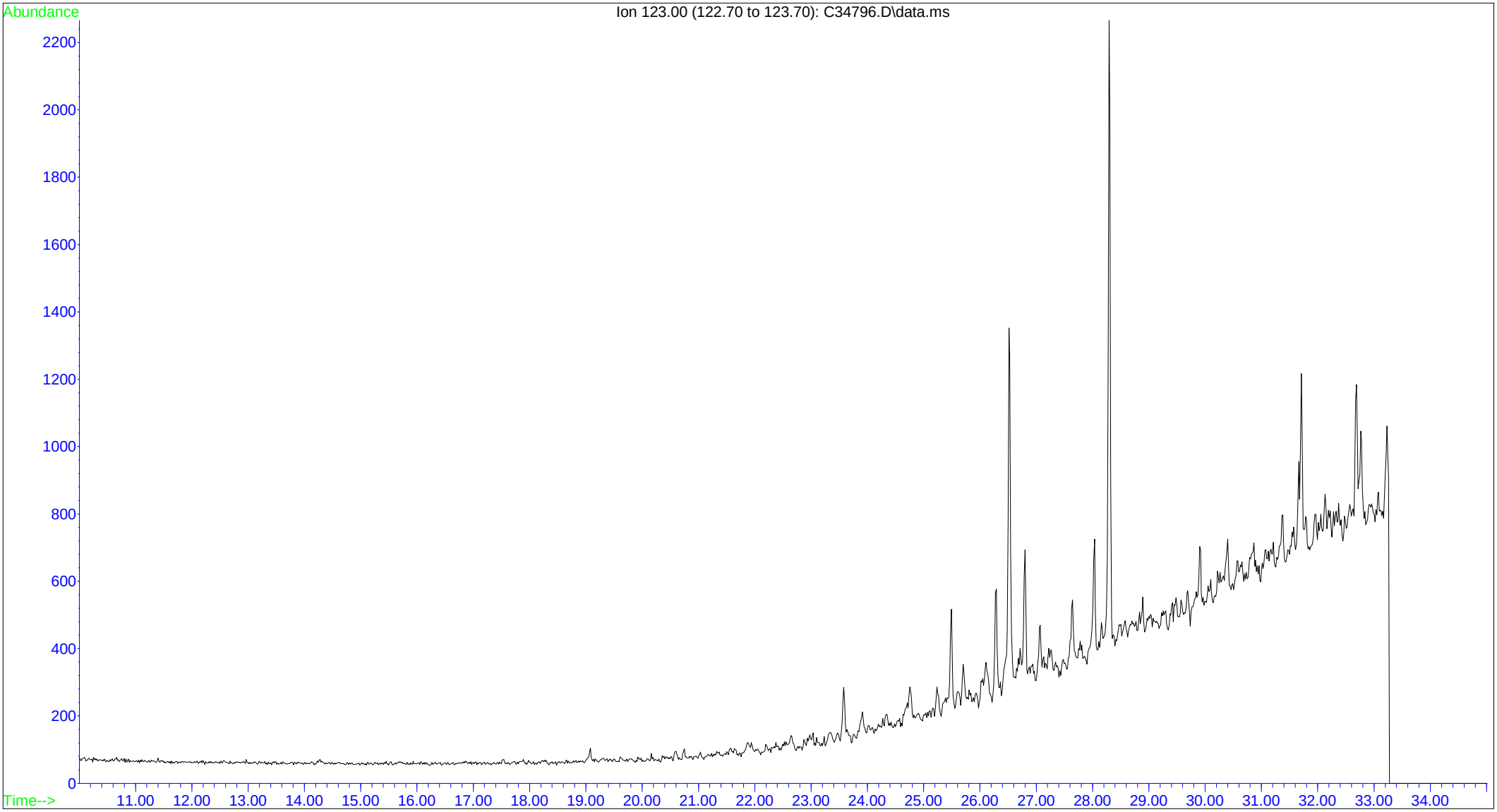
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34850.D
Operator : AC
Acquired : 4 May 2012 10:54 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204031-02
Misc Info : 1X
ALS Vial : 38



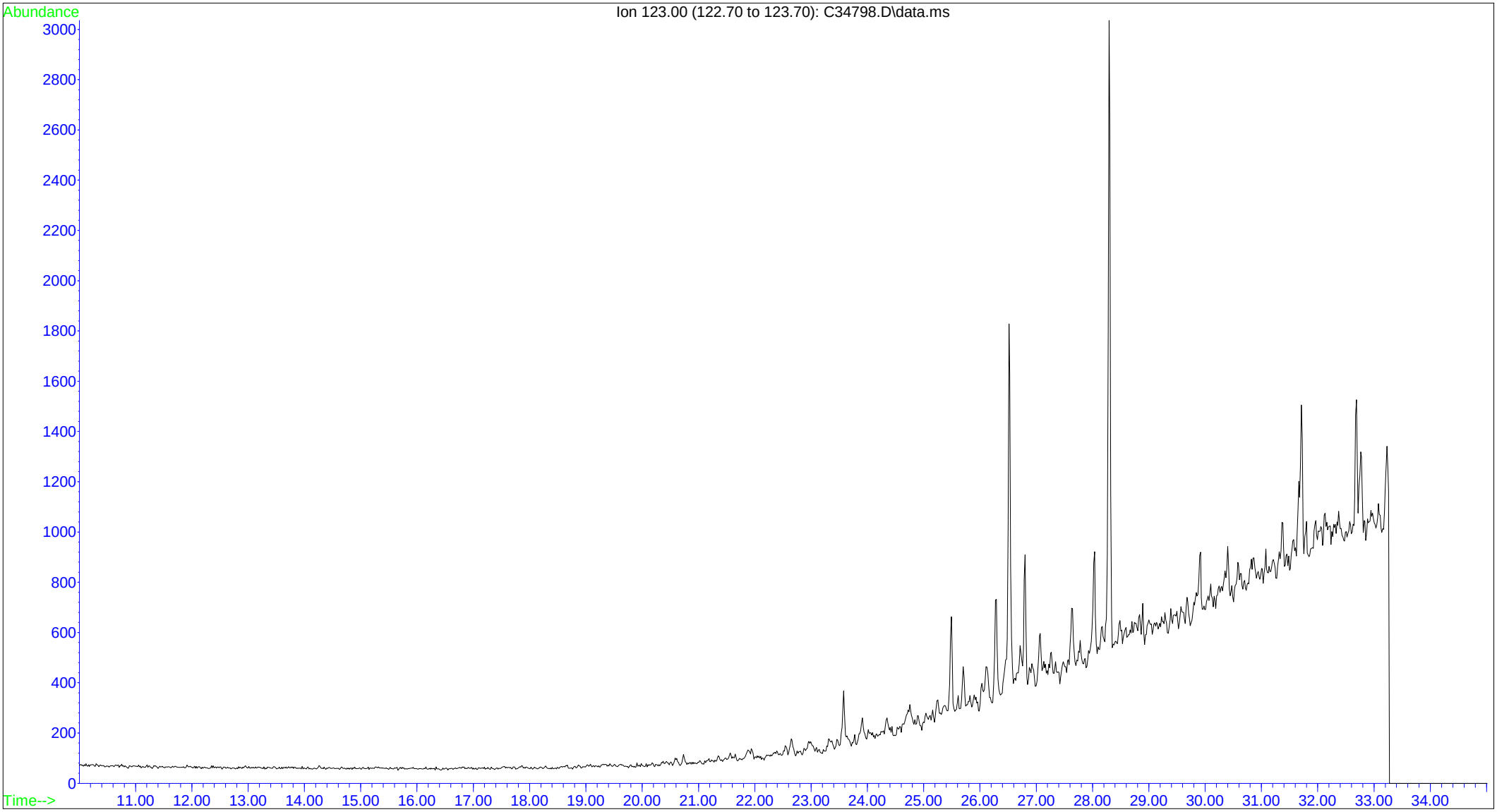
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34794.D
Operator : AC
Acquired : 3 May 2012   1:25 am using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204031-03
Misc Info : 1X
ALS Vial : 10



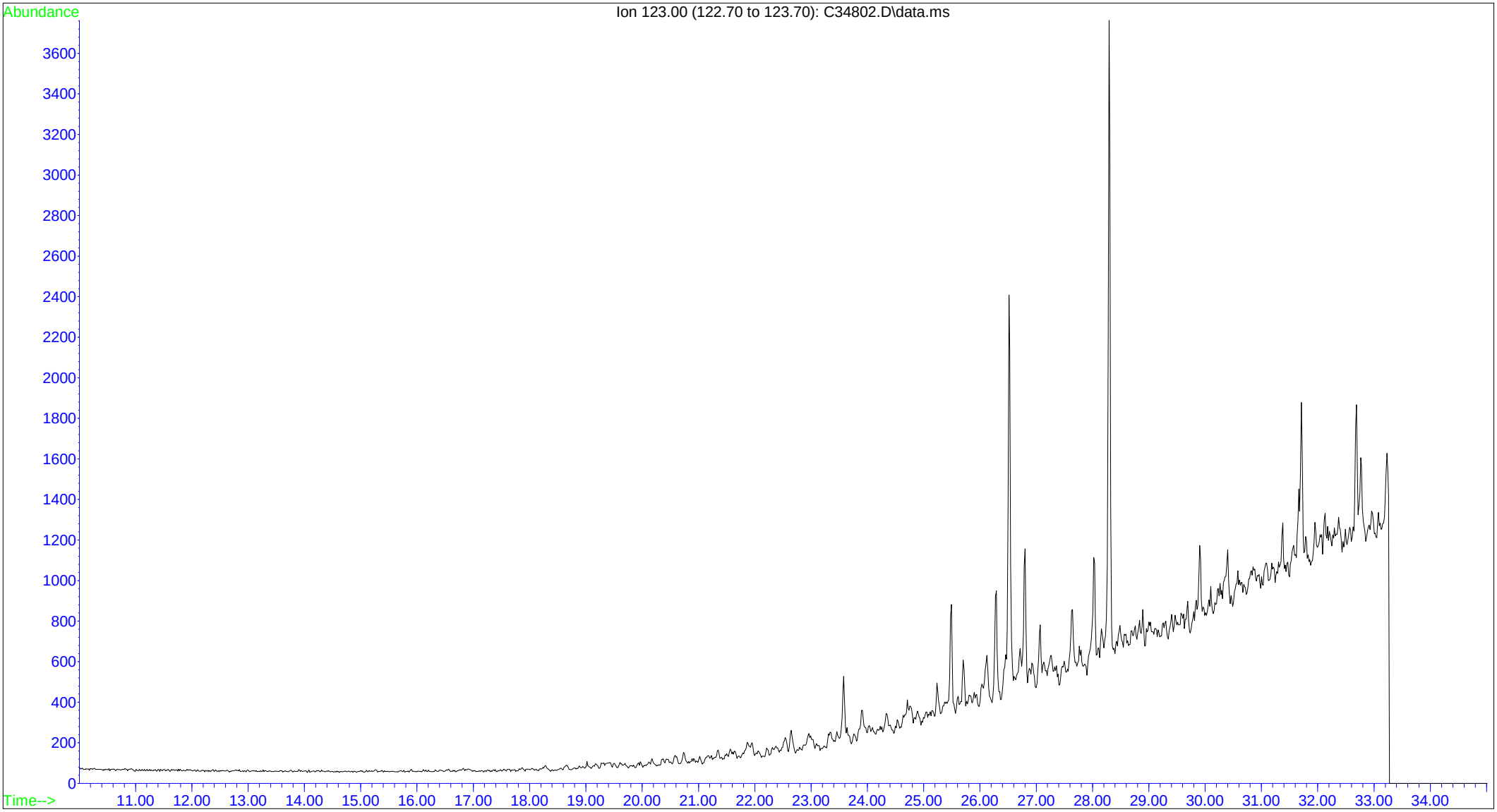
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34796.D
Operator : AC
Acquired : 3 May 2012 2:56 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-04
Misc Info : 1X
ALS Vial : 11



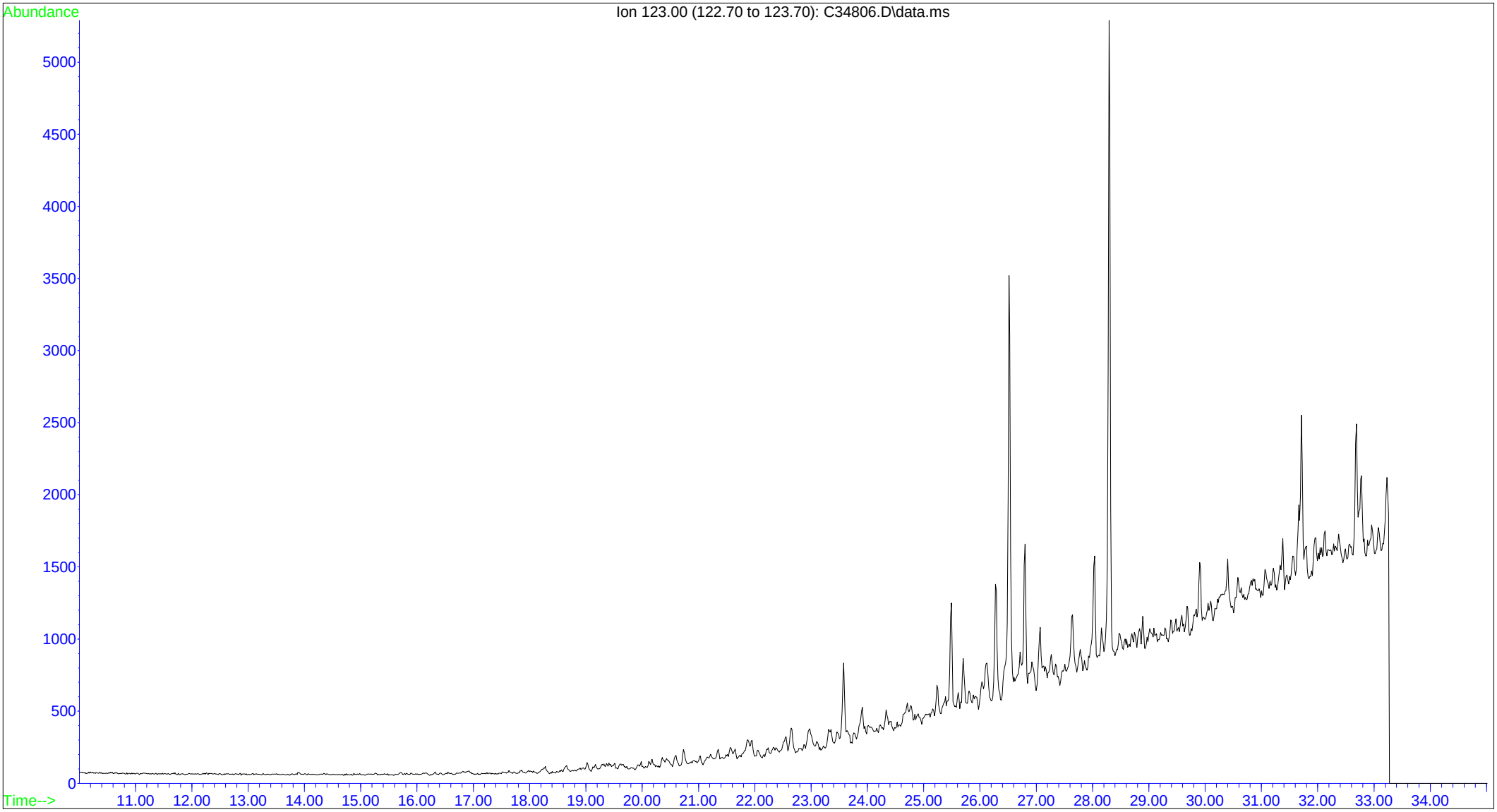
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34798.D
Operator : AC
Acquired : 3 May 2012 4:27 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-05
Misc Info : 1X
ALS Vial : 12



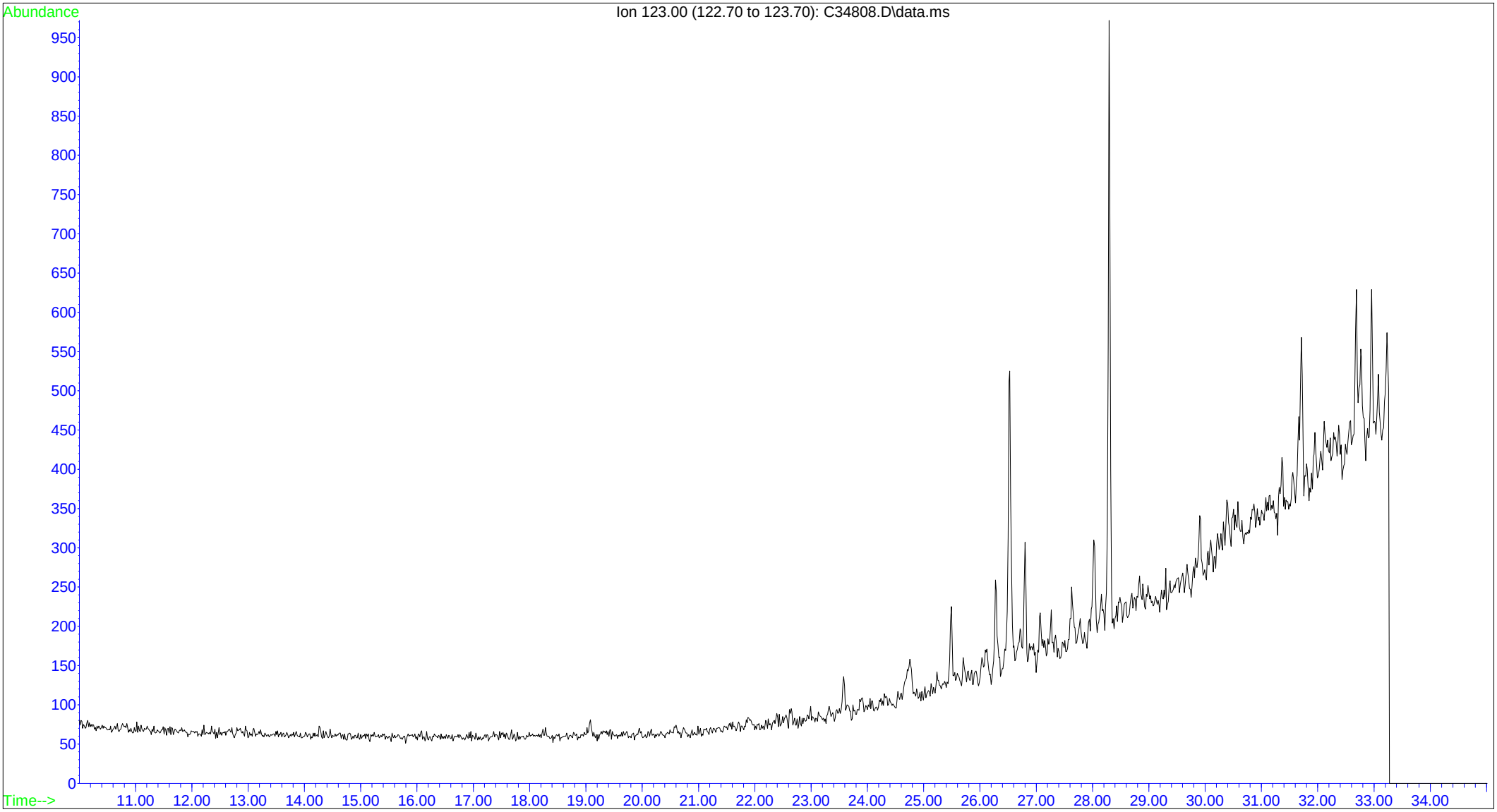
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34802.D
Operator : AC
Acquired : 3 May 2012 7:27 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-06
Misc Info : 1X
ALS Vial : 14



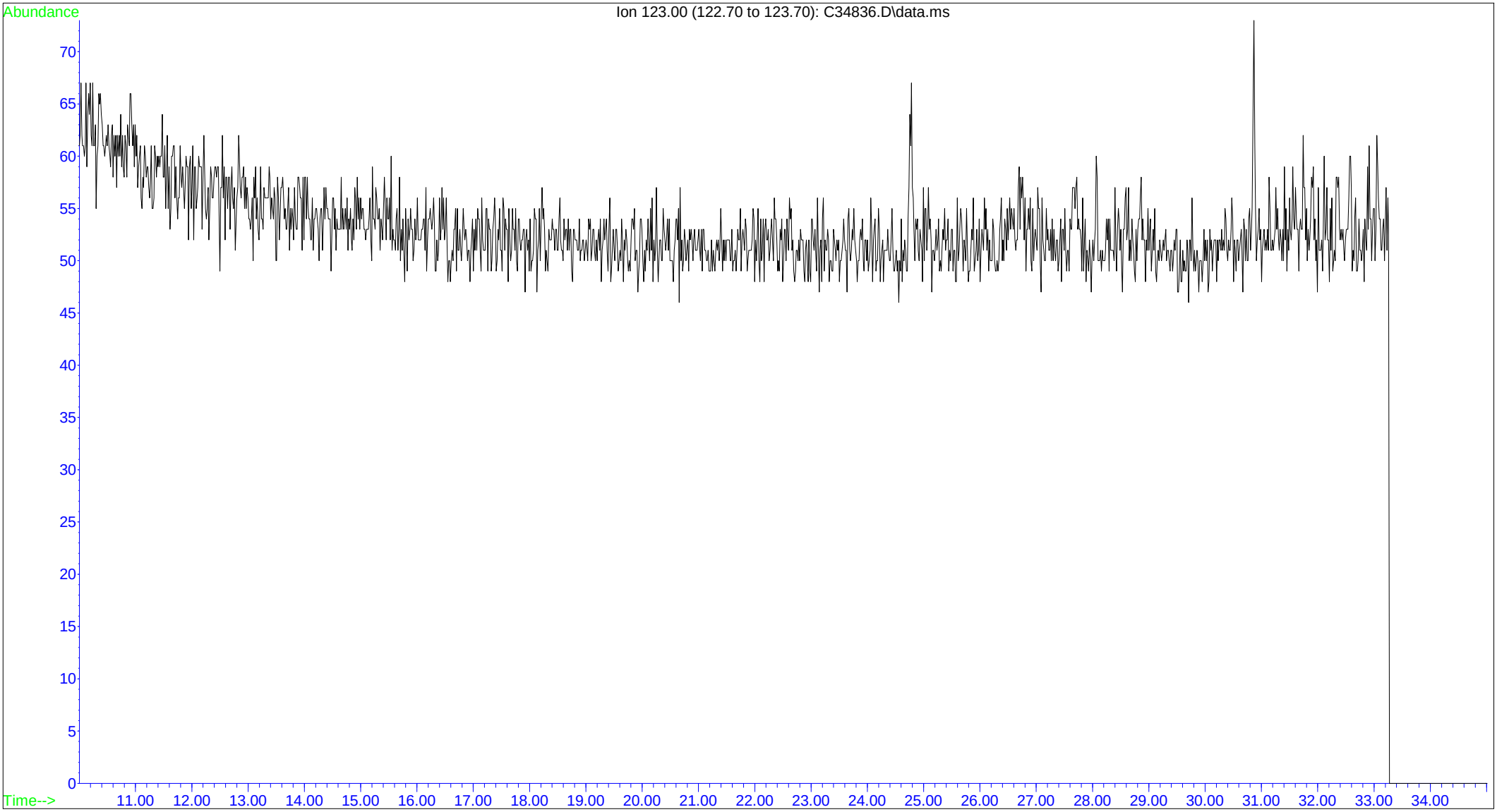
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34806.D
Operator : AC
Acquired : 3 May 2012 10:29 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204031-07
Misc Info : 1X
ALS Vial : 16



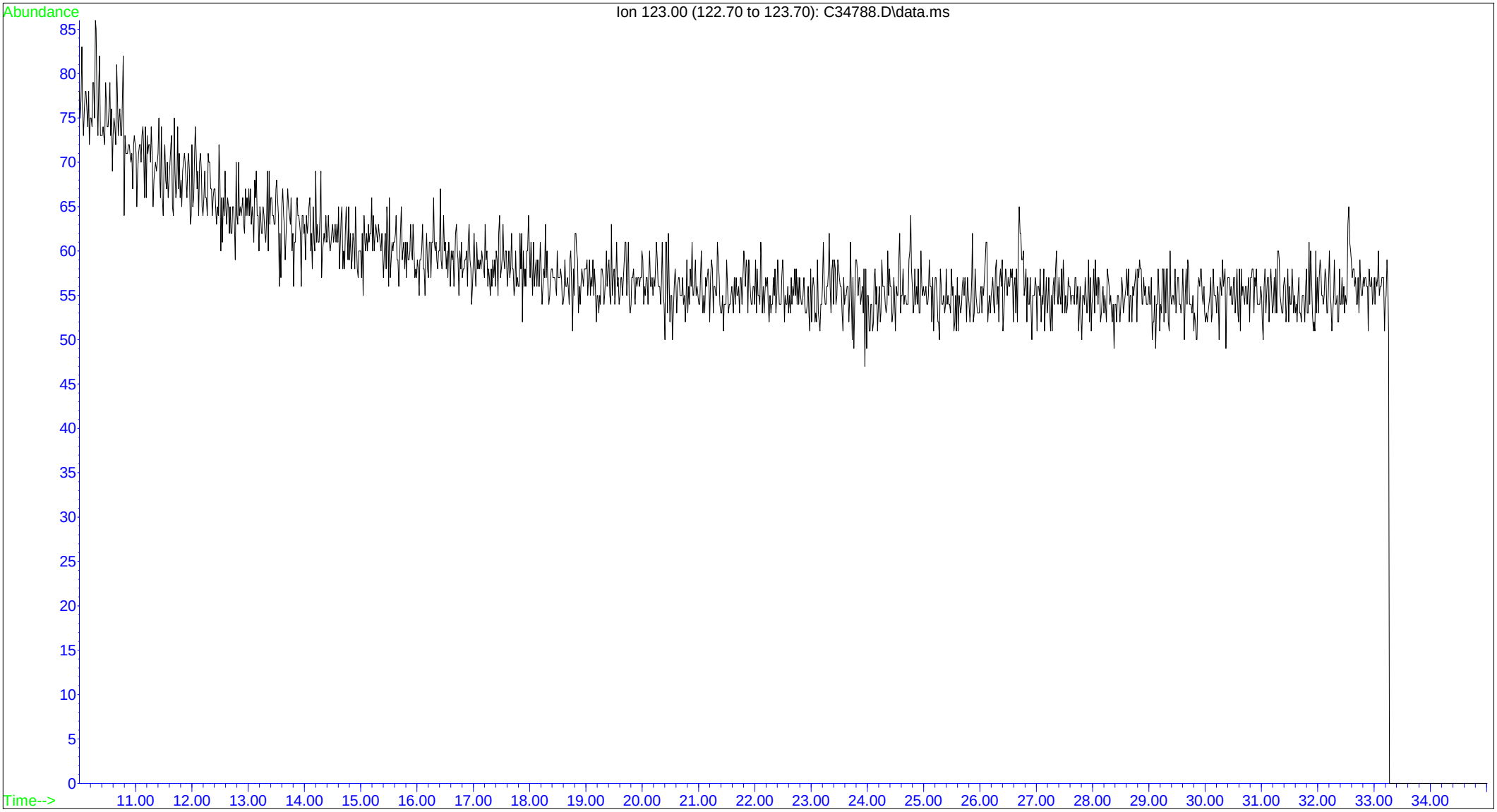
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34808.D
Operator : AC
Acquired : 3 May 2012 12:00 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204031-08
Misc Info : 1X
ALS Vial : 17



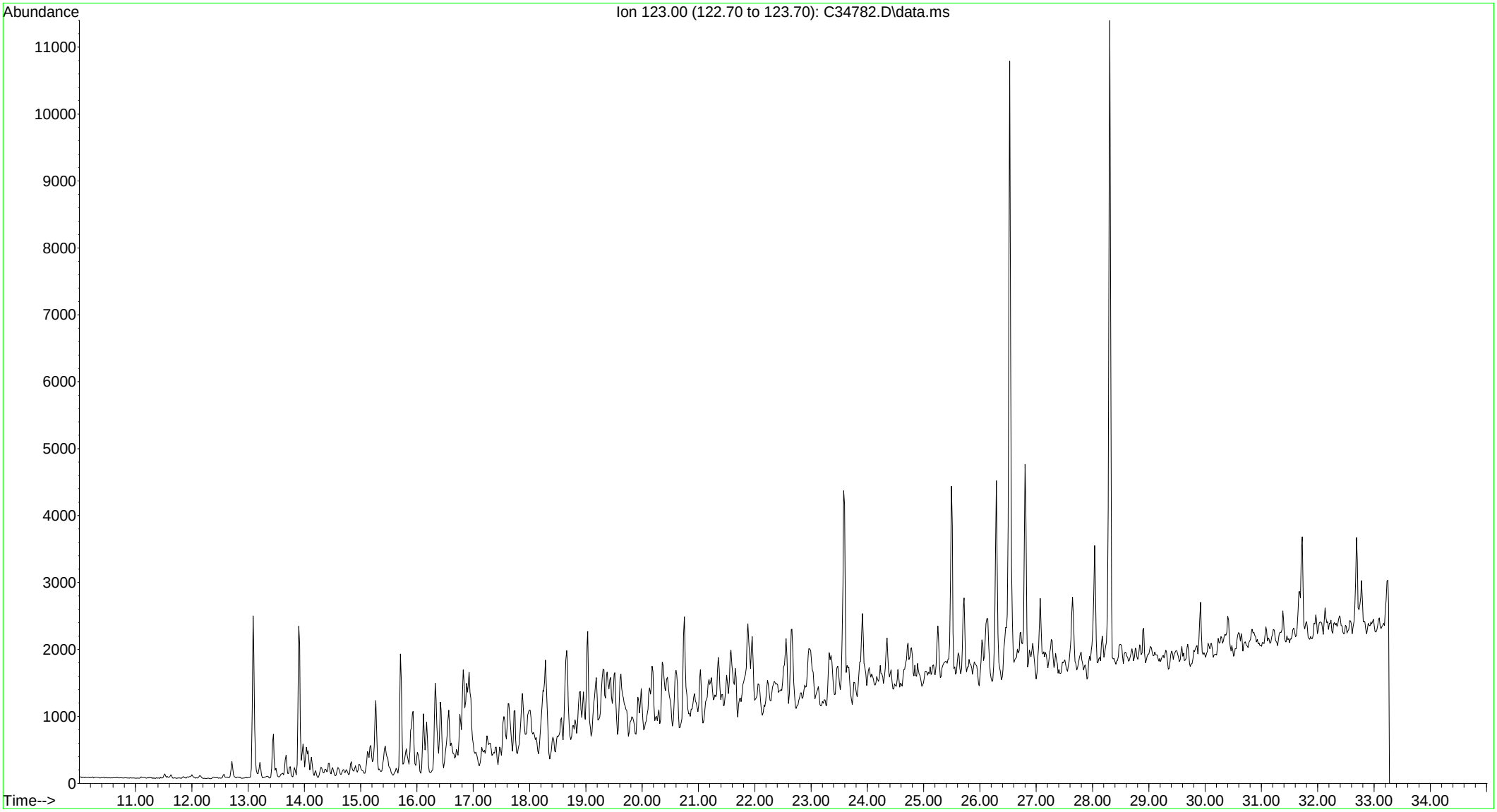
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34836.D
Operator : AC
Acquired : 4 May 2012 9:05 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : SS043012B07
Misc Info : 1X ETR1204031_35
ALS Vial : 31



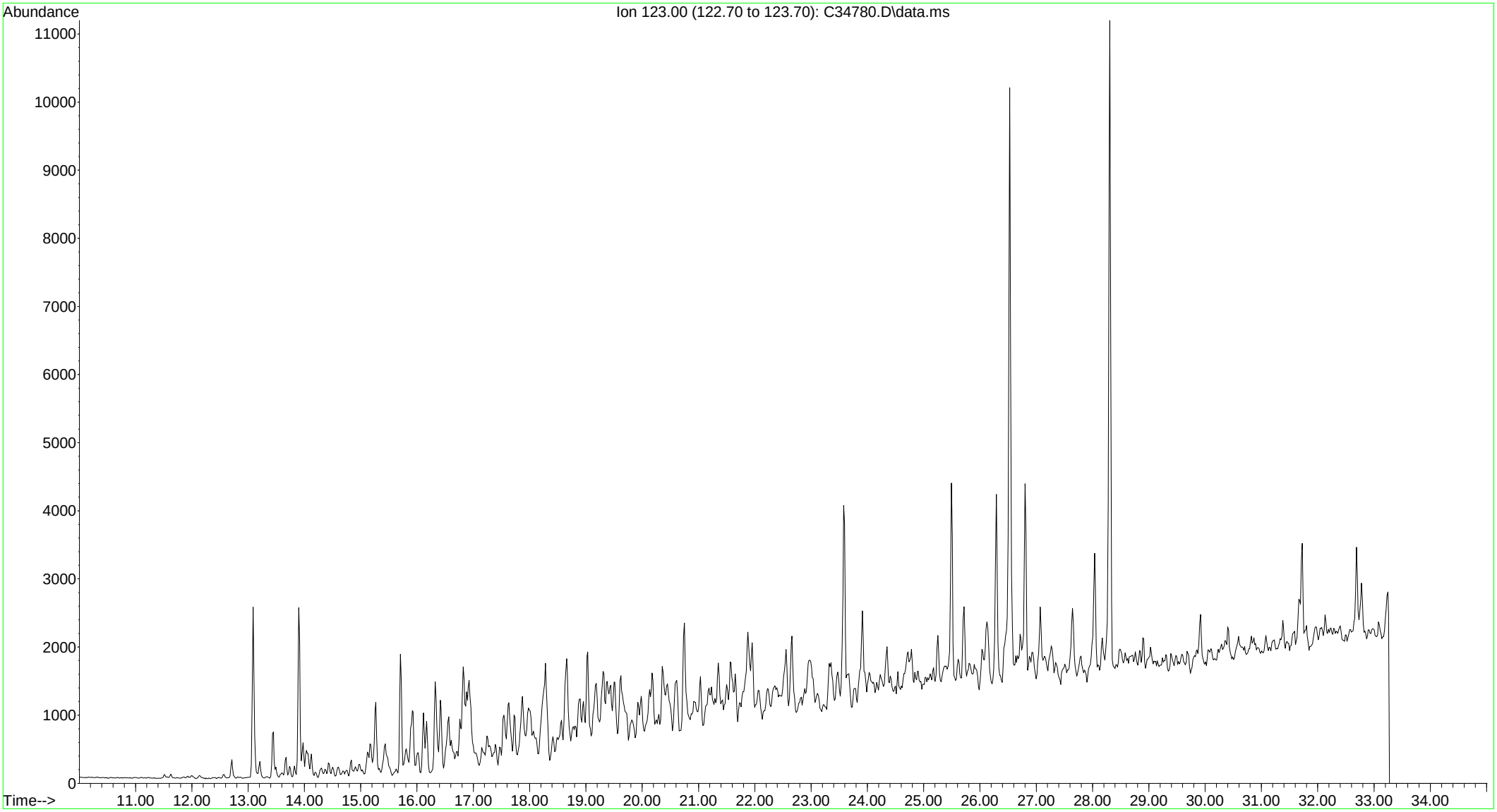
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34788.D
Operator : AC
Acquired : 2 May 2012   8:53 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : SO050112B01
Misc Info : 1X ETR1204031
ALS Vial : 7



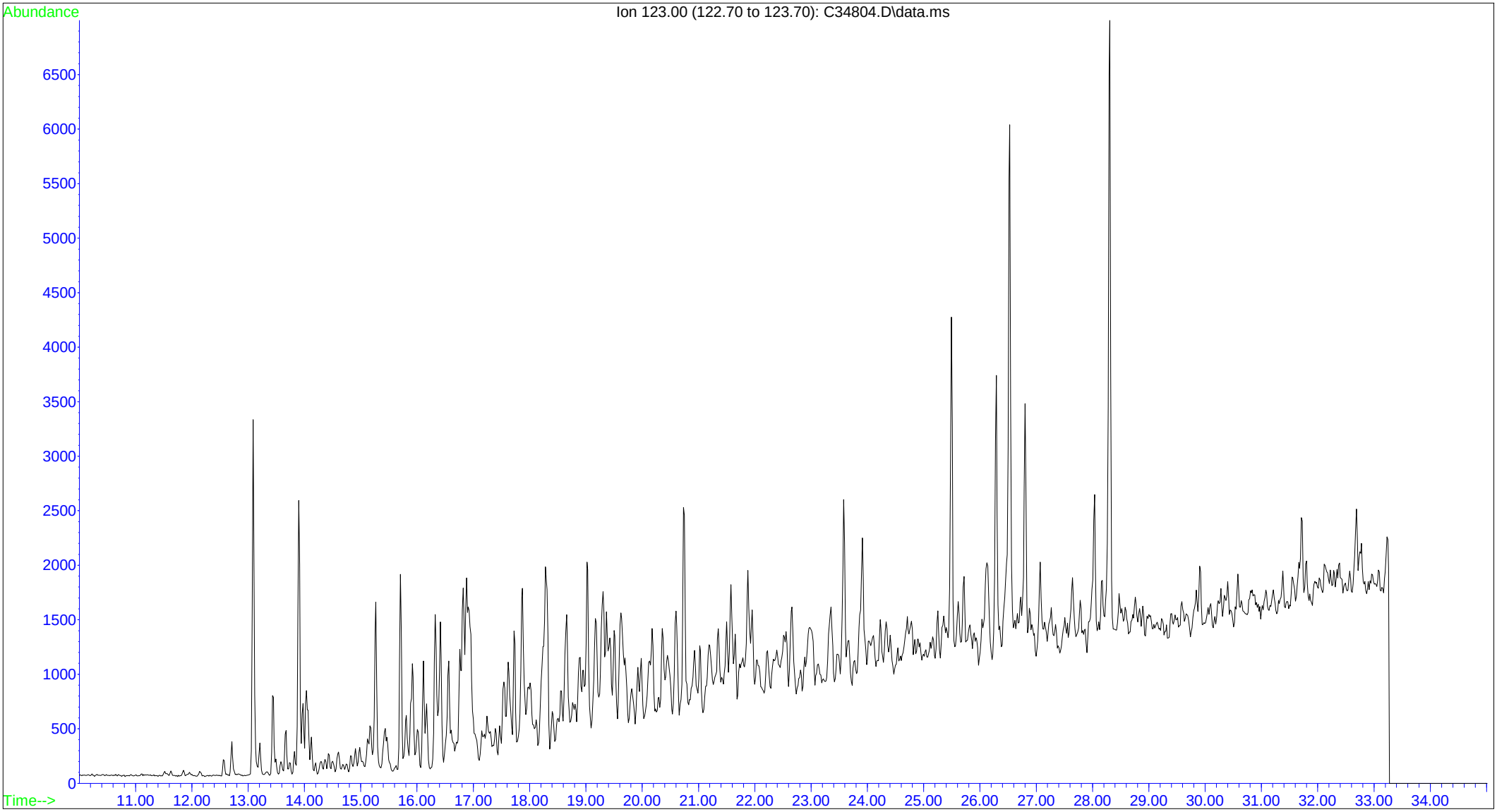
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34782.D
Operator : AC
Acquired : 2 May 2012   4:01 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : SO050512CL01
Misc Info : WHAP12
ALS Vial : 4



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34780.D
Operator : AC
Acquired : 2 May 2012 2:31 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : SO050512WCS02
Misc Info : WHAP10
ALS Vial : 3



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34804.D
Operator : AC
Acquired : 3 May 2012 8:58 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : so050512ANS02
Misc Info : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15



PAH Ical – PAH3032612.M
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	14.195	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.42%#		
42) Phenanthrene-d10	32.793	188	547	9.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.90%#		
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.09%#		
127) 5B(H)Cholane - Surr	43.995	217	84M4	10.806	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.08%#		
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	6.464	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.681	ng/mL	
10) Naphthalene	20.042	128	1021M4	18.113	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	15.327	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	15.482	ng/mL	
18) Benzothiophene	20.268	134	928M4	20.074	ng/mL	
23) Biphenyl	24.618	154	768	14.461	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	12.837	ng/mL	
25) Dibenzofuran	27.705	168	860M4	13.938	ng/mL	
26) Acenaphthylene	26.320	152	979M4	15.394	ng/mL	
27) Acenaphthene	27.057	153	596M4	14.760	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	396	11.213	ng/mL	93
29) Fluorene	29.075	166	632M4	12.577	ng/mL	
33) Dibenzothiophene	32.386	184	1010	13.309	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	11.436	ng/mL	
54) Retene	39.869	234	171M4	7.712	ng/mL	
55) Anthracene	33.064	178	829	11.221	ng/mL	97
56) Carbazole	33.726	167	817M4	12.040	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.115	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.176	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	7.556	ng/mL	
60) Pyrene	38.529	202	858	9.073	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.128	ng/ml	
67) Naphthobenzothiophene-2,1	42.368	234	910	9.209	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	10.573	ng/mL	
76) Chrysene	43.468	228	726M4	11.052	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	11.052	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	11.013	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	11.707	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	11.556	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	11.694	ng/mL	
88) Perylene	48.858	252	835M4	11.775	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	11.728	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	11.668	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	12.946	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	14.214	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	171M4	13.890	ng/mL	

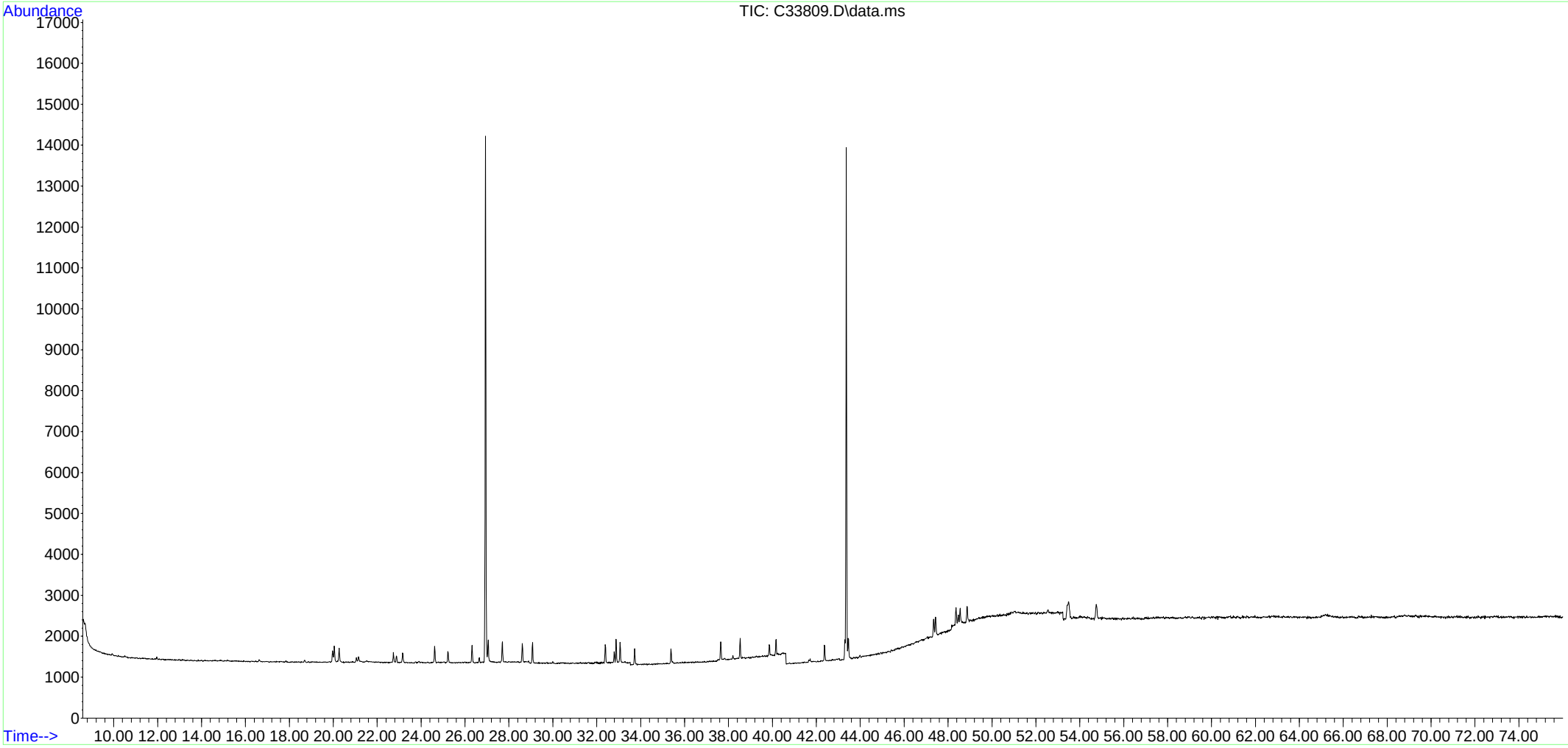
(#) = qualifier out of range (m) = manual integration (+) = signals summed

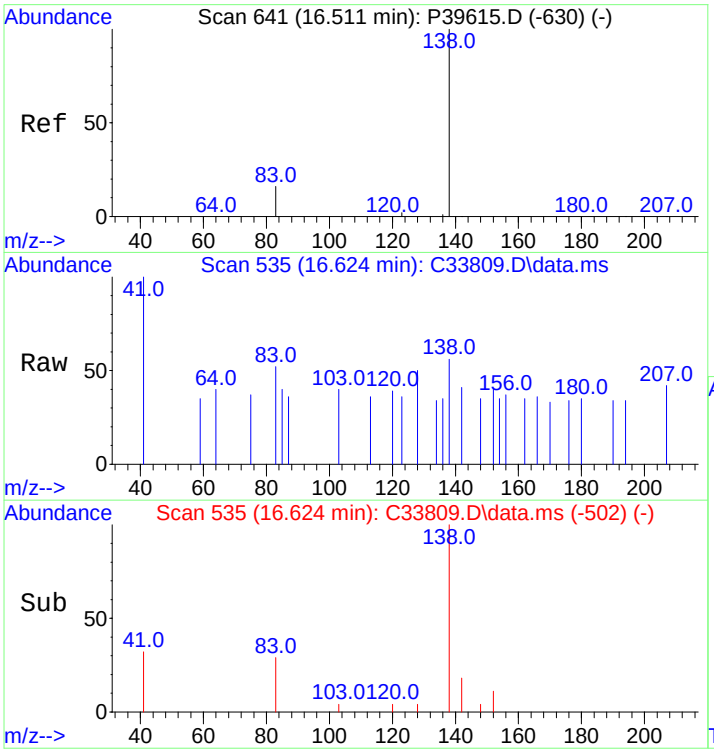
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

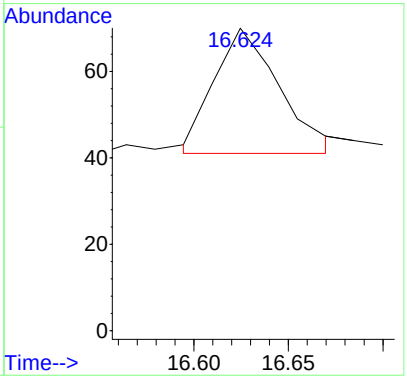
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

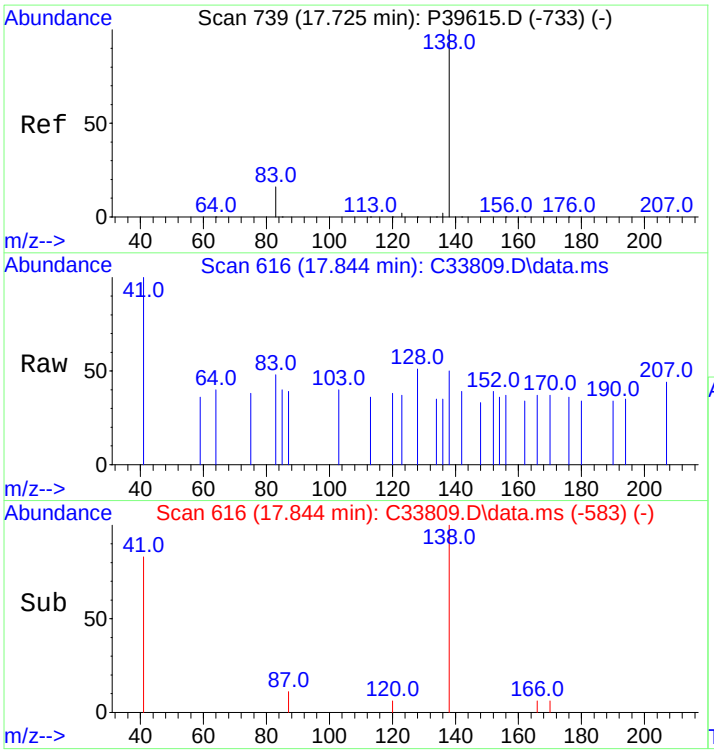




#3
trans-Decalin
Concen: 6.46 ng/mL m
RT: 16.624 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

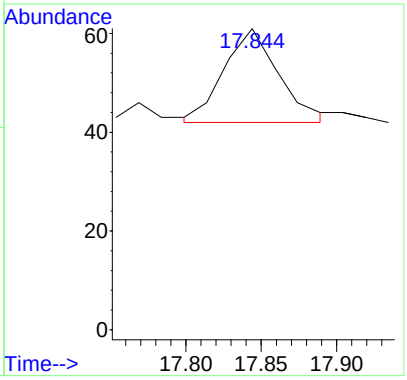
Tgt Ion:138 Resp: 70

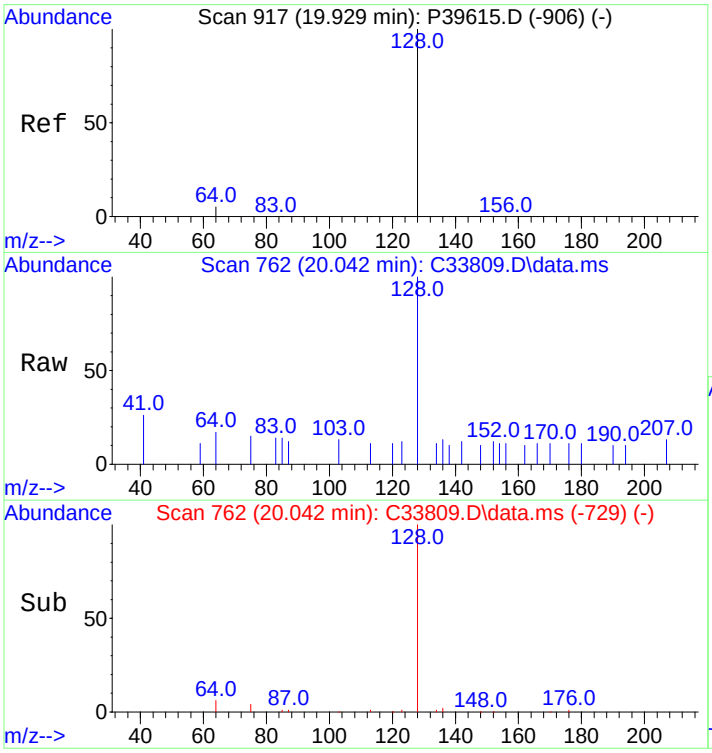




#4
cis-Decalin
Concen: 5.68 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:138 Resp: 48

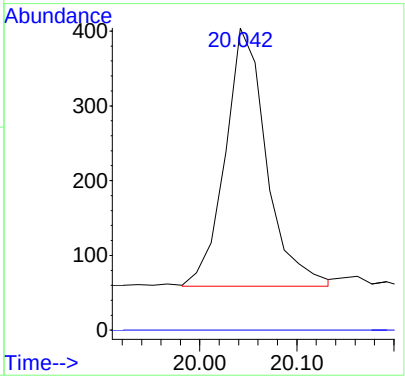


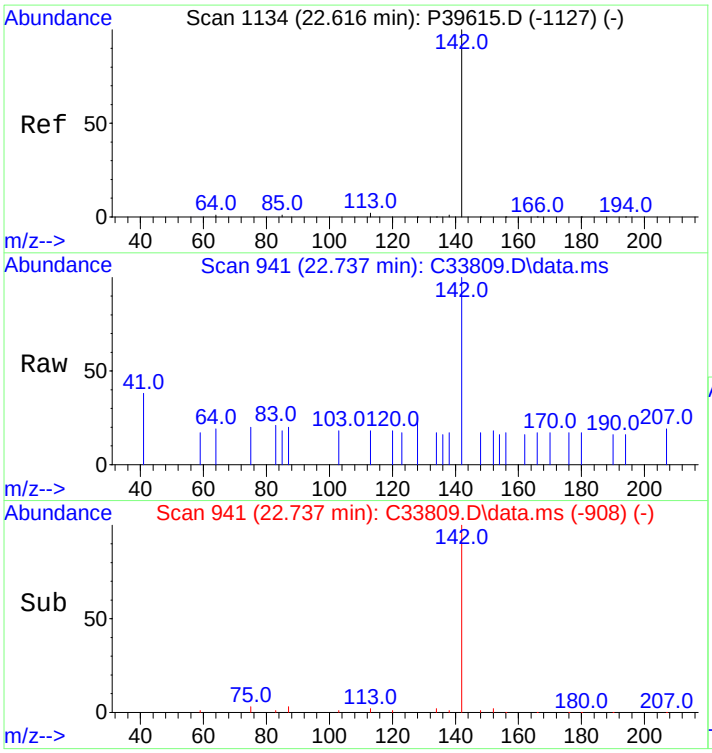


#10
Naphthalene
Concen: 18.11 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:128 Resp: 1021

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

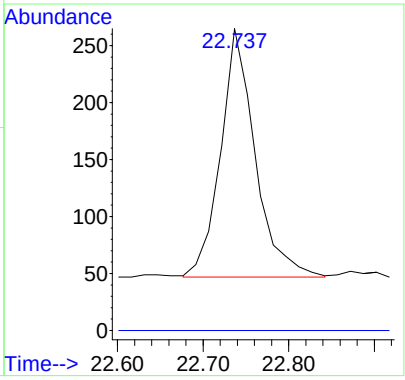


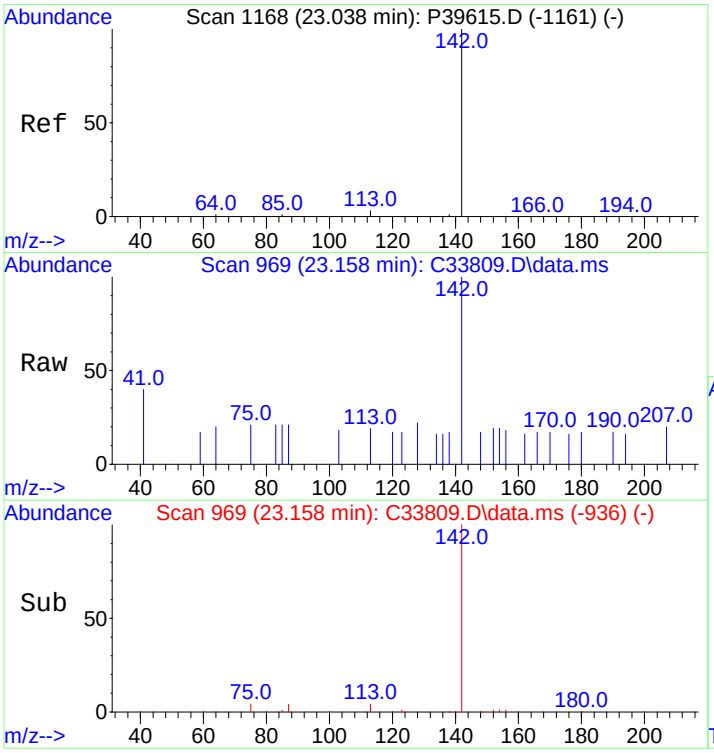


#16
2-Methylnaphthalene
Concen: 15.33 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 610

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

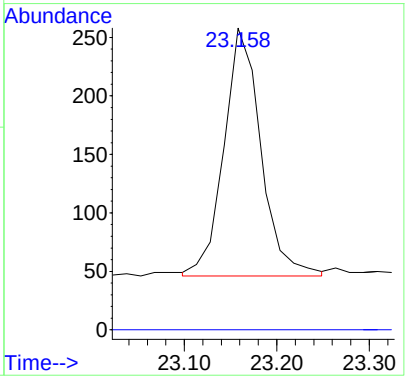


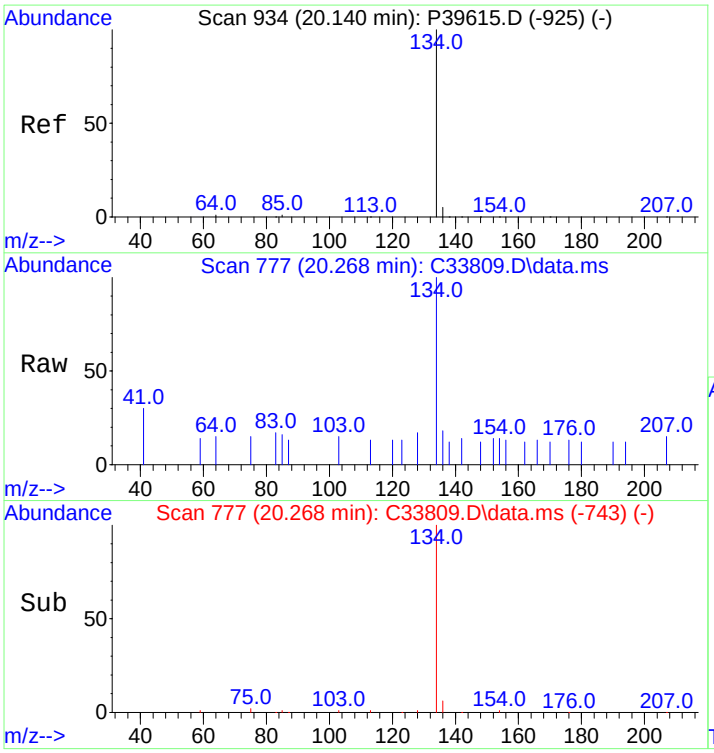


#17
1-Methylnaphthalene
Concen: 15.48 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 591

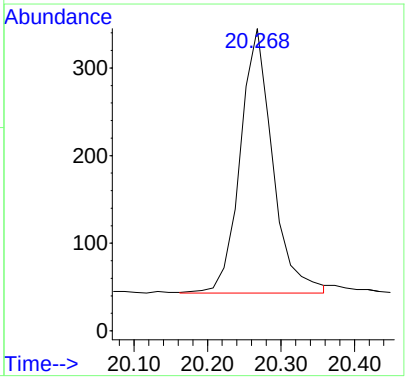
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

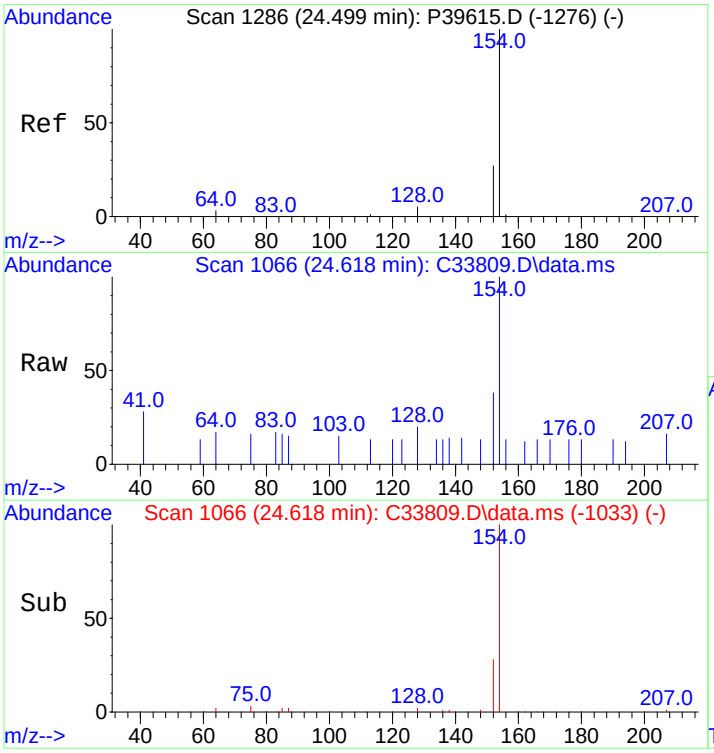




#18
Benzothiophene
Concen: 20.07 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:134 Resp: 928

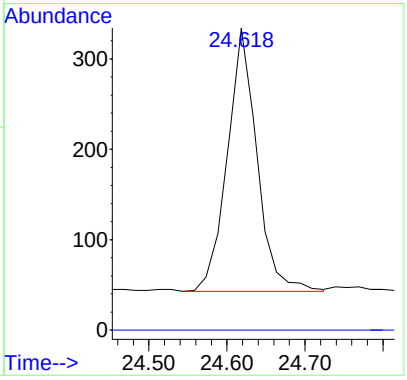


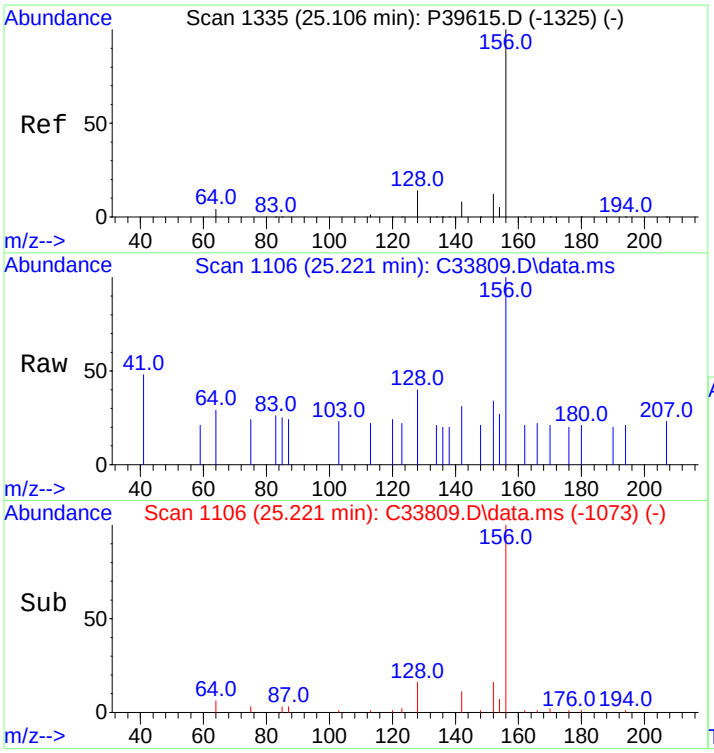


#23
Biphenyl
Concen: 14.46 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:154 Resp: 768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

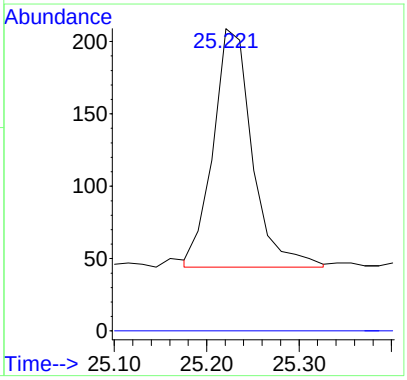


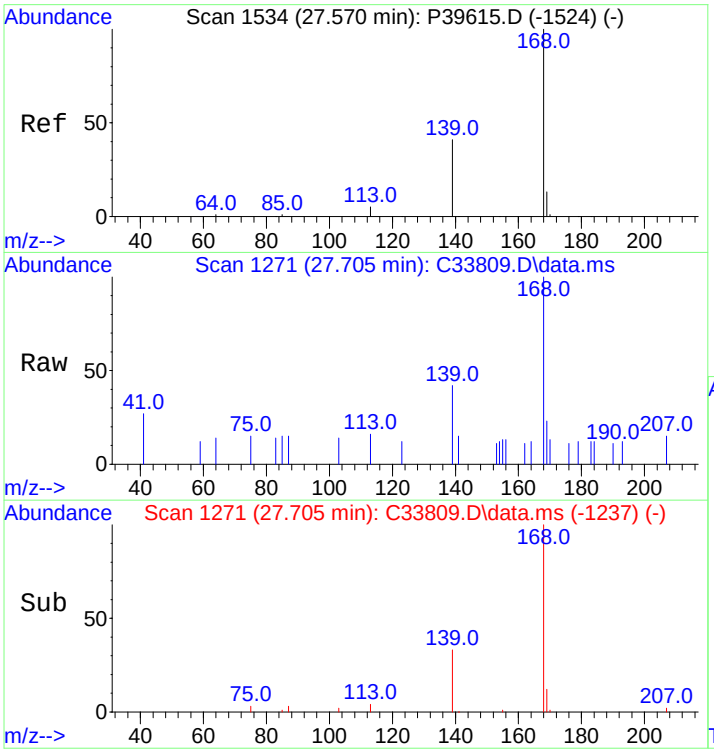


#24
2,6-Dimethylnaphthalene
Concen: 12.84 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:156 Resp: 486

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

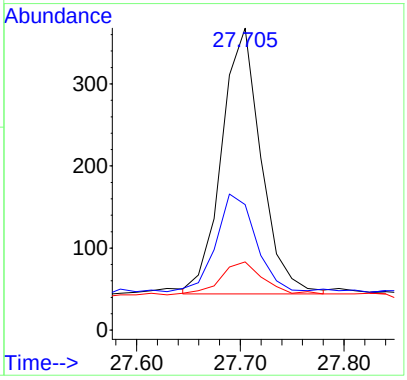


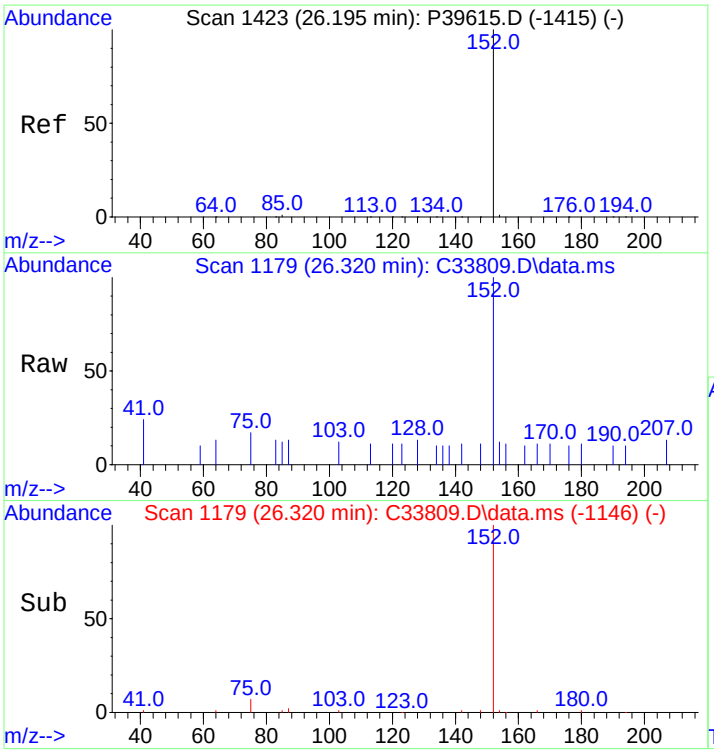


#25
Dibenzofuran
Concen: 13.94 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:168 Resp: 860

Ion	Ratio	Lower	Upper
168	100		
139	36.9	32.9	49.3
169	14.1	10.6	16.0

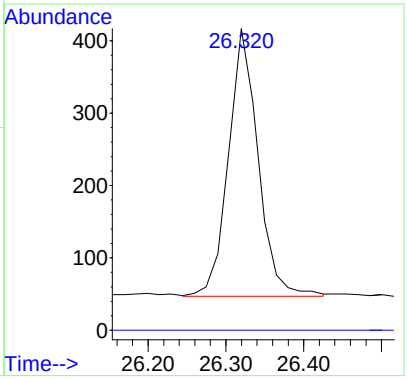


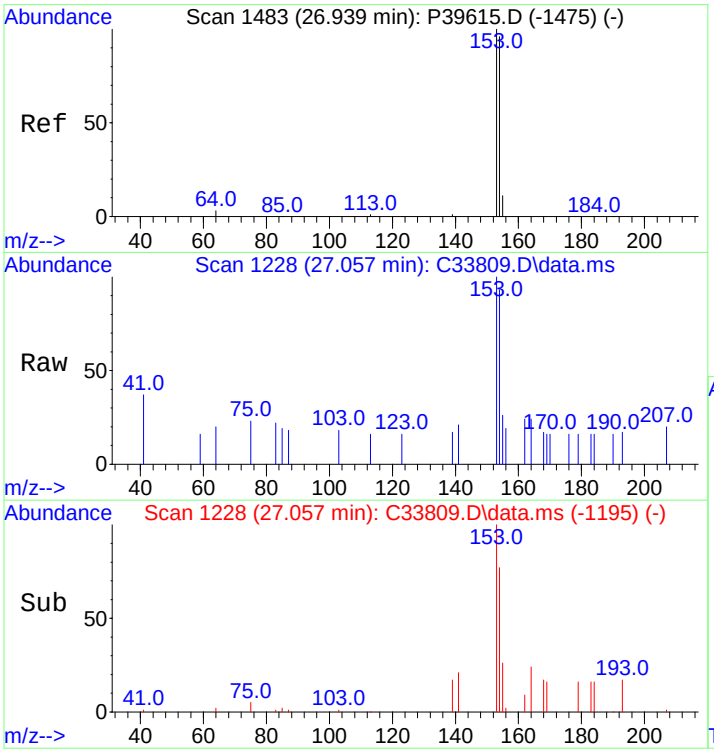


#26
Acenaphthylene
Concen: 15.39 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:152 Resp: 979

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

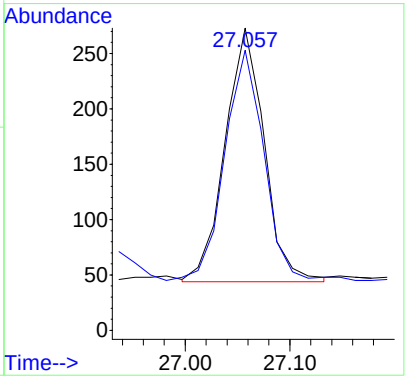


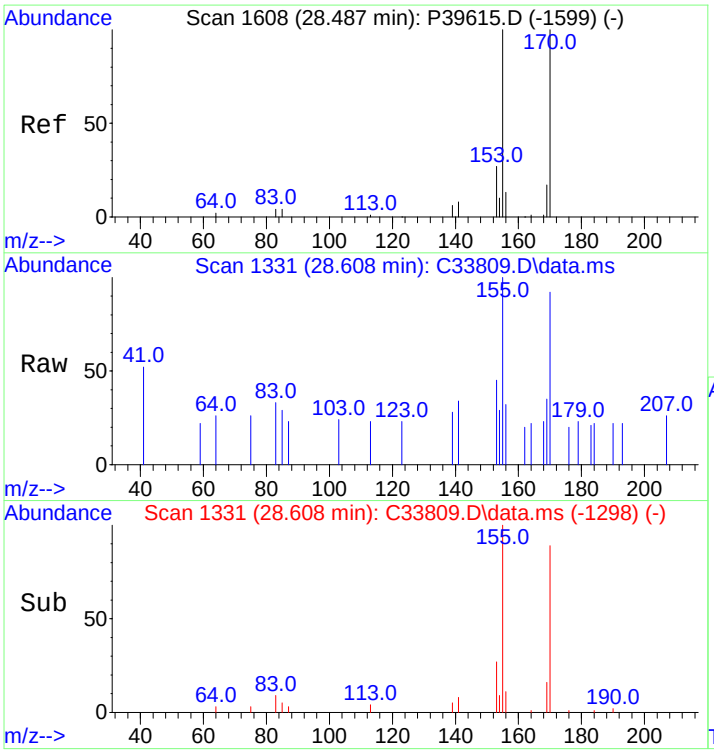


#27
Acenaphthene
Concen: 14.76 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:153 Resp: 596

Ion	Ratio	Lower	Upper
153	100		
154	90.8	75.0	112.6

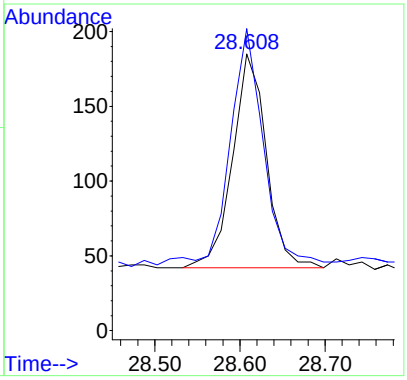


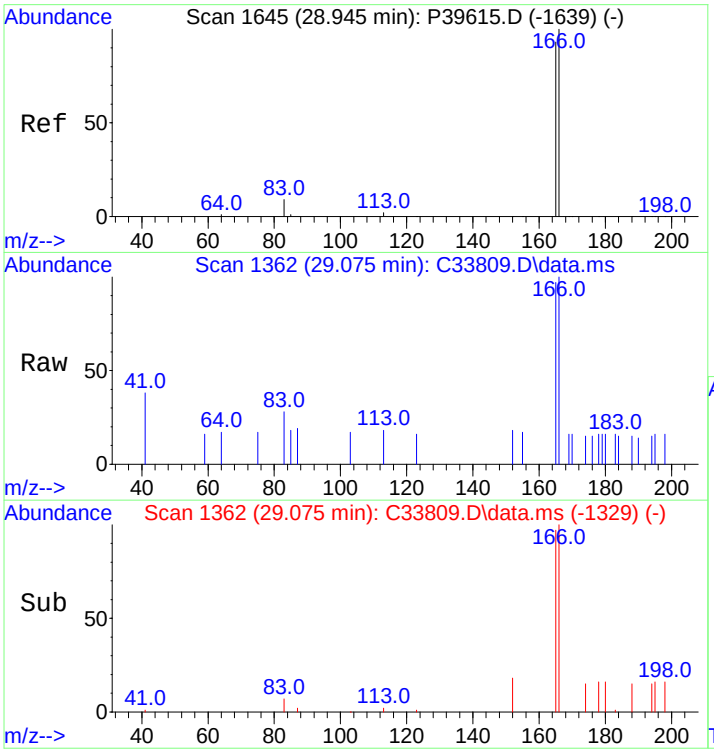


#28
2,3,5-Trimethylnaphthalene
Concen: 11.21 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:170 Resp: 396

Ion	Ratio	Lower	Upper
170	100		
155	113.1	84.7	127.1

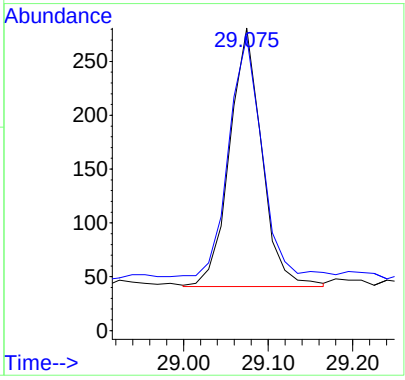


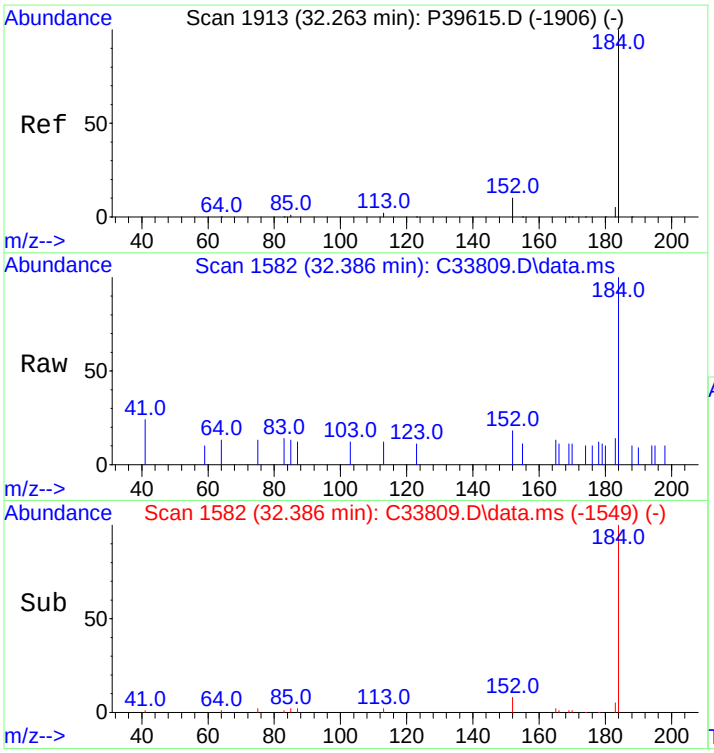


#29
Fluorene
Concen: 12.58 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:166 Resp: 632

Ion	Ratio	Lower	Upper
166	100		
165	115.5	75.3	112.9#

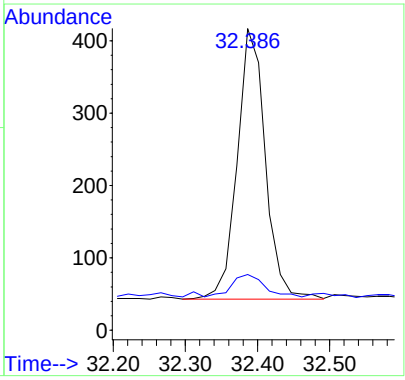


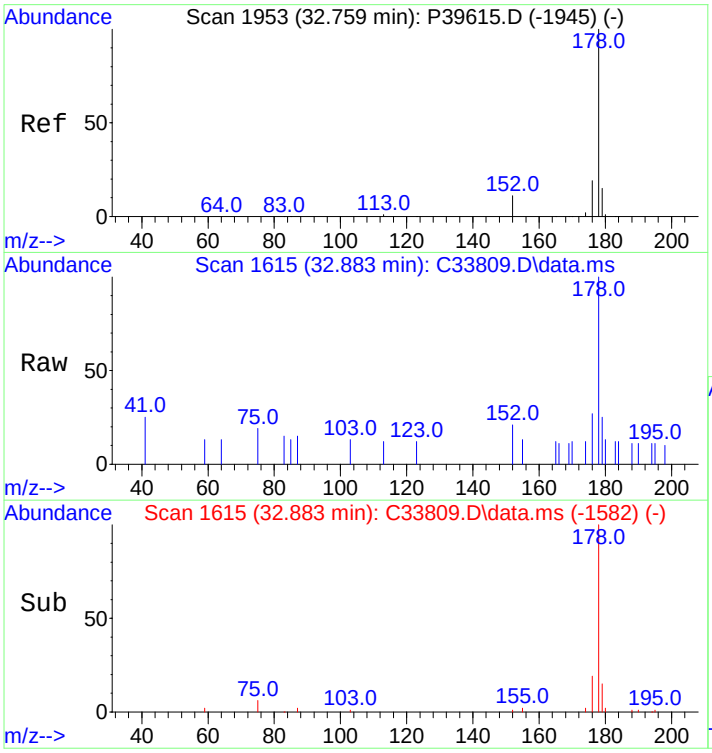


#33
Dibenzothiophene
Concen: 13.31 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:184 Resp: 1010

Ion	Ratio	Lower	Upper
184	100		
152	0.0	6.7	10.1#

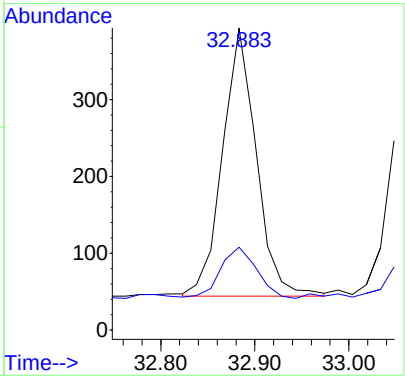


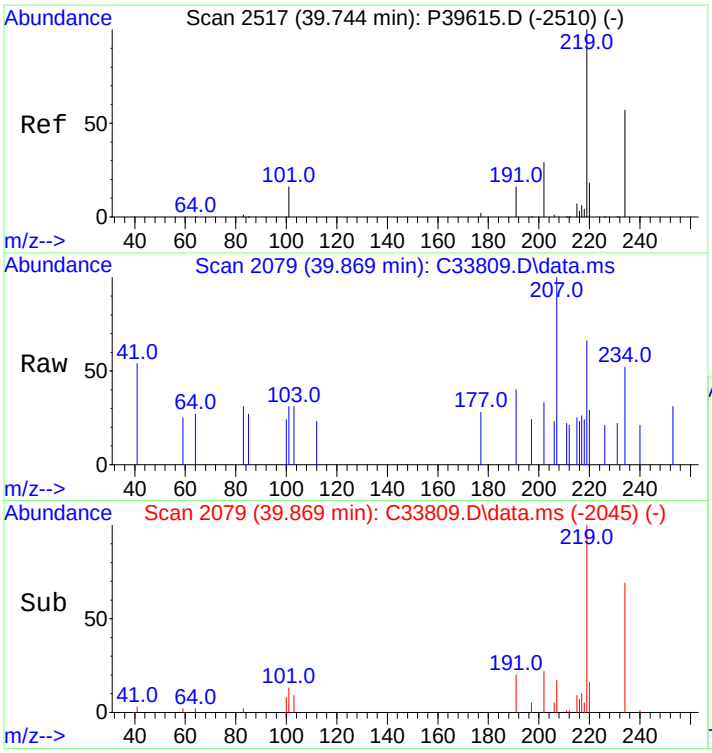


#43
Phenanthrene
Concen: 11.44 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 872

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

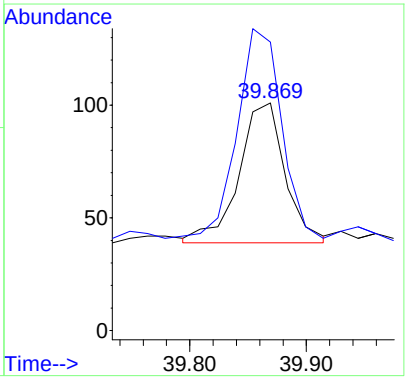


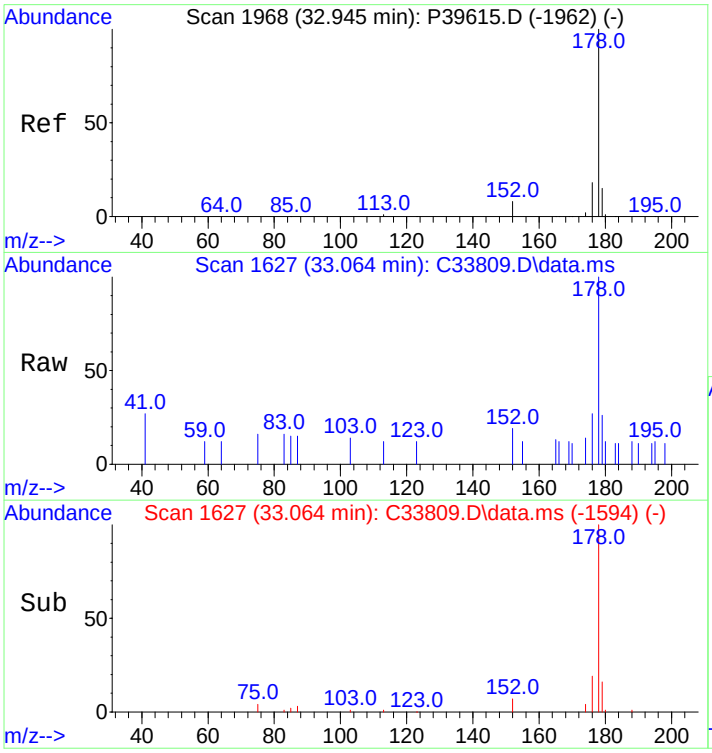


#54
Retene
Concen: 7.71 ng/mL m
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 171

Ion	Ratio	Lower	Upper
234	100		
219	142.7	136.6	204.8

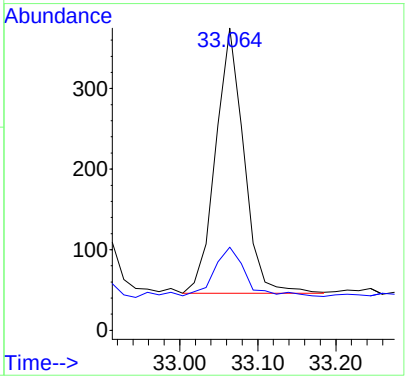


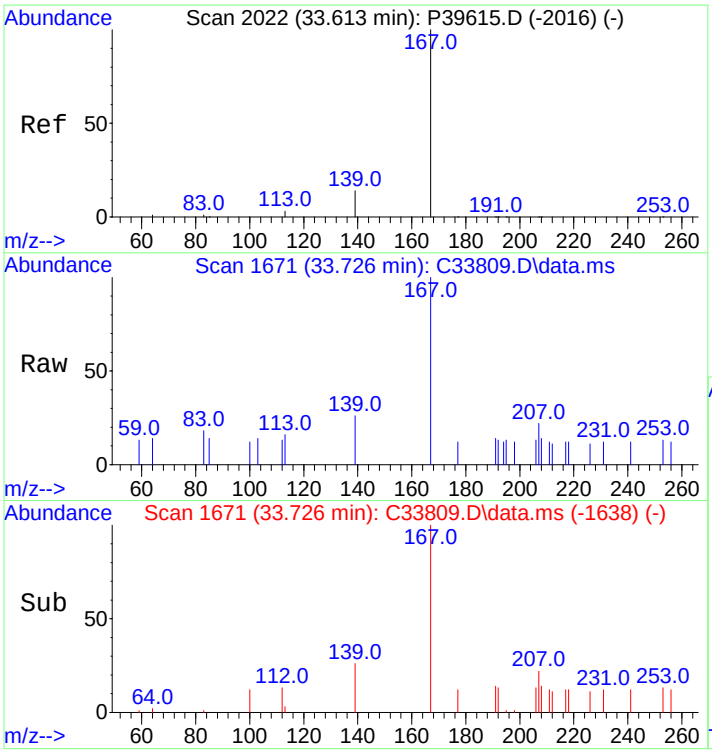


#55
Anthracene
Concen: 11.22 ng/mL
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 829

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.4	23.0

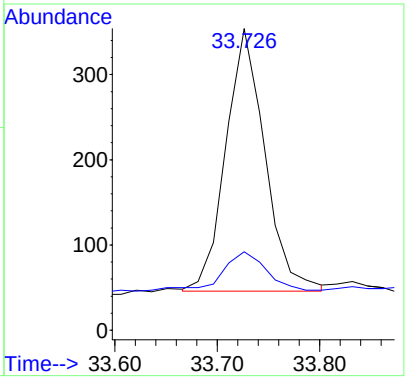


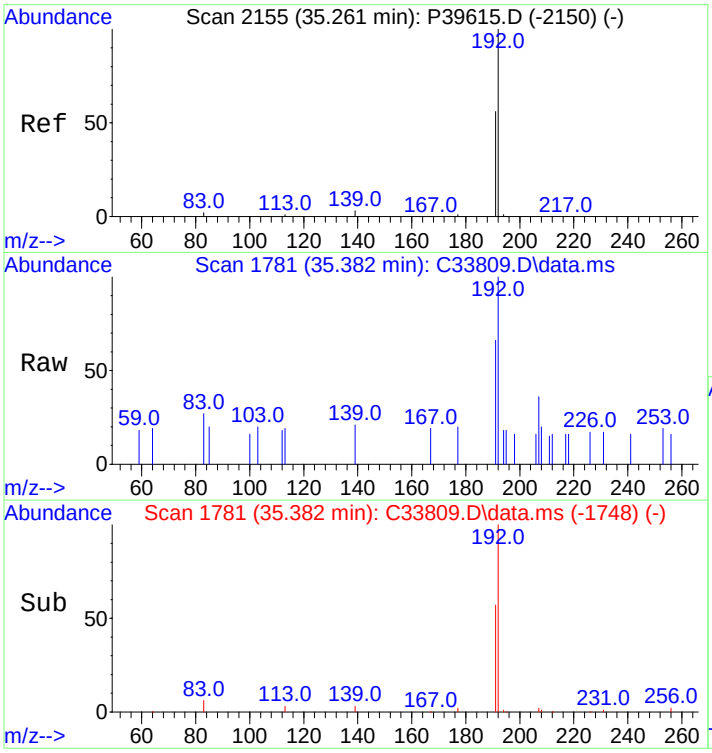


#56
Carbazole
Concen: 12.04 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:167 Resp: 817

Ion	Ratio	Lower	Upper
167	100		
139	23.3	11.6	17.4#

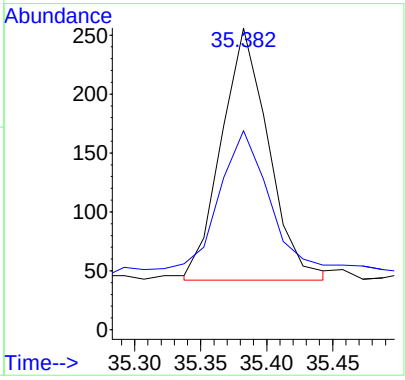


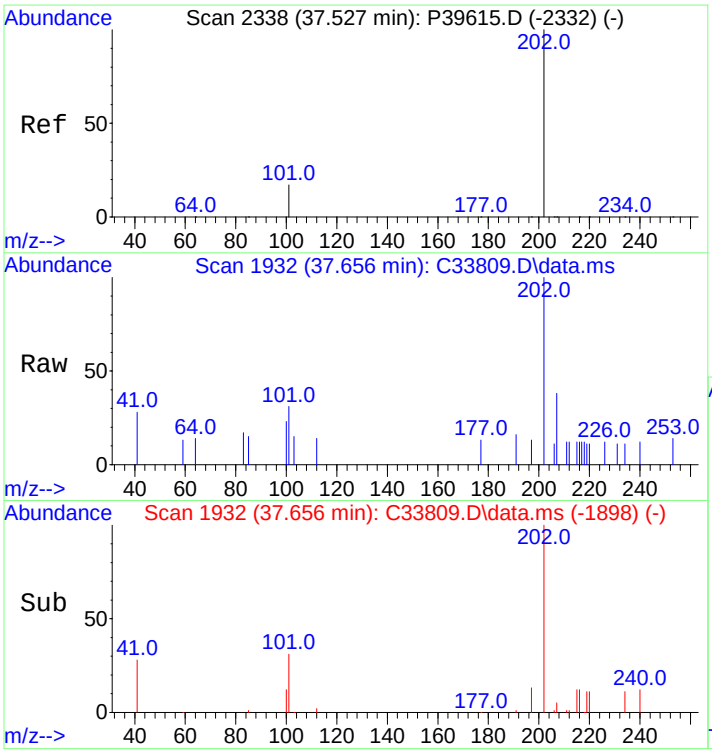


#57
1-Methylphenanthrene
Concen: 9.12 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:192 Resp: 532

Ion	Ratio	Lower	Upper
192	100		
191	66.0	45.3	67.9

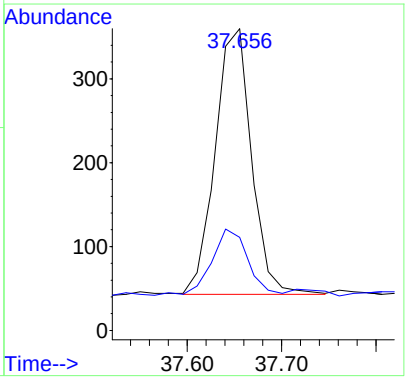


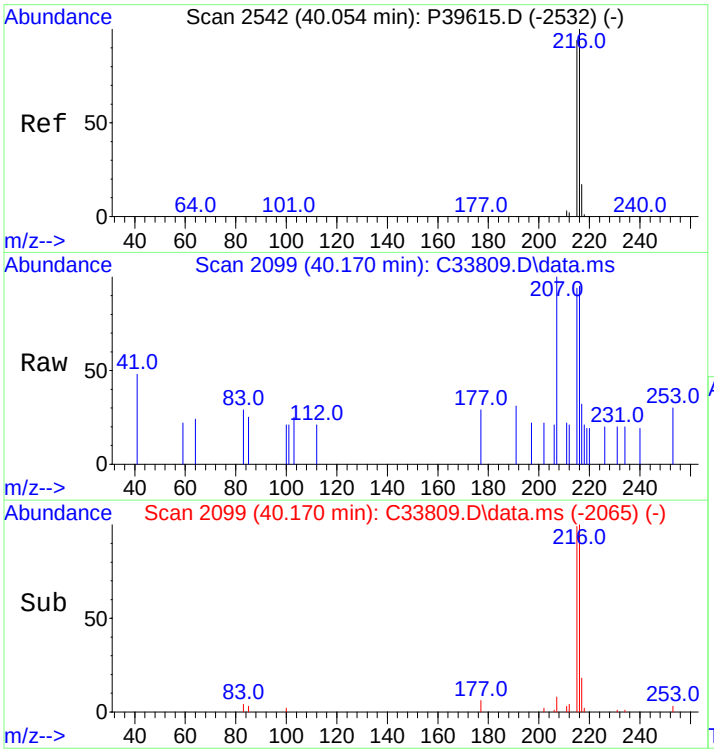


#58
Fluoranthene
Concen: 9.18 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 846

Ion	Ratio	Lower	Upper
202	100		
101	30.4	19.1	28.7#

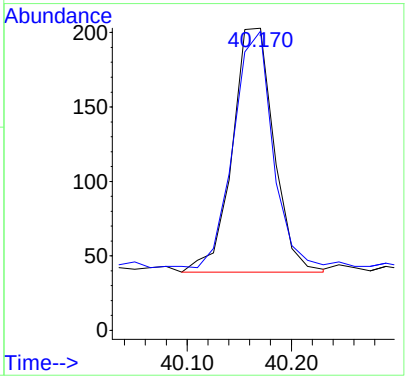


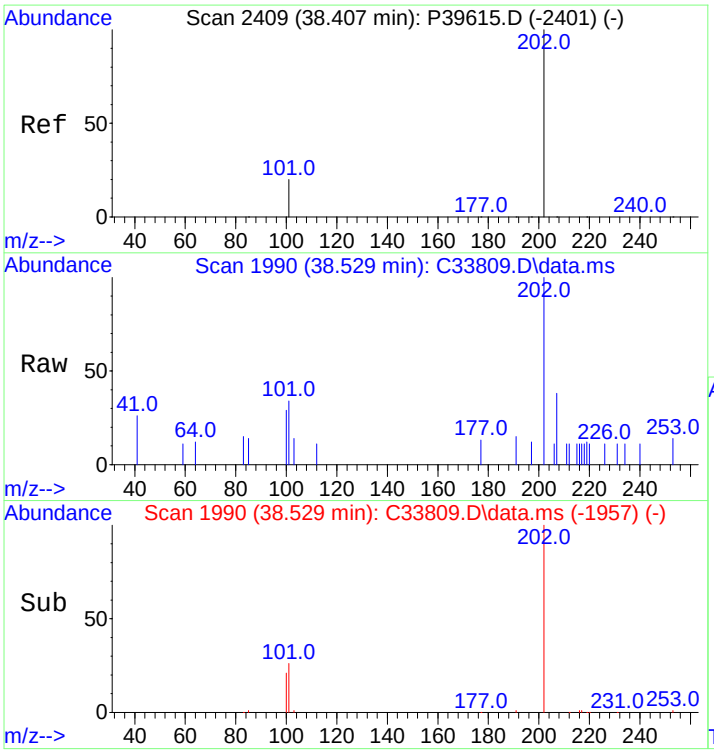


#59
Benzo(b)fluorene
Concen: 7.56 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:216 Resp: 455

Ion	Ratio	Lower	Upper
216	100		
215	89.9	77.4	116.2

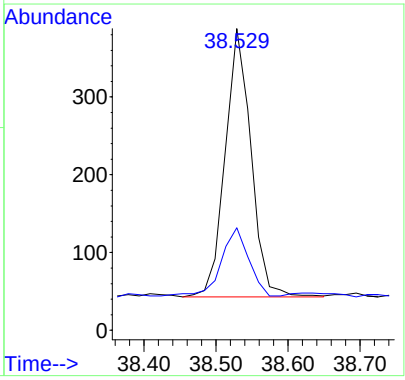


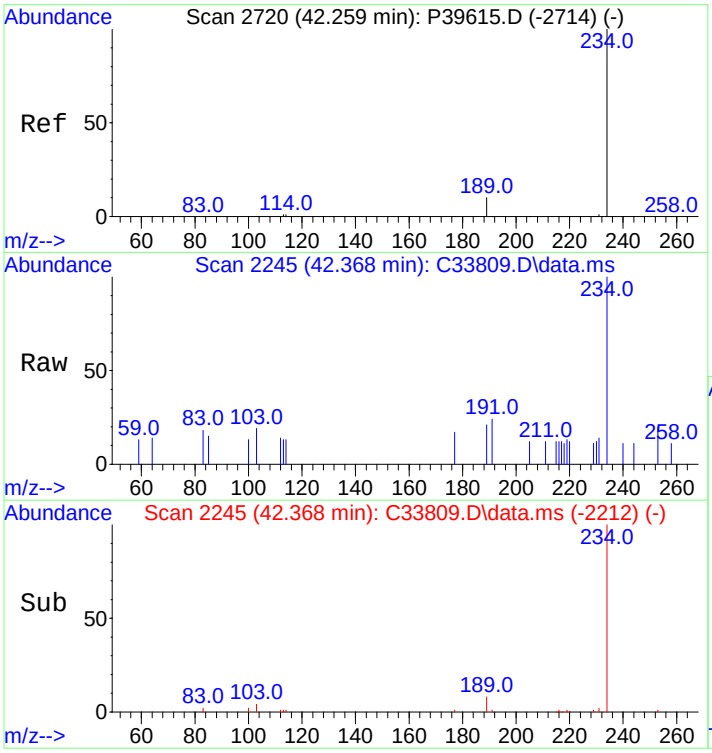


#60
Pyrene
Concen: 9.07 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 858

Ion	Ratio	Lower	Upper
202	100		
101	26.9	20.4	30.6

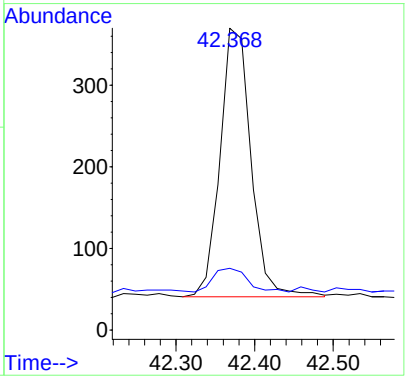


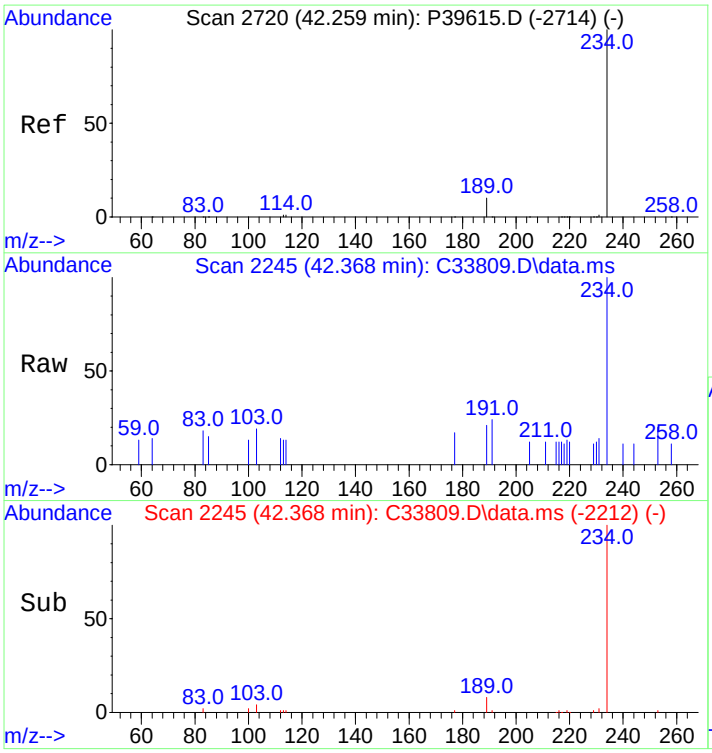


#66
Naphthobenzothiophene
Concen: 9.13 ng/ml m
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 902

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

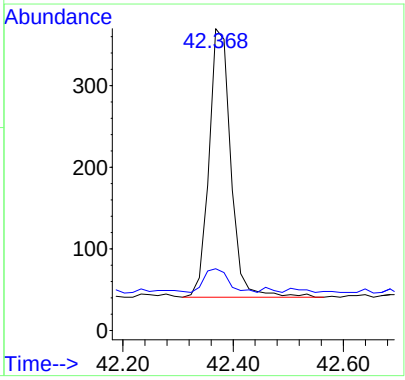


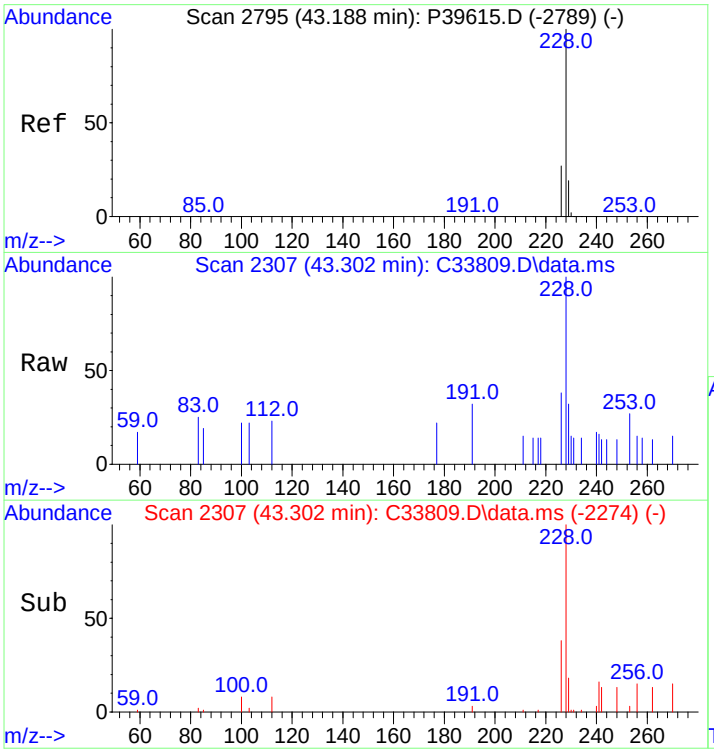


#67
Naphthobenzothiophene-2,1-D
Concen: 9.21 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 910

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

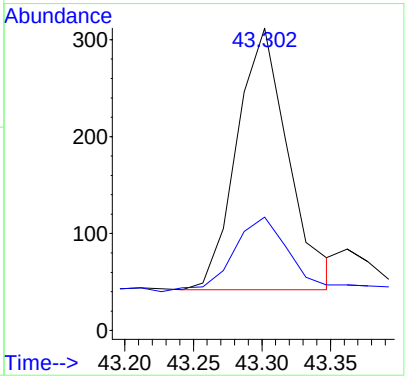


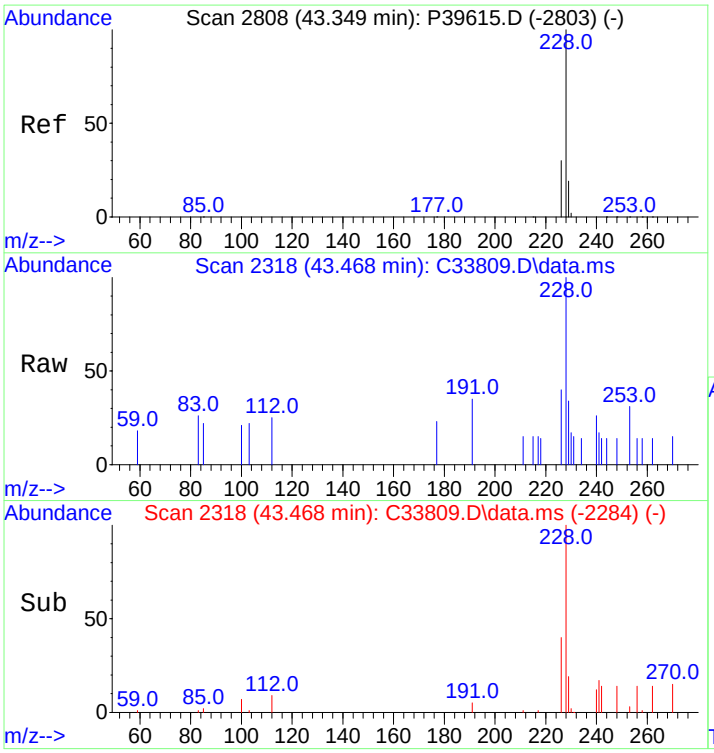


#75
Benz[a]anthracene
Concen: 10.57 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 705

Ion	Ratio	Lower	Upper
228	100		
226	31.2	21.8	32.8

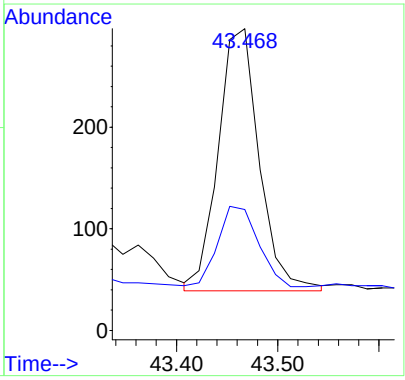


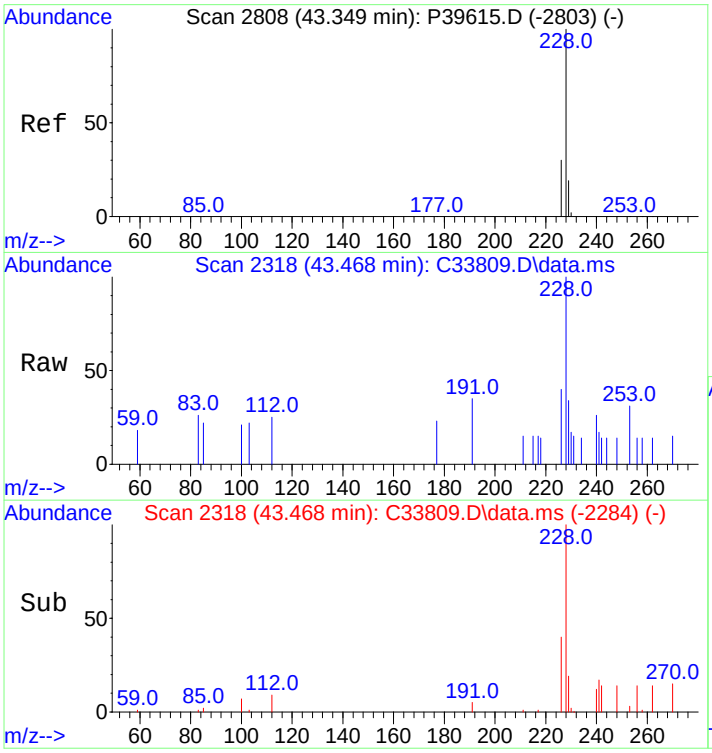


#76
Chrysene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

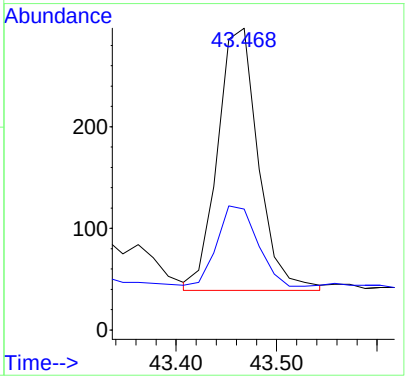


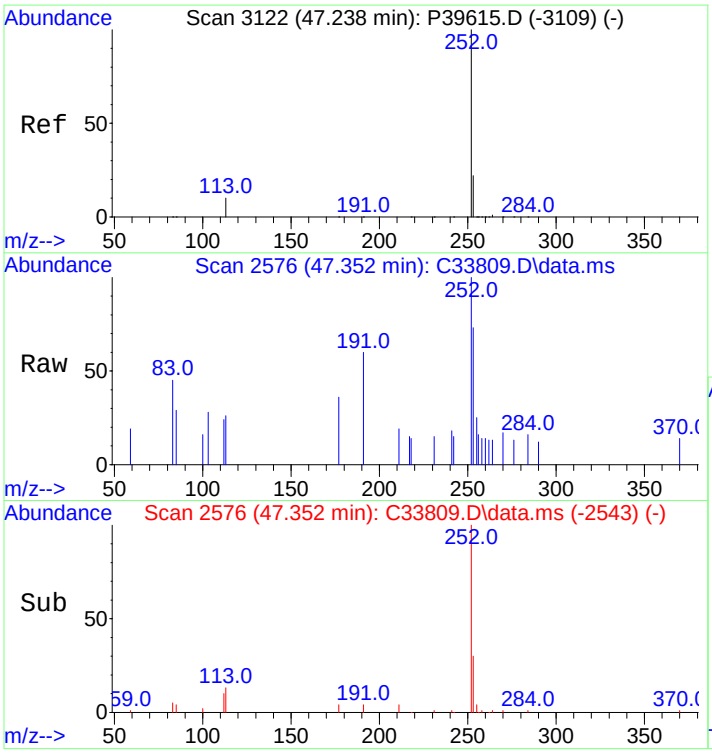


#77
Chrysene/Triphenylene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

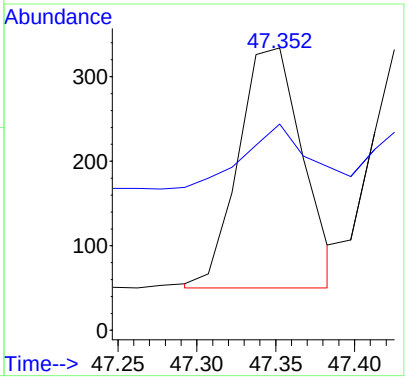


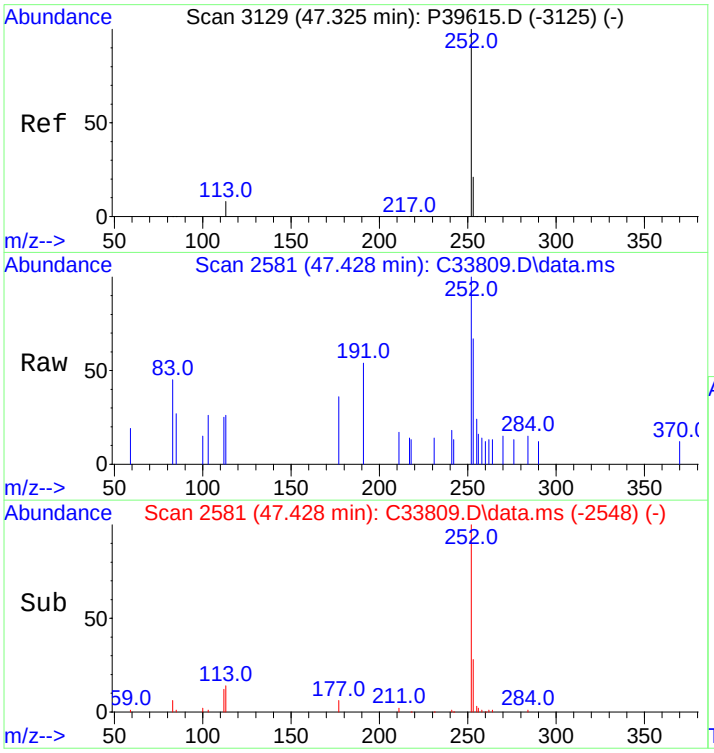


#82
Benzo[b]fluoranthene
Concen: 11.01 ng/mL m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 808

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.5	27.7

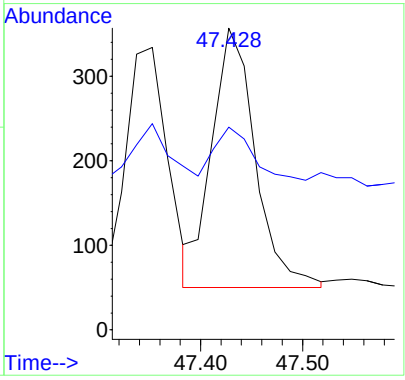


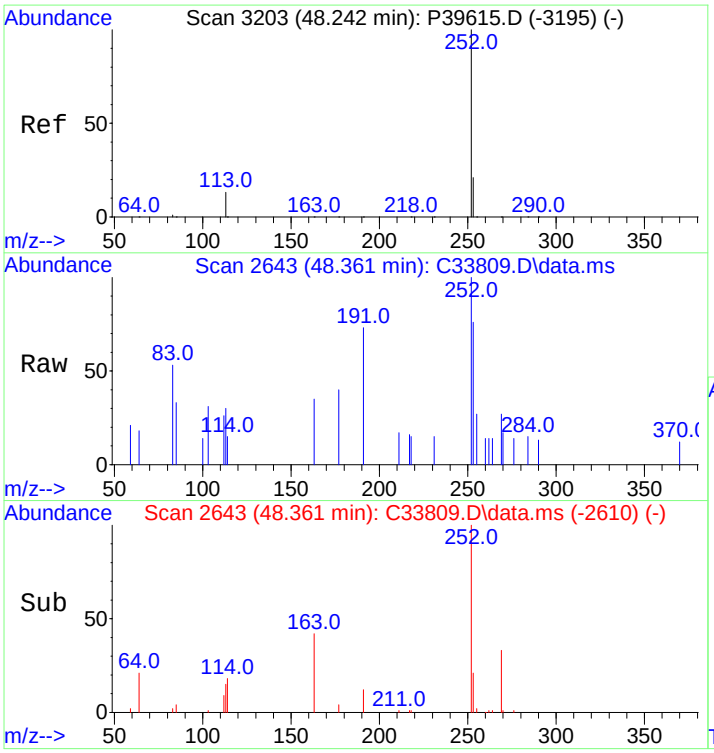


#83
Benzo[j]+[k]fluoranthene
Concen: 11.71 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 908

Ion	Ratio	Lower	Upper
252	100		
253	19.3	18.2	27.4

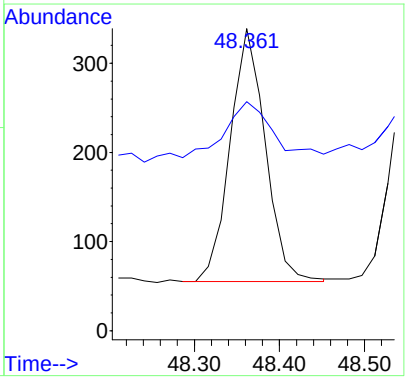


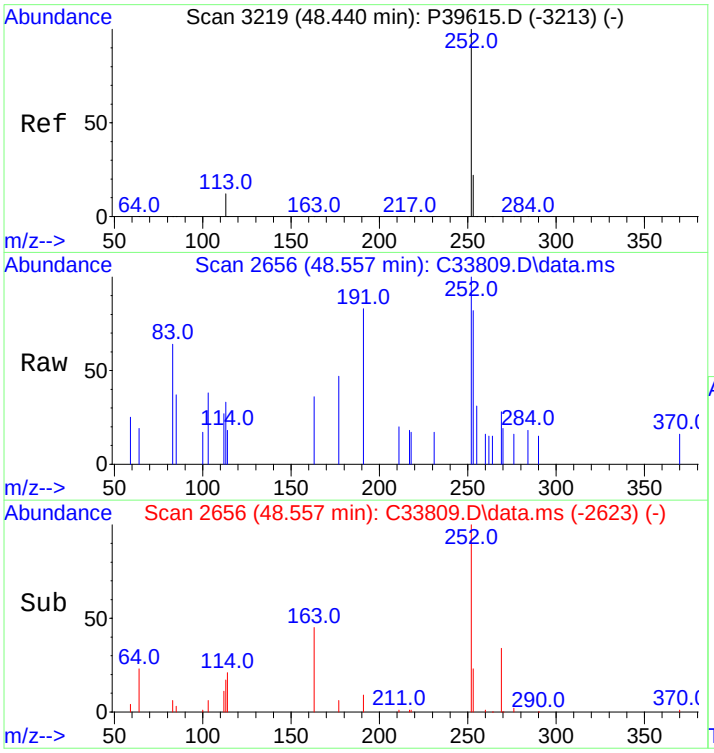


#85
Benzo[e]pyrene
Concen: 11.56 ng/mL
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 816

Ion	Ratio	Lower	Upper
252	100		
253	37.7	18.5	27.7#

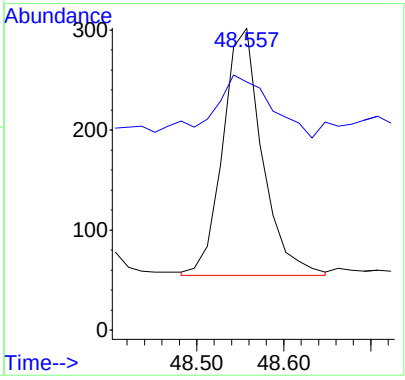


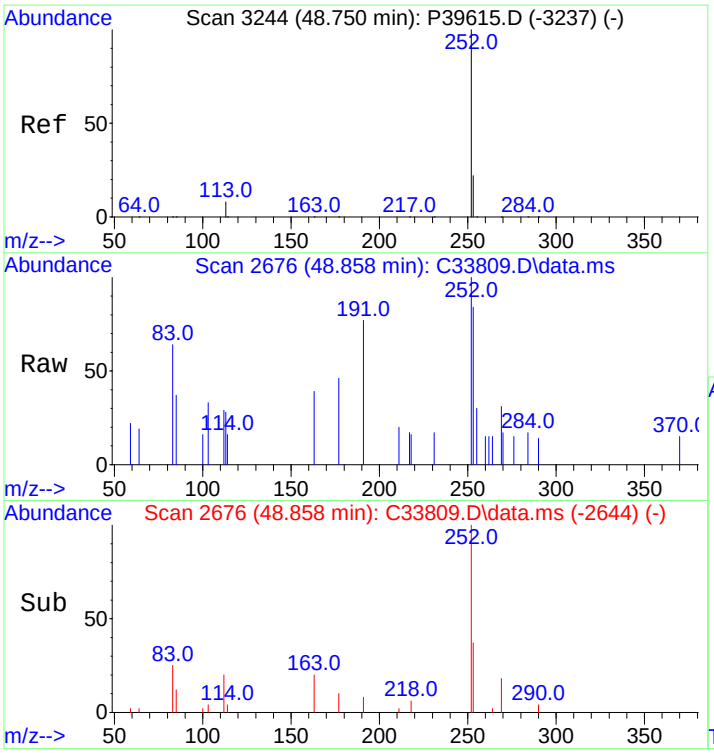


#87
Benzo[a]pyrene
Concen: 11.69 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 776

Ion	Ratio	Lower	Upper
252	100		
253	38.1	18.7	28.1#

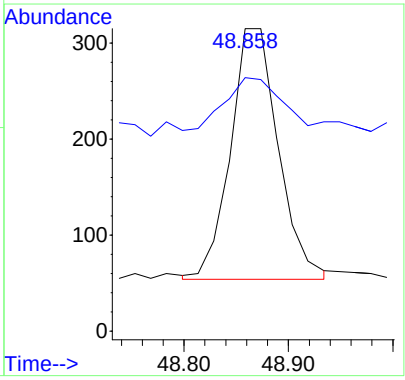


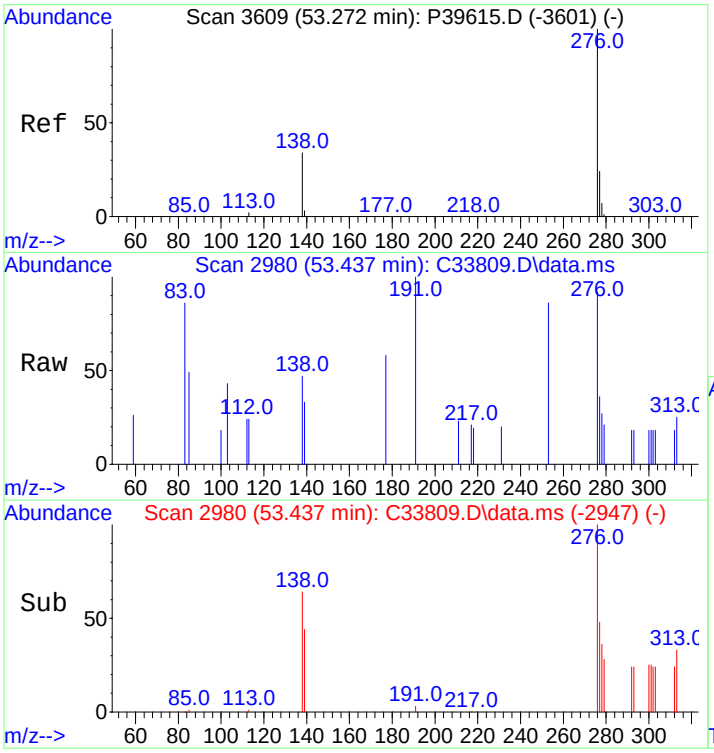


#88
Perylene
Concen: 11.77 ng/mL m
RT: 48.858 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 835

Ion	Ratio	Lower	Upper
252	100		
253	37.5	18.6	27.8#

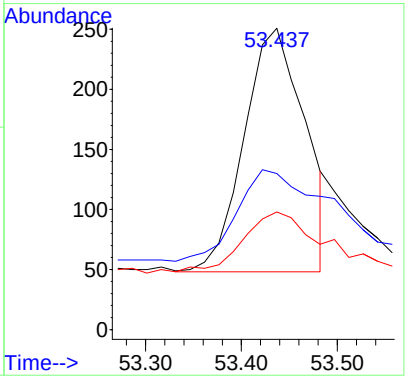


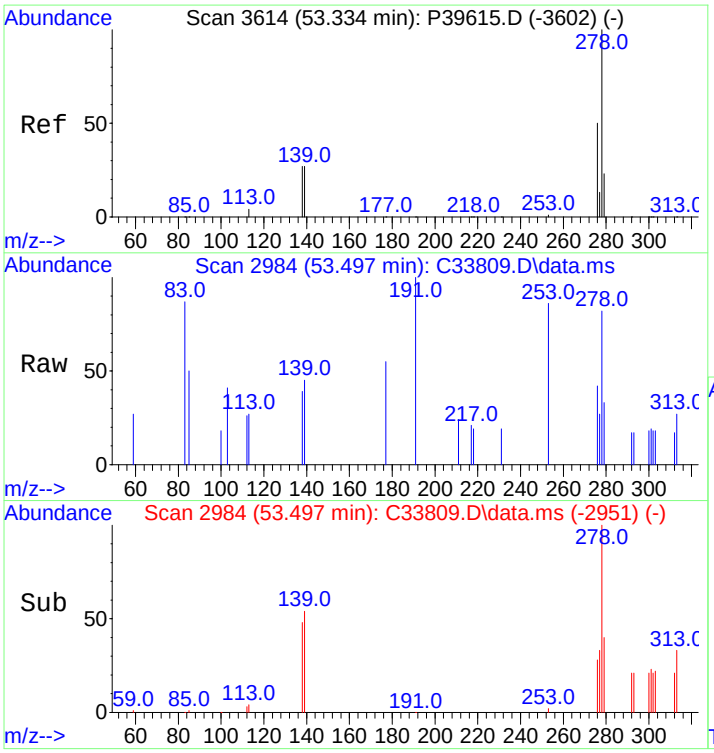


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.73 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 896

Ion	Ratio	Lower	Upper
276	100		
138	93.4	30.3	45.5#
277	48.5	19.2	28.8#

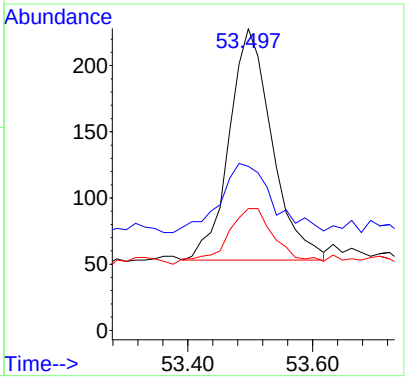


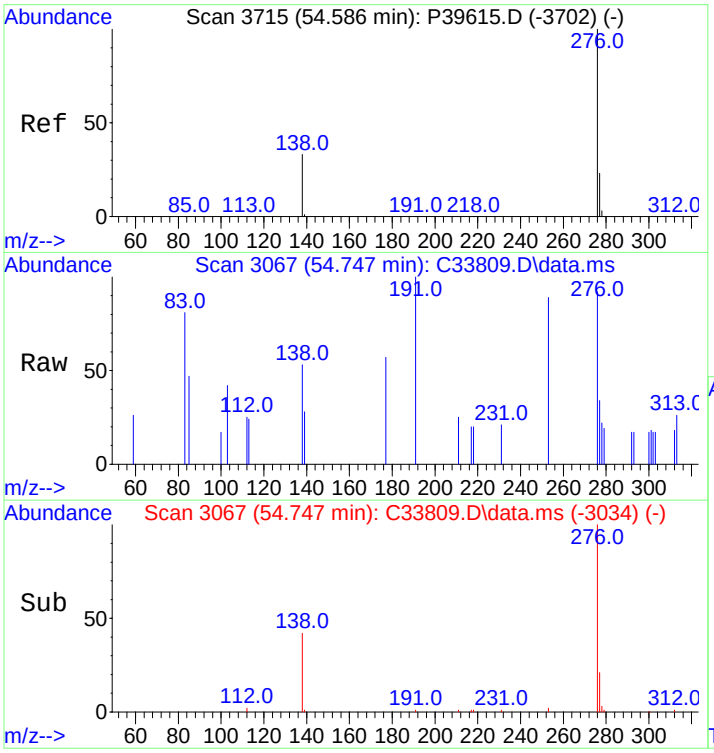


#90
Dibenz[ah]+[ac]anthracene
Concen: 11.67 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:278 Resp: 838

Ion	Ratio	Lower	Upper
278	100		
139	32.5	25.4	38.2
279	37.1	19.0	28.4#

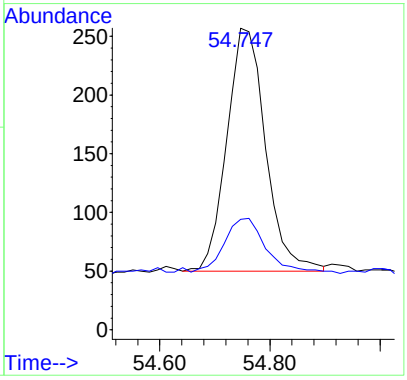


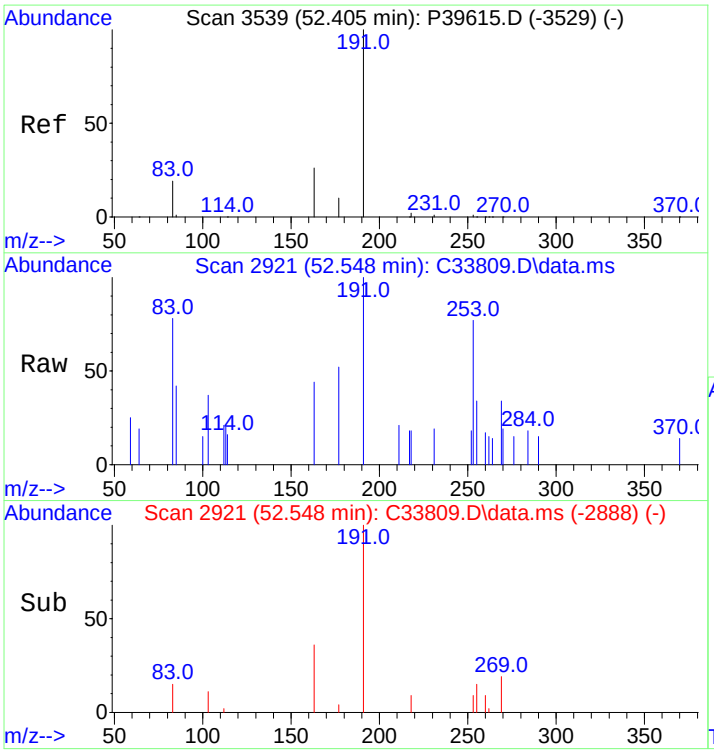


#91
Benzo[g,h,i]perylene
Concen: 12.95 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 1009

Ion	Ratio	Lower	Upper
276	100		
277	25.5	18.9	28.3

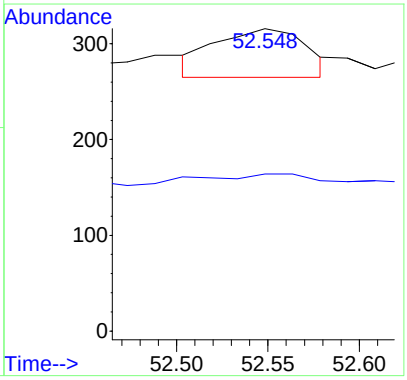


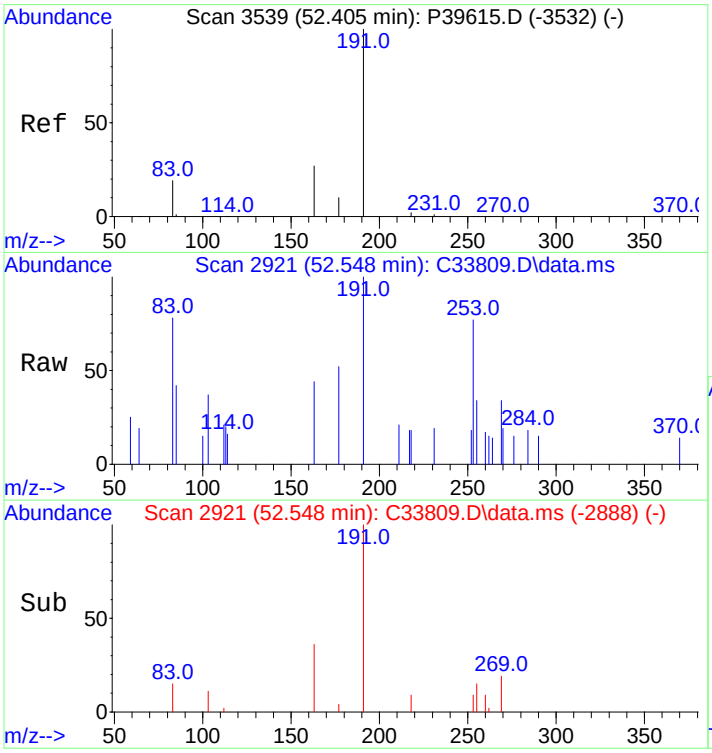


#92
Hopane (T19)
Concen: 14.21 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 175

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

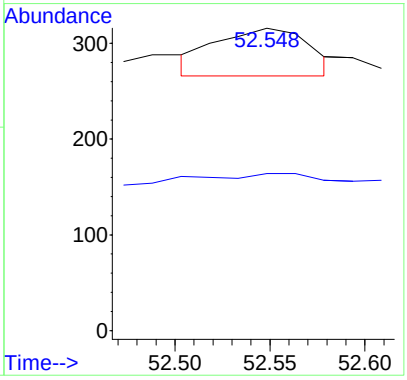




#93
17a(H),21B(H)-hopane - C30H52
Concen: 13.89 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 171

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	34.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	3.46%#		
42) Phenanthrene-d10	32.793	188	1224	20.786	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.08%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	23.682	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.37%#		
127) 5B(H)Cholane - Surr	43.995	217	161	21.276	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	15.117	ng/mL	
4) cis-Decalin	17.844	138	115M4	14.013	ng/mL	
10) Naphthalene	20.042	128	2630	48.035	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	38.180	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	40.050	ng/mL	
18) Benzothiophene	20.268	134	2336M4	52.022	ng/mL	
23) Biphenyl	24.619	154	1896M4	36.754	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	32.359	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	34.355	ng/mL	
26) Acenaphthylene	26.320	152	2402	38.885	ng/mL#	100
27) Acenaphthene	27.057	153	1380	35.184	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.608	170	909M4	26.498	ng/mL	
29) Fluorene	29.075	166	1499M4	30.710	ng/mL	
33) Dibenzothiophene	32.386	184	2440	33.102	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	27.679	ng/mL	
54) Retene	39.869	234	367	17.041	ng/mL	94
55) Anthracene	33.064	178	1981M4	27.606	ng/mL	
56) Carbazole	33.726	167	2025M4	30.723	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.437	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	22.734	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	19.217	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.122	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.555	ng/ml	100
67) Naphthobenzothiophene-2,1	42.384	234	2165	22.555	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	25.297	ng/mL	
76) Chrysene	43.468	228	1712M4	26.771	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	26.911	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	25.399	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	26.567	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	26.754	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	26.903	ng/mL	
88) Perylene	48.874	252	1855M4	26.870	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	26.595	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	28.233	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	29.549	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	34.877	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	418M4	34.877	ng/mL	

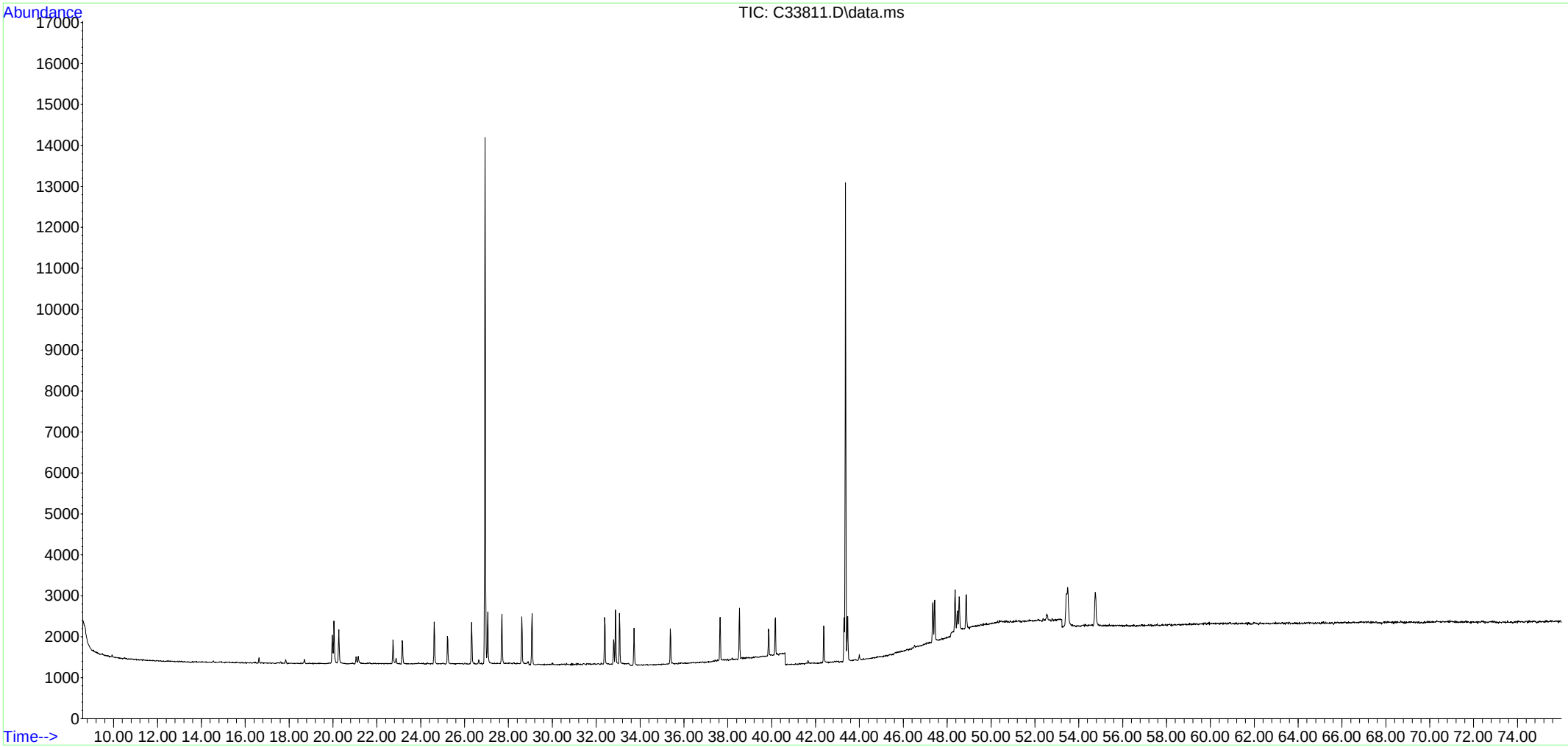
(#) = qualifier out of range (m) = manual integration (+) = signals summed

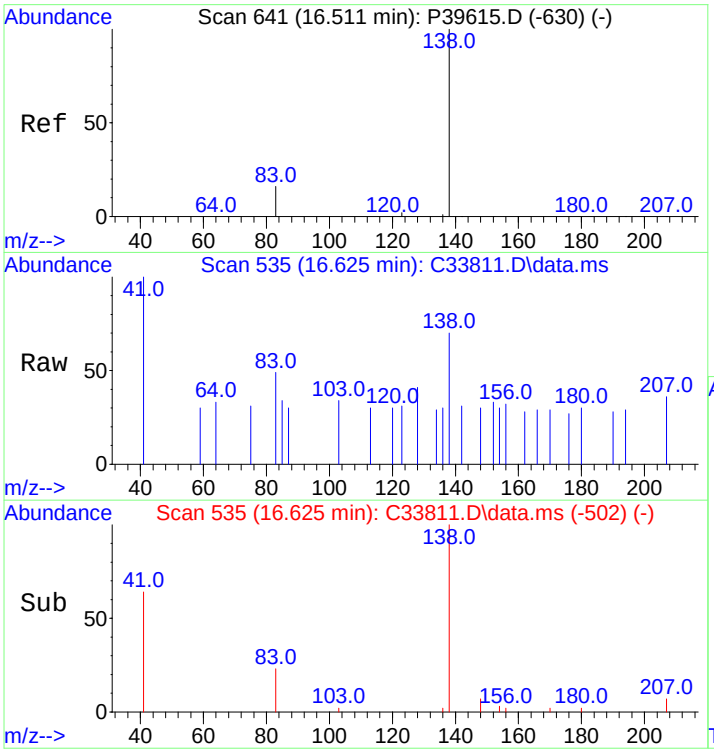
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

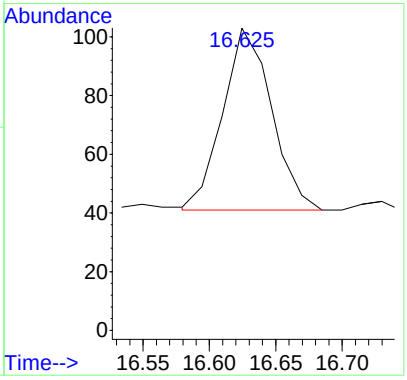
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

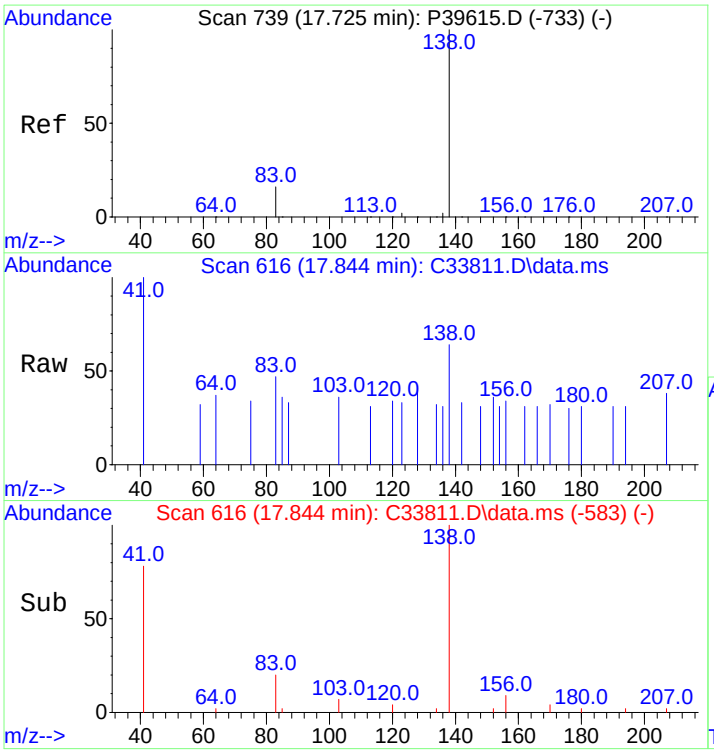




#3
trans-Decalin
Concen: 15.12 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

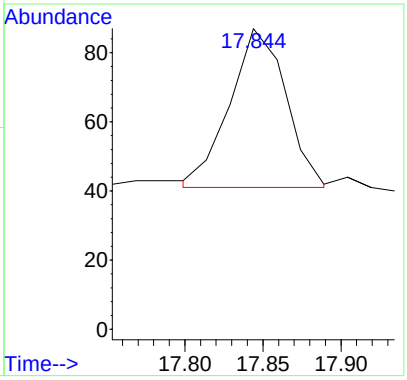
Tgt Ion:138 Resp: 159

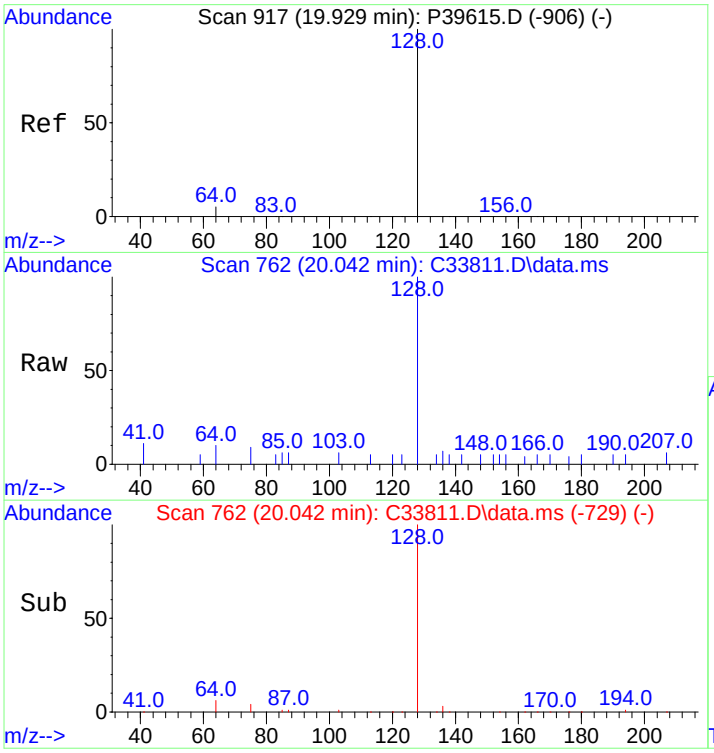




#4
cis-Decalin
Concen: 14.01 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:138 Resp: 115

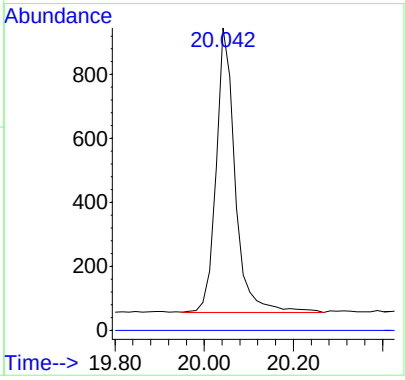


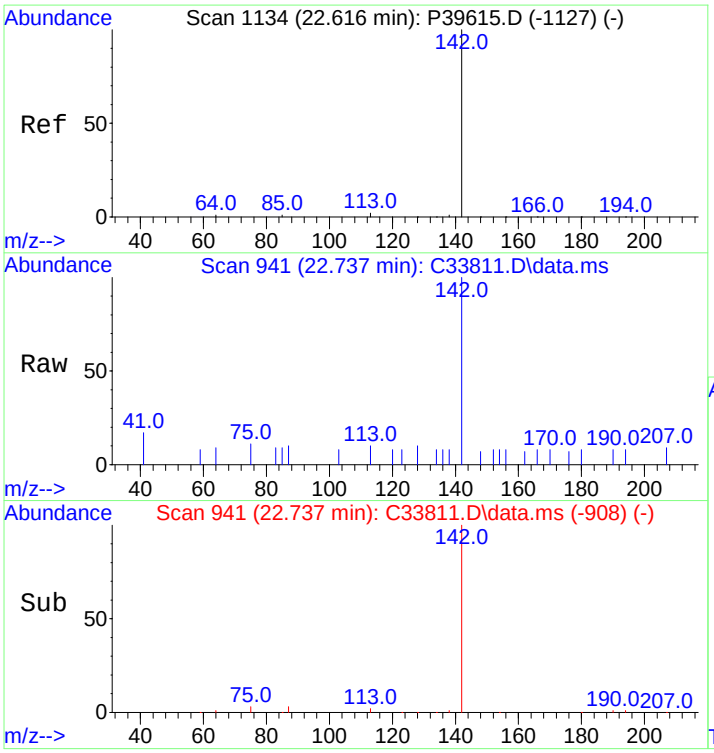


#10
Naphthalene
Concen: 48.03 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:128 Resp: 2630

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

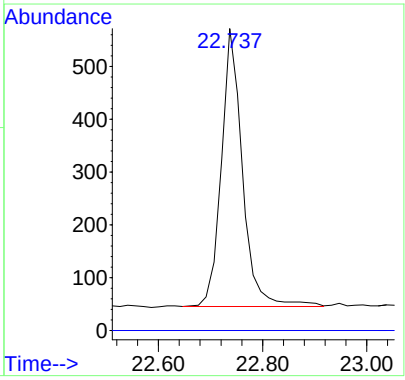


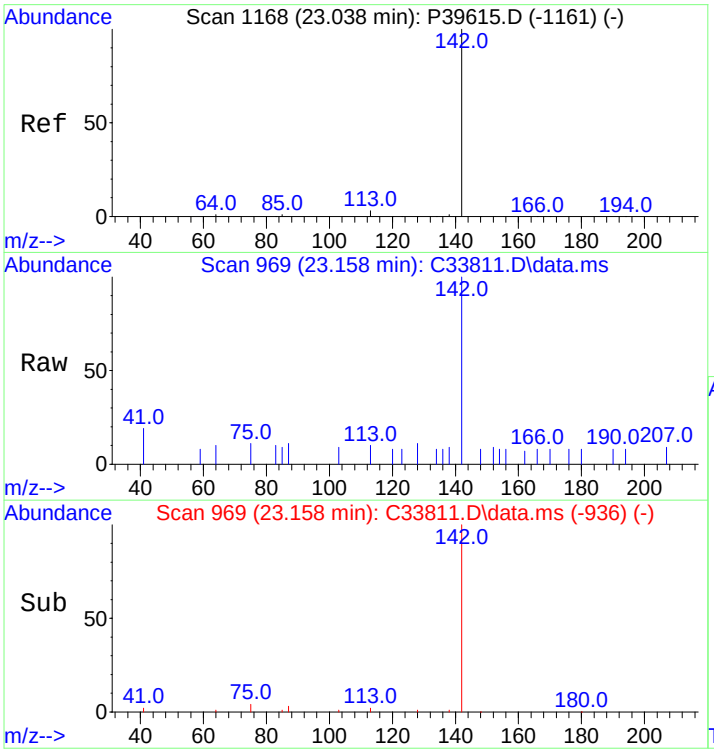


#16
2-Methylnaphthalene
Concen: 38.18 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1476

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

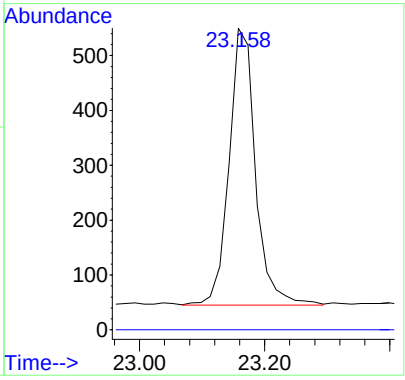


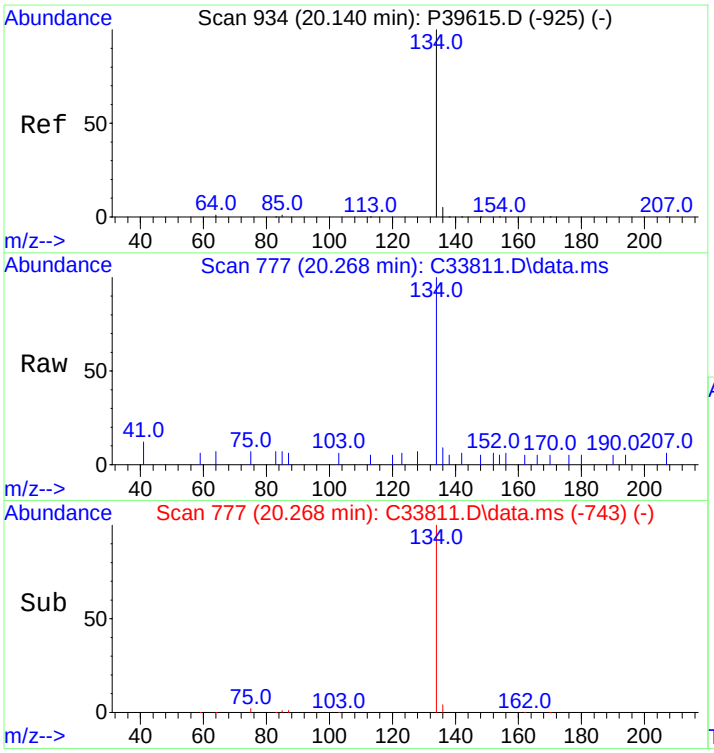


#17
1-Methylnaphthalene
Concen: 40.05 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1485

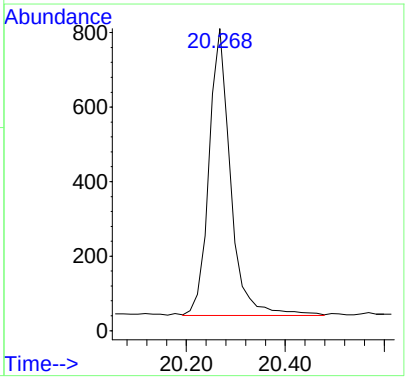
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

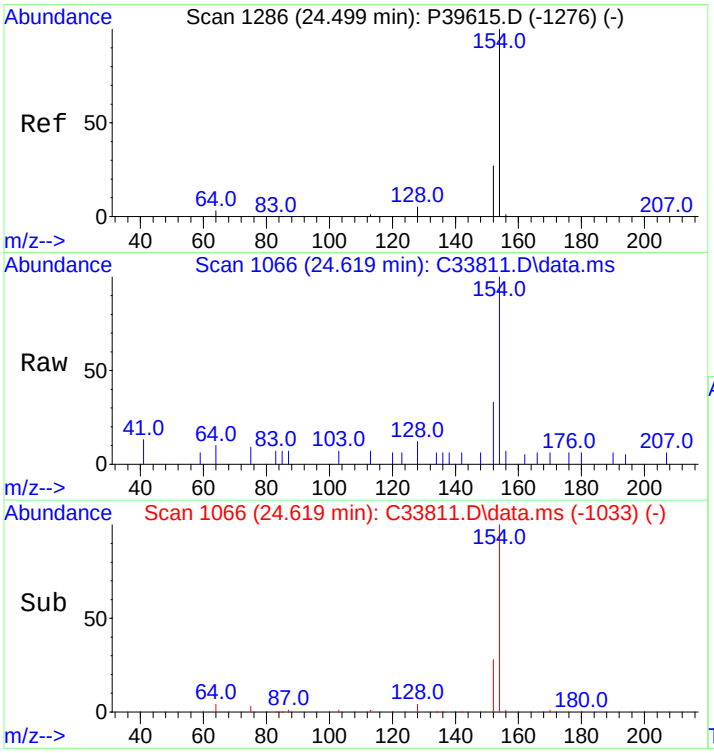




#18
Benzothiophene
Concen: 52.02 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:134 Resp: 2336

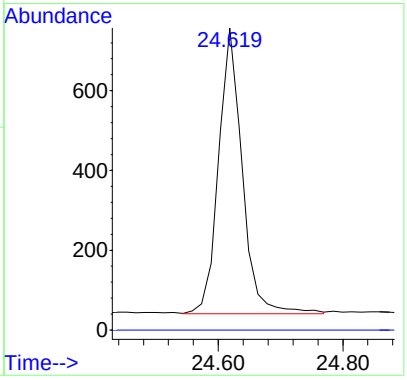


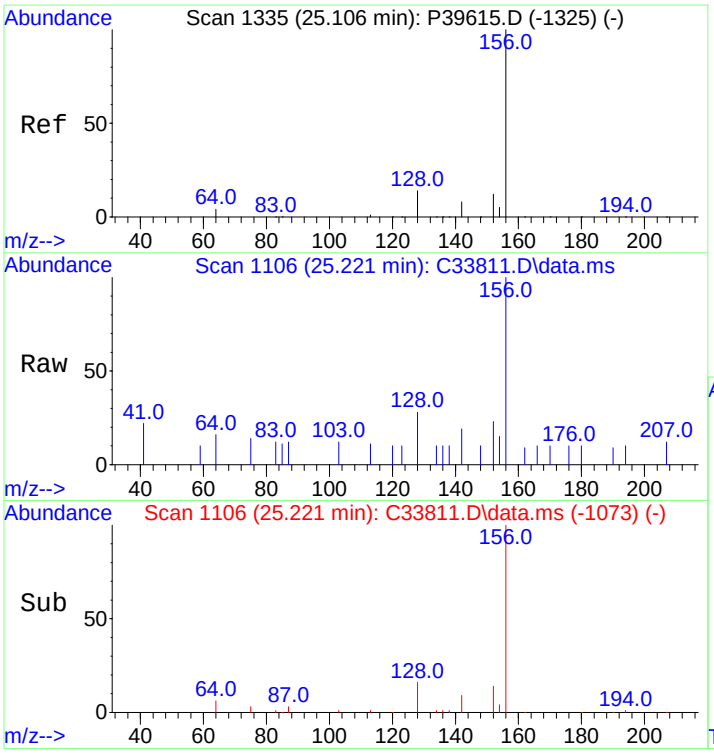


#23
Biphenyl
Concen: 36.75 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:154 Resp: 1896

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

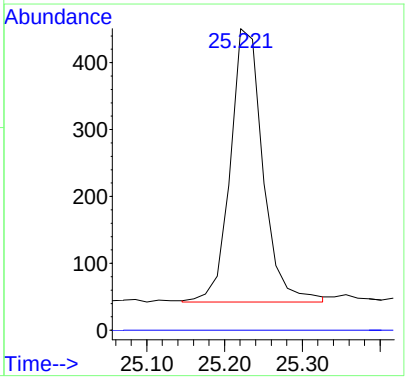


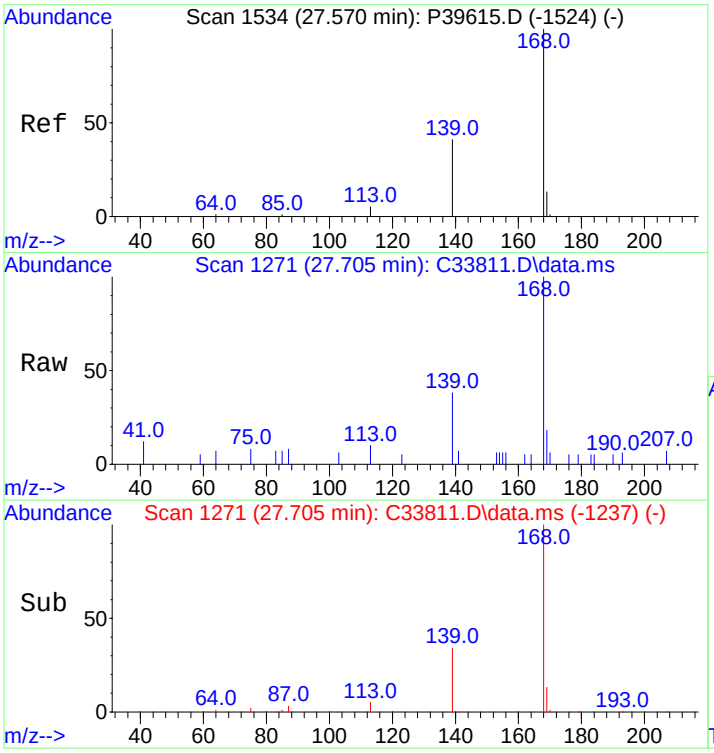


#24
2,6-Dimethylnaphthalene
Concen: 32.36 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:156 Resp: 1190

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

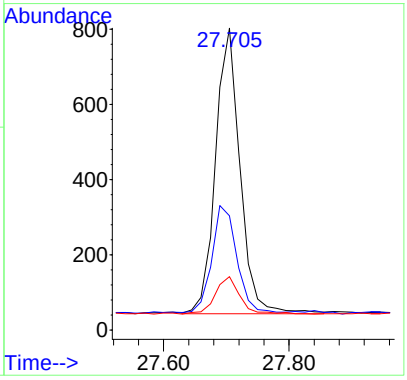


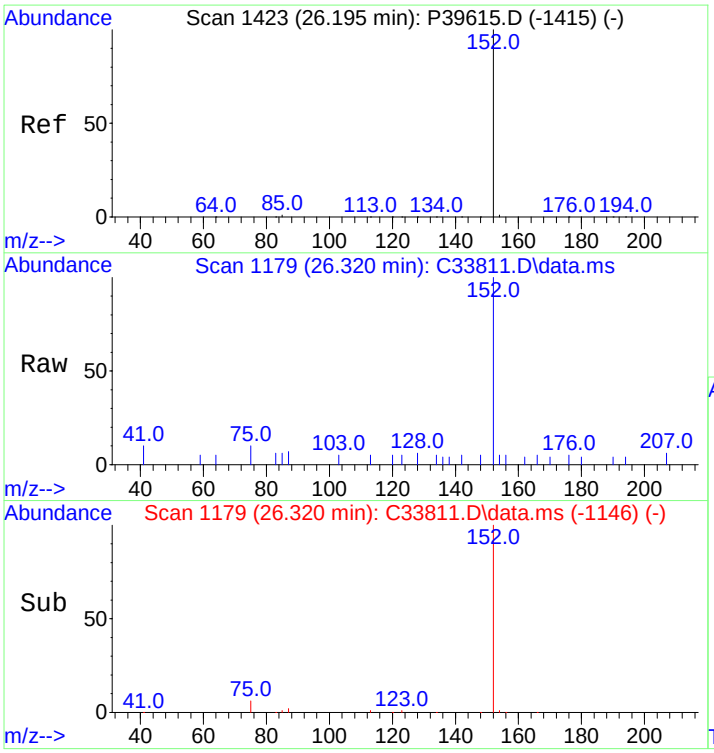


#25
Dibenzofuran
Concen: 34.35 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:168 Resp: 2059

Ion	Ratio	Lower	Upper
168	100		
139	39.0	32.9	49.3
169	13.3	10.6	16.0

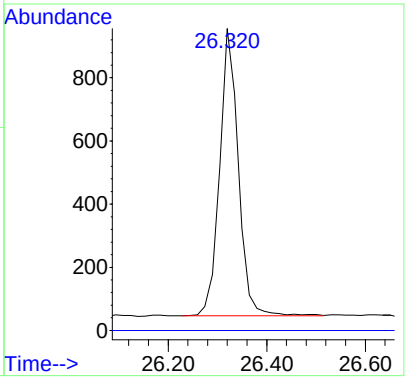


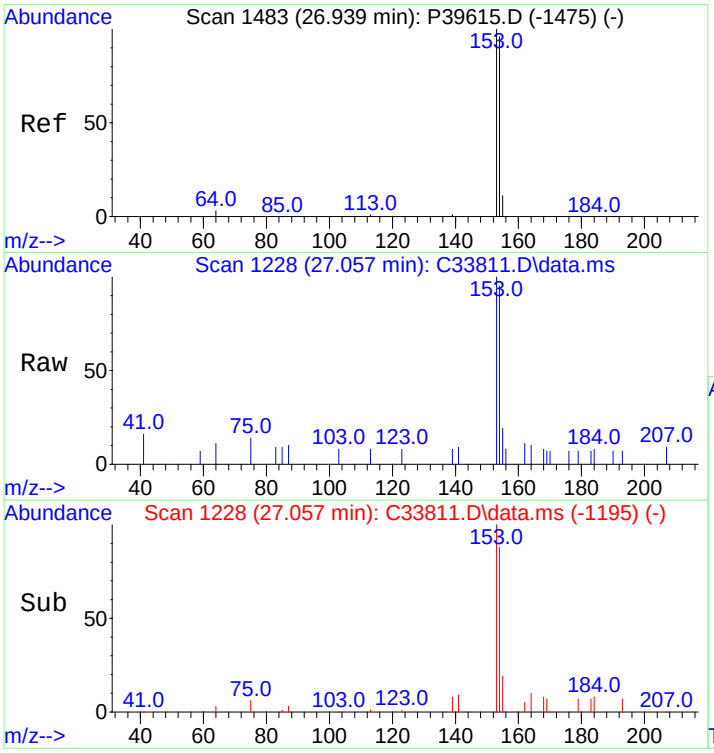


#26
Acenaphthylene
Concen: 38.89 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:152 Resp: 2402

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

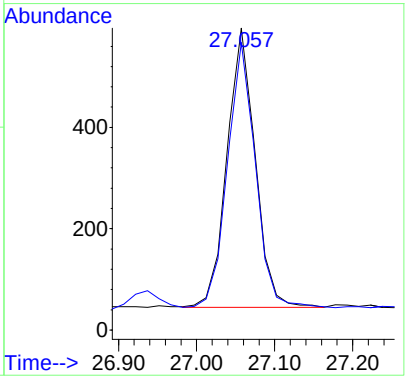


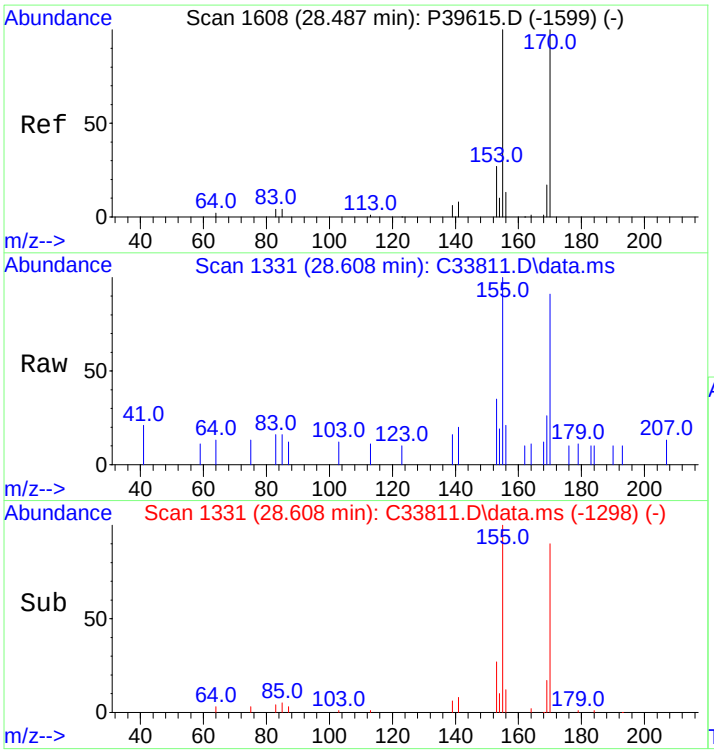


#27
Acenaphthene
Concen: 35.18 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:153 Resp: 1380

Ion	Ratio	Lower	Upper
153	100		
154	95.4	75.0	112.6

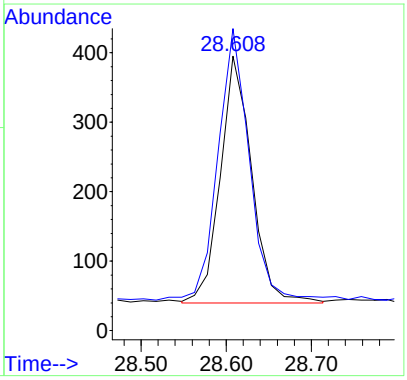


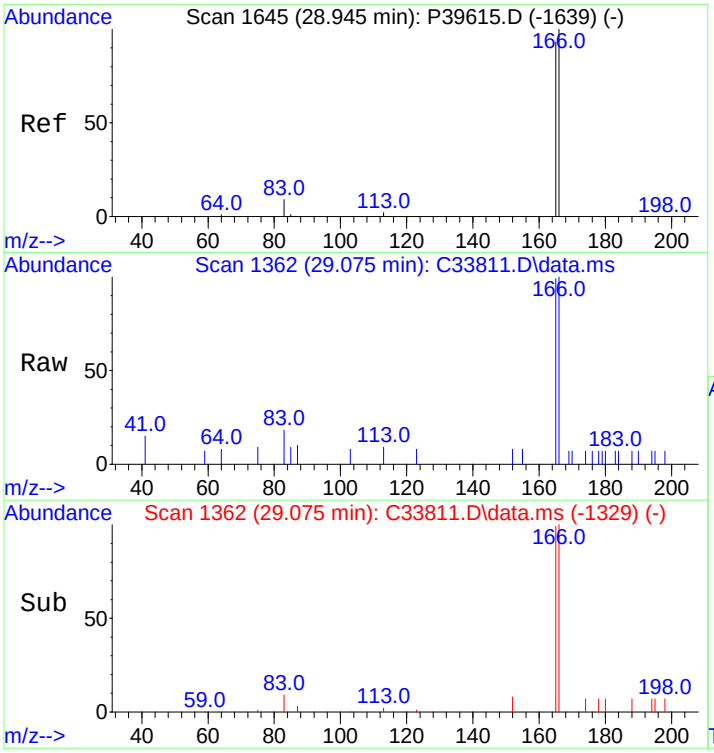


#28
2,3,5-Trimethylnaphthalene
Concen: 26.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:170 Resp: 909

Ion	Ratio	Lower	Upper
170	100		
155	110.5	84.7	127.1

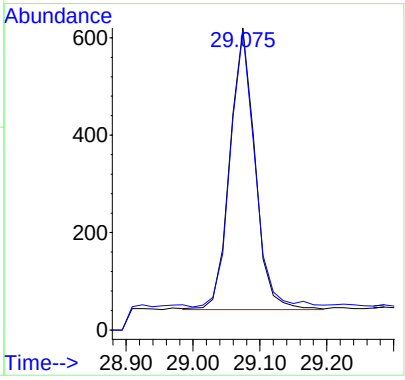


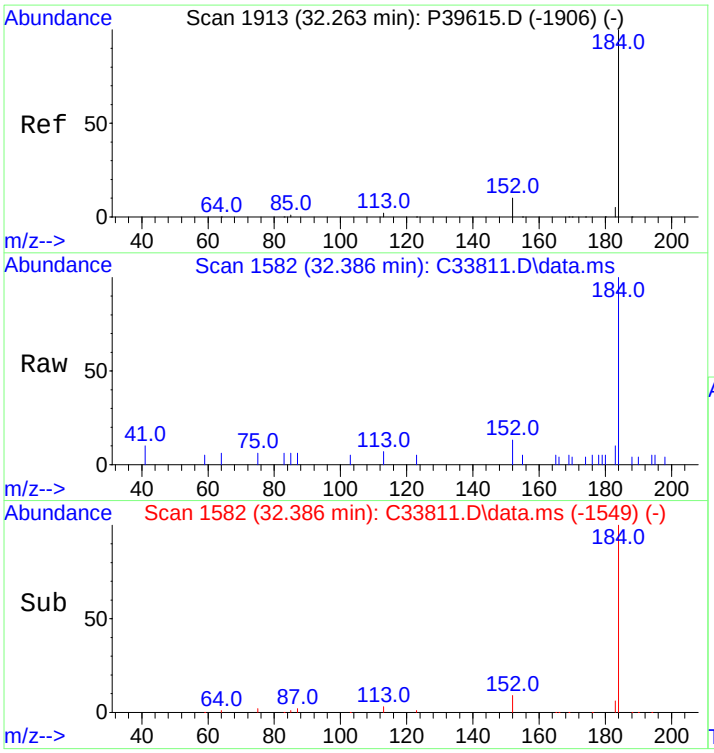


#29
Fluorene
Concen: 30.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:166 Resp: 1499

Ion	Ratio	Lower	Upper
166	100		
165	108.0	75.3	112.9

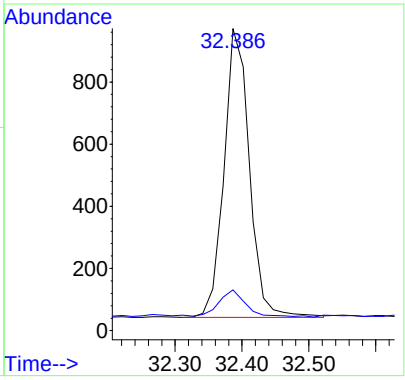


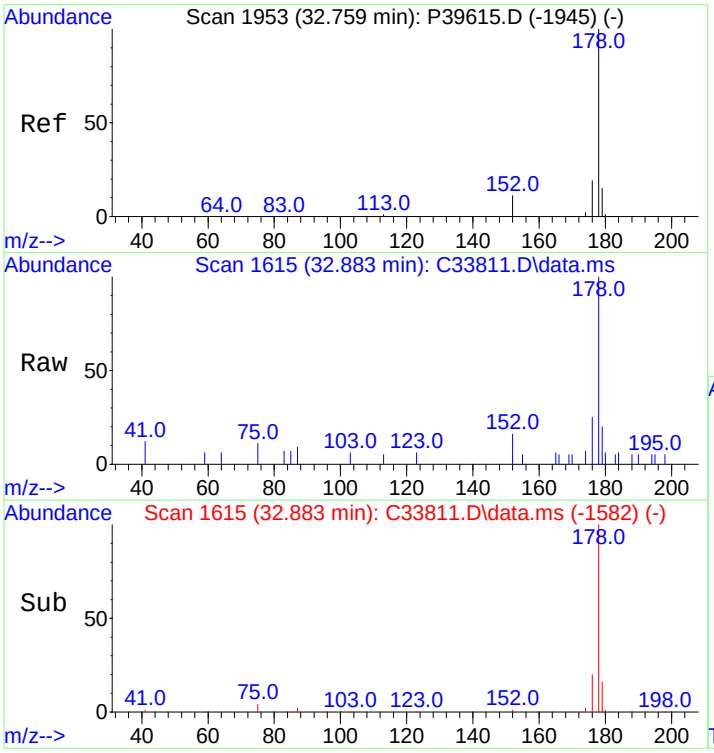


#33
Dibenzothiophene
Concen: 33.10 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:184 Resp: 2440

Ion	Ratio	Lower	Upper
184	100		
152	9.2	6.7	10.1

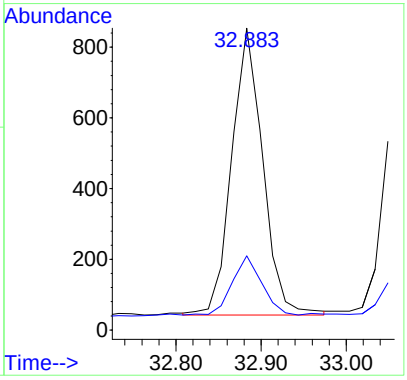


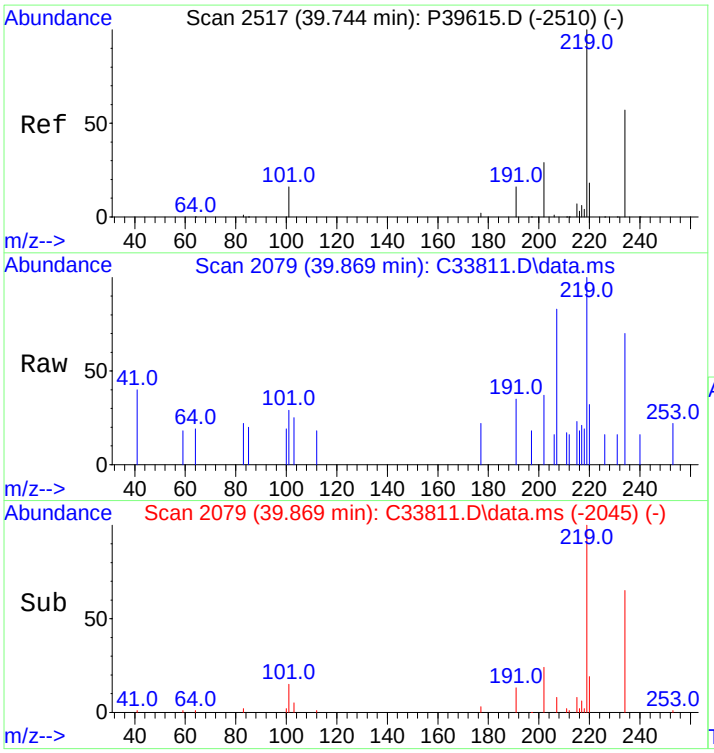


#43
Phenanthrene
Concen: 27.68 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 2050

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.9	23.9

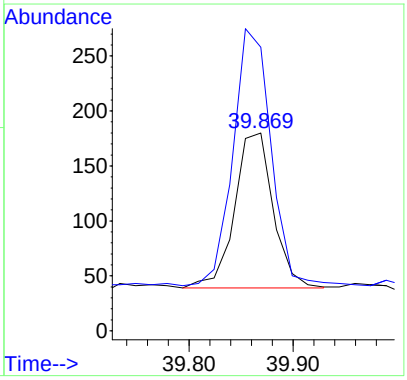


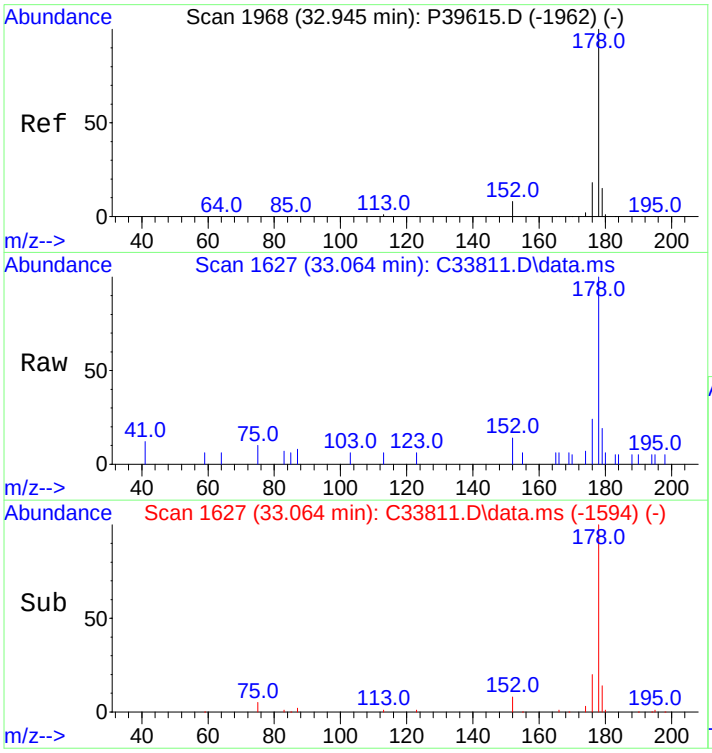


#54
Retene
Concen: 17.04 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 367

Ion	Ratio	Lower	Upper
234	100		
219	162.4	136.6	204.8

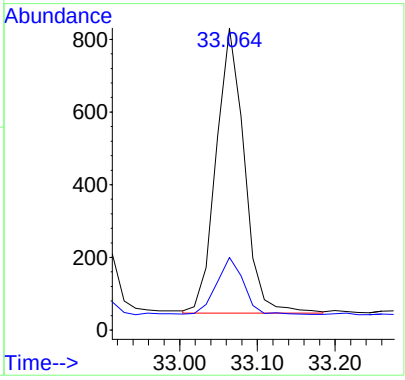


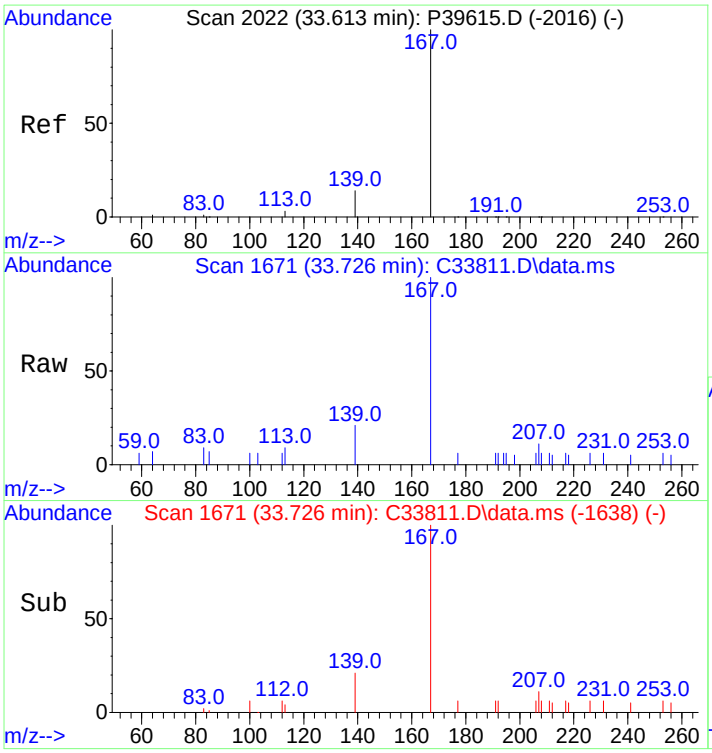


#55
Anthracene
Concen: 27.61 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 1981

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.4	23.0

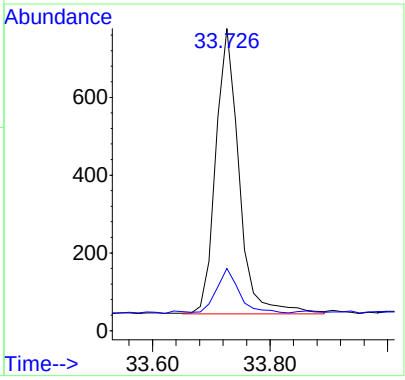


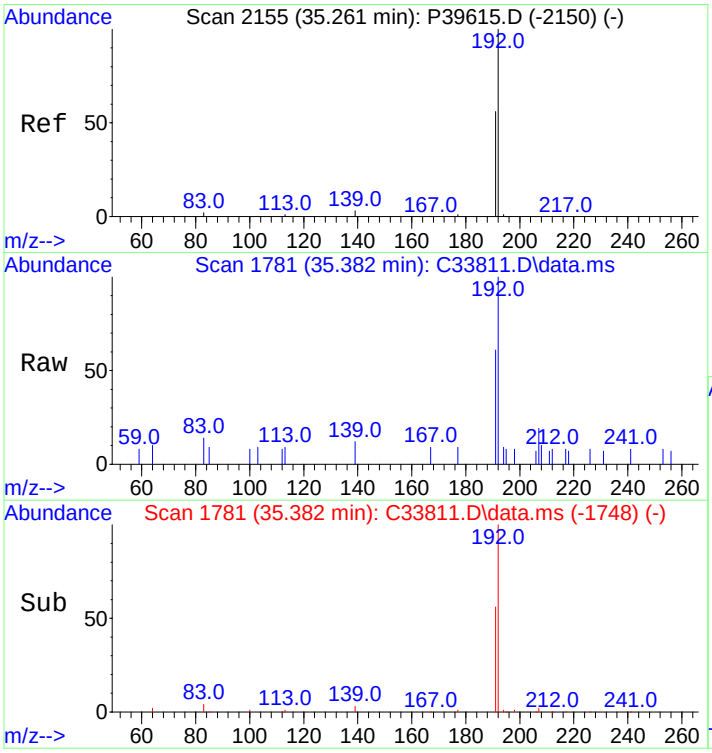


#56
Carbazole
Concen: 30.72 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:167 Resp: 2025

Ion	Ratio	Lower	Upper
167	100		
139	20.3	11.6	17.4#

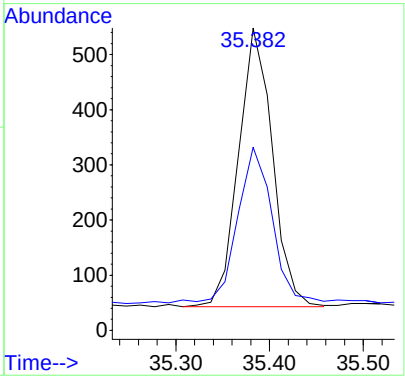


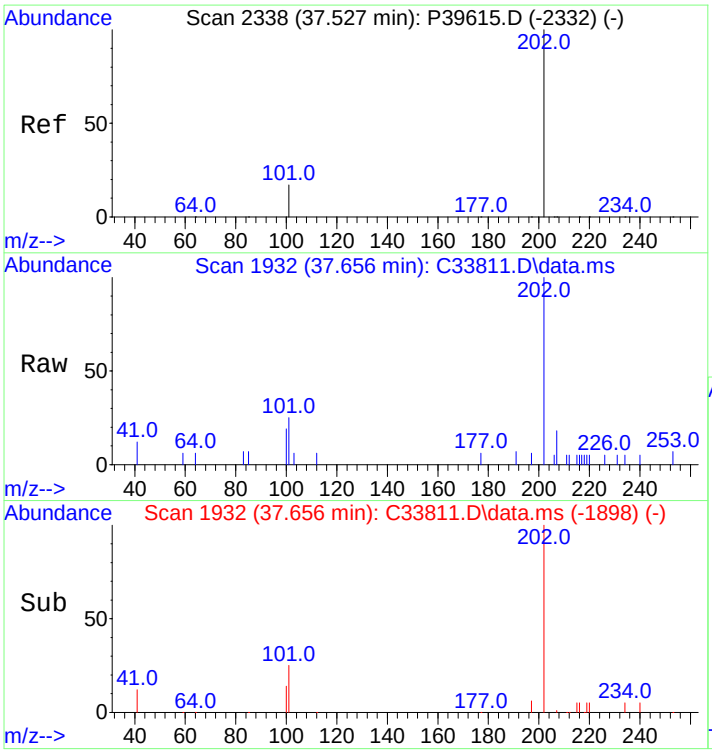


#57
1-Methylphenanthrene
Concen: 22.44 ng/mL
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:192 Resp: 1272

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.3	67.9

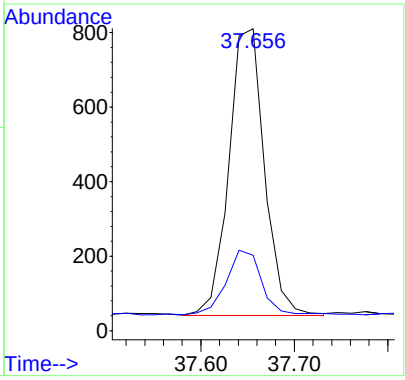


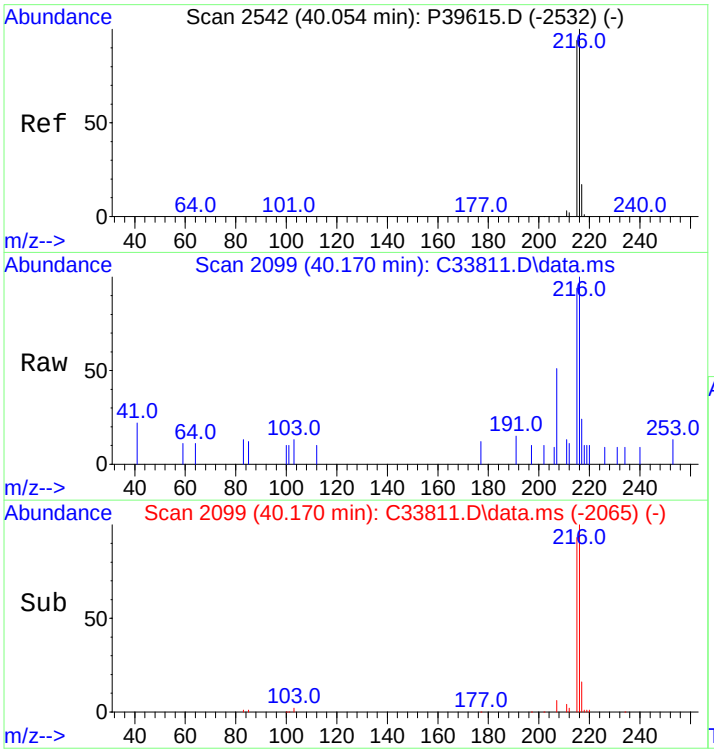


#58
Fluoranthene
Concen: 22.73 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2036

Ion	Ratio	Lower	Upper
202	100		
101	30.1	19.1	28.7#

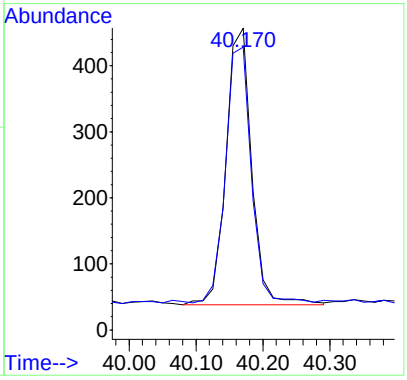


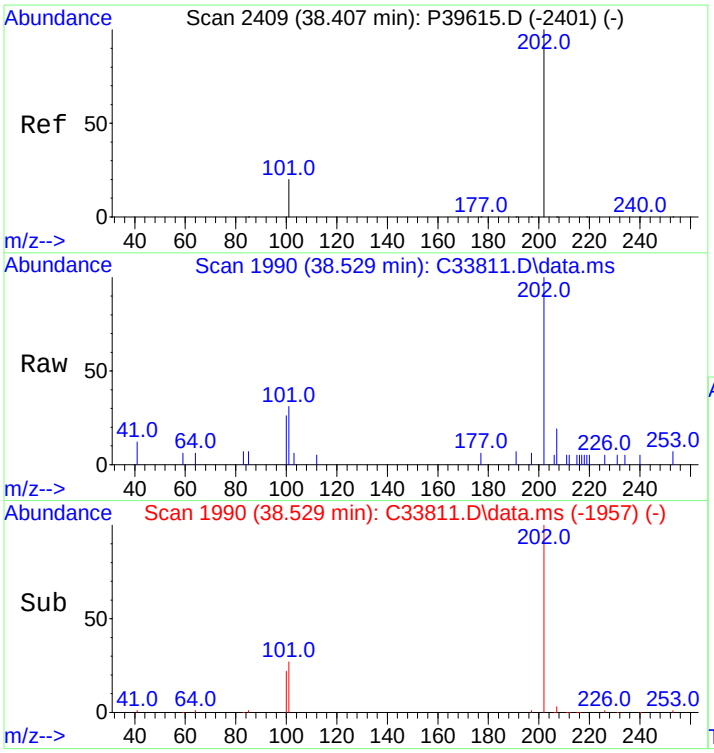


#59
Benzo(b)fluorene
Concen: 19.22 ng/mL
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:216 Resp: 1124

Ion	Ratio	Lower	Upper
216	100		
215	92.1	77.4	116.2

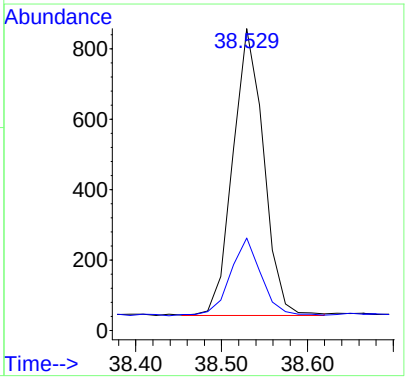


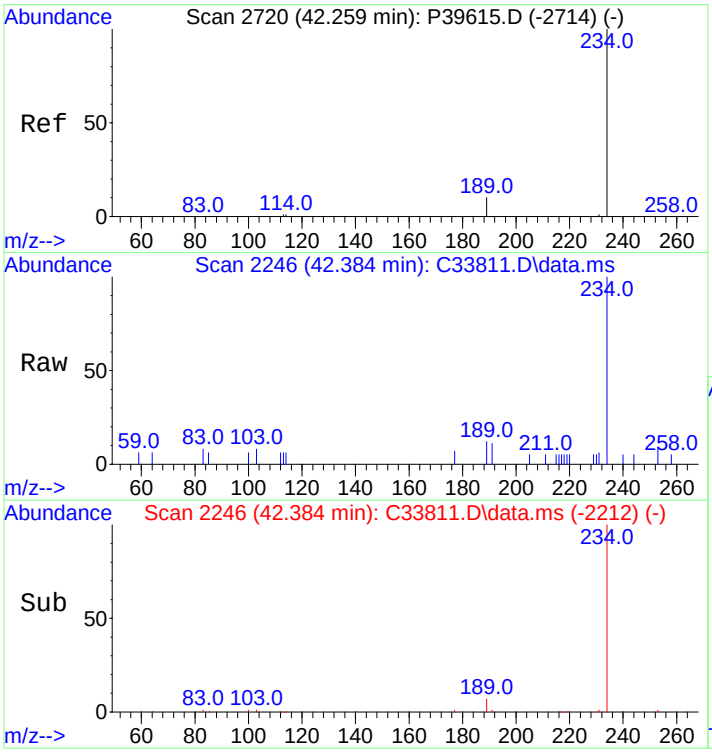


#60
Pyrene
Concen: 22.12 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2032

Ion	Ratio	Lower	Upper
202	100		
101	27.4	20.4	30.6

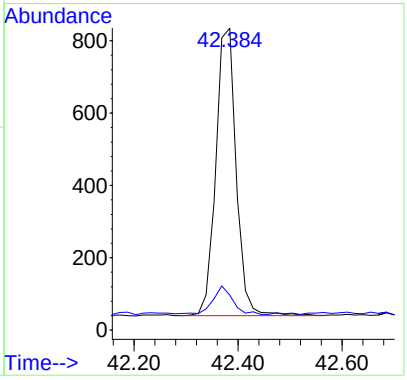


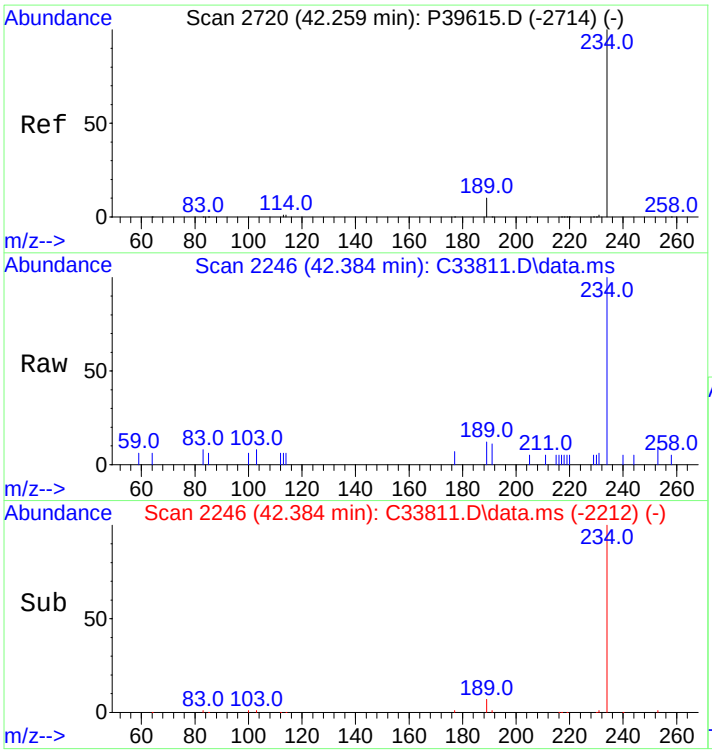


#66
Naphthobenzothiophene
Concen: 22.56 ng/ml
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

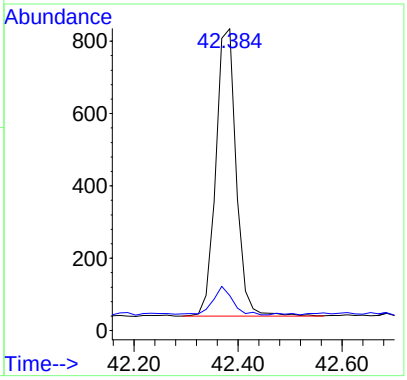


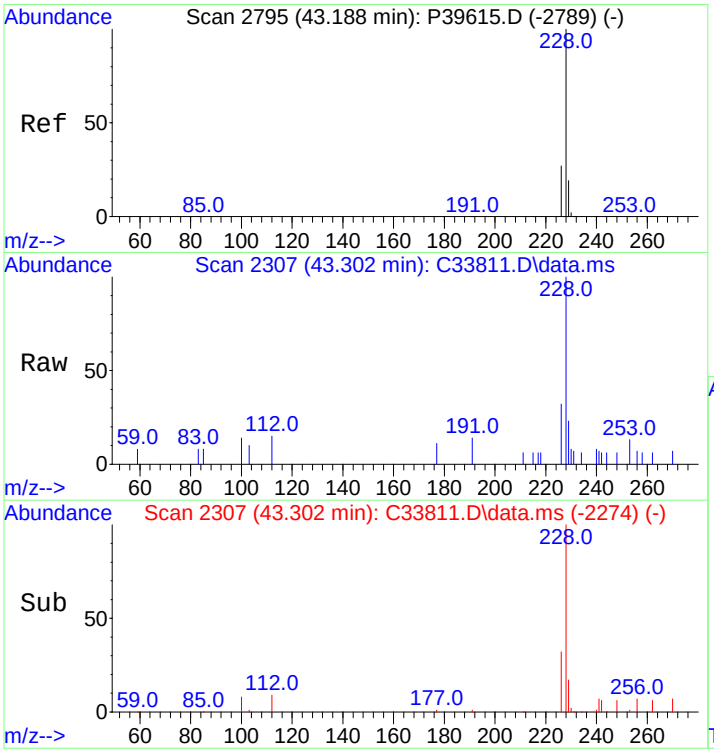


#67
Naphthobenzothiophene-2,1-D
Concen: 22.56 ng/mL
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

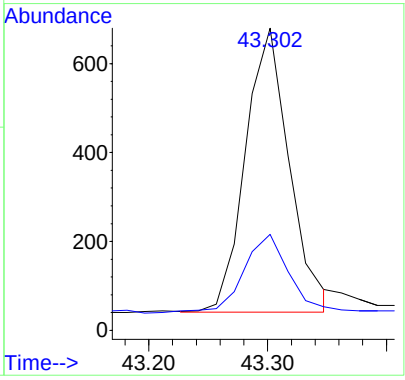


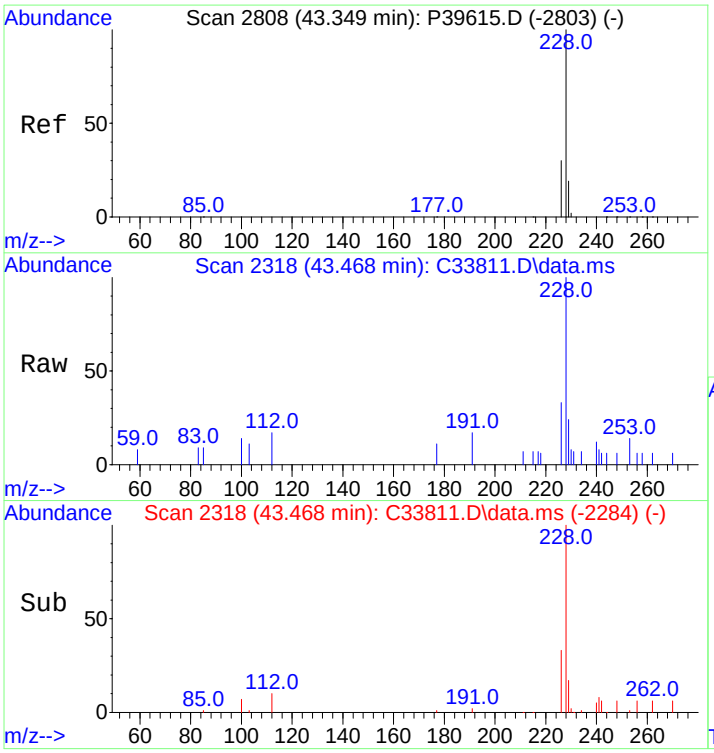


#75
Benz[a]anthracene
Concen: 25.30 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1642

Ion	Ratio	Lower	Upper
228	100		
226	38.9	21.8	32.8#

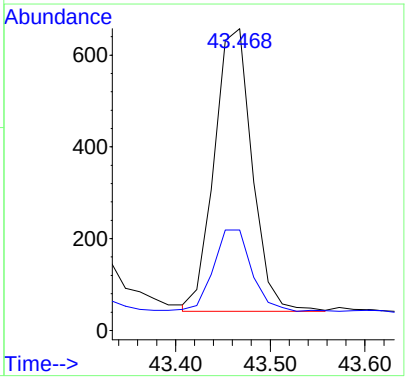


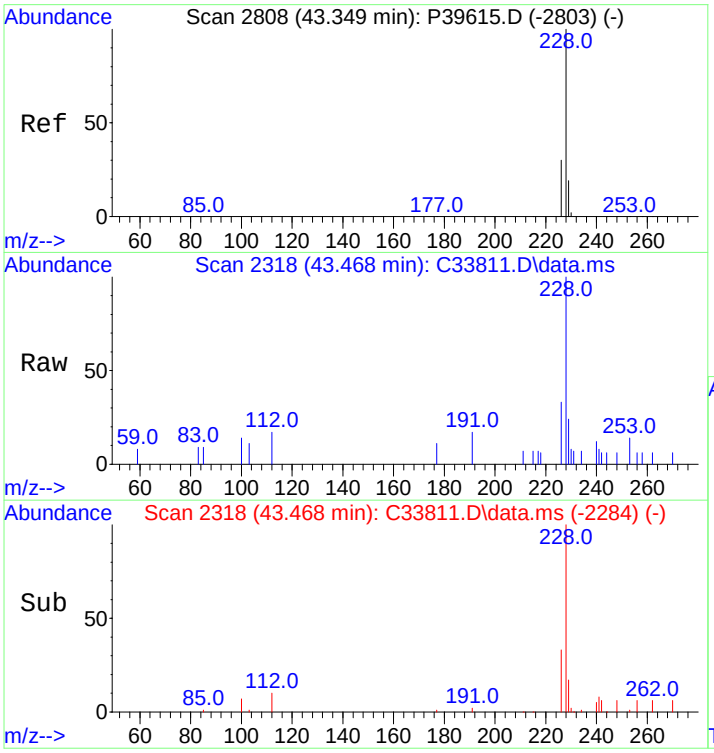


#76
Chrysene
Concen: 26.77 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1712

Ion	Ratio	Lower	Upper
228	100		
226	33.6	24.2	36.4

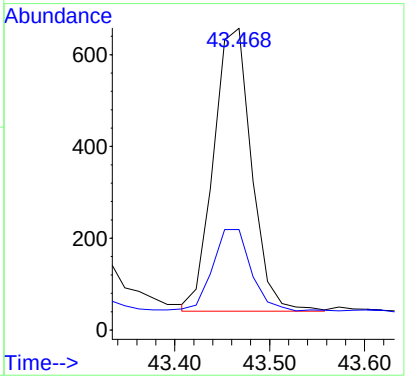


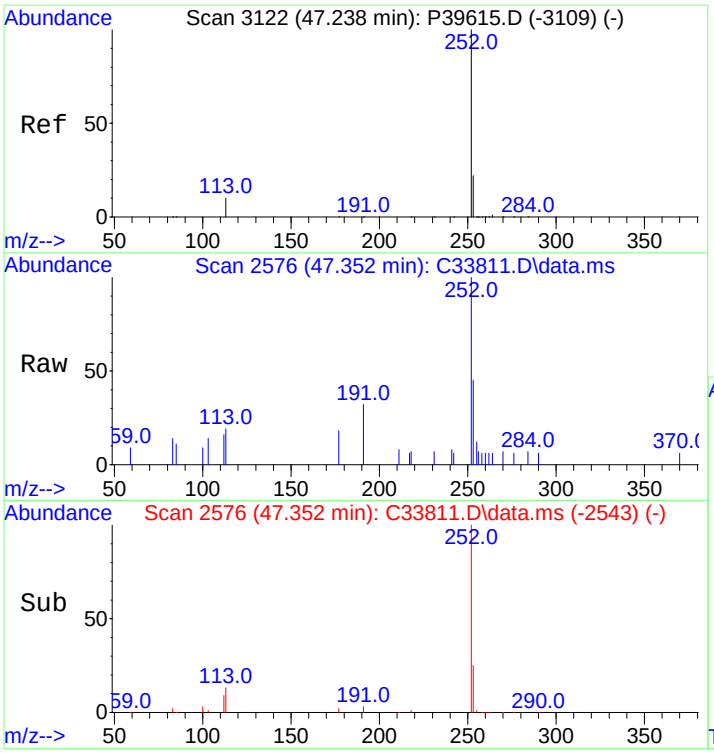


#77
Chrysene/Triphenylene
Concen: 26.91 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1721

Ion	Ratio	Lower	Upper
228	100		
226	33.5	24.2	36.4

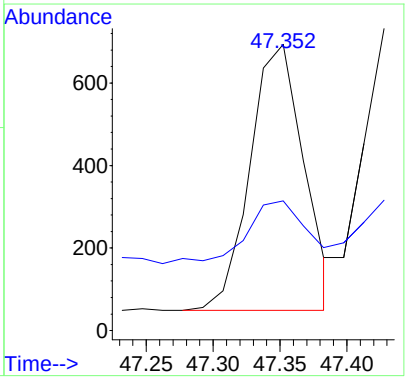


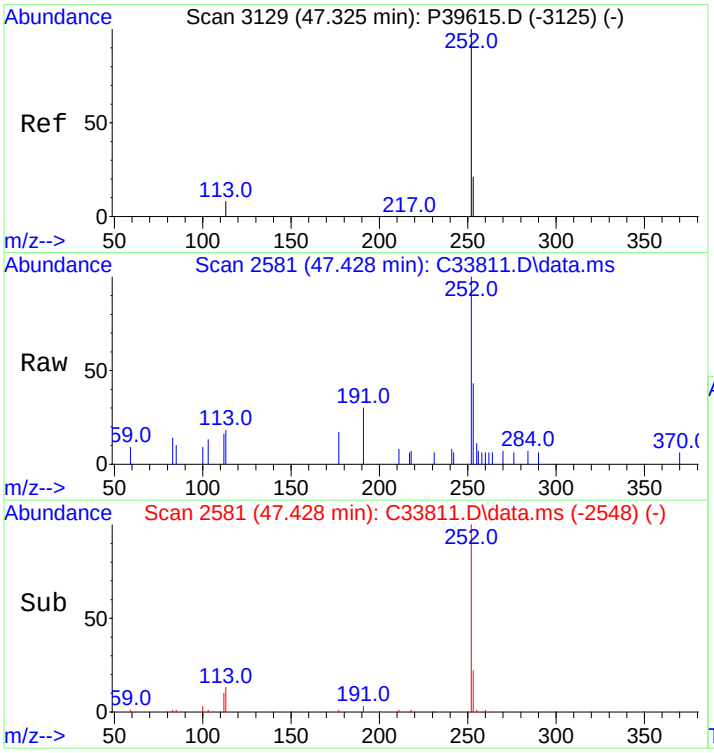


#82
Benzo[b]fluoranthene
Concen: 25.40 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1814

Ion	Ratio	Lower	Upper
252	100		
253	26.0	18.5	27.7

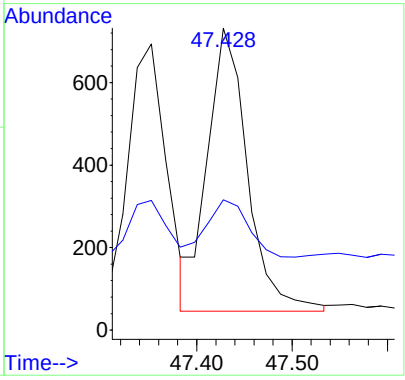


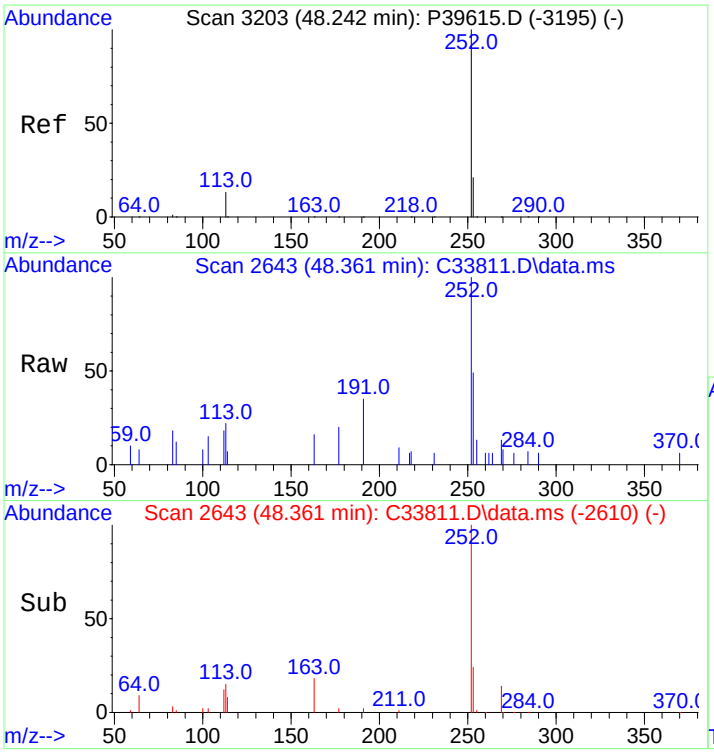


#83
Benzo[j]+[k]fluoranthene
Concen: 26.57 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 2006

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.2	27.4

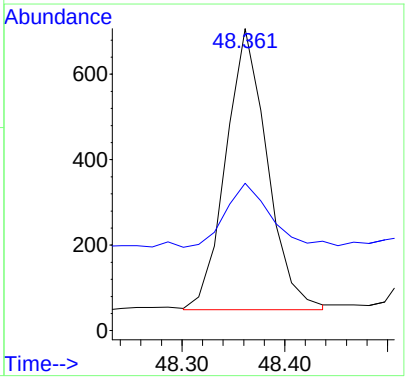


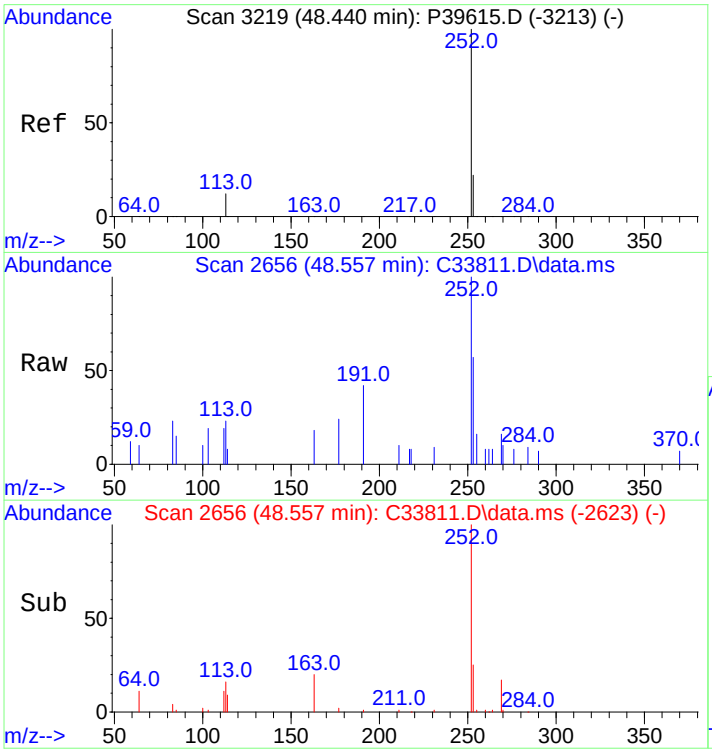


#85
Benzo[e]pyrene
Concen: 26.75 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1839

Ion	Ratio	Lower	Upper
252	100		
253	23.4	18.5	27.7

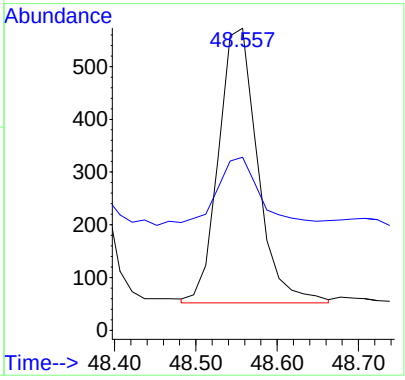


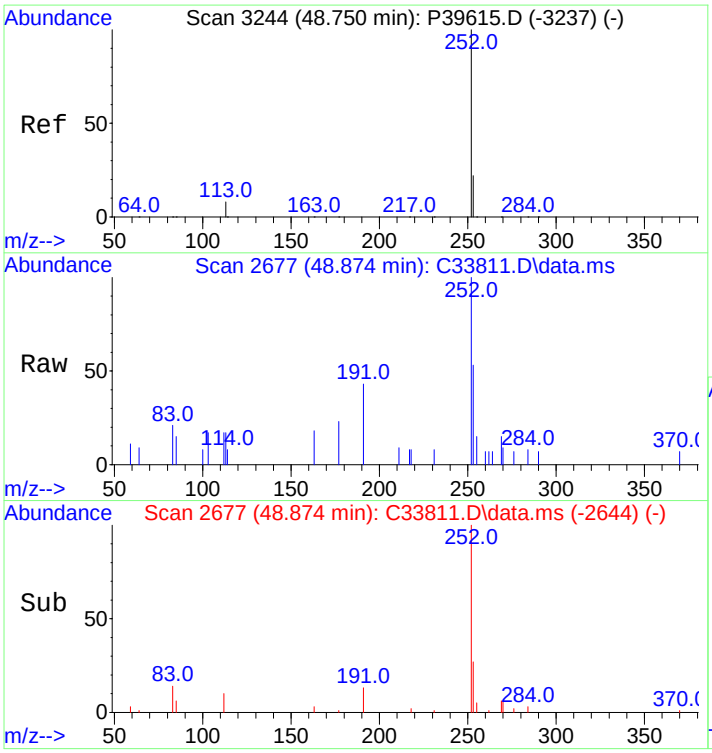


#87
Benzo[a]pyrene
Concen: 26.90 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1738

Ion	Ratio	Lower	Upper
252	100		
253	24.8	18.7	28.1

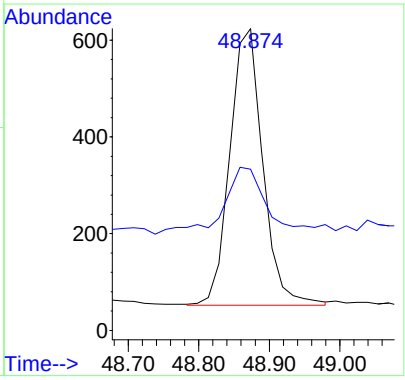


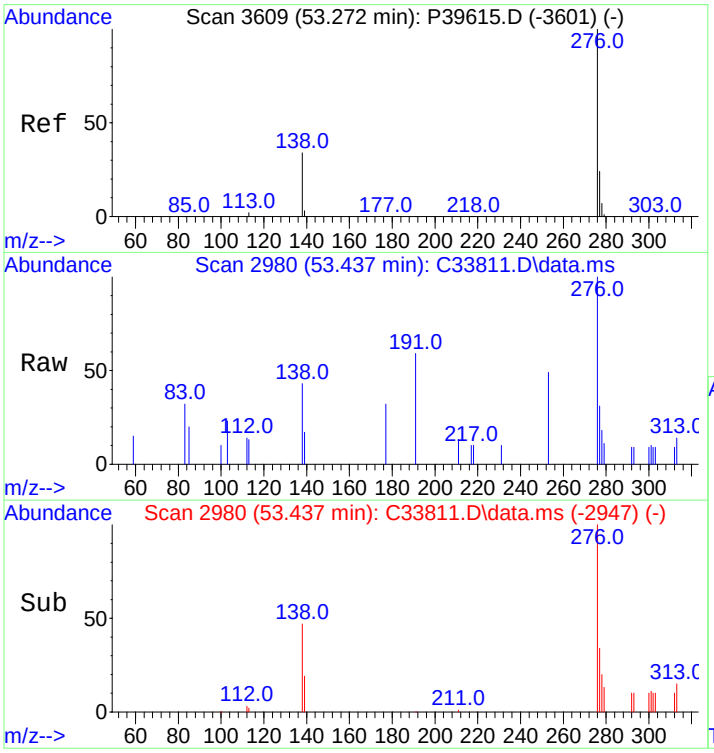


#88
Perylene
Concen: 26.87 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1855

Ion	Ratio	Lower	Upper
252	100		
253	32.9	18.6	27.8#

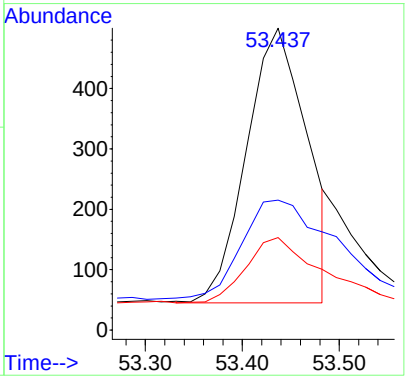


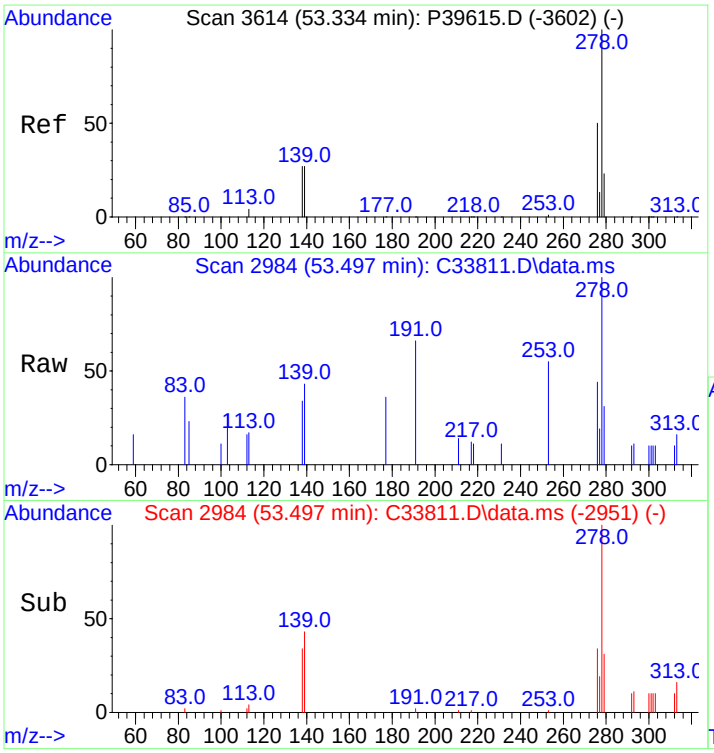


#89
Indeno[1,2,3-cd]pyrene
Concen: 26.59 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 1978

Ion	Ratio	Lower	Upper
276	100		
138	72.9	30.3	45.5#
277	43.5	19.2	28.8#

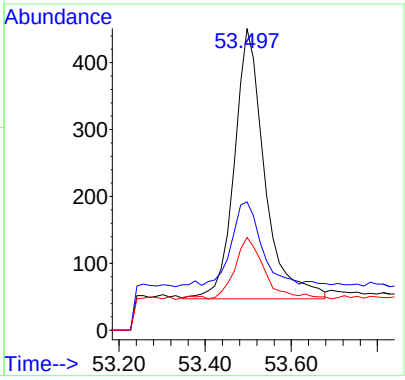


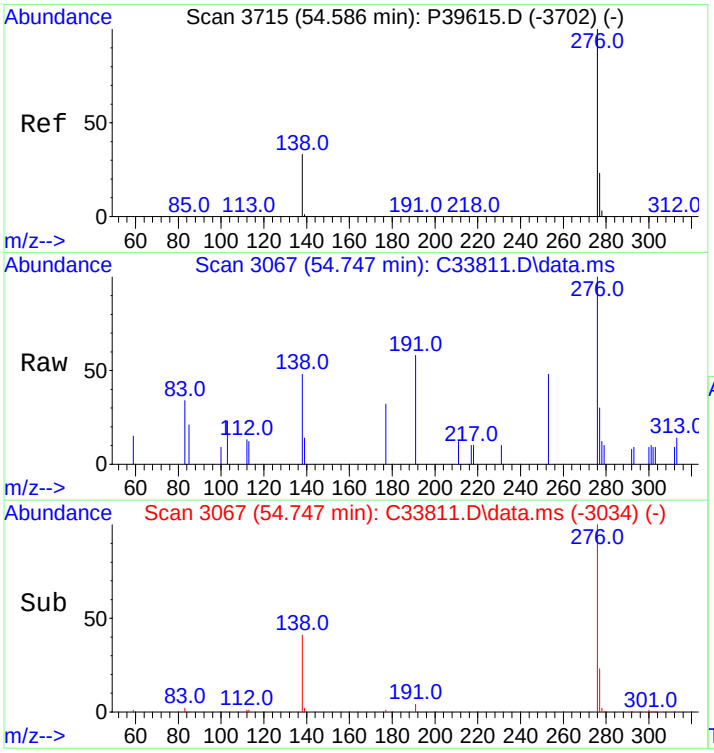


#90
Dibenz[ah]+[ac]anthracene
Concen: 28.23 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:278 Resp: 1974

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	22.0	19.0	28.4

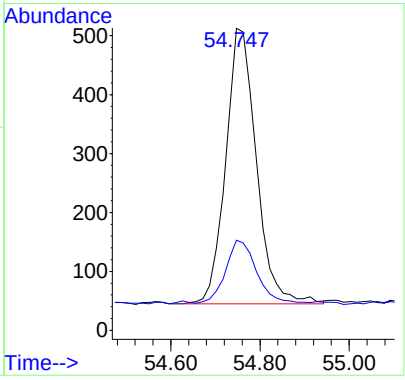


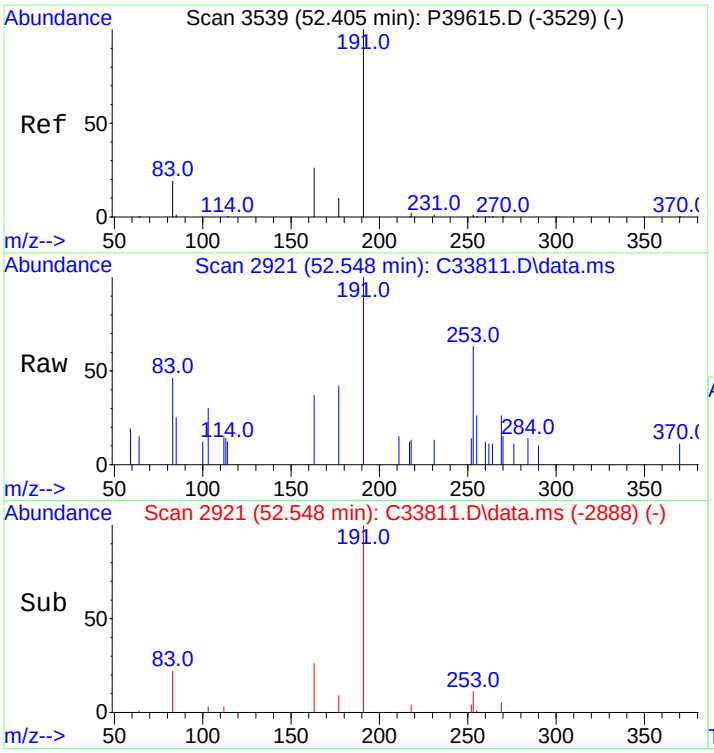


#91
Benzo[g,h,i]perylene
Concen: 29.55 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 2242

Ion	Ratio	Lower	Upper
276	100		
277	22.8	18.9	28.3

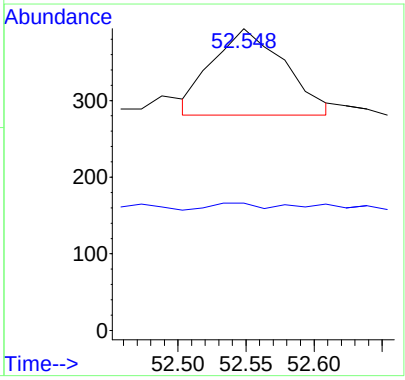


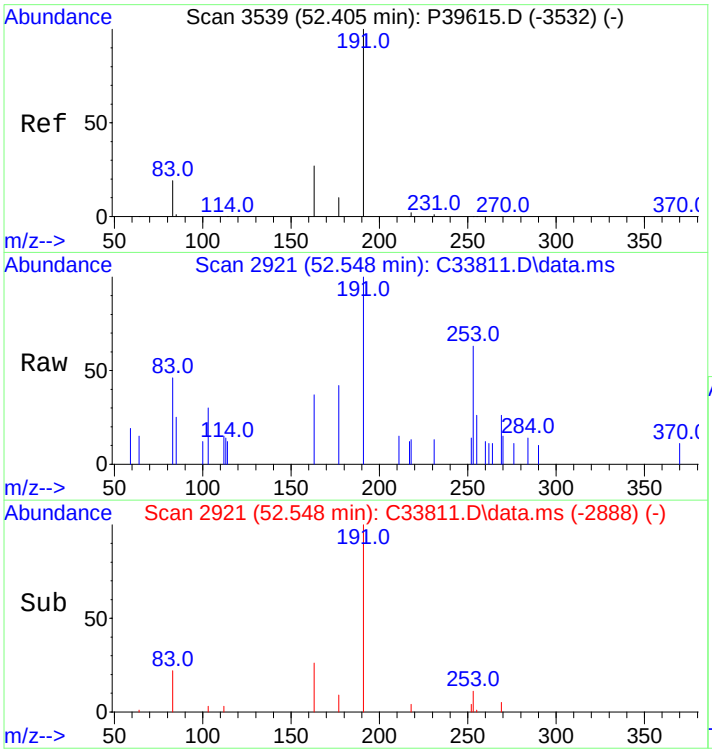


#92
Hopane (T19)
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

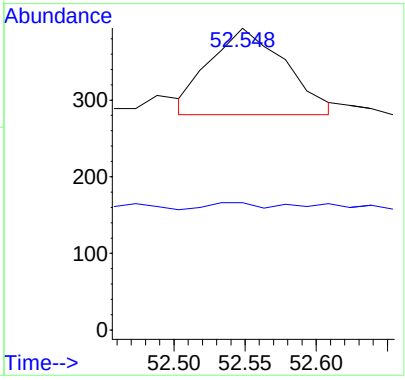




#93
17a(H),21B(H)-hopane - C30H52
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15537M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	7319M4	141.187	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 14.12%#			
42) Phenanthrene-d10	32.793	188	5062	84.198	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.42%#			
86) Benzo[a]pyrene-d12	48.467	264	4202	93.161	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.32%#			
127) 5B(H)Cholane - Surr	43.995	217	631M4	81.342	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.13%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	620M4	57.735	ng/mL	
4) cis-Decalin	17.844	138	504M4	60.153	ng/mL	
10) Naphthalene	20.042	128	10404	186.118	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	152.196	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	154.295	ng/mL#	100
18) Benzothiophene	20.268	134	9155	199.694	ng/mL	100
23) Biphenyl	24.619	154	7515M4	142.687	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	126.219	ng/mL	
25) Dibenzofuran	27.705	168	8558	139.860	ng/mL	97
26) Acenaphthylene	26.320	152	9725	154.202	ng/mL#	100
27) Acenaphthene	27.057	153	5791	144.616	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.608	170	3646	104.103	ng/mL	95
29) Fluorene	29.075	166	6206M4	124.533	ng/mL	
33) Dibenzothiophene	32.387	184	10032	133.305	ng/mL	99
43) Phenanthrene	32.883	178	8659M4	114.513	ng/mL	
54) Retene	39.854	234	1461	66.445	ng/mL	100
55) Anthracene	33.064	178	8493M4	115.924	ng/mL	
56) Carbazole	33.726	167	8375M4	124.456	ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	94.334	ng/mL	
58) Fluoranthene	37.641	202	8404M4	91.914	ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	75.841	ng/mL	100
60) Pyrene	38.529	202	8523M4	90.883	ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.002	ng/ml	
67) Naphthobenzothiophene-2,1	42.369	234	8849M4	90.298	ng/mL	
75) Benz[a]anthracene	43.302	228	6862	103.126	ng/mL	100
76) Chrysene	43.453	228	7256M4	110.681	ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	111.032	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	98.558	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	105.654	ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	104.988	ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	104.793	ng/mL	
88) Perylene	48.859	252	7398M4	104.535	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	102.985	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	107.318	ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	112.266	ng/mL	99
92) Hopane (T19)	52.548	191	1398	113.786	ng/mL	99
93) 17a(H),21B(H)-hopane - C3	52.548	191	1398	113.786	ng/mL	99

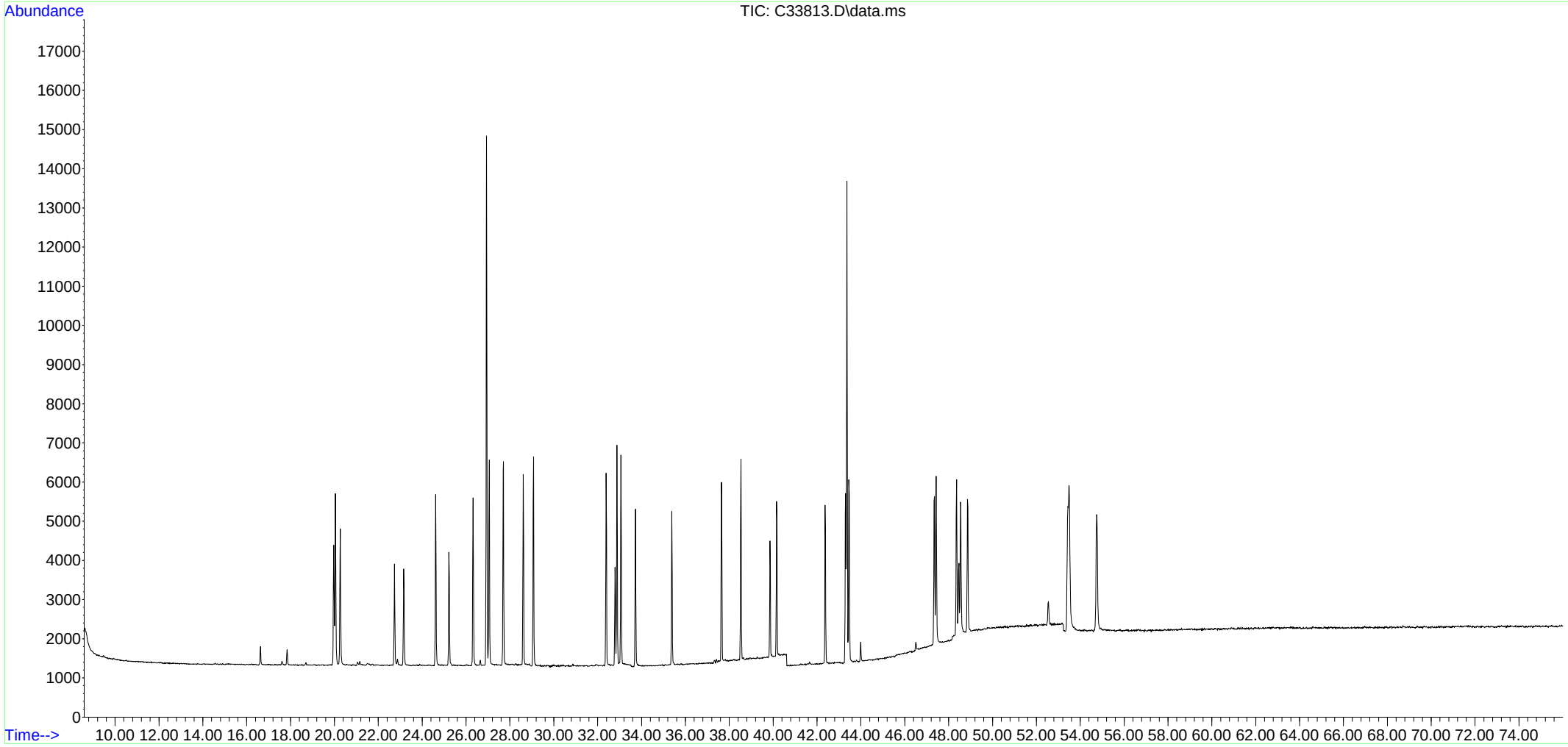
(#) = qualifier out of range (m) = manual integration (+) = signals summed

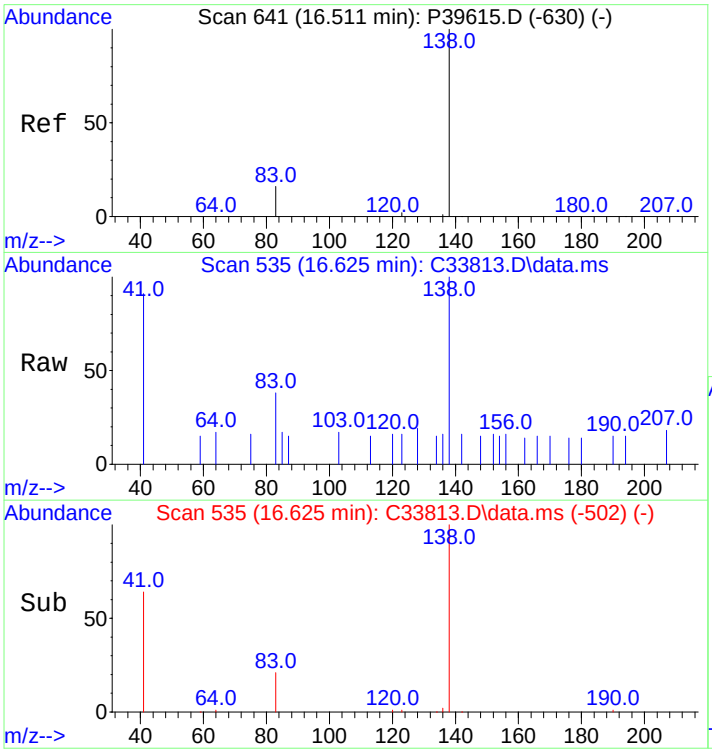
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

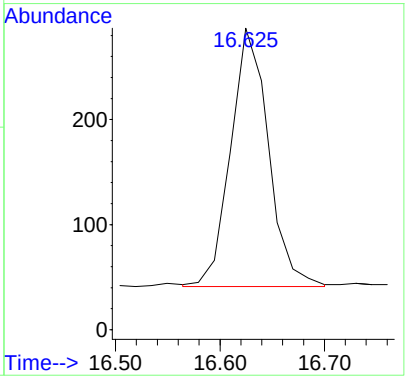
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

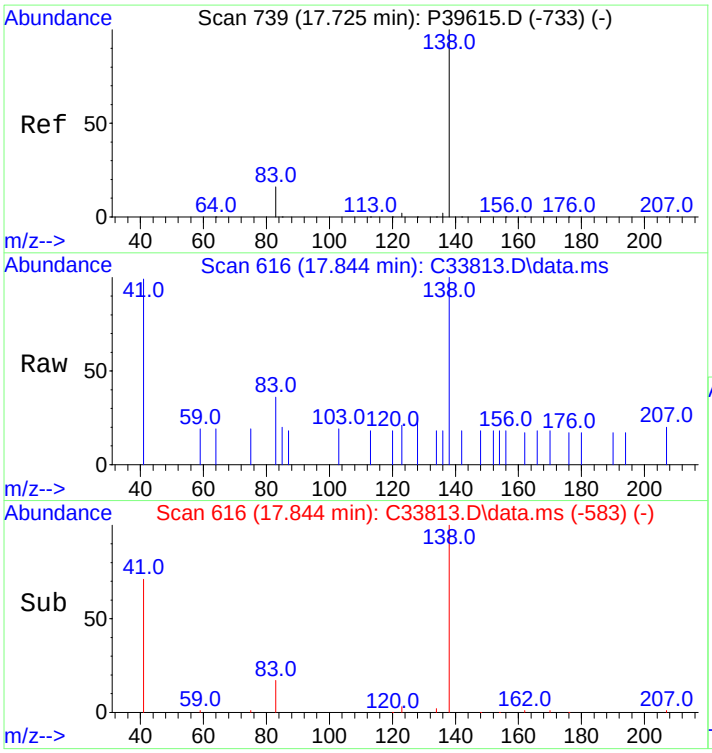




#3
trans-Decalin
Concen: 57.73 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

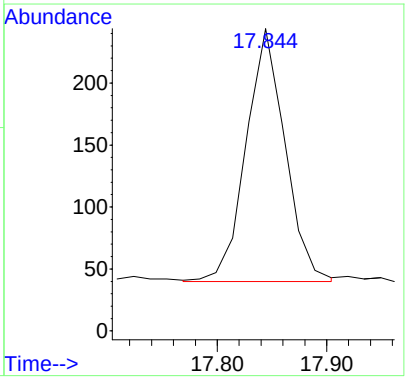
Tgt Ion:138 Resp: 620

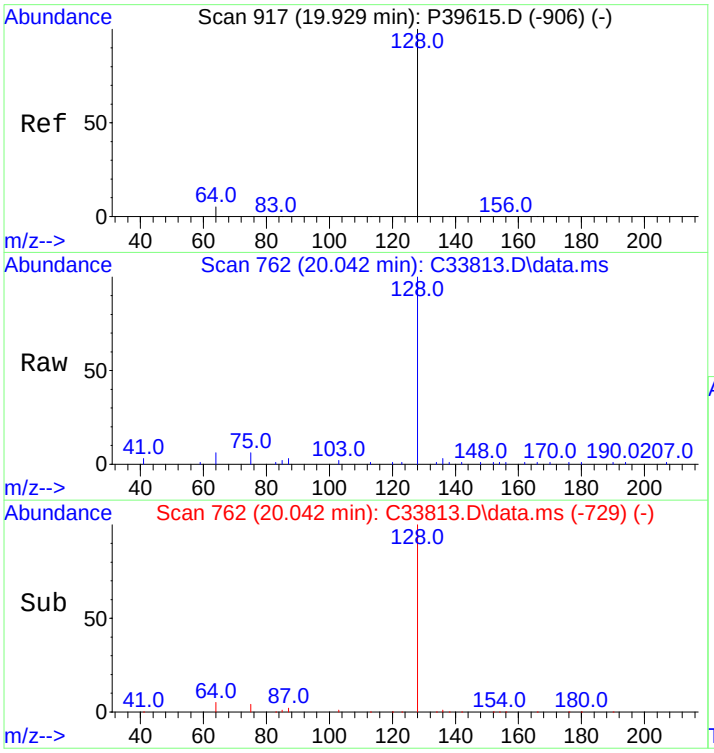




#4
cis-Decalin
Concen: 60.15 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:138 Resp: 504

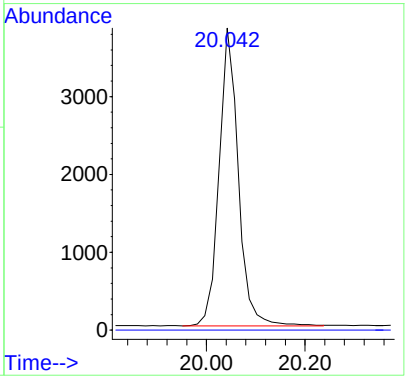


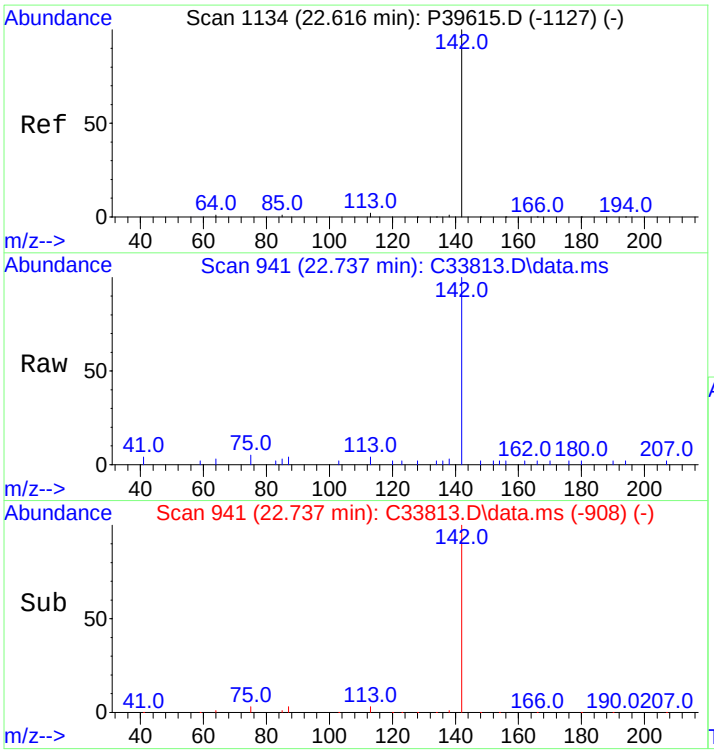


#10
Naphthalene
Concen: 186.12 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:128 Resp: 10404

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

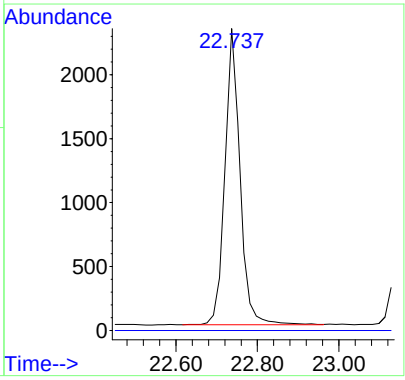


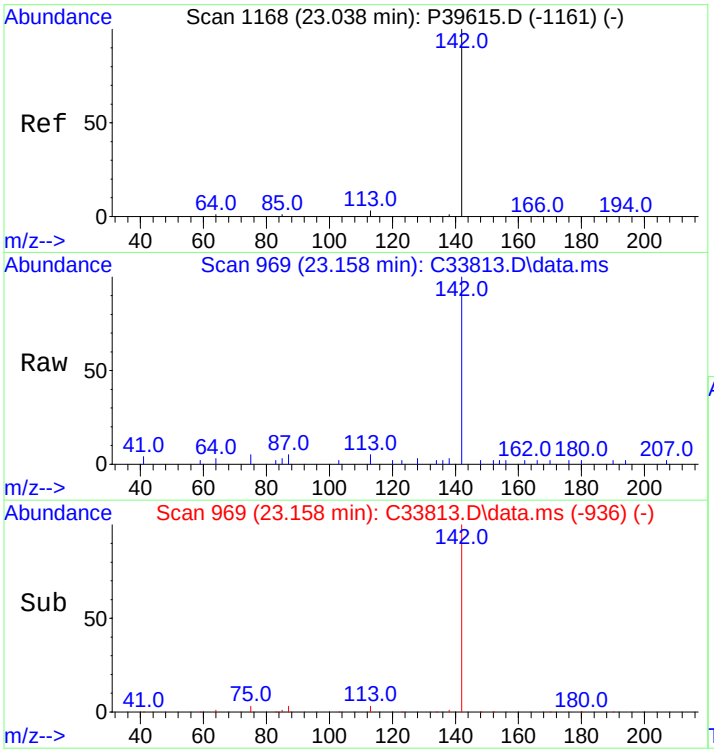


#16
2-Methylnaphthalene
Concen: 152.20 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 6007

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

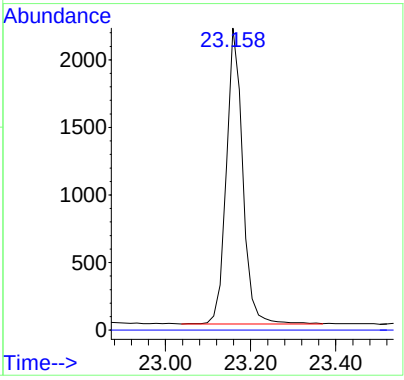


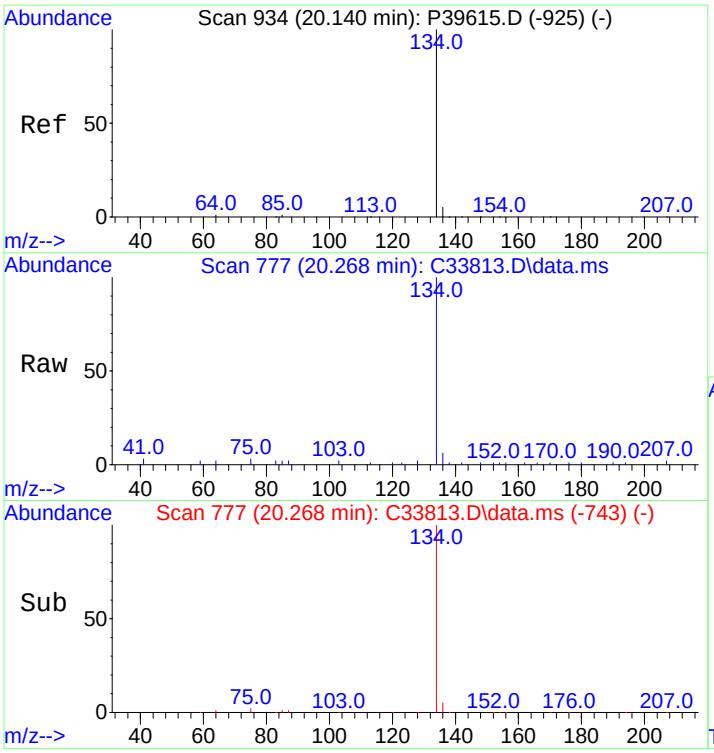


#17
1-Methylnaphthalene
Concen: 154.29 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 5841

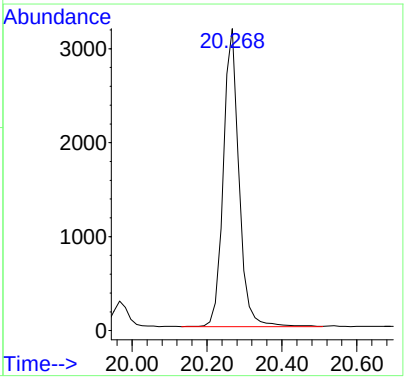
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

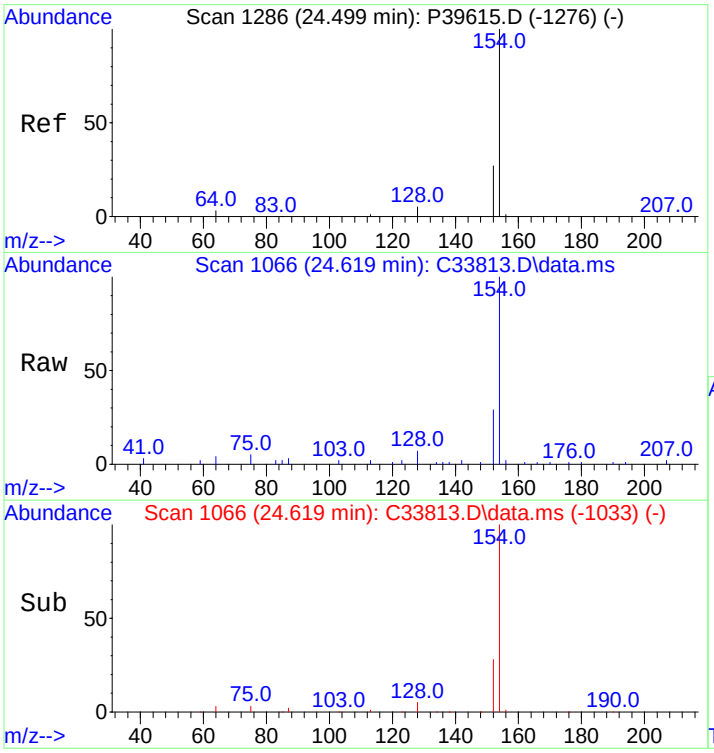




#18
Benzothiophene
Concen: 199.69 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:134 Resp: 9155

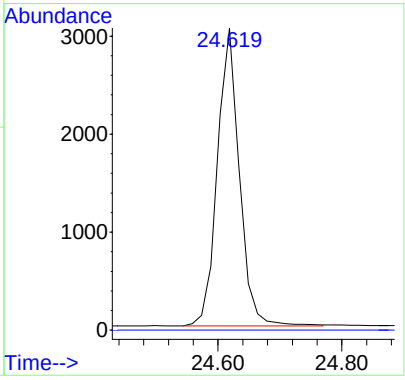


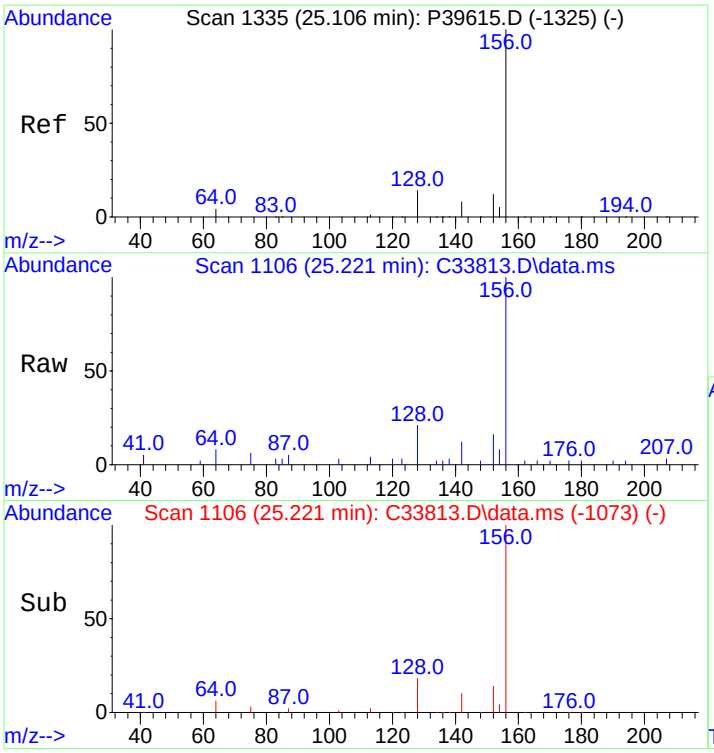


#23
Biphenyl
Concen: 142.69 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:154 Resp: 7515

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

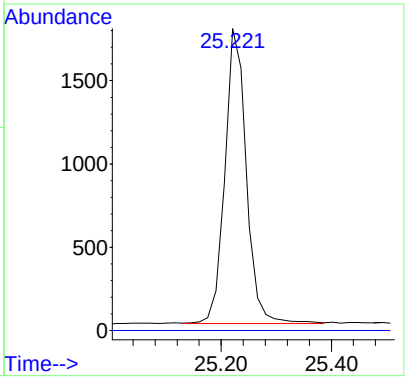


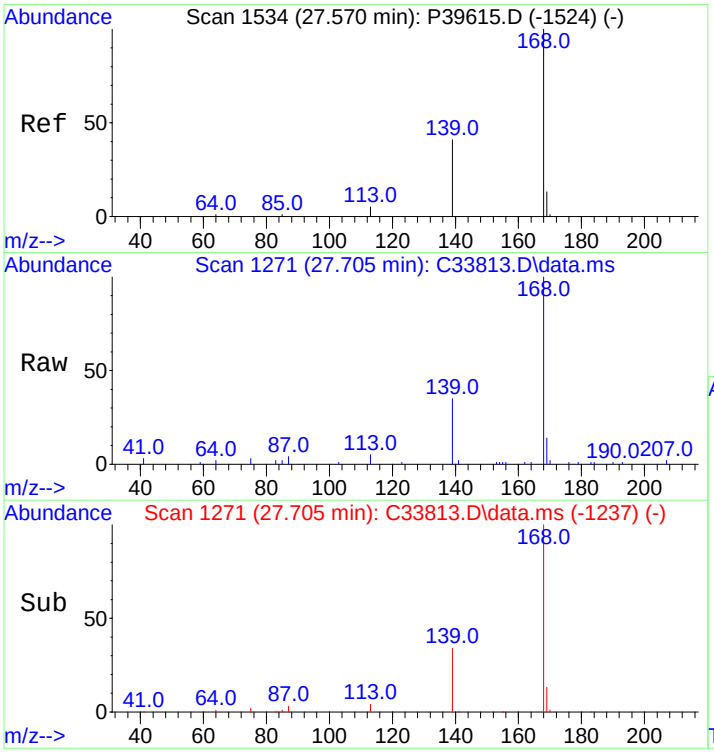


#24
2,6-Dimethylnaphthalene
Concen: 126.22 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:156 Resp: 4739

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

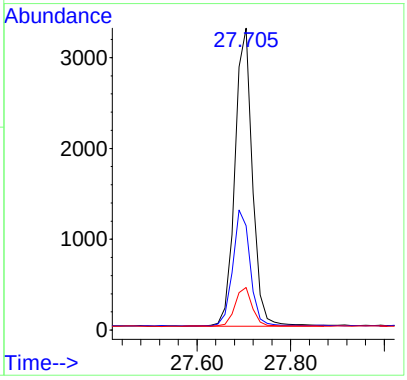


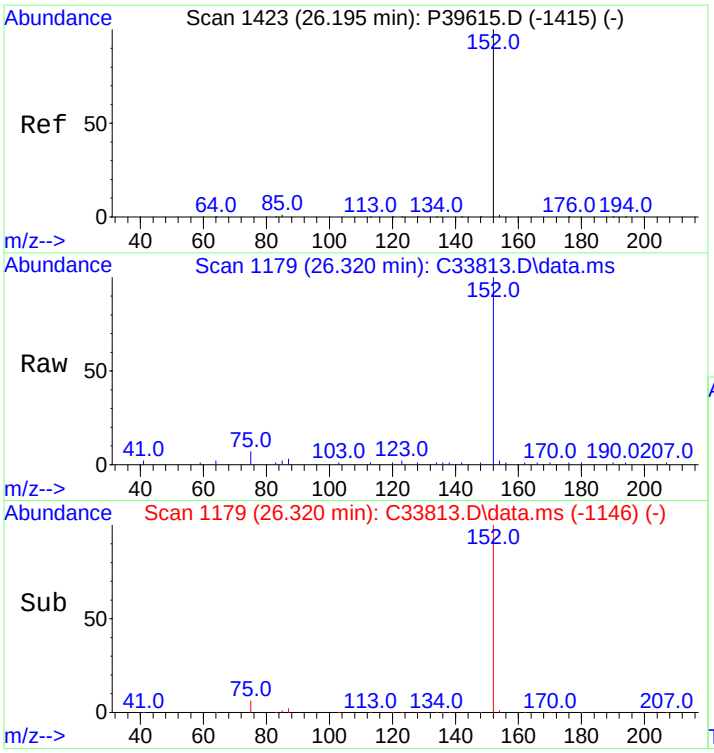


#25
Dibenzofuran
Concen: 139.86 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:168 Resp: 8558

Ion	Ratio	Lower	Upper
168	100		
139	38.6	32.9	49.3
169	12.9	10.6	16.0

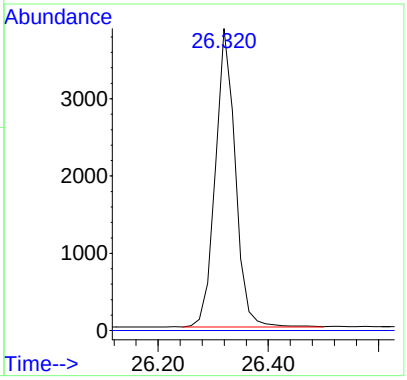


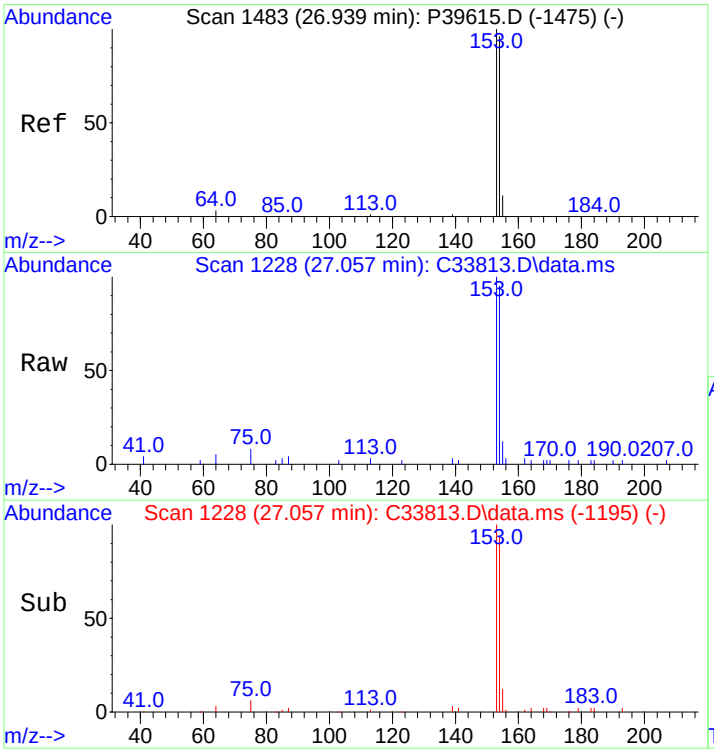


#26
Acenaphthylene
Concen: 154.20 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:152 Resp: 9725

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

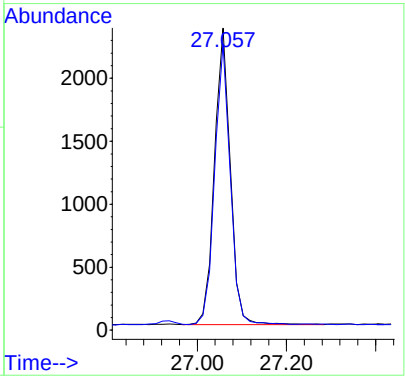


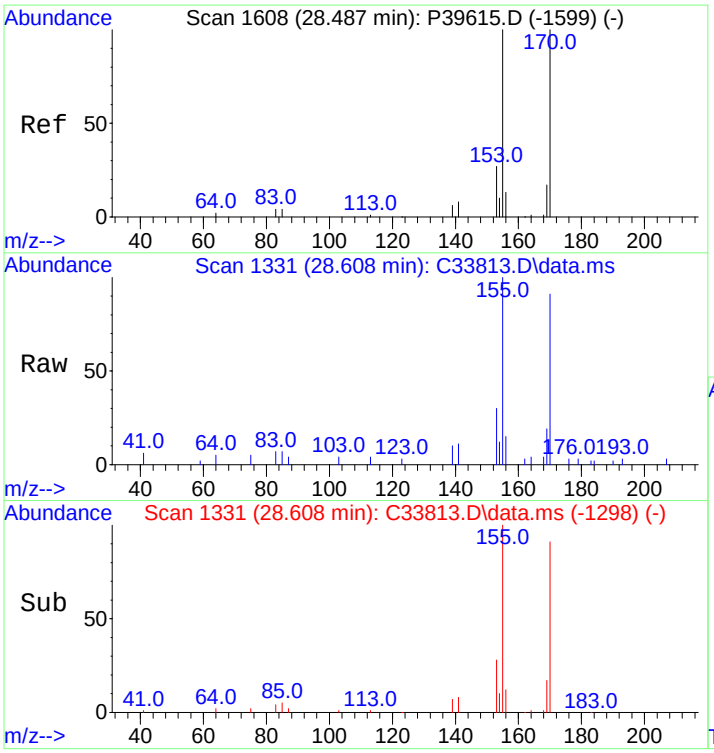


#27
Acenaphthene
Concen: 144.62 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:153 Resp: 5791

Ion	Ratio	Lower	Upper
153	100		
154	93.4	75.0	112.6

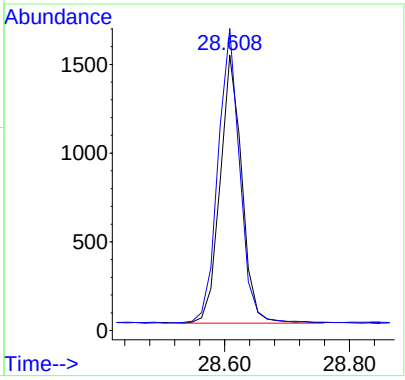


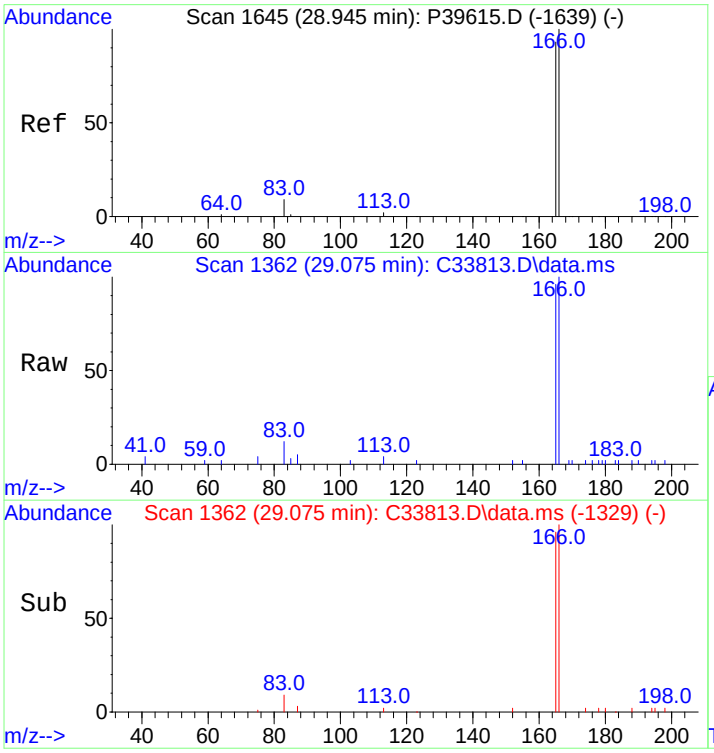


#28
2,3,5-Trimethylnaphthalene
Concen: 104.10 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:170 Resp: 3646

Ion	Ratio	Lower	Upper
170	100		
155	111.0	84.7	127.1

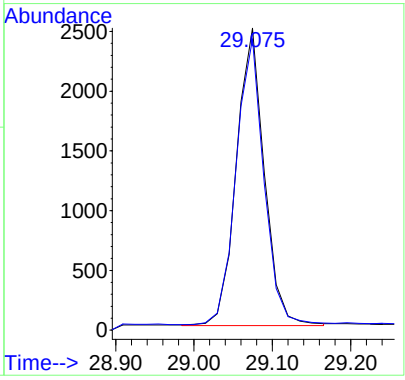


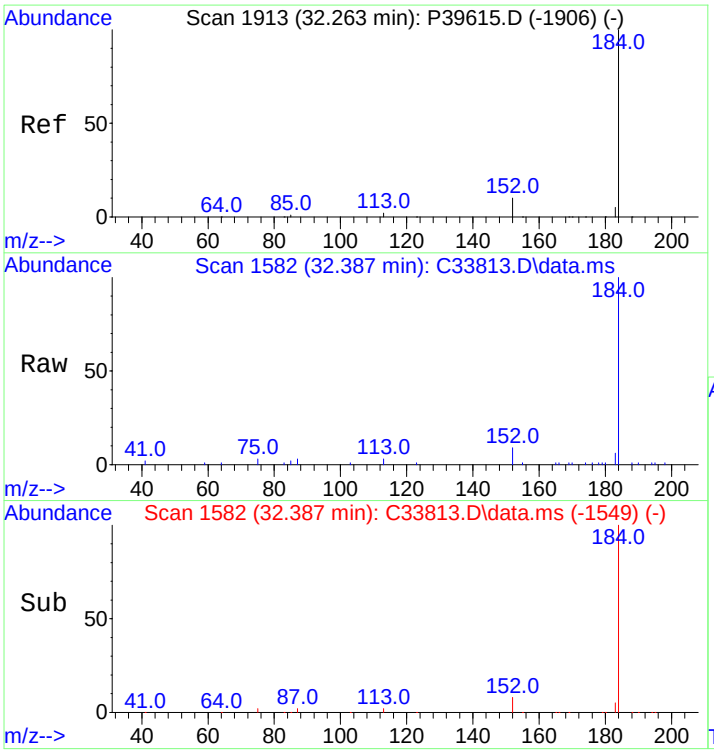


#29
Fluorene
Concen: 124.53 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:166 Resp: 6206

Ion	Ratio	Lower	Upper
166	100		
165	102.0	75.3	112.9

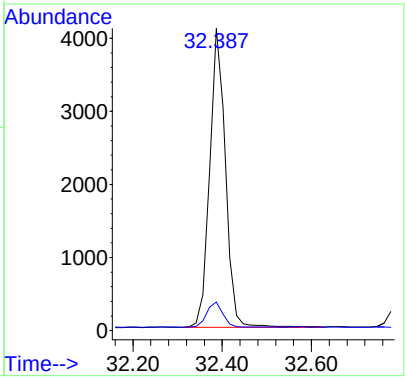


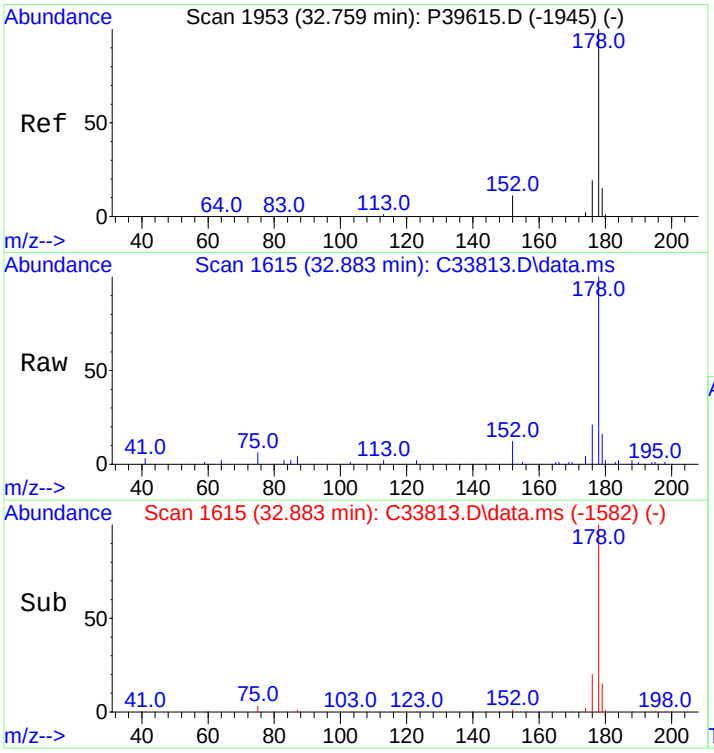


#33
Dibenzothiophene
Concen: 133.30 ng/mL
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:184 Resp: 10032

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

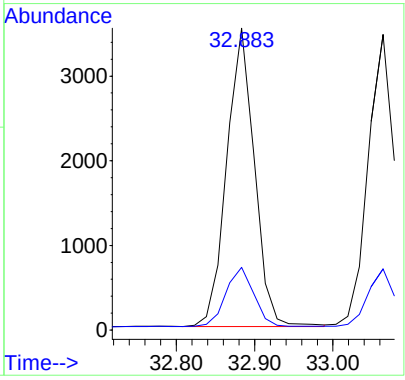


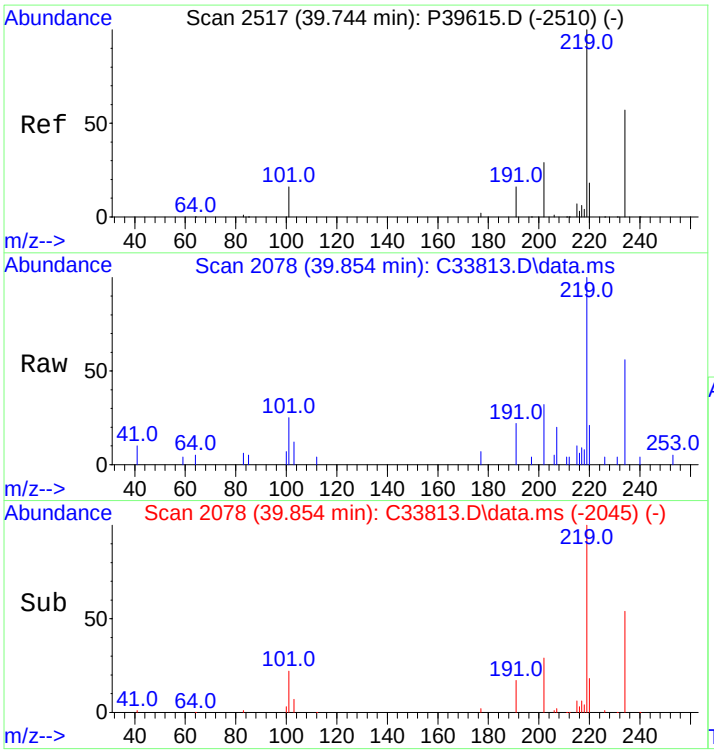


#43
Phenanthrene
Concen: 114.51 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8659

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

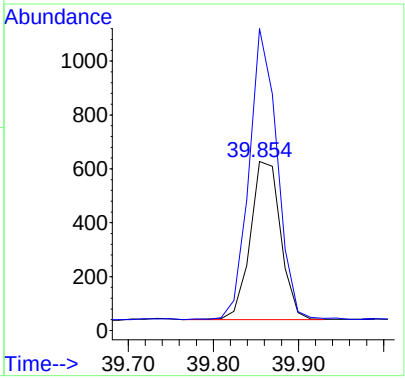


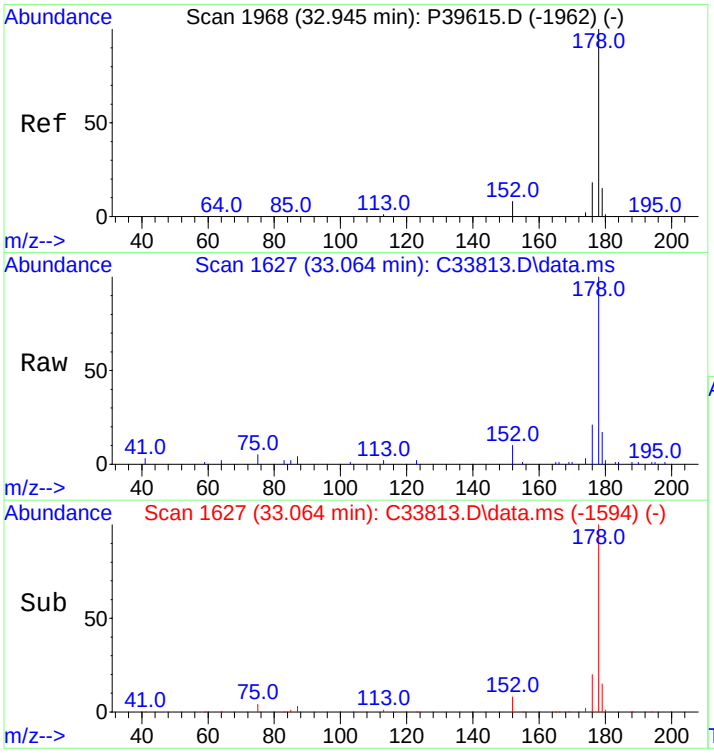


#54
Retene
Concen: 66.45 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 1461

Ion	Ratio	Lower	Upper
234	100		
219	170.7	136.6	204.8

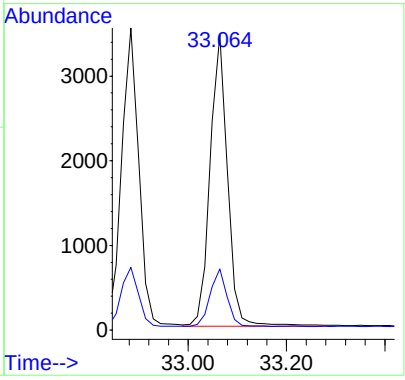


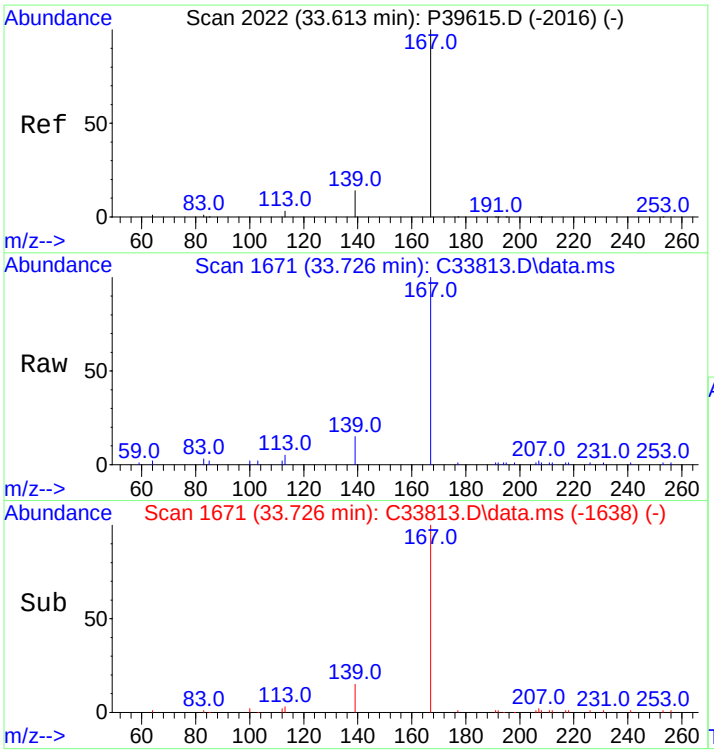


#55
Anthracene
Concen: 115.92 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8493

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

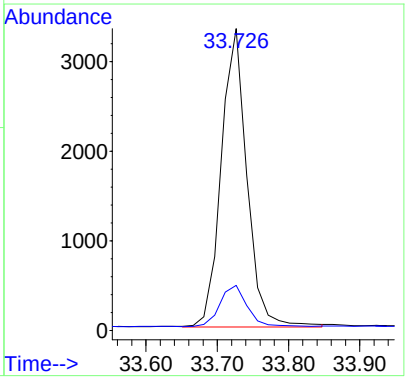


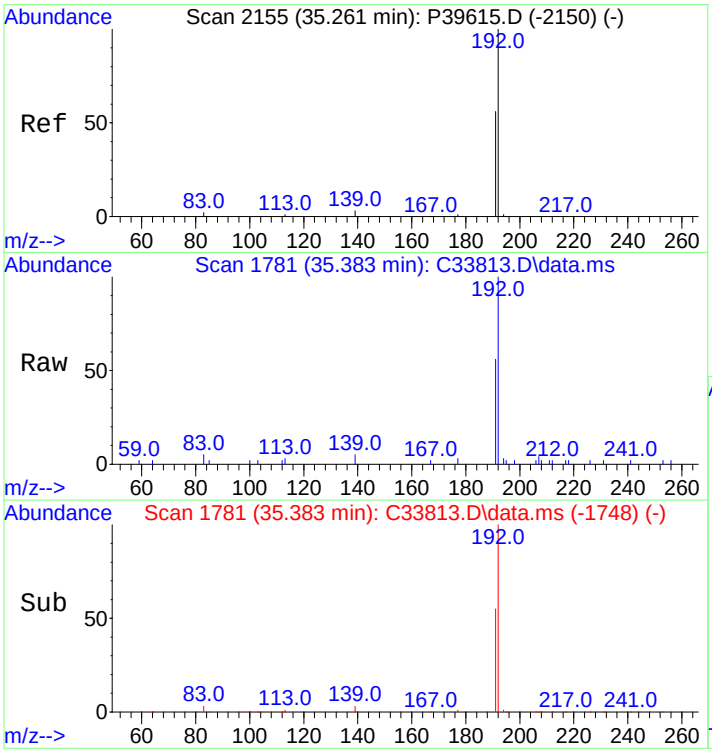


#56
Carbazole
Concen: 124.46 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:167 Resp: 8375

Ion	Ratio	Lower	Upper
167	100		
139	16.0	11.6	17.4

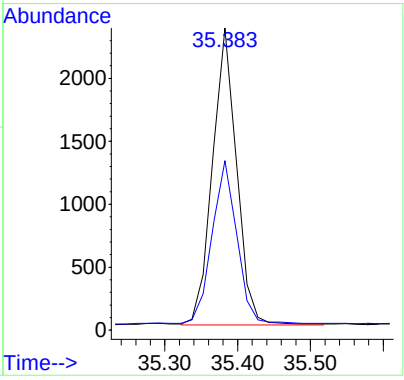


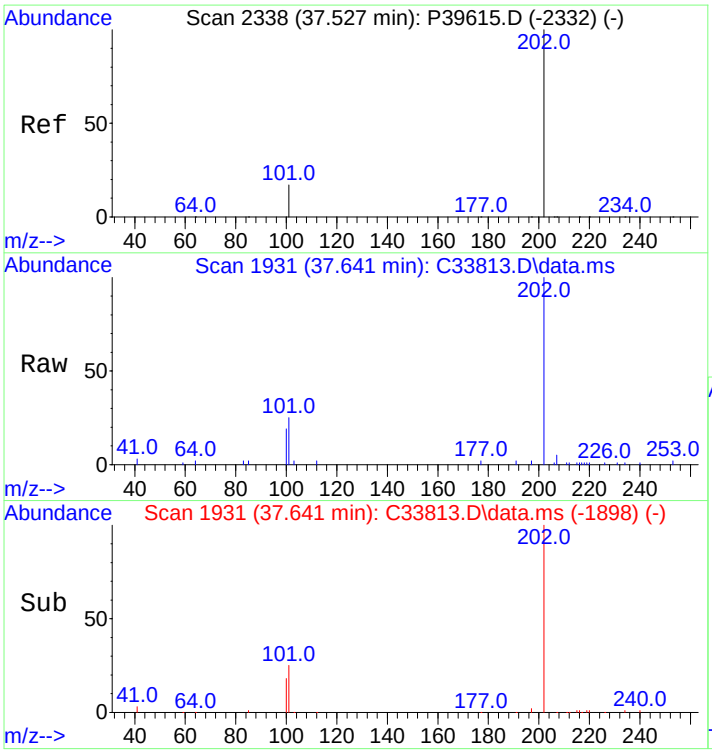


#57
1-Methylphenanthrene
Concen: 94.33 ng/mL m
RT: 35.383 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:192 Resp: 5460

Ion	Ratio	Lower	Upper
192	100		
191	56.4	45.3	67.9

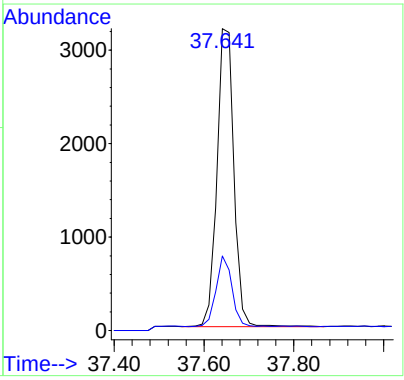


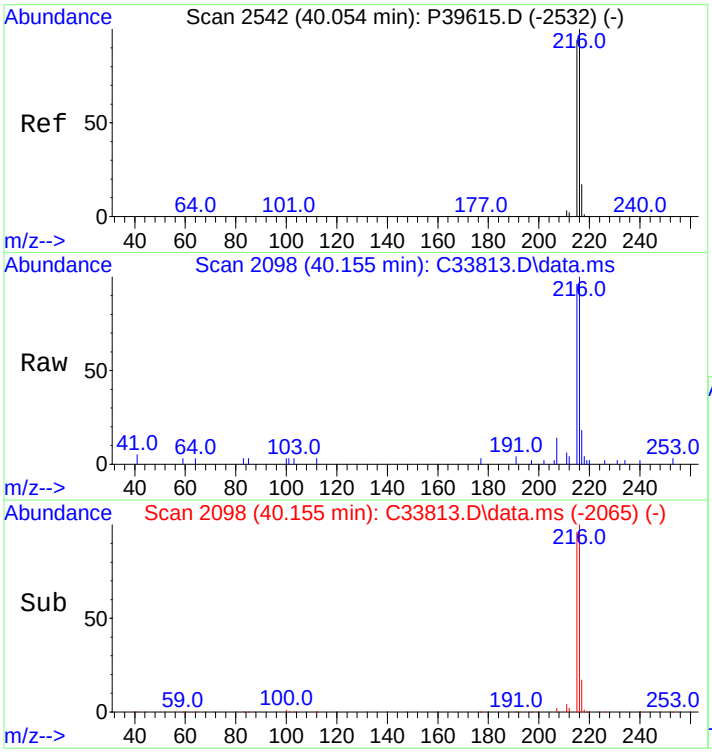


#58
Fluoranthene
Concen: 91.91 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8404

Ion	Ratio	Lower	Upper
202	100		
101	24.0	19.1	28.7

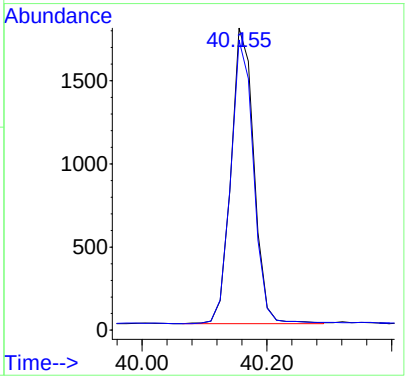


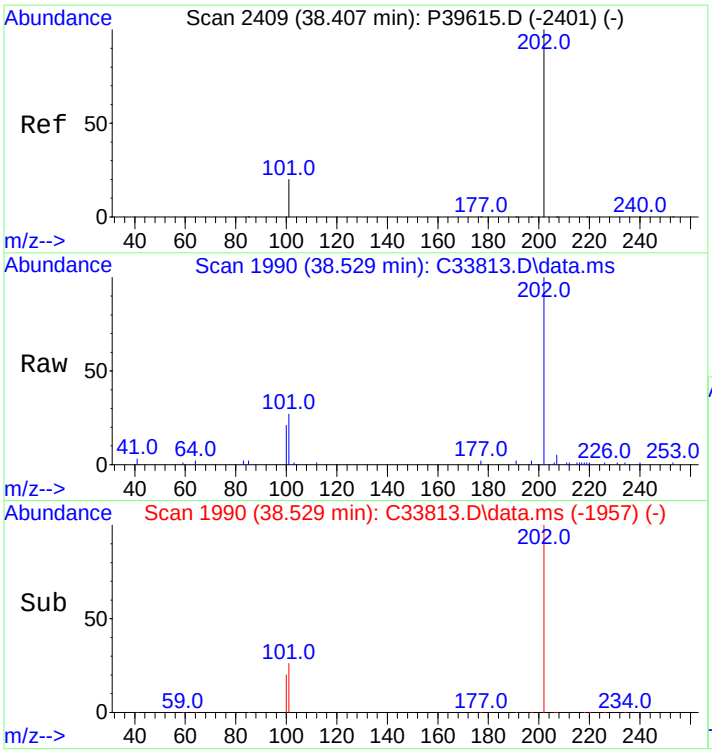


#59
Benzo(b)fluorene
Concen: 75.84 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:216 Resp: 4529

Ion	Ratio	Lower	Upper
216	100		
215	96.4	77.4	116.2

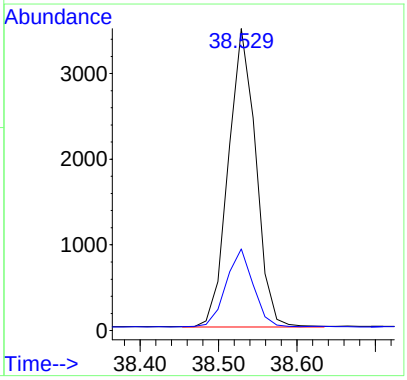


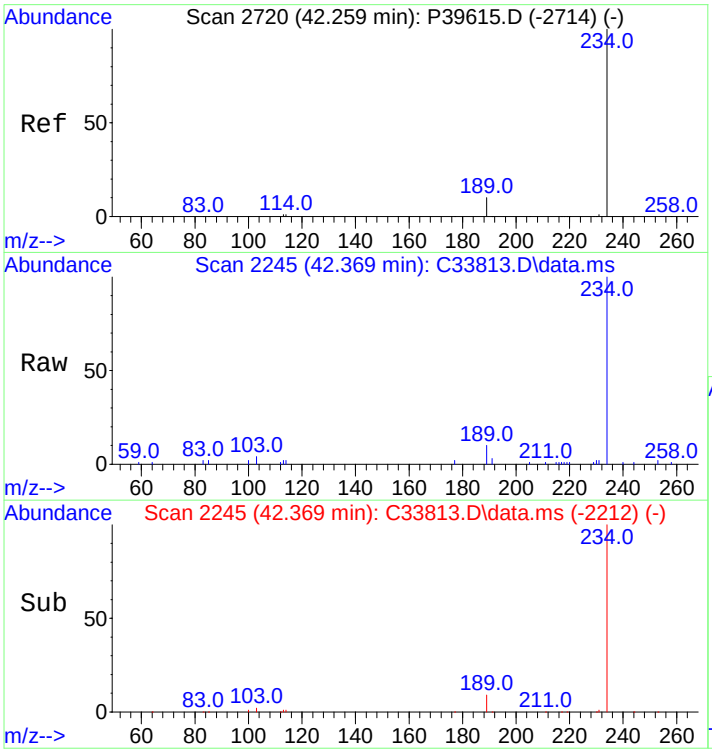


#60
Pyrene
Concen: 90.88 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8523

Ion	Ratio	Lower	Upper
202	100		
101	26.0	20.4	30.6

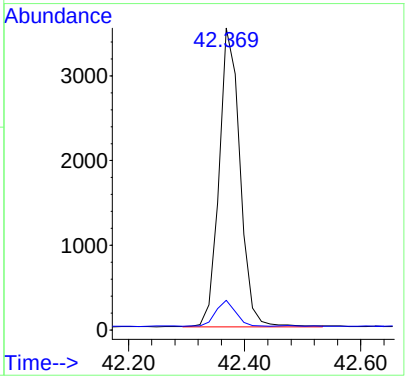


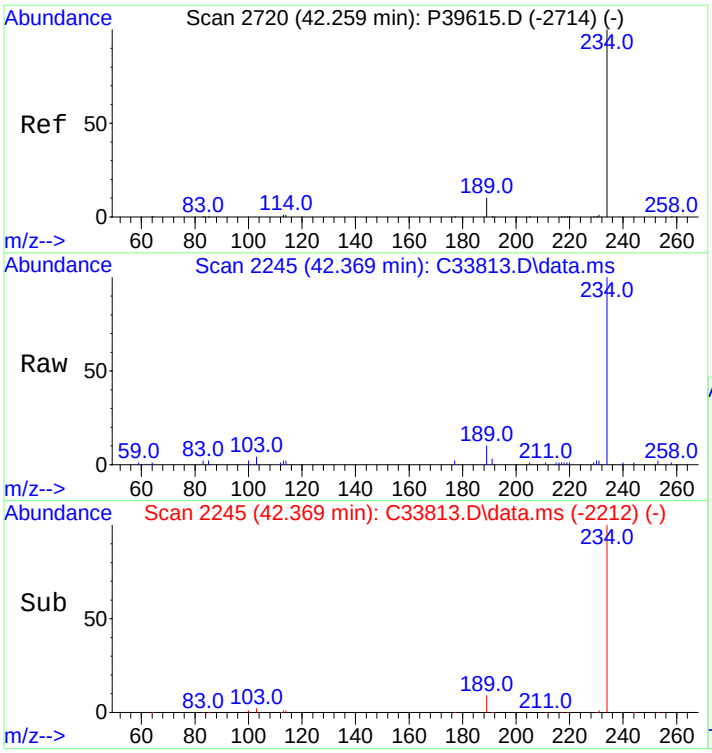


#66
Naphthobenzothiophene
Concen: 90.00 ng/ml m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8820

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

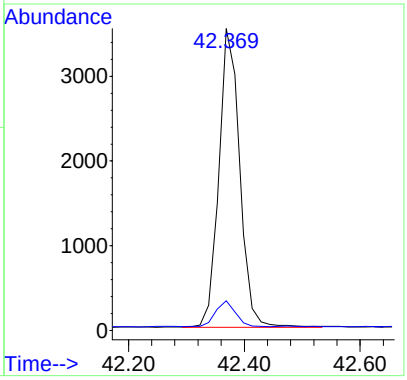


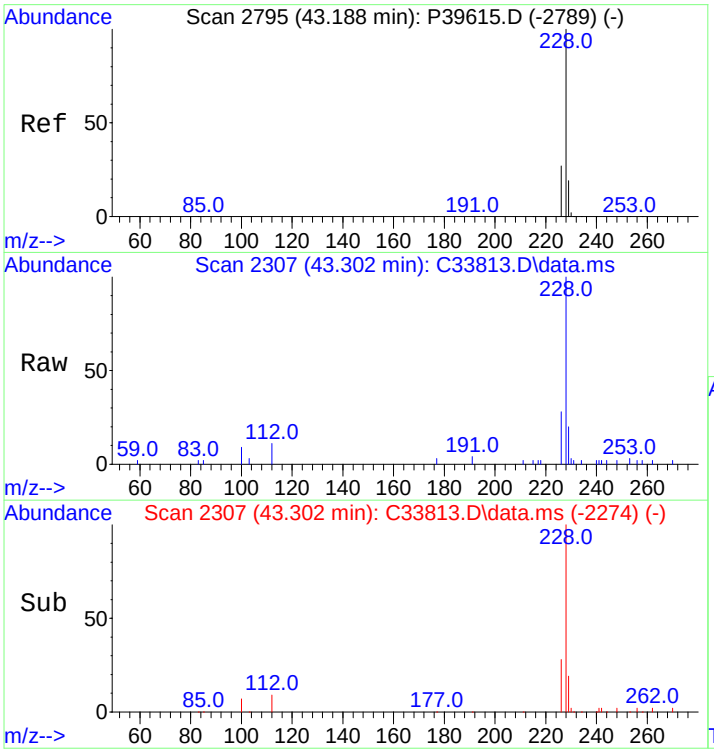


#67
Naphthobenzothiophene-2,1-D
Concen: 90.30 ng/mL m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8849

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

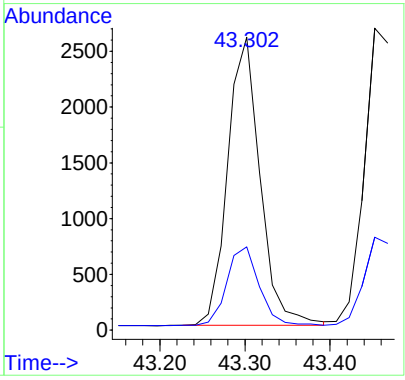


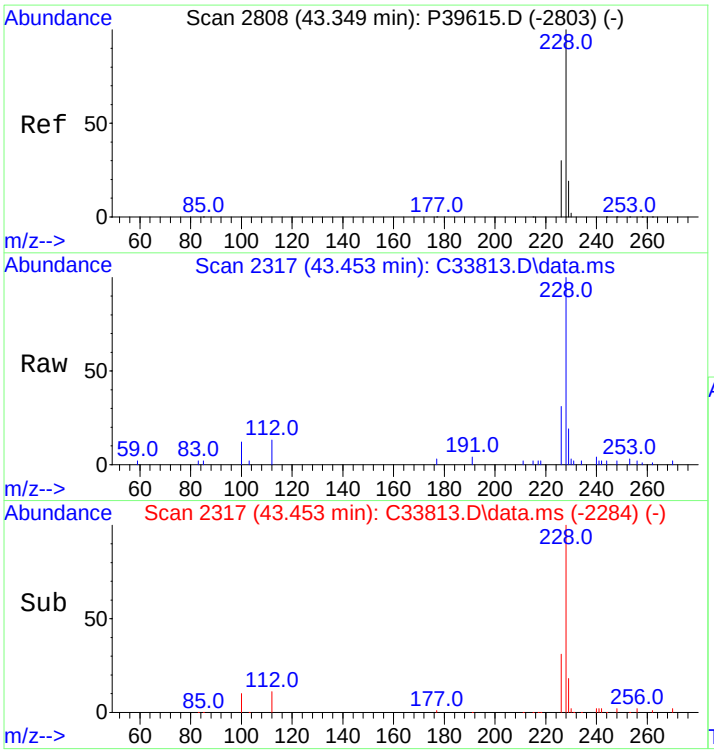


#75
Benz[a]anthracene
Concen: 103.13 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 6862

Ion	Ratio	Lower	Upper
228	100		
226	27.4	21.8	32.8

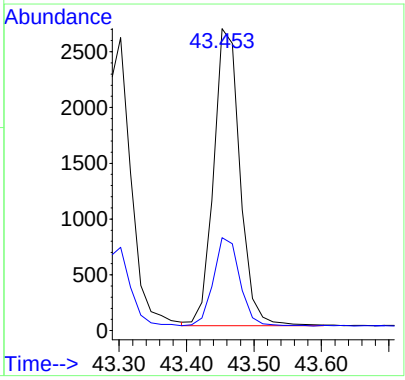


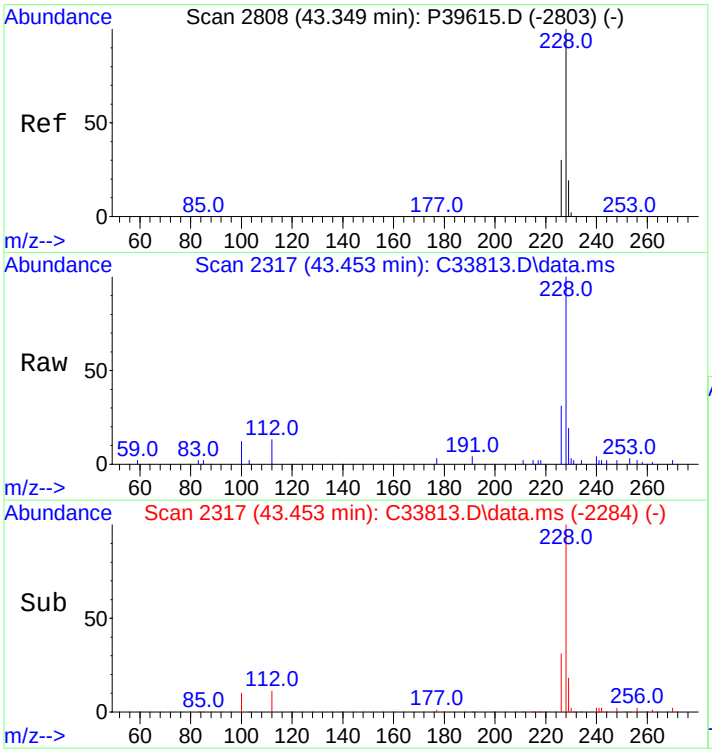


#76
Chrysene
Concen: 110.68 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7256

Ion	Ratio	Lower	Upper
228	100		
226	30.0	24.2	36.4

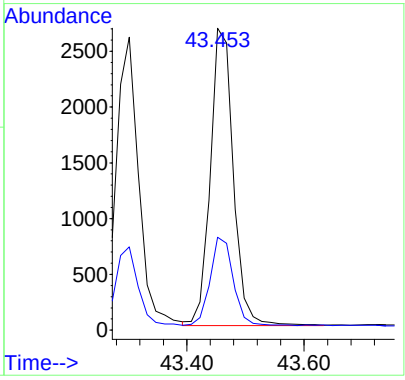


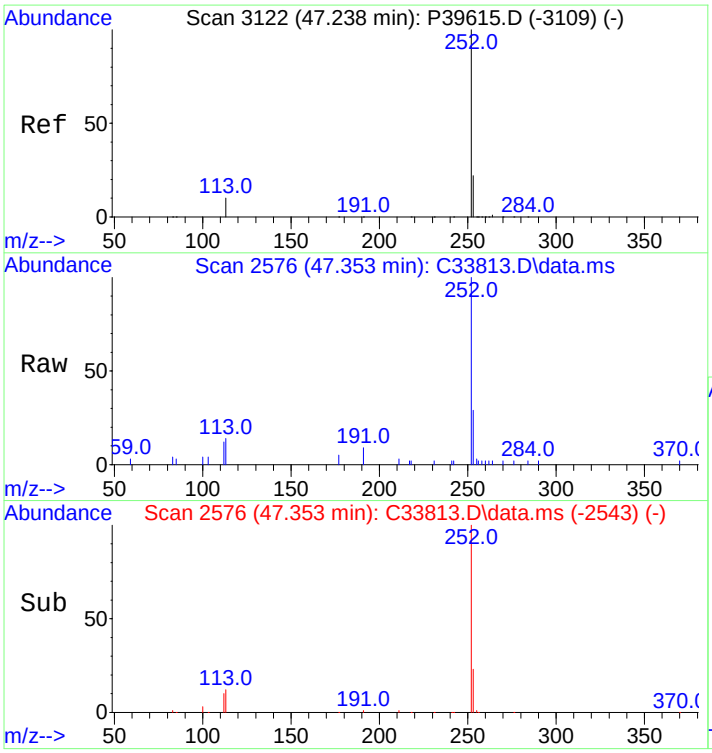


#77
Chrysene/Triphenylene
Concen: 111.03 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7279

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

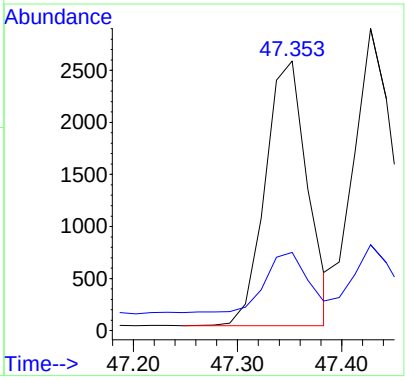


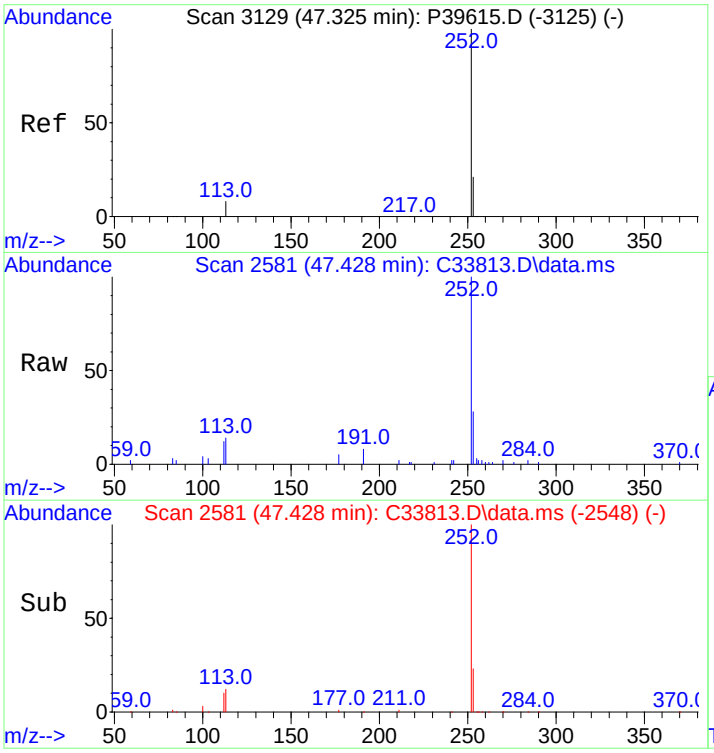


#82
Benzo[b]fluoranthene
Concen: 98.56 ng/mL
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7216

Ion	Ratio	Lower	Upper
252	100		
253	24.7	18.5	27.7

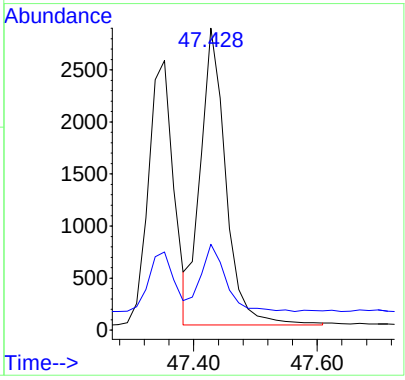


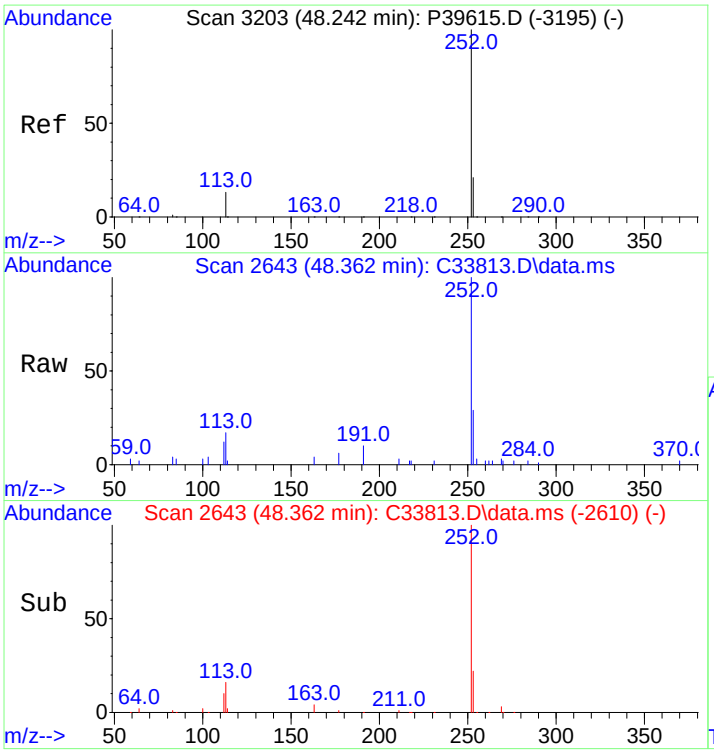


#83
Benzo[j]+[k]fluoranthene
Concen: 105.65 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 8178

Ion	Ratio	Lower	Upper
252	100		
253	22.8	18.2	27.4

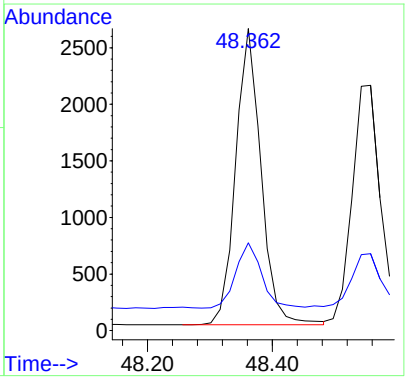


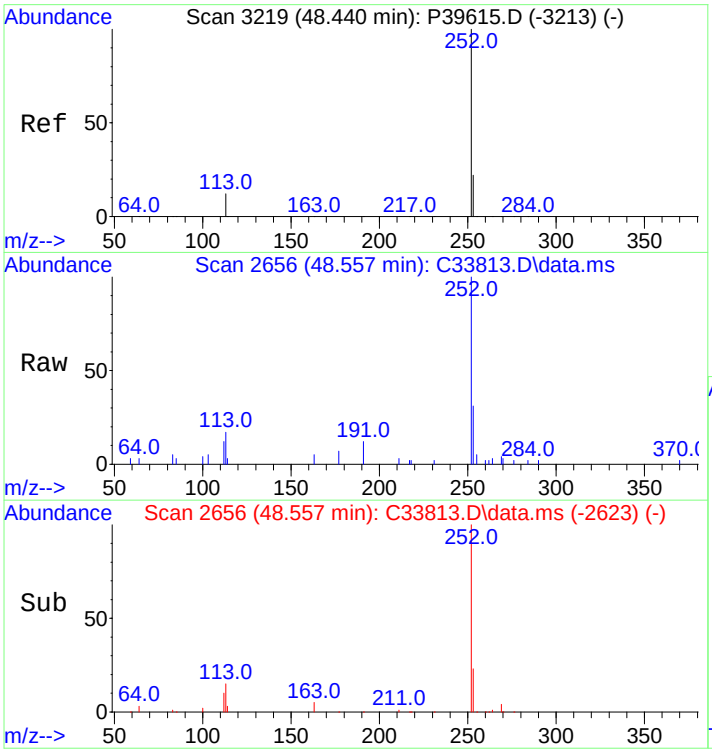


#85
Benzo[e]pyrene
Concen: 104.99 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	22.6	18.5	27.7

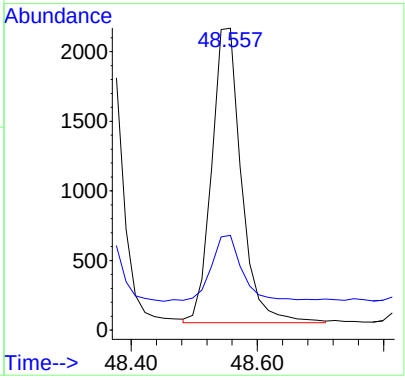


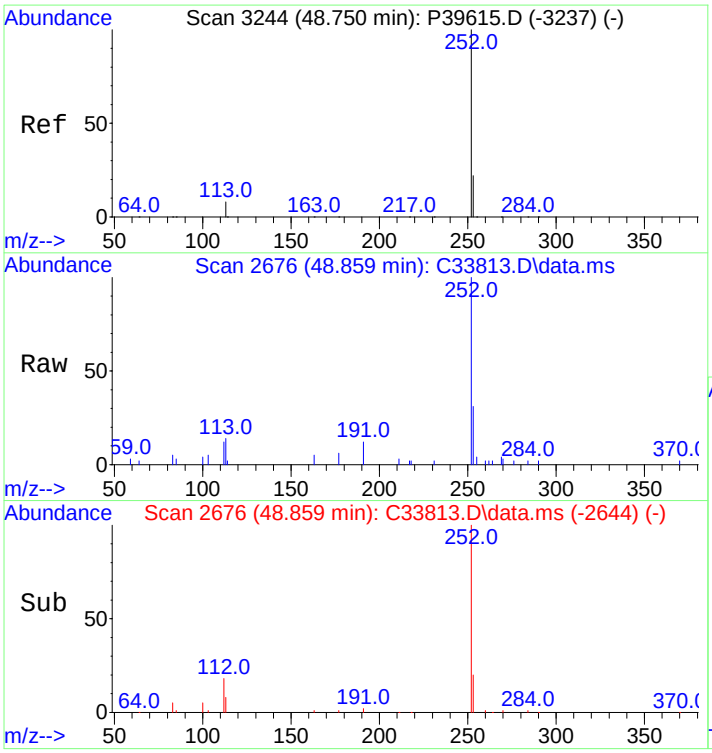


#87
Benzo[a]pyrene
Concen: 104.79 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 6940

Ion	Ratio	Lower	Upper
252	100		
253	24.5	18.7	28.1

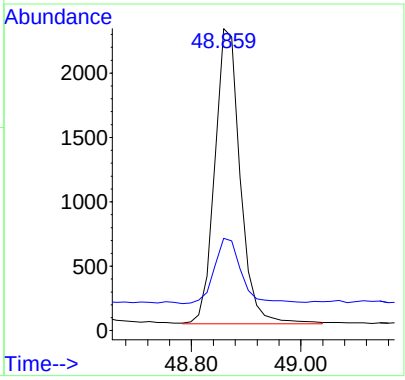


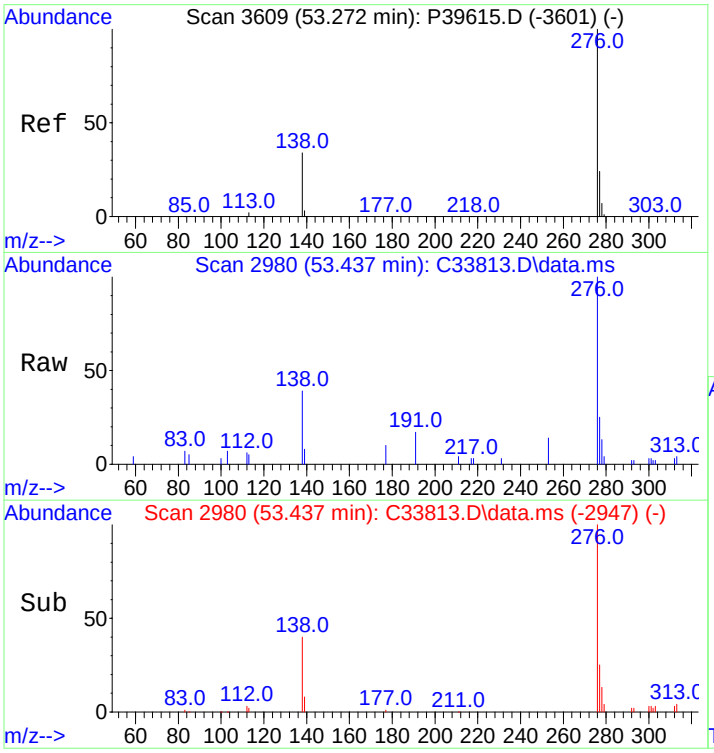


#88
Perylene
Concen: 104.54 ng/mL m
RT: 48.859 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	23.7	18.6	27.8

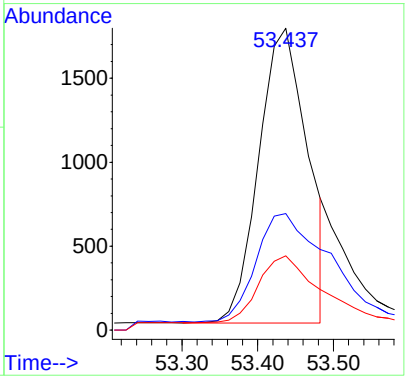


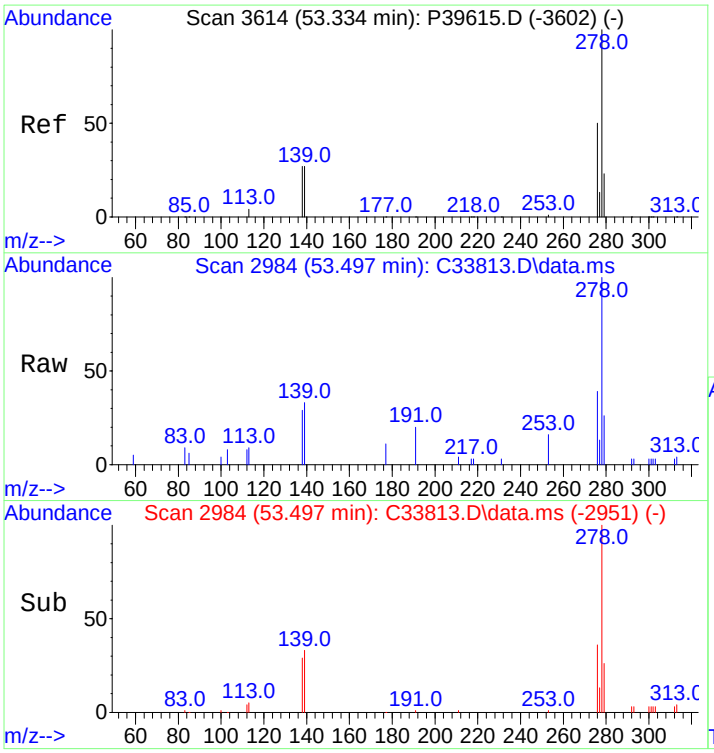


#89
Indeno[1,2,3-cd]pyrene
Concen: 102.99 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 7852

Ion	Ratio	Lower	Upper
276	100		
138	65.2	30.3	45.5#
277	48.7	19.2	28.8#

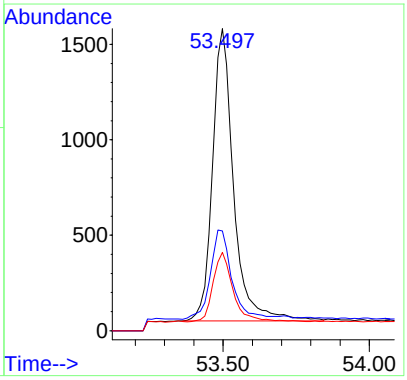


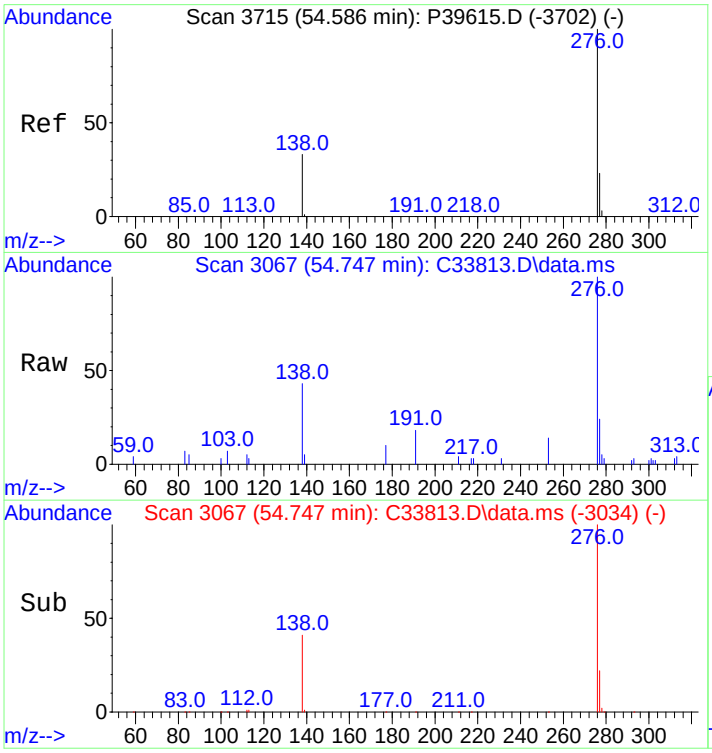


#90
Dibenz[ah]+[ac]anthracene
Concen: 107.32 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:278 Resp: 7692

Ion	Ratio	Lower	Upper
278	100		
139	35.6	25.4	38.2
279	22.1	19.0	28.4

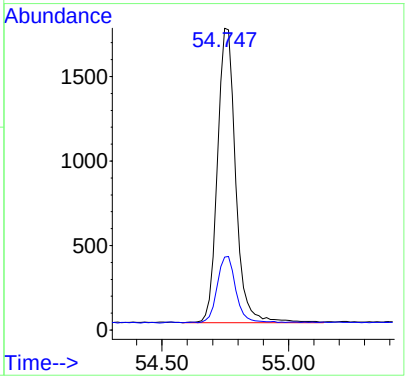


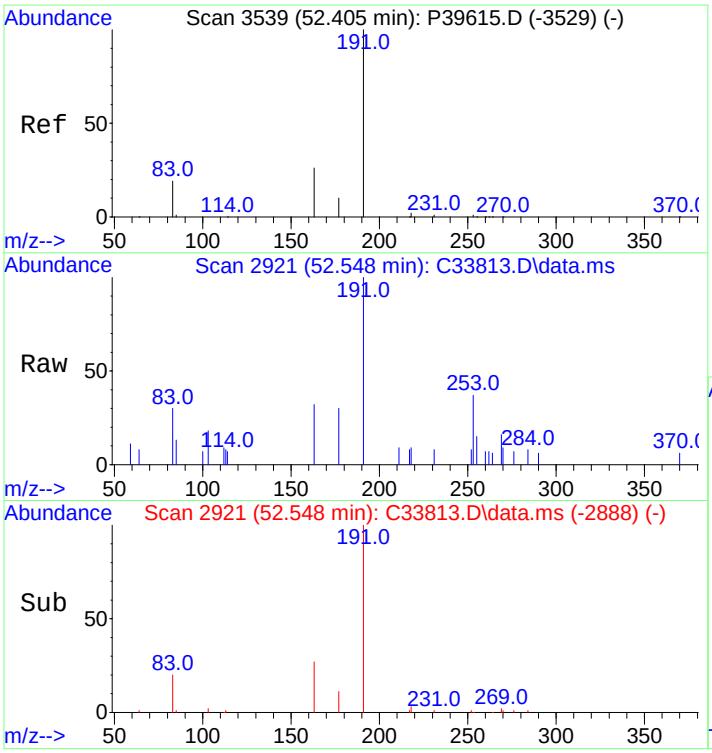


#91
Benzo[g,h,i]perylene
Concen: 112.27 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 8732

Ion	Ratio	Lower	Upper
276	100		
277	23.0	18.9	28.3

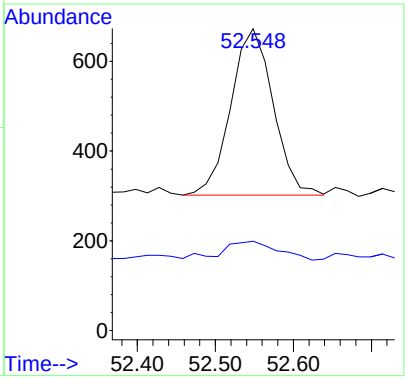


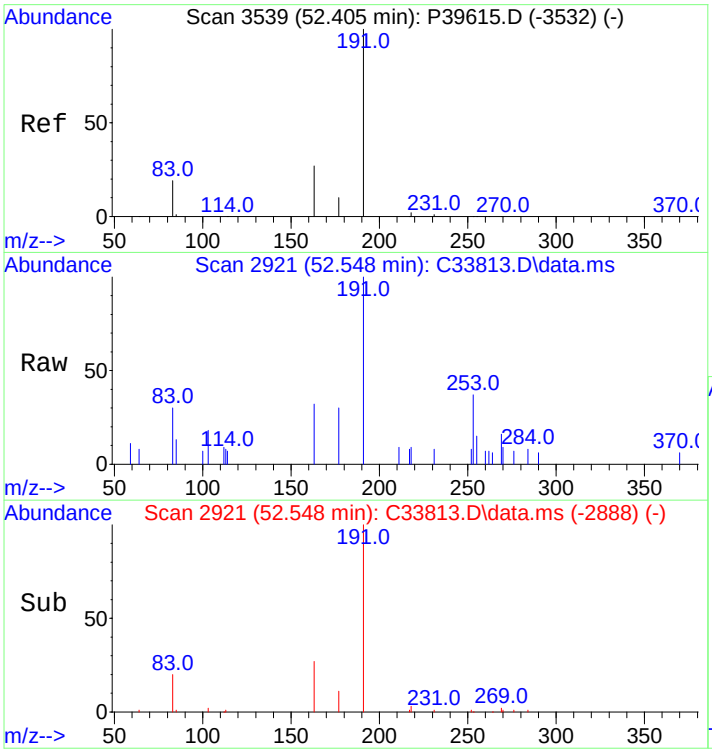


#92
Hopane (T19)
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3

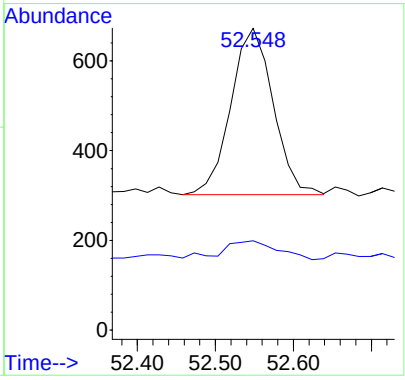




#93
17a(H),21B(H)-hopane - C30H52
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	690.288	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.03%			
42) Phenanthrene-d10	32.793	188	30011	444.688	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.47%#			
86) Benzo[a]pyrene-d12	48.467	264	26218	483.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.40%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	430.078	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.01%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	301.956	ng/mL	
4) cis-Decalin	17.844	138	2748	292.174	ng/mL	100
10) Naphthalene	20.042	128	60651M4	966.547	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	800.461	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	809.738	ng/mL	
18) Benzothiophene	20.253	134	54196	1053.098	ng/mL	100
23) Biphenyl	24.619	154	44061	745.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	670.105	ng/mL	
25) Dibenzofuran	27.690	168	50514	735.407	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	813.474	ng/mL	
27) Acenaphthene	27.057	153	34314	763.360	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	22365M4	568.869	ng/mL	
29) Fluorene	29.075	166	37446M3	669.384	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	719.639	ng/mL	
43) Phenanthrene	32.883	178	53364	628.681	ng/mL	100
54) Retene	39.854	234	9623M4	389.871	ng/mL	
55) Anthracene	33.064	178	52019M4	632.516	ng/mL	
56) Carbazole	33.726	167	51702M4	684.436	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	514.047	ng/mL	
58) Fluoranthene	37.641	202	52587M3	512.355	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	443.755	ng/mL	98
60) Pyrene	38.529	202	53499	508.197	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	506.802	ng/ml	98
67) Naphthobenzothiophene-2,1	42.369	234	55752	506.802	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	553.548	ng/mL	
76) Chrysene	43.453	228	45764M4	581.223	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	581.909	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	529.436	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	564.954	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	542.397	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	549.348	ng/mL	
88) Perylene	48.874	252	46371	545.553	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	532.487	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	556.838	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	561.014	ng/mL	99
92) Hopane (T19)	52.548	191	7873	533.536	ng/mL#	89
93) 17a(H),21B(H)-hopane - C3	52.548	191	7873	533.536	ng/mL#	89

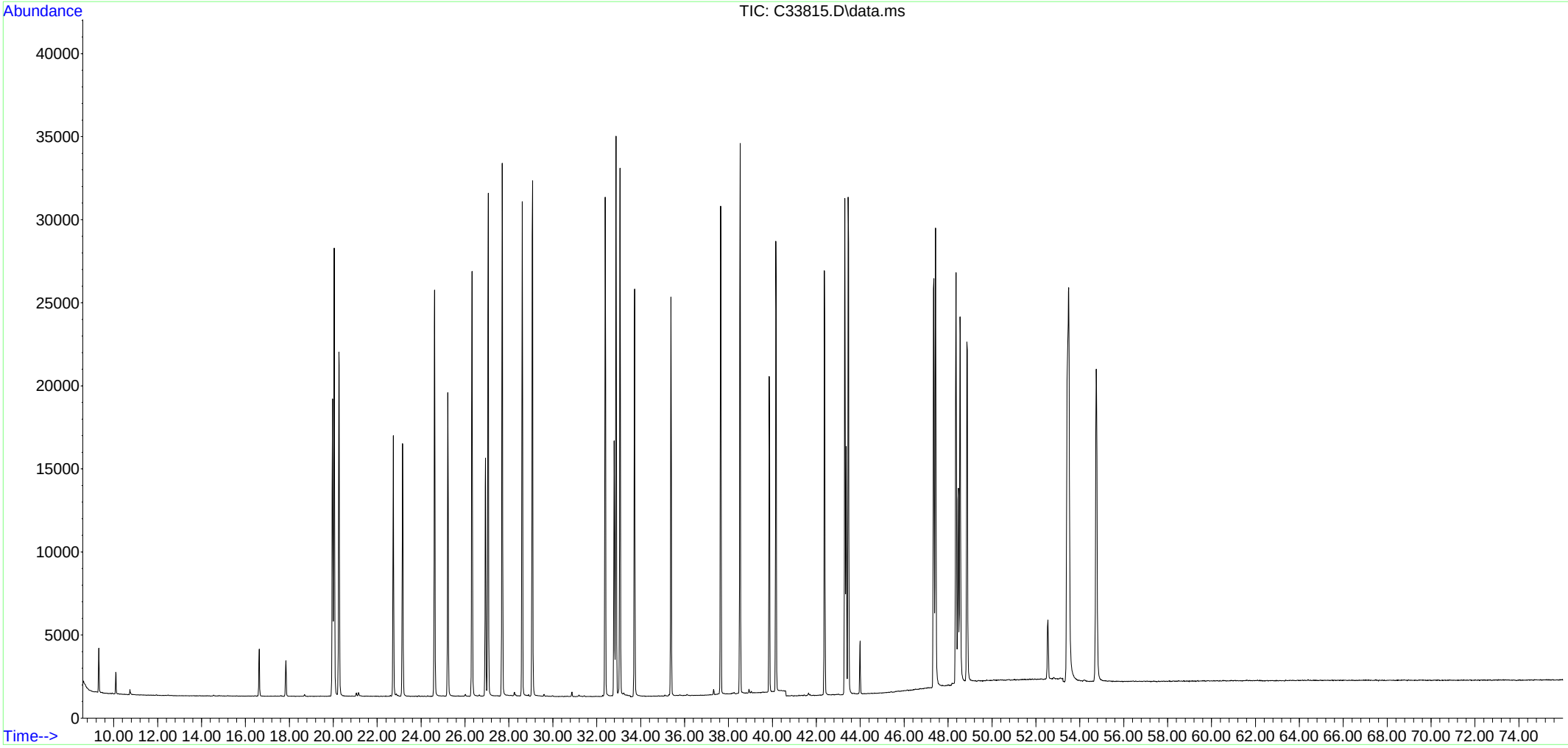
(#) = qualifier out of range (m) = manual integration (+) = signals summed

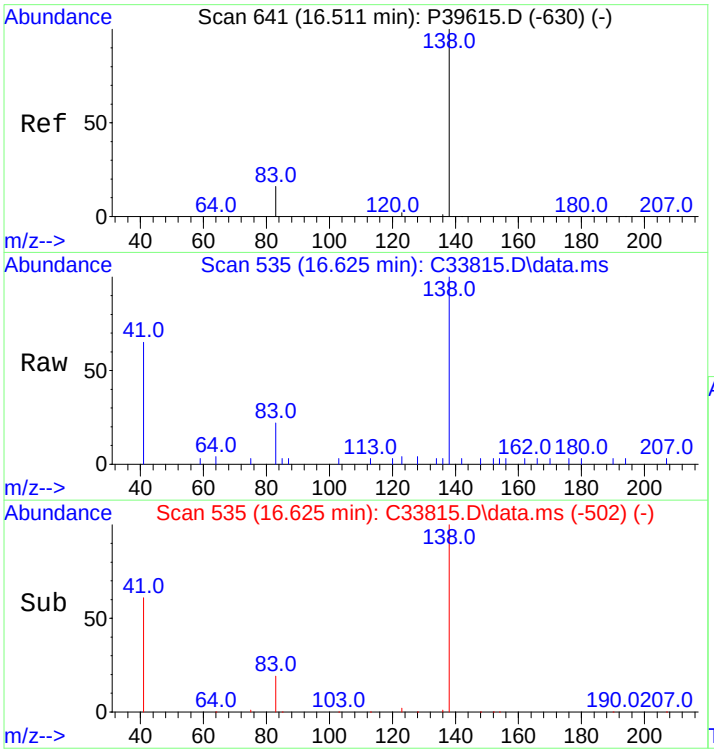
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

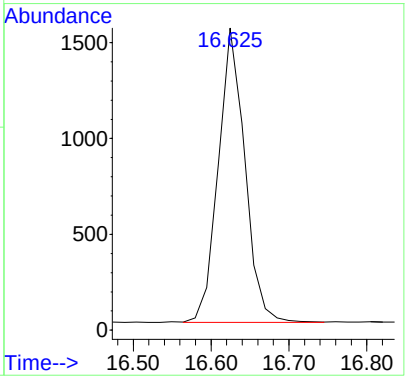
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

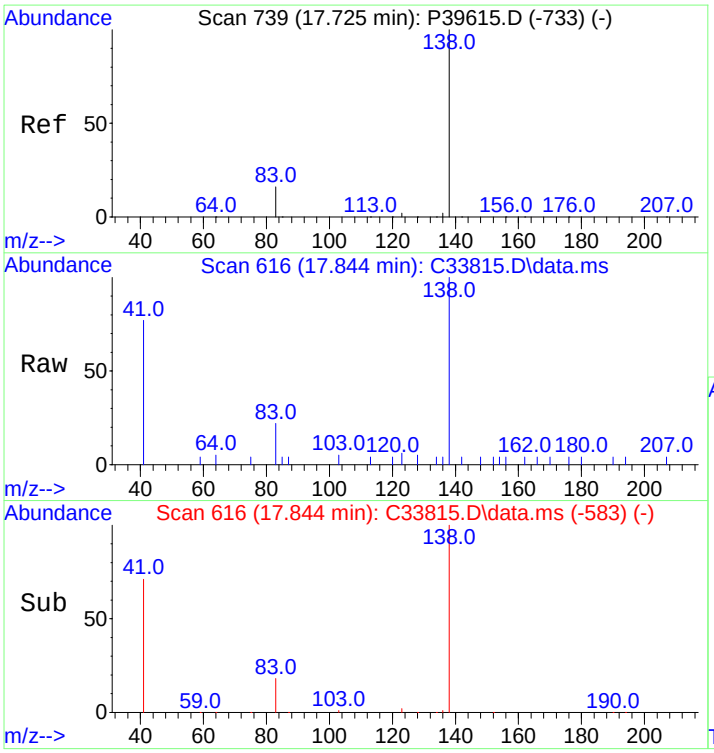




#3
trans-Decalin
Concen: 301.96 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

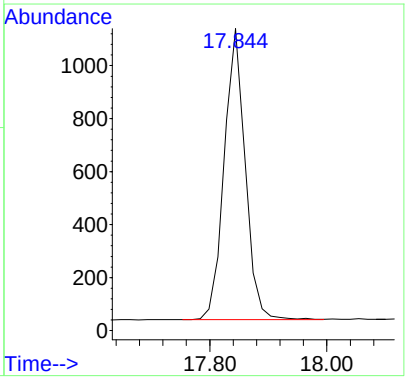
Tgt Ion:138 Resp: 3640

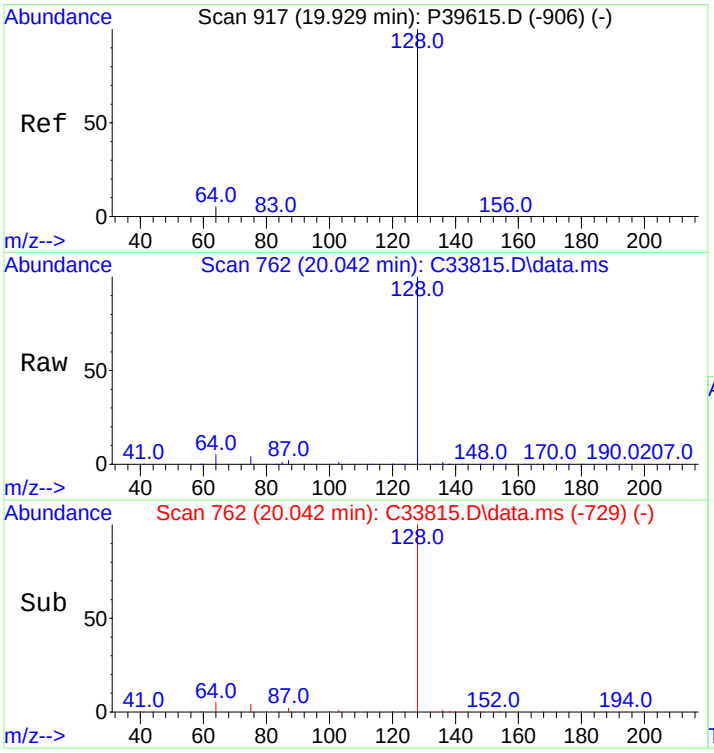




#4
cis-Decalin
Concen: 292.17 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:138 Resp: 2748

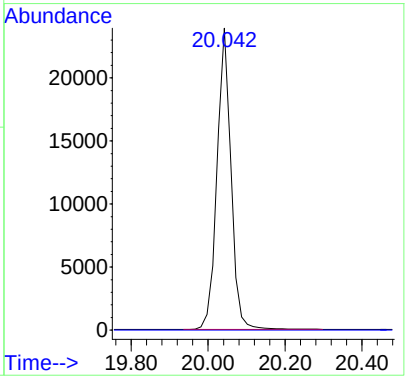


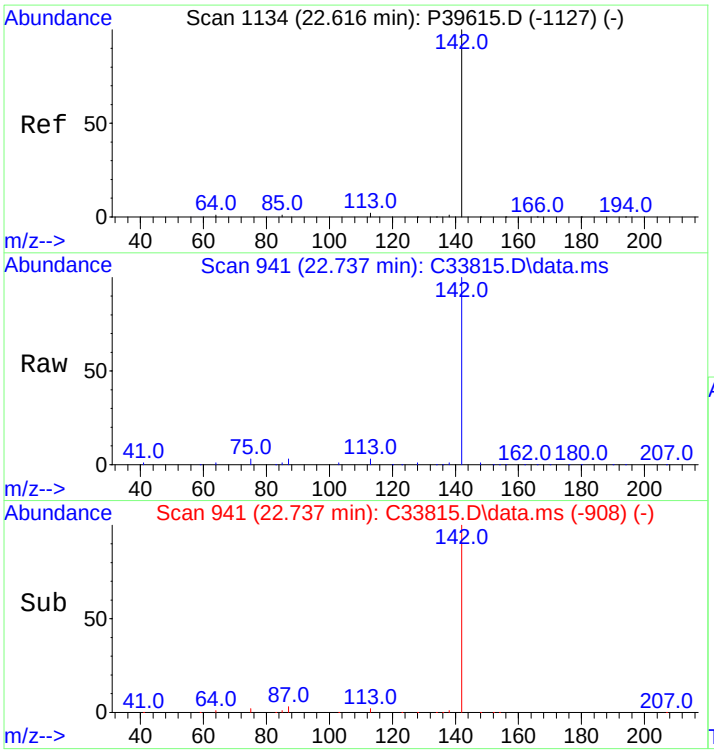


#10
Naphthalene
Concen: 966.55 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:128 Resp: 60651

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

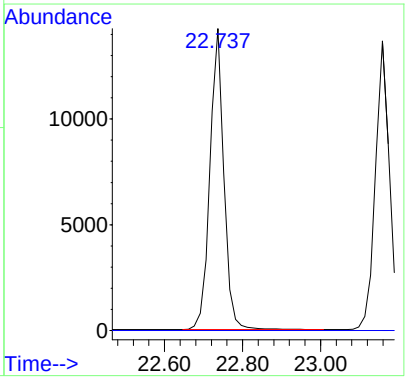


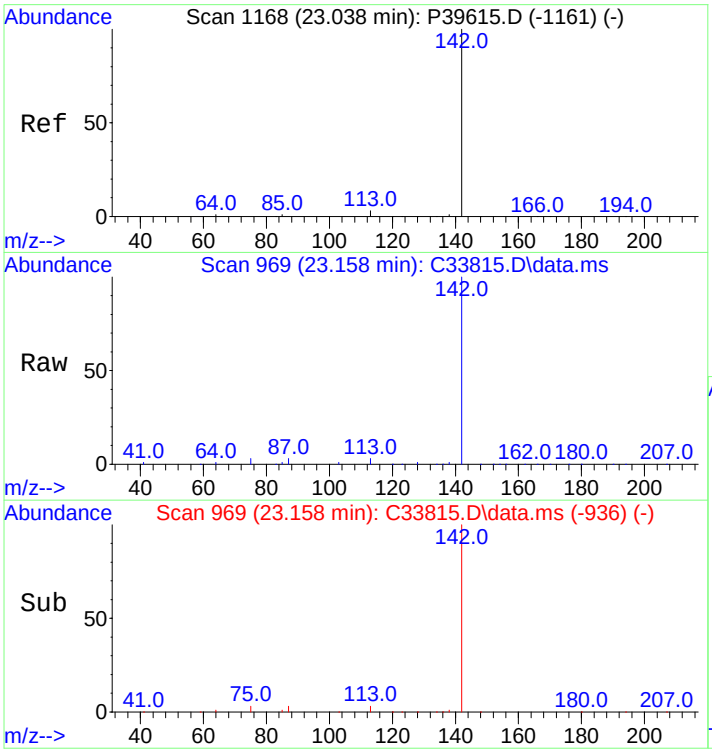


#16
2-Methylnaphthalene
Concen: 800.46 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 35465

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

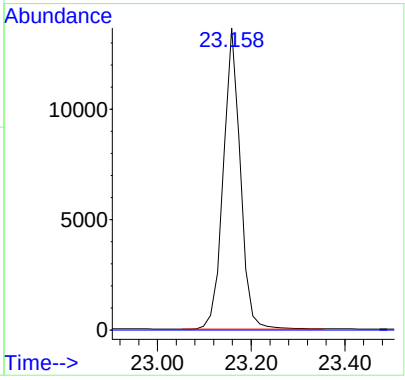


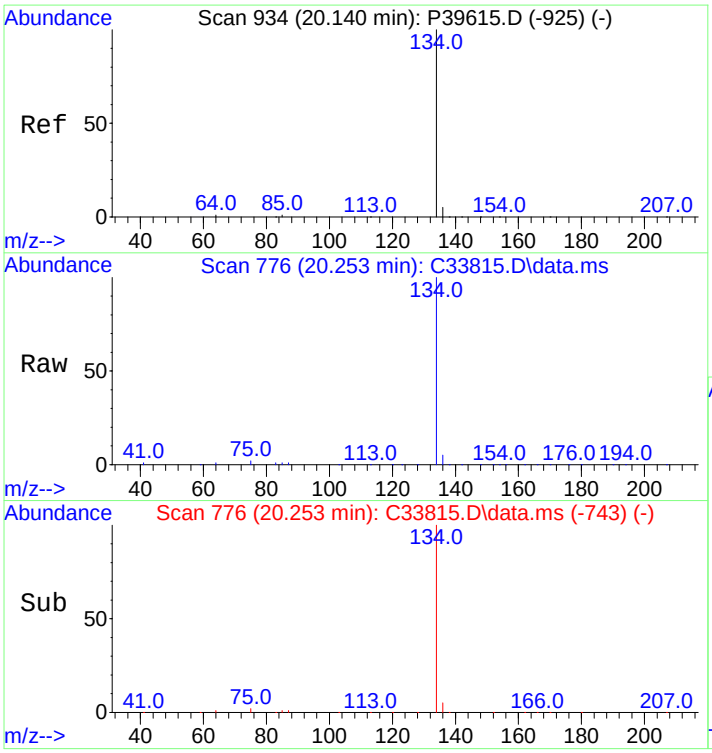


#17
1-Methylnaphthalene
Concen: 809.74 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 34410

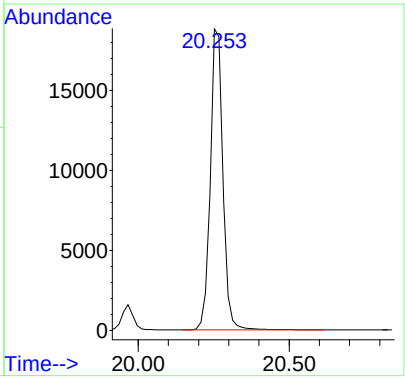
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

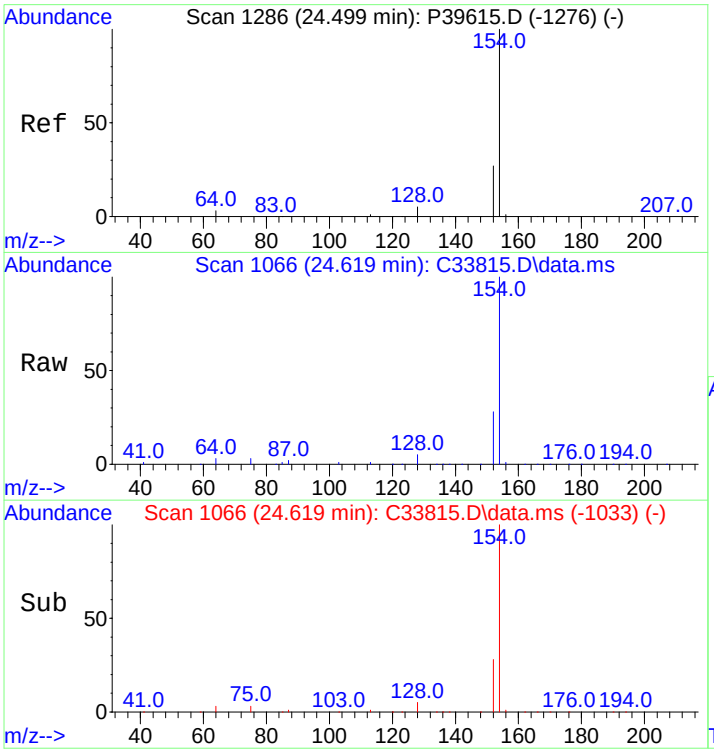




#18
Benzothiophene
Concen: 1053.10 ng/mL
RT: 20.253 min Scan# 776
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:134 Resp: 54196

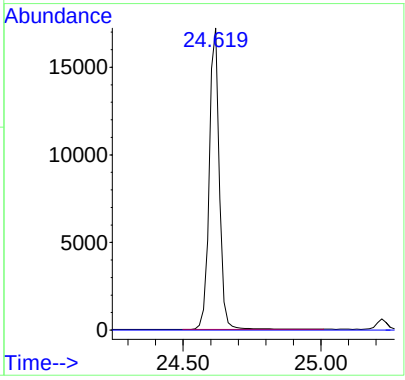


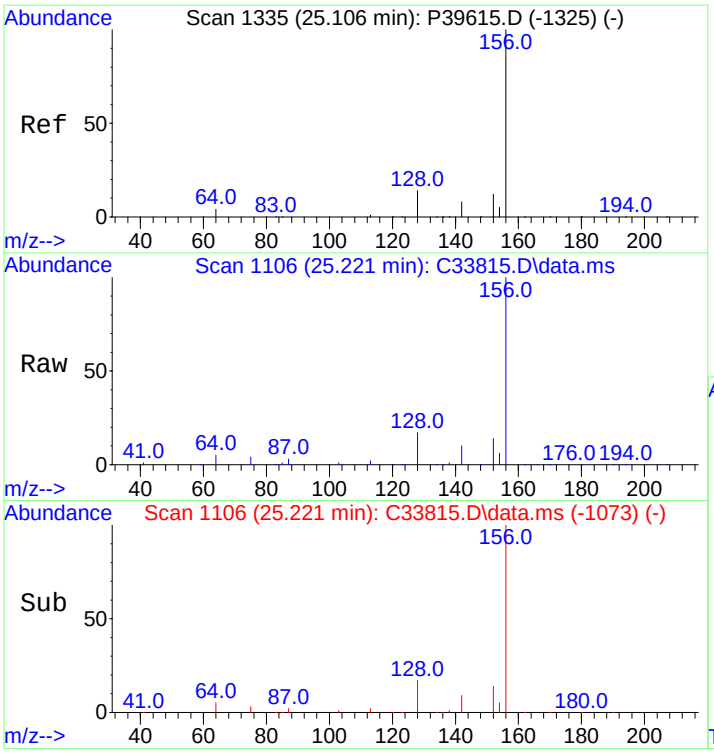


#23
Biphenyl
Concen: 745.26 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:154 Resp: 44061

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

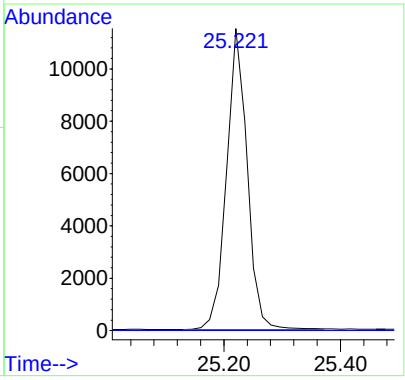


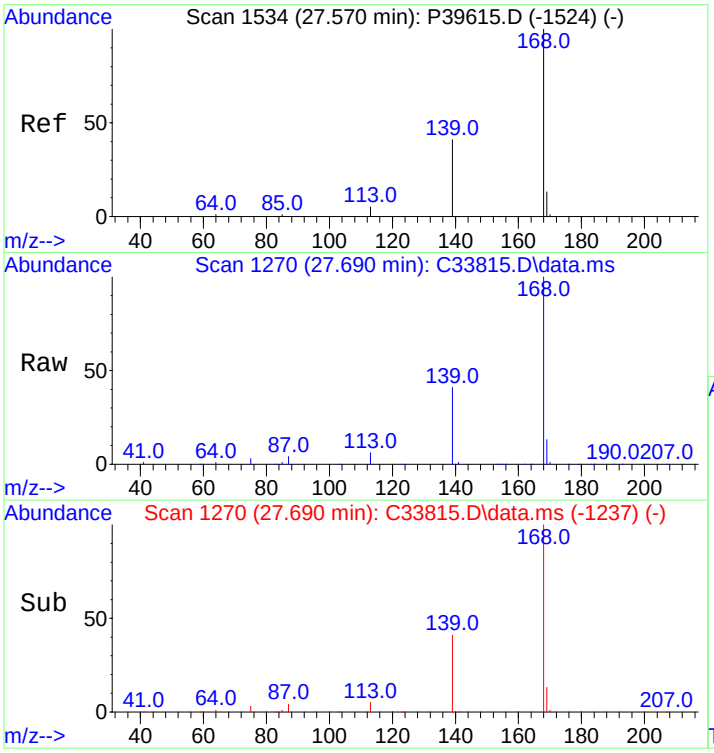


#24
2,6-Dimethylnaphthalene
Concen: 670.11 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:156 Resp: 28243

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

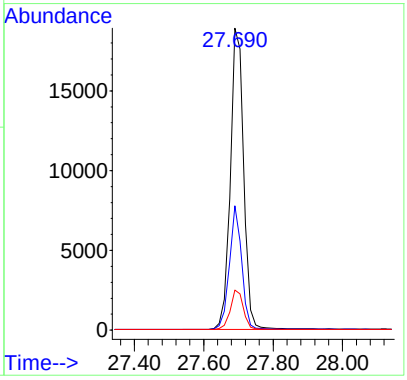


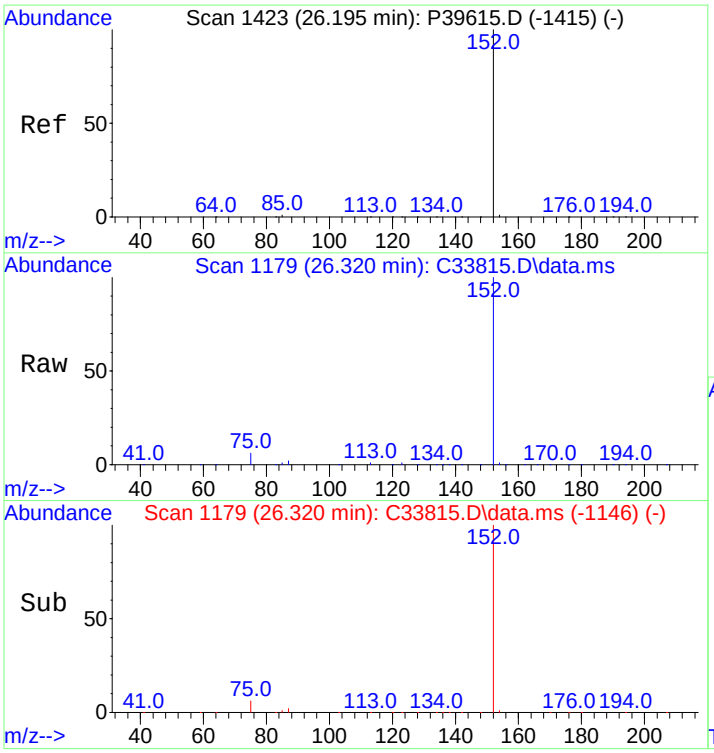


#25
Dibenzofuran
Concen: 735.41 ng/mL
RT: 27.690 min Scan# 1270
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:168 Resp: 50514

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	12.8	10.6	16.0

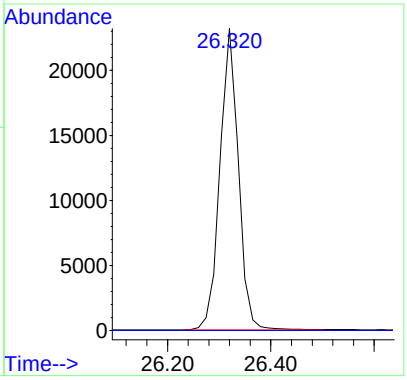


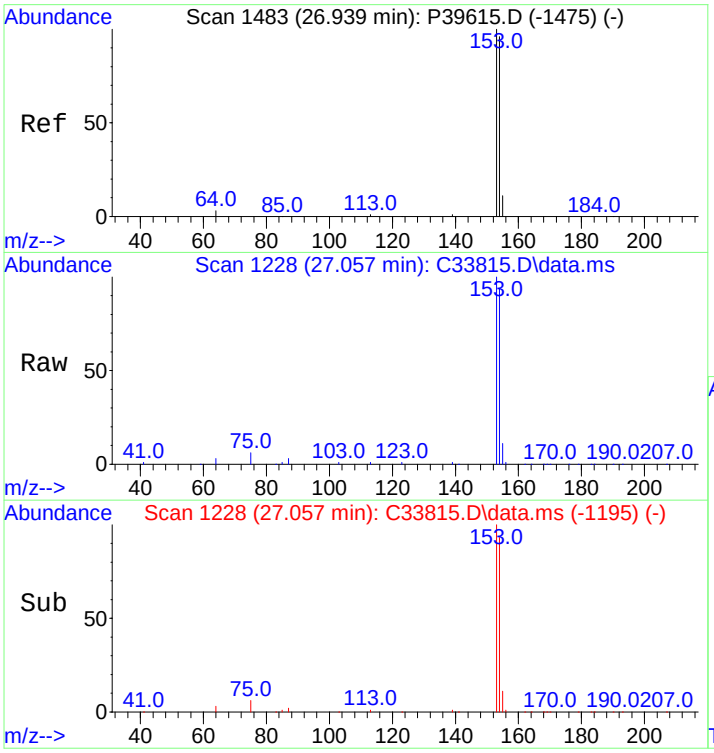


#26
Acenaphthylene
Concen: 813.47 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:152 Resp: 57590

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

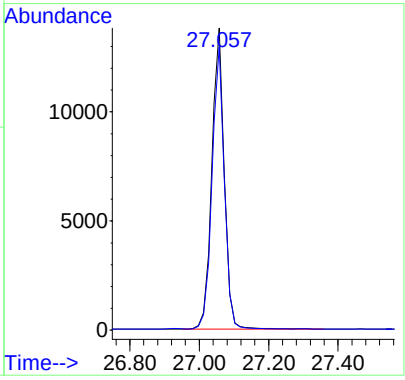


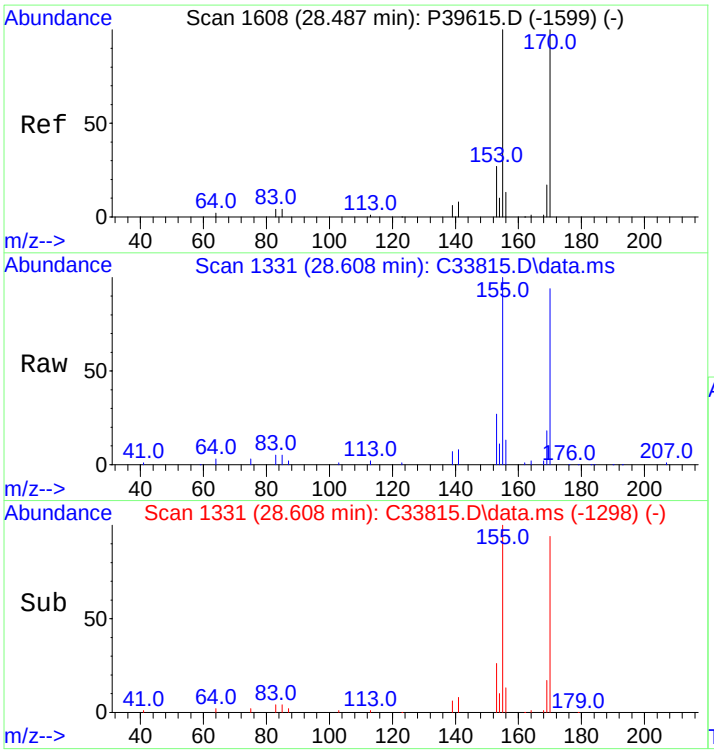


#27
Acenaphthene
Concen: 763.36 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:153 Resp: 34314

Ion	Ratio	Lower	Upper
153	100		
154	92.8	75.0	112.6

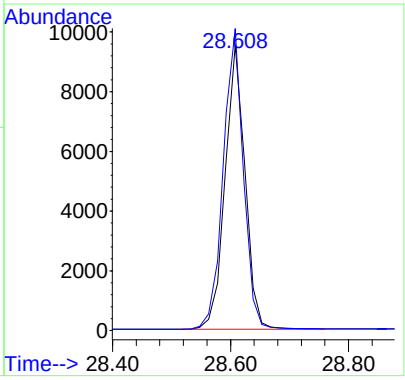


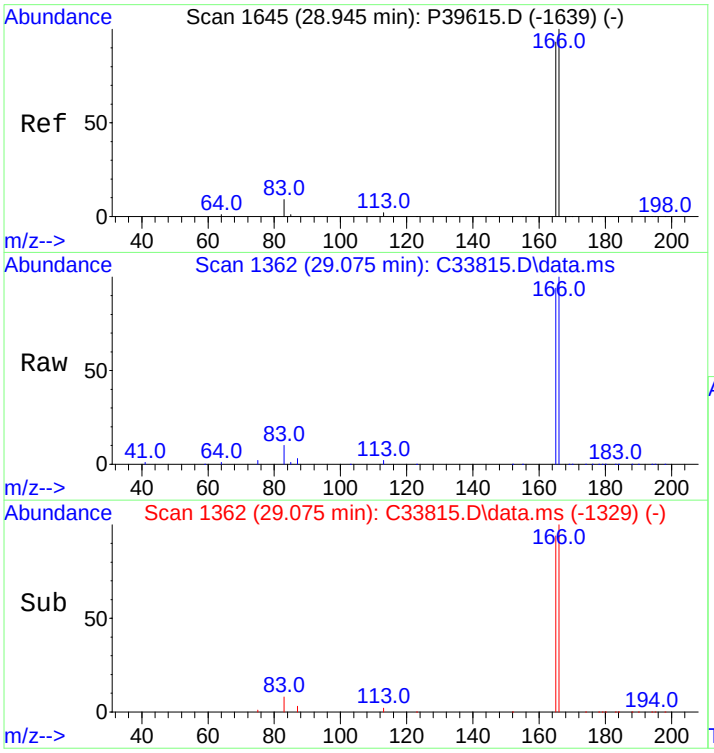


#28
2,3,5-Trimethylnaphthalene
Concen: 568.87 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:170 Resp: 22365

Ion	Ratio	Lower	Upper
170	100		
155	107.2	84.7	127.1

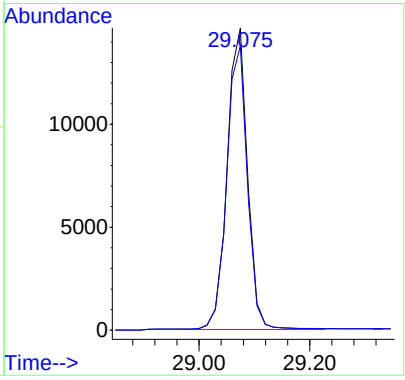


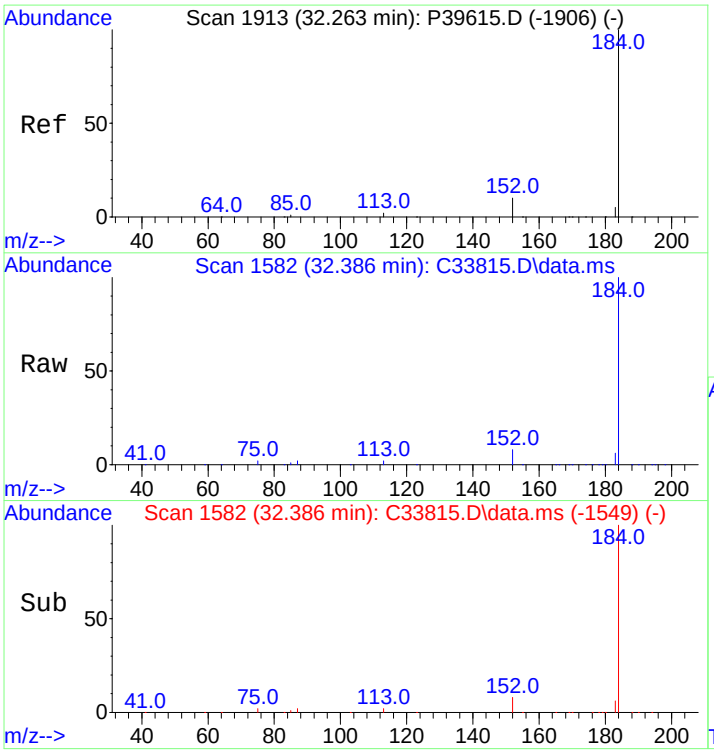


#29
Fluorene
Concen: 669.38 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:166 Resp: 37446

Ion	Ratio	Lower	Upper
166	100		
165	95.8	75.3	112.9

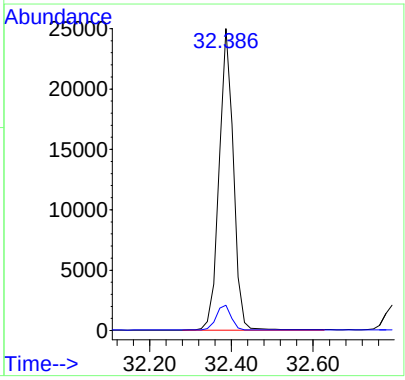


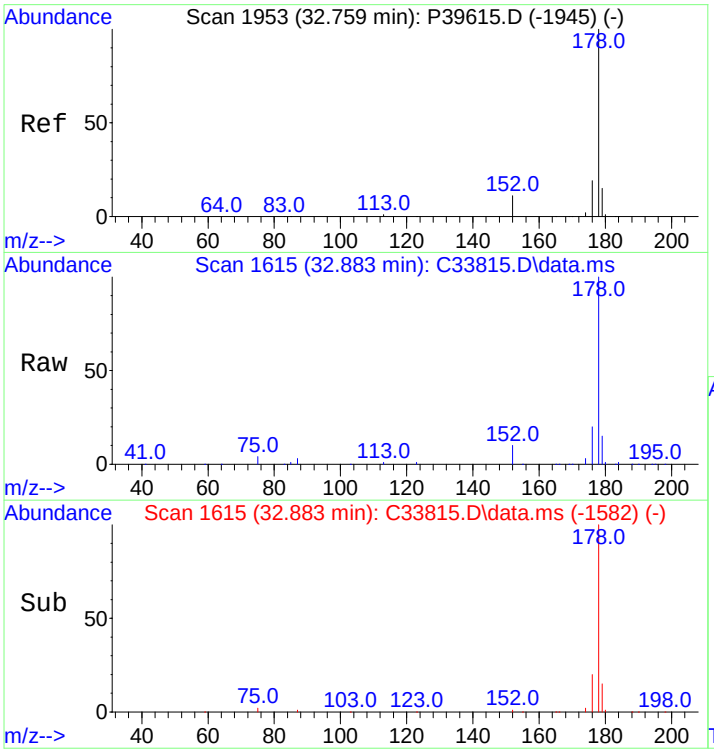


#33
Dibenzothiophene
Concen: 719.64 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:184 Resp: 60794

Ion	Ratio	Lower	Upper
184	100		
152	8.6	6.7	10.1

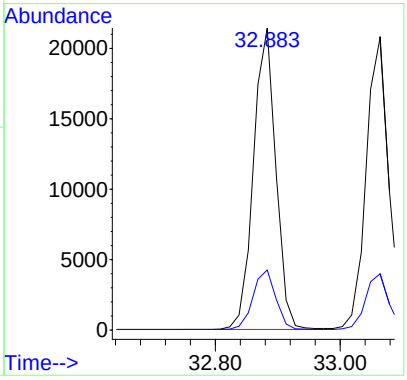


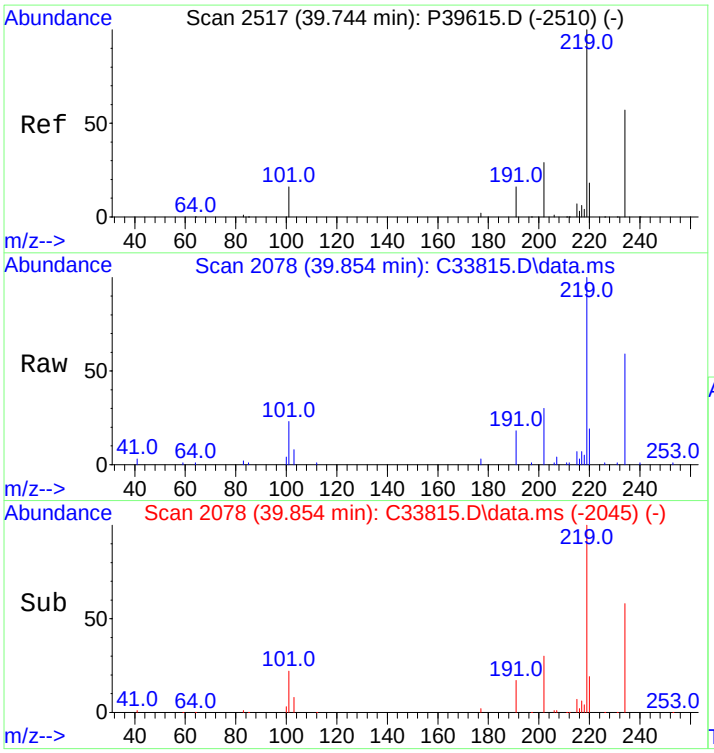


#43
Phenanthrene
Concen: 628.68 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 53364

Ion	Ratio	Lower	Upper
178	100		
176	20.1	15.9	23.9

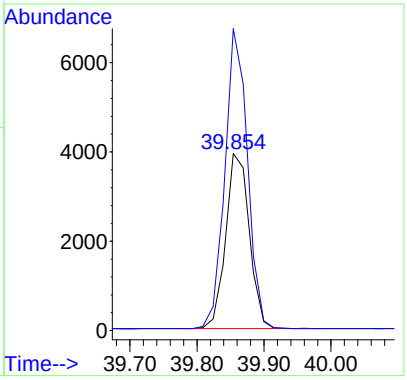


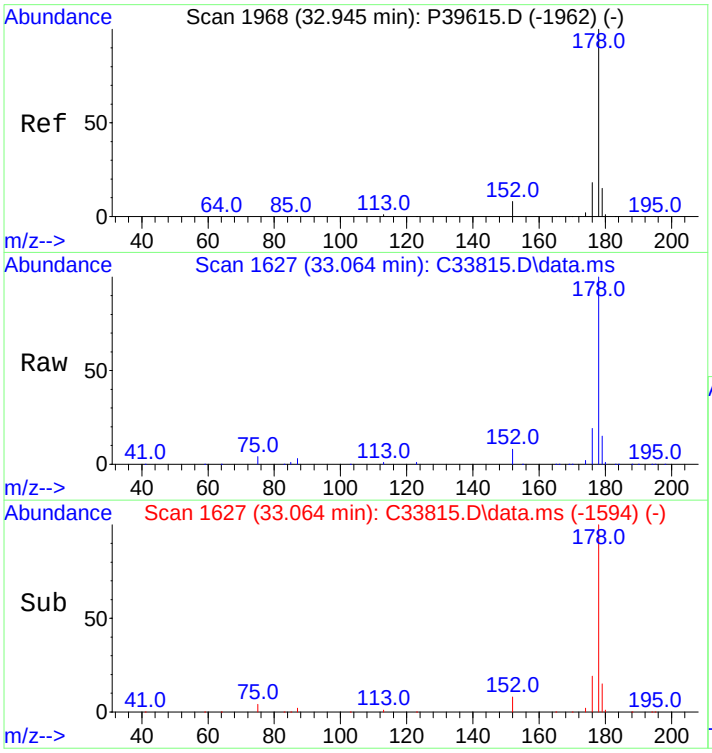


#54
Retene
Concen: 389.87 ng/mL m
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 9623

Ion	Ratio	Lower	Upper
234	100		
219	163.4	136.6	204.8

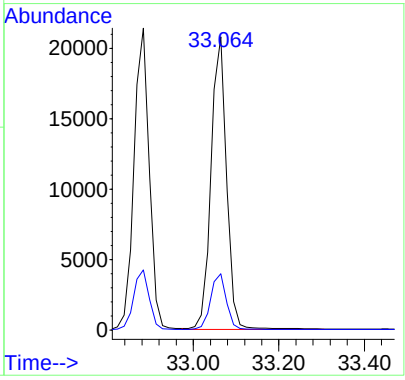


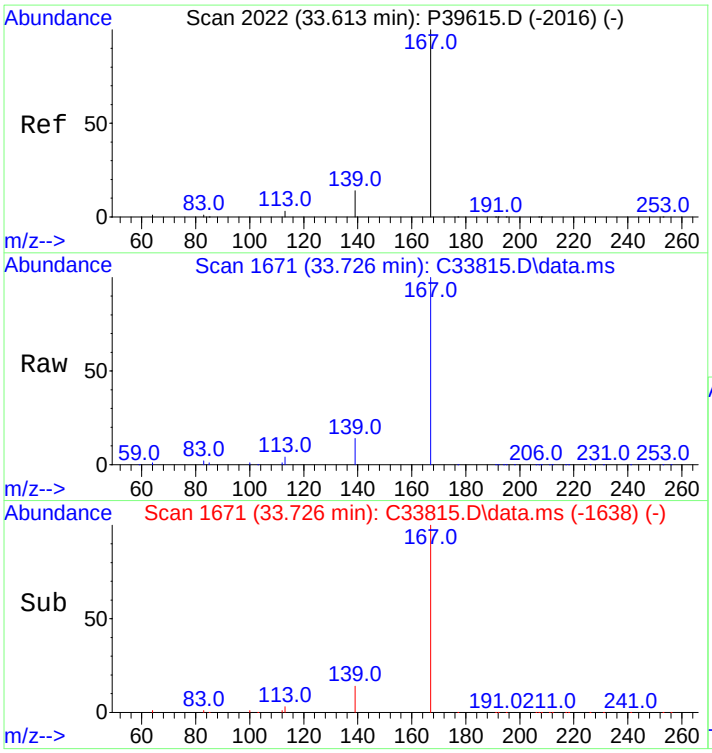


#55
Anthracene
Concen: 632.52 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 52019

Ion	Ratio	Lower	Upper
178	100		
176	19.3	15.4	23.0

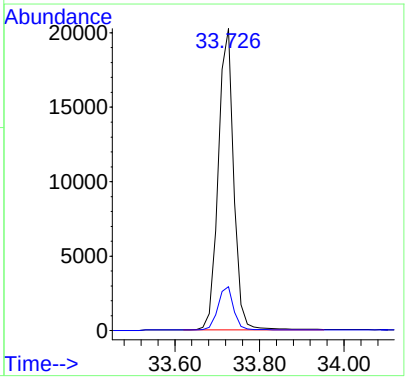


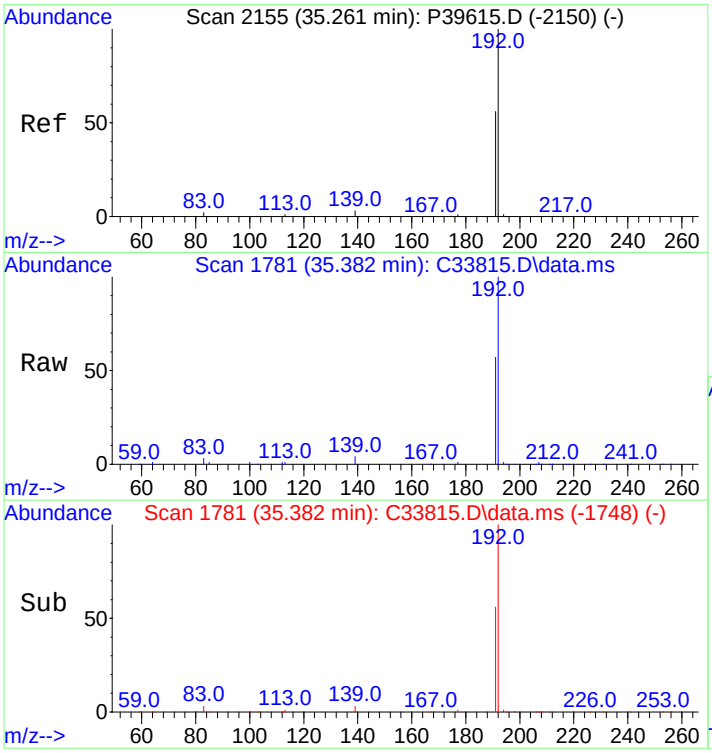


#56
Carbazole
Concen: 684.44 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:167 Resp: 51702

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.6	17.4

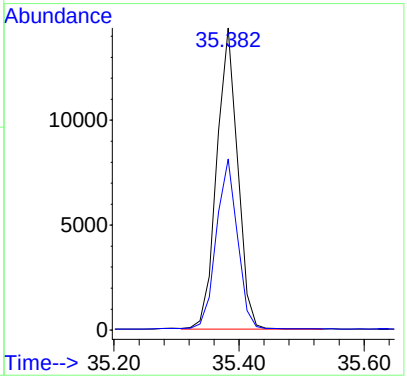


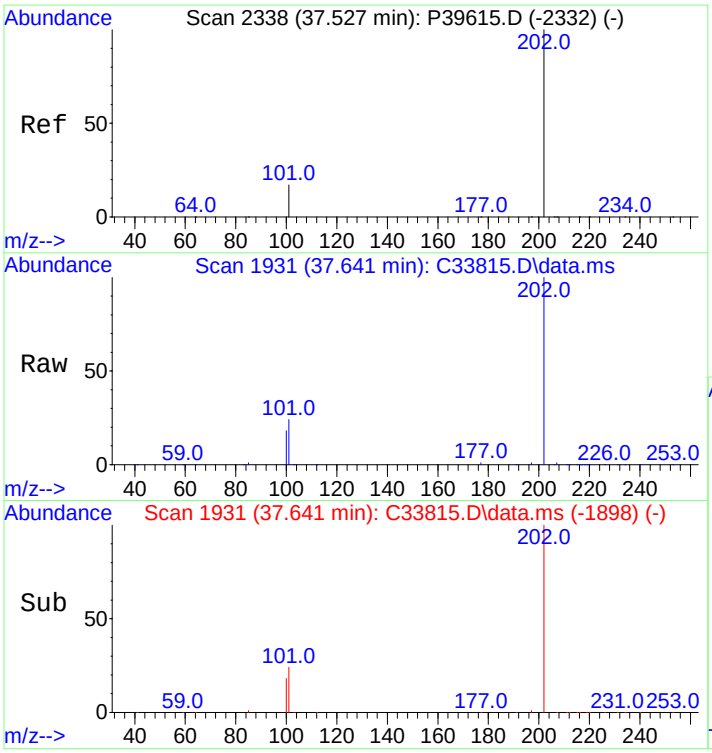


#57
1-Methylphenanthrene
Concen: 514.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:192 Resp: 33399

Ion	Ratio	Lower	Upper
192	100		
191	57.2	45.3	67.9

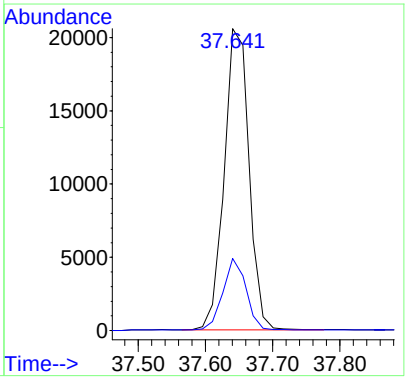


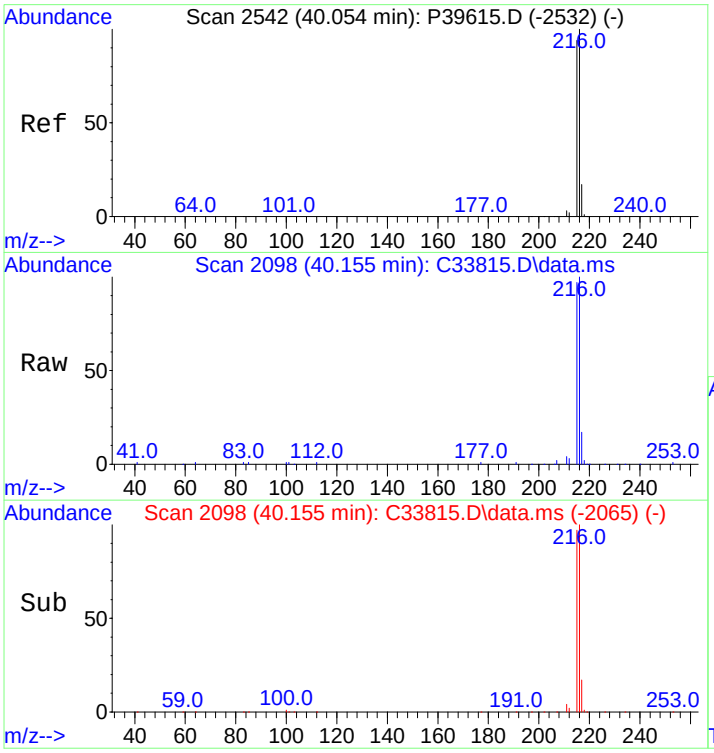


#58
Fluoranthene
Concen: 512.35 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 52587

Ion	Ratio	Lower	Upper
202	100		
101	22.7	19.1	28.7

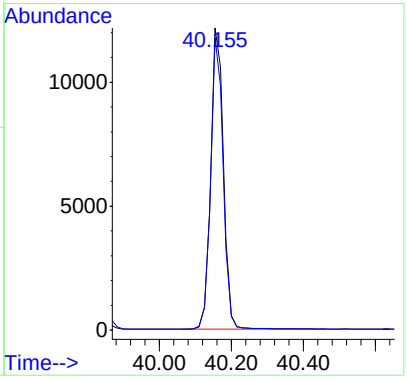


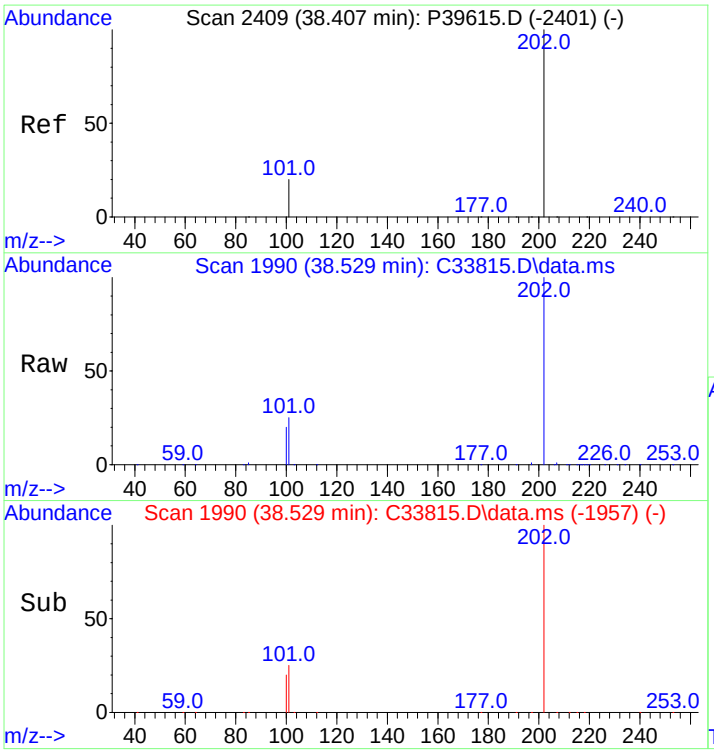


#59
Benzo(b)fluorene
Concen: 443.75 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:216 Resp: 29747

Ion	Ratio	Lower	Upper
216	100		
215	95.1	77.4	116.2

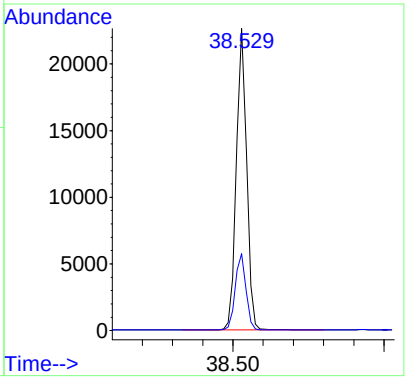


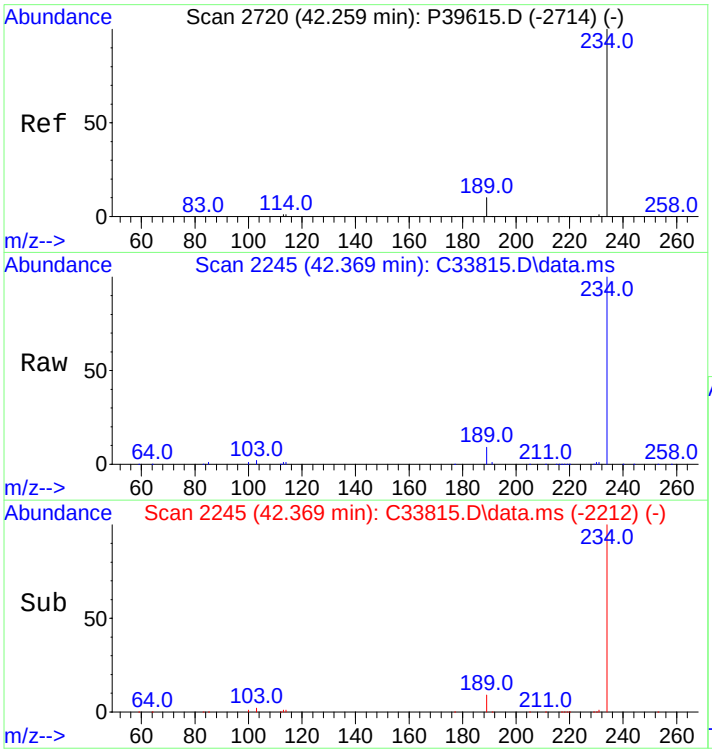


#60
Pyrene
Concen: 508.20 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 53499

Ion	Ratio	Lower	Upper
202	100		
101	26.2	20.4	30.6

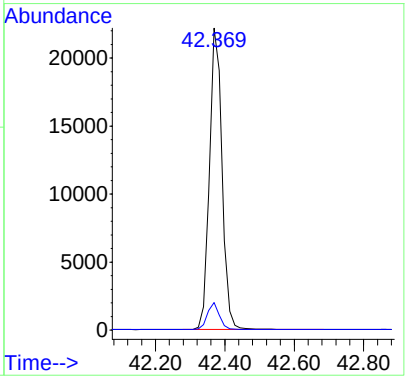


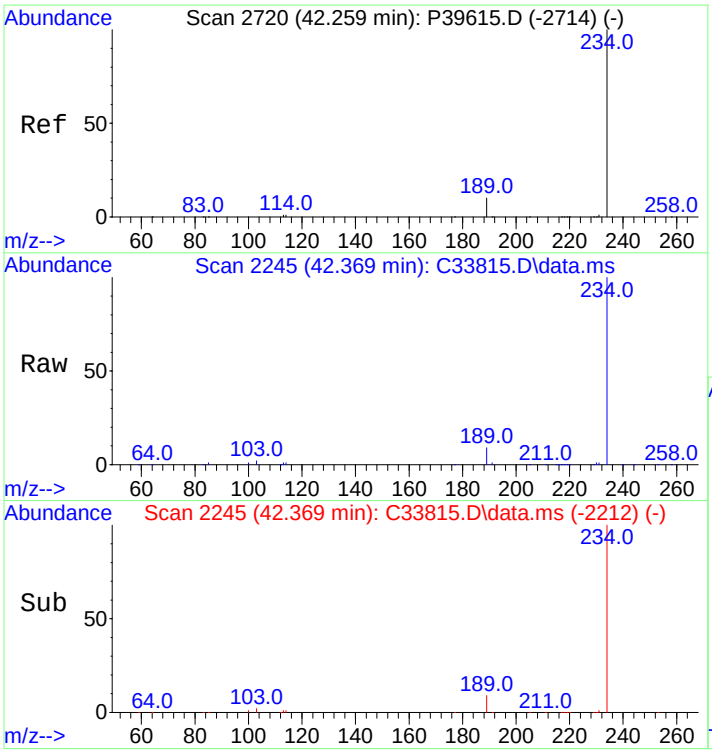


#66
Naphthobenzothiophene
Concen: 506.80 ng/ml
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

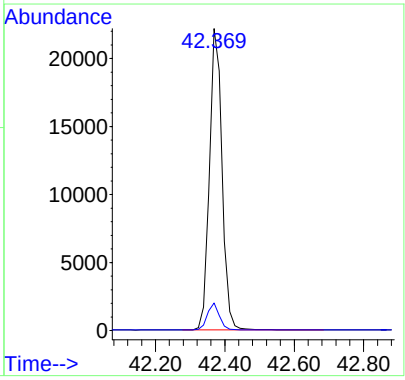


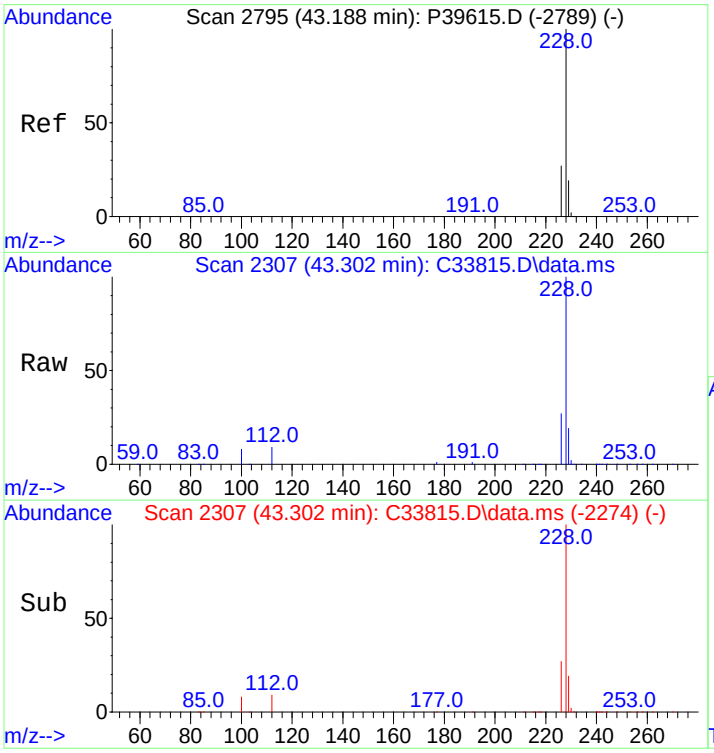


#67
Naphthobenzothiophene-2,1-D
Concen: 506.80 ng/mL
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

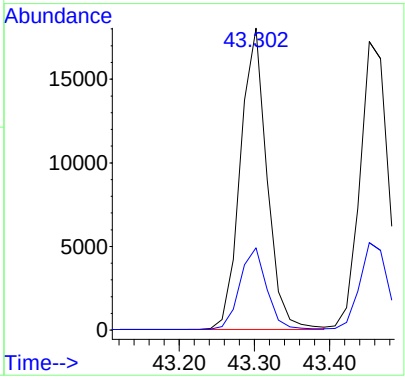


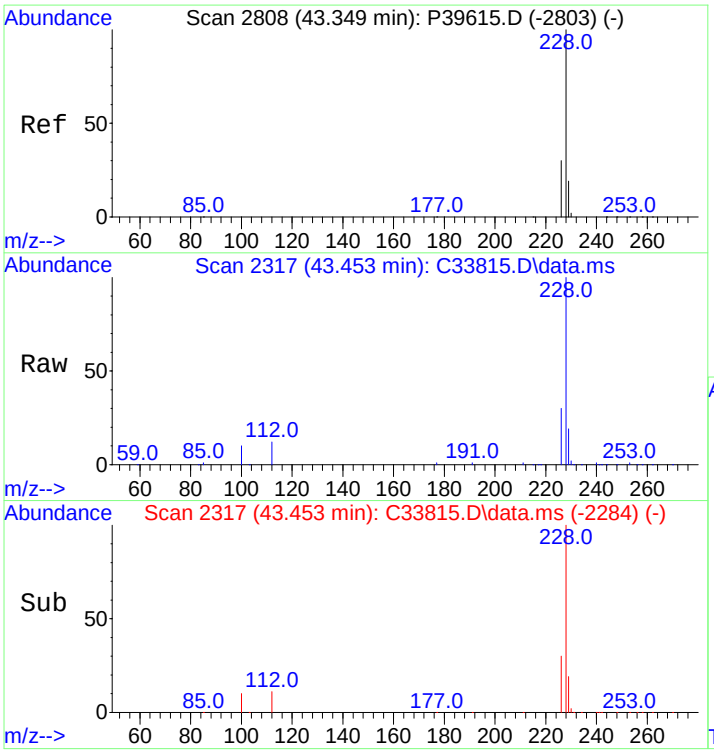


#75
Benz[a]anthracene
Concen: 553.55 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 44238

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.8	32.8

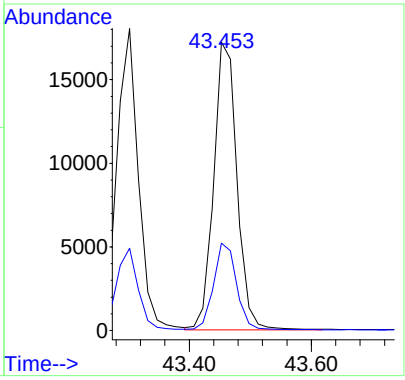


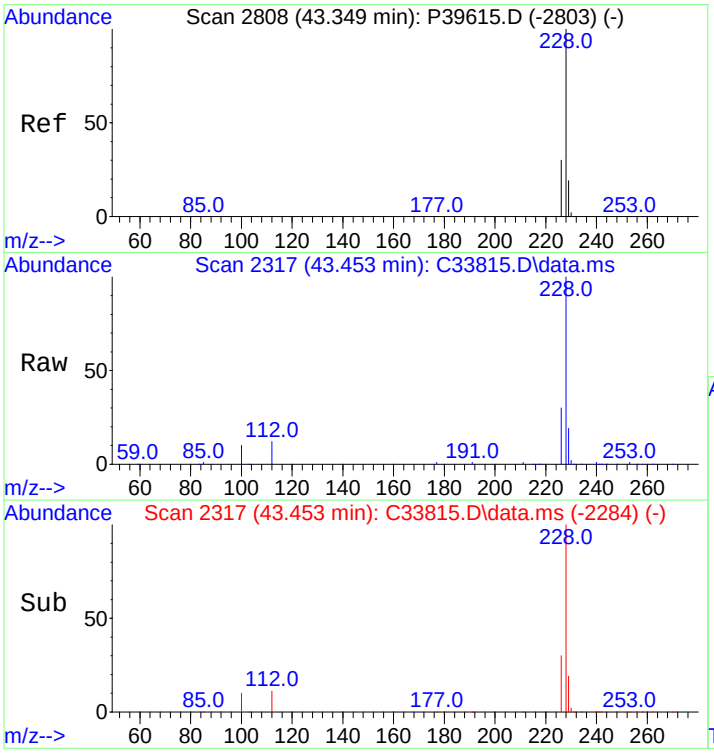


#76
Chrysene
Concen: 581.22 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45764

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

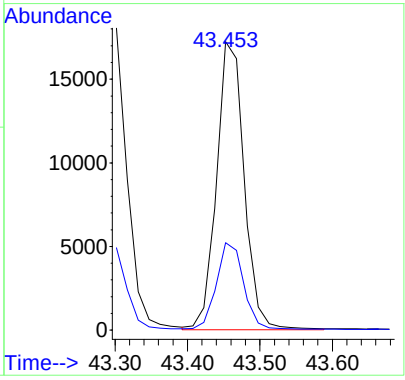


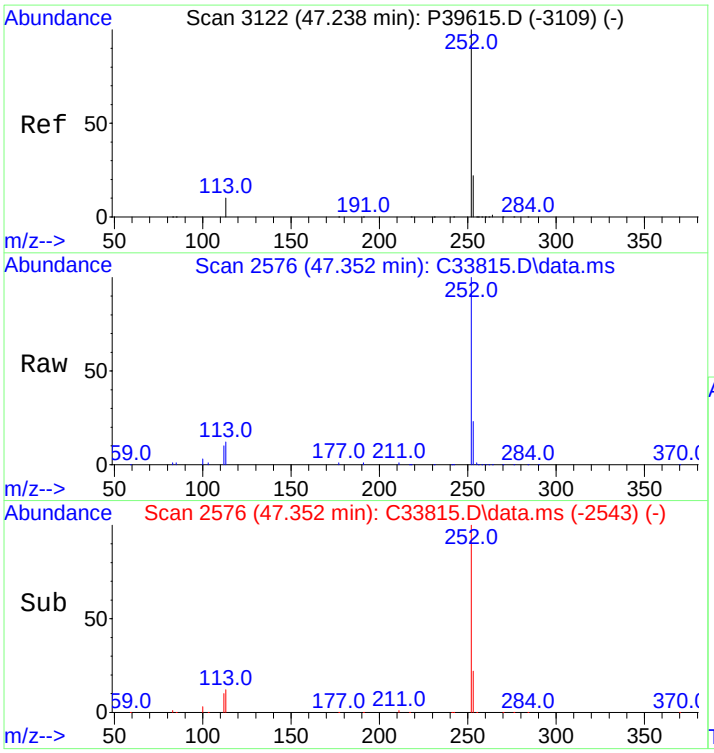


#77
Chrysene/Triphenylene
Concen: 581.91 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45818

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

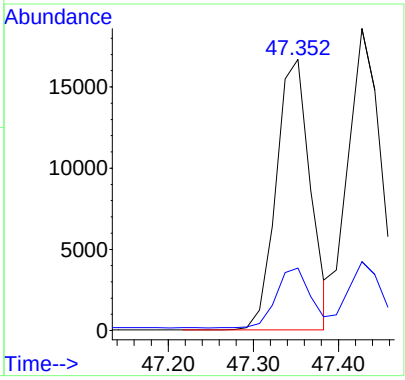


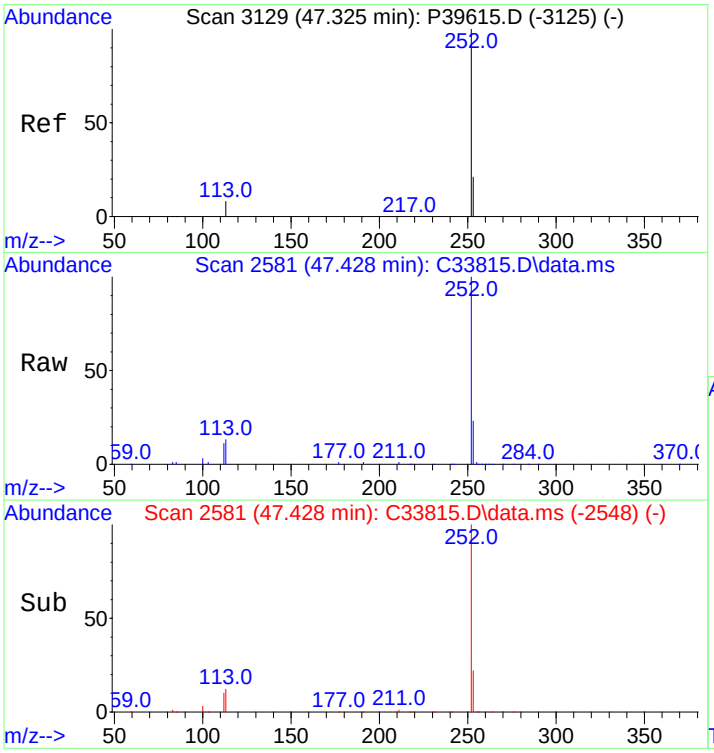


#82
Benzo[b]fluoranthene
Concen: 529.44 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46556

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

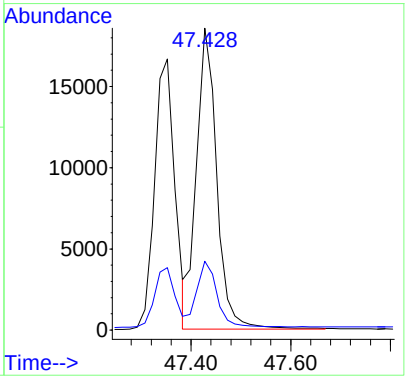


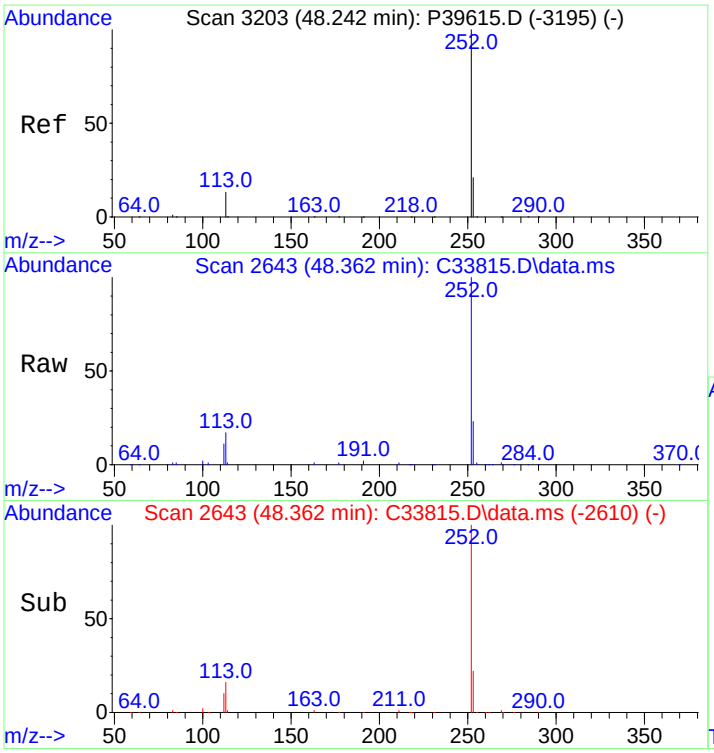


#83
Benzo[j]+[k]fluoranthene
Concen: 564.95 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 52521

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.2	27.4

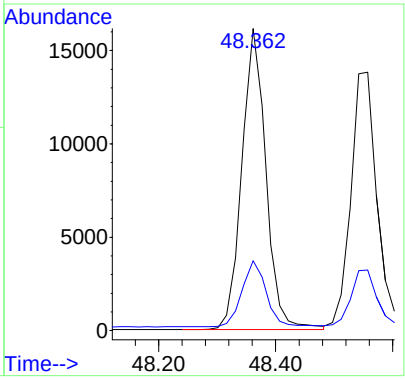


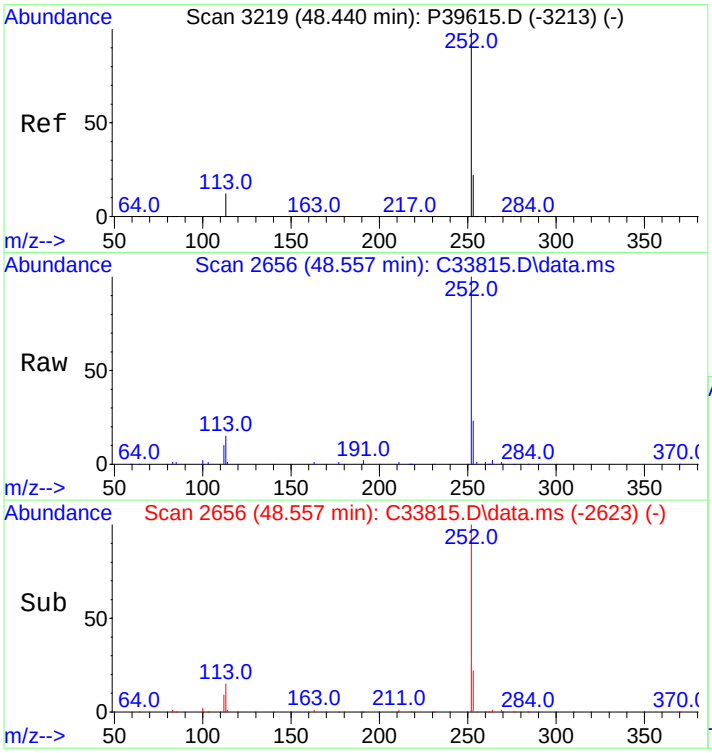


#85
Benzo[e]pyrene
Concen: 542.40 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 45904

Ion	Ratio	Lower	Upper
252	100		
253	22.4	18.5	27.7

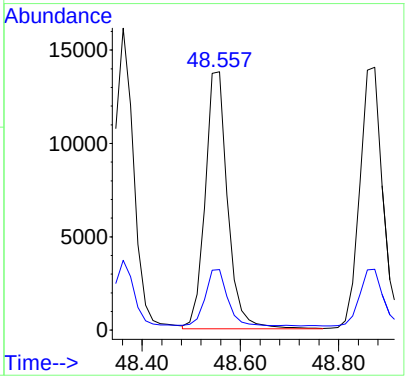


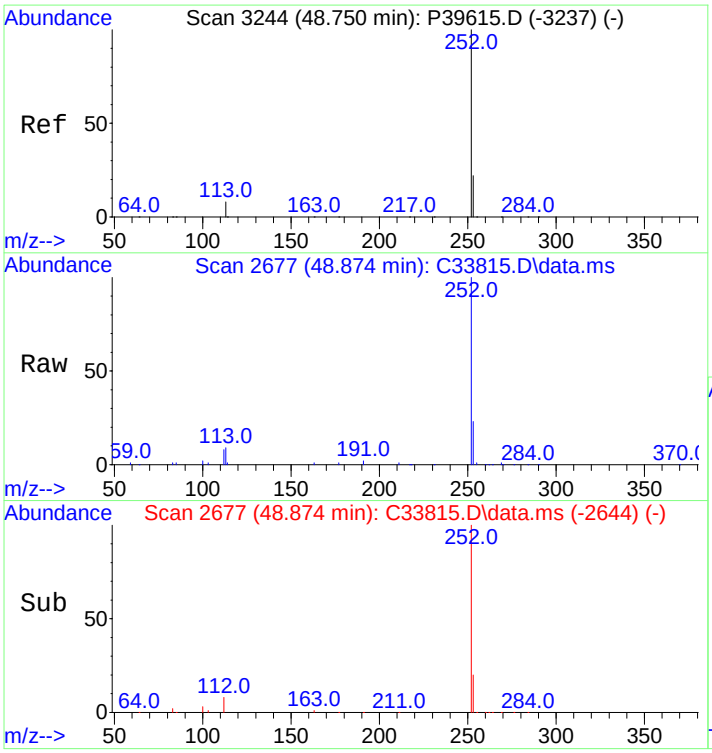


#87
Benzo[a]pyrene
Concen: 549.35 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 43695

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

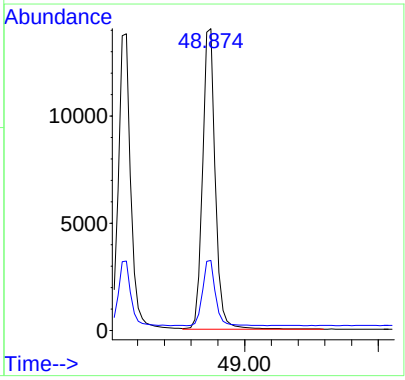


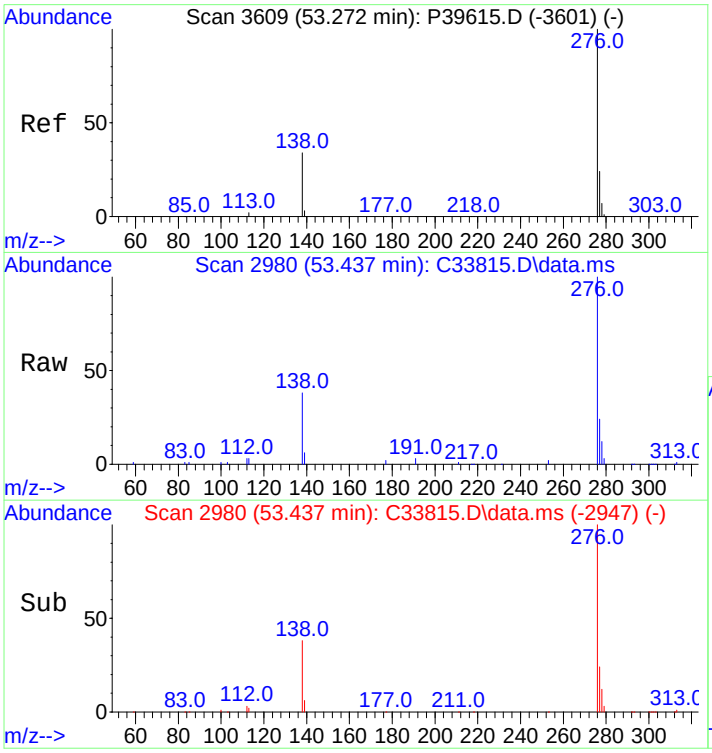


#88
Perylene
Concen: 545.55 ng/mL
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46371

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

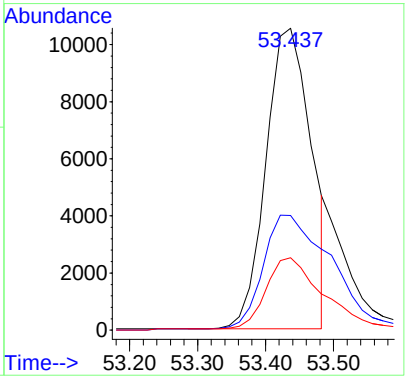


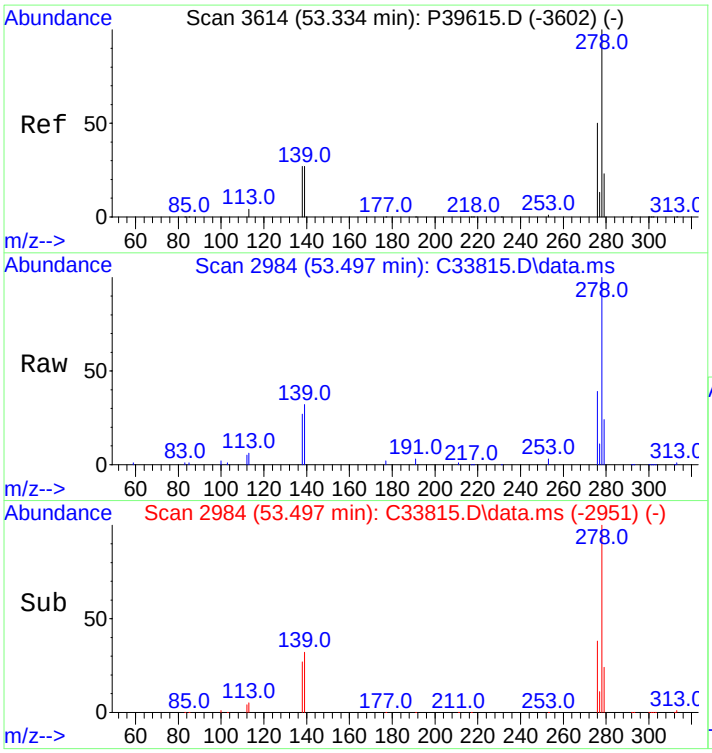


#89
Indeno[1,2,3-cd]pyrene
Concen: 532.49 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 48761

Ion	Ratio	Lower	Upper
276	100		
138	61.5	30.3	45.5#
277	31.4	19.2	28.8#

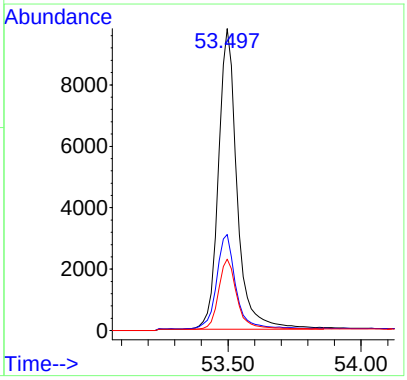


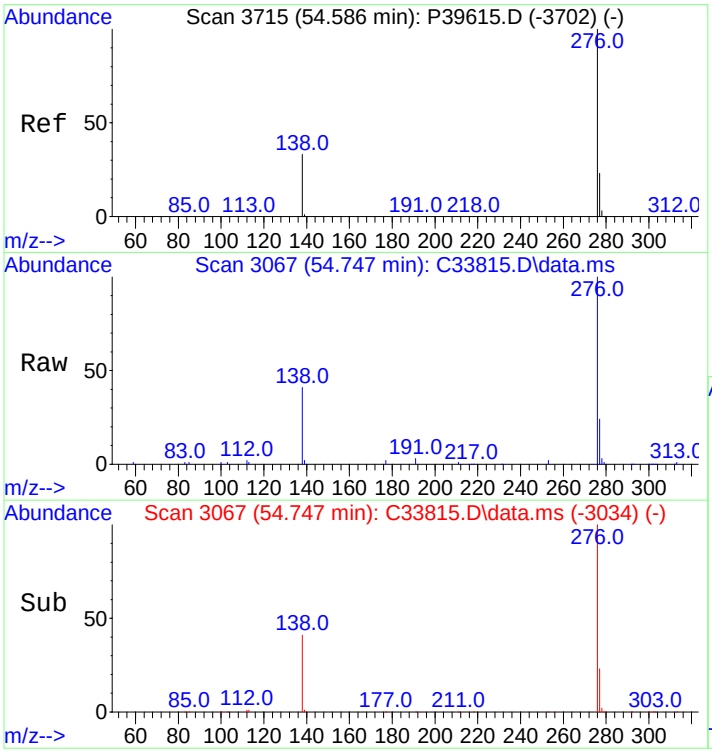


#90
Dibenz[ah]+[ac]anthracene
Concen: 556.84 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:278 Resp: 47935

Ion	Ratio	Lower	Upper
278	100		
139	33.4	25.4	38.2
279	24.0	19.0	28.4

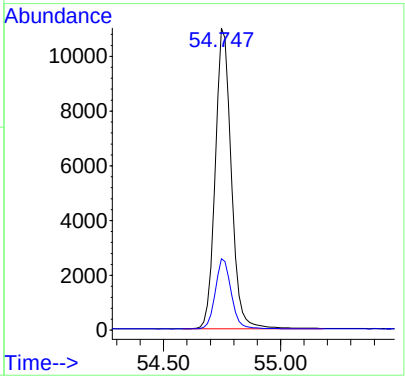


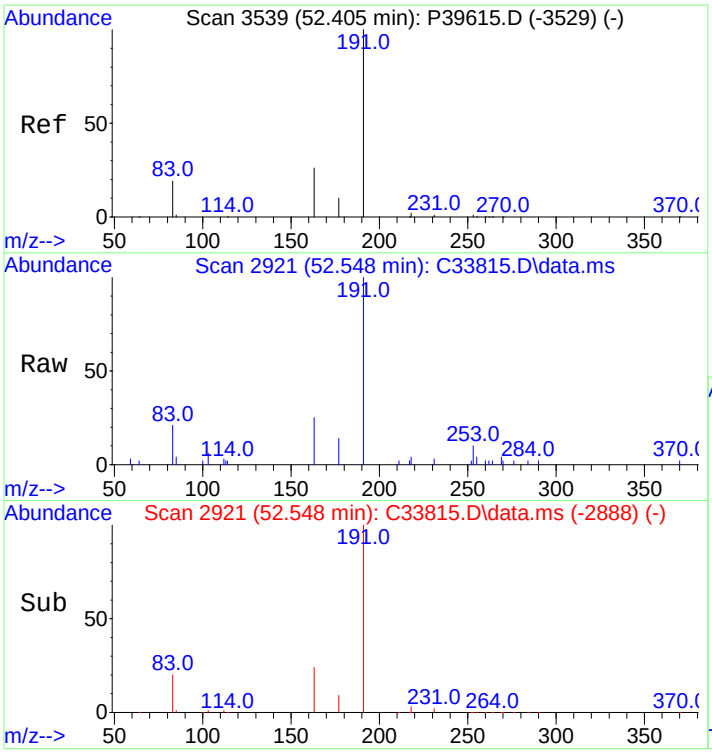


#91
Benzo[g,h,i]perylene
Concen: 561.01 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 52408

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

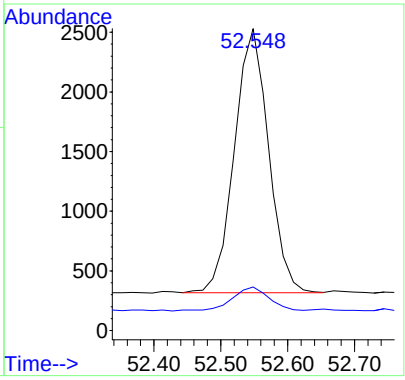


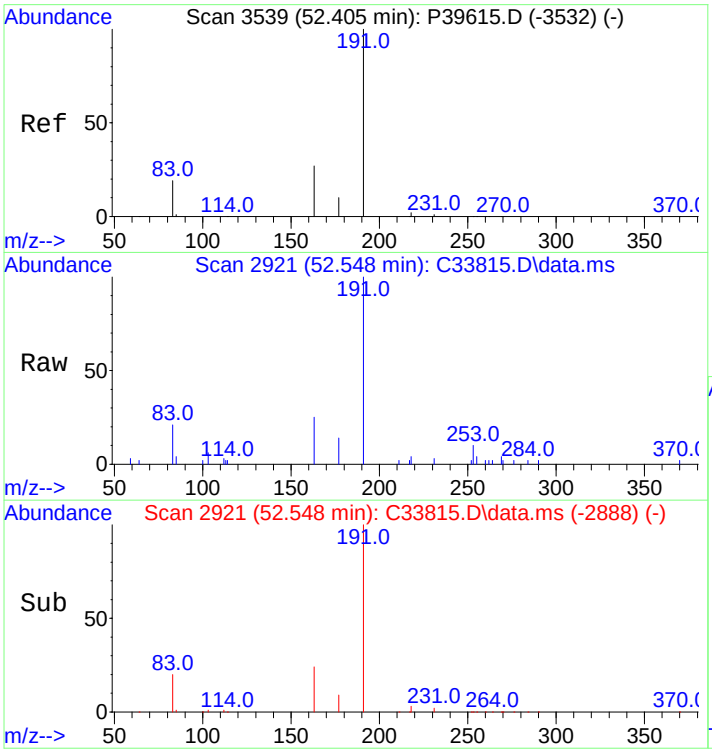


#92
Hopane (T19)
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#

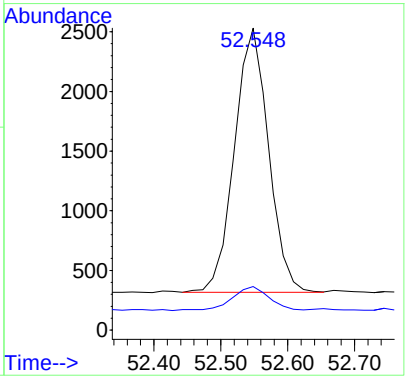




#93
17a(H),21B(H)-hopane - C30H52
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	22551M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	478162	6355.066	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 635.51%#			
42) Phenanthrene-d10	32.793	188	412777	4730.380	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 473.04%#			
86) Benzo[a]pyrene-d12	48.482	264	443076	5545.446	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 554.54%#			
127) 5B(H)Cholane - Surr	43.995	217	64588M4	4700.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 470.02%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	43356	2781.614	ng/mL	100
4) cis-Decalin	17.844	138	33472	2752.401	ng/mL	100
10) Naphthalene	20.042	128	717522M4	8843.529	ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	7511.855	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	7671.541	ng/mL#	100
18) Benzothiophene	20.268	134	651957	9797.743	ng/mL	100
23) Biphenyl	24.619	154	543936	7115.490	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	6667.718	ng/mL#	100
25) Dibenzofuran	27.705	168	643601	7246.670	ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	8216.990	ng/mL	
27) Acenaphthene	27.057	153	436514M4	7510.380	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	298218	5866.548	ng/mL	98
29) Fluorene	29.075	166	496059M4	6858.178	ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	7268.637	ng/mL	
43) Phenanthrene	32.883	178	705493M4	6428.067	ng/mL	
54) Retene	39.869	234	149798	4693.772	ng/mL	94
55) Anthracene	33.064	178	710151M4	6678.295	ng/mL	
56) Carbazole	33.726	167	724874M3	7421.536	ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5549.758	ng/mL	
58) Fluoranthene	37.656	202	730627M3	5505.463	ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5131.170	ng/mL	
60) Pyrene	38.544	202	747539M4	5491.938	ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5776.683	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	821825M4	5777.801	ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5809.075	ng/mL	99
76) Chrysene	43.468	228	665554M4	5731.133	ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5730.238	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5709.986	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5808.435	ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5757.223	ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5991.154	ng/mL	
88) Perylene	48.889	252	752672	6003.913	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	6210.458	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	6184.645	ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838517	6085.922	ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	5641.802	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	122720M3	5638.678	ng/mL	

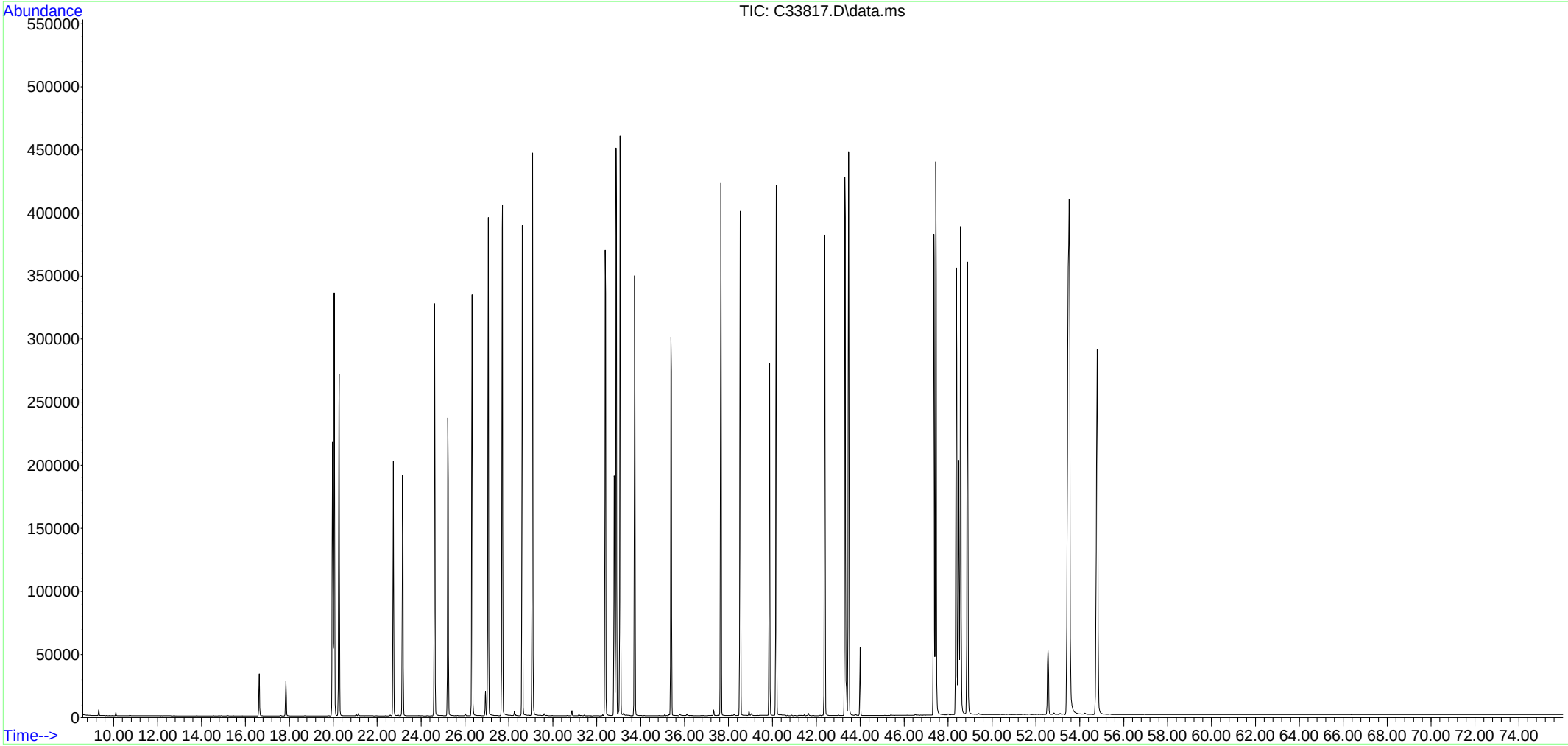
(#) = qualifier out of range (m) = manual integration (+) = signals summed

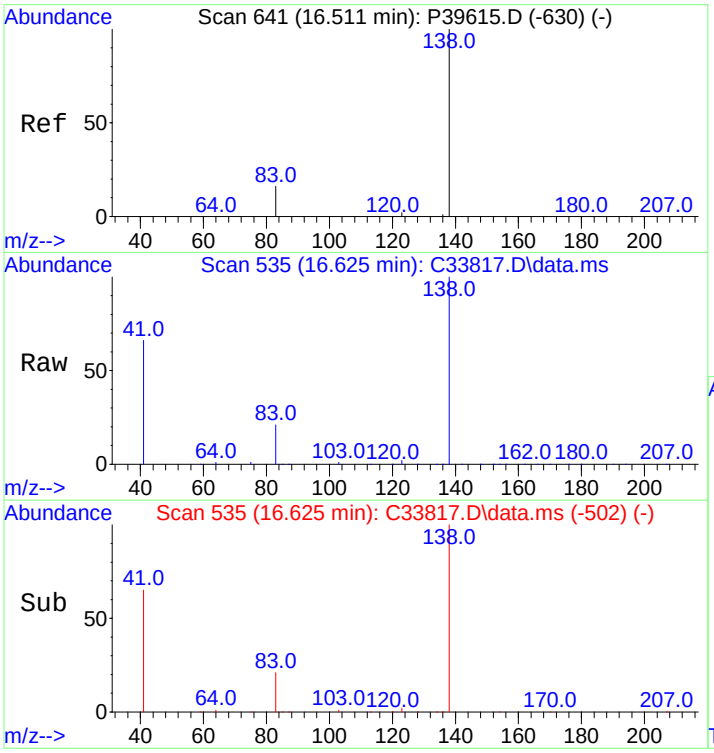
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

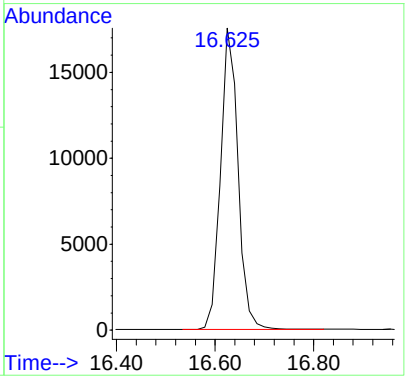
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

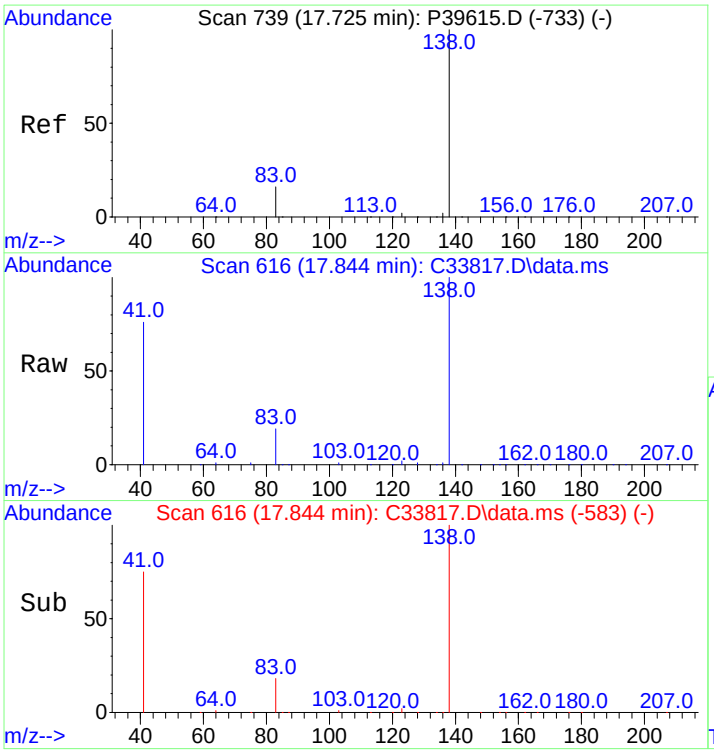




#3
trans-Decalin
Concen: 2781.61 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

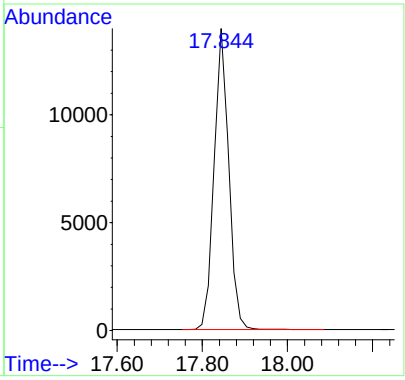
Tgt Ion:138 Resp: 43356

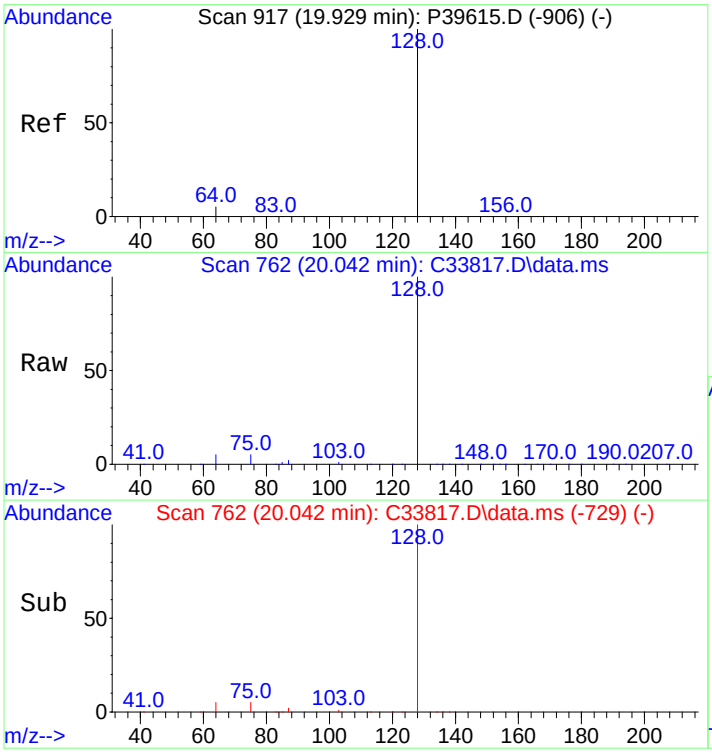




#4
cis-Decalin
Concen: 2752.40 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:138 Resp: 33472

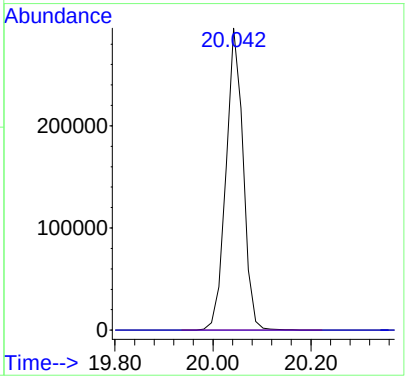


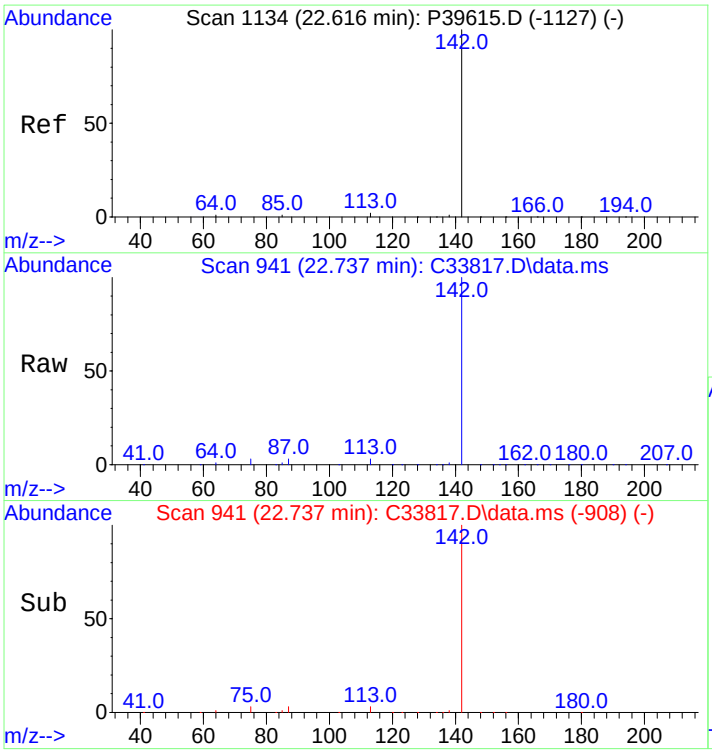


#10
Naphthalene
Concen: 8843.53 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:128 Resp: 717522

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

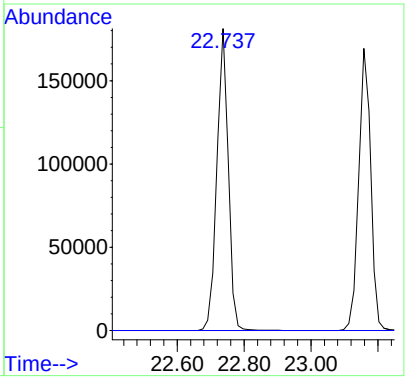


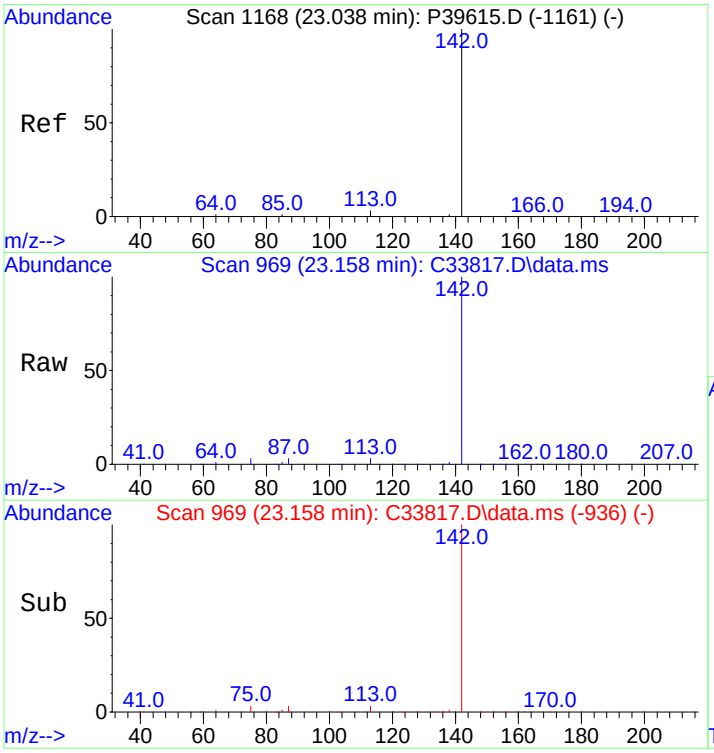


#16
2-Methylnaphthalene
Concen: 7511.86 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 430330

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

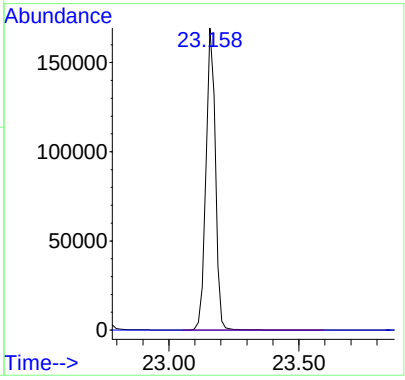


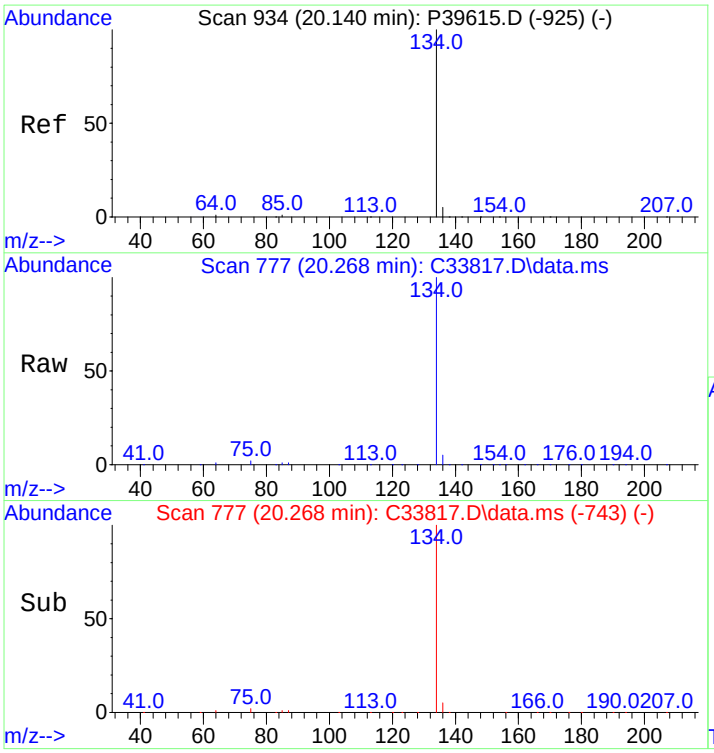


#17
1-Methylnaphthalene
Concen: 7671.54 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 421519

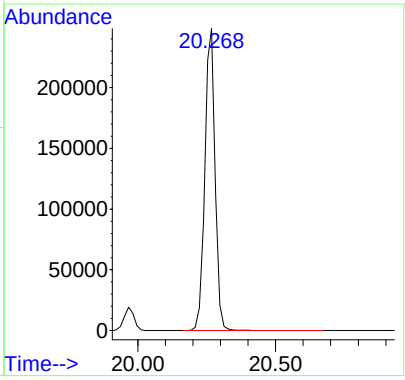
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

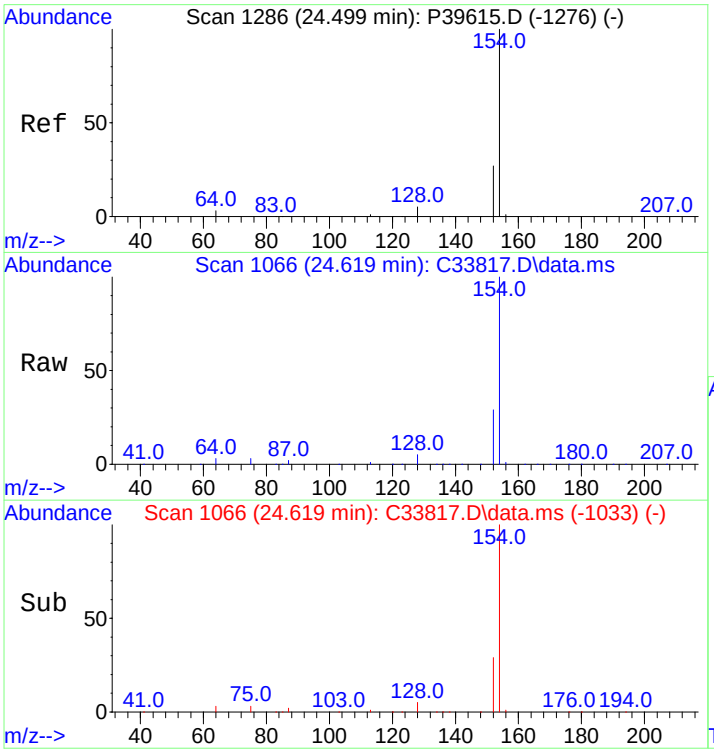




#18
Benzothiophene
Concen: 9797.74 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:134 Resp: 651957

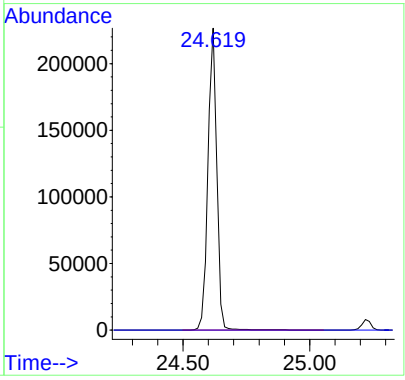


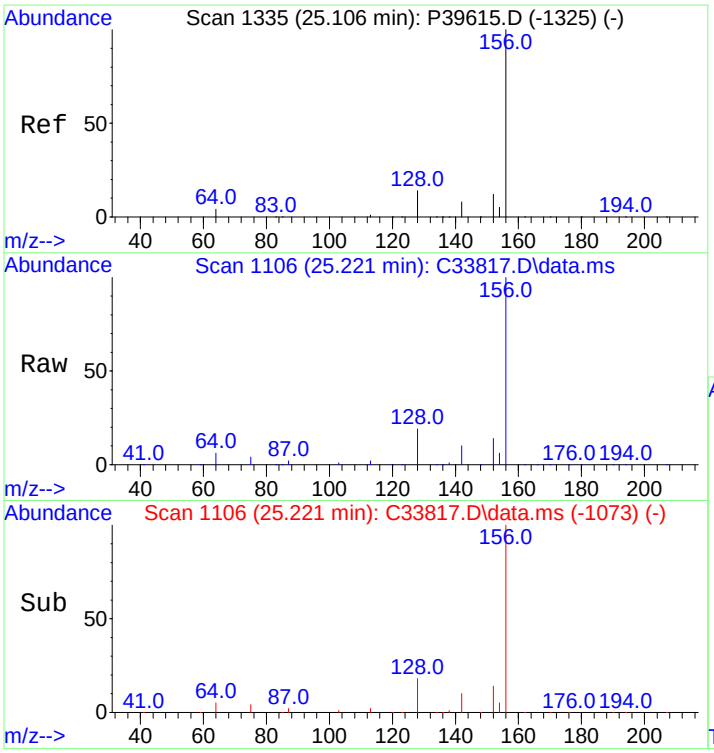


#23
Biphenyl
Concen: 7115.49 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:154 Resp: 543936

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

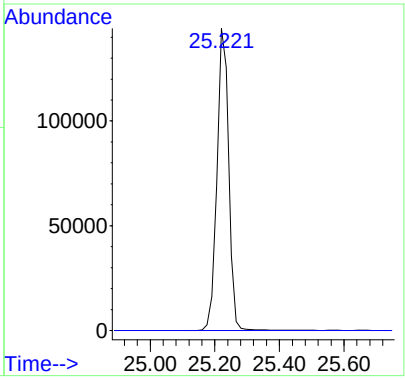


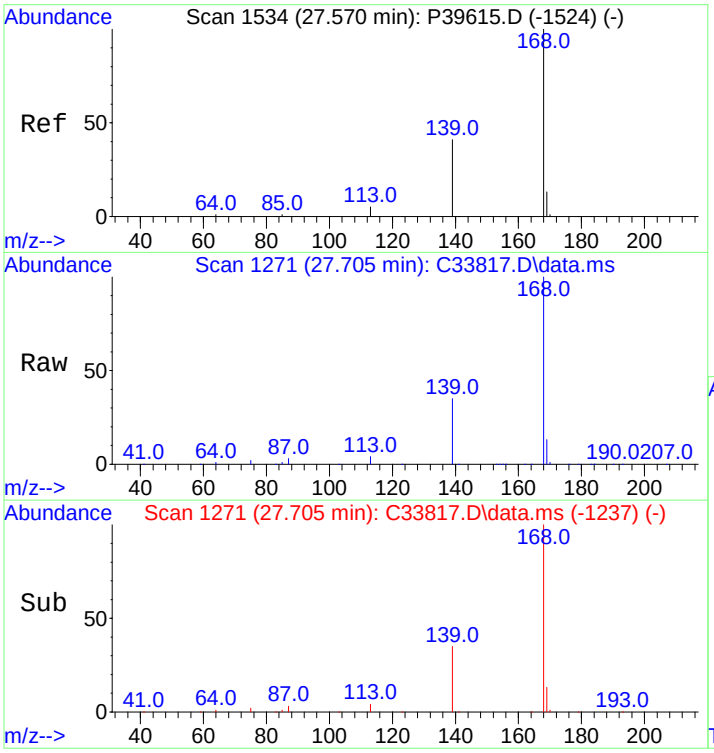


#24
2,6-Dimethylnaphthalene
Concen: 6667.72 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:156 Resp: 363362

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

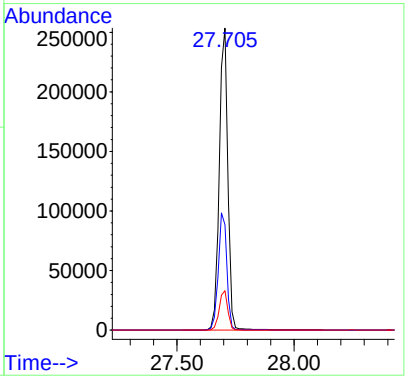


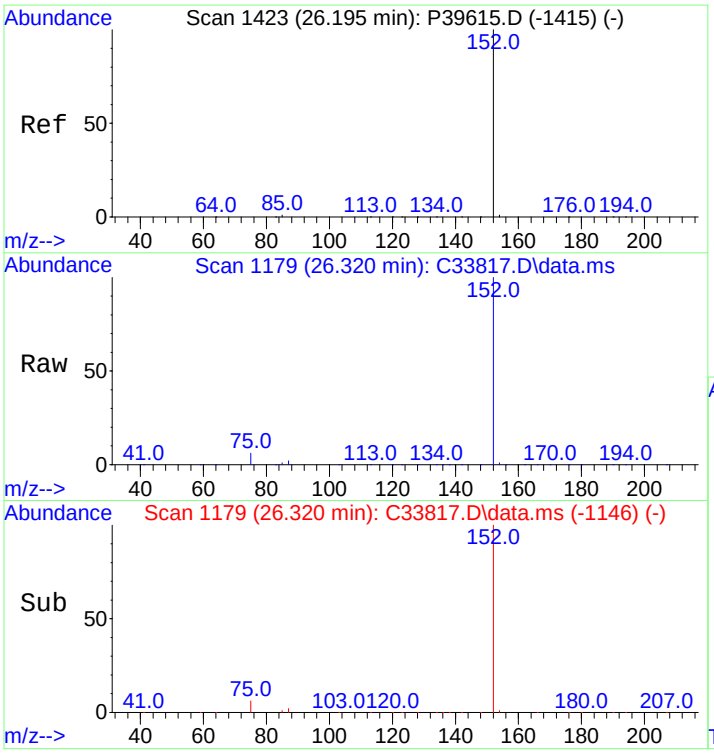


#25
Dibenzofuran
Concen: 7246.67 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:168 Resp: 643601

Ion	Ratio	Lower	Upper
168	100		
139	38.8	32.9	49.3
169	13.1	10.6	16.0

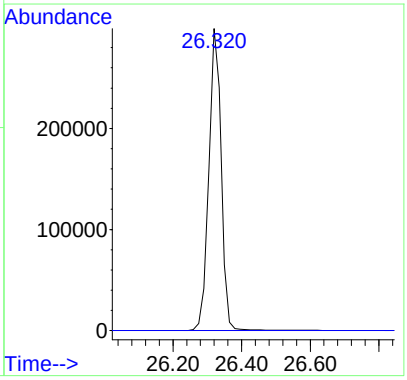


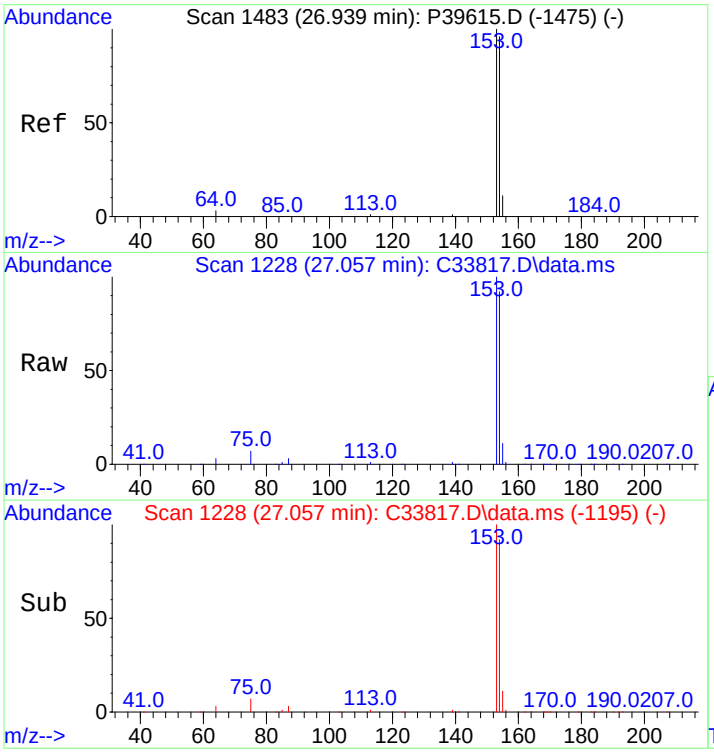


#26
Acenaphthylene
Concen: 8216.99 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:152 Resp: 752161

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

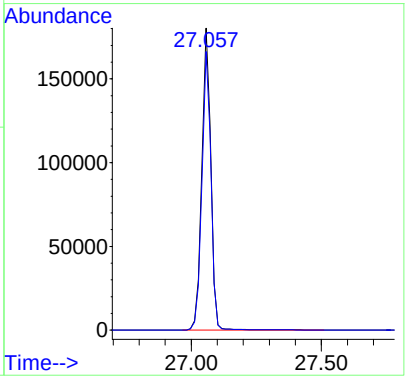


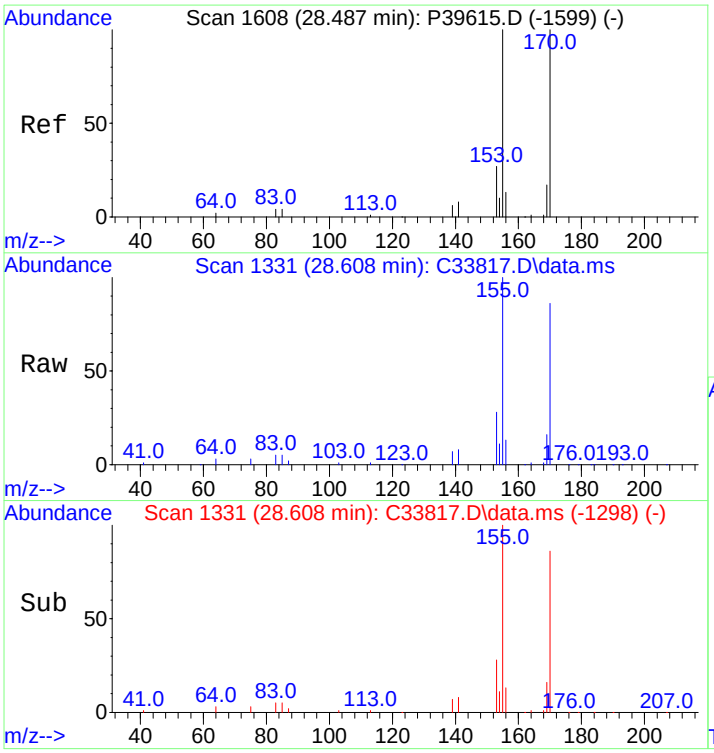


#27
Acenaphthene
Concen: 7510.38 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:153 Resp: 436514

Ion	Ratio	Lower	Upper
153	100		
154	92.5	75.0	112.6

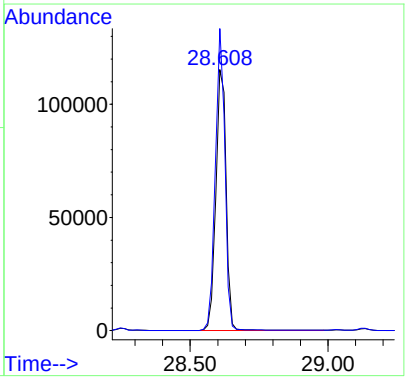


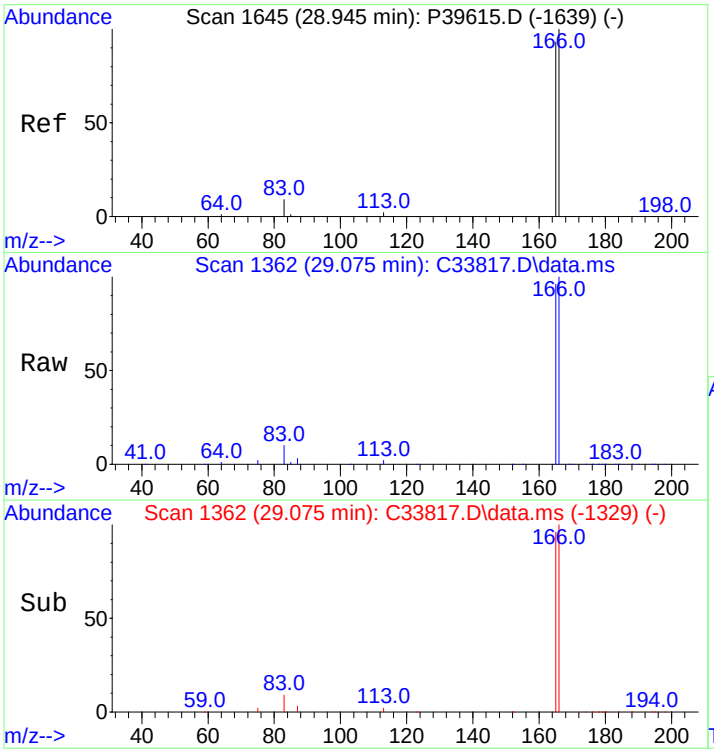


#28
2,3,5-Trimethylnaphthalene
Concen: 5866.55 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:170 Resp: 298218

Ion	Ratio	Lower	Upper
170	100		
155	107.7	84.7	127.1

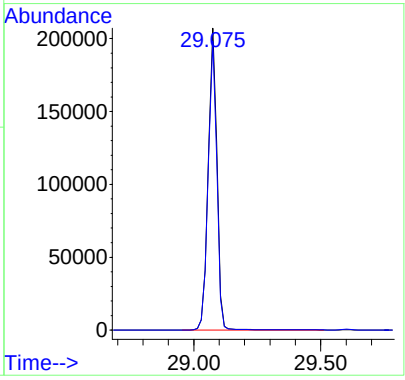


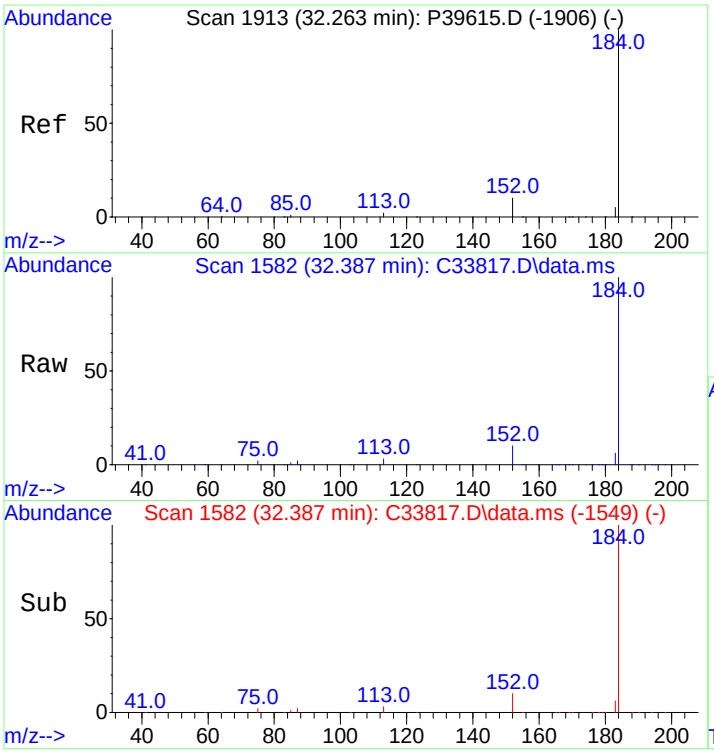


#29
Fluorene
Concen: 6858.18 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:166 Resp: 496059

Ion	Ratio	Lower	Upper
166	100		
165	95.5	75.3	112.9

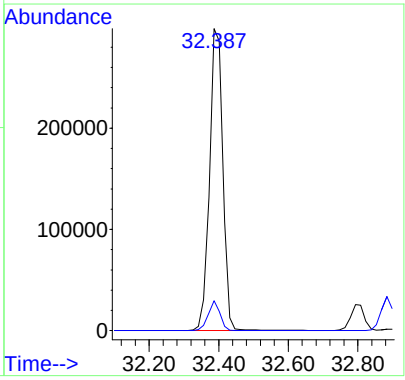


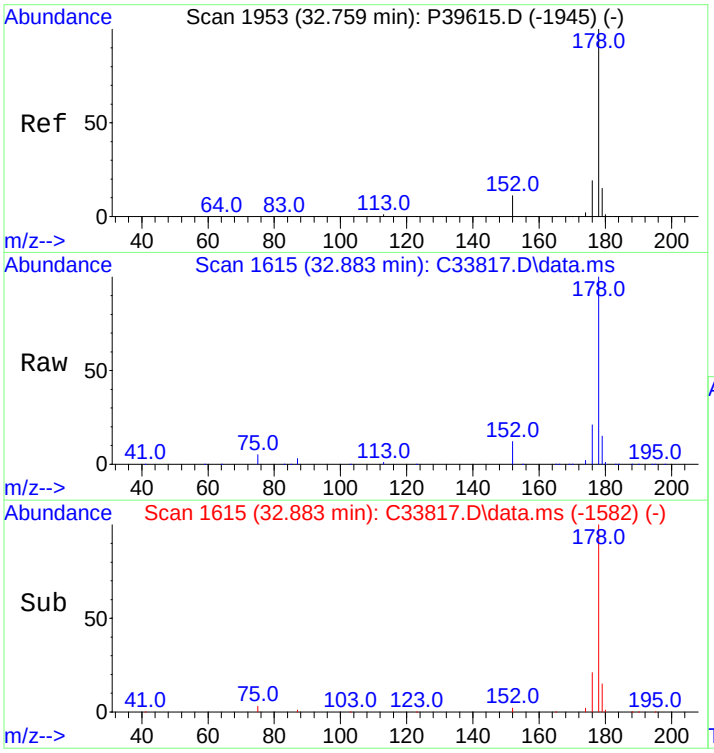


#33
Dibenzothiophene
Concen: 7268.64 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:184 Resp: 793951

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

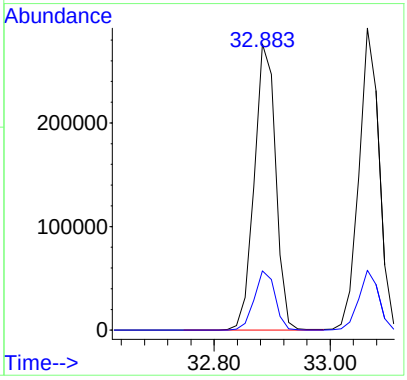


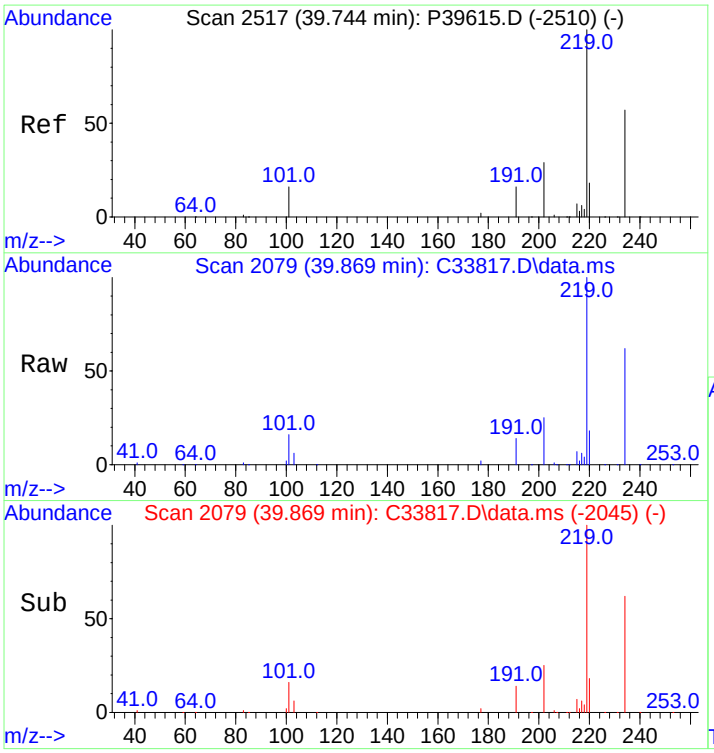


#43
Phenanthrene
Concen: 6428.07 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 705493

Ion	Ratio	Lower	Upper
178	100		
176	20.2	15.9	23.9

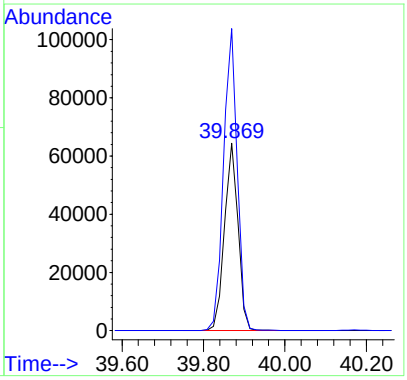


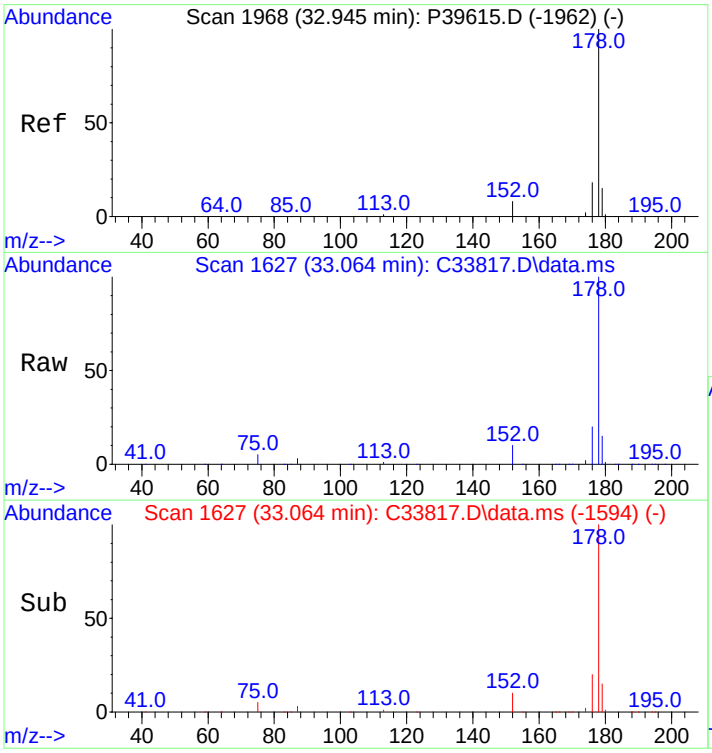


#54
Retene
Concen: 4693.77 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 149798

Ion	Ratio	Lower	Upper
234	100		
219	162.3	136.6	204.8

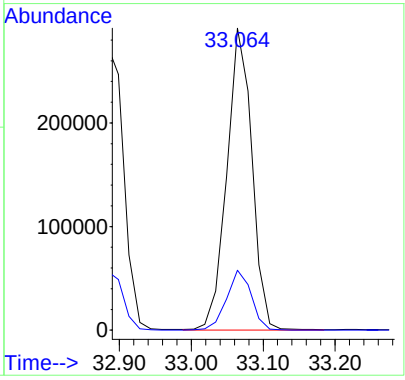


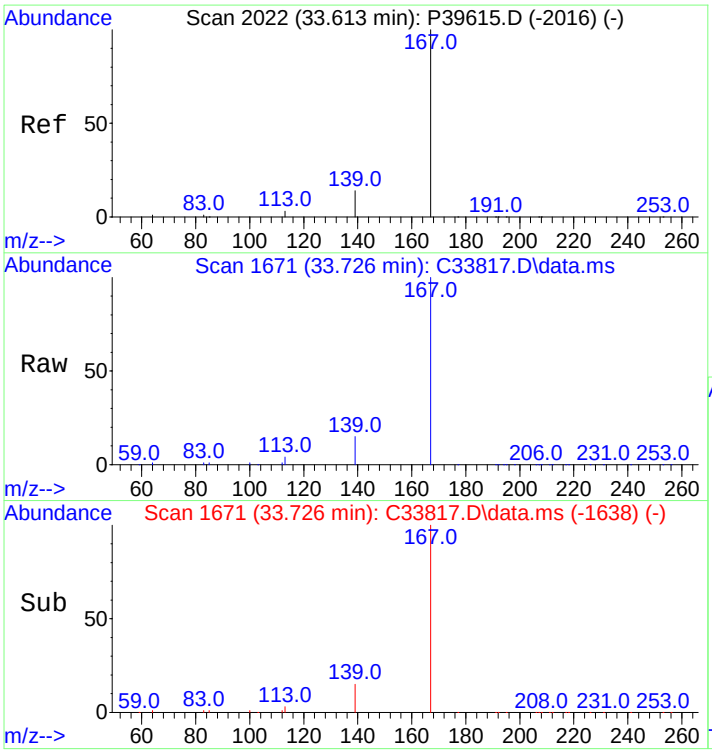


#55
Anthracene
Concen: 6678.30 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 710151

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.4	23.0

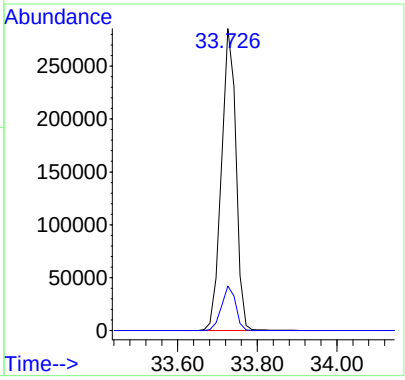


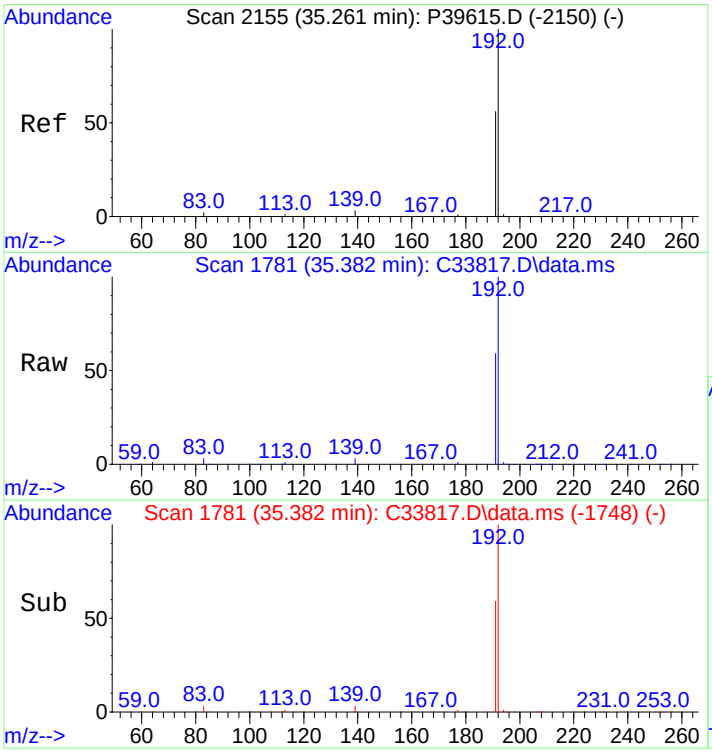


#56
Carbazole
Concen: 7421.54 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:167 Resp: 724874

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

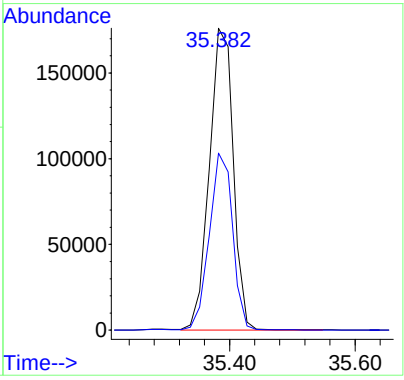


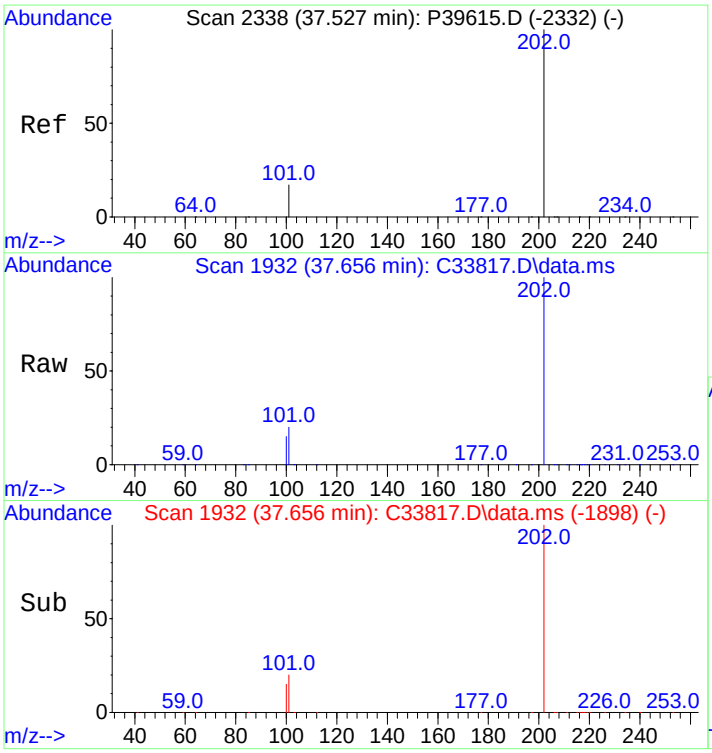


#57
1-Methylphenanthrene
Concen: 5549.76 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:192 Resp: 466229

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

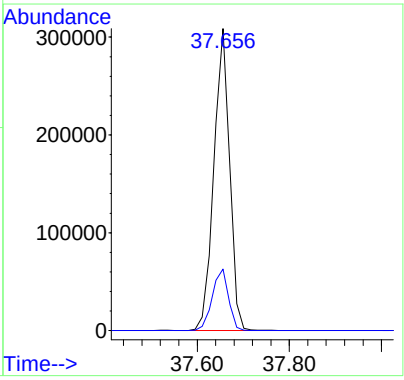


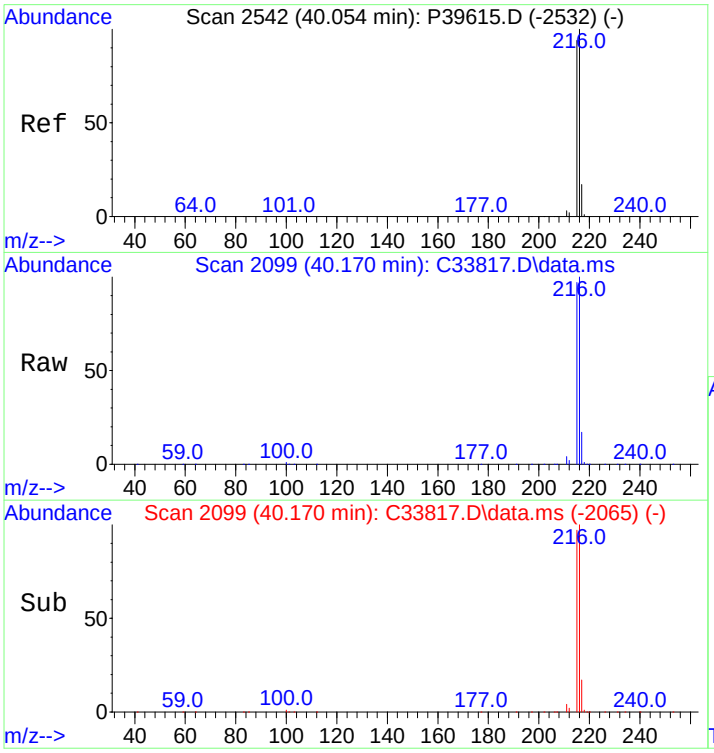


#58
Fluoranthene
Concen: 5505.46 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 730627

Ion	Ratio	Lower	Upper
202	100		
101	21.1	19.1	28.7

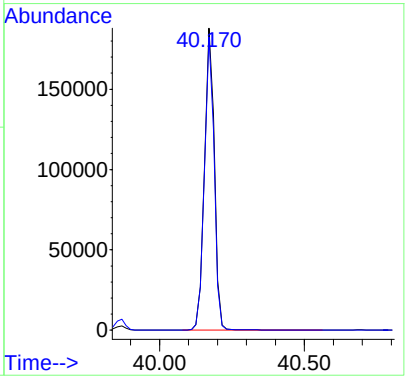


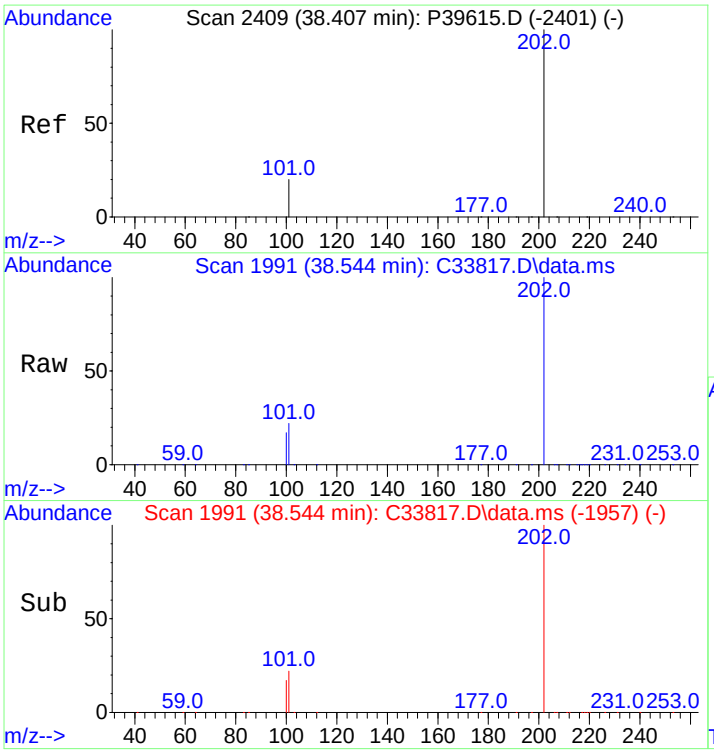


#59
Benzo(b)fluorene
Concen: 5131.17 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:216 Resp: 444745

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

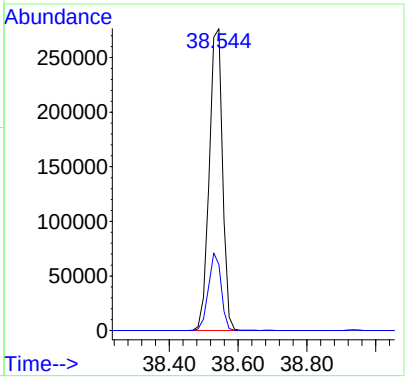


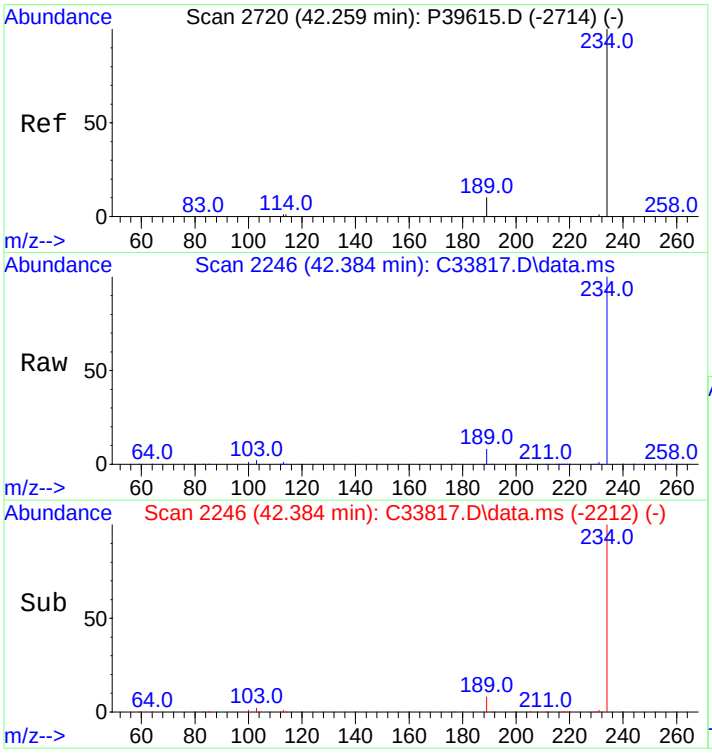


#60
Pyrene
Concen: 5491.94 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 747539

Ion	Ratio	Lower	Upper
202	100		
101	24.6	20.4	30.6

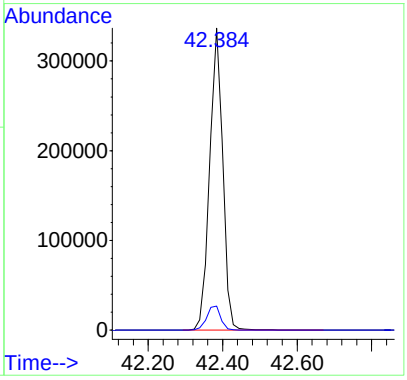


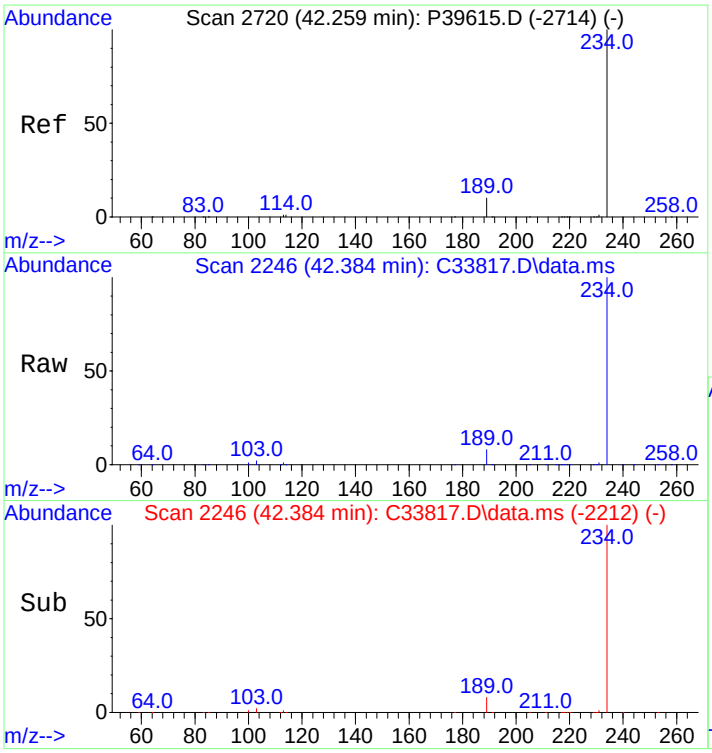


#66
Naphthobenzothiophene
Concen: 5776.68 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821666

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

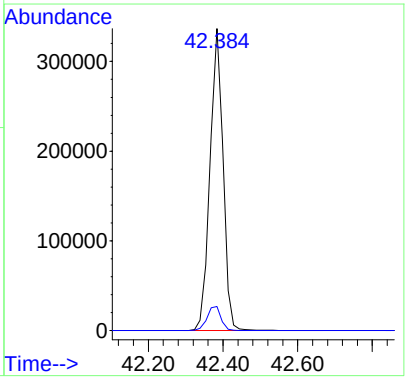


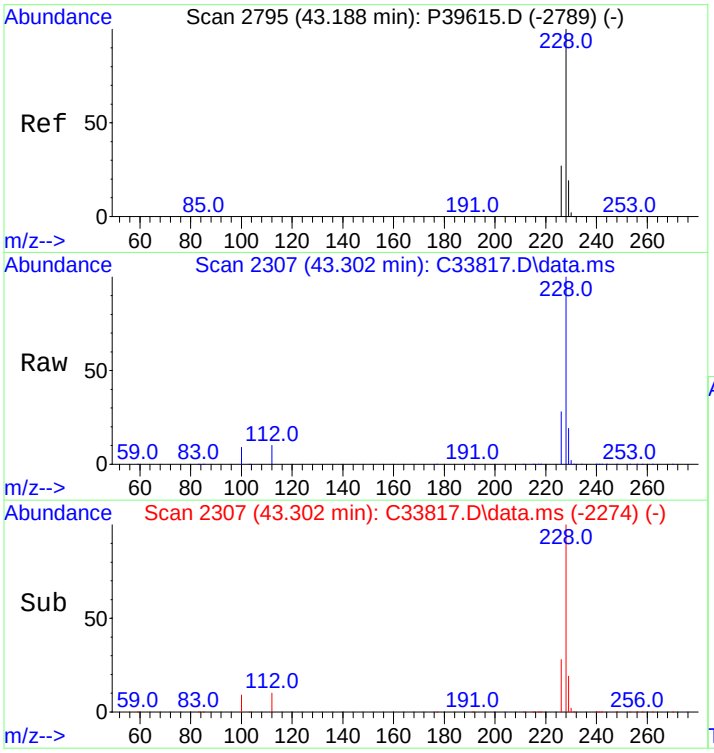


#67
Naphthobenzothiophene-2,1-D
Concen: 5777.80 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821825

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

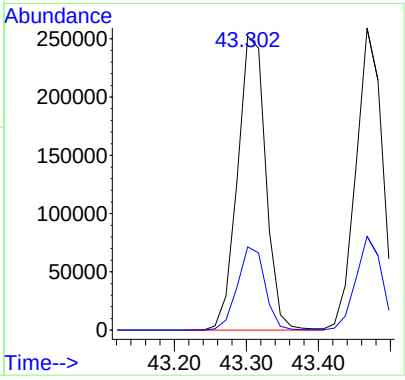


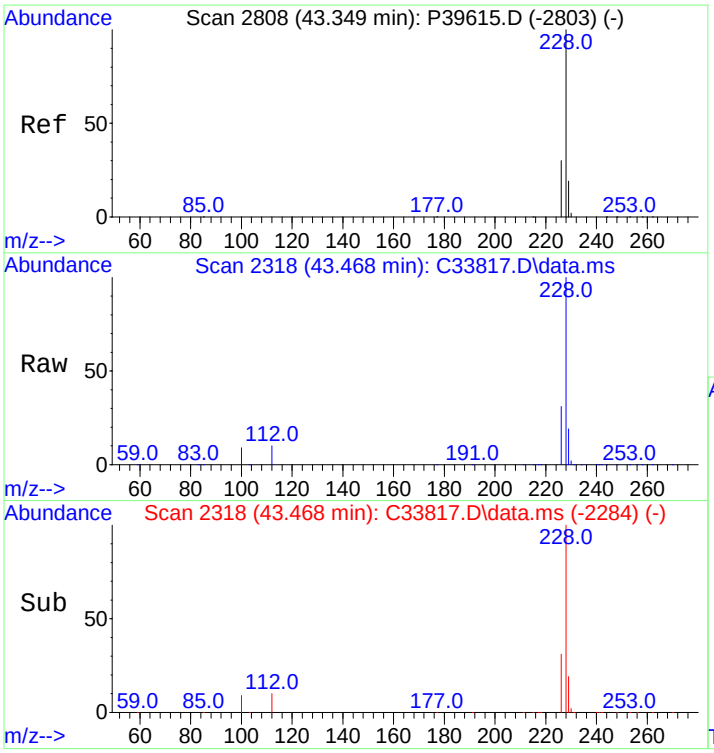


#75
Benz[a]anthracene
Concen: 5809.08 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 684713

Ion	Ratio	Lower	Upper
228	100		
226	27.7	21.8	32.8

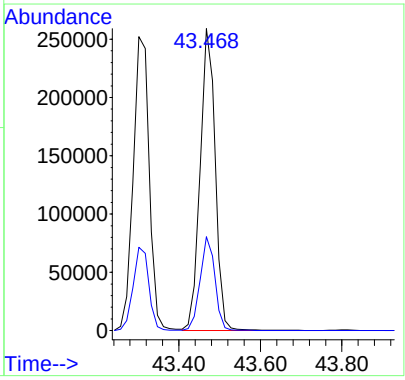


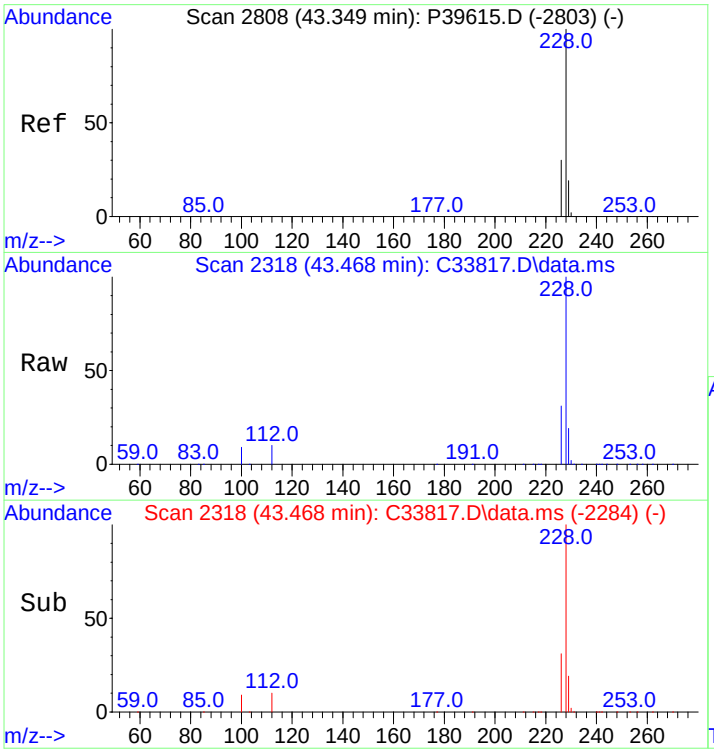


#76
Chrysene
Concen: 5731.13 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665554

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

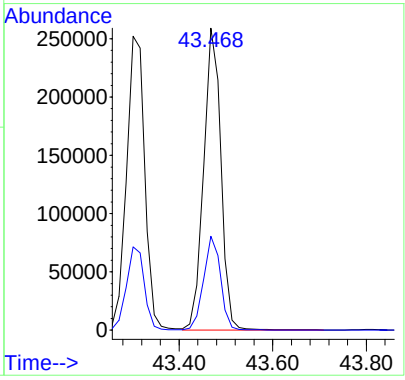


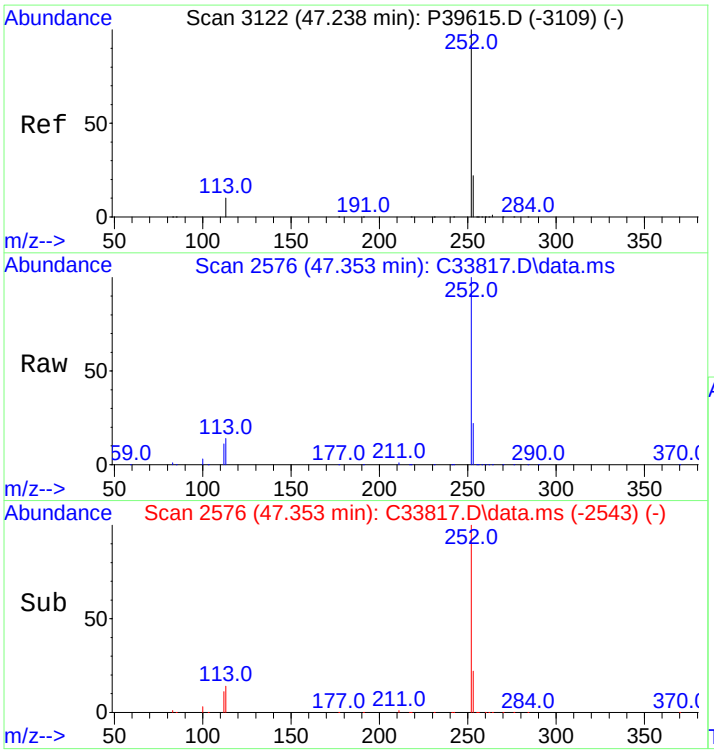


#77
Chrysene/Triphenylene
Concen: 5730.24 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665450

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

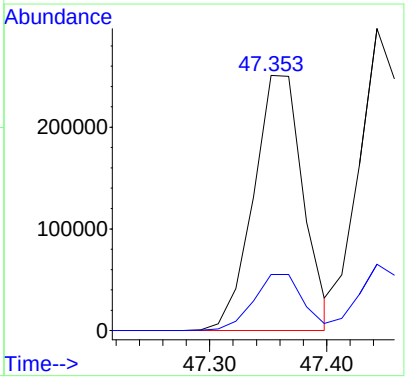


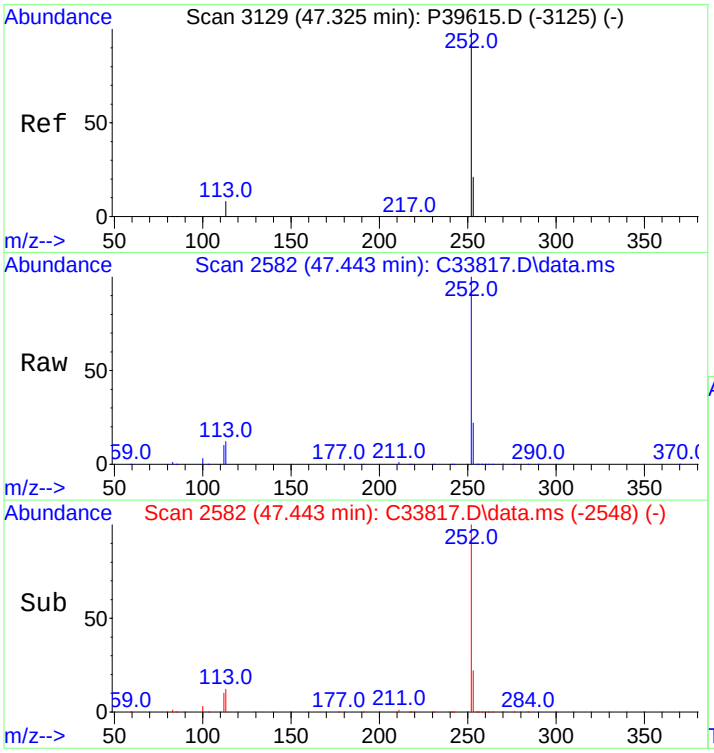


#82
Benzo[b]fluoranthene
Concen: 5709.99 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 740558

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

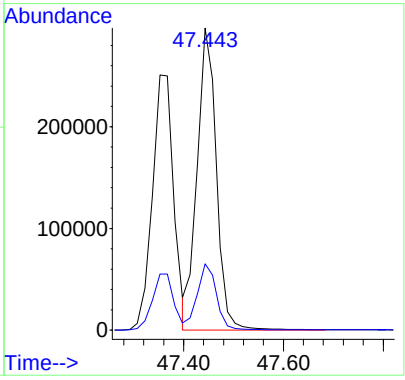


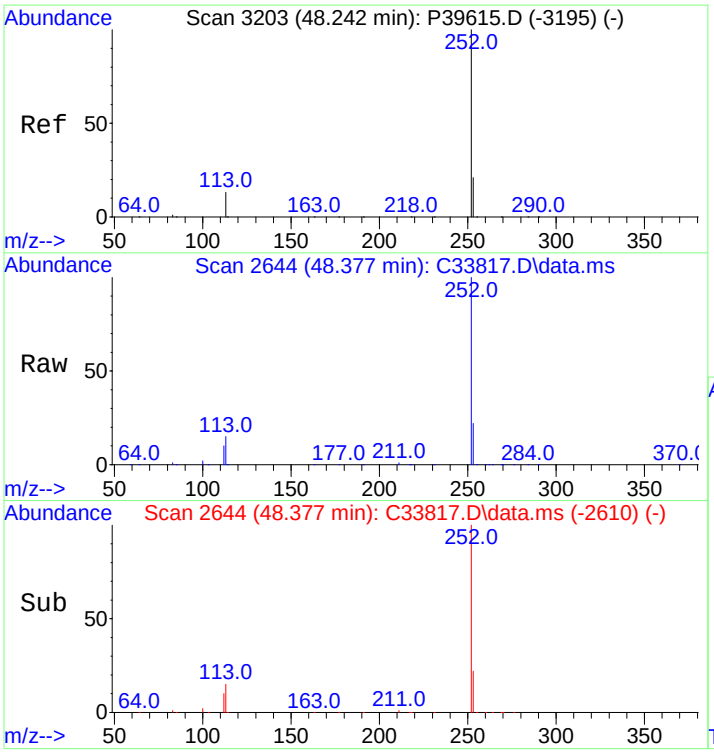


#83
Benzo[j]+[k]fluoranthene
Concen: 5808.43 ng/mL m
RT: 47.443 min Scan# 2582
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 796417

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.2	27.4

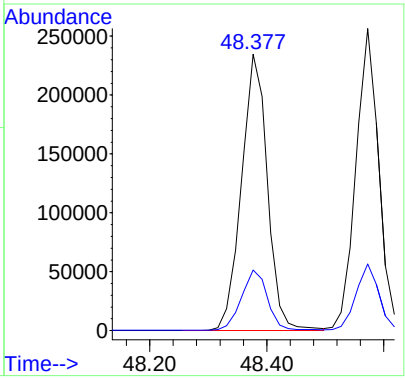


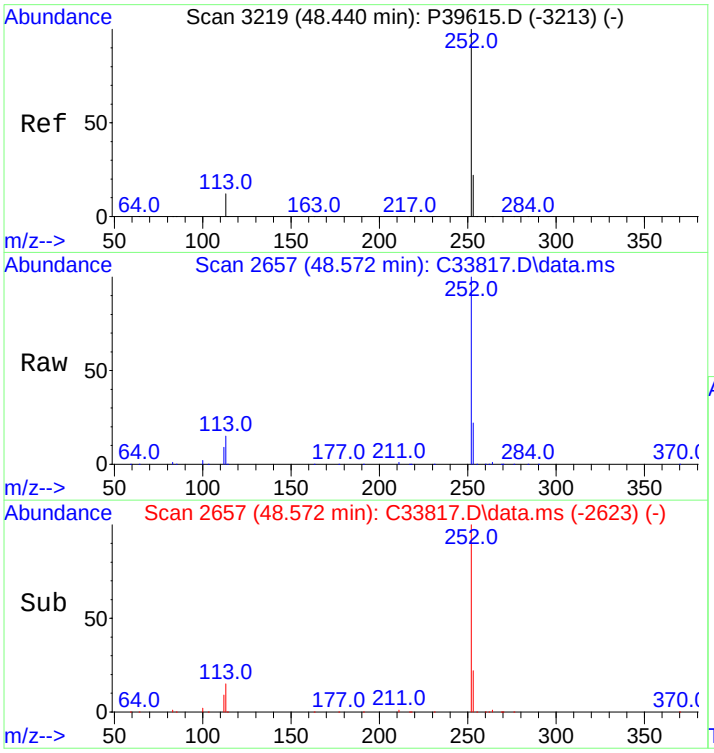


#85
Benzo[e]pyrene
Concen: 5757.22 ng/mL
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 718635

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

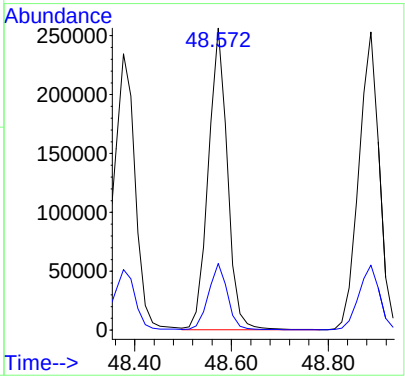


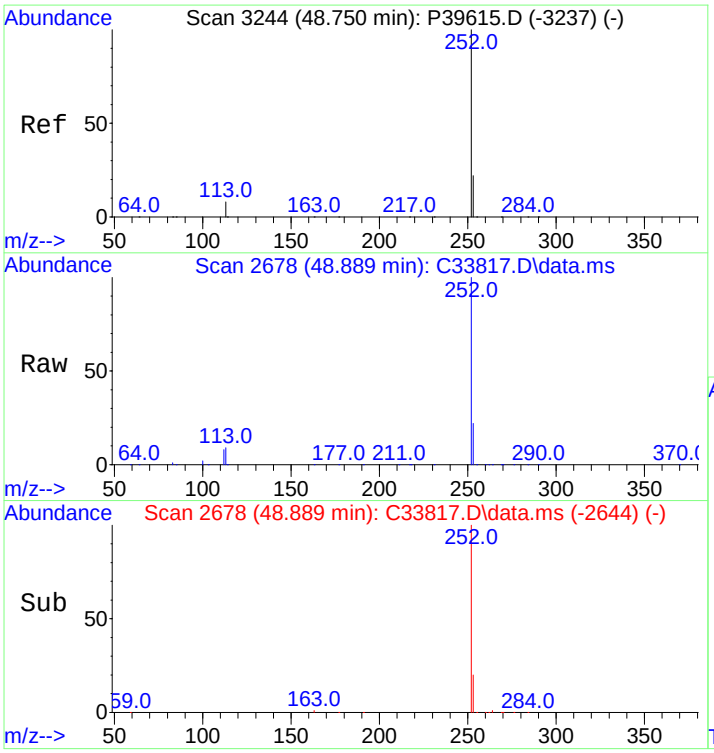


#87
Benzo[a]pyrene
Concen: 5991.15 ng/mL m
RT: 48.572 min Scan# 2657
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 702840

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.7	28.1

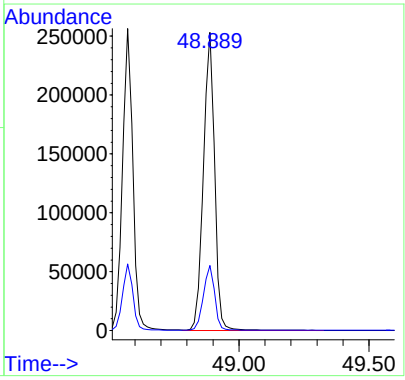


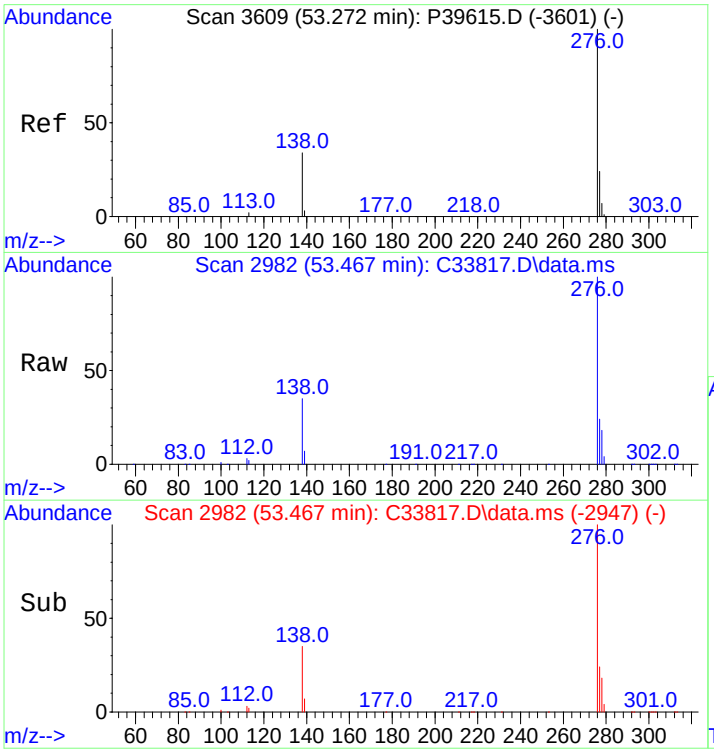


#88
Perylene
Concen: 6003.91 ng/mL
RT: 48.889 min Scan# 2678
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 752672

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.6	27.8

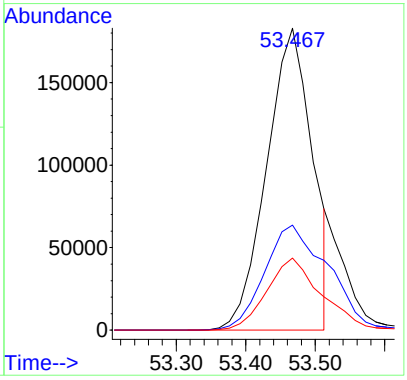


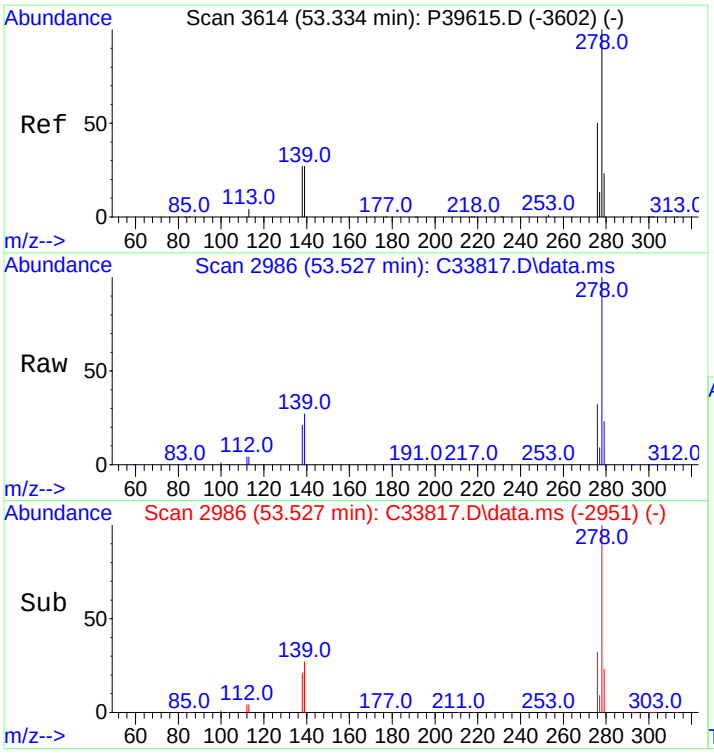


#89
Indeno[1,2,3-cd]pyrene
Concen: 6210.46 ng/mL m
RT: 53.467 min Scan# 2982
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838781

Ion	Ratio	Lower	Upper
276	100		
138	48.9	30.3	45.5#
277	28.9	19.2	28.8#

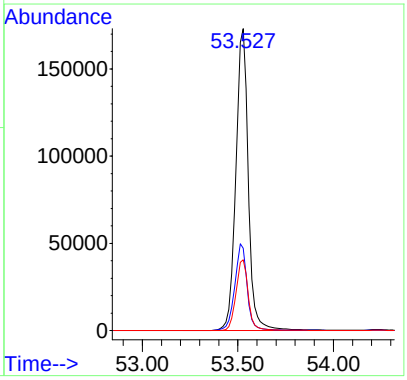


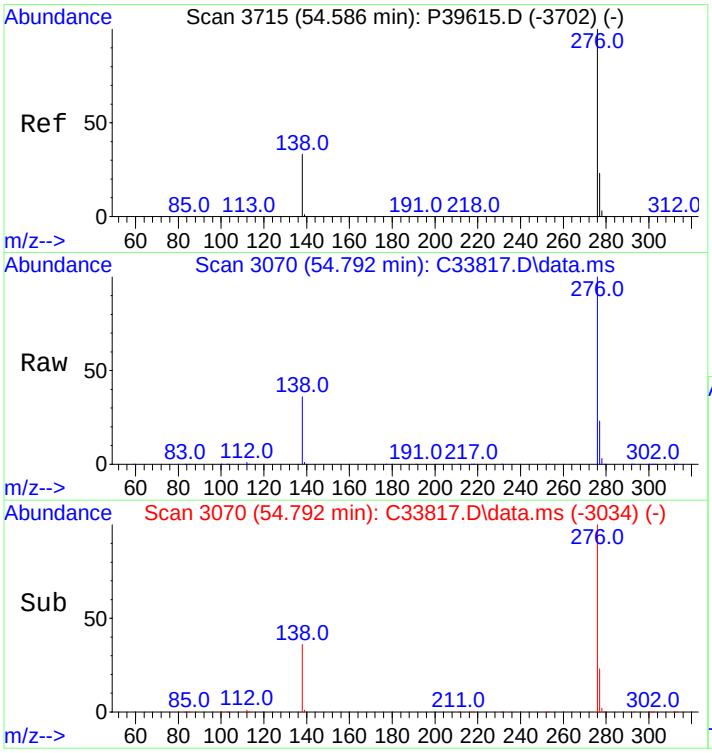


#90
Dibenz[ah]+[ac]anthracene
Concen: 6184.65 ng/mL
RT: 53.527 min Scan# 2986
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:278 Resp: 785236

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	23.2	19.0	28.4

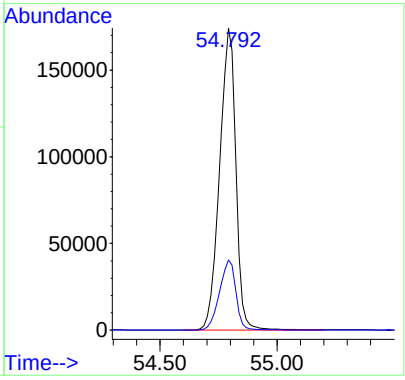


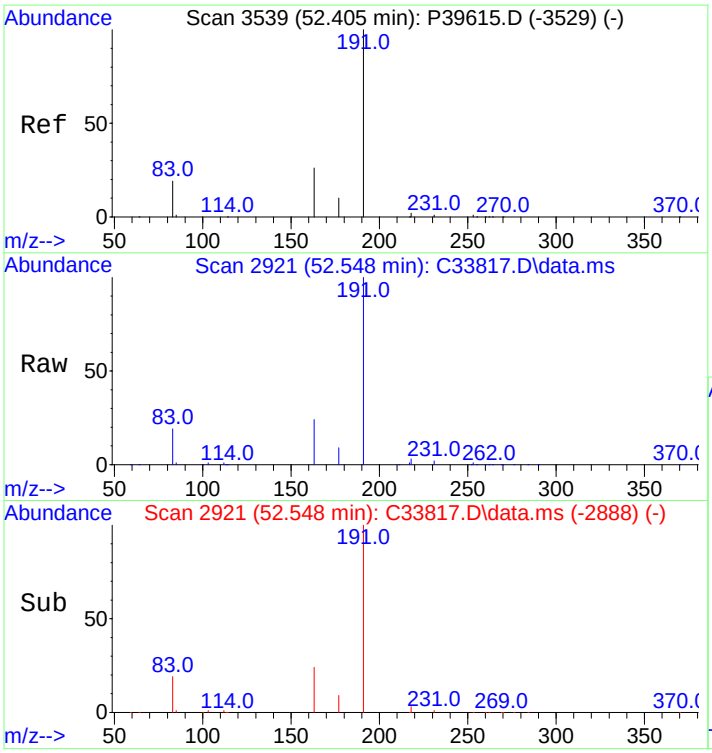


#91
Benzo[g,h,i]perylene
Concen: 6085.92 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.045 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838517

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

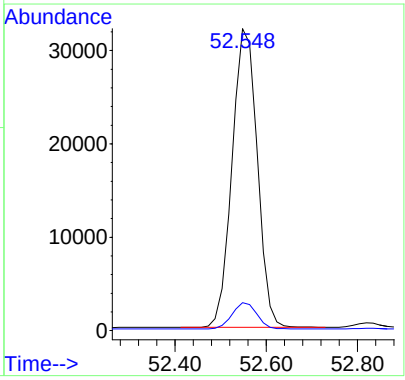


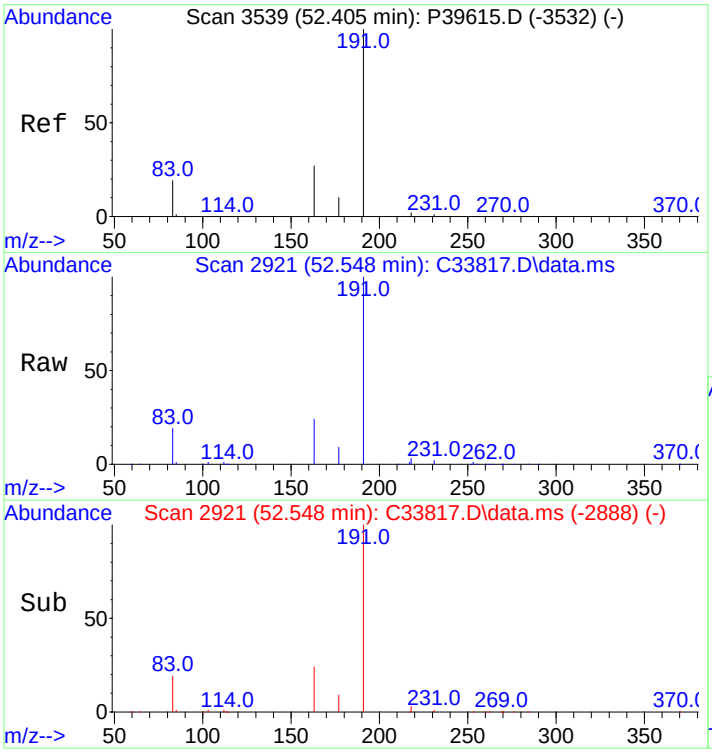


#92
Hopane (T19)
Concen: 5641.80 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122788

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

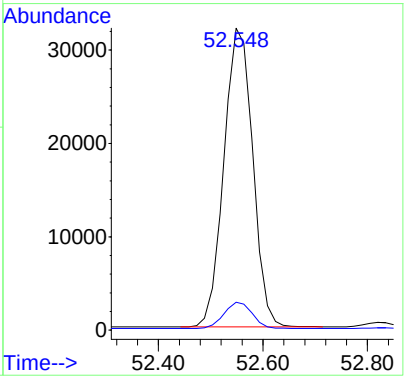




#93
17a(H),21B(H)-hopane - C30H52
Concen: 5638.68 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122720

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	20041M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	791075	11830.663	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1183.07%#			
42) Phenanthrene-d10	32.808	188	710873M4	9166.827	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 916.68%#			
86) Benzo[a]pyrene-d12	48.497	264	755272	11037.321	ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1103.73%#			
127) 5B(H)Cholane - Surr	43.995	217	107458	9130.770	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 913.08%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	72570	5239.034	ng/mL	100
4) cis-Decalin	17.844	138	55394	5125.536	ng/mL	100
10) Naphthalene	20.042	128	1183724	16416.753	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	14063.659	ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	14348.981	ng/mL	
18) Benzothiophene	20.268	134	1064574	18002.356	ng/mL	100
23) Biphenyl	24.619	154	906757M4	13347.329	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	12641.215	ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	13573.702	ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	15531.963	ng/mL	
27) Acenaphthene	27.057	153	736224	14253.453	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	512344	11341.143	ng/mL	99
29) Fluorene	29.075	166	837178M3	13023.858	ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	13623.641	ng/mL	
43) Phenanthrene	32.898	178	1195572	12257.724	ng/mL	99
54) Retene	39.869	234	251265	8859.198	ng/mL	93
55) Anthracene	33.079	178	1181250M4	12499.803	ng/mL	
56) Carbazole	33.741	167	1210095m	13941.104	ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10369.547	ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10135.785	ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	9595.000	ng/mL	99
60) Pyrene	38.544	202	1228730M4	10157.684	ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10732.503	ng/ml	
67) Naphthobenzothiophene-2,1	42.399	234	1356294M4	10729.599	ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	11118.569	ng/mL	99
76) Chrysene	43.483	228	1085655M4	10915.688	ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	10910.460	ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	11418.659	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	10878.013	ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	11182.087	ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	11788.129	ng/mL	
88) Perylene	48.904	252	1266913	11799.877	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	12176.588	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	12064.466	ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1404966	11906.453	ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	10720.577	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.563	191	199673M3	10712.315	ng/mL	

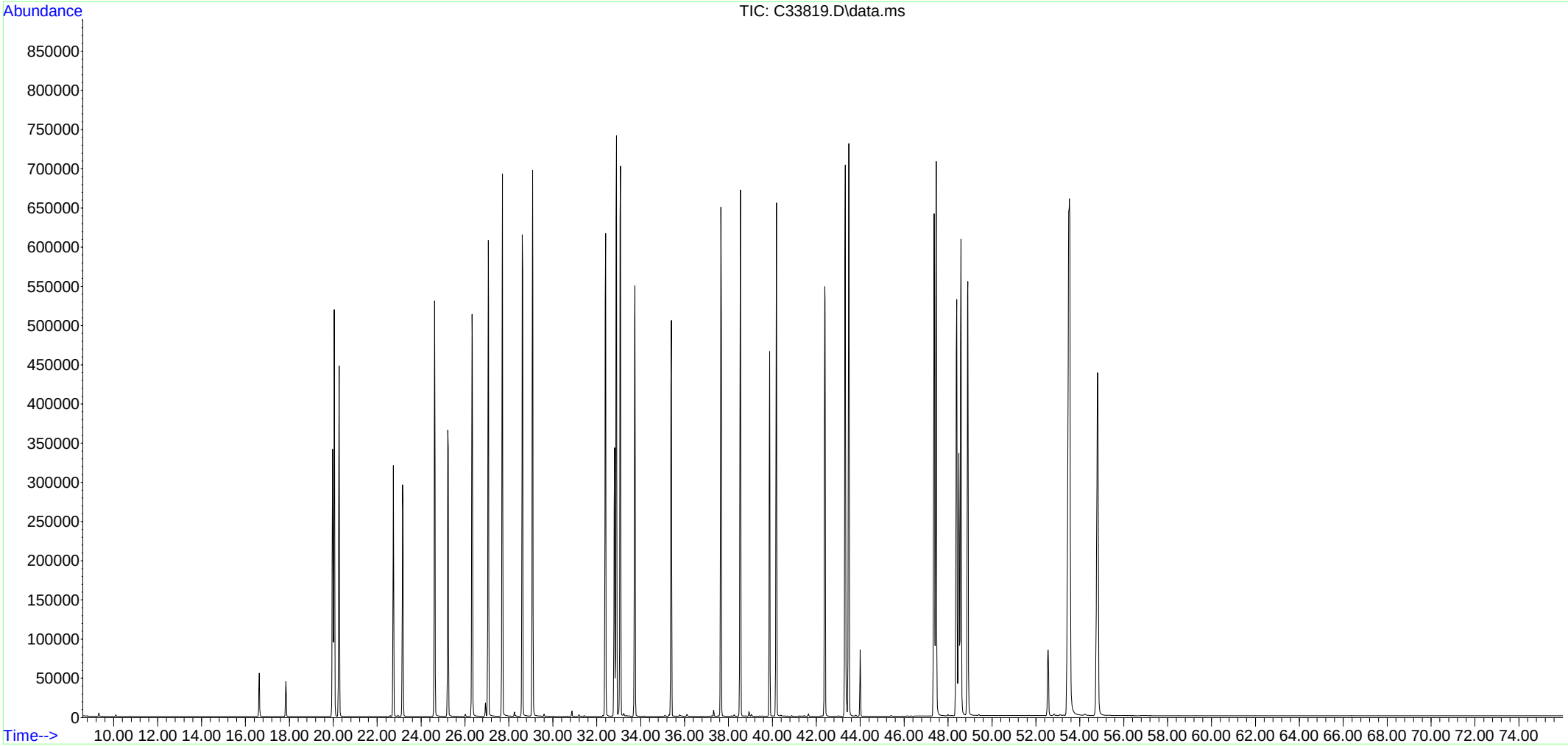
(#) = qualifier out of range (m) = manual integration (+) = signals summed

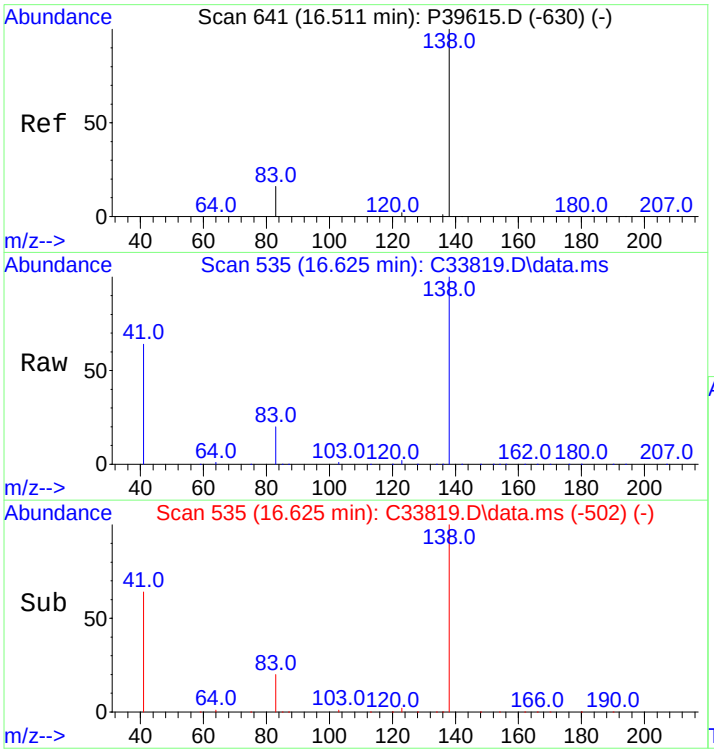
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

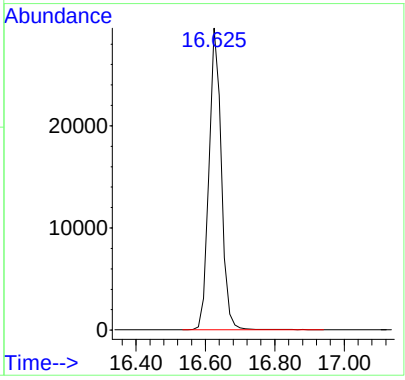
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

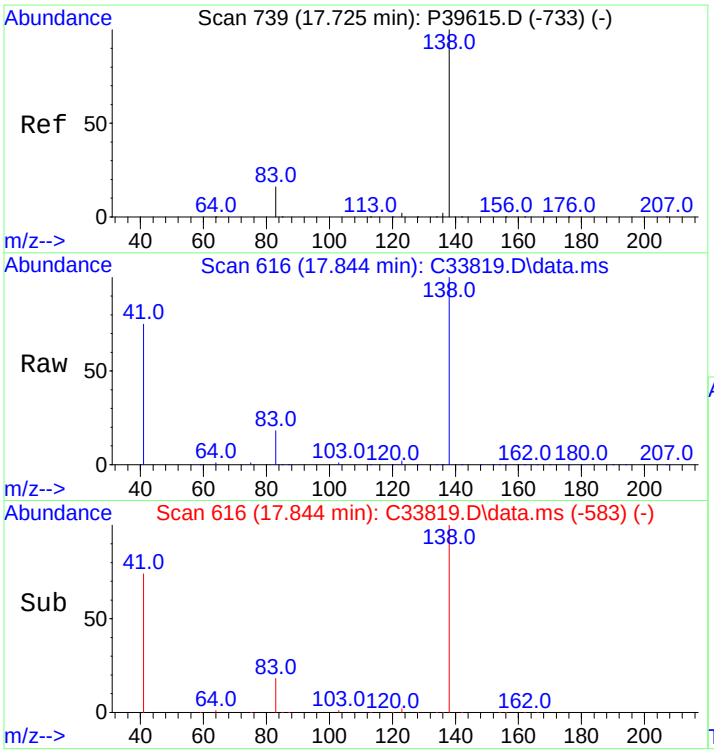




#3
trans-Decalin
Concen: 5239.03 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

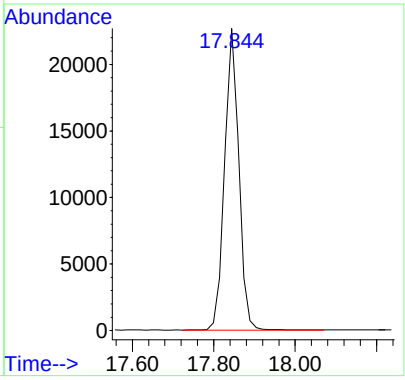
Tgt Ion:138 Resp: 72570

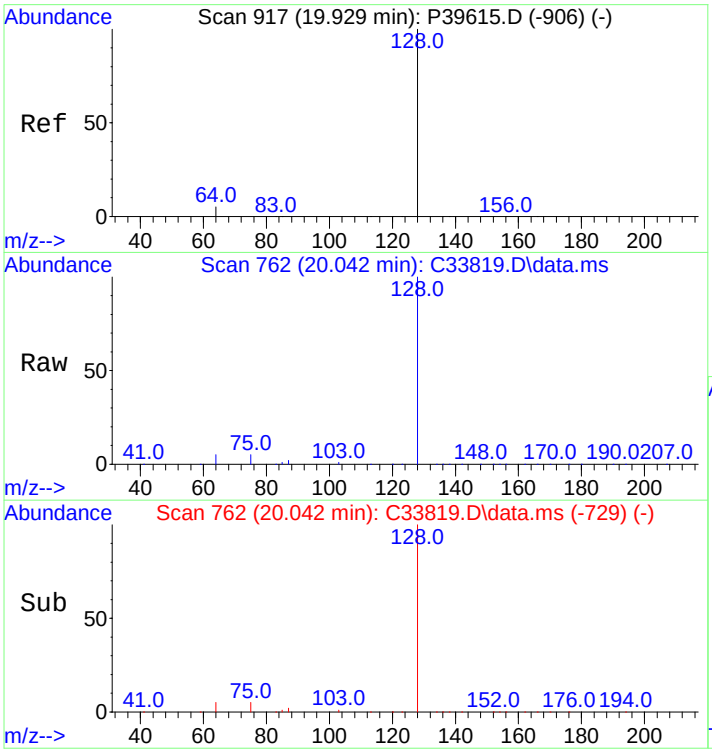




#4
cis-Decalin
Concen: 5125.54 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:138 Resp: 55394

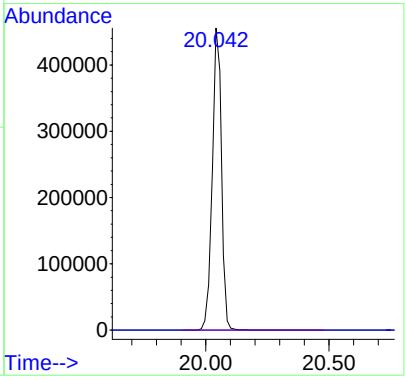


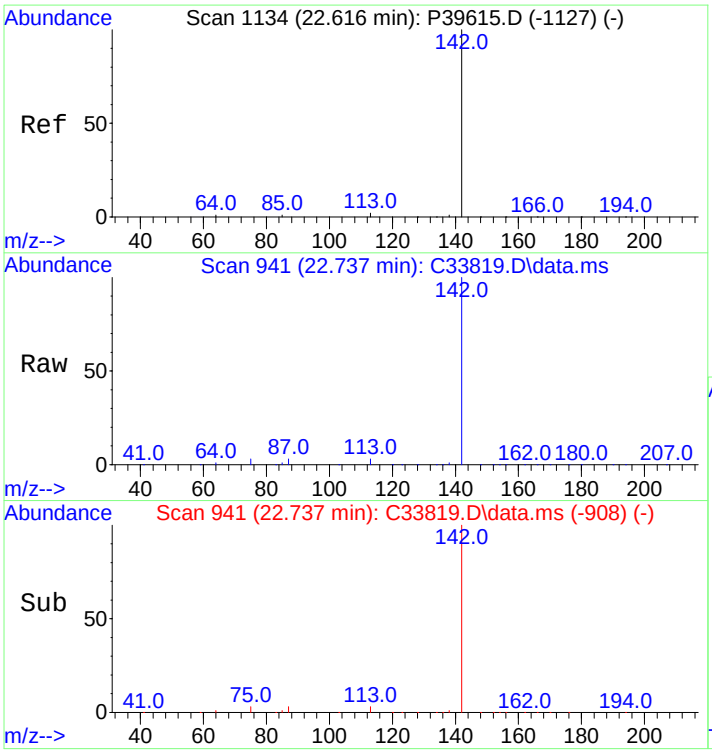


#10
Naphthalene
Concen: 16416.75 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:128 Resp: 1183724

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

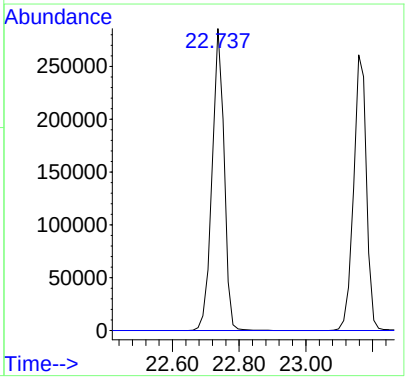


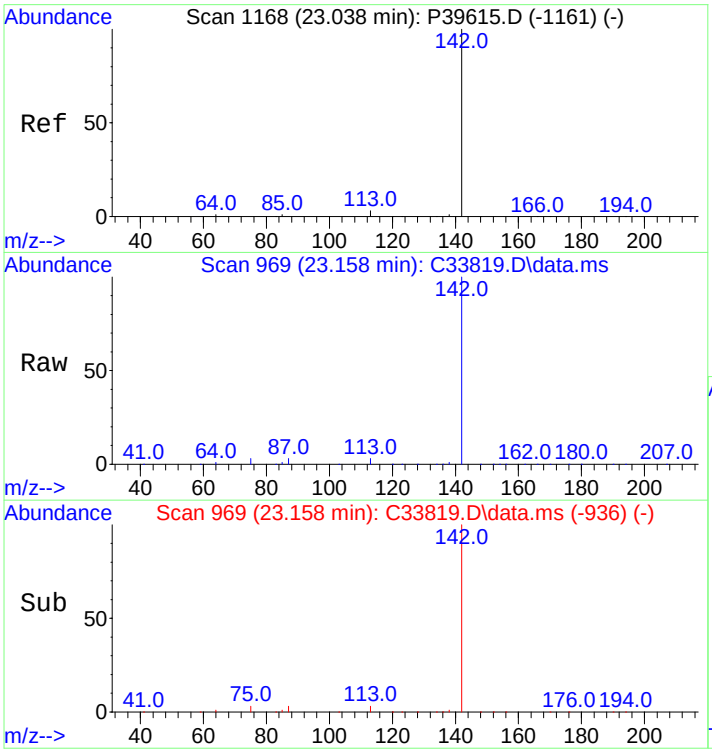


#16
2-Methylnaphthalene
Concen: 14063.66 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 715989

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

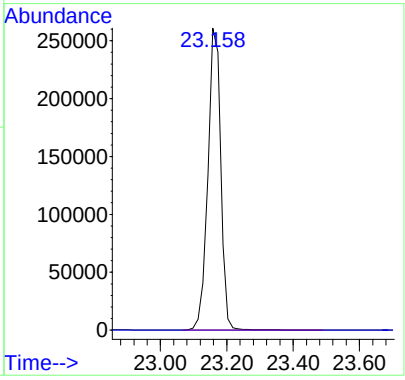


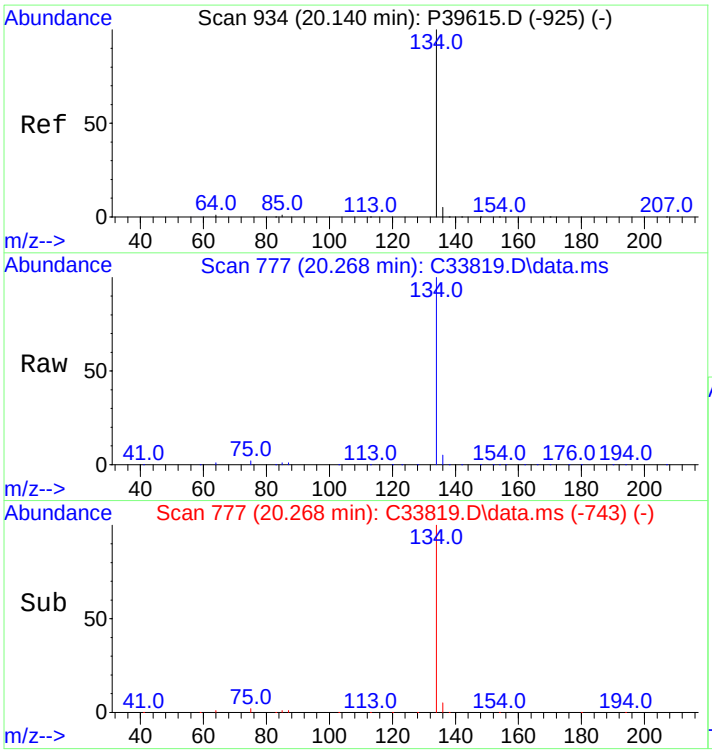


#17
1-Methylnaphthalene
Concen: 14348.98 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 700663

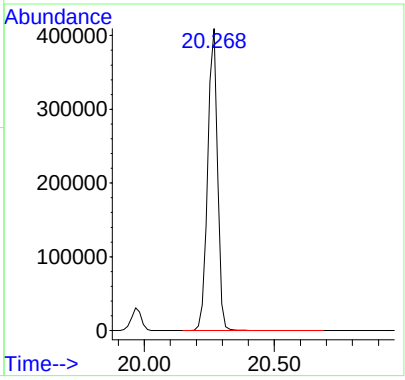
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

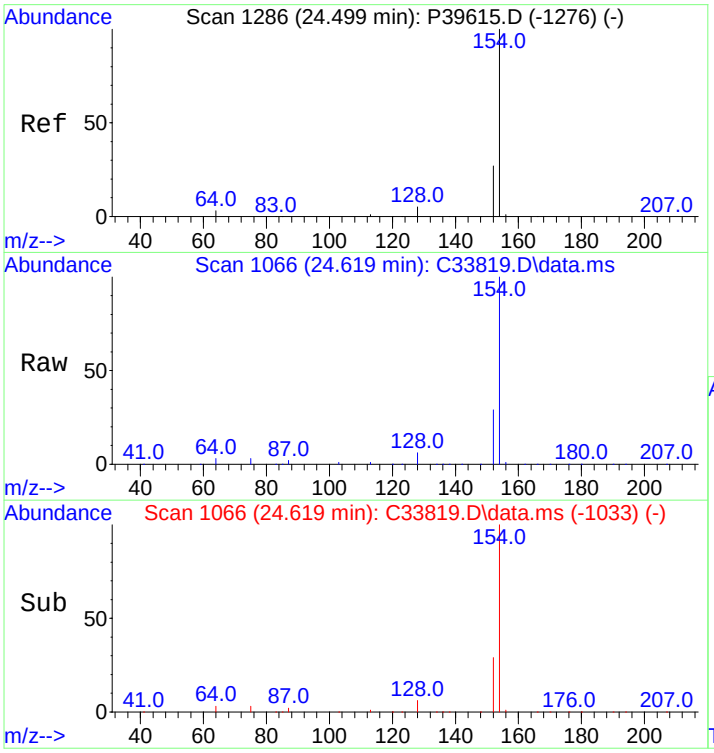




#18
Benzothiophene
Concen: 18002.36 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:134 Resp: 1064574

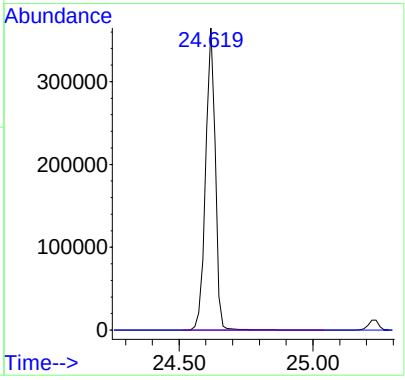


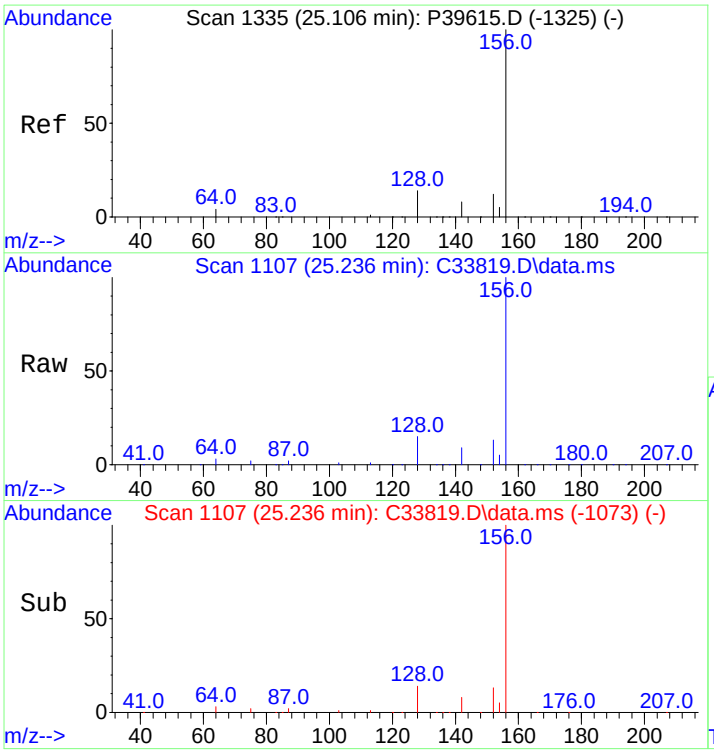


#23
Biphenyl
Concen: 13347.33 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:154 Resp: 906757

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

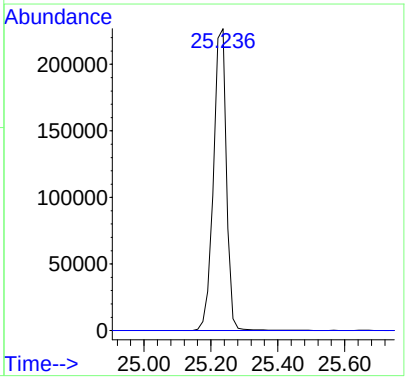


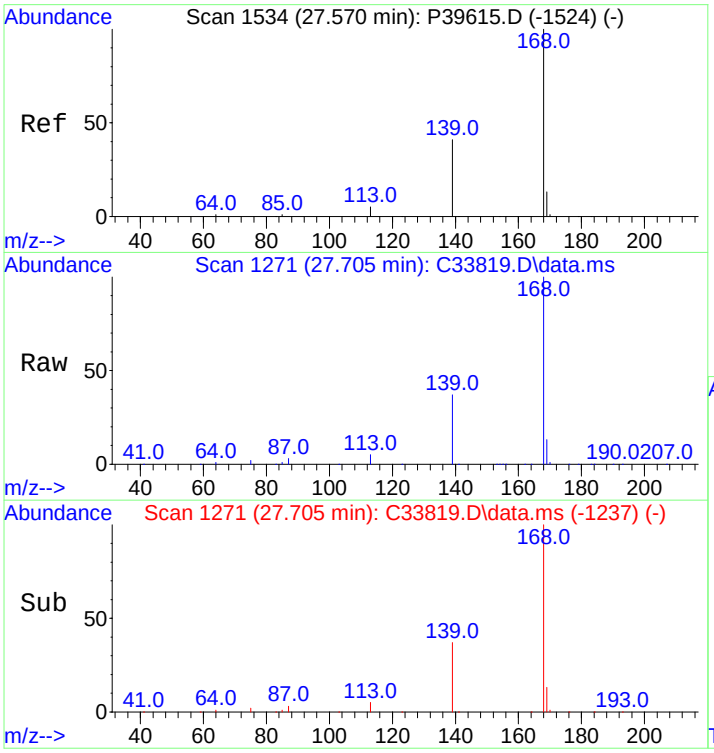


#24
2,6-Dimethylnaphthalene
Concen: 12641.22 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:156 Resp: 612216

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

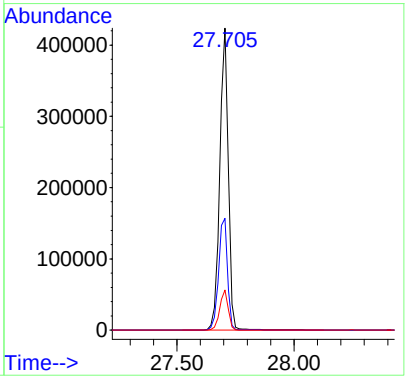


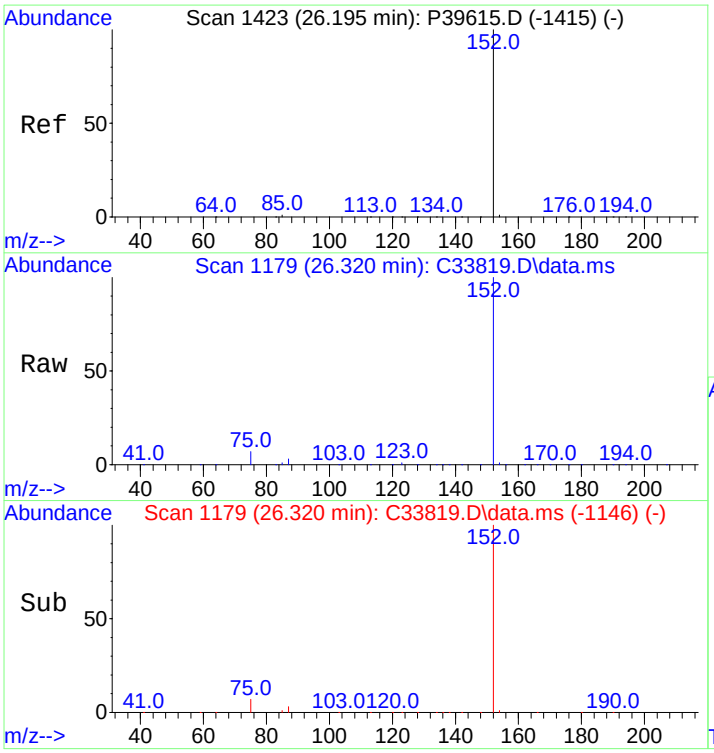


#25
Dibenzofuran
Concen: 13573.70 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:168 Resp: 1071347

Ion	Ratio	Lower	Upper
168	100		
139	38.9	32.9	49.3
169	13.2	10.6	16.0

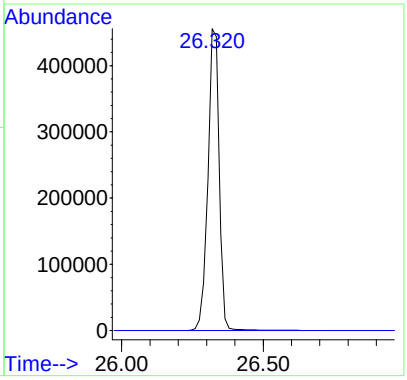


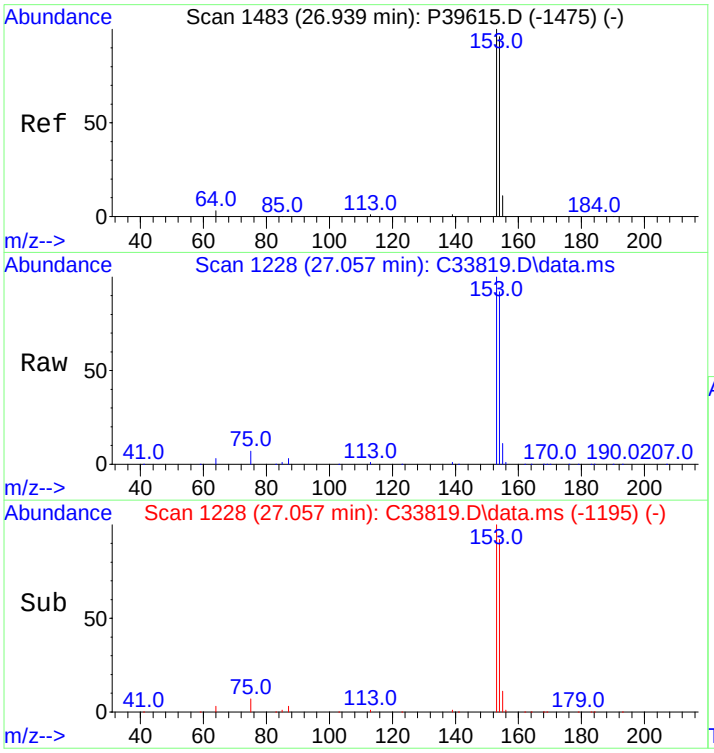


#26
Acenaphthylene
Concen: 15531.96 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:152 Resp: 1263508

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

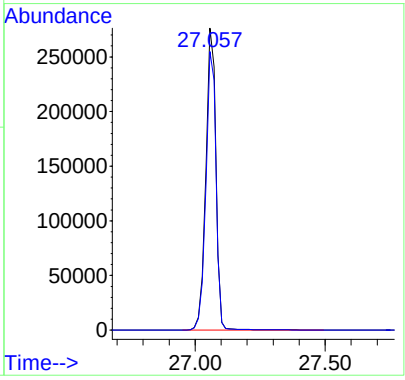


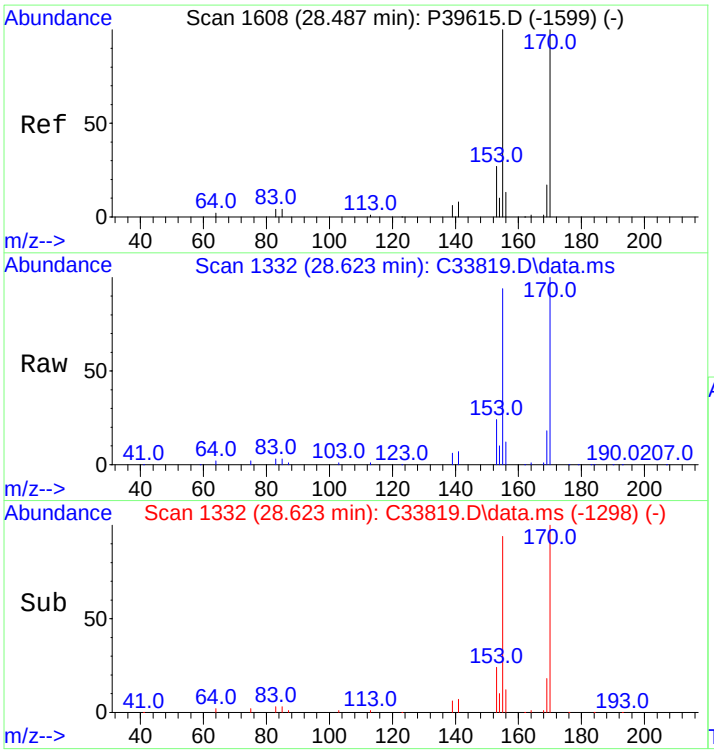


#27
Acenaphthene
Concen: 14253.45 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:153 Resp: 736224

Ion	Ratio	Lower	Upper
153	100		
154	93.0	75.0	112.6

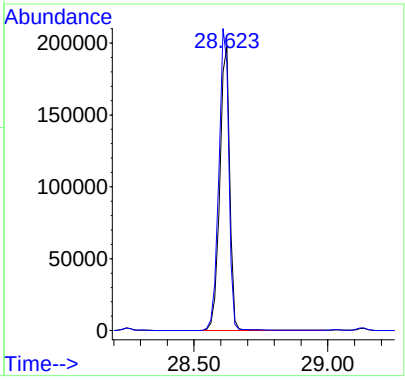


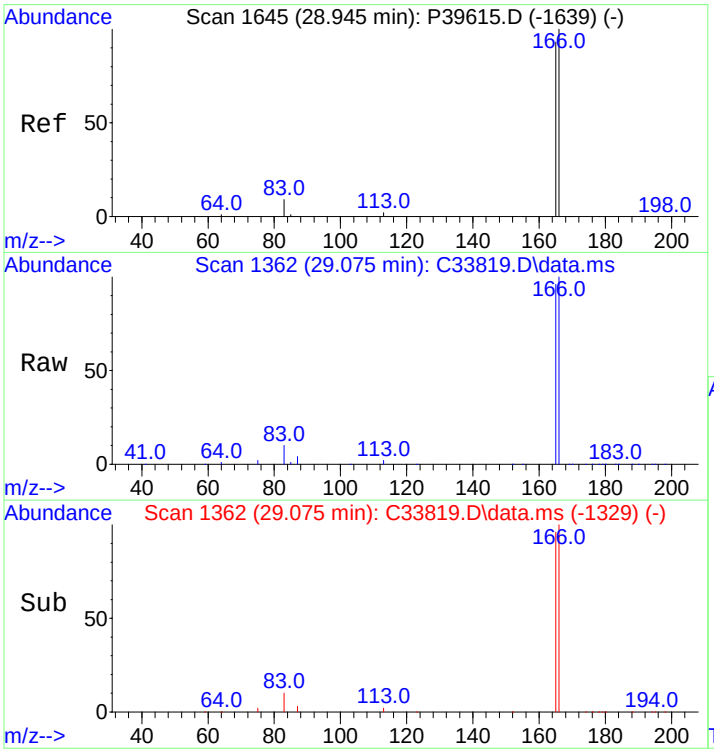


#28
2,3,5-Trimethylnaphthalene
Concen: 11341.14 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:170 Resp: 512344

Ion	Ratio	Lower	Upper
170	100		
155	106.6	84.7	127.1

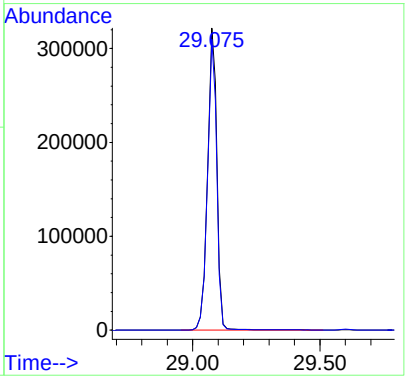


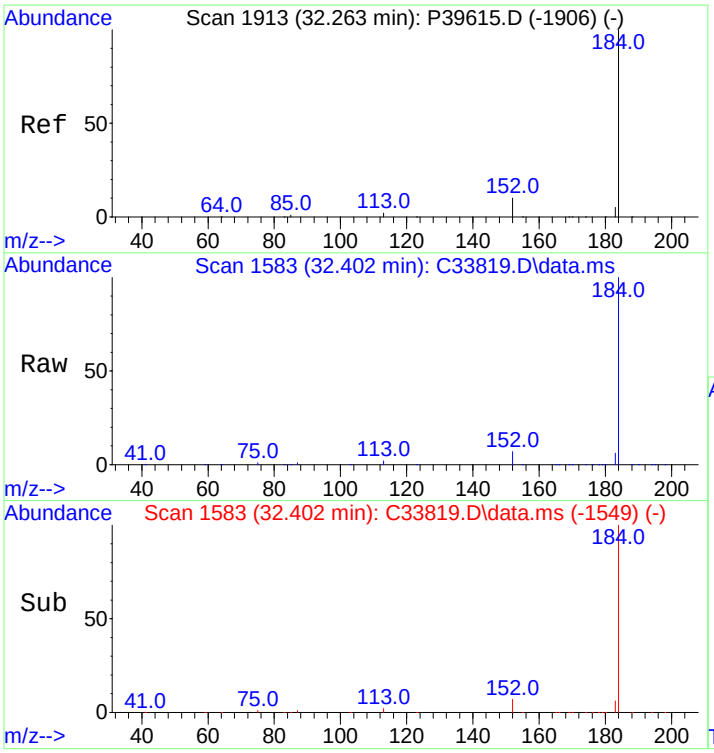


#29
Fluorene
Concen: 13023.86 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:166 Resp: 837178

Ion	Ratio	Lower	Upper
166	100		
165	95.4	75.3	112.9

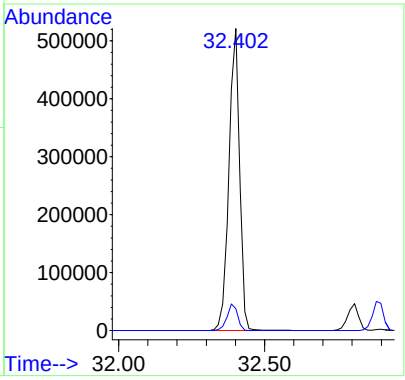


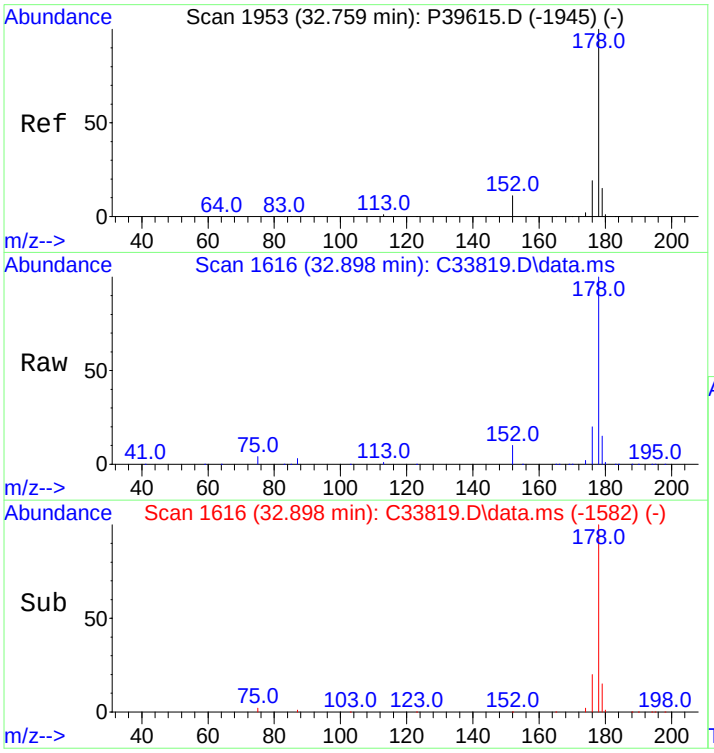


#33
Dibenzothiophene
Concen: 13623.64 ng/mL m
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:184 Resp: 1322475

Ion	Ratio	Lower	Upper
184	100		
152	8.8	6.7	10.1

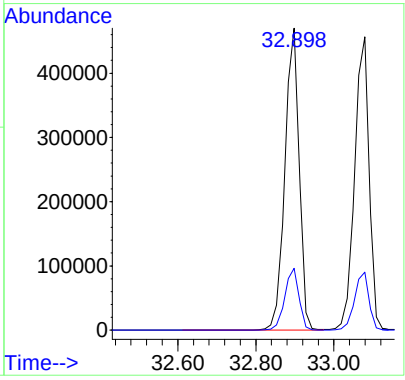


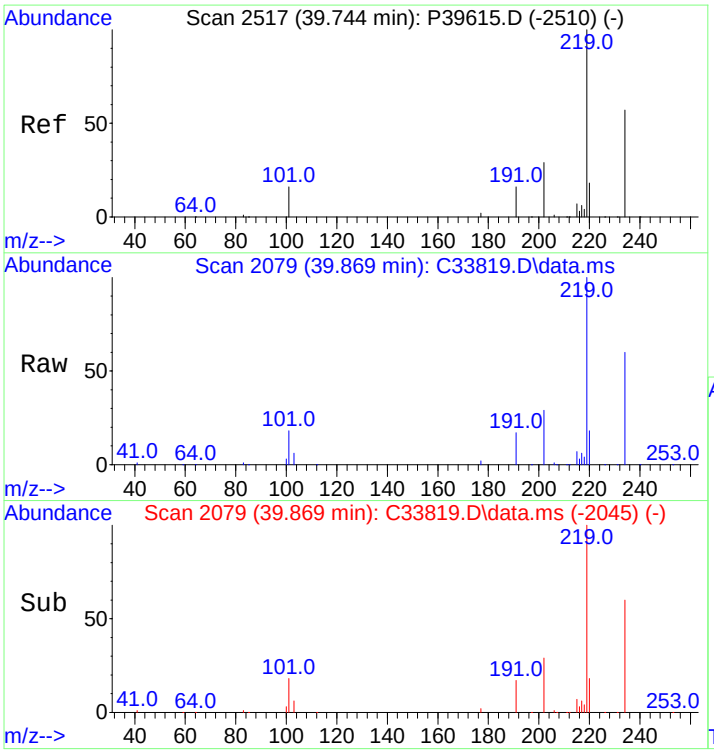


#43
Phenanthrene
Concen: 12257.72 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1195572

Ion	Ratio	Lower	Upper
178	100		
176	20.3	15.9	23.9

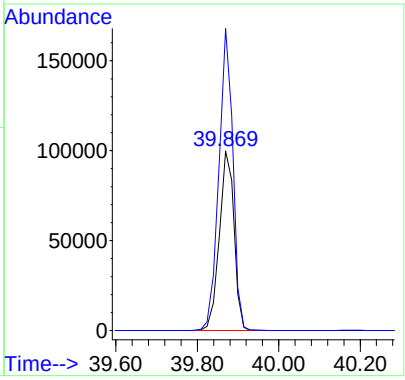


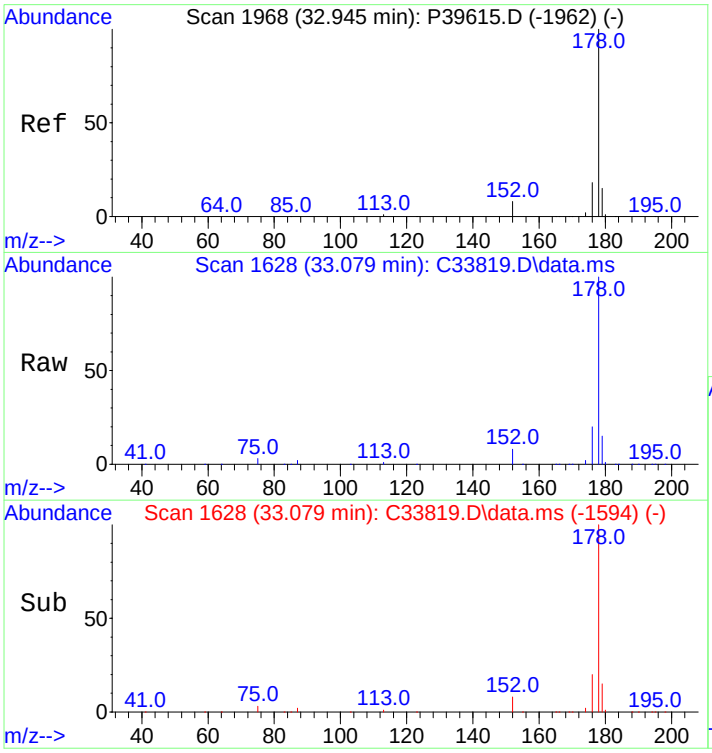


#54
Retene
Concen: 8859.20 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 251265

Ion	Ratio	Lower	Upper
234	100		
219	160.8	136.6	204.8

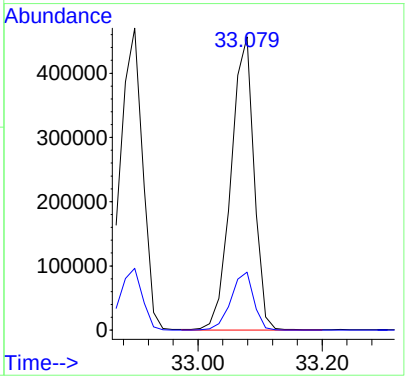


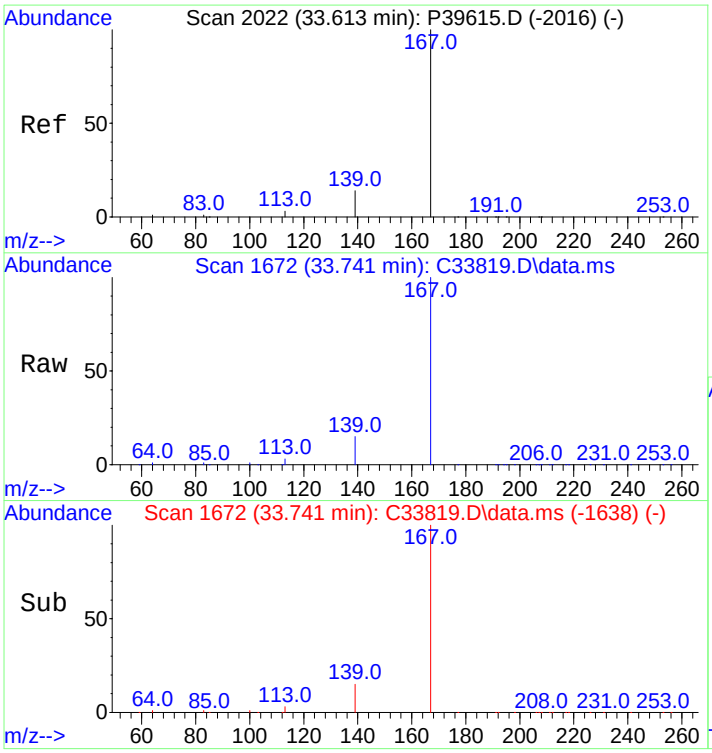


#55
Anthracene
Concen: 12499.80 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1181250

Ion	Ratio	Lower	Upper
178	100		
176	19.5	15.4	23.0

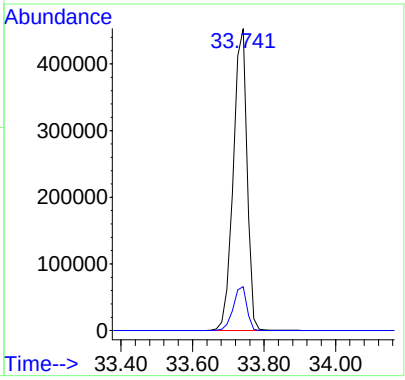


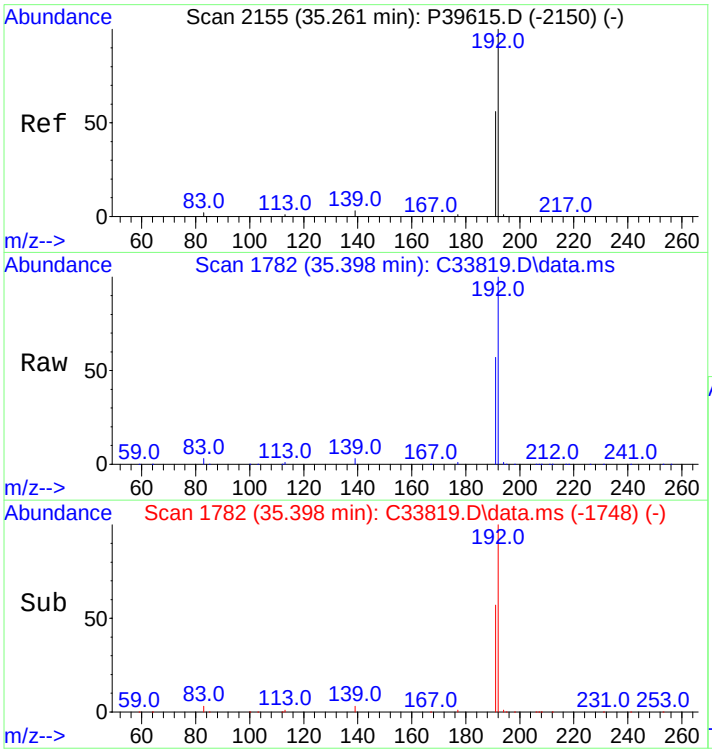


#56
Carbazole
Concen: 13941.10 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:167 Resp: 1210095

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

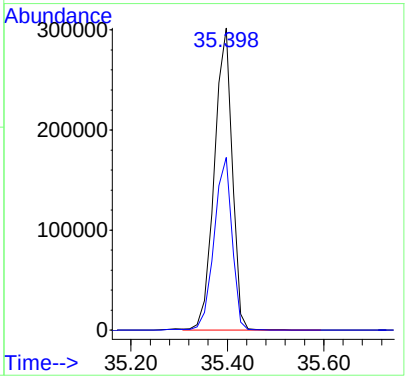


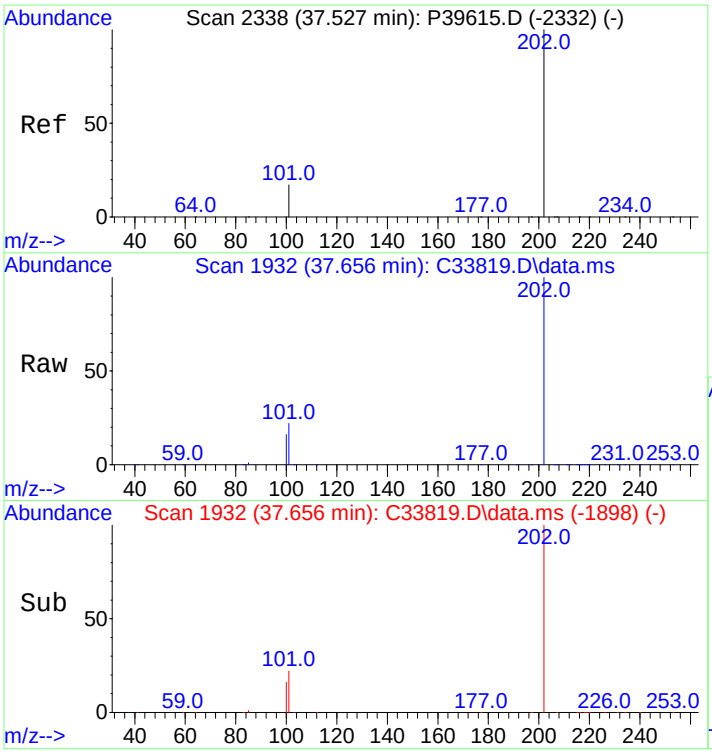


#57
1-Methylphenanthrene
Concen: 10369.55 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:192 Resp: 774174

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.3	67.9

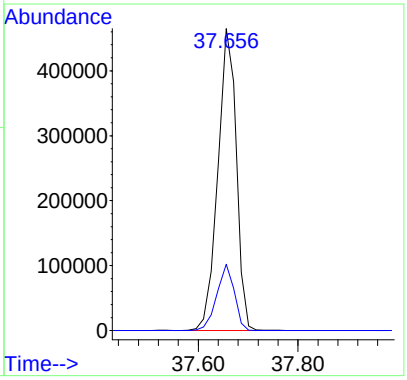


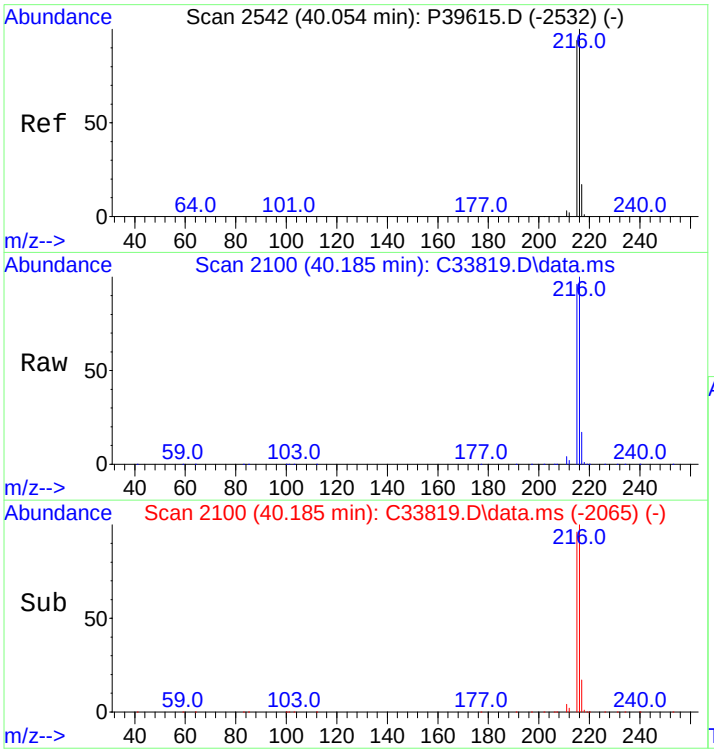


#58
Fluoranthene
Concen: 10135.79 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1195399

Ion	Ratio	Lower	Upper
202	100		
101	20.8	19.1	28.7

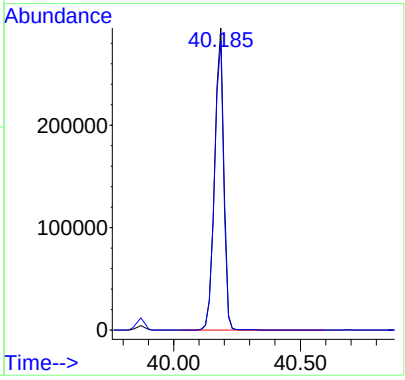


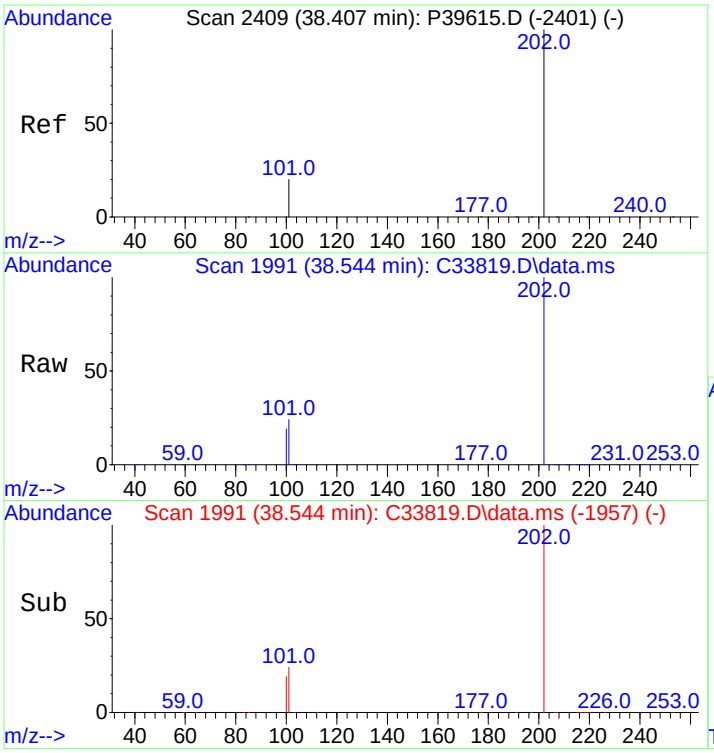


#59
Benzo(b)fluorene
Concen: 9595.00 ng/mL
RT: 40.185 min Scan# 2100
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:216 Resp: 739083

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

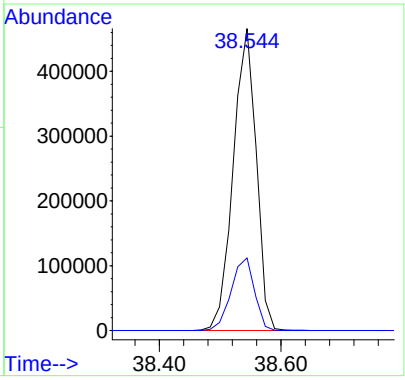


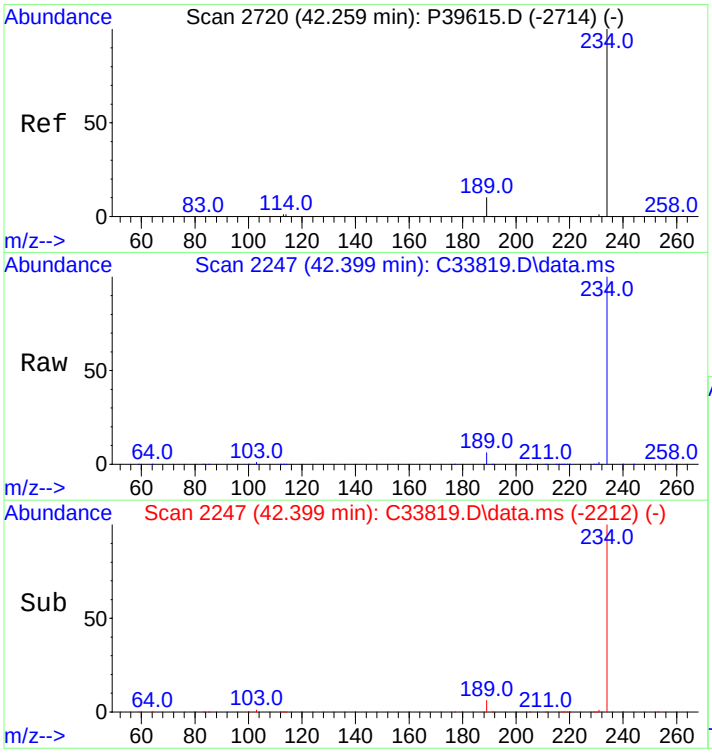


#60
Pyrene
Concen: 10157.68 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1228730

Ion	Ratio	Lower	Upper
202	100		
101	24.4	20.4	30.6

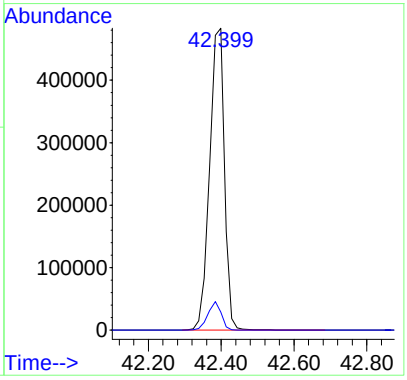


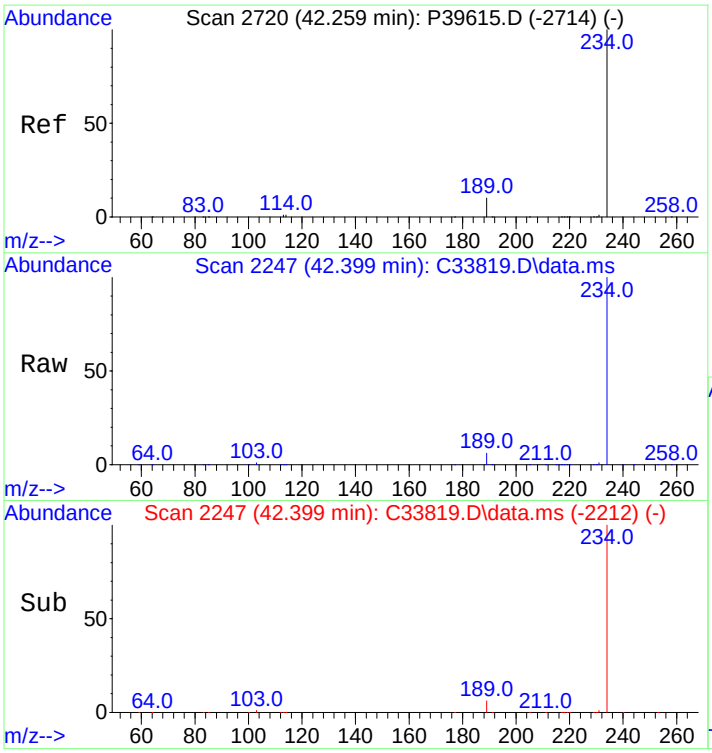


#66
Naphthobenzothiophene
Concen: 10732.50 ng/ml m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356661

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

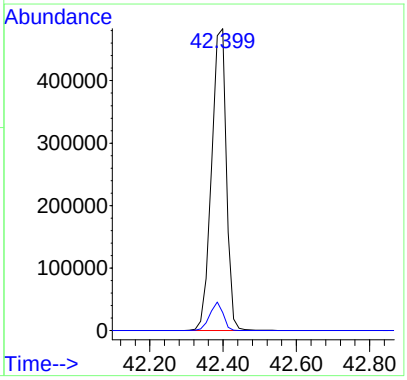


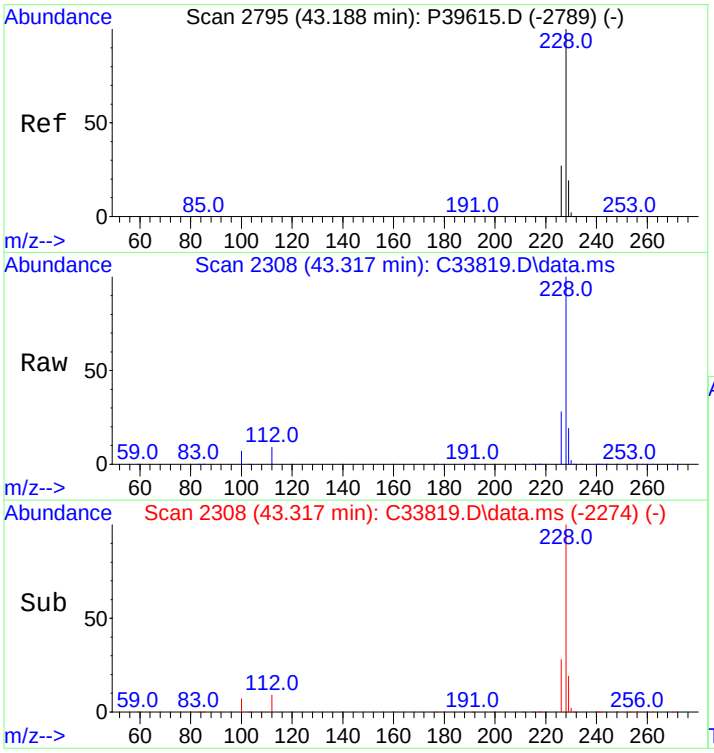


#67
Naphthobenzothiophene-2,1-D
Concen: 10729.60 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356294

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

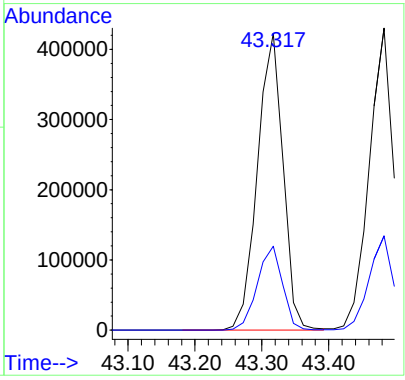


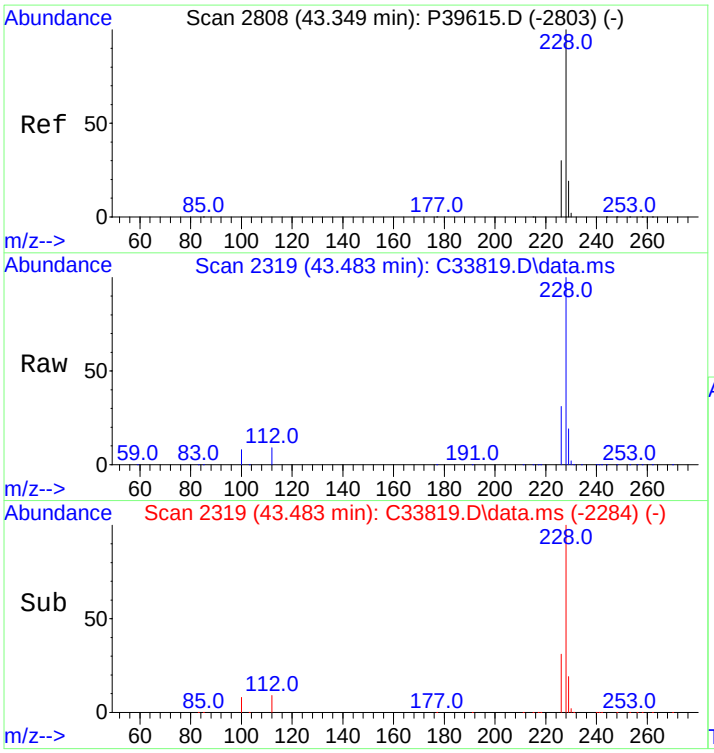


#75
Benz[a]anthracene
Concen: 11118.57 ng/mL
RT: 43.317 min Scan# 2308
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1122402

Ion	Ratio	Lower	Upper
228	100		
226	28.0	21.8	32.8

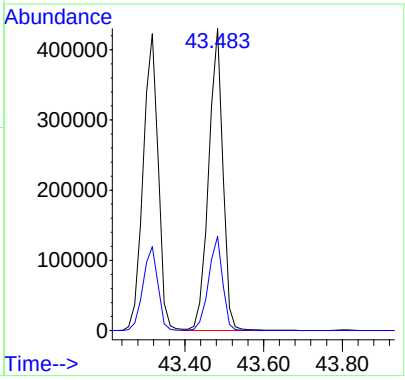


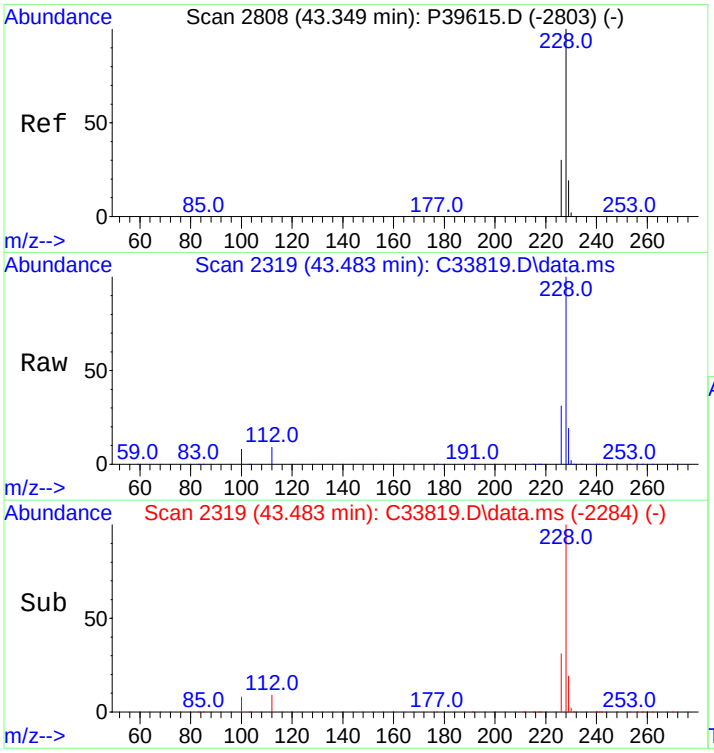


#76
Chrysene
Concen: 10915.69 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085655

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

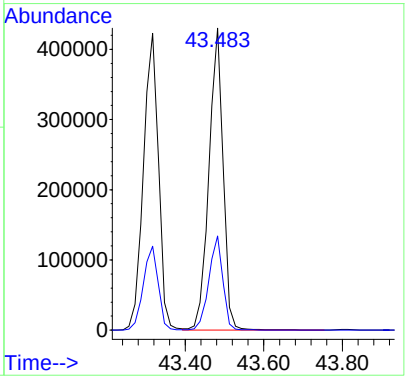


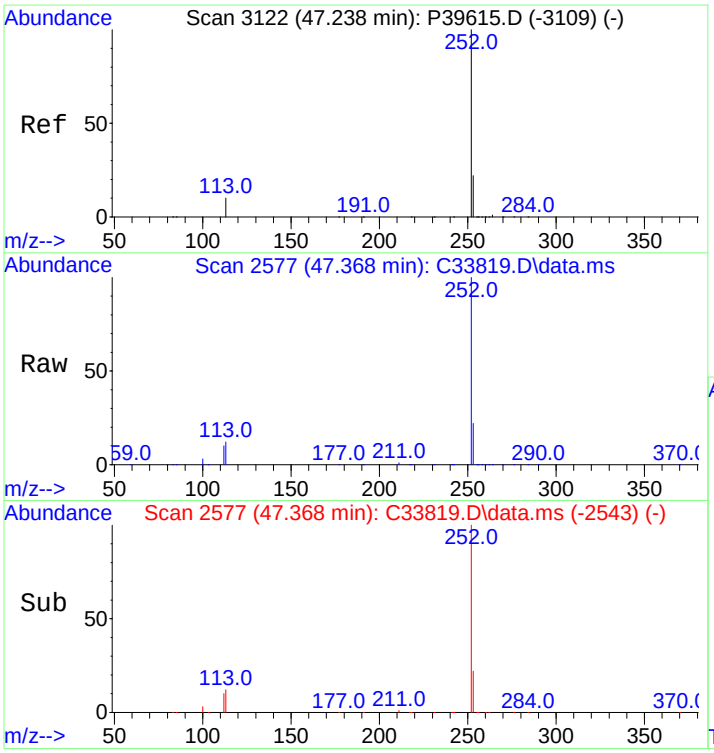


#77
Chrysene/Triphenylene
Concen: 10910.46 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085135

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

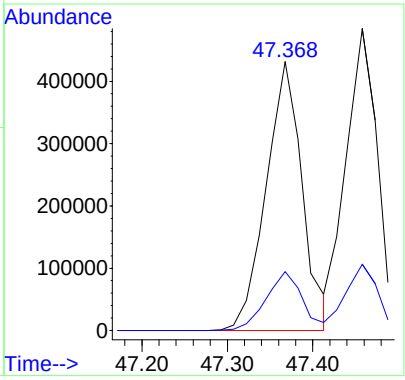


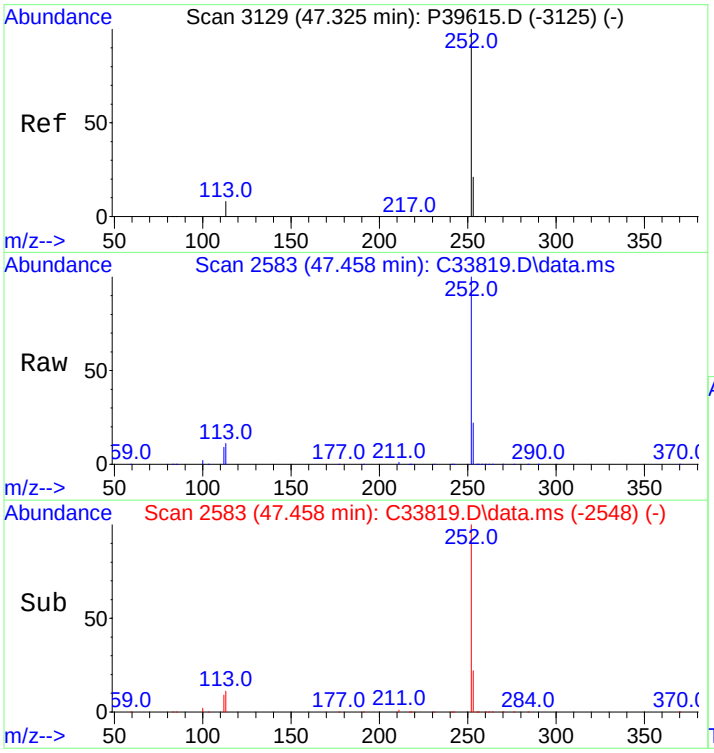


#82
Benzo[b]fluoranthene
Concen: 11418.66 ng/mL m
RT: 47.368 min Scan# 2577
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1268344

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

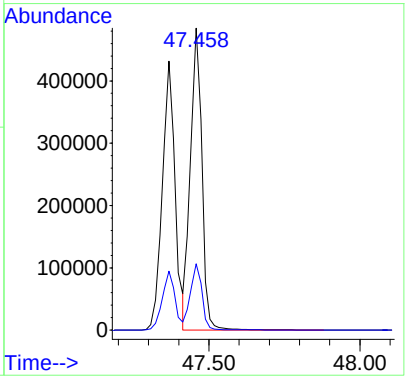


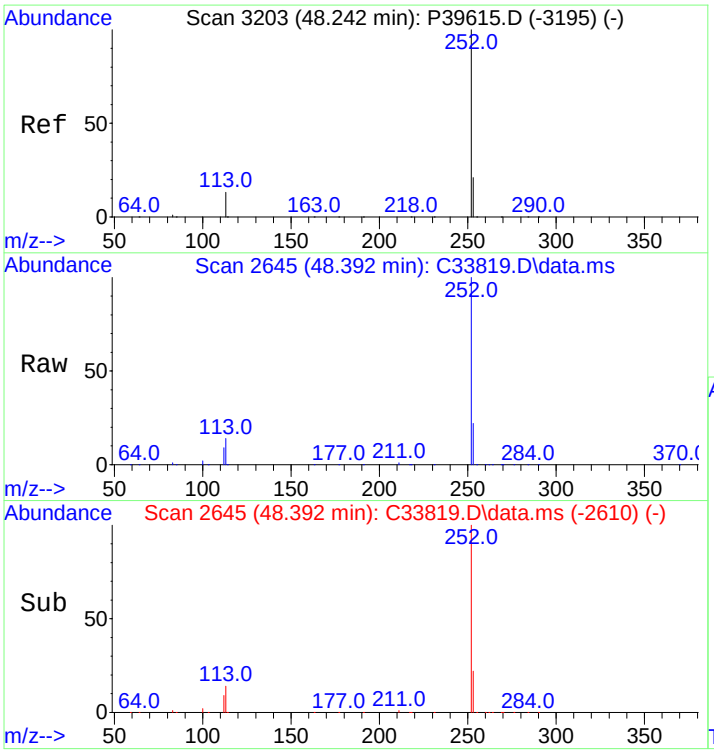


#83
Benzo[j]+[k]fluoranthene
Concen: 10878.01 ng/mL
RT: 47.458 min Scan# 2583
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1277406

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.2	27.4

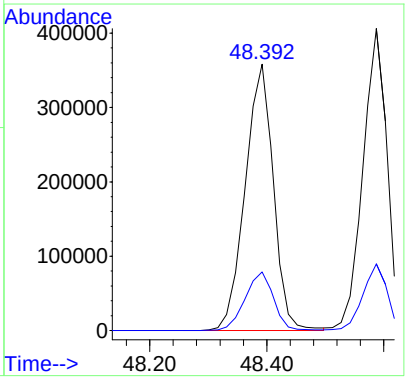


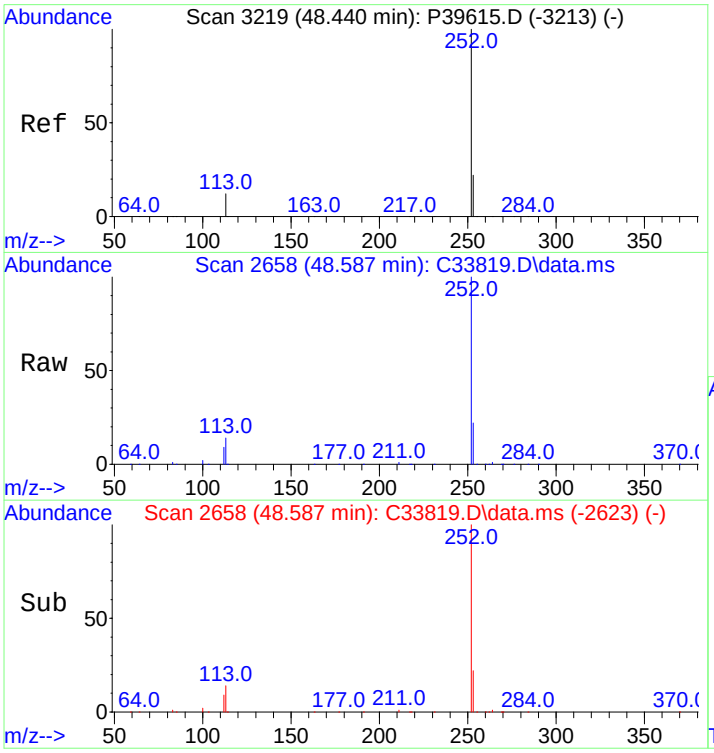


#85
Benzo[e]pyrene
Concen: 11182.09 ng/mL
RT: 48.392 min Scan# 2645
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1195408

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

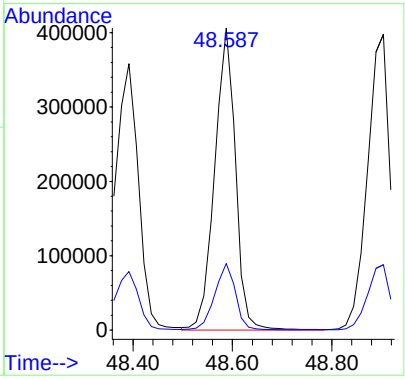


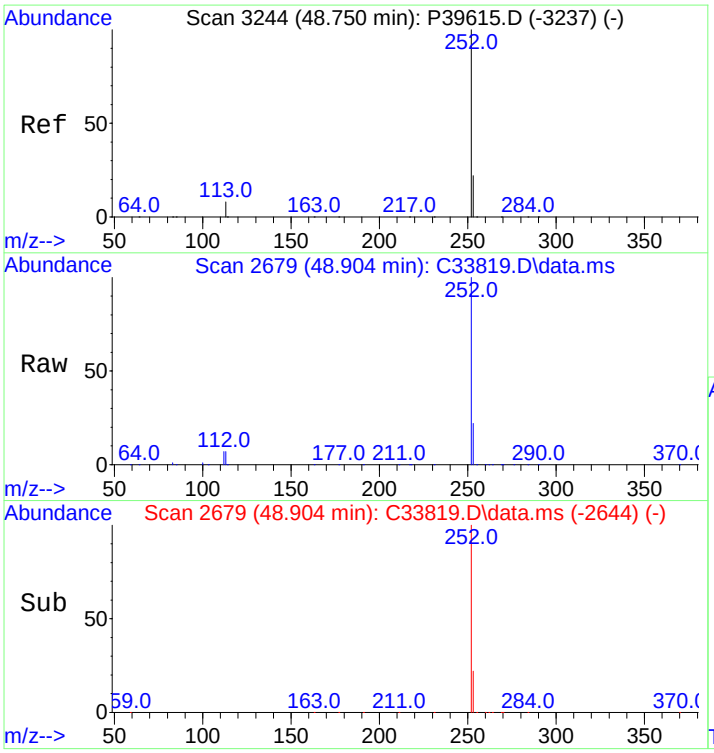


#87
Benzo[a]pyrene
Concen: 11788.13 ng/mL m
RT: 48.587 min Scan# 2658
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1184374

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

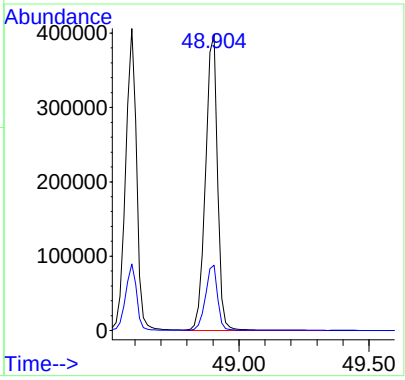


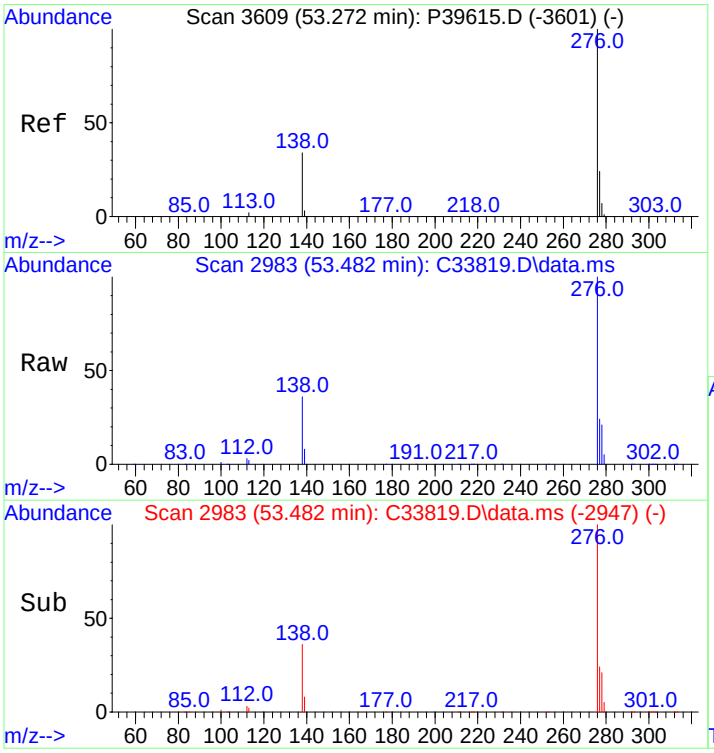


#88
Perylene
Concen: 11799.88 ng/mL
RT: 48.904 min Scan# 2679
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1266913

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.6	27.8

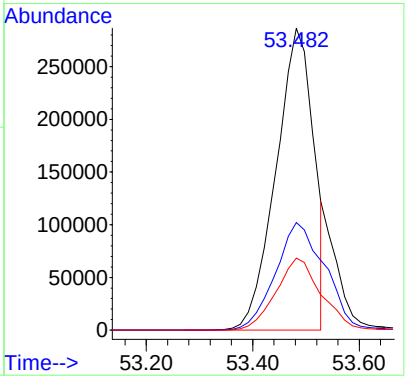


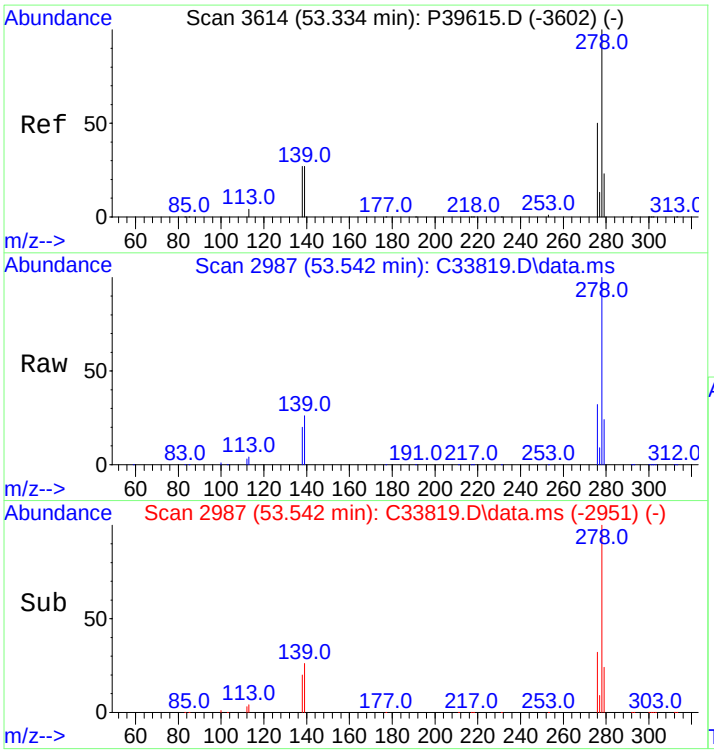


#89
Indeno[1,2,3-cd]pyrene
Concen: 12176.59 ng/mL m
RT: 53.482 min Scan# 2983
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1408473

Ion	Ratio	Lower	Upper
276	100		
138	47.0	30.3	45.5#
277	28.8	19.2	28.8#

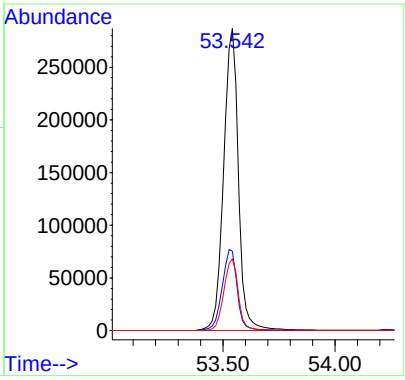


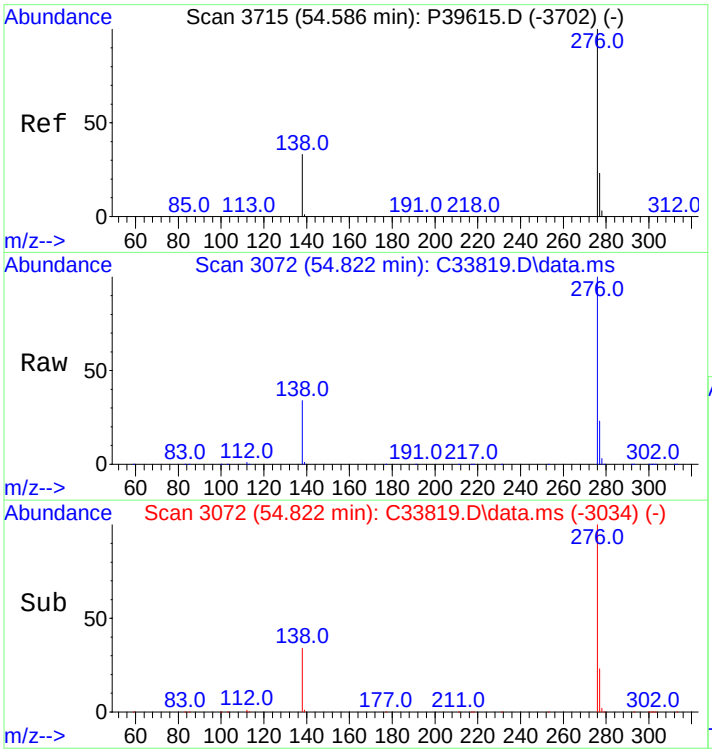


#90
Dibenz[ah]+[ac]anthracene
Concen: 12064.47 ng/mL m
RT: 53.542 min Scan# 2987
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:278 Resp: 1311872

Ion	Ratio	Lower	Upper
278	100		
139	27.5	25.4	38.2
279	23.5	19.0	28.4

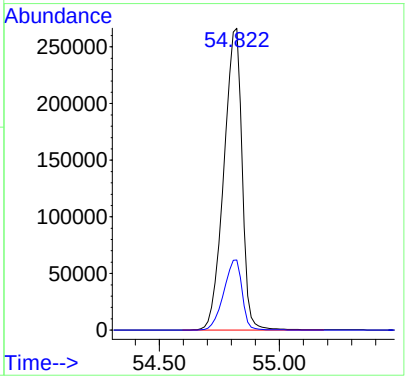


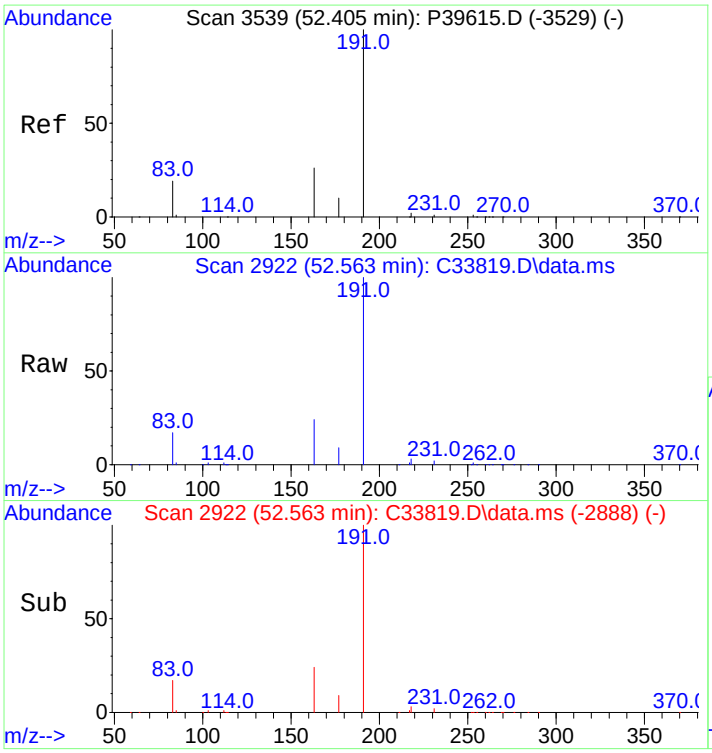


#91
Benzo[g,h,i]perylene
Concen: 11906.45 ng/mL
RT: 54.822 min Scan# 3072
Delta R.T. 0.075 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1404966

Ion	Ratio	Lower	Upper
276	100		
277	23.5	18.9	28.3

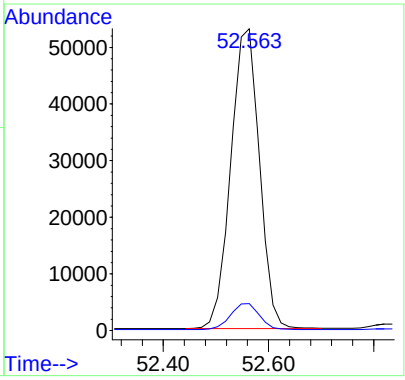


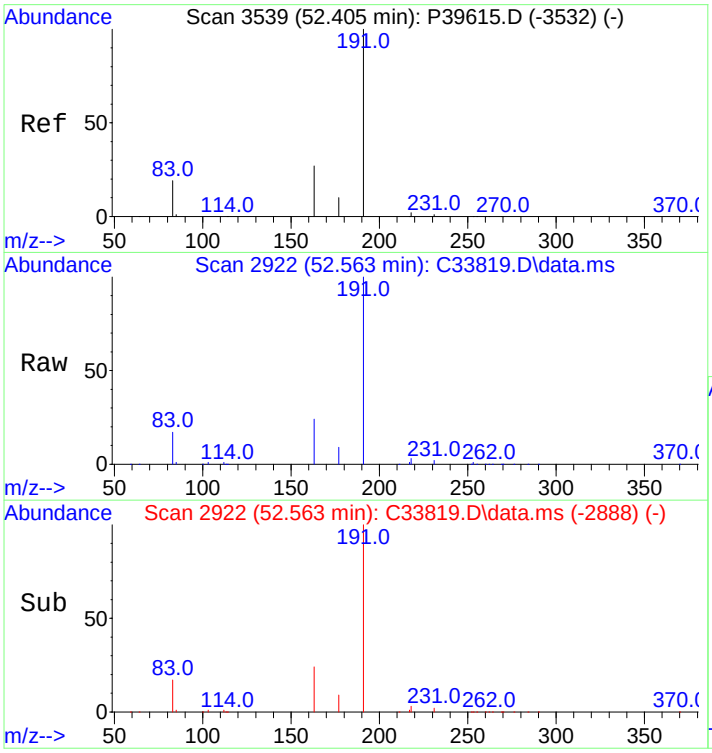


#92
Hopane (T19)
Concen: 10720.58 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199827

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

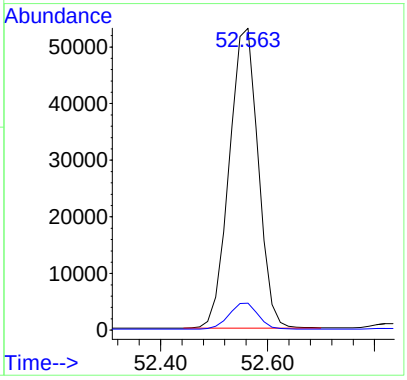




#93
17a(H),21B(H)-hopane - C30H52
Concen: 10712.31 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199673

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	18516M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.982	136	1302520	21083.759 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2108.38%#		
42) Phenanthrene-d10	32.808	188	1258411	17563.931 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1756.39%#		
86) Benzo[a]pyrene-d12	48.512	264	1393115	21325.190 ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2132.52%#		
127) 5B(H)Cholane - Surr	44.010	217	195942M4	17439.814 ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1743.98%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	124104M4	9697.328 ng/mL	
4) cis-Decalin	17.844	138	96625M4	9676.944 ng/mL	
10) Naphthalene	20.057	128	1949049	29257.134 ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	25854.831 ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	26609.552 ng/mL#	100
18) Benzothiophene	20.268	134	1808135	33094.557 ng/mL	100
23) Biphenyl	24.619	154	1572275M4	25049.794 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	23810.418 ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	25710.272 ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	29003.190 ng/mL	
27) Acenaphthene	27.072	153	1273128	26678.070 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	904177	21663.113 ng/mL	100
29) Fluorene	29.090	166	1451673M4	24443.469 ng/mL	
33) Dibenzothiophene	32.402	184	2285641	25485.077 ng/mL	99
43) Phenanthrene	32.898	178	2086430	23153.152 ng/mL	98
54) Retene	39.884	234	451319	17223.374 ng/mL	92
55) Anthracene	33.079	178	2014742M4	23075.600 ng/mL	
56) Carbazole	33.741	167	2088328M4	26040.459 ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19255.650 ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19002.422 ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	18321.441 ng/mL	
60) Pyrene	38.559	202	2108058M4	18862.228 ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20448.484 ng/ml	98
67) Naphthobenzothiophene-2,1	42.399	234	2387636M4	20444.194 ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	20217.341 ng/mL	
76) Chrysene	43.498	228	1888024M4	19884.398 ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	19887.463 ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	20722.621 ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	20712.666 ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	21181.566 ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	22157.852 ng/mL	
88) Perylene	48.919	252	2271920	22165.085 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	23421.956 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	22616.127 ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516558	22339.282 ng/mL	100

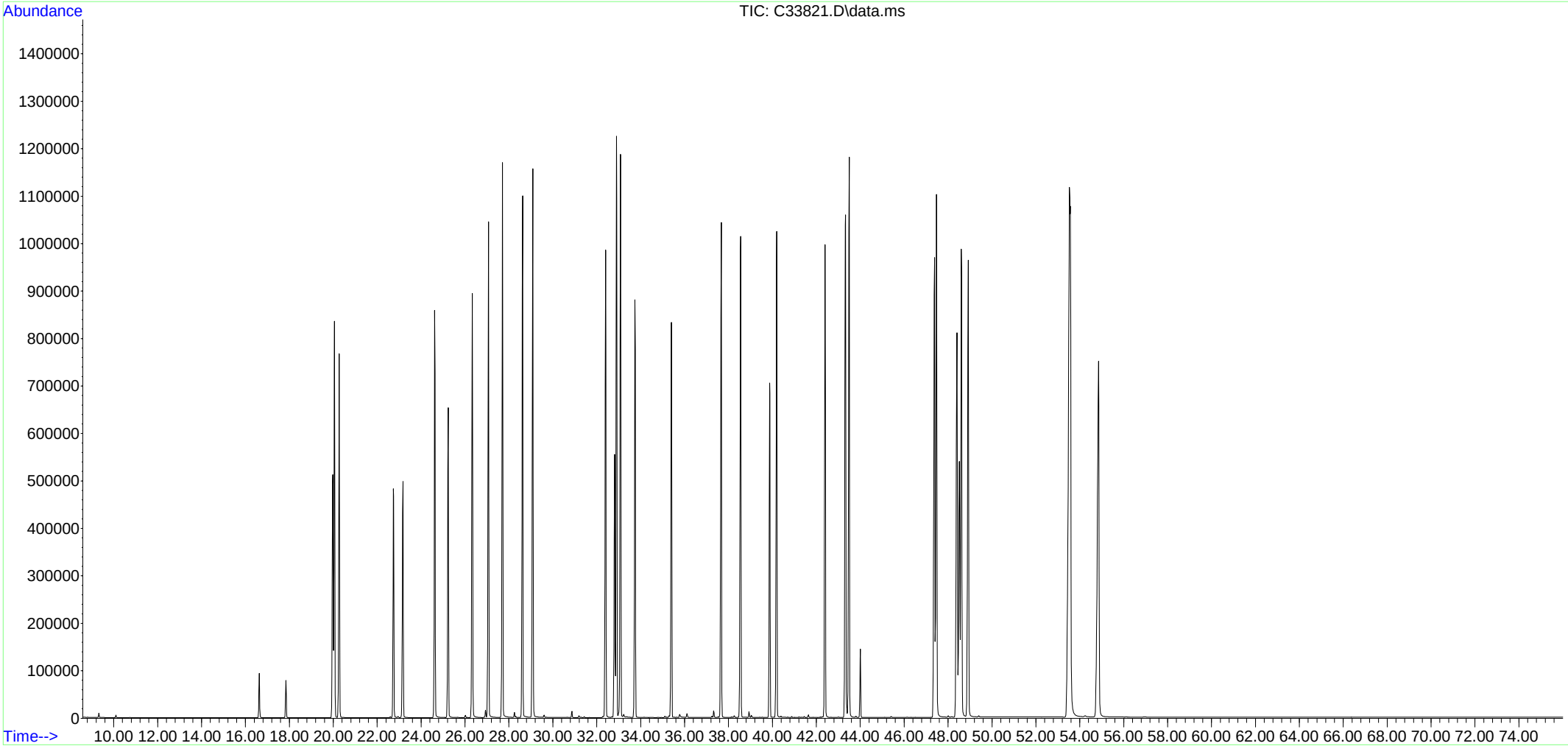
(#) = qualifier out of range (m) = manual integration (+) = signals summed

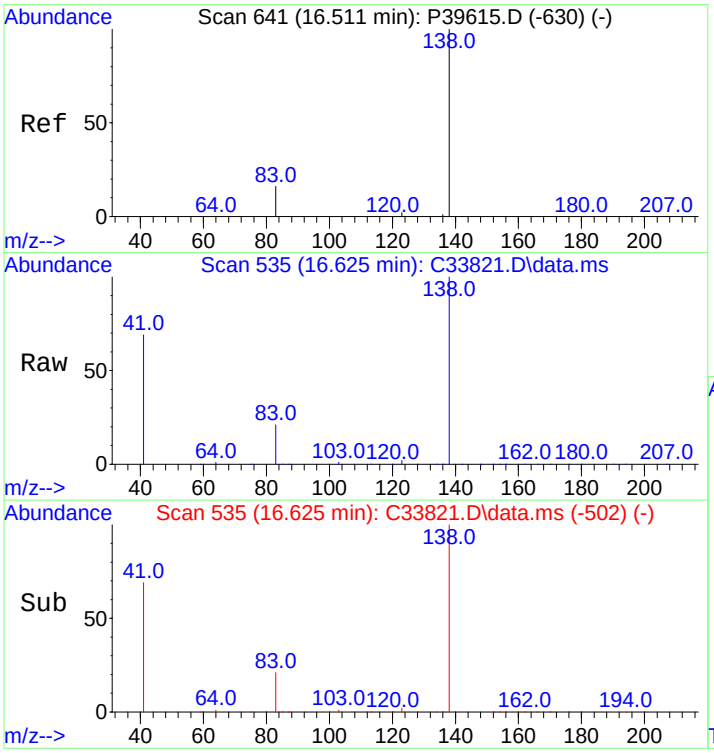
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

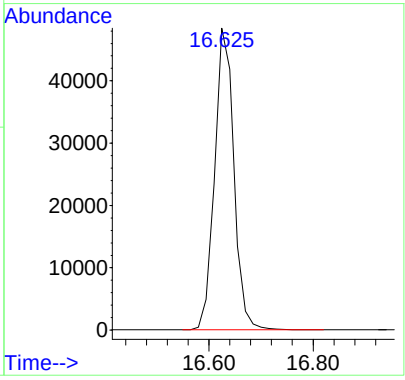
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

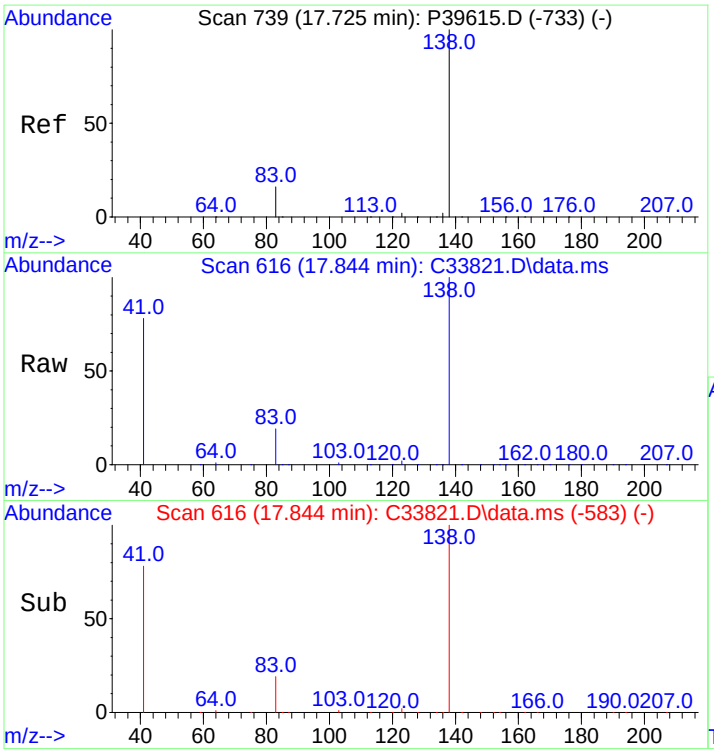




#3
trans-Decalin
Concen: 9697.33 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

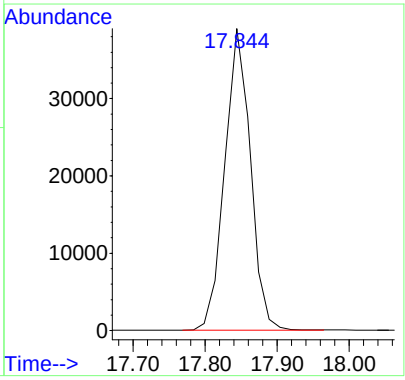
Tgt Ion:138 Resp: 124104

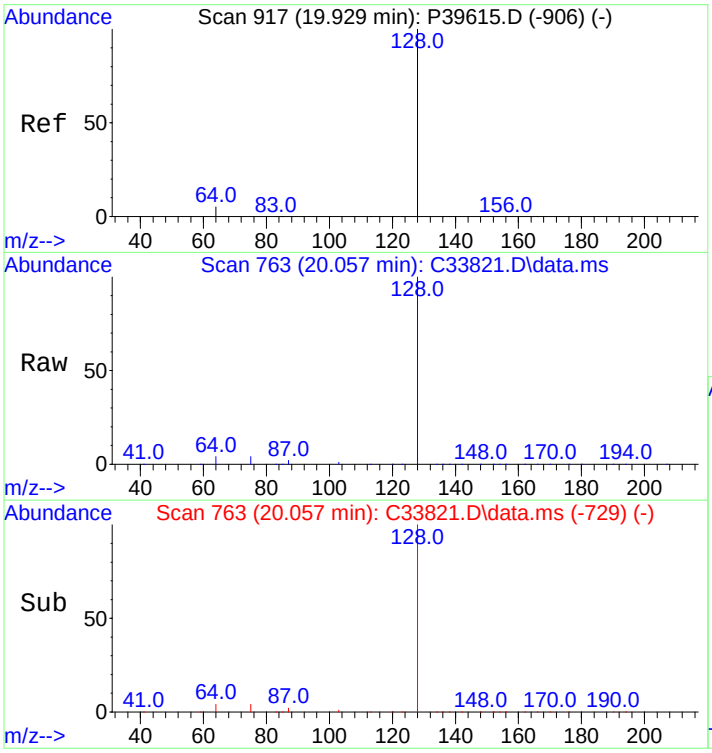




#4
cis-Decalin
Concen: 9676.94 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:138 Resp: 96625

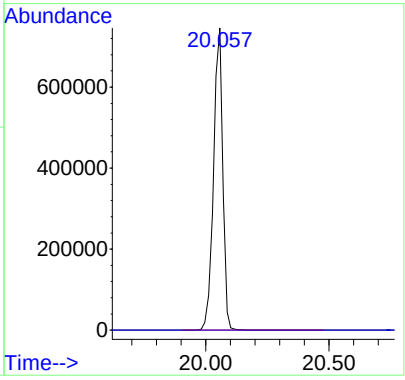


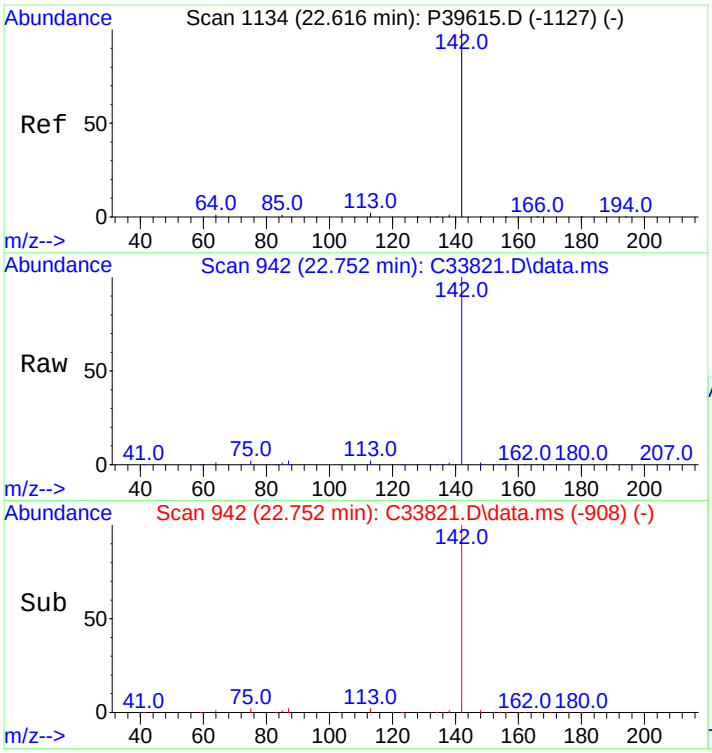


#10
Naphthalene
Concen: 29257.13 ng/mL
RT: 20.057 min Scan# 763
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:128 Resp: 1949049

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

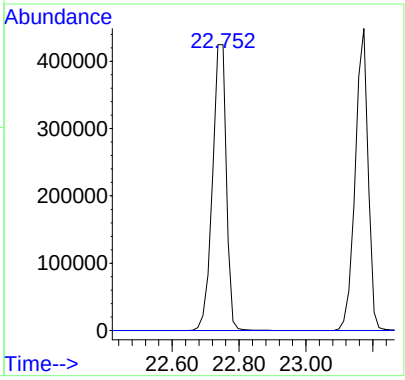


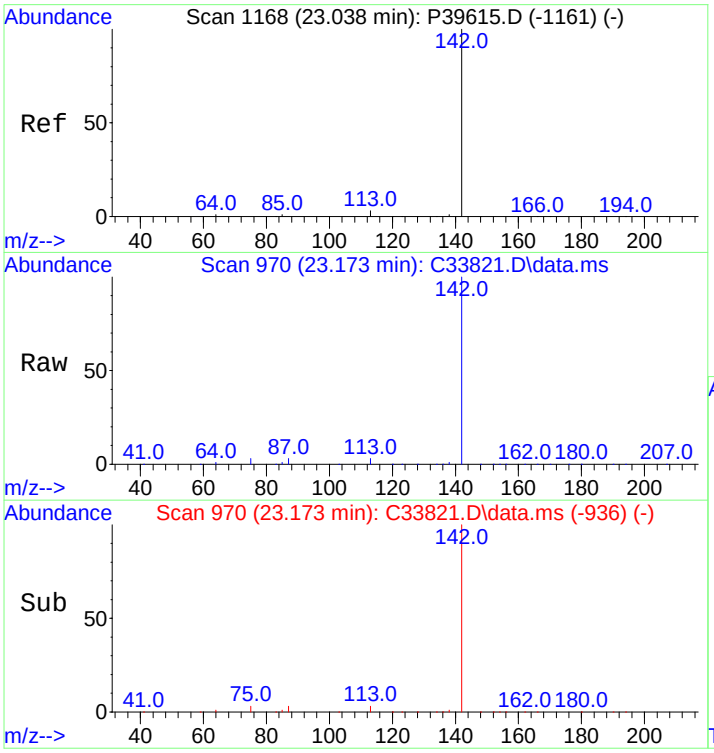


#16
2-Methylnaphthalene
Concen: 25854.83 ng/mL m
RT: 22.752 min Scan# 942
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1216123

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

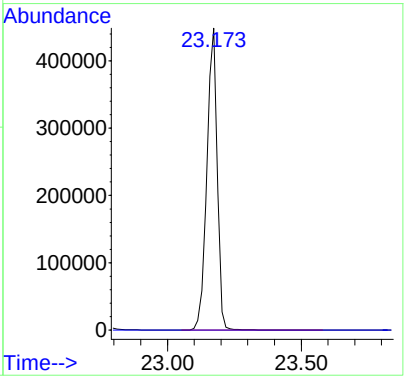


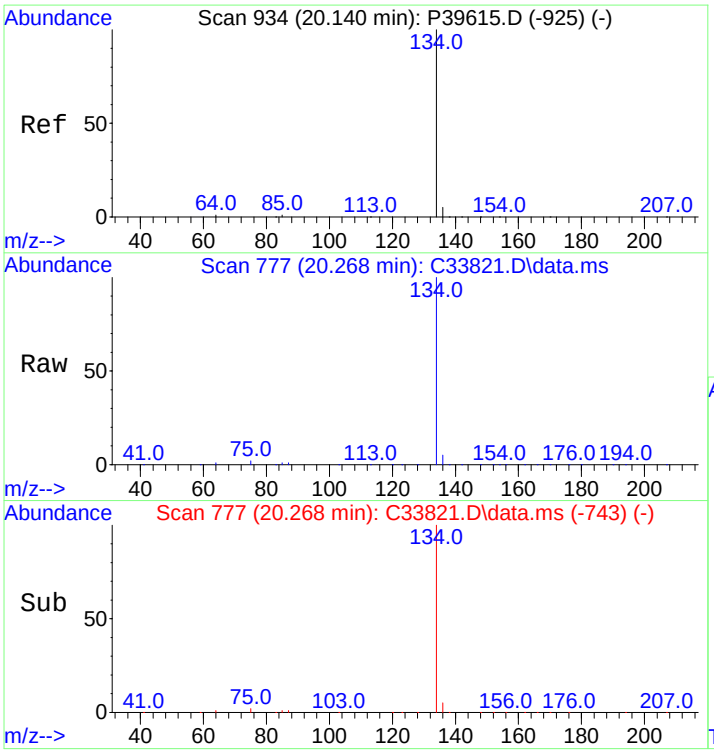


#17
1-Methylnaphthalene
Concen: 26609.55 ng/mL
RT: 23.173 min Scan# 970
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1200476

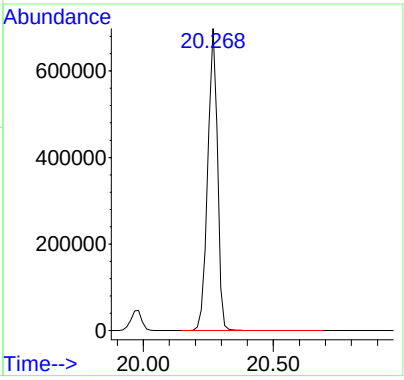
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

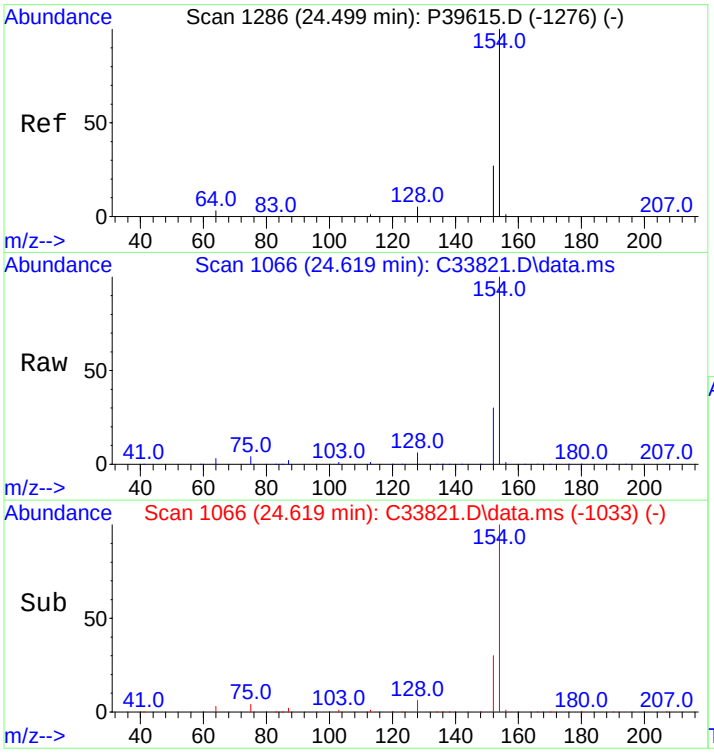




#18
Benzothiophene
Concen: 33094.56 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:134 Resp: 1808135

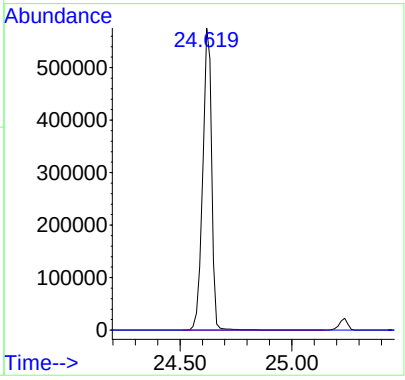


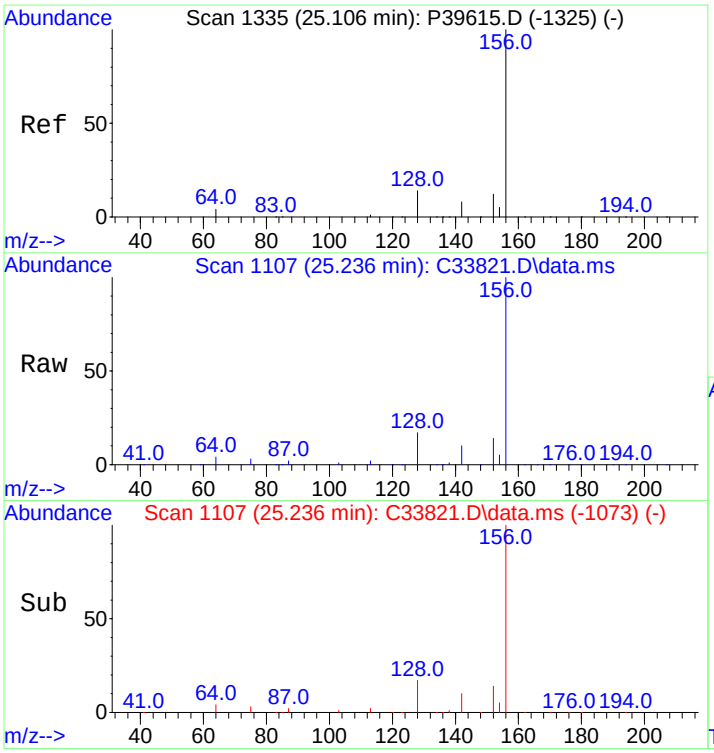


#23
Biphenyl
Concen: 25049.79 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:154 Resp: 1572275

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

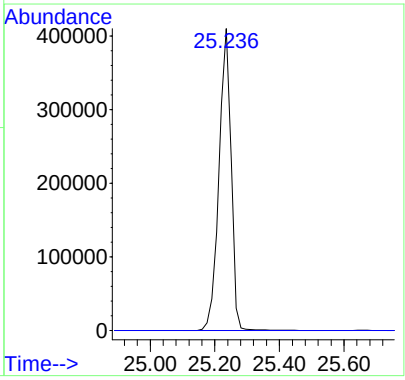


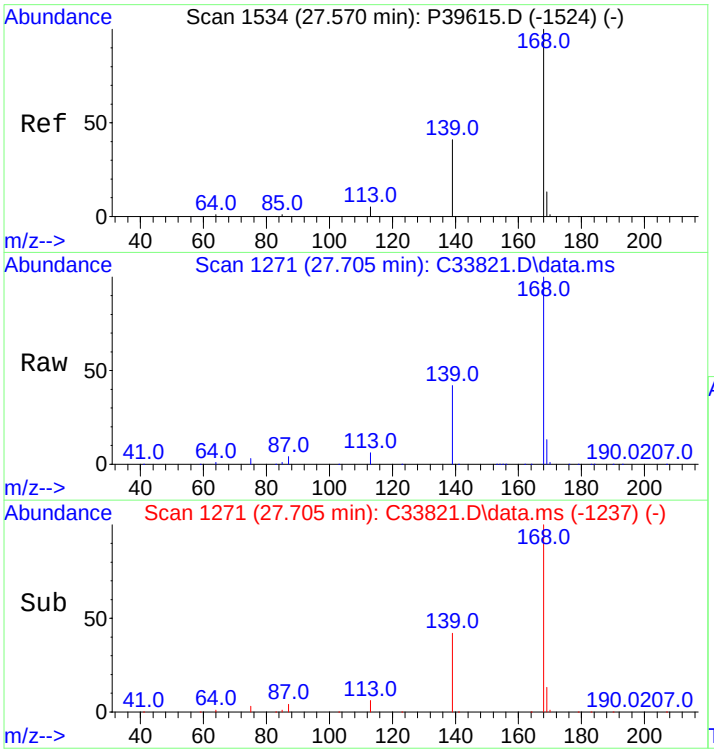


#24
2,6-Dimethylnaphthalene
Concen: 23810.42 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:156 Resp: 1065395

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

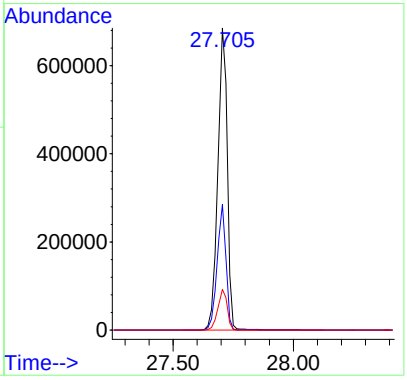


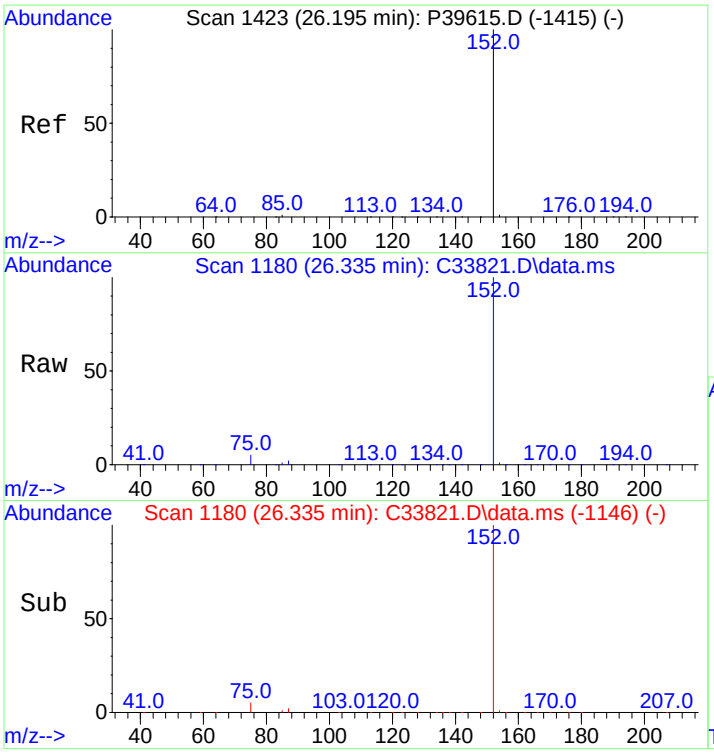


#25
Dibenzofuran
Concen: 25710.27 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:168 Resp: 1874849

Ion	Ratio	Lower	Upper
168	100		
139	39.3	32.9	49.3
169	13.3	10.6	16.0

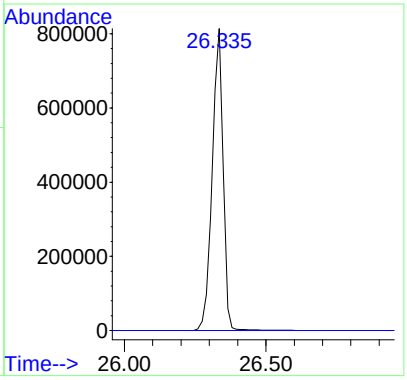


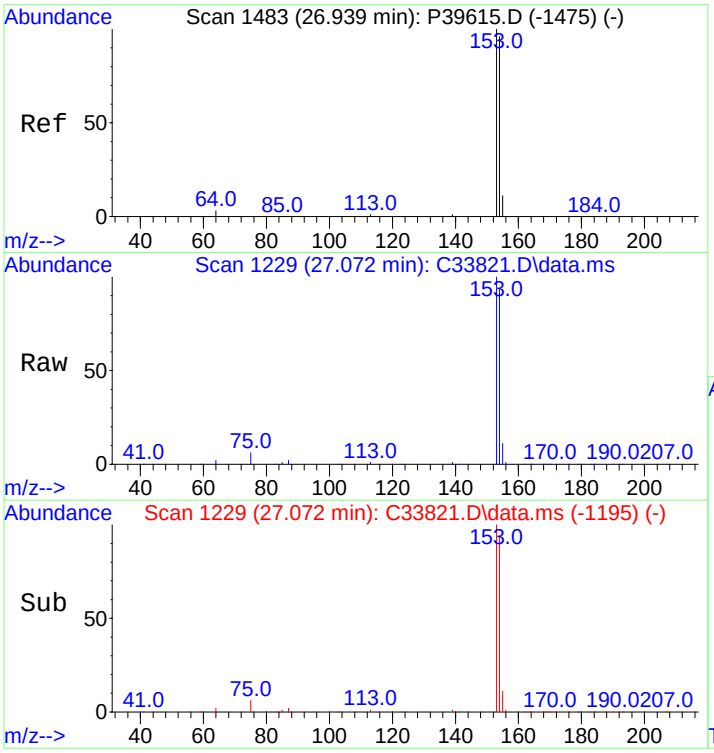


#26
Acenaphthylene
Concen: 29003.19 ng/mL m
RT: 26.335 min Scan# 1180
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:152 Resp: 2179843

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

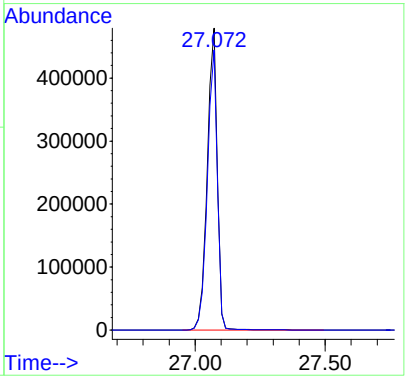


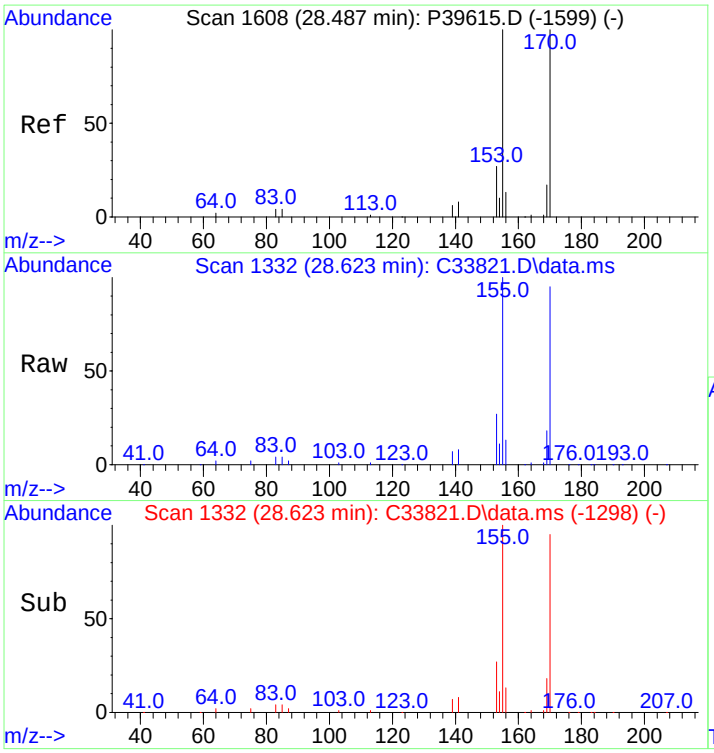


#27
Acenaphthene
Concen: 26678.07 ng/mL
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:153 Resp: 1273128

Ion	Ratio	Lower	Upper
153	100		
154	92.9	75.0	112.6

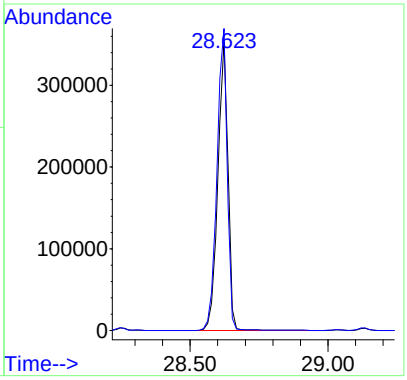


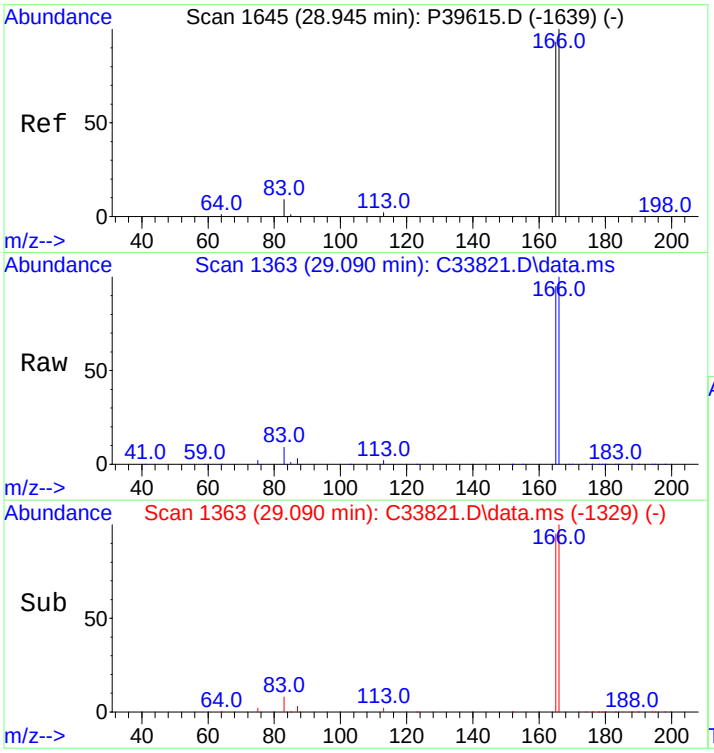


#28
2,3,5-Trimethylnaphthalene
Concen: 21663.11 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:170 Resp: 904177

Ion	Ratio	Lower	Upper
170	100		
155	105.9	84.7	127.1

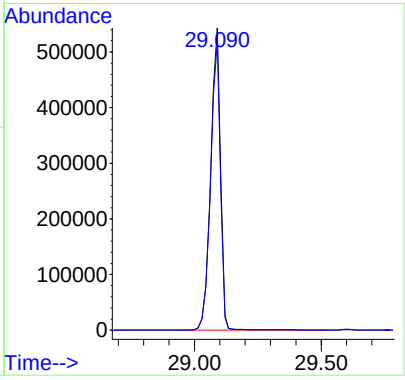


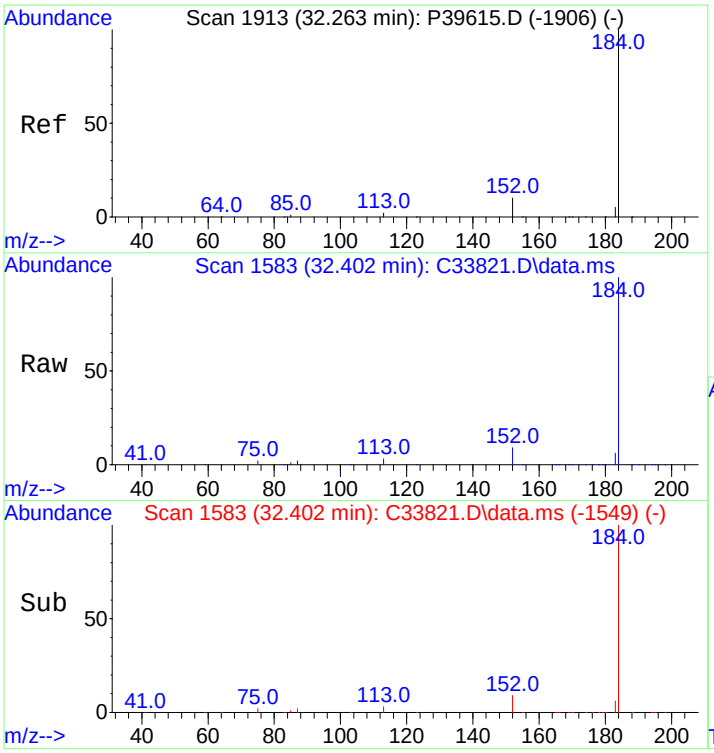


#29
Fluorene
Concen: 24443.47 ng/mL m
RT: 29.090 min Scan# 1363
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:166 Resp: 1451673

Ion	Ratio	Lower	Upper
166	100		
165	95.3	75.3	112.9

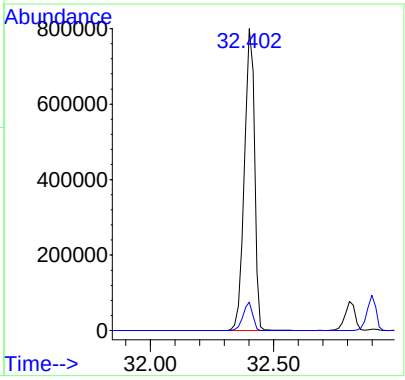


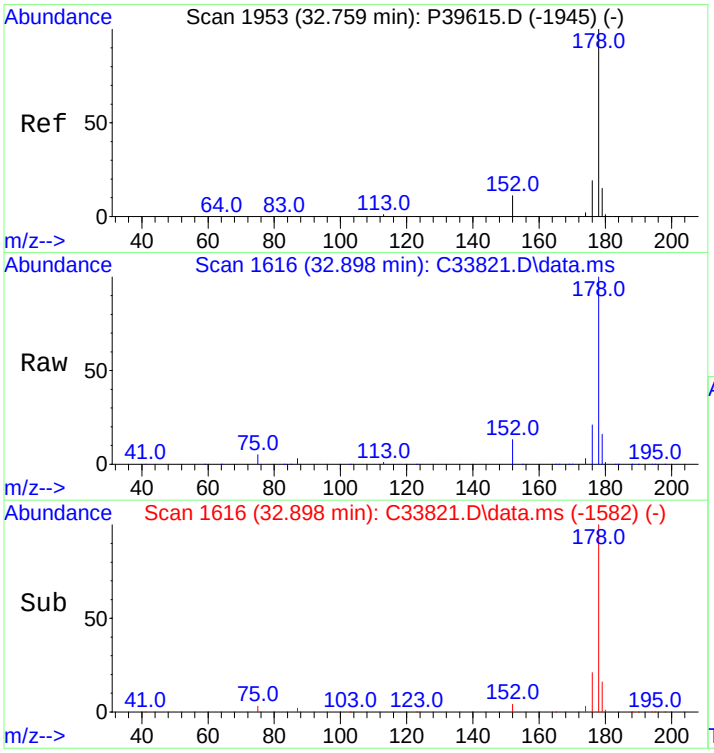


#33
Dibenzothiophene
Concen: 25485.08 ng/mL
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:184 Resp: 2285641

Ion	Ratio	Lower	Upper
184	100		
152	8.9	6.7	10.1

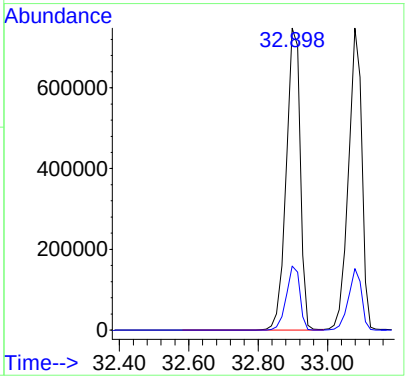


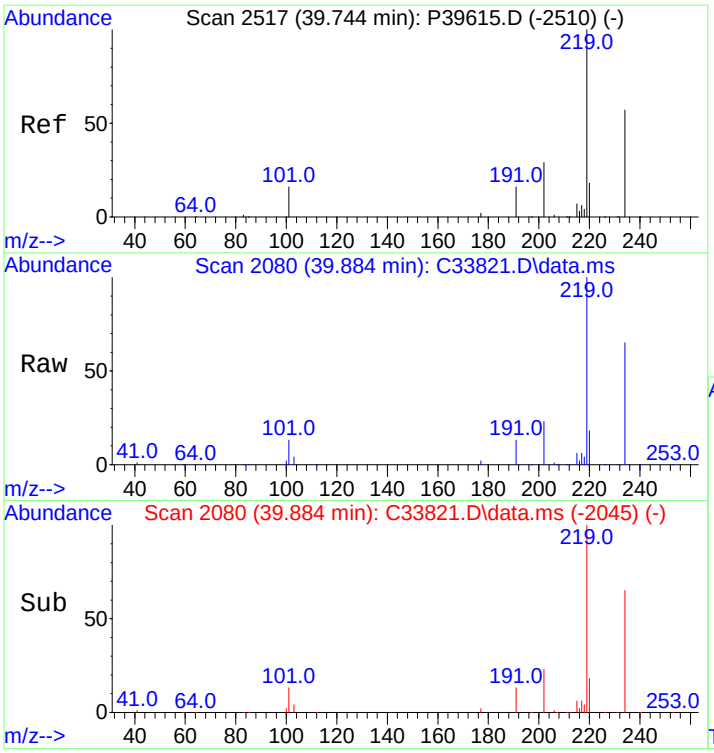


#43
Phenanthrene
Concen: 23153.15 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2086430

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

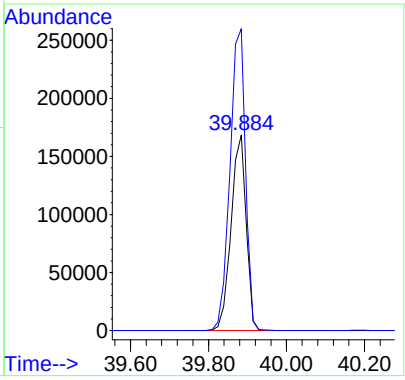


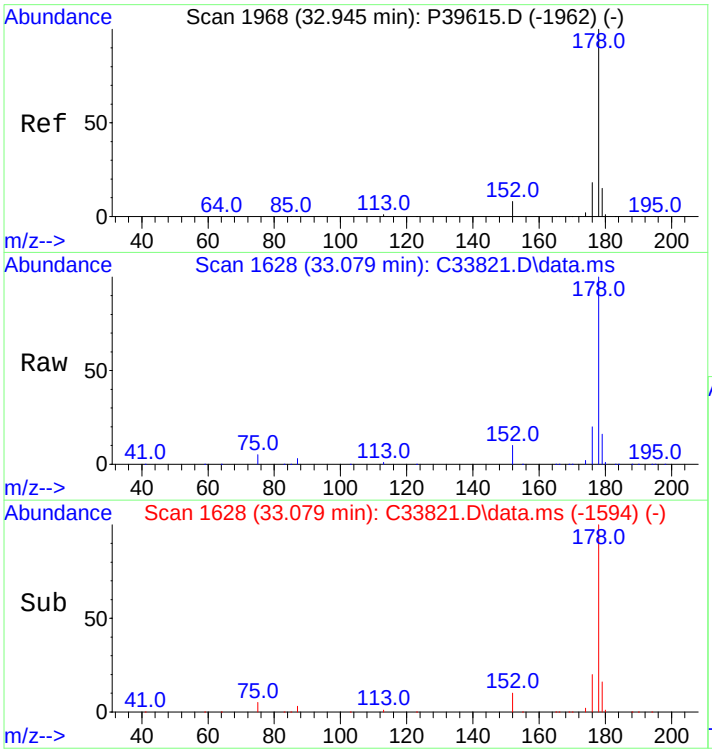


#54
Retene
Concen: 17223.37 ng/mL
RT: 39.884 min Scan# 2080
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 451319

Ion	Ratio	Lower	Upper
234	100		
219	159.0	136.6	204.8

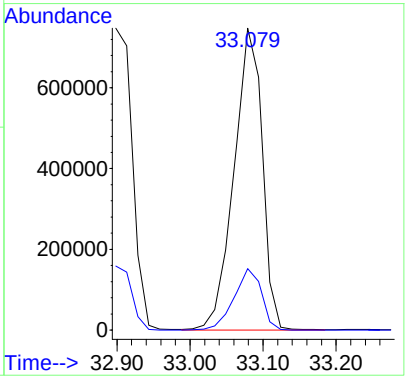


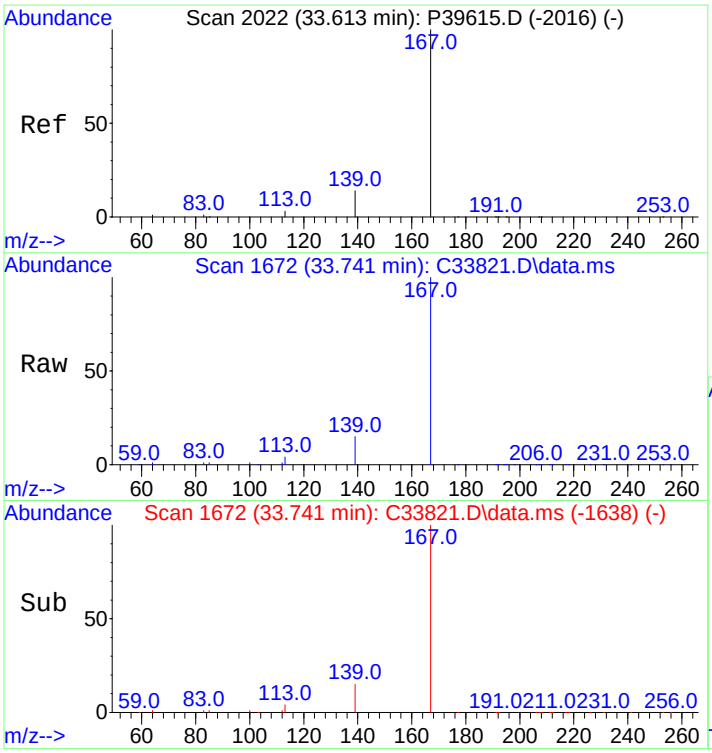


#55
Anthracene
Concen: 23075.60 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2014742

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.4	23.0

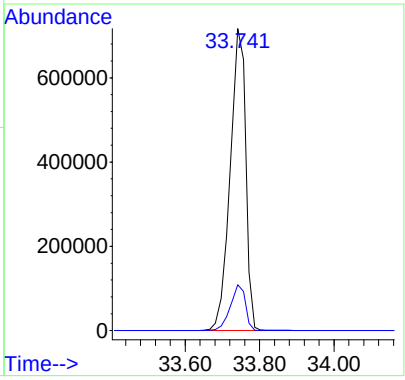


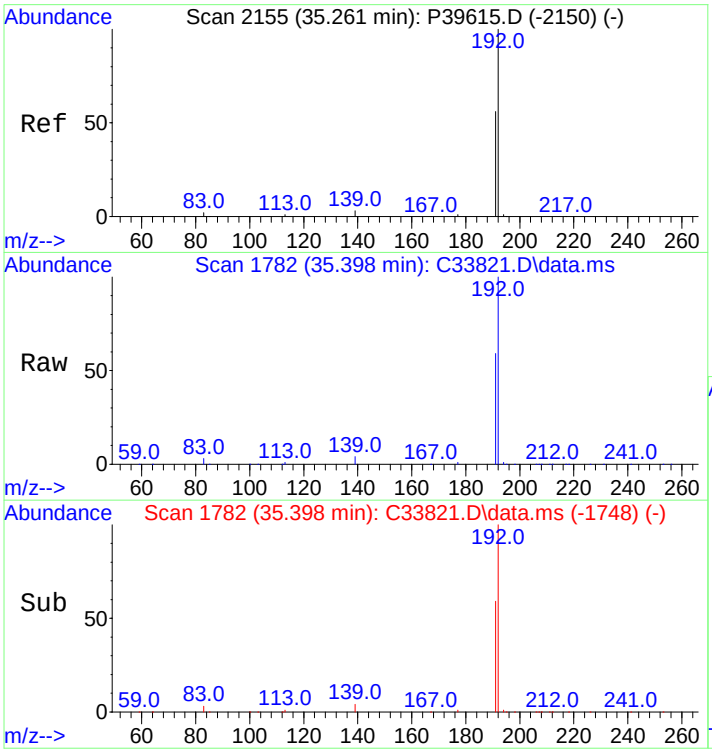


#56
Carbazole
Concen: 26040.46 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:167 Resp: 2088328

Ion	Ratio	Lower	Upper
167	100		
139	14.7	11.6	17.4

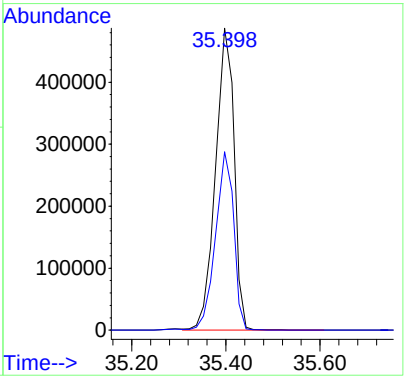


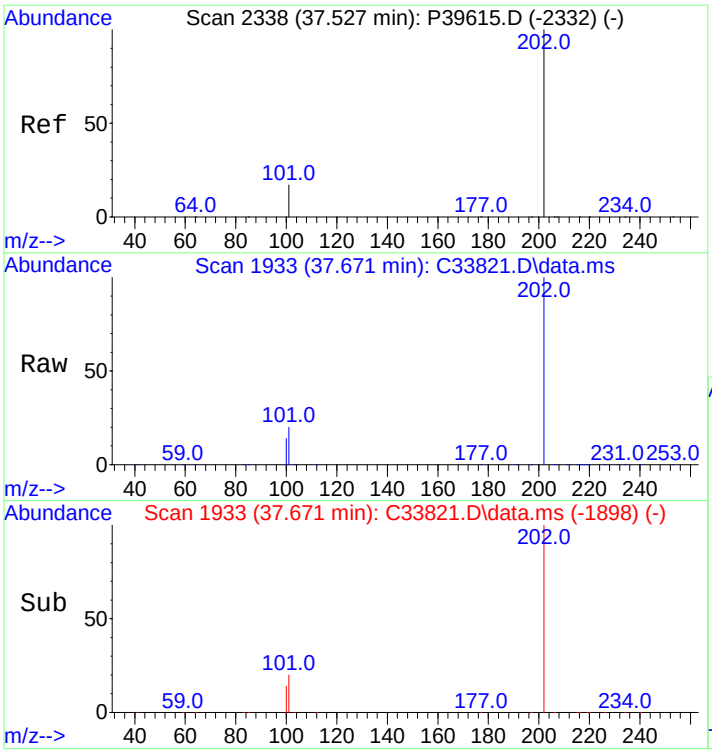


#57
1-Methylphenanthrene
Concen: 19255.65 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:192 Resp: 1328204

Ion	Ratio	Lower	Upper
192	100		
191	57.9	45.3	67.9

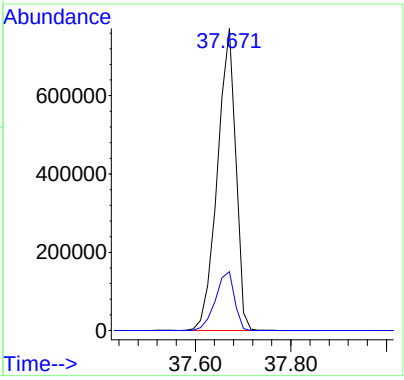


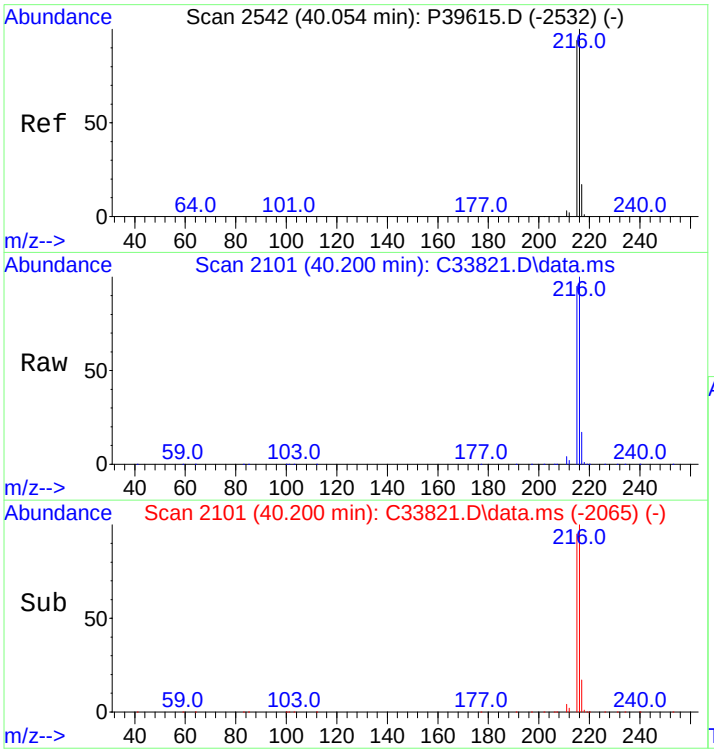


#58
Fluoranthene
Concen: 19002.42 ng/mL m
RT: 37.671 min Scan# 1933
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2070581

Ion	Ratio	Lower	Upper
202	100		
101	20.2	19.1	28.7

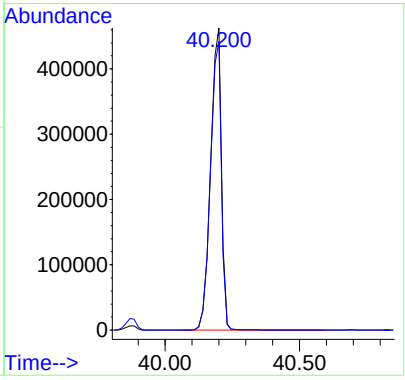


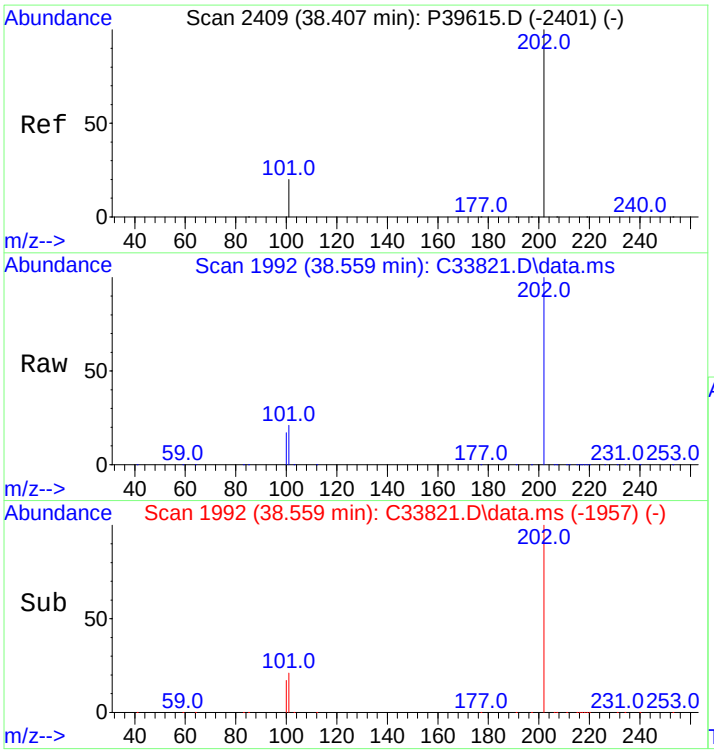


#59
Benzo(b)fluorene
Concen: 18321.44 ng/mL m
RT: 40.200 min Scan# 2101
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:216 Resp: 1303874

Ion	Ratio	Lower	Upper
216	100		
215	95.9	77.4	116.2

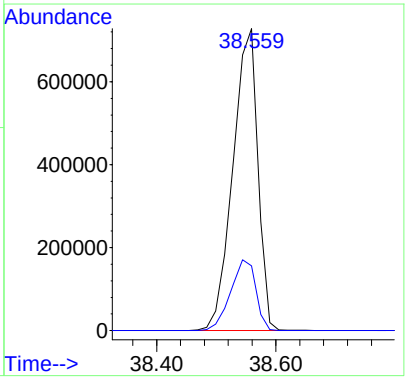


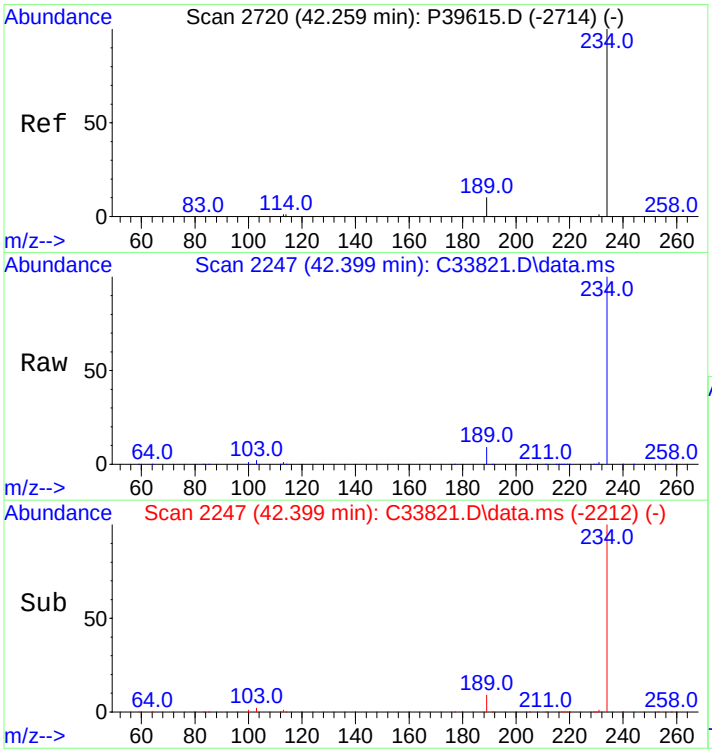


#60
Pyrene
Concen: 18862.23 ng/mL m
RT: 38.559 min Scan# 1992
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2108058

Ion	Ratio	Lower	Upper
202	100		
101	23.7	20.4	30.6

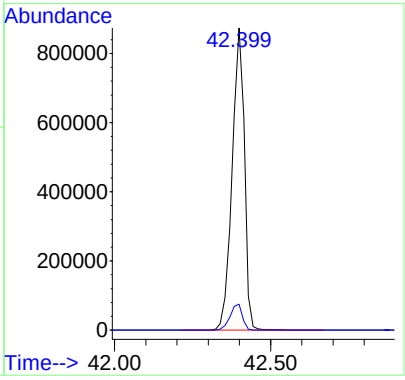


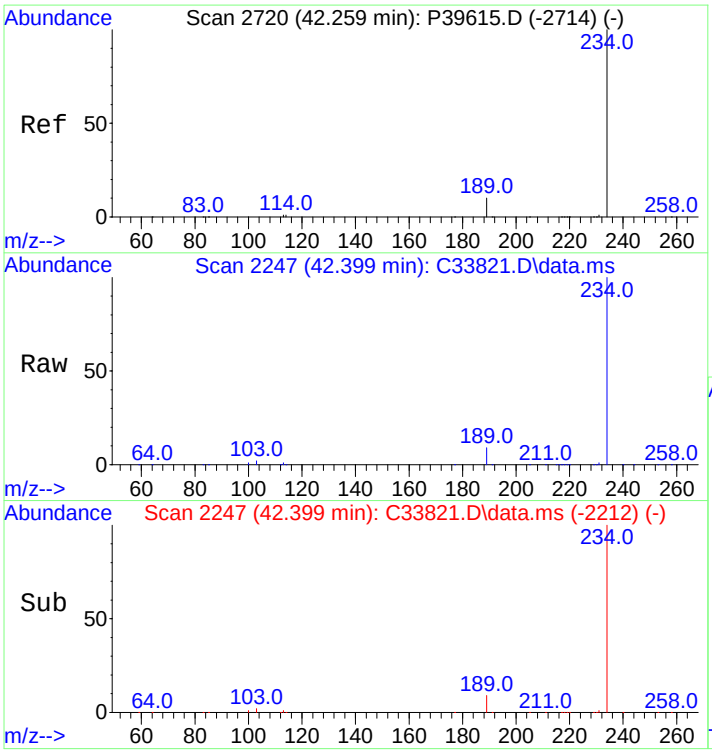


#66
Naphthobenzothiophene
Concen: 20448.48 ng/ml
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2388137

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

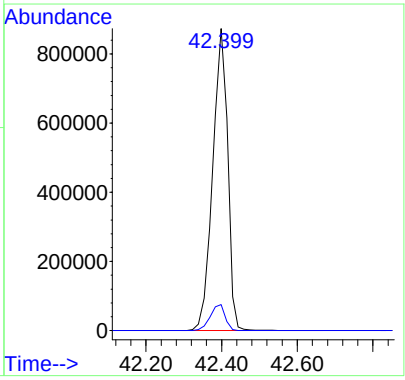


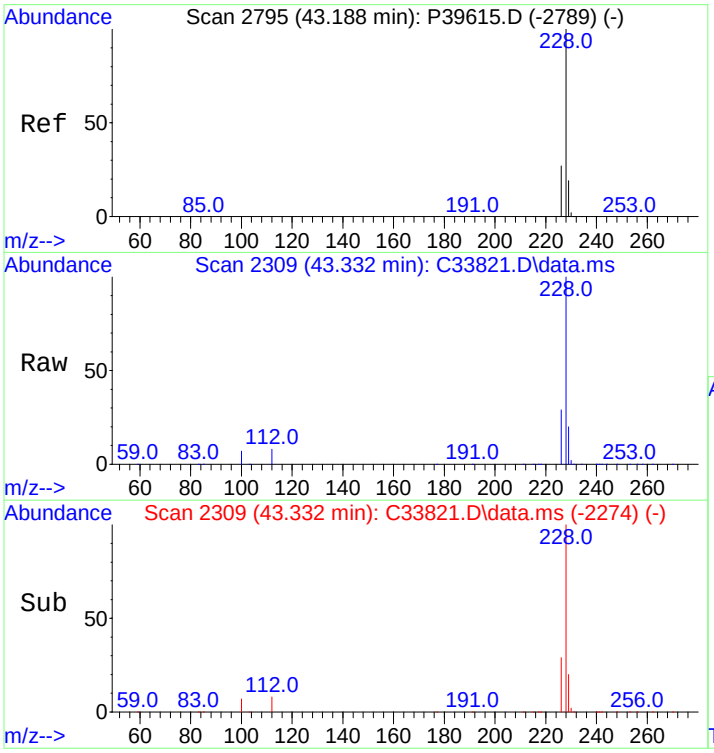


#67
Naphthobenzothiophene-2,1-D
Concen: 20444.19 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2387636

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

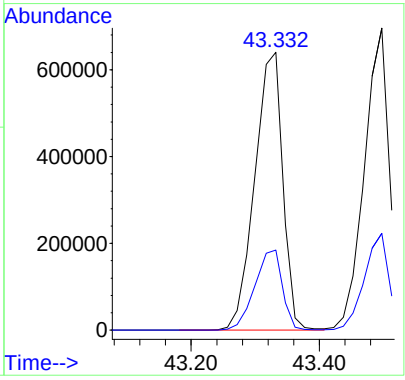


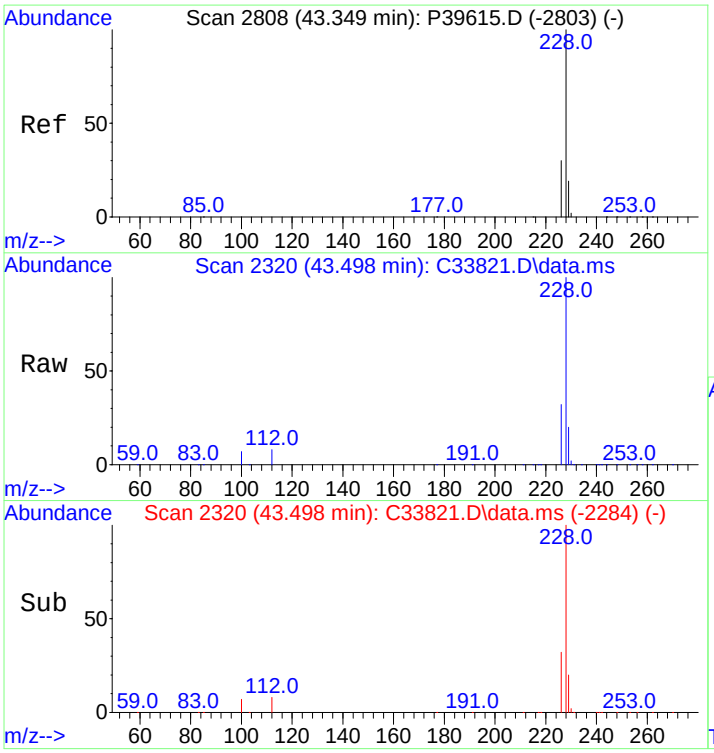


#75
Benz[a]anthracene
Concen: 20217.34 ng/mL m
RT: 43.332 min Scan# 2309
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1948399

Ion	Ratio	Lower	Upper
228	100		
226	28.4	21.8	32.8

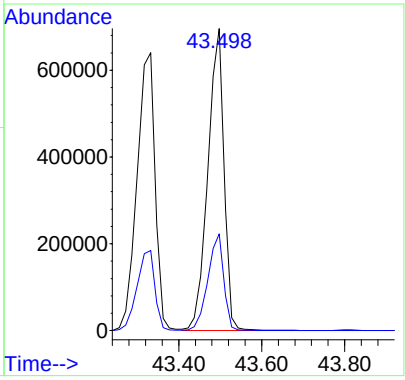


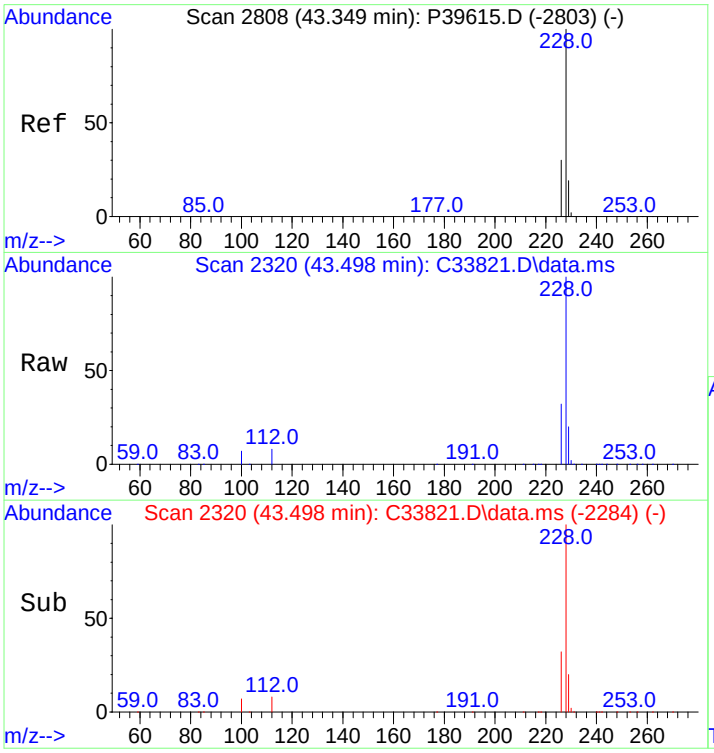


#76
Chrysene
Concen: 19884.40 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888024

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

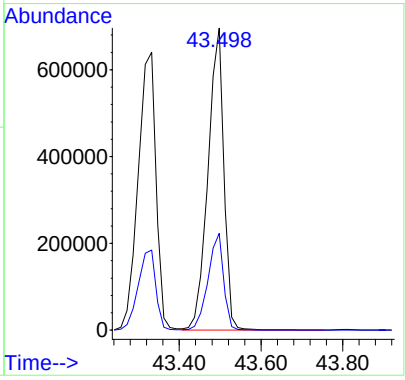


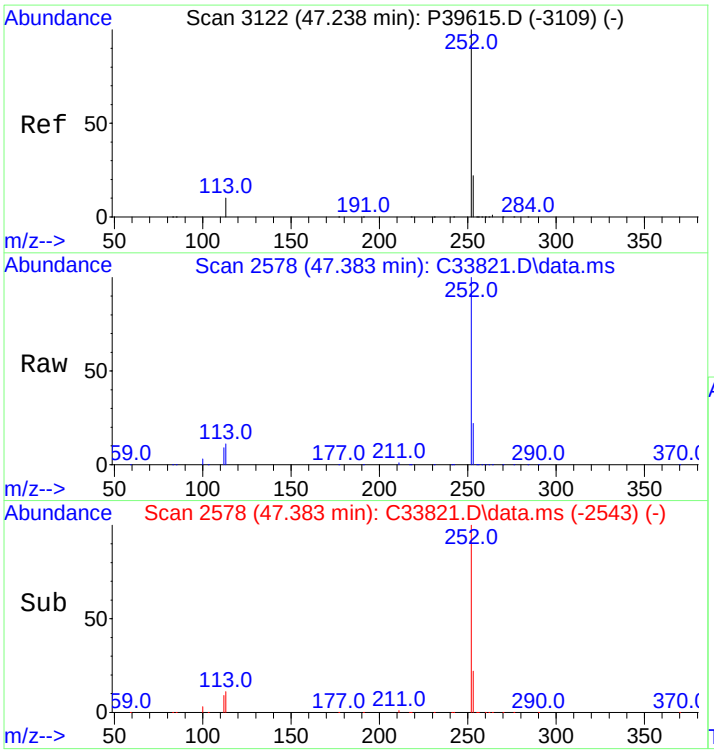


#77
Chrysene/Triphenylene
Concen: 19887.46 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888315

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

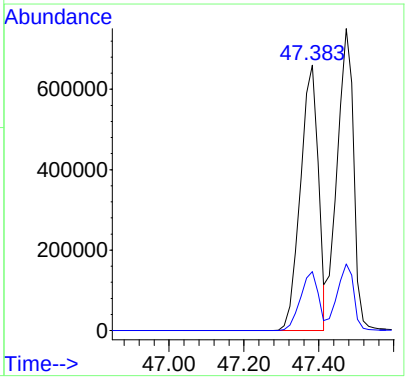


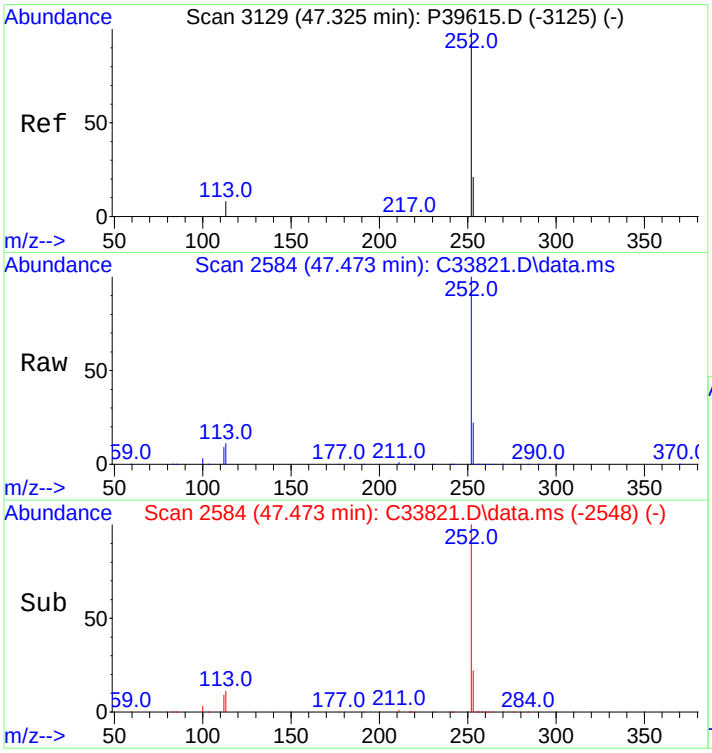


#82
Benzo[b]fluoranthene
Concen: 20722.62 ng/mL
RT: 47.383 min Scan# 2578
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2197460

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

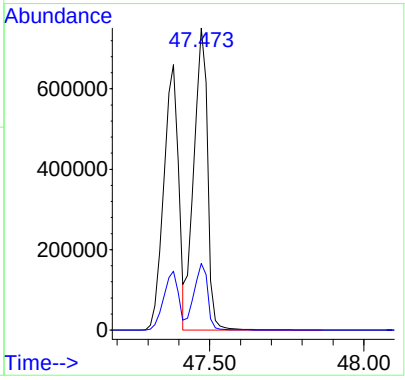


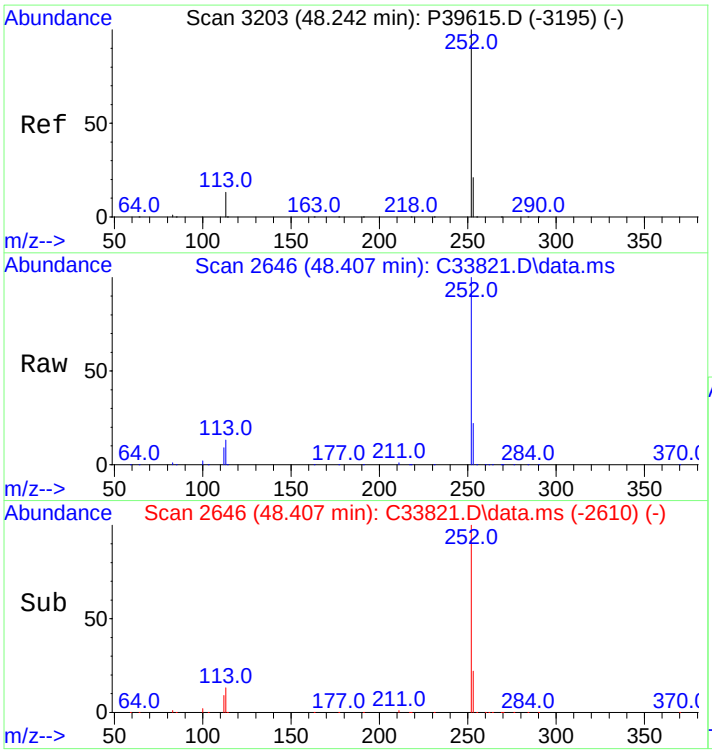


#83
Benzo[j]+[k]fluoranthene
Concen: 20712.67 ng/mL m
RT: 47.473 min Scan# 2584
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2322040

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.2	27.4

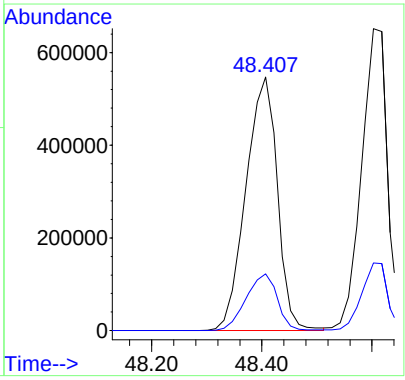


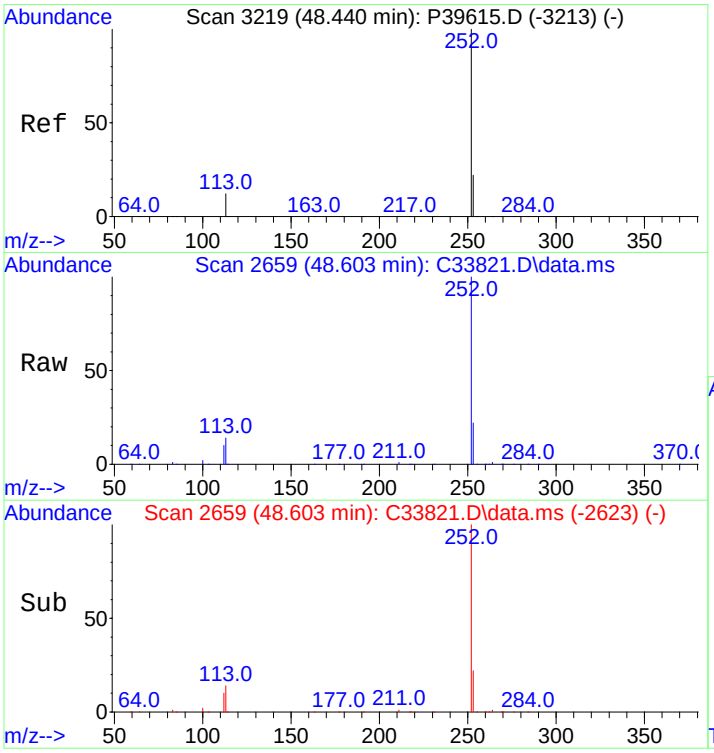


#85
Benzo[e]pyrene
Concen: 21181.57 ng/mL
RT: 48.407 min Scan# 2646
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2161751

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.5	27.7

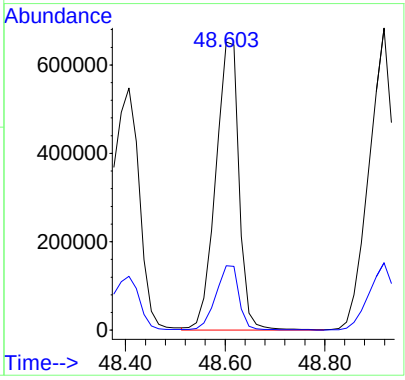


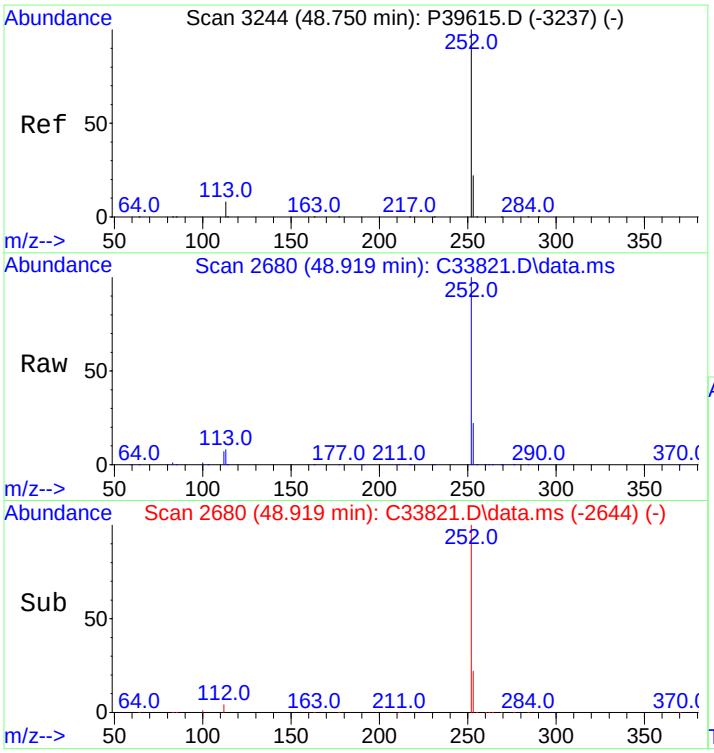


#87
Benzo[a]pyrene
Concen: 22157.85 ng/mL m
RT: 48.603 min Scan# 2659
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2125328

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.7	28.1

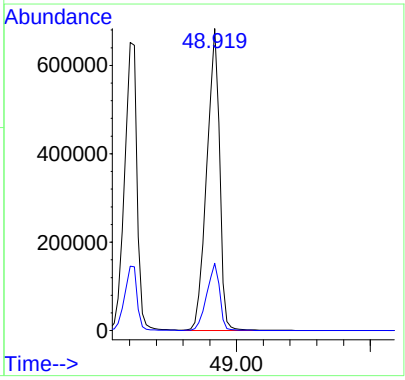


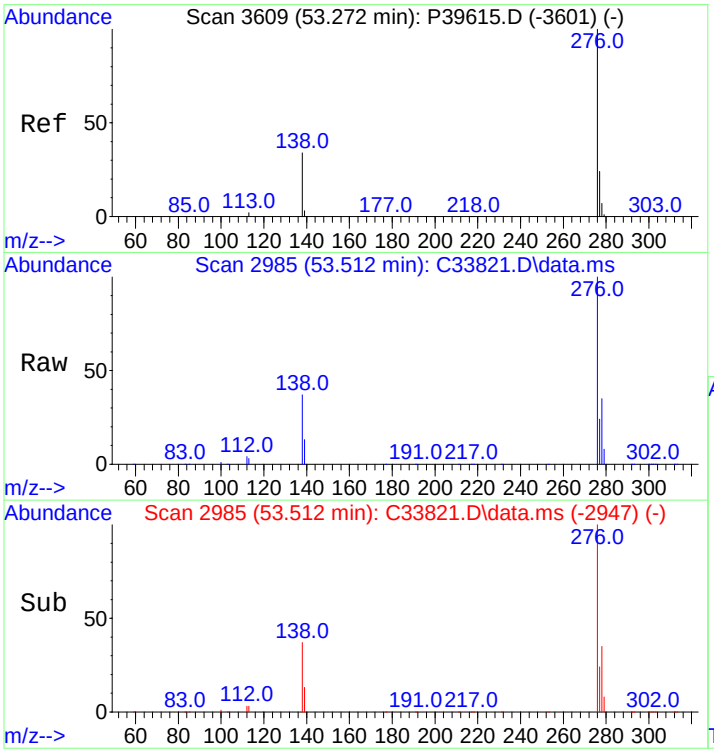


#88
Perylene
Concen: 22165.08 ng/mL
RT: 48.919 min Scan# 2680
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2271920

Ion	Ratio	Lower	Upper
252	100		
253	22.3	18.6	27.8

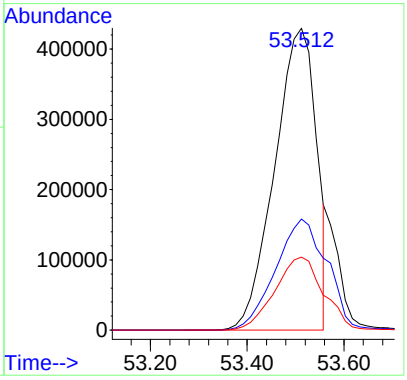


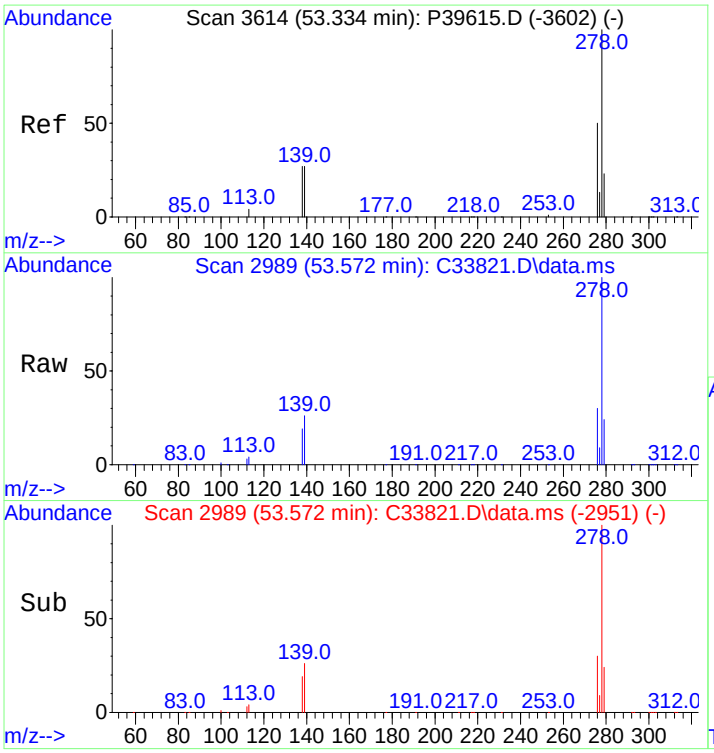


#89
Indeno[1,2,3-cd]pyrene
Concen: 23421.96 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2586428

Ion	Ratio	Lower	Upper
276	100		
138	45.4	30.3	45.5
277	28.2	19.2	28.8

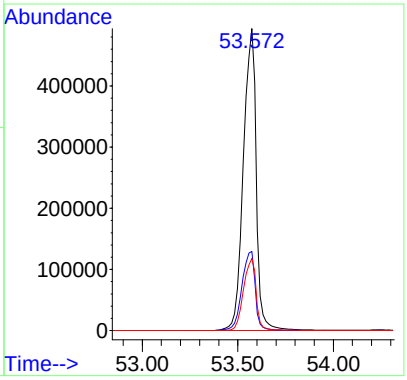


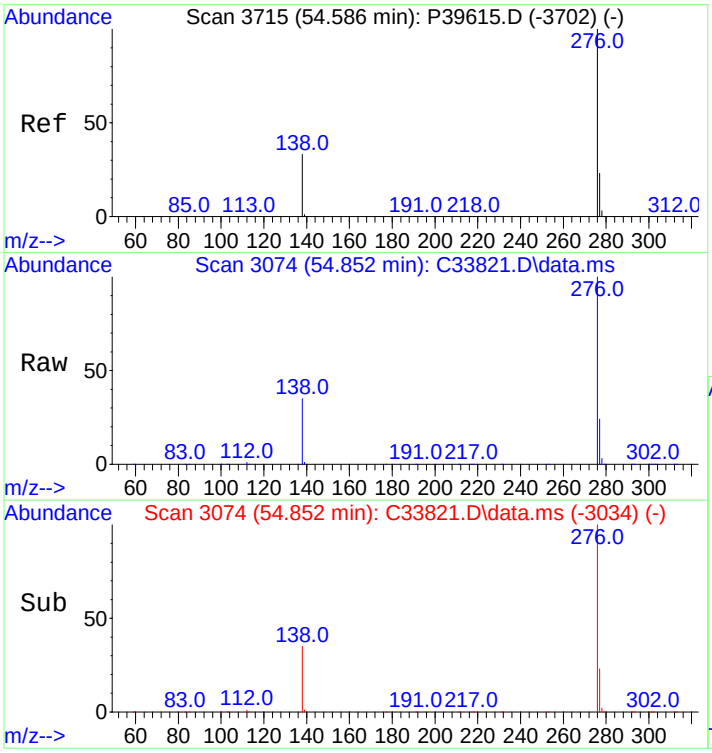


#90
Dibenz[ah]+[ac]anthracene
Concen: 22616.13 ng/mL
RT: 53.572 min Scan# 2989
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:278 Resp: 2347772

Ion	Ratio	Lower	Upper
278	100		
139	27.2	25.4	38.2
279	23.5	19.0	28.4

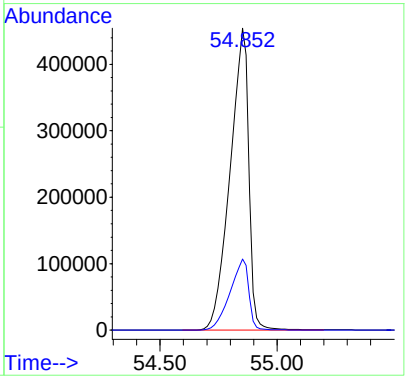




#91
Benzo[g,h,i]perylene
Concen: 22339.28 ng/mL
RT: 54.852 min Scan# 3074
Delta R.T. 0.105 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2516558

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	16662M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	69136M4	956.009	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%			
42) Phenanthrene-d10	32.793	188	60729M4	1062.426	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%			
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%			
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337	ng/mL	
4) cis-Decalin	17.844	138	1522	153.534	ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211	ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213	ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392	ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858	ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688	ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971	ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710	ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463	ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700	ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711	ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600	ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545	ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112	ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565	ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934	ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823	ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618	ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060	ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553	ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471	ng/mL	
29) Fluorene	29.075	166	25536M4	373.033	ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256	ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195	ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727	ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049	ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158	ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297	ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297	ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393	ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276	ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068	ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.946	192	46400M4	481.280	ng/mL	
46) 2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.292	192	64818	672.319	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56) Carbazole	33.726	167	2583M3	27.154	ng/mL	
57) 1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58) Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59) Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60) Pyrene	38.529	202	6787M4	69.730	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66) Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68) Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69) Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70) C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71) C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72) C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73) C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75) Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76) Chrysene	43.438	228	16140M3	173.194	ng/mL	
77) Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78) C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79) C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79) C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80) C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81) C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85) Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87) Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88) Perylene	48.874	252	1440M4	13.950	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91) Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92) Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93) 17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94) C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95) C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96) C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97) C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98) C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99) C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100) C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101) C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102) C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/ml	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

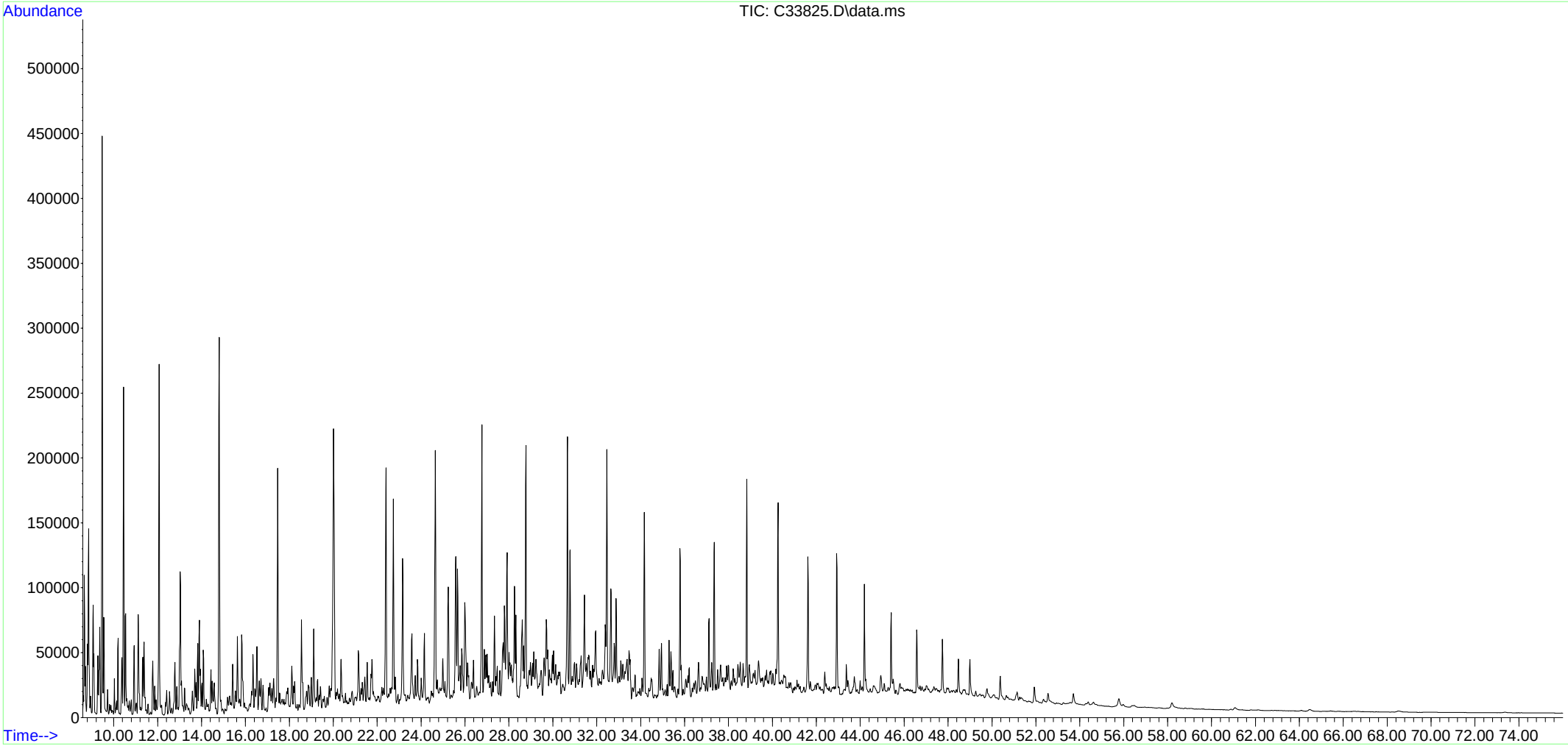
(#) = qualifier out of range (m) = manual integration (+) = signals summed

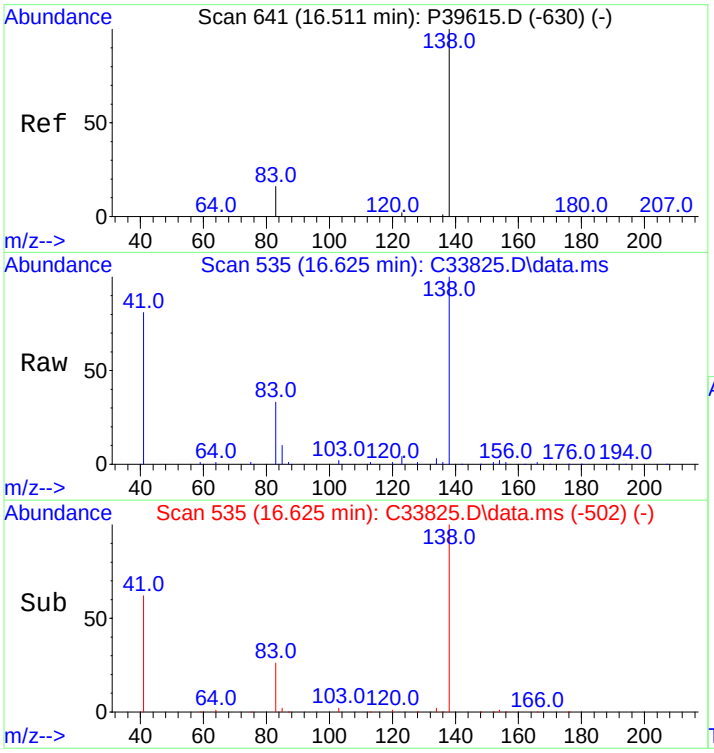
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

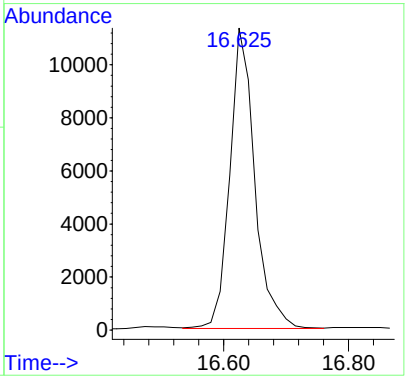
Sub List : Default - All compounds listed

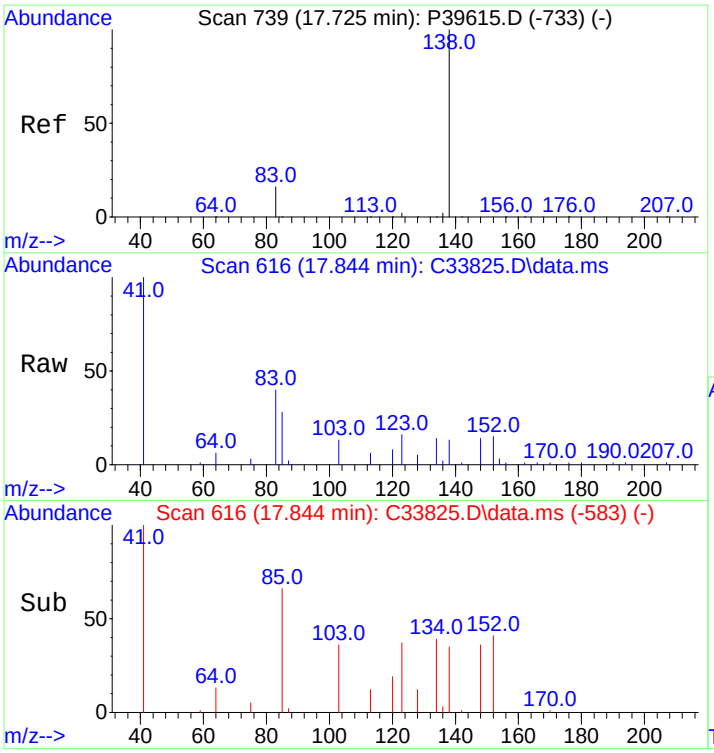




#3
trans-Decalin
Concen: 2394.34 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

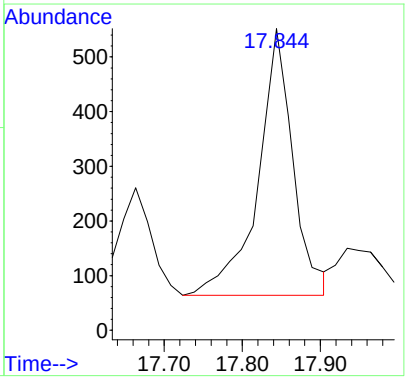
Tgt Ion:138 Resp: 31493

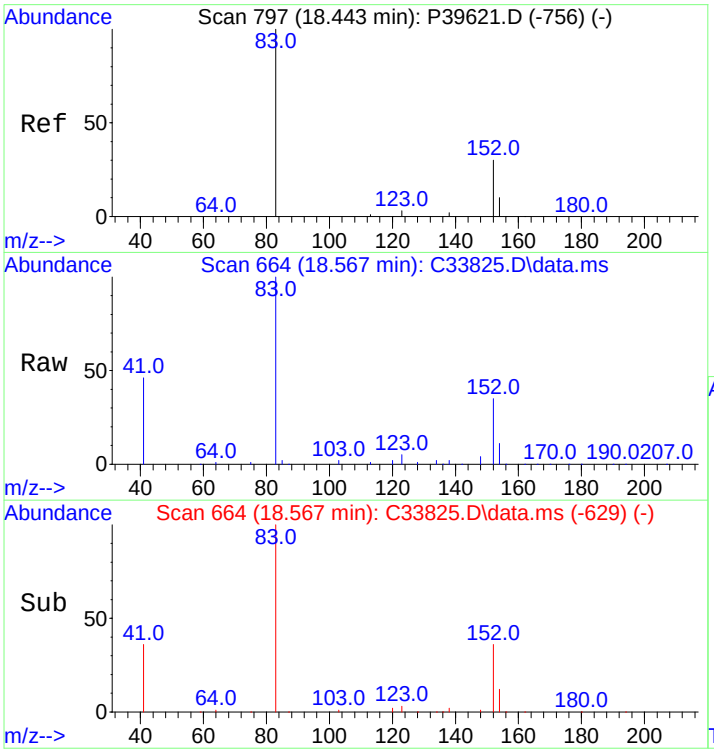




#4
cis-Decalin
Concen: 153.53 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

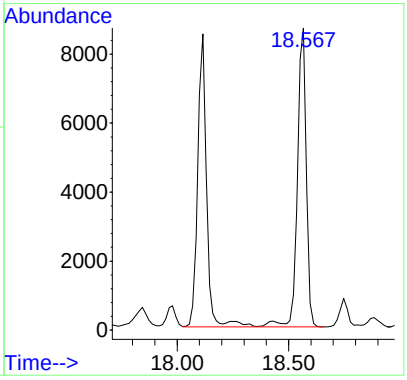
Tgt Ion:138 Resp: 1522

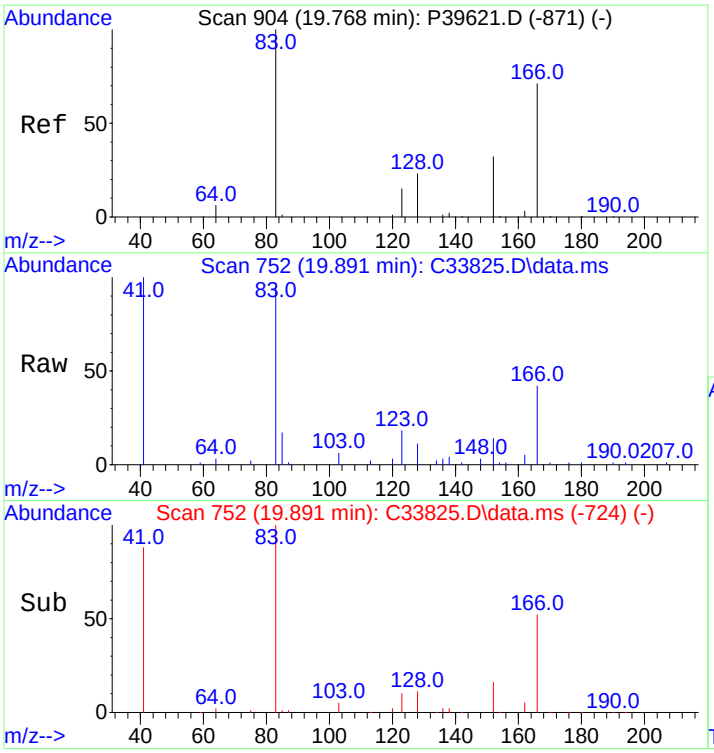




#5
C1-Decalins
Concen: 3613.21 ng/mL m
RT: 18.567 min Scan# 664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

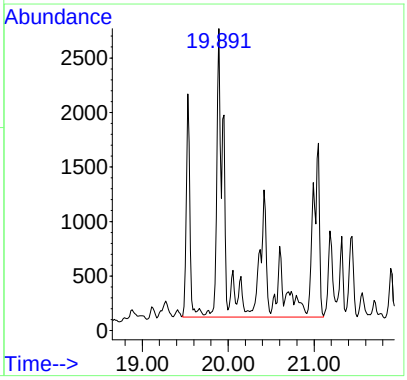
Tgt Ion:152 Resp: 47525

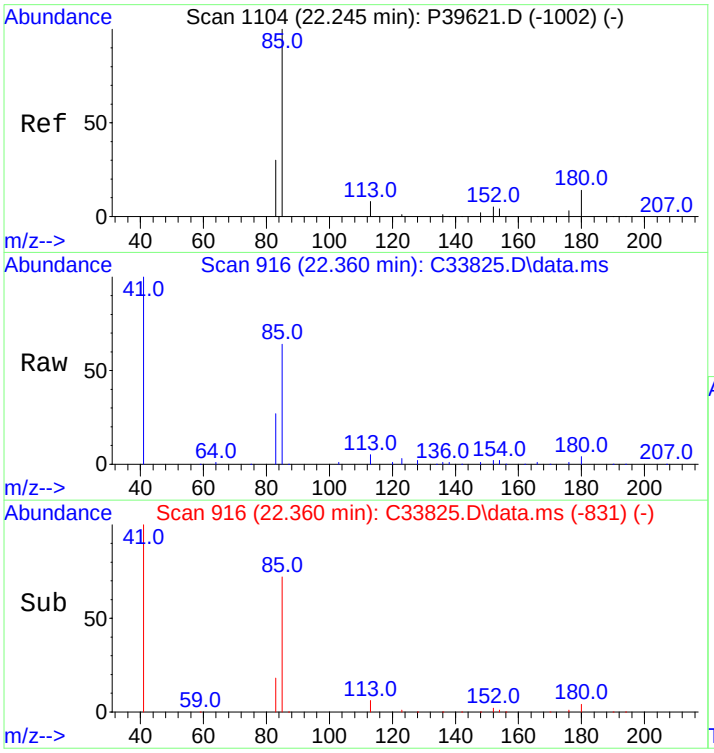




#6
C2-Decalins
Concen: 3012.21 ng/mL m
RT: 19.891 min Scan# 752
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

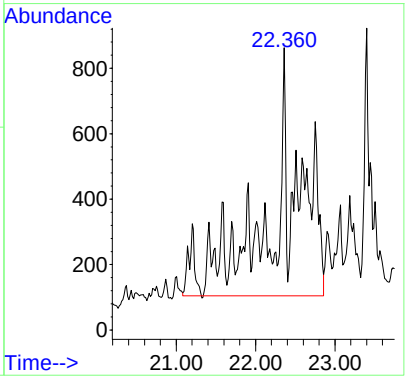
Tgt Ion:166 Resp: 39620

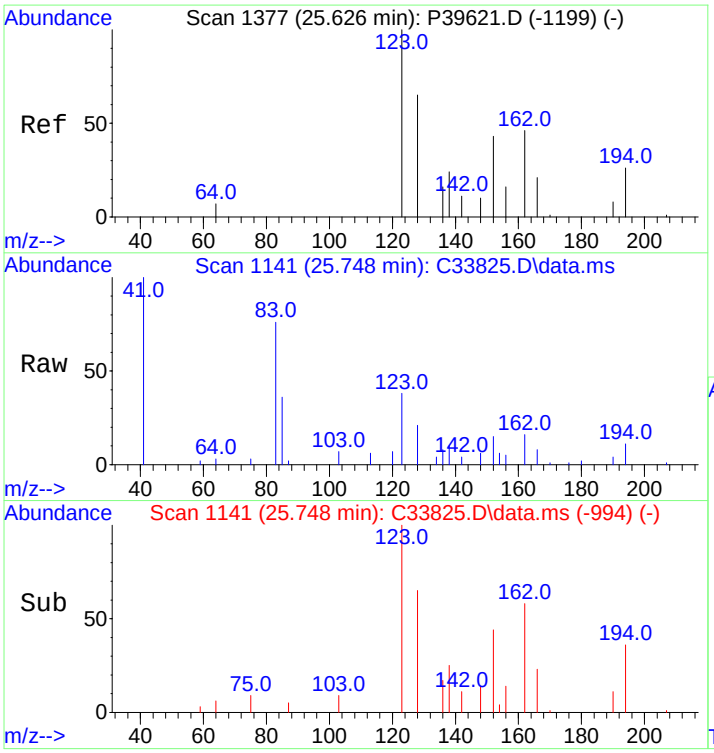




#7
C3-Decalins
Concen: 1488.39 ng/mL m
RT: 22.360 min Scan# 916
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

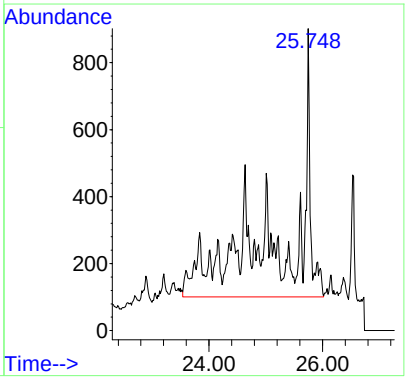
Tgt Ion:180 Resp: 19577

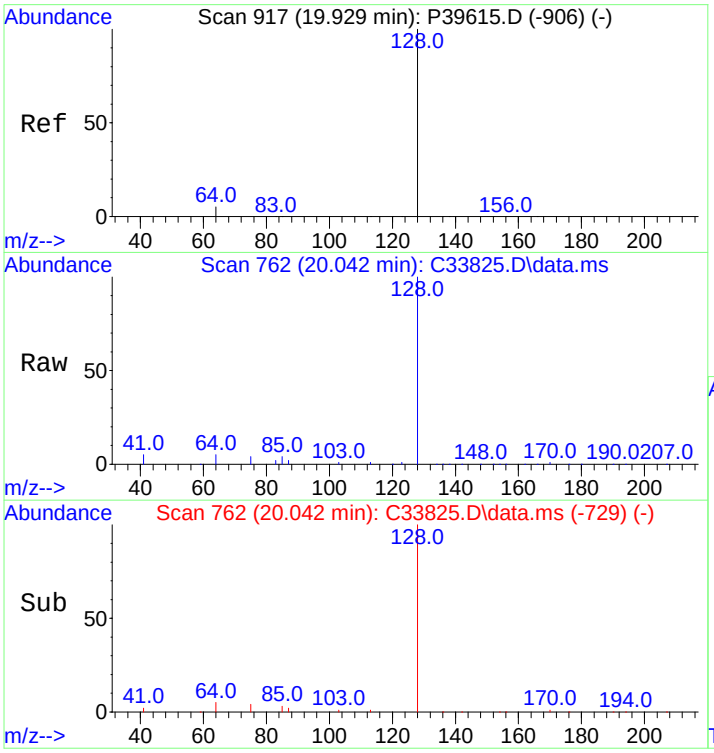




#8
C4-Decalins
Concen: 1448.86 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 19057

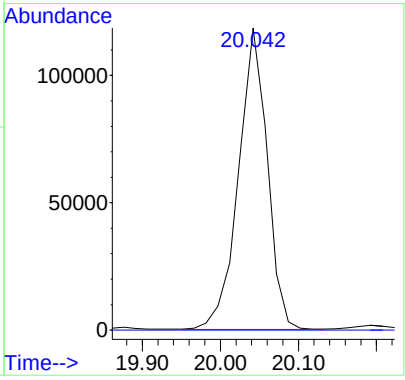


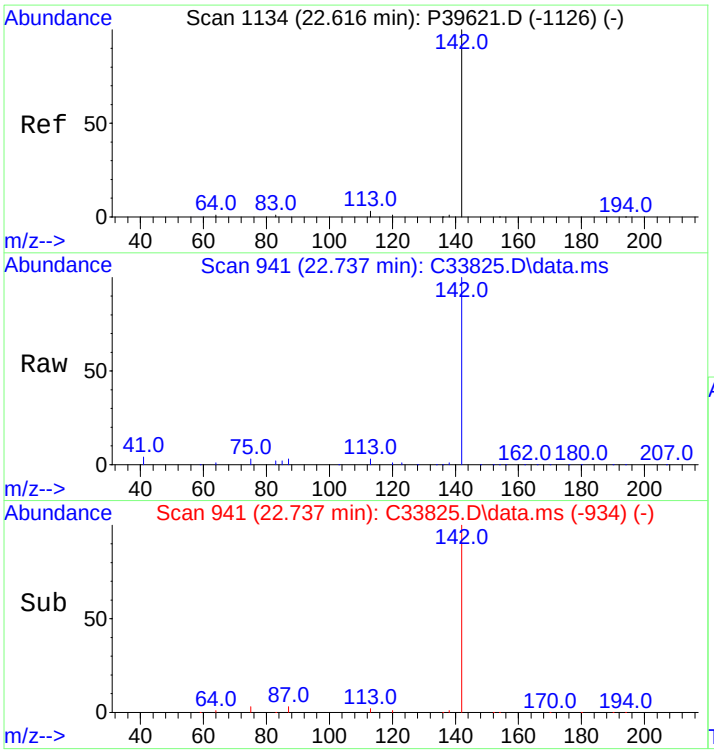


#10
Naphthalene
Concen: 2862.69 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:128 Resp: 304002

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

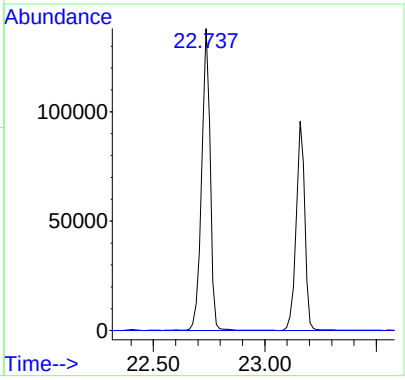


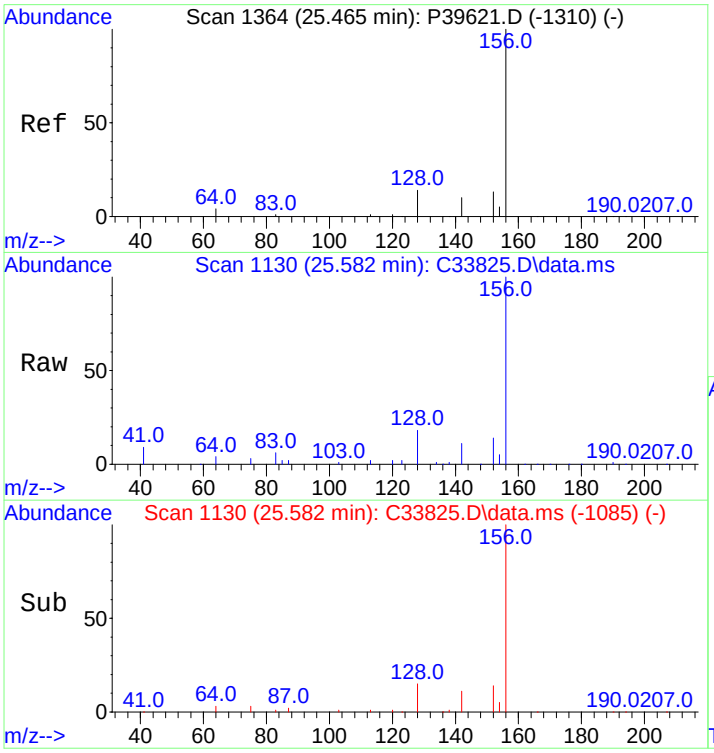


#11
C1-Naphthalenes
Concen: 5842.97 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 620492

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

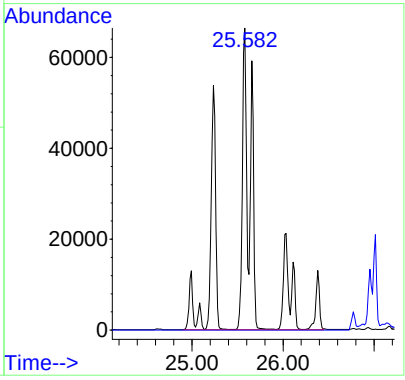


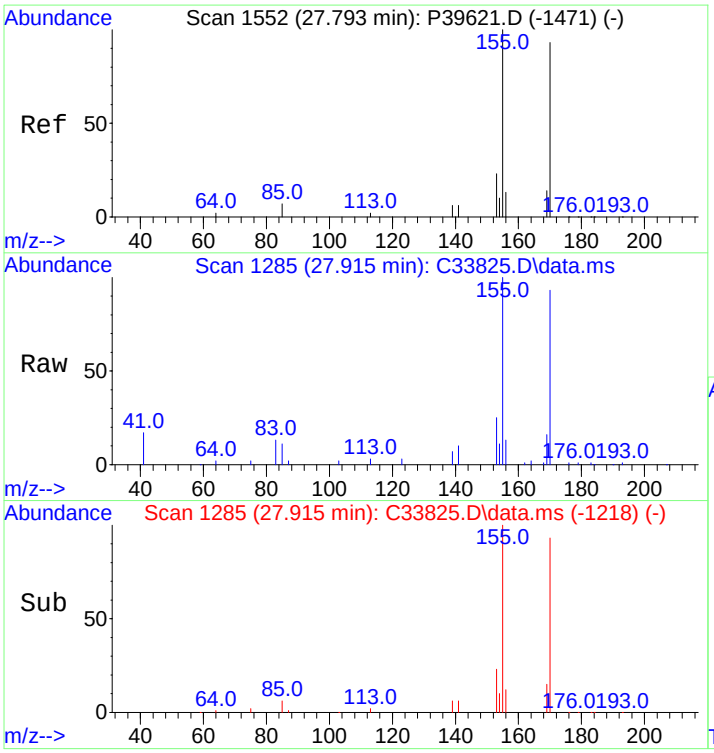


#12
C2-Naphthalenes
Concen: 6915.71 ng/mL m
RT: 25.582 min Scan# 1130
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 734411

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

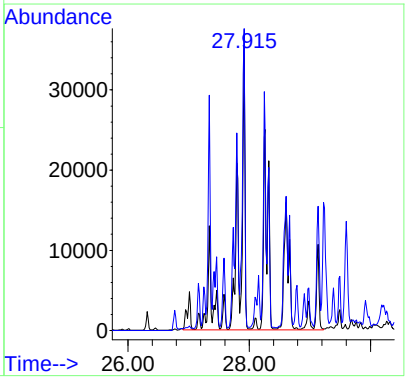


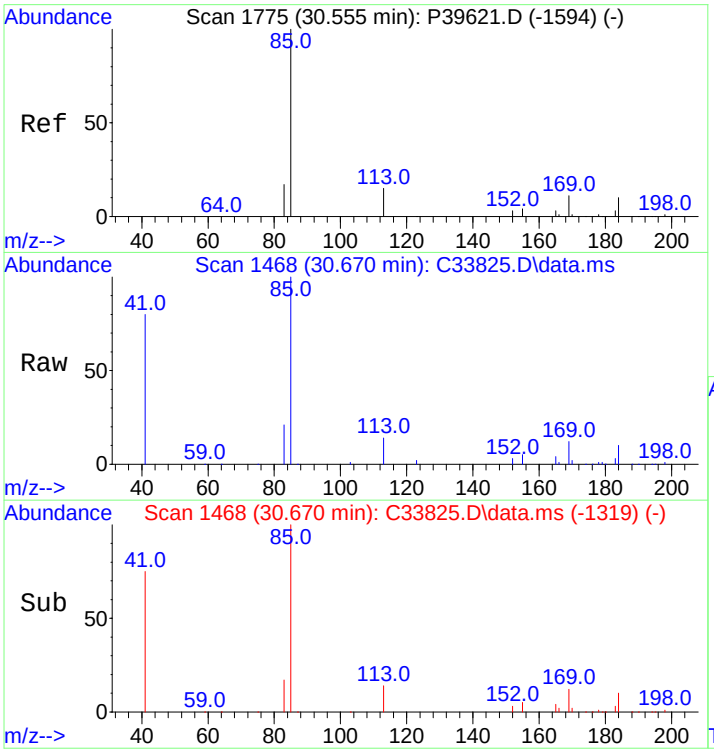


#13
C3-Naphthalenes
Concen: 4763.46 ng/mL m
RT: 27.915 min Scan# 1285
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 505854

Ion	Ratio	Lower	Upper
170	100		
155	21.0	86.3	129.5#

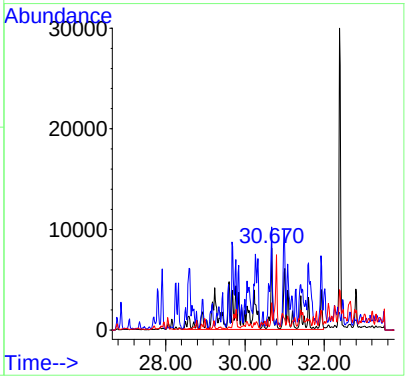


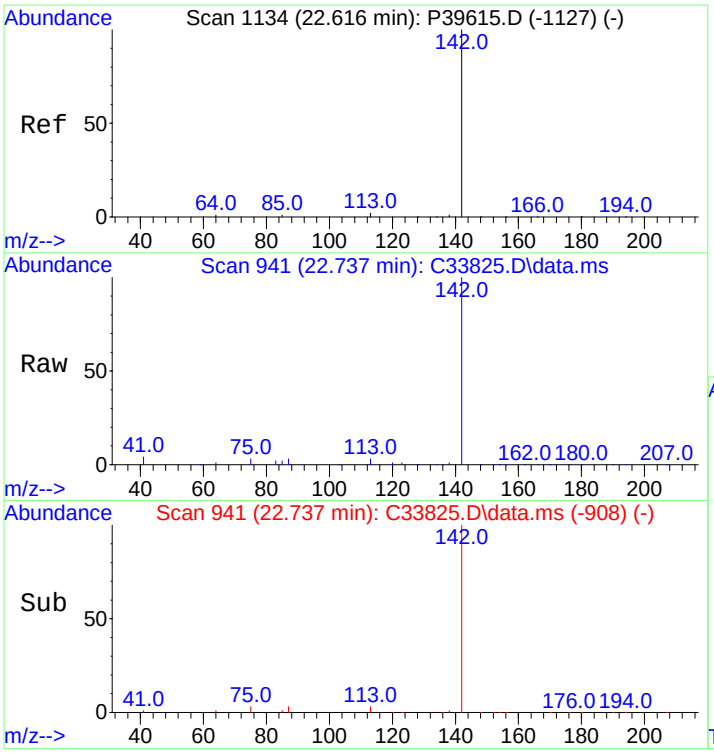


#14
C4-Naphthalenes
Concen: 2429.70 ng/mL m
RT: 30.670 min Scan# 1468
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 258021

Ion	Ratio	Lower	Upper
184	100		
169	17.4	100.6	150.8#
183	2.2	26.6	40.0#

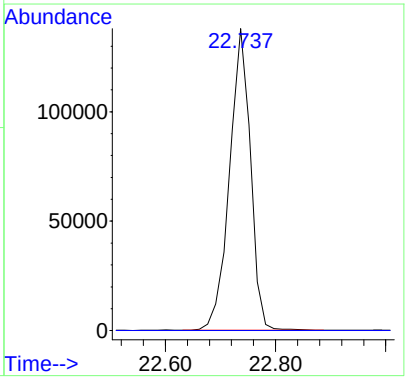


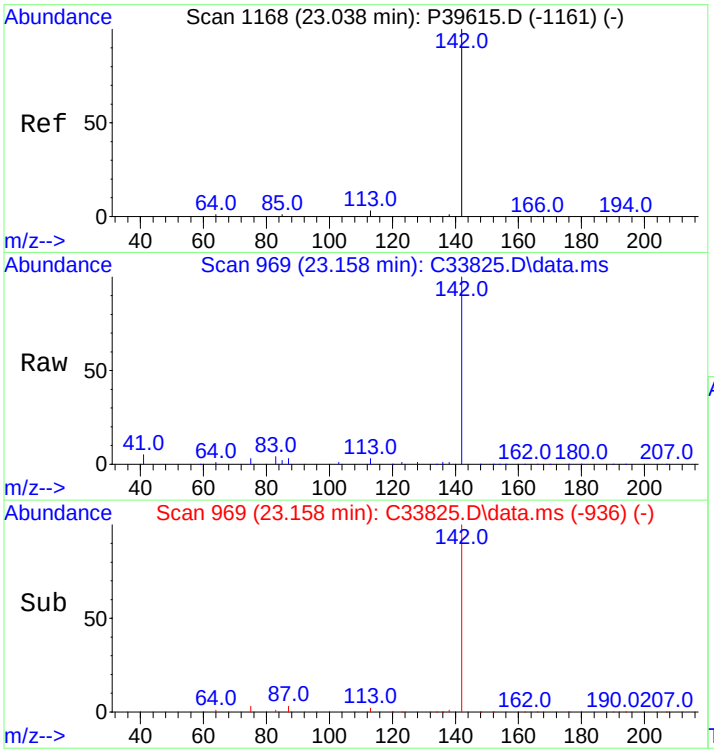


#16
2-Methylnaphthalene
Concen: 5786.71 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 363350

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

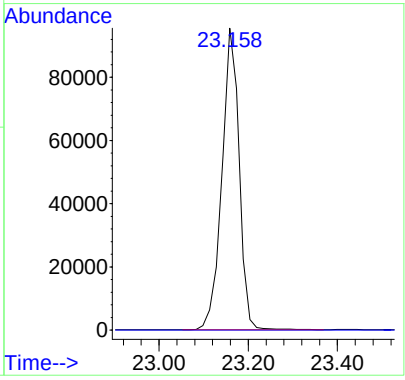


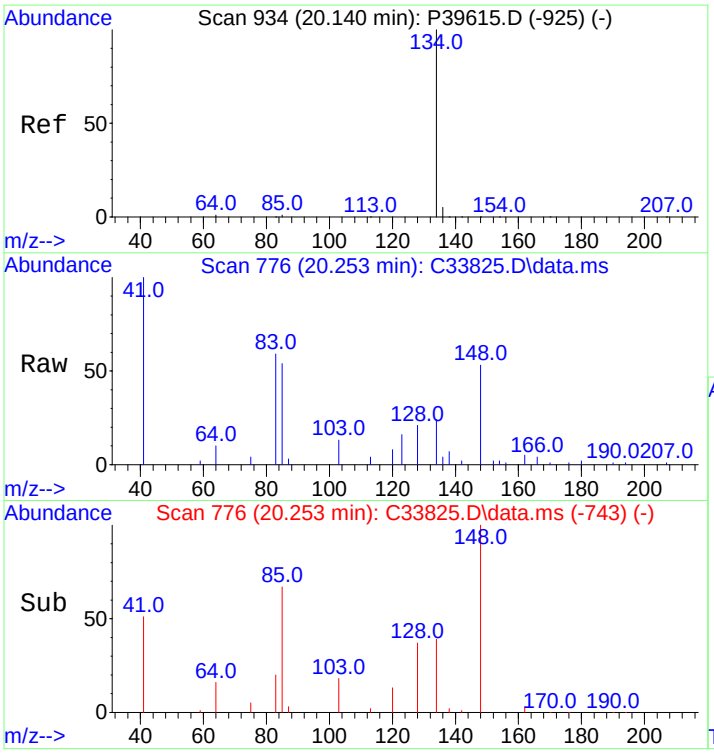


#17
1-Methylnaphthalene
Concen: 4156.60 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 255827

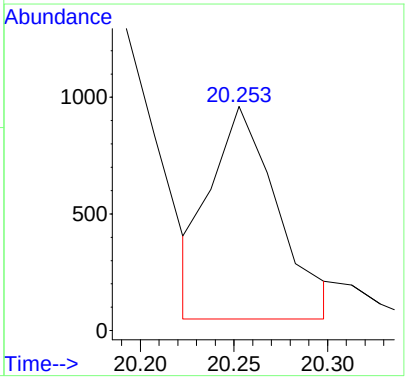
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

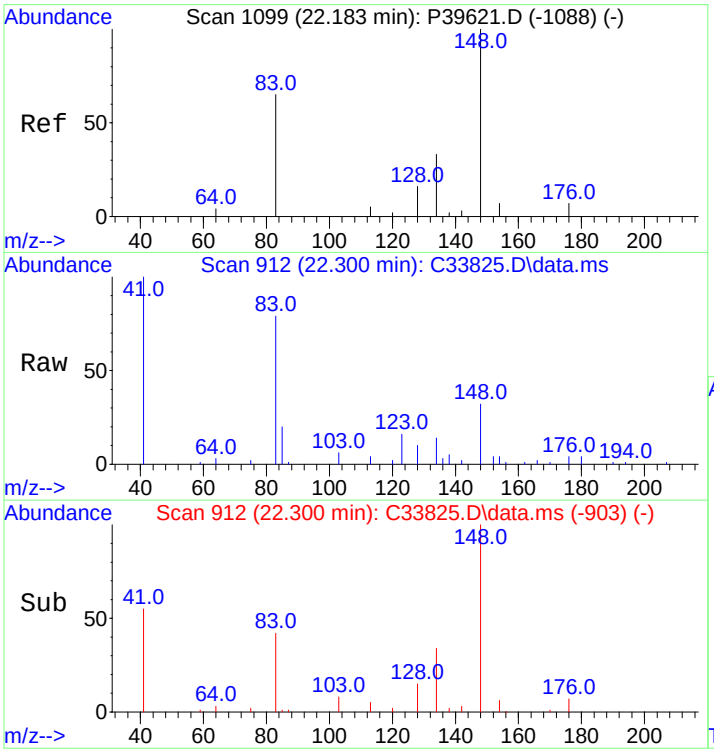




#18
Benzothiophene
Concen: 23.54 ng/mL m
RT: 20.253 min Scan# 776
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

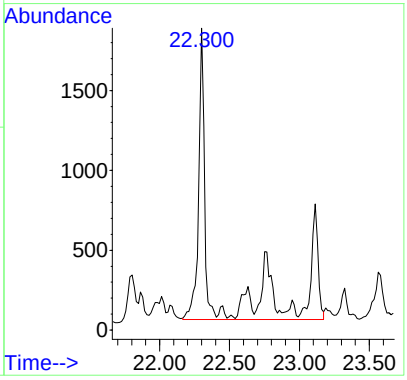
Tgt Ion:134 Resp: 2250

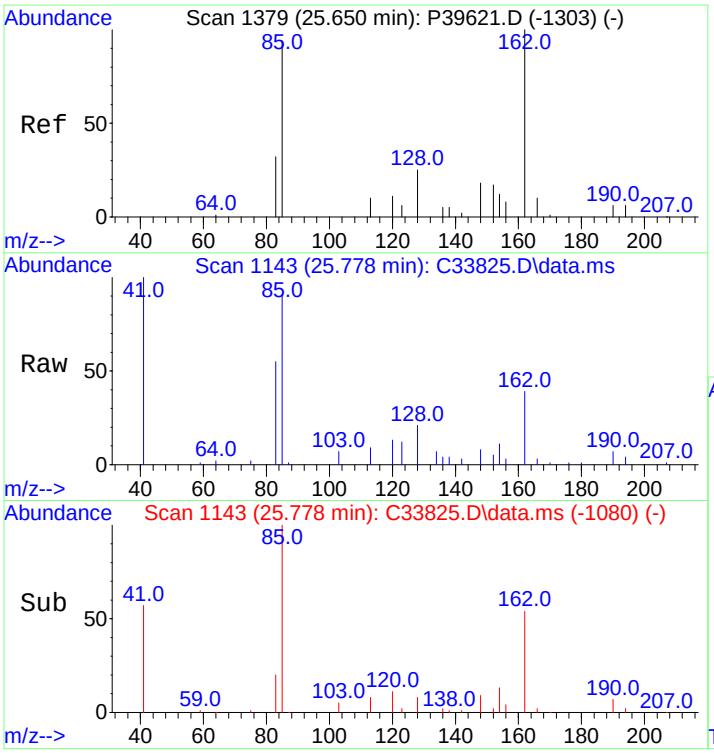




#19
C1-Benzo(b)thiophenes
Concen: 118.11 ng/mL m
RT: 22.300 min Scan# 912
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

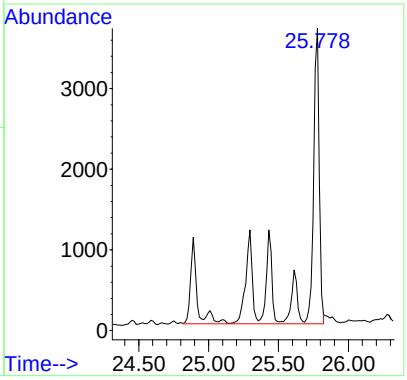
Tgt Ion:148 Resp: 11287

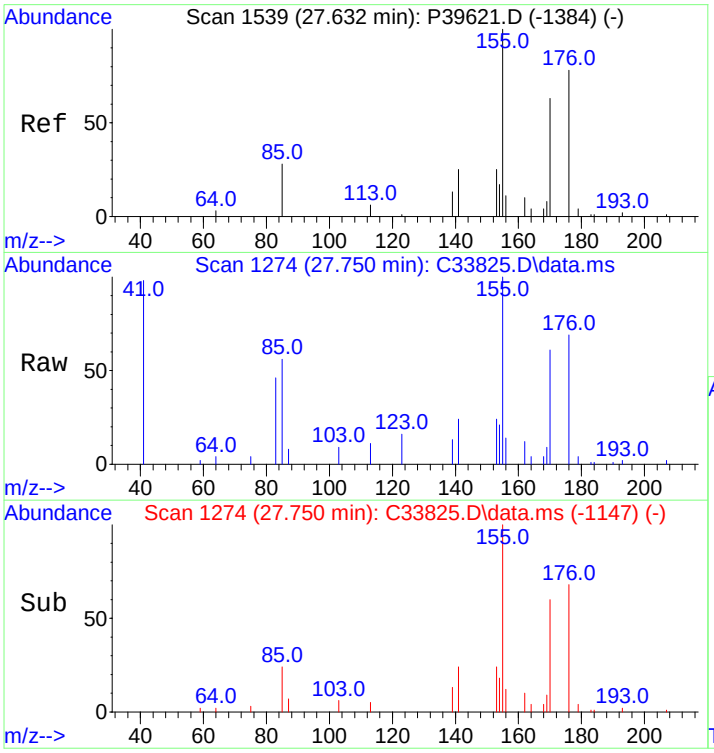




#20
C2-Benzo(b)thiophenes
Concen: 235.56 ng/mL m
RT: 25.778 min Scan# 1143
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

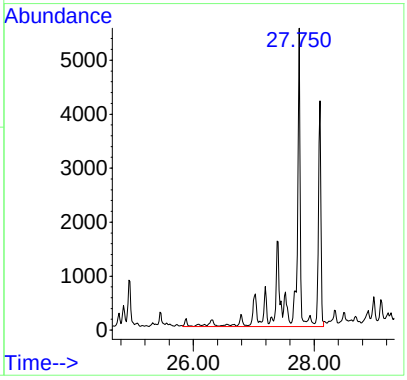
Tgt Ion:162 Resp: 22511

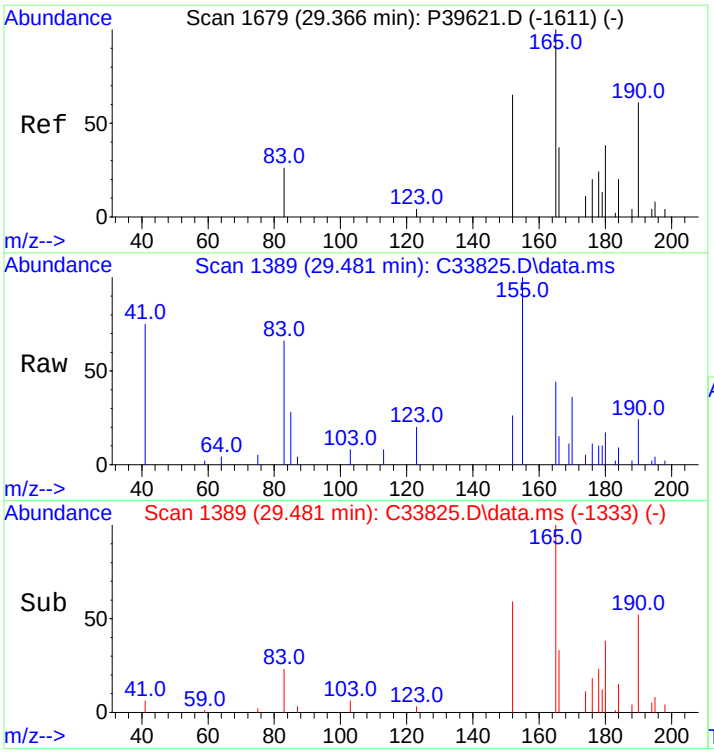




#21
C3-Benzo(b)thiophenes
Concen: 464.93 ng/mL m
RT: 27.750 min Scan# 1274
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

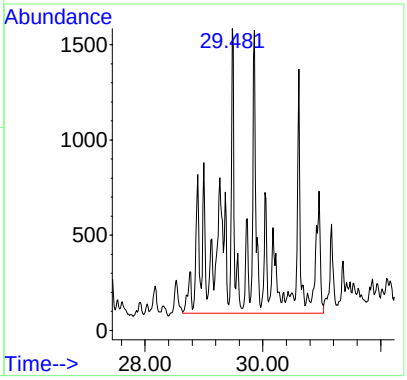
Tgt Ion:176 Resp: 44430

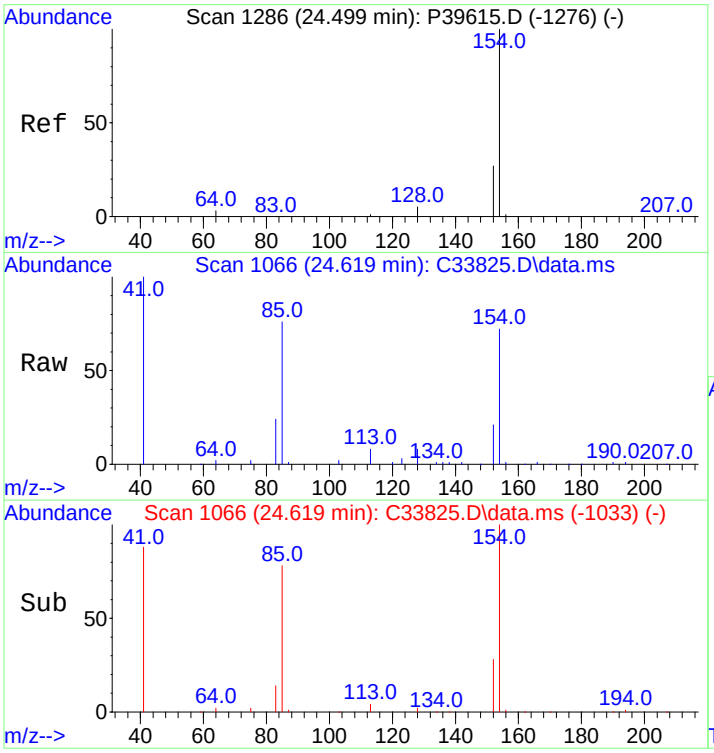




#22
C4-Benzo(b)thiophenes
Concen: 394.82 ng/mL m
RT: 29.481 min Scan# 1389
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:190 Resp: 37730

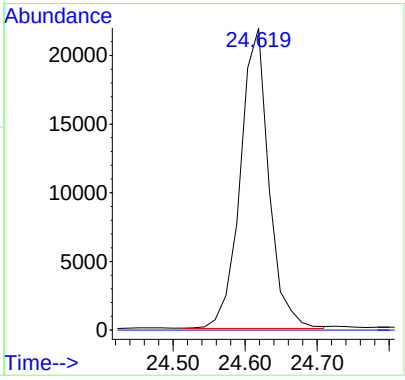


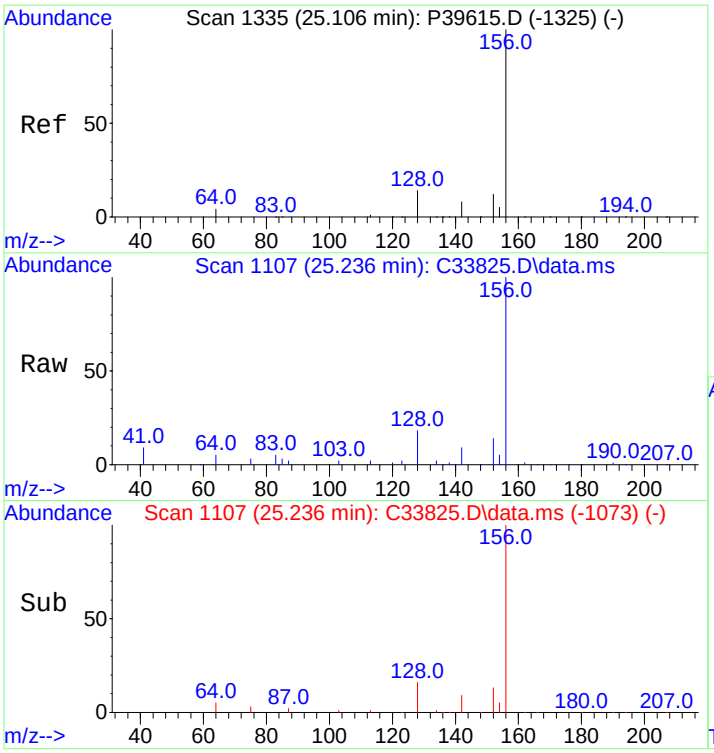


#23
Biphenyl
Concen: 754.29 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:154 Resp: 59912

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

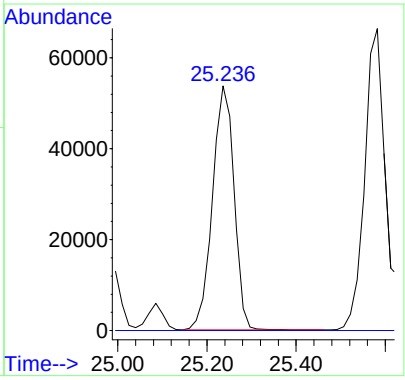


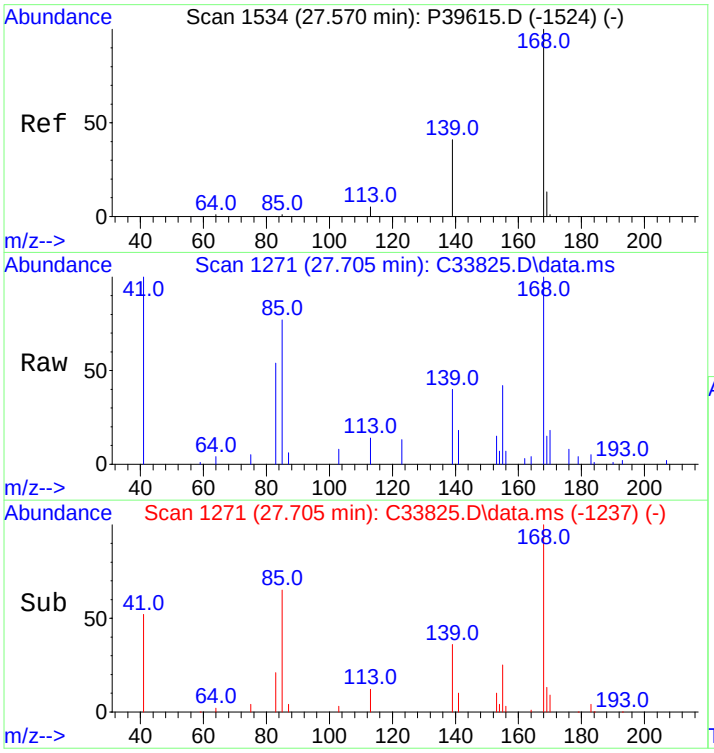


#24
2,6-Dimethylnaphthalene
Concen: 3504.62 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 180797

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

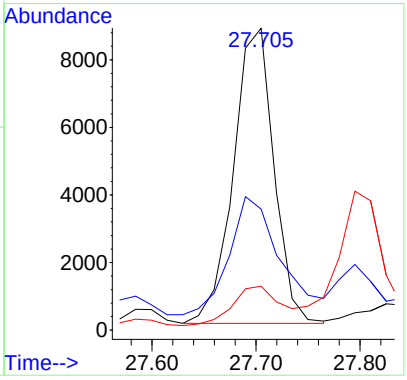


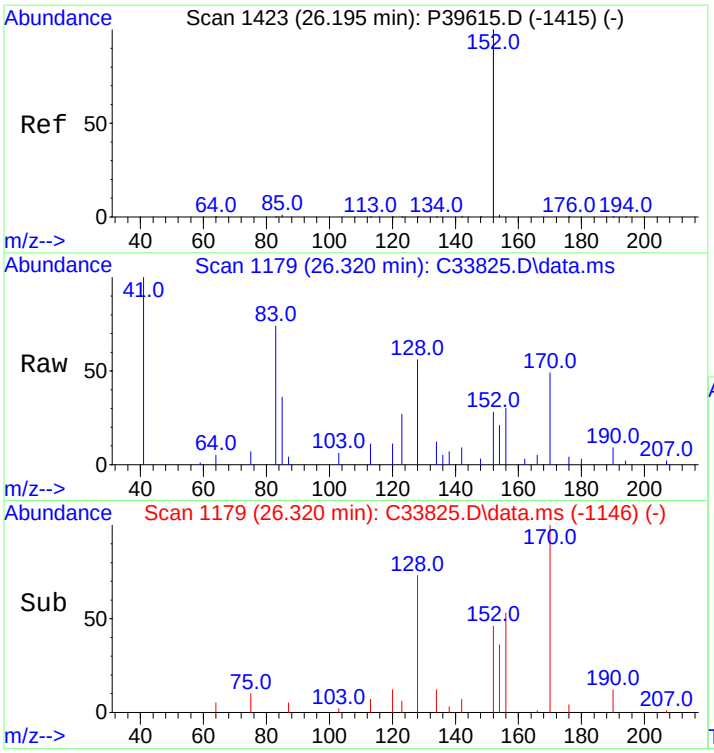


#25
Dibenzofuran
Concen: 261.06 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:168 Resp: 23811

Ion	Ratio	Lower	Upper
168	100		
139	50.0	32.9	49.3#
169	15.9	10.6	16.0

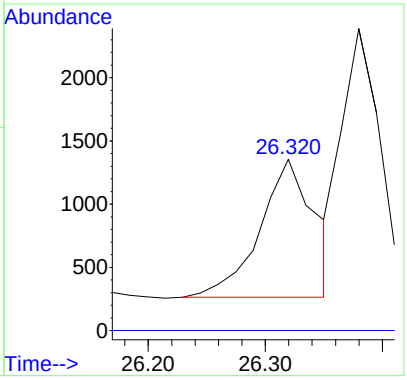


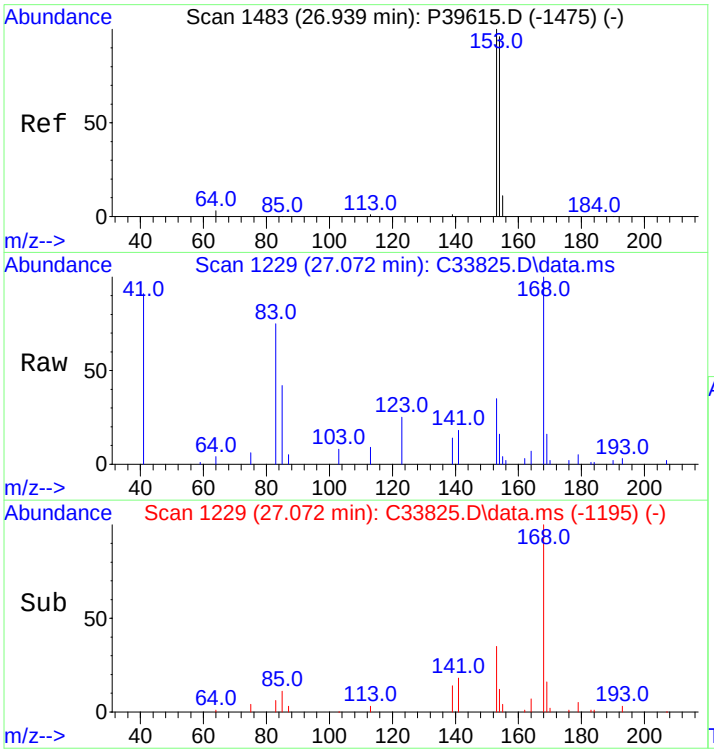


#26
Acenaphthylene
Concen: 33.55 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:152 Resp: 3537

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

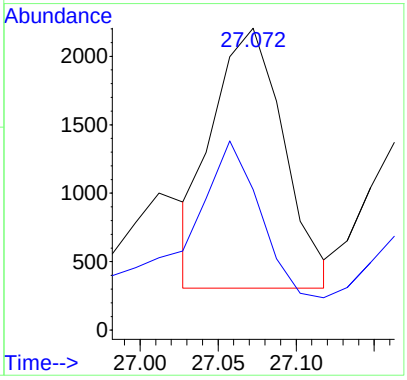


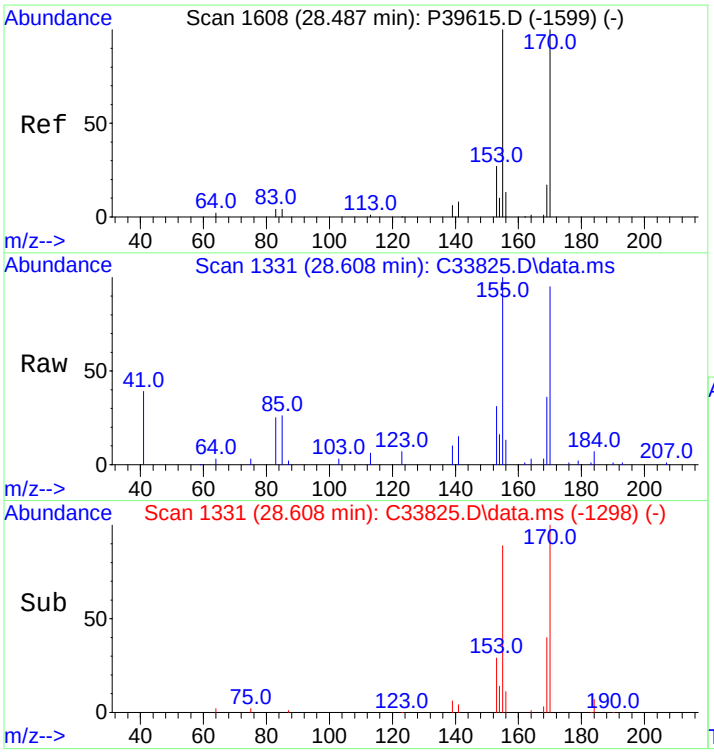


#27
Acenaphthene
Concen: 96.63 ng/mL m
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:153 Resp: 5998

Ion	Ratio	Lower	Upper
153	100		
154	68.4	75.0	112.6#

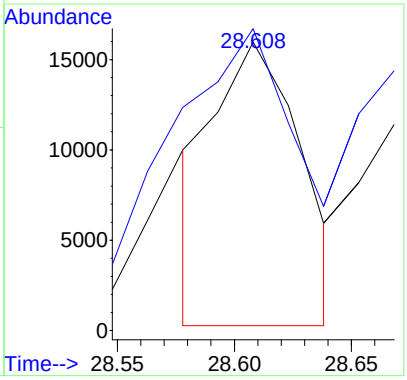


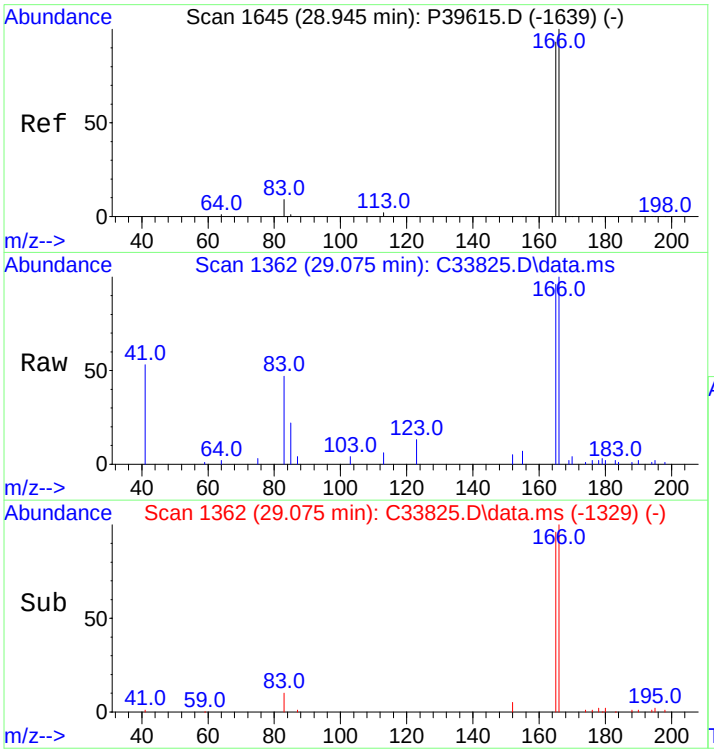


#28
2,3,5-Trimethylnaphthalene
Concen: 985.47 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 40982

Ion	Ratio	Lower	Upper
170	100		
155	160.1	84.7	127.1#

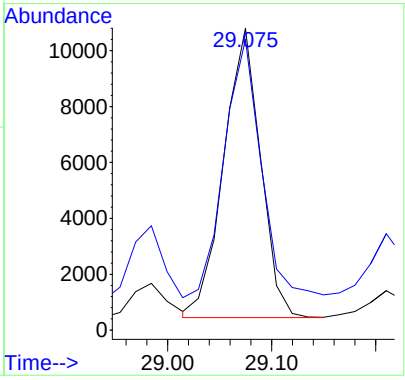


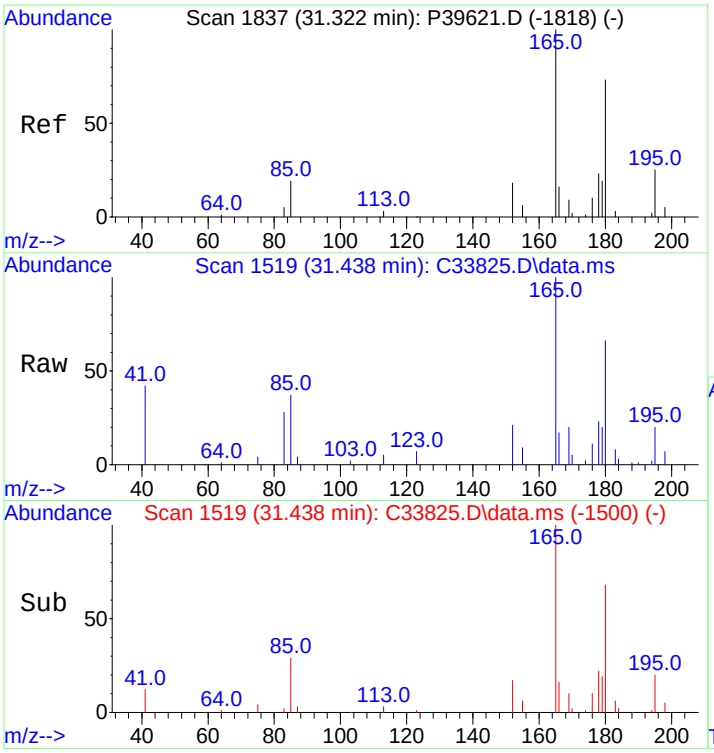


#29
Fluorene
Concen: 373.03 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:166 Resp: 25536

Ion	Ratio	Lower	Upper
166	100		
165	118.5	75.3	112.9#

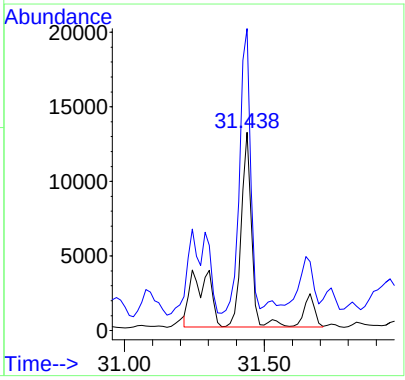


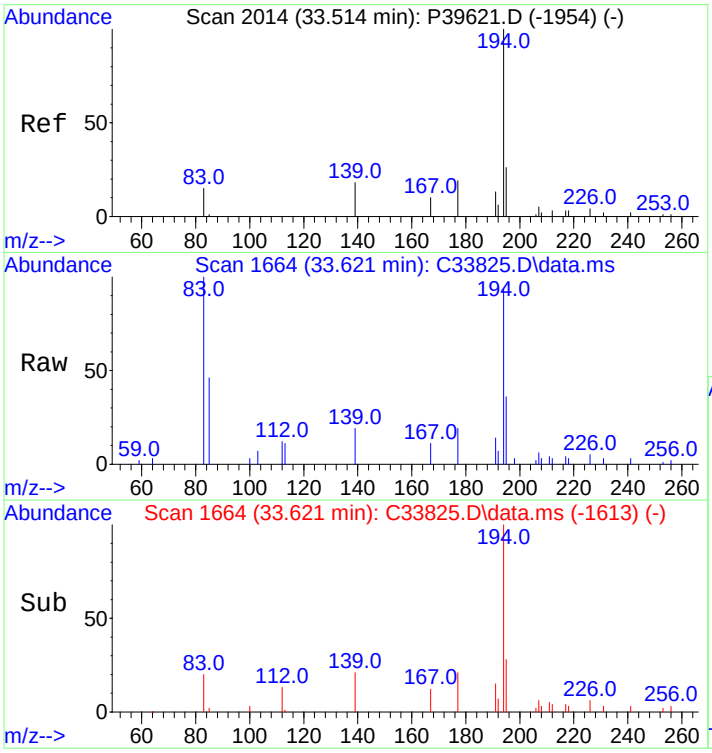


#30
C1-Fluorenes
Concen: 836.26 ng/mL m
RT: 31.438 min Scan# 1519
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:180 Resp: 57246

Ion	Ratio	Lower	Upper
180	100		
165	90.8	121.9	182.9#

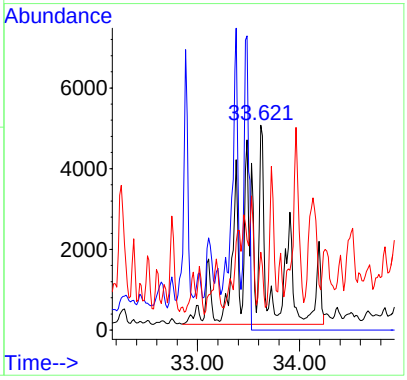


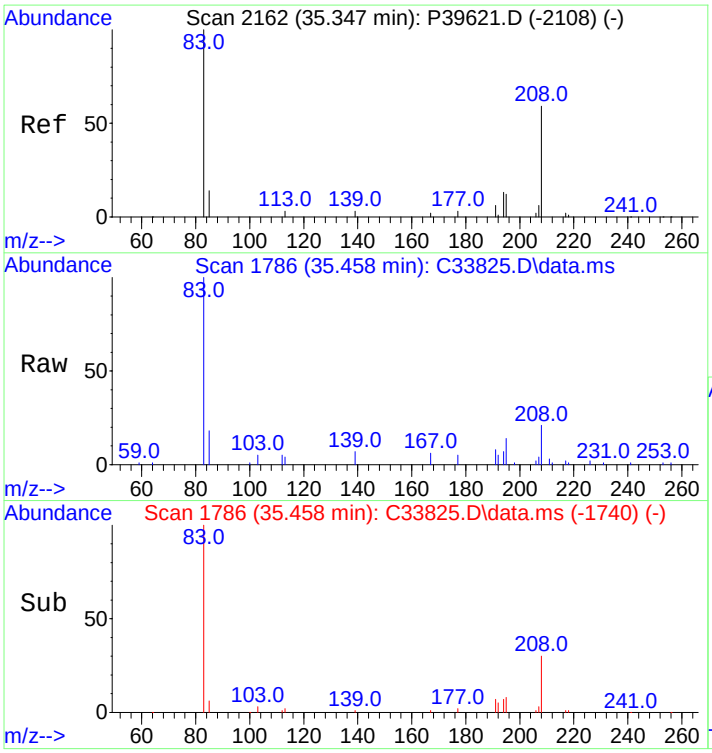


#31
C2-Fluorenes
Concen: 1188.19 ng/mL m
RT: 33.621 min Scan# 1664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 81338

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.2	30.5	45.7#

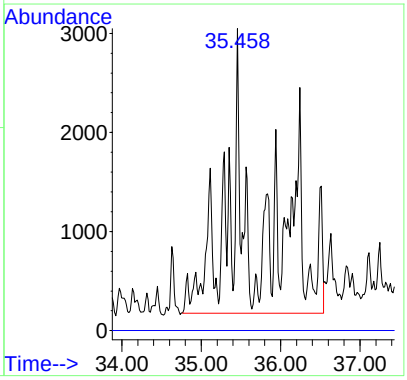


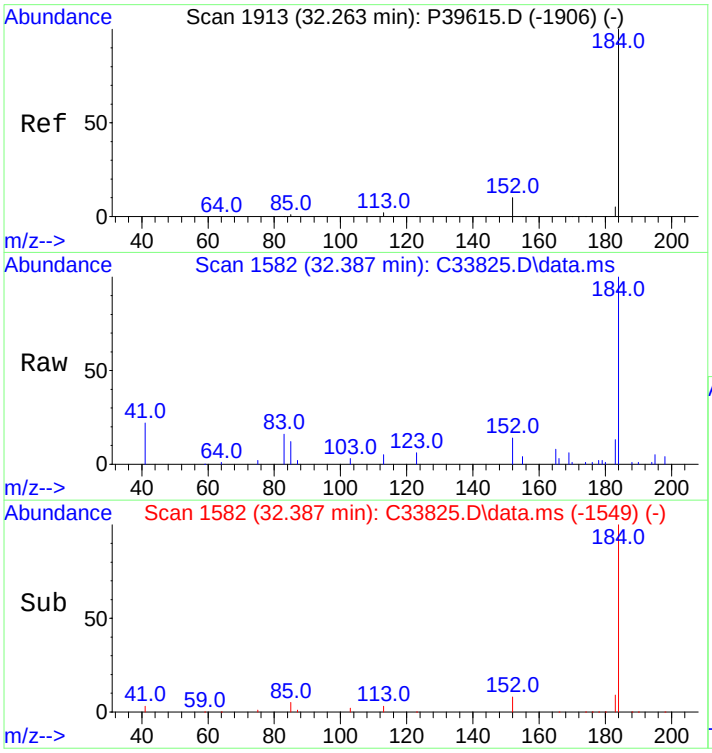


#32
C3-Fluorenes
Concen: 1053.73 ng/mL m
RT: 35.458 min Scan# 1786
Delta R.T. -0.063 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:208 Resp: 72133

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

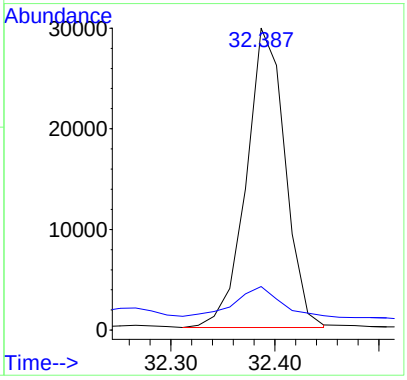


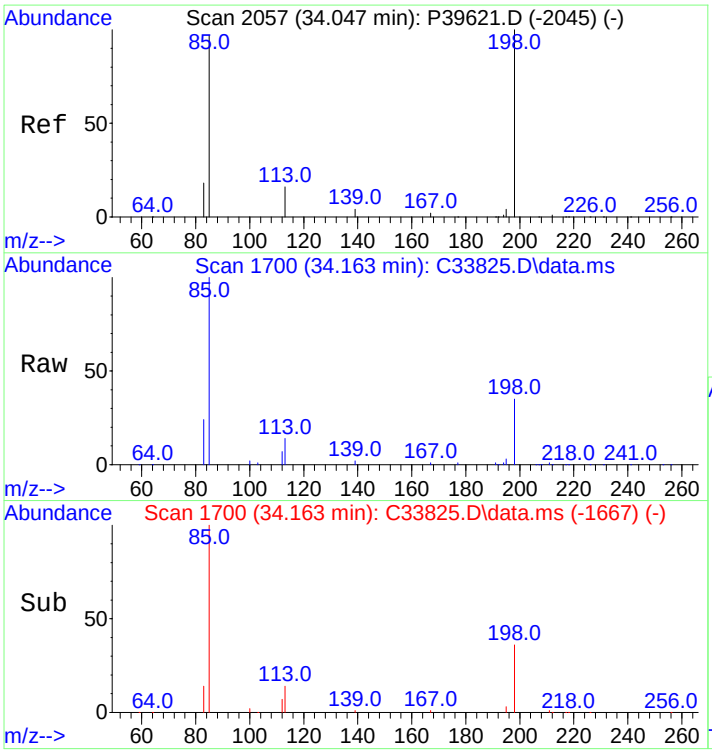


#33
Dibenzothiophene
Concen: 705.05 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 77367

Ion	Ratio	Lower	Upper
184	100		
152	16.4	6.7	10.1#

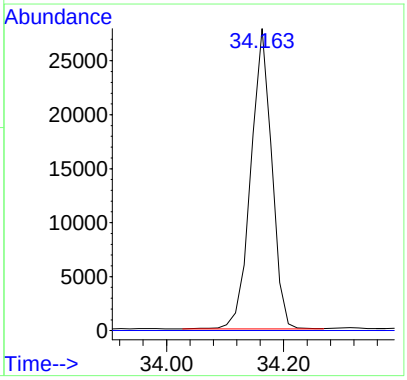


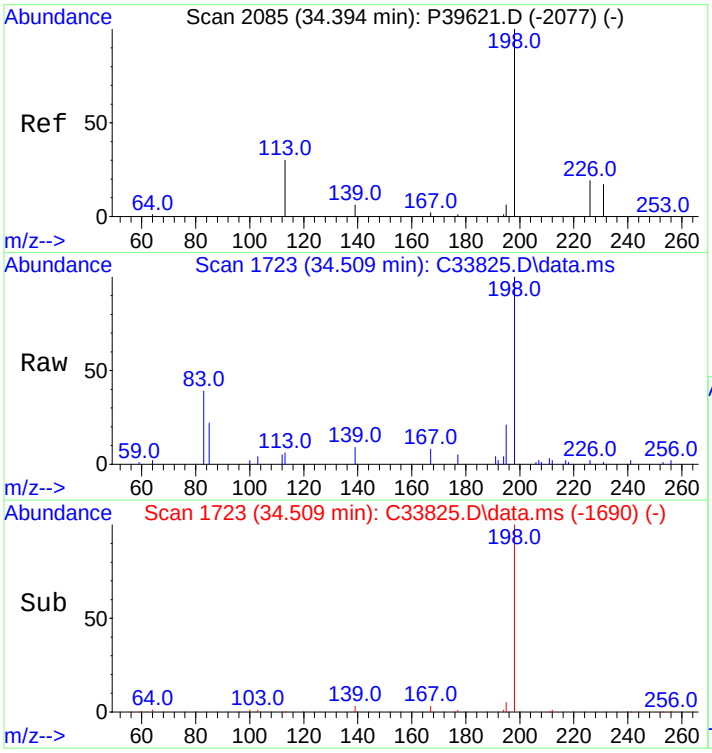


#34
4-Methyldibenzothiophene(4MDT)
Concen: 628.37 ng/mL
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 68953

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

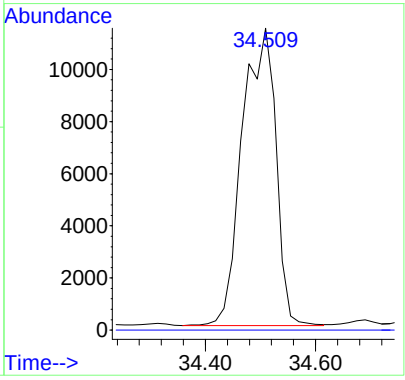


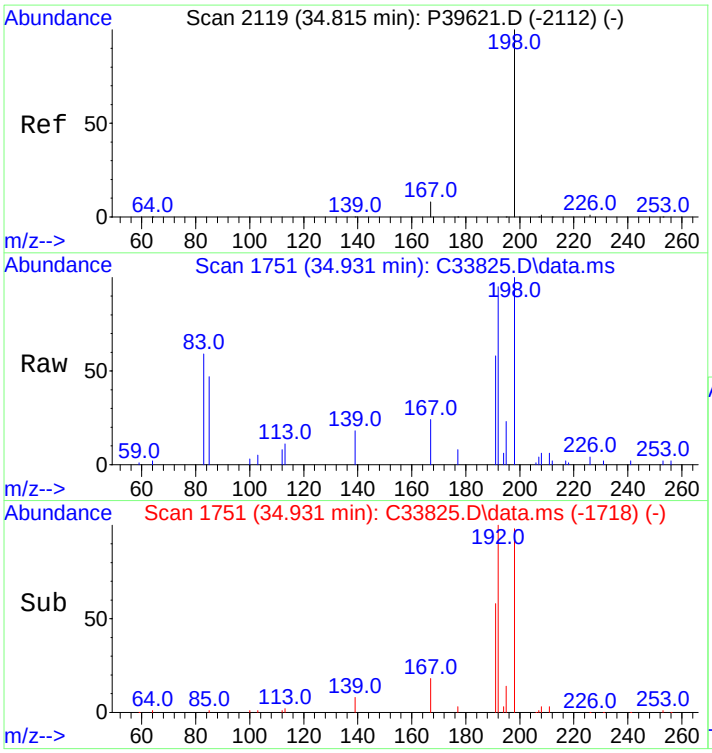


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 439.78 ng/mL
RT: 34.509 min Scan# 1723
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 48258

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

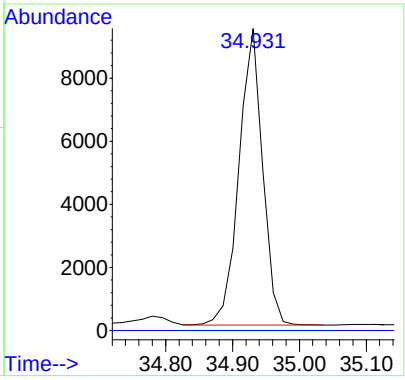


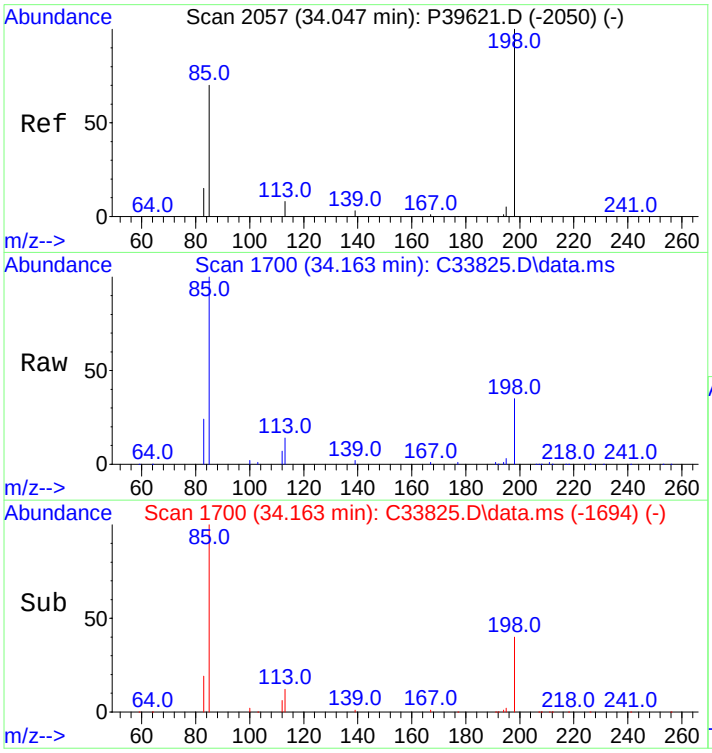


#36
1-Methyldibenzothiophene(1MDT)
Concen: 211.16 ng/mL
RT: 34.931 min Scan# 1751
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 23171

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

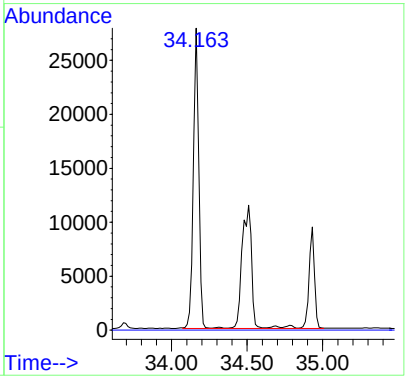


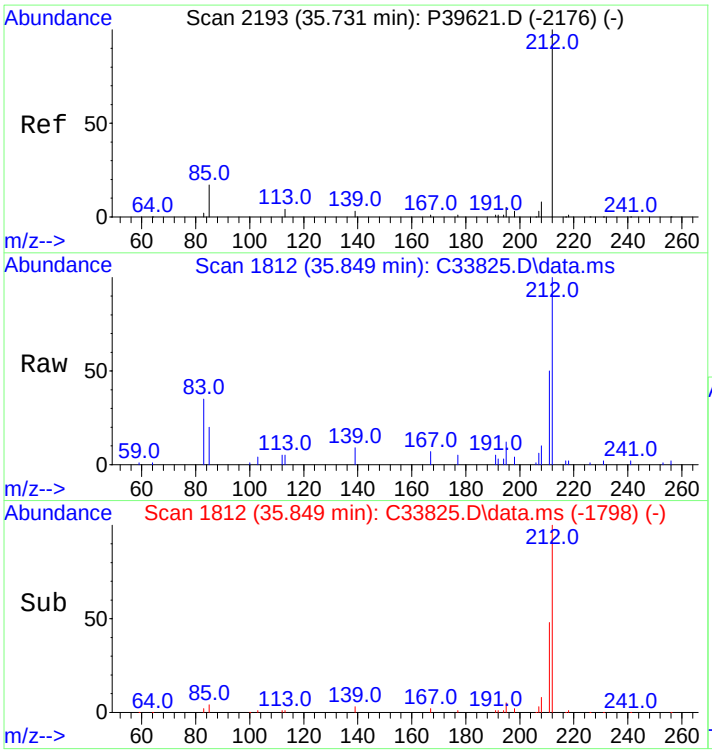


#38
C1-Dibenzothiophenes
Concen: 1308.30 ng/mL m
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 143563

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

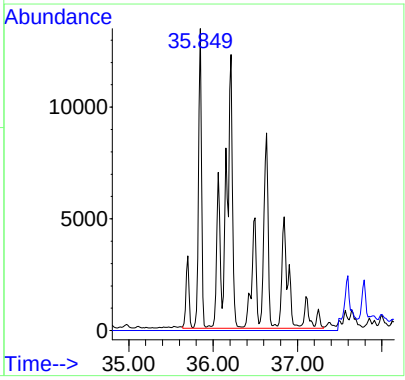


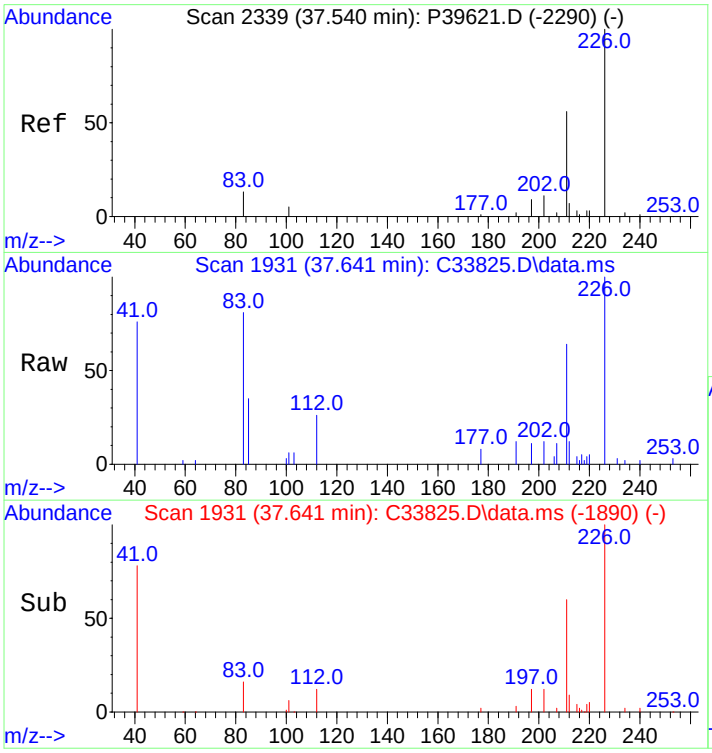


#39
C2-Dibenzothiophenes
Concen: 1763.39 ng/mL m
RT: 35.849 min Scan# 1812
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:212 Resp: 193502

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

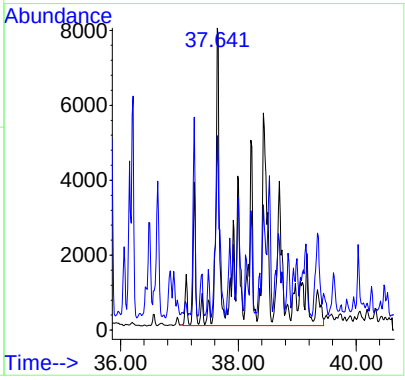


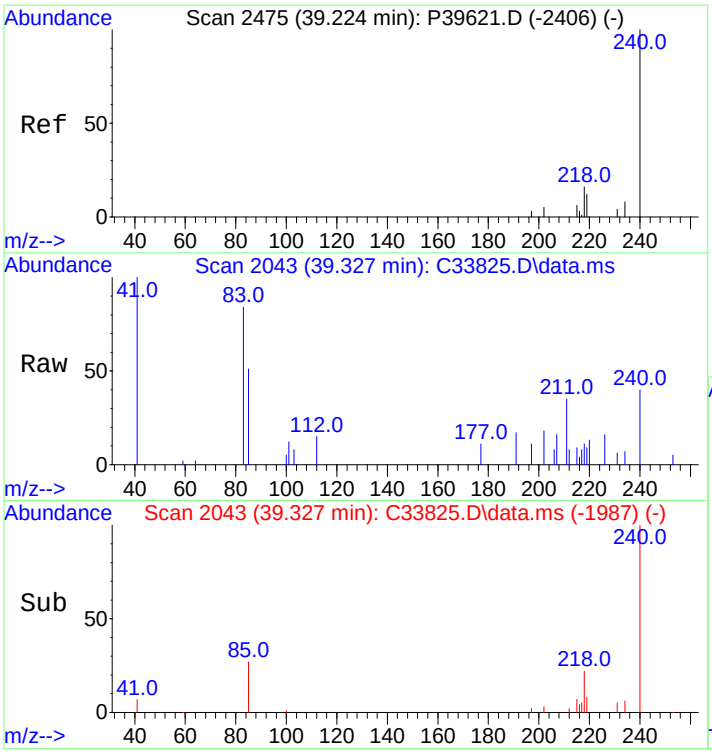


#40
C3-Dibenzothiophenes
Concen: 1550.28 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:226 Resp: 170116

Ion	Ratio	Lower	Upper
226	100		
211	13.4	51.4	77.2#

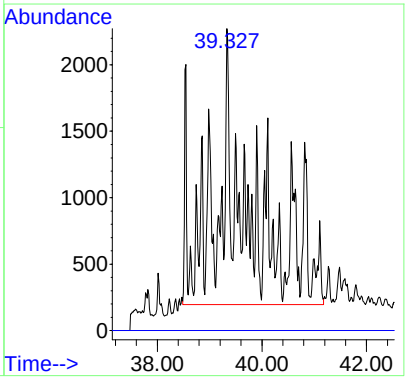


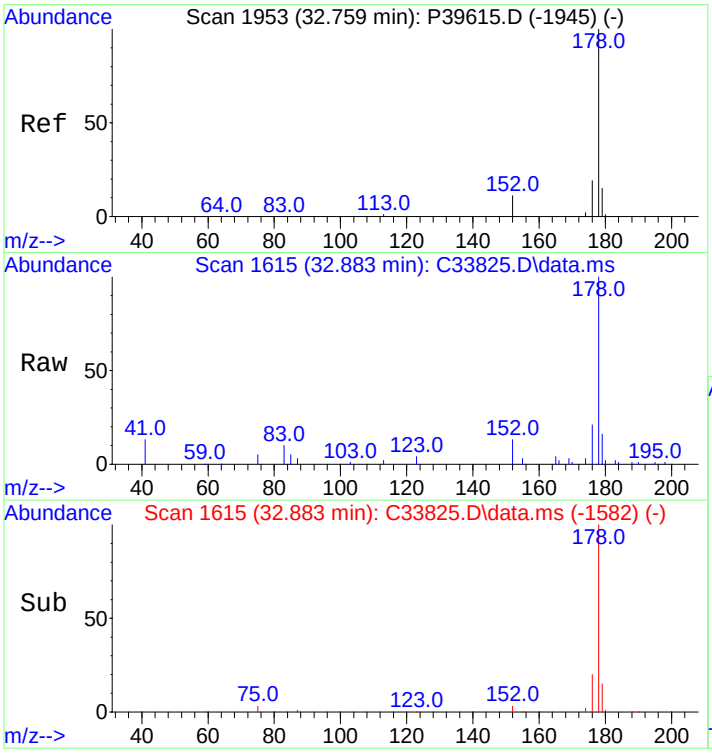


#41
C4-Dibenzothiophenes
Concen: 810.07 ng/mL m
RT: 39.327 min Scan# 2043
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:240 Resp: 88891

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

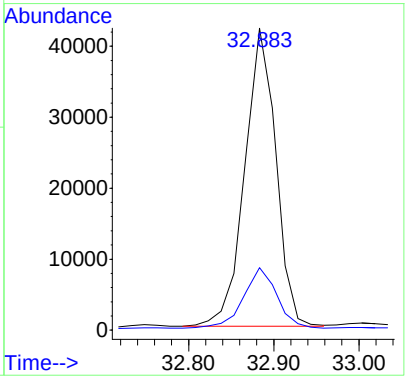


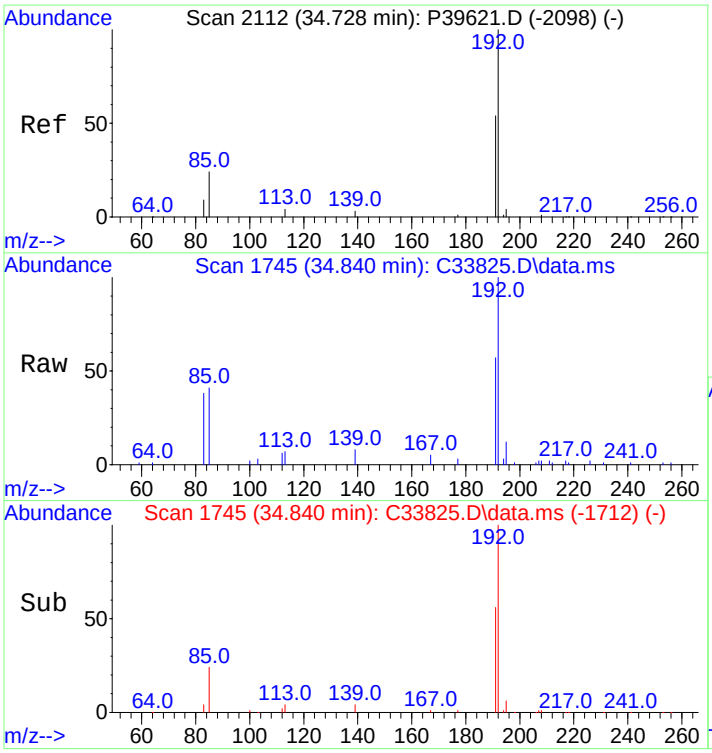


#43
Phenanthrene
Concen: 1111.34 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:178 Resp: 107144

Ion	Ratio	Lower	Upper
178	100		
176	21.7	15.9	23.9

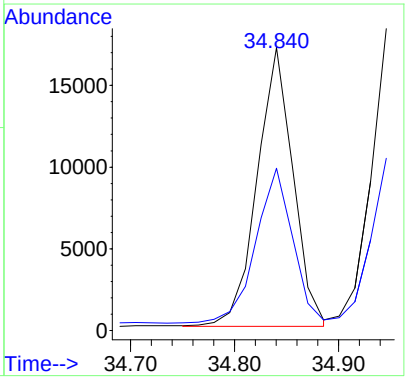


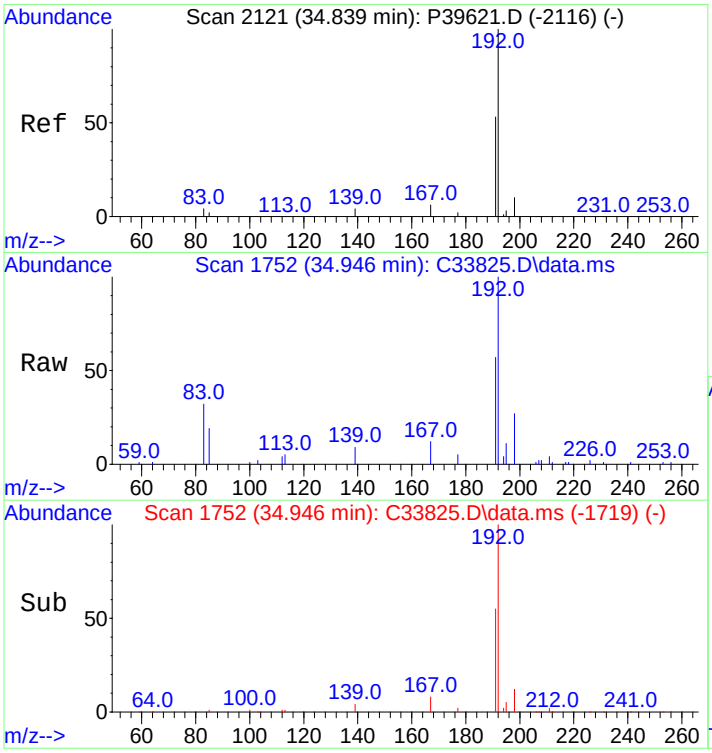


#44
3-Methylphenanthrene(3MP)
Concen: 427.55 ng/mL m
RT: 34.840 min Scan# 1745
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 41220

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.9	68.9

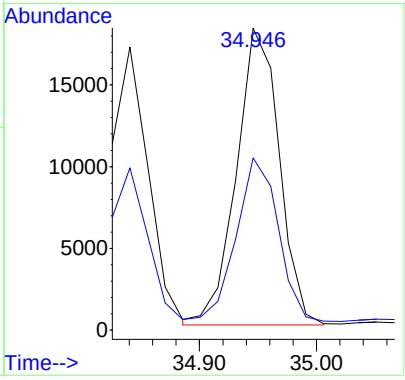


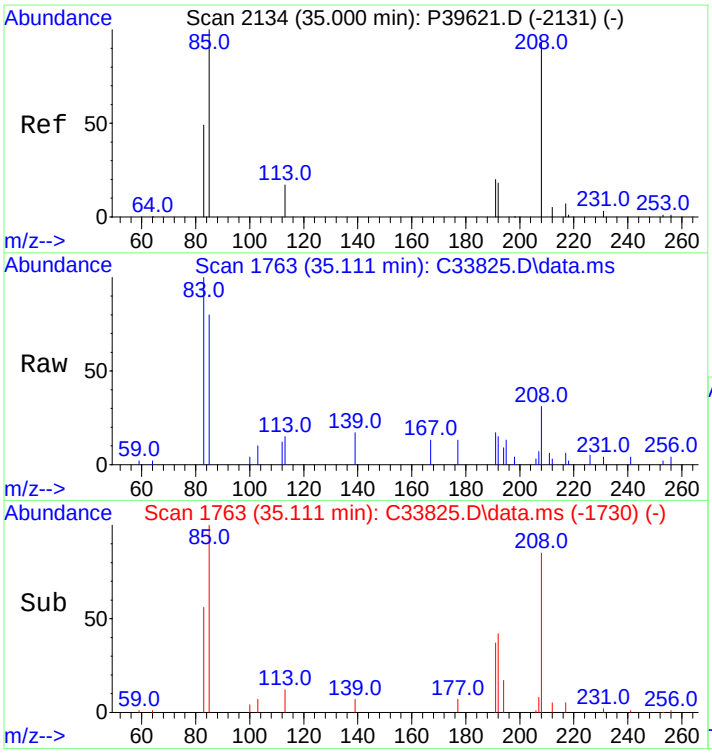


#45
2/4-Methylphenanthrene(2MP)
Concen: 481.28 ng/mL m
RT: 34.946 min Scan# 1752
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46400

Ion	Ratio	Lower	Upper
192	100		
191	53.5	45.6	68.4

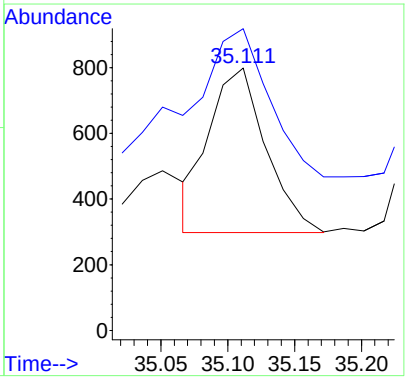


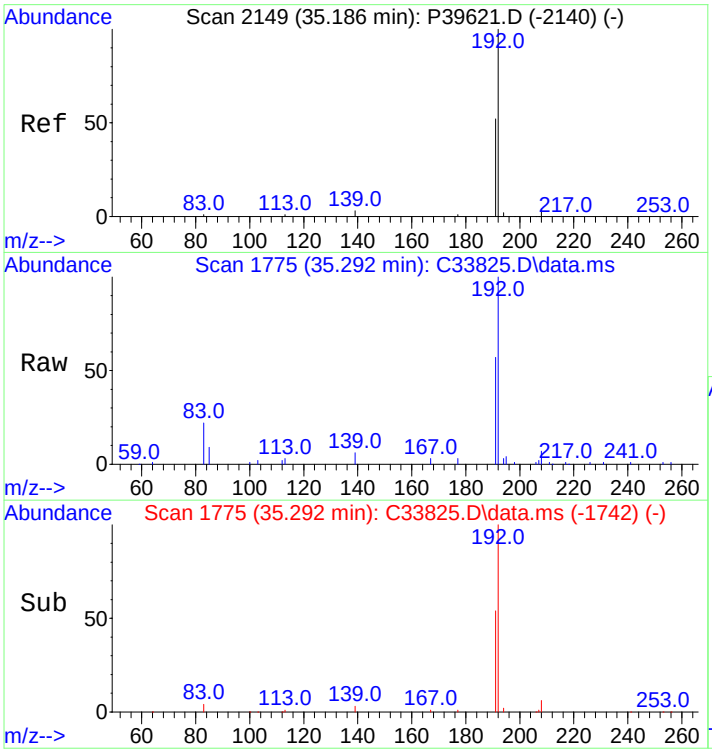


#46
2-Methylanthracene(2MA)
Concen: 15.41 ng/mL m
RT: 35.111 min Scan# 1763
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 1486

Ion	Ratio	Lower	Upper
192	100		
191	129.0	92.0	138.0

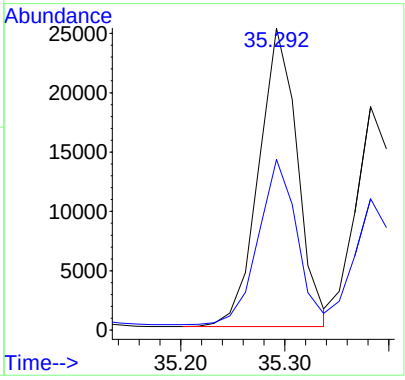


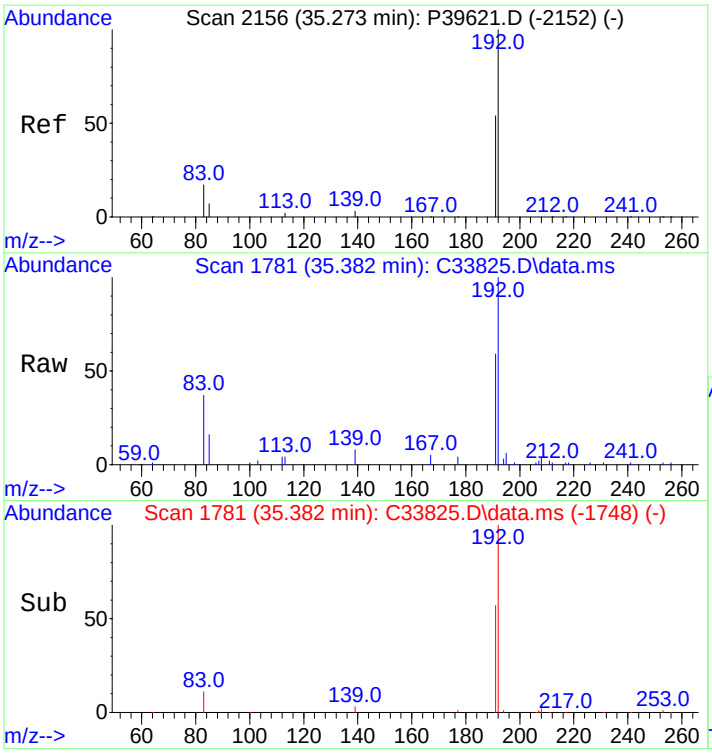


#47
9-Methylphenanthrene(9MP)
Concen: 672.32 ng/mL
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 64818

Ion	Ratio	Lower	Upper
192	100		
191	55.3	45.3	67.9

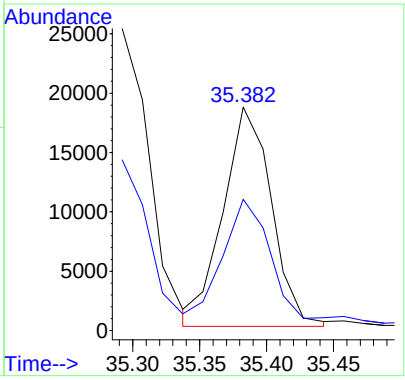


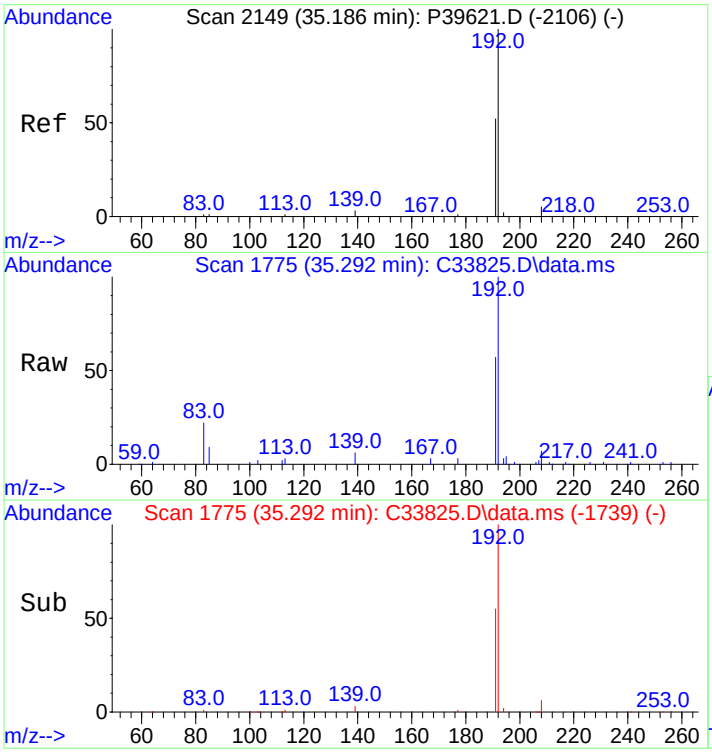


#48
1-Methylphenanthrene(1MP)
Concen: 482.98 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46564

Ion	Ratio	Lower	Upper
192	100		
191	57.1	47.0	70.6

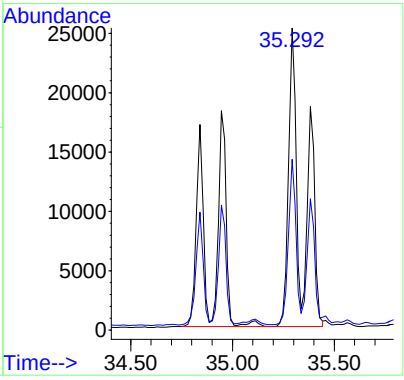


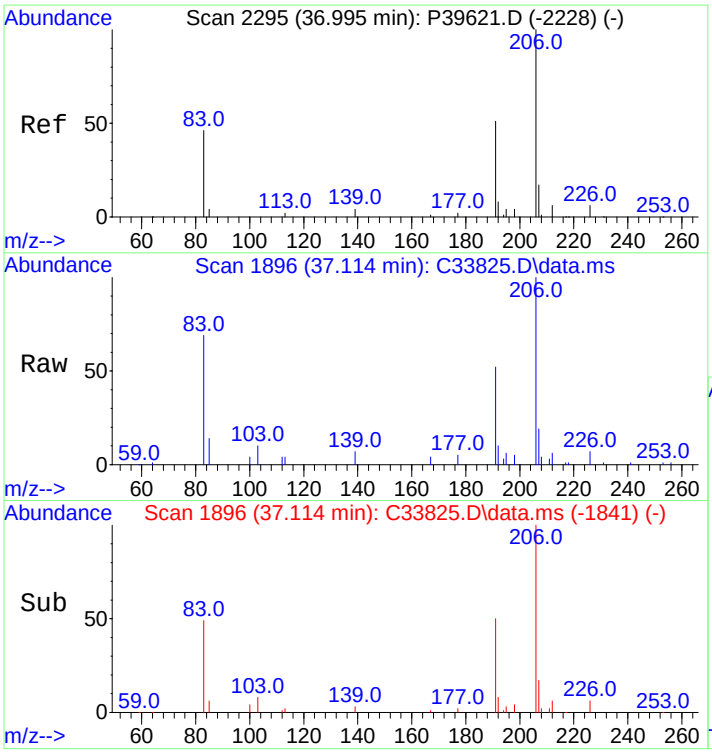


#49
C1-Phenanthrenes/Anthracenes
Concen: 2088.83 ng/mL m
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 201383

Ion	Ratio	Lower	Upper
192	100		
191	17.8	45.3	67.9#

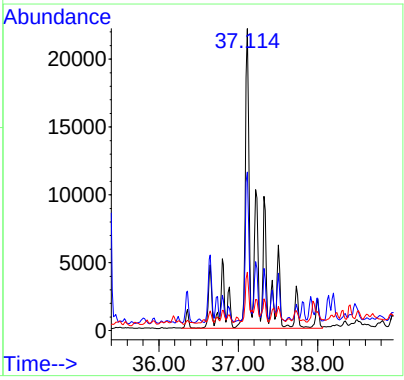


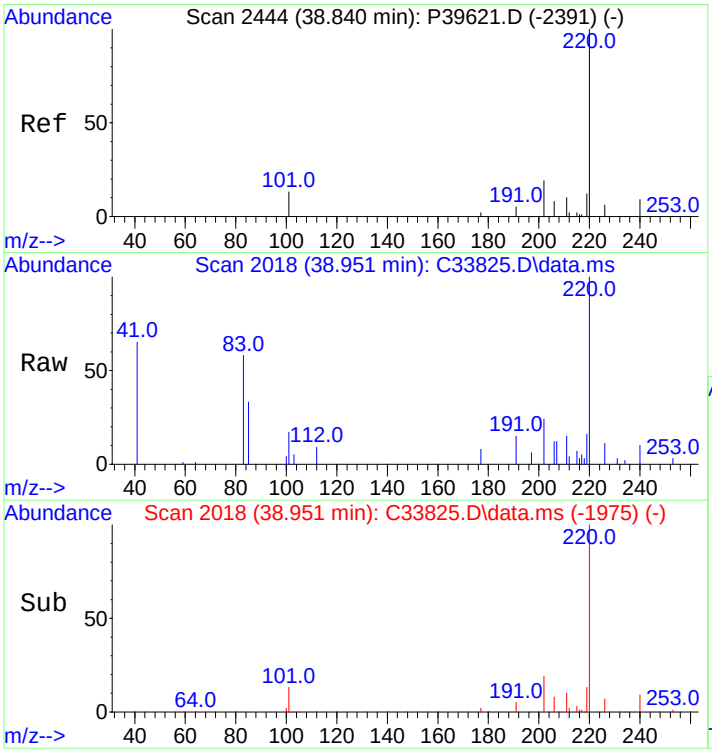


#50
C2-Phenanthrenes/Anthracenes
Concen: 2138.48 ng/mL m
RT: 37.114 min Scan# 1896
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:206 Resp: 206170

Ion	Ratio	Lower	Upper
206	100		
191	17.0	42.0	63.0#
207	5.7	15.4	23.2#

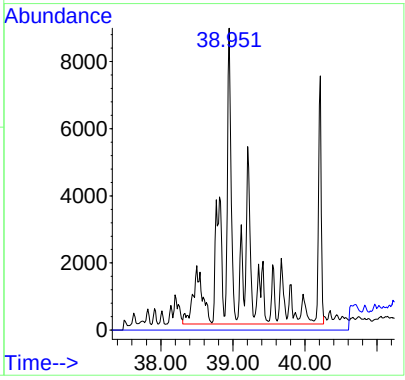


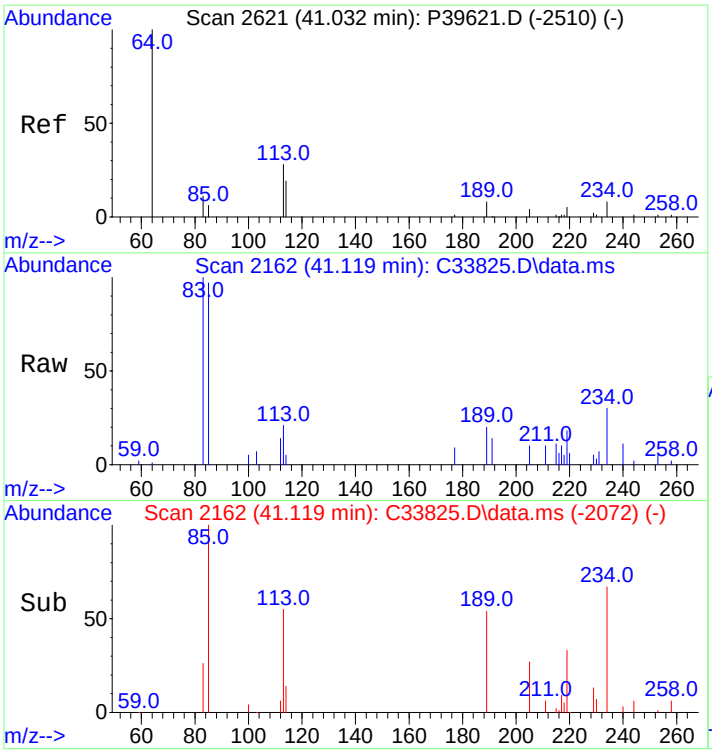


#52
C3-Phenanthrenes/Anthracenes
Concen: 1482.94 ng/mL m
RT: 38.951 min Scan# 2018
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:220 Resp: 142970

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

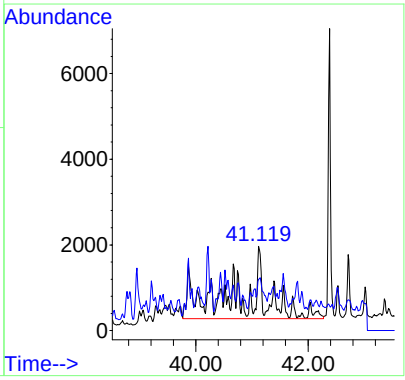


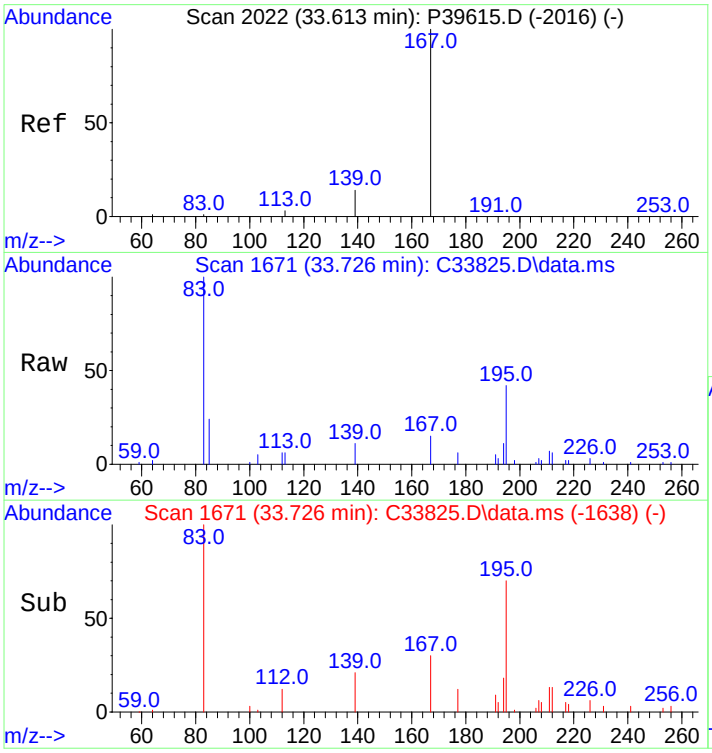


#53
C4-Phenanthrenes/Anthracenes
Concen: 588.72 ng/mL m
RT: 41.119 min Scan# 2162
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 56758

Ion	Ratio	Lower	Upper
234	100		
219	3.4	48.6	73.0#

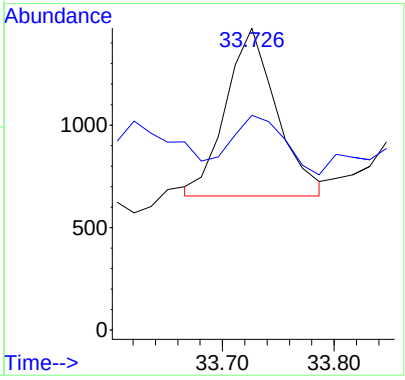


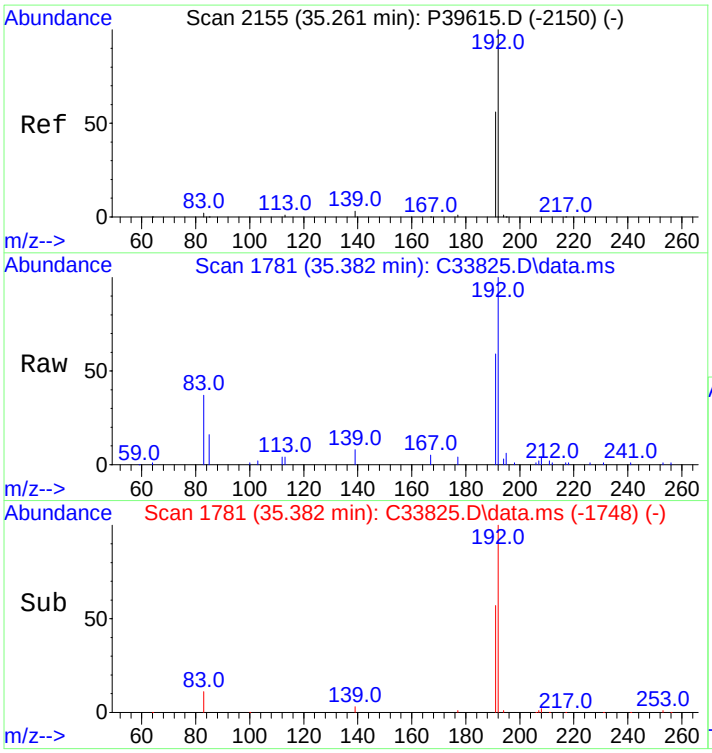


#56
Carbazole
Concen: 27.15 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:167 Resp: 2583

Ion	Ratio	Lower	Upper
167	100		
139	87.4	11.6	17.4#

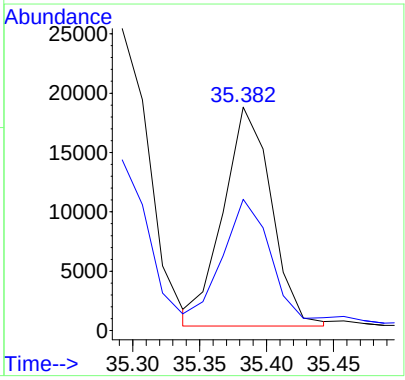


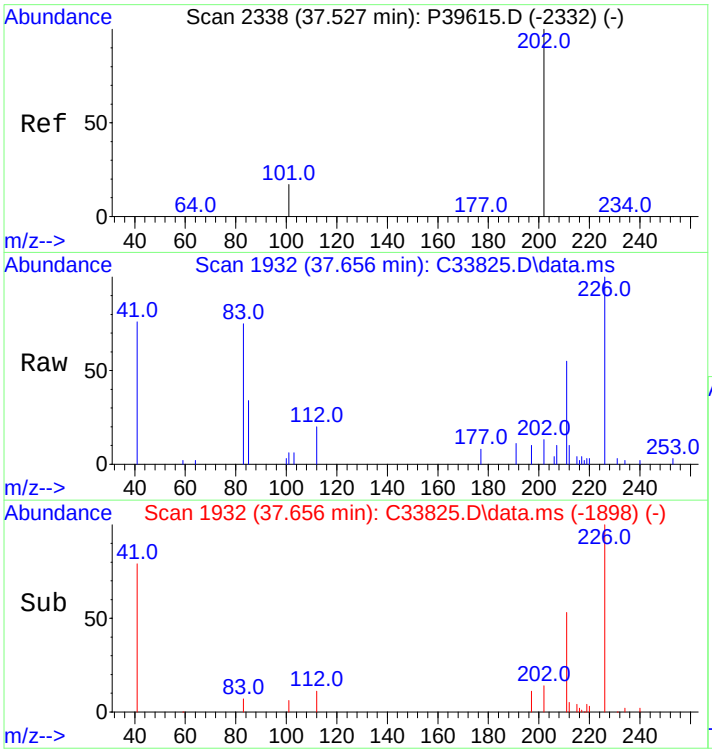


#57
1-Methylphenanthrene
Concen: 759.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46375

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

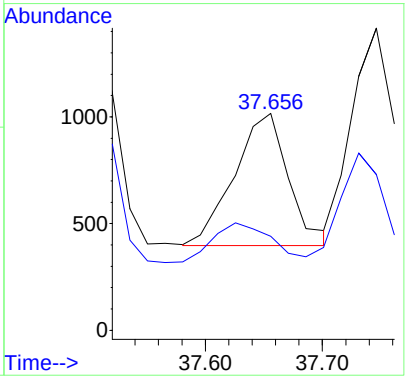


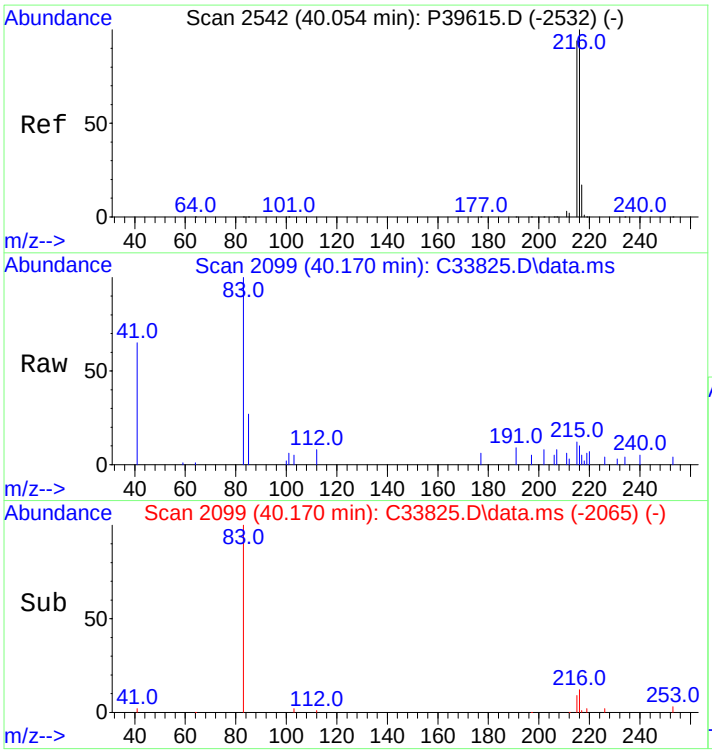


#58
Fluoranthene
Concen: 20.90 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 2001

Ion	Ratio	Lower	Upper
202	100		
101	0.0	19.1	28.7#

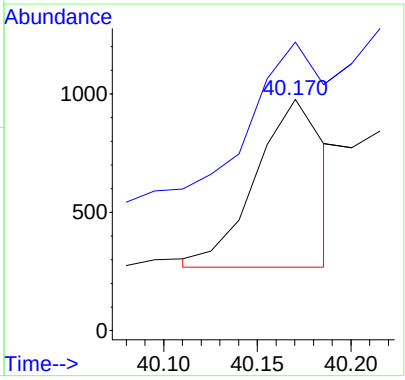


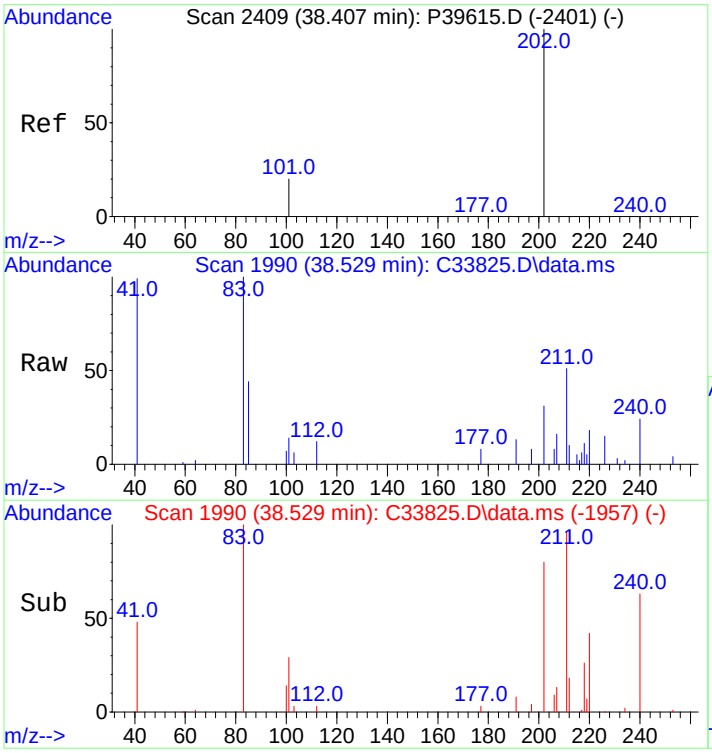


#59
Benzo(b)fluorene
Concen: 32.80 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 1822

Ion	Ratio	Lower	Upper
216	100		
215	16.2	77.4	116.2#

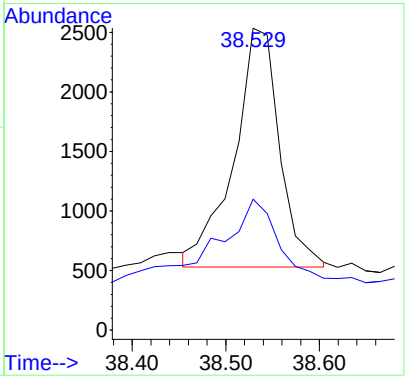


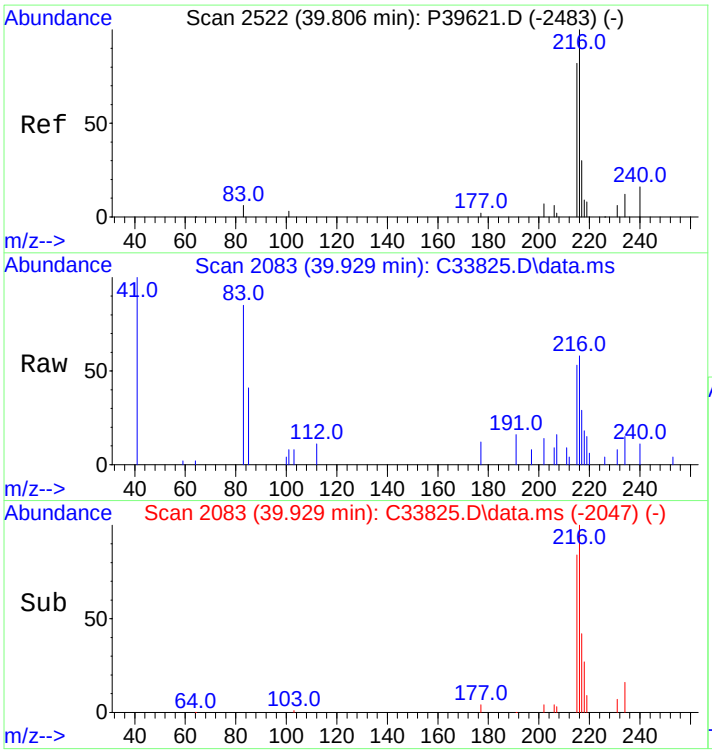


#60
Pyrene
Concen: 69.73 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 6787

Ion	Ratio	Lower	Upper
202	100		
101	64.2	20.4	30.6#

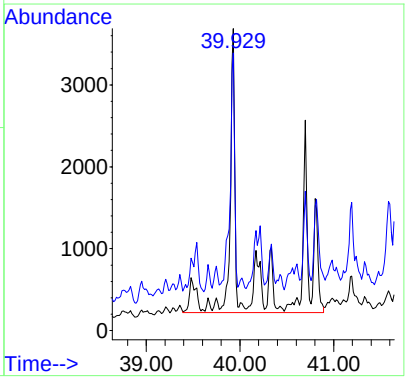


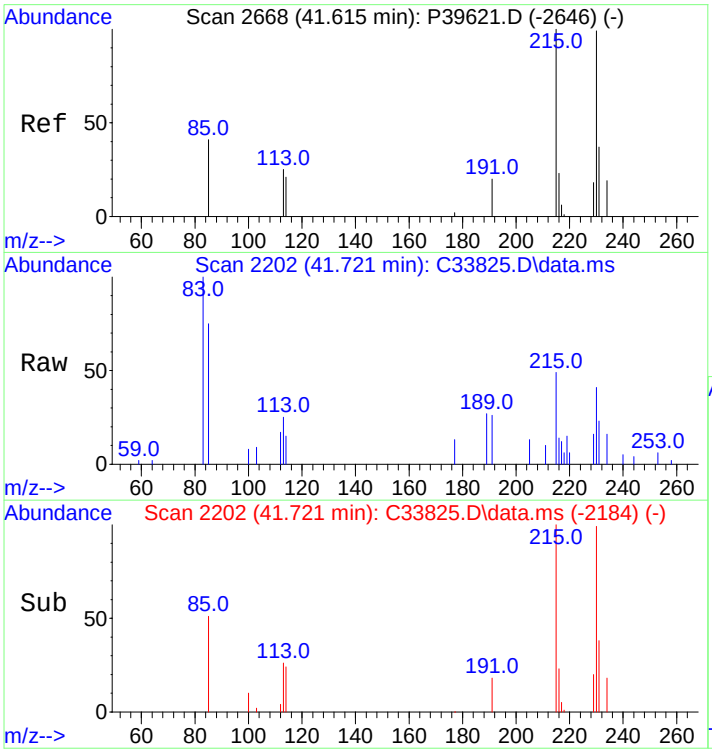


#61
C1-Fluoranthenes/Pyrenes
Concen: 330.13 ng/mL m
RT: 39.929 min Scan# 2083
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 32133

Ion	Ratio	Lower	Upper
216	100		
215	28.8	73.5	110.3#

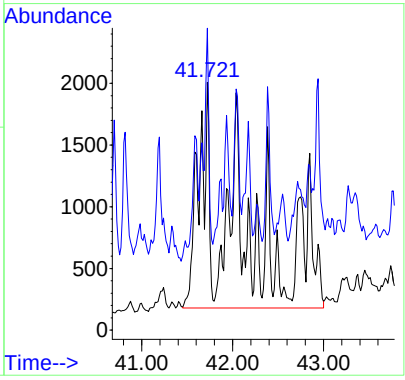


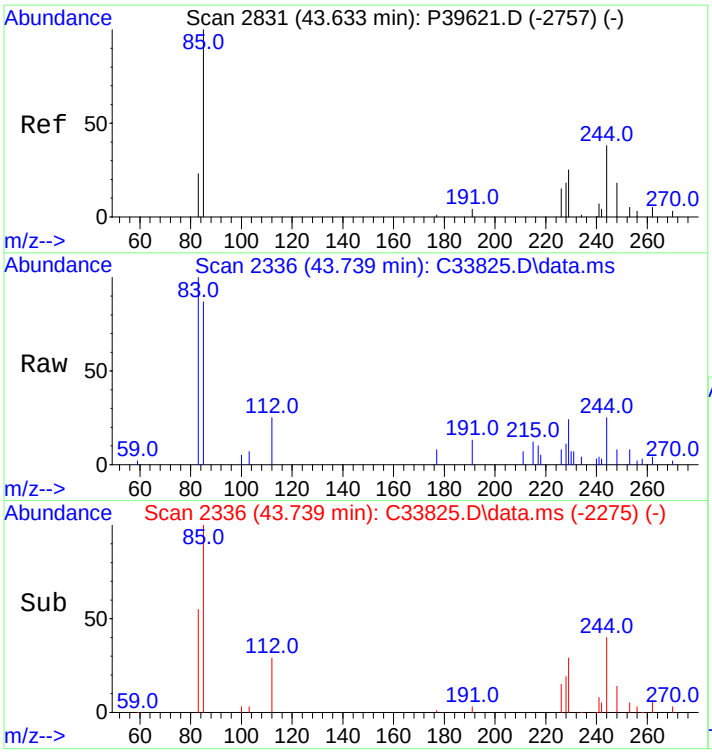


#62
C2-Fluoranthenes/Pyrenes
Concen: 517.02 ng/mL m
RT: 41.721 min Scan# 2202
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:230 Resp: 50323

Ion	Ratio	Lower	Upper
230	100		
215	3.3	97.5	146.3#

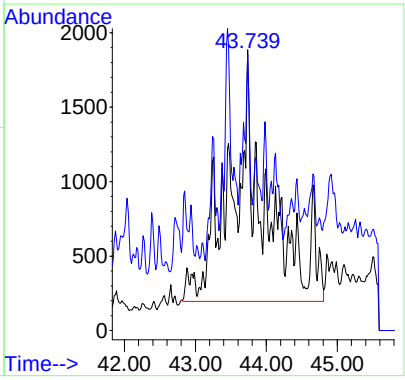


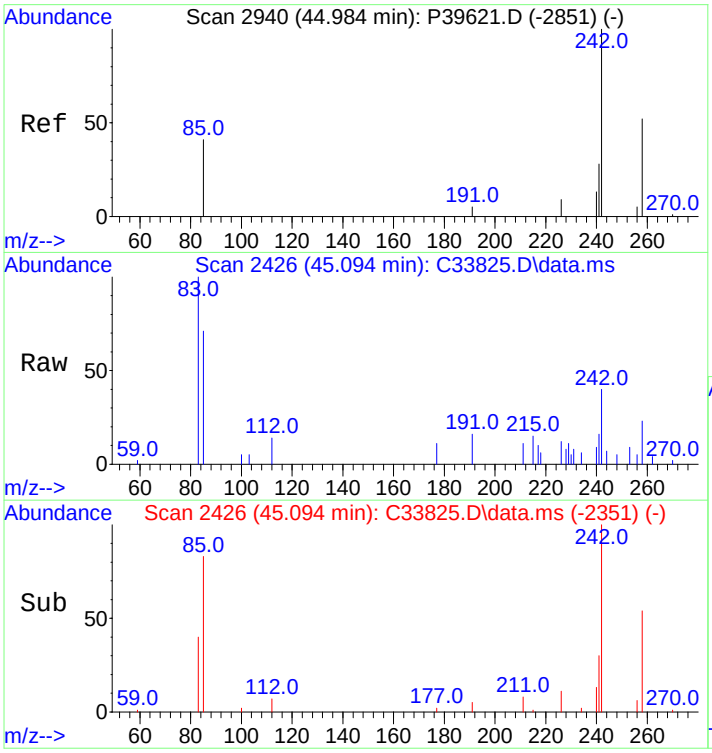


#63
C3-Fluoranthenes/Pyrenes
Concen: 579.51 ng/mL m
RT: 43.739 min Scan# 2336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:244 Resp: 56406

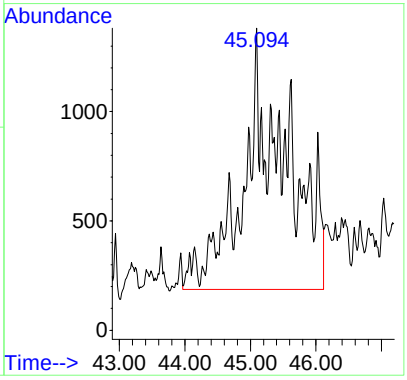
Ion	Ratio	Lower	Upper
244	100		
229	13.5	78.7	118.1#

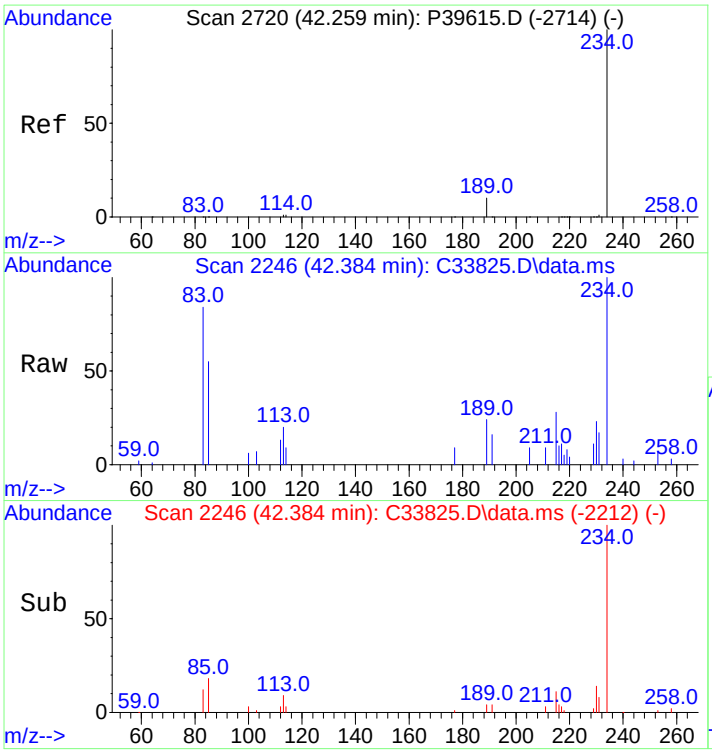




#64
C4-Fluoranthenes/Pyrenes
Concen: 542.26 ng/mL m
RT: 45.094 min Scan# 2426
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:258 Resp: 52780

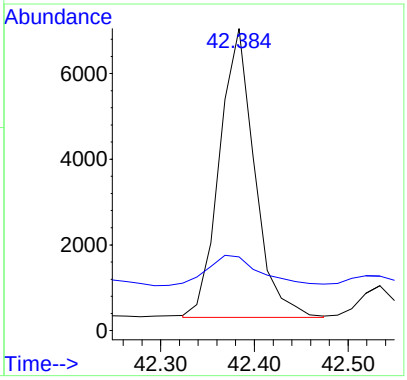


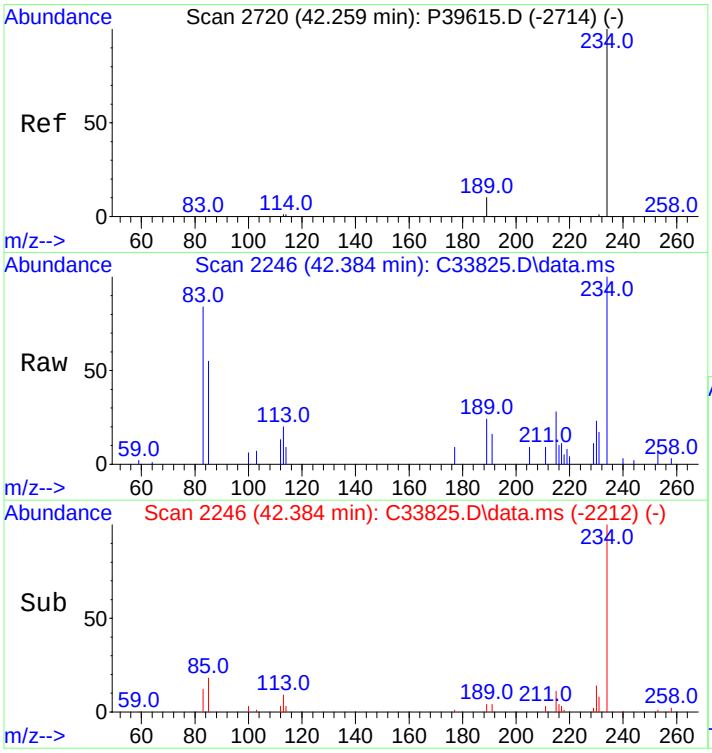


#66
Naphthobenzothiophene
Concen: 168.19 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17624

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

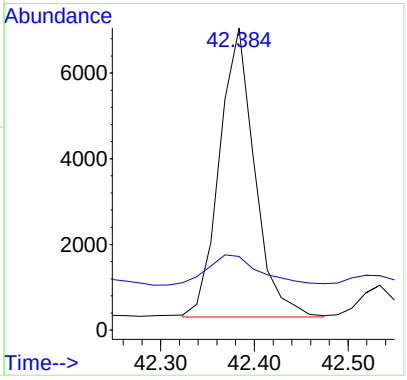


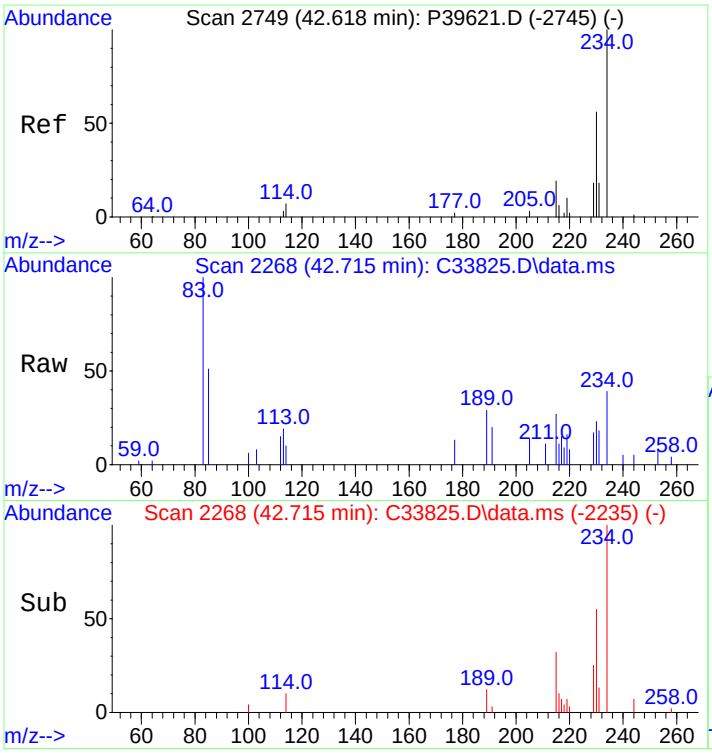


#67
Naphthobenzothiophene-2,1-D
Concen: 168.27 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17633

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

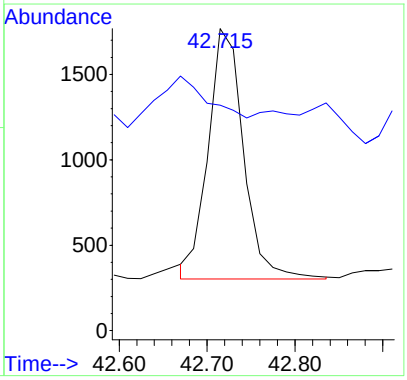


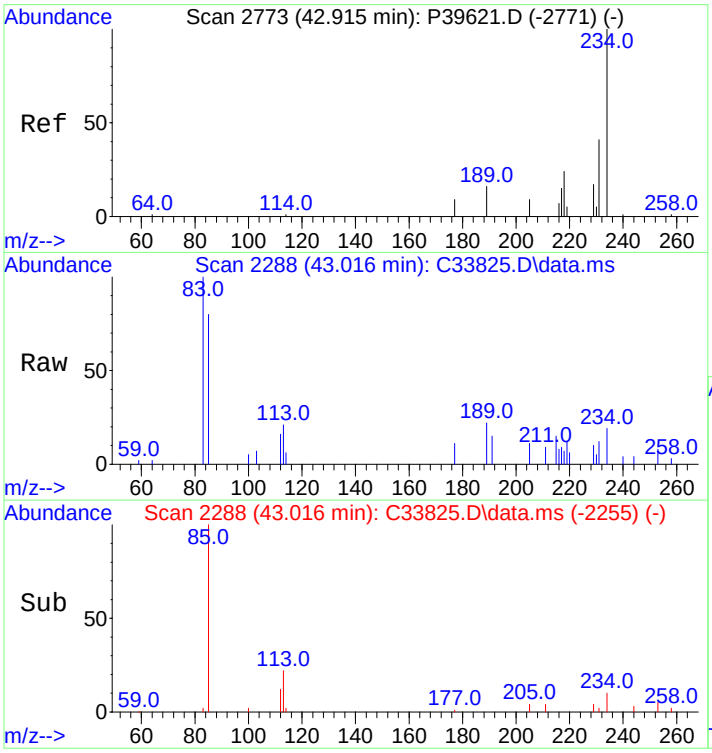


#68
Naphthobenzothiophene-1,2-D
Concen: 39.11 ng/mL m
RT: 42.715 min Scan# 2268
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 4098

Ion	Ratio	Lower	Upper
234	100		
189	0.0	59.7	89.5#

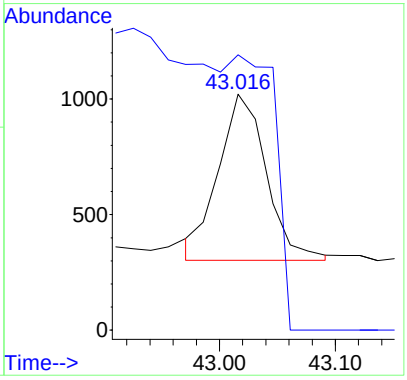


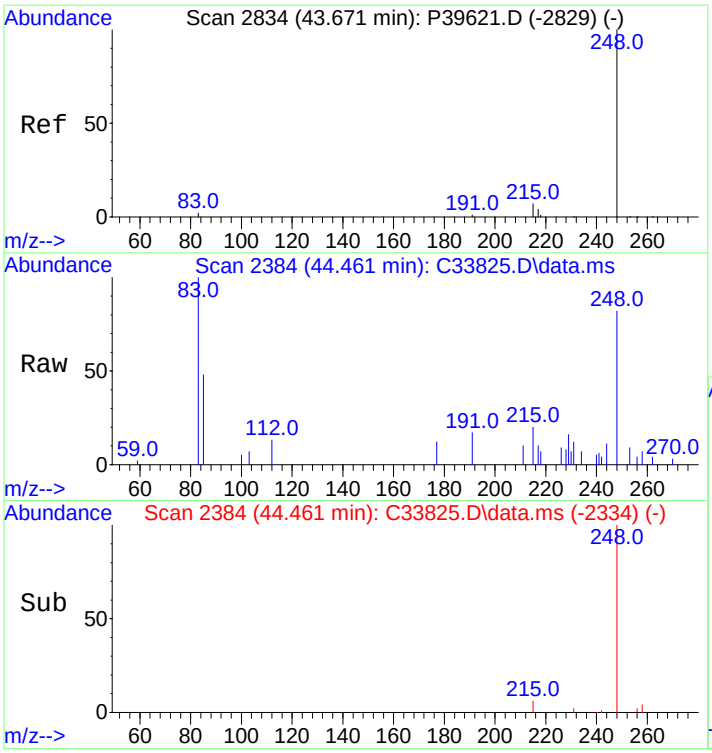


#69
Naphthobenzothiophene-2,3-D
Concen: 19.66 ng/mL m
RT: 43.016 min Scan# 2288
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 2060

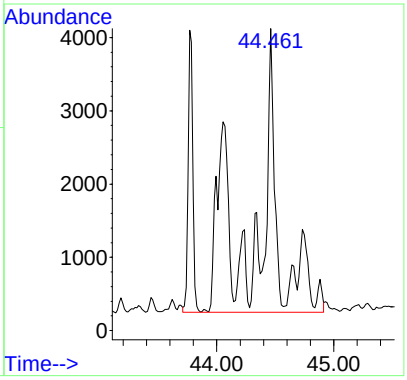
Ion	Ratio	Lower	Upper
234	100		
189	0.0	93.4	140.0#

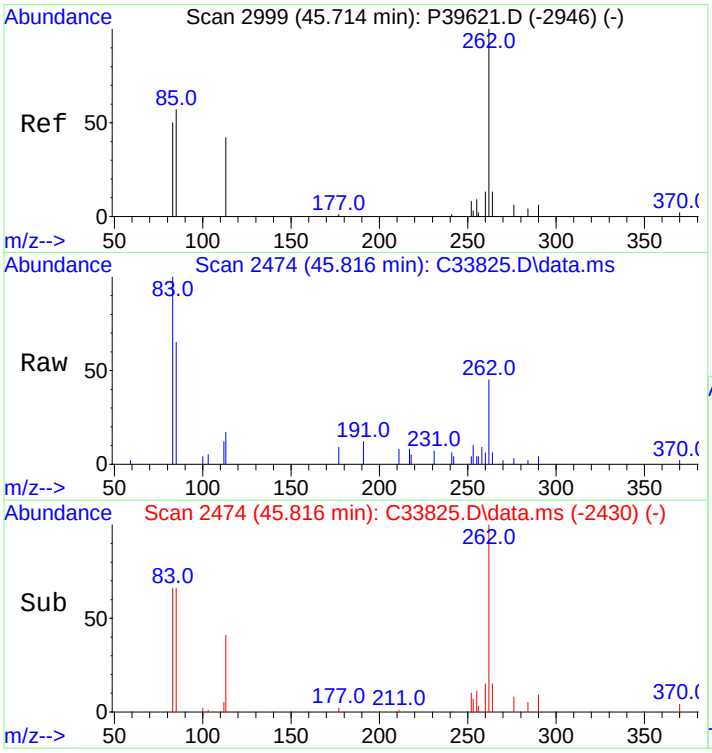




#70
C1-Naphthobenzothiophenes
Concen: 588.79 ng/ml m
RT: 44.461 min Scan# 2384
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

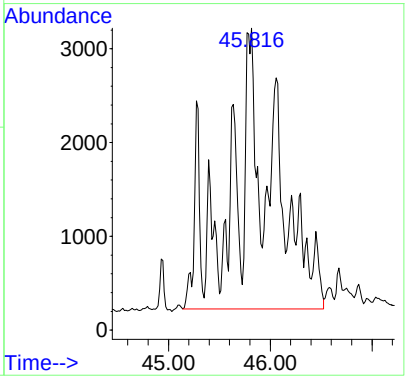
Tgt Ion:248 Resp: 61698

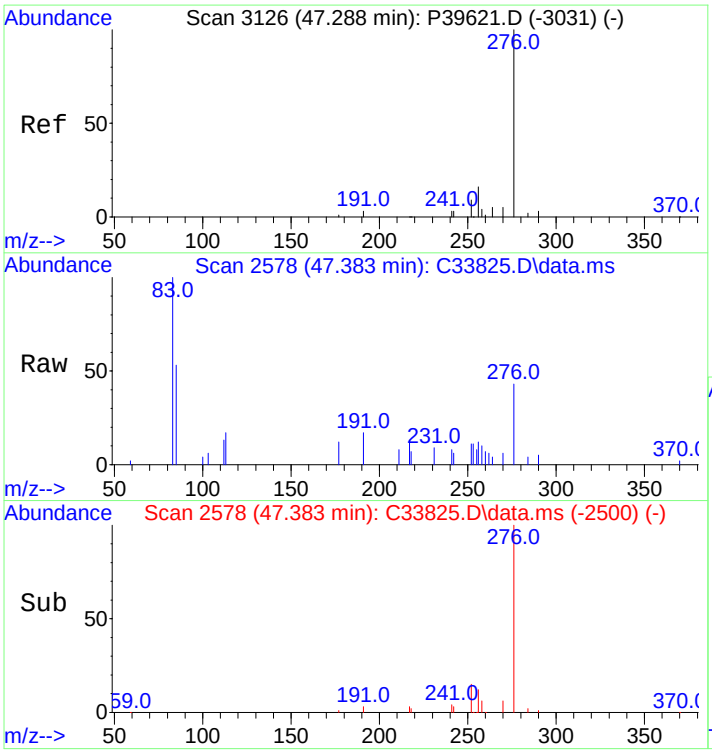




#71
C2-Naphthobenzothiophenes
Concen: 806.80 ng/ml m
RT: 45.816 min Scan# 2474
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

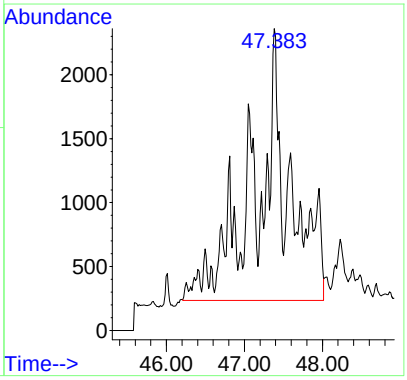
Tgt Ion:262 Resp: 84543

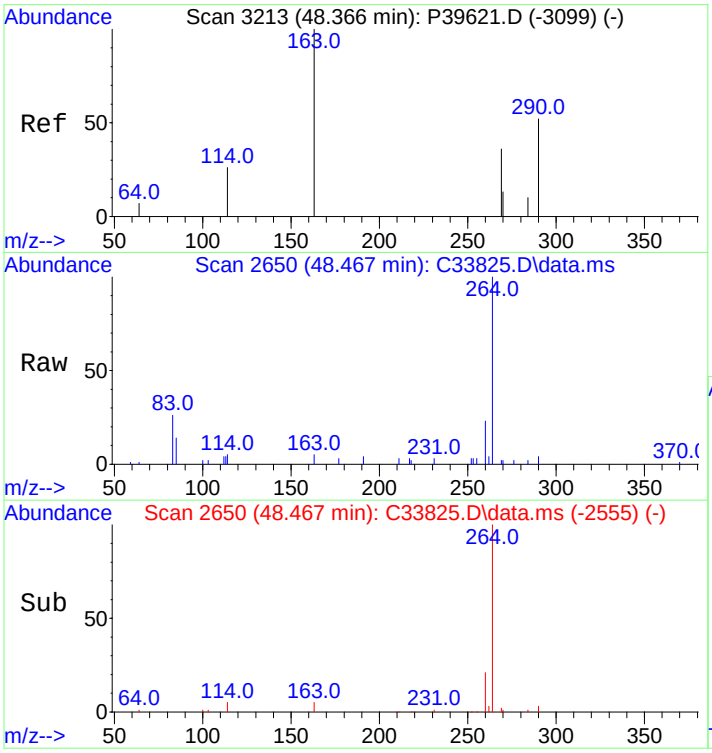




#72
C3-Naphthobenzothiophenes
Concen: 616.63 ng/ml m
RT: 47.383 min Scan# 2578
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

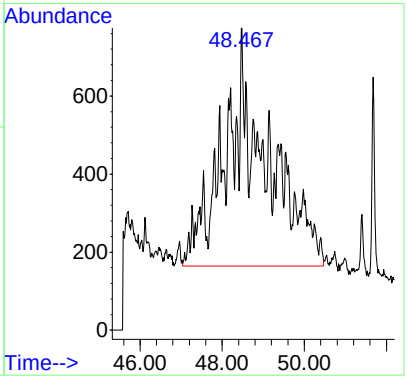
Tgt Ion:276 Resp: 64616

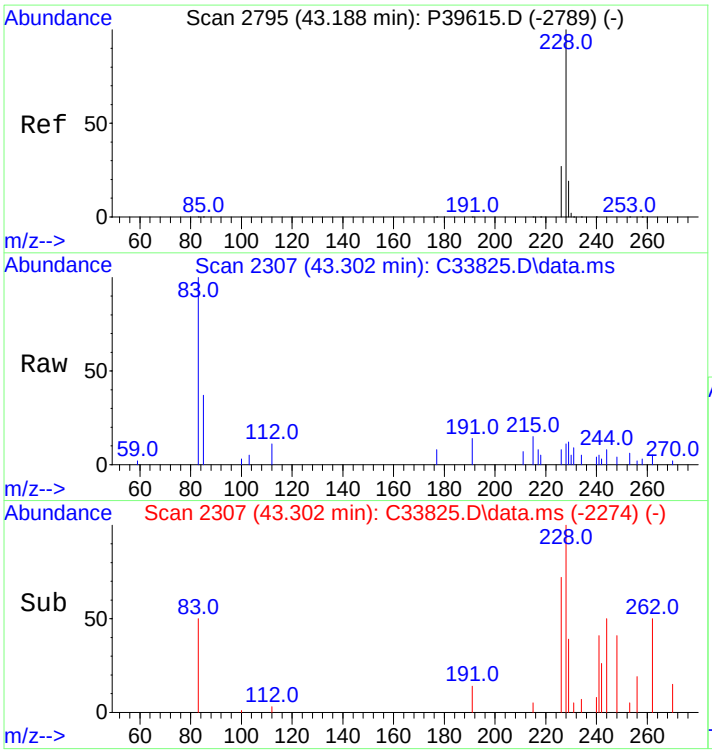




#73
C4-Naphthobenzothiophenes
Concen: 402.19 ng/mL m
RT: 48.467 min Scan# 2650
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:290 Resp: 42145

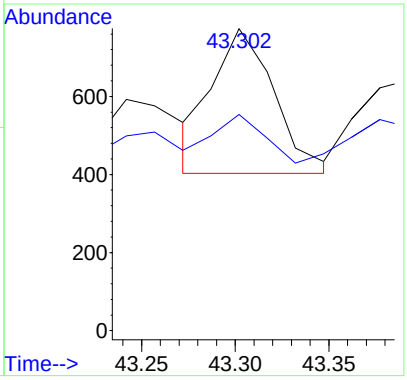


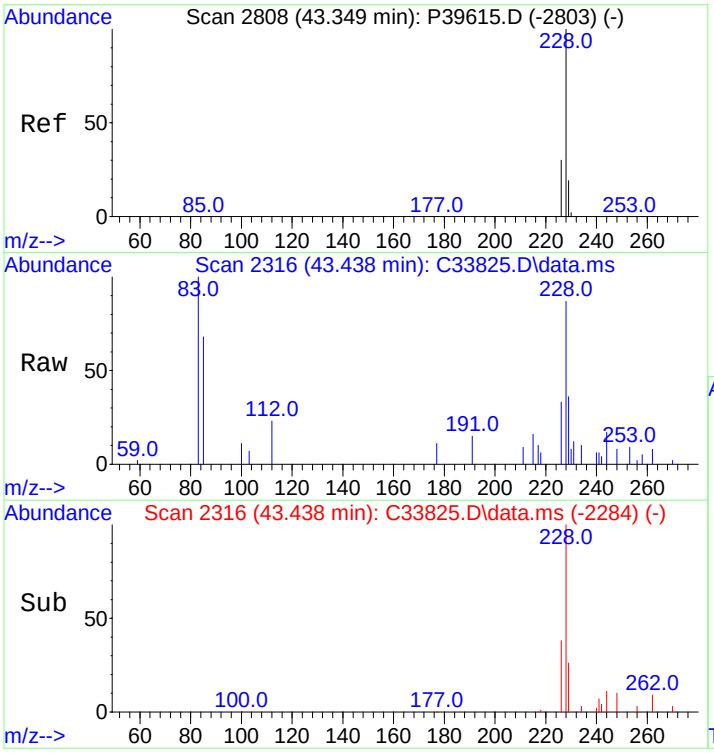


#75
Benz[a]anthracene
Concen: 9.22 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 851

Ion	Ratio	Lower	Upper
228	100		
226	665.2	21.8	32.8#

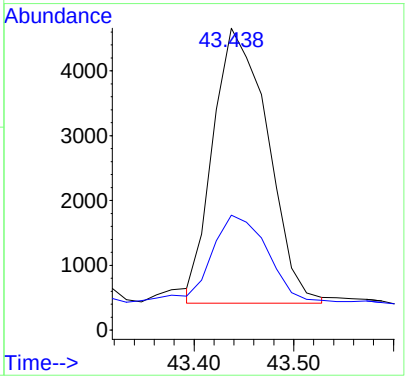


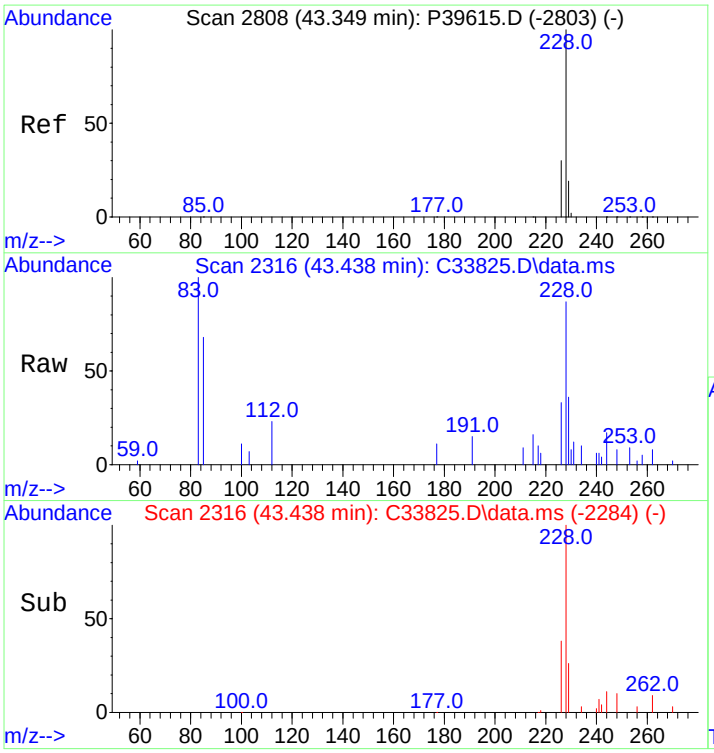


#76
Chrysene
Concen: 173.19 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16140

Ion	Ratio	Lower	Upper
228	100		
226	35.1	24.2	36.4

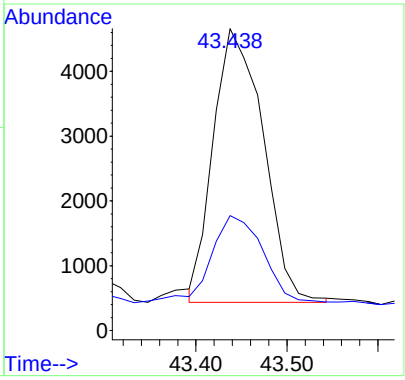


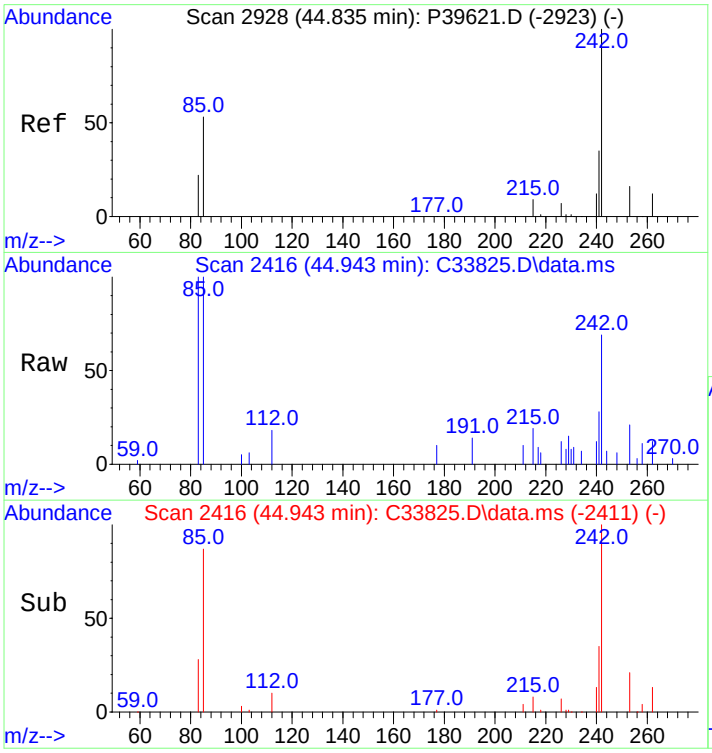


#77
Chrysene/Triphenylene
Concen: 172.36 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16062

Ion	Ratio	Lower	Upper
228	100		
226	35.2	24.2	36.4

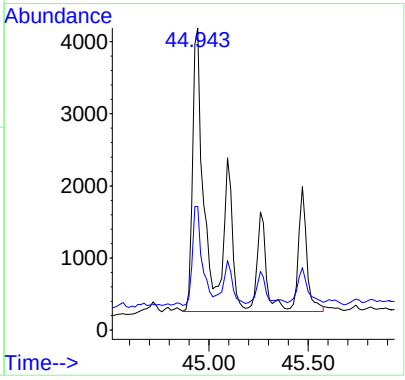


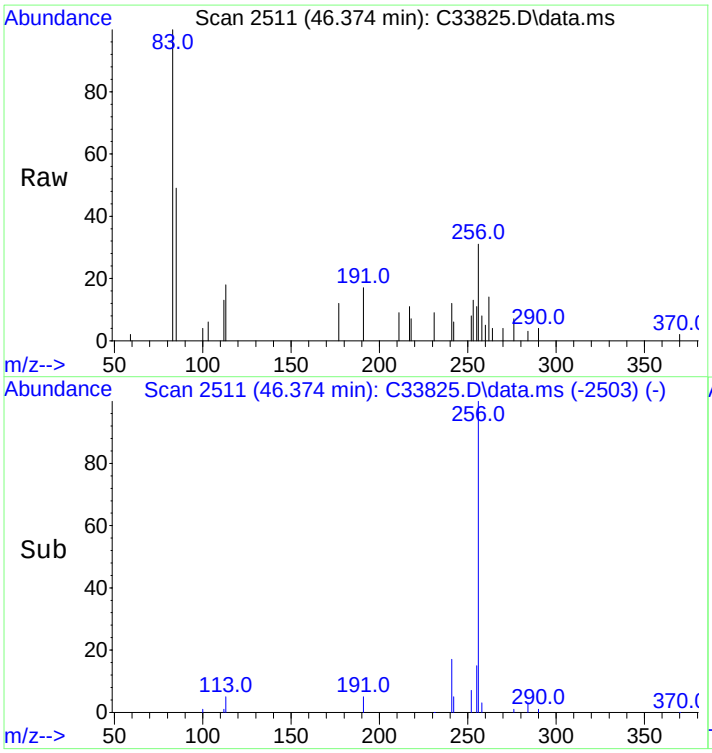


#78
C1-Chrysenes
Concen: 319.06 ng/mL m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:242 Resp: 29733

Ion	Ratio	Lower	Upper
242	100		
241	13.2	32.7	49.1#

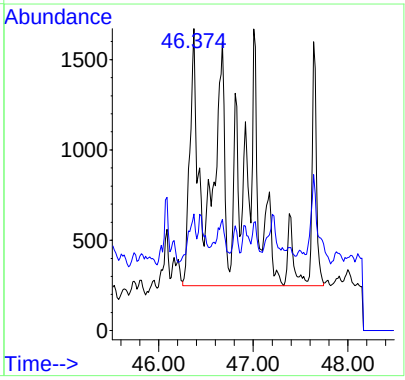


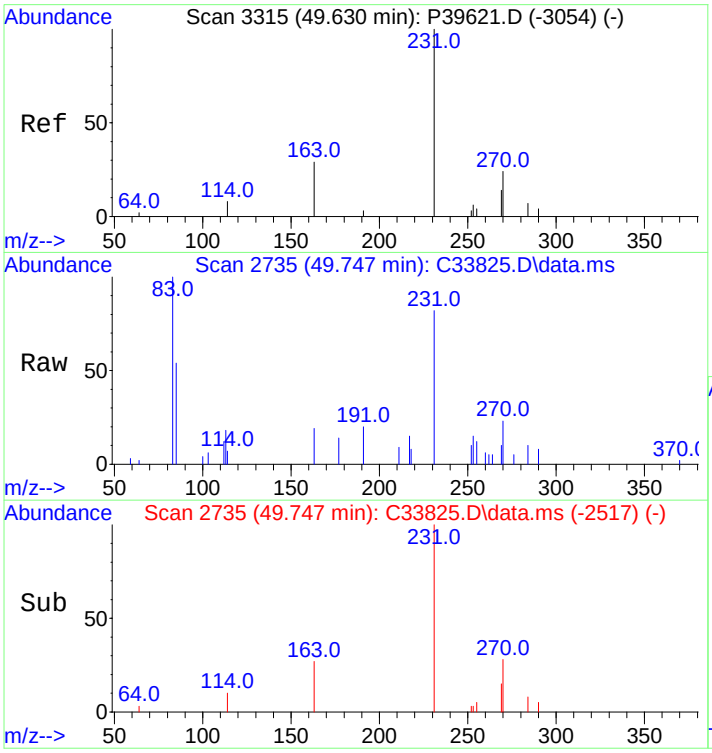


#79
C2-Chrysenes
Concen: 416.87 ng/mL m
RT: 46.374 min Scan# 2511
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:256 Resp: 38848

Ion	Ratio	Lower	Upper
256	100		
241	2.5	30.9	46.3#

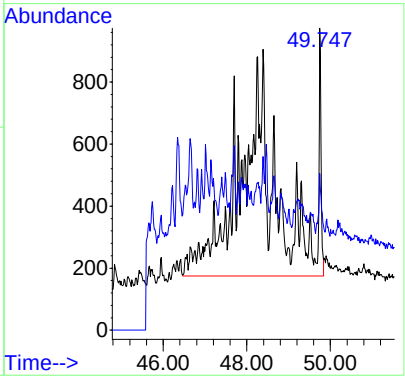


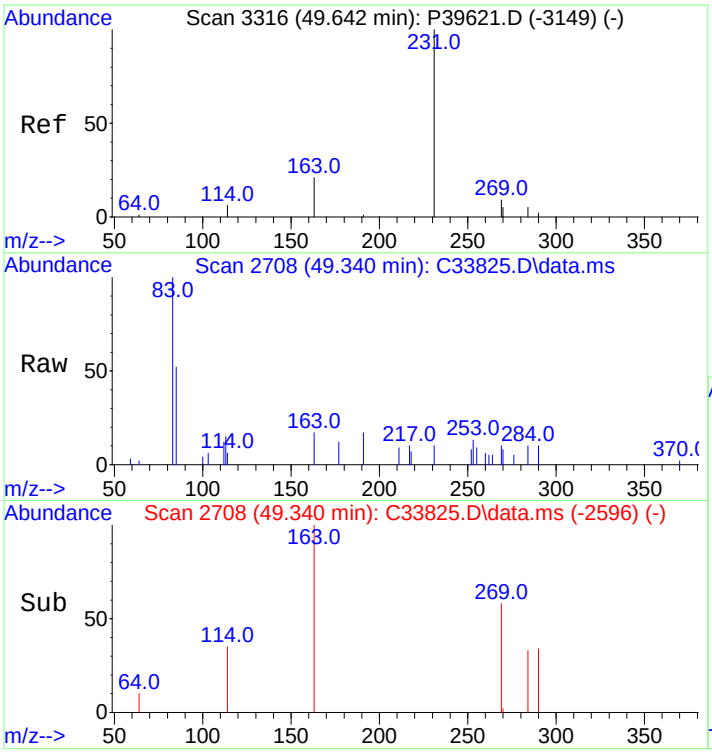


#80
C3-Chrysenes
Concen: 446.16 ng/mL m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:270 Resp: 41578

Ion	Ratio	Lower	Upper
270	100		
255	1.5	41.4	62.2#

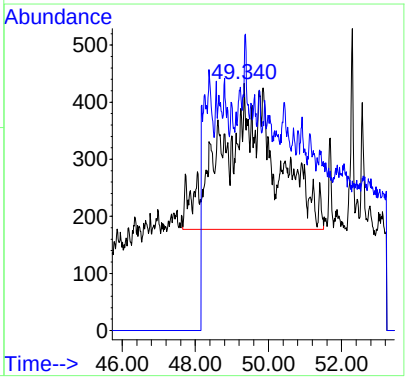


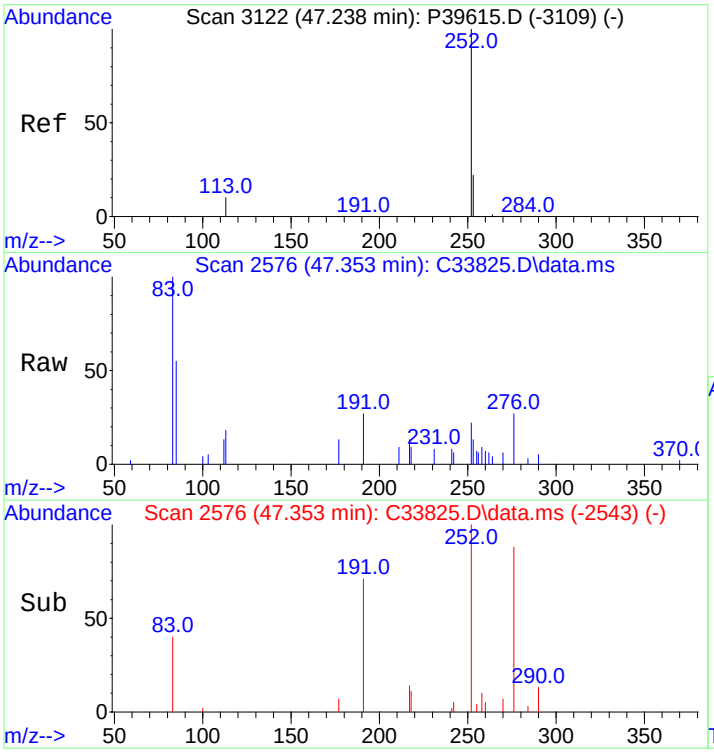


#81
C4-Chrysenes
Concen: 277.95 ng/mL m
RT: 49.340 min Scan# 2708
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:284 Resp: 25902

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

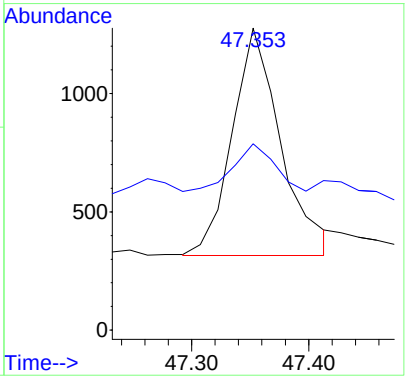


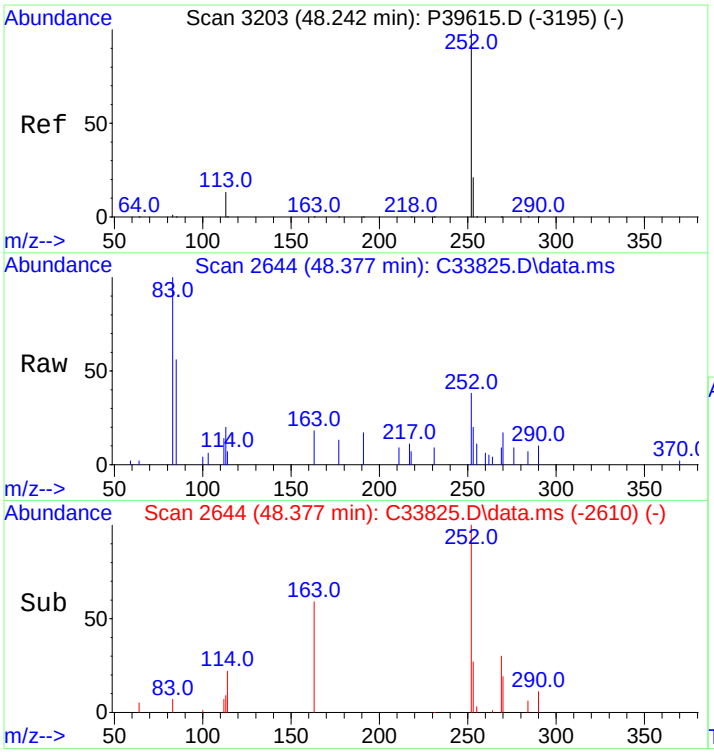


#82
Benzo[b]fluoranthene
Concen: 27.35 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 2774

Ion	Ratio	Lower	Upper
252	100		
253	17.7	18.5	27.7#

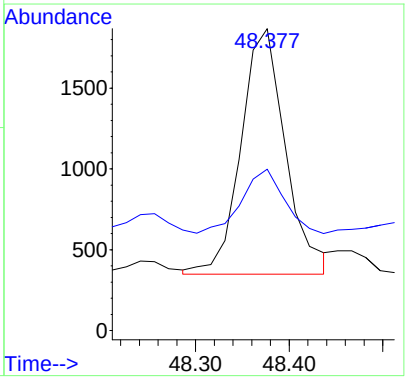


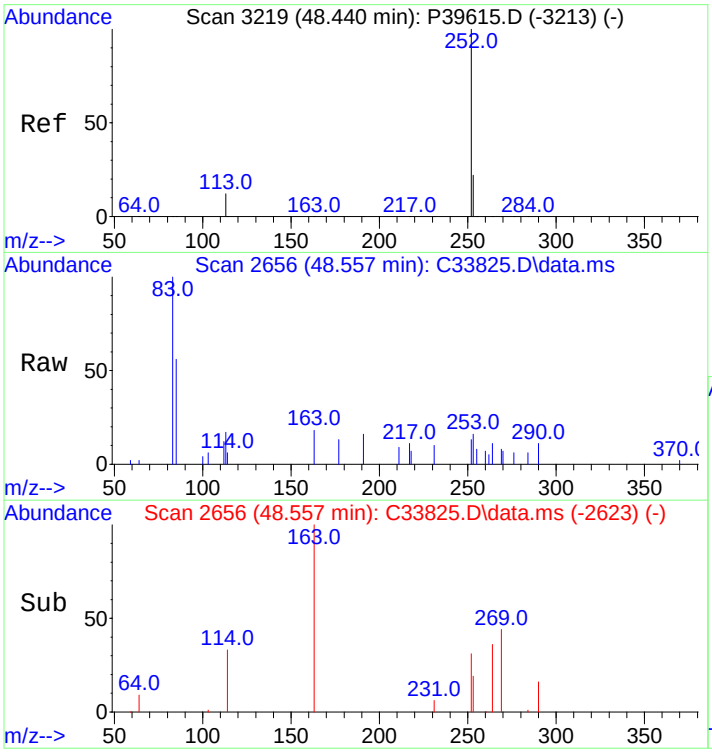


#85
Benzo[e]pyrene
Concen: 50.07 ng/mL m
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 5023

Ion	Ratio	Lower	Upper
252	100		
253	27.1	18.5	27.7

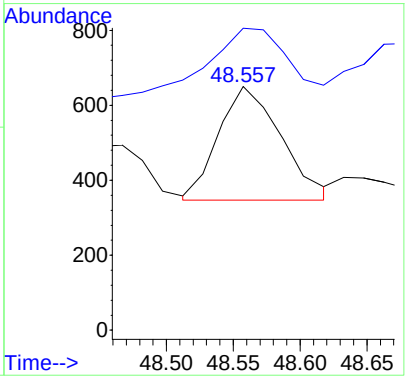


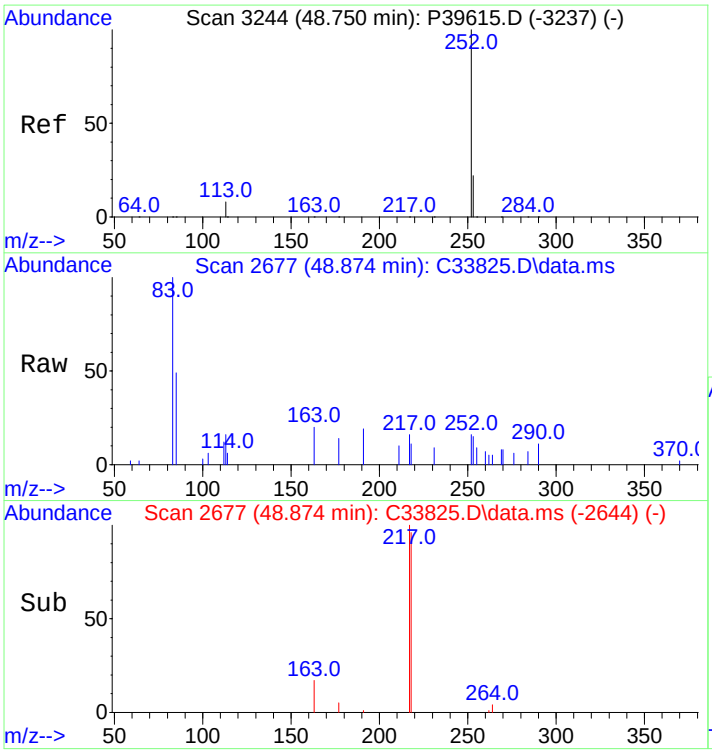


#87
Benzo[a]pyrene
Concen: 10.24 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 989

Ion	Ratio	Lower	Upper
252	100		
253	135.0	18.7	28.1#

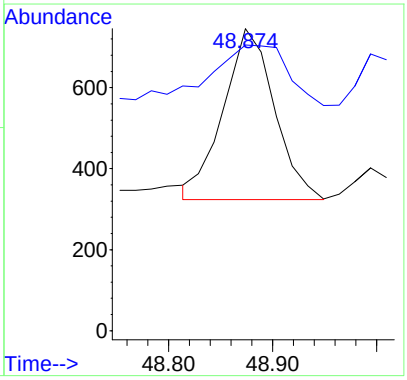


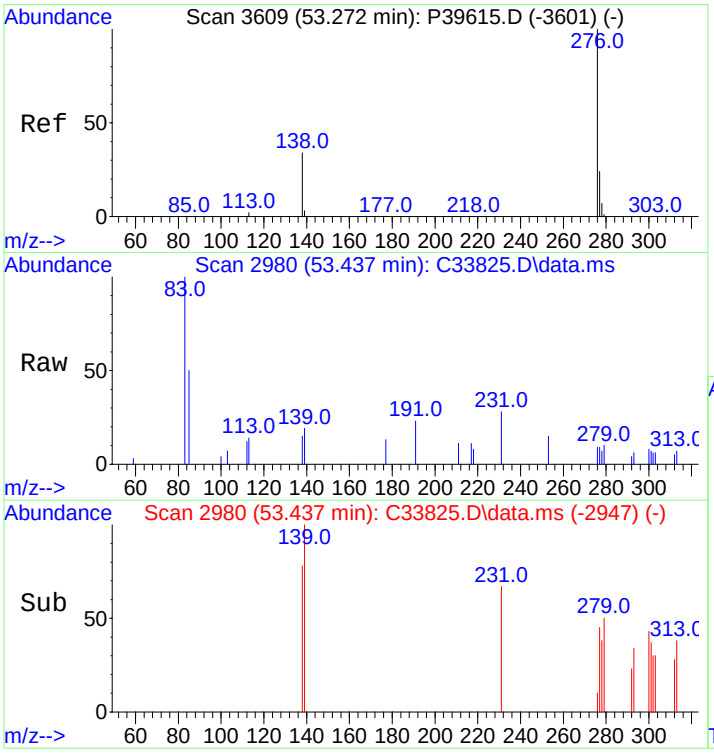


#88
Perylene
Concen: 13.95 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 1440

Ion	Ratio	Lower	Upper
252	100		
253	55.6	18.6	27.8#

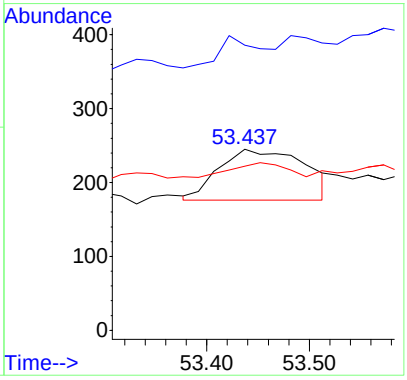


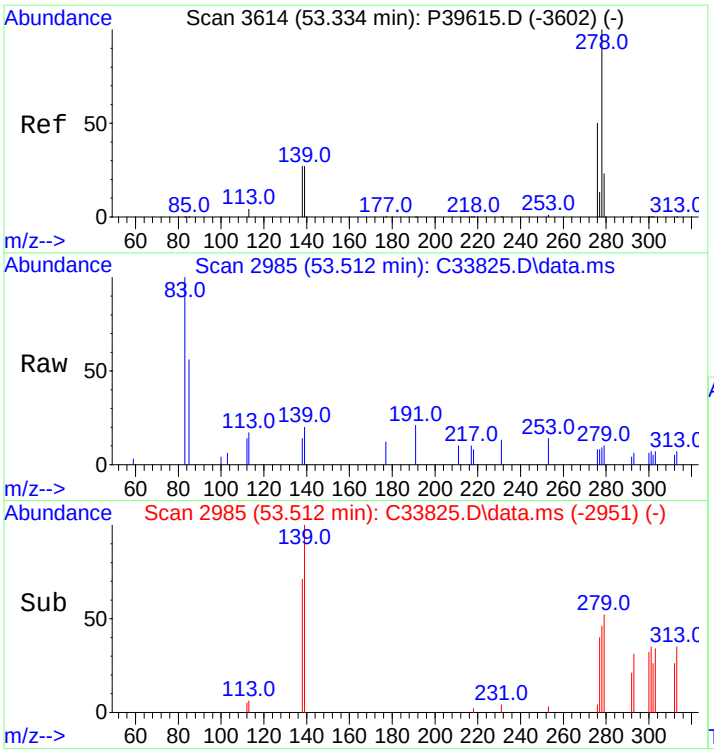


#89
Indeno[1,2,3-cd]pyrene
Concen: 3.57 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 401

Ion	Ratio	Lower	Upper
276	100		
138	0.0	30.3	45.5#
277	0.0	19.2	28.8#

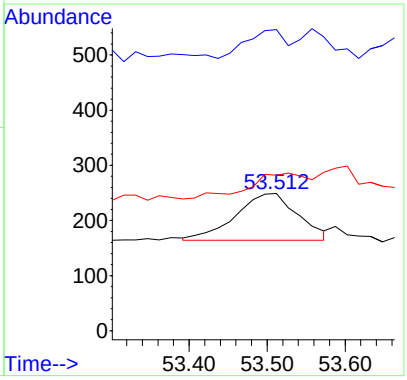


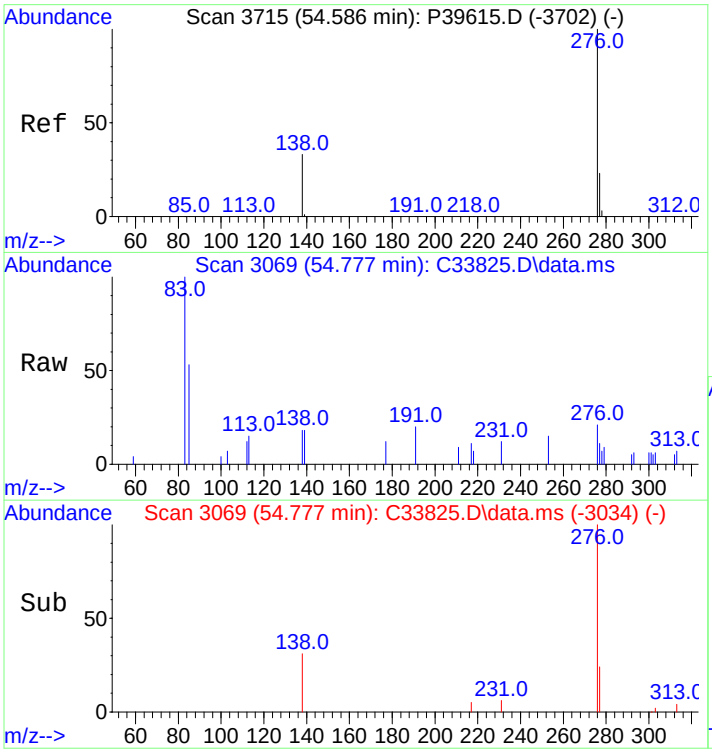


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.42 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:278 Resp: 473

Ion	Ratio	Lower	Upper
278	100		
139	0.0	25.4	38.2#
279	0.0	19.0	28.4#

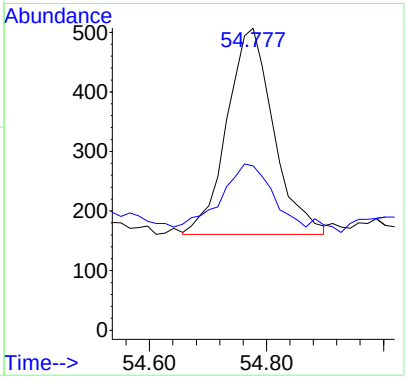


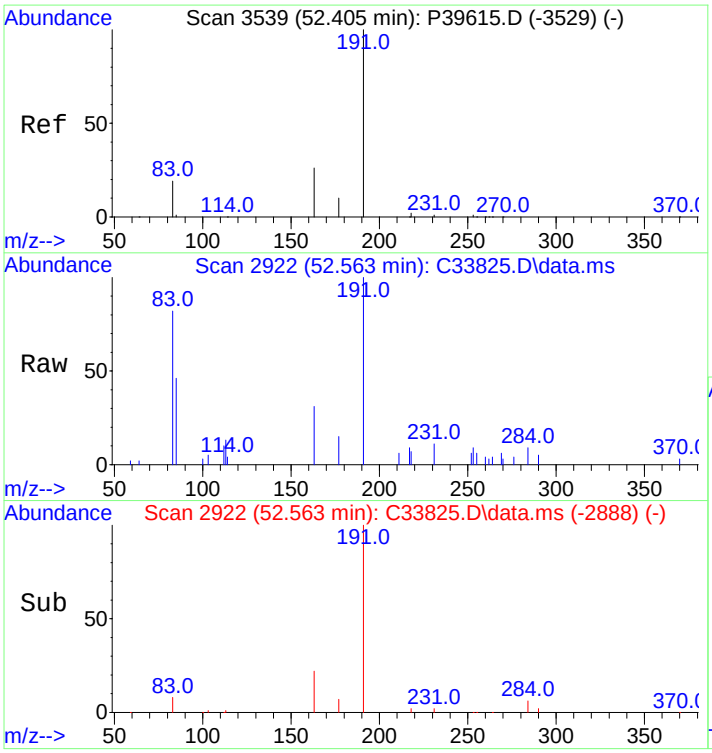


#91
Benzo[g,h,i]perylene
Concen: 16.06 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. 0.030 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 1907

Ion	Ratio	Lower	Upper
276	100		
277	32.1	18.9	28.3#

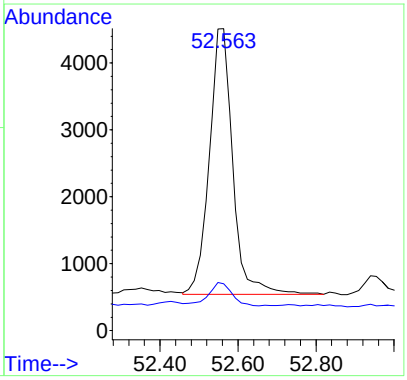


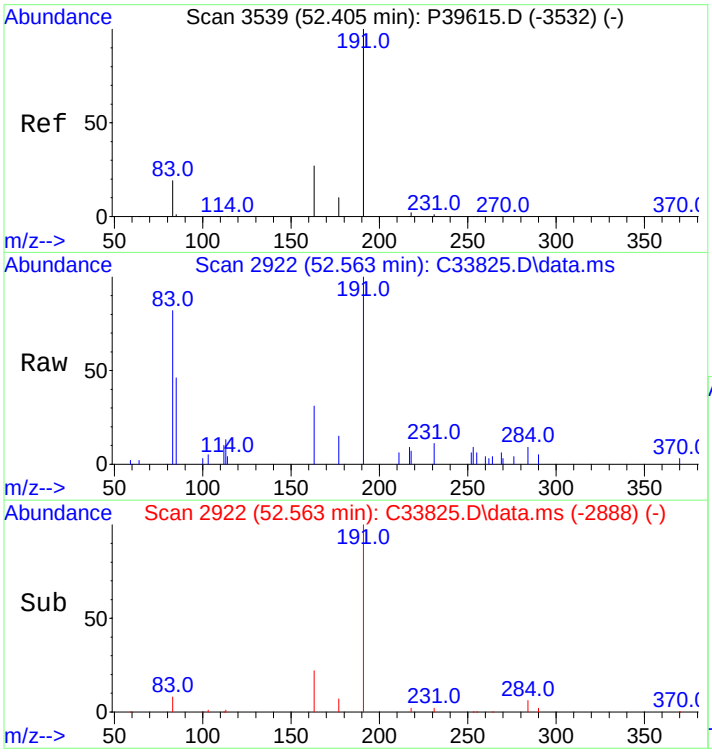


#92
Hopane (T19)
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

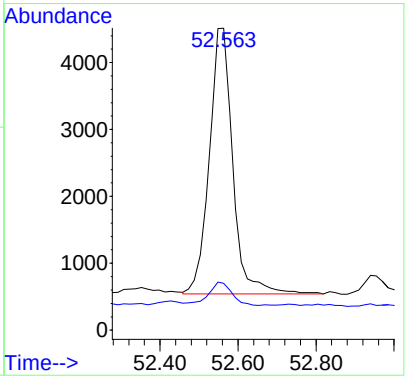


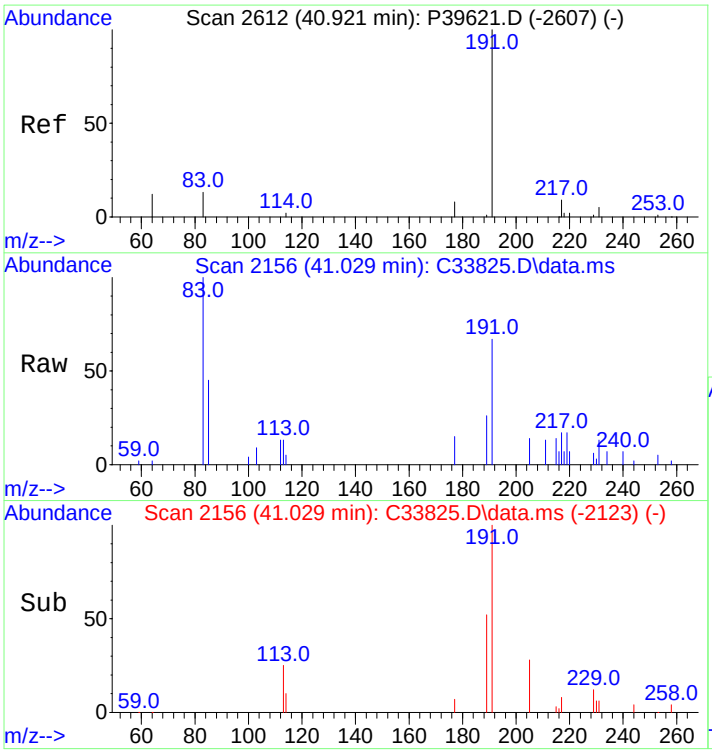


#93
17a(H),21B(H)-hopane - C30H52
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

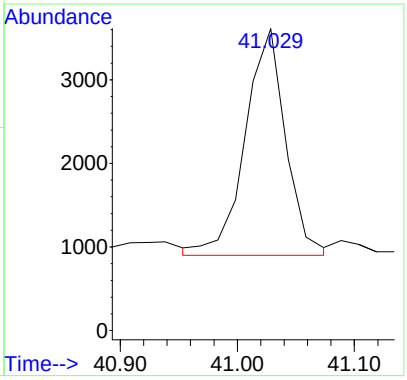
Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

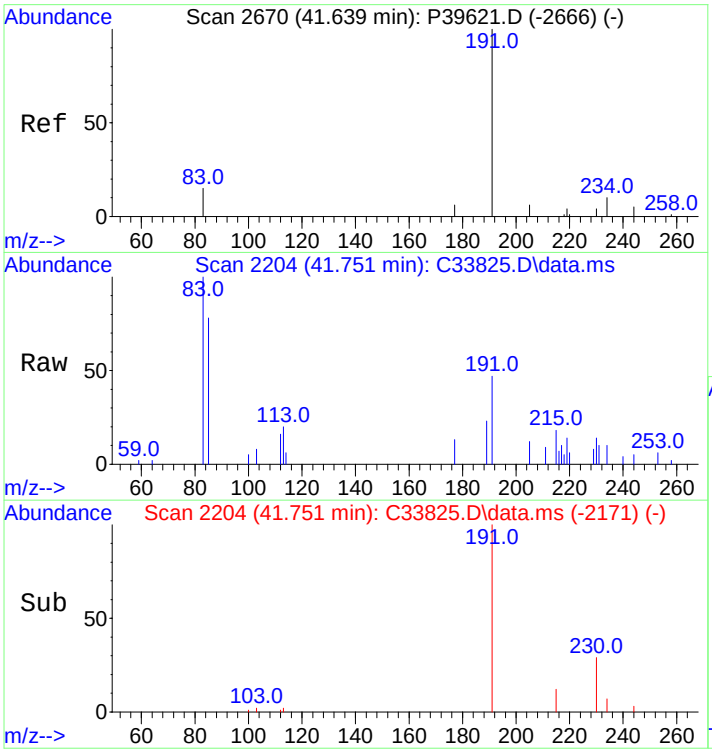




#94
C23 Tricyclic Terpane (T4)
Concen: 339.23 ng/ml m
RT: 41.029 min Scan# 2156
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

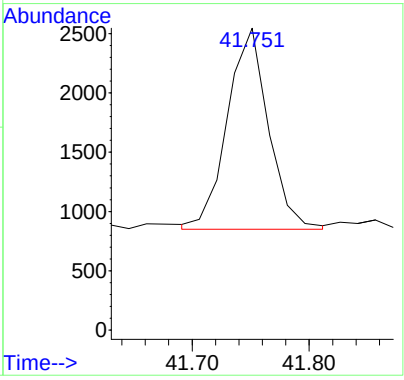
Tgt Ion:191 Resp: 6502

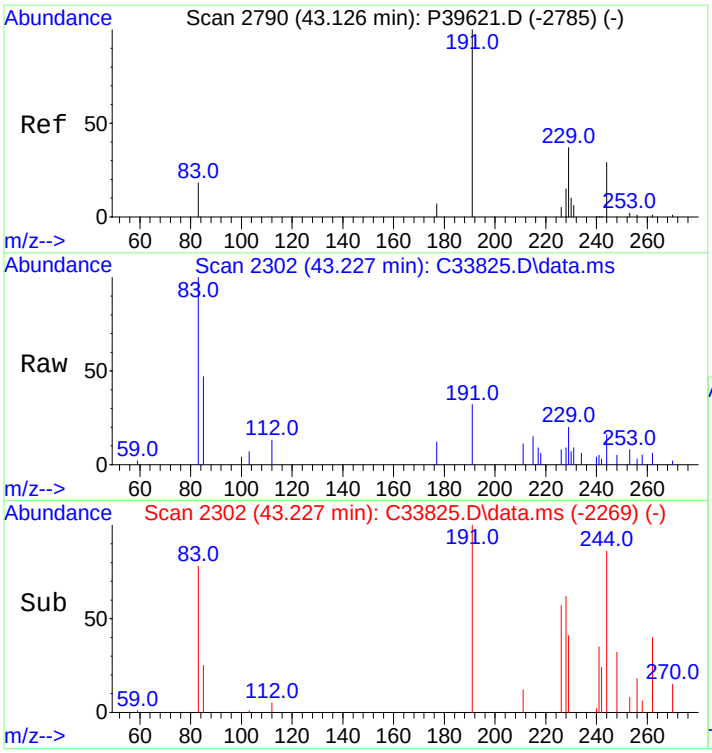




#95
C24 Tricyclic Terpane (T5)
Concen: 215.94 ng/ml m
RT: 41.751 min Scan# 2204
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

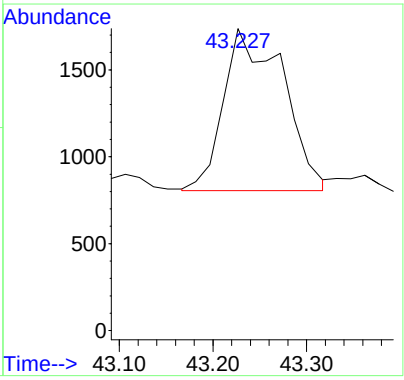
Tgt Ion:191 Resp: 4139

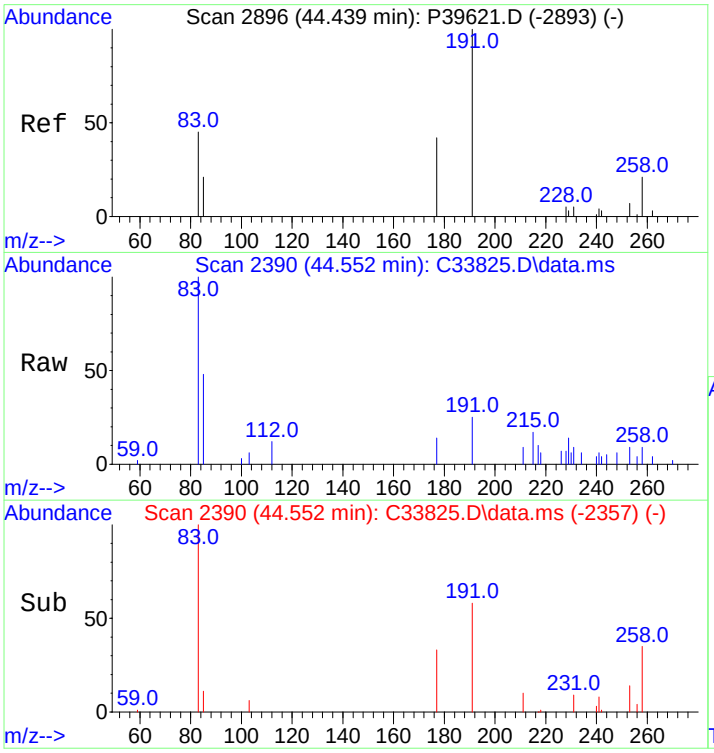




#96
C25 Tricyclic Terpane (T6)
Concen: 215.42 ng/ml m
RT: 43.227 min Scan# 2302
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

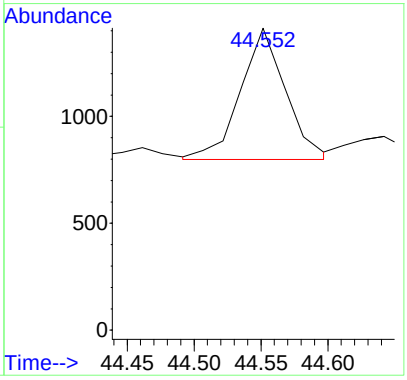
Tgt Ion:191 Resp: 4129

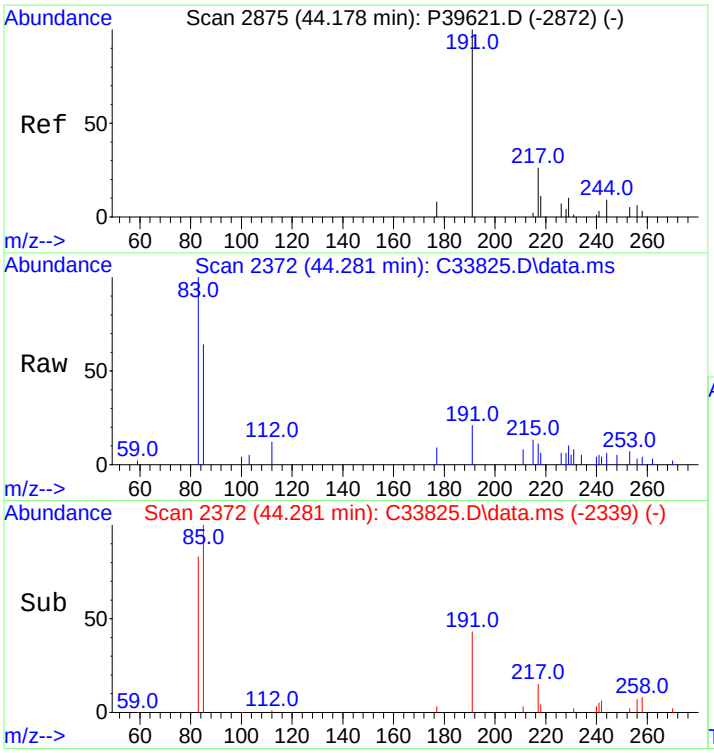




#97
C24 Tetracyclic Terpane (T6a)
Concen: 75.65 ng/ml m
RT: 44.552 min Scan# 2390
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

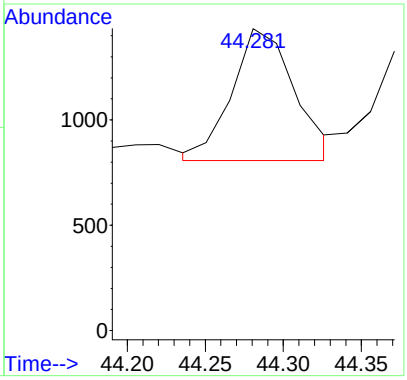
Tgt Ion:191 Resp: 1450

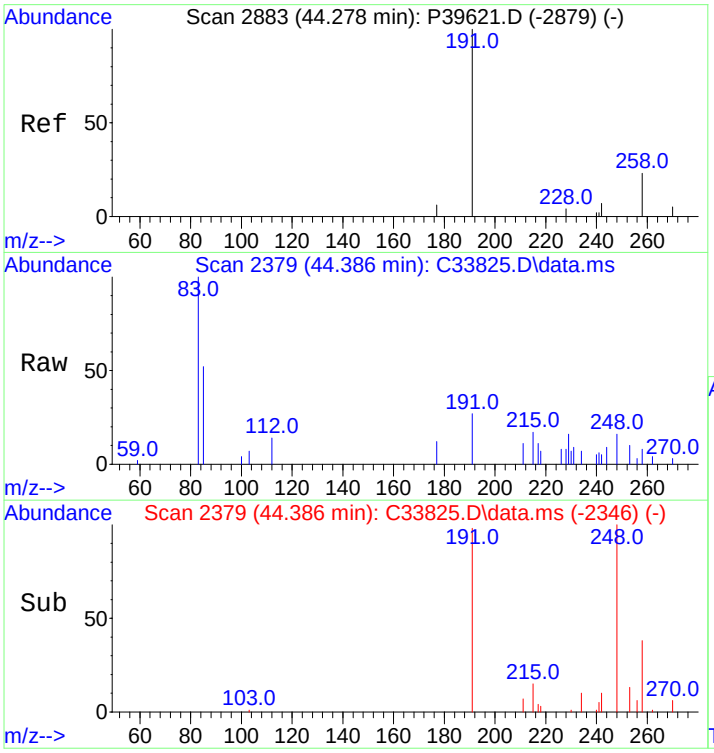




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.30 ng/ml m
RT: 44.281 min Scan# 2372
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

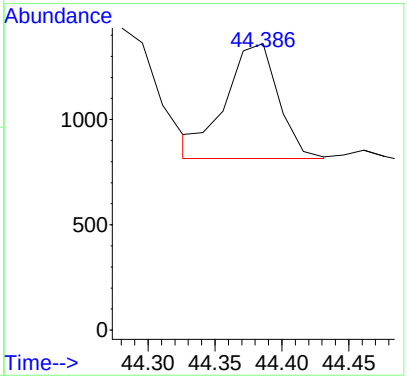
Tgt Ion:191 Resp: 1750

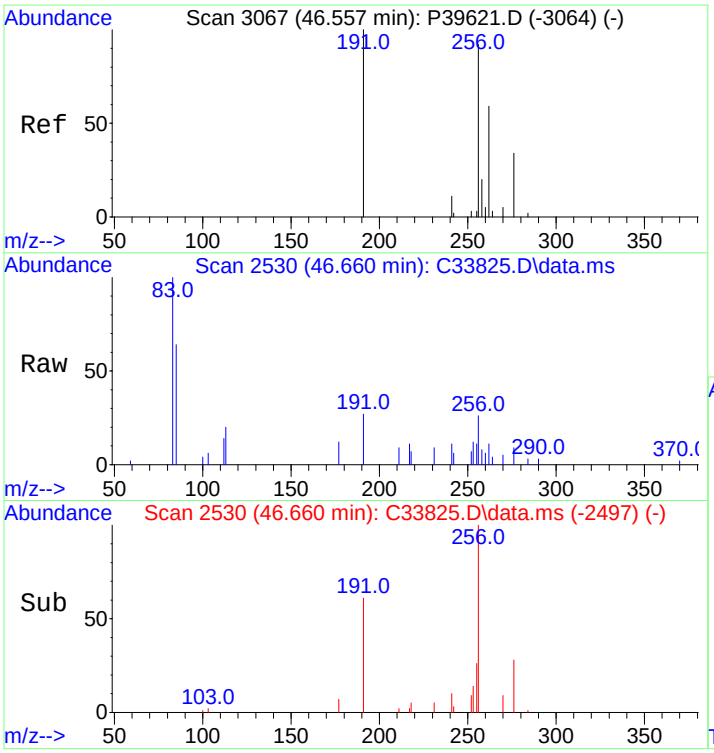




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 78.10 ng/ml m
RT: 44.386 min Scan# 2379
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

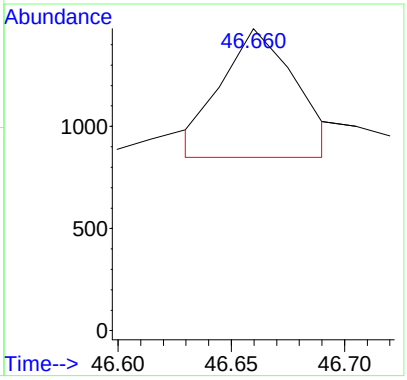
Tgt Ion:191 Resp: 1497

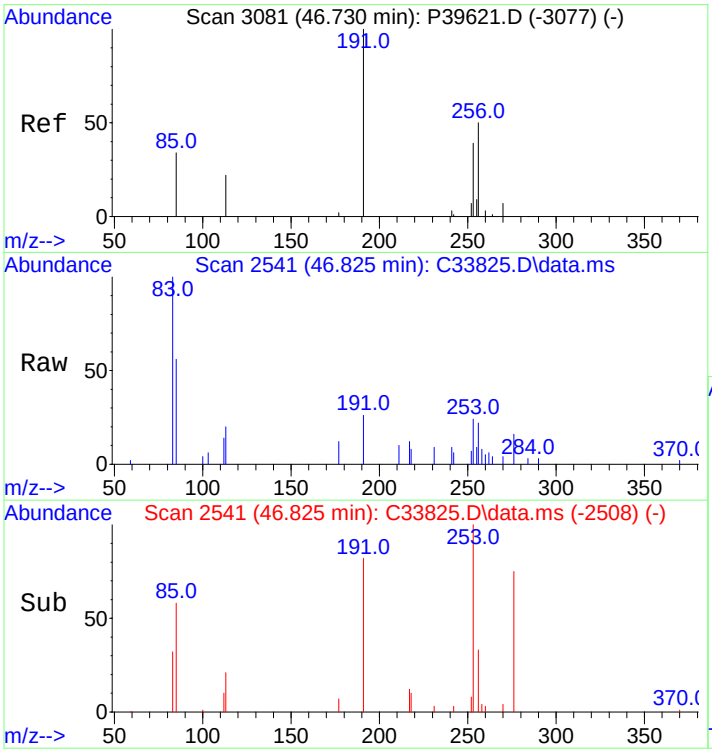




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 74.87 ng/ml m
RT: 46.660 min Scan# 2530
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

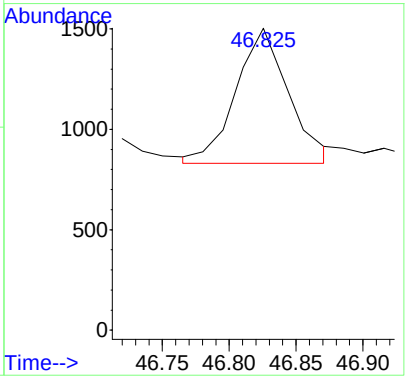
Tgt Ion:191 Resp: 1435

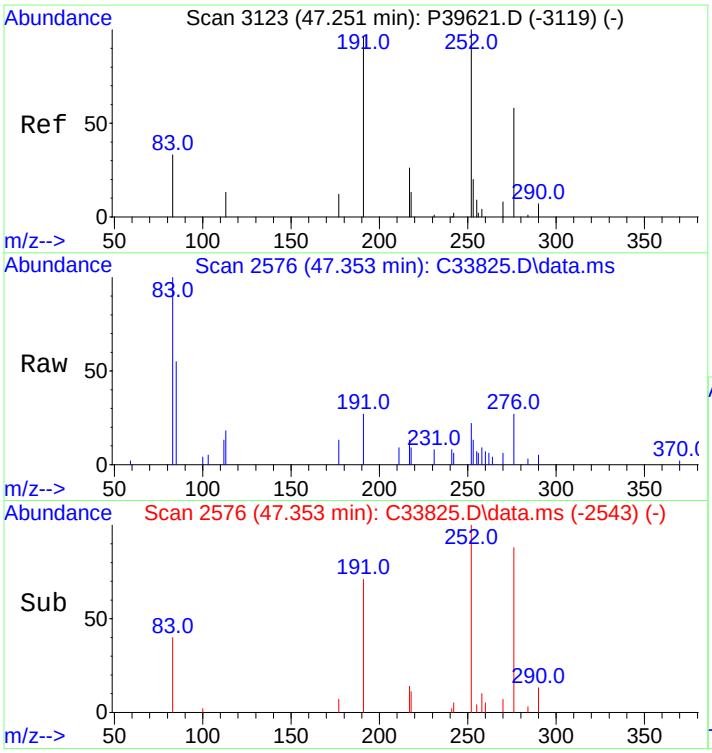




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 96.36 ng/ml m
RT: 46.825 min Scan# 2541
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

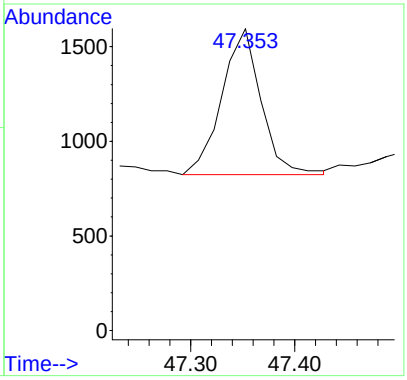
Tgt Ion:191 Resp: 1847

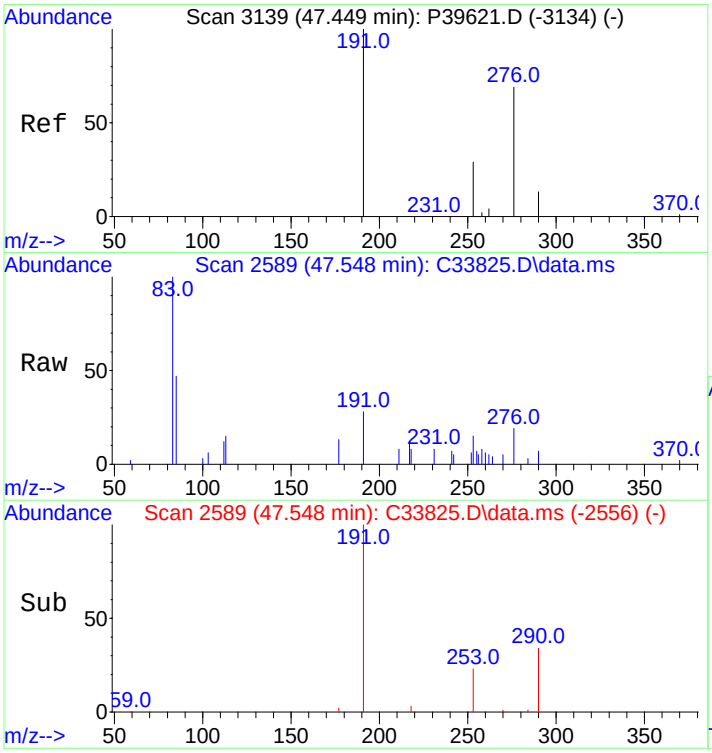




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 106.33 ng/ml
RT: 47.353 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

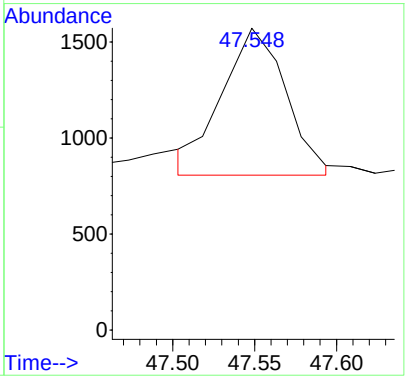
Tgt Ion:191 Resp: 2038

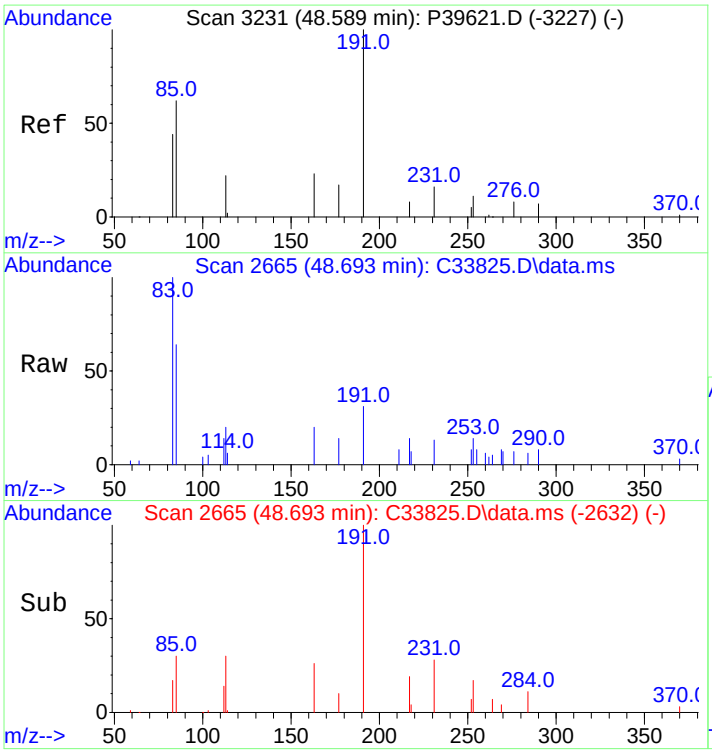




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 108.41 ng/ml m
RT: 47.548 min Scan# 2589
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

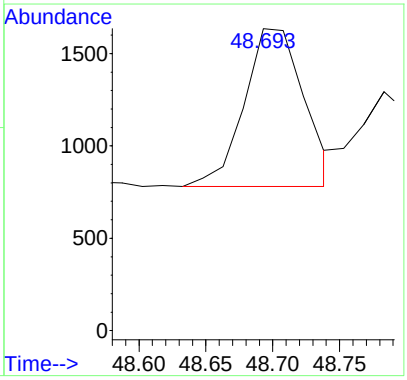
Tgt Ion:191 Resp: 2078

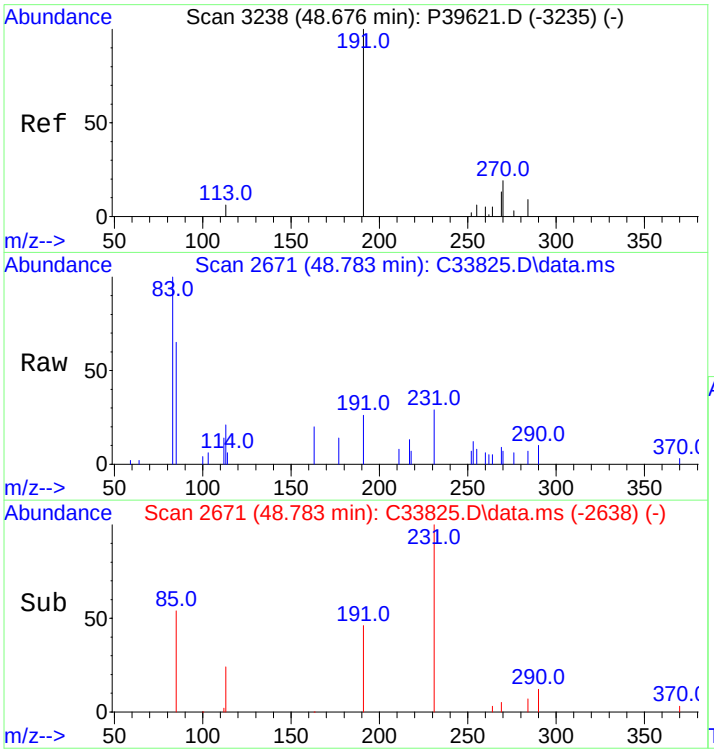




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 139.41 ng/ml
RT: 48.693 min Scan# 2665
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

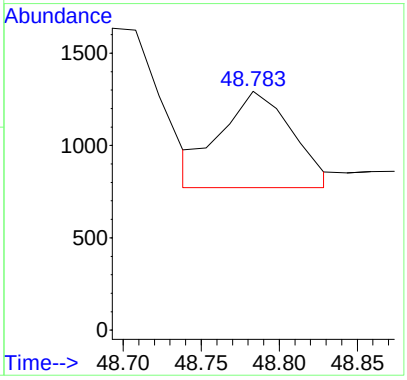
Tgt Ion:191 Resp: 2672

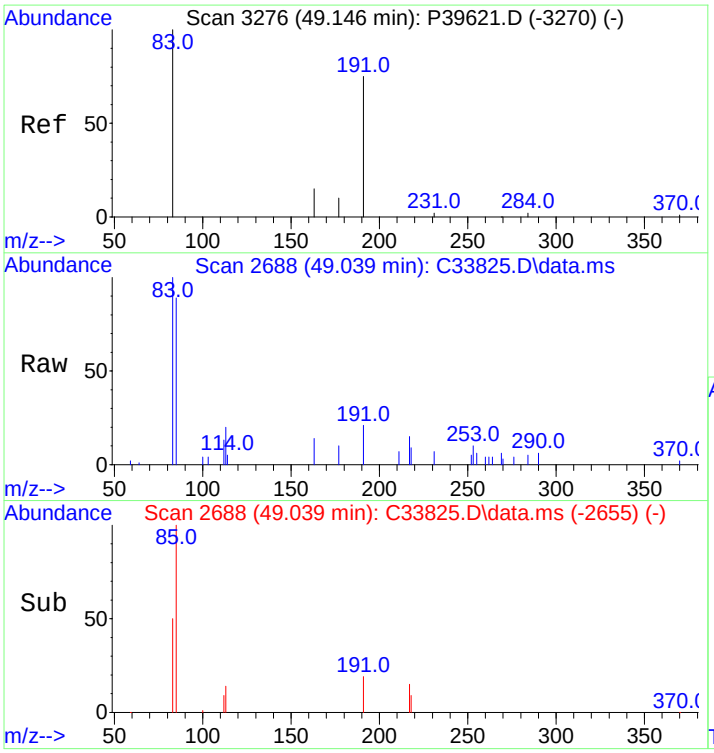




#105
C30 Tricyclic Terpane-22S
Concen: 86.55 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

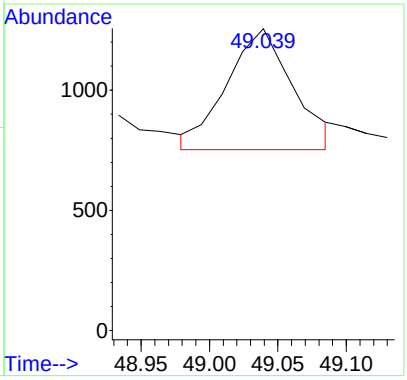
Tgt Ion:191 Resp: 1659

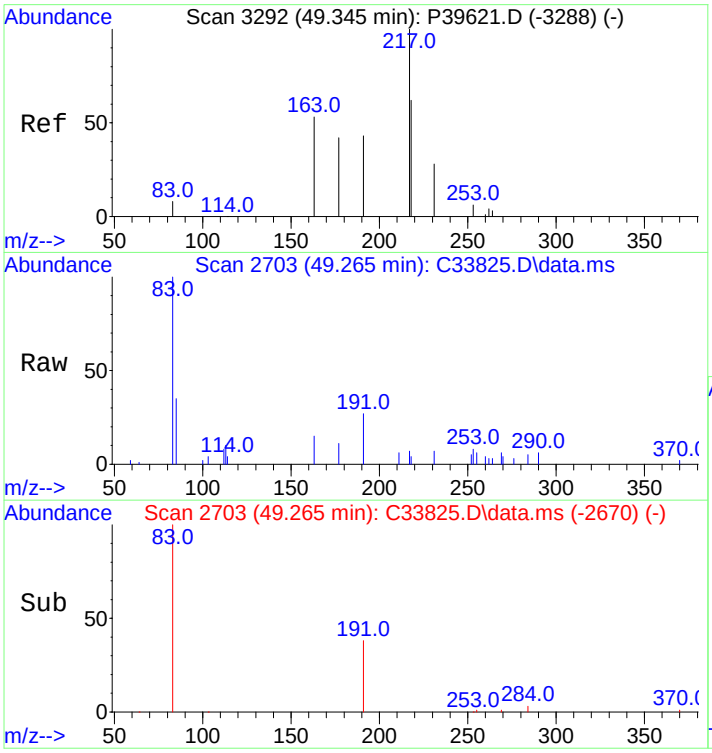




#106
C30 Tricyclic Terpane-22R
Concen: 88.02 ng/mL m
RT: 49.039 min Scan# 2688
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

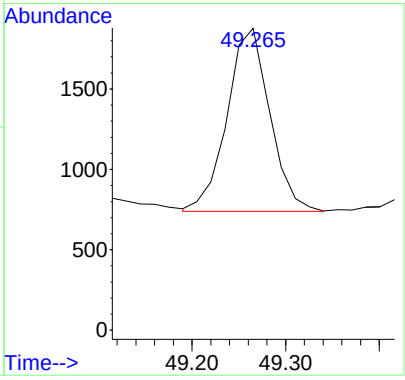
Tgt Ion:191 Resp: 1687

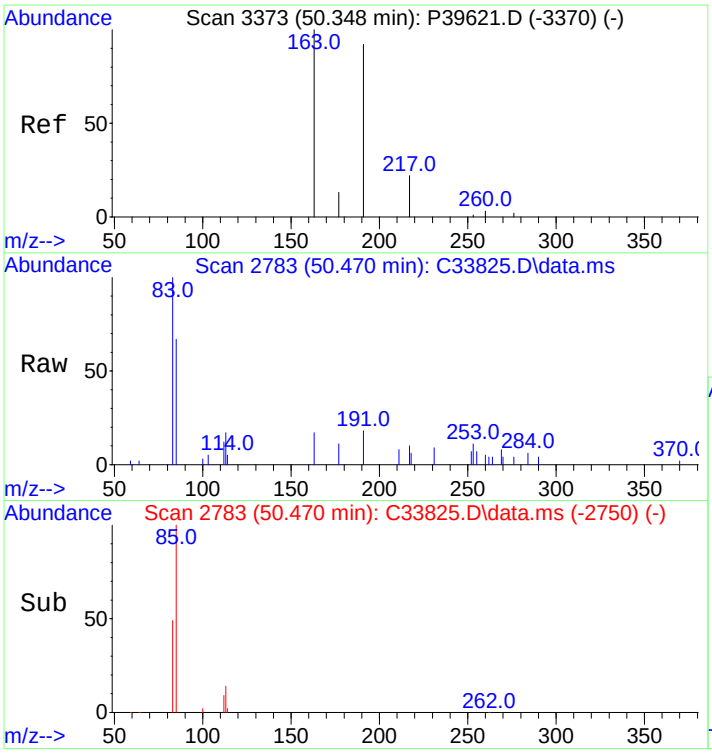




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 188.24 ng/ml m
RT: 49.265 min Scan# 2703
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

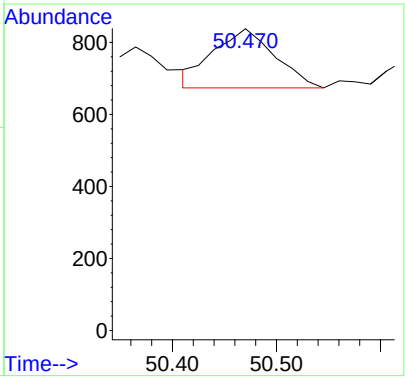
Tgt Ion:191 Resp: 3608

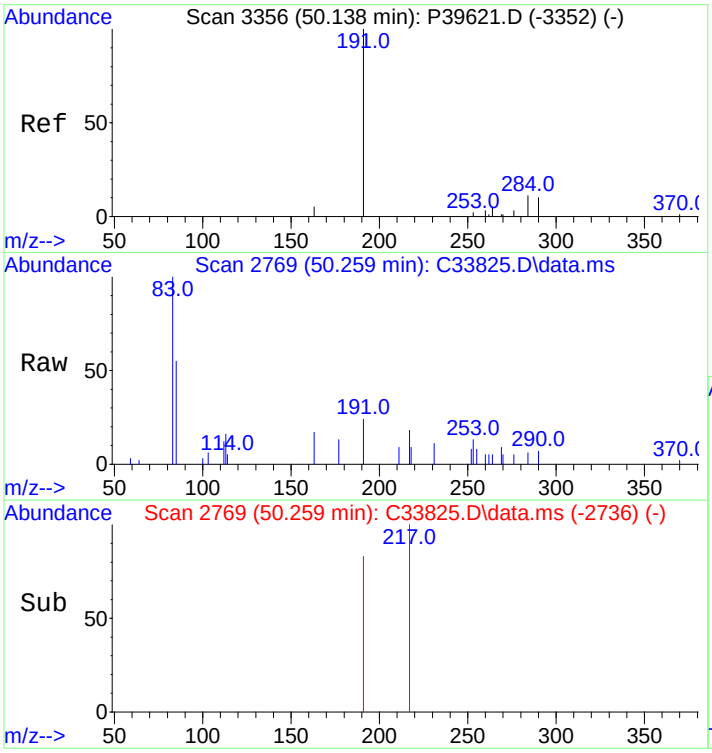




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 35.27 ng/ml
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

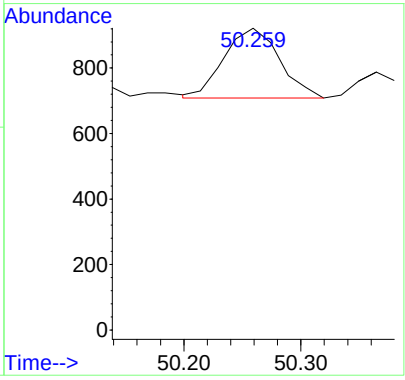
Tgt Ion:191 Resp: 676

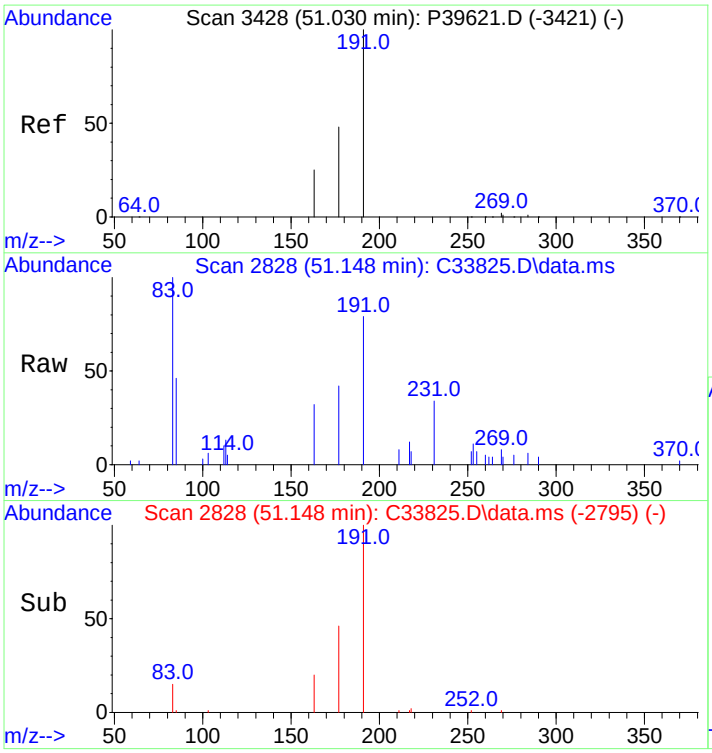




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 36.83 ng/ml
RT: 50.259 min Scan# 2769
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

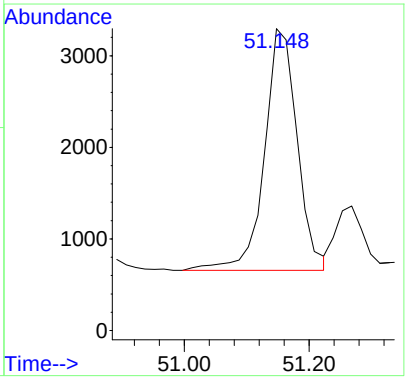
Tgt Ion:191 Resp: 706

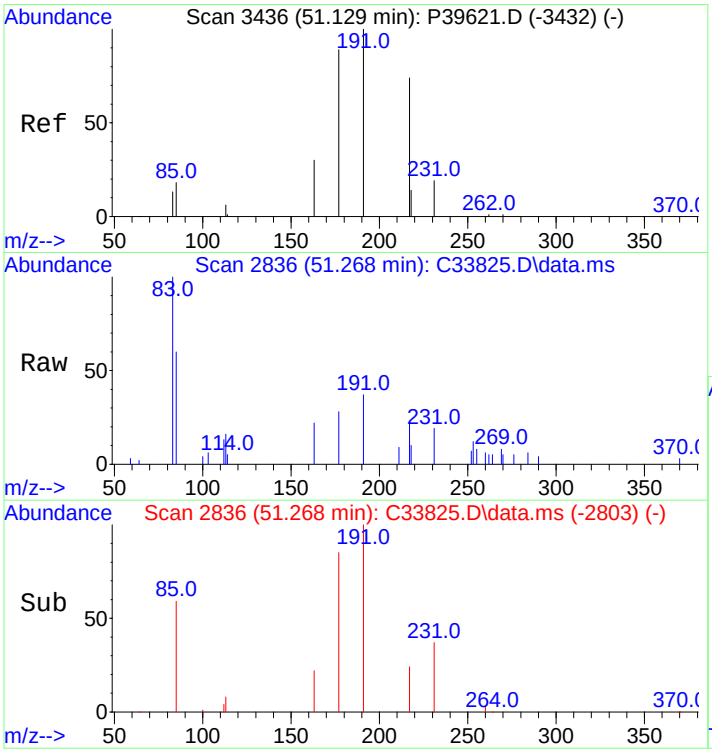




#110
30-Norhopane (T15)
Concen: 501.48 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

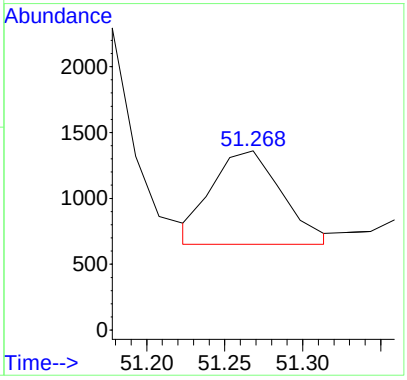
Tgt Ion:191 Resp: 9612

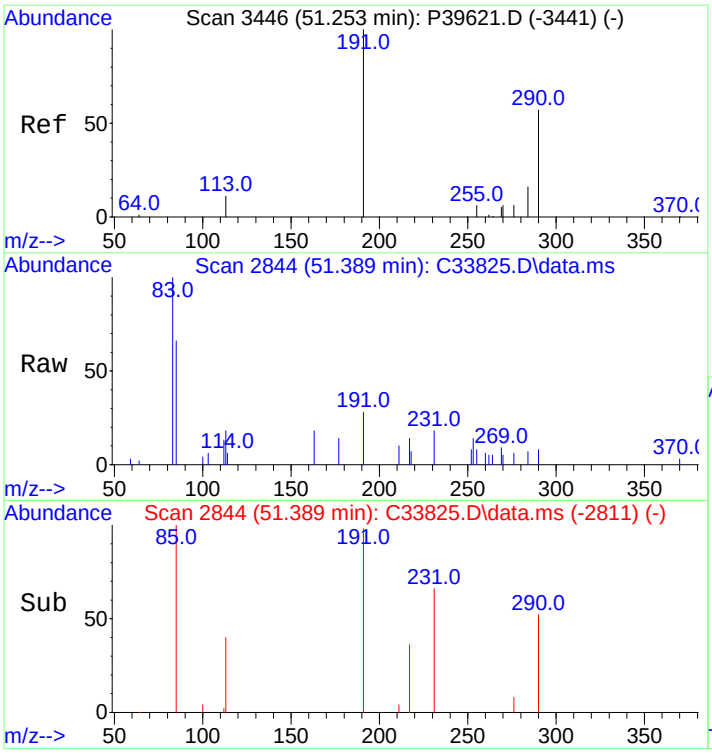




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 115.61 ng/ml m
RT: 51.268 min Scan# 2836
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

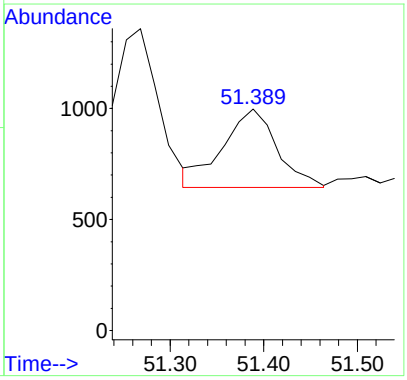
Tgt Ion:191 Resp: 2216

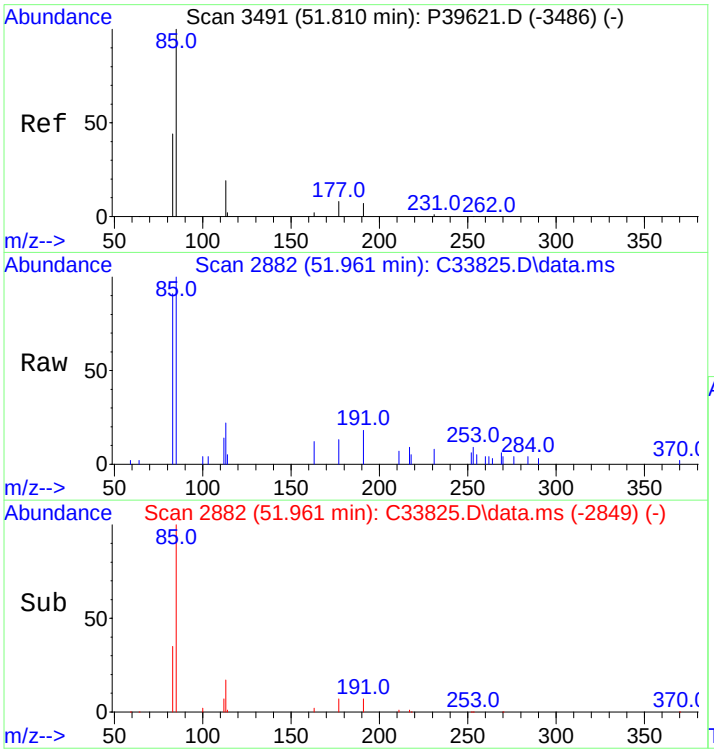




#112
17a(H)-Diahopane (X)
Concen: 74.09 ng/ml m
RT: 51.389 min Scan# 2844
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

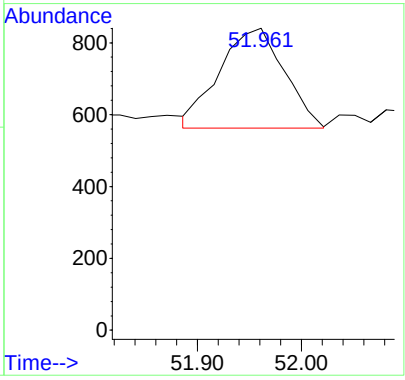
Tgt Ion:191 Resp: 1420

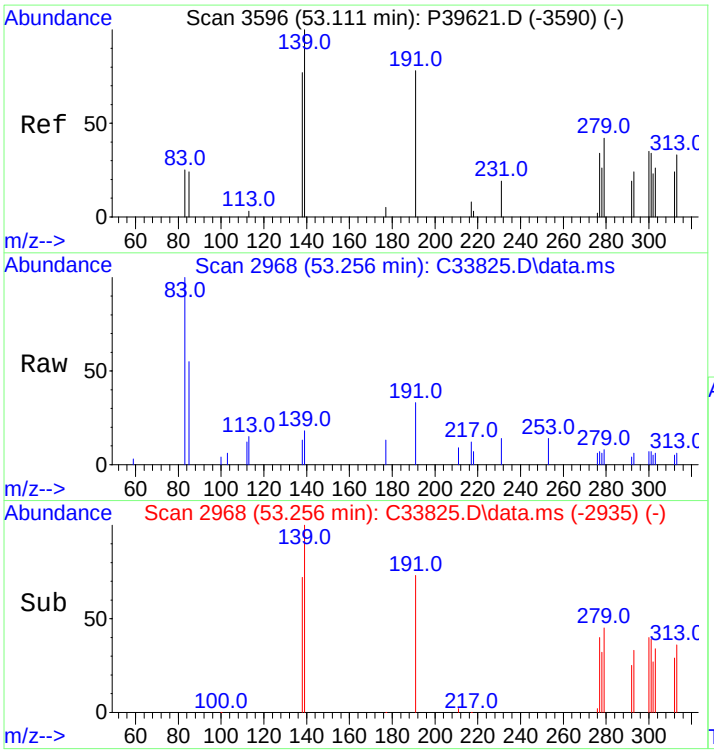




#113
30-Normoretane (T17)
Concen: 62.76 ng/ml m
RT: 51.961 min Scan# 2882
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

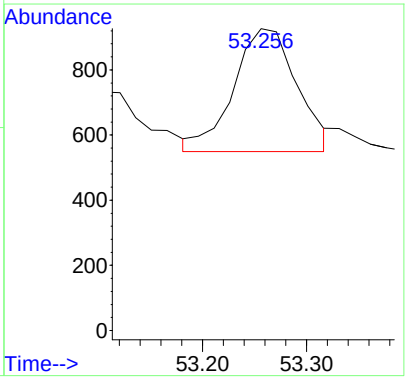
Tgt Ion:191 Resp: 1203

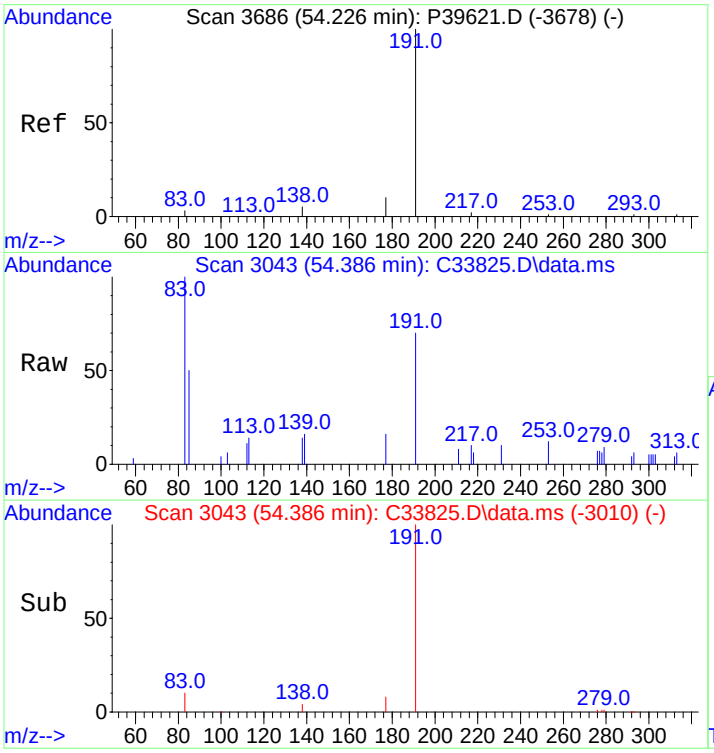




#115
Moretane (T20)
Concen: 83.79 ng/ml m
RT: 53.256 min Scan# 2968
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

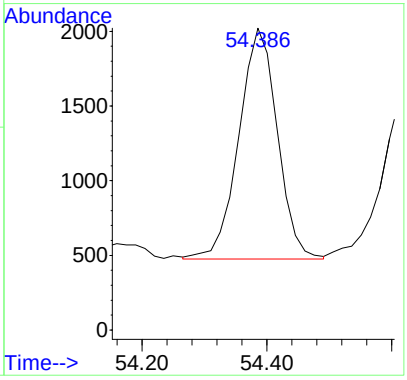
Tgt Ion:191 Resp: 1606

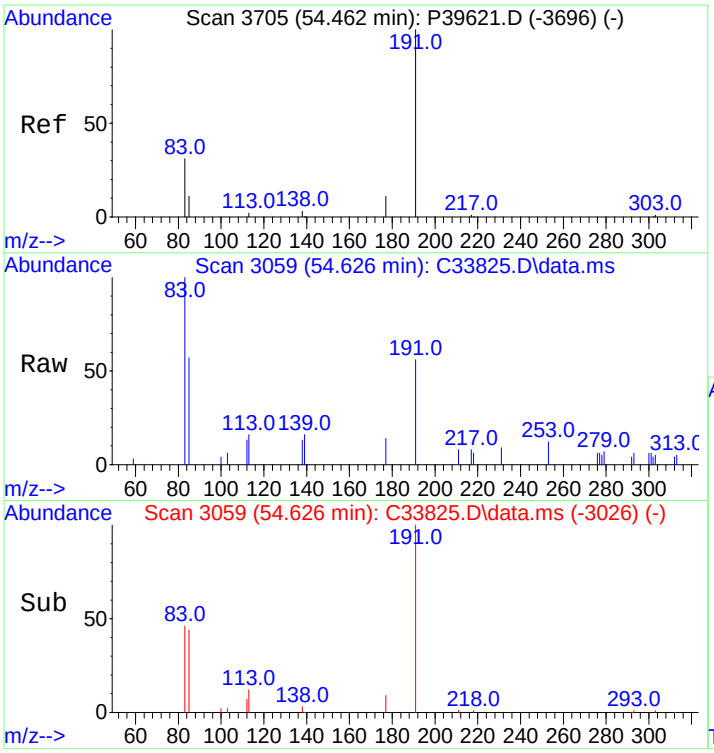




#116
30-Homohopane-22S (T21)
Concen: 346.27 ng/ml m
RT: 54.386 min Scan# 3043
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

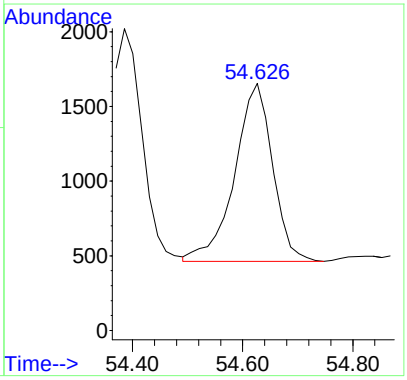
Tgt Ion:191 Resp: 6637

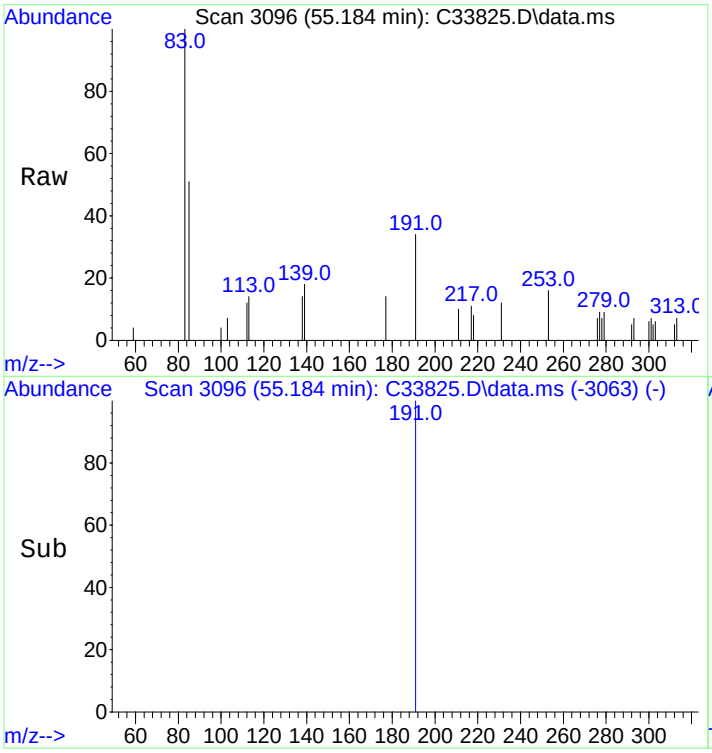




#117
30-Homohopane-22R (T22)
Concen: 296.34 ng/ml
RT: 54.626 min Scan# 3059
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

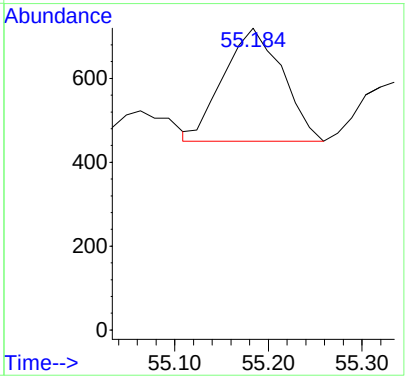
Tgt Ion:191 Resp: 5680

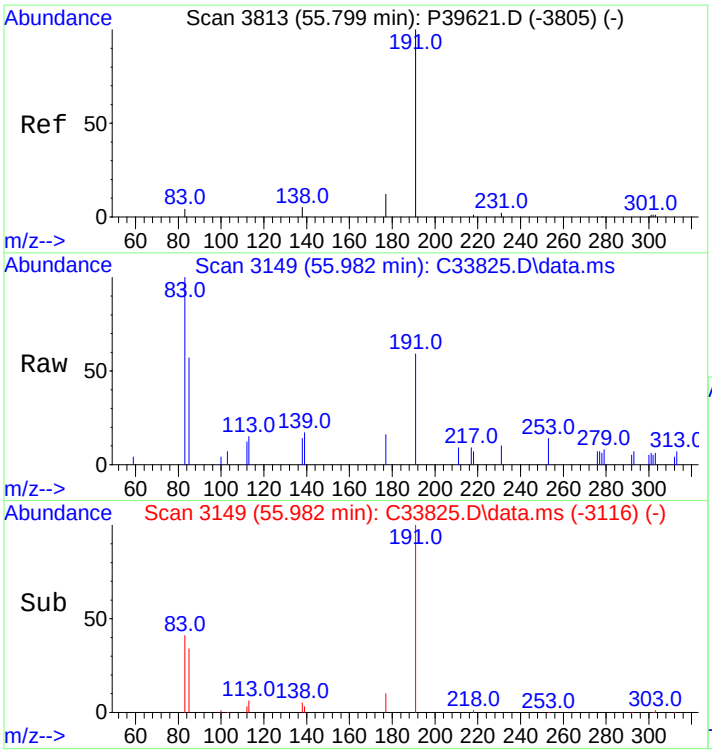




#118
Gammacerane/C32-diahopane
Concen: 61.62 ng/mL
RT: 55.184 min Scan# 3096
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

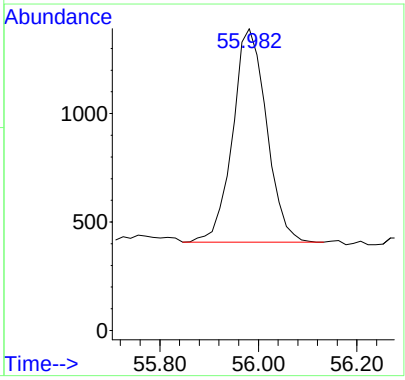
Tgt Ion:191 Resp: 1181

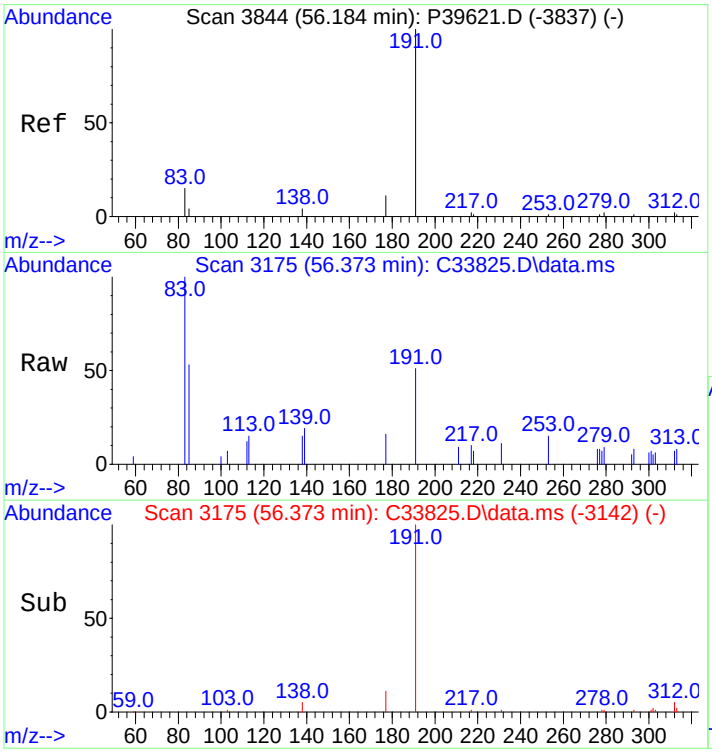




#119
30,31-Bishomohopane-22S (T26)
Concen: 244.90 ng/ml
RT: 55.982 min Scan# 3149
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

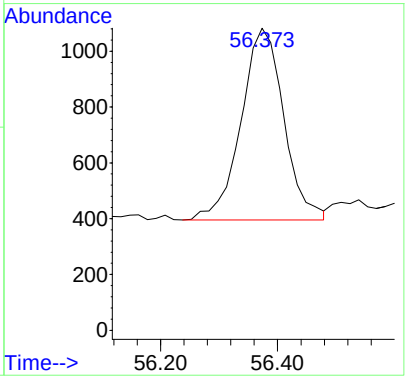
Tgt Ion:191 Resp: 4694

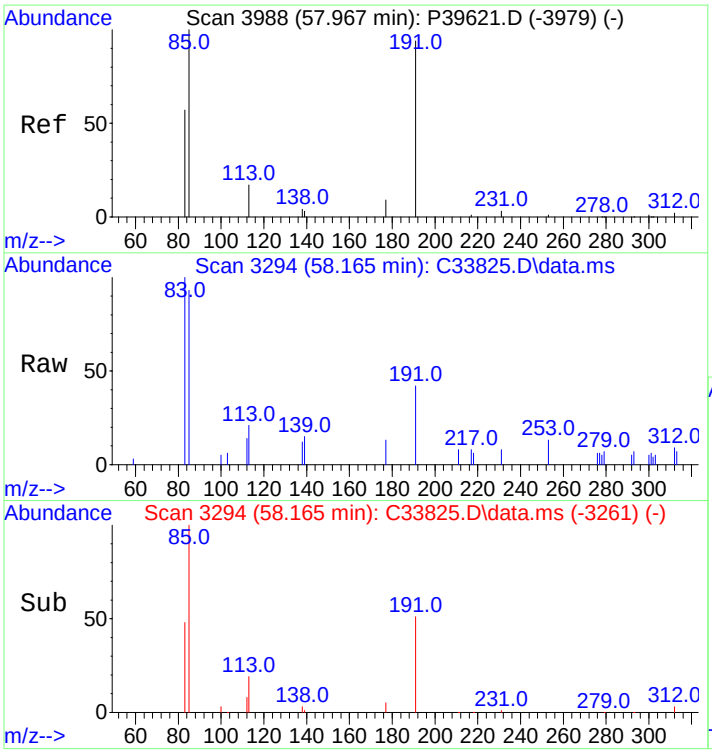




#120
30,31-Bishomohopane-22R (T27)
Concen: 182.14 ng/ml
RT: 56.373 min Scan# 3175
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

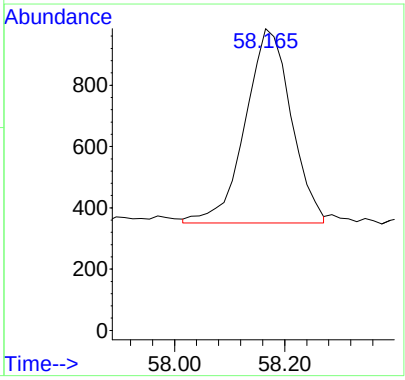
Tgt Ion:191 Resp: 3491

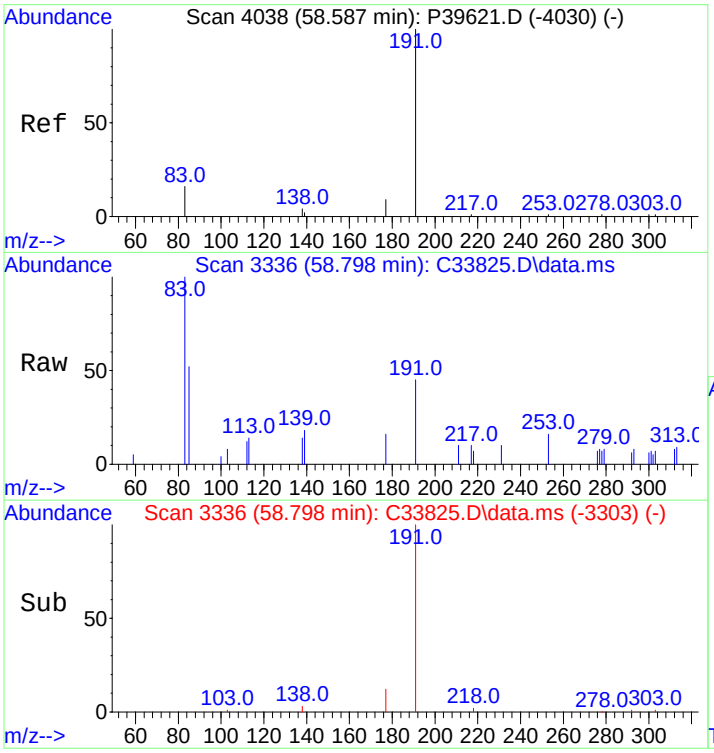




#121
30,31-Trishomohopane-22S (T30)
Concen: 191.21 ng/ml m
RT: 58.165 min Scan# 3294
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

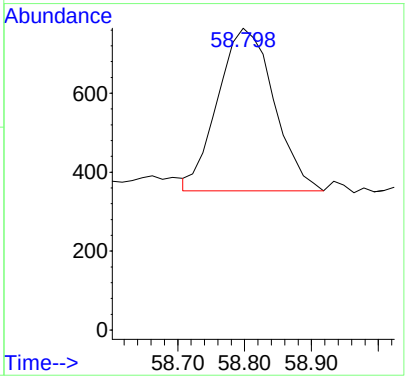
Tgt Ion:191 Resp: 3665

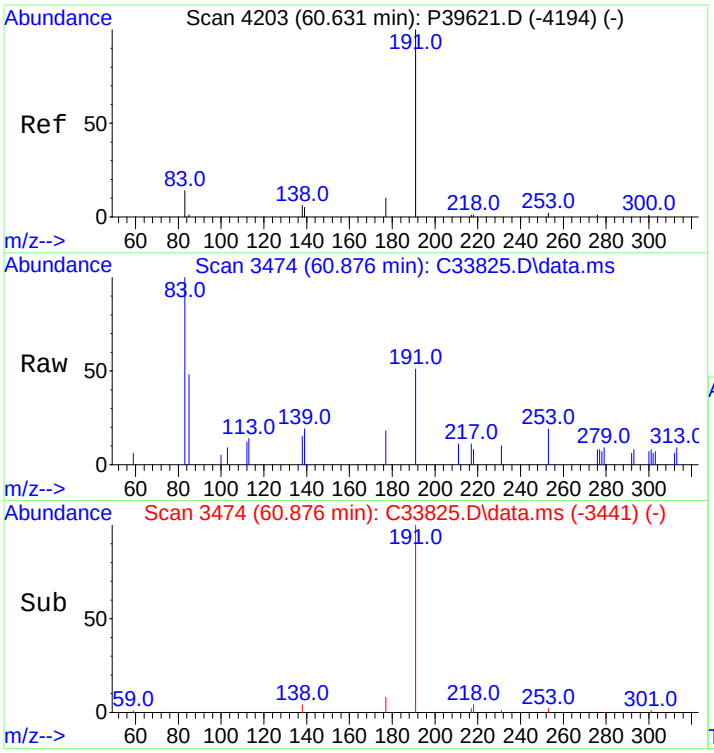




#122
30,31-Trishomohopane-22R (T31)
Concen: 124.85 ng/ml
RT: 58.798 min Scan# 3336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

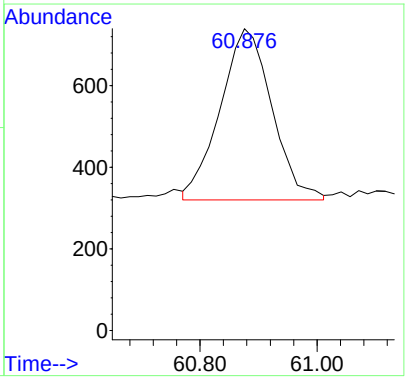
Tgt Ion:191 Resp: 2393

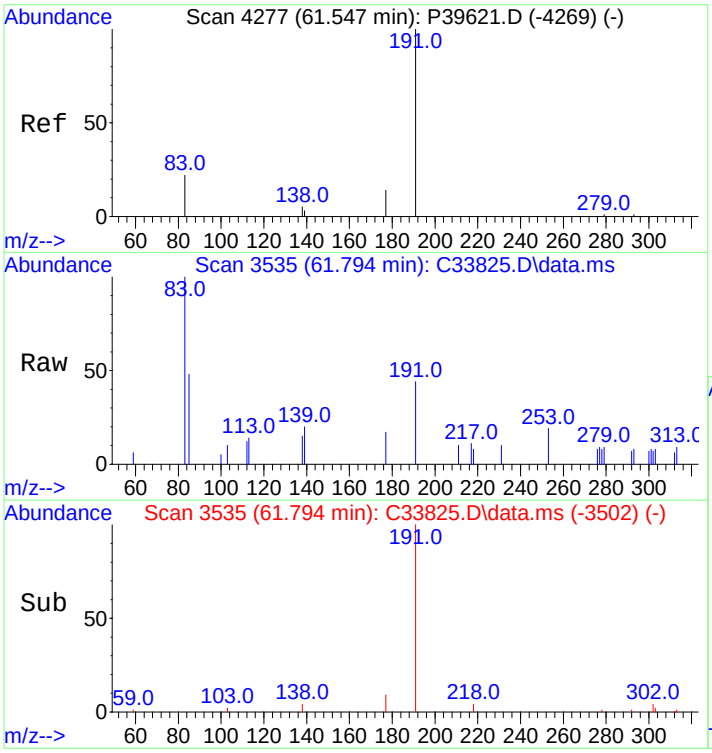




#123
Tetrakishomohopane-22S (T32)
Concen: 134.08 ng/ml m
RT: 60.876 min Scan# 3474
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

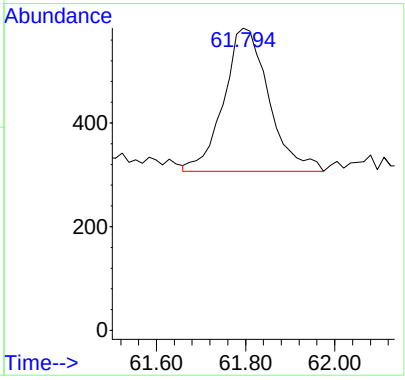
Tgt Ion:191 Resp: 2570

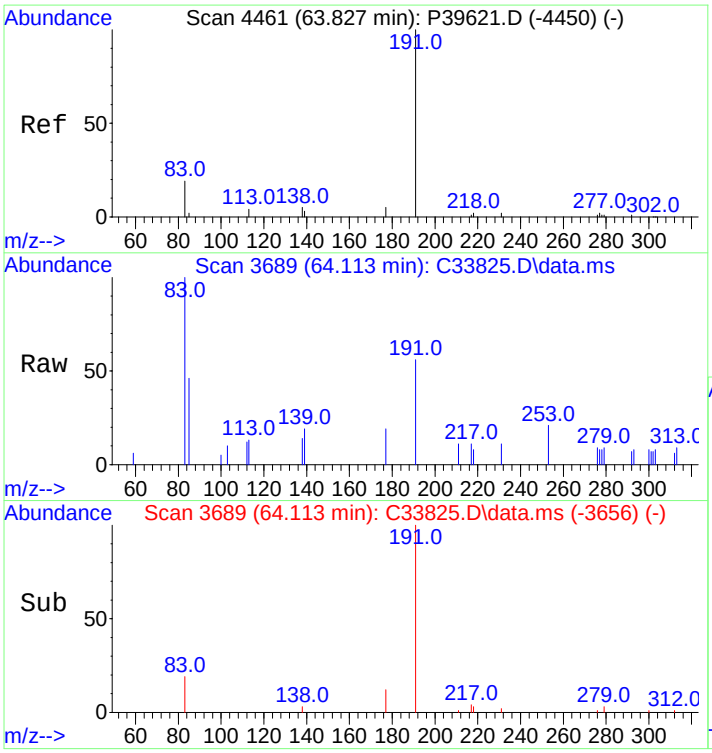




#124
Tetrakishomohopane-22R (T33)
Concen: 101.06 ng/ml
RT: 61.794 min Scan# 3535
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

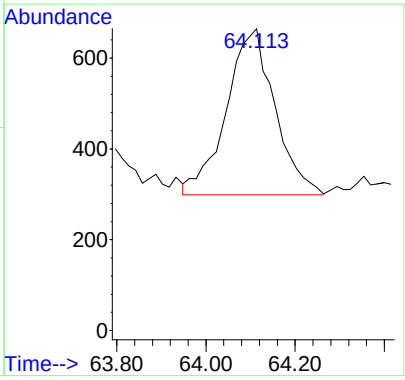
Tgt Ion:191 Resp: 1937

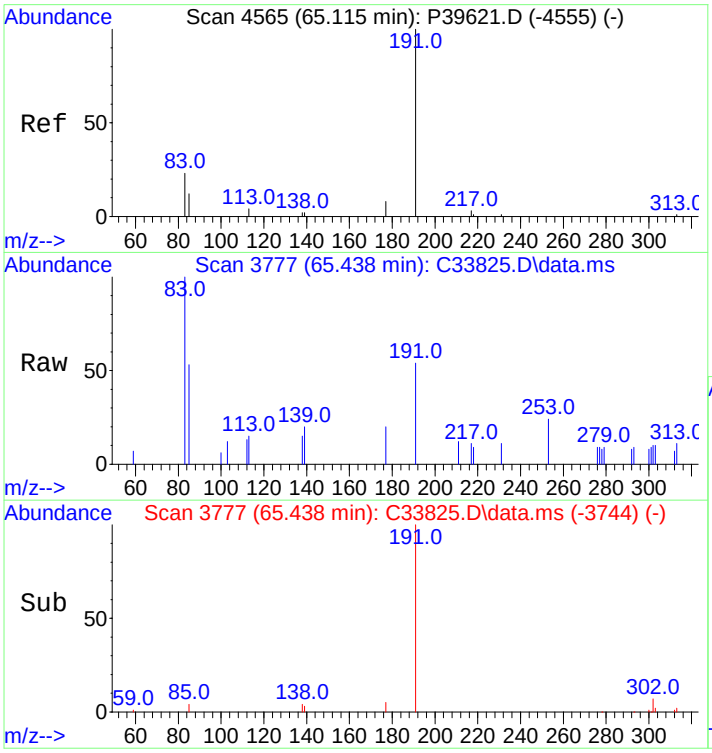




#125
Pentakishomohopane-22S (T34)
Concen: 144.31 ng/ml m
RT: 64.113 min Scan# 3689
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

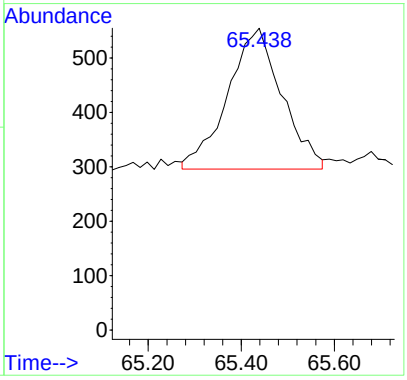
Tgt Ion:191 Resp: 2766

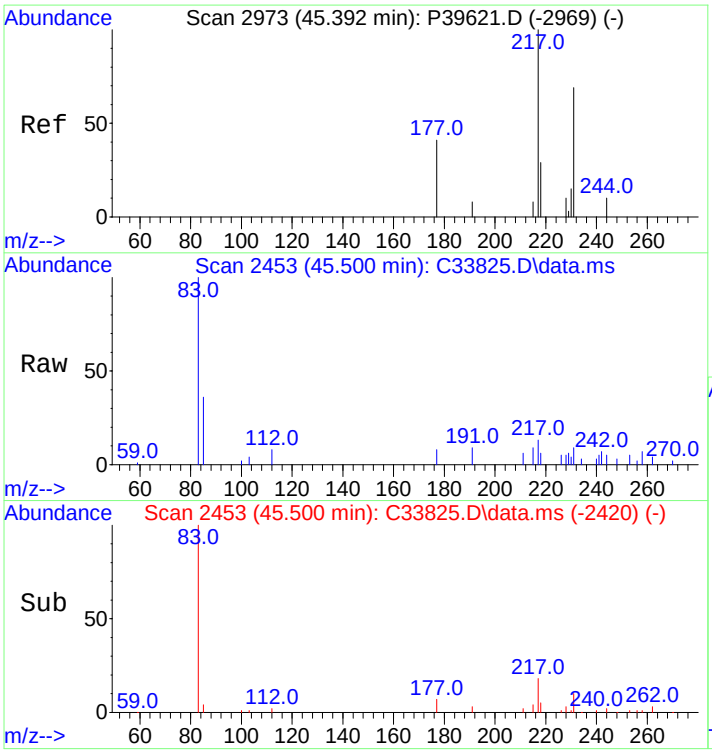




#126
Pentakishomohopane-22R (T35)
Concen: 109.25 ng/ml m
RT: 65.438 min Scan# 3777
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

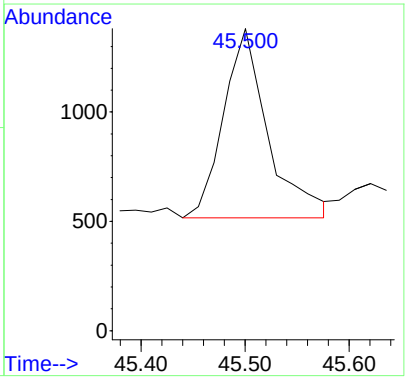
Tgt Ion:191 Resp: 2094

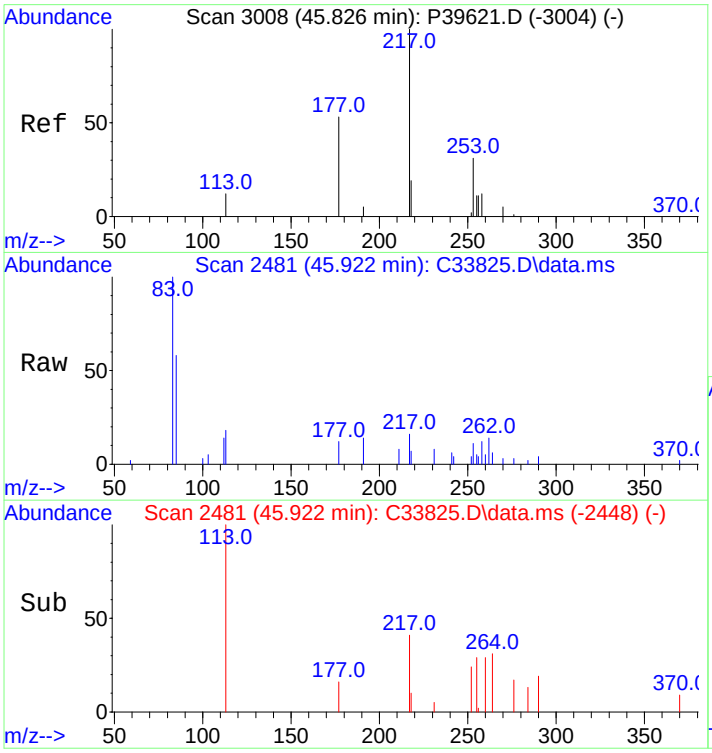




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 283.31 ng/ml
RT: 45.500 min Scan# 2453
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

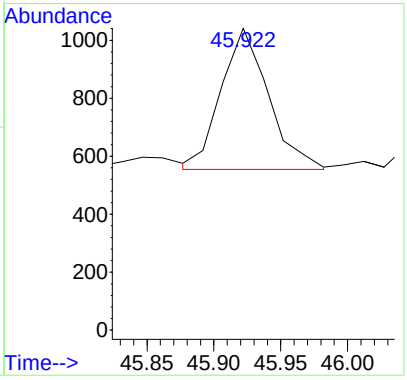
Tgt Ion:217 Resp: 2576

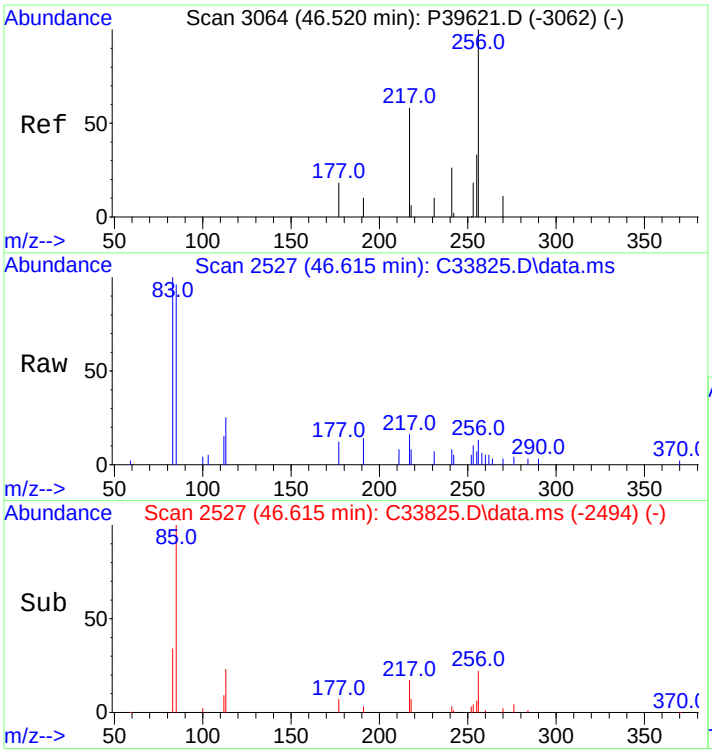




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 131.54 ng/ml m
RT: 45.922 min Scan# 2481
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

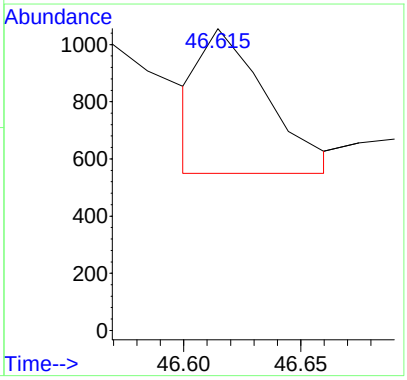
Tgt Ion:217 Resp: 1196

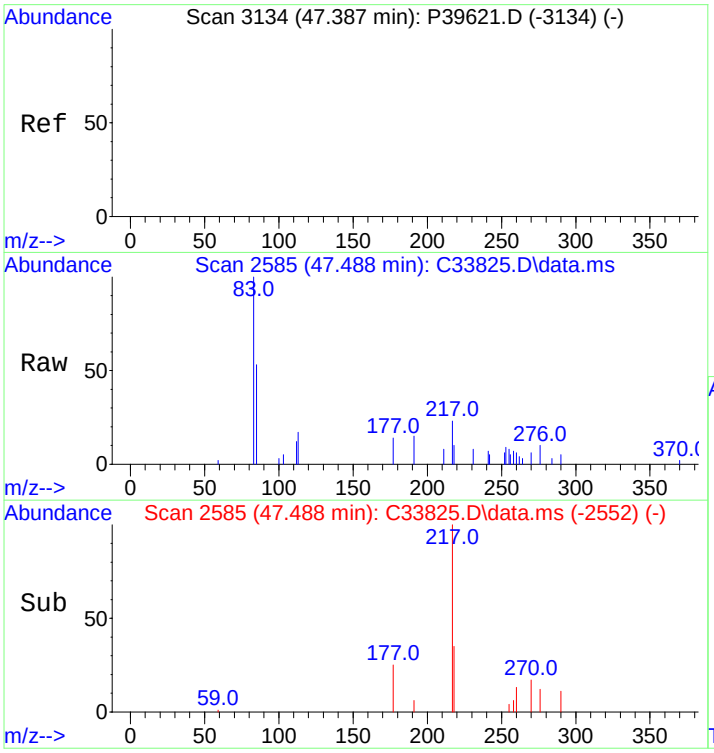




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 107.78 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

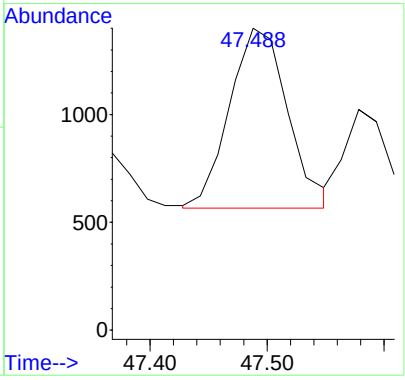
Tgt Ion:217 Resp: 980

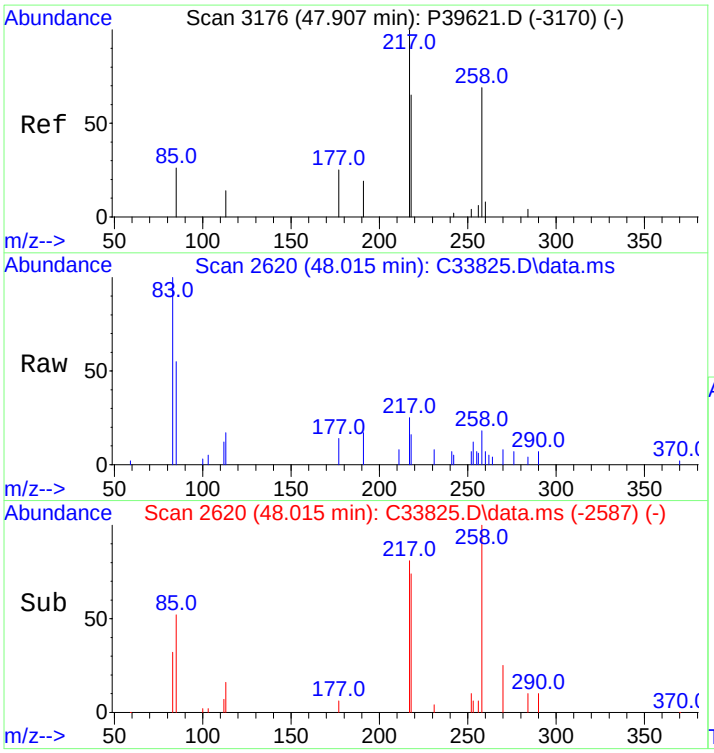




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 317.51 ng/ml m
RT: 47.488 min Scan# 2585
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

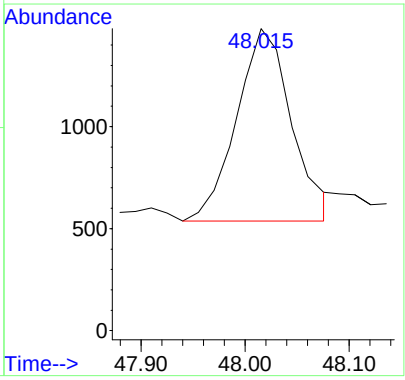
Tgt Ion:217 Resp: 2887

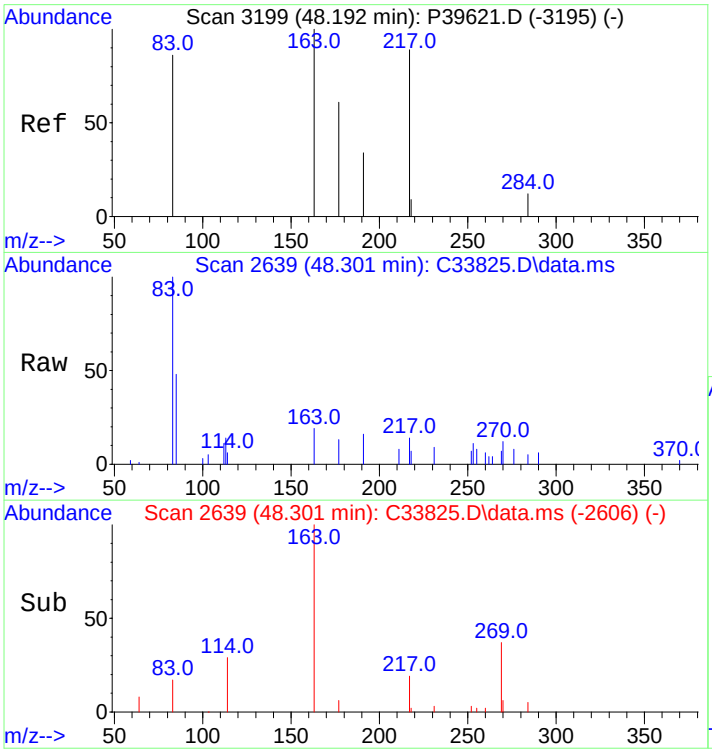




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 381.96 ng/ml m
RT: 48.015 min Scan# 2620
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

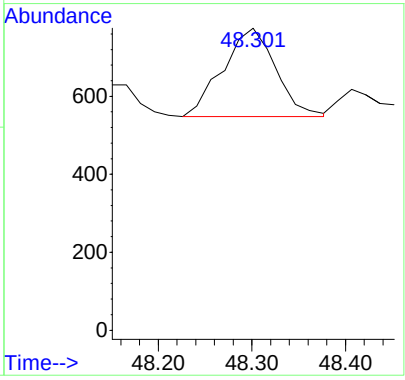
Tgt Ion:217 Resp: 3473

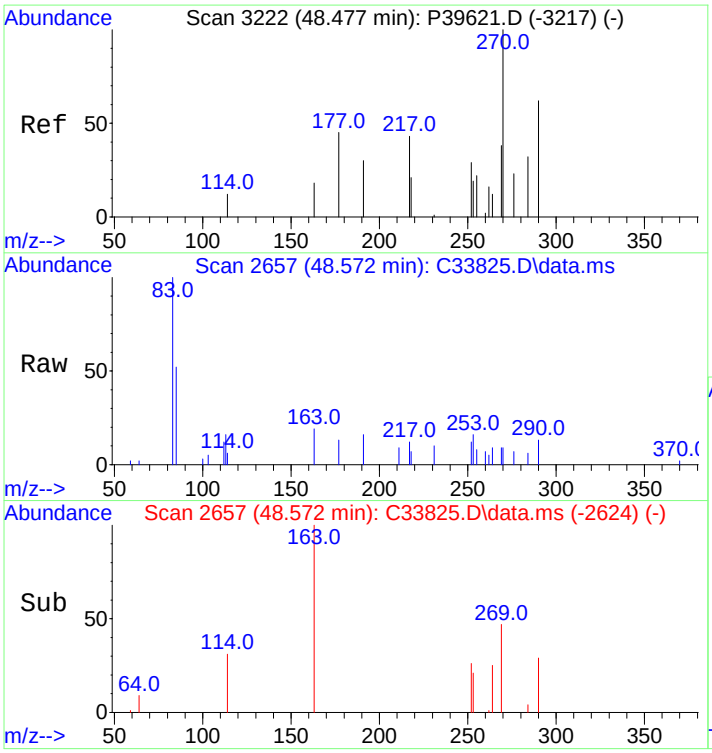




#133
Unknown Sterane (S18)
Concen: 98.10 ng/ml
RT: 48.301 min Scan# 2639
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

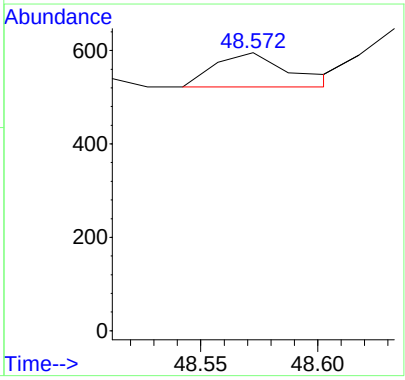
Tgt Ion:217 Resp: 892

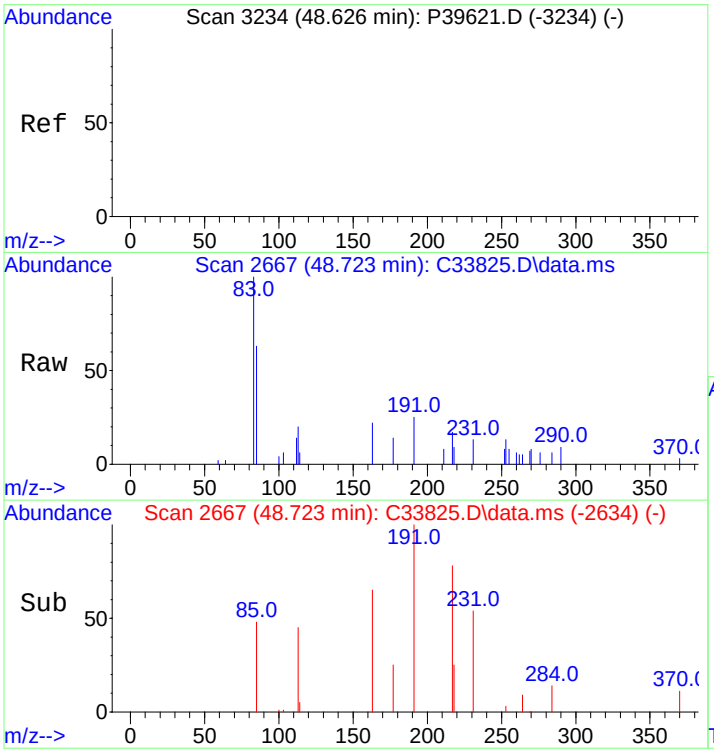




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.15 ng/ml
RT: 48.572 min Scan# 2657
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

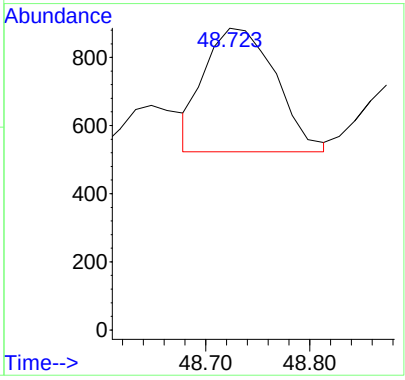
Tgt Ion:217 Resp: 165

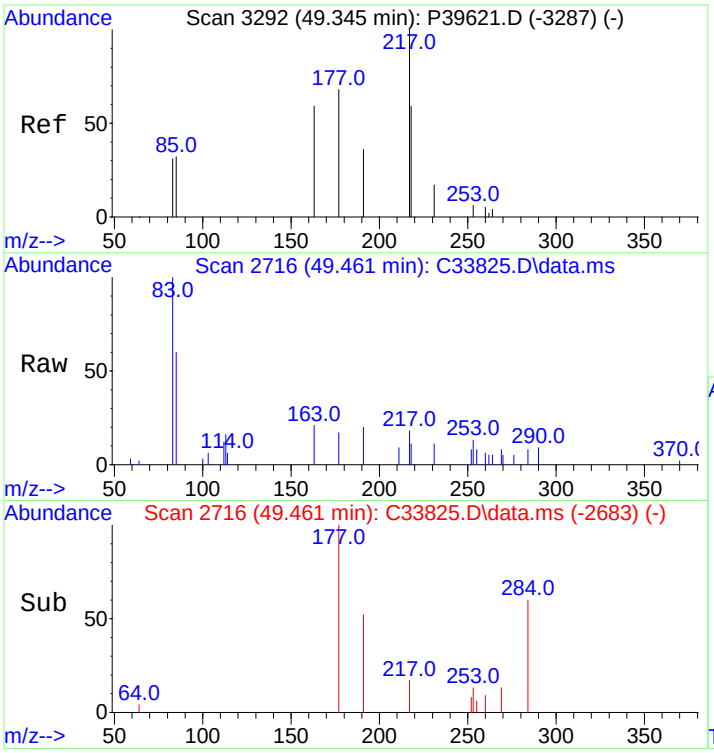




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 189.94 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

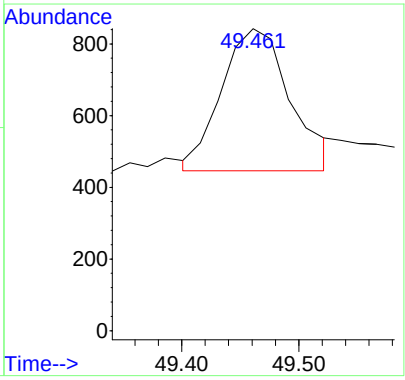
Tgt Ion:217 Resp: 1727

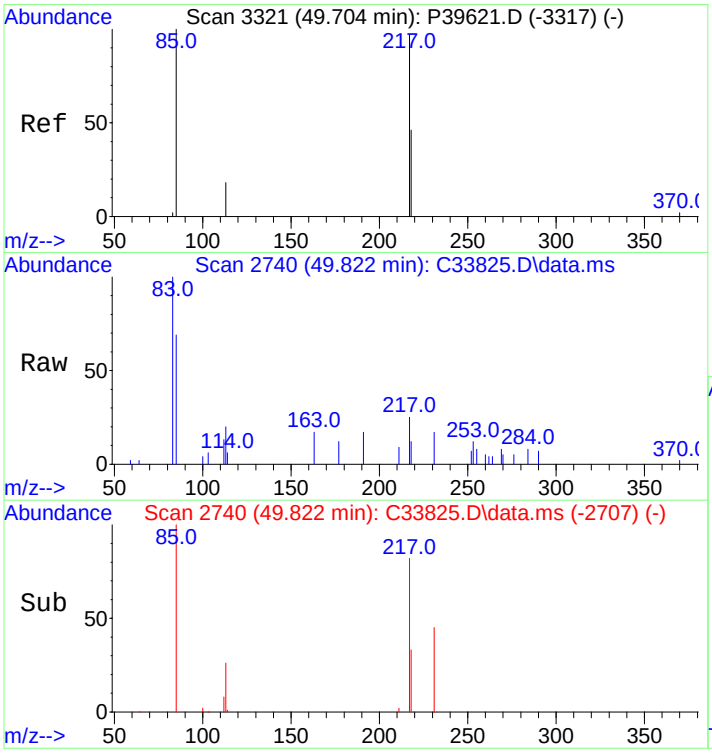




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 178.28 ng/ml m
RT: 49.461 min Scan# 2716
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

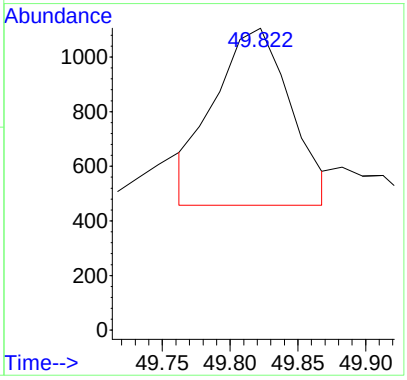
Tgt Ion:217 Resp: 1621

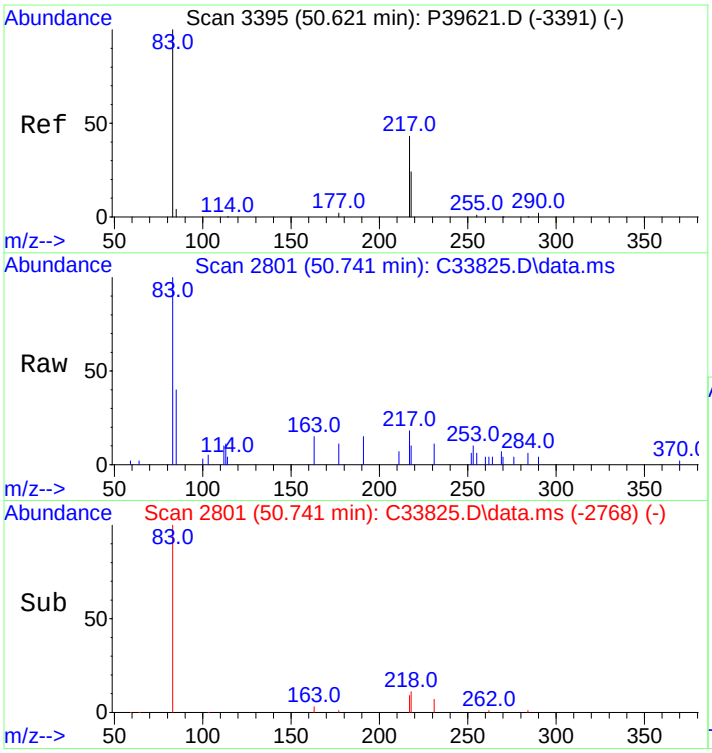




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 278.91 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

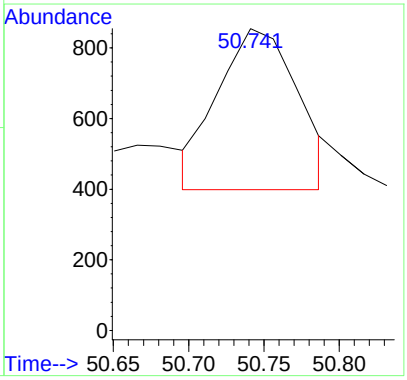
Tgt Ion:217 Resp: 2536

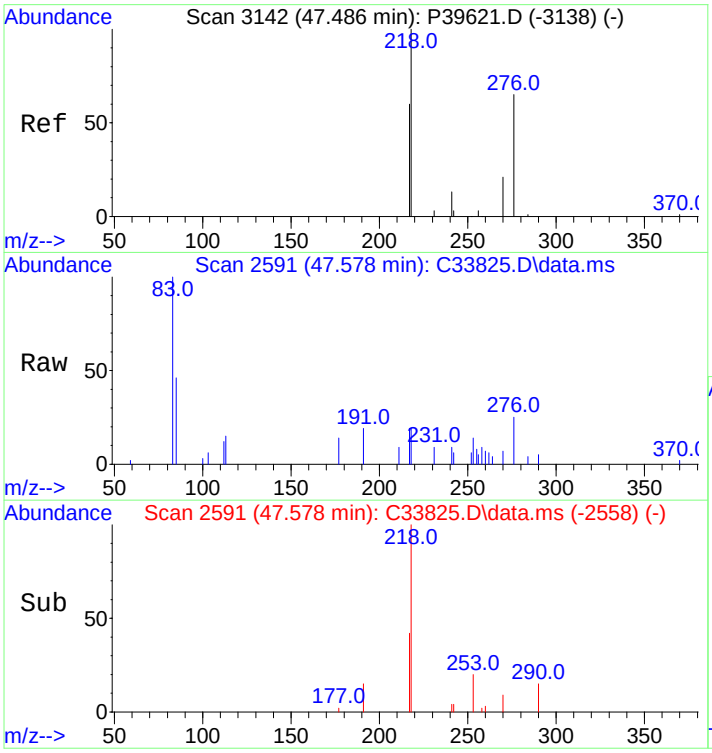




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 185.32 ng/ml m
RT: 50.741 min Scan# 2801
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

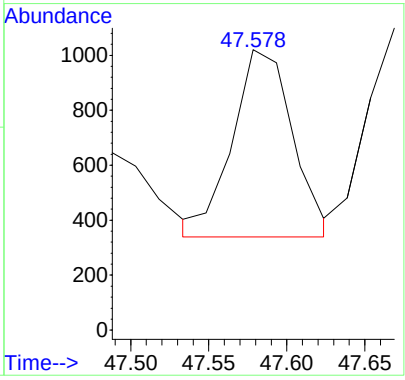
Tgt Ion:217 Resp: 1685

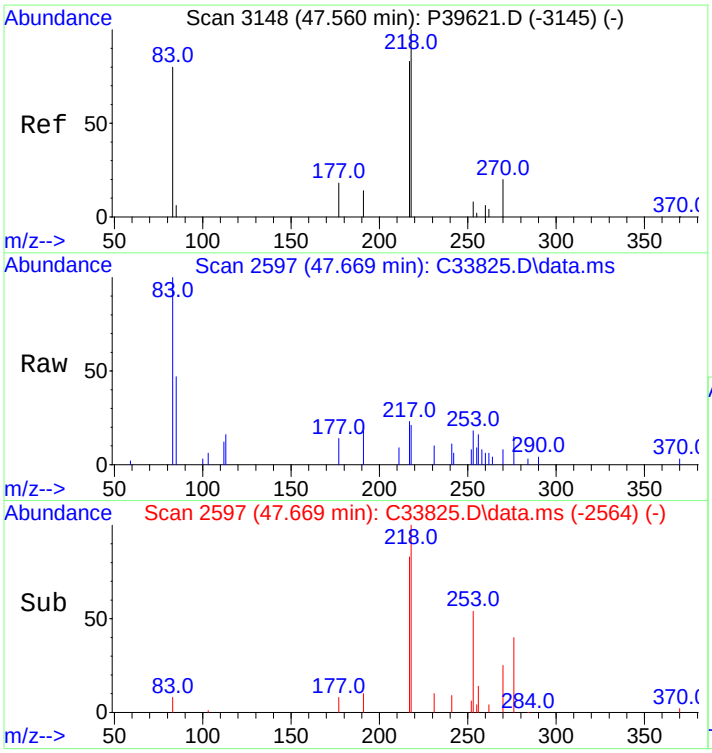




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 201.70 ng/ml m
RT: 47.578 min Scan# 2591
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

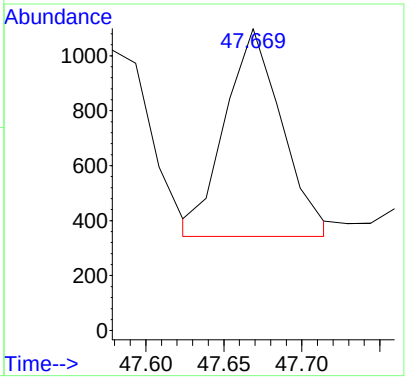
Tgt Ion:218 Resp: 1834

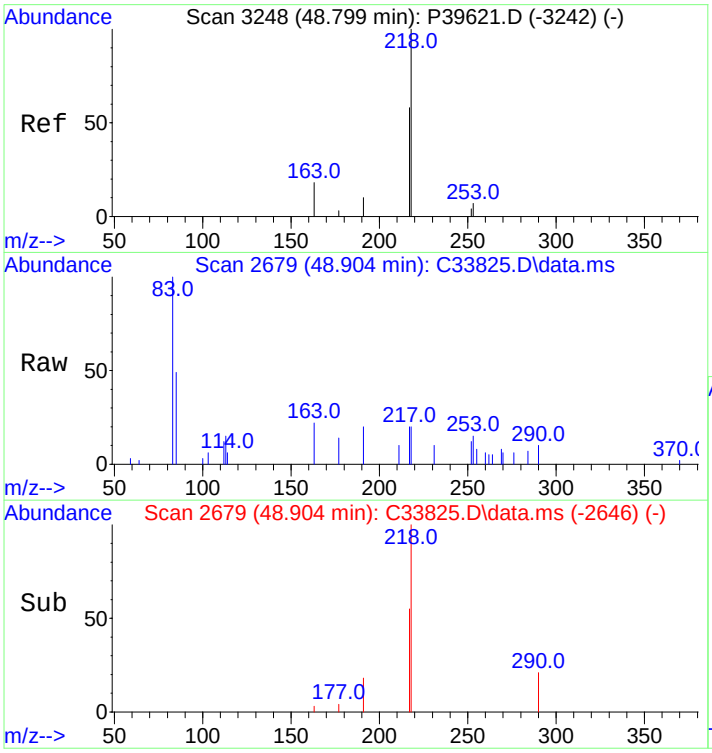




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 209.84 ng/ml m
RT: 47.669 min Scan# 2597
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

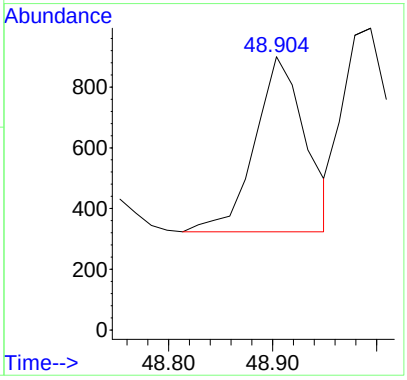
Tgt Ion:218 Resp: 1908

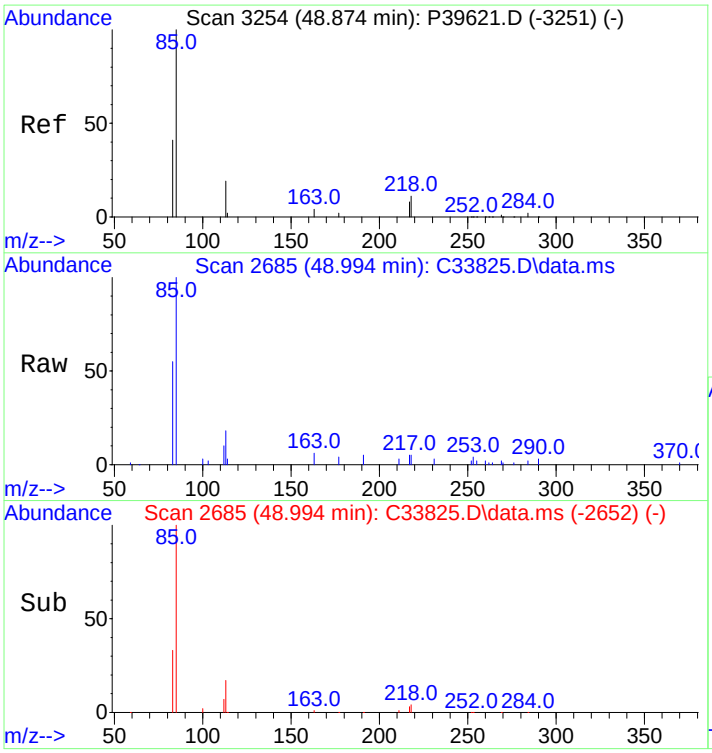




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 215.23 ng/ml
RT: 48.904 min Scan# 2679
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

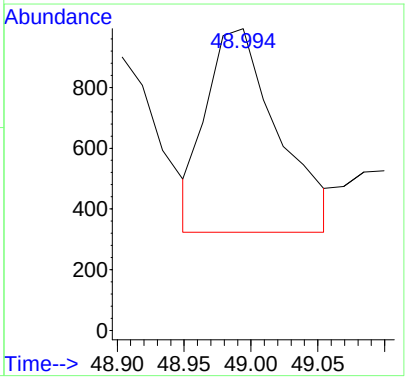
Tgt Ion:218 Resp: 1957

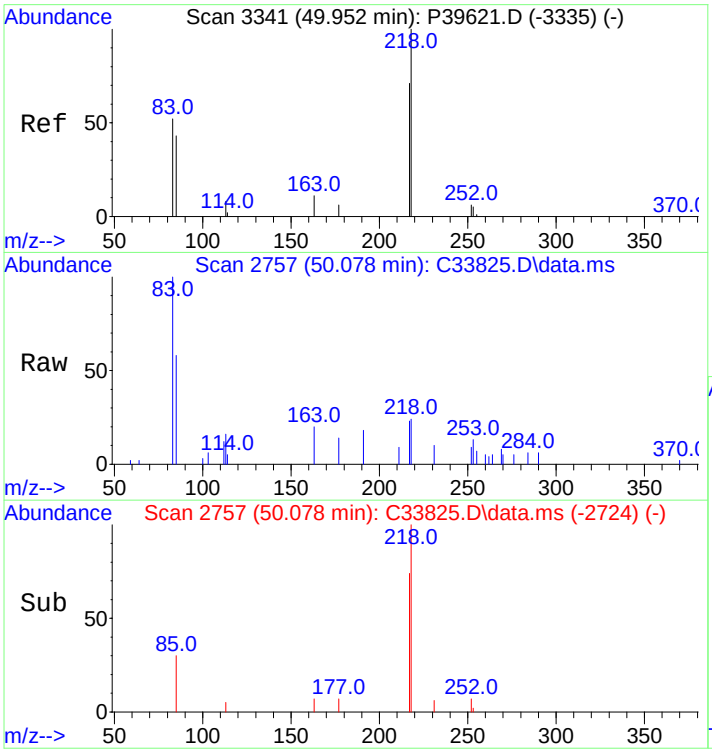




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 274.40 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

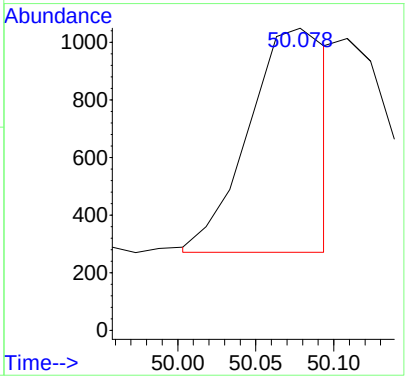
Tgt Ion:218 Resp: 2495

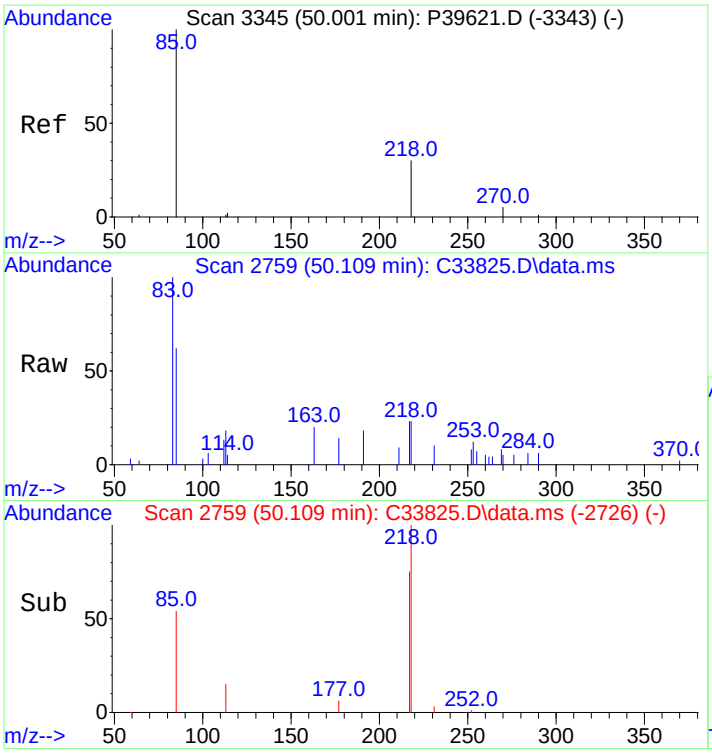




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 301.24 ng/ml m
RT: 50.078 min Scan# 2757
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

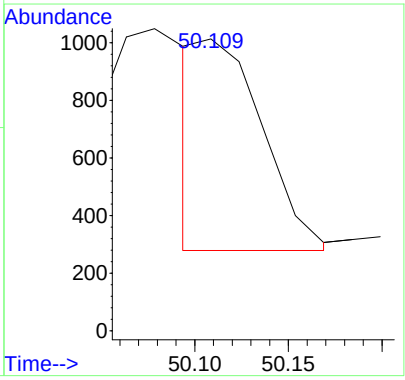
Tgt Ion:218 Resp: 2739

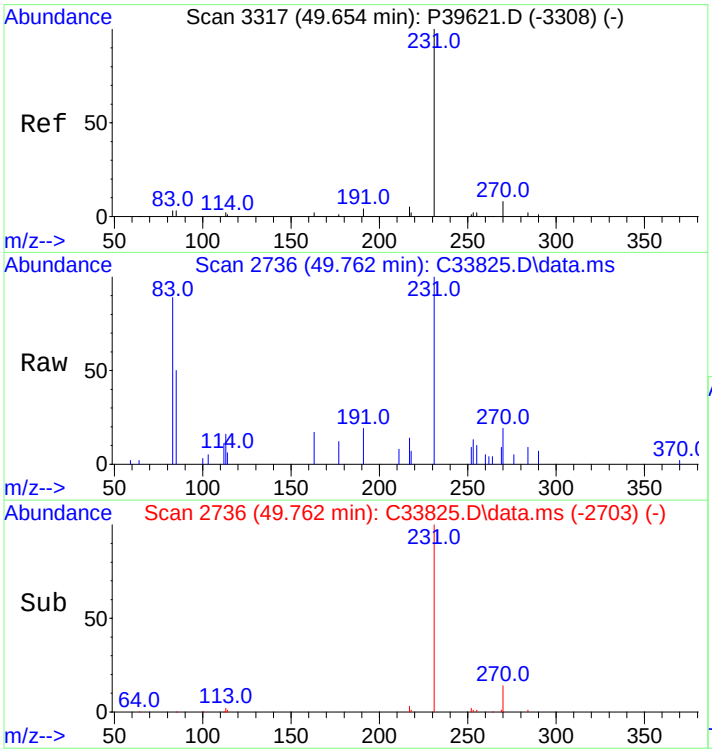




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 191.04 ng/ml m
RT: 50.109 min Scan# 2759
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

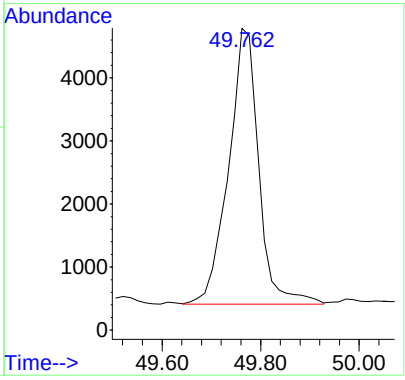
Tgt Ion:218 Resp: 1737

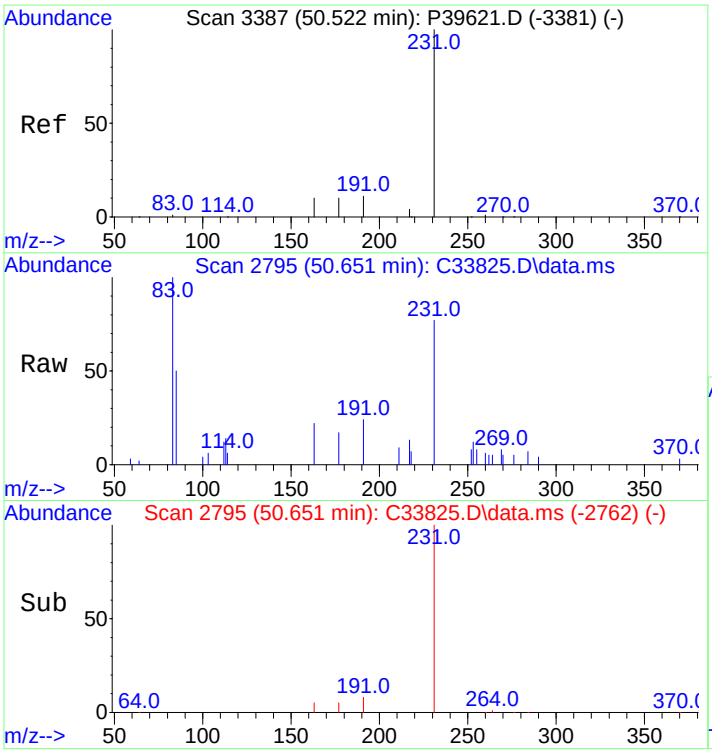




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2040.03 ng/mL m
RT: 49.762 min Scan# 2736
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

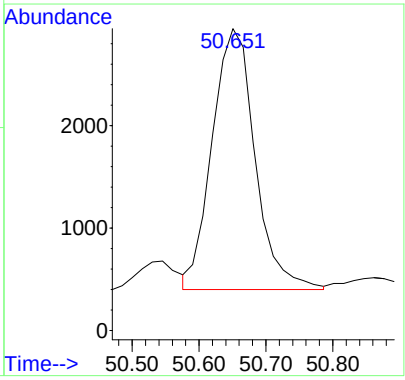
Tgt Ion:231 Resp: 18549

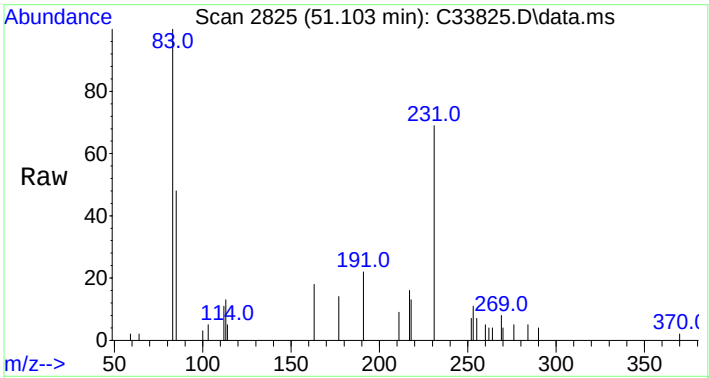




#146
C28,20S-triaromatic steroid
Concen: 1249.38 ng/mL m
RT: 50.651 min Scan# 2795
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

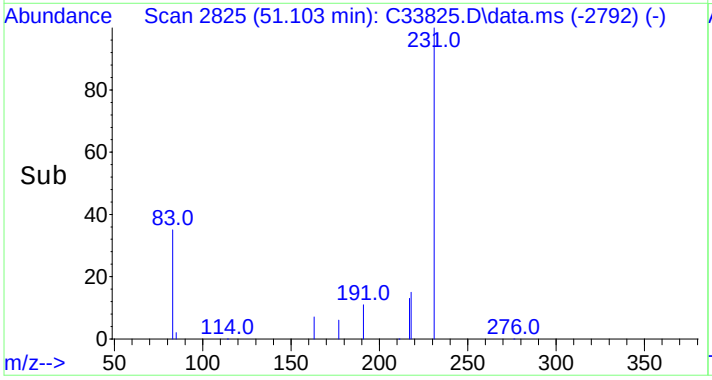
Tgt Ion:231 Resp: 11360

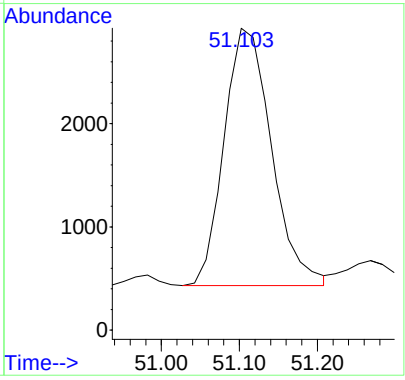


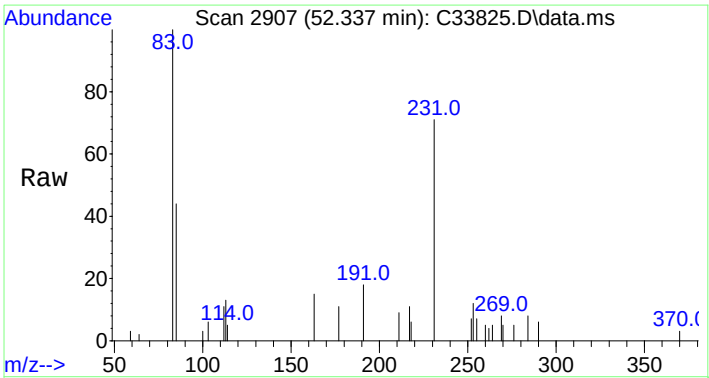


#147
C27,20R-triaromatic steroid
Concen: 1160.19 ng/mL
RT: 51.103 min Scan# 2825
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 10549

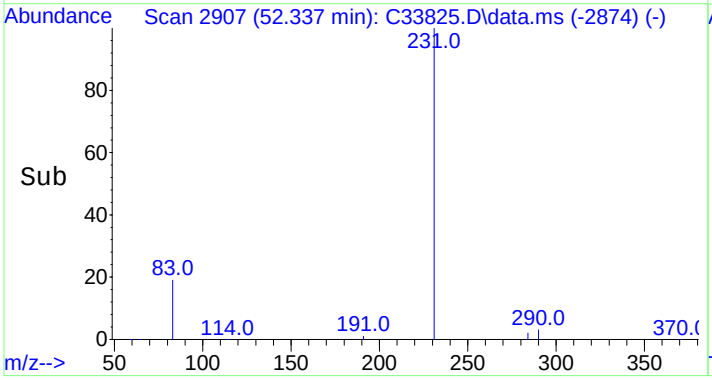


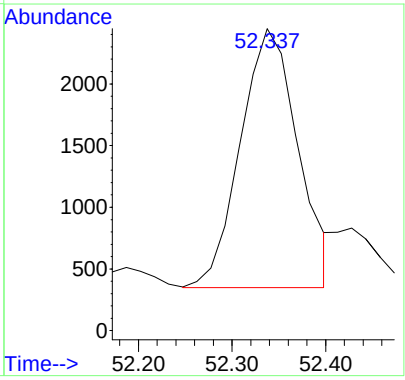




#148
C28,20R-triaromatic steroid
Concen: 988.29 ng/mL m
RT: 52.337 min Scan# 2907
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 8986





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15052M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	35074	536.878	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.793	188	26097M4	505.389	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%			
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	3130	263.420	ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319	ng/mL	100
10) Naphthalene	20.042	128	52309	545.264	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838	ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994	ng/mL	
23) Biphenyl	24.618	154	38768	540.294	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656	ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769	ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489	ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	19817M4	527.499	ng/mL	
29) Fluorene	29.075	166	32696M4	528.715	ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598	ng/mL	
43) Phenanthrene	32.883	178	46516	534.091	ng/mL	100
54) Retene	39.854	234	8385	493.546	ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942	ng/mL	
56) Carbazole	33.726	167	45283M4	526.968	ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804	ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176	ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672	ng/mL	
60) Pyrene	38.529	202	46681M4	530.900	ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975	ng/ml	97
67) Naphthobenzothiophene-2,1	42.368	234	49317	520.975	ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145	ng/mL	
76) Chrysene	43.452	228	40148M4	549.904	ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398	ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841	ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397	ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093	ng/mL	
88) Perylene	48.858	252	42809	529.339	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620	ng/mL	99

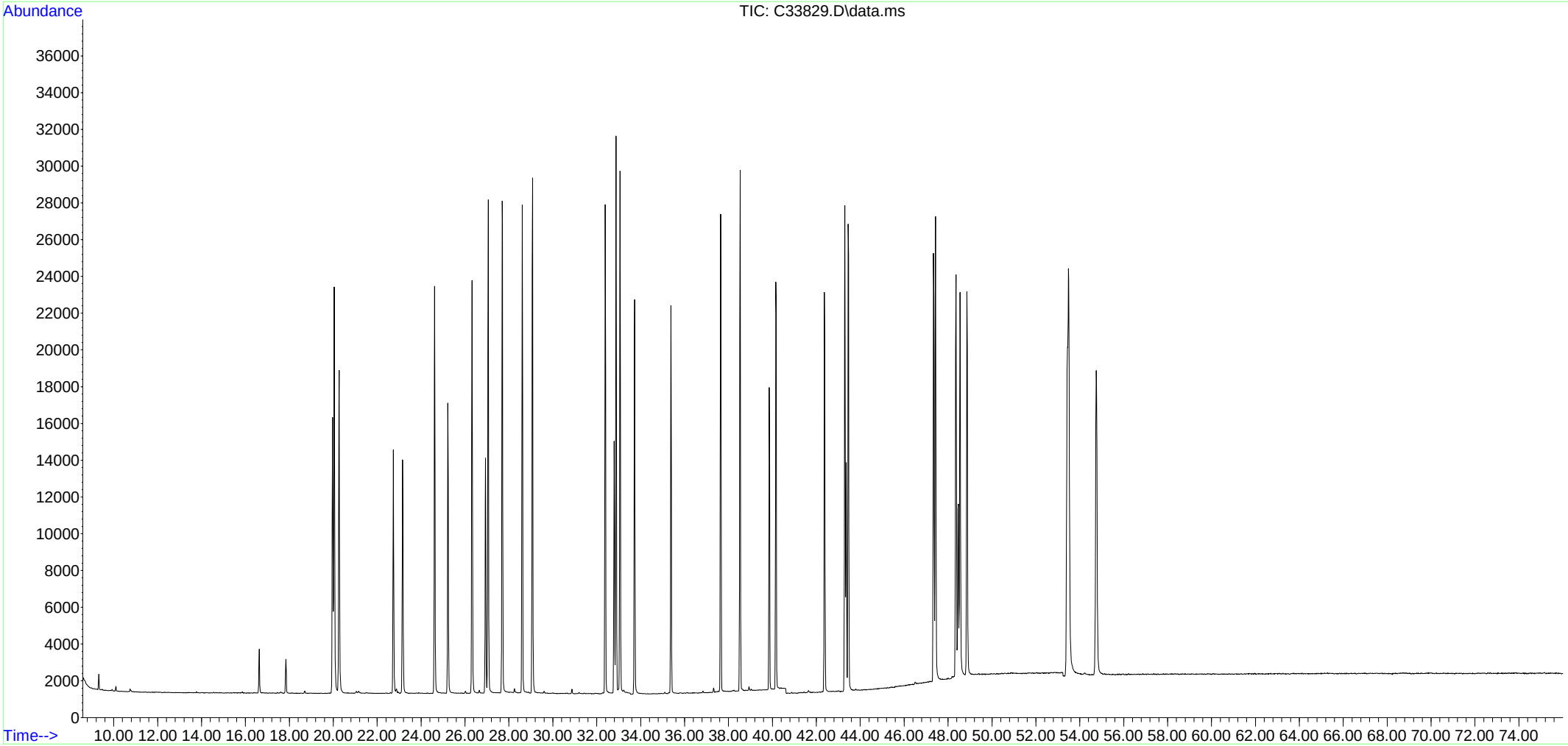
(#) = qualifier out of range (m) = manual integration (+) = signals summed

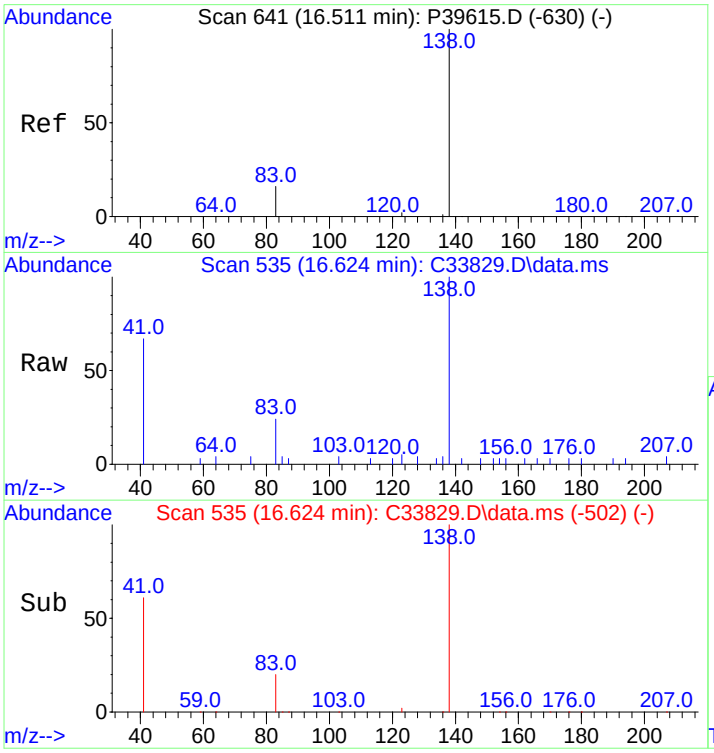
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

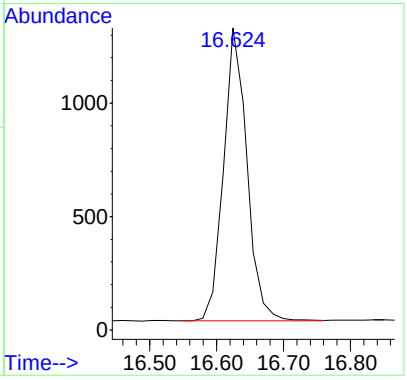
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

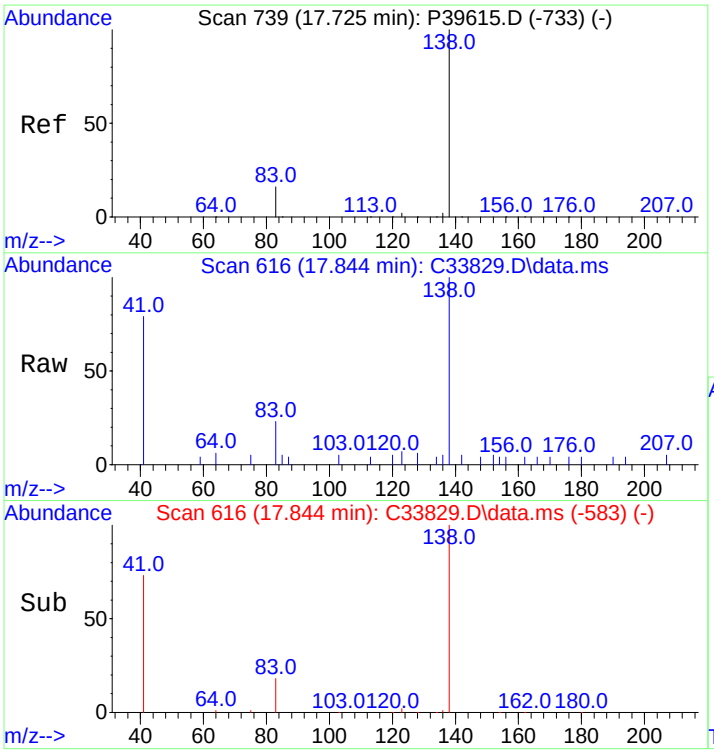




#3
trans-Decalin
Concen: 263.42 ng/mL
RT: 16.624 min Scan# 535
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

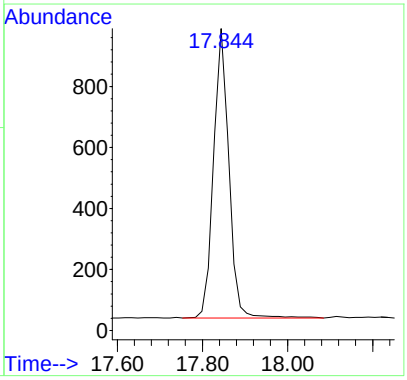
Tgt Ion:138 Resp: 3130

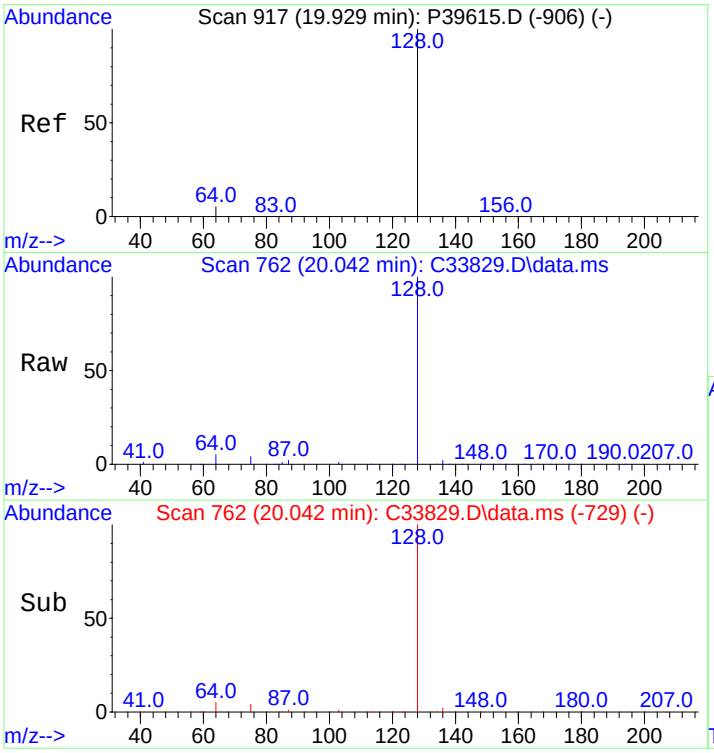




#4
cis-Decalin
Concen: 265.32 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:138 Resp: 2376

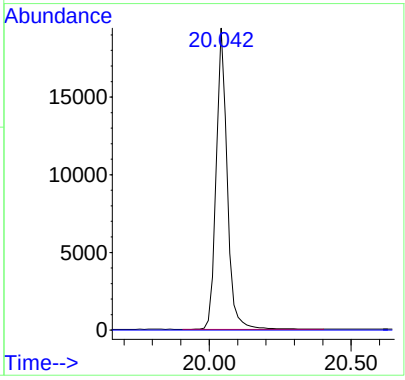


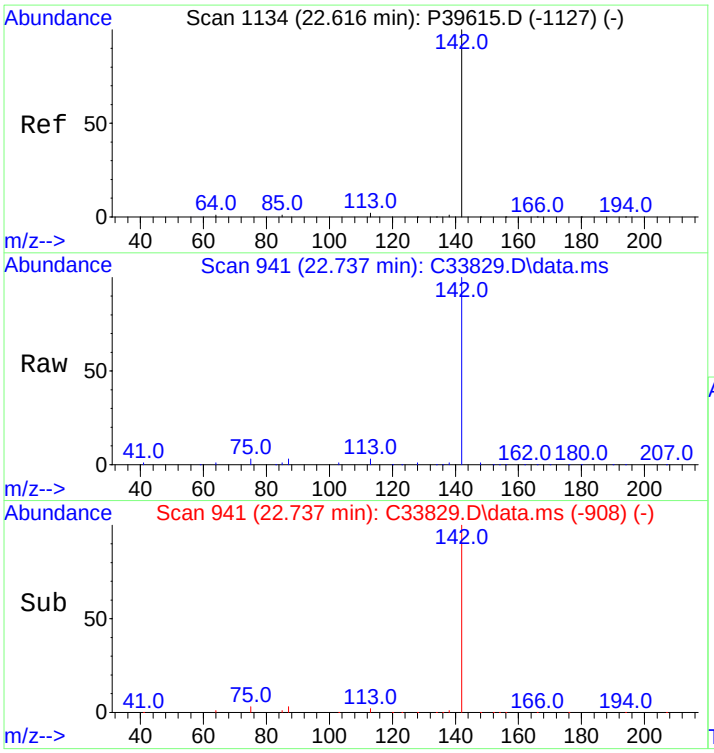


#10
Naphthalene
Concen: 545.26 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:128 Resp: 52309

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

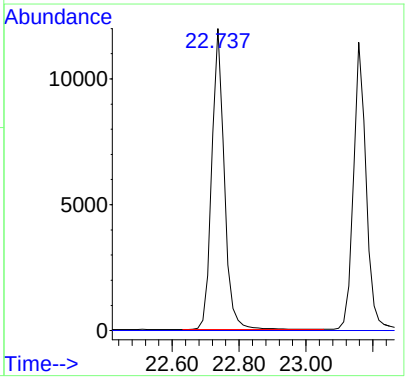


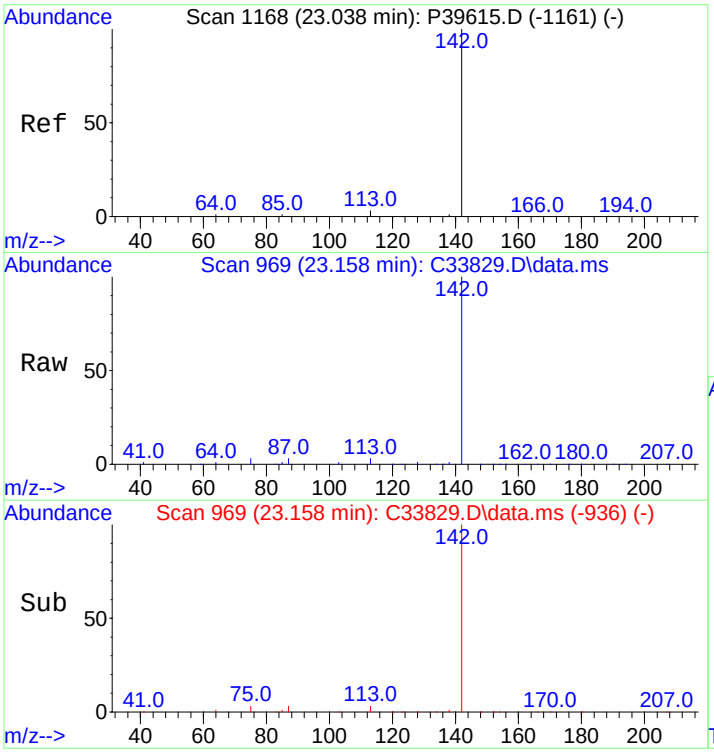


#16
2-Methylnaphthalene
Concen: 545.32 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30932

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

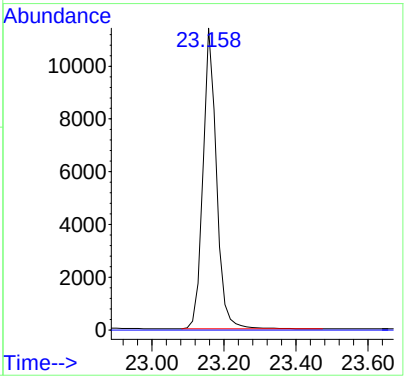


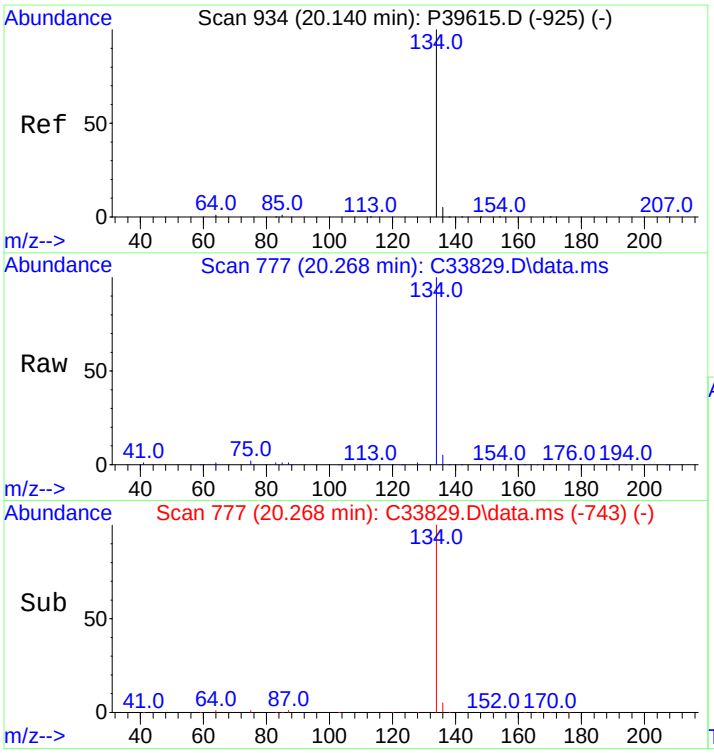


#17
1-Methylnaphthalene
Concen: 539.84 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30015

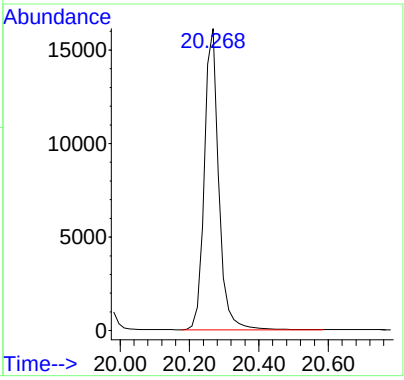
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

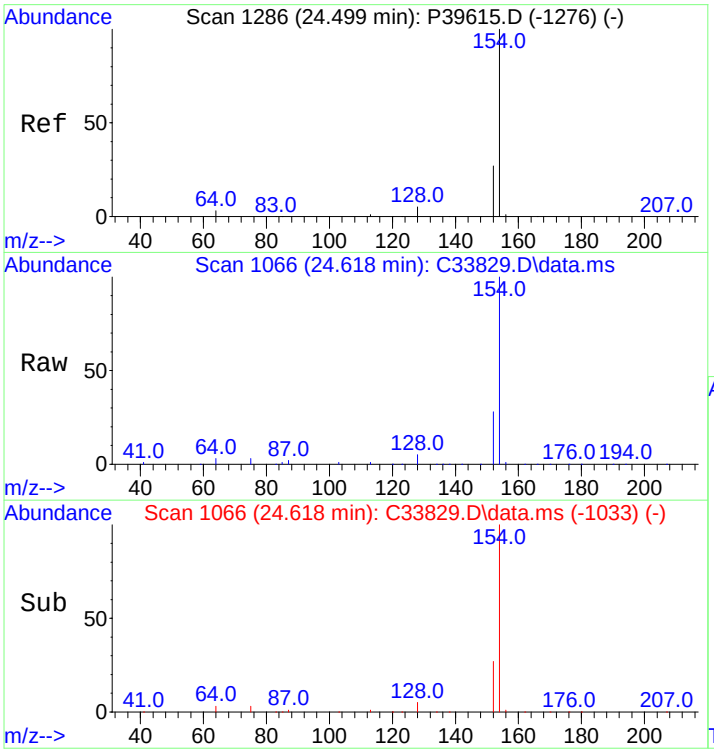




#18
Benzothiophene
Concen: 534.99 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:134 Resp: 46185

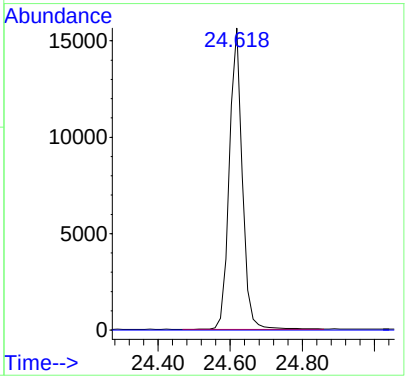


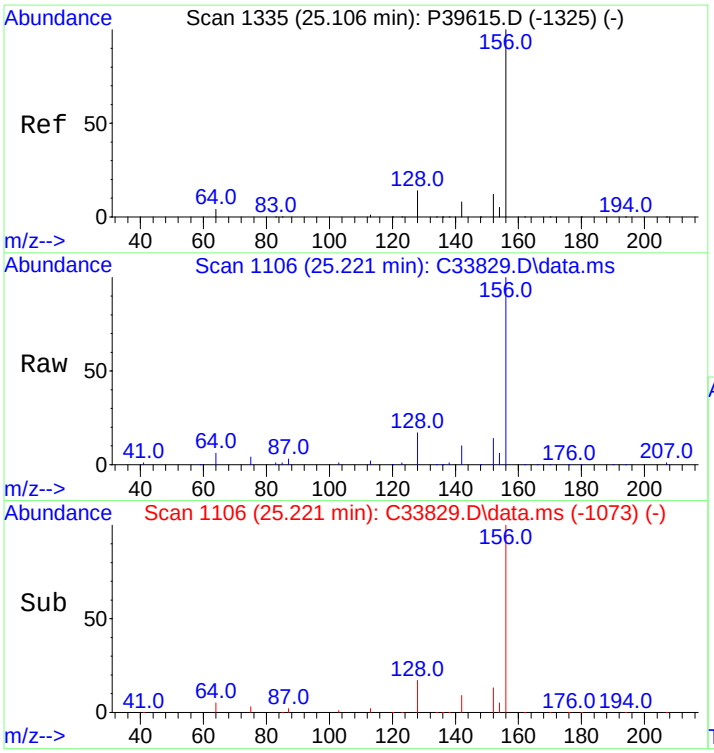


#23
Biphenyl
Concen: 540.29 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:154 Resp: 38768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

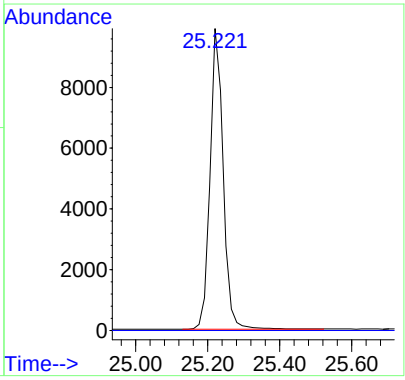


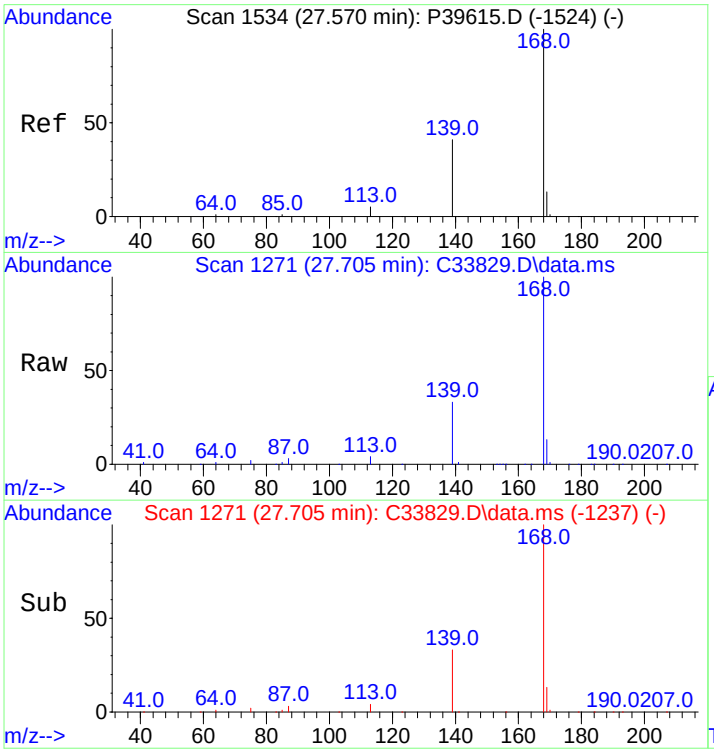


#24
2,6-Dimethylnaphthalene
Concen: 536.66 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:156 Resp: 25010

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

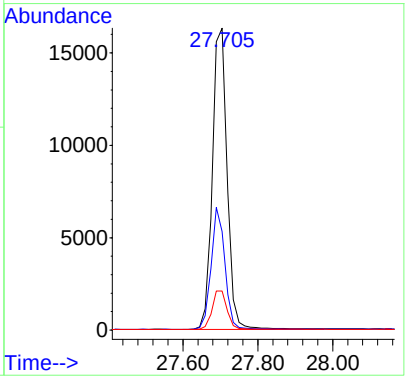


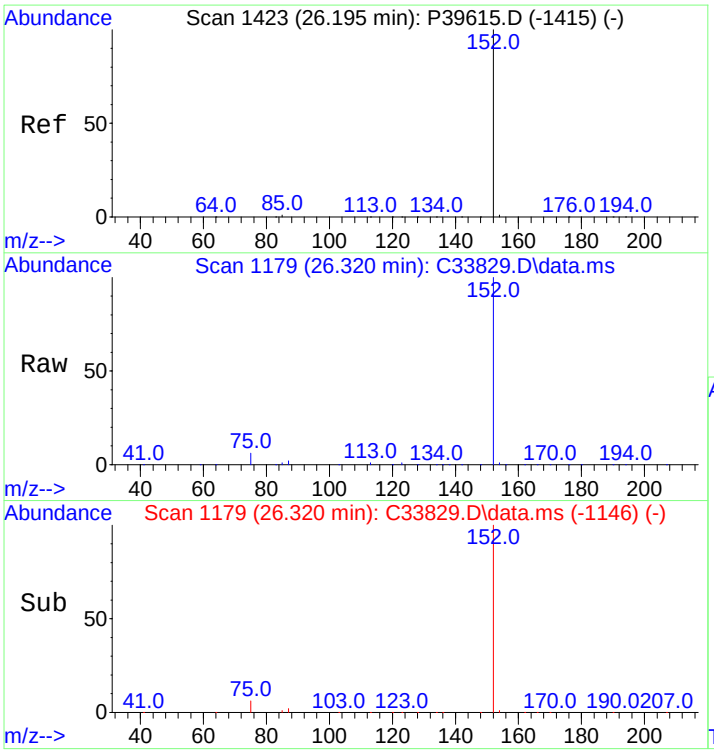


#25
Dibenzofuran
Concen: 540.77 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:168 Resp: 44557

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	13.0	10.6	16.0

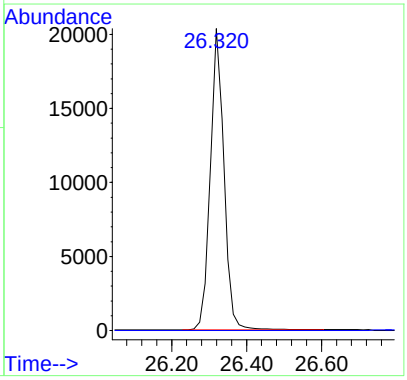


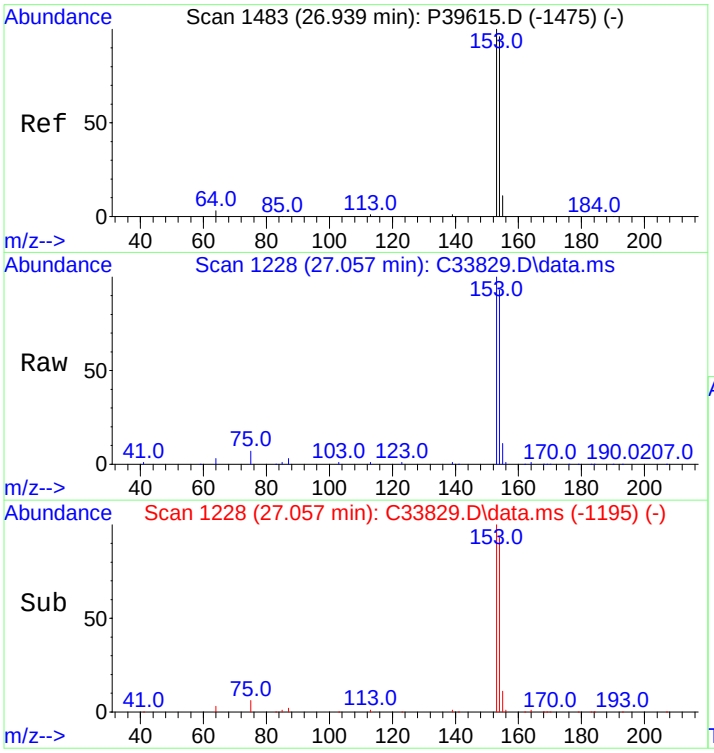


#26
Acenaphthylene
Concen: 540.49 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:152 Resp: 51471

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

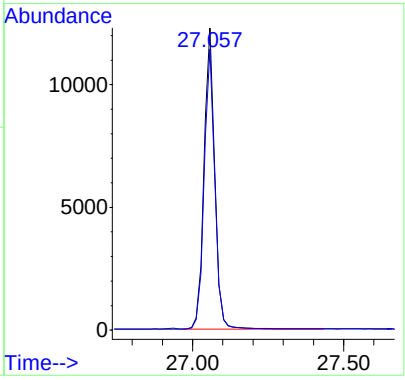


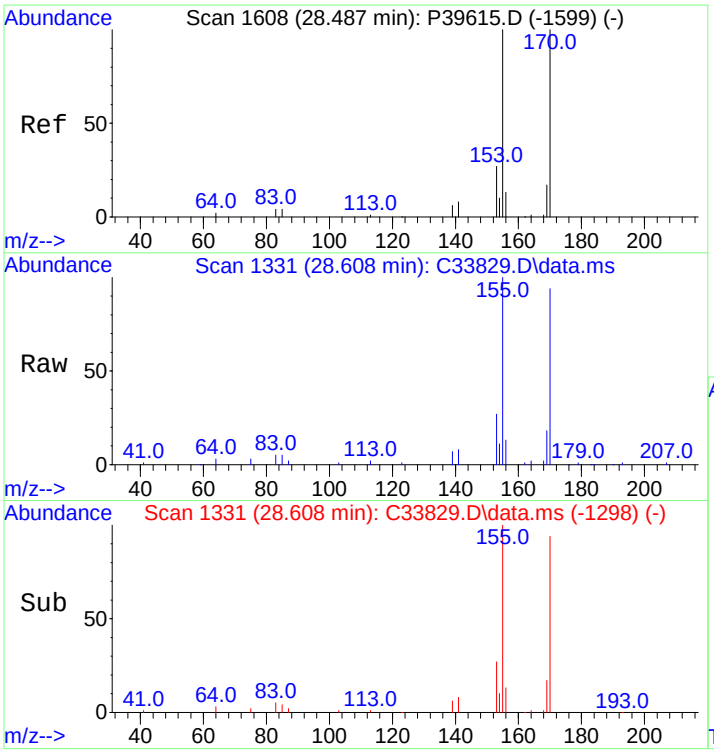


#27
Acenaphthene
Concen: 542.22 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:153 Resp: 30403

Ion	Ratio	Lower	Upper
153	100		
154	92.4	75.0	112.6

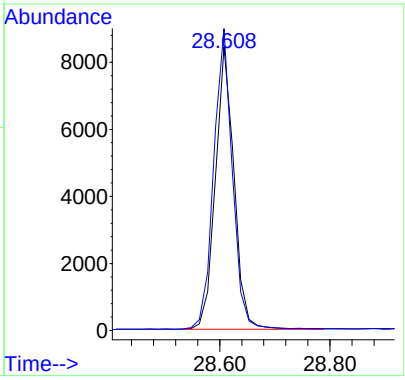


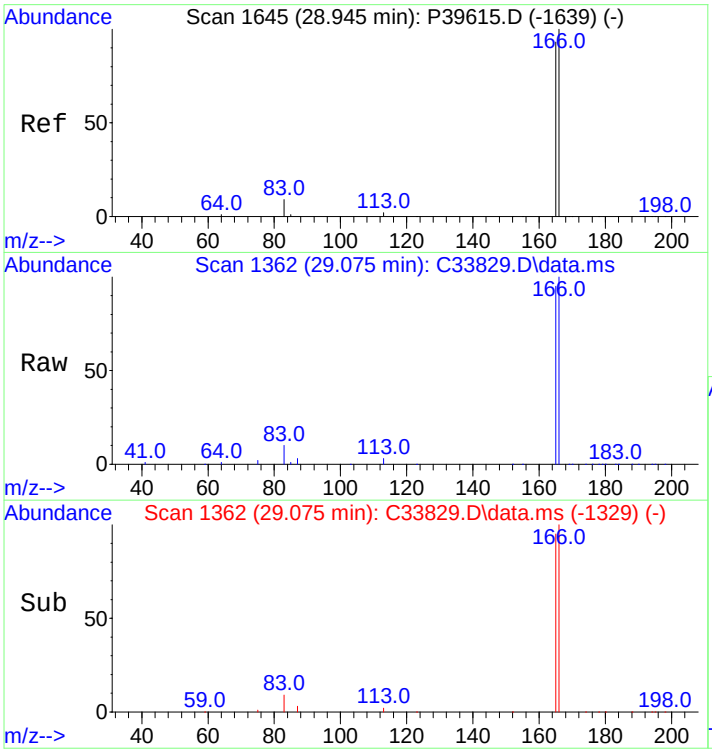


#28
2,3,5-Trimethylnaphthalene
Concen: 527.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:170 Resp: 19817

Ion	Ratio	Lower	Upper
170	100		
155	106.7	84.7	127.1

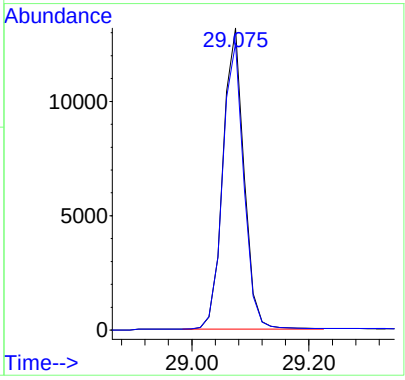


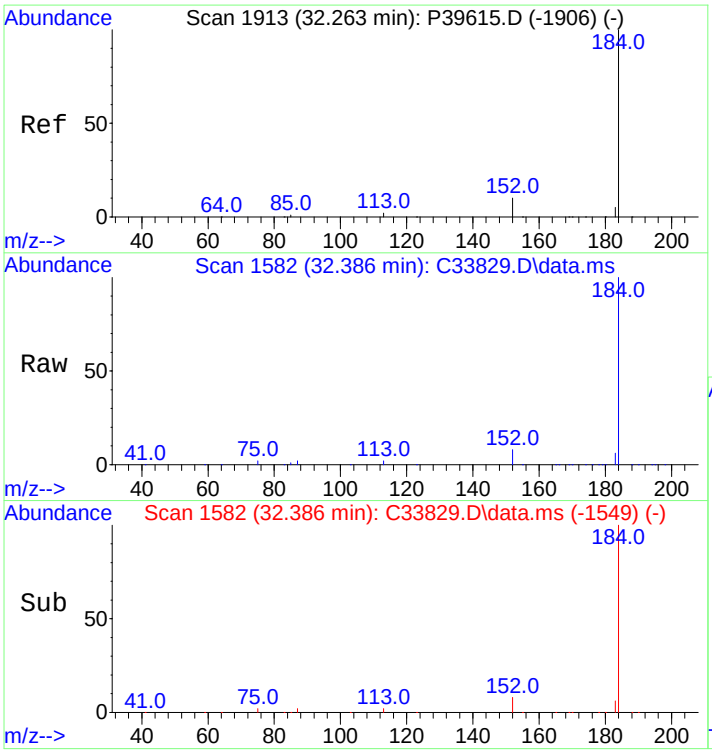


#29
Fluorene
Concen: 528.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:166 Resp: 32696

Ion	Ratio	Lower	Upper
166	100		
165	96.7	75.3	112.9

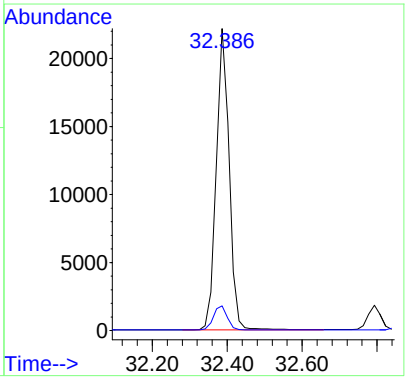


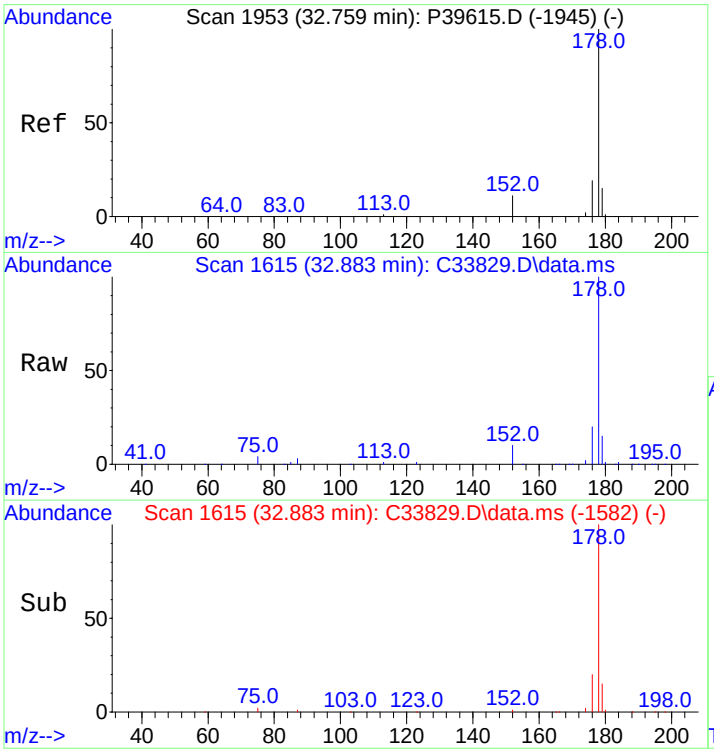


#33
Dibenzothiophene
Concen: 538.60 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:184 Resp: 53391

Ion	Ratio	Lower	Upper
184	100		
152	8.4	6.7	10.1

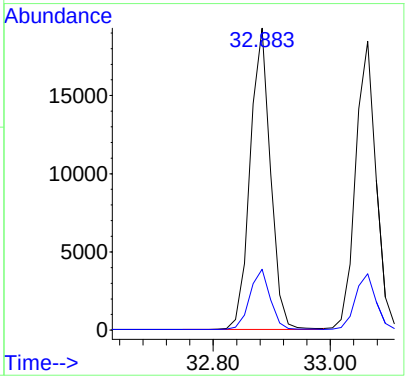


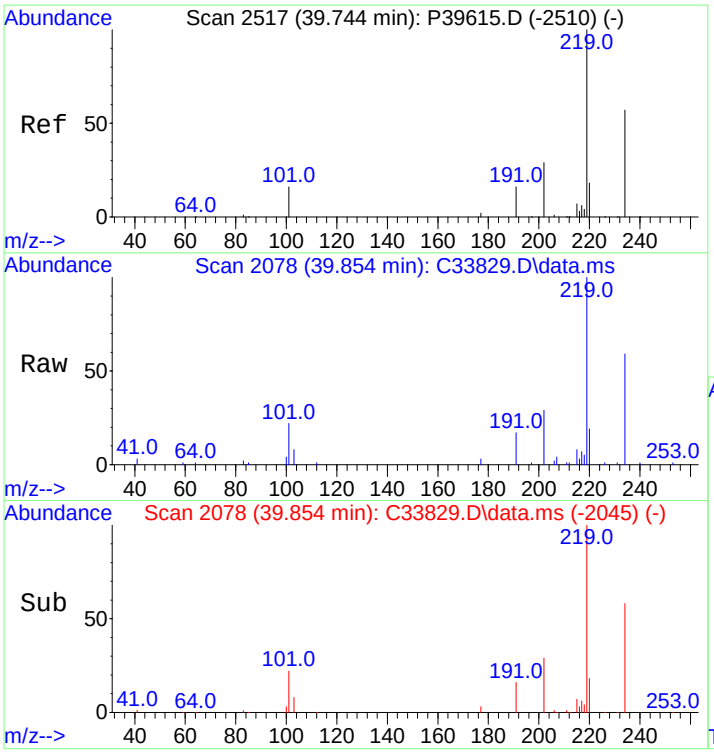


#43
Phenanthrene
Concen: 534.09 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 46516

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

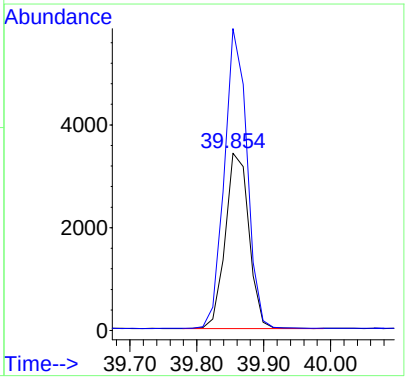


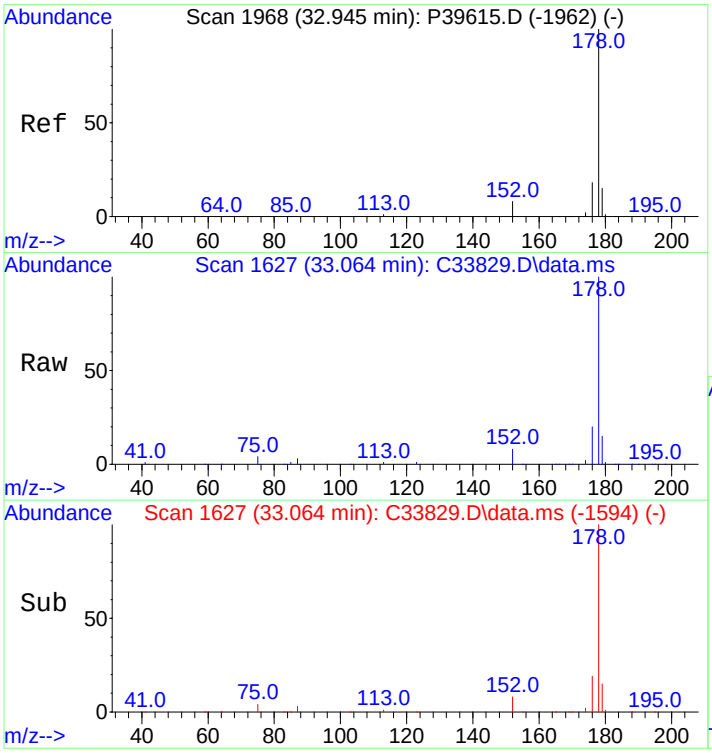


#54
Retene
Concen: 493.55 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 8385

Ion	Ratio	Lower	Upper
234	100		
219	163.6	136.6	204.8

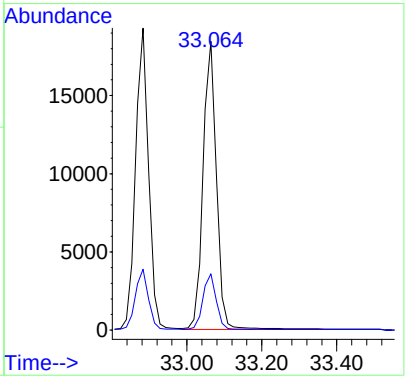


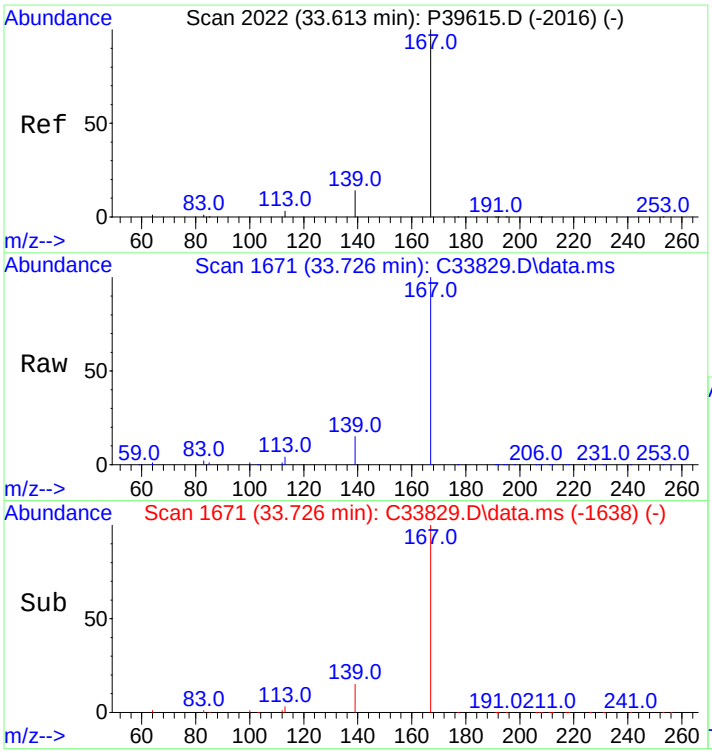


#55
Anthracene
Concen: 533.94 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 45423

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

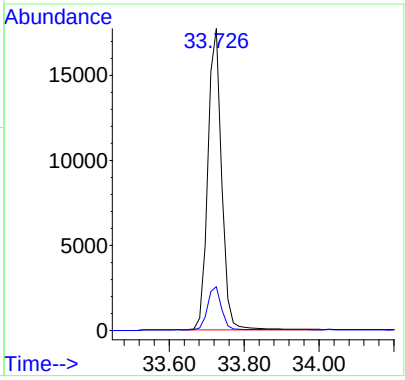


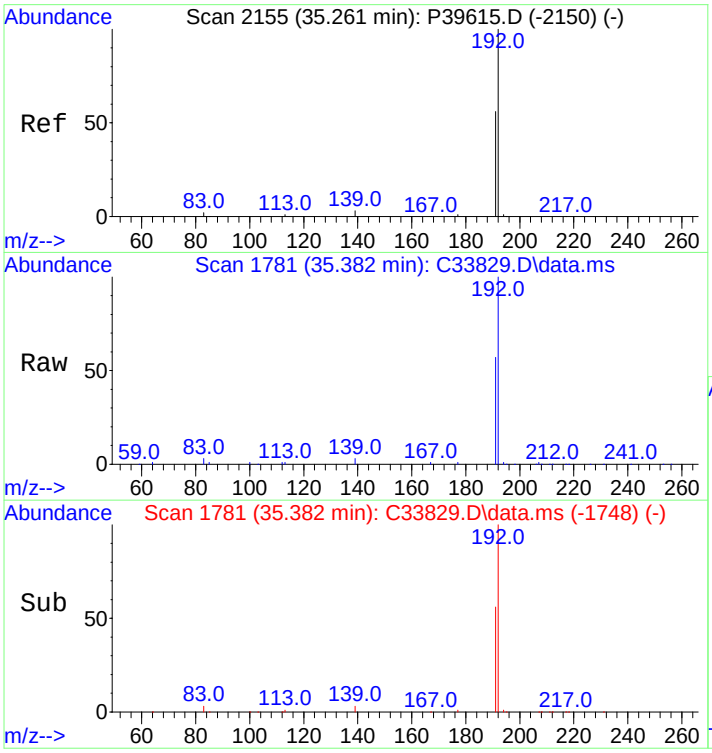


#56
Carbazole
Concen: 526.97 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:167 Resp: 45283

Ion	Ratio	Lower	Upper
167	100		
139	15.0	11.6	17.4

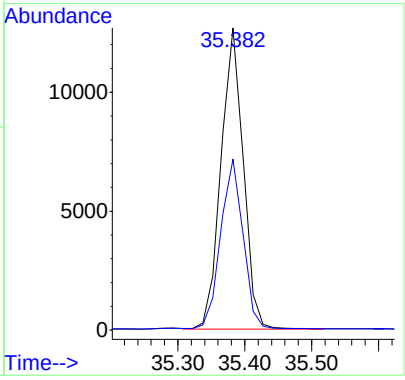


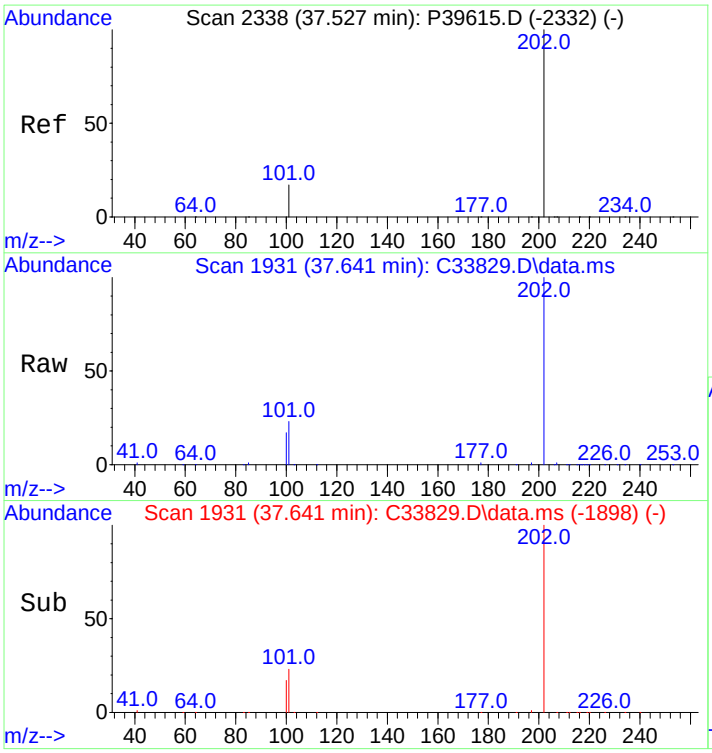


#57
1-Methylphenanthrene
Concen: 532.80 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:192 Resp: 29407

Ion	Ratio	Lower	Upper
192	100		
191	57.0	45.3	67.9

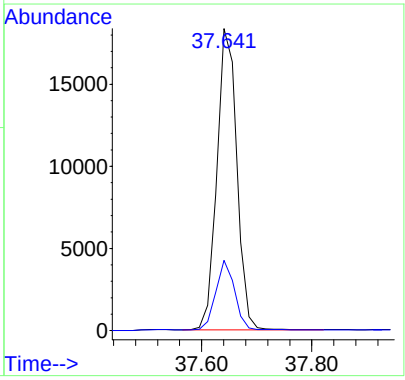


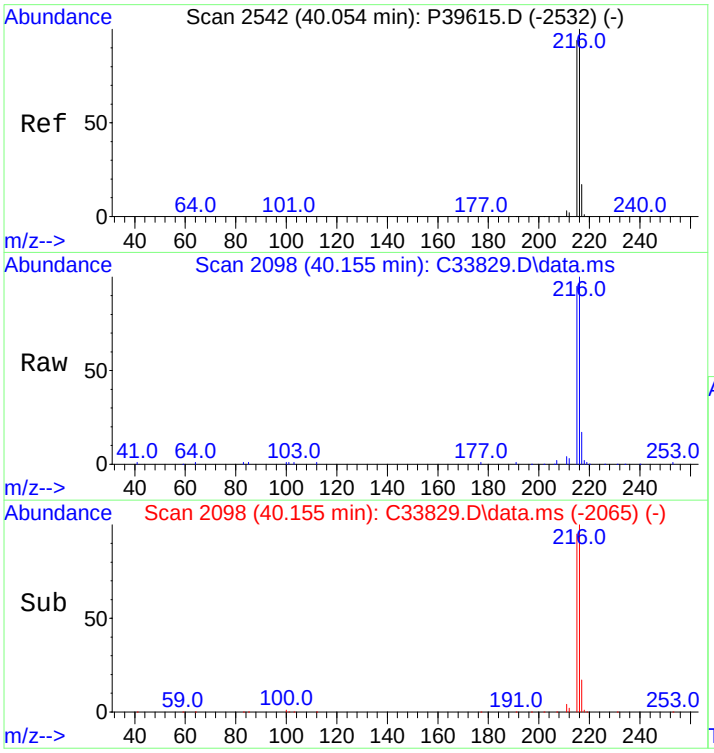


#58
Fluoranthene
Concen: 533.18 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46119

Ion	Ratio	Lower	Upper
202	100		
101	22.2	19.1	28.7

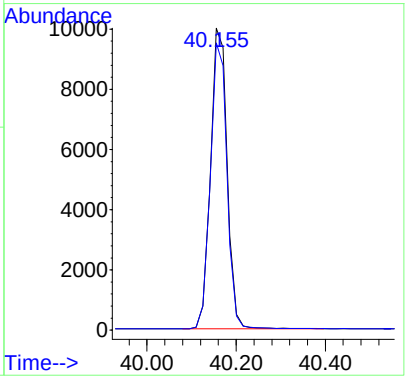


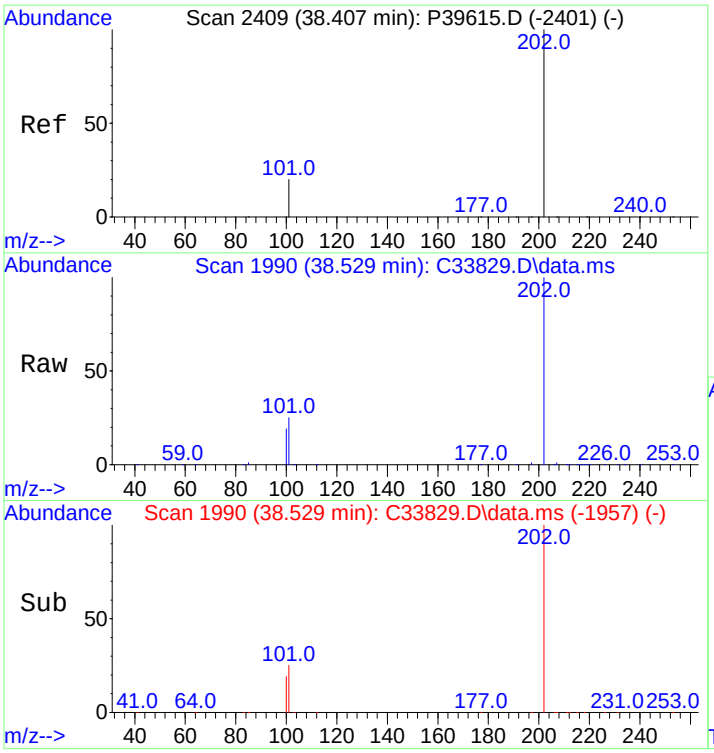


#59
Benzo(b)fluorene
Concen: 515.67 ng/mL m
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:216 Resp: 25878

Ion	Ratio	Lower	Upper
216	100		
215	95.0	77.4	116.2

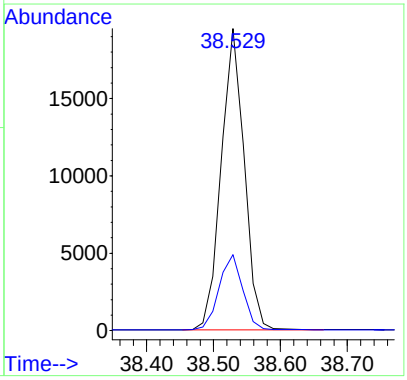


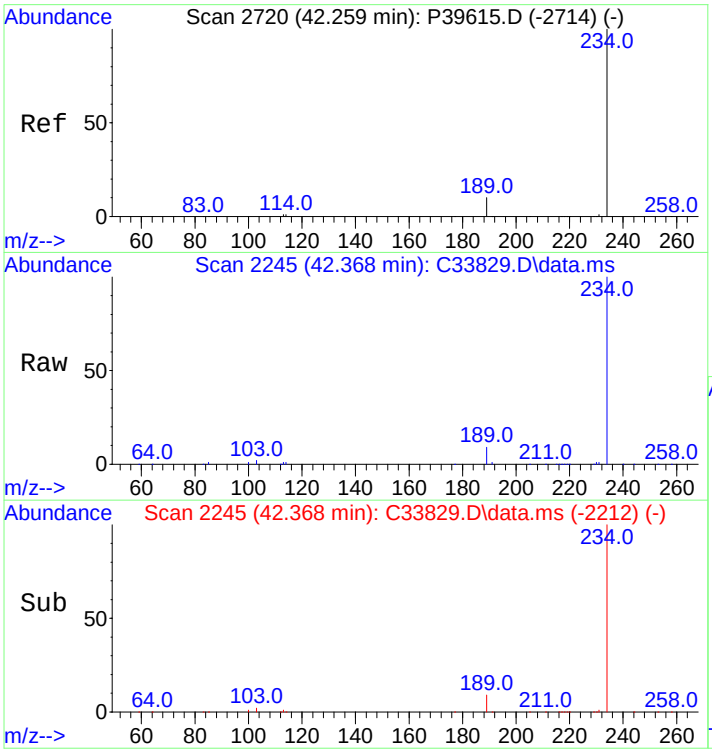


#60
Pyrene
Concen: 530.90 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46681

Ion	Ratio	Lower	Upper
202	100		
101	25.6	20.4	30.6

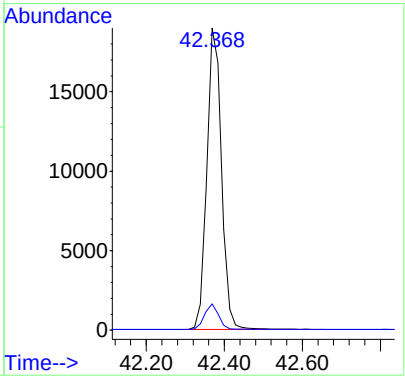


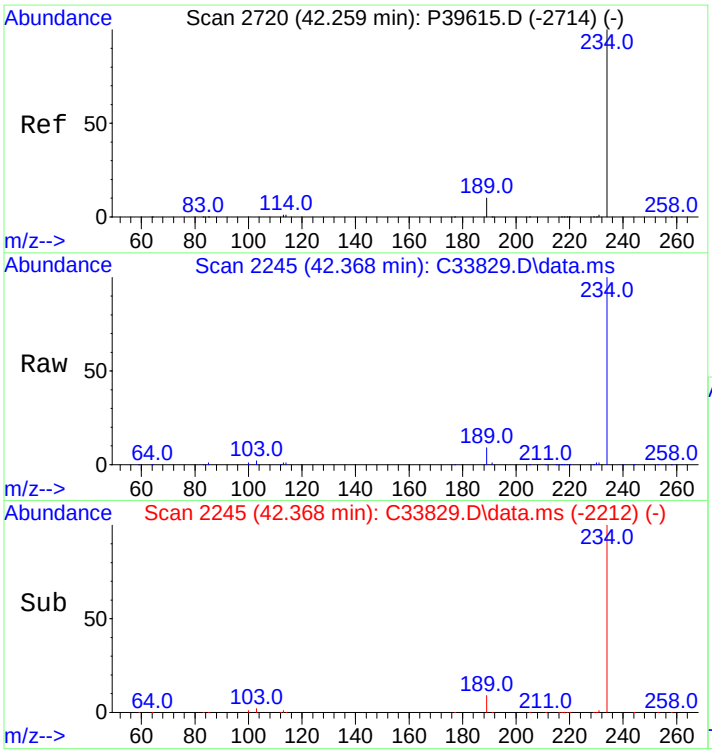


#66
Naphthobenzothiophene
Concen: 520.98 ng/ml
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

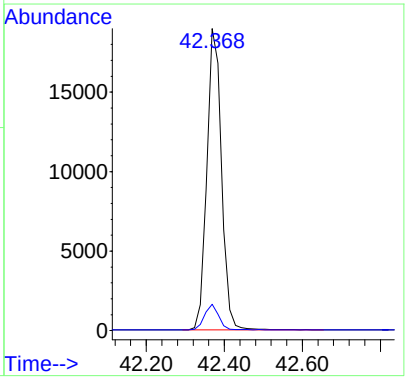


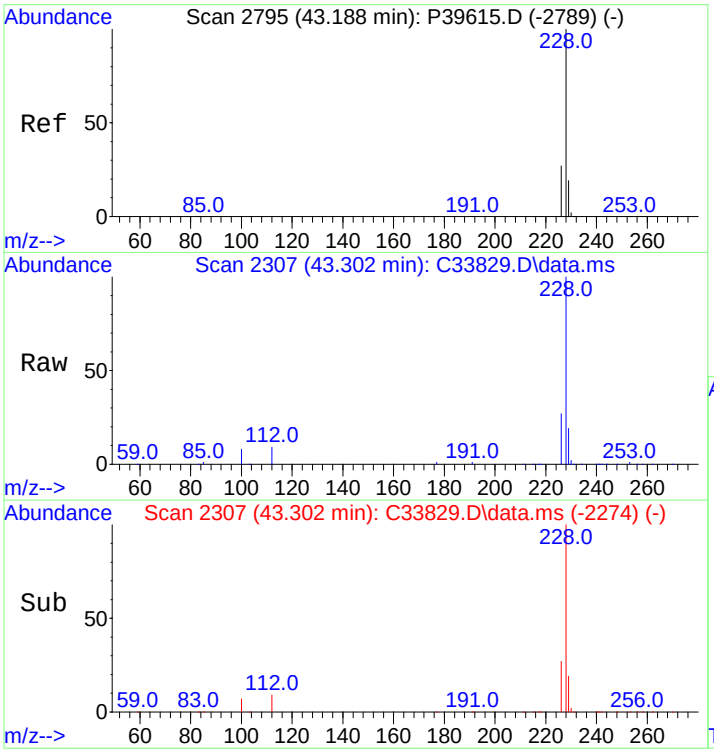


#67
Naphthobenzothiophene-2,1-D
Concen: 520.98 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

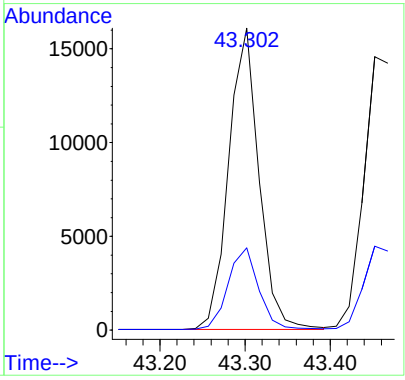


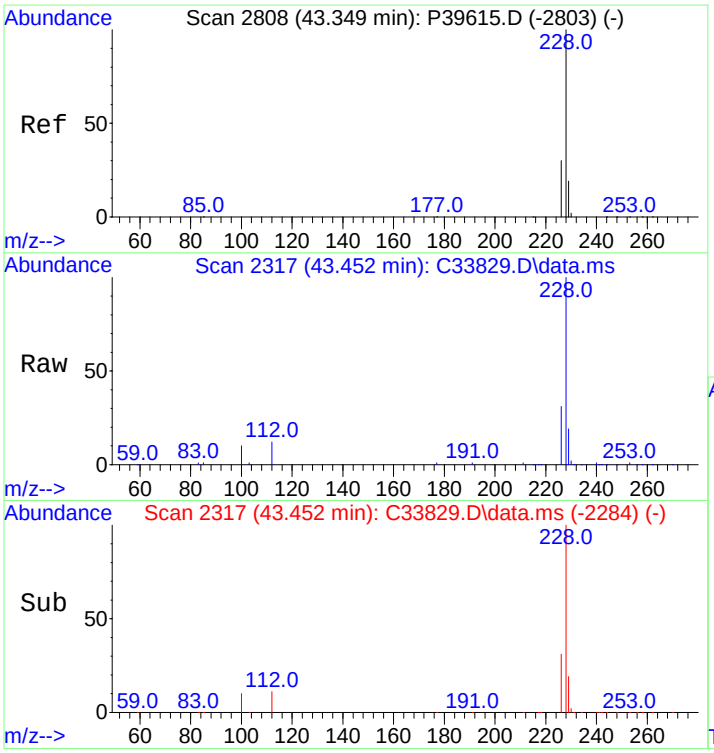


#75
Benz[a]anthracene
Concen: 549.15 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 39712

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.8	32.8

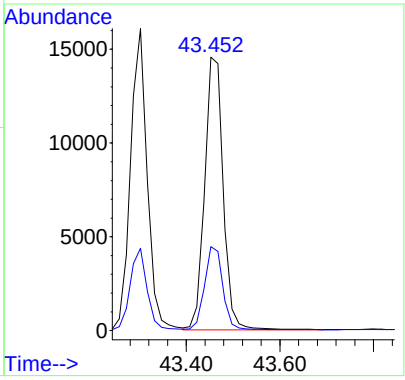


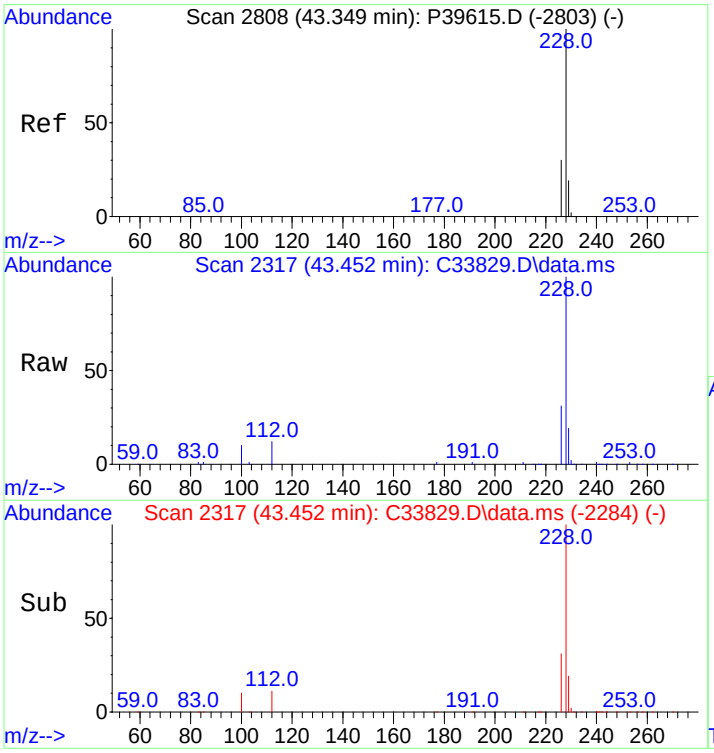


#76
Chrysene
Concen: 549.90 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40148

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

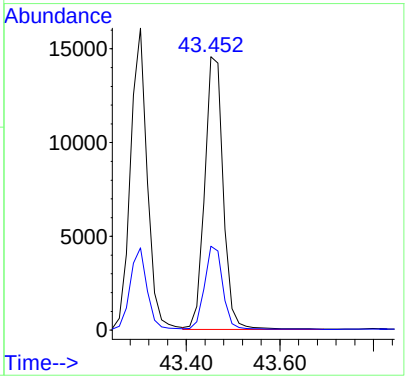


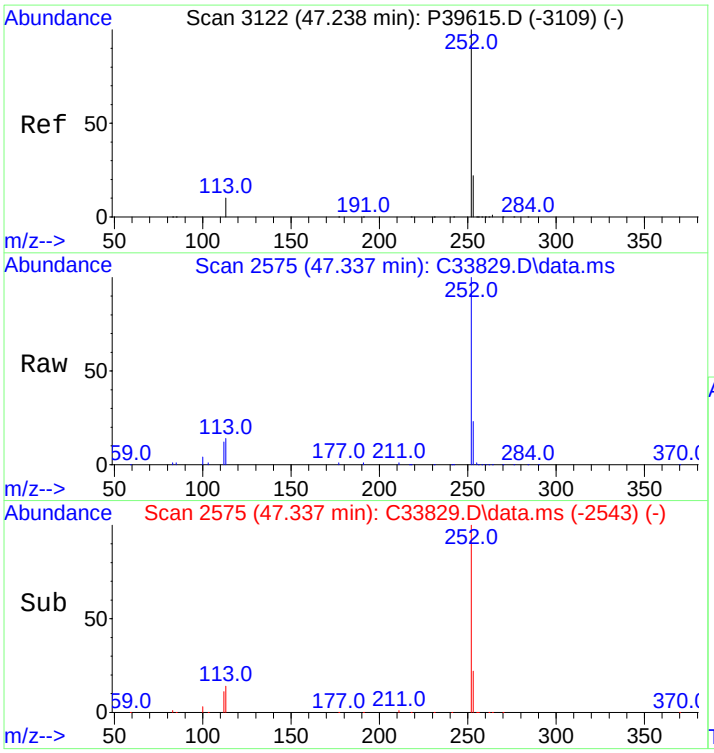


#77
Chrysene/Triphenylene
Concen: 549.40 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40111

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

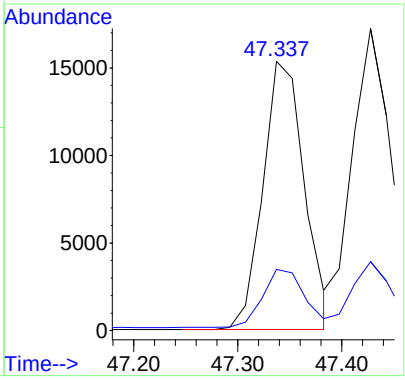


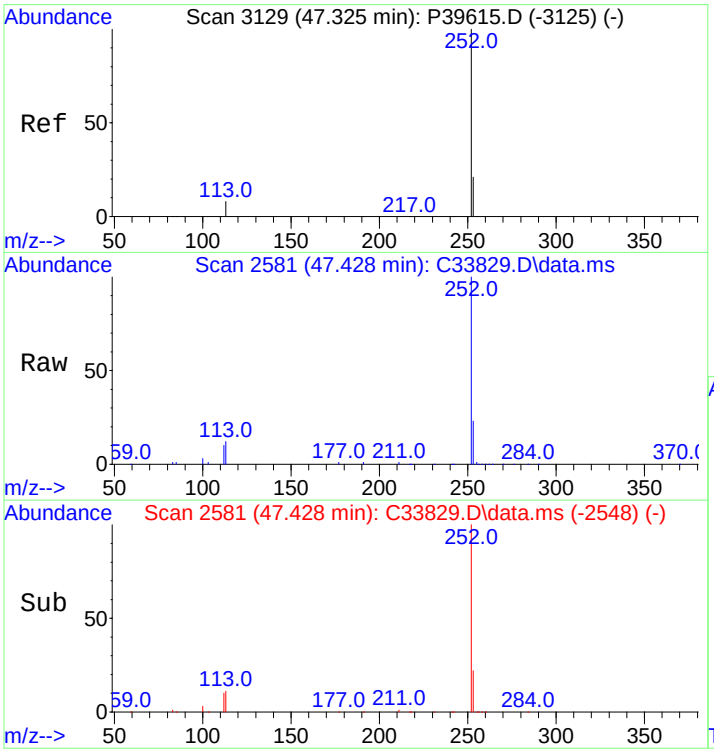


#82
Benzo[b]fluoranthene
Concen: 536.45 ng/mL
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42627

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

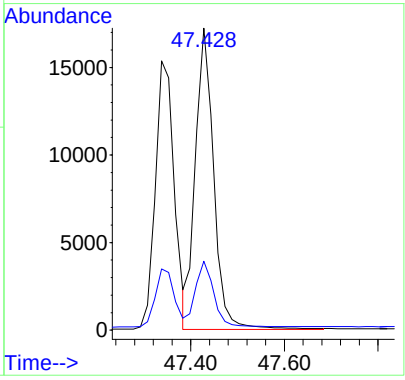


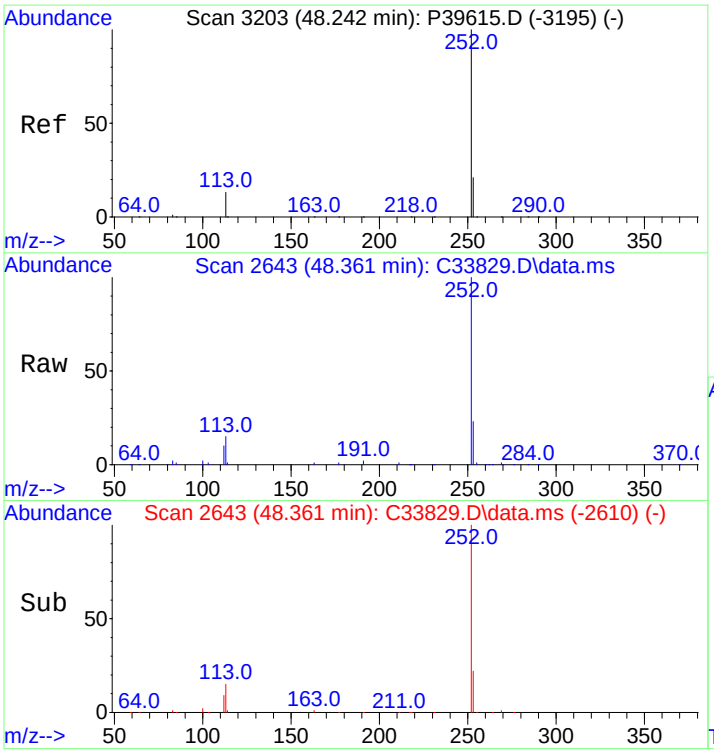


#83
Benzo[j]+[k]fluoranthene
Concen: 545.84 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 47222

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.2	27.4

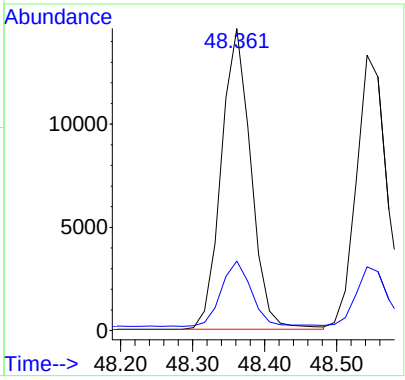


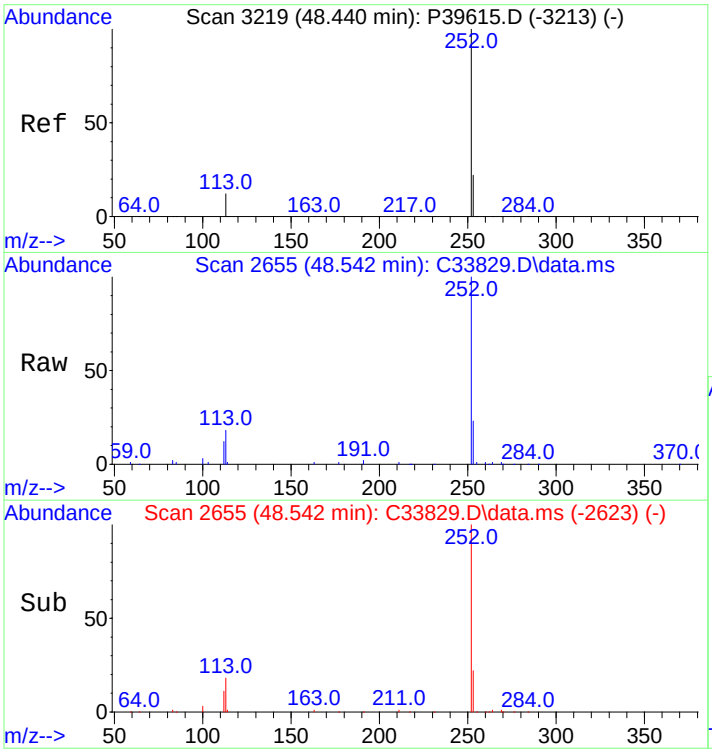


#85
Benzo[e]pyrene
Concen: 531.40 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 41766

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

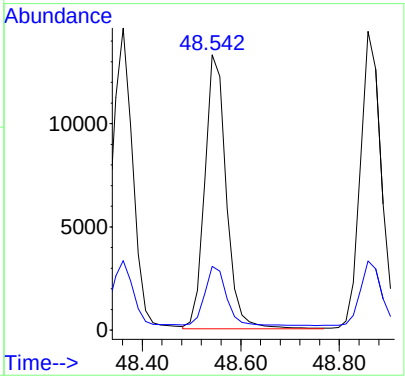


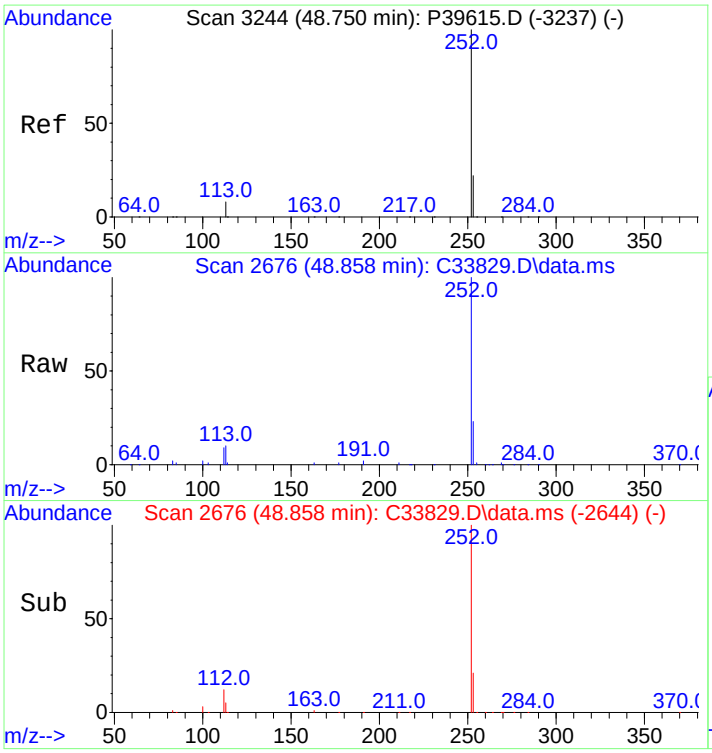


#87
Benzo[a]pyrene
Concen: 531.09 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 40189

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.7	28.1

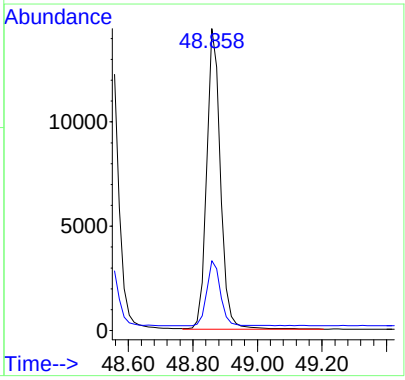


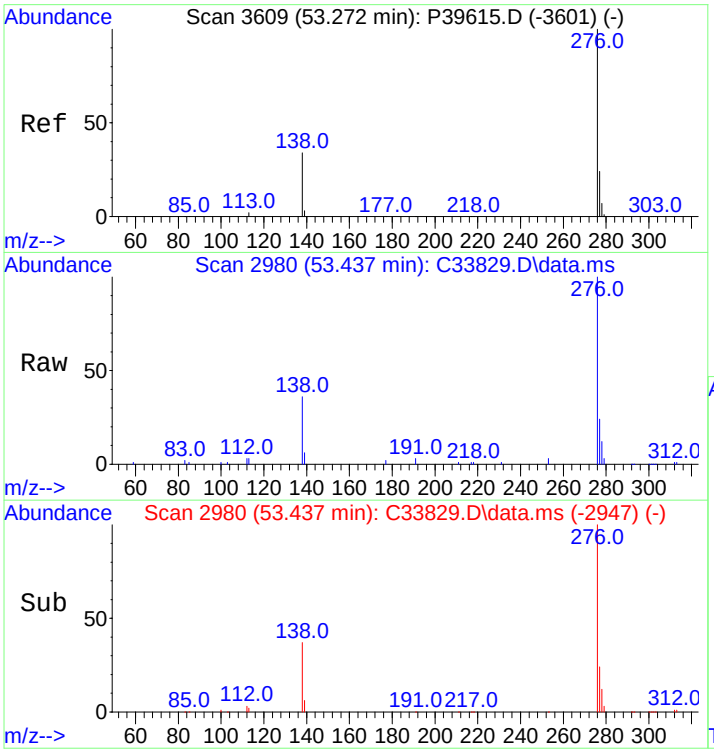


#88
Perylene
Concen: 529.34 ng/mL
RT: 48.858 min Scan# 2676
Delta R.T. -0.016 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42809

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

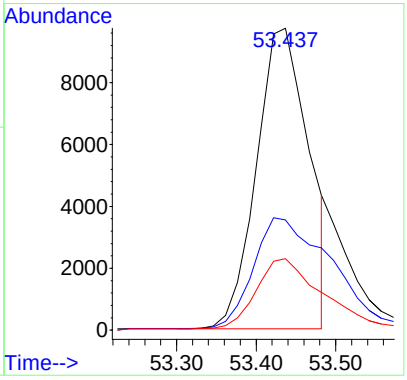


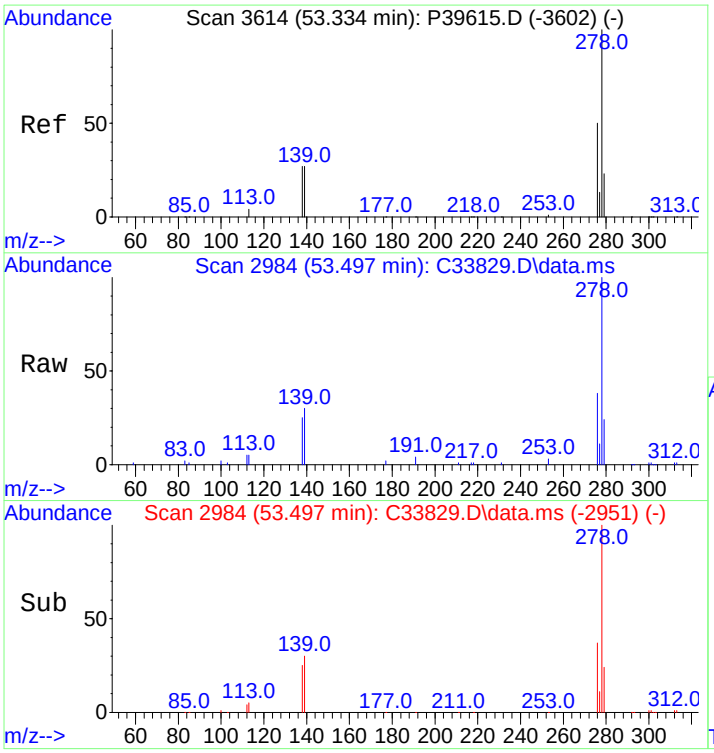


#89
Indeno[1,2,3-cd]pyrene
Concen: 505.20 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 44489

Ion	Ratio	Lower	Upper
276	100		
138	57.7	30.3	45.5#
277	31.4	19.2	28.8#

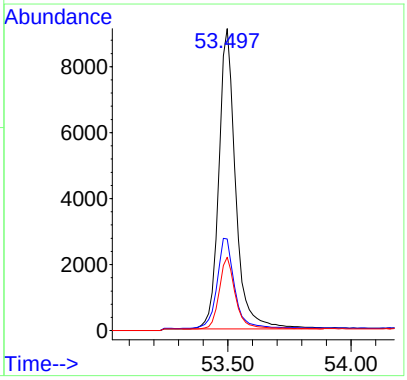


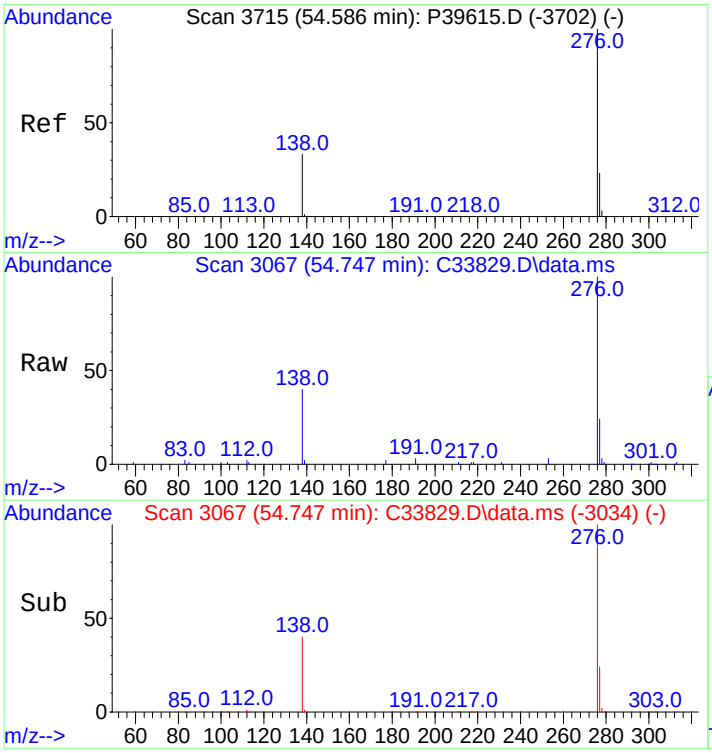


#90
Dibenz[ah]+[ac]anthracene
Concen: 520.25 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:278 Resp: 43582

Ion	Ratio	Lower	Upper
278	100		
139	33.2	25.4	38.2
279	24.2	19.0	28.4

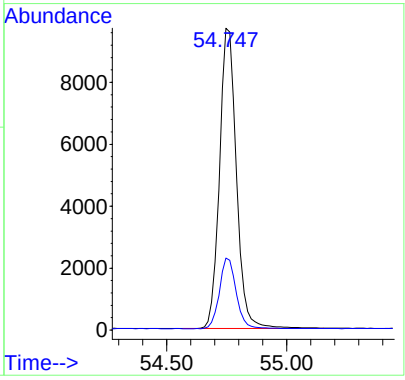




#91
Benzo[g,h,i]perylene
Concen: 510.62 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 47507

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3



PAH Ccal – 1204031
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	26089M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	44781	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	54950	485.283	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.53%#			
42) Phenanthrene-d10	32.567	188	44160	493.402	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.34%#			
86) Benzo[a]pyrene-d12	48.241	264	45536	490.662	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.07%#			
127) 5B(H)Cholane - Surr	43.769	217	7026	501.828	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.18%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	5103	247.780	ng/mL	100
4) cis-Decalin	17.603	138	3914	252.162	ng/mL	100
10) Naphthalene	19.801	128	76478	459.943	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	46542	473.392	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	44193	458.580	ng/mL#	100
18) Benzothiophene	20.027	134	68125	455.294	ng/mL	100
23) Biphenyl	24.393	154	59181	475.856	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	39215	485.480	ng/mL#	100
25) Dibenzofuran	27.479	168	67874	475.265	ng/mL	96
26) Acenaphthylene	26.094	152	76063M3	460.823	ng/mL	
27) Acenaphthene	26.831	153	45976	473.069	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.382	170	32171	494.066	ng/mL	99
29) Fluorene	28.849	166	51461M3	480.111	ng/mL	
33) Dibenzothiophene	32.160	184	81656	475.249	ng/mL	99
43) Phenanthrene	32.657	178	72281	478.822	ng/mL	99
54) Retene	39.643	234	16137	548.005	ng/mL	97
55) Anthracene	32.838	178	71626M3	485.764	ng/mL	
56) Carbazole	33.500	167	70445M3	472.973	ng/mL	
57) 1-Methylphenanthrene	35.172	192	49260	514.930	ng/mL	99
58) Fluoranthene	37.430	202	76253M3	508.609	ng/mL	
59) Benzo(b)fluorene	39.944	216	46182	530.948	ng/mL	100
60) Pyrene	38.318	202	77613	509.265	ng/mL	98
66) Naphthobenzothiophene	42.158	234	84831	517.025	ng/ml#	66
67) Naphthobenzothiophene-...	42.158	234	84831	517.025	ng/mL#	66
75) Benz[a]anthracene	43.091	228	71364	502.089	ng/mL	100
76) Chrysene	43.257	228	69630	485.239	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	69630	485.239	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	84065	538.267	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	81920	481.779	ng/mL	96
85) Benzo[e]pyrene	48.136	252	76555	495.571	ng/mL	96
87) Benzo[a]pyrene	48.331	252	73411	493.583	ng/mL	95
88) Perylene	48.633	252	78871	496.195	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	95448M3	551.461	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	90499	549.649	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97641	533.960	ng/mL	100
92) Hopane (T19)	52.217	191	12792	433.424	ng/mL#	84
93) 17a(H),21B(H)-hopane -...	52.217	191	12792	433.424	ng/mL#	84

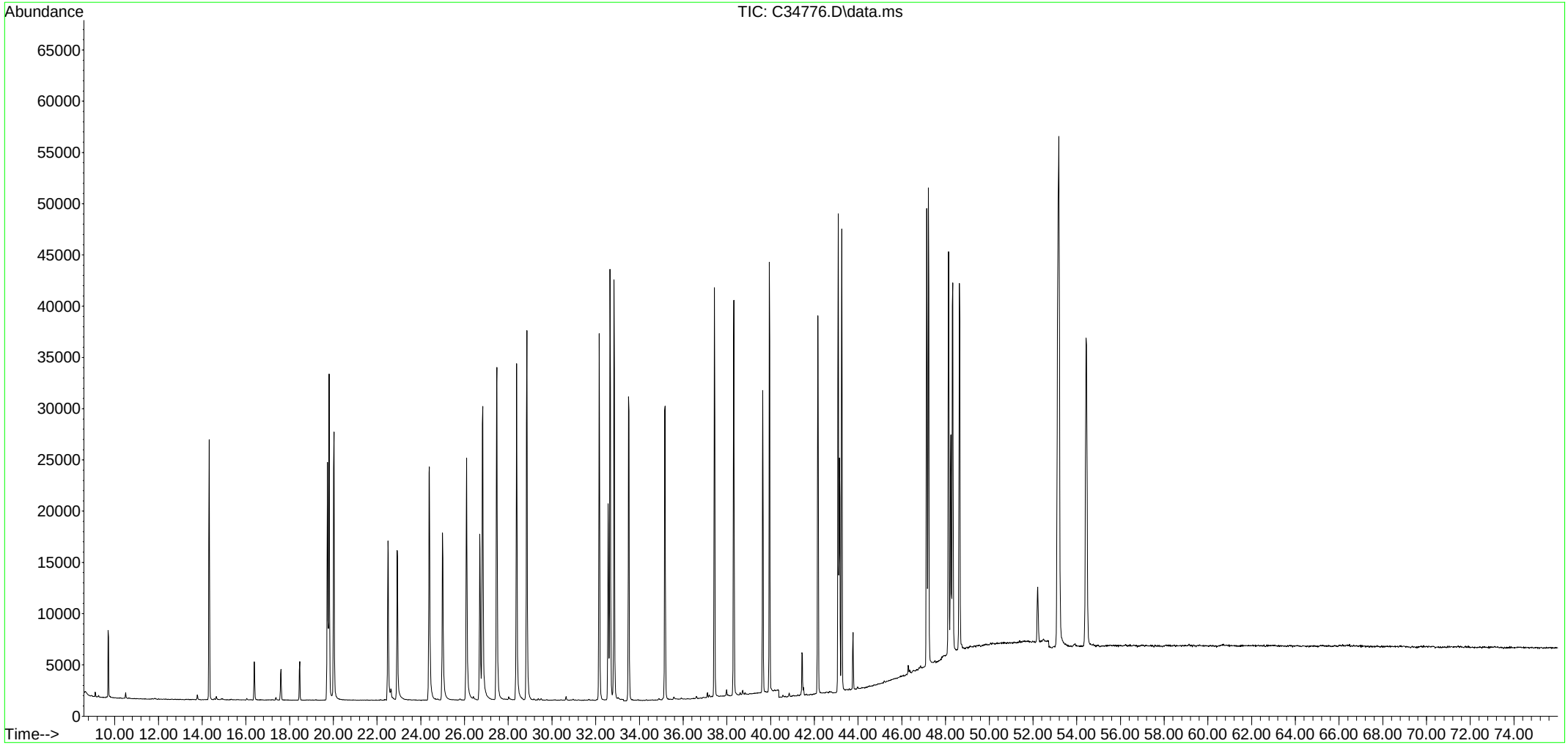
(#) = qualifier out of range (m) = manual integration (+) = signals summed

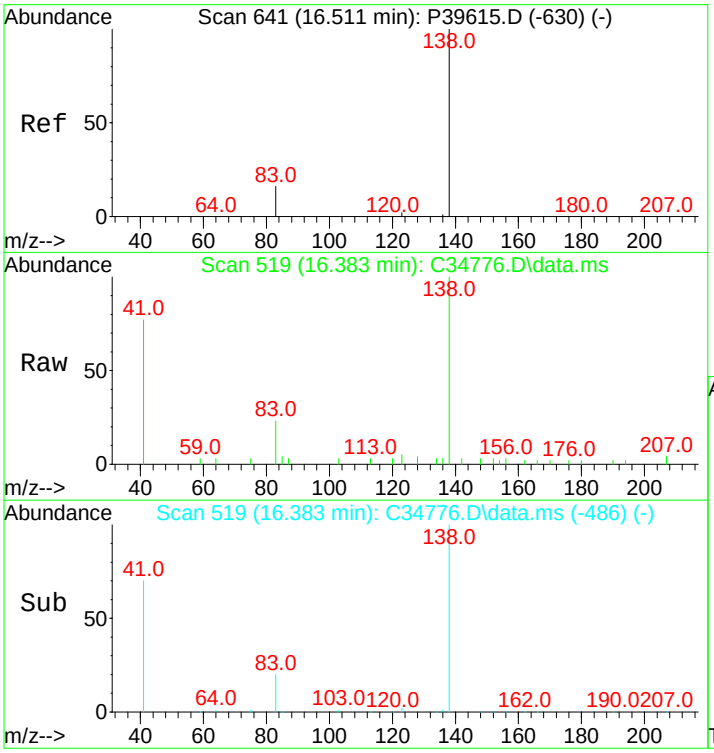
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

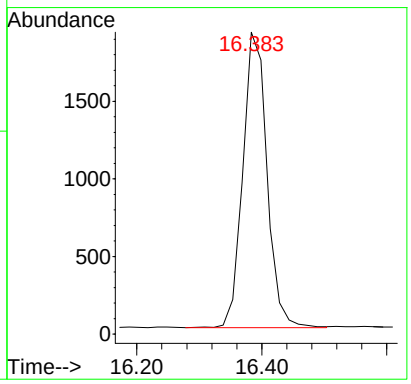
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

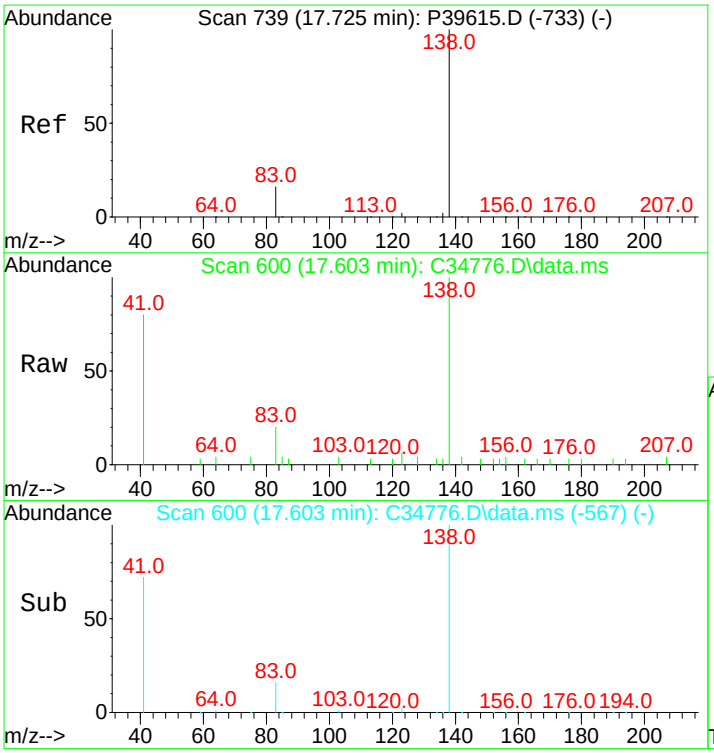




#3
trans-Decalin
Concen: 247.78 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

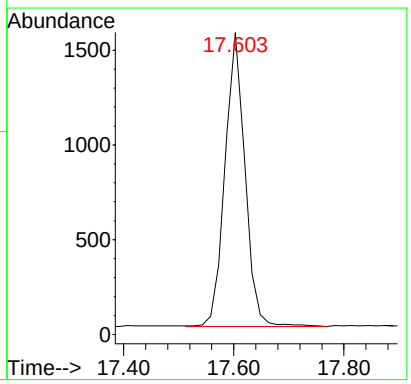
Tgt Ion:138 Resp: 5103

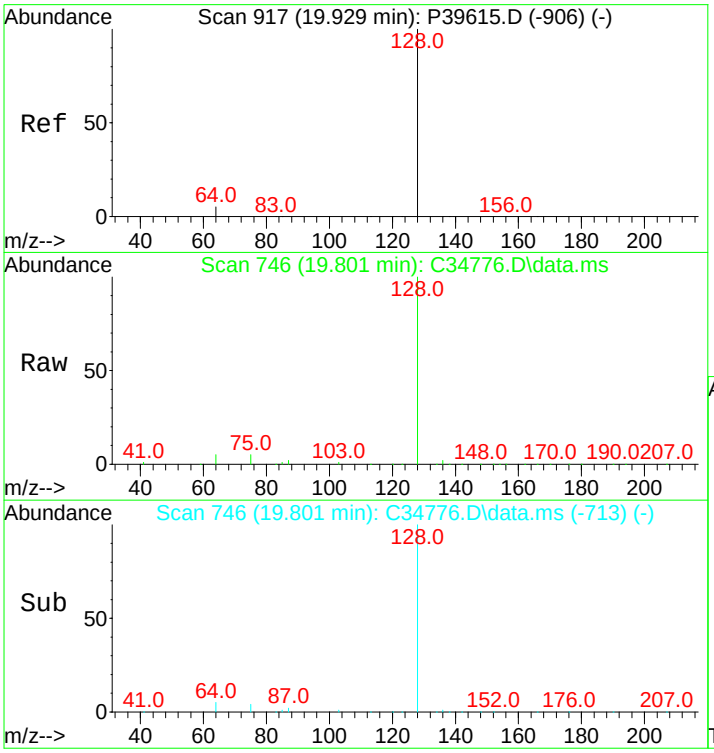




#4
cis-Decalin
Concen: 252.16 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:138 Resp: 3914

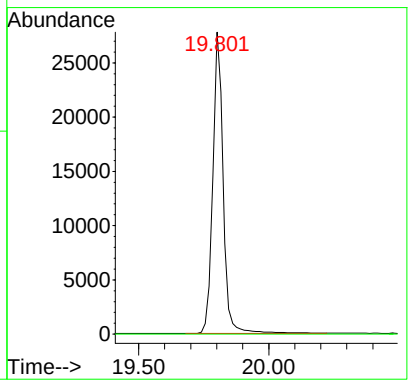


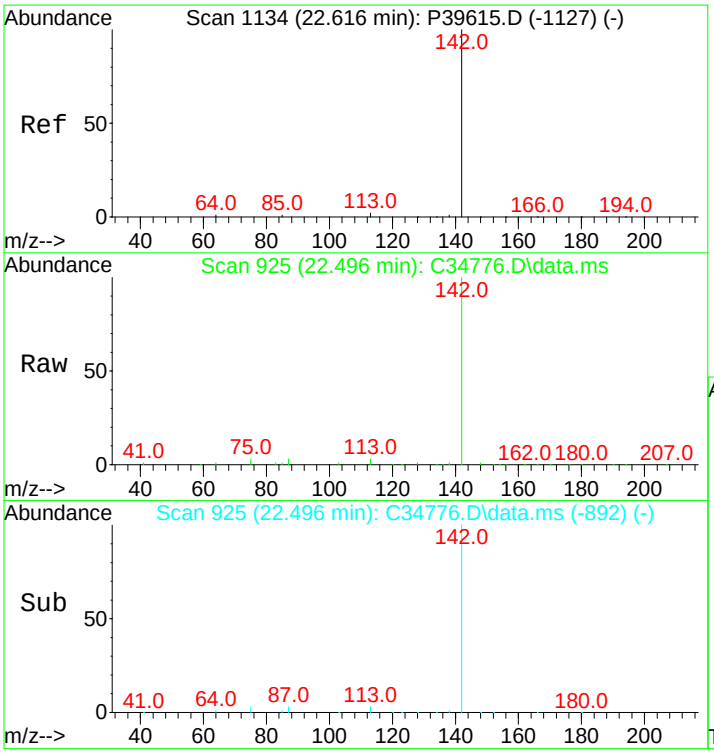


#10
Naphthalene
Concen: 459.94 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:128 Resp: 76478

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

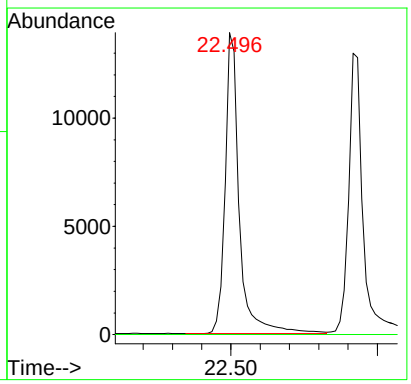


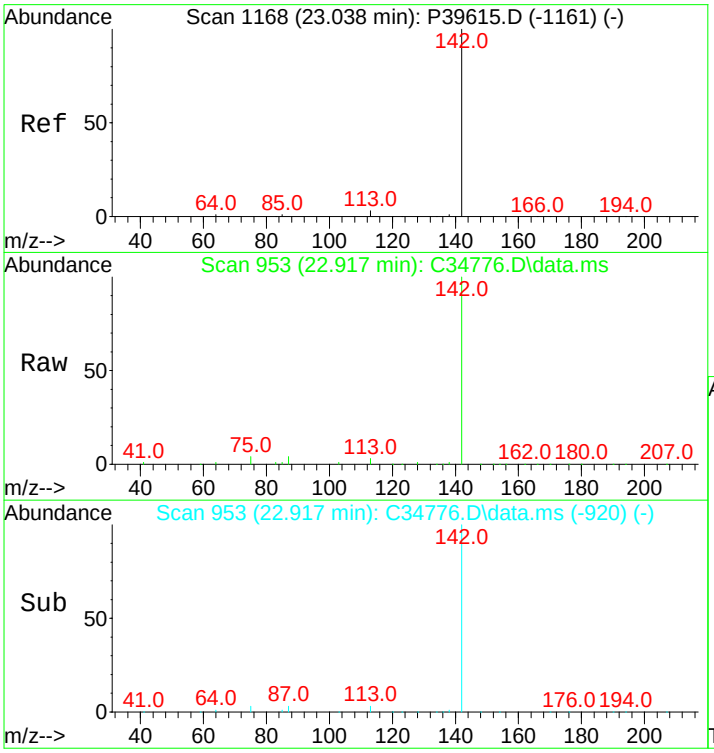


#16
2-Methylnaphthalene
Concen: 473.39 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:142 Resp: 46542

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

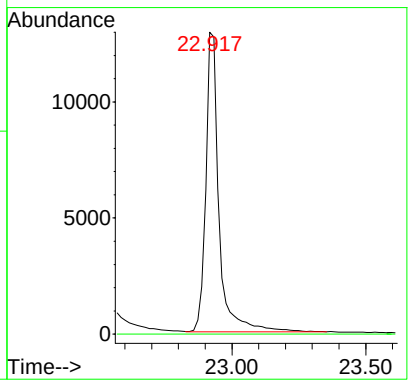


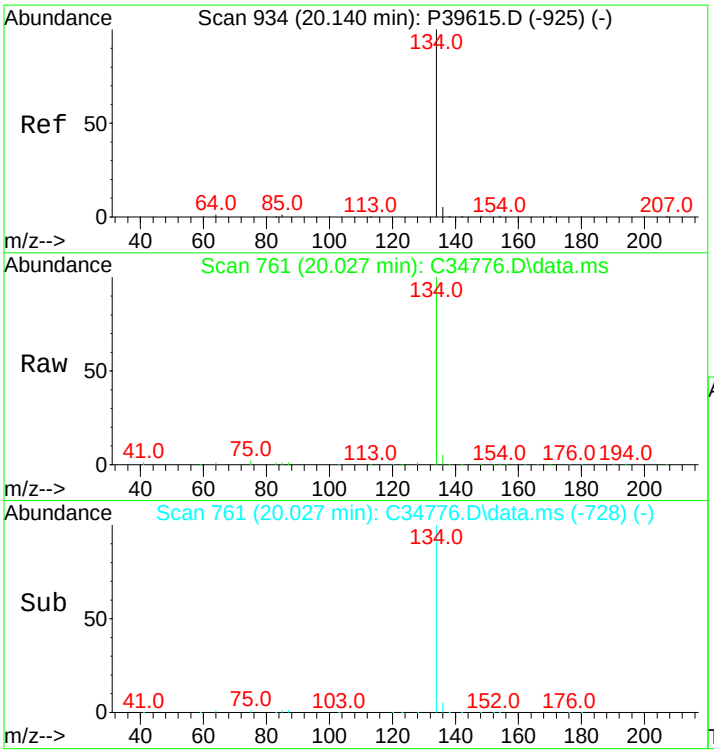


#17
1-Methylnaphthalene
Concen: 458.58 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:142 Resp: 44193

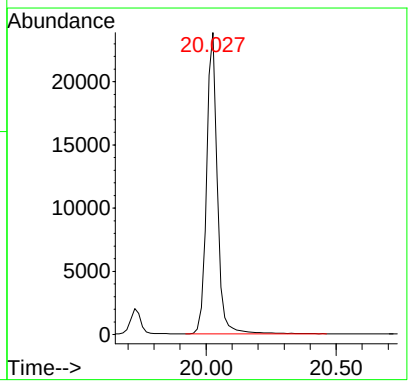
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

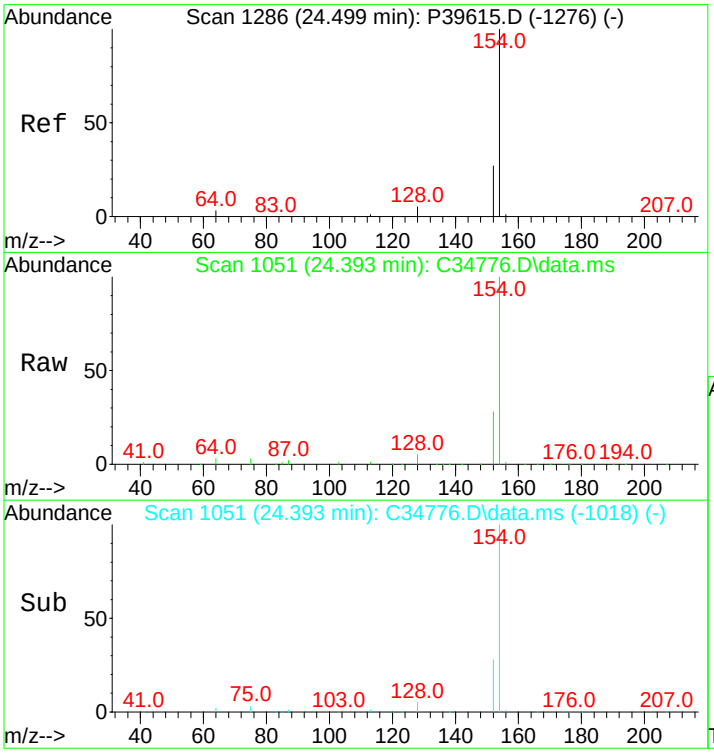




#18
Benzothiophene
Concen: 455.29 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:134 Resp: 68125

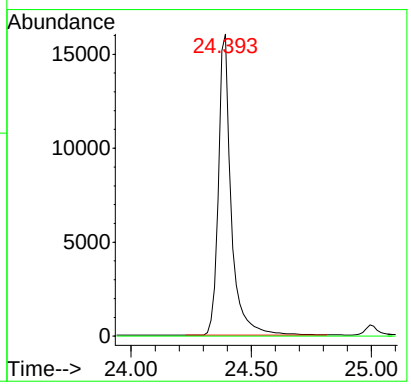


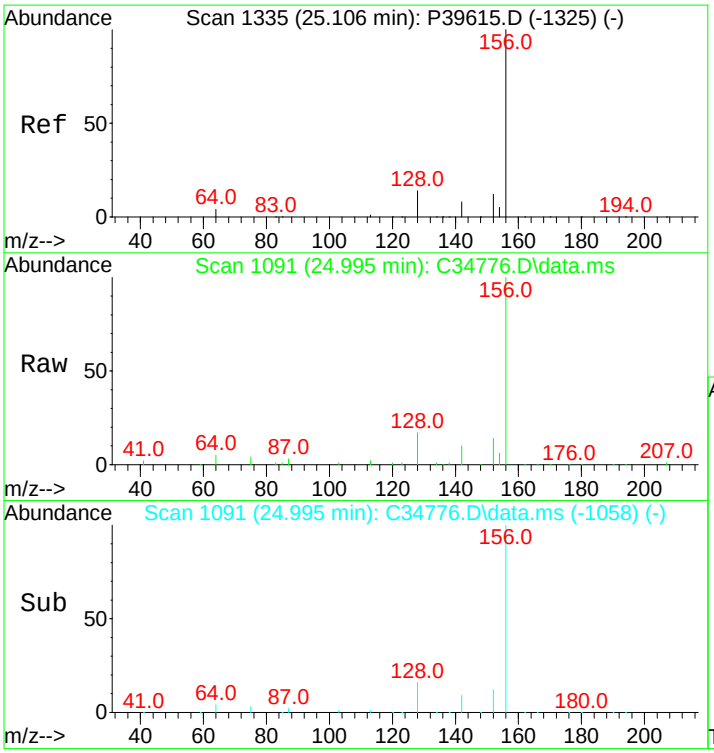


#23
Biphenyl
Concen: 475.86 ng/mL
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:154 Resp: 59181

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

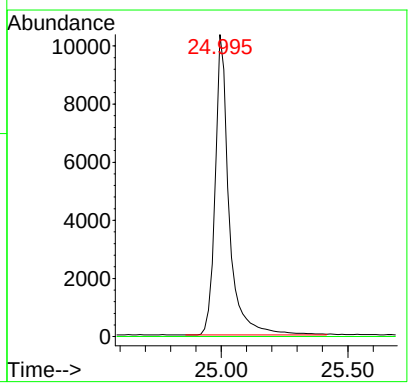


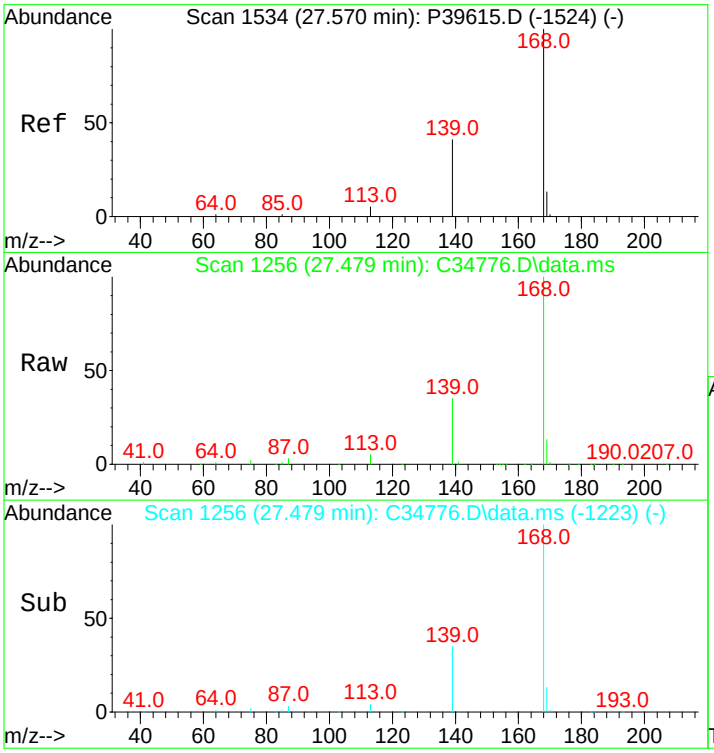


#24
2,6-Dimethylnaphthalene
Concen: 485.48 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:156 Resp: 39215

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

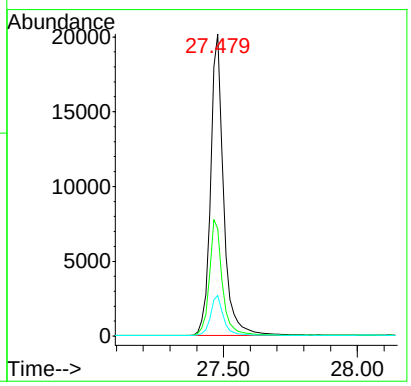


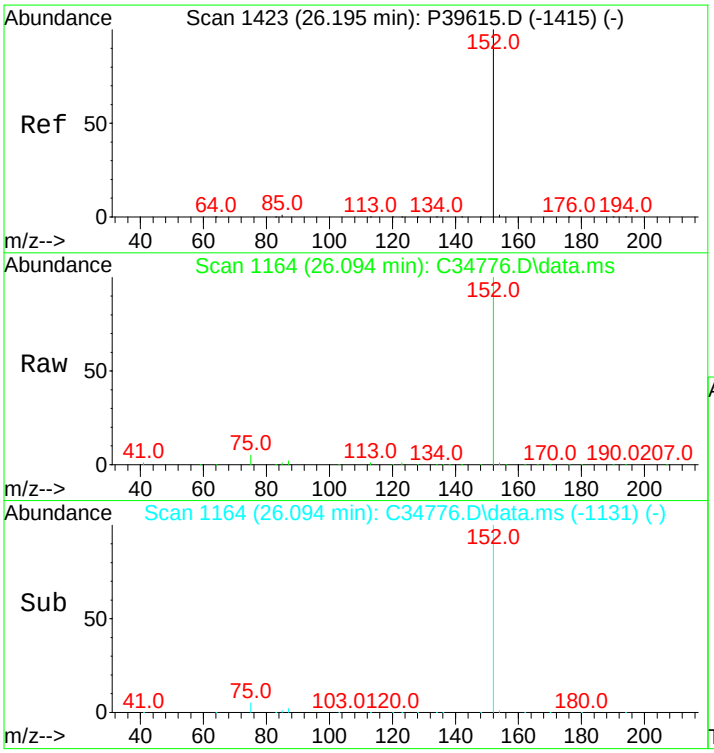


#25
Dibenzofuran
Concen: 475.27 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:168 Resp: 67874

Ion	Ratio	Lower	Upper
168	100		
139	38.3	28.4	42.6
169	13.3	10.8	16.2

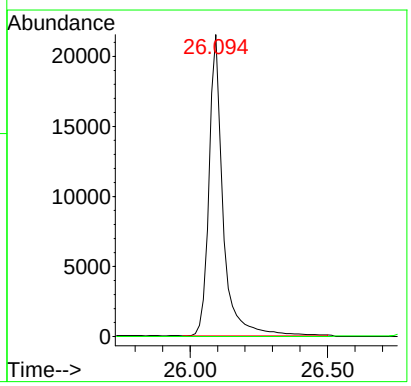


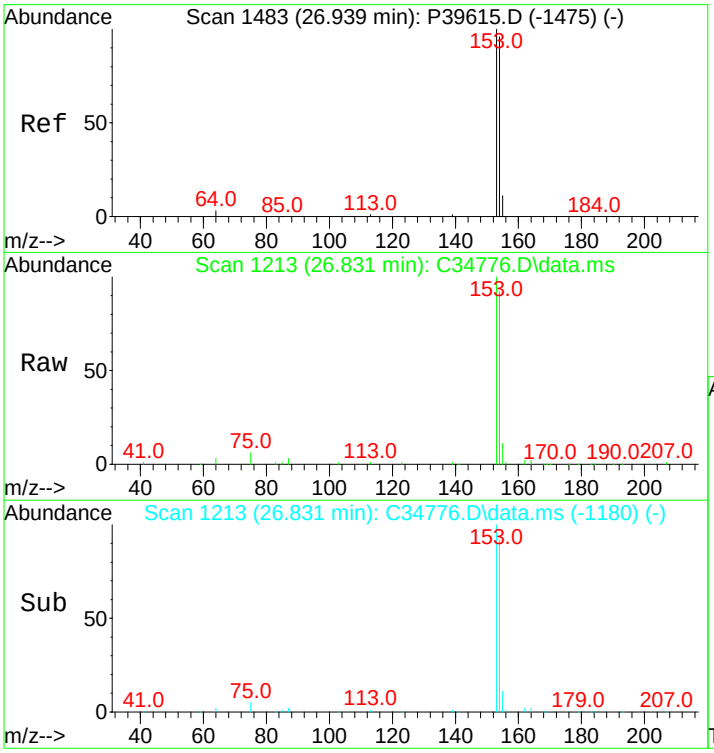


#26
Acenaphthylene
Concen: 460.82 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:152 Resp: 76063

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

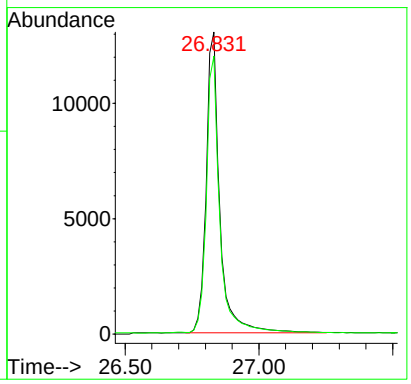


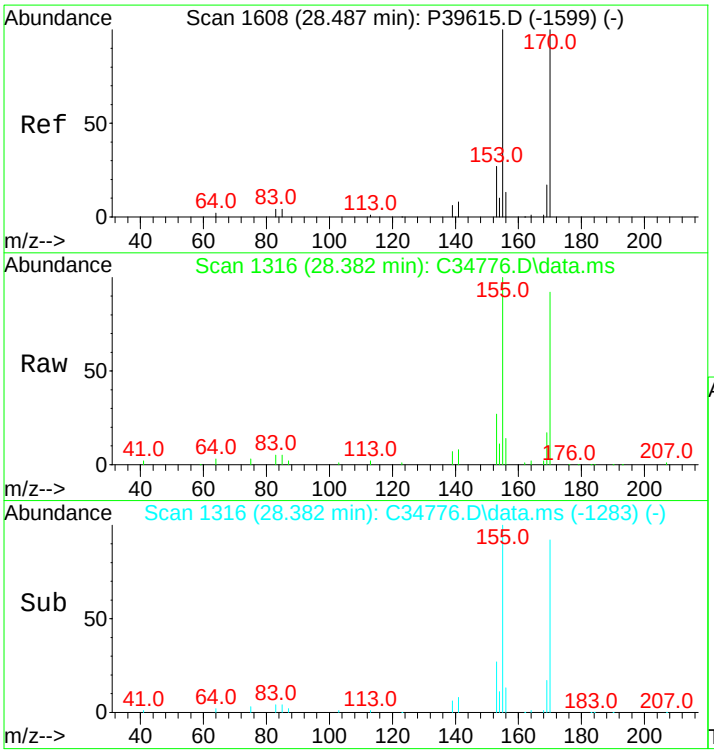


#27
Acenaphthene
Concen: 473.07 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:153 Resp: 45976

Ion	Ratio	Lower	Upper
153	100		
154	90.9	73.6	110.4

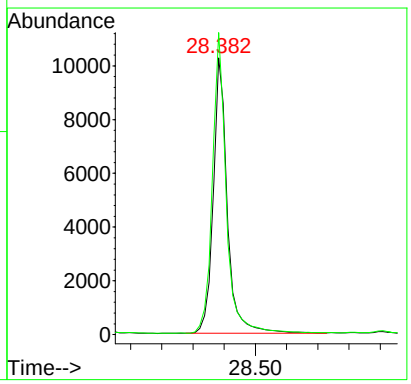


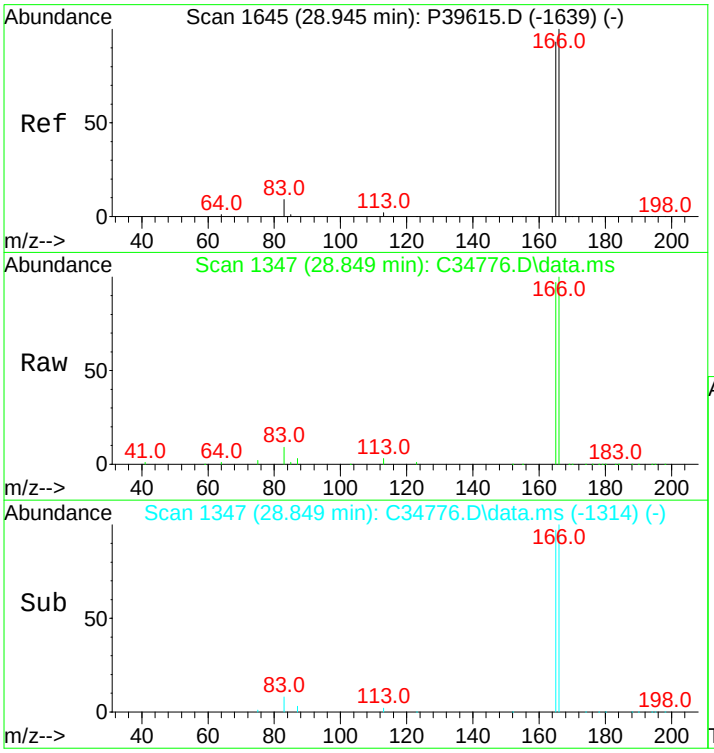


#28
2,3,5-Trimethylnaphthalene
Concen: 494.07 ng/mL
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:170 Resp: 32171

Ion	Ratio	Lower	Upper
170	100		
155	107.7	87.3	130.9

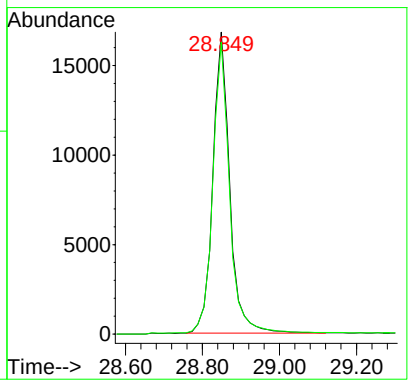


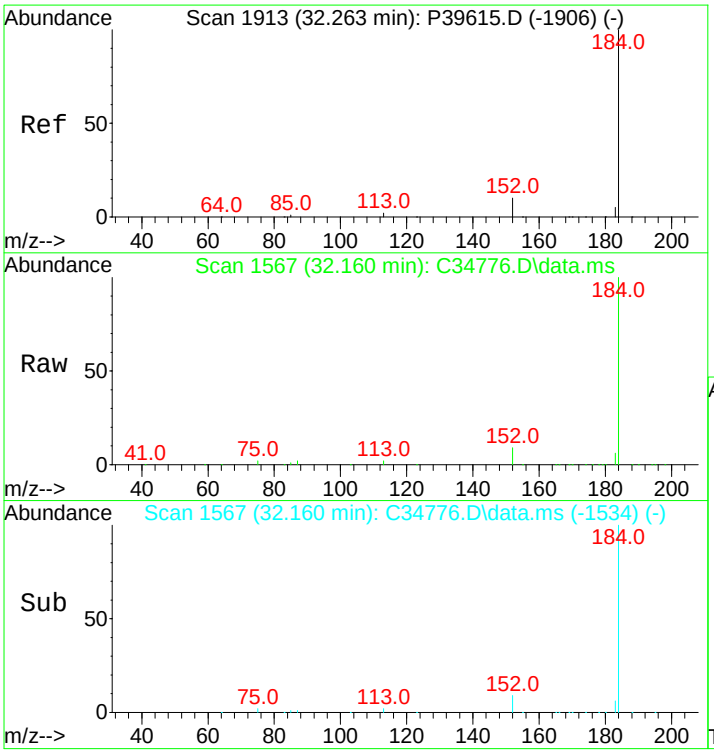


#29
Fluorene
Concen: 480.11 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:166 Resp: 51461

Ion	Ratio	Lower	Upper
166	100		
165	97.4	77.3	115.9

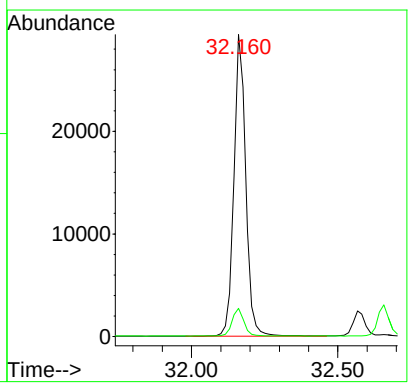


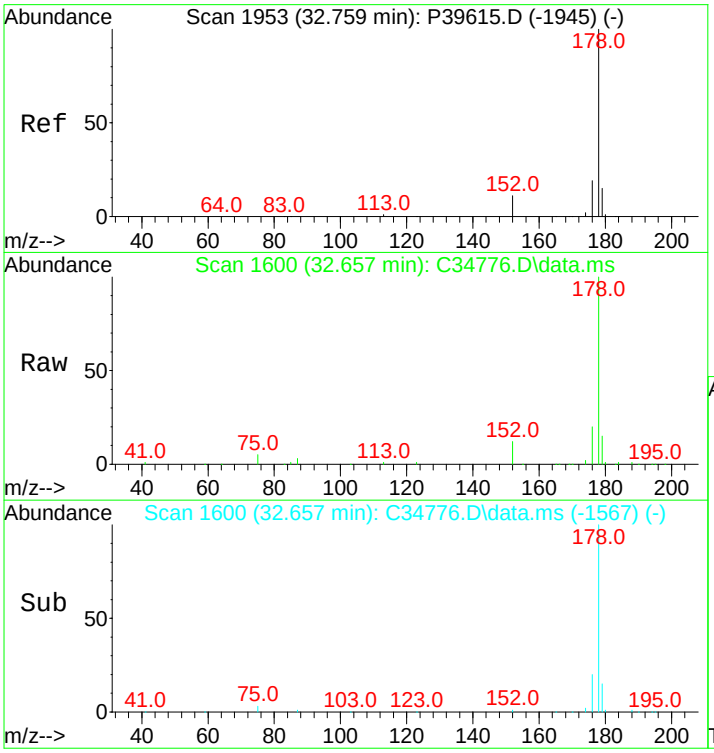


#33
Dibenzothiophene
Concen: 475.25 ng/mL
RT: 32.160 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:184 Resp: 81656

Ion	Ratio	Lower	Upper
184	100		
152	9.2	7.5	11.3

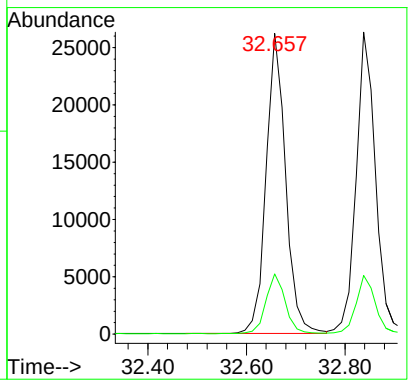


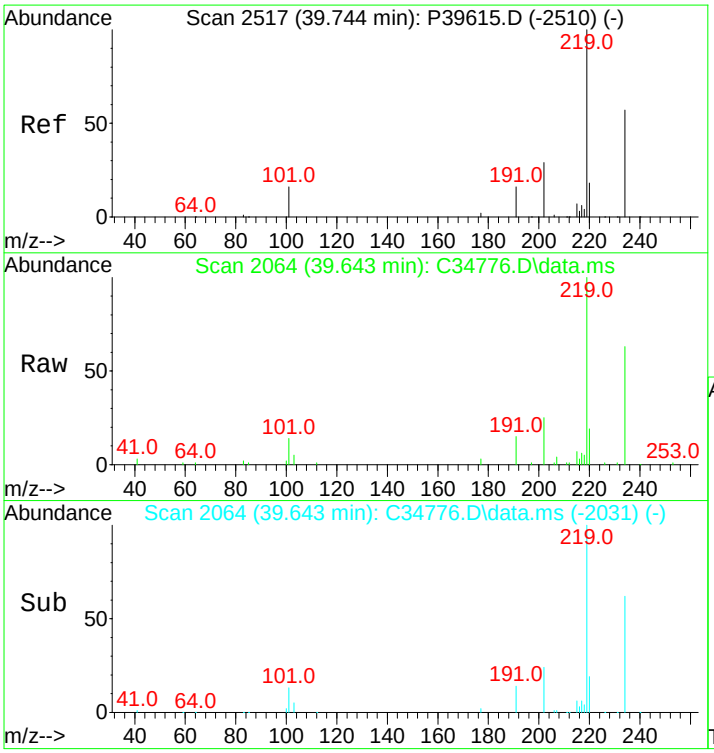


#43
Phenanthrene
Concen: 478.82 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:178 Resp: 72281

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

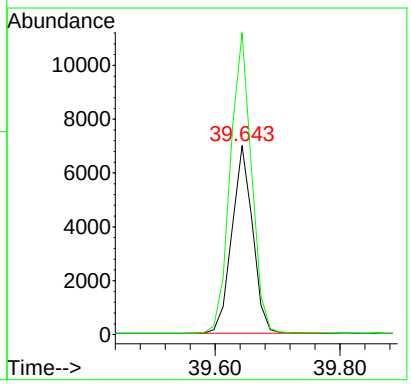


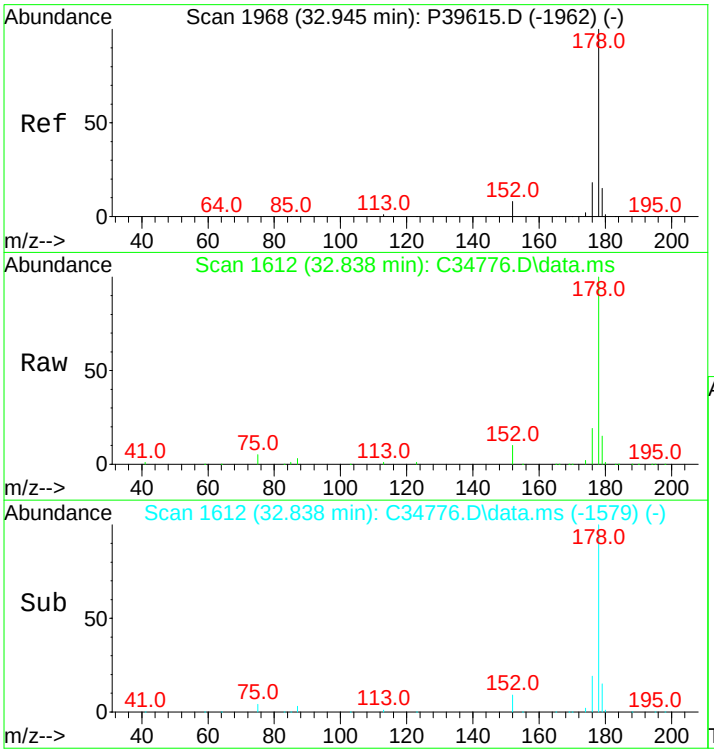


#54
Retene
Concen: 548.00 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 16137

Ion	Ratio	Lower	Upper
234	100		
219	163.3	127.8	191.8

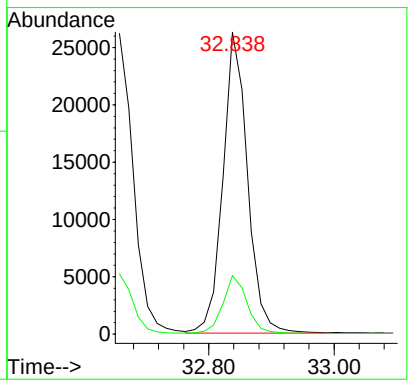


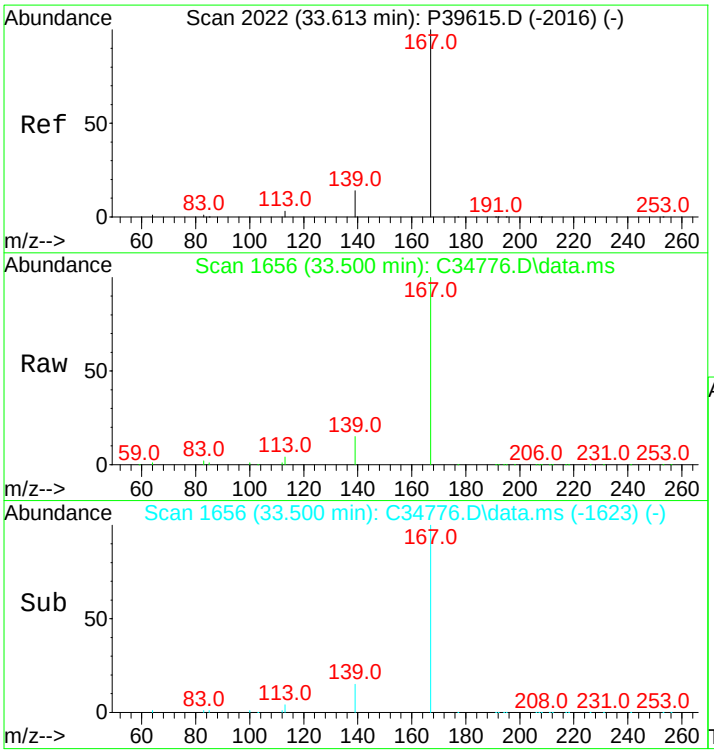


#55
Anthracene
Concen: 485.76 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:178 Resp: 71626

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

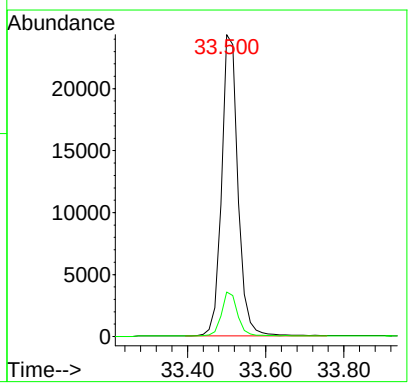


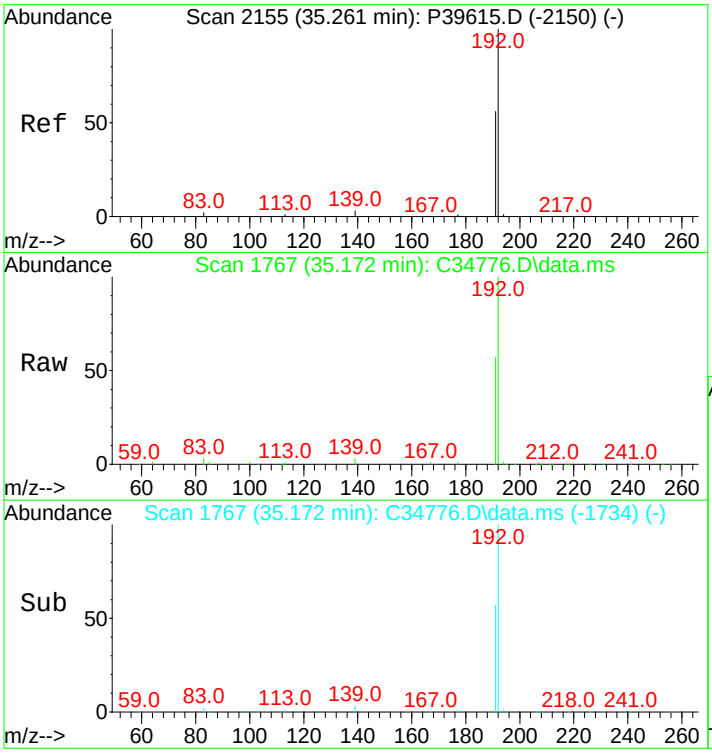


#56
Carbazole
Concen: 472.97 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:167 Resp: 70445

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.8	17.8

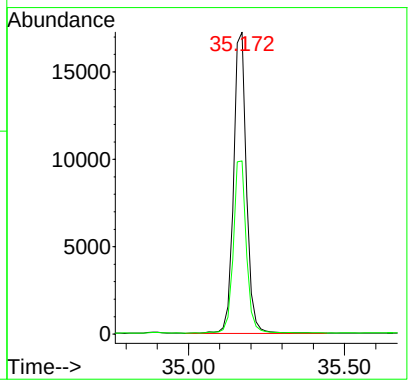


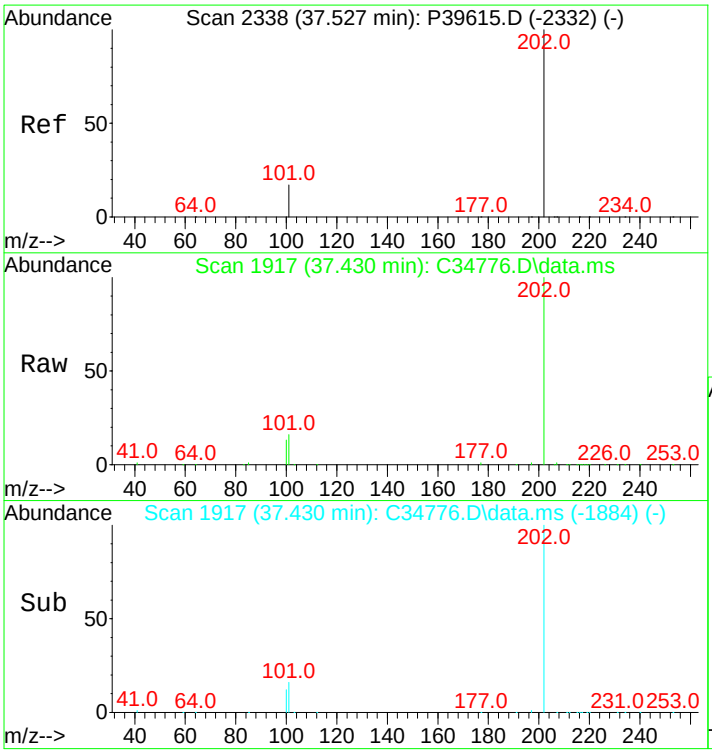


#57
1-Methylphenanthrene
Concen: 514.93 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:192 Resp: 49260

Ion	Ratio	Lower	Upper
192	100		
191	58.0	45.9	68.9

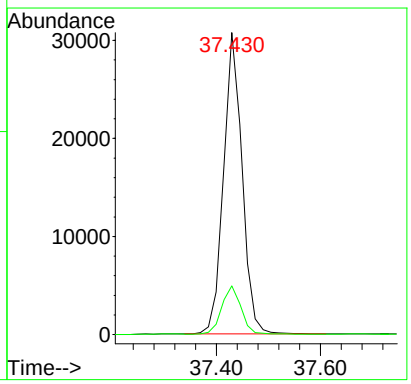


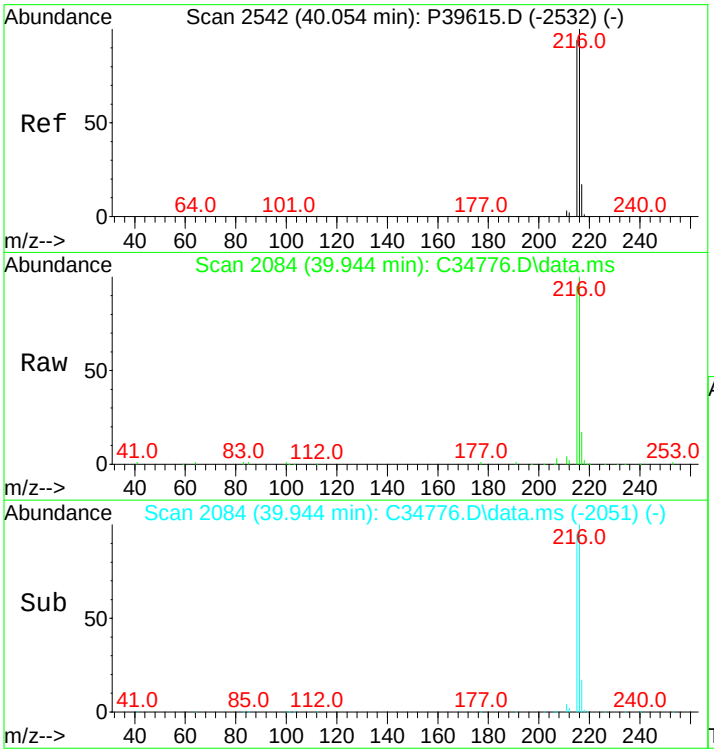


#58
Fluoranthene
Concen: 508.61 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:202 Resp: 76253

Ion	Ratio	Lower	Upper
202	100		
101	16.8	12.9	19.3

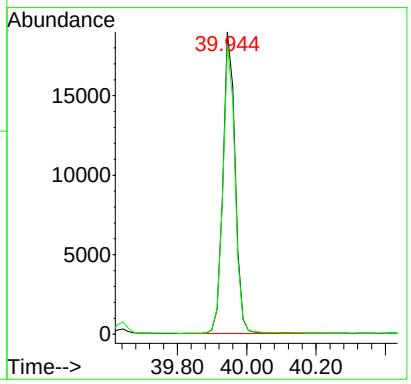


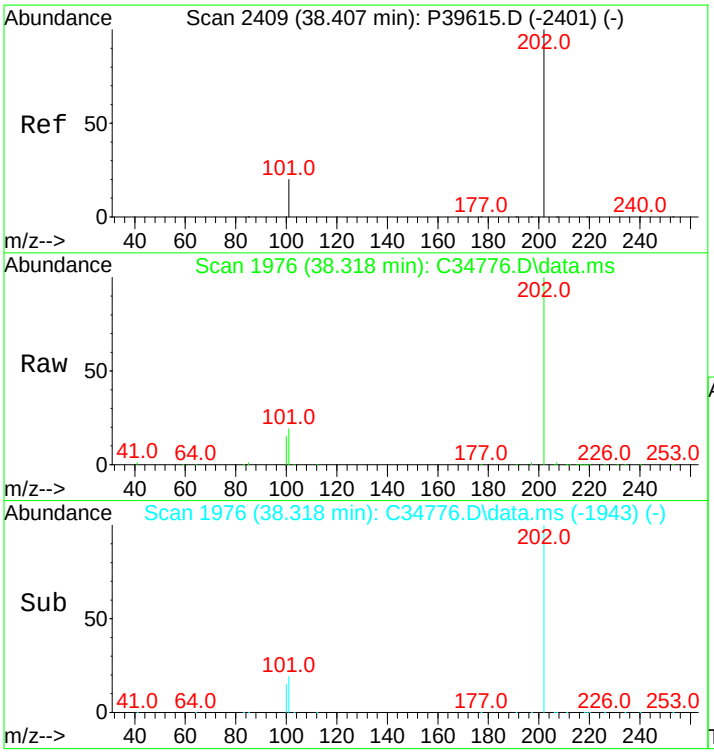


#59
Benzo(b)fluorene
Concen: 530.95 ng/mL
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:216 Resp: 46182

Ion	Ratio	Lower	Upper
216	100		
215	95.6	76.3	114.5

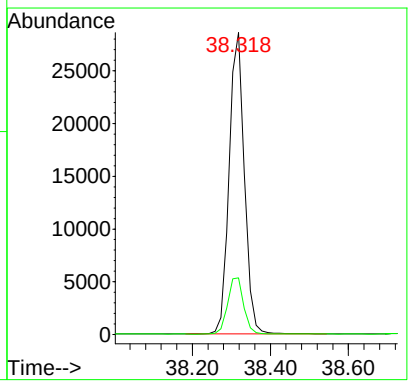


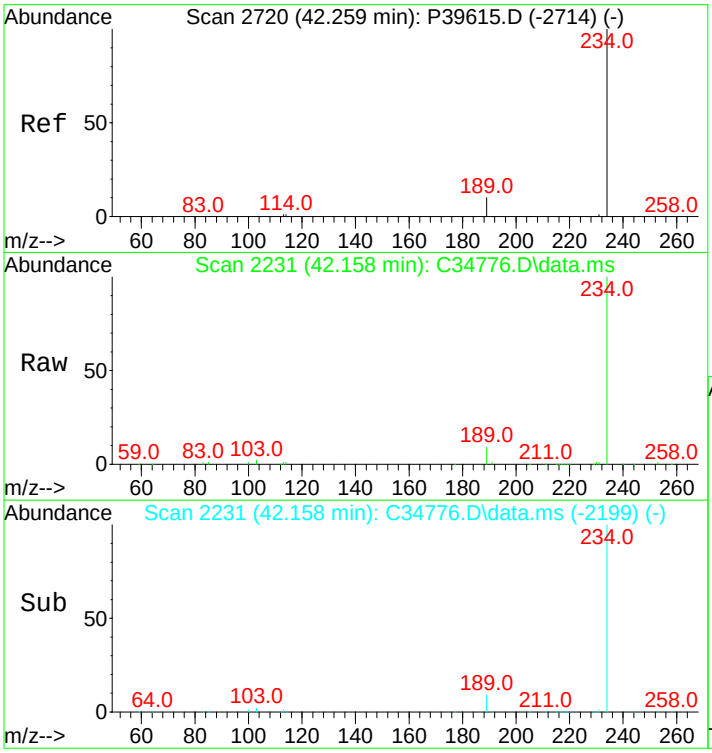


#60
Pyrene
Concen: 509.26 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:202 Resp: 77613

Ion	Ratio	Lower	Upper
202	100		
101	19.7	15.0	22.4

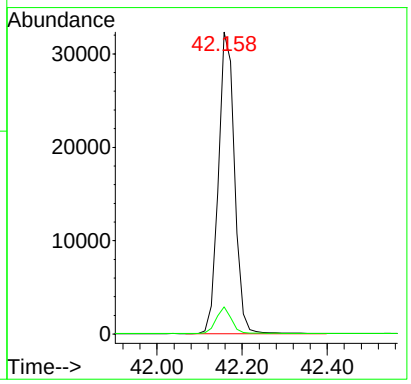


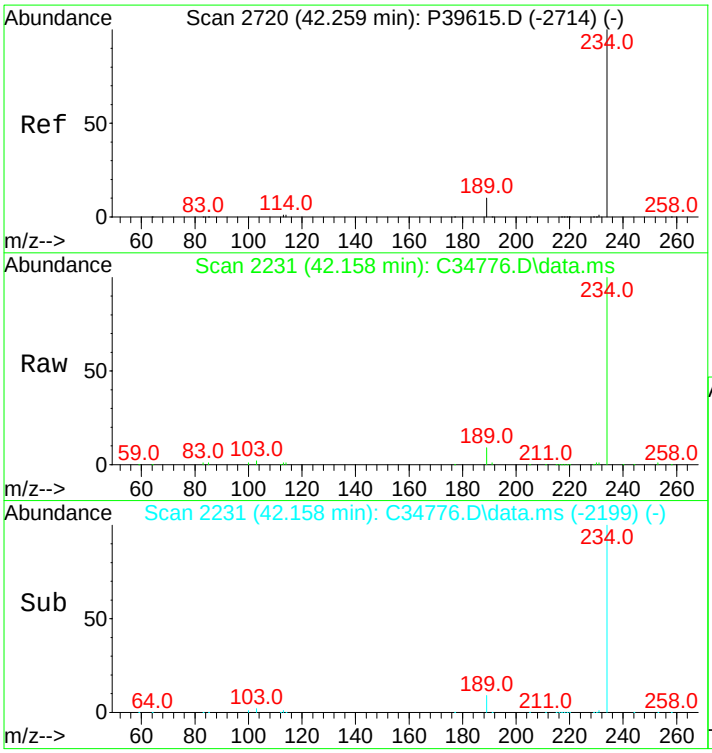


#66
Naphthobenzothiophene
Concen: 517.03 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 84831

Ion	Ratio	Lower	Upper
234	100		
189	8.2	20.5	30.7#

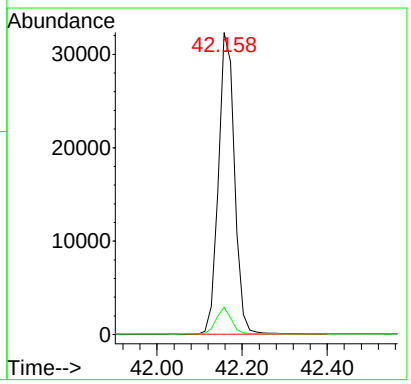


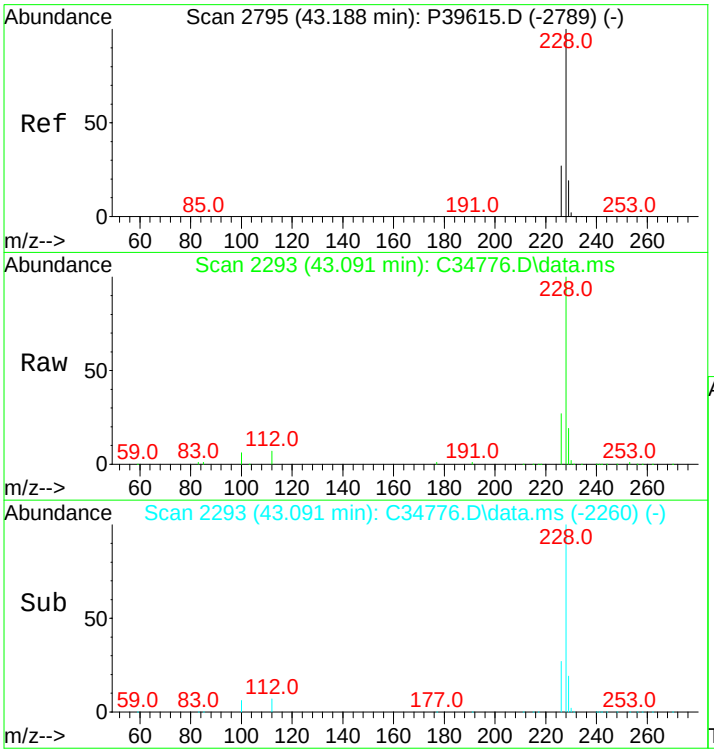


#67
Naphthobenzothiophene-2,1-D
Concen: 517.03 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 84831

Ion	Ratio	Lower	Upper
234	100		
189	8.2	20.5	30.7#

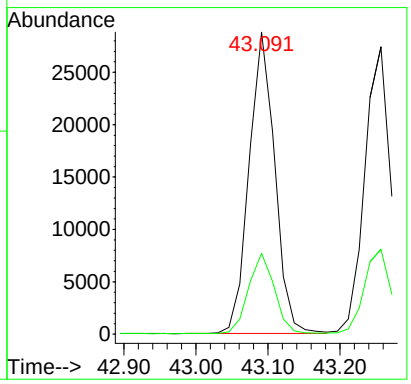


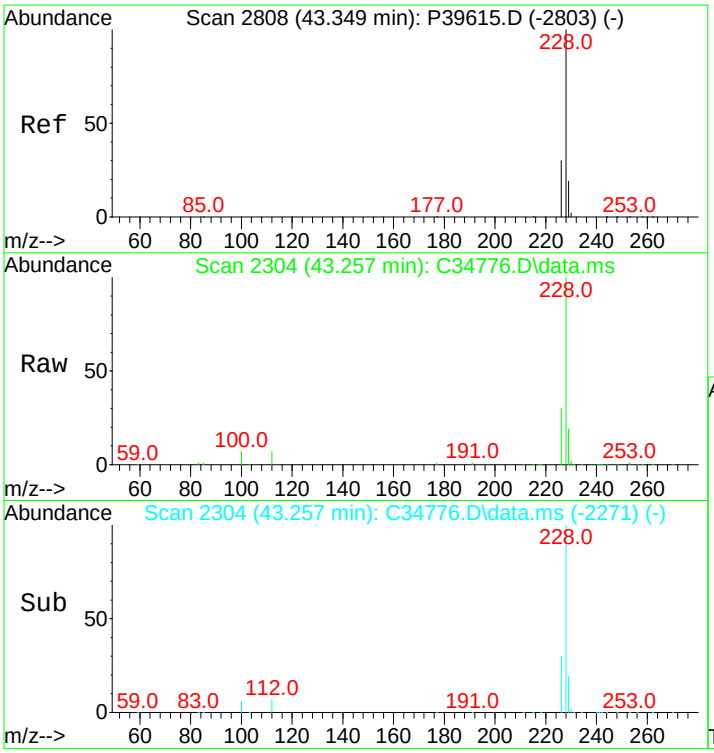


#75
Benz[a]anthracene
Concen: 502.09 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 71364

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

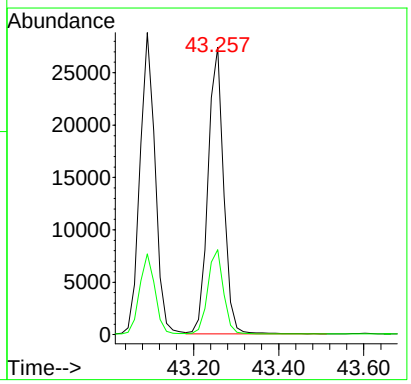


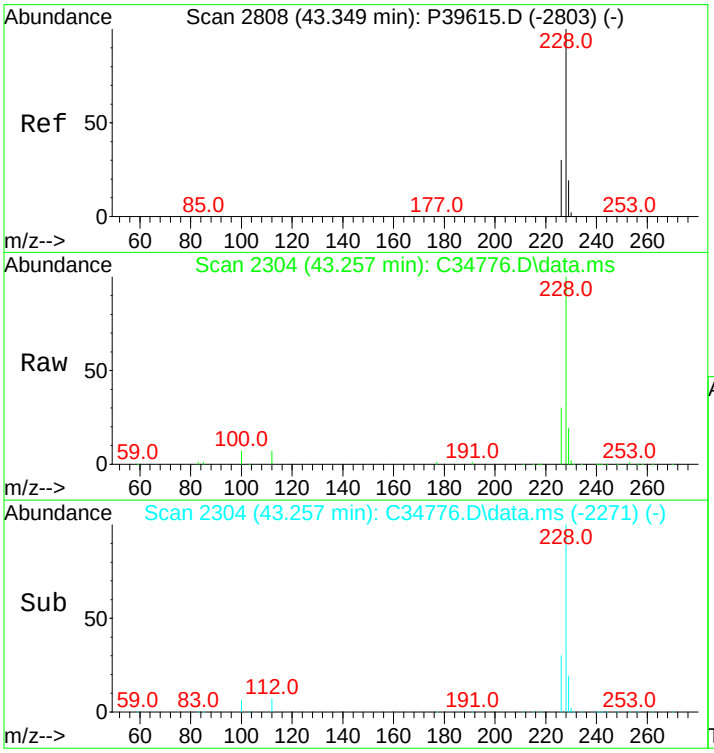


#76
Chrysene
Concen: 485.24 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 69630

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

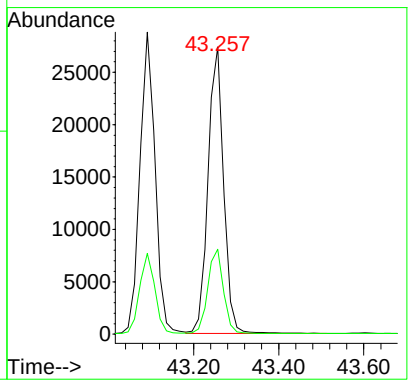


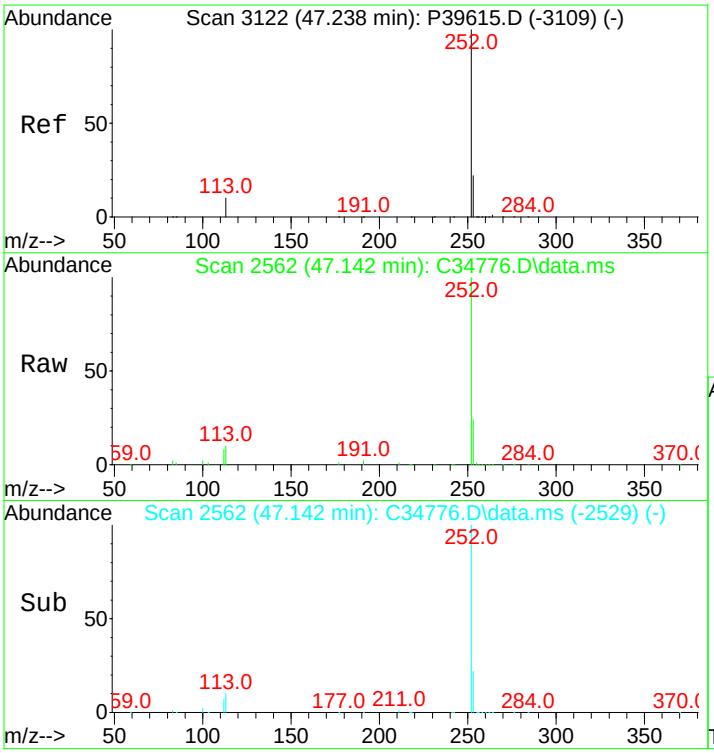


#77
Chrysene/Triphenylene
Concen: 485.24 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 69630

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

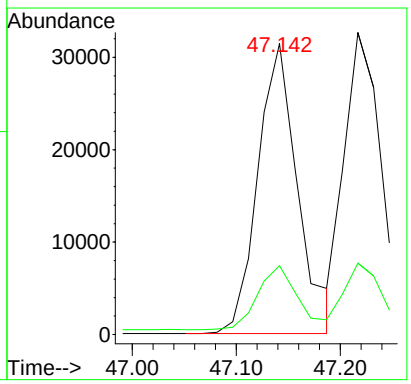


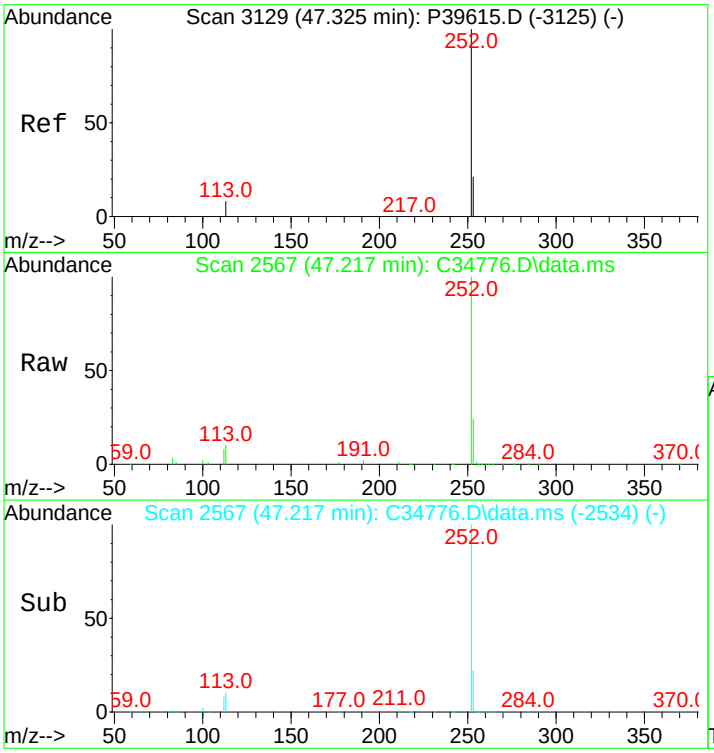


#82
Benzo[b]fluoranthene
Concen: 538.27 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 84065

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.0	28.4

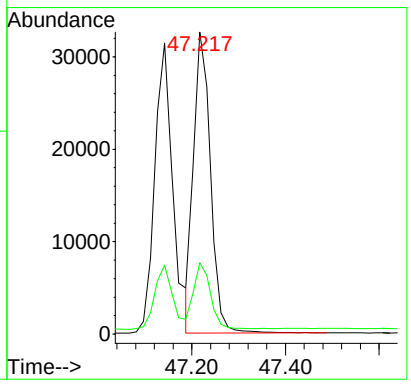


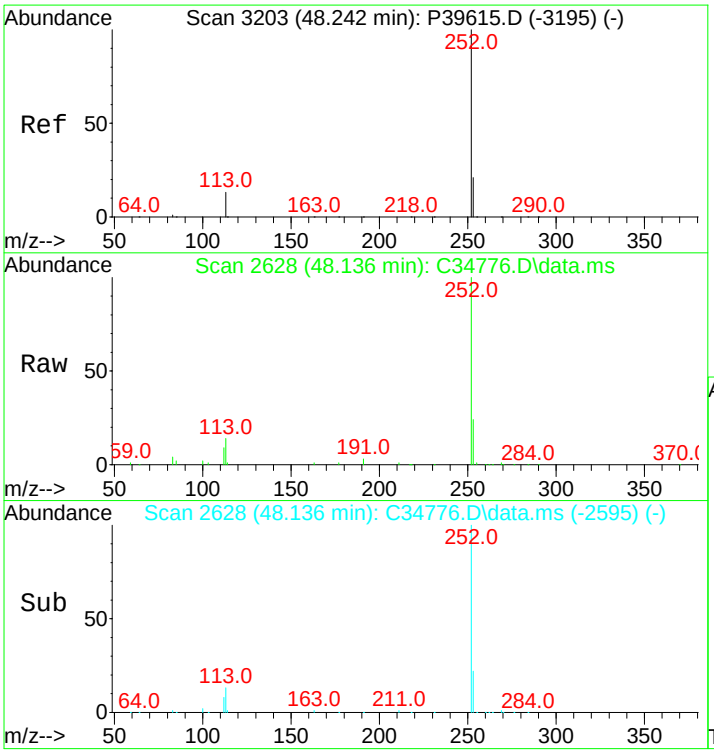


#83
Benzo[j]+[k]fluoranthene
Concen: 481.78 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 81920

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

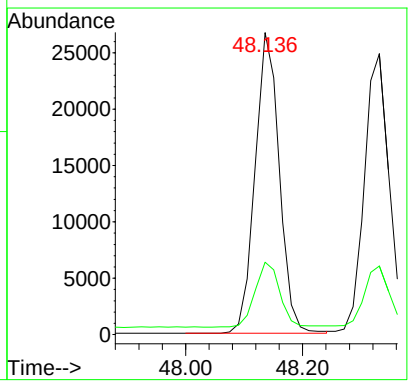


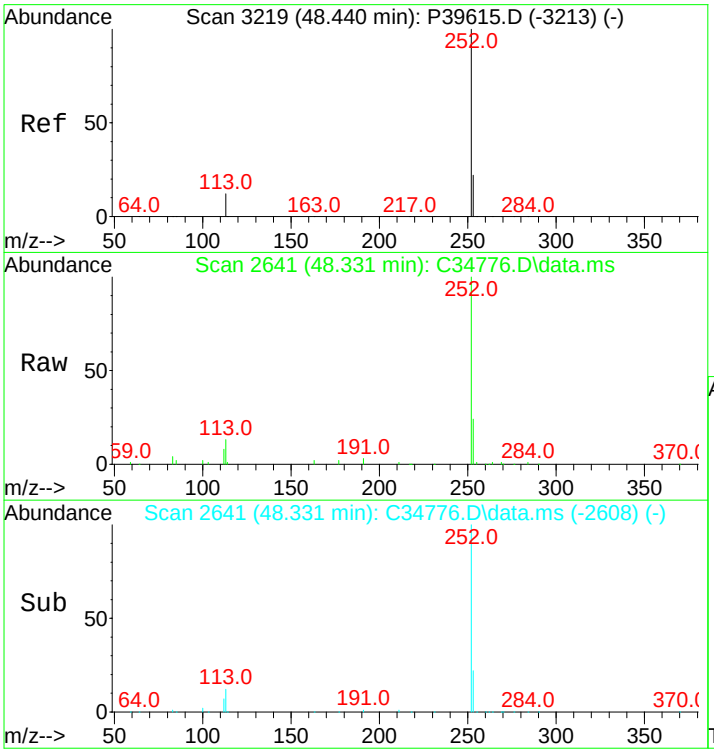


#85
Benzo[e]pyrene
Concen: 495.57 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 76555

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.2	28.8

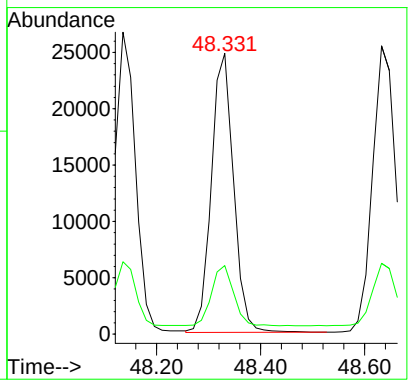


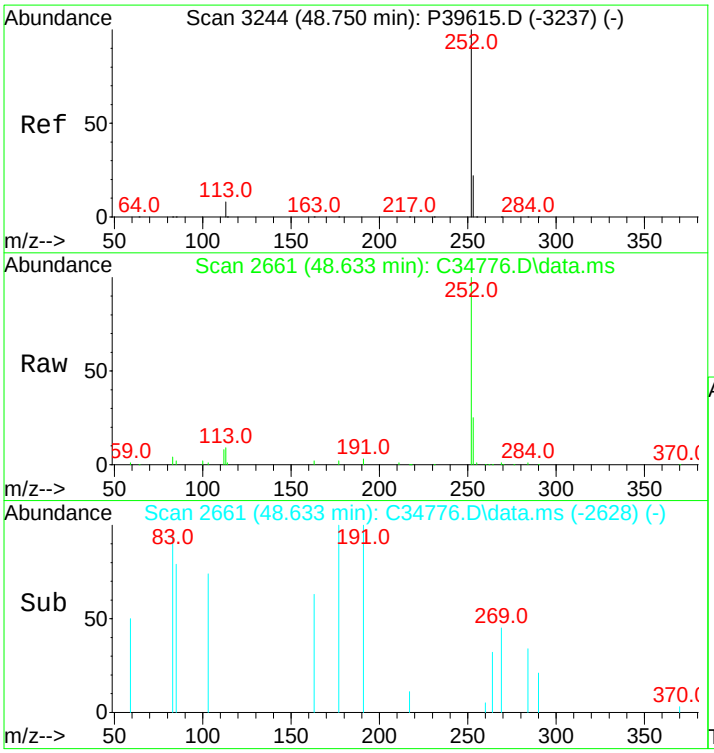


#87
Benzo[a]pyrene
Concen: 493.58 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 73411

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.5	29.3

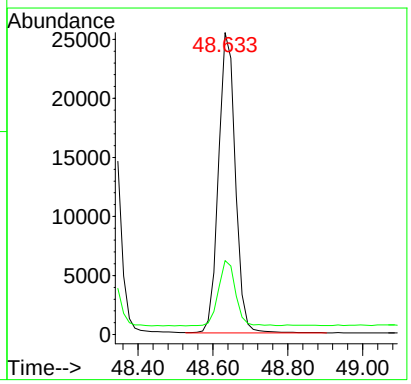


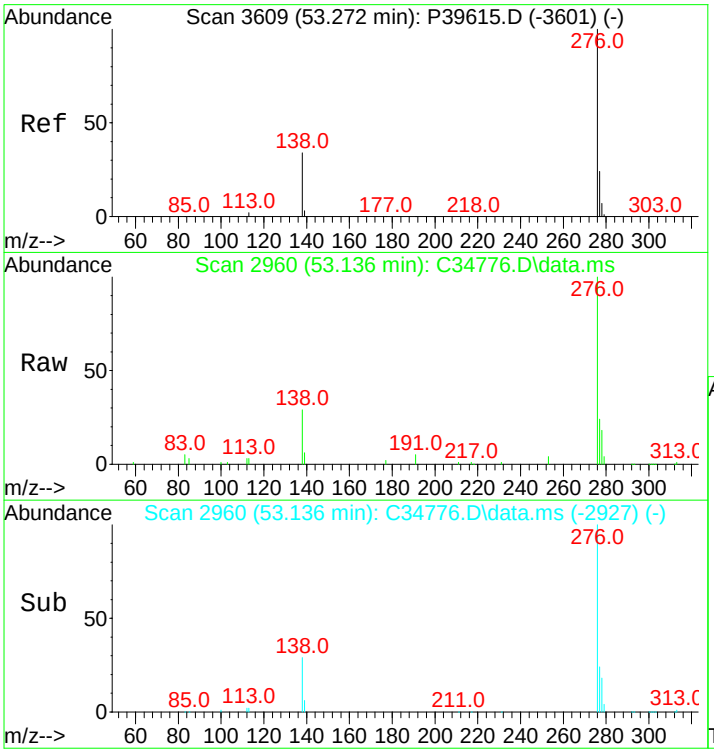


#88
Perylene
Concen: 496.19 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 78871

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.6	29.4

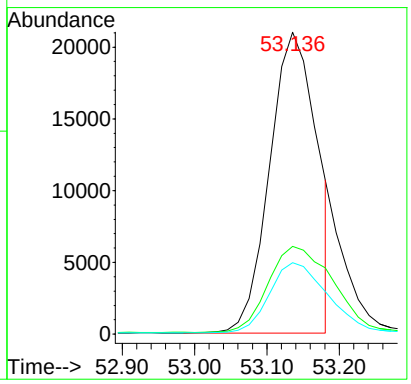


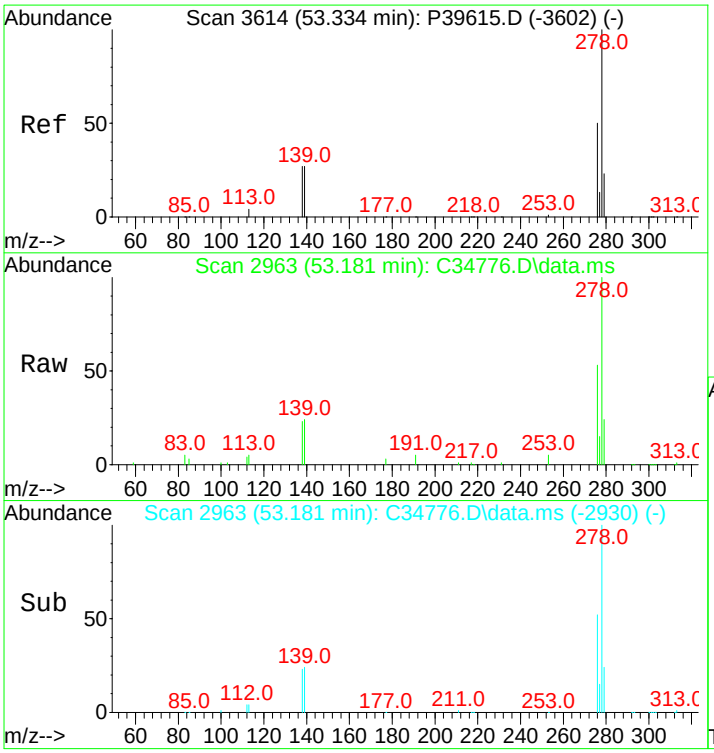


#89
Indeno[1,2,3-cd]pyrene
Concen: 551.46 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:276 Resp: 95448

Ion	Ratio	Lower	Upper
276	100		
138	39.4	23.3	34.9#
277	29.0	19.0	28.4#

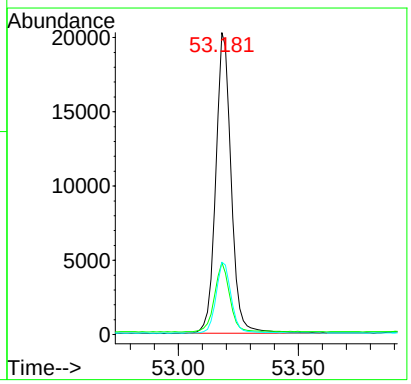


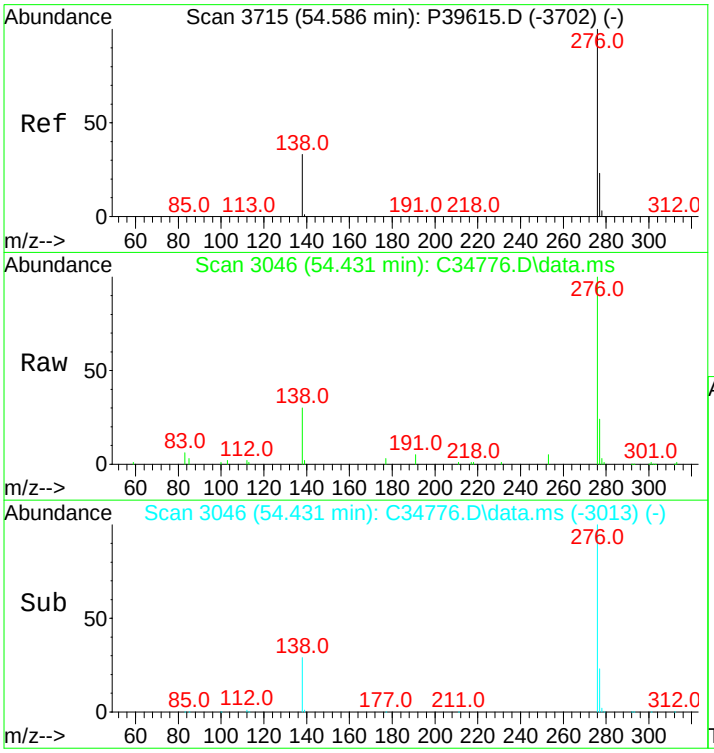


#90
Dibenz[ah]+[ac]anthracene
Concen: 549.65 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:278 Resp: 90499

Ion	Ratio	Lower	Upper
278	100		
139	22.3	19.1	28.7
279	22.9	19.2	28.8

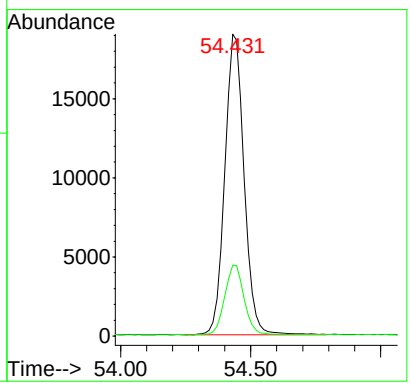


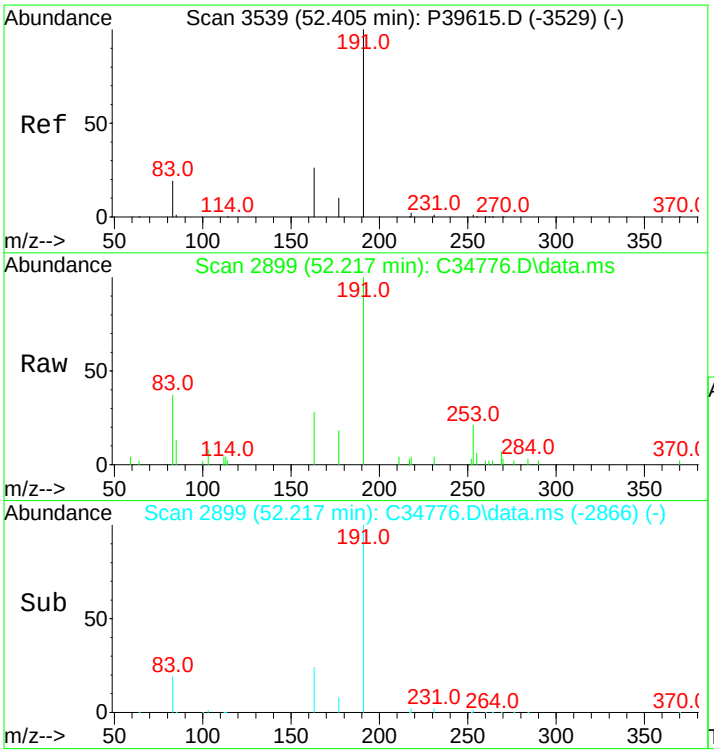


#91
Benzo[g,h,i]perylene
Concen: 533.96 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:276 Resp: 97641

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

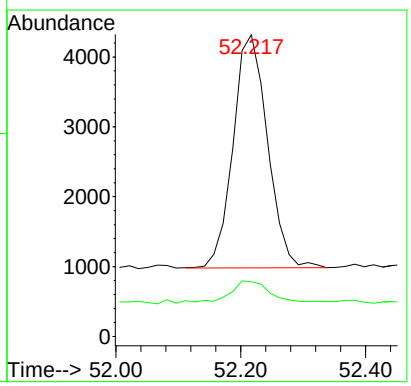


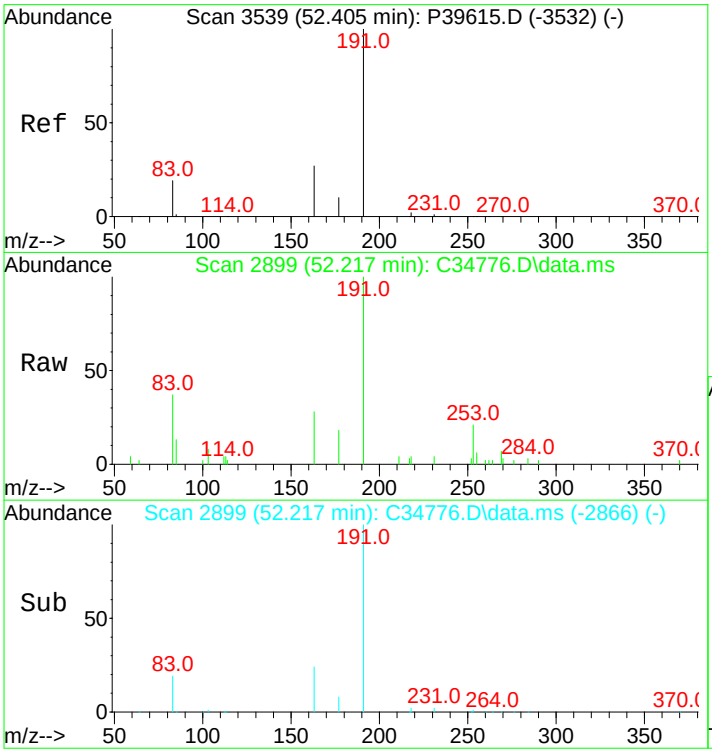


#92
Hopane (T19)
Concen: 433.42 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:191 Resp: 12792

Ion	Ratio	Lower	Upper
191	100		
177	11.3	14.6	21.8#

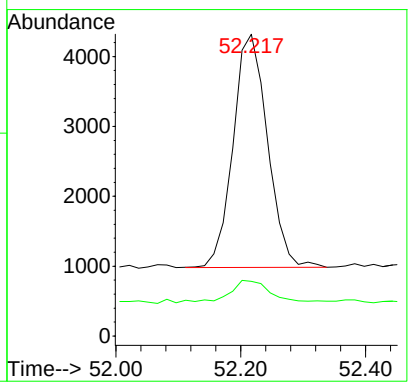




#93
17a(H),21B(H)-hopane - C30H52
Concen: 433.42 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:191 Resp: 12792

Ion	Ratio	Lower	Upper
191	100		
177	11.3	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	27233M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	46077	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	57040	482.579	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.26%#			
42) Phenanthrene-d10	32.567	188	45708	489.245	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.92%#			
86) Benzo[a]pyrene-d12	48.241	264	46524	487.208	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.72%#			
127) 5B(H)Cholane - Surr	43.754	217	7298	506.594	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.66%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	5383	250.396	ng/mL	100
4) cis-Decalin	17.603	138	3968	244.902	ng/mL	100
10) Naphthalene	19.801	128	79919	460.447	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	47971	467.430	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	45592	453.223	ng/mL#	100
18) Benzothiophene	20.027	134	71300	456.496	ng/mL	100
23) Biphenyl	24.393	154	60633	467.051	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	40652	482.129	ng/mL#	100
25) Dibenzofuran	27.479	168	70414	472.339	ng/mL	95
26) Acenaphthylene	26.094	152	79043M3	458.761	ng/mL	
27) Acenaphthene	26.816	153	47495M3	468.169	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	33282	489.657	ng/mL	100
29) Fluorene	28.849	166	53325M3	476.603	ng/mL	
33) Dibenzothiophene	32.161	184	83671	466.520	ng/mL	100
43) Phenanthrene	32.657	178	73704	467.738	ng/mL	99
54) Retene	39.643	234	17133	557.387	ng/mL	99
55) Anthracene	32.838	178	73311M3	476.306	ng/mL	
56) Carbazole	33.515	167	71324M3	458.758	ng/mL	
57) 1-Methylphenanthrene	35.157	192	50285	503.563	ng/mL	100
58) Fluoranthene	37.430	202	78861M3	503.908	ng/mL	
59) Benzo(b)fluorene	39.944	216	48097	529.736	ng/mL	100
60) Pyrene	38.318	202	80569	506.453	ng/mL	98
66) Naphthobenzothiophene	42.158	234	88451	516.442	ng/ml#	65
67) Naphthobenzothiophene-...	42.158	234	88451	516.442	ng/mL#	65
75) Benz[a]anthracene	43.091	228	73981	505.861	ng/mL	100
76) Chrysene	43.257	228	72194	488.956	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	72194	488.956	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	82351	512.461	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	87208	498.453	ng/mL	96
85) Benzo[e]pyrene	48.136	252	77842	489.729	ng/mL	97
87) Benzo[a]pyrene	48.331	252	73582	480.818	ng/mL	95
88) Perylene	48.633	252	80208	490.413	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	95412M3	535.748	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	91742	541.526	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97529	518.346	ng/mL	100
92) Hopane (T19)	52.202	191	13412M3	441.649	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	13345M3	439.443	ng/mL	

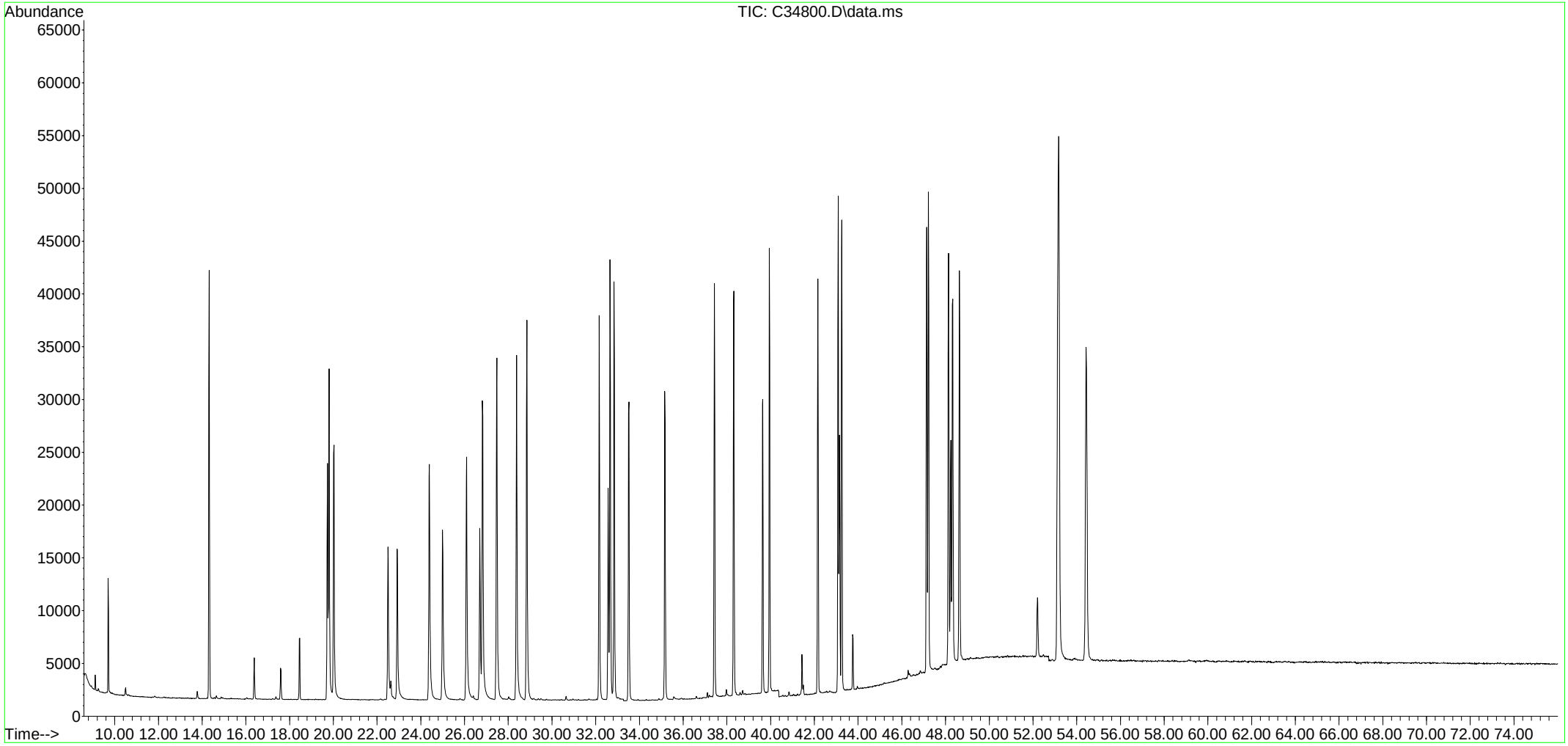
(#) = qualifier out of range (m) = manual integration (+) = signals summed

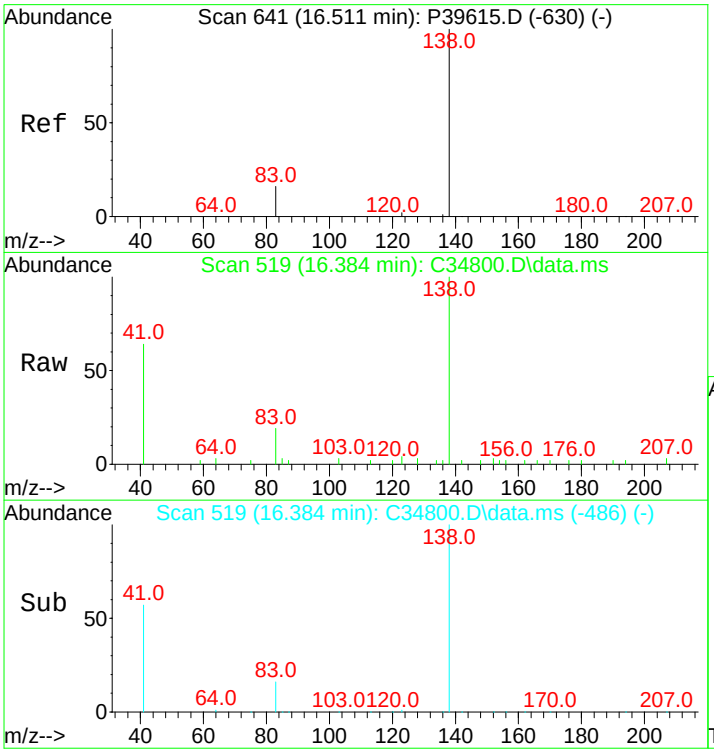
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

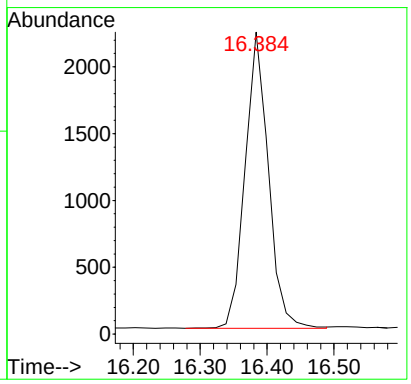
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

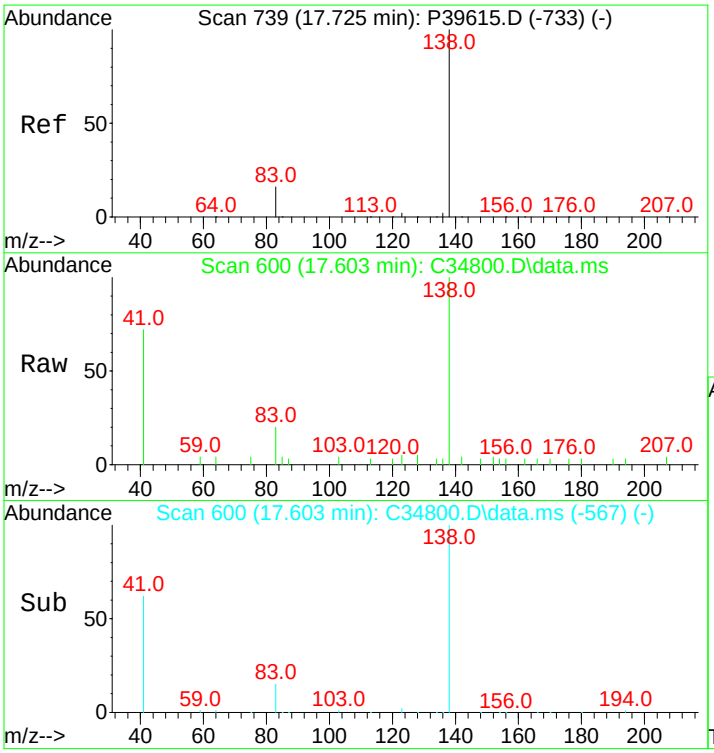




#3
trans-Decalin
Concen: 250.40 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

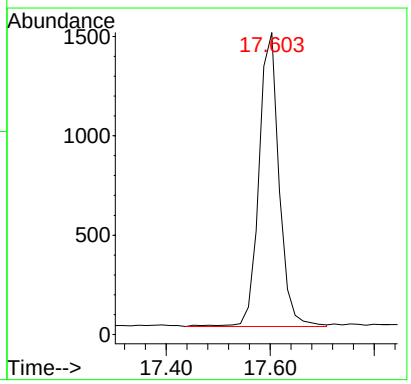
Tgt Ion:138 Resp: 5383

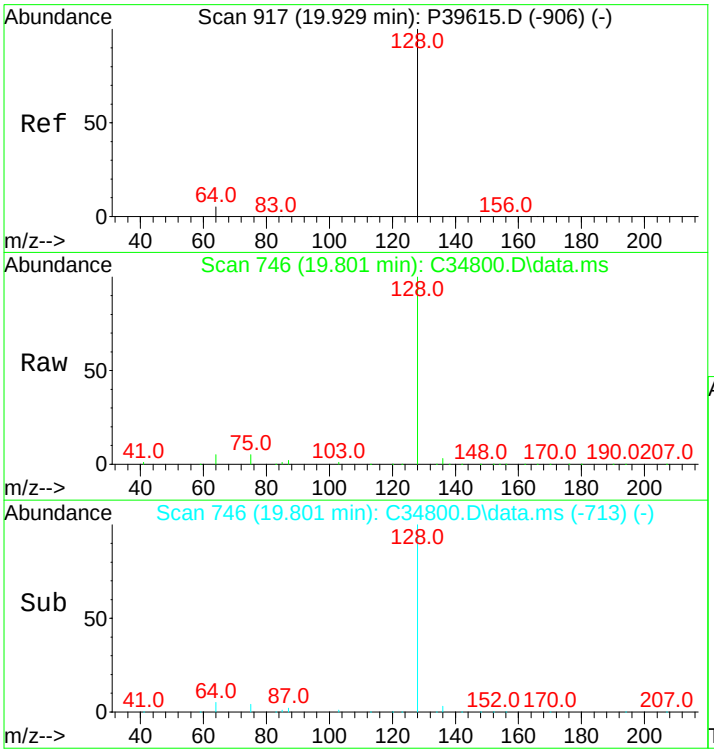




#4
cis-Decalin
Concen: 244.90 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:138 Resp: 3968

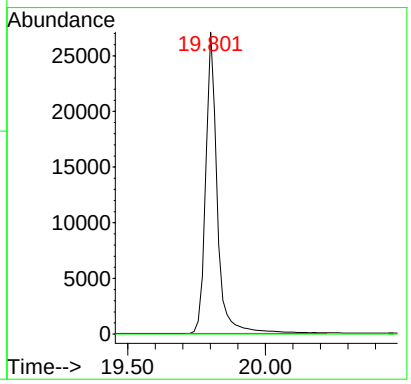


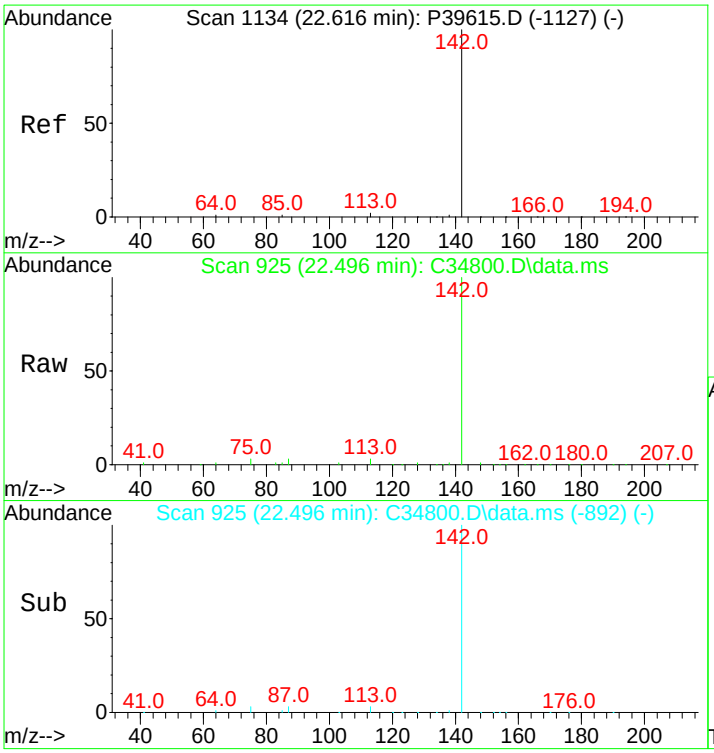


#10
Naphthalene
Concen: 460.45 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:128 Resp: 79919

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

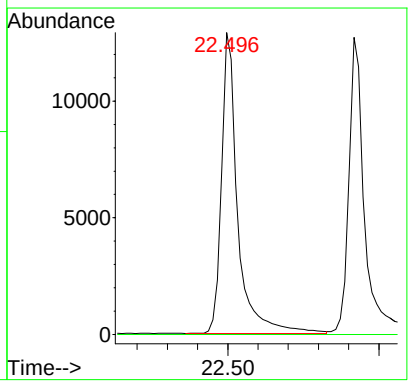


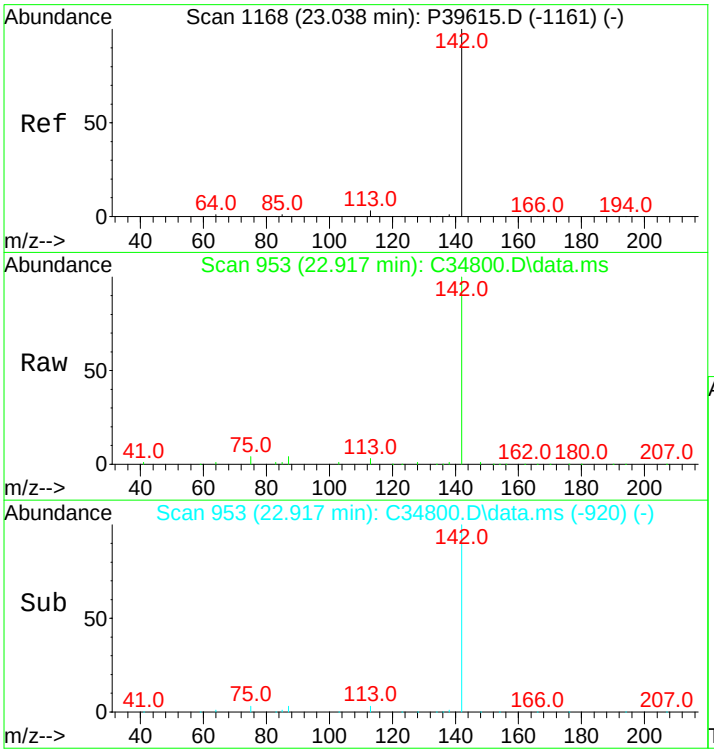


#16
2-Methylnaphthalene
Concen: 467.43 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:142 Resp: 47971

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

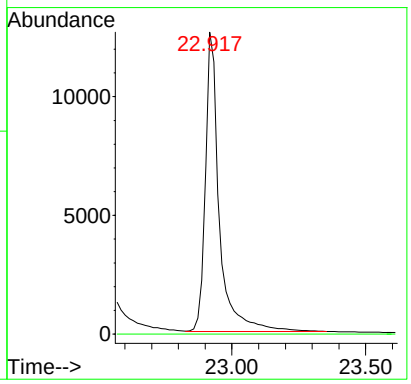


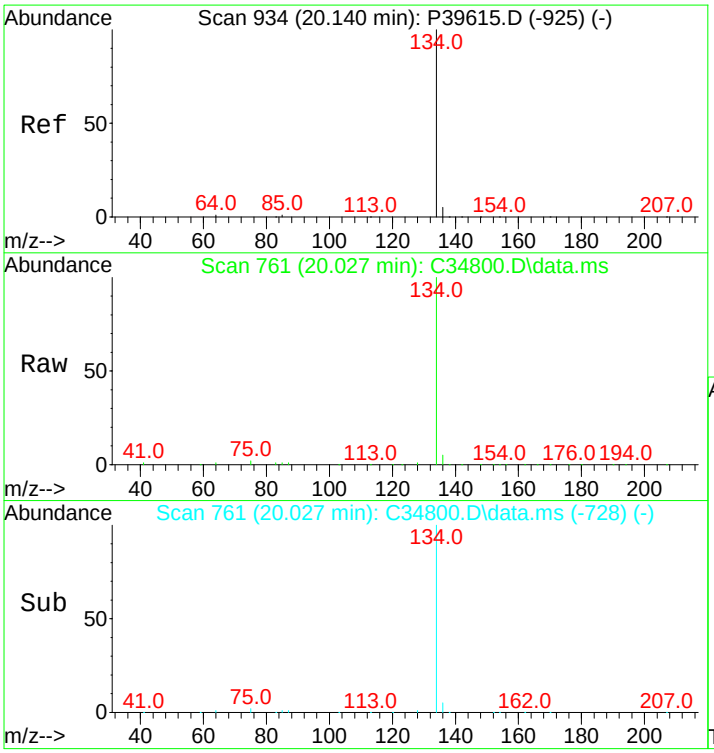


#17
1-Methylnaphthalene
Concen: 453.22 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:142 Resp: 45592

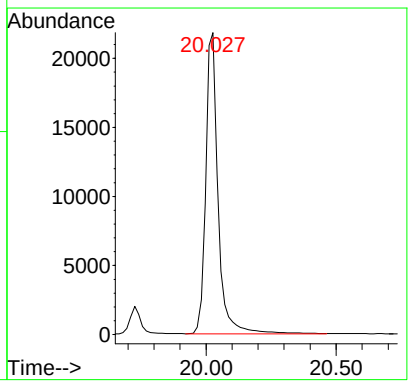
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

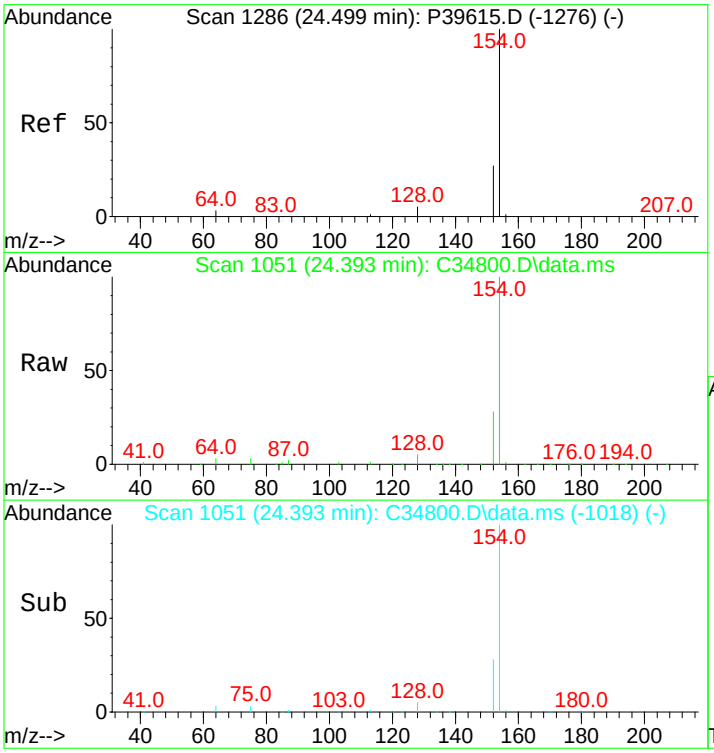




#18
Benzothiophene
Concen: 456.50 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:134 Resp: 71300

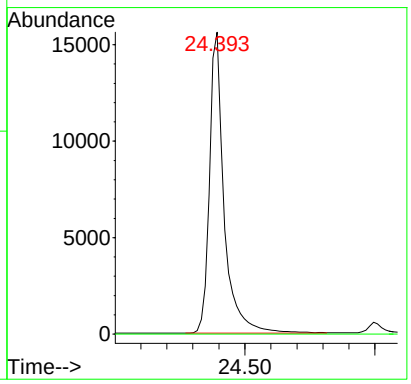


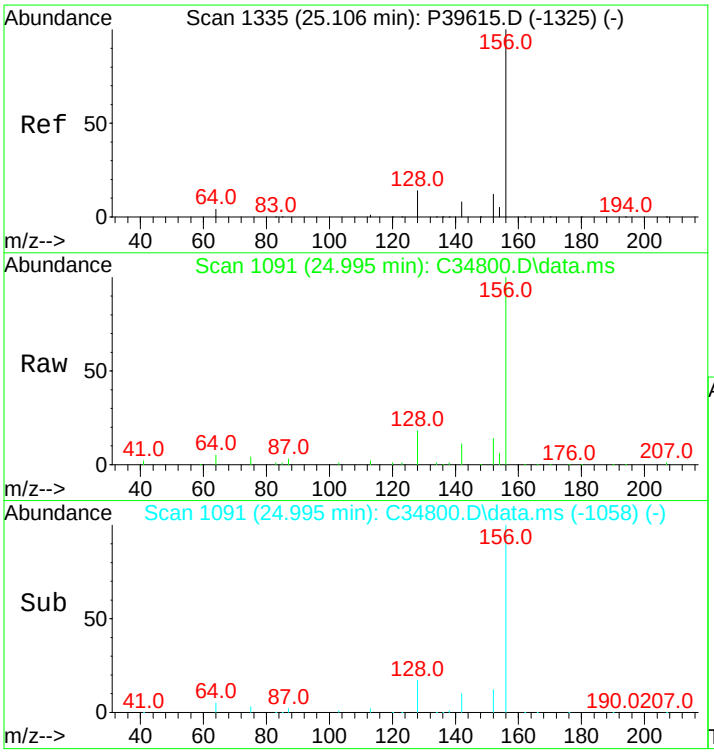


#23
Biphenyl
Concen: 467.05 ng/mL
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:154 Resp: 60633

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

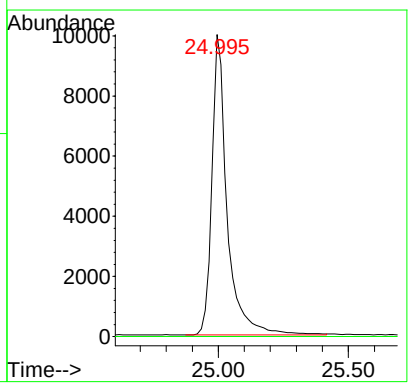


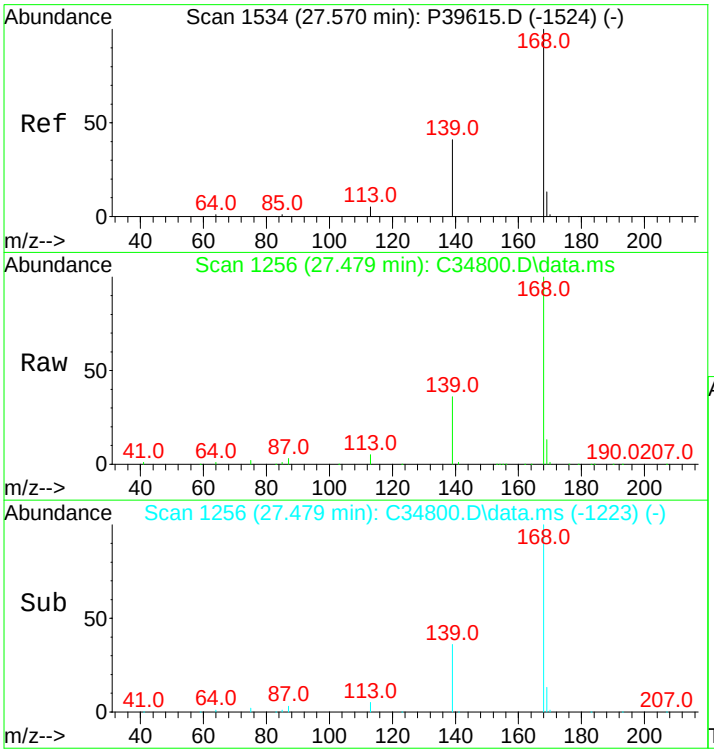


#24
2,6-Dimethylnaphthalene
Concen: 482.13 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:156 Resp: 40652

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

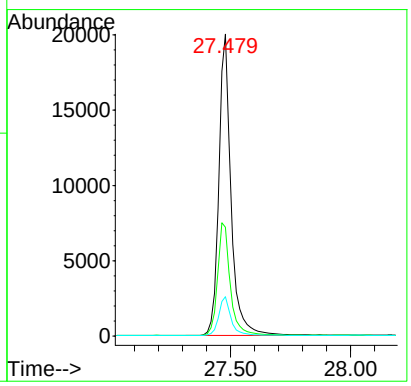


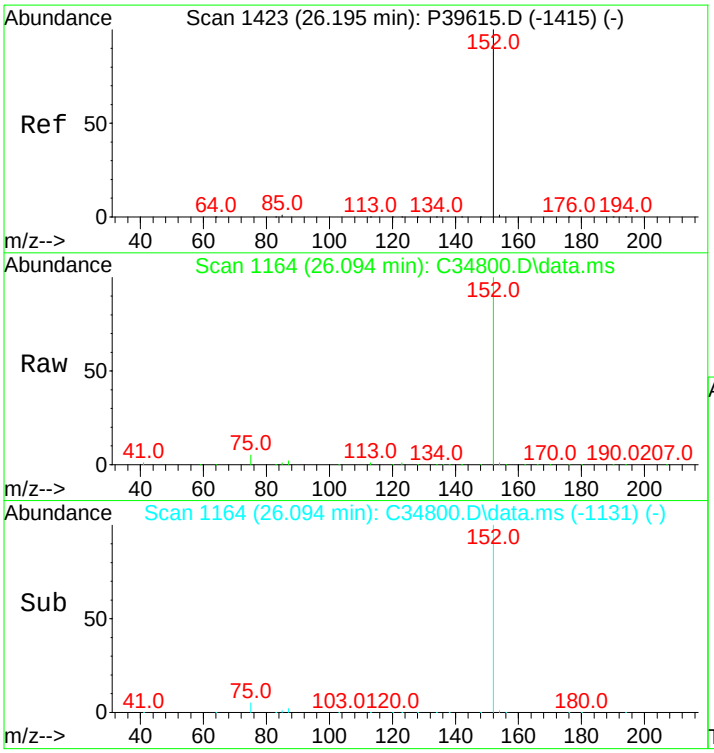


#25
Dibenzofuran
Concen: 472.34 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:168 Resp: 70414

Ion	Ratio	Lower	Upper
168	100		
139	38.9	28.4	42.6
169	13.0	10.8	16.2

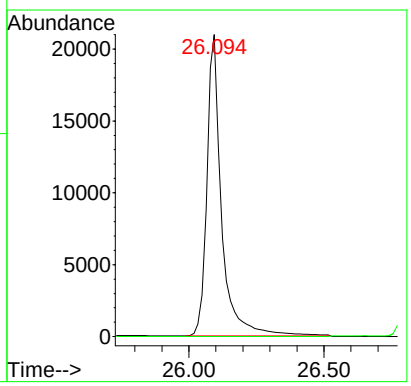


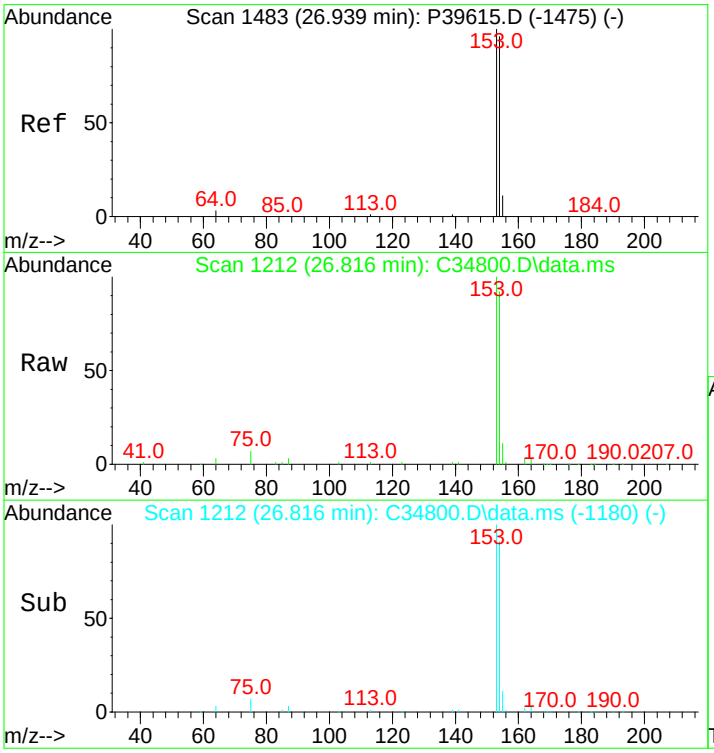


#26
Acenaphthylene
Concen: 458.76 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:152 Resp: 79043

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

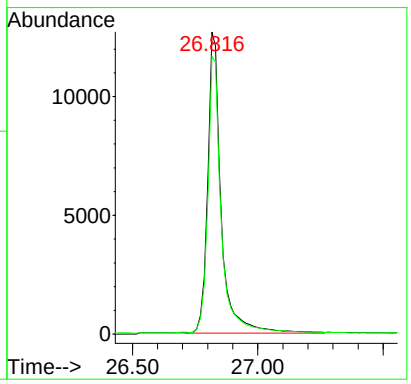


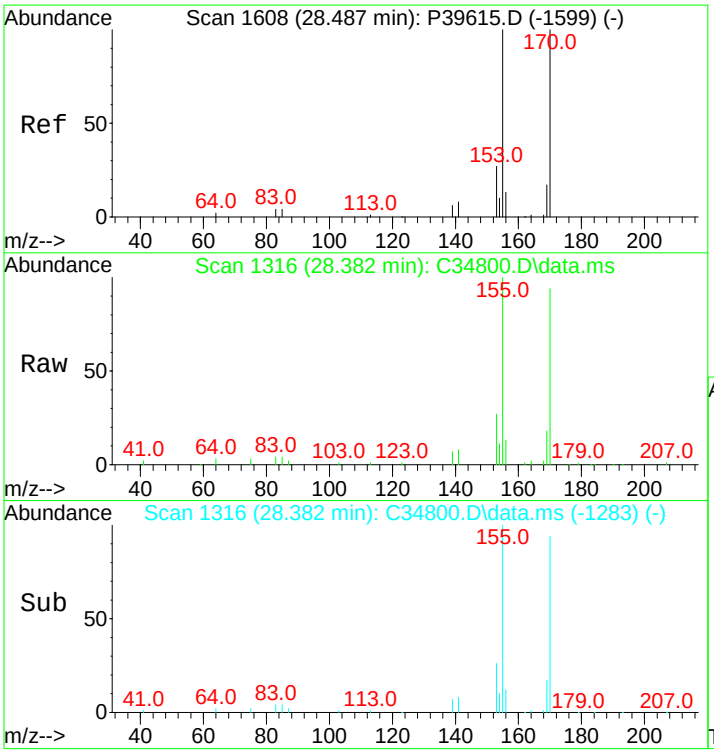


#27
Acenaphthene
Concen: 468.17 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:153 Resp: 47495

Ion	Ratio	Lower	Upper
153	100		
154	91.2	73.6	110.4

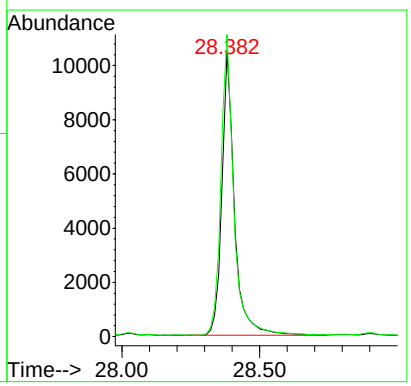


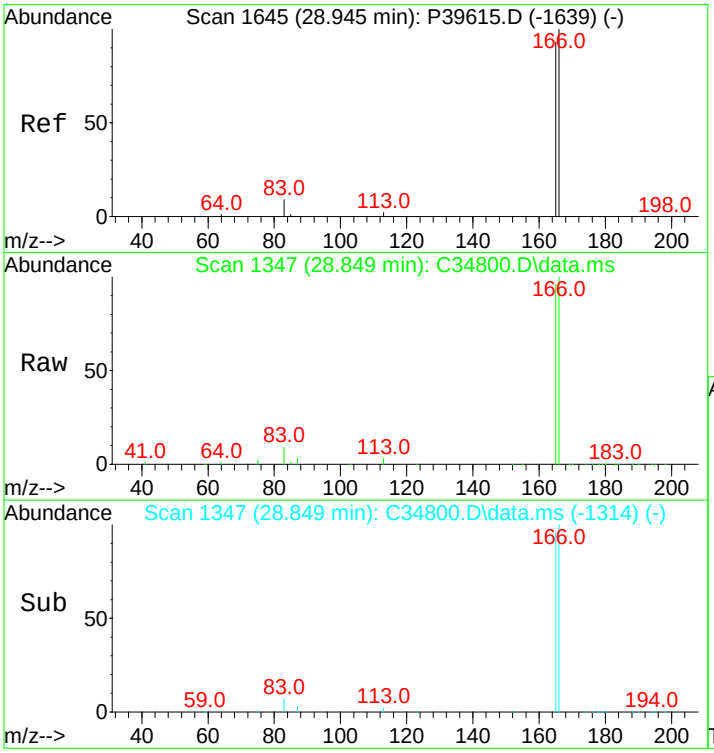


#28
2,3,5-Trimethylnaphthalene
Concen: 489.66 ng/mL
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:170 Resp: 33282

Ion	Ratio	Lower	Upper
170	100		
155	108.6	87.3	130.9

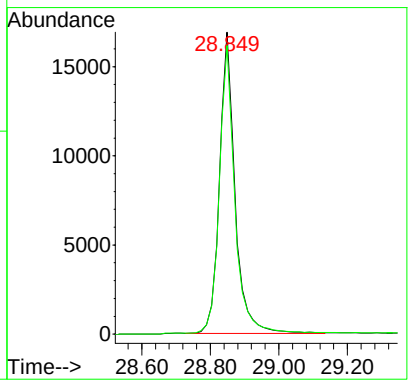


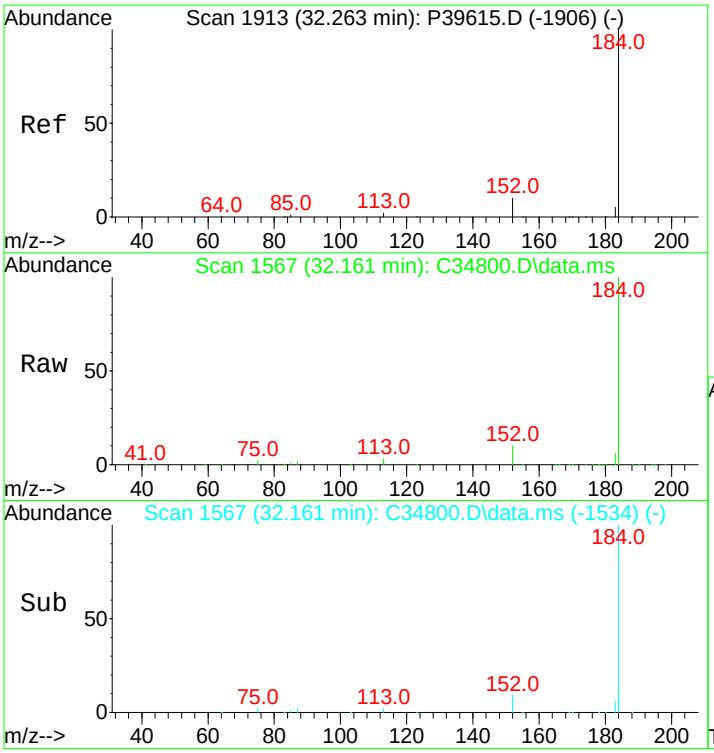


#29
Fluorene
Concen: 476.60 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:166 Resp: 53325

Ion	Ratio	Lower	Upper
166	100		
165	96.9	77.3	115.9

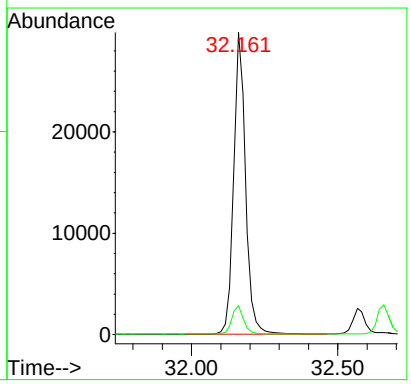


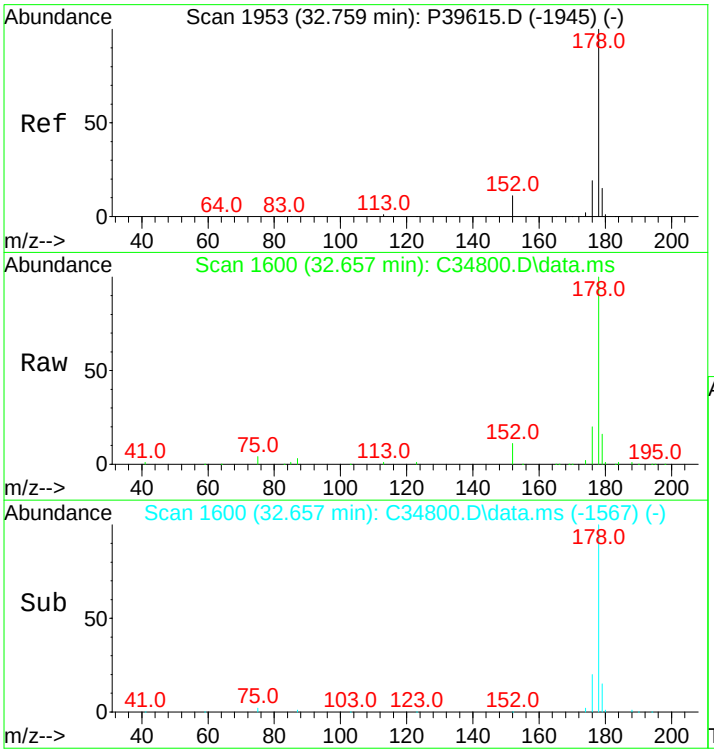


#33
Dibenzothiophene
Concen: 466.52 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:184 Resp: 83671

Ion	Ratio	Lower	Upper
184	100		
152	9.3	7.5	11.3

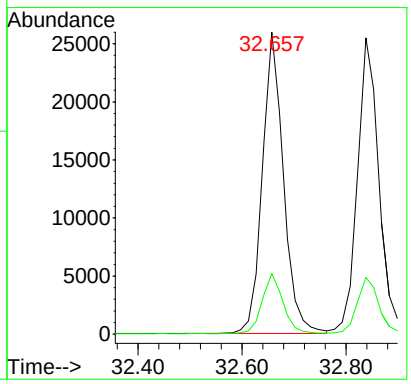


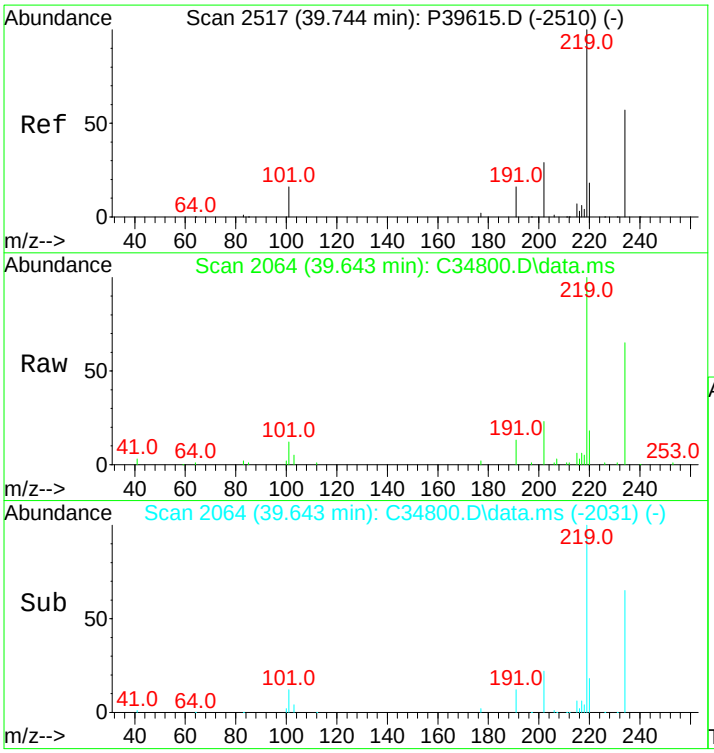


#43
Phenanthrene
Concen: 467.74 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:178 Resp: 73704

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

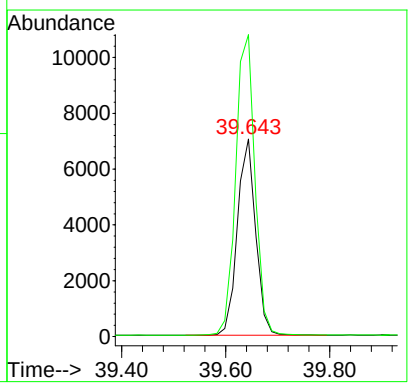


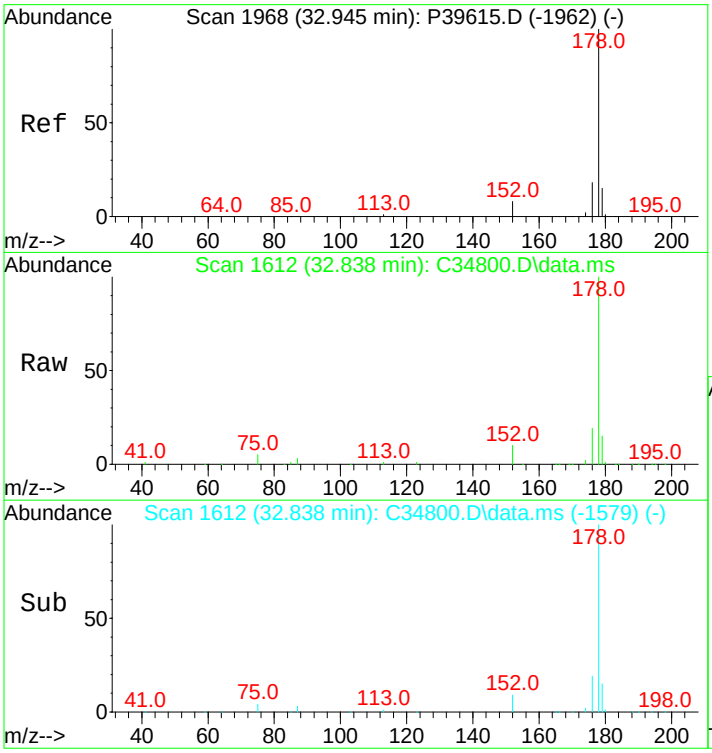


#54
Retene
Concen: 557.39 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 17133

Ion	Ratio	Lower	Upper
234	100		
219	160.9	127.8	191.8

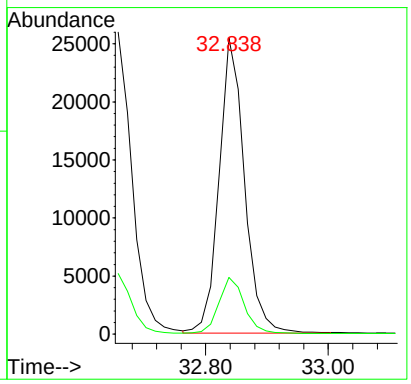


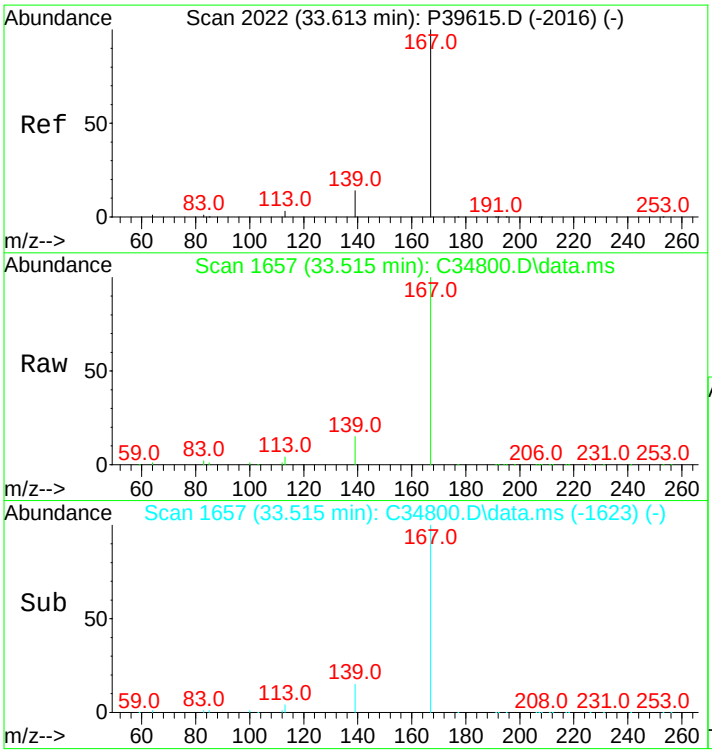


#55
Anthracene
Concen: 476.31 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:178 Resp: 73311

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

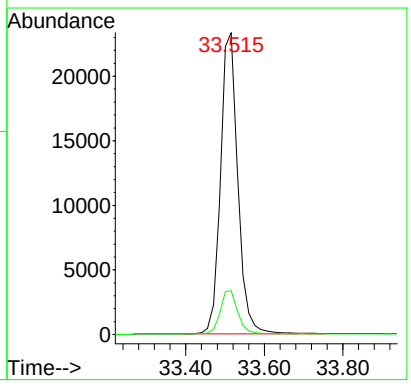


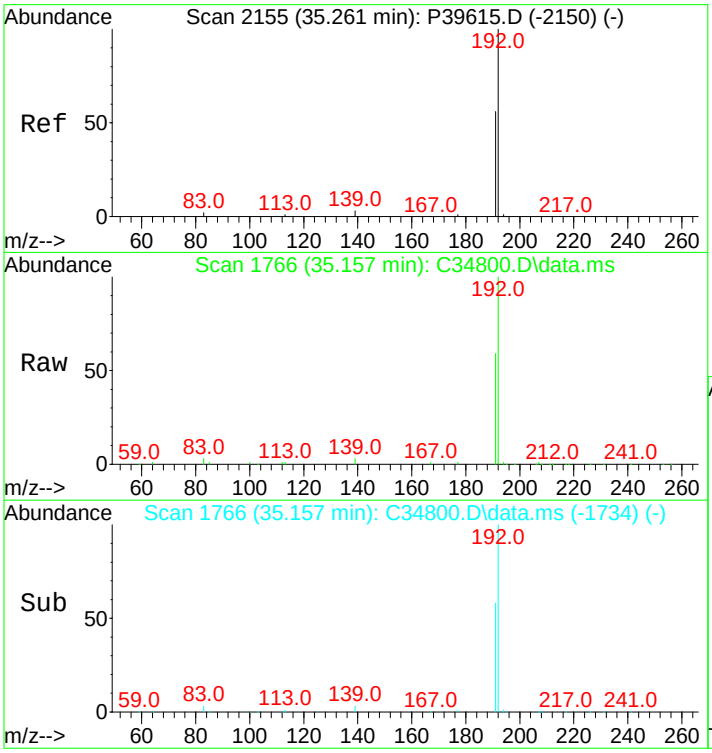


#56
Carbazole
Concen: 458.76 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:167 Resp: 71324

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.8	17.8

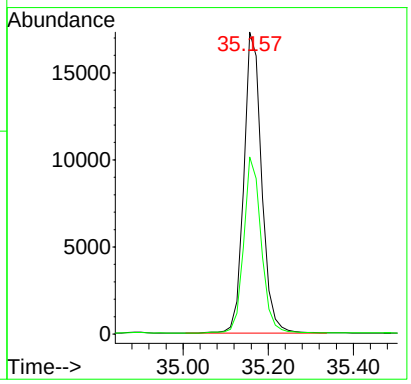


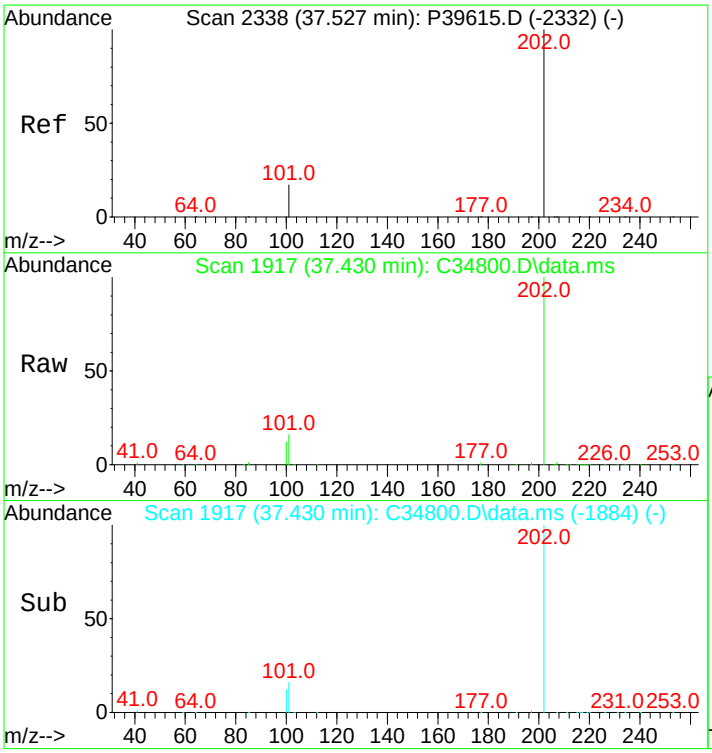


#57
1-Methylphenanthrene
Concen: 503.56 ng/mL
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:192 Resp: 50285

Ion	Ratio	Lower	Upper
192	100		
191	57.7	45.9	68.9

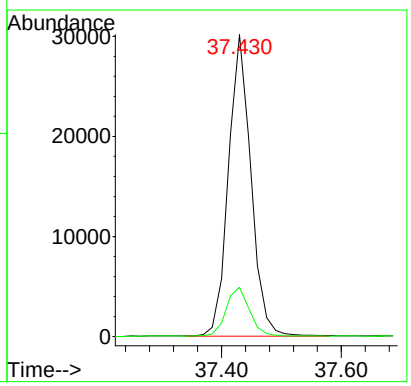


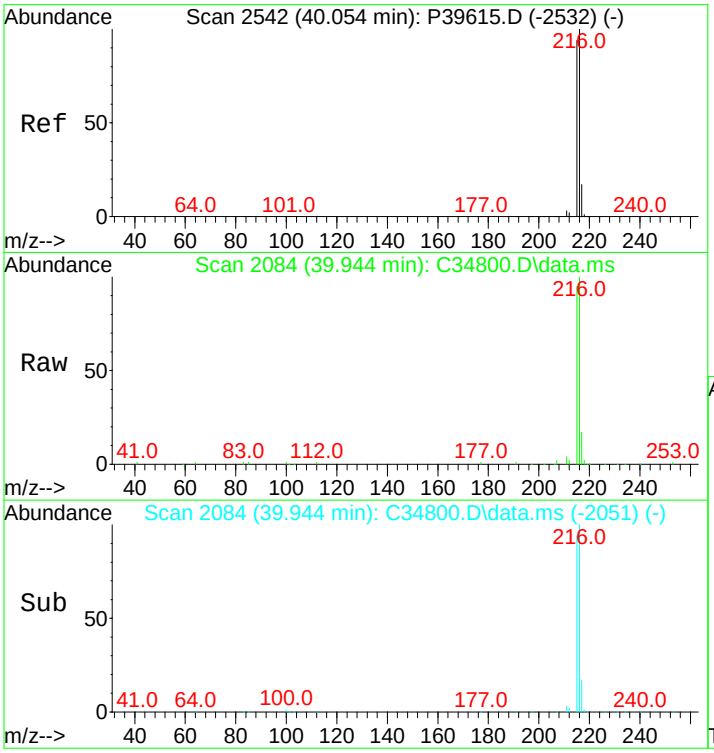


#58
Fluoranthene
Concen: 503.91 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:202 Resp: 78861

Ion	Ratio	Lower	Upper
202	100		
101	17.0	12.9	19.3

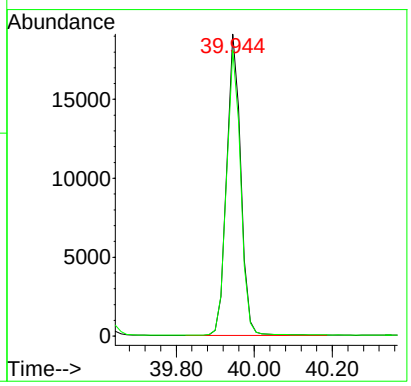


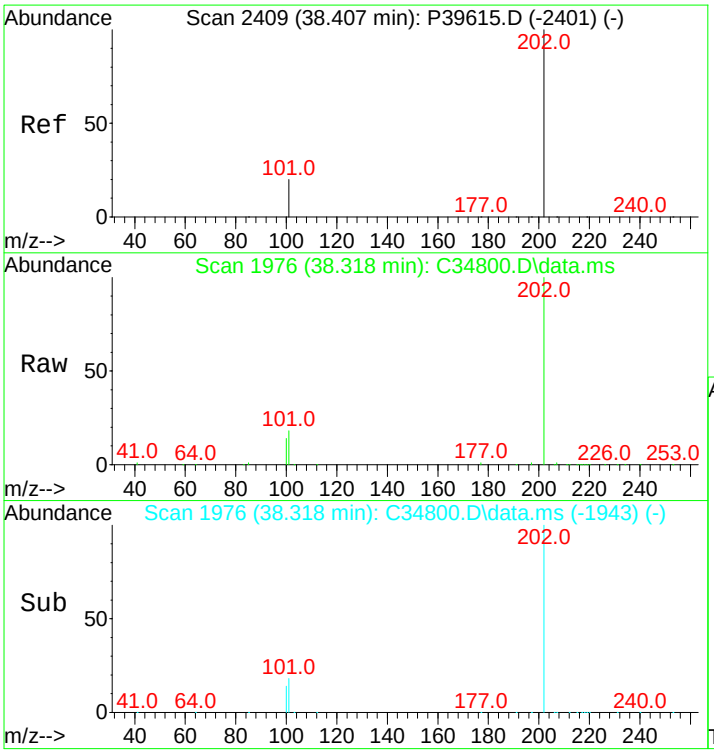


#59
Benzo(b)fluorene
Concen: 529.74 ng/mL
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:216 Resp: 48097

Ion	Ratio	Lower	Upper
216	100		
215	95.0	76.3	114.5

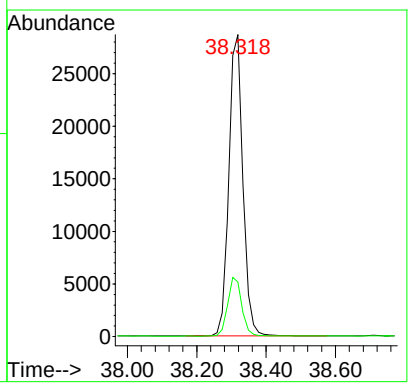


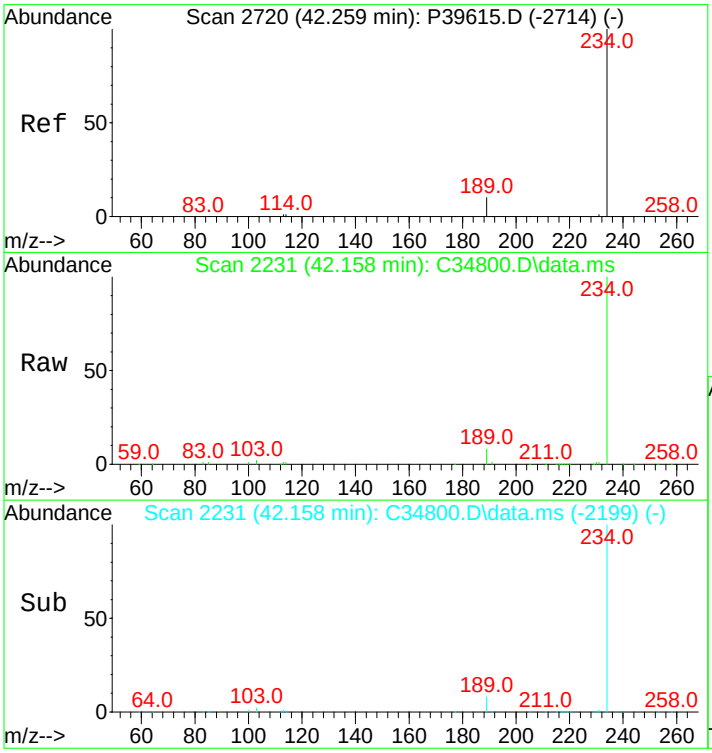


#60
Pyrene
Concen: 506.45 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:202 Resp: 80569

Ion	Ratio	Lower	Upper
202	100		
101	19.6	15.0	22.4

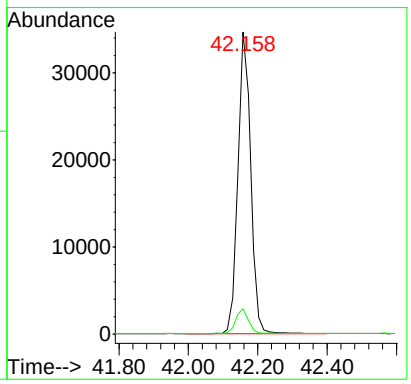


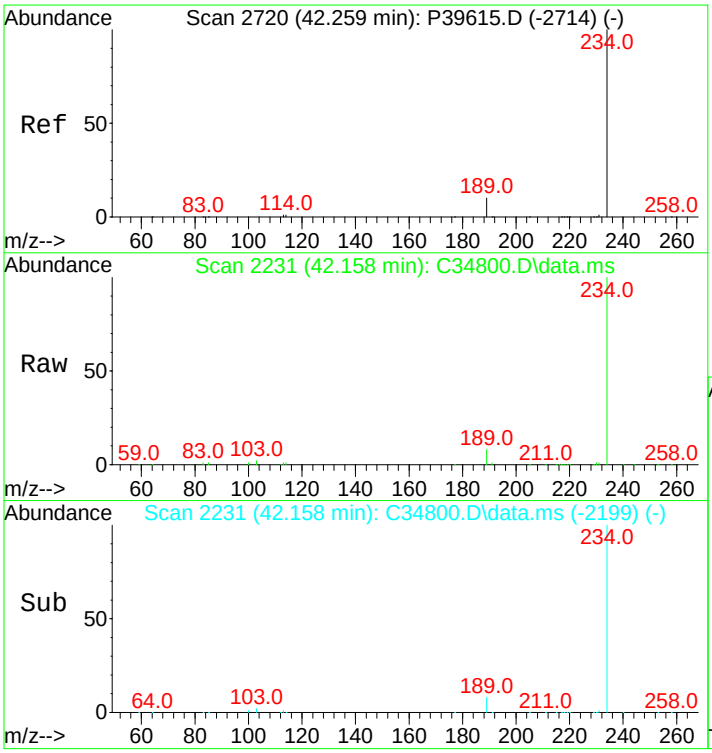


#66
Naphthobenzothiophene
Concen: 516.44 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 88451

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

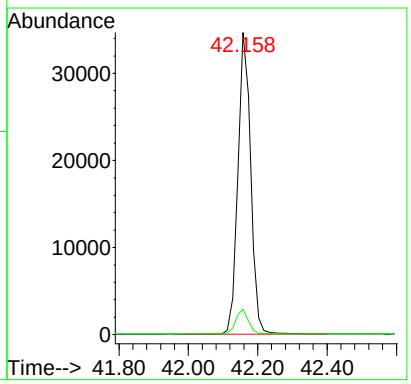


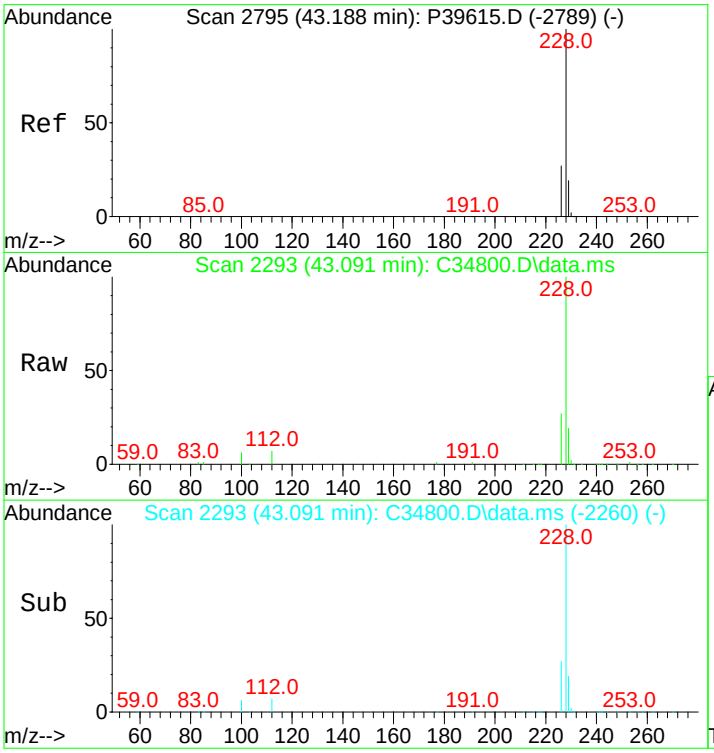


#67
Naphthobenzothiophene-2,1-D
Concen: 516.44 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 88451

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

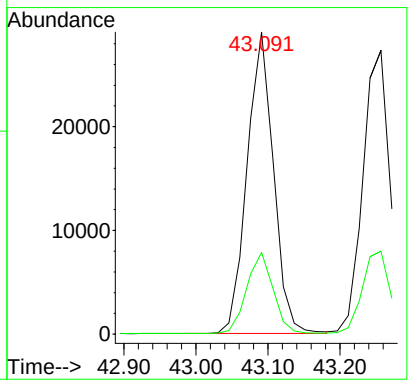


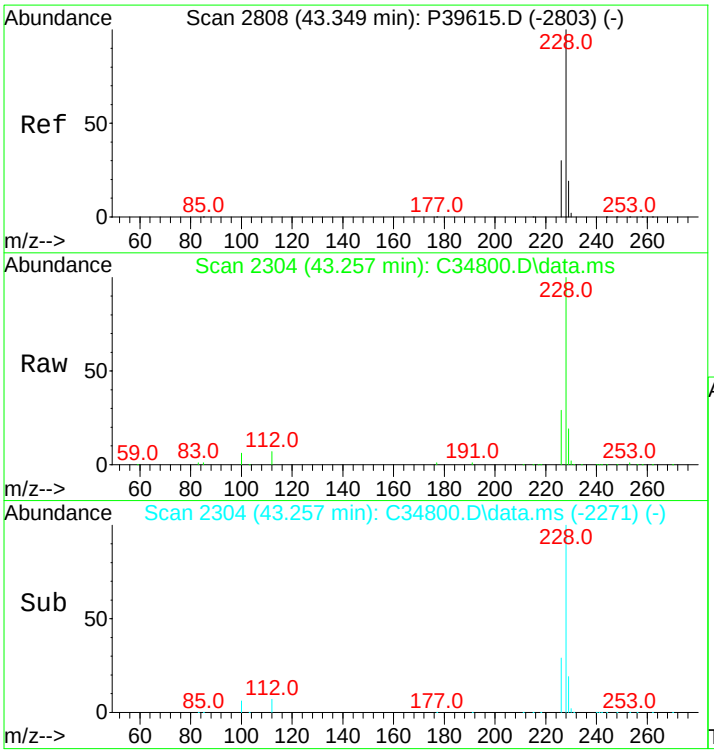


#75
Benz[a]anthracene
Concen: 505.86 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 73981

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

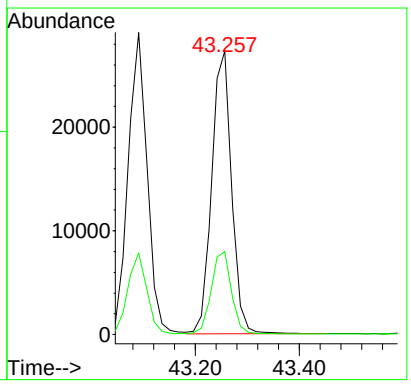


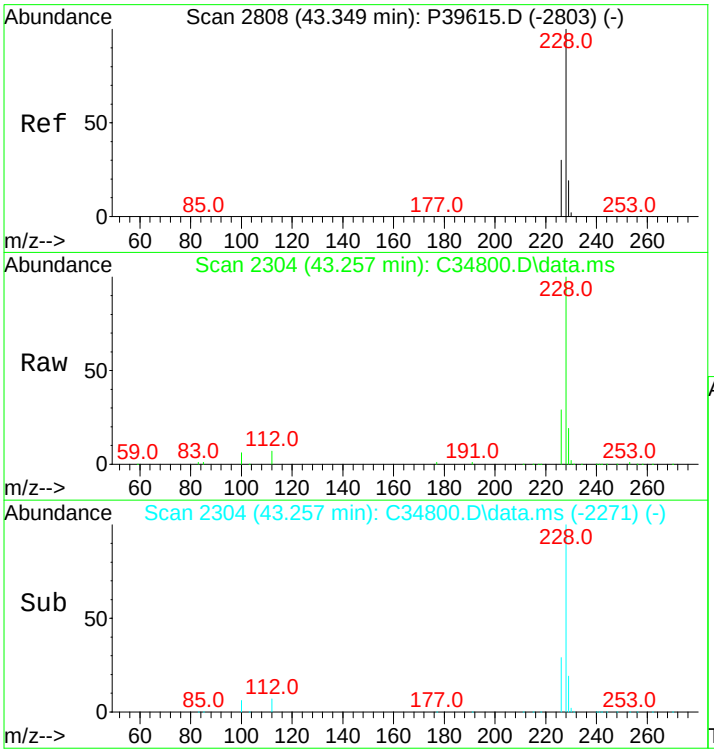


#76
Chrysene
Concen: 488.96 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 72194

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

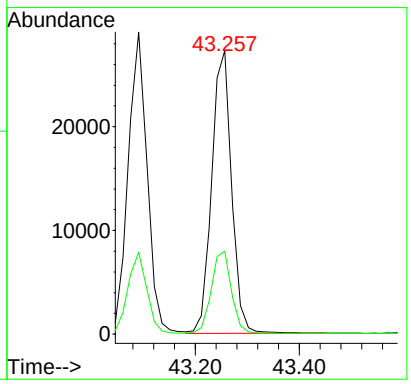


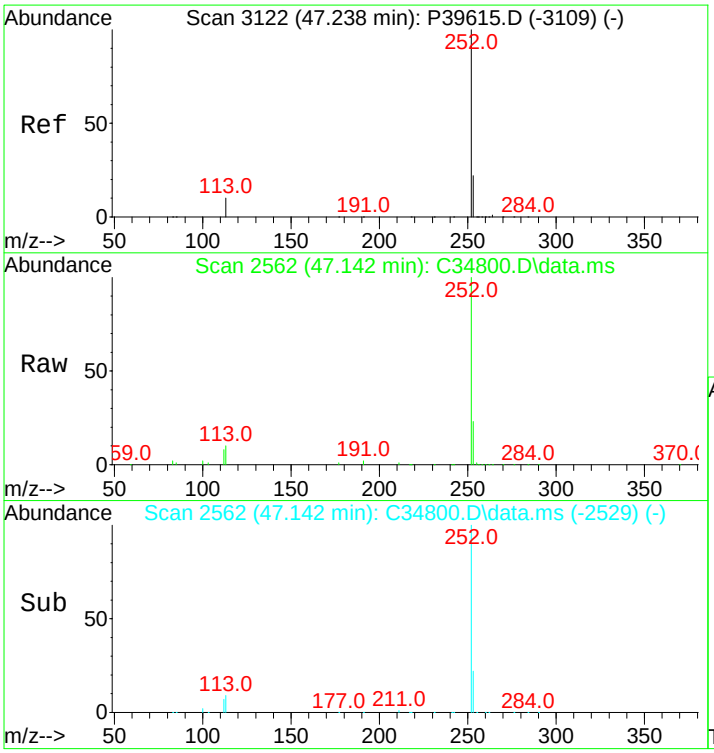


#77
Chrysene/Triphenylene
Concen: 488.96 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 72194

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

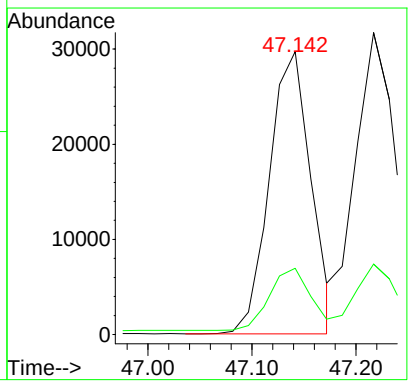


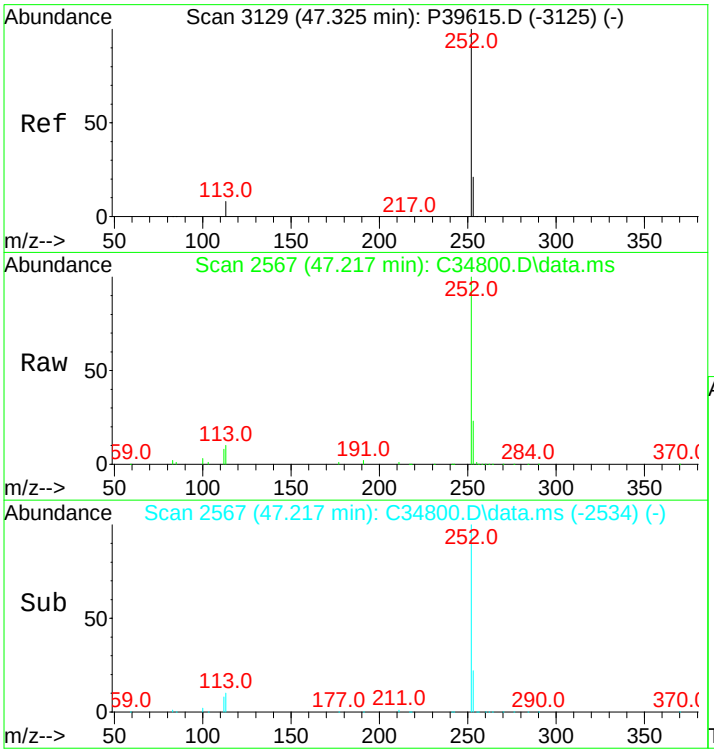


#82
Benzo[b]fluoranthene
Concen: 512.46 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 82351

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

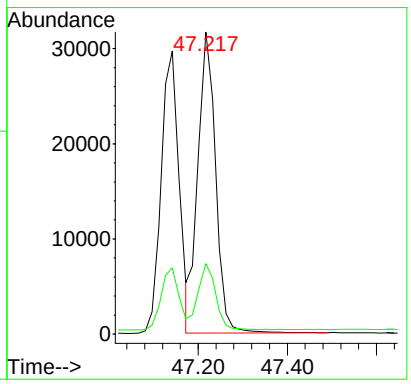


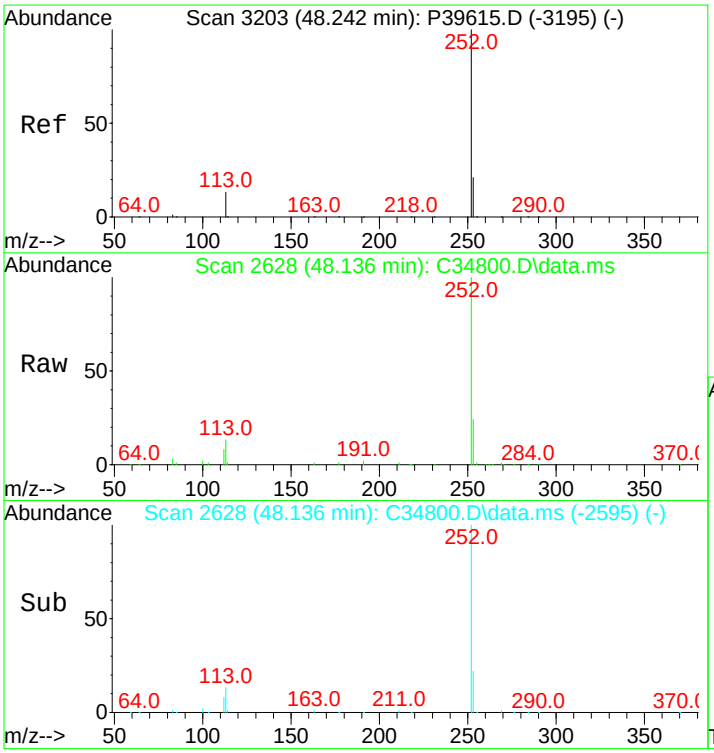


#83
Benzo[j]+[k]fluoranthene
Concen: 498.45 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 87208

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

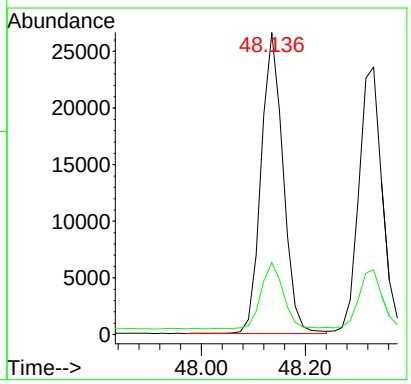


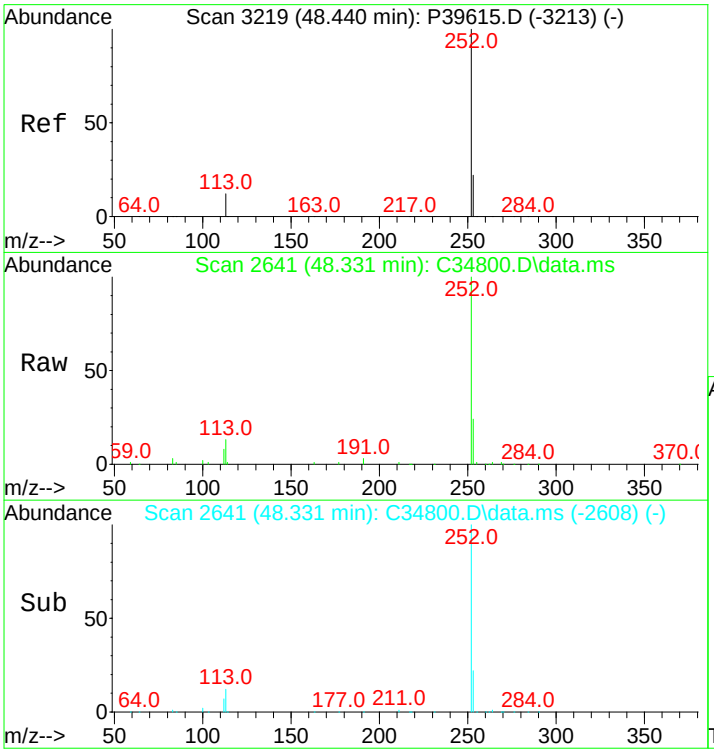


#85
Benzo[e]pyrene
Concen: 489.73 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 77842

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.2	28.8

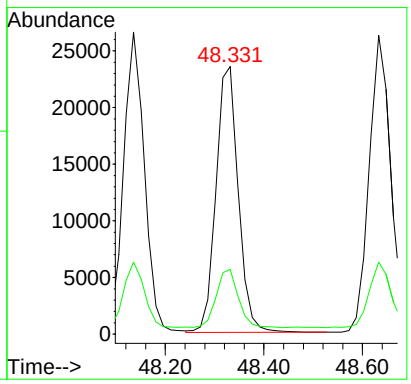


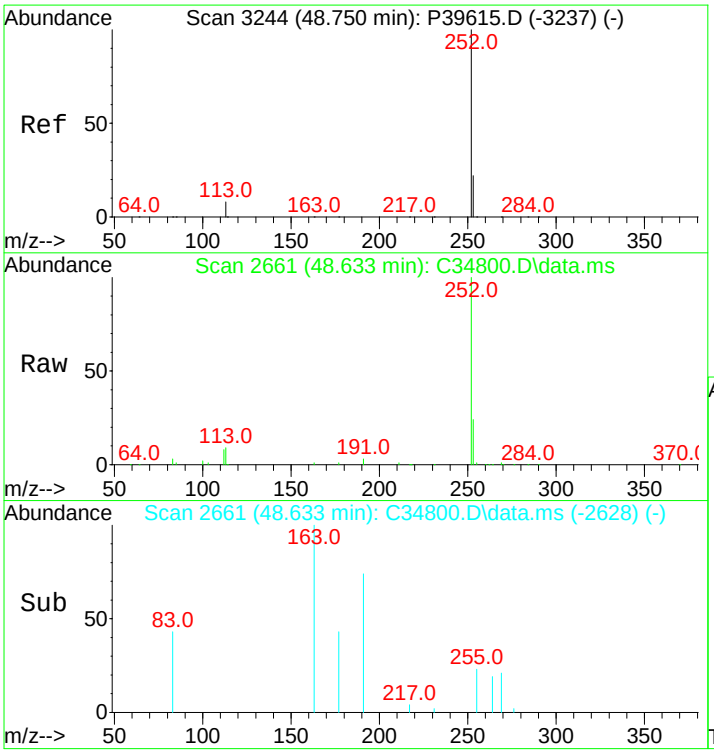


#87
Benzo[a]pyrene
Concen: 480.82 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 73582

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.5	29.3

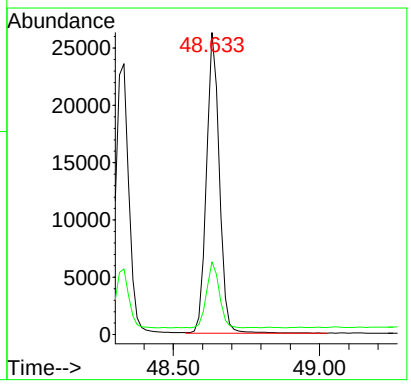


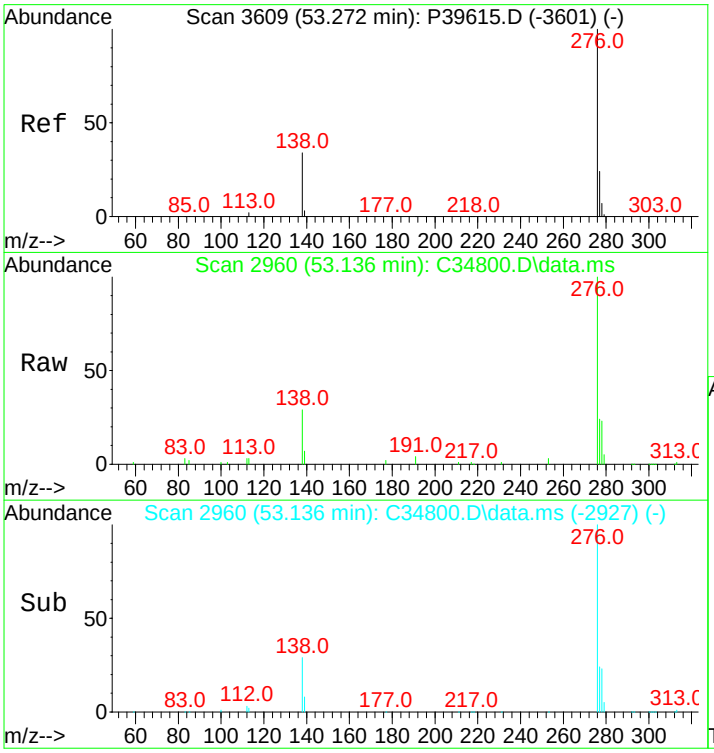


#88
Perylene
Concen: 490.41 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 80208

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.6	29.4

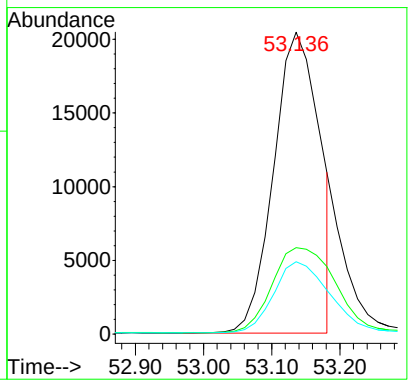


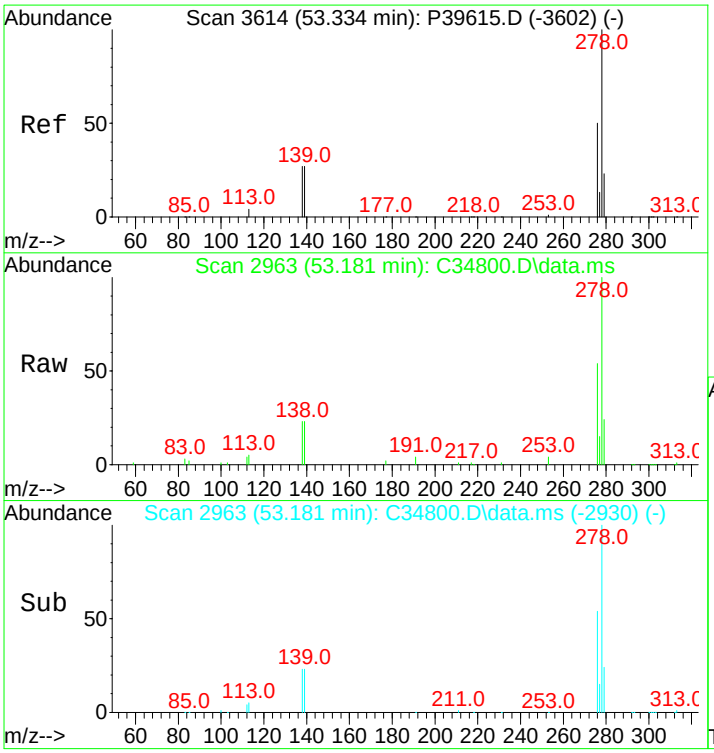


#89
Indeno[1,2,3-cd]pyrene
Concen: 535.75 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:276 Resp: 95412

Ion	Ratio	Lower	Upper
276	100		
138	39.7	23.3	34.9#
277	29.5	19.0	28.4#

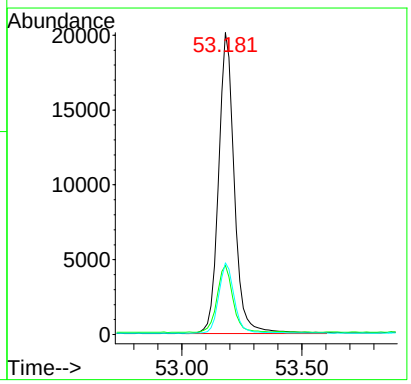


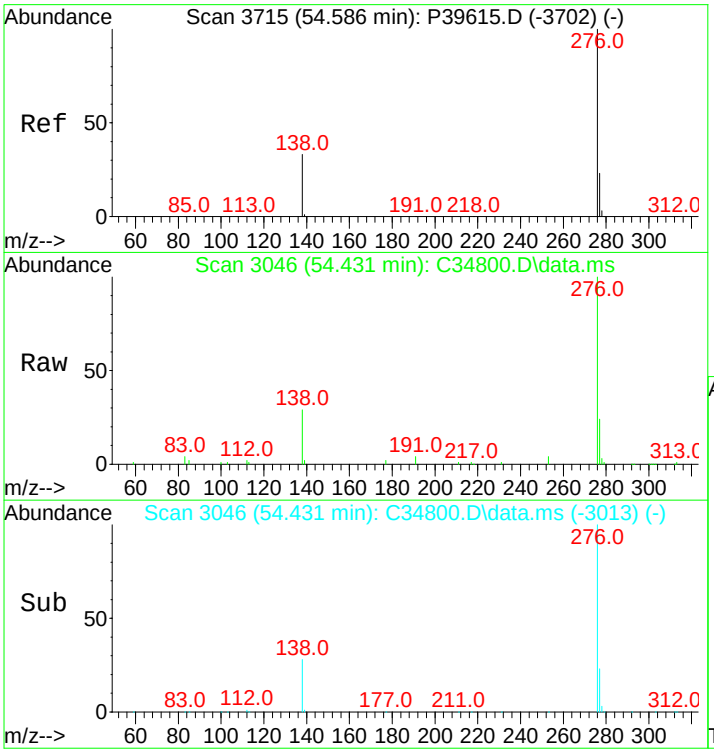


#90
Dibenz[ah]+[ac]anthracene
Concen: 541.53 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:278 Resp: 91742

Ion	Ratio	Lower	Upper
278	100		
139	22.3	19.1	28.7
279	23.0	19.2	28.8

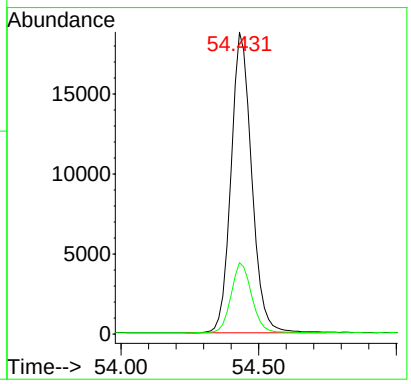


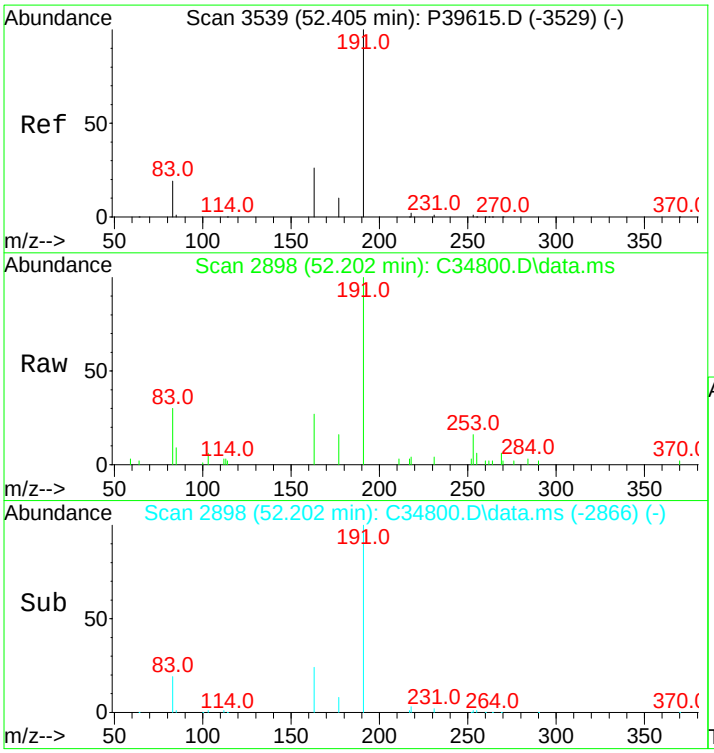


#91
Benzo[g,h,i]perylene
Concen: 518.35 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:276 Resp: 97529

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

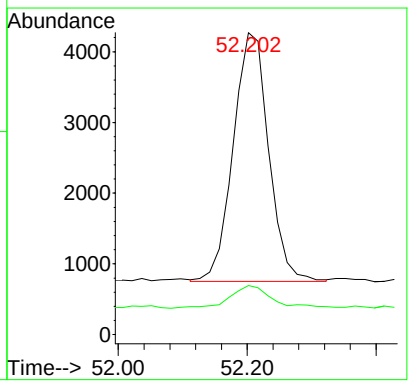


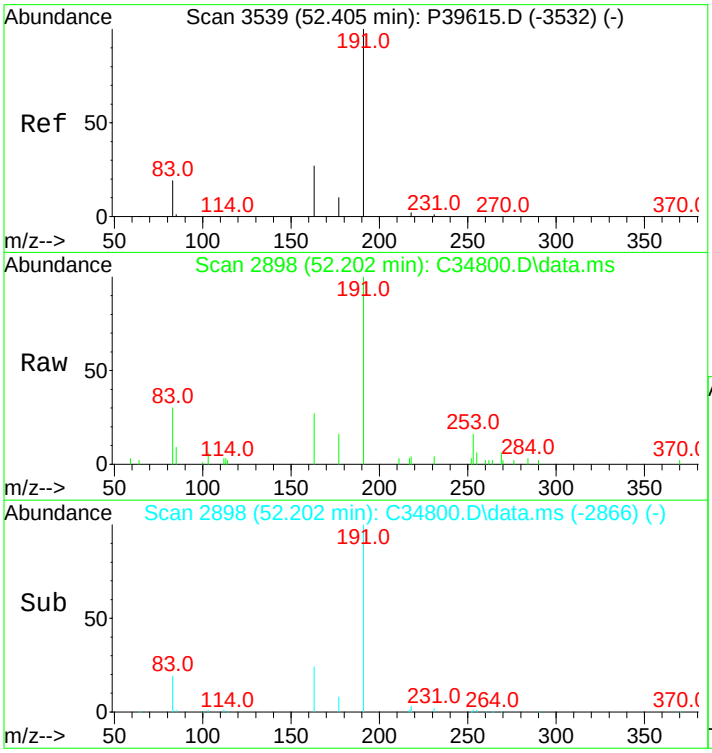


#92
Hopane (T19)
Concen: 441.65 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:191 Resp: 13412

Ion	Ratio	Lower	Upper
191	100		
177	11.1	14.6	21.8#

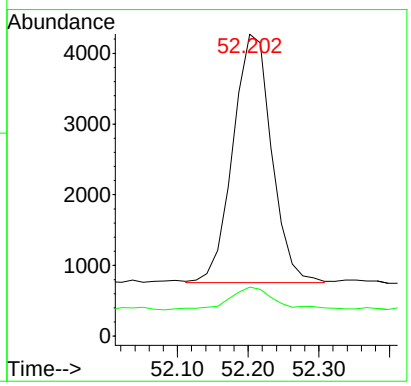




#93
17a(H),21B(H)-hopane - C30H52
Concen: 439.44 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:191 Resp: 13345

Ion	Ratio	Lower	Upper
191	100		
177	11.1	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17064M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	28462	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	35622	480.975	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.10%#			
42) Phenanthrene-d10	32.582	188	28572	488.078	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.81%#			
86) Benzo[a]pyrene-d12	48.241	264	28904	490.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.00%#			
127) 5B(H)Cholane - Surr	43.753	217	4543	510.526	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.05%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3389	251.587	ng/mL	100
4) cis-Decalin	17.603	138	2521	248.318	ng/mL	100
10) Naphthalene	19.801	128	50529	464.606	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	30183	469.370	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	28220	447.708	ng/mL#	100
18) Benzothiophene	20.027	134	45080	460.623	ng/mL	100
23) Biphenyl	24.392	154	38574	474.204	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	25575	484.074	ng/mL#	100
25) Dibenzofuran	27.479	168	44306	474.320	ng/mL	95
26) Acenaphthylene	26.094	152	49769M3	460.995	ng/mL	
27) Acenaphthene	26.831	153	29794	468.704	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	20924	491.294	ng/mL	100
29) Fluorene	28.864	166	33621M3	479.569	ng/mL	
33) Dibenzothiophene	32.176	184	52643	468.436	ng/mL	100
43) Phenanthrene	32.657	178	46915	475.158	ng/mL	99
54) Retene	39.643	234	10413	540.647	ng/mL	97
55) Anthracene	32.853	178	46687M3	484.091	ng/mL	
56) Carbazole	33.515	167	44751M3	459.373	ng/mL	
57) 1-Methylphenanthrene	35.171	192	31302	500.268	ng/mL	99
58) Fluoranthene	37.430	202	49134M3	501.056	ng/mL	
59) Benzo(b)fluorene	39.959	216	29894	525.461	ng/mL	100
60) Pyrene	38.318	202	49499	496.572	ng/mL	97
66) Naphthobenzothiophene	42.173	234	55072	513.174	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	55072	513.174	ng/mL#	66
75) Benz[a]anthracene	43.091	228	45979	508.967	ng/mL	99
76) Chrysene	43.257	228	45092	494.410	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45092	494.410	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	53247	536.422	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	51506	476.589	ng/mL	97
85) Benzo[e]pyrene	48.136	252	48554	494.522	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46418	491.037	ng/mL	95
88) Perylene	48.648	252	50072	495.631	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.151	276	60603M3	550.897	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	56659	541.426	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	61054	525.314	ng/mL	100
92) Hopane (T19)	52.202	191	8372	446.305	ng/mL#	81
93) 17a(H),21B(H)-hopane -...	52.202	191	8372	446.305	ng/mL#	81

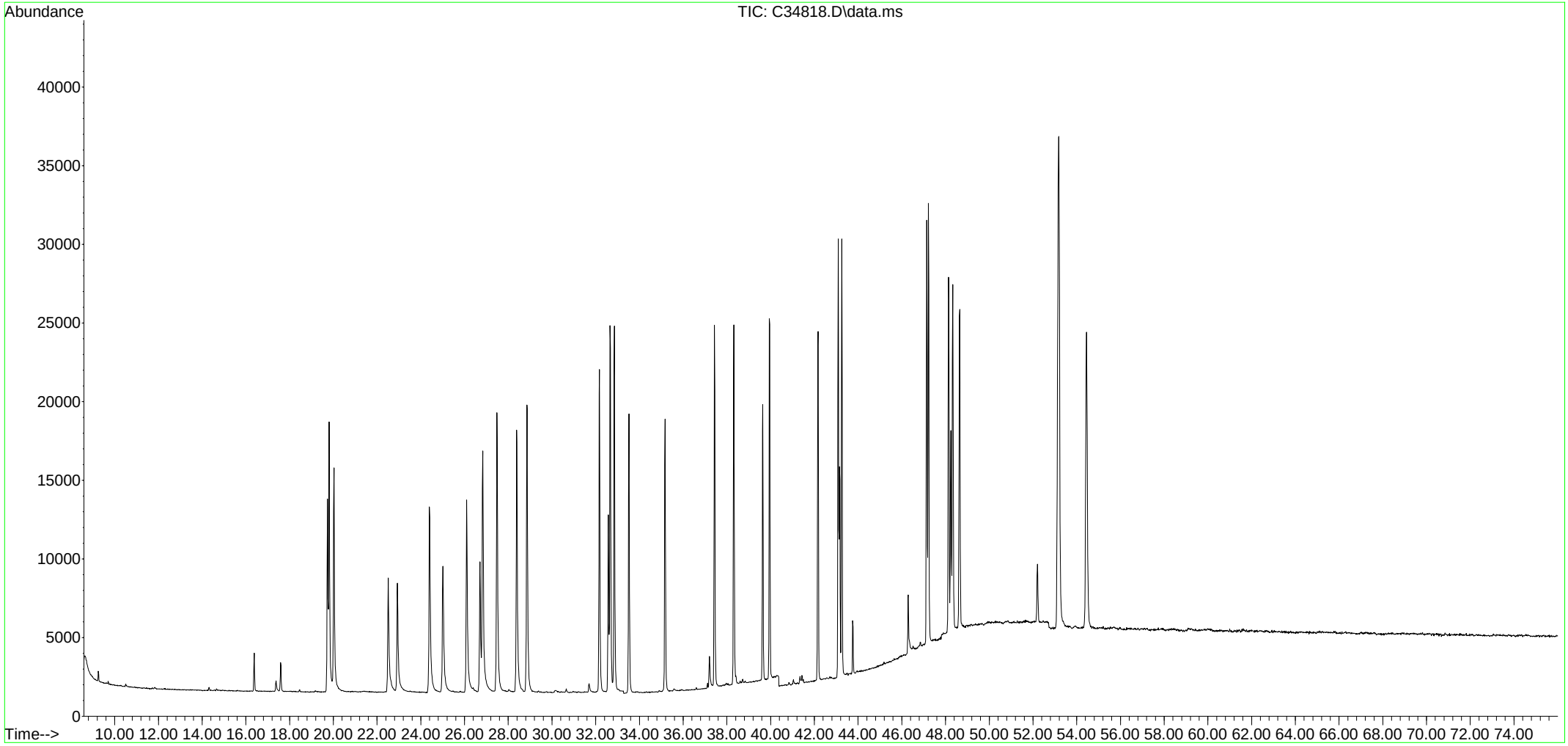
(#) = qualifier out of range (m) = manual integration (+) = signals summed

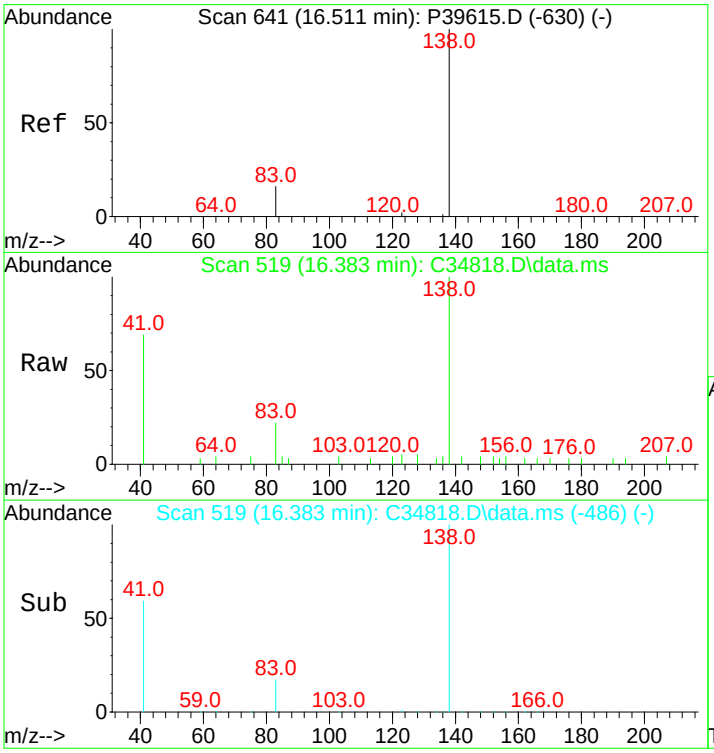
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

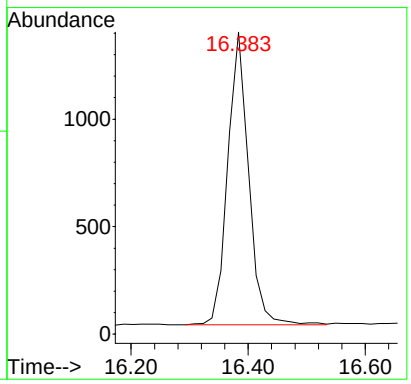
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

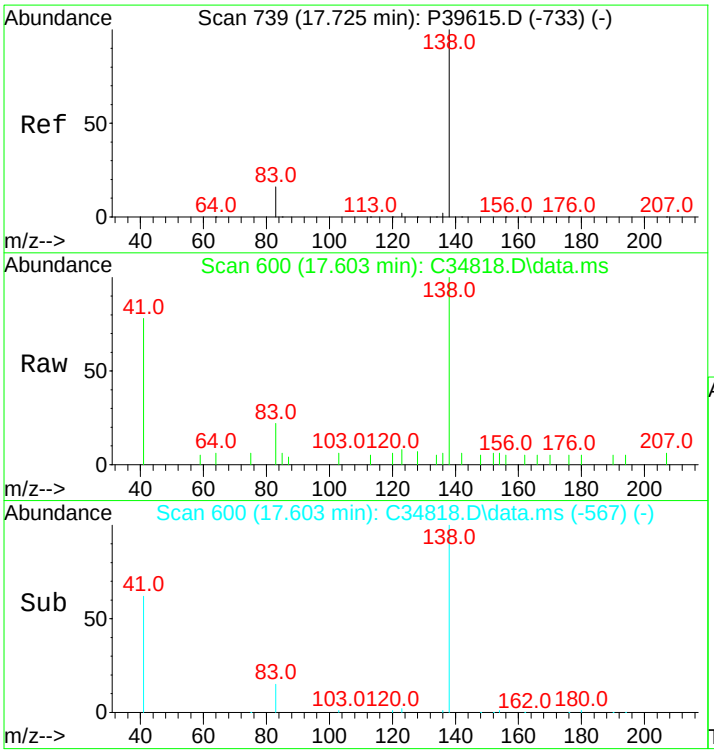




#3
trans-Decalin
Concen: 251.59 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

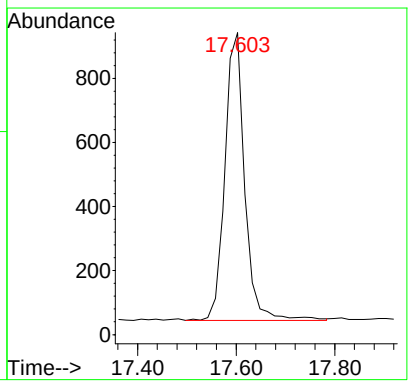
Tgt Ion:138 Resp: 3389

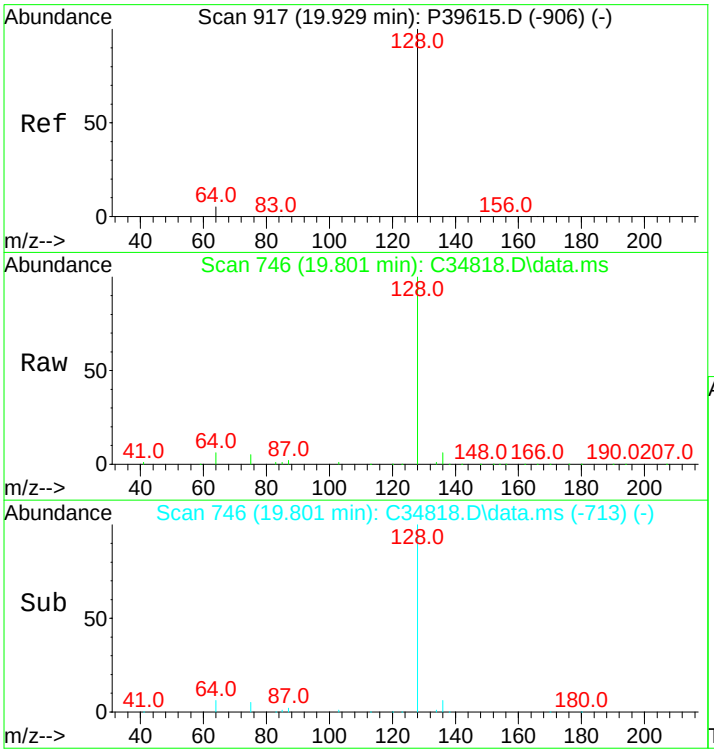




#4
cis-Decalin
Concen: 248.32 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:138 Resp: 2521

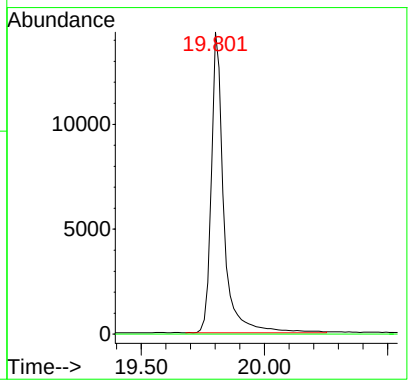


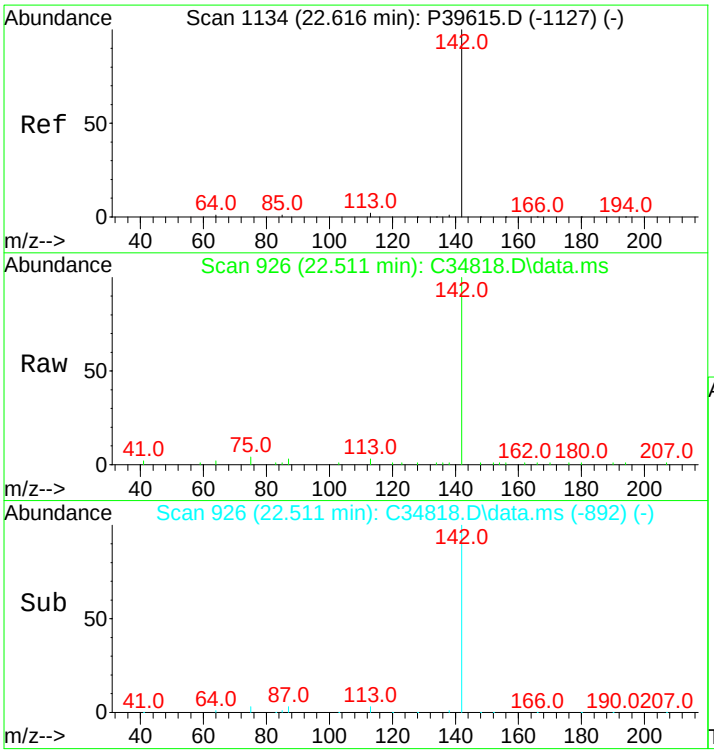


#10
Naphthalene
Concen: 464.61 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:128 Resp: 50529

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

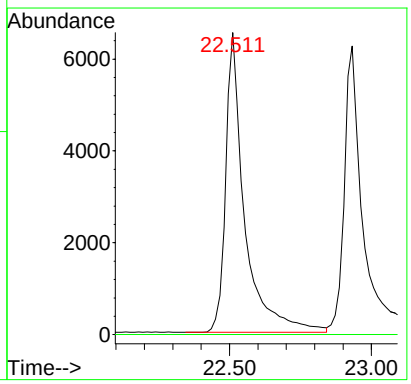


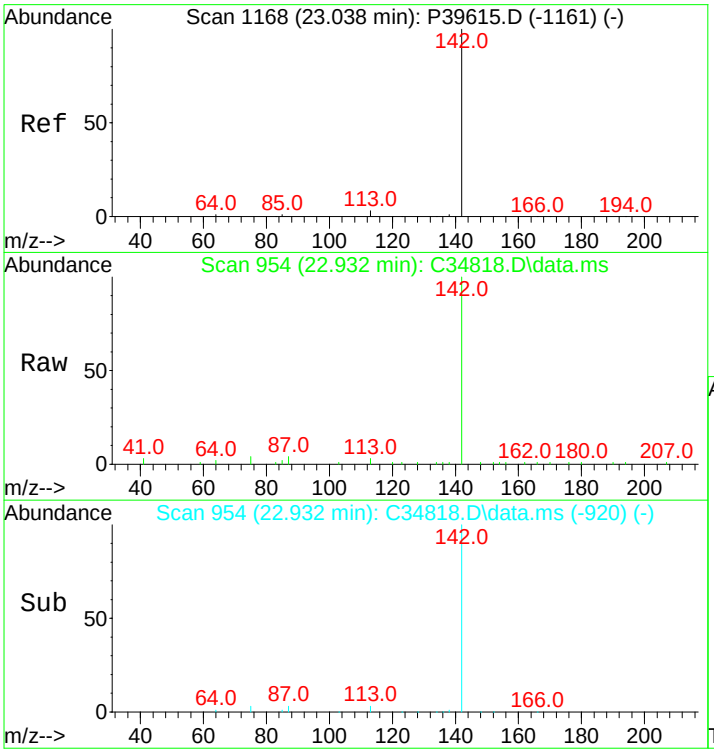


#16
2-Methylnaphthalene
Concen: 469.37 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:142 Resp: 30183

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

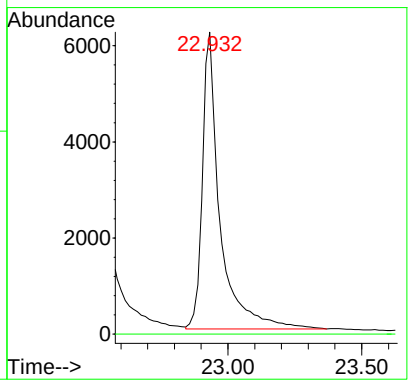


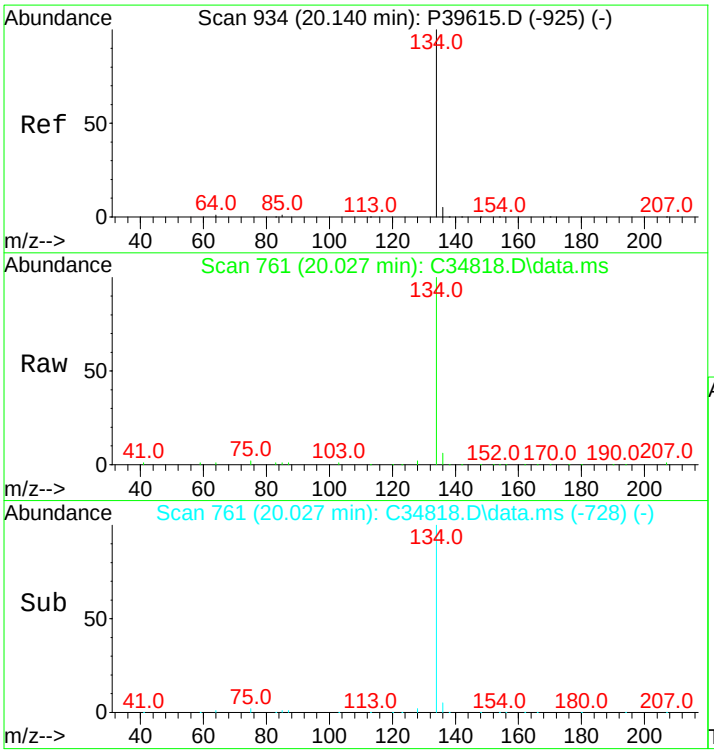


#17
1-Methylnaphthalene
Concen: 447.71 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:142 Resp: 28220

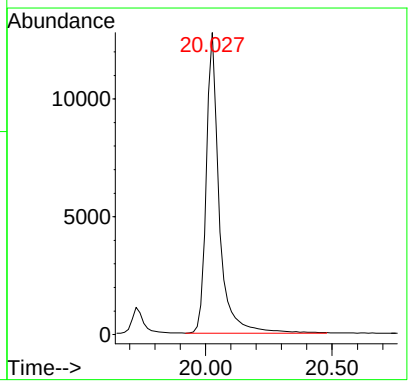
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

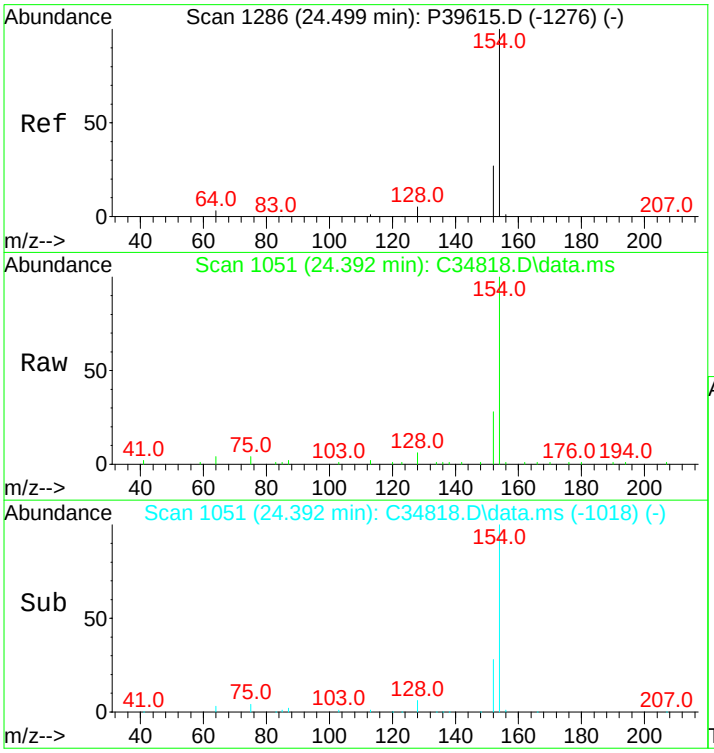




#18
Benzothiophene
Concen: 460.62 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:134 Resp: 45080

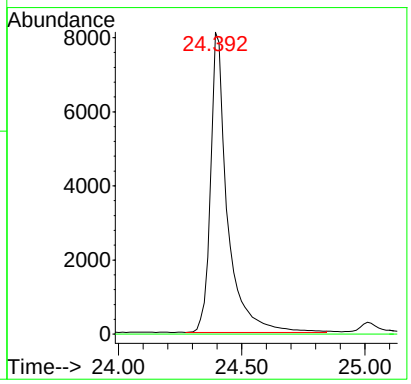


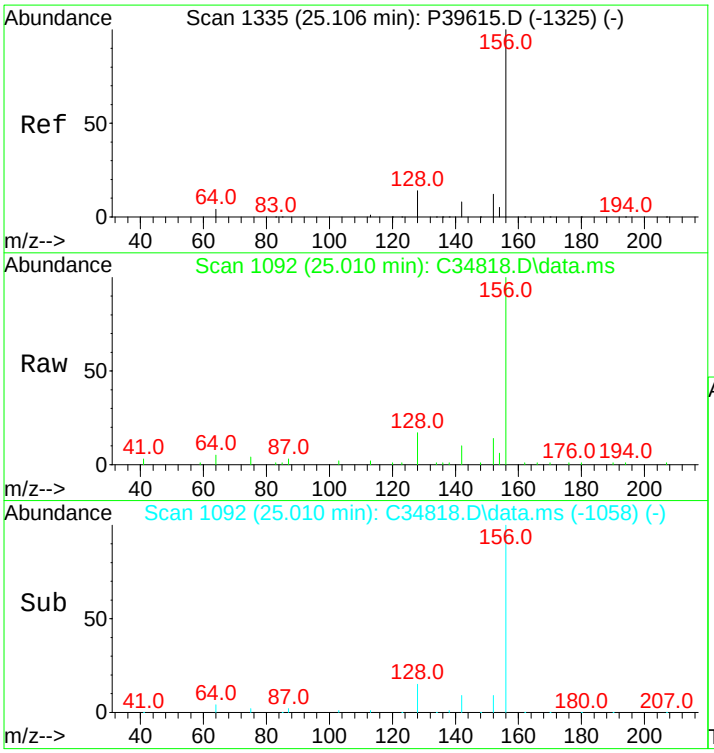


#23
Biphenyl
Concen: 474.20 ng/mL
RT: 24.392 min Scan# 1051
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:154 Resp: 38574

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

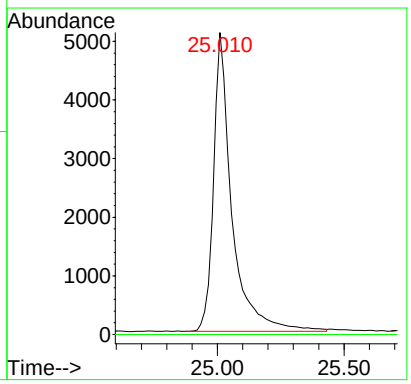


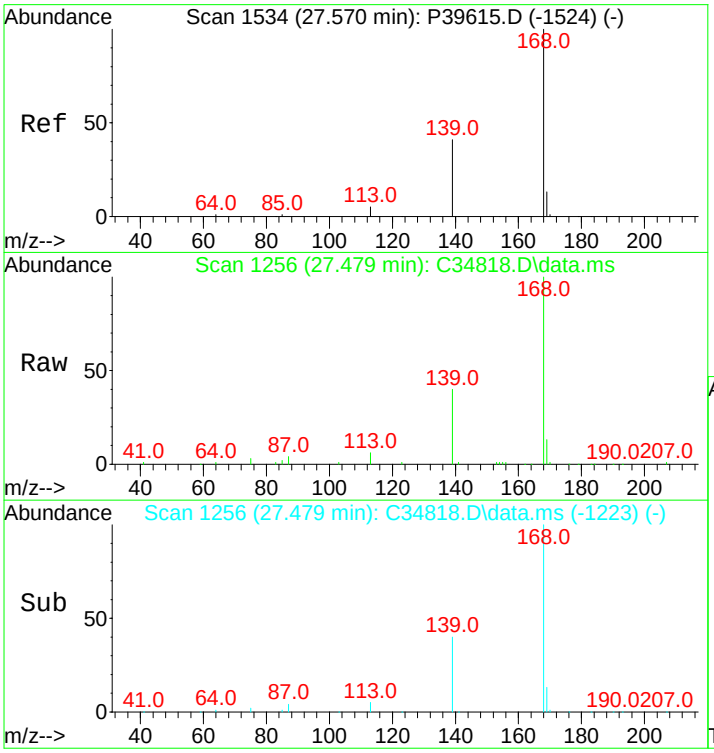


#24
2,6-Dimethylnaphthalene
Concen: 484.07 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:156 Resp: 25575

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

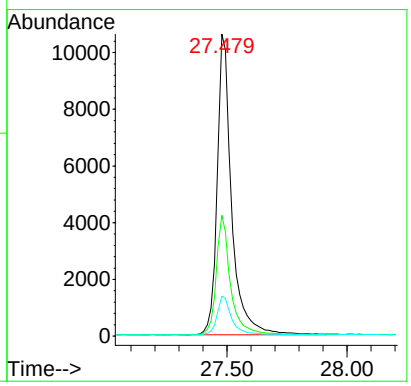


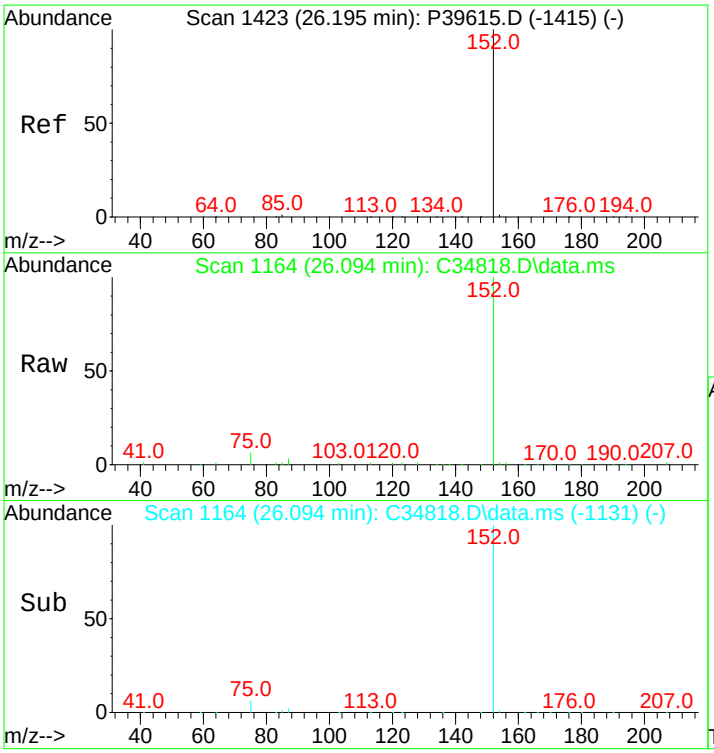


#25
Dibenzofuran
Concen: 474.32 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:168 Resp: 44306

Ion	Ratio	Lower	Upper
168	100		
139	39.3	28.4	42.6
169	12.9	10.8	16.2

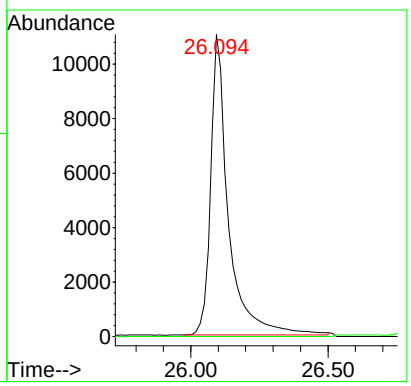


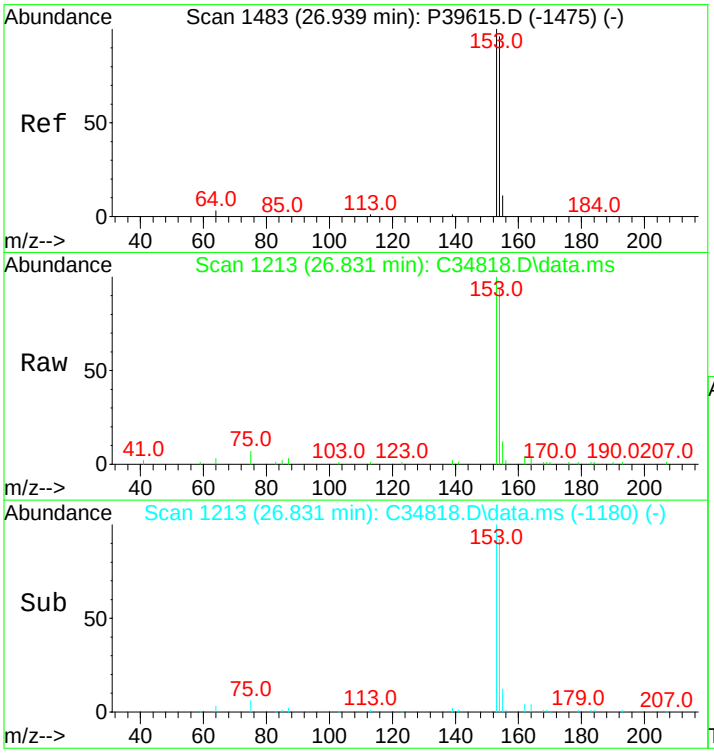


#26
Acenaphthylene
Concen: 461.00 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:152 Resp: 49769

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

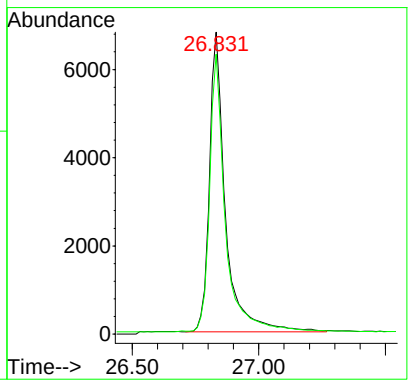


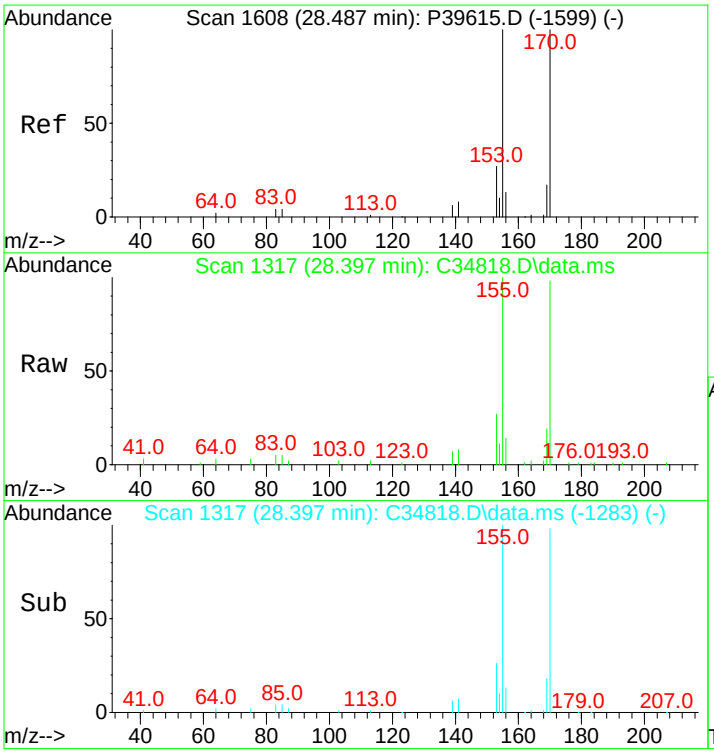


#27
Acenaphthene
Concen: 468.70 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:153 Resp: 29794

Ion	Ratio	Lower	Upper
153	100		
154	91.9	73.6	110.4

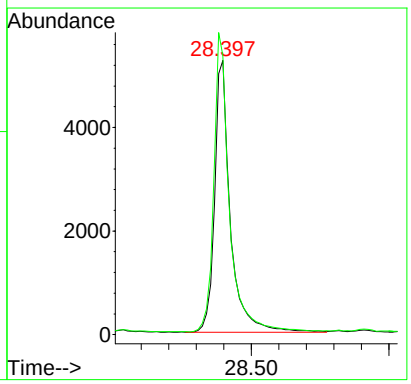


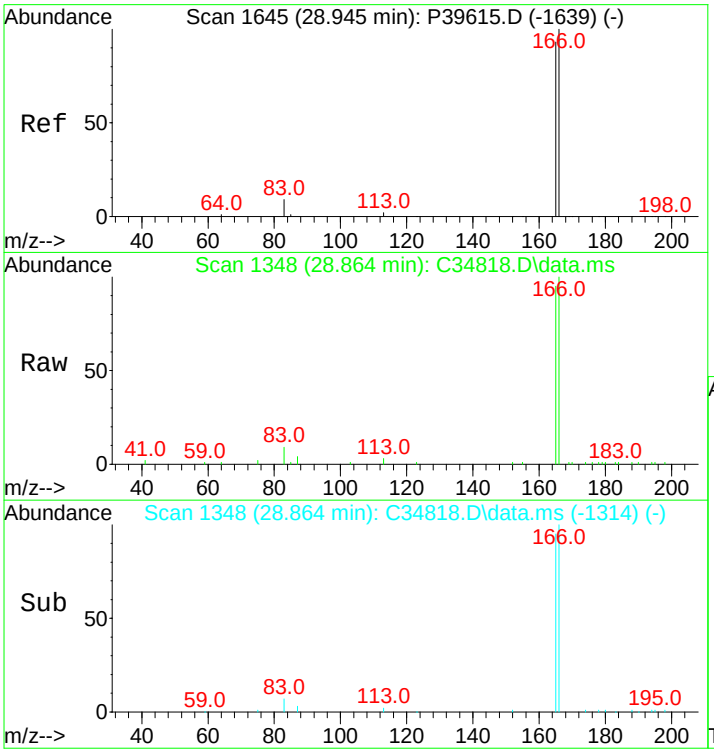


#28
2,3,5-Trimethylnaphthalene
Concen: 491.29 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:170 Resp: 20924

Ion	Ratio	Lower	Upper
170	100		
155	108.9	87.3	130.9

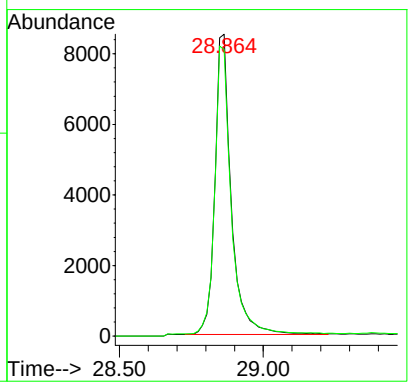


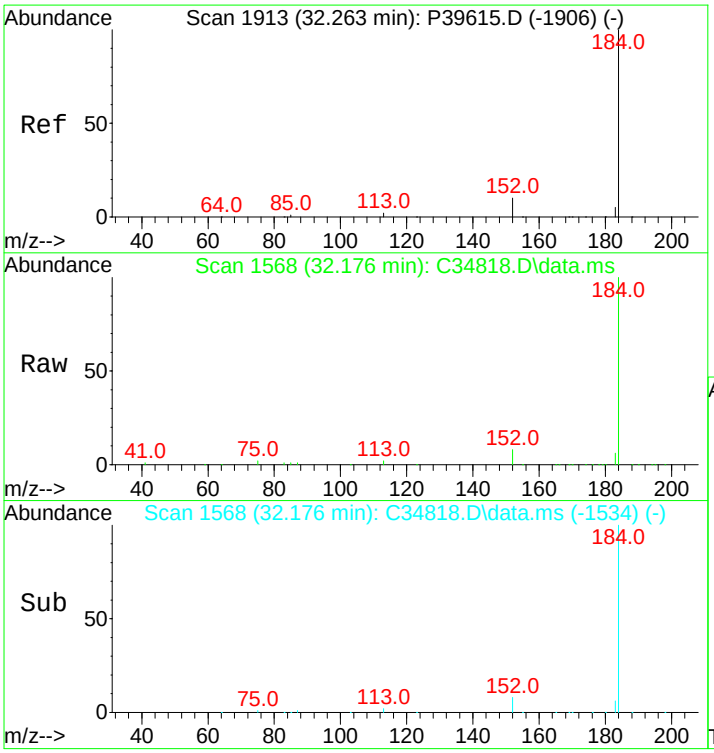


#29
Fluorene
Concen: 479.57 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:166 Resp: 33621

Ion	Ratio	Lower	Upper
166	100		
165	103.8	77.3	115.9

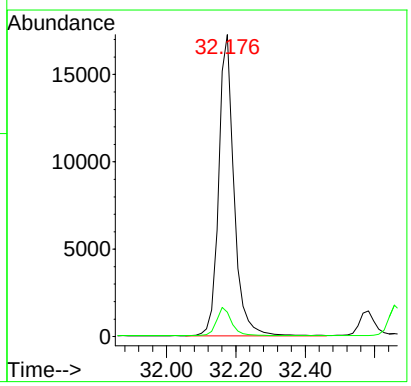


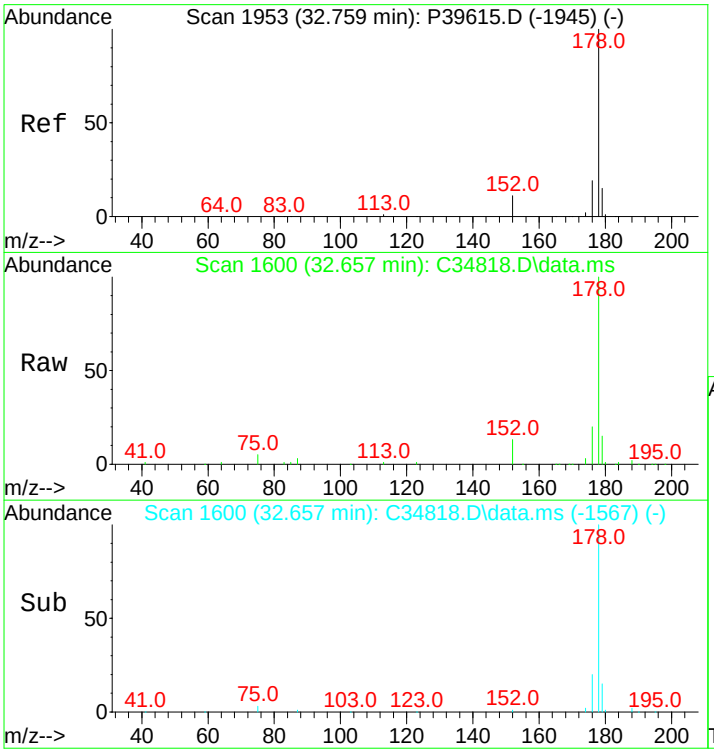


#33
Dibenzothiophene
Concen: 468.44 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:184 Resp: 52643

Ion	Ratio	Lower	Upper
184	100		
152	9.3	7.5	11.3

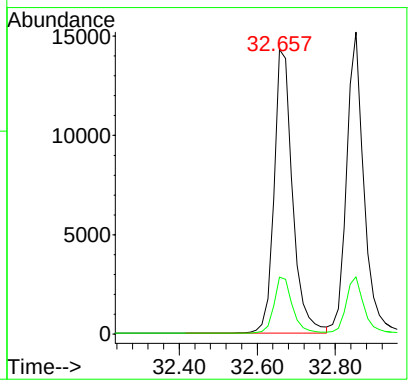


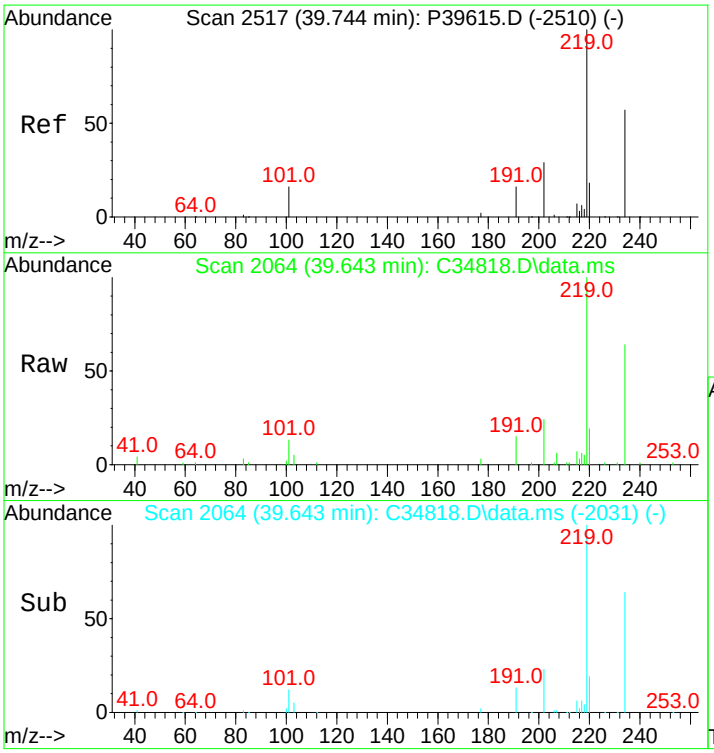


#43
Phenanthrene
Concen: 475.16 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:178 Resp: 46915

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

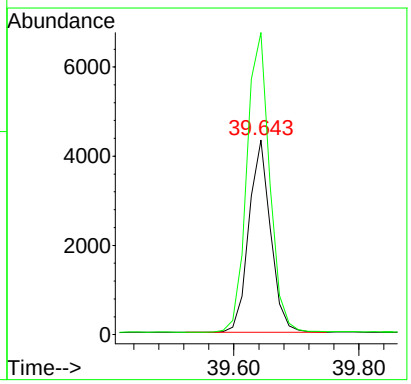


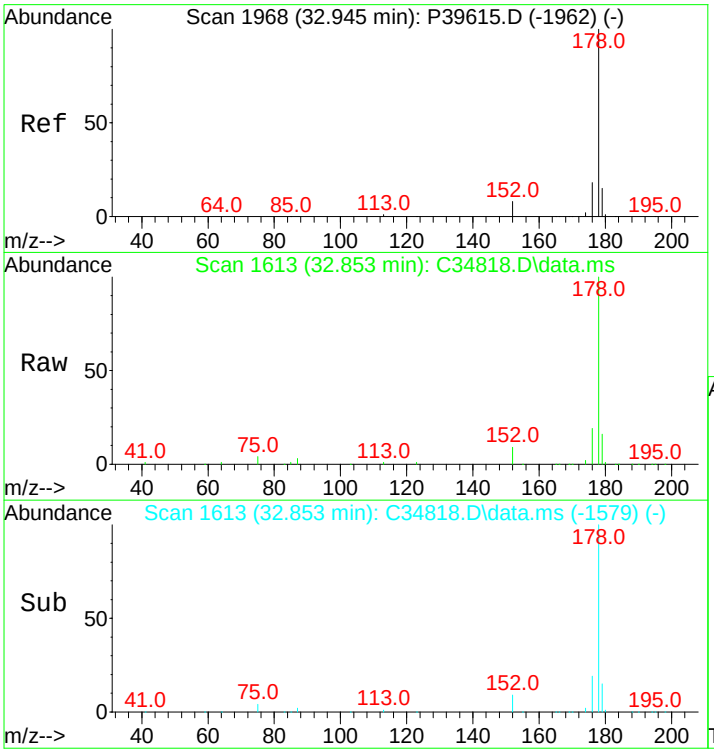


#54
Retene
Concen: 540.65 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 10413

Ion	Ratio	Lower	Upper
234	100		
219	164.0	127.8	191.8

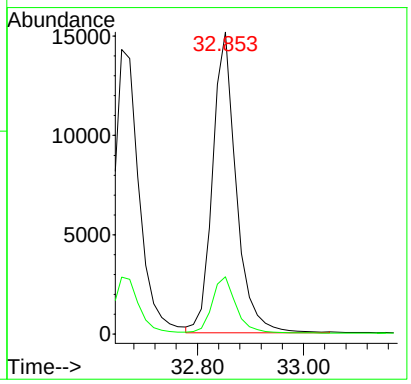


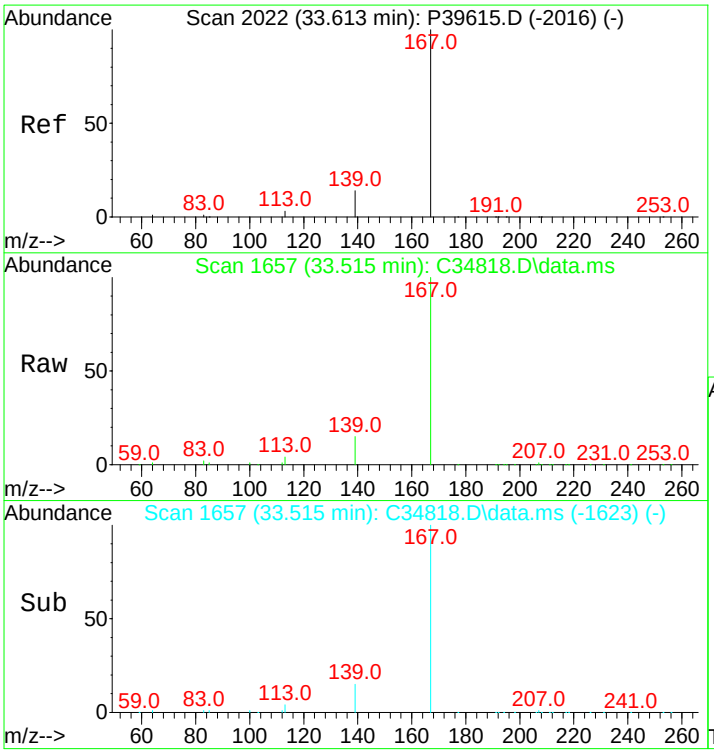


#55
Anthracene
Concen: 484.09 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:178 Resp: 46687

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

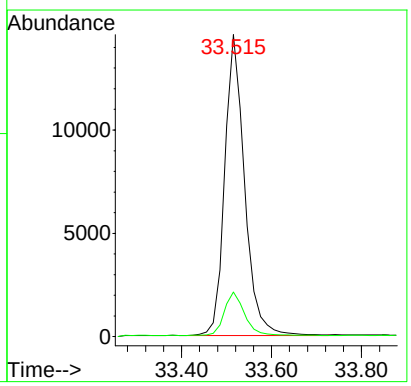


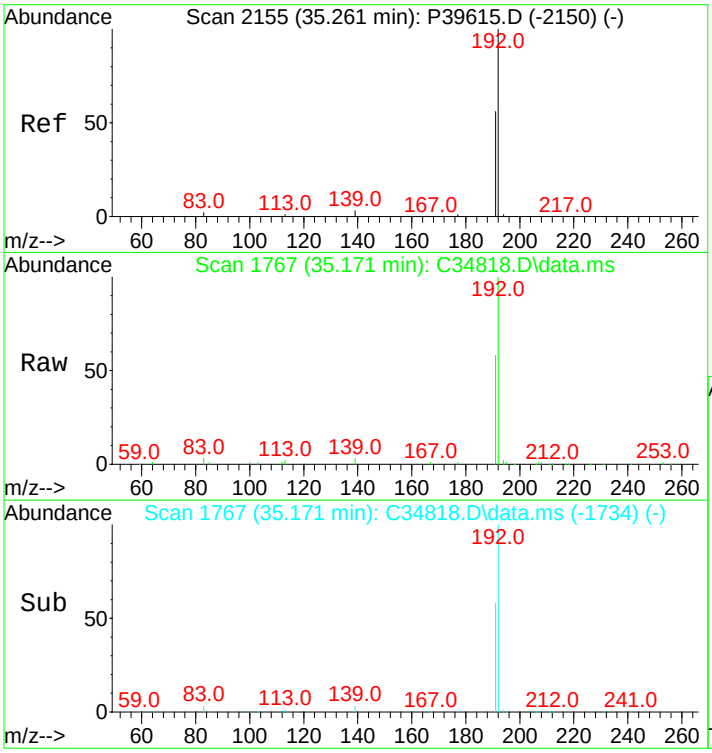


#56
Carbazole
Concen: 459.37 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:167 Resp: 44751

Ion	Ratio	Lower	Upper
167	100		
139	15.2	11.8	17.8

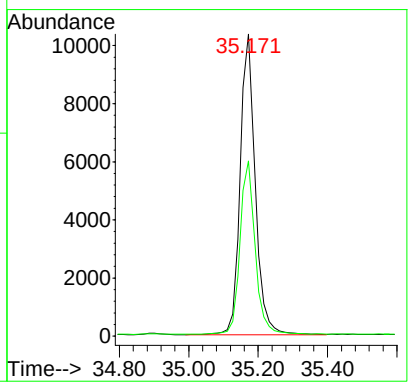


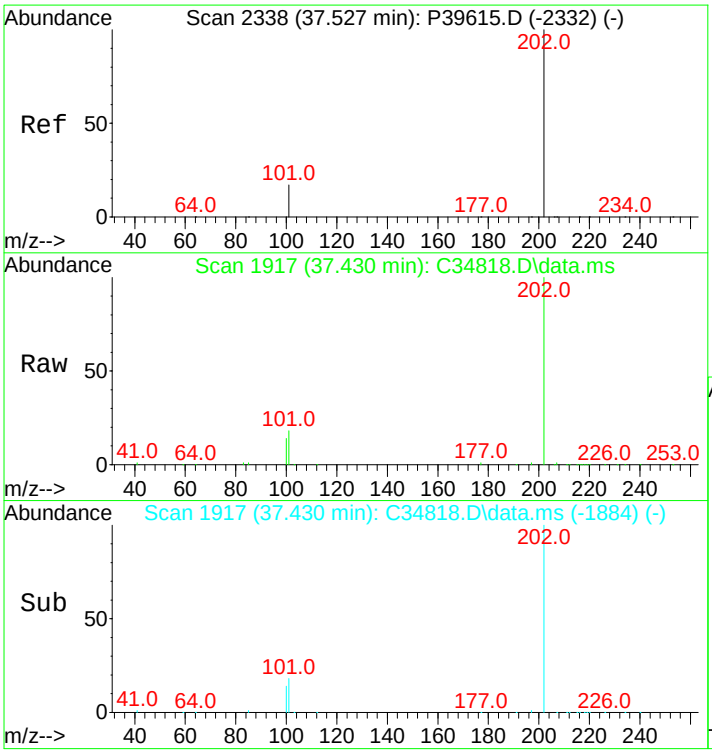


#57
1-Methylphenanthrene
Concen: 500.27 ng/mL
RT: 35.171 min Scan# 1767
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:192 Resp: 31302

Ion	Ratio	Lower	Upper
192	100		
191	57.8	45.9	68.9

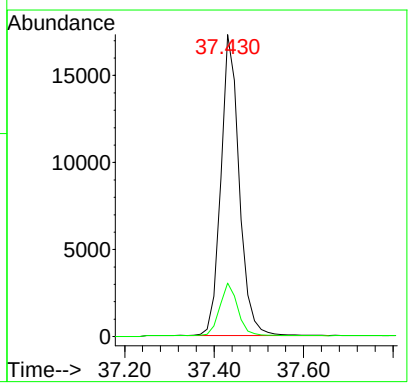


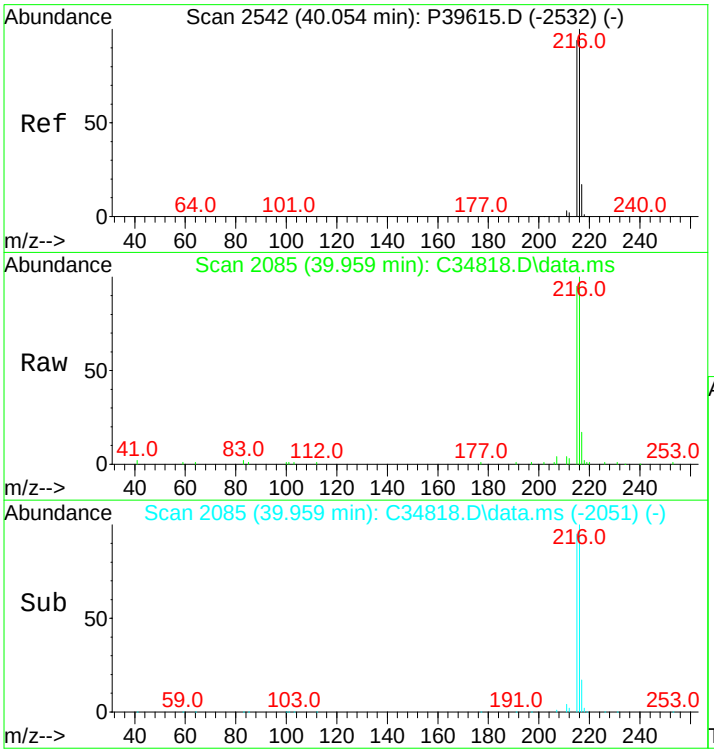


#58
Fluoranthene
Concen: 501.06 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:202 Resp: 49134

Ion	Ratio	Lower	Upper
202	100		
101	17.7	12.9	19.3

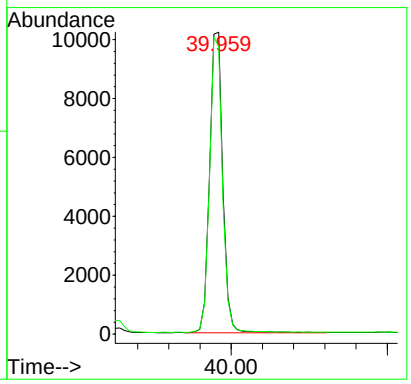


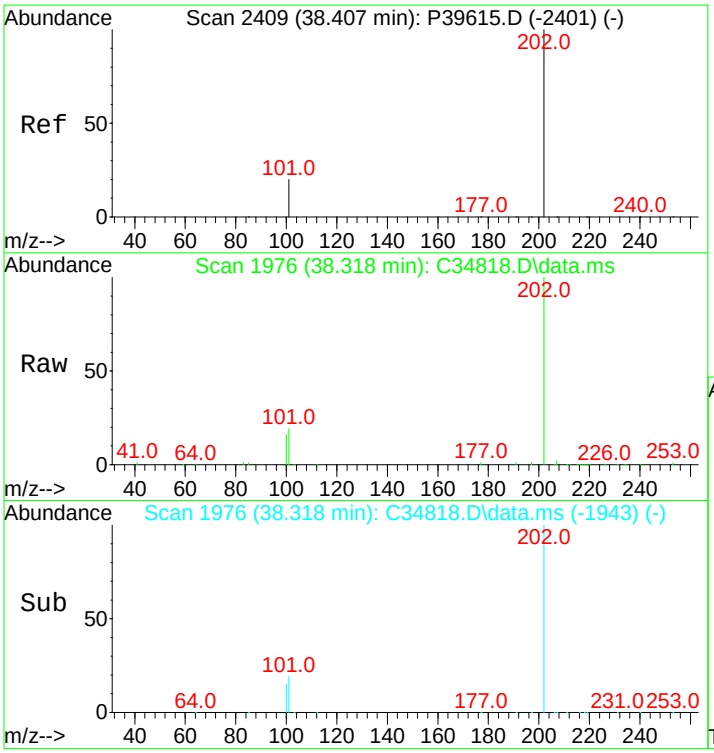


#59
Benzo(b)fluorene
Concen: 525.46 ng/mL
RT: 39.959 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:216 Resp: 29894

Ion	Ratio	Lower	Upper
216	100		
215	95.4	76.3	114.5

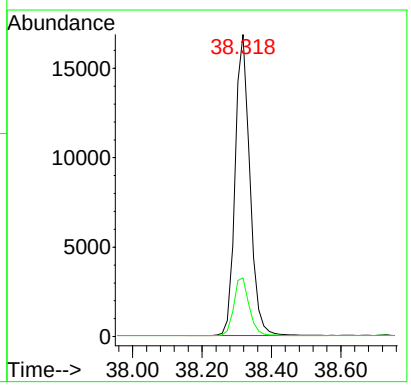


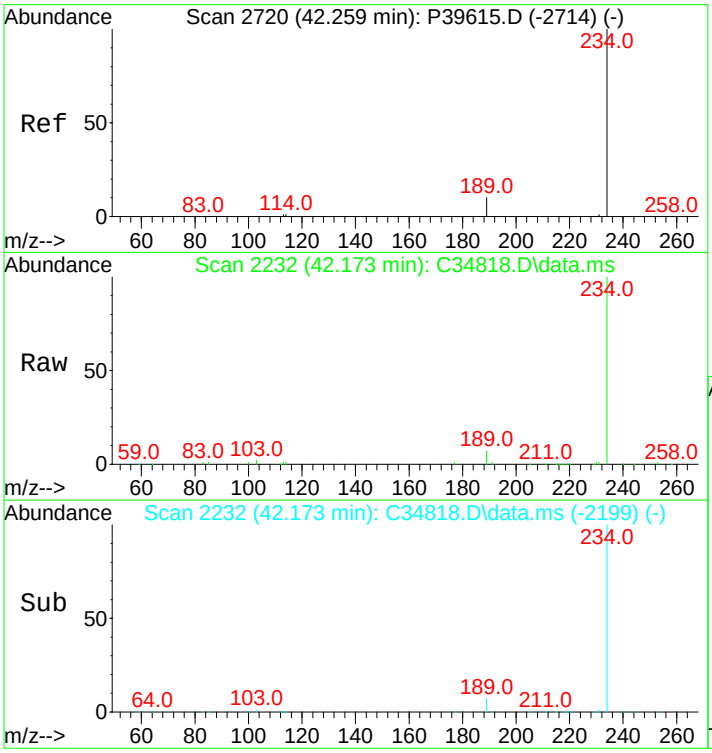


#60
Pyrene
Concen: 496.57 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:202 Resp: 49499

Ion	Ratio	Lower	Upper
202	100		
101	20.1	15.0	22.4

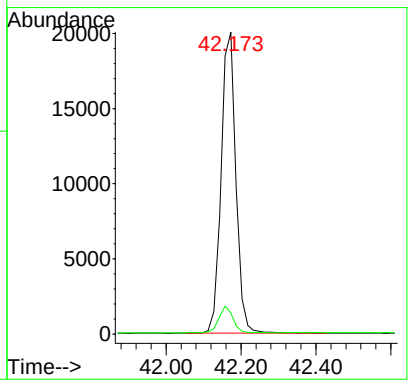


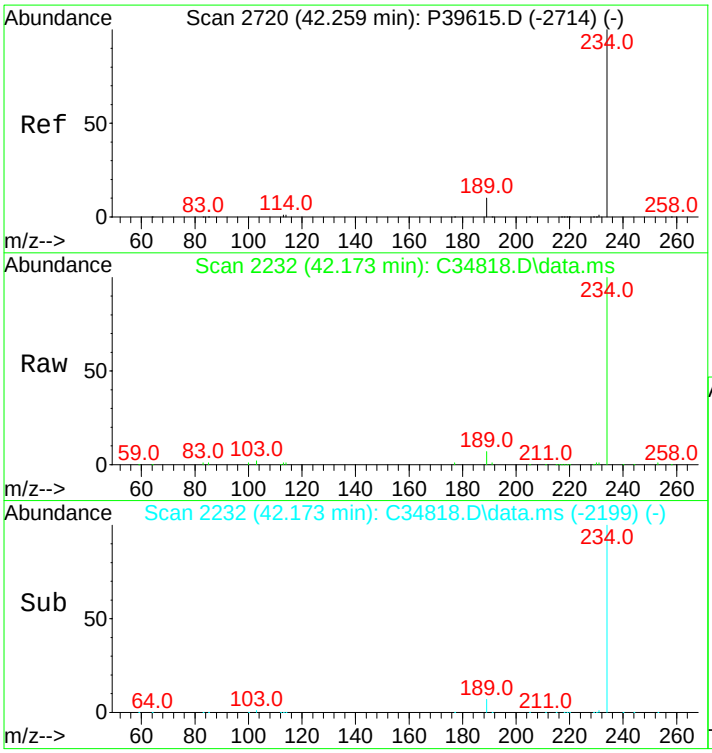


#66
Naphthobenzothiophene
Concen: 513.17 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 55072

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

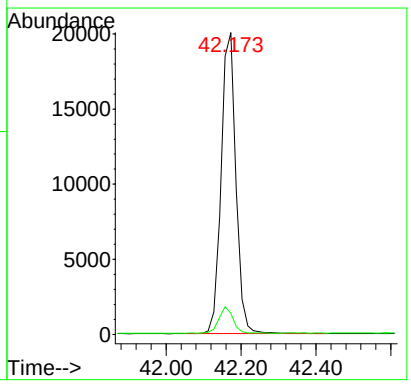


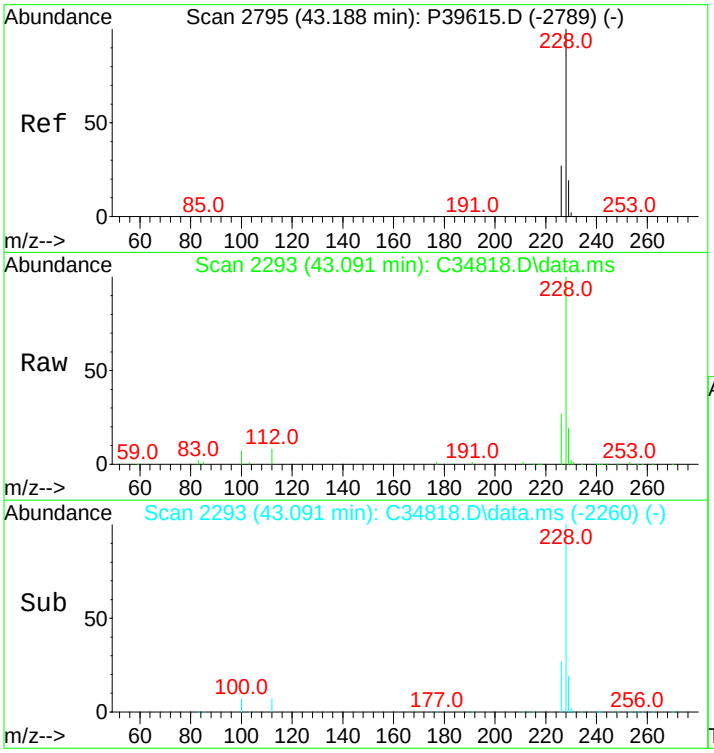


#67
Naphthobenzothiophene-2,1-D
Concen: 513.17 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 55072

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

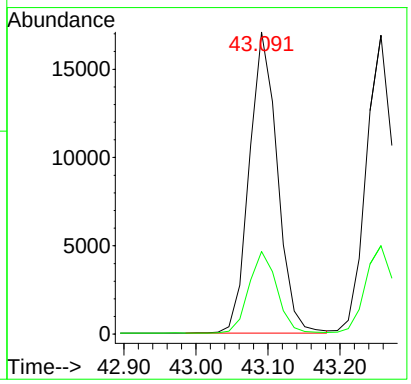


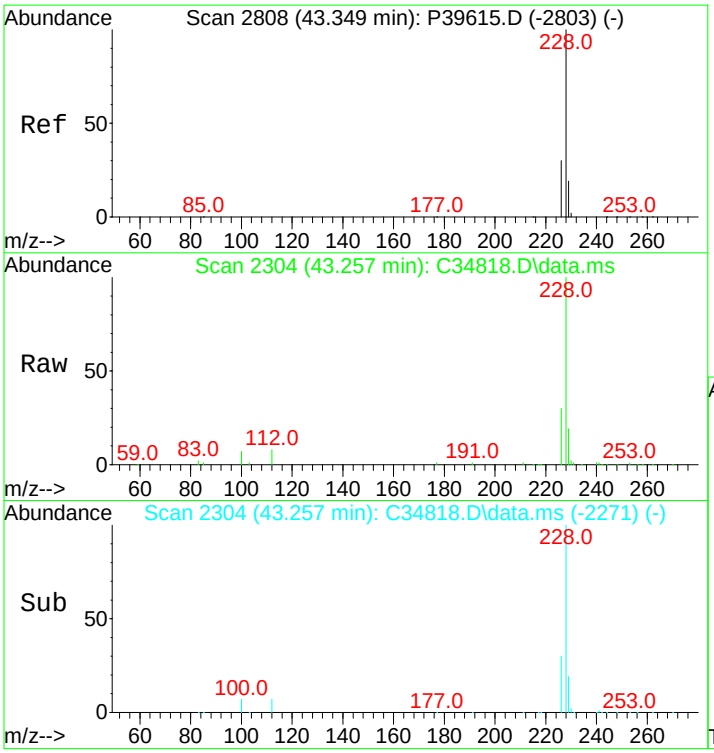


#75
Benz[a]anthracene
Concen: 508.97 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45979

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

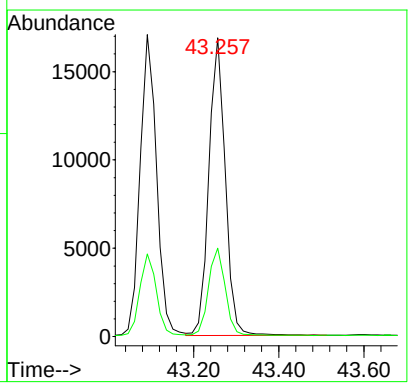


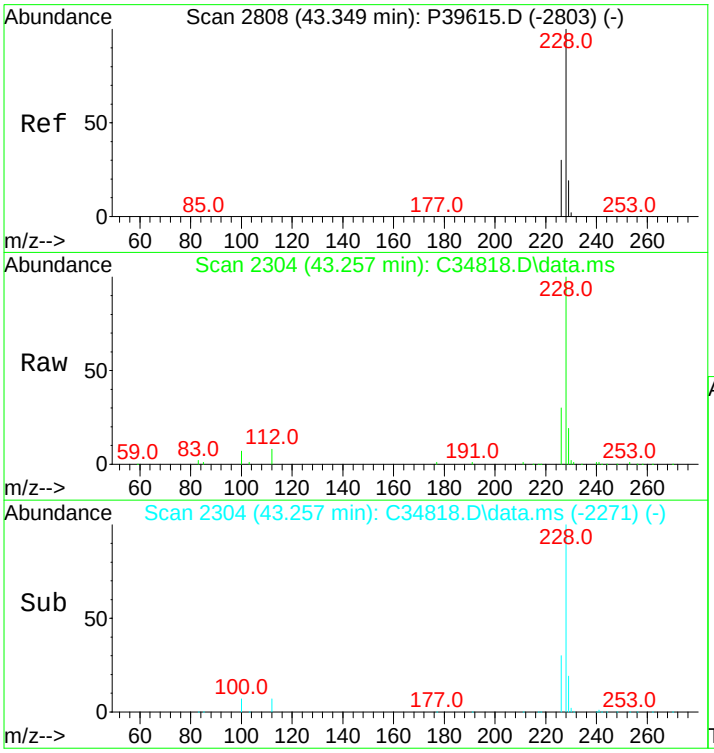


#76
Chrysene
Concen: 494.41 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45092

Ion	Ratio	Lower	Upper
228	100		
226	30.0	23.7	35.5

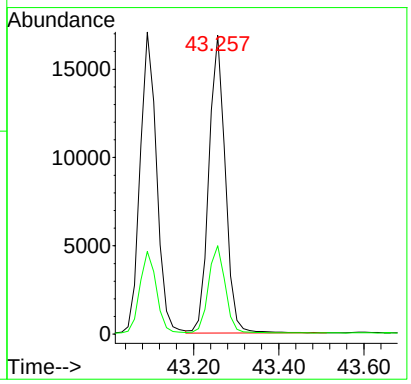


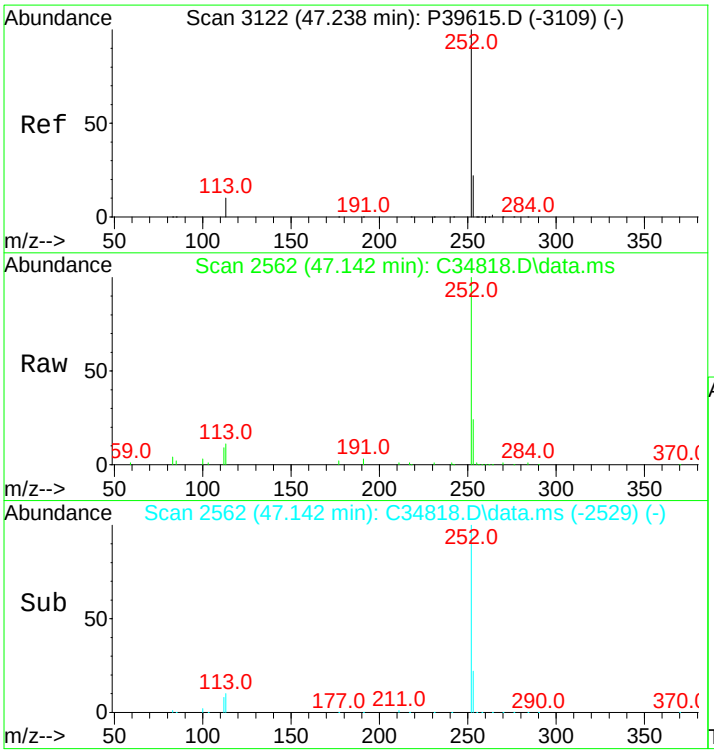


#77
Chrysene/Triphenylene
Concen: 494.41 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45092

Ion	Ratio	Lower	Upper
228	100		
226	30.0	23.7	35.5

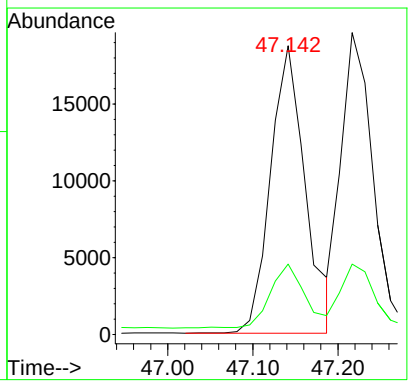


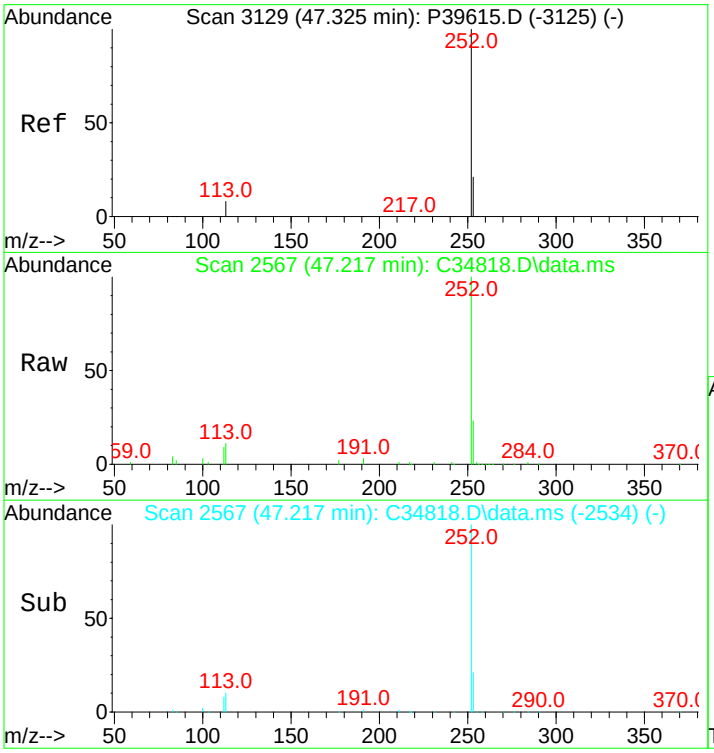


#82
Benzo[b]fluoranthene
Concen: 536.42 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 53247

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.0	28.4

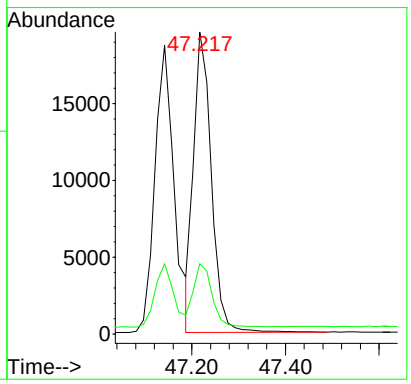


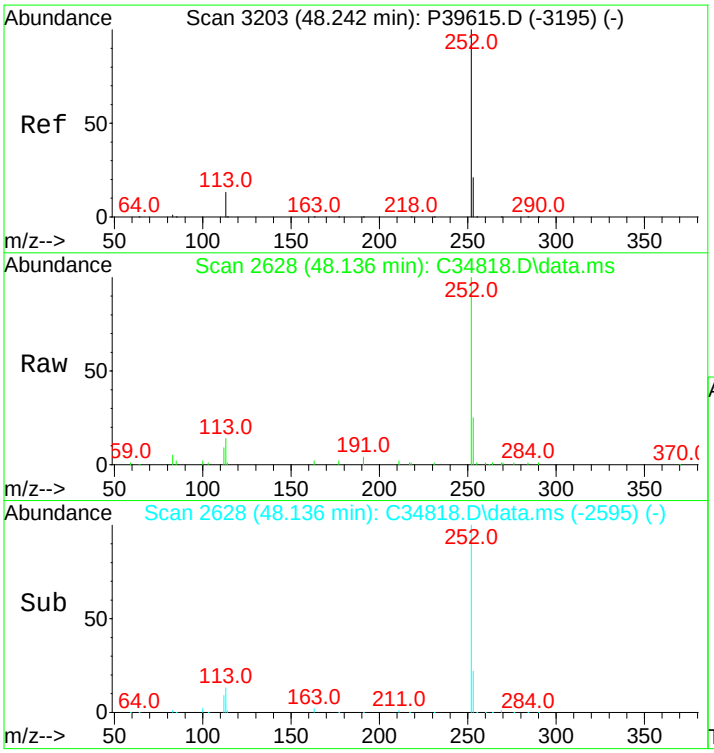


#83
Benzo[j]+[k]fluoranthene
Concen: 476.59 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 51506

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.0	28.4

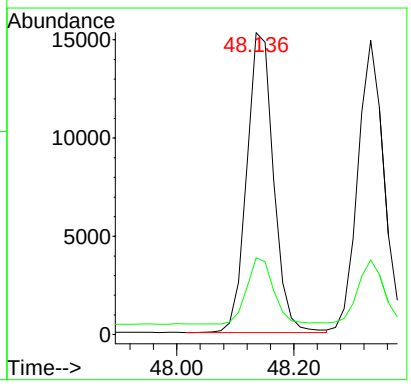


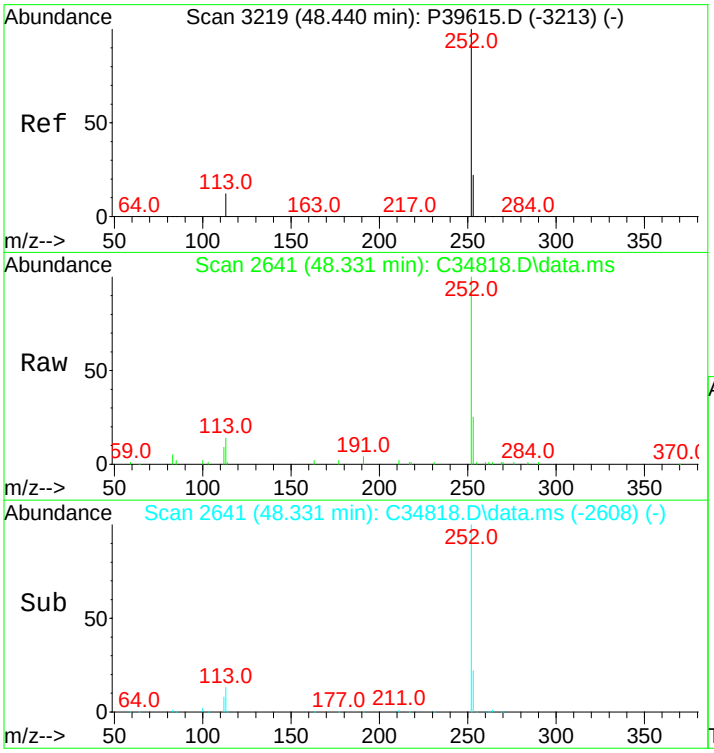


#85
Benzo[e]pyrene
Concen: 494.52 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 48554

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.2	28.8

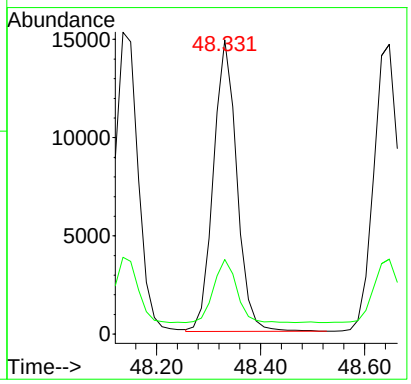


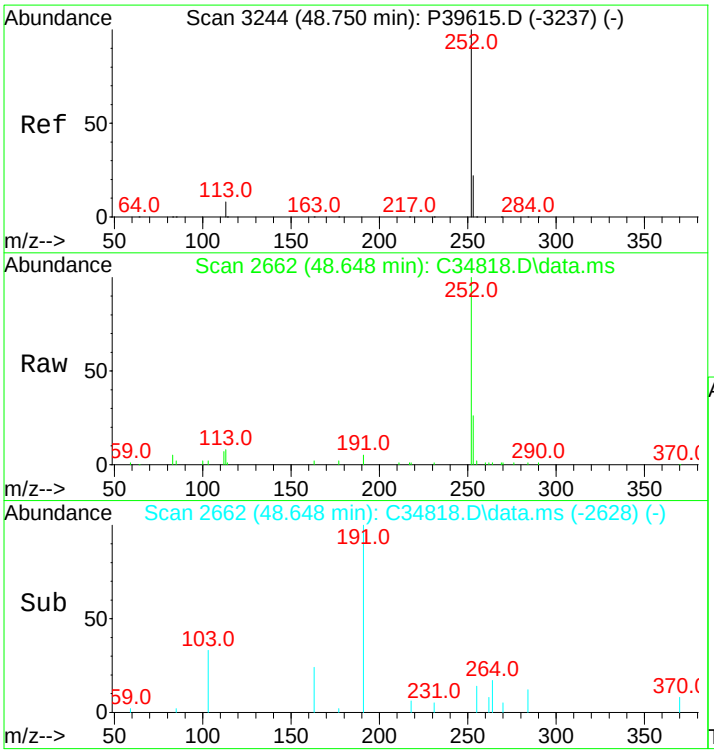


#87
Benzo[a]pyrene
Concen: 491.04 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 46418

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.5	29.3

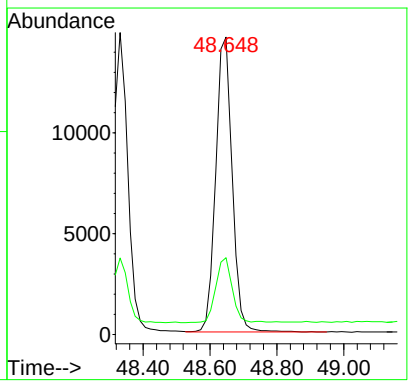


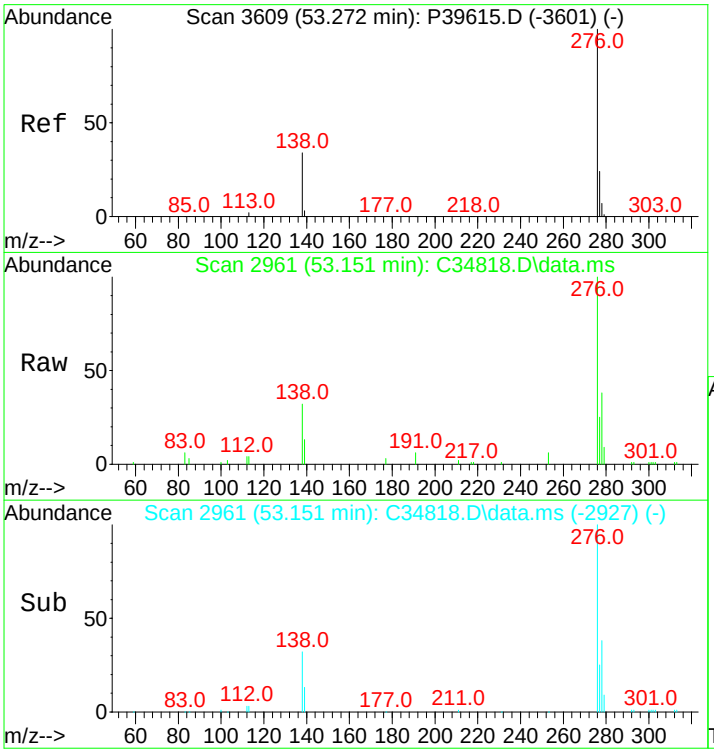


#88
Perylene
Concen: 495.63 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 50072

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.6	29.4

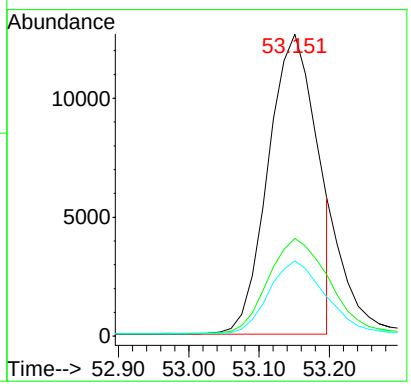


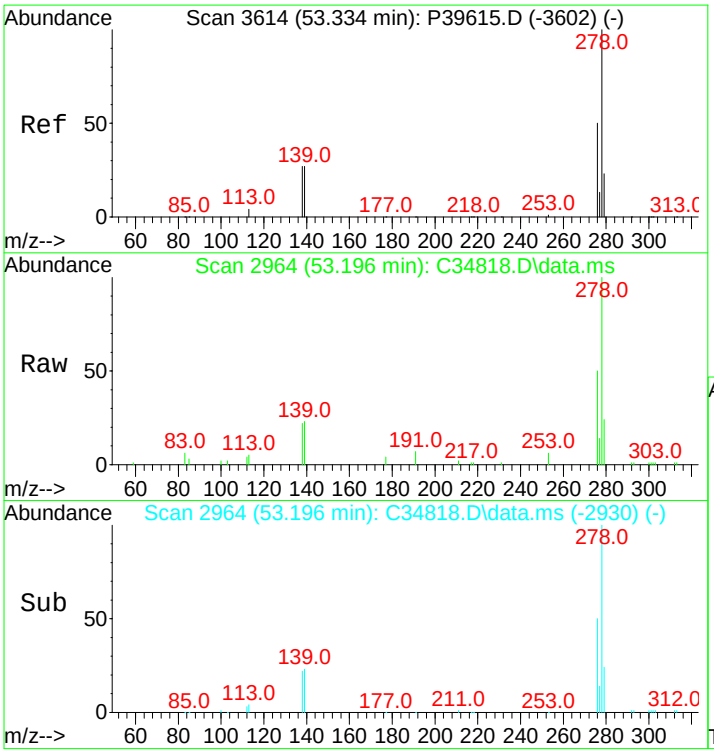


#89
Indeno[1,2,3-cd]pyrene
Concen: 550.90 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:276 Resp: 60603

Ion	Ratio	Lower	Upper
276	100		
138	39.9	23.3	34.9#
277	28.4	19.0	28.4

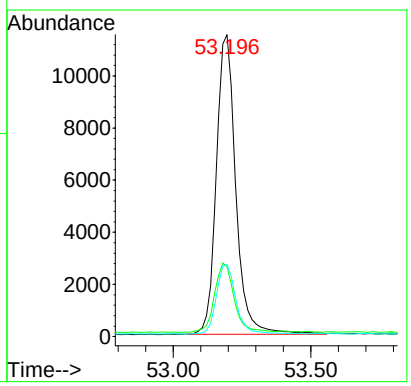


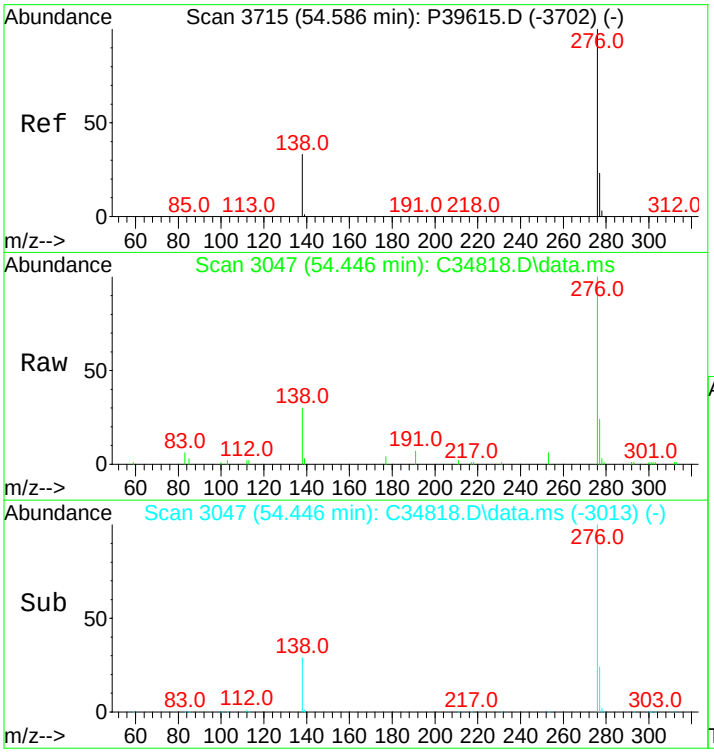


#90
Dibenz[ah]+[ac]anthracene
Concen: 541.43 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:278 Resp: 56659

Ion	Ratio	Lower	Upper
278	100		
139	22.8	19.1	28.7
279	22.9	19.2	28.8

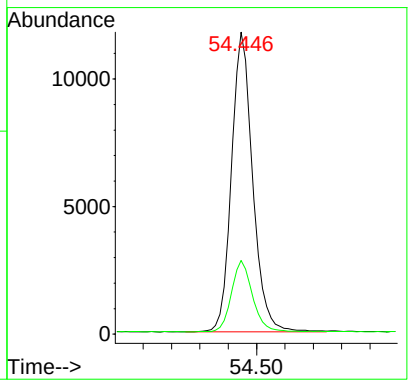


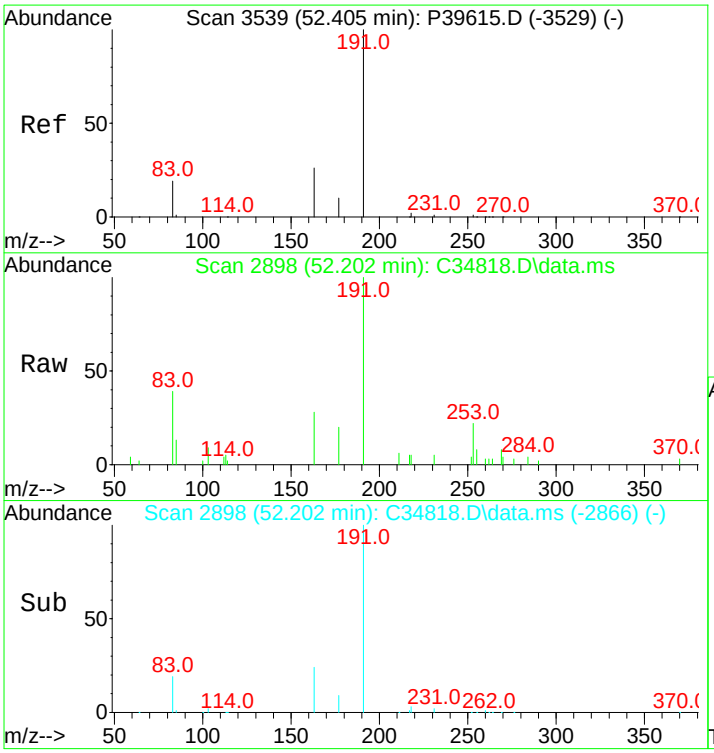


#91
Benzo[g,h,i]perylene
Concen: 525.31 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:276 Resp: 61054

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

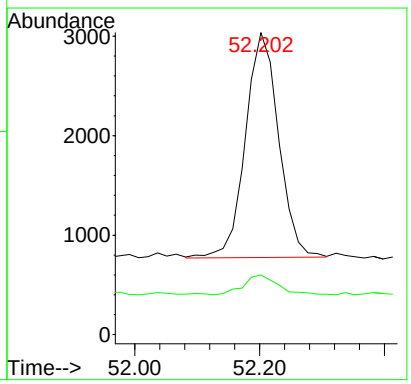


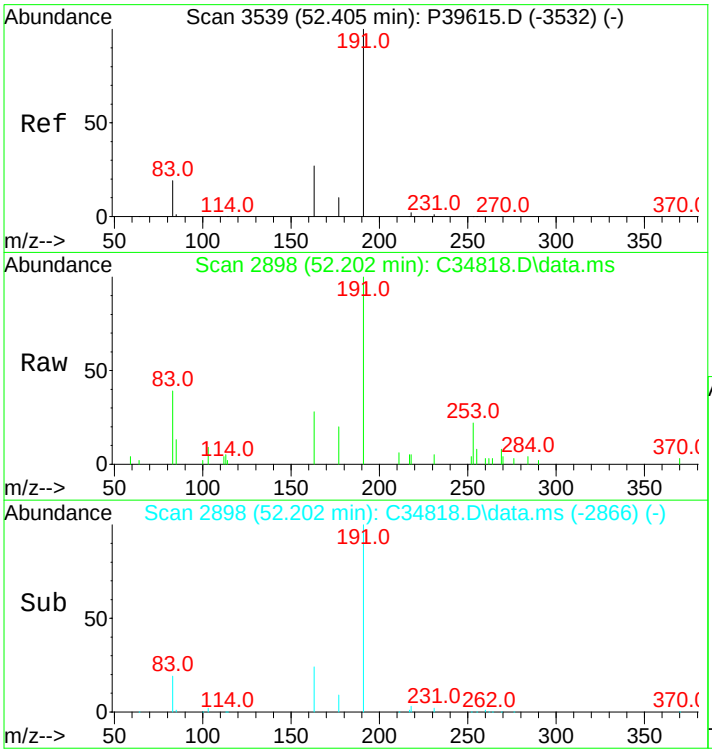


#92
Hopane (T19)
Concen: 446.30 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:191 Resp: 8372

Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#

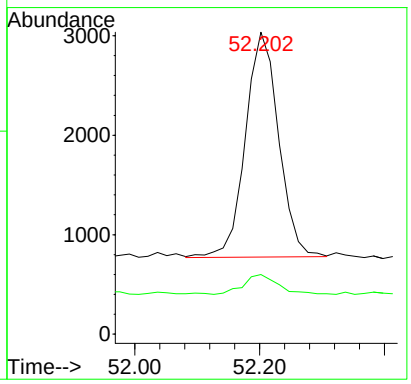




#93
17a(H),21B(H)-hopane - C30H52
Concen: 446.30 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:191 Resp: 8372

Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

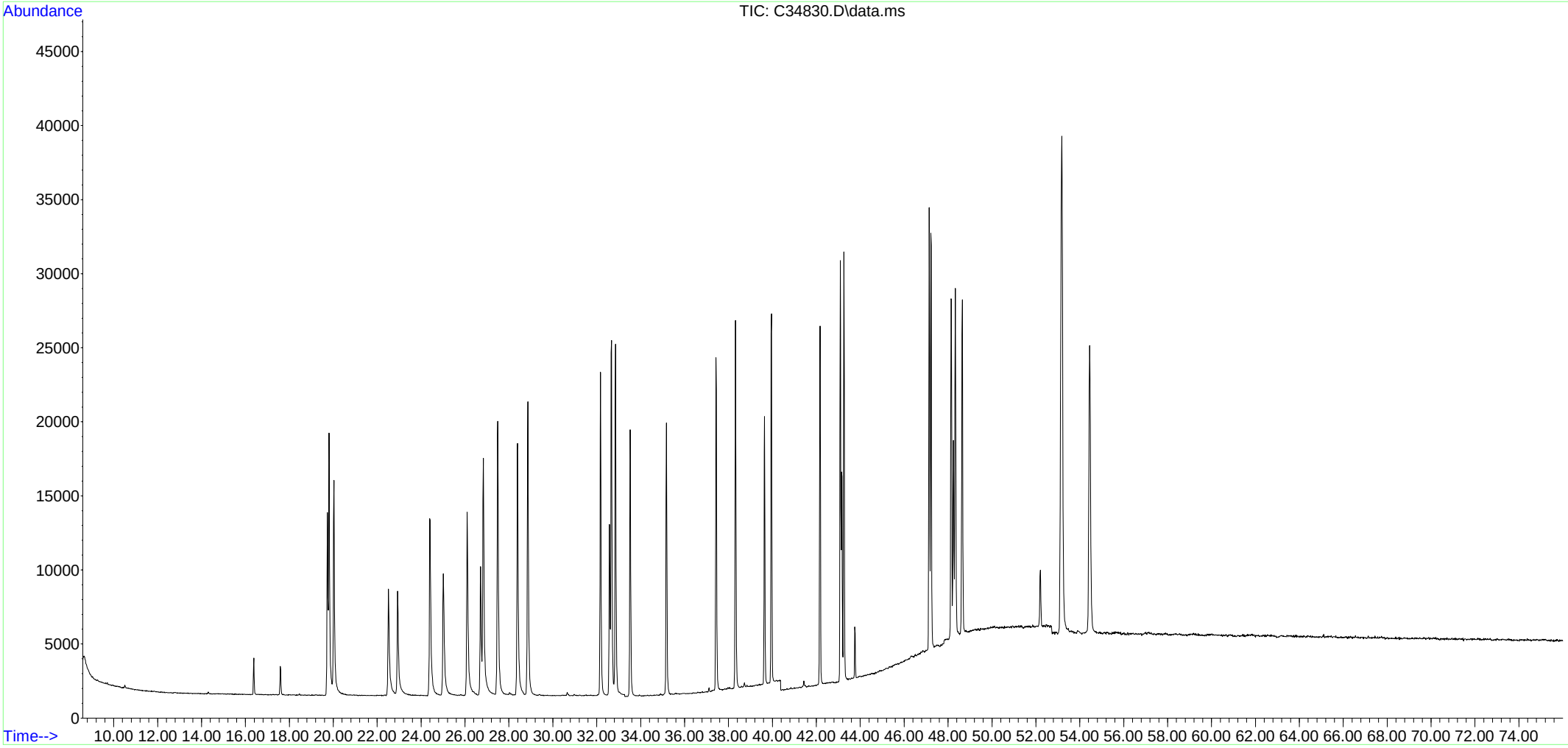
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18143M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30421	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	38272	486.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.60%#			
42) Phenanthrene-d10	32.582	188	30371	487.955	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.80%#			
86) Benzo[a]pyrene-d12	48.241	264	30629	485.826	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.58%#			
127) 5B(H)Cholane - Surr	43.754	217	4785	503.094	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.31%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3531	246.540	ng/mL	100
4) cis-Decalin	17.603	138	2582	239.201	ng/mL	100
10) Naphthalene	19.801	128	54811	474.005	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	32279	472.112	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	29853	445.449	ng/mL#	100
18) Benzothiophene	20.027	134	48823	469.200	ng/mL	100
23) Biphenyl	24.408	154	41726	482.446	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	27223	484.622	ng/mL#	100
25) Dibenzofuran	27.494	168	47796	481.252	ng/mL	95
26) Acenaphthylene	26.094	152	53097M3	462.572	ng/mL	
27) Acenaphthene	26.832	153	32079	474.637	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	22550	497.984	ng/mL	99
29) Fluorene	28.864	166	36416M3	488.545	ng/mL	
33) Dibenzothiophene	32.176	184	56663	474.222	ng/mL	99
43) Phenanthrene	32.673	178	50334	479.468	ng/mL	99
54) Retene	39.643	234	11209	547.364	ng/mL	98
55) Anthracene	32.853	178	50554M3	493.013	ng/mL	
56) Carbazole	33.516	167	48707M3	470.247	ng/mL	
57) 1-Methylphenanthrene	35.172	192	34101	512.589	ng/mL	100
58) Fluoranthene	37.430	202	52554M3	504.059	ng/mL	
59) Benzo(b)fluorene	39.960	216	31953	528.250	ng/mL	100
60) Pyrene	38.318	202	53285	502.762	ng/mL	96
66) Naphthobenzothiophene	42.173	234	58908	516.273	ng/ml#	65
67) Naphthobenzothiophene-...	42.173	234	58908	516.273	ng/mL#	65
75) Benz[a]anthracene	43.091	228	48995	507.427	ng/mL	99
76) Chrysene	43.257	228	47818	490.536	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47818	490.536	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	56173	529.457	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	56325	487.618	ng/mL	97
85) Benzo[e]pyrene	48.151	252	51642	492.102	ng/mL	96
87) Benzo[a]pyrene	48.332	252	49448	489.405	ng/mL	95
88) Perylene	48.648	252	53413	494.655	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	53.151	276	68006M3	578.383	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	60995	545.326	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	65614	528.194	ng/mL	99
92) Hopane (T19)	52.202	191	9428	470.234	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	52.202	191	9428	470.234	ng/mL#	79

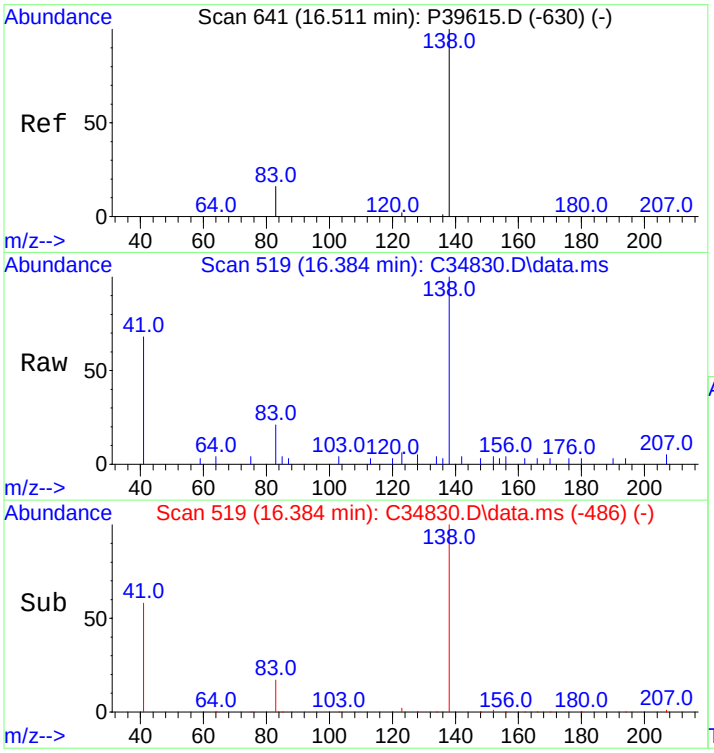
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

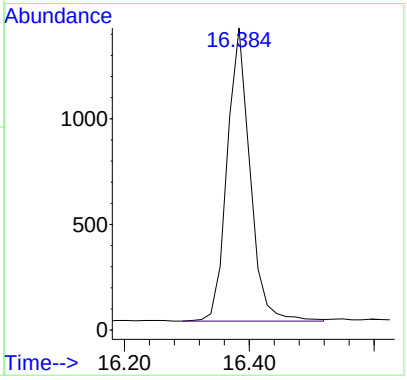
Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

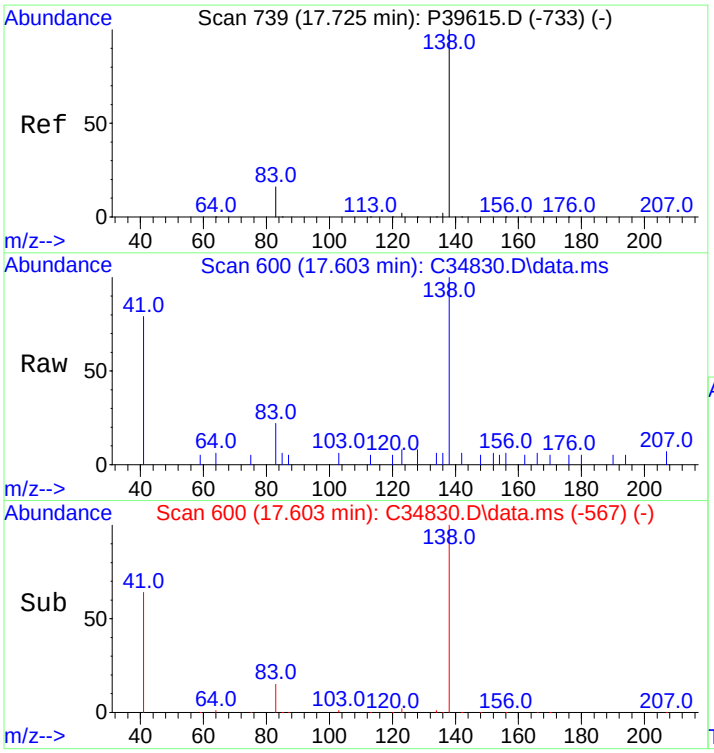




#3
trans-Decalin
Concen: 246.54 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

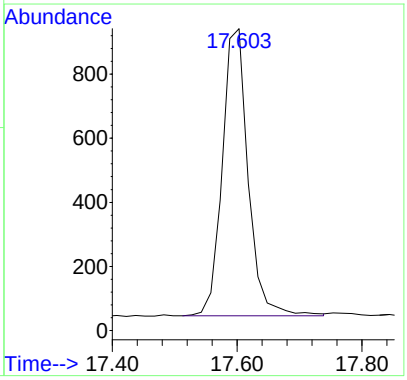
Tgt Ion:138 Resp: 3531

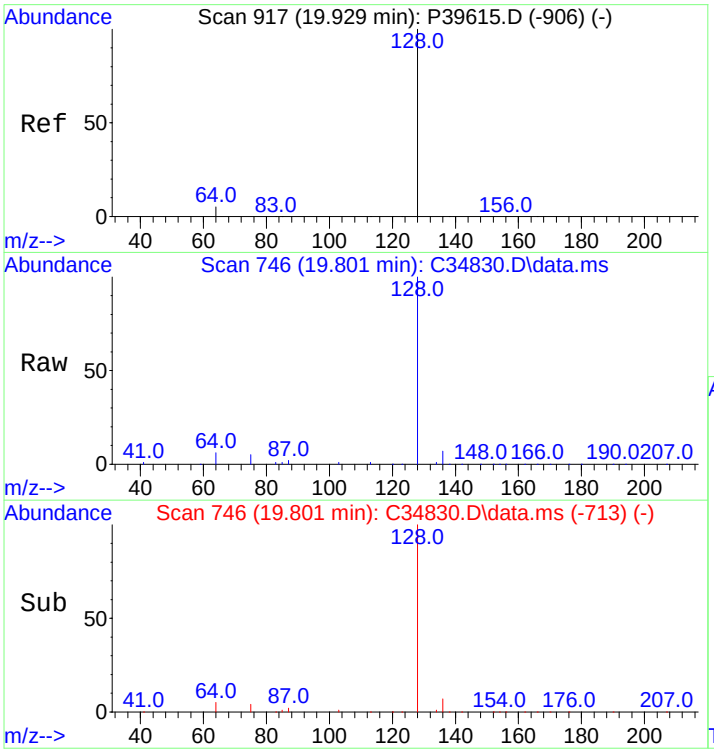




#4
cis-Decalin
Concen: 239.20 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:138 Resp: 2582

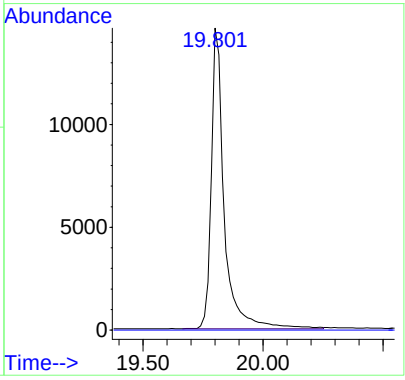


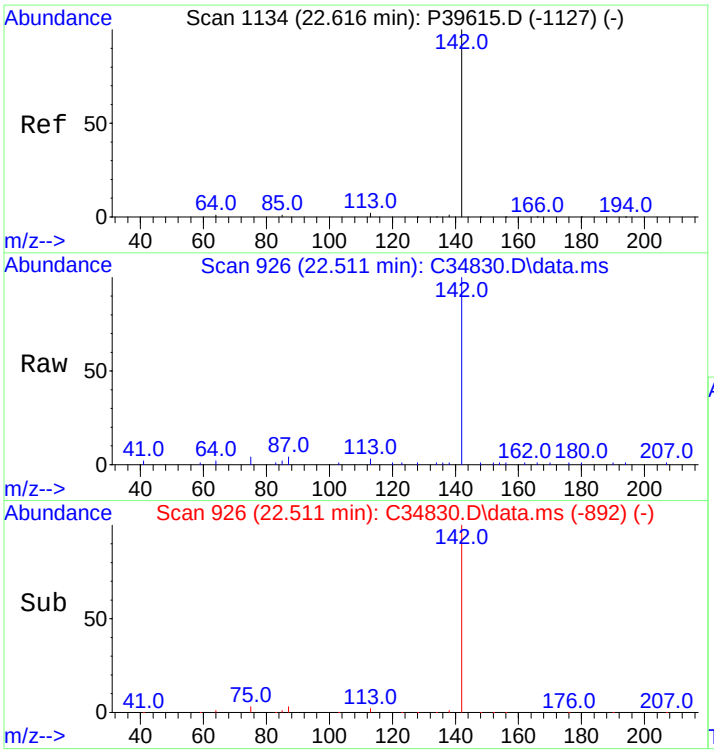


#10
Naphthalene
Concen: 474.01 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:128 Resp: 54811

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

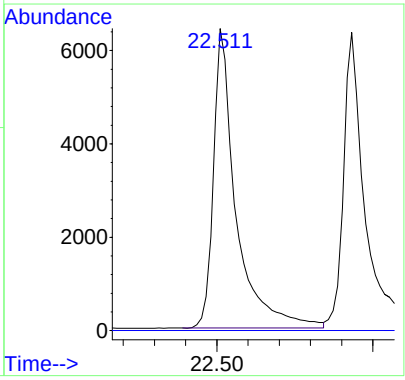


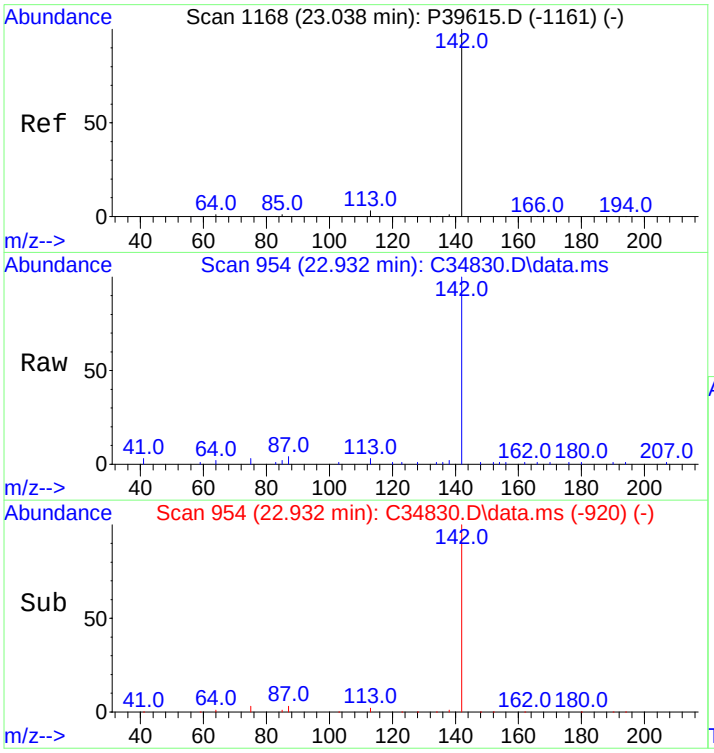


#16
2-Methylnaphthalene
Concen: 472.11 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:142 Resp: 32279

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

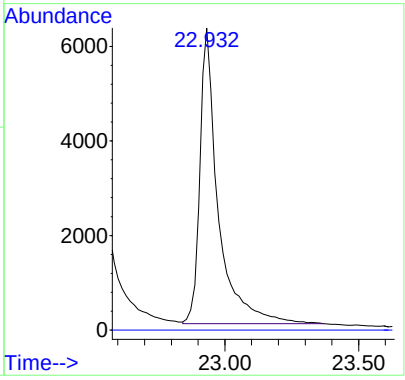


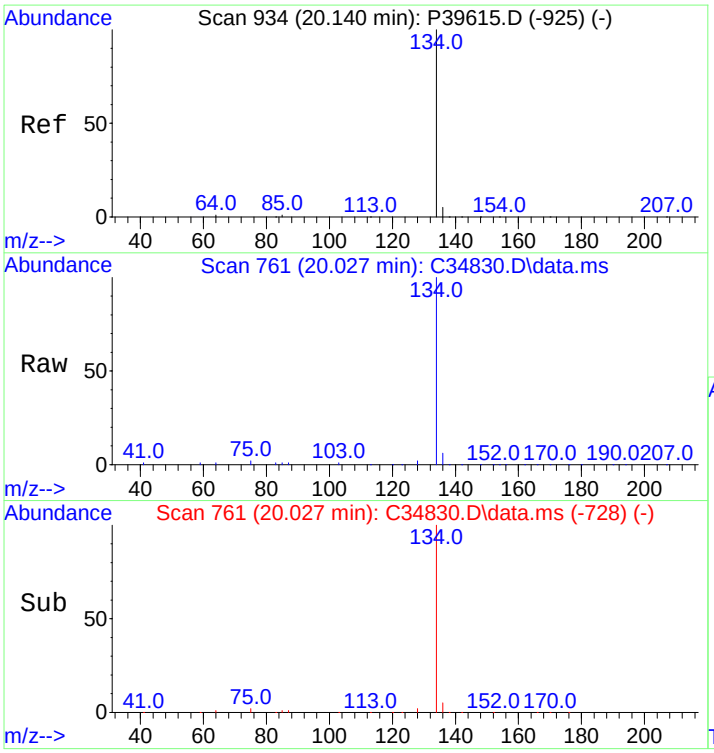


#17
1-Methylnaphthalene
Concen: 445.45 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:142 Resp: 29853

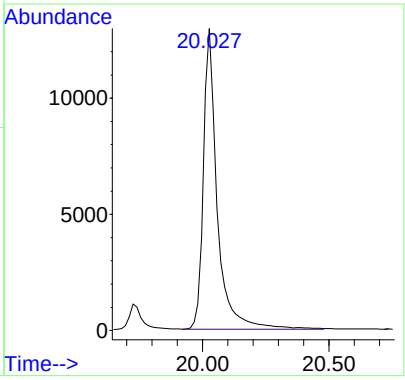
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

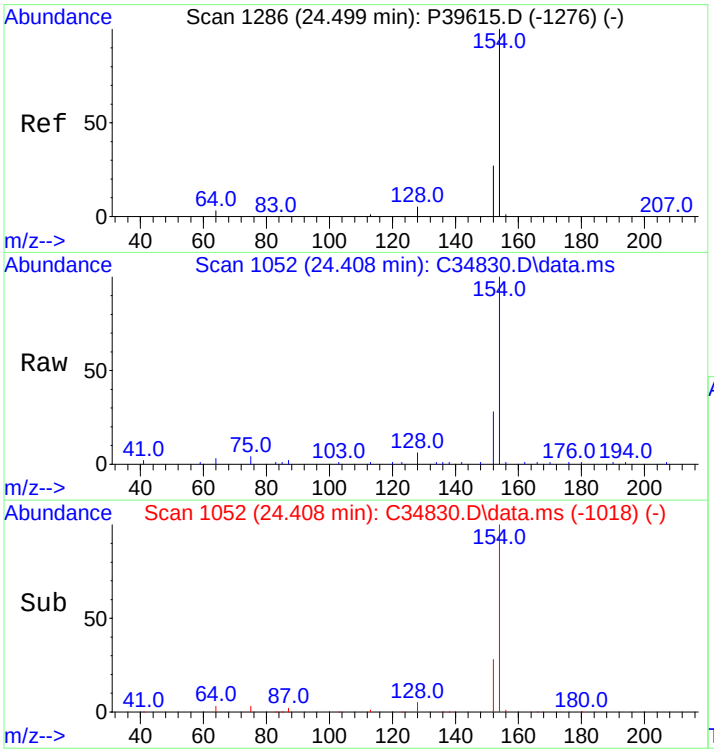




#18
Benzothiophene
Concen: 469.20 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:134 Resp: 48823

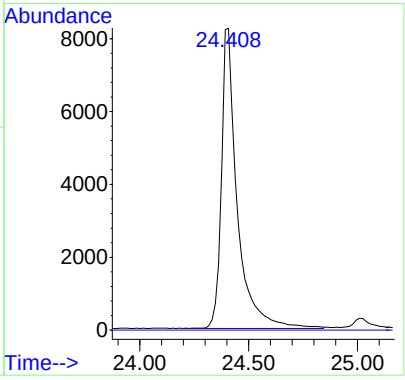


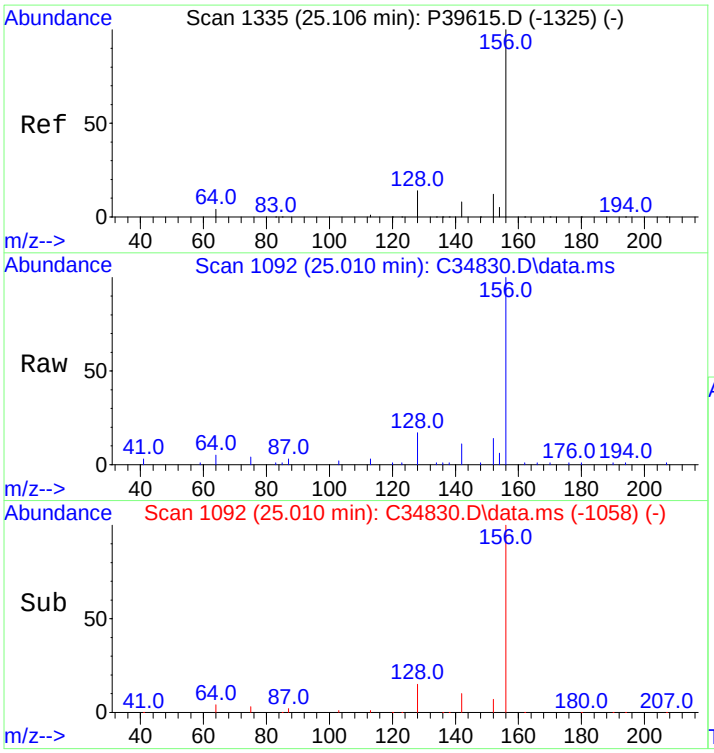


#23
Biphenyl
Concen: 482.45 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:154 Resp: 41726

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

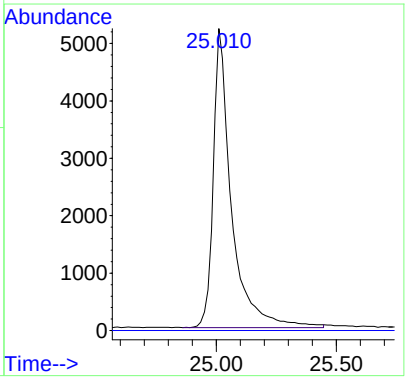


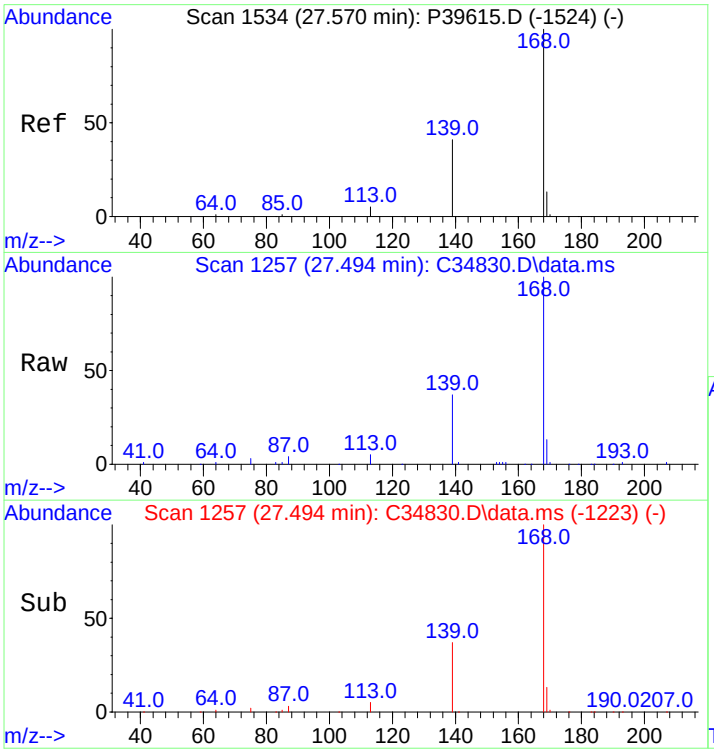


#24
2,6-Dimethylnaphthalene
Concen: 484.62 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:156 Resp: 27223

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

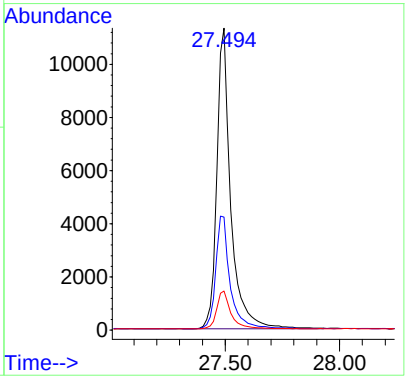


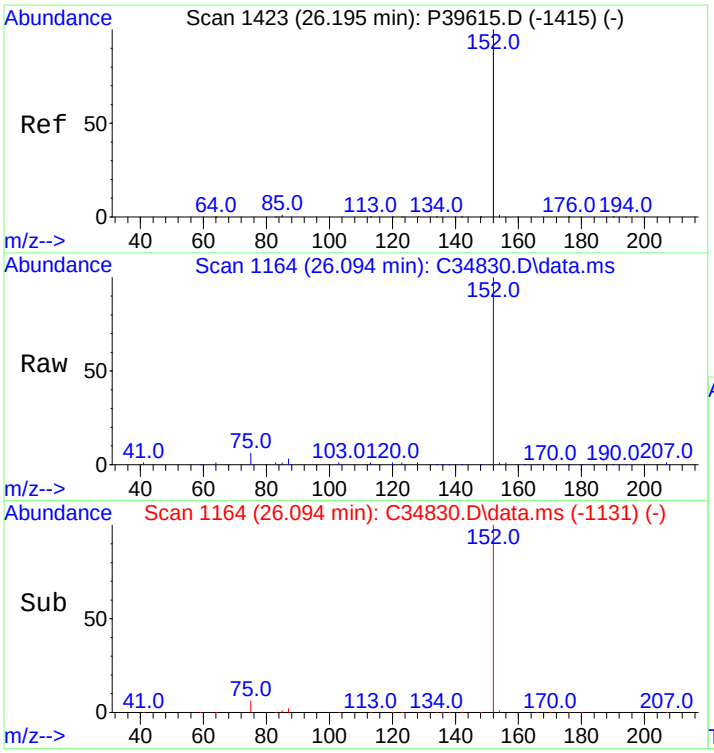


#25
Dibenzofuran
Concen: 481.25 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:168 Resp: 47796

Ion	Ratio	Lower	Upper
168	100		
139	39.0	28.4	42.6
169	13.2	10.8	16.2

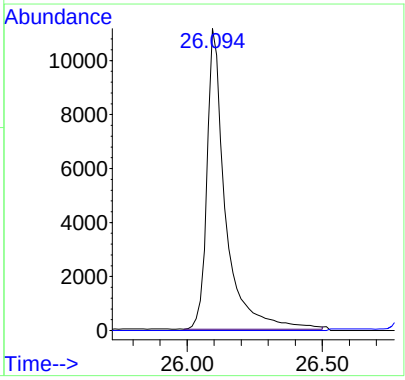


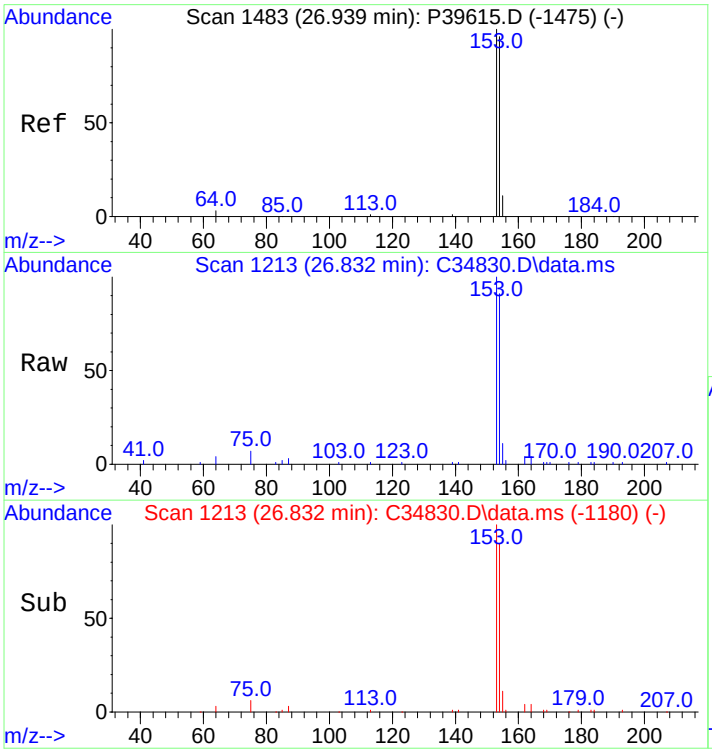


#26
Acenaphthylene
Concen: 462.57 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:152 Resp: 53097

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

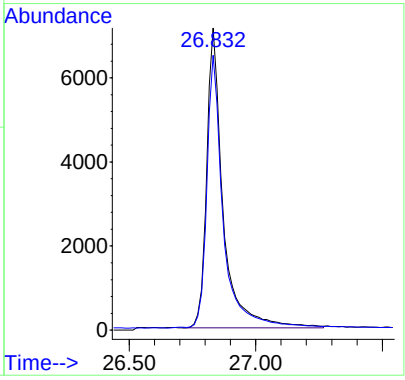


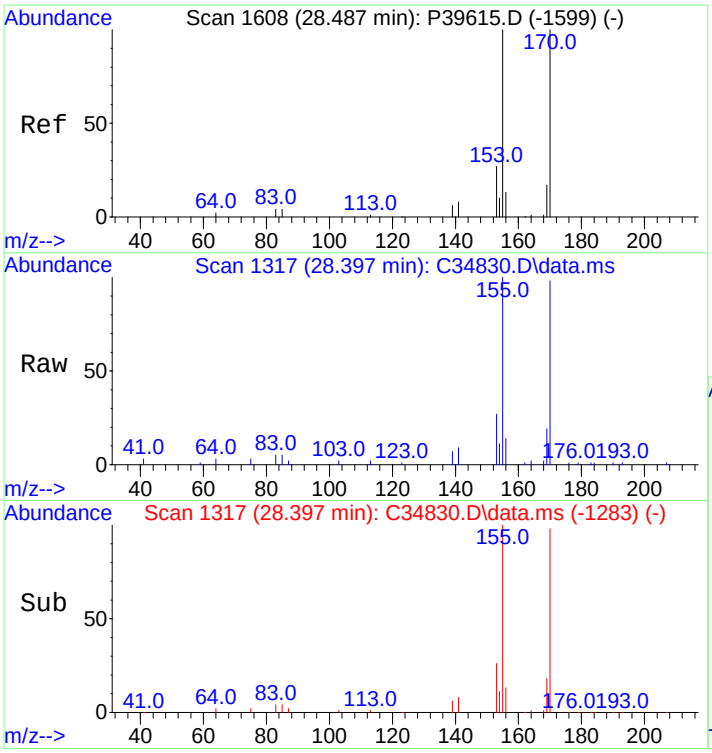


#27
Acenaphthene
Concen: 474.64 ng/mL
RT: 26.832 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:153 Resp: 32079

Ion	Ratio	Lower	Upper
153	100		
154	91.9	73.6	110.4

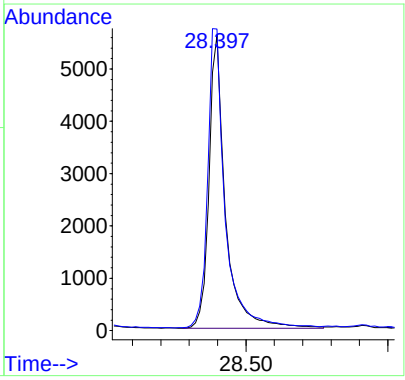


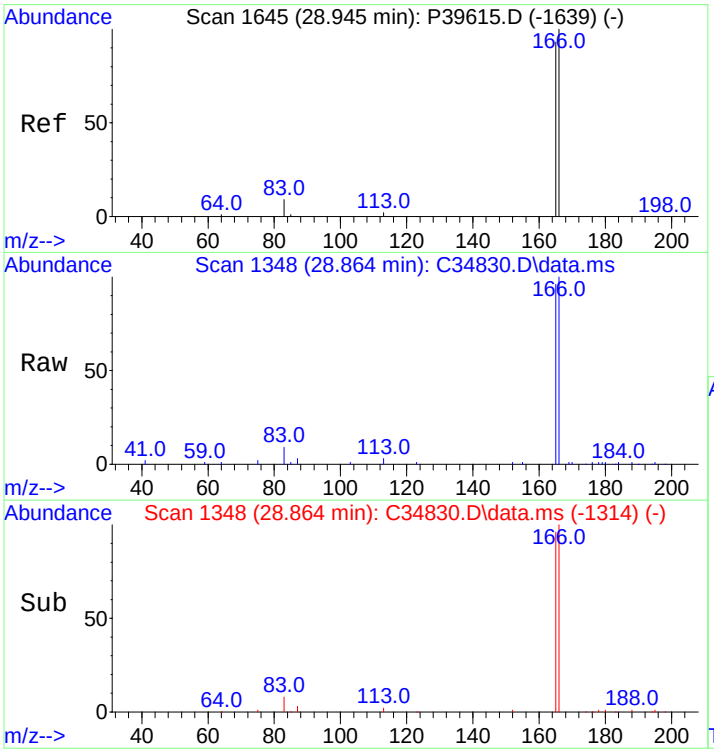


#28
2,3,5-Trimethylnaphthalene
Concen: 497.98 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:170 Resp: 22550

Ion	Ratio	Lower	Upper
170	100		
155	107.9	87.3	130.9

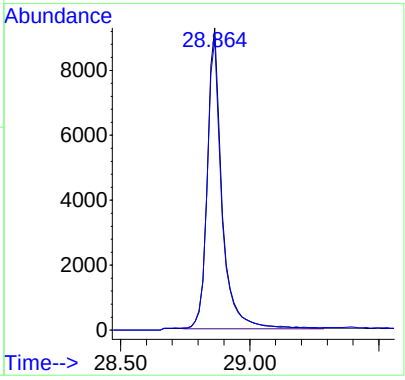


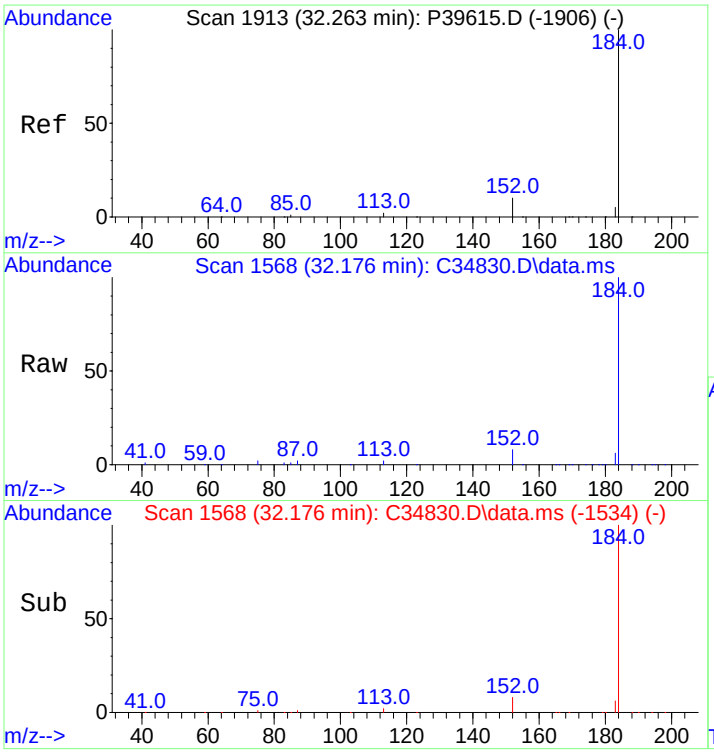


#29
Fluorene
Concen: 488.54 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:166 Resp: 36416

Ion	Ratio	Lower	Upper
166	100		
165	101.8	77.3	115.9

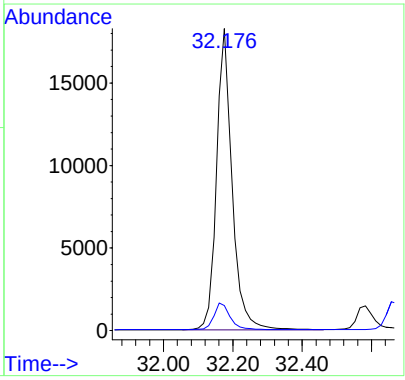


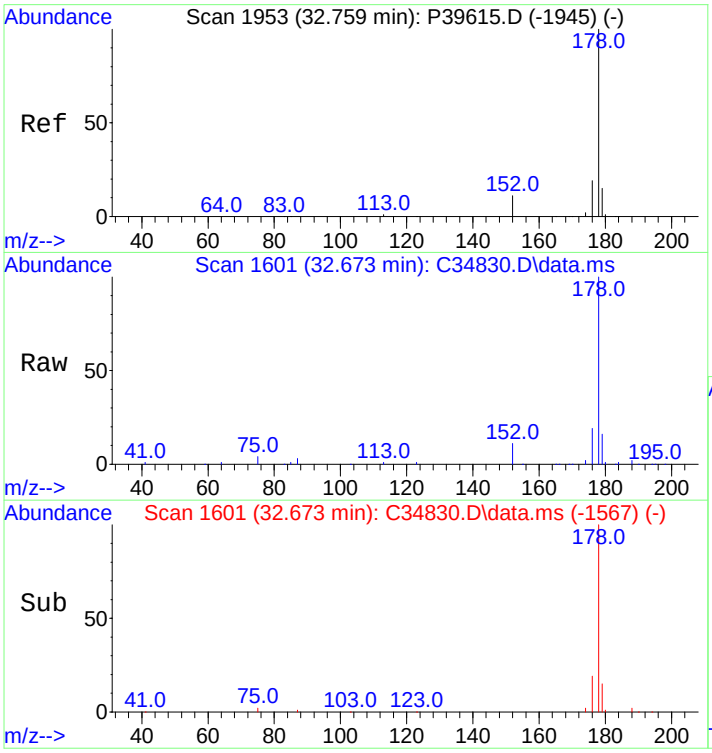


#33
Dibenzothiophene
Concen: 474.22 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:184 Resp: 56663

Ion	Ratio	Lower	Upper
184	100		
152	9.2	7.5	11.3

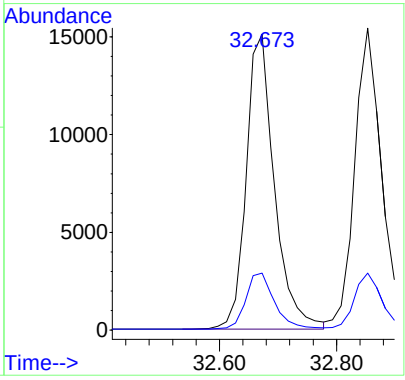


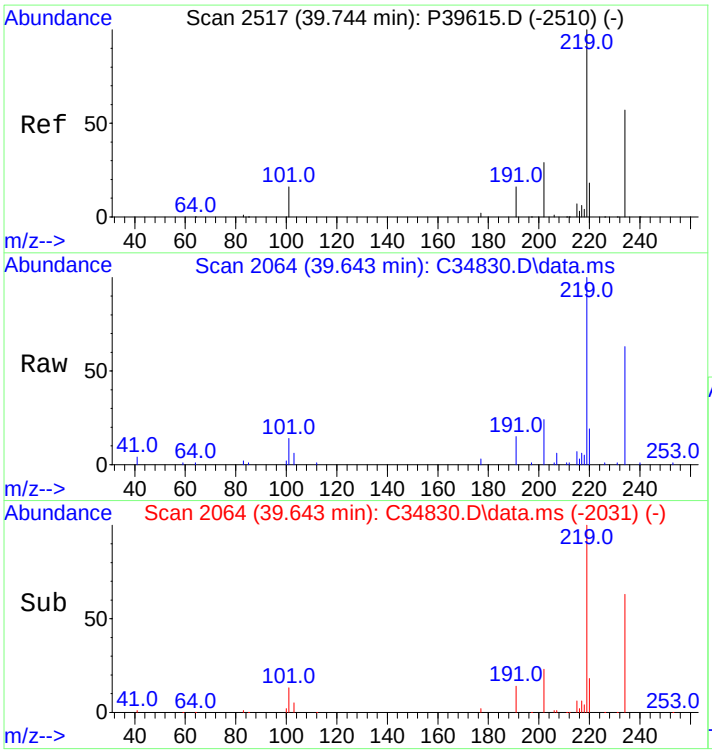


#43
Phenanthrene
Concen: 479.47 ng/mL
RT: 32.673 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:178 Resp: 50334

Ion	Ratio	Lower	Upper
178	100		
176	19.5	16.1	24.1

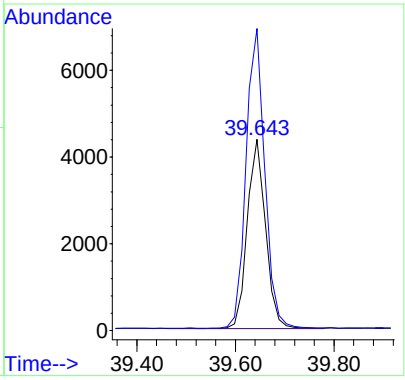


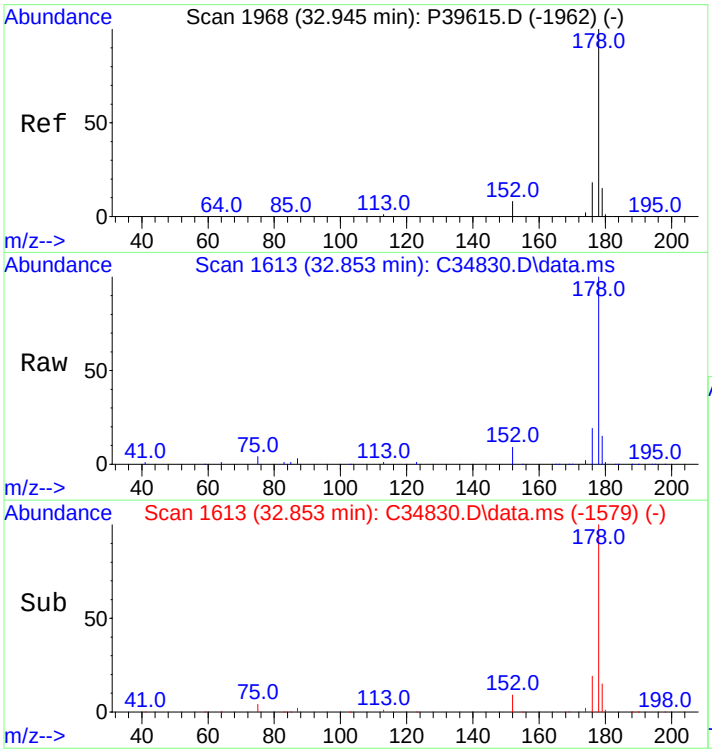


#54
Retene
Concen: 547.36 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 11209

Ion	Ratio	Lower	Upper
234	100		
219	161.9	127.8	191.8

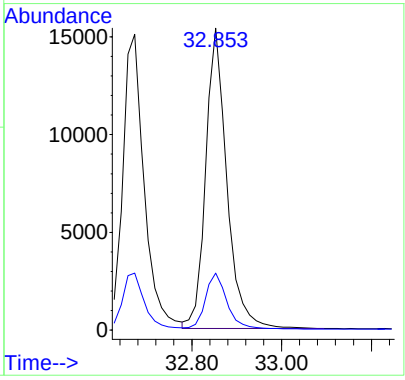


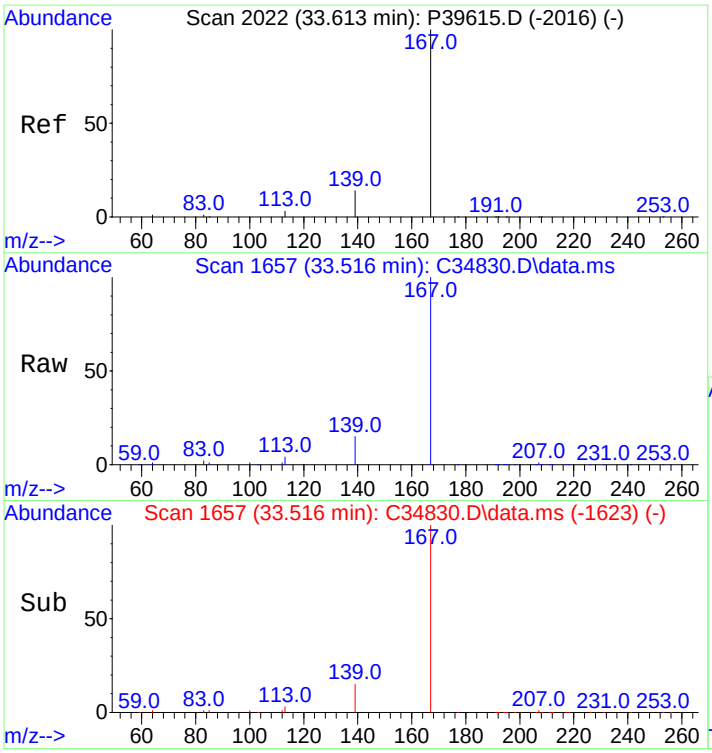


#55
Anthracene
Concen: 493.01 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:178 Resp: 50554

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

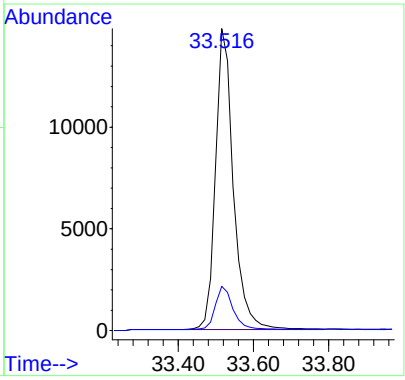


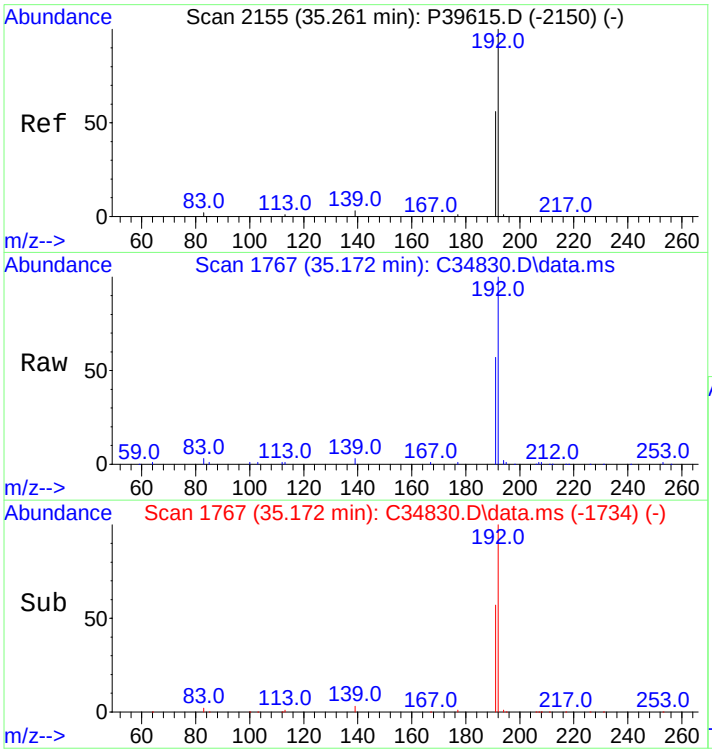


#56
Carbazole
Concen: 470.25 ng/mL m
RT: 33.516 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:167 Resp: 48707

Ion	Ratio	Lower	Upper
167	100		
139	14.2	11.8	17.8

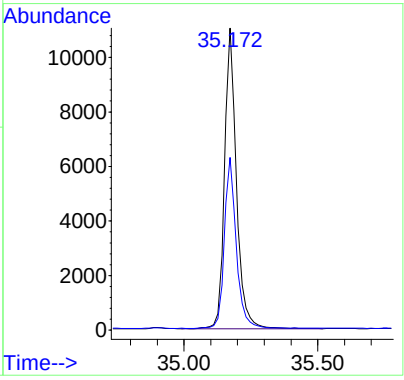


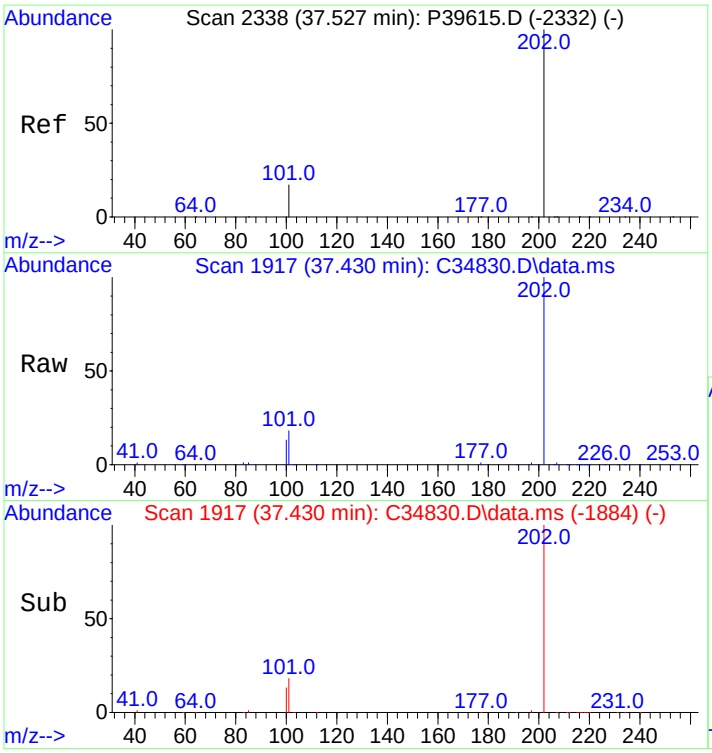


#57
1-Methylphenanthrene
Concen: 512.59 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:192 Resp: 34101

Ion	Ratio	Lower	Upper
192	100		
191	57.3	45.9	68.9

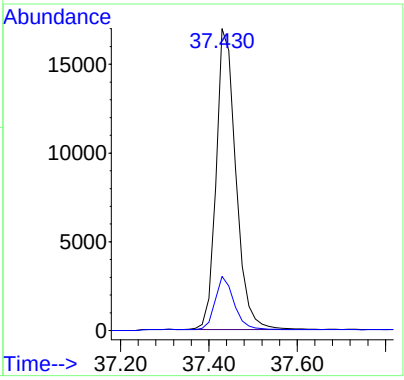


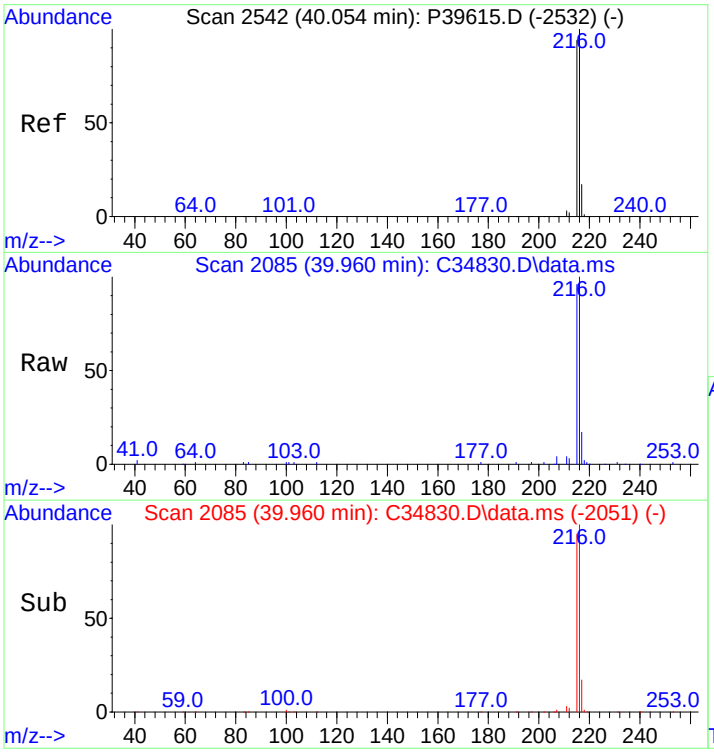


#58
Fluoranthene
Concen: 504.06 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:202 Resp: 52554

Ion	Ratio	Lower	Upper
202	100		
101	17.5	12.9	19.3

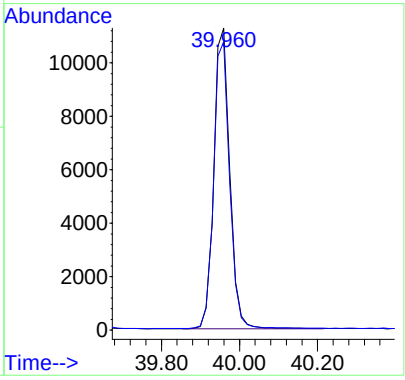


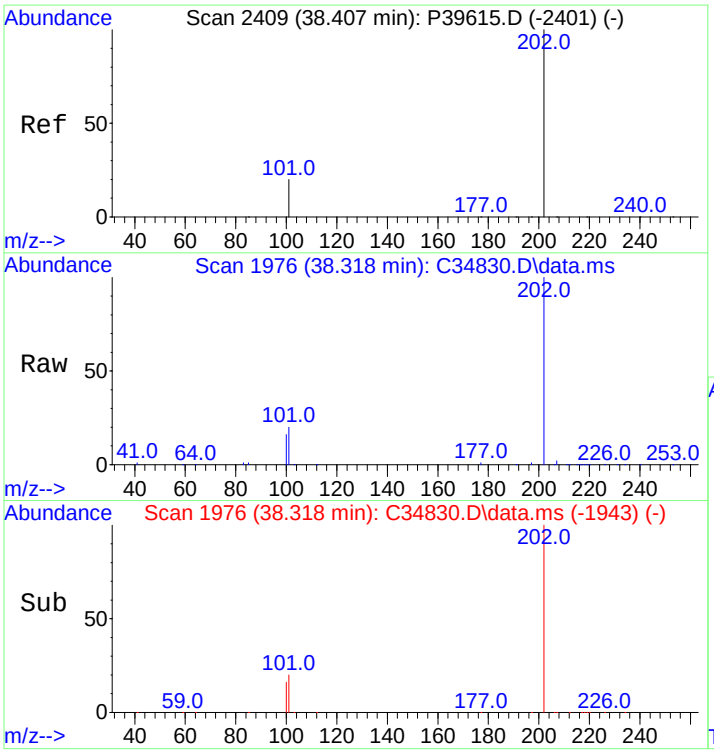


#59
Benzo(b)fluorene
Concen: 528.25 ng/mL
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:216 Resp: 31953

Ion	Ratio	Lower	Upper
216	100		
215	95.6	76.3	114.5

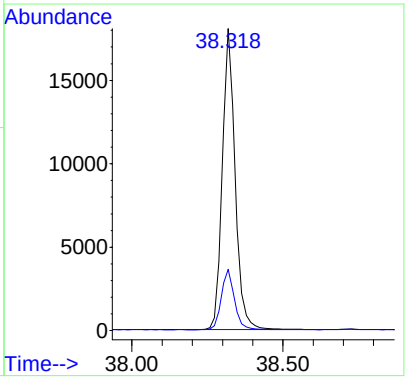


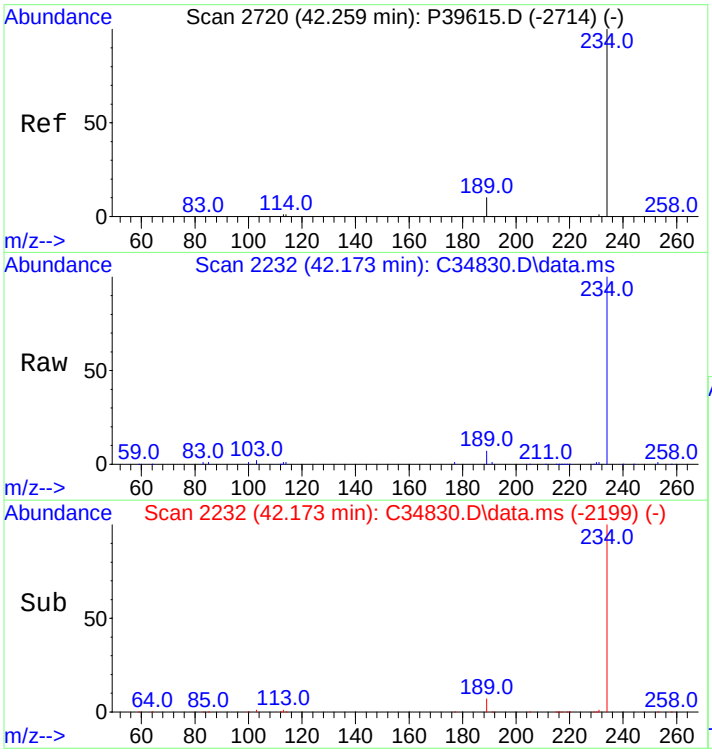


#60
Pyrene
Concen: 502.76 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:202 Resp: 53285

Ion	Ratio	Lower	Upper
202	100		
101	20.3	15.0	22.4

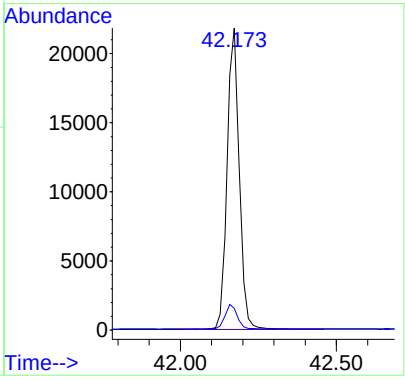


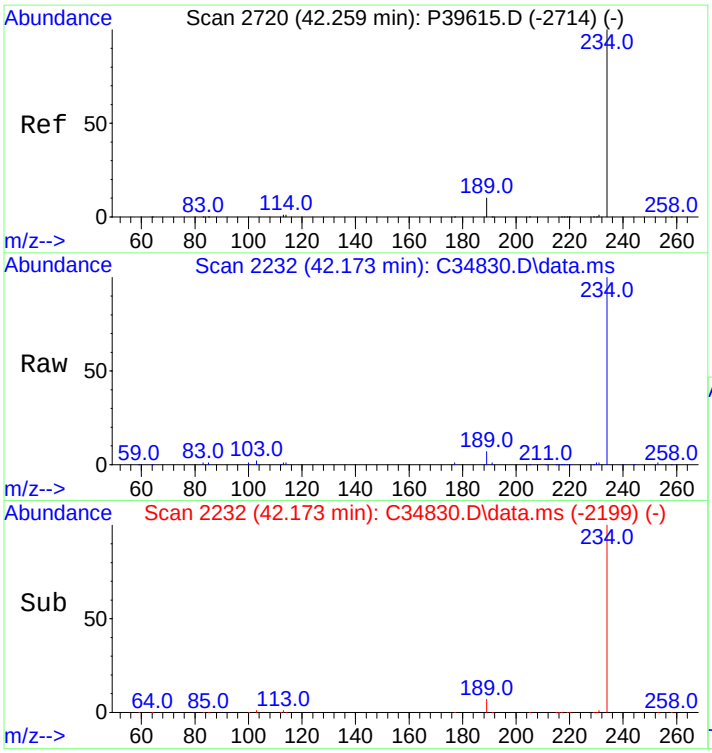


#66
Naphthobenzothiophene
Concen: 516.27 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 58908

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

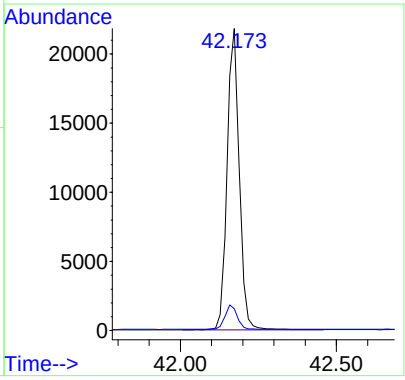


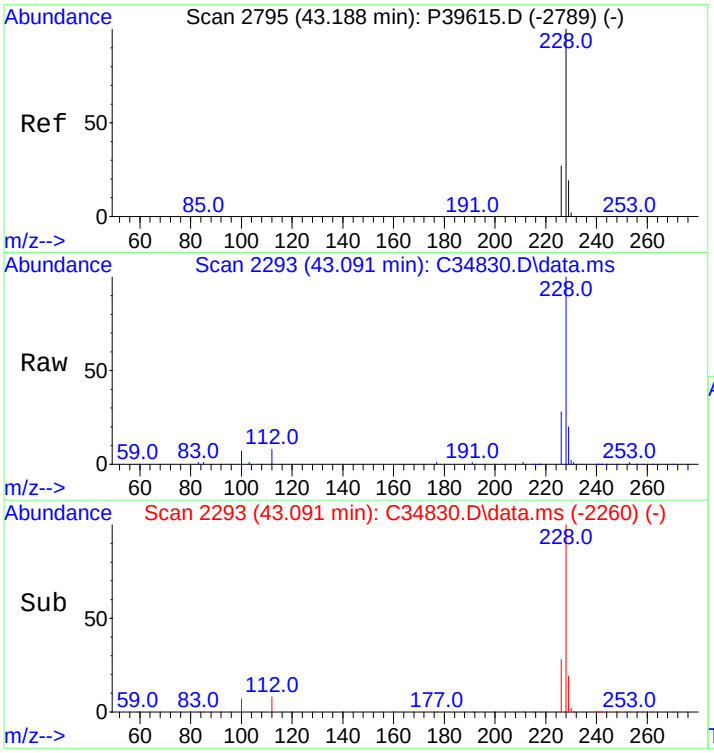


#67
Naphthobenzothiophene-2,1-D
Concen: 516.27 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 58908

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

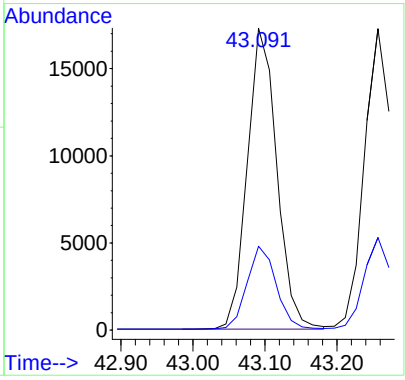


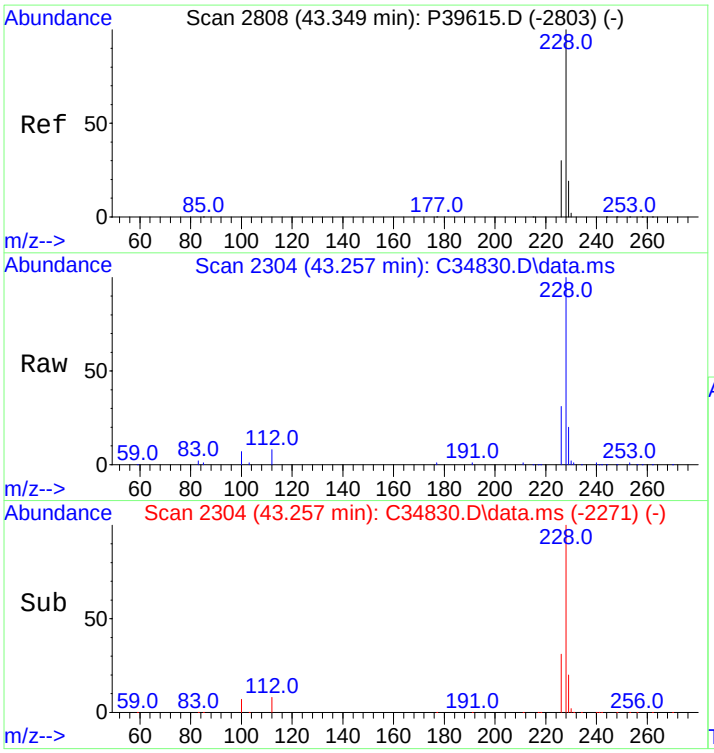


#75
Benz[a]anthracene
Concen: 507.43 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 48995

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.4	32.0

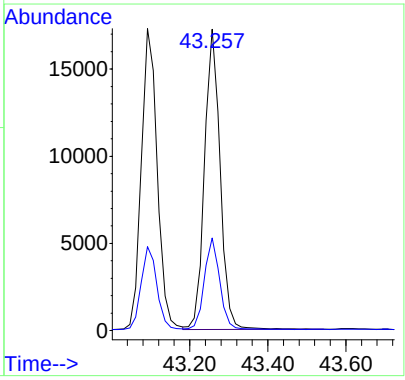


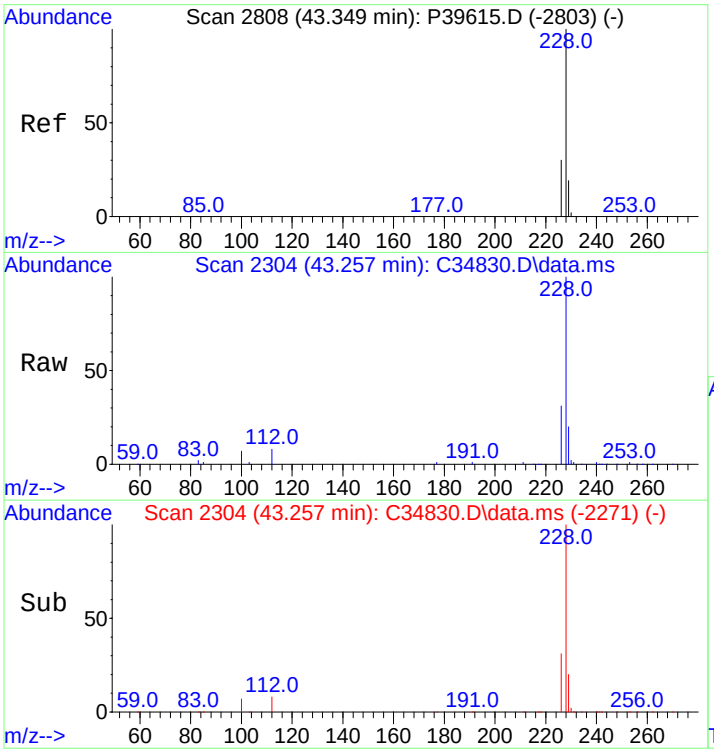


#76
Chrysene
Concen: 490.54 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 47818

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

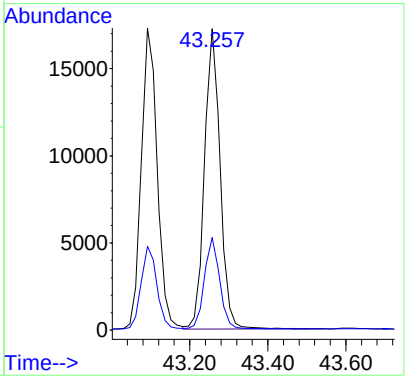


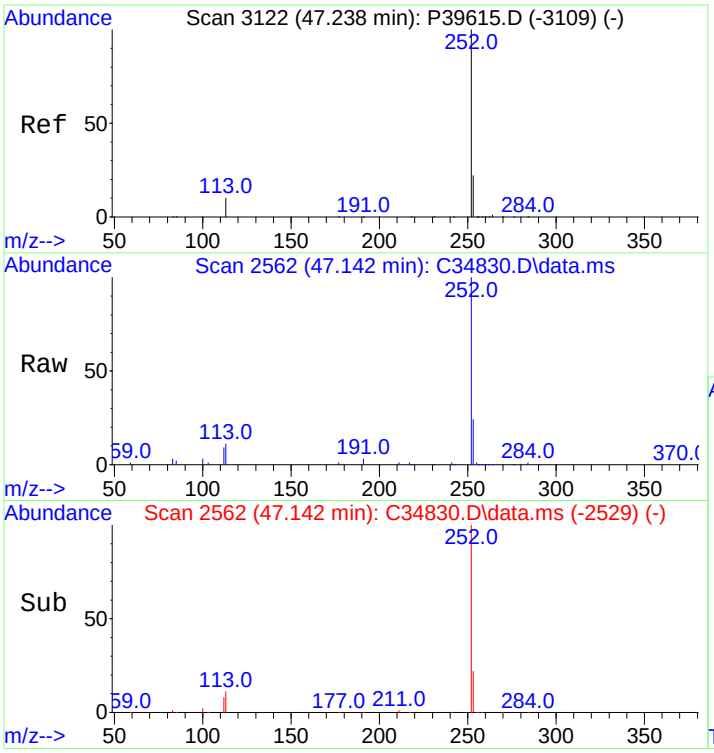


#77
Chrysene/Triphenylene
Concen: 490.54 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 47818

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

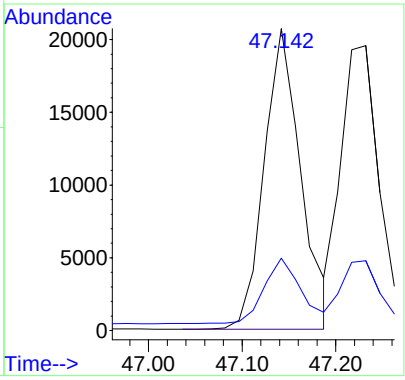


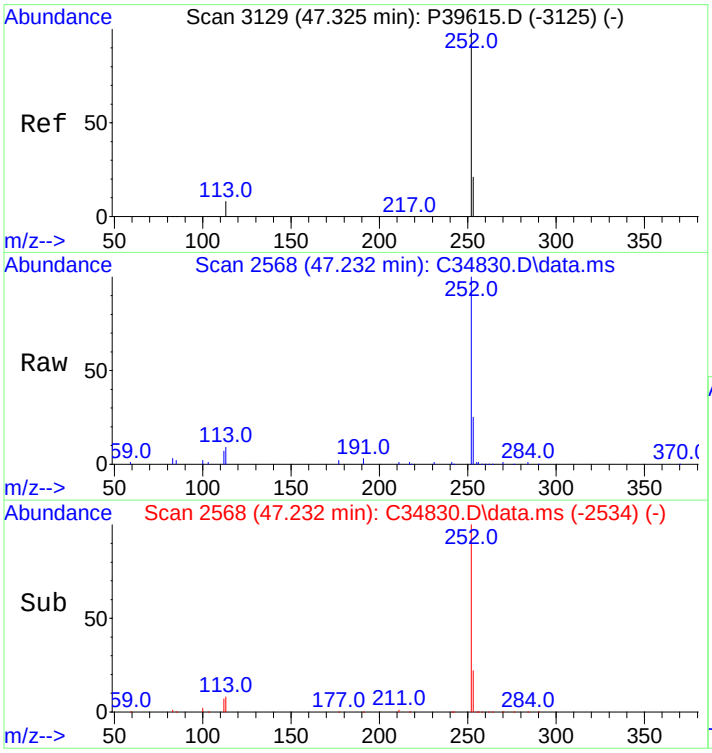


#82
Benzo[b]fluoranthene
Concen: 529.46 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 56173

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

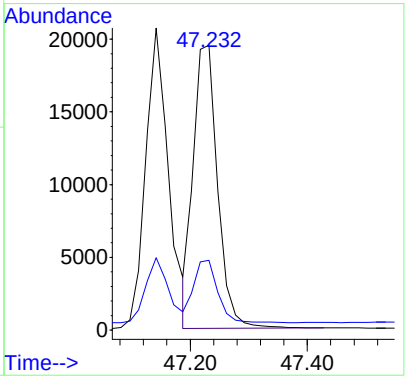


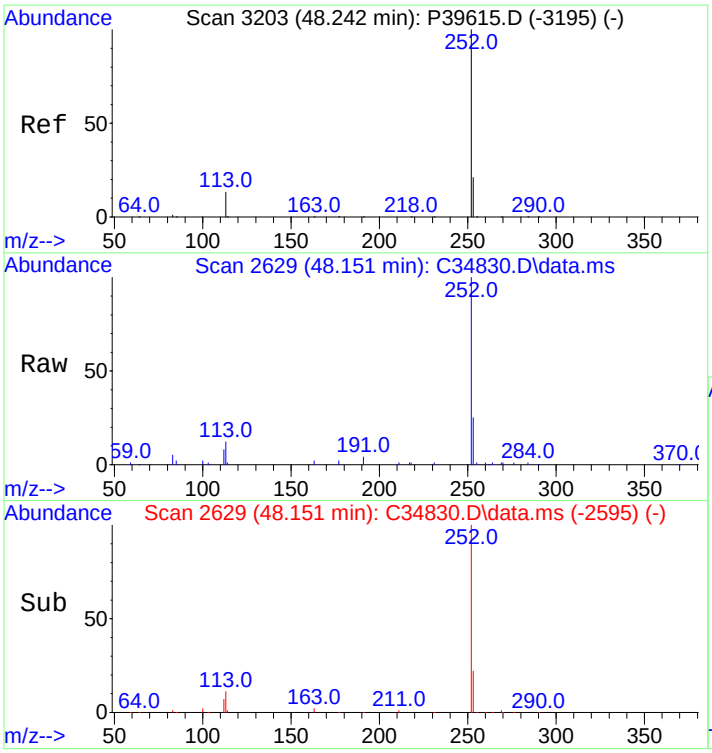


#83
Benzo[j]+[k]fluoranthene
Concen: 487.62 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 56325

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.0	28.4

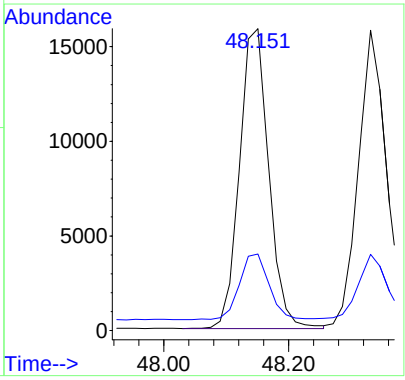


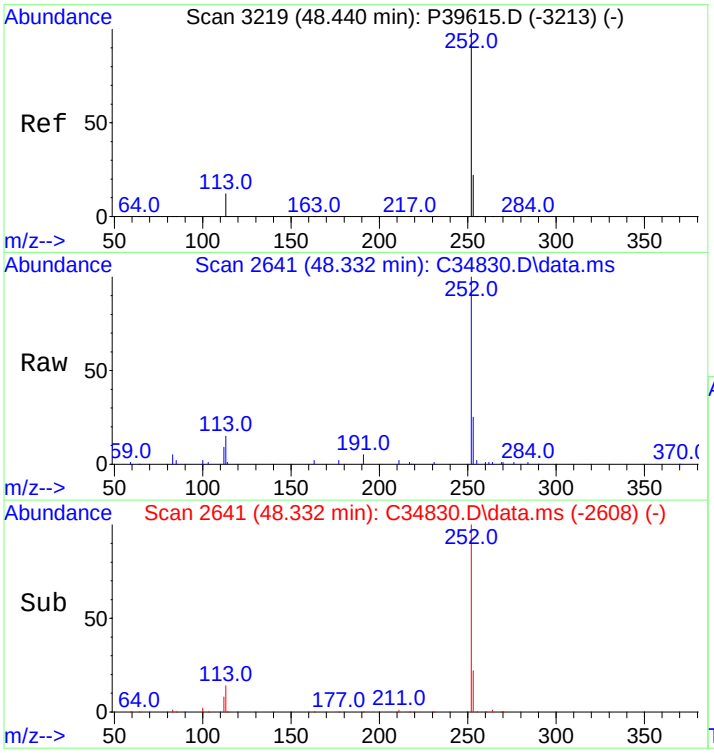


#85
Benzo[e]pyrene
Concen: 492.10 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 51642

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.2	28.8

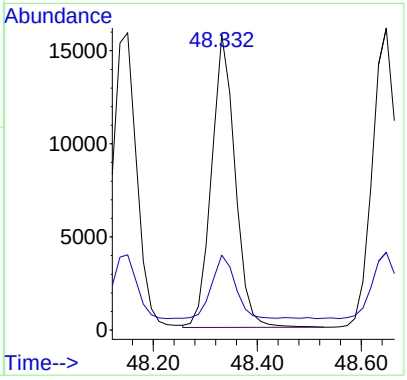


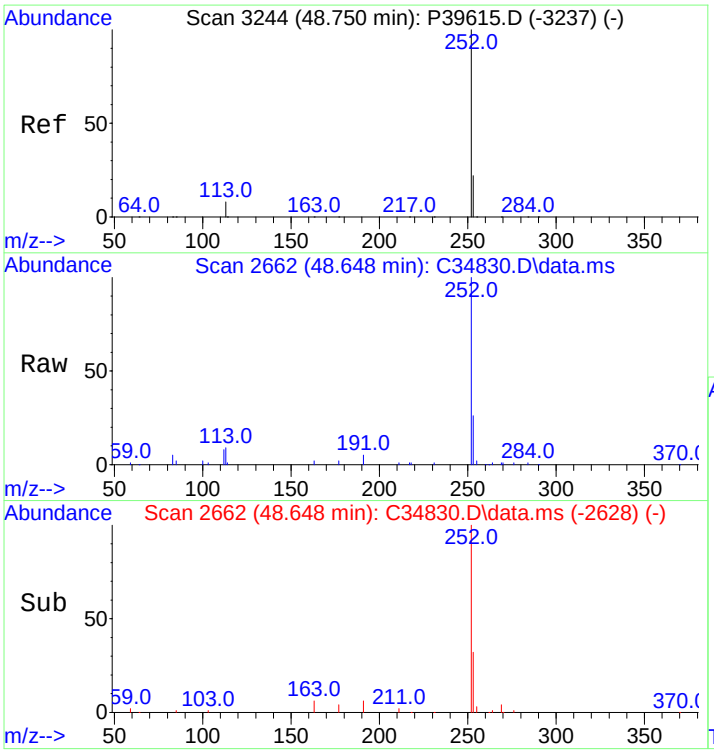


#87
Benzo[a]pyrene
Concen: 489.40 ng/mL
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 49448

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.5	29.3

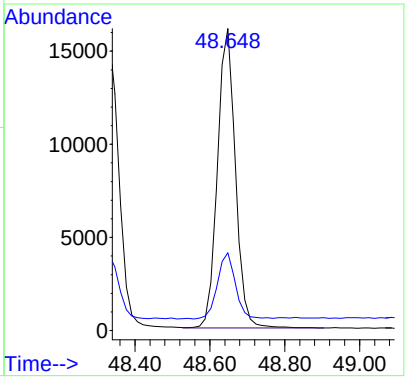


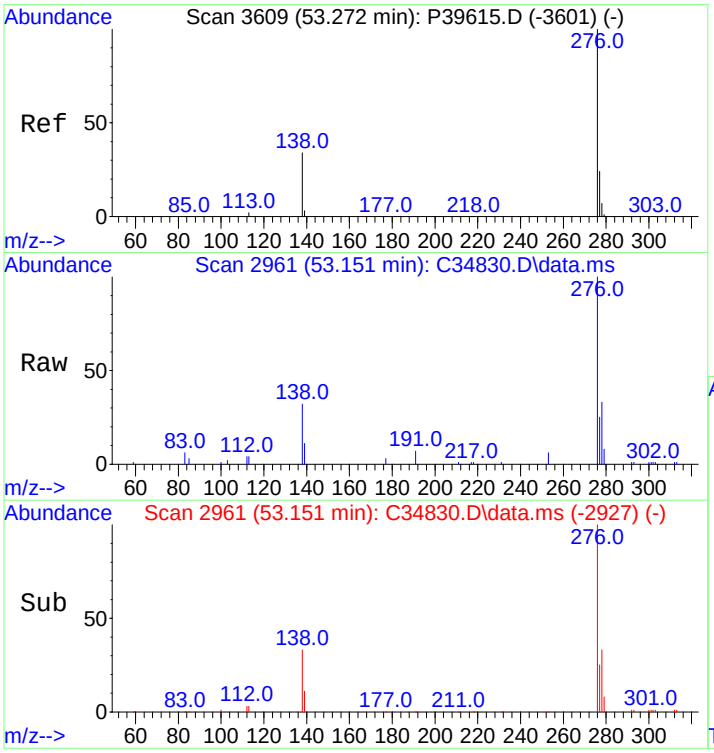


#88
Perylene
Concen: 494.65 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 53413

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.6	29.4

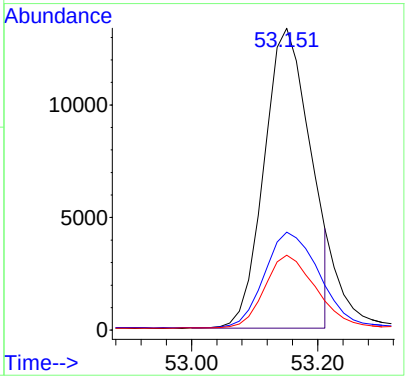


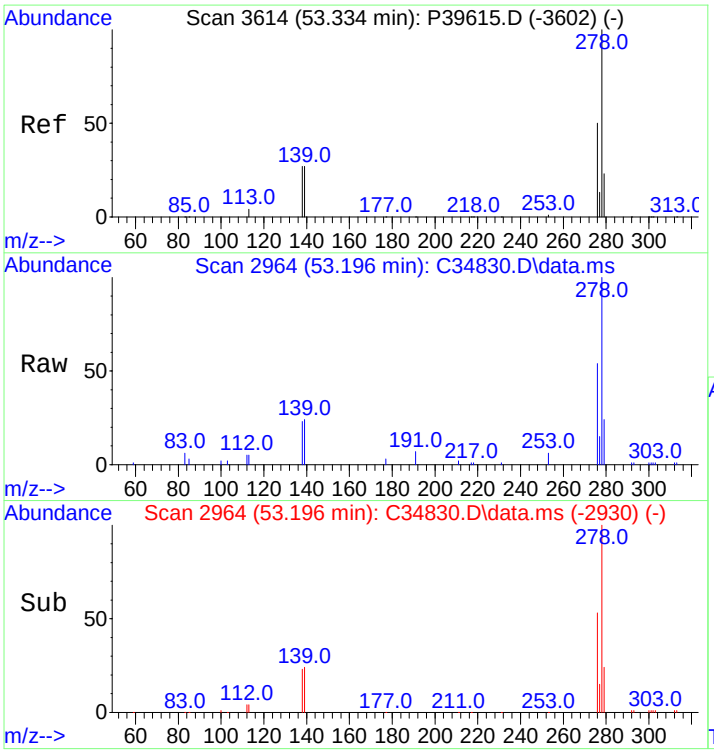


#89
Indeno[1,2,3-cd]pyrene
Concen: 578.38 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:276 Resp: 68006

Ion	Ratio	Lower	Upper
276	100		
138	38.3	23.3	34.9#
277	27.2	19.0	28.4

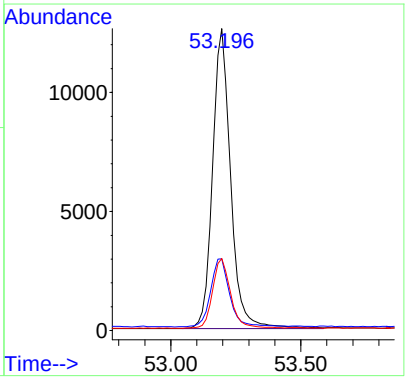


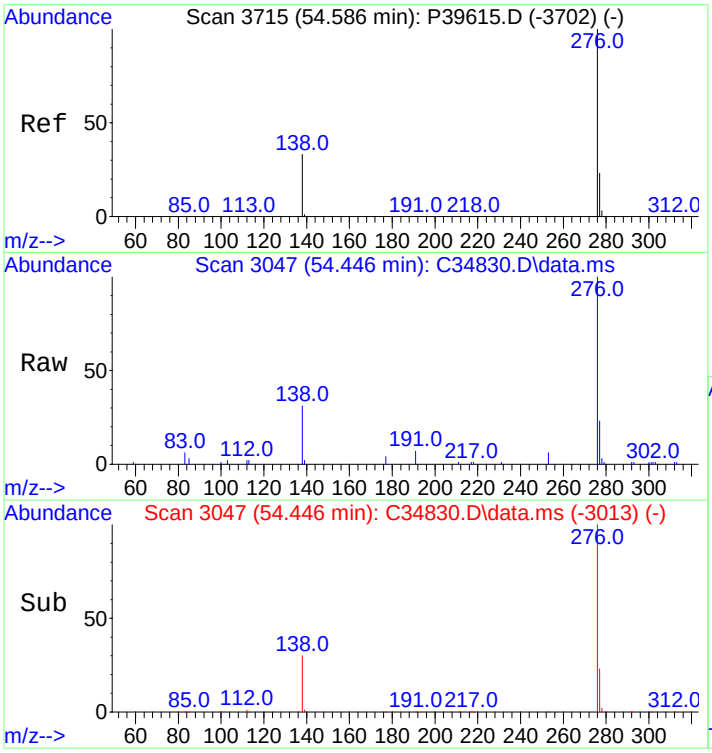


#90
Dibenz[ah]+[ac]anthracene
Concen: 545.33 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:278 Resp: 60995

Ion	Ratio	Lower	Upper
278	100		
139	23.3	19.1	28.7
279	22.6	19.2	28.8

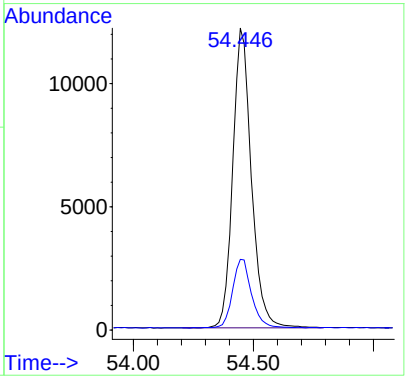


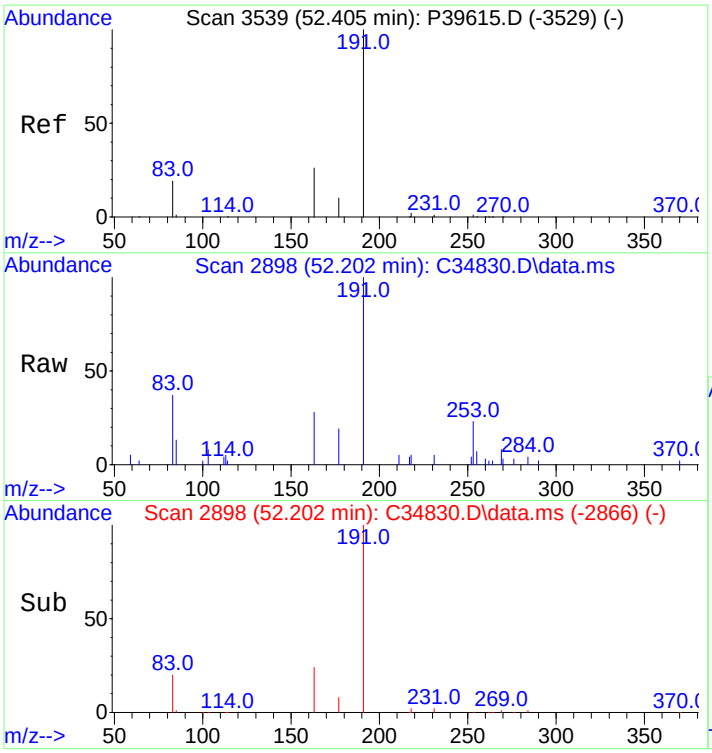


#91
Benzo[g,h,i]perylene
Concen: 528.19 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:276 Resp: 65614

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

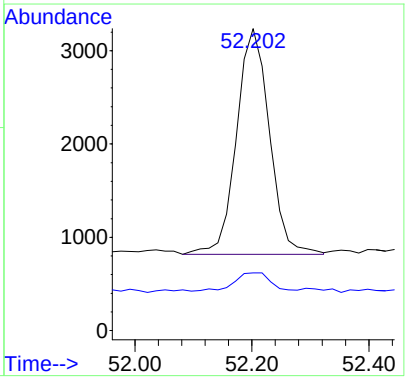


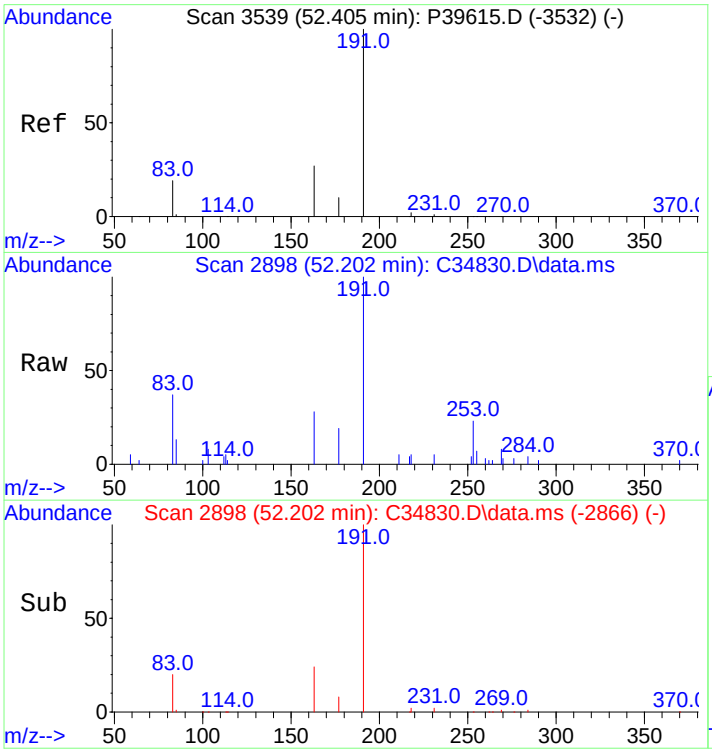


#92
Hopane (T19)
Concen: 470.23 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:191 Resp: 9428

Ion	Ratio	Lower	Upper
191	100		
177	8.7	14.6	21.8#

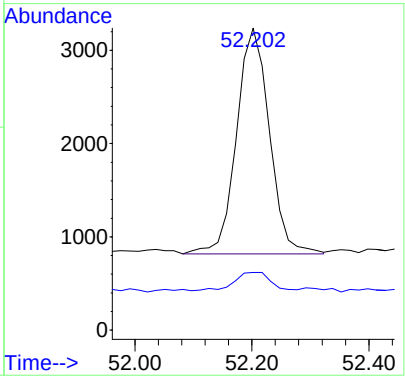




#93
17a(H),21B(H)-hopane - C30H52
Concen: 470.23 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:191 Resp: 9428

Ion	Ratio	Lower	Upper
191	100		
177	8.7	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

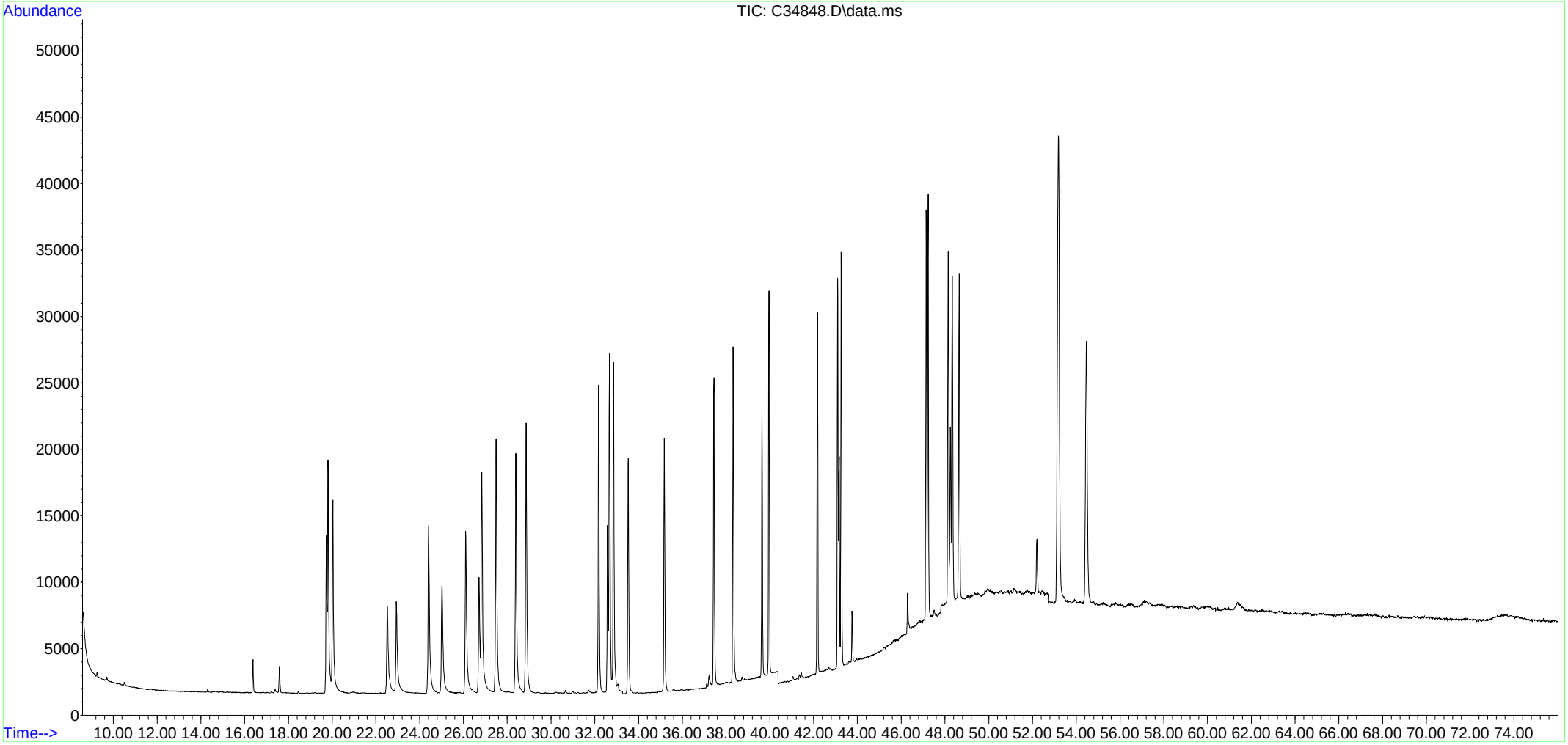
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19577M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32966	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	39969	470.394	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.04%#			
42) Phenanthrene-d10	32.582	188	32661	486.310	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.63%#			
86) Benzo[a]pyrene-d12	48.241	264	32926	481.942	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.19%#			
127) 5B(H)Cholane - Surr	43.754	217	5350	519.072	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.91%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3691	238.834	ng/mL	100
4) cis-Decalin	17.588	138	2790	239.538	ng/mL	100
10) Naphthalene	19.801	128	56993	456.773	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	34171	463.175	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30905	427.368	ng/mL#	100
18) Benzothiophene	20.027	134	50255	447.585	ng/mL	100
23) Biphenyl	24.408	154	43838	469.738	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	29336	483.984	ng/mL#	100
25) Dibenzofuran	27.494	168	50655	472.679	ng/mL	96
26) Acenaphthylene	26.094	152	56854M3	459.022	ng/mL	
27) Acenaphthene	26.831	153	34135	468.063	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	24109	493.413	ng/mL	98
29) Fluorene	28.864	166	39011M3	485.023	ng/mL	
33) Dibenzothiophene	32.176	184	60338	467.989	ng/mL	99
43) Phenanthrene	32.672	178	53382	471.255	ng/mL	99
54) Retene	39.643	234	12093	547.276	ng/mL	96
55) Anthracene	32.853	178	54646M3	493.883	ng/mL	
56) Carbazole	33.530	167	52377	468.638	ng/mL	98
57) 1-Methylphenanthrene	35.172	192	36714	511.443	ng/mL	99
58) Fluoranthene	37.445	202	56447M3	501.741	ng/mL	
59) Benzo(b)fluorene	39.959	216	34633	530.617	ng/mL	100
60) Pyrene	38.318	202	57171	499.915	ng/mL	97
66) Naphthobenzothiophene	42.173	234	63845	518.556	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	63845	518.556	ng/mL#	66
75) Benz[a]anthracene	43.091	228	53368	510.047	ng/mL	99
76) Chrysene	43.257	228	52173	493.893	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	52173	493.893	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	60436	525.661	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	60657	484.581	ng/mL	96
85) Benzo[e]pyrene	48.151	252	55949	491.985	ng/mL	97
87) Benzo[a]pyrene	48.331	252	53157	485.498	ng/mL	95
88) Perylene	48.648	252	57365	490.241	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.151	276	74711M3	586.354	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	65528	540.625	ng/mL	98
91) Benzo[g,h,i]perylene	54.461	276	70039	520.288	ng/mL	100
92) Hopane (T19)	52.202	191	9866M3	454.091	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	9747M3	448.614	ng/mL	

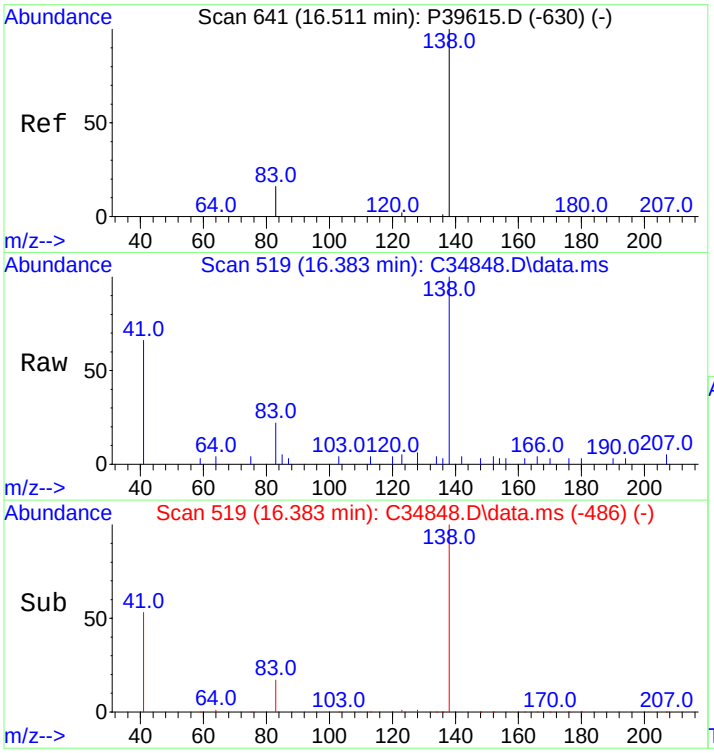
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

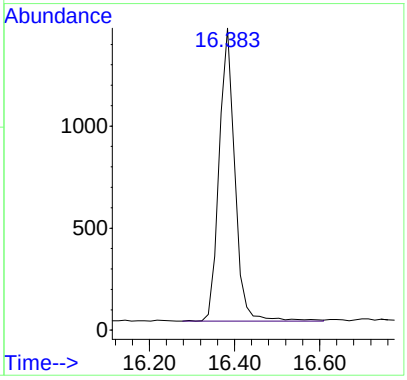
Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

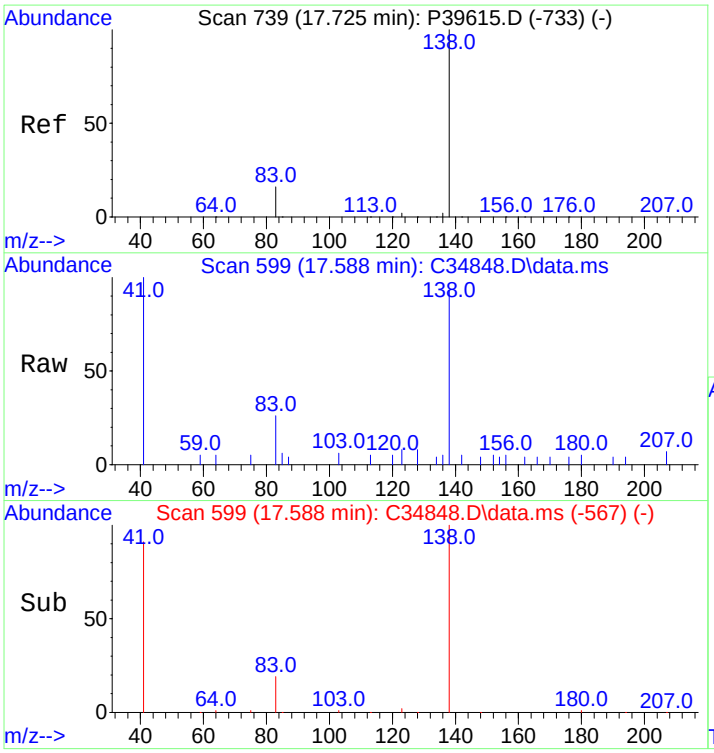




#3
trans-Decalin
Concen: 238.83 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

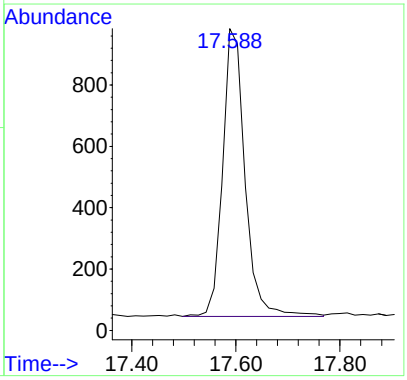
Tgt Ion:138 Resp: 3691

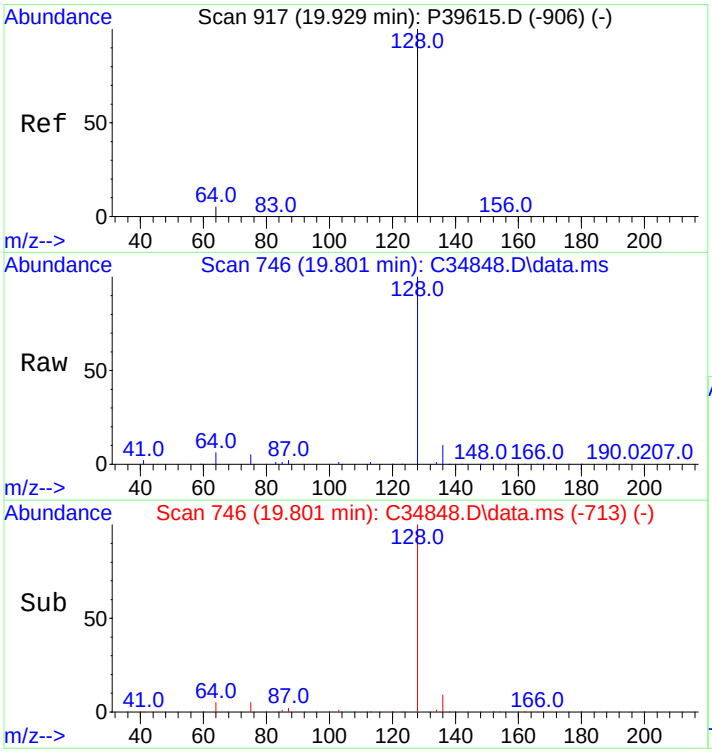




#4
cis-Decalin
Concen: 239.54 ng/mL
RT: 17.588 min Scan# 599
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:138 Resp: 2790

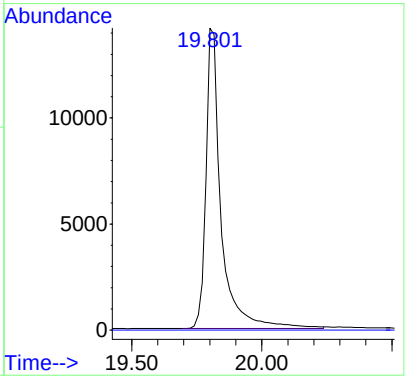


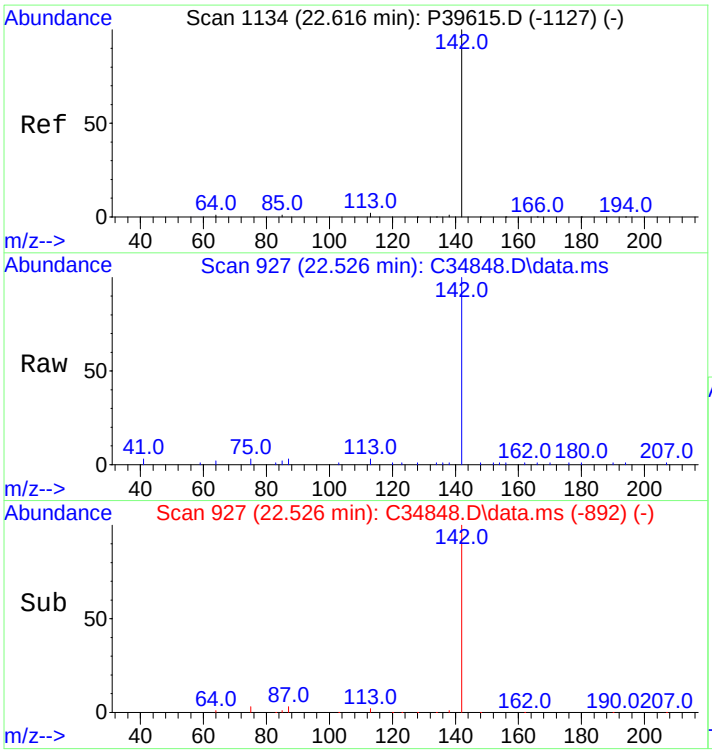


#10
Naphthalene
Concen: 456.77 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:128 Resp: 56993

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

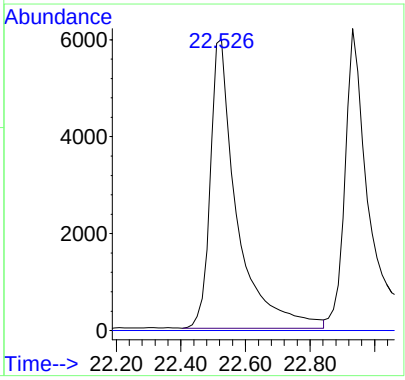


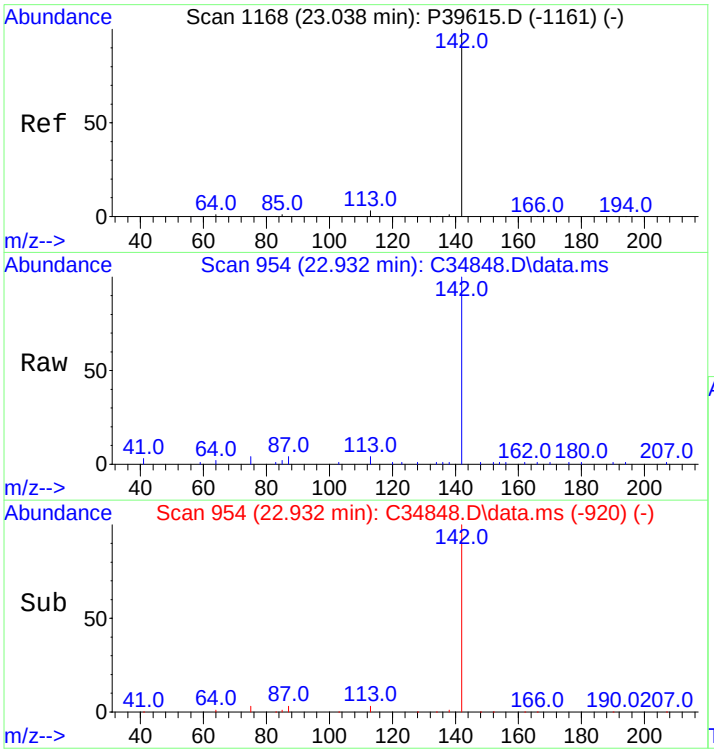


#16
2-Methylnaphthalene
Concen: 463.18 ng/mL
RT: 22.526 min Scan# 927
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:142 Resp: 34171

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

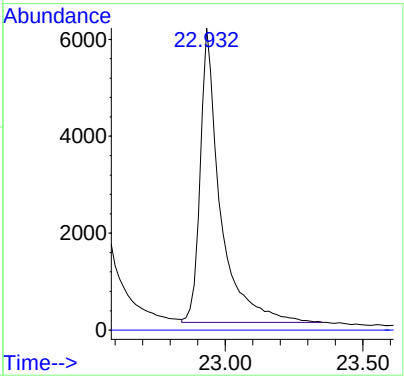


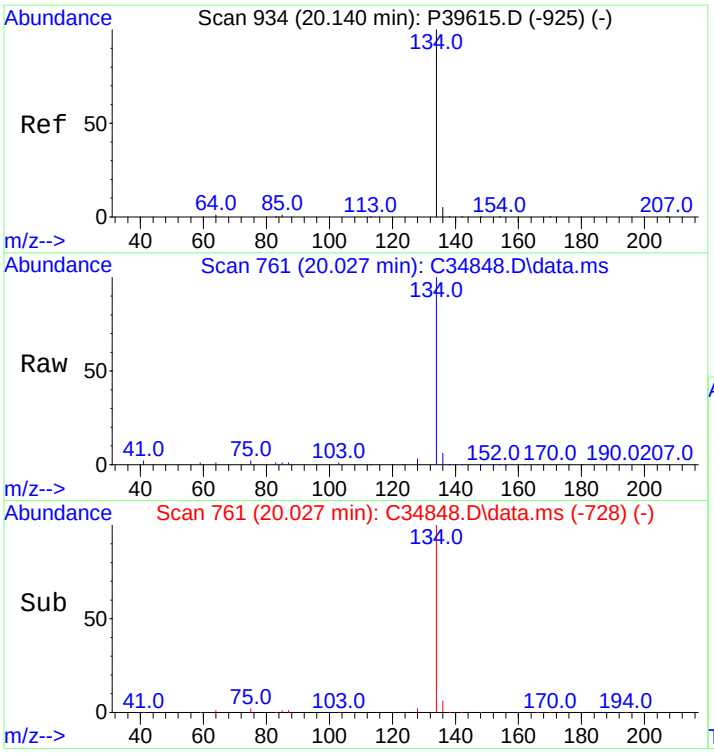


#17
1-Methylnaphthalene
Concen: 427.37 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:142 Resp: 30905

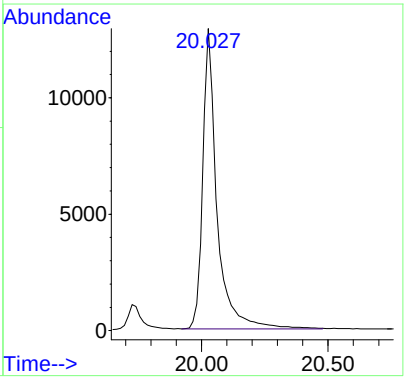
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

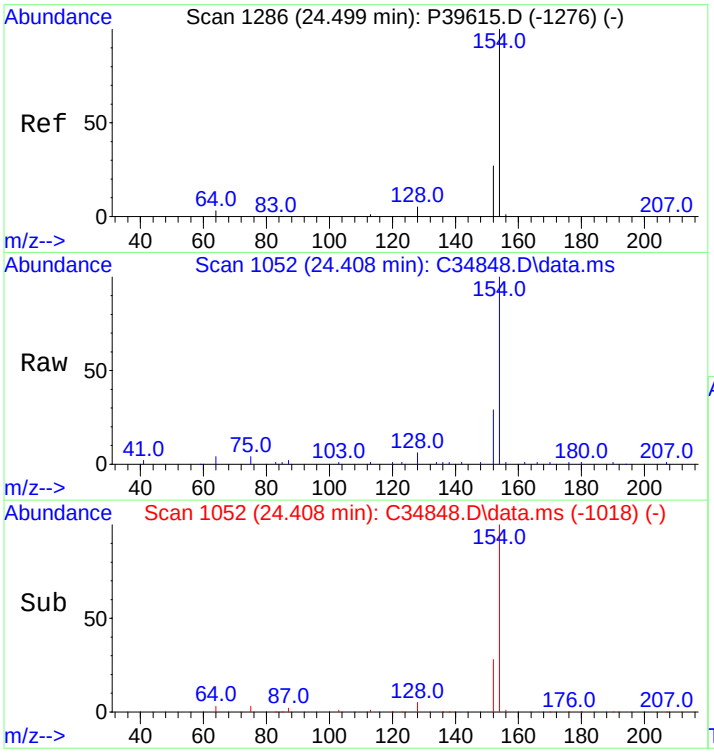




#18
Benzothiophene
Concen: 447.59 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:134 Resp: 50255

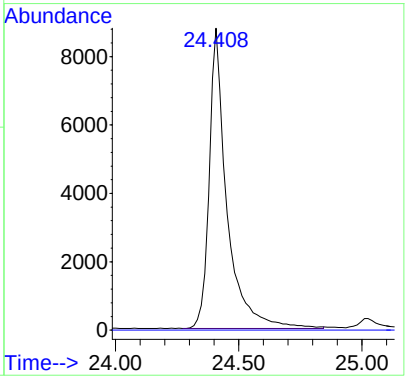


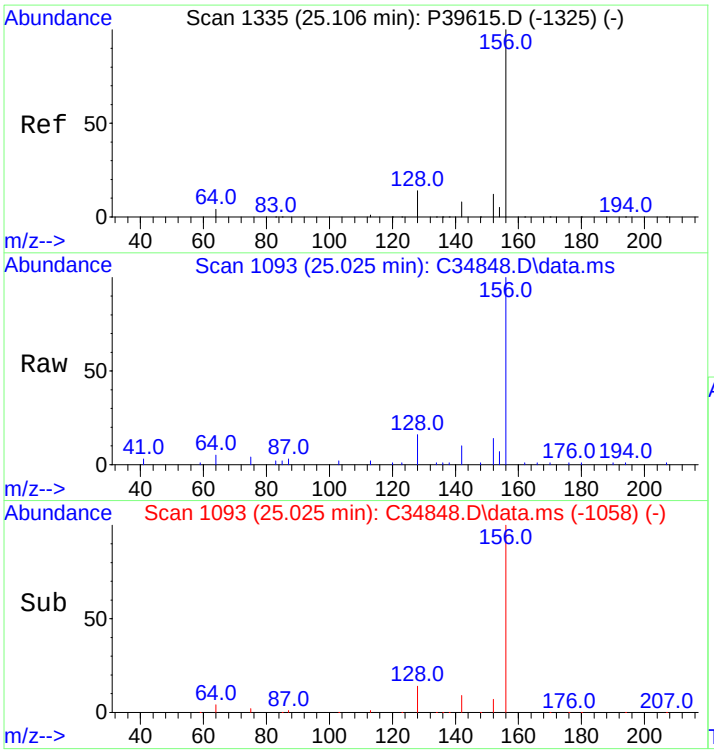


#23
Biphenyl
Concen: 469.74 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:154 Resp: 43838

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

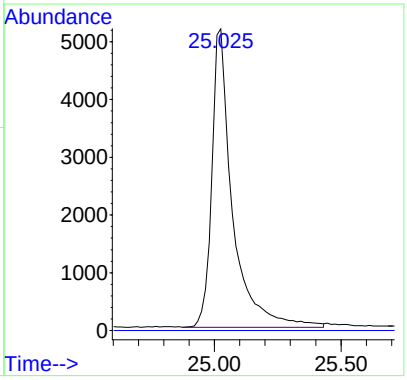


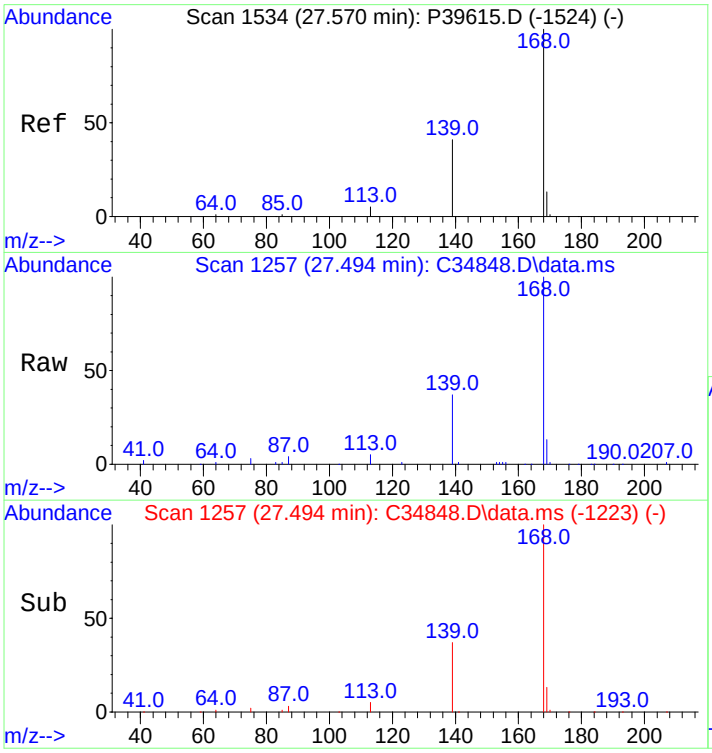


#24
2,6-Dimethylnaphthalene
Concen: 483.98 ng/mL
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:156 Resp: 29336

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

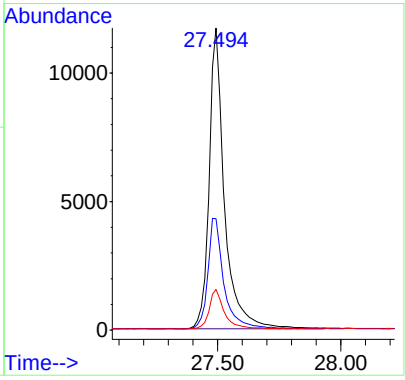


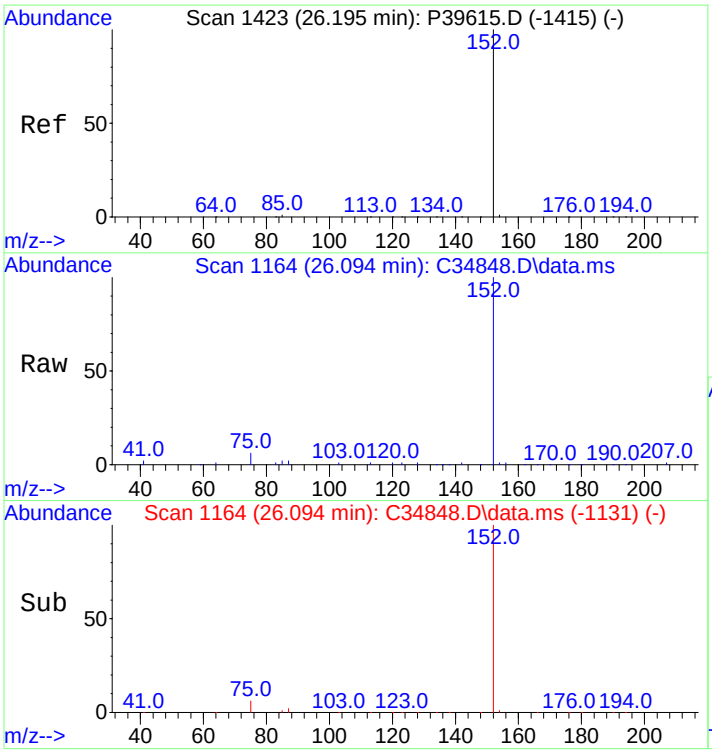


#25
Dibenzofuran
Concen: 472.68 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:168 Resp: 50655

Ion	Ratio	Lower	Upper
168	100		
139	38.3	28.4	42.6
169	13.1	10.8	16.2

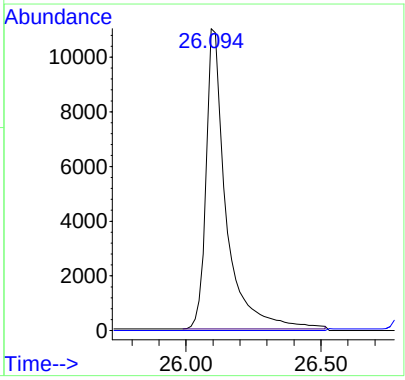


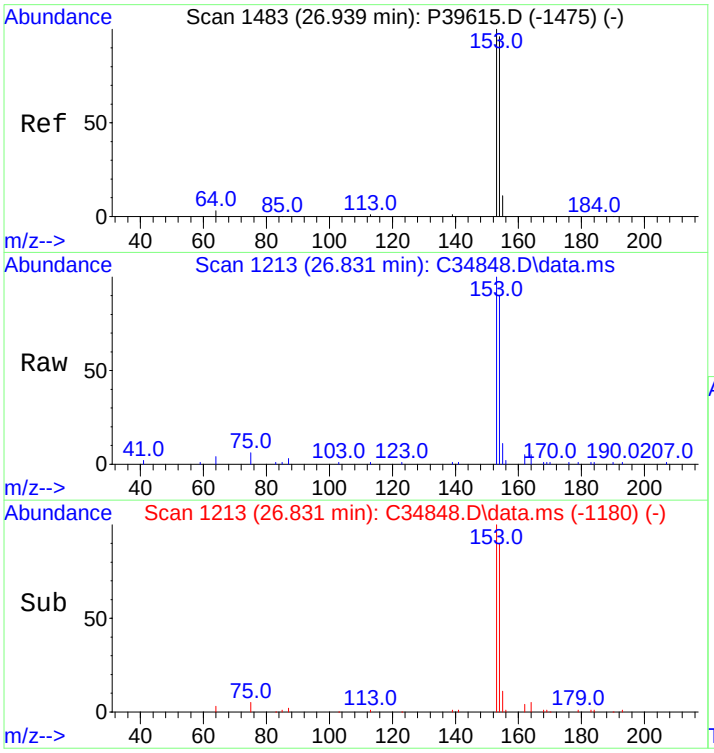


#26
Acenaphthylene
Concen: 459.02 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:152 Resp: 56854

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

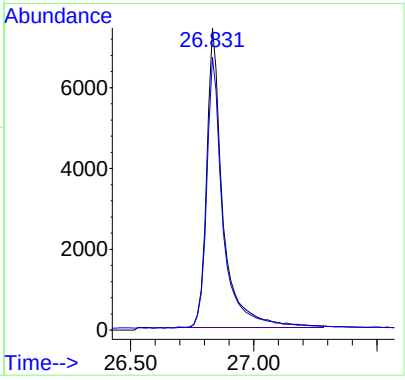


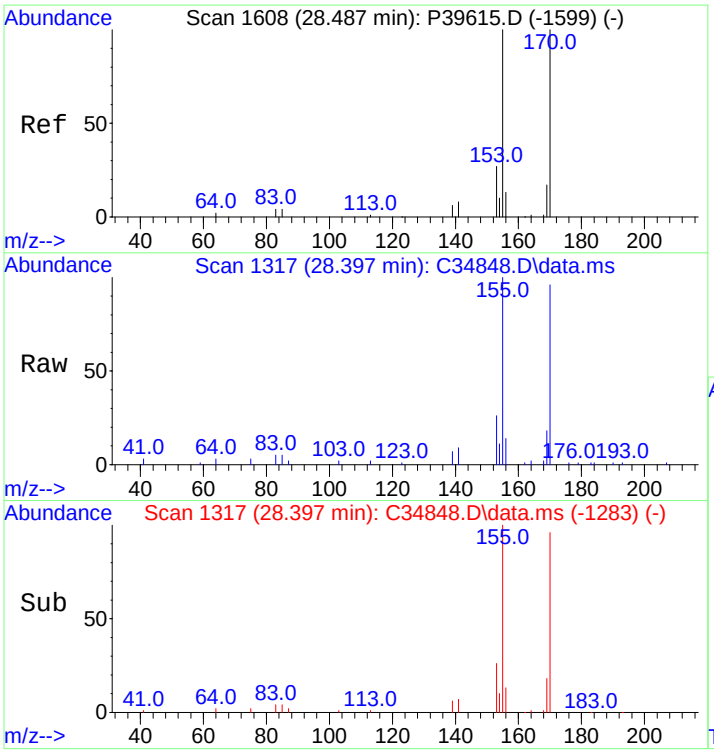


#27
Acenaphthene
Concen: 468.06 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:153 Resp: 34135

Ion	Ratio	Lower	Upper
153	100		
154	92.2	73.6	110.4

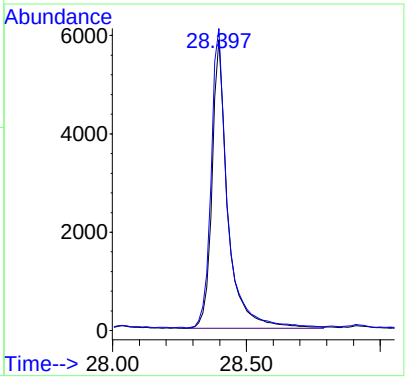


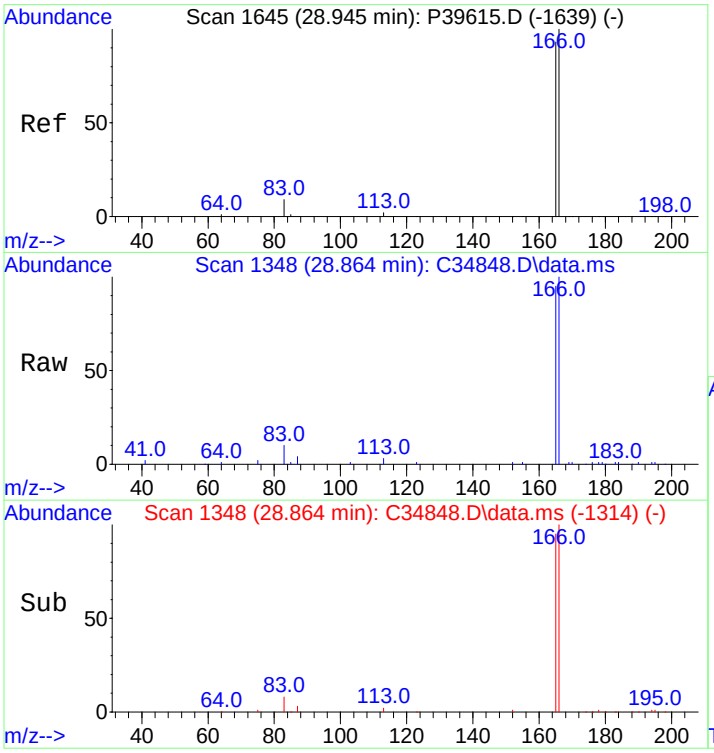


#28
2,3,5-Trimethylnaphthalene
Concen: 493.41 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:170 Resp: 24109

Ion	Ratio	Lower	Upper
170	100		
155	107.2	87.3	130.9

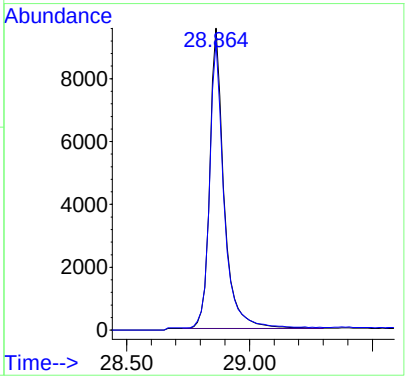


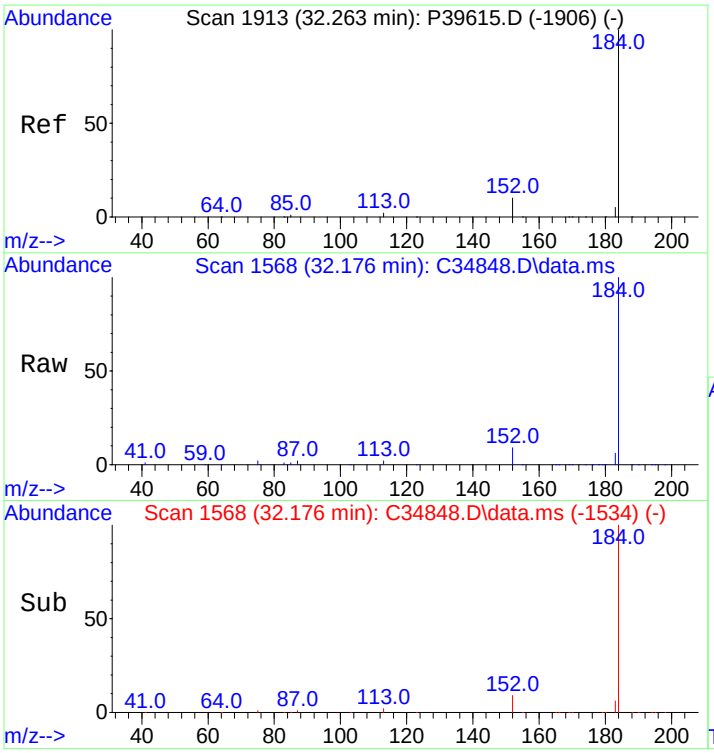


#29
Fluorene
Concen: 485.02 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:166 Resp: 39011

Ion	Ratio	Lower	Upper
166	100		
165	102.1	77.3	115.9

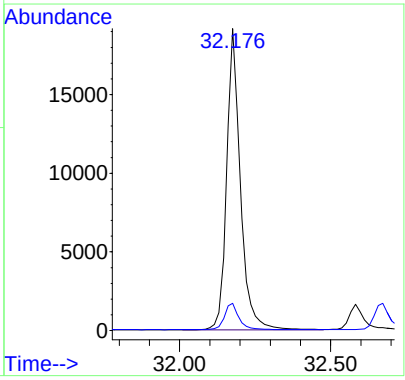


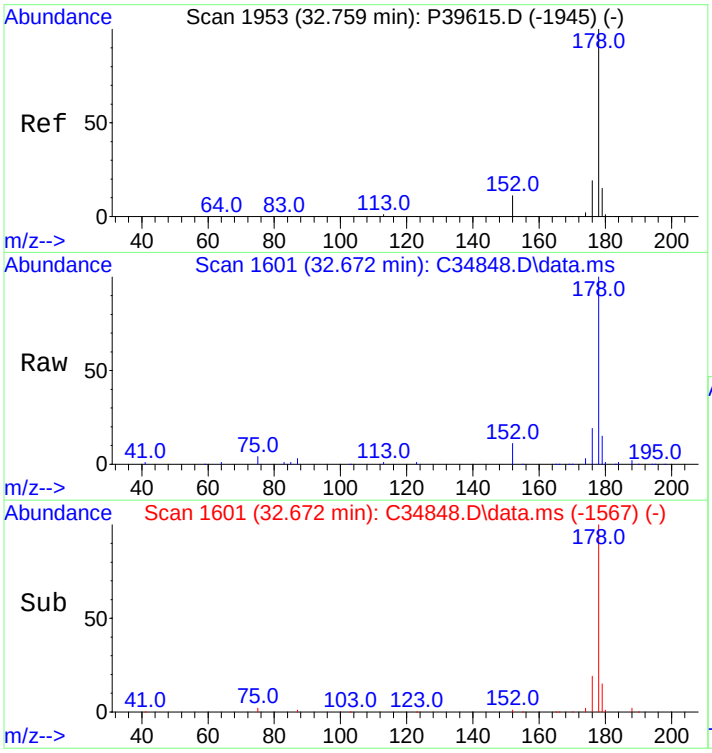


#33
Dibenzothiophene
Concen: 467.99 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:184 Resp: 60338

Ion	Ratio	Lower	Upper
184	100		
152	9.1	7.5	11.3

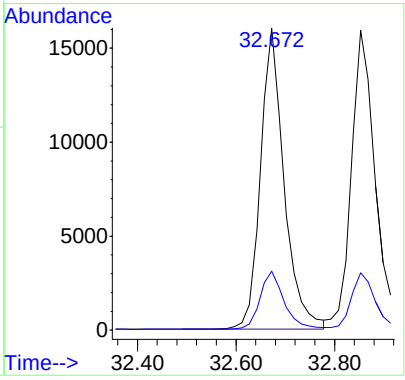


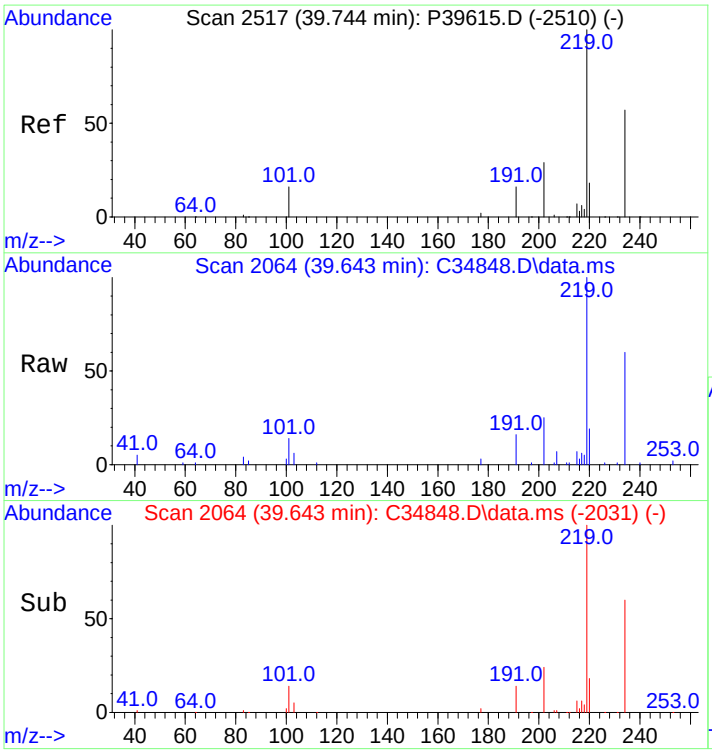


#43
Phenanthrene
Concen: 471.25 ng/mL
RT: 32.672 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:178 Resp: 53382

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

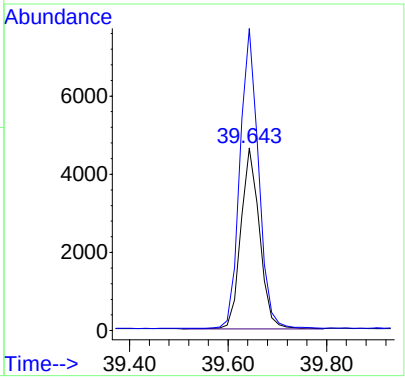


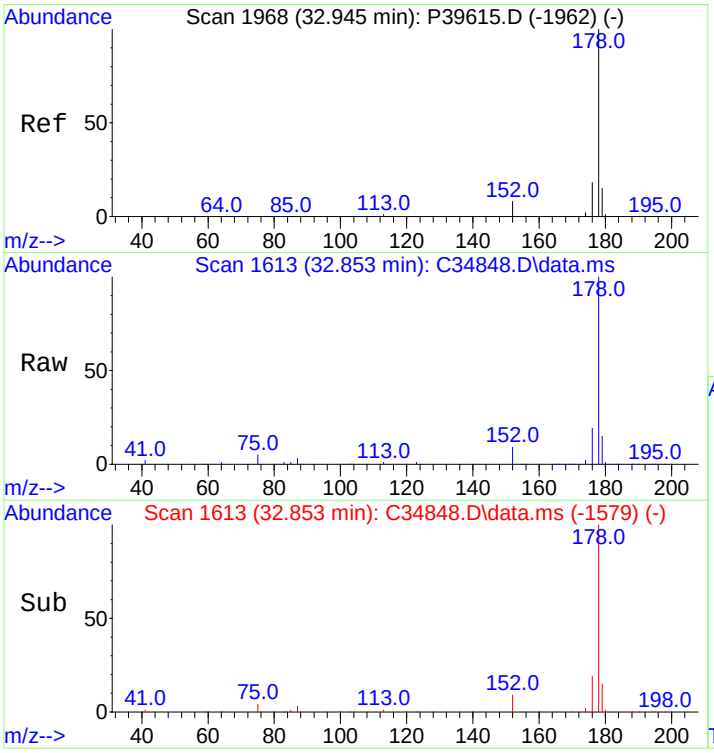


#54
Retene
Concen: 547.28 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 12093

Ion	Ratio	Lower	Upper
234	100		
219	165.6	127.8	191.8

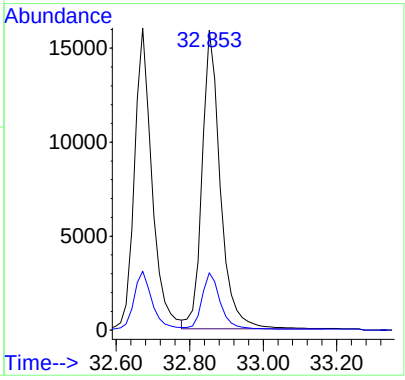


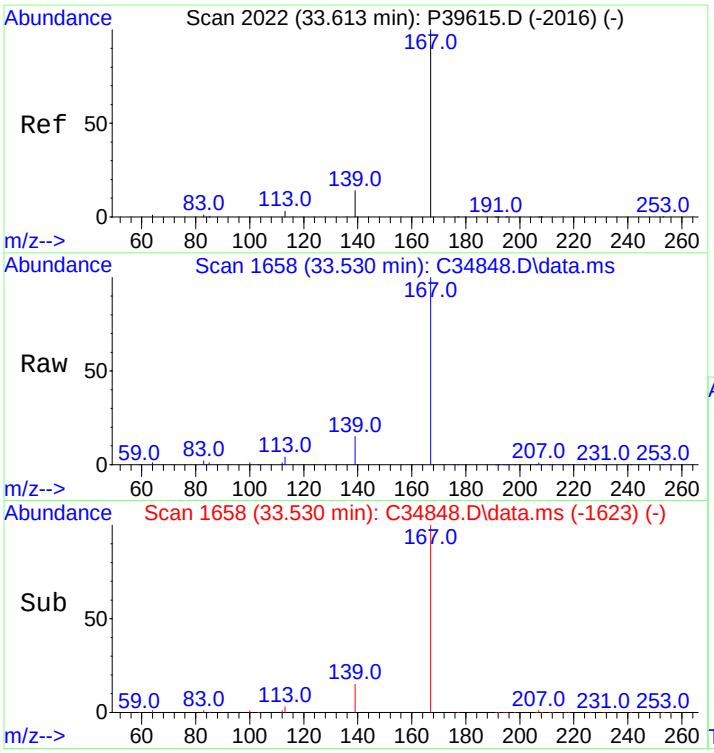


#55
Anthracene
Concen: 493.88 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:178 Resp: 54646

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.5	23.3

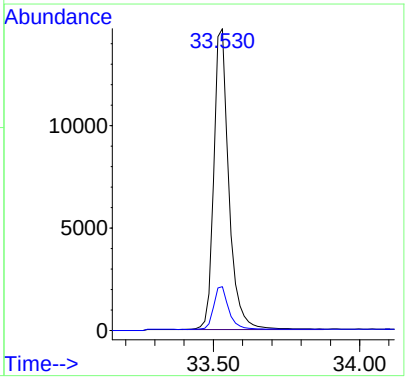


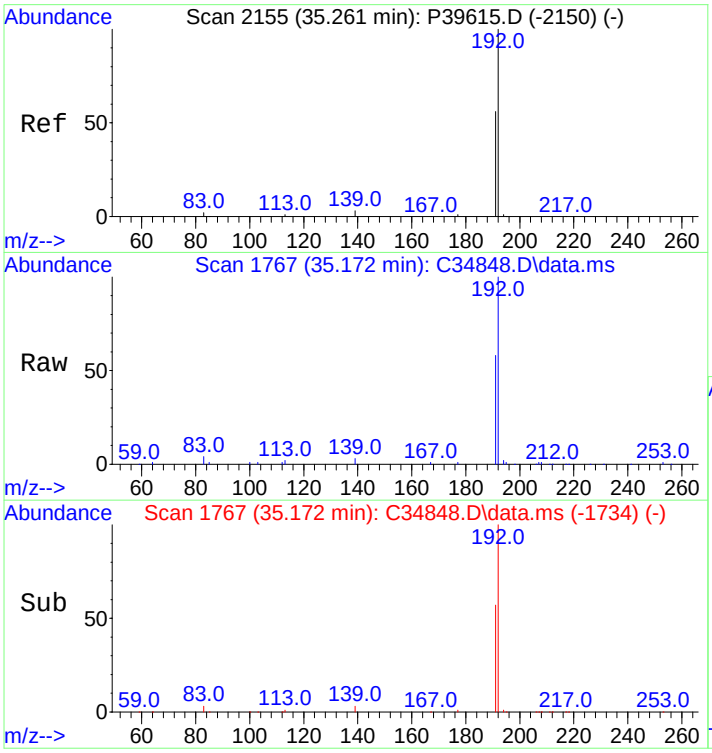


#56
Carbazole
Concen: 468.64 ng/mL
RT: 33.530 min Scan# 1658
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:167 Resp: 52377

Ion	Ratio	Lower	Upper
167	100		
139	14.1	11.8	17.8

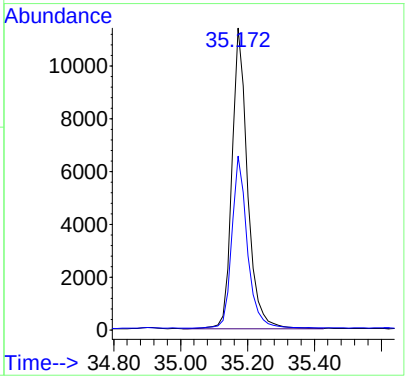


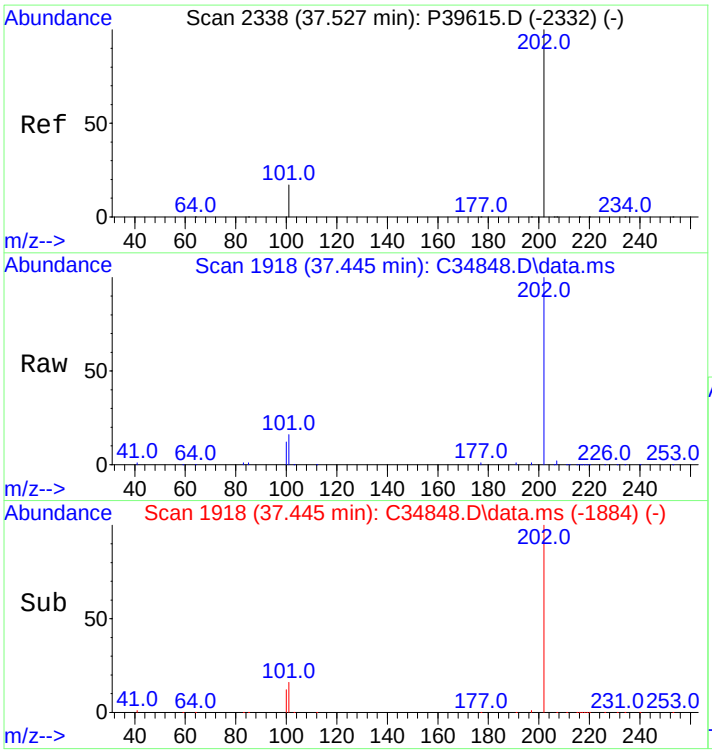


#57
1-Methylphenanthrene
Concen: 511.44 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:192 Resp: 36714

Ion	Ratio	Lower	Upper
192	100		
191	56.8	45.9	68.9

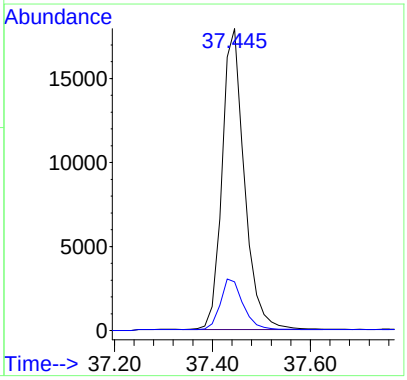


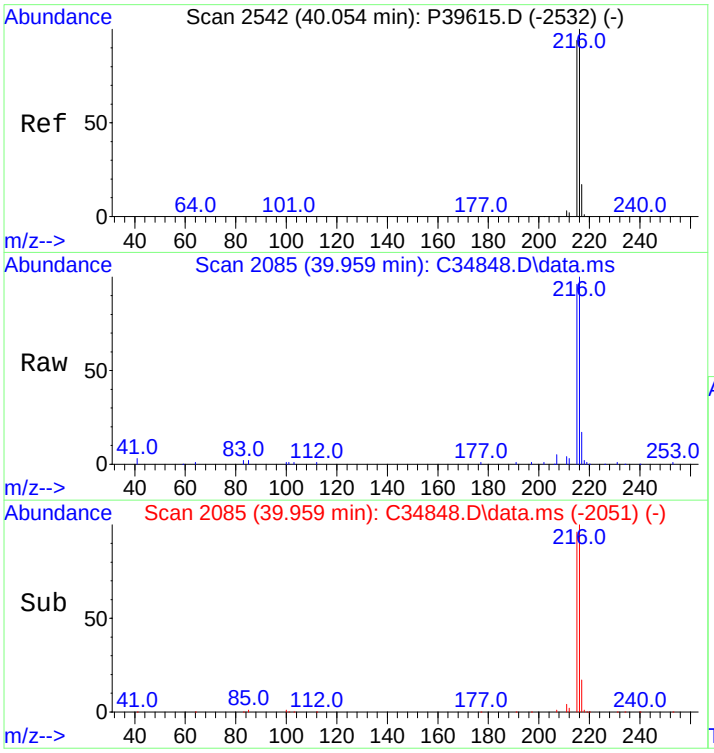


#58
Fluoranthene
Concen: 501.74 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:202 Resp: 56447

Ion	Ratio	Lower	Upper
202	100		
101	17.7	12.9	19.3

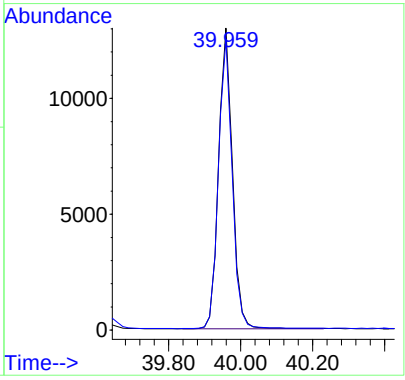


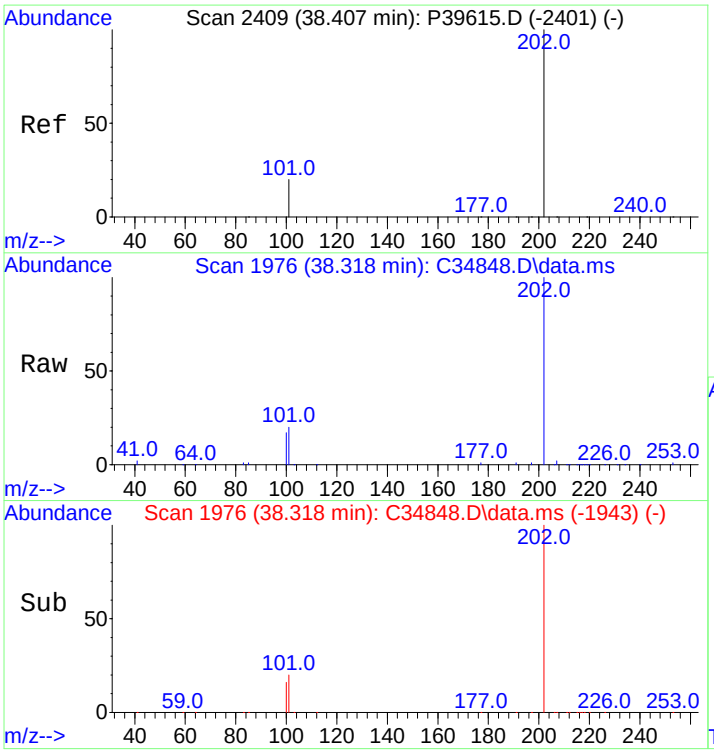


#59
Benzo(b)fluorene
Concen: 530.62 ng/mL
RT: 39.959 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:216 Resp: 34633

Ion	Ratio	Lower	Upper
216	100		
215	95.7	76.3	114.5

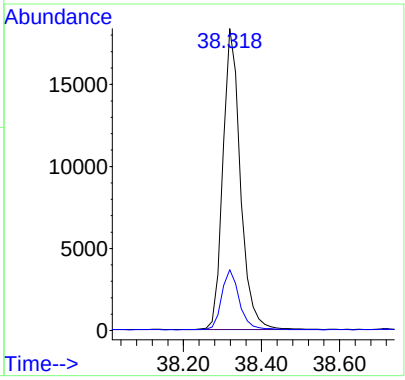


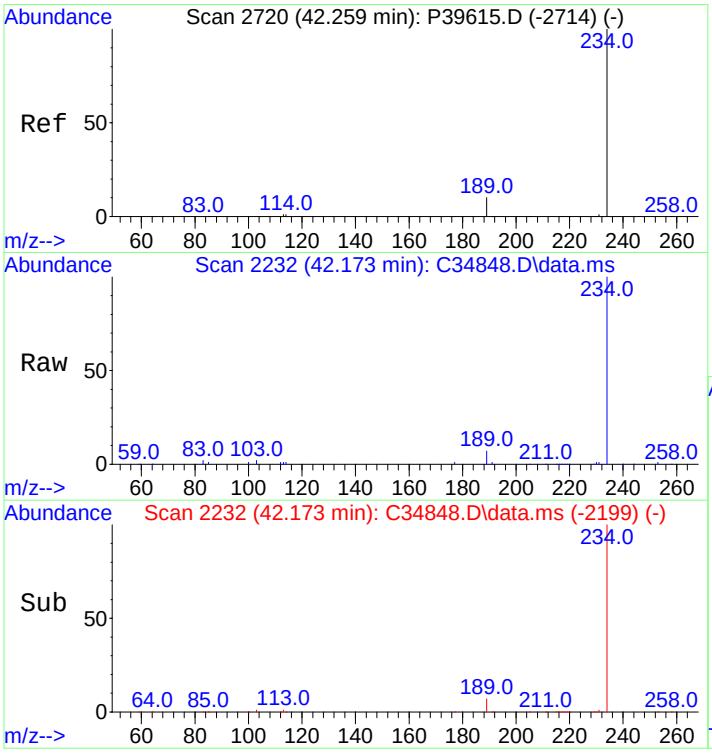


#60
Pyrene
Concen: 499.91 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:202 Resp: 57171

Ion	Ratio	Lower	Upper
202	100		
101	20.1	15.0	22.4

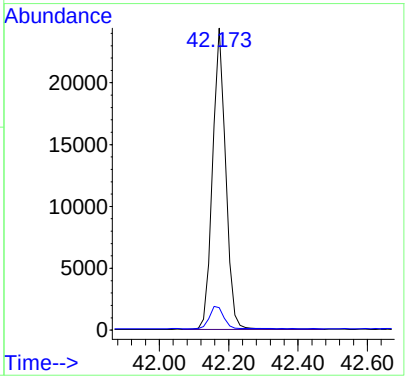


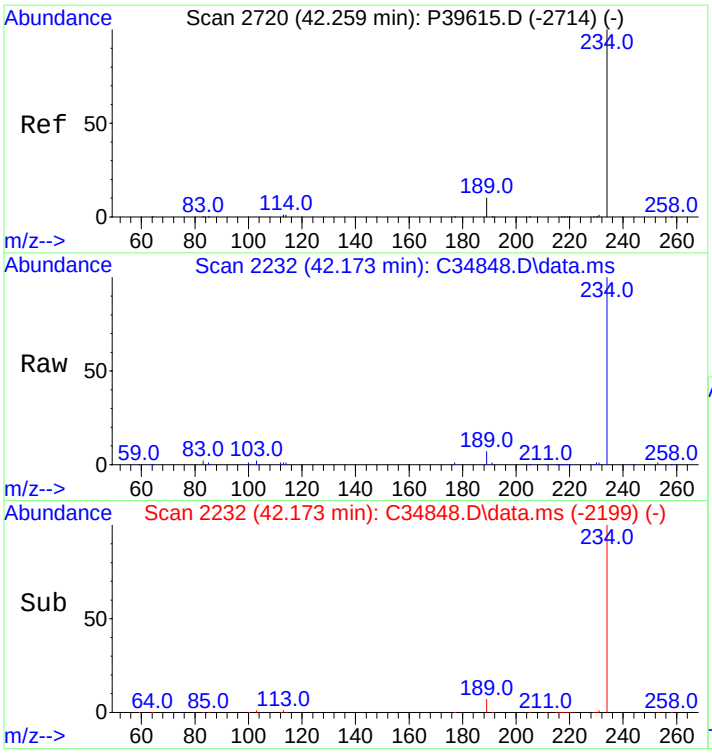


#66
Naphthobenzothiophene
Concen: 518.56 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 63845

Ion	Ratio	Lower	Upper
234	100		
189	8.3	20.5	30.7#

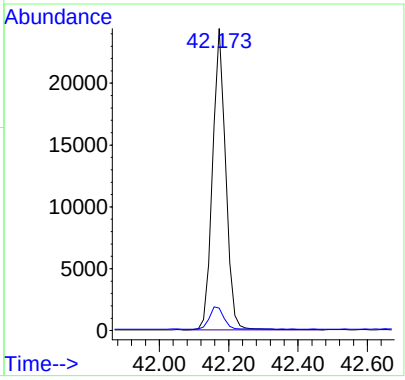


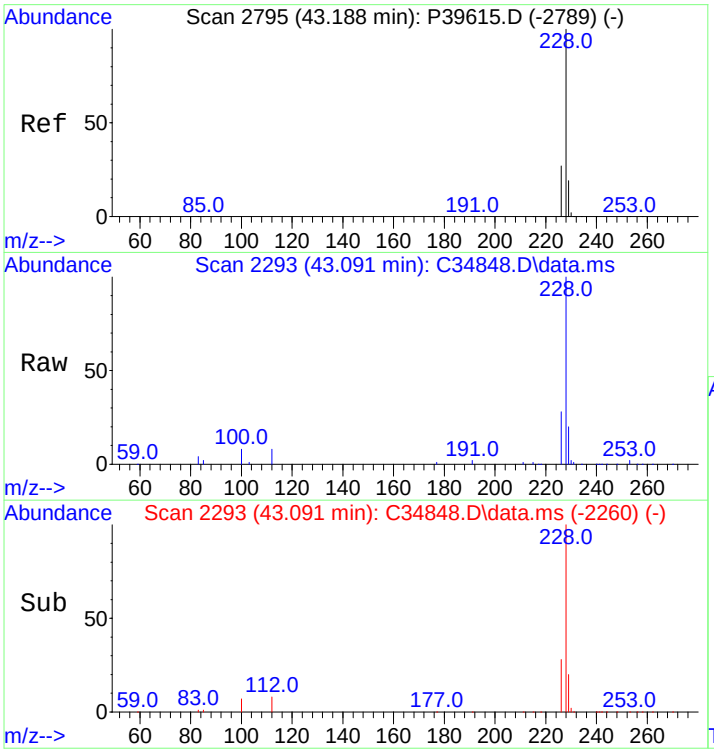


#67
Naphthobenzothiophene-2,1-D
Concen: 518.56 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 63845

Ion	Ratio	Lower	Upper
234	100		
189	8.3	20.5	30.7#

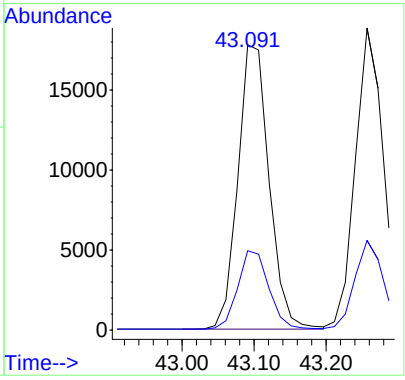


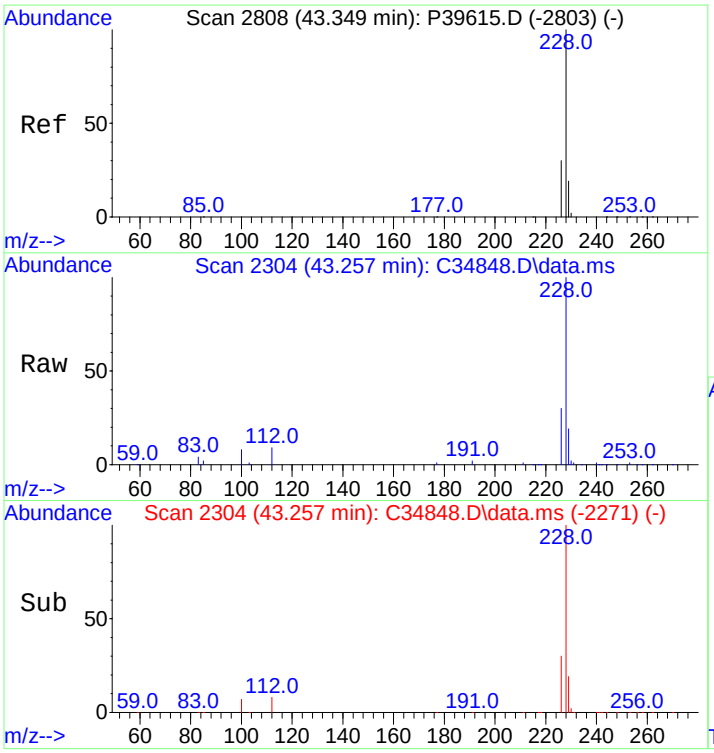


#75
Benz[a]anthracene
Concen: 510.05 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 53368

Ion	Ratio	Lower	Upper
228	100		
226	27.4	21.4	32.0

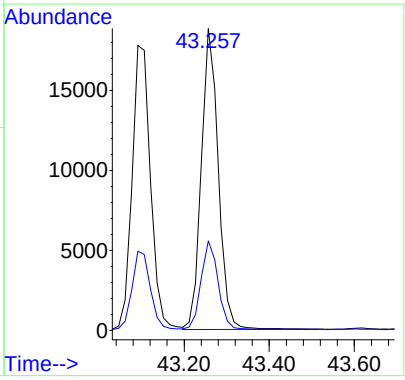


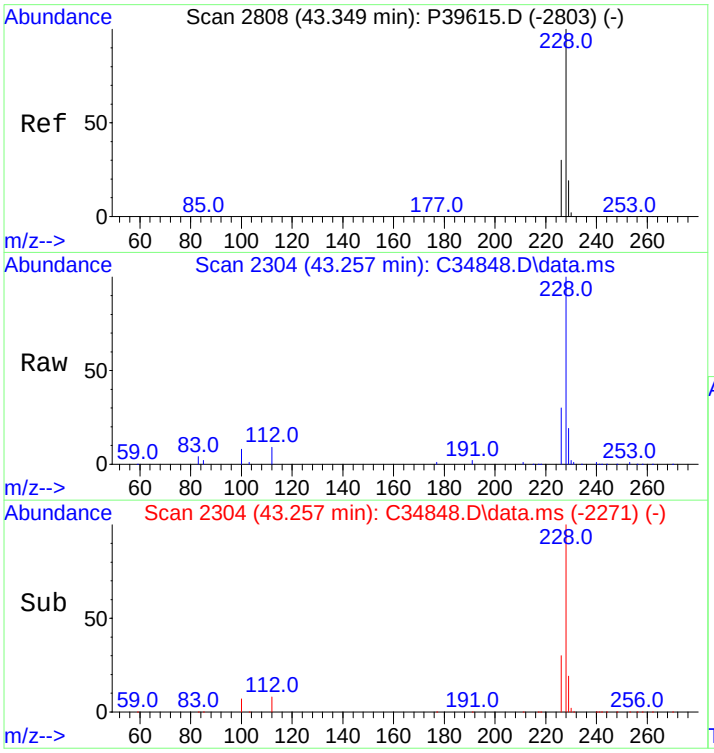


#76
Chrysene
Concen: 493.89 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 52173

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

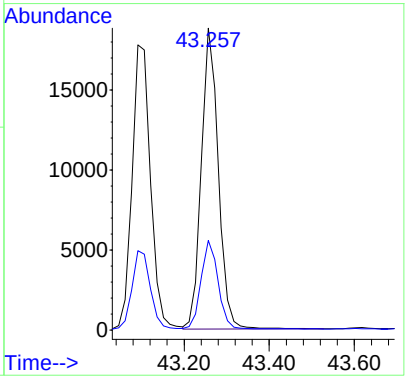


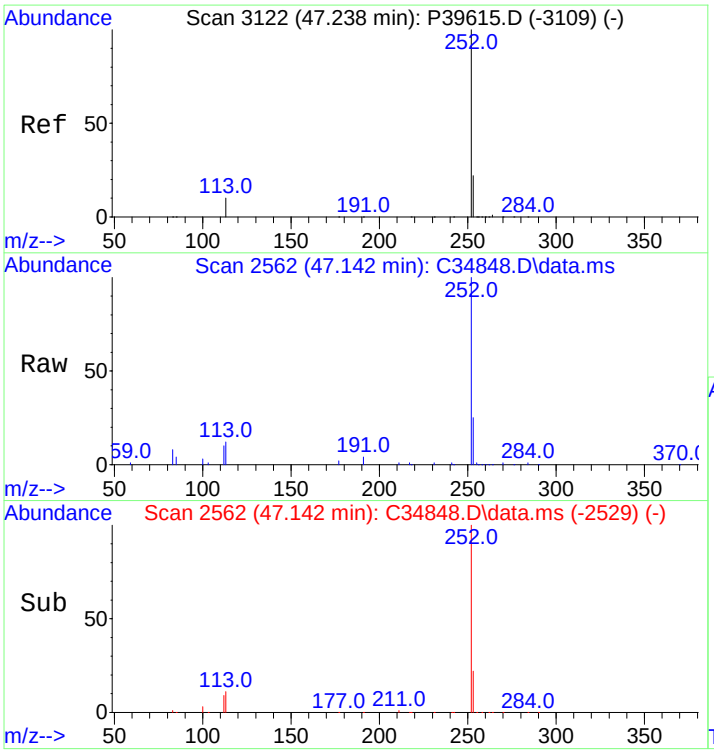


#77
Chrysene/Triphenylene
Concen: 493.89 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 52173

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

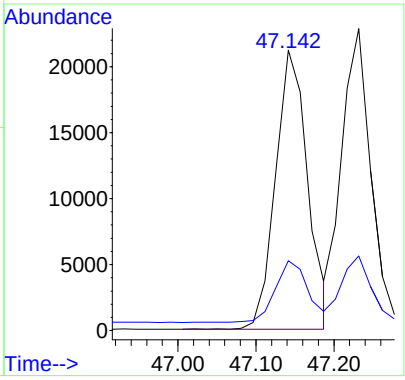


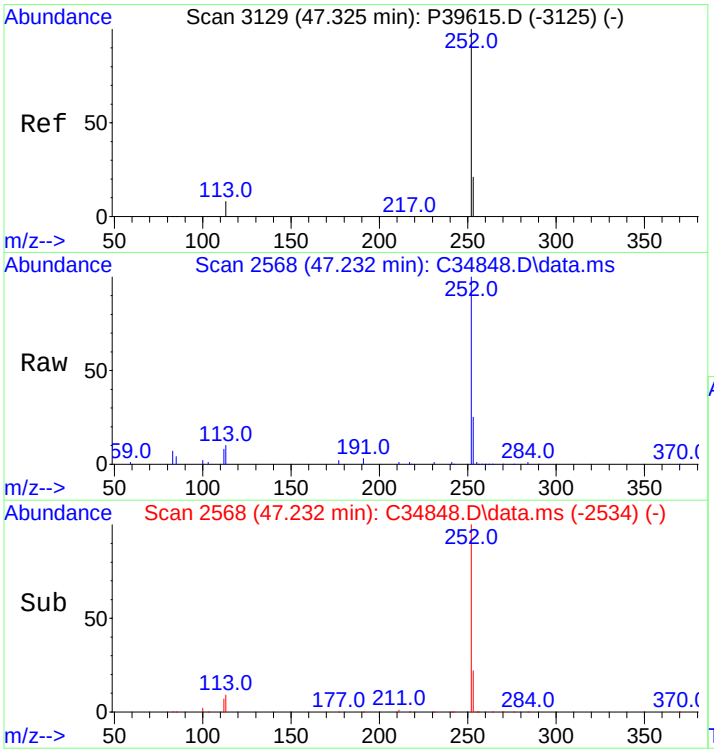


#82
Benzo[b]fluoranthene
Concen: 525.66 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 60436

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.0	28.4

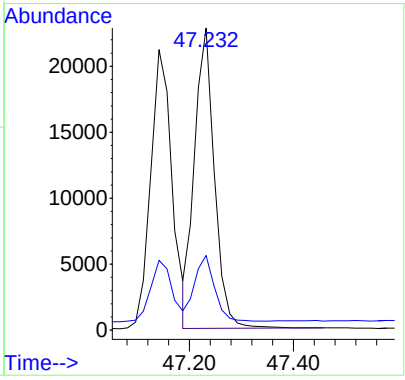


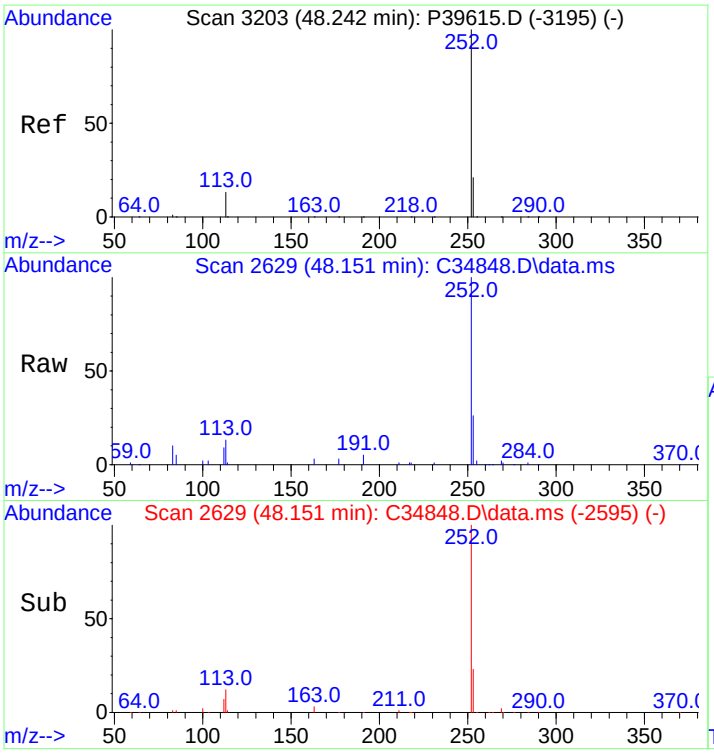


#83
Benzo[j]+[k]fluoranthene
Concen: 484.58 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 60657

Ion	Ratio	Lower	Upper
252	100		
253	21.6	19.0	28.4

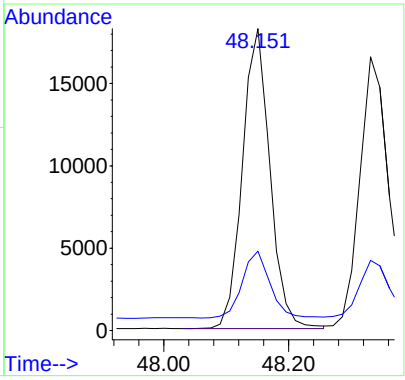


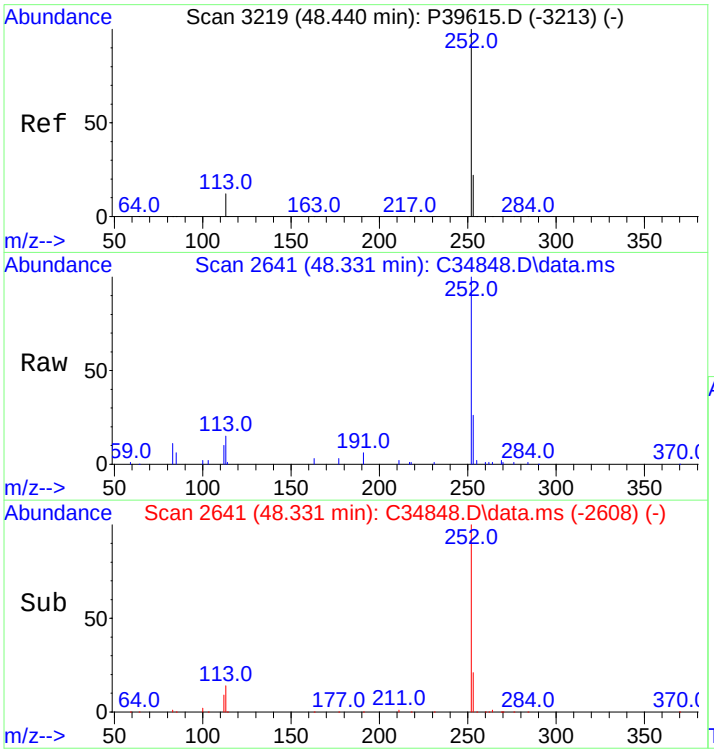


#85
Benzo[e]pyrene
Concen: 491.99 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 55949

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.2	28.8

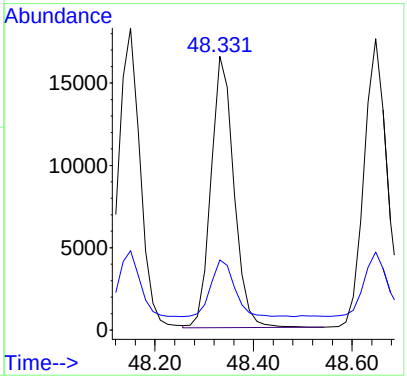


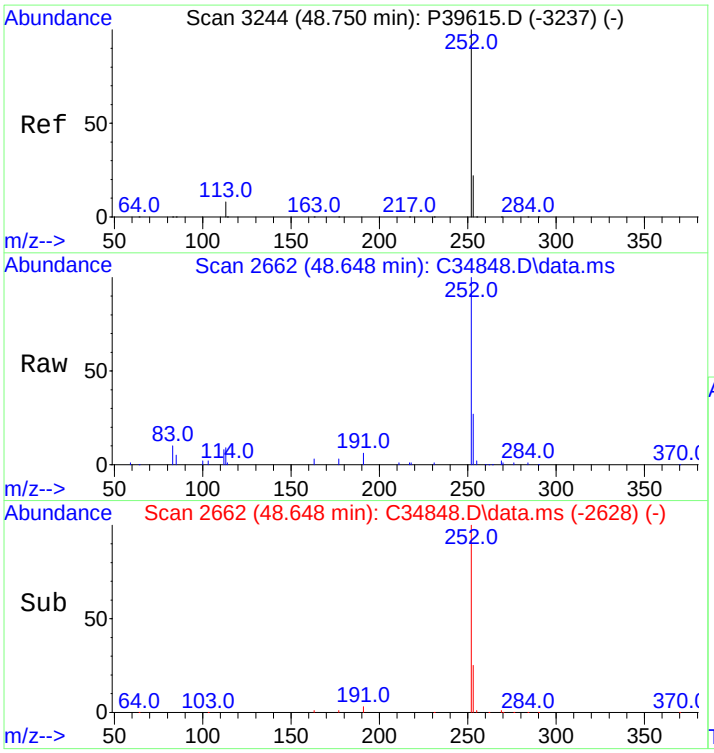


#87
Benzo[a]pyrene
Concen: 485.50 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 53157

Ion	Ratio	Lower	Upper
252	100		
253	21.9	19.5	29.3

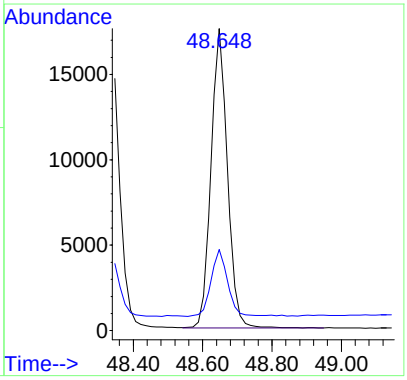


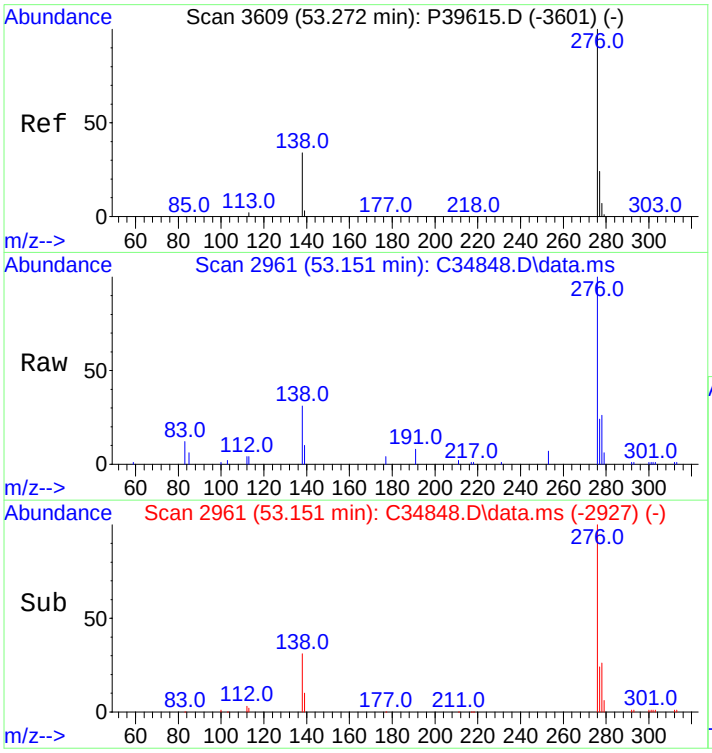


#88
Perylene
Concen: 490.24 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 57365

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.6	29.4

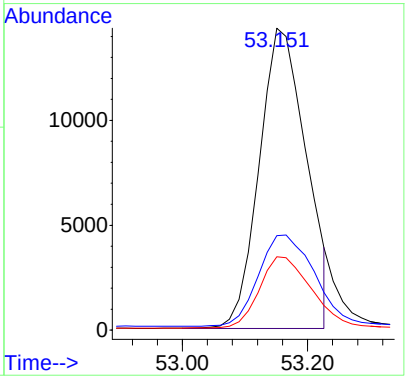


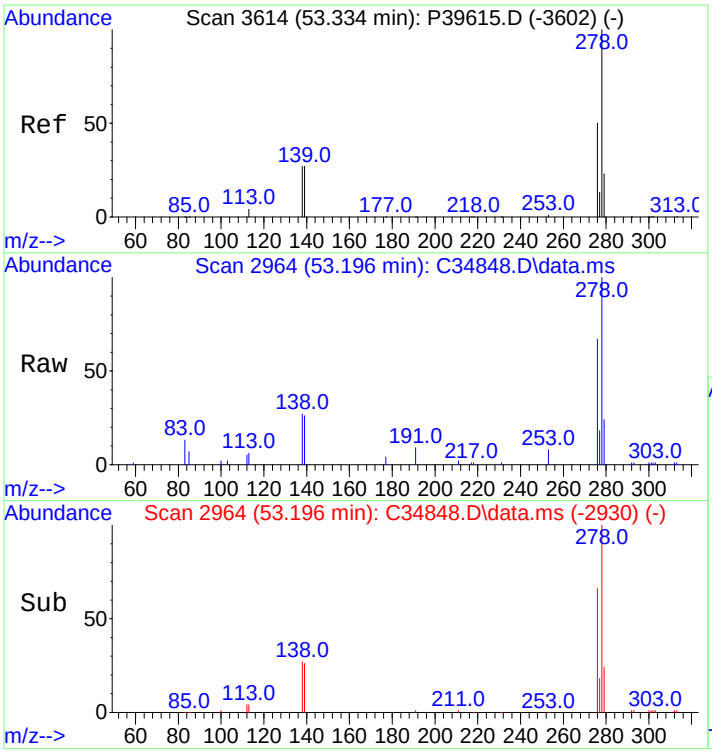


#89
Indeno[1,2,3-cd]pyrene
Concen: 586.35 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:276 Resp: 74711

Ion	Ratio	Lower	Upper
276	100		
138	37.1	23.3	34.9#
277	26.7	19.0	28.4

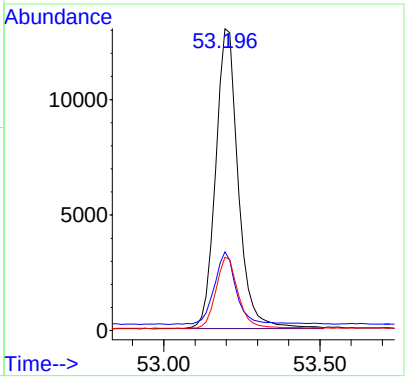


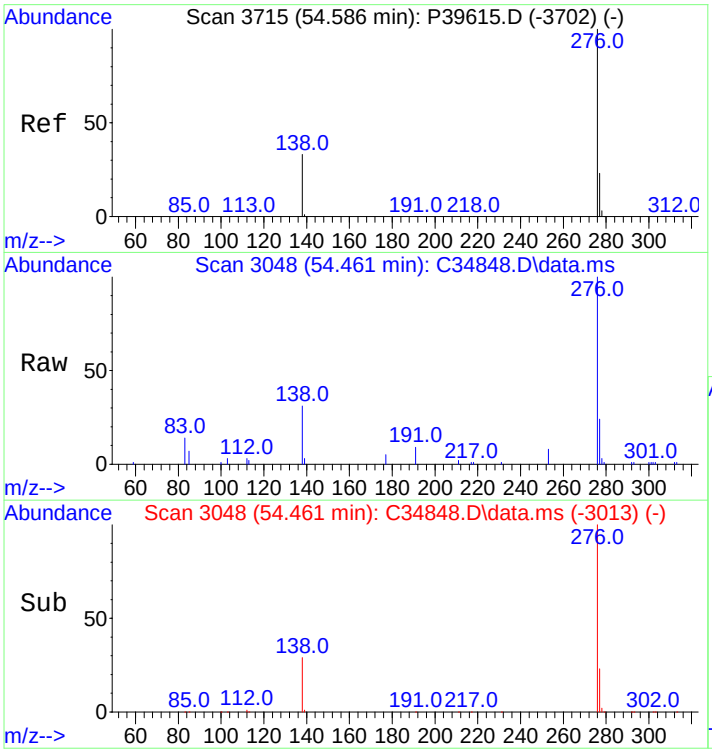


#90
Dibenz[ah]+[ac]anthracene
Concen: 540.63 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:278 Resp: 65528

Ion	Ratio	Lower	Upper
278	100		
139	22.5	19.1	28.7
279	23.2	19.2	28.8

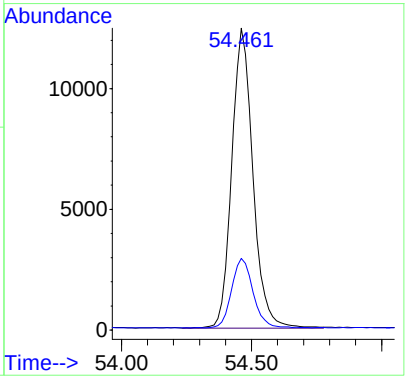


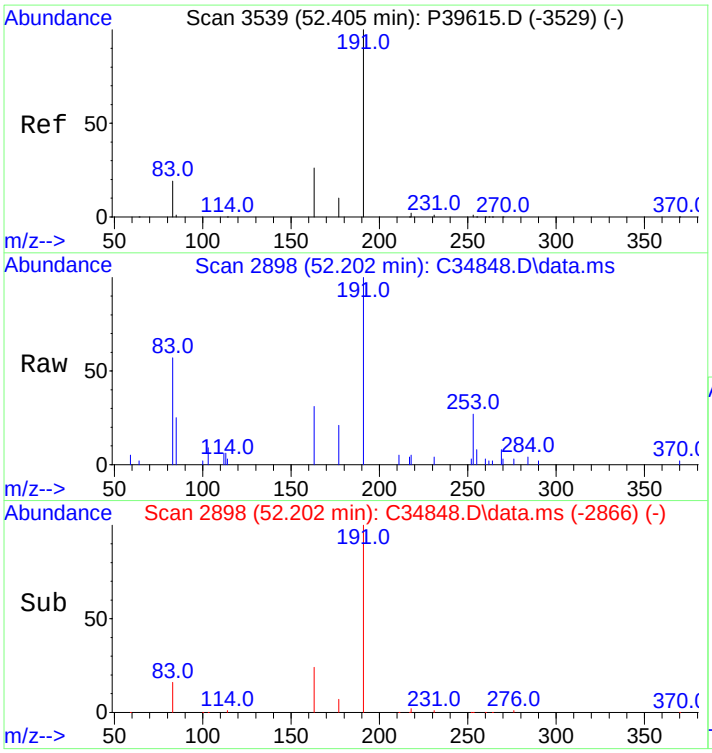


#91
Benzo[g,h,i]perylene
Concen: 520.29 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:276 Resp: 70039

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3

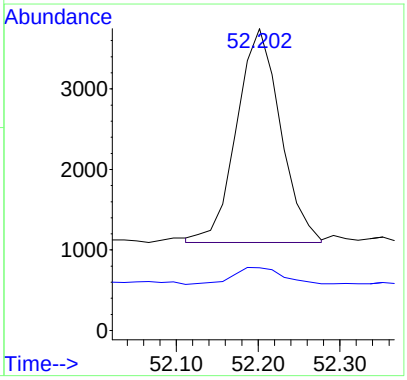


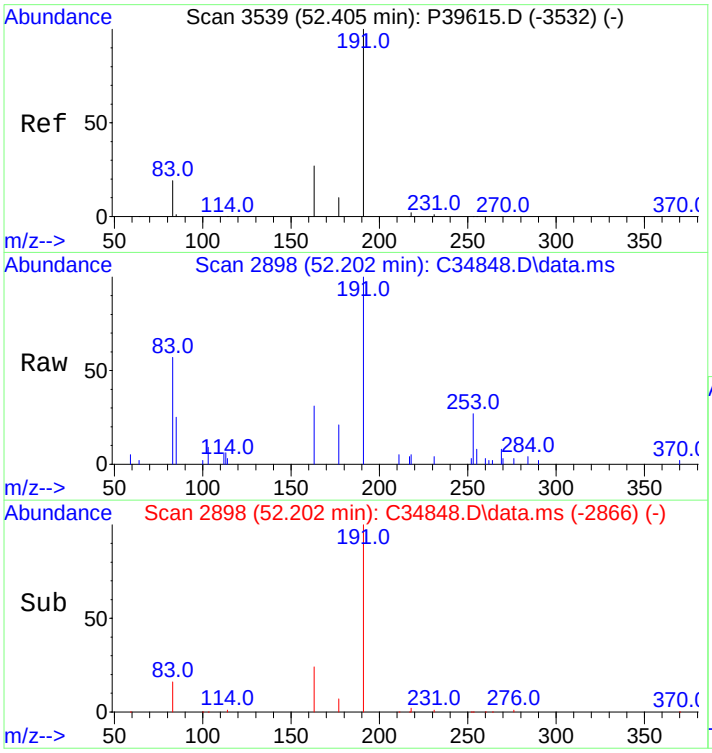


#92
Hopane (T19)
Concen: 454.09 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:191 Resp: 9866

Ion	Ratio	Lower	Upper
191	100		
177	9.0	14.6	21.8#

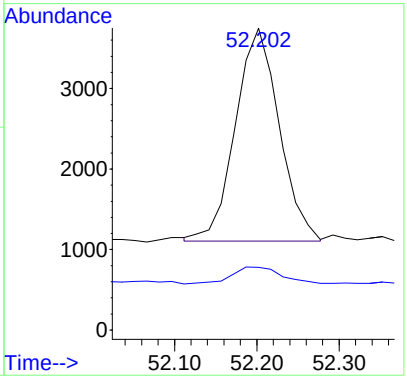




#93
17a(H),21B(H)-hopane - C30H52
Concen: 448.61 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:191 Resp: 9747

Ion	Ratio	Lower	Upper
191	100		
177	9.1	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

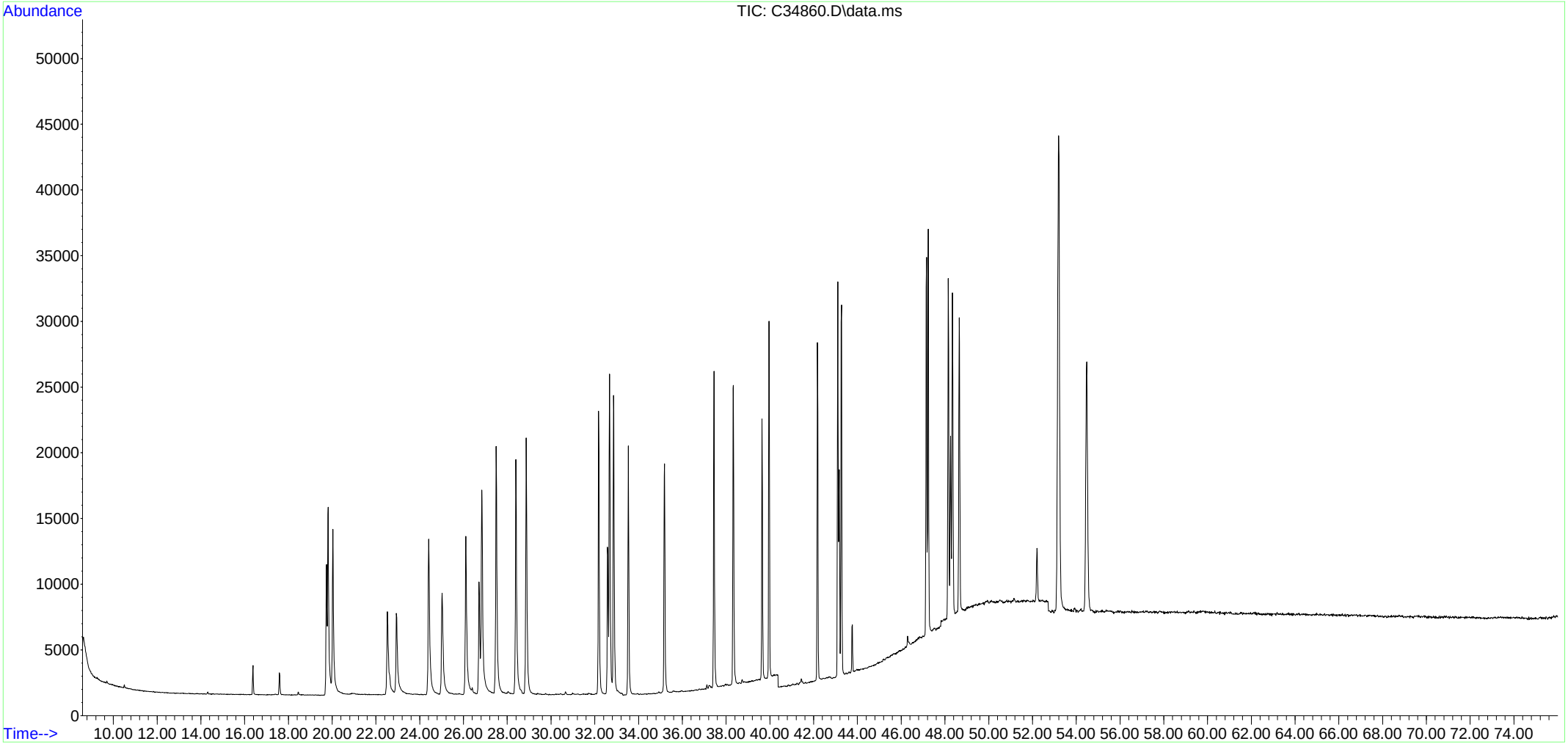
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19115M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	32005	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	35010	421.990	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.20%#			
42) Phenanthrene-d10	32.582	188	32069	489.036	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.90%#			
86) Benzo[a]pyrene-d12	48.256	264	32752	493.789	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.38%#			
127) 5B(H)Cholane - Surr	43.769	217	5413	540.954	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.10%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3236	214.453	ng/mL	100
4) cis-Decalin	17.603	138	2440	214.552	ng/mL	100
10) Naphthalene	19.816	128	49694	407.901	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	33291	462.154	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30000	424.880	ng/mL#	100
18) Benzothiophene	20.027	134	44915	409.694	ng/mL	100
23) Biphenyl	24.408	154	43469	477.042	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	28733	485.493	ng/mL#	100
25) Dibenzofuran	27.494	168	49706	475.034	ng/mL	96
26) Acenaphthylene	26.109	152	55313M3	457.374	ng/mL	
27) Acenaphthene	26.832	153	32796	460.571	ng/mL	98
28) 2,3,5-Trimethylnaphtha...	28.397	170	23728	497.353	ng/mL	98
29) Fluorene	28.864	166	37891M3	482.484	ng/mL	
33) Dibenzothiophene	32.176	184	59025	468.870	ng/mL	98
43) Phenanthrene	32.673	178	52422	473.965	ng/mL	99
54) Retene	39.643	234	11800	546.923	ng/mL	97
55) Anthracene	32.853	178	53211M3	492.537	ng/mL	
56) Carbazole	33.531	167	51280M3	469.913	ng/mL	
57) 1-Methylphenanthrene	35.187	192	35663	508.809	ng/mL	100
58) Fluoranthene	37.445	202	55068M3	501.314	ng/mL	
59) Benzo(b)fluorene	39.960	216	33772	529.931	ng/mL	99
60) Pyrene	38.333	202	55892	500.543	ng/mL	97
66) Naphthobenzothiophene	42.173	234	61419	510.908	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	61419	510.908	ng/mL#	66
75) Benz[a]anthracene	43.106	228	51712	509.060	ng/mL	99
76) Chrysene	43.272	228	50443	491.854	ng/mL	100
77) Chrysene/Triphenylene	43.272	228	50443	491.854	ng/mL	100
82) Benzo[b]fluoranthene	47.157	252	57388	514.138	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.232	252	61409	505.320	ng/mL	97
85) Benzo[e]pyrene	48.151	252	54730	495.717	ng/mL	98
87) Benzo[a]pyrene	48.347	252	52337	492.362	ng/mL	97
88) Perylene	48.648	252	55992	492.875	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276	72966M3	589.854	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	65703	558.345	ng/mL	98
91) Benzo[g,h,i]perylene	54.476	276	70256	537.571	ng/mL	99
92) Hopane (T19)	52.202	191	9829M3	465.971	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	9936M3	471.044	ng/mL	

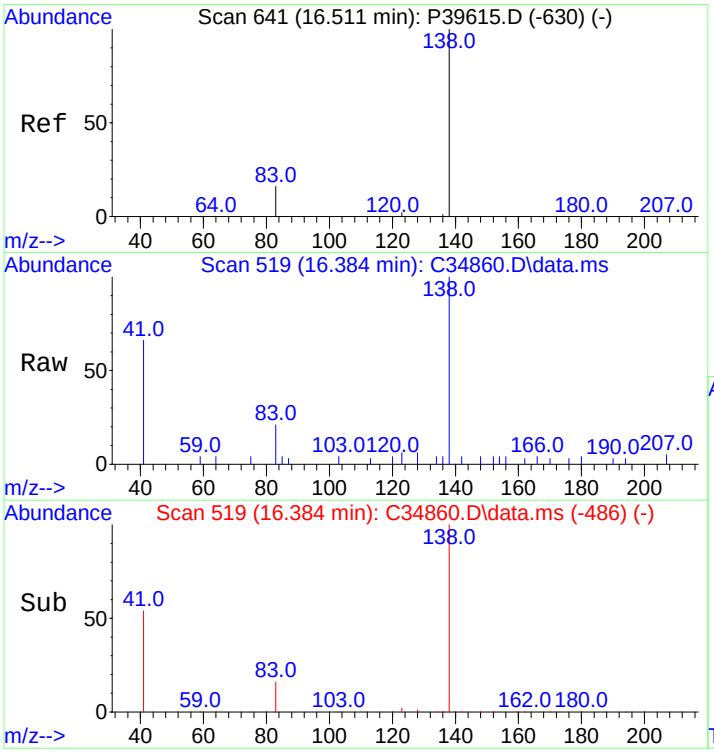
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

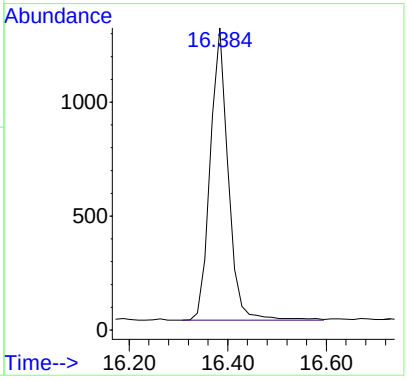
Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

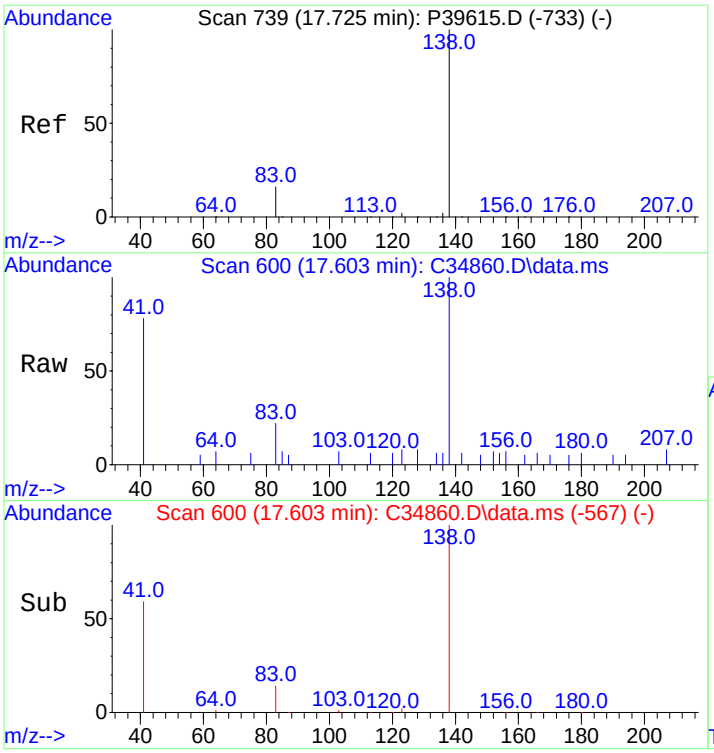




#3
trans-Decalin
Concen: 214.45 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

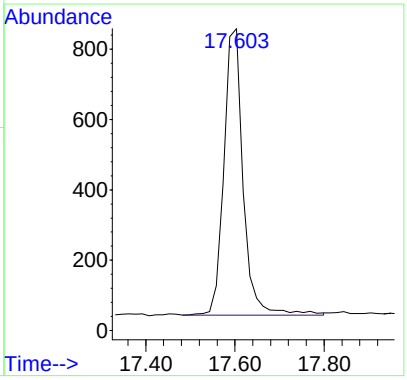
Tgt Ion:138 Resp: 3236

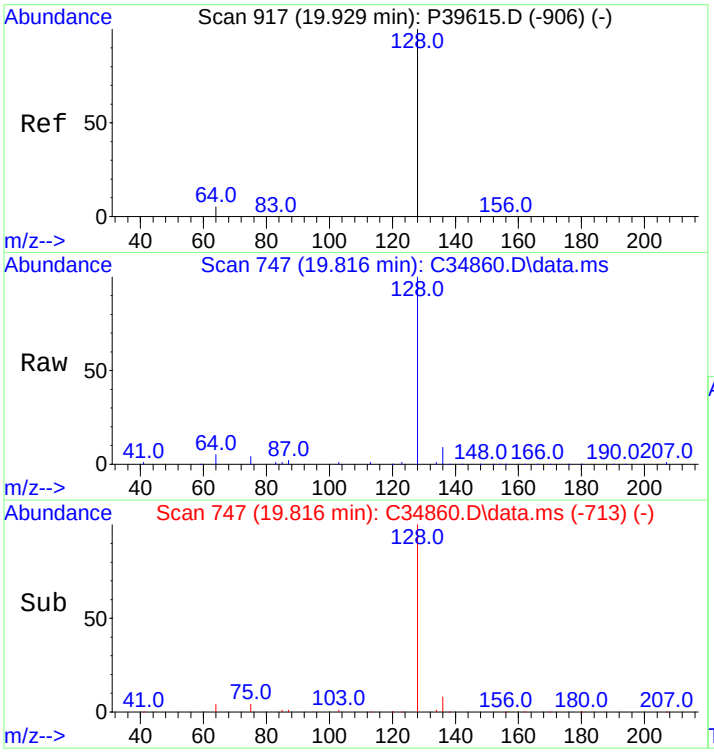




#4
cis-Decalin
Concen: 214.55 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:138 Resp: 2440

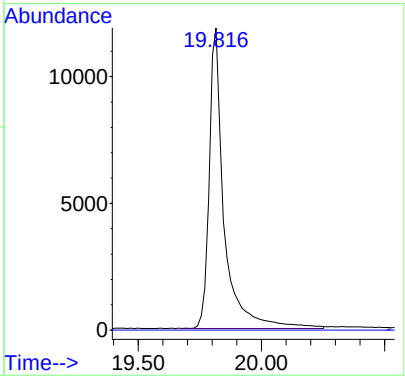


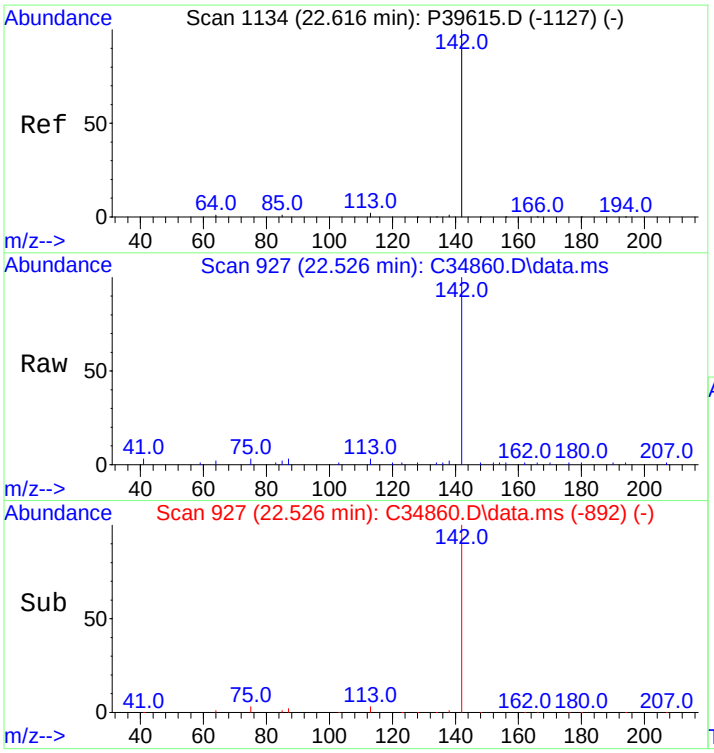


#10
Naphthalene
Concen: 407.90 ng/mL
RT: 19.816 min Scan# 747
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:128 Resp: 49694

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

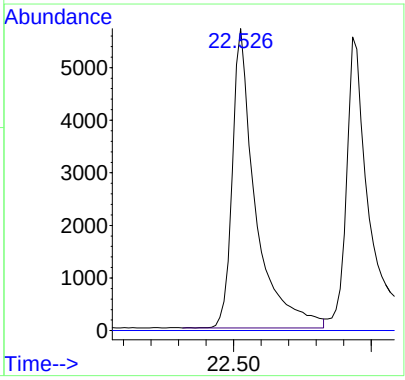


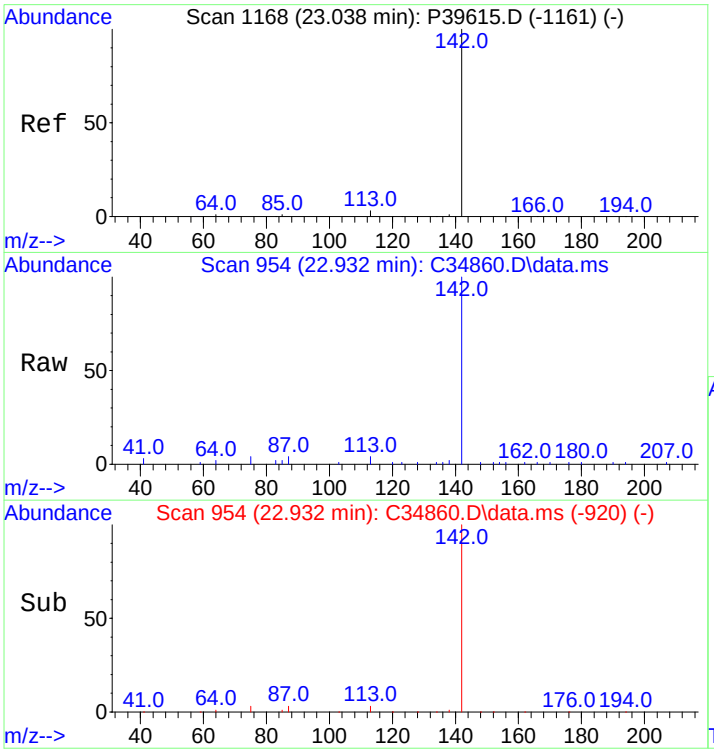


#16
2-Methylnaphthalene
Concen: 462.15 ng/mL
RT: 22.526 min Scan# 927
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:142 Resp: 33291

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

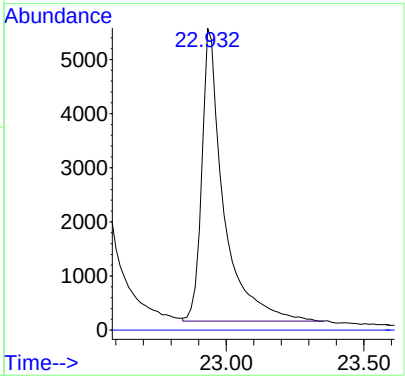


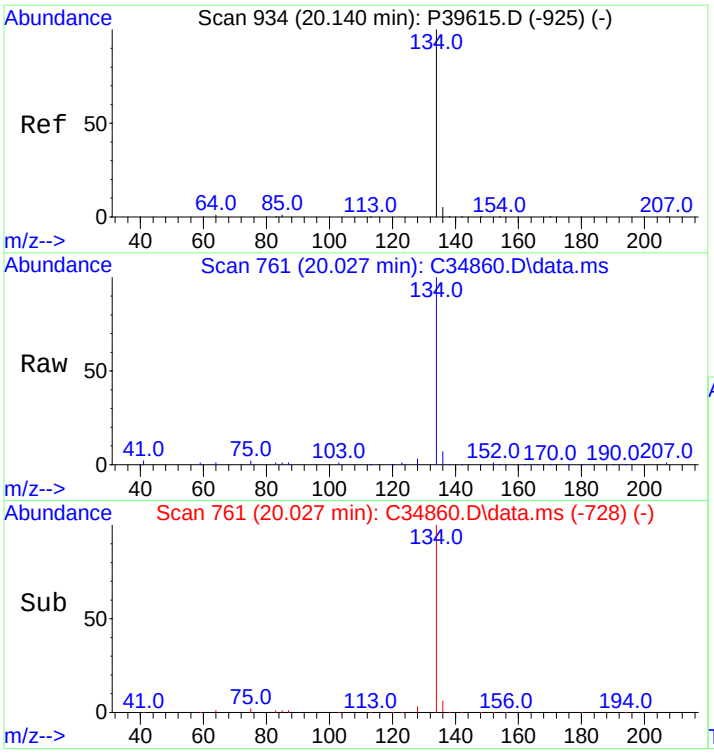


#17
1-Methylnaphthalene
Concen: 424.88 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:142 Resp: 30000

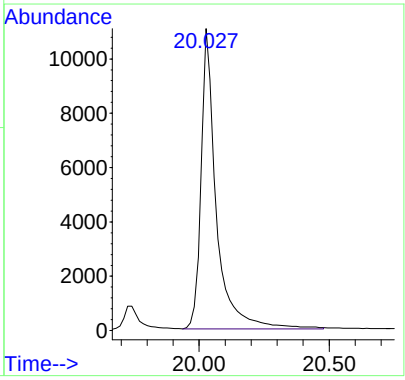
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

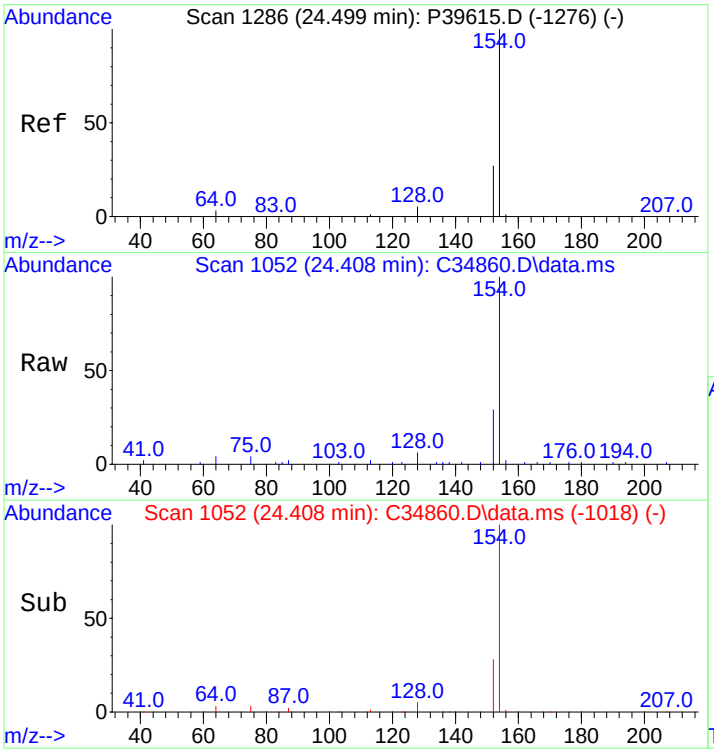




#18
Benzothiophene
Concen: 409.69 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:134 Resp: 44915

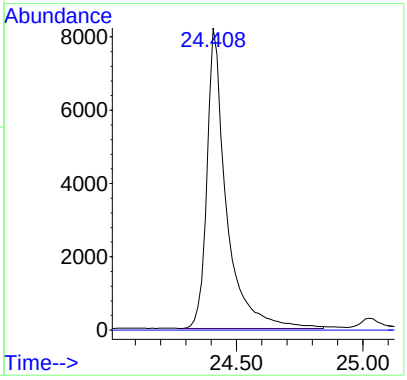


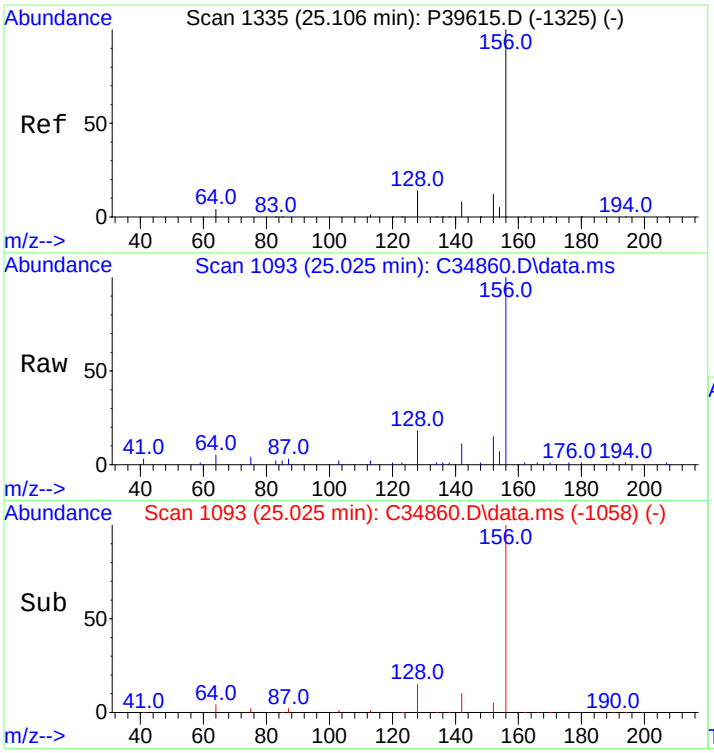


#23
Biphenyl
Concen: 477.04 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:154 Resp: 43469

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

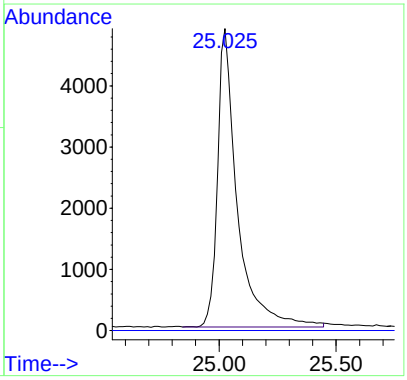


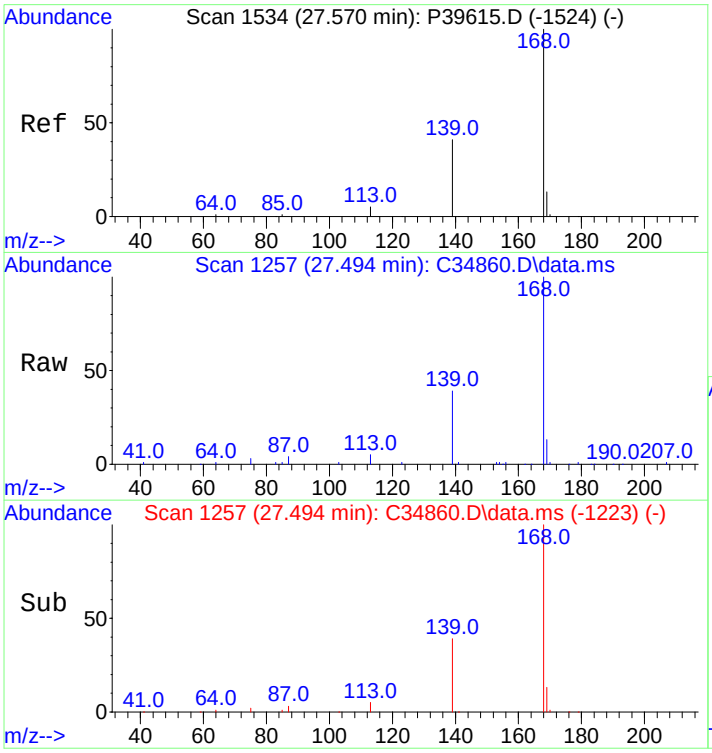


#24
2,6-Dimethylnaphthalene
Concen: 485.49 ng/mL
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:156 Resp: 28733

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

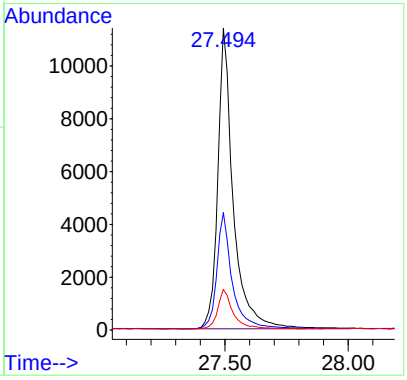


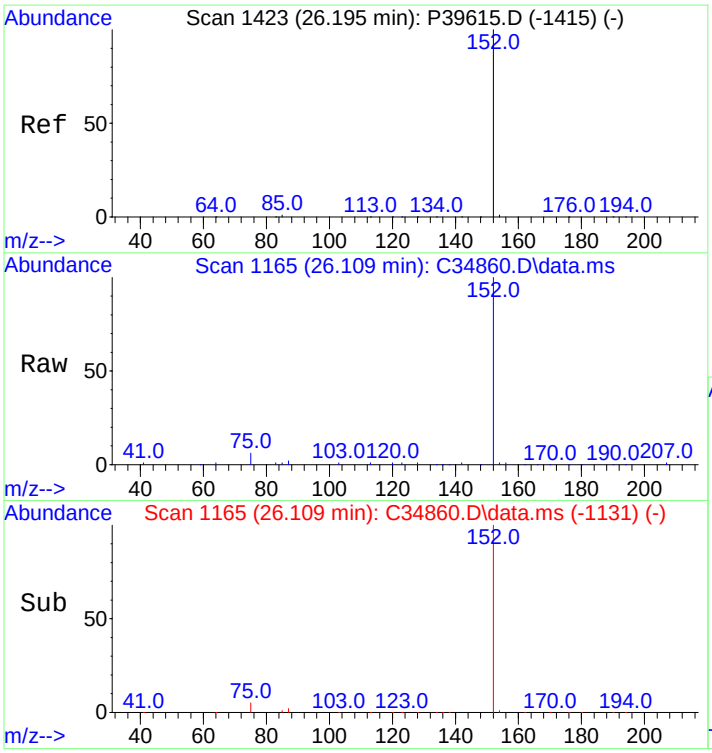


#25
Dibenzofuran
Concen: 475.03 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:168 Resp: 49706

Ion	Ratio	Lower	Upper
168	100		
139	38.6	28.4	42.6
169	13.0	10.8	16.2

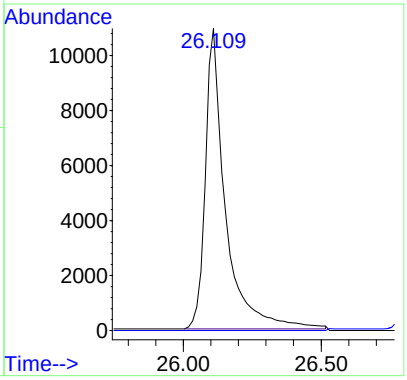


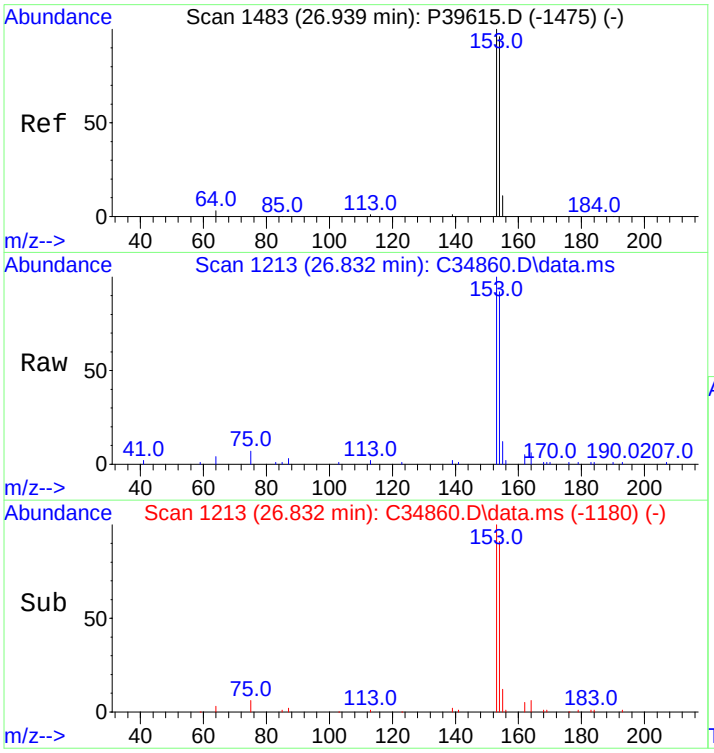


#26
Acenaphthylene
Concen: 457.37 ng/mL m
RT: 26.109 min Scan# 1165
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:152 Resp: 55313

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

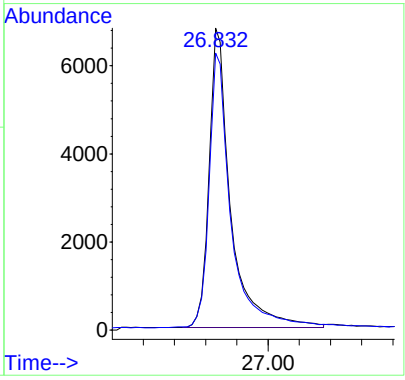


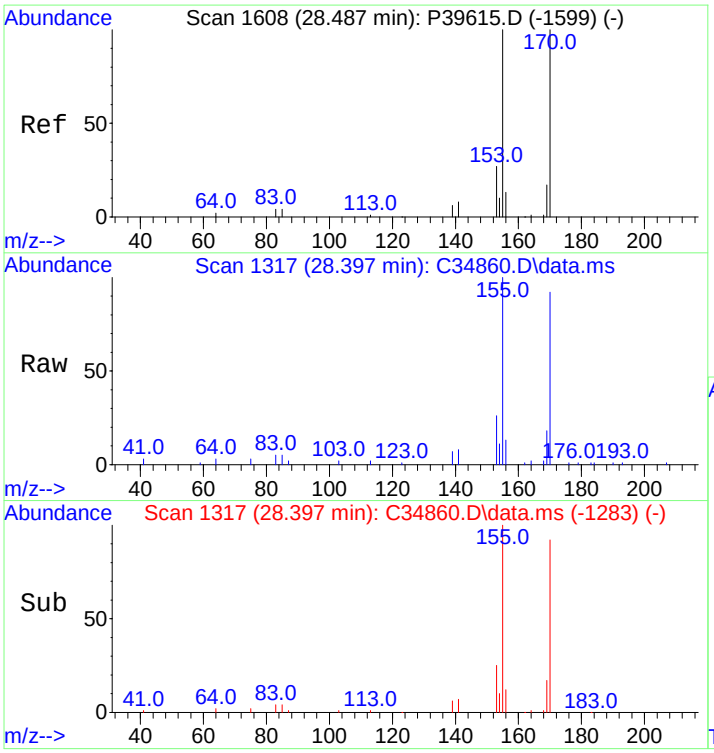


#27
Acenaphthene
Concen: 460.57 ng/mL
RT: 26.832 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:153 Resp: 32796

Ion	Ratio	Lower	Upper
153	100		
154	94.0	73.6	110.4

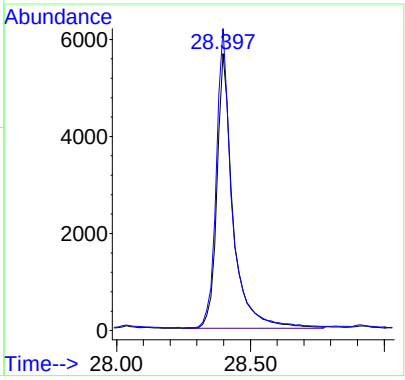


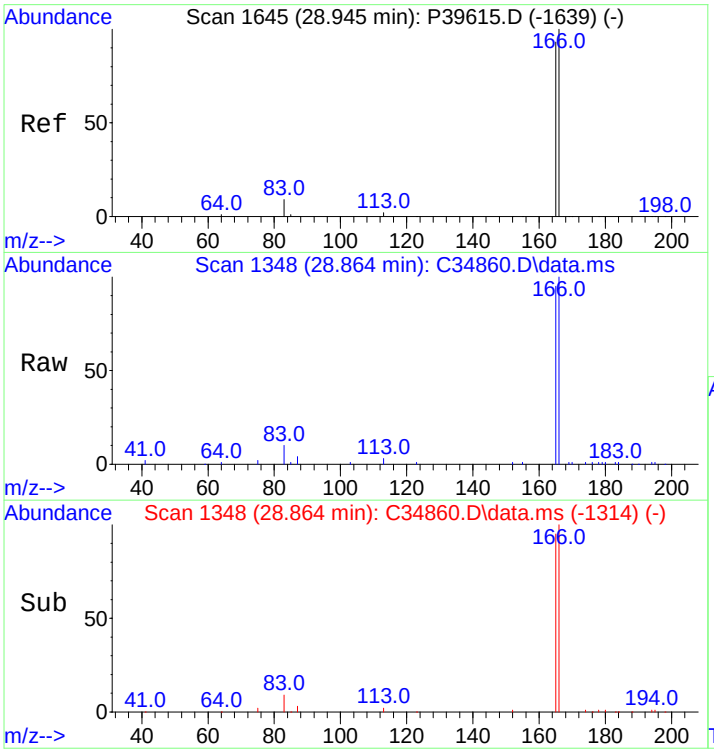


#28
2,3,5-Trimethylnaphthalene
Concen: 497.35 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:170 Resp: 23728

Ion	Ratio	Lower	Upper
170	100		
155	107.5	87.3	130.9

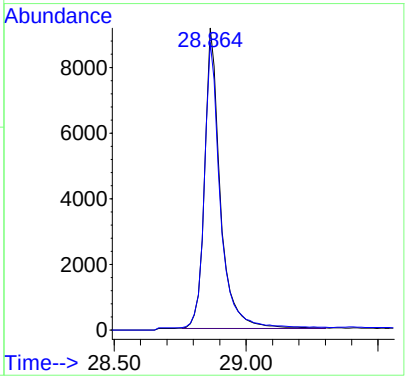


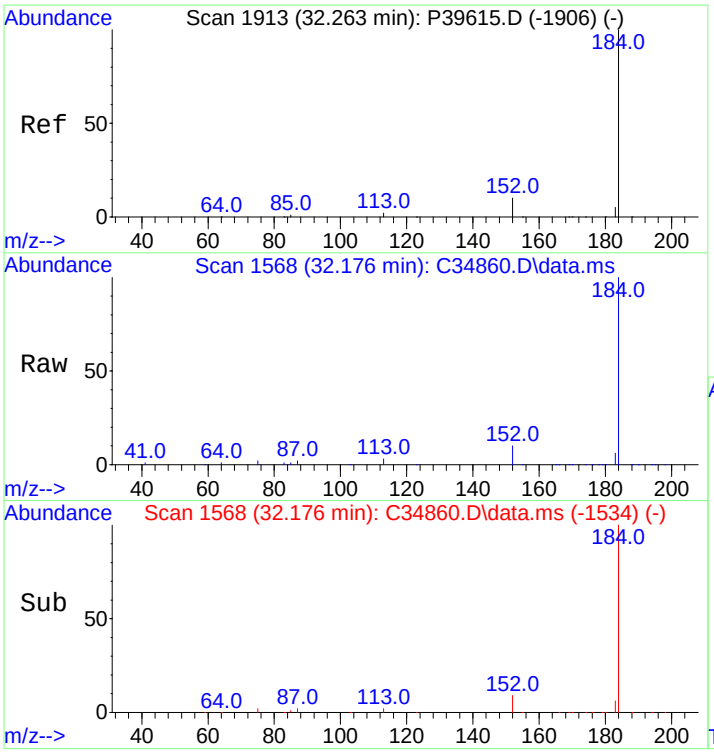


#29
Fluorene
Concen: 482.48 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:166 Resp: 37891

Ion	Ratio	Lower	Upper
166	100		
165	98.7	77.3	115.9

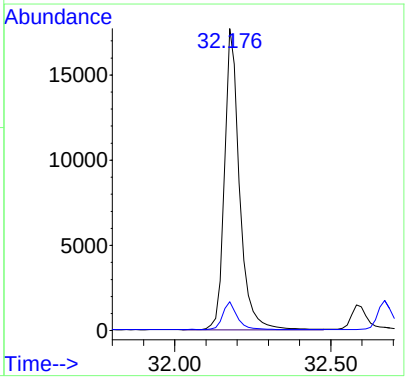


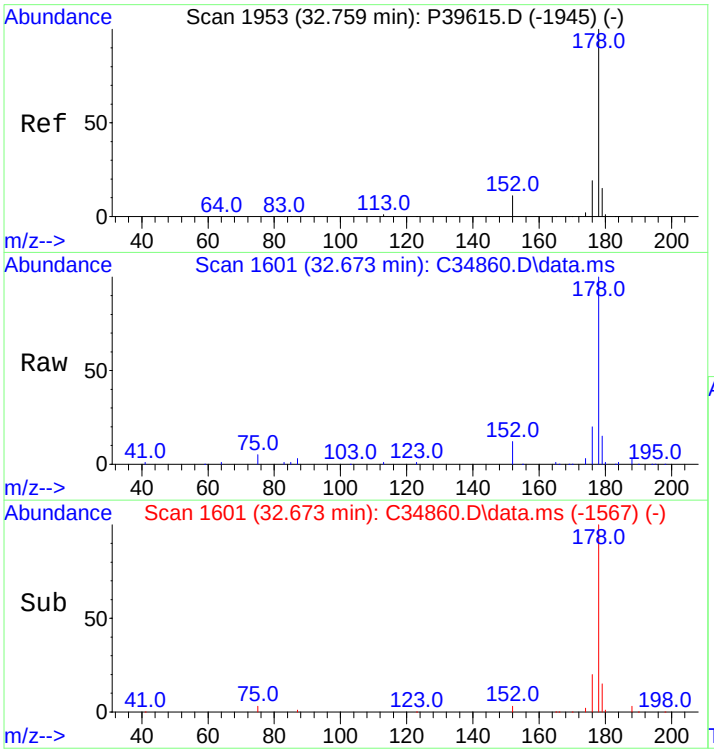


#33
Dibenzothiophene
Concen: 468.87 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:184 Resp: 59025

Ion	Ratio	Lower	Upper
184	100		
152	8.8	7.5	11.3

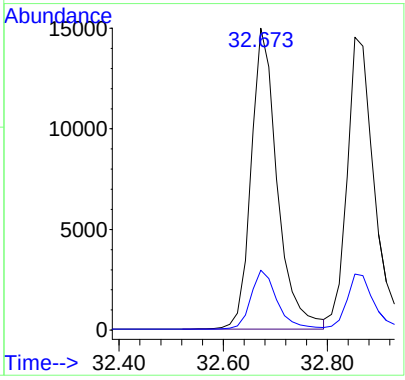


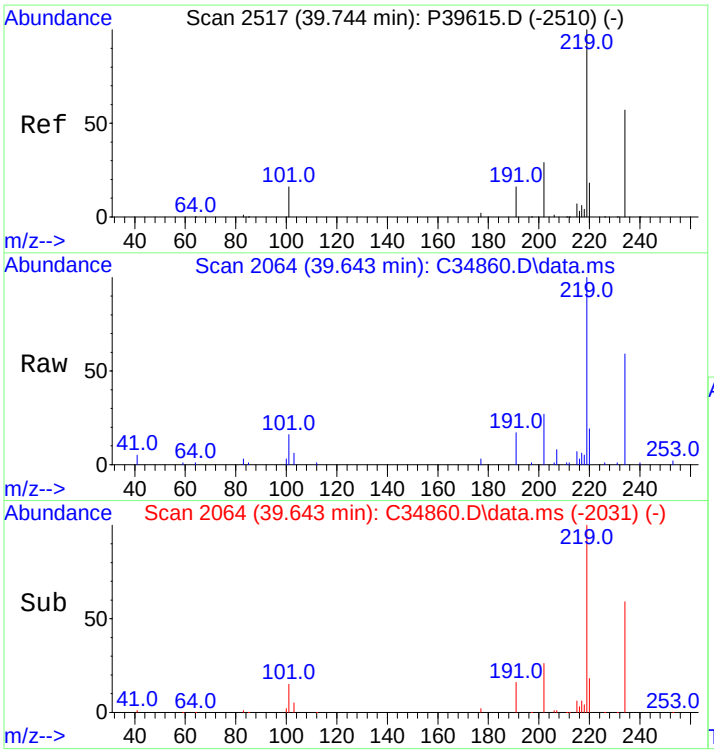


#43
Phenanthrene
Concen: 473.97 ng/mL
RT: 32.673 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:178 Resp: 52422

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

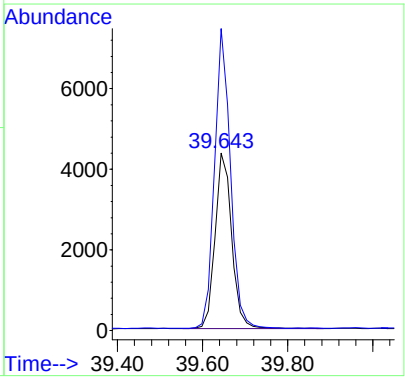


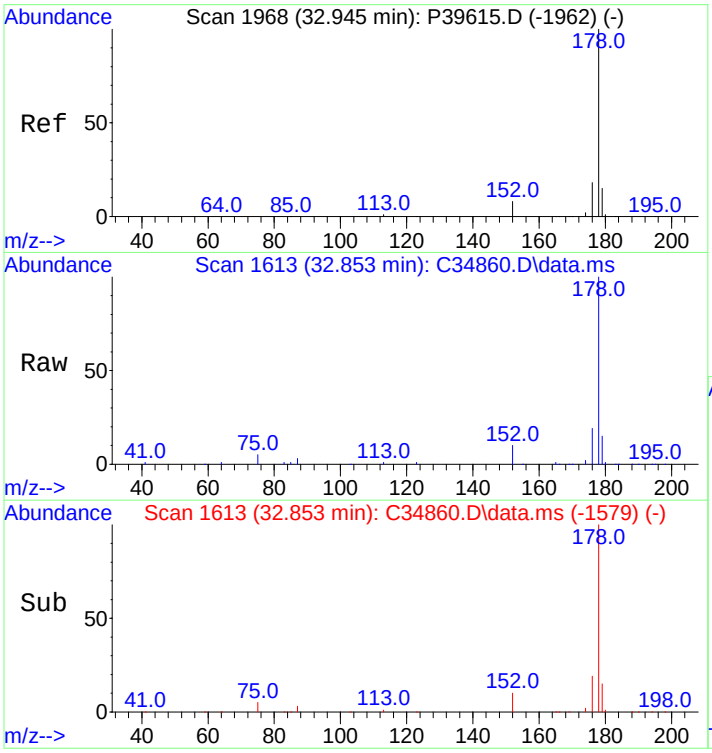


#54
Retene
Concen: 546.92 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 11800

Ion	Ratio	Lower	Upper
234	100		
219	163.6	127.8	191.8

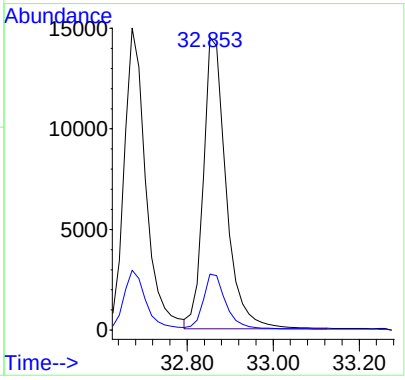


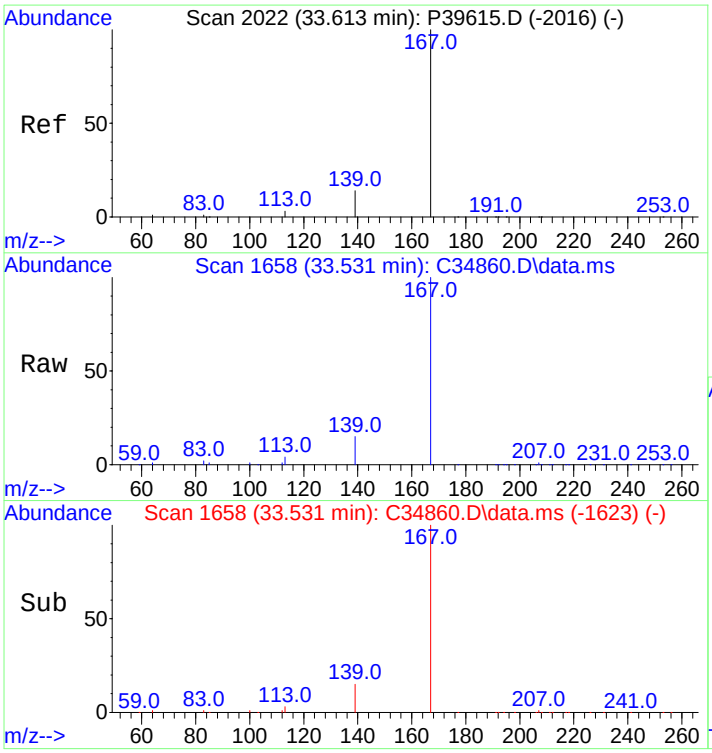


#55
Anthracene
Concen: 492.54 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:178 Resp: 53211

Ion	Ratio	Lower	Upper
178	100		
176	18.8	15.5	23.3

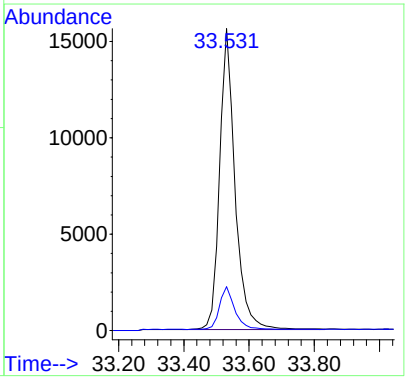


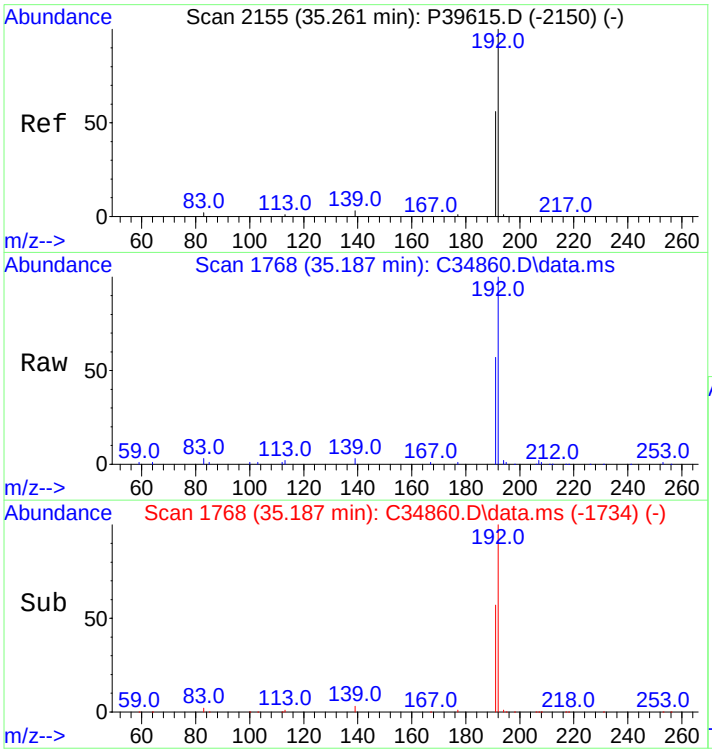


#56
Carbazole
Concen: 469.91 ng/mL m
RT: 33.531 min Scan# 1658
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:167 Resp: 51280

Ion	Ratio	Lower	Upper
167	100		
139	13.9	11.8	17.8

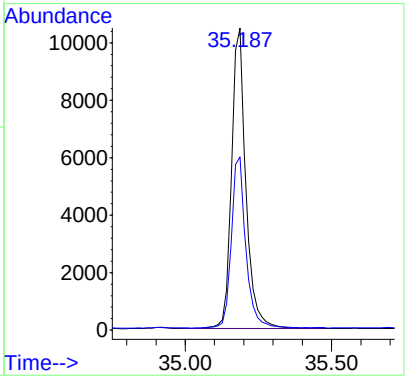


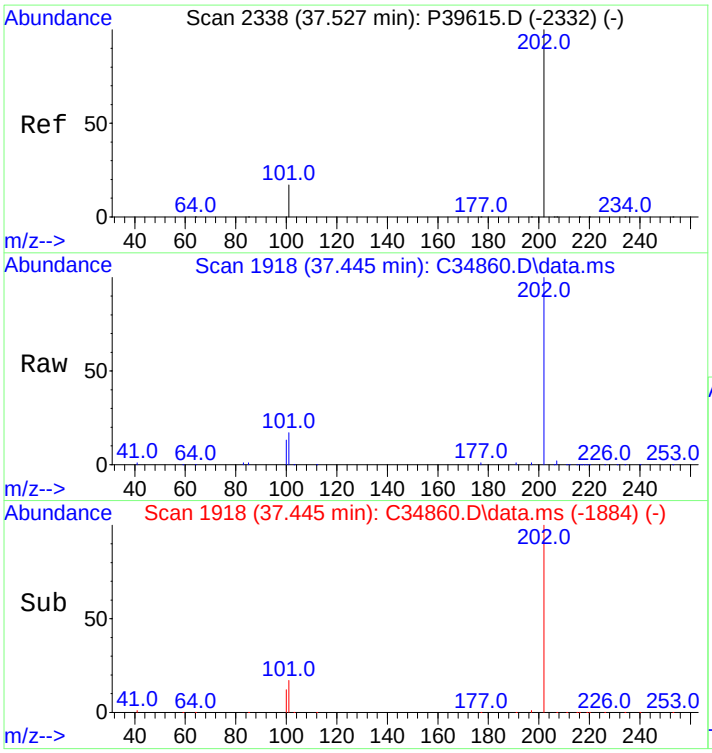


#57
1-Methylphenanthrene
Concen: 508.81 ng/mL
RT: 35.187 min Scan# 1768
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:192 Resp: 35663

Ion	Ratio	Lower	Upper
192	100		
191	57.6	45.9	68.9

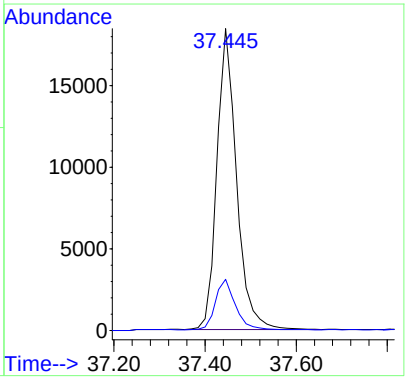


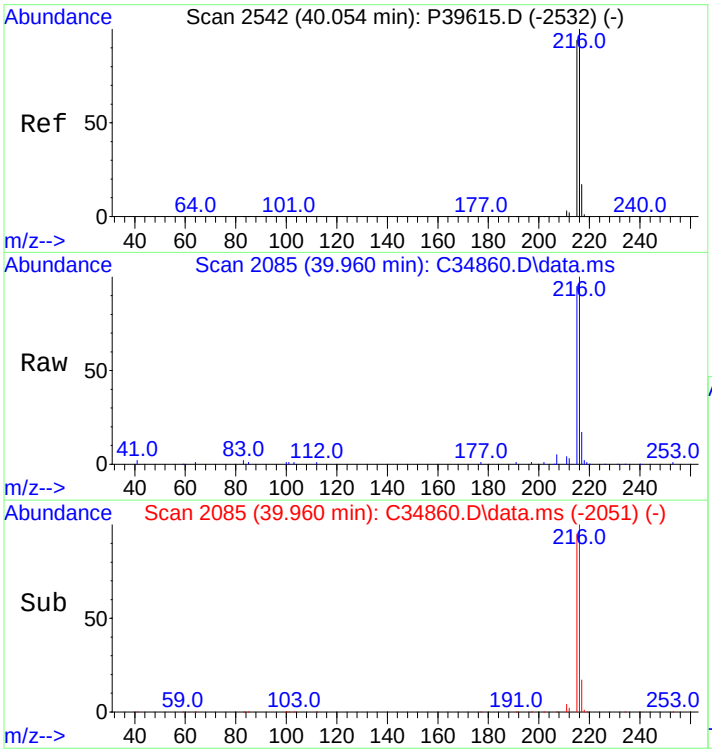


#58
Fluoranthene
Concen: 501.31 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:202 Resp: 55068

Ion	Ratio	Lower	Upper
202	100		
101	17.6	12.9	19.3

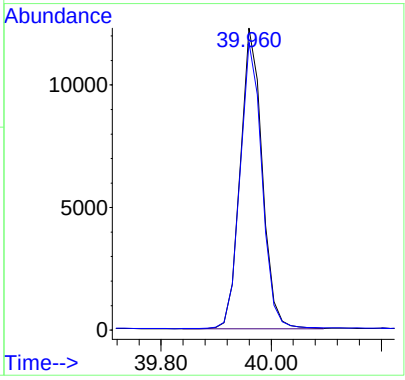


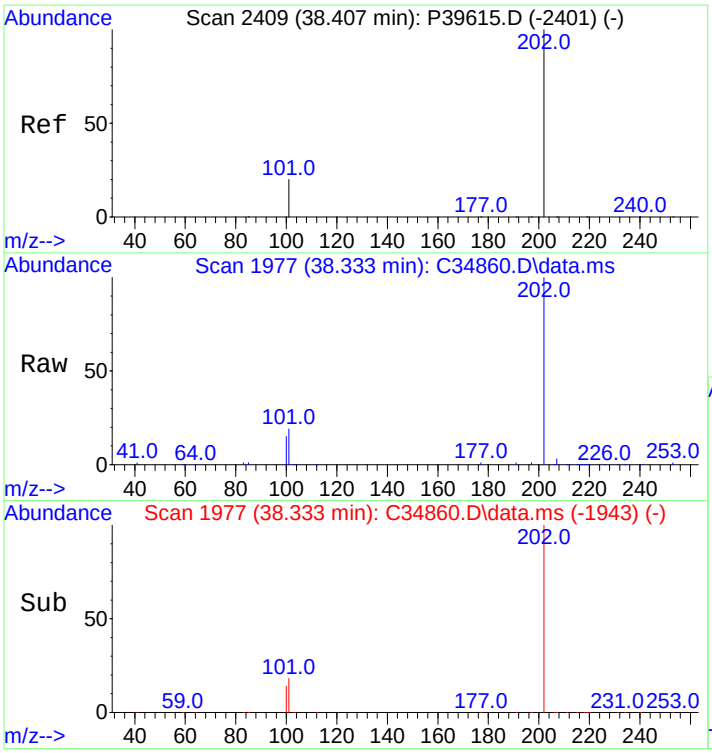


#59
Benzo(b)fluorene
Concen: 529.93 ng/mL
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:216 Resp: 33772

Ion	Ratio	Lower	Upper
216	100		
215	95.9	76.3	114.5

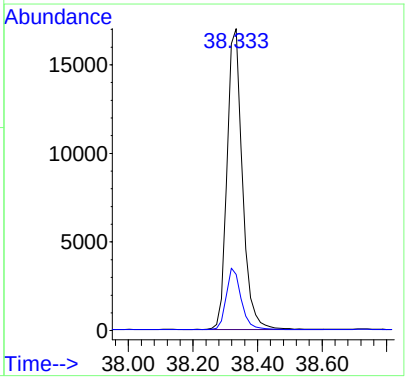


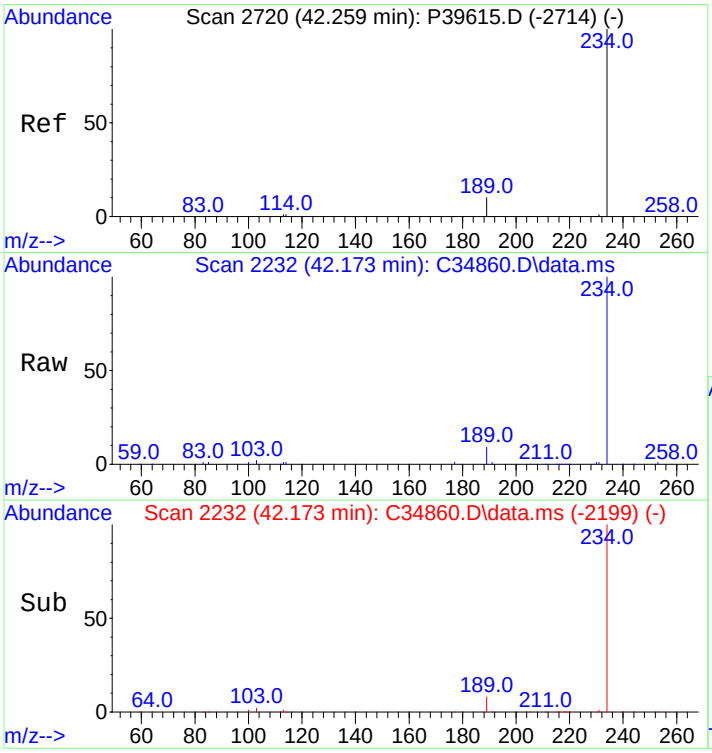


#60
Pyrene
Concen: 500.54 ng/mL
RT: 38.333 min Scan# 1977
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:202 Resp: 55892

Ion	Ratio	Lower	Upper
202	100		
101	20.0	15.0	22.4

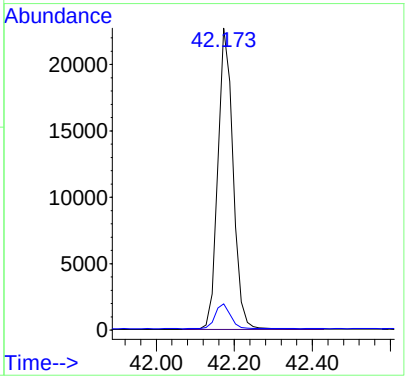


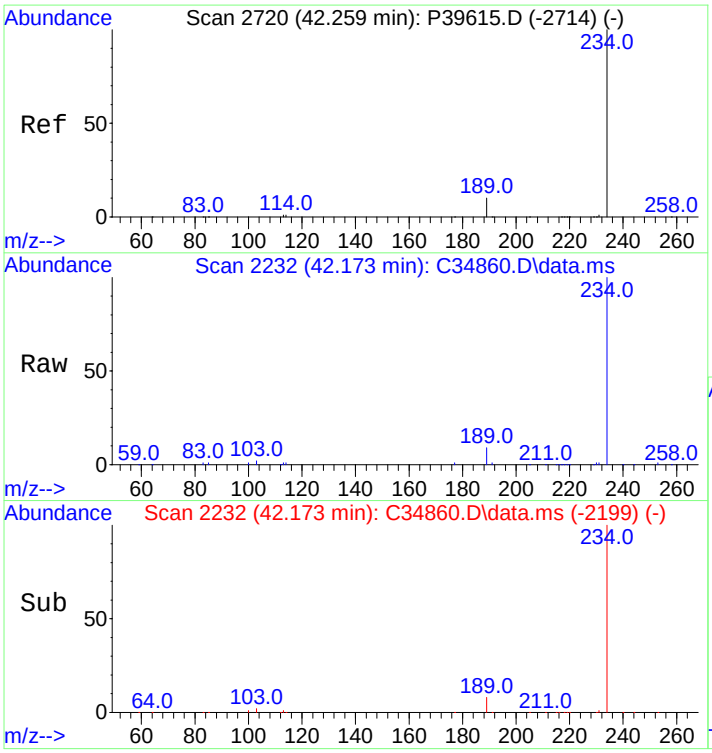


#66
Naphthobenzothiophene
Concen: 510.91 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 61419

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

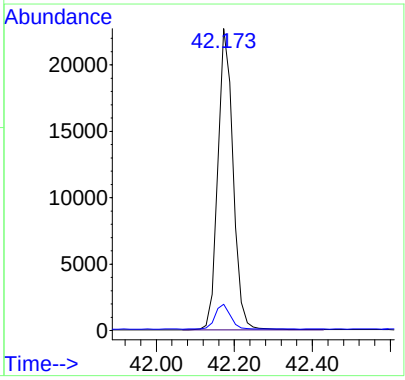


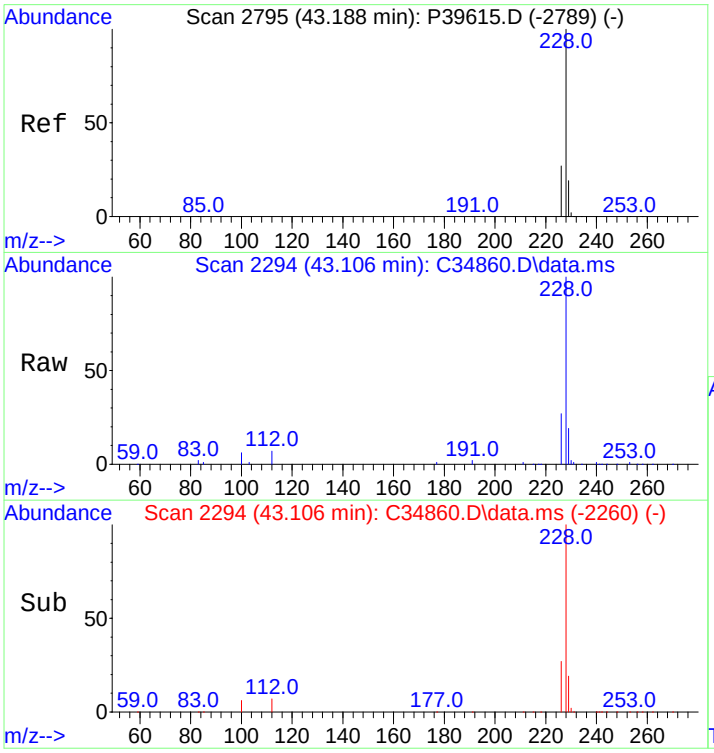


#67
Naphthobenzothiophene-2,1-D
Concen: 510.91 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 61419

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

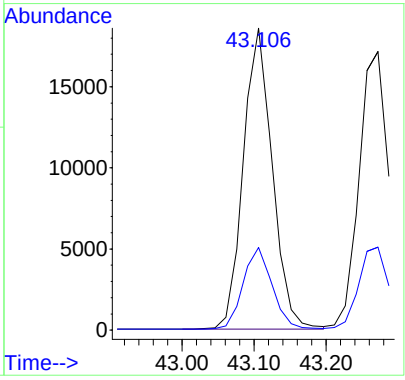


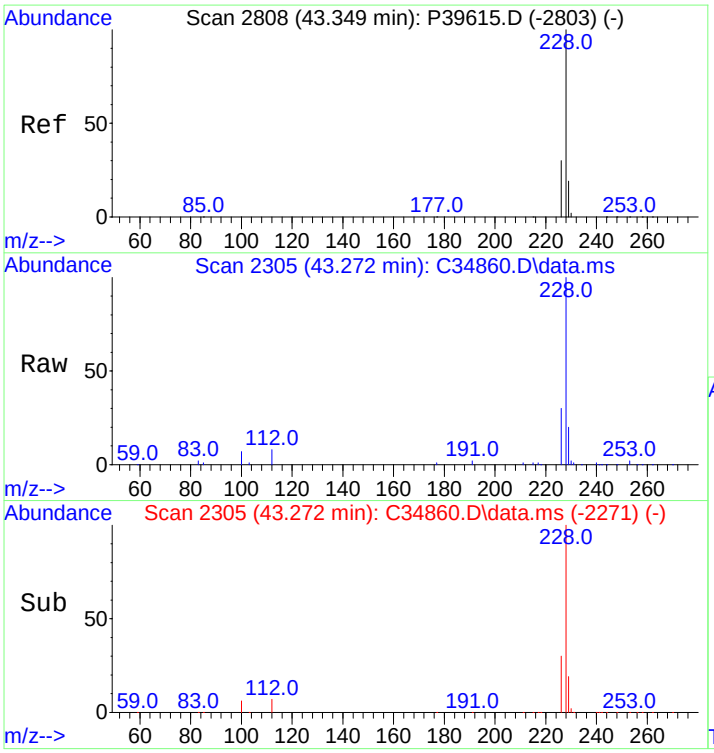


#75
Benz[a]anthracene
Concen: 509.06 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 51712

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

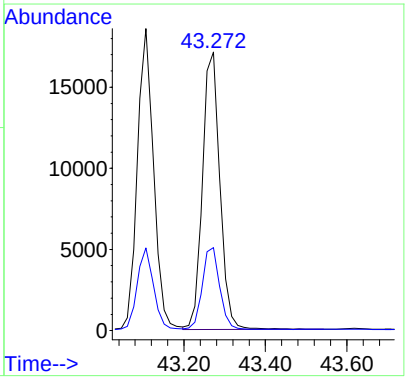


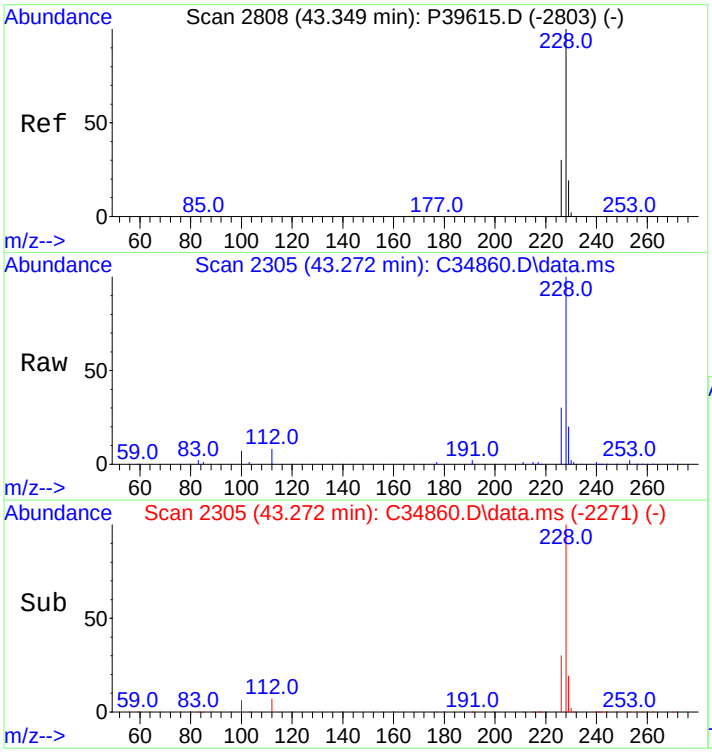


#76
Chrysene
Concen: 491.85 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 50443

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

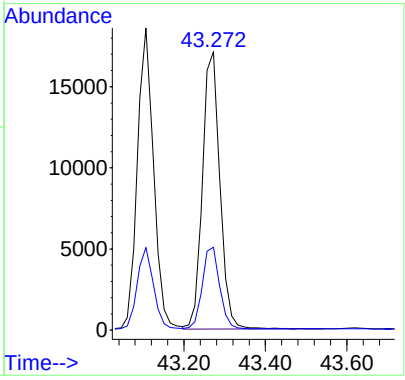


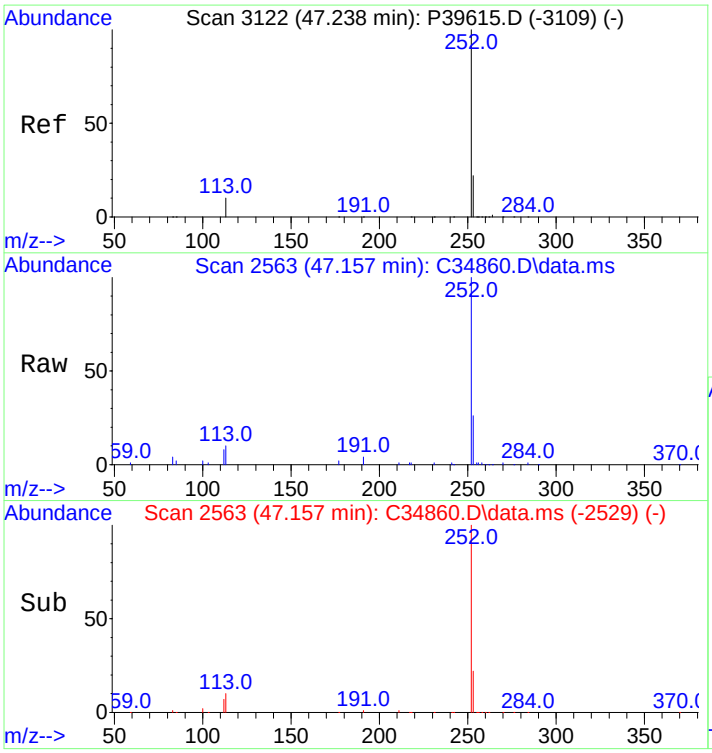


#77
Chrysene/Triphenylene
Concen: 491.85 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 50443

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

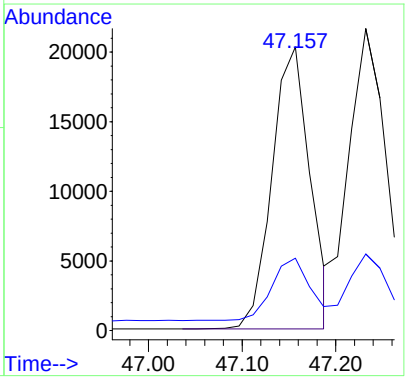


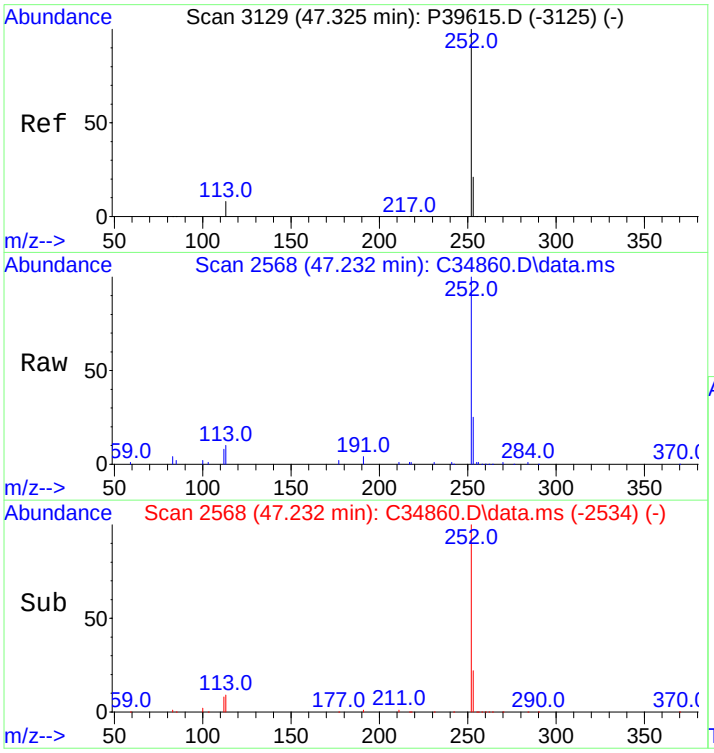


#82
Benzo[b]fluoranthene
Concen: 514.14 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 57388

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.0	28.4

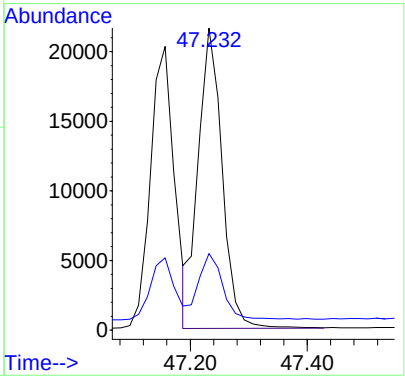


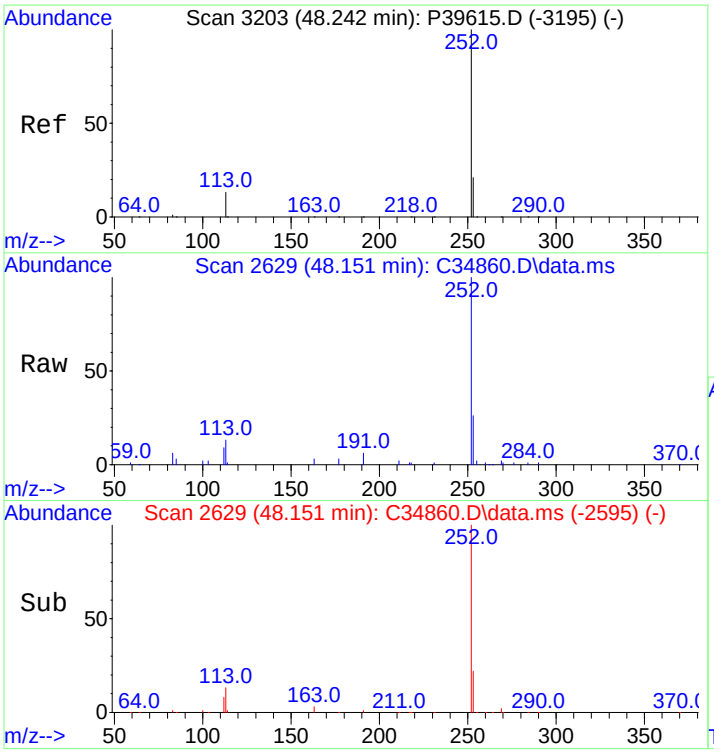


#83
Benzo[j]+[k]fluoranthene
Concen: 505.32 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 61409

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

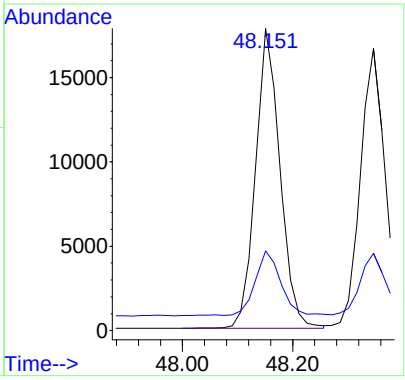


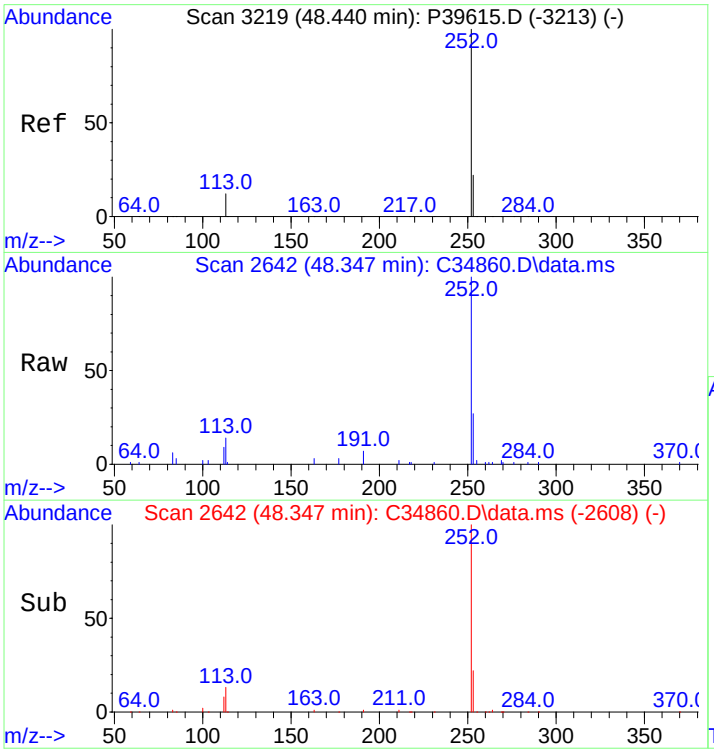


#85
Benzo[e]pyrene
Concen: 495.72 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 54730

Ion	Ratio	Lower	Upper
252	100		
253	23.2	19.2	28.8

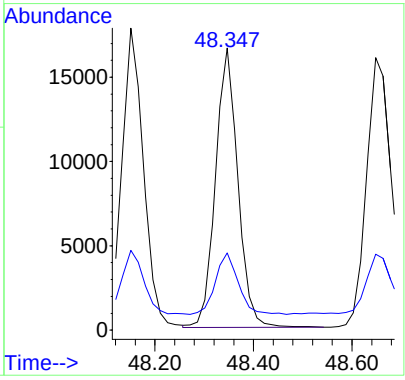


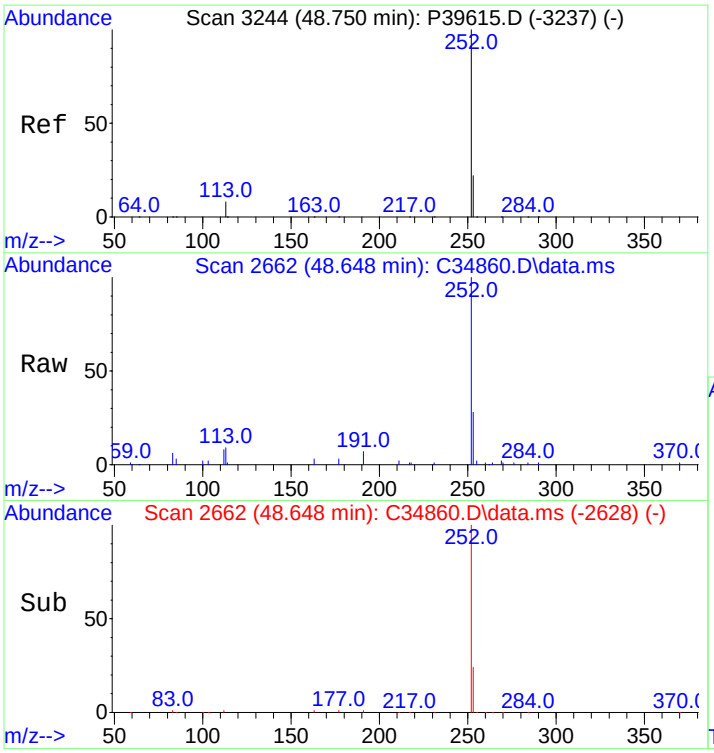


#87
Benzo[a]pyrene
Concen: 492.36 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 52337

Ion	Ratio	Lower	Upper
252	100		
253	22.7	19.5	29.3

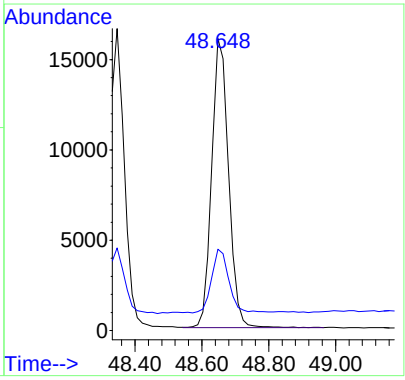


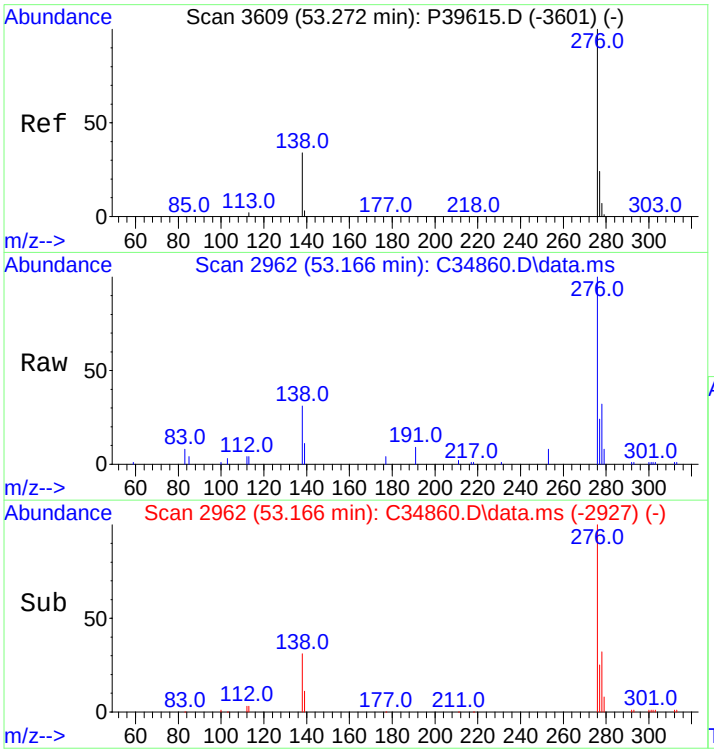


#88
Perylene
Concen: 492.88 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 55992

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.6	29.4

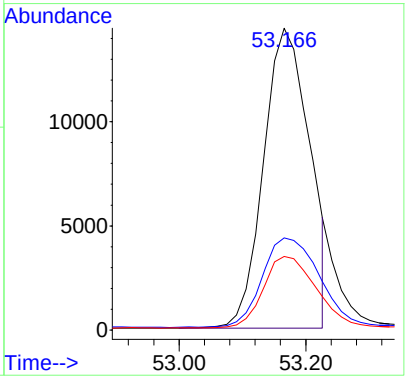


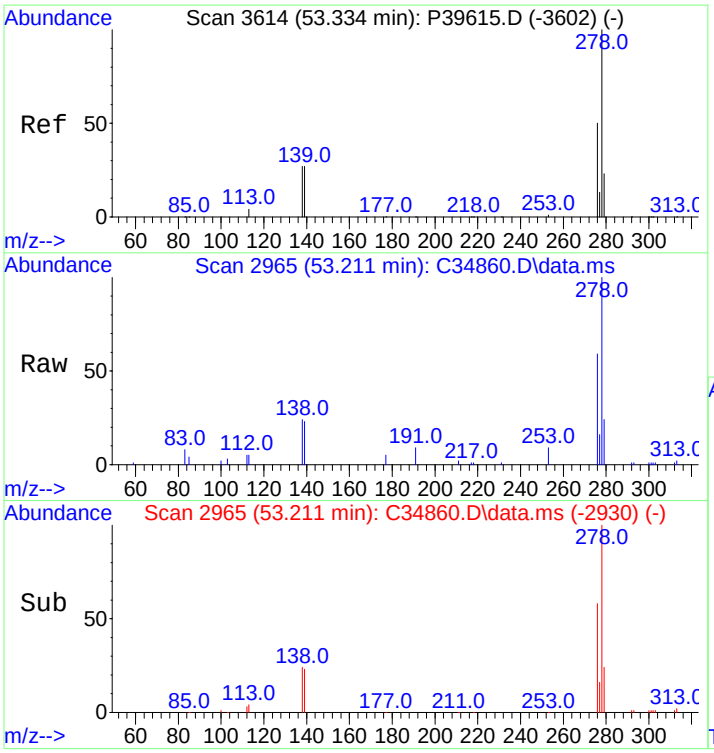


#89
Indeno[1,2,3-cd]pyrene
Concen: 589.85 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:276 Resp: 72966

Ion	Ratio	Lower	Upper
276	100		
138	37.4	23.3	34.9#
277	27.7	19.0	28.4

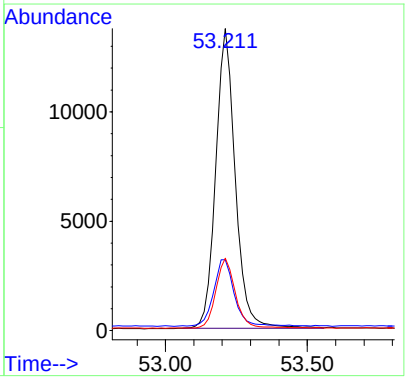


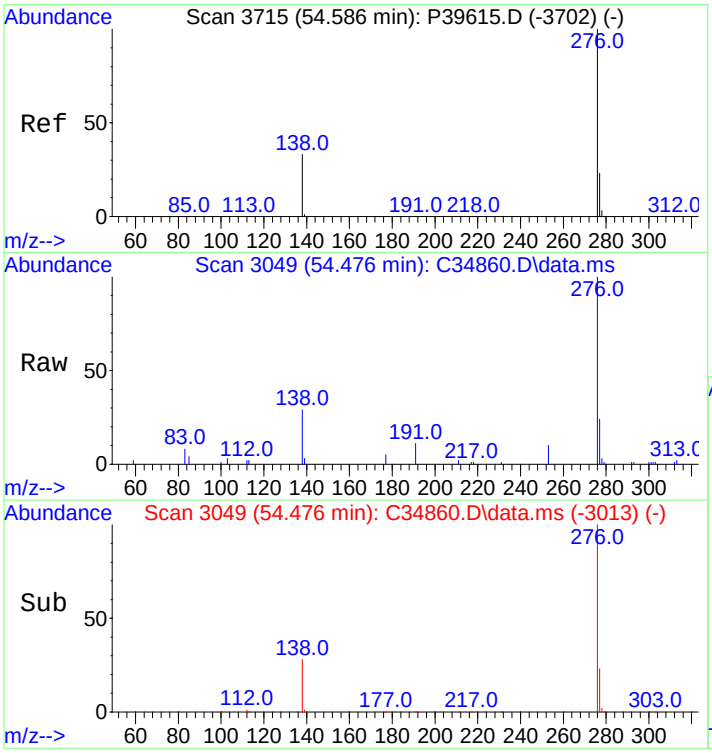


#90
Dibenz[ah]+[ac]anthracene
Concen: 558.35 ng/mL
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:278 Resp: 65703

Ion	Ratio	Lower	Upper
278	100		
139	23.2	19.1	28.7
279	22.9	19.2	28.8

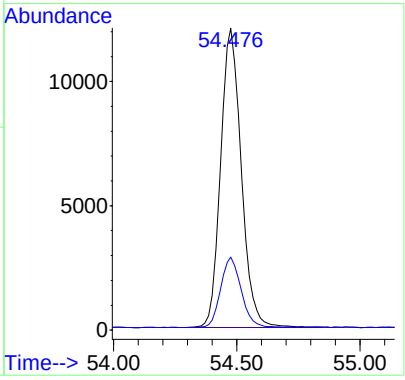


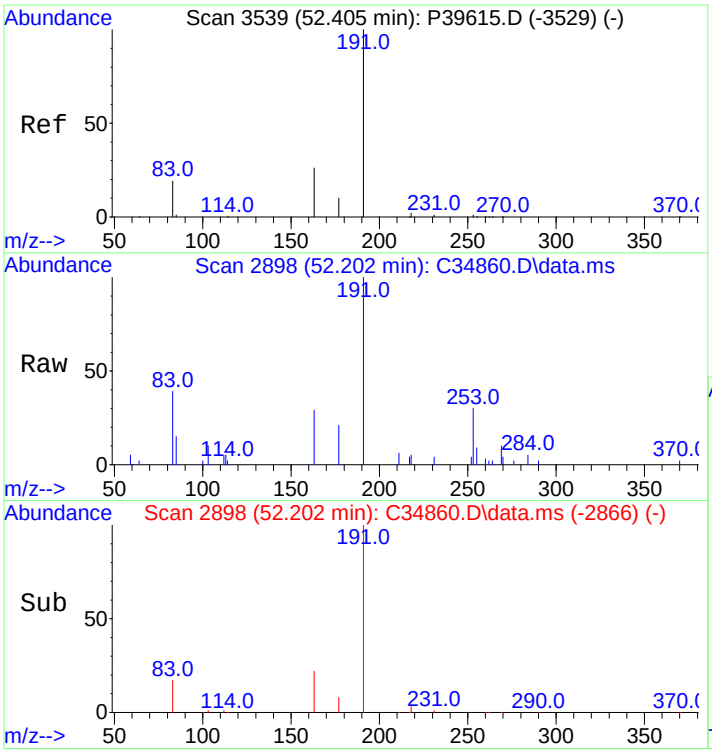


#91
Benzo[g,h,i]perylene
Concen: 537.57 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:276 Resp: 70256

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

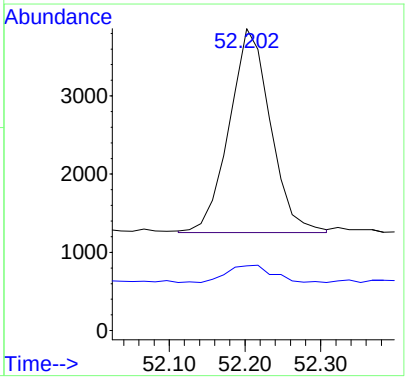


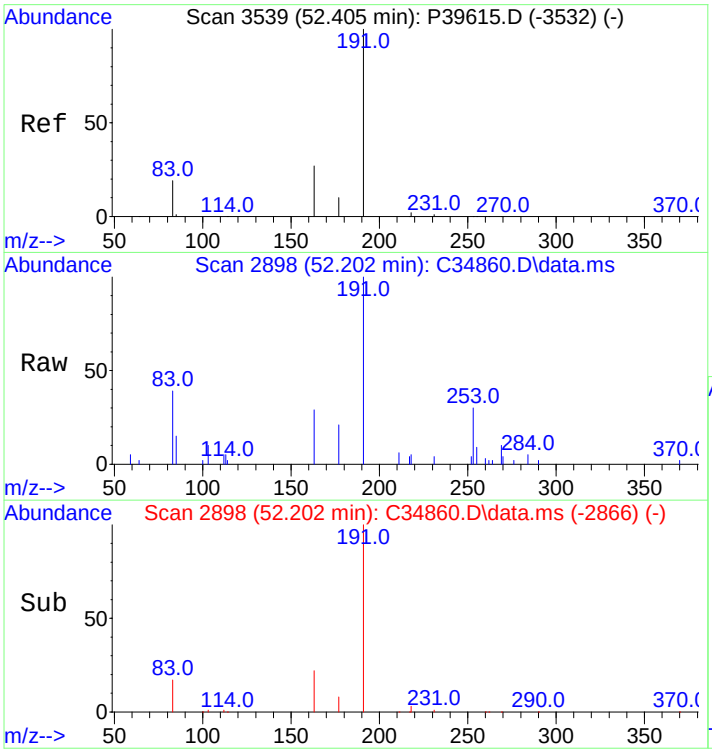


#92
Hopane (T19)
Concen: 465.97 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:191 Resp: 9829

Ion	Ratio	Lower	Upper
191	100		
177	9.3	14.6	21.8#

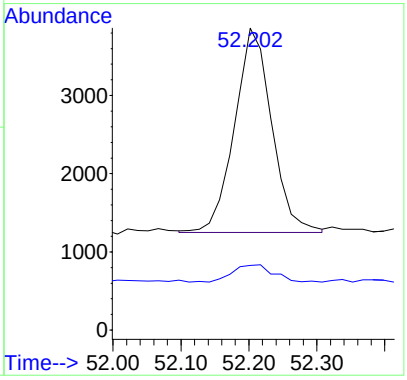




#93
17a(H),21B(H)-hopane - C30H52
Concen: 471.04 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:191 Resp: 9936

Ion	Ratio	Lower	Upper
191	100		
177	9.2	14.6	21.8#



ANALYTICAL REPORT

Prepared for:
AECOM
250 Apollo Drive
Chelmsford, MA 01824

Project:	Enbridge Line 6B MP 608
ETR:	1204035
Report Date:	May 15, 2012

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

Sample ID Cross Reference

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**

Lab Sample ID	Client Sample ID
1204035-01	SEKR1075L201S042512PX
1204035-02	SEKR1075L201E042512PX
1204035-03	SEKR3455C501S042612PX
1204035-04	SEKR1950C501S042612PX
1204035-05	SEKR1075L201S042512DX
1204035-06	SEKR3455C501S042612DX
1204035-07	SEKR1950C501S042612DX
1204035-08	SEKR1075L201S042612HX
1204035-09	SEBC0000R011S042612HX
1204035-10	SEBC0000L012S042612HX
1204035-11	SEKR3455C501S042612HX
1204035-12	SEKR1950C501S042612HX

Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624).

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

CASE NARRATIVE
Alpha Analytical

ETR: 1204035
Project: Enbridge Line 6B MP 608

All analyses were performed according to the Alpha Analytical quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Analytical certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Sample Receipt

Samples (1204035-01 through -12) were received in good condition, between 2° and 6°C, and without discrepancies.

Samples were released for analysis on 4-20-2012. Samples were frozen until scheduled for analysis. Per the customer's request, all samples (1204035-01 through -12) were analyzed for PAH/BIO and SHC.

Sample Preparation and Extraction

Samples 1204035-01 through -04 (GLOB) and -08 through -12 (Sheen) were extracted on 5-01-2012 (prep batch 1204031_35sheen) underwent similar preparation procedures and shared the same quality control samples (method blank, laboratory control sample and laboratory control sample duplicate). The extraction and preparation procedure was performed according to the Alpha Analytical SOP (stated below) with no significant deviation.

Samples 1204035-05 through -07 were extracted on 4-30-2012 (prep batch 1204031_35SED). The extraction and preparation procedure was performed according to the Alpha Analytical SOP (stated below) but with the following deviations:

1. For samples 1204035-05, -06, and -07, the extraction was performed on a smaller sample size than the method specified representative aliquot due to a strong hydrocarbon odor. In addition, these samples were spiked with five times the procedural amount of surrogate due to the potentially high levels of petroleum present.

2. Matrix spike performance (MS/MSD) was measured with this batch but associated and reported with a sample from another ETR, 1204031.

The observations noted on the *Forensic Preparation Checklist* should neither have any adverse affect on the analysis nor should they impact data quality for samples in this ETR.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - Sediments

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP O-008, Issue No. 7, 07/07/2011).* Sediment samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to a 4mL volume. An aliquot of the extract based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011)* is processed through an alumina column (*Alumina Column Cleanup of Organic Extracts, SOP OP-009, Issue No. 3, 07/14/2011),* concentrated to a

900uL volume and spiked with internal standard for instrument analysis. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. The method blank S043012B07 contained low-level target compounds. The single component compounds were detected at less than 5x the sample specific method detection limit (MDL), the multi-component compounds were below the detection limit. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

3. The relative percent difference (RPD) between the sample 1204035-07 and its duplicate (1204035-07D) exceeded the limit (30%) for forty six (46) compounds with reported concentrations that are greater than the QL in either the native or duplicate extract. The RPDs for the LCS/LCSD and MS/MSD met the criteria for all monitored analytes showing that precision of the method was established. Two RPDs were not reported due to the compound not being detected in either the native or duplicate extract and are "X" qualified. The samples were re-analyzed with confirming results. Only the original analyses are reported. No further corrective action was taken. See Duplicate Summary Report for individual compounds affected.

4. The standard reference material (SRM) 1941b was inadvertently not extracted with the sediment samples; therefore no SRM is included in this data package.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - GLOB/Sheen

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP 2247, Rev. 2, 04/02/2012).* GLOB and sheen samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to an appropriate volume based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011).* The total extract oil weight as determined by gravimetric weighing is used as the weight for the GLOB samples. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific reporting limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. Sheen samples are reported, using an initial amount of one, as ng (per sample).

2. The method blank SO050112B01 contained low-level target compounds. The single component compounds were detected at less than the sample specific reporting limit (RL), the multi-component compounds were below the detection limit. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no

corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

4. For the Alaska North Slope Crude reference oil (SO050512ANS02) analyzed with the samples, Benzo[g,h,i]perylene recovered high and above the acceptance criteria (65-135%) at 143%. Since this was the only compound outside criteria no further corrective action was taken.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - Sediments

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The method blank SS043012B07 contained low-level target compounds detected at less than 5x the sample specific method detection limit (MDL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The relative percent difference (RPD) for sample 1204035-07 and its duplicate 1204035-07D exceeded the limit (30%) for five compounds with reported concentrations that are greater than the QL in either the native or duplicate extract potentially due to matrix heterogeneity. The RPD's for the LCS/LCSD and MS/MSD met the criteria for all monitored analytes showing that precision of the method was established. No further corrective action was taken. See Duplicate Summary Report for individual compounds affected.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - GLOB/Sheen

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. Sheen samples are reported, using an initial amount of one, as ug (per sample).

2. The method blank SO050112B01 contained low-level target compounds detected at less than the sample specific reporting limit (RL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Analytical makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Analytical. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: _____ Title: **Technical Representative** Date: 05/15/2012
Normand Lauriano Jr.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids By GC/MS-SIM

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **GLOB**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO050112B01	77	83	84	96
LCS	SO050112LCS01	74	77	72	92
LCSD	SO050112LCSD01	80	82	79	95
SEKR1075L201S042512PX	1204035-01	81	88	89	97
SEKR1075L201E042512PX	1204035-02	87	94	86	91
SEKR3455C501S042612PX	1204035-03	86	94	91	101
SEKR1950C501S042612PX	1204035-04	79	96	89	106

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO050112B01	77	83	84	96
LCS	SO050112LCS01	74	77	72	92
LCSD	SO050112LCSD01	80	82	79	95
SEKR1075L201S042612HX	1204035-08	75	88	86	102
SEBC0000R011S042612HX	1204035-09	83	86	88	93
SEBC0000L012S042612HX	1204035-10	85	89	93	99
SEKR3455C501S042612HX	1204035-11	74	84	82	92
SEKR1950C501S042612HX	1204035-12	76	88	85	96

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SS043012B07	77	88	86	91
LCS	SS043012LCS02	82	91	83	89
LCSD	SS043012LCSD02	77	91	85	91
SEKR1075L201S042512DX	1204035-05	75	94	80	98
SEKR3455C501S042612DX	1204035-06	76	92	82	93
SEKR1950C501S042612DX	1204035-07	76	88	72	89
SEKR1950C501S042612DX	1204035-07 D	69	86	79	94

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	AC

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	20.0	U	811	81	843	84	4	30	50-125
Acenaphthylene	20.0	U	806	81	837	84	4	30	50-125
Acenaphthene	20.0	U	851	85	859	86	1	30	50-125
Fluorene	20.0	U	854	85	885	88	4	30	50-125
Anthracene	20.0	U	707	71	734	73	4	30	50-125
Phenanthrene	20.0	U	859	86	882	88	3	30	50-125
Fluoranthene	2.62		949	95	974	97	3	30	50-125
Pyrene	2.93		975	97	1010	101	4	30	50-125
Benz[a]anthracene	3.38		869	87	921	92	6	30	50-125
Chrysene/Triphenylene	3.42		866	87	901	90	4	30	50-125
Benzo[b]fluoranthene	7.20		925	92	970	97	5	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	5.74		865	87	907	91	5	30	50-125
Benzo[a]pyrene	4.92		885	89	920	92	4	30	50-125
Indeno[1,2,3-cd]pyrene	13.4		1010	101	982	98	3	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	7.75		924	92	956	96	3	30	50-125
Benzo[g,h,i]perylene	15.0		868	87	909	91	5	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	74	80	40-120
Phenanthrene-d10	77	82	40-120
Benzo[a]pyrene-d12	72	79	40-120
5B(H)Cholane	92	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/15/12 10:45

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	AC

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	20.0	U	811	81	843	84	4	30	50-125
Acenaphthylene	20.0	U	806	81	837	84	4	30	50-125
Acenaphthene	20.0	U	851	85	859	86	1	30	50-125
Fluorene	20.0	U	854	85	885	88	4	30	50-125
Anthracene	20.0	U	707	71	734	73	4	30	50-125
Phenanthrene	20.0	U	859	86	882	88	3	30	50-125
Fluoranthene	2.62		949	95	974	97	3	30	50-125
Pyrene	2.93		975	97	1010	101	4	30	50-125
Benz[a]anthracene	3.38		869	87	921	92	6	30	50-125
Chrysene/Triphenylene	3.42		866	87	901	90	4	30	50-125
Benzo[b]fluoranthene	7.20		925	92	970	97	5	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	5.74		865	87	907	91	5	30	50-125
Benzo[a]pyrene	4.92		885	89	920	92	4	30	50-125
Indeno[1,2,3-cd]pyrene	13.4		1010	101	982	98	3	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	7.75		924	92	956	96	3	30	50-125
Benzo[g,h,i]perylene	15.0		868	87	909	91	5	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	74	80	40-120
Phenanthrene-d10	77	82	40-120
Benzo[a]pyrene-d12	72	79	40-120
5B(H)Cholane	92	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/09/12 11:13

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	04/30/12	100	AC

Lab ID: SS043012B07 SS043012LCS02 SS043012LCSD02

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	0.244	U	101	80	101	81	1	30	50-125
Acenaphthylene	0.0852	U	98.2	79	100	80	2	30	50-125
Acenaphthene	0.101	U	102	82	103	83	2	30	50-125
Fluorene	0.119	U	107	85	106	85	0	30	50-125
Anthracene	0.176	U	88.6	71	87.3	70	1	30	50-125
Phenanthrene	0.140		110	88	107	86	2	30	50-125
Fluoranthene	0.156		125	100	119	95	5	30	50-125
Pyrene	0.186	U	127	102	123	98	3	30	50-125
Benz[a]anthracene	0.0952		112	90	112	89	1	30	50-125
Chrysene/Triphenylene	0.156		111	89	110	88	0	30	50-125
Benzo[b]fluoranthene	0.255		120	96	120	96	0	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	0.142		105	84	106	85	1	30	50-125
Benzo[a]pyrene	0.180		108	86	108	86	0	30	50-125
Indeno[1,2,3-cd]pyrene	0.576		121	97	120	96	1	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	0.342		112	89	111	89	1	30	50-125
Benzo[g,h,i]perylene	0.882		107	85	106	85	0	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	82	77	40-120
Phenanthrene-d10	91	91	40-120
Benzo[a]pyrene-d12	83	85	40-120
5B(H)Cholane	89	91	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/09/12 11:13

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	503	99	65-135
C1-Decalins	761.1	706	93	65-135
C2-Decalins	641.9	612	95	65-135
C3-Decalins	338.2	296	88	65-135
C4-Decalins	300.9	269	90	65-135
Benzothiophene	5.3	4.85	91	65-135
C1-Benzo(b)thiophenes	29.8	20.6	69	65-135
C2-Benzo(b)thiophenes	50.1	46.0	92	65-135
C3-Benzo(b)thiophenes	103.3	91.5	89	65-135
C4-Benzo(b)thiophenes	84.9	78.8	93	65-135
Naphthalene	577.6	538	93	65-135
C1-Naphthalenes	1242	1110	89	65-135
C2-Naphthalenes	1472	1300	89	65-135
C3-Naphthalenes	1053.4	910	86	65-135
C4-Naphthalenes	552.7	475	86	65-135
Biphenyl	152.5	146	96	65-135
Dibenzofuran	53.5	50.8	95	65-135
Acenaphthylene	7.1	6.24	88	65-135
Acenaphthene	18.7	19.4	104	65-135
Fluorene	79.4	72.9	92	65-135
C1-Fluorenes	175.1	166	95	65-135
C2-Fluorenes	256.5	232	90	65-135
C3-Fluorenes	238.7	214	90	65-135
Phenanthrene	222	215	97	65-135
C1-Phenanthrenes/Anthracenes	440.5	410	93	65-135
C2-Phenanthrenes/Anthracenes	464.9	426	92	65-135
C3-Phenanthrenes/Anthracenes	307.7	282	92	65-135
C4-Phenanthrenes/Anthracenes	122.9	115	93	65-135
Dibenzothiophene	146.1	138	94	65-135
C1-Dibenzothiophenes	299	262	88	65-135
C2-Dibenzothiophenes	392.9	348	89	65-135
C3-Dibenzothiophenes	350.5	313	89	65-135
C4-Dibenzothiophenes	189.2	162	86	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.72	115	65-135
Pyrene	13.3	14.8	111	65-135
C1-Fluoranthenes/Pyrenes	66.1	64.4	97	65-135
C2-Fluoranthenes/Pyrenes	100.9	104	104	65-135
C3-Fluoranthenes/Pyrenes	120.8	115	95	65-135
C4-Fluoranthenes/Pyrenes	105.6	99.5	94	65-135
Naphthobenzothiophenes	45.1	45.3	100	65-135
C1-Naphthobenzothiophenes	124.1	116	93	65-135
C2-Naphthobenzothiophenes	168.9	152	90	65-135
C3-Naphthobenzothiophenes	136.1	120	88	65-135
C4-Naphthobenzothiophenes	93.9	78.6	84	65-135
Benz[a]anthracene	2.00	2.41	120	65-135
Chrysene/Triphenylene	37.4	35.8	96	65-135
C1-Chrysenes	63.9	60.8	95	65-135
C2-Chrysenes	86.6	80.7	93	65-135
C3-Chrysenes	99.6	89.6	90	65-135
C4-Chrysenes	62.2	51.7	83	65-135
Benzo[b]fluoranthene	5.3	6.52	123	65-135
Benzo[e]pyrene	9.6	10.8	112	65-135
Benzo[a]pyrene	2.00	2.23	112	65-135
Perylene	2.7	3.24	120	65-135
Benzo[g,h,i]perylene	3.1	4.42	143[a]	65-135

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:16

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	6.64	102	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:16

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	129	90	65-135
2/3-Methyldibenzothiophene	103.1	87.5	85	65-135
1-Methyldibenzothiophene	46.8	41.8	89	65-135
3-Methylphenanthrene	91.8	85.0	93	65-135
2/4-Methylphenanthrene	99.6	95.1	95	65-135
2-Methylanthracene	3.1	3.40	110	65-135
9-Methylphenanthrene	145.9	134	92	65-135
1-Methylphenanthrene	97.6	95.2	98	65-135
2-Methylnaphthalene	1162.6	1100	95	65-135
1-Methylnaphthalene	831.9	782	94	65-135
2,6-Dimethylnaphthalene	696.1	662	95	65-135
2,3,5-Trimethylnaphthalene	162.2	174	108	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:16

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	64.8	96	65-135
C24 Tricyclic Terpane	42.3	39.3	93	65-135
C25 Tricyclic Terpane	40.9	40.3	98	65-135
C24 Tetracyclic Terpane	14.3	13.7	96	65-135
C26 Tricyclic Terpane-22S	17.0	17.5	103	65-135
C26 Tricyclic Terpane-22R	15.0	15.0	100	65-135
C28 Tricyclic Terpane-22S	16.3	14.4	88	65-135
C28 Tricyclic Terpane-22R	17.7	16.4	93	65-135
C29 Tricyclic Terpane-22S	20.7	20.4	98	65-135
C29 Tricyclic Terpane-22R	21.1	18.8	89	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	27.3	89	65-135
C30 Tricyclic Terpane-22S	15.8	18.5	117	65-135
C30 Tricyclic Terpane-22R	15.8	15.9	101	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	34.3	94	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	5.74	80	65-135
17a(H),21b(H)-25-Norhopane	8.6	10.2	119	65-135
30-Norhopane	97.5	91.4	94	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.0	90	65-135
17a(H)-Diahopane	14.3	14.1	99	65-135
30-Normoretane	11.5	11.4	99	65-135
Hopane	171.1	151	88	65-135
Moretane	16.6	15.6	94	65-135
30-Homohopane-22S	73.8	65.4	89	65-135
30-Homohopane-22R	63.4	55.5	87	65-135
30,31-Bishomohopane-22S	52.5	46.7	89	65-135
30,31-Bishomohopane-22R	38.4	34.0	89	65-135
30,31-Trishomohopane-22S	41.1	36.3	88	65-135
30,31-Trishomohopane-22R	27.4	22.1	81	65-135
Tetrakishomohopane-22S	30.0	27.2	91	65-135
Tetrakishomohopane-22R	20.7	19.1	92	65-135
Pentakishomohopane-22S	30.2	27.8	92	65-135
Pentakishomohopane-22R	23.2	18.7	80	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	45.3	92	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	26.0	103	65-135
13b,17a-20S-Methyldiacholestane	23.3	30.0	129	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	57.0	89	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	76.8	102	65-135
Unknown Sterane (S18)	20.7	19.3	93	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.59	85	65-135
14a,17a-20S-Methylcholestane	36.7	34.7	94	65-135
14a,17a-20R-Methylcholestane	33.0	32.4	98	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	50.0	96	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	36.2	91	65-135
14b(H),17b(H)-20R-Cholestane	40.1	39.2	98	65-135
14b(H),17b(H)-20S-Cholestane	40.7	40.0	98	65-135
14b,17b-20R-Methylcholestane	44.8	40.1	89	65-135
14b,17b-20S-Methylcholestane	54.0	50.3	93	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	54.4	92	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	38.1	94	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	386	127	65-135
C28,20S-triaromatic steroid	191.8	248	129	65-135
C27,20R-triaromatic steroid	186.4	232	124	65-135
C28,20R-triaromatic steroid	158.3	205	130	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:16

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	489	96	65-135
C1-Decalins	761.1	694	91	65-135
C2-Decalins	641.9	578	90	65-135
C3-Decalins	338.2	286	84	65-135
C4-Decalins	300.9	278	92	65-135
Benzothiophene	5.3	4.52	85	65-135
C1-Benzo(b)thiophenes	29.8	22.7	76	65-135
C2-Benzo(b)thiophenes	50.1	45.2	90	65-135
C3-Benzo(b)thiophenes	103.3	89.2	86	65-135
C4-Benzo(b)thiophenes	84.9	75.8	89	65-135
Naphthalene	577.6	550	95	65-135
C1-Naphthalenes	1242	1120	90	65-135
C2-Naphthalenes	1472	1330	90	65-135
C3-Naphthalenes	1053.4	914	87	65-135
C4-Naphthalenes	552.7	466	84	65-135
Biphenyl	152.5	145	95	65-135
Dibenzofuran	53.5	50.1	94	65-135
Acenaphthylene	7.1	6.44	91	65-135
Acenaphthene	18.7	18.6	99	65-135
Fluorene	79.4	71.6	90	65-135
C1-Fluorenes	175.1	160	92	65-135
C2-Fluorenes	256.5	228	89	65-135
C3-Fluorenes	238.7	202	85	65-135
Phenanthrene	222	213	96	65-135
C1-Phenanthrenes/Anthracenes	440.5	401	91	65-135
C2-Phenanthrenes/Anthracenes	464.9	411	88	65-135
C3-Phenanthrenes/Anthracenes	307.7	285	93	65-135
C4-Phenanthrenes/Anthracenes	122.9	113	92	65-135
Dibenzothiophene	146.1	135	93	65-135
C1-Dibenzothiophenes	299	251	84	65-135
C2-Dibenzothiophenes	392.9	338	86	65-135
C3-Dibenzothiophenes	350.5	298	85	65-135
C4-Dibenzothiophenes	189.2	156	82	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.01	98	65-135
Pyrene	13.3	13.4	101	65-135
C1-Fluoranthenes/Pyrenes	66.1	63.4	96	65-135
C2-Fluoranthenes/Pyrenes	100.9	99.2	98	65-135
C3-Fluoranthenes/Pyrenes	120.8	111	92	65-135
C4-Fluoranthenes/Pyrenes	105.6	104	99	65-135
Naphthobenzothiophenes	45.1	43.6	97	65-135
C1-Naphthobenzothiophenes	124.1	113	91	65-135
C2-Naphthobenzothiophenes	168.9	155	92	65-135
C3-Naphthobenzothiophenes	136.1	118	87	65-135
C4-Naphthobenzothiophenes	93.9	77.2	82	65-135
Benz[a]anthracene	2.00	1.77	88	65-135
Chrysene/Triphenylene	37.4	33.1	88	65-135
C1-Chrysenes	63.9	61.2	96	65-135
C2-Chrysenes	86.6	80.0	92	65-135
C3-Chrysenes	99.6	85.6	86	65-135
C4-Chrysenes	62.2	53.4	86	65-135
Benzo[b]fluoranthene	5.3	5.25	99	65-135
Benzo[e]pyrene	9.6	9.61	100	65-135
Benzo[a]pyrene	2.00	1.96	98	65-135
Perylene	2.7	2.68	99	65-135
Benzo[g,h,i]perylene	3.1	3.08	99	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:19

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	5.21	80	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:20

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	121	84	65-135
2/3-Methyldibenzothiophene	103.1	84.4	82	65-135
1-Methyldibenzothiophene	46.8	40.5	87	65-135
3-Methylphenanthrene	91.8	82.1	89	65-135
2/4-Methylphenanthrene	99.6	92.4	93	65-135
2-Methylanthracene	3.1	2.96	95	65-135
9-Methylphenanthrene	145.9	129	88	65-135
1-Methylphenanthrene	97.6	92.7	95	65-135
2-Methylnaphthalene	1162.6	1110	96	65-135
1-Methylnaphthalene	831.9	798	96	65-135
2,6-Dimethylnaphthalene	696.1	673	97	65-135
2,3,5-Trimethylnaphthalene	162.2	189	117	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:20

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.I	65.1	97	65-135
C24 Tricyclic Terpane	42.3	41.4	98	65-135
C25 Tricyclic Terpane	40.9	41.4	101	65-135
C24 Tetracyclic Terpane	14.3	14.5	102	65-135
C26 Tricyclic Terpane-22S	17.0	17.5	103	65-135
C26 Tricyclic Terpane-22R	15.0	15.0	100	65-135
C28 Tricyclic Terpane-22S	16.3	14.4	88	65-135
C28 Tricyclic Terpane-22R	17.7	18.5	104	65-135
C29 Tricyclic Terpane-22S	20.7	20.4	99	65-135
C29 Tricyclic Terpane-22R	21.1	20.8	99	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	26.8	87	65-135
C30 Tricyclic Terpane-22S	15.8	16.6	105	65-135
C30 Tricyclic Terpane-22R	15.8	16.9	107	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	36.1	98	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	6.77	94	65-135
17a(H),21b(H)-25-Norhopane	8.6	7.07	82	65-135
30-Norhopane	97.5	96.2	99	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.2	91	65-135
17a(H)-Diahopane	14.3	14.2	99	65-135
30-Normoretane	11.5	12.0	105	65-135
Hopane	171.1	166	97	65-135
Moretane	16.6	16.1	97	65-135
30-Homohopane-22S	73.8	66.5	90	65-135
30-Homohopane-22R	63.4	56.9	90	65-135
30,31-Bishomohopane-22S	52.5	47.0	90	65-135
30,31-Bishomohopane-22R	38.4	35.0	91	65-135
30,31-Trishomohopane-22S	41.1	36.7	89	65-135
30,31-Trishomohopane-22R	27.4	24.0	87	65-135
Tetrakishomohopane-22S	30.0	25.7	86	65-135
Tetrakishomohopane-22R	20.7	19.4	94	65-135
Pentakishomohopane-22S	30.2	27.7	92	65-135
Pentakishomohopane-22R	23.2	21.0	90	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	54.4	111	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	25.2	100	65-135
13b,17a-20S-Methyldiacholestane	23.3	20.7	89	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	60.9	95	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	73.3	97	65-135
Unknown Sterane (S18)	20.7	18.8	91	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.48	83	65-135
14a,17a-20S-Methylcholestane	36.7	36.5	99	65-135
14a,17a-20R-Methylcholestane	33.0	34.2	104	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	53.5	103	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	35.6	90	65-135
14b(H),17b(H)-20R-Cholestane	40.1	38.7	97	65-135
14b(H),17b(H)-20S-Cholestane	40.7	40.3	99	65-135
14b,17b-20R-Methylcholestane	44.8	41.3	92	65-135
14b,17b-20S-Methylcholestane	54.0	52.7	98	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	57.8	98	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	36.7	90	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	392	129	65-135
C28,20S-triaromatic steroid	191.8	240	125	65-135
C27,20R-triaromatic steroid	186.4	223	119	65-135
C28,20R-triaromatic steroid	158.3	190	120	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 17:19

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
cis/trans-Decalin	**1.09 J**	**1.15 J**	5	30
C1-Decalins	**5.10**	**5.39**	6	30
C2-Decalins	**17.4**	0.496 U	X	30
C3-Decalins	0.510 U	0.496 U	N/A	30
C4-Decalins	0.510 U	0.496 U	N/A	30
Benzothiophene	**0.856 J**	0.402 U	X	30
C1-Benzo(b)thiophenes	0.414 U	0.402 U	N/A	30
C2-Benzo(b)thiophenes	**3.44 J**	**2.07 J**	50[a]	30
C3-Benzo(b)thiophenes	**9.01**	9.03	0	30
C4-Benzo(b)thiophenes	**15.9**	**13.0**	20	30
Naphthalene	**7.35**	**2.63 J**	95[a]	30
C1-Naphthalenes	**5.18**	**4.41**	16	30
C2-Naphthalenes	**15.7**	**11.5**	31[a]	30
C3-Naphthalenes	**32.6**	**28.3**	14	30
C4-Naphthalenes	**55.1**	**44.7**	21	30
Biphenyl	**1.84 J**	**1.83 J**	1	30
Dibenzofuran	**8.74**	**3.19 J**	93[a]	30
Acenaphthylene	**6.45**	**1.96 J**	107[a]	30
Acenaphthene	**14.3**	**5.06**	96[a]	30
Fluorene	**18.6**	**6.42**	97[a]	30
C1-Fluorenes	**16.2**	**9.40**	53[a]	30
C2-Fluorenes	**49.6**	**38.2**	26	30
C3-Fluorenes	**134**	**86.4**	43[a]	30
Anthracene	**73.8**	**9.96**	152[a]	30
Phenanthrene	**387**	**109**	112[a]	30
C1-Phenanthrenes/Anthracenes	**170**	**69.2**	84[a]	30
C2-Phenanthrenes/Anthracenes	**179**	**122**	38[a]	30
C3-Phenanthrenes/Anthracenes	**164**	**120**	31[a]	30
C4-Phenanthrenes/Anthracenes	**85.2**	**72.2**	17	30
Retene	0.291 U	0.283 U	N/A	30
Dibenzothiophene	**23.4**	**9.14**	87[a]	30
C1-Dibenzothiophenes	**63.5**	**48.9**	26	30
C2-Dibenzothiophenes	**142**	**116**	20	30
C3-Dibenzothiophenes	**205**	**163**	23	30
C4-Dibenzothiophenes	**144**	**124**	15	30

N/A - Not Applicable
X - It is not possible to calculate RPD, one result is below the detection limit, the other is above reporting limit.
[a] - Value outside of QC Limits.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Benzo(b)fluorene	57.9	15.6	115[a]	30
Fluoranthene	946	250	116[a]	30
Pyrene	720	204	112[a]	30
C1-Fluoranthenes/Pyrenes	259	84.8	101[a]	30
C2-Fluoranthenes/Pyrenes	215	90.3	82[a]	30
C3-Fluoranthenes/Pyrenes	123	77.6	46[a]	30
C4-Fluoranthenes/Pyrenes	111	78.8	34[a]	30
Naphthobenzothiophenes	115	45.4	87[a]	30
C1-Naphthobenzothiophenes	110	79.8	31[a]	30
C2-Naphthobenzothiophenes	149	121	21	30
C3-Naphthobenzothiophenes	135	110	20	30
C4-Naphthobenzothiophenes	106	88.3	18	30
Benz[a]anthracene	289	66.6	125[a]	30
Chrysene/Triphenylene	316	104	101[a]	30
C1-Chrysenes	116	51.2	77[a]	30
C2-Chrysenes	85.8	59.3	37[a]	30
C3-Chrysenes	108	81.4	28	30
C4-Chrysenes	71.8	63.0	13	30
Benzo[b]fluoranthene	268	102	90[a]	30
Benzo[j]fluoranthene/Benzo[k]fluoranthene	206	62.5	107[a]	30
Benzo[a]fluoranthene	39.0	10.2	117[a]	30
Benzo[e]pyrene	191	68.1	95[a]	30
Benzo[a]pyrene	250	76.2	107[a]	30
Perylene	74.8	27.8	92[a]	30
Indeno[1,2,3-cd]pyrene	197	65.1	101[a]	30
Dibenz[ah]anthracene/Dibenz[ac]anthracene	61.2	18.1	109[a]	30
Benzo[g,h,i]perylene	179	73.0	84[a]	30

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	76	69	40-120
Phenanthrene-d10	88	86	40-120
Benzo[a]pyrene-d12	72	79	40-120

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/09/12 11:14

Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Carbazole	**55.2**	**12.9**	124[a]	30

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	76	69	40-120
Phenanthrene-d10	88	86	40-120
Benzo[a]pyrene-d12	72	79	40-120

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/09/12 11:14

Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
4-Methyldibenzothiophene	**17.8**	**13.8**	25	30
2/3-Methyldibenzothiophene	**27.1**	**22.0**	21	30
1-Methyldibenzothiophene	**11.7**	**8.98**	26	30
3-Methylphenanthrene	**39.5**	**14.8**	91[a]	30
2/4-Methylphenanthrene	**47.1**	**16.4**	97[a]	30
2-Methylanthracene	**12.5**	**2.55** J	132[a]	30
9-Methylphenanthrene	**41.0**	**20.7**	66[a]	30
1-Methylphenanthrene	**28.5**	**12.7**	76[a]	30
2-Methylnaphthalene	**5.27**	**4.10**	25	30
1-Methylnaphthalene	**3.69**	**3.48**	6	30
2,6-Dimethylnaphthalene	**6.24**	**4.21**	39[a]	30
2,3,5-Trimethylnaphthalene	**6.29**	**5.02**	22	30

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	76	69	40-120
Phenanthrene-d10	88	86	40-120
Benzo[a]pyrene-d12	72	79	40-120

N/A - Not Applicable
[a] - Value outside of QC Limits.
J - Estimated value, below quantitation limit.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/09/12 11:14

Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
C23 Tricyclic Terpane	73.8	68.7	7	30
C24 Tricyclic Terpane	39.4	38.2	3	30
C25 Tricyclic Terpane	45.6	44.0	4	30
C24 Tetracyclic Terpane	16.3	16.0	2	30
C26 Tricyclic Terpane-22S	15.9	13.6	16	30
C26 Tricyclic Terpane-22R	16.0	14.4	11	30
C28 Tricyclic Terpane-22S	15.2	14.2	7	30
C28 Tricyclic Terpane-22R	21.7	17.3	22	30
C29 Tricyclic Terpane-22S	22.2	19.0	15	30
C29 Tricyclic Terpane-22R	21.7	18.4	16	30
18a-22,29,30-Trisnorneohopane-TS	26.1	27.0	4	30
C30 Tricyclic Terpane-22S	14.8	16.9	13	30
C30 Tricyclic Terpane-22R	15.0	15.9	6	30
17a(H)-22,29,30-Trisnorhopane-TM	58.7	53.3	10	30
17a/b,21b/a 28,30-Bisnorhopane	34.3	30.2	13	30
17a(H),21b(H)-25-Norhopane	30.9	21.7	35[a]	30
30-Norhopane	146	135	8	30
18a(H)-30-Norneohopane-C29Ts	20.9	21.4	2	30
17a(H)-Diahopane	6.24	7.50	18	30
30-Normoretane	20.2	15.1	29	30
18a(H)&18b(H)-Oleananes	2.85 U	2.77 U	N/A	30
Hopane	203	192	6	30
Moretane	17.3	22.5	26	30
30-Homohopane-22S	100	81.4	21	30
30-Homohopane-22R	82.2	70.5	15	30
T22a-Gammacerane/C32-diahopane	33.9	31.8	6	30
30,31-Bishomohopane-22S	97.4	78.7	21	30
30,31-Bishomohopane-22R	43.7	45.7	5	30
30,31-Trishomohopane-22S	50.0	43.4	14	30
30,31-Trishomohopane-22R	26.2	24.6	6	30
Tetrakishomohopane-22S	38.4	29.1	27	30
Tetrakishomohopane-22R	70.1 G	50.1 G	33[a]	30
Pentakishomohopane-22S	36.5	40.0	9	30
Pentakishomohopane-22R	28.7	23.1	22	30
13b(H),17a(H)-20S-Diacholestane	26.0	25.0	4	30

N/A - Not Applicable
[a] - Value outside of QC Limits.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
13b(H),17a(H)-20R-Diacholestane	**9.79**	**10.3**	5	30
13b,17a-20S-Methyldiacholestane	**8.32**	**14.9**	57[a]	30
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**46.1**	**50.7**	9	30
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**51.7**	**49.6**	4	30
Unknown Sterane (S18)	**24.2** G	**30.2** G	22	30
13a,17b-20S-Ethyldiacholestane	**3.46** J	**3.46** J	0	30
14a,17a-20S-Methylcholestane	**29.5**	**22.1**	28	30
14a,17a-20R-Methylcholestane	**20.6**	**19.2**	8	30
14a(H),17a(H)-20S-Ethylcholestane	**52.7**	**48.6**	8	30
14a(H),17a(H)-20R-Ethylcholestane	**45.1**	**44.5**	1	30
14b(H),17b(H)-20R-Cholestane	**34.7**	**26.7**	26	30
14b(H),17b(H)-20S-Cholestane	**34.8**	**28.2**	21	30
14b,17b-20R-Methylcholestane	**26.0**	**29.1**	11	30
14b,17b-20S-Methylcholestane	**41.0**	**41.7**	2	30
14b(H),17b(H)-20R-Ethylcholestane	**56.7**	**58.3**	3	30
14b(H),17b(H)-20S-Ethylcholestane	**37.3**	**34.6**	7	30
C26,20R- +C27,20S- triaromatic steroid	**287**	**275**	4	30
C28,20S-triaromatic steroid	**242**	**230**	5	30
C27,20R-triaromatic steroid	**194**	**187**	3	30
C28,20R-triaromatic steroid	**222**	**206**	7	30

Surrogate	% Recovery		Acceptance Range (%)
5B(H)Cholane	89	94	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.
J - Estimated value, below quantitation limit.
G - Matrix Interference

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/09/12 11:14

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Date Analyzed: **05/02/12 20:53**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/02/12 22:24
LCSD	SO050112LCSD01	05/02/12 23:54
SEKR1075L201S042612HX	1204035-08	05/03/12 20:59
SEBC0000R011S042612HX	1204035-09	05/03/12 22:29
SEBC0000L012S042612HX	1204035-10	05/04/12 00:00
SEKR3455C501S042612HX	1204035-11	05/04/12 01:31
SEKR1950C501S042612HX	1204035-12	05/04/12 03:02

N/A - Not Applicable

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Date Analyzed: **05/02/12 20:53**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/02/12 22:24
LCSD	SO050112LCSD01	05/02/12 23:54
SEKR1075L201S042512PX	1204035-01	05/03/12 13:30
SEKR1075L201E042512PX	1204035-02	05/03/12 14:59
SEKR3455C501S042612PX	1204035-03	05/03/12 16:28
SEKR1950C501S042612PX	1204035-04	05/03/12 17:58

N/A - Not Applicable

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Date Analyzed: **05/04/12 09:05**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS043012LCS02	05/04/12 13:33
LCSD	SS043012LCSD02	05/04/12 15:05
SEKR1075L201S042512DX	1204035-05	05/05/12 00:32
SEKR3455C501S042612DX	1204035-06	05/05/12 02:06
SEKR1950C501S042612DX	1204035-07	05/05/12 03:42
SEKR1950C501S042612DX	1204035-07 D	05/05/12 05:17

N/A - Not Applicable

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **C305021201**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		44781	43.15	26089	26.70
Upper Limit:		89562	43.65	52178	27.20
Lower Limit:		22390	42.65	13044	26.20
Client ID	**Lab ID**				
Blank	SO050112B01	32650	43.17	18606	26.71
Blank	SO050112B01	32650	43.17	18606	26.71
LCS	SO050112LCS01	35501	43.15	19753	26.70
LCS	SO050112LCS01	35501	43.15	19753	26.70
LCSD	SO050112LCSD01	33587	43.15	19021	26.70
LCSD	SO050112LCSD01	33587	43.15	19021	26.70
CCV	C305021202	46077	43.15	27233	26.70

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **C305021202**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		46077	43.15	27233	26.70
Upper Limit:		92154	43.65	54466	27.20
Lower Limit:		23038	42.65	13616	26.20
Client ID	**Lab ID**				
SEKR1075L201S042512PX	1204035-01	30080	43.15	17521	26.70
SEKR1075L201E042512PX	1204035-02	30729	43.17	16001	26.71
SEKR3455C501S042612PX	1204035-03	28777	43.15	15762	26.70
SEKR1950C501S042612PX	1204035-04	34683	43.15	18217	26.70
CCV	C305031203	28462	43.15	17064	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **C305031203**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		28462	43.15	17064	26.71
Upper Limit:		56924	43.65	34128	27.21
Lower Limit:		14231	42.65	8532	26.21
Client ID	**Lab ID**				
SEKR1075L201S042612HX	1204035-08	32802	43.15	17910	26.70
SEBC0000R011S042612HX	1204035-09	30242	43.15	17787	26.71
SEBC0000L012S042612HX	1204035-10	31540	43.15	18044	26.70
SEKR3455C501S042612HX	1204035-11	34050	43.15	18863	26.70
SEKR1950C501S042612HX	1204035-12	35318	43.15	18147	26.70
CCV	C305031204	30421	43.17	18143	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **C305031204**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		30421	43.17	18143	26.71
Upper Limit:		60842	43.67	36286	27.21
Lower Limit:		15210	42.67	9072	26.21
Client ID	**Lab ID**				
Blank	SS043012B07	30629	43.17	17315	26.71
LCS	SS043012LCS02	33254	43.15	18337	26.70
LCSD	SS043012LCSD02	32423	43.15	18527	26.70
CCV	C305031205	32966	43.17	19577	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **C305031205**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		32966	43.17	19577	26.71
Upper Limit:		65932	43.67	39154	27.21
Lower Limit:		16483	42.67	9788	26.21
Client ID	**Lab ID**				
SEKR1075L201S042512DX	1204035-05	42622	43.17	20466	26.70
SEKR3455C501S042612DX	1204035-06	42470	43.17	20897	26.70
SEKR1950C501S042612DX	1204035-07	39612	43.17	20276	26.70
SEKR1950C501S042612DX	1204035-07 D	40780	43.17	22156	26.70
CCV	C305031206	32005	43.17	19115	26.71

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00088	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	11.4	U	C3-Dibenzothiophenes	**161**	
C1-Decalins	11.4	U	C4-Dibenzothiophenes	**140**	
C2-Decalins	11.4	U	Benzo(b)fluorene	11.4	U
C3-Decalins	11.4	U	Fluoranthene	**4.64**	JB
C4-Decalins	11.4	U	Pyrene	**7.85**	JB
Benzothiophene	11.4	U	C1-Fluoranthenes/Pyrenes	**32.2**	
C1-Benzo(b)thiophenes	11.4	U	C2-Fluoranthenes/Pyrenes	**54.2**	
C2-Benzo(b)thiophenes	11.4	U	C3-Fluoranthenes/Pyrenes	**74.5**	
C3-Benzo(b)thiophenes	**12.8**		C4-Fluoranthenes/Pyrenes	**74.6**	
C4-Benzo(b)thiophenes	**15.2**		Naphthobenzothiophenes	**16.4**	B
Naphthalene	**24.0**		C1-Naphthobenzothiophenes	**71.0**	
C1-Naphthalenes	**12.8**		C2-Naphthobenzothiophenes	**117**	
C2-Naphthalenes	**8.71**	J	C3-Naphthobenzothiophenes	**116**	
C3-Naphthalenes	**17.6**		C4-Naphthobenzothiophenes	**97.1**	
C4-Naphthalenes	**36.3**		Benz[a]anthracene	**2.58**	JB
Biphenyl	**1.02**	J	Chrysene/Triphenylene	**9.89**	JB
Dibenzofuran	**1.47**	J	C1-Chrysenes	**29.3**	
Acenaphthylene	11.4	U	C2-Chrysenes	**54.0**	
Acenaphthene	11.4	U	C3-Chrysenes	**106**	
Fluorene	**1.99**	J	C4-Chrysenes	11.4	U
C1-Fluorenes	**9.03**	J	Benzo[b]fluoranthene	**5.66**	JB
C2-Fluorenes	**26.8**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.07**	JB
C3-Fluorenes	**69.9**		Benzo[a]fluoranthene	11.4	U
Anthracene	11.4	U	Benzo[e]pyrene	**7.60**	JB
Phenanthrene	**5.66**	J	Benzo[a]pyrene	**4.83**	JB
C1-Phenanthrenes/Anthracenes	**22.5**		Perylene	**7.63**	JB
C2-Phenanthrenes/Anthracenes	**71.8**		Indeno[1,2,3-cd]pyrene	**5.72**	JB
C3-Phenanthrenes/Anthracenes	**115**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.48**	JB
C4-Phenanthrenes/Anthracenes	**69.2**		Benzo[g,h,i]perylene	**10.1**	JB
Retene	11.4	U			
Dibenzothiophene	**1.70**	J			
C1-Dibenzothiophenes	**20.1**				
C2-Dibenzothiophenes	**89.4**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	81	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00088	1	1	AC

Parameter	Result
Carbazole	**1.80** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	81	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00088	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**6.74**	J
2/3-Methyldibenzothiophene	**4.13**	J
1-Methyldibenzothiophene	**4.05**	J
3-Methylphenanthrene	**3.97**	J
2/4-Methylphenanthrene	**4.15**	J
2-Methylanthracene	**1.02**	J
9-Methylphenanthrene	**7.81**	J
1-Methylphenanthrene	**4.81**	J
2-Methylnaphthalene	**13.3**	
1-Methylnaphthalene	**6.71**	J
2,6-Dimethylnaphthalene	**2.91**	J
2,3,5-Trimethylnaphthalene	**1.35**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	81	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00088	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**91.7**	
C24 Tricyclic Terpane	**45.7**	
C25 Tricyclic Terpane	**43.0**	
C24 Tetracyclic Terpane	**20.5**	
C26 Tricyclic Terpane-22S	**16.3**	
C26 Tricyclic Terpane-22R	**17.0**	
C28 Tricyclic Terpane-22S	**19.0**	
C28 Tricyclic Terpane-22R	**22.8**	
C29 Tricyclic Terpane-22S	**43.8**	
C29 Tricyclic Terpane-22R	**32.4**	
18a-22,29,30-Trisnorneohopane-TS	**26.2**	
C30 Tricyclic Terpane-22S	**17.5**	
C30 Tricyclic Terpane-22R	**23.8**	
17a(H)-22,29,30-Trisnorhopane-TM	**61.1**	
17a/b,21b/a 28,30-Bisnorhopane	**34.0**	
17a(H),21b(H)-25-Norhopane	**14.9**	
30-Norhopane	**149**	
18a(H)-30-Norneohopane-C29Ts	**24.4**	
17a(H)-Diahopane	**16.7**	
30-Normoretane	11.4	U
18a(H)&18b(H)-Oleananes	11.4	U
Hopane	**197**	
Moretane	**25.6**	
30-Homohopane-22S	**89.0**	
30-Homohopane-22R	**69.4**	
T22a-Gammacerane/C32-diahopane	**29.1**	
30,31-Bishomohopane-22S	**63.0**	
30,31-Bishomohopane-22R	**35.1**	

Parameter	Result	
30,31-Trishomohopane-22S	**39.2**	
30,31-Trishomohopane-22R	**37.1**	
Tetrakishomohopane-22S	11.4	U
Tetrakishomohopane-22R	11.4	U
Pentakishomohopane-22S	**39.9**	
Pentakishomohopane-22R	11.4	U
13b(H),17a(H)-20S-Diacholestane	**28.8**	
13b(H),17a(H)-20R-Diacholestane	**15.7**	
13b,17a-20S-Methyldiacholestane	**16.8**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**48.3**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**49.7**	
Unknown Sterane (S18)	**29.1**	B
13a,17b-20S-Ethyldiacholestane	**9.30**	J
14a,17a-20S-Methylcholestane	**33.8**	
14a,17a-20R-Methylcholestane	**16.3**	
14a(H),17a(H)-20S-Ethylcholestane	**64.0**	
14a(H),17a(H)-20R-Ethylcholestane	**39.3**	
14b(H),17b(H)-20R-Cholestane	**37.8**	
14b(H),17b(H)-20S-Cholestane	**31.3**	
14b,17b-20R-Methylcholestane	**30.1**	
14b,17b-20S-Methylcholestane	**33.5**	
14b(H),17b(H)-20R-Ethylcholestane	**59.7**	
14b(H),17b(H)-20S-Ethylcholestane	**29.1**	
C26,20R- +C27,20S- triaromatic steroid	**270**	
C28,20S-triaromatic steroid	**236**	
C27,20R-triaromatic steroid	**174**	
C28,20R-triaromatic steroid	**204**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	97	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

RB 5/5/12 trsl

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17521M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	30080	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	61227	805.135	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.51%			
42) Phenanthrene-d10	32.567	188	53121	883.765	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.38%			
86) Benzo[a]pyrene-d12	48.241	264	55745	894.231	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 89.42%			
127) 5B(H)Cholane - Surr	43.754	217	9090M3	966.555	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.66%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	2356	21.098	ng/mL#	100
11) C1-Naphthalenes	22.511	142	1258M5	11.265	ng/mL	
12) C2-Naphthalenes	25.431	156	856M5	7.665	ng/mL	
13) C3-Naphthalenes	27.690	170	1731M5	15.501	ng/mL	
14) C4-Naphthalenes	30.445	184	3570M5	31.969	ng/mL	
16) 2-Methylnaphthalene	22.511	142	773	11.707	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	382	5.902	ng/mL#	100
21) C3-Benzo(b)thiophenes	26.530	176	1128M5	11.225	ng/mL	
22) C4-Benzo(b)thiophenes	30.384	190	1344M5	13.375	ng/mL	
23) Biphenyl	24.393	154	75M2	0.898	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	139M3	2.562	ng/mL	
25) Dibenzofuran	27.479	168	124	1.293	ng/mL#	47
28) 2,3,5-Trimethylnaphtha...	28.382	170	52M3	1.189	ng/mL	
29) Fluorene	28.849	166	126M3	1.750	ng/mL	
30) C1-Fluorenes	30.986	180	572M5	7.946	ng/mL	
31) C2-Fluorenes	33.395	194	1695M5	23.547	ng/mL	
32) C3-Fluorenes	35.232	208	4427M5	61.500	ng/mL	
33) Dibenzothiophene	32.161	184	173	1.499	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	684M3	5.928	ng/mL	
35) 2/3-Methyldibenzothiop...	34.268	198	419M3	3.631	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	411	3.562	ng/mL#	100
37) OTP	34.329	198	11719M3	101.560	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	13760M5	119.248	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	9078M5	78.672	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	16306M5	141.312	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	14213M5	123.174	ng/mL	
43) Phenanthrene	32.657	178	505M3	4.981	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	354M3	3.492	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	370	3.650	ng/mL	88
46) 2-Methylanthracene(2MA)	34.886	192	91M3	0.898	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	697M3	6.875	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	429M3	4.232	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	2004M5	19.767	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	9035M5	89.120	ng/mL	
51) 5AA IS BKGD	36.632	206	2627M3	25.912	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	10294M5	101.539	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	6175M5	60.910	ng/mL	
56) Carbazole	33.500	167	158M3	1.580	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) 1-Methylphenanthrene	35.157	192	397M3	6.179 ng/mL	
58) Fluoranthene	37.430	202	411M3	4.082 ng/mL	
60) Pyrene	38.318	202	707M3	6.908 ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	2904M5	28.373 ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	4882M5	47.699 ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	6707M5	65.529 ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.410	258	6722M5	65.676 ng/mL	
66) Naphthobenzothiophene	42.158	234	1088	9.874 ng/ml#	74
67) Naphthobenzothiophene-...	42.158	234	1088	9.874 ng/mL#	74
68) Naphthobenzothiophene-...	42.504	234	297	2.695 ng/mL#	13
69) Naphthobenzothiophene-...	42.790	234	203M3	1.842 ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	6883M5	62.465 ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	11311M5	102.649 ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	11245M5	102.050 ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	9418M5	85.470 ng/mL	
75) Benz[a]anthracene	43.091	228	217M3	2.273 ng/mL	
77) Chrysene/Triphenylene	43.227	228	839M3	8.704 ng/mL	
78) C1-Chrysenes	44.717	242	2484M5	25.771 ng/mL	
79) C2-Chrysenes	46.795	256	4583M5	47.547 ng/mL	
80) C3-Chrysenes	49.491	270	9024M5	93.621 ng/mL	
82) Benzo[b]fluoranthene	47.142	252	522	4.976 ng/mL#	82
83) Benzo[j]+[k]fluoranthene	47.217	252	208	1.821 ng/mL#	52
85) Benzo[e]pyrene	48.136	252	694M3	6.688 ng/mL	
87) Benzo[a]pyrene	48.331	252	425M3	4.254 ng/mL	
88) Perylene	48.633	252	717	6.715 ng/mL#	61
89) Indeno[1,2,3-cd]pyrene	53.136	276	585M3	5.032 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	241M3	2.179 ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	1087M3	8.850 ng/mL	
92) Hopane (T19)	52.202	191	3437M3	173.368 ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	1600M3	80.707 ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	797	40.202 ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	750M3	37.831 ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	357	18.008 ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	285M3	14.376 ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	297M3	14.981 ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	331M3	16.696 ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	397M3	20.025 ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	764M3	38.537 ng/ml	
103) C29 Tricyclic Terpane-...	47.307	191	565M3	28.500 ng/ml	
104) 18a-22,29,30-Trisnorne...	48.452	191	458M3	23.102 ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	305M3	15.385 ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	416	20.984 ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.979	191	1066M3	53.771 ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	593M3	29.912 ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	260M3	13.115 ng/ml	
110) 30-Norhopane (T15)	50.832	191	2600M3	131.149 ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	425	21.438 ng/ml	100
112) 17a(H)-Diahopane (X)	51.042	191	291	14.679 ng/ml	100
115) Moretane (T20)	52.910	191	447M3	22.547 ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	1553	78.336 ng/ml	100
117) 30-Homohopane-22R (T22)	54.220	191	1210	61.034 ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	507M3	25.574 ng/mL	
119) 30,31-Bishomohopane-22...	55.530	191	1099M3	55.435 ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22...	55.937	191	613M3	30.921	ng/ml	
121) 30,31-Trishomohopane-2...	57.683	191	684M3	34.502	ng/ml	
122) 30,31-Trishomohopane-2...	58.286	191	648M3	32.686	ng/ml	
125) Pentakishomohopane-22S...	63.406	191	696	35.107	ng/ml	100
128) 13b(H),17a(H)-20S-Diac...	45.274	217	238M3	25.307	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	130	13.823	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	139M3	14.780	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	400	42.533	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	411M3	43.702	ng/ml	
133) Unknown Sterane (S18)	48.091	217	241M3	25.626	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.301	217	77M3	8.188	ng/ml	
135) 14a,17a-20S-Methylchol...	48.467	217	280	29.773	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	135M3	14.355	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	530M3	56.356	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	325M3	34.558	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.337	218	313M3	33.282	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	259M3	27.540	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	249M3	26.477	ng/ml	
142) 14b,17b-20S-Methylchol...	48.723	218	277M3	29.454	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	494M3	52.528	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	241M3	25.626	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	2236	237.758	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	1954	207.772	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	1438	152.905	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	1690	179.701	ng/mL	100

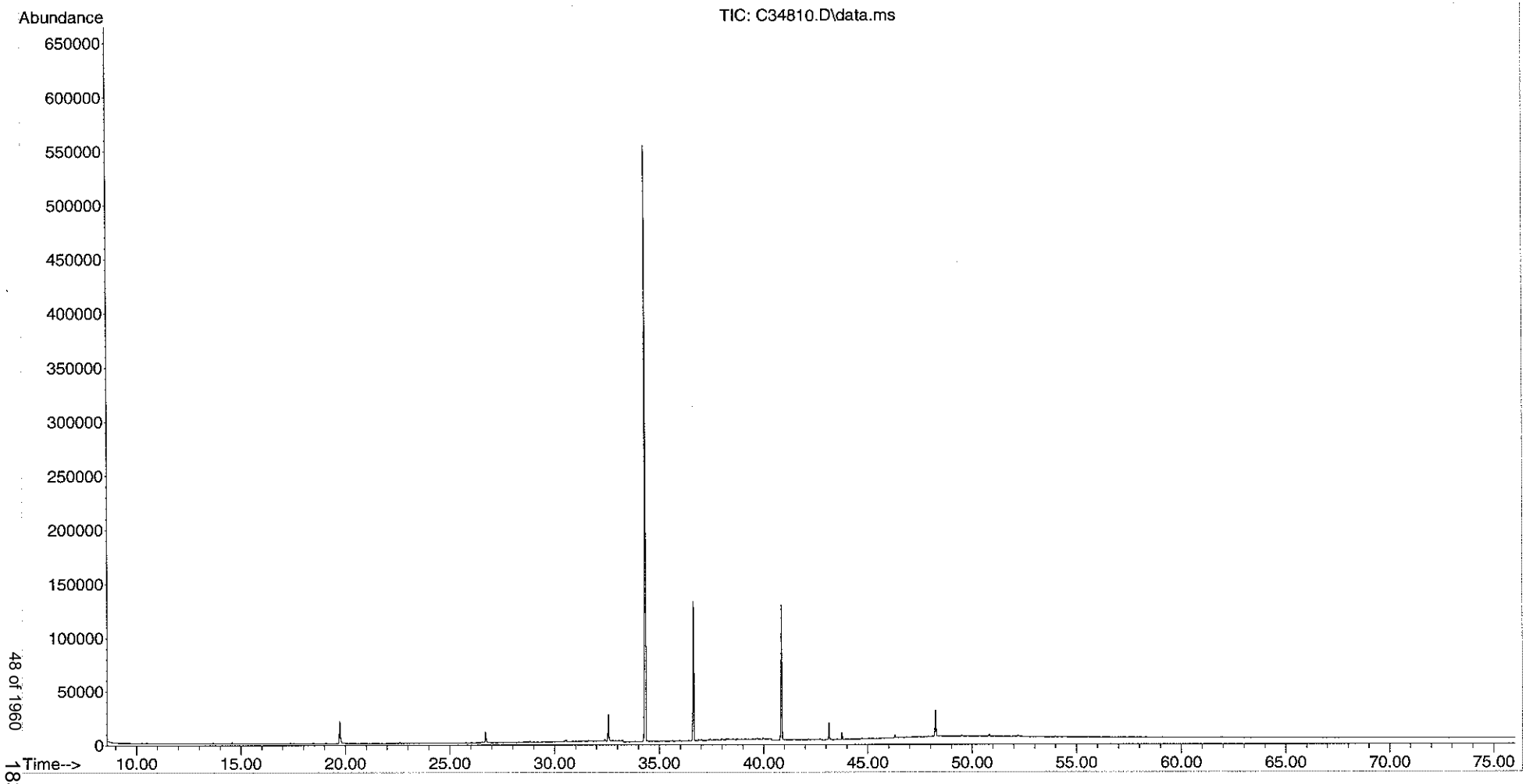
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201E042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-02**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00008	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	125	U	C3-Dibenzothiophenes	125	U
C1-Decalins	125	U	C4-Dibenzothiophenes	125	U
C2-Decalins	125	U	Benzo(b)fluorene	125	U
C3-Decalins	125	U	Fluoranthene	**15.6**	JB
C4-Decalins	125	U	Pyrene	**13.5**	JB
Benzothiophene	125	U	C1-Fluoranthenes/Pyrenes	125	U
C1-Benzo(b)thiophenes	125	U	C2-Fluoranthenes/Pyrenes	125	U
C2-Benzo(b)thiophenes	125	U	C3-Fluoranthenes/Pyrenes	125	U
C3-Benzo(b)thiophenes	125	U	C4-Fluoranthenes/Pyrenes	125	U
C4-Benzo(b)thiophenes	125	U	Naphthobenzothiophenes	125	U
Naphthalene	**43.5**	J	C1-Naphthobenzothiophenes	125	U
C1-Naphthalenes	**31.1**	J	C2-Naphthobenzothiophenes	125	U
C2-Naphthalenes	125	U	C3-Naphthobenzothiophenes	125	U
C3-Naphthalenes	125	U	C4-Naphthobenzothiophenes	125	U
C4-Naphthalenes	125	U	Benz[a]anthracene	**9.10**	JB
Biphenyl	125	U	Chrysene/Triphenylene	**13.1**	JB
Dibenzofuran	125	U	C1-Chrysenes	125	U
Acenaphthylene	125	U	C2-Chrysenes	125	U
Acenaphthene	125	U	C3-Chrysenes	125	U
Fluorene	125	U	C4-Chrysenes	125	U
C1-Fluorenes	125	U	Benzo[b]fluoranthene	**27.2**	JB
C2-Fluorenes	125	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**18.8**	JB
C3-Fluorenes	125	U	Benzo[a]fluoranthene	125	U
Anthracene	125	U	Benzo[e]pyrene	**28.5**	JB
Phenanthrene	**27.0**	J	Benzo[a]pyrene	**21.1**	JB
C1-Phenanthrenes/Anthracenes	125	U	Perylene	**21.4**	JB
C2-Phenanthrenes/Anthracenes	125	U	Indeno[1,2,3-cd]pyrene	**61.5**	JB
C3-Phenanthrenes/Anthracenes	125	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**21.0**	JB
C4-Phenanthrenes/Anthracenes	125	U	Benzo[g,h,i]perylene	**76.8**	JB
Retene	125	U			
Dibenzothiophene	125	U			
C1-Dibenzothiophenes	125	U			
C2-Dibenzothiophenes	125	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201E042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-02**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00008	1	1	AC

Parameter	Result
Carbazole	**9.30** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201E042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-02**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00008	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	125	U
2/3-Methyldibenzothiophene	125	U
1-Methyldibenzothiophene	125	U
3-Methylphenanthrene	125	U
2/4-Methylphenanthrene	125	U
2-Methylanthracene	125	U
9-Methylphenanthrene	125	U
1-Methylphenanthrene	125	U
2-Methylnaphthalene	**23.8**	J
1-Methylnaphthalene	**11.4**	J
2,6-Dimethylnaphthalene	125	U
2,3,5-Trimethylnaphthalene	125	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	87	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201E042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-02**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/03/12	100	0.00008	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	125	U	30,31-Trishomohopane-22S	125	U
C24 Tricyclic Terpane	125	U	30,31-Trishomohopane-22R	125	U
C25 Tricyclic Terpane	125	U	Tetrakishomohopane-22S	125	U
C24 Tetracyclic Terpane	125	U	Tetrakishomohopane-22R	125	U
C26 Tricyclic Terpane-22S	125	U	Pentakishomohopane-22S	125	U
C26 Tricyclic Terpane-22R	125	U	Pentakishomohopane-22R	125	U
C28 Tricyclic Terpane-22S	125	U	13b(H),17a(H)-20S-Diacholestane	125	U
C28 Tricyclic Terpane-22R	125	U	13b(H),17a(H)-20R-Diacholestane	125	U
C29 Tricyclic Terpane-22S	125	U	13b,17a-20S-Methyldiacholestane	125	U
C29 Tricyclic Terpane-22R	125	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	125	U
18a-22,29,30-Trisnorneohopane-TS	125	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	125	U
C30 Tricyclic Terpane-22S	125	U	Unknown Sterane (S18)	**185**	GB
C30 Tricyclic Terpane-22R	125	U	13a,17b-20S-Ethyldiacholestane	125	U
17a(H)-22,29,30-Trisnorhopane-TM	125	U	14a,17a-20S-Methylcholestane	125	U
17a/b,21b/a 28,30-Bisnorhopane	125	U	14a,17a-20R-Methylcholestane	125	U
17a(H),21b(H)-25-Norhopane	125	U	14a(H),17a(H)-20S-Ethylcholestane	125	U
30-Norhopane	125	U	14a(H),17a(H)-20R-Ethylcholestane	125	U
18a(H)-30-Norneohopane-C29Ts	125	U	14b(H),17b(H)-20R-Cholestane	125	U
17a(H)-Diahopane	125	U	14b(H),17b(H)-20S-Cholestane	125	U
30-Normoretane	125	U	14b,17b-20R-Methylcholestane	125	U
18a(H)&18b(H)-Oleananes	125	U	14b,17b-20S-Methylcholestane	125	U
Hopane	125	U	14b(H),17b(H)-20R-Ethylcholestane	125	U
Moretane	125	U	14b(H),17b(H)-20S-Ethylcholestane	125	U
30-Homohopane-22S	125	U	C26,20R- +C27,20S- triaromatic steroid	125	U
30-Homohopane-22R	125	U	C28,20S-triaromatic steroid	125	U
T22a-Gammacerane/C32-diahopane	125	U	C27,20R-triaromatic steroid	125	U
30,31-Bishomohopane-22S	125	U	C28,20R-triaromatic steroid	125	U
30,31-Bishomohopane-22R	125	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	91	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34812.D
Acq On : 3 May 2012 2:59 pm
Operator : AC
Sample : 1204035-02
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

BZ/psk 5/5/12.

Quant Time: May 05 12:45:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	16001M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	30729	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60145	866.038	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.60%			
42) Phenanthrene-d10	32.567	188	51593	939.882	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.99%			
86) Benzo[a]pyrene-d12	48.241	264	55031	864.133	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.41%			
127) 5B(H)Cholane - Surr	43.769	217	8737	909.399	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.94%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	355M3	3.481	ng/mL	
11) C1-Naphthalenes	22.511	142	254M5	2.491	ng/mL	
16) 2-Methylnaphthalene	22.511	142	115M3	1.907	ng/mL	
17) 1-Methylnaphthalene	22.932	142	54M2	0.914	ng/mL	
43) Phenanthrene	32.657	178	200M3	2.160	ng/mL	
56) Carbazole	33.516	167	68M3	0.744	ng/mL	
58) Fluoranthene	37.445	202	115M3	1.251	ng/mL	
60) Pyrene	38.318	202	101	1.081	ng/mL#	58
75) Benz[a]anthracene	43.106	228	71M3	0.728	ng/mL	
77) Chrysene/Triphenylene	43.257	228	103M3	1.046	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	233	2.174	ng/mL#	52
83) Benzo[j]+[k]fluoranthene	47.232	252	175M3	1.500	ng/mL	
85) Benzo[e]pyrene	48.136	252	242M3	2.283	ng/mL	
87) Benzo[a]pyrene	48.347	252	172M3	1.685	ng/mL	
88) Perylene	48.648	252	187M3	1.714	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	584M3	4.917	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	190	1.682	ng/mL#	51
91) Benzo[g,h,i]perylene	54.476	276	771	6.144	ng/mL#	83
133) Unknown Sterane (S18)	48.075	217 G	142M2	14.780	ng/ml	

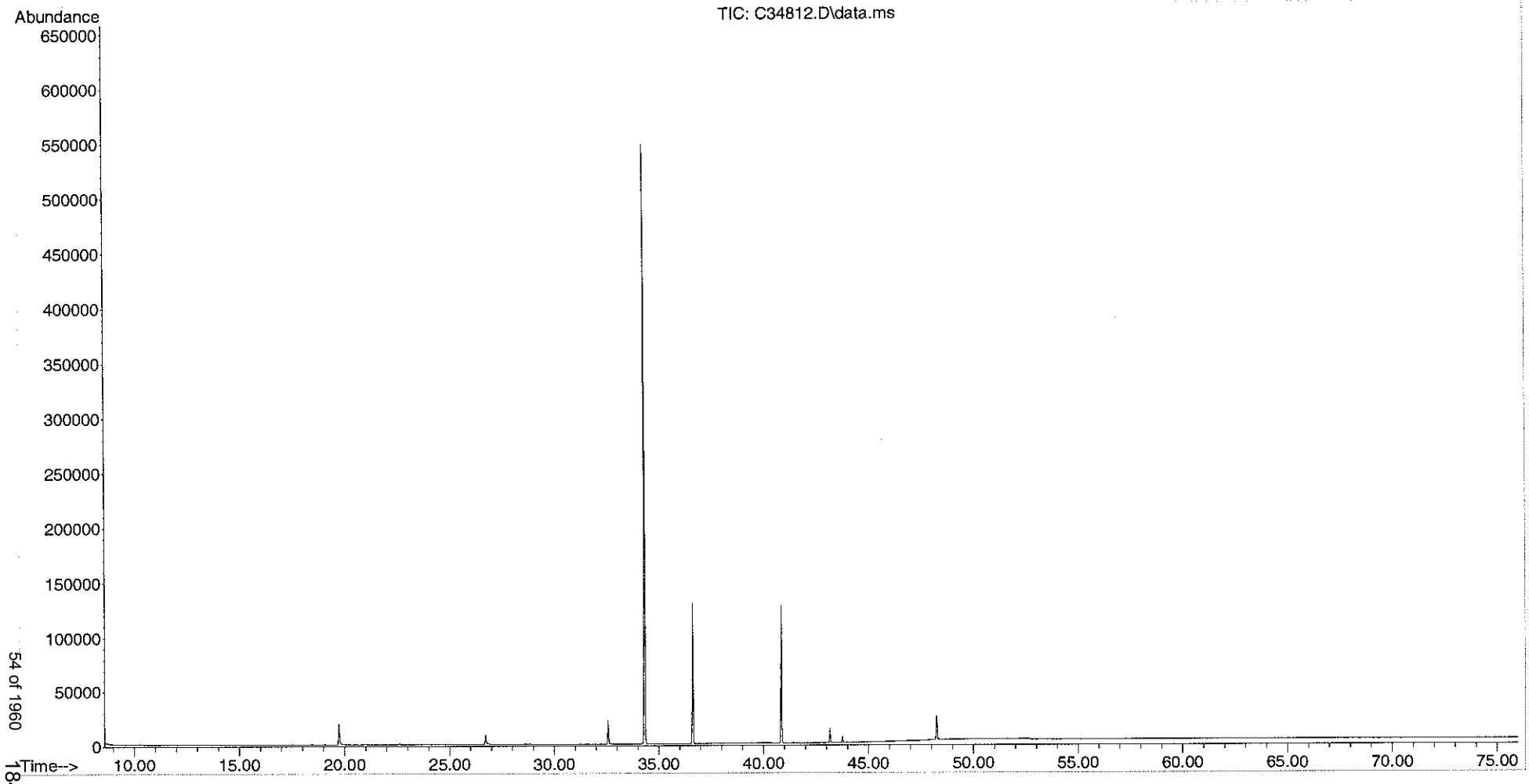
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34812.D
Acq On : 3 May 2012 2:59 pm
Operator : AC
Sample : 1204035-02
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 05 12:45:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00096	1	1	AC

Parameter	Result	
cis/trans-Decalin	10.4	U
C1-Decalins	10.4	U
C2-Decalins	10.4	U
C3-Decalins	10.4	U
C4-Decalins	10.4	U
Benzothiophene	10.4	U
C1-Benzo(b)thiophenes	10.4	U
C2-Benzo(b)thiophenes	**6.22**	J
C3-Benzo(b)thiophenes	**38.6**	
C4-Benzo(b)thiophenes	**80.1**	
Naphthalene	**1.25**	J
C1-Naphthalenes	**3.35**	J
C2-Naphthalenes	**30.9**	
C3-Naphthalenes	**143**	
C4-Naphthalenes	**220**	
Biphenyl	10.4	U
Dibenzofuran	**0.894**	J
Acenaphthylene	**1.18**	J
Acenaphthene	10.4	U
Fluorene	**2.27**	J
C1-Fluorenes	**40.3**	
C2-Fluorenes	**133**	
C3-Fluorenes	**204**	
Anthracene	10.4	U
Phenanthrene	**29.8**	
C1-Phenanthrenes/Anthracenes	**176**	
C2-Phenanthrenes/Anthracenes	**341**	
C3-Phenanthrenes/Anthracenes	**302**	
C4-Phenanthrenes/Anthracenes	**150**	
Retene	10.4	U
Dibenzothiophene	**18.2**	
C1-Dibenzothiophenes	**163**	
C2-Dibenzothiophenes	**380**	
C3-Dibenzothiophenes	**441**	
C4-Dibenzothiophenes	**321**	
Benzo(b)fluorene	**8.72**	JB
Fluoranthene	**9.09**	JB
Pyrene	**25.2**	B
C1-Fluoranthenes/Pyrenes	**90.4**	
C2-Fluoranthenes/Pyrenes	**121**	
C3-Fluoranthenes/Pyrenes	**144**	
C4-Fluoranthenes/Pyrenes	**142**	
Naphthobenzothiophenes	**51.7**	
C1-Naphthobenzothiophenes	**169**	
C2-Naphthobenzothiophenes	**252**	
C3-Naphthobenzothiophenes	**219**	
C4-Naphthobenzothiophenes	**174**	
Benz[a]anthracene	**6.23**	JB
Chrysene/Triphenylene	**27.2**	B
C1-Chrysenes	**65.7**	
C2-Chrysenes	**98.5**	
C3-Chrysenes	**147**	
C4-Chrysenes	**122**	
Benzo[b]fluoranthene	**10.0**	JB
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**4.69**	JB
Benzo[a]fluoranthene	10.4	U
Benzo[e]pyrene	**14.9**	B
Benzo[a]pyrene	**7.94**	JB
Perylene	**12.6**	B
Indeno[1,2,3-cd]pyrene	**7.18**	JB
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.77**	JB
Benzo[g,h,i]perylene	**13.5**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00096	1	1	AC

Parameter	Result
Carbazole	3.94 JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00096	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	**60.3**
2/3-Methyldibenzothiophene	**56.2**
1-Methyldibenzothiophene	**33.1**
3-Methylphenanthrene	**34.6**
2/4-Methylphenanthrene	**38.7**
2-Methylanthracene	**4.00** J
9-Methylphenanthrene	**58.2**
1-Methylphenanthrene	**34.7**
2-Methylnaphthalene	**2.33** J
1-Methylnaphthalene	**1.11** J
2,6-Dimethylnaphthalene	**13.0**
2,3,5-Trimethylnaphthalene	**25.7**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	91	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00096	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**149**	
C24 Tricyclic Terpane	**85.2**	
C25 Tricyclic Terpane	**72.3**	
C24 Tetracyclic Terpane	**34.1**	
C26 Tricyclic Terpane-22S	**30.6**	
C26 Tricyclic Terpane-22R	**30.9**	
C28 Tricyclic Terpane-22S	**37.1**	
C28 Tricyclic Terpane-22R	**36.8**	
C29 Tricyclic Terpane-22S	**53.4**	
C29 Tricyclic Terpane-22R	**40.9**	
18a-22,29,30-Trisnorneohopane-TS	**39.7**	
C30 Tricyclic Terpane-22S	**28.4**	
C30 Tricyclic Terpane-22R	**32.5**	
17a(H)-22,29,30-Trisnorhopane-TM	**95.7**	
17a/b,21b/a 28,30-Bisnorhopane	**62.1**	
17a(H),21b(H)-25-Norhopane	**20.4**	
30-Norhopane	**246**	
18a(H)-30-Norneohopane-C29Ts	**41.2**	
17a(H)-Diahopane	**8.51**	J
30-Normoretane	**30.3**	
18a(H)&18b(H)-Oleananes	10.4	U
Hopane	**349**	
Moretane	**29.5**	
30-Homohopane-22S	**153**	
30-Homohopane-22R	**133**	
T22a-Gammacerane/C32-diahopane	**62.4**	
30,31-Bishomohopane-22S	**119**	
30,31-Bishomohopane-22R	**76.1**	

Parameter	Result	
30,31-Trishomohopane-22S	**77.9**	
30,31-Trishomohopane-22R	**50.5**	
Tetrakishomohopane-22S	**67.2**	
Tetrakishomohopane-22R	**31.0**	
Pentakishomohopane-22S	**74.3**	
Pentakishomohopane-22R	44.6	
13b(H),17a(H)-20S-Diacholestane	**59.5**	
13b(H),17a(H)-20R-Diacholestane	**22.8**	
13b,17a-20S-Methyldiacholestane	**23.2**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**82.6**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**111**	
Unknown Sterane (S18)	**15.6**	B
13a,17b-20S-Ethyldiacholestane	**10.5**	
14a,17a-20S-Methylcholestane	**36.7**	
14a,17a-20R-Methylcholestane	**26.6**	
14a(H),17a(H)-20S-Ethylcholestane	**88.3**	
14a(H),17a(H)-20R-Ethylcholestane	**60.0**	
14b(H),17b(H)-20R-Cholestane	**54.5**	
14b(H),17b(H)-20S-Cholestane	**63.2**	
14b,17b-20R-Methylcholestane	**57.5**	
14b,17b-20S-Methylcholestane	**74.4**	
14b(H),17b(H)-20R-Ethylcholestane	**79.3**	
14b(H),17b(H)-20S-Ethylcholestane	**69.6**	
C26,20R- +C27,20S- triaromatic steroid	**505**	
C28,20S-triaromatic steroid	**432**	
C27,20R-triaromatic steroid	**336**	
C28,20R-triaromatic steroid	**373**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	101	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

DB forsur 5/5/12

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	15762M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	28777	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	59132	864.363	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.44%			
42) Phenanthrene-d10	32.567	188	50792	939.320	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.93%			
86) Benzo[a]pyrene-d12	48.241	264	54088	906.937	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.69%			
127) 5B(H)Cholane - Surr	43.753	217	9104	1011.876	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.19%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	121M3	1.204	ng/mL	
11) C1-Naphthalenes	22.947	142	323M5	3.215	ng/mL	
12) C2-Naphthalenes	25.341	156	2980M5	29.664	ng/mL	
13) C3-Naphthalenes	28.021	170	13827M5	137.639	ng/mL	
14) C4-Naphthalenes	30.444	184	21221M5	211.241	ng/mL	
16) 2-Methylnaphthalene	22.496	142	133	2.239	ng/mL#	100
17) 1-Methylnaphthalene	22.947	142	62M2	1.065	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	540M5	5.973	ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	3348M5	37.035	ng/mL	
22) C4-Benzo(b)thiophenes	30.715	190	6949M5	76.869	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	610	12.500	ng/mL#	100
25) Dibenzofuran	27.464	168	74M2	0.858	ng/mL	
26) Acenaphthylene	26.094	152	113M2	1.133	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	969M3	24.631	ng/mL	
29) Fluorene	28.849	166	141	2.177	ng/mL#	1
30) C1-Fluorenes	31.197	180	2502M5	38.636	ng/mL	
31) C2-Fluorenes	33.395	194	8245M5	127.321	ng/mL	
32) C3-Fluorenes	35.232	208	12659M5	195.483	ng/mL	
33) Dibenzothiophene	32.160	184	1819	17.523	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	6008	57.877	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	5601M3	53.957	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	3301	31.800	ng/mL#	100
37) OTP	34.328	198	10135M3	97.634	ng/mL	
38) C1-Dibenzothiophenes	34.328	198	26364M5	253.975	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	37911M5	365.212	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	43907M5	422.974	ng/mL	
41) C4-Dibenzothiophenes	40.878	240	32012M5	308.384	ng/mL	
43) Phenanthrene	32.657	178	2608	28.596	ng/mL#	42
44) 3-Methylphenanthrene(3MP)	34.614	192	3025	33.168	ng/mL	93
45) 2/4-Methylphenanthrene...	34.735	192	3390	37.170	ng/mL	100
46) 2-Methylanthracene(2MA)	34.885	192	350M3	3.838	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	5098	55.898	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.156	192	3042M3	33.355	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	15428M5	169.163	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.873	206	29844M5	327.230	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.989	220	26487M5	290.421	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	13127M5	143.933	ng/mL	
56) Carbazole	33.485	167	340M3	3.778	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
57) 1-Methylphenanthrene	35.156	192	3004M3	51.976	ng/mL	
58) Fluoranthene	37.430	202	790M3	8.722	ng/mL	
59) Benzo(b)fluorene	39.944	216	440M3	8.373	ng/mL	
60) Pyrene	38.303	202	2224	24.154	ng/mL#	72
61) C1-Fluoranthenes/Pyrenes	39.703	216	7986M5	86.733	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.624	230	10660M5	115.774	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	12768M5	138.669	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.395	258	12521M5	135.986	ng/mL	
66) Naphthobenzothiophene	42.158	234	3515	35.459	ng/ml#	90
67) Naphthobenzothiophene-...	42.158	234	3515	35.459	ng/mL#	90
68) Naphthobenzothiophene-...	42.504	234	881M3	8.887	ng/mL	
69) Naphthobenzothiophene-...	42.790	234	526M3	5.306	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	16069M5	162.103	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	24009M5	242.202	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	20809M5	209.920	ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	16607M5	167.531	ng/mL	
75) Benz[a]anthracene	43.091	228	546M3	5.978	ng/mL	
77) Chrysene/Triphenylene	43.242	228	2408M3	26.113	ng/mL	
78) C1-Chrysenes	44.717	242	5815M5	63.061	ng/mL	
79) C2-Chrysenes	46.795	256	8717M5	94.531	ng/mL	
80) C3-Chrysenes	49.491	270	13052M5	141.542	ng/mL	
81) C4-Chrysenes	49.506	284	10820M5	117.337	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	967M3	9.635	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	492M3	4.503	ng/mL	
85) Benzo[e]pyrene	48.136	252	1422	14.325	ng/mL#	73
87) Benzo[a]pyrene	48.316	252	729	7.627	ng/mL#	1
88) Perylene	48.633	252	1233	12.071	ng/mL#	81
89) Indeno[1,2,3-cd]pyrene	53.136	276	767M3	6.896	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	281	2.656	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	1527	12.995	ng/mL#	81
92) Hopane (T19)	52.202	191	6359M3	335.283	ng/mL	
94) C23 Tricyclic Terpane ...	40.787	191	2708M3	142.781	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	1552M3	81.830	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	1316M3	69.387	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	621	32.743	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	558M3	29.421	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	563M3	29.685	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	675M3	35.590	ng/ml	
101) C28 Tricyclic Terpane-...	46.584	191	670M3	35.326	ng/ml	
102) C29 Tricyclic Terpane-...	47.111	191	973	51.302	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	745M3	39.281	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	723	38.121	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	517M3	27.259	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	591M3	31.161	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	1743M3	91.901	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	1130	59.580	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191	372	19.614	ng/ml	100
110) 30-Norhopane (T15)	50.831	191	4487M3	236.580	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	750M3	39.544	ng/ml	
112) 17a(H)-Diahopane (X)	51.057	191	155	8.172	ng/ml	100
113) 30-Normoretane (T17)	51.615	191	552M3	29.105	ng/ml	
115) Moretane (T20)	52.880	191	537M3	28.314	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	2790	147.105	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
117) 30-Homohopane-22R (T22)	54.220	191	2418	127.491	ng/ml	100
118) Gammacerane/C32-diahopane	54.762	191	1137	59.949	ng/mL	100
119) 30,31-Bishomohopane-22...	55.545	191	2162M3	113.993	ng/ml	
120) 30,31-Bishomohopane-22...	55.936	191	1386M3	73.078	ng/ml	
121) 30,31-Trishomohopane-2...	57.668	191	1419M3	74.818	ng/ml	
122) 30,31-Trishomohopane-2...	58.285	191	919M3	48.455	ng/ml	
123) Tetrakishomohopane-22S...	60.318	191	1223M3	64.484	ng/ml	
124) Tetrakishomohopane-22R...	61.192	191	564M3	29.737	ng/ml	
125) Pentakishomohopane-22S...	63.435	191	1353M3	71.338	ng/ml	
126) Pentakishomohopane-22R...	64.715	191	813M2	42.866	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	514M3	57.129	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.681	217	197	21.896	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	200M3	22.229	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	713	79.247	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	960M3	106.700	ng/ml	
133) Unknown Sterane (S18)	48.045	217	135M3	15.005	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.301	217	91M3	10.114	ng/ml	
135) 14a,17a-20S-Methylchol...	48.452	217	317M3	35.233	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	230	25.564	ng/ml	100
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	763M3	84.805	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	518M3	57.574	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.337	218	471M3	52.350	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	546	60.686	ng/ml	100
141) 14b,17b-20R-Methylchol...	48.633	218	497	55.240	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	643M3	71.467	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	685M3	76.135	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	601M3	66.799	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	4362	484.820	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	3728	414.353	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	2902	322.546	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	3219M3	357.780	ng/mL	

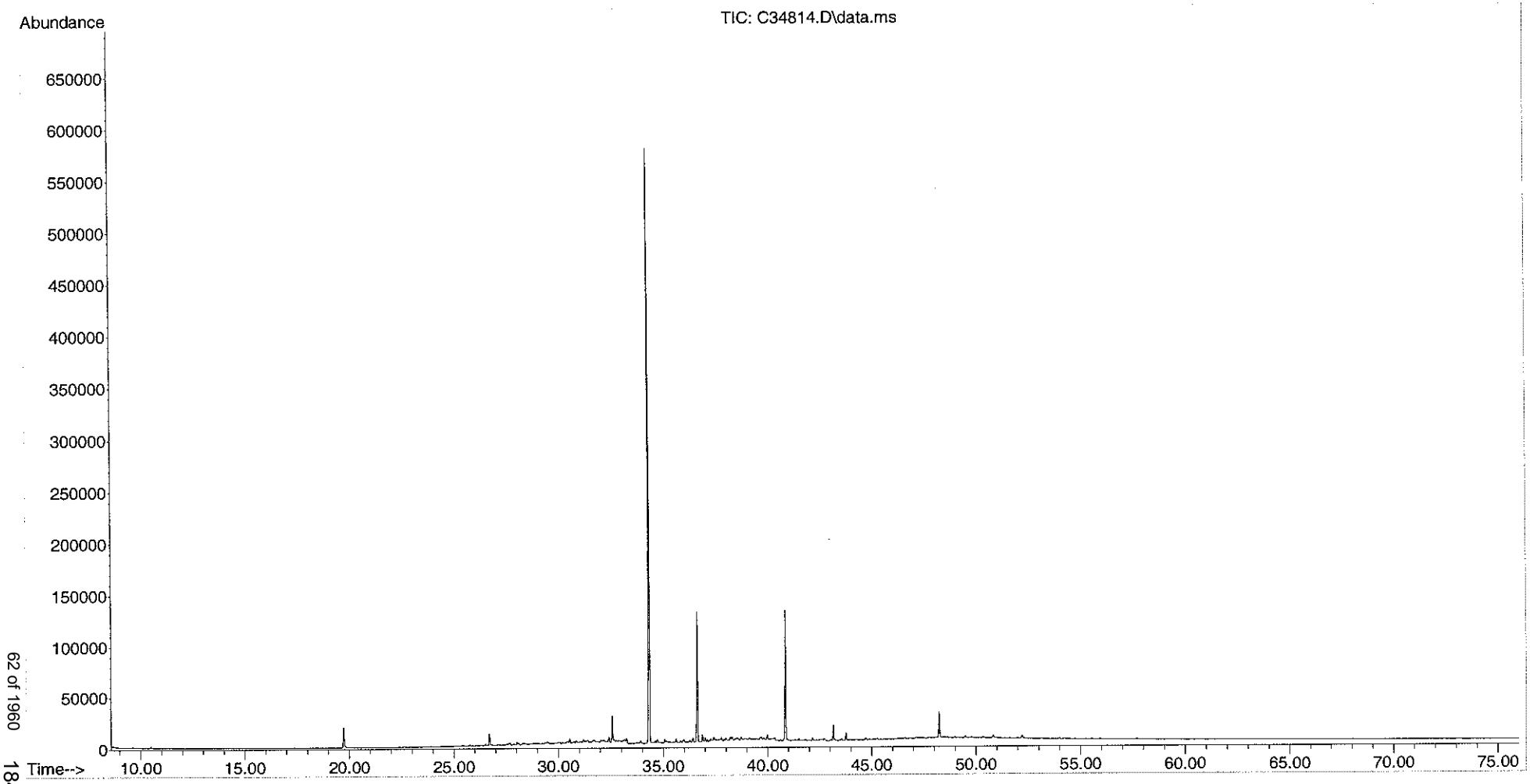
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00416	1	1	AC

Parameter	Result	
cis/trans-Decalin	**0.652**	J
C1-Decalins	**4.96**	
C2-Decalins	**17.7**	
C3-Decalins	**22.4**	
C4-Decalins	**61.7**	
Benzothiophene	2.40	U
C1-Benzo(b)thiophenes	**2.14**	J
C2-Benzo(b)thiophenes	**5.54**	
C3-Benzo(b)thiophenes	**32.2**	
C4-Benzo(b)thiophenes	**70.3**	
Naphthalene	**0.493**	J
C1-Naphthalenes	**2.74**	
C2-Naphthalenes	**32.5**	
C3-Naphthalenes	**133**	
C4-Naphthalenes	**204**	
Biphenyl	**0.625**	J
Dibenzofuran	**0.919**	J
Acenaphthylene	**0.442**	J
Acenaphthene	**0.918**	J
Fluorene	**4.07**	
C1-Fluorenes	**39.0**	
C2-Fluorenes	**137**	
C3-Fluorenes	**198**	
Anthracene	2.40	U
Phenanthrene	**32.1**	
C1-Phenanthrenes/Anthracenes	**175**	
C2-Phenanthrenes/Anthracenes	**328**	
C3-Phenanthrenes/Anthracenes	**305**	
C4-Phenanthrenes/Anthracenes	**161**	
Retene	2.40	U
Dibenzothiophene	**21.9**	
C1-Dibenzothiophenes	**157**	
C2-Dibenzothiophenes	**368**	
C3-Dibenzothiophenes	**440**	
C4-Dibenzothiophenes	**307**	
Benzo(b)fluorene	2.40	U
Fluoranthene	**8.43**	B
Pyrene	**23.9**	B
C1-Fluoranthenes/Pyrenes	**84.8**	
C2-Fluoranthenes/Pyrenes	**123**	
C3-Fluoranthenes/Pyrenes	**135**	
C4-Fluoranthenes/Pyrenes	**135**	
Naphthobenzothiophenes	**48.7**	
C1-Naphthobenzothiophenes	**164**	
C2-Naphthobenzothiophenes	**244**	
C3-Naphthobenzothiophenes	**211**	
C4-Naphthobenzothiophenes	**158**	
Benz[a]anthracene	**4.85**	B
Chrysene/Triphenylene	**23.1**	B
C1-Chrysenes	**61.1**	
C2-Chrysenes	**98.0**	
C3-Chrysenes	**115**	
C4-Chrysenes	**73.3**	
Benzo[b]fluoranthene	**7.77**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.12**	JB
Benzo[a]fluoranthene	2.40	U
Benzo[e]pyrene	**11.5**	B
Benzo[a]pyrene	**6.10**	B
Perylene	**11.2**	B
Indeno[1,2,3-cd]pyrene	**3.84**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.49**	JB
Benzo[g,h,i]perylene	**8.40**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	79	40-120
Phenanthrene-d10	96	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00416	1	1	AC

Parameter	Result
Carbazole	4.29 B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	79	40-120
Phenanthrene-d10	96	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00416	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	**60.4**
2/3-Methyldibenzothiophene	**51.2**
1-Methyldibenzothiophene	**34.7**
3-Methylphenanthrene	**33.9**
2/4-Methylphenanthrene	**39.4**
2-Methylanthracene	**3.95**
9-Methylphenanthrene	**58.4**
1-Methylphenanthrene	**34.5**
2-Methylnaphthalene	**2.36** J
1-Methylnaphthalene	**2.05** J
2,6-Dimethylnaphthalene	**14.2**
2,3,5-Trimethylnaphthalene	**20.5**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	79	40-120
Phenanthrene-d10	96	40-120
Benzo[a]pyrene-d12	89	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	0.00416	1	1	AC

Parameter	Result
C23 Tricyclic Terpane	**132**
C24 Tricyclic Terpane	**81.5**
C25 Tricyclic Terpane	**70.9**
C24 Tetracyclic Terpane	**25.9**
C26 Tricyclic Terpane-22S	**27.4**
C26 Tricyclic Terpane-22R	**27.0**
C28 Tricyclic Terpane-22S	**29.5**
C28 Tricyclic Terpane-22R	**32.7**
C29 Tricyclic Terpane-22S	**38.2**
C29 Tricyclic Terpane-22R	**35.9**
18a-22,29,30-Trisnorneohopane-TS	**42.5**
C30 Tricyclic Terpane-22S	**27.5**
C30 Tricyclic Terpane-22R	**33.0**
17a(H)-22,29,30-Trisnorhopane-TM	**92.0**
17a/b,21b/a 28,30-Bisnorhopane	**55.4**
17a(H),21b(H)-25-Norhopane	**15.1**
30-Norhopane	**230**
18a(H)-30-Norneohopane-C29Ts	**33.8**
17a(H)-Diahopane	**12.8**
30-Normoretane	**25.5**
18a(H)&18b(H)-Oleananes	**8.03**
Hopane	**330**
Moretane	**26.0**
30-Homohopane-22S	**134**
30-Homohopane-22R	**109**
T22a-Gammacerane/C32-diahopane	**51.2**
30,31-Bishomohopane-22S	**88.0**
30,31-Bishomohopane-22R	**63.7**

Parameter	Result	
30,31-Trishomohopane-22S	**70.3**	
30,31-Trishomohopane-22R	**44.2**	
Tetrakishomohopane-22S	**47.0**	
Tetrakishomohopane-22R	**34.8**	
Pentakishomohopane-22S	**59.5**	
Pentakishomohopane-22R	**38.2**	
13b(H),17a(H)-20S-Diacholestane	**52.4**	
13b(H),17a(H)-20R-Diacholestane	**20.9**	
13b,17a-20S-Methyldiacholestane	**23.1**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**75.1**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**100**	
Unknown Sterane (S18)	**19.6**	B
13a,17b-20S-Ethyldiacholestane	**7.76**	
14a,17a-20S-Methylcholestane	**37.5**	
14a,17a-20R-Methylcholestane	**36.0**	
14a(H),17a(H)-20S-Ethylcholestane	**79.6**	
14a(H),17a(H)-20R-Ethylcholestane	**60.4**	
14b(H),17b(H)-20R-Cholestane	**54.8**	
14b(H),17b(H)-20S-Cholestane	**52.0**	
14b,17b-20R-Methylcholestane	**43.5**	
14b,17b-20S-Methylcholestane	**59.3**	
14b(H),17b(H)-20R-Ethylcholestane	**81.5**	
14b(H),17b(H)-20S-Ethylcholestane	**59.5**	
C26,20R- +C27,20S- triaromatic steroid	**460**	
C28,20S-triaromatic steroid	**379**	
C27,20R-triaromatic steroid	**300**	
C28,20R-triaromatic steroid	**329**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	106	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.

05/15/12 11:25

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18217M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34683	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	62571	791.373	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 79.14%			
42) Phenanthrene-d10	32.567	188	59938	959.080	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.91%			
86) Benzo[a]pyrene-d12	48.241	264	63749	886.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.69%			
127) 5B(H)Cholane - Surr	43.769	217	11540	1064.216	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.42%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	39M2	2.712	ng/mL	
5) C1-Decalins	17.859	152	297M5	20.653	ng/mL	
6) C2-Decalins	20.795	166	1059M5	73.641	ng/mL	
7) C3-Decalins	22.119	180	1338M5	93.042	ng/mL	
8) C4-Decalins	25.492	194	3689M5	256.525	ng/mL	
10) Naphthalene	19.801	128	238M3	2.050	ng/mL	
11) C1-Naphthalenes	22.496	142	1325M5	11.412	ng/mL	
12) C2-Naphthalenes	25.341	156	15706M5	135.274	ng/mL	
13) C3-Naphthalenes	28.021	170	64149M5	552.507	ng/mL	
14) C4-Naphthalenes	30.444	184	98358M5	847.145	ng/mL	
16) 2-Methylnaphthalene	22.496	142	674	9.818	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	574M3	8.530	ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	932M5	8.920	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2407M5	23.038	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	13986M5	133.863	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	30558M5	292.476	ng/mL	
23) Biphenyl	24.378	154	226	2.602	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	3326	58.969	ng/mL#	100
25) Dibenzofuran	27.464	168	381	3.821	ng/mL#	1
26) Acenaphthylene	26.079	152	212M3	1.839	ng/mL	
27) Acenaphthene	26.816	153	259M3	3.817	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	3869M3	85.094	ng/mL	
29) Fluorene	28.834	166	1267M3	16.929	ng/mL	
30) C1-Fluorenes	31.197	180	12136M5	162.151	ng/mL	
31) C2-Fluorenes	33.395	194	42754M5	571.243	ng/mL	
32) C3-Fluorenes	35.232	208	61708M5	824.491	ng/mL	
33) Dibenzothiophene	32.161	184	10918	91.003	ng/mL#	14
34) 4-Methyldibenzothiophe...	33.937	198	30134	251.172	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	25548	212.947	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.705	198	17300	144.198	ng/mL#	100
37) OTP	34.344	198	9594M3	79.968	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	87809M5	731.902	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	183597M5	1530.311	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	219471M5	1829.326	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	153023M5	1275.471	ng/mL	
43) Phenanthrene	32.657	178	14072M3	133.502	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	14850	140.882	ng/mL	85
45) 2/4-Methylphenanthrene...	34.735	192	17288M3	164.012	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
46) 2-Methylanthracene(2MA)	34.886	192	1732M3	16.432	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	25609	242.953	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.157	192	15115M3	143.396	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	76923M5	729.771	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	144016M5	1366.284	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	133696M5	1268.378	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	70477M5	668.618	ng/mL	
56) Carbazole	33.485	167	1856M3	17.846	ng/mL	
57) 1-Methylphenanthrene	35.157	192	15358M3	229.916	ng/mL	
58) Fluoranthene	37.430	202	3671M3	35.066	ng/mL	
60) Pyrene	38.303	202	10589M3	99.505	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	37541M5	352.773	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	54270M5	509.976	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	59846M5	562.373	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	59783M5	561.781	ng/mL	
66) Naphthobenzothiophene	42.158	234	16355	142.754	ng/ml#	88
67) Naphthobenzothiophene-...	42.158	234	16355	142.754	ng/mL#	88
68) Naphthobenzothiophene-...	42.504	234	4363M3	38.082	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2508M3	21.891	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	78100M5	681.693	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	116254M5	1014.719	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	100756M5	879.445	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	75206M5	656.433	ng/mL	
75) Benz[a]anthracene	43.091	228	2221M3	20.176	ng/mL	
77) Chrysene/Triphenylene	43.227	228	10697M3	96.250	ng/mL	
78) C1-Chrysenes	44.717	242	28260M5	254.278	ng/mL	
79) C2-Chrysenes	46.795	256	45332M5	407.889	ng/mL	
80) C3-Chrysenes	48.015	270	53350M5	480.033	ng/mL	
81) C4-Chrysenes	49.521	284	33895M5	304.981	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3908	32.308	ng/mL#	72
83) Benzo[j]+[k]fluoranthene	47.202	252	1159M3	8.801	ng/mL	
85) Benzo[e]pyrene	48.136	252	5744M3	48.009	ng/mL	
87) Benzo[a]pyrene	48.331	252	2924M3	25.384	ng/mL	
88) Perylene	48.633	252	5727M3	46.520	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	2144M3	15.994	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	791M3	6.203	ng/mL	
91) Benzo[g,h,i]perylene	54.446	276	4950M3	34.951	ng/mL	
92) Hopane (T19)	52.217	191	31425	1374.759	ng/mL#	78
94) C23 Tricyclic Terpane ...	40.788	191	12564M3	549.641	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	7748	338.954	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	6744M3	295.032	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	2463	107.750	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	2601M3	113.787	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2568M3	112.343	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2801M3	122.536	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	3110M3	136.054	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	3635	159.021	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3415M3	149.397	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	4040	176.739	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2615M3	114.399	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	3140M3	137.366	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191	8747M3	382.658	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	5271M3	230.592	ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109)	17a(H),21b(H)-25-Norho...	49.973	191	1440	62.996	ng/ml	100
110)	30-Norhopane (T15)	50.847	191	21828M3	954.916	ng/ml	
111)	18a(H)-30-Norneohopane...	50.952	191	3217M3	140.735	ng/ml	
112)	17a(H)-Diahopane (X)	51.072	191	1218M3	53.284	ng/ml	
113)	30-Normoretane (T17)	51.615	191	2427	106.175	ng/ml	100
114)	18a(H)&18b(H)-Oleanane...	52.006	191	764	33.423	ng/ml	100
115)	Moretane (T20)	52.910	191	2476M3	108.318	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191	12794M3	559.703	ng/ml	
117)	30-Homohopane-22R (T22)	54.235	191	10376	453.922	ng/ml	100
118)	Gammacerane/C32-diahopane	54.777	191	4866M3	212.874	ng/mL	
119)	30,31-Bishomohopane-22...	55.560	191	8373	366.296	ng/ml	100
120)	30,31-Bishomohopane-22...	55.952	191	6059M3	265.065	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191	6682M3	292.319	ng/ml	
122)	30,31-Trishomohopane-2...	58.316	191	4204M3	183.914	ng/ml	
123)	Tetrakishomohopane-22S...	60.334	191	4474	195.725	ng/ml	100
124)	Tetrakishomohopane-22R...	61.222	191	3310M3	144.804	ng/ml	
125)	Pentakishomohopane-22S...	63.451	191	5656M3	247.435	ng/ml	
126)	Pentakishomohopane-22R...	64.731	191	3628M3	158.715	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217	2364	218.007	ng/ml	100
129)	13b(H),17a(H)-20R-Diac...	45.696	217	943M3	86.963	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.389	217	1040M3	95.909	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	3387	312.348	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	4525M3	417.294	ng/ml	
133)	Unknown Sterane (S18)	48.060	217	885	81.614	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217	350	32.277	ng/ml	100
135)	14a,17a-20S-Methylchol...	48.467	217	1692	156.036	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217	1626M3	149.949	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217	3590M3	331.069	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.455	217	2726M3	251.391	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.352	218	2470M3	227.783	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218	2345M3	216.255	ng/ml	
141)	14b,17b-20R-Methylchol...	48.648	218	1962	180.935	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.723	218	2676M3	246.780	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218	3678M3	339.184	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.822	218	2686M3	247.702	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231	20730	1911.715	ng/mL	100
146)	C28,20S-triaromatic st...	50.350	231	17100M3	1576.957	ng/mL	
147)	C27,20R-triaromatic st...	50.801	231	13540	1248.655	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231	14845M3	1369.002	ng/mL	

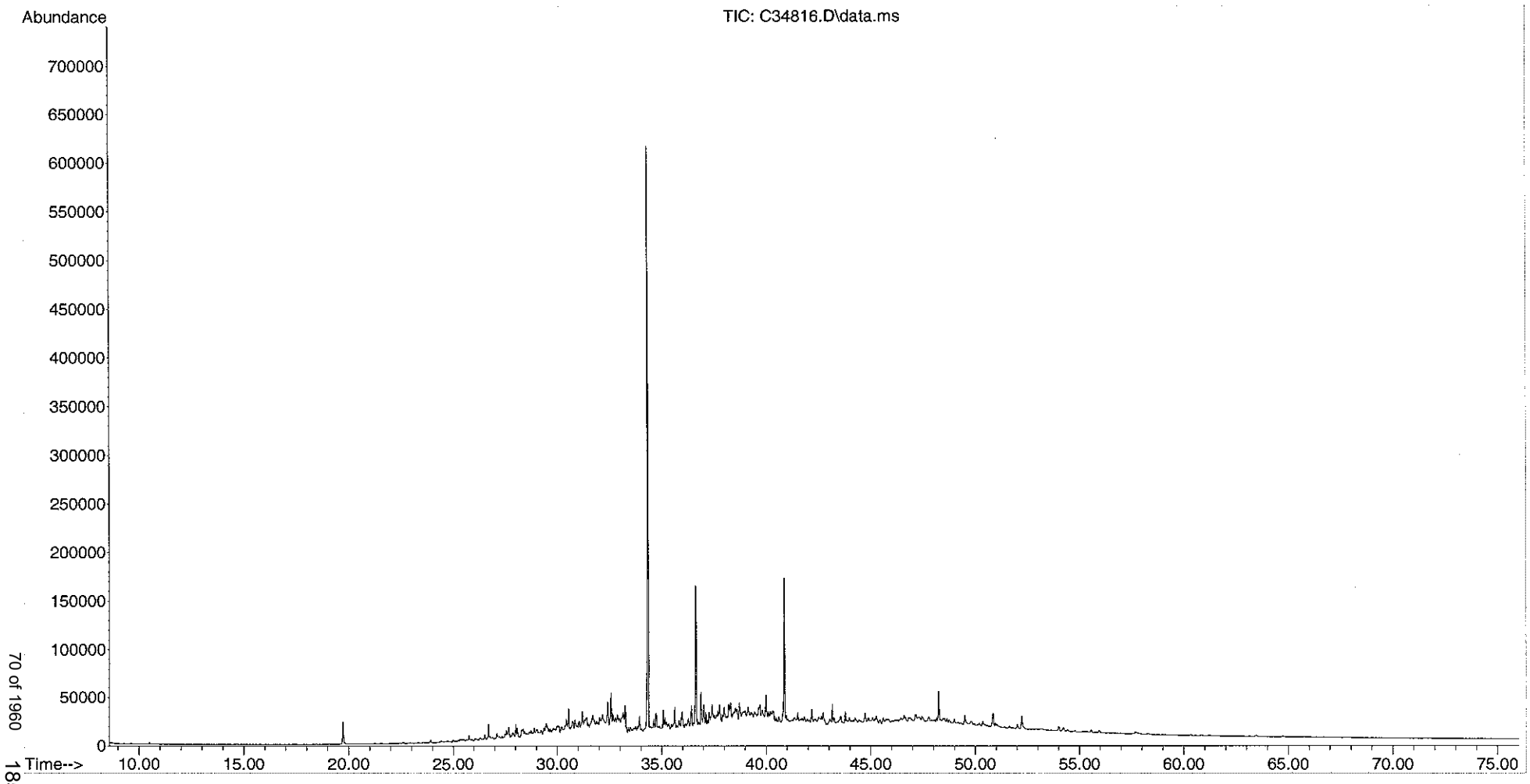
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-05**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	04/30/12	05/05/12	48.4	7.46	4	1	AC

Parameter	Result		Parameter	Result
cis/trans-Decalin	**8.03**	J	C3-Dibenzothiophenes	**2480**
C1-Decalins	**33.2**		C4-Dibenzothiophenes	**1950**
C2-Decalins	**124**		Benzo(b)fluorene	**208**
C3-Decalins	**146**		Fluoranthene	**1190**
C4-Decalins	**393**		Pyrene	**1220**
Benzothiophene	**2.14**	J	C1-Fluoranthenes/Pyrenes	**1200**
C1-Benzo(b)thiophenes	**9.94**	J	C2-Fluoranthenes/Pyrenes	**1040**
C2-Benzo(b)thiophenes	**23.7**		C3-Fluoranthenes/Pyrenes	**1060**
C3-Benzo(b)thiophenes	**147**		C4-Fluoranthenes/Pyrenes	**1030**
C4-Benzo(b)thiophenes	**303**		Naphthobenzothiophenes	**417**
Naphthalene	**25.2**		C1-Naphthobenzothiophenes	**1140**
C1-Naphthalenes	**23.7**		C2-Naphthobenzothiophenes	**1690**
C2-Naphthalenes	**152**		C3-Naphthobenzothiophenes	**1460**
C3-Naphthalenes	**590**		C4-Naphthobenzothiophenes	**1070**
C4-Naphthalenes	**872**		Benz[a]anthracene	**612**
Biphenyl	**8.07**	J	Chrysene/Triphenylene	**689**
Dibenzofuran	**16.2**		C1-Chrysenes	**673**
Acenaphthylene	**62.6**		C2-Chrysenes	**753**
Acenaphthene	**30.7**		C3-Chrysenes	**859**
Fluorene	**46.2**		C4-Chrysenes	**485**
C1-Fluorenes	**160**		Benzo[b]fluoranthene	**570**
C2-Fluorenes	**578**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**454**
C3-Fluorenes	**1070**		Benzo[a]fluoranthene	**135**
Anthracene	**175**		Benzo[e]pyrene	**464**
Phenanthrene	**487**		Benzo[a]pyrene	**671**
C1-Phenanthrenes/Anthracenes	**935**		Perylene	**251**
C2-Phenanthrenes/Anthracenes	**1600**		Indeno[1,2,3-cd]pyrene	**401**
C3-Phenanthrenes/Anthracenes	**1810**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**117**
C4-Phenanthrenes/Anthracenes	**1030**		Benzo[g,h,i]perylene	**398**
Retene	0.906	U		
Dibenzothiophene	**95.0**			
C1-Dibenzothiophenes	**599**			
C2-Dibenzothiophenes	**1620**			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-05**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	04/30/12	05/05/12	48.4	7.46	4	1	AC

Parameter	Result
Carbazole	**35.5**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-05**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	04/30/12	05/05/12	48.4	7.46	4	1	AC

Parameter	Result
4-Methyldibenzothiophene	**217**
2/3-Methyldibenzothiophene	**192**
1-Methyldibenzothiophene	**132**
3-Methylphenanthrene	**171**
2/4-Methylphenanthrene	**202**
2-Methylanthracene	**64.5**
9-Methylphenanthrene	**293**
1-Methylphenanthrene	**168**
2-Methylnaphthalene	**23.2**
1-Methylnaphthalene	**15.6**
2,6-Dimethylnaphthalene	**65.9**
2,3,5-Trimethylnaphthalene	**108**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-05**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	04/30/12	05/05/12	48.4	7.46	4	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**895**	
C24 Tricyclic Terpane	**512**	
C25 Tricyclic Terpane	**527**	
C24 Tetracyclic Terpane	**187**	
C26 Tricyclic Terpane-22S	**193**	
C26 Tricyclic Terpane-22R	**181**	
C28 Tricyclic Terpane-22S	**170**	
C28 Tricyclic Terpane-22R	**231**	
C29 Tricyclic Terpane-22S	**250**	
C29 Tricyclic Terpane-22R	**225**	
18a-22,29,30-Trisnorneohopane-TS	**274**	
C30 Tricyclic Terpane-22S	**179**	
C30 Tricyclic Terpane-22R	**191**	
17a(H)-22,29,30-Trisnorhopane-TM	**625**	
17a/b,21b/a 28,30-Bisnorhopane	**394**	
17a(H),21b(H)-25-Norhopane	**207**	
30-Norhopane	**1690**	
18a(H)-30-Norneohopane-C29Ts	**252**	
17a(H)-Diahopane	**86.8**	
30-Normoretane	**183**	
18a(H)&18b(H)-Oleananes	**46.7**	
Hopane	**2230**	
Moretane	**192**	
30-Homohopane-22S	**1020**	
30-Homohopane-22R	**802**	
T22a-Gammacerane/C32-diahopane	**306**	
30,31-Bishomohopane-22S	**986**	
30,31-Bishomohopane-22R	**441**	

Parameter	Result	
30,31-Trishomohopane-22S	**489**	
30,31-Trishomohopane-22R	**282**	
Tetrakishomohopane-22S	**320**	
Tetrakishomohopane-22R	**667**	G
Pentakishomohopane-22S	**365**	
Pentakishomohopane-22R	**234**	
13b(H),17a(H)-20S-Diacholestane	**284**	
13b(H),17a(H)-20R-Diacholestane	**142**	
13b,17a-20S-Methyldiacholestane	**116**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**506**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**620**	
Unknown Sterane (S18)	**127**	
13a,17b-20S-Ethyldiacholestane	**79.6**	
14a,17a-20S-Methylcholestane	**259**	
14a,17a-20R-Methylcholestane	**251**	
14a(H),17a(H)-20S-Ethylcholestane	**550**	
14a(H),17a(H)-20R-Ethylcholestane	**502**	
14b(H),17b(H)-20R-Cholestane	**343**	
14b(H),17b(H)-20S-Cholestane	**373**	
14b,17b-20R-Methylcholestane	**316**	
14b,17b-20S-Methylcholestane	**447**	
14b(H),17b(H)-20R-Ethylcholestane	**566**	
14b(H),17b(H)-20S-Ethylcholestane	**481**	
C26,20R- +C27,20S- triaromatic steroid	**3030**	
C28,20S-triaromatic steroid	**2680**	
C27,20R-triaromatic steroid	**2050**	
C28,20R-triaromatic steroid	**2290**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	98	50-130

N/A - Not Applicable
G - Matrix Interference

05/09/12 11:10

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

19h2 5/6/12

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	20466M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.166	240	42622	500.000	ng/mL	0.02
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	83629	941.475	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 94.15%			
42) Phenanthrene-d10		32.567	188	82257	1171.574	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 117.16%			
86) Benzo[a]pyrene-d12		48.256	264	88771	1004.984	ng/mL	0.02
Spiked Amount	1000.000	Range 50 - 130		Recovery = 100.50%			
127) 5B(H)Cholane - Surr		43.769	217	16348	1226.793	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 122.68%			
Target Compounds							Qvalue
3) trans-Decalin		16.369	138	117M3	7.242	ng/mL	
5) C1-Decalins		18.311	152	483M5	29.896	ng/mL	
6) C2-Decalins		19.635	166	1809M5	111.971	ng/mL	
7) C3-Decalins		22.119	180	2122M5	131.344	ng/mL	
8) C4-Decalins		25.492	194	5720M5	354.047	ng/mL	
10) Naphthalene		19.801	128	2964	22.723	ng/mL#	100
11) C1-Naphthalenes		22.496	142	2785M5	21.351	ng/mL	
12) C2-Naphthalenes		25.341	156	17848M5	136.830	ng/mL	
13) C3-Naphthalenes		28.021	170	69450M5	532.432	ng/mL	
14) C4-Naphthalenes		30.445	184	102606M5	786.619	ng/mL	
16) 2-Methylnaphthalene		22.496	142	1613	20.914	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	1060M4	14.021	ng/mL	
18) Benzothiophene		20.012	134	227M3	1.934	ng/mL	
19) C1-Benzo(b)thiophenes		22.631	148	1052M5	8.962	ng/mL	
20) C2-Benzo(b)thiophenes		25.537	162	2504M5	21.333	ng/mL	
21) C3-Benzo(b)thiophenes		27.509	176	15599M5	132.894	ng/mL	
22) C4-Benzo(b)thiophenes		29.617	190	32118M5	273.626	ng/mL	
23) Biphenyl		24.378	154	710M3	7.277	ng/mL	
24) 2,6-Dimethylnaphthalene		24.995	156	3764	59.401	ng/mL#	100
25) Dibenzofuran		27.464	168	1636	14.603	ng/mL#	63
26) Acenaphthylene		26.079	152	7316	56.501	ng/mL#	100
27) Acenaphthene		26.816	153	2112M3	27.702	ng/mL	
28) 2,3,5-Trimethylnaphthalen		28.367	170	4999M3	97.865	ng/mL	
29) Fluorene		28.834	166	3502M3	41.649	ng/mL	
30) C1-Fluorenes		31.197	180	12101M5	143.916	ng/mL	
31) C2-Fluorenes		33.395	194	43845M6	521.445	ng/mL	

75 of 160 1861

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
32) C3-Fluorenes	35.232	208	81045M5	963.861	ng/mL	
33) Dibenzothiophene	32.161	184	11546	85.662	ng/mL#	17
34) 4-Methyldibenzothiophene(	33.937	198	26355	195.533	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	23338	173.150	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.705	198	16017	118.834	ng/mL#	100
37) OTP	34.344	198	13437	99.692	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	86281M5	640.137	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	72844m	540.445	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	196440M5	1457.430	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	301511M5	2236.975	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	237263M5	1760.305	ng/mL	
43) Phenanthrene	32.657	178	52050M3	439.537	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.630	192	18251M3	154.121	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	21594	182.351	ng/mL	100
46) 2-Methylanthracene(2MA)	34.886	192	6892M4	58.200	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	31288	264.212	ng/mL	90
48) 1-Methylphenanthrene(1MP)	35.172	192	17909M4	151.233	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	99895M5	843.564	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	170654M5	1441.089	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	170654m	1441.089	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	193096M5	1630.600	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	110358M5	931.919	ng/mL	
55) Anthracene	32.838	178	18246	157.742	ng/mL	97
56) Carbazole	33.500	167	3742M3	32.027	ng/mL	
57) 1-Methylphenanthrene	35.172	192	17957M3	239.283	ng/mL	
58) Fluoranthene	37.430	202	126530M3	1075.834	ng/mL	
59) Benzo(b)fluorene	39.944	216	12800M3	187.592	ng/mL	
60) Pyrene	38.318	202	131088	1096.469	ng/mL	92
61) C1-Fluoranthenes/Pyrenes	39.704	216	129157M5	1080.317	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	111659M5	933.958	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	114885M5	960.941	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	111338M5	931.273	ng/mL	
66) Naphthobenzothiophene	42.173	234	29837	231.812	ng/ml#	83
67) Naphthobenzothiophene-2,1	42.173	234	29837	231.812	ng/mL#	83
68) Naphthobenzothiophene-1,2	42.504	234	7176M3	55.752	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	11424M3	88.756	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	132037M5	1025.834	ng/ml	
71) C2-Naphthobenzothiophenes	45.575	262	196386M5	1525.781	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	169423M5	1316.297	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290	124734M5	969.095	ng/mL	
75) Benz[a]anthracene	43.091	228	74632M3	551.679	ng/mL	

76 of 96 4862

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	84848m	621.242	ng/mL	
78) C1-Chrysenes	44.732	242	82873M5	606.782	ng/mL	
79) C2-Chrysenes	46.810	256	92759M5	679.165	ng/mL	
79) C2-Chrysenes BS	46.810	256	92759m	679.165	ng/mL	
80) C3-Chrysenes	49.506	270	105770M5	774.430	ng/mL	
81) C4-Chrysenes	49.612	284	59784M5	437.728	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	76431	514.176	ng/mL	99
83) Benzo[j]+[k]fluoranthene	47.217	252	66317	409.773	ng/mL	97
84) Benzo[a]fluoranthene	47.533	252	19761M4	122.103	ng/mL	
85) Benzo[e]pyrene	48.151	252	61505	418.314	ng/mL	97
87) Benzo[a]pyrene	48.347	252	85710M3	605.467	ng/mL	
88) Perylene	48.648	252	34207	226.105	ng/mL	99
89) Indeno[1,2,3-cd]pyrene	53.166	276	59626M3	361.946	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	16514M3	105.379	ng/mL	
91) Benzo[g,h,i]perylene	54.476	276	62510M3	359.158	ng/mL	
92) Hopane (T19)	52.232	191	56587M3	2014.423	ng/mL	
94) C23 Tricyclic Terpane (T4	40.803	191	22681M3	807.414	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	12979M3	462.035	ng/ml	
96) C25 Tricyclic Terpane (T6	43.046	191	13341M3	474.922	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	4745M3	168.916	ng/ml	
98) C26 Tricyclic Terpane-22S	44.055	191	4893M3	174.184	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	4592M3	163.469	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	4320M3	153.786	ng/ml	
101) C28 Tricyclic Terpane-22R	46.600	191	5844M3	208.039	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	6341	225.731	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.322	191	5695	202.735	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.452	191	6932	246.770	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	4539	161.582	ng/mL	100
106) C30 Tricyclic Terpane-22R	48.783	191	4829M3	171.906	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	15845	564.061	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	9990	355.631	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.973	191	5247M3	186.786	ng/ml	
110) 30-Norhopane (T15)	50.862	191	42810	1523.980	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.952	191	6383M3	227.226	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	2199M3	78.282	ng/ml	
113) 30-Normoretane (T17)	51.630	191	4640	165.178	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.021	191	1183	42.113	ng/ml	100
115) Moretane (T20)	52.910	191	4871M3	173.401	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	25733	916.061	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	20317	723.259	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	7766	276.459	ng/mL	100

5-14-12

3863

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.560	191	24976M3	889.113	ng/ml	
120) 30,31-Bishomohopane-22R (	55.967	191	11184	398.136	ng/ml	100
121) 30,31-Trishomohopane-22S	57.713	191	12399	441.388	ng/ml	100
122) 30,31-Trishomohopane-22R	58.316	191	7138M3	254.103	ng/ml	
123) Tetrakishomohopane-22S (T	60.349	191	8114M3	288.848	ng/ml	
124) Tetrakishomohopane-22R (T	61.192	191G	16895	601.440	ng/ml	100
125) Pentakishomohopane-22S (T	63.466	191	9239M3	328.896	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	5917M3	210.637	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	3417M3	256.420	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1711M3	128.398	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.389	217	1392M3	104.459	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	6084	456.558	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	7453M3	559.291	ng/ml	
133) Unknown Sterane (S18)	48.060	217	1525	114.440	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	957	71.816	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	3109	233.307	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.205	217	3018M3	226.478	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	6616M3	496.480	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.455	217	6034M3	452.806	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	4125M3	309.550	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	4480M3	336.190	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	3804	285.461	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	5367M3	402.752	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	6805M3	510.663	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	5782M3	433.895	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	36428	2733.644	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	32276M3	2422.068	ng/mL	
147) C27,20R-triaromatic stero	50.816	231	24602	1846.193	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	27469M3	2061.339	ng/mL	

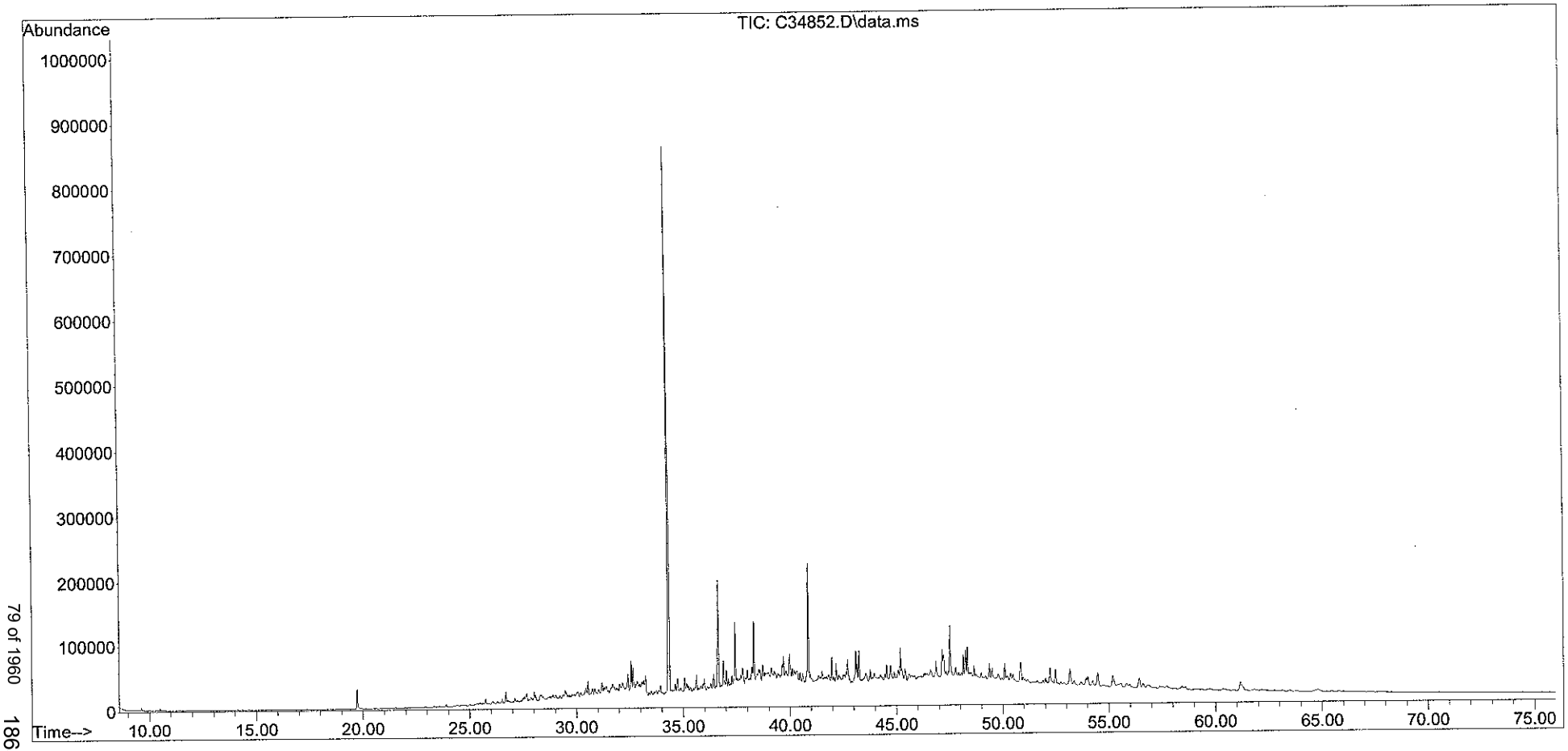
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-06**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	48.1	9.63	2.67	1	AC

Parameter	Result	
cis/trans-Decalin	**7.83**	
C1-Decalins	**19.1**	
C2-Decalins	**60.6**	
C3-Decalins	**82.2**	
C4-Decalins	**184**	
Benzothiophene	**1.99**	J
C1-Benzo(b)thiophenes	**8.15**	
C2-Benzo(b)thiophenes	**13.6**	
C3-Benzo(b)thiophenes	**61.8**	
C4-Benzo(b)thiophenes	**120**	
Naphthalene	**37.3**	
C1-Naphthalenes	**41.9**	
C2-Naphthalenes	**103**	
C3-Naphthalenes	**255**	
C4-Naphthalenes	**351**	
Biphenyl	**9.42**	
Dibenzofuran	**31.9**	
Acenaphthylene	**66.2**	
Acenaphthene	**52.2**	
Fluorene	**68.4**	
C1-Fluorenes	**82.7**	
C2-Fluorenes	**249**	
C3-Fluorenes	**484**	
Anthracene	**201**	
Phenanthrene	**841**	
C1-Phenanthrenes/Anthracenes	**604**	
C2-Phenanthrenes/Anthracenes	**763**	
C3-Phenanthrenes/Anthracenes	**690**	
C4-Phenanthrenes/Anthracenes	**376**	
Retene	0.471	U
Dibenzothiophene	**68.4**	
C1-Dibenzothiophenes	**262**	
C2-Dibenzothiophenes	**655**	

Parameter	Result
C3-Dibenzothiophenes	**892**
C4-Dibenzothiophenes	**673**
Benzo(b)fluorene	**228**
Fluoranthene	**2230**
Pyrene	**1920**
C1-Fluoranthenes/Pyrenes	**1050**
C2-Fluoranthenes/Pyrenes	**742**
C3-Fluoranthenes/Pyrenes	**490**
C4-Fluoranthenes/Pyrenes	**445**
Naphthobenzothiophenes	**407**
C1-Naphthobenzothiophenes	**510**
C2-Naphthobenzothiophenes	**649**
C3-Naphthobenzothiophenes	**548**
C4-Naphthobenzothiophenes	**397**
Benz[a]anthracene	**834**
Chrysene/Triphenylene	**1070**
C1-Chrysenes	**503**
C2-Chrysenes	**372**
C3-Chrysenes	**400**
C4-Chrysenes	**213**
Benzo[b]fluoranthene	**1040**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**846**
Benzo[a]fluoranthene	**184**
Benzo[e]pyrene	**761**
Benzo[a]pyrene	**1020**
Perylene	**317**
Indeno[1,2,3-cd]pyrene	**750**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**219**
Benzo[g,h,i]perylene	**714**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-06**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	48.1	9.63	2.67	1	AC

Parameter	Result
Carbazole	**89.4**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-06**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	48.1	9.63	2.67	1	AC

Parameter	Result
4-Methyldibenzothiophene	**95.5**
2/3-Methyldibenzothiophene	**92.4**
1-Methyldibenzothiophene	**53.4**
3-Methylphenanthrene	**126**
2/4-Methylphenanthrene	**155**
2-Methylanthracene	**52.2**
9-Methylphenanthrene	**168**
1-Methylphenanthrene	**104**
2-Methylnaphthalene	**39.8**
1-Methylnaphthalene	**29.2**
2,6-Dimethylnaphthalene	**49.2**
2,3,5-Trimethylnaphthalene	**47.9**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	92	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-06**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	48.1	9.63	2.67	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**301**	
C24 Tricyclic Terpane	**179**	
C25 Tricyclic Terpane	**172**	
C24 Tetracyclic Terpane	**74.3**	
C26 Tricyclic Terpane-22S	**82.2**	
C26 Tricyclic Terpane-22R	**74.0**	
C28 Tricyclic Terpane-22S	**70.9**	
C28 Tricyclic Terpane-22R	**111**	
C29 Tricyclic Terpane-22S	**90.1**	
C29 Tricyclic Terpane-22R	**90.3**	
18a-22,29,30-Trisnorneohopane-TS	**136**	
C30 Tricyclic Terpane-22S	**76.4**	
C30 Tricyclic Terpane-22R	**66.7**	
17a(H)-22,29,30-Trisnorhopane-TM	**249**	
17a/b,21b/a 28,30-Bisnorhopane	**152**	
17a(H),21b(H)-25-Norhopane	**135**	
30-Norhopane	**711**	
18a(H)-30-Norneohopane-C29Ts	**131**	
17a(H)-Diahopane	**28.0**	
30-Normoretane	**83.8**	
18a(H)&18b(H)-Oleananes	**46.1**	
Hopane	**932**	
Moretane	**79.6**	
30-Homohopane-22S	**408**	
30-Homohopane-22R	**336**	
T22a-Gammacerane/C32-diahopane	**134**	
30,31-Bishomohopane-22S	**970**	G
30,31-Bishomohopane-22R	**294**	

Parameter	Result	
30,31-Trishomohopane-22S	**271**	
30,31-Trishomohopane-22R	**102**	
Tetrakishomohopane-22S	**218**	
Tetrakishomohopane-22R	**807**	G
Pentakishomohopane-22S	**171**	
Pentakishomohopane-22R	**112**	
13b(H),17a(H)-20S-Diacholestane	**144**	
13b(H),17a(H)-20R-Diacholestane	**63.0**	
13b,17a-20S-Methyldiacholestane	**57.6**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**229**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**275**	
Unknown Sterane (S18)	**61.4**	
13a,17b-20S-Ethyldiacholestane	**13.4**	
14a,17a-20S-Methylcholestane	**119**	
14a,17a-20R-Methylcholestane	**110**	
14a(H),17a(H)-20S-Ethylcholestane	**204**	
14a(H),17a(H)-20R-Ethylcholestane	**197**	
14b(H),17b(H)-20R-Cholestane	**146**	
14b(H),17b(H)-20S-Cholestane	**158**	
14b,17b-20R-Methylcholestane	**132**	
14b,17b-20S-Methylcholestane	**190**	
14b(H),17b(H)-20R-Ethylcholestane	**217**	
14b(H),17b(H)-20S-Ethylcholestane	**221**	
C26,20R- +C27,20S- triaromatic steroid	**1080**	
C28,20S-triaromatic steroid	**986**	
C27,20R-triaromatic steroid	**732**	
C28,20R-triaromatic steroid	**807**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	93	50-130

N/A - Not Applicable
G - Matrix Interference

05/09/12 11:11

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

1st Review 5/6/12

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	20897M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.166	240	42470	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	129553	1428.395 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 142.84%#		
42) Phenanthrene-d10	32.567	188	124120	1731.360 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 173.14%#		
86) Benzo[a]pyrene-d12	48.256	264	135728	1542.087 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 154.21%#		
127) 5B(H)Cholane - Surr	43.769	217	23129	1741.867 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 174.19%#		
Target Compounds					Qvalue
3) trans-Decalin	16.369	138	224M3	13.579 ng/mL	
5) C1-Decalins	18.311	152	546M5	33.098 ng/mL	
6) C2-Decalins	19.289	166	1735M5	105.175 ng/mL	
7) C3-Decalins	22.104	180	2353M5	142.638 ng/mL	
8) C4-Decalins	25.492	194	5251M5	318.314 ng/mL	
10) Naphthalene	19.801	128	8607M3	64.624 ng/mL	
11) C1-Naphthalenes	22.496	142	9683M5	72.703 ng/mL	
12) C2-Naphthalenes	25.341	156	23874M5	179.253 ng/mL	
13) C3-Naphthalenes	28.021	170	58899M5	442.230 ng/mL	
14) C4-Naphthalenes	30.444	184	81076M5	608.742 ng/mL	
16) 2-Methylnaphthalene	22.496	142	5439	69.067 ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	3902	50.550 ng/mL#	100
18) Benzothiophene	20.027	134	414	3.454 ng/mL	100
19) C1-Benzo(b)thiophenes	22.902	148	1694M5	14.134 ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2823M5	23.554 ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	12854M5	107.250 ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	24967M5	208.317 ng/mL	
23) Biphenyl	24.378	154	1627M3	16.333 ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	5518	85.285 ng/mL#	100
25) Dibenzofuran	27.464	168	6324M3	55.284 ng/mL	
26) Acenaphthylene	26.079	152	15166	114.711 ng/mL#	100
27) Acenaphthene	26.816	153	7049M3	90.551 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.367	170	4334M3	83.096 ng/mL	
29) Fluorene	28.834	166	10176M3	118.526 ng/mL	
30) C1-Fluorenes	31.212	180	12315M5	143.440 ng/mL	
31) C2-Fluorenes	33.410	194	37040M5	431.428 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
32) C3-Fluorenes	35.909	208	72049M5	839.200	ng/mL	
33) Dibenzothiophene	32.161	184	16320	118.584	ng/mL#	51
34) 4-Methyldibenzothiophene(	33.937	198	22781	165.531	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	22060	160.292	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.705	198	12742	92.586	ng/mL#	100
37) OTP	34.359	198	22432M3	162.995	ng/mL	
38) C1-Dibenzothiophenes	34.359	198	85010M5	617.699	ng/mL	
38) C1-Dibenzothiophenes BS	34.359	198	62578m	454.704	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	156241M5	1135.277	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	212903M5	1546.994	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	160590M5	1166.878	ng/mL	
43) Phenanthrene	32.657	178	176383	1458.747	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.630	192	26468	218.899	ng/mL	93
45) 2/4-Methylphenanthrene(2M	34.735	192	32419M3	268.116	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	10939	90.469	ng/mL#	50
47) 9-Methylphenanthrene(9MP)	35.081	192	35201	291.124	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.172	192	21856M3	180.757	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.081	192	126600M5	1047.025	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	159988M5	1323.155	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	159988m	1323.155	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	144566M5	1195.610	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	78786M5	651.587	ng/mL	
55) Anthracene	32.838	178	41149M3	348.407	ng/mL	
56) Carbazole	33.515	167	18487M3	154.962	ng/mL	
57) 1-Methylphenanthrene	35.172	192	21910M3	285.937	ng/mL	
58) Fluoranthene	37.430	202	464182M3	3865.351	ng/mL	
59) Benzo(b)fluorene	39.944	216	27502M3	394.746	ng/mL	
60) Pyrene	38.318	202	406059	3326.378	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.704	216	222268M5	1820.788	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	157133M5	1287.211	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	103637M5	848.980	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	94155M5	771.304	ng/mL	
66) Naphthobenzothiophene	42.173	234	57874	440.366	ng/ml#	73
67) Naphthobenzothiophene-2,1	42.173	234	57874	440.366	ng/mL#	73
68) Naphthobenzothiophene-1,2	42.504	234	12507	95.166	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	22409M3	170.511	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	116281M5	884.788	ng/ml	
71) C2-Naphthobenzothiophenes	45.575	262	147936M5	1125.653	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	124946M5	950.721	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290	90439M5	688.155	ng/mL	
75) Benz[a]anthracene	43.106	228	194854M3	1445.515	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	251807	1850.286	ng/mL	100
78) C1-Chrysenes	44.732	242	118602M5	871.491	ng/mL	
79) C2-Chrysenes	46.449	256	87816M5	645.275	ng/mL	
79) C2-Chrysenes BS	46.449	256	87816m	645.275	ng/mL	
80) C3-Chrysenes	48.030	270	94411M5	693.735	ng/mL	
81) C4-Chrysenes	49.521	284	50326M5	369.797	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	267749	1807.682	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.217	252	236429	1466.123	ng/mL	100
84) Benzo[a]fluoranthene	47.533	252	51549M3	319.661	ng/mL	
85) Benzo[e]pyrene	48.151	252	193285	1319.294	ng/mL	99
87) Benzo[a]pyrene	48.347	252	250208	1773.830	ng/mL	99
88) Perylene	48.648	252	82859	549.650	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.181	276	213461M3	1300.403	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	59202	379.131	ng/mL#	88
91) Benzo[g,h,i]perylene	54.506	276	214645	1237.682	ng/mL	99
92) Hopane (T19)	52.232	191	45242M3	1616.320	ng/mL	
94) C23 Tricyclic Terpane (T4	40.788	191	14627M3	522.566	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	8688	310.388	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.046	191	8366M3	298.885	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	3605	128.793	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.055	191	3991M3	142.583	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	3593M3	128.364	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3440M3	122.898	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	5395M3	192.742	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	4371	156.159	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.322	191	4384M3	156.623	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.452	191	6620	236.507	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	3710M3	132.544	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3238M3	115.681	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	12106	432.500	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.199	191	7387M3	263.909	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.958	191	6566	234.578	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	34491M3	1232.229	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	6371M3	227.611	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	1358	48.516	ng/ml	100
113) 30-Normoretane (T17)	51.645	191	4067M3	145.298	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	52.036	191	2238M3	79.955	ng/ml	
115) Moretane (T20)	52.895	191	3865M3	138.081	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	19819M3	708.056	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191	16311	582.728	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	6502	232.291	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.545	191G	47070M3	1681.627	ng/ml	
120) 30,31-Bishomohopane-22R (	55.982	191	14274	509.954	ng/ml	100
121) 30,31-Trishomohopane-22S	57.713	191	13173M3	470.620	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4953	176.951	ng/ml	100
123) Tetrakishomohopane-22S (T	60.379	191	10596M3	378.554	ng/ml	
124) Tetrakishomohopane-22R (T	61.222	191G	39170	1399.391	ng/ml	100
125) Pentakishomohopane-22S (T	63.496	191	8317	297.134	ng/ml	100
126) Pentakishomohopane-22R (T	64.791	191	5437M3	194.243	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	3309M3	249.204	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1450	109.201	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.389	217	1326M3	99.862	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	5281	397.717	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.774	217	6325M3	476.342	ng/ml	
133) Unknown Sterane (S18)	48.060	217	1415	106.565	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	309	23.271	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	2744	206.653	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.190	217	2535M3	190.913	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	4686M3	352.907	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	4543M3	342.138	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	3371M3	253.873	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	3642M3	274.283	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	3033	228.418	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	4366M3	328.808	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	5002M3	376.705	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.837	218	5099M3	384.011	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	24781M3	1866.281	ng/mL	
146) C28,20S-triaromatic stero	50.365	231	22716	1710.764	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	16859	1269.667	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	18581M3	1399.353	ng/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

5-14-12

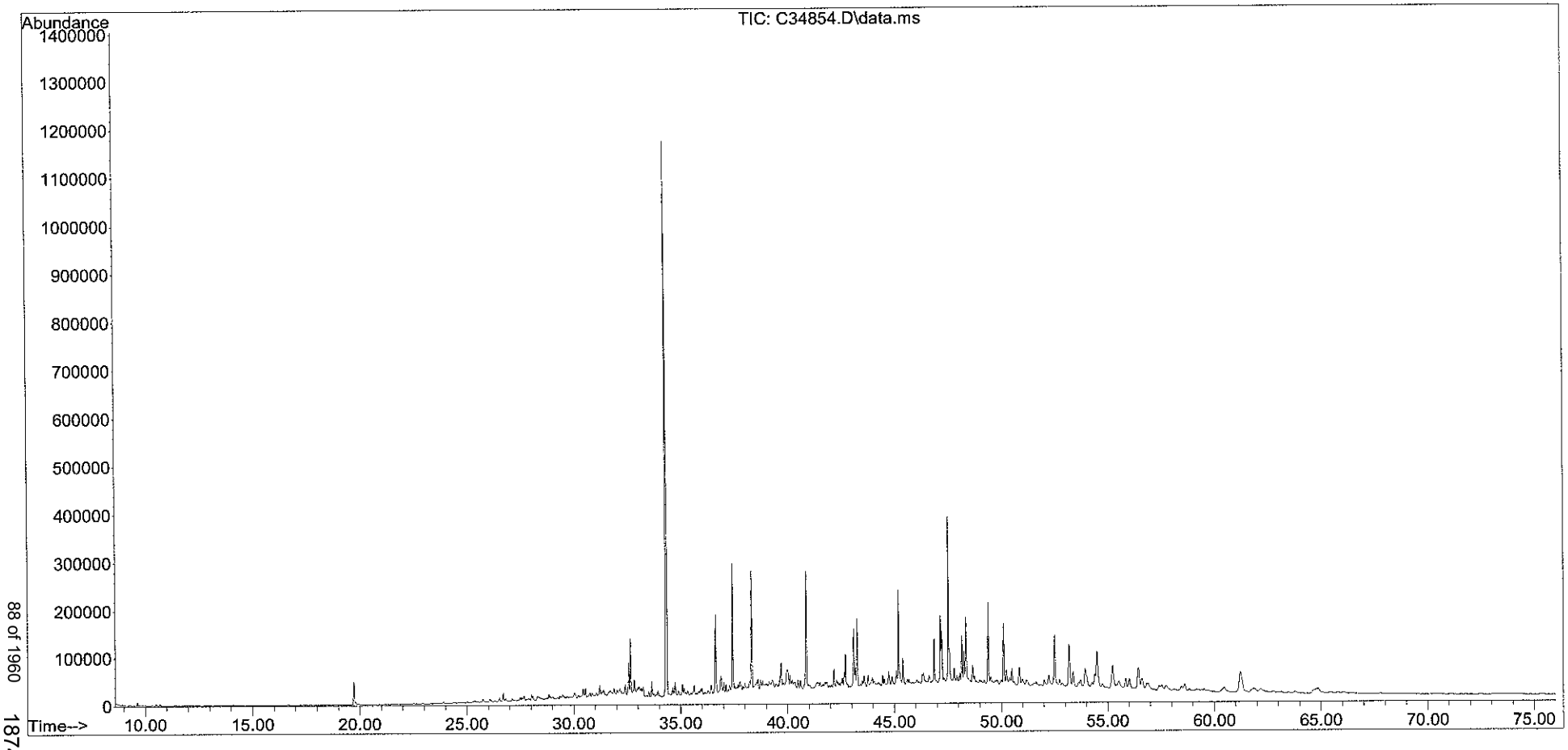
87 of 960 1873

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.69	2	1	AC

Parameter	Result	
cis/trans-Decalin	**1.09**	J
C1-Decalins	**5.10**	
C2-Decalins	**17.4**	
C3-Decalins	0.510	U
C4-Decalins	0.510	U
Benzothiophene	**0.856**	J
C1-Benzo(b)thiophenes	0.414	U
C2-Benzo(b)thiophenes	**3.44**	J
C3-Benzo(b)thiophenes	**9.01**	
C4-Benzo(b)thiophenes	**15.9**	
Naphthalene	**7.35**	
C1-Naphthalenes	**5.18**	
C2-Naphthalenes	**15.7**	
C3-Naphthalenes	**32.6**	
C4-Naphthalenes	**55.1**	
Biphenyl	**1.84**	J
Dibenzofuran	**8.74**	
Acenaphthylene	**6.45**	
Acenaphthene	**14.3**	
Fluorene	**18.6**	
C1-Fluorenes	**16.2**	
C2-Fluorenes	**49.6**	
C3-Fluorenes	**134**	
Anthracene	**73.8**	
Phenanthrene	**387**	
C1-Phenanthrenes/Anthracenes	**170**	
C2-Phenanthrenes/Anthracenes	**179**	
C3-Phenanthrenes/Anthracenes	**164**	
C4-Phenanthrenes/Anthracenes	**85.2**	
Retene	0.291	U
Dibenzothiophene	**23.4**	
C1-Dibenzothiophenes	**63.5**	
C2-Dibenzothiophenes	**142**	

Parameter	Result
C3-Dibenzothiophenes	**205**
C4-Dibenzothiophenes	**144**
Benzo(b)fluorene	**57.9**
Fluoranthene	**946**
Pyrene	**720**
C1-Fluoranthenes/Pyrenes	**259**
C2-Fluoranthenes/Pyrenes	**215**
C3-Fluoranthenes/Pyrenes	**123**
C4-Fluoranthenes/Pyrenes	**111**
Naphthobenzothiophenes	**115**
C1-Naphthobenzothiophenes	**110**
C2-Naphthobenzothiophenes	**149**
C3-Naphthobenzothiophenes	**135**
C4-Naphthobenzothiophenes	**106**
Benz[a]anthracene	**289**
Chrysene/Triphenylene	**316**
C1-Chrysenes	**116**
C2-Chrysenes	**85.8**
C3-Chrysenes	**108**
C4-Chrysenes	**71.8**
Benzo[b]fluoranthene	**268**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**206**
Benzo[a]fluoranthene	**39.0**
Benzo[e]pyrene	**191**
Benzo[a]pyrene	**250**
Perylene	**74.8**
Indeno[1,2,3-cd]pyrene	**197**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**61.2**
Benzo[g,h,i]perylene	**179**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.69	2	1	AC

Parameter	Result
Carbazole	**55.2**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.69	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**17.8**
2/3-Methyldibenzothiophene	**27.1**
1-Methyldibenzothiophene	**11.7**
3-Methylphenanthrene	**39.5**
2/4-Methylphenanthrene	**47.1**
2-Methylanthracene	**12.5**
9-Methylphenanthrene	**41.0**
1-Methylphenanthrene	**28.5**
2-Methylnaphthalene	**5.27**
1-Methylnaphthalene	**3.69**
2,6-Dimethylnaphthalene	**6.24**
2,3,5-Trimethylnaphthalene	**6.29**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.69	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**73.8**	
C24 Tricyclic Terpane	**39.4**	
C25 Tricyclic Terpane	**45.6**	
C24 Tetracyclic Terpane	**16.3**	
C26 Tricyclic Terpane-22S	**15.9**	
C26 Tricyclic Terpane-22R	**16.0**	
C28 Tricyclic Terpane-22S	**15.2**	
C28 Tricyclic Terpane-22R	**21.7**	
C29 Tricyclic Terpane-22S	**22.2**	
C29 Tricyclic Terpane-22R	**21.7**	
18a-22,29,30-Trisnorneohopane-TS	**26.1**	
C30 Tricyclic Terpane-22S	**14.8**	
C30 Tricyclic Terpane-22R	**15.0**	
17a(H)-22,29,30-Trisnorhopane-TM	**58.7**	
17a/b,21b/a 28,30-Bisnorhopane	**34.3**	
17a(H),21b(H)-25-Norhopane	**30.9**	
30-Norhopane	**146**	
18a(H)-30-Norneohopane-C29Ts	**20.9**	
17a(H)-Diahopane	**6.24**	
30-Normoretane	**20.2**	
18a(H)&18b(H)-Oleananes	2.85	U
Hopane	**203**	
Moretane	**17.3**	
30-Homohopane-22S	**100**	
30-Homohopane-22R	**82.2**	
T22a-Gammacerane/C32-diahopane	**33.9**	
30,31-Bishomohopane-22S	**97.4**	
30,31-Bishomohopane-22R	**43.7**	

Parameter	Result	
30,31-Trishomohopane-22S	**50.0**	
30,31-Trishomohopane-22R	**26.2**	
Tetrakishomohopane-22S	**38.4**	
Tetrakishomohopane-22R	**70.1**	G
Pentakishomohopane-22S	**36.5**	
Pentakishomohopane-22R	**28.7**	
13b(H),17a(H)-20S-Diacholestane	**26.0**	
13b(H),17a(H)-20R-Diacholestane	**9.79**	
13b,17a-20S-Methyldiacholestane	**8.32**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**46.1**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**51.7**	
Unknown Sterane (S18)	**24.2**	G
13a,17b-20S-Ethyldiacholestane	**3.46**	J
14a,17a-20S-Methylcholestane	**29.5**	
14a,17a-20R-Methylcholestane	**20.6**	
14a(H),17a(H)-20S-Ethylcholestane	**52.7**	
14a(H),17a(H)-20R-Ethylcholestane	**45.1**	
14b(H),17b(H)-20R-Cholestane	**34.7**	
14b(H),17b(H)-20S-Cholestane	**34.8**	
14b,17b-20R-Methylcholestane	**26.0**	
14b,17b-20S-Methylcholestane	**41.0**	
14b(H),17b(H)-20R-Ethylcholestane	**56.7**	
14b(H),17b(H)-20S-Ethylcholestane	**37.3**	
C26,20R- +C27,20S- triaromatic steroid	**287**	
C28,20S-triaromatic steroid	**242**	
C27,20R-triaromatic steroid	**194**	
C28,20R-triaromatic steroid	**222**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	89	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

19h2 5/6/12

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	20276M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.166	240	39612	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	167486	1903.185 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 190.32%#		
42) Phenanthrene-d10	32.567	188	152314	2189.713 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 218.97%#		
86) Benzo[a]pyrene-d12	48.256	264	148258	1805.981 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 180.60%#		
127) 5B(H)Cholane - Surr	43.769	217	27686	2235.496 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 223.55%#		
Target Compounds					Qvalue
3) trans-Decalin	16.384	138	49M2	3.061 ng/mL	
5) C1-Decalins	17.874	152	229M5	14.307 ng/mL	
6) C2-Decalins	20.810	166	781M5	48.794 ng/mL	
10) Naphthalene	19.801	128	2663	20.607 ng/mL#	100
11) C1-Naphthalenes	22.496	142	1877M5	14.525 ng/mL	
12) C2-Naphthalenes	25.341	156	5692M5	44.046 ng/mL	
13) C3-Naphthalenes	28.021	170	11819M5	91.458 ng/mL	
14) C4-Naphthalenes	30.444	184	19949M5	154.370 ng/mL	
16) 2-Methylnaphthalene	22.496	142	1128	14.763 ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	775M3	10.348 ng/mL	
18) Benzothiophene	20.027	134	279M3	2.399 ng/mL	
20) C2-Benzo(b)thiophenes	24.829	162	1123M5	9.657 ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	2936M5	25.247 ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	5178M5	44.527 ng/mL	
23) Biphenyl	24.393	154	500M3	5.173 ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	1098	17.490 ng/mL#	100
25) Dibenzofuran	27.464	168	2718	24.488 ng/mL	92
26) Acenaphthylene	26.094	152	2321	18.093 ng/mL#	100
27) Acenaphthene	26.816	153	3035M3	40.182 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.367	170	893M3	17.646 ng/mL	
29) Fluorene	28.834	166	4341M3	52.111 ng/mL	
30) C1-Fluorenes	31.212	180	3775M5	45.316 ng/mL	
31) C2-Fluorenes	33.395	194	11572M5	138.914 ng/mL	
32) C3-Fluorenes	35.909	208	31304M5	375.784 ng/mL	
33) Dibenzothiophene	32.161	184	8743	65.474 ng/mL#	75
34) 4-Methyldibenzothiophene(	33.937	198	6647	49.778 ng/mL#	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) 2/3-Methyldibenzothiophen	34.313	198	10155M3	76.048	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	4378	32.786	ng/mL#	100
37) OTP	34.374	198	29266M3	219.165	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	53027M5	397.105	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	23761m	177.940	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	52998M5	396.888	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	76858M5	575.569	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	53954M5	404.047	ng/mL	
43) Phenanthrene	32.657	178	127201	1084.215	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	12987	110.696	ng/mL	95
45) 2/4-Methylphenanthrene(2M	34.750	192	15505M3	132.159	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	4105	34.990	ng/mL#	49
47) 9-Methylphenanthrene(9MP)	35.081	192	13476M3	114.865	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	9388M3	80.020	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.750	192	56028M5	477.562	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	58901M5	502.051	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	58901m	502.051	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	53975M5	460.063	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	28024M5	238.866	ng/mL	
55) Anthracene	32.838	178	23725M3	207.031	ng/mL	
56) Carbazole	33.515	167	17901M3	154.646	ng/mL	
57) 1-Methylphenanthrene	35.157	192	9372M3	126.055	ng/mL	
58) Fluoranthene	37.430	202	309113M3	2652.892	ng/mL	
59) Benzo(b)fluorene	39.944	216	10978M3	162.397	ng/mL	
60) Pyrene	38.318	202	239244	2019.878	ng/mL	92
61) C1-Fluoranthenes/Pyrenes	39.703	216	85870M5	724.979	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	71531M5	603.919	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	40969M5	345.891	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	37001M5	312.390	ng/mL	
66) Naphthobenzothiophene	42.173	234	24969	195.809	ng/ml#	71
67) Naphthobenzothiophene-2,1	42.173	234	24969	195.809	ng/mL#	71
68) Naphthobenzothiophene-1,2	42.504	234	5526	43.335	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	10506M3	82.389	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	39132M5	306.877	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	53237M5	417.490	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	48325M5	378.969	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	37808M5	296.494	ng/mL	
75) Benz[a]anthracene	43.091	228	101954M3	810.911	ng/mL	
77) Chrysene/Triphenylene	43.257	228	112449	885.895	ng/mL	100
78) C1-Chrysenes	44.732	242	41117M5	323.928	ng/mL	
79) C2-Chrysenes	46.434	256	30522M5	240.458	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
79) C2-Chrysenes BS	46.434	256	30522m	240.458	ng/mL	
80) C3-Chrysenes	48.015	270	38358M5	302.192	ng/mL	
81) C4-Chrysenes	49.612	284	25545M5	201.248	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	103736	750.895	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.217	252	86677	576.274	ng/mL	100
84) Benzo[a]fluoranthene	47.533	252	16443M3	109.322	ng/mL	
85) Benzo[e]pyrene	48.151	252	73228	535.891	ng/mL	97
87) Benzo[a]pyrene	48.331	252	92119	700.189	ng/mL	98
88) Perylene	48.648	252	29469	209.588	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	84561M3	552.313	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	24984	171.542	ng/mL#	89
91) Benzo[g,h,i]perylene	54.461	276	81329	502.793	ng/mL	100
92) Hopane (T19)	52.217	191	14859	569.155	ng/mL#	85
94) C23 Tricyclic Terpane (T4	40.788	191	5401	206.878	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.510	191	2887	110.583	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.046	191	3338M3	127.858	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	1193	45.696	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.055	191	1163M3	44.547	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	1169M3	44.777	ng/ml	
100) C28 Tricyclic Terpane-22S	46.434	191	1110M3	42.517	ng/ml	
101) C28 Tricyclic Terpane-22R	46.599	191	1585M3	60.711	ng/ml	
102) C29 Tricyclic Terpane-22S	47.112	191	1624M3	62.205	ng/ml	
103) C29 Tricyclic Terpane-22R	47.307	191	1591M3	60.941	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.437	191	1907M3	73.045	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	1087M3	41.636	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1099M3	42.096	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.979	191	4299	164.668	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.169	191	2508M3	96.066	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.943	191	2261M3	86.605	ng/ml	
110) 30-Norhopane (T15)	50.846	191	10671M3	408.739	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.952	191	1532M3	58.681	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	457M3	17.505	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1477	56.575	ng/ml	100
115) Moretane (T20)	52.895	191	1267M3	48.531	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	7338M3	281.073	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	6017	230.474	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2478	94.917	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.545	191	7127	272.991	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.936	191	3196	122.419	ng/ml	100
121) 30,31-Trishomohopane-22S	57.683	191	3660M3	140.192	ng/ml	
122) 30,31-Trishomohopane-22R	58.301	191	1919M3	73.505	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
123) Tetrakishomohopane-22S (T	60.334	191	2809M3	107.595	ng/ml	
124) Tetrakishomohopane-22R (T	61.162	191G	5129M3	196.460	ng/ml	
125) Pentakishomohopane-22S (T	63.481	191	2672	102.348	ng/ml	100
126) Pentakishomohopane-22R (T	64.776	191	2099M3	80.400	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	904	72.993	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.681	217	340M3	27.453	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.389	217	289M3	23.335	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.247	217	1601	129.272	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.774	217	1794M3	144.856	ng/ml	
133) Unknown Sterane (S18)	48.090	217G	842M3	✓ 67.987	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.316	217	120M3	9.689	ng/ml	
135) 14a,17a-20S-Methylcholest	48.482	217	1024	82.683	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.190	217	717M3	57.894	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.536	217	1829M3	147.682	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.455	217	1567	126.527	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.352	218	1205M3	97.297	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.428	218	1209M3	97.620	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	903	72.912	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.723	218	1425M3	115.061	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.777	218	1969M3	158.986	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.822	218	1294M3	104.484	ng/ml	
145) C26,20R- +C27,20S- triaro	49.491	231	9960M3	804.217	ng/mL	
146) C28,20S-triaromatic stero	50.349	231	8392	677.609	ng/mL	100
147) C27,20R-triaromatic stero	50.801	231	6733M4	543.654	ng/mL	
148) C28,20R-triaromatic stero	52.006	231	7714M3	622.864	ng/mL	

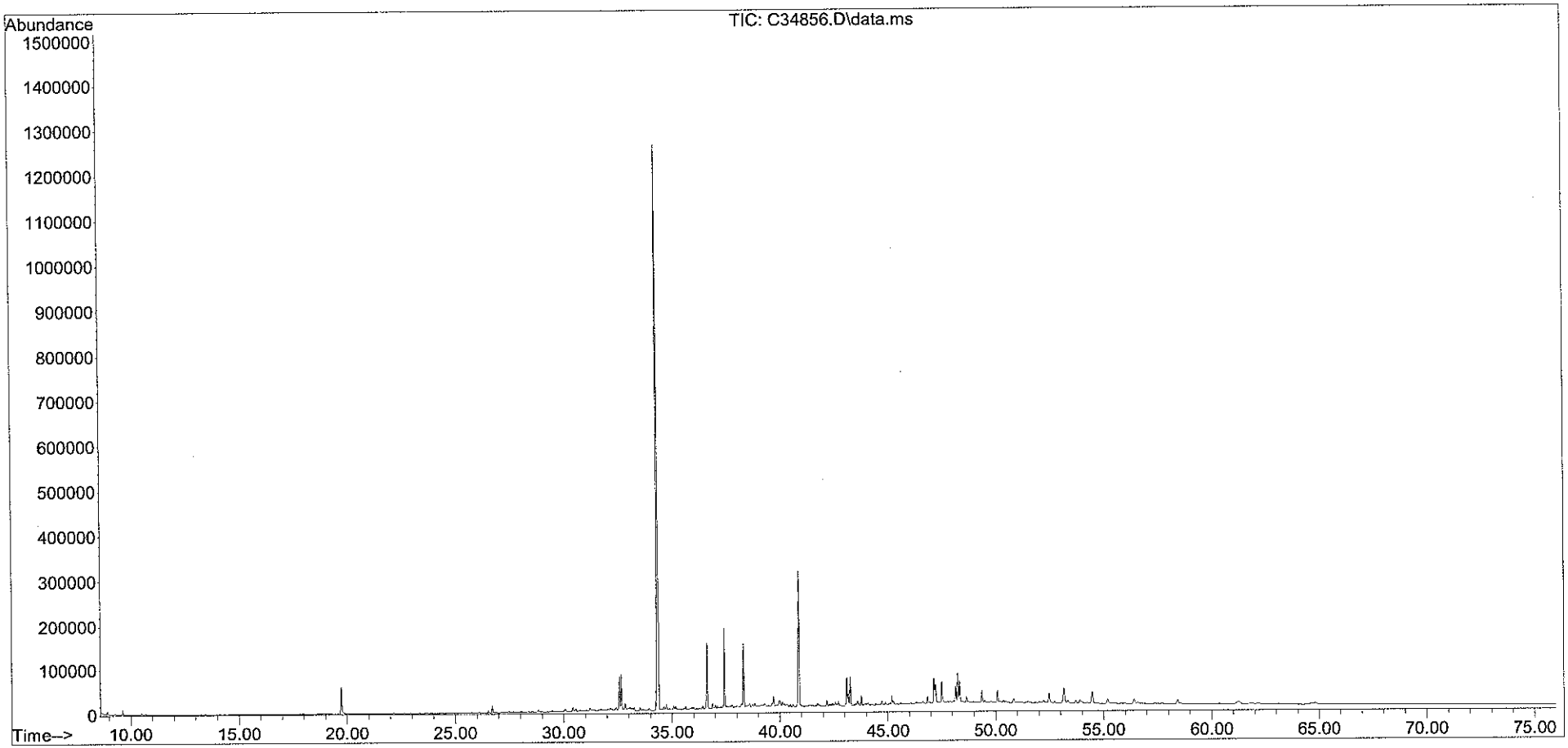
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	10.0	U
C1-Decalins	**19.0**	
C2-Decalins	**59.2**	
C3-Decalins	**77.4**	
C4-Decalins	**214**	
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	10.0	U
C2-Benzo(b)thiophenes	**6.42**	J
C3-Benzo(b)thiophenes	**29.6**	
C4-Benzo(b)thiophenes	**75.3**	
Naphthalene	**2.08**	J
C1-Naphthalenes	**3.51**	J
C2-Naphthalenes	**18.2**	
C3-Naphthalenes	**85.1**	
C4-Naphthalenes	**198**	
Biphenyl	**1.28**	J
Dibenzofuran	**2.10**	J
Acenaphthylene	**2.17**	J
Acenaphthene	**1.87**	J
Fluorene	**3.44**	J
C1-Fluorenes	**23.8**	
C2-Fluorenes	**130**	
C3-Fluorenes	**269**	
Anthracene	10.0	U
Phenanthrene	**18.0**	
C1-Phenanthrenes/Anthracenes	**120**	
C2-Phenanthrenes/Anthracenes	**402**	
C3-Phenanthrenes/Anthracenes	**508**	
C4-Phenanthrenes/Anthracenes	**330**	
Retene	10.0	U
Dibenzothiophene	**8.16**	J
C1-Dibenzothiophenes	**113**	
C2-Dibenzothiophenes	**442**	
C3-Dibenzothiophenes	**763**	
C4-Dibenzothiophenes	**651**	
Benzo(b)fluorene	**12.5**	B
Fluoranthene	**33.5**	
Pyrene	**49.8**	
C1-Fluoranthenes/Pyrenes	**131**	
C2-Fluoranthenes/Pyrenes	**227**	
C3-Fluoranthenes/Pyrenes	**296**	
C4-Fluoranthenes/Pyrenes	**313**	
Naphthobenzothiophenes	**77.4**	
C1-Naphthobenzothiophenes	**333**	
C2-Naphthobenzothiophenes	**573**	
C3-Naphthobenzothiophenes	**537**	
C4-Naphthobenzothiophenes	**394**	
Benz[a]anthracene	**16.9**	B
Chrysene/Triphenylene	**49.2**	
C1-Chrysenes	**135**	
C2-Chrysenes	**228**	
C3-Chrysenes	**328**	
C4-Chrysenes	**207**	
Benzo[b]fluoranthene	**27.2**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**16.2**	B
Benzo[a]fluoranthene	**3.77**	J
Benzo[e]pyrene	**37.1**	B
Benzo[a]pyrene	**23.7**	B
Perylene	**30.4**	B
Indeno[1,2,3-cd]pyrene	**16.8**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.79**	JB
Benzo[g,h,i]perylene	**32.2**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	7.13 JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	I	AC

Parameter	Result	
4-Methyldibenzothiophene	**37.3**	
2/3-Methyldibenzothiophene	**40.7**	
1-Methyldibenzothiophene	**21.2**	
3-Methylphenanthrene	**22.4**	
2/4-Methylphenanthrene	**24.0**	
2-Methylanthracene	**3.81**	J
9-Methylphenanthrene	**41.0**	
1-Methylphenanthrene	**23.9**	
2-Methylnaphthalene	**3.17**	J
1-Methylnaphthalene	**2.19**	J
2,6-Dimethylnaphthalene	**8.17**	J
2,3,5-Trimethylnaphthalene	**11.0**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	75	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-08**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result
C23 Tricyclic Terpane	**361**
C24 Tricyclic Terpane	**209**
C25 Tricyclic Terpane	**208**
C24 Tetracyclic Terpane	**76.9**
C26 Tricyclic Terpane-22S	**81.6**
C26 Tricyclic Terpane-22R	**76.0**
C28 Tricyclic Terpane-22S	**82.1**
C28 Tricyclic Terpane-22R	**80.2**
C29 Tricyclic Terpane-22S	**103**
C29 Tricyclic Terpane-22R	**98.8**
18a-22,29,30-Trisnorneohopane-TS	**129**
C30 Tricyclic Terpane-22S	**76.2**
C30 Tricyclic Terpane-22R	**72.1**
17a(H)-22,29,30-Trisnorhopane-TM	**240**
17a/b,21b/a 28,30-Bisnorhopane	**154**
17a(H),21b(H)-25-Norhopane	**47.1**
30-Norhopane	**660**
18a(H)-30-Norneohopane-C29Ts	**94.5**
17a(H)-Diahopane	**24.8**
30-Normoretane	**63.3**
18a(H)&18b(H)-Oleananes	**21.7**
Hopane	**874**
Moretane	**80.9**
30-Homohopane-22S	**404**
30-Homohopane-22R	**318**
T22a-Gammacerane/C32-diahopane	**146**
30,31-Bishomohopane-22S	**274**
30,31-Bishomohopane-22R	**178**

Parameter	Result
30,31-Trishomohopane-22S	**202**
30,31-Trishomohopane-22R	**117**
Tetrakishomohopane-22S	**144**
Tetrakishomohopane-22R	**111**
Pentakishomohopane-22S	**153**
Pentakishomohopane-22R	**124**
13b(H),17a(H)-20S-Diacholestane	**145**
13b(H),17a(H)-20R-Diacholestane	**62.5**
13b,17a-20S-Methyldiacholestane	**64.6**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**218**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**260**
Unknown Sterane (S18)	**59.4** B
13a,17b-20S-Ethyldiacholestane	**34.9**
14a,17a-20S-Methylcholestane	**121**
14a,17a-20R-Methylcholestane	**116**
14a(H),17a(H)-20S-Ethylcholestane	**249**
14a(H),17a(H)-20R-Ethylcholestane	**193**
14b(H),17b(H)-20R-Cholestane	**142**
14b(H),17b(H)-20S-Cholestane	**160**
14b,17b-20R-Methylcholestane	**122**
14b,17b-20S-Methylcholestane	**183**
14b(H),17b(H)-20R-Ethylcholestane	**265**
14b(H),17b(H)-20S-Ethylcholestane	**150**
C26,20R- +C27,20S- triaromatic steroid	**1280**
C28,20S-triaromatic steroid	**1110**
C27,20R-triaromatic steroid	**826**
C28,20R-triaromatic steroid	**910**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	102	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

BF 5/15/12

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17910M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32802	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	58300	749.994	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 75.00%			
42) Phenanthrene-d10	32.567	188	54245	882.864	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.29%			
86) Benzo[a]pyrene-d12	48.241	264	58247	856.831	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.68%			
127) 5B(H)Cholane - Surr	43.769	217	10458	1019.738	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.97%			
Target Compounds						Qvalue
5) C1-Decalins	17.859	152	268M5	18.956	ng/mL	
6) C2-Decalins	19.635	166	837M5	59.201	ng/mL	
7) C3-Decalins	22.119	180	1095M5	77.449	ng/mL	
8) C4-Decalins	25.492	194	3025M5	213.958	ng/mL	
10) Naphthalene	19.801	128	238	2.085	ng/mL#	100
11) C1-Naphthalenes	22.496	142	401M5	3.513	ng/mL	
12) C2-Naphthalenes	25.341	156	2072M5	18.152	ng/mL	
13) C3-Naphthalenes	28.021	170	9719M5	85.143	ng/mL	
14) C4-Naphthalenes	30.445	184	22545M5	197.506	ng/mL	
16) 2-Methylnaphthalene	22.496	142	214	3.171	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	145M3	2.192	ng/mL	
20) C2-Benzo(b)thiophenes	25.386	162	659M5	6.416	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	3044M5	29.634	ng/mL	
22) C4-Benzo(b)thiophenes	30.715	190	7734M5	75.292	ng/mL	
23) Biphenyl	24.393	154	109M3	1.277	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	453	8.169	ng/mL#	100
25) Dibenzofuran	27.464	168	206	2.101	ng/mL#	52
26) Acenaphthylene	26.079	152	246M3	2.171	ng/mL	
27) Acenaphthene	26.816	153	125M3	1.874	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	490M3	10.962	ng/mL	
29) Fluorene	28.834	166	253M3	3.438	ng/mL	
30) C1-Fluorenes	31.197	180	1749M5	23.769	ng/mL	
31) C2-Fluorenes	33.395	194	9598M5	130.439	ng/mL	
32) C3-Fluorenes	35.232	208	19814M5	269.276	ng/mL	
33) Dibenzothiophene	32.161	184	962	8.156	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	4404	37.337	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	4805M3	40.737	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	2498	21.178	ng/mL#	100
37) OTP	34.329	198	10285M3	87.197	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	23622M5	200.268	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	52092M5	441.638	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	89983M5	762.879	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	76749M5	650.681	ng/mL	
43) Phenanthrene	32.657	178	1866	18.006	ng/mL#	1
44) 3-Methylphenanthrene(3MP)	34.615	192	2319M3	22.378	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	2491	24.037	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	395M3	3.812	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	4248	40.992	ng/mL	87

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
48) 1-Methylphenanthrene(1MP)	35.157	192	2479M3	23.921	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	12462M5	120.254	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	41655M5	401.956	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	52592M5	507.494	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	34219M5	330.201	ng/mL	
56) Carbazole	33.500	167	729M3	7.130	ng/mL	
57) 1-Methylphenanthrene	35.157	192	2397M3	36.499	ng/mL	
58) Fluoranthene	37.430	202	3447M3	33.491	ng/mL	
59) Benzo(b)fluorene	39.944	216	747M3	12.510	ng/mL	
60) Pyrene	38.303	202	5214	49.836	ng/mL#	61
61) C1-Fluoranthenes/Pyrenes	40.471	216	13688M5	130.831	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	23747M5	226.976	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	31022M5	296.511	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	32705M5	312.597	ng/mL	
66) Naphthobenzothiophene	42.158	234	6207	55.106	ng/ml	91
67) Naphthobenzothiophene-...	42.158	234	6207	55.106	ng/mL	91
68) Naphthobenzothiophene-...	42.504	234	1404M3	12.465	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1113M3	9.881	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	37469M5	332.653	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	64560M5	573.169	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	60486M5	536.999	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	44410M5	394.275	ng/mL	
75) Benz[a]anthracene	43.091	228	1757M3	16.876	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5169M3	49.177	ng/mL	
78) C1-Chrysenes	44.717	242	14180M5	134.905	ng/mL	
79) C2-Chrysenes	46.795	256	23993M5	228.264	ng/mL	
80) C3-Chrysenes	48.151	270	34436M5	327.616	ng/mL	
81) C4-Chrysenes	49.506	284	21714M5	206.582	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3107M3	27.159	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	2019M3	16.210	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	470M2	3.774	ng/mL	
85) Benzo[e]pyrene	48.136	252	4197M3	37.091	ng/mL	
87) Benzo[a]pyrene	48.331	252	2585M3	23.728	ng/mL	
88) Perylene	48.633	252	3544	30.438	ng/mL#	62
89) Indeno[1,2,3-cd]pyrene	53.136	276	2135M3	16.840	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	939M3	7.786	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	4307	32.155	ng/mL#	89
92) Hopane (T19)	52.202	191	18889M3	873.728	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	7812M3	361.351	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4513	208.753	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	4506M4	208.429	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	1662	76.877	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	1765M3	81.642	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1642M3	75.952	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1774M3	82.058	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1734M3	80.208	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	2237	103.475	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	2136M3	98.803	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2791	129.100	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	1648M3	76.230	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1559M3	72.113	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	5177	239.467	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	3332	154.125	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) 17a(H),21b(H)-25-Norho...	49.958	191	1018	47.089	ng/ml	100
110) 30-Norhopane (T15)	50.847	191	14266M3	659.887	ng/ml	
111) 18a(H)-30-Norneohopane...	50.937	191	2043M3	94.501	ng/ml	
112) 17a(H)-Diahopane (X)	51.057	191	535M3	24.747	ng/ml	
113) 30-Normoretane (T17)	51.615	191	1368M3	63.278	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.006	191	470	21.740	ng/ml	100
115) Moretane (T20)	52.895	191	1748M3	80.855	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	8731	403.861	ng/ml	100
117) 30-Homohopane-22R (T22)	54.220	191	6876	318.056	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	3162M3	146.261	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	5932	274.390	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	3856	178.363	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	4376	202.416	ng/ml	100
122) 30,31-Trishomohopane-2...	58.286	191	2523M3	116.704	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	3113M3	143.995	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191	2394M3	110.737	ng/ml	
125) Pentakishomohopane-22S...	63.451	191	3306M3	152.922	ng/ml	
126) Pentakishomohopane-22R...	64.731	191	2675M3	123.735	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1483	144.604	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	641	62.503	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	662M3	64.550	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	2239M3	218.320	ng/ml	
132) 14a,17a-20R-Chol/13b,1...	47.774	217	2661M3	259.469	ng/ml	
133) Unknown Sterane (S18)	48.060	217	609M3	59.382	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	358	34.908	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1245	121.397	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1195M3	116.522	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	2558M3	249.425	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	1975M3	192.578	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1455M3	141.874	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1646M3	160.498	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1252	122.080	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	1880M3	183.315	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	2717M3	264.929	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1536M3	149.772	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	13170	1284.180	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	11399	1111.493	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	8466	825.502	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	9333M3	910.042	ng/mL	

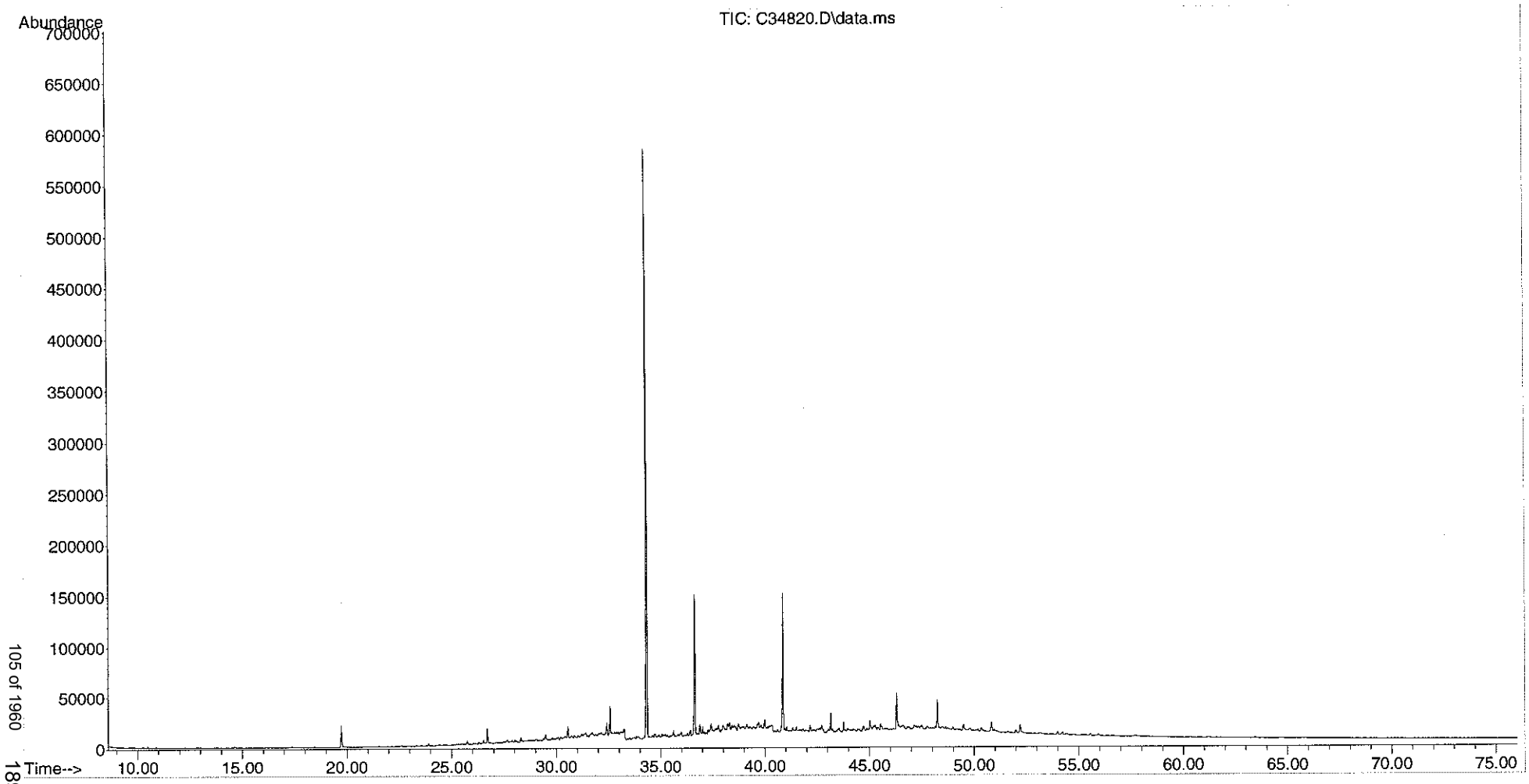
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000R011S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-09**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	10.0	U
C1-Decalins	10.0	U	C4-Dibenzothiophenes	10.0	U
C2-Decalins	10.0	U	Benzo(b)fluorene	**2.72**	JB
C3-Decalins	10.0	U	Fluoranthene	**28.2**	
C4-Decalins	10.0	U	Pyrene	**22.2**	B
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	**12.1**	
C1-Benzo(b)thiophenes	10.0	U	C2-Fluoranthenes/Pyrenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U	C3-Fluoranthenes/Pyrenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U	C4-Fluoranthenes/Pyrenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U	Naphthobenzothiophenes	**5.30**	JB
Naphthalene	**1.64**	J	C1-Naphthobenzothiophenes	**7.50**	J
C1-Naphthalenes	**2.50**	J	C2-Naphthobenzothiophenes	**11.3**	
C2-Naphthalenes	10.0	U	C3-Naphthobenzothiophenes	10.0	U
C3-Naphthalenes	10.0	U	C4-Naphthobenzothiophenes	10.0	U
C4-Naphthalenes	10.0	U	Benz[a]anthracene	**8.35**	JB
Biphenyl	10.0	U	Chrysene/Triphenylene	**14.1**	B
Dibenzofuran	**2.14**	J	C1-Chrysenes	**6.79**	J
Acenaphthylene	10.0	U	C2-Chrysenes	10.0	U
Acenaphthene	**0.921**	J	C3-Chrysenes	10.0	U
Fluorene	**1.93**	J	C4-Chrysenes	10.0	U
C1-Fluorenes	10.0	U	Benzo[b]fluoranthene	**16.8**	B
C2-Fluorenes	10.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**12.5**	B
C3-Fluorenes	10.0	U	Benzo[a]fluoranthene	**1.49**	J
Anthracene	**1.53**	J	Benzo[e]pyrene	**12.6**	B
Phenanthrene	**11.9**		Benzo[a]pyrene	**12.2**	B
C1-Phenanthrenes/Anthracenes	**5.49**	J	Perylene	**6.88**	JB
C2-Phenanthrenes/Anthracenes	**9.96**	J	Indeno[1,2,3-cd]pyrene	**14.4**	B
C3-Phenanthrenes/Anthracenes	**8.59**	J	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**4.39**	JB
C4-Phenanthrenes/Anthracenes	10.0	U	Benzo[g,h,i]perylene	**15.7**	B
Retene	10.0	U			
Dibenzothiophene	**1.03**	J			
C1-Dibenzothiophenes	**2.20**	J			
C2-Dibenzothiophenes	**7.71**	J			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000R011S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-09**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**1.00** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000R011S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-09**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**0.700**	J
2/3-Methyldibenzothiophene	10.0	U
1-Methyldibenzothiophene	**0.546**	J
3-Methylphenanthrene	**1.00**	J
2/4-Methylphenanthrene	**1.05**	J
2-Methylanthracene	**0.690**	J
9-Methylphenanthrene	**1.09**	J
1-Methylphenanthrene	**0.845**	J
2-Methylnaphthalene	**1.55**	J
1-Methylnaphthalene	10.0	U
2,6-Dimethylnaphthalene	10.0	U
2,3,5-Trimethylnaphthalene	10.0	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	83	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000R011S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-09**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**5.72**	J
C24 Tricyclic Terpane	10.0	U
C25 Tricyclic Terpane	10.0	U
C24 Tetracyclic Terpane	10.0	U
C26 Tricyclic Terpane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U
C28 Tricyclic Terpane-22R	10.0	U
C29 Tricyclic Terpane-22S	10.0	U
C29 Tricyclic Terpane-22R	10.0	U
18a-22,29,30-Trisnorneohopane-TS	10.0	U
C30 Tricyclic Terpane-22S	10.0	U
C30 Tricyclic Terpane-22R	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	**21.2**	
17a/b,21b/a 28,30-Bisnorhopane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U
30-Norhopane	**29.6**	
18a(H)-30-Norneohopane-C29Ts	10.0	U
17a(H)-Diahopane	10.0	U
30-Normoretane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U
Hopane	**52.4**	
Moretane	10.0	U
30-Homohopane-22S	**25.4**	
30-Homohopane-22R	10.0	U
T22a-Gammacerane/C32-diahopane	10.0	U
30,31-Bishomohopane-22S	10.0	U
30,31-Bishomohopane-22R	10.0	U

Parameter	Result	
30,31-Trishomohopane-22S	10.0	U
30,31-Trishomohopane-22R	10.0	U
Tetrakishomohopane-22S	10.0	U
Tetrakishomohopane-22R	10.0	U
Pentakishomohopane-22S	10.0	U
Pentakishomohopane-22R	10.0	U
13b(H),17a(H)-20S-Diacholestane	**13.0**	
13b(H),17a(H)-20R-Diacholestane	10.0	U
13b,17a-20S-Methyldiacholestane	10.0	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**15.3**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**15.8**	
Unknown Sterane (S18)	**19.6**	GB
13a,17b-20S-Ethyldiacholestane	10.0	U
14a,17a-20S-Methylcholestane	10.0	U
14a,17a-20R-Methylcholestane	**11.5**	
14a(H),17a(H)-20S-Ethylcholestane	10.0	U
14a(H),17a(H)-20R-Ethylcholestane	10.0	U
14b(H),17b(H)-20R-Cholestane	10.0	U
14b(H),17b(H)-20S-Cholestane	10.0	U
14b,17b-20R-Methylcholestane	10.0	U
14b,17b-20S-Methylcholestane	10.0	U
14b(H),17b(H)-20R-Ethylcholestane	**10.6**	
14b(H),17b(H)-20S-Ethylcholestane	**10.9**	
C26,20R- +C27,20S- triaromatic steroid	**22.2**	
C28,20S-triaromatic steroid	**23.1**	
C27,20R-triaromatic steroid	**14.6**	
C28,20R-triaromatic steroid	**27.7**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	93	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

05/09/12 11:08

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

RZ 5/5/12

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17787M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	30242	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	63870	827.330	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.73%			
42) Phenanthrene-d10	32.567	188	52355	857.996	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.80%			
86) Benzo[a]pyrene-d12	48.241	264	55432	884.447	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.44%			
127) 5B(H)Cholane - Surr	43.769	217	8811	931.870	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.19%			
Target Compounds						Qvalue
10) Naphthalene	19.816	128	186	1.641	ng/mL#	100
11) C1-Naphthalenes	22.511	142	284M5	2.505	ng/mL	
16) 2-Methylnaphthalene	22.511	142	104	1.552	ng/mL#	100
25) Dibenzofuran	27.479	168	208	2.136	ng/mL#	62
27) Acenaphthene	26.831	153	61M3	0.921	ng/mL	
29) Fluorene	28.849	166	141M3	1.929	ng/mL	
33) Dibenzothiophene	32.160	184	121	1.033	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	82M3	0.700	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	64M3	0.546	ng/mL	
37) OTP	34.328	198	11448	97.728	ng/mL#	100
38) C1-Dibenzothiophenes	34.328	198	11706M5	99.930	ng/mL	
39) C2-Dibenzothiophenes	36.421	212	903M5	7.709	ng/mL	
43) Phenanthrene	32.657	178	1223M3	11.883	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.614	192	103M3	1.001	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	108	1.049	ng/mL#	22
46) 2-Methylanthracene(2MA)	34.885	192	71M3	0.690	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	112M3	1.088	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.156	192	87M3	0.845	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.735	192	565M5	5.490	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	3045M5	29.586	ng/mL	
51) 5AA IS BKGD	36.632	206	2020	19.627	ng/mL	100
52) C3-Phenanthrenes/Anthr...	38.725	220	884M5	8.589	ng/mL	
55) Anthracene	32.838	178	154M3	1.532	ng/mL	
56) Carbazole	33.515	167	102M3	1.004	ng/mL	
57) 1-Methylphenanthrene	35.156	192	87M3	1.334	ng/mL	
58) Fluoranthene	37.430	202	2885M3	28.225	ng/mL	
59) Benzo(b)fluorene	39.944	216	161M3	2.715	ng/mL	
60) Pyrene	38.318	202	2307	22.203	ng/mL#	87
61) C1-Fluoranthenes/Pyrenes	39.703	216	1257M5	12.098	ng/mL	
66) Naphthobenzothiophene	42.173	234	396	3.540	ng/ml#	49
67) Naphthobenzothiophene-...	42.173	234	396	3.540	ng/mL#	49
68) Naphthobenzothiophene-...	42.504	234	65M3	0.581	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	132M3	1.180	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	839M5	7.500	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	1266M5	11.317	ng/ml	
75) Benz[a]anthracene	43.091	228	801M3	8.345	ng/mL	
77) Chrysene/Triphenylene	43.242	228	1368M3	14.117	ng/mL	
78) C1-Chrysenes	44.732	242	658M5	6.790	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
82)	Benzo[b]fluoranthene	47.142	252		1767	16.753	ng/mL#	72
83)	Benzo[j]+[k]fluoranthene	47.217	252		1430M3	12.453	ng/mL	
84)	Benzo[a]fluoranthene	47.518	252		171M2	1.489	ng/mL	
85)	Benzo[e]pyrene	48.136	252		1310M3	12.557	ng/mL	
87)	Benzo[a]pyrene	48.331	252		1222M3	12.166	ng/mL	
88)	Perylene	48.648	252		738	6.875	ng/mL#	72
89)	Indeno[1,2,3-cd]pyrene	53.151	276		1689M3	14.450	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.181	278		488M3	4.389	ng/mL	
91)	Benzo[g,h,i]perylene	54.446	276		1939	15.701	ng/mL	95
92)	Hopane (T19)	52.187	191		1045M3	52.429	ng/mL	
94)	C23 Tricyclic Terpane ...	40.787	191		114M3	5.720	ng/ml	
107)	17a(H)-22,29,30-Trisno...	48.979	191		423M2	21.223	ng/ml	
110)	30-Norhopane (T15)	50.831	191		589M3	29.551	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191		507M2	25.437	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.259	217		123M3	13.009	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.262	217		145	15.335	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.759	217		149M3	15.759	ng/ml	
133)	Unknown Sterane (S18)	48.075	217	G	185M3	19.566	ng/ml	
136)	14a,17a-20R-Methylchol...	49.190	217		109M2	11.528	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.777	218		100	10.576	ng/ml	100
144)	14b(H),17b(H)-20S-Ethy...	49.807	218		103M3	10.893	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.476	231		210M3	22.210	ng/mL	
146)	C28,20S-triaromatic st...	50.364	231		218	23.056	ng/mL	100
147)	C27,20R-triaromatic st...	50.786	231		138	14.595	ng/mL ✓	100
148)	C28,20R-triaromatic st...	52.006	231		262	27.710	ng/mL	100

TW 5-14-12

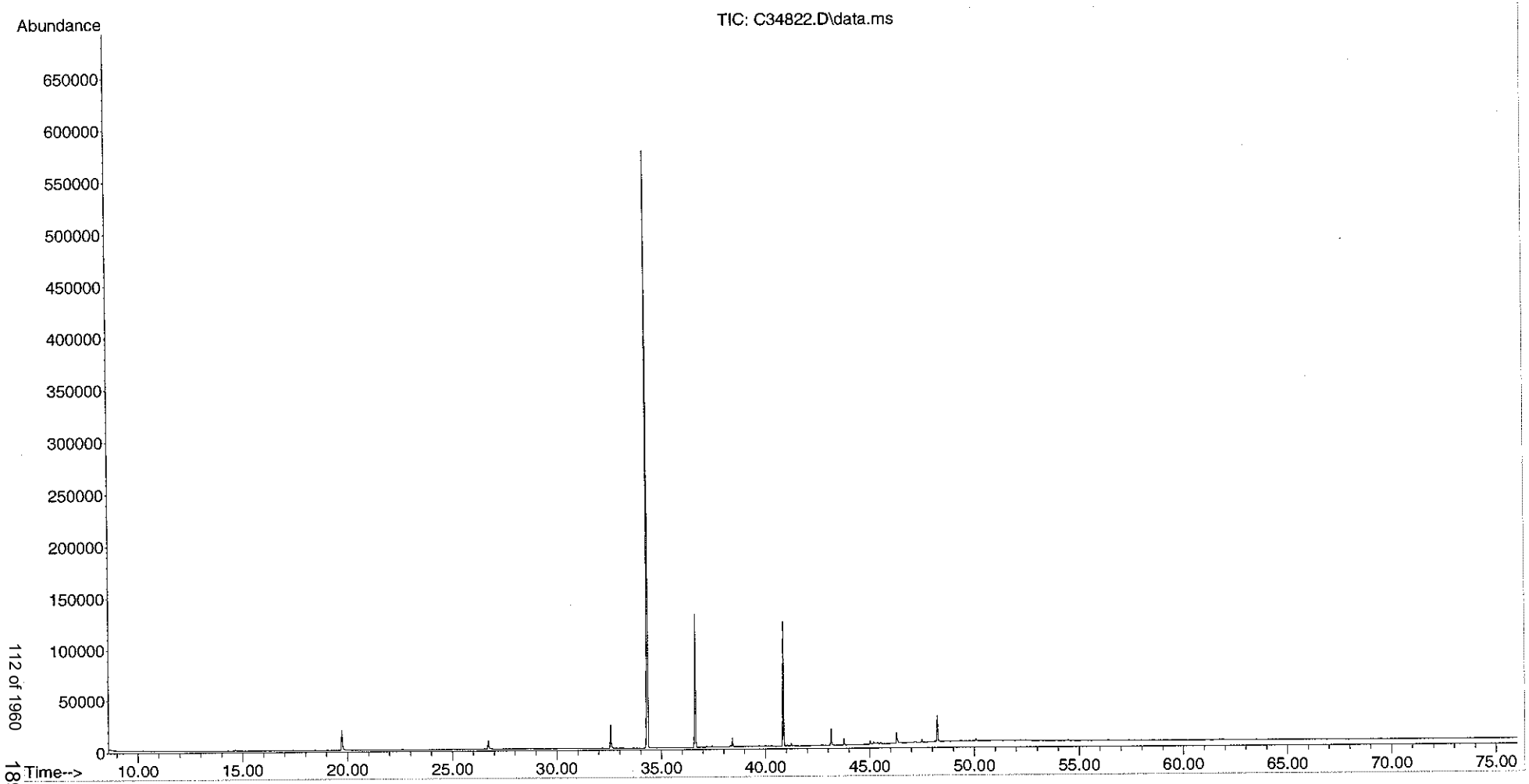
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000L012S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-10**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	10.0	U
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	**1.71**	J
C1-Benzo(b)thiophenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U
Naphthalene	**5.32**	J
C1-Naphthalenes	**8.50**	J
C2-Naphthalenes	**13.8**	
C3-Naphthalenes	**14.2**	
C4-Naphthalenes	**22.3**	
Biphenyl	**1.80**	J
Dibenzofuran	**3.92**	J
Acenaphthylene	**2.15**	J
Acenaphthene	**2.16**	J
Fluorene	**4.69**	J
C1-Fluorenes	**6.95**	J
C2-Fluorenes	**20.3**	
C3-Fluorenes	**50.0**	
Anthracene	**10.6**	
Phenanthrene	**25.7**	
C1-Phenanthrenes/Anthracenes	**29.5**	
C2-Phenanthrenes/Anthracenes	**43.3**	
C3-Phenanthrenes/Anthracenes	**72.0**	
C4-Phenanthrenes/Anthracenes	**78.3**	
Retene	10.0	U
Dibenzothiophene	**4.07**	J
C1-Dibenzothiophenes	**7.35**	J
C2-Dibenzothiophenes	**27.5**	
C3-Dibenzothiophenes	**57.9**	
C4-Dibenzothiophenes	**68.8**	
Benzo(b)fluorene	**15.3**	B
Fluoranthene	**75.3**	
Pyrene	**71.9**	
C1-Fluoranthenes/Pyrenes	**78.6**	
C2-Fluoranthenes/Pyrenes	**82.0**	
C3-Fluoranthenes/Pyrenes	**105**	
C4-Fluoranthenes/Pyrenes	**105**	
Naphthobenzothiophenes	**19.1**	B
C1-Naphthobenzothiophenes	**40.1**	
C2-Naphthobenzothiophenes	**70.9**	
C3-Naphthobenzothiophenes	**76.2**	
C4-Naphthobenzothiophenes	**70.5**	
Benz[a]anthracene	**38.9**	
Chrysene/Triphenylene	**52.6**	
C1-Chrysenes	**57.2**	
C2-Chrysenes	**63.1**	
C3-Chrysenes	**120**	
C4-Chrysenes	**88.5**	
Benzo[b]fluoranthene	**52.0**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**38.8**	B
Benzo[a]fluoranthene	**8.46**	J
Benzo[e]pyrene	**44.3**	B
Benzo[a]pyrene	**41.7**	B
Perylene	**15.4**	B
Indeno[1,2,3-cd]pyrene	**32.9**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**9.68**	JB
Benzo[g,h,i]perylene	**38.1**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000L012S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-10**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**3.58** JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000L012S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-10**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**2.48**	J
2/3-Methyldibenzothiophene	10.0	U
1-Methyldibenzothiophene	**1.38**	J
3-Methylphenanthrene	**4.72**	J
2/4-Methylphenanthrene	**5.96**	J
2-Methylanthracene	**4.66**	J
9-Methylphenanthrene	**8.28**	J
1-Methylphenanthrene	**4.35**	J
2-Methylnaphthalene	**7.59**	J
1-Methylnaphthalene	**6.53**	J
2,6-Dimethylnaphthalene	**5.26**	J
2,3,5-Trimethylnaphthalene	**2.91**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	85	40-120
Phenanthrene-d10	89	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000L012S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-10**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	**78.4**		30,31-Trishomohopane-22S	**50.2**	
C24 Tricyclic Terpane	**60.2**		30,31-Trishomohopane-22R	**39.1**	
C25 Tricyclic Terpane	**109**		Tetrakishomohopane-22S	**40.9**	
C24 Tetracyclic Terpane	**47.7**		Tetrakishomohopane-22R	**46.5**	
C26 Tricyclic Terpane-22S	**39.0**		Pentakishomohopane-22S	**48.0**	
C26 Tricyclic Terpane-22R	**33.8**		Pentakishomohopane-22R	10.0	U
C28 Tricyclic Terpane-22S	**43.6**		13b(H),17a(H)-20S-Diacholestane	**101**	
C28 Tricyclic Terpane-22R	**48.7**		13b(H),17a(H)-20R-Diacholestane	**57.5**	
C29 Tricyclic Terpane-22S	**38.6**		13b,17a-20S-Methyldiacholestane	**48.4**	
C29 Tricyclic Terpane-22R	**41.5**		14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**186**	
18a-22,29,30-Trisnorneohopane-TS	**99.8**		14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**169**	
C30 Tricyclic Terpane-22S	**34.9**		Unknown Sterane (S18)	**54.5**	B
C30 Tricyclic Terpane-22R	**36.1**		13a,17b-20S-Ethyldiacholestane	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	**99.0**		14a,17a-20S-Methylcholestane	**81.0**	
17a/b,21b/a 28,30-Bisnorhopane	**16.9**		14a,17a-20R-Methylcholestane	**57.6**	
17a(H),21b(H)-25-Norhopane	**27.1**		14a(H),17a(H)-20S-Ethylcholestane	**99.8**	
30-Norhopane	**224**		14a(H),17a(H)-20R-Ethylcholestane	**85.5**	
18a(H)-30-Norneohopane-C29Ts	**90.3**		14b(H),17b(H)-20R-Cholestane	**91.0**	
17a(H)-Diahopane	**24.7**		14b(H),17b(H)-20S-Cholestane	**98.3**	
30-Normoretane	**60.5**		14b,17b-20R-Methylcholestane	**68.9**	
18a(H)&18b(H)-Oleananes	**42.0**		14b,17b-20S-Methylcholestane	**101**	
Hopane	**366**		14b(H),17b(H)-20R-Ethylcholestane	**136**	
Moretane	**47.7**		14b(H),17b(H)-20S-Ethylcholestane	**129**	
30-Homohopane-22S	**92.5**		C26,20R- +C27,20S- triaromatic steroid	**260**	
30-Homohopane-22R	**92.5**		C28,20S-triaromatic steroid	**360**	
T22a-Gammacerane/C32-diahopane	**35.3**		C27,20R-triaromatic steroid	**138**	
30,31-Bishomohopane-22S	**91.6**		C28,20R-triaromatic steroid	**238**	
30,31-Bishomohopane-22R	**72.0**				

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	99	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

BH CLK 5/5/12

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18044M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	31540	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	66683	851.465	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.15%			
42) Phenanthrene-d10	32.567	188	55038	889.118	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.91%			
86) Benzo[a]pyrene-d12	48.241	264	60881	931.412	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.14%			
127) 5B(H)Cholane - Surr	43.769	217	9724	986.106	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 98.61%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	612	5.322	ng/mL#	100
11) C1-Naphthalenes	22.511	142	978M5	8.504	ng/mL	
12) C2-Naphthalenes	25.341	156	1592M5	13.843	ng/mL	
13) C3-Naphthalenes	28.894	170	1633M5	14.200	ng/mL	
14) C4-Naphthalenes	31.694	184	2568M5	22.330	ng/mL	
16) 2-Methylnaphthalene	22.511	142	516	7.588	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	435	6.526	ng/mL#	100
18) Benzothiophene	20.012	134	177M3	1.710	ng/mL	
23) Biphenyl	24.408	154	155M3	1.802	ng/mL	
24) 2,6-Dimethylnaphthalene	25.025	156	294	5.262	ng/mL#	100
25) Dibenzofuran	27.479	168	387	3.918	ng/mL#	77
26) Acenaphthylene	26.094	152	246	2.155	ng/mL#	100
27) Acenaphthene	26.817	153	145M3	2.157	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	131M3	2.909	ng/mL	
29) Fluorene	28.849	166	348M3	4.694	ng/mL	
30) C1-Fluorenes	31.197	180	515M5	6.947	ng/mL	
31) C2-Fluorenes	33.531	194	1508M5	20.342	ng/mL	
32) C3-Fluorenes	35.909	208	3706M5	49.991	ng/mL	
33) Dibenzothiophene	32.161	184	484	4.073	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	295	2.482	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	164	1.380	ng/mL#	100
37) OTP	34.329	198	12545	105.567	ng/mL#	100
38) C1-Dibenzothiophenes	34.329	198	13418M5	112.913	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	3267M5	27.492	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	6883M5	57.921	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	8178M5	68.818	ng/mL	
43) Phenanthrene	32.657	178	2684	25.707	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.615	192	493M3	4.722	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	622	5.958	ng/mL	95
46) 2-Methylanthracene(2MA)	34.886	192	486M3	4.655	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	865	8.285	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.157	192	454M3	4.348	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	3079M5	29.491	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	6927M5	66.347	ng/mL	
51) 5AA IS BKGD	36.632	206	2406	23.045	ng/mL	100
52) C3-Phenanthrenes/Anthr...	38.544	220	7516M5	71.988	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	8174M5	78.290	ng/mL	
55) Anthracene	32.838	178	1078M3	10.571	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.501	167	369	3.582	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	483M3	7.300	ng/mL	
58) Fluoranthene	37.430	202	7810M3	75.319	ng/mL	
59) Benzo(b)fluorene	39.945	216	921M3	15.310	ng/mL	
60) Pyrene	38.303	202	7580	71.912	ng/mL#	90
61) C1-Fluoranthenes/Pyrenes	39.704	216	8290M5	78.648	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	8647M5	82.035	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244	11029M5	104.633	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.395	258	11033M5	104.671	ng/mL	
66) Naphthobenzothiophene	42.158	234	1406	12.390	ng/ml#	82
67) Naphthobenzothiophene-...	42.158	234	1406	12.390	ng/mL#	82
68) Naphthobenzothiophene-...	42.504	234	334M3	2.943	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	428M3	3.772	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	4556M5	40.148	ng/ml	
71) C2-Naphthobenzothiophenes	45.561	262	8043M5	70.876	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	8644M5	76.172	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	8004M5	70.532	ng/mL	
75) Benz[a]anthracene	43.091	228	3896M3	38.918	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5317M3	52.609	ng/mL	
78) C1-Chrysenes	44.717	242	5780M5	57.190	ng/mL	
79) C2-Chrysenes	46.449	256	6374M5	63.067	ng/mL	
80) C3-Chrysenes	47.473	270	12124M5	119.960	ng/mL	
81) C4-Chrysenes	48.979	284	8947M5	88.526	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	5715	51.955	ng/mL	100
83) Benzo[j]+[k]fluoranthene	47.202	252	4642	38.761	ng/mL	99
84) Benzo[a]fluoranthene	47.518	252	1013M3	8.459	ng/mL	
85) Benzo[e]pyrene	48.136	252	4817M3	44.273	ng/mL	
87) Benzo[a]pyrene	48.332	252	4365	41.669	ng/mL	98
88) Perylene	48.633	252	1719M3	15.355	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	4009M3	32.886	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	1123	9.684	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	4912	38.139	ng/mL	94
92) Hopane (T19)	52.202	191	7602M3	365.708	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	1630M3	78.414	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	1251	60.182	ng/ml	100
96) C25 Tricyclic Terpane ...	43.061	191	2263M3	108.866	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	992M3	47.722	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	810M3	38.966	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	703M3	33.819	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	906M3	43.585	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1012M3	48.684	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	803	38.630	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	863M3	41.516	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2075	99.822	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	726M3	34.926	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	750	36.080	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.979	191	2058M3	99.004	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.169	191	352M3	16.934	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	563M3	27.084	ng/ml	
110) 30-Norhopane (T15)	50.832	191	4654	223.889	ng/ml	100
111) 18a(H)-30-Norneohopane...	50.937	191	1878M3	90.345	ng/ml	
112) 17a(H)-Diahopane (X)	51.073	191	514	24.727	ng/ml	100
113) 30-Normoretane (T17)	51.630	191	1257	60.470	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
114) 18a(H)&18b(H)-Oleanane...	52.021	191	874M3	42.045	ng/ml	
115) Moretane (T20)	52.895	191	992M3	47.722	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	1922M3	92.461	ng/ml	
117) 30-Homohopane-22R (T22)	54.220	191	1923	92.509	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	734M3	35.310	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	1905	91.643	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	1497	72.016	ng/ml	100
121) 30,31-Trishomohopane-2...	57.668	191	1044	50.223	ng/ml	100
122) 30,31-Trishomohopane-2...	58.286	191	812M3	39.063	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	850M3	40.891	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191	967M3	46.519	ng/ml	
125) Pentakishomohopane-22S...	63.436	191	997M3	47.962	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.259	217	995M3	100.902	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	567M3	57.499	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	477M3	48.372	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1837	186.289	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1666M3	168.948	ng/ml	
133) Unknown Sterane (S18)	48.045	217	537M3	54.457	ng/ml	
135) 14a,17a-20S-Methylchol...	48.467	217	799	81.026	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	568	57.601	ng/ml	100
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	984M3	99.787	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	843	85.488	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.338	218	897M3	90.964	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	969M3	98.266	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	679	68.857	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	995M3	100.902	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	1340M3	135.889	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.823	218	1271M3	128.892	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	2559	259.507	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	3546	359.598	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	1360	137.917	ng/mL	100
148) C28,20R-triaromatic st...	51.991	231	2342M3	237.501	ng/mL	

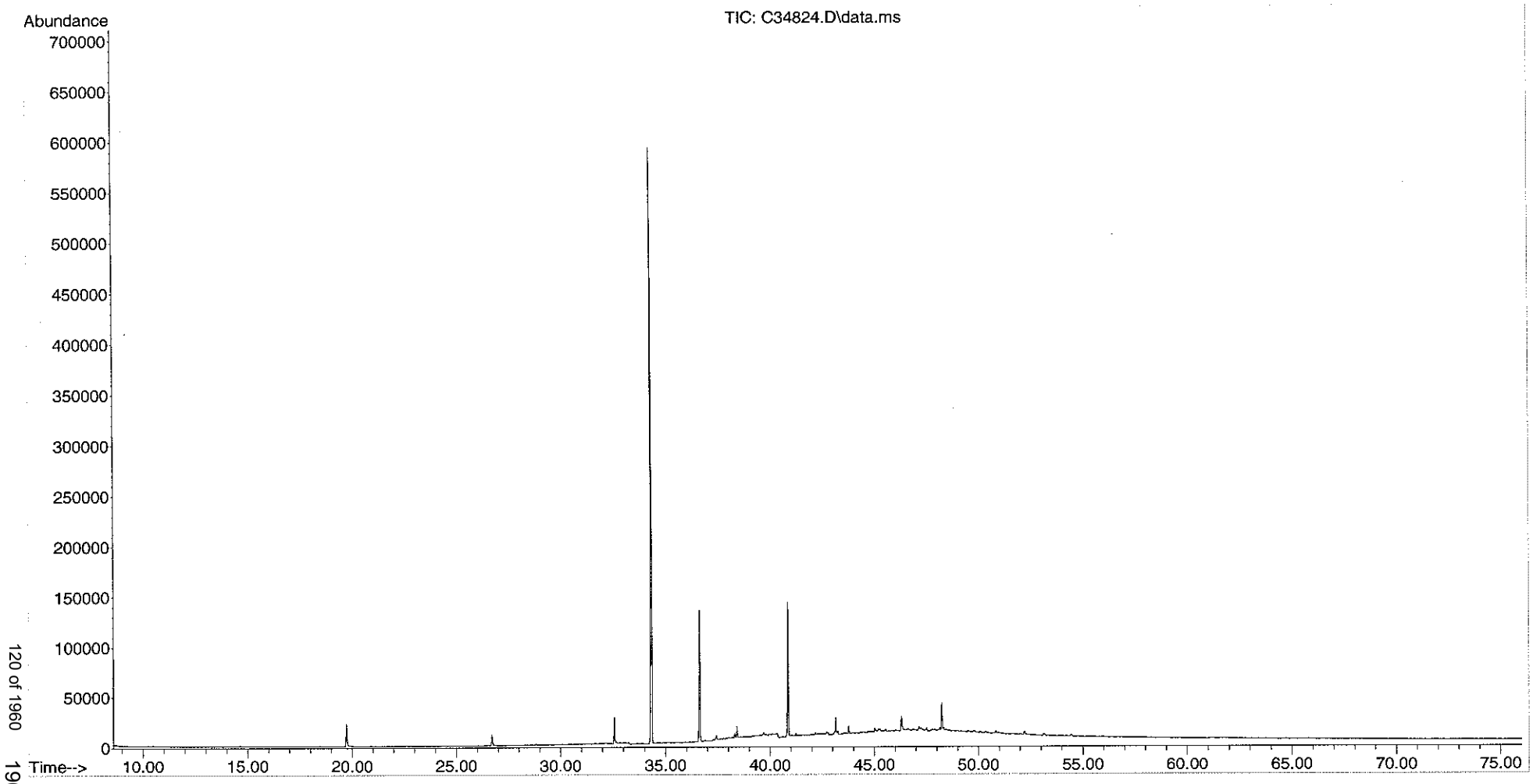
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-11**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	10.0	U
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U
C3-Benzo(b)thiophenes	**16.6**	
C4-Benzo(b)thiophenes	**22.4**	
Naphthalene	**1.67**	J
C1-Naphthalenes	**3.18**	J
C2-Naphthalenes	**12.0**	
C3-Naphthalenes	**42.3**	
C4-Naphthalenes	**72.7**	
Biphenyl	10.0	U
Dibenzofuran	**1.29**	J
Acenaphthylene	**1.11**	J
Acenaphthene	10.0	U
Fluorene	**1.94**	J
C1-Fluorenes	**12.5**	
C2-Fluorenes	**53.9**	
C3-Fluorenes	**130**	
Anthracene	10.0	U
Phenanthrene	**13.3**	
C1-Phenanthrenes/Anthracenes	**67.6**	
C2-Phenanthrenes/Anthracenes	**206**	
C3-Phenanthrenes/Anthracenes	**236**	
C4-Phenanthrenes/Anthracenes	**136**	
Retene	10.0	U
Dibenzothiophene	**6.66**	J
C1-Dibenzothiophenes	**51.2**	
C2-Dibenzothiophenes	**196**	

Parameter	Result	
C3-Dibenzothiophenes	**329**	
C4-Dibenzothiophenes	**264**	
Benzo(b)fluorene	**8.41**	JB
Fluoranthene	**19.5**	B
Pyrene	**25.9**	B
C1-Fluoranthenes/Pyrenes	**70.0**	
C2-Fluoranthenes/Pyrenes	**108**	
C3-Fluoranthenes/Pyrenes	**129**	
C4-Fluoranthenes/Pyrenes	**129**	
Naphthobenzothiophenes	**40.7**	
C1-Naphthobenzothiophenes	**148**	
C2-Naphthobenzothiophenes	**230**	
C3-Naphthobenzothiophenes	**215**	
C4-Naphthobenzothiophenes	**150**	
Benz[a]anthracene	**8.03**	JB
Chrysene/Triphenylene	**27.3**	B
C1-Chrysenes	**59.0**	
C2-Chrysenes	**93.6**	
C3-Chrysenes	**133**	
C4-Chrysenes	**99.2**	
Benzo[b]fluoranthene	**15.6**	B
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**8.78**	JB
Benzo[a]fluoranthene	**1.79**	J
Benzo[e]pyrene	**16.9**	B
Benzo[a]pyrene	**11.9**	B
Perylene	**12.7**	B
Indeno[1,2,3-cd]pyrene	**11.5**	B
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**3.18**	JB
Benzo[g,h,i]perylene	**17.3**	B

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	84	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-11**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	2.40 JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	84	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-11**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**20.7**	
2/3-Methyldibenzothiophene	**17.1**	
1-Methyldibenzothiophene	**12.4**	
3-Methylphenanthrene	**12.7**	
2/4-Methylphenanthrene	**15.0**	
2-Methylanthracene	**2.26**	J
9-Methylphenanthrene	**23.5**	
1-Methylphenanthrene	**13.3**	
2-Methylnaphthalene	**2.32**	J
1-Methylnaphthalene	**1.41**	J
2,6-Dimethylnaphthalene	**5.31**	J
2,3,5-Trimethylnaphthalene	**7.75**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	84	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-11**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**142**	
C24 Tricyclic Terpane	**81.9**	
C25 Tricyclic Terpane	**76.1**	
C24 Tetracyclic Terpane	**23.3**	
C26 Tricyclic Terpane-22S	**25.0**	
C26 Tricyclic Terpane-22R	**28.1**	
C28 Tricyclic Terpane-22S	**30.2**	
C28 Tricyclic Terpane-22R	**29.0**	
C29 Tricyclic Terpane-22S	**44.6**	
C29 Tricyclic Terpane-22R	**38.1**	
18a-22,29,30-Trisnorneohopane-TS	**54.9**	
C30 Tricyclic Terpane-22S	**46.7**	
C30 Tricyclic Terpane-22R	**36.4**	
17a(H)-22,29,30-Trisnorhopane-TM	**96.8**	
17a/b,21b/a 28,30-Bisnorhopane	**57.0**	
17a(H),21b(H)-25-Norhopane	**18.3**	
30-Norhopane	**239**	
18a(H)-30-Norneohopane-C29Ts	**36.5**	
17a(H)-Diahopane	10.0	U
30-Normoretane	**32.1**	
18a(H)&18b(H)-Oleananes	10.0	U
Hopane	**341**	
Moretane	**32.0**	
30-Homohopane-22S	**154**	
30-Homohopane-22R	**131**	
T22a-Gammacerane/C32-diahopane	**63.6**	
30,31-Bishomohopane-22S	**111**	
30,31-Bishomohopane-22R	**62.2**	

Parameter	Result	
30,31-Trishomohopane-22S	**68.5**	
30,31-Trishomohopane-22R	**41.2**	
Tetrakishomohopane-22S	**61.5**	
Tetrakishomohopane-22R	**38.4**	
Pentakishomohopane-22S	**67.6**	
Pentakishomohopane-22R	**38.9**	
13b(H),17a(H)-20S-Diacholestane	**46.1**	
13b(H),17a(H)-20R-Diacholestane	**21.8**	
13b,17a-20S-Methyldiacholestane	**22.8**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**87.2**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**94.6**	
Unknown Sterane (S18)	**37.4**	B
13a,17b-20S-Ethyldiacholestane	**9.77**	J
14a,17a-20S-Methylcholestane	**36.1**	
14a,17a-20R-Methylcholestane	**38.7**	
14a(H),17a(H)-20S-Ethylcholestane	**86.2**	
14a(H),17a(H)-20R-Ethylcholestane	**70.4**	
14b(H),17b(H)-20R-Cholestane	**63.9**	
14b(H),17b(H)-20S-Cholestane	**61.0**	
14b,17b-20R-Methylcholestane	**48.5**	
14b,17b-20S-Methylcholestane	**67.5**	
14b(H),17b(H)-20R-Ethylcholestane	**79.9**	
14b(H),17b(H)-20S-Ethylcholestane	**68.3**	
C26,20R- +C27,20S- triaromatic steroid	**468**	
C28,20S-triaromatic steroid	**411**	
C27,20R-triaromatic steroid	**315**	
C28,20R-triaromatic steroid	**355**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	18863M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	34050	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	60307	736.617	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	73.66%		
42) Phenanthrene-d10		32.567	188	54364	840.099	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	84.01%		
86) Benzo[a]pyrene-d12		48.241	264	58083	823.102	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery =	82.31%		
127) 5B(H)Cholane - Surr		43.754	217	9813	921.775	ng/ml	-0.01
Spiked Amount	1000.000	Range 50 - 130		Recovery =	92.18%		
Target Compounds							Qvalue
10) Naphthalene		19.801	128	201M3	1.672	ng/mL	
11) C1-Naphthalenes		22.511	142	382M5	3.177	ng/mL	
12) C2-Naphthalenes		25.432	156	1440M5	11.978	ng/mL	
13) C3-Naphthalenes		28.021	170	5080M5	42.255	ng/mL	
14) C4-Naphthalenes		30.445	184	8736M5	72.665	ng/mL	
16) 2-Methylnaphthalene		22.511	142	165M3	2.321	ng/mL	
17) 1-Methylnaphthalene		22.932	142	98M3	1.406	ng/mL	
21) C3-Benzo(b)thiophenes		27.855	176	1798M5	16.620	ng/mL	
22) C4-Benzo(b)thiophenes		30.716	190	2426M5	22.424	ng/mL	
24) 2,6-Dimethylnaphthalene		25.025	156	310M3	5.308	ng/mL	
25) Dibenzofuran		27.479	168	133M3	1.288	ng/mL	
26) Acenaphthylene		26.079	152	132M3	1.106	ng/mL	
28) 2,3,5-Trimethylnaphtha...		28.382	170	365M3	7.753	ng/mL	
29) Fluorene		28.834	166	150M3	1.936	ng/mL	
30) C1-Fluorenes		31.197	180	966M5	12.465	ng/mL	
31) C2-Fluorenes		33.395	194	4180M5	53.937	ng/mL	
32) C3-Fluorenes		35.232	208	10070M5	129.939	ng/mL	
33) Dibenzothiophene		32.161	184	827	6.657	ng/mL#	16
34) 4-Methyldibenzothiophe...		33.922	198	2576	20.736	ng/mL#	100
35) 2/3-Methyldibenzothiop...		34.283	198	2125M3	17.106	ng/mL	
36) 1-Methyldibenzothiophe...		34.690	198	1535	12.356	ng/mL#	100
37) OTP		34.329	198	12490M3	100.541	ng/mL	
38) C1-Dibenzothiophenes		34.329	198	18844M5	151.689	ng/mL	
39) C2-Dibenzothiophenes		35.623	212	24305M5	195.648	ng/mL	
40) C3-Dibenzothiophenes		37.415	226	40831M5	328.678	ng/mL	
41) C4-Dibenzothiophenes		40.878	240	32770M5	263.789	ng/mL	
43) Phenanthrene		32.657	178	1454	13.322	ng/mL#	15
44) 3-Methylphenanthrene(3MP)		34.615	192	1387M3	12.708	ng/mL	
45) 2/4-Methylphenanthrene...		34.735	192	1632	14.953	ng/mL	99
46) 2-Methylanthracene(2MA)		34.886	192	247M3	2.263	ng/mL	
47) 9-Methylphenanthrene(9MP)		35.066	192	2565	23.501	ng/mL	92
48) 1-Methylphenanthrene(1MP)		35.157	192	1448M3	13.267	ng/mL	
49) C1-Phenanthrenes/Anthr...		35.066	192	7378M5	67.598	ng/mL	
50) C2-Phenanthrenes/Anthr...		36.873	206	22460M4	205.781	ng/mL	
52) C3-Phenanthrenes/Anthr...		39.990	220	25725M5	235.696	ng/mL	
53) C4-Phenanthrenes/Anthr...		40.893	234	14878M5	136.314	ng/mL	
56) Carbazole		33.485	167	259M3	2.405	ng/mL	
57) 1-Methylphenanthrene		35.157	192	1443M3	20.863	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
58) Fluoranthene	37.430	202	2112M3	19.484	ng/mL	
59) Benzo(b)fluorene	39.945	216	529M3	8.412	ng/mL	
60) Pyrene	38.303	202	2849M3	25.855	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	7719M5	70.051	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	11858M5	107.614	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	14182M5	128.704	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	14211M5	128.967	ng/mL	
66) Naphthobenzothiophene	42.158	234	3399	28.652	ng/ml	100
67) Naphthobenzothiophene-...	42.158	234	3399	28.652	ng/mL	100
68) Naphthobenzothiophene-...	42.504	234	888M3	7.485	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	546M3	4.603	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	17583M5	148.217	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	27241M5	229.629	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	25527M5	215.181	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	17844M5	150.417	ng/mL	
75) Benz[a]anthracene	43.091	228	868M3	8.032	ng/mL	
77) Chrysene/Triphenylene	43.242	228	2976M3	27.275	ng/mL	
78) C1-Chrysenes	44.717	242	6440M5	59.023	ng/mL	
79) C2-Chrysenes	46.795	256	10214M5	93.612	ng/mL	
80) C3-Chrysenes	49.491	270	14511M5	132.994	ng/mL	
81) C4-Chrysenes	49.506	284	10821M5	99.175	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	1859	15.654	ng/mL#	78
83) Benzo[j]+[k]fluoranthene	47.202	252	1135	8.779	ng/mL#	52
84) Benzo[a]fluoranthene	47.518	252	232	1.794	ng/mL#	1
85) Benzo[e]pyrene	48.136	252	1990M3	16.942	ng/mL	
87) Benzo[a]pyrene	48.332	252	1341M3	11.858	ng/mL	
88) Perylene	48.633	252	1539	12.734	ng/mL#	71
89) Indeno[1,2,3-cd]pyrene	53.136	276	1512M3	11.489	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	398	3.179	ng/mL#	51
91) Benzo[g,h,i]perylene	54.446	276	2411	17.340	ng/mL#	80
92) Hopane (T19)	52.202	191	7661M3	341.379	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	3189M3	142.104	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	1838	81.902	ng/ml	100
96) C25 Tricyclic Terpane ...	43.046	191	1707M4	76.065	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	523M3	23.305	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	561M3	24.998	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	631M3	28.118	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	677M3	30.168	ng/ml	
101) C28 Tricyclic Terpane-...	46.585	191	650	28.964	ng/ml	100
102) C29 Tricyclic Terpane-...	47.112	191	1001	44.605	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	856M3	38.144	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.422	191	1233	54.943	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	1047M3	46.655	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	817M3	36.406	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	2172M3	96.786	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	1278	56.948	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191	410M3	18.270	ng/ml	
110) 30-Norhopane (T15)	50.832	191	5362M3	238.934	ng/ml	
111) 18a(H)-30-Norneohopane...	50.937	191	819M3	36.495	ng/ml	
113) 30-Normoretane (T17)	51.630	191	721M3	32.128	ng/ml	
115) Moretane (T20)	52.895	191	718M3	31.994	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	3454M3	153.912	ng/ml	
117) 30-Homohopane-22R (T22)	54.220	191	2935	130.785	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
118)	Gammacerane/C32-diahopane	54.762	191	1427M3	63.588	ng/mL	
119)	30,31-Bishomohopane-22...	55.530	191	2499	111.357	ng/ml	100
120)	30,31-Bishomohopane-22...	55.922	191	1396M3	62.207	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191	1537M3	68.490	ng/ml	
122)	30,31-Trishomohopane-2...	58.271	191	924	41.174	ng/ml	100
123)	Tetrakishomohopane-22S...	60.304	191	1381M3	61.538	ng/ml	
124)	Tetrakishomohopane-22R...	61.192	191	862M3	38.411	ng/ml	
125)	Pentakishomohopane-22S...	63.421	191	1517M3	67.598	ng/ml	
126)	Pentakishomohopane-22R...	64.746	191	872M3	38.857	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.259	217	491M3	46.122	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	232M3	21.793	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.389	217	243M3	22.826	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	928	87.171	ng/ml ✓	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	1007M3	94.592	ng/ml ✓	
133)	Unknown Sterane (S18)	48.076	217	398M3	37.386	ng/ml	
134)	13a,17b-20S-Ethyldiach...	48.316	217	104	9.769	ng/ml	100
135)	14a,17a-20S-Methylchol...	48.467	217	384	36.071	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.175	217	412M3	38.701	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.536	217	918M3	86.232	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.440	217	749	70.357	ng/ml	100
139)	14b(H),17b(H)-20R-Chol...	47.338	218	680M3	63.875	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218	649M3	60.963	ng/ml	
141)	14b,17b-20R-Methylchol...	48.633	218	516	48.470	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.723	218	719M3	67.539	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.777	218	851M3	79.938	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.807	218	727M3	68.290	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231	4979	467.698	ng/mL	100
146)	C28,20S-triaromatic st...	50.350	231	4378	411.244	ng/mL	100
147)	C27,20R-triaromatic st...	50.801	231	3353	314.961	ng/mL	100
148)	C28,20R-triaromatic st...	51.991	231	3776M3	354.695	ng/mL	

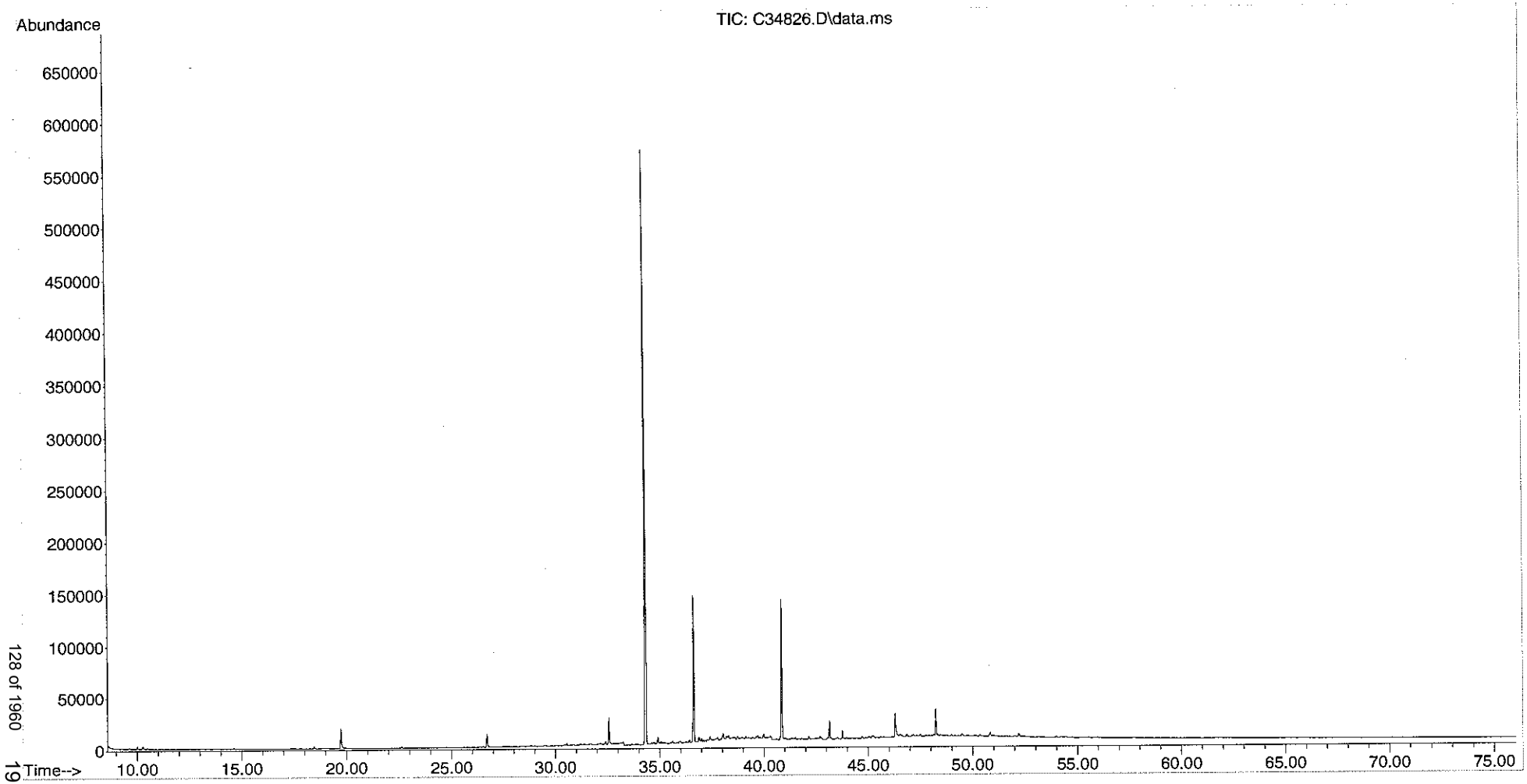
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-12**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	I	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	**1380**	
C1-Decalins	10.0	U	C4-Dibenzothiophenes	**1060**	
C2-Decalins	10.0	U	Benzo(b)fluorene	10.0	U
C3-Decalins	10.0	U	Fluoranthene	**35.7**	
C4-Decalins	10.0	U	Pyrene	**83.8**	
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	**280**	
C1-Benzo(b)thiophenes	10.0	U	C2-Fluoranthenes/Pyrenes	**417**	
C2-Benzo(b)thiophenes	**6.67**	J	C3-Fluoranthenes/Pyrenes	**511**	
C3-Benzo(b)thiophenes	**38.3**		C4-Fluoranthenes/Pyrenes	**493**	
C4-Benzo(b)thiophenes	**89.7**		Naphthobenzothiophenes	**162**	
Naphthalene	**1.36**	J	C1-Naphthobenzothiophenes	**590**	
C1-Naphthalenes	**3.42**	J	C2-Naphthobenzothiophenes	**893**	
C2-Naphthalenes	**30.9**		C3-Naphthobenzothiophenes	**772**	
C3-Naphthalenes	**134**		C4-Naphthobenzothiophenes	**589**	
C4-Naphthalenes	**296**		Benz[a]anthracene	**19.6**	B
Biphenyl	**1.21**	J	Chrysene/Triphenylene	**85.4**	
Dibenzofuran	**2.35**	J	C1-Chrysenes	**222**	
Acenaphthylene	**1.40**	J	C2-Chrysenes	**360**	
Acenaphthene	**2.10**	J	C3-Chrysenes	**443**	
Fluorene	**5.27**	J	C4-Chrysenes	**266**	
C1-Fluorenes	**50.3**		Benzo[b]fluoranthene	**38.5**	B
C2-Fluorenes	**263**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**13.8**	B
C3-Fluorenes	**564**		Benzo[a]fluoranthene	**3.11**	J
Anthracene	10.0	U	Benzo[e]pyrene	**49.0**	B
Phenanthrene	**46.8**		Benzo[a]pyrene	**26.5**	B
C1-Phenanthrenes/Anthracenes	**310**		Perylene	**41.4**	B
C2-Phenanthrenes/Anthracenes	**851**		Indeno[1,2,3-cd]pyrene	**20.4**	B
C3-Phenanthrenes/Anthracenes	**965**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**8.68**	JB
C4-Phenanthrenes/Anthracenes	**550**		Benzo[g,h,i]perylene	**41.4**	B
Retene	10.0	U			
Dibenzothiophene	**27.8**				
C1-Dibenzothiophenes	**271**				
C2-Dibenzothiophenes	**916**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-12**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	9.63 JB

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-12**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**98.5**	
2/3-Methyldibenzothiophene	**83.7**	
1-Methyldibenzothiophene	**64.0**	
3-Methylphenanthrene	**55.2**	
2/4-Methylphenanthrene	**65.2**	
2-Methylanthracene	**8.73**	J
9-Methylphenanthrene	**111**	
1-Methylphenanthrene	**60.7**	
2-Methylnaphthalene	**2.05**	J
1-Methylnaphthalene	**1.72**	J
2,6-Dimethylnaphthalene	**12.7**	
2,3,5-Trimethylnaphthalene	**19.7**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-12**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/04/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	**490**		30,31-Trishomohopane-22S	**267**	
C24 Tricyclic Terpane	**288**		30,31-Trishomohopane-22R	**163**	
C25 Tricyclic Terpane	**279**		Tetrakishomohopane-22S	**172**	
C24 Tetracyclic Terpane	**93.6**		Tetrakishomohopane-22R	**121**	
C26 Tricyclic Terpane-22S	**103**		Pentakishomohopane-22S	**195**	
C26 Tricyclic Terpane-22R	**97.0**		Pentakishomohopane-22R	**143**	
C28 Tricyclic Terpane-22S	**110**		13b(H),17a(H)-20S-Diacholestane	**172**	
C28 Tricyclic Terpane-22R	**122**		13b(H),17a(H)-20R-Diacholestane	**72.5**	
C29 Tricyclic Terpane-22S	**150**		13b,17a-20S-Methyldiacholestane	**74.1**	
C29 Tricyclic Terpane-22R	**133**		14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**276**	
18a-22,29,30-Trisnorneohopane-TS	**149**		14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**324**	
C30 Tricyclic Terpane-22S	**117**		Unknown Sterane (S18)	**86.8**	B
C30 Tricyclic Terpane-22R	**102**		13a,17b-20S-Ethyldiacholestane	**26.1**	
17a(H)-22,29,30-Trisnorhopane-TM	**326**		14a,17a-20S-Methylcholestane	**152**	
17a/b,21b/a 28,30-Bisnorhopane	**196**		14a,17a-20R-Methylcholestane	**125**	
17a(H),21b(H)-25-Norhopane	**61.4**		14a(H),17a(H)-20S-Ethylcholestane	**297**	
30-Norhopane	**883**		14a(H),17a(H)-20R-Ethylcholestane	**222**	
18a(H)-30-Norneohopane-C29Ts	**133**		14b(H),17b(H)-20R-Cholestane	**189**	
17a(H)-Diahopane	**50.0**		14b(H),17b(H)-20S-Cholestane	**207**	
30-Normoretane	**90.3**		14b,17b-20R-Methylcholestane	**168**	
18a(H)&18b(H)-Oleananes	**22.0**		14b,17b-20S-Methylcholestane	**244**	
Hopane	**1220**		14b(H),17b(H)-20R-Ethylcholestane	**319**	
Moretane	**108**		14b(H),17b(H)-20S-Ethylcholestane	**196**	
30-Homohopane-22S	**532**		C26,20R- +C27,20S- triaromatic steroid	**1740**	
30-Homohopane-22R	**431**		C28,20S-triaromatic steroid	**1490**	
T22a-Gammacerane/C32-diahopane	**192**		C27,20R-triaromatic steroid	**1120**	
30,31-Bishomohopane-22S	**369**		C28,20R-triaromatic steroid	**1240**	
30,31-Bishomohopane-22R	**240**				

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.

05/09/12 11:09

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Report SLK 5/5/12.

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.696	164	18147M3	500.000 ng/mL	0.00
74) Chrysene-d12	43.151	240	35318	500.000 ng/mL	0.00
System Monitoring Compounds					
9) Naphthalene-d8	19.726	136	60078	762.773 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 76.28%		
42) Phenanthrene-d10	32.567	188	54943M3	882.546 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.25%		
86) Benzo[a]pyrene-d12	48.241	264	62545	854.512 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.45%		
127) 5B(H)Cholane - Surr	43.769	217	10654	964.844 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.48%		
Target Compounds					Qvalue
10) Naphthalene	19.801	128	157M3	1.357 ng/mL	
11) C1-Naphthalenes	22.496	142	396M5	3.424 ng/mL	
12) C2-Naphthalenes	25.341	156	3570M5	30.867 ng/mL	
13) C3-Naphthalenes	28.021	170	15468M5	133.738 ng/mL	
14) C4-Naphthalenes	30.761	184	34251M5	296.137 ng/mL	
16) 2-Methylnaphthalene	22.496	142	140M3	2.047 ng/mL	
17) 1-Methylnaphthalene	22.917	142	115	1.716 ng/mL#	100
20) C2-Benzo(b)thiophenes	25.537	162	694M5	6.668 ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	3983M5	38.269 ng/mL	
22) C4-Benzo(b)thiophenes	30.716	190	9337M5	89.711 ng/mL	
23) Biphenyl	24.393	154	105M3	1.214 ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	714	12.708 ng/mL#	100
25) Dibenzofuran	27.464	168	233	2.346 ng/mL#	52
26) Acenaphthylene	26.079	152	161	1.402 ng/mL#	100
27) Acenaphthene	26.816	153	142M3	2.101 ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	893M3	19.716 ng/mL	
29) Fluorene	28.834	166	393M3	5.271 ng/mL	
30) C1-Fluorenes	31.197	180	3749M5	50.284 ng/mL	
31) C2-Fluorenes	33.395	194	19621M5	263.171 ng/mL	
32) C3-Fluorenes	35.232	208	42038M5	563.843 ng/mL	
33) Dibenzothiophene	32.161	184	3327	27.838 ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	11772	98.500 ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	10000M3	83.673 ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	7644	63.960 ng/mL#	100
37) OTP	34.329	198	10875M3	90.995 ng/mL	
38) C1-Dibenzothiophenes	34.329	198	43281M5	362.146 ng/mL	
39) C2-Dibenzothiophenes	35.623	212	109507M5	916.279 ng/mL	
40) C3-Dibenzothiophenes	37.415	226	165583M5	1385.485 ng/mL	
41) C4-Dibenzothiophenes	39.116	240	126987M5	1062.540 ng/mL	
43) Phenanthrene	32.642	178	4919M3	46.847 ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	5800M3	55.237 ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	6847M3	65.208 ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	917M3	8.733 ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	11661	111.055 ng/mL	91
48) 1-Methylphenanthrene(1MP)	35.157	192	6369M3	60.656 ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	32588M5	310.356 ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	89342M5	850.860 ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	101318M5	964.915 ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) C4-Phenanthrenes/Anthr...	40.893	234	57700M5	549.513	ng/mL	
56) Carbazole	33.501	167	998	9.633	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	6304M3	94.738	ng/mL	
58) Fluoranthene	37.430	202	3725M3	35.720	ng/mL	
60) Pyrene	38.303	202	8889M3	83.852	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	29636M5	279.564	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	44209M5	417.035	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	54209M5	511.367	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	52225M5	492.652	ng/mL	
66) Naphthobenzothiophene	42.158	234	12861	112.690	ng/ml	94
67) Naphthobenzothiophene-...	42.158	234	12861	112.690	ng/mL	94
68) Naphthobenzothiophene-...	42.504	234	3246M3	28.442	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2343M3	20.530	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	67385M5	590.436	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	101920m	893.036	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	88098M5	771.926	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	67207M5	588.876	ng/mL	
75) Benz[a]anthracene	43.091	228	2194M3	19.572	ng/mL	
77) Chrysene/Triphenylene	43.242	228	9666M3	85.409	ng/mL	
78) C1-Chrysenes	44.717	242	25121M5	221.970	ng/mL	
79) C2-Chrysenes	46.795	256	40736M5	359.945	ng/mL	
80) C3-Chrysenes	49.491	270	50182M5	443.410	ng/mL	
81) C4-Chrysenes	49.521	284	30064M5	265.646	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4744	38.515	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.217	252	1854M3	13.825	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	417M3	3.110	ng/mL	
85) Benzo[e]pyrene	48.136	252	5966M3	48.968	ng/mL	
87) Benzo[a]pyrene	48.332	252	3112M3	26.530	ng/mL	
88) Perylene	48.633	252	5190	41.400	ng/mL#	76
89) Indeno[1,2,3-cd]pyrene	53.136	276	2790M3	20.439	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1127	8.679	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	5963	41.347	ng/mL#	82
92) Hopane (T19)	52.217	191	28410	1220.515	ng/mL#	79
94) C23 Tricyclic Terpane ...	40.788	191	11411M3	490.225	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	6704	288.009	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	6486M3	278.643	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	2178M3	93.568	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2388M3	102.590	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2259M3	97.048	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2571M3	110.452	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	2829M3	121.536	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	3481	149.546	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3101M3	133.221	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3466	148.902	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2730M3	117.283	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	2379M3	102.204	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191	7577	325.514	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	4564M3	196.073	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	1429M3	61.391	ng/ml	
110) 30-Norhopane (T15)	50.847	191	20549M3	882.800	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	3104M3	133.350	ng/ml	
112) 17a(H)-Diahopane (X)	51.073	191	1164	50.006	ng/ml	100
113) 30-Normoretane (T17)	51.630	191	2101	90.261	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
114)	18a(H)&18b(H)-Oleanane...	52.006	191	513M3	22.039	ng/ml	
115)	Moretane (T20)	52.895	191	2517	108.132	ng/ml	100
116)	30-Homohopane-22S (T21)	53.994	191	12377	531.725	ng/ml	100
117)	30-Homohopane-22R (T22)	54.235	191	10025	430.681	ng/ml	100
118)	Gammacerane/C32-diahopane	54.777	191	4477	192.335	ng/mL	100
119)	30,31-Bishomohopane-22...	55.560	191	8593	369.162	ng/ml	100
120)	30,31-Bishomohopane-22...	55.937	191	5576	239.549	ng/ml	100
121)	30,31-Trishomohopane-2...	57.683	191	6210M3	266.786	ng/ml	
122)	30,31-Trishomohopane-2...	58.301	191	3792	162.907	ng/ml	100
123)	Tetrakishomohopane-22S...	60.334	191	4012M3	172.358	ng/ml	
124)	Tetrakishomohopane-22R...	61.222	191	2807M3	120.591	ng/ml	
125)	Pentakishomohopane-22S...	63.466	191	4547M3	195.342	ng/ml	
126)	Pentakishomohopane-22R...	64.761	191	3330M3	143.059	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217	1902M3	172.248	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	801	72.540	ng/ml	100
130)	13b,17a-20S-Methyldiac...	46.389	217	818M3	74.079	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	3043	275.579	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	3581M3	324.301	ng/ml	
133)	Unknown Sterane (S18)	48.045	217	958	86.758	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217	288	26.082	ng/ml	100
135)	14a,17a-20S-Methylchol...	48.467	217	1684	152.506	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217	1382M3	125.156	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.536	217	3275M3	296.589	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.455	217	2455M3	222.329	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.353	218	2086M3	188.912	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218	2282M3	206.662	ng/ml	
141)	14b,17b-20R-Methylchol...	48.648	218	1860M3	168.445	ng/ml	
142)	14b,17b-20S-Methylchol...	48.723	218	2690M3	243.611	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218	3521M3	318.868	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.822	218	2167M3	196.247	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231	19173M3	1736.339	ng/mL	
146)	C28,20S-triaromatic st...	50.350	231	16438	1488.652	ng/mL	100
147)	C27,20R-triaromatic st...	50.801	231	12389	1121.968	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231	13740M3	1244.317	ng/mL	

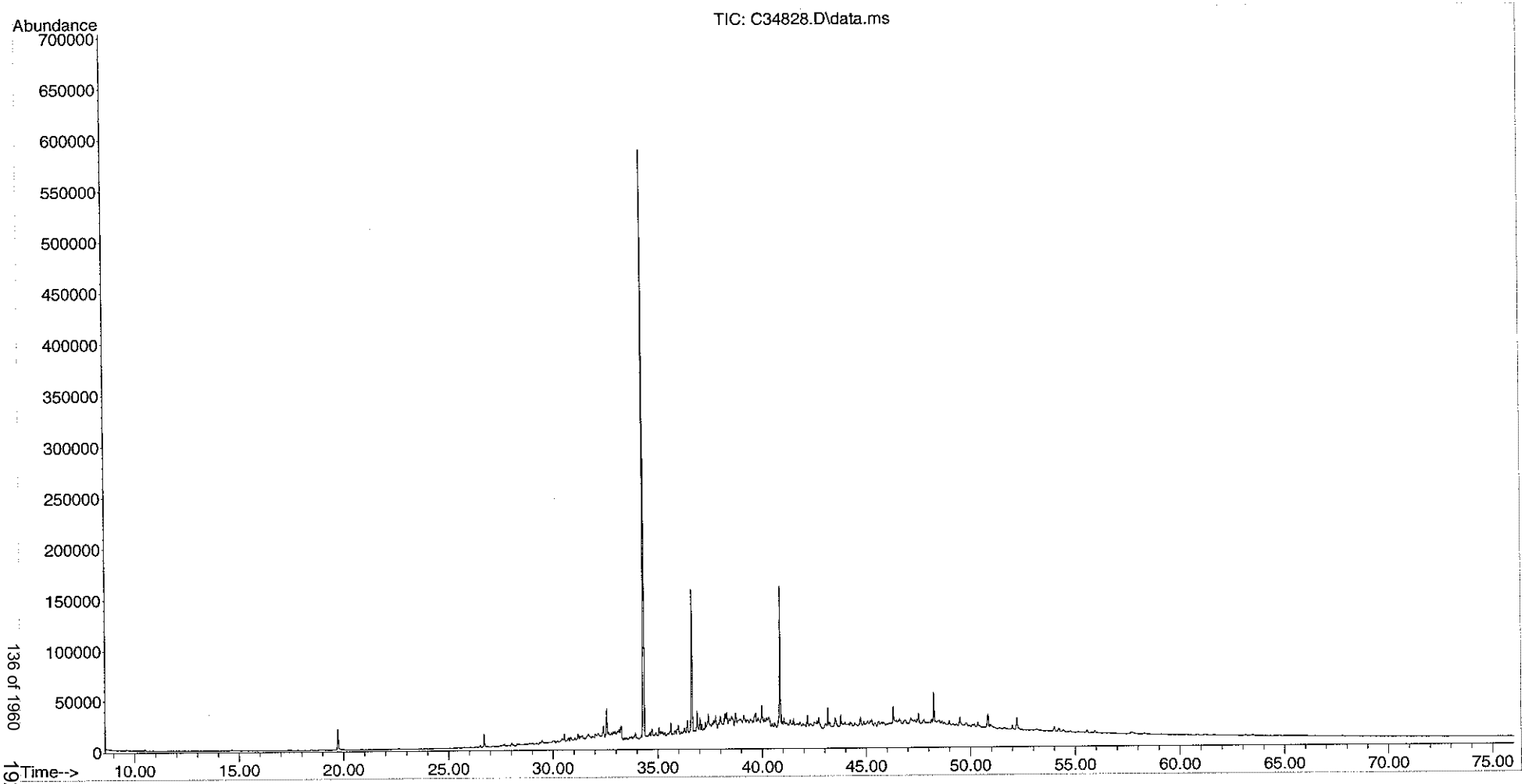
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
1)	i	Acenaphthene-d10	ISTD								
2)	t	2-butoxyethanol	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
3)	A1	trans-Decalin	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
4)	t	cis-Decalin	0.306	0.302	0.324	0.315	0.297	0.276	0.261	0.297	7.41
5)	A2	C1-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
6)	A2	C2-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
7)	A2	C3-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
8)	A2	C4-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
9)	s	Naphthalene-d8	2.368	2.312	2.355	2.303	2.120	1.974	1.759	2.170	10.67
10)	A1	Naphthalene	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
11)	A2	C1-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
12)	A2	C2-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
13)	A2	C3-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
14)	A2	C4-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
15)	t	Glycol Ether I...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
16)	t	2-Methylnaphth...	1.947	1.940	1.933	2.033	1.908	1.786	1.642	1.884	6.87
17)	t	1-Methylnaphth...	1.886	1.952	1.880	1.973	1.869	1.748	1.621	1.847	6.66
18)	A1	Benzothiophene	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
19)	A2	C1-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
20)	A2	C2-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
21)	A2	C3-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
22)	A2	C4-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
23)	t	Biphenyl	2.451	2.492	2.418	2.526	2.412	2.262	2.123	2.384	5.97
24)	t	2,6-Dimethylna...	1.551	1.564	1.525	1.619	1.611	1.527	1.438	1.548	3.94
25)	t	Dibenzofuran	2.745	2.706	2.754	2.896	2.854	2.673	2.531	2.737	4.39
26)	t	Acenaphthylene	3.124	3.157	3.130	3.302	3.335	3.152	2.943	3.163	4.08
27)	t	Acenaphthene	1.902	1.814	1.864	1.967	1.936	1.837	1.719	1.863	4.47
28)	t	2,3,5-Trimethy...	1.264	1.195	1.173	1.282	1.322	1.278	1.221	1.248	4.27
29)	A1	Fluorene	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
30)	A2	C1-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
31)	A2	C2-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
32)	A2	C3-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
33)	A1	Dibenzothiophene	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
34)	A2	4-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
35)	A2	2/3-Methyldibe...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
36)	A2	1-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
37)	A2	OTP	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
38)	A2	C1-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
39)	A2	C2-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
40)	A2	C3-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
41)	A2	C4-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
42)	s	Phenanthrene-d10	1.746	1.609	1.629	1.721	1.830	1.774	1.699	1.715	4.56
43)	A1	Phenanthrene	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
44)	A2	3-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
45)	A2	2/4-Methylphen...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
46)	A2	2-Methylanthra...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
47)	A2	9-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
48)	A2	1-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
49)	A2	C1-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
50)	A2	C2-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
51)	A2	5AA IS BKGD	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
52)	A2	C3-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
53)	A2	C4-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
54)	t	Retene	0.546	0.482	0.470	0.552	0.664	0.627	0.609	0.564	12.94
55)	t	Anthracene	2.646	2.603	2.733	2.983	3.149	2.947	2.720	2.826	7.16
56)	t	Carbazole	2.607	2.661	2.695	2.964	3.214	3.019	2.820	2.854	7.75
57)	t	1-Methylphenan...	1.698	1.672	1.757	1.915	2.067	1.931	1.793	1.833	7.81
58)	A1	Fluoranthene	2.700	2.676	2.705	3.015	3.240	2.982	2.796	2.873	7.38
59)	t	Benzo(b)fluorene	1.452	1.477	1.457	1.706	1.972	1.844	1.760	1.667	12.51
60)	A1	Pyrene	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
61)	A2	C1-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
62)	A2	C2-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
63)	A2	C3-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
64)	A2	C4-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
65)	t	Bis-(2-ethylhe...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
66)	A1	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
67)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
68)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
69)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
70)	A2	C1-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
71)	A2	C2-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
72)	A2	C3-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
73)	A2	C4-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
74)	i	Chrysene-d12	----------ISTD----------								
75)	t	Benz[a]anthracene	1.568	1.500	1.529	1.642	1.723	1.649	1.499	1.587	5.41
76)	A1	Chrysene	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
77)	A2	Chrysene/Triph...	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
78)	A2	C1-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
79)	A2	C2-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
80)	A2	C3-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
81)	A2	C4-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
82)	t	Benzo[b]fluora...	1.797	1.658	1.608	1.728	1.863	1.863	1.690	1.744	5.75

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
83)	A1	Benzo[j]+[k]fl...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
84)	A2	Benzo[a]fluora...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
85)	t	Benzo[e]pyrene	1.815	1.680	1.649	1.703	1.808	1.756	1.663	1.725	3.96
86)	s	Benzo[a]pyrene...	1.096	0.952	0.936	0.973	1.115	1.109	1.072	1.036	7.62
87)	t	Benzo[a]pyrene	1.726	1.588	1.546	1.621	1.768	1.740	1.635	1.661	5.07
88)	t	Perylene	1.857	1.695	1.649	1.721	1.894	1.861	1.748	1.775	5.36
89)	t	Indeno[1,2,3-c...	1.993	1.807	1.750	1.809	2.110	2.069	1.990	1.933	7.36
90)	t	Dibenz[ah]+[ac...	1.864	1.804	1.714	1.779	1.976	1.927	1.806	1.838	4.89
91)	t	Benzo[g,h,i]pe...	2.244	2.049	1.946	1.945	2.110	2.064	1.936	2.042	5.50
92)	A1	Hopane (T19)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
93)	A2	17a(H),21B(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
94)	A2	C23 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
95)	A2	C24 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
96)	A2	C25 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
97)	A2	C24 Tetracycli...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
98)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
99)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
100)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
101)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
102)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
103)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
104)	A2	18a-22,29,30-T...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
105)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
106)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
107)	A2	17a(H)-22,29,3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
108)	A2	17a/b,21b/a 28...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
109)	A2	17a(H),21b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
110)	A2	30-Norhopane (...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
111)	A2	18a(H)-30-Norn...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
112)	A2	17a(H)-Diahopa...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
113)	A2	30-Normoretane...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
114)	A2	18a(H)&18b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
115)	A2	Moretane (T20)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
116)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
117)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
118)	A2	Gammacerane/C3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
119)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
120)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
121)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
122)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
123)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
124)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:54:56 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
125) A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
126) A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
127) SA1 5B(H)Cholane -...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
128) A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
129) A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
130) A2 13b,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
131) A2 14a,17a-20S-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
132) A2 14a,17a-20R-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
133) A2 Unknown Steran...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
134) A2 13a,17b-20S-Et...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
135) A2 14a,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
136) A2 14a,17a-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
137) A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
138) A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
139) A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
140) A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
141) A2 14b,17b-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
142) A2 14b,17b-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
143) A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
144) A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
145) A2 C26,20R- +C27,...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
146) A2 C28,20S-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
147) A2 C27,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
148) A2 C28,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHA040@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

Mark SK 3/29/12

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	14.195	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.42%#		
42) Phenanthrene-d10	32.793	188	547	9.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.90%#		
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.09%#		
127) 5B(H)Cholane - Surr	43.995	217	84M4	10.806	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.08%#		
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	6.464	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.681	ng/mL	
10) Naphthalene	20.042	128	1021M4	18.113	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	15.327	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	15.482	ng/mL	
18) Benzothiophene	20.268	134	928M4	20.074	ng/mL	
23) Biphenyl	24.618	154	768	14.461	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	12.837	ng/mL	
25) Dibenzofuran	27.705	168	860M4	13.938	ng/mL	
26) Acenaphthylene	26.320	152	979M4	15.394	ng/mL	
27) Acenaphthene	27.057	153	596M4	14.760	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.608	170	396	11.213	ng/mL	93
29) Fluorene	29.075	166	632M4	12.577	ng/mL	
33) Dibenzothiophene	32.386	184	1010	13.309	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	11.436	ng/mL	
54) Retene	39.869	234	171M4	7.712	ng/mL	
55) Anthracene	33.064	178	829	11.221	ng/mL	97
56) Carbazole	33.726	167	817M4	12.040	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.115	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.176	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	7.556	ng/mL	
60) Pyrene	38.529	202	858	9.073	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.128	ng/ml	
67) Naphthobenzothiophene-...	42.368	234	910	9.209	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	10.573	ng/mL	
76) Chrysene	43.468	228	726M4	11.052	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	11.052	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	11.013	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	11.707	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	11.556	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	11.694	ng/mL	
88) Perylene	48.858	252	835M4	11.775	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	11.728	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	11.668	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	12.946	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	14.214	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	171M4	13.890	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHAO40@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

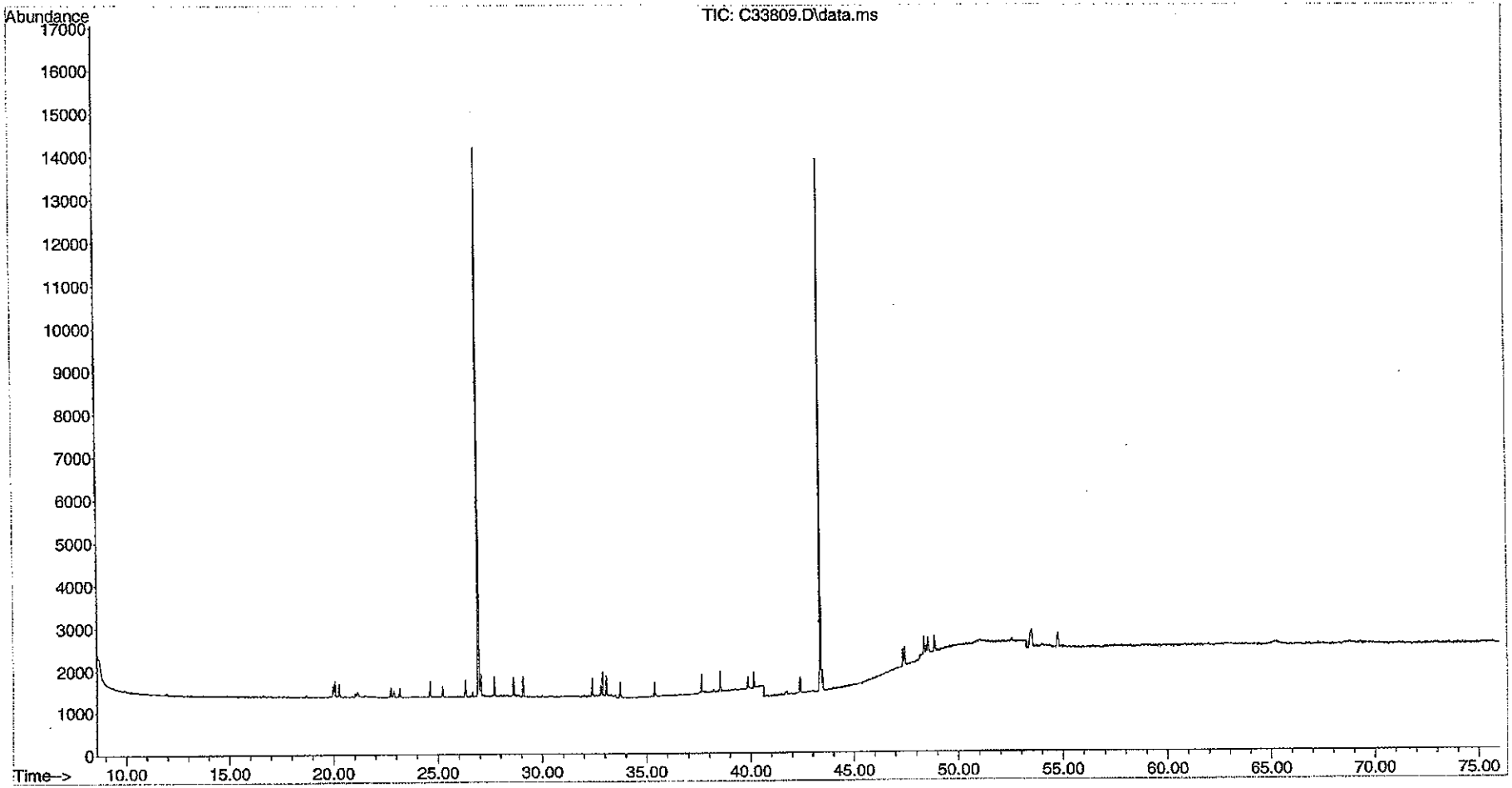
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : AC
Sample : I303261201
Misc : WHAO40@10ng/ml
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHA041@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

MMB for SL 3/29/12

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	34.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	3.46%#		
42) Phenanthrene-d10	32.793	188	1224	20.786	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.08%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	23.682	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.37%#		
127) 5B(H)Cholane - Surr	43.995	217	161	21.276	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	15.117	ng/mL	
4) cis-Decalin	17.844	138	115M4	14.013	ng/mL	
10) Naphthalene	20.042	128	2630	48.035	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	38.180	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	40.050	ng/mL	
18) Benzothiophene	20.268	134	2336M4	52.022	ng/mL	
23) Biphenyl	24.619	154	1896M4	36.754	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	32.359	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	34.355	ng/mL	
26) Acenaphthylene	26.320	152	2402	38.885	ng/mL#	100
27) Acenaphthene	27.057	153	1380	35.184	ng/mL	98
28) 2,3,5-Trimethylnaphtha...	28.608	170	909M4	26.498	ng/mL	
29) Fluorene	29.075	166	1499M4	30.710	ng/mL	
33) Dibenzothiophene	32.386	184	2440	33.102	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	27.679	ng/mL	
54) Retene	39.869	234	367	17.041	ng/mL	94
55) Anthracene	33.064	178	1981M4	27.606	ng/mL	
56) Carbazole	33.726	167	2025M4	30.723	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.437	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	22.734	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	19.217	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.122	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.555	ng/ml	100
67) Naphthobenzothiophene-...	42.384	234	2165	22.555	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	25.297	ng/mL	
76) Chrysene	43.468	228	1712M4	26.771	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	26.911	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	25.399	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	26.567	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	26.754	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	26.903	ng/mL	
88) Perylene	48.874	252	1855M4	26.870	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	26.595	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	28.233	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	29.549	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	34.877	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	418M4	34.877	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHAO41@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

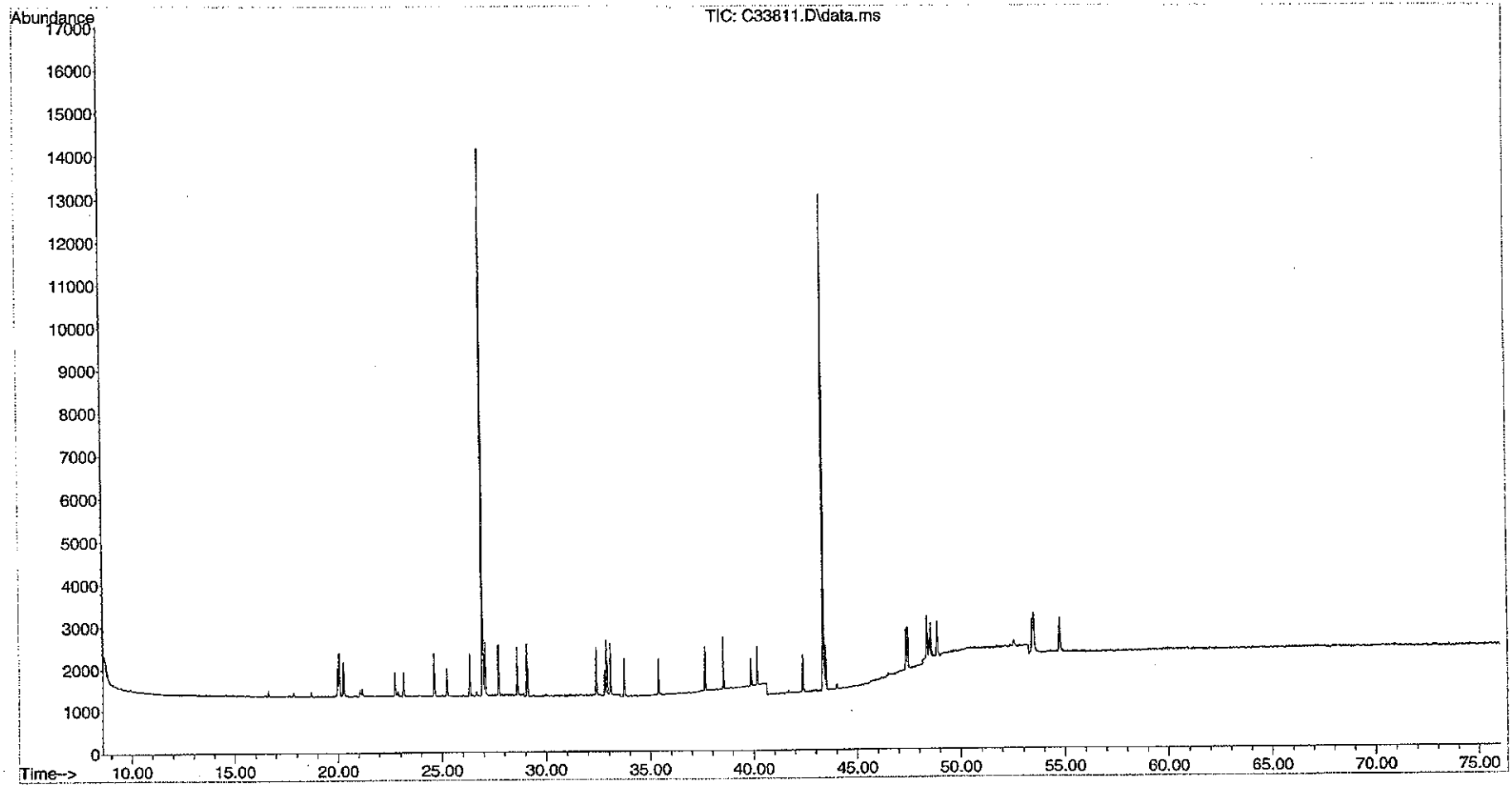
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : AC
Sample : I303261202
Misc : WHAO41@25ng/ml
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHA042@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

Mwb for SR 3/29/12

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15537M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	7319M4	141.187	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	14.12%#		
42) Phenanthrene-d10	32.793	188	5062	84.198	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	8.42%#		
86) Benzo[a]pyrene-d12	48.467	264	4202	93.161	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	9.32%#		
127) 5B(H)Cholane - Surr	43.995	217	631M4	81.342	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	8.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	620M4	57.735	ng/mL	
4) cis-Decalin	17.844	138	504M4	60.153	ng/mL	
10) Naphthalene	20.042	128	10404	186.118	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	152.196	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	154.295	ng/mL#	100
18) Benzothiophene	20.268	134	9155	199.694	ng/mL	100
23) Biphenyl	24.619	154	7515M4	142.687	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	126.219	ng/mL	
25) Dibenzofuran	27.705	168	8558	139.860	ng/mL	97
26) Acenaphthylene	26.320	152	9725	154.202	ng/mL#	100
27) Acenaphthene	27.057	153	5791	144.616	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.608	170	3646	104.103	ng/mL	95
29) Fluorene	29.075	166	6206M4	124.533	ng/mL	
33) Dibenzothiophene	32.387	184	10032	133.305	ng/mL	99
43) Phenanthrene	32.883	178	8659M4	114.513	ng/mL	
54) Retene	39.854	234	1461	66.445	ng/mL	100
55) Anthracene	33.064	178	8493M4	115.924	ng/mL	
56) Carbazole	33.726	167	8375M4	124.456	ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	94.334	ng/mL	
58) Fluoranthene	37.641	202	8404M4	91.914	ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	75.841	ng/mL	100
60) Pyrene	38.529	202	8523M4	90.883	ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.002	ng/ml	
67) Naphthobenzothiophene-...	42.369	234	8849M4	90.298	ng/mL	
75) Benz[a]anthracene	43.302	228	6862	103.126	ng/mL	100
76) Chrysene	43.453	228	7256M4	110.681	ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	111.032	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	98.558	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	105.654	ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	104.988	ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	104.793	ng/mL	
88) Perylene	48.859	252	7398M4	104.535	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	102.985	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	107.318	ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	112.266	ng/mL	99
92) Hopane (T19)	52.548	191	1398	113.786	ng/mL	99
93) 17a(H),21B(H)-hopane -...	52.548	191	1398	113.786	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHA042@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

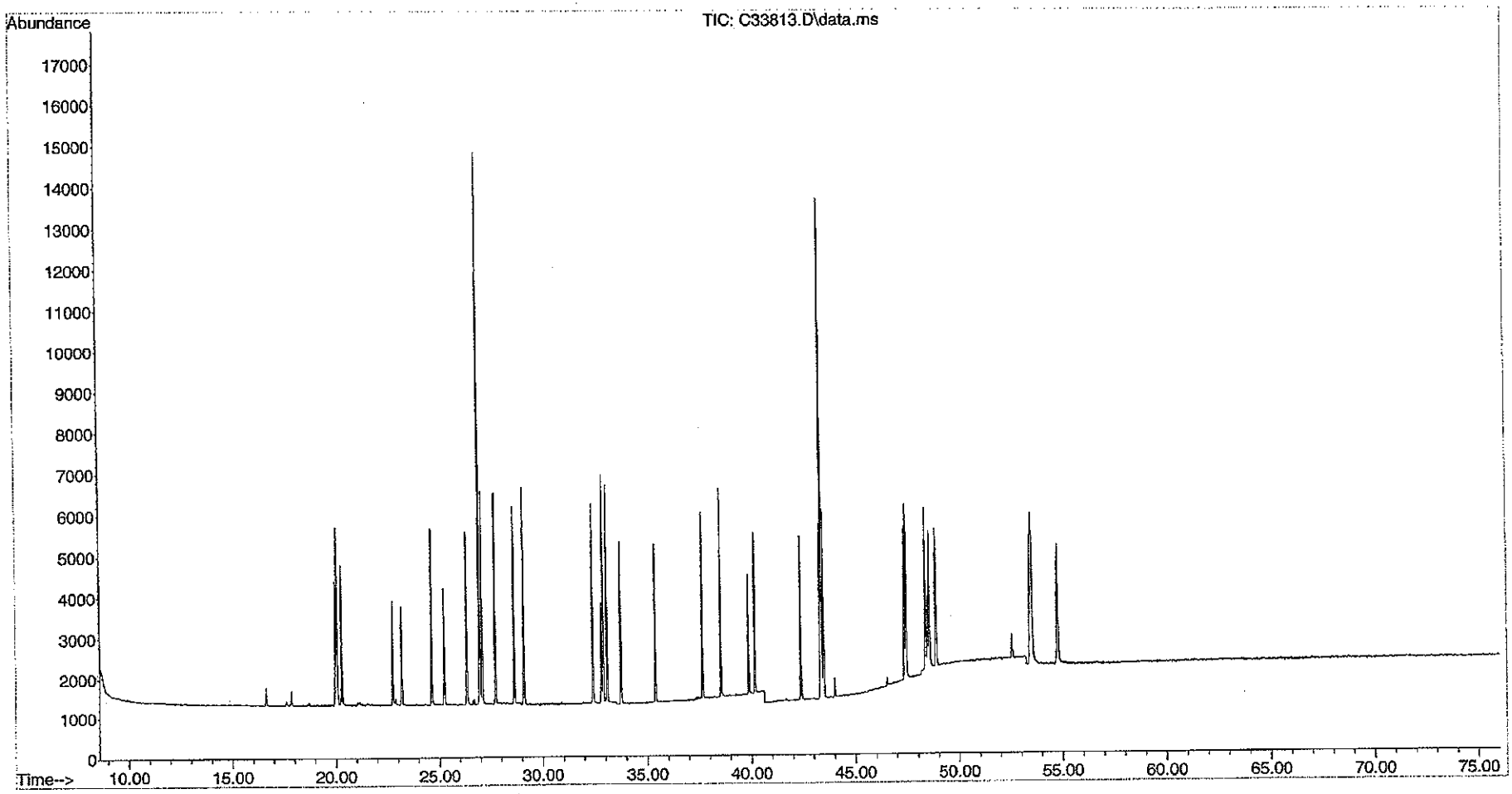
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : AC
Sample : I303261203
Misc : WHAO42@100ng/ml
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

MAE SR 3/29/12

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	690.288	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.03%			
42) Phenanthrene-d10	32.793	188	30011	444.688	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.47%#			
86) Benzo[a]pyrene-d12	48.467	264	26218	483.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.40%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	430.078	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.01%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	301.956	ng/mL	
4) cis-Decalin	17.844	138	2748	292.174	ng/mL	100
10) Naphthalene	20.042	128	60651M4	966.547	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	800.461	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	809.738	ng/mL	
18) Benzothiophene	20.253	134	54196	1053.098	ng/mL	100
23) Biphenyl	24.619	154	44061	745.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	670.105	ng/mL	
25) Dibenzofuran	27.690	168	50514	735.407	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	813.474	ng/mL	
27) Acenaphthene	27.057	153	34314	763.360	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.608	170	22365M4	568.869	ng/mL	
29) Fluorene	29.075	166	37446M3	669.384	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	719.639	ng/mL	
43) Phenanthrene	32.883	178	53364	628.681	ng/mL	100
54) Retene	39.854	234	9623M4	389.871	ng/mL	
55) Anthracene	33.064	178	52019M4	632.516	ng/mL	
56) Carbazole	33.726	167	51702M4	684.436	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	514.047	ng/mL	
58) Fluoranthene	37.641	202	52587M3	512.355	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	443.755	ng/mL	98
60) Pyrene	38.529	202	53499	508.197	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	506.802	ng/ml	98
67) Naphthobenzothiophene-...	42.369	234	55752	506.802	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	553.548	ng/mL	
76) Chrysene	43.453	228	45764M4	581.223	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	581.909	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	529.436	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	564.954	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	542.397	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	549.348	ng/mL	
88) Perylene	48.874	252	46371	545.553	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	532.487	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	556.838	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	561.014	ng/mL	99
92) Hopane (T19)	52.548	191	7873	533.536	ng/mL#	89
93) 17a(H),21B(H)-hopane -...	52.548	191	7873	533.536	ng/mL#	89

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

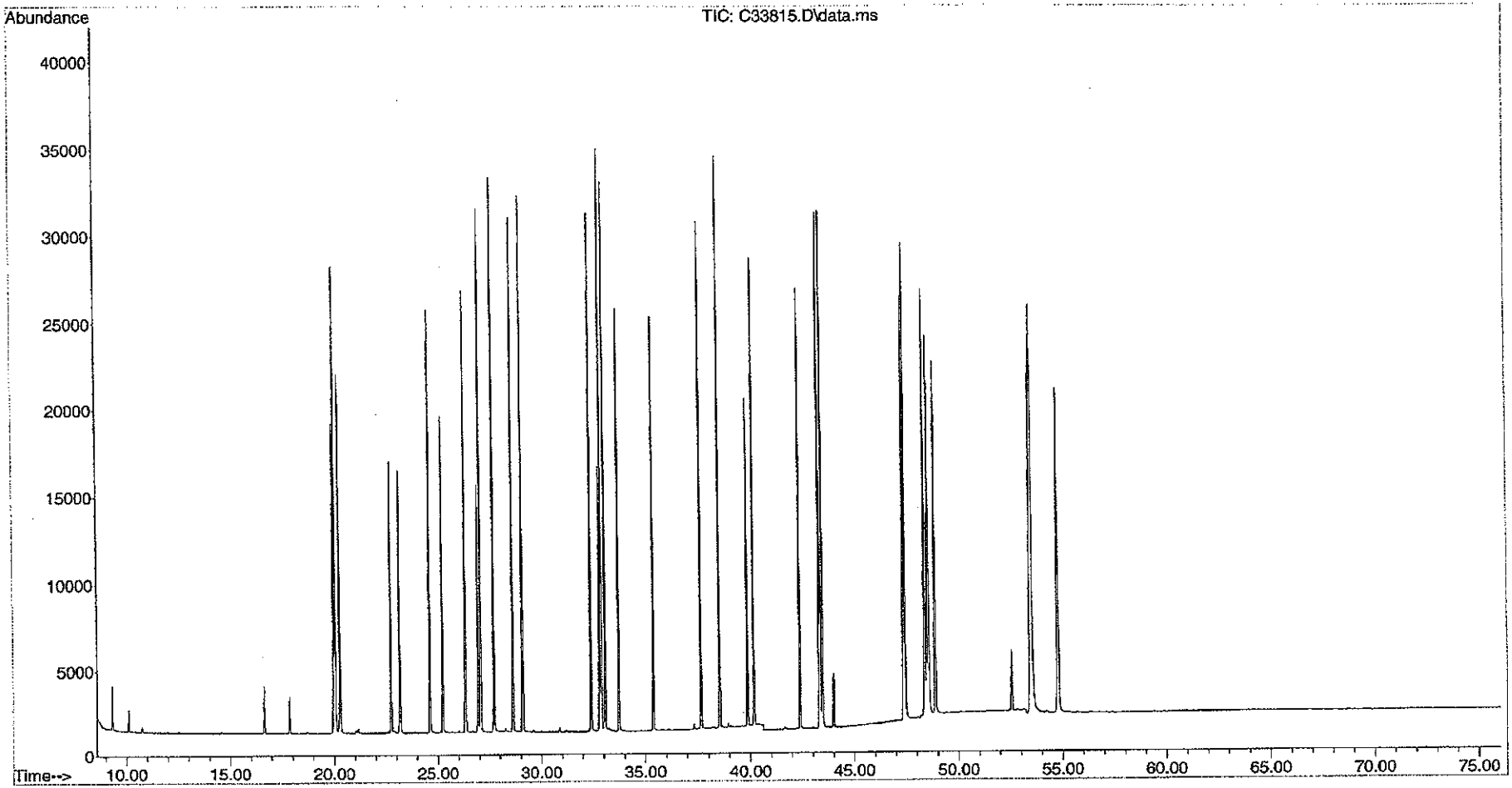
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : AC
Sample : I303261204
Misc : WHAP29@500ng/ml
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



152 of 1960 1938

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHAO88@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

MM for SR 3/29/12

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	22551M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	478162	6355.066	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 635.51%#			
42) Phenanthrene-d10	32.793	188	412777	4730.380	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 473.04%#			
86) Benzo[a]pyrene-d12	48.482	264	443076	5545.446	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 554.54%#			
127) 5B(H)Cholane - Surr	43.995	217	64588M4	4700.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 470.02%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	43356	2781.614	ng/mL	100
4) cis-Decalin	17.844	138	33472	2752.401	ng/mL	100
10) Naphthalene	20.042	128	717522M4	8843.529	ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	7511.855	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	7671.541	ng/mL#	100
18) Benzothiophene	20.268	134	651957	9797.743	ng/mL	100
23) Biphenyl	24.619	154	543936	7115.490	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	6667.718	ng/mL#	100
25) Dibenzofuran	27.705	168	643601	7246.670	ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	8216.990	ng/mL	
27) Acenaphthene	27.057	153	436514M4	7510.380	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.608	170	298218	5866.548	ng/mL	98
29) Fluorene	29.075	166	496059M4	6858.178	ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	7268.637	ng/mL	
43) Phenanthrene	32.883	178	705493M4	6428.067	ng/mL	
54) Retene	39.869	234	149798	4693.772	ng/mL	94
55) Anthracene	33.064	178	710151M4	6678.295	ng/mL	
56) Carbazole	33.726	167	724874M3	7421.536	ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5549.758	ng/mL	
58) Fluoranthene	37.656	202	730627M3	5505.463	ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5131.170	ng/mL	
60) Pyrene	38.544	202	747539M4	5491.938	ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5776.683	ng/ml	
67) Naphthobenzothiophene-...	42.384	234	821825M4	5777.801	ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5809.075	ng/mL	99
76) Chrysene	43.468	228	665554M4	5731.133	ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5730.238	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5709.986	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5808.435	ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5757.223	ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5991.154	ng/mL	
88) Perylene	48.889	252	752672	6003.913	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	6210.458	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	6184.645	ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838517	6085.922	ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	5641.802	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.548	191	122720M3	5638.678	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHAO88@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

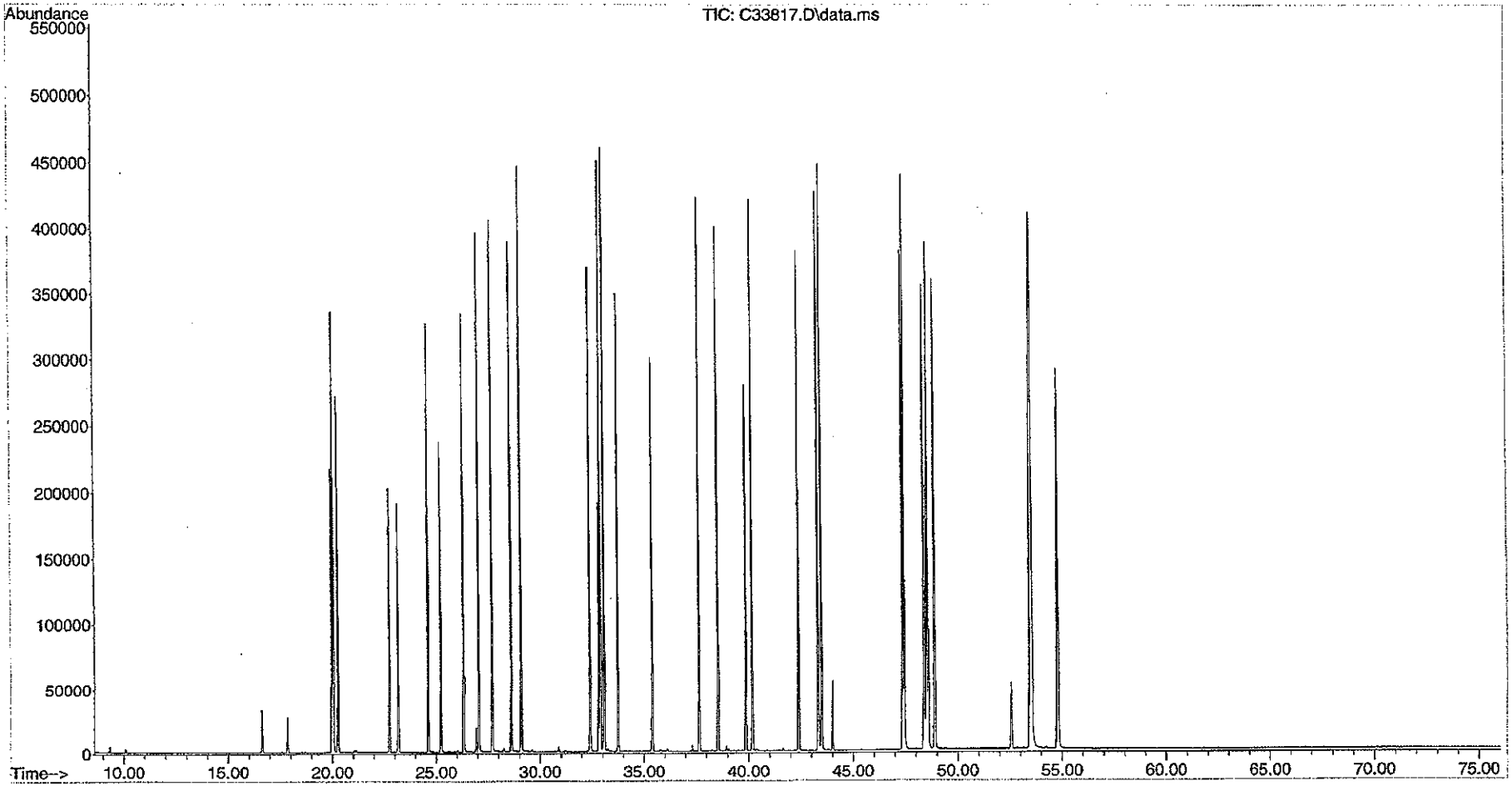
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : AC
Sample : I303261205
Misc : WHAO88@1000ng/ml
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHA045@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

MA for SR 3/29/12

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	20041M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	791075	11830.663 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1183.07%#		
42) Phenanthrene-d10	32.808	188	710873M4	9166.827 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 916.68%#		
86) Benzo[a]pyrene-d12	48.497	264	755272	11037.321 ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1103.73%#		
127) 5B(H)Cholane - Surr	43.995	217	107458	9130.770 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 913.08%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	72570	5239.034 ng/mL	100
4) cis-Decalin	17.844	138	55394	5125.536 ng/mL	100
10) Naphthalene	20.042	128	1183724	16416.753 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	14063.659 ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	14348.981 ng/mL	
18) Benzothiophene	20.268	134	1064574	18002.356 ng/mL	100
23) Biphenyl	24.619	154	906757M4	13347.329 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	12641.215 ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	13573.702 ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	15531.963 ng/mL	
27) Acenaphthene	27.057	153	736224	14253.453 ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.623	170	512344	11341.143 ng/mL	99
29) Fluorene	29.075	166	837178M3	13023.858 ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	13623.641 ng/mL	
43) Phenanthrene	32.898	178	1195572	12257.724 ng/mL	99
54) Retene	39.869	234	251265	8859.198 ng/mL	93
55) Anthracene	33.079	178	1181250M4	12499.803 ng/mL	
56) Carbazole	33.741	167	1210095m	13941.104 ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10369.547 ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10135.785 ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	9595.000 ng/mL	99
60) Pyrene	38.544	202	1228730M4	10157.684 ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10732.503 ng/ml	
67) Naphthobenzothiophene-...	42.399	234	1356294M4	10729.599 ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	11118.569 ng/mL	99
76) Chrysene	43.483	228	1085655M4	10915.688 ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	10910.460 ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	11418.659 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	10878.013 ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	11182.087 ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	11788.129 ng/mL	
88) Perylene	48.904	252	1266913	11799.877 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	12176.588 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	12064.466 ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1404966	11906.453 ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	10720.577 ng/mL	
93) 17a(H),21B(H)-hopane -...	52.563	191	199673M3	10712.315 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHAO45@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

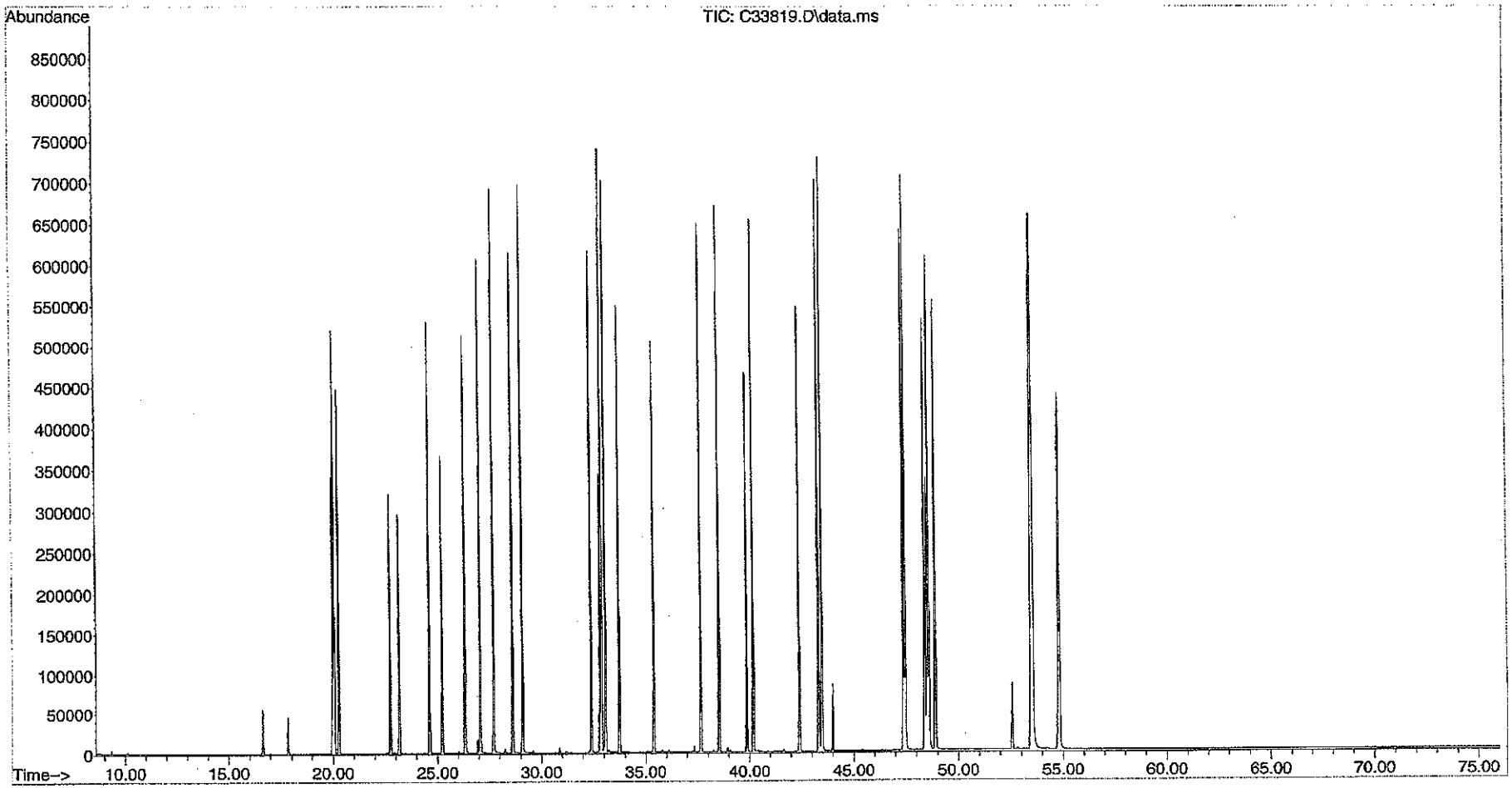
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : AC
Sample : I303261206
Misc : WHAO45@10000ng/ml
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : AC
Sample : I303261207
Misc : WHA047@20000ng/ml
ALS Vial : 11 Sample Multiplier: 1

MAL for SL 3/29/12

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	18516M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.982	136	1302520	21083.759	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130			Recovery = 2108.38%#		
42) Phenanthrene-d10	32.808	188	1258411	17563.931	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130			Recovery = 1756.39%#		
86) Benzo[a]pyrene-d12	48.512	264	1393115	21325.190	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130			Recovery = 2132.52%#		
127) 5B(H)Cholane - Surr	44.010	217	195942M4	17439.814	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130			Recovery = 1743.98%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	124104M4	9697.328	ng/mL	
4) cis-Decalin	17.844	138	96625M4	9676.944	ng/mL	
10) Naphthalene	20.057	128	1949049	29257.134	ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	25854.831	ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	26609.552	ng/mL#	100
18) Benzothiophene	20.268	134	1808135	33094.557	ng/mL	100
23) Biphenyl	24.619	154	1572275M4	25049.794	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	23810.418	ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	25710.272	ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	29003.190	ng/mL	
27) Acenaphthene	27.072	153	1273128	26678.070	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.623	170	904177	21663.113	ng/mL	100
29) Fluorene	29.090	166	1451673M4	24443.469	ng/mL	
33) Dibenzothiophene	32.402	184	2285641	25485.077	ng/mL	99
43) Phenanthrene	32.898	178	2086430	23153.152	ng/mL	98
54) Retene	39.884	234	451319	17223.374	ng/mL	92
55) Anthracene	33.079	178	2014742M4	23075.600	ng/mL	
56) Carbazole	33.741	167	2088328M4	26040.459	ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19255.650	ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19002.422	ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	18321.441	ng/mL	
60) Pyrene	38.559	202	2108058M4	18862.228	ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20448.484	ng/ml	98
67) Naphthobenzothiophene-...	42.399	234	2387636M4	20444.194	ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	20217.341	ng/mL	
76) Chrysene	43.498	228	1888024M4	19884.398	ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	19887.463	ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	20722.621	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	20712.666	ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	21181.566	ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	22157.852	ng/mL	
88) Perylene	48.919	252	2271920	22165.085	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	23421.956	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	22616.127	ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516558	22339.282	ng/mL	100

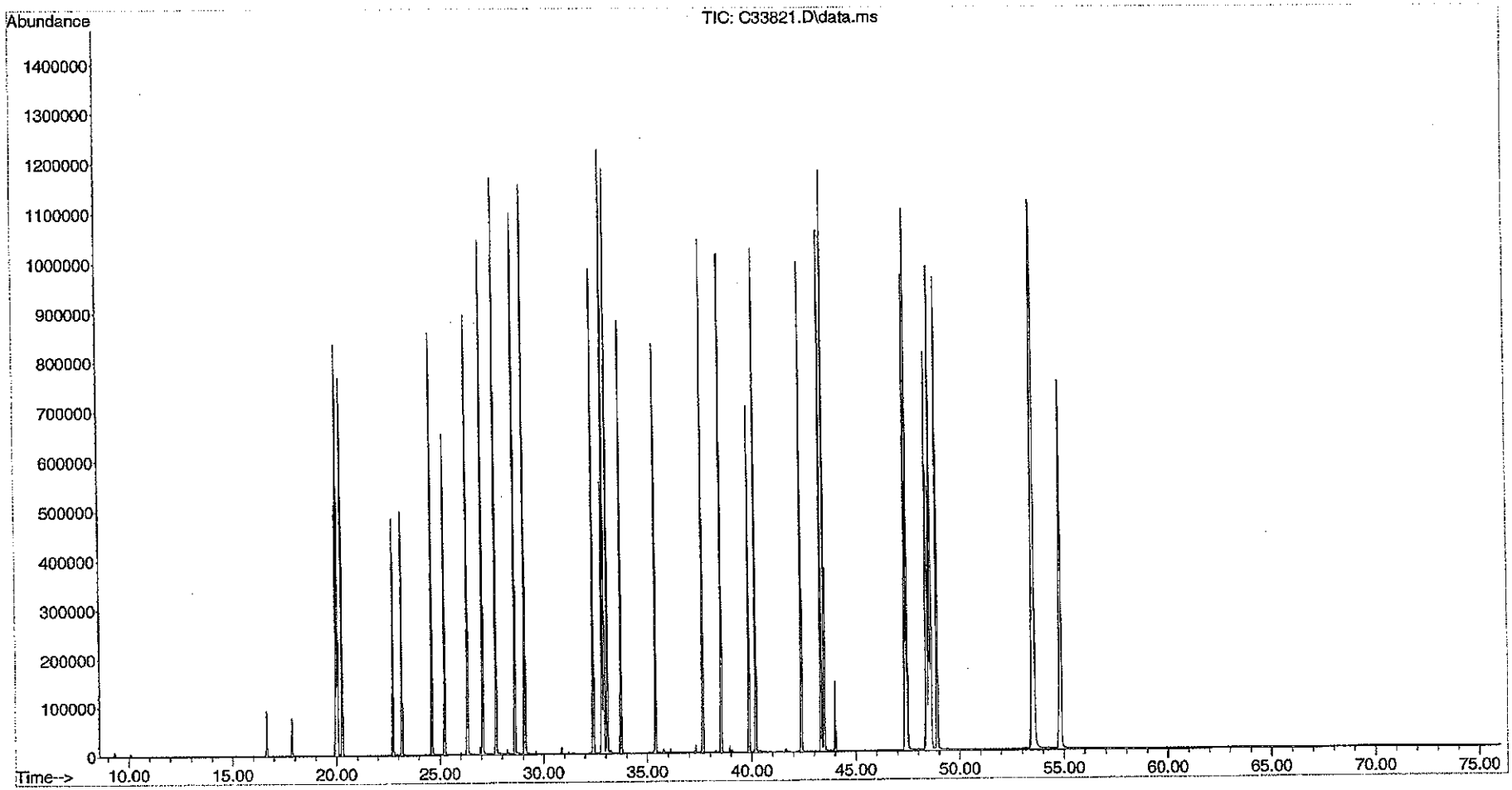
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : AC
Sample : I303261207
Misc : WHA047@20000ng/ml
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

NAH for SR 3/29/12

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	86	0.00
3	A1	trans-Decalin	0.395	0.416	-5.3	86	0.00
4	t	cis-Decalin	0.297	0.316	-6.4	86	0.00
9	s	Naphthalene-d8	2.170	2.330	-7.4	87	0.00
10	A1	Naphthalene	3.187	3.475	-9.0	86	0.00
16	t	2-Methylnaphthalene	1.884	2.055	-9.1	87	0.00
17	t	1-Methylnaphthalene	1.847	1.994	-8.0	87	0.00
18	A1	Benzothiophene	2.868	3.068	-7.0	85	0.01
23	t	Biphenyl	2.384	2.576	-8.1	88	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.662	-7.4	89	0.00
25	t	Dibenzofuran	2.737	2.960	-8.1	88	0.01
26	t	Acenaphthylene	3.163	3.420	-8.1	89	0.00
27	t	Acenaphthene	1.863	2.020	-8.4	89	0.00
28	t	2,3,5-Trimethylnaphthalene	1.248	1.317	-5.5	89	0.00
29	A1	Fluorene	2.054	2.172	-5.7	87	0.00
33	A1	Dibenzothiophene	3.293	3.547	-7.7	88	0.00
42	s	Phenanthrene-d10	1.715	1.734	-1.1	87	0.00
43	A1	Phenanthrene	2.893	3.090	-6.8	87	0.00
54	t	Retene	0.564	0.557	1.2	87	0.00
55	t	Anthracene	2.826	3.018	-6.8	87	0.00
56	t	Carbazole	2.854	3.008	-5.4	88	0.00
57	t	1-Methylphenanthrene	1.833	1.954	-6.6	88	0.00
58	A1	Fluoranthene	2.873	3.064	-6.6	88	0.00
59	t	Benzo(b)fluorene	1.667	1.719	-3.1	87	0.00
60	A1	Pyrene	2.921	3.101	-6.2	87	0.00
66	A1	Naphthobenzothiophene	3.145	3.276	-4.2	88	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.276	-4.2	88	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	85	0.00
75	t	Benz[a]anthracene	1.587	1.743	-9.8	90	0.00
76	A1	Chrysene	1.602	1.762	-10.0	88	0.00
77	A2	Chrysene/Triphenylene	1.602	1.760	-9.9	88	0.00
82	t	Benzo[b]fluoranthene	1.744	1.871	-7.3	92	-0.01
83	A1	Benzo[j]+[k]fluoranthene	1.899	2.073	-9.2	90	0.00
85	t	Benzo[e]pyrene	1.725	1.833	-6.3	91	0.00
86	s	Benzo[a]pyrene-d12	1.036	0.895	13.6	78	0.00
87	t	Benzo[a]pyrene	1.661	1.764	-6.2	92	-0.01
88	t	Perylene	1.775	1.879	-5.9	92	-0.02
89	t	Indeno[1,2,3-cd]pyrene	1.933	1.953	-1.0	91	0.00
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.913	-4.1	91	0.00
91	t	Benzo[g,h,i]perylene	2.042	2.085	-2.1	91	0.00
92	A1	Hopane (T19)	0.330	0.000#	100.0#	0#	-52.55#
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.000#	100.0#	0#	-52.55#
127	SA1	5B(H)Cholane - Surr	0.156	0.000#	100.0#	0#	-43.99#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.96	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15052M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	35074	536.878	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.793	188	26097M4	505.389	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%			
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	3130	263.420	ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319	ng/mL	100
10) Naphthalene	20.042	128	52309	545.264	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838	ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994	ng/mL	
23) Biphenyl	24.618	154	38768	540.294	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656	ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769	ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489	ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.608	170	19817M4	527.499	ng/mL	
29) Fluorene	29.075	166	32696M4	528.715	ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598	ng/mL	
43) Phenanthrene	32.883	178	46516	534.091	ng/mL	100
54) Retene	39.854	234	8385	493.546	ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942	ng/mL	
56) Carbazole	33.726	167	45283M4	526.968	ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804	ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176	ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672	ng/mL	
60) Pyrene	38.529	202	46681M4	530.900	ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975	ng/ml	97
67) Naphthobenzothiophene-...	42.368	234	49317	520.975	ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145	ng/mL	
76) Chrysene	43.452	228	40148M4	549.904	ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398	ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841	ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397	ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093	ng/mL	
88) Perylene	48.858	252	42809	529.339	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620	ng/mL	99

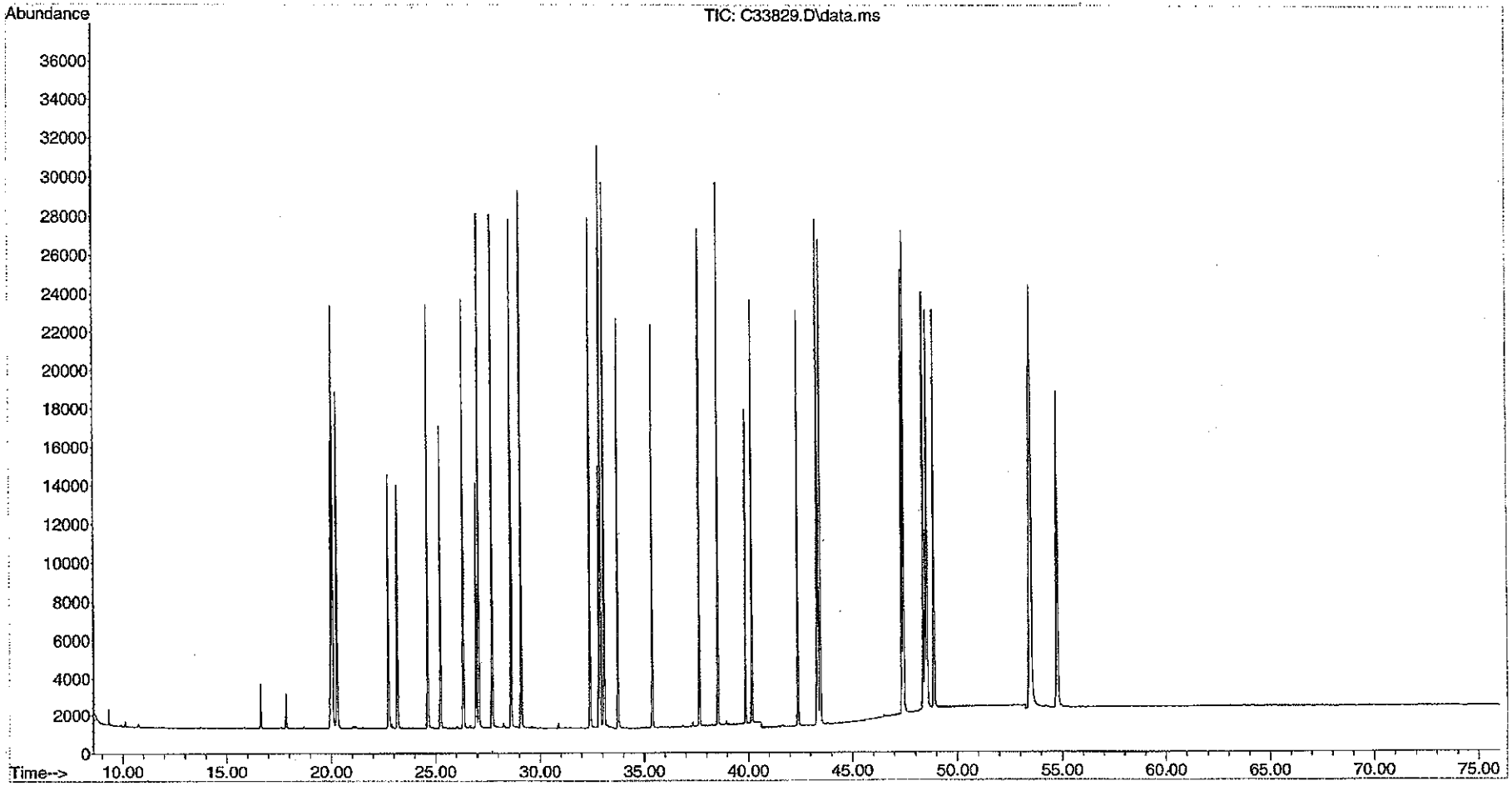
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	150	-0.03
3	A1	trans-Decalin	0.395	0.391	1.0	140	-0.06
4	t	cis-Decalin	0.297	0.300	-1.0	142	-0.05
9	s	Naphthalene-d8	2.170	2.106	2.9	137	-0.05
10	A1	Naphthalene	3.187	2.931	8.0	126	-0.05
16	t	2-Methylnaphthalene	1.884	1.784	5.3	131	-0.03
17	t	1-Methylnaphthalene	1.847	1.694	8.3	128	-0.05
18	A1	Benzothiophene	2.868	2.611	9.0	126	-0.03
23	t	Biphenyl	2.384	2.268	4.9	134	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.503	2.9	139	-0.03
25	t	Dibenzofuran	2.737	2.602	4.9	134	-0.02
26	t	Acenaphthylene	3.163	2.916	7.8	132	-0.02
27	t	Acenaphthene	1.863	1.762	5.4	134	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.233	1.2	144	-0.02
29	A1	Fluorene	2.054	1.973	3.9	137	-0.02
33	A1	Dibenzothiophene	3.293	3.130	4.9	134	-0.02
42	s	Phenanthrene-d10	1.715	1.693	1.3	147	-0.02
43	A1	Phenanthrene	2.893	2.771	4.2	135	-0.02
54	t	Retene	0.564	0.619	-9.8	168	0.00
55	t	Anthracene	2.826	2.745	2.9	138	-0.02
56	t	Carbazole	2.854	2.700	5.4	136	-0.02
57	t	1-Methylphenanthrene	1.833	1.888	-3.0	147	0.00
58	A1	Fluoranthene	2.873	2.923	-1.7	145	0.00
59	t	Benzo(b)fluorene	1.667	1.770	-6.2	155	0.00
60	A1	Pyrene	2.921	2.975	-1.8	145	0.00
66	A1	Naphthobenzothiophene	3.145	3.252	-3.4	152	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.252	-3.4	152	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	166	0.00
75	t	Benz[a]anthracene	1.587	1.594	-0.4	161	0.01
76	A1	Chrysene	1.602	1.555	2.9	152	0.01
77	A2	Chrysene/Triphenylene	1.602	1.555	2.9	152	0.01
82	t	Benzo[b]fluoranthene	1.744	1.877	-7.6	181	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.829	3.7	156	0.01
85	t	Benzo[e]pyrene	1.725	1.710	0.9	167	0.01
86	s	Benzo[a]pyrene-d12	1.036	1.017	1.8	174	0.03
87	t	Benzo[a]pyrene	1.661	1.639	1.3	168	0.03
88	t	Perylene	1.775	1.761	0.8	170	0.03
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.131	-10.2	196	0.06
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.021	-10.0	189	0.05
91	t	Benzo[g,h,i]perylene	2.042	2.180	-6.8	186	0.08
92	A1	Hopane (T19)	0.330	0.286	13.3	162	0.00
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.286	13.3	162	0.00
127	SA1	5B(H)Cholane - Surr	0.156	0.157	-0.6	175	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.12	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

B 5/5/12 JMSLR.

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	26089M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	44781	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	54950	485.283	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.53%#			
42) Phenanthrene-d10	32.567	188	44160	493.402	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.34%#			
86) Benzo[a]pyrene-d12	48.241	264	45536	490.662	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.07%#			
127) 5B(H)Cholane - Surr	43.769	217	7026	501.828	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.18%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	5103	247.780	ng/mL	100
4) cis-Decalin	17.603	138	3914	252.162	ng/mL	100
10) Naphthalene	19.801	128	76478	459.943	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	46542	473.392	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	44193	458.580	ng/mL#	100
18) Benzothiophene	20.027	134	68125	455.294	ng/mL	100
23) Biphenyl	24.393	154	59181	475.856	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	39215	485.480	ng/mL#	100
25) Dibenzofuran	27.479	168	67874	475.265	ng/mL	96
26) Acenaphthylene	26.094	152	76063M3	460.823	ng/mL	
27) Acenaphthene	26.831	153	45976	473.069	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.382	170	32171	494.066	ng/mL	99
29) Fluorene	28.849	166	51461M3	480.111	ng/mL	
33) Dibenzothiophene	32.160	184	81656	475.249	ng/mL	99
43) Phenanthrene	32.657	178	72281	478.822	ng/mL	99
54) Retene	39.643	234	16137	548.005	ng/mL	97
55) Anthracene	32.838	178	71626M3	485.764	ng/mL	
56) Carbazole	33.500	167	70445M3	472.973	ng/mL	
57) 1-Methylphenanthrene	35.172	192	49260	514.930	ng/mL	99
58) Fluoranthene	37.430	202	76253M3	508.609	ng/mL	
59) Benzo(b)fluorene	39.944	216	46182	530.948	ng/mL	100
60) Pyrene	38.318	202	77613	509.265	ng/mL	98
66) Naphthobenzothiophene	42.158	234	84831	517.025	ng/ml#	66
67) Naphthobenzothiophene-...	42.158	234	84831	517.025	ng/mL#	66
75) Benz[a]anthracene	43.091	228	71364	502.089	ng/mL	100
76) Chrysene	43.257	228	69630	485.239	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	69630	485.239	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	84065	538.267	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	81920	481.779	ng/mL	96
85) Benzo[e]pyrene	48.136	252	76555	495.571	ng/mL	96
87) Benzo[a]pyrene	48.331	252	73411	493.583	ng/mL	95
88) Perylene	48.633	252	78871	496.195	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	95448M3	551.461	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	90499	549.649	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97641	533.960	ng/mL	100
92) Hopane (T19)	52.217	191	12792	433.424	ng/mL#	84
93) 17a(H),21B(H)-hopane -...	52.217	191	12792	433.424	ng/mL#	84

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

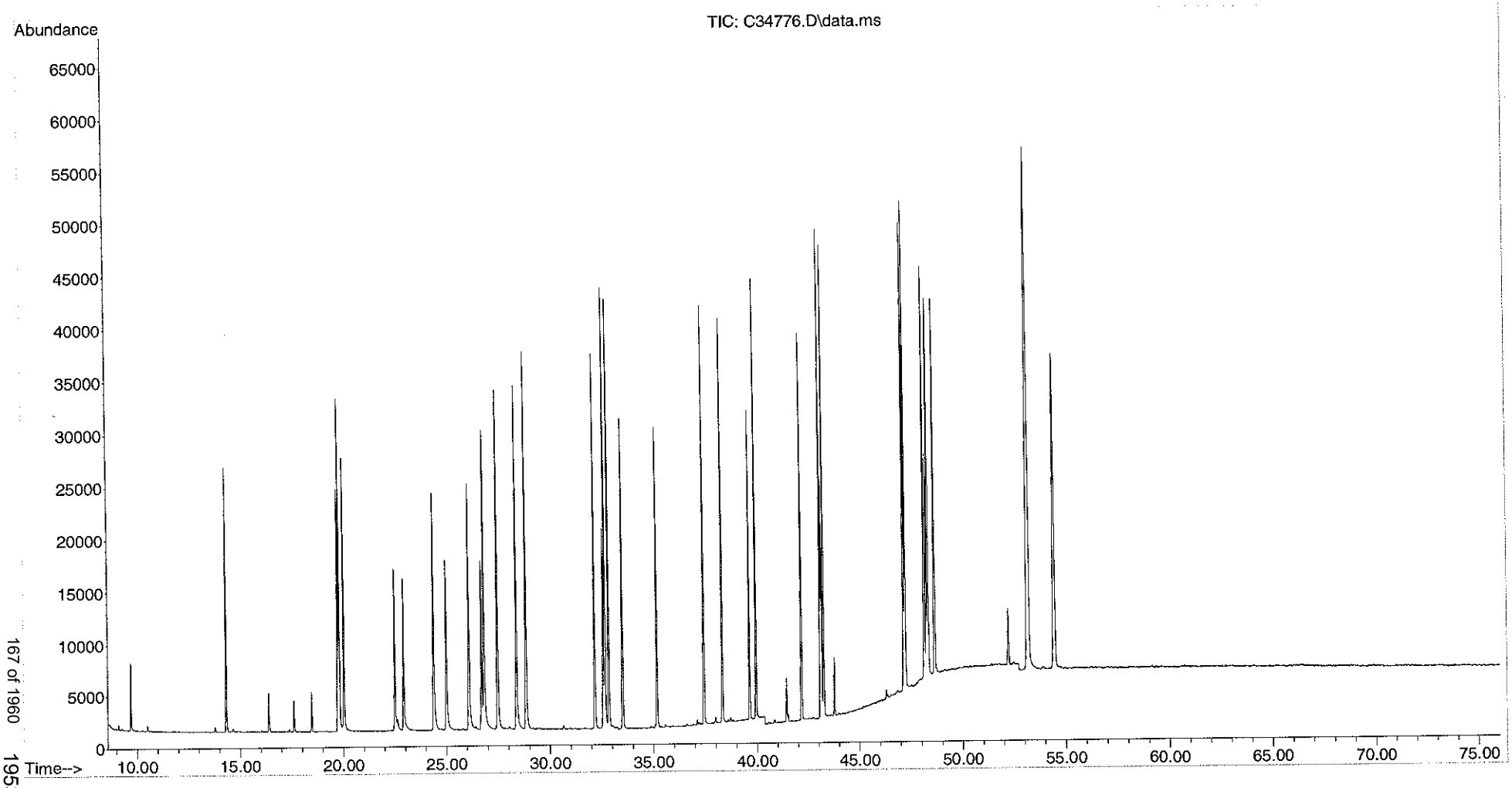
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	156	-0.03
3	A1	trans-Decalin	0.395	0.395	0.0	148	-0.06
4	t	cis-Decalin	0.297	0.291	2.0	144	-0.05
9	s	Naphthalene-d8	2.170	2.095	3.5	142	-0.05
10	A1	Naphthalene	3.187	2.935	7.9	132	-0.05
16	t	2-Methylnaphthalene	1.884	1.762	6.5	135	-0.03
17	t	1-Methylnaphthalene	1.847	1.674	9.4	132	-0.05
18	A1	Benzothiophene	2.868	2.618	8.7	132	-0.03
23	t	Biphenyl	2.384	2.226	6.6	138	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.493	3.6	144	-0.03
25	t	Dibenzofuran	2.737	2.586	5.5	139	-0.02
26	t	Acenaphthylene	3.163	2.902	8.3	137	-0.02
27	t	Acenaphthene	1.863	1.744	6.4	138	-0.03
28	t	2,3,5-Trimethylnaphthalene	1.248	1.222	2.1	149	-0.02
29	A1	Fluorene	2.054	1.958	4.7	142	-0.02
33	A1	Dibenzothiophene	3.293	3.072	6.7	138	-0.02
42	s	Phenanthrene-d10	1.715	1.678	2.2	152	-0.02
43	A1	Phenanthrene	2.893	2.706	6.5	138	-0.02
54	t	Retene	0.564	0.629	-11.5	178	0.00
55	t	Anthracene	2.826	2.692	4.7	141	-0.02
56	t	Carbazole	2.854	2.619	8.2	138	0.00
57	t	1-Methylphenanthrene	1.833	1.846	-0.7	151	-0.02
58	A1	Fluoranthene	2.873	2.896	-0.8	150	0.00
59	t	Benzo(b)fluorene	1.667	1.766	-5.9	162	0.00
60	A1	Pyrene	2.921	2.959	-1.3	151	0.00
66	A1	Naphthobenzothiophene	3.145	3.248	-3.3	159	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.248	-3.3	159	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	171	0.00
75	t	Benz[a]anthracene	1.587	1.606	-1.2	167	0.02
76	A1	Chrysene	1.602	1.567	2.2	158	0.02
77	A2	Chrysene/Triphenylene	1.602	1.567	2.2	158	0.02
82	t	Benzo[b]fluoranthene	1.744	1.787	-2.5	177	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.893	0.3	166	0.02
85	t	Benzo[e]pyrene	1.725	1.689	2.1	170	0.02
86	s	Benzo[a]pyrene-d12	1.036	1.010	2.5	177	0.03
87	t	Benzo[a]pyrene	1.661	1.597	3.9	168	0.03
88	t	Perylene	1.775	1.741	1.9	173	0.03
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.071	-7.1	196	0.06
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.991	-8.3	191	0.05
91	t	Benzo[g,h,i]perylene	2.042	2.117	-3.7	186	0.08
92	A1	Hopane (T19)	0.330	0.291	11.8	170	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.290	12.1	170	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.158	-1.3	182	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.11	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

PAH 5 CURVE 5/2/12

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	27233M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	46077	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	57040	482.579	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.26%#			
42) Phenanthrene-d10	32.567	188	45708	489.245	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.92%#			
86) Benzo[a]pyrene-d12	48.241	264	46524	487.208	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.72%#			
127) 5B(H)Cholane - Surr	43.754	217	7298	506.594	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.66%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	5383	250.396	ng/mL	100
4) cis-Decalin	17.603	138	3968	244.902	ng/mL	100
10) Naphthalene	19.801	128	79919	460.447	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	47971	467.430	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	45592	453.223	ng/mL#	100
18) Benzothiophene	20.027	134	71300	456.496	ng/mL	100
23) Biphenyl	24.393	154	60633	467.051	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	40652	482.129	ng/mL#	100
25) Dibenzofuran	27.479	168	70414	472.339	ng/mL	95
26) Acenaphthylene	26.094	152	79043M3	458.761	ng/mL	
27) Acenaphthene	26.816	153	47495M3	468.169	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	33282	489.657	ng/mL	100
29) Fluorene	28.849	166	53325M3	476.603	ng/mL	
33) Dibenzothiophene	32.161	184	83671	466.520	ng/mL	100
43) Phenanthrene	32.657	178	73704	467.738	ng/mL	99
54) Retene	39.643	234	17133	557.387	ng/mL	99
55) Anthracene	32.838	178	73311M3	476.306	ng/mL	
56) Carbazole	33.515	167	71324M3	458.758	ng/mL	
57) 1-Methylphenanthrene	35.157	192	50285	503.563	ng/mL	100
58) Fluoranthene	37.430	202	78861M3	503.908	ng/mL	
59) Benzo(b)fluorene	39.944	216	48097	529.736	ng/mL	100
60) Pyrene	38.318	202	80569	506.453	ng/mL	98
66) Naphthobenzothiophene	42.158	234	88451	516.442	ng/ml#	65
67) Naphthobenzothiophene-...	42.158	234	88451	516.442	ng/mL#	65
75) Benz[a]anthracene	43.091	228	73981	505.861	ng/mL	100
76) Chrysene	43.257	228	72194	488.956	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	72194	488.956	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	82351	512.461	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	87208	498.453	ng/mL	96
85) Benzo[e]pyrene	48.136	252	77842	489.729	ng/mL	97
87) Benzo[a]pyrene	48.331	252	73582	480.818	ng/mL	95
88) Perylene	48.633	252	80208	490.413	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	95412M3	535.748	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	91742	541.526	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97529	518.346	ng/mL	100
92) Hopane (T19)	52.202	191	13412M3	441.649	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	13345M3	439.443	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

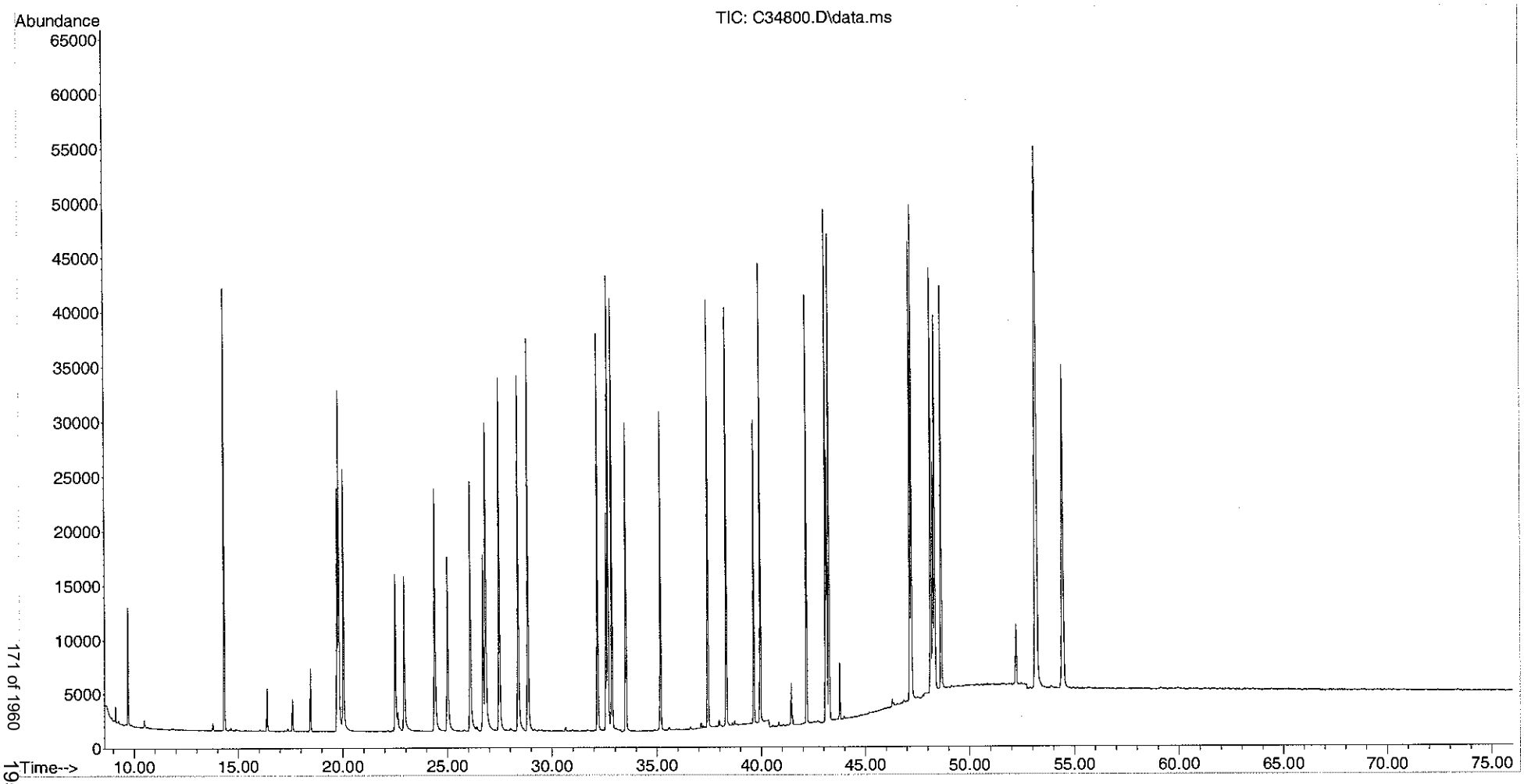
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	98	-0.02
3	A1	trans-Decalin	0.395	0.397	-0.5	93	-0.06
4	t	cis-Decalin	0.297	0.295	0.7	92	-0.05
9	s	Naphthalene-d8	2.170	2.088	3.8	89	-0.05
10	A1	Naphthalene	3.187	2.961	7.1	83	-0.05
16	t	2-Methylnaphthalene	1.884	1.769	6.1	85	-0.02
17	t	1-Methylnaphthalene	1.847	1.654	10.4	82	-0.03
18	A1	Benzothiophene	2.868	2.642	7.9	83	-0.03
23	t	Biphenyl	2.384	2.261	5.2	88	-0.02
24	t	2,6-Dimethylnaphthalene	1.548	1.499	3.2	91	-0.02
25	t	Dibenzofuran	2.737	2.596	5.2	88	-0.02
26	t	Acenaphthylene	3.163	2.917	7.8	86	-0.02
27	t	Acenaphthene	1.863	1.746	6.3	87	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.226	1.8	94	0.00
29	A1	Fluorene	2.054	1.970	4.1	90	0.00
33	A1	Dibenzothiophene	3.293	3.085	6.3	87	0.00
42	s	Phenanthrene-d10	1.715	1.674	2.4	95	0.00
43	A1	Phenanthrene	2.893	2.749	5.0	88	-0.02
54	t	Retene	0.564	0.610	-8.2	108	0.00
55	t	Anthracene	2.826	2.736	3.2	90	0.00
56	t	Carbazole	2.854	2.623	8.1	87	0.00
57	t	1-Methylphenanthrene	1.833	1.834	-0.1	94	0.00
58	A1	Fluoranthene	2.873	2.879	-0.2	93	0.00
59	t	Benzo(b)fluorene	1.667	1.752	-5.1	100	0.01
60	A1	Pyrene	2.921	2.901	0.7	93	0.00
66	A1	Naphthobenzothiophene	3.145	3.227	-2.6	99	0.01
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.227	-2.6	99	0.01
74	i	Chrysene-d12	1.000	1.000	0.0	106	0.00
75	t	Benz[a]anthracene	1.587	1.615	-1.8	104	0.01
76	A1	Chrysene	1.602	1.584	1.1	99	0.01
77	A2	Chrysene/Triphenylene	1.602	1.584	1.1	99	0.01
82	t	Benzo[b]fluoranthene	1.744	1.871	-7.3	114	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.810	4.7	98	0.01
85	t	Benzo[e]pyrene	1.725	1.706	1.1	106	0.01
86	s	Benzo[a]pyrene-d12	1.036	1.016	1.9	110	0.03
87	t	Benzo[a]pyrene	1.661	1.631	1.8	106	0.03
88	t	Perylene	1.775	1.759	0.9	108	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.129	-10.1	124	0.08
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.991	-8.3	118	0.06
91	t	Benzo[g,h,i]perylene	2.042	2.145	-5.0	116	0.09
92	A1	Hopane (T19)	0.330	0.294	10.9	106	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.294	10.9	106	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.160	-2.6	113	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.11	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

RB 5/5/12.

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17064M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	28462	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	35622	480.975	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.10%#			
42) Phenanthrene-d10	32.582	188	28572	488.078	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.81%#			
86) Benzo[a]pyrene-d12	48.241	264	28904	490.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.00%#			
127) 5B(H)Cholane - Surr	43.753	217	4543	510.526	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.05%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3389	251.587	ng/mL	100
4) cis-Decalin	17.603	138	2521	248.318	ng/mL	100
10) Naphthalene	19.801	128	50529	464.606	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	30183	469.370	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	28220	447.708	ng/mL#	100
18) Benzothiophene	20.027	134	45080	460.623	ng/mL	100
23) Biphenyl	24.392	154	38574	474.204	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	25575	484.074	ng/mL#	100
25) Dibenzofuran	27.479	168	44306	474.320	ng/mL	95
26) Acenaphthylene	26.094	152	49769M3	460.995	ng/mL	
27) Acenaphthene	26.831	153	29794	468.704	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	20924	491.294	ng/mL	100
29) Fluorene	28.864	166	33621M3	479.569	ng/mL	
33) Dibenzothiophene	32.176	184	52643	468.436	ng/mL	100
43) Phenanthrene	32.657	178	46915	475.158	ng/mL	99
54) Retene	39.643	234	10413	540.647	ng/mL	97
55) Anthracene	32.853	178	46687M3	484.091	ng/mL	
56) Carbazole	33.515	167	44751M3	459.373	ng/mL	
57) 1-Methylphenanthrene	35.171	192	31302	500.268	ng/mL	99
58) Fluoranthene	37.430	202	49134M3	501.056	ng/mL	
59) Benzo(b)fluorene	39.959	216	29894	525.461	ng/mL	100
60) Pyrene	38.318	202	49499	496.572	ng/mL	97
66) Naphthobenzothiophene	42.173	234	55072	513.174	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	55072	513.174	ng/mL#	66
75) Benz[a]anthracene	43.091	228	45979	508.967	ng/mL	99
76) Chrysene	43.257	228	45092	494.410	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45092	494.410	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	53247	536.422	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	51506	476.589	ng/mL	97
85) Benzo[e]pyrene	48.136	252	48554	494.522	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46418	491.037	ng/mL	95
88) Perylene	48.648	252	50072	495.631	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.151	276	60603M3	550.897	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	56659	541.426	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	61054	525.314	ng/mL	100
92) Hopane (T19)	52.202	191	8372	446.305	ng/mL#	81
93) 17a(H),21B(H)-hopane -...	52.202	191	8372	446.305	ng/mL#	81

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

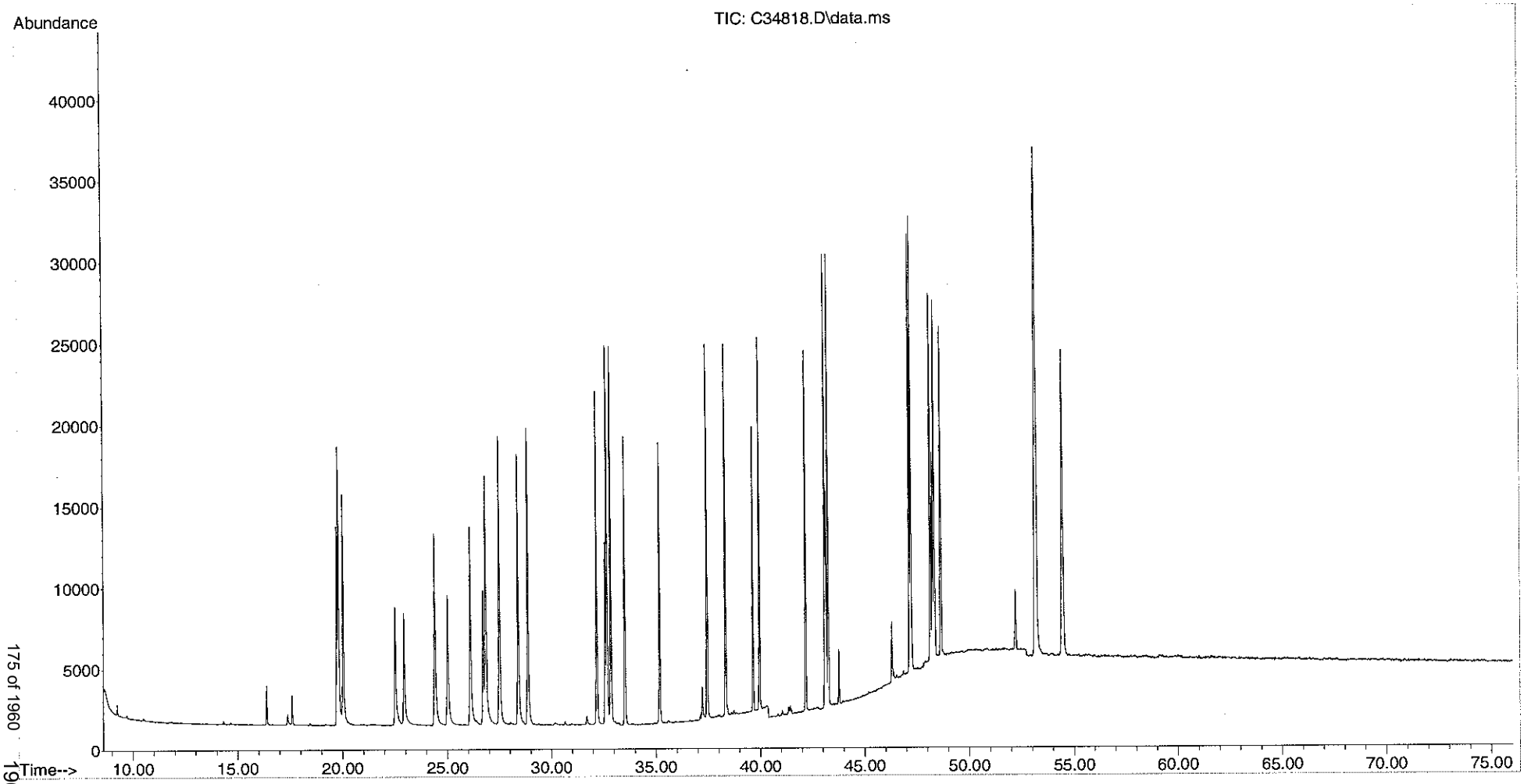
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	104	-0.02
3	A1	trans-Decalin	0.395	0.389	1.5	97	-0.06
4	t	cis-Decalin	0.297	0.285	4.0	94	-0.05
9	s	Naphthalene-d8	2.170	2.109	2.8	95	-0.05
10	A1	Naphthalene	3.187	3.021	5.2	90	-0.05
16	t	2-Methylnaphthalene	1.884	1.779	5.6	91	-0.02
17	t	1-Methylnaphthalene	1.847	1.645	10.9	87	-0.03
18	A1	Benzothiophene	2.868	2.691	6.2	90	-0.03
23	t	Biphenyl	2.384	2.300	3.5	95	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.500	3.1	96	-0.02
25	t	Dibenzofuran	2.737	2.634	3.8	95	0.00
26	t	Acenaphthylene	3.163	2.927	7.5	92	-0.02
27	t	Acenaphthene	1.863	1.768	5.1	93	-0.02
28	t	2,3,5-Trimethylnaphthalene	1.248	1.243	0.4	101	0.00
29	A1	Fluorene	2.054	2.007	2.3	97	0.00
33	A1	Dibenzothiophene	3.293	3.123	5.2	93	0.00
42	s	Phenanthrene-d10	1.715	1.674	2.4	101	0.00
43	A1	Phenanthrene	2.893	2.774	4.1	94	0.00
54	t	Retene	0.564	0.618	-9.6	116	0.00
55	t	Anthracene	2.826	2.786	1.4	97	0.00
56	t	Carbazole	2.854	2.685	5.9	94	0.00
57	t	1-Methylphenanthrene	1.833	1.880	-2.6	102	0.00
58	A1	Fluoranthene	2.873	2.897	-0.8	100	0.00
59	t	Benzo(b)fluorene	1.667	1.761	-5.6	107	0.02
60	A1	Pyrene	2.921	2.937	-0.5	100	0.00
66	A1	Naphthobenzothiophene	3.145	3.247	-3.2	106	0.02
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.247	-3.2	106	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	113	0.02
75	t	Benz[a]anthracene	1.587	1.611	-1.5	111	0.02
76	A1	Chrysene	1.602	1.572	1.9	104	0.02
77	A2	Chrysene/Triphenylene	1.602	1.572	1.9	104	0.02
82	t	Benzo[b]fluoranthene	1.744	1.847	-5.9	121	0.03
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.852	2.5	107	0.03
85	t	Benzo[e]pyrene	1.725	1.698	1.6	113	0.03
86	s	Benzo[a]pyrene-d12	1.036	1.007	2.8	117	0.03
87	t	Benzo[a]pyrene	1.661	1.625	2.2	113	0.03
88	t	Perylene	1.775	1.756	1.1	115	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.235	-15.6	139	0.08
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.005	-9.1	127	0.06
91	t	Benzo[g,h,i]perylene	2.042	2.157	-5.6	125	0.09
92	A1	Hopane (T19)	0.330	0.310	6.1	120	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.310	6.1	120	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.157	-0.6	119	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.10	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

BF 5/5/12.

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18143M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30421	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	38272	486.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	48.60%#		
42) Phenanthrene-d10	32.582	188	30371	487.955	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery =	48.80%#		
86) Benzo[a]pyrene-d12	48.241	264	30629	485.826	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	48.58%#		
127) 5B(H)Cholane - Surr	43.754	217	4785	503.094	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery =	50.31%		
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3531	246.540	ng/mL	100
4) cis-Decalin	17.603	138	2582	239.201	ng/mL	100
10) Naphthalene	19.801	128	54811	474.005	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	32279	472.112	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	29853	445.449	ng/mL#	100
18) Benzothiophene	20.027	134	48823	469.200	ng/mL	100
23) Biphenyl	24.408	154	41726	482.446	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	27223	484.622	ng/mL#	100
25) Dibenzofuran	27.494	168	47796	481.252	ng/mL	95
26) Acenaphthylene	26.094	152	53097M3	462.572	ng/mL	
27) Acenaphthene	26.832	153	32079	474.637	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	22550	497.984	ng/mL	99
29) Fluorene	28.864	166	36416M3	488.545	ng/mL	
33) Dibenzothiophene	32.176	184	56663	474.222	ng/mL	99
43) Phenanthrene	32.673	178	50334	479.468	ng/mL	99
54) Retene	39.643	234	11209	547.364	ng/mL	98
55) Anthracene	32.853	178	50554M3	493.013	ng/mL	
56) Carbazole	33.516	167	48707M3	470.247	ng/mL	
57) 1-Methylphenanthrene	35.172	192	34101	512.589	ng/mL	100
58) Fluoranthene	37.430	202	52554M3	504.059	ng/mL	
59) Benzo(b)fluorene	39.960	216	31953	528.250	ng/mL	100
60) Pyrene	38.318	202	53285	502.762	ng/mL	96
66) Naphthobenzothiophene	42.173	234	58908	516.273	ng/ml#	65
67) Naphthobenzothiophene-...	42.173	234	58908	516.273	ng/mL#	65
75) Benz[a]anthracene	43.091	228	48995	507.427	ng/mL	99
76) Chrysene	43.257	228	47818	490.536	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47818	490.536	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	56173	529.457	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	56325	487.618	ng/mL	97
85) Benzo[e]pyrene	48.151	252	51642	492.102	ng/mL	96
87) Benzo[a]pyrene	48.332	252	49448	489.405	ng/mL	95
88) Perylene	48.648	252	53413	494.655	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	53.151	276	68006M3	578.383	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	60995	545.326	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	65614	528.194	ng/mL	99
92) Hopane (T19)	52.202	191	9428	470.234	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	52.202	191	9428	470.234	ng/mL#	79

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

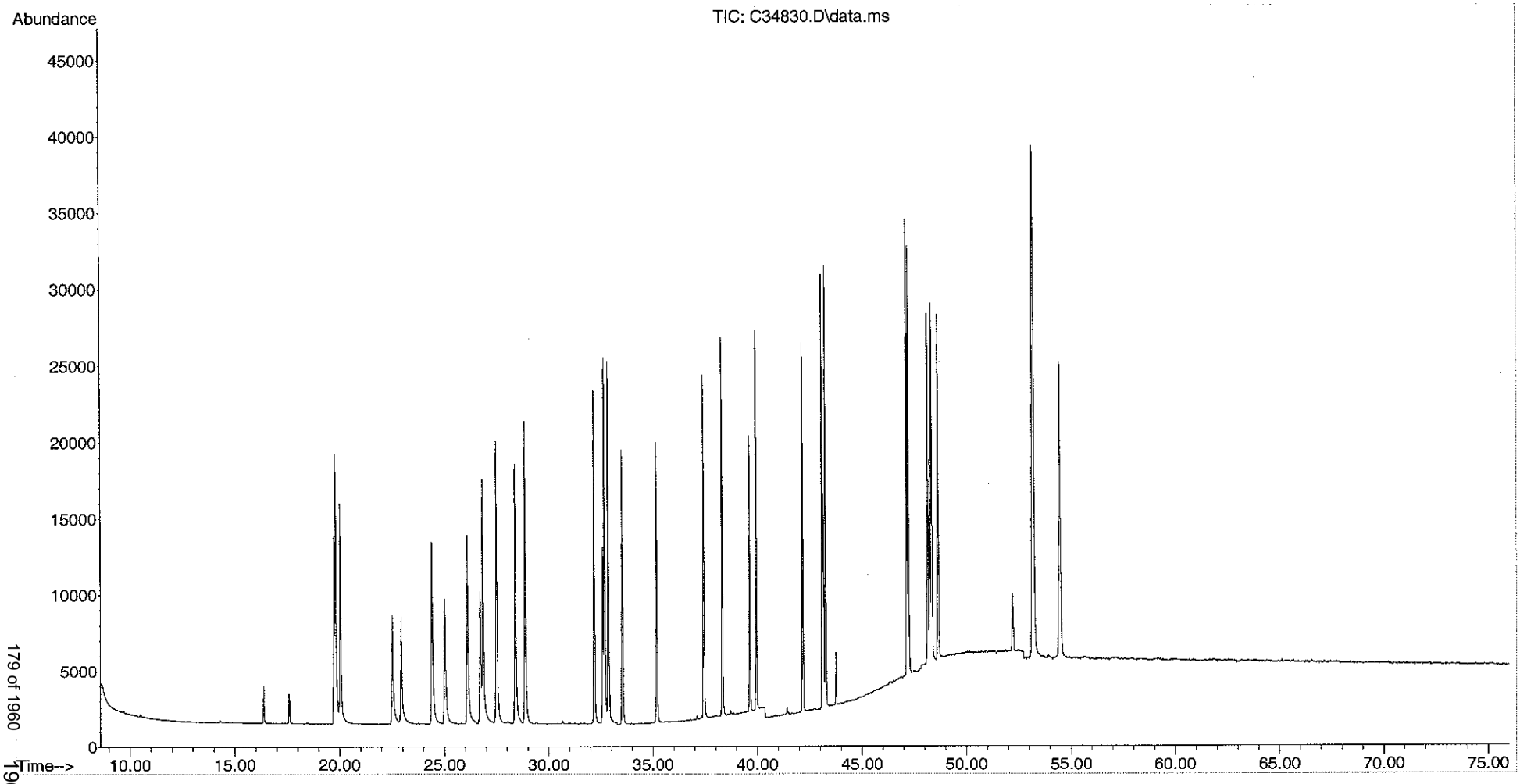
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

1st SDW 5/6/12

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 i	Acenaphthene-d10	1.000	1.000	0.0	112	-0.02
3 A1	trans-Decalin	0.395	0.377	4.6	101	-0.06
4 t	cis-Decalin	0.297	0.285	4.0	102	-0.06
9 s	Naphthalene-d8	2.170	2.042	5.9	100	-0.05
10 A1	Naphthalene	3.187	2.911	8.7	94	-0.05
16 t	2-Methylnaphthalene	1.884	1.745	7.4	96	0.00
17 t	1-Methylnaphthalene	1.847	1.579	14.5	90	-0.03
18 A1	Benzothiophene	2.868	2.567	10.5	93	-0.03
23 t	Biphenyl	2.384	2.239	6.1	99	0.00
24 t	2,6-Dimethylnaphthalene	1.548	1.498	3.2	104	0.00
25 t	Dibenzofuran	2.737	2.587	5.5	100	0.00
26 t	Acenaphthylene	3.163	2.904	8.2	99	-0.02
27 t	Acenaphthene	1.863	1.744	6.4	99	-0.02
28 t	2,3,5-Trimethylnaphthalene	1.248	1.231	1.4	108	0.00
29 A1	Fluorene	2.054	1.993	3.0	104	0.00
33 A1	Dibenzothiophene	3.293	3.082	6.4	99	0.00
42 s	Phenanthrene-d10	1.715	1.668	2.7	109	0.00
43 A1	Phenanthrene	2.893	2.727	5.7	100	0.00
54 t	Retene	0.564	0.618	-9.6	126	0.00
55 t	Anthracene	2.826	2.791	1.2	105	0.00
56 t	Carbazole	2.854	2.675	6.3	101	0.01
57 t	1-Methylphenanthrene	1.833	1.875	-2.3	110	0.00
58 A1	Fluoranthene	2.873	2.883	-0.3	107	0.01
59 t	Benzo(b)fluorene	1.667	1.769	-6.1	116	0.01
60 A1	Pyrene	2.921	2.920	0.0	107	0.00
66 A1	Naphthobenzothiophene	3.145	3.261	-3.7	115	0.02
67 A2	Naphthobenzothiophene-2,1-D	3.145	3.261	-3.7	115	0.02
74 i	Chrysene-d12	1.000	1.000	0.0	122	0.01
75 t	Benz[a]anthracene	1.587	1.619	-2.0	121	0.01
76 A1	Chrysene	1.602	1.583	1.2	114	0.01
77 A2	Chrysene/Triphenylene	1.602	1.583	1.2	114	0.01
82 t	Benzo[b]fluoranthene	1.744	1.833	-5.1	130	0.03
83 A1	Benzo[j]+[k]fluoranthene	1.899	1.840	3.1	115	0.03
85 t	Benzo[e]pyrene	1.725	1.697	1.6	122	0.03
86 s	Benzo[a]pyrene-d12	1.036	0.999	3.6	126	0.03
87 t	Benzo[a]pyrene	1.661	1.612	3.0	122	0.03
88 t	Perylene	1.775	1.740	2.0	124	0.05
89 t	Indeno[1,2,3-cd]pyrene	1.933	2.266	-17.2	153	0.08

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 t	Dibenz[ah]+[ac]anthracene	1.838	1.988	-8.2	137	0.06
91 t	Benzo[g,h,i]perylene	2.042	2.125	-4.1	134	0.11
92 A1	Hopane (T19)	0.330	0.299	9.4	125	-0.02
93 A2	17a(H),21B(H)-hopane - C30H	0.330	0.296	10.3	124	-0.02
127 SA1	5B(H)Cholane - Surr	0.156	0.162	-3.8	134	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.10	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

19h2 MW 5/6/12

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19577M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32966	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	39969	470.394	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.04%#			
42) Phenanthrene-d10	32.582	188	32661	486.310	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.63%#			
86) Benzo[a]pyrene-d12	48.241	264	32926	481.942	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.19%#			
127) 5B(H)Cholane - Surr	43.754	217	5350	519.072	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.91%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3691	238.834	ng/mL	100
4) cis-Decalin	17.588	138	2790	239.538	ng/mL	100
10) Naphthalene	19.801	128	56993	456.773	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	34171	463.175	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30905	427.368	ng/mL#	100
18) Benzothiophene	20.027	134	50255	447.585	ng/mL	100
23) Biphenyl	24.408	154	43838	469.738	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	29336	483.984	ng/mL#	100
25) Dibenzofuran	27.494	168	50655	472.679	ng/mL	96
26) Acenaphthylene	26.094	152	56854M3	459.022	ng/mL	
27) Acenaphthene	26.831	153	34135	468.063	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.397	170	24109	493.413	ng/mL	98
29) Fluorene	28.864	166	39011M3	485.023	ng/mL	
33) Dibenzothiophene	32.176	184	60338	467.989	ng/mL	99
43) Phenanthrene	32.672	178	53382	471.255	ng/mL	99
54) Retene	39.643	234	12093	547.276	ng/mL	96
55) Anthracene	32.853	178	54646M3	493.883	ng/mL	
56) Carbazole	33.530	167	52377	468.638	ng/mL	98
57) 1-Methylphenanthrene	35.172	192	36714	511.443	ng/mL	99
58) Fluoranthene	37.445	202	56447M3	501.741	ng/mL	
59) Benzo(b)fluorene	39.959	216	34633	530.617	ng/mL	100
60) Pyrene	38.318	202	57171	499.915	ng/mL	97
66) Naphthobenzothiophene	42.173	234	63845	518.556	ng/ml#	66
67) Naphthobenzothiophene-2,1	42.173	234	63845	518.556	ng/mL#	66
75) Benz[a]anthracene	43.091	228	53368	510.047	ng/mL	99
76) Chrysene	43.257	228	52173	493.893	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.257	228	52173	493.893	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	60436	525.661	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	60657	484.581	ng/mL	96
85) Benzo[e]pyrene	48.151	252	55949	491.985	ng/mL	97
87) Benzo[a]pyrene	48.331	252	53157	485.498	ng/mL	95
88) Perylene	48.648	252	57365	490.241	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.151	276	74711M3	586.354	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	65528	540.625	ng/mL	98
91) Benzo[g,h,i]perylene	54.461	276	70039	520.288	ng/mL	100
92) Hopane (T19)	52.202	191	9866M3	454.091	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.202	191	9747M3	448.614	ng/mL	

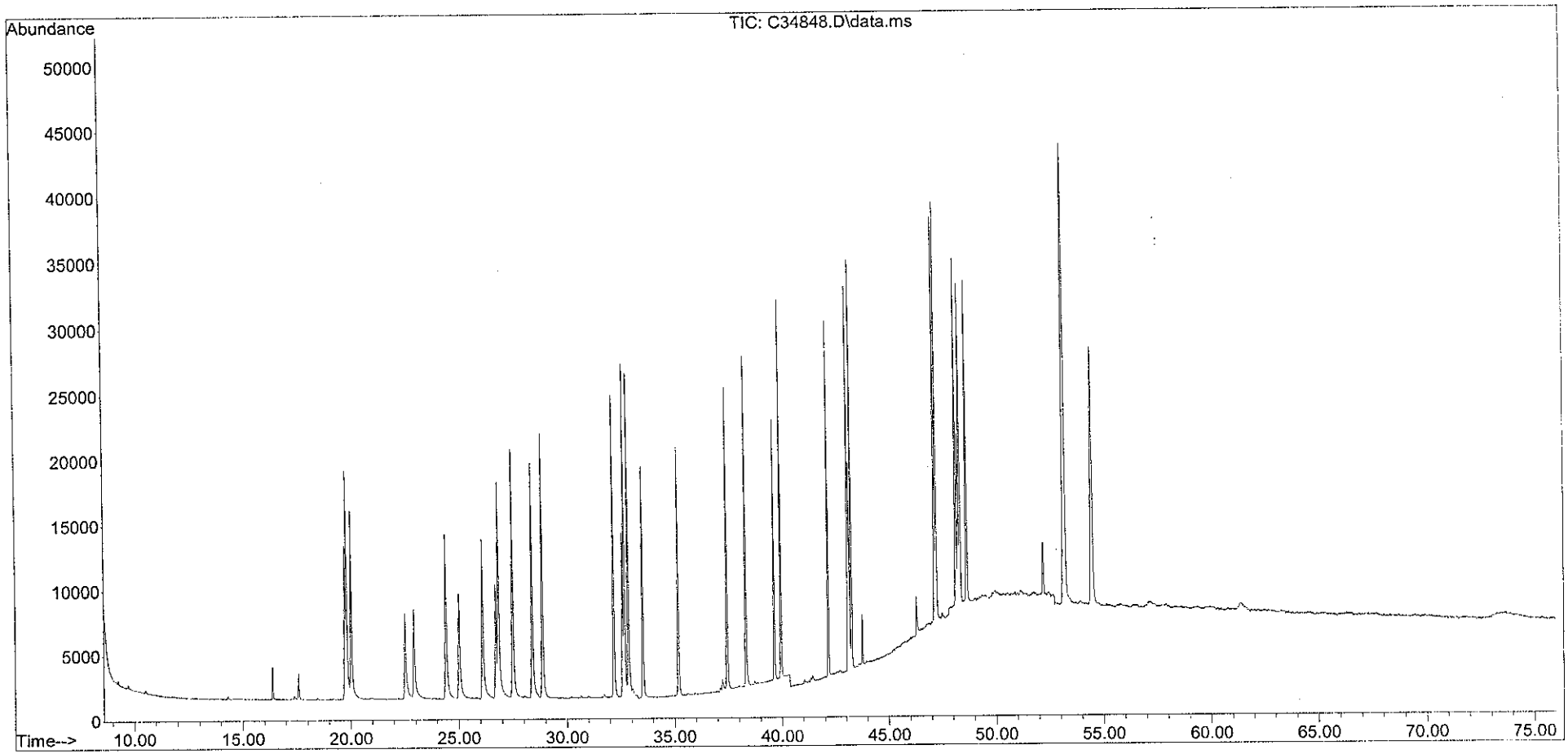
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

(signature) 5/6/12

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	110	-0.02
3	A1	trans-Decalin	0.395	0.339	14.2	89	-0.06
4	t	cis-Decalin	0.297	0.255	14.1	89	-0.05
9	s	Naphthalene-d8	2.170	1.832	15.6	87	-0.03
10	A1	Naphthalene	3.187	2.600	18.4	82	-0.03
16	t	2-Methylnaphthalene	1.884	1.742	7.5	94	0.00
17	t	1-Methylnaphthalene	1.847	1.569	15.1	87	-0.03
18	A1	Benzothiophene	2.868	2.350	18.1	83	-0.03
23	t	Biphenyl	2.384	2.274	4.6	99	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.503	2.9	102	0.00
25	t	Dibenzofuran	2.737	2.600	5.0	98	0.00
26	t	Acenaphthylene	3.163	2.894	8.5	96	0.00
27	t	Acenaphthene	1.863	1.716	7.9	96	-0.01
28	t	2,3,5-Trimethylnaphthalene	1.248	1.241	0.6	106	0.00
29	A1	Fluorene	2.054	1.982	3.5	101	0.00
33	A1	Dibenzothiophene	3.293	3.088	6.2	97	0.00
42	s	Phenanthrene-d10	1.715	1.678	2.2	107	0.00
43	A1	Phenanthrene	2.893	2.742	5.2	98	0.00
54	t	Retene	0.564	0.617	-9.4	123	0.00
55	t	Anthracene	2.826	2.784	1.5	102	0.00
56	t	Carbazole	2.854	2.683	6.0	99	0.02
57	t	1-Methylphenanthrene	1.833	1.866	-1.8	107	0.02
58	A1	Fluoranthene	2.873	2.881	-0.3	105	0.02
59	t	Benzo(b)fluorene	1.667	1.767	-6.0	114	0.02
60	A1	Pyrene	2.921	2.924	-0.1	104	0.02
66	A1	Naphthobenzothiophene	3.145	3.213	-2.2	110	0.02
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.213	-2.2	110	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	119	0.02
75	t	Benz[a]anthracene	1.587	1.616	-1.8	117	0.03
76	A1	Chrysene	1.602	1.576	1.6	110	0.03
77	A2	Chrysene/Triphenylene	1.602	1.576	1.6	110	0.03
82	t	Benzo[b]fluoranthene	1.744	1.793	-2.8	123	0.05
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.919	-1.1	117	0.03
85	t	Benzo[e]pyrene	1.725	1.710	0.9	119	0.03
86	s	Benzo[a]pyrene-d12	1.036	1.023	1.3	125	0.05
87	t	Benzo[a]pyrene	1.661	1.635	1.6	120	0.05
88	t	Perylene	1.775	1.749	1.5	121	0.05
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.280	-18.0	150	0.09

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.053	-11.7	137	0.08
91	t	Benzo[g,h,i]perylene	2.042	2.195	-7.5	134	0.12
92	A1	Hopane (T19)	0.330	0.307	7.0	125	-0.02
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.310	6.1	126	-0.02
127	SA1	5B(H)Cholane - Surr	0.156	0.169	-8.3	135	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.13	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

19872 5/16/12

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19115M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	32005	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	35010	421.990	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.20%#			
42) Phenanthrene-d10	32.582	188	32069	489.036	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.90%#			
86) Benzo[a]pyrene-d12	48.256	264	32752	493.789	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.38%#			
127) 5B(H)Cholane - Surr	43.769	217	5413	540.954	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.10%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3236	214.453	ng/mL	100
4) cis-Decalin	17.603	138	2440	214.552	ng/mL	100
10) Naphthalene	19.816	128	49694	407.901	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	33291	462.154	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30000	424.880	ng/mL#	100
18) Benzothiophene	20.027	134	44915	409.694	ng/mL	100
23) Biphenyl	24.408	154	43469	477.042	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	28733	485.493	ng/mL#	100
25) Dibenzofuran	27.494	168	49706	475.034	ng/mL	96
26) Acenaphthylene	26.109	152	55313M3	457.374	ng/mL	
27) Acenaphthene	26.832	153	32796	460.571	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.397	170	23728	497.353	ng/mL	98
29) Fluorene	28.864	166	37891M3	482.484	ng/mL	
33) Dibenzothiophene	32.176	184	59025	468.870	ng/mL	98
43) Phenanthrene	32.673	178	52422	473.965	ng/mL	99
54) Retene	39.643	234	11800	546.923	ng/mL	97
55) Anthracene	32.853	178	53211M3	492.537	ng/mL	
56) Carbazole	33.531	167	51280M3	469.913	ng/mL	
57) 1-Methylphenanthrene	35.187	192	35663	508.809	ng/mL	100
58) Fluoranthene	37.445	202	55068M3	501.314	ng/mL	
59) Benzo(b)fluorene	39.960	216	33772	529.931	ng/mL	99
60) Pyrene	38.333	202	55892	500.543	ng/mL	97
66) Naphthobenzothiophene	42.173	234	61419	510.908	ng/ml#	66
67) Naphthobenzothiophene-2,1	42.173	234	61419	510.908	ng/mL#	66
75) Benz[a]anthracene	43.106	228	51712	509.060	ng/mL	99
76) Chrysene	43.272	228	50443	491.854	ng/mL	100

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.272	228	50443	491.854	ng/mL	100
82) Benzo[b]fluoranthene	47.157	252	57388	514.138	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.232	252	61409	505.320	ng/mL	97
85) Benzo[e]pyrene	48.151	252	54730	495.717	ng/mL	98
87) Benzo[a]pyrene	48.347	252	52337	492.362	ng/mL	97
88) Perylene	48.648	252	55992	492.875	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276	72966M3	589.854	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	65703	558.345	ng/mL	98
91) Benzo[g,h,i]perylene	54.476	276	70256	537.571	ng/mL	99
92) Hopane (T19)	52.202	191	9829M3	465.971	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.202	191	9936M3	471.044	ng/mL	

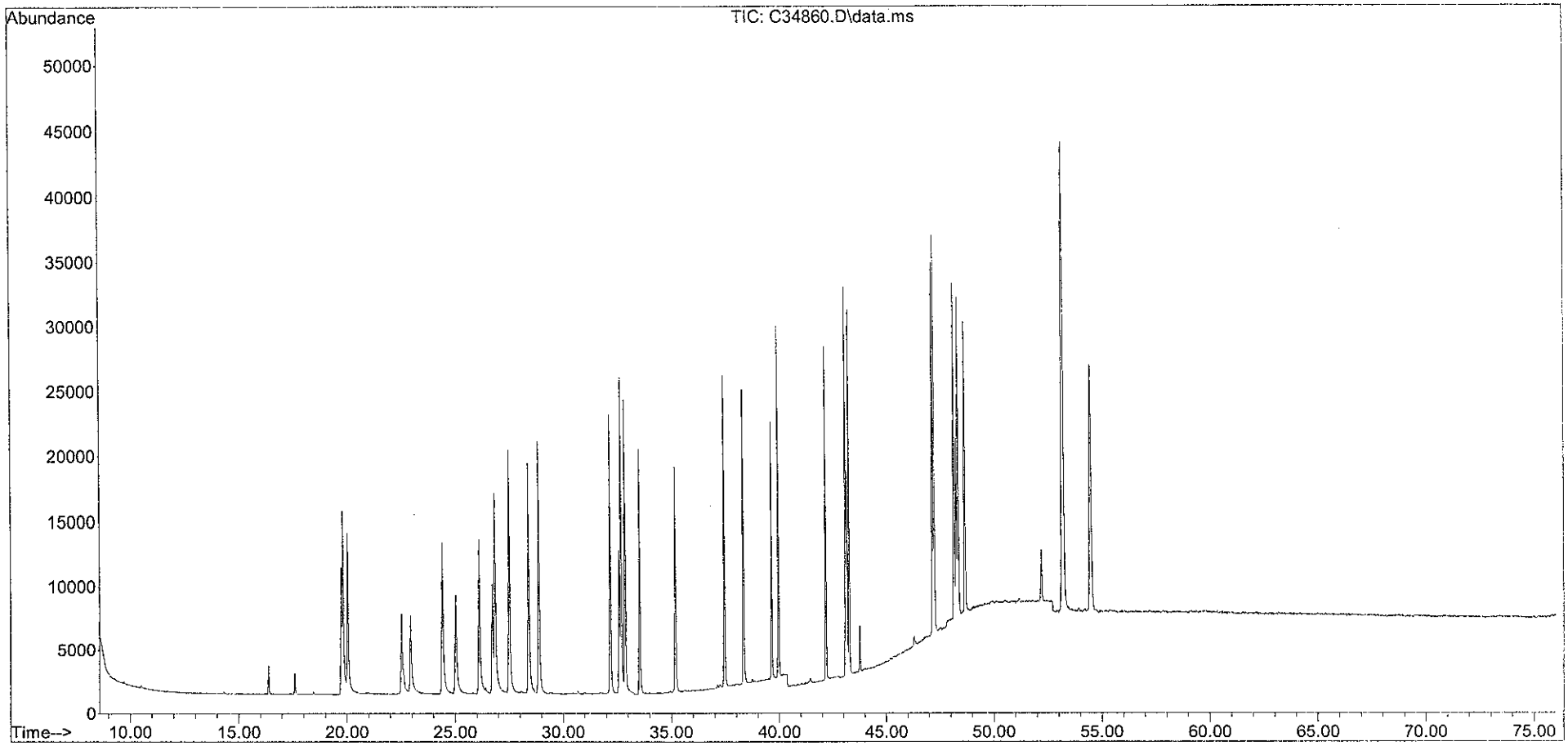
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

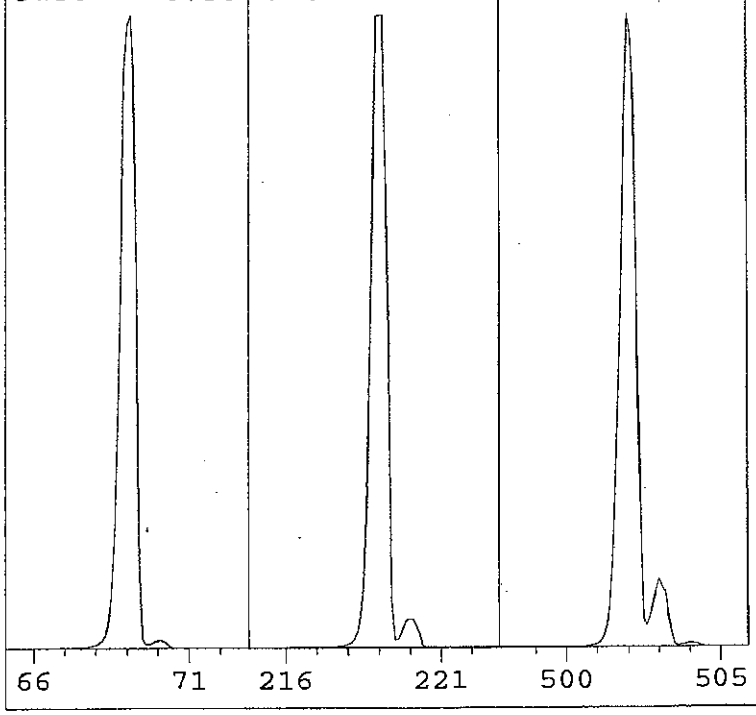
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



5973 Tune

Sat Mar 24 14:44:30 2012 Instrument: PAH 3
C:\MSDCHEM\1\5973N\PFTBA.U

Mass	69.10	Mass	219.10	Mass	502.00
Ab	426142	Ab	236222	Ab	40080
Pw50	0.56	Pw50	0.59	Pw50	0.55



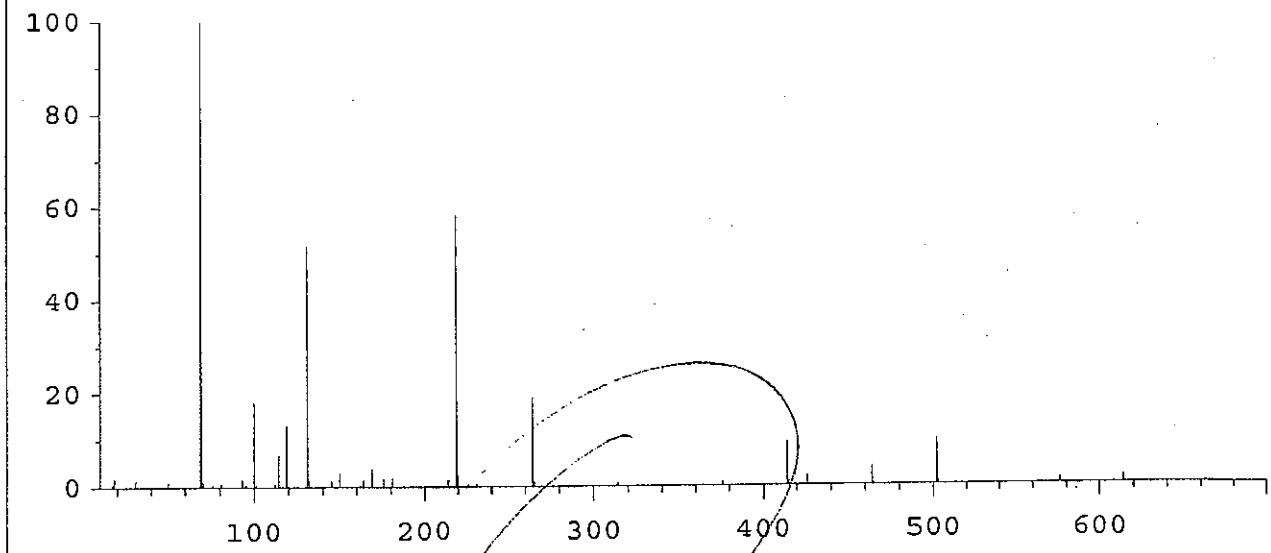
Ion Pol	POS	MassGain	58
		MassOffs	-11
Emission	34.6	AmuGain	2453
ElEnrgy	69.9	AmuOffs	133
Filament	1	Wid219	-0.076
		DC Pol	POS
Repeller	29.79		
IonFcus	90.2	HEDEnab	ON
EntLens	0.0	EMVolts	1341
EntOffs	VAR		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	57
MS Quad	150		

3/24/12

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
142 peaks Base: 69.00 Abundance: 380032



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	380032	100.00	70.00	4298	1.13
219.00	222080	58.44	220.00	9804	4.41
502.00	37096	9.76	503.00	3764	10.15

TARGET MASS:	50	69	131	219	414	502
DYNAMIC ENT OFFSET:	16.8	19.6	19.3	18.6	22.3	24.1
TARGET ABUND(%):	1.0	100.0	50.0	51.0	8.0	8.0
ACTUAL TUNE ABUND(%):	1.1	100.0	51.7	58.4	9.4	9.8

C34774.D PAH3032612.M 5-2-2012 9:41 am

[targets]
base=69
masses=5
mass1=50
mass2=131
mass3=219
mass4=414
mass5=502
target1=1
target2=45
target3=55
target4=2.5
target5=2
[ATUNE.cnorm]
masses=5
69=491264
50=5435
131=284160
219=405504
414=50072
502=49456
[TARGET.cnorm]
masses=5
69=418432
50=4610
131=219840
219=233216
414=36584
502=43248
[PFTBA.cnorm]
masses=5
69=380032 ✓
50=4053
131=196544
219=222080 - 58.4%
414=35608
502=37096 - 9.76%

✓MM 6/4/12

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	**2.90**	J
C3-Decalins	20.0	U	Fluoranthene	**2.62**	J
C4-Decalins	20.0	U	Pyrene	**2.93**	J
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	**2.85**	J
Naphthalene	20.0	U	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**3.38**	J
Biphenyl	20.0	U	Chrysene/Triphenylene	**3.42**	J
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	20.0	U	C2-Chrysenes	20.0	U
Acenaphthene	20.0	U	C3-Chrysenes	20.0	U
Fluorene	20.0	U	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**7.20**	J
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**5.74**	J
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	20.0	U	Benzo[e]pyrene	**8.35**	J
Phenanthrene	20.0	U	Benzo[a]pyrene	**4.92**	J
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	**5.23**	J
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**13.4**	J
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.75**	J
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**15.0**	J
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
Carbazole	**2.32** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	20.0 U
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	**18.6**	J
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	**2.90**	J
C3-Decalins	20.0	U	Fluoranthene	**2.62**	J
C4-Decalins	20.0	U	Pyrene	**2.93**	J
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	**2.85**	J
Naphthalene	20.0	U	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**3.38**	J
Biphenyl	20.0	U	Chrysene/Triphenylene	**3.42**	J
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	20.0	U	C2-Chrysenes	20.0	U
Acenaphthene	20.0	U	C3-Chrysenes	20.0	U
Fluorene	20.0	U	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**7.20**	J
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**5.74**	J
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	20.0	U	Benzo[e]pyrene	**8.35**	J
Phenanthrene	20.0	U	Benzo[a]pyrene	**4.92**	J
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	**5.23**	J
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**13.4**	J
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**7.75**	J
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**15.0**	J
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	**2.32** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	20.0 U
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	83	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	**18.6**	J
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18606M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32650	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31011	384.014	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
42) Phenanthrene-d10	32.567	188	26472	414.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28296	418.180	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.82%#			
127) 5B(H)Cholane - Surr	43.769	217	4900M3	480.013	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.00%#			
Target Compounds						Qvalue
56) Carbazole	33.515	167	123M3	1.158	ng/mL	
58) Fluoranthene	37.430	202	140M3	1.309	ng/mL	
59) Benzo(b)fluorene	39.944	216	90M2	1.451	ng/mL	
60) Pyrene	38.318	202	159	1.463	ng/mL#	58
66) Naphthobenzothiophene	42.158	234	167	1.427	ng/ml#	49
67) Naphthobenzothiophene-...	42.158	234	167	1.427	ng/mL#	49
75) Benz[a]anthracene	43.106	228	175	1.689	ng/mL#	48
77) Chrysene/Triphenylene	43.257	228	179M3	1.711	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	410	3.601	ng/mL#	69
83) Benzo[j]+[k]fluoranthene	47.232	252	356M3	2.872	ng/mL	
85) Benzo[e]pyrene	48.151	252	470	4.173	ng/mL#	35
87) Benzo[a]pyrene	48.331	252	267	2.462	ng/mL#	59
88) Perylene	48.648	252	303M3	2.614	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	847M3	6.712	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	465M3	3.874	ng/mL	
91) Benzo[g,h,i]perylene	54.461	276	997	7.478	ng/mL	98
133) Unknown Sterane (S18)	48.090	217	95M2	9.306	ng/ml	

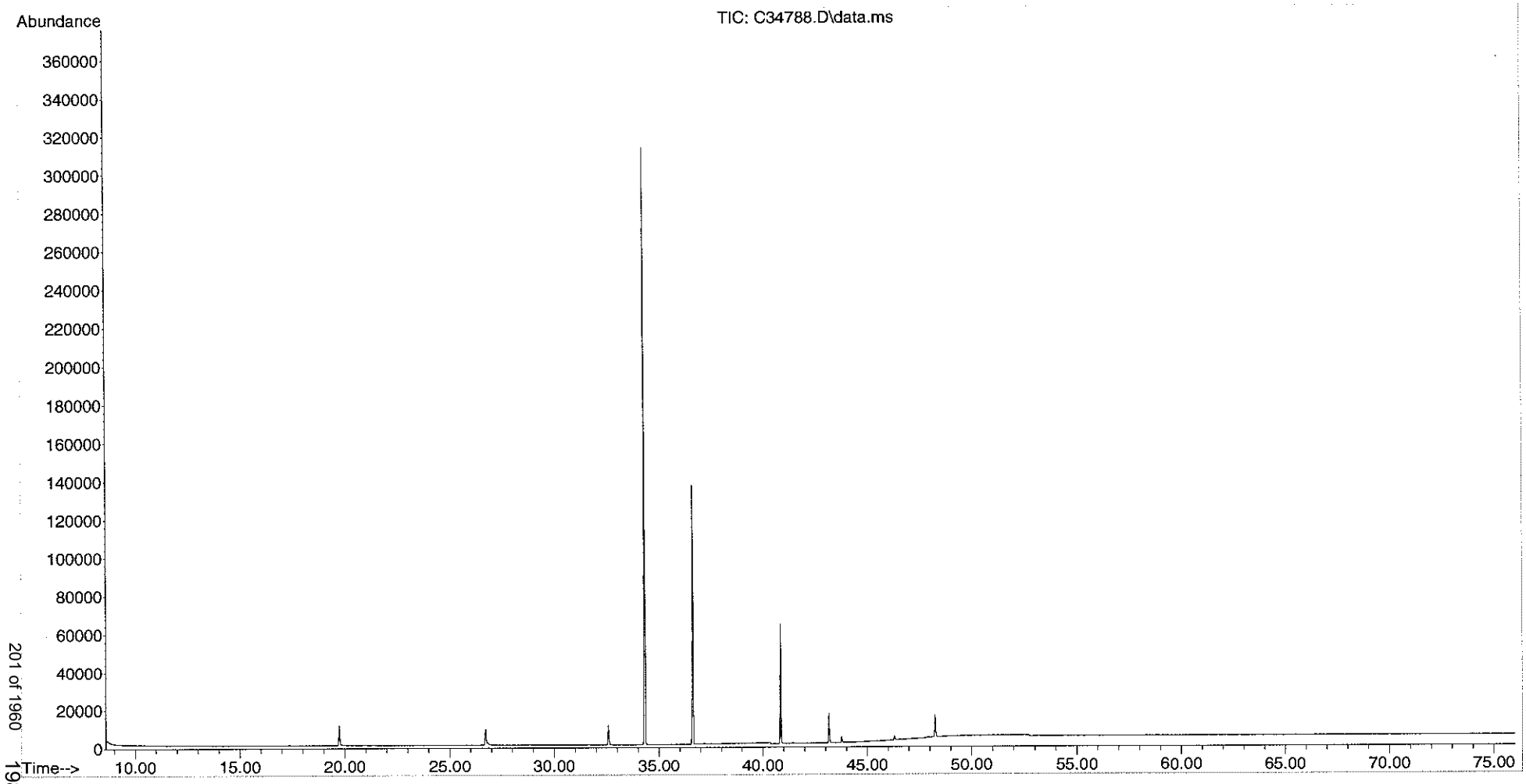
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.358	U	C3-Dibenzothiophenes	0.109	U
C1-Decalins	0.358	U	C4-Dibenzothiophenes	0.109	U
C2-Decalins	0.358	U	Benzo(b)fluorene	0.225	U
C3-Decalins	0.358	U	Fluoranthene	**0.156**	J
C4-Decalins	0.358	U	Pyrene	0.186	U
Benzothiophene	0.290	U	C1-Fluoranthenes/Pyrenes	0.186	U
C1-Benzo(b)thiophenes	0.290	U	C2-Fluoranthenes/Pyrenes	0.186	U
C2-Benzo(b)thiophenes	0.290	U	C3-Fluoranthenes/Pyrenes	0.186	U
C3-Benzo(b)thiophenes	0.290	U	C4-Fluoranthenes/Pyrenes	0.186	U
C4-Benzo(b)thiophenes	0.290	U	Naphthobenzothiophenes	0.121	U
Naphthalene	0.244	U	C1-Naphthobenzothiophenes	0.121	U
C1-Naphthalenes	0.244	U	C2-Naphthobenzothiophenes	0.121	U
C2-Naphthalenes	0.244	U	C3-Naphthobenzothiophenes	0.121	U
C3-Naphthalenes	0.244	U	C4-Naphthobenzothiophenes	0.121	U
C4-Naphthalenes	0.244	U	Benz[a]anthracene	**0.0952**	J
Biphenyl	0.113	U	Chrysene/Triphenylene	**0.156**	J
Dibenzofuran	0.106	U	C1-Chrysenes	0.195	U
Acenaphthylene	0.0852	U	C2-Chrysenes	0.195	U
Acenaphthene	0.101	U	C3-Chrysenes	0.195	U
Fluorene	0.119	U	C4-Chrysenes	0.195	U
C1-Fluorenes	0.119	U	Benzo[b]fluoranthene	**0.255**	J
C2-Fluorenes	0.119	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**0.142**	J
C3-Fluorenes	0.119	U	Benzo[a]fluoranthene	0.222	U
Anthracene	0.176	U	Benzo[e]pyrene	**0.279**	J
Phenanthrene	**0.140**	J	Benzo[a]pyrene	**0.180**	J
C1-Phenanthrenes/Anthracenes	0.211	U	Perylene	**0.196**	J
C2-Phenanthrenes/Anthracenes	0.211	U	Indeno[1,2,3-cd]pyrene	**0.576**	J
C3-Phenanthrenes/Anthracenes	0.211	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**0.342**	J
C4-Phenanthrenes/Anthracenes	0.211	U	Benzo[g,h,i]perylene	**0.882**	J
Retene	0.204	U			
Dibenzothiophene	0.109	U			
C1-Dibenzothiophenes	0.109	U			
C2-Dibenzothiophenes	0.109	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	0.109	U
2/3-Methyldibenzothiophene	0.109	U
1-Methyldibenzothiophene	0.109	U
3-Methylphenanthrene	0.211	U
2/4-Methylphenanthrene	0.211	U
2-Methylanthracene	0.211	U
9-Methylphenanthrene	0.211	U
1-Methylphenanthrene	0.211	U
2-Methylnaphthalene	0.162	U
1-Methylnaphthalene	0.162	U
2,6-Dimethylnaphthalene	0.171	U
2,3,5-Trimethylnaphthalene	0.135	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22S	2.00	U	Unknown Sterane (S18)	**1.98**	J
C30 Tricyclic Terpane-22R	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
30-Norhopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
17a(H)-Diahopane	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
30-Normoretane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
Hopane	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
Moretane	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
30-Homohopane-22S	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30-Homohopane-22R	2.00	U	C28,20S-triaromatic steroid	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C27,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	91	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

1848 2nd CV 5/6/12

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17315M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30629	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	28930	384.956	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	26282	442.451	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.25%#			
86) Benzo[a]pyrene-d12	48.256	264	27389	431.484	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.15%#			
127) 5B(H)Cholane - Surr	43.754	217	4348	454.043	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.40%#			
Target Compounds						Qvalue
43) Phenanthrene	32.658	178	56M2	0.559	ng/mL	
58) Fluoranthene	37.445	202	62M3	0.623	ng/mL	
75) Benz[a]anthracene	43.091	228	37M3	0.381	ng/mL	
77) Chrysene/Triphenylene	43.257	228	61M3	0.622	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	109M2	1.020	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.232	252	66M2	0.567	ng/mL	
85) Benzo[e]pyrene	48.151	252	118	1.117	ng/mL#	1
87) Benzo[a]pyrene	48.347	252	73M2	0.718	ng/mL	
88) Perylene	48.648	252	85M4	0.782	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	273M3	2.306	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	154M4	1.367	ng/mL	
91) Benzo[g,h,i]perylene	54.476	276	441	3.526	ng/mL#	69
133) Unknown Sterane (S18)	48.091	217	76M2	7.936	ng/ml	

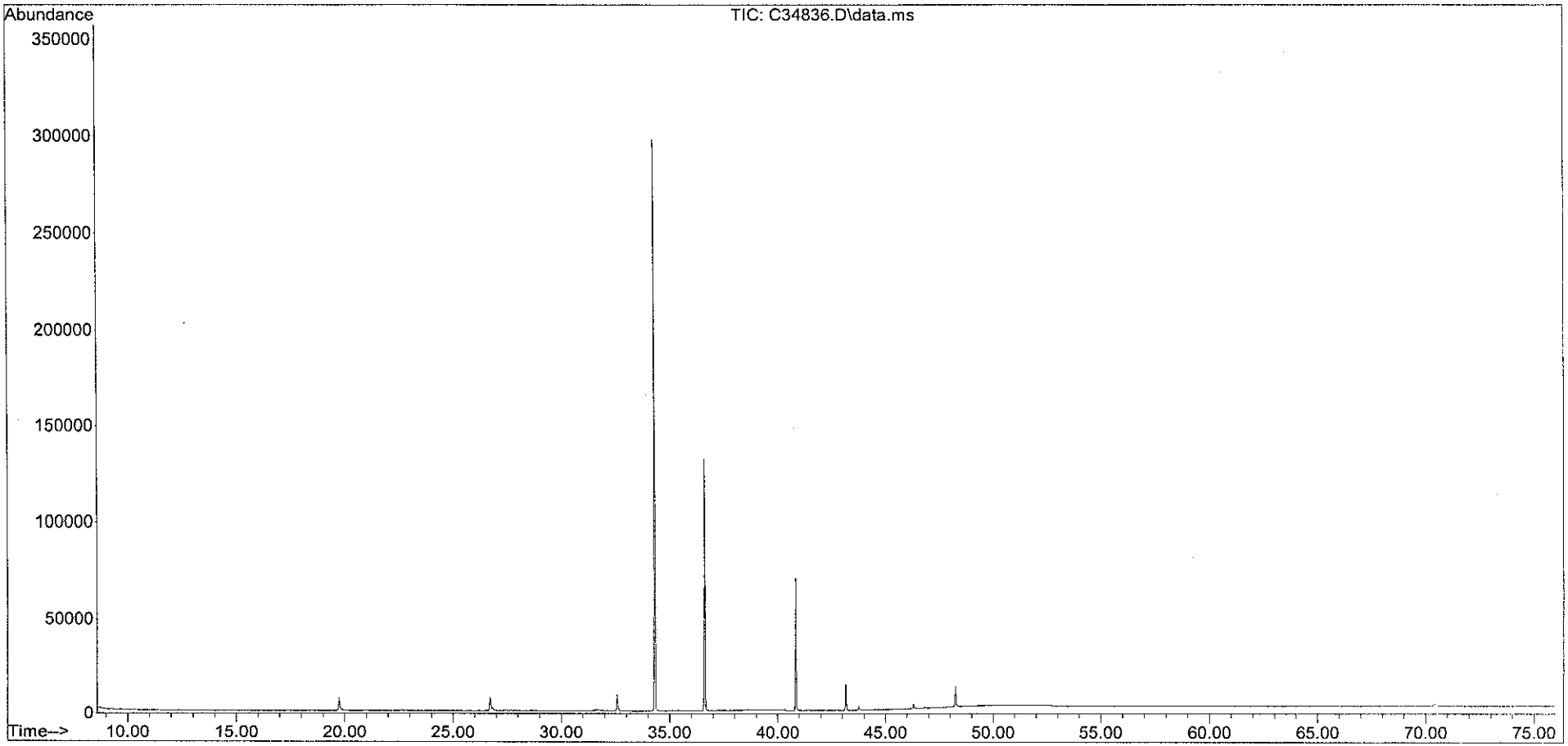
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**949**	S
C4-Decalins	20.0	U	Pyrene	**975**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**811**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**869**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**866**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**806**	S	C2-Chrysenes	20.0	U
Acenaphthene	**851**	S	C3-Chrysenes	20.0	U
Fluorene	**854**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**925**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**865**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**707**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**859**	S	Benzo[a]pyrene	**885**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**1010**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**924**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**868**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**827**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

05/15/12 10:45

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**949**	S
C4-Decalins	20.0	U	Pyrene	**975**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**811**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**869**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**866**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**806**	S	C2-Chrysenes	20.0	U
Acenaphthene	**851**	S	C3-Chrysenes	20.0	U
Fluorene	**854**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**925**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**865**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**707**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**859**	S	Benzo[a]pyrene	**885**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**1010**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**924**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**868**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**827**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	92	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19753M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	35501	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31883	371.887	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.19%#			
42) Phenanthrene-d10	32.567	188	25976	383.327	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.33%#			
86) Benzo[a]pyrene-d12	48.241	264	26602	361.573	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.16%#			
127) 5B(H)Cholane - Surr	43.769	217	5097	459.213	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.92%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51060	405.576	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30786	413.575	ng/mL#	100
26) Acenaphthylene	26.094	152	50343	402.832	ng/mL#	100
27) Acenaphthene	26.816	153	31298	425.338	ng/mL	98
29) Fluorene	28.849	166	34652M3	426.989	ng/mL	
43) Phenanthrene	32.657	178	49113	429.705	ng/mL	99
55) Anthracene	32.838	178	39458M3	353.439	ng/mL	
58) Fluoranthene	37.430	202	53856M3	474.445	ng/mL	
60) Pyrene	38.318	202	56245	487.436	ng/mL	97
75) Benz[a]anthracene	43.091	228	48940	434.329	ng/mL	99
77) Chrysene/Triphenylene	43.242	228	49239	432.835	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	57239	462.304	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.217	252	58317	432.620	ng/mL	97
87) Benzo[a]pyrene	48.331	252	52193	442.654	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	69249M3	504.678	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	60330	462.198	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62892	433.836	ng/mL	100

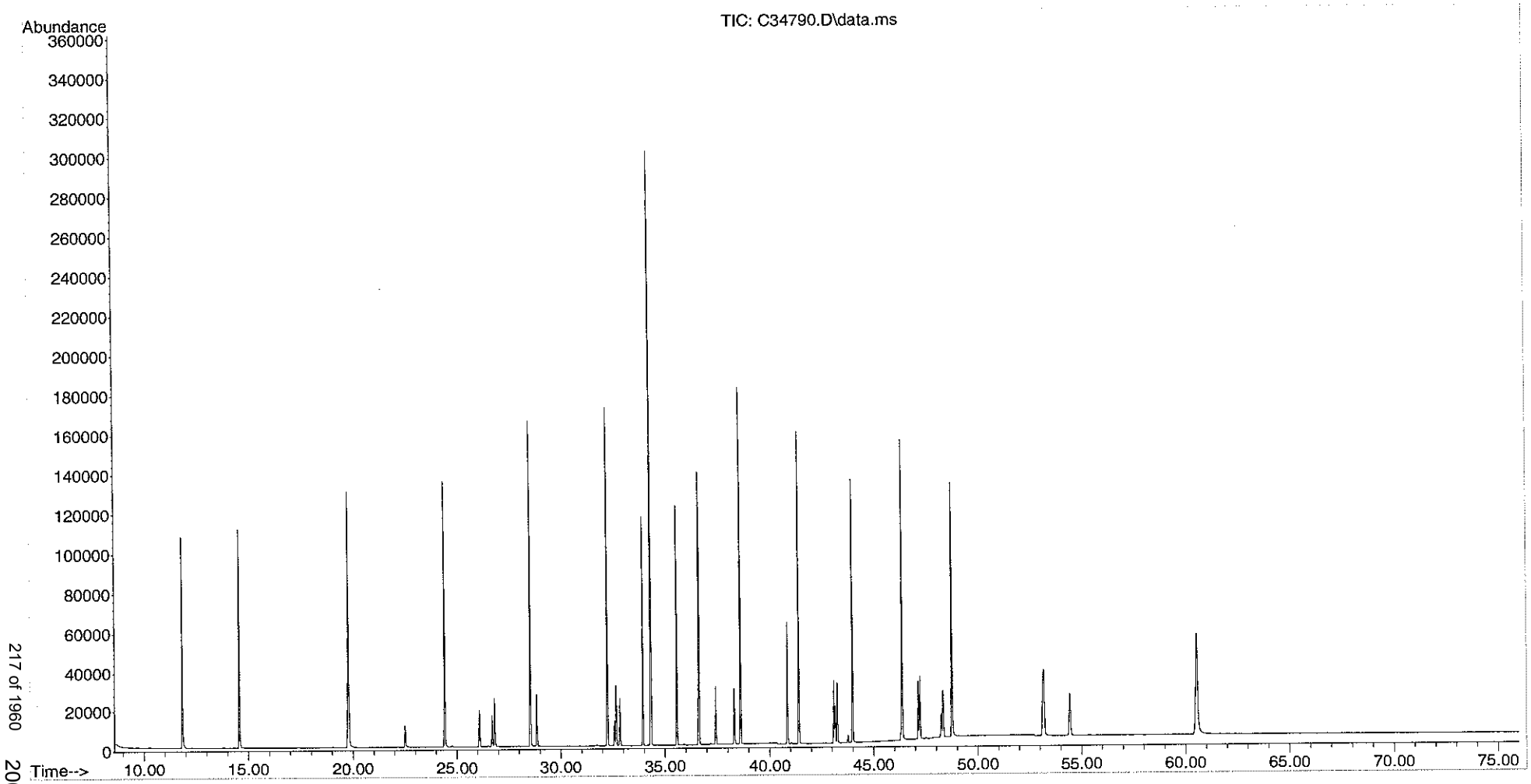
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**974**	S
C4-Decalins	20.0	U	Pyrene	**1010**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**843**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**921**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**901**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**837**	S	C2-Chrysenes	20.0	U
Acenaphthene	**859**	S	C3-Chrysenes	20.0	U
Fluorene	**885**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**970**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**907**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**734**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**882**	S	Benzo[a]pyrene	**920**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**982**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**956**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**909**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	I	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**859**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
I8a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**974**	S
C4-Decalins	20.0	U	Pyrene	**1010**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**843**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**921**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**901**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**837**	S	C2-Chrysenes	20.0	U
Acenaphthene	**859**	S	C3-Chrysenes	20.0	U
Fluorene	**885**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**970**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**907**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**734**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**882**	S	Benzo[a]pyrene	**920**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**982**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**956**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**909**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2/4-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**859**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	80	40-120
Phenanthrene-d10	82	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

DBA SCR 6/5/12

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19021M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33587	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32852	397.936	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.79%#			
42) Phenanthrene-d10	32.567	188	26668	408.683	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.87%#			
86) Benzo[a]pyrene-d12	48.241	264	27379	393.340	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.33%#			
127) 5B(H)Cholane - Surr	43.769	217	5012	477.288	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.73%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51108	421.580	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30768	429.239	ng/mL#	100
26) Acenaphthylene	26.079	152	50368	418.543	ng/mL#	100
27) Acenaphthene	26.816	153	30445	429.668	ng/mL	100
29) Fluorene	28.834	166	34563M3	442.282	ng/mL	
43) Phenanthrene	32.657	178	48535	440.990	ng/mL	99
55) Anthracene	32.838	178	39450M3	366.966	ng/mL	
58) Fluoranthene	37.430	202	53262M3	487.269	ng/mL	
60) Pyrene	38.318	202	56100	504.889	ng/mL	97
75) Benz[a]anthracene	43.091	228	49115	460.721	ng/mL	100
77) Chrysene/Triphenylene	43.242	228	48498	450.615	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	56819	485.064	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	57833	453.478	ng/mL	96
87) Benzo[a]pyrene	48.331	252	51333	460.170	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	63756M3	491.124	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	59010	477.848	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62345	454.570	ng/mL	99

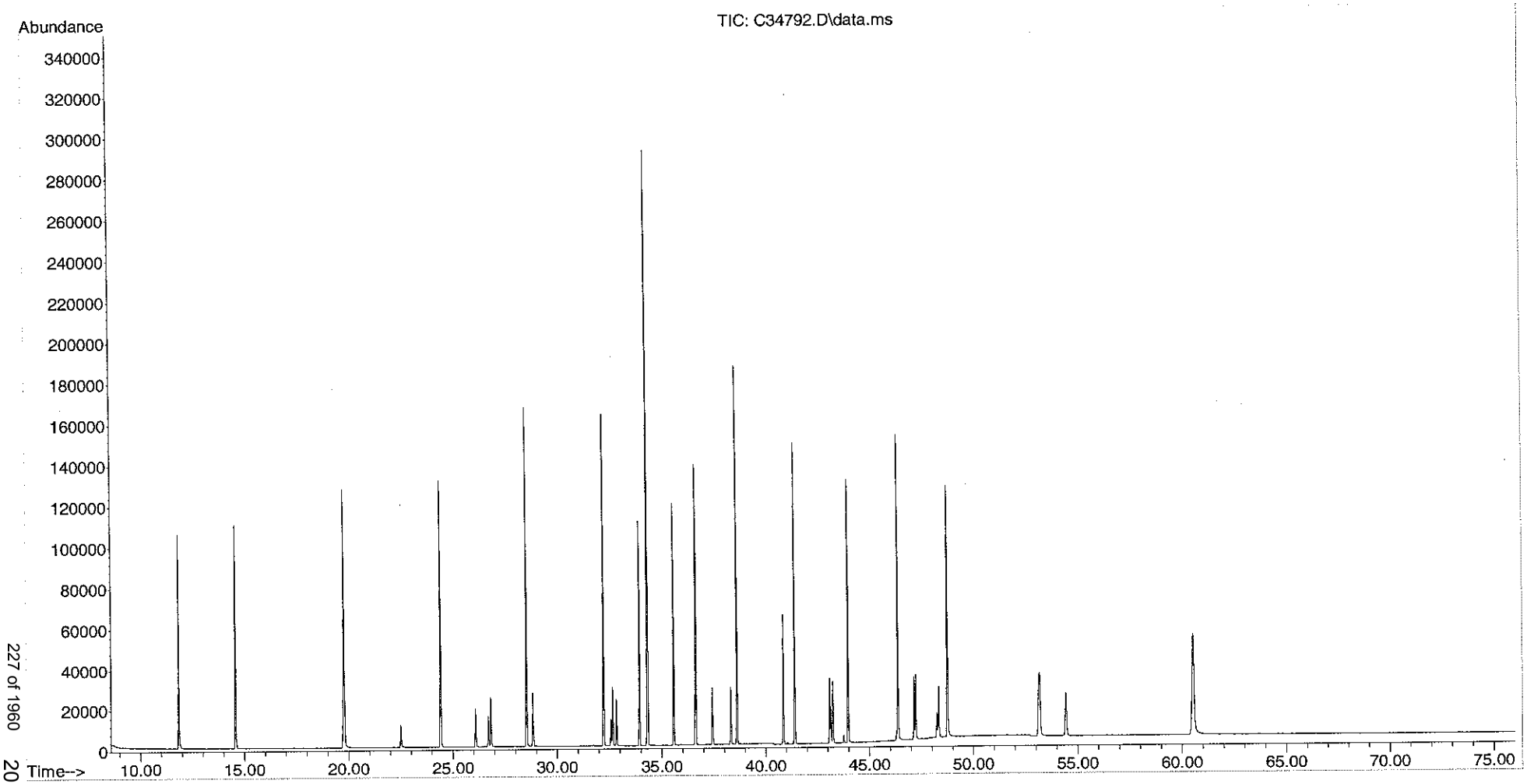
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.358	U	C3-Dibenzothiophenes	0.109	U
C1-Decalins	0.358	U	C4-Dibenzothiophenes	0.109	U
C2-Decalins	0.358	U	Benzo(b)fluorene	0.225	U
C3-Decalins	0.358	U	Fluoranthene	**125**	S
C4-Decalins	0.358	U	Pyrene	**127**	S
Benzothiophene	0.290	U	C1-Fluoranthenes/Pyrenes	0.186	U
C1-Benzo(b)thiophenes	0.290	U	C2-Fluoranthenes/Pyrenes	0.186	U
C2-Benzo(b)thiophenes	0.290	U	C3-Fluoranthenes/Pyrenes	0.186	U
C3-Benzo(b)thiophenes	0.290	U	C4-Fluoranthenes/Pyrenes	0.186	U
C4-Benzo(b)thiophenes	0.290	U	Naphthobenzothiophenes	0.121	U
Naphthalene	**101**	S	C1-Naphthobenzothiophenes	0.121	U
C1-Naphthalenes	0.244	U	C2-Naphthobenzothiophenes	0.121	U
C2-Naphthalenes	0.244	U	C3-Naphthobenzothiophenes	0.121	U
C3-Naphthalenes	0.244	U	C4-Naphthobenzothiophenes	0.121	U
C4-Naphthalenes	0.244	U	Benz[a]anthracene	**112**	S
Biphenyl	0.113	U	Chrysene/Triphenylene	**111**	S
Dibenzofuran	0.106	U	C1-Chrysenes	0.195	U
Acenaphthylene	**98.2**	S	C2-Chrysenes	0.195	U
Acenaphthene	**102**	S	C3-Chrysenes	0.195	U
Fluorene	**107**	S	C4-Chrysenes	0.195	U
C1-Fluorenes	0.119	U	Benzo[b]fluoranthene	**120**	S
C2-Fluorenes	0.119	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**105**	S
C3-Fluorenes	0.119	U	Benzo[a]fluoranthene	0.222	U
Anthracene	**88.6**	S	Benzo[e]pyrene	0.201	U
Phenanthrene	**110**	S	Benzo[a]pyrene	**108**	S
C1-Phenanthrenes/Anthracenes	0.211	U	Perylene	0.407	U
C2-Phenanthrenes/Anthracenes	0.211	U	Indeno[1,2,3-cd]pyrene	**121**	S
C3-Phenanthrenes/Anthracenes	0.211	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**112**	S
C4-Phenanthrenes/Anthracenes	0.211	U	Benzo[g,h,i]perylene	**107**	S
Retene	0.204	U			
Dibenzothiophene	0.109	U			
C1-Dibenzothiophenes	0.109	U			
C2-Dibenzothiophenes	0.109	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	0.109	U
2/3-Methyldibenzothiophene	0.109	U
1-Methyldibenzothiophene	0.109	U
3-Methylphenanthrene	0.211	U
2/4-Methylphenanthrene	0.211	U
2-Methylanthracene	0.211	U
9-Methylphenanthrene	0.211	U
1-Methylphenanthrene	0.211	U
2-Methylnaphthalene	**102**	
1-Methylnaphthalene	0.162	U
2,6-Dimethylnaphthalene	0.171	U
2,3,5-Trimethylnaphthalene	0.135	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22S	2.00	U	Unknown Sterane (S18)	2.00	U
C30 Tricyclic Terpane-22R	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
30-Norhopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
17a(H)-Diahopane	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
30-Normoretane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
Hopane	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
Moretane	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
30-Homohopane-22S	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30-Homohopane-22R	2.00	U	C28,20S-triaromatic steroid	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C27,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20R-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	89	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

1st 2nd 5/6/12

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18337M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33254	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32814	412.302	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.23%#			
42) Phenanthrene-d10	32.567	188	28601	454.656	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28767	417.419	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.74%#			
127) 5B(H)Cholane - Surr	43.754	217	4648	447.057	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.71%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47023	402.353	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28114	406.844	ng/mL#	100
26) Acenaphthylene	26.094	152	45575	392.841	ng/mL#	100
27) Acenaphthene	26.816	153	27866M3	407.940	ng/mL	
29) Fluorene	28.849	166	32136M3	426.565	ng/mL	
43) Phenanthrene	32.657	178	46538	438.618	ng/mL	99
55) Anthracene	32.838	178	36708M3	354.197	ng/mL	
58) Fluoranthene	37.430	202	52667M3	499.798	ng/mL	
60) Pyrene	38.318	202	54521	508.981	ng/mL	95
75) Benz[a]anthracene	43.091	228	47507	450.100	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47220	443.134	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	55443	478.057	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	53206	421.375	ng/mL	96
87) Benzo[a]pyrene	48.331	252	47749	432.328	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.151	276	62256M3	484.372	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	54640	446.892	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	57920	426.535	ng/mL	99

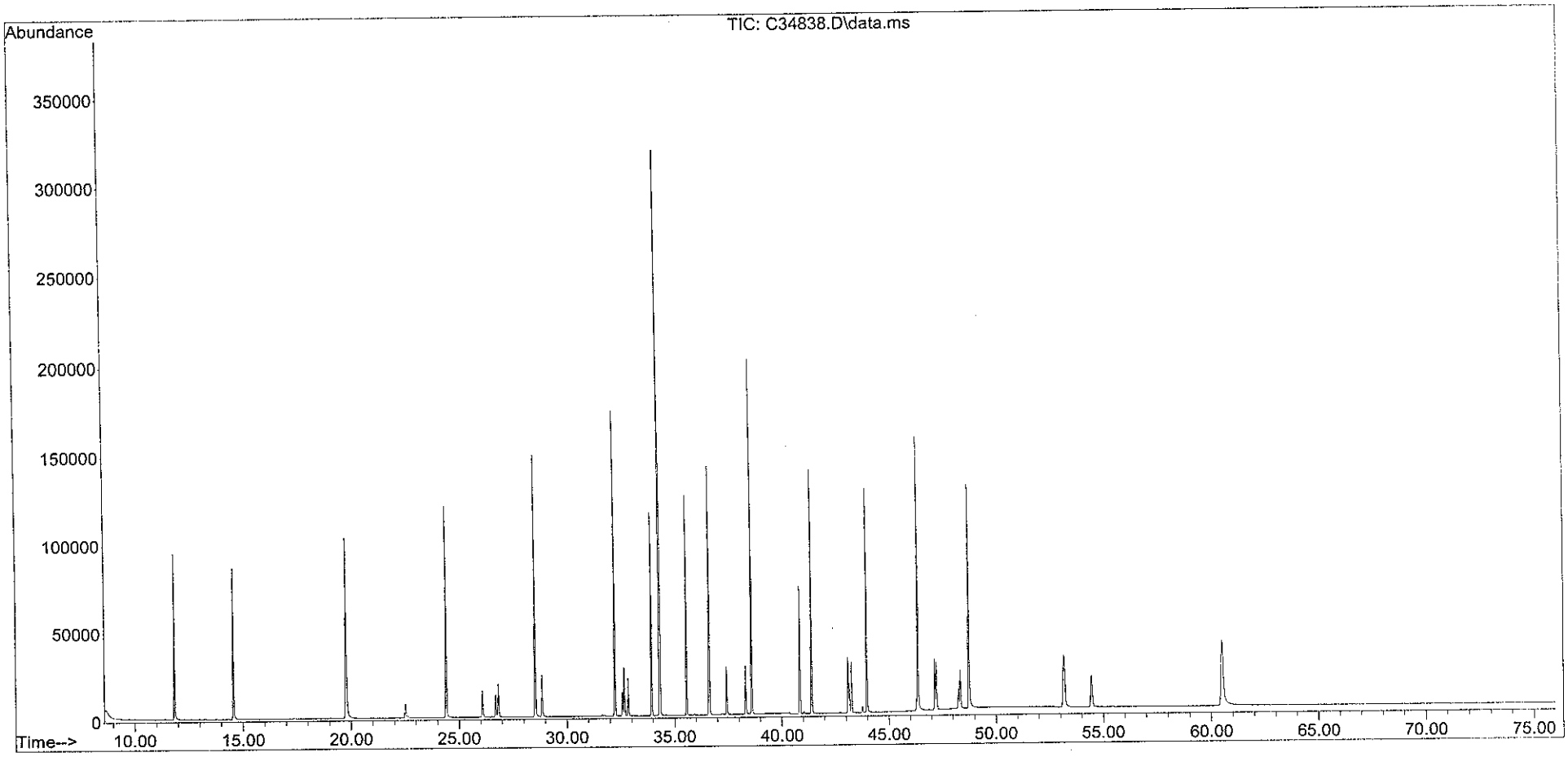
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.358	U	C3-Dibenzothiophenes	0.109	U
C1-Decalins	0.358	U	C4-Dibenzothiophenes	0.109	U
C2-Decalins	0.358	U	Benzo(b)fluorene	0.225	U
C3-Decalins	0.358	U	Fluoranthene	**119**	S
C4-Decalins	0.358	U	Pyrene	**123**	S
Benzothiophene	0.290	U	C1-Fluoranthenes/Pyrenes	0.186	U
C1-Benzo(b)thiophenes	0.290	U	C2-Fluoranthenes/Pyrenes	0.186	U
C2-Benzo(b)thiophenes	0.290	U	C3-Fluoranthenes/Pyrenes	0.186	U
C3-Benzo(b)thiophenes	0.290	U	C4-Fluoranthenes/Pyrenes	0.186	U
C4-Benzo(b)thiophenes	0.290	U	Naphthobenzothiophenes	0.121	U
Naphthalene	**101**	S	C1-Naphthobenzothiophenes	0.121	U
C1-Naphthalenes	0.244	U	C2-Naphthobenzothiophenes	0.121	U
C2-Naphthalenes	0.244	U	C3-Naphthobenzothiophenes	0.121	U
C3-Naphthalenes	0.244	U	C4-Naphthobenzothiophenes	0.121	U
C4-Naphthalenes	0.244	U	Benz[a]anthracene	**112**	S
Biphenyl	0.113	U	Chrysene/Triphenylene	**110**	S
Dibenzofuran	0.106	U	C1-Chrysenes	0.195	U
Acenaphthylene	**100**	S	C2-Chrysenes	0.195	U
Acenaphthene	**103**	S	C3-Chrysenes	0.195	U
Fluorene	**106**	S	C4-Chrysenes	0.195	U
C1-Fluorenes	0.119	U	Benzo[b]fluoranthene	**120**	S
C2-Fluorenes	0.119	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**106**	S
C3-Fluorenes	0.119	U	Benzo[a]fluoranthene	0.222	U
Anthracene	**87.3**	S	Benzo[e]pyrene	0.201	U
Phenanthrene	**107**	S	Benzo[a]pyrene	**108**	S
C1-Phenanthrenes/Anthracenes	0.211	U	Perylene	0.407	U
C2-Phenanthrenes/Anthracenes	0.211	U	Indeno[1,2,3-cd]pyrene	**120**	S
C3-Phenanthrenes/Anthracenes	0.211	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**111**	S
C4-Phenanthrenes/Anthracenes	0.211	U	Benzo[g,h,i]perylene	**106**	S
Retene	0.204	U			
Dibenzothiophene	0.109	U			
C1-Dibenzothiophenes	0.109	U			
C2-Dibenzothiophenes	0.109	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result
Carbazole	0.236 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	0.109	U
2/3-Methyldibenzothiophene	0.109	U
1-Methyldibenzothiophene	0.109	U
3-Methylphenanthrene	0.211	U
2/4-Methylphenanthrene	0.211	U
2-Methylanthracene	0.211	U
9-Methylphenanthrene	0.211	U
1-Methylphenanthrene	0.211	U
2-Methylnaphthalene	**103**	
1-Methylnaphthalene	0.162	U
2,6-Dimethylnaphthalene	0.171	U
2,3,5-Trimethylnaphthalene	0.135	U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	77	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/04/12	100	8.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22S	2.00	U
C24 Tricyclic Terpane	2.00	U	30,31-Trishomohopane-22R	2.00	U
C25 Tricyclic Terpane	2.00	U	Tetrakishomohopane-22S	2.00	U
C24 Tetracyclic Terpane	2.00	U	Tetrakishomohopane-22R	2.00	U
C26 Tricyclic Terpane-22S	2.00	U	Pentakishomohopane-22S	2.00	U
C26 Tricyclic Terpane-22R	2.00	U	Pentakishomohopane-22R	2.00	U
C28 Tricyclic Terpane-22S	2.00	U	13b(H),17a(H)-20S-Diacholestane	2.00	U
C28 Tricyclic Terpane-22R	2.00	U	13b(H),17a(H)-20R-Diacholestane	2.00	U
C29 Tricyclic Terpane-22S	2.00	U	13b,17a-20S-Methyldiacholestane	2.00	U
C29 Tricyclic Terpane-22R	2.00	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	2.00	U
18a-22,29,30-Trisnorneohopane-TS	2.00	U			
C30 Tricyclic Terpane-22S	2.00	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	2.00	U
C30 Tricyclic Terpane-22R	2.00	U			
17a(H)-22,29,30-Trisnorhopane-TM	2.00	U	Unknown Sterane (S18)	2.00	U
17a/b,21b/a 28,30-Bisnorhopane	2.00	U	13a,17b-20S-Ethyldiacholestane	2.00	U
17a(H),21b(H)-25-Norhopane	2.00	U	14a,17a-20S-Methylcholestane	2.00	U
30-Norhopane	2.00	U	14a,17a-20R-Methylcholestane	2.00	U
18a(H)-30-Norneohopane-C29Ts	2.00	U	14a(H),17a(H)-20S-Ethylcholestane	2.00	U
17a(H)-Diahopane	2.00	U	14a(H),17a(H)-20R-Ethylcholestane	2.00	U
30-Normoretane	2.00	U	14b(H),17b(H)-20R-Cholestane	2.00	U
18a(H)&18b(H)-Oleananes	2.00	U	14b(H),17b(H)-20S-Cholestane	2.00	U
Hopane	2.00	U	14b,17b-20R-Methylcholestane	2.00	U
Moretane	2.00	U	14b,17b-20S-Methylcholestane	2.00	U
30-Homohopane-22S	2.00	U	14b(H),17b(H)-20R-Ethylcholestane	2.00	U
30-Homohopane-22R	2.00	U	14b(H),17b(H)-20S-Ethylcholestane	2.00	U
T22a-Gammacerane/C32-diahopane	2.00	U	C26,20R- +C27,20S- triaromatic steroid	2.00	U
30,31-Bishomohopane-22S	2.00	U	C28,20S-triaromatic steroid	2.00	U
30,31-Bishomohopane-22R	2.00	U	C27,20R-triaromatic steroid	2.00	U
			C28,20R-triaromatic steroid	2.00	U

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	91	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

1st 2nd 5/6/12

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18527M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32423	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	30958	384.993	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	28827	453.549	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.35%#			
86) Benzo[a]pyrene-d12	48.241	264	28441	423.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.33%#			
127) 5B(H)Cholane - Surr	43.754	217	4632	456.936	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.69%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47851	405.238	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28766	412.010	ng/mL#	100
26) Acenaphthylene	26.094	152	46895M3	400.073	ng/mL	
27) Acenaphthene	26.816	153	28581	414.117	ng/mL	99
29) Fluorene	28.849	166	32410M4	425.790	ng/mL	
43) Phenanthrene	32.657	178	45989	428.999	ng/mL	99
55) Anthracene	32.838	178	36580M3	349.342	ng/mL	
58) Fluoranthene	37.430	202	50677M3	475.982	ng/mL	
60) Pyrene	38.318	202	53251	492.027	ng/mL	95
75) Benz[a]anthracene	43.091	228	45909	446.108	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45853	441.334	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	54206	479.370	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	52374	425.417	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46433	431.188	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	59936M3	478.273	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	52761	442.584	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	56235	424.741	ng/mL	99

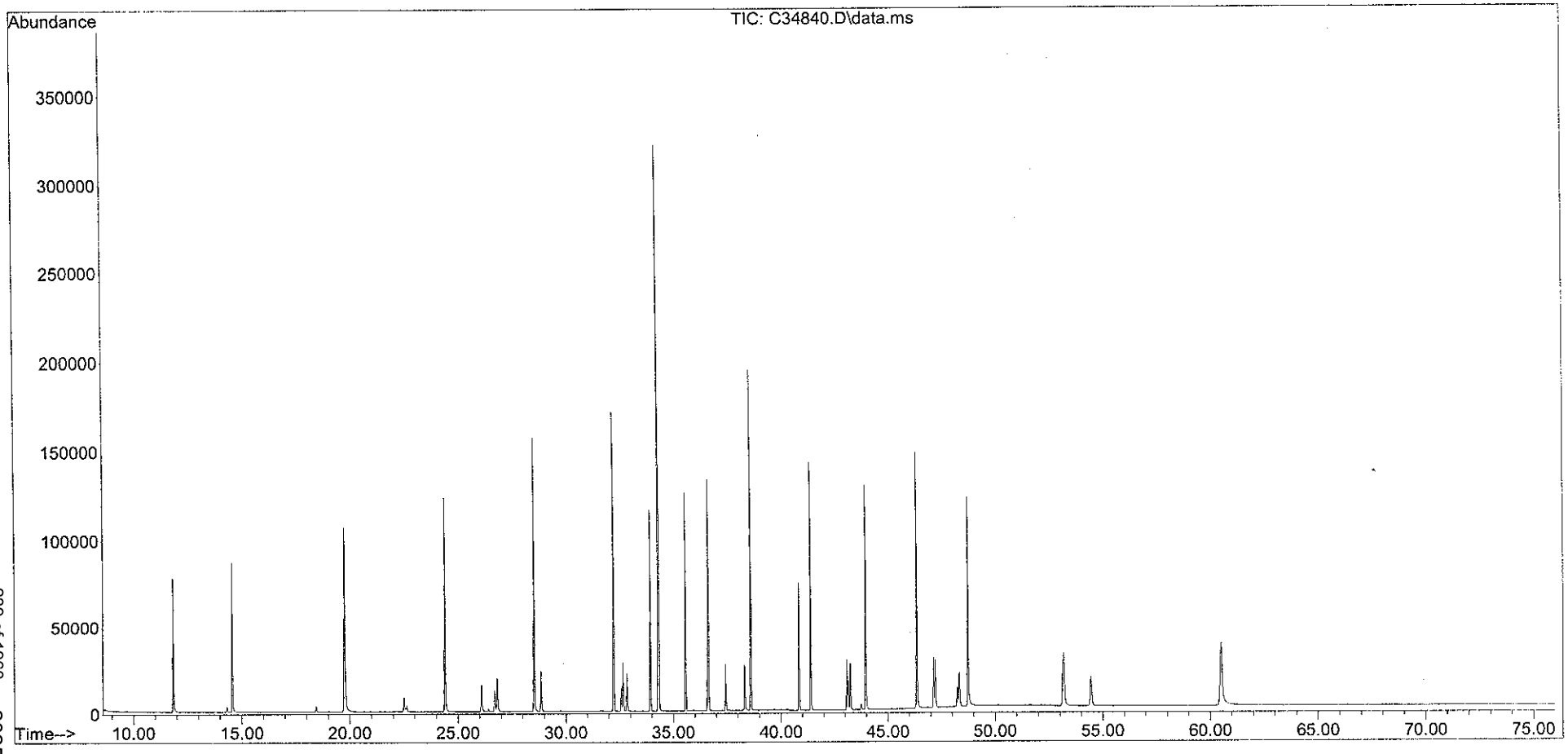
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07 D**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.88	2	1	AC

Parameter	Result		Parameter	Result
cis/trans-Decalin	**1.15**	J	C3-Dibenzothiophenes	**163**
C1-Decalins	**5.39**		C4-Dibenzothiophenes	**124**
C2-Decalins	0.496	U	Benzo(b)fluorene	**15.6**
C3-Decalins	0.496	U	Fluoranthene	**250**
C4-Decalins	0.496	U	Pyrene	**204**
Benzothiophene	0.402	U	C1-Fluoranthenes/Pyrenes	**84.8**
C1-Benzo(b)thiophenes	0.402	U	C2-Fluoranthenes/Pyrenes	**90.3**
C2-Benzo(b)thiophenes	**2.07**	J	C3-Fluoranthenes/Pyrenes	**77.6**
C3-Benzo(b)thiophenes	**9.03**		C4-Fluoranthenes/Pyrenes	**78.8**
C4-Benzo(b)thiophenes	**13.0**		Naphthobenzothiophenes	**45.4**
Naphthalene	**2.63**	J	C1-Naphthobenzothiophenes	**79.8**
C1-Naphthalenes	**4.41**		C2-Naphthobenzothiophenes	**121**
C2-Naphthalenes	**11.5**		C3-Naphthobenzothiophenes	**110**
C3-Naphthalenes	**28.3**		C4-Naphthobenzothiophenes	**88.3**
C4-Naphthalenes	**44.7**		Benz[a]anthracene	**66.6**
Biphenyl	**1.83**	J	Chrysene/Triphenylene	**104**
Dibenzofuran	**3.19**	J	C1-Chrysenes	**51.2**
Acenaphthylene	**1.96**	J	C2-Chrysenes	**59.3**
Acenaphthene	**5.06**		C3-Chrysenes	**81.4**
Fluorene	**6.42**		C4-Chrysenes	**63.0**
C1-Fluorenes	**9.40**		Benzo[b]fluoranthene	**102**
C2-Fluorenes	**38.2**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**62.5**
C3-Fluorenes	**86.4**		Benzo[a]fluoranthene	**10.2**
Anthracene	**9.96**		Benzo[e]pyrene	**68.1**
Phenanthrene	**109**		Benzo[a]pyrene	**76.2**
C1-Phenanthrenes/Anthracenes	**69.2**		Perylene	**27.8**
C2-Phenanthrenes/Anthracenes	**122**		Indeno[1,2,3-cd]pyrene	**65.1**
C3-Phenanthrenes/Anthracenes	**120**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**18.1**
C4-Phenanthrenes/Anthracenes	**72.2**		Benzo[g,h,i]perylene	**73.0**
Retene	0.283	U		
Dibenzothiophene	**9.14**			
C1-Dibenzothiophenes	**48.9**			
C2-Dibenzothiophenes	**116**			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07 D**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.88	2	1	AC

Parameter	Result
Carbazole	**12.9**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable

Form I
Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07 D**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.88	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**13.8**
2/3-Methyldibenzothiophene	**22.0**
1-Methyldibenzothiophene	**8.98**
3-Methylphenanthrene	**14.8**
2/4-Methylphenanthrene	**16.4**
2-Methylanthracene	**2.55** J
9-Methylphenanthrene	**20.7**
1-Methylphenanthrene	**12.7**
2-Methylnaphthalene	**4.10**
1-Methylnaphthalene	**3.48**
2,6-Dimethylnaphthalene	**4.21**
2,3,5-Trimethylnaphthalene	**5.02**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	69	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	79	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07 D**
Associated Blank: **SS043012B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/05/12	83.8	6.88	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**68.7**	
C24 Tricyclic Terpane	**38.2**	
C25 Tricyclic Terpane	**44.0**	
C24 Tetracyclic Terpane	**16.0**	
C26 Tricyclic Terpane-22S	**13.6**	
C26 Tricyclic Terpane-22R	**14.4**	
C28 Tricyclic Terpane-22S	**14.2**	
C28 Tricyclic Terpane-22R	**17.3**	
C29 Tricyclic Terpane-22S	**19.0**	
C29 Tricyclic Terpane-22R	**18.4**	
18a-22,29,30-Trisnorneohopane-TS	**27.0**	
C30 Tricyclic Terpane-22S	**16.9**	
C30 Tricyclic Terpane-22R	**15.9**	
17a(H)-22,29,30-Trisnorhopane-TM	**53.3**	
17a/b,21b/a 28,30-Bisnorhopane	**30.2**	
17a(H),21b(H)-25-Norhopane	**21.7**	
30-Norhopane	**135**	
18a(H)-30-Norneohopane-C29Ts	**21.4**	
17a(H)-Diahopane	**7.50**	
30-Normoretane	**15.1**	
18a(H)&18b(H)-Oleananes	2.77	U
Hopane	**192**	
Moretane	**22.5**	
30-Homohopane-22S	**81.4**	
30-Homohopane-22R	**70.5**	
T22a-Gammacerane/C32-diahopane	**31.8**	
30,31-Bishomohopane-22S	**78.7**	
30,31-Bishomohopane-22R	**45.7**	

Parameter	Result	
30,31-Trishomohopane-22S	**43.4**	
30,31-Trishomohopane-22R	**24.6**	
Tetrakishomohopane-22S	**29.1**	
Tetrakishomohopane-22R	**50.1**	G
Pentakishomohopane-22S	**40.0**	
Pentakishomohopane-22R	**23.1**	
13b(H),17a(H)-20S-Diacholestane	**25.0**	
13b(H),17a(H)-20R-Diacholestane	**10.3**	
13b,17a-20S-Methyldiacholestane	**14.9**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**50.7**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**49.6**	
Unknown Sterane (S18)	**30.2**	G
13a,17b-20S-Ethyldiacholestane	**3.46**	J
14a,17a-20S-Methylcholestane	**22.1**	
14a,17a-20R-Methylcholestane	**19.2**	
14a(H),17a(H)-20S-Ethylcholestane	**48.6**	
14a(H),17a(H)-20R-Ethylcholestane	**44.5**	
14b(H),17b(H)-20R-Cholestane	**26.7**	
14b(H),17b(H)-20S-Cholestane	**28.2**	
14b,17b-20R-Methylcholestane	**29.1**	
14b,17b-20S-Methylcholestane	**41.7**	
14b(H),17b(H)-20R-Ethylcholestane	**58.3**	
14b(H),17b(H)-20S-Ethylcholestane	**34.6**	
C26,20R- +C27,20S- triaromatic steroid	**275**	
C28,20S-triaromatic steroid	**230**	
C27,20R-triaromatic steroid	**187**	
C28,20R-triaromatic steroid	**206**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	94	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

1987 2PAH 5/6/12

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	22156M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.166	240	40780	500.000	ng/mL	0.02
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	164858	1714.365	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 171.44%#			
42) Phenanthrene-d10		32.567	188	163901	2156.353	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 215.64%#			
86) Benzo[a]pyrene-d12		48.256	264	167860	1986.194	ng/mL	0.02
Spiked Amount	1000.000	Range 50 - 130		Recovery = 198.62%#			
127) 5B(H)Cholane - Surr		43.769	217	29920	2346.685	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 234.67%#			
Target Compounds							Qvalue
3) trans-Decalin		16.384	138	58M3	3.316	ng/mL	
5) C1-Decalins		17.874	152	272M5	15.552	ng/mL	
10) Naphthalene		19.801	128	1069	7.570	ng/mL#	100
11) C1-Naphthalenes		22.511	142	1794M5	12.704	ng/mL	
12) C2-Naphthalenes		25.341	156	4673M5	33.092	ng/mL	
13) C3-Naphthalenes		28.021	170	11534M5	81.680	ng/mL	
14) C4-Naphthalenes		30.444	184	18197M5	128.864	ng/mL	
16) 2-Methylnaphthalene		22.511	142	988M4	11.833	ng/mL	
17) 1-Methylnaphthalene		22.932	142	820M3	10.019	ng/mL	
20) C2-Benzo(b)thiophenes		25.386	162	758M5	5.965	ng/mL	
21) C3-Benzo(b)thiophenes		27.509	176	3308M5	26.033	ng/mL	
22) C4-Benzo(b)thiophenes		29.616	190	4769M5	37.530	ng/mL	
23) Biphenyl		24.393	154	558	5.283	ng/mL#	100
24) 2,6-Dimethylnaphthalene		25.010	156	833	12.143	ng/mL#	100
25) Dibenzofuran		27.464	168	1114	9.185	ng/mL#	81
26) Acenaphthylene		26.094	152	793	5.657	ng/mL#	100
27) Acenaphthene		26.816	153	1203M3	14.576	ng/mL	
28) 2,3,5-Trimethylnaphthalen		28.382	170	801M3	14.485	ng/mL	
29) Fluorene		28.849	166	1686M3	18.522	ng/mL	
30) C1-Fluorenes		31.212	180	2468M5	27.113	ng/mL	
31) C2-Fluorenes		33.395	194	10026M5	110.143	ng/mL	
32) C3-Fluorenes		35.909	208	22666M5	249.003	ng/mL	
33) Dibenzothiophene		32.161	184	3846	26.358	ng/mL#	61
34) 4-Methyldibenzothiophene(		33.937	198	5790	39.681	ng/mL#	100
35) 2/3-Methyldibenzothiophen		34.313	198	9260M3	63.462	ng/mL	
36) 1-Methyldibenzothiophene(		34.720	198	3780	25.905	ng/mL#	100

244 of 960 2030

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) OTP	34.374	198	31388M3	215.111	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	51955M5	356.063	ng/mL	
38) C1-Dibenzothiophenes BS	34.374	198	20567m	140.952	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	48839M5	334.708	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	68745M5	471.130	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	52237M5	357.996	ng/mL	
43) Phenanthrene	32.657	178	40172	313.357	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.630	192	5482M3	42.762	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.750	192	6072	47.364	ng/mL	100
46) 2-Methylanthracene(2MA)	34.901	192	943	7.356	ng/mL#	73
47) 9-Methylphenanthrene(9MP)	35.066	192	7656	59.720	ng/mL	85
48) 1-Methylphenanthrene(1MP)	35.172	192	4714M3	36.771	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	25584M5	199.565	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	44914M5	350.346	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	44914m	350.346	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	44366M5	346.072	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	26676M5	208.083	ng/mL	
55) Anthracene	32.838	178	3594M3	28.701	ng/mL	
56) Carbazole	33.515	167	4689	37.071	ng/mL	94
57) 1-Methylphenanthrene	35.172	192	4671M3	57.495	ng/mL	
58) Fluoranthene	37.430	202	91658M3	719.886	ng/mL	
59) Benzo(b)fluorene	39.944	216	3332M3	45.108	ng/mL	
60) Pyrene	38.318	202	76111	588.061	ng/mL	93
61) C1-Fluoranthenes/Pyrenes	39.703	216	31653M5	244.563	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	33693M5	260.324	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244	28970M5	223.833	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	29414M5	227.263	ng/mL	
66) Naphthobenzothiophene	42.173	234	11903M3	85.424	ng/ml	
67) Naphthobenzothiophene-2,1	42.173	234	11774M3	84.498	ng/mL	
68) Naphthobenzothiophene-1,2	42.504	234	2601M3	18.667	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	3868M3	27.759	ng/mL	
70) C1-Naphthobenzothiophenes	44.250	248	32046M5	229.984	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	48689M5	349.425	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	44292M5	317.869	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	35467M5	254.535	ng/mL	
75) Benz[a]anthracene	43.091	228	24845M3	191.950	ng/mL	
77) Chrysene/Triphenylene	43.257	228	39086	299.107	ng/mL	100
78) C1-Chrysenes	44.732	242	19292M5	147.633	ng/mL	
79) C2-Chrysenes	46.810	256	22327M5	170.858	ng/mL	
79) C2-Chrysenes BS	46.810	256	22327m	170.858	ng/mL	
80) C3-Chrysenes	49.506	270	30678M5	234.765	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
81)	C4-Chrysenes	49.506	284	23728M4	181.580	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	41847	294.235	ng/mL	98
83)	Benzo[j]+[k]fluoranthene	47.217	252	27910	180.246	ng/mL	100
84)	Benzo[a]fluoranthene	47.533	252	4577	29.559	ng/mL#	1
85)	Benzo[e]pyrene	48.151	252	27635	196.444	ng/mL	97
87)	Benzo[a]pyrene	48.331	252	29740	219.577	ng/mL	96
88)	Perylene	48.648	252	11588	80.055	ng/mL	97
89)	Indeno[1,2,3-cd]pyrene	53.151	276	29585M3	187.701	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278	7839M3	52.282	ng/mL	
91)	Benzo[g,h,i]perylene	54.461	276	35057	210.522	ng/mL	99
92)	Hopane (T19)	52.202	191	14859M3	552.854	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.788	191	5325M3	198.125	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.510	191	2962M3	110.206	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.046	191	3406M3	126.726	ng/ml	
97)	C24 Tetracyclic Terpane (	44.326	191	1244	46.285	ng/ml	100
98)	C26 Tricyclic Terpane-22S	44.055	191	1054M3	39.216	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.145	191	1114M3	41.448	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.434	191	1098M3	40.853	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.599	191	1341M3	49.894	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.112	191	1476	54.917	ng/ml	100
103)	C29 Tricyclic Terpane-22R	47.307	191	1429	53.168	ng/ml	100
104)	18a-22,29,30-Trisnorneoho	48.437	191	2095	77.948	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.527	191	1308M3	48.666	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.768	191	1230M3	45.764	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.979	191	4130M3	153.663	ng/ml	
108)	17a/b,21b/a 28,30-Bisnorh	50.184	191	2339M3	87.026	ng/ml	
109)	17a(H),21b(H)-25-Norhopan	49.958	191	1681	62.544	ng/ml	100
110)	30-Norhopane (T15)	50.846	191	10437	388.326	ng/ml	100
111)	18a(H)-30-Norneohopane-C2	50.952	191	1656	61.614	ng/ml	100
112)	17a(H)-Diahopane (X)	51.072	191	581	21.617	ng/ml	100
113)	30-Normoretane (T17)	51.615	191	1170M3	43.532	ng/ml	
115)	Moretane (T20)	52.895	191	1745	64.926	ng/ml	100
116)	30-Homohopane-22S (T21)	53.994	191	6311M3	234.811	ng/ml	
117)	30-Homohopane-22R (T22)	54.220	191	5460M3	203.148	ng/ml	
118)	Gammacerane/C32-diahopane	54.777	191	2468M4	91.826	ng/mL	
119)	30,31-Bishomohopane-22S (	55.560	191	6099M3	226.923	ng/ml	
120)	30,31-Bishomohopane-22R (	55.936	191	3544	131.860	ng/ml	100
121)	30,31-Trishomohopane-22S	57.683	191	3362M3	125.089	ng/ml	
122)	30,31-Trishomohopane-22R	58.301	191	1907	70.953	ng/ml	100
123)	Tetrakishomohopane-22S (T	60.318	191	2255M3	83.901	ng/ml	
124)	Tetrakishomohopane-22R (T	61.192	191G	3884	144.511	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S (T	63.451	191	3102	115.415	ng/ml	100
126) Pentakishomohopane-22R (T	64.761	191	1786M3	66.451	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.274	217	920M3	72.157	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	379	29.726	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.389	217	549M3	43.059	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.247	217	1863	146.119	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.774	217	1824M3	143.060	ng/ml	
133) Unknown Sterane (S18)	48.090	217G	1112M3	87.216	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.316	217	127	9.961	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	814	63.844	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.190	217	704	55.216	ng/ml	100
137) 14a(H),17a(H)-20S-Ethylch	49.536	217	1786M3	140.080	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.440	217	1636M3	128.315	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.337	218	981M3	76.942	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.428	218	1036M3	81.256	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	1070	83.922	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.723	218	1532M3	120.158	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.777	218	2142M3	168.001	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.822	218	1272M3	99.765	ng/ml	
145) C26,20R- +C27,20S- triaro	49.491	231	10106	792.634	ng/mL	100
146) C28,20S-triaromatic stero	50.349	231	8467	664.084	ng/mL	100
147) C27,20R-triaromatic stero	50.801	231	6889	540.318	ng/mL	100
148) C28,20R-triaromatic stero	52.006	231	7590M3	595.299	ng/mL	

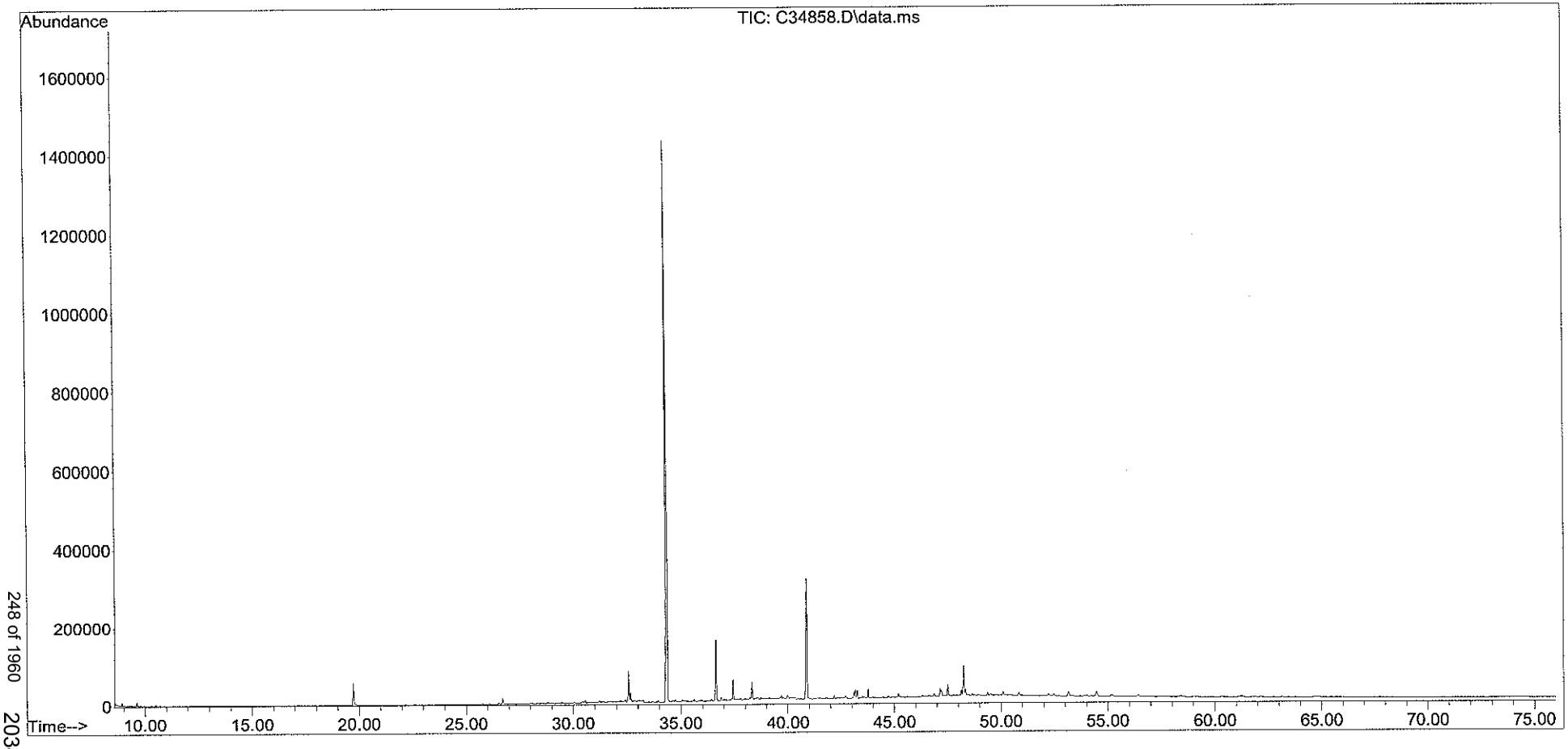
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Cold Lake Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**131**		C3-Dibenzothiophenes	**342**	
C1-Decalins	**247**		C4-Dibenzothiophenes	**233**	
C2-Decalins	**351**		Benzo(b)fluorene	1.84	U
C3-Decalins	**229**		Fluoranthene	**6.13**	
C4-Decalins	**215**		Pyrene	**18.3**	
Benzothiophene	**7.97**		C1-Fluoranthenes/Pyrenes	**61.7**	
C1-Benzo(b)thiophenes	**38.2**		C2-Fluoranthenes/Pyrenes	**86.7**	
C2-Benzo(b)thiophenes	**73.0**		C3-Fluoranthenes/Pyrenes	**97.5**	
C3-Benzo(b)thiophenes	**119**		C4-Fluoranthenes/Pyrenes	**97.5**	
C4-Benzo(b)thiophenes	**120**		Naphthobenzothiophenes	**40.4**	
Naphthalene	**57.2**		C1-Naphthobenzothiophenes	**126**	
C1-Naphthalenes	**155**		C2-Naphthobenzothiophenes	**178**	
C2-Naphthalenes	**316**		C3-Naphthobenzothiophenes	**155**	
C3-Naphthalenes	**368**		C4-Naphthobenzothiophenes	**114**	
C4-Naphthalenes	**277**		Benz[a]anthracene	**4.68**	
Biphenyl	**16.5**		Chrysene/Triphenylene	**20.2**	
Dibenzofuran	**7.64**		C1-Chrysenes	**47.0**	
Acenaphthylene	**2.47**		C2-Chrysenes	**78.0**	
Acenaphthene	**12.4**		C3-Chrysenes	**92.5**	
Fluorene	**25.9**		C4-Chrysenes	**56.1**	
C1-Fluorenes	**72.1**		Benzo[b]fluoranthene	**6.76**	
C2-Fluorenes	**138**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.85**	
C3-Fluorenes	**158**		Benzo[a]fluoranthene	1.84	U
Anthracene	1.84	U	Benzo[e]pyrene	**9.82**	
Phenanthrene	**75.1**		Benzo[a]pyrene	**5.41**	
C1-Phenanthrenes/Anthracenes	**196**		Perylene	**9.76**	
C2-Phenanthrenes/Anthracenes	**260**		Indeno[1,2,3-cd]pyrene	**4.70**	
C3-Phenanthrenes/Anthracenes	**222**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.42**	
C4-Phenanthrenes/Anthracenes	**109**		Benzo[g,h,i]perylene	**8.01**	
Retene	1.84	U			
Dibenzothiophene	**60.8**				
C1-Dibenzothiophenes	**192**				
C2-Dibenzothiophenes	**327**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Cold Lake Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
Carbazole	**4.64**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**75.4**
2/3-Methyldibenzothiophene	**59.5**
1-Methyldibenzothiophene	**42.2**
3-Methylphenanthrene	**39.0**
2/4-Methylphenanthrene	**46.6**
2-Methylanthracene	**4.21**
9-Methylphenanthrene	**67.0**
1-Methylphenanthrene	**39.0**
2-Methylnaphthalene	**158**
1-Methylnaphthalene	**108**
2,6-Dimethylnaphthalene	**162**
2,3,5-Trimethylnaphthalene	**68.3**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	100	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05422	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**107**
C24 Tricyclic Terpane	**59.6**
C25 Tricyclic Terpane	**54.2**
C24 Tetracyclic Terpane	**19.6**
C26 Tricyclic Terpane-22S	**21.4**
C26 Tricyclic Terpane-22R	**20.4**
C28 Tricyclic Terpane-22S	**22.4**
C28 Tricyclic Terpane-22R	**24.9**
C29 Tricyclic Terpane-22S	**30.4**
C29 Tricyclic Terpane-22R	**25.8**
18a-22,29,30-Trisnorneohopane-TS	**25.7**
C30 Tricyclic Terpane-22S	**21.2**
C30 Tricyclic Terpane-22R	**21.6**
17a(H)-22,29,30-Trisnorhopane-TM	**67.1**
17a/b,21b/a 28,30-Bisnorhopane	**44.9**
17a(H),21b(H)-25-Norhopane	**13.7**
30-Norhopane	**178**
18a(H)-30-Norneohopane-C29Ts	**22.7**
17a(H)-Diahopane	**5.88**
30-Normoretane	**19.0**
18a(H)&18b(H)-Oleananes	**3.89**
Hopane	**254**
Moretane	**21.0**
30-Homohopane-22S	**110**
30-Homohopane-22R	**89.7**
T22a-Gammacerane/C32-diahopane	**35.4**
30,31-Bishomohopane-22S	**67.4**
30,31-Bishomohopane-22R	**47.8**

Parameter	Result
30,31-Trishomohopane-22S	**52.4**
30,31-Trishomohopane-22R	**36.4**
Tetrakishomohopane-22S	**35.8**
Tetrakishomohopane-22R	**25.6**
Pentakishomohopane-22S	**43.1**
Pentakishomohopane-22R	**29.7**
13b(H),17a(H)-20S-Diacholestane	**33.7**
13b(H),17a(H)-20R-Diacholestane	**15.6**
13b,17a-20S-Methyldiacholestane	**15.0**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**52.6**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**69.6**
Unknown Sterane (S18)	**10.5**
13a,17b-20S-Ethyldiacholestane	**6.36**
14a,17a-20S-Methylcholestane	**27.7**
14a,17a-20R-Methylcholestane	**29.1**
14a(H),17a(H)-20S-Ethylcholestane	**78.2**
14a(H),17a(H)-20R-Ethylcholestane	**51.0**
14b(H),17b(H)-20R-Cholestane	**41.5**
14b(H),17b(H)-20S-Cholestane	**42.3**
14b,17b-20R-Methylcholestane	**34.8**
14b,17b-20S-Methylcholestane	**50.3**
14b(H),17b(H)-20R-Ethylcholestane	**66.5**
14b(H),17b(H)-20S-Ethylcholestane	**38.9**
C26,20R- +C27,20S- triaromatic steroid	**357**
C28,20S-triaromatic steroid	**309**
C27,20R-triaromatic steroid	**231**
C28,20R-triaromatic steroid	**250**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	112	50-130

N/A - Not Applicable

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

MM 5/31/12

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	23817M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.167	240	42411	500.000	ng/mL	0.02
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	93859	907.974	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 90.80%			
42) Phenanthrene-d10		32.567	188	82104	1004.863	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 100.49%			
86) Benzo[a]pyrene-d12		48.241	264	72947	829.948	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 82.99%			
127) 5B(H)Cholane - Surr		43.769	217	14861	1120.753	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 112.08%			
Target Compounds							Qvalue
3) trans-Decalin		16.384	138	12337	656.177	ng/mL	100
4) cis-Decalin		17.603	138	754M3	53.211	ng/mL	
5) C1-Decalins		17.874	152	25179M5	1339.213	ng/mL	
6) C2-Decalins		19.304	166	35736M5	1900.716	ng/mL	
7) C3-Decalins		22.119	180	23346M5	1241.720	ng/mL	
8) C4-Decalins		25.507	194	21876M5	1163.534	ng/mL	
10) Naphthalene		19.801	128	47114	310.376	ng/mL#	100
11) C1-Naphthalenes		22.496	142	127731M5	841.461	ng/mL	
12) C2-Naphthalenes		25.341	156	260450M5	1715.782	ng/mL	
13) C3-Naphthalenes		28.021	170	302564M5	1993.218	ng/mL	
14) C4-Naphthalenes		30.445	184	228022M5	1502.154	ng/mL	
16) 2-Methylnaphthalene		22.496	142	77085	858.848	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	51530	585.723	ng/mL#	100
18) Benzothiophene		20.027	134	5901	43.200	ng/mL	100
19) C1-Benzo(b)thiophenes		22.887	148	28288M5	207.089	ng/mL	
20) C2-Benzo(b)thiophenes		25.537	162	54033M5	395.562	ng/mL	
21) C3-Benzo(b)thiophenes		27.524	176	88377M5	646.986	ng/mL	
22) C4-Benzo(b)thiophenes		29.255	190	88613M5	648.714	ng/mL	
23) Biphenyl		24.378	154	10176	89.627	ng/mL#	100
24) 2,6-Dimethylnaphthalene		25.010	156	64699	877.379	ng/mL#	100
25) Dibenzofuran		27.464	168	5404	41.449	ng/mL#	43
26) Acenaphthylene		26.079	152	2021	13.412	ng/mL#	100
27) Acenaphthene		26.817	153	5947M3	67.029	ng/mL	
28) 2,3,5-Trimethylnaphthalen		28.382	170	22016M3	370.364	ng/mL	
29) Fluorene		28.834	166	13718M3	140.193	ng/mL	
30) C1-Fluorenes		31.212	180	38230M5	390.696	ng/mL	
31) C2-Fluorenes		33.410	194	73499M5	751.131	ng/mL	
32) C3-Fluorenes		35.232	208	83934M5	857.772	ng/mL	
33) Dibenzothiophene		32.161	184	51665	329.382	ng/mL#	74
34) 4-Methyldibenzothiophene(		33.937	198	64088	408.583	ng/mL#	100
35) 2/3-Methyldibenzothiophen		34.283	198	50568M3	322.389	ng/mL	
36) 1-Methyldibenzothiophene(		34.705	198	35916	228.977	ng/mL#	100
37) OTP		34.344	198	15611M3	99.526	ng/mL	
38) C1-Dibenzothiophenes		33.937	198	178964M5	1140.958	ng/mL	
38) C1-Dibenzothiophenes BS		33.937	198	163353m	1041.432	ng/mL	
39) C2-Dibenzothiophenes		35.623	212	277827M5	1771.243	ng/mL	
40) C3-Dibenzothiophenes		37.430	226	291226M5	1856.667	ng/mL	
41) C4-Dibenzothiophenes		39.132	240	198533M5	1265.717	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) Phenanthrene	32.658	178	56105	407.119	ng/mL#	78
44) 3-Methylphenanthrene(3MP)	34.630	192	29170M3	211.669	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	34814M3	252.624	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	3149M3	22.850	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	50040	363.109	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.172	192	29139M3	211.444	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.081	192	146127M5	1060.353	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	193953M5	1407.397	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	193953m	1407.397	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	165692M5	1202.324	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.908	234	81166M5	588.971	ng/mL	
56) Carbazole	33.501	167	3417M3	25.131	ng/mL	
57) 1-Methylphenanthrene	35.172	192	29274M3	335.202	ng/mL	
58) Fluoranthene	37.430	202	4547M3	33.222	ng/mL	
60) Pyrene	38.318	202	13787M3	99.094	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	46566M5	334.694	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	65429M5	470.273	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	73575M5	528.822	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	73580M5	528.858	ng/mL	
66) Naphthobenzothiophene	42.173	234	22625	151.048	ng/ml#	89
67) Naphthobenzothiophene-2,1	42.173	234	22625	151.048	ng/mL#	89
68) Naphthobenzothiophene-1,2	42.504	234	6089	40.651	ng/mL#	13
69) Naphthobenzothiophene-2,3	42.805	234	4121M3	27.513	ng/mL	
70) C1-Naphthobenzothiophenes	44.251	248	102218M5	682.425	ng/ml	
71) C2-Naphthobenzothiophenes	45.621	262	144800M5	966.710	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	125541M5	838.133	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	92213M5	615.630	ng/mL	
75) Benz[a]anthracene	43.091	228	3415M3	25.369	ng/mL	
77) Chrysene/Triphenylene	43.242	228	14884M3	109.520	ng/mL	
78) C1-Chrysenes	44.732	242	34624M5	254.772	ng/mL	
79) C2-Chrysenes	46.810	256	57477M5	422.930	ng/mL	
79) C2-Chrysenes BS	46.810	256	57477m	422.930	ng/mL	
80) C3-Chrysenes	49.506	270	68192M5	501.774	ng/mL	
81) C4-Chrysenes	49.521	284	41359M5	304.330	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	5421	36.650	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.217	252	2485M3	15.431	ng/mL	
85) Benzo[e]pyrene	48.151	252	7787M3	53.225	ng/mL	
87) Benzo[a]pyrene	48.332	252	4133M3	29.341	ng/mL	
88) Perylene	48.648	252	7965	52.910	ng/mL#	74
89) Indeno[1,2,3-cd]pyrene	53.151	276	4178M3	25.488	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	2043	13.102	ng/mL#	51
91) Benzo[g,h,i]perylene	54.446	276	7518	43.410	ng/mL#	80
92) Hopane (T19)	52.232	191	38533	1378.549	ng/mL#	79
94) C23 Tricyclic Terpane (T4	40.803	191	16194M3	579.353	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	9035M3	323.234	ng/ml	
96) C25 Tricyclic Terpane (T6	43.046	191	8216M3	293.934	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	2969M3	106.218	ng/ml	
98) C26 Tricyclic Terpane-22S	44.070	191	3241M3	115.949	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	3095M3	110.726	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	3389M3	121.244	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	3776M3	135.089	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	4609	164.891	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.323	191	3909M3	139.848	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
104) 18a-22,29,30-Trisnorneoho	48.452	191	3889M3	139.132	ng/ml	
105) C30 Tricyclic Terpane-22S	48.542	191	3216M3	115.055	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	3277M3	117.237	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	10164M3	363.625	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.199	191	6807M3	243.526	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.988	191	2080	74.414	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	26947M3	964.050	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	3442M3	123.140	ng/ml	
112) 17a(H)-Diahopane (X)	51.103	191	891	31.876	ng/ml	100
113) 30-Normoretane (T17)	51.645	191	2872	102.748	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.021	191	590M3	21.108	ng/ml	
115) Moretane (T20)	52.925	191	3186M3	113.982	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191	16685	596.919	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	13594	486.336	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191	5372M3	192.188	ng/mL	
119) 30,31-Bishomohopane-22S (	55.575	191	10218M3	365.557	ng/ml	
120) 30,31-Bishomohopane-22R (	55.967	191	7245	259.196	ng/ml	100
121) 30,31-Trishomohopane-22S	57.714	191	7940M3	284.060	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	5509M3	197.089	ng/ml	
123) Tetrakishomohopane-22S (T	60.349	191	5427	194.155	ng/ml	100
124) Tetrakishomohopane-22R (T	61.267	191	3883M3	138.917	ng/ml	
125) Pentakishomohopane-22S (T	63.511	191	6536M3	233.831	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4498M3	160.920	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.289	217	2425M3	182.883	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1124M3	84.767	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1076M3	81.147	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3782M3	285.222	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	5006	377.531	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	756M3	57.014	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.332	217	457	34.465	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.497	217	1989M3	150.002	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	2092M3	157.770	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.567	217	5619M3	423.761	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	3664M3	276.323	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2986M3	225.191	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	3044M3	229.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2501	188.615	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	3618M3	272.854	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4780M3	360.487	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2799M3	211.089	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	25693	1937.656	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	22236	1676.944	ng/mL	100
147) C27,20R-triaromatic stero	50.817	231	16630	1254.164	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	17947M3	1353.486	ng/mL	

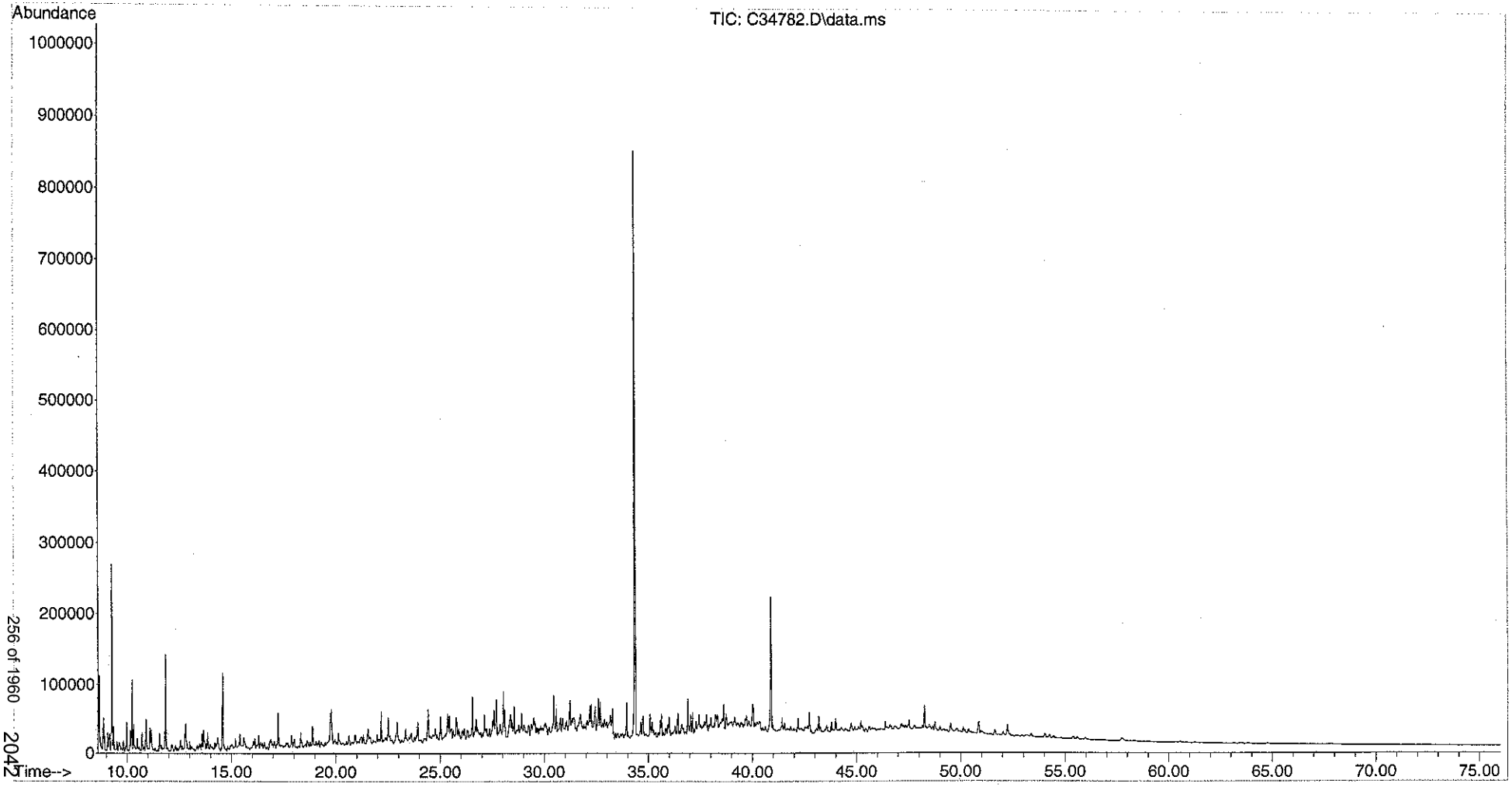
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Western Canadian Select
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result	
cis/trans-Decalin	**163**	
C1-Decalins	**277**	
C2-Decalins	**388**	
C3-Decalins	**240**	
C4-Decalins	**243**	
Benzothiophene	**5.75**	
C1-Benzo(b)thiophenes	**28.8**	
C2-Benzo(b)thiophenes	**51.2**	
C3-Benzo(b)thiophenes	**97.6**	
C4-Benzo(b)thiophenes	**95.8**	
Naphthalene	**63.6**	
C1-Naphthalenes	**172**	
C2-Naphthalenes	**400**	
C3-Naphthalenes	**440**	
C4-Naphthalenes	**313**	
Biphenyl	**17.0**	
Dibenzofuran	**7.70**	
Acenaphthylene	**3.04**	
Acenaphthene	**14.1**	
Fluorene	**30.1**	
C1-Fluorenes	**82.1**	
C2-Fluorenes	**150**	
C3-Fluorenes	**176**	
Anthracene	1.99	U
Phenanthrene	**81.3**	
C1-Phenanthrenes/Anthracenes	**205**	
C2-Phenanthrenes/Anthracenes	**275**	
C3-Phenanthrenes/Anthracenes	**224**	
C4-Phenanthrenes/Anthracenes	**112**	
Retene	**66.6**	
Dibenzothiophene	**57.4**	
C1-Dibenzothiophenes	**172**	
C2-Dibenzothiophenes	**302**	
C3-Dibenzothiophenes	**315**	
C4-Dibenzothiophenes	**209**	
Benzo(b)fluorene	1.99	U
Fluoranthene	**7.00**	
Pyrene	**22.4**	
C1-Fluoranthenes/Pyrenes	**72.2**	
C2-Fluoranthenes/Pyrenes	**93.8**	
C3-Fluoranthenes/Pyrenes	**110**	
C4-Fluoranthenes/Pyrenes	**108**	
Naphthobenzothiophenes	**35.3**	
C1-Naphthobenzothiophenes	**116**	
C2-Naphthobenzothiophenes	**170**	
C3-Naphthobenzothiophenes	**148**	
C4-Naphthobenzothiophenes	**114**	
Benz[a]anthracene	**4.40**	
Chrysene/Triphenylene	**20.4**	
C1-Chrysenes	**53.3**	
C2-Chrysenes	**84.8**	
C3-Chrysenes	**99.1**	
C4-Chrysenes	**59.9**	
Benzo[b]fluoranthene	**7.35**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.74**	
Benzo[a]fluoranthene	1.99	U
Benzo[e]pyrene	**10.9**	
Benzo[a]pyrene	**5.93**	
Perylene	**10.3**	
Indeno[1,2,3-cd]pyrene	**5.04**	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.64**	
Benzo[g,h,i]perylene	**9.40**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Western Canadian Select
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
Carbazole	**4.61**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**68.3**
2/3-Methyldibenzothiophene	**55.0**
1-Methyldibenzothiophene	**37.5**
3-Methylphenanthrene	**42.3**
2/4-Methylphenanthrene	**48.3**
2-Methylanthracene	**3.35**
9-Methylphenanthrene	**68.9**
1-Methylphenanthrene	**40.8**
2-Methylnaphthalene	**179**
1-Methylnaphthalene	**115**
2,6-Dimethylnaphthalene	**209**
2,3,5-Trimethylnaphthalene	**83.7**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	92	40-120
Phenanthrene-d10	102	40-120
Benzo[a]pyrene-d12	82	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512WCS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/02/12	100	0.05019	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**107**
C24 Tricyclic Terpane	**59.5**
C25 Tricyclic Terpane	**57.1**
C24 Tetracyclic Terpane	**22.3**
C26 Tricyclic Terpane-22S	**24.1**
C26 Tricyclic Terpane-22R	**22.3**
C28 Tricyclic Terpane-22S	**22.8**
C28 Tricyclic Terpane-22R	**26.1**
C29 Tricyclic Terpane-22S	**31.8**
C29 Tricyclic Terpane-22R	**27.6**
18a-22,29,30-Trisnorneohopane-TS	**33.5**
C30 Tricyclic Terpane-22S	**24.5**
C30 Tricyclic Terpane-22R	**19.7**
17a(H)-22,29,30-Trisnorhopane-TM	**69.7**
17a/b,21b/a 28,30-Bisnorhopane	**43.3**
17a(H),21b(H)-25-Norhopane	**11.7**
30-Norhopane	**178**
18a(H)-30-Norneohopane-C29Ts	**27.0**
17a(H)-Diahopane	**6.66**
30-Normoretane	**17.5**
18a(H)&18b(H)-Oleananes	**5.37**
Hopane	**253**
Moretane	**20.5**
30-Homohopane-22S	**107**
30-Homohopane-22R	**92.2**
T22a-Gammacerane/C32-diahopane	**39.4**
30,31-Bishomohopane-22S	**75.9**
30,31-Bishomohopane-22R	**46.0**

Parameter	Result
30,31-Trishomohopane-22S	**55.8**
30,31-Trishomohopane-22R	**37.6**
Tetrakishomohopane-22S	**37.9**
Tetrakishomohopane-22R	**23.3**
Pentakishomohopane-22S	**44.2**
Pentakishomohopane-22R	**32.3**
13b(H),17a(H)-20S-Diacholestane	**36.0**
13b(H),17a(H)-20R-Diacholestane	**17.3**
13b,17a-20S-Methyldiacholestane	**16.7**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**58.3**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**71.2**
Unknown Sterane (S18)	**15.8**
13a,17b-20S-Ethyldiacholestane	**6.50**
14a,17a-20S-Methylcholestane	**33.0**
14a,17a-20R-Methylcholestane	**29.8**
14a(H),17a(H)-20S-Ethylcholestane	**80.4**
14a(H),17a(H)-20R-Ethylcholestane	**41.8**
14b(H),17b(H)-20R-Cholestane	**41.5**
14b(H),17b(H)-20S-Cholestane	**42.9**
14b,17b-20R-Methylcholestane	**32.2**
14b,17b-20S-Methylcholestane	**47.3**
14b(H),17b(H)-20R-Ethylcholestane	**67.8**
14b(H),17b(H)-20S-Ethylcholestane	**38.6**
C26,20R- +C27,20S- triaromatic steroid	**368**
C28,20S-triaromatic steroid	**322**
C27,20R-triaromatic steroid	**237**
C28,20R-triaromatic steroid	**264**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	113	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

WL 5/31/12

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound		R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1) Acenaphthene-d10		26.696	164	22062M3	500.000	ng/mL	0.00
74) Chrysene-d12		43.151	240	38237	500.000	ng/mL	0.00
System Monitoring Compounds							
9) Naphthalene-d8		19.726	136	88122	920.289	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 92.03%			
42) Phenanthrene-d10		32.567	188	77260	1020.797	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 102.08%			
86) Benzo[a]pyrene-d12		48.241	264	65170	822.405	ng/mL	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 82.24%			
127) 5B(H)Cholane - Surr		43.769	217	13541	1132.680	ng/ml	0.00
Spiked Amount	1000.000	Range 50 - 130		Recovery = 113.27%			
Target Compounds							Qvalue
3) trans-Decalin		16.384	138	13203	758.099	ng/mL	100
4) cis-Decalin		17.603	138	771M3	58.739	ng/mL	
5) C1-Decalins		17.874	152	24226M5	1391.026	ng/mL	
6) C2-Decalins		19.650	166	33895M5	1946.207	ng/mL	
7) C3-Decalins		22.119	180	20987M5	1205.046	ng/mL	
8) C4-Decalins		25.507	194	21234M5	1219.229	ng/mL	
10) Naphthalene		19.801	128	44897	319.299	ng/mL#	100
11) C1-Naphthalenes		22.496	142	121461M5	863.807	ng/mL	
12) C2-Naphthalenes		25.341	156	282454M5	2008.758	ng/mL	
13) C3-Naphthalenes		28.021	170	310493M5	2208.166	ng/mL	
14) C4-Naphthalenes		30.445	184	221158M5	1572.833	ng/mL	
16) 2-Methylnaphthalene		22.496	142	74743	898.999	ng/mL#	100
17) 1-Methylnaphthalene		22.917	142	46894	575.428	ng/mL#	100
18) Benzothiophene		20.027	134	3651	28.854	ng/mL	100
19) C1-Benzo(b)thiophenes		22.074	148	18291M5	144.556	ng/mL	
20) C2-Benzo(b)thiophenes		25.537	162	32517M5	256.985	ng/mL	
21) C3-Benzo(b)thiophenes		27.855	176	62005M5	490.032	ng/mL	
22) C4-Benzo(b)thiophenes		29.617	190	60845M5	480.864	ng/mL	
23) Biphenyl		24.378	154	8982	85.404	ng/mL#	100
24) 2,6-Dimethylnaphthalene		25.010	156	71653	1048.977	ng/mL#	100
25) Dibenzofuran		27.464	168	4664	38.619	ng/mL#	39
26) Acenaphthylene		26.079	152	2132	15.274	ng/mL#	100
27) Acenaphthene		26.816	153	5817M3	70.779	ng/mL	
28) 2,3,5-Trimethylnaphthalen		28.382	170	23140M3	420.239	ng/mL	
29) Fluorene		28.834	166	13677M3	150.892	ng/mL	
30) C1-Fluorenes		31.212	180	37348M5	412.044	ng/mL	
31) C2-Fluorenes		33.410	194	68276M5	753.259	ng/mL	
32) C3-Fluorenes		35.232	208	80306M5	885.981	ng/mL	
33) Dibenzothiophene		32.161	184	41844	287.991	ng/mL#	66
34) 4-Methyldibenzothiophene(		33.937	198	49801	342.755	ng/mL#	100
35) 2/3-Methyldibenzothiophen		34.283	198	40101M3	275.995	ng/mL	
36) 1-Methyldibenzothiophene(		34.705	198	27375	188.408	ng/mL#	100
37) OTP		34.344	198	14341M3	98.702	ng/mL	
38) C1-Dibenzothiophenes		33.937	198	139894M5	962.820	ng/mL	
38) C1-Dibenzothiophenes BS		33.937	198	125553m	864.118	ng/mL	
39) C2-Dibenzothiophenes		35.623	212	220560M5	1518.003	ng/mL	
40) C3-Dibenzothiophenes		37.430	226	229447M5	1579.168	ng/mL	
41) C4-Dibenzothiophenes		39.131	240	152263M5	1047.950	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) Phenanthrene	32.657	178	52113	408.233	ng/mL#	84
44) 3-Methylphenanthrene(3MP)	34.615	192	27087M3	212.189	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	30942	242.388	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	2145M3	16.803	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	44141	345.784	ng/mL	100
48) 1-Methylphenanthrene(1MP)	35.172	192	26134M3	204.724	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	131235M5	1028.045	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	176322M5	1381.239	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.888	206	176322m	1381.239	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.990	220	143713M5	1125.793	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.643	234	72068M5	564.553	ng/mL	
54) Retene	39.643	234	8329M3	334.477	ng/mL	
56) Carbazole	33.500	167	2911M3	23.112	ng/mL	
57) 1-Methylphenanthrene	35.172	192	25890M3	320.036	ng/mL	
58) Fluoranthene	37.430	202	4454M3	35.131	ng/mL	
60) Pyrene	38.318	202	14472M3	112.292	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	46715M5	362.475	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	60701M5	470.996	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	70809M5	549.427	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	70035M5	543.421	ng/mL	
66) Naphthobenzothiophene	42.173	234	17157	123.655	ng/ml	91
67) Naphthobenzothiophene-2,1	42.173	234	17157	123.655	ng/mL	91
68) Naphthobenzothiophene-1,2	42.504	234	4459M3	32.137	ng/mL	
69) Naphthobenzothiophene-2,3	42.805	234	2950M3	21.261	ng/mL	
70) C1-Naphthobenzothiophenes	44.251	248	80852M5	582.721	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	118512M5	854.146	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	102816M5	741.021	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	79535M5	573.229	ng/mL	
75) Benz[a]anthracene	43.091	228	2679M3	22.074	ng/mL	
77) Chrysene/Triphenylene	43.242	228	12551M3	102.435	ng/mL	
78) C1-Chrysenes	44.732	242	32776M5	267.501	ng/mL	
79) C2-Chrysenes	46.810	256	52123M5	425.401	ng/mL	
79) C2-Chrysenes BS	46.810	256	52123m	425.401	ng/mL	
80) C3-Chrysenes	48.015	270	60931M5	497.288	ng/mL	
81) C4-Chrysenes	49.597	284	36855M5	300.792	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4920M3	36.894	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	1994M3	13.734	ng/mL	
85) Benzo[e]pyrene	48.151	252	7244M3	54.919	ng/mL	
87) Benzo[a]pyrene	48.332	252	3782M3	29.780	ng/mL	
88) Perylene	48.648	252	7029M3	51.789	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	3741M3	25.313	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1864M3	13.259	ng/mL	
91) Benzo[g,h,i]perylene	54.446	276	7367M3	47.182	ng/mL	
92) Hopane (T19)	52.232	191	31973	1268.725	ng/mL#	79
94) C23 Tricyclic Terpane (T4	40.803	191	13516M3	536.330	ng/ml	
95) C24 Tricyclic Terpane (T5	41.525	191	7524M3	298.561	ng/ml	
96) C25 Tricyclic Terpane (T6	43.046	191	7227M3	286.776	ng/ml	
97) C24 Tetracyclic Terpane (	44.326	191	2819	111.861	ng/ml	100
98) C26 Tricyclic Terpane-22S	44.070	191	3051M3	121.067	ng/ml	
99) C26 Tricyclic Terpane-22R	44.160	191	2816M3	111.742	ng/ml	
100) C28 Tricyclic Terpane-22S	46.449	191	2881M3	114.321	ng/ml	
101) C28 Tricyclic Terpane-22R	46.615	191	3300M3	130.948	ng/ml	
102) C29 Tricyclic Terpane-22S	47.127	191	4019M3	159.478	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
103) C29 Tricyclic Terpane-22R	47.322	191	3489M3	138.447	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.452	191	4237	168.129	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191	3103M3	123.131	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191	2489M3	98.766	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.994	191	8815	349.789	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.184	191	5480	217.453	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.988	191	1479	58.688	ng/ml	100
110) 30-Norhopane (T15)	50.862	191	22515M3	893.421	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.967	191	3417M3	135.590	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191	842M3	33.412	ng/ml	
113) 30-Normoretane (T17)	51.630	191	2211M3	87.735	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	52.036	191	679M3	26.943	ng/ml	
115) Moretane (T20)	52.925	191	2589M3	102.734	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	13484	535.060	ng/ml	100
117) 30-Homohopane-22R (T22)	54.250	191	11655	462.484	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	4990M3	198.009	ng/mL	
119) 30,31-Bishomohopane-22S (	55.575	191	9599	380.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	5816	230.785	ng/ml	100
121) 30,31-Trishomohopane-22S	57.698	191	7057M3	280.030	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4758M3	188.803	ng/ml	
123) Tetrakishomohopane-22S (T	60.334	191	4790	190.073	ng/ml	100
124) Tetrakishomohopane-22R (T	61.237	191	2942M3	116.742	ng/ml	
125) Pentakishomohopane-22S (T	63.496	191	5594M3	221.976	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4088	162.216	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2162M3	180.847	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1036M3	86.660	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1001M3	83.732	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3500M3	292.769	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	4271	357.261	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	949	79.382	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	390	32.623	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	1983	165.874	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.205	217	1785M3	149.312	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	4826M3	403.686	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	2510M3	209.957	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2489M3	208.200	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	2575M3	215.394	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	1933	161.692	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	2840M3	237.561	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4069M3	340.365	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2318M3	193.897	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	22071	1846.200	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	19348	1618.425	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	14241	1191.234	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	15852M3	1325.991	ng/mL	

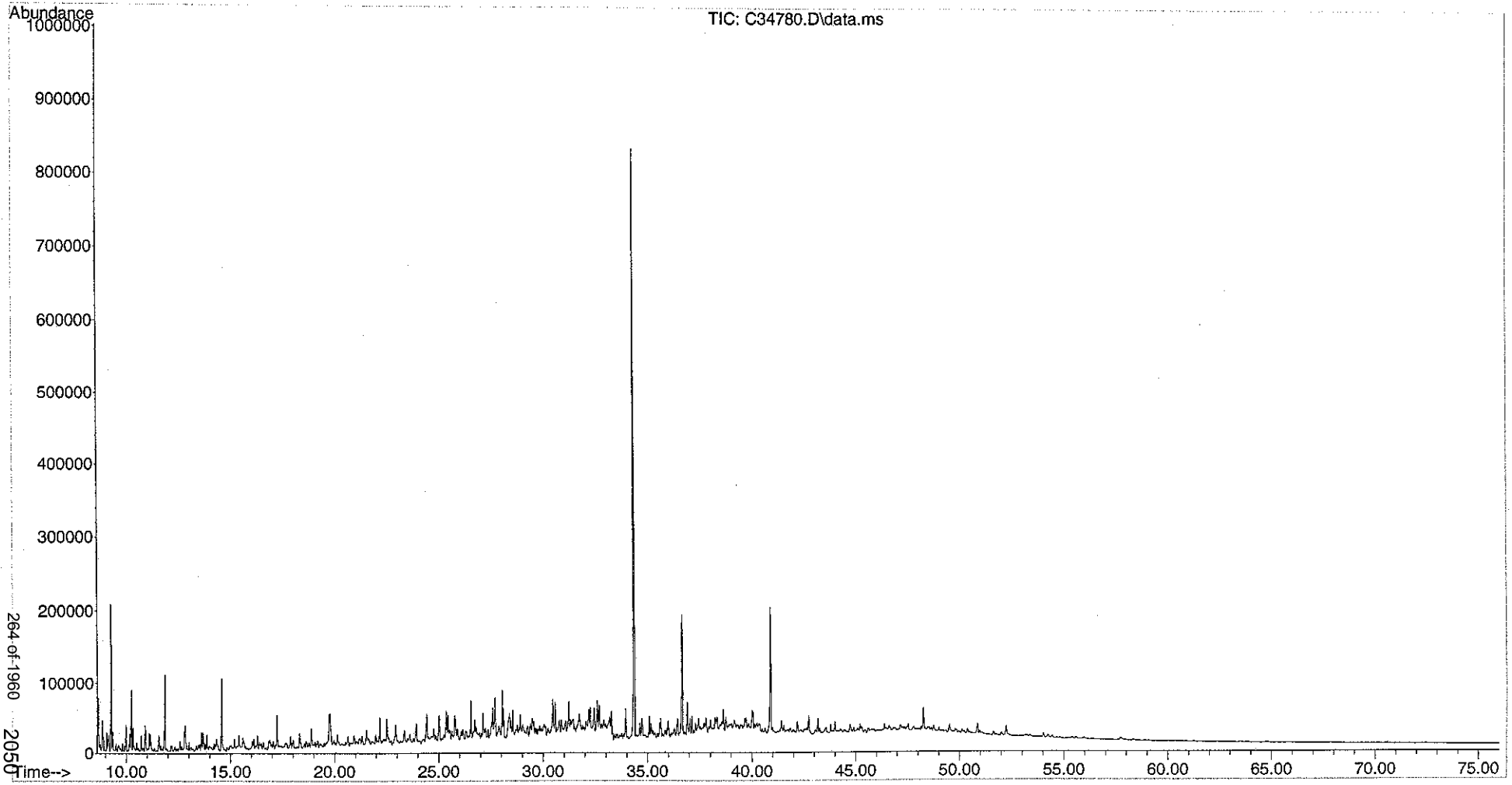
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**503**		C3-Dibenzothiophenes	**313**	
C1-Decalins	**706**		C4-Dibenzothiophenes	**162**	
C2-Decalins	**612**		Benzo(b)fluorene	**8.15**	
C3-Decalins	**296**		Fluoranthene	**4.72**	
C4-Decalins	**269**		Pyrene	**14.8**	
Benzothiophene	**4.85**		C1-Fluoranthenes/Pyrenes	**64.4**	
C1-Benzo(b)thiophenes	**20.6**		C2-Fluoranthenes/Pyrenes	**104**	
C2-Benzo(b)thiophenes	**46.0**		C3-Fluoranthenes/Pyrenes	**115**	
C3-Benzo(b)thiophenes	**91.5**		C4-Fluoranthenes/Pyrenes	**99.5**	
C4-Benzo(b)thiophenes	**78.8**		Naphthobenzothiophenes	**45.3**	
Naphthalene	**538**		C1-Naphthobenzothiophenes	**116**	
C1-Naphthalenes	**1110**		C2-Naphthobenzothiophenes	**152**	
C2-Naphthalenes	**1300**		C3-Naphthobenzothiophenes	**120**	
C3-Naphthalenes	**910**		C4-Naphthobenzothiophenes	**78.6**	
C4-Naphthalenes	**475**		Benz[a]anthracene	**2.41**	
Biphenyl	**146**		Chrysene/Triphenylene	**35.8**	
Dibenzofuran	**50.8**		C1-Chrysenes	**60.8**	
Acenaphthylene	**6.24**		C2-Chrysenes	**80.7**	
Acenaphthene	**19.4**		C3-Chrysenes	**89.6**	
Fluorene	**72.9**		C4-Chrysenes	**51.7**	
C1-Fluorenes	**166**		Benzo[b]fluoranthene	**6.52**	
C2-Fluorenes	**232**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**1.42**	J
C3-Fluorenes	**214**		Benzo[a]fluoranthene	**0.793**	J
Anthracene	1.92	U	Benzo[e]pyrene	**10.8**	
Phenanthrene	**215**		Benzo[a]pyrene	**2.23**	
C1-Phenanthrenes/Anthracenes	**410**		Perylene	**3.24**	
C2-Phenanthrenes/Anthracenes	**426**		Indeno[1,2,3-cd]pyrene	**2.19**	
C3-Phenanthrenes/Anthracenes	**282**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.05**	
C4-Phenanthrenes/Anthracenes	**115**		Benzo[g,h,i]perylene	**4.42**	
Retene	1.92	U			
Dibenzothiophene	**138**				
C1-Dibenzothiophenes	**262**				
C2-Dibenzothiophenes	**348**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	**6.64**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**129**
2/3-Methyldibenzothiophene	**87.5**
1-Methyldibenzothiophene	**41.8**
3-Methylphenanthrene	**85.0**
2/4-Methylphenanthrene	**95.1**
2-Methylanthracene	**3.40**
9-Methylphenanthrene	**134**
1-Methylphenanthrene	**95.2**
2-Methylnaphthalene	**1100**
1-Methylnaphthalene	**782**
2,6-Dimethylnaphthalene	**662**
2,3,5-Trimethylnaphthalene	**174**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.0521	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**64.8**
C24 Tricyclic Terpane	**39.3**
C25 Tricyclic Terpane	**40.3**
C24 Tetracyclic Terpane	**13.7**
C26 Tricyclic Terpane-22S	**17.5**
C26 Tricyclic Terpane-22R	**15.0**
C28 Tricyclic Terpane-22S	**14.4**
C28 Tricyclic Terpane-22R	**16.4**
C29 Tricyclic Terpane-22S	**20.4**
C29 Tricyclic Terpane-22R	**18.8**
18a-22,29,30-Trisnorneohopane-TS	**27.3**
C30 Tricyclic Terpane-22S	**18.5**
C30 Tricyclic Terpane-22R	**15.9**
17a(H)-22,29,30-Trisnorhopane-TM	**34.3**
17a/b,21b/a 28,30-Bisnorhopane	**5.74**
17a(H),21b(H)-25-Norhopane	**10.2**
30-Norhopane	**91.4**
18a(H)-30-Norneohopane-C29Ts	**22.0**
17a(H)-Diahopane	**14.1**
30-Normoretane	**11.4**
18a(H)&18b(H)-Oleananes	**2.96**
Hopane	**151**
Moretane	**15.6**
30-Homohopane-22S	**65.4**
30-Homohopane-22R	**55.5**
T22a-Gammacerane/C32-diahopane	**11.0**
30,31-Bishomohopane-22S	**46.7**
30,31-Bishomohopane-22R	**34.0**

Parameter	Result
30,31-Trishomohopane-22S	**36.3**
30,31-Trishomohopane-22R	**22.1**
Tetrakishomohopane-22S	**27.2**
Tetrakishomohopane-22R	**19.1**
Pentakishomohopane-22S	**27.8**
Pentakishomohopane-22R	**18.7**
13b(H),17a(H)-20S-Diacholestane	**45.3**
13b(H),17a(H)-20R-Diacholestane	**26.0**
13b,17a-20S-Methyldiacholestane	**30.0**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**57.0**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**76.8**
Unknown Sterane (S18)	**19.3**
13a,17b-20S-Ethyldiacholestane	**3.59**
14a,17a-20S-Methylcholestane	**34.7**
14a,17a-20R-Methylcholestane	**32.4**
14a(H),17a(H)-20S-Ethylcholestane	**50.0**
14a(H),17a(H)-20R-Ethylcholestane	**36.2**
14b(H),17b(H)-20R-Cholestane	**39.2**
14b(H),17b(H)-20S-Cholestane	**40.0**
14b,17b-20R-Methylcholestane	**40.1**
14b,17b-20S-Methylcholestane	**50.3**
14b(H),17b(H)-20R-Ethylcholestane	**54.4**
14b(H),17b(H)-20S-Ethylcholestane	**38.1**
C26,20R- +C27,20S- triaromatic steroid	**386**
C28,20S-triaromatic steroid	**248**
C27,20R-triaromatic steroid	**232**
C28,20R-triaromatic steroid	**205**

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

RKF 5/15/12

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19418M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34376M3	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	80850	959.313	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.93%			
42) Phenanthrene-d10	32.567	188	68998M3	1035.766	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 103.58%			
86) Benzo[a]pyrene-d12	48.241	264	67556	948.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.83%			
127) 5B(H)Cholane - Surr	43.769	217	11999M3	1116.427	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 111.64%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	37830	2467.915	ng/mL	100
4) cis-Decalin	17.603	138	1736M3	150.266	ng/mL	
5) C1-Decalins	17.874	152	56364M5	3677.017	ng/mL	
6) C2-Decalins	19.650	166	48878M5	3188.653	ng/mL	
7) C3-Decalins	22.119	180	23640M5	1542.202	ng/mL	
8) C4-Decalins	25.507	194	21514M5	1403.508	ng/mL	
10) Naphthalene	19.801	128	347250	2805.837	ng/mL#	100
11) C1-Naphthalenes	22.496	142	713023M5	5761.343	ng/mL	
12) C2-Naphthalenes	25.341	156	840799M5	6793.794	ng/mL	
13) C3-Naphthalenes	27.674	170	586624M5	4740.019	ng/mL	
14) C4-Naphthalenes	30.444	184	306047M5	2472.910	ng/mL	
16) 2-Methylnaphthalene	22.496	142	419181	5728.367	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	292319	4075.412	ng/mL#	100
18) Benzothiophene	20.012	134	2812M3	25.250	ng/mL	
19) C1-Benzo(b)thiophenes	22.059	148	11933M5	107.149	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	26686M5	239.619	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	53082M5	476.634	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	45732M5	410.637	ng/mL	
23) Biphenyl	24.377	154	70355	760.049	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	207397	3449.646	ng/mL#	100
25) Dibenzofuran	27.464	168	28118	264.527	ng/mL#	79
26) Acenaphthylene	26.079	152	3994	32.510	ng/mL#	100
27) Acenaphthene	26.831	153	7301M3	100.932	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	44057M3	909.051	ng/mL	
29) Fluorene	28.834	166	30318M3	380.029	ng/mL	
30) C1-Fluorenes	31.197	180	68981M5	864.662	ng/mL	
31) C2-Fluorenes	33.395	194	96290M5	1206.974	ng/mL	
32) C3-Fluorenes	35.232	208	88864M5	1113.891	ng/mL	
33) Dibenzothiophene	32.161	184	91894	718.577	ng/mL#	76
34) 4-Methyldibenzothiophe...	33.937	198	85707	670.197	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	58309	455.955	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	27871	217.941	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	174531M5	1364.768	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	231715M5	1811.926	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	208634M5	1631.441	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	107824M5	843.144	ng/mL	
43) Phenanthrene	32.657	178	126106	1122.376	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.614	192	49733M3	442.637	ng/mL	

✓ 5-14-12

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2/4-Methylphenanthrene...	34.720	192	55654M3	495.335	ng/mL	
46) 2-Methylanthracene(2MA)	34.870	192	1990M3	17.712	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	78236	696.321	ng/mL	99
48) 1-Methylphenanthrene(1MP)	35.156	192	55713M3	495.860	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	239866M5	2134.870	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	249544M5	2221.006	ng/mL	
52) C3-Phenanthrenes/Anthr...	38.725	220	165093M5	1469.371	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	67229M5	598.356	ng/mL	
56) Carbazole	33.500	167	3838M3	34.621	ng/mL	
57) 1-Methylphenanthrene	35.156	192	54663M3	767.715	ng/mL	
58) Fluoranthene	37.430	202	2744M3	24.590	ng/mL	
59) Benzo(b)fluorene	39.944	216	2748M3	42.447	ng/mL	
60) Pyrene	38.303	202	8739M3	77.041	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	38064M5	335.565	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	61720M5	544.111	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	68069M5	600.083	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	58826M5	518.598	ng/mL	
66) Naphthobenzothiophene	42.158	234	21528M3	176.284	ng/ml	
67) Naphthobenzothiophene-...	42.158	234	21519M3	176.211	ng/mL	
68) Naphthobenzothiophene-...	42.504	234	4884M3	39.993	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2419M3	19.808	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	73495M5	601.822	ng/ml	
71) C2-Naphthobenzothiophenes	45.560	262	96416M5	789.513	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	76135M5	623.440	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	49996M5	409.398	ng/mL	
75) Benz[a]anthracene	43.091	228	1369M3	12.547	ng/mL	
77) Chrysene/Triphenylene	43.227	228	20557M3	186.620	ng/mL	
78) C1-Chrysenes	44.717	242	34901M5	316.837	ng/mL	
79) C2-Chrysenes	46.795	256	46293M5	420.255	ng/mL	
80) C3-Chrysenes	49.491	270	51416M5	466.763	ng/mL	
81) C4-Chrysenes	49.611	284	29667M5	269.322	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4074	33.981	ng/mL#	90
83) Benzo[j]+[k]fluoranthene	47.217	252	967M3	7.408	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	539M2	4.129	ng/mL	
85) Benzo[e]pyrene	48.136	252	6659M3	56.154	ng/mL	
87) Benzo[a]pyrene	48.331	252	1329M3	11.640	ng/mL	
88) Perylene	48.633	252	2058M3	16.866	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1518M3	11.425	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1349M3	10.673	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3235M3	23.046	ng/mL	
92) Hopane (T19)	52.217	191	17821M3	786.583	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	7643M3	337.347	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4640M3	204.800	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	4752M3	209.744	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1617M3	71.371	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2064M3	91.101	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1773M3	78.257	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1699M3	74.990	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1940M3	85.628	ng/ml	
102) C29 Tricyclic Terpane-...	47.111	191	2402	106.019	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	2214M3	97.721	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3225M3	142.345	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	2186M3	96.486	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
106)	C30 Tricyclic Terpane-22R	48.768	191	1881M3	83.024	ng/mL	
107)	17a(H)-22,29,30-Trisno...	48.979	191	4052	178.847	ng/ml	100
108)	17a/b,21b/a 28,30-Bisn...	50.184	191	678	29.926	ng/ml	100
109)	17a(H),21b(H)-25-Norho...	49.973	191	1205	53.186	ng/ml	100
110)	30-Norhopane (T15)	50.846	191	10783M3	475.940	ng/ml	
111)	18a(H)-30-Norneohopane...	50.952	191	2594M3	114.494	ng/ml	
112)	17a(H)-Diahopane (X)	51.072	191	1663M3	73.401	ng/ml	
113)	30-Normoretane (T17)	51.630	191	1347M3	59.454	ng/ml	
114)	18a(H)&18b(H)-Oleanane...	51.976	191	350	15.448	ng/ml	100
115)	Moretane (T20)	52.910	191	1846M3	81.479	ng/ml	
116)	30-Homohopane-22S (T21)	54.009	191	7714M3	340.480	ng/ml	
117)	30-Homohopane-22R (T22)	54.235	191	6547	288.971	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191	1292	57.026	ng/mL	100
119)	30,31-Bishomohopane-22...	55.560	191	5517M3	243.509	ng/ml	
120)	30,31-Bishomohopane-22...	55.936	191	4015M3	177.214	ng/ml	
121)	30,31-Trishomohopane-2...	57.698	191	4281M3	188.955	ng/ml	
122)	30,31-Trishomohopane-2...	58.316	191	2611M3	115.244	ng/ml	
123)	Tetrakishomohopane-22S...	60.333	191	3217M3	141.992	ng/ml	
124)	Tetrakishomohopane-22R...	61.222	191	2254M3	99.487	ng/ml	
125)	Pentakishomohopane-22S...	63.451	191	3287M3	145.082	ng/ml	
126)	Pentakishomohopane-22R...	64.761	191	2203M3	97.236	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217	2537M3	236.051	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	1457M3	135.564	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.389	217	1677M3	156.034	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	3192	296.994	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	4303M3	400.365	ng/ml	
133)	Unknown Sterane (S18)	48.045	217	1082	100.673	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217	201M3	18.702	ng/ml	
135)	14a,17a-20S-Methylchol...	48.467	217	1941	180.597	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217	1815M3	168.874	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217	2802M3	260.707	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.455	217	2030M3	188.878	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.352	218	2192M3	203.951	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.428	218	2237M3	208.138	ng/ml	
141)	14b,17b-20R-Methylchol...	48.648	218	2244	208.789	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.723	218	2814M3	261.824	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218	3049M3	283.689	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.822	218	2133M3	198.461	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.491	231	21599	2009.642	ng/mL	100
146)	C28,20S-triaromatic st...	50.349	231	13888	1292.185	ng/mL	100
147)	C27,20R-triaromatic st...	50.801	231	12980	1207.702	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231	11498M3	1069.812	ng/mL	✓

ZL 5-14-12

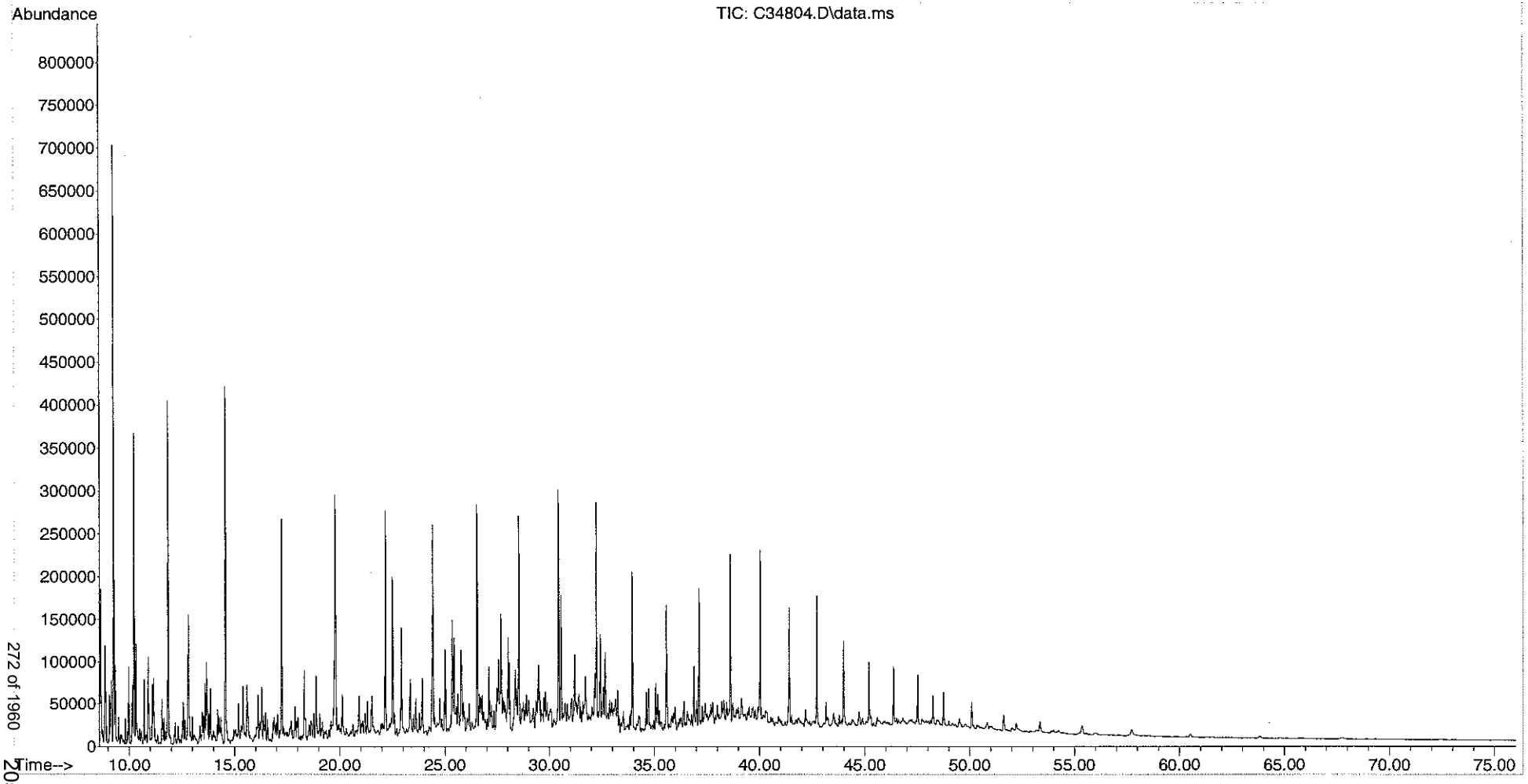
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**489**		C3-Dibenzothiophenes	**298**	
C1-Decalins	**694**		C4-Dibenzothiophenes	**156**	
C2-Decalins	**578**		Benzo(b)fluorene	**6.30**	
C3-Decalins	**286**		Fluoranthene	**4.01**	
C4-Decalins	**278**		Pyrene	**13.4**	
Benzothiophene	**4.52**		C1-Fluoranthenes/Pyrenes	**63.4**	
C1-Benzo(b)thiophenes	**22.7**		C2-Fluoranthenes/Pyrenes	**99.2**	
C2-Benzo(b)thiophenes	**45.2**		C3-Fluoranthenes/Pyrenes	**111**	
C3-Benzo(b)thiophenes	**89.2**		C4-Fluoranthenes/Pyrenes	**104**	
C4-Benzo(b)thiophenes	**75.8**		Naphthobenzothiophenes	**43.6**	
Naphthalene	**550**		C1-Naphthobenzothiophenes	**113**	
C1-Naphthalenes	**1120**		C2-Naphthobenzothiophenes	**155**	
C2-Naphthalenes	**1330**		C3-Naphthobenzothiophenes	**118**	
C3-Naphthalenes	**914**		C4-Naphthobenzothiophenes	**77.2**	
C4-Naphthalenes	**466**		Benz[a]anthracene	**1.77**	J
Biphenyl	**145**		Chrysene/Triphenylene	**33.1**	
Dibenzofuran	**50.1**		C1-Chrysenes	**61.2**	
Acenaphthylene	**6.44**		C2-Chrysenes	**80.0**	
Acenaphthene	**18.6**		C3-Chrysenes	**85.6**	
Fluorene	**71.6**		C4-Chrysenes	**53.4**	
C1-Fluorenes	**160**		Benzo[b]fluoranthene	**5.25**	
C2-Fluorenes	**228**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.92	U
C3-Fluorenes	**202**		Benzo[a]fluoranthene	1.92	U
Anthracene	1.92	U	Benzo[e]pyrene	**9.61**	
Phenanthrene	**213**		Benzo[a]pyrene	**1.96**	
C1-Phenanthrenes/Anthracenes	**401**		Perylene	**2.68**	
C2-Phenanthrenes/Anthracenes	**411**		Indeno[1,2,3-cd]pyrene	**0.685**	J
C3-Phenanthrenes/Anthracenes	**285**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**0.849**	J
C4-Phenanthrenes/Anthracenes	**113**		Benzo[g,h,i]perylene	**3.08**	
Retene	1.92	U			
Dibenzothiophene	**135**				
C1-Dibenzothiophenes	**251**				
C2-Dibenzothiophenes	**338**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	**5.21**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**121**
2/3-Methyldibenzothiophene	**84.4**
1-Methyldibenzothiophene	**40.5**
3-Methylphenanthrene	**82.1**
2/4-Methylphenanthrene	**92.4**
2-Methylanthracene	**2.96**
9-Methylphenanthrene	**129**
1-Methylphenanthrene	**92.7**
2-Methylnaphthalene	**1110**
1-Methylnaphthalene	**798**
2,6-Dimethylnaphthalene	**673**
2,3,5-Trimethylnaphthalene	**189**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**65.1**
C24 Tricyclic Terpane	**41.4**
C25 Tricyclic Terpane	**41.4**
C24 Tetracyclic Terpane	**14.5**
C26 Tricyclic Terpane-22S	**17.5**
C26 Tricyclic Terpane-22R	**15.0**
C28 Tricyclic Terpane-22S	**14.4**
C28 Tricyclic Terpane-22R	**18.5**
C29 Tricyclic Terpane-22S	**20.4**
C29 Tricyclic Terpane-22R	**20.8**
18a-22,29,30-Trisnorneohopane-TS	**26.8**
C30 Tricyclic Terpane-22S	**16.6**
C30 Tricyclic Terpane-22R	**16.9**
17a(H)-22,29,30-Trisnorhopane-TM	**36.1**
17a/b,21b/a 28,30-Bisnorhopane	**6.77**
17a(H),21b(H)-25-Norhopane	**7.07**
30-Norhopane	**96.2**
18a(H)-30-Norneohopane-C29Ts	**22.2**
17a(H)-Diahopane	**14.2**
30-Normoretane	**12.0**
18a(H)&18b(H)-Oleananes	1.92 U
Hopane	**166**
Moretane	**16.1**
30-Homohopane-22S	**66.5**
30-Homohopane-22R	**56.9**
T22a-Gammacerane/C32-diahopane	**11.8**
30,31-Bishomohopane-22S	**47.0**
30,31-Bishomohopane-22R	**35.0**

Parameter	Result
30,31-Trishomohopane-22S	**36.7**
30,31-Trishomohopane-22R	**24.0**
Tetrakishomohopane-22S	**25.7**
Tetrakishomohopane-22R	**19.4**
Pentakishomohopane-22S	**27.7**
Pentakishomohopane-22R	**21.0**
13b(H),17a(H)-20S-Diacholestane	**54.4**
13b(H),17a(H)-20R-Diacholestane	**25.2**
13b,17a-20S-Methyldiacholestane	**20.7**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**60.9**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**73.3**
Unknown Sterane (S18)	**18.8**
13a,17b-20S-Ethyldiacholestane	**3.48**
14a,17a-20S-Methylcholestane	**36.5**
14a,17a-20R-Methylcholestane	**34.2**
14a(H),17a(H)-20S-Ethylcholestane	**53.5**
14a(H),17a(H)-20R-Ethylcholestane	**35.6**
14b(H),17b(H)-20R-Cholestane	**38.7**
14b(H),17b(H)-20S-Cholestane	**40.3**
14b,17b-20R-Methylcholestane	**41.3**
14b,17b-20S-Methylcholestane	**52.7**
14b(H),17b(H)-20R-Ethylcholestane	**57.8**
14b(H),17b(H)-20S-Ethylcholestane	**36.7**
C26,20R- +C27,20S- triaromatic steroid	**392**
C28,20S-triaromatic steroid	**240**
C27,20R-triaromatic steroid	**223**
C28,20R-triaromatic steroid	**190**

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

NWL for SR 3/29/12

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	16662M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	69136M4	956.009	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%			
42) Phenanthrene-d10	32.793	188	60729M4	1062.426	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%			
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%			
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337	ng/mL	
4) cis-Decalin	17.844	138	1522	153.534	ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211	ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213	ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392	ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858	ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688	ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971	ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710	ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463	ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700	ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711	ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600	ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545	ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112	ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565	ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934	ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823	ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618	ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060	ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553	ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471	ng/mL	
29) Fluorene	29.075	166	25536M4	373.033	ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256	ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195	ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727	ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049	ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158	ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297	ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297	ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393	ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276	ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068	ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551	ng/mL	

✓ NW 5-14-12

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2/4-Methylphenanthrene(2M	34.946	192	46400M4	481.280	ng/mL	
46) 2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.292	192	64818	672.319	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56) Carbazole	33.726	167	2583M3	27.154	ng/mL	
57) 1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58) Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59) Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60) Pyrene	38.529	202	6787M4	69.730	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66) Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68) Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69) Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70) C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71) C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72) C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73) C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75) Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76) Chrysene	43.438	228	16140M3	173.194	ng/mL	
77) Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78) C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79) C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79) C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80) C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81) C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85) Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87) Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88) Perylene	48.874	252	1440M4	13.950	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91) Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92) Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93) 17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94) C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95) C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96) C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97) C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98) C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99) C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100) C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101) C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102) C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/mL	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

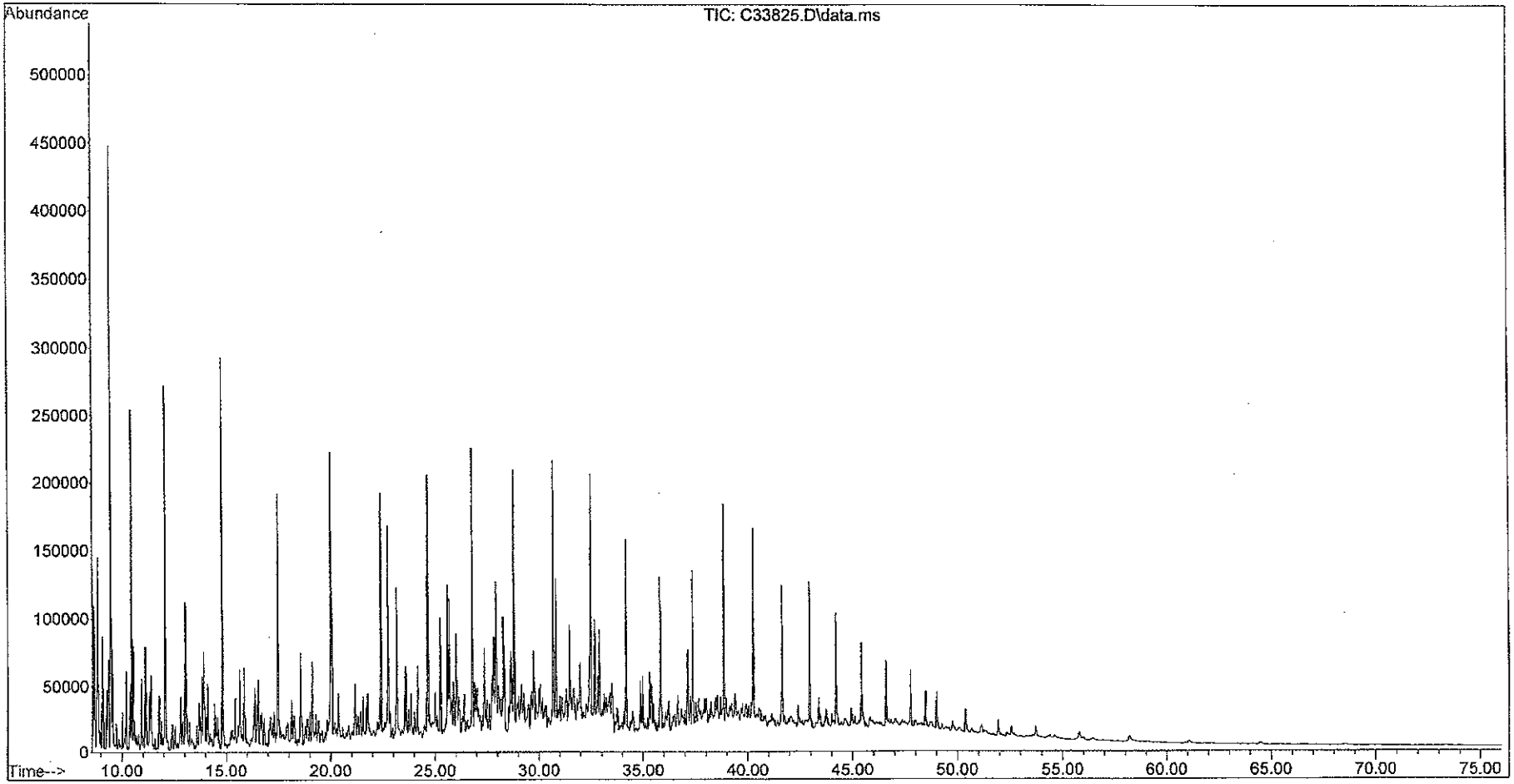
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85 5.210 mg/ml
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed



280 of 1960 2066

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-03	SAM	Shaker	BA	5/1/2012			0.00032	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-04	SAM	Shaker	BA	5/1/2012			0.00056	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-05	SAM	Shaker	BA	5/1/2012			0.00248	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-06	SAM	Shaker	BA	5/1/2012			1	4	1	4	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-07	SAM	Shaker	BA	5/1/2012			1	5.71	1	5.71	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-01	SAM	Shaker	BA	5/1/2012			0.00088	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-02	SAM	Shaker	BA	5/1/2012			0.00008	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-03	SAM	Shaker	BA	5/1/2012			0.00096	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-04	SAM	Shaker	BA	5/1/2012			0.00416	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-09	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-10	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-11	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-12	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512ANS02	ANS						0.0521	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512CL01	CL						0.05019	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
SO050512WCS02	WCS						0.05422	10	1	10							
TO050112ANS02	ANS						1										
TO050112ANS02	ANS						1										
TO050112ANS02	ANS																

5/15/12

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP NEWFIE

Lab ID	Notes
1204031-03	1st Prep
1204031-04	1st Prep
1204031-05	1st Prep
1204031-06	1st Prep
1204031-07	1st Prep
1204031-08	1st Prep
1204035-01	1st Prep
1204035-02	1st Prep
1204035-03	1st Prep
1204035-04	1st Prep
1204035-08	1st Prep
1204035-09	1st Prep
1204035-10	1st Prep
1204035-11	1st Prep
1204035-12	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512ANS02	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512CL01	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
SO050512WCS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112CL01	1st Prep

2968

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP NEWFIE

Lab ID	Notes
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-05	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-06	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-07	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-01	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-02	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-09	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-10	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-11	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-12	SAM	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

2070 2047 of 1990

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-05	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-06	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-07	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-01	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-02	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-09	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-10	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-11	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-12	SAM	WHAP38	100	µl				WHAP36	50	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

2072 286 of 690

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
05/01/2012

Lab ID	QC Type	1204031_35sheen - Sample
1204031-03	SAM	0.00032
1204031-04	SAM	0.00056
1204031-05	SAM	0.00248
1204031-06	SAM	1
1204031-07	SAM	1
1204031-08	SAM	1
1204035-01	SAM	0.00088
1204035-02	SAM	0.000008
1204035-03	SAM	0.00096
1204035-04	SAM	0.00416
1204035-08	SAM	1
1204035-09	SAM	1
1204035-10	SAM	1
1204035-11	SAM	1
1204035-12	SAM	1
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	

2074

ETR 1204031_035sheen

Analyst BA

Date 05/01/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	3		4000	50	0.004	0.32	2000	0.16	2.00	
1204031	4		4000	50	0.007	0.56	2000	0.28	2.00	
1204031	5		4000	50	0.031	2.48	2000	1.24	2.00	
1204031	6		4000	50	0.147	11.76	1000	2.94	4.00	
1204031	7		4000	50	0.251	20.08	700	3.52	5.71	
1204031	8		4000	50	0.014	1.12	2000	0.56	2.00	
1204035	1		4000	50	0.011	0.88	2000	0.44	2.00	
1204035	2		4000	50	0.001	0.08	2000	0.04	2.00	
1204035	3		4000	50	0.012	0.96	2000	0.48	2.00	
1204035	4		4000	50	0.052	4.16	2000	2.08	2.00	
1204035	8		4000	50	0.032	2.56	2000	1.28	2.00	
1204035	9		4000	50	0.002	0.16	2000	0.08	2.00	
1204035	10		4000	50	0.017	1.36	2000	0.68	2.00	
1204035	11		4000	50	0.016	1.28	2000	0.64	2.00	
1204035	12		4000	50	0.031	2.48	2000	1.24	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/1/2012

ETR 1204031_035sheen

Analyst BA

Date 05/01/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	3		4000	50	0.004					
1204031	4		4000	50	0.007					
1204031	5		4000	50	0.031					
1204031	6		4000	50	0.147					
1204031	7		4000	50	0.251					
1204031	8		4000	50	0.014					
1204035	1		4000	50	0.011					
1204035	2		4000	50	0.001					
1204035	3		4000	50	0.012					
1204035	4		4000	50	0.052					
1204035	8		4000	50	0.032					
1204035	9		4000	50	0.002					
1204035	10		4000	50	0.017					
1204035	11		4000	50	0.016					
1204035	12		4000	50	0.031					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/1/12

290 of 1960 2076

Forensic Preparation Checklist

Enbridge Line 6

Batch ID: 1204031_035Sheen **Client:** AECOM **Project:** MP608

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • (Sheen) Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	5/1/12	BA
1st Extraction:		
2nd Extraction:		
3rd Extraction:		

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	BA 5/1/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	5/1/12 BA	WHAP 36 50uL + 100uL
RIS Spike Witness:	5/1/12 BLS	

Prep Process Notes

REAGENT	LOT #
DCM	L050E10
SODIUM SULFATE	—
SILICA GEL	—
ALUMINA	—

REAGENT	LOT #
COPPER	—
GLASS WOOL	—

BATCH COMPLETE Analyst:	BLS	**Date:**	5/1/12
BATCH REVIEWED Analyst:	RA	**Date:**	5/2/12

Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	PS1204031_035 - Pan Weight	PS1204031_035 - Wet Weight	PS1204031_035 - Dry Weight	PS1204031_035 - Dry Weight #2	PS1204031_035 - Dry Weight #3	Percent Solid	RPD
1204031-01	SAM	1.33	6.63	2.75	2.75		26.79	
1204031-02	SAM	1.33	7.51	3.6	3.6		36.73	
1204035-05	SAM	1.34	6.22	3.7	3.7		48.36	
1204035-06	SAM	1.33	8.36	4.71	4.71		48.08	
1204035-07	D	1.33	7.23	6.32	6.32		84.58	0.91%
1204035-07	SAM	1.32	7.25	6.29	6.29		83.81	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	

Initial: 4/30/2012 11:20:03 PM lrf
Weight #1: 5/1/2012 8:20:00 PM lrf
Weight #2: 5/3/2012 4:50:45 PM bls

2078 1960

Printed On: 5/3/2012 4:53:03 PM (BLS)

Alpha Woods Hole Lab
Batch Prep Report

04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-01	M	Shaker	CTK	4/30/2012	5/2/2012		5.82	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	S	Shaker	CTK	4/30/2012	5/2/2012		5.77	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	SAM	Shaker	CTK	4/30/2012	5/2/2012		5.92	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-02	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.15	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-05	SAM	Shaker	CTK	4/30/2012	5/2/2012		7.46	4	1	4	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-06	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.63	2.66667	1	2.67	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	D	Shaker	CTK	4/30/2012	5/2/2012		6.88	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	SAM	Shaker	CTK	4/30/2012	5/2/2012		6.69	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012

Alpha Woods Hole Lab
Batch Prep Report

04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	Notes
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-02	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-05	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-06	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
SS043012B07	1st Prep
SS043012B07	1st Prep
SS043012LCS02	1st Prep
SS043012LCS02	1st Prep
SS043012LCSD02	1st Prep
SS043012LCSD02	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP NEWFIE Analyst: CTK Witness: JM

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-01	M	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	S	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204031-02	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-05	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-06	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	D	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	SAM	WHAP38	500	µl	WHAP31	500	µl			
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP SHC Analyst: CTK Witness: JM

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-01	M	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	S	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	SAM	WHAP38	500	µl				WHAP36	100	µl
1204031-02	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-05	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-06	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-07	D	WHAP38	500	µl				WHAP36	100	µl
1204035-07	SAM	WHAP38	500	µl				WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	1204031_035SED - Sample
1204031-01	SAM	5.92
1204031-01M	OP NEWFIE	5.82
1204031-01M	OP SHC	5.82
1204031-01S	OP NEWFIE	5.77
1204031-01S	OP SHC	5.77
1204031-02	SAM	9.15
1204035-05	SAM	7.46
1204035-06	SAM	9.63
1204035-07	D	6.88
1204035-07	SAM	6.69
SS043012B07	B	30
SS043012B07	B	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP SHC	30
SS043012LCS02LCS	OP SHC	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP SHC	30
SS043012LCSD02LCSD	OP SHC	30

ETR 1204031_035sheen

Analyst BA

Date 05/02/2012

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	1		4000	50	0.189	15.12	2000	7.56	2.00	
1204031	1ms	ms	4000	50	0.225	18.00	2000	9.00	2.00	
1204031	1msd	msd	4000	50	0.204	16.32	2000	8.16	2.00	
1204031	2		4000	50	0.203	16.24	2000	8.12	2.00	
1204035	5		4000	50	0.345	27.60	1000	6.90	4.00	
1204031	6		4000	50	0.291	23.28	1500	8.72	2.67	
1204035	7D	D	4000	50	0.096	7.68	2000	3.84	2.00	10%
1204035	7		4000	50	0.106	8.48	2000	4.24	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 5/2/12

ETR 1204031_035sheen

Analyst BA

Date 05/02/2012

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	1		4000	50	0.189					
1204031	1ms	ms	4000	50	0.225					
1204031	1msd	msd	4000	50	0.204					
1204031	2		4000	50	0.203					
1204035	5		4000	50	0.345					
1204031	6		4000	50	0.291					
1204035	7D	D	4000	50	0.096					#VALUE!
1204035	7		4000	50	0.106					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: RA

Date: 5/2/12

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3660B	CTK	5/1/2012												True
1204031-01	S	3660B	CTK	5/1/2012												True
1204031-01	SAM	3660B	CTK	5/1/2012												True
1204031-02	SAM	3660B	CTK	5/1/2012												True
1204035-05	SAM	3660B	CTK	5/1/2012												True
1204035-06	SAM	3660B	CTK	5/1/2012												True
1204035-07	D	3660B	CTK	5/1/2012												True
1204035-07	SAM	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True

Alpha Woods Hole Lab
Batch Clean Up Report

04/30/2012 1204031_035SED - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	S	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-02	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-05	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1	4	0	0.1	True
1204035-06	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1.5	2.66667	0	0.1	True
1204035-07	D	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-07	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True

Forensic Preparation Checklist

Batch ID: 1204031-035SED Client: AECOM Project: ENBRIDGE

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	4/30/12	CTK
1st Extraction:	4/30/12	CTK
2nd Extraction:	5/1/12	JM
3rd Extraction:	5/1/12	CTK

Extraction HT:

Cleanup Methods:		Date/Initials:
No Cleanup Required		
Alumina Column (3610)	X	5/2/12 BA
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)	X	5/1/12 CTK
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	BA 5/2/12	WHAP 36
RIS Spike Witness:	PW 5/2/12	100uL

Prep Process Notes

All field samples spiked high @ 500 uL due to hydrocarbon odor.
CTK 4/30/12

REAGENT	LOT #
DCM	LØ5E1Ø
SODIUM SULFATE	K21617
SILICA GEL	N/A
ALUMINA	61

REAGENT	LOT #
COPPER	OWR043012A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	BA	Date:	5/2/12
BATCH REVIEWED Analyst:	MAL	Date:	5/9/12

Analysis log File

Total Files Reported in Log : 46
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C33801.D	ANS303261201		3/26/2012 9:46 am
2	C33803.D	C303261201		3/26/2012 11:16 am
3	C33805.D	MC252		3/26/2012 12:48 pm
4	C33807.D	DCM	DCM	3/26/2012 2:21 pm
5	C33809.D	I303261201	WHAO40@10ng/ml	3/26/2012 3:53 pm
6	C33811.D	I303261202	WHAO41@25ng/ml	3/26/2012 5:27 pm
7	C33813.D	I303261203 PAH303261213.M	WHAO42@100ng/ml	3/26/2012 7:01 pm
8	C33815.D	I303261204	WHAP29@500ng/ml	3/26/2012 8:34 pm
9	C33817.D	I303261205	WHAO88@5000ng/ml	3/26/2012 10:06 pm
10	C33819.D	I303261206	WHAO45@10000ng/ml	3/26/2012 11:37 pm
11	C33821.D	I303261207	WHAO47@20000ng/ml	3/27/2012 1:09 am
12	C33823.D	DCM		3/27/2012 2:40 am
13	C33825.D	ST032912ANS02	WHAO85 5.210 mg/ml	3/27/2012 4:11 am
14	C33827.D	DCM	DCM	3/27/2012 5:42 am
15	C33829.D	Q303261201	WHAN53@500ng/ml	3/27/2012 7:13 am
16	C33831.D	ST032912MC205	WHAP34: 5.178mg/ml	3/27/2012 8:45 am
17	C33833.D	SRM	WHAO79: 5.131mg/ml	3/27/2012 10:17 am
18	C33835.D	COREXIT	WHAN89	3/27/2012 11:51 am
19	C33837.D	C303261201	WHAP29@500ng/ml	3/27/2012 1:25 pm
20	C33839.D	WG525034-1,32	WG525373,WG525034	3/27/2012 2:58 pm
21	C33841.D	WG525034-2,32	WG525373,WG525034	3/27/2012 4:33 pm
22	C33843.D	WG525034-3,32	WG525373,WG525034	3/27/2012 6:06 pm
23	C33845.D	L1204660-01,32	WG525373,WG525034	3/27/2012 7:39 pm
24	C33847.D	L1204660-03,32	WG525373,WG525034	3/27/2012 9:11 pm
25	C33849.D	L1204660-05,32	WG525373,WG525034	3/27/2012 10:43 pm
26	C33851.D	L1204660-07,32	WG525373,WG525034	3/28/2012 12:18 am
27	C33853.D	L1204660-10,32	WG525373,WG525034	3/28/2012 1:50 am
28	C33855.D	C203261202	WG525373,WG525034	3/28/2012 3:21 am
29	C33857.D	SRM	WG525373,WG525034	3/28/2012 4:53 am
30	C33859.D	DCM	WG525373,WG525034	3/28/2012 6:24 am
31	C33861.D	L1204660-12,32	WG525373,WG525034	3/28/2012 7:56 am
32	C33863.D	L1204660-14,32	WG525373,WG525034	3/28/2012 9:27 am
33	C33865.D	L1204660-17,32	WG525373,WG525034	3/28/2012 11:00 am
34	C33867.D	L1204660-19,32	WG525373,WG525034	3/28/2012 12:33 pm
35	C33869.D	L1204660-21,32	WG525373,WG525034	3/28/2012 2:05 pm
36	C33871.D	L1204660-23,32	WG525373,WG525034	3/28/2012 3:38 pm
37	C33873.D	L1204660-25,32	WG525373,WG525034	3/28/2012 5:11 pm
38	C33875.D	L1204660-27,32	WG525373,WG525034	3/28/2012 6:43 pm
39	C33877.D	C203261203	WG525373,WG525034	3/28/2012 8:16 pm
40	C33879.D	SRM	WG525373,WG525034	3/28/2012 9:48 pm
41	C33881.D	DCM	WG525373,WG525034	3/28/2012 11:23 pm
42	C33883.D	WG525034-1,32	WG525373,WG525034	3/29/2012 12:59 am
43	C33885.D	WG525034-2,32	WG525373,WG525034	3/29/2012 2:33 am
44	C33887.D	WG525034-3,32	WG525373,WG525034	3/29/2012 4:06 am
45	C33891.D	L1204660-03,32	WG525373,WG525034	3/29/2012 7:11 am
46	C33893.D	L1204660-05,32	WG525373,WG525034	3/29/2012 8:47 am

3/30/12

Printed: 03/29/12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 50
Log Generated From Directory: Q:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C34774.D	PRIME	1X ETR1204031_35	5/2/2012 9:41 am
2	C34776.D	✓C305021201 PASS	1X ETR1204031_35	5/2/2012 11:19 am
3	C34778.D	ANS305021201	WHAO85	5/2/2012 1:01 pm
4	C34780.D	✓SO050512WCS02	WHAP10	5/2/2012 2:31 pm
5	C34782.D	✓SO050512CL01	WHAP12	5/2/2012 4:01 pm
6	C34784.D	DCM	DCM	5/2/2012 5:53 pm
7	C34786.D	DCM	DCM	5/2/2012 7:23 pm
8	C34788.D	✓SO050112B01	1X ETR1204031	5/2/2012 8:53 pm
9	C34790.D	✓SO050112LCS01	1X ETR1204031	5/2/2012 10:24 pm
10	C34792.D	✓SO050112LCSD01	1X ETR1204031	5/2/2012 11:54 pm
11	C34794.D	1204031-03	1X	5/3/2012 1:25 am
12	C34796.D	1204031-04	1X	5/3/2012 2:56 am
13	C34798.D	1204031-05	1X	5/3/2012 4:27 am
14	C34800.D	✓C305021202 PASS	CC WHAP056 500NG/ML	5/3/2012 5:57 am
15	C34802.D	1204031-06	1X	5/3/2012 7:27 am
16	C34804.D	✓so050512ANS02	1X ANS WHAO85 5.210MG/M..	5/3/2012 8:58 am
17	C34806.D	1204031-07	1X	5/3/2012 10:29 am
18	C34808.D	1204031-08	1X	5/3/2012 12:00 pm
19	C34810.D	✓1204035-01	1X	5/3/2012 1:30 pm
20	C34812.D	✓1204035-02	1X	5/3/2012 2:59 pm
21	C34814.D	✓1204035-03	1X	5/3/2012 4:28 pm
22	C34816.D	✓1204035-04	1X	5/3/2012 5:58 pm
23	C34818.D	✓C305031203 PASS	CC WHAP06 500NG/ML	5/3/2012 7:29 pm
24	C34820.D	✓1204035-08	1X	5/3/2012 8:59 pm
25	C34822.D	✓1204035-09	1X	5/3/2012 10:29 pm
26	C34824.D	✓1204035-10	1X	5/4/2012 12:00 am
27	C34826.D	✓1204035-11	1X	5/4/2012 1:31 am
28	C34828.D	✓1204035-12	1X	5/4/2012 3:02 am
29	C34830.D	✓C305031204 PASS	CC WHAP06 500NG/ML	5/4/2012 4:34 am
30	C34832.D	DCM	DCM	5/4/2012 6:05 am
31	C34834.D	DCM	DCM	5/4/2012 7:35 am
32	C34836.D	✓SS043012B07	1X ETR1204031_35	5/4/2012 9:05 am
33	C34836B.D	LCS CHECK WHAP63	1X	5/4/2012 10:37 am
34	C34838.D	✓SS043012LCS02	1X ETR1204031_35	5/4/2012 1:33 pm
35	C34840.D	✓SS043012LCSD02	1X ETR1204031_35	5/4/2012 3:05 pm
36	C34842.D	1204031-01	1X	5/4/2012 4:37 pm
37	C34844.D	1204031-01M	1X	5/4/2012 6:09 pm
38	C34846.D	1204031-01S	1X	5/4/2012 7:41 pm
39	C34848.D	✓C305031205 PASS	CC WHAP06 500NG/ML	5/4/2012 9:17 pm
40	C34850.D	1204031-02	1X	5/4/2012 10:54 pm
41	C34852.D	✓1204035-05	1X	5/5/2012 12:32 am
42	C34854.D	✓1204035-06	1X	5/5/2012 2:06 am
43	C34856.D	✓1204035-07	1X	5/5/2012 3:42 am
44	C34858.D	✓1204035-07D	1X	5/5/2012 5:17 am
45	C34860.D	✓C305031206 PASS	CC WHAP06 500NG/ML	5/5/2012 6:54 am
46	C34862.D	A F2 22ML	1X	5/5/2012 8:30 am
47	C34864.D	B F2 24ML	1X	5/5/2012 10:07 am
48	C34866.D	C F2 26ML	1X	5/5/2012 11:42 am
49	C34868.D	D F2 28ML	1X	5/5/2012 1:14 pm
50	C34870.D	E F2 30ML	1X	5/5/2012 2:47 pm

PAH303262 12.M MAG 5/30/12

Printed: 05/30/12 Page: 1

Total Saturated Hydrocarbons By GC/FID

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **GLOB**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO050112B01	85	83
LCS	SO050112LCS01	77	74
LCSD	SO050112LCSD01	82	79
SEKR1075L201S042512PX	1204035-01	93	90
SEKR1075L201E042512PX	1204035-02	89	88
SEKR3455C501S042612PX	1204035-03	93	91
SEKR1950C501S042612PX	1204035-04	91	88

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SS043012B07	90	88
LCS	SS043012LCS02	92	90
LCSD	SS043012LCSD02	93	91
SEKR1075L201S042512DX	1204035-05	86	84
SEKR3455C501S042612DX	1204035-06	88	84
SEKR1950C501S042612DX	1204035-07	86	84
SEKR1950C501S042612DX	1204035-07 D	91	88

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1204035**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO050112B01	85	83
LCS	SO050112LCS01	77	74
LCSD	SO050112LCSD01	82	79
SEKR1075L201S042612HX	1204035-08	87	85
SEBC0000R011S042612HX	1204035-09	90	88
SEBC0000L012S042612HX	1204035-10	94	91
SEKR3455C501S042612HX	1204035-11	84	82
SEKR1950C501S042612HX	1204035-12	87	85

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	04/30/12	100	BAL

Lab ID:		SS043012B07	SS043012LCS02		SS043012LCSD02				
Parameter	**Blank Conc.**		**LCS Conc.**	**% Recovery**	**LCSD Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	0.0340	U	1.75	70	1.64	66	6	30	50-125
n-Decane (C10)	0.0348	U	1.83	73	1.79	72	2	30	50-125
n-Dodecane (C12)	0.0352	U	1.90	76	1.92	77	1	30	50-125
n-Tetradecane (C14)	0.0260	U	1.95	78	1.98	79	1	30	50-125
n-Hexadecane (C16)	0.0240	U	2.27	91	2.31	92	1	30	50-125
n-Octadecane (C18)	0.0772		2.40	96	2.38	95	1	30	50-125
n-Nonadecane (C19)	0.0203	U	2.24	90	2.22	89	1	30	50-125
n-Eicosane (C20)	0.00550		2.26	90	2.25	90	1	30	50-125
n-Docosane (C22)	0.00300		2.29	92	2.26	90	2	30	50-125
n-Tetracosane (C24)	0.00400		2.30	92	2.28	91	1	30	50-125
n-Hexacosane (C26)	0.00300		2.28	91	2.27	91	0	30	50-125
n-Octacosane (C28)	0.00475		2.27	91	2.27	91	0	30	50-125
n-Triacontane (C30)	0.00325		2.26	90	2.22	89	1	30	50-125
n-Hexatriacontane (C36)	0.0415	U	2.03	81	1.95	78	4	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	92	93	40-125
d50-Tetracosane	90	91	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 15:28

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	BAL

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
n-Nonane (C9)	2000	U	15300	76	16300	82	7	30	50-125
n-Decane (C10)	2000	U	15600	78	16300	82	4	30	50-125
n-Dodecane (C12)	2000	U	15800	79	16400	82	4	30	50-125
n-Tetradecane (C14)	2000	U	16400	82	16900	84	3	30	50-125
n-Hexadecane (C16)	2000	U	18400	92	19100	96	4	30	50-125
n-Octadecane (C18)	778		19200	96	19800	99	3	30	50-125
n-Nonadecane (C19)	2000	U	17800	89	18400	92	3	30	50-125
n-Eicosane (C20)	2000	U	18000	90	18700	93	3	30	50-125
n-Docosane (C22)	2000	U	18200	91	18800	94	3	30	50-125
n-Tetracosane (C24)	2000	U	18400	92	19100	96	4	30	50-125
n-Hexacosane (C26)	2000	U	18200	91	18900	94	3	30	50-125
n-Octacosane (C28)	2000	U	18200	91	18800	94	3	30	50-125
n-Triacontane (C30)	2000	U	18200	91	18800	94	3	30	50-125
n-Hexatriacontane (C36)	2000	U	17300	86	17700	89	3	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	77	82	40-125
d50-Tetracosane	74	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **See Below**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/01/12	100	BAL

Lab ID: SO050112B01 SO050112LCS01 SO050112LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
n-Nonane (C9)	2.00	U	15.3	76	16.3	82	7	30	50-125
n-Decane (C10)	2.00	U	15.6	78	16.3	82	4	30	50-125
n-Dodecane (C12)	2.00	U	15.8	79	16.4	82	4	30	50-125
n-Tetradecane (C14)	2.00	U	16.4	82	16.9	84	3	30	50-125
n-Hexadecane (C16)	2.00	U	18.4	92	19.1	96	4	30	50-125
n-Octadecane (C18)	0.778		19.2	96	19.8	99	3	30	50-125
n-Nonadecane (C19)	2.00	U	17.8	89	18.4	92	3	30	50-125
n-Eicosane (C20)	2.00	U	18.0	90	18.7	93	3	30	50-125
n-Docosane (C22)	2.00	U	18.2	91	18.8	94	3	30	50-125
n-Tetracosane (C24)	2.00	U	18.4	92	19.1	96	4	30	50-125
n-Hexacosane (C26)	2.00	U	18.2	91	18.9	94	3	30	50-125
n-Octacosane (C28)	2.00	U	18.2	91	18.8	94	3	30	50-125
n-Triacontane (C30)	2.00	U	18.2	91	18.8	94	3	30	50-125
n-Hexatriacontane (C36)	2.00	U	17.3	86	17.7	89	3	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	77	82	40-125
d50-Tetracosane	74	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	BAL

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
n-Nonane (C9)	0.00321 J	0.00243 J	28	30
n-Decane (C10)	0.0168 J	0.00867 J	64[a]	30
n-Undecane (C11)	0.0164 J	0.0121 J	30	30
n-Dodecane (C12)	0.0246 J	0.0198 J	22	30
n-Tridecane (C13)	0.0289 J	0.0239 J	19	30
2,6,10 Trimethyldodecane (1380)	0.0214 J	0.0205 J	4	30
n-Tetradecane (C14)	0.0400 J	0.0343 J	15	30
2,6,10 Trimethyltridecane (1470)	0.0542 J	0.0486 J	11	30
n-Pentadecane (C15)	0.0888 GJ	0.0832 GJ	6	30
n-Hexadecane (C16)	0.0656 J	0.0569 J	14	30
Norpristane (1650)	0.0724 J	0.0666 J	8	30
n-Heptadecane (C17)	0.189 J	0.0666 J	96[a]	30
Pristane	0.166 J	0.153 J	8	30
n-Octadecane (C18)	0.480 CB	0.209 CJB	78[a]	30
Phytane	0.208 J	0.153 J	31[a]	30
n-Nonadecane (C19)	0.0899 J	0.0562 J	46[a]	30
n-Eicosane (C20)	0.0635 J	0.0593 J	7	30
n-Heneicosane (C21)	0.0314 J	0.0246 J	24	30
n-Docosane (C22)	0.0499 J	0.0503 J	1	30
n-Tricosane (C23)	0.126 J	0.0995 JB	23	30
n-Tetracosane (C24)	0.0410 J	0.0420 J	2	30
n-Pentacosane (C25)	0.612 CB	0.297 CJB	69[a]	30
n-Hexacosane (C26)	0.0646 J	0.0548 J	16	30
n-Heptacosane (C27)	0.578	0.319 J	58[a]	30
n-Octacosane (C28)	0.0581 J	0.0628 J	8	30
n-Nonacosane (C29)	0.989	0.503	65[a]	30
n-Triacontane (C30)	0.103 J	0.0697 J	38[a]	30
n-Hentriacontane (C31)	0.837	0.268 J	103[a]	30
n-Dotriacontane (C32)	0.0585 J	0.0642 J	9	30
n-Tritriacontane (C33)	0.0960 J	0.177 J	59[a]	30
n-Tetratriacontane (C34)	0.105 J	0.111 J	6	30
n-Pentatriacontane (C35)	0.164 J	0.146 J	12	30
n-Hexatriacontane (C36)	0.0439 J	0.0517 J	16	30
n-Heptatriacontane (C37)	0.0713 J	0.0531 J	29	30
n-Octatriacontane (C38)	0.0549 U	0.0534 U	N/A	30

N/A - Not Applicable
[a] - Value outside of QC Limits.
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
04/26/12	04/27/12	04/30/12	83.8	BAL

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
n-Nonatriacontane (C39)	**0.0221** J	**0.0250** J	12	30
n-Tetracontane (C40)	0.0653 U	0.0635 U	N/A	30
Total Petroleum Hydrocarbons (C9-C44)	**345**	**293**	16	30

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	86	91	40-125
d50-Tetracosane	84	88	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/15/12 08:43

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6820	110	65-135
n-Decane (C10)	5060	5360	106	65-135
n-Undecane (C11)	4640	4990	108	65-135
n-Dodecane (C12)	4121	4530	110	65-135
n-Tridecane (C13)	3859	4300	111	65-135
2,6,10 Trimethyldodecane (1380)	914	929	102	65-135
n-Tetradecane (C14)	3500	4040	115	65-135
2,6,10 Trimethyltridecane (1470)	1316	1570	119	65-135
n-Pentadecane (C15)	3836	3950	103	65-135
n-Hexadecane (C16)	3174	3740	118	65-135
Norpristane (1650)	1030	1170	114	65-135
n-Heptadecane (C17)	2818	3280	117	65-135
Pristane	2093	2350	112	65-135
n-Octadecane (C18)	2460	2880	117	65-135
Phytane	1213	1320	109	65-135
n-Nonadecane (C19)	2354	2510	107	65-135
n-Eicosane (C20)	2305	2590	113	65-135
n-Heneicosane (C21)	2077	2230	107	65-135
n-Docosane (C22)	2010	2180	108	65-135
n-Tricosane (C23)	1735	1890	109	65-135
n-Tetracosane (C24)	1629	1800	111	65-135
n-Pentacosane (C25)	1607	1670	104	65-135
n-Hexacosane (C26)	1333	1510	114	65-135
n-Heptacosane (C27)	1085	1210	111	65-135
n-Octacosane (C28)	770	836	109	65-135
n-Nonacosane (C29)	774	770	100	65-135
n-Triacontane (C30)	595	643	108	65-135
n-Hentriacontane (C31)	534	631	118	65-135
n-Dotriacontane (C32)	501	424	85	65-135
n-Tritriacontane (C33)	322	430	133	65-135
n-Tetratriacontane (C34)	289	383	133	65-135
n-Pentatriacontane (C35)	271	302	111	65-135
n-Hexatriacontane (C36)	166	195	117	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	164	113	65-135
n-Octatriacontane (C38)	136	123	90	65-135
n-Nonatriacontane (C39)	94.3	93.8	99	65-135
n-Tetracontane (C40)	86.5	98.3	114	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	598000	110	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 15:30

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6230	100	65-135
n-Decane (C10)	5060	4990	99	65-135
n-Undecane (C11)	4640	4610	99	65-135
n-Dodecane (C12)	4121	4190	102	65-135
n-Tridecane (C13)	3859	4010	104	65-135
2,6,10 Trimethyldodecane (1380)	914	845	92	65-135
n-Tetradecane (C14)	3500	3630	104	65-135
2,6,10 Trimethyltridecane (1470)	1316	1320	100	65-135
n-Pentadecane (C15)	3836	3500	91	65-135
n-Hexadecane (C16)	3174	3320	104	65-135
Norpristane (1650)	1030	1220	118	65-135
n-Heptadecane (C17)	2818	2930	104	65-135
Pristane	2093	2020	96	65-135
n-Octadecane (C18)	2460	2670	109	65-135
Phytane	1213	1180	98	65-135
n-Nonadecane (C19)	2354	2310	98	65-135
n-Eicosane (C20)	2305	2350	102	65-135
n-Heneicosane (C21)	2077	2030	98	65-135
n-Docosane (C22)	2010	1950	97	65-135
n-Tricosane (C23)	1735	1740	100	65-135
n-Tetracosane (C24)	1629	1620	99	65-135
n-Pentacosane (C25)	1607	1530	95	65-135
n-Hexacosane (C26)	1333	1400	105	65-135
n-Heptacosane (C27)	1085	1090	100	65-135
n-Octacosane (C28)	770	755	98	65-135
n-Nonacosane (C29)	774	733	95	65-135
n-Triacontane (C30)	595	679	114	65-135
n-Hentriacontane (C31)	534	593	111	65-135
n-Dotriacontane (C32)	501	415	83	65-135
n-Tritriacontane (C33)	322	379	118	65-135
n-Tetratriacontane (C34)	289	358	124	65-135
n-Pentatriacontane (C35)	271	291	107	65-135
n-Hexatriacontane (C36)	166	181	109	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	157	108	65-135
n-Octatriacontane (C38)	136	114	83	65-135
n-Nonatriacontane (C39)	94.3	74.4	79	65-135
n-Tetracontane (C40)	86.5	78.2	90	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	543000	100	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/10/12 15:26

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Date Analyzed: **05/01/12 21:17**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/01/12 22:46
LCSD	SO050112LCSD01	05/02/12 00:15
SEKR1075L201S042512PX	1204035-01	05/02/12 16:32
SEKR1075L201E042512PX	1204035-02	05/02/12 18:01
SEKR3455C501S042612PX	1204035-03	05/02/12 19:29
SEKR1950C501S042612PX	1204035-04	05/02/12 20:58

N/A - Not Applicable

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Date Analyzed: **05/03/12 19:09**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS043012LCS02	05/03/12 20:37
LCSD	SS043012LCSD02	05/03/12 22:06
SEKR1075L201S042512DX	1204035-05	05/04/12 11:27
SEKR3455C501S042612DX	1204035-06	05/04/12 12:57
SEKR1950C501S042612DX	1204035-07	05/04/12 14:27
SEKR1950C501S042612DX	1204035-07 D	05/04/12 15:56

N/A - Not Applicable

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Date Analyzed: **05/01/12 21:17**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO050112LCS01	05/01/12 22:46
LCSD	SO050112LCSD01	05/02/12 00:15
SEKR1075L201S042612HX	1204035-08	05/02/12 22:27
SEBC0000R011S042612HX	1204035-09	05/02/12 23:56
SEBC0000L012S042612HX	1204035-10	05/03/12 01:24
SEKR3455C501S042612HX	1204035-11	05/03/12 02:53
SEKR1950C501S042612HX	1204035-12	05/03/12 04:21

N/A - Not Applicable

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003397.D
Time Acquired : 01 May 2012 11:09 am

73964400

File	Sample	Internal Standard Responses
A003399.D	TO050112ANS02	78002987
A003403.D	C1705011202R	69675756

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 11:59:10 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003403.D
Time Acquired : 01 May 2012 4:50 pm

69675800

File	Sample	Internal Standard Responses
A003409.D	SO050112B01	83741302
A003411.D	SO050112LCS01	86590551
A003413.D	SO050112LCSD01	79616546
A003429.D	C1705011203R	74679519

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 12:00:39 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003429.D
Time Acquired : 02 May 2012 12:05 pm

74679500

File	Sample	Internal Standard Responses
A003435.D	1204035-01	82886135
A003437.D	1204035-02	79021743
A003439.D	1204035-03	75755082
A003441.D	1204035-04	80840029
A003443.D	1204035-08	82742535
A003445.D	1204035-09	79201531
A003447.D	1204035-10	76885684
A003449.D	1204035-11	83855867
A003451.D	1204035-12	81731117
A003453.D	C1705011204R	74517229

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 12:02:22 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003453.D
Time Acquired : 03 May 2012 5:50 am

74517200

File	Sample	Internal Standard Responses
A003459.D	TO050112WCS01	77429144
A003461.D	TO050112CL01	84460741
A003465.D	C1705011205R	85990134

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 12:03:42 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003465.D
Time Acquired : 03 May 2012 2:43 pm

85990100

File	Sample	Internal Standard Responses
A003471.D	SS043012B07	78862048
A003473.D	SS043012LCS02	80058430
A003475.D	SS043012LCSD02	83014672
A003487.D	C1705011206R	75344132

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 12:05:10 2012 FID17

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\A003487.D
Time Acquired : 04 May 2012 7:00 am

75344100

File	Sample	Internal Standard Responses
A003493.D	1204035-05	84659860
A003495.D	1204035-06	93135848
A003497.D	1204035-07	87303812
A003499.D	1204035-07	89526475
A003501.D	C1705011207R	76477537

(fails) - fails 24hr time check * - fails criteria

Created: Tue May 15 12:07:13 2012 FID17

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/02/12	100	0.00088	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**15.9**	J
n-Decane (C10)	**29.6**	J
n-Undecane (C11)	**25.0**	J
n-Dodecane (C12)	**33.0**	J
n-Tridecane (C13)	**15.9**	J
2,6,10 Trimethyldodecane (1380)	**19.3**	J
n-Tetradecane (C14)	**23.9**	J
2,6,10 Trimethyltridecane (1470)	**54.6**	J
n-Pentadecane (C15)	**126**	GJ
n-Hexadecane (C16)	**53.4**	J
Norpristane (1650)	**92.0**	J
n-Heptadecane (C17)	**17.0**	J
Pristane	**207**	J
n-Octadecane (C18)	**967**	CJB
Phytane	**209**	J
n-Nonadecane (C19)	1140	U
n-Eicosane (C20)	1140	U
n-Heneicosane (C21)	1140	U
Total Petroleum Hydrocarbons (C9-C44)	227000	U

Parameter	Result	
n-Docosane (C22)	**22.7**	J
n-Tricosane (C23)	**68.2**	JB
n-Tetracosane (C24)	1140	U
n-Pentacosane (C25)	**130**	CJB
n-Hexacosane (C26)	**23.9**	J
n-Heptacosane (C27)	**25.0**	J
n-Octacosane (C28)	1140	U
n-Nonacosane (C29)	1140	U
n-Triacontane (C30)	**59.1**	J
n-Hentriacontane (C31)	**189**	J
n-Dotriacontane (C32)	**36.4**	J
n-Tritriacontane (C33)	**123**	J
n-Tetratriacontane (C34)	**117**	J
n-Pentatriacontane (C35)	**69.3**	J
n-Hexatriacontane (C36)	**34.1**	J
n-Heptatriacontane (C37)	1140	U
n-Octatriacontane (C38)	1140	U
n-Nonatriacontane (C39)	1140	U
n-Tetracontane (C40)	1140	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	93	40-125
d50-Tetracosane	90	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003435.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 4:32 pm
Operator : BAL
Sample : 1204035-01
Misc : 1X
ALS Vial : 71 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 12:43:10 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

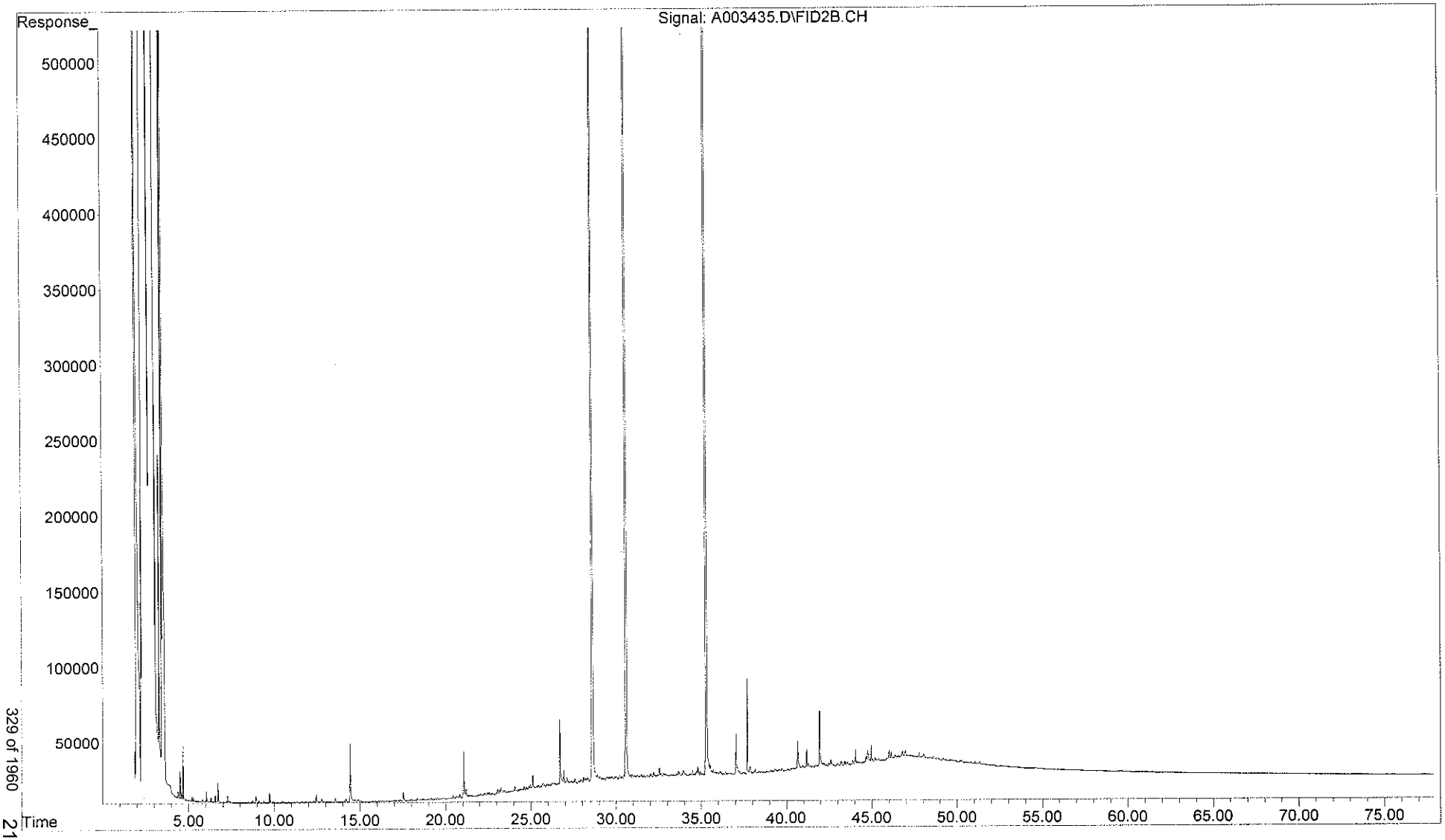
Sub List : SHC - SHC

5.9.12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.620	82886135	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.634	77882697	46.379 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 92.76%	
24) s d50-Tetracosane	35.307	62248810	45.225 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 90.45%	
Target Compounds			
2) t n-Octane (C8)	5.209	12111	0.010 ug/mL M4
3) t n-Nonane (C9)	7.352	18443	0.014 ug/mL M4
4) t n-Decane (C10)	9.797	36344	0.026 ug/mL M4
5) t n-Undecane (C11)	12.286	31001	0.022 ug/mL M4
6) t n-Dodecane (C12)	14.697	42015	0.029 ug/mL M4
7) t n-Tridecane (C13)	16.992	21109	0.014 ug/mL M4
8) t 1380	18.664	25224	0.017 ug/mL M4
9) t n-Tetradecane (C14)	19.165	31238	0.021 ug/mL M4
10) t 1470	20.451	71162	0.048 ug/mL M4
11) t n-Pentadecane (C15)	21.210	163401G	0.111 ug/mL M4
12) t n-Hexadecane (C16)	23.153	70402	0.047 ug/mL M4
13) t 1650	24.074	120376	0.081 ug/mL M4
14) t n-Heptadecane (C17)	25.005	22962	0.015 ug/mL M4
15) t Pristane	25.115	277609	0.182 ug/mL M4
16) t n-Octadecane (C18)	26.704f	1300616C	0.851 ug/mL M4
17) t Phytane	26.937	278477	0.184 ug/mL M4
22) t n-Docosane (C22)	33.062	30490	0.020 ug/mL M4
23) t n-Tricosane (C23)	34.484	95548	0.060 ug/mL M4
26) t n-Pentacosane (C25)	37.127	180822C	0.114 ug/mL M4
27) t n-Hexacosane (C26)	38.379	33342	0.021 ug/mL M4
28) t n-Heptacosane (C27)	39.599	34378	0.022 ug/mL M4
31) t n-Triacontane (C30)	43.008	81655	0.052 ug/mL M4
32) t n-Hentriacontane (C31)	44.064	260121	0.166 ug/mL M4
33) t n-Dotriacontane (C32)	45.038	49317	0.032 ug/mL M4
34) t n-Tritriacontane (C33)	46.017	162830	0.108 ug/mL M4
35) t n-tetratriacontane (C34)	46.993	158634	0.103 ug/mL M4
36) t n-Pentatriacontane (C35)	48.058	95934	0.061 ug/mL M4
37) t n-Hexatriacontane (C36)	49.195	47777	0.030 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	600114081	394.299 ug/mL M4
44) h Total Resolved Hydroc...	38.335	28867720	18.967 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003435.D
Operator : BAL
Acquired : 02 May 2012 4:32 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-01
Misc Info : 1X
ALS Vial : 71



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201E042512PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-02**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	05/01/12	05/02/12	100	0.00008	1	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**138**	J	n-Docosane (C22)	12500	U
n-Decane (C10)	**125**	J	n-Tricosane (C23)	**725**	JB
n-Undecane (C11)	**138**	J	n-Tetracosane (C24)	12500	U
n-Dodecane (C12)	**312**	J	n-Pentacosane (C25)	12500	U
n-Tridecane (C13)	**188**	J	n-Hexacosane (C26)	12500	U
2,6,10 Trimethyldodecane (1380)	12500	U	n-Heptacosane (C27)	**75.0**	J
n-Tetradecane (C14)	**100**	J	n-Octacosane (C28)	12500	U
2,6,10 Trimethyltridecane (1470)	12500	U	n-Nonacosane (C29)	12500	U
n-Pentadecane (C15)	**850**	GJ	n-Triacontane (C30)	12500	U
n-Hexadecane (C16)	**288**	J	n-Hentriacontane (C31)	**238**	J
Norpristane (1650)	12500	U	n-Dotriacontane (C32)	12500	U
n-Heptadecane (C17)	12500	U	n-Tritriacontane (C33)	12500	U
Pristane	12500	U	n-Tetratriacontane (C34)	12500	U
n-Octadecane (C18)	**9690**	CJ	n-Pentatriacontane (C35)	12500	U
Phytane	12500	U	n-Hexatriacontane (C36)	12500	U
n-Nonadecane (C19)	12500	U	n-Heptatriacontane (C37)	12500	U
n-Eicosane (C20)	12500	U	n-Octatriacontane (C38)	12500	U
n-Heneicosane (C21)	12500	U	n-Nonatriacontane (C39)	12500	U
			n-Tetracontane (C40)	12500	U
Total Petroleum Hydrocarbons (C9-C44)	2500000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	89	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003437.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 6:01 pm
Operator : BAL
Sample : 1204035-02
Misc : 1X
ALS Vial : 72 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 12:52:38 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

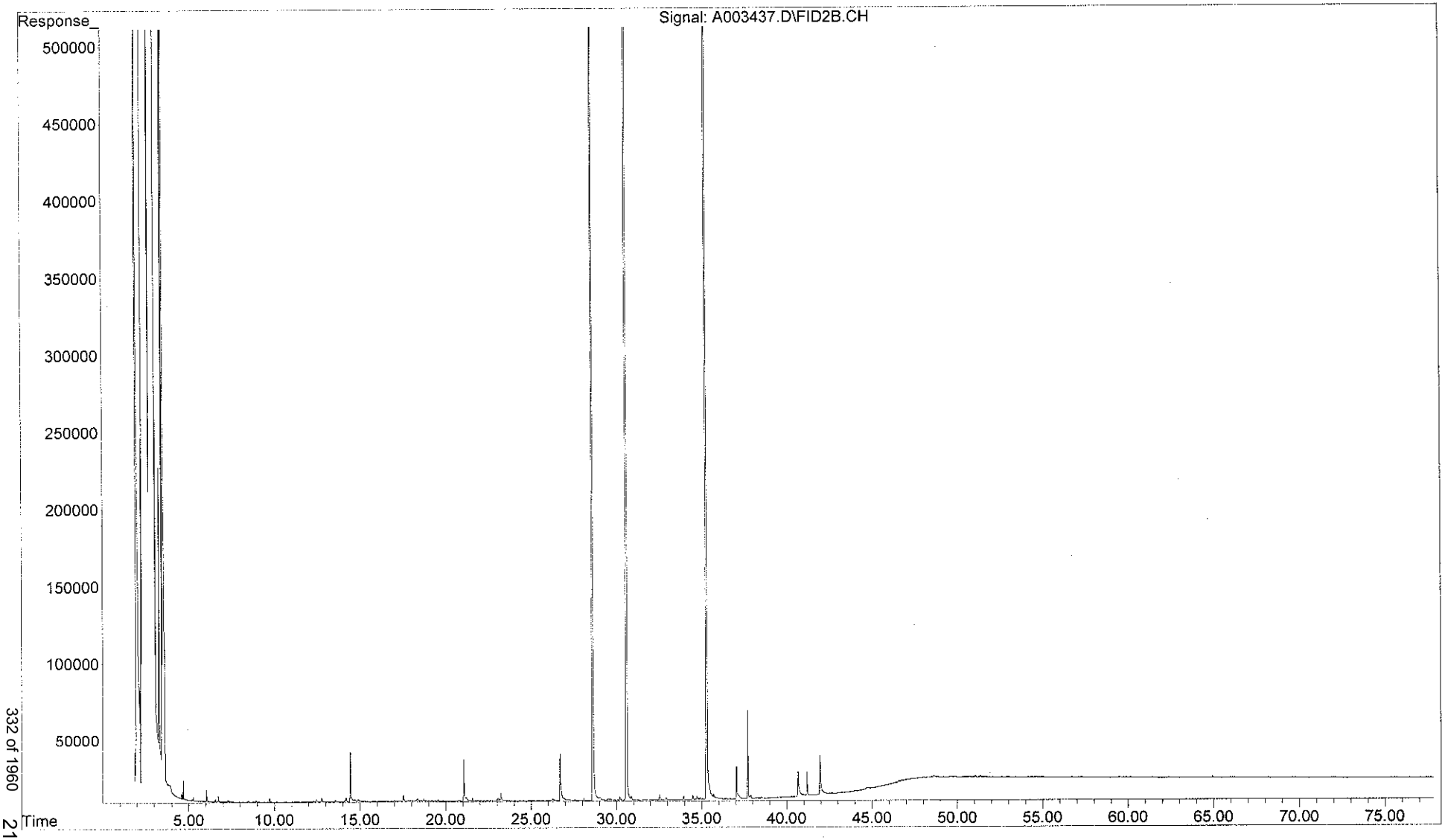
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.619	79021743	50.000 ug/mL m
System Monitoring Compounds			
19) s ortho-terphenyl	28.634	71402702	44.600 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 89.20%	
24) s d50-Tetracosane	35.306	57753613	44.011 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 88.02%	
Target Compounds			
2) t n-Octane (C8)	5.210	13869	0.012 ug/mL M4
3) t n-Nonane (C9)	7.354	13992	0.011 ug/mL M4
4) t n-Decane (C10)	9.793	13629	0.010 ug/mL M4
5) t n-Undecane (C11)	12.286	15080	0.011 ug/mL M4
6) t n-Dodecane (C12)	14.699	34355	0.025 ug/mL M4
7) t n-Tridecane (C13)	16.994	20442	0.015 ug/mL M4
9) t n-Tetradecane (C14)	19.174	11210	0.008 ug/mL M4
11) t n-Pentadecane (C15)	21.209	95806G	0.068 ug/mL M4
12) t n-Hexadecane (C16)	23.160	33159	0.023 ug/mL M4
16) t n-Octadecane (C18)	26.707	1129279C	0.775 ug/mL M4
23) t n-Tricosane (C23)	34.482	87308	0.058 ug/mL M4
28) t n-Heptacosane (C27)	39.599	8627	0.006 ug/mL M4
32) t n-Hentriacontane (C31)	44.038	28979	0.019 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	290770384	200.391 ug/mL M4
44) h Total Resolved Hydroc...	38.335	12845676	8.853 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003437.D
Operator : BAL
Acquired : 02 May 2012 6:01 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-02
Misc Info : 1X
ALS Vial : 72



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-03**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/02/12	100	0.00096	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**7.29**	J
n-Decane (C10)	**7.29**	J
n-Undecane (C11)	**8.33**	J
n-Dodecane (C12)	**11.5**	J
n-Tridecane (C13)	**27.1**	J
2,6,10 Trimethyldodecane (1380)	**51.0**	J
n-Tetradecane (C14)	**31.2**	J
2,6,10 Trimethyltridecane (1470)	**179**	J
n-Pentadecane (C15)	**144**	GJ
n-Hexadecane (C16)	**60.4**	J
Norpristane (1650)	**176**	J
n-Heptadecane (C17)	1040	U
Pristane	**451**	J
n-Octadecane (C18)	**124**	CJB
Phytane	**386**	J
n-Nonadecane (C19)	1040	U
n-Eicosane (C20)	**81.2**	J
n-Heneicosane (C21)	1040	U
Total Petroleum Hydrocarbons (C9-C44)	**413000**	

Parameter	Result	
n-Docosane (C22)	**57.3**	J
n-Tricosane (C23)	**87.5**	JB
n-Tetracosane (C24)	1040	U
n-Pentacosane (C25)	**159**	CJB
n-Hexacosane (C26)	1040	U
n-Heptacosane (C27)	1040	U
n-Octacosane (C28)	1040	U
n-Nonacosane (C29)	1040	U
n-Triacontane (C30)	**83.3**	J
n-Hentriacontane (C31)	**331**	J
n-Dotriacontane (C32)	**54.2**	J
n-Tritriacontane (C33)	**203**	J
n-Tetratriacontane (C34)	**191**	J
n-Pentatriacontane (C35)	**118**	J
n-Hexatriacontane (C36)	**51.0**	J
n-Heptatriacontane (C37)	1040	U
n-Octatriacontane (C38)	1040	U
n-Nonatriacontane (C39)	1040	U
n-Tetracontane (C40)	1040	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	93	40-125
d50-Tetracosane	91	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003439.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 7:29 pm
Operator : BAL
Sample : 1204035-03
Misc : 1X
ALS Vial : 73 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 12:57:37 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

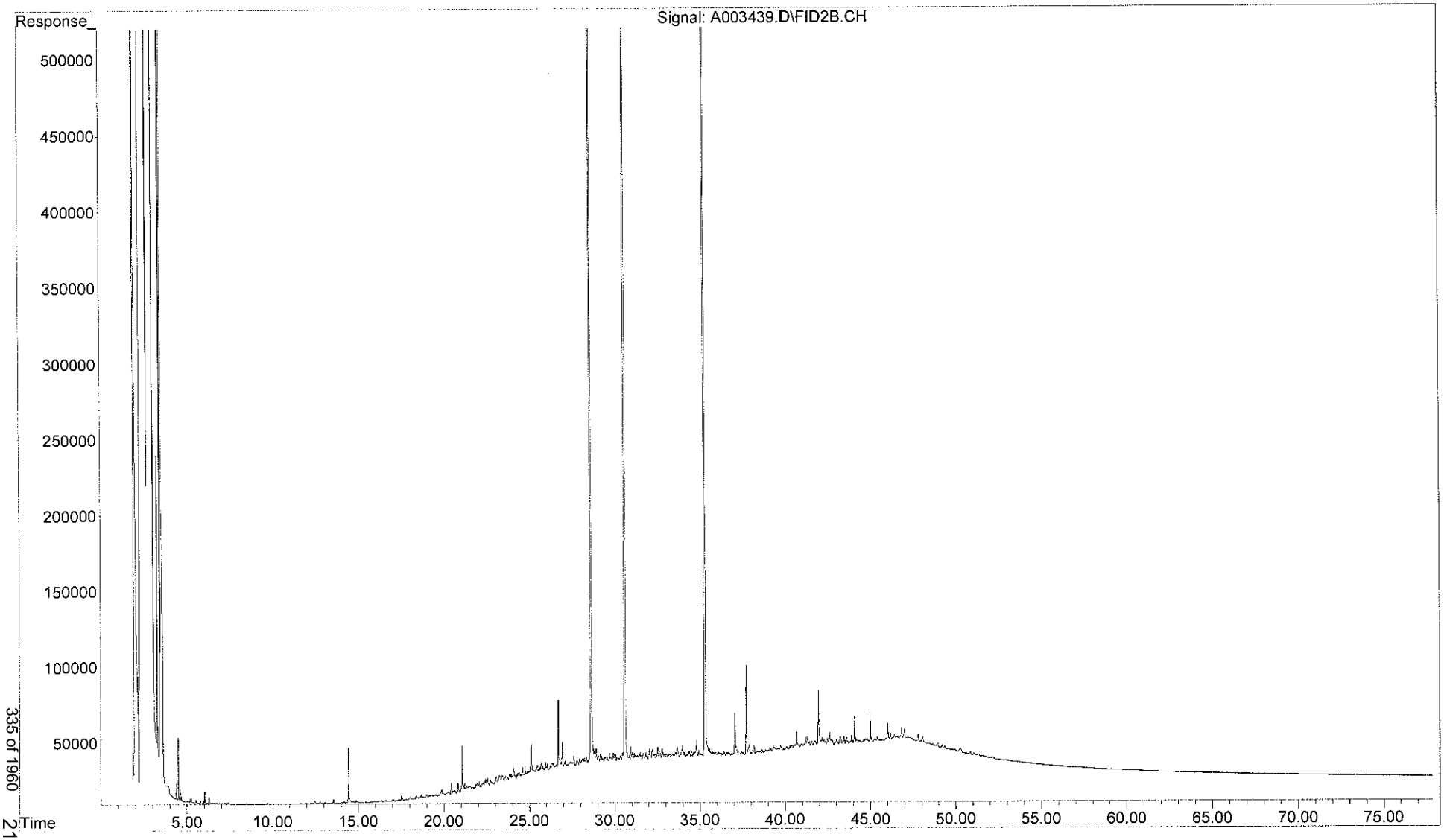
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.619	75755082	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.634	71327878	46.474 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 92.95%	
24) s d50-Tetracosane	35.306	57128118	45.412 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 90.82%	
Target Compounds			
2) t n-Octane (C8)	5.207	5424	0.005 ug/mL M4
3) t n-Nonane (C9)	7.351	8007	0.007 ug/mL M4
4) t n-Decane (C10)	9.800	8885	0.007 ug/mL M4
5) t n-Undecane (C11)	12.293	10506	0.008 ug/mL M4
6) t n-Dodecane (C12)	14.702	14639	0.011 ug/mL M4
7) t n-Tridecane (C13)	16.993	34038	0.026 ug/mL M4
8) t 1380	18.666	66064	0.049 ug/mL M4
9) t n-Tetradecane (C14)	19.167	40810	0.030 ug/mL M4
10) t 1470	20.449	231458	0.172 ug/mL M4
11) t n-Pentadecane (C15)	21.209	185102G	0.138 ug/mL M4
12) t n-Hexadecane (C16)	23.155	79673	0.058 ug/mL M4
13) t 1650	24.077	230676	0.169 ug/mL M4
15) t Pristane	25.117	604868	0.433 ug/mL M4
16) t n-Octadecane (C18)	26.791	166009C	0.119 ug/mL M4
17) t Phytane	26.937	513882	0.371 ug/mL M4
20) t n-Eicosane (C20)	30.047	110371	0.078 ug/mL M4
22) t n-Docosane (C22)	33.030	78951	0.055 ug/mL M4
23) t n-Tricosane (C23)	34.482	121788	0.084 ug/mL M4
26) t n-Pentacosane (C25)	37.120	222244C	0.153 ug/mL M4
31) t n-Triacontane (C30)	43.010	114160	0.080 ug/mL M4
32) t n-Hentriacontane (C31)	44.066	454841	0.318 ug/mL M4
33) t n-Dotriacontane (C32)	45.032	74256	0.052 ug/mL M4
34) t n-Tritriacontane (C33)	46.014	269967	0.195 ug/mL M4
35) t n-tetratriacontane (C34)	46.991	258456	0.183 ug/mL M4
36) t n-Pentatriacontane (C35)	48.064	162280	0.113 ug/mL M4
37) t n-Hexatriacontane (C36)	49.197	72060	0.049 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	868364186	624.258 ug/mL M4
44) h Total Resolved Hydroc...	38.335	41963618	30.167 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003439.D
Operator : BAL
Acquired : 02 May 2012 7:29 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-03
Misc Info : 1X
ALS Vial : 73



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612PX**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-04**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/02/12	100	0.00416	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**3.12**	J
n-Decane (C10)	**2.64**	J
n-Undecane (C11)	**5.53**	J
n-Dodecane (C12)	**6.25**	J
n-Tridecane (C13)	**21.9**	J
2,6,10 Trimethyldodecane (1380)	**55.0**	J
n-Tetradecane (C14)	**30.0**	J
2,6,10 Trimethyltridecane (1470)	**155**	J
n-Pentadecane (C15)	**92.8**	GJ
n-Hexadecane (C16)	**73.3**	J
Norpristane (1650)	**191**	J
n-Heptadecane (C17)	**40.9**	J
Pristane	**423**	
n-Octadecane (C18)	**86.1**	CJB
Phytane	**340**	
n-Nonadecane (C19)	**62.3**	J
n-Eicosane (C20)	**109**	J
n-Heneicosane (C21)	240	U
Total Petroleum Hydrocarbons (C9-C44)	**409000**	

Parameter	Result	
n-Docosane (C22)	**44.7**	J
n-Tricosane (C23)	**72.6**	JB
n-Tetracosane (C24)	**44.7**	J
n-Pentacosane (C25)	**141**	CJB
n-Hexacosane (C26)	240	U
n-Heptacosane (C27)	240	U
n-Octacosane (C28)	240	U
n-Nonacosane (C29)	**44.5**	J
n-Triacontane (C30)	**73.6**	J
n-Hentriacontane (C31)	**283**	
n-Dotriacontane (C32)	**62.0**	J
n-Tritriacontane (C33)	**190**	J
n-Tetratriacontane (C34)	**166**	J
n-Pentatriacontane (C35)	**110**	J
n-Hexatriacontane (C36)	**52.6**	J
n-Heptatriacontane (C37)	**14.9**	J
n-Octatriacontane (C38)	**21.2**	J
n-Nonatriacontane (C39)	240	U
n-Tetracontane (C40)	240	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	91	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003441.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 8:58 pm
Operator : BAL
Sample : 1204035-04
Misc : 1X
ALS Vial : 74 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 13:05:16 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

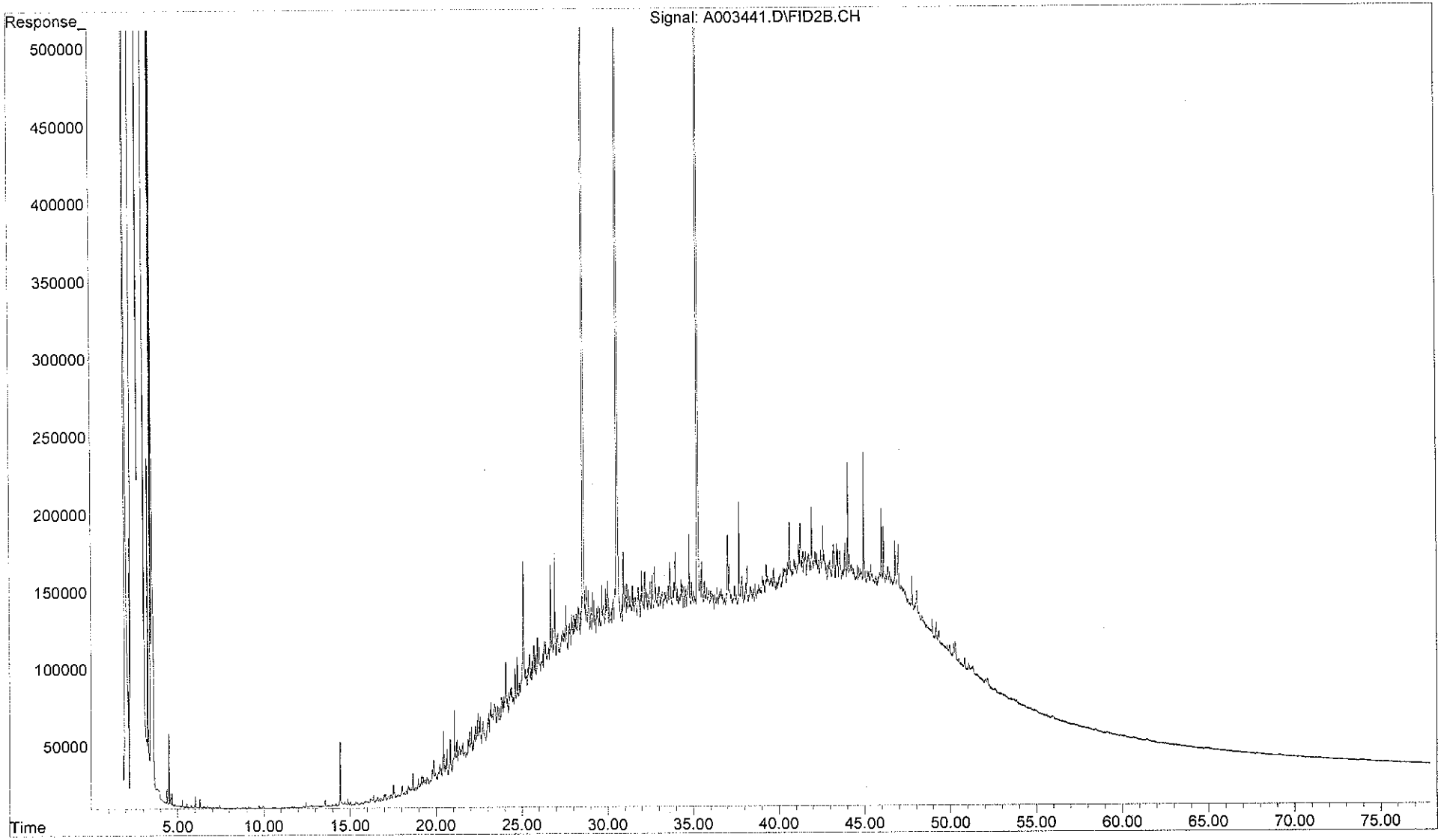
Sub List : SHC - SHC

5.9.12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	80840029	50.000 ug/mL m
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.637	74652639	45.581 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	91.16%
24) s	d50-Tetracosane	35.310	59310823	44.181 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	88.36%
	Target Compounds			
2) t	n-Octane (C8)	5.205	9127	0.008 ug/mL M4
3) t	n-Nonane (C9)	7.328	16984	0.013 ug/mL M4
4) t	n-Decane (C10)	9.801	14348	0.011 ug/mL M4
5) t	n-Undecane (C11)	12.283	32255	0.023 ug/mL M4
6) t	n-Dodecane (C12)	14.699	37352	0.026 ug/mL M4
7) t	n-Tridecane (C13)	16.989	129720	0.091 ug/mL M4
8) t	1380	18.663	329581	0.229 ug/mL M4
9) t	n-Tetradecane (C14)	19.165	179849	0.125 ug/mL M4
10) t	1470	20.447	926581	0.645 ug/mL M4
11) t	n-Pentadecane (C15)	21.212	553620G	0.386 ug/mL M4
12) t	n-Hexadecane (C16)	23.160	449574	0.305 ug/mL M4
13) t	1650	24.080	1155349	0.793 ug/mL M4
14) t	n-Heptadecane (C17)	25.021	247140	0.170 ug/mL M4
15) t	Pristane	25.121	2620035	1.758 ug/mL M4
16) t	n-Octadecane (C18)	26.784	533997C	0.358 ug/mL M4
17) t	Phytane	26.940	2088423	1.415 ug/mL M4
18) t	n-Nonadecane (C19)	28.463	385261	0.259 ug/mL M4
20) t	n-Eicosane (C20)	30.056	686258	0.455 ug/mL M4
22) t	n-Docosane (C22)	33.059	283185	0.186 ug/mL M4
23) t	n-Tricosane (C23)	34.483	466141	0.302 ug/mL M4
25) t	n-Tetracosane (C24)	35.830	282173	0.186 ug/mL M4
26) t	n-Pentacosane (C25)	37.129	907111C	0.586 ug/mL M4
30) t	n-Nonacosane (C29)	41.887	281389	0.185 ug/mL M4
31) t	n-Triacontane (C30)	43.008	465509	0.306 ug/mL M4
32) t	n-Hentriacontane (C31)	44.075	1798606	1.177 ug/mL M4
33) t	n-Dotriacontane (C32)	45.045	392942	0.258 ug/mL M4
34) t	n-Tritriacontane (C33)	46.023	1166875	0.791 ug/mL M4
35) t	n-tetratriacontane (C34)	46.996	1036702	0.689 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.068	700177	0.459 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.199	340888	0.219 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.504	94601	0.062 ug/mL M4
39) t	n-Octatriacontane (C38)	52.046	133312	0.088 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	2839822953	1913.106 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	162769200	109.653 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003441.D
Operator : BAL
Acquired : 02 May 2012 8:58 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-04
Misc Info : 1X
ALS Vial : 74



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042512DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-05**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/25/12	04/26/12	04/30/12	05/04/12	48.4	7.46	4	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.00776**	J
n-Decane (C10)	**0.0377**	J
n-Undecane (C11)	**0.0399**	J
n-Dodecane (C12)	**0.0554**	J
n-Tridecane (C13)	**0.133**	J
2,6,10 Trimethyldodecane (1380)	**0.300**	J
n-Tetradecane (C14)	**0.220**	J
2,6,10 Trimethyltridecane (1470)	**0.990**	J
n-Pentadecane (C15)	**0.356**	GJ
n-Hexadecane (C16)	**0.299**	J
Norpristane (1650)	**0.876**	J
n-Heptadecane (C17)	0.134	U
Pristane	**1.87**	
n-Octadecane (C18)	**0.622**	CJB
Phytane	**1.60**	
n-Nonadecane (C19)	**0.277**	J
n-Eicosane (C20)	**0.327**	J
n-Heneicosane (C21)	0.0744	U
Total Petroleum Hydrocarbons (C9-C44)	**2660**	

Parameter	Result	
n-Docosane (C22)	**0.347**	J
n-Tricosane (C23)	**0.791**	J
n-Tetracosane (C24)	**0.294**	J
n-Pentacosane (C25)	**2.75**	C
n-Hexacosane (C26)	**0.361**	J
n-Heptacosane (C27)	**4.28**	
n-Octacosane (C28)	**0.236**	J
n-Nonacosane (C29)	**4.31**	
n-Triacontane (C30)	0.111	U
n-Hentriacontane (C31)	**1.95**	
n-Dotriacontane (C32)	**0.448**	J
n-Tritriacontane (C33)	0.122	U
n-Tetratriacontane (C34)	**1.33**	
n-Pentatriacontane (C35)	**0.878**	J
n-Hexatriacontane (C36)	**0.398**	J
n-Heptatriacontane (C37)	**0.202**	J
n-Octatriacontane (C38)	**0.186**	J
n-Nonatriacontane (C39)	**0.212**	J
n-Tetracontane (C40)	**0.287**	J

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	40-125
d50-Tetracosane	84	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003493.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 11:27 am
Operator : BAL
Sample : 1204035-05
Misc : 1X
ALS Vial : 100 Sample Multiplier: 1

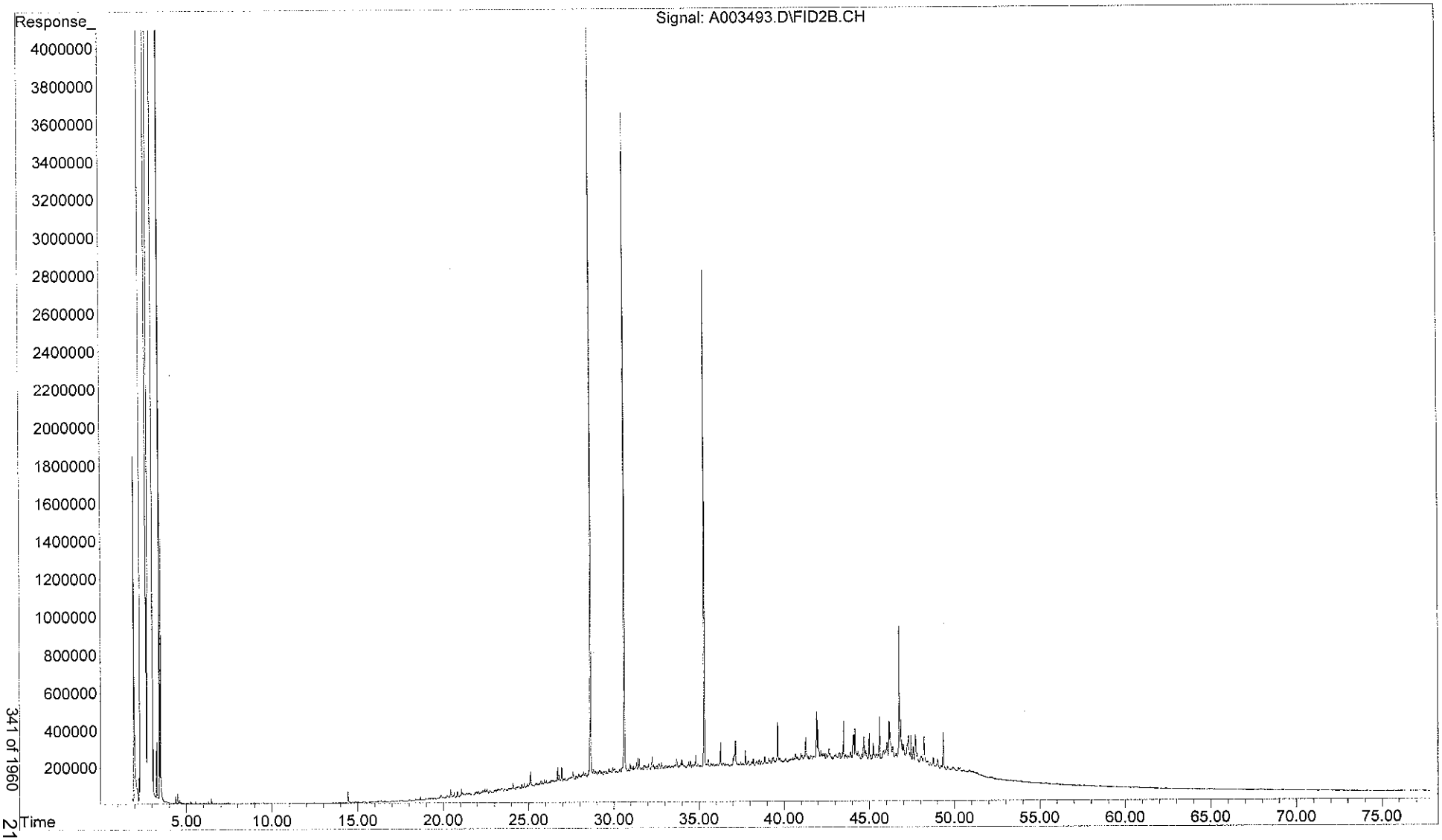
Integration File: SHCINT2.E
Quant Time: May 09 14:30:58 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.634	84659860	50.000 ug/mL m
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.648	92088526	53.690 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	107.38%
24) s	d50-Tetracosane	35.325	73597584	52.350 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	104.70%
	Target Compounds			
2) t	n-Octane (C8)	5.203	12126	0.010 ug/mL M4
3) t	n-Nonane (C9)	7.350	9401	0.007 ug/mL M4
4) t	n-Decane (C10)	9.798	48491	0.034 ug/mL M4
5) t	n-Undecane (C11)	12.289	52874	0.036 ug/mL M4
6) t	n-Dodecane (C12)	14.698	73647	0.050 ug/mL M4
7) t	n-Tridecane (C13)	16.993	179277	0.120 ug/mL M4
8) t	1380	18.667	407467	0.271 ug/mL M4
9) t	n-Tetradecane (C14)	19.169	298143	0.198 ug/mL M4
10) t	1470	20.454	1343088	0.893 ug/mL M4
11) t	n-Pentadecane (C15)	21.213	482223G	0.321 ug/mL M4
12) t	n-Hexadecane (C16)	23.158	417490	0.270 ug/mL M4
13) t	1650	24.081	1205485	0.790 ug/mL M4
15) t	Pristane	25.124	2634336	1.688 ug/mL M4
16) t	n-Octadecane (C18)	26.794	874849C	0.561 ug/mL M4
17) t	Phytane	26.950	2234115	1.445 ug/mL M4
18) t	n-Nonadecane (C19)	28.466	389045	0.250 ug/mL M4
20) t	n-Eicosane (C20)	30.068	465809	0.295 ug/mL M4
22) t	n-Docosane (C22)	33.063	498418	0.313 ug/mL M4
23) t	n-Tricosane (C23)	34.488	1153722	0.713 ug/mL M4
25) t	n-Tetracosane (C24)	35.846	420707	0.265 ug/mL M4
26) t	n-Pentacosane (C25)	37.141	4023534C	2.483 ug/mL M4
27) t	n-Hexacosane (C26)	38.397	524575	0.326 ug/mL M4
28) t	n-Heptacosane (C27)	39.611	6116032	3.864 ug/mL M4
29) t	n-Octacosane (C28)	40.772	340636	0.213 ug/mL M4
30) t	n-Nonacosane (C29)	41.905	6213280	3.891 ug/mL M4
32) t	n-Hentriacontane (C31)	44.053	2812892	1.758 ug/mL M4
33) t	n-Dotriacontane (C32)	45.059	644696	0.404 ug/mL M4
35) t	n-tetratriacontane (C34)	47.023	1890266	1.199 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.041	1266777	0.792 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.219	586075	0.359 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.537	289672	0.182 ug/mL M4
39) t	n-Octatriacontane (C38)	52.072	266248	0.168 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.875	283672	0.191 ug/mL M4
41) t	n-Tetracontane (C40)	55.990	383229	0.259 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	4195784940	2699.044 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	353763463	227.567 ug/mL m

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003493.D
Operator : BAL
Acquired : 04 May 2012 11:27 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-05
Misc Info : 1X
ALS Vial : 100



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-06**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/04/12	48.1	9.63	2.67	1	BAL

Parameter	Result	
n-Nonane (C9)	0.00923	J
n-Decane (C10)	0.0248	J
n-Undecane (C11)	0.0236	J
n-Dodecane (C12)	0.0277	J
n-Tridecane (C13)	0.0565	J
2,6,10 Trimethyldodecane (1380)	0.137	J
n-Tetradecane (C14)	0.0813	J
2,6,10 Trimethyltridecane (1470)	0.461	J
n-Pentadecane (C15)	0.274	GJ
n-Hexadecane (C16)	0.174	J
Norpristane (1650)	0.348	J
n-Heptadecane (C17)	0.568	J
Pristane	0.776	
n-Octadecane (C18)	0.980	C
Phytane	0.788	
n-Nonadecane (C19)	0.190	J
n-Eicosane (C20)	0.208	J
n-Heneicosane (C21)	0.138	J
Total Petroleum Hydrocarbons (C9-C44)	1510	

Parameter	Result	
n-Docosane (C22)	0.238	J
n-Tricosane (C23)	0.795	
n-Tetracosane (C24)	0.280	J
n-Pentacosane (C25)	3.73	C
n-Hexacosane (C26)	0.727	
n-Heptacosane (C27)	8.25	
n-Octacosane (C28)	0.470	J
n-Nonacosane (C29)	9.87	
n-Triacontane (C30)	0.968	
n-Hentriacontane (C31)	5.18	
n-Dotriacontane (C32)	0.383	J
n-Tritriacontane (C33)	1.48	
n-Tetratriacontane (C34)	3.23	
n-Pentatriacontane (C35)	1.51	
n-Hexatriacontane (C36)	0.0957	U
n-Heptatriacontane (C37)	0.459	J
n-Octatriacontane (C38)	0.104	J
n-Nonatriacontane (C39)	0.146	J
n-Tetracontane (C40)	0.148	J

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	88	40-125
d50-Tetracosane	84	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003495.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 12:57 pm
Operator : BAL
Sample : 1204035-06
Misc : 1X
ALS Vial : 51 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 14:37:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.638	93135848	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.665	155548742	82.436 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	164.87%#
24) s	d50-Tetracosane	35.340	121701681	78.688 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	157.38%#
	Target Compounds			
2) t	n-Octane (C8)	5.206	29251	0.021 ug/mL M4
3) t	n-Nonane (C9)	7.352	23378	0.016 ug/mL M4
4) t	n-Decane (C10)	9.796	66897	0.043 ug/mL M4
5) t	n-Undecane (C11)	12.286	65058	0.041 ug/mL M4
6) t	n-Dodecane (C12)	14.701	78382	0.048 ug/mL M4
7) t	n-Tridecane (C13)	16.995	160314	0.098 ug/mL M4
8) t	1380	18.668	394487	0.238 ug/mL M4
9) t	n-Tetradecane (C14)	19.170	233380	0.141 ug/mL M4
10) t	1470	20.455	1322553	0.800 ug/mL M4
11) t	n-Pentadecane (C15)	21.212	785996G	0.475 ug/mL M4
12) t	n-Hexadecane (C16)	23.147	511184	0.301 ug/mL M4
13) t	1650	24.085	1013843	0.604 ug/mL M4
14) t	n-Heptadecane (C17)	25.028	1654351	0.985 ug/mL M4
15) t	Pristane	25.126	2309171	1.345 ug/mL M4
16) t	n-Octadecane (C18)	26.797	2916931C	1.699 ug/mL M4
17) t	Phytane	26.954	2325703	1.367 ug/mL M4
18) t	n-Nonadecane (C19)	28.474	565919	0.330 ug/mL M4
20) t	n-Eicosane (C20)	30.068	627225	0.361 ug/mL M4
21) t	n-Heneicosane (C21)	31.606	420234	0.239 ug/mL M4
22) t	n-Docosane (C22)	33.075	722883	0.413 ug/mL M4
23) t	n-Tricosane (C23)	34.487	2453708	1.378 ug/mL M4
25) t	n-Tetracosane (C24)	35.841	845387	0.485 ug/mL M4
26) t	n-Pentacosane (C25)	37.147	11521984C	6.462 ug/mL M4
27) t	n-Hexacosane (C26)	38.396	2234678	1.261 ug/mL M4
28) t	n-Heptacosane (C27)	39.616	24920001	14.310 ug/mL M4
29) t	n-Octacosane (C28)	40.777	1434650	0.815 ug/mL M4
30) t	n-Nonacosane (C29)	41.924	30061081	17.114 ug/mL M4
31) t	n-Triacontane (C30)	42.995	2939201	1.679 ug/mL M4
32) t	n-Hentriacontane (C31)	44.067	15809716	8.984 ug/mL M4
33) t	n-Dotriacontane (C32)	45.077	1165219	0.665 ug/mL M4
34) t	n-Tritriacontane (C33)	46.086	4346272	2.558 ug/mL M4
35) t	n-tetratriacontane (C34)	47.048	9699597	5.594 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.066	4614710	2.623 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.512	1398109	0.796 ug/mL M4
39) t	n-Octatriacontane (C38)	52.076	314966	0.181 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.882	413818	0.254 ug/mL M4
41) t	n-Tetracontane (C40)	56.011	417426	0.256 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003495.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 12:57 pm
Operator : BAL
Sample : 1204035-06
Misc : 1X
ALS Vial : 51 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 14:37:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

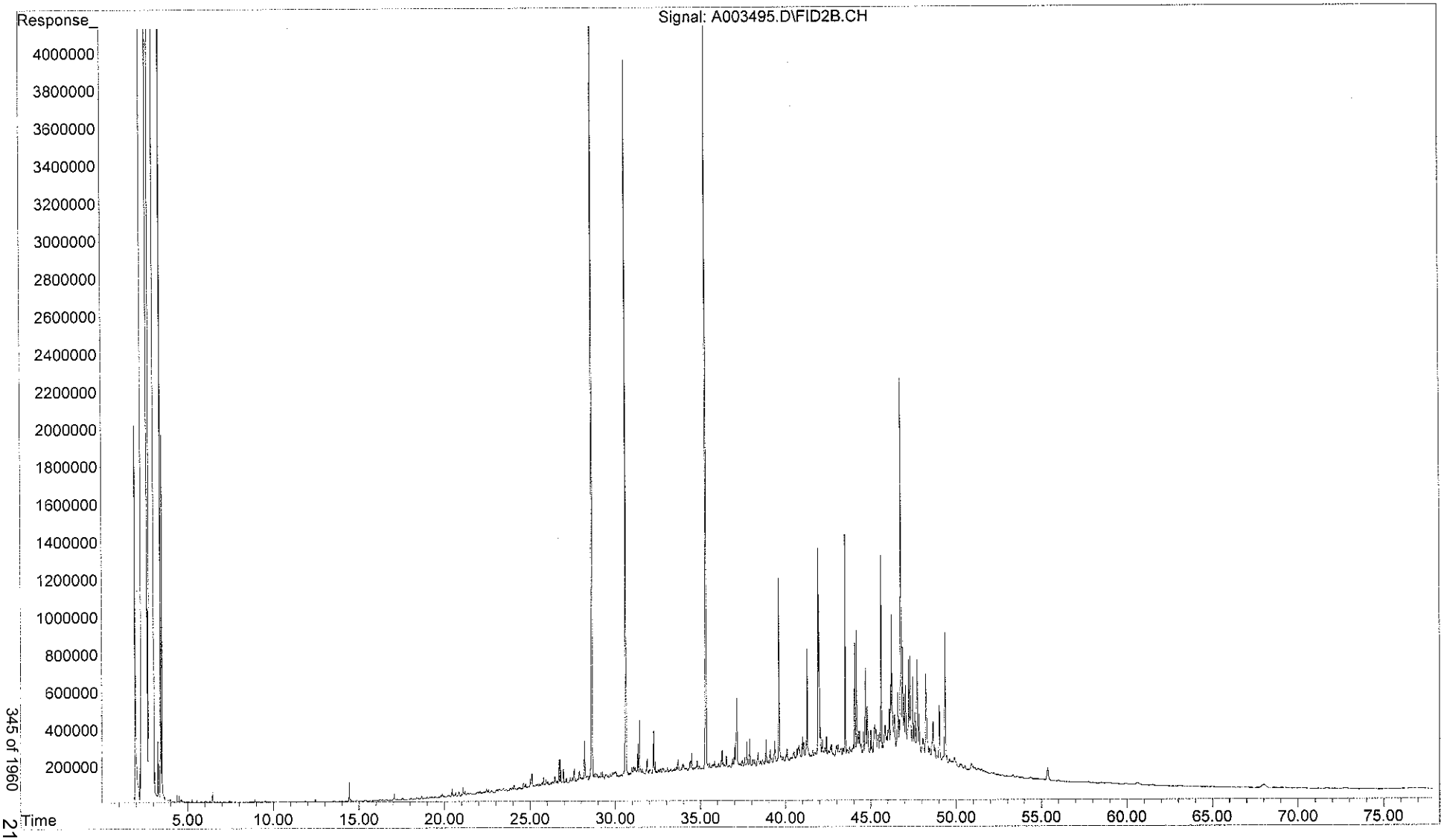
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
42) h	C9-C44 Total Petroleu...	38.335	4941727098	2889.590	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	834673099	488.061	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003495.D
Operator : BAL
Acquired : 04 May 2012 12:57 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-06
Misc Info : 1X
ALS Vial : 51



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/04/12	83.8	6.69	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00321**	J	n-Docosane (C22)	**0.0499**	J
n-Decane (C10)	**0.0168**	J	n-Tricosane (C23)	**0.126**	J
n-Undecane (C11)	**0.0164**	J	n-Tetracosane (C24)	**0.0410**	J
n-Dodecane (C12)	**0.0246**	J	n-Pentacosane (C25)	**0.612**	CB
n-Tridecane (C13)	**0.0289**	J	n-Hexacosane (C26)	**0.0646**	J
2,6,10 Trimethyldodecane (1380)	**0.0214**	J	n-Heptacosane (C27)	**0.578**	
n-Tetradecane (C14)	**0.0400**	J	n-Octacosane (C28)	**0.0581**	J
2,6,10 Trimethyltridecane (1470)	**0.0542**	J	n-Nonacosane (C29)	**0.989**	
n-Pentadecane (C15)	**0.0888**	GJ	n-Triacontane (C30)	**0.103**	J
n-Hexadecane (C16)	**0.0656**	J	n-Hentriacontane (C31)	**0.837**	
Norpristane (1650)	**0.0724**	J	n-Dotriacontane (C32)	**0.0585**	J
n-Heptadecane (C17)	**0.189**	J	n-Tritriacontane (C33)	**0.0960**	J
Pristane	**0.166**	J	n-Tetratriacontane (C34)	**0.105**	J
n-Octadecane (C18)	**0.480**	CB	n-Pentatriacontane (C35)	**0.164**	J
Phytane	**0.208**	J	n-Hexatriacontane (C36)	**0.0439**	J
n-Nonadecane (C19)	**0.0899**	J	n-Heptatriacontane (C37)	**0.0713**	J
n-Eicosane (C20)	**0.0635**	J	n-Octatriacontane (C38)	0.0549	U
n-Heneicosane (C21)	**0.0314**	J	n-Nonatriacontane (C39)	**0.0221**	J
			n-Tetracontane (C40)	0.0653	U
Total Petroleum Hydrocarbons (C9-C44)	**345**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	40-125
d50-Tetracosane	84	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003497.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 2:27 pm
Operator : BAL
Sample : 1204035-07
Misc : 1X
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 14 14:45:06 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.635	87303812	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.674	191084406	108.033 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 216.07%#	
24) s d50-Tetracosane	35.344	152239981	105.009 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 210.02%#	
Target Compounds			
2) t n-Octane (C8)	5.205	18583	0.014 ug/mL M4
3) t n-Nonane (C9)	7.355	12949	0.009 ug/mL M4
4) t n-Decane (C10)	9.801	69267	0.047 ug/mL M4
5) t n-Undecane (C11)	12.288	68583	0.046 ug/mL M4
6) t n-Dodecane (C12)	14.700	105337	0.069 ug/mL M4
7) t n-Tridecane (C13)	16.997	125204	0.081 ug/mL M4
8) t 1380	18.669	92873	0.060 ug/mL M4
9) t n-Tetradecane (C14)	19.170	173833	0.112 ug/mL M4
10) t 1470	20.455	236437	0.152 ug/mL M4
11) t n-Pentadecane (C15)	21.220	385534G	0.249 ug/mL M4
12) t n-Hexadecane (C16)	23.174	292380	0.184 ug/mL M4
13) t 1650	24.090	319971	0.203 ug/mL M4
14) t n-Heptadecane (C17)	25.026	833176	0.529 ug/mL M4
15) t Pristane	25.127	748054	0.465 ug/mL M4
16) t n-Octadecane (C18)	26.796	2164990C	1.346 ug/mL M4
17) t Phytane	26.959	930225	0.583 ug/mL M4
18) t n-Nonadecane (C19)	28.472	405705	0.252 ug/mL M4
20) t n-Eicosane (C20)	30.068	289591	0.178 ug/mL M4
21) t n-Heneicosane (C21)	31.605	144861	0.088 ug/mL M4
22) t n-Docosane (C22)	33.072	229839	0.140 ug/mL M4
23) t n-Tricosane (C23)	34.490	588313	0.352 ug/mL M4
25) t n-Tetracosane (C24)	35.835	188143	0.115 ug/mL M4
26) t n-Pentacosane (C25)	37.147	2869521C	1.717 ug/mL M4
27) t n-Hexacosane (C26)	38.392	301296	0.181 ug/mL M4
28) t n-Heptacosane (C27)	39.606	2642071	1.619 ug/mL M4
29) t n-Octacosane (C28)	40.769	269732	0.163 ug/mL M4
30) t n-Nonacosane (C29)	41.899	4568313	2.774 ug/mL M4
31) t n-Triacontane (C30)	43.024	472776	0.288 ug/mL M4
32) t n-Hentriacontane (C31)	44.049	3869845	2.346 ug/mL M4
33) t n-Dotriacontane (C32)	45.057	268860	0.164 ug/mL M4
34) t n-Tritriacontane (C33)	46.041	427780	0.269 ug/mL M4
35) t n-tetratriacontane (C34)	47.020	478587	0.294 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003497.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 2:27 pm
Operator : BAL
Sample : 1204035-07
Misc : 1X
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 14 14:45:06 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

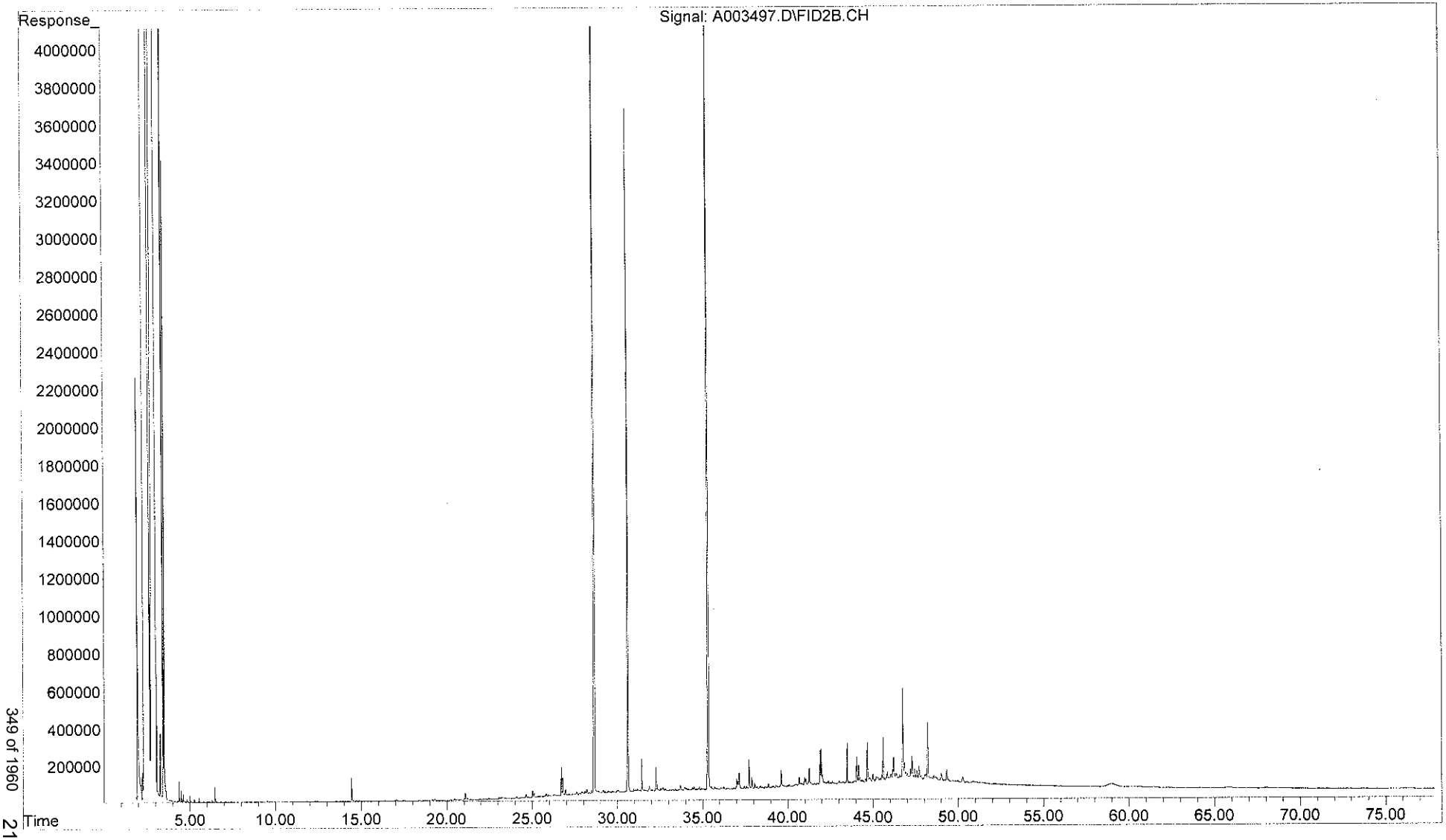
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
36) t	n-Pentatriacontane (C35)	48.039	759095	0.460 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.209	207260	0.123 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.505	328547	0.200 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.885	95272	0.062 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	2014771611	1256.802 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	206453931	128.785 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003497.D
Operator : BAL
Acquired : 04 May 2012 2:27 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-07
Misc Info : 1X
ALS Vial : 52



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1075L201S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-08**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/02/12	100	1.00	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.00700**	J
n-Decane (C10)	**0.0130**	J
n-Undecane (C11)	**0.0300**	J
n-Dodecane (C12)	**0.0360**	J
n-Tridecane (C13)	**0.0480**	J
2,6,10 Trimethyldodecane (1380)	**0.150**	J
n-Tetradecane (C14)	**0.0640**	J
2,6,10 Trimethyltridecane (1470)	**0.415**	J
n-Pentadecane (C15)	**0.179**	GJ
n-Hexadecane (C16)	**0.129**	J
Norpristane (1650)	**0.474**	J
n-Heptadecane (C17)	1.00	U
Pristane	**1.09**	
n-Octadecane (C18)	**0.119**	CJB
Phytane	**0.834**	J
n-Nonadecane (C19)	**0.112**	J
n-Eicosane (C20)	**0.156**	J
n-Heneicosane (C21)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**1190**	

Parameter	Result	
n-Docosane (C22)	1.00	U
n-Tricosane (C23)	**0.156**	JB
n-Tetracosane (C24)	1.00	U
n-Pentacosane (C25)	**0.393**	CJB
n-Hexacosane (C26)	1.00	U
n-Heptacosane (C27)	1.00	U
n-Octacosane (C28)	1.00	U
n-Nonacosane (C29)	**0.233**	J
n-Triacontane (C30)	**0.223**	J
n-Hentriacontane (C31)	**0.946**	J
n-Dotriacontane (C32)	**0.136**	J
n-Tritriacontane (C33)	**0.557**	J
n-Tetratriacontane (C34)	**0.502**	J
n-Pentatriacontane (C35)	**0.291**	J
n-Hexatriacontane (C36)	**0.157**	J
n-Heptatriacontane (C37)	1.00	U
n-Octatriacontane (C38)	1.00	U
n-Nonatriacontane (C39)	1.00	U
n-Tetracontane (C40)	1.00	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	40-125
d50-Tetracosane	85	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003443.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 10:27 pm
Operator : BAL
Sample : 1204035-08
Misc : 1X
ALS Vial : 75 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 13:22:49 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

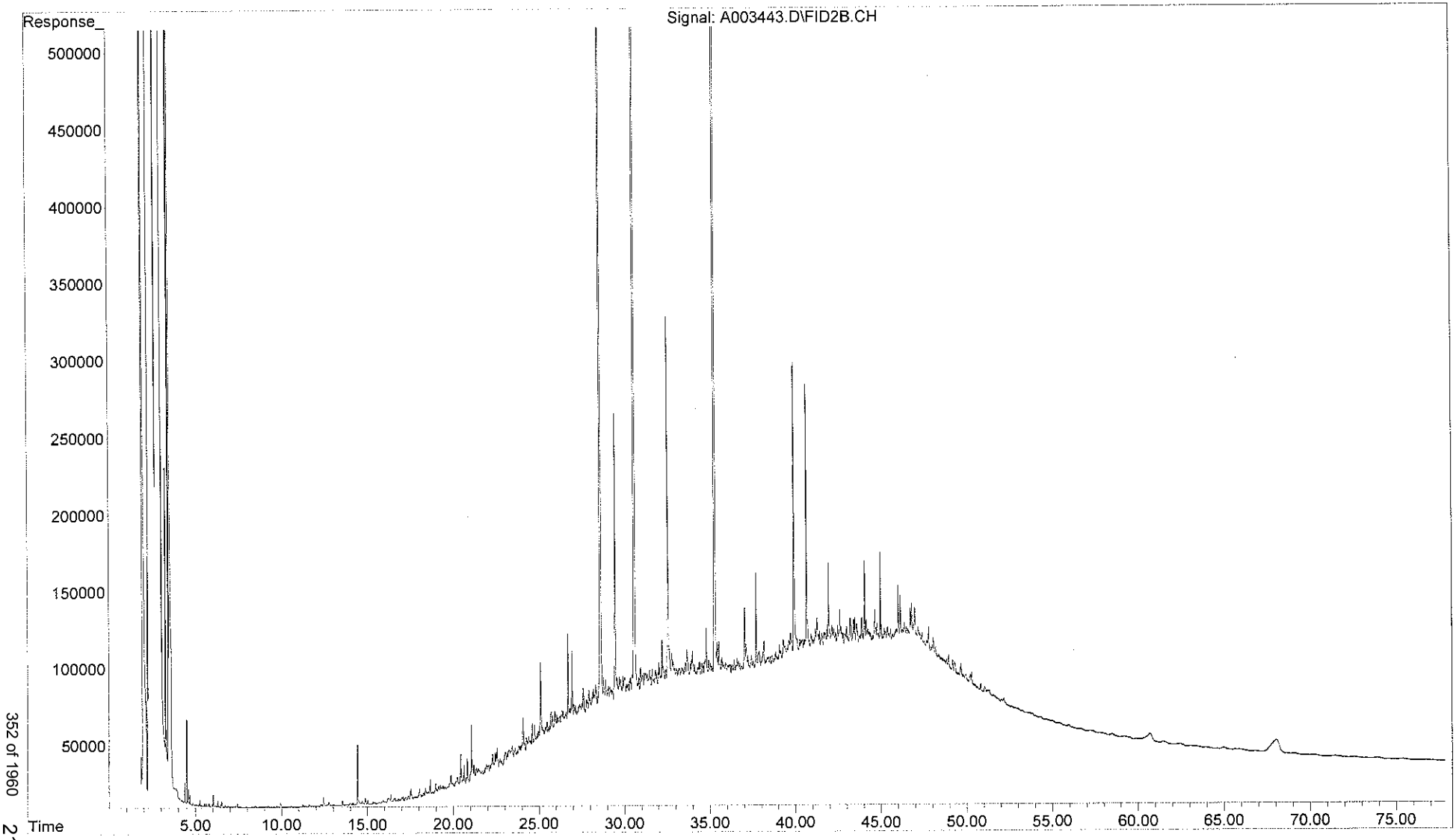
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	82742535	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.636	73260633	43.703 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	87.41%
24) s	d50-Tetracosane	35.309	58365537	42.477 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	84.95%
	Target Compounds			
2) t	n-Octane (C8)	5.206	18510	0.015 ug/mL M4
3) t	n-Nonane (C9)	7.352	9587	0.007 ug/mL M4
4) t	n-Decane (C10)	9.799	17828	0.013 ug/mL M4
5) t	n-Undecane (C11)	12.285	42545	0.030 ug/mL M4
6) t	n-Dodecane (C12)	14.699	52747	0.036 ug/mL M4
7) t	n-Tridecane (C13)	16.989	70002	0.048 ug/mL M4
8) t	1380	18.665	220321	0.150 ug/mL M4
9) t	n-Tetradecane (C14)	19.166	93461	0.064 ug/mL M4
10) t	1470	20.447	610557	0.415 ug/mL M4
11) t	n-Pentadecane (C15)	21.208	262440G	0.179 ug/mL M4
12) t	n-Hexadecane (C16)	23.148	194521	0.129 ug/mL M4
13) t	1650	24.078	707162	0.474 ug/mL M4
15) t	Pristane	25.117	1666779	1.093 ug/mL M4
16) t	n-Octadecane (C18)	26.805	181980C	0.119 ug/mL M4
17) t	Phytane	26.940	1259749	0.834 ug/mL M4
18) t	n-Nonadecane (C19)	28.451	170179	0.112 ug/mL M4
20) t	n-Eicosane (C20)	30.053	241171	0.156 ug/mL M4
23) t	n-Tricosane (C23)	34.489	246353	0.156 ug/mL M4
26) t	n-Pentacosane (C25)	37.133	622857C	0.393 ug/mL M4
30) t	n-Nonacosane (C29)	41.888	363530	0.233 ug/mL M4
31) t	n-Triacontane (C30)	43.010	346623	0.223 ug/mL M4
32) t	n-Hentriacontane (C31)	44.071	1478579	0.946 ug/mL M4
33) t	n-Dotriacontane (C32)	45.041	212586	0.136 ug/mL M4
34) t	n-Tritriacontane (C33)	46.019	840921	0.557 ug/mL M4
35) t	n-tetratriacontane (C34)	46.999	773703	0.502 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.075	455231	0.291 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.198	250957	0.157 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	2119849006	1395.245 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	125206397	82.408 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003443.D
Operator : BAL
Acquired : 02 May 2012 10:27 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-08
Misc Info : 1X
ALS Vial : 75



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000R011S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-09**
Associated Blank: **SO050112B01**
Concentration Units: µg

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/02/12	100	1.00	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.00500**	J
n-Decane (C10)	**0.00600**	J
n-Undecane (C11)	**0.0110**	J
n-Dodecane (C12)	**0.0190**	J
n-Tridecane (C13)	**0.0110**	J
2,6,10 Trimethyldodecane (1380)	1.00	U
n-Tetradecane (C14)	**0.00800**	J
2,6,10 Trimethyltridecane (1470)	1.00	U
n-Pentadecane (C15)	**0.0950**	GJ
n-Hexadecane (C16)	**0.0170**	J
Norpristane (1650)	1.00	U
n-Heptadecane (C17)	**0.0120**	J
Pristane	**0.00700**	J
n-Octadecane (C18)	**0.826**	CJB
Phytane	**0.0610**	J
n-Nonadecane (C19)	**0.0130**	J
n-Eicosane (C20)	**0.0140**	J
n-Heneicosane (C21)	**0.0130**	J
Total Petroleum Hydrocarbons (C9-C44)	200	U

Parameter	Result	
n-Docosane (C22)	**0.0130**	J
n-Tricosane (C23)	**0.0830**	JB
n-Tetracosane (C24)	1.00	U
n-Pentacosane (C25)	**0.159**	CJB
n-Hexacosane (C26)	**0.0160**	J
n-Heptacosane (C27)	**0.194**	J
n-Octacosane (C28)	1.00	U
n-Nonacosane (C29)	**0.257**	J
n-Triacontane (C30)	**0.0690**	J
n-Hentriacontane (C31)	**0.210**	J
n-Dotriacontane (C32)	**0.0210**	J
n-Tritriacontane (C33)	**0.0740**	J
n-Tetratriacontane (C34)	**0.102**	J
n-Pentatriacontane (C35)	**0.0660**	J
n-Hexatriacontane (C36)	**0.0370**	J
n-Heptatriacontane (C37)	1.00	U
n-Octatriacontane (C38)	1.00	U
n-Nonatriacontane (C39)	1.00	U
n-Tetracontane (C40)	1.00	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	90	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003445.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 11:56 pm
Operator : BAL
Sample : 1204035-09
Misc : 1X
ALS Vial : 76 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 13:33:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

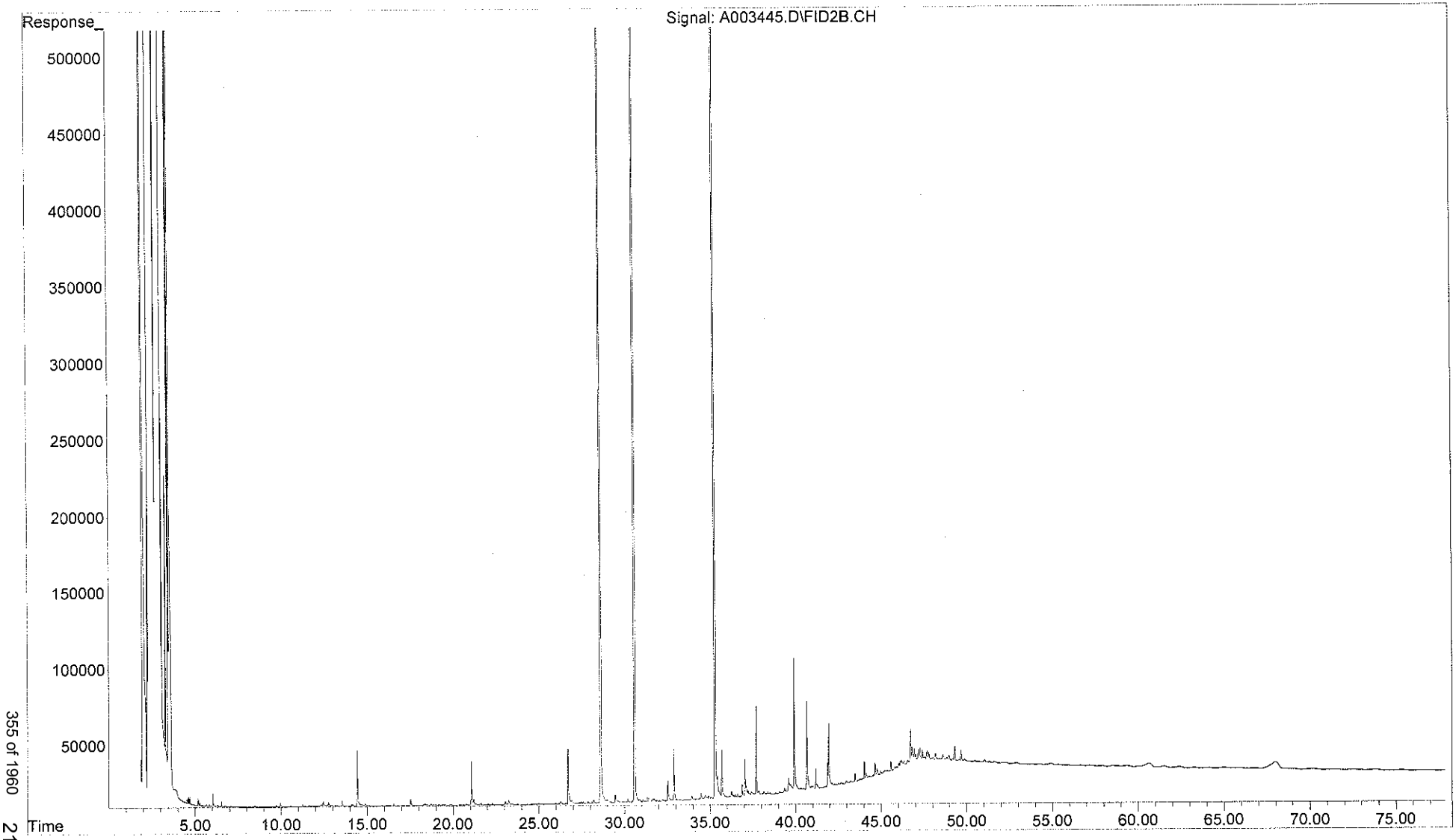
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.620	79201531	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.634	72425191	45.136 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	90.27%
24) s	d50-Tetracosane	35.307	57814218	43.957 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	87.91%
	Target Compounds			
2) t	n-Octane (C8)	5.207	15916	0.014 ug/mL M4
3) t	n-Nonane (C9)	7.349	6849	0.005 ug/mL M4
4) t	n-Decane (C10)	9.798	8558	0.006 ug/mL M4
5) t	n-Undecane (C11)	12.287	15519	0.011 ug/mL M4
6) t	n-Dodecane (C12)	14.694	26986	0.019 ug/mL M4
7) t	n-Tridecane (C13)	16.997	15904	0.011 ug/mL M4
9) t	n-Tetradecane (C14)	19.169	10983	0.008 ug/mL M4
11) t	n-Pentadecane (C15)	21.210	133780G	0.095 ug/mL M4
12) t	n-Hexadecane (C16)	23.162	24095	0.017 ug/mL M4
14) t	n-Heptadecane (C17)	25.021	17263	0.012 ug/mL M4
15) t	Pristane	25.117	10921	0.007 ug/mL M4
16) t	n-Octadecane (C18)	26.706	1205813C	0.826 ug/mL M4
17) t	Phytane	26.926	87619	0.061 ug/mL M4
18) t	n-Nonadecane (C19)	28.472	18908	0.013 ug/mL M4
20) t	n-Eicosane (C20)	30.069	20855	0.014 ug/mL M4
21) t	n-Heneicosane (C21)	31.596	19531	0.013 ug/mL M4
22) t	n-Docosane (C22)	33.065	18678	0.013 ug/mL M4
23) t	n-Tricosane (C23)	34.481	125074	0.083 ug/mL M4
26) t	n-Pentacosane (C25)	37.119	241731C	0.159 ug/mL M4
27) t	n-Hexacosane (C26)	38.382	24579	0.016 ug/mL M4
28) t	n-Heptacosane (C27)	39.595	286594	0.194 ug/mL M4
30) t	n-Nonacosane (C29)	41.886	384630	0.257 ug/mL M4
31) t	n-Triacontane (C30)	43.001	102659	0.069 ug/mL M4
32) t	n-Hentriacontane (C31)	44.035	314430	0.210 ug/mL M4
33) t	n-Dotriacontane (C32)	45.056	31426	0.021 ug/mL M4
34) t	n-Tritriacontane (C33)	46.051	106271	0.074 ug/mL M4
35) t	n-tetratriacontane (C34)	47.011	150836	0.102 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.022	98315	0.066 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.190	56188	0.037 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	513908221	353.367 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	34189722	23.509 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003445.D
Operator : BAL
Acquired : 02 May 2012 11:56 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-09
Misc Info : 1X
ALS Vial : 76



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEBC0000L012S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-10**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.00900**	J
n-Decane (C10)	**0.0140**	J
n-Undecane (C11)	**0.0160**	J
n-Dodecane (C12)	**0.0240**	J
n-Tridecane (C13)	**0.0170**	J
2,6,10 Trimethyldodecane (1380)	1.00	U
n-Tetradecane (C14)	**0.0160**	J
2,6,10 Trimethyltridecane (1470)	**0.0160**	J
n-Pentadecane (C15)	**0.0920**	GJ
n-Hexadecane (C16)	1.00	U
Norpristane (1650)	1.00	U
n-Heptadecane (C17)	**0.0630**	J
Pristane	**0.0210**	J
n-Octadecane (C18)	**0.140**	CJB
Phytane	**0.0450**	J
n-Nonadecane (C19)	**0.0440**	J
n-Eicosane (C20)	1.00	U
n-Heneicosane (C21)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	750	

Parameter	Result	
n-Docosane (C22)	1.00	U
n-Tricosane (C23)	1.00	U
n-Tetracosane (C24)	1.00	U
n-Pentacosane (C25)	**0.356**	CJB
n-Hexacosane (C26)	1.00	U
n-Heptacosane (C27)	**0.303**	J
n-Octacosane (C28)	1.00	U
n-Nonacosane (C29)	**0.160**	J
n-Triacontane (C30)	**0.175**	J
n-Hentriacontane (C31)	**0.350**	J
n-Dotriacontane (C32)	**0.0660**	J
n-Tritriacontane (C33)	**0.184**	J
n-Tetratriacontane (C34)	**0.222**	J
n-Pentatriacontane (C35)	**0.120**	J
n-Hexatriacontane (C36)	**0.0570**	J
n-Heptatriacontane (C37)	1.00	U
n-Octatriacontane (C38)	1.00	U
n-Nonatriacontane (C39)	1.00	U
n-Tetracontane (C40)	1.00	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	94	40-125
d50-Tetracosane	91	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003447.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 1:24 am
Operator : BAL
Sample : 1204035-10
Misc : 1X
ALS Vial : 77 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 13:41:39 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

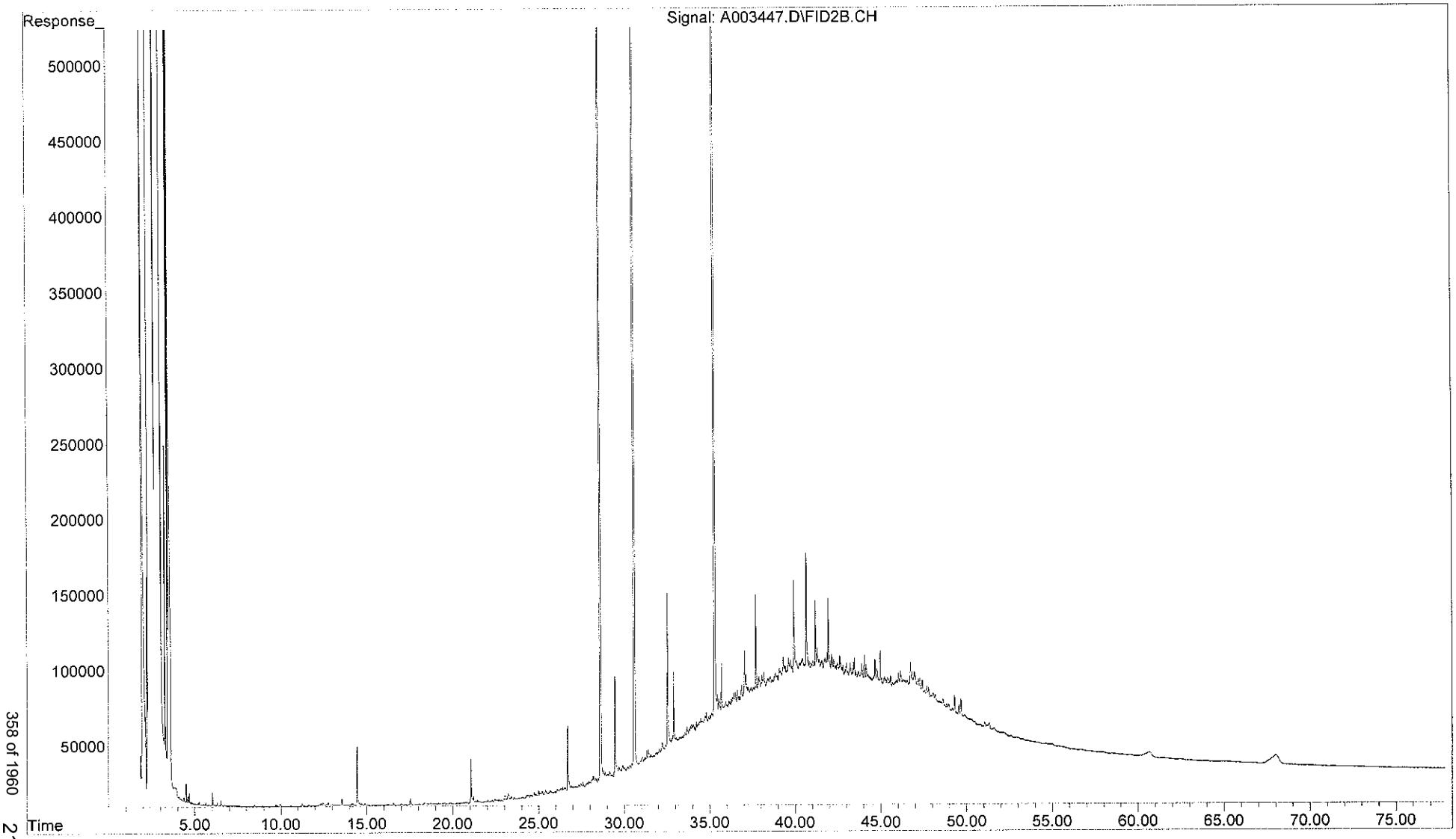
Sub List : SHC - SHC

5.9.12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.620	76885684	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.634	72845259	46.765 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	93.53%
24) s	d50-Tetracosane	35.308	58142246	45.538 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	91.08%
	Target Compounds			
2) t	n-Octane (C8)	5.204	10679	0.009 ug/mL M4
3) t	n-Nonane (C9)	7.352	10764	0.009 ug/mL M4
4) t	n-Decane (C10)	9.796	17891	0.014 ug/mL M4
5) t	n-Undecane (C11)	12.287	20695	0.016 ug/mL M4
6) t	n-Dodecane (C12)	14.698	32703	0.024 ug/mL M4
7) t	n-Tridecane (C13)	16.994	22850	0.017 ug/mL M4
9) t	n-Tetradecane (C14)	19.167	22101	0.016 ug/mL M4
10) t	1470	20.454	22059	0.016 ug/mL M4
11) t	n-Pentadecane (C15)	21.207	125966G	0.092 ug/mL M4
14) t	n-Heptadecane (C17)	25.011	87863	0.063 ug/mL M4
15) t	Pristane	25.131	29539	0.021 ug/mL M4
16) t	n-Octadecane (C18)	26.778	198656C	0.140 ug/mL M4
17) t	Phytane	26.937	62976	0.045 ug/mL M4
18) t	n-Nonadecane (C19)	28.467	62181	0.044 ug/mL M4
26) t	n-Pentacosane (C25)	37.123	523833C	0.356 ug/mL M4
28) t	n-Heptacosane (C27)	39.597	436217	0.303 ug/mL M4
30) t	n-Nonacosane (C29)	41.882	231401	0.160 ug/mL M4
31) t	n-Triacontane (C30)	43.001	253043	0.175 ug/mL M4
32) t	n-Hentriacontane (C31)	44.072	509059	0.350 ug/mL M4
33) t	n-Dotriacontane (C32)	45.035	95987	0.066 ug/mL M4
34) t	n-Tritriacontane (C33)	46.014	257740	0.184 ug/mL M4
35) t	n-tetratriacontane (C34)	47.003	317251	0.222 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.038	174933	0.120 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.191	84412	0.057 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	1375484029	974.281 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	61906744	43.850 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003447.D
Operator : BAL
Acquired : 03 May 2012 1:24 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-10
Misc Info : 1X
ALS Vial : 77



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3455C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-11**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	BAL

Parameter	Result	
n-Nonane (C9)	**0.00600**	J
n-Decane (C10)	**0.0120**	J
n-Undecane (C11)	**0.0180**	J
n-Dodecane (CI2)	**0.0240**	J
n-Tridecane (C13)	**0.0210**	J
2,6,10 Trimethyldodecane (1380)	**0.0190**	J
n-Tetradecane (C14)	**0.0190**	J
2,6,10 Trimethyltridecane (1470)	**0.0540**	J
n-Pentadecane (CI5)	**0.133**	GJ
n-Hexadecane (C16)	**0.0380**	J
Norpristane (1650)	**0.0790**	J
n-Heptadecane (C17)	**0.0360**	J
Pristane	**0.204**	J
n-Octadecane (C18)	**0.0940**	CJB
Phytane	**0.209**	J
n-Nonadecane (C19)	**0.0500**	J
n-Eicosane (C20)	**0.0560**	J
n-Heneicosane (C21)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**459**	

Parameter	Result	
n-Docosane (C22)	**0.0630**	J
n-Tricosane (C23)	**0.114**	JB
n-Tetracosane (C24)	**0.0500**	J
n-Pentacosane (C25)	**0.493**	CJB
n-Hexacosane (C26)	**0.0580**	J
n-Heptacosane (C27)	**0.177**	J
n-Octacosane (C28)	1.00	U
n-Nonacosane (C29)	**0.129**	J
n-Triacontane (C30)	**0.130**	J
n-Hentriacontane (C31)	**0.424**	J
n-Dotriacontane (C32)	**0.0750**	J
n-Tritriacontane (C33)	**0.250**	J
n-Tetratriacontane (C34)	**0.174**	J
n-Pentatriacontane (C35)	**0.128**	J
n-Hexatriacontane (C36)	**0.0630**	J
n-Heptatriacontane (C37)	**0.0360**	J
n-Octatriacontane (C38)	1.00	U
n-Nonatriacontane (C39)	1.00	U
n-Tetracontane (C40)	1.00	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	84	40-125
d50-Tetracosane	82	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003449.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:53 am
Operator : BAL
Sample : 1204035-11
Misc : 1X
ALS Vial : 78 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 13:56:53 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

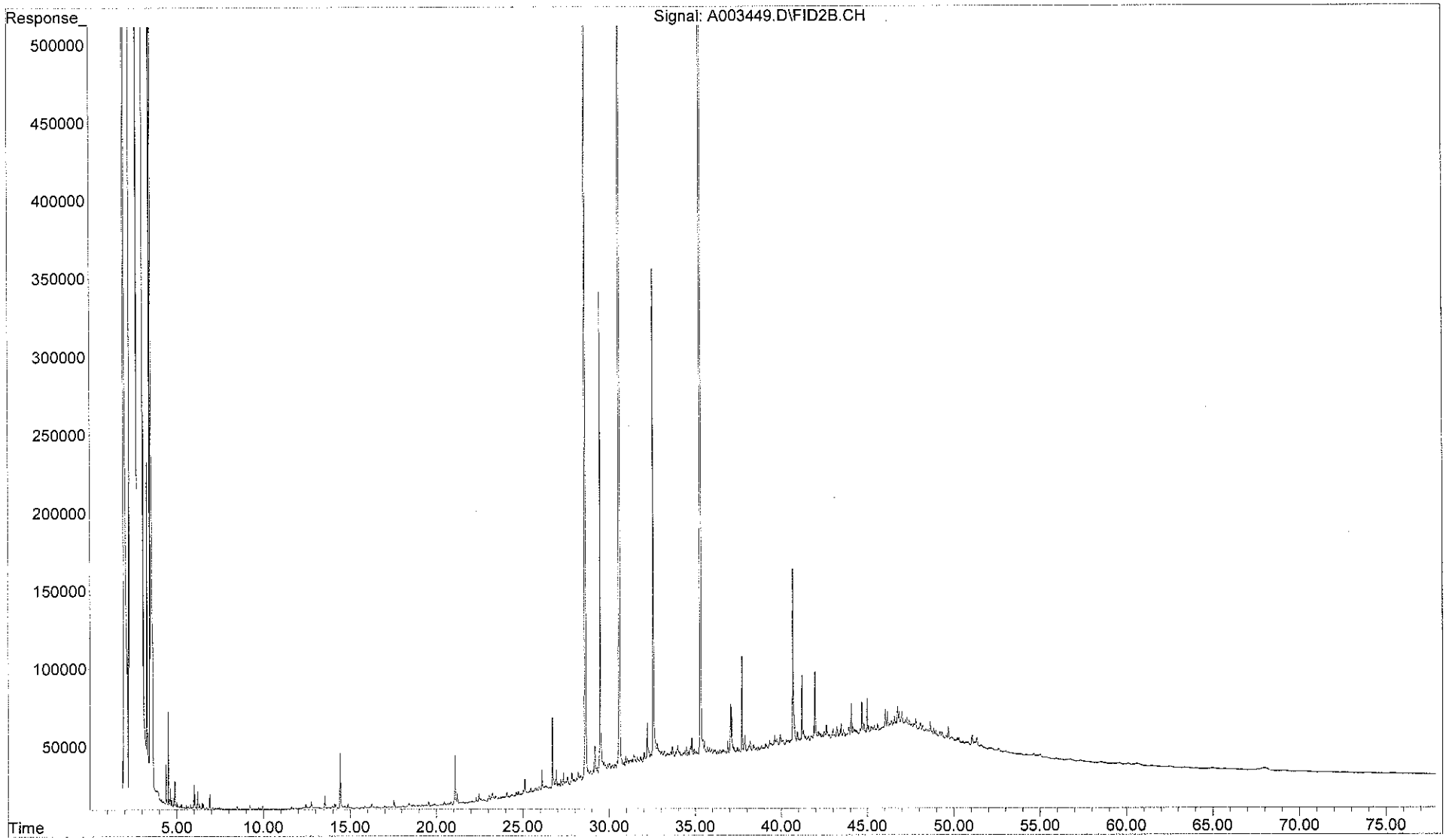
Sub List : SHC - SHC

5.9.12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.621	83855867	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.634	71627236	42.161 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	84.32%
24) s	d50-Tetracosane	35.308	57162964	41.050 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	82.10%
	Target Compounds			
2) t	n-Octane (C8)	5.212	19109	0.015 ug/mL M4
3) t	n-Nonane (C9)	7.355	8065	0.006 ug/mL M4
4) t	n-Decane (C10)	9.792	17493	0.012 ug/mL M4
5) t	n-Undecane (C11)	12.281	25678	0.018 ug/mL M4
6) t	n-Dodecane (C12)	14.700	35861	0.024 ug/mL M4
7) t	n-Tridecane (C13)	16.991	30573	0.021 ug/mL M4
8) t	1380	18.665	28706	0.019 ug/mL M4
9) t	n-Tetradecane (C14)	19.167	27966	0.019 ug/mL M4
10) t	1470	20.449	79756	0.054 ug/mL M4
11) t	n-Pentadecane (C15)	21.210	197600G	0.133 ug/mL M4
12) t	n-Hexadecane (C16)	23.167	57589	0.038 ug/mL M4
13) t	1650	24.078	119033	0.079 ug/mL M4
14) t	n-Heptadecane (C17)	25.019	53842	0.036 ug/mL M4
15) t	Pristane	25.117	314916	0.204 ug/mL M4
16) t	n-Octadecane (C18)	26.773	145628C	0.094 ug/mL M4
17) t	Phytane	26.936	320366	0.209 ug/mL M4
18) t	n-Nonadecane (C19)	28.461	76775	0.050 ug/mL M4
20) t	n-Eicosane (C20)	30.052	87018	0.056 ug/mL M4
22) t	n-Docosane (C22)	33.063	98517	0.063 ug/mL M4
23) t	n-Tricosane (C23)	34.483	182398	0.114 ug/mL M4
25) t	n-Tetracosane (C24)	35.828	78735	0.050 ug/mL M4
26) t	n-Pentacosane (C25)	37.114	792130C	0.493 ug/mL M4
27) t	n-Hexacosane (C26)	38.383	92734	0.058 ug/mL M4
28) t	n-Heptacosane (C27)	39.596	276908	0.177 ug/mL M4
30) t	n-Nonacosane (C29)	41.883	204067	0.129 ug/mL M4
31) t	n-Triacontane (C30)	43.004	204883	0.130 ug/mL M4
32) t	n-Hentriacontane (C31)	44.067	671942	0.424 ug/mL M4
33) t	n-Dotriacontane (C32)	45.045	118512	0.075 ug/mL M4
34) t	n-Tritriacontane (C33)	46.016	382524	0.250 ug/mL M4
35) t	n-tetratriacontane (C34)	46.999	271735	0.174 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.063	203283	0.128 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.195	102131	0.063 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.507	57124	0.036 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	1023038104	664.405 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	70365610	45.698 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003449.D
Operator : BAL
Acquired : 03 May 2012 2:53 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-11
Misc Info : 1X
ALS Vial : 78



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-12**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	05/01/12	05/03/12	100	1.00	1	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0110**	J	n-Docosane (C22)	**0.204**	J
n-Decane (C10)	**0.0110**	J	n-Tricosane (C23)	**0.275**	JB
n-Undecane (C11)	**0.0170**	J	n-Tetracosane (C24)	**0.106**	J
n-Dodecane (C12)	**0.0170**	J	n-Pentacosane (C25)	**0.539**	CJB
n-Tridecane (C13)	**0.0280**	J	n-Hexacosane (C26)	1.00	U
2,6,10 Trimethyldodecane (1380)	**0.0390**	J	n-Heptacosane (C27)	**0.240**	J
n-Tetradecane (C14)	**0.0270**	J	n-Octacosane (C28)	1.00	U
2,6,10 Trimethyltridecane (1470)	**0.142**	J	n-Nonacosane (C29)	**0.589**	J
n-Pentadecane (C15)	**0.167**	GJ	n-Triacontane (C30)	**0.280**	J
n-Hexadecane (C16)	**0.0810**	J	n-Hentriacontane (C31)	**1.28**	
Norpristane (1650)	**0.242**	J	n-Dotriacontane (C32)	**0.205**	J
n-Heptadecane (C17)	1.00	U	n-Tritriacontane (C33)	**0.737**	J
Pristane	**0.678**	J	n-Tetratriacontane (C34)	**0.668**	J
n-Octadecane (C18)	**0.150**	CJB	n-Pentatriacontane (C35)	**0.418**	J
Phytane	**0.665**	J	n-Hexatriacontane (C36)	**0.179**	J
n-Nonadecane (C19)	**0.165**	J	n-Heptatriacontane (C37)	1.00	U
n-Eicosane (C20)	**0.218**	J	n-Octatriacontane (C38)	1.00	U
n-Heneicosane (C21)	1.00	U	n-Nonatriacontane (C39)	1.00	U
			n-Tetracontane (C40)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**1380**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	40-125
d50-Tetracosane	85	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\
Data File : A003451.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 4:21 am
Operator : BAL
Sample : 1204035-12
Misc : 1X
ALS Vial : 79 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 14:19:32 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

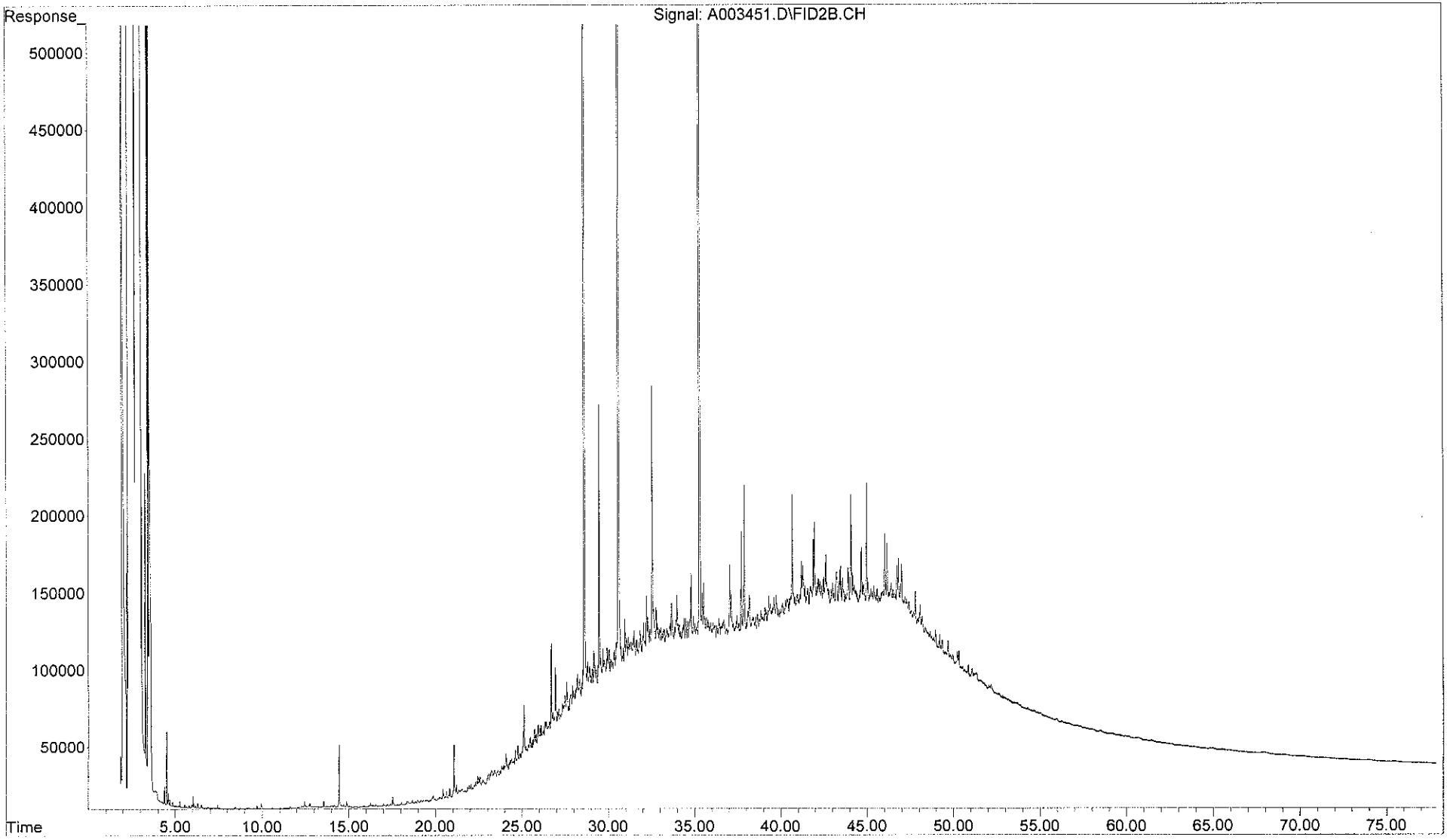
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.625	81731117	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.638	72087773	43.535 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	87.07%
24) s	d50-Tetracosane	35.313	57579234	42.424 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	84.85%
	Target Compounds			
2) t	n-Octane (C8)	5.205	11796	0.010 ug/mL M4
3) t	n-Nonane (C9)	7.354	14727	0.011 ug/mL M4
4) t	n-Decane (C10)	9.802	15212	0.011 ug/mL M4
5) t	n-Undecane (C11)	12.285	24557	0.017 ug/mL M4
6) t	n-Dodecane (C12)	14.698	25026	0.017 ug/mL M4
7) t	n-Tridecane (C13)	16.991	40834	0.028 ug/mL M4
8) t	1380	18.664	55968	0.039 ug/mL M4
9) t	n-Tetradecane (C14)	19.167	39829	0.027 ug/mL M4
10) t	1470	20.449	206338	0.142 ug/mL M4
11) t	n-Pentadecane (C15)	21.212	241724G	0.167 ug/mL M4
12) t	n-Hexadecane (C16)	23.162	121562	0.081 ug/mL M4
13) t	1650	24.080	357147	0.242 ug/mL M4
15) t	Pristane	25.120	1022068	0.678 ug/mL M4
16) t	n-Octadecane (C18)	26.795	226593C	0.150 ug/mL M4
17) t	Phytane	26.940	992000	0.665 ug/mL M4
18) t	n-Nonadecane (C19)	28.463	248574	0.165 ug/mL M4
20) t	n-Eicosane (C20)	30.054	333459	0.218 ug/mL M4
22) t	n-Docosane (C22)	33.038	312718	0.204 ug/mL M4
23) t	n-Tricosane (C23)	34.489	429909	0.275 ug/mL M4
25) t	n-Tetracosane (C24)	35.831	162067	0.106 ug/mL M4
26) t	n-Pentacosane (C25)	37.131	844021C	0.539 ug/mL M4
28) t	n-Heptacosane (C27)	39.601	367319	0.240 ug/mL M4
30) t	n-Nonacosane (C29)	41.892	907735	0.589 ug/mL M4
31) t	n-Triacontane (C30)	43.015	429570	0.280 ug/mL M4
32) t	n-Hentriacontane (C31)	44.078	1982825	1.284 ug/mL M4
33) t	n-Dotriacontane (C32)	45.047	315509	0.205 ug/mL M4
34) t	n-Tritriacontane (C33)	46.021	1098310	0.737 ug/mL M4
35) t	n-tetratriacontane (C34)	46.996	1016050	0.668 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.073	645689	0.418 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.196	281701	0.179 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	2392814141	1594.395 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	74501754	49.642 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003451.D
Operator : BAL
Acquired : 03 May 2012 4:21 am using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-12
Misc Info : 1X
ALS Vial : 79



Response Factor Report FID17

Method Path : O:\Forensics\Methods\FID17\
Method File : HC17032312R.M
Title : FID Forensics
Last Update : Fri Apr 13 08:31:03 2012
Response Via : Initial Calibration

2° 4/13/12
4.12.12

Calibration Files
1 =A002922.D 10 =A002924.D 50 =A002926.D 100 =A002928.D 200 =A002930.D 500 =A002932.D

		Compound	1	10	50	100	200	500	Avg	%RSD
1)	I	5-alpha-androstane	----------ISTD----------							
2)	t	n-Octane (C8)	0.702	0.731	0.814	0.716	0.746		0.742	5.89
3)	t	n-Nonane (C9)	0.775	0.774	0.874	0.785	0.780		0.798	5.41
4)	t	n-Decane (C10)	0.818	0.819	0.919	0.844	0.823		0.845✓	5.08
5)	t	n-Undecane (C11)	0.837	0.837	0.930	0.861	0.833		0.860	4.78
6)	t	n-Dodecane (C12)	0.856	0.856	0.943	0.879	0.850		0.877	4.39
7)	t	n-Tridecane (...	0.858	0.860	0.948	0.884	0.854		0.881	4.45
8)	t	1380	0.858	0.871	0.958	0.893	0.863		0.889	4.64
9)	t	n-Tetradecane...	0.858	0.871	0.958	0.893	0.863		0.889	4.64
10)	t	1470	0.855	0.873	0.956	0.894	0.863		0.888	4.55
11)	t	n-Pentadecane...	0.855	0.873	0.956	0.894	0.863		0.888	4.55
12)	t	n-Hexadecane ...	0.918	0.891	0.969	0.909	0.876		0.913	3.90
13)	t	1650	0.872	0.879	0.979	0.902	0.876		0.902	4.95
14)	t	n-Heptadecane...	0.872	0.879	0.979	0.902	0.876		0.902	4.95
15)	t	Pristane	0.906	0.909	0.991	0.922	0.882		0.922	4.47✓
16)	t	n-Octadecane ...	0.899	0.907	0.988	0.924	0.889		0.921	4.28
17)	t	Phytane	0.899	0.899	0.977	0.913	0.879		0.913	4.15
18)	t	n-Nonadecane ...	0.899	0.909	0.984	0.924	0.887		0.920	4.13
19)	s	ortho-terphenyl	1.041	0.991	1.117	1.012	0.977	0.939✓	1.013	6.08
20)	t	n-Eicosane (C20)	0.922	0.921	0.999	0.931	0.894		0.934	4.20
21)	t	n-Heneicosane...	0.970	0.926	0.998	0.931	0.892		0.943	4.35
22)	t	n-Docosane (C22)	0.925	0.933	1.004	0.937	0.898		0.940	4.18
23)	t	n-Tricosane (...	1.001	0.942	1.003	0.937	0.897		0.956	4.77
24)	s	d50-Tetracosane	0.858	0.820	0.909	0.828	0.798	0.770✓	0.830	5.83
25)	t	n-Tetracosane...	0.924	0.934	1.001	0.932	0.892		0.937	4.25
26)	t	n-Pentacosane...	0.951	0.953	1.021	0.951	0.910		0.957	4.15
27)	t	n-Hexacosane ...	0.948	0.946	1.015	0.945	0.903		0.951	4.24
28)	t	n-Heptacosane...	0.931	0.926	1.008	0.926	0.883		0.935	4.85
29)	t	n-Octacosane ...	0.956	0.936	1.003	0.938	0.893		0.945	4.21
30)	t	n-Nonacosane ...	0.942	0.937	0.999	0.941	0.896		0.943✓	3.91
31)	t	n-Triacontane...	0.939	0.925	1.019	0.930	0.887		0.940	5.17
32)	t	n-Hentriacont...	0.946	0.934	1.005	0.940	0.899		0.945	4.03
33)	t	n-Dotriaconta...	0.944	0.932	0.994	0.938	0.899		0.941	3.65
34)	t	n-Tritriacont...	0.910	0.890	1.006	0.895	0.859		0.912	6.11
35)	t	n-tetratriaco...	0.930	0.920	0.993	0.922	0.889		0.931	4.10
36)	t	n-Pentatriaco...	0.943	0.935	1.001	0.936	0.907		0.944	3.67
37)	t	n-Hexatriacon...	0.964	0.952	1.024	0.953	0.928		0.964	3.71
38)	t	n-Heptatriaco...	0.940	0.931	0.998	0.932	0.912		0.942	3.45
39)	t	n-Octatriacon...	0.928	0.923	0.988	0.926	0.908		0.935	3.28
40)	t	n-Nonatriacon...	0.869	0.868	0.902	0.877	0.861		0.875	1.83
41)	t	n-Tetracontan...	0.869✓	0.868✓	0.902✓	0.877✓	0.861✓		0.875✓	1.83✓

365 of 1960
2151

Response Factor Report FID17

Method Path : O:\Forensics\Methods\FID17\
Method File : HC17032312R.M
Title : FID Forensics
Last Update : Fri Apr 13 08:31:03 2012
Response Via : Initial Calibration

Calibration Files
1 =A002922.D 10 =A002924.D 50 =A002926.D 100 =A002928.D 200 =A002930.D 500 =A002932.D

	Compound	1	10	50	100	200	500	Avg	%RSD
42) h	C9-C44 Total ...	0.910	0.904	0.982	0.914	0.881		0.918	4.12
43) h	C10-C28 DRO	0.910	0.904	0.982	0.914	0.881		0.918	4.12
44) h	Total Resolve...	0.910	0.904	0.982	0.914	0.881		0.918	4.12

(#) = Out of Range

rfupdate

RSF Update Summary Report

Method Path.....: O:\Forensics\Methods\FID17\
Method File.....: HC17032312R.M
Method Title.....: FID Forensics
Last Update.....: Thu Apr 12 17:31:17 2012

Generating Average Response Factor For: C9-C44 Total Petroleum Hydroca

No	Compound	Level	Conc	Response
1	n-Nonane (C9)	1	1.00000	1251590.810
2	n-Decane (C10)	1	1.00000	1321037.062
3	n-Undecane (C11)	1	1.00000	1351689.394
4	n-Dodecane (C12)	1	1.00000	1382021.772
5	n-Tridecane (C13)	1	1.00000	1385851.172
6	n-Tetradecane (C14)	1	1.00000	1385694.154
7	n-Pentadecane (C15)	1	1.00000	1380905.176
8	n-Hexadecane (C16)	1	1.00000	1481980.146
9	n-Heptadecane (C17)	1	1.00000	1407333.797
10	Pristane	1	1.00000	1462508.755
11	n-Octadecane (C18)	1	1.00000	1451516.806
12	Phytane	1	1.00000	1450908.828
13	n-Nonadecane (C19)	1	1.00000	1452042.517
14	n-Eicosane (C20)	1	1.00000	1488956.814
15	n-Heneicosane (C21)	1	1.00000	1566193.494
16	n-Docosane (C22)	1	1.00000	1494136.620
17	n-Tricosane (C23)	1	1.00000	1616058.553
18	n-Tetracosane (C24)	1	1.00000	1492625.928
19	n-Pentacosane (C25)	1	1.00000	1535515.805
20	n-Hexacosane (C26)	1	1.00000	1531093.732
21	n-Heptacosane (C27)	1	1.00000	1502818.690
22	n-Octacosane (C28)	1	1.00000	1544460.200
23	n-Nonacosane (C29)	1	1.00000	1520796.229
24	n-Triacontane (C30)	1	1.00000	1515864.557
25	n-Hentriacontane (C31)	1	1.00000	1527103.174
26	n-Dotriacontane (C32)	1	1.00000	1524164.198
27	n-Tritriacontane (C33)	1	1.00000	1468618.159
28	n-tetratriacontane (C34)	1	1.00000	1502229.934
29	n-Pentatriacontane (C35)	1	1.00000	1521980.119
30	n-Hexatriacontane (C36)	1	1.00000	1556551.472
31	n-Heptatriacontane (C37)	1	1.00000	1517174.620
32	n-Octatriacontane (C38)	1	1.00000	1497802.178
33	n-Tetracontane (C40)	1	1.00000	1403843.320
Avg RSF For: C9-C44 Total Petroleum			1.00000	1469486.915
1	n-Nonane (C9)	2	10.00000	12315102.701
2	n-Decane (C10)	2	10.00000	13039875.249
3	n-Undecane (C11)	2	10.00000	13313729.005
4	n-Dodecane (C12)	2	10.00000	13617651.114
5	n-Tridecane (C13)	2	10.00000	13681016.188
6	n-Tetradecane (C14)	2	10.00000	13856606.635
7	n-Pentadecane (C15)	2	10.00000	13886578.156
8	n-Hexadecane (C16)	2	10.00000	14182164.573
9	n-Heptadecane (C17)	2	10.00000	13995316.484
10	Pristane	2	10.00000	14459482.087
11	n-Octadecane (C18)	2	10.00000	14436946.090

		rfupdate		
12	Phytane	2	10.00000	14304887.764
13	n-Nonadecane (C19)	2	10.00000	14459932.744
14	n-Eicosane (C20)	2	10.00000	14661546.427
15	n-Heneicosane (C21)	2	10.00000	14733421.808
16	n-Docosane (C22)	2	10.00000	14856193.426
17	n-Tricosane (C23)	2	10.00000	14989800.191
18	n-Tetracosane (C24)	2	10.00000	14860125.159
19	n-Pentacosane (C25)	2	10.00000	15162428.753
20	n-Hexacosane (C26)	2	10.00000	15053917.525
21	n-Heptacosane (C27)	2	10.00000	14734040.134
22	n-Octacosane (C28)	2	10.00000	14903797.489
23	n-Nonacosane (C29)	2	10.00000	14916698.111
24	n-Triacontane (C30)	2	10.00000	14723984.237
25	n-Hentriacontane (C31)	2	10.00000	14868817.920
26	n-Dotriacontane (C32)	2	10.00000	14833937.541
27	n-Tritriacontane (C33)	2	10.00000	14164493.187
28	n-tetratriacontane (C34)	2	10.00000	14634039.814
29	n-Pentatriacontane (C35)	2	10.00000	14881147.723
30	n-Hexatriacontane (C36)	2	10.00000	15149933.058
31	n-Heptatriacontane (C37)	2	10.00000	14817088.819 ✓
32	n-Octatriacontane (C38)	2	10.00000	14692998.916
33	n-Tetracontane (C40)	2	10.00000	13810396.463
Avg RSF For: C9-C44 Total Petroleum			10.00000	14393881.682 ✓

1	n-Nonane (C9)	3	50.00000	69849787.472
2	n-Decane (C10)	3	50.00000	73417765.505
3	n-Undecane (C11)	3	50.00000	74329043.981 ✓
4	n-Dodecane (C12)	3	50.00000	75302608.961
5	n-Tridecane (C13)	3	50.00000	75699587.756
6	n-Tetradecane (C14)	3	50.00000	76569189.485
7	n-Pentadecane (C15)	3	50.00000	76336538.541
8	n-Hexadecane (C16)	3	50.00000	77427057.372
9	n-Heptadecane (C17)	3	50.00000	78183870.107
10	Pristane	3	50.00000	79152172.328
11	n-Octadecane (C18)	3	50.00000	78943782.744
12	Phytane	3	50.00000	78077156.193
13	n-Nonadecane (C19)	3	50.00000	78613119.552
14	n-Eicosane (C20)	3	50.00000	79830952.394
15	n-Heneicosane (C21)	3	50.00000	79701602.197
16	n-Docosane (C22)	3	50.00000	80239937.886
17	n-Tricosane (C23)	3	50.00000	80141905.545
18	n-Tetracosane (C24)	3	50.00000	79976309.310
19	n-Pentacosane (C25)	3	50.00000	81528319.502
20	n-Hexacosane (C26)	3	50.00000	81107752.544
21	n-Heptacosane (C27)	3	50.00000	80556879.750
22	n-Octacosane (C28)	3	50.00000	80114755.829 ✓
23	n-Nonacosane (C29)	3	50.00000	79829963.217
24	n-Triacontane (C30)	3	50.00000	81435110.807
25	n-Hentriacontane (C31)	3	50.00000	80253840.859
26	n-Dotriacontane (C32)	3	50.00000	79416221.405
27	n-Tritriacontane (C33)	3	50.00000	80380202.270
28	n-tetratriacontane (C34)	3	50.00000	79327431.238
29	n-Pentatriacontane (C35)	3	50.00000	79999079.598
30	n-Hexatriacontane (C36)	3	50.00000	81767264.542
31	n-Heptatriacontane (C37)	3	50.00000	79694630.194 ✓
32	n-Octatriacontane (C38)	3	50.00000	78915028.544
33	n-Tetracontane (C40)	3	50.00000	72059279.276
Avg RSF For: C9-C44 Total Petroleum			50.00000	78429640.815 ✓

		rfupdate		
1	n-Nonane (C9)	4	100.00000	139166590.195
2	n-Decane (C10)	4	100.00000	149650341.800
3	n-Undecane (C11)	4	100.00000	152683602.539
4	n-Dodecane (C12)	4	100.00000	155918559.776
5	n-Tridecane (C13)	4	100.00000	156670977.185
6	n-Tetradecane (C14)	4	100.00000	158385691.580
7	n-Pentadecane (C15)	4	100.00000	158515674.930 ✓
8	n-Hexadecane (C16)	4	100.00000	161137617.321
9	n-Heptadecane (C17)	4	100.00000	159957630.146
10	Pristane	4	100.00000	163412985.339
11	n-Octadecane (C18)	4	100.00000	163885604.299
12	Phytane	4	100.00000	161817378.529
13	n-Nonadecane (C19)	4	100.00000	163800379.478
14	n-Eicosane (C20)	4	100.00000	165133731.684
15	n-Heneicosane (C21)	4	100.00000	165005365.625
16	n-Docosane (C22)	4	100.00000	166193989.738
17	n-Tricosane (C23)	4	100.00000	166142292.821
18	n-Tetracosane (C24)	4	100.00000	165232280.741
19	n-Pentacosane (C25)	4	100.00000	168707053.494
20	n-Hexacosane (C26)	4	100.00000	167573223.939
21	n-Heptacosane (C27)	4	100.00000	164217824.497
22	n-Octacosane (C28)	4	100.00000	166272275.928
23	n-Nonacosane (C29)	4	100.00000	166855969.638
24	n-Triacontane (C30)	4	100.00000	164926868.621
25	n-Hentriacontane (C31)	4	100.00000	166726295.141
26	n-Dotriacontane (C32)	4	100.00000	166338854.971 ✓
27	n-Tritriacontane (C33)	4	100.00000	158769675.097
28	n-tetratriacontane (C34)	4	100.00000	163543587.540
29	n-Pentatriacontane (C35)	4	100.00000	166041950.204
30	n-Hexatriacontane (C36)	4	100.00000	168925919.390
31	n-Heptatriacontane (C37)	4	100.00000	165259008.760
32	n-Octatriacontane (C38)	4	100.00000	164224434.140
33	n-Tetracontane (C40)	4	100.00000	155519297.691
Avg RSF For: C9-C44 Total Petroleum			100.00000	162018573.720 ✓
1	n-Nonane (C9)	5	200.00000	250230981.180
2	n-Decane (C10)	5	200.00000	263978041.987
3	n-Undecane (C11)	5	200.00000	267261383.664
4	n-Dodecane (C12)	5	200.00000	272847916.384
5	n-Tridecane (C13)	5	200.00000	274002228.745
6	n-Tetradecane (C14)	5	200.00000	276962520.985
7	n-Pentadecane (C15)	5	200.00000	276880125.762
8	n-Hexadecane (C16)	5	200.00000	280982027.162 ✓
9	n-Heptadecane (C17)	5	200.00000	281159251.003
10	Pristane	5	200.00000	282980320.425
11	n-Octadecane (C18)	5	200.00000	285198786.571
12	Phytane	5	200.00000	281888535.117
13	n-Nonadecane (C19)	5	200.00000	284498116.994
14	n-Eicosane (C20)	5	200.00000	286903851.698
15	n-Heneicosane (C21)	5	200.00000	286292670.209
16	n-Docosane (C22)	5	200.00000	288096922.901
17	n-Tricosane (C23)	5	200.00000	287706887.194
18	n-Tetracosane (C24)	5	200.00000	286136127.791
19	n-Pentacosane (C25)	5	200.00000	292006311.645
20	n-Hexacosane (C26)	5	200.00000	289672666.663
21	n-Heptacosane (C27)	5	200.00000	283442147.562
22	n-Octacosane (C28)	5	200.00000	286465604.631
23	n-Nonacosane (C29)	5	200.00000	287352846.380
24	n-Triacontane (C30)	5	200.00000	284500296.942 ✓
25	n-Hentriacontane (C31)	5	200.00000	288436968.215
26	n-Dotriacontane (C32)	5	200.00000	288288995.998

rfupdate

27	n-Tritriacontane (C33)	5	200.00000	275629019.485
28	n-tetratriacontane (C34)	5	200.00000	285148495.608 ✓
29	n-Pentatriacontane (C35)	5	200.00000	290992959.203
30	n-Hexatriacontane (C36)	5	200.00000	297722948.061
31	n-Heptatriacontane (C37)	5	200.00000	292537632.627
32	n-Octatriacontane (C38)	5	200.00000	291433530.460
33	n-Tetracontane (C40)	5	200.00000	276101843.983
Avg RSF For: C9-C44 Total Petroleum			200.00000	282537544.340 ✓

Generating Reference Response Factors

No	Compound	No	Refrence Compound
8	1380	✓ 9	n-Tetradecane (C14)
10	1470	✓11	n-Pentadecane (C15)
13	1650	✓14	n-Heptadecane (C17)
40	n-Nonatriacontane (C39)	✓41	n-Tetracontane (C40)
43	C10-C28 DRO	✓42	C9-C44 Total Petroleum Hydr
44	Total Resolved Hydrocarbons	✓42	C9-C44 Total Petroleum Hydr

Abacus Response Factor Update Macro ver. 1.0

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002922.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 6:22 pm
Operator : BAL
Sample : I1703231201R
Misc : WHA093
ALS Vial : 57 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 16:57:42 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:28:22 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

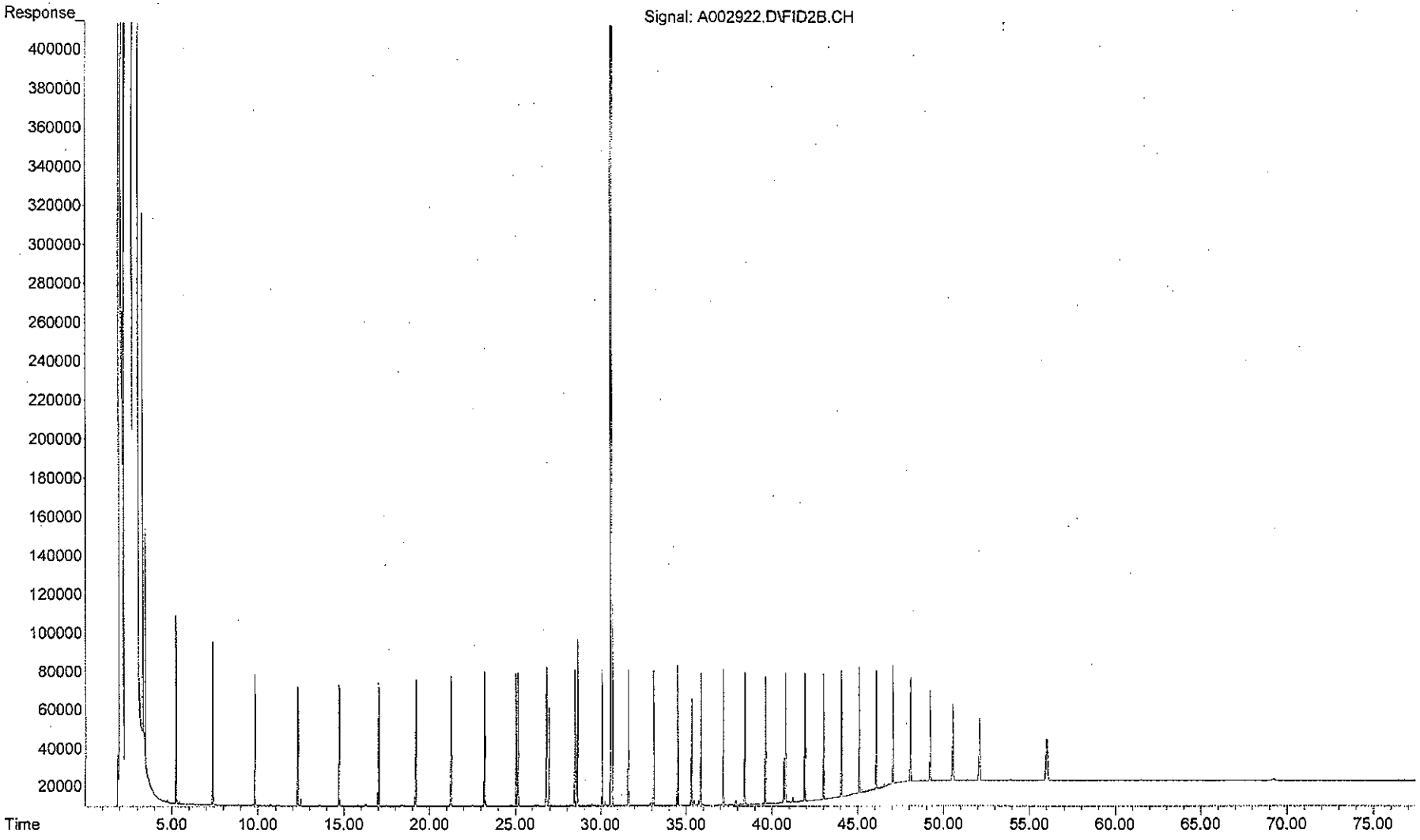
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.640	80737217	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.626	1681665	1.010 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.02%#
24) s	d50-Tetracosane	35.300	1385064	1.017 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.03%#
	Target Compounds			
2) t	n-Octane (C8)	5.230	1133517	0.915 ug/mL M4
3) t	n-Nonane (C9)	7.368	1251591	0.955 ug/mL M4
4) t	n-Decane (C10)	9.812	1321037	0.950 ug/mL M4
5) t	n-Undecane (C11)	12.301	1351689	0.971 ug/mL M4
6) t	n-Dodecane (C12)	14.713	1382022	0.971 ug/mL M4
7) t	n-Tridecane (C13)	17.007	1385851	0.967 ug/mL M4
9) t	n-Tetradecane (C14)	19.179	1385694	0.957 ug/mL M4
11) t	n-Pentadecane (C15)	21.236	1380905	0.949 ug/mL M4
12) t	n-Hexadecane (C16)	23.185	1481980	1.010 ug/mL M4
14) t	n-Heptadecane (C17)	25.035	1407334	0.970 ug/mL M4
15) t	Pristane	25.143	1462509	0.957 ug/mL M4
16) t	n-Octadecane (C18)	26.796	1451517	0.979 ug/mL M4
17) t	Phytane	26.954	1450909	0.967 ug/mL M4
18) t	n-Nonadecane (C19)	28.478	1452043	0.989 ug/mL M4
20) t	n-Eicosane (C20)	30.078	1488957	0.991 ug/mL M4
21) t	n-Heneicosane (C21)	31.608	1566193	1.040 ug/mL M4
22) t	n-Docosane (C22)	33.078	1494137	0.989 ug/mL M4
23) t	n-Tricosane (C23)	34.488	1616059	1.066 ug/mL M4
25) t	n-Tetracosane (C24)	35.841	1492626	0.978 ug/mL M4
26) t	n-Pentacosane (C25)	37.144	1535516	0.998 ug/mL M4
27) t	n-Hexacosane (C26)	38.398	1531094	0.999 ug/mL M4
28) t	n-Heptacosane (C27)	39.606	1502819	0.986 ug/mL M4
29) t	n-Octacosane (C28)	40.773	1544460	1.008 ug/mL M4
30) t	n-Nonacosane (C29)	41.901	1520796	1.005 ug/mL M4
31) t	n-Triacontane (C30)	42.992	1515865	0.989 ug/mL M4
32) t	n-Hentriacontane (C31)	44.048	1527103	1.007 ug/mL M4
33) t	n-Dotriacontane (C32)	45.072	1524164	1.019 ug/mL M4
34) t	n-Tritriacontane (C33)	46.066	1468618	0.981 ug/mL M4
35) t	n-tetratriacontane (C34)	47.032	1502230	1.007 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.053	1521980	1.009 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.205	1556551	1.010 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.534	1517175	1.011 ug/mL M4
39) t	n-Octatriacontane (C38)	52.077	1497802	1.007 ug/mL M4
41) t	n-Tetracontane (C40)	55.997	1403843	1.024 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002922.D
Operator : BAL
Acquired : 23 Mar 2012 6:22 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231201R
Misc Info : WHA093
ALS Vial : 57



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002924.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 7:51 pm
Operator : BAL
Sample : I1703231202R
Misc : WHA094
ALS Vial : 58 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:02:04 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:36:23 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

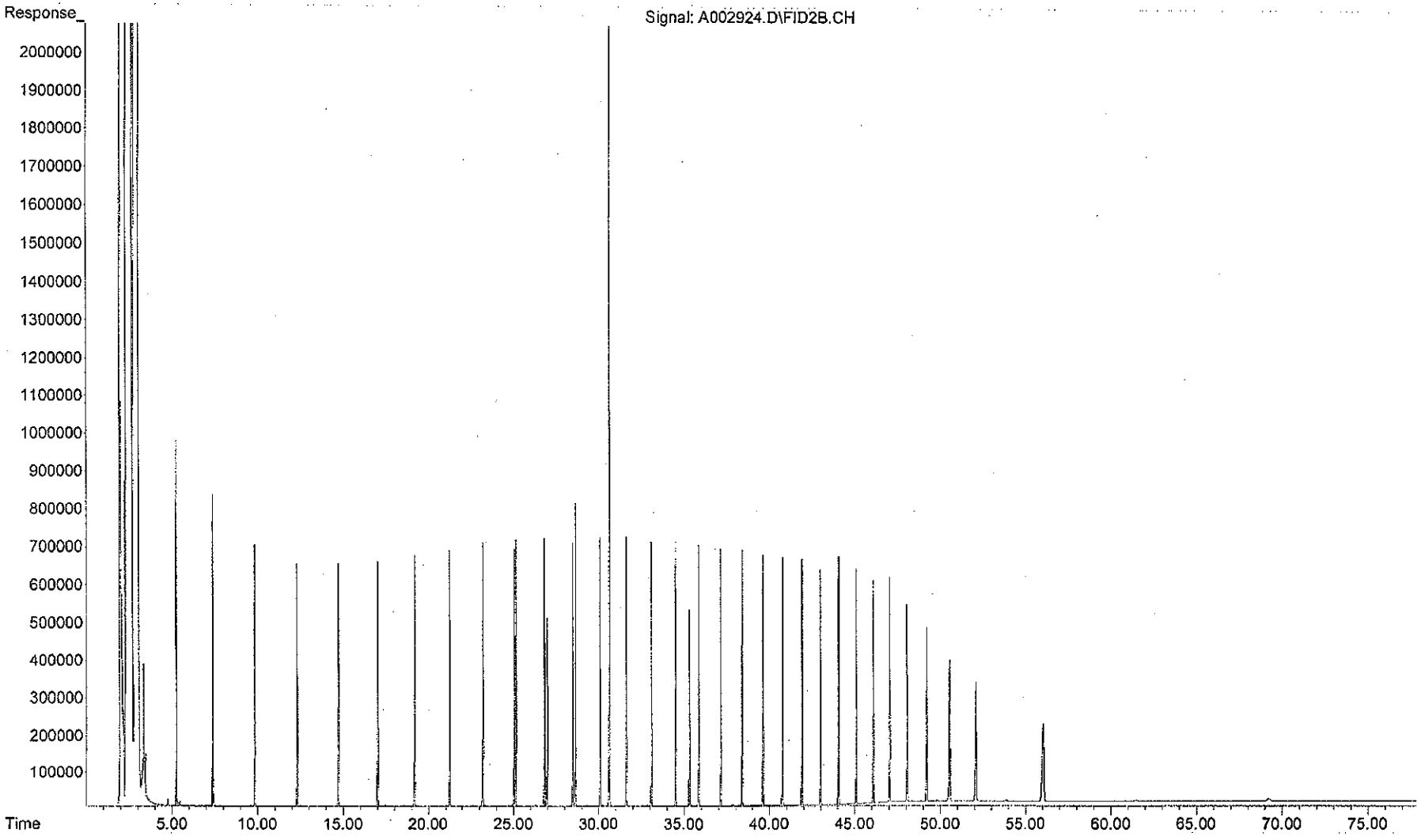
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.640	79573508	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.632	15768442	9.644 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	19.29%#
24) s	d50-Tetracosane	35.304	13042971	9.774 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	19.55%#
	Target Compounds			
2) t	n-Octane (C8)	5.232	11638641	9.525 ug/mL M4
3) t	n-Nonane (C9)	7.371	12315103	9.624 ug/mL M4
4) t	n-Decane (C10)	9.814	13039875	9.723 ug/mL M4
5) t	n-Undecane (C11)	12.302	13313729	9.828 ug/mL M4
6) t	n-Dodecane (C12)	14.714	13617651	9.861 ug/mL M4
7) t	n-Tridecane (C13)	17.010	13681016	9.857 ug/mL M4
9) t	n-Tetradecane (C14)	19.183	13856607	9.882 ug/mL M4
11) t	n-Pentadecane (C15)	21.239	13886578	9.916 ug/mL M4
12) t	n-Hexadecane (C16)	23.189	14182165	9.884 ug/mL M4
14) t	n-Heptadecane (C17)	25.039	13995316	9.975 ug/mL M4
15) t	Pristane	25.147	14459482	9.799 ug/mL M4
16) t	n-Octadecane (C18)	26.801	14436946	10.054 ug/mL M4
17) t	Phytane	26.963	14304888	9.861 ug/mL M4
18) t	n-Nonadecane (C19)	28.483	14459933	10.148 ug/mL M4
20) t	n-Eicosane (C20)	30.083	14661546	10.058 ug/mL M4
21) t	n-Heneicosane (C21)	31.614	14733422	9.998 ug/mL M4
22) t	n-Docosane (C22)	33.084	14856193	10.144 ug/mL M4
23) t	n-Tricosane (C23)	34.492	14989800	10.067 ug/mL M4
25) t	n-Tetracosane (C24)	35.846	14860125	10.095 ug/mL M4
26) t	n-Pentacosane (C25)	37.147	15162429	10.142 ug/mL M4
27) t	n-Hexacosane (C26)	38.403	15053918	10.129 ug/mL M4
28) t	n-Heptacosane (C27)	39.612	14734040	10.025 ug/mL M4
29) t	n-Octacosane (C28)	40.778	14903797	10.079 ug/mL M4
30) t	n-Nonacosane (C29)	41.906	14916698	10.154 ug/mL M4
31) t	n-Triacontane (C30)	42.999	14723984	9.945 ug/mL M4
32) t	n-Hentriacontane (C31)	44.054	14868818	10.114 ug/mL M4
33) t	n-Dotriacontane (C32)	45.078	14833938	10.193 ug/mL M4
34) t	n-Tritriacontane (C33)	46.071	14164493	9.819 ug/mL M4
35) t	n-tetratriacontane (C34)	47.036	14634040	10.081 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.059	14881148	10.157 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.215	15149933	10.164 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.543	14817089	10.173 ug/mL M4
39) t	n-Octatriacontane (C38)	52.085	14692999	10.168 ug/mL M4
41) t	n-Tetracontane (C40)	56.012	13810396	10.318 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002924.D
Operator : BAL
Acquired : 23 Mar 2012 7:51 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231202R
Misc Info : WHA094
ALS Vial : 58



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002926.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 9:20 pm
Operator : BAL
Sample : I1703231203R
Misc : WHAP26
ALS Vial : 59 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:27:28 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 10:45:15 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

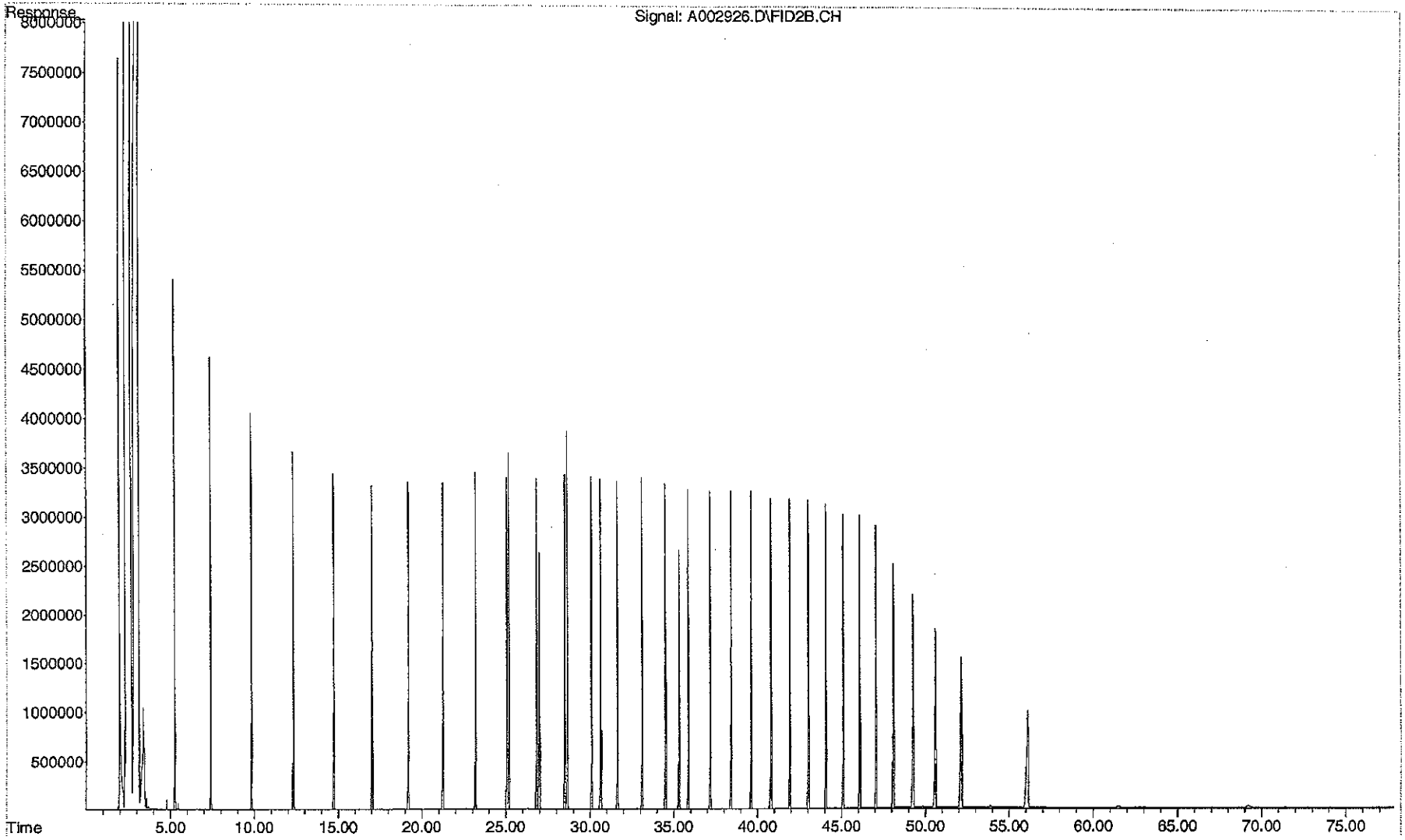
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.642	79889388	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.661	89251704	54.284 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 108.57%	
24) s	d50-Tetracosane	35.326	72603404	54.044 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 108.09%	
	Target Compounds			
2) t	n-Octane (C8)	5.257	65034398	53.754 ug/mL M4
3) t	n-Nonane (C9)	7.391	69849787	54.869 ug/mL M4
4) t	n-Decane (C10)	9.831	73417766	54.950 ug/mL M4
5) t	n-Undecane (C11)	12.317	74329044	54.887 ug/mL M4
6) t	n-Dodecane (C12)	14.728	75302609	54.555 ug/mL M4
7) t	n-Tridecane (C13)	17.025	75699588	54.630 ug/mL M4
9) t	n-Tetradecane (C14)	19.200	76569189	54.710 ug/mL M4
11) t	n-Pentadecane (C15)	21.258	76336539	54.556 ug/mL M4
12) t	n-Hexadecane (C16)	23.209	77427057	53.924 ug/mL M4
14) t	n-Heptadecane (C17)	25.062	78183870	55.722 ug/mL M4
15) t	Pristane	25.173	79152172	53.827 ug/mL M4
16) t	n-Octadecane (C18)	26.825	78943783	54.807 ug/mL M4
17) t	Phytane	26.988	78077156	53.912 ug/mL M4
18) t	n-Nonadecane (C19)	28.506	78613120	54.878 ug/mL M4
20) t	n-Eicosane (C20)	30.106	79830952	54.553 ug/mL M4
21) t	n-Heneicosane (C21)	31.637	79701602	53.870 ug/mL M4
22) t	n-Docosane (C22)	33.107	80239938	54.603 ug/mL M4
23) t	n-Tricosane (C23)	34.517	80141906	53.476 ug/mL M4
25) t	n-Tetracosane (C24)	35.872	79976309	54.266 ug/mL M4
26) t	n-Pentacosane (C25)	37.174	81528320	54.296 ug/mL M4
27) t	n-Hexacosane (C26)	38.427	81107753	54.179 ug/mL M4
28) t	n-Heptacosane (C27)	39.639	80556880	54.739 ug/mL M4
29) t	n-Octacosane (C28)	40.807	80114756	53.922 ug/mL M4
30) t	n-Nonacosane (C29)	41.935	79829963	53.993 ug/mL M4
31) t	n-Triacontane (C30)	43.027	81435111	54.977 ug/mL M4
32) t	n-Hentriacontane (C31)	44.083	80253841	54.300 ug/mL M4
33) t	n-Dotriacontane (C32)	45.107	79416221	54.151 ug/mL M4
34) t	n-Tritriacontane (C33)	46.100	80380202	55.929 ug/mL M4
35) t	n-tetratriacontane (C34)	47.066	79327431	54.395 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.095	79999080	54.367 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.259	81767265	54.635 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.593	79694630	54.462 ug/mL M4
39) t	n-Octatriacontane (C38)	52.149	78915029	54.298 ug/mL M4
41) t	n-Tetracontane (C40)	56.096	72059279	53.234 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\FORENSICS\DATA\FID17\2012\MAR2012\MAR23.SEC\A002926.D
Operator : BAL
Acquired : 23 Mar 2012 9:20 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231203R
Misc Info : WHAP26
ALS Vial : 59



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002928.D
Signal(s) : FID2B.CH
Acq On : 23 Mar 2012 10:49 pm
Operator : BAL
Sample : I1703231204R
Misc : WHAO95
ALS Vial : 60 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:10:19 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 11:41:01 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

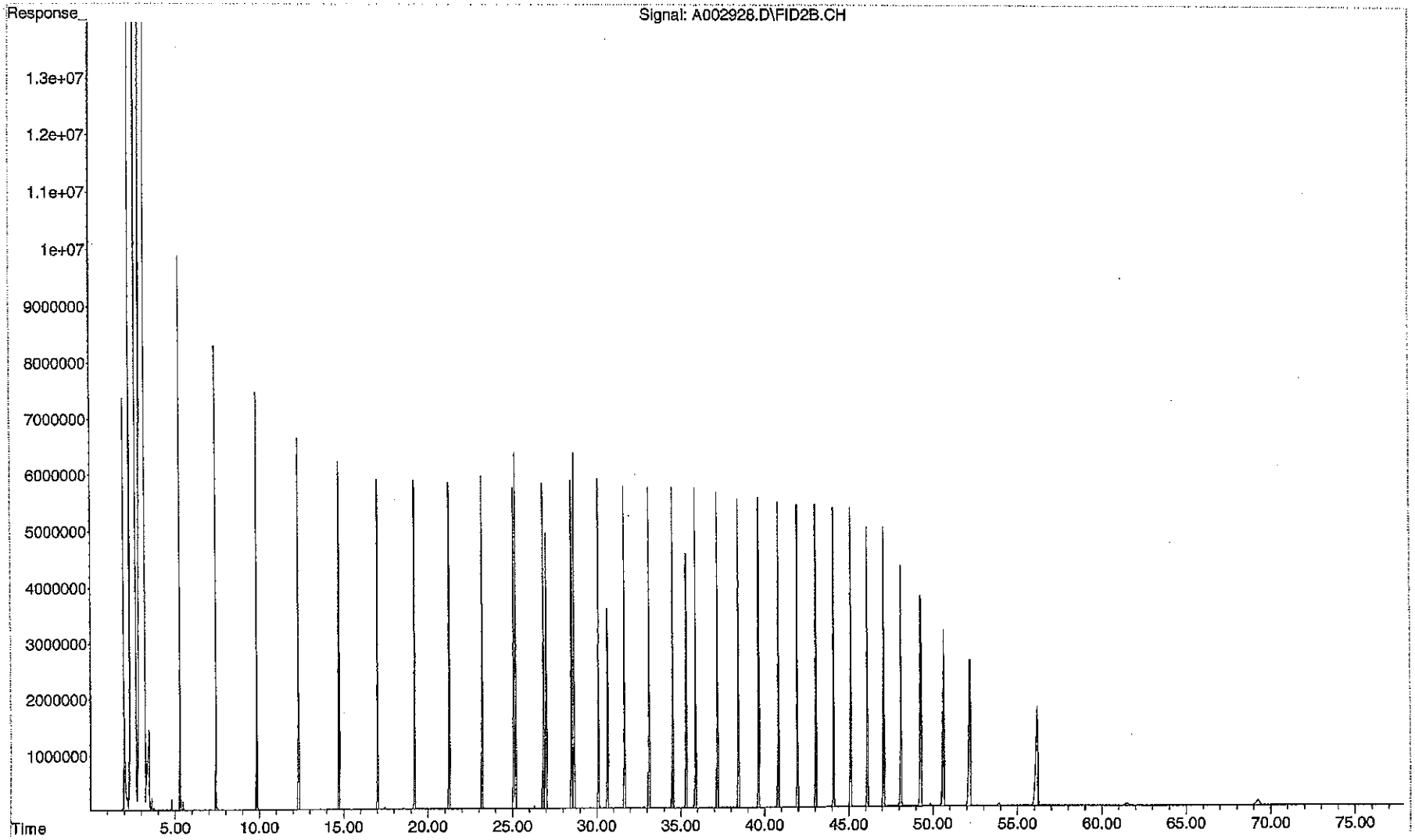
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.649	88655466	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.686	179525459	98.012 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	196.02%#
24) s	d50-Tetracosane	35.348	146744856	97.681 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	195.36%#
	Target Compounds			
2) t	n-Octane (C8)	5.293	126868109	94.325 ug/mL M4
3) t	n-Nonane (C9)	7.419	139166590	97.371 ug/mL M4
4) t	n-Decane (C10)	9.851	149650342	99.747 ug/mL M4
5) t	n-Undecane (C11)	12.334	152683603	100.327 ug/mL M4
6) t	n-Dodecane (C12)	14.745	155918560	100.696 ug/mL M4
7) t	n-Tridecane (C13)	17.042	156670977	100.795 ug/mL M4
9) t	n-Tetradecane (C14)	19.217	158385692	100.882 ug/mL M4
11) t	n-Pentadecane (C15)	21.277	158515675	101.054 ug/mL M4
12) t	n-Hexadecane (C16)	23.228	161137617	100.087 ug/mL M4
14) t	n-Heptadecane (C17)	25.082	159957630	100.878 ug/mL M4
15) t	Pristane	25.195	163412985	99.520 ug/mL M4
16) t	n-Octadecane (C18)	26.847	163885604	101.175 ug/mL M4
17) t	Phytane	27.012	161817379	99.918 ug/mL M4
18) t	n-Nonadecane (C19)	28.530	163800379	101.616 ug/mL M4
20) t	n-Eicosane (C20)	30.130	165133732	100.375 ug/mL M4
21) t	n-Heneicosane (C21)	31.662	165005366	99.294 ug/mL M4
22) t	n-Docosane (C22)	33.133	166193990	100.722 ug/mL M4
23) t	n-Tricosane (C23)	34.543	166142293	98.696 ug/mL M4
25) t	n-Tetracosane (C24)	35.898	165232281	99.959 ug/mL M4
26) t	n-Pentacosane (C25)	37.201	168707053	100.042 ug/mL M4
27) t	n-Hexacosane (C26)	38.455	167573224	99.635 ug/mL M4
28) t	n-Heptacosane (C27)	39.664	164217824	98.986 ug/mL M4
29) t	n-Octacosane (C28)	40.832	166272276	99.633 ug/mL M4
30) t	n-Nonacosane (C29)	41.961	166855970	100.357 ug/mL M4
31) t	n-Triacontane (C30)	43.054	164926869	98.250 ug/mL M4
32) t	n-Hentriacontane (C31)	44.112	166726295	100.128 ug/mL M4
33) t	n-Dotriacontane (C32)	45.136	166338855	100.676 ug/mL M4
34) t	n-Tritriacontane (C33)	46.125	158769675	96.897 ug/mL M4
35) t	n-tetratriacontane (C34)	47.094	163543588	99.287 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.127	166041950	99.974 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.299	168925919	99.949 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.640	165259009	99.992 ug/mL M4
39) t	n-Octatriacontane (C38)	52.204	164224434	100.036 ug/mL M4
41) t	n-Tetracontane (C40)	56.163	155519298	102.328 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\FORENSICS\DATA\FID17\2012\MAR2012\MAR23.SEC\A002928.D
Operator : BAL
Acquired : 23 Mar 2012 10:49 pm using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231204R
Misc Info : WHA095
ALS Vial : 60



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002930.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 12:18 am
Operator : BAL
Sample : I1703231205R
Misc : WHA096
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 12 17:11:37 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 11:50:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

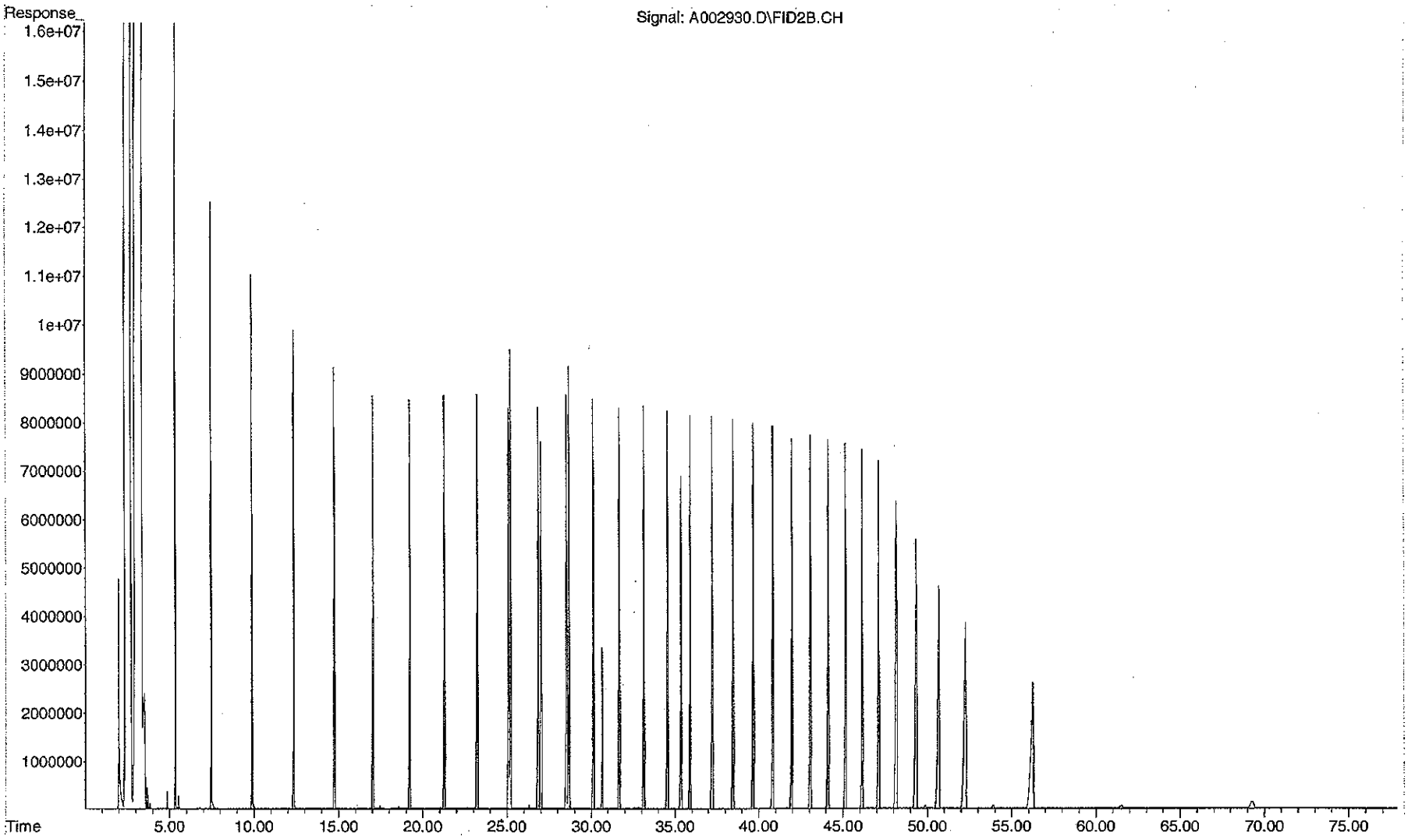
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	5-alpha-androstane	30.651	80211999	50.000	ug/mL	M4
	System Monitoring Compounds					
19) s	ortho-terphenyl	28.713	313621375	188.283	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery = 376.57%#			
24) s	d50-Tetracosane	35.373	256185900	188.361	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery = 376.72%#			
	Target Compounds					
2) t	n-Octane (C8)	5.351	239243704	198.817	ug/mL	M4
3) t	n-Nonane (C9)	7.460	250230981	193.813	ug/mL	M4
4) t	n-Decane (C10)	9.877	263978042	193.805	ug/mL	M4
5) t	n-Undecane (C11)	12.355	267261384	193.022	ug/mL	M4
6) t	n-Dodecane (C12)	14.764	272847916	193.455	ug/mL	M4
7) t	n-Tridecane (C13)	17.061	274002229	193.506	ug/mL	M4
9) t	n-Tetradecane (C14)	19.238	276962521	193.719	ug/mL	M4
11) t	n-Pentadecane (C15)	21.296	276880126	193.783	ug/mL	M4
12) t	n-Hexadecane (C16)	23.250	280982027	191.576	ug/mL	M4
14) t	n-Heptadecane (C17)	25.106	281159251	194.313	ug/mL	M4
15) t	Pristane	25.222	282980320	190.079	ug/mL	M4
16) t	n-Octadecane (C18)	26.870	285198787	192.946	ug/mL	M4
17) t	Phytane	27.039	281888535	191.549	ug/mL	M4
18) t	n-Nonadecane (C19)	28.553	284498117	193.076	ug/mL	M4
20) t	n-Eicosane (C20)	30.153	286903852	191.236	ug/mL	M4
21) t	n-Heneicosane (C21)	31.687	286292670	188.981	ug/mL	M4
22) t	n-Docosane (C22)	33.156	288096923	190.924	ug/mL	M4
23) t	n-Tricosane (C23)	34.568	287706887	187.581	ug/mL	M4
25) t	n-Tetracosane (C24)	35.926	286136128	190.309	ug/mL	M4
26) t	n-Pentacosane (C25)	37.227	292006312	190.108	ug/mL	M4
27) t	n-Hexacosane (C26)	38.481	289672667	189.694	ug/mL	M4
28) t	n-Heptacosane (C27)	39.691	283442148	188.271	ug/mL	M4
29) t	n-Octacosane (C28)	40.860	286465605	188.904	ug/mL	M4
30) t	n-Nonacosane (C29)	41.991	287352846	190.237	ug/mL	M4
31) t	n-Triacontane (C30)	43.081	284500297	187.980	ug/mL	M4
32) t	n-Hentriacontane (C31)	44.140	288436968	190.906	ug/mL	M4
33) t	n-Dotriacontane (C32)	45.163	288288996	192.020	ug/mL	M4
34) t	n-Tritriacontane (C33)	46.155	275629019	187.608	ug/mL	M4
35) t	n-tetratriacontane (C34)	47.125	285148496	191.572	ug/mL	M4
36) t	n-Pentatriacontane (C35)	48.166	290992959	193.395	ug/mL	M4
37) t	n-Hexatriacontane (C36)	49.339	297722948	193.986	ug/mL	M4
38) t	n-Heptatriacontane (C37)	50.691	292537633	195.526	ug/mL	M4
39) t	n-Octatriacontane (C38)	52.266	291433530	196.290	ug/mL	M4
41) t	n-Tetracontane (C40)	56.253	276101844	199.645	ug/mL	M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002930.D
Operator : BAL
Acquired : 24 Mar 2012 12:18 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231205R
Misc Info : WHA096
ALS Vial : 61



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002932.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 1:47 am
Operator : BAL
Sample : I1703231206R
Misc : WHA097
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 28 14:25:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Mon Mar 26 12:09:32 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

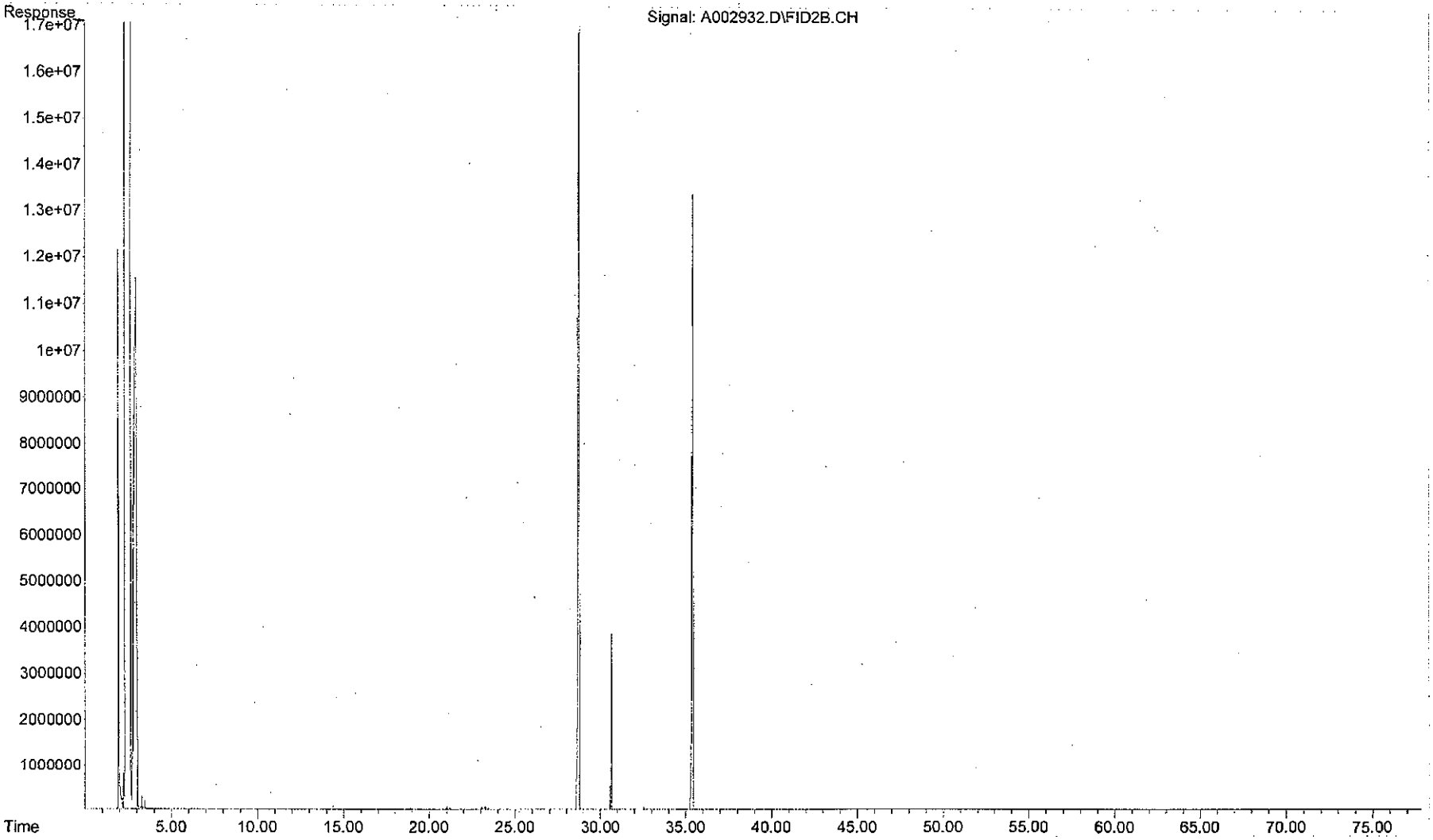
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.648	93986669	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.771f	882093541	455.046 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 910.09%#	
24) s d50-Tetracosane	35.431f	723388324	455.329 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 910.66%#	
Target Compounds			
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002932.D
Operator : BAL
Acquired : 24 Mar 2012 1:47 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231206R
Misc Info : WHA097
ALS Vial : 62



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002936.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 4:45 am
Operator : BAL
Sample : CQ1703231207R
Misc : WHA098
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:28:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	117	0.00
2	t	n-Octane (C8)	50.000	43.618	12.8	93	0.00
3	t	n-Nonane (C9)	50.000	42.966	14.1	92	0.00
4	t	n-Decane (C10)	50.000	42.770	14.5	92	0.00
5	t	n-Undecane (C11)	50.000	42.552	14.9	92	0.00
6	t	n-Dodecane (C12)	50.000	42.411	15.2	92	0.00
7	t	n-Tridecane (C13)	50.000	42.285	15.4	92	0.00
9	t	n-Tetradecane (C14)	50.000	42.338	15.3	92	0.00
11	t	n-Pentadecane (C15)	50.000	42.421	15.2	92	0.00
12	t	n-Hexadecane (C16)	50.000	41.839	16.3	92	0.00
14	t	n-Heptadecane (C17)	50.000	42.030	15.9	90	0.00
15	t	Pristane	50.000	42.248	15.5	92	0.00
16	t	n-Octadecane (C18)	50.000	42.255	15.5	92	0.00
17	t	Phytane	50.000	42.154	15.7	92	0.00
18	t	n-Nonadecane (C19)	50.000	42.290	15.4	92	0.00
19	s	ortho-terphenyl	50.000	42.571	14.9	90	0.00
20	t	n-Eicosane (C20)	50.000	42.138	15.7	92	0.00
21	t	n-Heneicosane (C21)	50.000	41.796	16.4	92	0.00
22	t	n-Docosane (C22)	50.000	42.199	15.6	92	0.00
23	t	n-Tricosane (C23)	50.000	41.536	16.9	92	0.00
24	s	d50-Tetracosane	50.000	42.568	14.9	91	0.00
25	t	n-Tetracosane (C24)	50.000	42.178	15.6	92	0.00
26	t	n-Pentacosane (C25)	50.000	42.106	15.8	92	0.00
27	t	n-Hexacosane (C26)	50.000	42.058	15.9	92	0.00
28	t	n-Heptacosane (C27)	50.000	41.888	16.2	91	0.00
29	t	n-Octacosane (C28)	50.000	41.923	16.2	92	0.00
30	t	n-Nonacosane (C29)	50.000	42.120	15.8	93	0.00
31	t	n-Triacontane (C30)	50.000	41.750	16.5	90	0.00
32	t	n-Hentriacontane (C31)	50.000	41.993	16.0	92	0.00
33	t	n-Dotriacontane (C32)	50.000	42.061	15.9	93	0.00
34	t	n-Tritriacontane (C33)	50.000	41.464	17.1	88	0.00
35	t	n-tetratriacontane (C34)	50.000	41.902	16.2	92	0.00
36	t	n-Pentatriacontane (C35)	50.000	41.964	16.1	92	0.00
37	t	n-Hexatriacontane (C36)	50.000	41.807	16.4	92	0.00
38	t	n-Heptatriacontane (C37)	50.000	41.756	16.5	92	0.00
39	t	n-Octatriacontane (C38)	50.000	41.707	16.6	92	0.00
41	t	n-Tetracontane (C40)	50.000	41.860	16.3	95	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC17032312R.M Fri Apr 13 08:45:14 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002936.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 4:45 am
Operator : BAL
Sample : CQ1703231207R
Misc : WHAO98
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:28:45 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

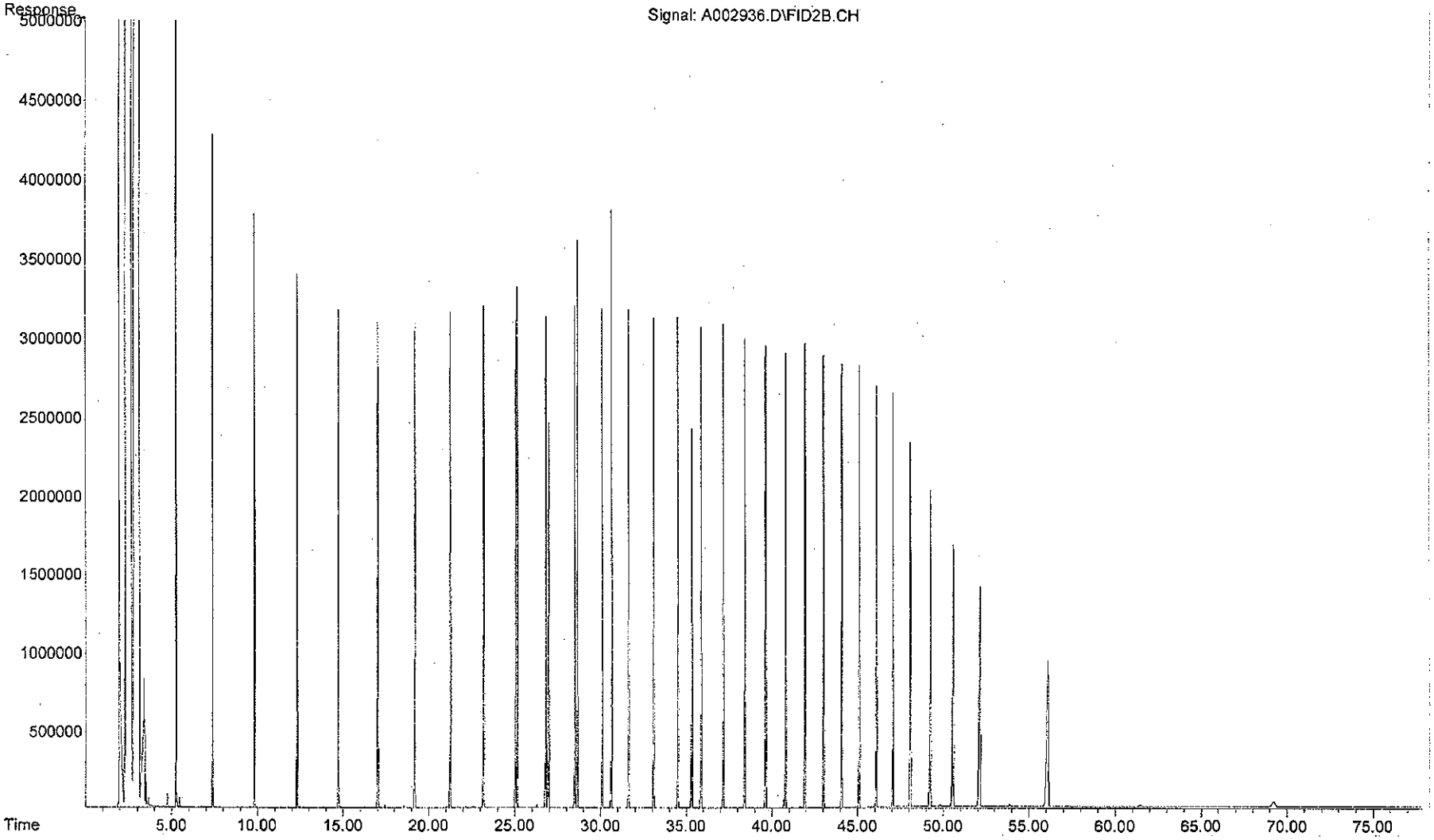
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.644	93255139	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.655	80429835	42.571 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 85.14%	
24) s d50-Tetracosane	35.323	65922118	42.568 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 85.14%	
Target Compounds			
2) t n-Octane (C8)	5.255	60339221	43.618 ug/mL M4
3) t n-Nonane (C9)	7.389	63917158	42.966 ug/mL M4
4) t n-Decane (C10)	9.827	67376984	42.770 ug/mL M4
5) t n-Undecane (C11)	12.312	68224068	42.552 ug/mL M4
6) t n-Dodecane (C12)	14.725	69354440	42.411 ug/mL M4
7) t n-Tridecane (C13)	17.022	69450604	42.285 ug/mL M4
9) t n-Tetradecane (C14)	19.197	70180781	42.338 ug/mL M4
11) t n-Pentadecane (C15)	21.254	70262014	42.421 ug/mL M4
12) t n-Hexadecane (C16)	23.206	71208050	41.839 ug/mL M4
14) t n-Heptadecane (C17)	25.058	70676997	42.030 ug/mL M4
15) t Pristane	25.168	72629603	42.248 ug/mL M4
16) t n-Octadecane (C18)	26.820	72622064	42.255 ug/mL M4
17) t Phytane	26.984	71795832	42.154 ug/mL M4
18) t n-Nonadecane (C19)	28.502	72602680	42.290 ug/mL M4
20) t n-Eicosane (C20)	30.102	73374893	42.138 ug/mL M4
21) t n-Heneicosane (C21)	31.635	73530566	41.796 ug/mL M4
22) t n-Docosane (C22)	33.104	73958137	42.199 ug/mL M4
23) t n-Tricosane (C23)	34.513	74054372	41.536 ug/mL M4
25) t n-Tetracosane (C24)	35.869	73676859	42.178 ug/mL M4
26) t n-Pentacosane (C25)	37.169	75166884	42.106 ug/mL M4
27) t n-Hexacosane (C26)	38.426	74635040	42.058 ug/mL M4
28) t n-Heptacosane (C27)	39.634	73038716	41.888 ug/mL M4
29) t n-Octacosane (C28)	40.803	73912203	41.923 ug/mL M4
30) t n-Nonacosane (C29)	41.931	74080350	42.120 ug/mL M4
31) t n-Triacontane (C30)	43.022	73197652	41.750 ug/mL M4
32) t n-Hentriacontane (C31)	44.080	73995669	41.993 ug/mL M4
33) t n-Dotriacontane (C32)	45.104	73845691	42.061 ug/mL M4
34) t n-Tritriacontane (C33)	46.097	70532080	41.464 ug/mL M4
35) t n-tetratriacontane (C34)	47.062	72741135	41.902 ug/mL M4
36) t n-Pentatriacontane (C35)	48.089	73921306	41.964 ug/mL M4
37) t n-Hexatriacontane (C36)	49.252	75167249	41.807 ug/mL M4
38) t n-Heptatriacontane (C37)	50.585	73392714	41.756 ug/mL M4
39) t n-Octatriacontane (C38)	52.140	72702313	41.707 ug/mL M4
41) t n-Tetracontane (C40)	56.080	68342189	41.860 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002936.D
Operator : BAL
Acquired : 24 Mar 2012 4:45 am using AcqMethod FID17.M
Instrument : FID17
Sample : I1703231207R
Misc Info : WHAO98
ALS Vial : 64



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.653	97972052	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.663	96084997	48.408 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	96.82%
24) s	d50-Tetracosane	35.337	82614419	50.779 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	101.56%
	Target Compounds			
2) t	n-Octane (C8)	5.230	123075347	84.685 ug/mL M4
3) t	n-Nonane (C9)	7.381	97742451	62.541 ug/mL M4
4) t	n-Decane (C10)	9.826	82821759	50.043 ug/mL M4
5) t	n-Undecane (C11)	12.316	77909742	46.254 ug/mL M4
6) t	n-Dodecane (C12)	14.727	72244987	42.052 ug/mL M4
7) t	n-Tridecane (C13)	17.024	69443394	40.245 ug/mL M4
8) t	1380	18.688	14772117	8.483 ug/mL M4
9) t	n-Tetradecane (C14)	19.198	63395205	36.404 ug/mL M4
10) t	1470	20.475	22976806	13.204 ug/mL M4
11) t	n-Pentadecane (C15)	21.254	61059417	35.090 ug/mL M4
12) t	n-Hexadecane (C16)	23.204	59484808	33.268 ug/mL M4
13) t	1650	24.104	21557086	12.202 ug/mL M4
14) t	n-Heptadecane (C17)	25.056	51983436	29.425 ug/mL M4
15) t	Pristane	25.150	36546739	20.235 ug/mL M4
16) t	n-Octadecane (C18)	26.816	48461212	26.840 ug/mL M4
17) t	Phytane	26.968	21270524	11.887 ug/mL M4
18) t	n-Nonadecane (C19)	28.499	41772057	23.160 ug/mL M4
20) t	n-Eicosane (C20)	30.099	43057464	23.536 ug/mL M4
21) t	n-Heneicosane (C21)	31.632	37612708	20.350 ug/mL M4
22) t	n-Docosane (C22)	33.099	35951373	19.526 ug/mL M4
23) t	n-Tricosane (C23)	34.510	32715537	17.466 ug/mL M4
25) t	n-Tetracosane (C24)	35.862	29847959	16.264 ug/mL M4
26) t	n-Pentacosane (C25)	37.164	28736741	15.322 ug/mL M4
27) t	n-Hexacosane (C26)	38.416	26131394	14.017 ug/mL M4
28) t	n-Heptacosane (C27)	39.624	20017262	10.927 ug/mL M4
29) t	n-Octacosane (C28)	40.790	14032444	7.576 ug/mL M4
30) t	n-Nonacosane (C29)	41.918	13594350	7.357 ug/mL M4
31) t	n-Triacontane (C30)	43.010	12549661	6.813 ug/mL M4
32) t	n-Hentriacontane (C31)	44.066	11018588	5.952 ug/mL M4
33) t	n-Dotriacontane (C32)	45.086	7688497	4.168 ug/mL M4
34) t	n-Tritriacontane (C33)	46.080	6803662	3.807 ug/mL M4
35) t	n-tetratriacontane (C34)	47.040	6553948	3.594 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.065	5396390	2.916 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.225	3427024	1.814 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.551	2911633	1.577 ug/mL M4
39) t	n-Octatriacontane (C38)	52.091	2086662	1.139 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.884	1280528	0.747 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

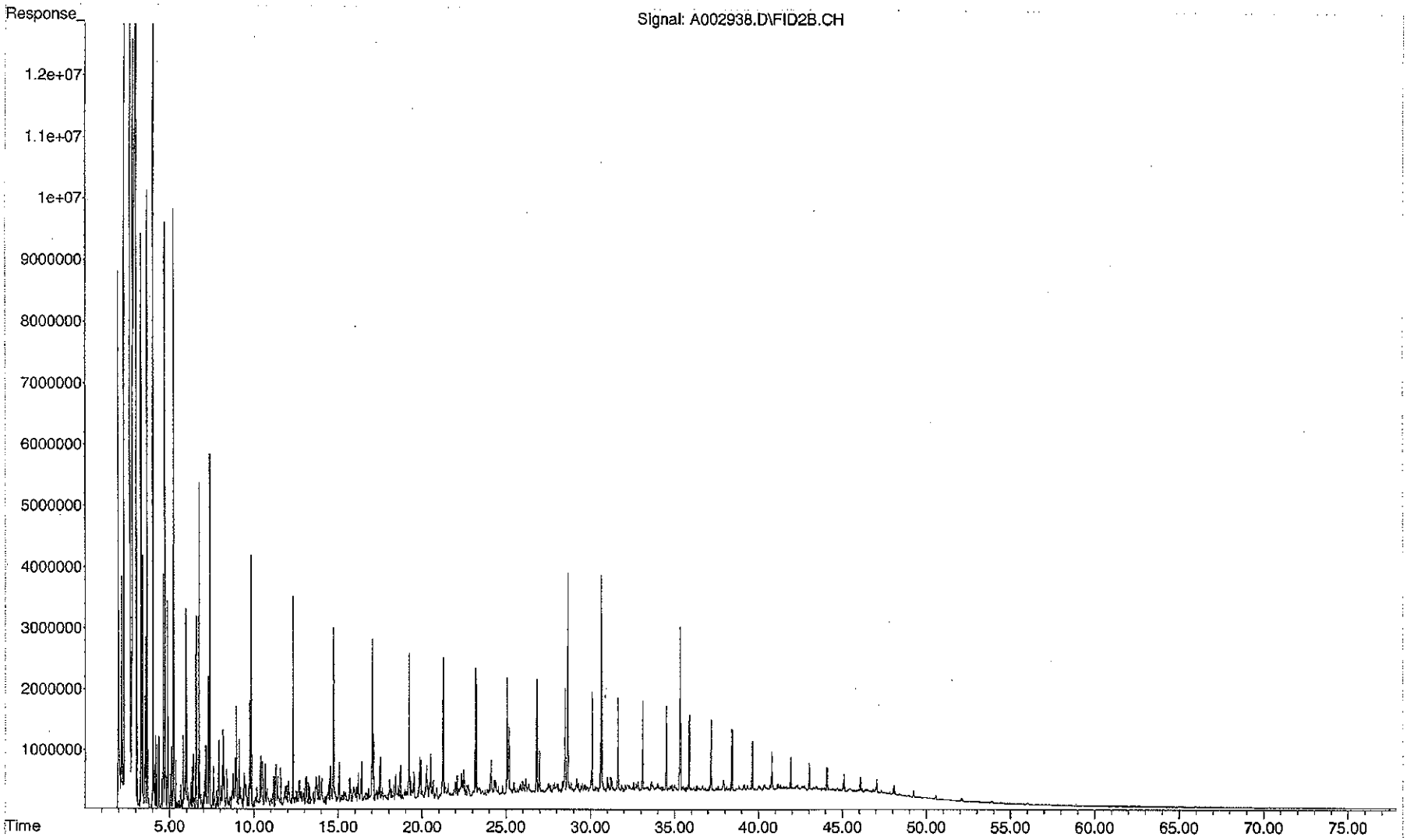
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.019	1346114	0.785	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	10074246033	5599.956	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	3443065595	1913.892	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002938.D
Operator : BAL
Acquired : 24 Mar 2012 6:14 am using AcqMethod FID17.M
Instrument : FID17
Sample : TS032612ANS02
Misc Info : 1X, WHAM98
ALS Vial : 65



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002940.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 7:43 am
Operator : BAL
Sample : TS032612MC202
Misc : 1X, WHAP35
ALS Vial : 66 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:15 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.644	80884305	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.660	87182260	53.202 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 106.40%	
24) s	d50-Tetracosane	35.328	69225968	51.539 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 103.08%	
	Target Compounds			
2) t	n-Octane (C8)	5.221	77784326	64.829 ug/mL M4
3) t	n-Nonane (C9)	7.374	69367486	53.762 ug/mL
4) t	n-Decane (C10)	9.822	63855895	46.734 ug/mL M4
5) t	n-Undecane (C11)	12.313	62756956	45.129 ug/mL M4
6) t	n-Dodecane (C12)	14.726	55380106	39.046 ug/mL M4
7) t	n-Tridecane (C13)	17.022	52325818	36.732 ug/mL M4
8) t	1380	18.687	9849722	6.851 ug/mL M4
9) t	n-Tetradecane (C14)	19.195	48612760	33.812 ug/mL M3
10) t	1470	20.472	16966264	11.810 ug/mL M4
11) t	n-Pentadecane (C15)	21.252	45261667	31.506 ug/mL M4
12) t	n-Hexadecane (C16)	23.200	42005372	28.455 ug/mL M4
13) t	1650	24.100	11624047	7.970 ug/mL M4
14) t	n-Heptadecane (C17)	25.050	34728870	23.811 ug/mL M4
15) t	Pristane	25.146	21256333	14.256 ug/mL M4
16) t	n-Octadecane (C18)	26.809	29451462	19.757 ug/mL M4
17) t	Phytane	26.967	11172871	7.563 ug/mL M4
18) t	n-Nonadecane (C19)	28.490	24433744	16.409 ug/mL M4
20) t	n-Eicosane (C20)	30.090	23105278	15.298 ug/mL M4
21) t	n-Heneicosane (C21)	31.621	19270949	12.629 ug/mL M4
22) t	n-Docosane (C22)	33.089	16947080	11.149 ug/mL M4
23) t	n-Tricosane (C23)	34.497	14385407	9.303 ug/mL M4
25) t	n-Tetracosane (C24)	35.852	13121809	8.661 ug/mL M4
26) t	n-Pentacosane (C25)	37.152	12454812	8.044 ug/mL M4
27) t	n-Hexacosane (C26)	38.404	10693987	6.948 ug/mL M4
28) t	n-Heptacosane (C27)	39.613	8036546	5.314 ug/mL M4
29) t	n-Octacosane (C28)	40.779	5976912	3.909 ug/mL M4
30) t	n-Nonacosane (C29)	41.908	5582757	3.660 ug/mL M4
31) t	n-Triacontane (C30)	42.999	5094833	3.350 ug/mL M4
32) t	n-Hentriacontane (C31)	44.057	4875362	3.190 ug/mL M4
33) t	n-Dotriacontane (C32)	45.078	3736838	2.454 ug/mL M4
34) t	n-Tritriacontane (C33)	46.070	2750218	1.864 ug/mL M4
35) t	n-tetratriacontane (C34)	47.035	2465654	1.638 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.058	1906404	1.248 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.212	1460287	0.936 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.541	897341	0.589 ug/mL M4
39) t	n-Octatriacontane (C38)	52.089	794232	0.525 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.880	646600	0.457 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002940.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 7:43 am
Operator : BAL
Sample : TS032612MC202
Misc : 1X, WHAP35
ALS Vial : 66 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:15 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

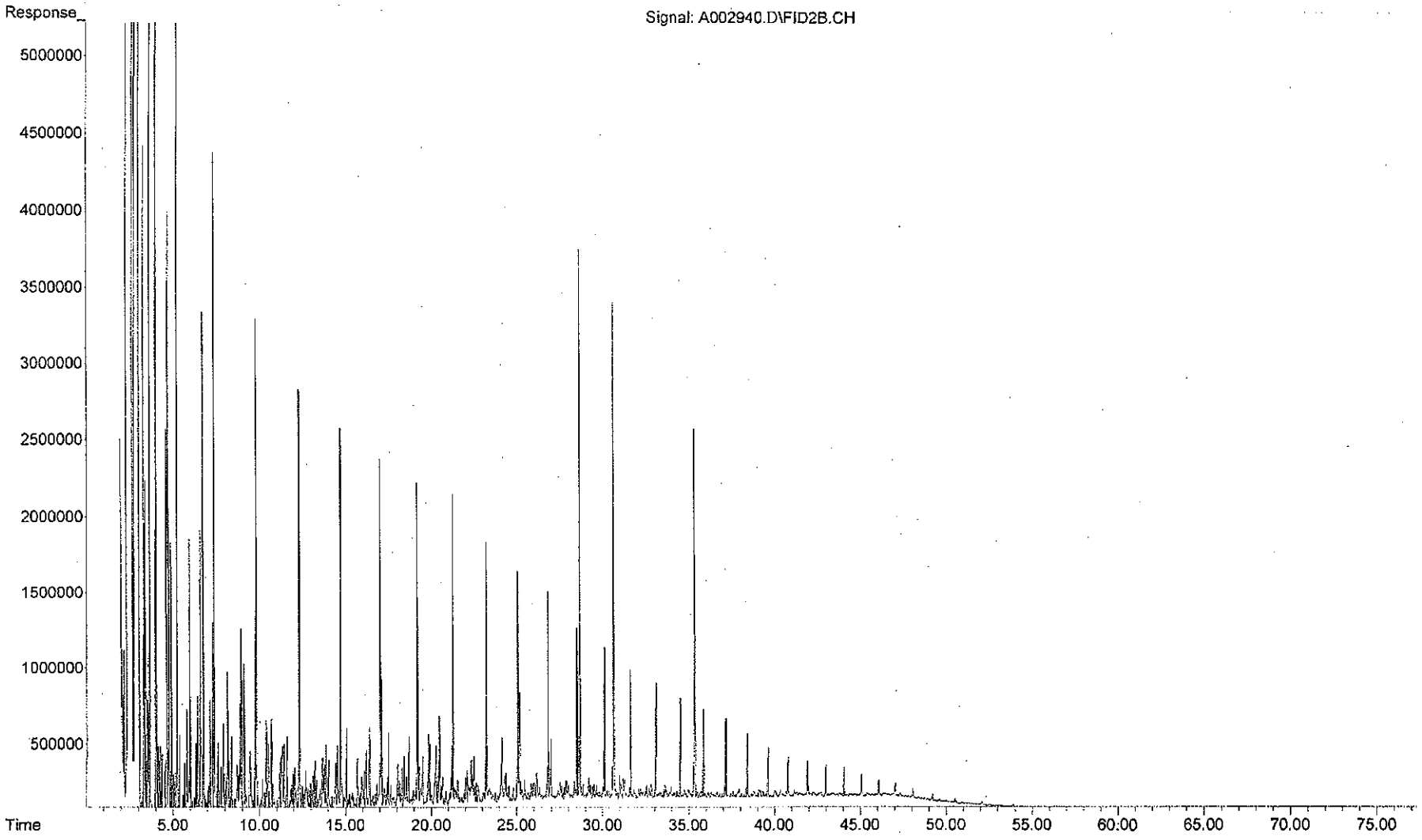
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.012	635719	0.449	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	5386525500	3626.759	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	2312087653	1556.734	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002940.D
Operator : BAL
Acquired : 24 Mar 2012 7:43 am using AcqMethod FID17.M
Instrument : FID17
Sample : TS032612MC202
Misc Info : 1X, WHAP35
ALS Vial : 66



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

NV 5-9-12

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	53.130	-6.3	90	0.00
3	t	n-Nonane (C9)	50.000	51.428	-2.9	87	0.00
4	t	n-Decane (C10)	50.000	51.054	-2.1	87	0.00
5	t	n-Undecane (C11)	50.000	51.146	-2.3	88	0.00
6	t	n-Dodecane (C12)	50.000	51.927	-3.9	89	0.00
7	t	n-Tridecane (C13)	50.000	52.357	-4.7	90	0.00
9	t	n-Tetradecane (C14)	50.000	52.779	-5.6	91	0.00
11	t	n-Pentadecane (C15)	50.000	53.222	-6.4	92	0.00
12	t	n-Hexadecane (C16)	50.000	52.810	-5.6	92	0.00
14	t	n-Heptadecane (C17)	50.000	52.790	-5.6	90	0.00
15	t	Pristane	50.000	54.033	-8.1	93	0.00
16	t	n-Octadecane (C18)	50.000	53.265	-6.5	92	0.00
17	t	Phytane	50.000	54.072	-8.1	94	0.00
18	t	n-Nonadecane (C19)	50.000	53.451	-6.9	93	0.00
19	s	ortho-terphenyl	50.000	56.118	-12.2	94	0.00
20	t	n-Eicosane (C20)	50.000	53.281	-6.6	92	0.00
21	t	n-Heneicosane (C21)	50.000	52.864	-5.7	93	0.00
22	t	n-Docosane (C22)	50.000	53.388	-6.8	92	0.00
23	t	n-Tricosane (C23)	50.000	52.459	-4.9	93	0.00
24	s	d50-Tetracosane	50.000	55.203	-10.4	93	0.00
25	t	n-Tetracosane (C24)	50.000	53.140	-6.3	92	0.00
26	t	n-Pentacosane (C25)	50.000	53.181	-6.4	92	0.00
27	t	n-Hexacosane (C26)	50.000	53.073	-6.1	92	0.00
28	t	n-Heptacosane (C27)	50.000	52.891	-5.8	91	0.00
29	t	n-Octacosane (C28)	50.000	52.804	-5.6	92	0.00
30	t	n-Nonacosane (C29)	50.000	53.147	-6.3	93	0.00
31	t	n-Triacontane (C30)	50.000	52.470	-4.9	90	0.00
32	t	n-Hentriacontane (C31)	50.000	52.763	-5.5	92	0.00
33	t	n-Dotriacontane (C32)	50.000	52.684	-5.4	92	0.00
34	t	n-Tritriacontane (C33)	50.000	52.157	-4.3	88	0.00
35	t	n-tetratriacontane (C34)	50.000	52.487	-5.0	91	0.00
36	t	n-Pentatriacontane (C35)	50.000	52.603	-5.2	92	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.226	-4.5	91	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.096	-4.2	91	0.00
39	t	n-Octatriacontane (C38)	50.000	51.931	-3.9	91	0.00
41	t	n-Tetracontane (C40)	50.000	51.567	-3.1	93	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)
Mass Discrimination (Response)			Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)			1.01	0.85 - 1.15

Quantitation Report (QT Reviewed) ✓

Data Path : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

(M) for GP 5q-1h

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.620	73964426	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.641	84093264	56.118 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.24%
24) s	d50-Tetracosane	35.311	67804686	55.203 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	110.41%
	Target Compounds			
2) t	n-Octane (C8)	5.239	58293482	53.130 ug/mL M4
3) t	n-Nonane (C9)	7.376	60679830	51.428 ug/mL M4
4) t	n-Decane (C10)	9.814	63790059	51.054 ug/mL M4
5) t	n-Undecane (C11)	12.299	65039323	51.146 ug/mL M4
6) t	n-Dodecane (C12)	14.712	67348915	51.927 ug/mL M4
7) t	n-Tridecane (C13)	17.009	68204004	52.357 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	69389467	52.779 ug/mL M4
11) t	n-Pentadecane (C15)	21.242	69917114	53.222 ug/mL M4
12) t	n-Hexadecane (C16)	23.192	71287673	52.810 ug/mL M4
14) t	n-Heptadecane (C17)	25.044	70407990	52.790 ug/mL M4
15) t	Pristane	25.155	73674868	54.033 ug/mL M4
16) t	n-Octadecane (C18)	26.807	72607749	53.265 ug/mL M4
17) t	Phytane	26.972	73043586	54.072 ug/mL M4
18) t	n-Nonadecane (C19)	28.489	72781140	53.451 ug/mL M4
20) t	n-Eicosane (C20)	30.090	73586490	53.281 ug/mL M4
21) t	n-Heneicosane (C21)	31.622	73762862	52.864 ug/mL M4
22) t	n-Docosane (C22)	33.091	74213134	53.388 ug/mL M4
23) t	n-Tricosane (C23)	34.500	74181180	52.459 ug/mL M4
25) t	n-Tetracosane (C24)	35.857	73623746	53.140 ug/mL M4
26) t	n-Pentacosane (C25)	37.159	75298965	53.181 ug/mL M4
27) t	n-Hexacosane (C26)	38.412	74699445	53.073 ug/mL M4
28) t	n-Heptacosane (C27)	39.621	73145768	52.891 ug/mL M4
29) t	n-Octacosane (C28)	40.789	73837059	52.804 ug/mL M4
30) t	n-Nonacosane (C29)	41.919	74138831	53.147 ug/mL M4
31) t	n-Triacontane (C30)	43.010	72964127	52.470 ug/mL M4
32) t	n-Hentriacontane (C31)	44.066	73741516	52.763 ug/mL M4
33) t	n-Dotriacontane (C32)	45.091	73363035	52.684 ug/mL M4
34) t	n-Tritriacontane (C33)	46.082	70368873	52.157 ug/mL M4
35) t	n-tetratriacontane (C34)	47.049	72268769	52.487 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.075	73493738	52.603 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.237	74476598	52.226 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.567	72626044	52.096 ug/mL M4
39) t	n-Octatriacontane (C38)	52.112	71798594	51.931 ug/mL M4
41) t	n-Tetracontane (C40)	56.051	66774181	51.567 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003397.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 11:09 am
Operator : BAL
Sample : C1705011201R
Misc : WHAP14
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 10:00:01 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc	Units

(f)=RT Delta > 1/2 Window (m)=manual int.

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	87	0.00
2	t	n-Octane (C8)	50.000	53.841	-7.7	86	0.00
3	t	n-Nonane (C9)	50.000	51.456	-2.9	82	0.00
4	t	n-Decane (C10)	50.000	50.721	-1.4	81	0.00
5	t	n-Undecane (C11)	50.000	50.737	-1.5	82	0.00
6	t	n-Dodecane (C12)	50.000	51.690	-3.4	84	0.00
7	t	n-Tridecane (C13)	50.000	52.092	-4.2	84	0.00
9	t	n-Tetradecane (C14)	50.000	52.571	-5.1	85	0.00
11	t	n-Pentadecane (C15)	50.000	53.062	-6.1	86	0.00
12	t	n-Hexadecane (C16)	50.000	52.703	-5.4	87	0.00
14	t	n-Heptadecane (C17)	50.000	52.627	-5.3	85	0.00
15	t	Pristane	50.000	53.883	-7.8	87	0.00
16	t	n-Octadecane (C18)	50.000	53.296	-6.6	87	0.00
17	t	Phytane	50.000	53.931	-7.9	88	0.00
18	t	n-Nonadecane (C19)	50.000	53.620	-7.2	87	0.00
19	s	ortho-terphenyl	50.000	56.107	-12.2	89	0.00
20	t	n-Eicosane (C20)	50.000	53.491	-7.0	87	0.00
21	t	n-Heneicosane (C21)	50.000	53.187	-6.4	88	0.00
22	t	n-Docosane (C22)	50.000	53.761	-7.5	88	0.00
23	t	n-Tricosane (C23)	50.000	52.900	-5.8	88	0.00
24	s	d50-Tetracosane	50.000	55.737	-11.5	89	0.00
25	t	n-Tetracosane (C24)	50.000	53.655	-7.3	88	0.00
26	t	n-Pentacosane (C25)	50.000	53.784	-7.6	88	0.00
27	t	n-Hexacosane (C26)	50.000	53.633	-7.3	88	0.00
28	t	n-Heptacosane (C27)	50.000	53.442	-6.9	86	0.00
29	t	n-Octacosane (C28)	50.000	53.481	-7.0	88	0.00
30	t	n-Nonacosane (C29)	50.000	53.622	-7.2	88	0.00
31	t	n-Triacontane (C30)	50.000	53.170	-6.3	86	0.00
32	t	n-Hentriacontane (C31)	50.000	53.375	-6.8	88	0.00
33	t	n-Dotriacontane (C32)	50.000	53.368	-6.7	88	0.00
34	t	n-Tritriacontane (C33)	50.000	52.615	-5.2	83	0.00
35	t	n-tetratriacontane (C34)	50.000	53.358	-6.7	87	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.083	-6.2	87	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.805	-5.6	87	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.516	-5.0	87	0.00
39	t	n-Octatriacontane (C38)	50.000	52.378	-4.8	86	0.00
41	t	n-Tetracontane (C40)	50.000	52.013	-4.0	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC17032312R.M Wed May 09 15:31:01 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003403.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 4:50 pm
Operator : BAL
Sample : C1705011202R
Misc : WHAP14
ALS Vial : 55 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 11:19:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

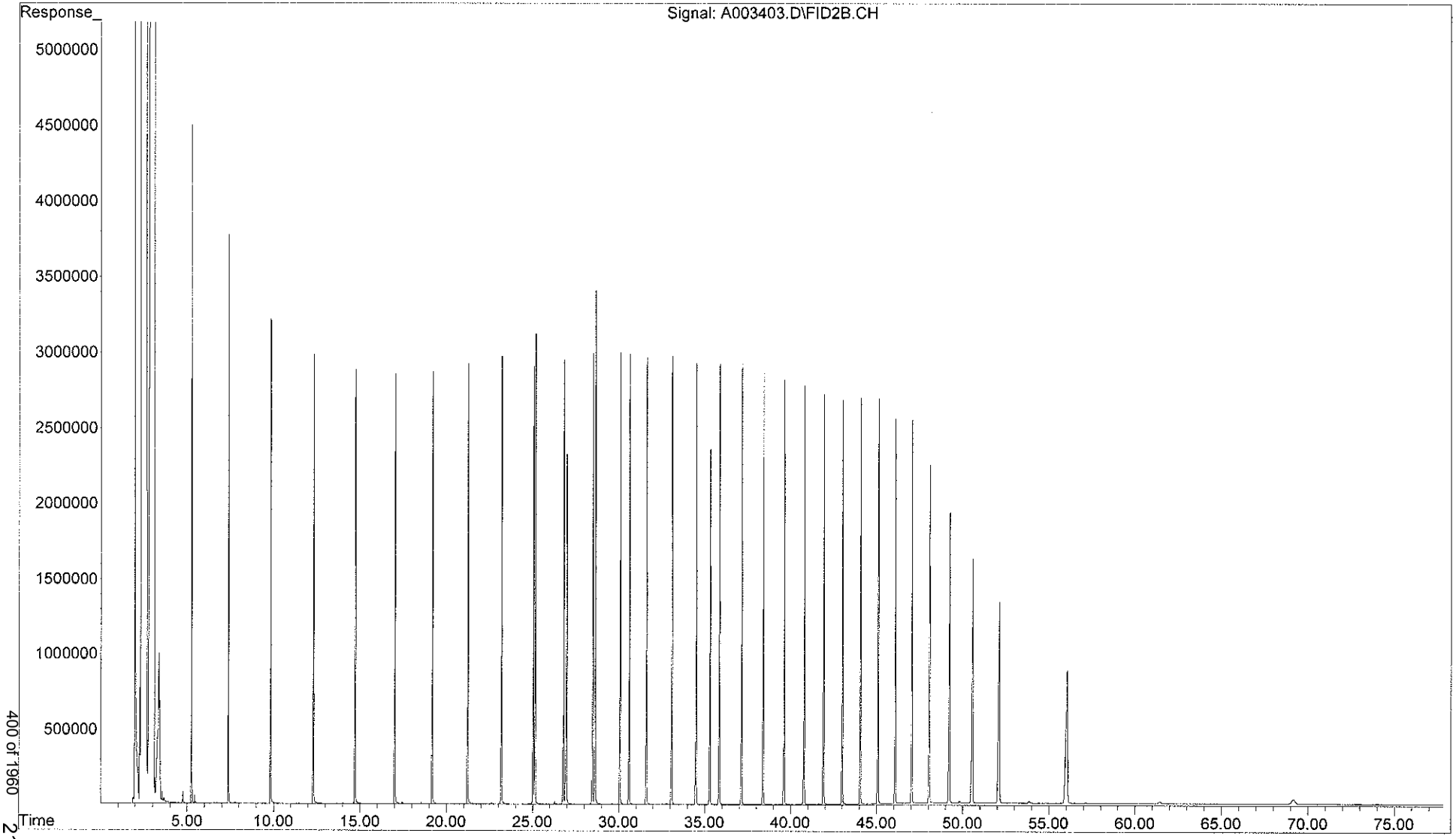
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.621	69675756	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.641	79201345	56.107 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.21%
24) s	d50-Tetracosane	35.313	64490595	55.737 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.47%
	Target Compounds			
2) t	n-Octane (C8)	5.236	55648353	53.841 ug/mL M4
3) t	n-Nonane (C9)	7.375	57191650	51.456 ug/mL M4
4) t	n-Decane (C10)	9.813	59699218	50.721 ug/mL M4
5) t	n-Undecane (C11)	12.300	60778075	50.737 ug/mL M4
6) t	n-Dodecane (C12)	14.712	63154481	51.690 ug/mL M4
7) t	n-Tridecane (C13)	17.008	63924065	52.092 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	65108871	52.571 ug/mL M4
11) t	n-Pentadecane (C15)	21.242	65664839	53.062 ug/mL M4
12) t	n-Hexadecane (C16)	23.192	67018591	52.703 ug/mL M4
14) t	n-Heptadecane (C17)	25.046	66120685	52.627 ug/mL M4
15) t	Pristane	25.156	69209268	53.883 ug/mL M4
16) t	n-Octadecane (C18)	26.807	68437459	53.296 ug/mL M4
17) t	Phytane	26.971	68628905	53.931 ug/mL M4
18) t	n-Nonadecane (C19)	28.489	68777789	53.620 ug/mL M4
20) t	n-Eicosane (C20)	30.091	69593275	53.491 ug/mL M4
21) t	n-Heneicosane (C21)	31.623	69911359	53.187 ug/mL M4
22) t	n-Docosane (C22)	33.092	70397427	53.761 ug/mL M4
23) t	n-Tricosane (C23)	34.502	70467648	52.900 ug/mL M4
25) t	n-Tetracosane (C24)	35.858	70026390	53.655 ug/mL M4
26) t	n-Pentacosane (C25)	37.159	71737511	53.784 ug/mL M4
27) t	n-Hexacosane (C26)	38.412	71110160	53.633 ug/mL M4
28) t	n-Heptacosane (C27)	39.624	69622471	53.442 ug/mL M4
29) t	n-Octacosane (C28)	40.791	70447303	53.481 ug/mL M4
30) t	n-Nonacosane (C29)	41.921	70464427	53.622 ug/mL M4
31) t	n-Triacontane (C30)	43.010	69649786	53.170 ug/mL M4
32) t	n-Hentriacontane (C31)	44.068	70270421	53.375 ug/mL M4
33) t	n-Dotriacontane (C32)	45.091	70006831	53.368 ug/mL M4
34) t	n-Tritriacontane (C33)	46.084	66869652	52.615 ug/mL M4
35) t	n-tetratriacontane (C34)	47.051	69208787	53.358 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.077	69864884	53.083 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.240	70936068	52.805 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.569	68965712	52.516 ug/mL M4
39) t	n-Octatriacontane (C38)	52.113	68218538	52.378 ug/mL M4
41) t	n-Tetracontane (C40)	56.053	63447047	52.013 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003403.D
Operator : BAL
Acquired : 01 May 2012 4:50 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011202R
Misc Info : WHAP14
ALS Vial : 55



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

AS 9/12

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	49.090	1.8	84	0.00
3	t	n-Nonane (C9)	50.000	48.759	2.5	83	0.00
4	t	n-Decane (C10)	50.000	49.368	1.3	85	0.00
5	t	n-Undecane (C11)	50.000	50.133	-0.3	87	0.00
6	t	n-Dodecane (C12)	50.000	51.470	-2.9	90	0.00
7	t	n-Tridecane (C13)	50.000	52.177	-4.4	91	0.00
9	t	n-Tetradecane (C14)	50.000	52.807	-5.6	92	0.00
11	t	n-Pentadecane (C15)	50.000	53.376	-6.8	93	0.00
12	t	n-Hexadecane (C16)	50.000	53.003	-6.0	93	0.00
14	t	n-Heptadecane (C17)	50.000	52.932	-5.9	91	0.00
15	t	Pristane	50.000	54.077	-8.2	94	0.00
16	t	n-Octadecane (C18)	50.000	53.517	-7.0	93	0.00
17	t	Phytane	50.000	54.095	-8.2	94	0.00
18	t	n-Nonadecane (C19)	50.000	53.701	-7.4	94	0.00
19	s	ortho-terphenyl	50.000	56.270	-12.5	95	0.00
20	t	n-Eicosane (C20)	50.000	53.517	-7.0	93	0.00
21	t	n-Heneicosane (C21)	50.000	53.195	-6.4	94	0.00
22	t	n-Docosane (C22)	50.000	53.744	-7.5	94	0.00
23	t	n-Tricosane (C23)	50.000	52.842	-5.7	94	0.00
24	s	d50-Tetracosane	50.000	55.587	-11.2	95	0.00
25	t	n-Tetracosane (C24)	50.000	53.497	-7.0	94	0.00
26	t	n-Pentacosane (C25)	50.000	53.672	-7.3	94	0.00
27	t	n-Hexacosane (C26)	50.000	53.521	-7.0	94	0.00
28	t	n-Heptacosane (C27)	50.000	53.473	-6.9	93	0.00
29	t	n-Octacosane (C28)	50.000	53.449	-6.9	94	0.00
30	t	n-Nonacosane (C29)	50.000	53.792	-7.6	95	0.00
31	t	n-Triacontane (C30)	50.000	53.326	-6.7	92	0.00
32	t	n-Hentriacontane (C31)	50.000	53.686	-7.4	94	0.00
33	t	n-Dotriacontane (C32)	50.000	53.700	-7.4	95	0.00
34	t	n-Tritriacontane (C33)	50.000	52.944	-5.9	90	0.00
35	t	n-tetratriacontane (C34)	50.000	53.381	-6.8	94	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.197	-6.4	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.945	-5.9	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.712	-5.4	93	0.00
39	t	n-Octatriacontane (C38)	50.000	52.396	-4.8	93	0.00
41	t	n-Tetracontane (C40)	50.000	52.224	-4.4	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC17032312R.M Wed May 09 15:32:58 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003429.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:05 pm
Operator : BAL
Sample : C1705011203R
Misc : WHAP14
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:27:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

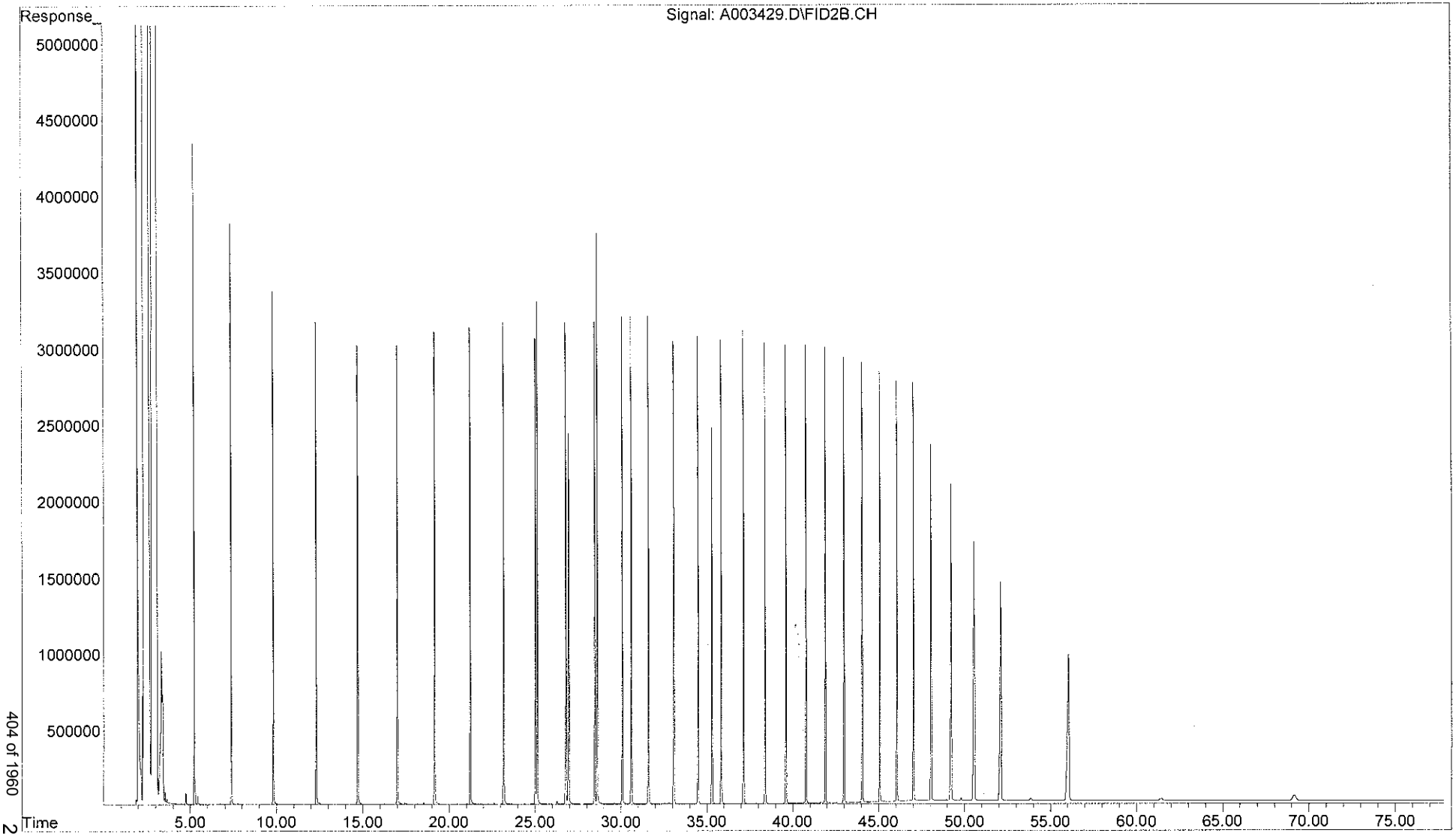
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	74679519	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.642	85136673	56.270 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	112.54%
24) s	d50-Tetracosane	35.311	68936396	55.587 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	111.17%
	Target Compounds			
2) t	n-Octane (C8)	5.233	54382345	49.090 ug/mL M4
3) t	n-Nonane (C9)	7.373	58086984	48.759 ug/mL M4
4) t	n-Decane (C10)	9.813	62280386	49.368 ug/mL M4
5) t	n-Undecane (C11)	12.299	64368111	50.133 ug/mL M4
6) t	n-Dodecane (C12)	14.712	67402347	51.470 ug/mL M4
7) t	n-Tridecane (C13)	17.008	68627247	52.177 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	70097926	52.807 ug/mL M4
11) t	n-Pentadecane (C15)	21.243	70796360	53.376 ug/mL M4
12) t	n-Hexadecane (C16)	23.193	72239752	53.003 ug/mL M4
14) t	n-Heptadecane (C17)	25.046	71280222	52.932 ug/mL M4
15) t	Pristane	25.157	74447756	54.077 ug/mL M4
16) t	n-Octadecane (C18)	26.809	73655979	53.517 ug/mL M4
17) t	Phytane	26.970	73780392	54.095 ug/mL M4
18) t	n-Nonadecane (C19)	28.489	73828497	53.701 ug/mL M4
20) t	n-Eicosane (C20)	30.090	74626893	53.517 ug/mL M4
21) t	n-Heneicosane (C21)	31.622	74943200	53.195 ug/mL M4
22) t	n-Docosane (C22)	33.093	75429203	53.744 ug/mL M4
23) t	n-Tricosane (C23)	34.502	75444680	52.842 ug/mL M4
25) t	n-Tetracosane (C24)	35.858	74834951	53.497 ug/mL M4
26) t	n-Pentacosane (C25)	37.159	76728602	53.672 ug/mL M4
27) t	n-Hexacosane (C26)	38.413	76057753	53.521 ug/mL M4
28) t	n-Heptacosane (C27)	39.623	74666485	53.473 ug/mL M4
29) t	n-Octacosane (C28)	40.789	75462158	53.449 ug/mL M4
30) t	n-Nonacosane (C29)	41.919	75763335	53.792 ug/mL M4
31) t	n-Triacontane (C30)	43.010	74870660	53.326 ug/mL M4
32) t	n-Hentriacontane (C31)	44.067	75756780	53.686 ug/mL M4
33) t	n-Dotriacontane (C32)	45.091	75501290	53.700 ug/mL M4
34) t	n-Tritriacontane (C33)	46.083	72120054	52.944 ug/mL M4
35) t	n-tetratriacontane (C34)	47.050	74210983	53.381 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.074	75042363	53.197 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.236	76232758	52.945 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.567	74194359	52.712 ug/mL M4
39) t	n-Octatriacontane (C38)	52.117	73142701	52.396 ug/mL M4
41) t	n-Tetracontane (C40)	56.049	68279392	52.224 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003429.D
Operator : BAL
Acquired : 02 May 2012 12:05 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011203R
Misc Info : WHAP14
ALS Vial : 68



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	49.135	1.7	84	0.00
3	t	n-Nonane (C9)	50.000	49.130	1.7	84	0.00
4	t	n-Decane (C10)	50.000	49.823	0.4	85	0.00
5	t	n-Undecane (C11)	50.000	50.567	-1.1	87	0.00
6	t	n-Dodecane (C12)	50.000	51.223	-2.4	89	0.00
7	t	n-Tridecane (C13)	50.000	51.857	-3.7	90	0.00
9	t	n-Tetradecane (C14)	50.000	52.472	-4.9	91	0.00
11	t	n-Pentadecane (C15)	50.000	52.975	-6.0	92	0.00
12	t	n-Hexadecane (C16)	50.000	53.075	-6.2	93	0.00
14	t	n-Heptadecane (C17)	50.000	52.997	-6.0	91	0.00
15	t	Pristane	50.000	54.154	-8.3	94	0.00
16	t	n-Octadecane (C18)	50.000	53.651	-7.3	93	0.00
17	t	Phytane	50.000	54.256	-8.5	95	0.00
18	t	n-Nonadecane (C19)	50.000	53.918	-7.8	94	0.00
19	s	ortho-terphenyl	50.000	56.419	-12.8	95	0.00
20	t	n-Eicosane (C20)	50.000	53.707	-7.4	94	0.00
21	t	n-Heneicosane (C21)	50.000	53.410	-6.8	94	0.00
22	t	n-Docosane (C22)	50.000	54.025	-8.0	94	0.00
23	t	n-Tricosane (C23)	50.000	53.069	-6.1	94	0.00
24	s	d50-Tetracosane	50.000	55.830	-11.7	95	0.00
25	t	n-Tetracosane (C24)	50.000	53.747	-7.5	94	0.00
26	t	n-Pentacosane (C25)	50.000	53.919	-7.8	94	0.00
27	t	n-Hexacosane (C26)	50.000	53.780	-7.6	94	0.00
28	t	n-Heptacosane (C27)	50.000	53.711	-7.4	93	0.00
29	t	n-Octacosane (C28)	50.000	53.696	-7.4	94	0.00
30	t	n-Nonacosane (C29)	50.000	54.017	-8.0	95	0.00
31	t	n-Triacontane (C30)	50.000	53.596	-7.2	92	0.00
32	t	n-Hentriacontane (C31)	50.000	53.858	-7.7	94	0.00
33	t	n-Dotriacontane (C32)	50.000	53.830	-7.7	95	0.00
34	t	n-Tritriacontane (C33)	50.000	53.009	-6.0	90	0.00
35	t	n-tetratriacontane (C34)	50.000	53.599	-7.2	94	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.324	-6.6	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	52.986	-6.0	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	52.731	-5.5	93	0.00
39	t	n-Octatriacontane (C38)	50.000	52.399	-4.8	92	0.00
41	t	n-Tetracontane (C40)	50.000	52.272	-4.5	95	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC17032312R.M Wed May 09 15:33:21 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003453.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:50 am
Operator : BAL
Sample : C1705011204R
Misc : WHAP14
ALS Vial : 80 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 14:49:48 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

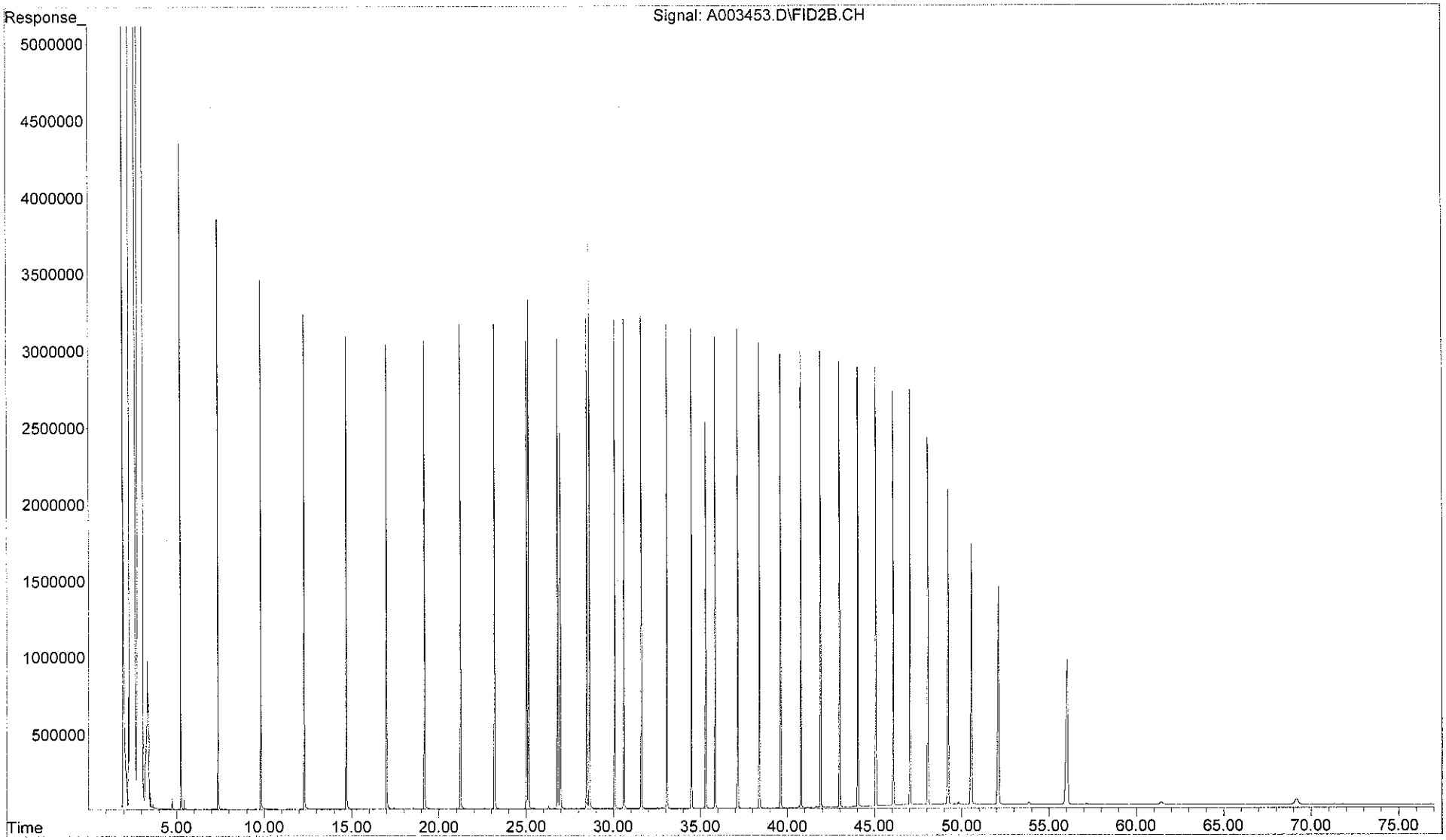
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.623	74517229	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.642	85176332	56.419 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.84%
24) s	d50-Tetracosane	35.314	69086944	55.830 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.66%
	Target Compounds			
2) t	n-Octane (C8)	5.234	54313220	49.135 ug/mL M4
3) t	n-Nonane (C9)	7.375	58401073	49.130 ug/mL M4
4) t	n-Decane (C10)	9.814	62718154	49.823 ug/mL M4
5) t	n-Undecane (C11)	12.300	64784272	50.567 ug/mL M4
6) t	n-Dodecane (C12)	14.712	66932572	51.223 ug/mL M4
7) t	n-Tridecane (C13)	17.009	68057245	51.857 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	69501655	52.472 ug/mL M4
11) t	n-Pentadecane (C15)	21.242	70111664	52.975 ug/mL M4
12) t	n-Hexadecane (C16)	23.193	72181164	53.075 ug/mL M4
14) t	n-Heptadecane (C17)	25.045	71211831	52.997 ug/mL M4
15) t	Pristane	25.156	74390838	54.154 ug/mL M4
16) t	n-Octadecane (C18)	26.809	73680232	53.651 ug/mL M4
17) t	Phytane	26.971	73840309	54.256 ug/mL M4
18) t	n-Nonadecane (C19)	28.490	73966343	53.918 ug/mL M4
20) t	n-Eicosane (C20)	30.092	74729444	53.707 ug/mL M4
21) t	n-Heneicosane (C21)	31.624	75081800	53.410 ug/mL M4
22) t	n-Docosane (C22)	33.094	75658639	54.025 ug/mL M4
23) t	n-Tricosane (C23)	34.504	75604626	53.069 ug/mL M4
25) t	n-Tetracosane (C24)	35.858	75021960	53.747 ug/mL M4
26) t	n-Pentacosane (C25)	37.161	76914515	53.919 ug/mL M4
27) t	n-Hexacosane (C26)	38.413	76260148	53.780 ug/mL M4
28) t	n-Heptacosane (C27)	39.623	74836007	53.711 ug/mL M4
29) t	n-Octacosane (C28)	40.791	75646520	53.696 ug/mL M4
30) t	n-Nonacosane (C29)	41.920	75915714	54.017 ug/mL M4
31) t	n-Triacontane (C30)	43.012	75086849	53.596 ug/mL M4
32) t	n-Hentriacontane (C31)	44.068	75833309	53.858 ug/mL M4
33) t	n-Dotriacontane (C32)	45.093	75519155	53.830 ug/mL M4
34) t	n-Tritriacontane (C33)	46.086	72052733	53.009 ug/mL M4
35) t	n-tetratriacontane (C34)	47.052	74352324	53.599 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.079	75059196	53.324 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.240	76124715	52.986 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.573	74060827	52.731 ug/mL M4
39) t	n-Octatriacontane (C38)	52.121	72987381	52.399 ug/mL M4
41) t	n-Tetracontane (C40)	56.059	68193524	52.272 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003453.D
Operator : BAL
Acquired : 03 May 2012 5:50 am using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011204R
Misc Info : WHAP14
ALS Vial : 80



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	108	0.01
2	t	n-Octane (C8)	50.000	49.336	1.3	97	0.00
3	t	n-Nonane (C9)	50.000	51.263	-2.5	101	0.00
4	t	n-Decane (C10)	50.000	51.959	-3.9	103	0.00
5	t	n-Undecane (C11)	50.000	51.976	-4.0	103	0.00
6	t	n-Dodecane (C12)	50.000	52.205	-4.4	105	0.00
7	t	n-Tridecane (C13)	50.000	52.544	-5.1	105	0.00
9	t	n-Tetradecane (C14)	50.000	52.998	-6.0	106	0.00
11	t	n-Pentadecane (C15)	50.000	53.371	-6.7	107	0.00
12	t	n-Hexadecane (C16)	50.000	53.340	-6.7	108	0.00
14	t	n-Heptadecane (C17)	50.000	53.223	-6.4	106	0.00
15	t	Pristane	50.000	54.319	-8.6	109	0.00
16	t	n-Octadecane (C18)	50.000	53.738	-7.5	108	0.00
17	t	Phytane	50.000	54.403	-8.8	109	0.00
18	t	n-Nonadecane (C19)	50.000	54.160	-8.3	109	0.00
19	s	ortho-terphenyl	50.000	56.461	-12.9	110	0.00
20	t	n-Eicosane (C20)	50.000	53.805	-7.6	108	0.00
21	t	n-Heneicosane (C21)	50.000	53.451	-6.9	109	0.00
22	t	n-Docosane (C22)	50.000	54.029	-8.1	109	0.00
23	t	n-Tricosane (C23)	50.000	53.109	-6.2	109	0.00
24	s	d50-Tetracosane	50.000	55.935	-11.9	110	0.00
25	t	n-Tetracosane (C24)	50.000	53.840	-7.7	108	0.00
26	t	n-Pentacosane (C25)	50.000	54.024	-8.0	109	0.00
27	t	n-Hexacosane (C26)	50.000	53.884	-7.8	109	0.01
28	t	n-Heptacosane (C27)	50.000	53.823	-7.6	107	0.00
29	t	n-Octacosane (C28)	50.000	53.851	-7.7	109	0.01
30	t	n-Nonacosane (C29)	50.000	54.162	-8.3	110	0.01
31	t	n-Triacontane (C30)	50.000	53.683	-7.4	107	0.00
32	t	n-Hentriacontane (C31)	50.000	53.872	-7.7	109	0.01
33	t	n-Dotriacontane (C32)	50.000	53.865	-7.7	110	0.01
34	t	n-Tritriacontane (C33)	50.000	52.874	-5.7	103	0.00
35	t	n-tetratriacontane (C34)	50.000	53.359	-6.7	108	0.01
36	t	n-Pentatriacontane (C35)	50.000	53.149	-6.3	108	0.01
37	t	n-Hexatriacontane (C36)	50.000	52.842	-5.7	107	0.02
38	t	n-Heptatriacontane (C37)	50.000	52.443	-4.9	107	0.02
39	t	n-Octatriacontane (C38)	50.000	52.290	-4.6	107	0.02
41	t	n-Tetracontane (C40)	50.000	52.097	-4.2	109	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC17032312R.M Wed May 09 15:33:38 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003465.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 2:43 pm
Operator : BAL
Sample : C1705011205R
Misc : WHAP14
ALS Vial : 86 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:06:14 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

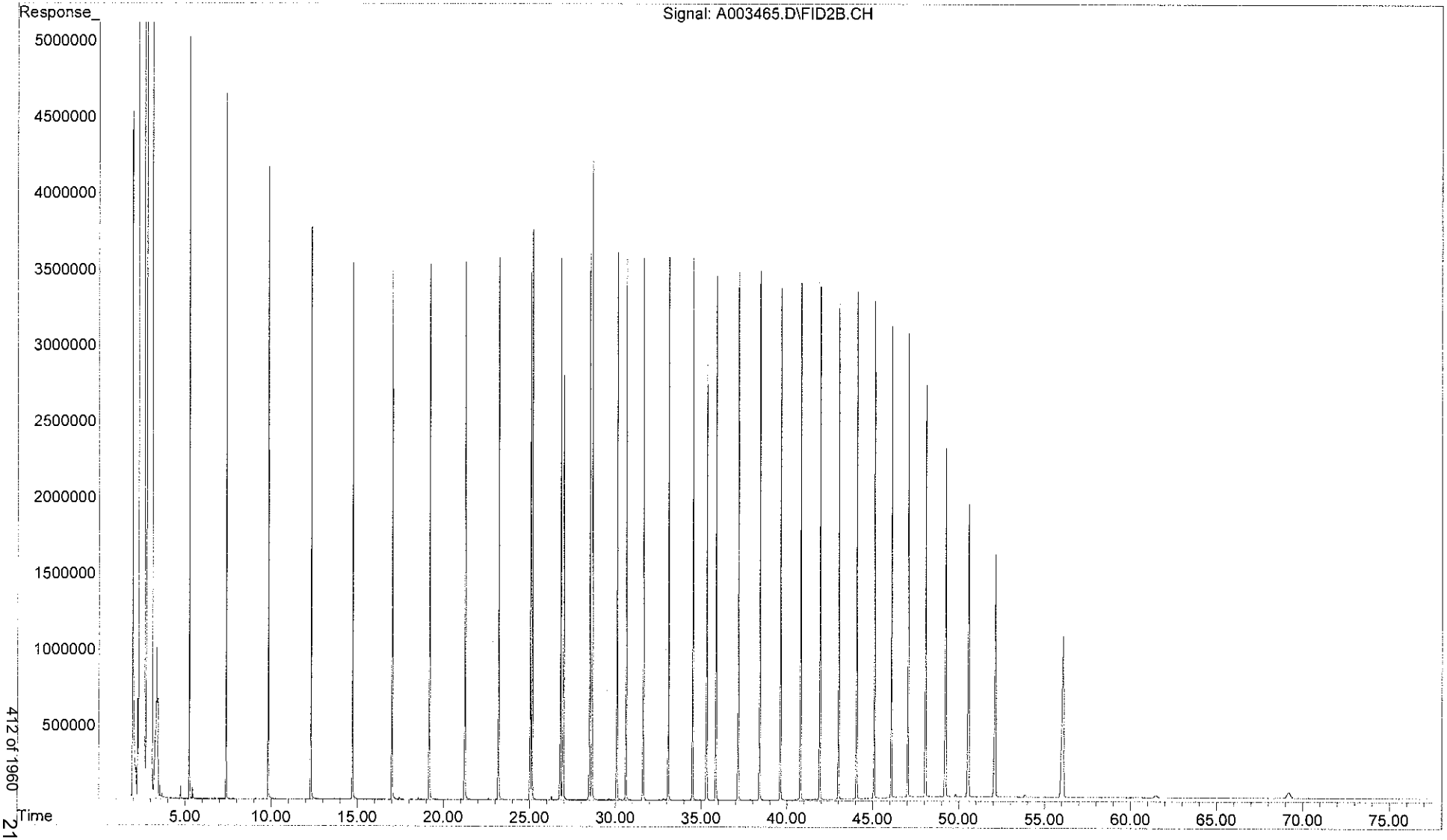
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.630	85990134	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.648	98363550	56.461 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	112.92%
24) s	d50-Tetracosane	35.319	79872950	55.935 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	111.87%
	Target Compounds			
2) t	n-Octane (C8)	5.238	62931699	49.336 ug/mL M4
3) t	n-Nonane (C9)	7.379	70318090	51.263 ug/mL M4
4) t	n-Decane (C10)	9.817	75476672	51.959 ug/mL M4
5) t	n-Undecane (C11)	12.302	76841523	51.976 ug/mL M4
6) t	n-Dodecane (C12)	14.715	78718162	52.205 ug/mL M4
7) t	n-Tridecane (C13)	17.013	79576560	52.544 ug/mL M4
9) t	n-Tetradecane (C14)	19.188	81006863	52.998 ug/mL M4
11) t	n-Pentadecane (C15)	21.247	81511302	53.371 ug/mL M4
12) t	n-Hexadecane (C16)	23.198	83710202	53.340 ug/mL M4
14) t	n-Heptadecane (C17)	25.052	82526092	53.223 ug/mL M4
15) t	Pristane	25.161	86105808	54.319 ug/mL M4
16) t	n-Octadecane (C18)	26.814	85162372	53.738 ug/mL M4
17) t	Phytane	26.978	85439918	54.403 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	85736625	54.160 ug/mL M4
20) t	n-Eicosane (C20)	30.097	86391933	53.805 ug/mL M4
21) t	n-Heneicosane (C21)	31.630	86708745	53.451 ug/mL M4
22) t	n-Docosane (C22)	33.099	87315066	54.029 ug/mL M4
23) t	n-Tricosane (C23)	34.509	87310994	53.109 ug/mL M4
25) t	n-Tetracosane (C24)	35.864	86721428	53.840 ug/mL M4
26) t	n-Pentacosane (C25)	37.167	88930211	54.024 ug/mL M4
27) t	n-Hexacosane (C26)	38.422	88170741	53.884 ug/mL M4
28) t	n-Heptacosane (C27)	39.630	86537757	53.823 ug/mL M4
29) t	n-Octacosane (C28)	40.799	87544932	53.851 ug/mL M4
30) t	n-Nonacosane (C29)	41.927	87838680	54.162 ug/mL M4
31) t	n-Triacontane (C30)	43.019	86787026	53.683 ug/mL M4
32) t	n-Hentriacontane (C31)	44.076	87532842	53.872 ug/mL M4
33) t	n-Dotriacontane (C32)	45.100	87203026	53.865 ug/mL M4
34) t	n-Tritriacontane (C33)	46.091	82934202	52.874 ug/mL M4
35) t	n-tetratriacontane (C34)	47.059	85414265	53.359 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.086	86330128	53.149 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.250	87607328	52.842 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.584	84996623	52.443 ug/mL M4
39) t	n-Octatriacontane (C38)	52.135	84049804	52.290 ug/mL M4
41) t	n-Tetracontane (C40)	56.077	78428700	52.097 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003465.D
Operator : BAL
Acquired : 03 May 2012 2:43 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011205R
Misc Info : WHAP14
ALS Vial : 86



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	94	0.01
2	t	n-Octane (C8)	50.000	49.653	0.7	85	0.00
3	t	n-Nonane (C9)	50.000	49.442	1.1	85	0.00
4	t	n-Decane (C10)	50.000	50.074	-0.1	87	0.00
5	t	n-Undecane (C11)	50.000	50.953	-1.9	89	0.00
6	t	n-Dodecane (C12)	50.000	51.687	-3.4	91	0.00
7	t	n-Tridecane (C13)	50.000	52.142	-4.3	91	0.00
9	t	n-Tetradecane (C14)	50.000	52.645	-5.3	92	0.00
11	t	n-Pentadecane (C15)	50.000	53.067	-6.1	93	0.00
12	t	n-Hexadecane (C16)	50.000	53.148	-6.3	94	0.00
14	t	n-Heptadecane (C17)	50.000	53.052	-6.1	92	0.00
15	t	Pristane	50.000	54.184	-8.4	95	0.00
16	t	n-Octadecane (C18)	50.000	53.753	-7.5	95	0.00
17	t	Phytane	50.000	54.184	-8.4	95	0.00
18	t	n-Nonadecane (C19)	50.000	53.932	-7.9	95	0.00
19	s	ortho-terphenyl	50.000	56.230	-12.5	96	0.00
20	t	n-Eicosane (C20)	50.000	54.055	-8.1	95	0.00
21	t	n-Heneicosane (C21)	50.000	53.541	-7.1	95	0.00
22	t	n-Docosane (C22)	50.000	54.129	-8.3	96	0.00
23	t	n-Tricosane (C23)	50.000	53.246	-6.5	96	0.01
24	s	d50-Tetracosane	50.000	56.076	-12.2	97	0.00
25	t	n-Tetracosane (C24)	50.000	54.067	-8.1	95	0.01
26	t	n-Pentacosane (C25)	50.000	54.193	-8.4	96	0.01
27	t	n-Hexacosane (C26)	50.000	54.183	-8.4	96	0.01
28	t	n-Heptacosane (C27)	50.000	54.789	-9.6	96	0.01
29	t	n-Octacosane (C28)	50.000	54.148	-8.3	96	0.01
30	t	n-Nonacosane (C29)	50.000	54.237	-8.5	97	0.01
31	t	n-Triacontane (C30)	50.000	53.776	-7.6	94	0.01
32	t	n-Hentriacontane (C31)	50.000	53.987	-8.0	96	0.01
33	t	n-Dotriacontane (C32)	50.000	53.668	-7.3	96	0.01
34	t	n-Tritriacontane (C33)	50.000	52.773	-5.5	90	0.01
35	t	n-tetratriacontane (C34)	50.000	53.449	-6.9	95	0.01
36	t	n-Pentatriacontane (C35)	50.000	53.133	-6.3	95	0.01
37	t	n-Hexatriacontane (C36)	50.000	52.797	-5.6	94	0.02
38	t	n-Heptatriacontane (C37)	50.000	52.578	-5.2	94	0.02
39	t	n-Octatriacontane (C38)	50.000	52.179	-4.4	93	0.02
41	t	n-Tetracontane (C40)	50.000	52.111	-4.2	95	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
* n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC17032312R.M Wed May 09 15:33:58 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003487.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 7:00 am
Operator : BAL
Sample : C1705011206R
Misc : WHAP14
ALS Vial : 97 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:14:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

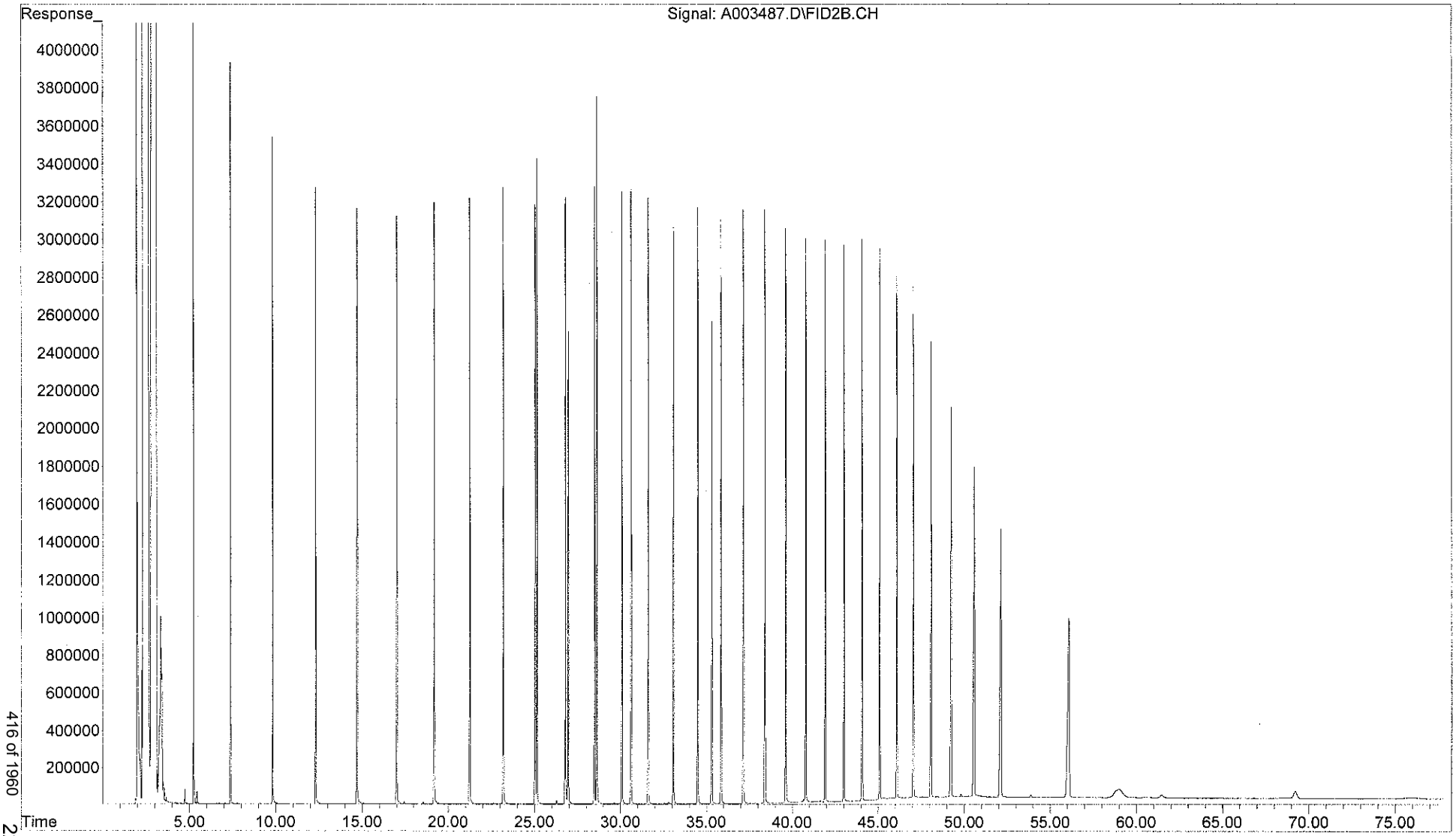
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.630	75344132	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.647	85832303	56.230 ug/mL m
Spiked Amount	50.000 Range 50 - 130		Recovery = 112.46%	
24) s	d50-Tetracosane	35.319	70161234	56.076 ug/mL m
Spiked Amount	50.000 Range 50 - 130		Recovery = 112.15%	
	Target Compounds			
2) t	n-Octane (C8)	5.234	55495120	49.653 ug/mL M4
3) t	n-Nonane (C9)	7.376	59423734	49.442 ug/mL M4
4) t	n-Decane (C10)	9.816	63733201	50.074 ug/mL M4
5) t	n-Undecane (C11)	12.303	66001932	50.953 ug/mL M4
6) t	n-Dodecane (C12)	14.716	68288780	51.687 ug/mL M4
7) t	n-Tridecane (C13)	17.014	69190978	52.142 ug/mL M4
9) t	n-Tetradecane (C14)	19.189	70504897	52.645 ug/mL M4
11) t	n-Pentadecane (C15)	21.248	71013284	53.067 ug/mL M4
12) t	n-Hexadecane (C16)	23.198	73082100	53.148 ug/mL M4
14) t	n-Heptadecane (C17)	25.051	72076647	53.052 ug/mL M4
15) t	Pristane	25.161	75257820	54.184 ug/mL M4
16) t	n-Octadecane (C18)	26.814	74638689	53.753 ug/mL M4
17) t	Phytane	26.978	74559417	54.184 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	74805557	53.932 ug/mL M4
20) t	n-Eicosane (C20)	30.097	76048611	54.055 ug/mL M4
21) t	n-Heneicosane (C21)	31.630	76101002	53.541 ug/mL M4
22) t	n-Docosane (C22)	33.100	76646259	54.129 ug/mL M4
23) t	n-Tricosane (C23)	34.511	76698456	53.246 ug/mL M4
25) t	n-Tetracosane (C24)	35.865	76305062	54.067 ug/mL M4
26) t	n-Pentacosane (C25)	37.168	78163129	54.193 ug/mL M4
27) t	n-Hexacosane (C26)	38.422	77683917	54.183 ug/mL M4
28) t	n-Heptacosane (C27)	39.632	77185142	54.789 ug/mL M4
29) t	n-Octacosane (C28)	40.800	77129835	54.148 ug/mL M4
30) t	n-Nonacosane (C29)	41.928	77070350	54.237 ug/mL M4
31) t	n-Triacontane (C30)	43.020	76174731	53.776 ug/mL M4
32) t	n-Hentriacontane (C31)	44.078	76858659	53.987 ug/mL M4
33) t	n-Dotriacontane (C32)	45.101	76127057	53.668 ug/mL M4
34) t	n-Tritriacontane (C33)	46.094	72527388	52.773 ug/mL M4
35) t	n-tetratriacontane (C34)	47.061	74967061	53.449 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.087	75619873	53.133 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.249	76695419	52.797 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.585	74664259	52.578 ug/mL M4
39) t	n-Octatriacontane (C38)	52.134	73486831	52.179 ug/mL M4
41) t	n-Tetracontane (C40)	56.080	68737021	52.111 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003487.D
Operator : BAL
Acquired : 04 May 2012 7:00 am using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011206R
Misc Info : WHAP14
ALS Vial : 97



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003501.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 5:26 pm
Operator : BAL
Sample : C1705011207R
Misc : WHAP14
ALS Vial : 54 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 15:49:42 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	96	0.01
2	t	n-Octane (C8)	50.000	50.954	-1.9	89	0.00
3	t	n-Nonane (C9)	50.000	50.632	-1.3	88	0.00
4	t	n-Decane (C10)	50.000	50.436	-0.9	89	0.00
5	t	n-Undecane (C11)	50.000	50.888	-1.8	90	0.00
6	t	n-Dodecane (C12)	50.000	51.516	-3.0	92	0.00
7	t	n-Tridecane (C13)	50.000	52.028	-4.1	93	0.00
9	t	n-Tetradecane (C14)	50.000	52.621	-5.2	93	0.00
11	t	n-Pentadecane (C15)	50.000	53.082	-6.2	94	0.00
12	t	n-Hexadecane (C16)	50.000	53.199	-6.4	96	0.00
14	t	n-Heptadecane (C17)	50.000	53.020	-6.0	94	0.00
15	t	Pristane	50.000	54.349	-8.7	97	0.00
16	t	n-Octadecane (C18)	50.000	53.628	-7.3	96	0.00
17	t	Phytane	50.000	54.328	-8.7	97	0.00
18	t	n-Nonadecane (C19)	50.000	53.865	-7.7	96	0.00
19	s	ortho-terphenyl	50.000	56.117	-12.2	97	0.01
20	t	n-Eicosane (C20)	50.000	53.767	-7.5	96	0.00
21	t	n-Heneicosane (C21)	50.000	53.481	-7.0	97	0.01
22	t	n-Docosane (C22)	50.000	54.044	-8.1	97	0.01
23	t	n-Tricosane (C23)	50.000	53.116	-6.2	97	0.01
24	s	d50-Tetracosane	50.000	55.948	-11.9	98	0.01
25	t	n-Tetracosane (C24)	50.000	53.862	-7.7	96	0.01
26	t	n-Pentacosane (C25)	50.000	53.960	-7.9	97	0.01
27	t	n-Hexacosane (C26)	50.000	53.922	-7.8	97	0.01
28	t	n-Heptacosane (C27)	50.000	53.749	-7.5	95	0.01
29	t	n-Octacosane (C28)	50.000	53.771	-7.5	97	0.01
30	t	n-Nonacosane (C29)	50.000	54.083	-8.2	98	0.01
31	t	n-Triacontane (C30)	50.000	53.529	-7.1	95	0.01
32	t	n-Hentriacontane (C31)	50.000	53.795	-7.6	97	0.01
33	t	n-Dotriacontane (C32)	50.000	53.813	-7.6	98	0.01
34	t	n-Tritriacontane (C33)	50.000	52.841	-5.7	92	0.01
35	t	n-tetratriacontane (C34)	50.000	53.189	-6.4	95	0.02
36	t	n-Pentatriacontane (C35)	50.000	53.067	-6.1	96	0.02
37	t	n-Hexatriacontane (C36)	50.000	52.660	-5.3	95	0.02
38	t	n-Heptatriacontane (C37)	50.000	52.397	-4.8	95	0.02
39	t	n-Octatriacontane (C38)	50.000	52.271	-4.5	95	0.03
41	t	n-Tetracontane (C40)	50.000	52.191	-4.4	97	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC17032312R.M Wed May 09 15:53:44 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003501.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 5:26 pm
Operator : BAL
Sample : C1705011207R
Misc : WHAP14
ALS Vial : 54 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 09 15:49:42 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

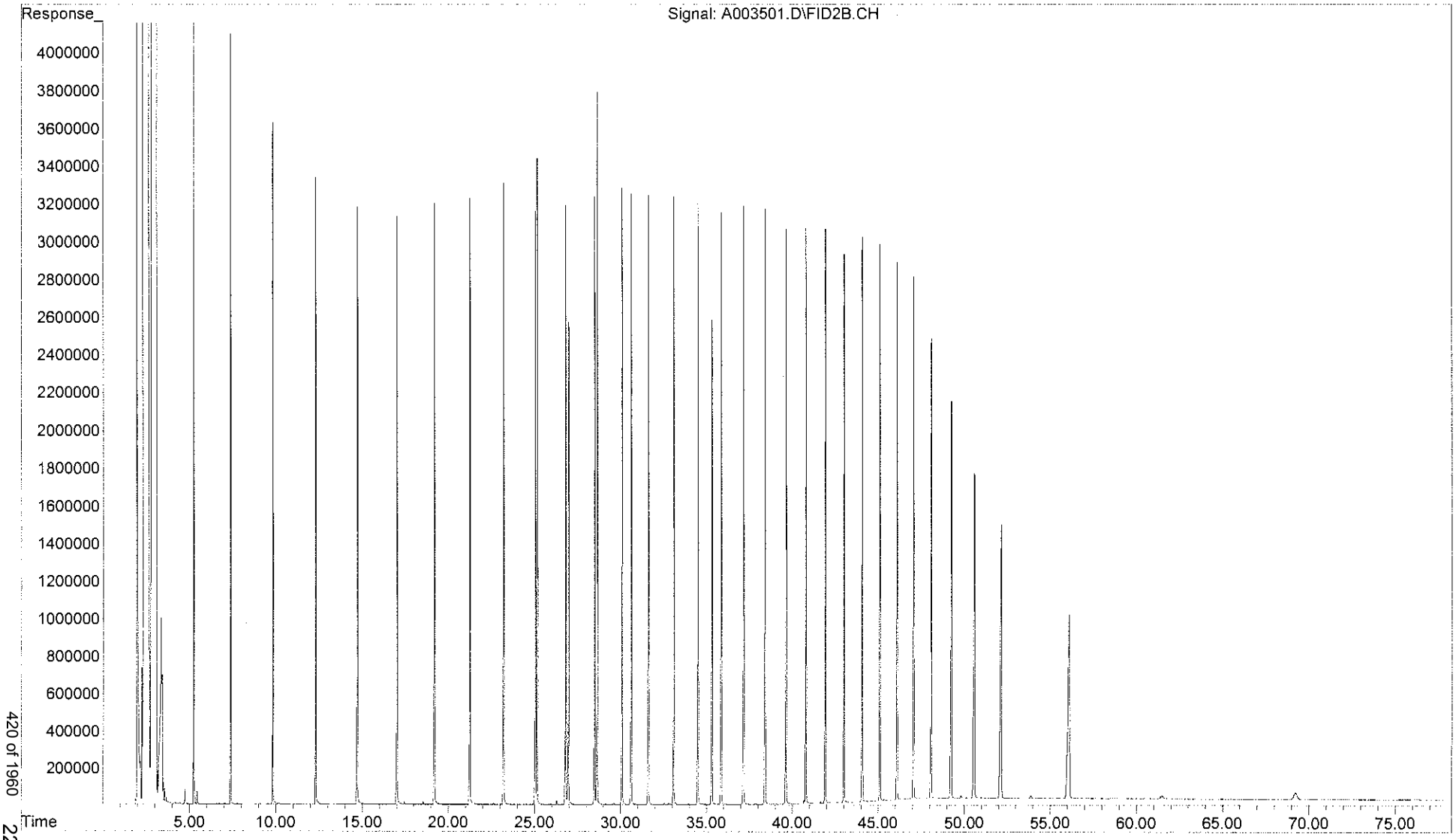
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.631	76477537	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.649	86948397	56.117 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.23%
24) s	d50-Tetracosane	35.320	71054004	55.948 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.90%
	Target Compounds			
2) t	n-Octane (C8)	5.236	57806144	50.954 ug/mL M4
3) t	n-Nonane (C9)	7.377	61770556	50.632 ug/mL M4
4) t	n-Decane (C10)	9.815	65159178	50.436 ug/mL M4
5) t	n-Undecane (C11)	12.301	66910360	50.888 ug/mL M4
6) t	n-Dodecane (C12)	14.715	69086738	51.516 ug/mL M4
7) t	n-Tridecane (C13)	17.013	70078041	52.028 ug/mL M4
9) t	n-Tetradecane (C14)	19.188	71531881	52.621 ug/mL M4
11) t	n-Pentadecane (C15)	21.247	72101610	53.082 ug/mL M4
12) t	n-Hexadecane (C16)	23.197	74252403	53.199 ug/mL M4
14) t	n-Heptadecane (C17)	25.052	73117494	53.020 ug/mL M4
15) t	Pristane	25.162	76623265	54.349 ug/mL M4
16) t	n-Octadecane (C18)	26.816	75585969	53.628 ug/mL M4
17) t	Phytane	26.978	75883397	54.328 ug/mL M4
18) t	n-Nonadecane (C19)	28.496	75836569	53.865 ug/mL M4
20) t	n-Eicosane (C20)	30.098	76781783	53.767 ug/mL M4
21) t	n-Heneicosane (C21)	31.630	77160394	53.481 ug/mL M4
22) t	n-Docosane (C22)	33.101	77677367	54.044 ug/mL M4
23) t	n-Tricosane (C23)	34.511	77661519	53.116 ug/mL M4
25) t	n-Tetracosane (C24)	35.866	77160290	53.862 ug/mL M4
26) t	n-Pentacosane (C25)	37.170	78998644	53.960 ug/mL M4
27) t	n-Hexacosane (C26)	38.423	78472220	53.922 ug/mL M4
28) t	n-Heptacosane (C27)	39.633	76859070	53.749 ug/mL M4
29) t	n-Octacosane (C28)	40.802	77743808	53.771 ug/mL M4
30) t	n-Nonacosane (C29)	41.929	78007030	54.083 ug/mL M4
31) t	n-Triacontane (C30)	43.022	76965122	53.529 ug/mL M4
32) t	n-Hentriacontane (C31)	44.080	77738352	53.795 ug/mL M4
33) t	n-Dotriacontane (C32)	45.103	77481082	53.813 ug/mL M4
34) t	n-Tritriacontane (C33)	46.096	73713185	52.841 ug/mL M4
35) t	n-tetratriacontane (C34)	47.063	75724307	53.189 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.090	76661458	53.067 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.252	77647052	52.660 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.584	75527510	52.397 ug/mL M4
39) t	n-Octatriacontane (C38)	52.143	74725000	52.271 ug/mL M4
41) t	n-Tetracontane (C40)	56.088	69878808	52.191 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003501.D
Operator : BAL
Acquired : 04 May 2012 5:26 pm using AcqMethod FID17.M
Instrument : FID17
Sample : C1705011207R
Misc Info : WHAP14
ALS Vial : 54



Instrument Blank Association

MV to GD 5-9-17

ETR: 1204035

Project: Enbridge Line 6B MP608

	Associated Instrument Blank	
Sample ID	**Laboratory ID**	**File ID**
1204035-01	IB1705011204R	A003457
1204035-02	IB1705011204R	A003457
1204035-03	IB1705011204R	A003457
1204035-04	IB1705011204R	A003457
1204035-05	IB1705011208R	A003505
1204035-06	IB1705011208R	A003505
1204035-07	IB1705011208R	A003505
1204035-07D	IB1705011208R	A003505
1204035-08	IB1705011204R	A003457
1204035-09	IB1705011204R	A003457
1204035-10	IB1705011204R	A003457
1204035-11	IB1705011204R	A003457
1204035-12	IB1705011204R	A003457
SO050112B01	IB1705011202R	A003415
SO050112LCS01	IB1705011202R	A003415
SO050112LCSD01	IB1705011202R	A003415
SS043012B07	IB1705011206R	A003477
SS043012LCS02	IB1705011206R	A003477
SS043012LCSD02	IB1705011206R	A003477
TO050112ANS02	IB1705011201R	A003407
TO050112WCS01	IB1705011205R	A003469
TO050112CL01	IB1705011205R	A003469
TS032612ANS02	IB1703231201R	A002946

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002946.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 12:09 pm
Operator : BAL
Sample : IB1703231201R
Misc : DCM
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:30:54 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

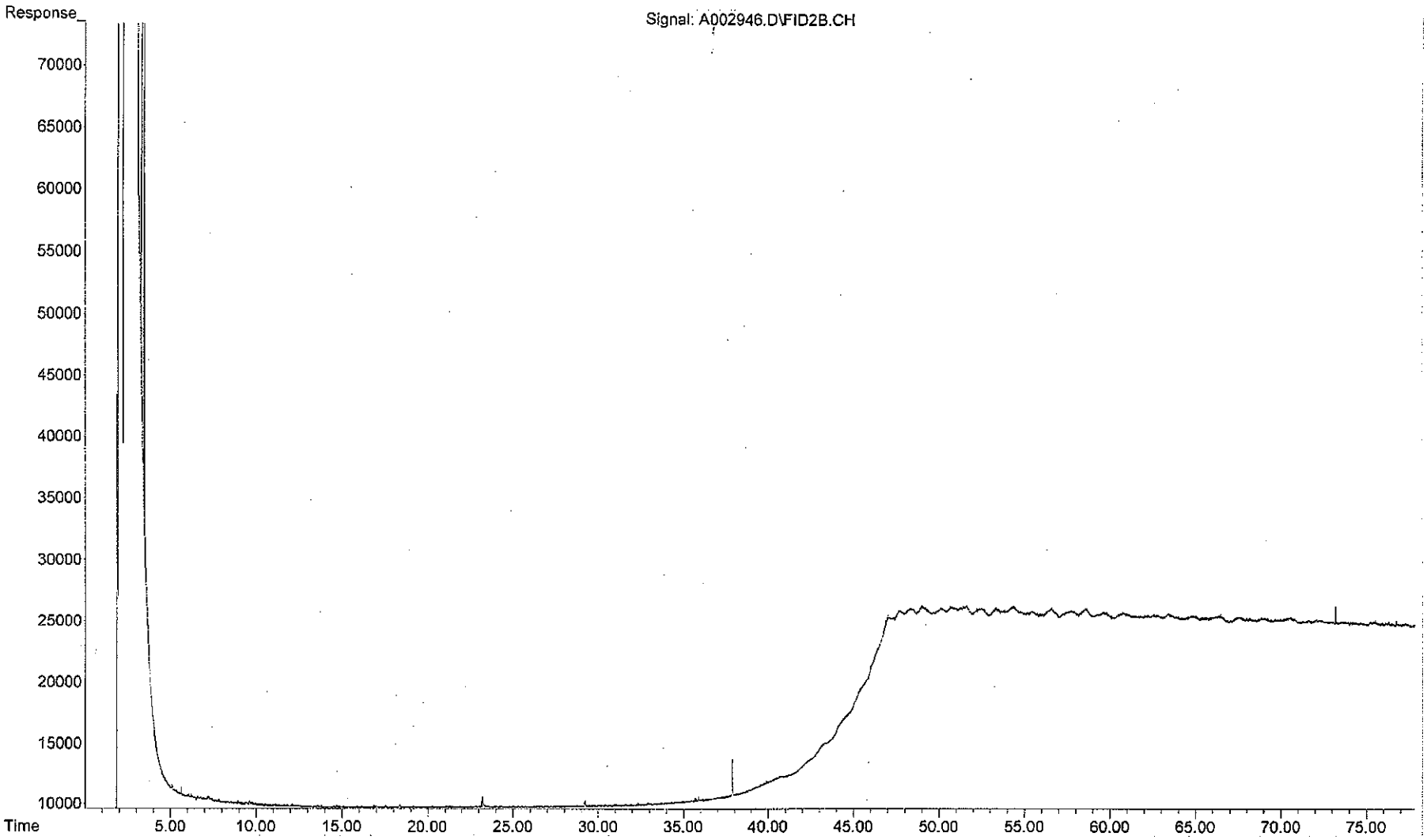
Sub List : TPH - TPH

4-15-12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.651	681	50.000 ug/mL M2
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	38.335	275894762	22065900.414 ug/mL M5
44) h Total Resolved Hydroc...	38.335	3133120	250585.072 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002946.D
Operator : BAL
Acquired : 24 Mar 2012 12:09 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1703231201R
Misc Info : DCM
ALS Vial : 69



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003407.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 7:48 pm
Operator : BAL
Sample : IB1705011201R
Misc : DCM
ALS Vial : 57 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:17:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

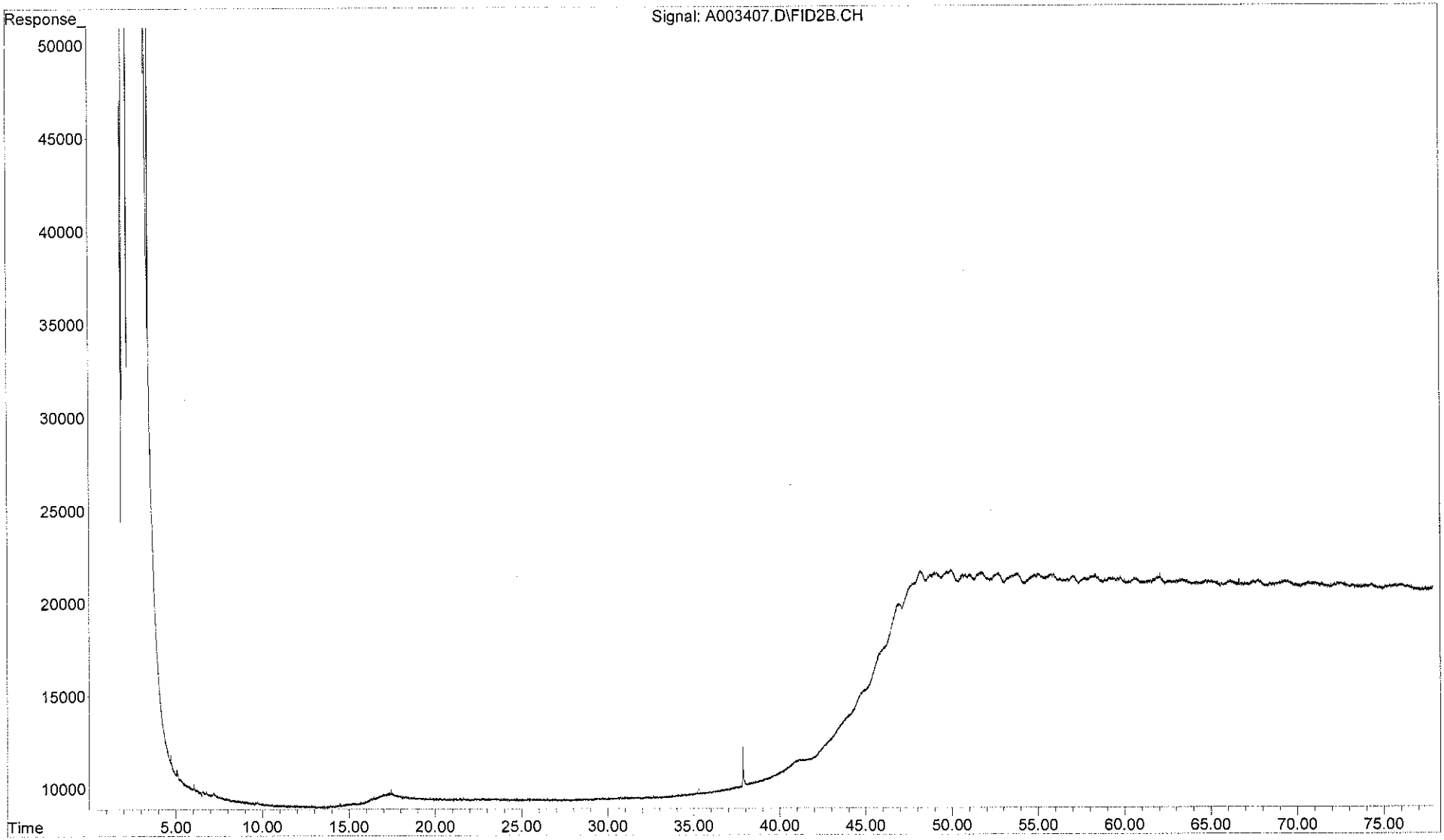
Sub List : TPH - TPH

dg 9-16

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.618	966	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	231479078	13048546.926 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	1991279	112248.990 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003407.D
Operator : BAL
Acquired : 01 May 2012 7:48 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011201R
Misc Info : DCM
ALS Vial : 57



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003415.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 1:43 am
Operator : BAL
Sample : IB1705011202R
Misc : DCM
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 03 11:43:35 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

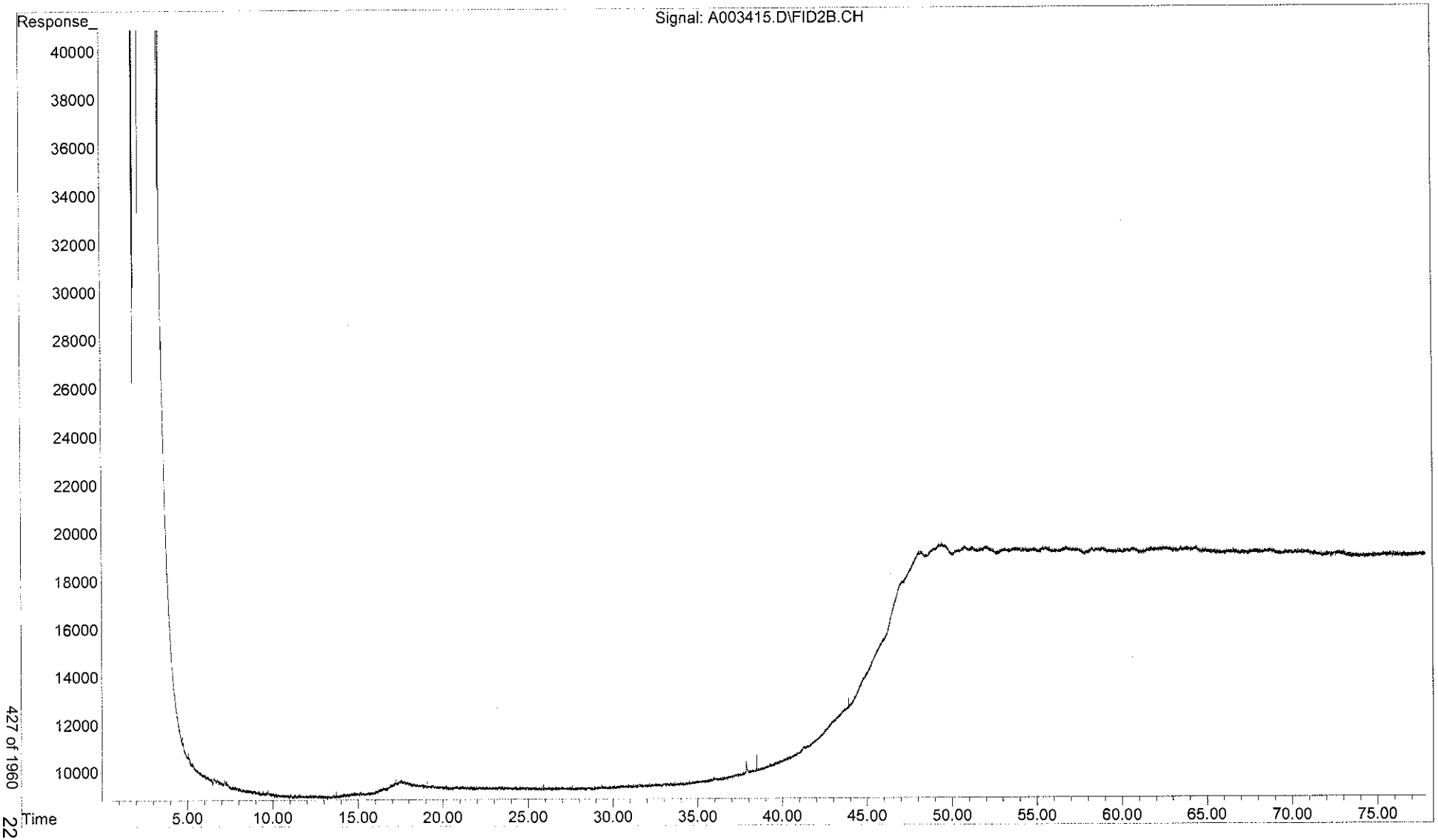
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.603	2101	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	197059444	5107608.309 ug/mL M5
44) h	Total Resolved Hydroc...	38.335	1153778	29904.921 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003415.D
Operator : BAL
Acquired : 02 May 2012 1:43 am using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011202R
Misc Info : DCM
ALS Vial : 61



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003457.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 8:47 am
Operator : BAL
Sample : IB1705011204R
Misc : DCM
ALS Vial : 82 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 08 08:01:58 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

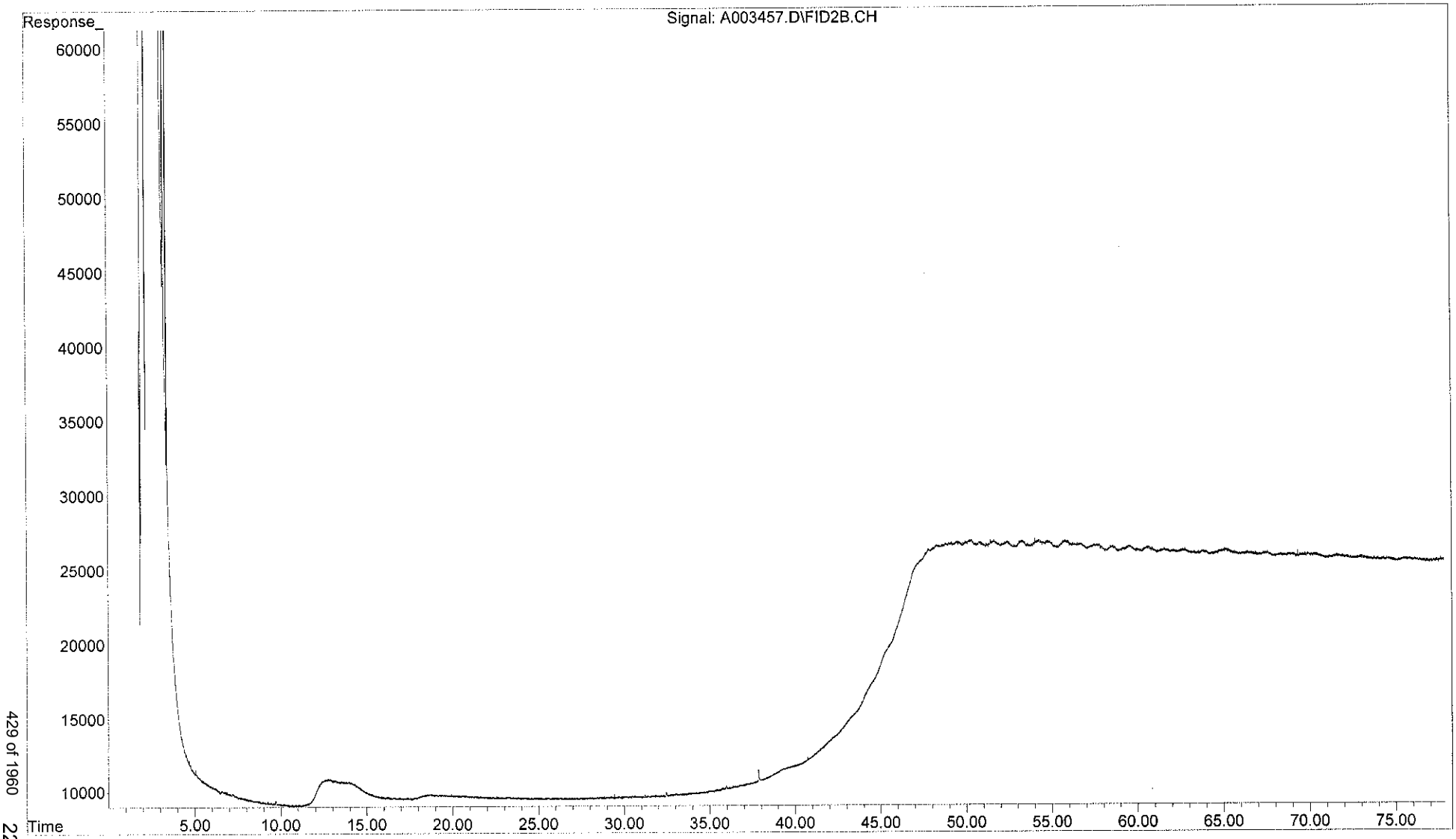
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.594	2233	50.000 ug/mL M2
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	316518013	7718843.876 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	3239467	79000.049 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003457.D
Operator : BAL
Acquired : 03 May 2012 8:47 am using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011204R
Misc Info : DCM
ALS Vial : 82



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003469.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 5:40 pm
Operator : BAL
Sample : IB1705011205R
Misc : DCM
ALS Vial : 88 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:11:24 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

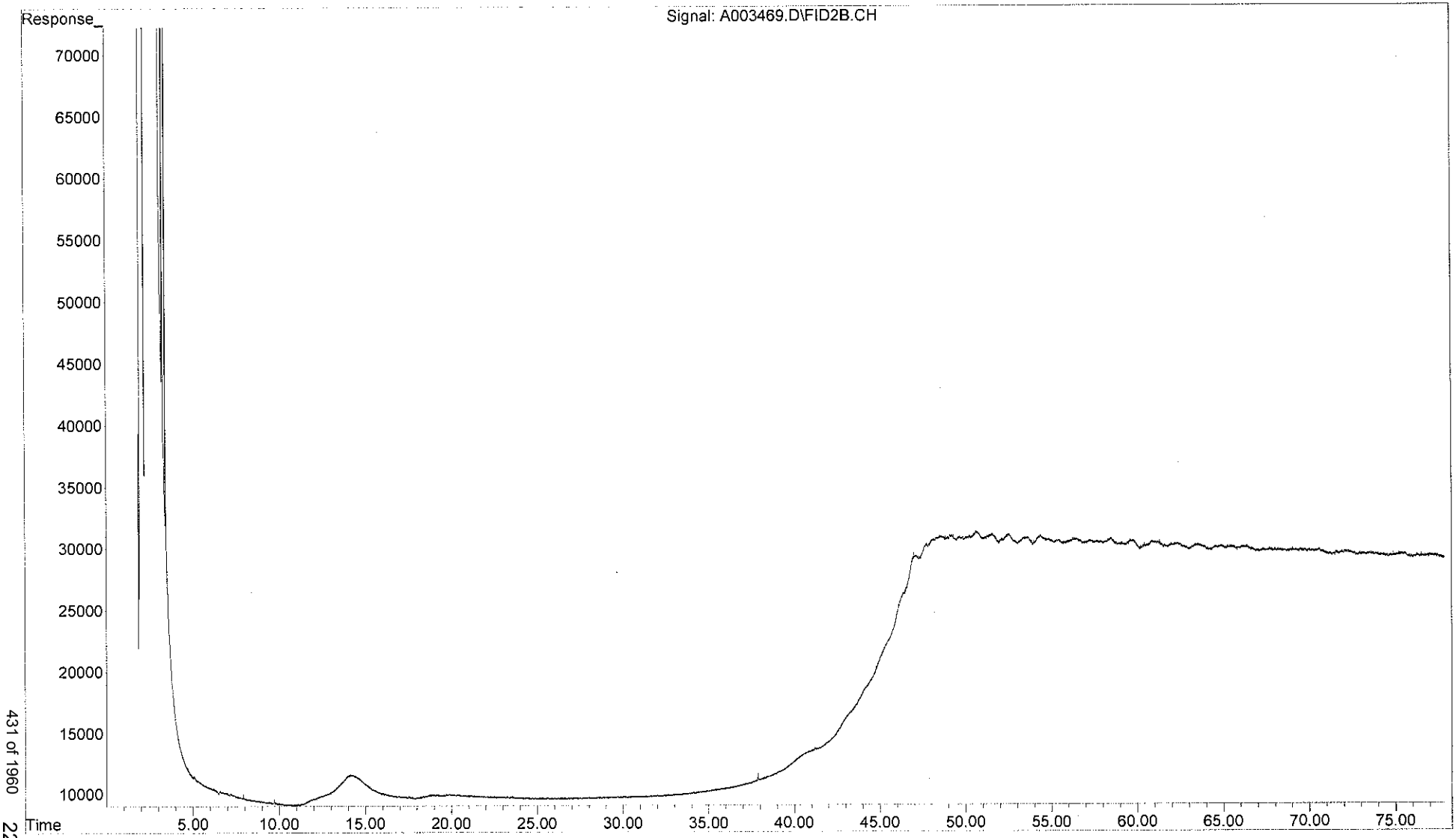
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.624	1152	50.000 ug/mL M4
System Monitoring Compounds				
Target Compounds				
42) h	C9-C44 Total Petroleu...	38.335	362681961	17148287.491 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	3687805	174366.391 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument				

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003469.D
Operator : BAL
Acquired : 03 May 2012 5:40 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011205R
Misc Info : DCM
ALS Vial : 88



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003477.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:35 pm
Operator : BAL
Sample : IB1705011206R
Misc : DCM
ALS Vial : 92 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 13:43:28 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

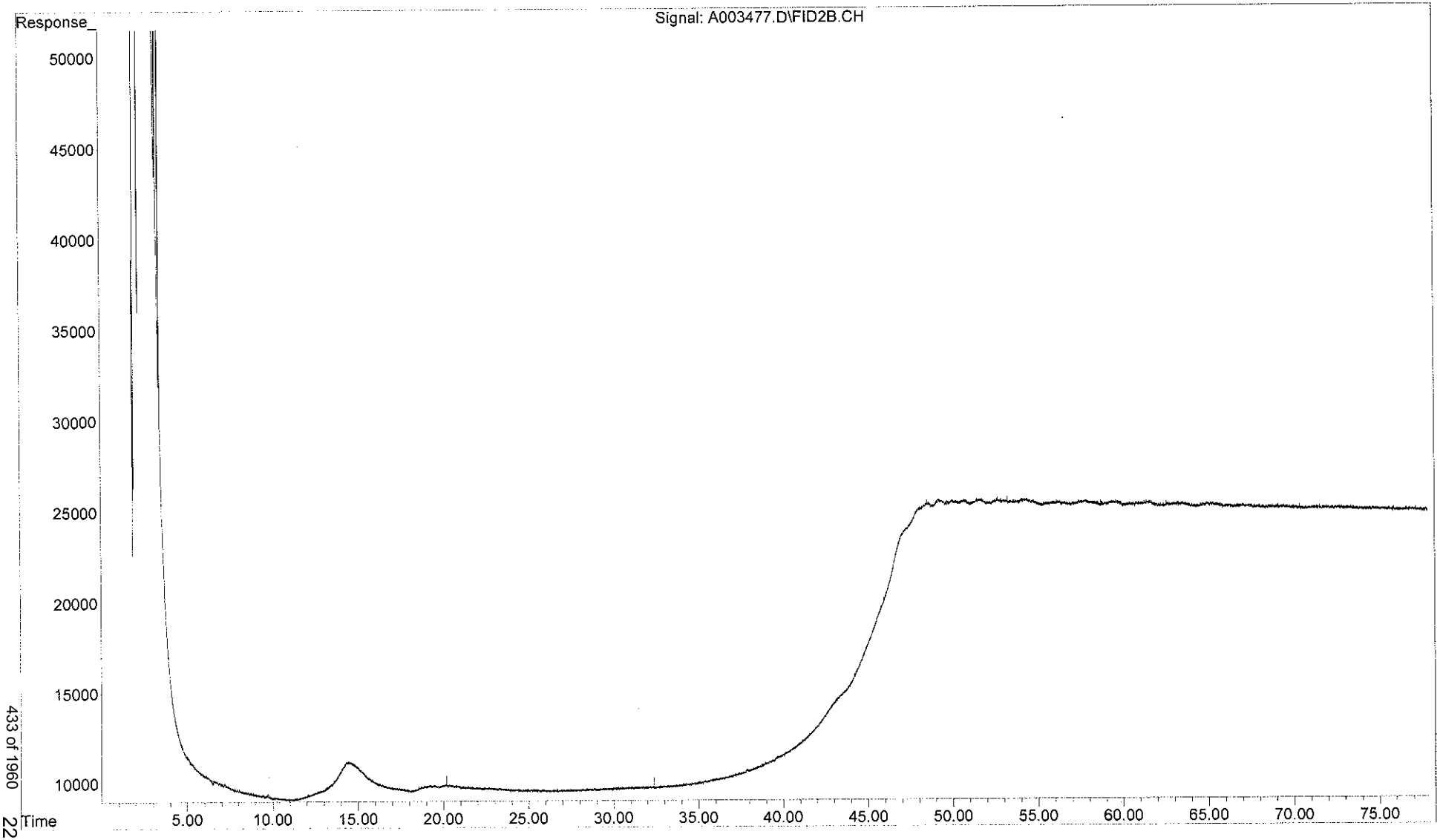
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.612	466	50.000 ug/mL M4
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	38.335	282042071	32983821.369 ug/mL M4
44) h Total Resolved Hydroc...	38.335	1416607	165667.129 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003477.D
Operator : BAL
Acquired : 03 May 2012 11:35 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011206R
Misc Info : DCM
ALS Vial : 92



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003505.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 8:24 pm
Operator : BAL
Sample : IB1705011208R
Misc : DCM
ALS Vial : 56 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 14:16:02 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

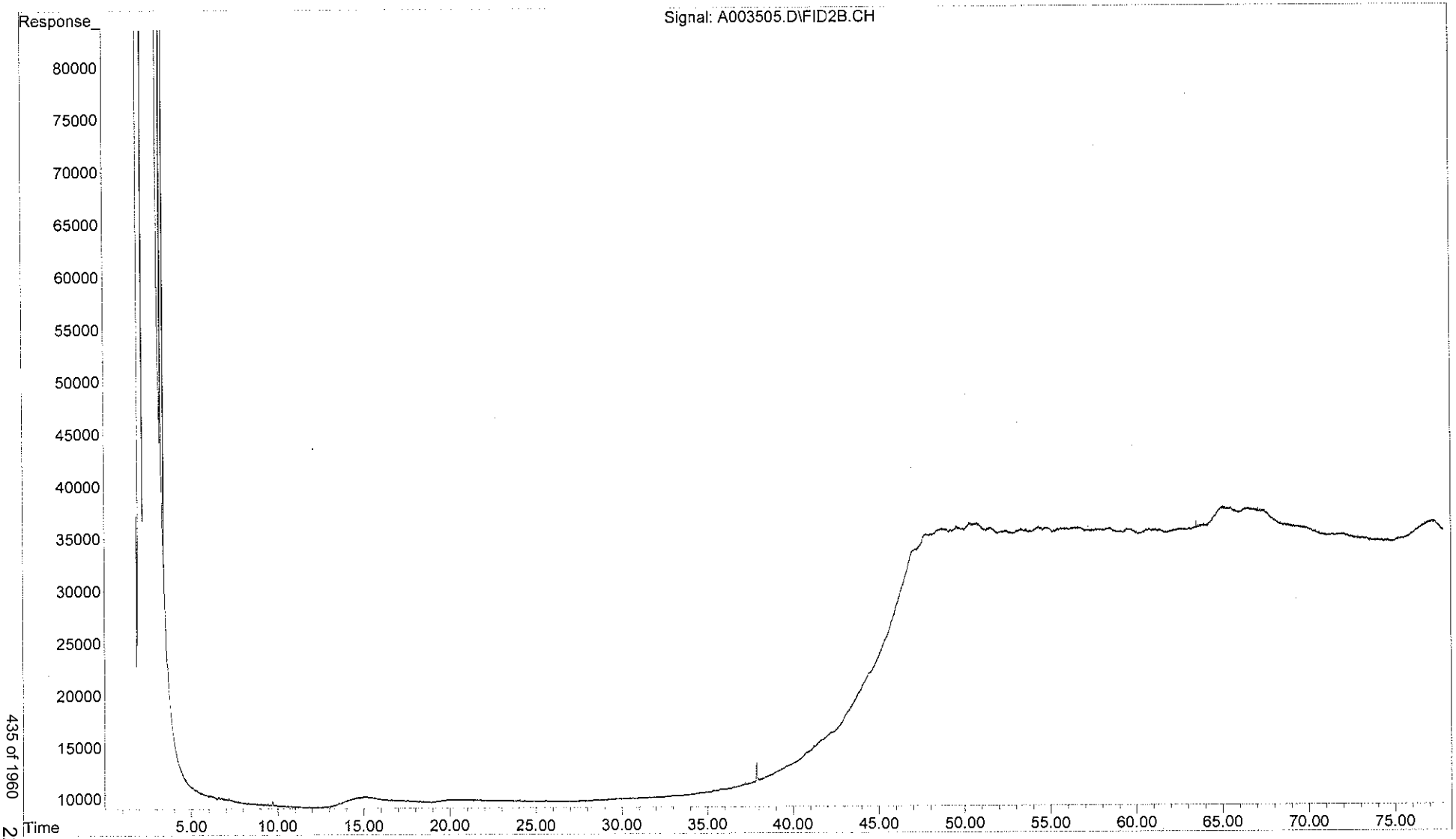
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	312	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	38.335	465578762	81320539.962 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	2677926	467741.265 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003505.D
Operator : BAL
Acquired : 04 May 2012 8:24 pm using AcqMethod FID17.M
Instrument : FID17
Sample : IB1705011208R
Misc Info : DCM
ALS Vial : 56



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012B07**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	0.0340	U	n-Docosane (C22)	**0.00300**	J
n-Decane (C10)	0.0348	U	n-Tricosane (C23)	**0.0118**	J
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**0.00400**	J
n-Dodecane (C12)	0.0352	U	n-Pentacosane (C25)	**0.118**	CJ
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**0.00300**	J
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	0.0260	U	n-Octacosane (C28)	**0.00475**	J
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**0.00325**	J
n-Hexadecane (C16)	0.0240	U	n-Hentriacontane (C31)	**0.00300**	J
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	**0.00350**	J
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**0.0772**	CJ	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	0.0415	U
n-Nonadecane (C19)	0.0203	U	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**0.00550**	J	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	90	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003471.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 7:09 pm
Operator : BAL
Sample : SS043012B07
Misc : 1X
ALS Vial : 89 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:50:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

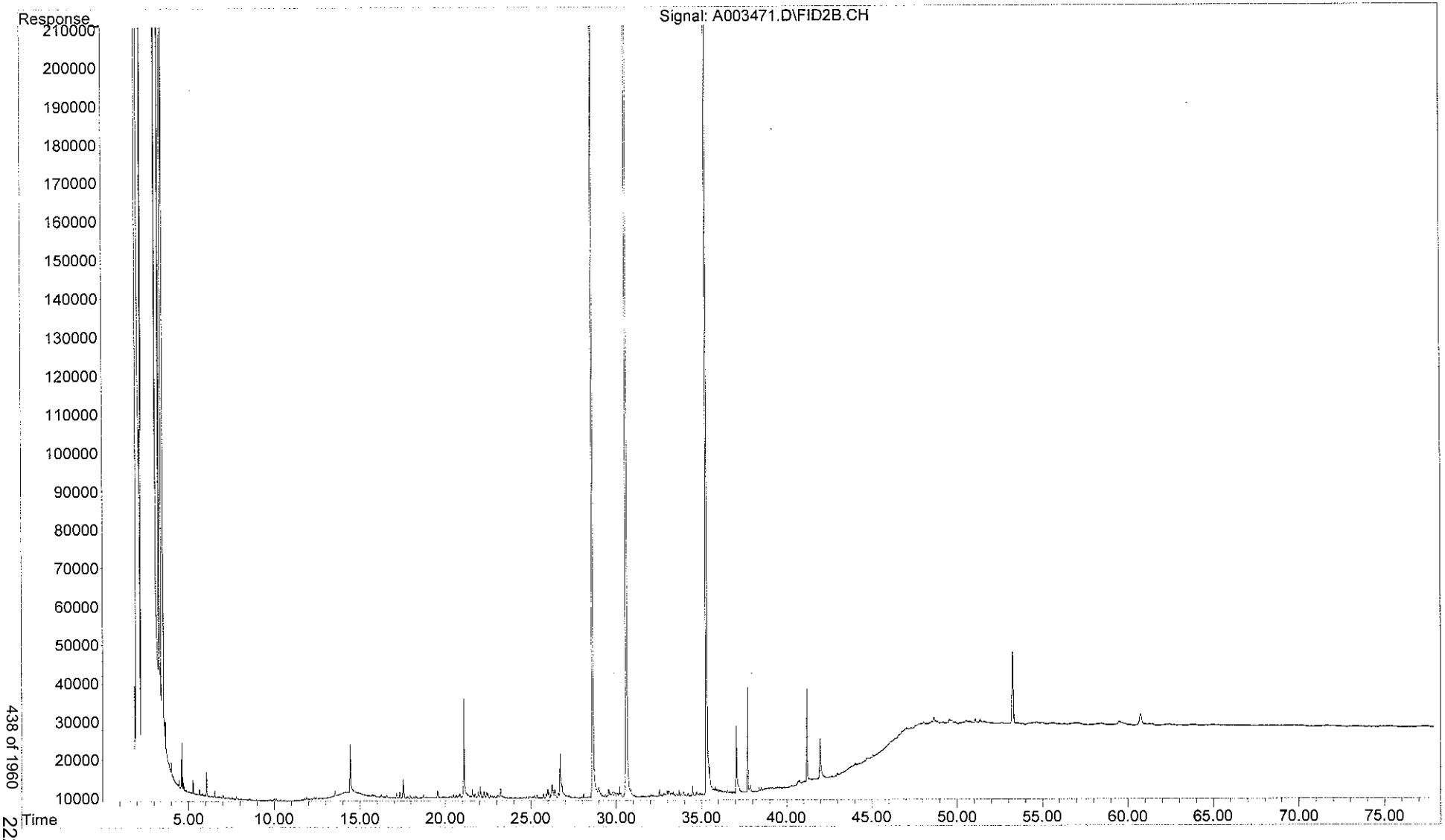
Sub List : SHC - SHC

05-5-12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.622	78862048	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.623	36125987	22.611 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 45.22%#	
24) s d50-Tetracosane	35.297	28736661	21.943 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 43.89%#	
Target Compounds			
16) t n-Octadecane (C18)	26.716	449185C	0.309 ug/mL M4
20) t n-Eicosane (C20)	30.067	32920	0.022 ug/mL M4
22) t n-Docosane (C22)	33.071	17300	0.012 ug/mL M4
23) t n-Tricosane (C23)	34.487	71210	0.047 ug/mL M4
25) t n-Tetracosane (C24)	35.836	24181	0.016 ug/mL M4
26) t n-Pentacosane (C25)	37.057f	715036C	0.474 ug/mL M4
27) t n-Hexacosane (C26)	38.388	18167	0.012 ug/mL M4
29) t n-Octacosane (C28)	40.760	28178	0.019 ug/mL M4
31) t n-Triacontane (C30)	42.987	19891	0.013 ug/mL M4
32) t n-Hentriacontane (C31)	44.033	18497	0.012 ug/mL M4
33) t n-Dotriacontane (C32)	45.066	21366	0.014 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	354805389	245.017 ug/mL M4
44) h Total Resolved Hydroc...	38.335	13986972	9.659 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003471.D
Operator : BAL
Acquired : 03 May 2012 7:09 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012B07
Misc Info : 1X
ALS Vial : 89



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2000	U	n-Docosane (C22)	2000	U
n-Decane (C10)	2000	U	n-Tricosane (C23)	**76.0**	J
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	2000	U
n-Dodecane (C12)	2000	U	n-Pentacosane (C25)	**976**	CJ
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	2000	U
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	2000	U	n-Octacosane (C28)	2000	U
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	2000	U
n-Hexadecane (C16)	2000	U	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**778**	CJ	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	2000	U
n-Nonadecane (C19)	2000	U	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	2000	U	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	83	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003409.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 9:17 pm
Operator : BAL
Sample : SO050112B01
Misc : 1X
ALS Vial : 58 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:21:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

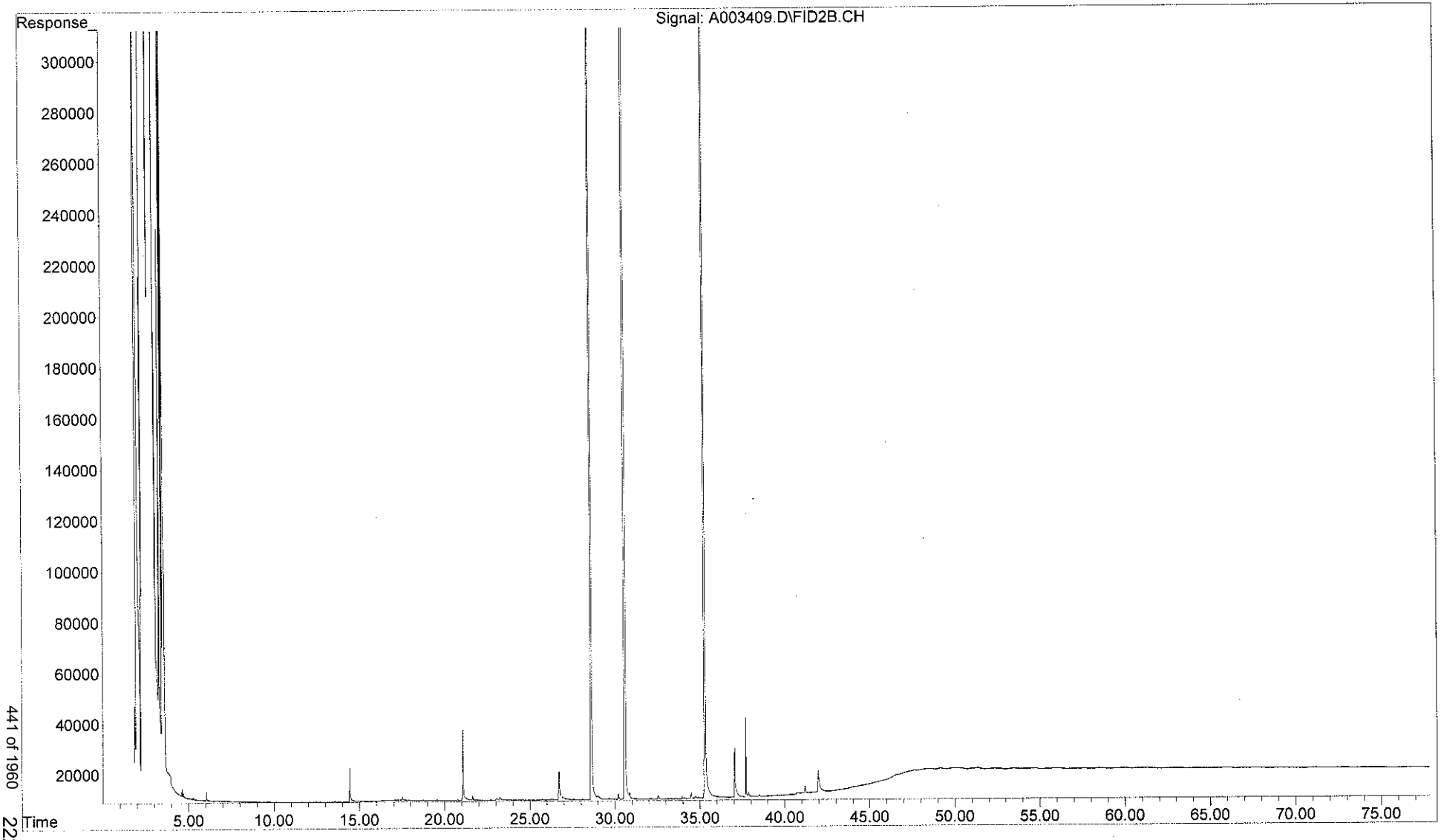
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.621	83741302	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.620	36093151	21.274 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	42.55%#
24) s	d50-Tetracosane	35.295	28928874	20.803 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	41.61%#
	Target Compounds			
16) t	n-Octadecane (C18)	26.710	599661C	0.389 ug/mL M4
23) t	n-Tricosane (C23)	34.481	61121	0.038 ug/mL M4
26) t	n-Pentacosane (C25)	37.050f	782193C	0.488 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	227585790	148.006 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	6862316	4.463 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003409.D
Operator : BAL
Acquired : 01 May 2012 9:17 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112B01
Misc Info : 1X
ALS Vial : 58



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112B01**
Associated Blank: **N/A**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2.00	U	n-Docosane (C22)	2.00	U
n-Decane (C10)	2.00	U	n-Tricosane (C23)	**0.0760**	J
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	2.00	U
n-Dodecane (C12)	2.00	U	n-Pentacosane (C25)	**0.976**	CJ
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	2.00	U
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	2.00	U	n-Octacosane (C28)	2.00	U
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	2.00	U
n-Hexadecane (C16)	2.00	U	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**0.778**	CJ	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	2.00	U
n-Nonadecane (C19)	2.00	U	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	2.00	U	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	83	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003409.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 9:17 pm
Operator : BAL
Sample : SO050112B01
Misc : 1X
ALS Vial : 58 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:21:51 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

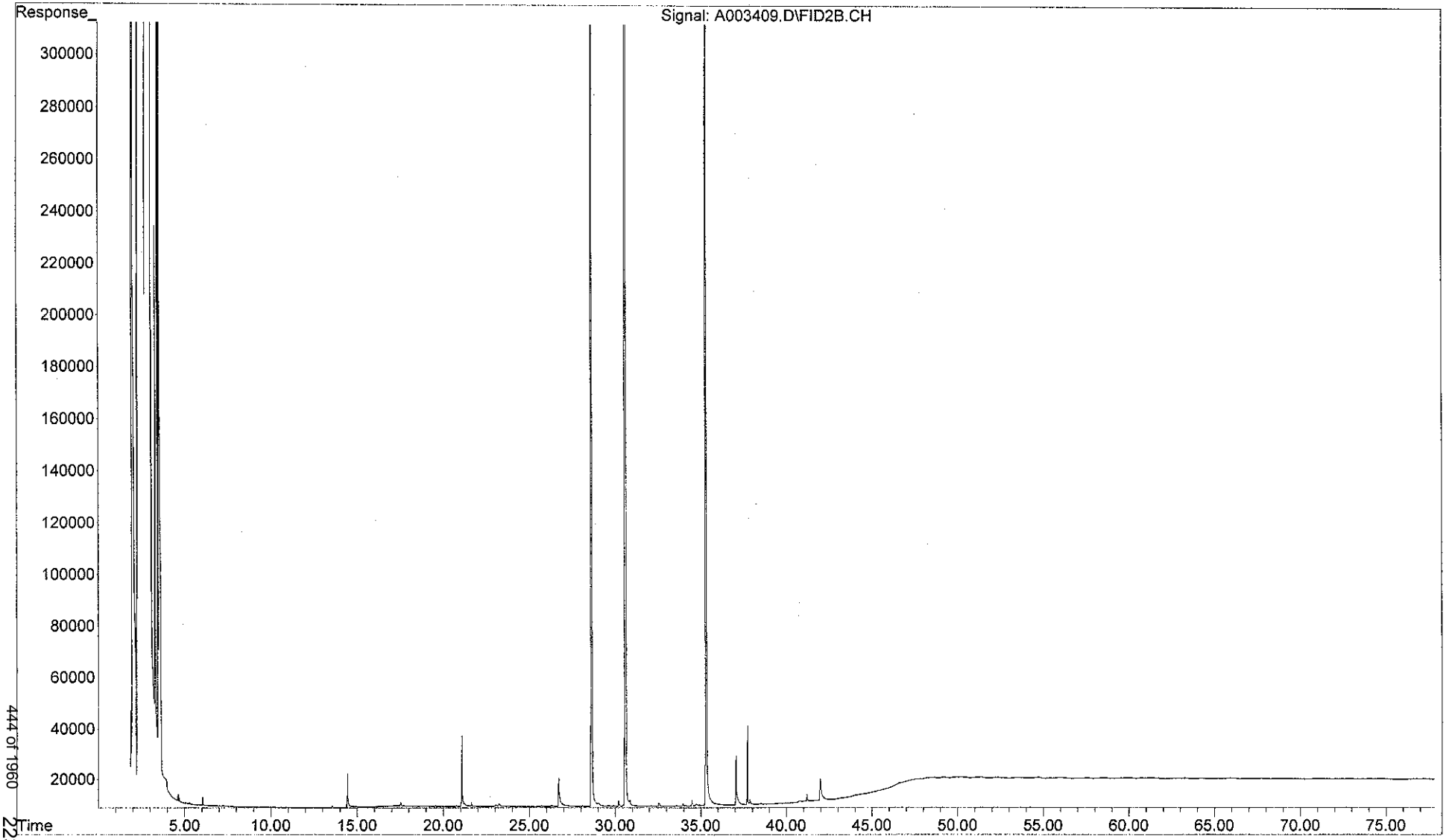
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc	Units	
Internal Standards					
1) I 5-alpha-androstane	30.621	83741302	50.000	ug/mL	M4
System Monitoring Compounds					
19) s ortho-terphenyl	28.620	36093151	21.274	ug/mL	M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 42.55%#			
24) s d50-Tetracosane	35.295	28928874	20.803	ug/mL	M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 41.61%#			
Target Compounds					
16) t n-Octadecane (C18)	26.710	599661C	0.389	ug/mL	M4
23) t n-Tricosane (C23)	34.481	61121	0.038	ug/mL	M4
26) t n-Pentacosane (C25)	37.050f	782193C	0.488	ug/mL	M4
42) h C9-C44 Total Petroleu...	38.335	227585790	148.006	ug/mL	M4
44) h Total Resolved Hydroc...	38.335	6862316	4.463	ug/mL	m
SemiQuant Compounds - Not Calibrated on this Instrument					

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003409.D
Operator : BAL
Acquired : 01 May 2012 9:17 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112B01
Misc Info : 1X
ALS Vial : 58



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCS02**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.75**	S	n-Docosane (C22)	**2.29**	S
n-Decane (C10)	**1.83**	S	n-Tricosane (C23)	0.0149	U
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**2.30**	S
n-Dodecane (C12)	**1.90**	S	n-Pentacosane (C25)	0.146	U
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**2.28**	S
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	**1.95**	S	n-Octacosane (C28)	**2.27**	S
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**2.26**	S
n-Hexadecane (C16)	**2.27**	S	n-Hentriacontane (C31)	0.0268	U
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	0.0278	U
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**2.40**	S	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	**2.03**	S
n-Nonadecane (C19)	**2.24**	S	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**2.26**	S	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	92	40-125
d50-Tetracosane	90	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003473.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 8:37 pm
Operator : BAL
Sample : SS043012LCS02
Misc : 1X
ALS Vial : 90 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 16:00:09 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

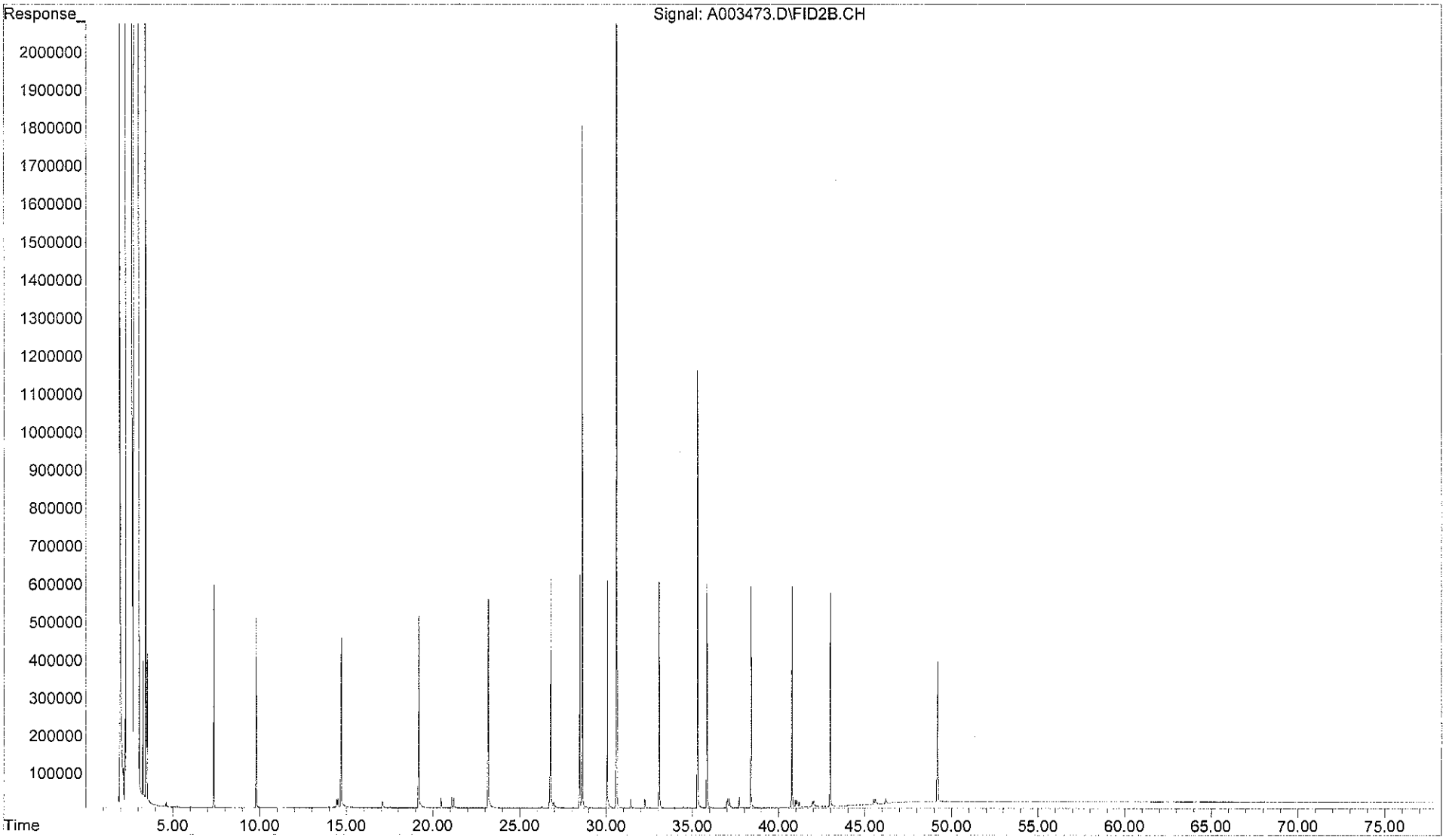
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.623	80058430	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.623	37445820	23.087 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	46.17%#
24) s	d50-Tetracosane	35.297	30065775	22.615 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	45.23%#
	Target Compounds			
3) t	n-Nonane (C9)	7.351	8921443	6.986 ug/mL M4
4) t	n-Decane (C10)	9.793	9892204	7.314 ug/mL M4
6) t	n-Dodecane (C12)	14.698	10680748	7.608 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	11116004	7.811 ug/mL M4
12) t	n-Hexadecane (C16)	23.173	13286978	9.094 ug/mL M4
16) t	n-Octadecane (C18)	26.786	14181628	9.612 ug/mL M4
18) t	n-Nonadecane (C19)	28.467	13195167	8.953 ug/mL M4
20) t	n-Eicosane (C20)	30.069	13527050	9.049 ug/mL M4
22) t	n-Docosane (C22)	33.070	13790399	9.166 ug/mL M4
25) t	n-Tetracosane (C24)	35.833	13780234	9.189 ug/mL M4
27) t	n-Hexacosane (C26)	38.388	13909935	9.131 ug/mL M4
29) t	n-Octacosane (C28)	40.764	13728819	9.071 ug/mL M4
31) t	n-Triacontane (C30)	42.985	13577959	9.021 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.194	12546596	8.128 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	516259144	351.184 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	193957544	131.939 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003473.D
Operator : BAL
Acquired : 03 May 2012 8:37 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012LCS02
Misc Info : 1X
ALS Vial : 90



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SS043012LCSD02**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	04/30/12	05/03/12	100	8.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.64**	S	n-Docosane (C22)	**2.26**	S
n-Decane (C10)	**1.79**	S	n-Tricosane (C23)	0.0149	U
n-Undecane (C11)	0.0272	U	n-Tetracosane (C24)	**2.28**	S
n-Dodecane (C12)	**1.92**	S	n-Pentacosane (C25)	0.146	U
n-Tridecane (C13)	0.146	U	n-Hexacosane (C26)	**2.27**	S
2,6,10 Trimethyldodecane (1380)	0.0260	U	n-Heptacosane (C27)	0.0196	U
n-Tetradecane (C14)	**1.98**	S	n-Octacosane (C28)	**2.27**	S
2,6,10 Trimethyltridecane (1470)	0.112	U	n-Nonacosane (C29)	0.0235	U
n-Pentadecane (C15)	0.112	U	n-Triacontane (C30)	**2.22**	S
n-Hexadecane (C16)	**2.31**	S	n-Hentriacontane (C31)	0.0268	U
Norpristane (1650)	0.0302	U	n-Dotriacontane (C32)	0.0278	U
n-Heptadecane (C17)	0.0302	U	n-Tritriacontane (C33)	0.0275	U
Pristane	0.0403	U	n-Tetratriacontane (C34)	0.0335	U
n-Octadecane (C18)	**2.38**	S	n-Pentatriacontane (C35)	0.0315	U
Phytane	0.0210	U	n-Hexatriacontane (C36)	**1.95**	S
n-Nonadecane (C19)	**2.22**	S	n-Heptatriacontane (C37)	0.0425	U
n-Eicosane (C20)	**2.25**	S	n-Octatriacontane (C38)	0.0385	U
n-Heneicosane (C21)	0.0168	U	n-Nonatriacontane (C39)	0.0458	U
			n-Tetracontane (C40)	0.0458	U
Total Petroleum Hydrocarbons (C9-C44)	50.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	93	40-125
d50-Tetracosane	91	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003475.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:06 pm
Operator : BAL
Sample : SS043012LCSD02
Misc : 1X
ALS Vial : 91 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 17:11:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

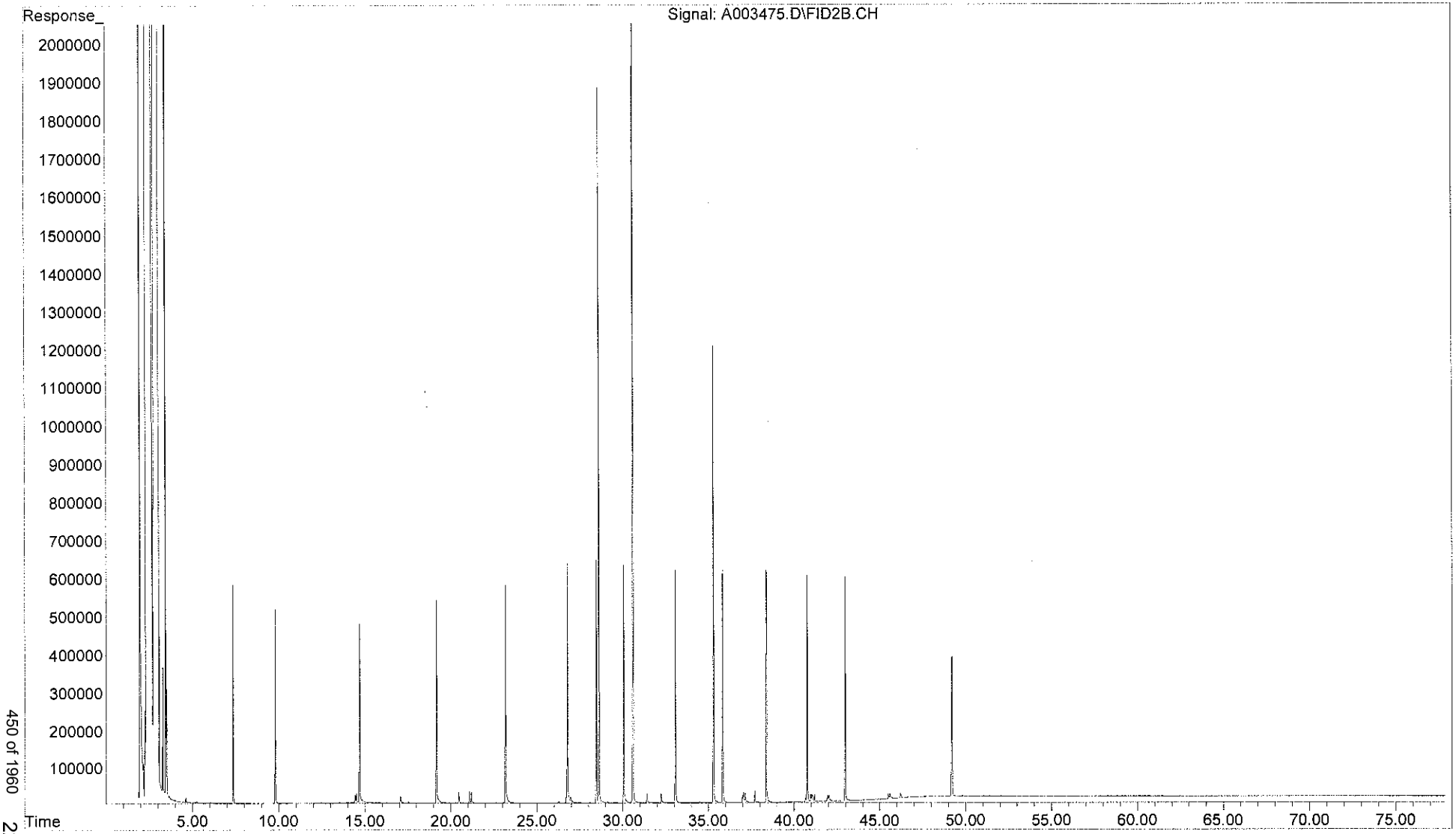
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	83014672	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.623	38912478	23.137 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	46.27%#
24) s	d50-Tetracosane	35.297	31262770	22.678 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	45.36%#
	Target Compounds			
3) t	n-Nonane (C9)	7.352	8700788	6.570 ug/mL M4
4) t	n-Decane (C10)	9.794	10064823	7.177 ug/mL M4
6) t	n-Dodecane (C12)	14.699	11150609	7.660 ug/mL M4
9) t	n-Tetradecane (C14)	19.168	11693767	7.925 ug/mL M4
12) t	n-Hexadecane (C16)	23.174	13977006	9.225 ug/mL M4
16) t	n-Octadecane (C18)	26.786	14574893	9.527 ug/mL M4
18) t	n-Nonadecane (C19)	28.468	13582972	8.888 ug/mL M4
20) t	n-Eicosane (C20)	30.068	13937597	8.991 ug/mL M4
22) t	n-Docosane (C22)	33.069	14077176	9.023 ug/mL M4
25) t	n-Tetracosane (C24)	35.831	14190687	9.126 ug/mL M4
27) t	n-Hexacosane (C26)	38.387	14362527	9.092 ug/mL M4
29) t	n-Octacosane (C28)	40.764	14229183	9.066 ug/mL M4
31) t	n-Triacontane (C30)	42.984	13891061	8.900 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.197	12474364	7.794 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	507655763	333.034 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	198300926	130.090 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003475.D
Operator : BAL
Acquired : 03 May 2012 10:06 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SS043012LCSD02
Misc Info : 1X
ALS Vial : 91



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**15300**	S	n-Docosane (C22)	**18200**	S
n-Decane (C10)	**15600**	S	n-Tricosane (C23)	2000	U
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	**18400**	S
n-Dodecane (C12)	**15800**	S	n-Pentacosane (C25)	2000	U
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	**18200**	S
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	**16400**	S	n-Octacosane (C28)	**18200**	S
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	**18200**	S
n-Hexadecane (C16)	**18400**	S	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**19200**	S	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	**17300**	S
n-Nonadecane (C19)	**17800**	S	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	**18000**	S	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	74	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCS01**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/01/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**15.3**	S	n-Docosane (C22)	**18.2**	S
n-Decane (C10)	**15.6**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**18.4**	S
n-Dodecane (C12)	**15.8**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**18.2**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**16.4**	S	n-Octacosane (C28)	**18.2**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**18.2**	S
n-Hexadecane (C16)	**18.4**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**19.2**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**17.3**	S
n-Nonadecane (C19)	**17.8**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**18.0**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	74	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003411.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 10:46 pm
Operator : BAL
Sample : SO050112LCS01
Misc : 1X
ALS Vial : 59 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:27:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

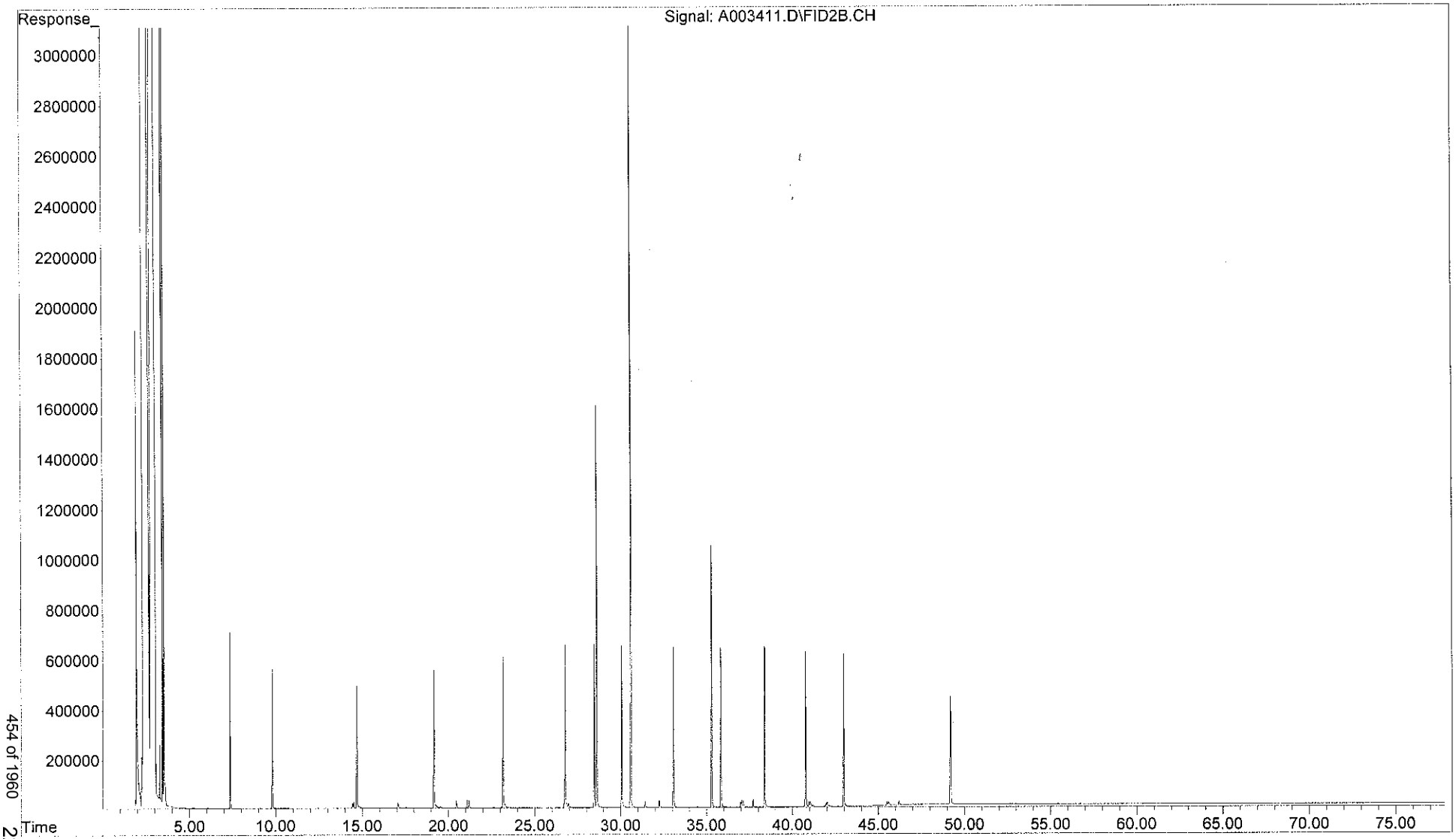
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.622	86590551	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.620	33552356	19.126 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	38.25%#
24) s	d50-Tetracosane	35.294	26683566	18.557 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	37.11%#
	Target Compounds			
3) t	n-Nonane (C9)	7.354	10556168	7.642 ug/mL M4
4) t	n-Decane (C10)	9.794	11445618	7.825 ug/mL M4
6) t	n-Dodecane (C12)	14.698	12012485	7.911 ug/mL M4
9) t	n-Tetradecane (C14)	19.167	12602006	8.188 ug/mL M4
12) t	n-Hexadecane (C16)	23.173	14554369	9.210 ug/mL M4
16) t	n-Octadecane (C18)	26.785	15316891	9.598 ug/mL M4
18) t	n-Nonadecane (C19)	28.467	14201441	8.909 ug/mL M4
20) t	n-Eicosane (C20)	30.067	14589436	9.023 ug/mL M4
22) t	n-Docosane (C22)	33.067	14767906	9.075 ug/mL M4
25) t	n-Tetracosane (C24)	35.830	14922850	9.200 ug/mL M4
27) t	n-Hexacosane (C26)	38.386	15020913	9.116 ug/mL M4
29) t	n-Octacosane (C28)	40.764	14924738	9.117 ug/mL M4
31) t	n-Triacontane (C30)	42.982	14837172	9.114 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.195	14407868	8.630 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	429841547	270.341 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	211537882	133.043 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003411.D
Operator : BAL
Acquired : 01 May 2012 10:46 pm using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112LCS01
Misc Info : 1X
ALS Vial : 59



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **GLOB**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	0.0010	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**16300**	S	n-Docosane (C22)	**18800**	S
n-Decane (C10)	**16300**	S	n-Tricosane (C23)	2000	U
n-Undecane (C11)	2000	U	n-Tetracosane (C24)	**19100**	S
n-Dodecane (C12)	**16400**	S	n-Pentacosane (C25)	2000	U
n-Tridecane (C13)	2000	U	n-Hexacosane (C26)	**18900**	S
2,6,10 Trimethyldodecane (1380)	2000	U	n-Heptacosane (C27)	2000	U
n-Tetradecane (C14)	**16900**	S	n-Octacosane (C28)	**18800**	S
2,6,10 Trimethyltridecane (1470)	2000	U	n-Nonacosane (C29)	2000	U
n-Pentadecane (C15)	2000	U	n-Triacontane (C30)	**18800**	S
n-Hexadecane (C16)	**19100**	S	n-Hentriacontane (C31)	2000	U
Norpristane (1650)	2000	U	n-Dotriacontane (C32)	2000	U
n-Heptadecane (C17)	2000	U	n-Tritriacontane (C33)	2000	U
Pristane	2000	U	n-Tetratriacontane (C34)	2000	U
n-Octadecane (C18)	**19800**	S	n-Pentatriacontane (C35)	2000	U
Phytane	2000	U	n-Hexatriacontane (C36)	**17700**	S
n-Nonadecane (C19)	**18400**	S	n-Heptatriacontane (C37)	2000	U
n-Eicosane (C20)	**18700**	S	n-Octatriacontane (C38)	2000	U
n-Heneicosane (C21)	2000	U	n-Nonatriacontane (C39)	2000	U
			n-Tetracontane (C40)	2000	U
Total Petroleum Hydrocarbons (C9-C44)	400000	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	82	40-125
d50-Tetracosane	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **SO050112LCSD01**
Associated Blank: **SO050112B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/01/12	05/02/12	100	1.00	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**16.3**	S	n-Docosane (C22)	**18.8**	S
n-Decane (C10)	**16.3**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**19.1**	S
n-Dodecane (C12)	**16.4**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**18.9**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**16.9**	S	n-Octacosane (C28)	**18.8**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**18.8**	S
n-Hexadecane (C16)	**19.1**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**19.8**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**17.7**	S
n-Nonadecane (C19)	**18.4**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**18.7**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	82	40-125
d50-Tetracosane	79	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003413.D
Signal(s) : FID2B.CH
Acq On : 02 May 2012 12:15 am
Operator : BAL
Sample : SO050112LCSD01
Misc : 1X
ALS Vial : 60 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 04 15:42:03 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

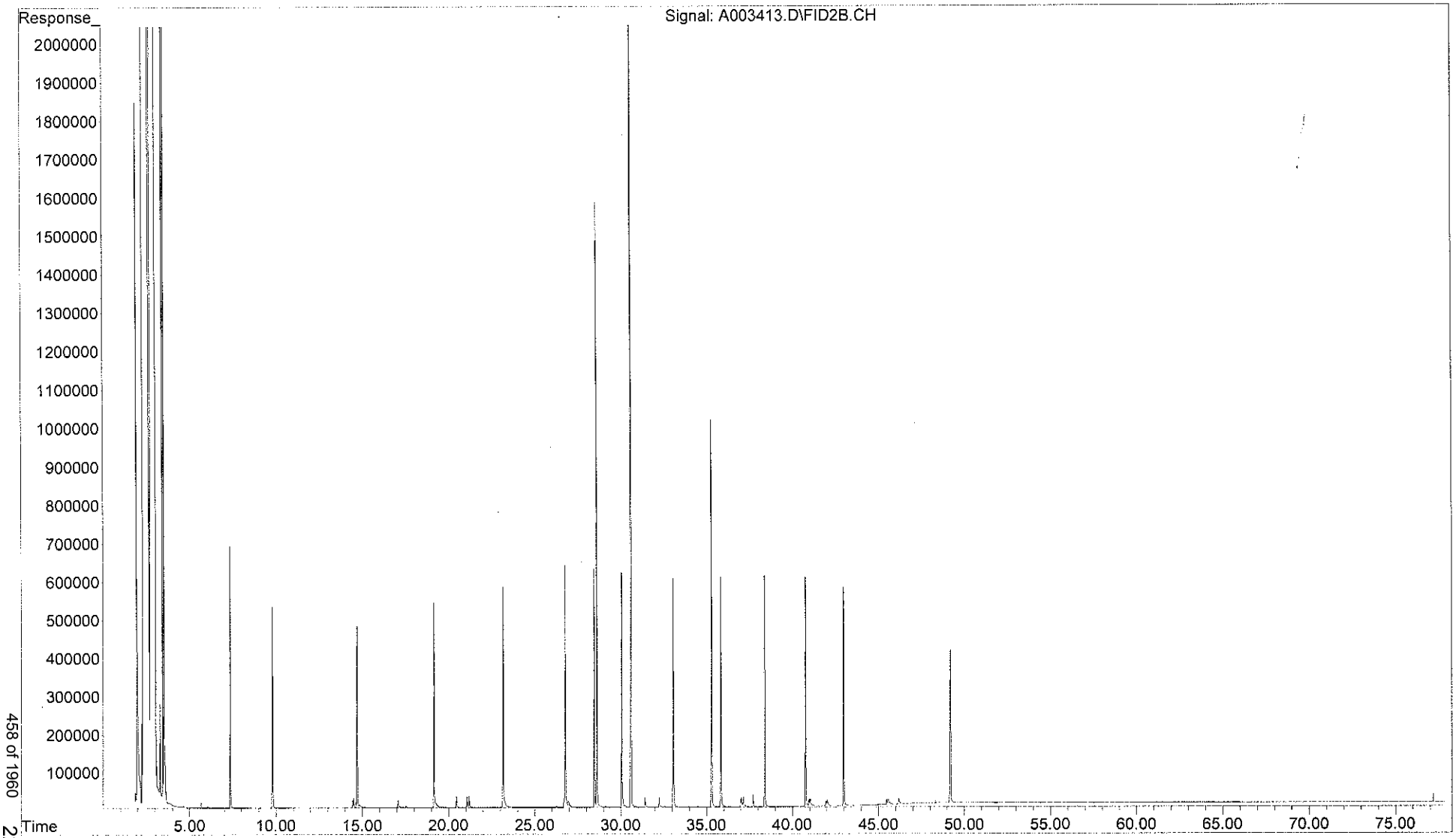
Sub List : SHC - SHC

615 9.12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.620	79616546	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.619	32955330	20.431 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	40.86%#
24) s d50-Tetracosane	35.295	26159096	19.786 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	39.57%#
Target Compounds			
3) t n-Nonane (C9)	7.353	10376735	8.170 ug/mL M4
4) t n-Decane (C10)	9.794	10988572	8.170 ug/mL M4
6) t n-Dodecane (C12)	14.699	11482724	8.225 ug/mL M4
9) t n-Tetradecane (C14)	19.167	11957120	8.449 ug/mL M4
12) t n-Hexadecane (C16)	23.172	13894471	9.562 ug/mL M4
16) t n-Octadecane (C18)	26.785	14557399	9.921 ug/mL M4
18) t n-Nonadecane (C19)	28.467	13498662	9.210 ug/mL M4
20) t n-Eicosane (C20)	30.068	13877714	9.335 ug/mL M4
22) t n-Docosane (C22)	33.068	14031750	9.378 ug/mL M4
25) t n-Tetracosane (C24)	35.831	14246694	9.553 ug/mL M4
27) t n-Hexacosane (C26)	38.386	14288553	9.431 ug/mL M4
29) t n-Octacosane (C28)	40.763	14117029	9.379 ug/mL M4
31) t n-Triacontane (C30)	42.981	14091136	9.414 ug/mL M4
37) t n-Hexatriacontane (C36)	49.194	13614747	8.869 ug/mL M4
42) h C9-C44 Total Petroleu...	38.335	411831789	281.703 ug/mL M4
44) h Total Resolved Hydroc...	38.335	201052377	137.525 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003413.D
Operator : BAL
Acquired : 02 May 2012 12:15 am using AcqMethod FID17.M
Instrument : FID17
Sample : SO050112LCSD01
Misc Info : 1X
ALS Vial : 60



Form I
Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR1950C501S042612DX**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **1204035-07 D**
Associated Blank: **SS043012B07**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
04/26/12	04/27/12	04/30/12	05/04/12	83.8	6.88	2	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00243**	J	n-Docosane (C22)	**0.0503**	J
n-Decane (C10)	**0.00867**	J	n-Tricosane (C23)	**0.0995**	JB
n-Undecane (C11)	**0.0121**	J	n-Tetracosane (C24)	**0.0420**	J
n-Dodecane (C12)	**0.0198**	J	n-Pentacosane (C25)	**0.297**	CJB
n-Tridecane (C13)	**0.0239**	J	n-Hexacosane (C26)	**0.0548**	J
2,6,10 Trimethyldodecane (1380)	**0.0205**	J	n-Heptacosane (C27)	**0.319**	J
n-Tetradecane (C14)	**0.0343**	J	n-Octacosane (C28)	**0.0628**	J
2,6,10 Trimethyltridecane (1470)	**0.0486**	J	n-Nonacosane (C29)	**0.503**	
n-Pentadecane (C15)	**0.0832**	GJ	n-Triacontane (C30)	**0.0697**	J
n-Hexadecane (C16)	**0.0569**	J	n-Hentriacontane (C31)	**0.268**	J
Norpristane (1650)	**0.0666**	J	n-Dotriacontane (C32)	**0.0642**	J
n-Heptadecane (C17)	**0.0666**	J	n-Tritriacontane (C33)	**0.177**	J
Pristane	**0.153**	J	n-Tetratriacontane (C34)	**0.111**	J
n-Octadecane (C18)	**0.209**	CJB	n-Pentatriacontane (C35)	**0.146**	J
Phytane	**0.153**	J	n-Hexatriacontane (C36)	**0.0517**	J
n-Nonadecane (C19)	**0.0562**	J	n-Heptatriacontane (C37)	**0.0531**	J
n-Eicosane (C20)	**0.0593**	J	n-Octatriacontane (C38)	0.0534	U
n-Heneicosane (C21)	**0.0246**	J	n-Nonatriacontane (C39)	**0.0250**	J
			n-Tetracontane (C40)	0.0635	U
Total Petroleum Hydrocarbons (C9-C44)	**293**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	91	40-125
d50-Tetracosane	88	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003499.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 3:56 pm
Operator : BAL
Sample : 1204035-07D
Misc : 1X
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 14 14:51:56 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

5/14/12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.636	89526475	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.677	205547739	113.325 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	226.65%#
24) s	d50-Tetracosane	35.347	164136019	110.403 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	220.81%#
	Target Compounds			
2) t	n-Octane (C8)	5.210	13849	0.010 ug/mL M4
3) t	n-Nonane (C9)	7.358	9487	0.007 ug/mL M4
4) t	n-Decane (C10)	9.797	38526	0.025 ug/mL M4
5) t	n-Undecane (C11)	12.289	53508	0.035 ug/mL M4
6) t	n-Dodecane (C12)	14.700	89889	0.057 ug/mL M4
7) t	n-Tridecane (C13)	16.997	108135	0.069 ug/mL M4
8) t	1380	18.669	94312	0.059 ug/mL M4
9) t	n-Tetradecane (C14)	19.169	157835	0.099 ug/mL M4
10) t	1470	20.455	223394	0.140 ug/mL M4
11) t	n-Pentadecane (C15)	21.220	381694G	0.240 ug/mL M4
12) t	n-Hexadecane (C16)	23.173	267639	0.164 ug/mL M4
13) t	1650	24.083	310241	0.192 ug/mL M4
14) t	n-Heptadecane (C17)	25.027	309476	0.192 ug/mL M4
15) t	Pristane	25.122	728355	0.441 ug/mL M4
16) t	n-Octadecane (C18)	26.794	997243C	0.604 ug/mL M4
17) t	Phytane	26.952	719922	0.440 ug/mL M4
18) t	n-Nonadecane (C19)	28.475	267077	0.162 ug/mL M4
20) t	n-Eicosane (C20)	30.069	286410	0.171 ug/mL M4
21) t	n-Heneicosane (C21)	31.605	120605	0.071 ug/mL M4
22) t	n-Docosane (C22)	33.070	244689	0.145 ug/mL M4
23) t	n-Tricosane (C23)	34.488	491836	0.287 ug/mL M4
25) t	n-Tetracosane (C24)	35.840	202676	0.121 ug/mL M4
26) t	n-Pentacosane (C25)	37.146	1468253C	0.857 ug/mL M4
27) t	n-Hexacosane (C26)	38.394	268373	0.158 ug/mL M4
28) t	n-Heptacosane (C27)	39.608	1540029	0.920 ug/mL M4
29) t	n-Octacosane (C28)	40.770	305535	0.181 ug/mL M4
30) t	n-Nonacosane (C29)	41.899	2450622	1.451 ug/mL M4
31) t	n-Triacontane (C30)	43.074	338617	0.201 ug/mL M4
32) t	n-Hentriacontane (C31)	44.045	1310106	0.774 ug/mL M4
33) t	n-Dotriacontane (C32)	45.064	311301	0.185 ug/mL M4
34) t	n-Tritriacontane (C33)	46.036	832912	0.510 ug/mL M4
35) t	n-tetratriacontane (C34)	47.016	533155	0.320 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003499.D
Signal(s) : FID2B.CH
Acq On : 04 May 2012 3:56 pm
Operator : BAL
Sample : 1204035-07D
Misc : 1X
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 14 14:51:56 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

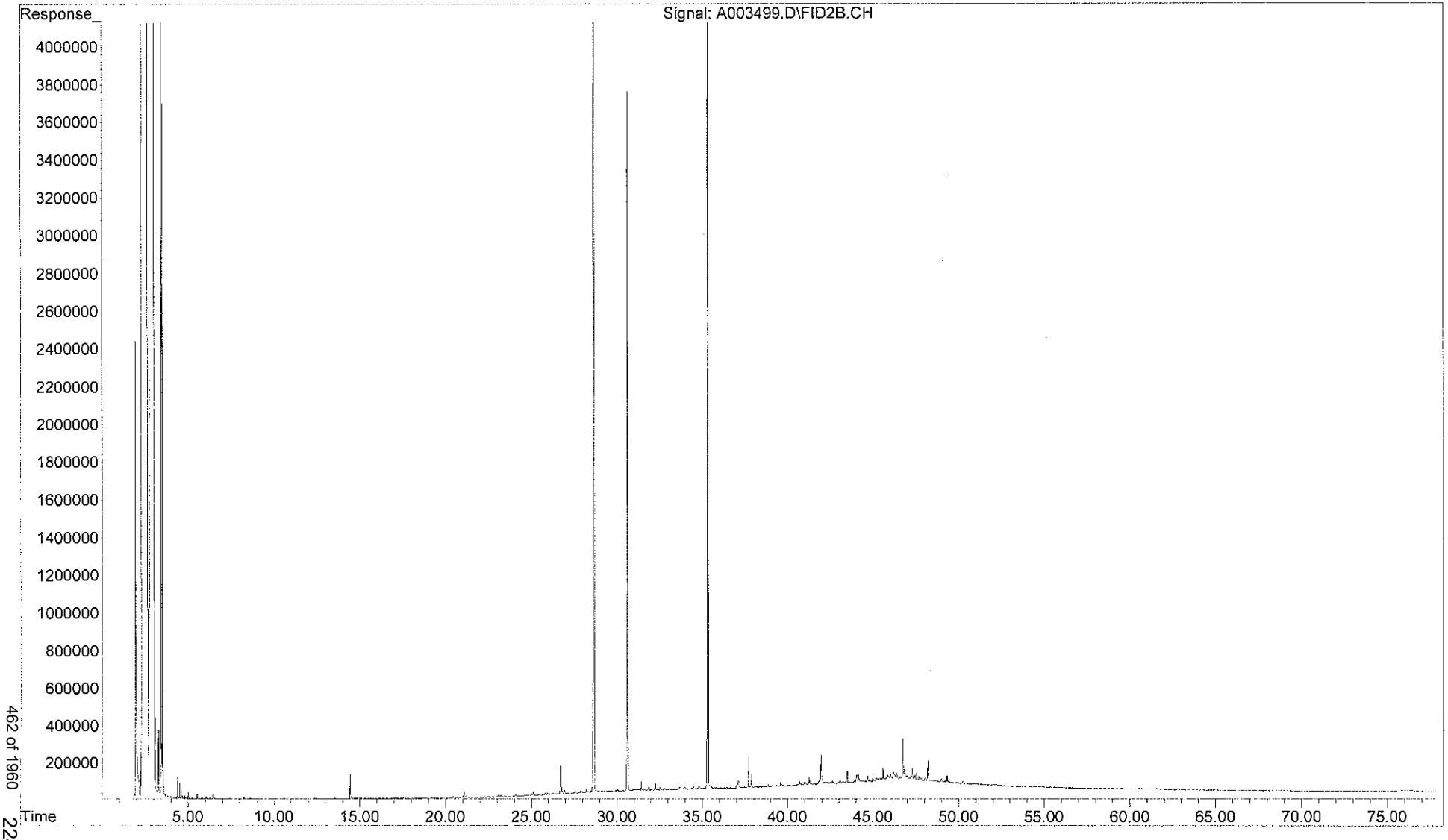
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
36) t	n-Pentatriacontane (C35)	48.060	712673	0.421 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.208	257642	0.149 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.509	257387	0.153 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.885	112664	0.072 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	1852412380	1126.835 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	135036757	82.144 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003499.D
Operator : BAL
Acquired : 04 May 2012 3:56 pm using AcqMethod FID17.M
Instrument : FID17
Sample : 1204035-07D
Misc Info : 1X
ALS Vial : 53



Form I
Cold Lake Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TO050112CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.10018	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	1690	n-Docosane (C22)	229
n-Decane (C10)	934	n-Tricosane (C23)	209
n-Undecane (C11)	828	n-Tetracosane (C24)	182
n-Dodecane (C12)	674	n-Pentacosane (C25)	237
n-Tridecane (C13)	607	n-Hexacosane (C26)	198
2,6,10 Trimethyldodecane (1380)	301	n-Heptacosane (C27)	131
n-Tetradecane (C14)	594	n-Octacosane (C28)	116
2,6,10 Trimethyltridecane (1470)	502	n-Nonacosane (C29)	144
n-Pentadecane (C15)	631	n-Triacontane (C30)	156
n-Hexadecane (C16)	441	n-Hentriacontane (C31)	320
Norpristane (1650)	260	n-Dotriacontane (C32)	124
n-Heptadecane (C17)	390	n-Tritriacontane (C33)	233
Pristane	457	n-Tetratriacontane (C34)	188
n-Octadecane (C18)	378	n-Pentatriacontane (C35)	140
Phytane	316	n-Hexatriacontane (C36)	85.6 J
n-Nonadecane (C19)	266	n-Heptatriacontane (C37)	48.2 J
n-Eicosane (C20)	294	n-Octatriacontane (C38)	36.5 J
n-Heneicosane (C21)	199	n-Nonatriacontane (C39)	37.8 J
		n-Tetracontane (C40)	45.5 J
Total Petroleum Hydrocarbons (C9-C44)	443000		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	104	40-125
d50-Tetracosane	95	40-125

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003461.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:45 am
Operator : BAL
Sample : TO050112CL01
Misc : WHAP16
ALS Vial : 84 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.633	84460741	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.647	88674152	51.821 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 103.64%	
24) s	d50-Tetracosane	35.320	66538723	47.440 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 94.88%	
	Target Compounds			
2) t	n-Octane (C8)	5.205	34001536	27.138 ug/mL M4
3) t	n-Nonane (C9)	7.354	22843177	16.954 ug/mL M4
4) t	n-Decane (C10)	9.797	13354864	9.360 ug/mL M4
5) t	n-Undecane (C11)	12.286	12039110	8.291 ug/mL M4
6) t	n-Dodecane (C12)	14.700	10006417	6.756 ug/mL M4
7) t	n-Tridecane (C13)	16.996	9050558	6.084 ug/mL M4
8) t	1380	18.672	4532996	3.019 ug/mL M4
9) t	n-Tetradecane (C14)	19.171	8926929	5.946 ug/mL M4
10) t	1470	20.456	7539302	5.026 ug/mL M4
11) t	n-Pentadecane (C15)	21.228	9480348	6.320 ug/mL M4
12) t	n-Hexadecane (C16)	23.178	6816041	4.422 ug/mL M4
13) t	1650	24.085	3969194	2.606 ug/mL M4
14) t	n-Heptadecane (C17)	25.030	5952345	3.908 ug/mL M4
15) t	Pristane	25.132	7125931	4.577 ug/mL M4
16) t	n-Octadecane (C18)	26.792	5889784	3.784 ug/mL M4
17) t	Phytane	26.953	4892058	3.171 ug/mL M4
18) t	n-Nonadecane (C19)	28.474	4142650	2.664 ug/mL M4
20) t	n-Eicosane (C20)	30.072	4641525	2.943 ug/mL M4
21) t	n-Heneicosane (C21)	31.604	3173124	1.991 ug/mL M4
22) t	n-Docosane (C22)	33.074	3647331	2.298 ug/mL M4
23) t	n-Tricosane (C23)	34.486	3375845	2.091 ug/mL M4
25) t	n-Tetracosane (C24)	35.839	2890457	1.827 ug/mL M4
26) t	n-Pentacosane (C25)	37.140	3831931	2.370 ug/mL M4
27) t	n-Hexacosane (C26)	38.391	3193736	1.987 ug/mL M4
28) t	n-Heptacosane (C27)	39.607	2072043	1.312 ug/mL M4
29) t	n-Octacosane (C28)	40.772	1856467	1.163 ug/mL M4
30) t	n-Nonacosane (C29)	41.899	2293727	1.440 ug/mL M4
31) t	n-Triacontane (C30)	42.993	2490614	1.568 ug/mL M4
32) t	n-Hentriacontane (C31)	44.086	5122203	3.210 ug/mL M4
33) t	n-Dotriacontane (C32)	45.068	1976475	1.243 ug/mL M4
34) t	n-Tritriacontane (C33)	46.037	3595216	2.334 ug/mL M4
35) t	n-tetratriacontane (C34)	47.016	2966410	1.887 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.057	2236723	1.402 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.212	1396925	0.858 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.526	768930	0.483 ug/mL M4
39) t	n-Octatriacontane (C38)	52.075	578414	0.366 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.877	560107	0.379 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003461.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 11:45 am
Operator : BAL
Sample : TO050112CL01
Misc : WHAP16
ALS Vial : 84 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:23 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

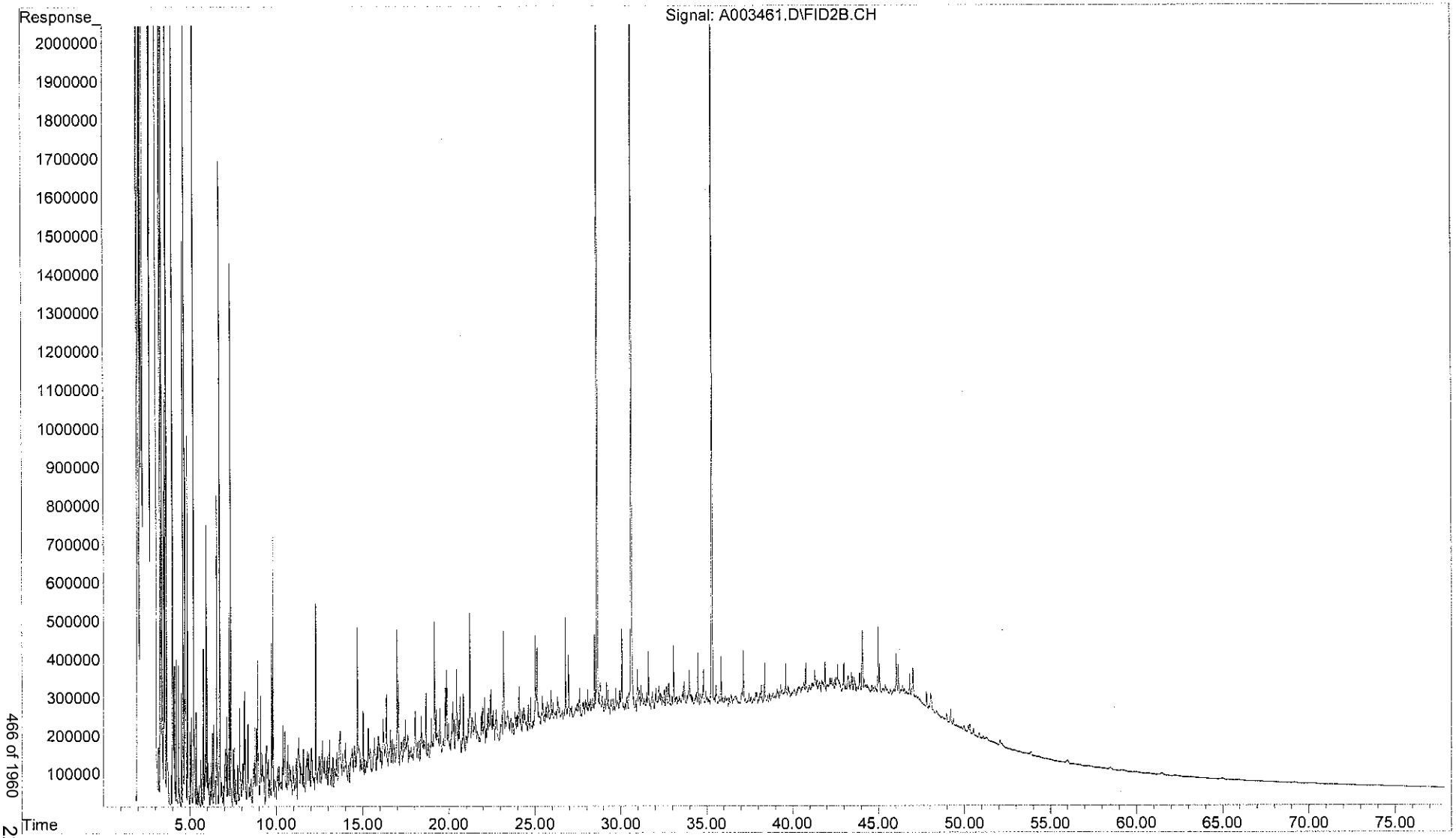
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	55.996	674394	0.456	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	7239597967	4668.032	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	1035689195	667.804	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003461.D
Operator : BAL
Acquired : 03 May 2012 11:45 am using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112CL01
Misc Info : WHAP16
ALS Vial : 84



Form I
Western Canadian Select
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TO050112WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/03/12	100	0.10119	10	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	1610		n-Docosane (C22)	242	
n-Decane (C10)	1050		n-Tricosane (C23)	200	
n-Undecane (C11)	885		n-Tetracosane (C24)	182	
n-Dodecane (C12)	684		n-Pentacosane (C25)	252	
n-Tridecane (C13)	656		n-Hexacosane (C26)	206	
2,6,10 Trimethyldodecane (1380)	335		n-Heptacosane (C27)	128	
n-Tetradecane (C14)	658		n-Octacosane (C28)	104	
2,6,10 Trimethyltridecane (1470)	624		n-Nonacosane (C29)	132	
n-Pentadecane (C15)	658		n-Triacontane (C30)	132	
n-Hexadecane (C16)	516		n-Hentriacontane (C31)	304	
Norpristane (1650)	329		n-Dotriacontane (C32)	91.0	J
n-Heptadecane (C17)	394		n-Tritriacontane (C33)	214	
Pristane	659		n-Tetratriacontane (C34)	182	
n-Octadecane (C18)	397		n-Pentatriacontane (C35)	109	
Phytane	344		n-Hexatriacontane (C36)	68.5	J
n-Nonadecane (C19)	276		n-Heptatriacontane (C37)	36.3	J
n-Eicosane (C20)	314		n-Octatriacontane (C38)	24.6	J
n-Heneicosane (C21)	205		n-Nonatriacontane (C39)	98.8	U
			n-Tetracontane (C40)	98.8	U
Total Petroleum Hydrocarbons (C9-C44)	462000				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	104	40-125
d50-Tetracosane	101	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003459.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:16 am
Operator : BAL
Sample : TO050112WCS01
Misc : WHAP15
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.629	77429144	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.644	81465378	51.932 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	103.86%
24) s	d50-Tetracosane	35.317	64687492	50.309 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	100.62%
	Target Compounds			
2) t	n-Octane (C8)	5.204	28941145	25.197 ug/mL M4
3) t	n-Nonane (C9)	7.353	20101028	16.274 ug/mL M4
4) t	n-Decane (C10)	9.797	13884791	10.615 ug/mL M4
5) t	n-Undecane (C11)	12.288	11913923	8.950 ug/mL M4
6) t	n-Dodecane (C12)	14.701	9401900	6.925 ug/mL M4
7) t	n-Tridecane (C13)	16.996	9049809	6.636 ug/mL M4
8) t	1380	18.671	4669569	3.393 ug/mL M4
9) t	n-Tetradecane (C14)	19.170	9160374	6.656 ug/mL M4
10) t	1470	20.456	8680564	6.312 ug/mL M4
11) t	n-Pentadecane (C15)	21.226	9153894	6.656 ug/mL M4
12) t	n-Hexadecane (C16)	23.175	7381974	5.224 ug/mL M4
13) t	1650	24.086	4646300	3.328 ug/mL M4
14) t	n-Heptadecane (C17)	25.028	5566505	3.987 ug/mL M4
15) t	Pristane	25.128	9523749	6.672 ug/mL M4
16) t	n-Octadecane (C18)	26.790	5733677	4.018 ug/mL M4
17) t	Phytane	26.947	4921185	3.480 ug/mL M4
18) t	n-Nonadecane (C19)	28.472	3982000	2.794 ug/mL M4
20) t	n-Eicosane (C20)	30.068	4593771	3.177 ug/mL M4
21) t	n-Heneicosane (C21)	31.605	3025477	2.071 ug/mL M4
22) t	n-Docosane (C22)	33.071	3571663	2.454 ug/mL M4
23) t	n-Tricosane (C23)	34.483	3003337	2.029 ug/mL M4
25) t	n-Tetracosane (C24)	35.836	2674248	1.844 ug/mL M4
26) t	n-Pentacosane (C25)	37.139	3782117	2.552 ug/mL M4
27) t	n-Hexacosane (C26)	38.390	3070641	2.084 ug/mL M4
28) t	n-Heptacosane (C27)	39.602	1878366	1.297 ug/mL M4
29) t	n-Octacosane (C28)	40.770	1537809	1.051 ug/mL M4
30) t	n-Nonacosane (C29)	41.898	1952287	1.337 ug/mL M4
31) t	n-Triacontane (C30)	42.993	1941059	1.333 ug/mL M4
32) t	n-Hentriacontane (C31)	44.084	4505880	3.080 ug/mL M4
33) t	n-Dotriacontane (C32)	45.058	1342657	0.921 ug/mL M4
34) t	n-Tritriacontane (C33)	46.034	3060677	2.167 ug/mL M4
35) t	n-tetratriacontane (C34)	47.007	2657822	1.844 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.070	1612702	1.103 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.208	1035276	0.693 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.521	535095	0.367 ug/mL M4
39) t	n-Octatriacontane (C38)	52.063	360241	0.249 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	7004233128	4926.409 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003459.D
Signal(s) : FID2B.CH
Acq On : 03 May 2012 10:16 am
Operator : BAL
Sample : TO050112WCS01
Misc : WHAP15
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 10:12:21 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

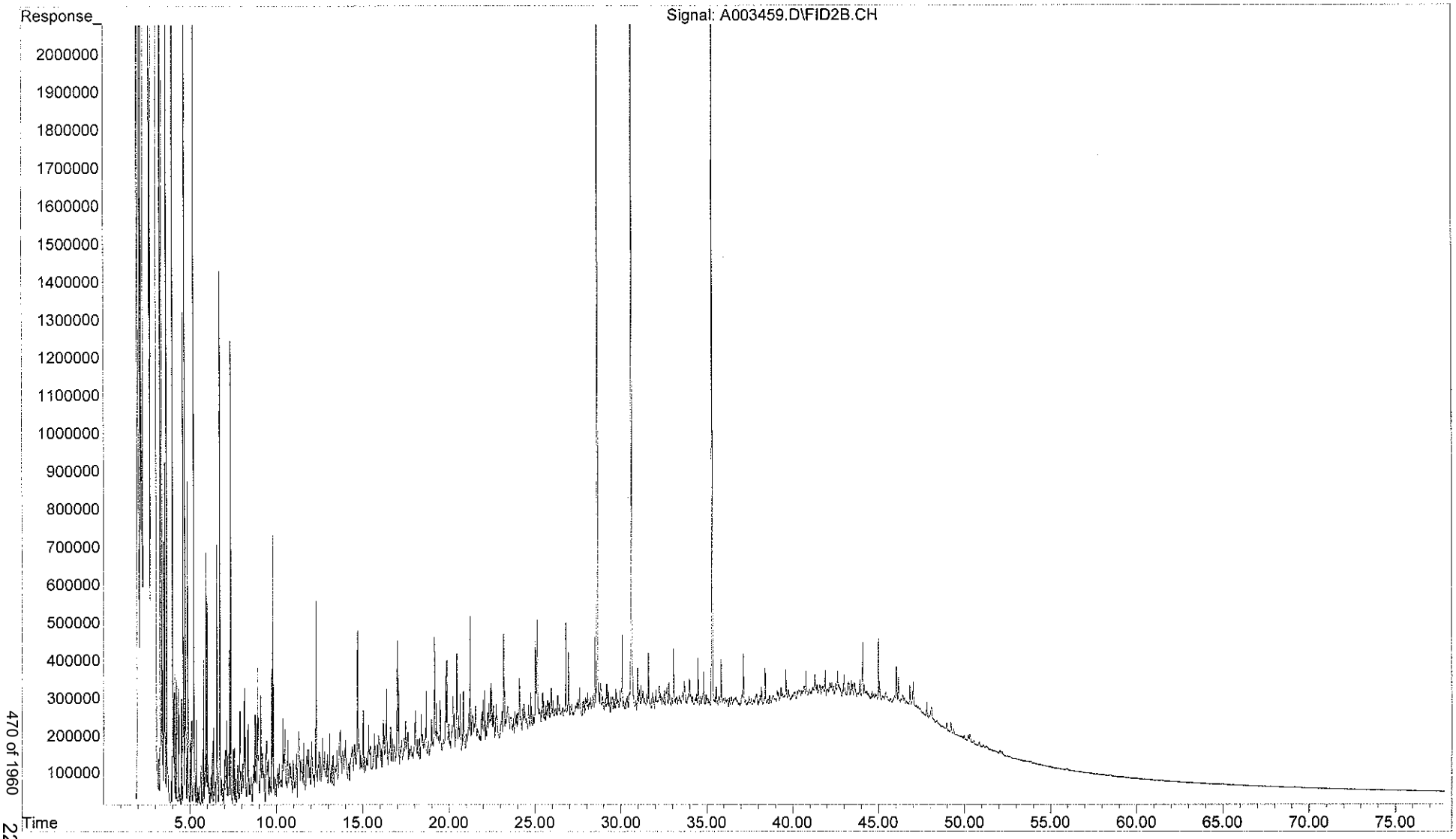
Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
44) h Total Resolved Hydroc...	38.335	996351516	700.781 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003459.D
Operator : BAL
Acquired : 03 May 2012 10:16 am using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112WCS01
Misc Info : WHAP15
ALS Vial : 83



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TO050112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/01/12	100	0.10058	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	**6820**	n-Docosane (C22)	**2180**
n-Decane (C10)	**5360**	n-Tricosane (C23)	**1890**
n-Undecane (C11)	**4990**	n-Tetracosane (C24)	**1800**
n-Dodecane (C12)	**4530**	n-Pentacosane (C25)	**1670**
n-Tridecane (C13)	**4300**	n-Hexacosane (C26)	**1510**
2,6,10 Trimethyldodecane (1380)	**929**	n-Heptacosane (C27)	**1210**
n-Tetradecane (C14)	**4040**	n-Octacosane (C28)	**836**
2,6,10 Trimethyltridecane (1470)	**1570**	n-Nonacosane (C29)	**770**
n-Pentadecane (C15)	**3950**	n-Triacontane (C30)	**643**
n-Hexadecane (C16)	**3740**	n-Hentriacontane (C31)	**631**
Norpristane (1650)	**1170**	n-Dotriacontane (C32)	**424**
n-Heptadecane (C17)	**3280**	n-Tritriacontane (C33)	**430**
Pristane	**2350**	n-Tetratriacontane (C34)	**383**
n-Octadecane (C18)	**2880**	n-Pentatriacontane (C35)	**302**
Phytane	**1320**	n-Hexatriacontane (C36)	**195**
n-Nonadecane (C19)	**2510**	n-Heptatriacontane (C37)	**164**
n-Eicosane (C20)	**2590**	n-Octatriacontane (C38)	**123**
n-Heneicosane (C21)	**2230**	n-Nonatriacontane (C39)	**93.8** J
		n-Tetracontane (C40)	**98.3** J
Total Petroleum Hydrocarbons (C9-C44)	**598000**		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003399.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 12:38 pm
Operator : BAL
Sample : TO050112ANS02
Misc : WHAP13
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:20:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.631	78002987	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.646	85247950	53.943 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	107.89%
24) s	d50-Tetracosane	35.319	70654652	54.545 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	109.09%
	Target Compounds			
2) t	n-Octane (C8)	5.213	106888856	92.376 ug/mL M4
3) t	n-Nonane (C9)	7.366	85308629	68.559 ug/mL M4
4) t	n-Decane (C10)	9.810	71027937	53.903 ug/mL M4
5) t	n-Undecane (C11)	12.300	67335560	50.210 ug/mL M4
6) t	n-Dodecane (C12)	14.712	62372966	45.600 ug/mL M4
7) t	n-Tridecane (C13)	17.009	59396615	43.235 ug/mL M4
8) t	1380	18.675	12952088	9.342 ug/mL M4
9) t	n-Tetradecane (C14)	19.184	56287474	40.597 ug/mL M4
10) t	1470	20.461	21853179	15.774 ug/mL M4
11) t	n-Pentadecane (C15)	21.241	55089647	39.764 ug/mL M4
12) t	n-Hexadecane (C16)	23.190	53586535	37.642 ug/mL M4
13) t	1650	24.092	16589192	11.794 ug/mL M4
14) t	n-Heptadecane (C17)	25.043	46454968	33.027 ug/mL M4
15) t	Pristane	25.137	34045628	23.676 ug/mL M4
16) t	n-Octadecane (C18)	26.803	41625943	28.956 ug/mL M4
17) t	Phytane	26.958	18935239	13.291 ug/mL M4
18) t	n-Nonadecane (C19)	28.486	36251013	25.245 ug/mL M4
20) t	n-Eicosane (C20)	30.087	37993381	26.085 ug/mL M4
21) t	n-Heneicosane (C21)	31.616	33037205	22.451 ug/mL M4
22) t	n-Docosane (C22)	33.085	32136502	21.922 ug/mL M4
23) t	n-Tricosane (C23)	34.495	28306273	18.981 ug/mL M4
25) t	n-Tetracosane (C24)	35.850	26495723	18.134 ug/mL M4
26) t	n-Pentacosane (C25)	37.149	25136262	16.834 ug/mL M4
27) t	n-Hexacosane (C26)	38.404	22598178	15.225 ug/mL M4
28) t	n-Heptacosane (C27)	39.611	17724278	12.153 ug/mL M4
29) t	n-Octacosane (C28)	40.778	12393846	8.404 ug/mL M4
30) t	n-Nonacosane (C29)	41.905	11400917	7.750 ug/mL M4
31) t	n-Triacontane (C30)	42.993	9486357	6.469 ug/mL M4
32) t	n-Hentriacontane (C31)	44.050	9359107	6.350 ug/mL M4
33) t	n-Dotriacontane (C32)	45.071	6266026	4.267 ug/mL M4
34) t	n-Tritriacontane (C33)	46.065	6148902	4.322 ug/mL M4
35) t	n-tetratriacontane (C34)	47.028	5594921	3.853 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.050	4477684	3.039 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.201	2946598	1.959 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.530	2424583	1.649 ug/mL M4
39) t	n-Octatriacontane (C38)	52.063	1798430	1.233 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.868	1287385	0.943 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\
Data File : A003399.D
Signal(s) : FID2B.CH
Acq On : 01 May 2012 12:38 pm
Operator : BAL
Sample : TO050112ANS02
Misc : WHAP13
ALS Vial : 53 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 07 09:20:08 2012
Quant Method : O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Tue May 01 13:58:48 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

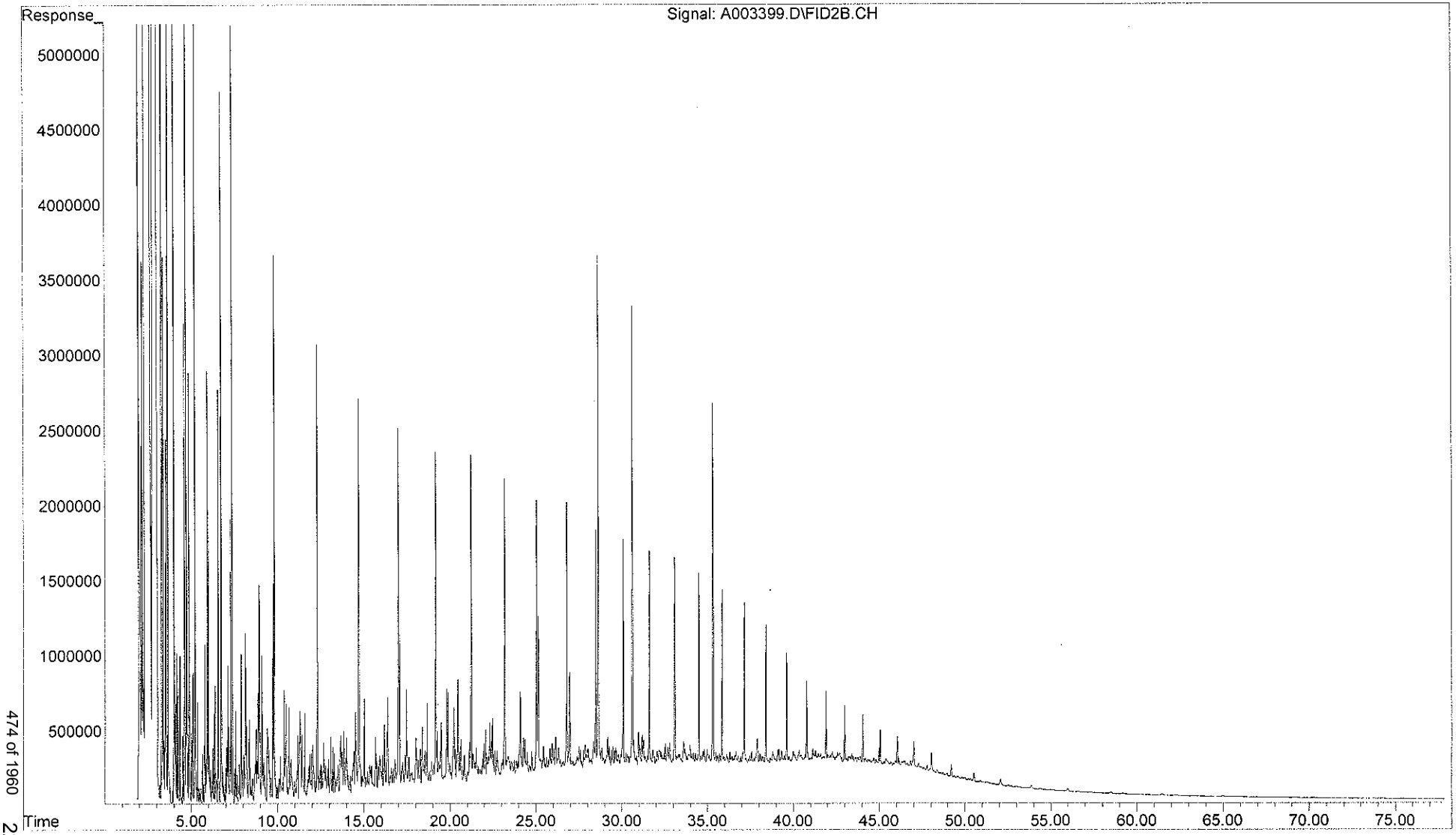
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	55.985	1351177	0.989	ug/mL	M4
42) h	C9-C44 Total Petroleu...	38.335	8849143096	6178.233	ug/mL	M4
44) h	Total Resolved Hydroc...	38.335	2853711583	1992.384	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\A003399.D
Operator : BAL
Acquired : 01 May 2012 12:38 pm using AcqMethod FID17.M
Instrument : FID17
Sample : TO050112ANS02
Misc Info : WHAP13
ALS Vial : 53



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1204035**
Lab ID: **TS032612ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/24/12	100	0.10036	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	6230	n-Docosane (C22)	1950
n-Decane (C10)	4990	n-Tricosane (C23)	1740
n-Undecane (C11)	4610	n-Tetracosane (C24)	1620
n-Dodecane (C12)	4190	n-Pentacosane (C25)	1530
n-Tridecane (C13)	4010	n-Hexacosane (C26)	1400
2,6,10 Trimethyldodecane (1380)	845	n-Heptacosane (C27)	1090
n-Tetradecane (C14)	3630	n-Octacosane (C28)	755
2,6,10 Trimethyltridecane (1470)	1320	n-Nonacosane (C29)	733
n-Pentadecane (C15)	3500	n-Triacontane (C30)	679
n-Hexadecane (C16)	3320	n-Hentriacontane (C31)	593
Norpristane (1650)	1220	n-Dotriacontane (C32)	415
n-Heptadecane (C17)	2930	n-Tritriacontane (C33)	379
Pristane	2020	n-Tetratriacontane (C34)	358
n-Octadecane (C18)	2670	n-Pentatriacontane (C35)	291
Phytane	1180	n-Hexatriacontane (C36)	181
n-Nonadecane (C19)	2310	n-Heptatriacontane (C37)	157
n-Eicosane (C20)	2350	n-Octatriacontane (C38)	114
n-Heneicosane (C21)	2030	n-Nonatriacontane (C39)	74.4 J
		n-Tetracontane (C40)	78.2 J
Total Petroleum Hydrocarbons (C9-C44)	543000		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.653	97972052	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.663	96084997	48.408 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	96.82%
24) s	d50-Tetracosane	35.337	82614419	50.779 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	101.56%
	Target Compounds			
2) t	n-Octane (C8)	5.230	123075347	84.685 ug/mL M4
3) t	n-Nonane (C9)	7.381	97742451	62.541 ug/mL M4
4) t	n-Decane (C10)	9.826	82821759	50.043 ug/mL M4
5) t	n-Undecane (C11)	12.316	77909742	46.254 ug/mL M4
6) t	n-Dodecane (C12)	14.727	72244987	42.052 ug/mL M4
7) t	n-Tridecane (C13)	17.024	69443394	40.245 ug/mL M4
8) t	1380	18.688	14772117	8.483 ug/mL M4
9) t	n-Tetradecane (C14)	19.198	63395205	36.404 ug/mL M4
10) t	1470	20.475	22976806	13.204 ug/mL M4
11) t	n-Pentadecane (C15)	21.254	61059417	35.090 ug/mL M4
12) t	n-Hexadecane (C16)	23.204	59484808	33.268 ug/mL M4
13) t	1650	24.104	21557086	12.202 ug/mL M4
14) t	n-Heptadecane (C17)	25.056	51983436	29.425 ug/mL M4
15) t	Pristane	25.150	36546739	20.235 ug/mL M4
16) t	n-Octadecane (C18)	26.816	48461212	26.840 ug/mL M4
17) t	Phytane	26.968	21270524	11.887 ug/mL M4
18) t	n-Nonadecane (C19)	28.499	41772057	23.160 ug/mL M4
20) t	n-Eicosane (C20)	30.099	43057464	23.536 ug/mL M4
21) t	n-Heneicosane (C21)	31.632	37612708	20.350 ug/mL M4
22) t	n-Docosane (C22)	33.099	35951373	19.526 ug/mL M4
23) t	n-Tricosane (C23)	34.510	32715537	17.466 ug/mL M4
25) t	n-Tetracosane (C24)	35.862	29847959	16.264 ug/mL M4
26) t	n-Pentacosane (C25)	37.164	28736741	15.322 ug/mL M4
27) t	n-Hexacosane (C26)	38.416	26131394	14.017 ug/mL M4
28) t	n-Heptacosane (C27)	39.624	20017262	10.927 ug/mL M4
29) t	n-Octacosane (C28)	40.790	14032444	7.576 ug/mL M4
30) t	n-Nonacosane (C29)	41.918	13594350	7.357 ug/mL M4
31) t	n-Triacontane (C30)	43.010	12549661	6.813 ug/mL M4
32) t	n-Hentriacontane (C31)	44.066	11018588	5.952 ug/mL M4
33) t	n-Dotriacontane (C32)	45.086	7688497	4.168 ug/mL M4
34) t	n-Tritriacontane (C33)	46.080	6803662	3.807 ug/mL M4
35) t	n-tetratriacontane (C34)	47.040	6553948	3.594 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.065	5396390	2.916 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.225	3427024	1.814 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.551	2911633	1.577 ug/mL M4
39) t	n-Octatriacontane (C38)	52.091	2086662	1.139 ug/mL M4
40) t	n-Nonatriacontane (C39)	53.884	1280528	0.747 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\
Data File : A002938.D
Signal(s) : FID2B.CH
Acq On : 24 Mar 2012 6:14 am
Operator : BAL
Sample : TS032612ANS02
Misc : 1X, WHAM98
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 13 08:31:14 2012
Quant Method : O:\Forensics\Methods\FID17\HC17032312R.M
Quant Title : FID Forensics
QLast Update : Fri Apr 13 08:29:10 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

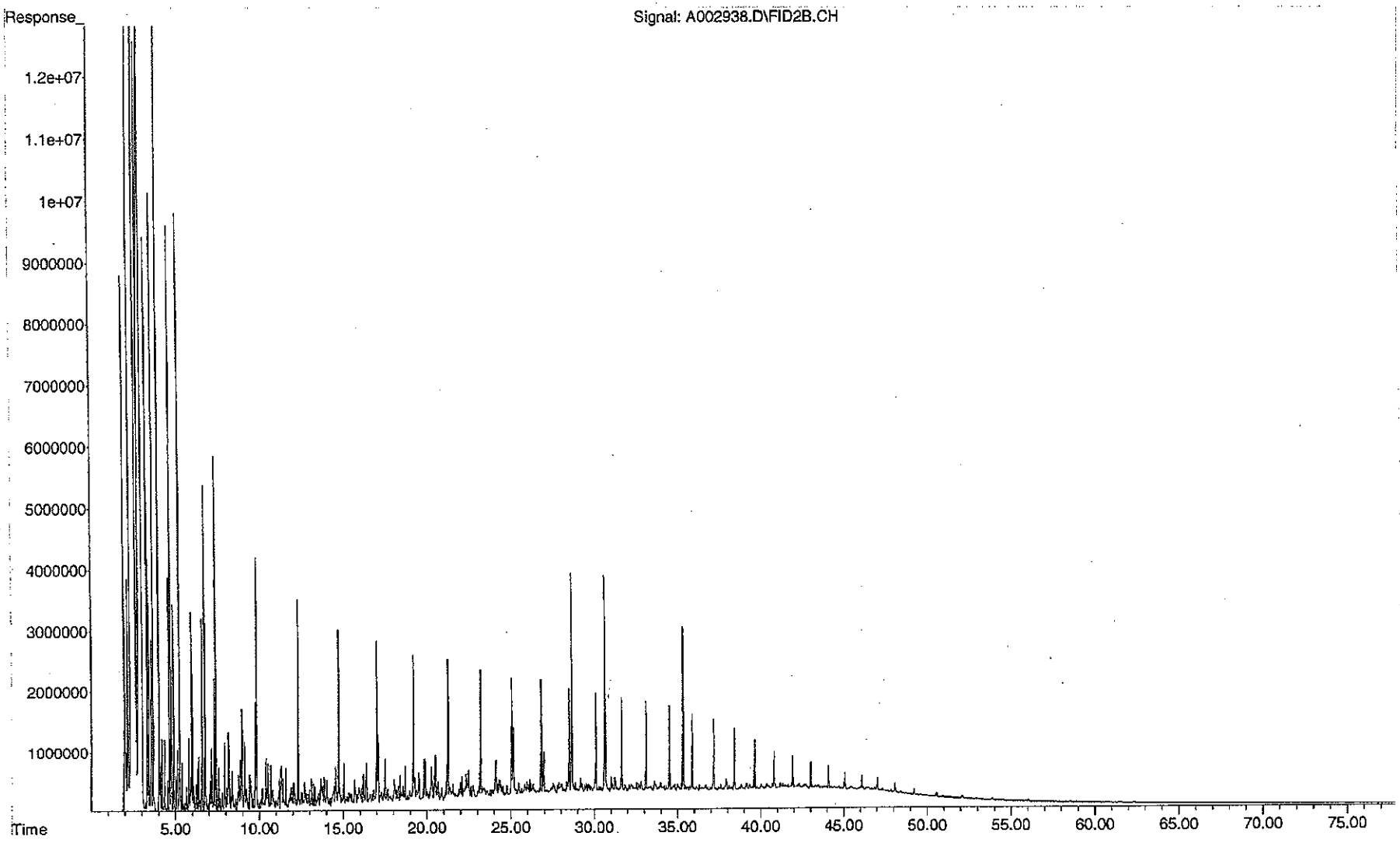
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
41) t	n-Tetracontane (C40)	56.019	1346114	0.785 ug/mL M4
42) h	C9-C44 Total Petroleu...	38.335	10074246033	5599.956 ug/mL M4
44) h	Total Resolved Hydroc...	38.335	3443065595	1913.892 ug/mL m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\A002938.D
Operator : BAL
Acquired : 24 Mar 2012 6:14 am using AcqMethod FID17.M
Instrument : FID17
Sample : TS032612ANS02
Misc Info : 1X, WHAM98
ALS Vial : 65



Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	PS1204031_035 - Pan Weight	PS1204031_035 - Wet Weight	PS1204031_035 - Dry Weight	PS1204031_035 - Dry Weight #2	PS1204031_035 - Dry Weight #3	Percent Solid	RPD
1204031-01	SAM	1.33	6.63	2.75	2.75		26.79	
1204031-02	SAM	1.33	7.51	3.6	3.6		36.73	
1204035-05	SAM	1.34	6.22	3.7	3.7		48.36	
1204035-06	SAM	1.33	8.36	4.71	4.71		48.08	
1204035-07	D	1.33	7.23	6.32	6.32		84.58	0.91%
1204035-07	SAM	1.32	7.25	6.29	6.29		83.81	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	
PSS043012B08	B	1.33	1.33	1.33	1.33		100.00	

Initial: 4/30/2012 11:20:03 PM lrf
Weight #1: 5/1/2012 8:20:00 PM lrf
Weight #2: 5/3/2012 4:50:45 PM bls

4/30/1960

2265

Printed On: 5/3/2012 4:53:03 PM (BLS)

Alpha Woods Hole Lab
Batch Prep Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-01	M	Shaker	CTK	4/30/2012	5/2/2012		5.82	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	S	Shaker	CTK	4/30/2012	5/2/2012		5.77	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-01	SAM	Shaker	CTK	4/30/2012	5/2/2012		5.92	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204031-02	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.15	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-05	SAM	Shaker	CTK	4/30/2012	5/2/2012		7.46	4	1	4	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-06	SAM	Shaker	CTK	4/30/2012	5/2/2012		9.63	2.66667	1	2.67	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	D	Shaker	CTK	4/30/2012	5/2/2012		6.88	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
1204035-07	SAM	Shaker	CTK	4/30/2012	5/2/2012		6.69	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012B07	B	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCS02	LCS	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012
SS043012LCSD02	LCSD	Shaker	CTK	4/30/2012	5/2/2012		8	2	1	2	False	CTK	5/1/2012	KD Flask	0.1	BA	5/2/2012

Alpha Woods Hole Lab
Batch Prep Report

04/30/2012 1204031_035SED - OP SHC

Lab ID	Notes
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-01	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204031-02	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-05	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-06	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
1204035-07	1st Prep: Sample spiked high @ 500uL. CTK 4-30-12
SS043012B07	1st Prep
SS043012B07	1st Prep
SS043012LCS02	1st Prep
SS043012LCS02	1st Prep
SS043012LCSD02	1st Prep
SS043012LCSD02	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP NEWFIE Analyst: CTK Witness: JM

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-01	M	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	S	WHAP38	500	µl	WHAP31	500	µl	WHAP27	500	µl
1204031-01	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204031-02	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-05	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-06	SAM	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	D	WHAP38	500	µl	WHAP31	500	µl			
1204035-07	SAM	WHAP38	500	µl	WHAP31	500	µl			
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

04/30/2012 1204031_035SED - OP SHC Analyst: CTK Witness: JM

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-01	M	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	S	WHAP38	500	µl	WHAP27	500	µl	WHAP36	100	µl
1204031-01	SAM	WHAP38	500	µl				WHAP36	100	µl
1204031-02	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-05	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-06	SAM	WHAP38	500	µl				WHAP36	100	µl
1204035-07	D	WHAP38	500	µl				WHAP36	100	µl
1204035-07	SAM	WHAP38	500	µl				WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012B07	B	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCS02	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SS043012LCSD02	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
04/30/2012

Lab ID	QC Type	1204031_035SED - Sample
1204031-01	SAM	5.92
1204031-01M	OP NEWFIE	5.82
1204031-01M	OP SHC	5.82
1204031-01S	OP NEWFIE	5.77
1204031-01S	OP SHC	5.77
1204031-02	SAM	9.15
1204035-05	SAM	7.46
1204035-06	SAM	9.63
1204035-07	D	6.88
1204035-07	SAM	6.69
SS043012B07	B	30
SS043012B07	B	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP NEWFIE	30
SS043012LCS02LCS	OP SHC	30
SS043012LCS02LCS	OP SHC	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP NEWFIE	30
SS043012LCSD02LCSD	OP SHC	30
SS043012LCSD02LCSD	OP SHC	30

ETR 1204031_035~~sheet~~ SED NMR 5/9/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (uL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (ul)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	1		4000	50	0.189	15.12	2000	7.56	2.00	
1204031	1ms	ms	4000	50	0.225	18.00	2000	9.00	2.00	
1204031	1msd	msd	4000	50	0.204	16.32	2000	8.16	2.00	
1204031	2		4000	50	0.203	16.24	2000	8.12	2.00	
1204035	5		4000	50	0.345	27.60	1000	6.90	4.00	
1204031	6		4000	50	0.291	23.28	1500	8.72	2.67	
1204035	7D	D	4000	50	0.096	7.68	2000	3.84	2.00	10%
1204035	7		4000	50	0.106	8.48	2000	4.24	2.00	

Note:
Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/2/12

ETR 1204031_035~~sheen~~ SED mw 5/2/12

Alpha Analytical

- [x] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [ ] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/02/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	1		4000	50	0.189					
1204031	1ms	ms	4000	50	0.225					
1204031	1msd	msd	4000	50	0.204					
1204031	2		4000	50	0.203					
1204035	5		4000	50	0.345					
1204031	6		4000	50	0.291					
1204035	7D	D	4000	50	0.096					#VALUE!
1204035	7		4000	50	0.106					

Note:
Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: RA
Date: 5/2/12

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3660B	CTK	5/1/2012												True
1204031-01	S	3660B	CTK	5/1/2012												True
1204031-01	SAM	3660B	CTK	5/1/2012												True
1204031-02	SAM	3660B	CTK	5/1/2012												True
1204035-05	SAM	3660B	CTK	5/1/2012												True
1204035-06	SAM	3660B	CTK	5/1/2012												True
1204035-07	D	3660B	CTK	5/1/2012												True
1204035-07	SAM	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012B07	B	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCS02	LCS	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True
SS043012LCSD02	LCSD	3660B	CTK	5/1/2012												True

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1204031-01	M	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	S	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-01	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204031-02	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-05	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1	4	0	0.1	True
1204035-06	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	1.5	2.66667	0	0.1	True
1204035-07	D	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
1204035-07	SAM	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012B07	B	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCS02	LCS	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True
SS043012LCSD02	LCSD	3610	BA	5/2/2012				BA	5/2/2012	False	4	2	2	0	0.1	True

Alpha Woods Hole Lab
Batch Clean Up Report
04/30/2012 1204031_035SED - OP SHC

Lab ID	Notes
1204031-01	
1204031-01	
1204031-01	
1204031-02	
1204035-05	
1204035-06	
1204035-07	
1204035-07	
SS043012B07	
SS043012B07	
SS043012LCS02	
SS043012LCS02	
SS043012LCSD02	
SS043012LCSD02	

Forensic Preparation Checklist

Batch ID: 1204031-035SED **Client:** AECOM **Project:** ENBRIDGE

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	4/30/12	CTK
1st Extraction:	4/30/12	CTK
2nd Extraction:	5/1/12	JM
3rd Extraction:	5/1/12	CTK

Extraction HT:

Cleanup Methods:		Date/Initials:
No Cleanup Required		
Alumina Column (3610)	X	5/2/12 RA
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)	X	5/1/12 CTK
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	5/2/12	WHAP 36
RIS Spike Witness:	PW 5/2/12	100µL

Prep Process Notes

All field samples spiked high @ 500uL due to hydrocarbon odor.
CTK 4/30/12

REAGENT	LOT #:
DCM	LØ5E1Ø
SODIUM SULFATE	K21617
SILICA GEL	N/A
ALUMINA	61

REAGENT	LOT #:
COPPER	OWR043012A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	RA	Date:	5/2/12
BATCH REVIEWED Analyst:	MAE	Date:	5/9/12

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1204031-03	SAM	Shaker	BA	5/1/2012			0.00032	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-04	SAM	Shaker	BA	5/1/2012			0.00056	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-05	SAM	Shaker	BA	5/1/2012			0.00248	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-06	SAM	Shaker	BA	5/1/2012			1	4	1	4	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-07	SAM	Shaker	BA	5/1/2012			1	5.71	1	5.71	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204031-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-01	SAM	Shaker	BA	5/1/2012			0.00088	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-02	SAM	Shaker	BA	5/1/2012			0.00008	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-03	SAM	Shaker	BA	5/1/2012			0.00096	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-04	SAM	Shaker	BA	5/1/2012			0.00416	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-08	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-09	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-10	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-11	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
1204035-12	SAM	Shaker	BA	5/1/2012			1	2	0.5	1	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112B01	B	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCS01	LCS	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			1	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
SO050112LCSD01	LCSD	Shaker	BA	5/1/2012			0.001	2	1	2	False	BA	5/1/2012	KD Flask	0.1	BLS	5/1/2012
TO050112ANS02	ANS						0.10058	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.10058	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.10058	10	1	10						BLS	5/1/2012
TO050112ANS02	ANS						0.10058	10	1	10						BLS	5/1/2012
TO050112CL01	CL						0.10018	10	1	10							
TO050112CL01	CL						0.10018	10	1	10							
TO050112CL01	CL						0.10018	10	1	10							
TO050112CL01	CL						0.10018	10	1	10							
TO050112WCS01	WCS						0.10119	10	1	10							
TO050112WCS01	WCS						0.10119	10	1	10							
TO050112WCS01	WCS						0.10119	10	1	10							
TO050112WCS01	WCS						0.10119	10	1	10							

5/15/12

960

277

Printed On: 5/15/2012 3:50:52 PM (SEO)

Alpha Woods Hole Lab
Batch Prep Report

05/01/2012 1204031_35sheen - OP SHC

Lab ID	Notes
1204031-03	1st Prep
1204031-04	1st Prep
1204031-05	1st Prep
1204031-06	1st Prep
1204031-07	1st Prep
1204031-08	1st Prep
1204035-01	1st Prep
1204035-02	1st Prep
1204035-03	1st Prep
1204035-04	1st Prep
1204035-08	1st Prep
1204035-09	1st Prep
1204035-10	1st Prep
1204035-11	1st Prep
1204035-12	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112B01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCS01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
SO050112LCSD01	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112ANS02	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112CL01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep
TO050112WCS01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1204031-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-05	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-06	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-07	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204031-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-01	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-02	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-03	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-04	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-08	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-09	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-10	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-11	SAM	WHAP38	100	µl	WHAP31	100	µl			
1204035-12	SAM	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112B01	B	WHAP38	100	µl	WHAP31	100	µl			
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP31	100	µl	WHAP27	100	µl
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512ANS02	ANS									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512CL01	CL									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
SO050512WCS02	WCS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

2179 1990 9998

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP31	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L03E06
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1204031-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-05	SAM	WHAP38	100	µl				WHAP36	50	µl
1204031-06	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-07	SAM	WHAP38	100	µl				WHAP36	100	µl
1204031-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-01	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-02	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-03	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-04	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-08	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-09	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-10	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-11	SAM	WHAP38	100	µl				WHAP36	50	µl
1204035-12	SAM	WHAP38	100	µl				WHAP36	50	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112B01	B	WHAP38	100	µl				WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCS01	LCS	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050112LCSD01	LCSD	WHAP38	100	µl	WHAP27	100	µl	WHAP36	100	µl
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512ANS02	ANS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512CL01	CL	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
SO050512WCS02	WCS	-99	-99	-99	-99	-99	-99	-99	-99	-99
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									
TO050112ANS02	ANS									

Alpha Woods Hole Lab
Batch Prep Spike Report

05/01/2012 1204031_35sheen - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112CL01	CL									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									
TO050112WCS01	WCS									

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP27	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K52E06
WHAP36	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	k08s07
WHAP38	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
05/01/2012

Lab ID	QC Type	1204031_35sheen - Sample
1204031-03	SAM	0.00032
1204031-04	SAM	0.00056
1204031-05	SAM	0.00248
1204031-06	SAM	1
1204031-07	SAM	1
1204031-08	SAM	1
1204035-01	SAM	0.00088
1204035-02	SAM	0.000008
1204035-03	SAM	0.00096
1204035-04	SAM	0.00416
1204035-08	SAM	1
1204035-09	SAM	1
1204035-10	SAM	1
1204035-11	SAM	1
1204035-12	SAM	1
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112B01	B	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.005
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP NEWFIE	0.001
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.005
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP SHC	0.001
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCS01LCS	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.005
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP NEWFIE	0.001
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.005
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP SHC	0.001
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	
SO050112LCSD01LCSD	OP Steranes/Triterpanes	

ETR 1204031_035sheen

Alpha Analytical

Analyst BA
Date 05/01/2012

- [ ] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [x] Oily Material Prep.
- [ ] Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266	53.20	N/A	N/A	N/A	102%
1204031	3		4000	50	0.004	0.32	2000	0.16	2.00	
1204031	4		4000	50	0.007	0.56	2000	0.28	2.00	
1204031	5		4000	50	0.031	2.48	2000	1.24	2.00	
1204031	6		4000	50	0.147	11.76	1000	2.94	4.00	
1204031	7		4000	50	0.251	20.08	700	3.52	5.71	
1204031	8		4000	50	0.014	1.12	2000	0.56	2.00	
1204035	1		4000	50	0.011	0.88	2000	0.44	2.00	
1204035	2		4000	50	0.001	0.08	2000	0.04	2.00	
1204035	3		4000	50	0.012	0.96	2000	0.48	2.00	
1204035	4		4000	50	0.052	4.16	2000	2.08	2.00	
1204035	8		4000	50	0.032	2.56	2000	1.28	2.00	
1204035	9		4000	50	0.002	0.16	2000	0.08	2.00	
1204035	10		4000	50	0.017	1.36	2000	0.68	2.00	
1204035	11		4000	50	0.016	1.28	2000	0.64	2.00	
1204035	12		4000	50	0.031	2.48	2000	1.24	2.00	

Note:
Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/1/2012

ETR 1204031_035sheen

Alpha Analytical

- [ ] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [x] Oily Material Prep.
- [ ] Other

Analyst BA
Date 05/01/2012

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
		Gravimetric Standard	10000	50	0.266		N/A	N/A	N/A	0%
1204031	3		4000	50	0.004					
1204031	4		4000	50	0.007					
1204031	5		4000	50	0.031					
1204031	6		4000	50	0.147					
1204031	7		4000	50	0.251					
1204031	8		4000	50	0.014					
1204035	1		4000	50	0.011					
1204035	2		4000	50	0.001					
1204035	3		4000	50	0.012					
1204035	4		4000	50	0.052					
1204035	8		4000	50	0.032					
1204035	9		4000	50	0.002					
1204035	10		4000	50	0.017					
1204035	11		4000	50	0.016					
1204035	12		4000	50	0.031					

Note:
Total Extract Weight (mg) = (Extract Volume + Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: BA
Date: 5/1/12

Forensic Preparation Checklist

Batch ID: 1204031_035 Sheen Client: AECOM Project: Enbridge Line 6 MP608

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • (Sheen) Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	5/1/12	RA
1st Extraction:		
2nd Extraction:		
3rd Extraction:	↓	↓

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	RA 5/1/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

Date/Initials:		ID & Amount:
RIS Spike Analyst:	5/1/12 RA	WHAP 36 50uL + 100uL
RIS Spike Witness:	5/1/12 BLS	

Prep Process Notes

REAGENT	LOT #
DCM	LØSEIØ
SODIUM SULFATE	—
SILICA GEL	—
ALUMINA	—

REAGENT	LOT #
COPPER	—
GLASS WOOL	—

BATCH COMPLETE Analyst:	BLS	Date:	5/1/12
BATCH REVIEWED Analyst:	RA	Date:	5/2/12

Analysis log File

Total Files Reported in Log : 16
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAR2012\MAR23.SEC\

04-12-12

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A002916.D	C170323122R	WHAP26	3/23/2012 1:55 pm
2	A002918.D	DCM	DCM	3/23/2012 3:24 pm
3	A002920.D	IB1703231201R	DCM	3/23/2012 4:53 pm
4	A002922.D	I1703231201R	WHA093	3/23/2012 6:22 pm
5	A002924.D	I1703231202R	WHA094	3/23/2012 7:51 pm
6	A002926.D	I1703231203R	WHAP26	3/23/2012 9:20 pm
7	A002928.D	I1703231204R	WHA095	3/23/2012 10:49 pm
8	A002930.D	I1703231205R	WHA096	3/24/2012 12:18 am
9	A002932.D	I1703231206R	WHA097	3/24/2012 1:47 am
10	A002934.D	DCM	DCM	3/24/2012 3:16 am
11	A002936.D	CQ1703231207R - ICV VPAH	WHA098	3/24/2012 4:45 am
12	A002938.D	TS032612ANS02 - ANS	1X, WHAM98	3/24/2012 6:14 am
13	A002940.D	TS032612MC202 - MC252	1X, WHAP35	3/24/2012 7:43 am
14	A002942.D	C170323123R	WHAP26	3/24/2012 9:12 am
15	A002944.D	DCM	DCM	3/24/2012 10:41 am
16	A002946.D	IB1703231201R - IB for ANS + MC252	DCM	3/24/2012 12:09 pm

Ical files for method HC1703231204

Printed: 04/12/12 Page: 1

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 56
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\

5.9-12

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A003395.D	DCM	DCM	5/1/2012 9:40 am
2	A003397.D	C1705011201R	WHAP14	5/1/2012 11:09 am
3	A003399.D	TO050112ANS02	WHAP13	5/1/2012 12:38 pm
4	A003401.D	L2	WHAO93	5/1/2012 3:21 pm
5	A003403.D	C1705011202R	WHAP14	5/1/2012 4:50 pm
6	A003405.D	DCM	DCM	5/1/2012 6:19 pm
7	A003407.D	IB1705011201R	DCM	5/1/2012 7:48 pm
8	A003409.D	SO050112B01	1X	5/1/2012 9:17 pm
9	A003411.D	SO050112LCS01	1X	5/1/2012 10:46 pm
10	A003413.D	SO050112LCSD01	1X	5/2/2012 12:15 am
11	A003415.D	IB1705011202R	DCM	5/2/2012 1:43 am
12	A003417.D	1204031-03	1X	5/2/2012 3:12 am
13	A003419.D	1204031-04	1X	5/2/2012 4:41 am
14	A003421.D	1204031-05	1X	5/2/2012 6:09 am
15	A003423.D	1204031-06	1X	5/2/2012 7:38 am
16	A003425.D	1204031-07	1X	5/2/2012 9:07 am
17	A003427.D	1204031-08	1X	5/2/2012 10:36 am
18	A003429.D	C1705011203R	WHAP14	5/2/2012 12:05 pm
19	A003431.D	DCM	1X	5/2/2012 1:34 pm
20	A003433.D	IB1705011203R	DCM	5/2/2012 3:03 pm
21	A003435.D	1204035-01	1X	5/2/2012 4:32 pm
22	A003437.D	1204035-02	1X	5/2/2012 6:01 pm
23	A003439.D	1204035-03	1X	5/2/2012 7:29 pm
24	A003441.D	1204035-04	1X	5/2/2012 8:58 pm
25	A003443.D	1204035-08	1X	5/2/2012 10:27 pm
26	A003445.D	1204035-09	1X	5/2/2012 11:56 pm
27	A003447.D	1204035-10	1X	5/3/2012 1:24 am
28	A003449.D	1204035-11	1X	5/3/2012 2:53 am
29	A003451.D	1204035-12	1X	5/3/2012 4:21 am
30	A003453.D	C1705011204R	WHAP14	5/3/2012 5:50 am
31	A003455.D	DCM	DCM	5/3/2012 7:19 am
32	A003457.D	IB1705011204R	DCM	5/3/2012 8:47 am
33	A003459.D	TO050112WCS01	WHAP15	5/3/2012 10:16 am
34	A003461.D	TO050112CL01	WHAP16	5/3/2012 11:45 am
35	A003463.D	DCM	DCM	5/3/2012 1:14 pm
36	A003465.D	C1705011205R	WHAP14	5/3/2012 2:43 pm
37	A003467.D	DCM	DCM	5/3/2012 4:11 pm
38	A003469.D	IB1705011205R	DCM	5/3/2012 5:40 pm
39	A003471.D	SS043012B07	1X	5/3/2012 7:09 pm
40	A003473.D	SS043012LCS02	1X	5/3/2012 8:37 pm
41	A003475.D	SS043012LCSD02	1X	5/3/2012 10:06 pm
42	A003477.D	IB1705011206R	DCM	5/3/2012 11:35 pm
43	A003479.D	1204031-01	1X	5/4/2012 1:04 am
44	A003481.D	1204031-01M	1X	5/4/2012 2:33 am
45	A003483.D	1204031-01S	1X	5/4/2012 4:02 am
46	A003485.D	1204031-02	1X	5/4/2012 5:31 am
47	A003487.D	C1705011206R	WHAP14	5/4/2012 7:00 am
48	A003489.D	DCM	DCM	5/4/2012 8:28 am
49	A003491.D	IB1705011207R	DCM	5/4/2012 9:58 am
50	A003493.D	1204035-05	1X	5/4/2012 11:27 am
51	A003495.D	1204035-06	1X	5/4/2012 12:57 pm
52	A003497.D	1204035-07	1X	5/4/2012 2:27 pm
53	A003499.D	1204035-07D	1X	5/4/2012 3:56 pm
54	A003501.D	C1705011207R	WHAP14	5/4/2012 5:26 pm

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 56
Log Generated From Directory: O:\Forensics\Data\FID17\2012\MAY2012\MAY01.SEC\SREV\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
55	A003503.D	DCM	DCM	5/4/2012 6:55 pm
56	A003505.D	✓IB1705011208R	DCM	5/4/2012 8:24 pm

HC1703231 2R.M ccv whap 14@ Sop dated wghl (W) 5-9-12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Chain of Custody Records

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: 1204035

Client Information

Client: Enbridge

Address: 1601 Pratt Avenue
Marshall MI 49068

Phone: 616 970-9700

Fax:

Email: John.bohrmann@Enbridge.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: ~~Enbridge~~ Marshall MI Finger print ID

Project Location: Marshall MI

Project #: 60246289

Project Manager: Dave Bareham

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Task #9045

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE

MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	GC/MS-SIM	GC-FID	alkyl PAH's	Biomarkers	Sample Specific Comments	TOTAL # BOTTLES
1204035-01	SEKR1075L2815042512PX	042512	0925	oil globes	RAP	✓	✓	✓	✓		1
-05	SEKR1075L2815042512DX	4/25/12	0836	SED	RAP	✓	✓	✓	✓		1
-02	SEKR1075L2815042512PX	4/25/12	1130		RAP	✓	✓	✓	✓	EQUIPMENT BLANK	1

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type											
Preservative	None →										

Relinquished By:	Date/Time	Received By:	Date/Time
Russell Patton	4-25-12 1333	Neo Neal	4/25/12 1333
Neo Neal FedEx	4/26/12 0930	FedEx	4/26/12 0830

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 101-09 (rev. 27-SEP-10)

Sample Delivery Group Form

Laboratory Job No: 1204035 **Client:** AECOM
Receipt Date/Time: 4/26/12 0930 **SDG Reviewer:** MR

Samples Delivered By:
[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other
Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached 861316125718

Chain of Custody: [X] Present [ ] Absent:
Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:
Is Ice/Blue Ice present? [X] Yes [ ] No [ ] N/A

Temp taken from: Temp Blank:(a) 3.5 (b)____ (c)____ (d)____ (e)____
IR Gun: (a) 4.30 (b)____ (c)____ (d)____ (e)____
IR Gun SN (circle one): 090512810 100311463
Was Temp: [X] 2-6 Celsius
[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No
[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact
[ ] Broken/Leaking Sample IDs:____
Sample IDs:____

All Containers Accounted For? [X] Yes
[ ] No:____
Extra Samples Received? [X] No
[ ] Yes:____
Do Sample Labels and COC agree? [X] Yes
[ ] No:____
Are Samples in Appropriate Containers? [X] Yes
[ ] No:____
Are samples rec'd within holding time? [X] Yes
[ ] No:____
* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [X] N/A [ ] <2 [ ] >12 and/or [ ]____
Are samples properly preserved? [ ] Yes [ ] No If No then.....
Initial pH= ____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = ____>>
Other Issues:____
Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [X] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ]____
Aqueous: vials contain head space? [ ] No [ ] Yes :____
Soils: MeOH covering soil? [ ] Yes [ ] No :____
Reagent H_2O Preserved vials Frozen @ date/time:____
Frozen by Client? [ ] No [ ] Yes @ date/time:____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [X] N/A

If Yes: Call Tracker #____

...r This portion can be removed for Recipient's records.

te 4-25-12 FedEx Tracking Number 861316125718

nder's me APRIL MODERT Phone 989 684-4405

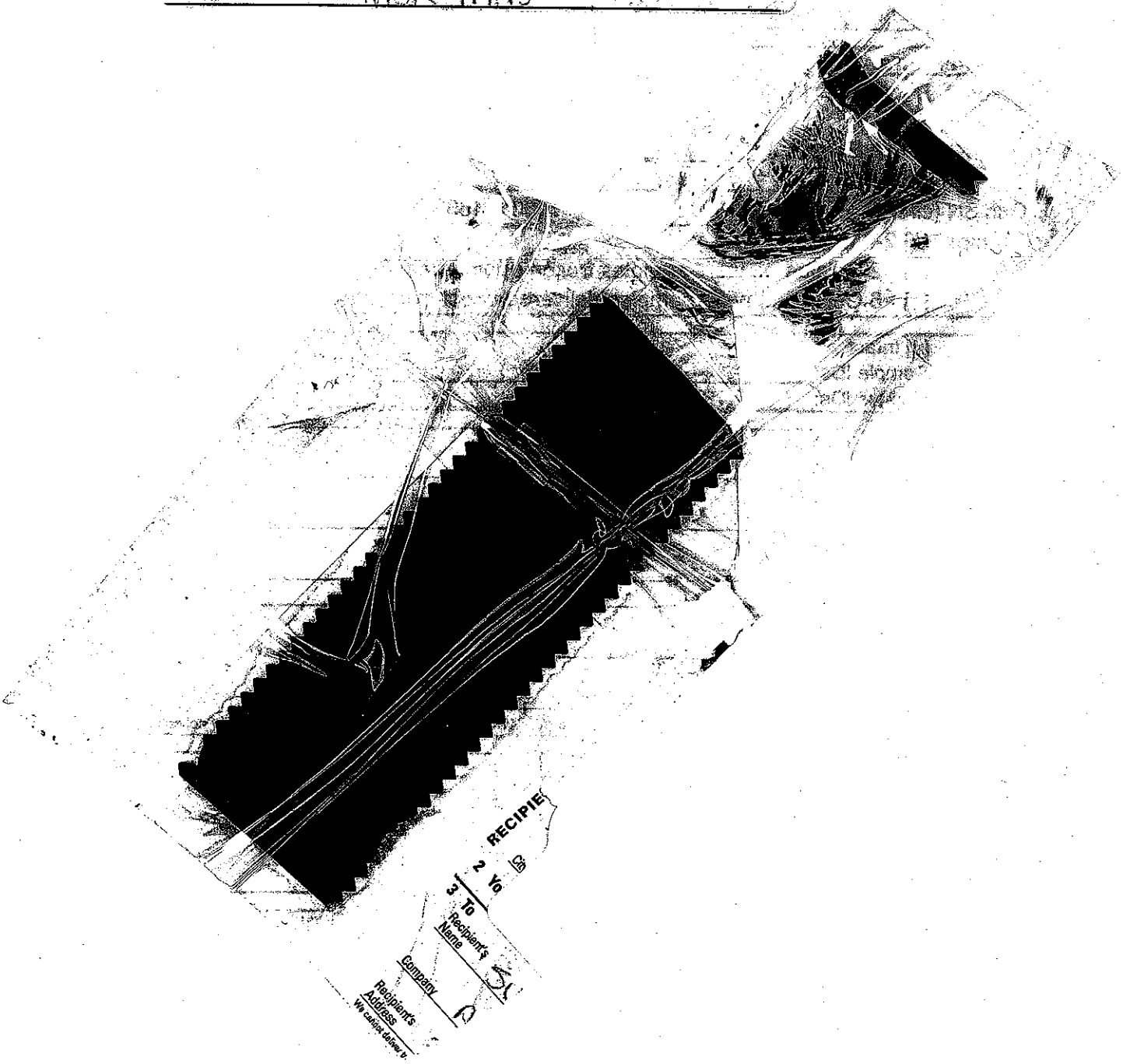
Company SUPERIOR ENVIRONMENTAL CORP

Address 1680 MARQUETTE ST

Dept./Floor/Suite/Room

BAY CITY State MI ZIP 48706-4178

ur Internal Billing Reference BC32M1 TASK 9.045



MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

ALPHA Job #: 1204035

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Enbridge
Address: 1601 Pratt Ave
Marshall MI 49068
Phone: (616) 970-9700
Fax:
Email: John.bohrmann@Enbridge.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Enbridge Finger Print ID
Project Location: Marshall MI
Project #: 60246209
Project Manager: Dave Bareham
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:
Task # 9.045

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE
MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	GC/MS-SIM	GC-FID	alkyl PAHs	Biomarkers	Sample Specific Comments	TOTAL # BOTTLES
1204035-06	SEKR3455C501S042612DX	4/26/12	0850	SED.	RAP	✓	✓	✓	✓		1
-07	SEKR1950C501S042612DX	4/26/12	0900	SED.	RAP	✓	✓	✓	✓		1
-03	SEKR3455C501S042612PX	4/26/12	0925	Oil Globes	RAP	✓	✓	✓	✓		1
-04	SEKR1950C501S042612PX	4/26/12	0940	Oil Globes	RAP	✓	✓	✓	✓		1
-05	SEKR1075L201S042612HX	4/26/12	1236	Sheen	RAP	✓	✓	✓	✓		1
-09	SEKR0000R011S042612HX	4/26/12	1250	Sheen	RAP	✓	✓	✓	✓		1
-10	SEKR0000L012S042612HX	4/26/12	1255	Sheen	RAP	✓	✓	✓	✓		1
-11	SEKR3455C501S042612HX	4/26/12	1300	Sheen	RAP	✓	✓	✓	✓		1
-12	SEKR1950C501S042612HX	4/26/12	1305	Sheen	RAP	✓	✓	✓	✓		1

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	
Preservative	None →

Relinquished By:	Date/Time	Received By:	Date/Time
Russell Pfutte	4/26/12 1430		4/26/12 1430
FEDEX	4/27/12 1000		4/27/12 1000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Sample Delivery Group Form

Laboratory Job No: 1204035 **Client:** AECOM

Receipt Date/Time: 4/27/12 1000 **SDG Reviewer:** MV

Samples Delivered By:
[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other _____
Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached 8762 5964 8299

Chain of Custody: [X] Present [ ] Absent: _____
Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:
Is Ice/Blue Ice present? [X] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a) 4° (b)_____ (c)_____ (d)_____ (e)_____
IR Gun: (a) 2.4° (b)_____ (c)_____ (d)_____ (e)_____
IR Gun SN (circle one): 090512810 100311463
Was Temp: [X] 2-6 Celsius
[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No
[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact
[ ] Broken/Leaking Sample IDs: _____
Sample IDs: _____

All Containers Accounted For? [X] Yes
[ ] No: _____
Extra Samples Received? [X] No
[ ] Yes: _____
Do Sample Labels and COC agree? [X] Yes
[ ] No: _____

Are Samples in Appropriate Containers? [X] Yes
[ ] No: _____
Are samples rec'd within holding time? [X] Yes
[ ] No: _____
* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [X] N/A [ ] <2 [ ] >12 and/or [ ] _____
Are samples properly preserved? [ ] Yes [ ] No If No then.....
Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = _____>>
Other Issues: _____
Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [X] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ] _____
Aqueous: vials contain head space? [ ] No [ ] Yes : _____
Soils: MeOH covering soil? [ ] Yes [ ] No : _____
Reagent H_2O Preserved vials Frozen @ date/time: _____
Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [X] N/A

If Yes: Call Tracker # _____

FedEx Express **NEW** Package **US Airbill**

FedEx Tracking Number: 8762 5964 8299

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date: 4-26-12 Sender's FedEx Account Number: 2138-5929-3

Sender's Name: APRIL MODERT Phone: 517 2274710

Company: SUPERIOR ENVIRONMENTAL CORP

Address: 1680 Marquette St Dept/Floor/Suite/Room

City: BAY CITY State: MI ZIP: 48706-4178

2 Your Internal Billing Reference: BC3279 TASK 9.045

3 To

Recipient's Name: SUE O'NEIL Phone: 908 844 4117

Company: ALPHA WOODS HOLE LABS

Address: 320 FORBES BLVD Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address: Use this line for the HOLD location address or for continuation of your shipping address.

City: MANSFIELD State: MA ZIP: 02048

01 ☐ HOLD Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

31 ☐ HOLD Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

8762 5964 8299

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

06 ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

49 ☐ **NEW** FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☐ FedEx Tube 01 ☒ Other

6 Special Handling and Delivery Signature Options

03 ☐ **SATURDAY DELIVERY**

☒ No Signature Required — Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No 04 ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. 06 ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

1 ☒ Sender Acct. No. in Section 1 will be billed 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

[redacted]

Total Packages: 1 Total Weight: 16 lbs. Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

612

Rev. Date 11/10 • Part #163136 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRY



1204035
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	23817M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.167	240	42411	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	93859	907.974	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.80%			
42) Phenanthrene-d10	32.567	188	82104	1004.863	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.49%			
86) Benzo[a]pyrene-d12	48.241	264	72947	829.948	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.99%			
127) 5B(H)Cholane - Surr	43.769	217	14861	1120.753	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 112.08%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	12337	656.177	ng/mL	100
4) cis-Decalin	17.603	138	754M3	53.211	ng/mL	
5) C1-Decalins	17.874	152	25179M5	1339.213	ng/mL	
6) C2-Decalins	19.304	166	35736M5	1900.716	ng/mL	
7) C3-Decalins	22.119	180	23346M5	1241.720	ng/mL	
8) C4-Decalins	25.507	194	21876M5	1163.534	ng/mL	
10) Naphthalene	19.801	128	47114	310.376	ng/mL#	100
11) C1-Naphthalenes	22.496	142	127731M5	841.461	ng/mL	
12) C2-Naphthalenes	25.341	156	260450M5	1715.782	ng/mL	
13) C3-Naphthalenes	28.021	170	302564M5	1993.218	ng/mL	
14) C4-Naphthalenes	30.445	184	228022M5	1502.154	ng/mL	
16) 2-Methylnaphthalene	22.496	142	77085	858.848	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	51530	585.723	ng/mL#	100
18) Benzothiophene	20.027	134	5901	43.200	ng/mL	100
19) C1-Benzo(b)thiophenes	22.887	148	28288M5	207.089	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	54033M5	395.562	ng/mL	
21) C3-Benzo(b)thiophenes	27.524	176	88377M5	646.986	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	88613M5	648.714	ng/mL	
23) Biphenyl	24.378	154	10176	89.627	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	64699	877.379	ng/mL#	100
25) Dibenzofuran	27.464	168	5404	41.449	ng/mL#	43
26) Acenaphthylene	26.079	152	2021	13.412	ng/mL#	100
27) Acenaphthene	26.817	153	5947M3	67.029	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	22016M3	370.364	ng/mL	
29) Fluorene	28.834	166	13718M3	140.193	ng/mL	
30) C1-Fluorenes	31.212	180	38230M5	390.696	ng/mL	
31) C2-Fluorenes	33.410	194	73499M5	751.131	ng/mL	
32) C3-Fluorenes	35.232	208	83934M5	857.772	ng/mL	
33) Dibenzothiophene	32.161	184	51665	329.382	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.937	198	64088	408.583	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	50568M3	322.389	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	35916	228.977	ng/mL#	100
37) OTP	34.344	198	15611M3	99.526	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	178964M5	1140.958	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	163353m	1041.432	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	277827M5	1771.243	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	291226M5	1856.667	ng/mL	
41) C4-Dibenzothiophenes	39.132	240	198533M5	1265.717	ng/mL	
43) Phenanthrene	32.658	178	56105	407.119	ng/mL#	78
44) 3-Methylphenanthrene(3MP)	34.630	192	29170M3	211.669	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	34814M3	252.624	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	3149M3	22.850	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	50040	363.109	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.172	192	29139M3	211.444	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.081	192	146127M5	1060.353	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	193953M5	1407.397	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50)	C2-Phenanthrenes/Anthr BS	36.888	206	193953m	1407.397	ng/mL	
52)	C3-Phenanthrenes/Anthrace	39.990	220	165692M5	1202.324	ng/mL	
53)	C4-Phenanthrenes/Anthrace	40.908	234	81166M5	588.971	ng/mL	
56)	Carbazole	33.501	167	3417M3	25.131	ng/mL	
57)	1-Methylphenanthrene	35.172	192	29274M3	335.202	ng/mL	
58)	Fluoranthene	37.430	202	4547M3	33.222	ng/mL	
60)	Pyrene	38.318	202	13787M3	99.094	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.704	216	46566M5	334.694	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.510	230	65429M5	470.273	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.528	244	73575M5	528.822	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.883	258	73580M5	528.858	ng/mL	
66)	Naphthobenzothiophene	42.173	234	22625	151.048	ng/ml#	89
67)	Naphthobenzothiophene-2,1	42.173	234	22625	151.048	ng/mL#	89
68)	Naphthobenzothiophene-1,2	42.504	234	6089	40.651	ng/mL#	13
69)	Naphthobenzothiophene-2,3	42.805	234	4121M3	27.513	ng/mL	
70)	C1-Naphthobenzothiophenes	44.251	248	102218M5	682.425	ng/ml	
71)	C2-Naphthobenzothiophenes	45.621	262	144800M5	966.710	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	125541M5	838.133	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290	92213M5	615.630	ng/mL	
75)	Benz[a]anthracene	43.091	228	3415M3	25.369	ng/mL	
77)	Chrysene/Triphenylene	43.242	228	14884M3	109.520	ng/mL	
78)	C1-Chrysenes	44.732	242	34624M5	254.772	ng/mL	
79)	C2-Chrysenes	46.810	256	57477M5	422.930	ng/mL	
79)	C2-Chrysenes BS	46.810	256	57477m	422.930	ng/mL	
80)	C3-Chrysenes	49.506	270	68192M5	501.774	ng/mL	
81)	C4-Chrysenes	49.521	284	41359M5	304.330	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	5421	36.650	ng/mL	93
83)	Benzo[j]+[k]fluoranthene	47.217	252	2485M3	15.431	ng/mL	
85)	Benzo[e]pyrene	48.151	252	7787M3	53.225	ng/mL	
87)	Benzo[a]pyrene	48.332	252	4133M3	29.341	ng/mL	
88)	Perylene	48.648	252	7965	52.910	ng/mL#	74
89)	Indeno[1,2,3-cd]pyrene	53.151	276	4178M3	25.488	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278	2043	13.102	ng/mL#	51
91)	Benzo[g,h,i]perylene	54.446	276	7518	43.410	ng/mL#	80
92)	Hopane (T19)	52.232	191	38533	1378.549	ng/mL#	79
94)	C23 Tricyclic Terpane (T4	40.803	191	16194M3	579.353	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.525	191	9035M3	323.234	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.046	191	8216M3	293.934	ng/ml	
97)	C24 Tetracyclic Terpane (	44.326	191	2969M3	106.218	ng/ml	
98)	C26 Tricyclic Terpane-22S	44.070	191	3241M3	115.949	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.160	191	3095M3	110.726	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.449	191	3389M3	121.244	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.615	191	3776M3	135.089	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.127	191	4609	164.891	ng/ml	100
103)	C29 Tricyclic Terpane-22R	47.323	191	3909M3	139.848	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.452	191	3889M3	139.132	ng/ml	
105)	C30 Tricyclic Terpane-22S	48.542	191	3216M3	115.055	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.783	191	3277M3	117.237	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.994	191	10164M3	363.625	ng/ml	
108)	17a/b,21b/a 28,30-Bisnorh	50.199	191	6807M3	243.526	ng/ml	
109)	17a(H),21b(H)-25-Norhopan	49.988	191	2080	74.414	ng/ml	100
110)	30-Norhopane (T15)	50.862	191	26947M3	964.050	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.967	191	3442M3	123.140	ng/ml	
112)	17a(H)-Diahopane (X)	51.103	191	891	31.876	ng/ml	100
113)	30-Normoretane (T17)	51.645	191	2872	102.748	ng/ml	100
114)	18a(H)&18b(H)-Oleananes (	52.021	191	590M3	21.108	ng/ml	
115)	Moretane (T20)	52.925	191	3186M3	113.982	ng/ml	
116)	30-Homohopane-22S (T21)	54.024	191	16685	596.919	ng/ml	100
117)	30-Homohopane-22R (T22)	54.250	191	13594	486.336	ng/ml	100
118)	Gammacerane/C32-diahopane	54.807	191	5372M3	192.188	ng/mL	
119)	30,31-Bishomohopane-22S (	55.575	191	10218M3	365.557	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22R (	55.967	191	7245	259.196	ng/ml	100
121) 30,31-Trishomohopane-22S	57.714	191	7940M3	284.060	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	5509M3	197.089	ng/ml	
123) Tetrakishomohopane-22S (T	60.349	191	5427	194.155	ng/ml	100
124) Tetrakishomohopane-22R (T	61.267	191	3883M3	138.917	ng/ml	
125) Pentakishomohopane-22S (T	63.511	191	6536M3	233.831	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4498M3	160.920	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.289	217	2425M3	182.883	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1124M3	84.767	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1076M3	81.147	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3782M3	285.222	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	5006	377.531	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	756M3	57.014	ng/ml	
134) 13a,17b-20S-Ethyldiachole	48.332	217	457	34.465	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.497	217	1989M3	150.002	ng/ml	
136) 14a,17a-20R-Methylcholest	49.205	217	2092M3	157.770	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.567	217	5619M3	423.761	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	3664M3	276.323	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2986M3	225.191	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	3044M3	229.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	2501	188.615	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	3618M3	272.854	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4780M3	360.487	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2799M3	211.089	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	25693	1937.656	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	22236	1676.944	ng/mL	100
147) C27,20R-triaromatic stero	50.817	231	16630	1254.164	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	17947M3	1353.486	ng/mL	

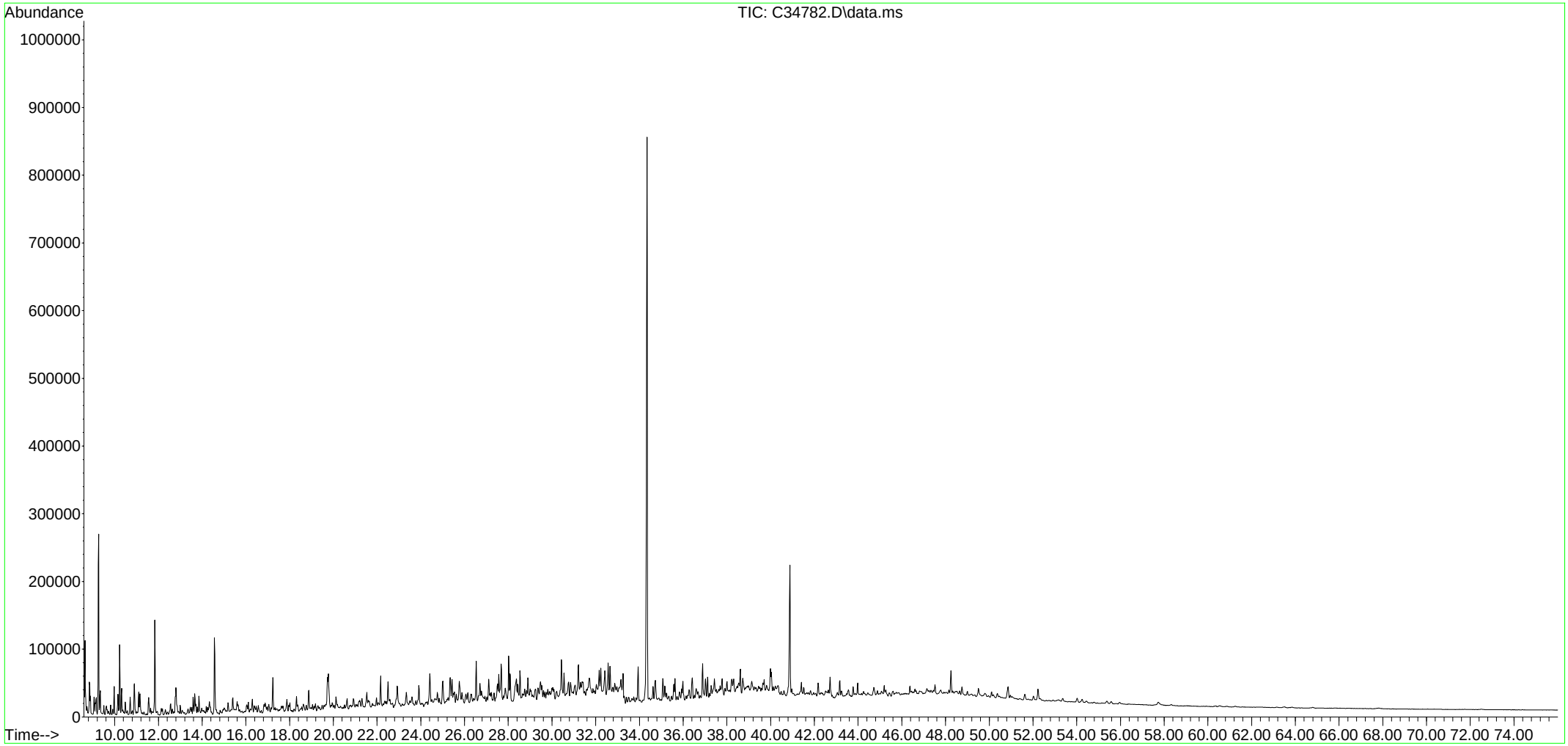
(#) = qualifier out of range (m) = manual integration (+) = signals summed

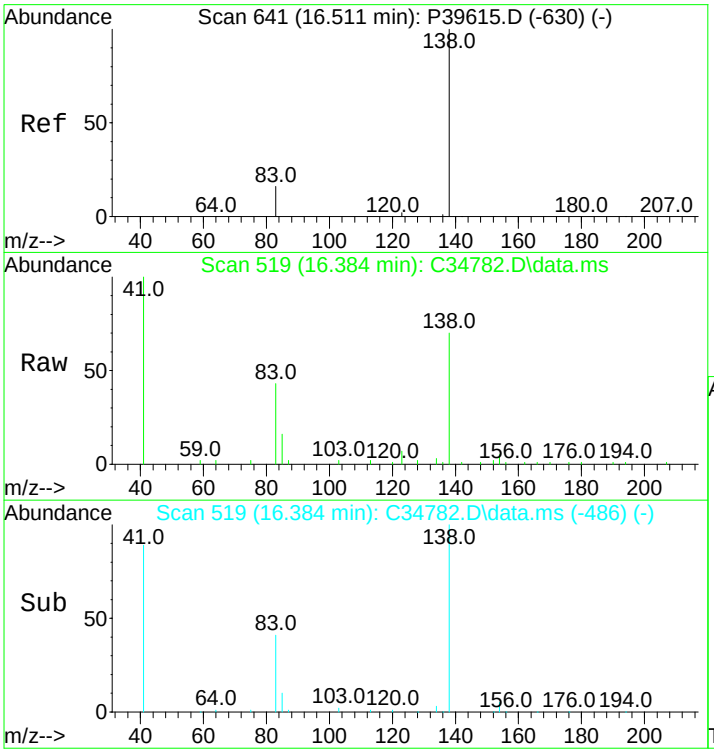
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34782.D
Acq On : 2 May 2012 4:01 pm
Operator : AC
Sample : SO050512CL01
Misc : WHAP12
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 05 12:44:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

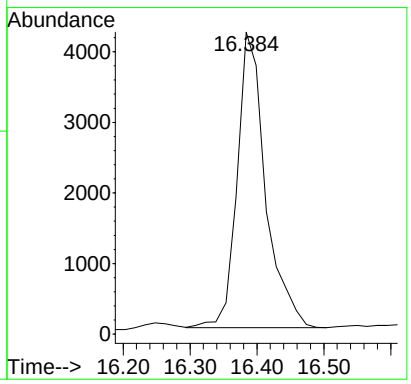
Sub List : Gulf_NEW_POIB_Default - All compounds listed

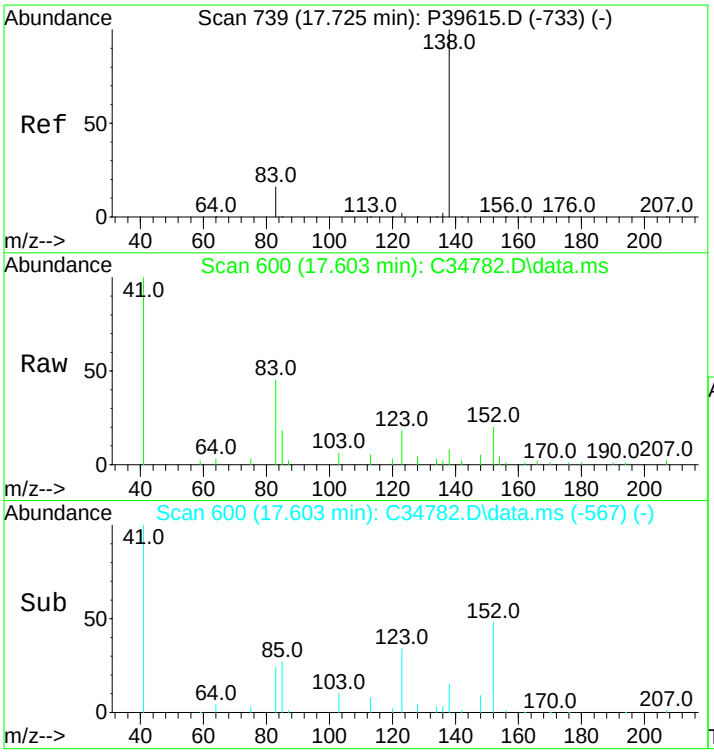




#3
trans-Decalin
Concen: 656.18 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

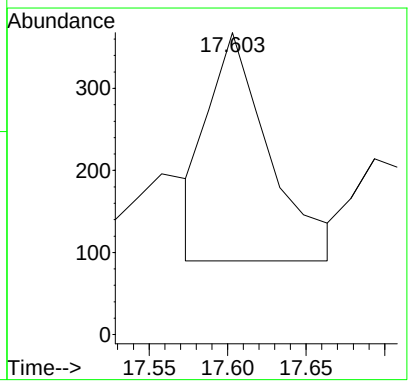
Tgt Ion:138 Resp: 12337

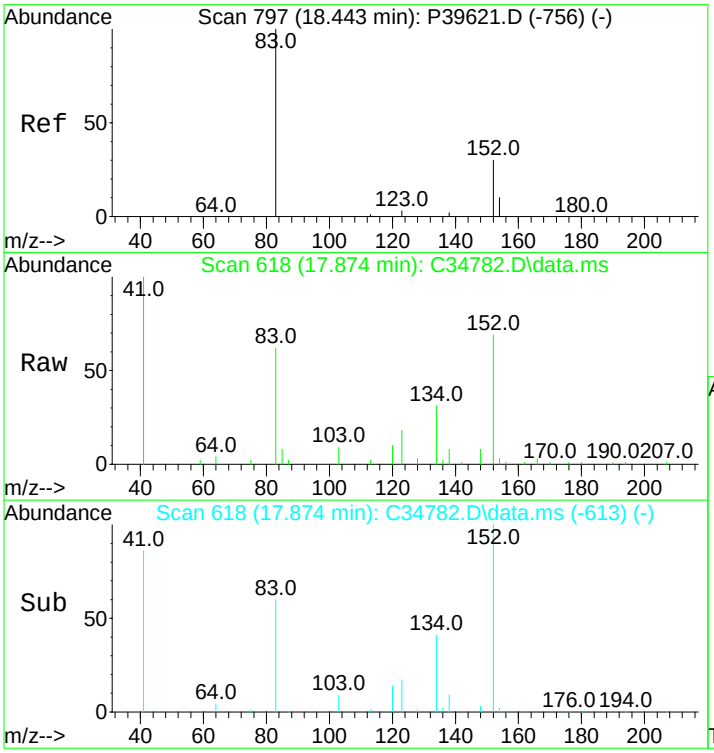




#4
cis-Decalin
Concen: 53.21 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

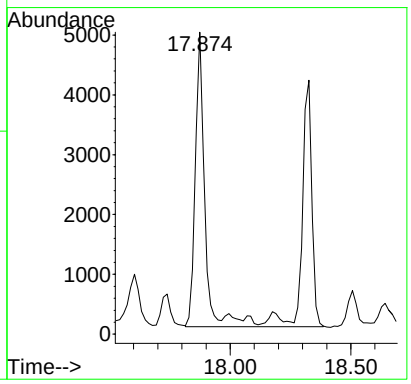
Tgt Ion:138 Resp: 754

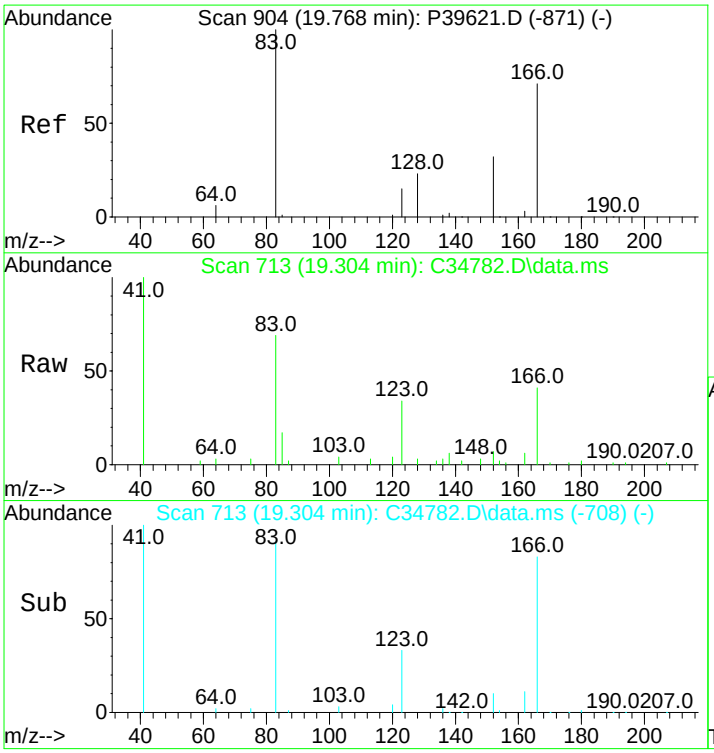




#5
C1-Decalins
Concen: 1339.21 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

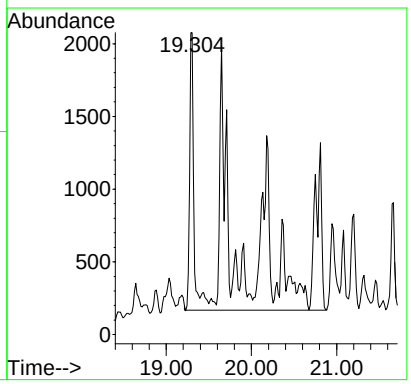
Tgt Ion:152 Resp: 25179

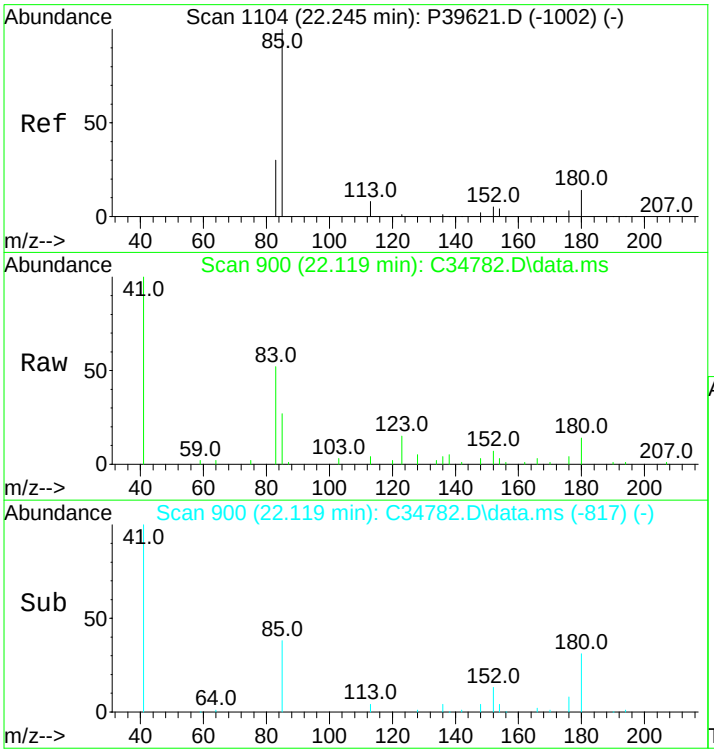




#6
C2-Decalins
Concen: 1900.72 ng/mL m
RT: 19.304 min Scan# 713
Delta R.T. -0.378 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

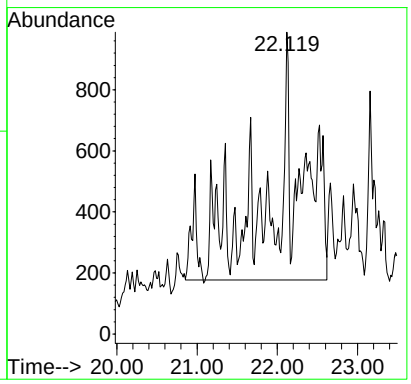
Tgt Ion:166 Resp: 35736

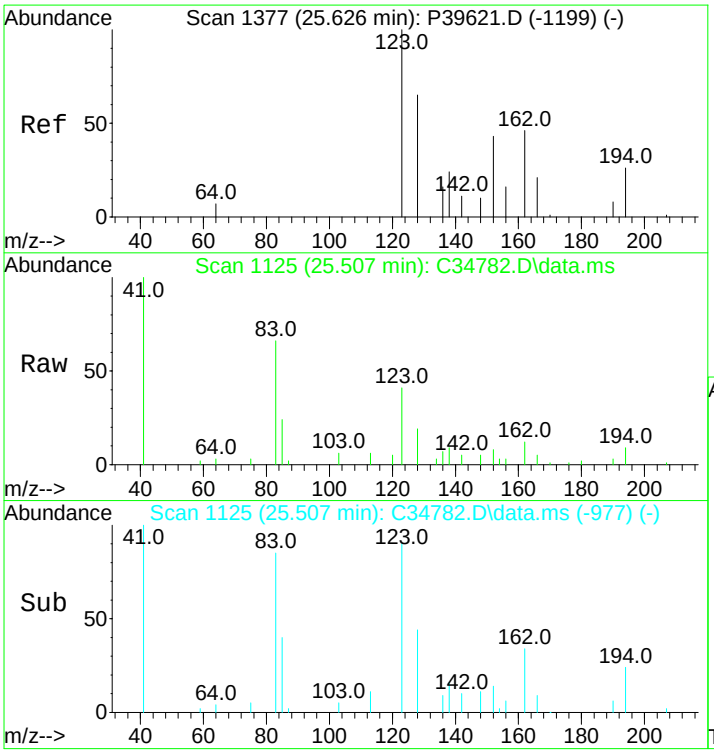




#7
C3-Decalins
Concen: 1241.72 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

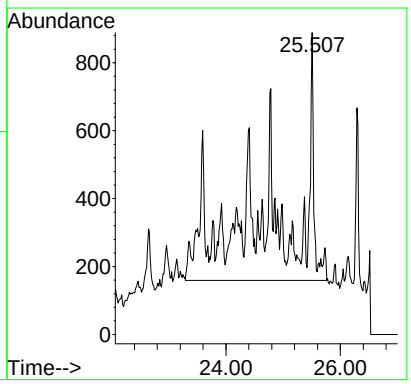
Tgt Ion:180 Resp: 23346

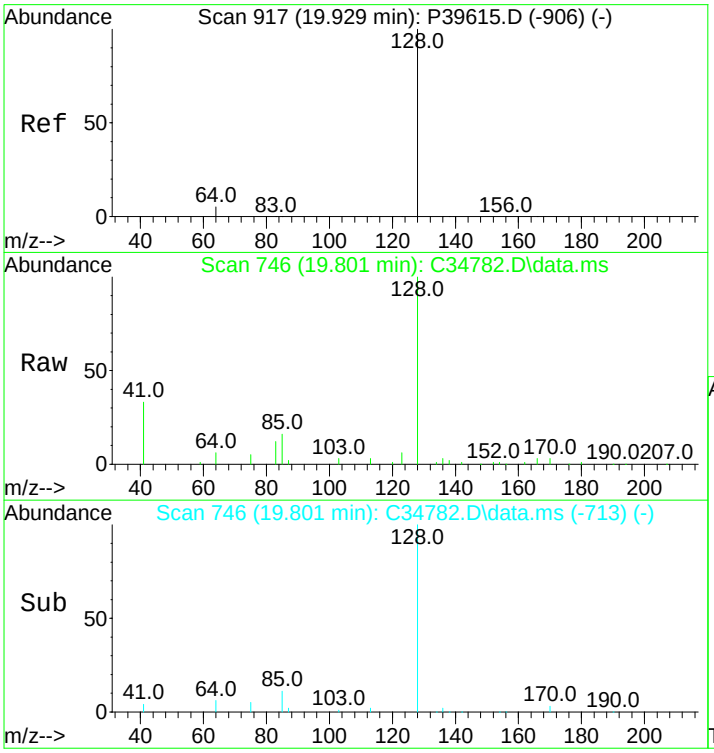




#8
C4-Decalins
Concen: 1163.53 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.005 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:194 Resp: 21876

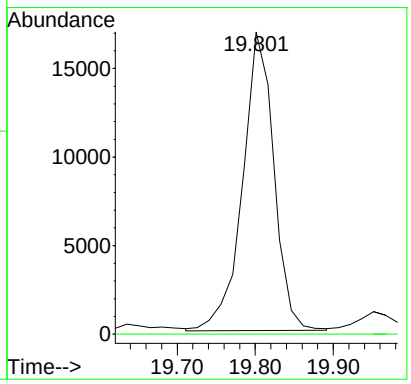


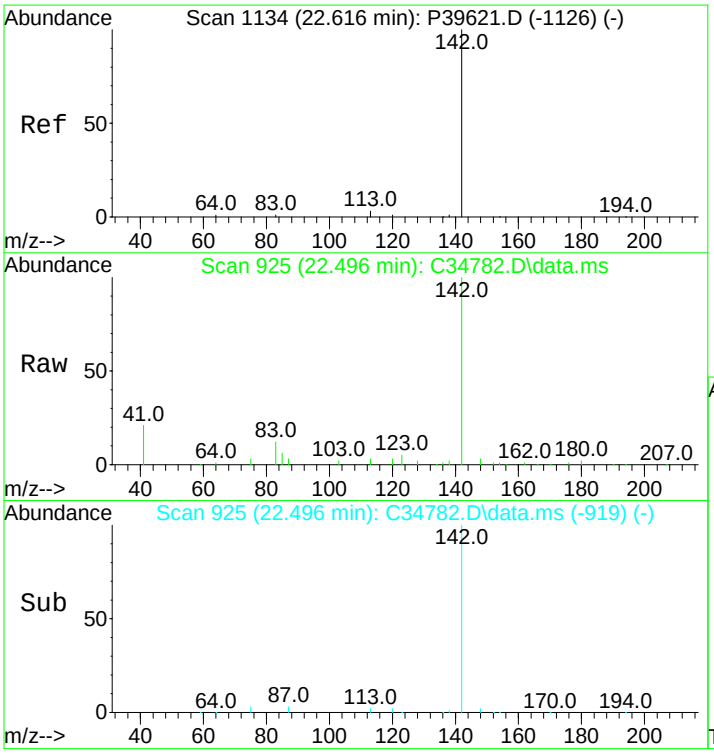


#10
Naphthalene
Concen: 310.38 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:128 Resp: 47114

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

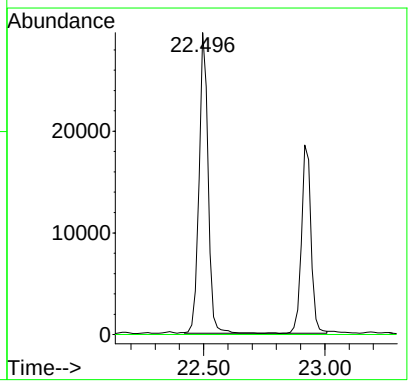


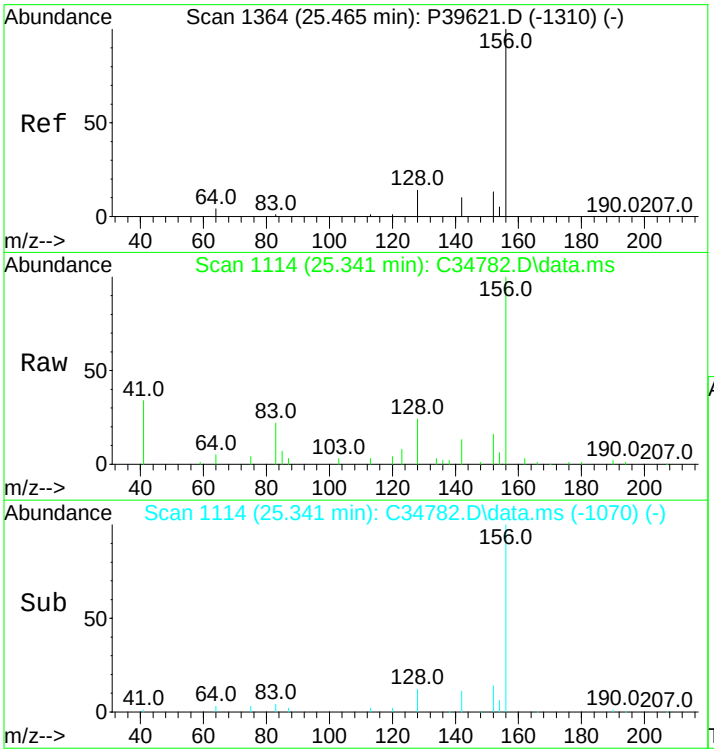


#11
C1-Naphthalenes
Concen: 841.46 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 127731

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

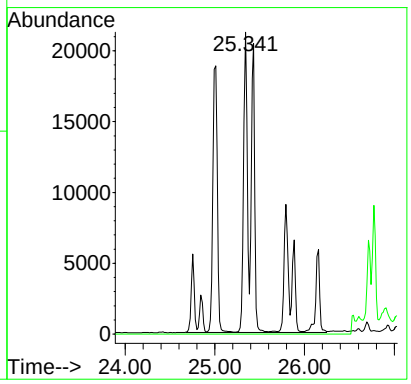


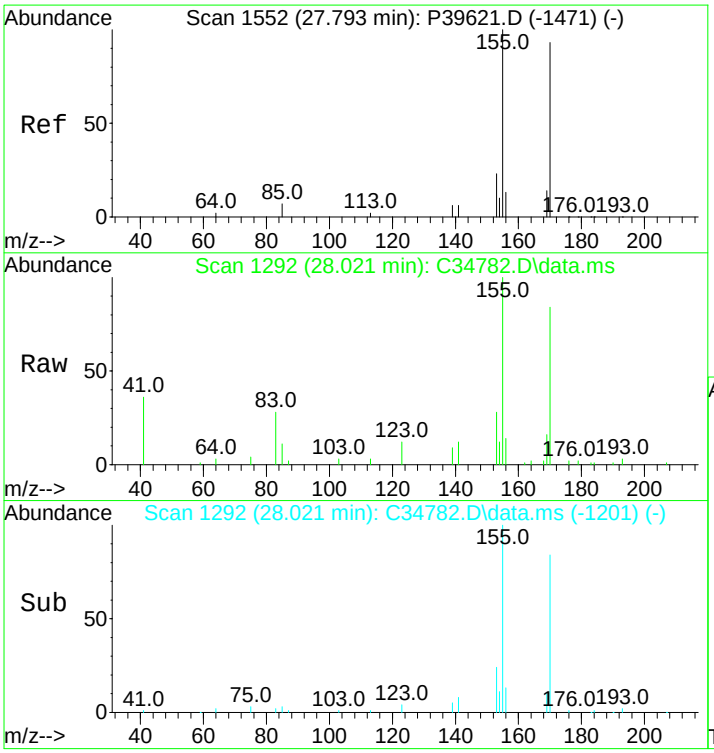


#12
C2-Naphthalenes
Concen: 1715.78 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:156 Resp: 260450

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

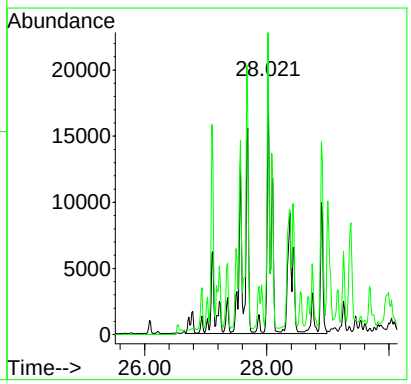


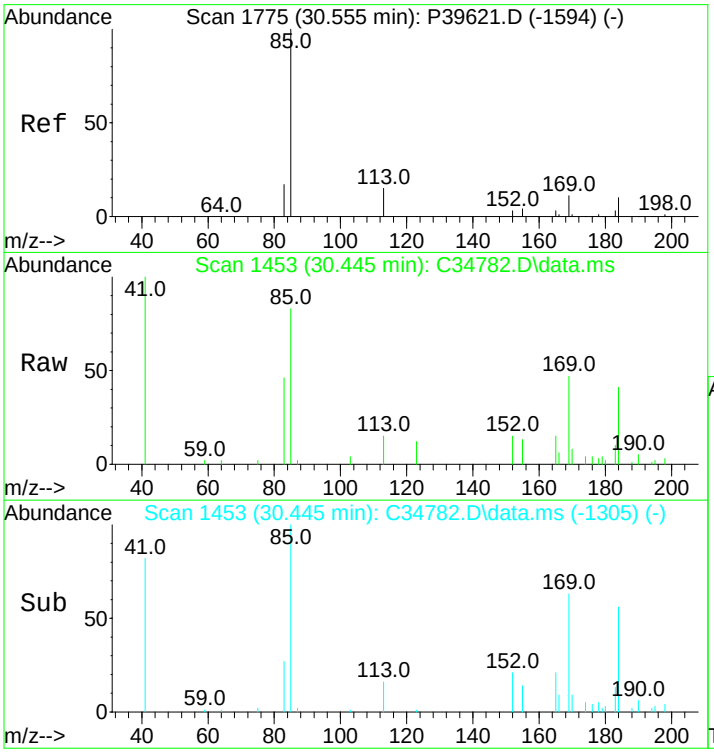


#13
C3-Naphthalenes
Concen: 1993.22 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:170 Resp: 302564

Ion	Ratio	Lower	Upper
170	100		
155	10.7	81.8	122.6#

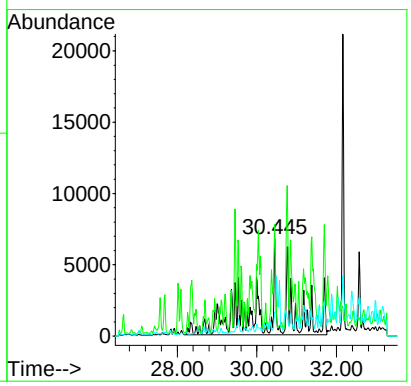


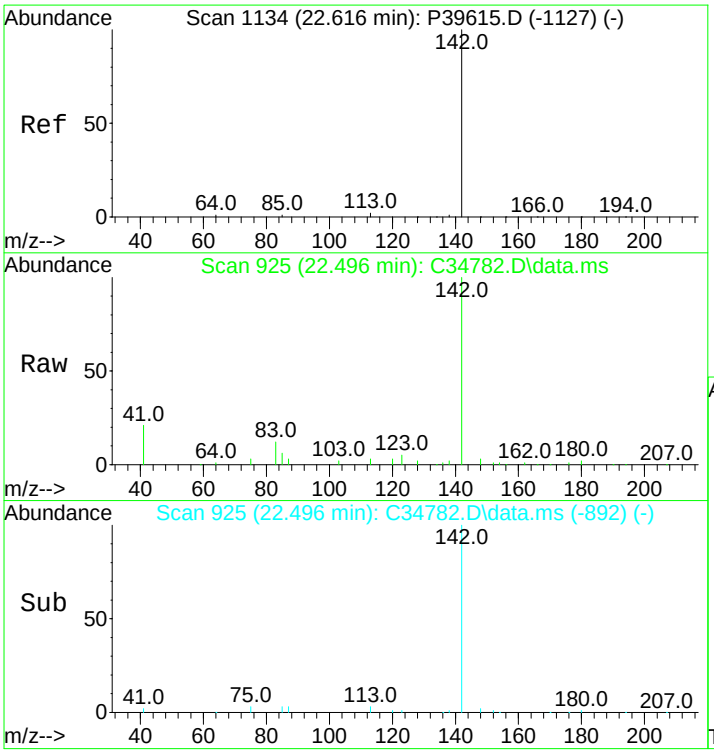


#14
C4-Naphthalenes
Concen: 1502.15 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:184 Resp: 228022

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

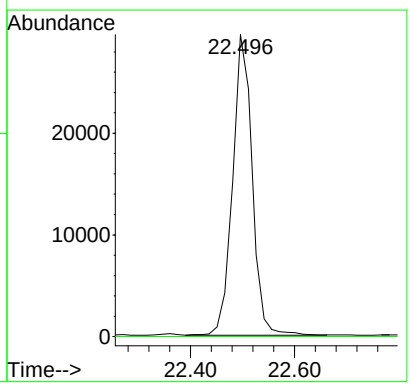


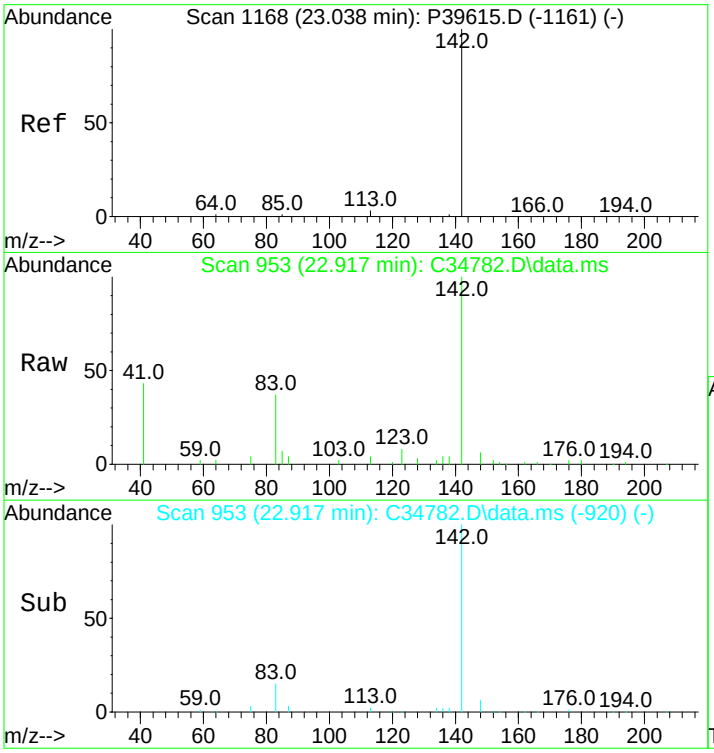


#16
2-Methylnaphthalene
Concen: 858.85 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 77085

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

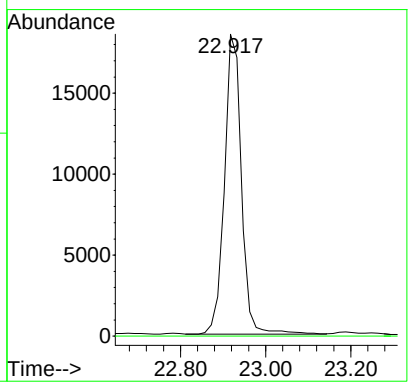


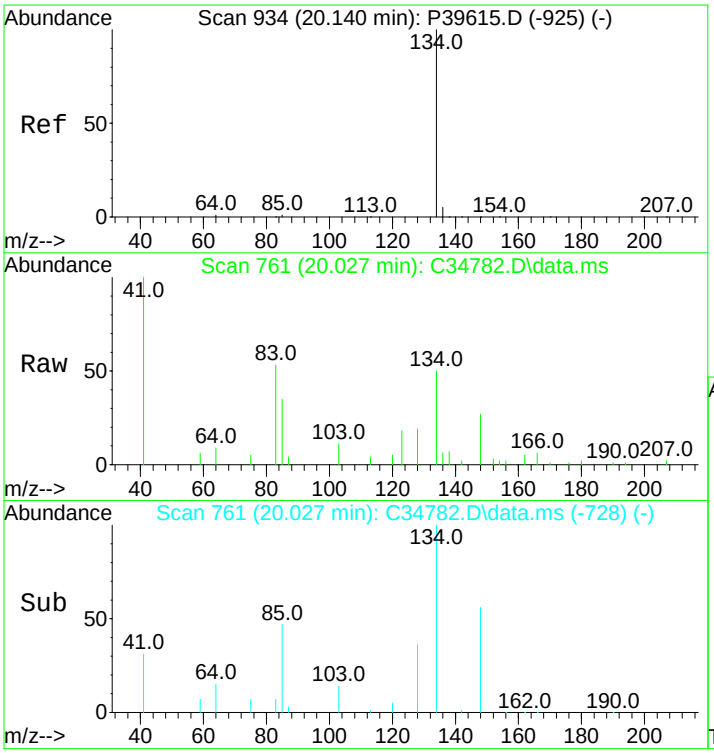


#17
1-Methylnaphthalene
Concen: 585.72 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:142 Resp: 51530

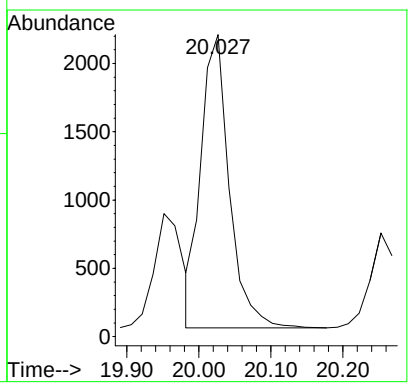
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

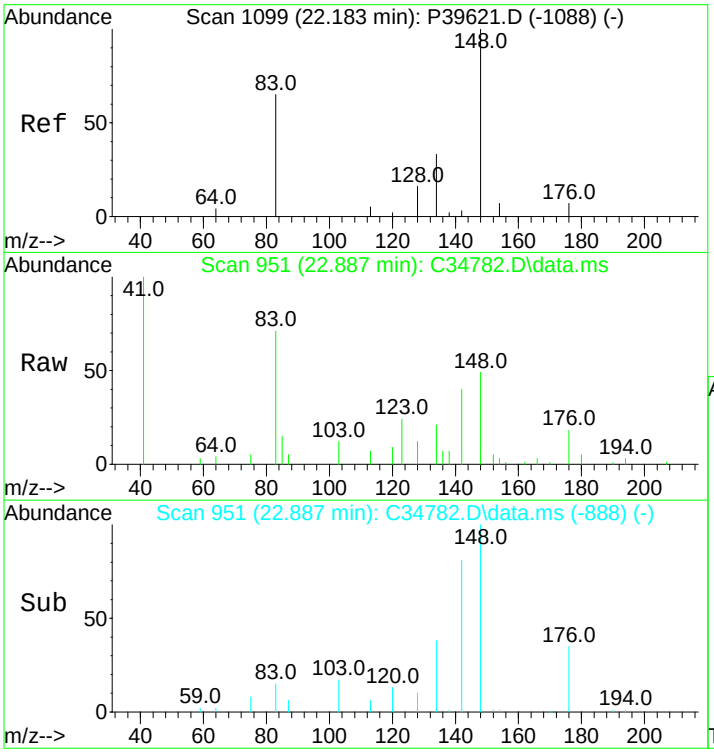




#18
Benzothiophene
Concen: 43.20 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

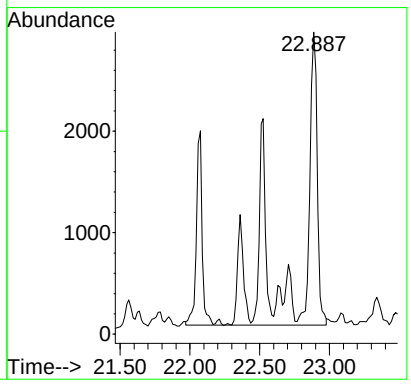
Tgt Ion:134 Resp: 5901

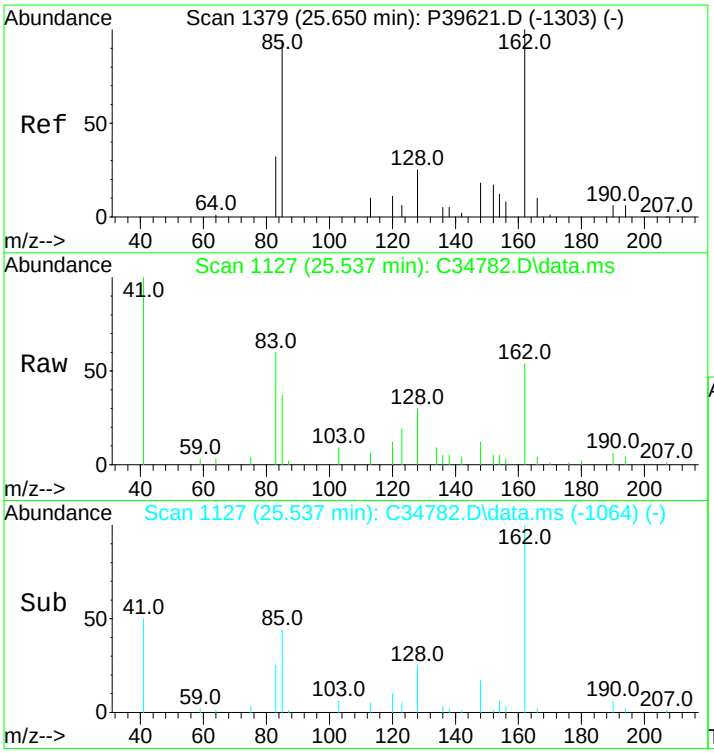




#19
C1-Benzo(b)thiophenes
Concen: 207.09 ng/mL m
RT: 22.887 min Scan# 951
Delta R.T. 0.807 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

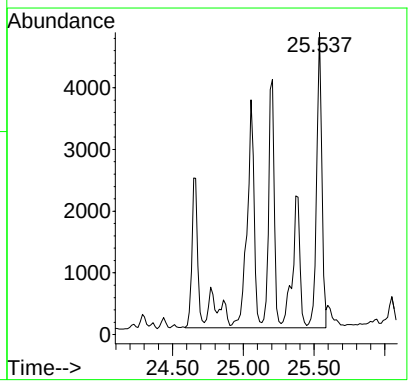
Tgt Ion:148 Resp: 28288

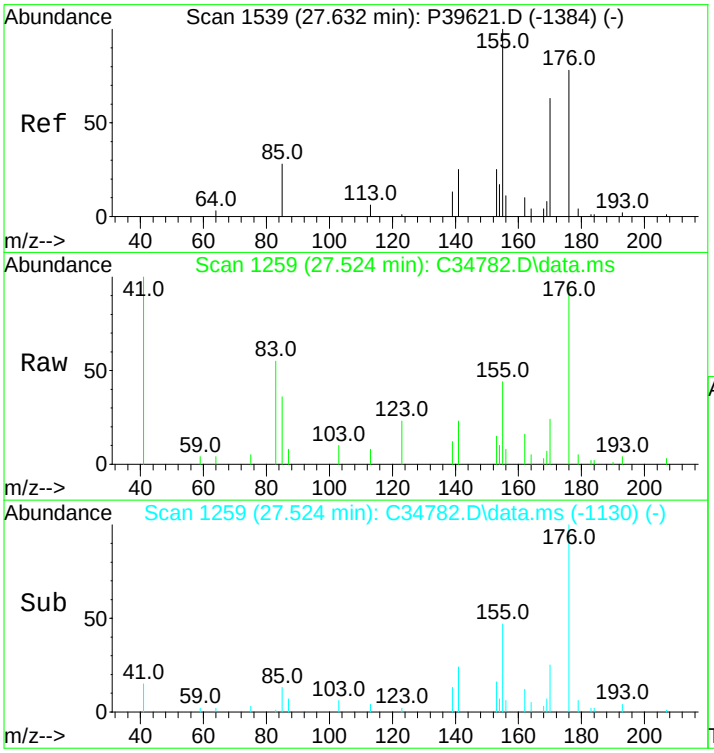




#20
C2-Benzo(b)thiophenes
Concen: 395.56 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

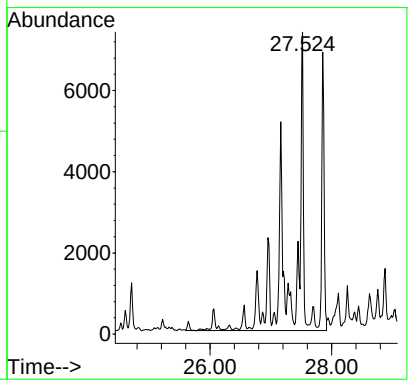
Tgt Ion:162 Resp: 54033

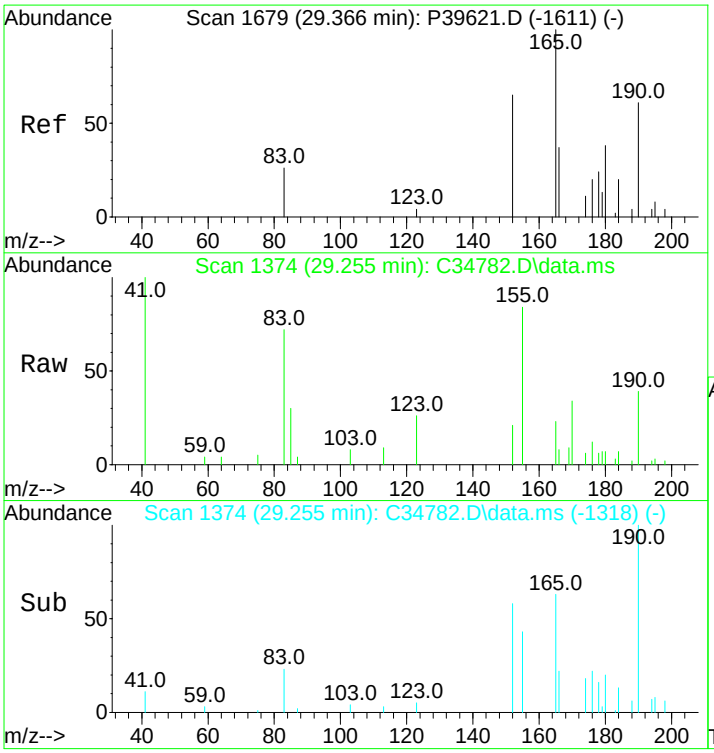




#21
C3-Benzo(b)thiophenes
Concen: 646.99 ng/mL m
RT: 27.524 min Scan# 1259
Delta R.T. 0.019 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

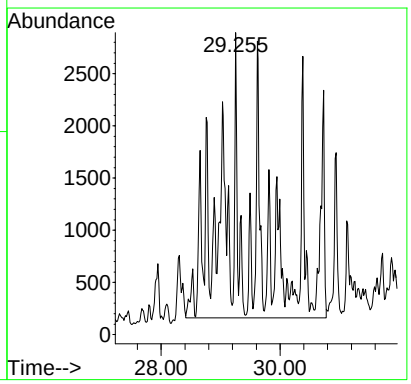
Tgt Ion:176 Resp: 88377

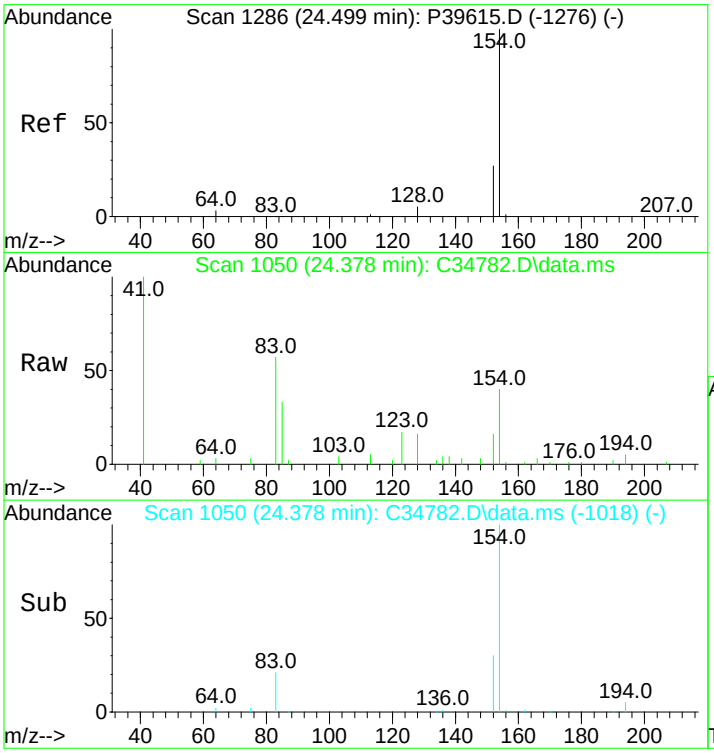




#22
C4-Benzo(b)thiophenes
Concen: 648.71 ng/mL m
RT: 29.255 min Scan# 1374
Delta R.T. 0.026 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:190 Resp: 88613

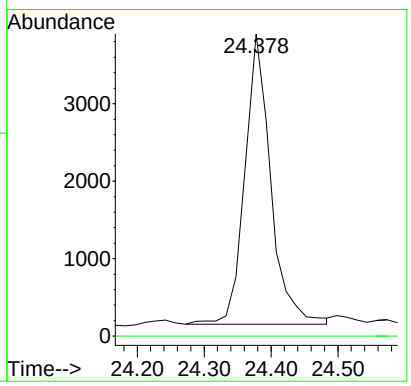


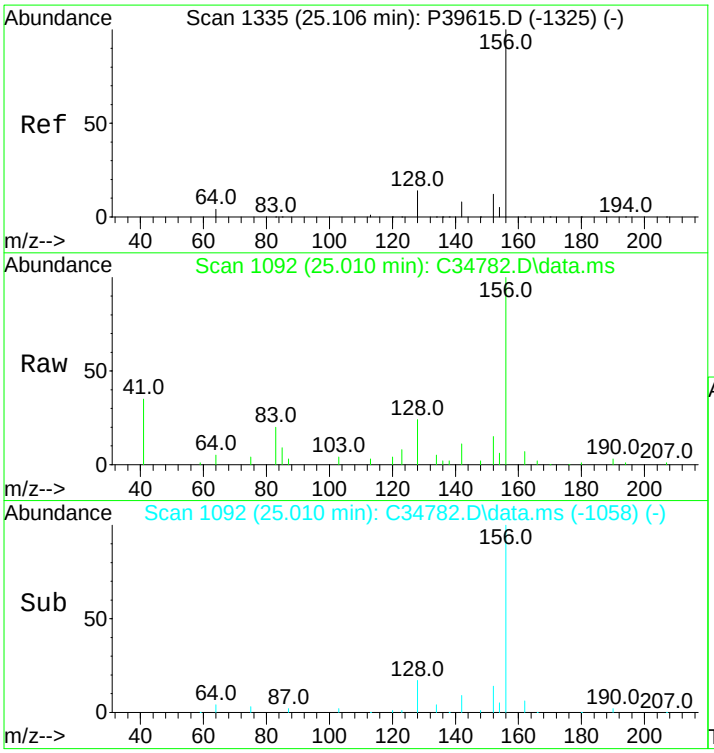


#23
Biphenyl
Concen: 89.63 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:154 Resp: 10176

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

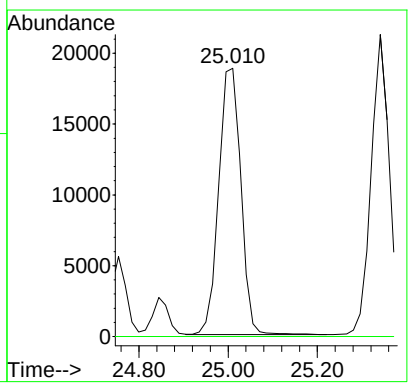


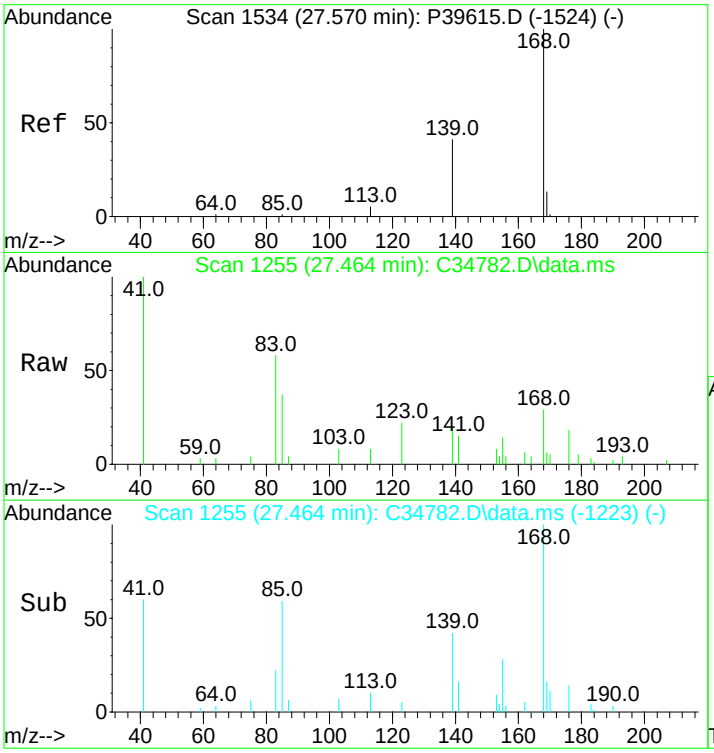


#24
2,6-Dimethylnaphthalene
Concen: 877.38 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:156 Resp: 64699

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

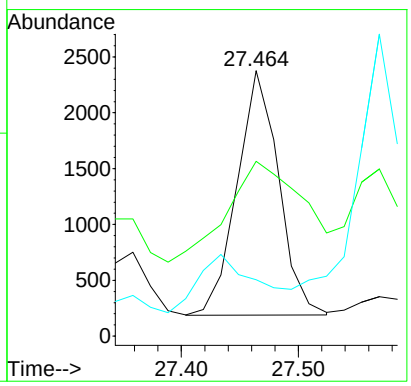


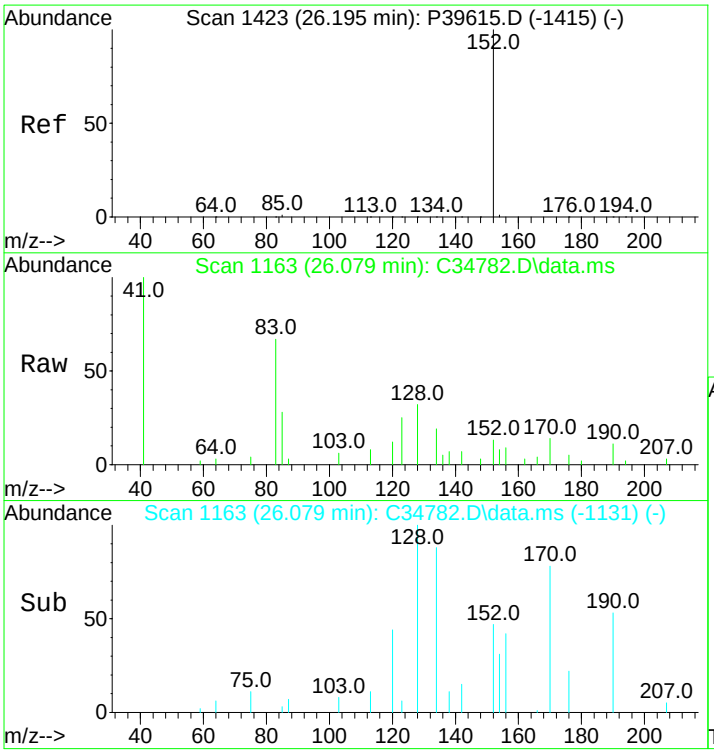


#25
Dibenzofuran
Concen: 41.45 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:168 Resp: 5404

Ion	Ratio	Lower	Upper
168	100		
139	74.0	28.4	42.6#
169	0.0	10.8	16.2#

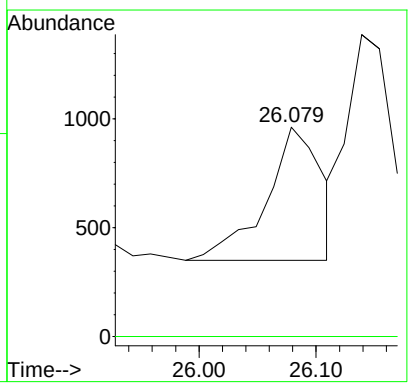


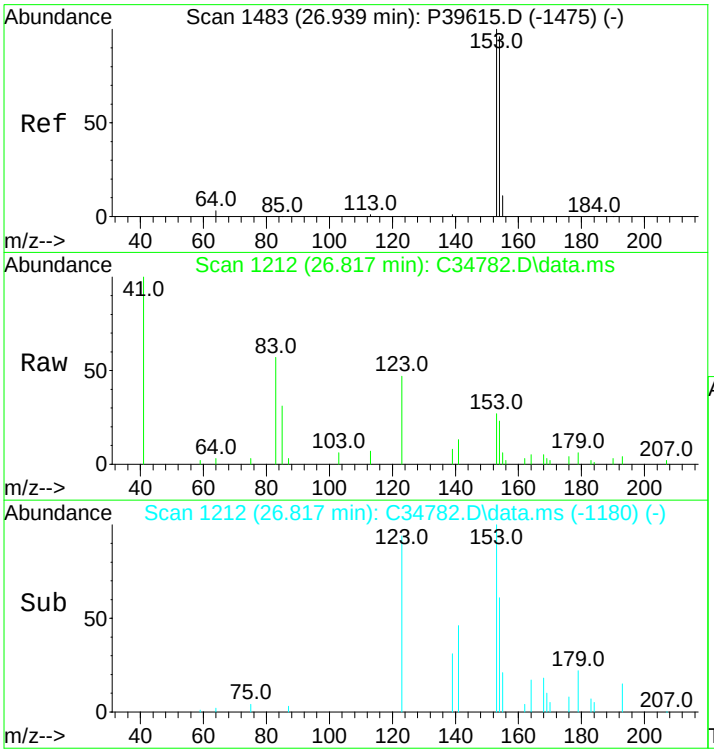


#26
Acenaphthylene
Concen: 13.41 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:152 Resp: 2021

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

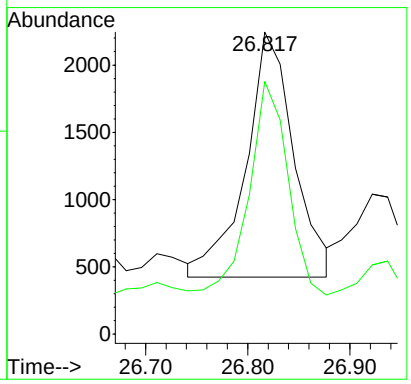


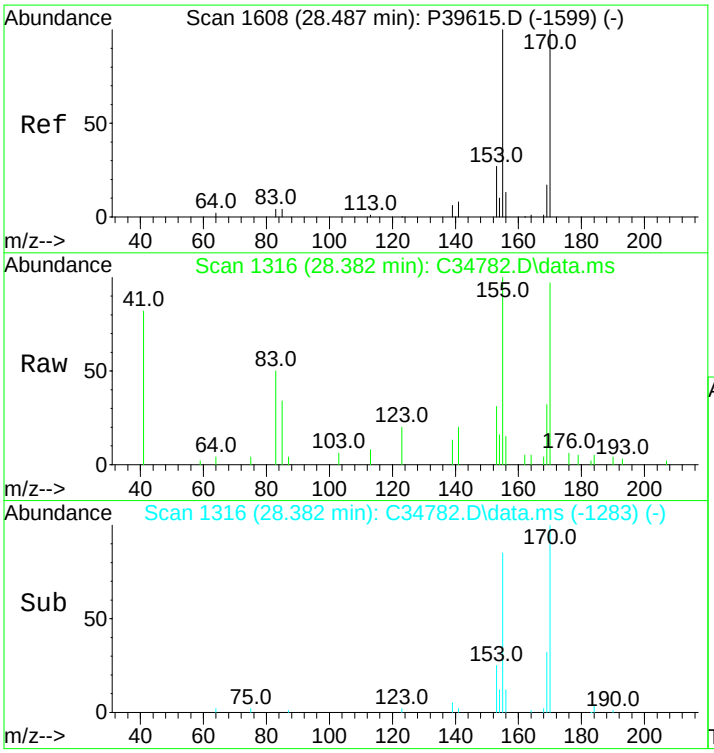


#27
Acenaphthene
Concen: 67.03 ng/mL m
RT: 26.817 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:153 Resp: 5947

Ion	Ratio	Lower	Upper
153	100		
154	73.3	73.6	110.4#

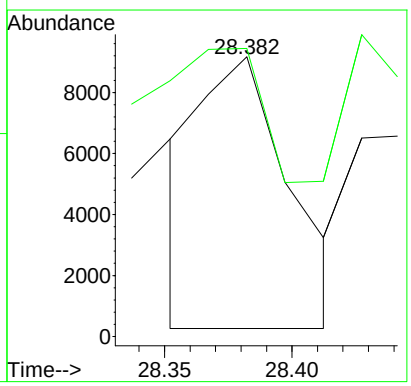


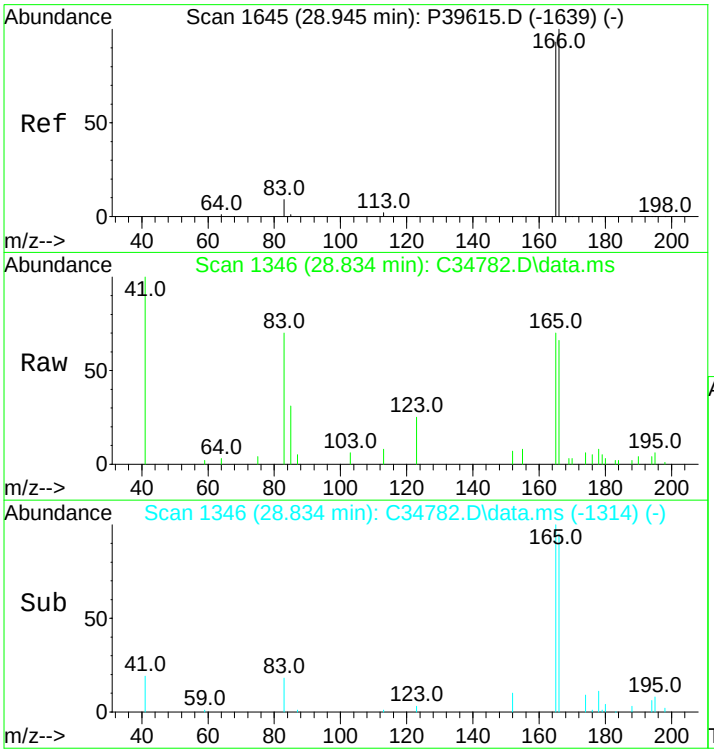


#28
2,3,5-Trimethylnaphthalene
Concen: 370.36 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:170 Resp: 22016

Ion	Ratio	Lower	Upper
170	100		
155	173.3	87.3	130.9#

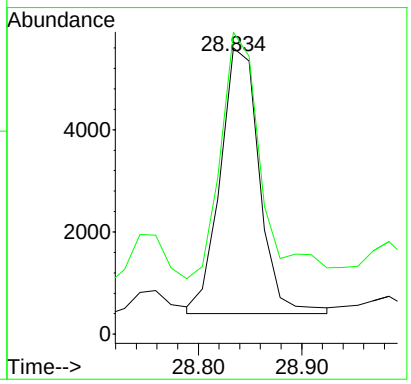


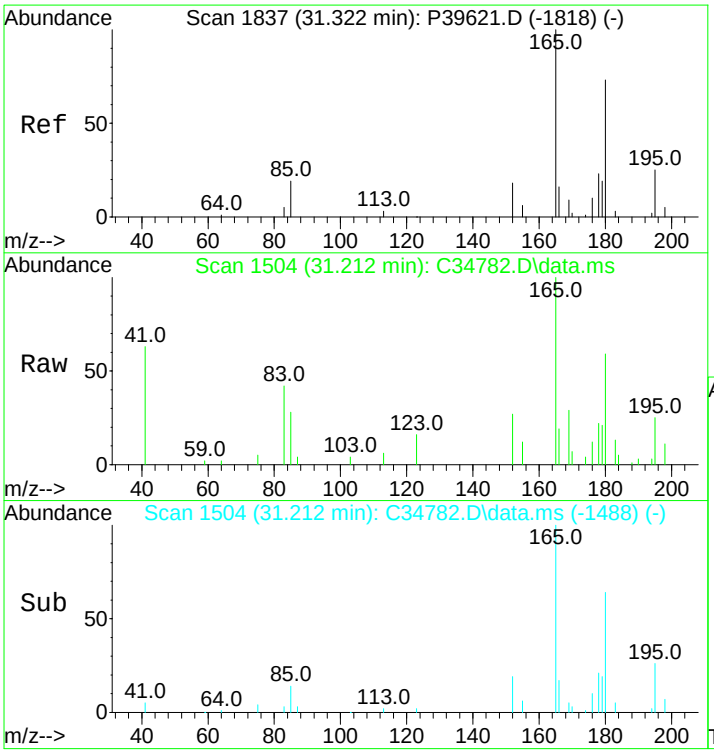


#29
Fluorene
Concen: 140.19 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:166 Resp: 13718

Ion	Ratio	Lower	Upper
166	100		
165	145.8	77.3	115.9#

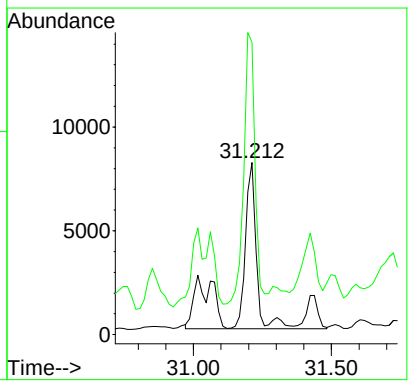


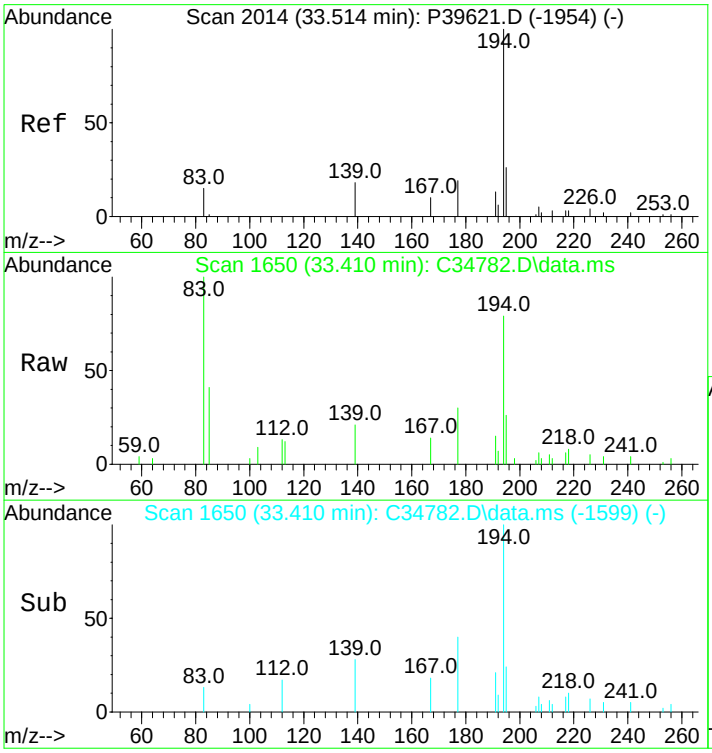


#30
C1-Fluorenes
Concen: 390.70 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:180 Resp: 38230

Ion	Ratio	Lower	Upper
180	100		
165	96.1	111.4	167.2#

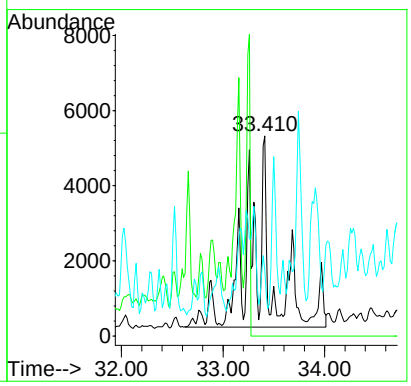


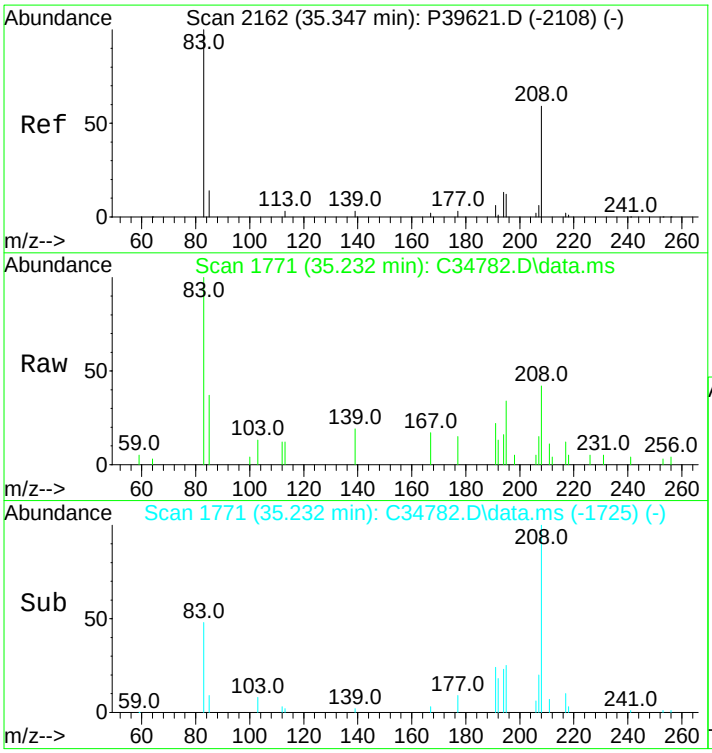


#31
C2-Fluorenes
Concen: 751.13 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:194 Resp: 73499

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	8.9	27.3	40.9#

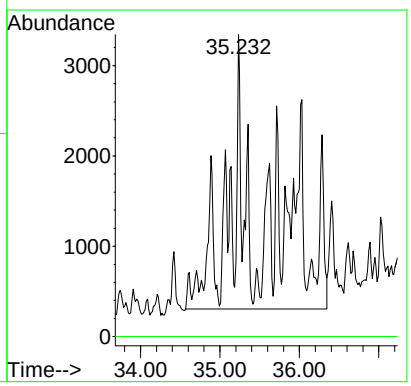


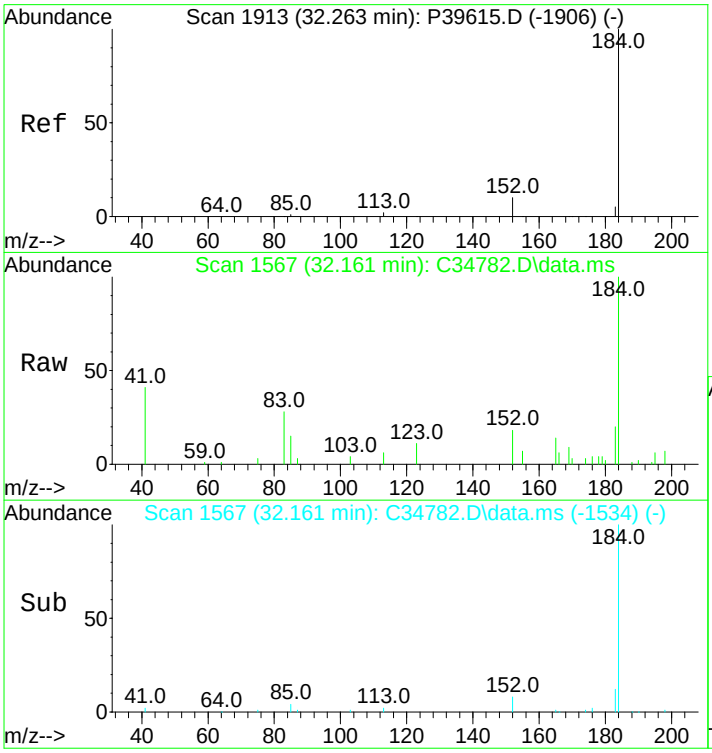


#32
C3-Fluorenes
Concen: 857.77 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:208 Resp: 83934

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

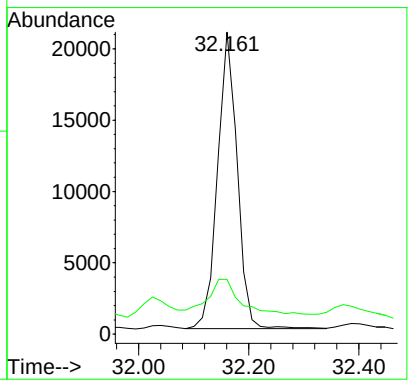


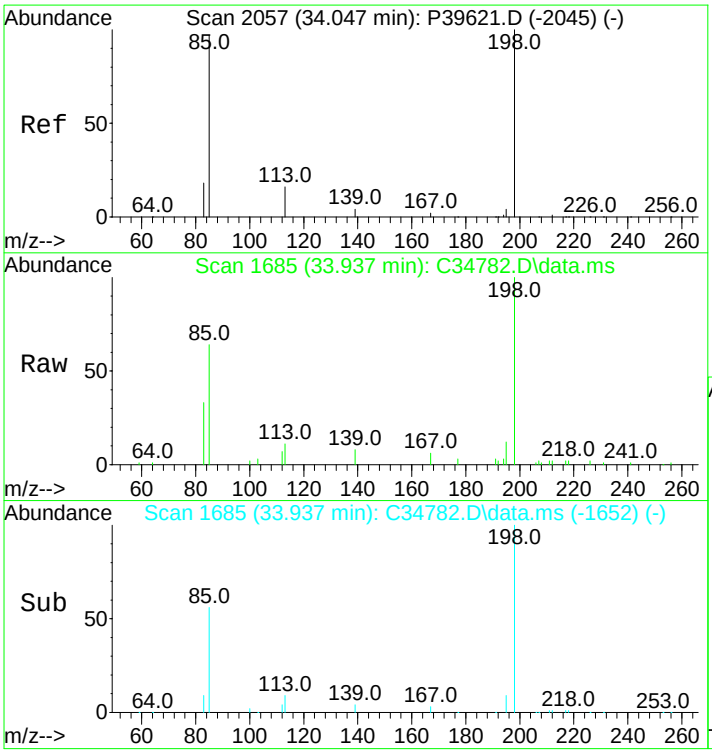


#33
Dibenzothiophene
Concen: 329.38 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:184 Resp: 51665

Ion	Ratio	Lower	Upper
184	100		
152	18.8	7.5	11.3#

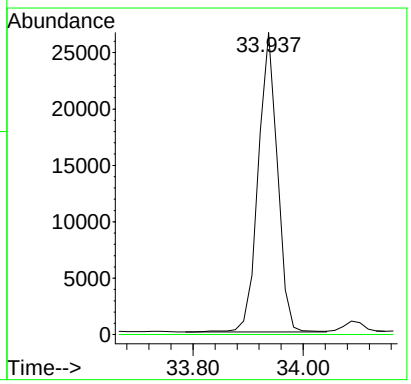


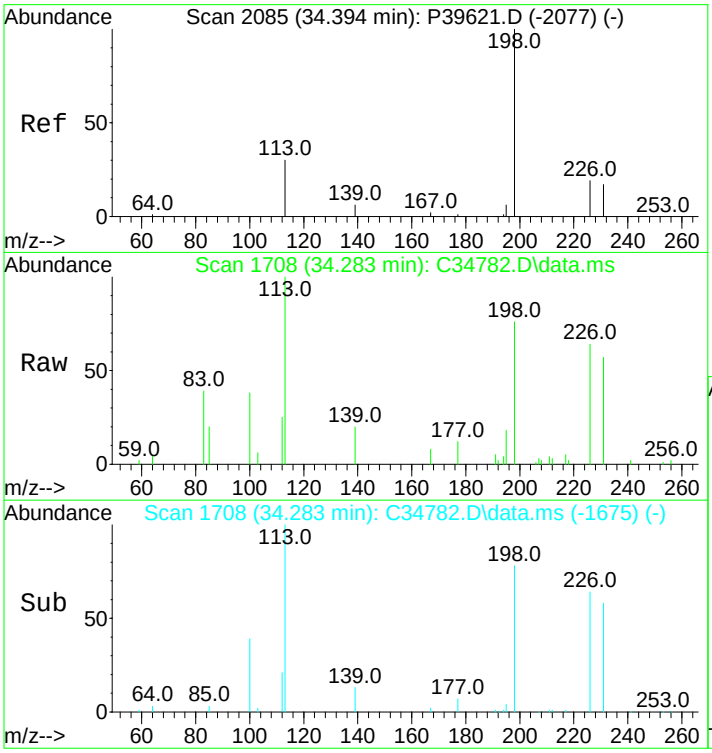


#34
4-Methyldibenzothiophene(4MDT)
Concen: 408.58 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 64088

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

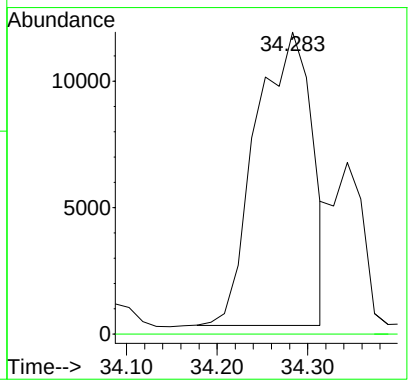


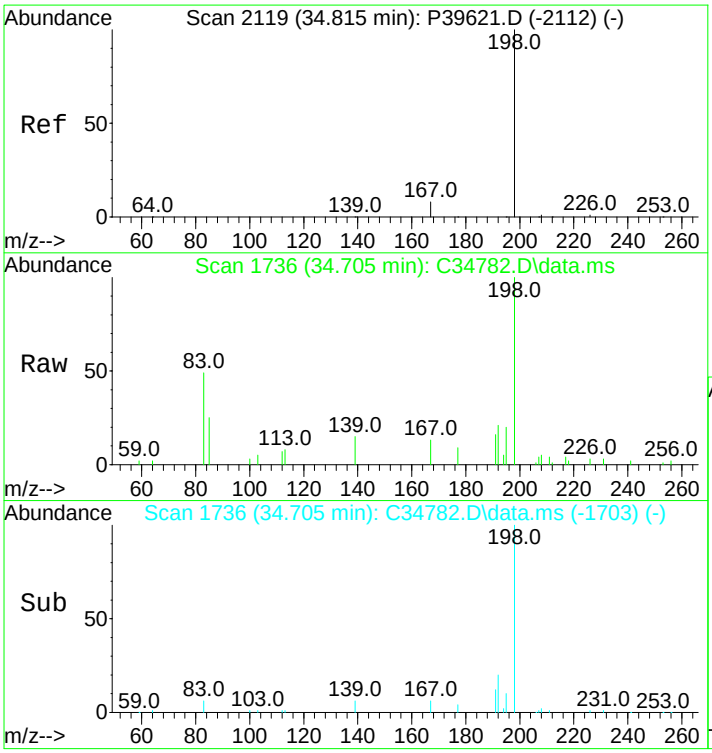


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 322.39 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 50568

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

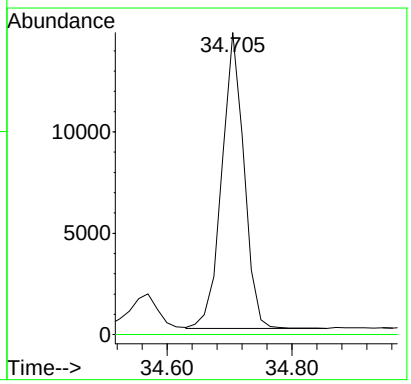


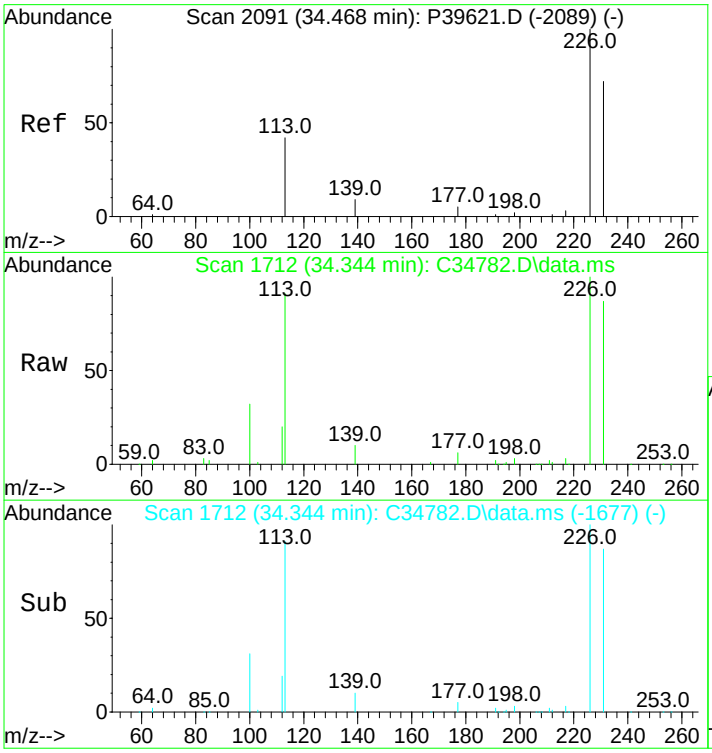


#36
1-Methyldibenzothiophene(1MDT)
Concen: 228.98 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 35916

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

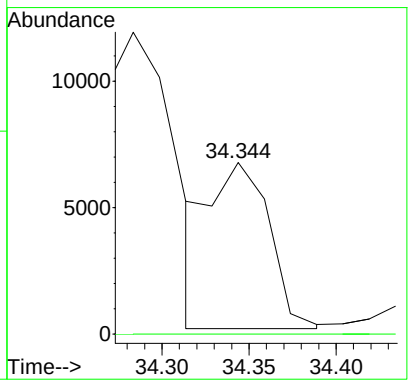


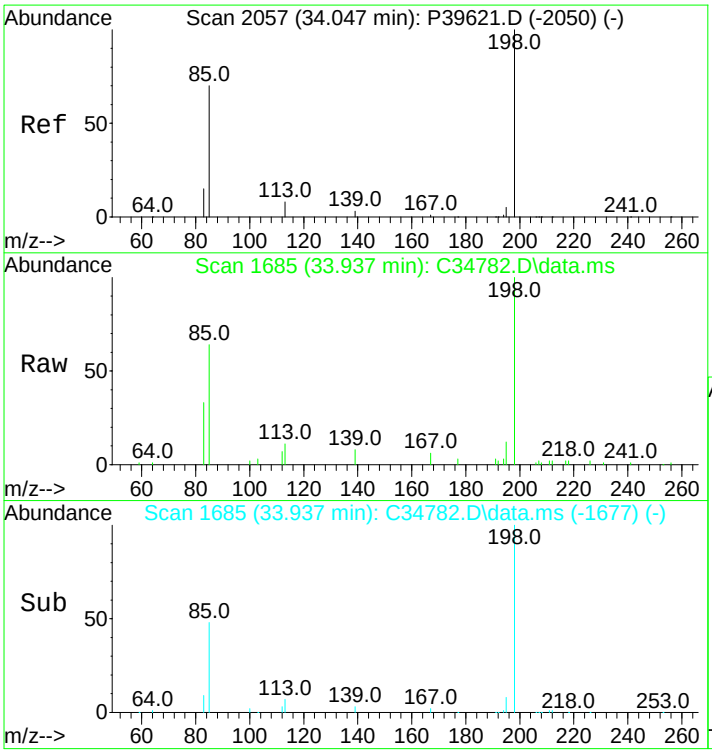


#37
OTP
Concen: 99.53 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 15611

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

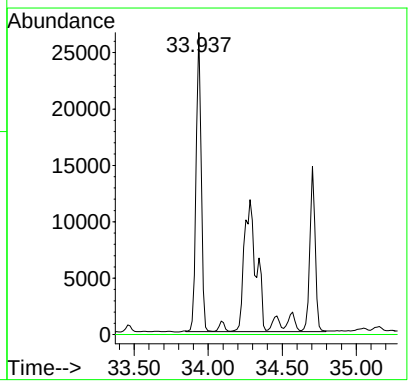


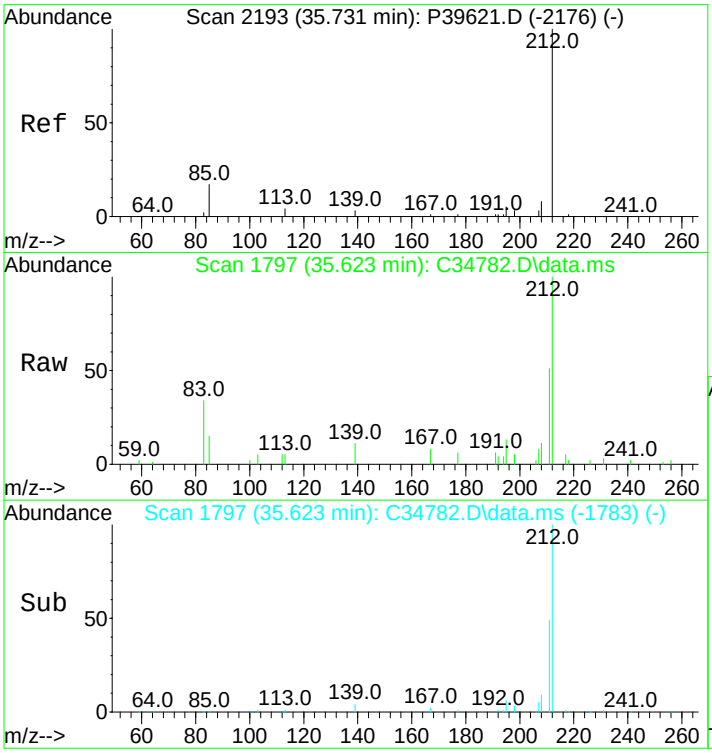


#38
C1-Dibenzothiophenes
Concen: 1140.96 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:198 Resp: 178964

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

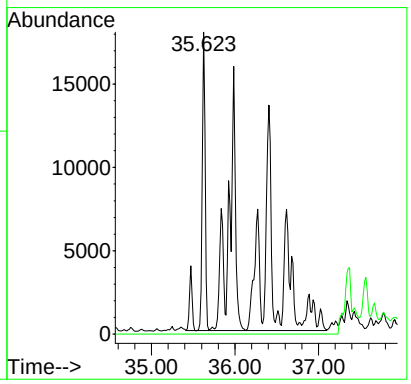


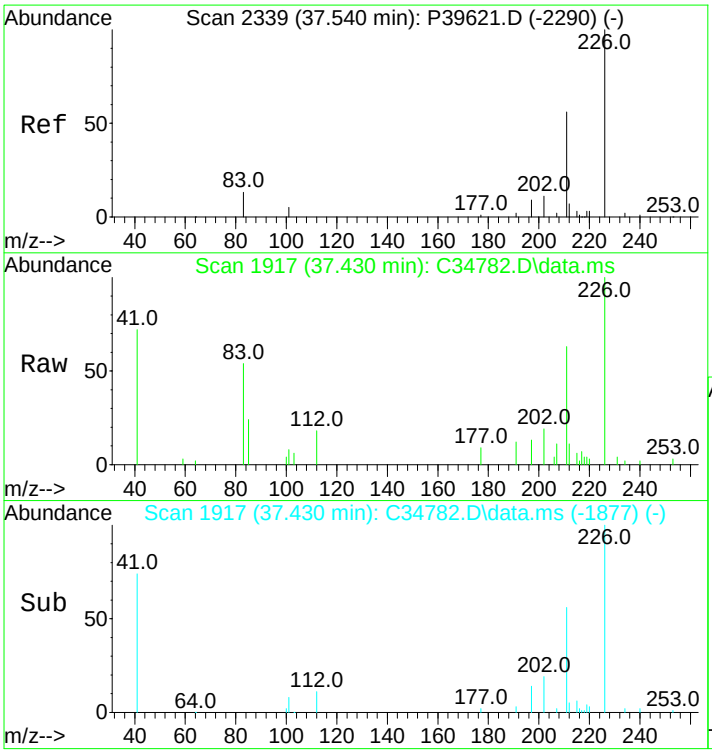


#39
C2-Dibenzothiophenes
Concen: 1771.24 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:212 Resp: 277827

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

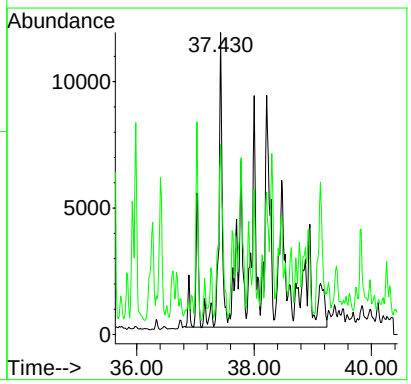


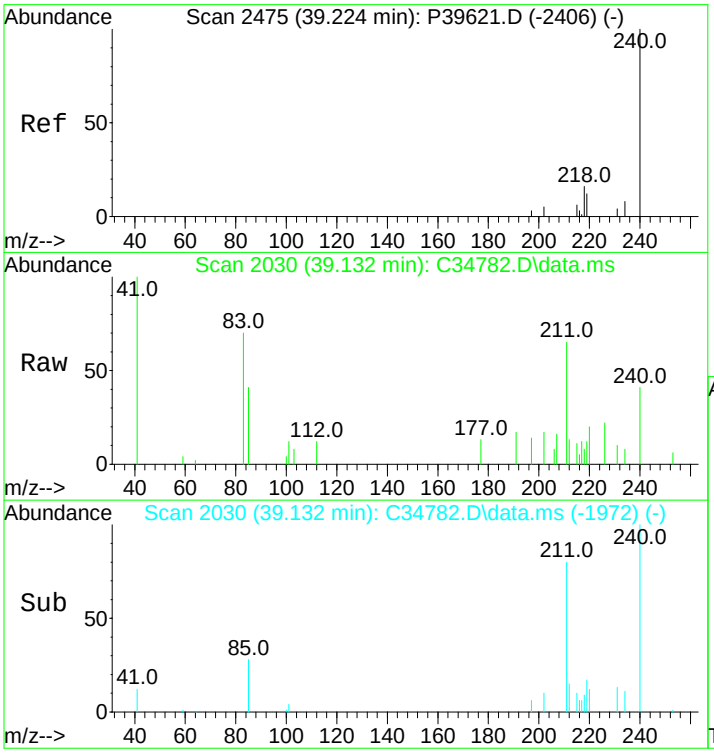


#40
C3-Dibenzothiophenes
Concen: 1856.67 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:226 Resp: 291226

Ion	Ratio	Lower	Upper
226	100		
211	12.3	45.0	67.6#

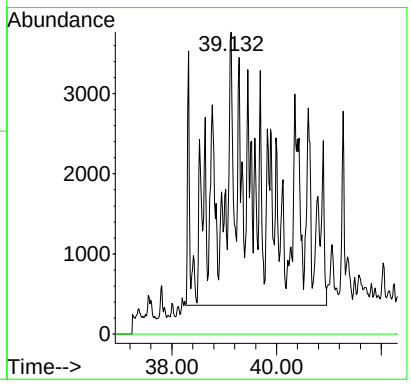


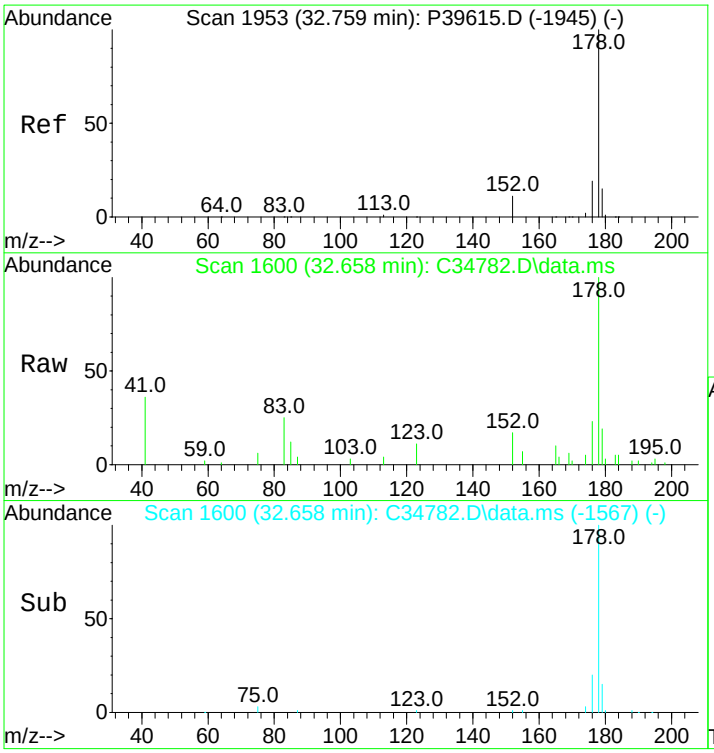


#41
C4-Dibenzothiophenes
Concen: 1265.72 ng/mL m
RT: 39.132 min Scan# 2030
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:240 Resp: 198533

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

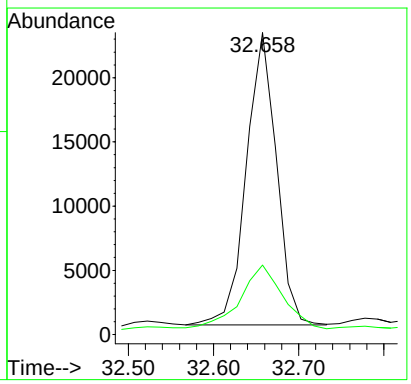


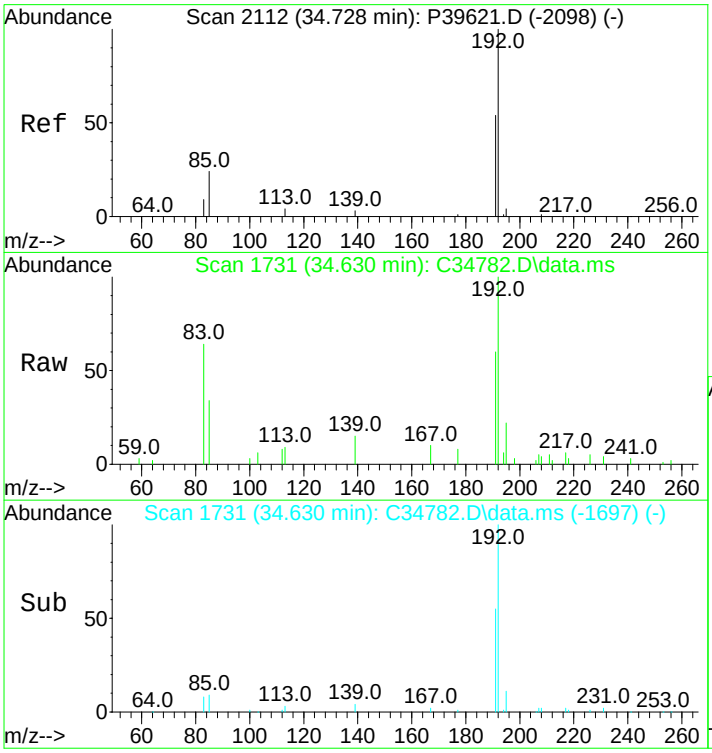


#43
Phenanthrene
Concen: 407.12 ng/mL
RT: 32.658 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:178 Resp: 56105

Ion	Ratio	Lower	Upper
178	100		
176	30.1	16.1	24.1#

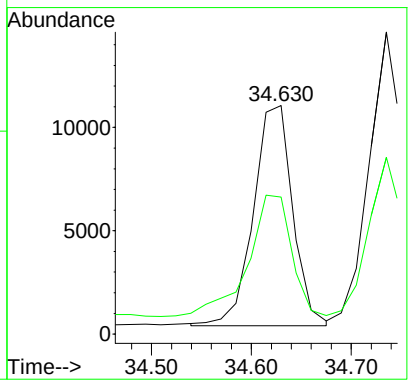


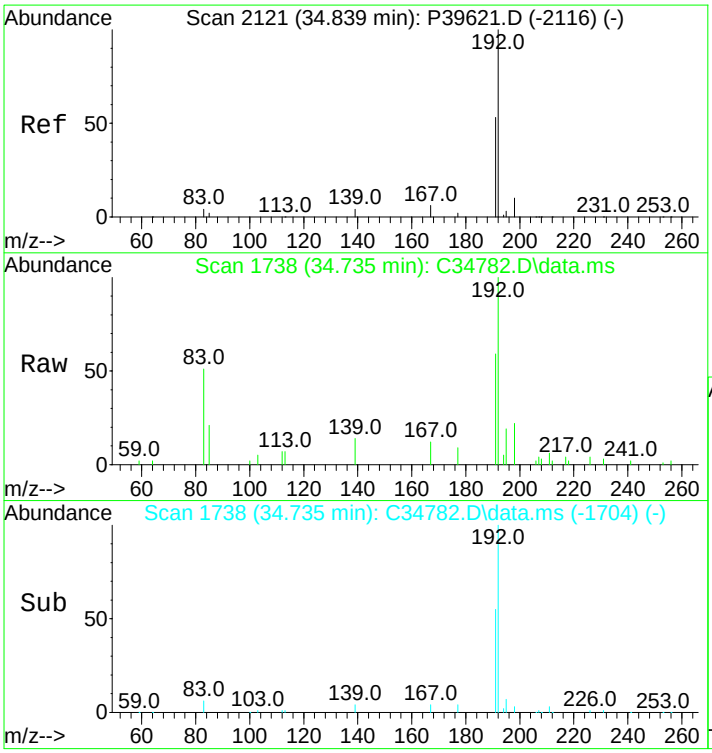


#44
3-Methylphenanthrene(3MP)
Concen: 211.67 ng/mL m
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29170

Ion	Ratio	Lower	Upper
192	100		
191	67.2	46.9	70.3

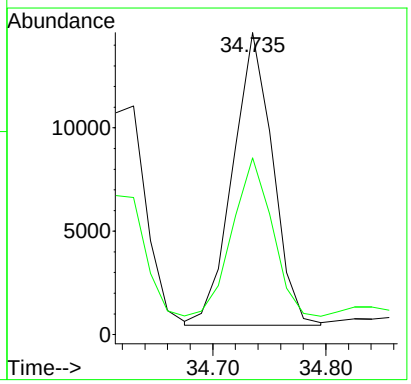


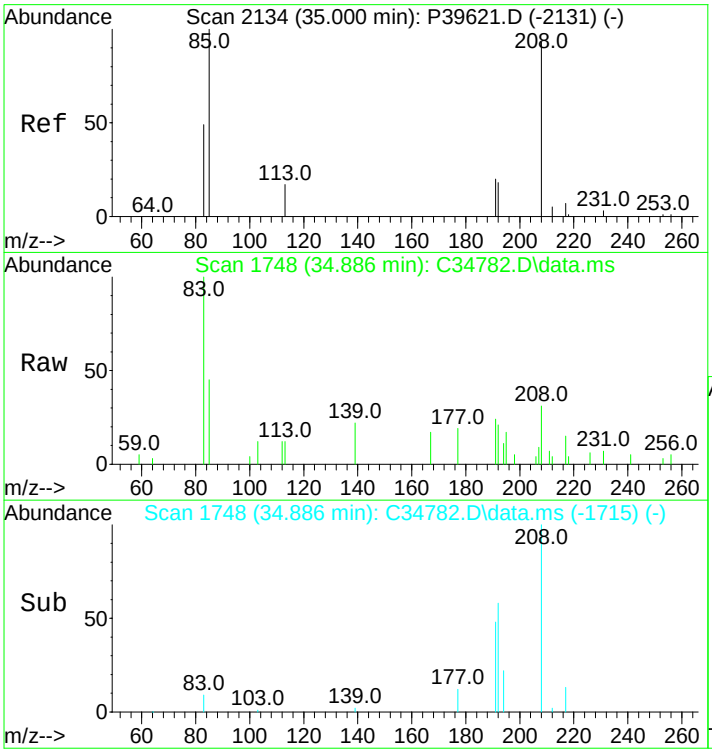


#45
2/4-Methylphenanthrene(2MP)
Concen: 252.62 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 34814

Ion	Ratio	Lower	Upper
192	100		
191	53.7	46.1	69.1

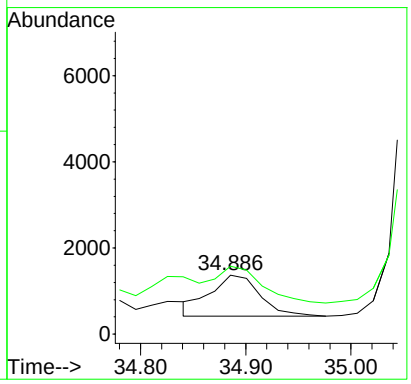


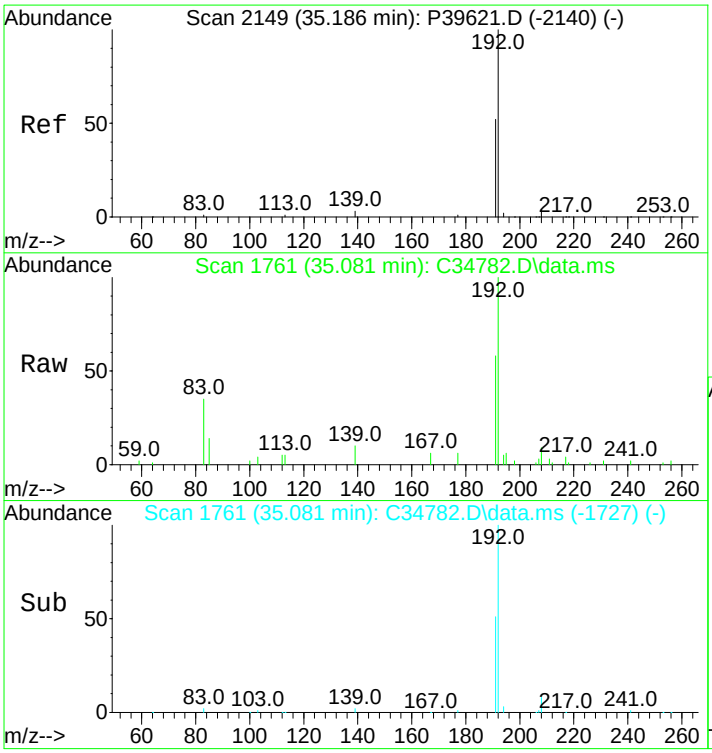


#46
2-Methylanthracene(2MA)
Concen: 22.85 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 3149

Ion	Ratio	Lower	Upper
192	100		
191	83.3	93.4	140.0#

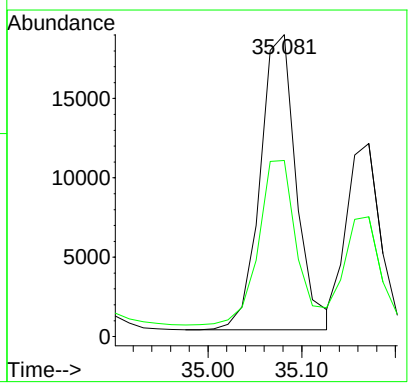


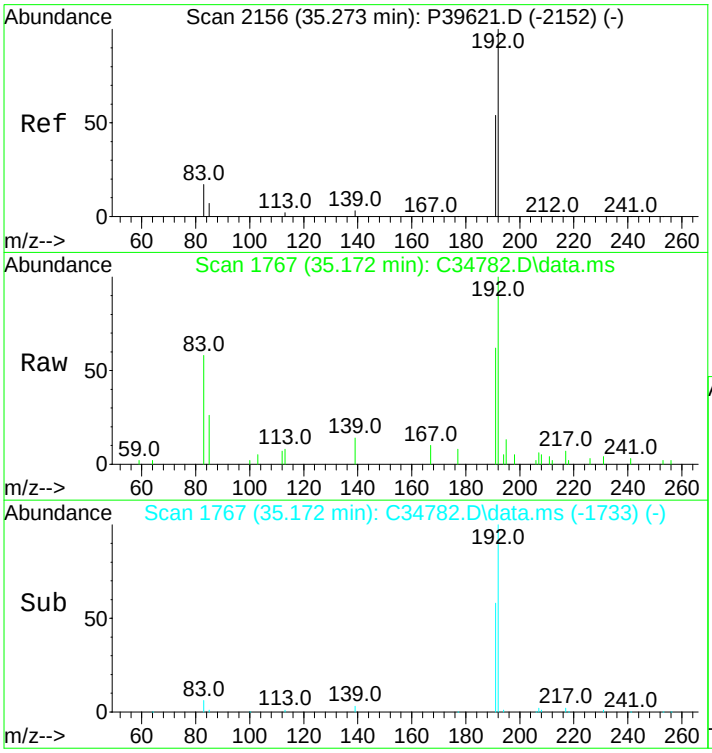


#47
9-Methylphenanthrene(9MP)
Concen: 363.11 ng/mL
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 50040

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.9	68.9

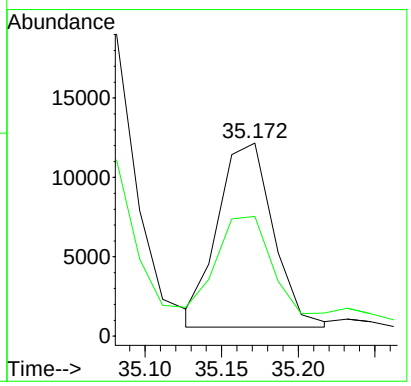


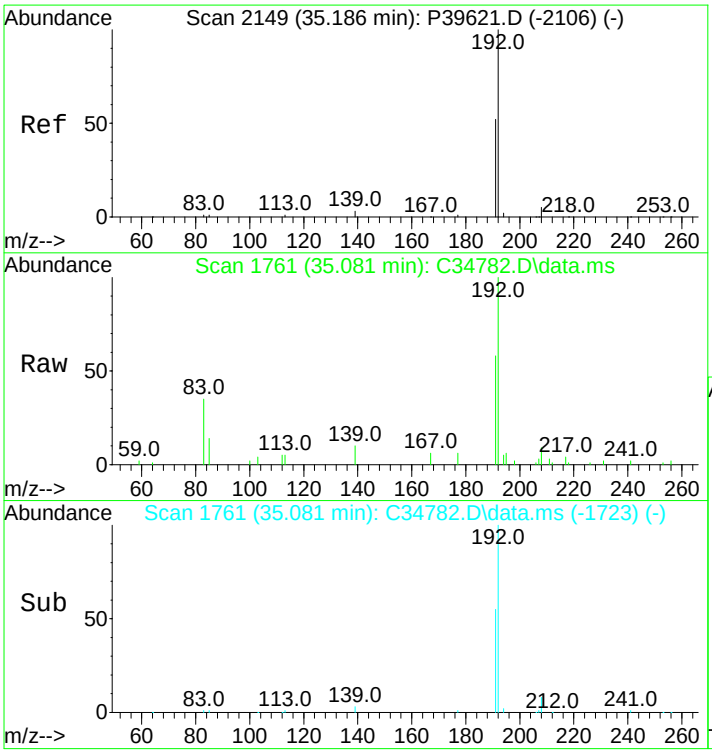


#48
1-Methylphenanthrene(1MP)
Concen: 211.44 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29139

Ion	Ratio	Lower	Upper
192	100		
191	55.1	49.0	73.4

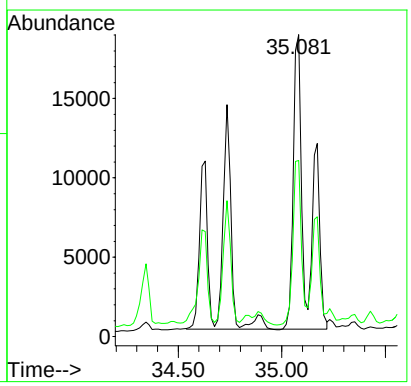


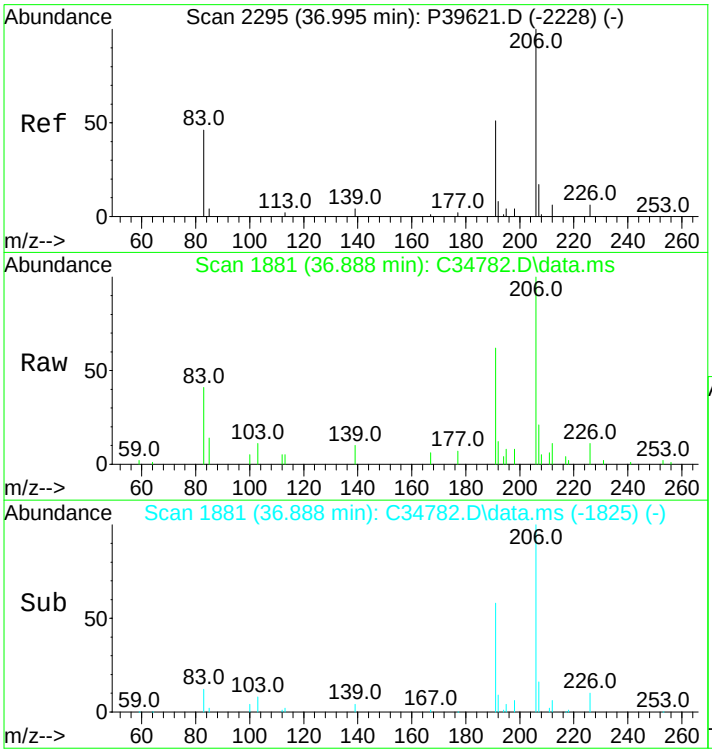


#49
C1-Phenanthrenes/Anthracenes
Concen: 1060.35 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.068 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 146127

Ion	Ratio	Lower	Upper
192	100		
191	20.3	44.2	66.2#

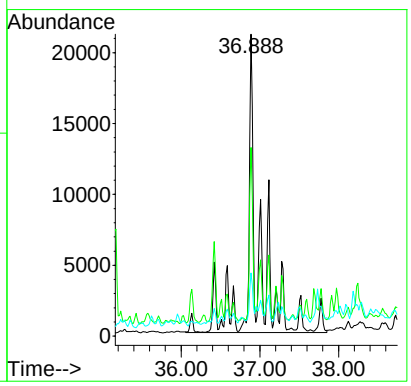


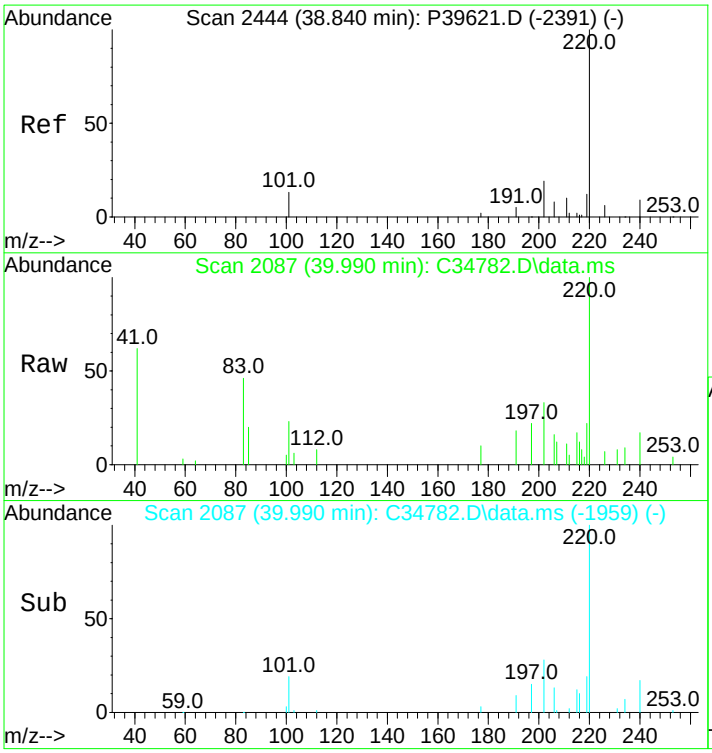


#50
C2-Phenanthrenes/Anthracenes
Concen: 1407.40 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:206 Resp: 193953

Ion	Ratio	Lower	Upper
206	100		
191	17.5	44.0	66.0#
207	4.8	15.1	22.7#

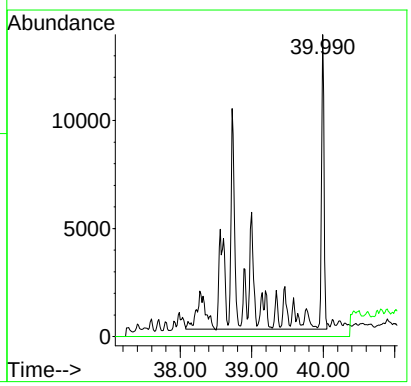


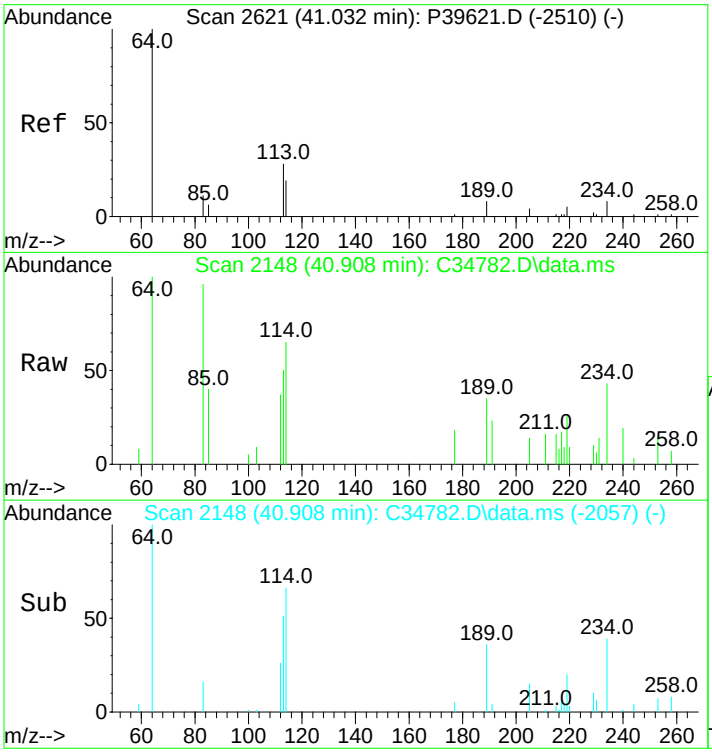


#52
C3-Phenanthrenes/Anthracenes
Concen: 1202.32 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:220 Resp: 165692

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

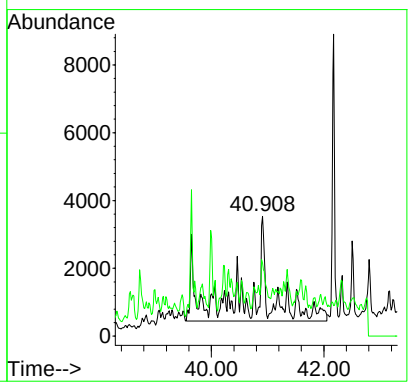


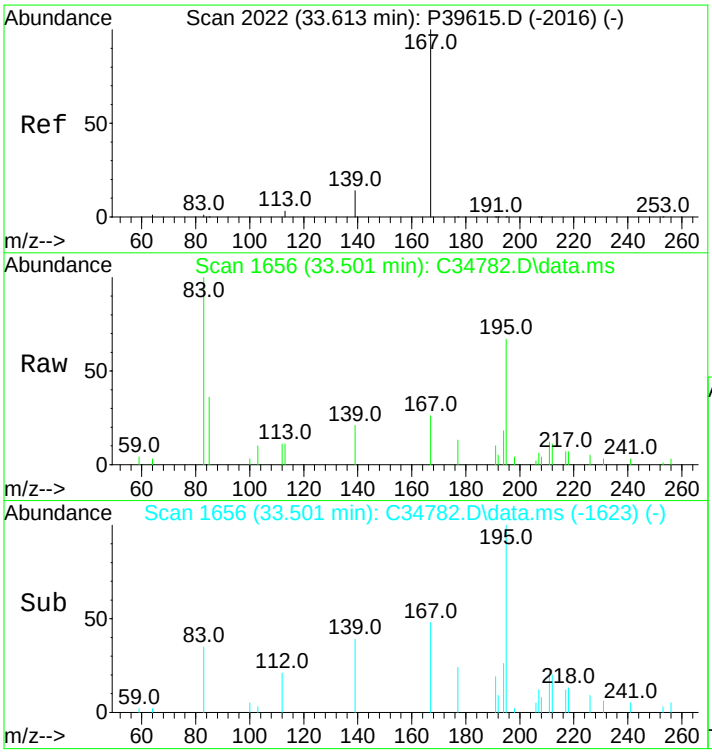


#53
C4-Phenanthrenes/Anthracenes
Concen: 588.97 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 81166

Ion	Ratio	Lower	Upper
234	100		
219	3.0	46.9	70.3#

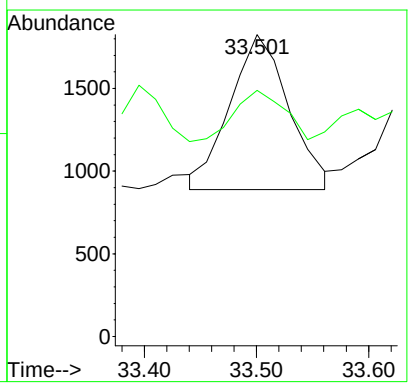


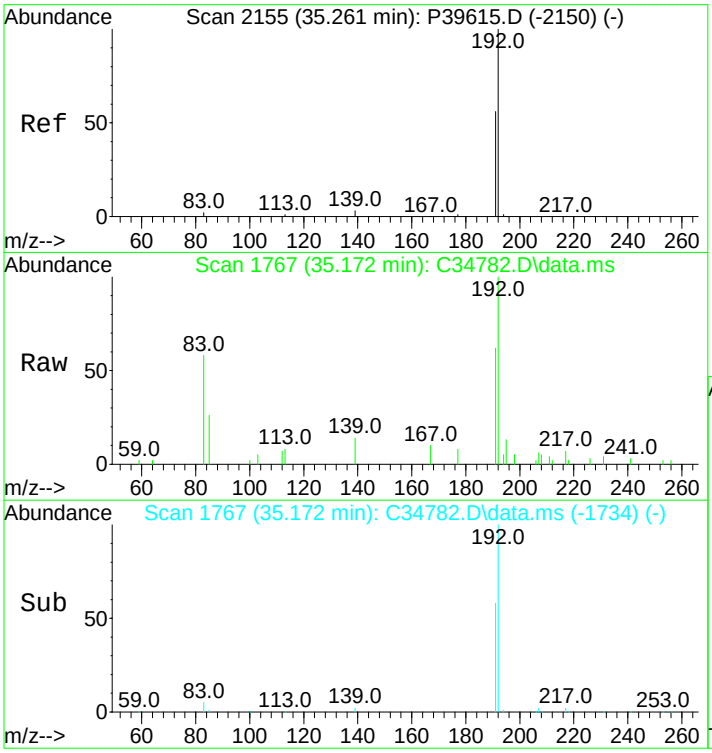


#56
Carbazole
Concen: 25.13 ng/mL m
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:167 Resp: 3417

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

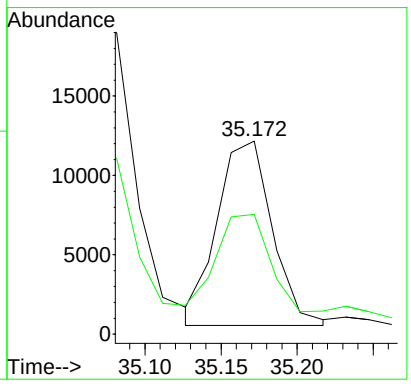


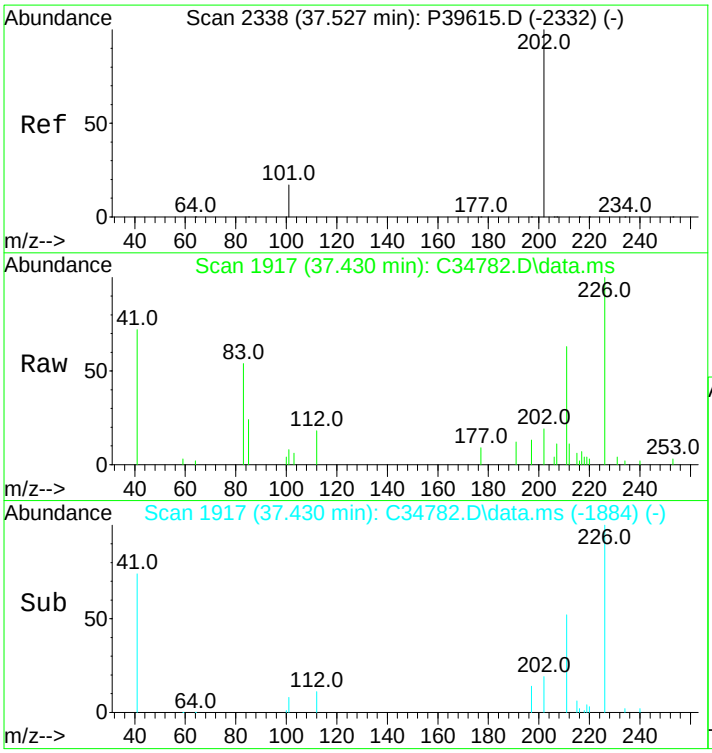


#57
1-Methylphenanthrene
Concen: 335.20 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:192 Resp: 29274

Ion	Ratio	Lower	Upper
192	100		
191	57.2	45.9	68.9

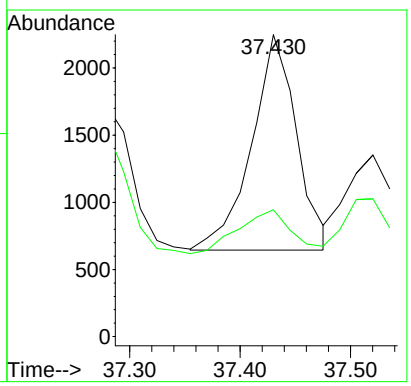


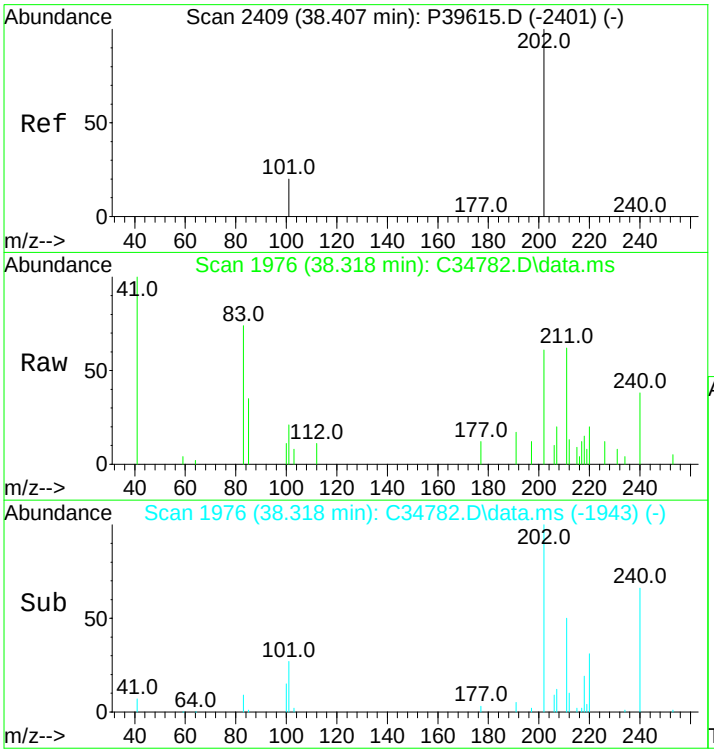


#58
Fluoranthene
Concen: 33.22 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:202 Resp: 4547

Ion	Ratio	Lower	Upper
202	100		
101	49.4	12.9	19.3#

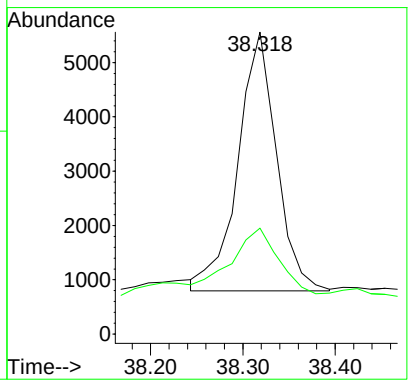


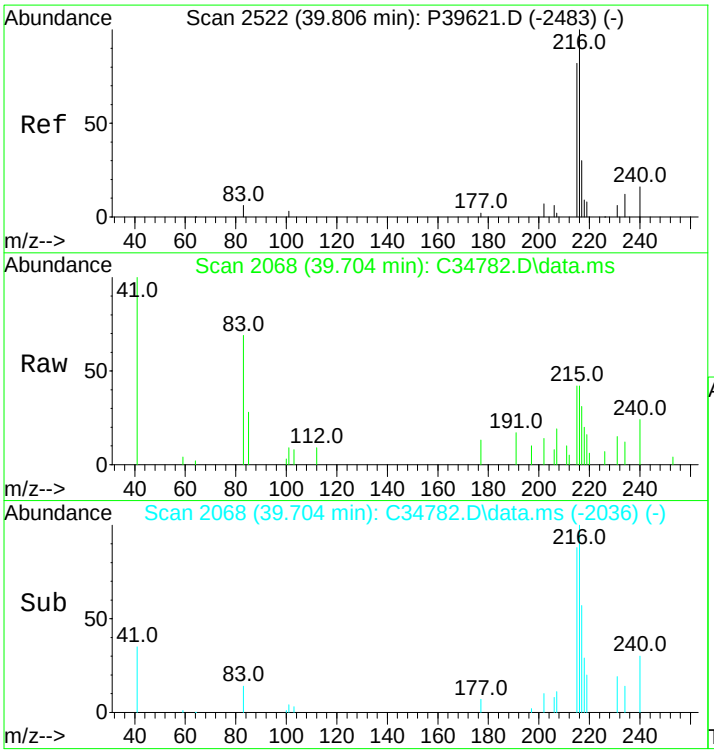


#60
Pyrene
Concen: 99.09 ng/mL m
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:202 Resp: 13787

Ion	Ratio	Lower	Upper
202	100		
101	41.1	15.0	22.4#

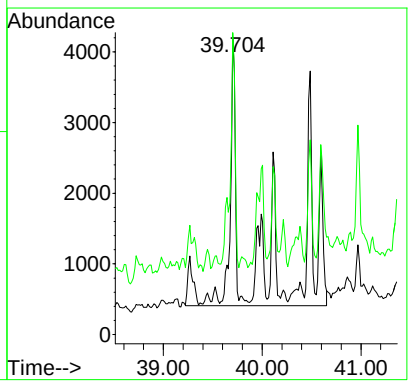


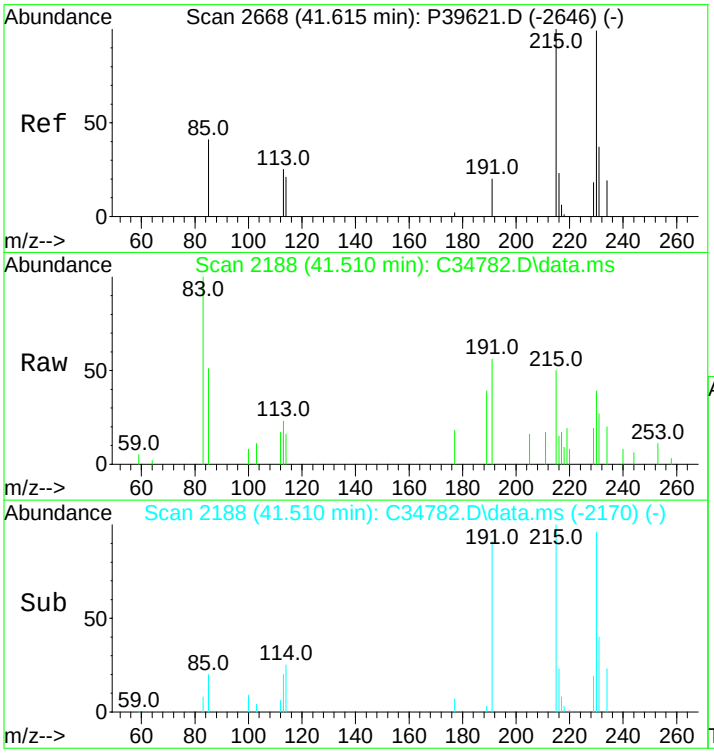


#61
C1-Fluoranthenes/Pyrenes
Concen: 334.69 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:216 Resp: 46566

Ion	Ratio	Lower	Upper
216	100		
215	25.6	71.8	107.6#

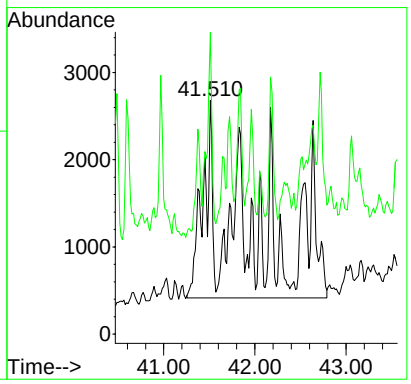


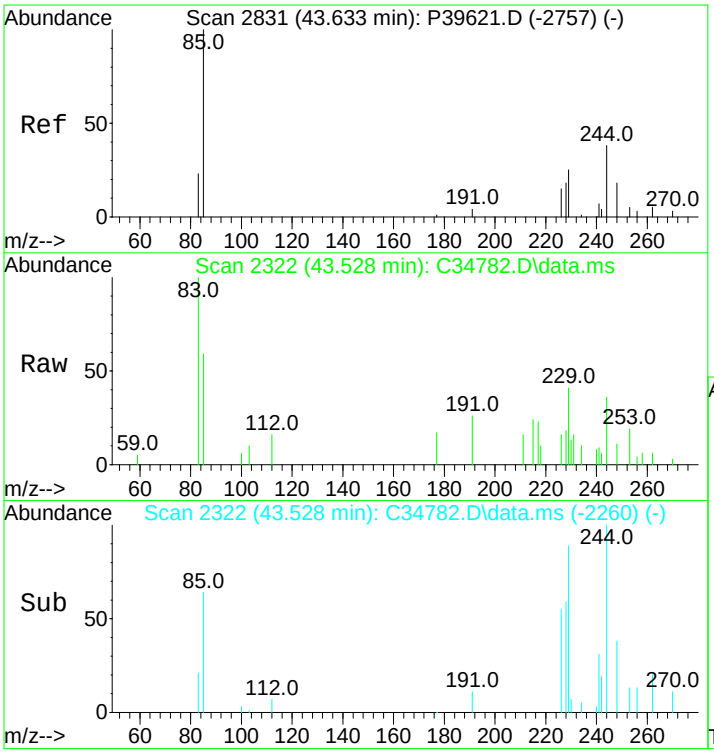


#62
C2-Fluoranthenes/Pyrenes
Concen: 470.27 ng/mL m
RT: 41.510 min Scan# 2188
Delta R.T. 0.111 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:230 Resp: 65429

Ion	Ratio	Lower	Upper
230	100		
215	11.8	99.0	148.4#

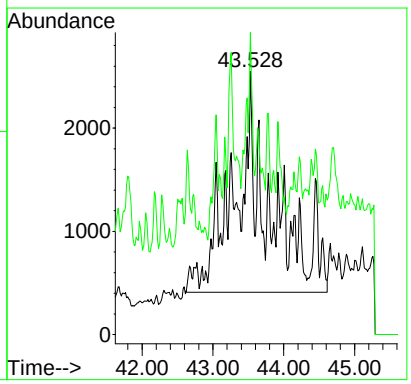


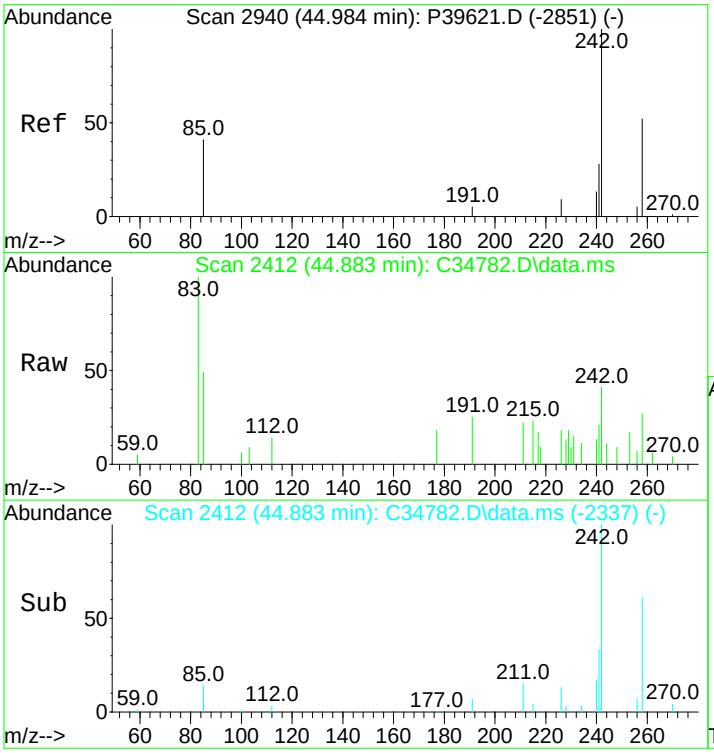


#63
C3-Fluoranthenes/Pyrenes
Concen: 528.82 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.121 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:244 Resp: 73575

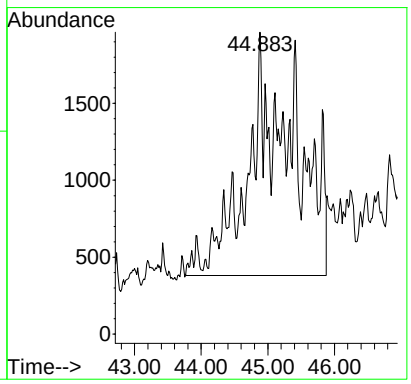
Ion	Ratio	Lower	Upper
244	100		
229	4.9	73.3	109.9#

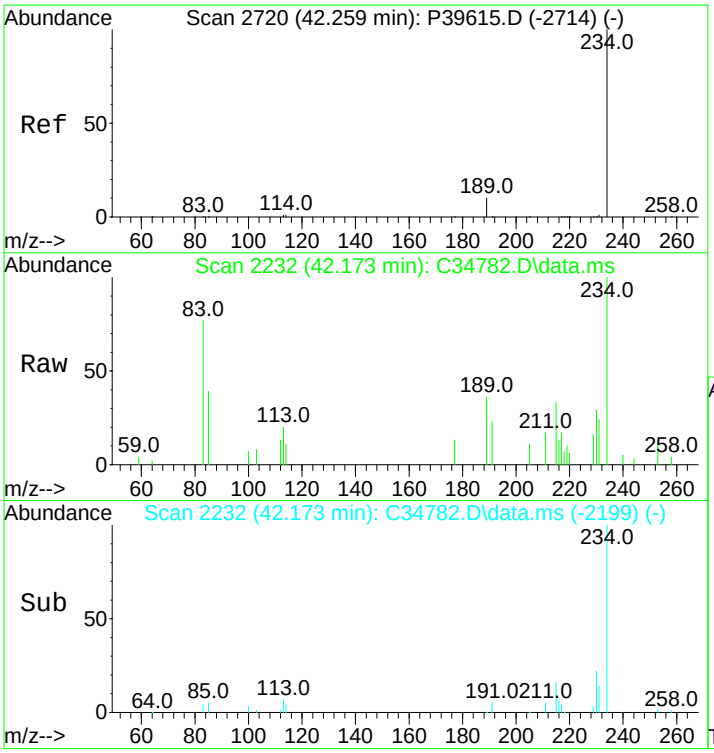




#64
C4-Fluoranthenes/Pyrenes
Concen: 528.86 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:258 Resp: 73580

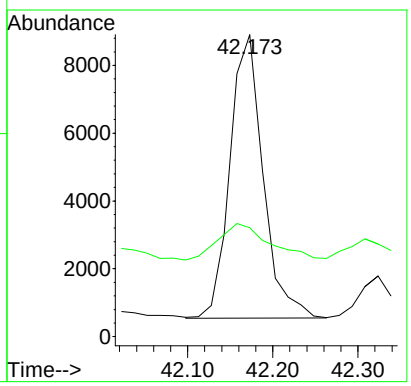


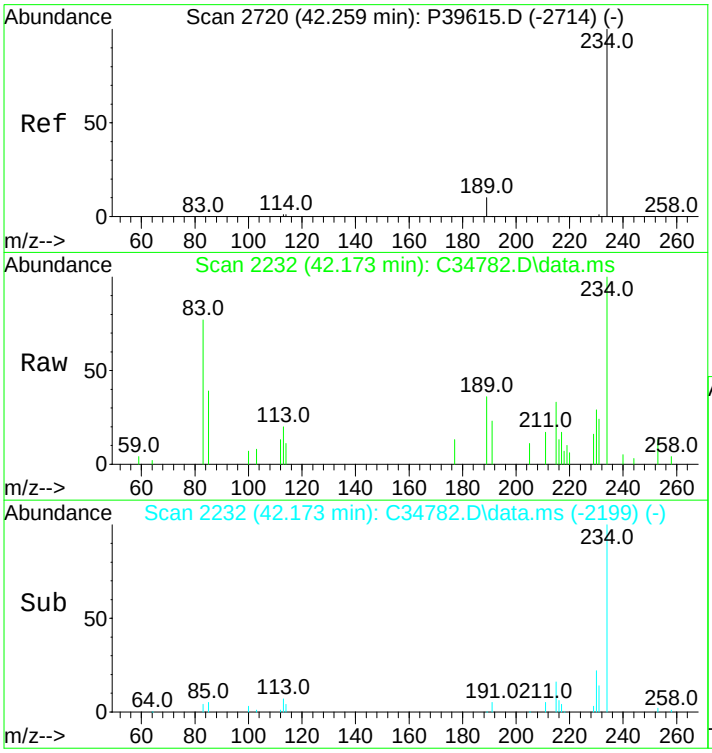


#66
Naphthobenzothiophene
Concen: 151.05 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 22625

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

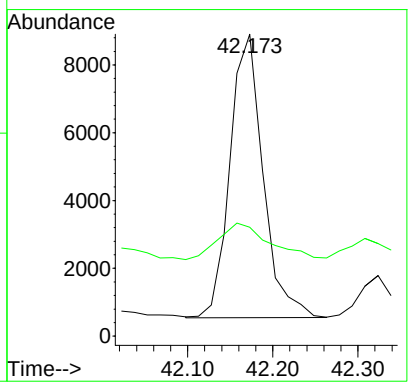


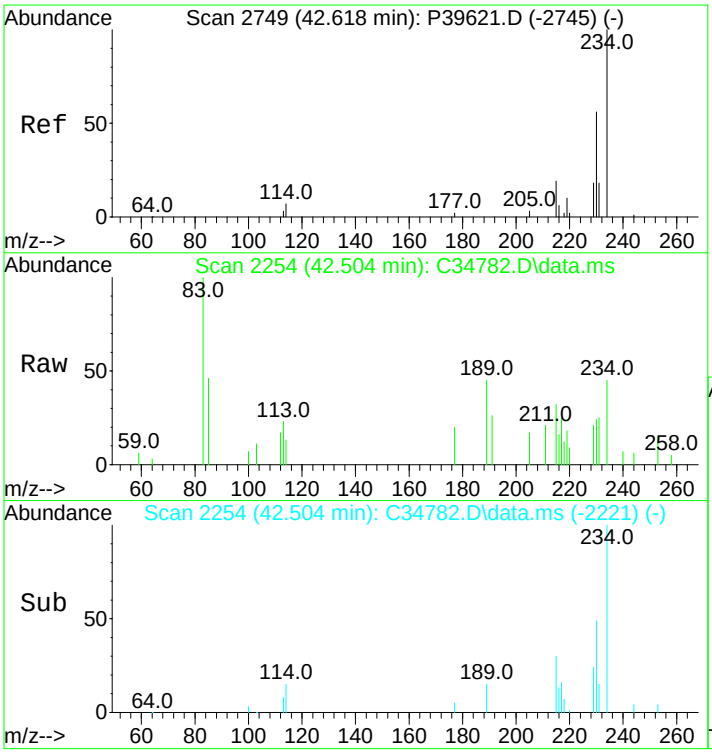


#67
Naphthobenzothiophene-2,1-D
Concen: 151.05 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 22625

Ion	Ratio	Lower	Upper
234	100		
189	20.0	20.5	30.7#

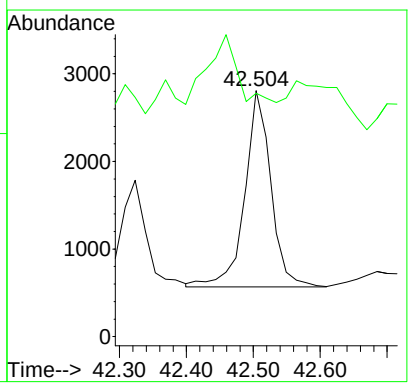


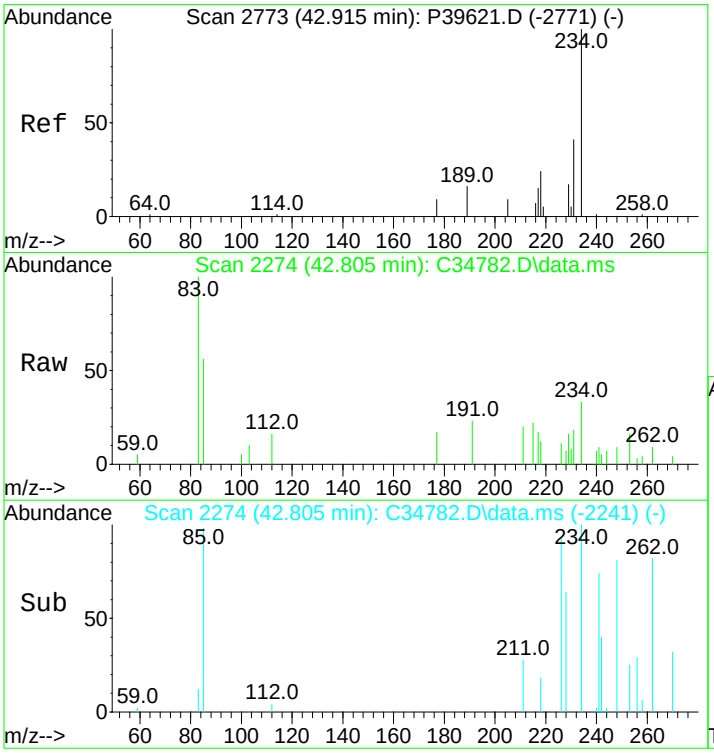


#68
Naphthobenzothiophene-1,2-D
Concen: 40.65 ng/mL
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 6089

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

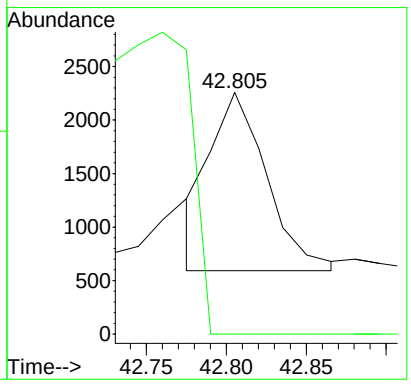


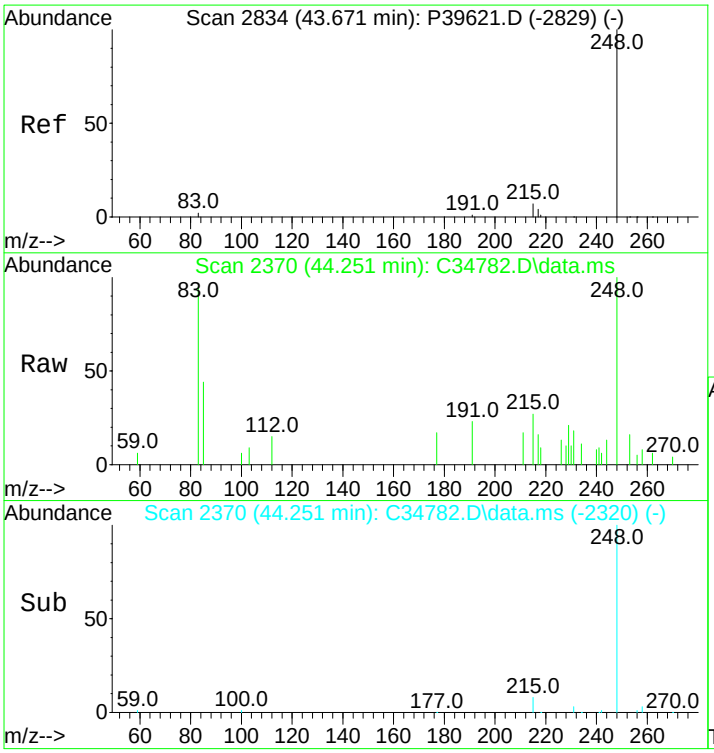


#69
Naphthobenzothiophene-2,3-D
Concen: 27.51 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:234 Resp: 4121

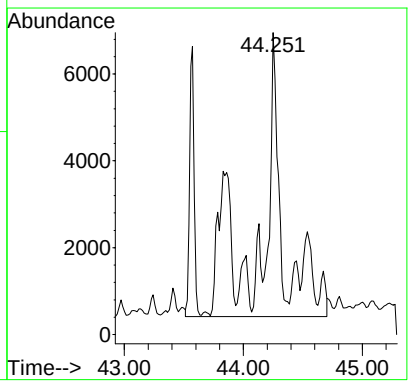
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

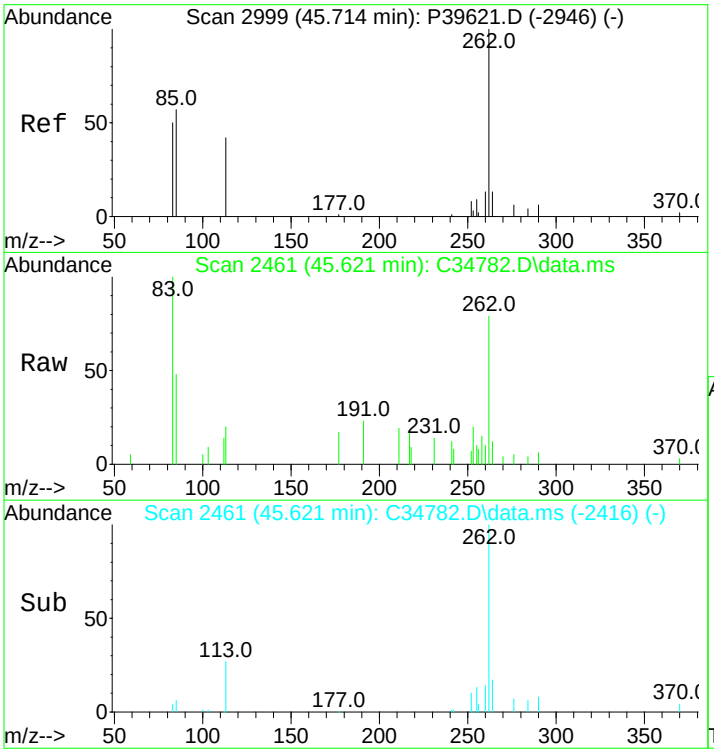




#70
C1-Naphthobenzothiophenes
Concen: 682.42 ng/ml m
RT: 44.251 min Scan# 2370
Delta R.T. 0.124 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

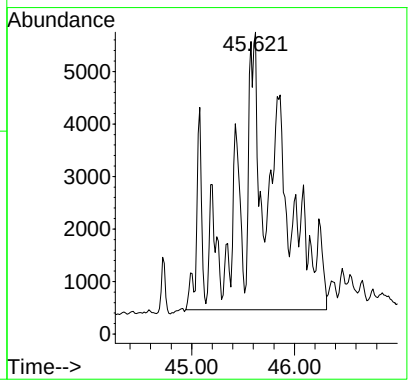
Tgt Ion:248 Resp: 102218

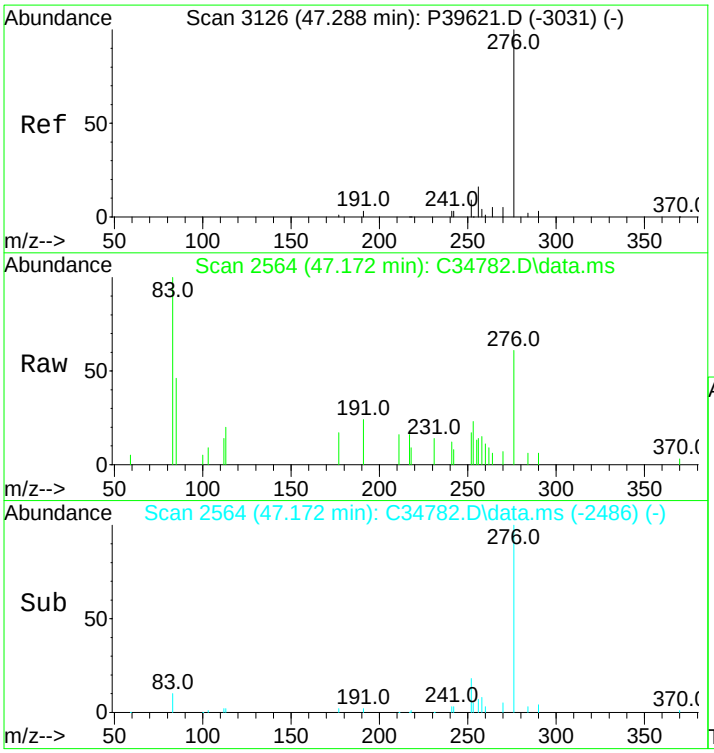




#71
C2-Naphthobenzothiophenes
Concen: 966.71 ng/ml m
RT: 45.621 min Scan# 2461
Delta R.T. 0.190 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

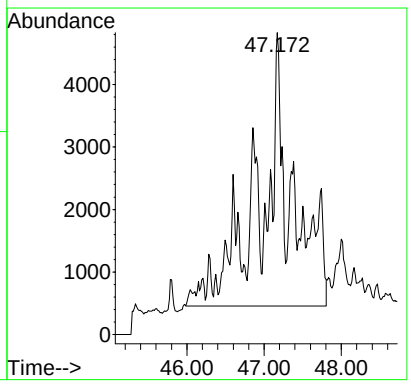
Tgt Ion:262 Resp: 144800

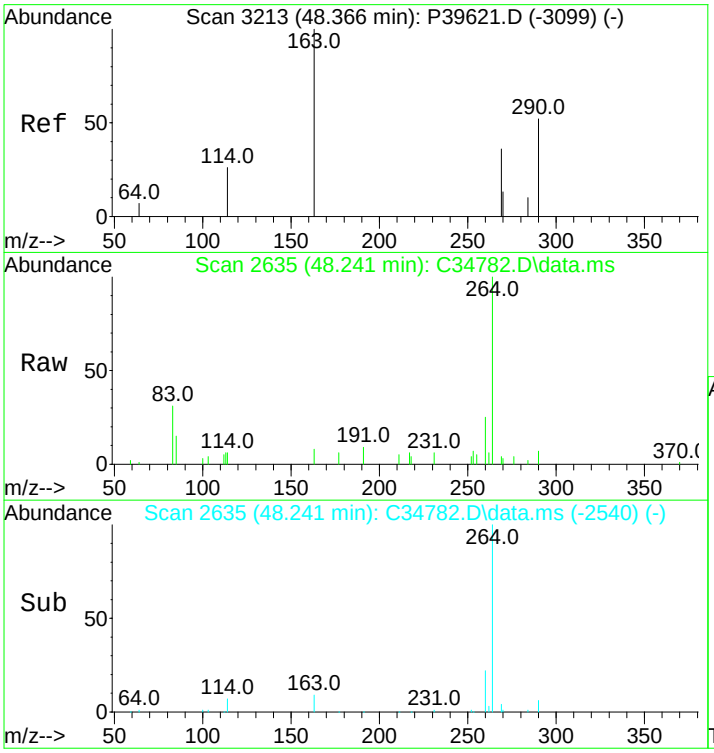




#72
C3-Naphthobenzothiophenes
Concen: 838.13 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

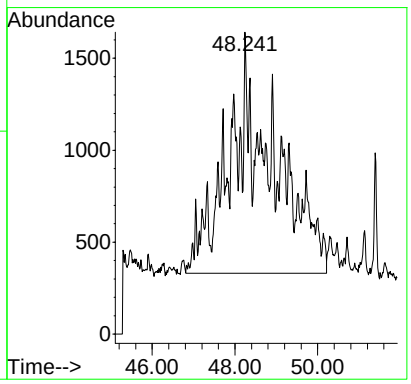
Tgt Ion:276 Resp: 125541

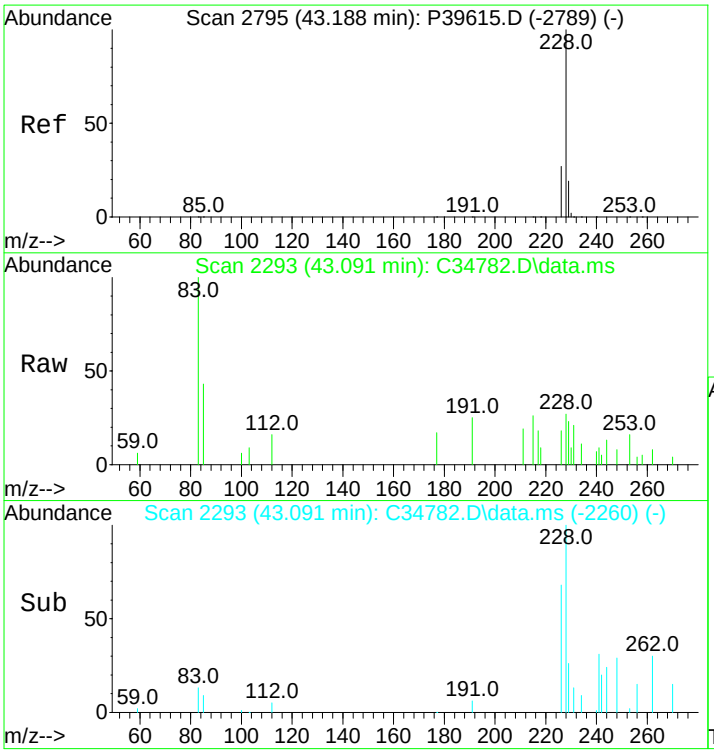




#73
C4-Naphthobenzothiophenes
Concen: 615.63 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:290 Resp: 92213

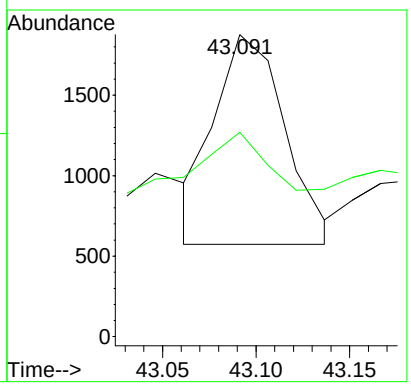


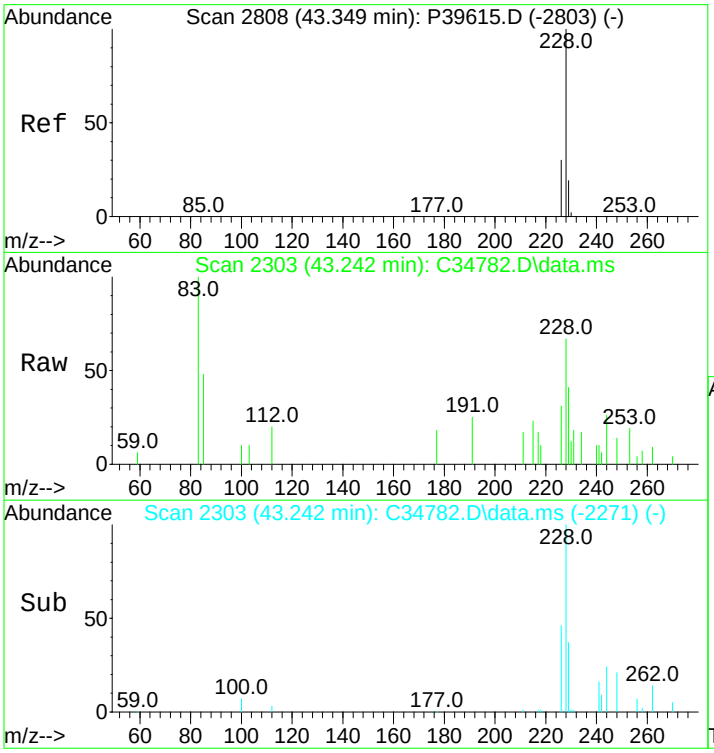


#75
Benz[a]anthracene
Concen: 25.37 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:228 Resp: 3415

Ion	Ratio	Lower	Upper
228	100		
226	152.9	21.4	32.0#

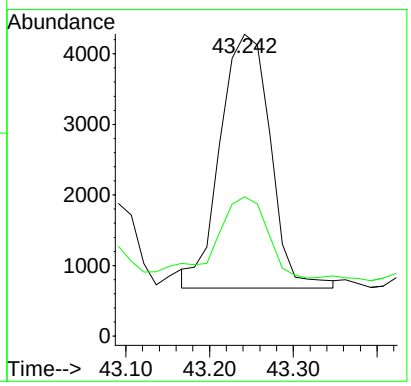


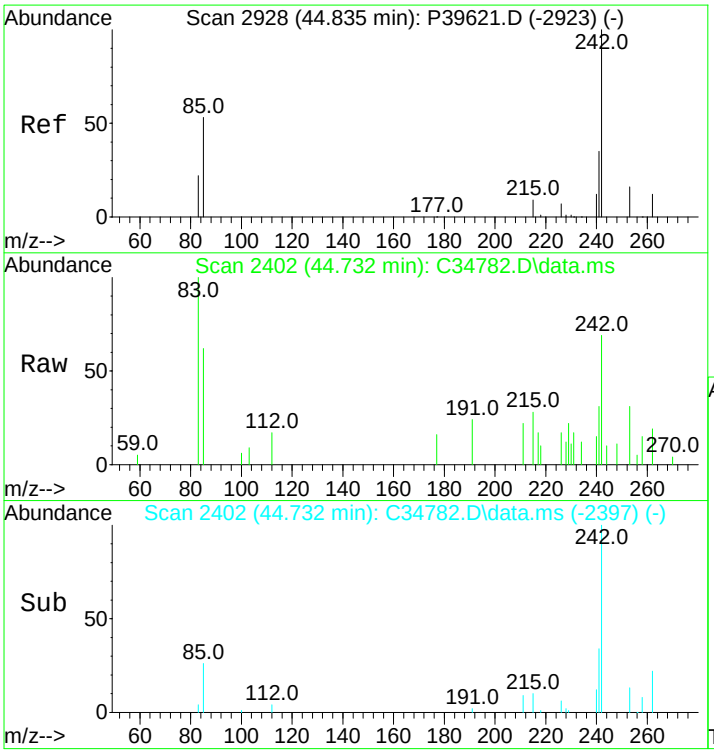


#77
Chrysene/Triphenylene
Concen: 109.52 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:228 Resp: 14884

Ion	Ratio	Lower	Upper
228	100		
226	30.9	23.7	35.5

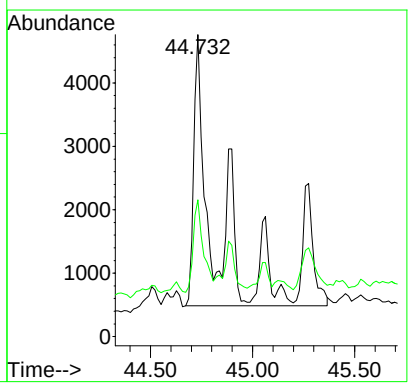


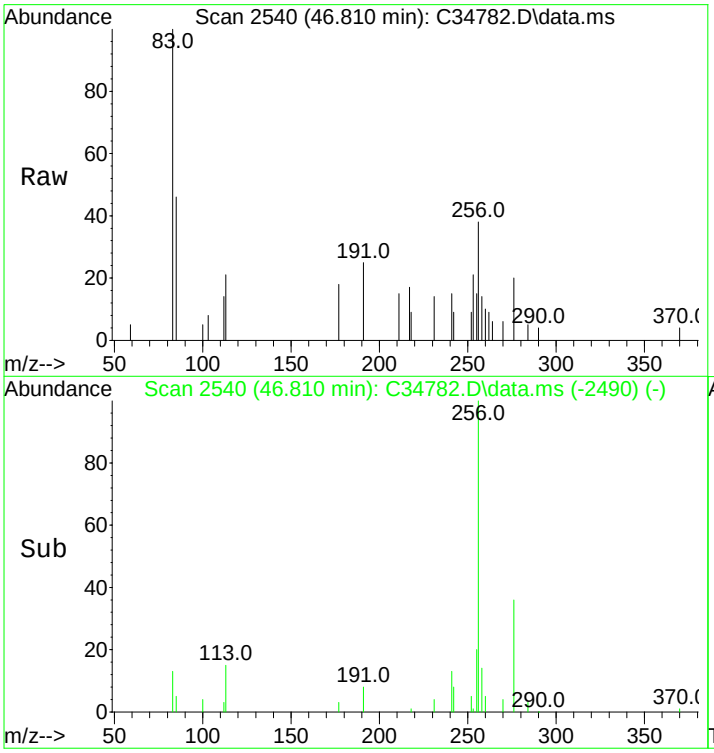


#78
C1-Chrysenes
Concen: 254.77 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:242 Resp: 34624

Ion	Ratio	Lower	Upper
242	100		
241	10.1	31.4	47.2#

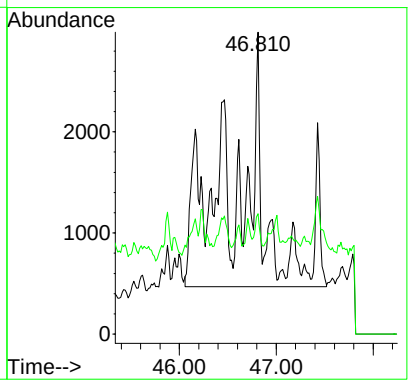


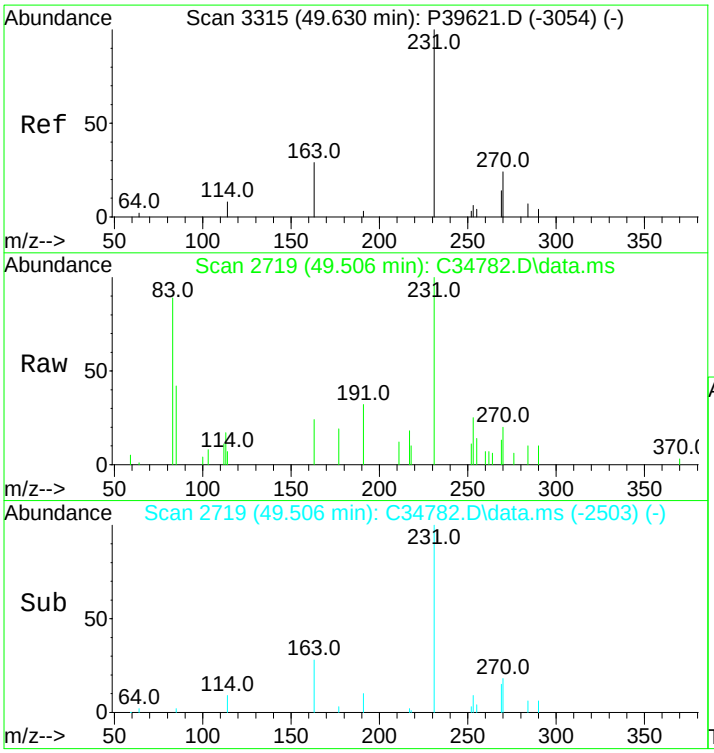


#79
C2-Chrysenes
Concen: 422.93 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:256 Resp: 57477

Ion	Ratio	Lower	Upper
256	100		
241	0.9	21.2	31.8#

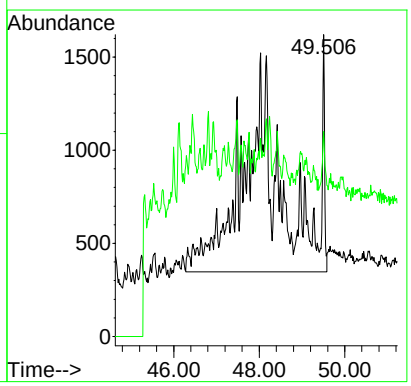


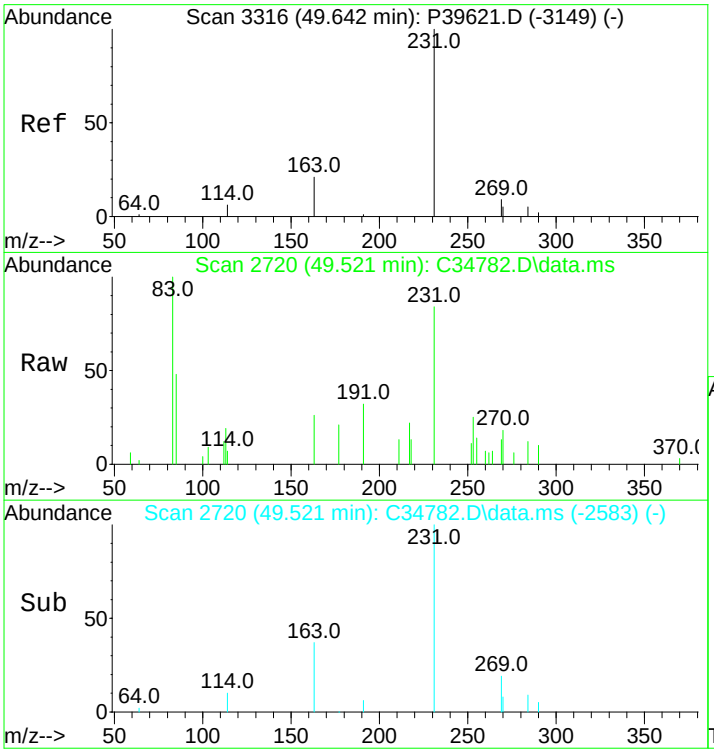


#80
C3-Chrysenes
Concen: 501.77 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.011 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:270 Resp: 68192

Ion	Ratio	Lower	Upper
270	100		
255	1.7	33.8	50.8#

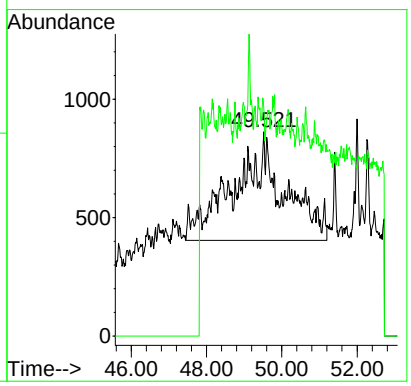


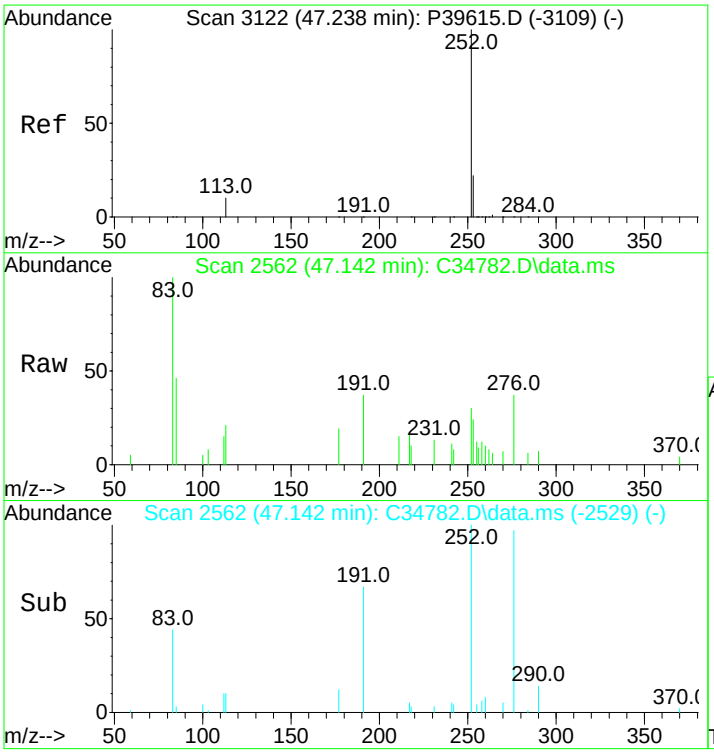


#81
C4-Chrysenes
Concen: 304.33 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:284 Resp: 41359

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

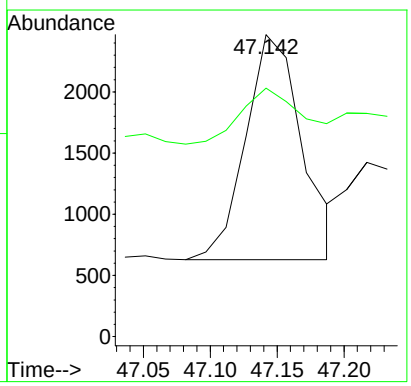


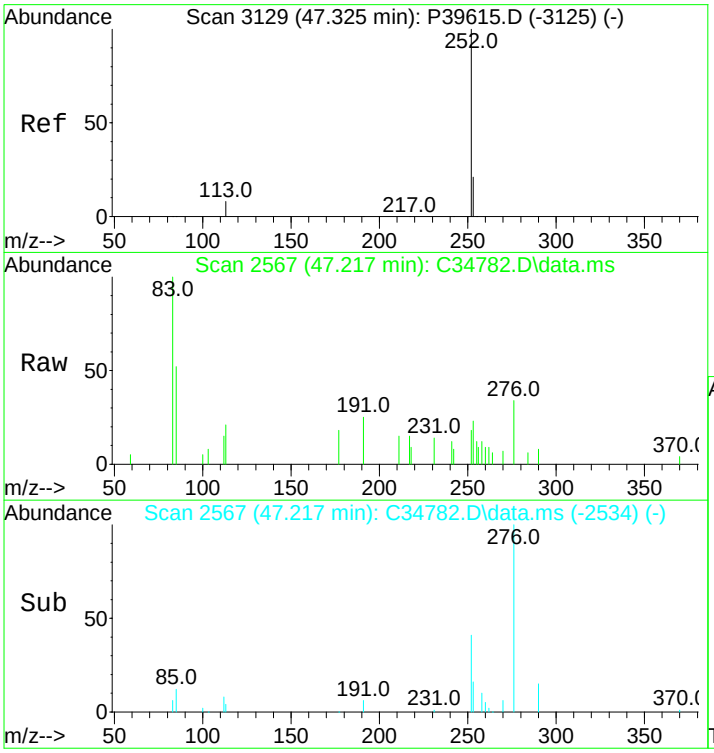


#82
Benzo[b]fluoranthene
Concen: 36.65 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 5421

Ion	Ratio	Lower	Upper
252	100		
253	27.2	19.0	28.4

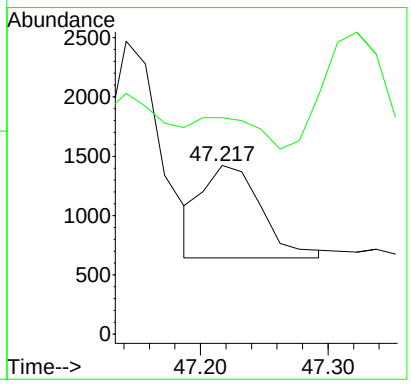


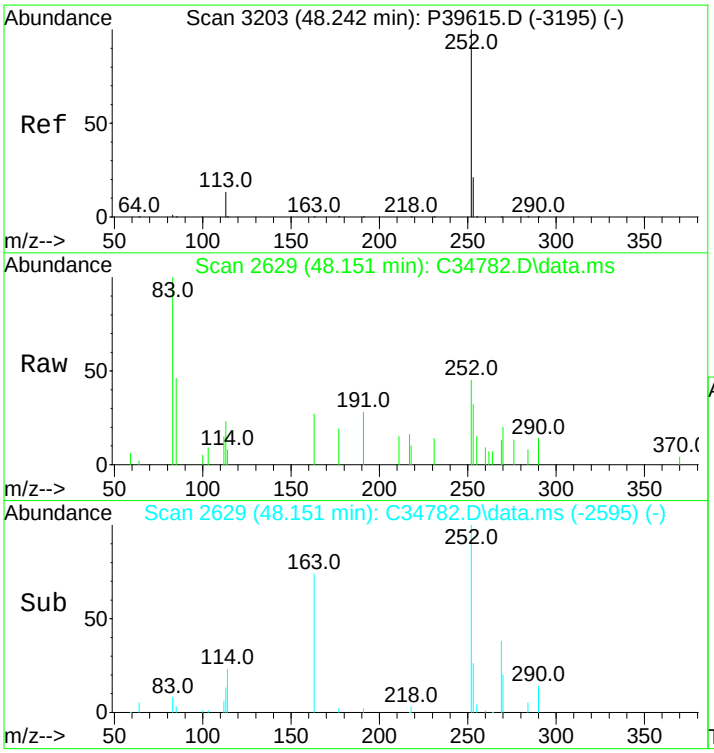


#83
Benzo[j]+[k]fluoranthene
Concen: 15.43 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 2485

Ion	Ratio	Lower	Upper
252	100		
253	34.1	19.0	28.4#

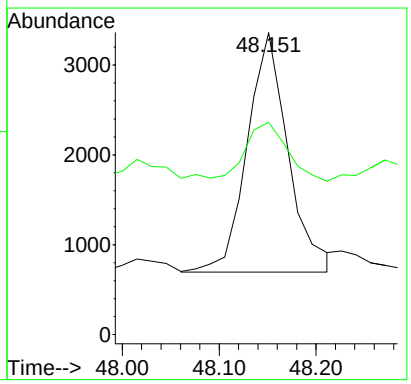


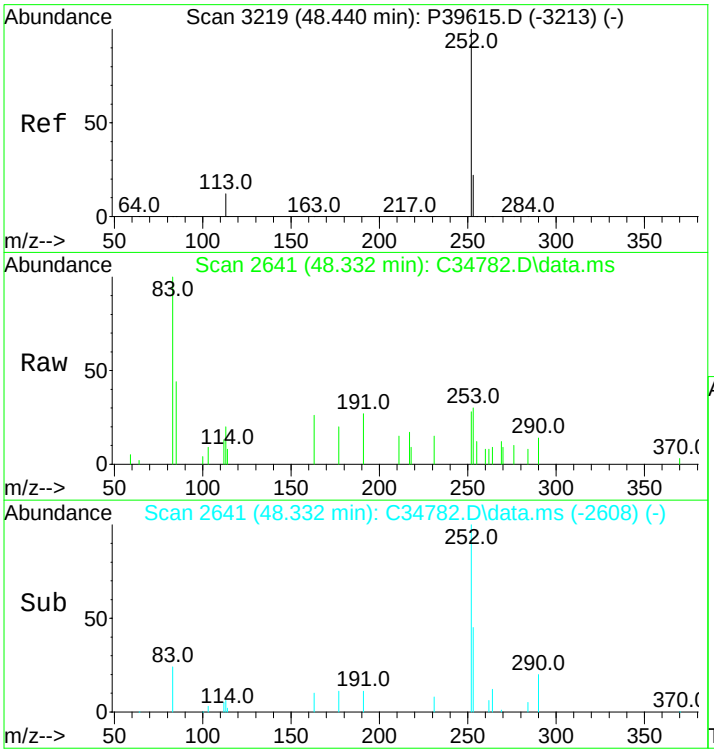


#85
Benzo[e]pyrene
Concen: 53.23 ng/mL m
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 7787

Ion	Ratio	Lower	Upper
252	100		
253	27.8	19.2	28.8

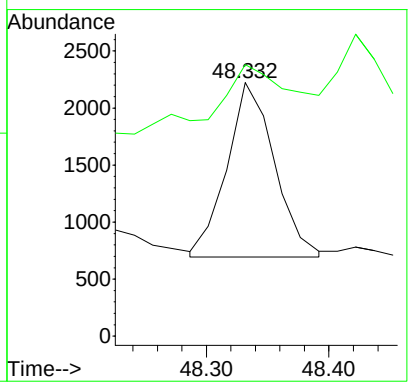


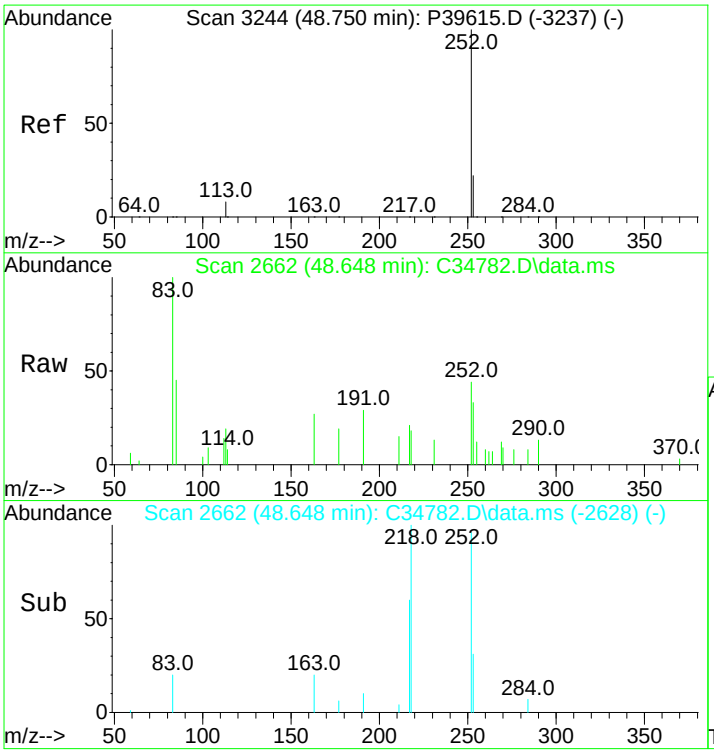


#87
Benzo[a]pyrene
Concen: 29.34 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 4133

Ion	Ratio	Lower	Upper
252	100		
253	47.4	19.5	29.3#

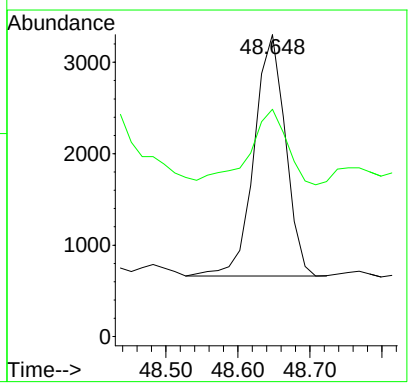


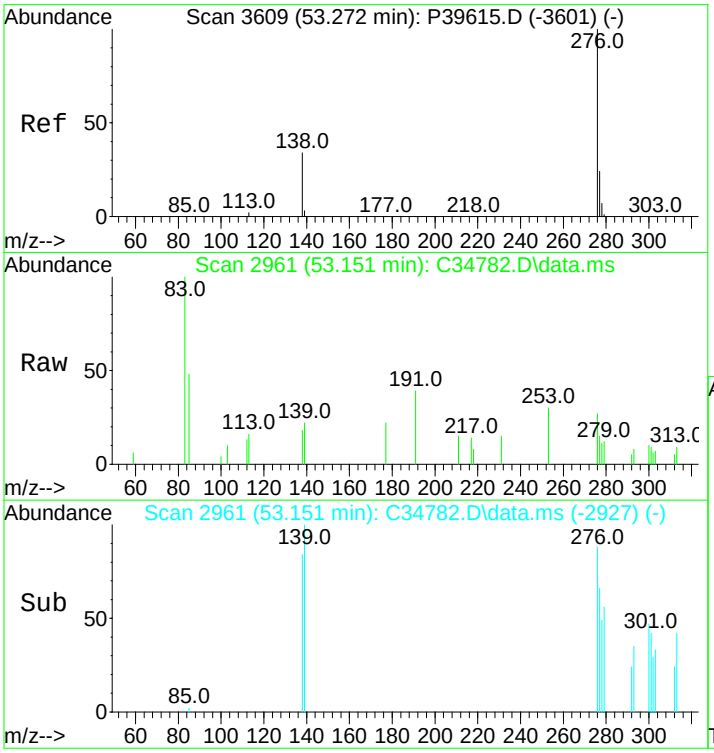


#88
Perylene
Concen: 52.91 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:252 Resp: 7965

Ion	Ratio	Lower	Upper
252	100		
253	37.3	19.6	29.4#

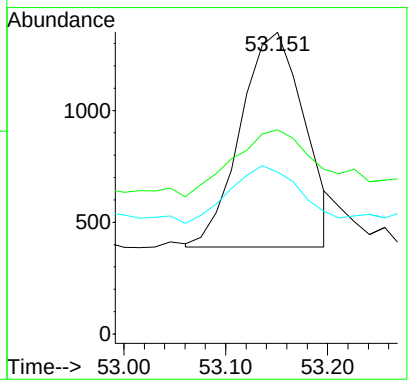


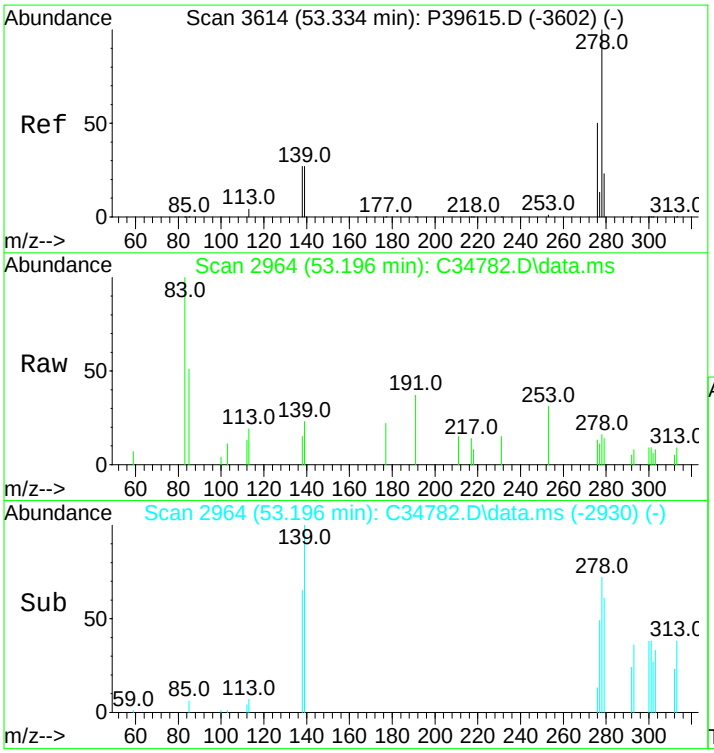


#89
Indeno[1,2,3-cd]pyrene
Concen: 25.49 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:276 Resp: 4178

Ion	Ratio	Lower	Upper
276	100		
138	29.3	23.3	34.9
277	21.8	19.0	28.4

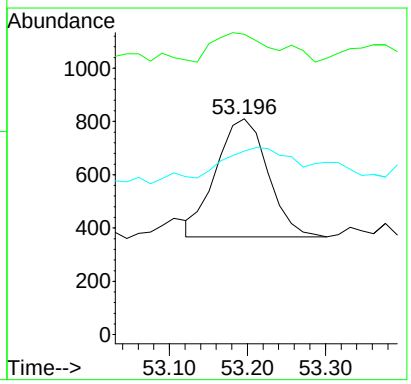


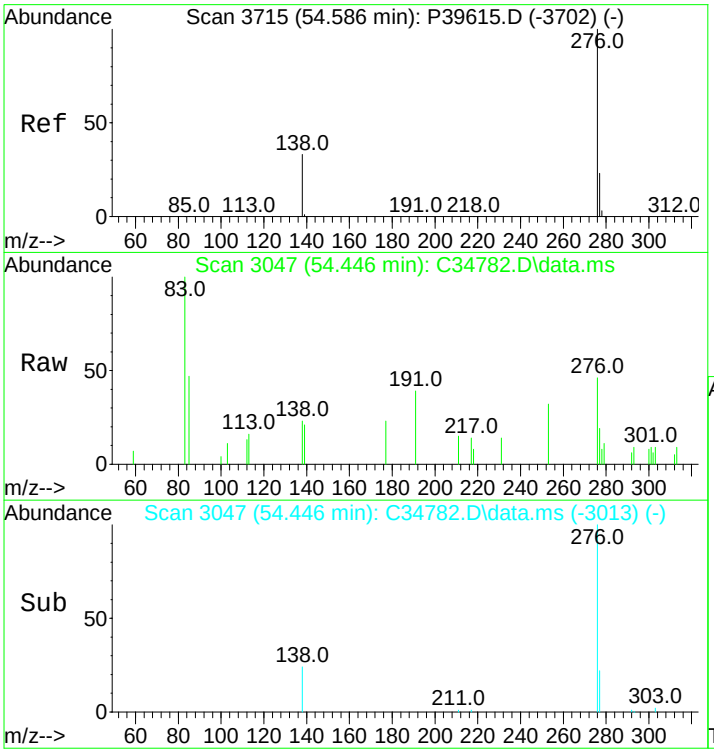


#90
Dibenz[ah]+[ac]anthracene
Concen: 13.10 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:278 Resp: 2043

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

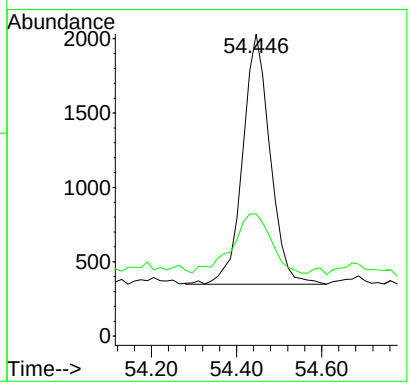


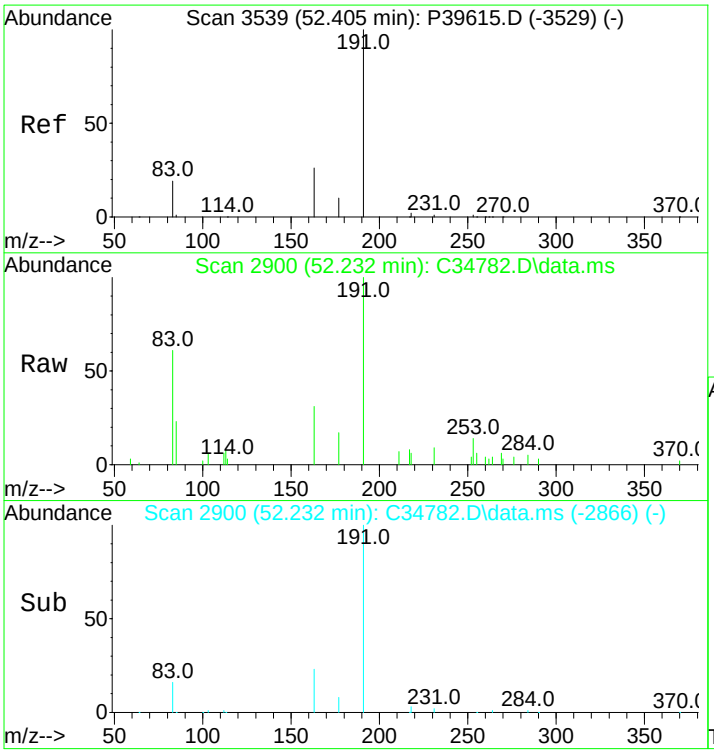


#91
Benzo[g,h,i]perylene
Concen: 43.41 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:276 Resp: 7518

Ion	Ratio	Lower	Upper
276	100		
277	33.5	18.9	28.3#

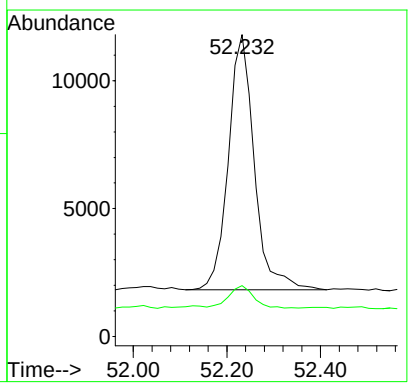


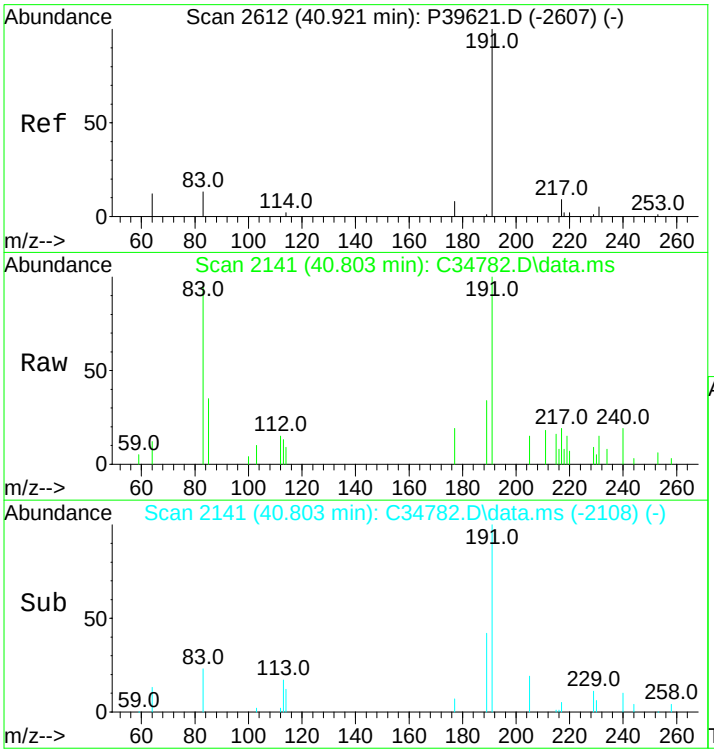


#92
Hopane (T19)
Concen: 1378.55 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:191 Resp: 38533

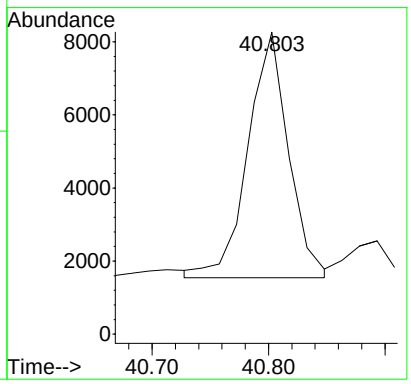
Ion	Ratio	Lower	Upper
191	100		
177	8.8	14.6	21.8#

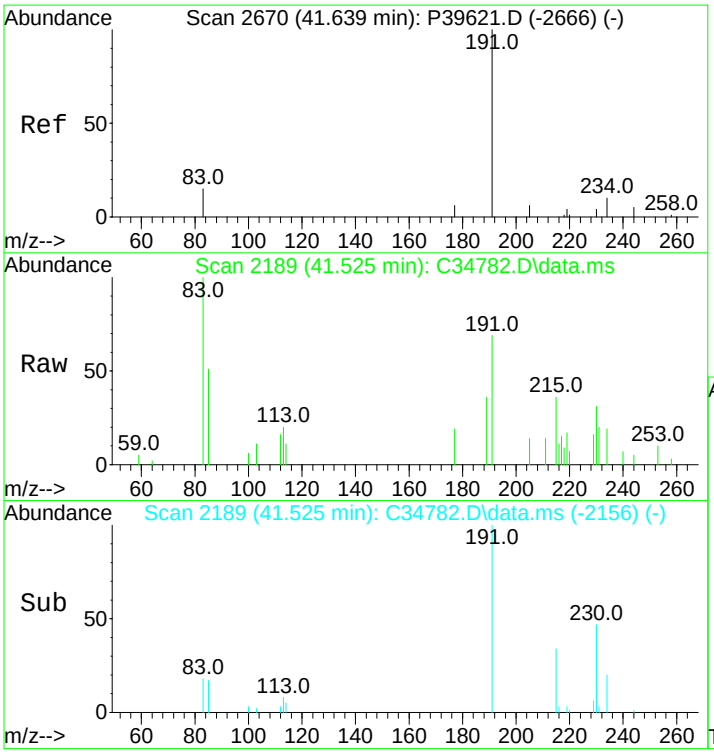




#94
C23 Tricyclic Terpane (T4)
Concen: 579.35 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

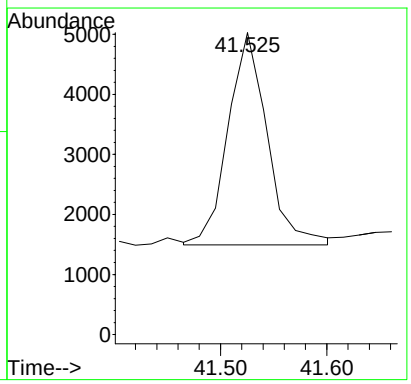
Tgt Ion:191 Resp: 16194

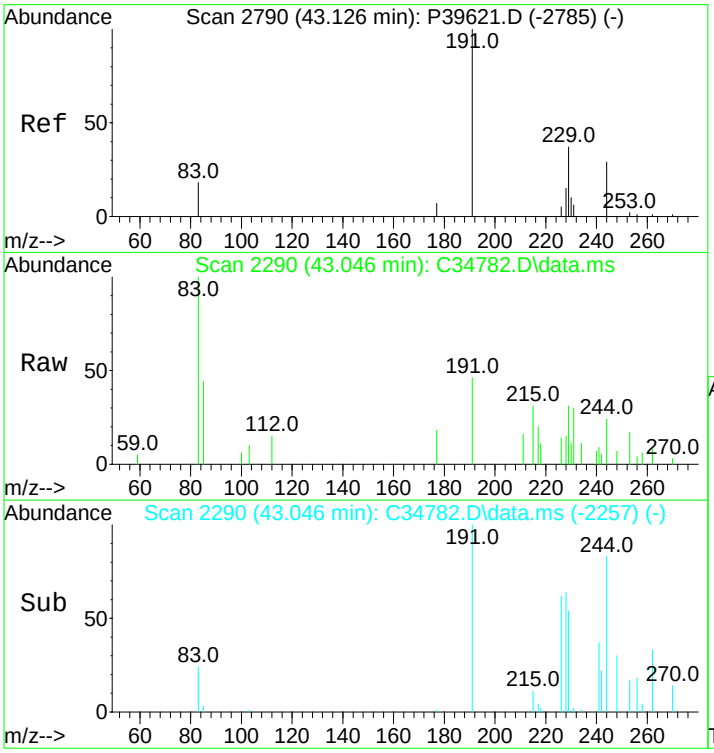




#95
C24 Tricyclic Terpane (T5)
Concen: 323.23 ng/ml m
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

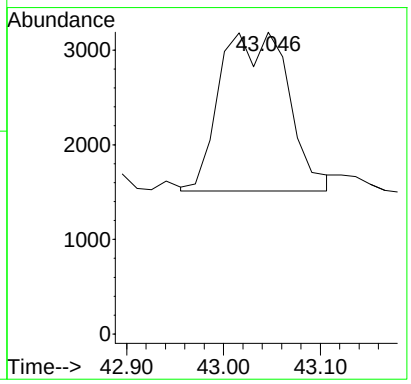
Tgt Ion:191 Resp: 9035

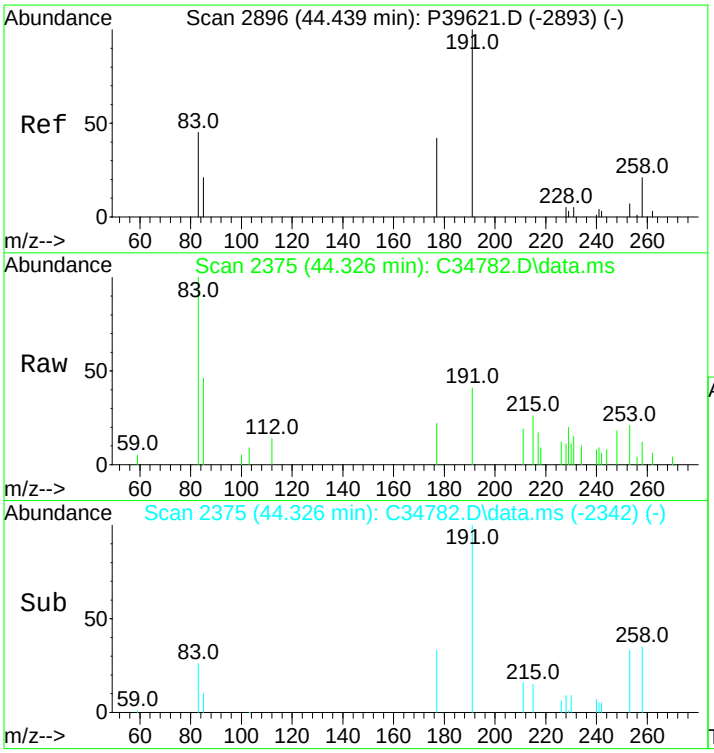




#96
C25 Tricyclic Terpane (T6)
Concen: 293.93 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

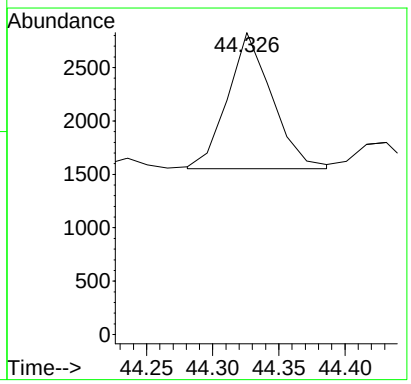
Tgt Ion:191 Resp: 8216

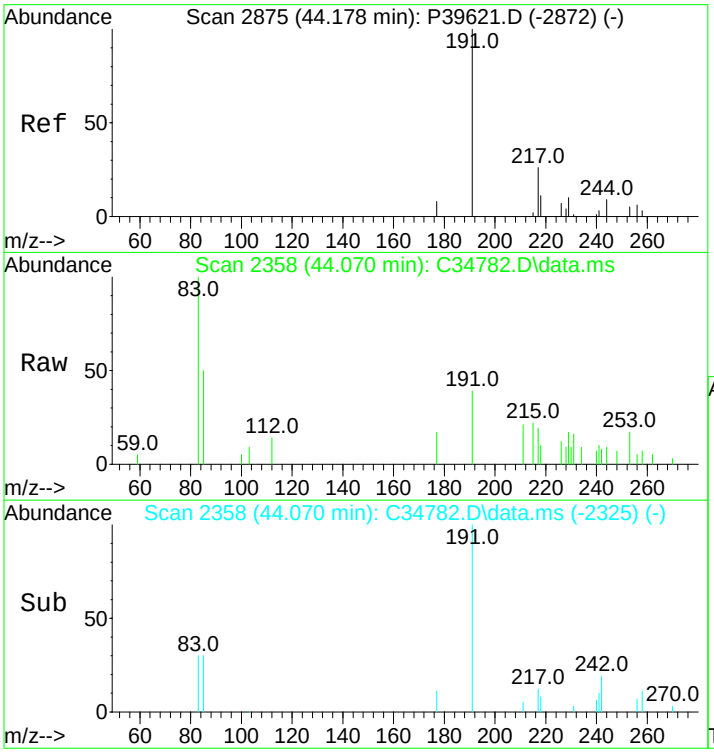




#97
C24 Tetracyclic Terpane (T6a)
Concen: 106.22 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

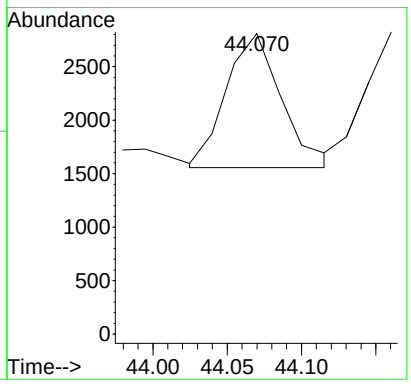
Tgt Ion:191 Resp: 2969

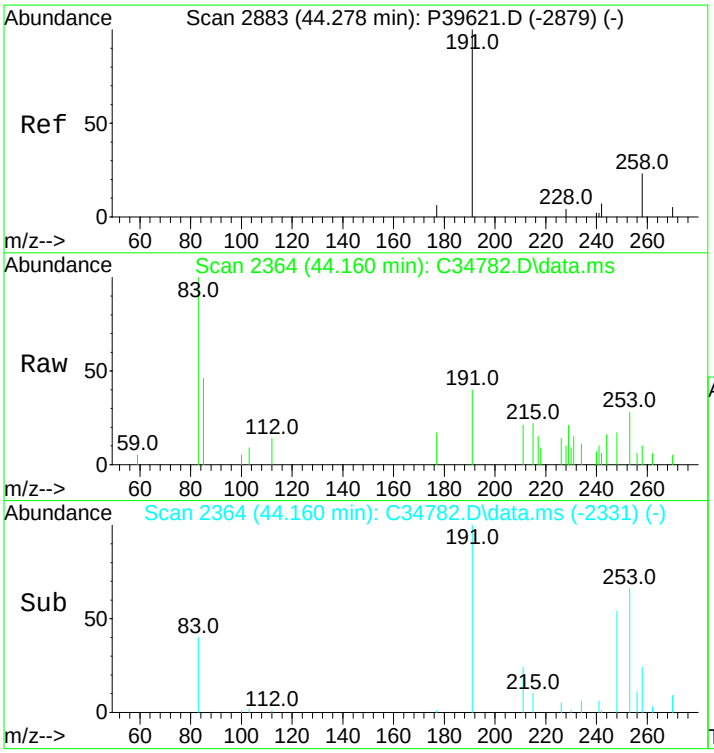




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 115.95 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

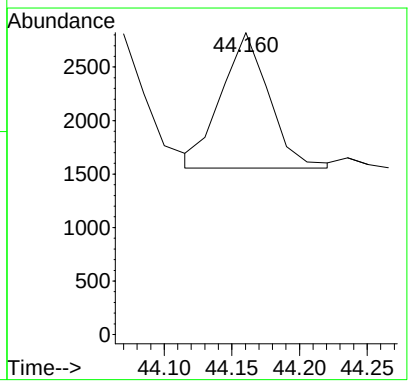
Tgt Ion:191 Resp: 3241

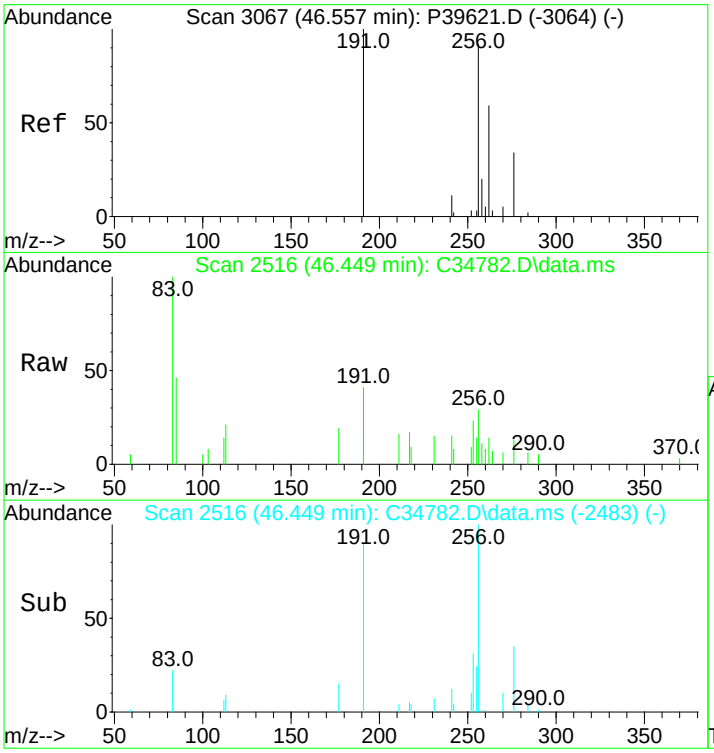




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 110.73 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

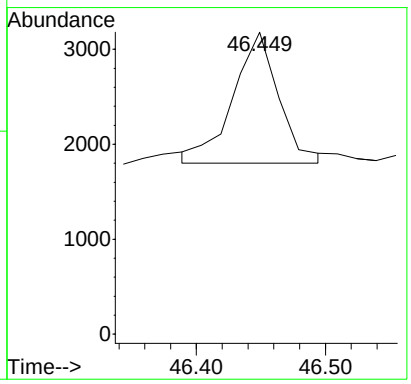
Tgt Ion:191 Resp: 3095

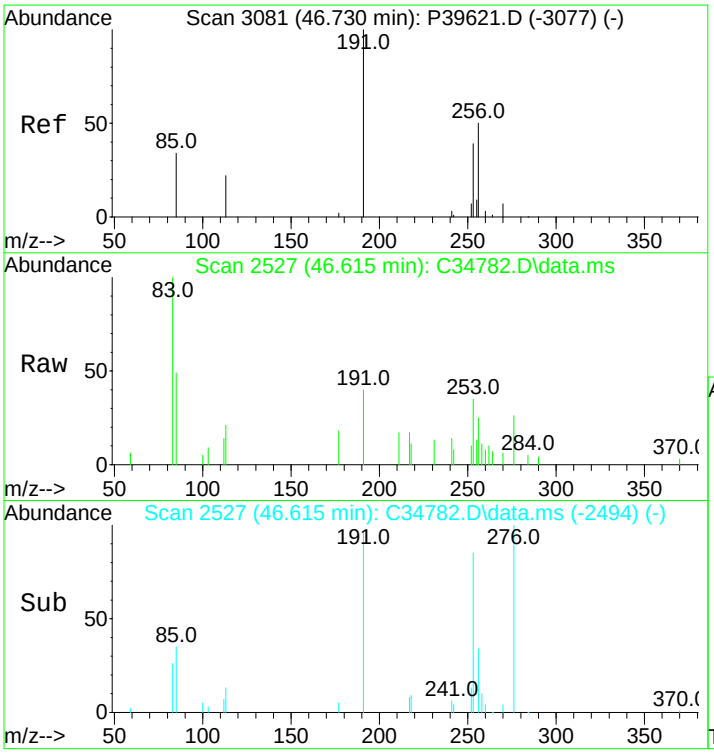




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 121.24 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

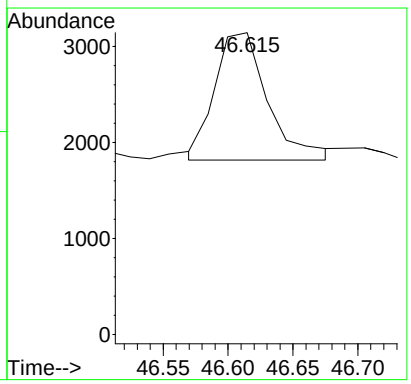
Tgt Ion:191 Resp: 3389

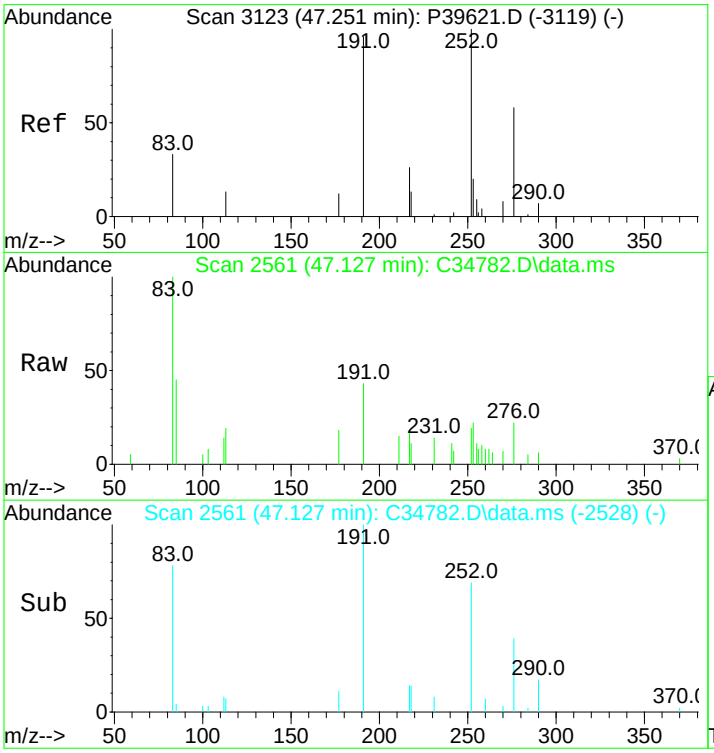




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 135.09 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

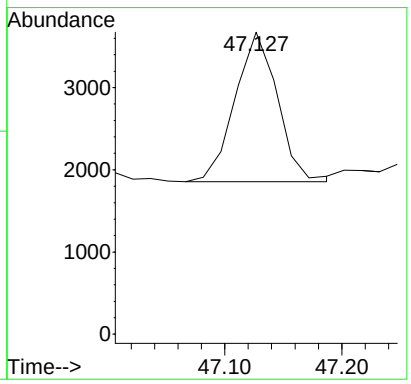
Tgt Ion:191 Resp: 3776

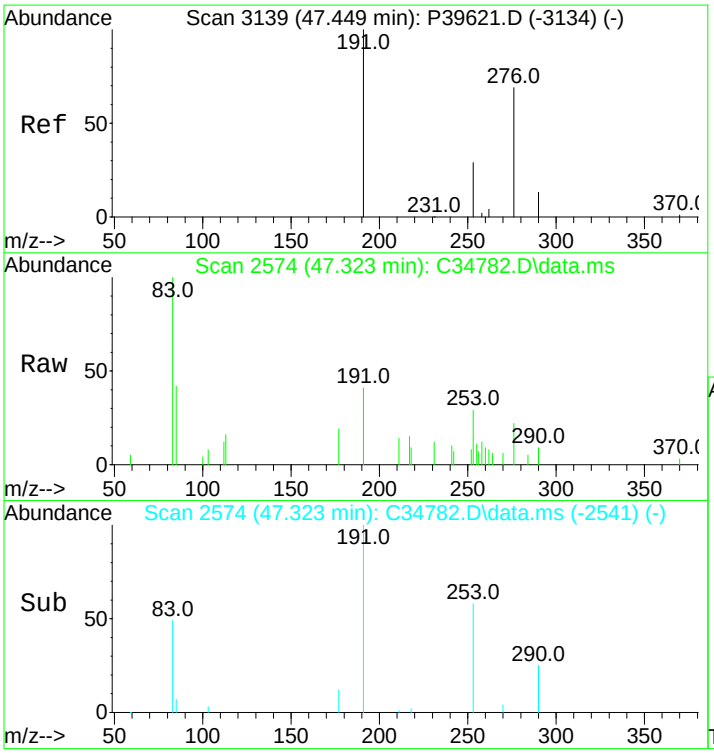




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 164.89 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

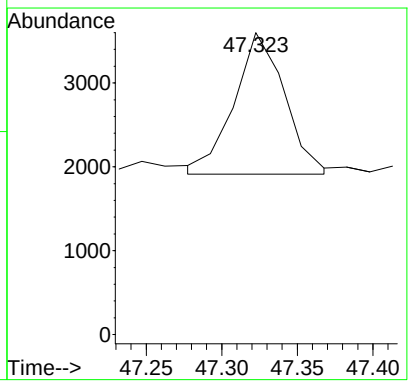
Tgt Ion:191 Resp: 4609

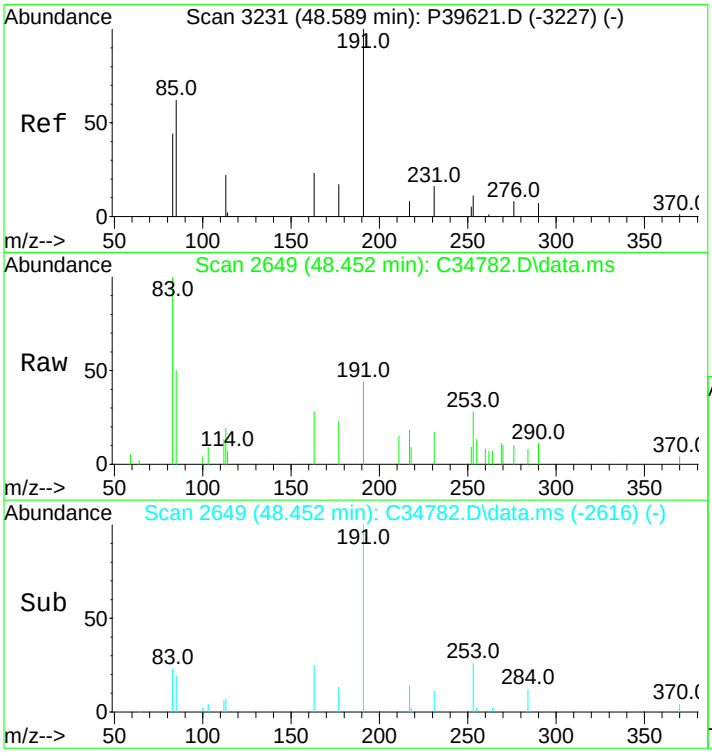




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 139.85 ng/ml m
RT: 47.323 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

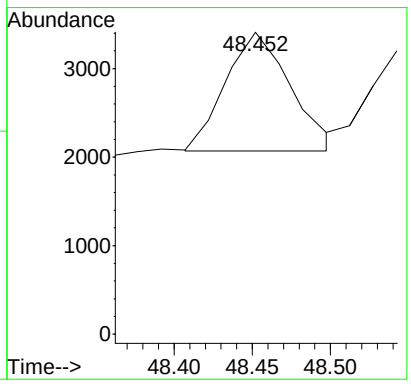
Tgt Ion:191 Resp: 3909

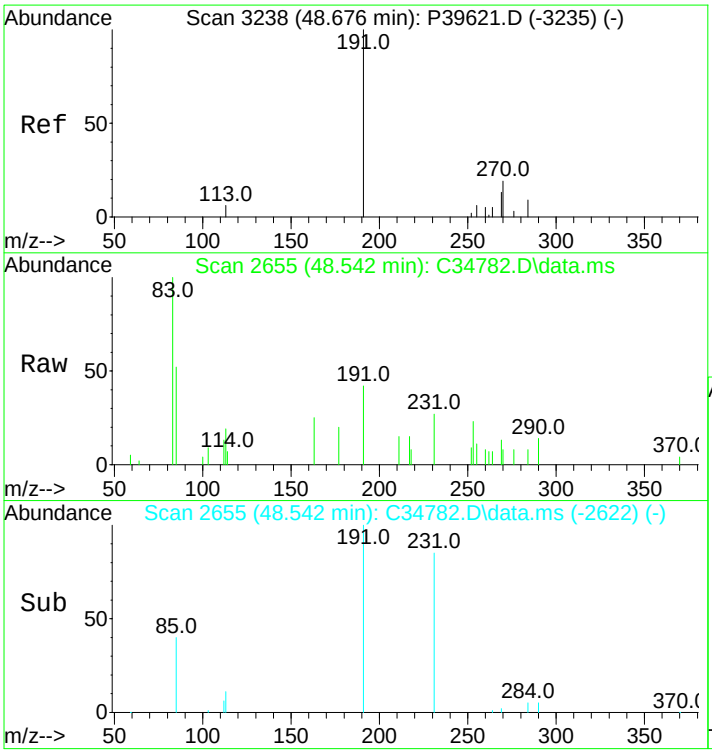




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 139.13 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

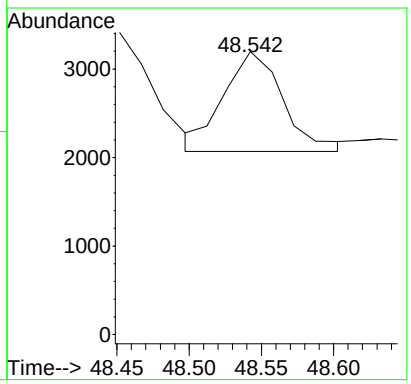
Tgt Ion:191 Resp: 3889

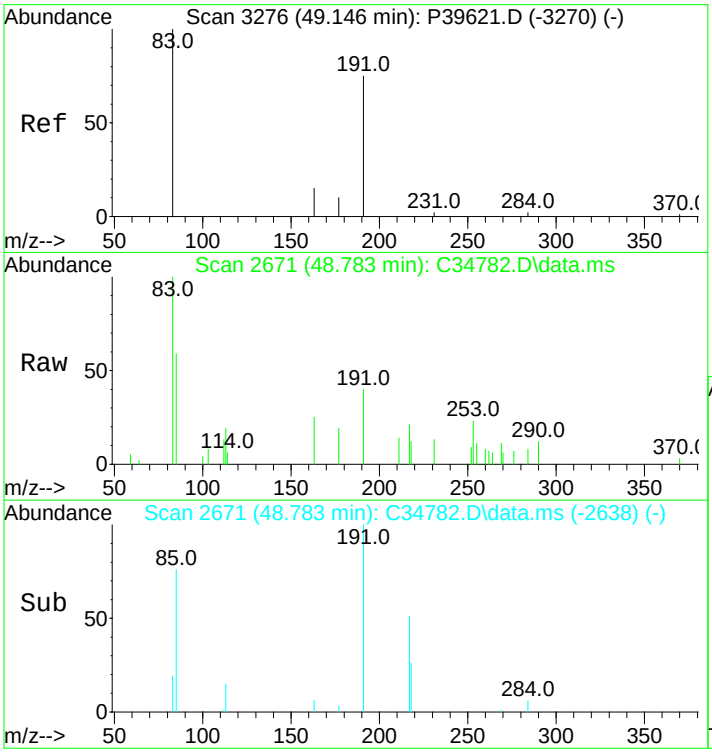




#105
C30 Tricyclic Terpane-22S
Concen: 115.05 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

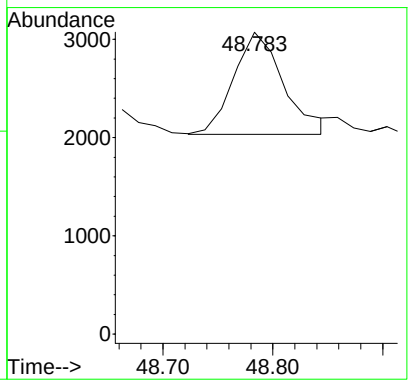
Tgt Ion:191 Resp: 3216

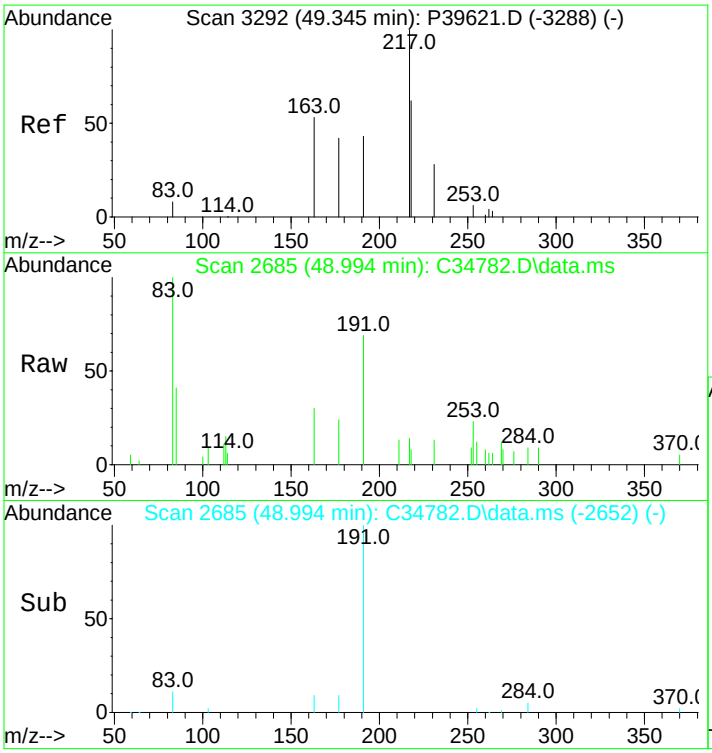




#106
C30 Tricyclic Terpane-22R
Concen: 117.24 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

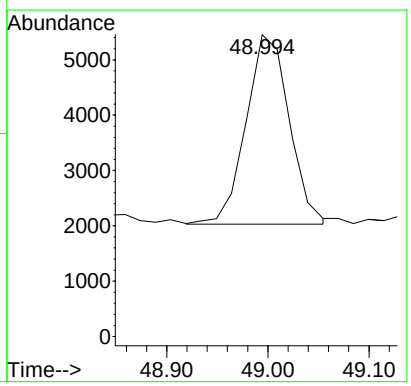
Tgt Ion:191 Resp: 3277

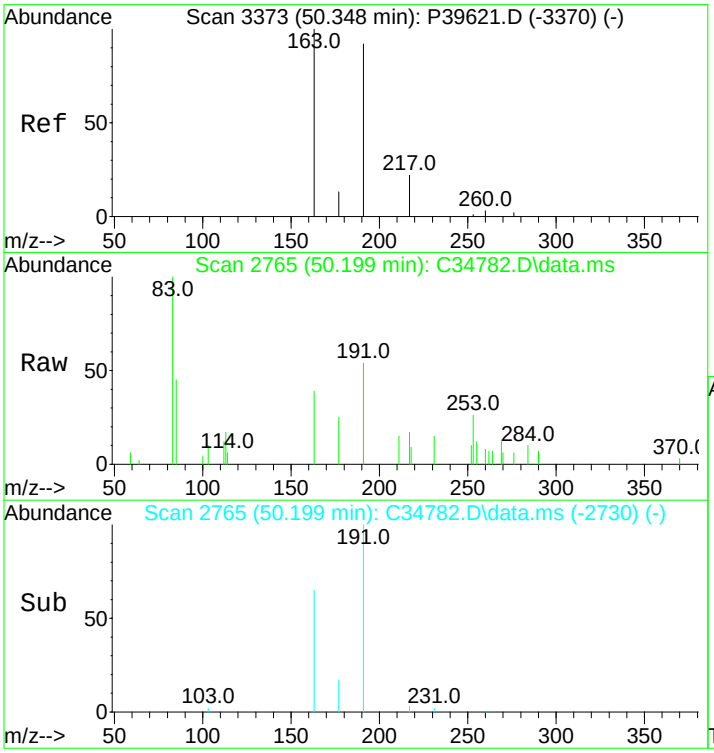




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 363.63 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

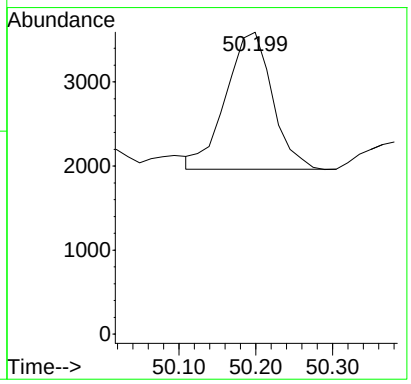
Tgt Ion:191 Resp: 10164

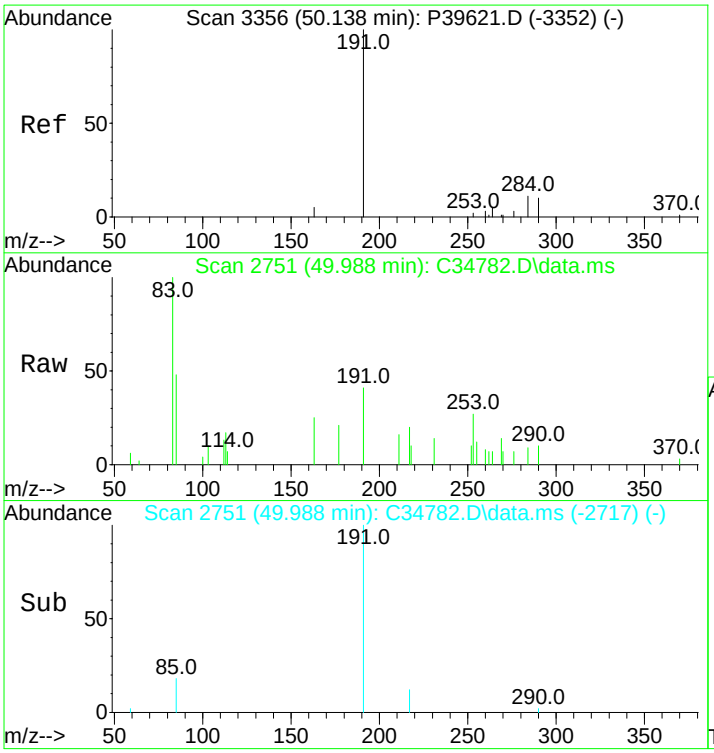




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 243.53 ng/ml m
RT: 50.199 min Scan# 2765
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

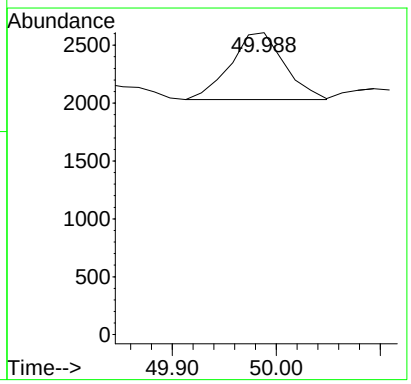
Tgt Ion:191 Resp: 6807

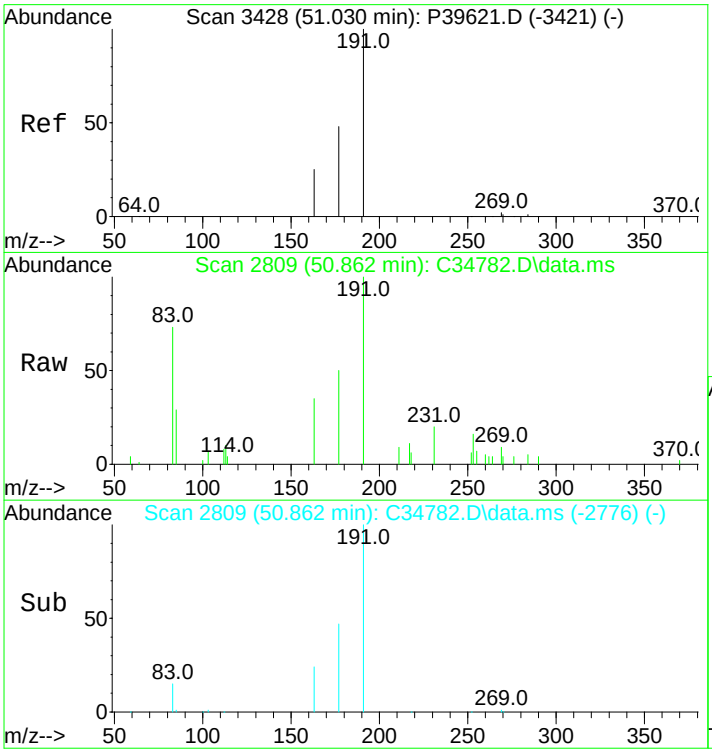




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 74.41 ng/ml
RT: 49.988 min Scan# 2751
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

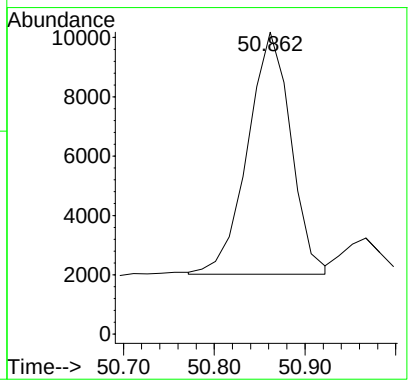
Tgt Ion:191 Resp: 2080

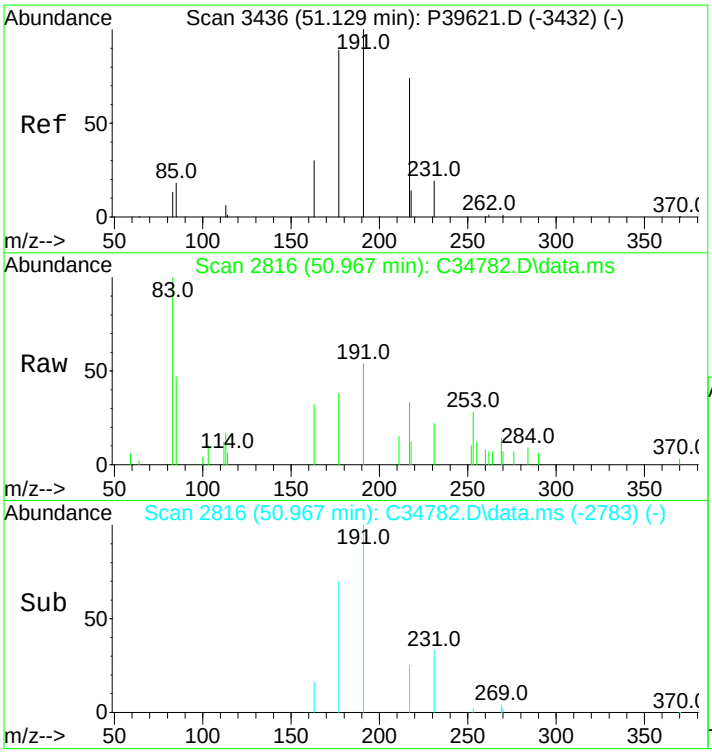




#110
30-Norhopane (T15)
Concen: 964.05 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

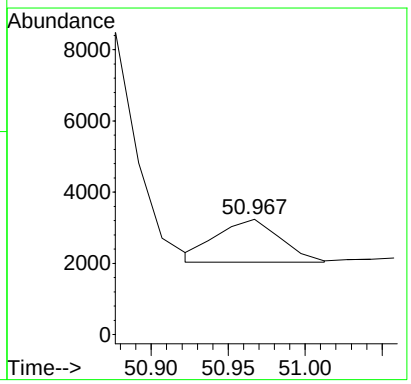
Tgt Ion:191 Resp: 26947

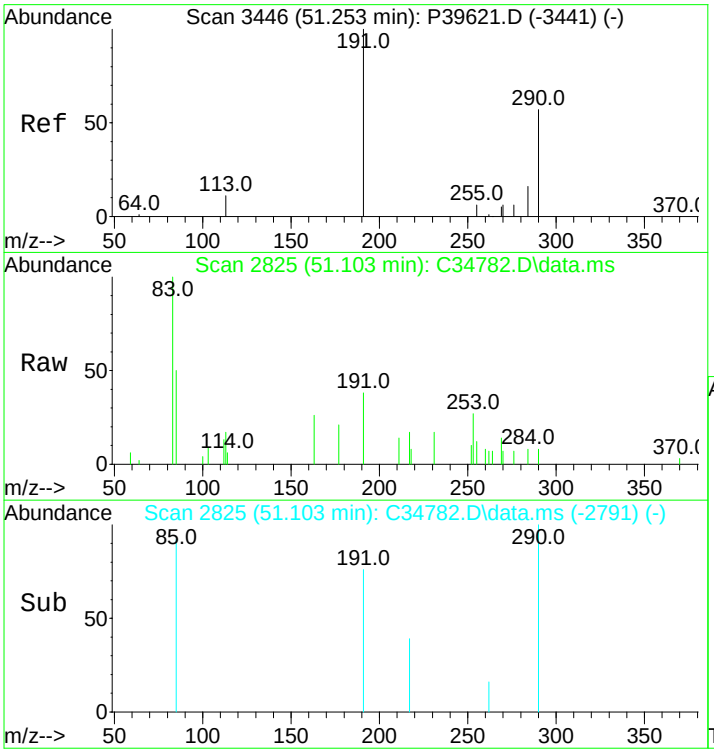




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 123.14 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

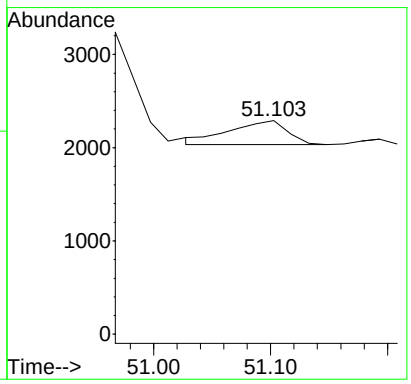
Tgt Ion:191 Resp: 3442

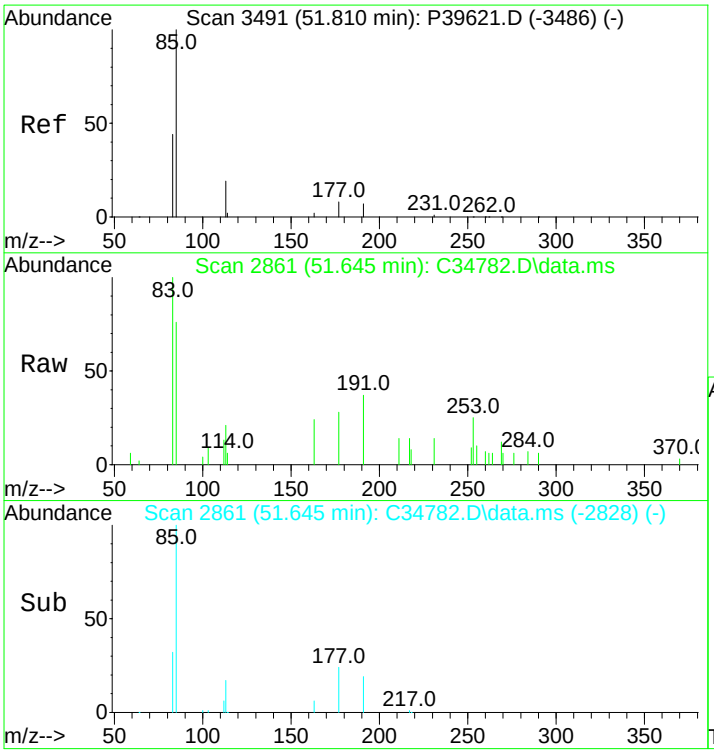




#112
17a(H)-Diahopane (X)
Concen: 31.88 ng/ml
RT: 51.103 min Scan# 2825
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

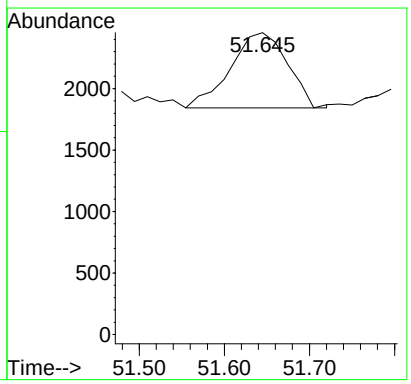
Tgt Ion:191 Resp: 891

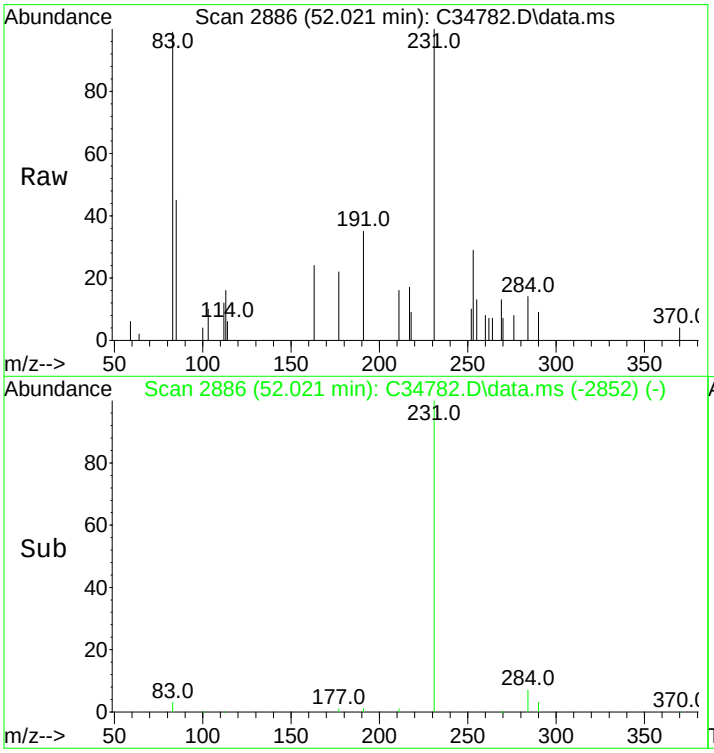




#113
30-Normoretane (T17)
Concen: 102.75 ng/ml
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

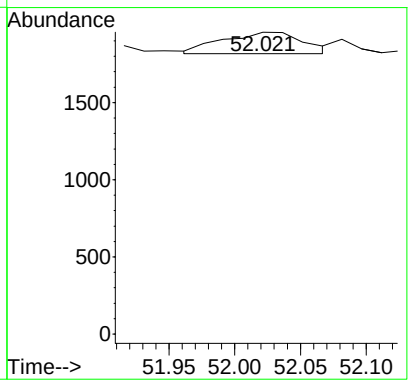
Tgt Ion:191 Resp: 2872

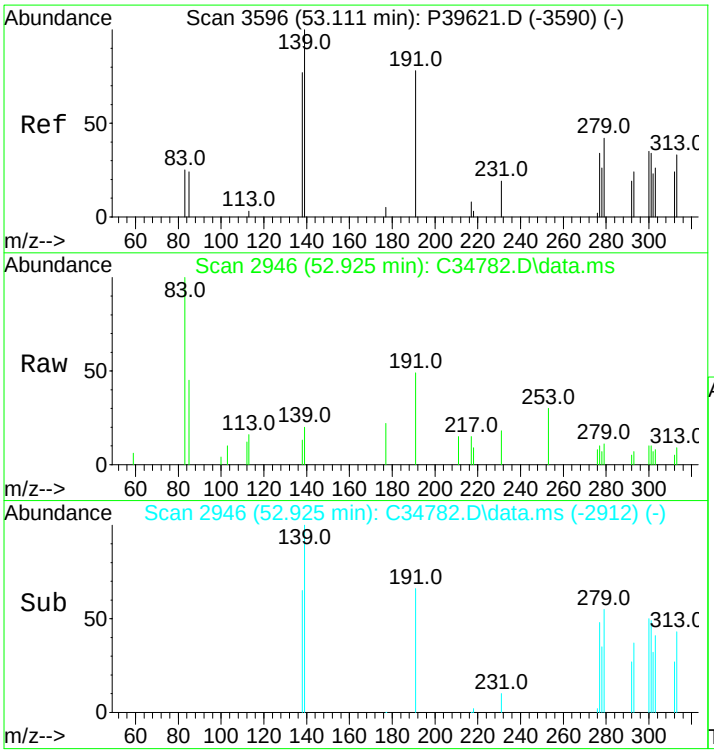




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 21.11 ng/ml m
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

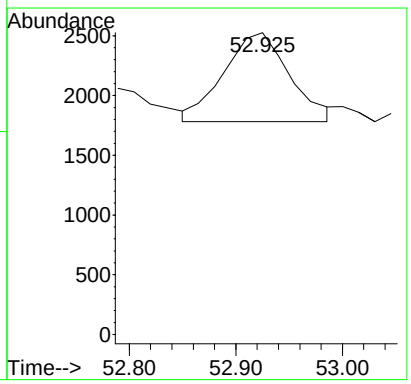
Tgt Ion:191 Resp: 590

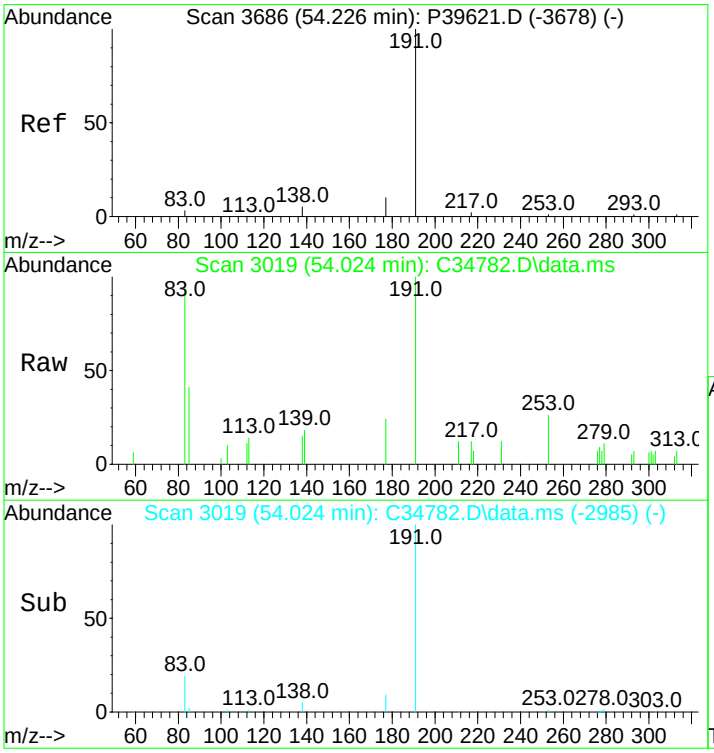




#115
Moretane (T20)
Concen: 113.98 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

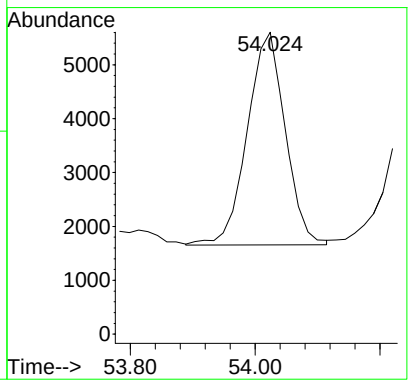
Tgt Ion:191 Resp: 3186

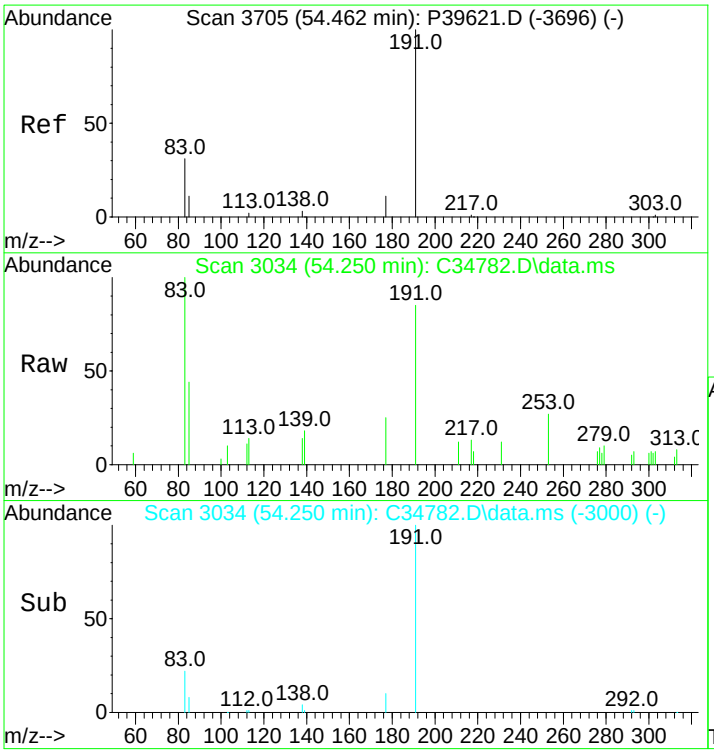




#116
30-Homohopane-22S (T21)
Concen: 596.92 ng/ml
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

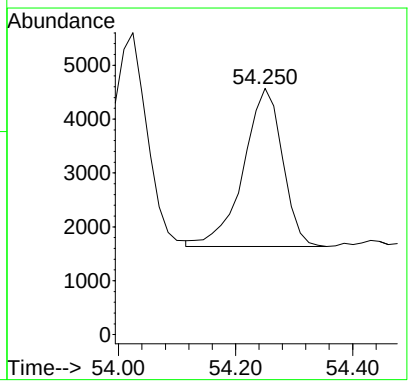
Tgt Ion:191 Resp: 16685

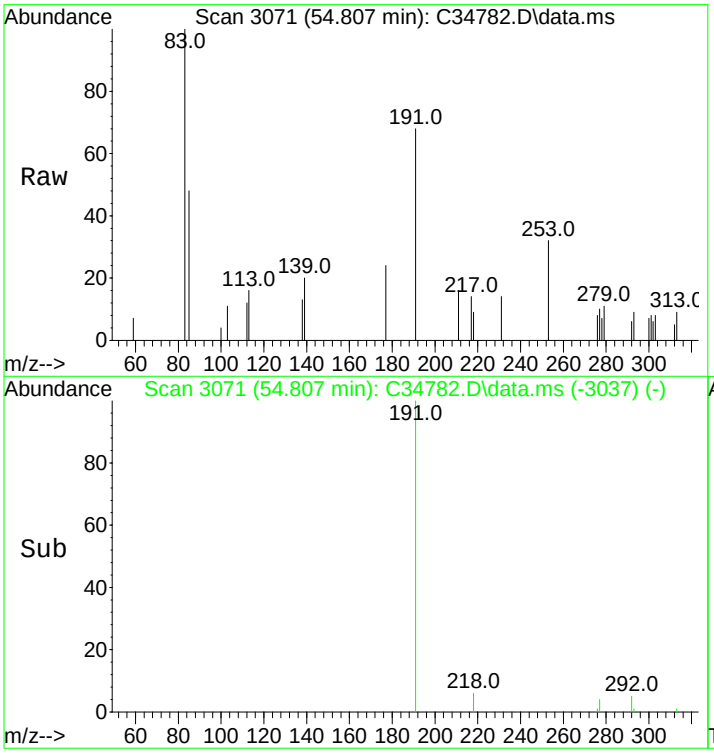




#117
30-Homohopane-22R (T22)
Concen: 486.34 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

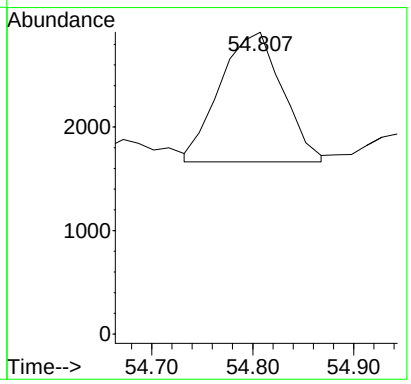
Tgt Ion:191 Resp: 13594

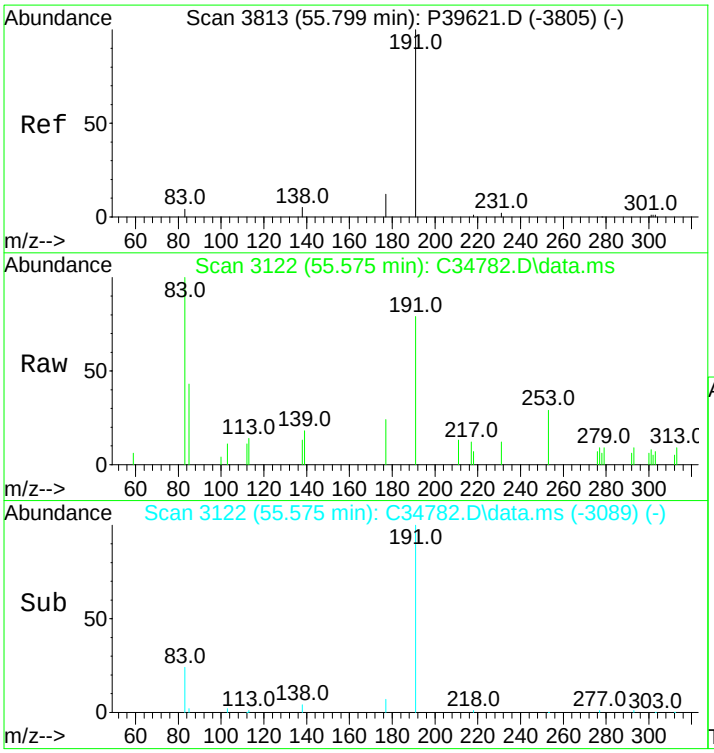




#118
Gammacerane/C32-diahopane
Concen: 192.19 ng/mL m
RT: 54.807 min Scan# 3071
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

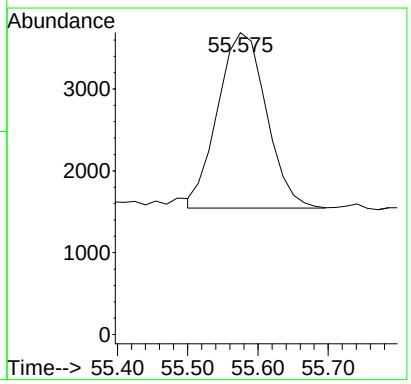
Tgt Ion:191 Resp: 5372

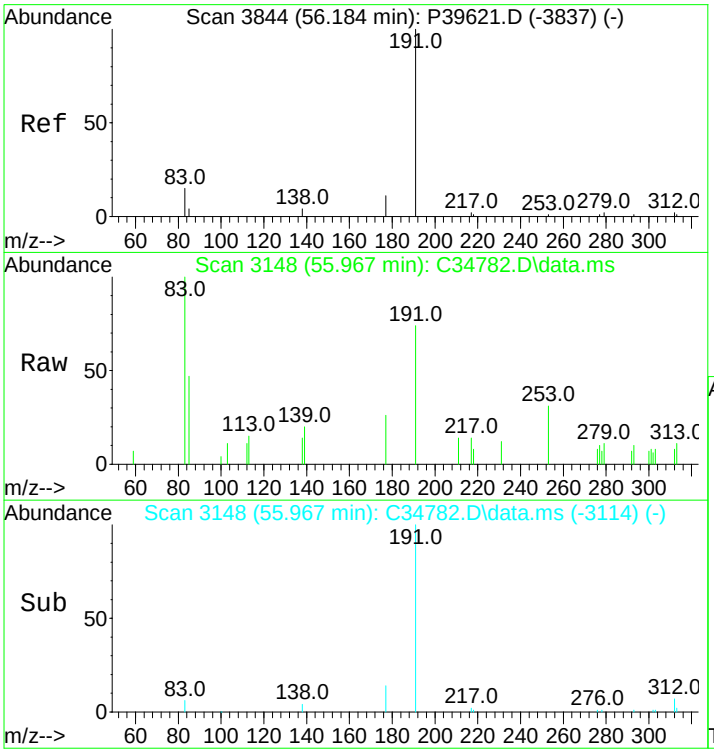




#119
30,31-Bishomohopane-22S (T26)
Concen: 365.56 ng/ml m
RT: 55.575 min Scan# 3122
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

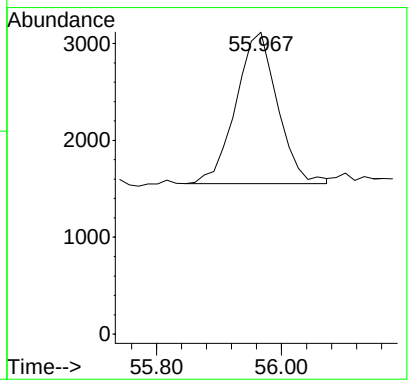
Tgt Ion:191 Resp: 10218

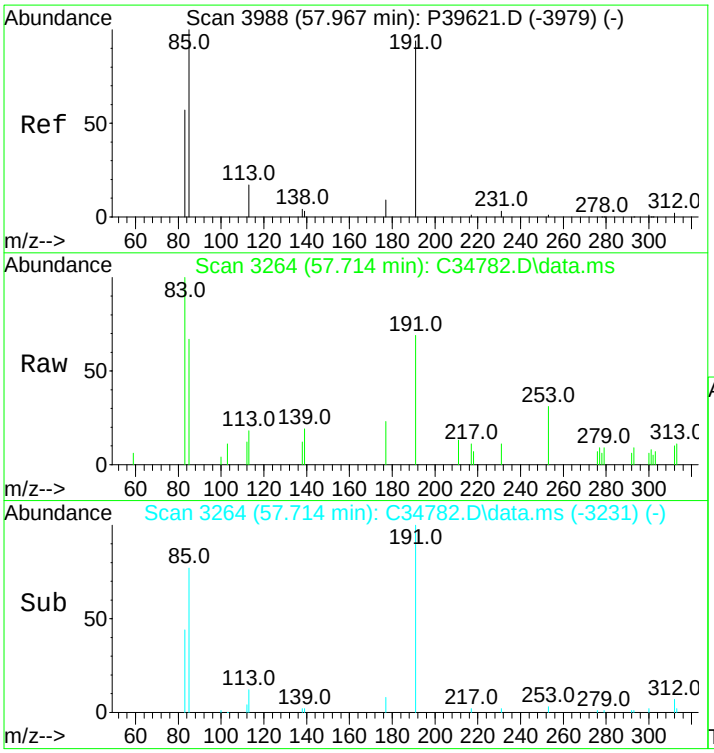




#120
30,31-Bishomohopane-22R (T27)
Concen: 259.20 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

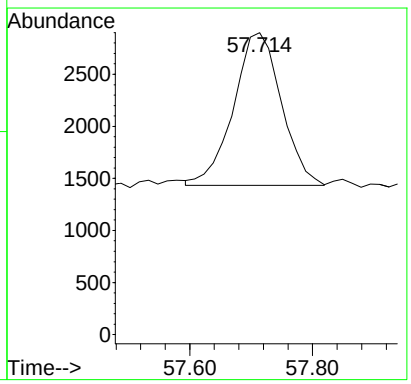
Tgt Ion:191 Resp: 7245

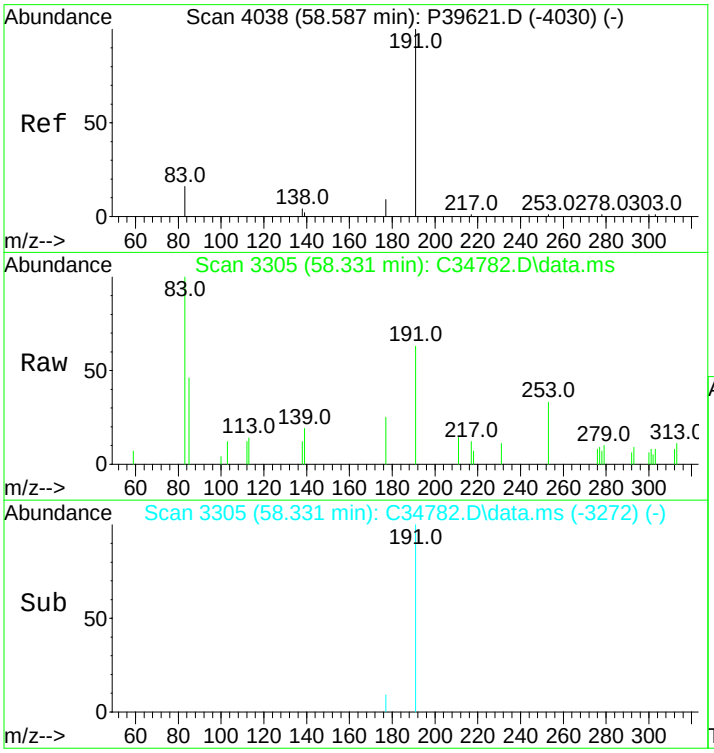




#121
30,31-Trishomohopane-22S (T30)
Concen: 284.06 ng/ml m
RT: 57.714 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

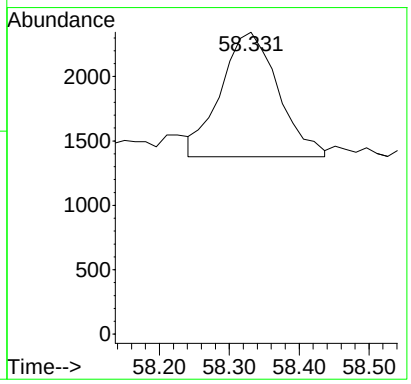
Tgt Ion:191 Resp: 7940

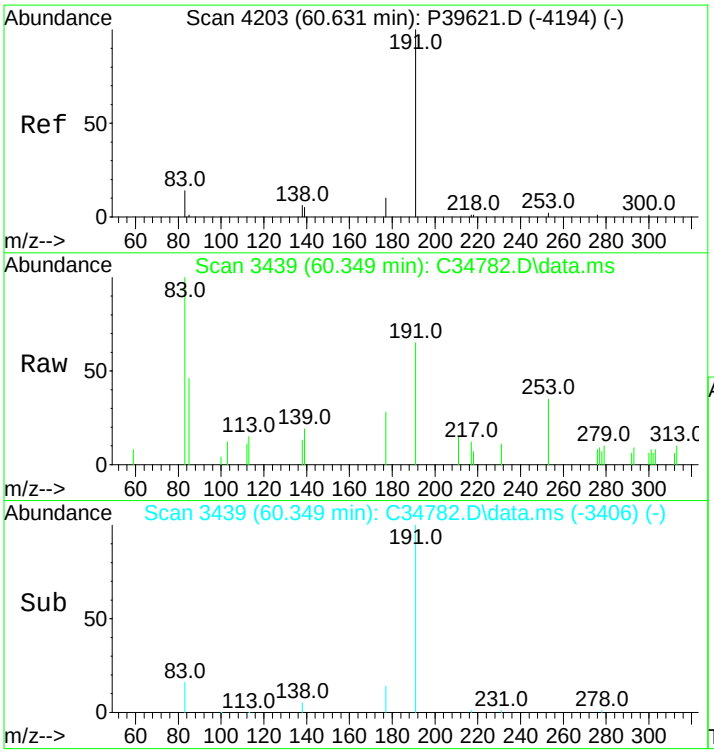




#122
30,31-Trishomohopane-22R (T31)
Concen: 197.09 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

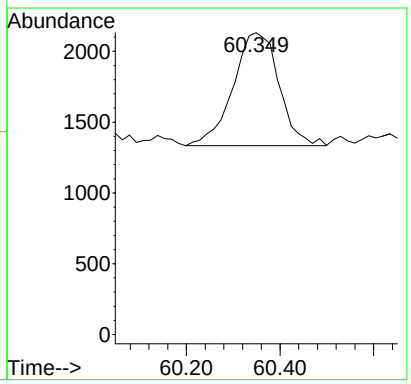
Tgt Ion:191 Resp: 5509

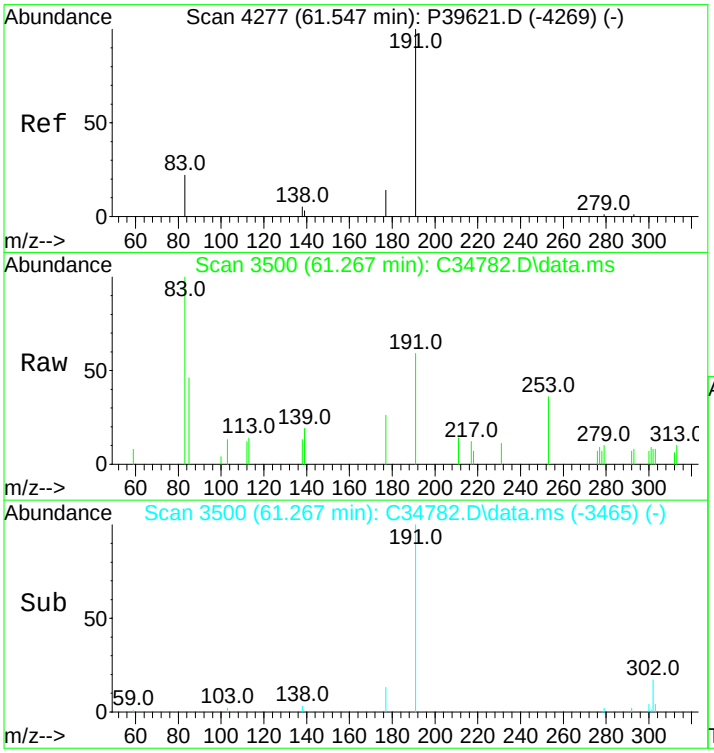




#123
Tetrakishomohopane-22S (T32)
Concen: 194.16 ng/ml
RT: 60.349 min Scan# 3439
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

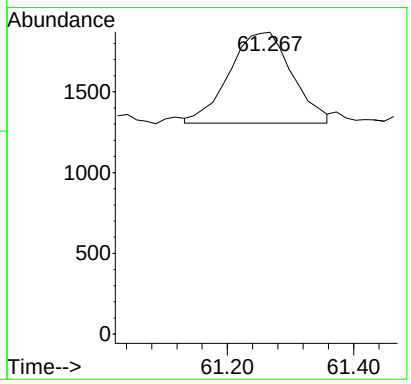
Tgt Ion:191 Resp: 5427

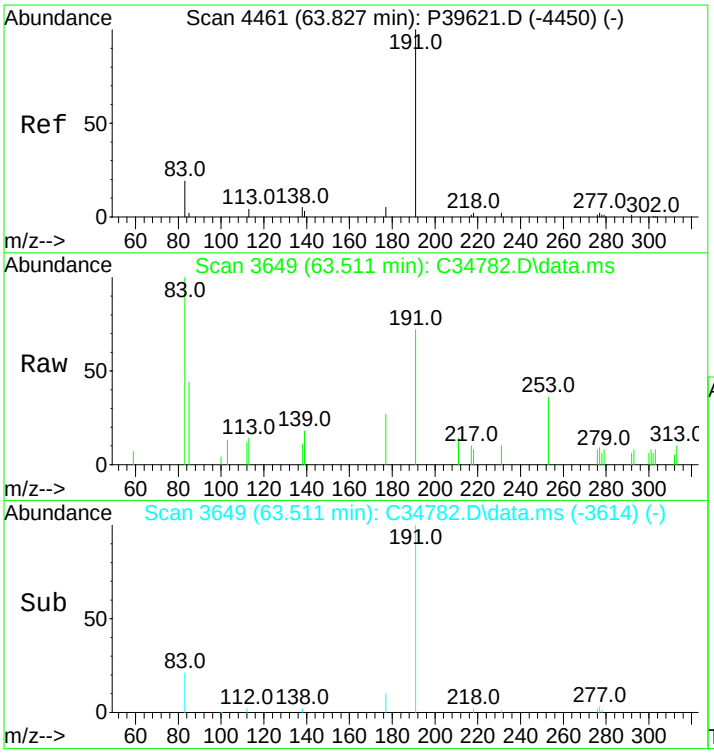




#124
Tetrakishomohopane-22R (T33)
Concen: 138.92 ng/ml m
RT: 61.267 min Scan# 3500
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

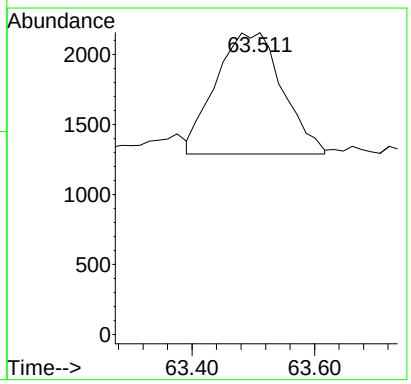
Tgt Ion:191 Resp: 3883

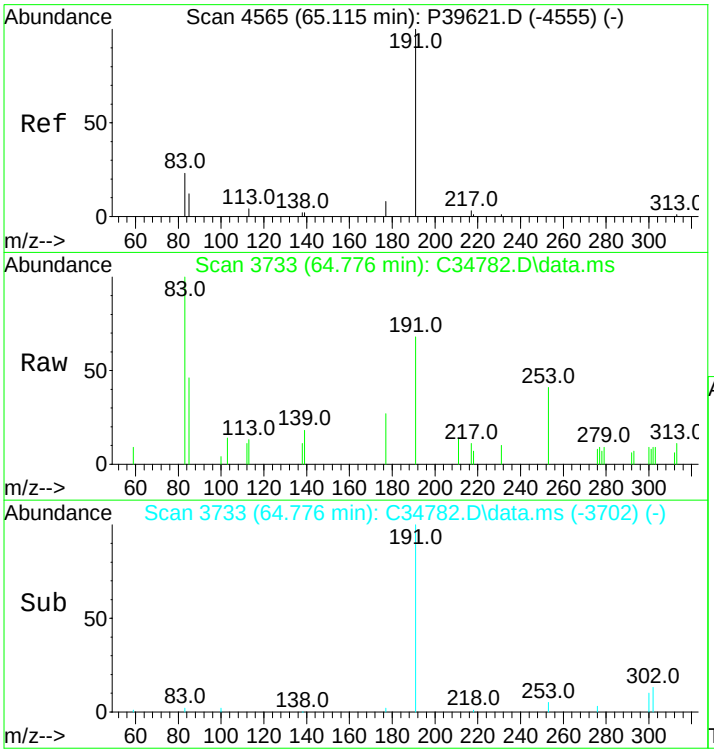




#125
Pentakishomohopane-22S (T34)
Concen: 233.83 ng/ml m
RT: 63.511 min Scan# 3649
Delta R.T. 0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

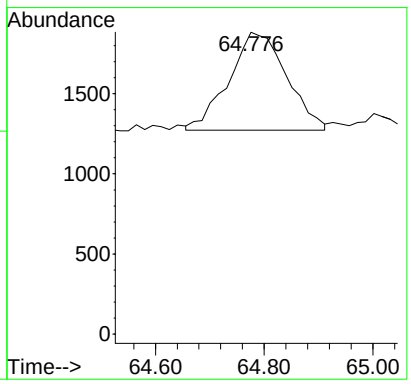
Tgt Ion:191 Resp: 6536

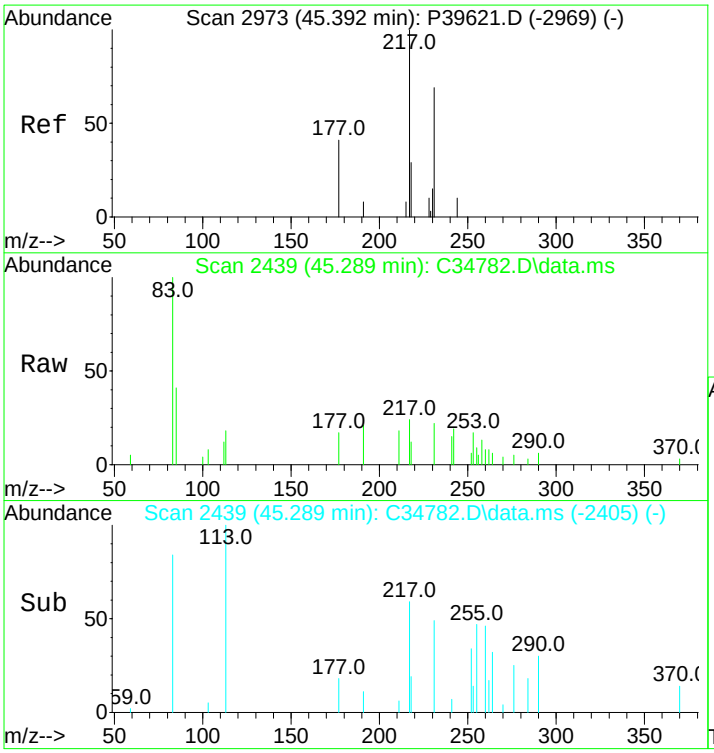




#126
Pentakishomohopane-22R (T35)
Concen: 160.92 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

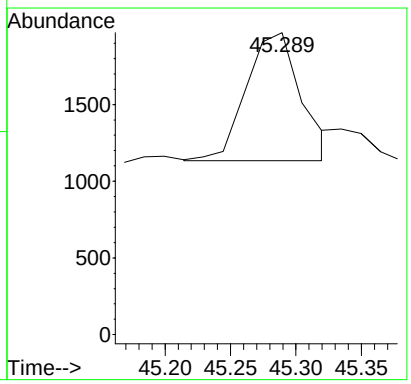
Tgt Ion:191 Resp: 4498

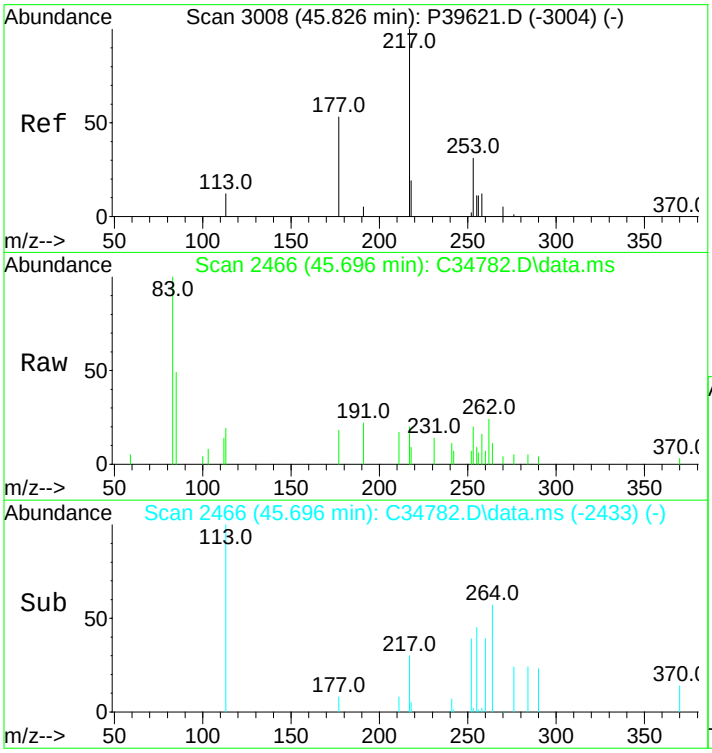




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 182.88 ng/ml m
RT: 45.289 min Scan# 2439
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

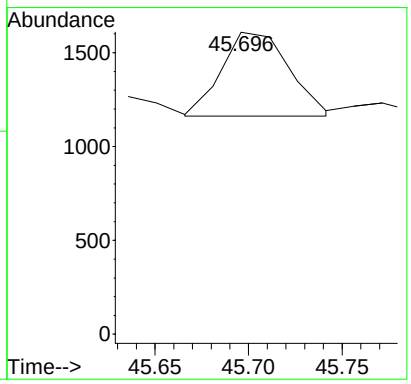
Tgt Ion:217 Resp: 2425

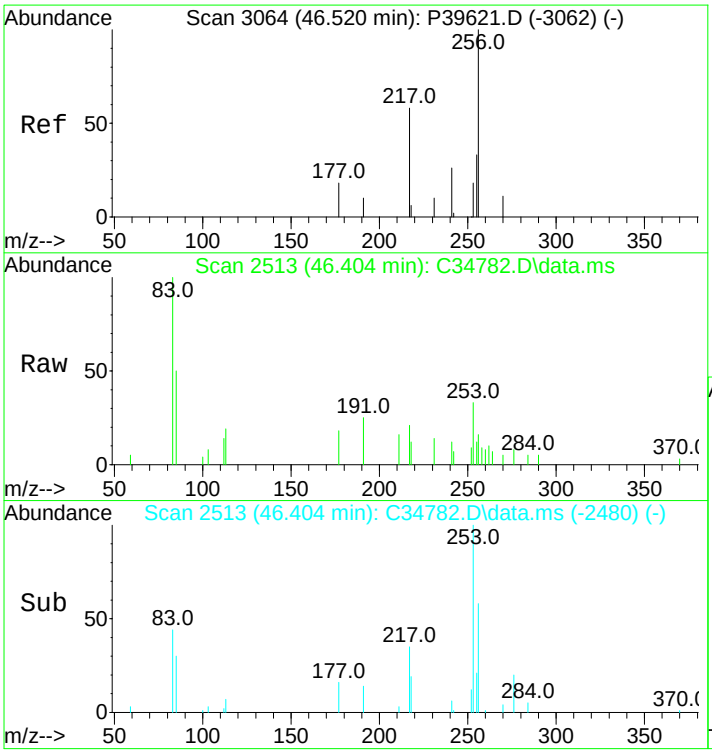




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 84.77 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

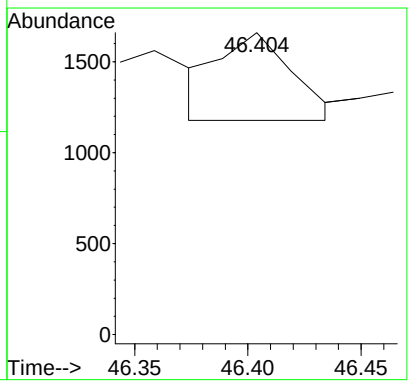
Tgt Ion:217 Resp: 1124

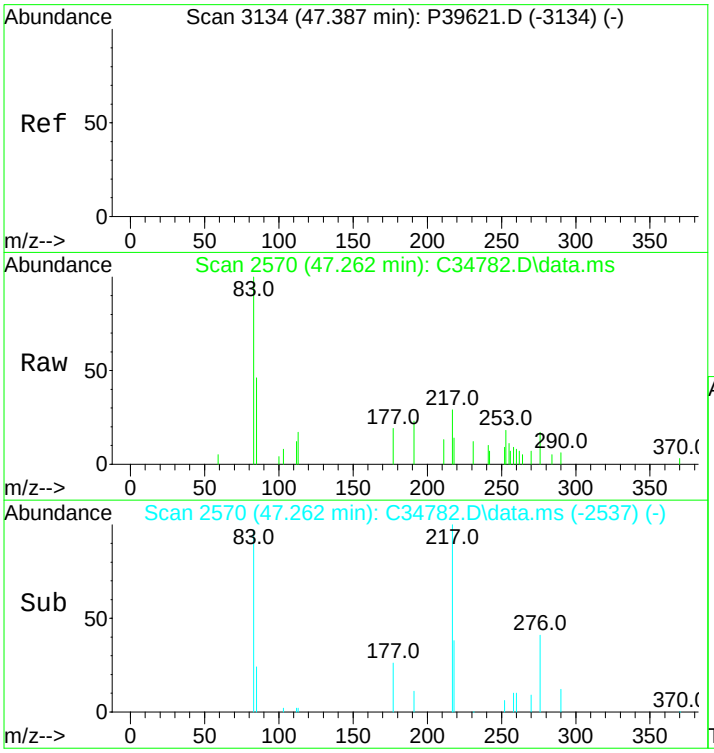




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 81.15 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

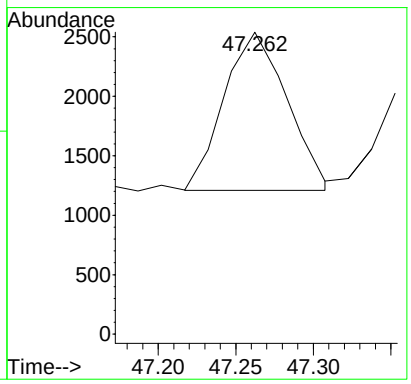
Tgt Ion:217 Resp: 1076

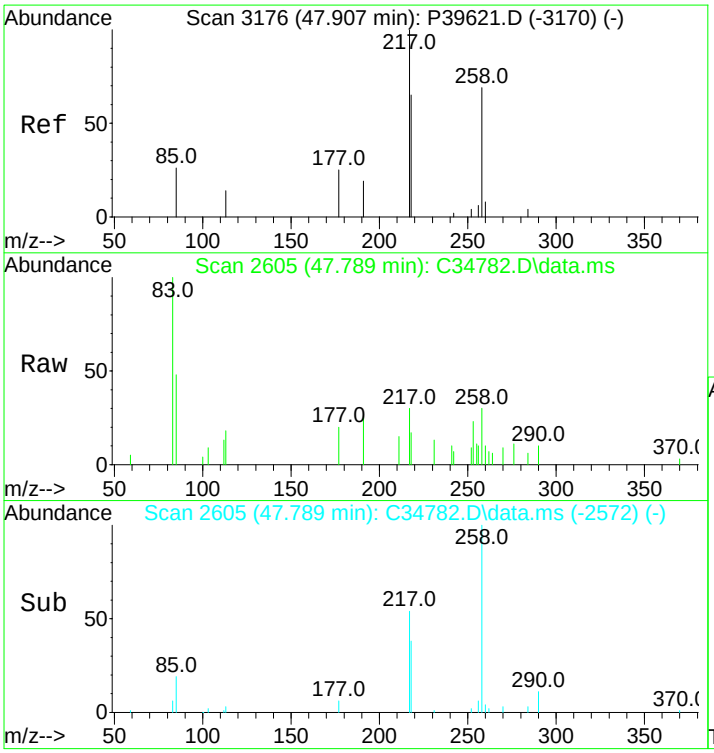




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 285.22 ng/ml m
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

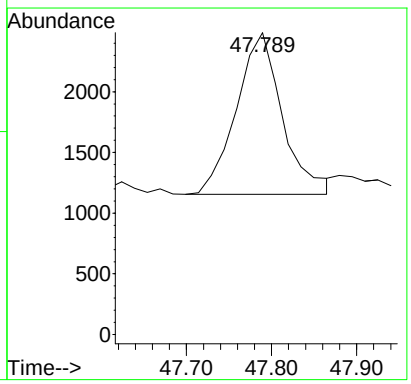
Tgt Ion:217 Resp: 3782

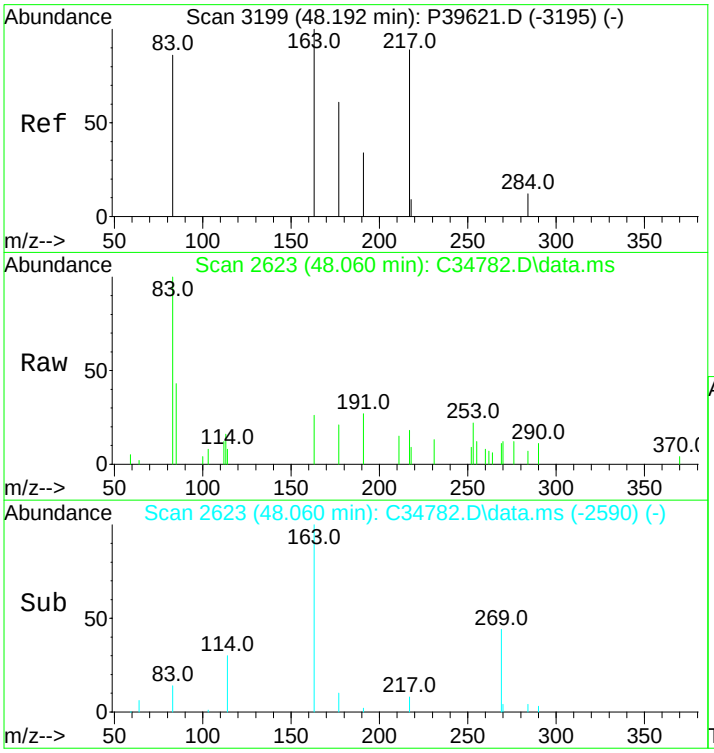




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 377.53 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

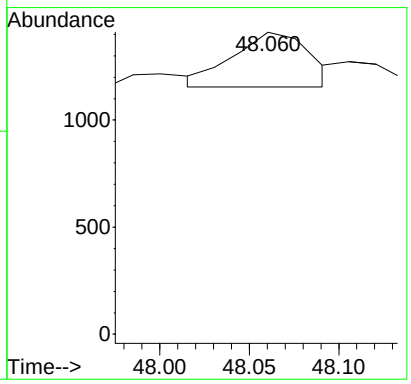
Tgt Ion:217 Resp: 5006

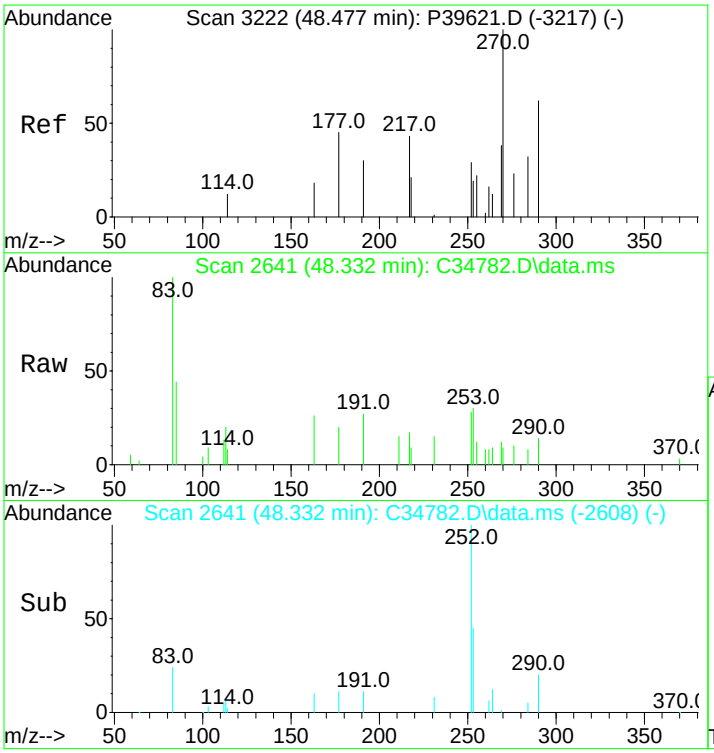




#133
Unknown Sterane (S18)
Concen: 57.01 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

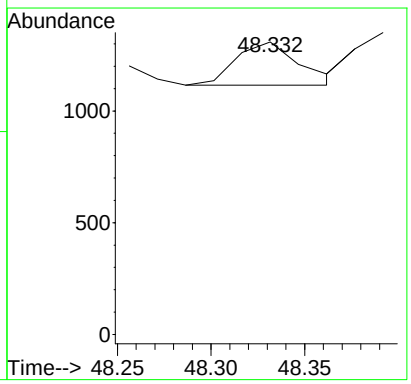
Tgt Ion:217 Resp: 756

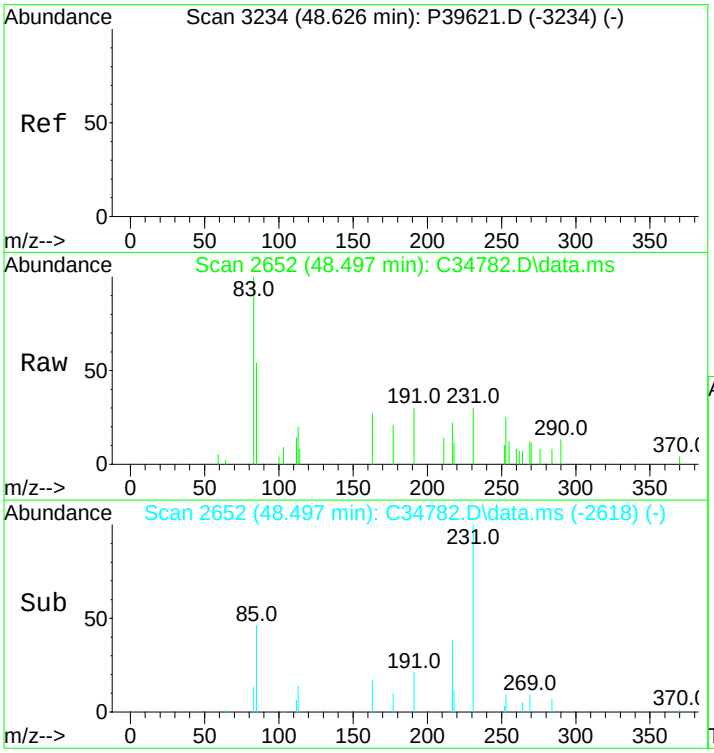




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 34.46 ng/ml
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

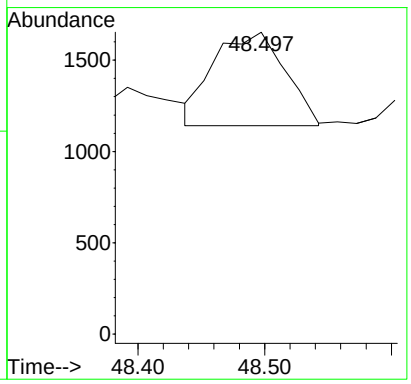
Tgt Ion:217 Resp: 457

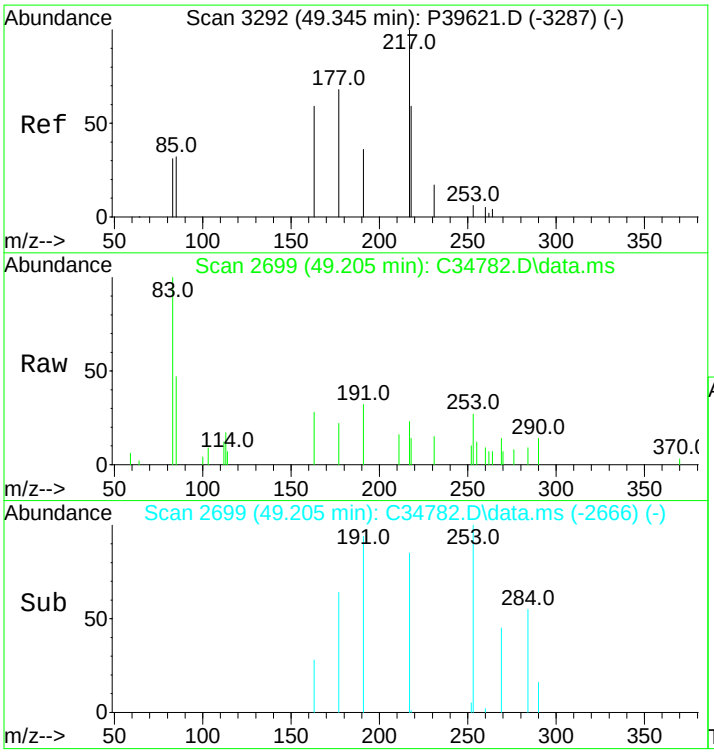




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 150.00 ng/ml m
RT: 48.497 min Scan# 2652
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

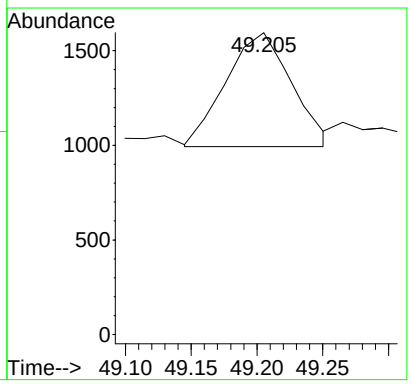
Tgt Ion:217 Resp: 1989

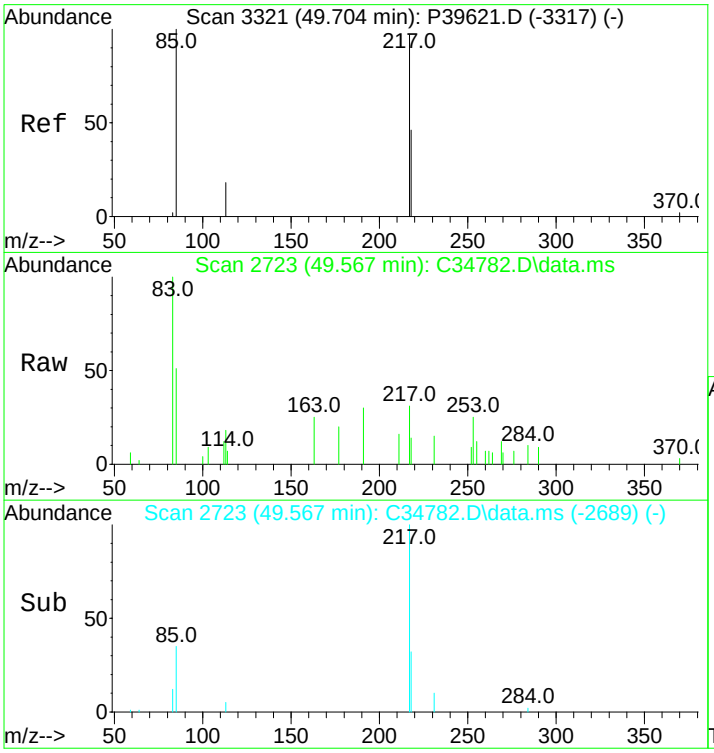




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 157.77 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

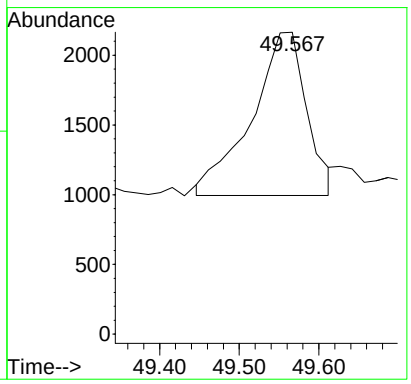
Tgt Ion:217 Resp: 2092

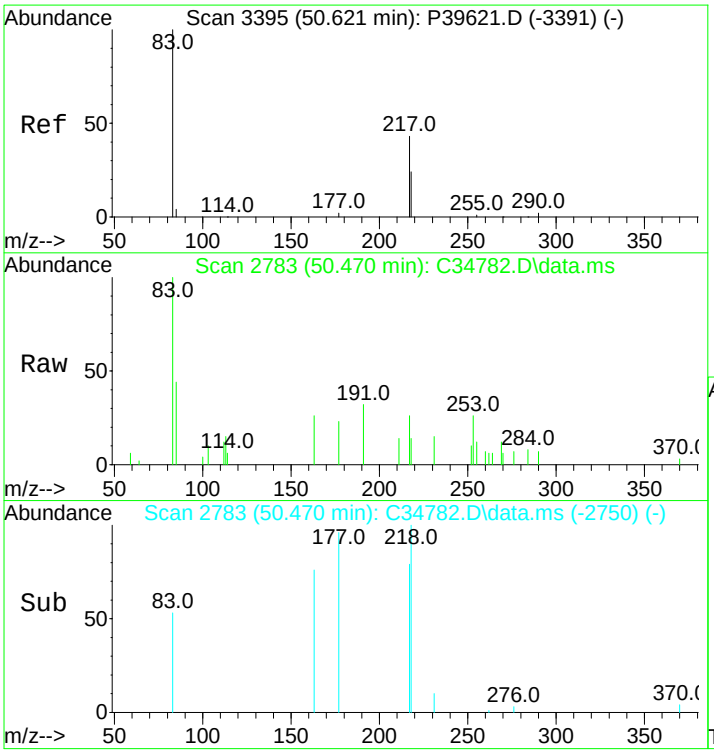




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 423.76 ng/ml m
RT: 49.567 min Scan# 2723
Delta R.T. 0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

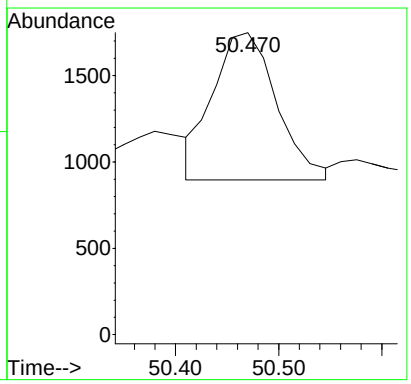
Tgt Ion:217 Resp: 5619

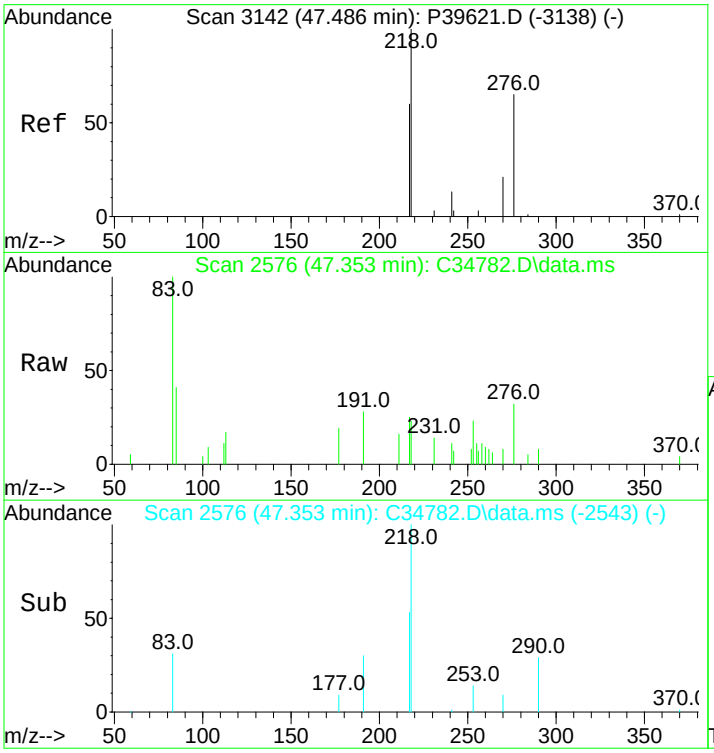




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 276.32 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

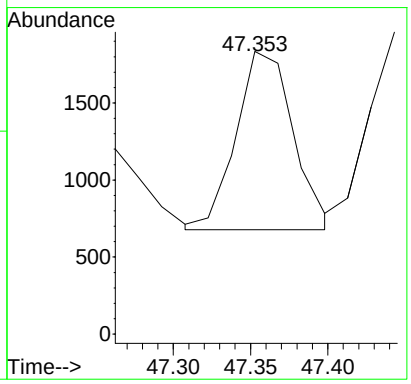
Tgt Ion:217 Resp: 3664

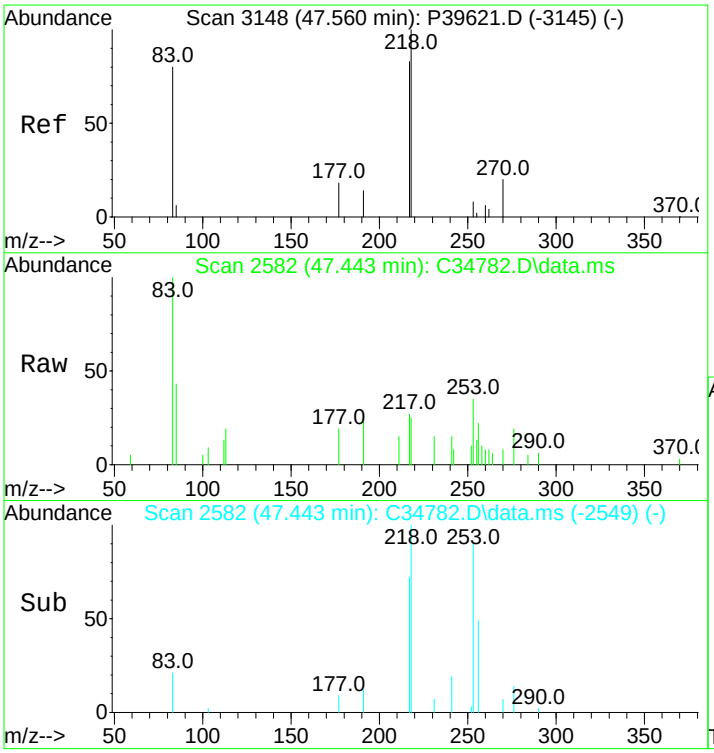




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 225.19 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

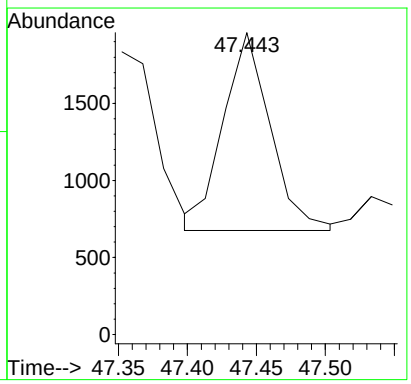
Tgt Ion:218 Resp: 2986

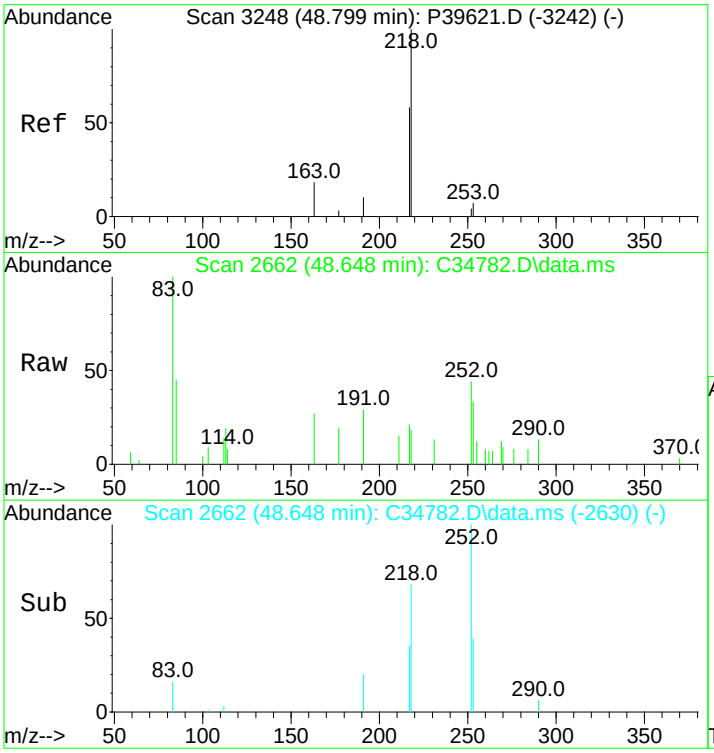




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 229.57 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

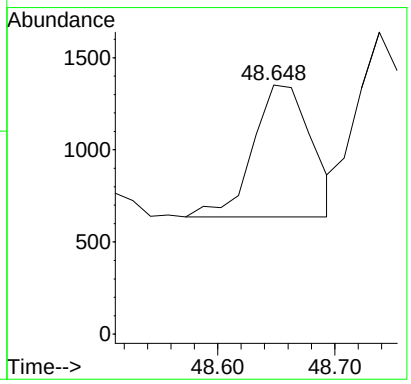
Tgt Ion:218 Resp: 3044

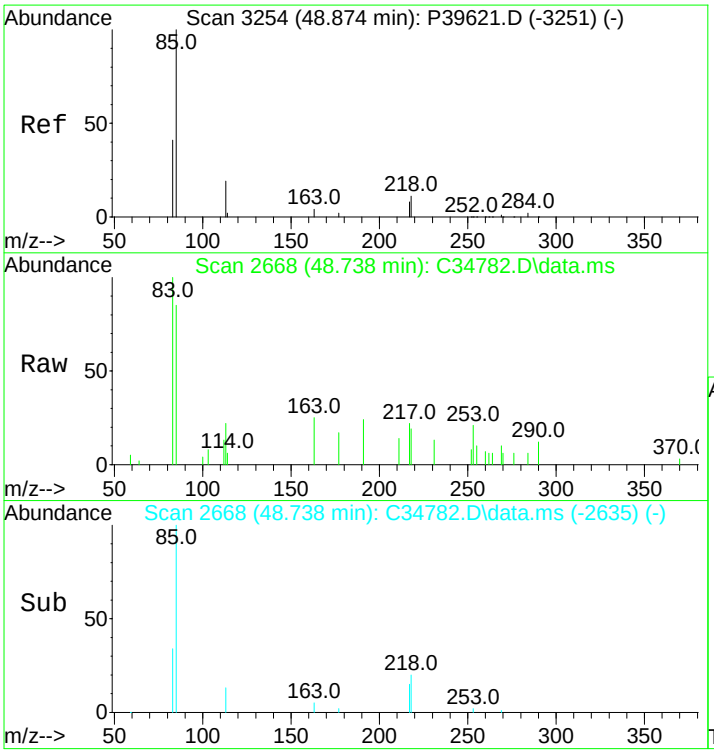




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 188.61 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

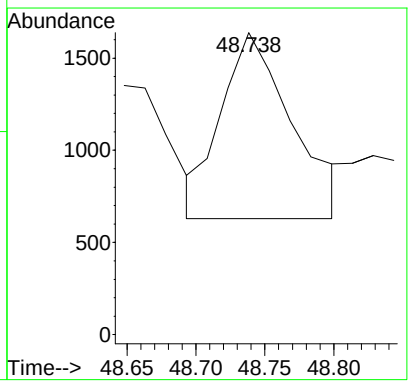
Tgt Ion:218 Resp: 2501

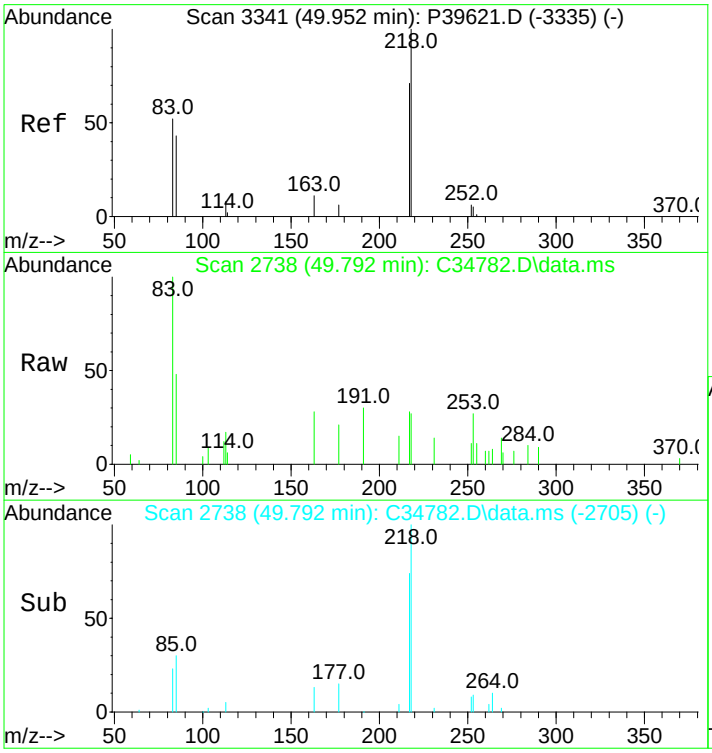




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 272.85 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

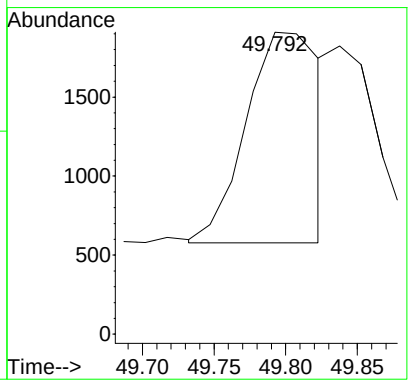
Tgt Ion:218 Resp: 3618

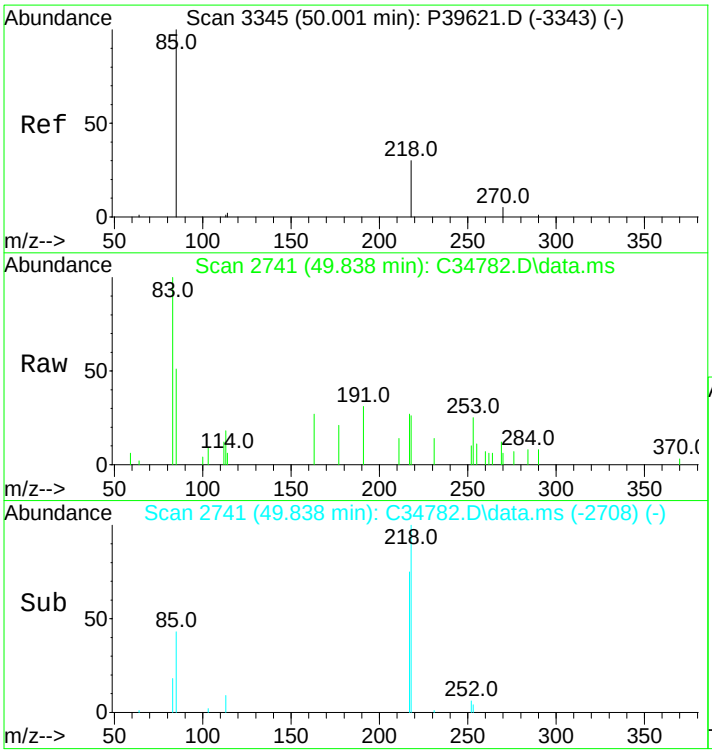




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 360.49 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

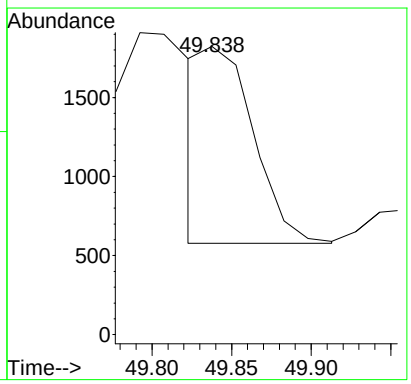
Tgt Ion:218 Resp: 4780

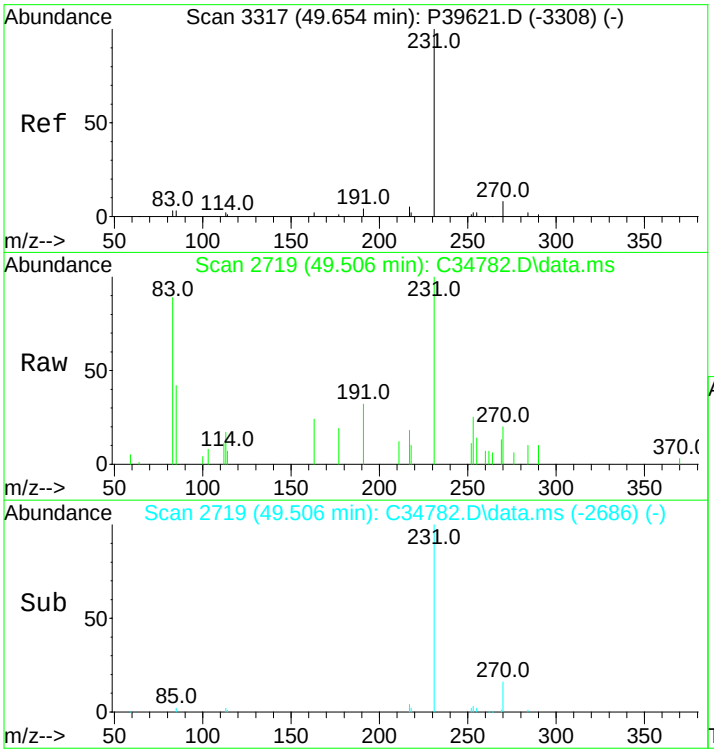




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 211.09 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

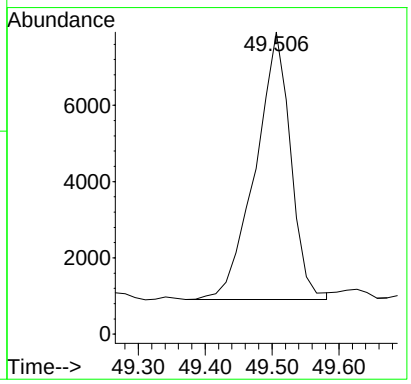
Tgt Ion:218 Resp: 2799

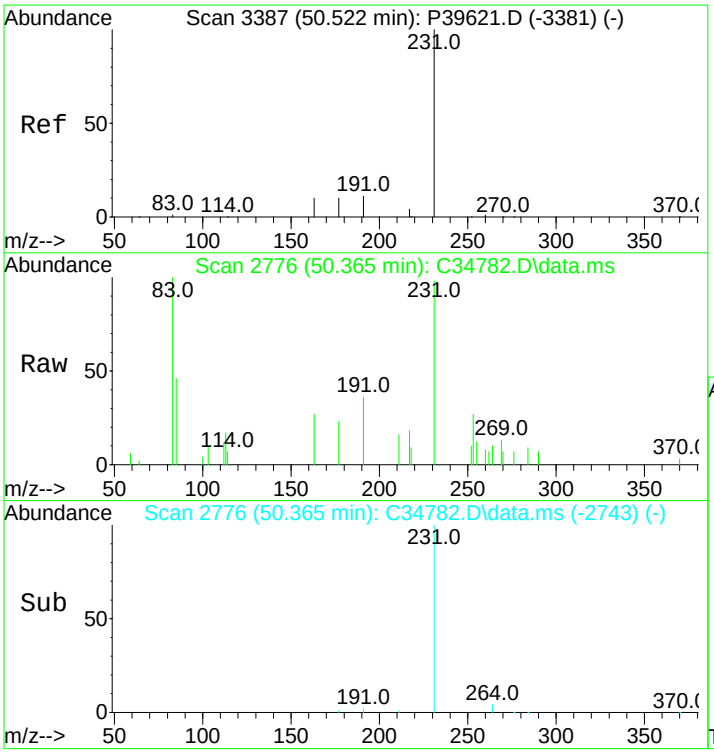




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1937.66 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

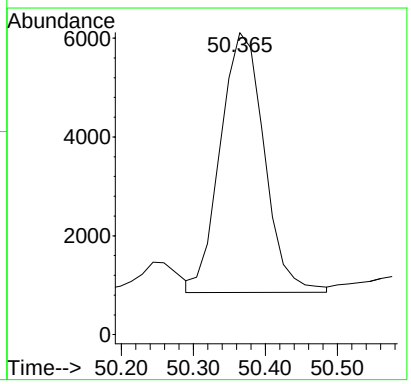
Tgt Ion:231 Resp: 25693

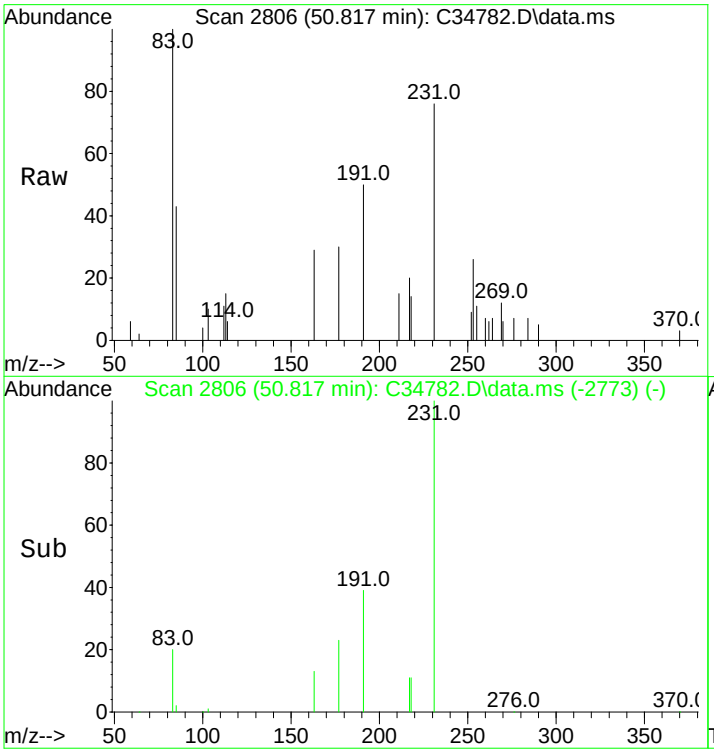




#146
C28,20S-triaromatic steroid
Concen: 1676.94 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

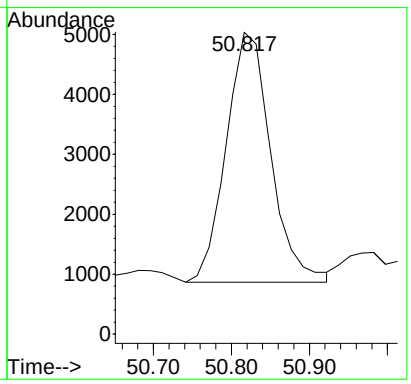
Tgt Ion:231 Resp: 22236

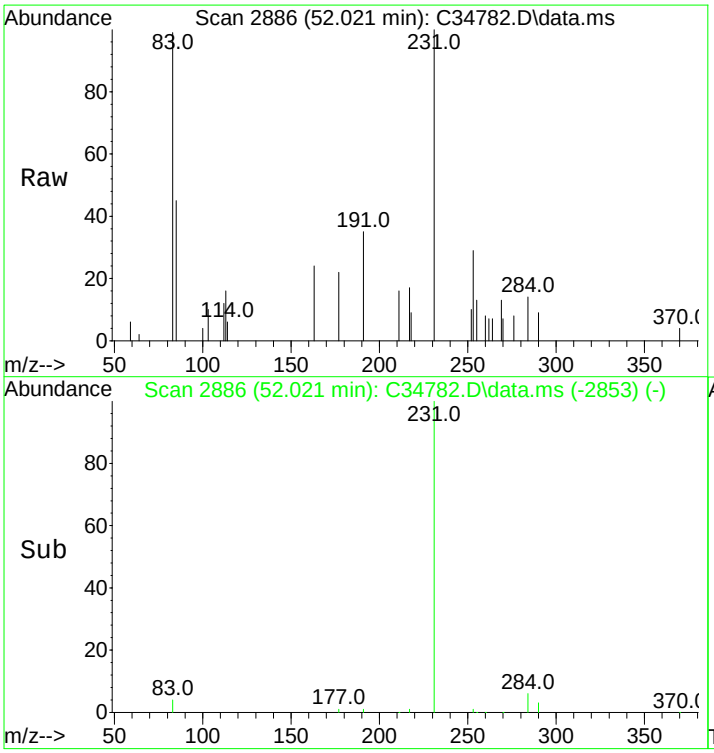




#147
C27,20R-triaromatic steroid
Concen: 1254.16 ng/mL
RT: 50.817 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

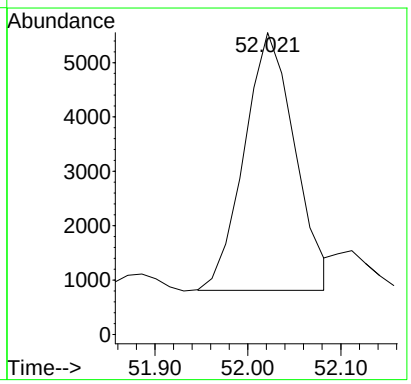
Tgt Ion:231 Resp: 16630





#148
C28,20R-triaromatic steroid
Concen: 1353.49 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34782.D
Acq: 2 May 2012 4:01 pm

Tgt Ion:231 Resp: 17947



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	22062M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	38237	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	88122	920.289	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.03%			
42) Phenanthrene-d10	32.567	188	77260	1020.797	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.08%			
86) Benzo[a]pyrene-d12	48.241	264	65170	822.405	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.24%			
127) 5B(H)Cholane - Surr	43.769	217	13541	1132.680	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 113.27%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	13203	758.099	ng/mL	100
4) cis-Decalin	17.603	138	771M3	58.739	ng/mL	
5) C1-Decalins	17.874	152	24226M5	1391.026	ng/mL	
6) C2-Decalins	19.650	166	33895M5	1946.207	ng/mL	
7) C3-Decalins	22.119	180	20987M5	1205.046	ng/mL	
8) C4-Decalins	25.507	194	21234M5	1219.229	ng/mL	
10) Naphthalene	19.801	128	44897	319.299	ng/mL#	100
11) C1-Naphthalenes	22.496	142	121461M5	863.807	ng/mL	
12) C2-Naphthalenes	25.341	156	282454M5	2008.758	ng/mL	
13) C3-Naphthalenes	28.021	170	310493M5	2208.166	ng/mL	
14) C4-Naphthalenes	30.445	184	221158M5	1572.833	ng/mL	
16) 2-Methylnaphthalene	22.496	142	74743	898.999	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	46894	575.428	ng/mL#	100
18) Benzothiophene	20.027	134	3651	28.854	ng/mL	100
19) C1-Benzo(b)thiophenes	22.074	148	18291M5	144.556	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	32517M5	256.985	ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	62005M5	490.032	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	60845M5	480.864	ng/mL	
23) Biphenyl	24.378	154	8982	85.404	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	71653	1048.977	ng/mL#	100
25) Dibenzofuran	27.464	168	4664	38.619	ng/mL#	39
26) Acenaphthylene	26.079	152	2132	15.274	ng/mL#	100
27) Acenaphthene	26.816	153	5817M3	70.779	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.382	170	23140M3	420.239	ng/mL	
29) Fluorene	28.834	166	13677M3	150.892	ng/mL	
30) C1-Fluorenes	31.212	180	37348M5	412.044	ng/mL	
31) C2-Fluorenes	33.410	194	68276M5	753.259	ng/mL	
32) C3-Fluorenes	35.232	208	80306M5	885.981	ng/mL	
33) Dibenzothiophene	32.161	184	41844	287.991	ng/mL#	66
34) 4-Methyldibenzothiophene(	33.937	198	49801	342.755	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.283	198	40101M3	275.995	ng/mL	
36) 1-Methyldibenzothiophene(	34.705	198	27375	188.408	ng/mL#	100
37) OTP	34.344	198	14341M3	98.702	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	139894M5	962.820	ng/mL	
38) C1-Dibenzothiophenes BS	33.937	198	125553m	864.118	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	220560M5	1518.003	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	229447M5	1579.168	ng/mL	
41) C4-Dibenzothiophenes	39.131	240	152263M5	1047.950	ng/mL	
43) Phenanthrene	32.657	178	52113	408.233	ng/mL#	84
44) 3-Methylphenanthrene(3MP)	34.615	192	27087M3	212.189	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.735	192	30942	242.388	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	2145M3	16.803	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	44141	345.784	ng/mL	100
48) 1-Methylphenanthrene(1MP)	35.172	192	26134M3	204.724	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.066	192	131235M5	1028.045	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.888	206	176322M5	1381.239	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50)	C2-Phenanthrenes/Anthr BS	36.888	206	176322m	1381.239	ng/mL	
52)	C3-Phenanthrenes/Anthrace	39.990	220	143713M5	1125.793	ng/mL	
53)	C4-Phenanthrenes/Anthrace	39.643	234	72068M5	564.553	ng/mL	
54)	Retene	39.643	234	8329M3	334.477	ng/mL	
56)	Carbazole	33.500	167	2911M3	23.112	ng/mL	
57)	1-Methylphenanthrene	35.172	192	25890M3	320.036	ng/mL	
58)	Fluoranthene	37.430	202	4454M3	35.131	ng/mL	
60)	Pyrene	38.318	202	14472M3	112.292	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.704	216	46715M5	362.475	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	42.173	230	60701M5	470.996	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.528	244	70809M5	549.427	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.883	258	70035M5	543.421	ng/mL	
66)	Naphthobenzothiophene	42.173	234	17157	123.655	ng/ml	91
67)	Naphthobenzothiophene-2,1	42.173	234	17157	123.655	ng/mL	91
68)	Naphthobenzothiophene-1,2	42.504	234	4459M3	32.137	ng/mL	
69)	Naphthobenzothiophene-2,3	42.805	234	2950M3	21.261	ng/mL	
70)	C1-Naphthobenzothiophenes	44.251	248	80852M5	582.721	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262	118512M5	854.146	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	102816M5	741.021	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290	79535M5	573.229	ng/mL	
75)	Benz[a]anthracene	43.091	228	2679M3	22.074	ng/mL	
77)	Chrysene/Triphenylene	43.242	228	12551M3	102.435	ng/mL	
78)	C1-Chrysenes	44.732	242	32776M5	267.501	ng/mL	
79)	C2-Chrysenes	46.810	256	52123M5	425.401	ng/mL	
79)	C2-Chrysenes BS	46.810	256	52123m	425.401	ng/mL	
80)	C3-Chrysenes	48.015	270	60931M5	497.288	ng/mL	
81)	C4-Chrysenes	49.597	284	36855M5	300.792	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	4920M3	36.894	ng/mL	
83)	Benzo[j]+[k]fluoranthene	47.217	252	1994M3	13.734	ng/mL	
85)	Benzo[e]pyrene	48.151	252	7244M3	54.919	ng/mL	
87)	Benzo[a]pyrene	48.332	252	3782M3	29.780	ng/mL	
88)	Perylene	48.648	252	7029M3	51.789	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	53.136	276	3741M3	25.313	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.181	278	1864M3	13.259	ng/mL	
91)	Benzo[g,h,i]perylene	54.446	276	7367M3	47.182	ng/mL	
92)	Hopane (T19)	52.232	191	31973	1268.725	ng/mL#	79
94)	C23 Tricyclic Terpane (T4	40.803	191	13516M3	536.330	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.525	191	7524M3	298.561	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.046	191	7227M3	286.776	ng/ml	
97)	C24 Tetracyclic Terpane (	44.326	191	2819	111.861	ng/ml	100
98)	C26 Tricyclic Terpane-22S	44.070	191	3051M3	121.067	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.160	191	2816M3	111.742	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.449	191	2881M3	114.321	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.615	191	3300M3	130.948	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.127	191	4019M3	159.478	ng/ml	
103)	C29 Tricyclic Terpane-22R	47.322	191	3489M3	138.447	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.452	191	4237	168.129	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.542	191	3103M3	123.131	ng/ml	
106)	C30 Tricyclic Terpane-22R	48.783	191	2489M3	98.766	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.994	191	8815	349.789	ng/ml	100
108)	17a/b,21b/a 28,30-Bisnorh	50.184	191	5480	217.453	ng/ml	100
109)	17a(H),21b(H)-25-Norhopan	49.988	191	1479	58.688	ng/ml	100
110)	30-Norhopane (T15)	50.862	191	22515M3	893.421	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.967	191	3417M3	135.590	ng/ml	
112)	17a(H)-Diahopane (X)	51.088	191	842M3	33.412	ng/ml	
113)	30-Normoretane (T17)	51.630	191	2211M3	87.735	ng/ml	
114)	18a(H)&18b(H)-Oleananes (	52.036	191	679M3	26.943	ng/ml	
115)	Moretane (T20)	52.925	191	2589M3	102.734	ng/ml	
116)	30-Homohopane-22S (T21)	54.009	191	13484	535.060	ng/ml	100
117)	30-Homohopane-22R (T22)	54.250	191	11655	462.484	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191	4990M3	198.009	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119) 30,31-Bishomohopane-22S (	55.575	191	9599	380.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.967	191	5816	230.785	ng/ml	100
121) 30,31-Trishomohopane-22S	57.698	191	7057M3	280.030	ng/ml	
122) 30,31-Trishomohopane-22R	58.331	191	4758M3	188.803	ng/ml	
123) Tetrakishomohopane-22S (T	60.334	191	4790	190.073	ng/ml	100
124) Tetrakishomohopane-22R (T	61.237	191	2942M3	116.742	ng/ml	
125) Pentakishomohopane-22S (T	63.496	191	5594M3	221.976	ng/ml	
126) Pentakishomohopane-22R (T	64.776	191	4088	162.216	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.274	217	2162M3	180.847	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.696	217	1036M3	86.660	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.404	217	1001M3	83.732	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.262	217	3500M3	292.769	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.789	217	4271	357.261	ng/ml	100
133) Unknown Sterane (S18)	48.060	217	949	79.382	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.316	217	390	32.623	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.482	217	1983	165.874	ng/ml	100
136) 14a,17a-20R-Methylcholest	49.205	217	1785M3	149.312	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.551	217	4826M3	403.686	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.470	217	2510M3	209.957	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.353	218	2489M3	208.200	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.443	218	2575M3	215.394	ng/ml	
141) 14b,17b-20R-Methylcholest	48.648	218	1933	161.692	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.738	218	2840M3	237.561	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.792	218	4069M3	340.365	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.838	218	2318M3	193.897	ng/ml	
145) C26,20R- +C27,20S- triaro	49.506	231	22071	1846.200	ng/mL	100
146) C28,20S-triaromatic stero	50.365	231	19348	1618.425	ng/mL	100
147) C27,20R-triaromatic stero	50.816	231	14241	1191.234	ng/mL	100
148) C28,20R-triaromatic stero	52.021	231	15852M3	1325.991	ng/mL	

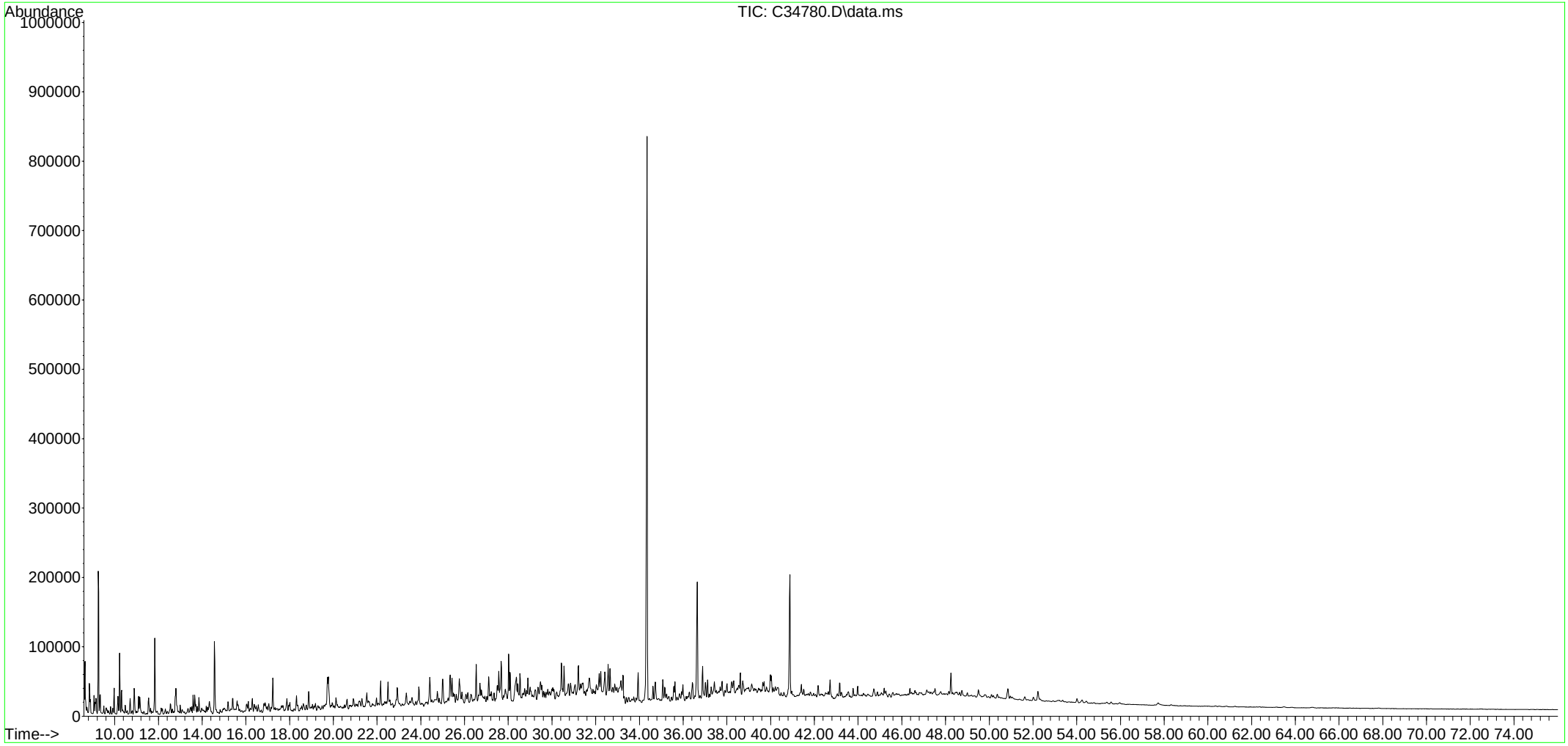
(#) = qualifier out of range (m) = manual integration (+) = signals summed

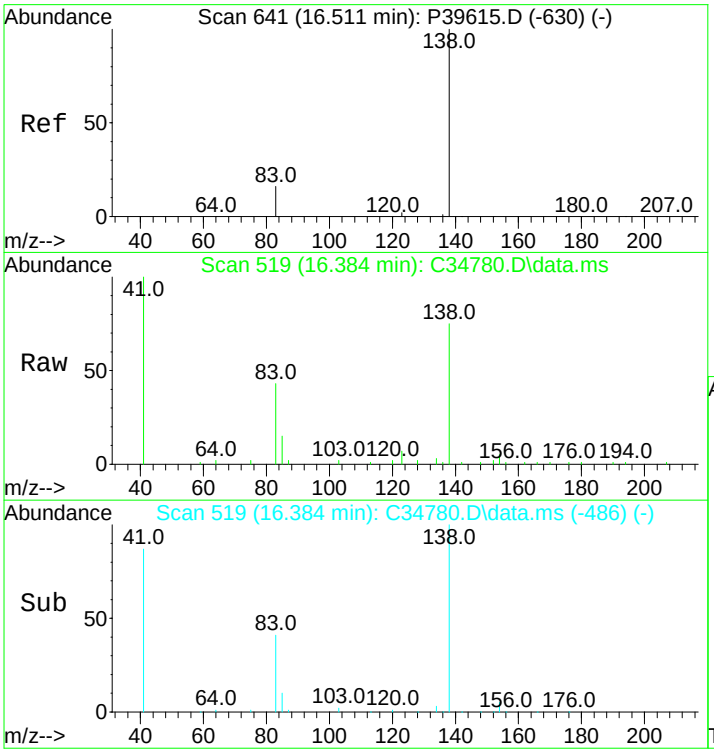
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34780.D
Acq On : 2 May 2012 2:31 pm
Operator : AC
Sample : SO050512WCS02
Misc : WHAP10
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 05 12:44:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

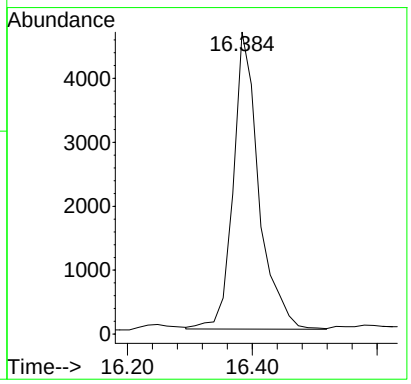
Sub List : Gulf_NEW_POIB_Default - All compounds listed

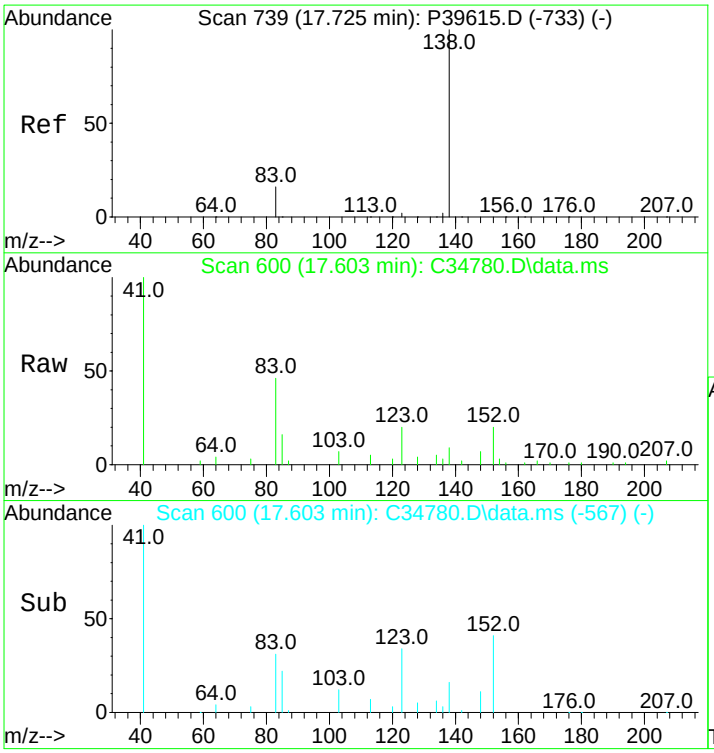




#3
trans-Decalin
Concen: 758.10 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

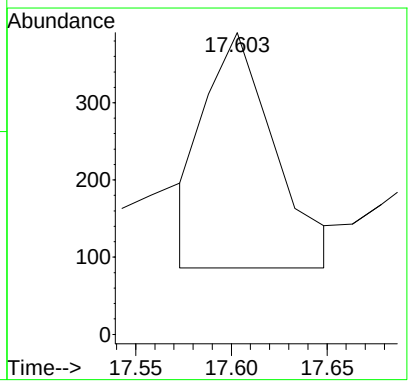
Tgt Ion:138 Resp: 13203

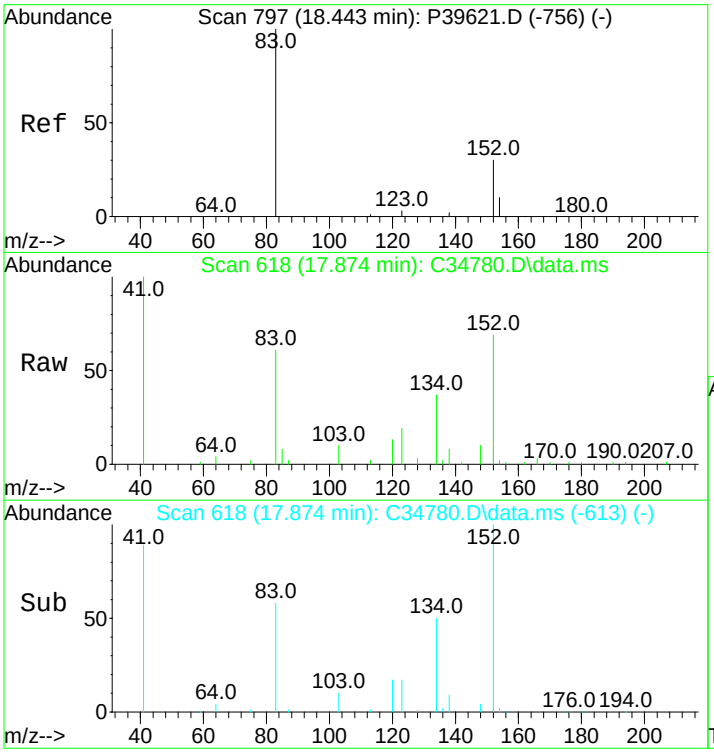




#4
cis-Decalin
Concen: 58.74 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

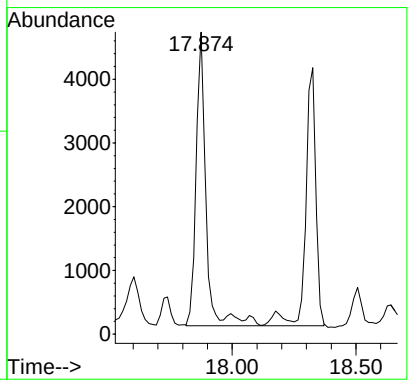
Tgt Ion:138 Resp: 771

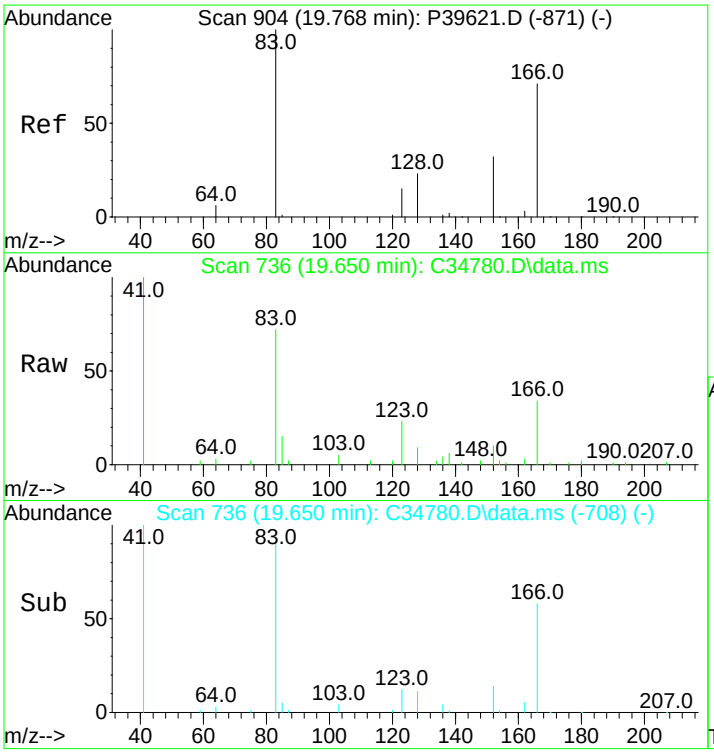




#5
C1-Decalins
Concen: 1391.03 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

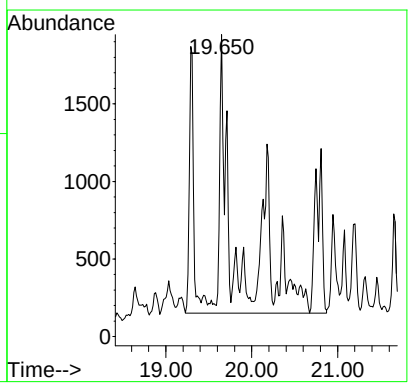
Tgt Ion:152 Resp: 24226

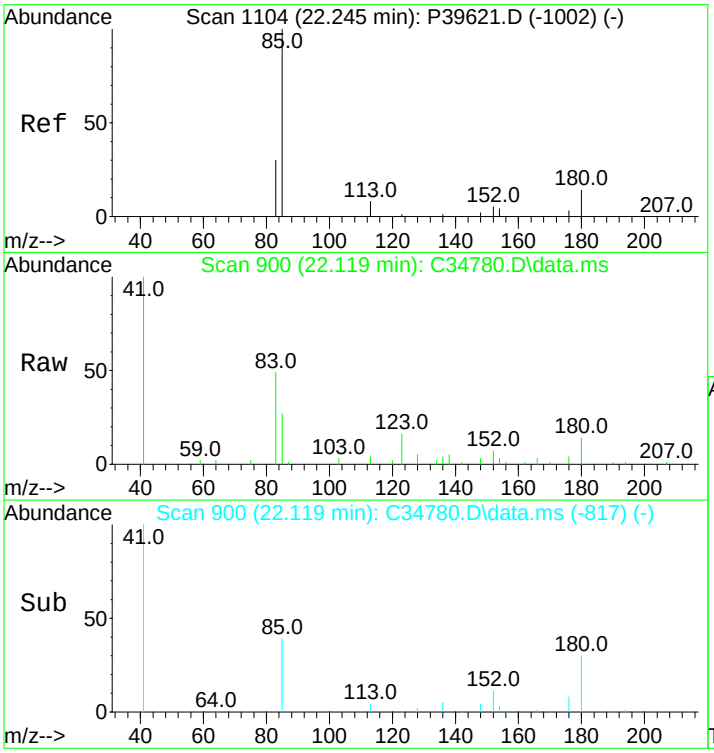




#6
C2-Decalins
Concen: 1946.21 ng/mL m
RT: 19.650 min Scan# 736
Delta R.T. -0.032 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

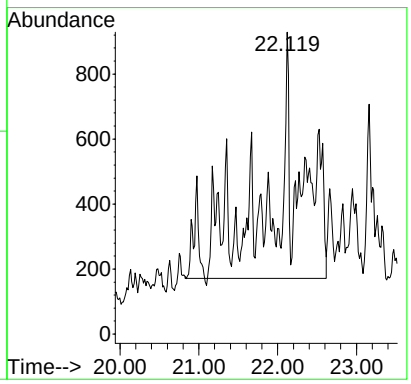
Tgt Ion:166 Resp: 33895

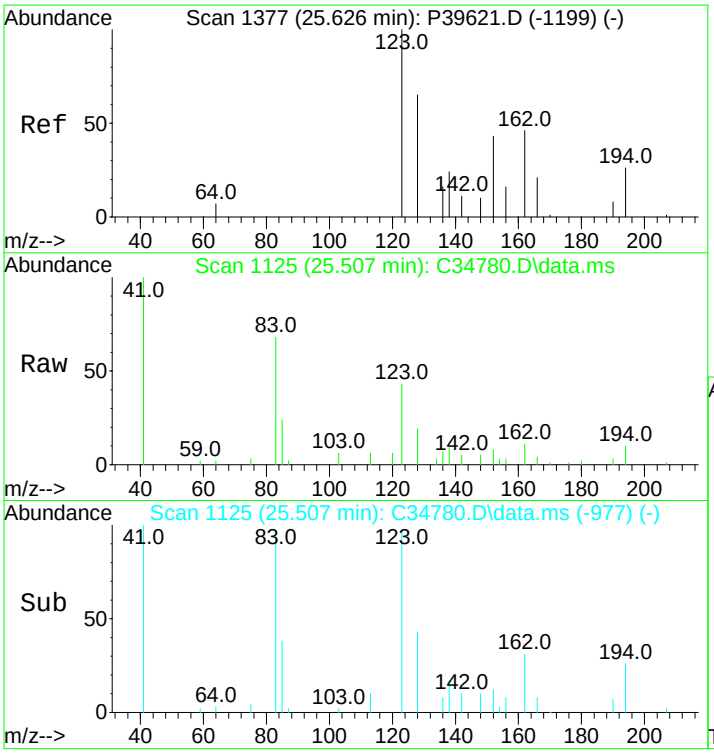




#7
C3-Decalins
Concen: 1205.05 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

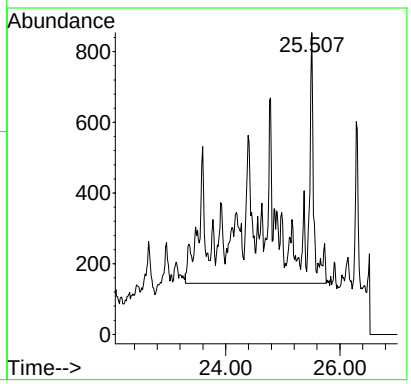
Tgt Ion:180 Resp: 20987

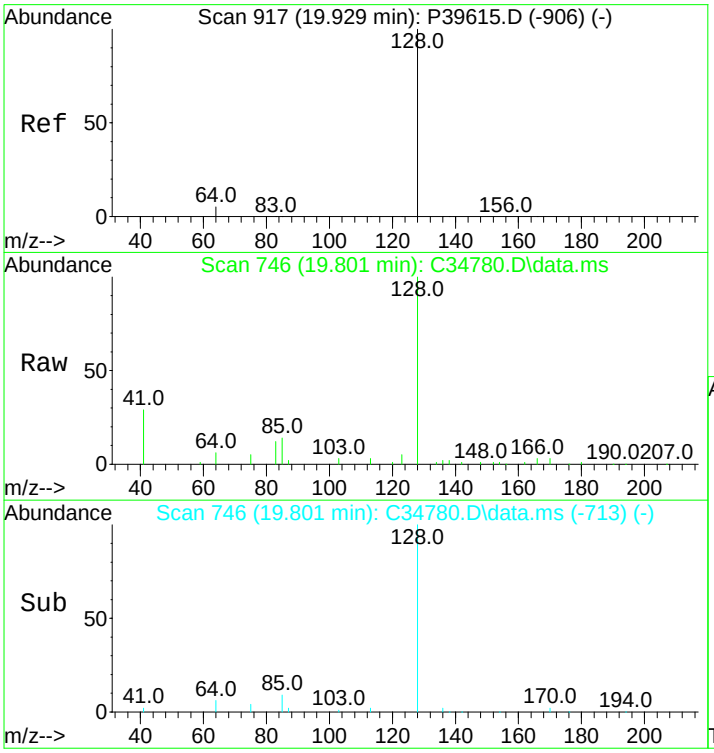




#8
C4-Decalins
Concen: 1219.23 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.005 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:194 Resp: 21234

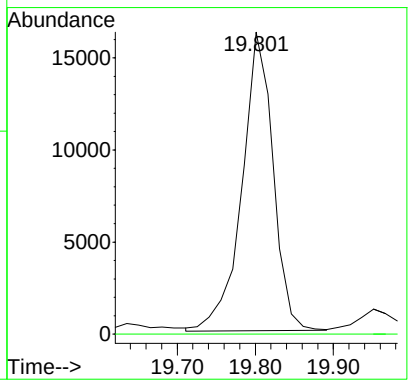


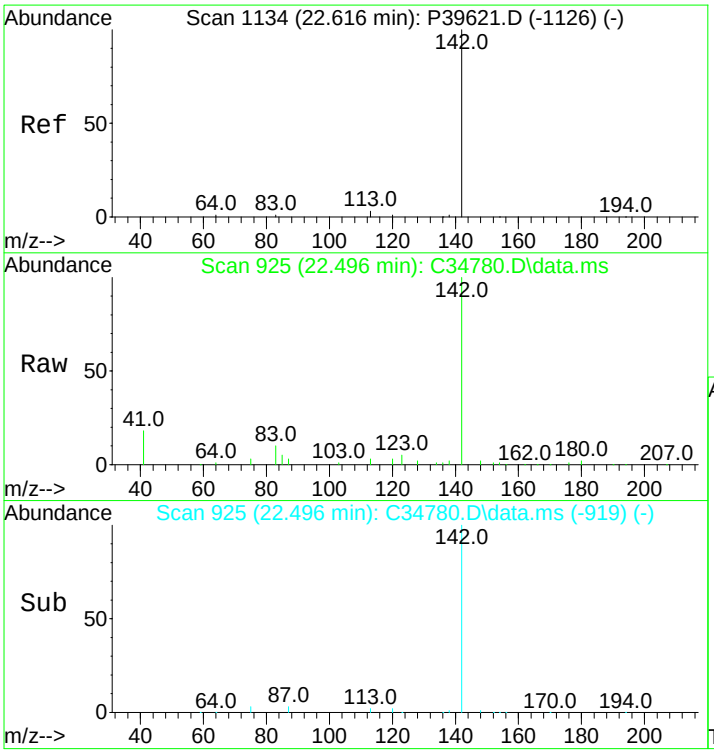


#10
Naphthalene
Concen: 319.30 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:128 Resp: 44897

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

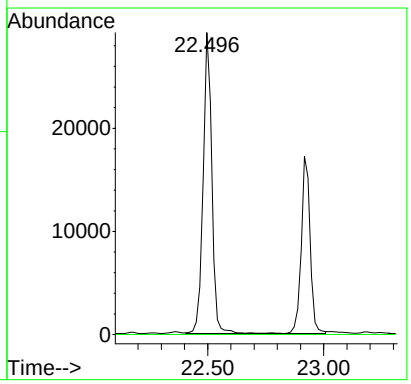


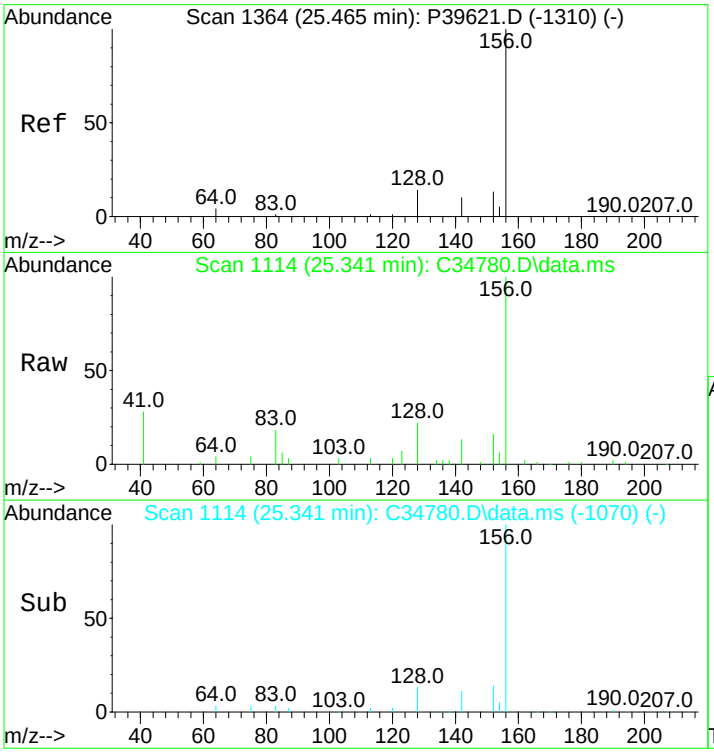


#11
C1-Naphthalenes
Concen: 863.81 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 121461

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

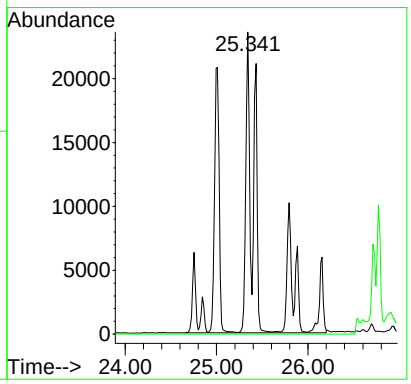


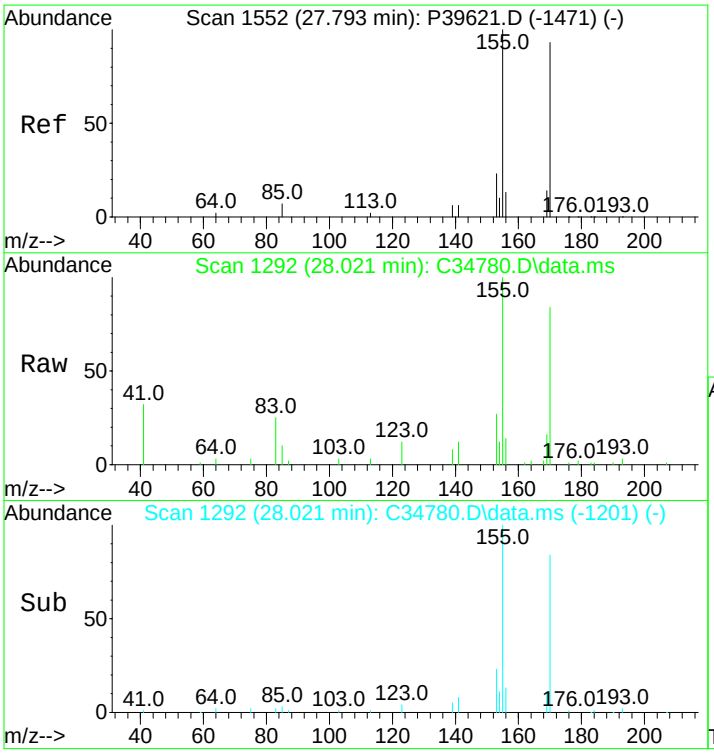


#12
C2-Naphthalenes
Concen: 2008.76 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:156 Resp: 282454

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

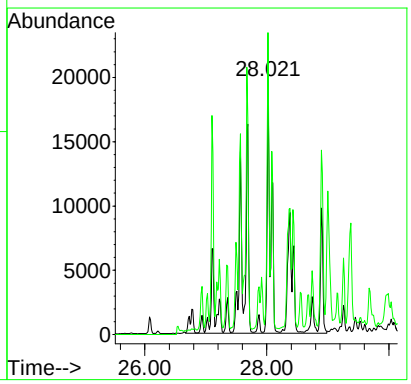


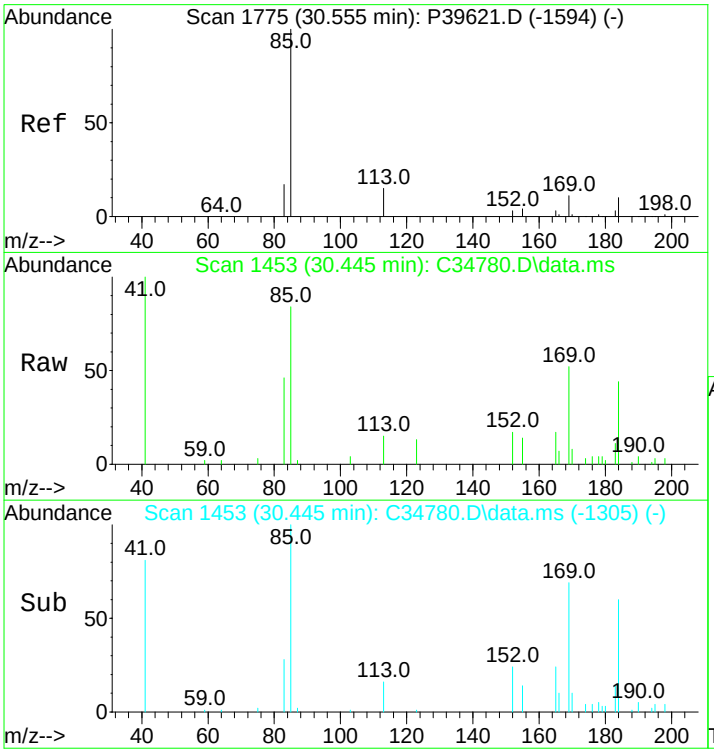


#13
C3-Naphthalenes
Concen: 2208.17 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:170 Resp: 310493

Ion	Ratio	Lower	Upper
170	100		
155	17.3	81.8	122.6#

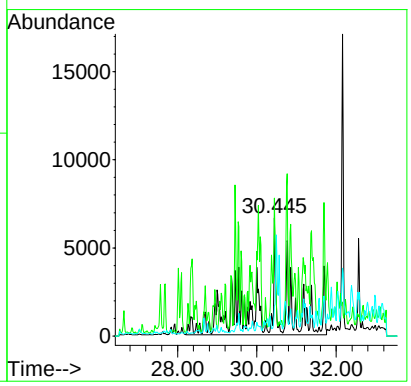


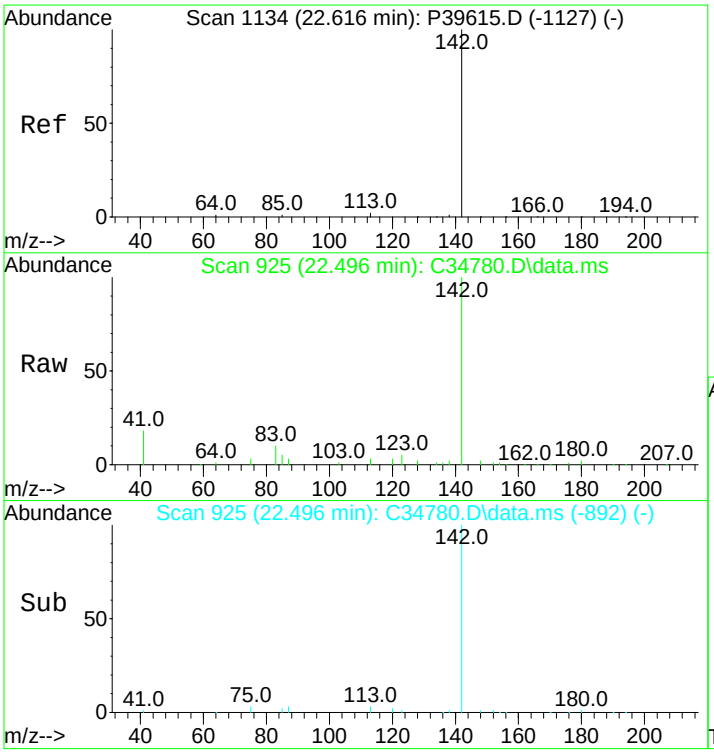


#14
C4-Naphthalenes
Concen: 1572.83 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:184 Resp: 221158

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

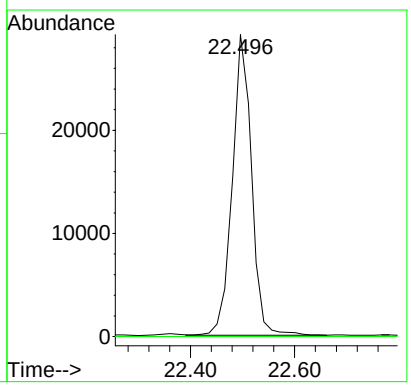


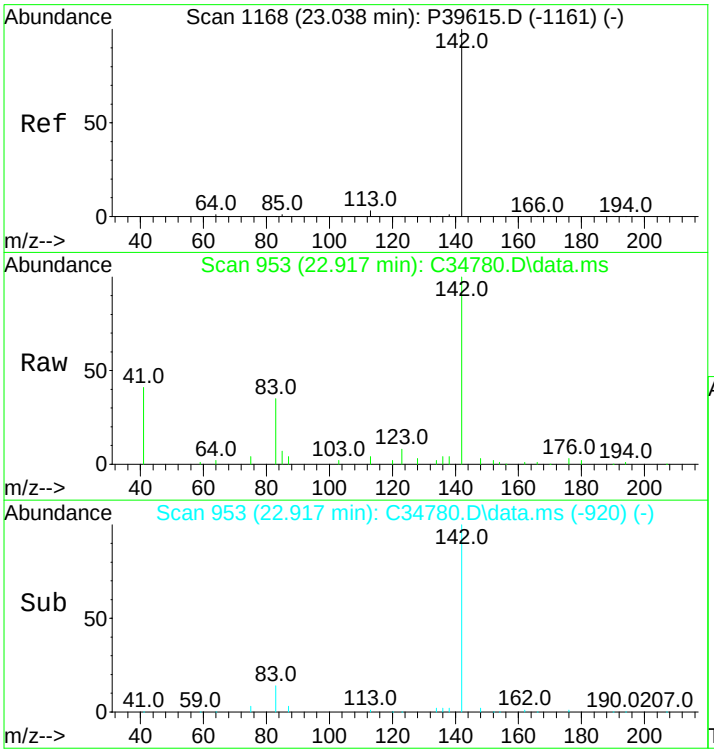


#16
2-Methylnaphthalene
Concen: 899.00 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 74743

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

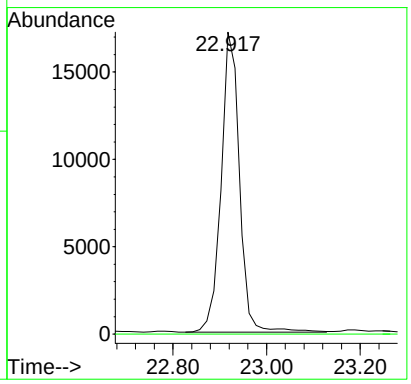


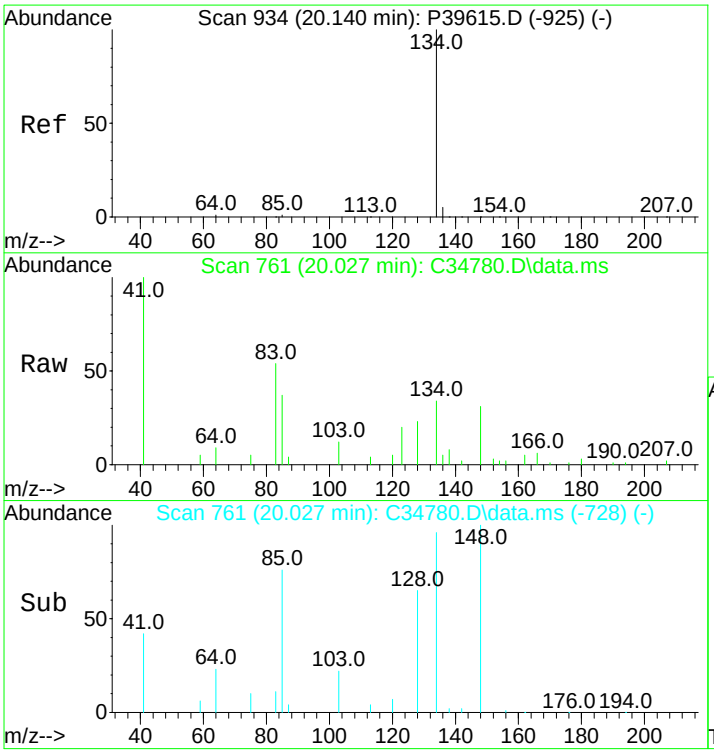


#17
1-Methylnaphthalene
Concen: 575.43 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:142 Resp: 46894

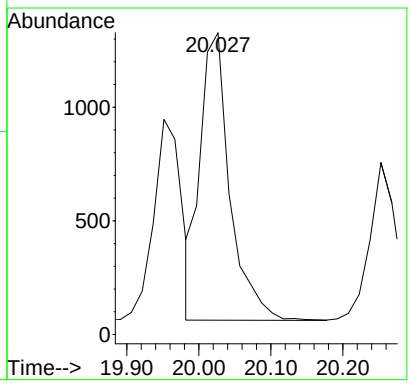
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

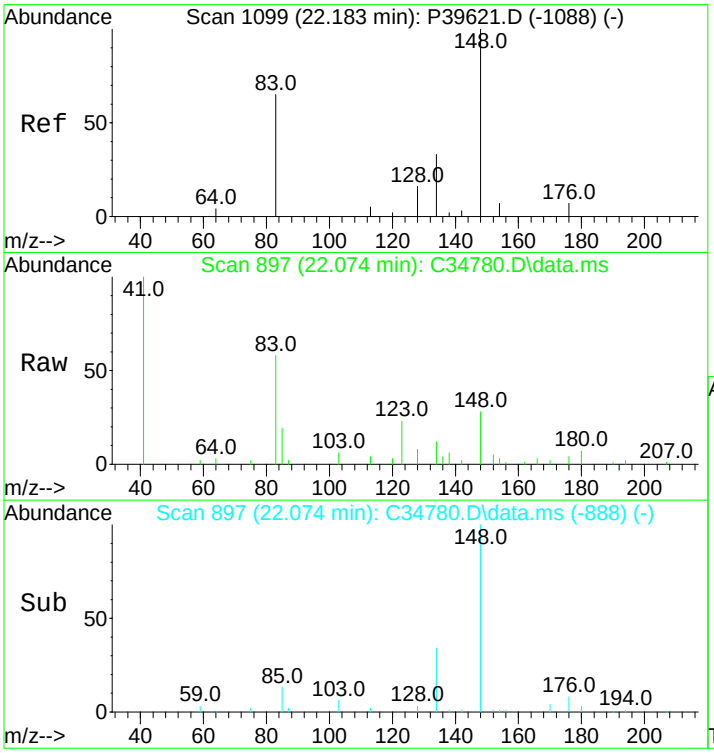




#18
Benzothiophene
Concen: 28.85 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

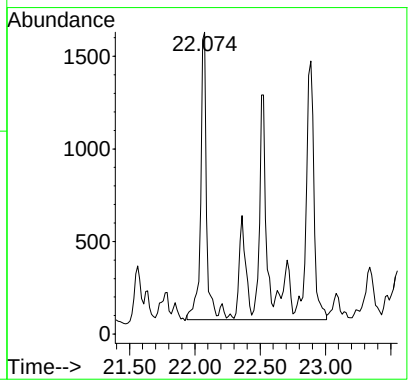
Tgt Ion:134 Resp: 3651

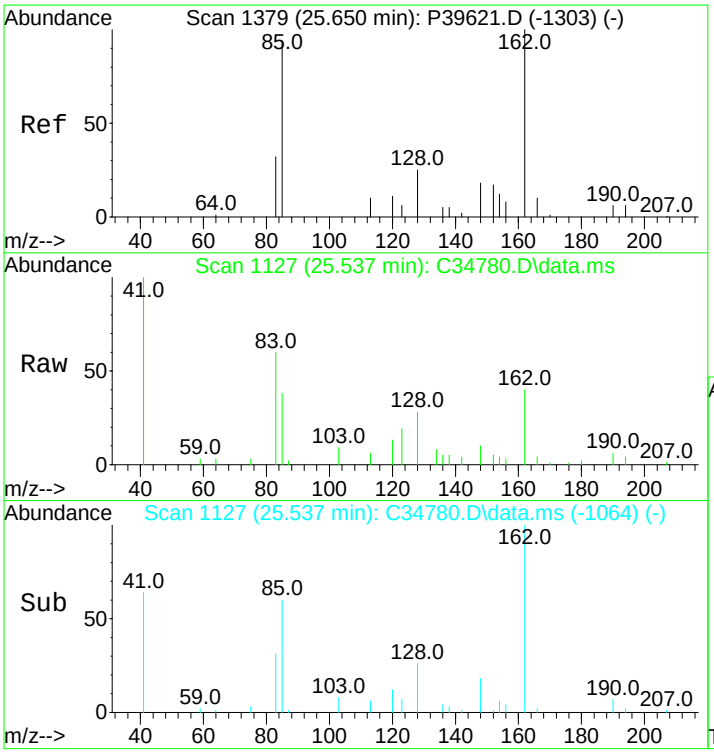




#19
C1-Benzo(b)thiophenes
Concen: 144.56 ng/mL m
RT: 22.074 min Scan# 897
Delta R.T. -0.006 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

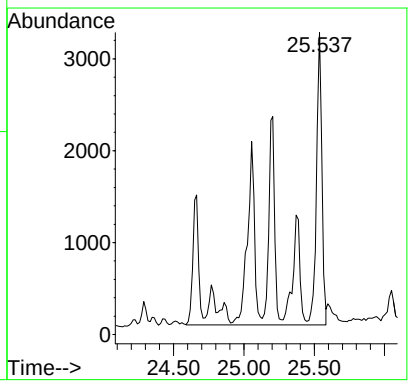
Tgt Ion:148 Resp: 18291

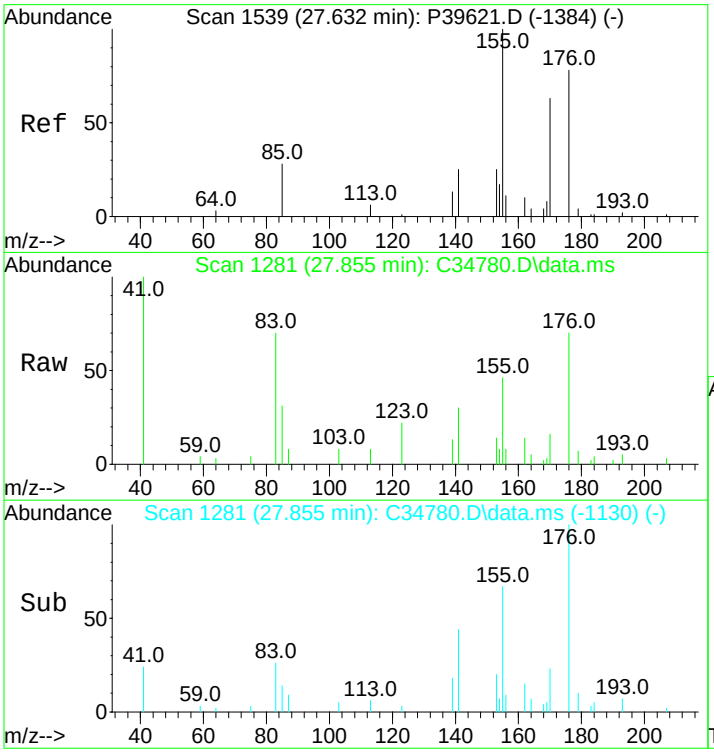




#20
C2-Benzo(b)thiophenes
Concen: 256.99 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

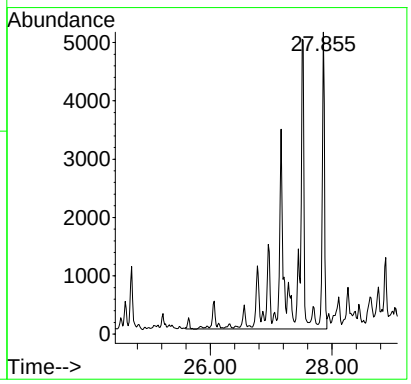
Tgt Ion:162 Resp: 32517

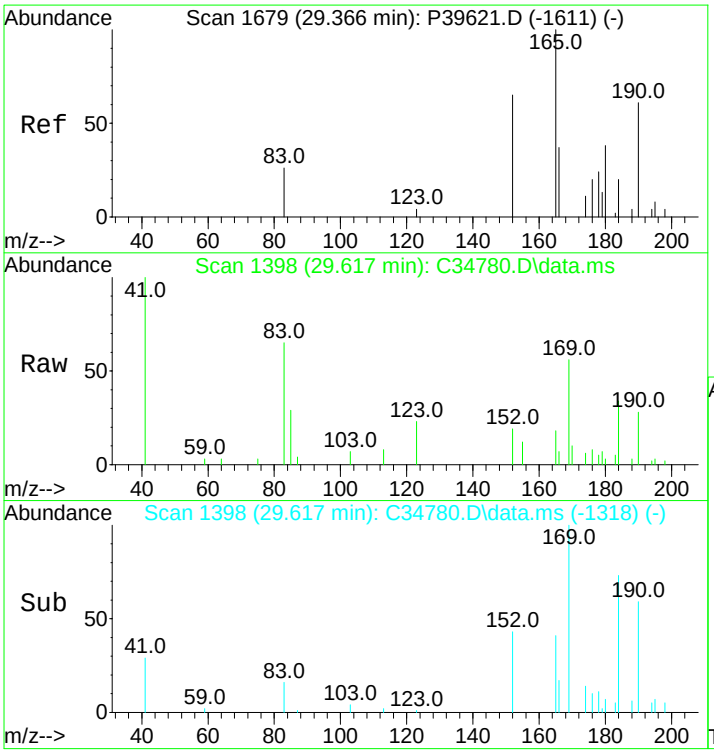




#21
C3-Benzo(b)thiophenes
Concen: 490.03 ng/mL m
RT: 27.855 min Scan# 1281
Delta R.T. 0.350 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

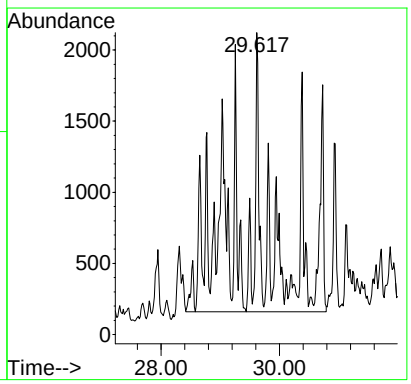
Tgt Ion:176 Resp: 62005

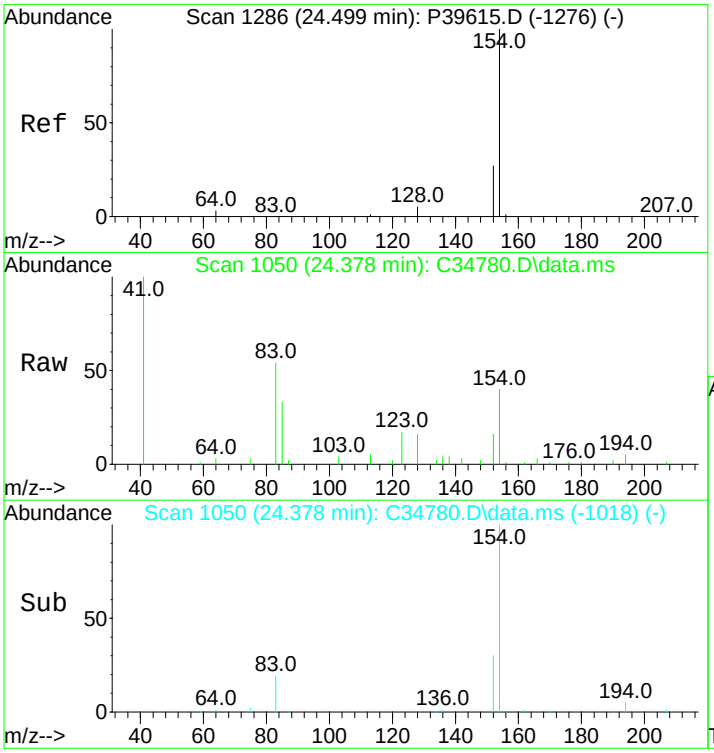




#22
C4-Benzo(b)thiophenes
Concen: 480.86 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:190 Resp: 60845

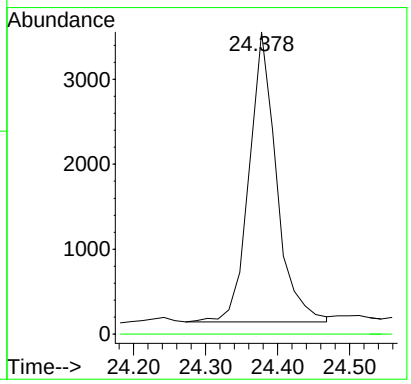


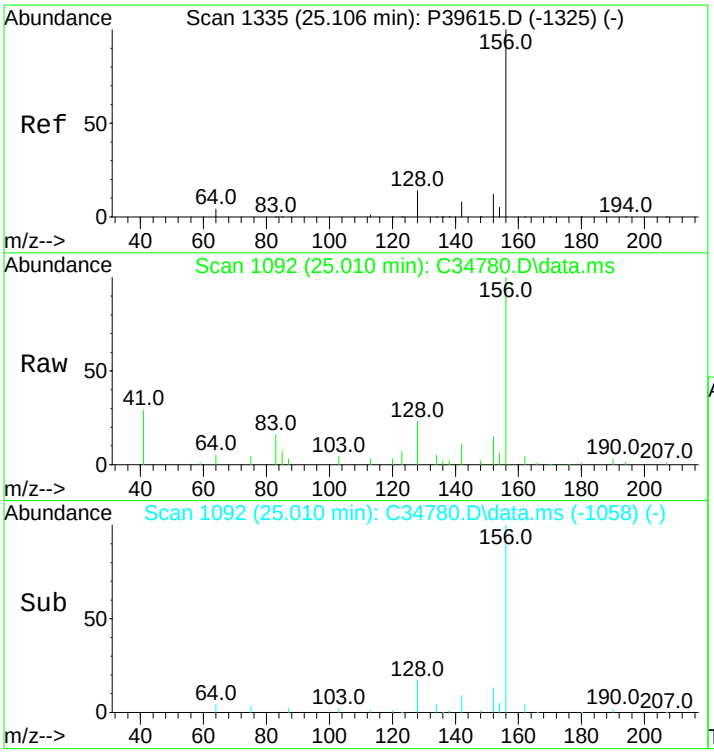


#23
Biphenyl
Concen: 85.40 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:154 Resp: 8982

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

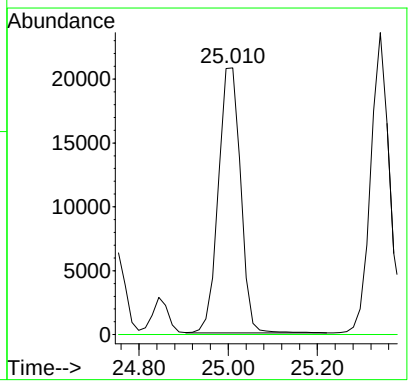


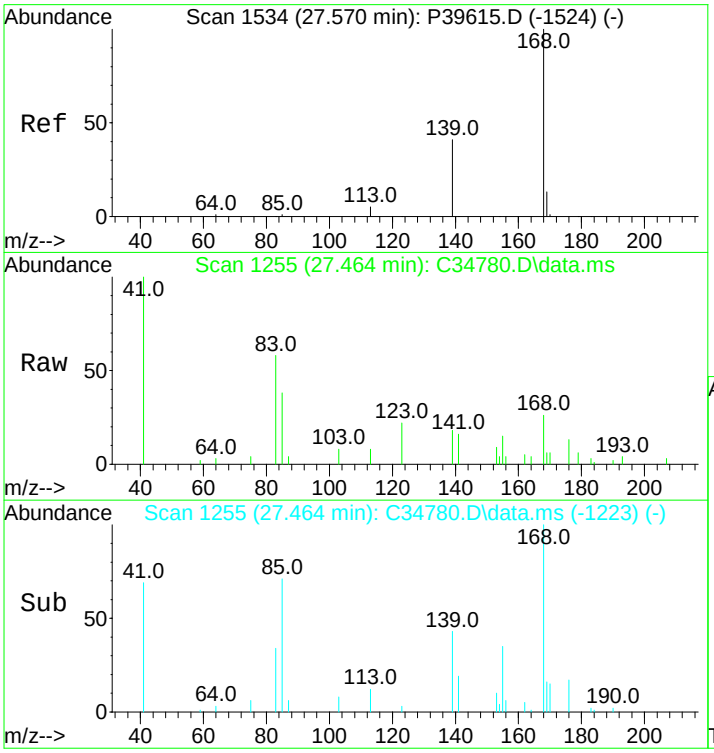


#24
2,6-Dimethylnaphthalene
Concen: 1048.98 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:156 Resp: 71653

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

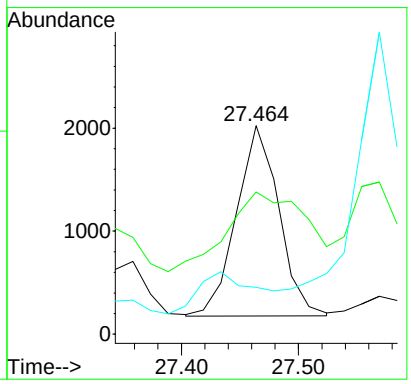


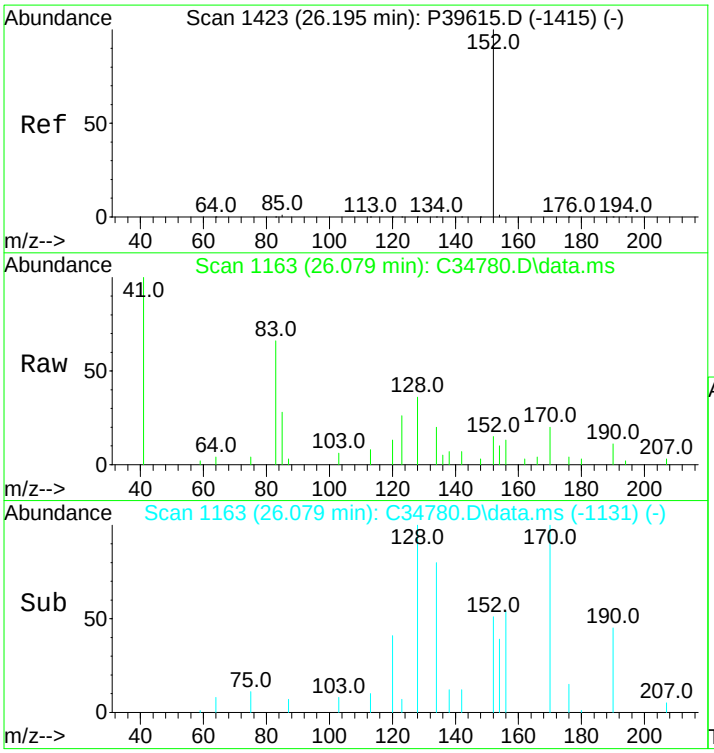


#25
Dibenzofuran
Concen: 38.62 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:168 Resp: 4664

Ion	Ratio	Lower	Upper
168	100		
139	77.3	28.4	42.6#
169	0.0	10.8	16.2#

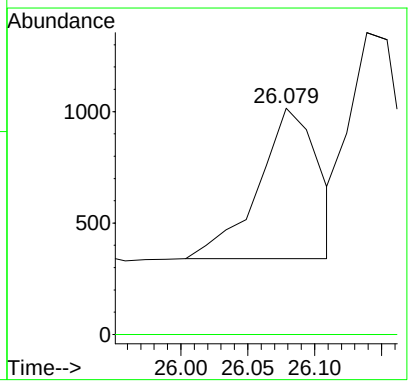


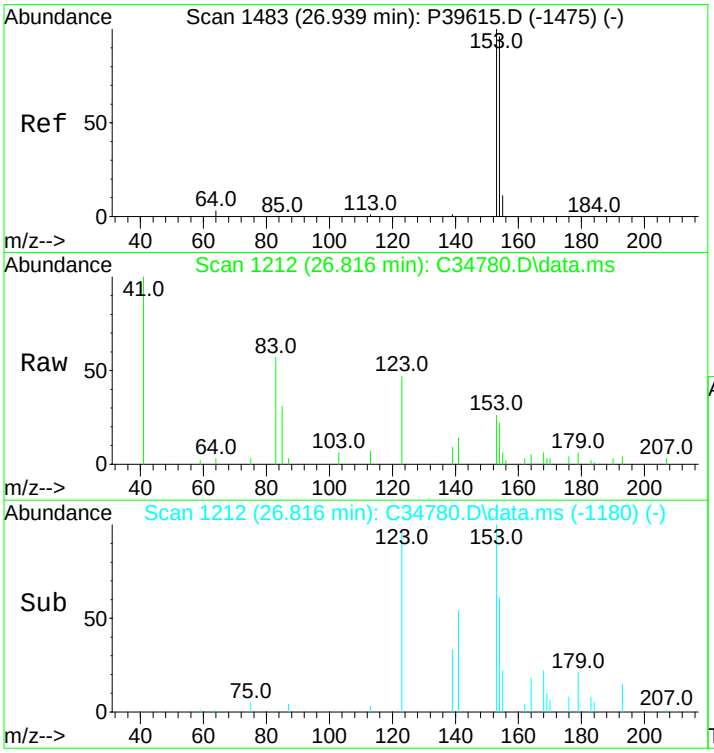


#26
Acenaphthylene
Concen: 15.27 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:152 Resp: 2132

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

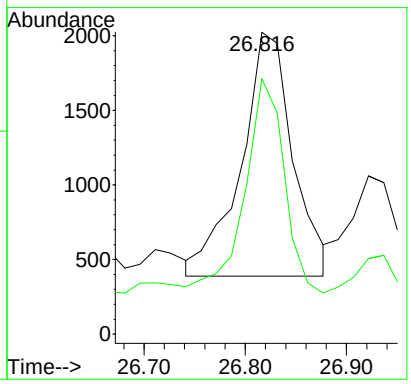


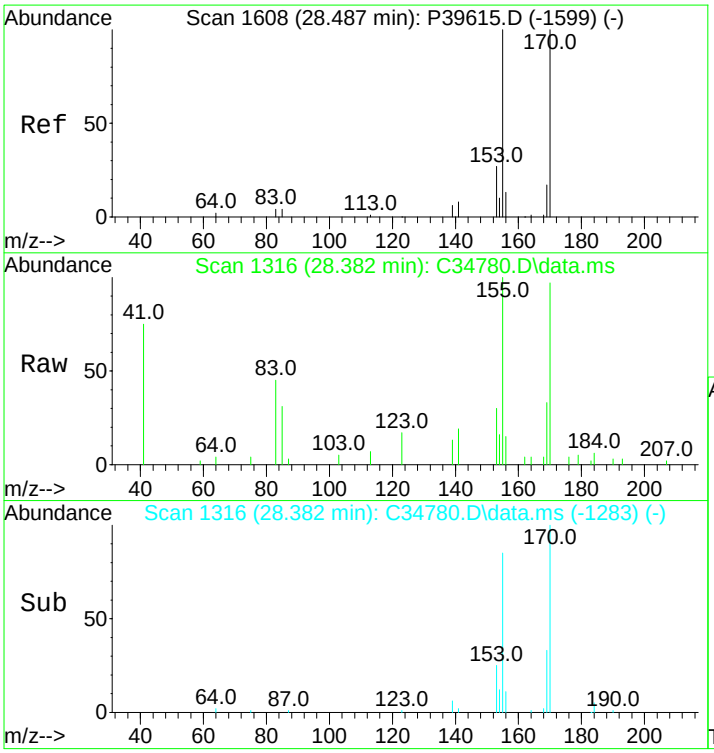


#27
Acenaphthene
Concen: 70.78 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:153 Resp: 5817

Ion	Ratio	Lower	Upper
153	100		
154	70.2	73.6	110.4#

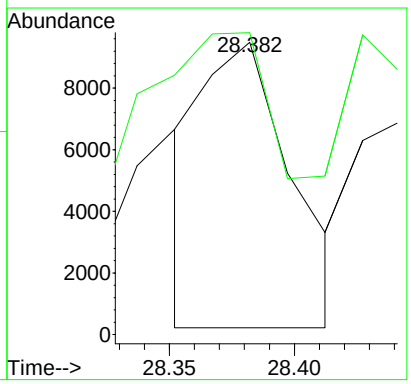


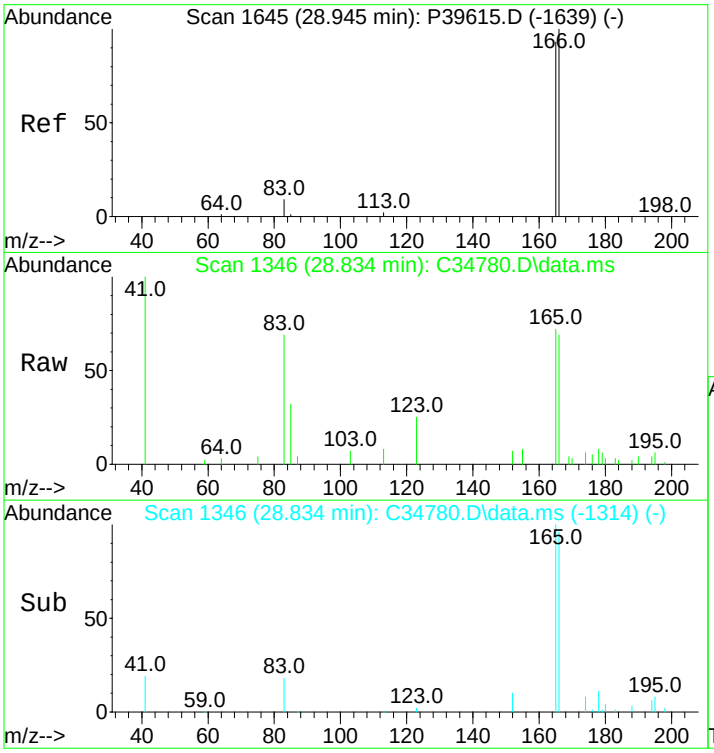


#28
2,3,5-Trimethylnaphthalene
Concen: 420.24 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:170 Resp: 23140

Ion	Ratio	Lower	Upper
170	100		
155	169.8	87.3	130.9#

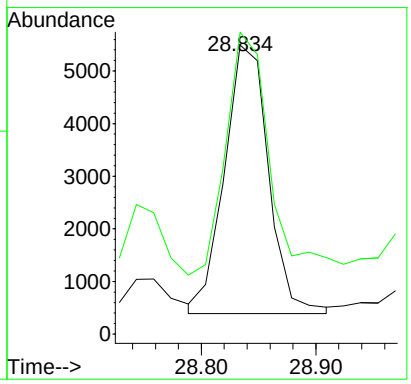


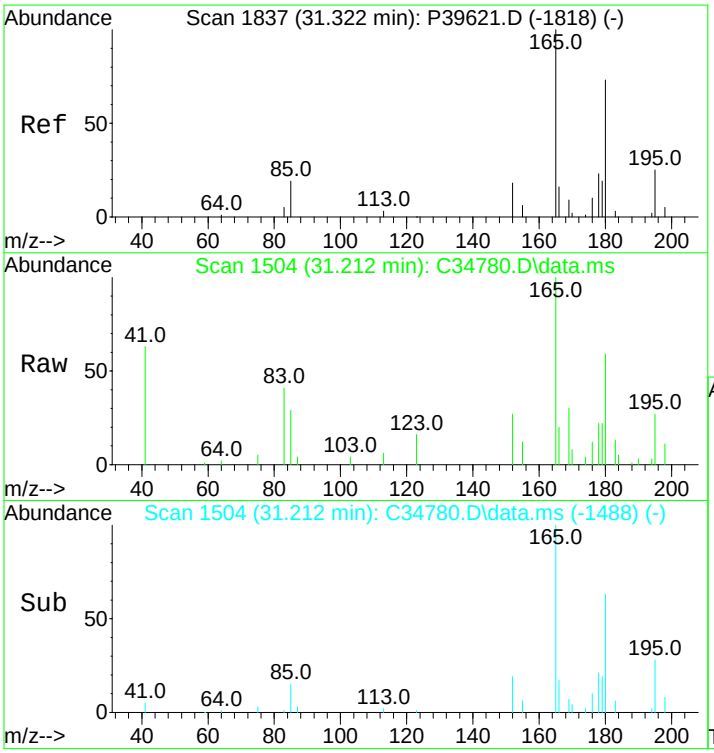


#29
Fluorene
Concen: 150.89 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:166 Resp: 13677

Ion	Ratio	Lower	Upper
166	100		
165	139.0	77.3	115.9#

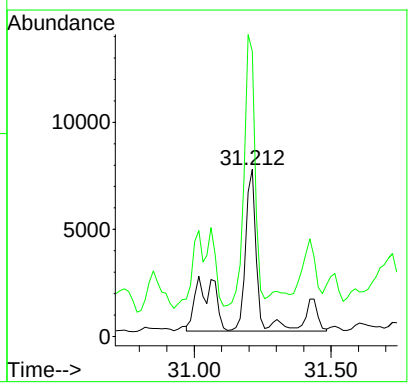


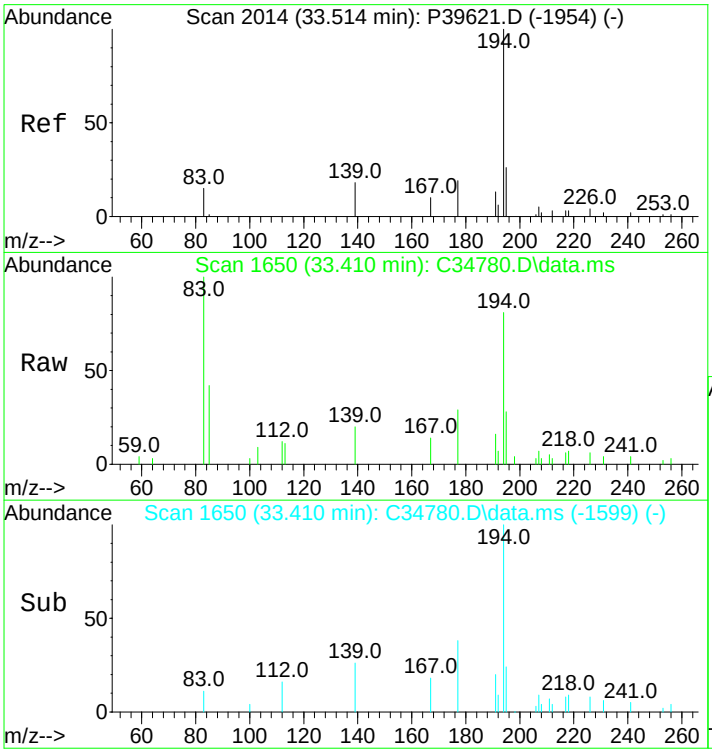


#30
C1-Fluorenes
Concen: 412.04 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:180 Resp: 37348

Ion	Ratio	Lower	Upper
180	100		
165	2.5	111.4	167.2#

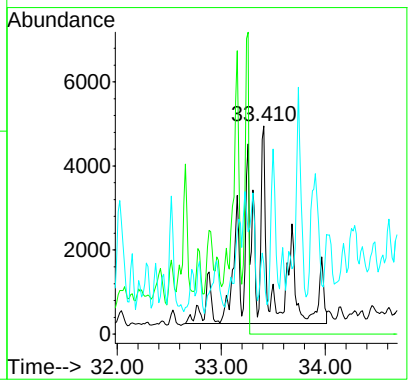


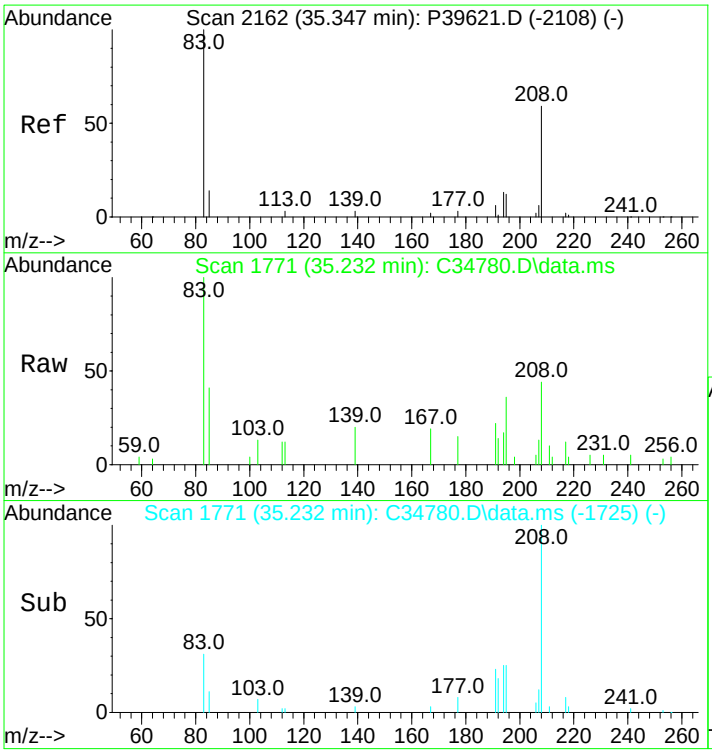


#31
C2-Fluorenes
Concen: 753.26 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:194 Resp: 68276

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	9.3	27.3	40.9#

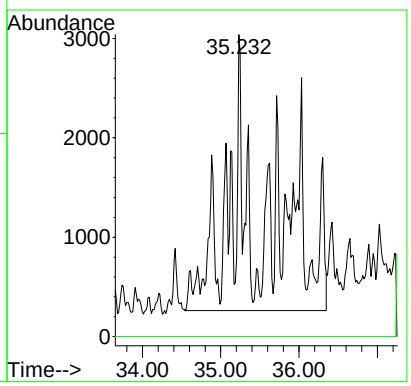


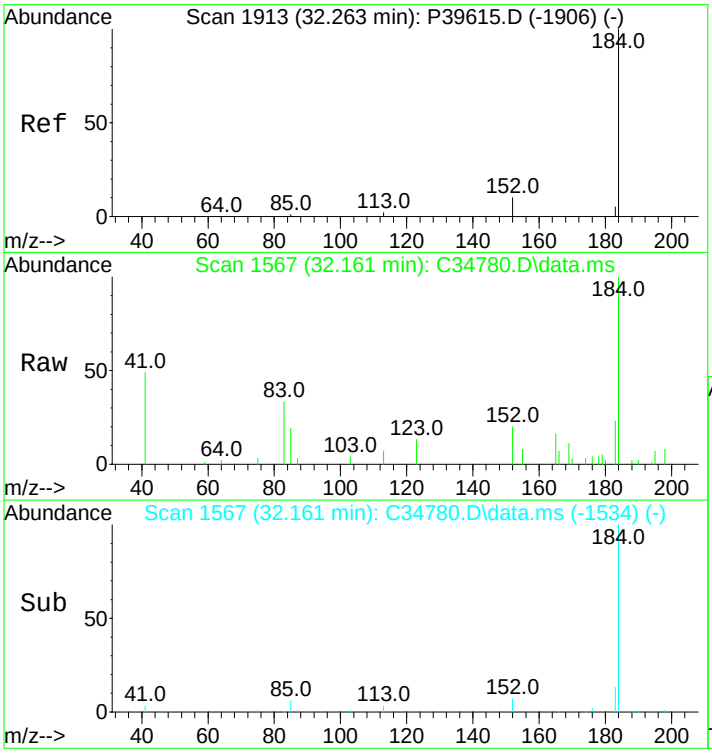


#32
C3-Fluorenes
Concen: 885.98 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:208 Resp: 80306

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

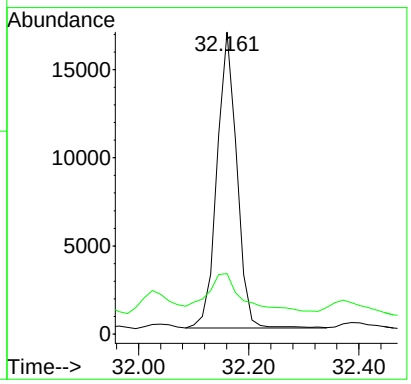


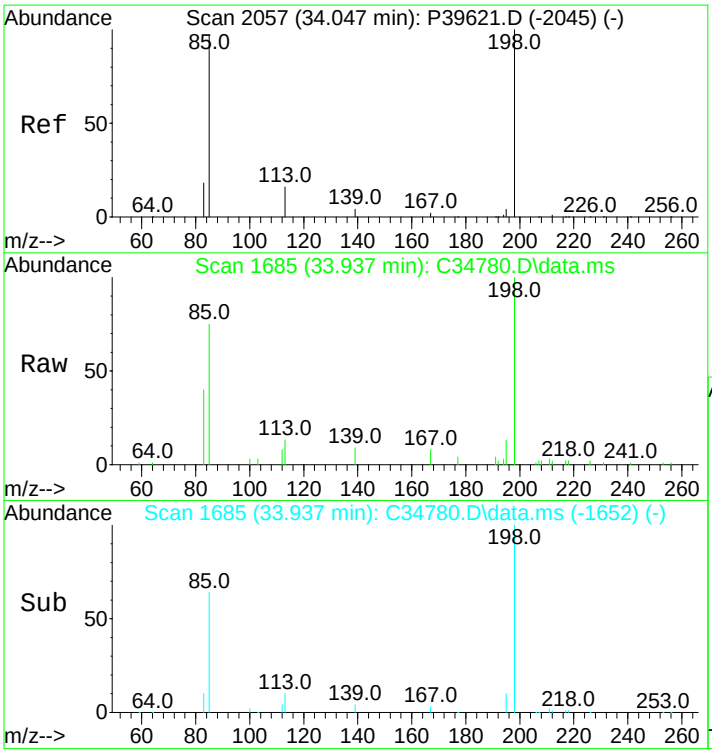


#33
Dibenzothiophene
Concen: 287.99 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:184 Resp: 41844

Ion	Ratio	Lower	Upper
184	100		
152	21.9	7.5	11.3#

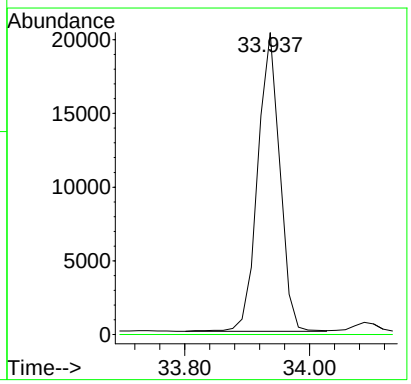


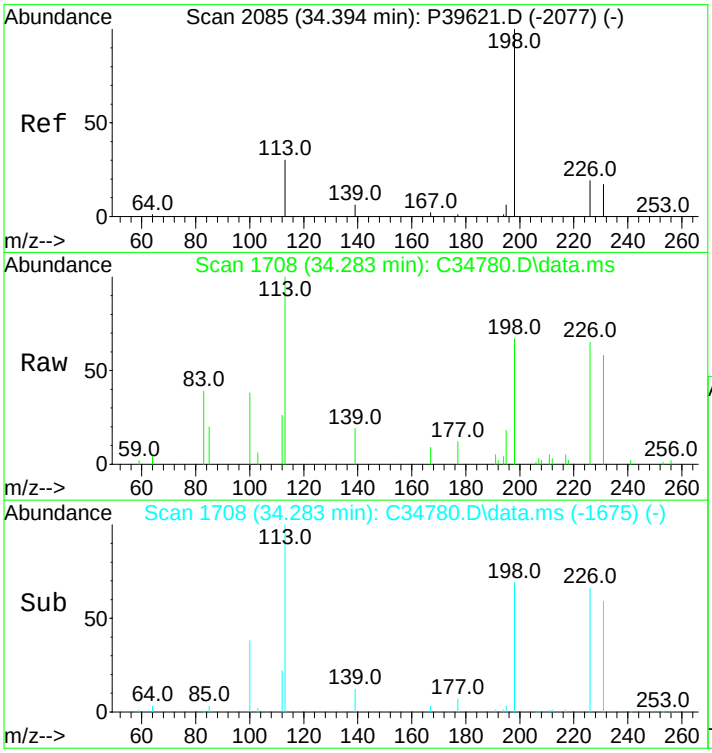


#34
4-Methyldibenzothiophene(4MDT)
Concen: 342.76 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 49801

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

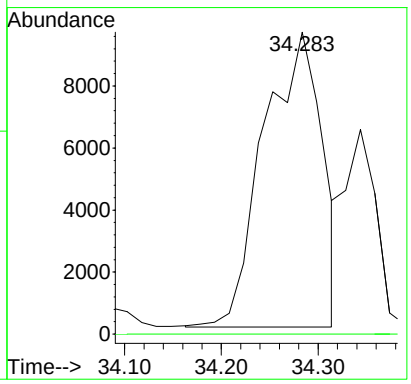


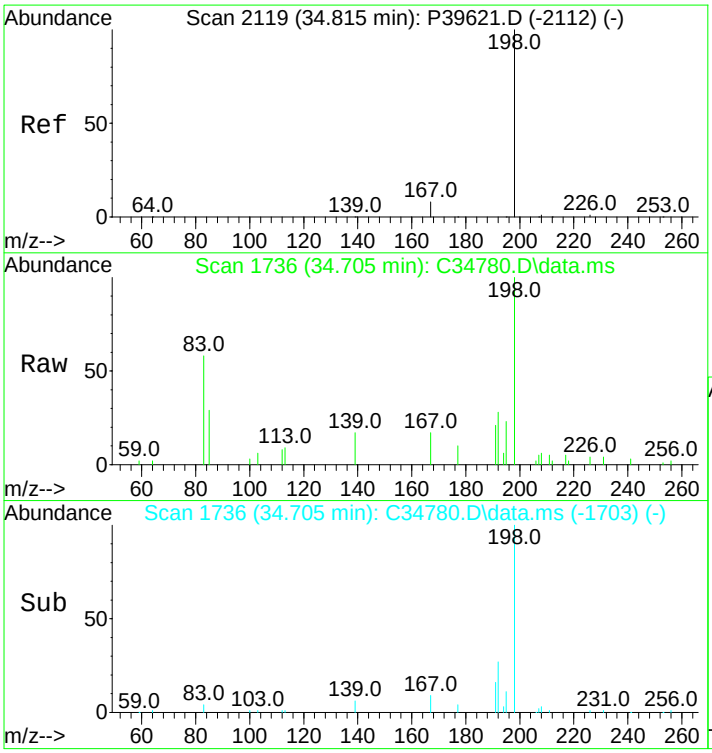


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 275.99 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 40101

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

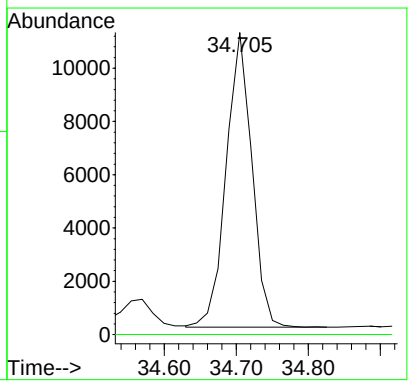


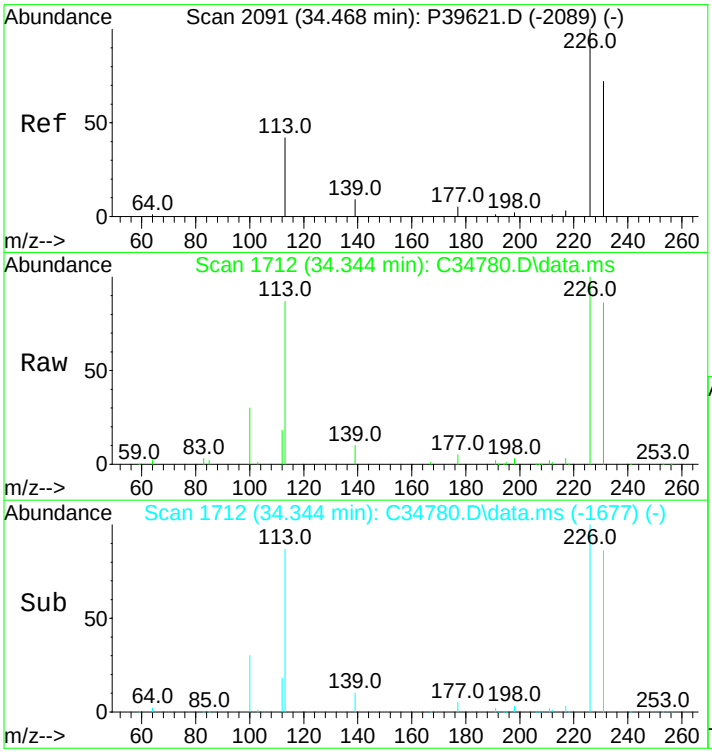


#36
1-Methyldibenzothiophene(1MDT)
Concen: 188.41 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 27375

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

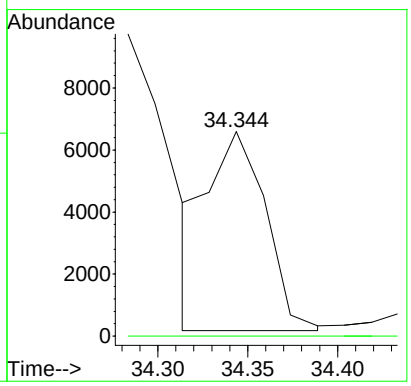


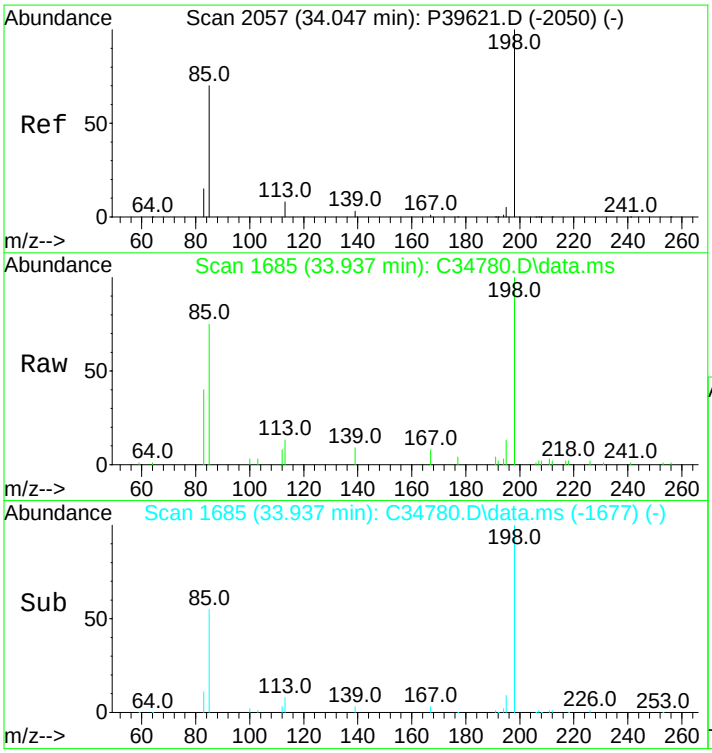


#37
OTP
Concen: 98.70 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 14341

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

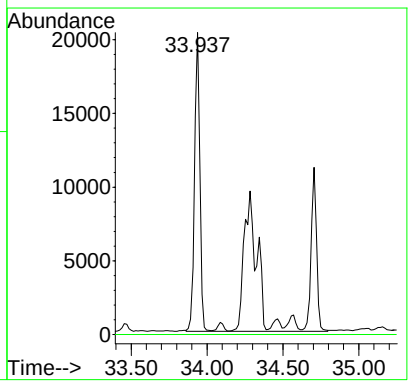


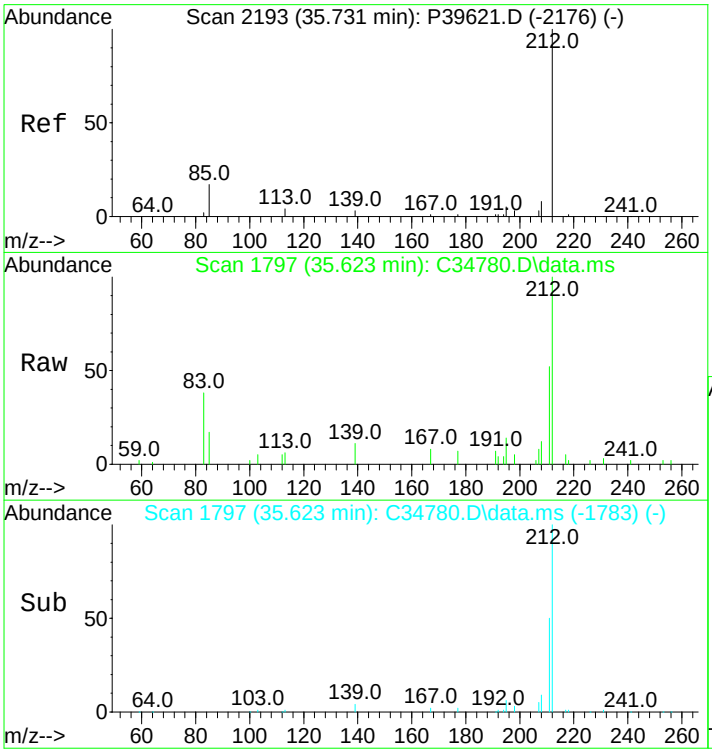


#38
C1-Dibenzothiophenes
Concen: 962.82 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:198 Resp: 139894

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

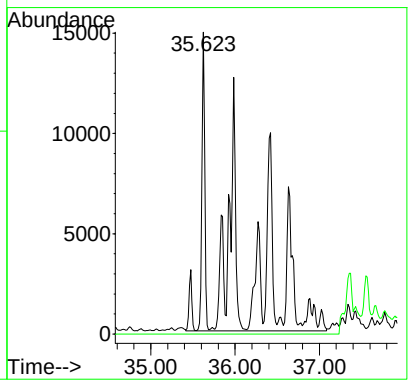


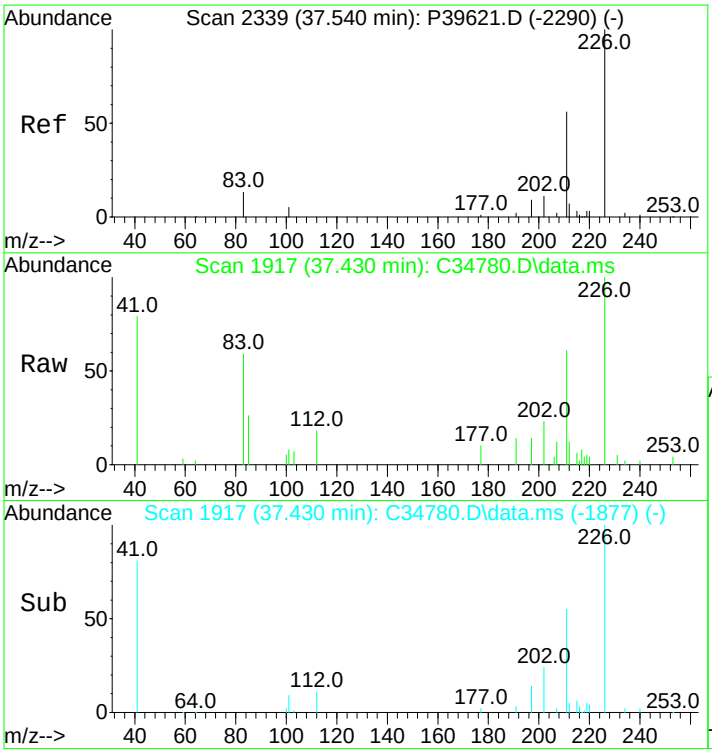


#39
C2-Dibenzothiophenes
Concen: 1518.00 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:212 Resp: 220560

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

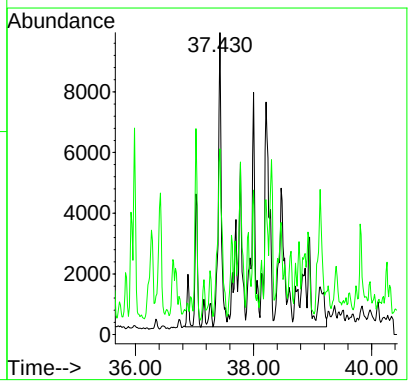


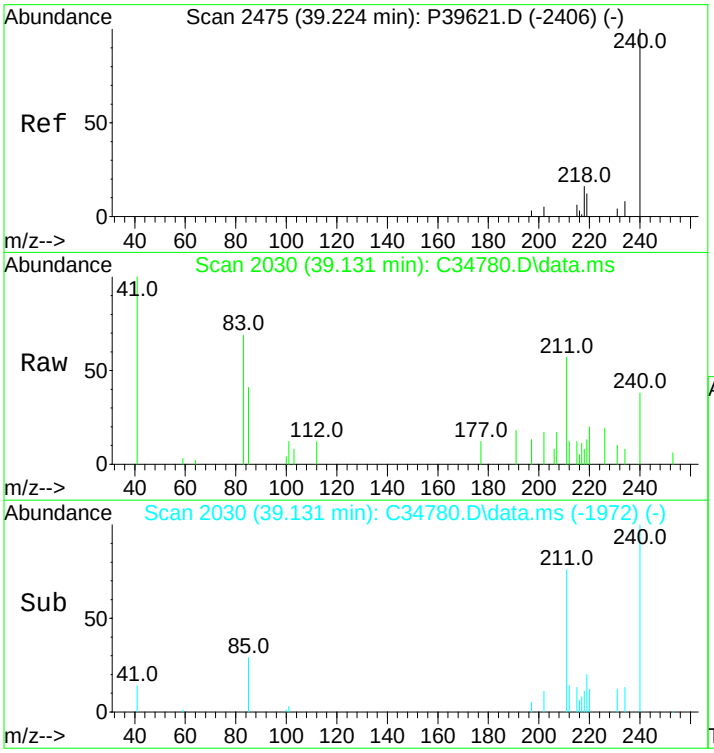


#40
C3-Dibenzothiophenes
Concen: 1579.17 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:226 Resp: 229447

Ion	Ratio	Lower	Upper
226	100		
211	1.6	45.0	67.6#

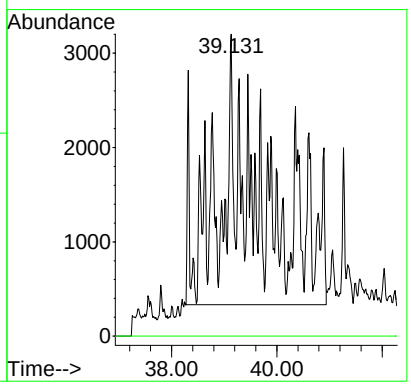


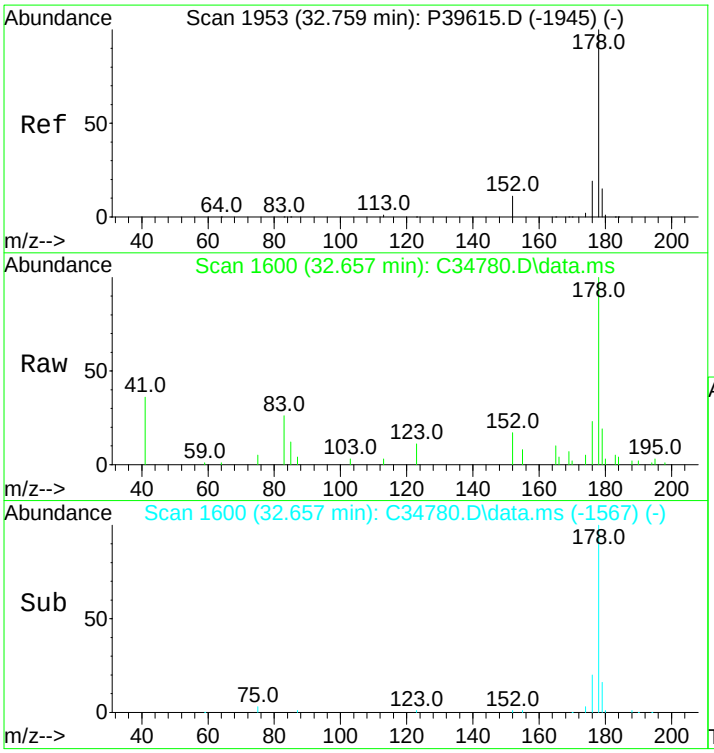


#41
C4-Dibenzothiophenes
Concen: 1047.95 ng/mL m
RT: 39.131 min Scan# 2030
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:240 Resp: 152263

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

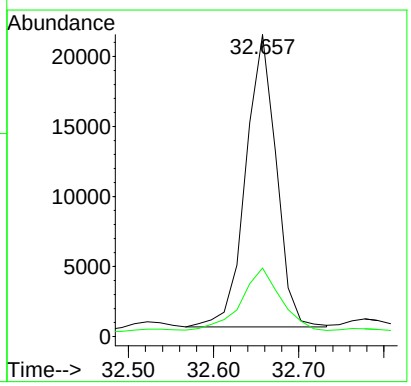


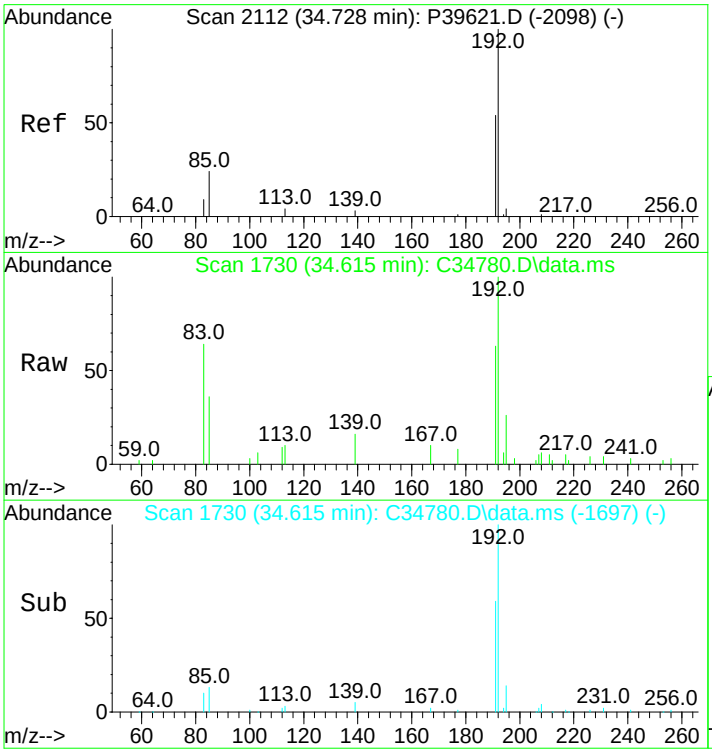


#43
Phenanthrene
Concen: 408.23 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:178 Resp: 52113

Ion	Ratio	Lower	Upper
178	100		
176	27.7	16.1	24.1#

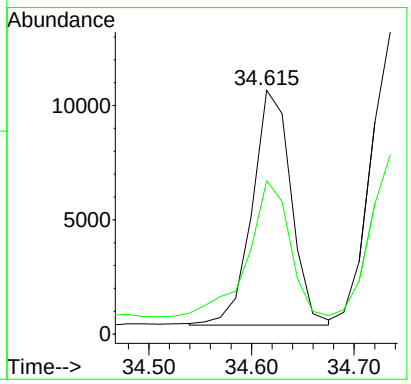


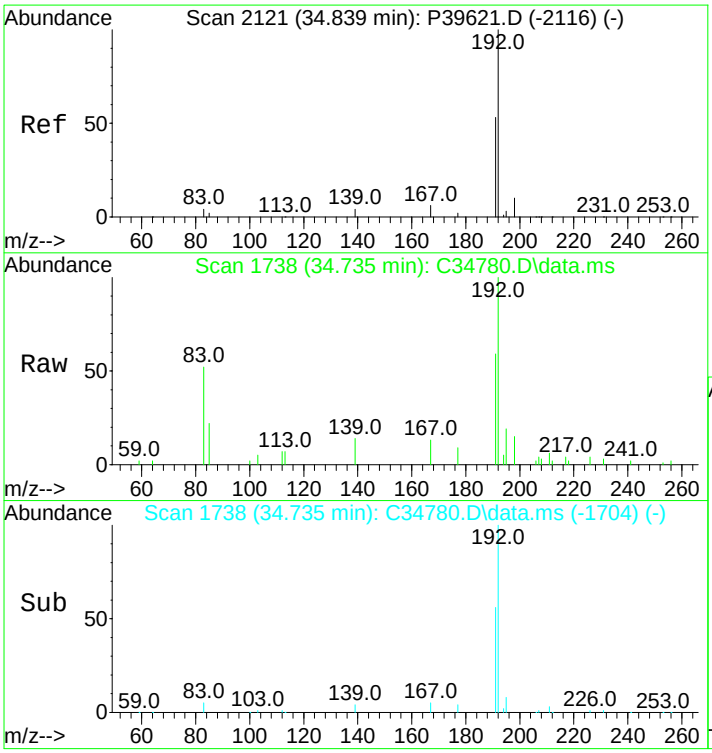


#44
3-Methylphenanthrene(3MP)
Concen: 212.19 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 27087

Ion	Ratio	Lower	Upper
192	100		
191	66.5	46.9	70.3

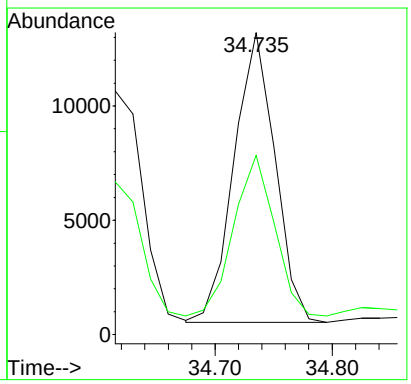


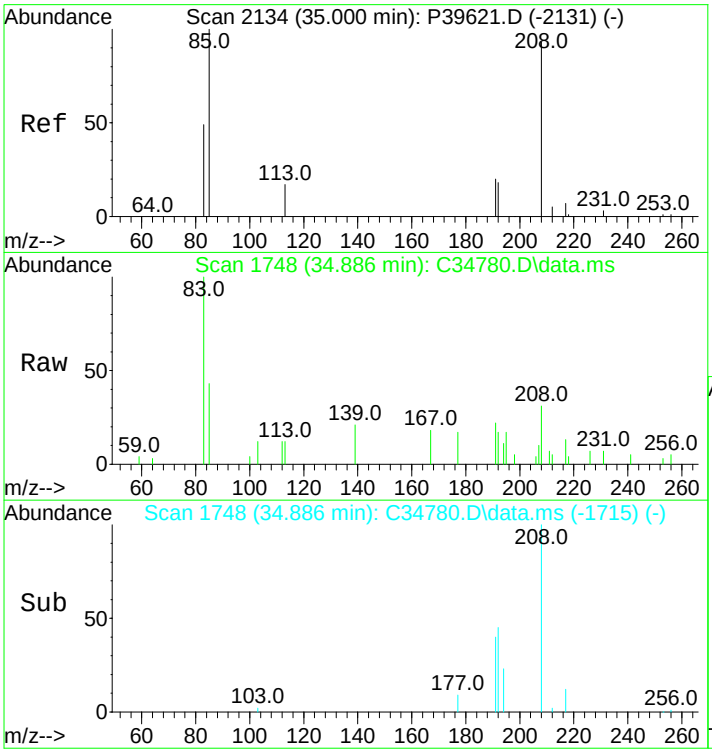


#45
2/4-Methylphenanthrene(2MP)
Concen: 242.39 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 30942

Ion	Ratio	Lower	Upper
192	100		
191	55.2	46.1	69.1

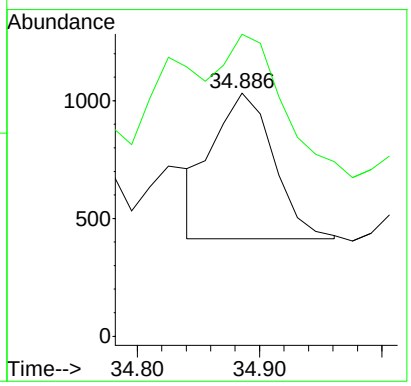


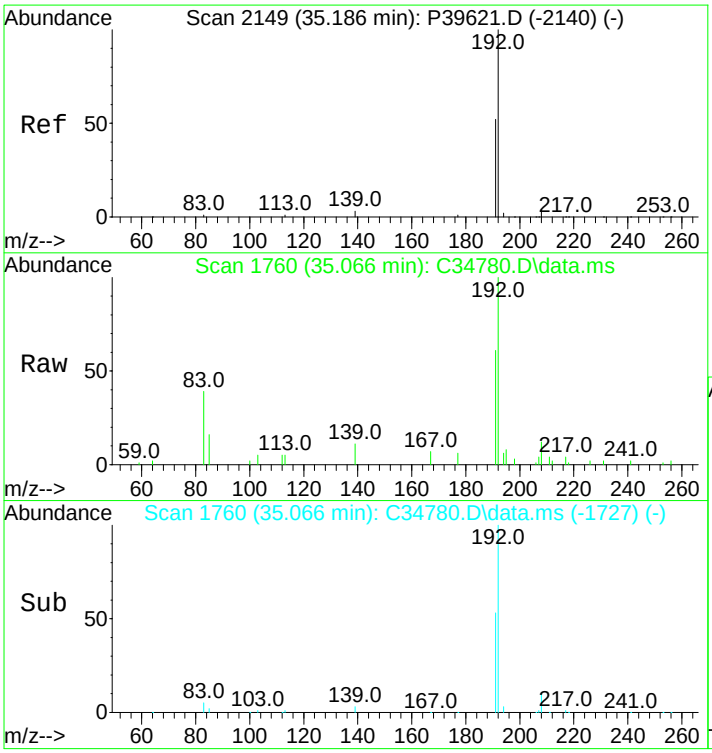


#46
2-Methylanthracene(2MA)
Concen: 16.80 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 2145

Ion	Ratio	Lower	Upper
192	100		
191	98.7	93.4	140.0

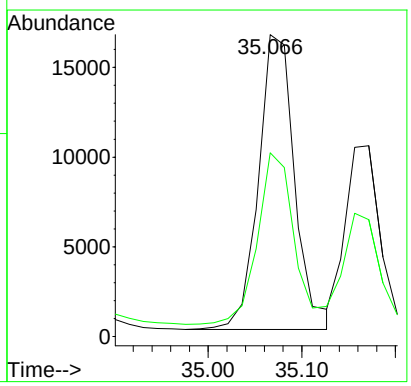


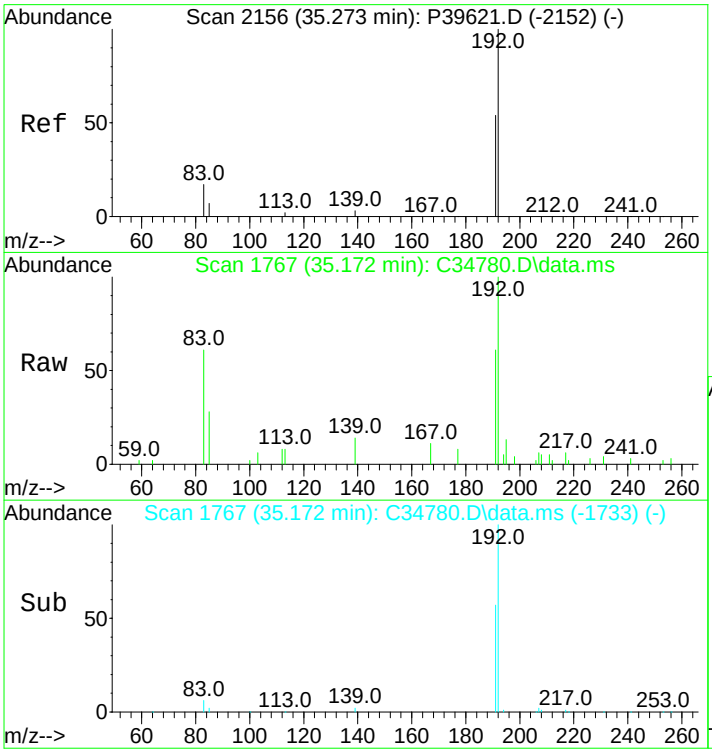


#47
9-Methylphenanthrene(9MP)
Concen: 345.78 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 44141

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.9	68.9

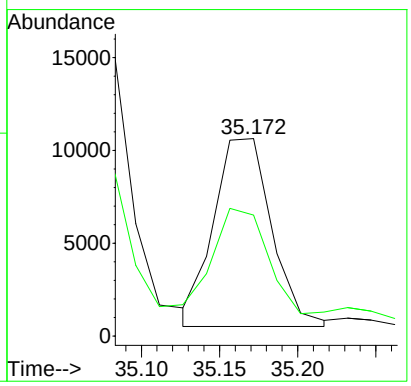


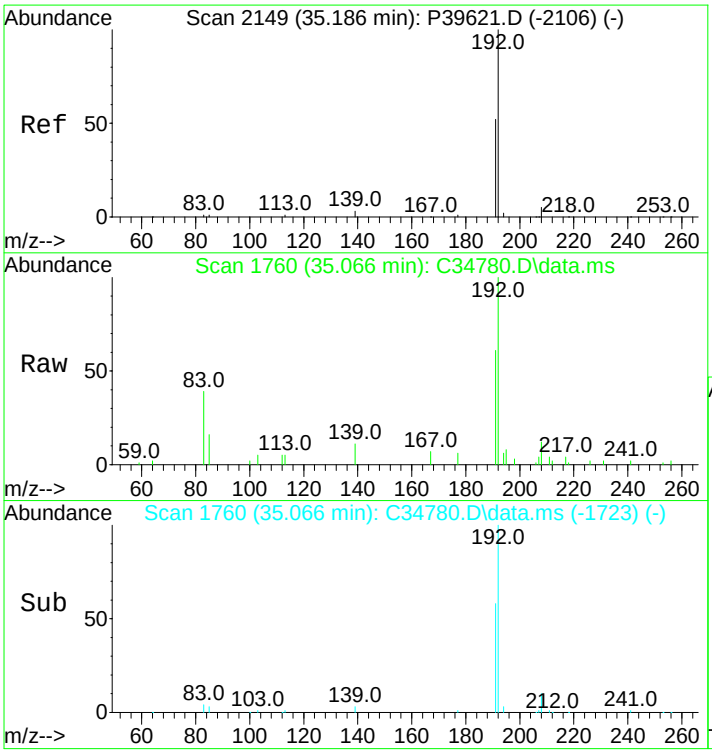


#48
1-Methylphenanthrene(1MP)
Concen: 204.72 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 26134

Ion	Ratio	Lower	Upper
192	100		
191	57.1	49.0	73.4

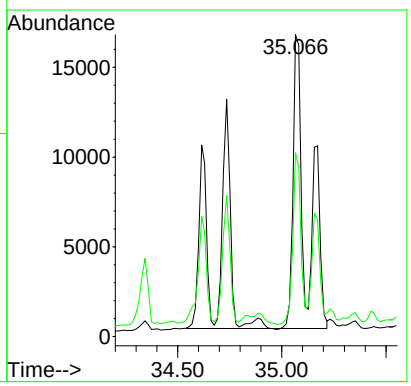


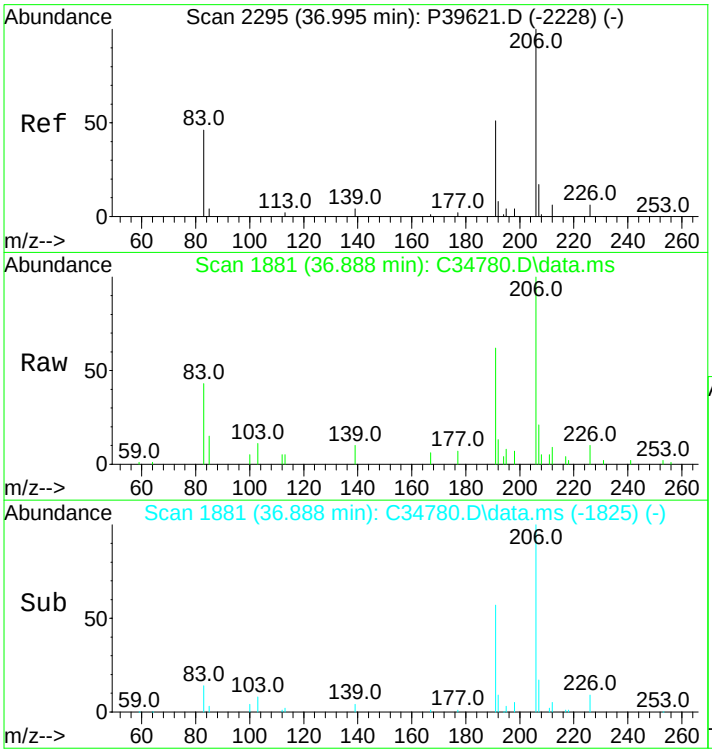


#49
C1-Phenanthrenes/Anthracenes
Concen: 1028.04 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.053 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 131235

Ion	Ratio	Lower	Upper
192	100		
191	19.3	44.2	66.2#

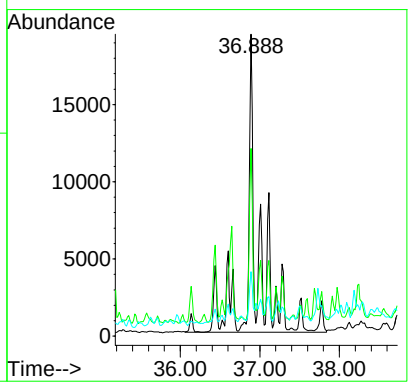


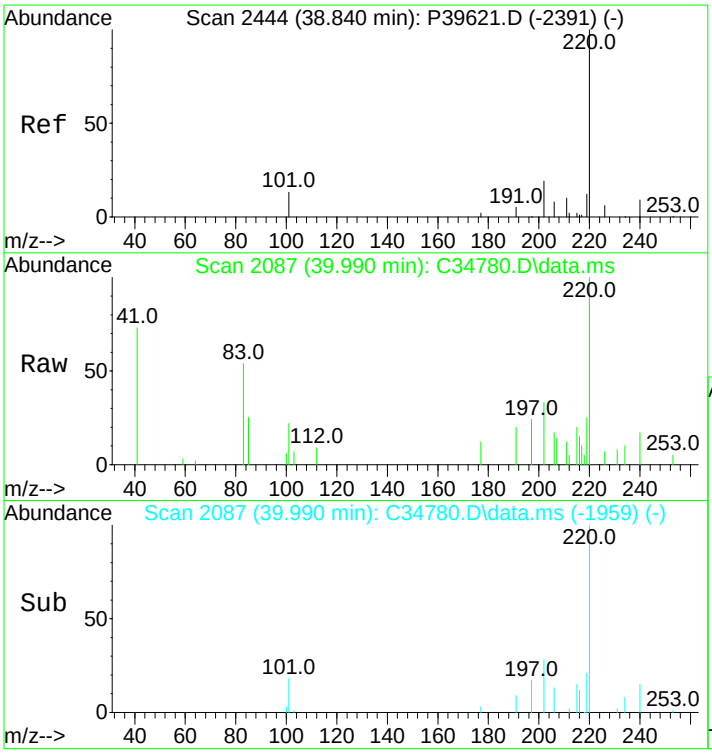


#50
C2-Phenanthrenes/Anthracenes
Concen: 1381.24 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:206 Resp: 176322

Ion	Ratio	Lower	Upper
206	100		
191	17.3	44.0	66.0#
207	5.1	15.1	22.7#

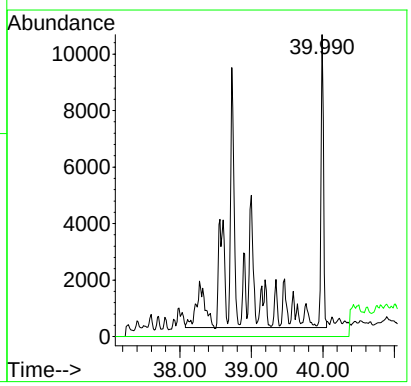


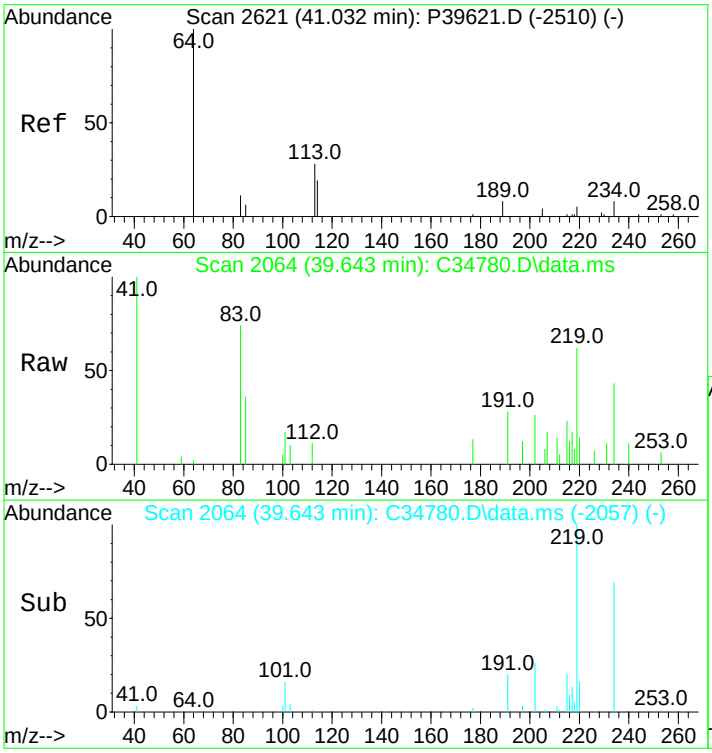


#52
C3-Phenanthrenes/Anthracenes
Concen: 1125.79 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:220 Resp: 143713

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

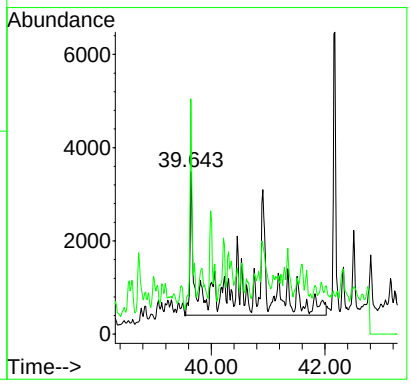


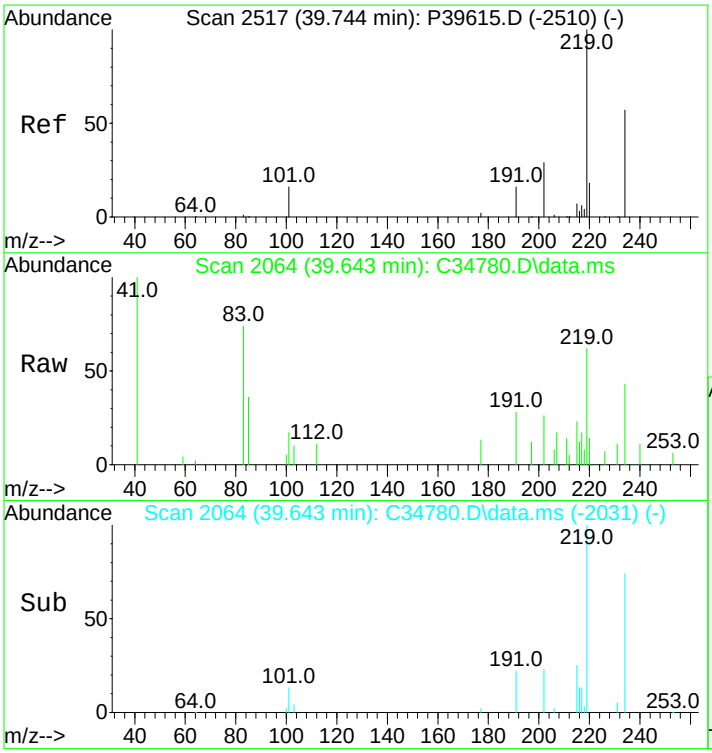


#53
C4-Phenanthrenes/Anthracenes
Concen: 564.55 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. -1.156 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 72068

Ion	Ratio	Lower	Upper
234	100		
219	1.1	46.9	70.3#

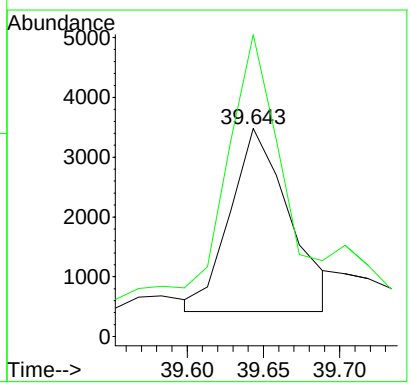


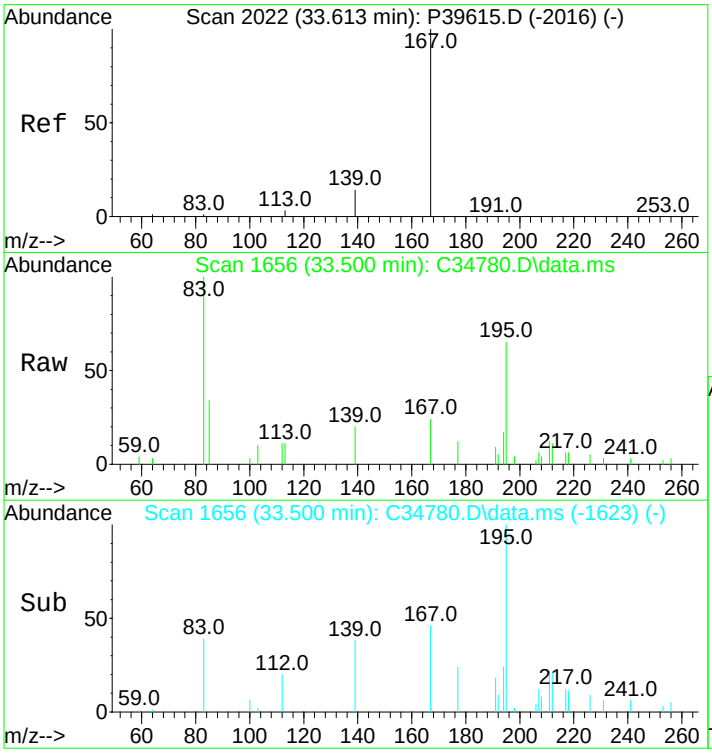


#54
Retene
Concen: 334.48 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 8329

Ion	Ratio	Lower	Upper
234	100		
219	165.3	127.8	191.8

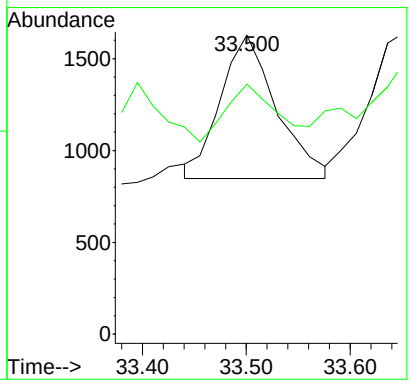


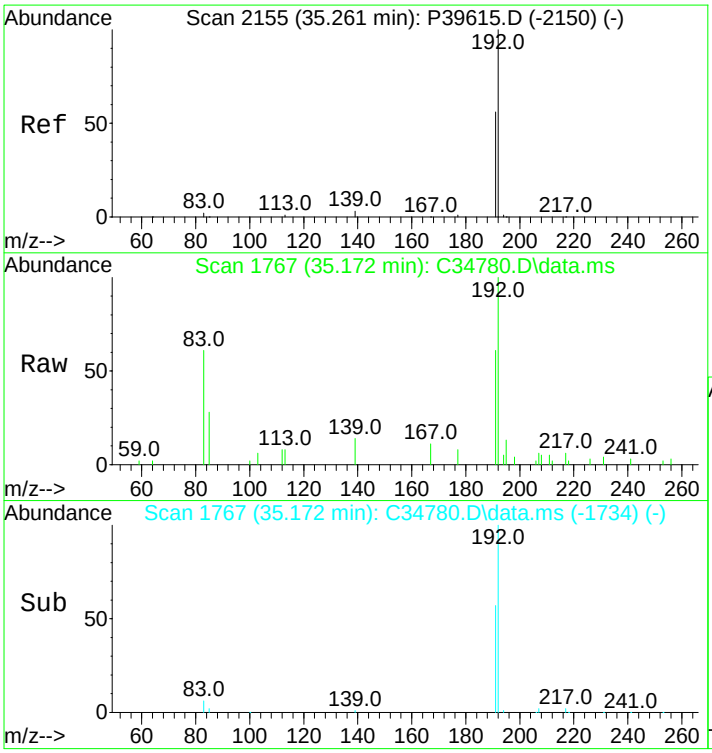


#56
Carbazole
Concen: 23.11 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:167 Resp: 2911

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

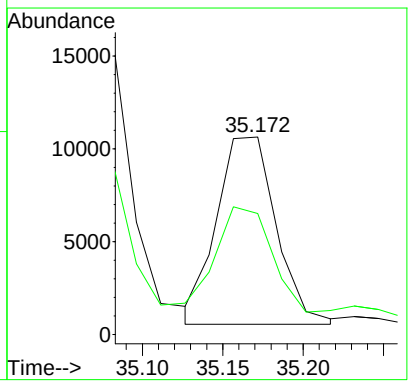


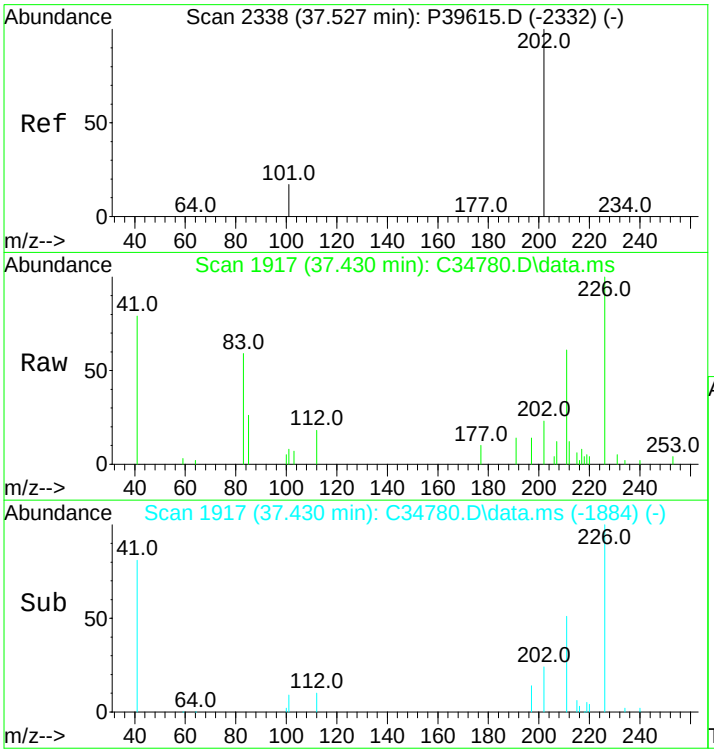


#57
1-Methylphenanthrene
Concen: 320.04 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:192 Resp: 25890

Ion	Ratio	Lower	Upper
192	100		
191	60.0	45.9	68.9

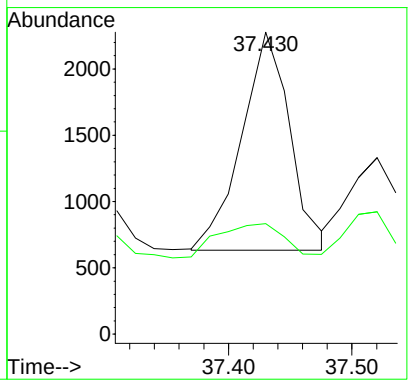


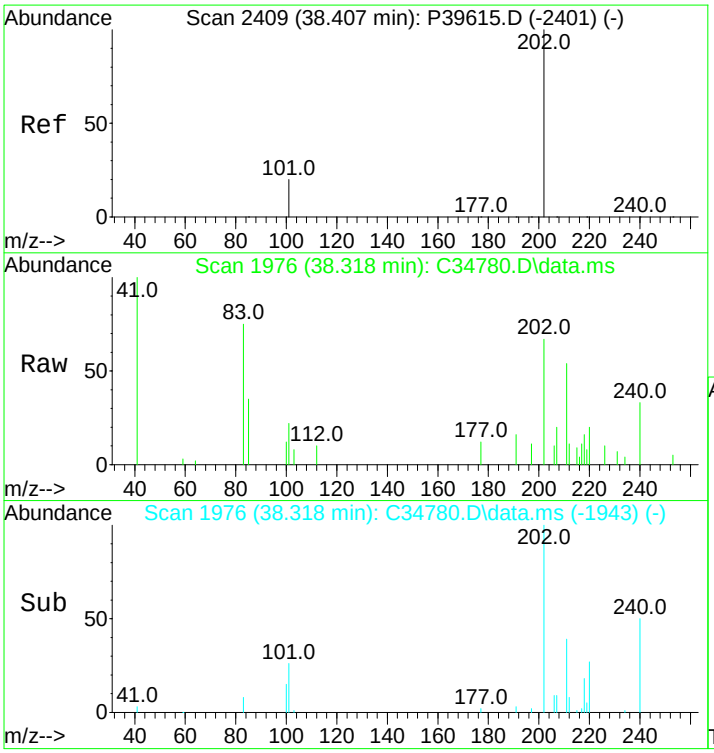


#58
Fluoranthene
Concen: 35.13 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:202 Resp: 4454

Ion	Ratio	Lower	Upper
202	100		
101	55.9	12.9	19.3#

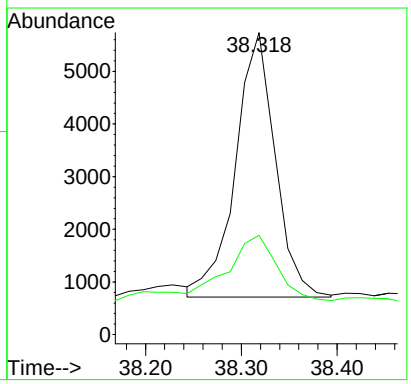


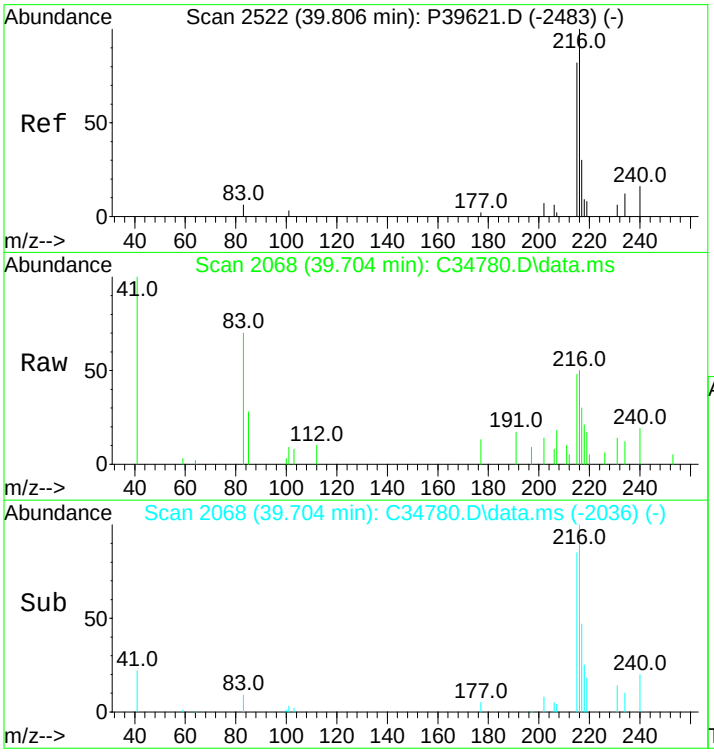


#60
Pyrene
Concen: 112.29 ng/mL m
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:202 Resp: 14472

Ion	Ratio	Lower	Upper
202	100		
101	36.1	15.0	22.4#

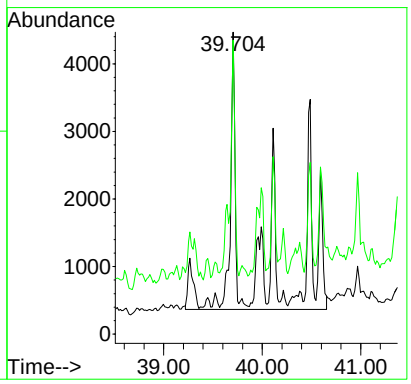


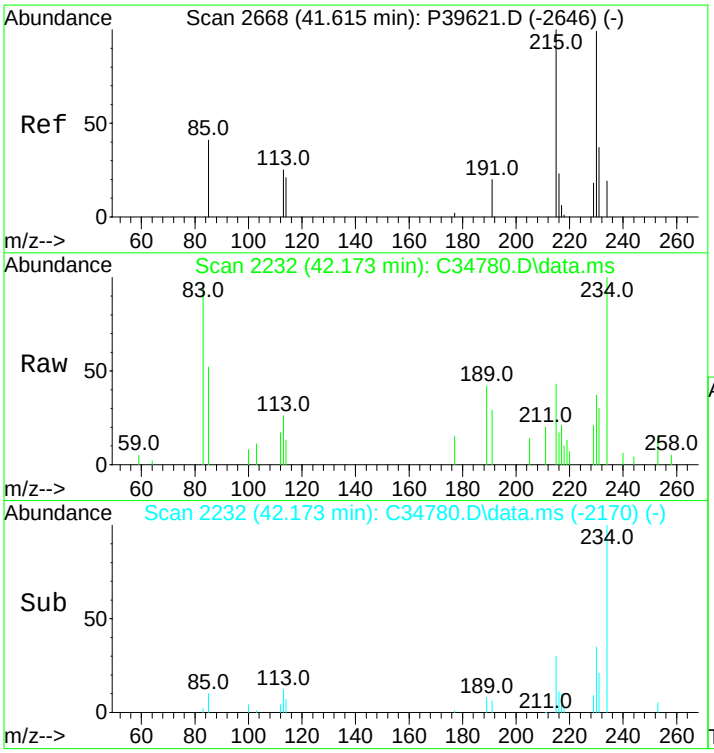


#61
C1-Fluoranthenes/Pyrenes
Concen: 362.47 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:216 Resp: 46715

Ion	Ratio	Lower	Upper
216	100		
215	25.6	71.8	107.6#

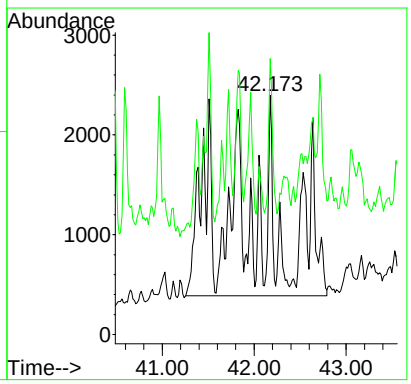


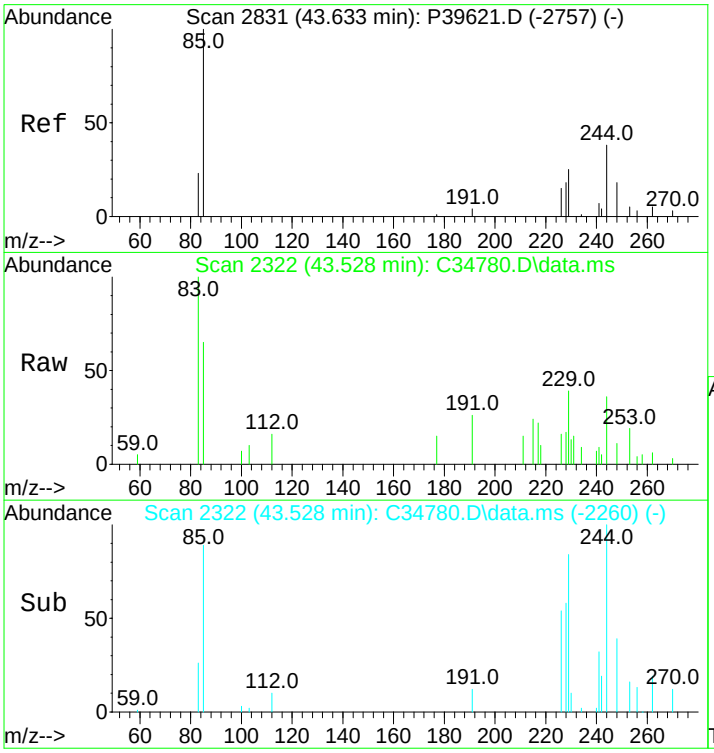


#62
C2-Fluoranthenes/Pyrenes
Concen: 471.00 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:230 Resp: 60701

Ion	Ratio	Lower	Upper
230	100		
215	11.8	99.0	148.4#

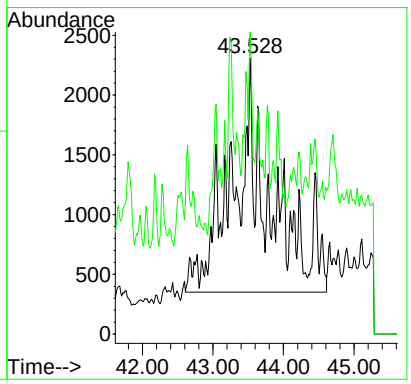


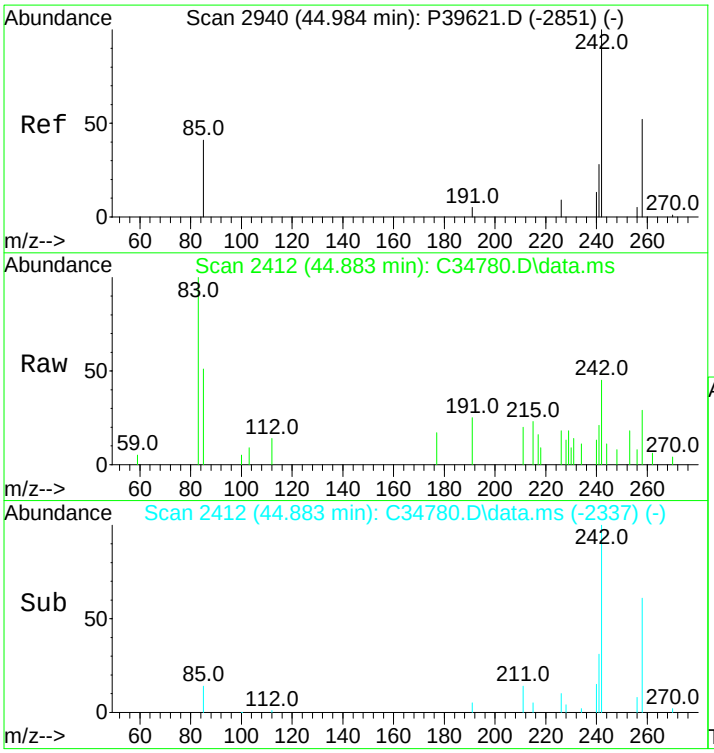


#63
C3-Fluoranthenes/Pyrenes
Concen: 549.43 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:244 Resp: 70809

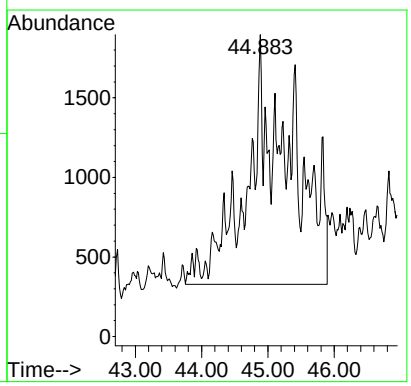
Ion	Ratio	Lower	Upper
244	100		
229	7.2	73.3	109.9#

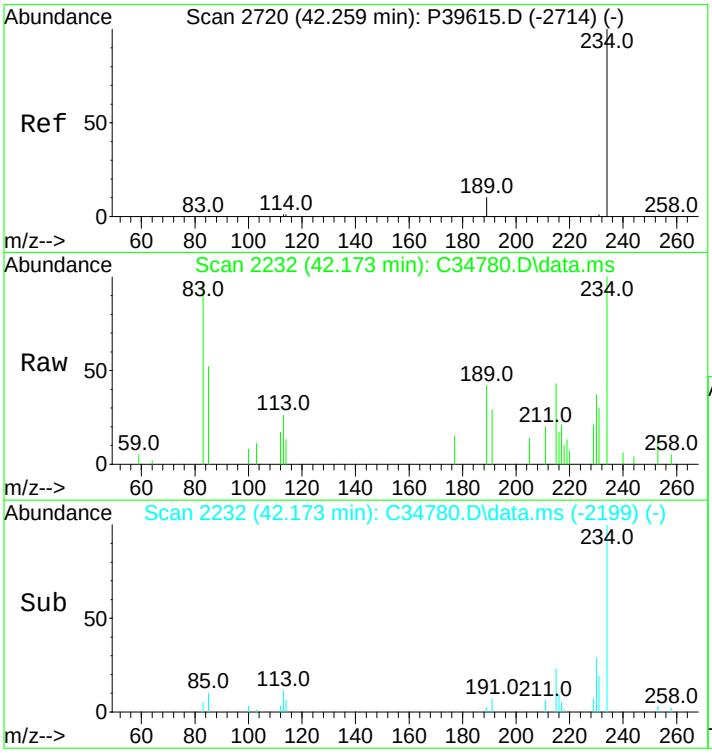




#64
C4-Fluoranthenes/Pyrenes
Concen: 543.42 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:258 Resp: 70035

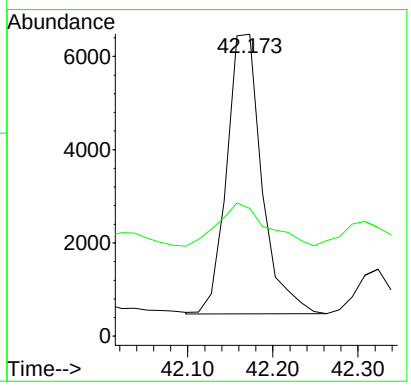


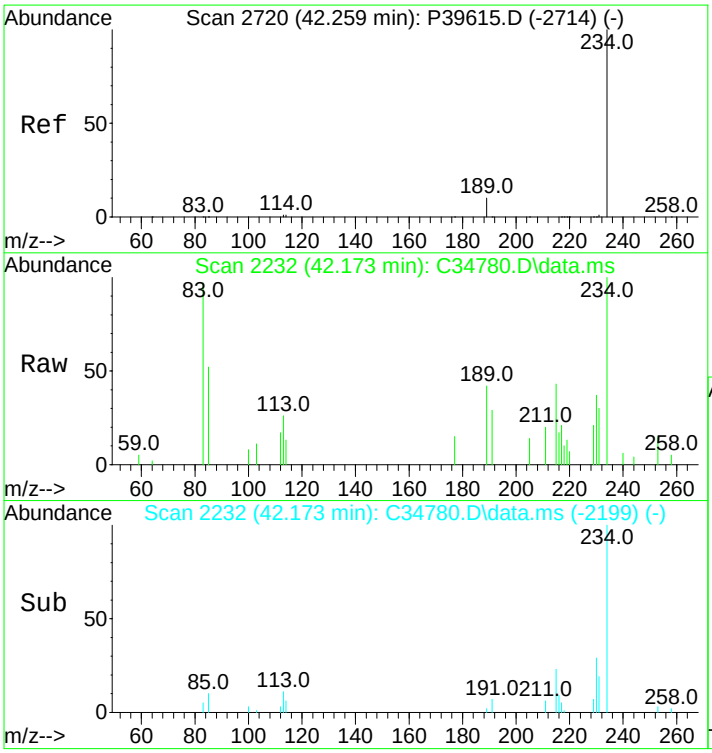


#66
Naphthobenzothiophene
Concen: 123.65 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 17157

Ion	Ratio	Lower	Upper
234	100		
189	21.2	20.5	30.7

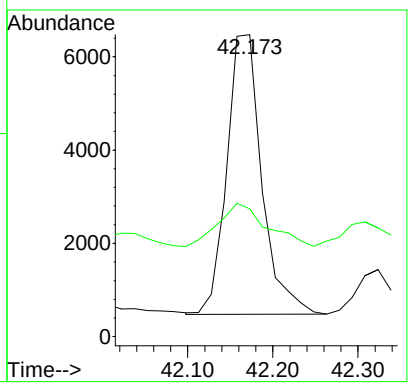


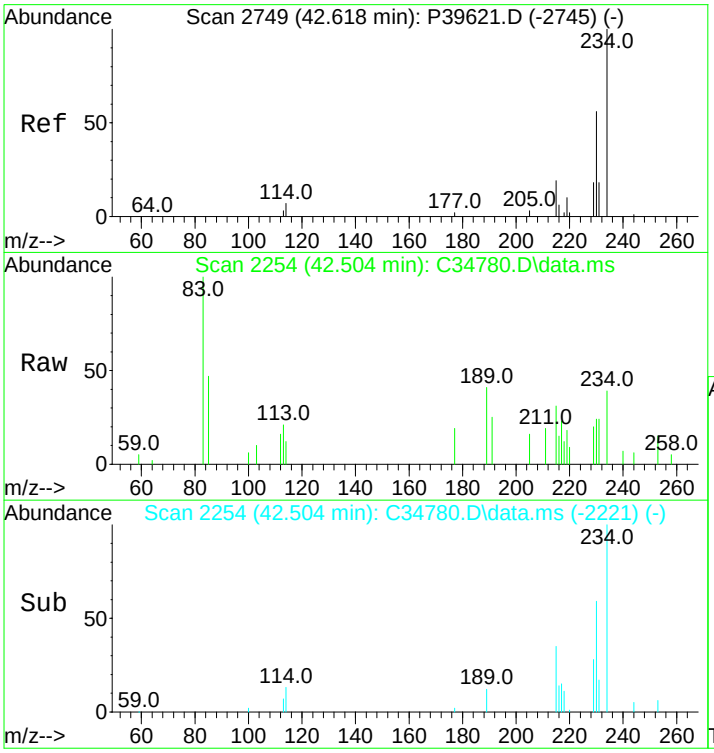


#67
Naphthobenzothiophene-2,1-D
Concen: 123.65 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 17157

Ion	Ratio	Lower	Upper
234	100		
189	21.2	20.5	30.7

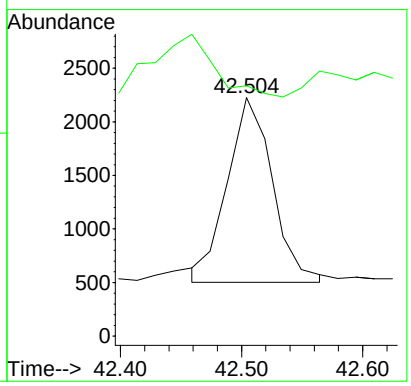


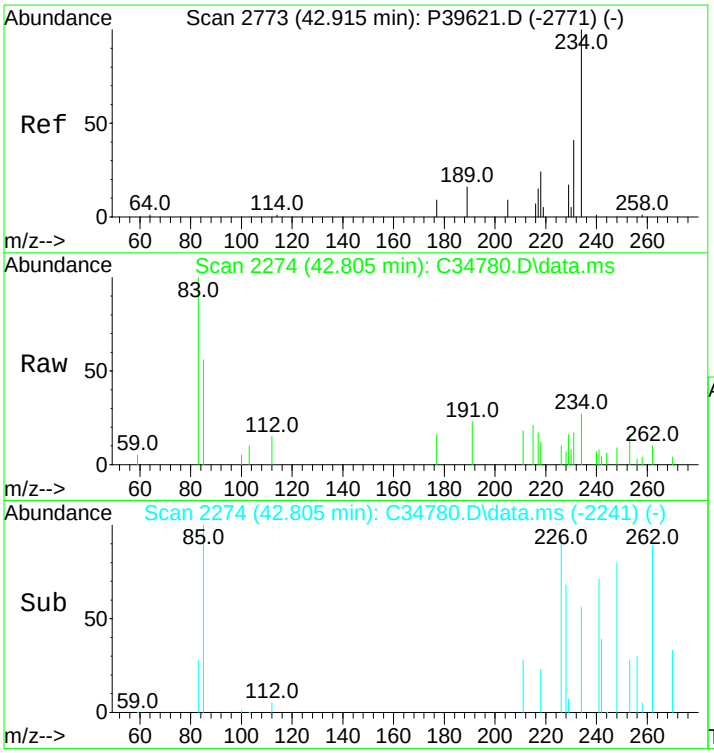


#68
Naphthobenzothiophene-1,2-D
Concen: 32.14 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 4459

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

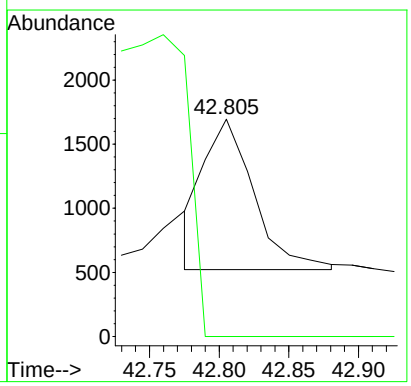


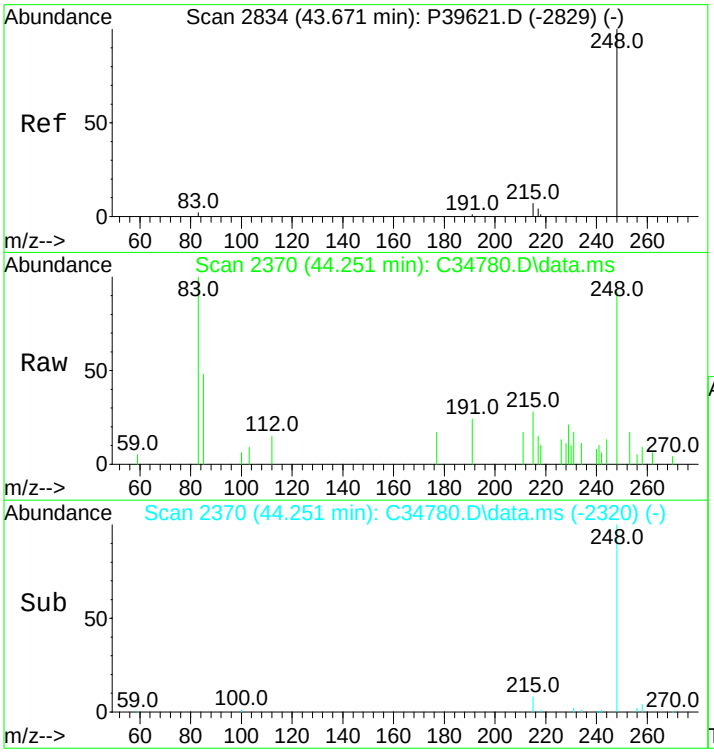


#69
Naphthobenzothiophene-2,3-D
Concen: 21.26 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:234 Resp: 2950

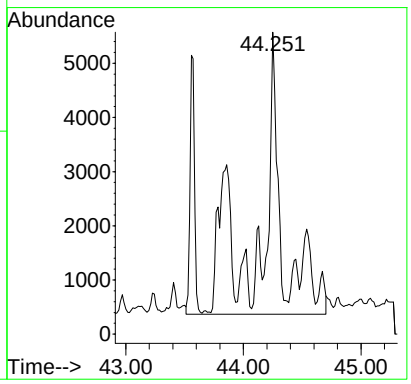
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

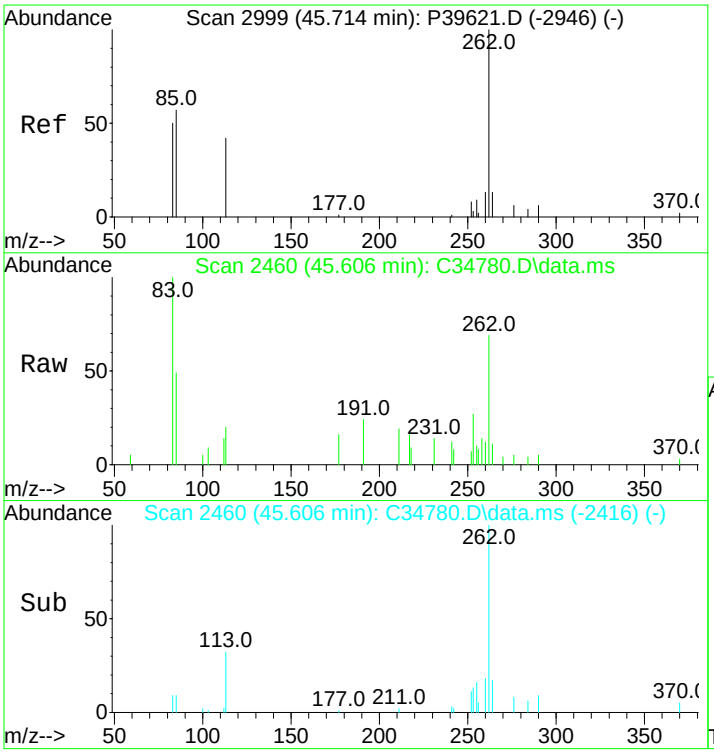




#70
C1-Naphthobenzothiophenes
Concen: 582.72 ng/ml m
RT: 44.251 min Scan# 2370
Delta R.T. 0.124 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

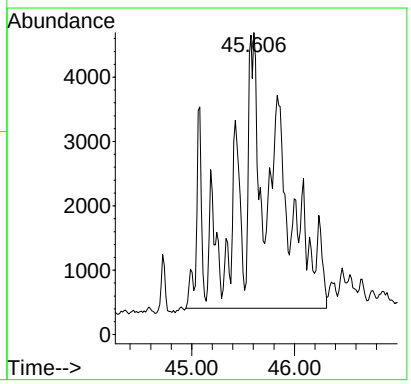
Tgt Ion:248 Resp: 80852

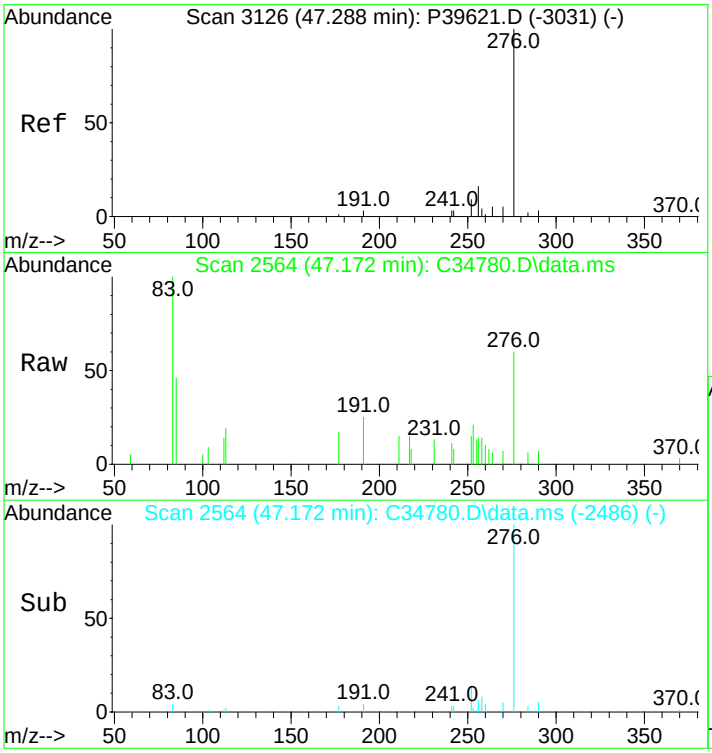




#71
C2-Naphthobenzothiophenes
Concen: 854.15 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

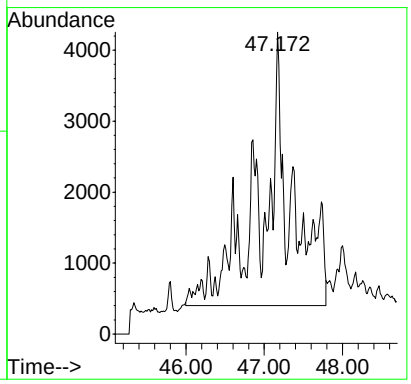
Tgt Ion:262 Resp: 118512

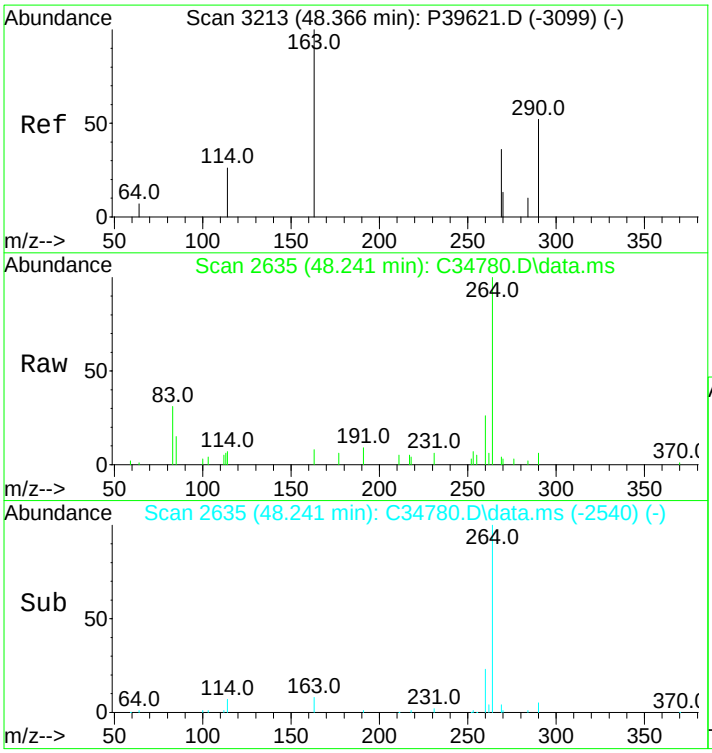




#72
C3-Naphthobenzothiophenes
Concen: 741.02 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

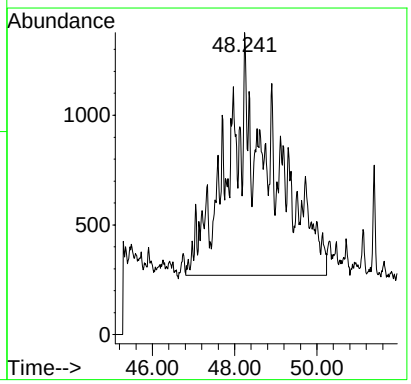
Tgt Ion:276 Resp: 102816

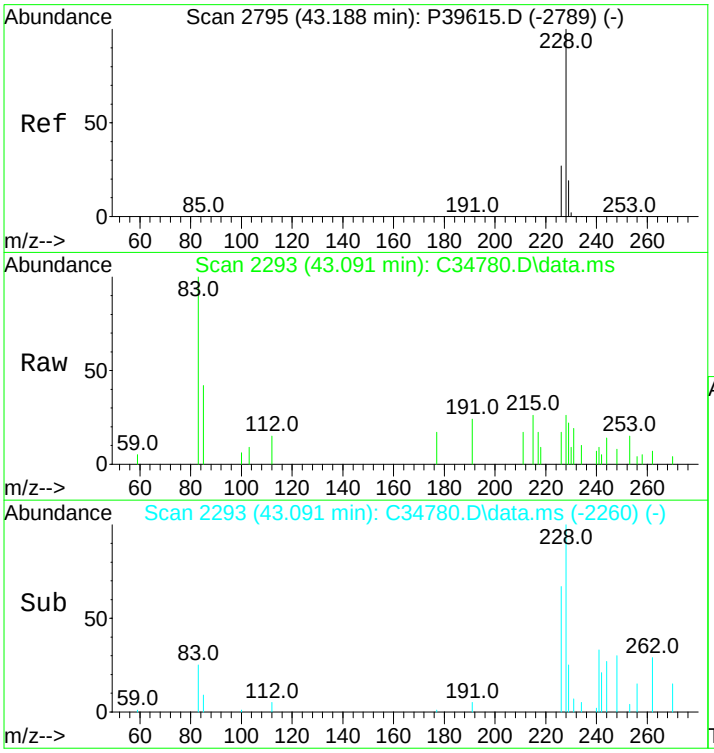




#73
C4-Naphthobenzothiophenes
Concen: 573.23 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:290 Resp: 79535

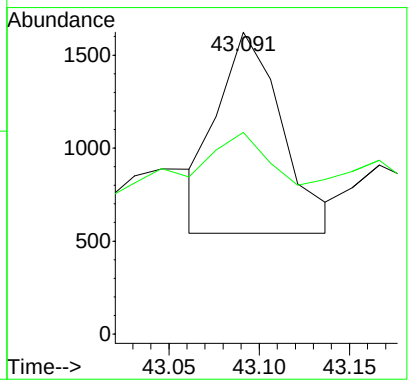


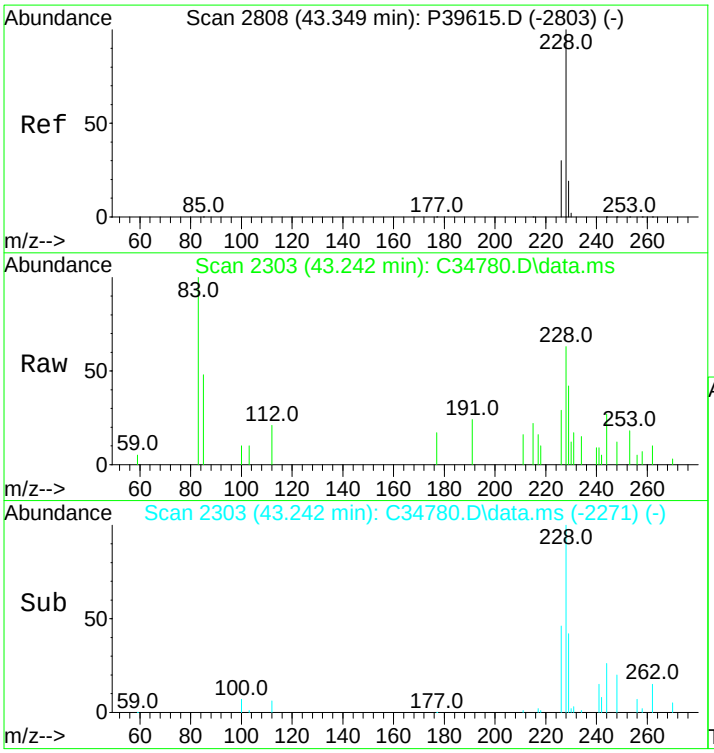


#75
Benz[a]anthracene
Concen: 22.07 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:228 Resp: 2679

Ion	Ratio	Lower	Upper
228	100		
226	144.1	21.4	32.0#

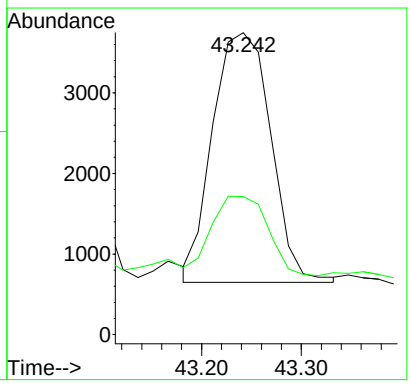


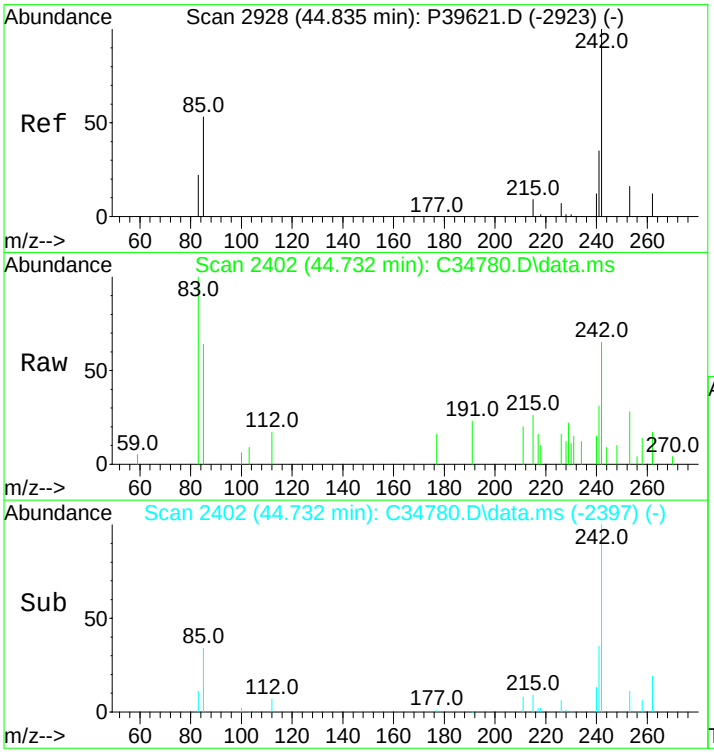


#77
Chrysene/Triphenylene
Concen: 102.43 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:228 Resp: 12551

Ion	Ratio	Lower	Upper
228	100		
226	30.8	23.7	35.5

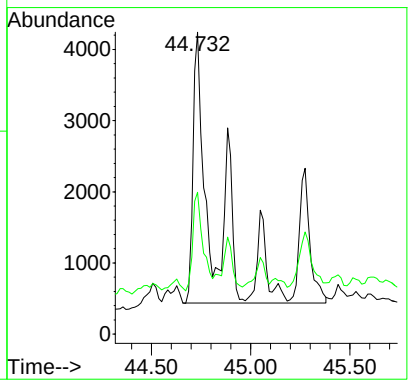


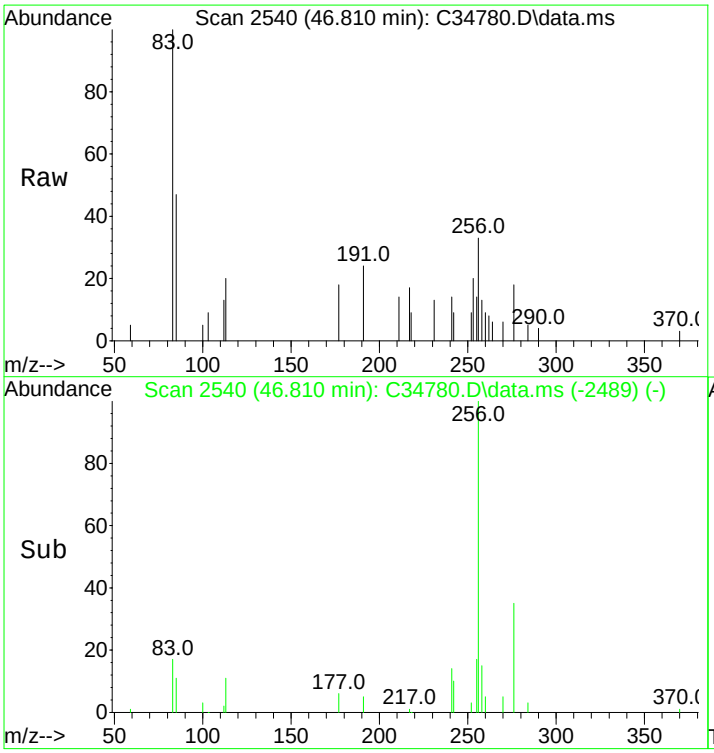


#78
C1-Chrysenes
Concen: 267.50 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:242 Resp: 32776

Ion	Ratio	Lower	Upper
242	100		
241	12.7	31.4	47.2#

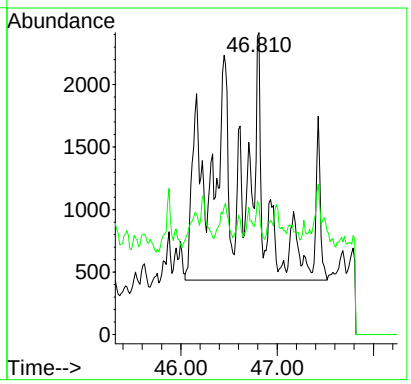


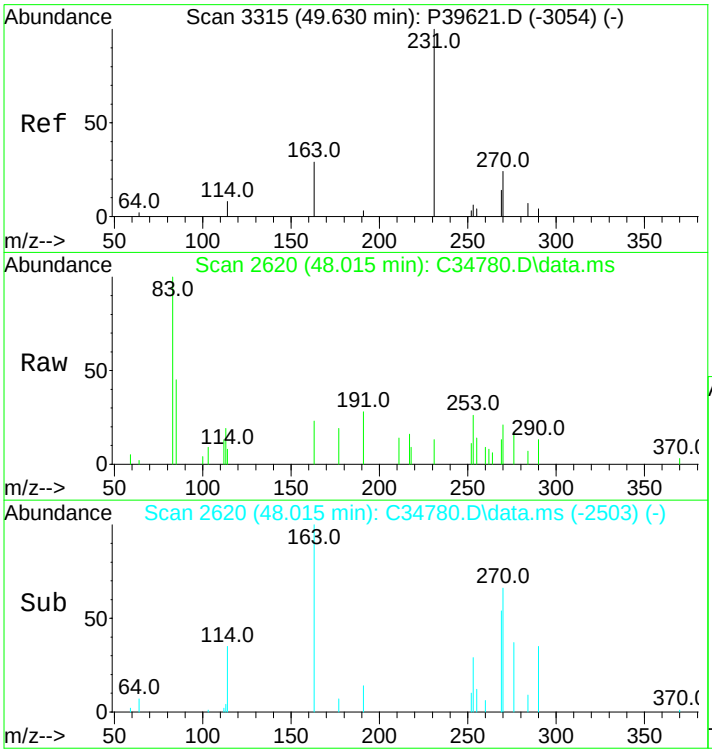


#79
C2-Chrysenes
Concen: 425.40 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:256 Resp: 52123

Ion	Ratio	Lower	Upper
256	100		
241	1.5	21.2	31.8#

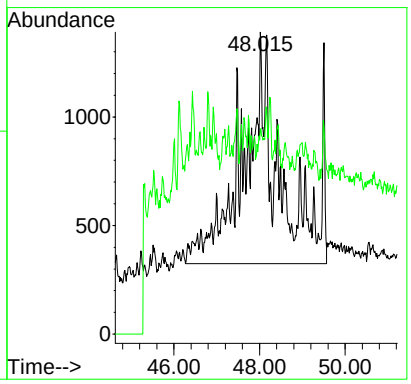


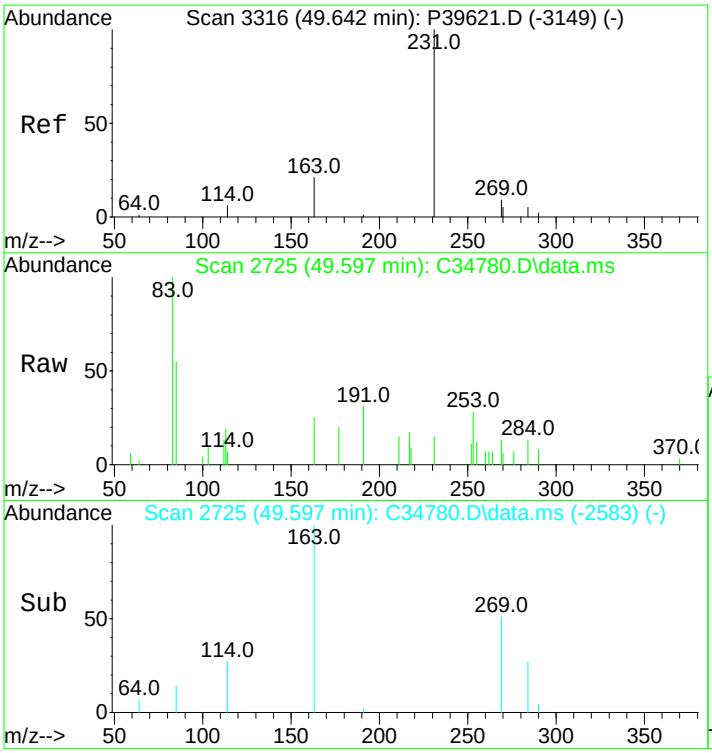


#80
C3-Chrysenes
Concen: 497.29 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:270 Resp: 60931

Ion	Ratio	Lower	Upper
270	100		
255	1.7	33.8	50.8#

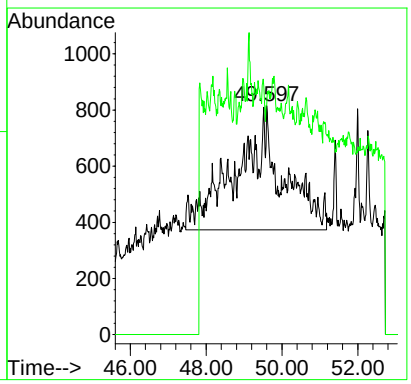


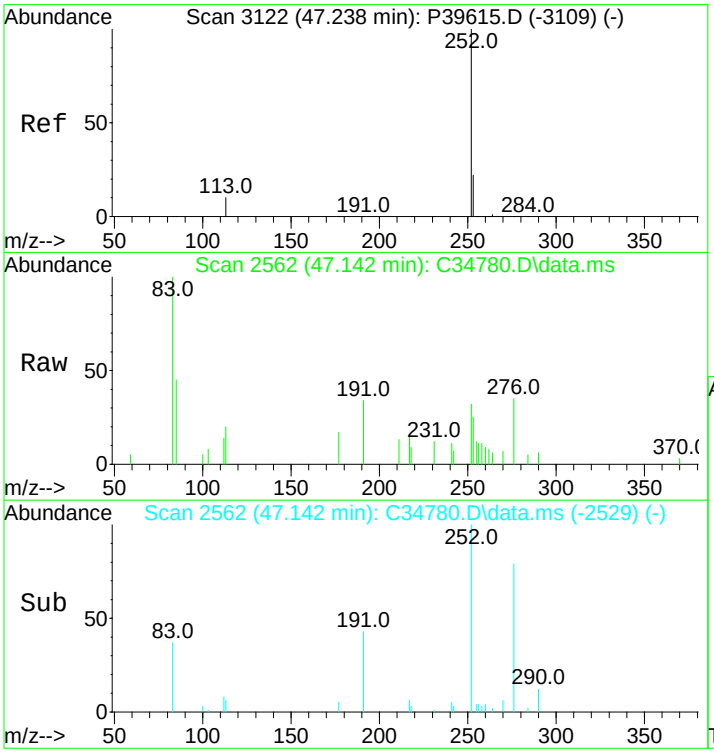


#81
C4-Chrysenes
Concen: 300.79 ng/mL m
RT: 49.597 min Scan# 2725
Delta R.T. -0.004 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:284 Resp: 36855

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

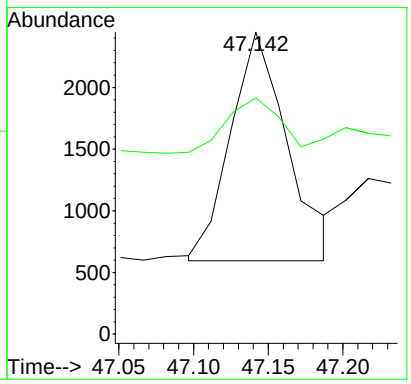


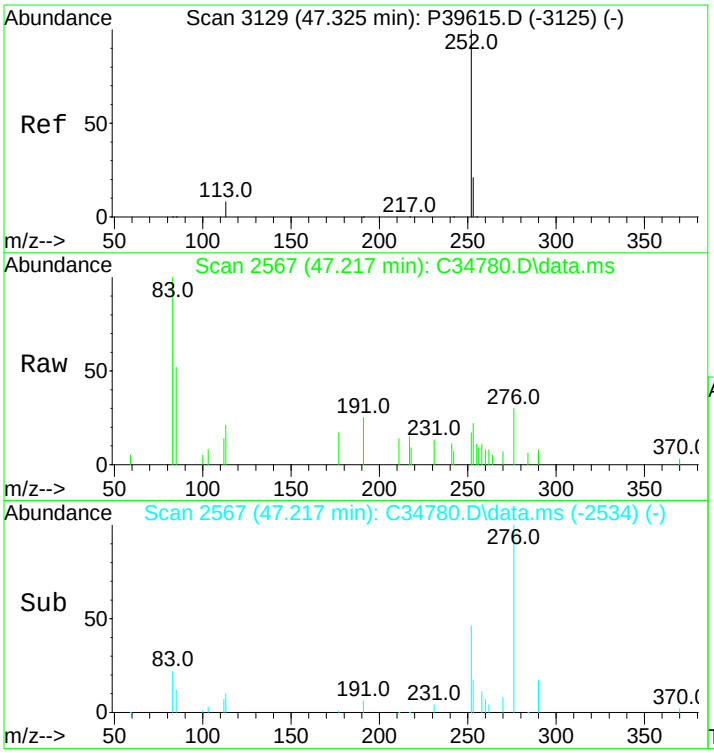


#82
Benzo[b]fluoranthene
Concen: 36.89 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 4920

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.0	28.4

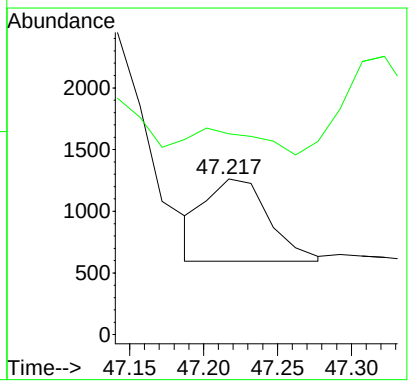


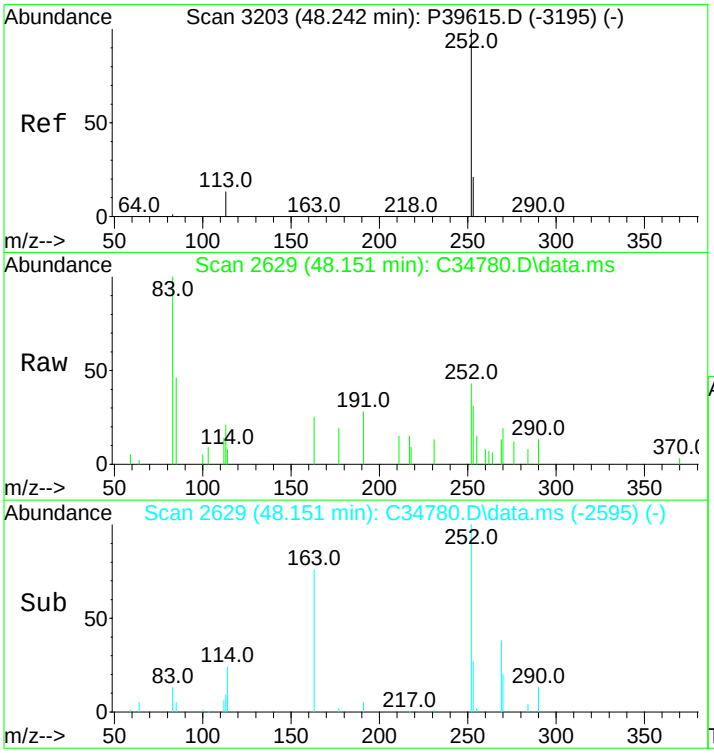


#83
Benzo[j]+[k]fluoranthene
Concen: 13.73 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 1994

Ion	Ratio	Lower	Upper
252	100		
253	29.5	19.0	28.4#

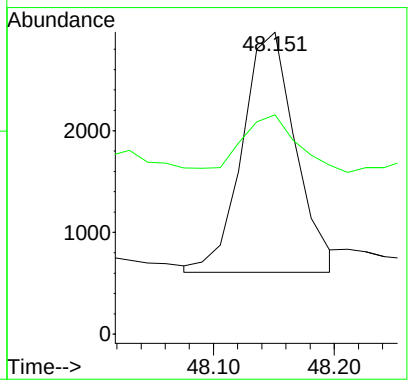


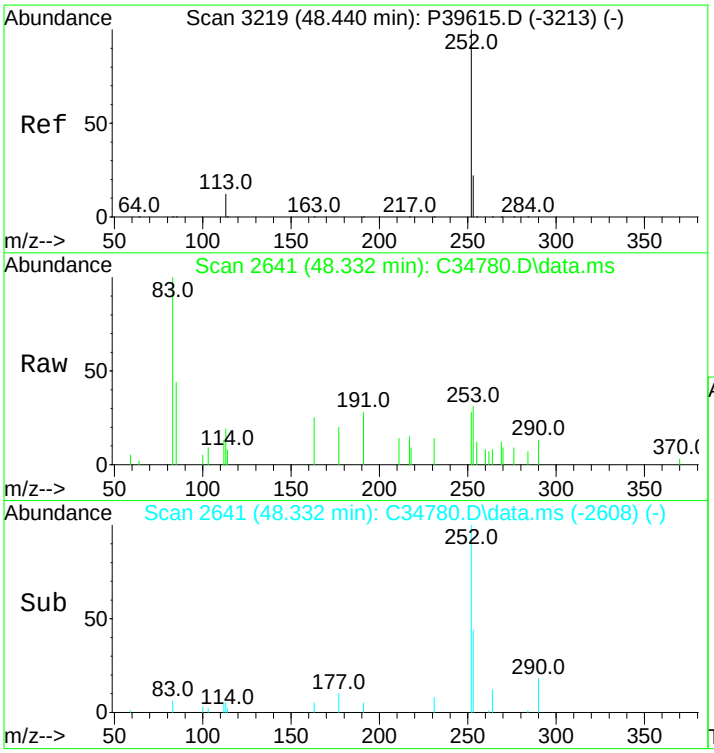


#85
Benzo[e]pyrene
Concen: 54.92 ng/mL m
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 7244

Ion	Ratio	Lower	Upper
252	100		
253	26.7	19.2	28.8

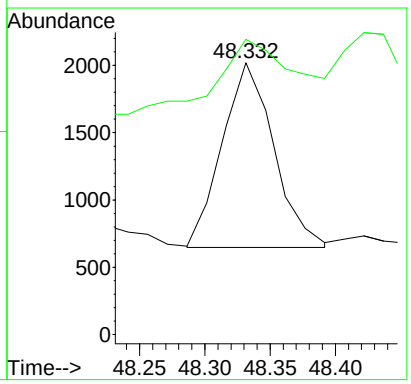


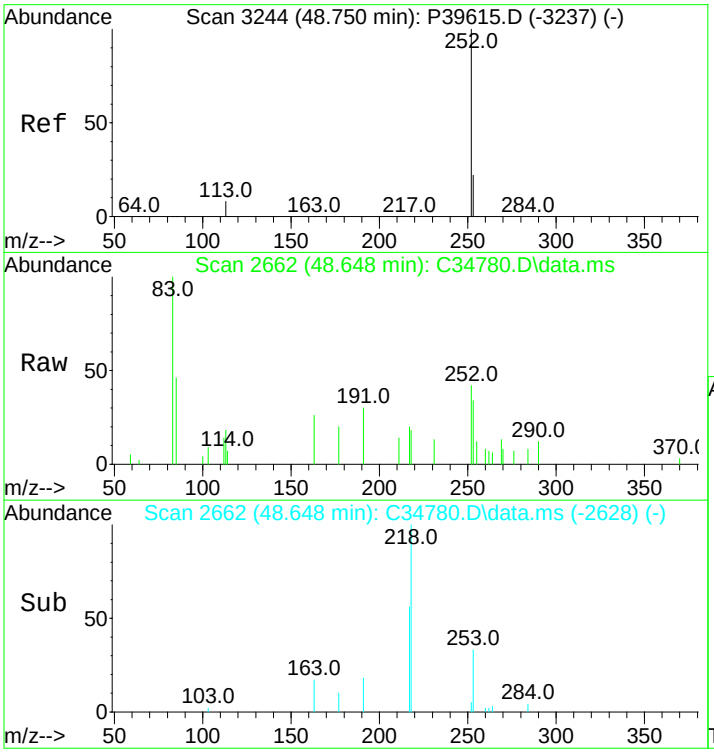


#87
Benzo[a]pyrene
Concen: 29.78 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 3782

Ion	Ratio	Lower	Upper
252	100		
253	49.7	19.5	29.3#

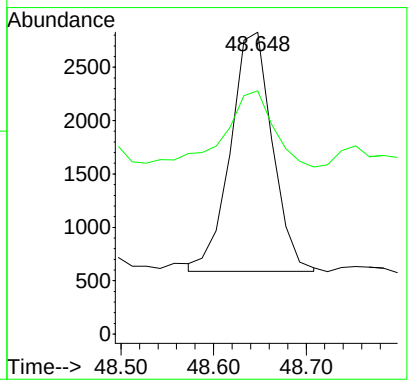


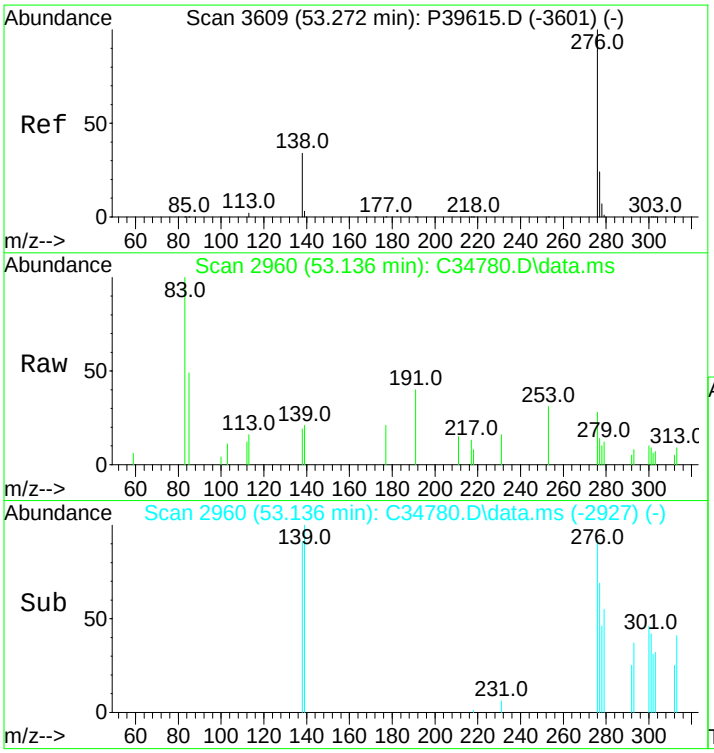


#88
Perylene
Concen: 51.79 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:252 Resp: 7029

Ion	Ratio	Lower	Upper
252	100		
253	38.2	19.6	29.4#

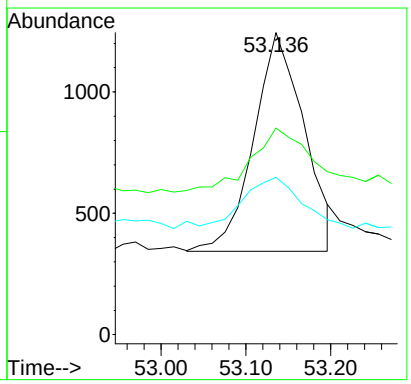


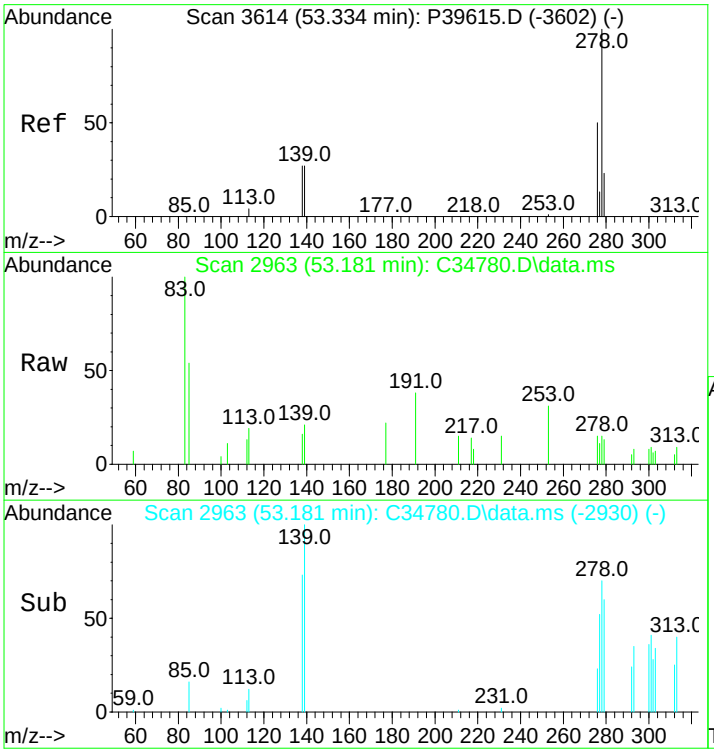


#89
Indeno[1,2,3-cd]pyrene
Concen: 25.31 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:276 Resp: 3741

Ion	Ratio	Lower	Upper
276	100		
138	32.5	23.3	34.9
277	25.2	19.0	28.4

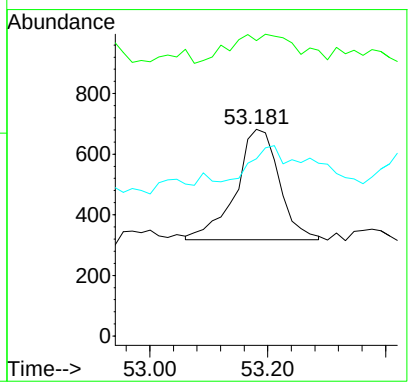


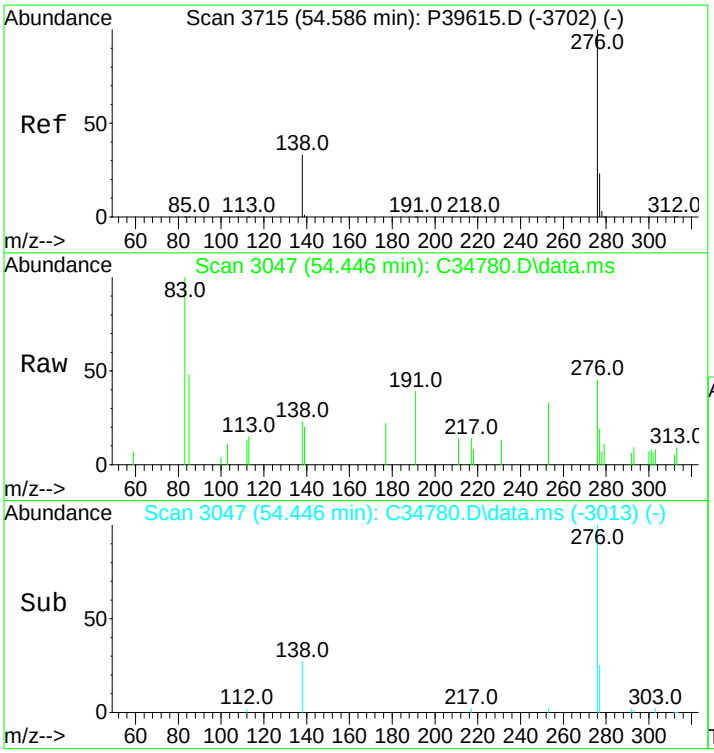


#90
Dibenz[ah]+[ac]anthracene
Concen: 13.26 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:278 Resp: 1864

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

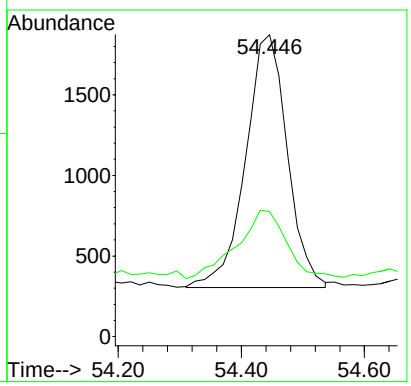


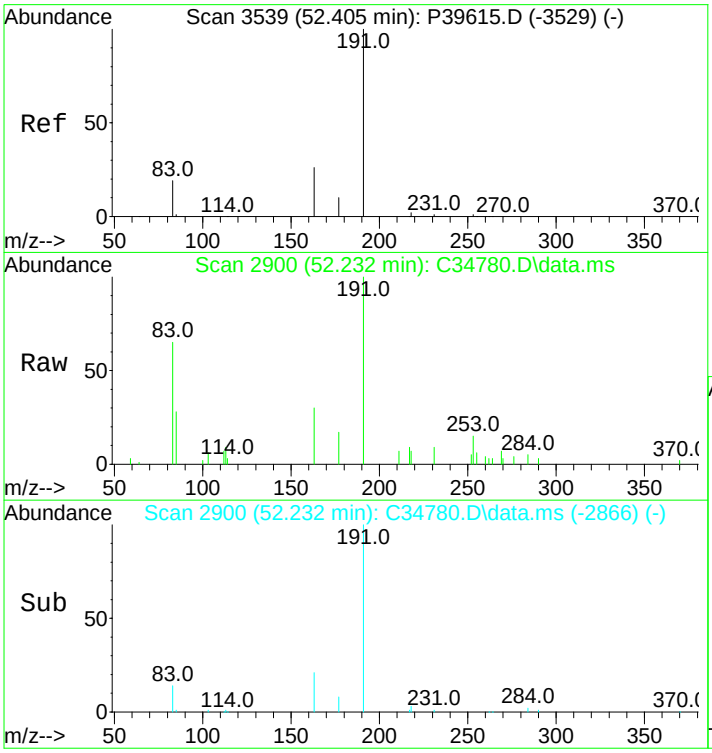


#91
Benzo[g,h,i]perylene
Concen: 47.18 ng/mL m
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:276 Resp: 7367

Ion	Ratio	Lower	Upper
276	100		
277	32.3	18.9	28.3#

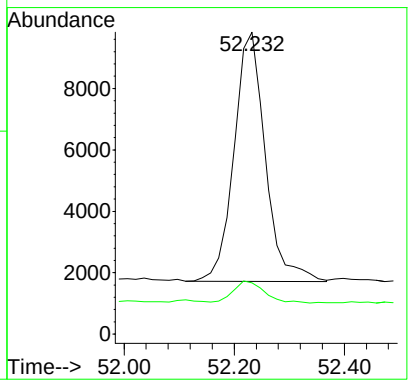


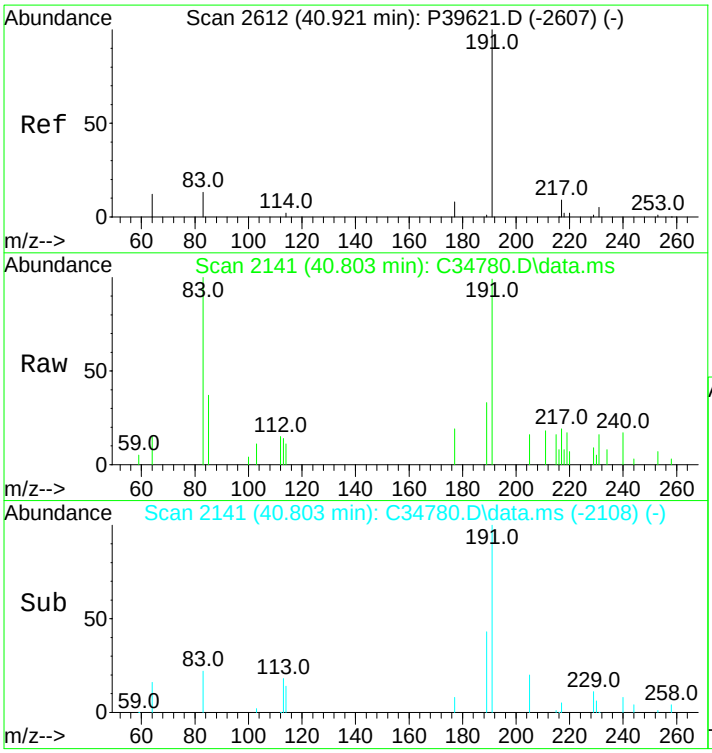


#92
Hopane (T19)
Concen: 1268.72 ng/mL
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:191 Resp: 31973

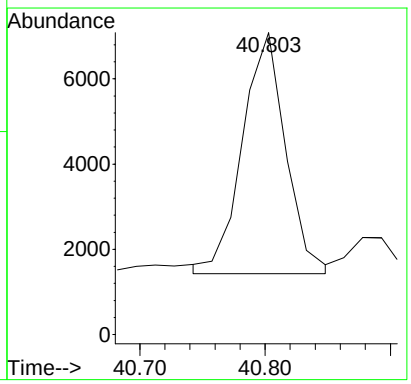
Ion	Ratio	Lower	Upper
191	100		
177	9.1	14.6	21.8#

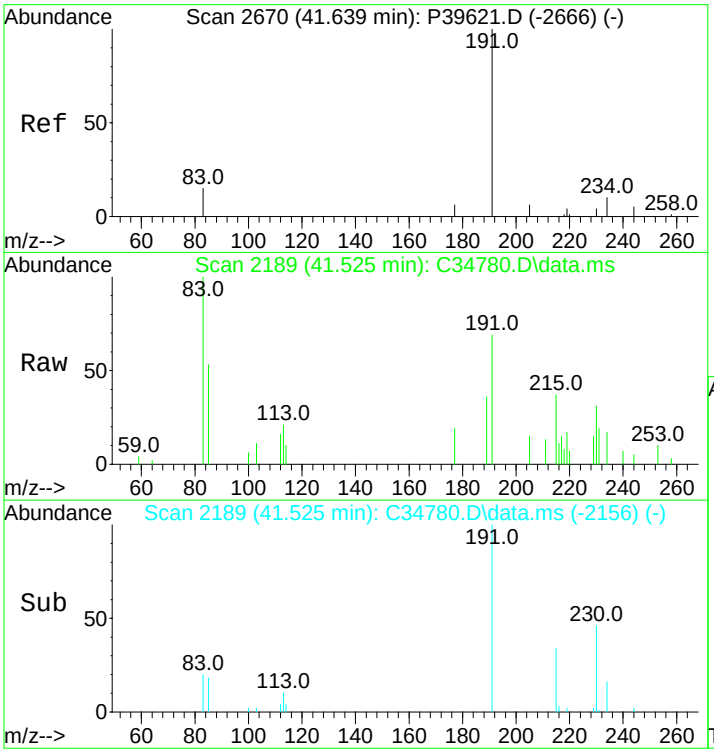




#94
C23 Tricyclic Terpane (T4)
Concen: 536.33 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

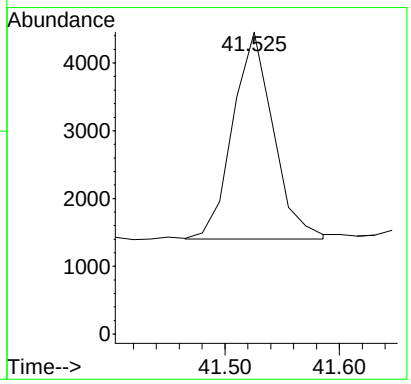
Tgt Ion:191 Resp: 13516

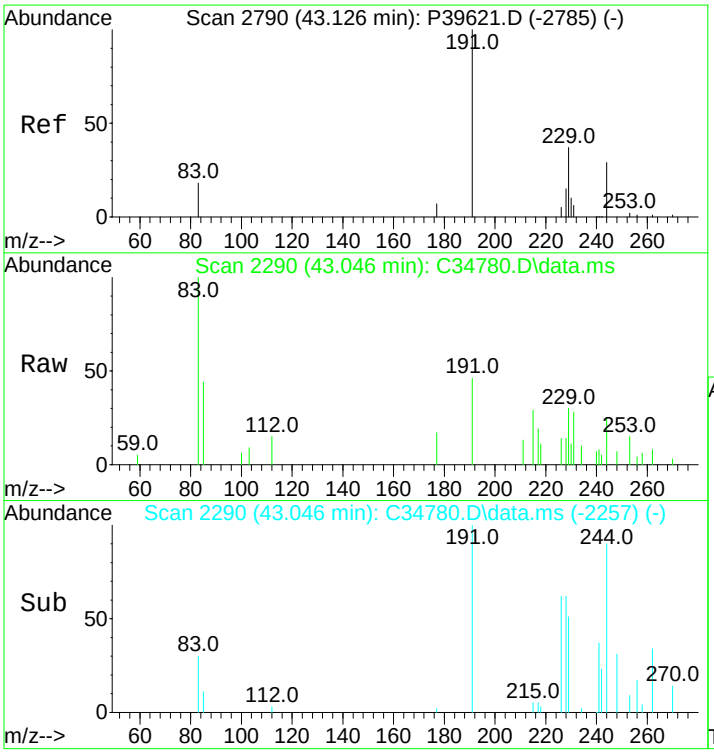




#95
C24 Tricyclic Terpane (T5)
Concen: 298.56 ng/ml m
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

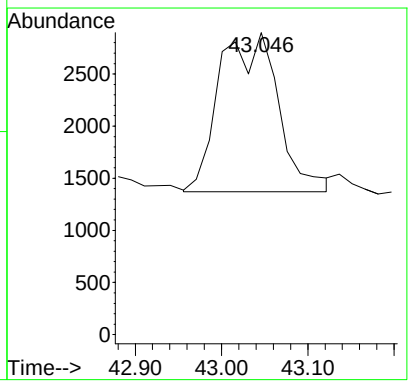
Tgt Ion:191 Resp: 7524

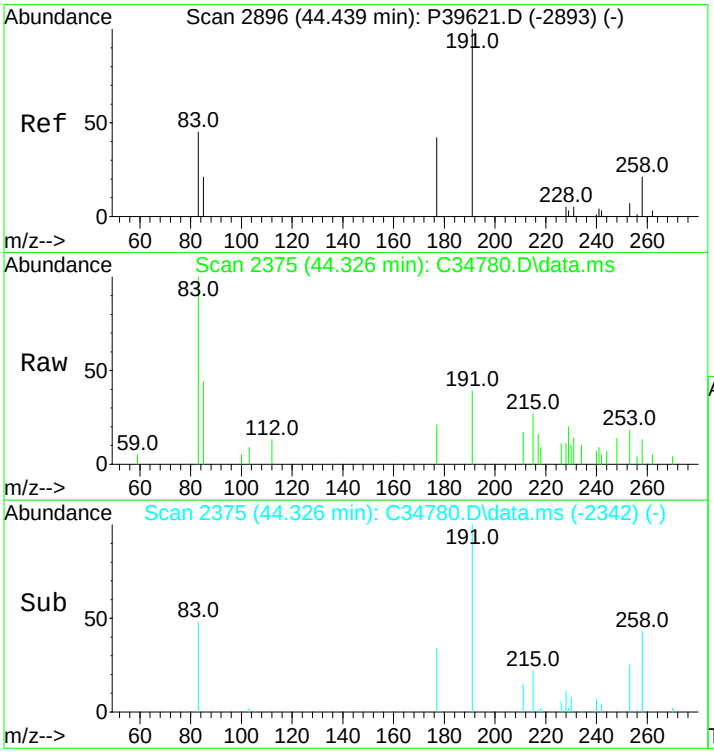




#96
C25 Tricyclic Terpane (T6)
Concen: 286.78 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

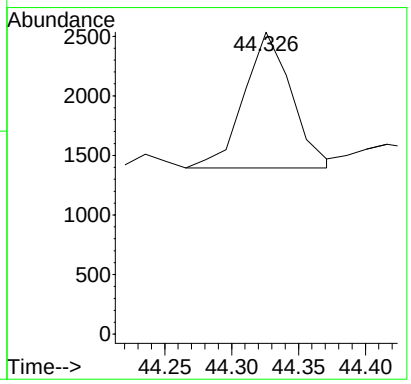
Tgt Ion:191 Resp: 7227

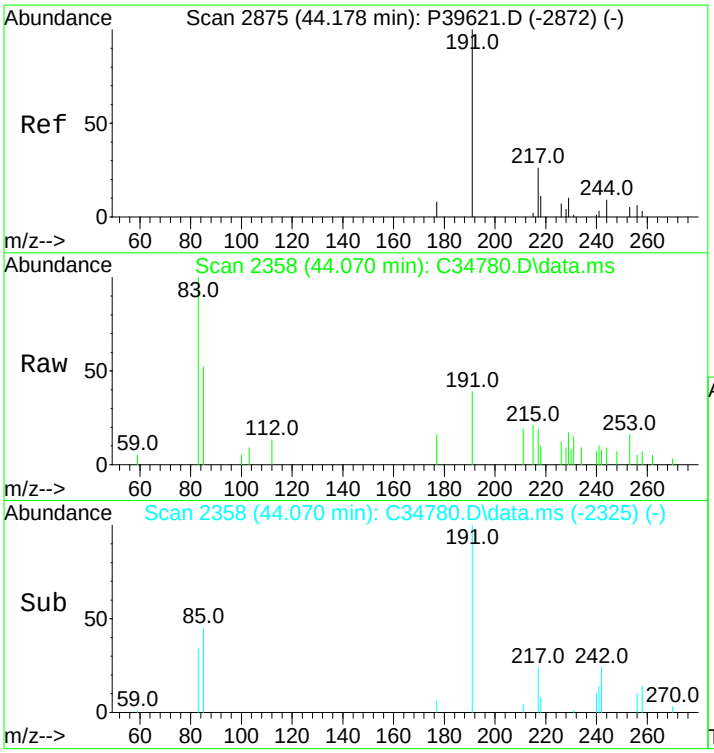




#97
C24 Tetracyclic Terpane (T6a)
Concen: 111.86 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

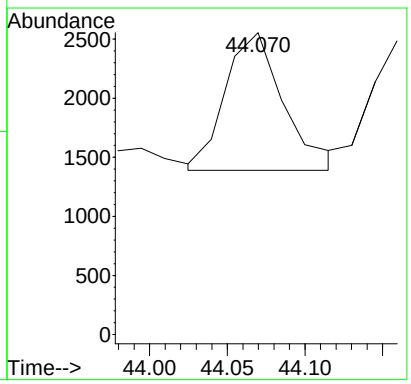
Tgt Ion:191 Resp: 2819

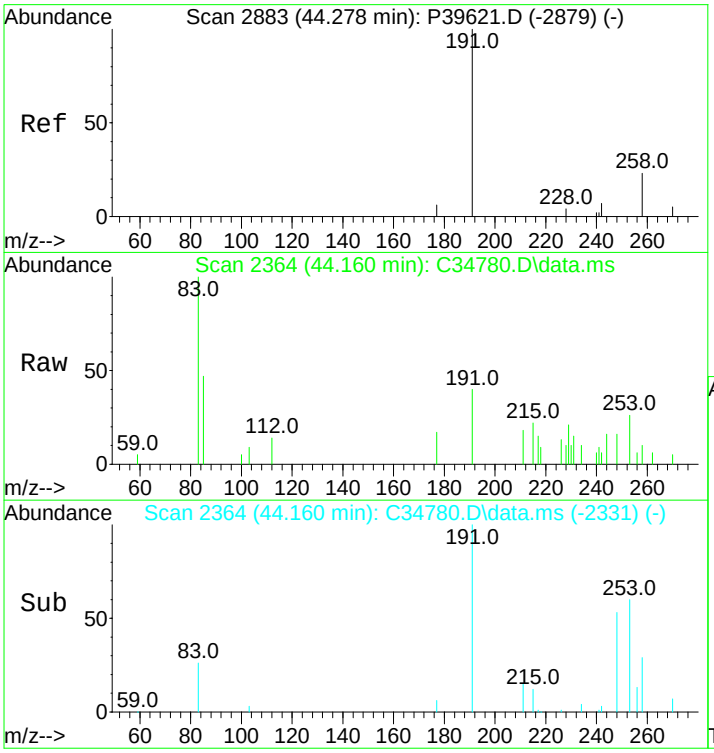




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 121.07 ng/ml m
RT: 44.070 min Scan# 2358
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

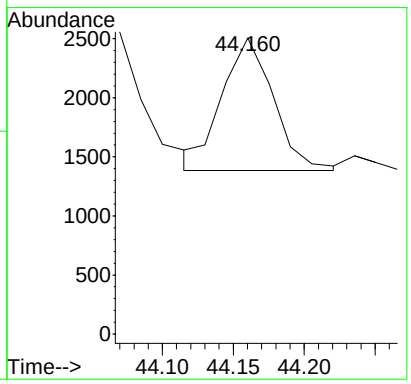
Tgt Ion:191 Resp: 3051

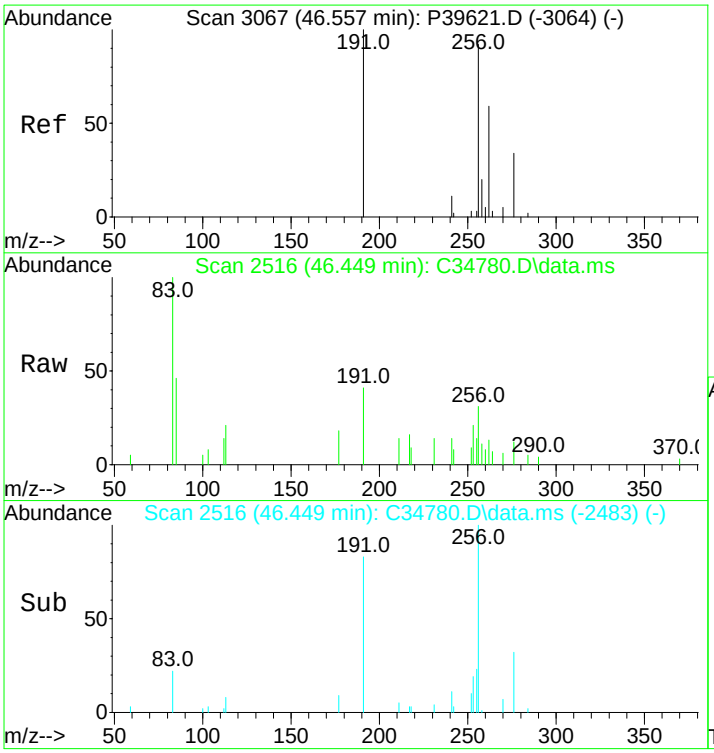




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 111.74 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

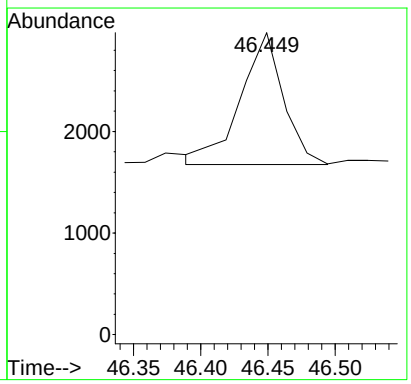
Tgt Ion:191 Resp: 2816

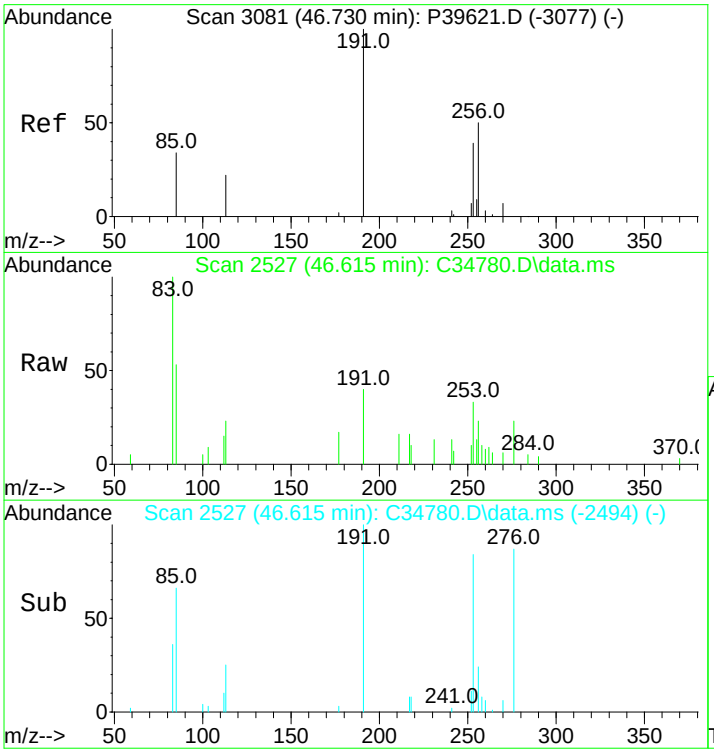




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 114.32 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

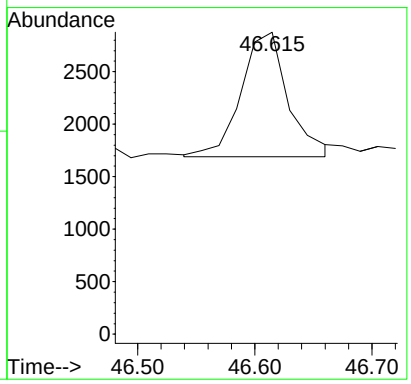
Tgt Ion:191 Resp: 2881

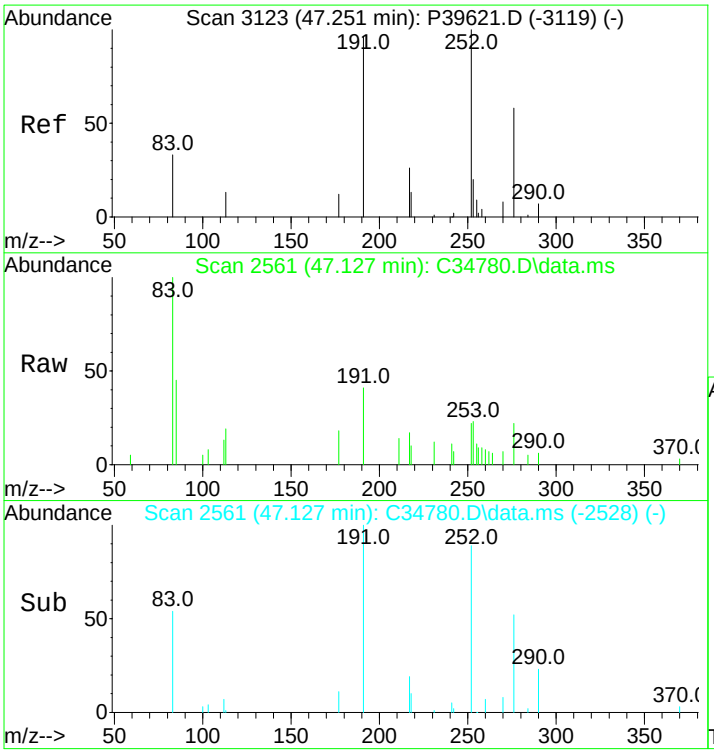




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 130.95 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

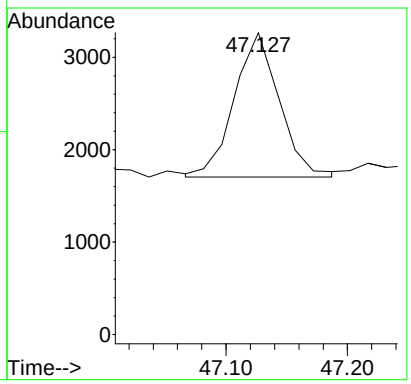
Tgt Ion:191 Resp: 3300

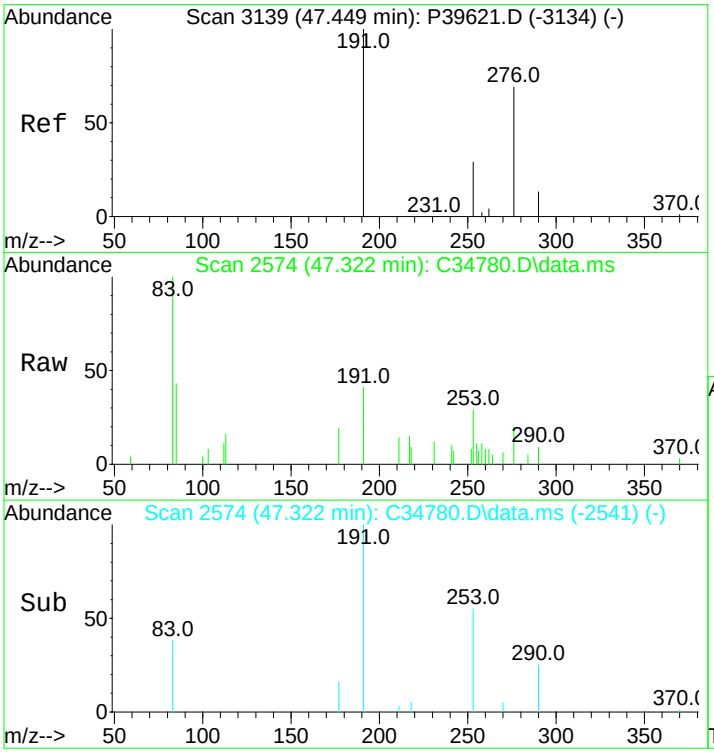




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 159.48 ng/ml m
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

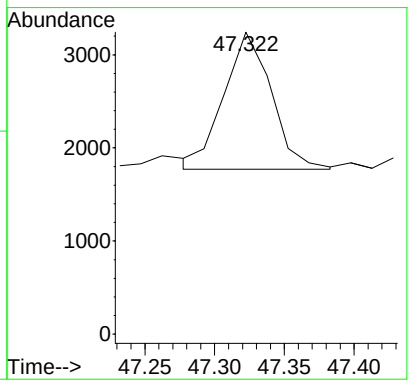
Tgt Ion:191 Resp: 4019

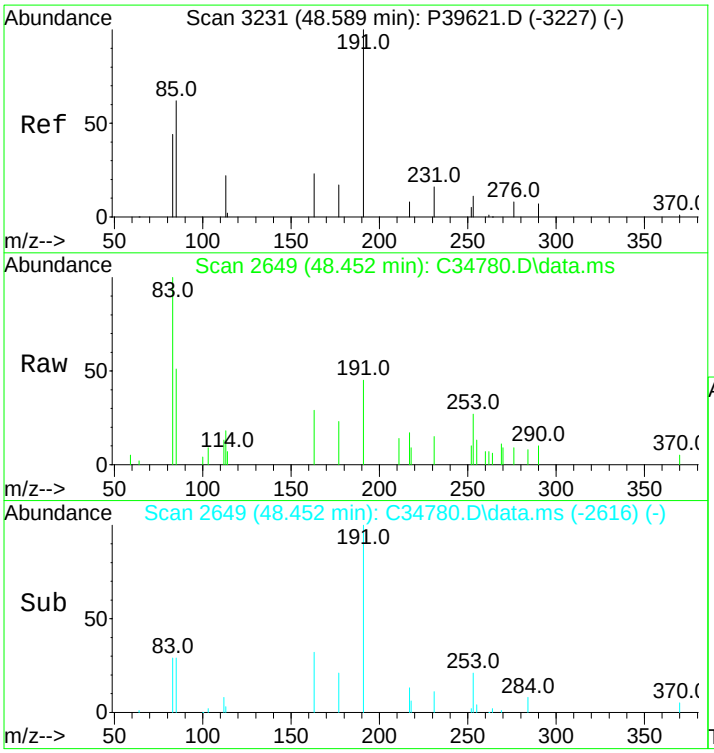




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 138.45 ng/ml m
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

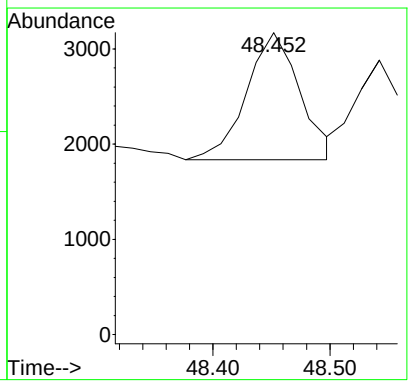
Tgt Ion:191 Resp: 3489

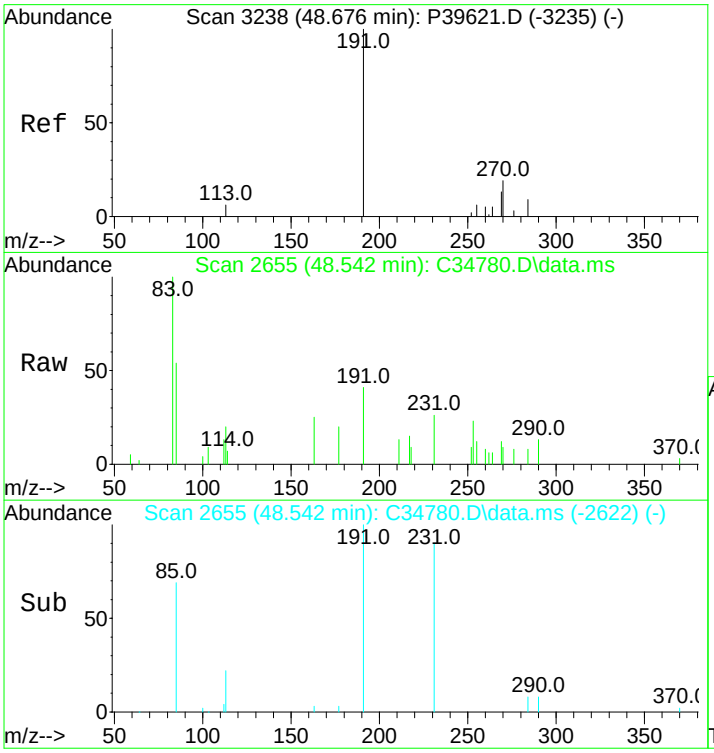




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 168.13 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

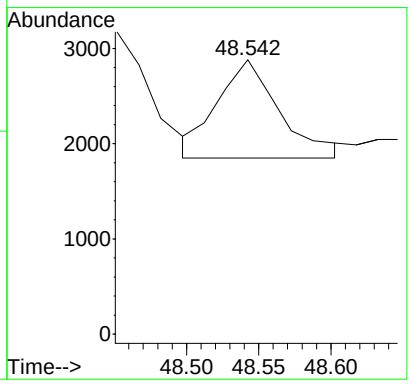
Tgt Ion:191 Resp: 4237

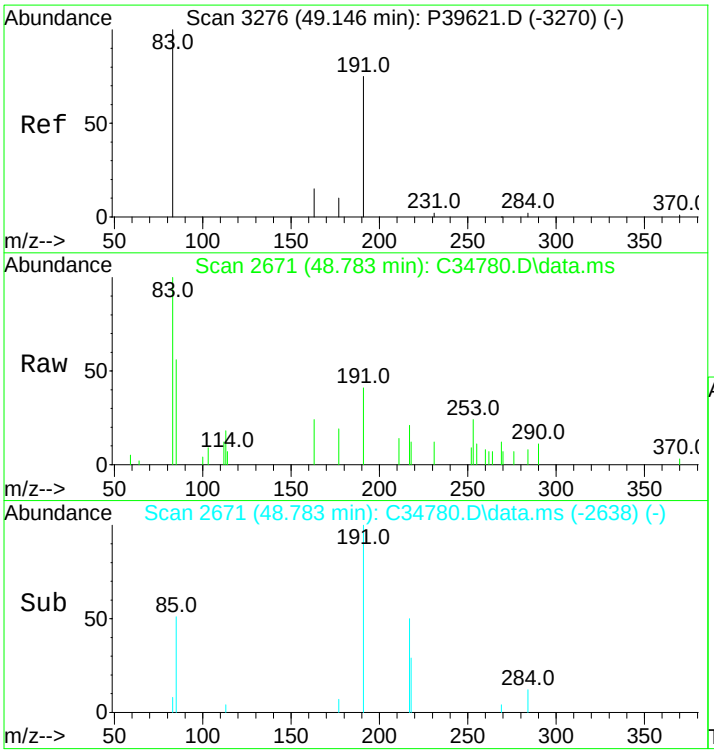




#105
C30 Tricyclic Terpane-22S
Concen: 123.13 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

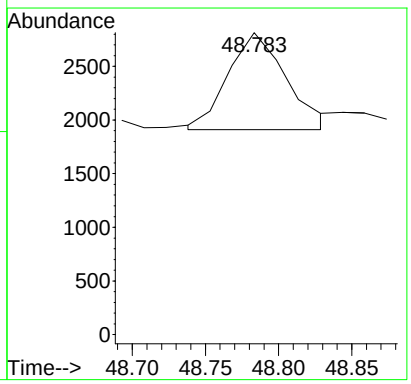
Tgt Ion:191 Resp: 3103

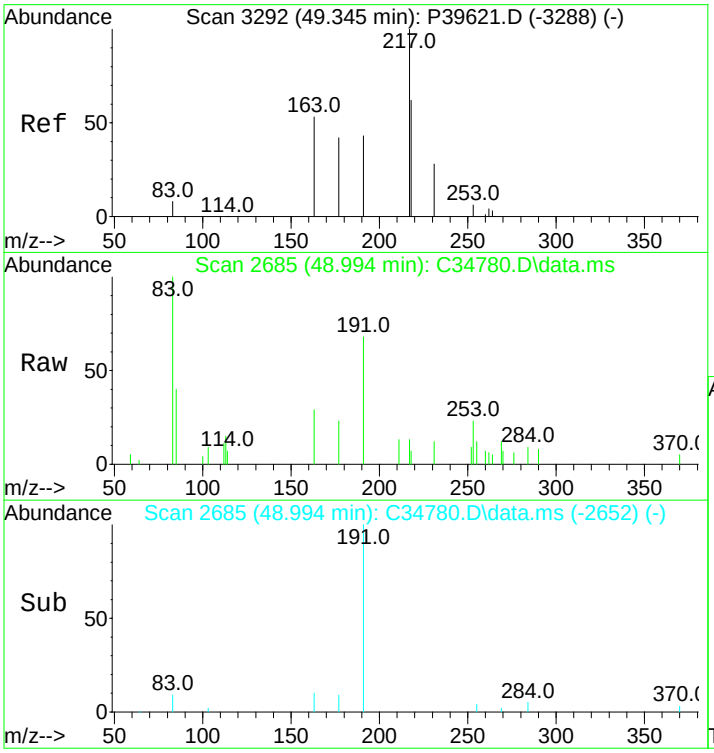




#106
C30 Tricyclic Terpane-22R
Concen: 98.77 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

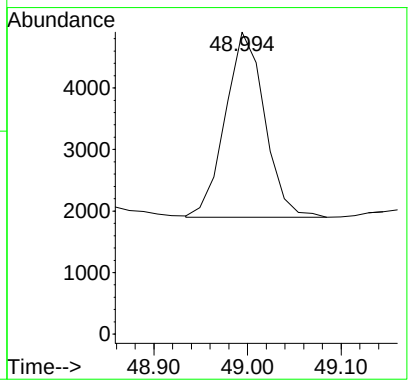
Tgt Ion:191 Resp: 2489

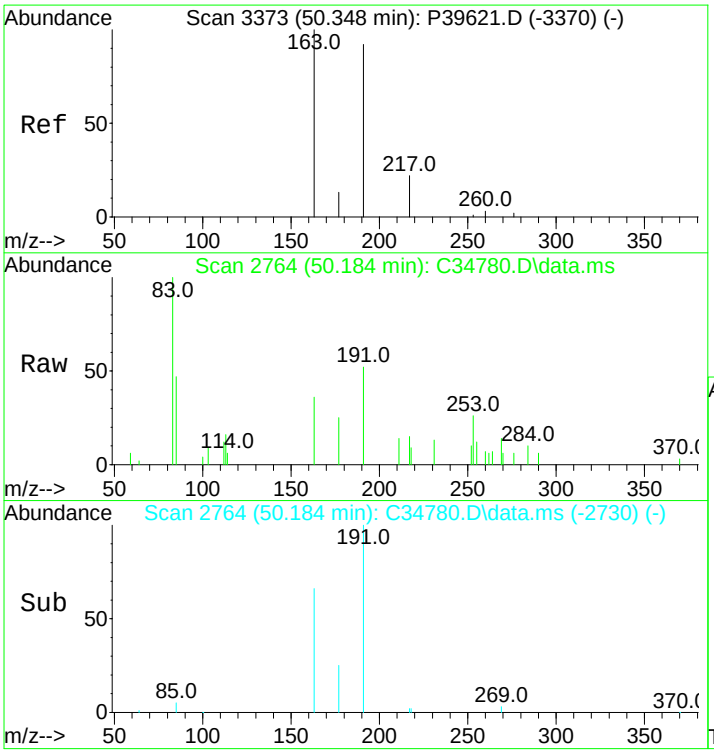




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 349.79 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

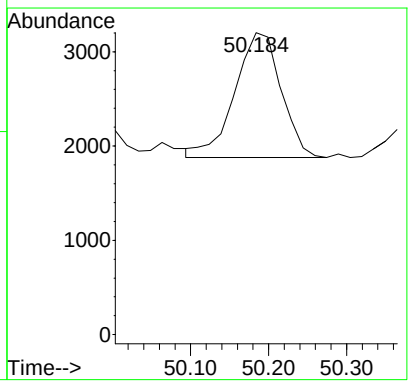
Tgt Ion:191 Resp: 8815

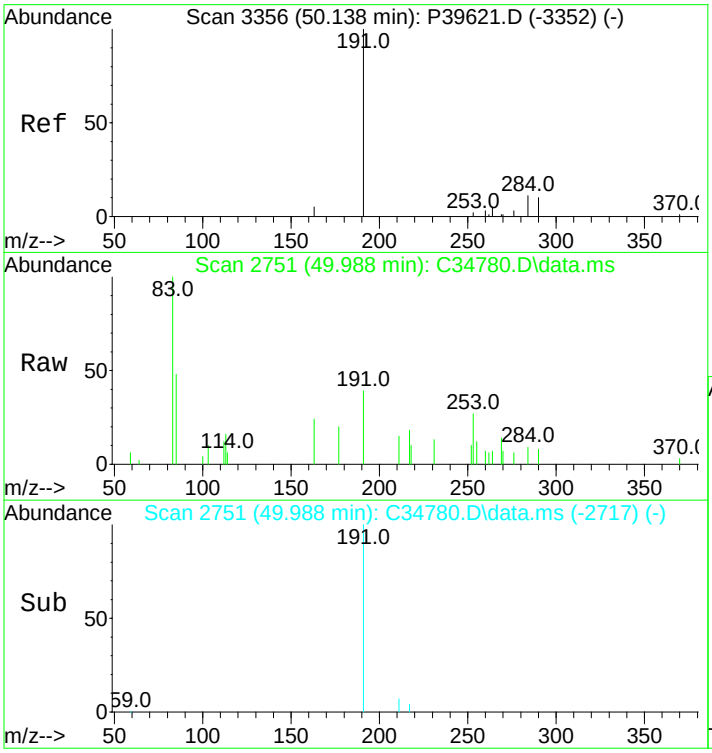




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 217.45 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

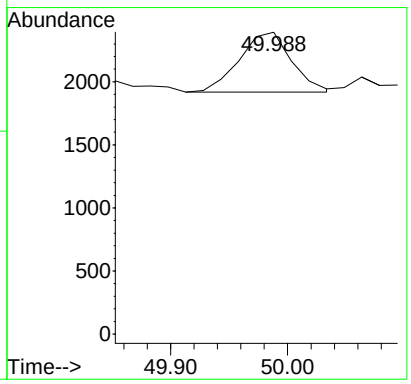
Tgt Ion:191 Resp: 5480

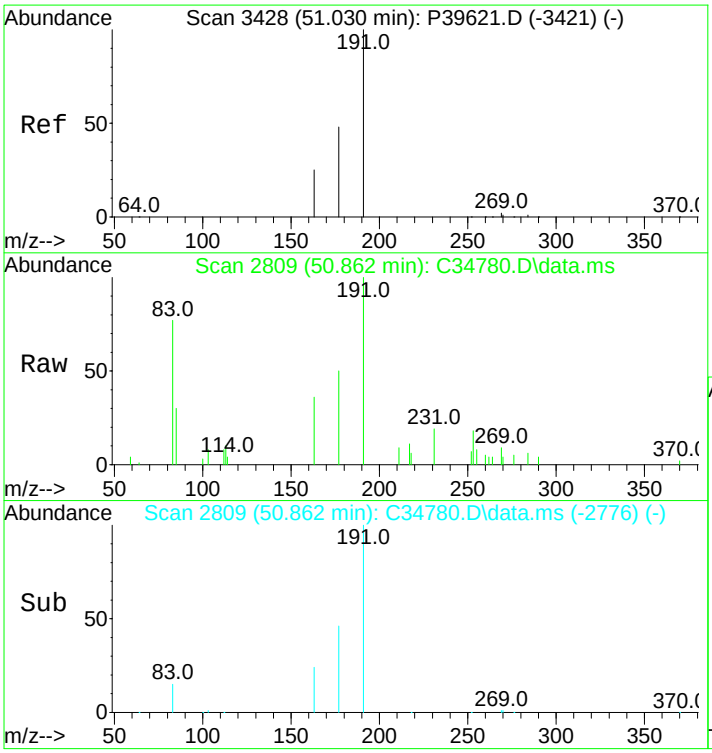




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 58.69 ng/ml
RT: 49.988 min Scan# 2751
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

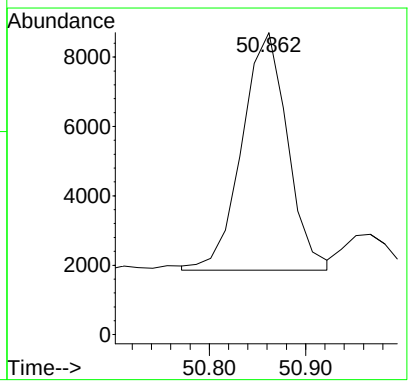
Tgt Ion:191 Resp: 1479

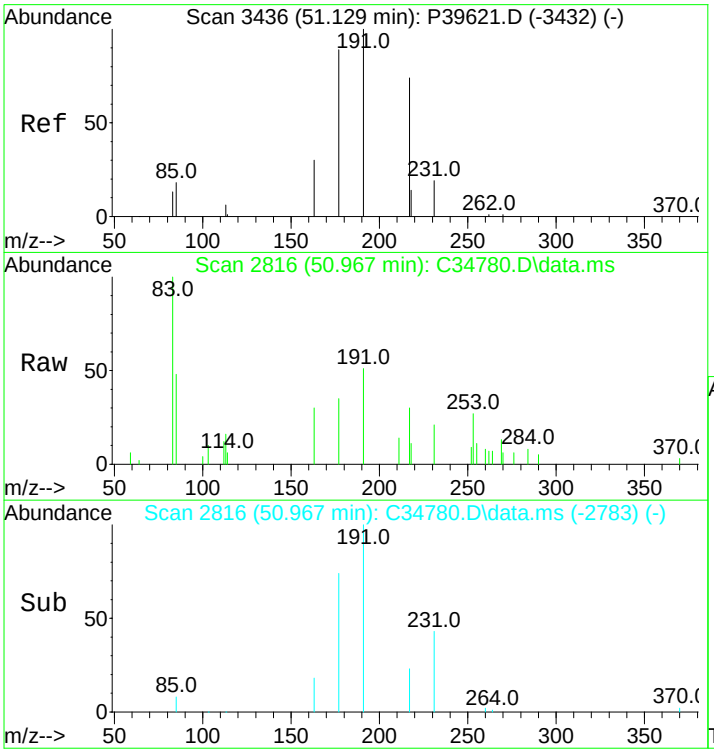




#110
30-Norhopane (T15)
Concen: 893.42 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

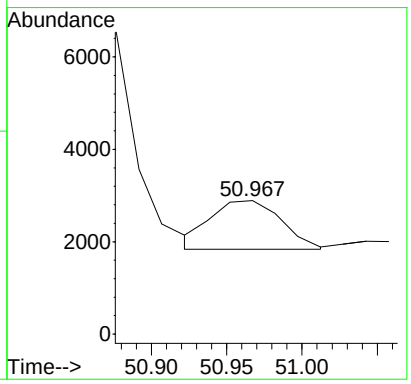
Tgt Ion:191 Resp: 22515

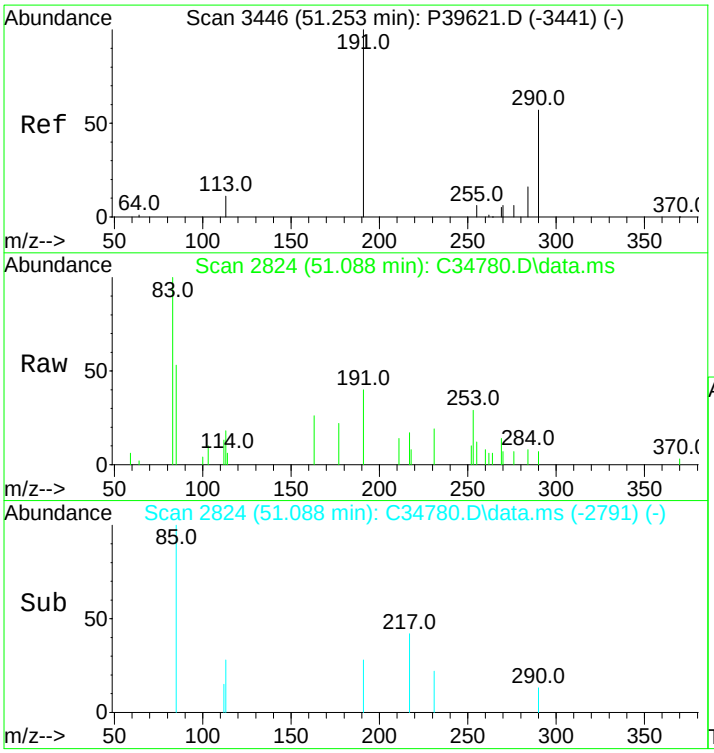




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 135.59 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

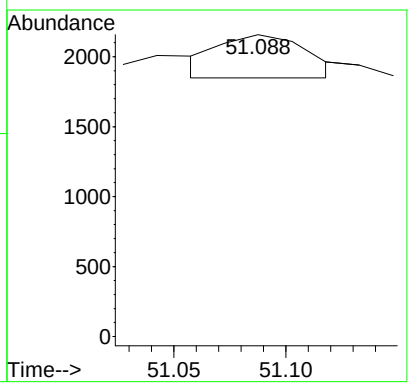
Tgt Ion:191 Resp: 3417

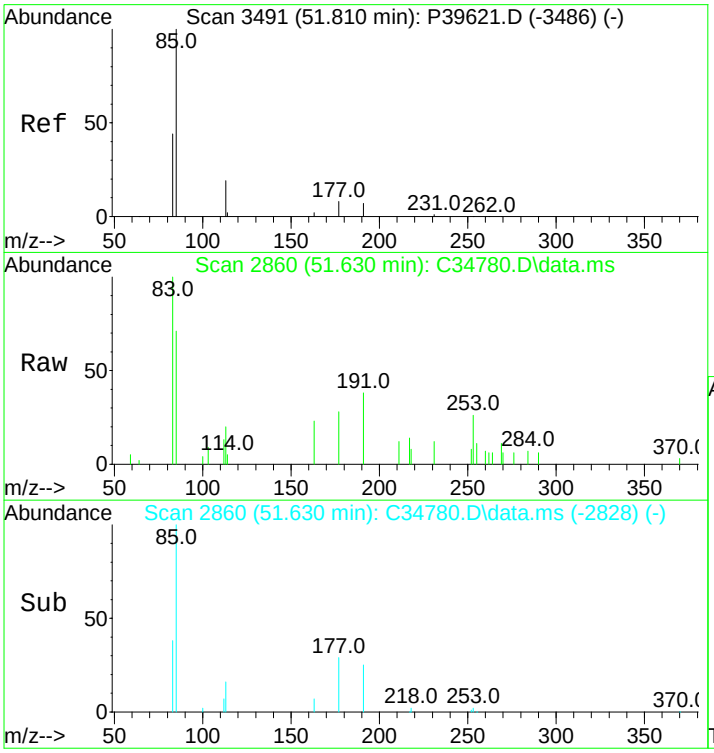




#112
17a(H)-Diahopane (X)
Concen: 33.41 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

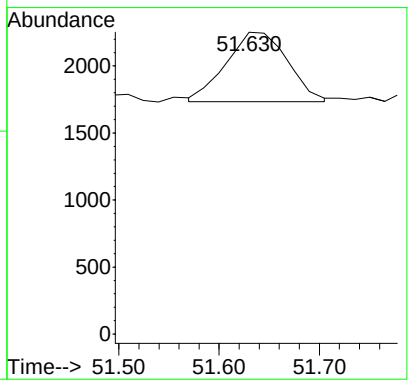
Tgt Ion:191 Resp: 842

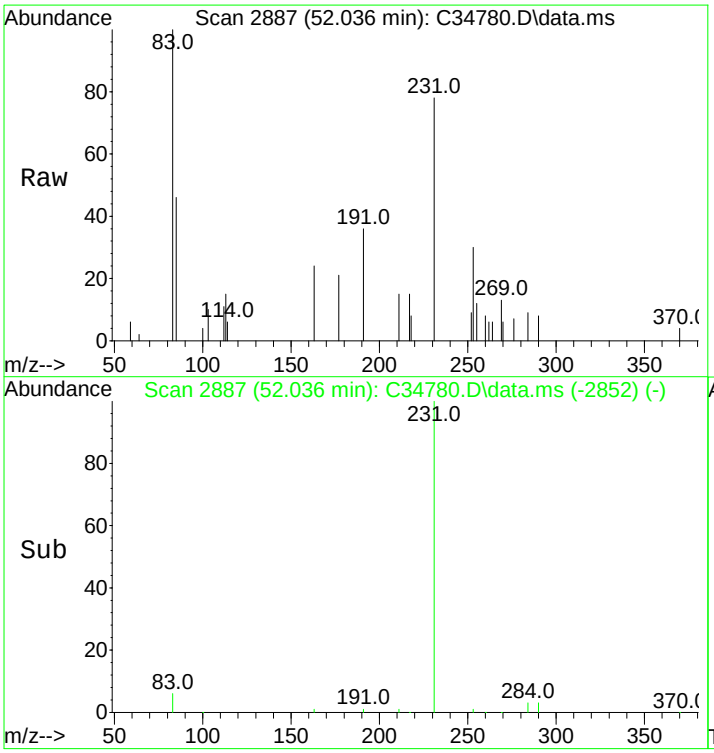




#113
30-Normoretane (T17)
Concen: 87.73 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

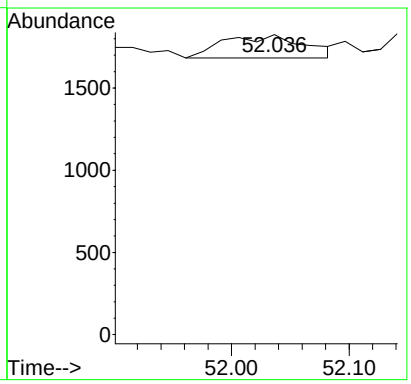
Tgt Ion:191 Resp: 2211

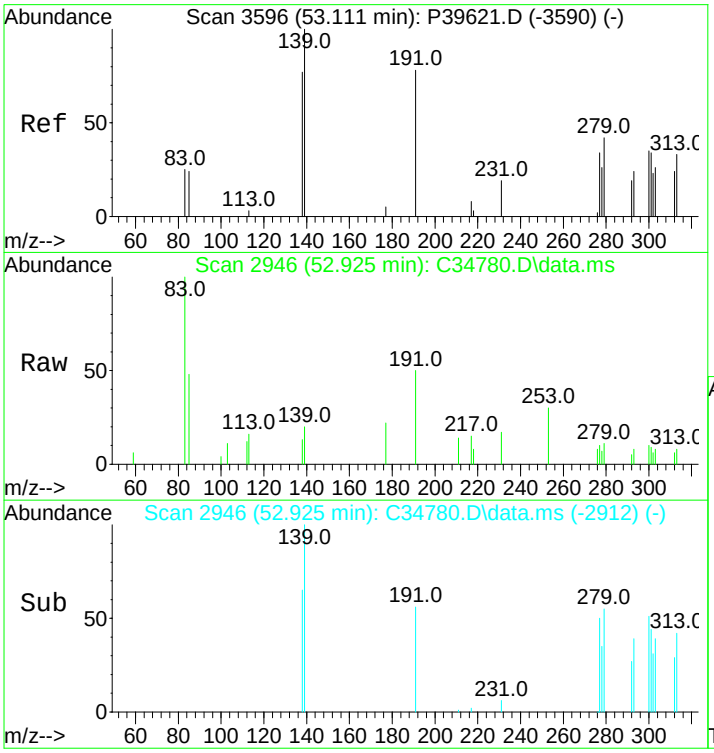




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 26.94 ng/ml m
RT: 52.036 min Scan# 2887
Delta R.T. 0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

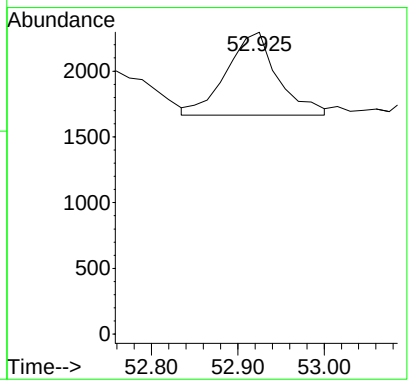
Tgt Ion:191 Resp: 679

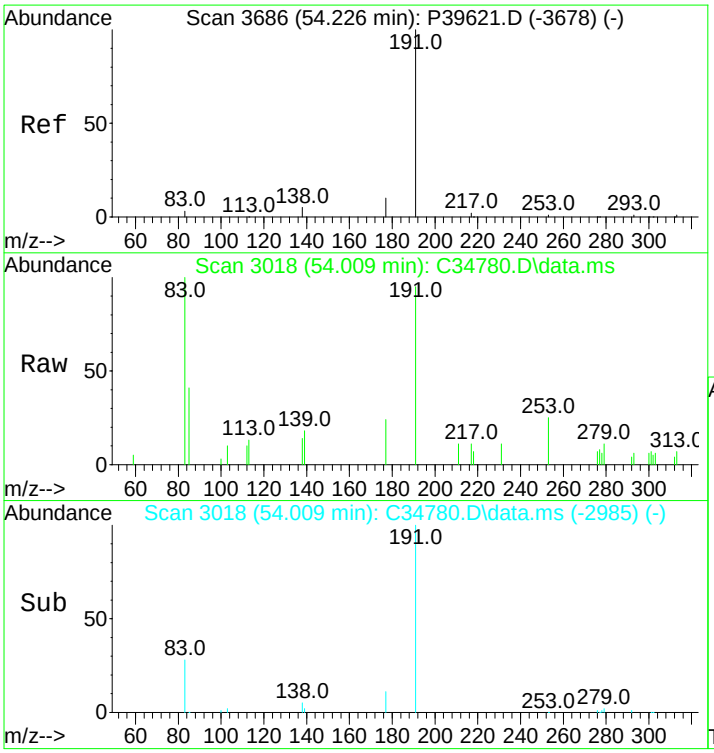




#115
Moretane (T20)
Concen: 102.73 ng/ml m
RT: 52.925 min Scan# 2946
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

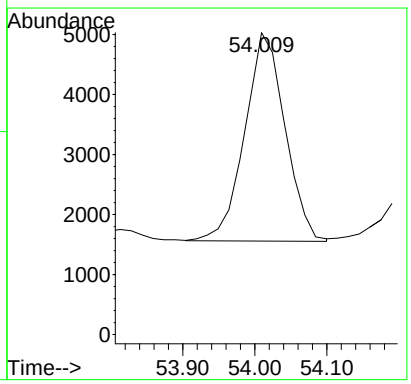
Tgt Ion:191 Resp: 2589

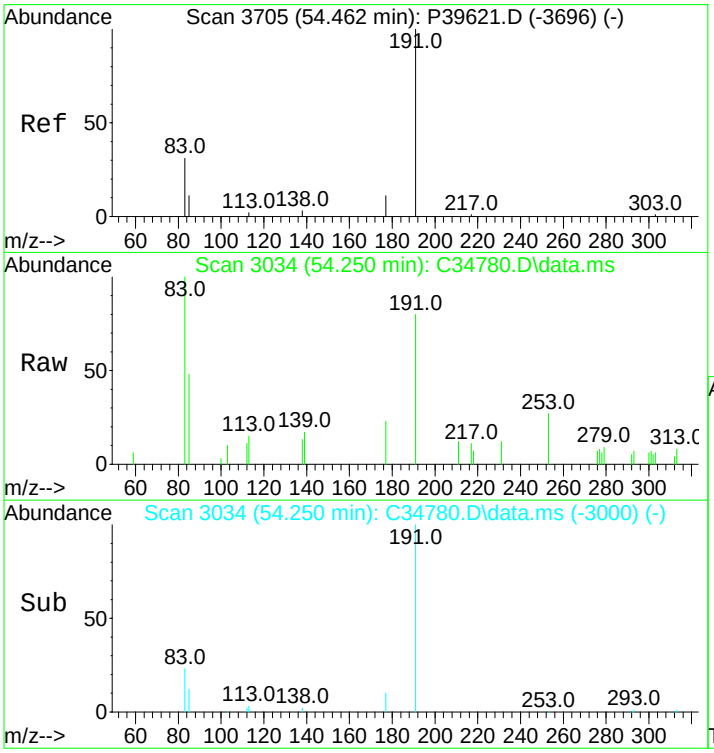




#116
30-Homohopane-22S (T21)
Concen: 535.06 ng/ml
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

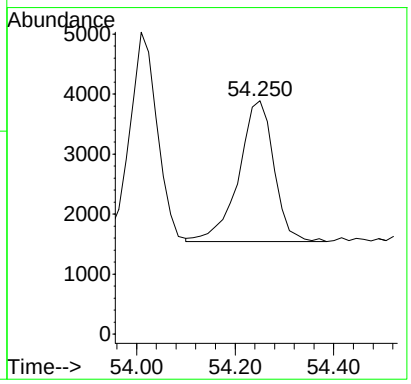
Tgt Ion:191 Resp: 13484

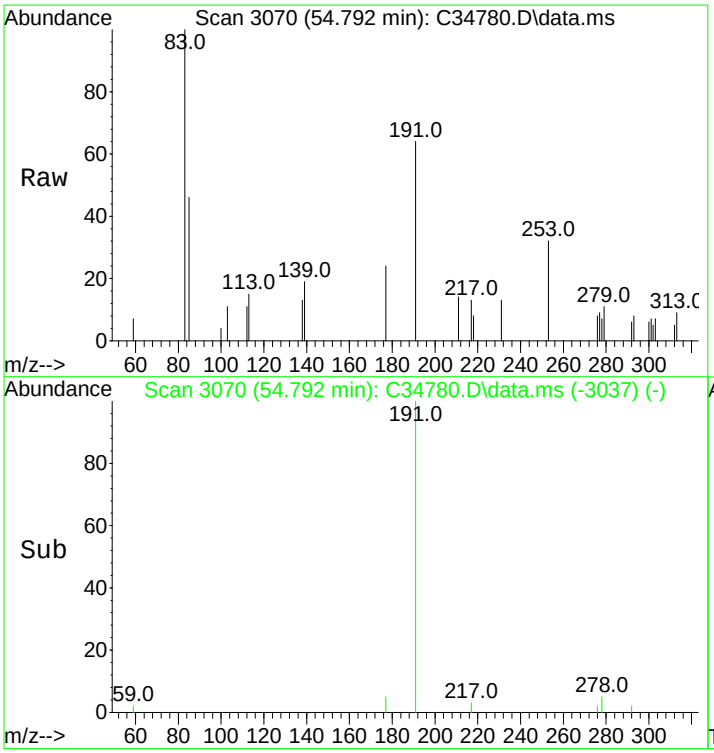




#117
30-Homohopane-22R (T22)
Concen: 462.48 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

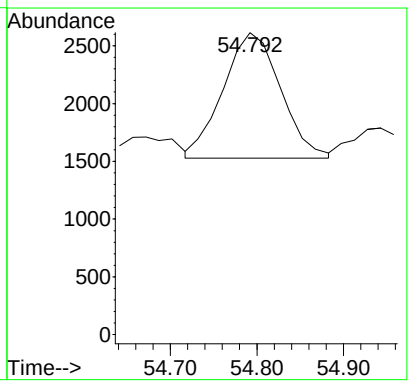
Tgt Ion:191 Resp: 11655

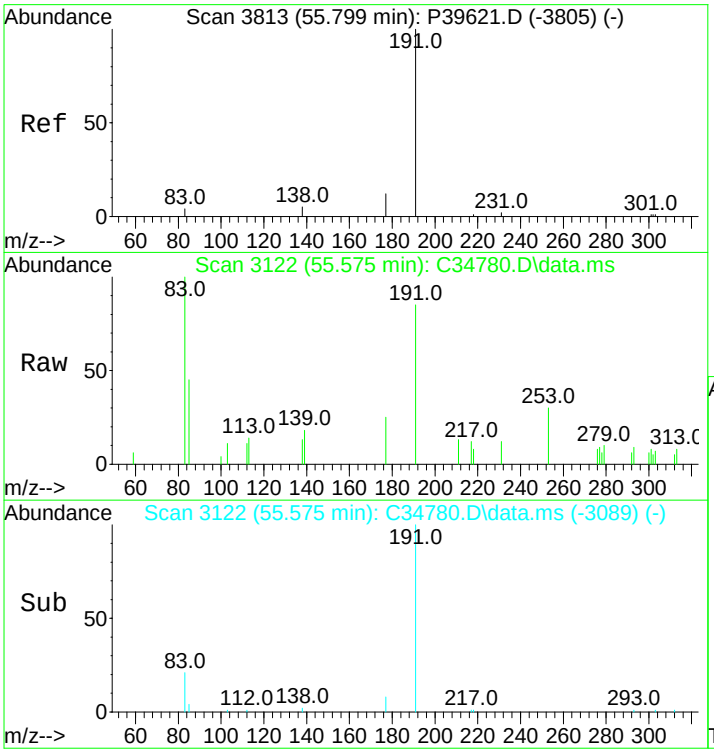




#118
Gammacerane/C32-diahopane
Concen: 198.01 ng/mL m
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

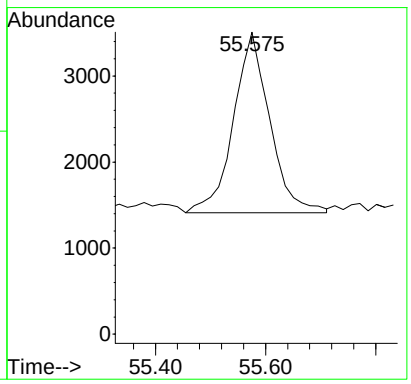
Tgt Ion:191 Resp: 4990

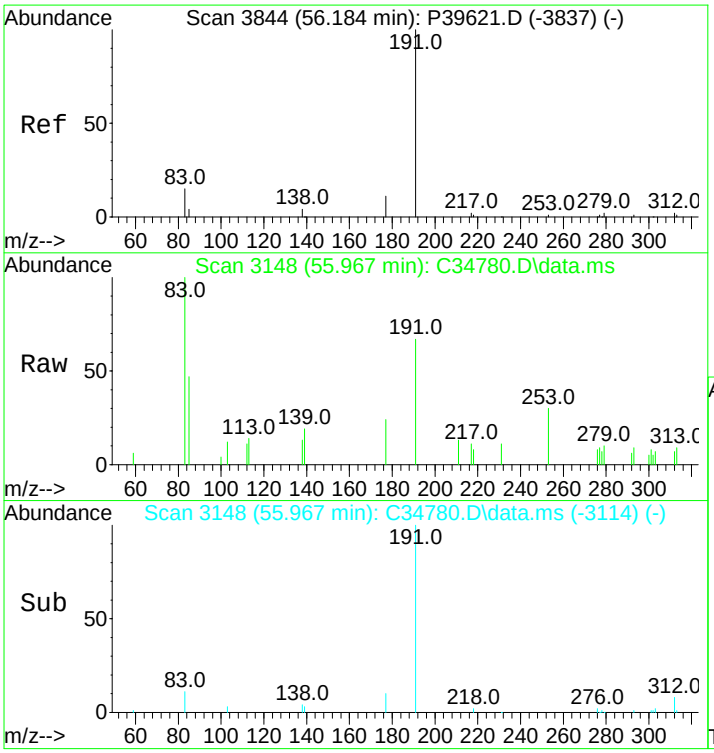




#119
30,31-Bishomohopane-22S (T26)
Concen: 380.90 ng/ml
RT: 55.575 min Scan# 3122
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

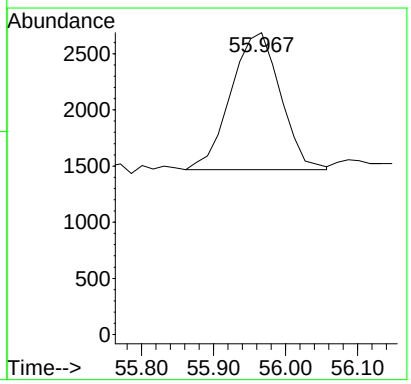
Tgt Ion:191 Resp: 9599

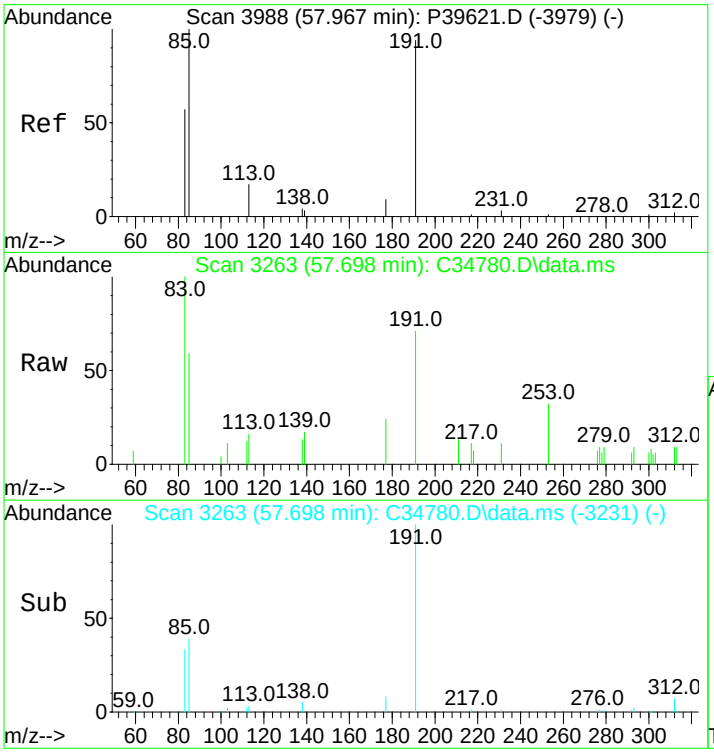




#120
30,31-Bishomohopane-22R (T27)
Concen: 230.79 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

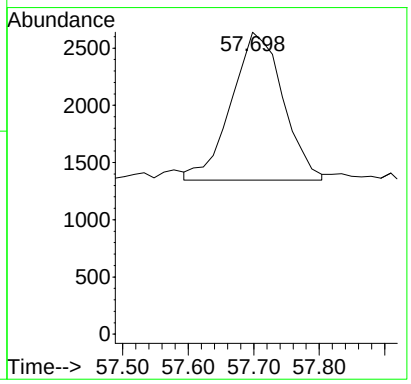
Tgt Ion:191 Resp: 5816

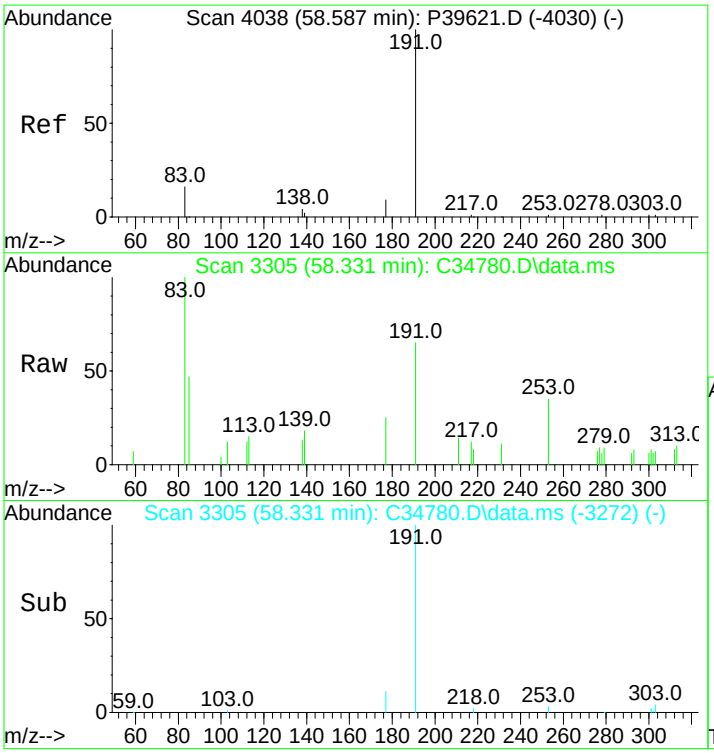




#121
30,31-Trishomohopane-22S (T30)
Concen: 280.03 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

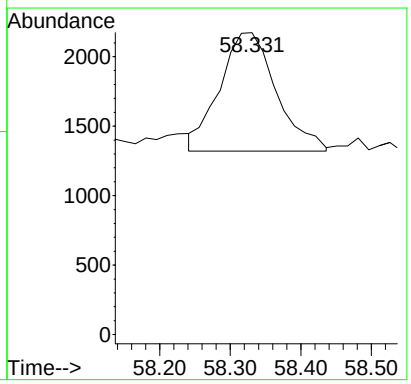
Tgt Ion:191 Resp: 7057

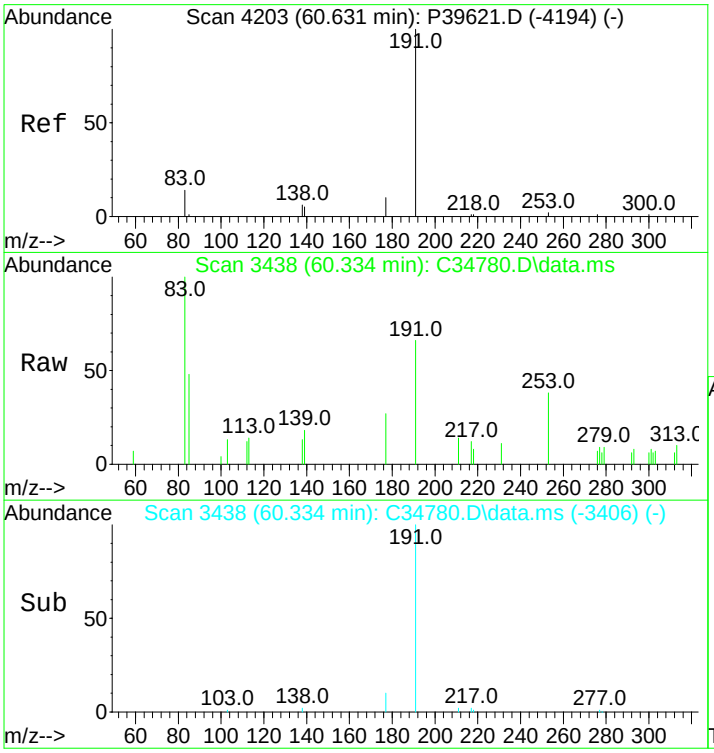




#122
30,31-Trishomohopane-22R (T31)
Concen: 188.80 ng/ml m
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

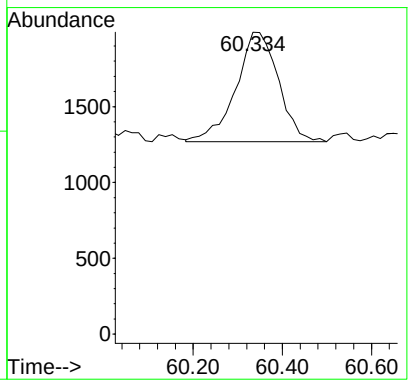
Tgt Ion:191 Resp: 4758

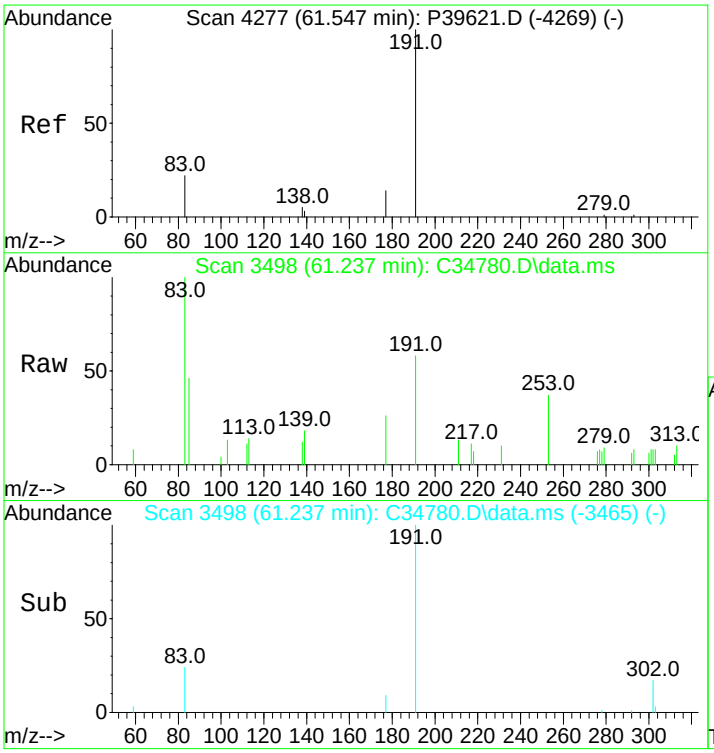




#123
Tetrakishomohopane-22S (T32)
Concen: 190.07 ng/ml
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

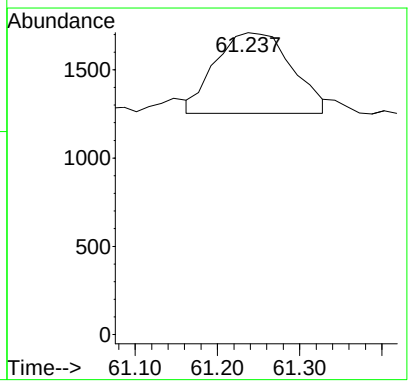
Tgt Ion:191 Resp: 4790

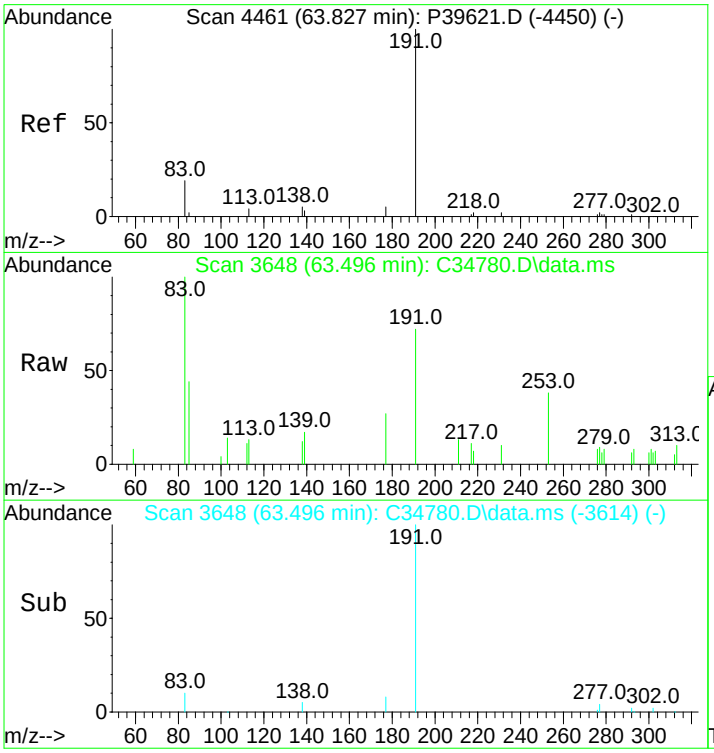




#124
Tetrakishomohopane-22R (T33)
Concen: 116.74 ng/ml m
RT: 61.237 min Scan# 3498
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

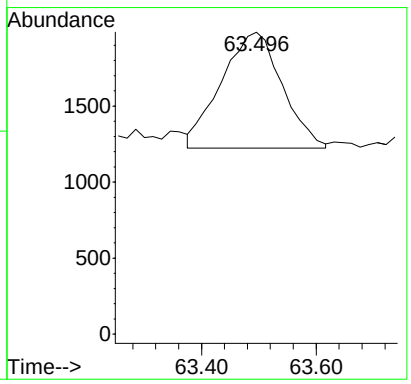
Tgt Ion:191 Resp: 2942

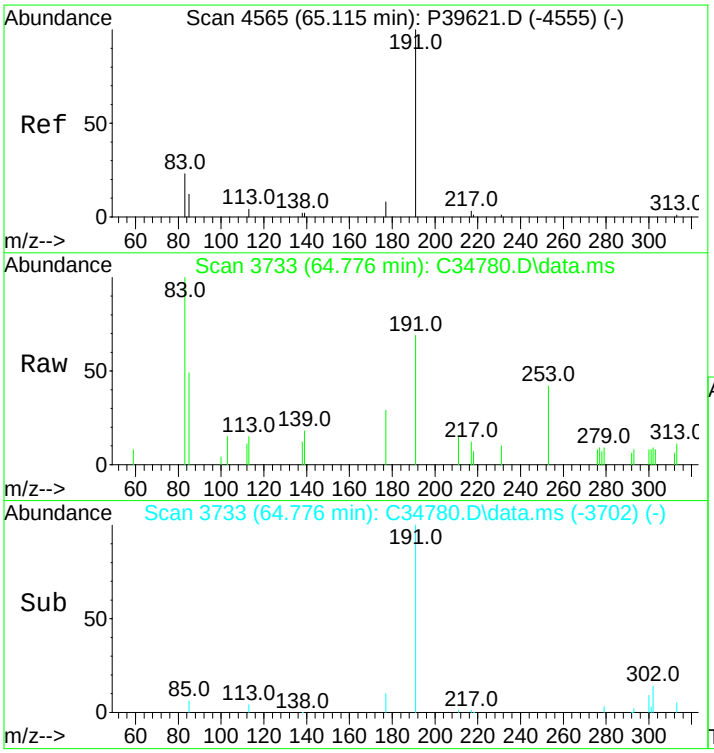




#125
Pentakishomohopane-22S (T34)
Concen: 221.98 ng/ml m
RT: 63.496 min Scan# 3648
Delta R.T. 0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

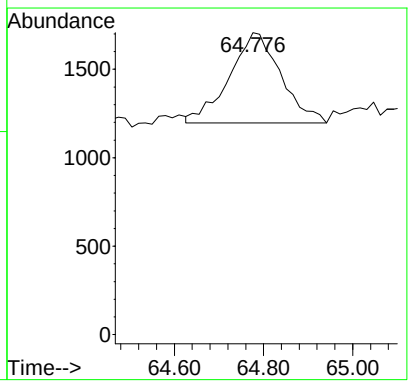
Tgt Ion:191 Resp: 5594

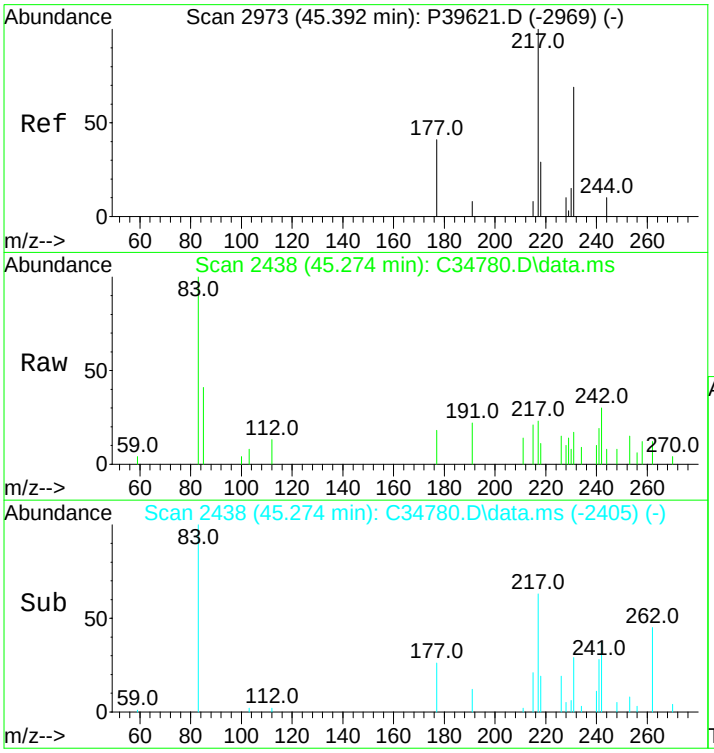




#126
Pentakishomohopane-22R (T35)
Concen: 162.22 ng/ml
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

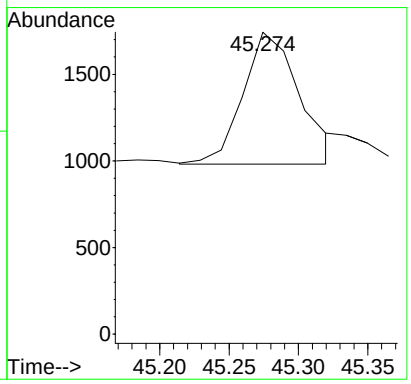
Tgt Ion:191 Resp: 4088

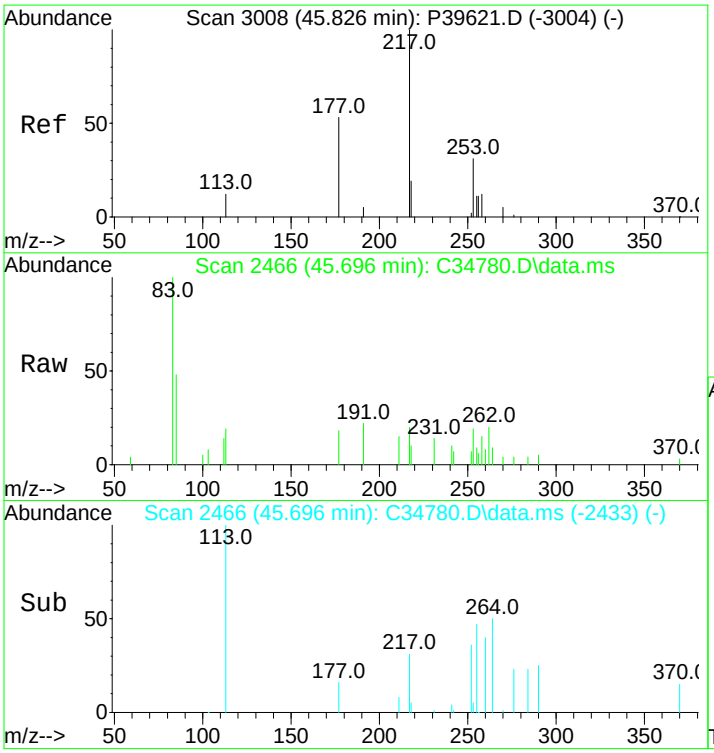




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 180.85 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

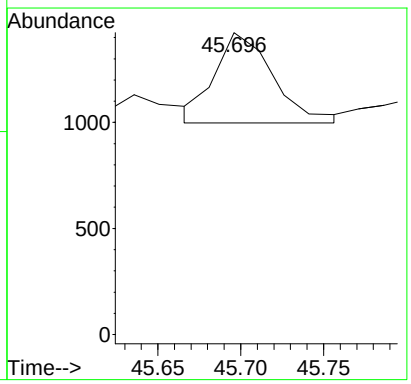
Tgt Ion:217 Resp: 2162

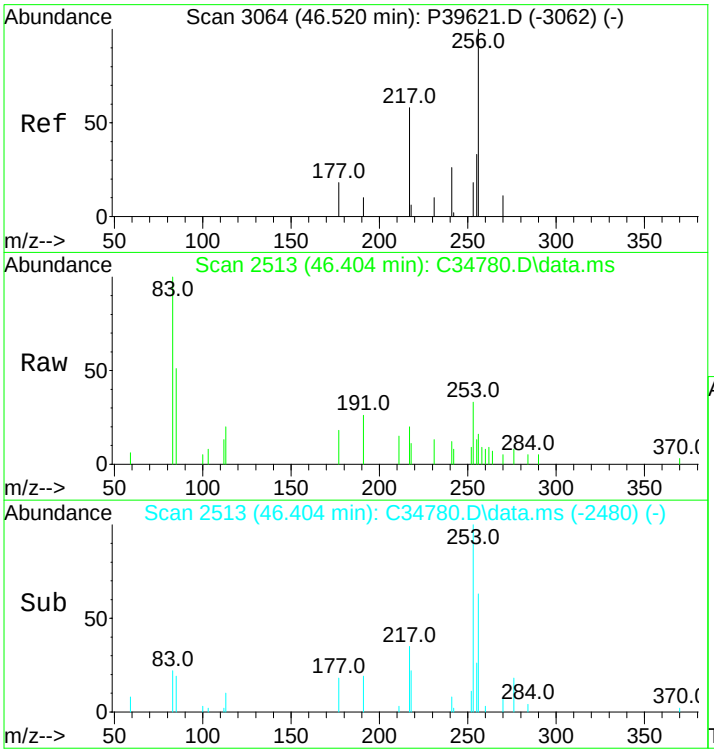




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 86.66 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

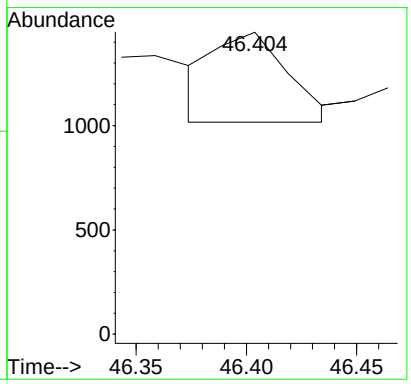
Tgt Ion:217 Resp: 1036

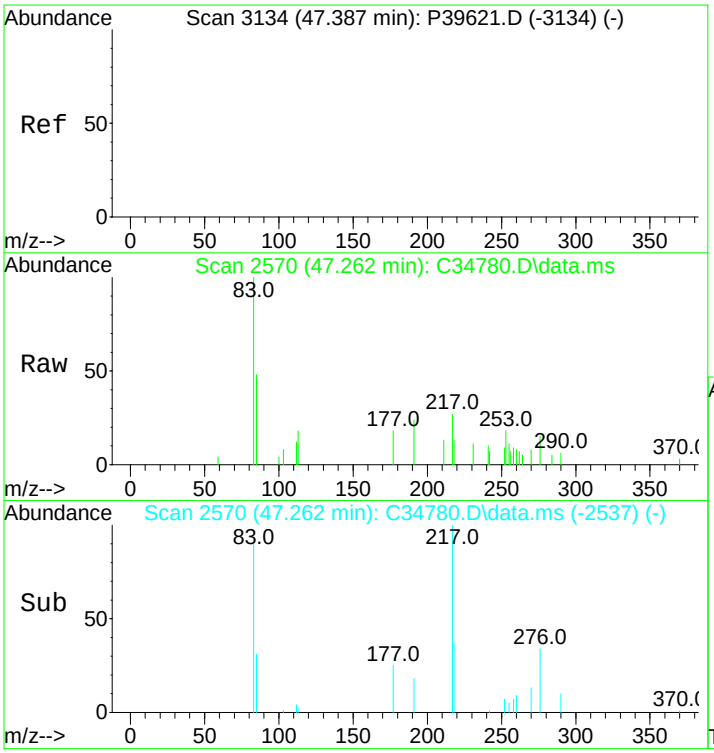




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 83.73 ng/ml m
RT: 46.404 min Scan# 2513
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

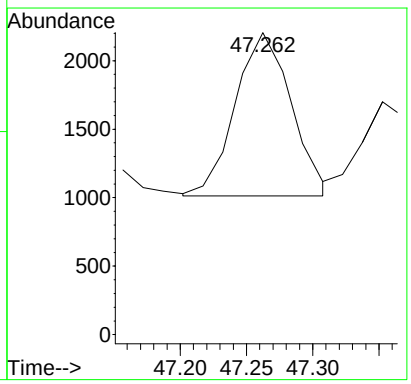
Tgt Ion:217 Resp: 1001

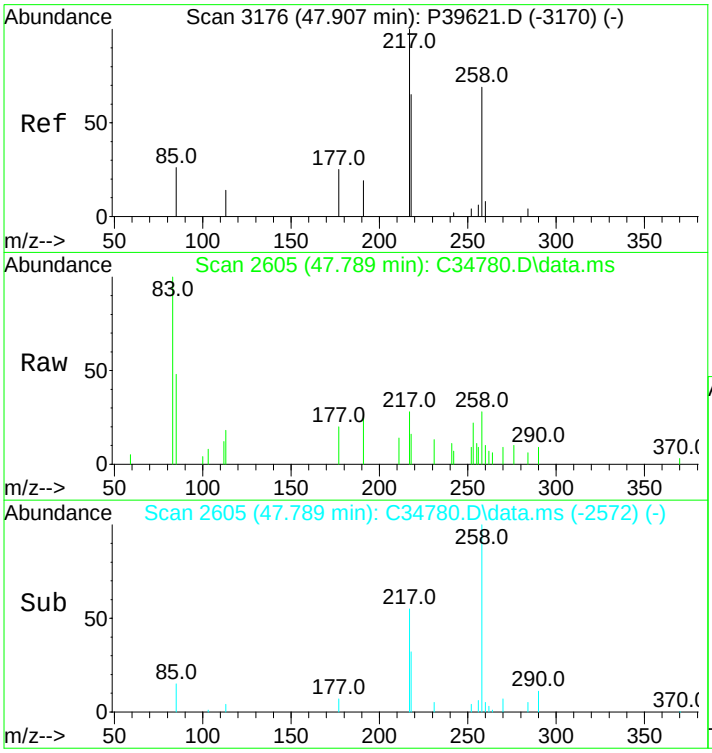




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 292.77 ng/ml m
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

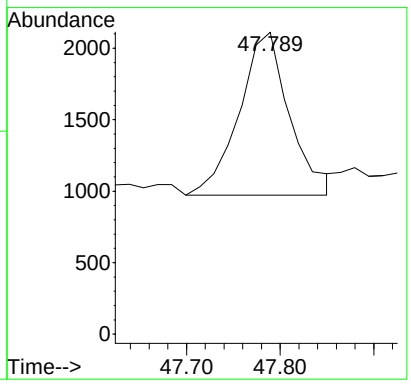
Tgt Ion:217 Resp: 3500

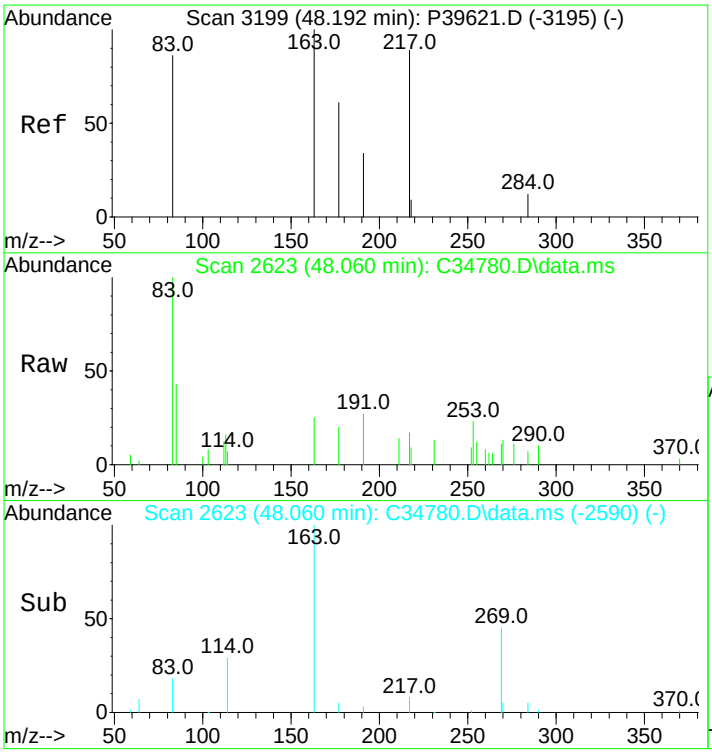




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 357.26 ng/ml
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

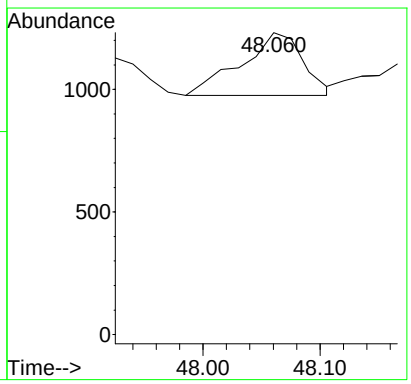
Tgt Ion:217 Resp: 4271

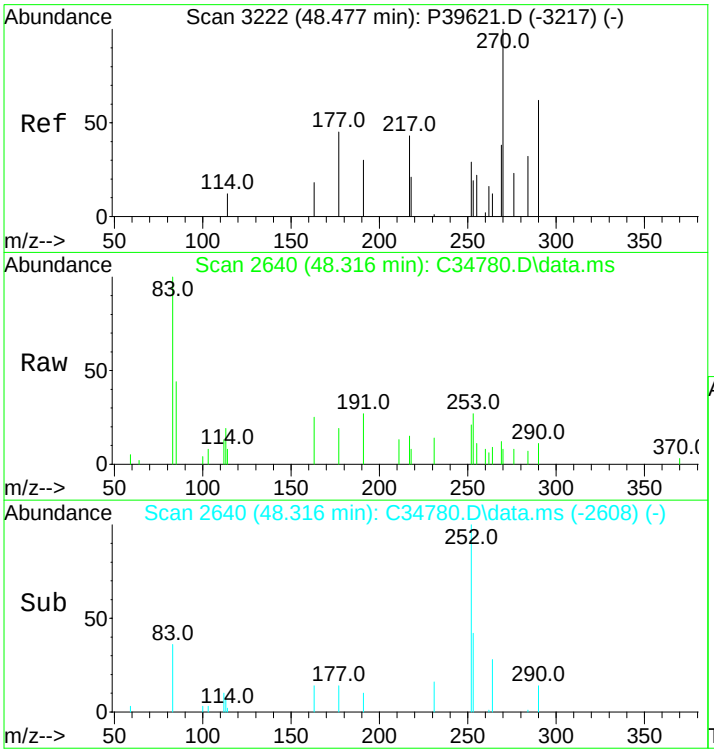




#133
Unknown Sterane (S18)
Concen: 79.38 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

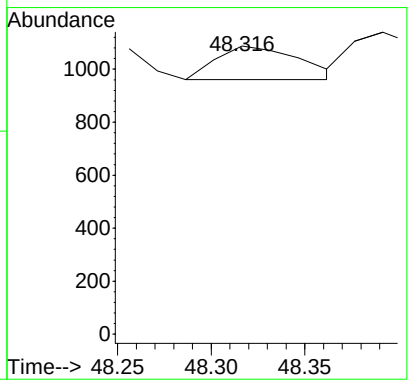
Tgt Ion:217 Resp: 949

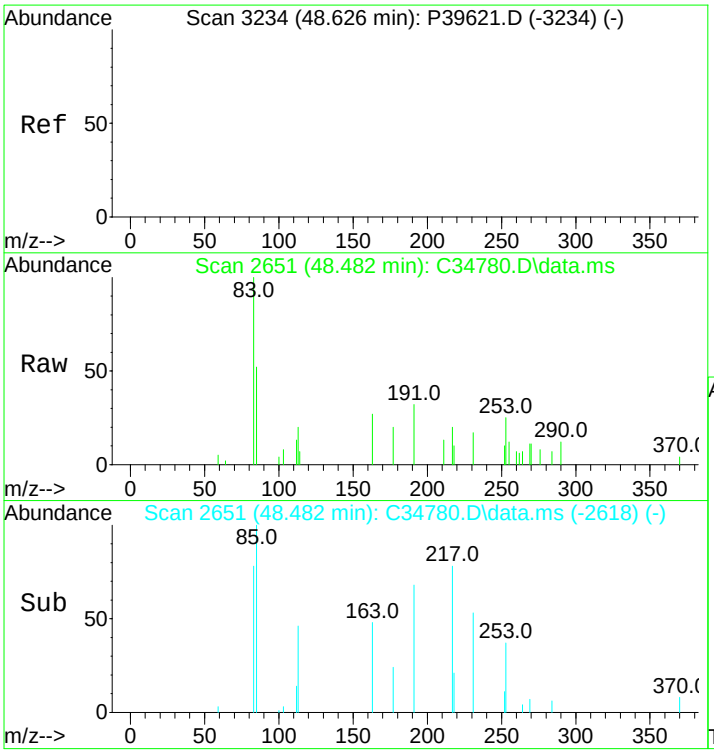




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 32.62 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

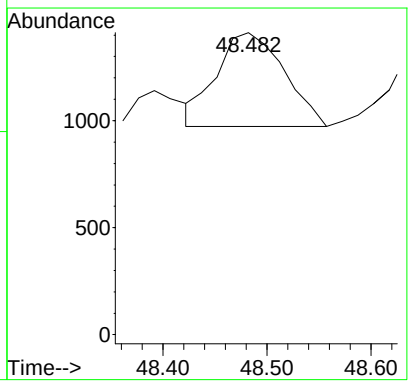
Tgt Ion:217 Resp: 390

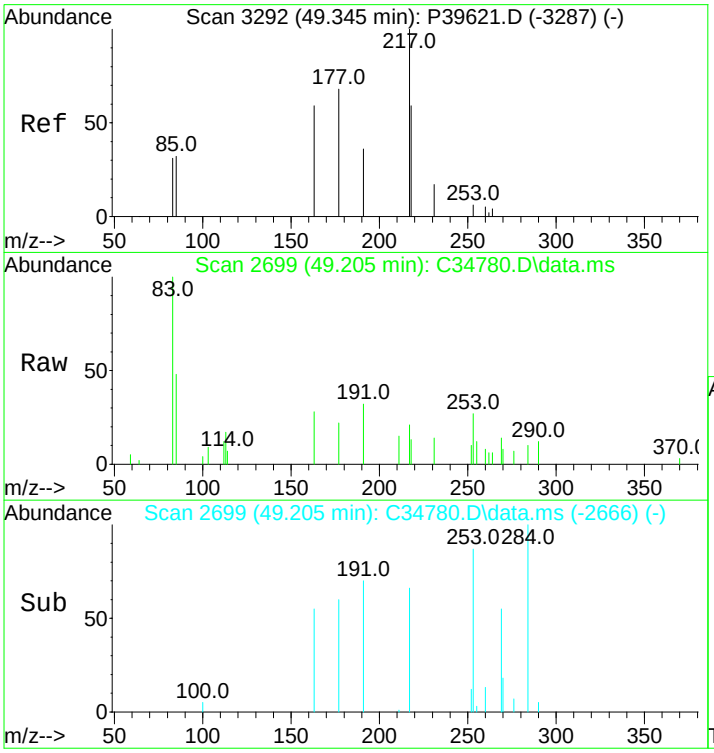




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 165.87 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

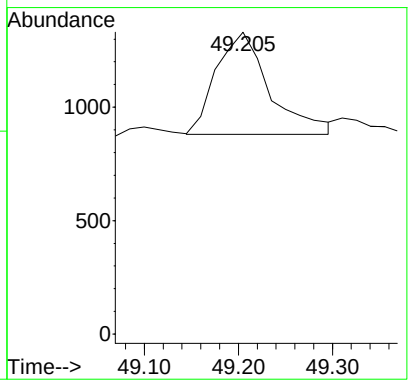
Tgt Ion:217 Resp: 1983

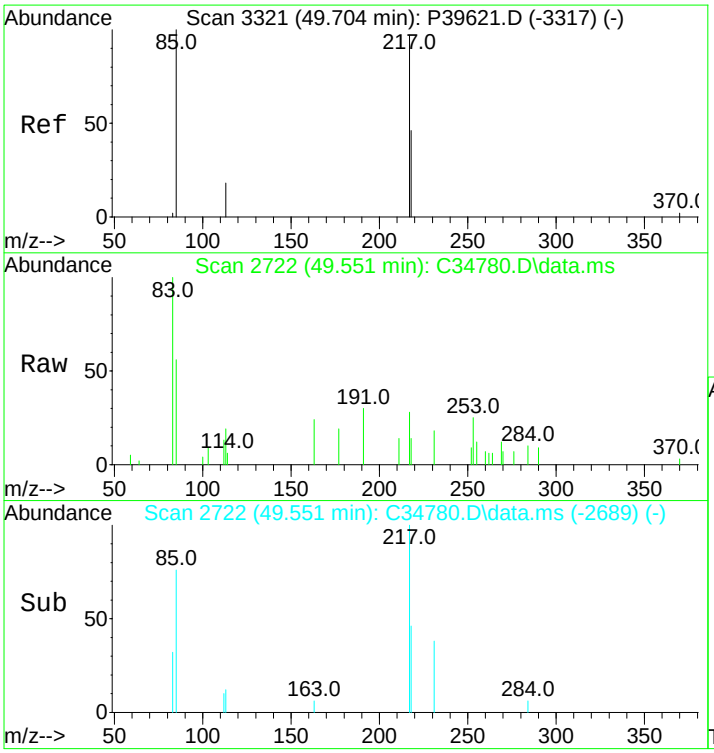




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 149.31 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

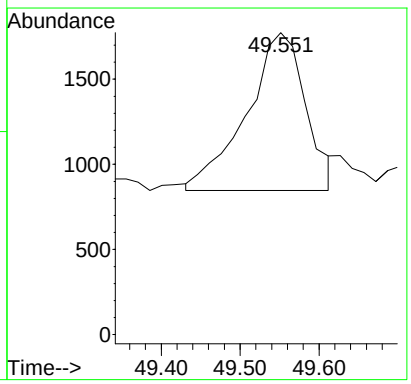
Tgt Ion:217 Resp: 1785

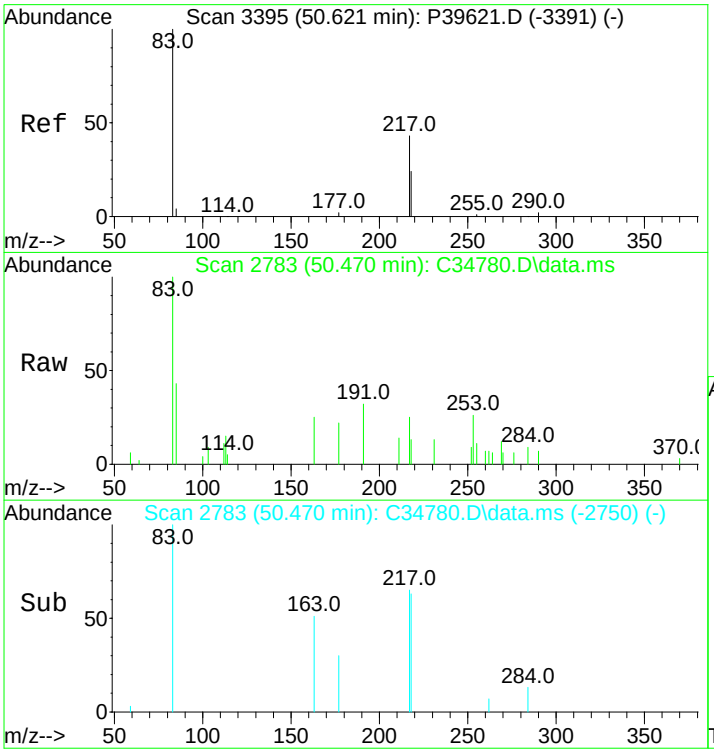




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 403.69 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

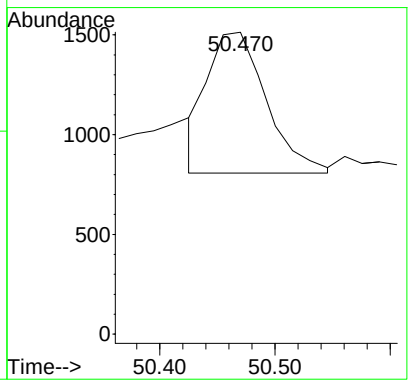
Tgt Ion:217 Resp: 4826

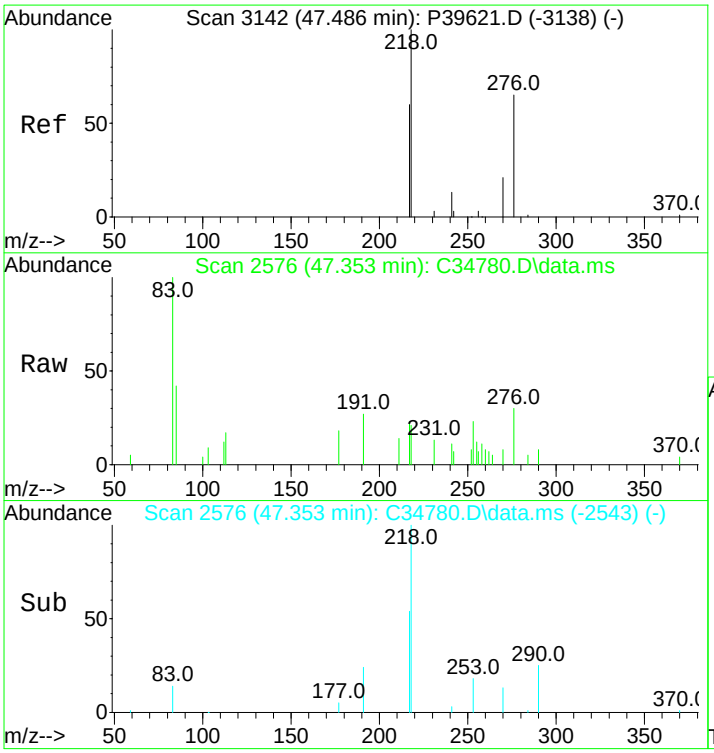




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 209.96 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

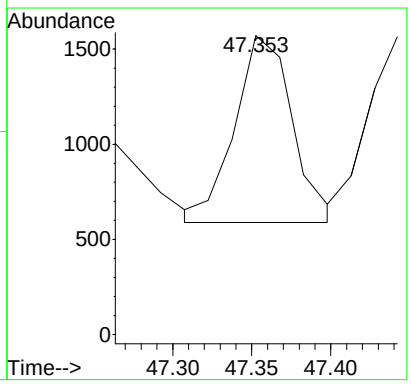
Tgt Ion:217 Resp: 2510

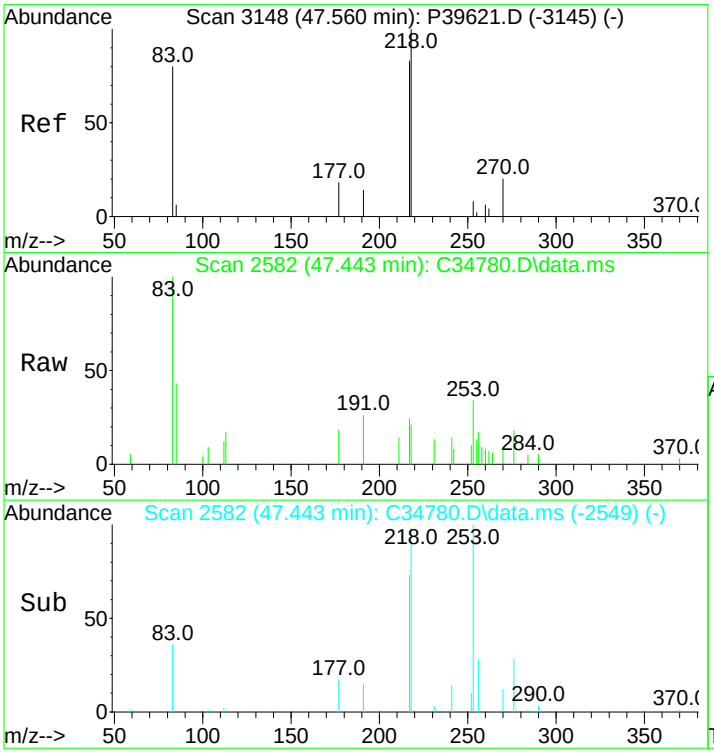




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 208.20 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

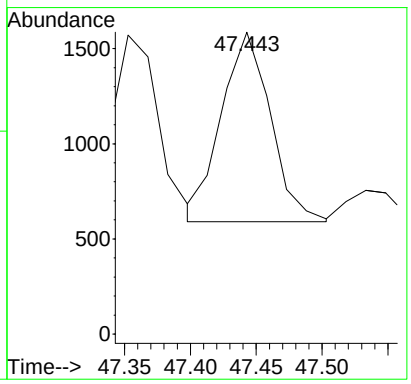
Tgt Ion:218 Resp: 2489

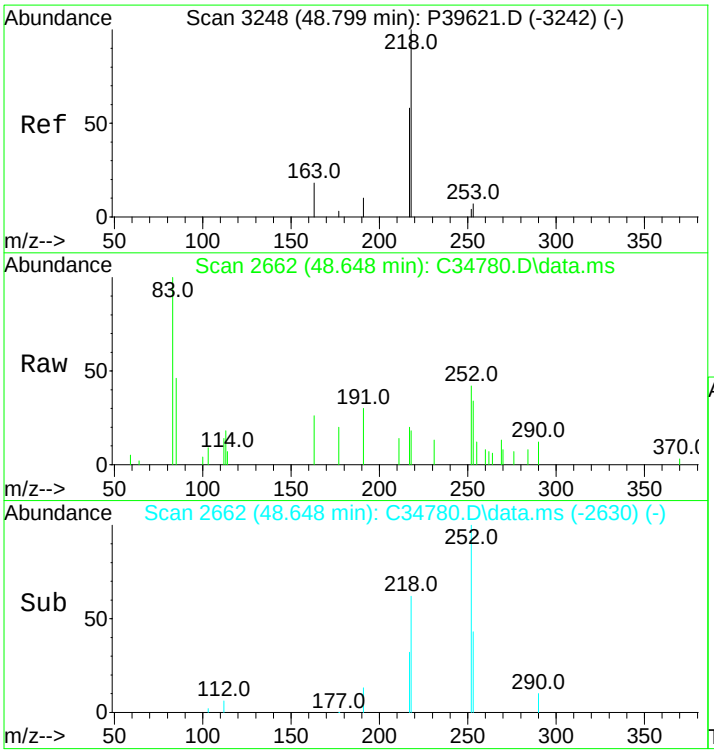




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 215.39 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

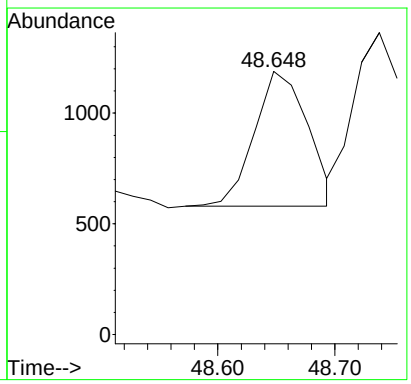
Tgt Ion:218 Resp: 2575

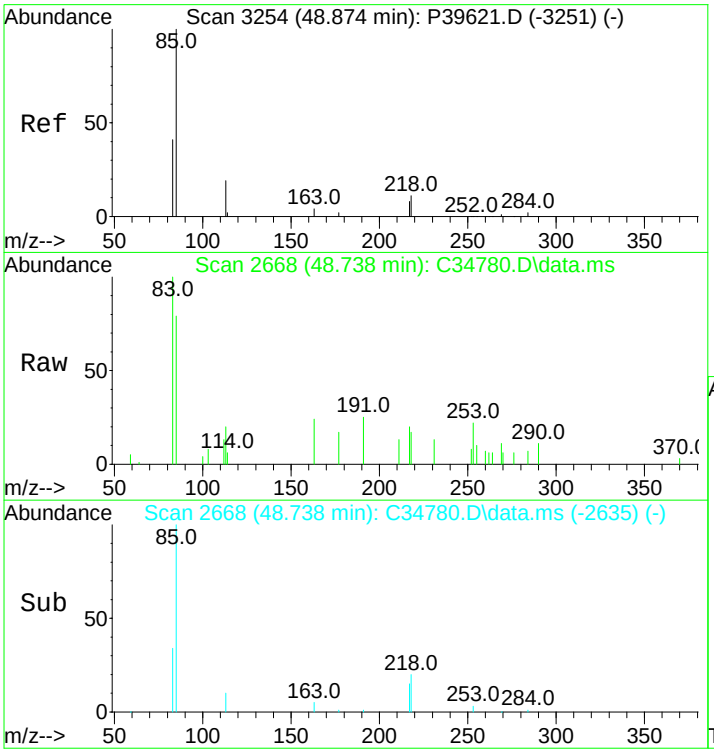




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 161.69 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

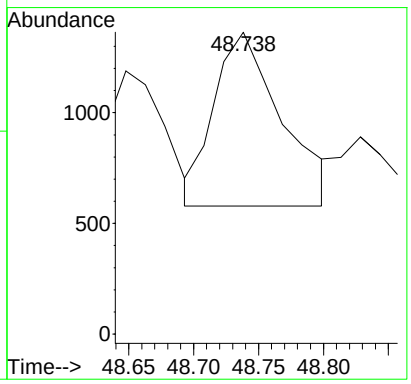
Tgt Ion:218 Resp: 1933

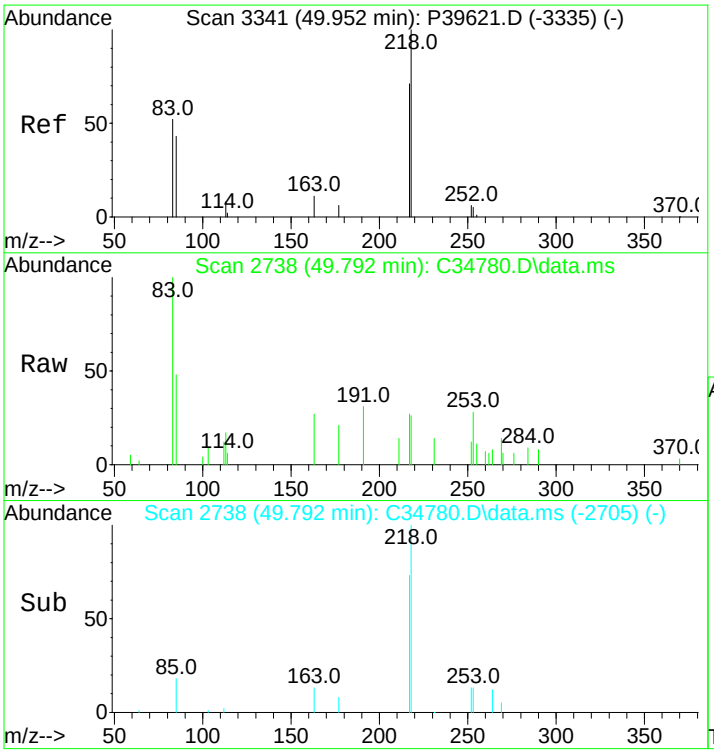




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 237.56 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

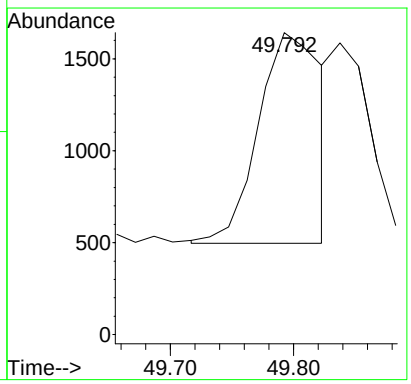
Tgt Ion:218 Resp: 2840

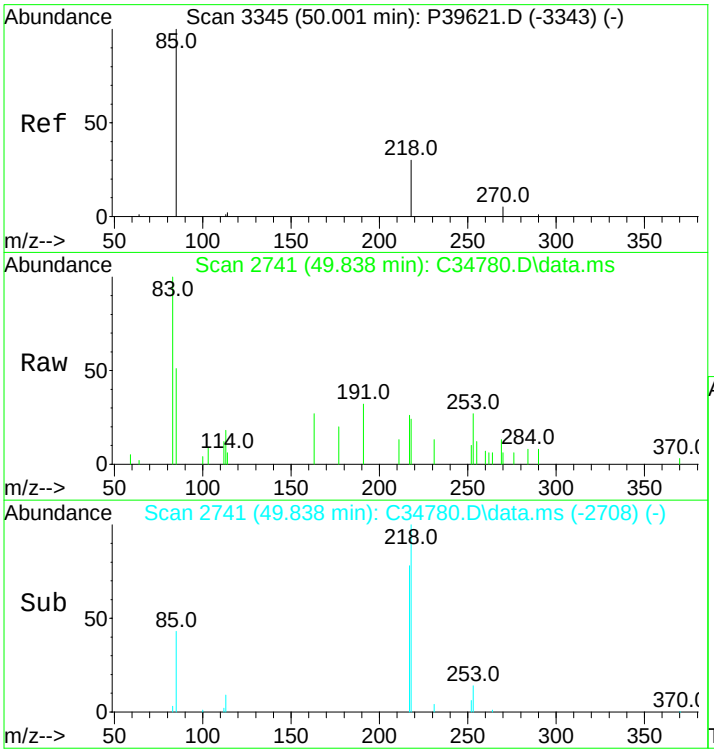




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 340.36 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

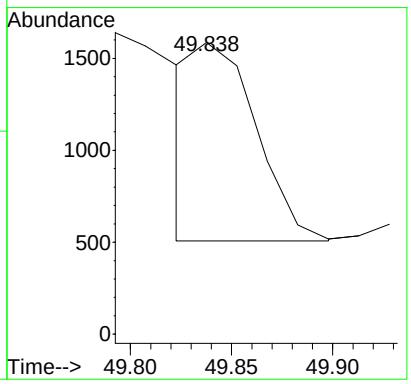
Tgt Ion:218 Resp: 4069

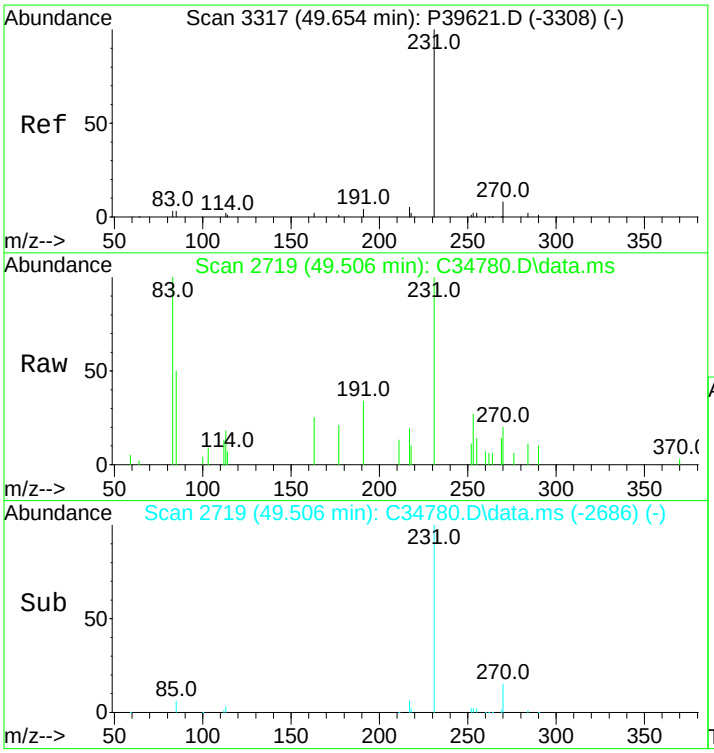




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 193.90 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

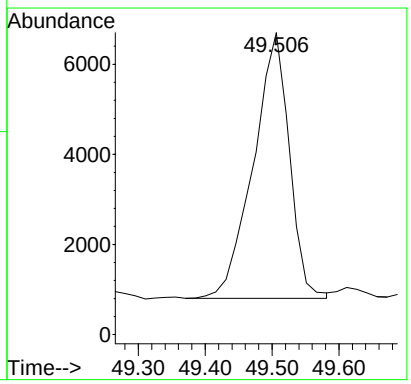
Tgt Ion:218 Resp: 2318

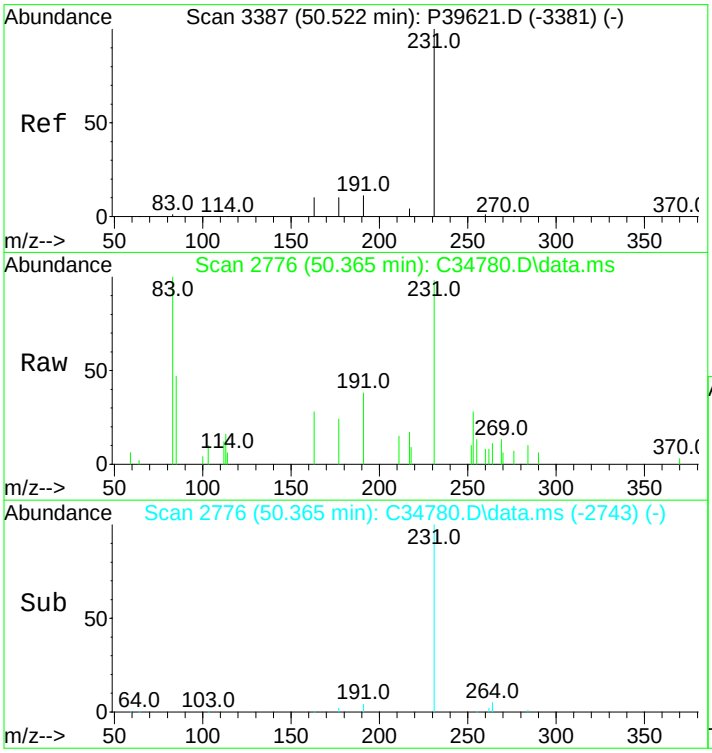




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1846.20 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

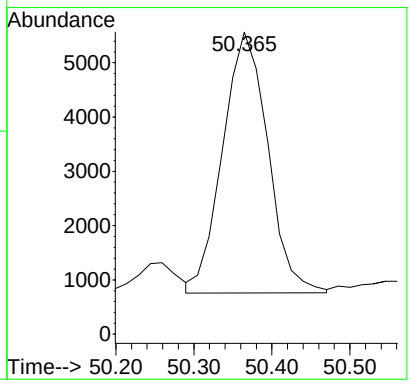
Tgt Ion:231 Resp: 22071

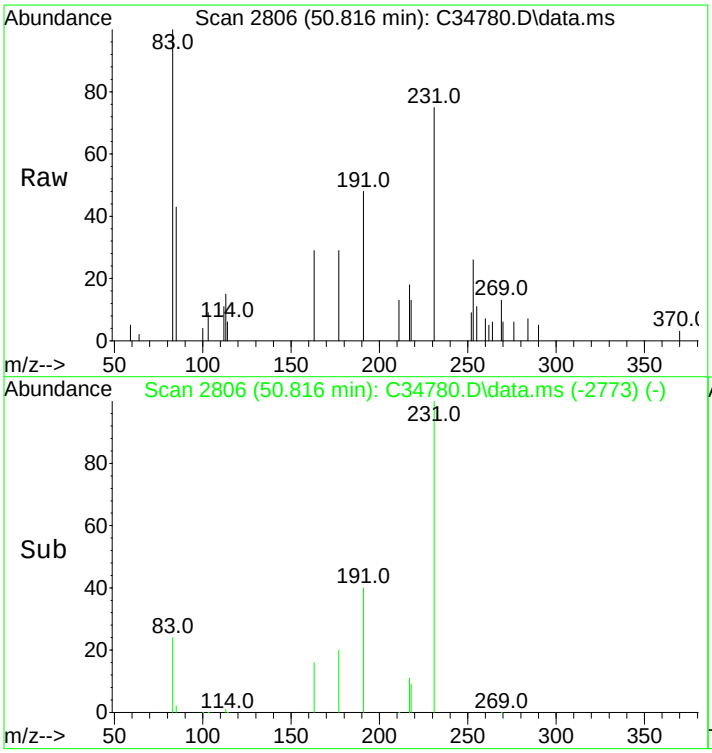




#146
C28,20S-triaromatic steroid
Concen: 1618.43 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

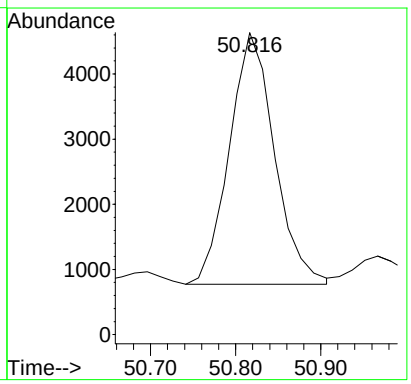
Tgt Ion:231 Resp: 19348

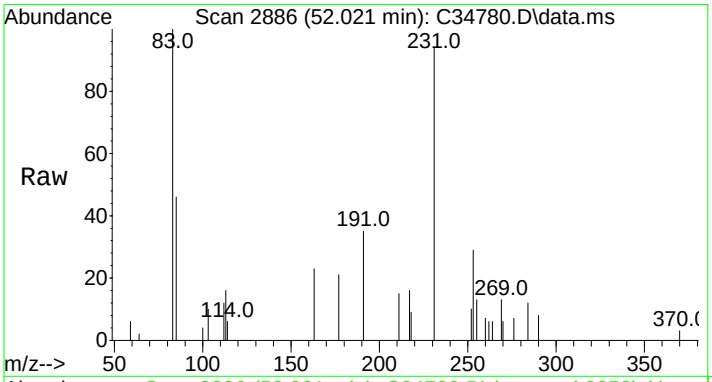




#147
C27,20R-triaromatic steroid
Concen: 1191.23 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

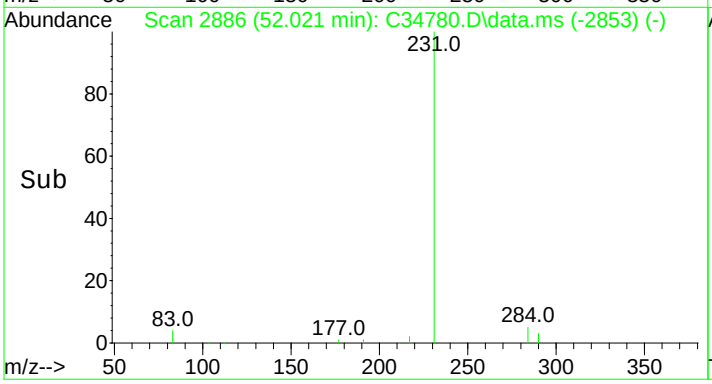
Tgt Ion:231 Resp: 14241

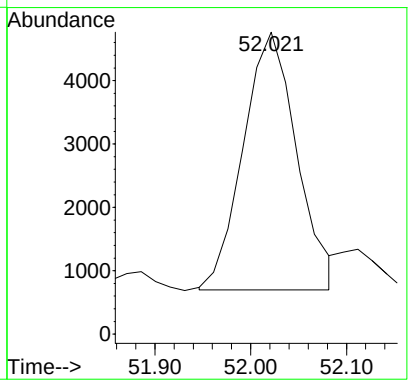




#148
C28,20R-triaromatic steroid
Concen: 1325.99 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34780.D
Acq: 2 May 2012 2:31 pm

Tgt Ion:231 Resp: 15852





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18606M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32650	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31011	384.014	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
42) Phenanthrene-d10	32.567	188	26472	414.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28296	418.180	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.82%#			
127) 5B(H)Cholane - Surr	43.769	217	4900M3	480.013	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.00%#			
Target Compounds						Qvalue
56) Carbazole	33.515	167	123M3	1.158	ng/mL	
58) Fluoranthene	37.430	202	140M3	1.309	ng/mL	
59) Benzo(b)fluorene	39.944	216	90M2	1.451	ng/mL	
60) Pyrene	38.318	202	159	1.463	ng/mL#	58
66) Naphthobenzothiophene	42.158	234	167	1.427	ng/ml#	49
67) Naphthobenzothiophene-...	42.158	234	167	1.427	ng/mL#	49
75) Benz[a]anthracene	43.106	228	175	1.689	ng/mL#	48
77) Chrysene/Triphenylene	43.257	228	179M3	1.711	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	410	3.601	ng/mL#	69
83) Benzo[j]+[k]fluoranthene	47.232	252	356M3	2.872	ng/mL	
85) Benzo[e]pyrene	48.151	252	470	4.173	ng/mL#	35
87) Benzo[a]pyrene	48.331	252	267	2.462	ng/mL#	59
88) Perylene	48.648	252	303M3	2.614	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	847M3	6.712	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	465M3	3.874	ng/mL	
91) Benzo[g,h,i]perylene	54.461	276	997	7.478	ng/mL	98
133) Unknown Sterane (S18)	48.090	217	95M2	9.306	ng/ml	

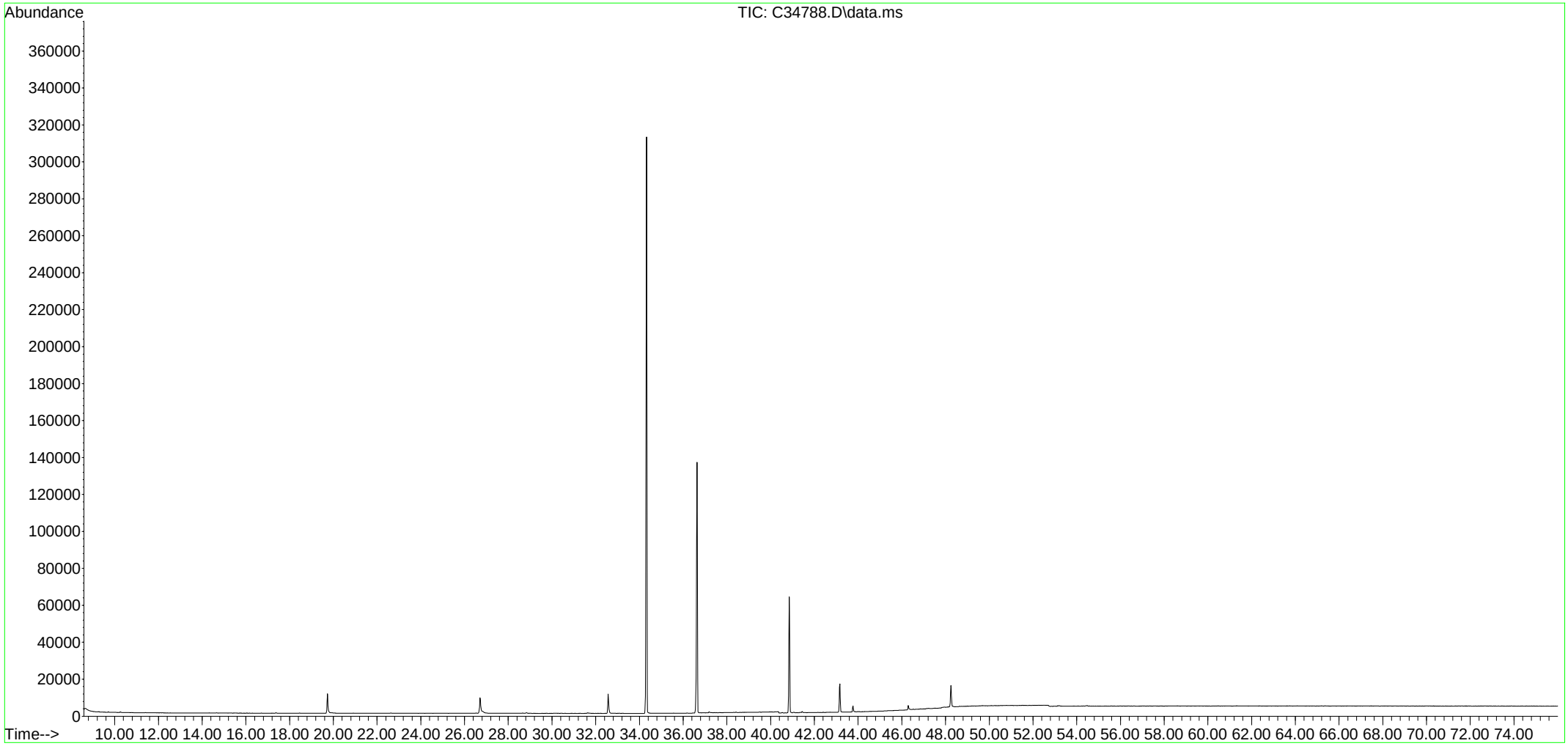
(#) = qualifier out of range (m) = manual integration (+) = signals summed

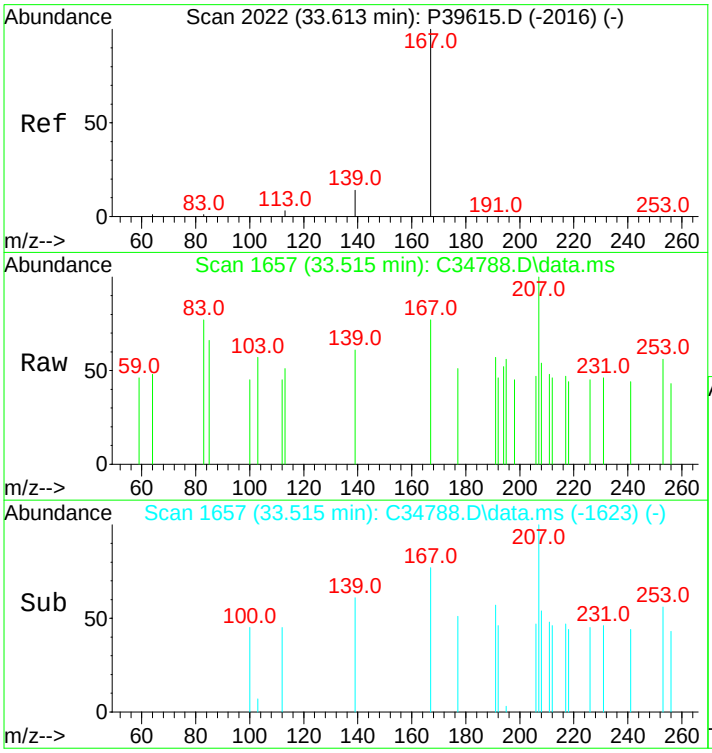
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34788.D
Acq On : 2 May 2012 8:53 pm
Operator : AC
Sample : SO050112B01
Misc : 1X ETR1204031
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 05 12:44:45 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

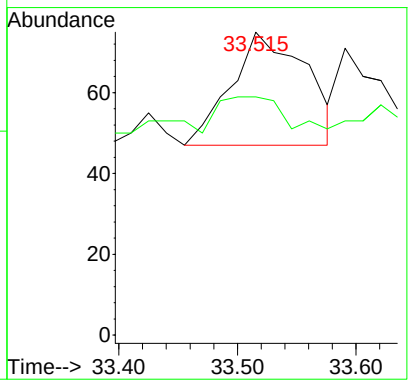


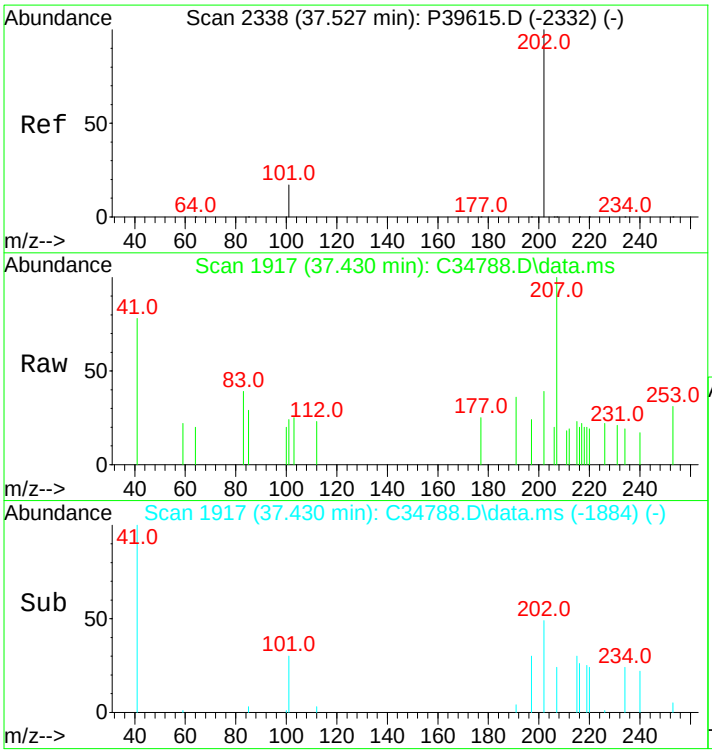


#56
Carbazole
Concen: 1.16 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:167 Resp: 123

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

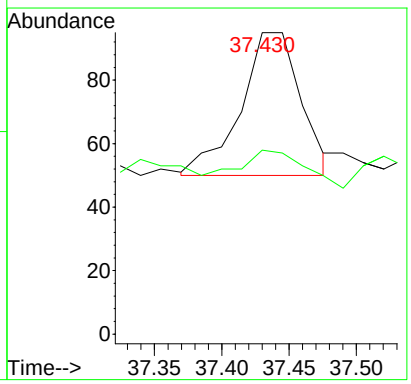


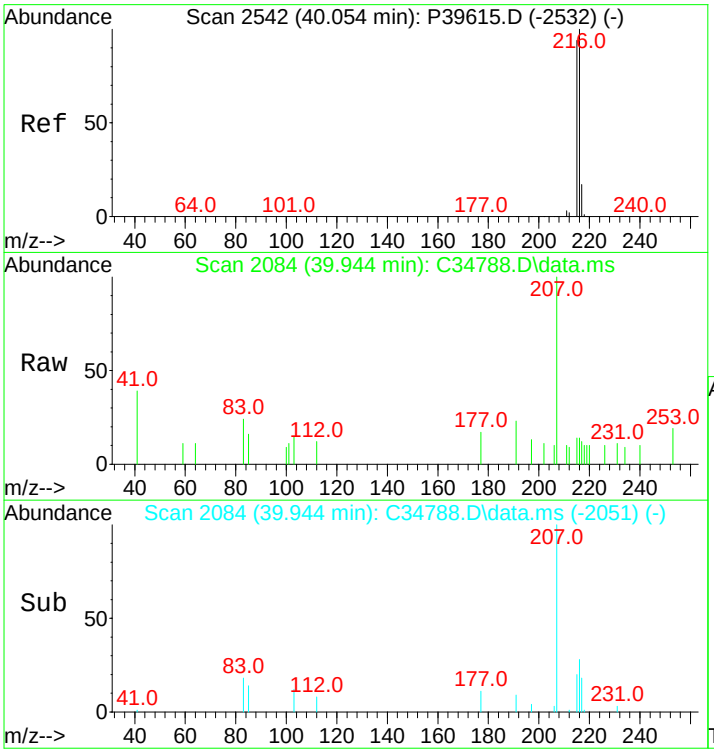


#58
Fluoranthene
Concen: 1.31 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:202 Resp: 140

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

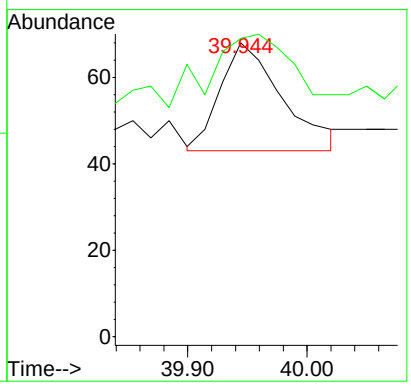


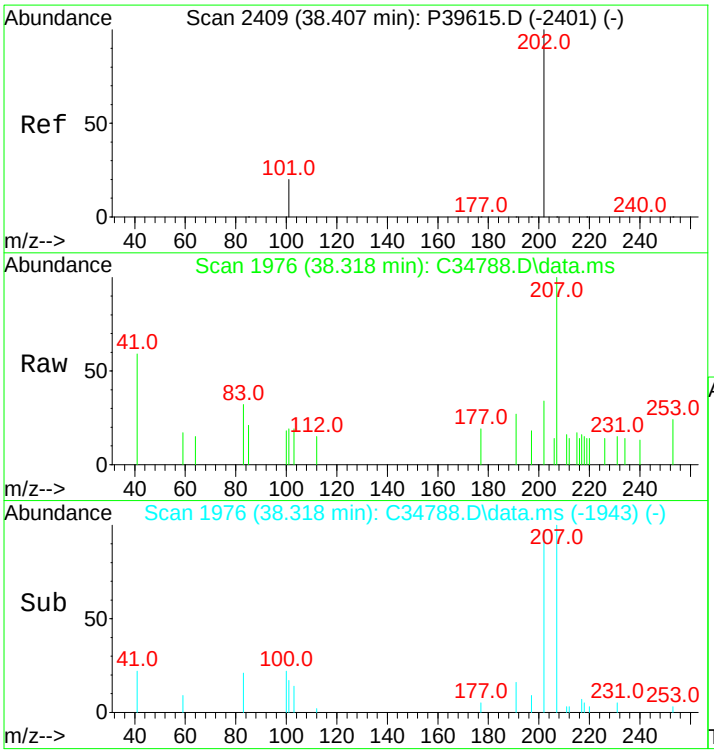


#59
Benzo(b)fluorene
Concen: 1.45 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:216 Resp: 90

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#

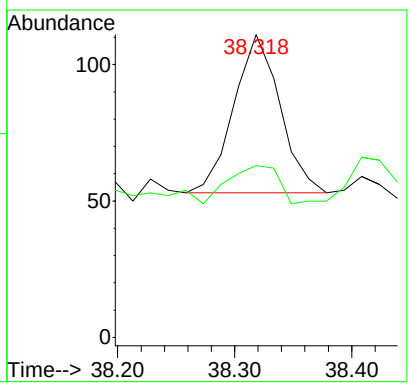


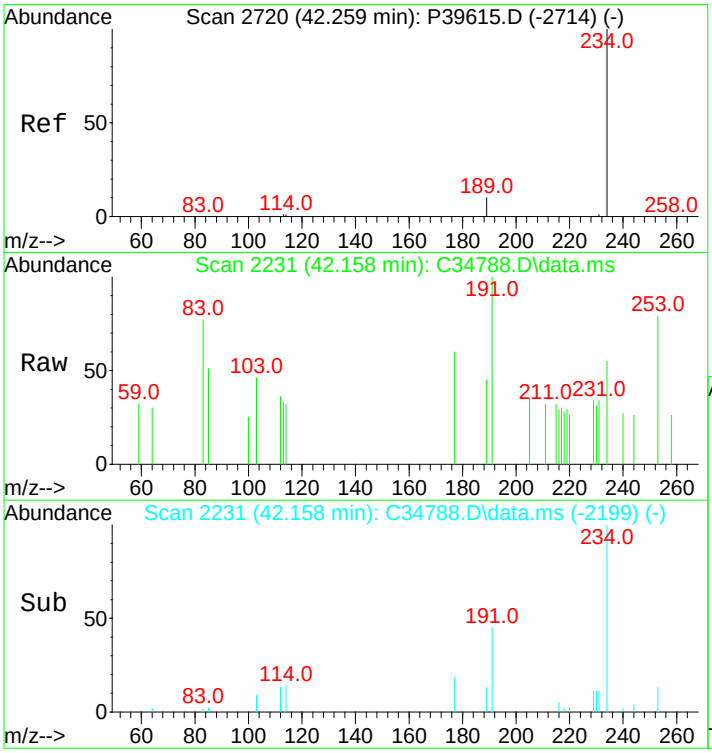


#60
Pyrene
Concen: 1.46 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:202 Resp: 159

Ion	Ratio	Lower	Upper
202	100		
101	0.0	15.0	22.4#

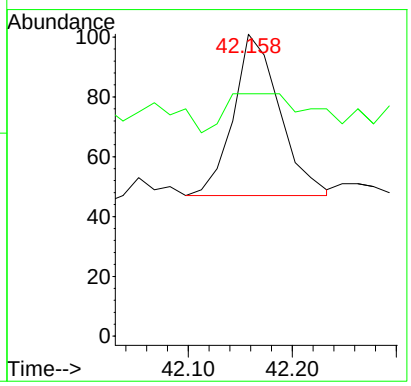


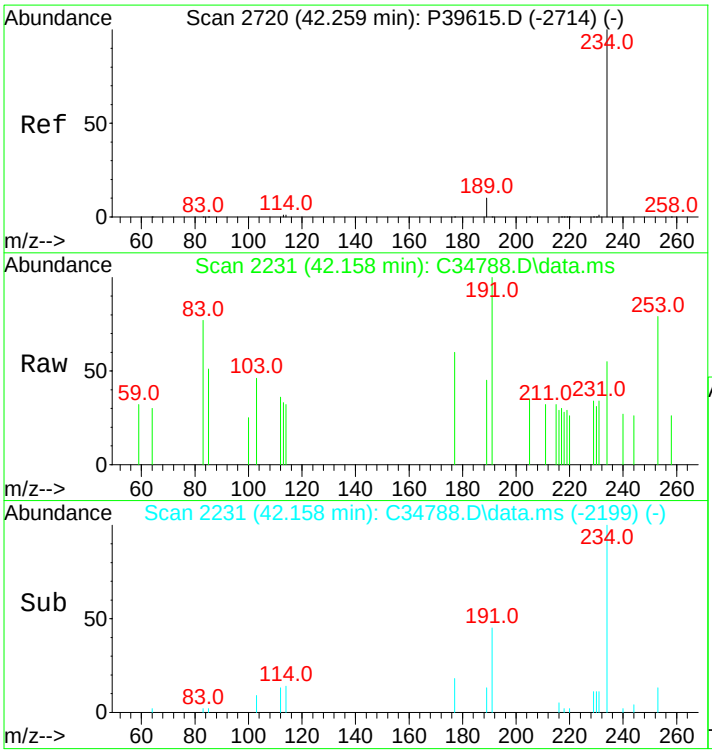


#66
Naphthobenzothiophene
Concen: 1.43 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:234 Resp: 167

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

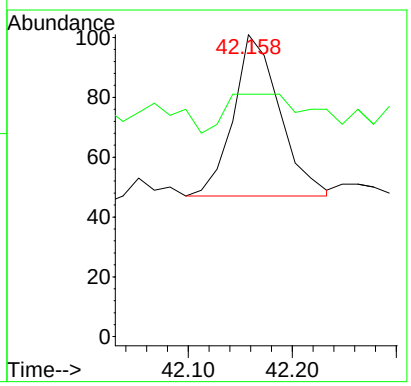


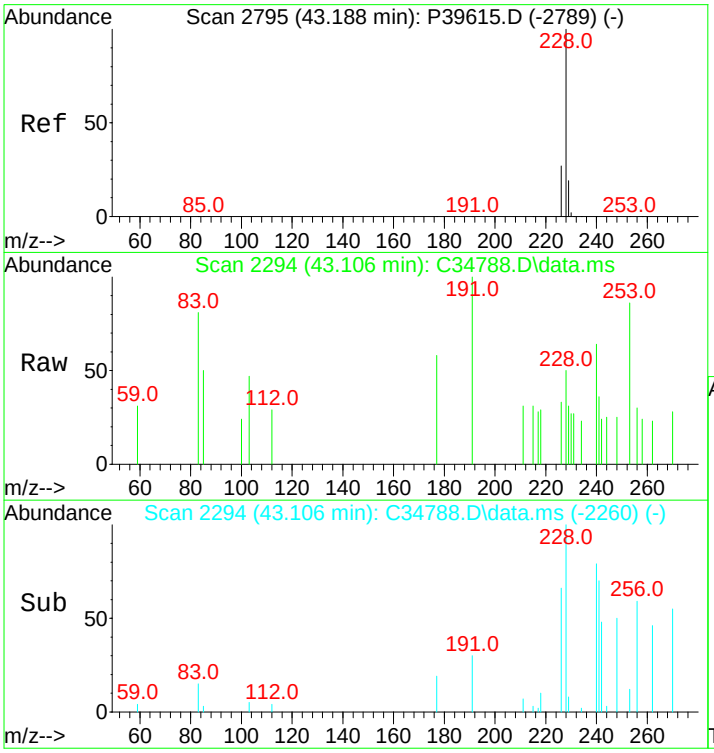


#67
Naphthobenzothiophene-2,1-D
Concen: 1.43 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:234 Resp: 167

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

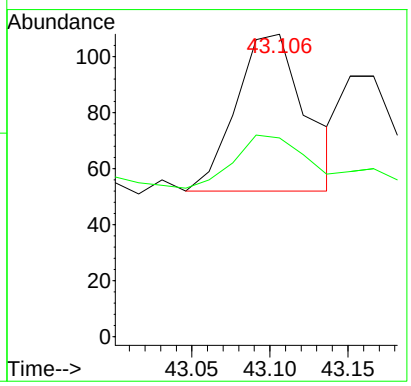


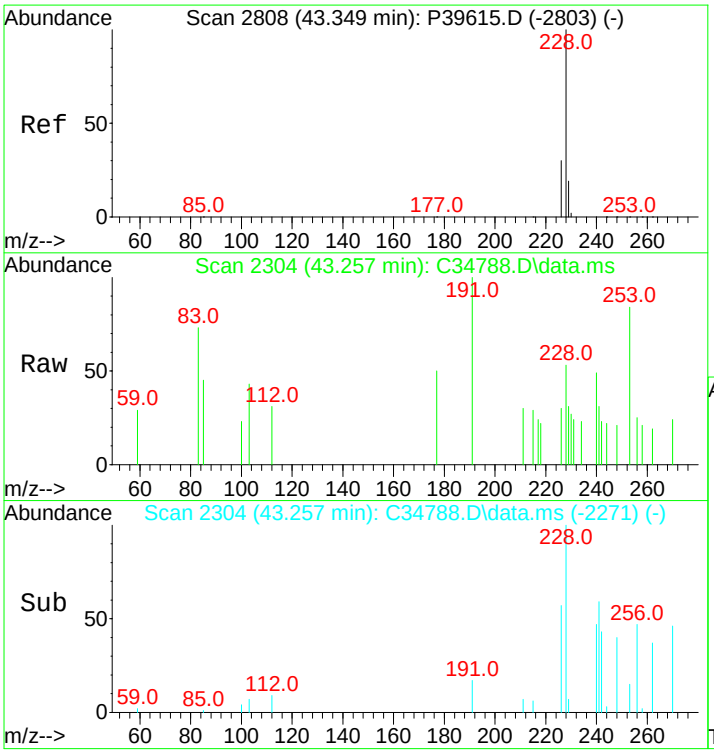


#75
Benz[a]anthracene
Concen: 1.69 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:228 Resp: 175

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

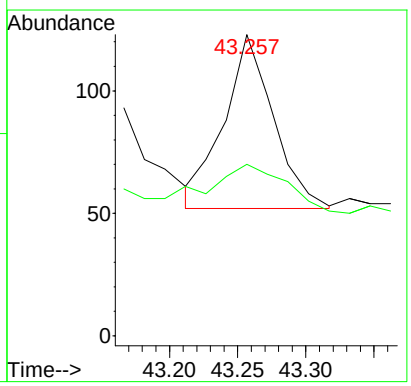


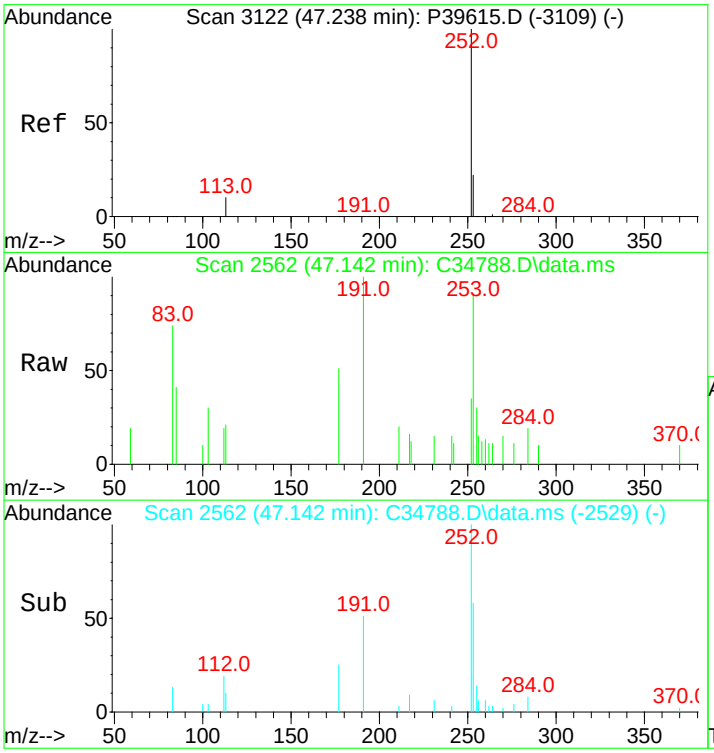


#77
Chrysene/Triphenylene
Concen: 1.71 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:228 Resp: 179

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

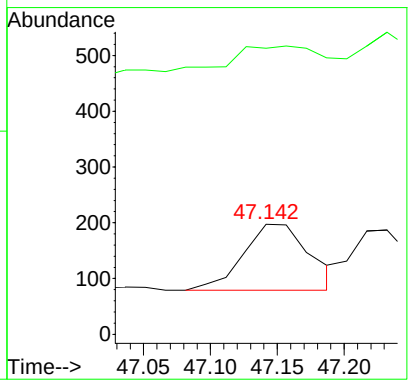


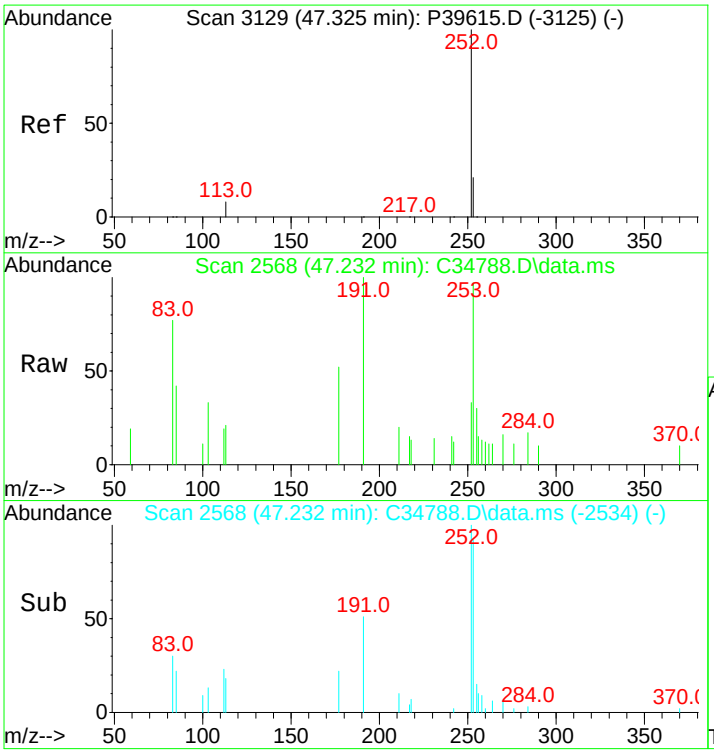


#82
Benzo[b]fluoranthene
Concen: 3.60 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 410

Ion	Ratio	Lower	Upper
252	100		
253	38.8	19.0	28.4#

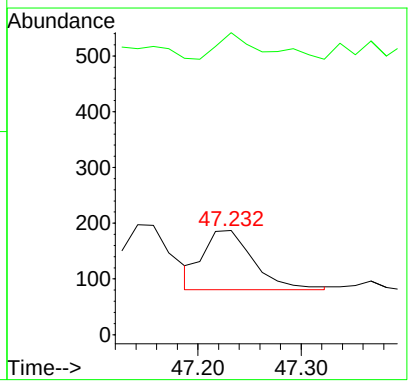


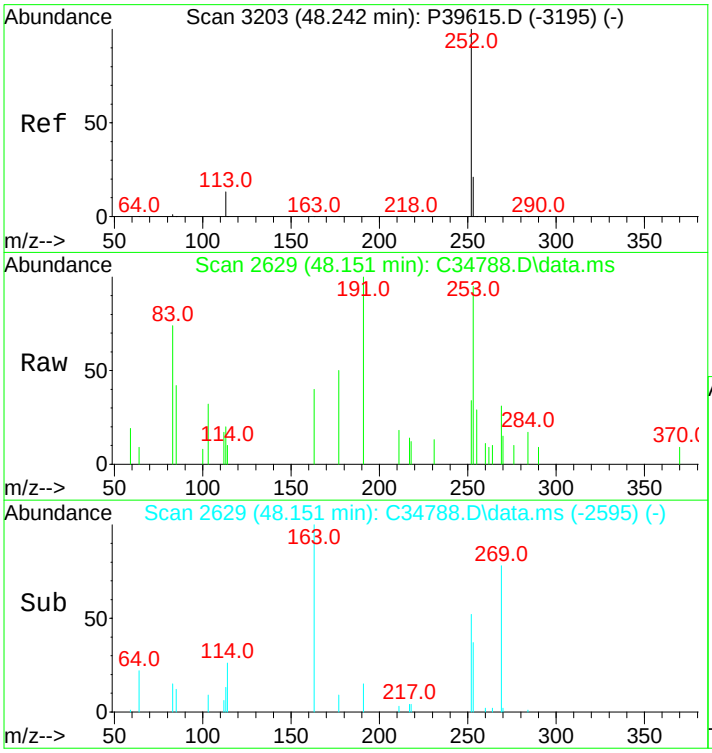


#83
Benzo[j]+[k]fluoranthene
Concen: 2.87 ng/mL m
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 356

Ion	Ratio	Lower	Upper
252	100		
253	46.6	19.0	28.4#

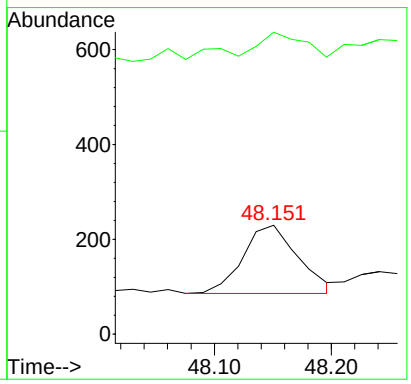


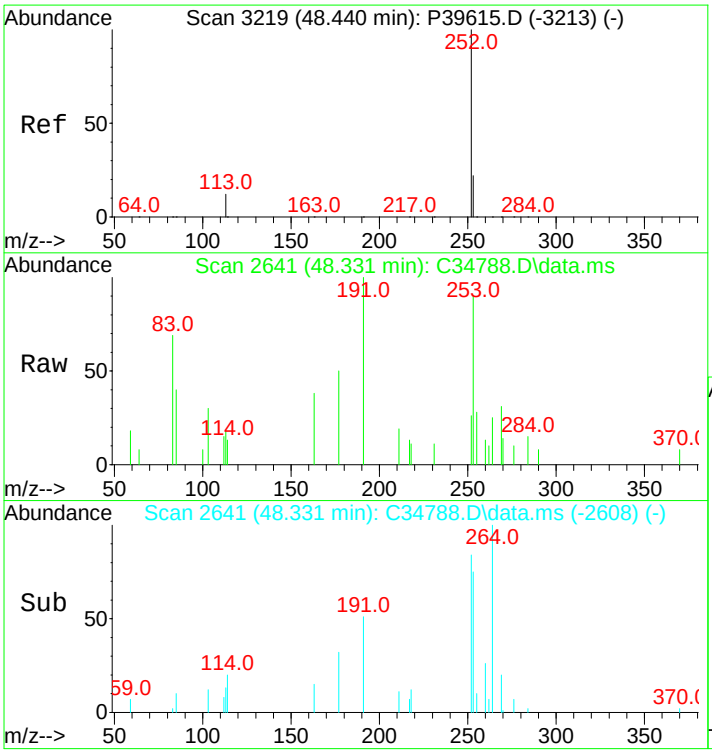


#85
Benzo[e]pyrene
Concen: 4.17 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 470

Ion	Ratio	Lower	Upper
252	100		
253	56.0	19.2	28.8#

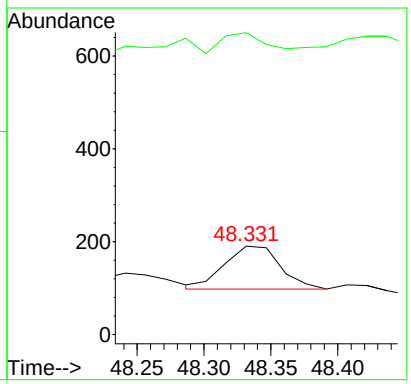


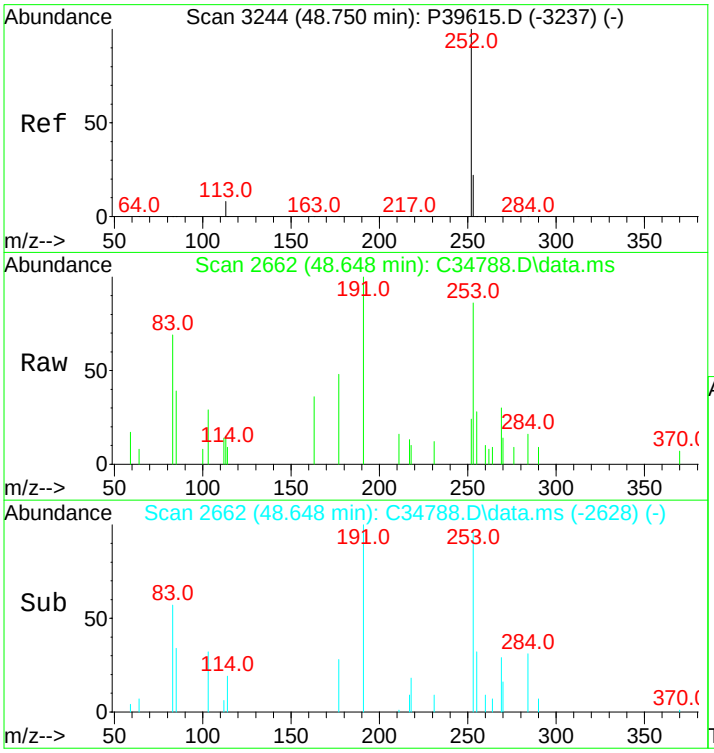


#87
Benzo[a]pyrene
Concen: 2.46 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 267

Ion	Ratio	Lower	Upper
252	100		
253	44.6	19.5	29.3#

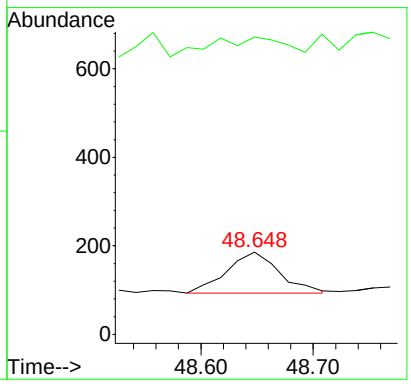


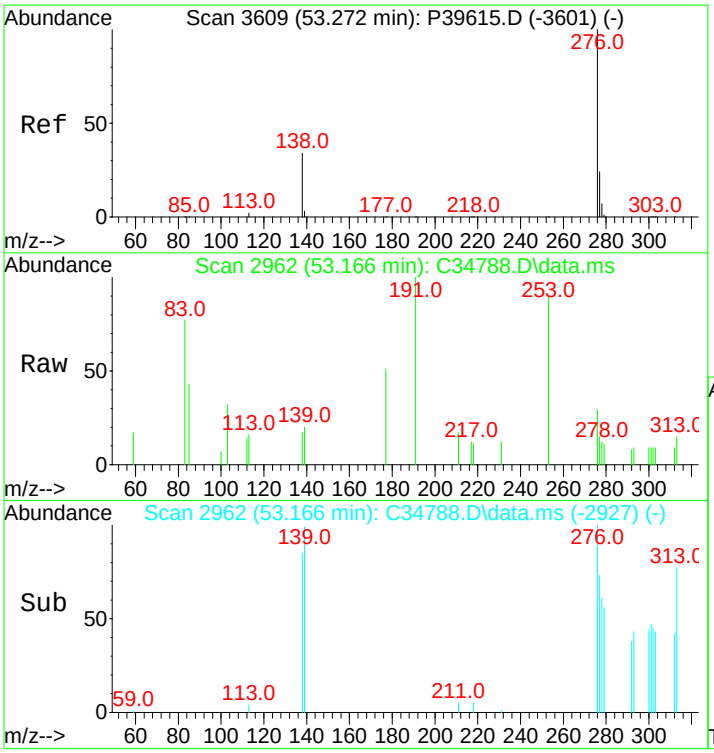


#88
Perylene
Concen: 2.61 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:252 Resp: 303

Ion	Ratio	Lower	Upper
252	100		
253	38.3	19.6	29.4#

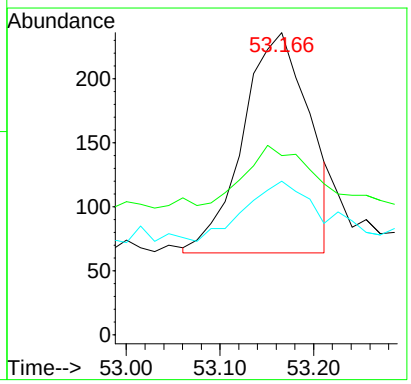


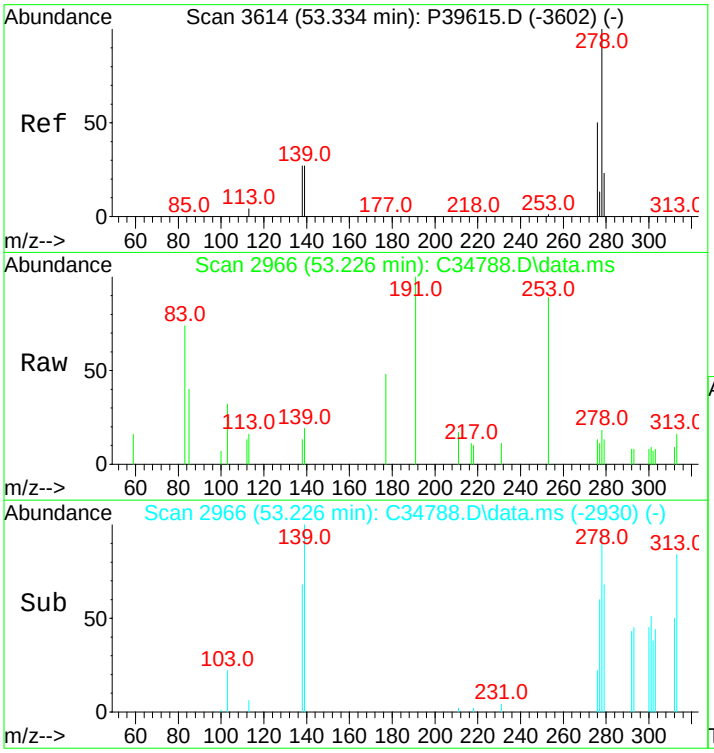


#89
Indeno[1,2,3-cd]pyrene
Concen: 6.71 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:276 Resp: 847

Ion	Ratio	Lower	Upper
276	100		
138	33.4	23.3	34.9
277	23.7	19.0	28.4

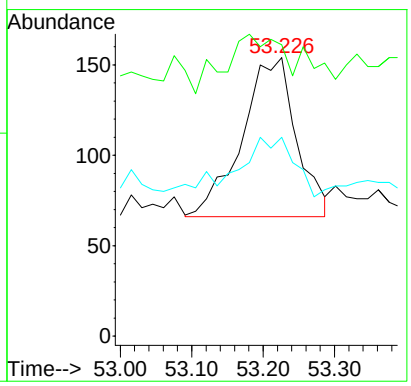


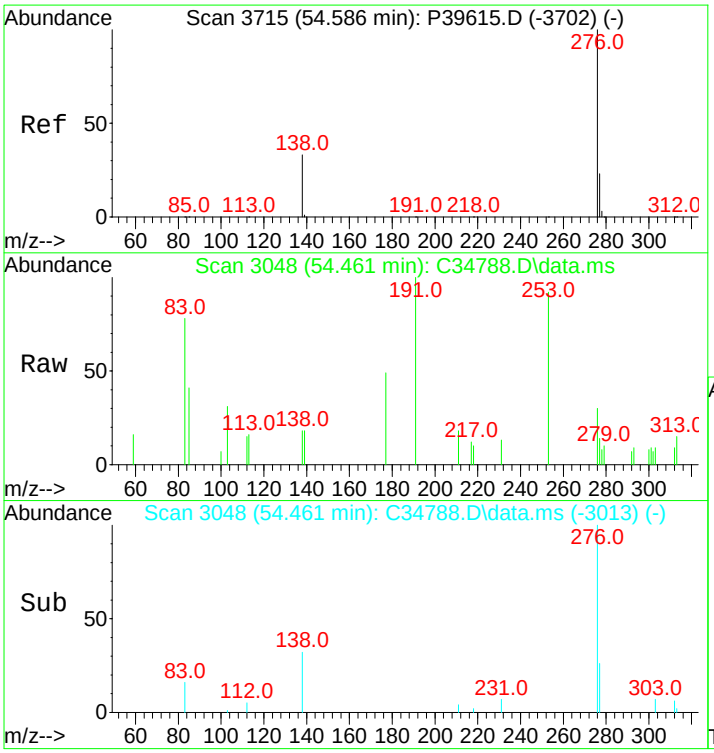


#90
Dibenz[ah]+[ac]anthracene
Concen: 3.87 ng/mL m
RT: 53.226 min Scan# 2966
Delta R.T. 0.045 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:278 Resp: 465

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

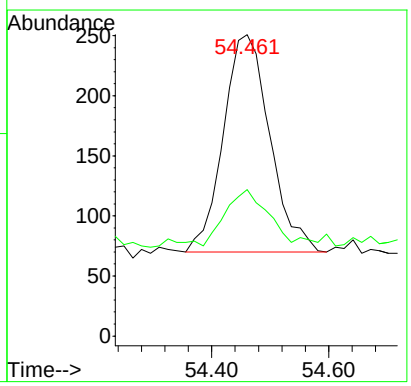


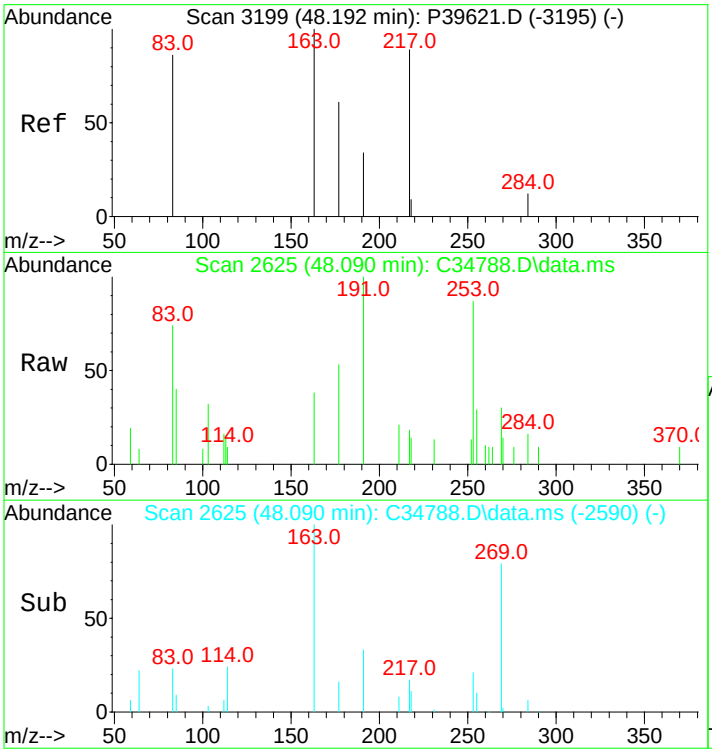


#91
Benzo[g,h,i]perylene
Concen: 7.48 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:276 Resp: 997

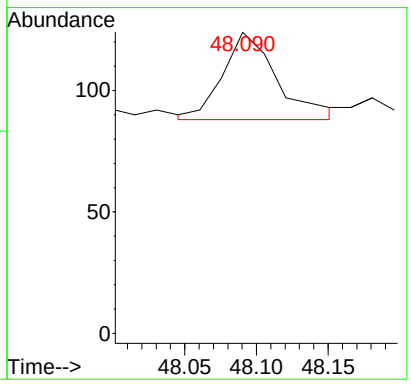
Ion	Ratio	Lower	Upper
276	100		
277	24.4	18.9	28.3





#133
Unknown Sterane (S18)
Concen: 9.31 ng/ml m
RT: 48.090 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34788.D
Acq: 2 May 2012 8:53 pm

Tgt Ion:217 Resp: 95



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19753M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	35501	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	31883	371.887	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.19%#			
42) Phenanthrene-d10	32.567	188	25976	383.327	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.33%#			
86) Benzo[a]pyrene-d12	48.241	264	26602	361.573	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.16%#			
127) 5B(H)Cholane - Surr	43.769	217	5097	459.213	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.92%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51060	405.576	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30786	413.575	ng/mL#	100
26) Acenaphthylene	26.094	152	50343	402.832	ng/mL#	100
27) Acenaphthene	26.816	153	31298	425.338	ng/mL	98
29) Fluorene	28.849	166	34652M3	426.989	ng/mL	
43) Phenanthrene	32.657	178	49113	429.705	ng/mL	99
55) Anthracene	32.838	178	39458M3	353.439	ng/mL	
58) Fluoranthene	37.430	202	53856M3	474.445	ng/mL	
60) Pyrene	38.318	202	56245	487.436	ng/mL	97
75) Benz[a]anthracene	43.091	228	48940	434.329	ng/mL	99
77) Chrysene/Triphenylene	43.242	228	49239	432.835	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	57239	462.304	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.217	252	58317	432.620	ng/mL	97
87) Benzo[a]pyrene	48.331	252	52193	442.654	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	69249M3	504.678	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	60330	462.198	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62892	433.836	ng/mL	100

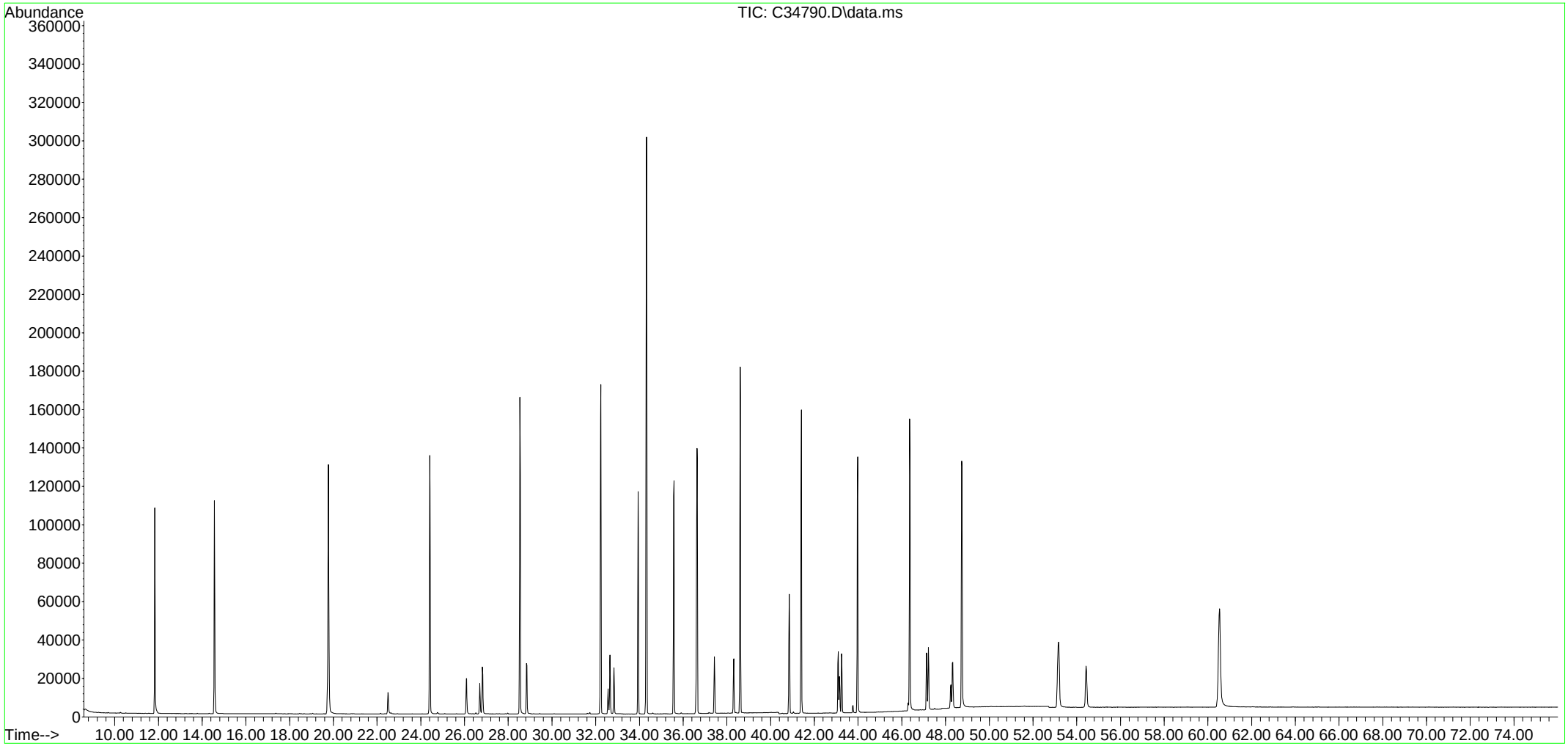
(#) = qualifier out of range (m) = manual integration (+) = signals summed

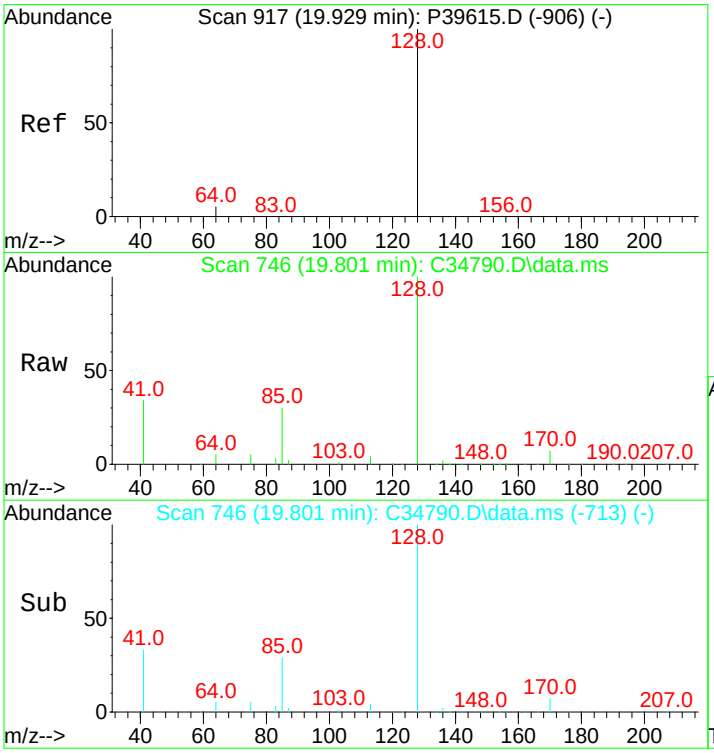
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34790.D
Acq On : 2 May 2012 10:24 pm
Operator : AC
Sample : SO050112LCS01
Misc : 1X ETR1204031
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 05 12:44:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

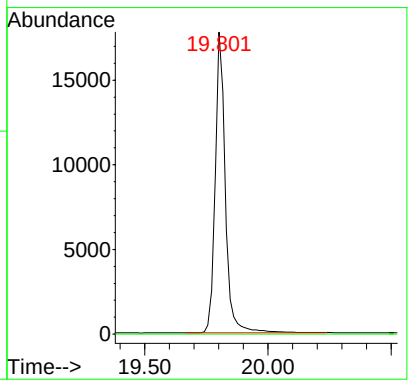


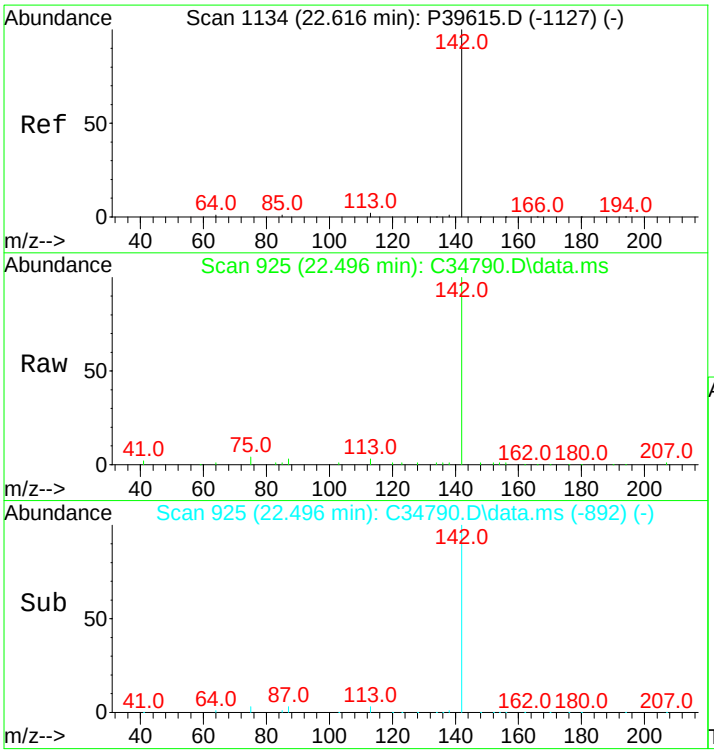


#10
Naphthalene
Concen: 405.58 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:128 Resp: 51060

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

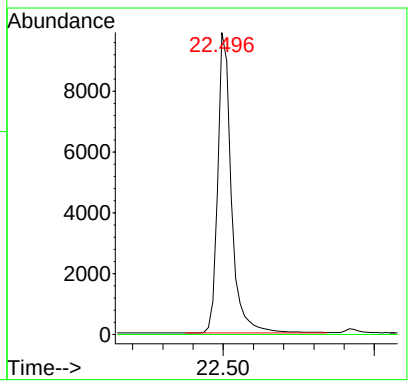


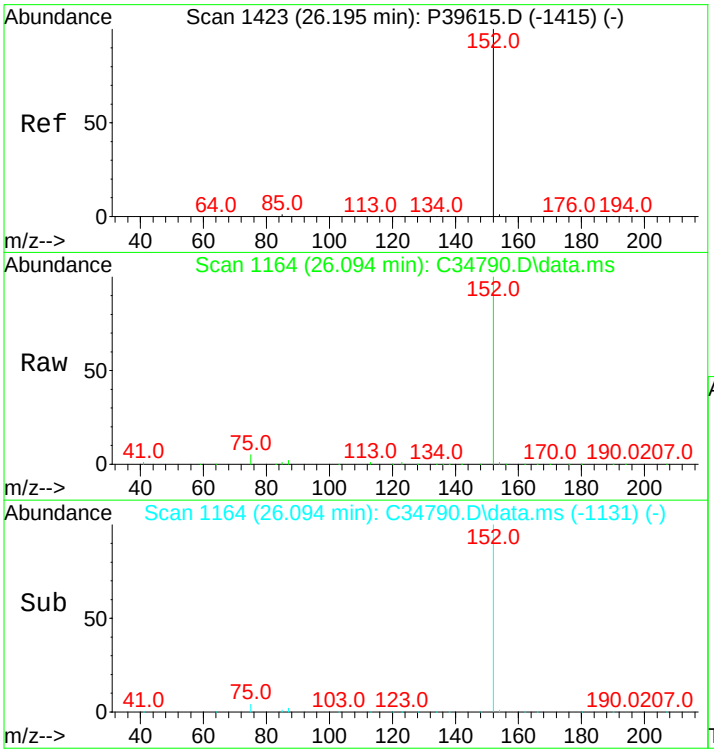


#16
2-Methylnaphthalene
Concen: 413.57 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:142 Resp: 30786

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

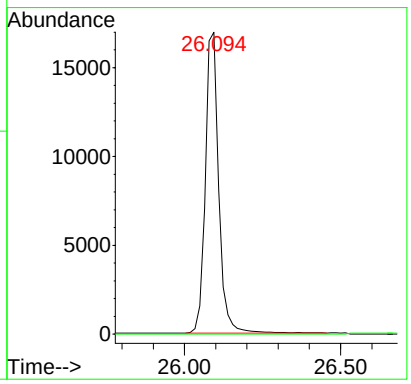


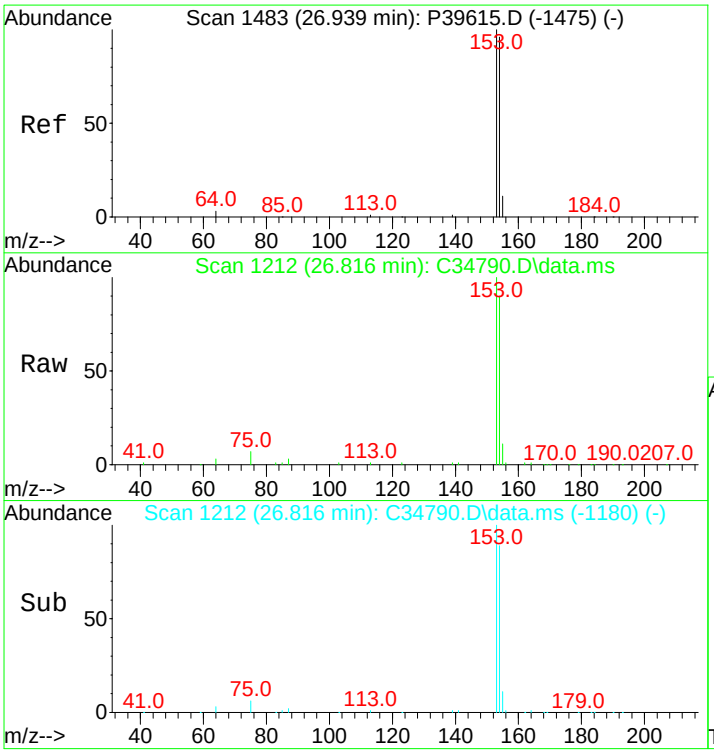


#26
Acenaphthylene
Concen: 402.83 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:152 Resp: 50343

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

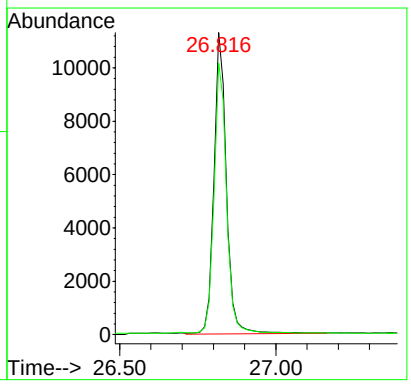


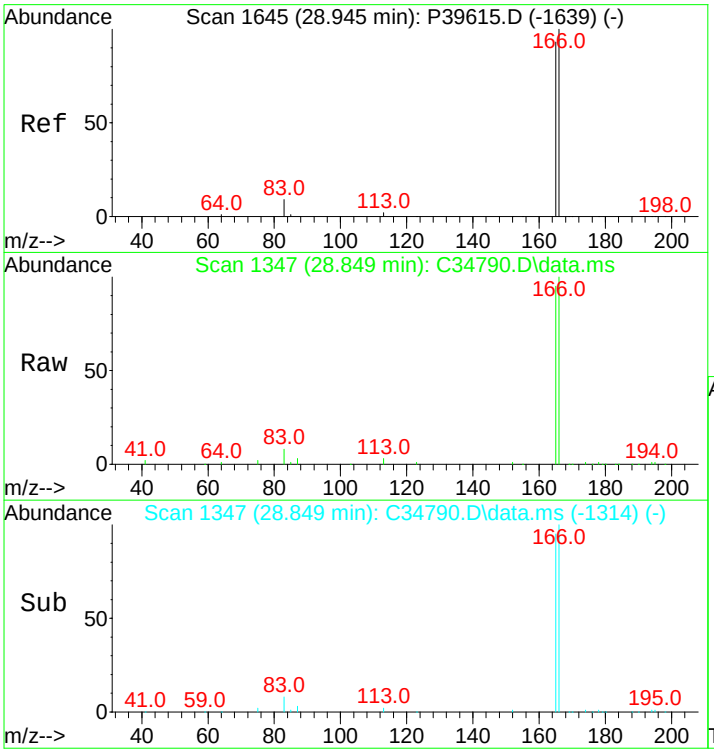


#27
Acenaphthene
Concen: 425.34 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:153 Resp: 31298

Ion	Ratio	Lower	Upper
153	100		
154	89.7	73.6	110.4

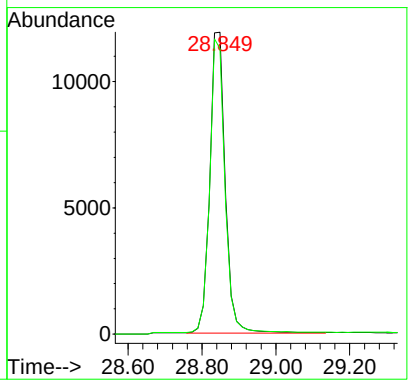


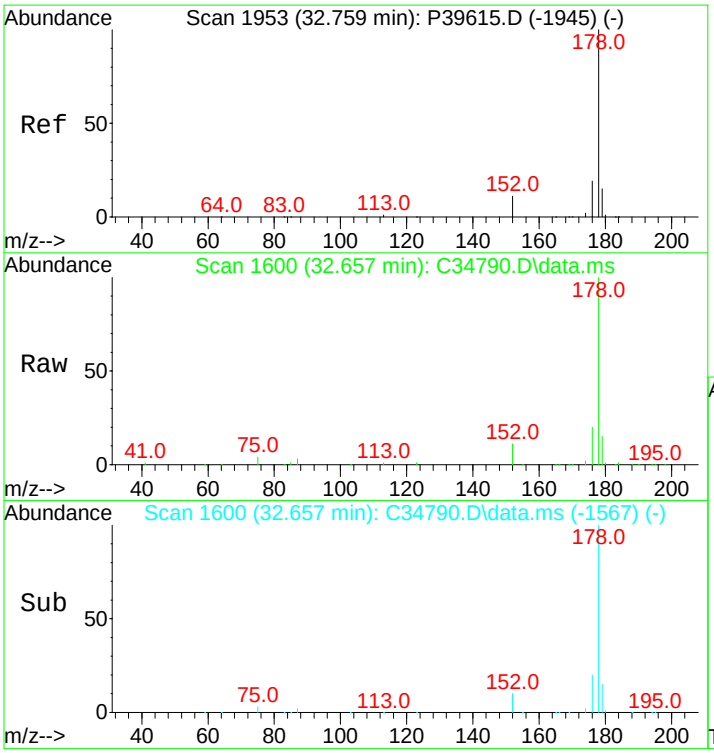


#29
Fluorene
Concen: 426.99 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:166 Resp: 34652

Ion	Ratio	Lower	Upper
166	100		
165	97.0	77.3	115.9

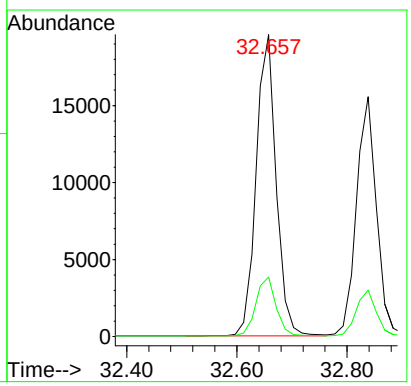


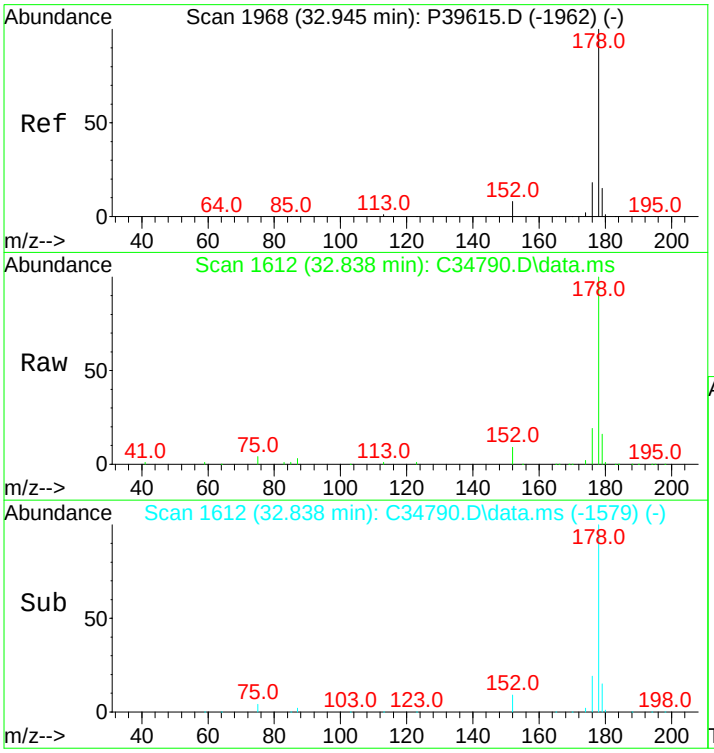


#43
Phenanthrene
Concen: 429.71 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:178 Resp: 49113

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

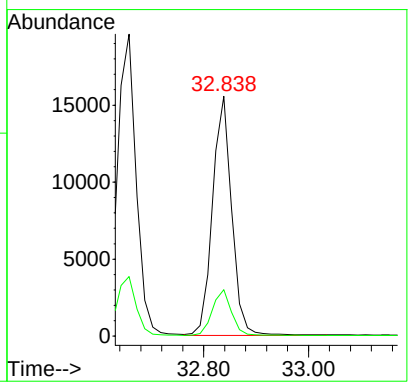


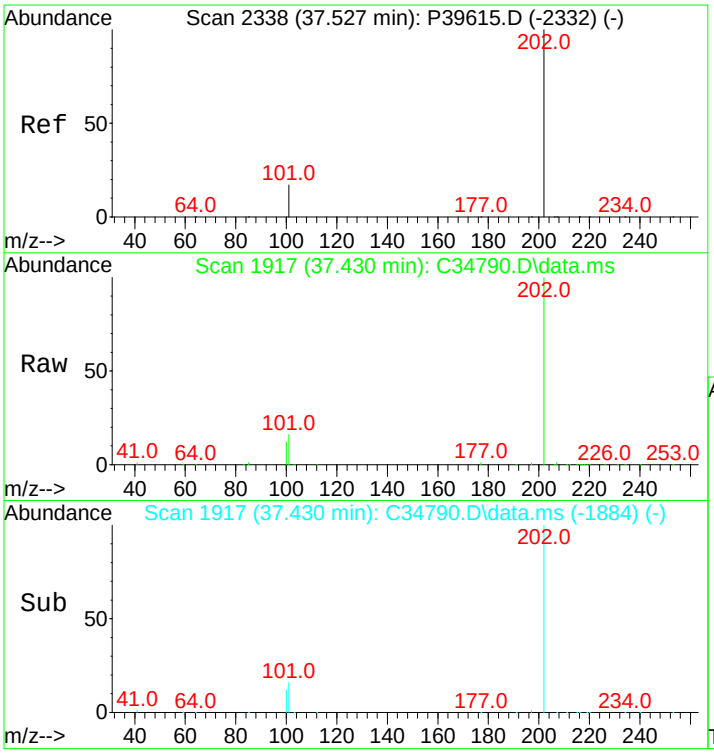


#55
Anthracene
Concen: 353.44 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:178 Resp: 39458

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

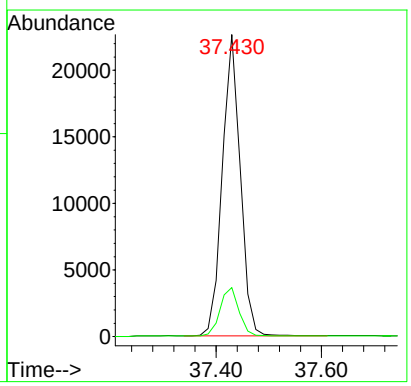


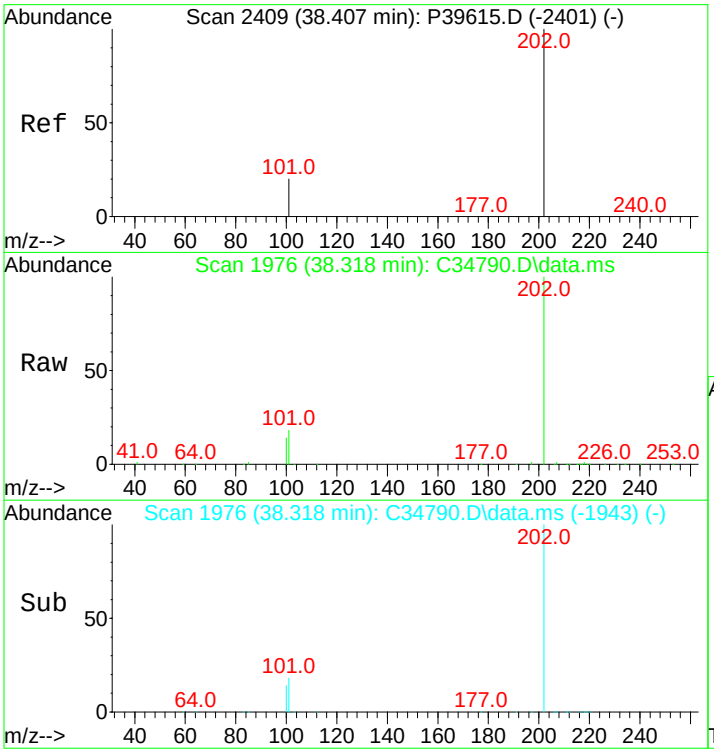


#58
Fluoranthene
Concen: 474.44 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:202 Resp: 53856

Ion	Ratio	Lower	Upper
202	100		
101	17.1	12.9	19.3

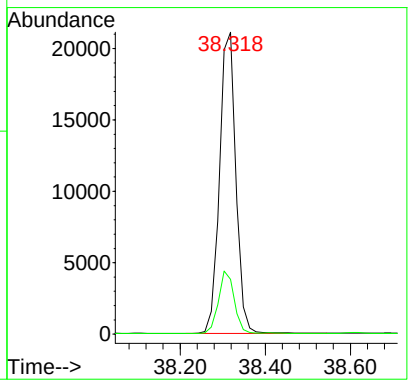


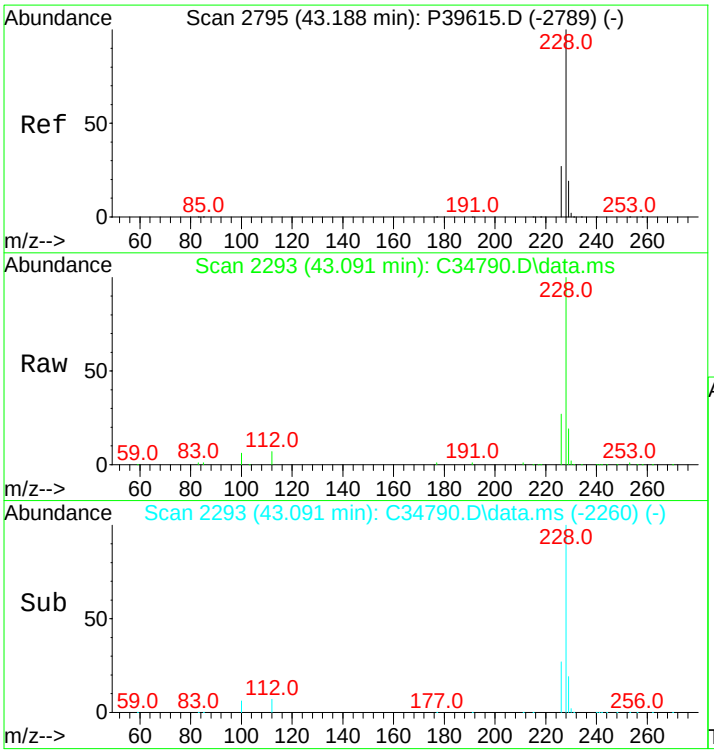


#60
Pyrene
Concen: 487.44 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:202 Resp: 56245

Ion	Ratio	Lower	Upper
202	100		
101	20.0	15.0	22.4

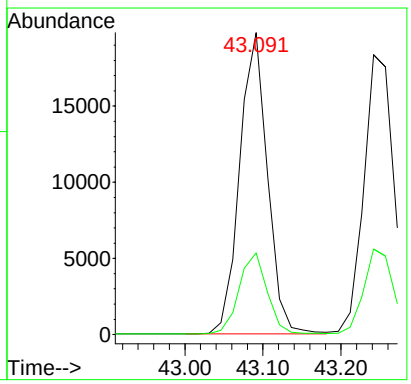


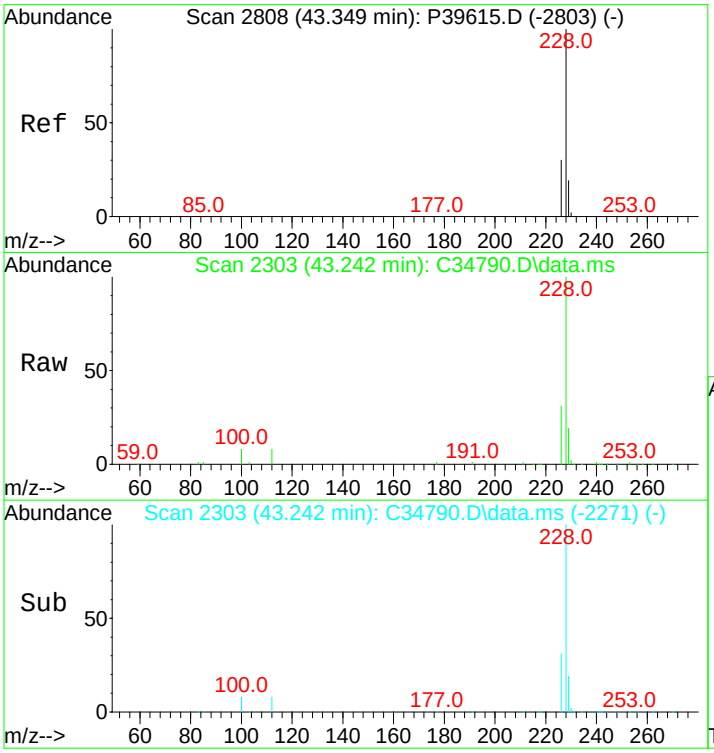


#75
Benz[a]anthracene
Concen: 434.33 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:228 Resp: 48940

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

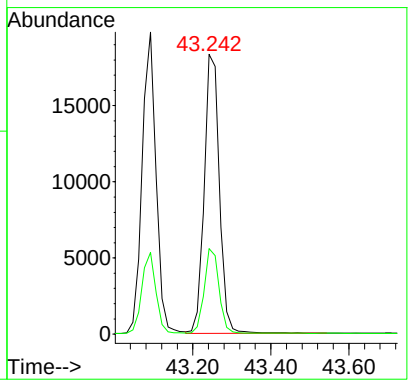


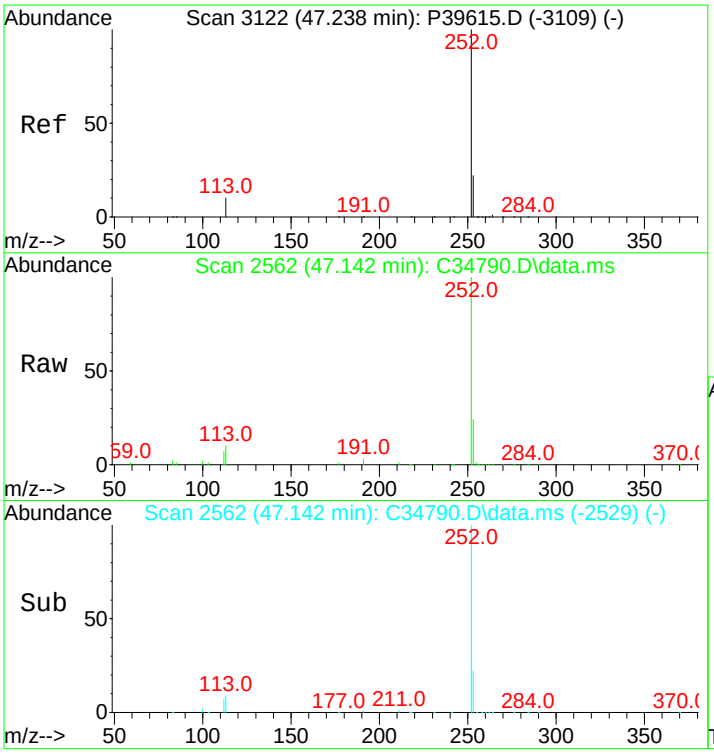


#77
Chrysene/Triphenylene
Concen: 432.83 ng/mL
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:228 Resp: 49239

Ion	Ratio	Lower	Upper
228	100		
226	29.7	23.7	35.5

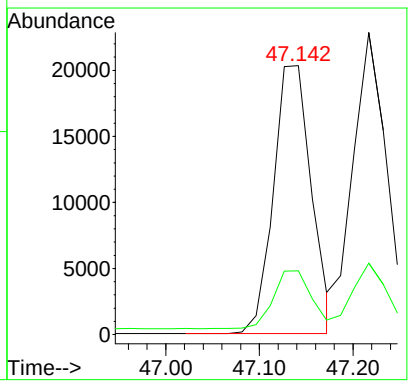


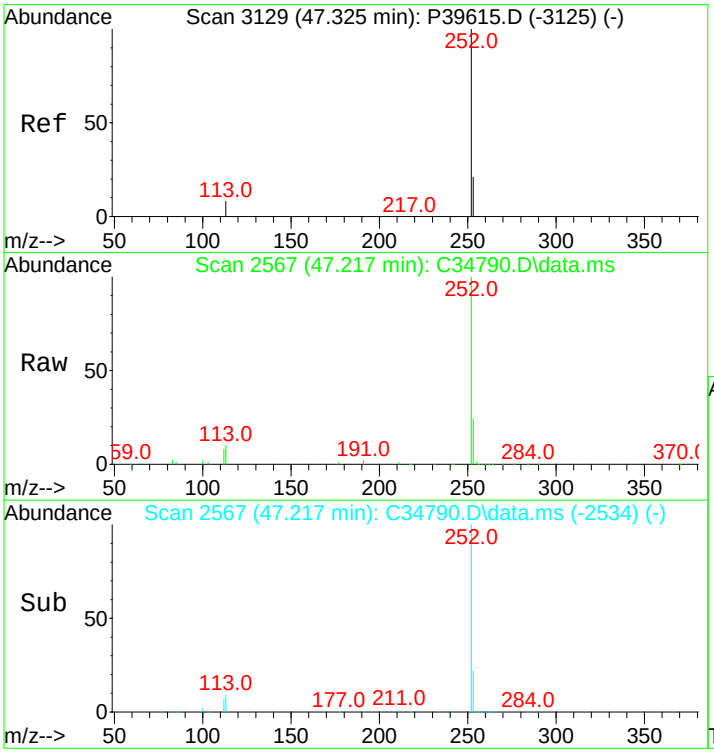


#82
Benzo[b]fluoranthene
Concen: 462.30 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 57239

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

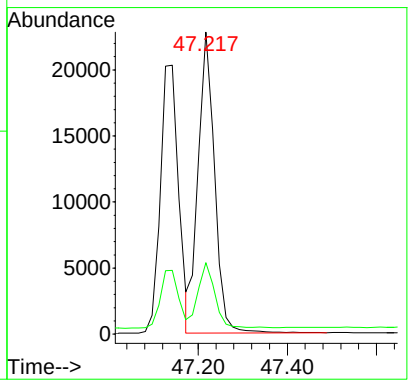


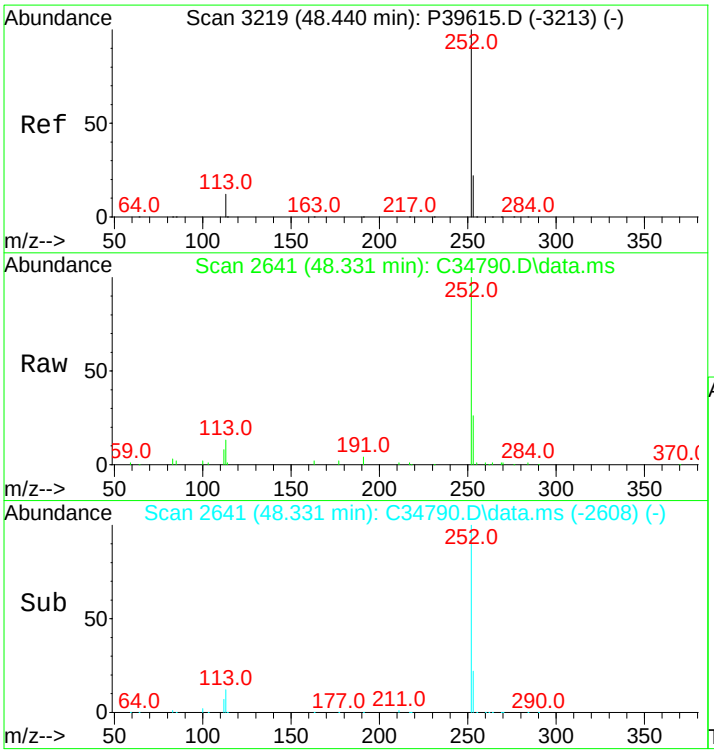


#83
Benzo[j]+[k]fluoranthene
Concen: 432.62 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 58317

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

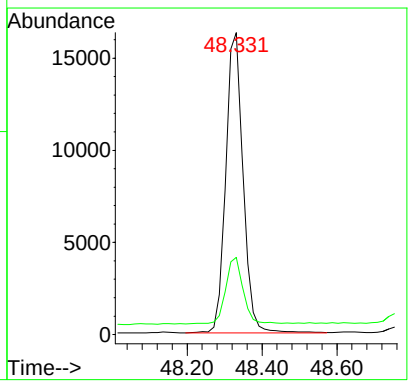


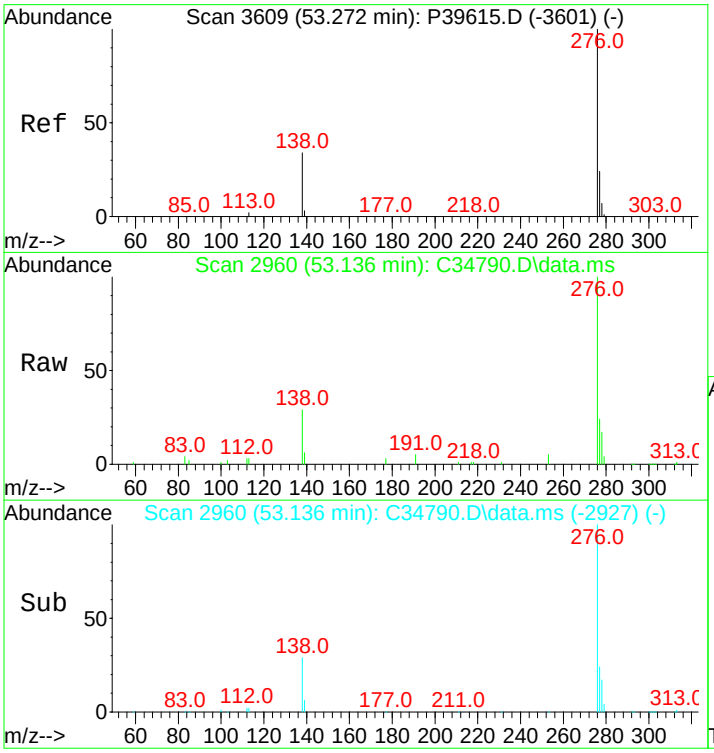


#87
Benzo[a]pyrene
Concen: 442.65 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:252 Resp: 52193

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.5	29.3

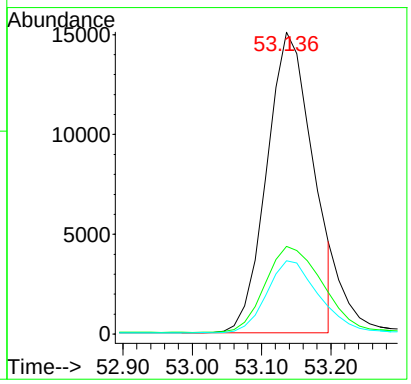


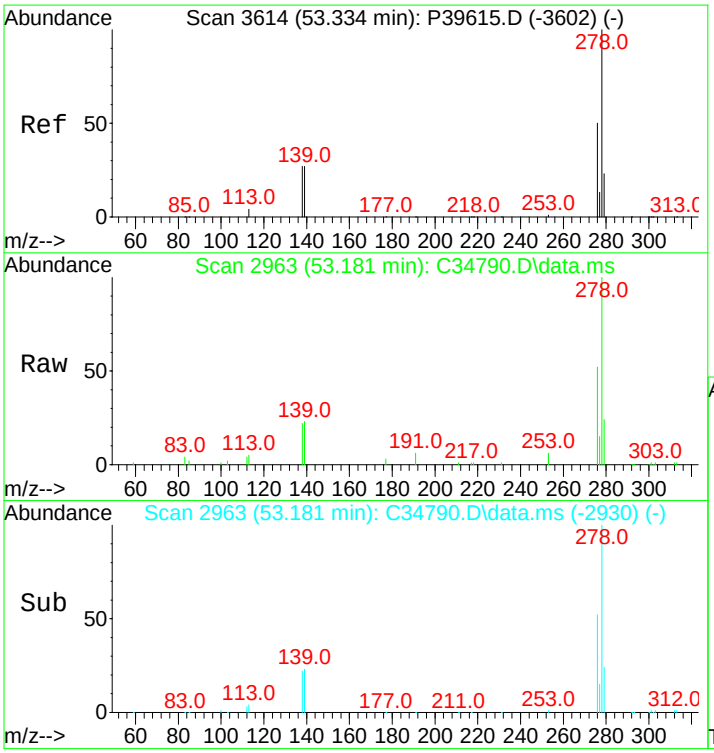


#89
Indeno[1,2,3-cd]pyrene
Concen: 504.68 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:276 Resp: 69249

Ion	Ratio	Lower	Upper
276	100		
138	36.3	23.3	34.9#
277	27.5	19.0	28.4

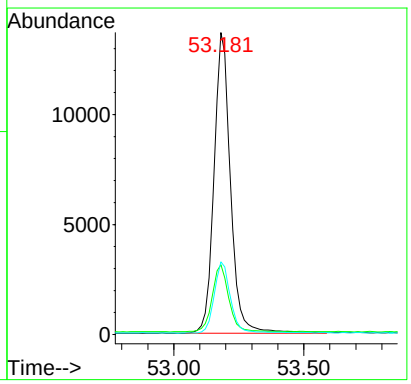


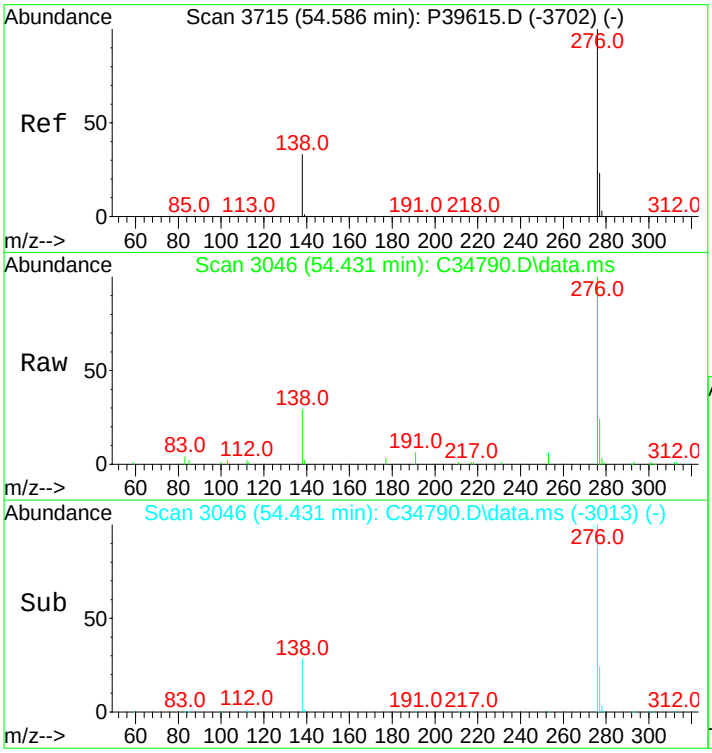


#90
Dibenz[ah]+[ac]anthracene
Concen: 462.20 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:278 Resp: 60330

Ion	Ratio	Lower	Upper
278	100		
139	22.2	19.1	28.7
279	23.1	19.2	28.8

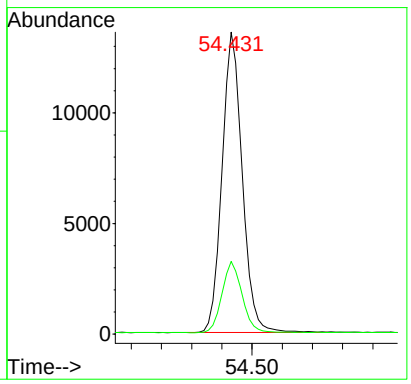




#91
Benzo[g,h,i]perylene
Concen: 433.84 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34790.D
Acq: 2 May 2012 10:24 pm

Tgt Ion:276 Resp: 62892

Ion	Ratio	Lower	Upper
276	100		
277	23.8	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19021M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33587	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32852	397.936	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.79%#			
42) Phenanthrene-d10	32.567	188	26668	408.683	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.87%#			
86) Benzo[a]pyrene-d12	48.241	264	27379	393.340	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.33%#			
127) 5B(H)Cholane - Surr	43.769	217	5012	477.288	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.73%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	51108	421.580	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	30768	429.239	ng/mL#	100
26) Acenaphthylene	26.079	152	50368	418.543	ng/mL#	100
27) Acenaphthene	26.816	153	30445	429.668	ng/mL	100
29) Fluorene	28.834	166	34563M3	442.282	ng/mL	
43) Phenanthrene	32.657	178	48535	440.990	ng/mL	99
55) Anthracene	32.838	178	39450M3	366.966	ng/mL	
58) Fluoranthene	37.430	202	53262M3	487.269	ng/mL	
60) Pyrene	38.318	202	56100	504.889	ng/mL	97
75) Benz[a]anthracene	43.091	228	49115	460.721	ng/mL	100
77) Chrysene/Triphenylene	43.242	228	48498	450.615	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	56819	485.064	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	57833	453.478	ng/mL	96
87) Benzo[a]pyrene	48.331	252	51333	460.170	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	63756M3	491.124	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	59010	477.848	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	62345	454.570	ng/mL	99

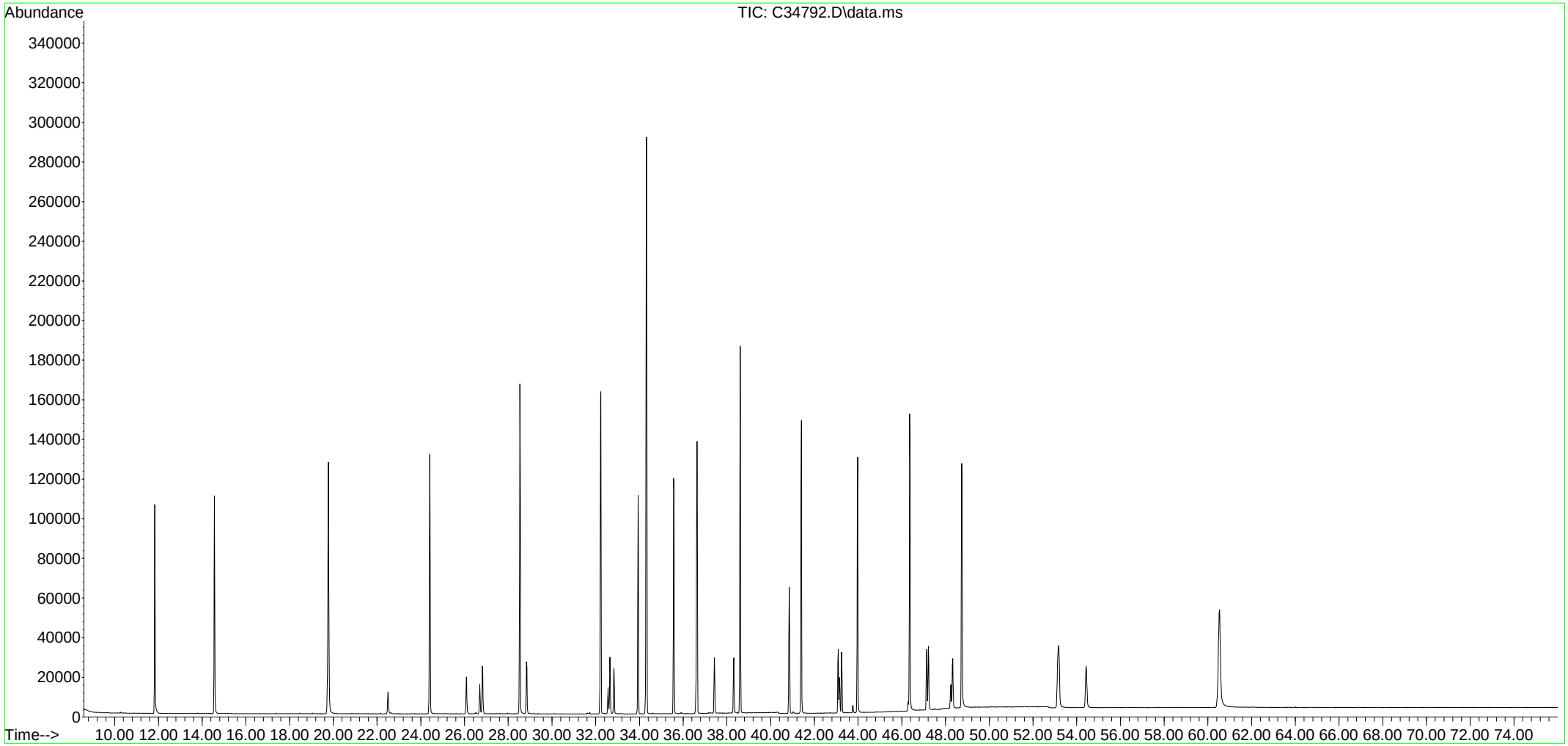
(#) = qualifier out of range (m) = manual integration (+) = signals summed

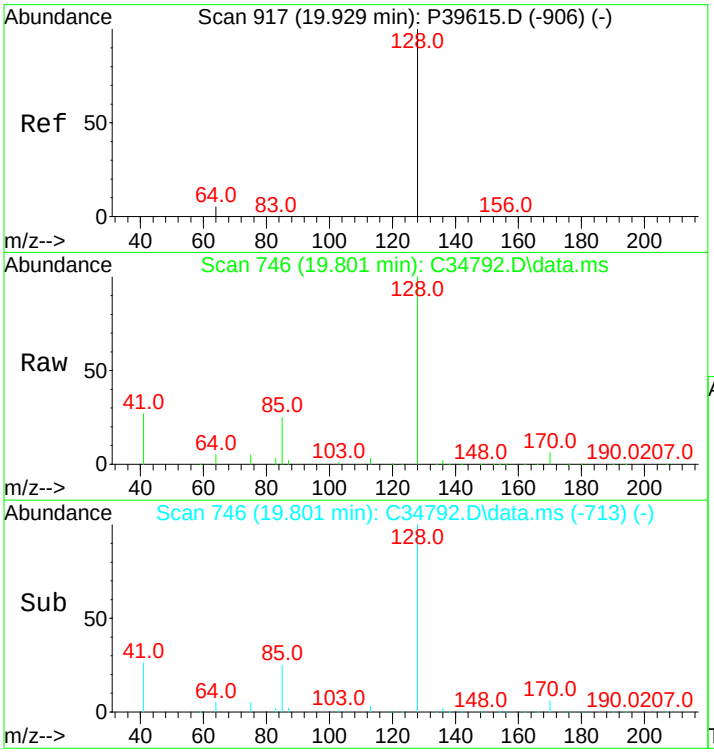
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34792.D
Acq On : 2 May 2012 11:54 pm
Operator : AC
Sample : SO050112LCSD01
Misc : 1X ETR1204031
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 05 12:44:56 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

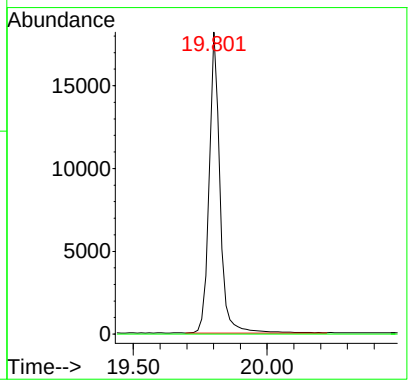


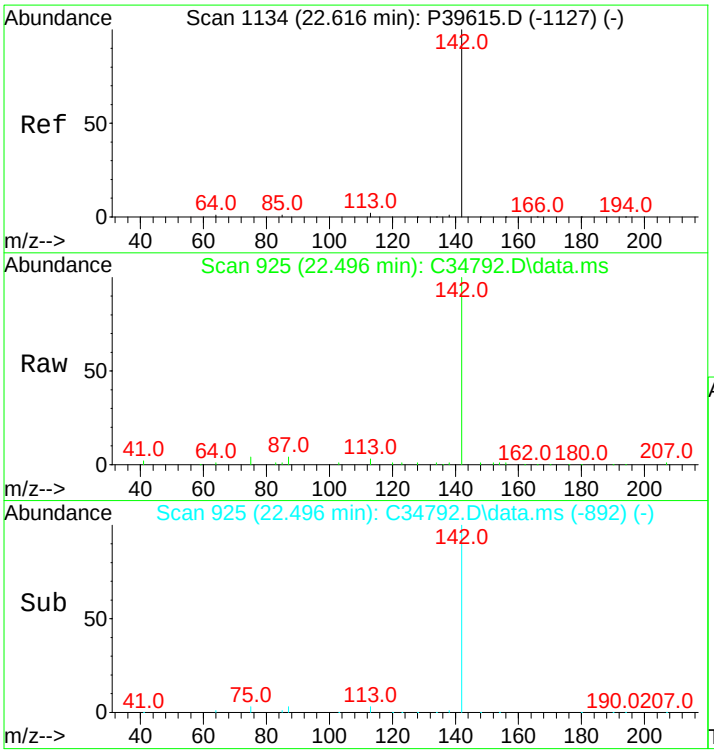


#10
Naphthalene
Concen: 421.58 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:128 Resp: 51108

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

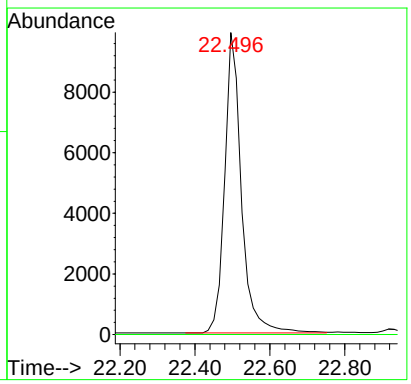


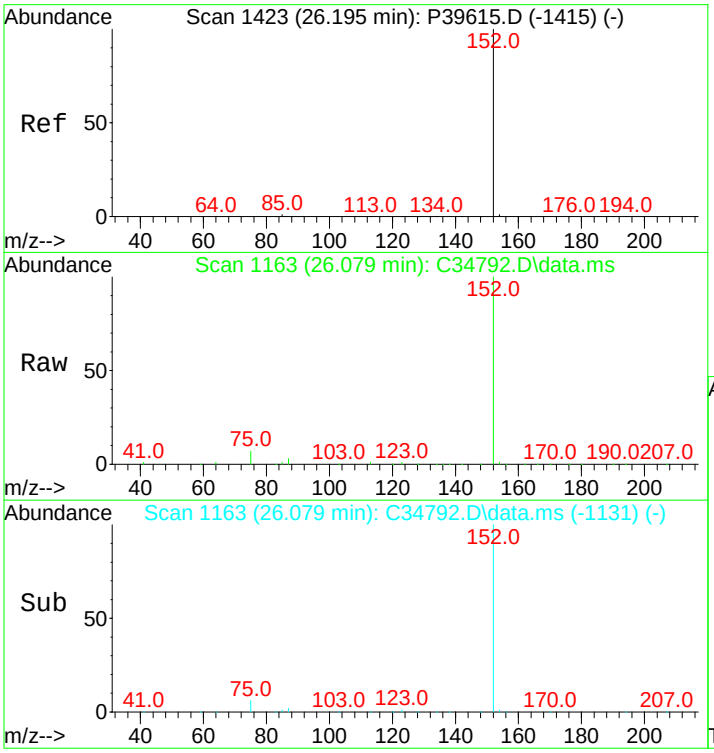


#16
2-Methylnaphthalene
Concen: 429.24 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:142 Resp: 30768

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

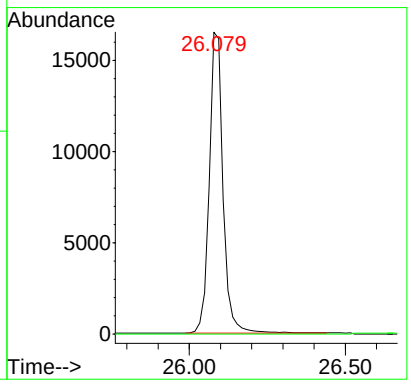


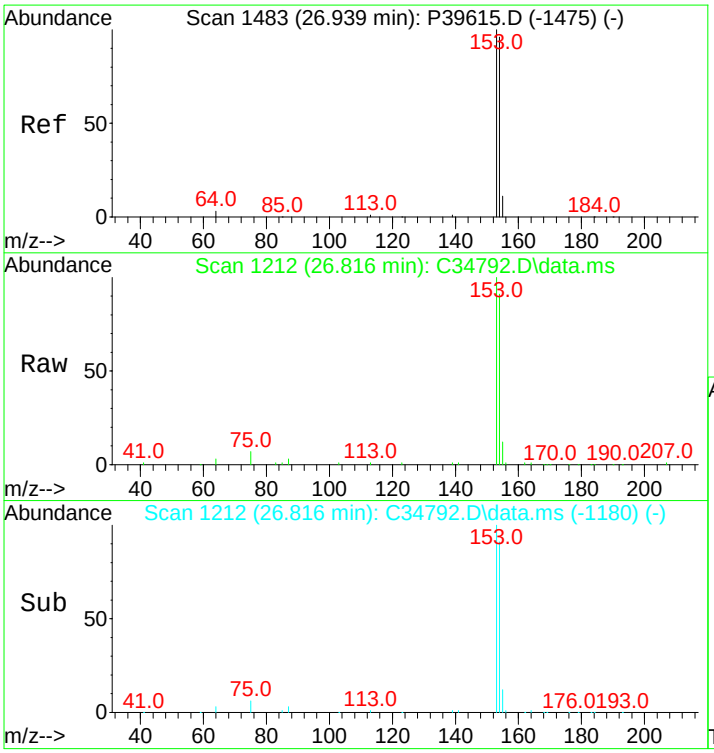


#26
Acenaphthylene
Concen: 418.54 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:152 Resp: 50368

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

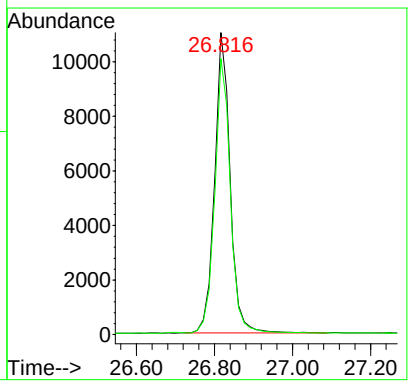


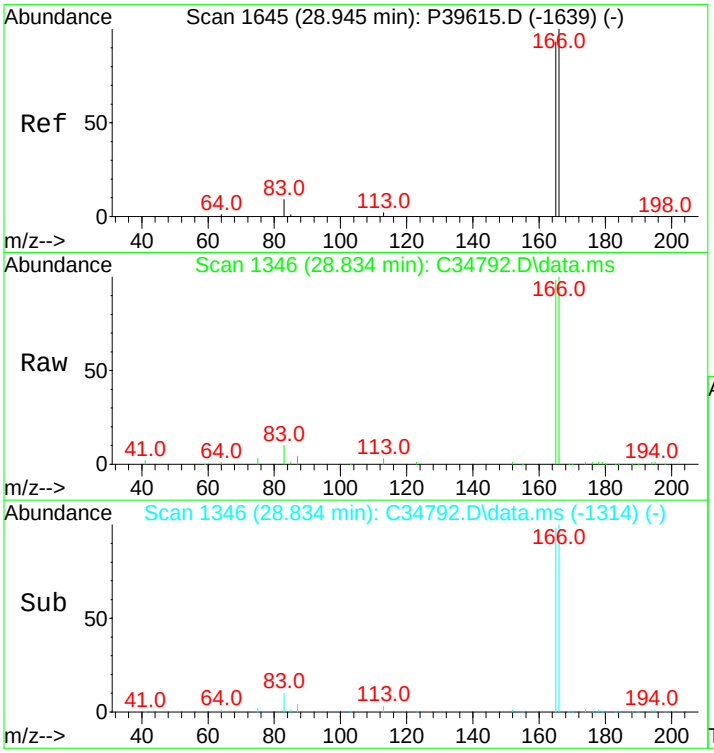


#27
Acenaphthene
Concen: 429.67 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:153 Resp: 30445

Ion	Ratio	Lower	Upper
153	100		
154	91.8	73.6	110.4

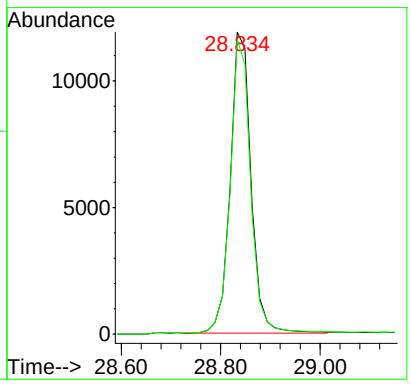


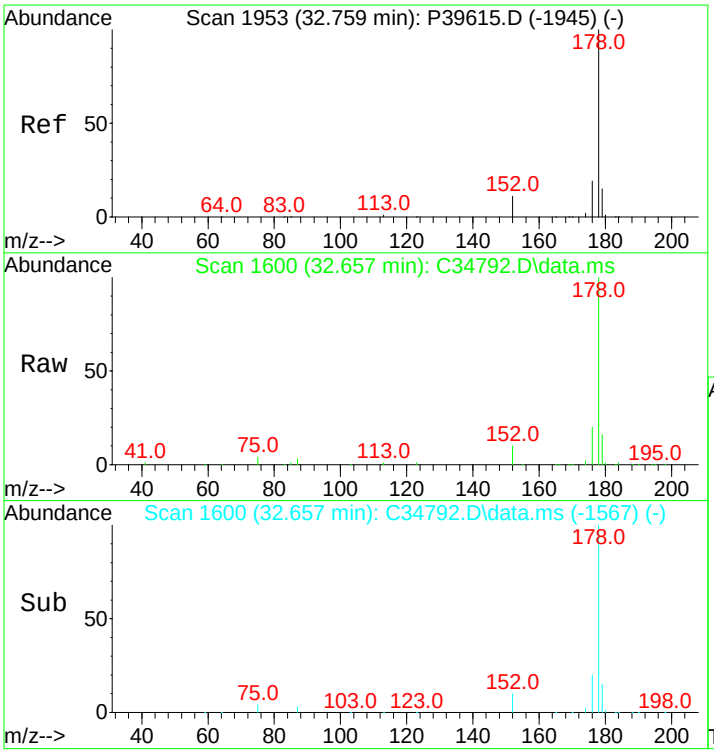


#29
Fluorene
Concen: 442.28 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:166 Resp: 34563

Ion	Ratio	Lower	Upper
166	100		
165	96.4	77.3	115.9

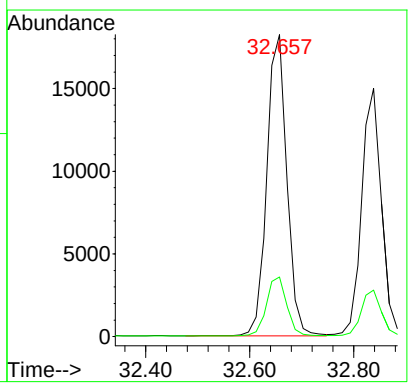


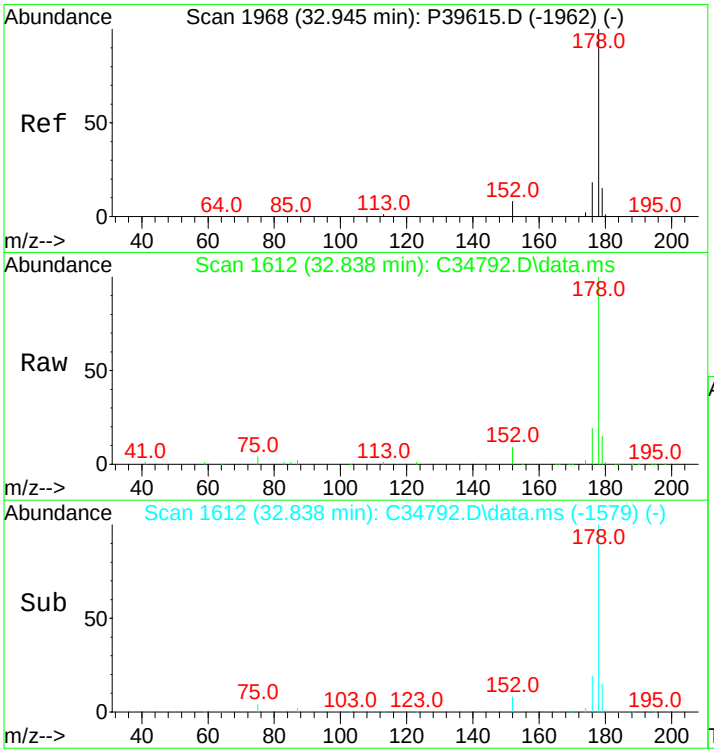


#43
Phenanthrene
Concen: 440.99 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:178 Resp: 48535

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

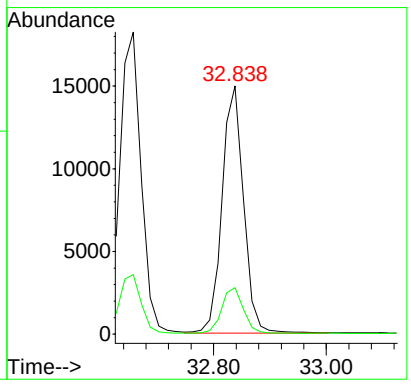


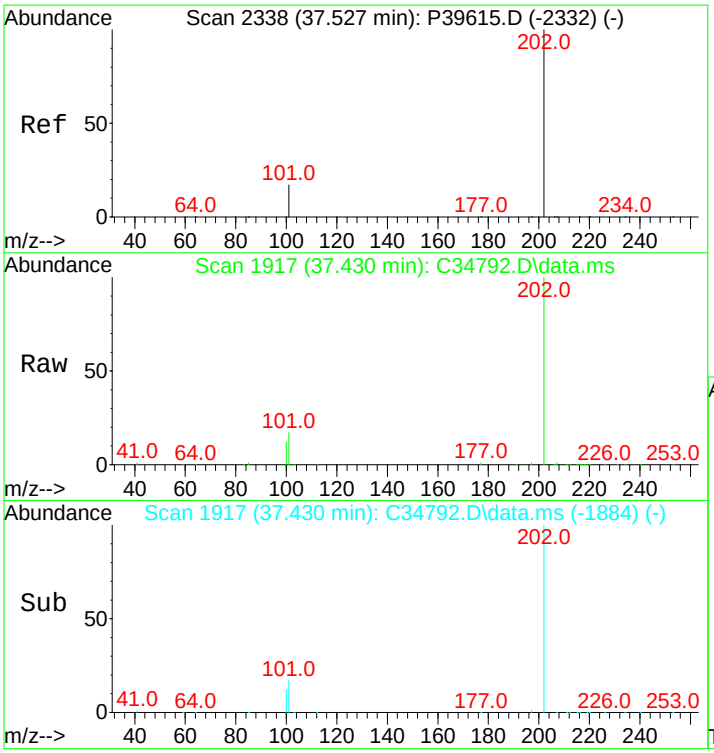


#55
Anthracene
Concen: 366.97 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:178 Resp: 39450

Ion	Ratio	Lower	Upper
178	100		
176	18.8	15.5	23.3

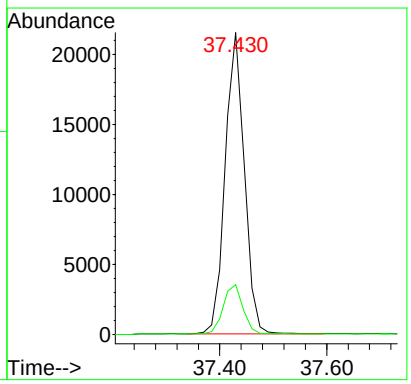


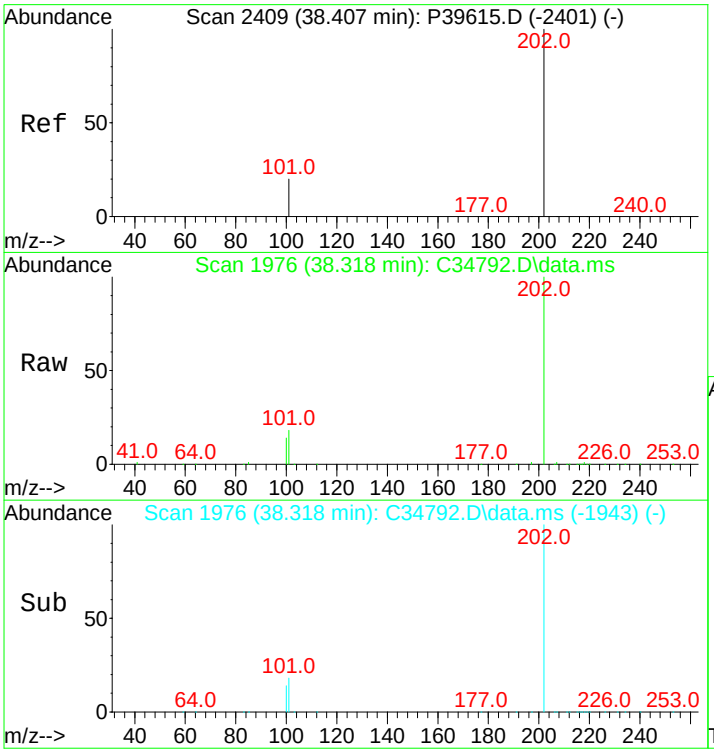


#58
Fluoranthene
Concen: 487.27 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:202 Resp: 53262

Ion	Ratio	Lower	Upper
202	100		
101	17.1	12.9	19.3

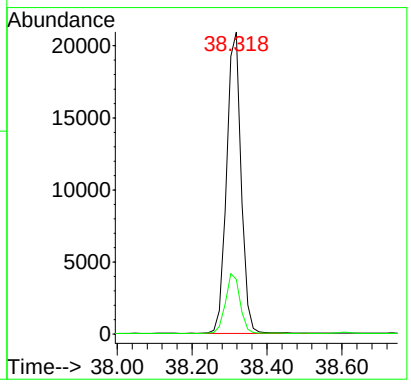


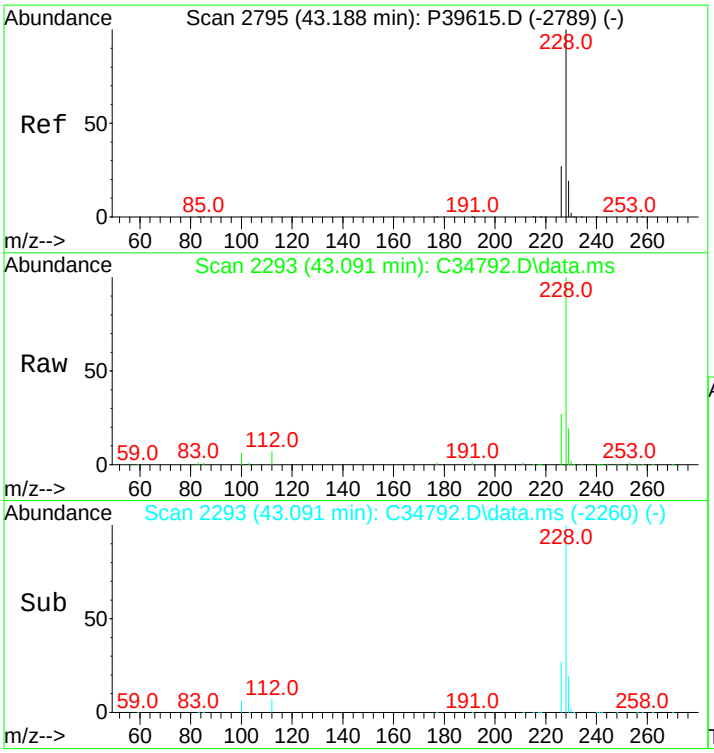


#60
Pyrene
Concen: 504.89 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:202 Resp: 56100

Ion	Ratio	Lower	Upper
202	100		
101	19.9	15.0	22.4

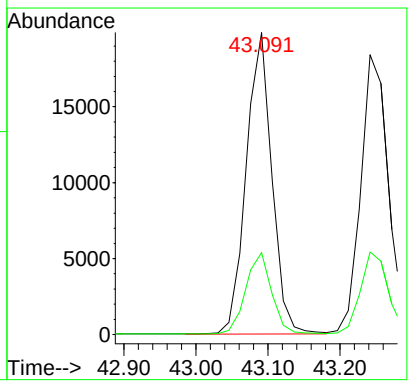


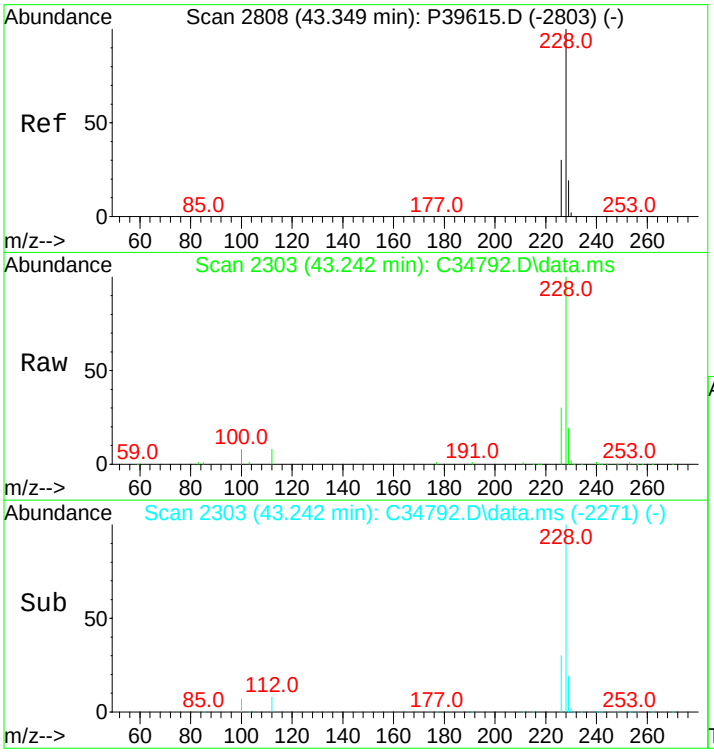


#75
Benz[a]anthracene
Concen: 460.72 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:228 Resp: 49115

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

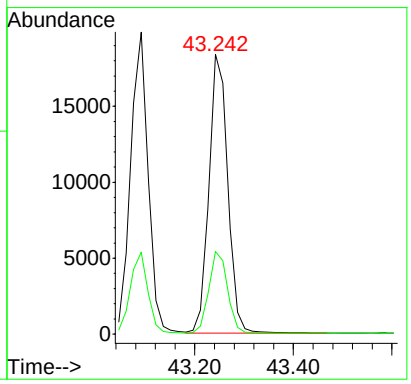


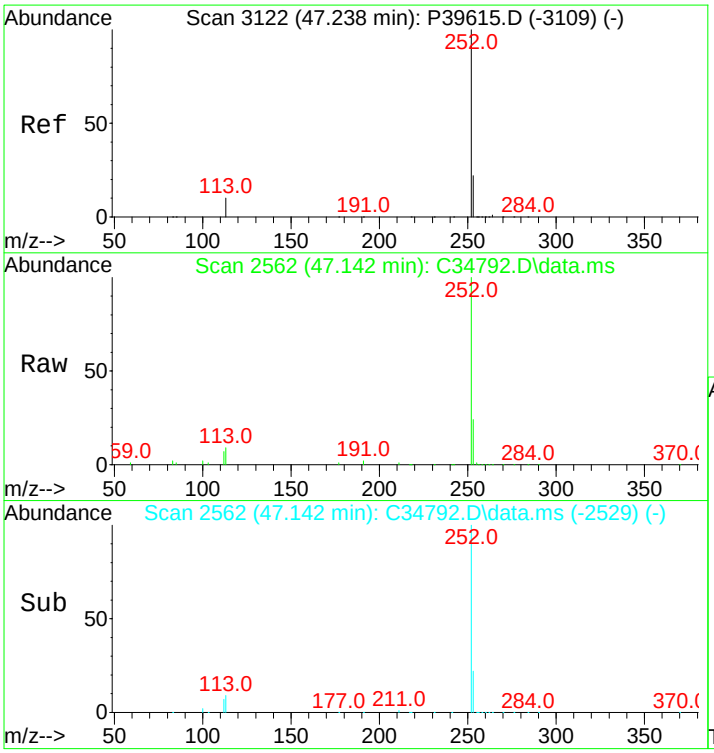


#77
Chrysene/Triphenylene
Concen: 450.62 ng/mL
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:228 Resp: 48498

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

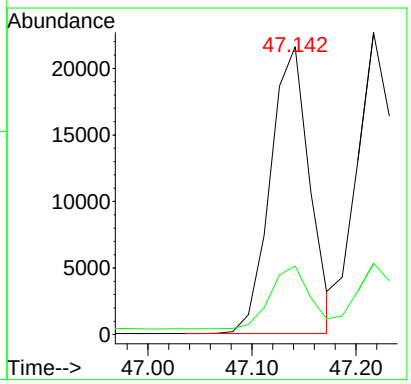


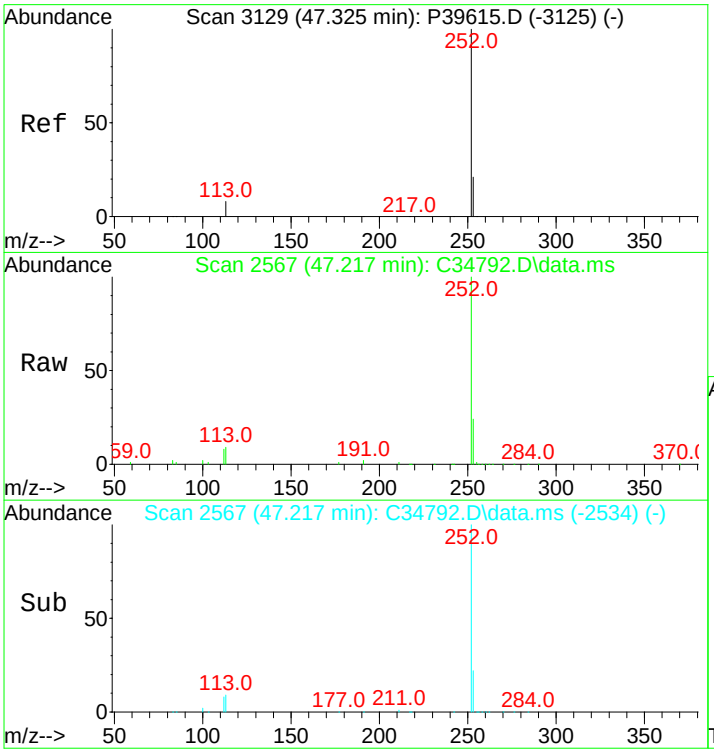


#82
Benzo[b]fluoranthene
Concen: 485.06 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 56819

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

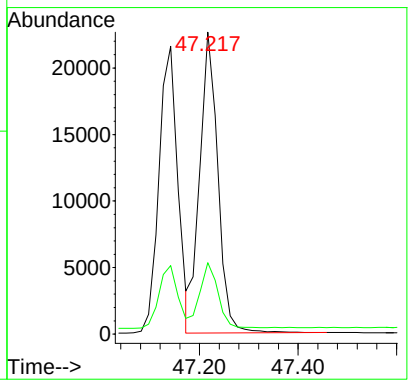


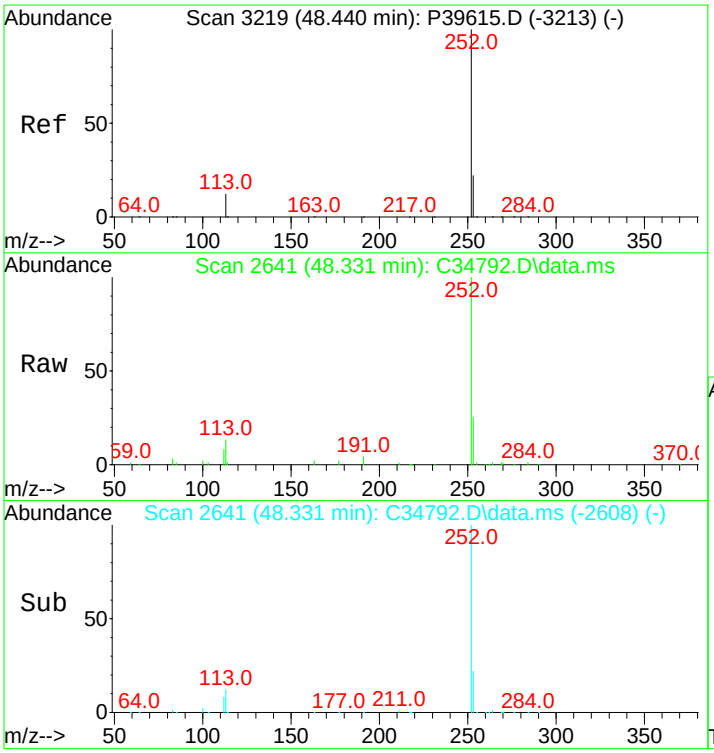


#83
Benzo[j]+[k]fluoranthene
Concen: 453.48 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 57833

Ion	Ratio	Lower	Upper
252	100		
253	21.6	19.0	28.4

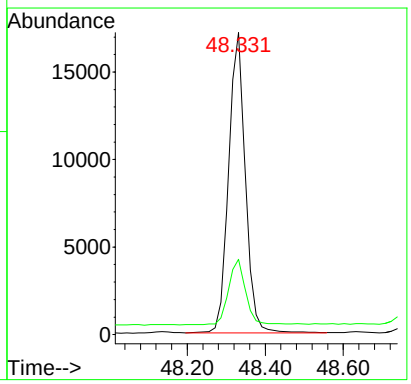


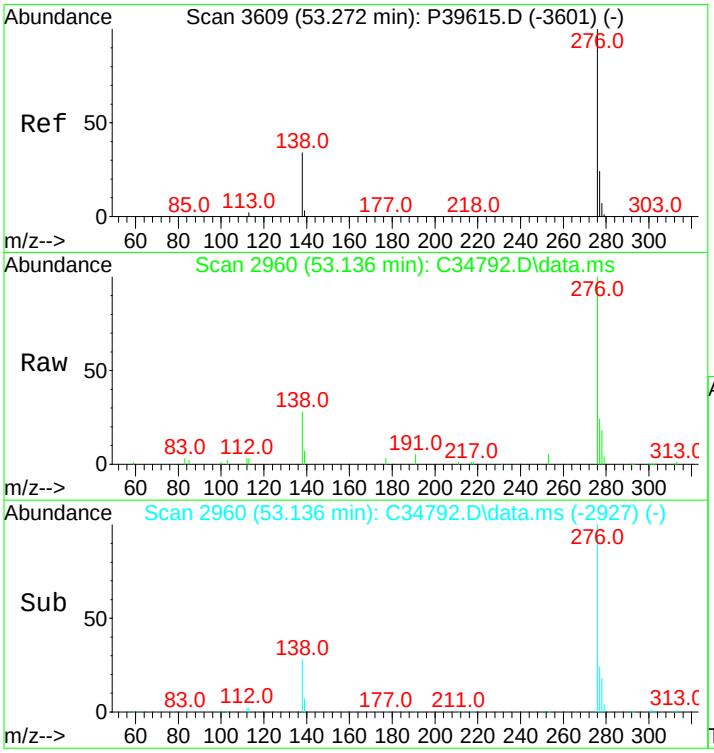


#87
Benzo[a]pyrene
Concen: 460.17 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:252 Resp: 51333

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.5	29.3

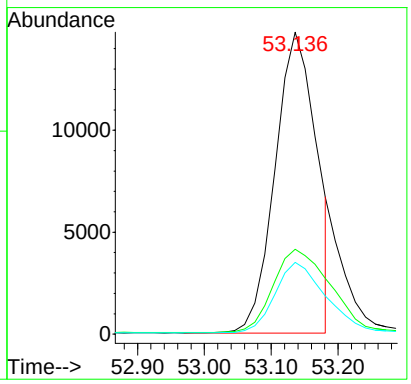


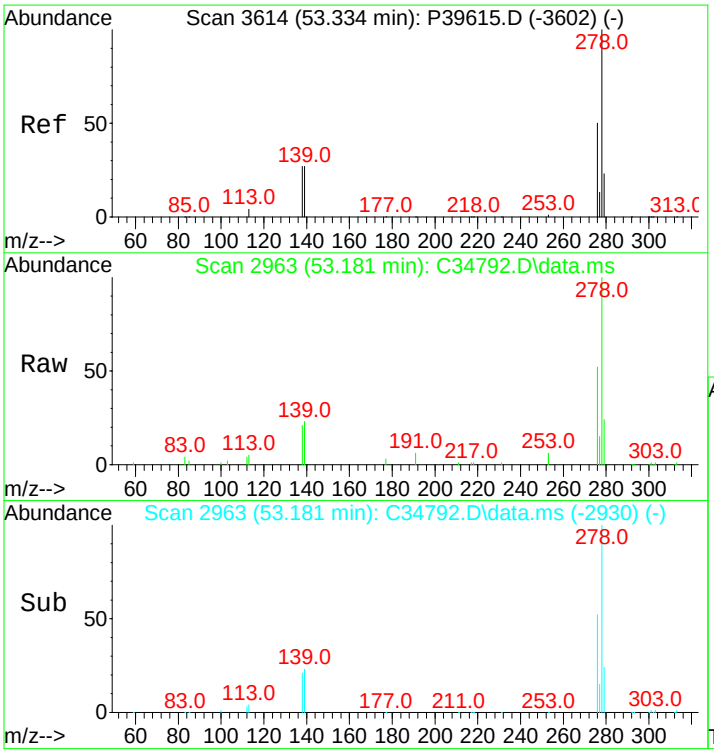


#89
Indeno[1,2,3-cd]pyrene
Concen: 491.12 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:276 Resp: 63756

Ion	Ratio	Lower	Upper
276	100		
138	38.6	23.3	34.9#
277	29.0	19.0	28.4#

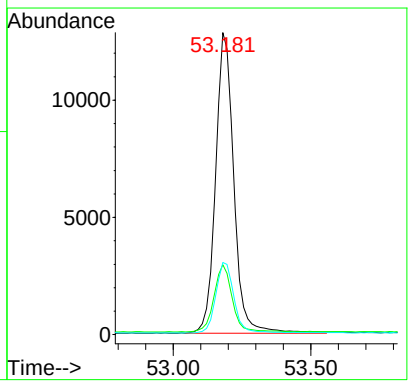


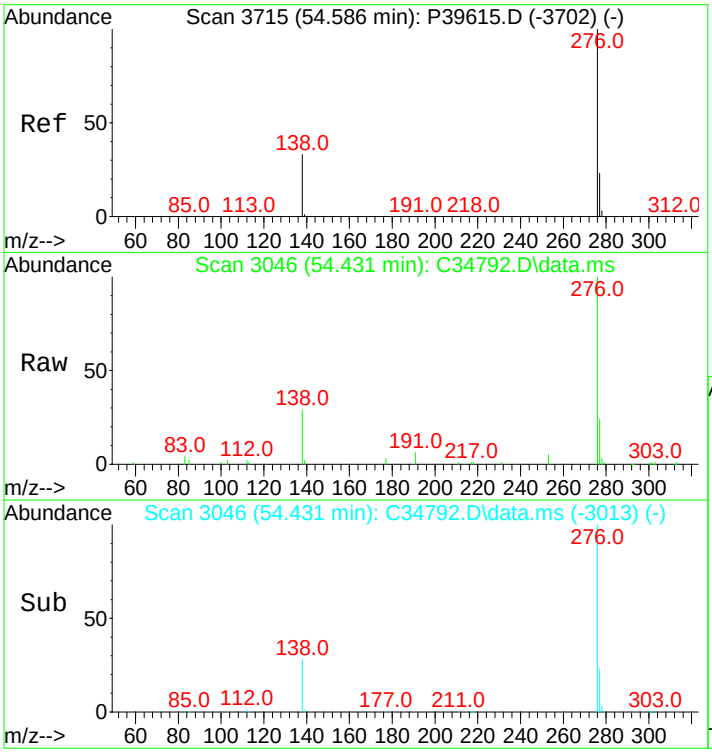


#90
Dibenz[ah]+[ac]anthracene
Concen: 477.85 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:278 Resp: 59010

Ion	Ratio	Lower	Upper
278	100		
139	22.2	19.1	28.7
279	23.1	19.2	28.8

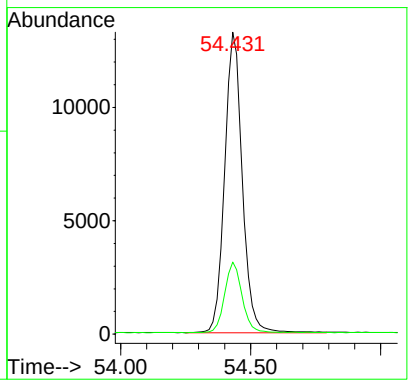




#91
Benzo[g,h,i]perylene
Concen: 454.57 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34792.D
Acq: 2 May 2012 11:54 pm

Tgt Ion:276 Resp: 62345

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	19418M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34376M3	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	80850	959.313	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.93%			
42) Phenanthrene-d10	32.567	188	68998M3	1035.766	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 103.58%			
86) Benzo[a]pyrene-d12	48.241	264	67556	948.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.83%			
127) 5B(H)Cholane - Surr	43.769	217	11999M3	1116.427	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 111.64%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	37830	2467.915	ng/mL	100
4) cis-Decalin	17.603	138	1736M3	150.266	ng/mL	
5) C1-Decalins	17.874	152	56364M5	3677.017	ng/mL	
6) C2-Decalins	19.650	166	48878M5	3188.653	ng/mL	
7) C3-Decalins	22.119	180	23640M5	1542.202	ng/mL	
8) C4-Decalins	25.507	194	21514M5	1403.508	ng/mL	
10) Naphthalene	19.801	128	347250	2805.837	ng/mL#	100
11) C1-Naphthalenes	22.496	142	713023M5	5761.343	ng/mL	
12) C2-Naphthalenes	25.341	156	840799M5	6793.794	ng/mL	
13) C3-Naphthalenes	27.674	170	586624M5	4740.019	ng/mL	
14) C4-Naphthalenes	30.444	184	306047M5	2472.910	ng/mL	
16) 2-Methylnaphthalene	22.496	142	419181	5728.367	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	292319	4075.412	ng/mL#	100
18) Benzothiophene	20.012	134	2812M3	25.250	ng/mL	
19) C1-Benzo(b)thiophenes	22.059	148	11933M5	107.149	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	26686M5	239.619	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	53082M5	476.634	ng/mL	
22) C4-Benzo(b)thiophenes	29.255	190	45732M5	410.637	ng/mL	
23) Biphenyl	24.377	154	70355	760.049	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	207397	3449.646	ng/mL#	100
25) Dibenzofuran	27.464	168	28118	264.527	ng/mL#	79
26) Acenaphthylene	26.079	152	3994	32.510	ng/mL#	100
27) Acenaphthene	26.831	153	7301M3	100.932	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	44057M3	909.051	ng/mL	
29) Fluorene	28.834	166	30318M3	380.029	ng/mL	
30) C1-Fluorenes	31.197	180	68981M5	864.662	ng/mL	
31) C2-Fluorenes	33.395	194	96290M5	1206.974	ng/mL	
32) C3-Fluorenes	35.232	208	88864M5	1113.891	ng/mL	
33) Dibenzothiophene	32.161	184	91894	718.577	ng/mL#	76
34) 4-Methyldibenzothiophe...	33.937	198	85707	670.197	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	58309	455.955	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	27871	217.941	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	174531M5	1364.768	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	231715M5	1811.926	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	208634M5	1631.441	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	107824M5	843.144	ng/mL	
43) Phenanthrene	32.657	178	126106	1122.376	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.614	192	49733M3	442.637	ng/mL	
45) 2/4-Methylphenanthrene...	34.720	192	55654M3	495.335	ng/mL	
46) 2-Methylanthracene(2MA)	34.870	192	1990M3	17.712	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	78236	696.321	ng/mL	99
48) 1-Methylphenanthrene(1MP)	35.156	192	55713M3	495.860	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	239866M5	2134.870	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	249544M5	2221.006	ng/mL	
52) C3-Phenanthrenes/Anthr...	38.725	220	165093M5	1469.371	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	67229M5	598.356	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.500	167	3838M3	34.621	ng/mL	
57) 1-Methylphenanthrene	35.156	192	54663M3	767.715	ng/mL	
58) Fluoranthene	37.430	202	2744M3	24.590	ng/mL	
59) Benzo(b)fluorene	39.944	216	2748M3	42.447	ng/mL	
60) Pyrene	38.303	202	8739M3	77.041	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	38064M5	335.565	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.510	230	61720M5	544.111	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	68069M5	600.083	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	58826M5	518.598	ng/mL	
66) Naphthobenzothiophene	42.158	234	21528M3	176.284	ng/ml	
67) Naphthobenzothiophene-...	42.158	234	21519M3	176.211	ng/mL	
68) Naphthobenzothiophene-...	42.504	234	4884M3	39.993	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2419M3	19.808	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	73495M5	601.822	ng/ml	
71) C2-Naphthobenzothiophenes	45.560	262	96416M5	789.513	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	76135M5	623.440	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	49996M5	409.398	ng/mL	
75) Benz[a]anthracene	43.091	228	1369M3	12.547	ng/mL	
77) Chrysene/Triphenylene	43.227	228	20557M3	186.620	ng/mL	
78) C1-Chrysenes	44.717	242	34901M5	316.837	ng/mL	
79) C2-Chrysenes	46.795	256	46293M5	420.255	ng/mL	
80) C3-Chrysenes	49.491	270	51416M5	466.763	ng/mL	
81) C4-Chrysenes	49.611	284	29667M5	269.322	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4074	33.981	ng/mL#	90
83) Benzo[j]+[k]fluoranthene	47.217	252	967M3	7.408	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	539M2	4.129	ng/mL	
85) Benzo[e]pyrene	48.136	252	6659M3	56.154	ng/mL	
87) Benzo[a]pyrene	48.331	252	1329M3	11.640	ng/mL	
88) Perylene	48.633	252	2058M3	16.866	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	1518M3	11.425	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1349M3	10.673	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	3235M3	23.046	ng/mL	
92) Hopane (T19)	52.217	191	17821M3	786.583	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	7643M3	337.347	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4640M3	204.800	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	4752M3	209.744	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1617M3	71.371	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2064M3	91.101	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1773M3	78.257	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1699M3	74.990	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1940M3	85.628	ng/ml	
102) C29 Tricyclic Terpane-...	47.111	191	2402	106.019	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	2214M3	97.721	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3225M3	142.345	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	2186M3	96.486	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1881M3	83.024	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	4052	178.847	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	678	29.926	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.973	191	1205	53.186	ng/ml	100
110) 30-Norhopane (T15)	50.846	191	10783M3	475.940	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	2594M3	114.494	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	1663M3	73.401	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1347M3	59.454	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	51.976	191	350	15.448	ng/ml	100
115) Moretane (T20)	52.910	191	1846M3	81.479	ng/ml	
116) 30-Homohopane-22S (T21)	54.009	191	7714M3	340.480	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	6547	288.971	ng/ml	100
118) Gammacerane/C32-diahopane	54.792	191	1292	57.026	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	5517M3	243.509	ng/ml	
120) 30,31-Bishomohopane-22...	55.936	191	4015M3	177.214	ng/ml	
121) 30,31-Trishomohopane-2...	57.698	191	4281M3	188.955	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
122) 30,31-Trishomohopane-2...	58.316	191	2611M3	115.244	ng/ml	
123) Tetrakishomohopane-22S...	60.333	191	3217M3	141.992	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2254M3	99.487	ng/ml	
125) Pentakishomohopane-22S...	63.451	191	3287M3	145.082	ng/ml	
126) Pentakishomohopane-22R...	64.761	191	2203M3	97.236	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	2537M3	236.051	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	1457M3	135.564	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	1677M3	156.034	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	3192	296.994	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	4303M3	400.365	ng/ml	
133) Unknown Sterane (S18)	48.045	217	1082	100.673	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	201M3	18.702	ng/ml	
135) 14a,17a-20S-Methylchol...	48.467	217	1941	180.597	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1815M3	168.874	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	2802M3	260.707	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2030M3	188.878	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	2192M3	203.951	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	2237M3	208.138	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	2244	208.789	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2814M3	261.824	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	3049M3	283.689	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	2133M3	198.461	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	21599	2009.642	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	13888	1292.185	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	12980	1207.702	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	11498M3	1069.812	ng/mL	

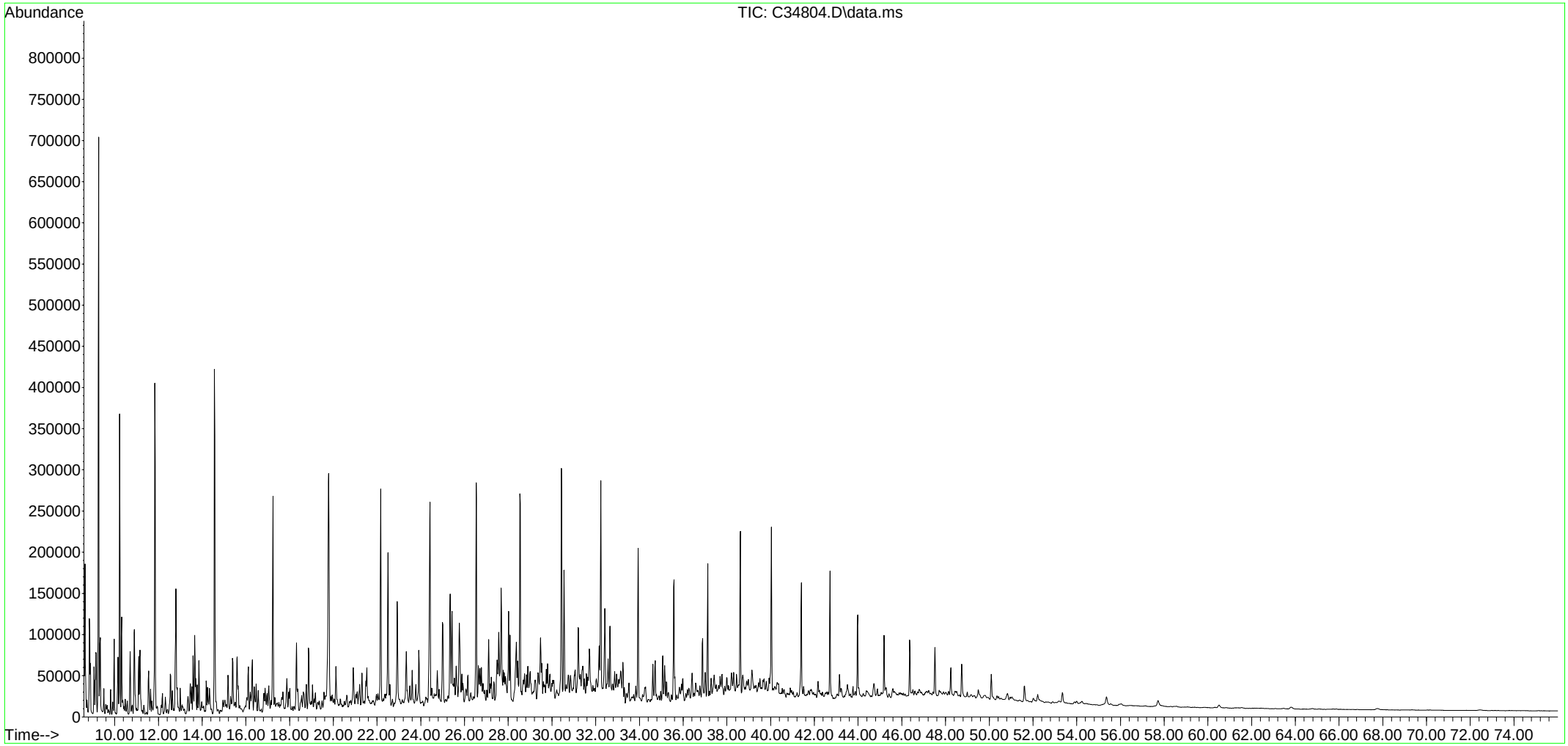
(#) = qualifier out of range (m) = manual integration (+) = signals summed

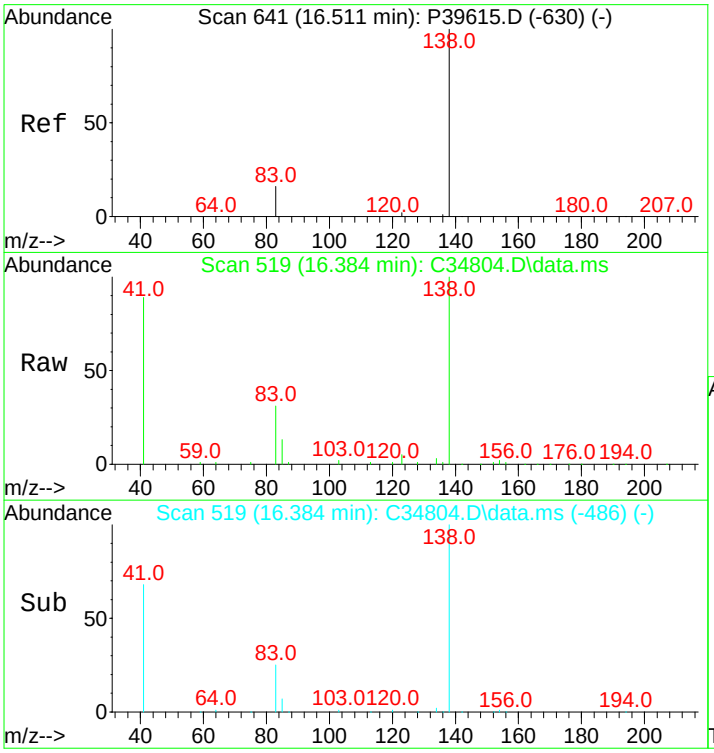
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34804.D
Acq On : 3 May 2012 8:58 am
Operator : AC
Sample : so050512ANS02
Misc : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 05 12:45:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

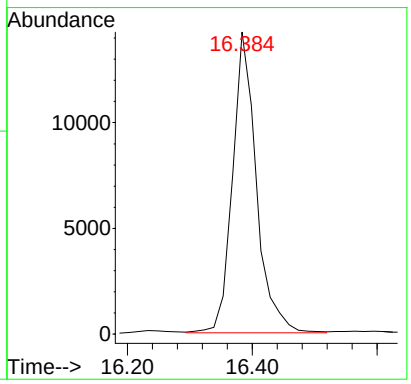
Sub List : Gulf_NEW_POIB_Default - All compounds listed

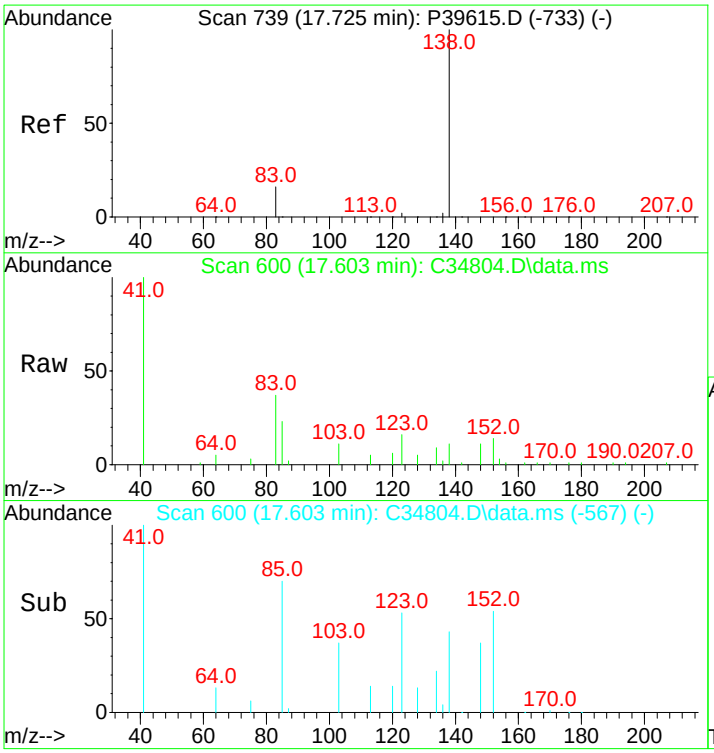




#3
trans-Decalin
Concen: 2467.91 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

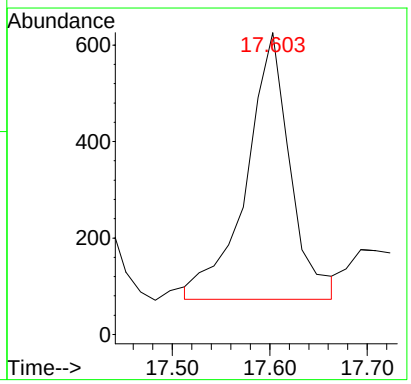
Tgt Ion:138 Resp: 37830

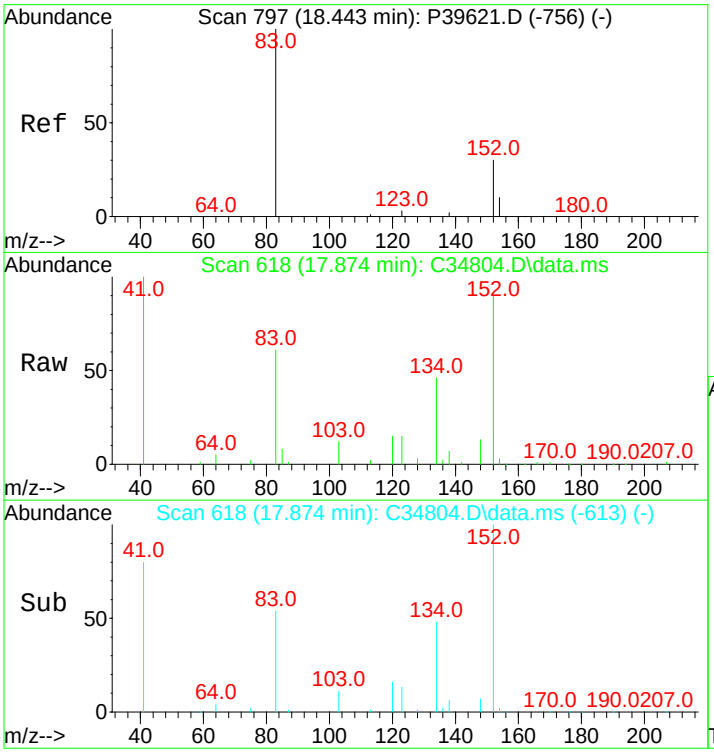




#4
cis-Decalin
Concen: 150.27 ng/mL m
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

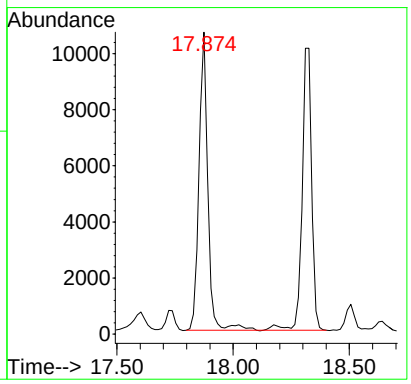
Tgt Ion:138 Resp: 1736

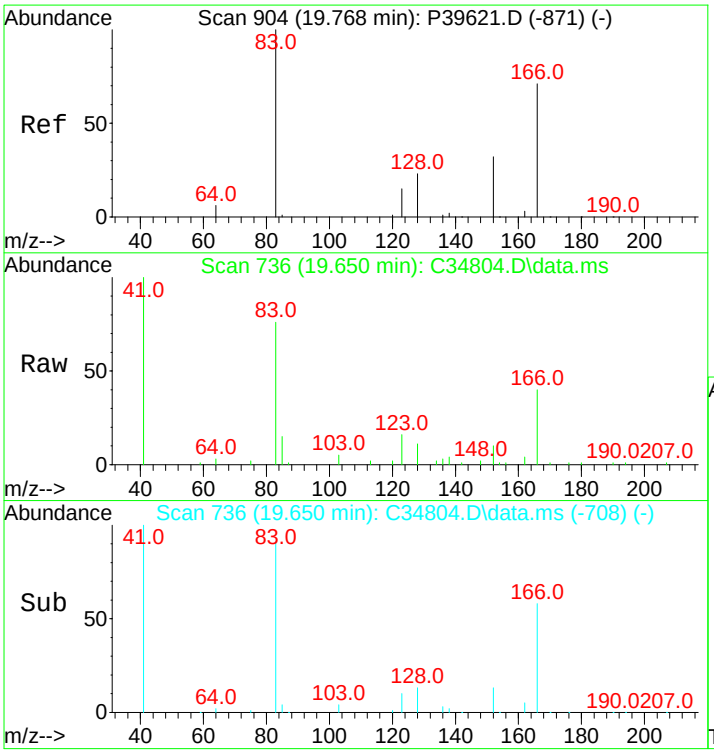




#5
C1-Decalins
Concen: 3677.02 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

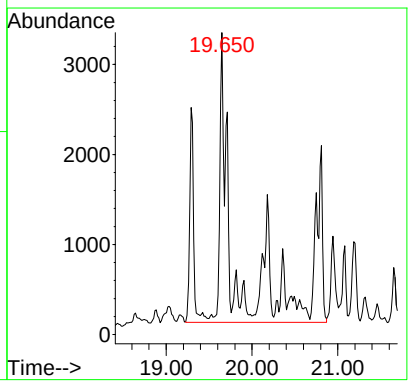
Tgt Ion:152 Resp: 56364

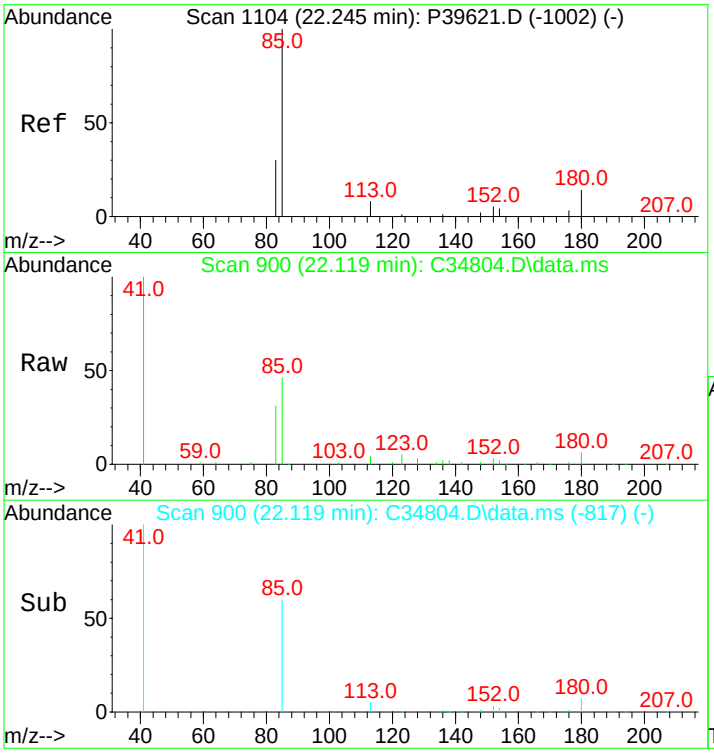




#6
C2-Decalins
Concen: 3188.65 ng/mL m
RT: 19.650 min Scan# 736
Delta R.T. -0.032 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

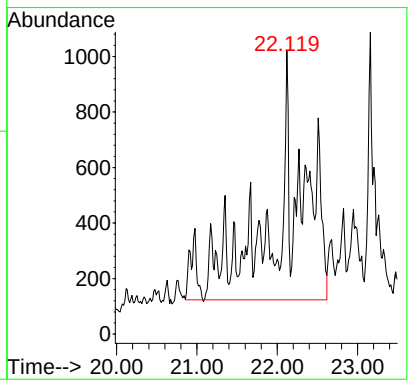
Tgt Ion:166 Resp: 48878

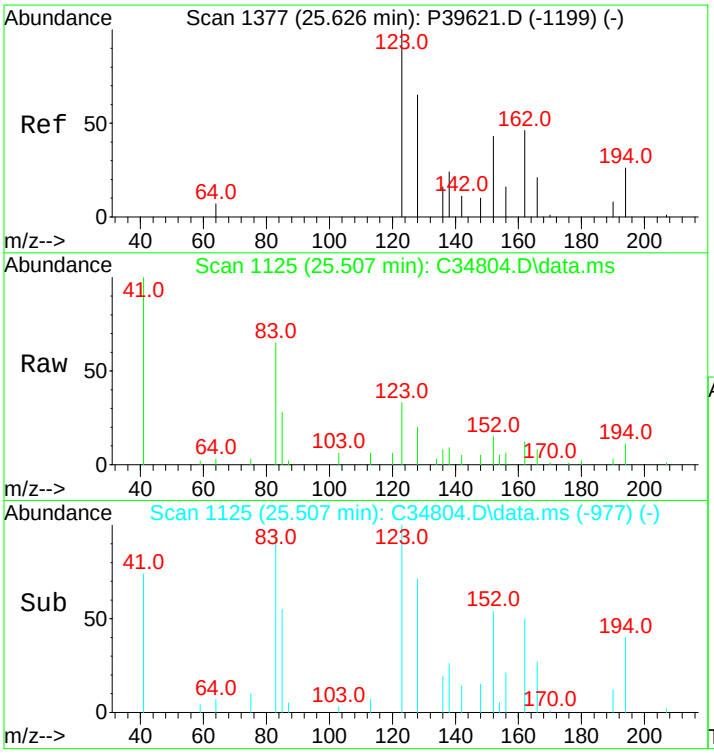




#7
C3-Decalins
Concen: 1542.20 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

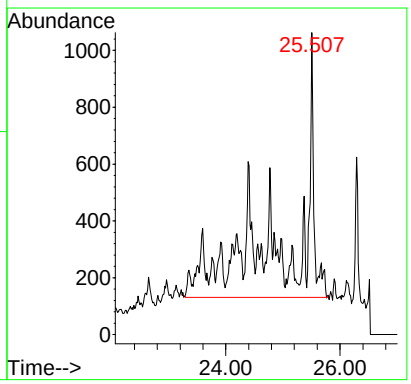
Tgt Ion:180 Resp: 23640

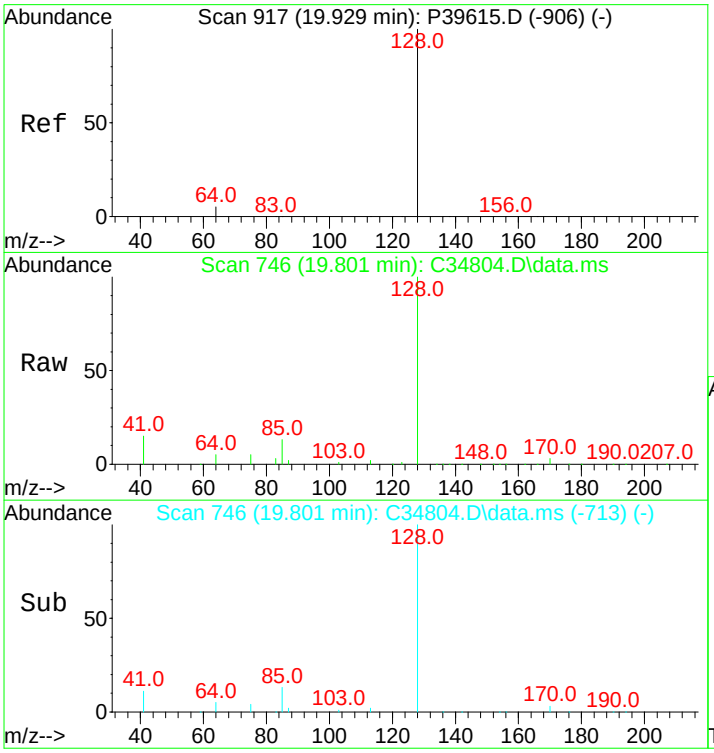




#8
C4-Decalins
Concen: 1403.51 ng/mL m
RT: 25.507 min Scan# 1125
Delta R.T. -0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:194 Resp: 21514

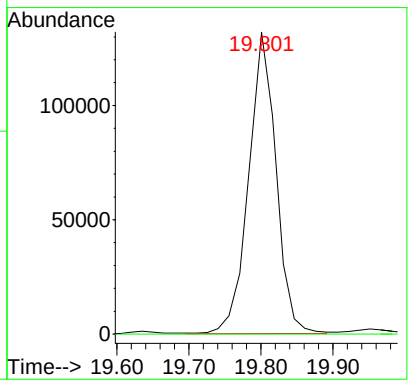


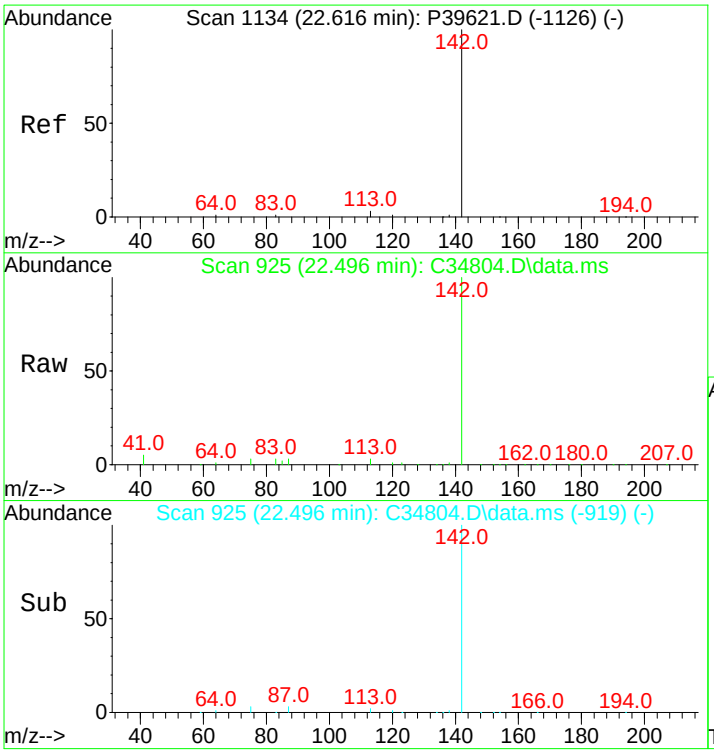


#10
Naphthalene
Concen: 2805.84 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:128 Resp: 347250

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

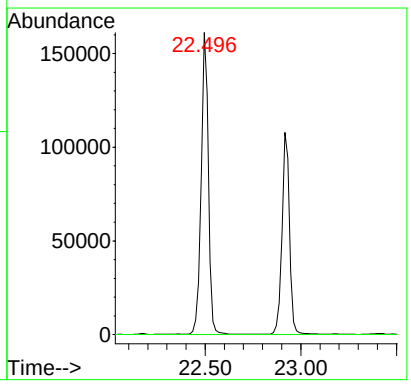


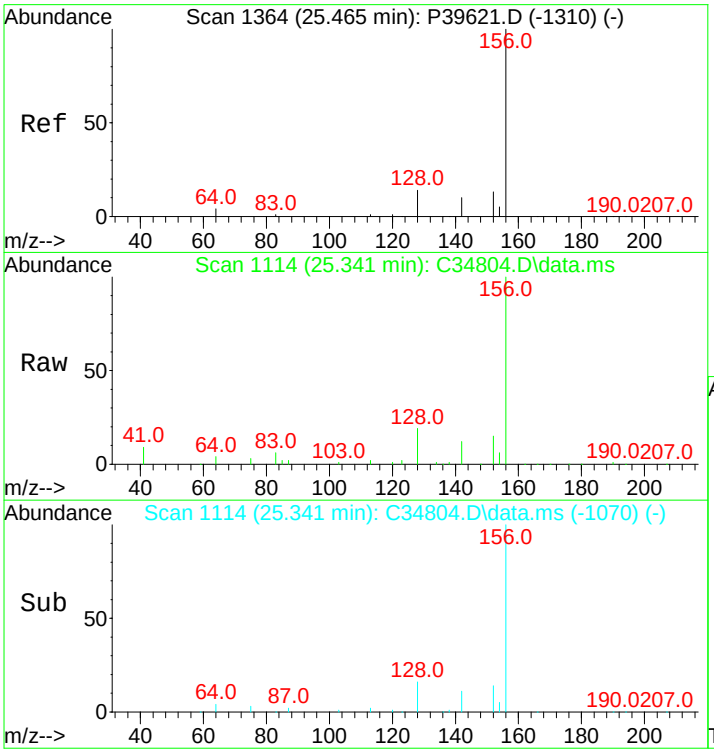


#11
C1-Naphthalenes
Concen: 5761.34 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 713023

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

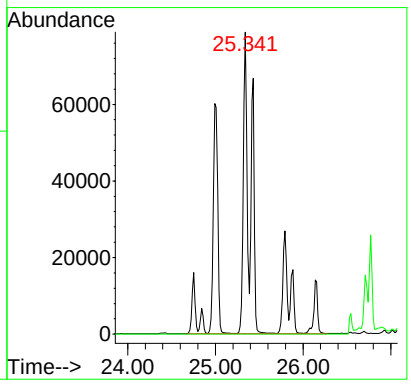


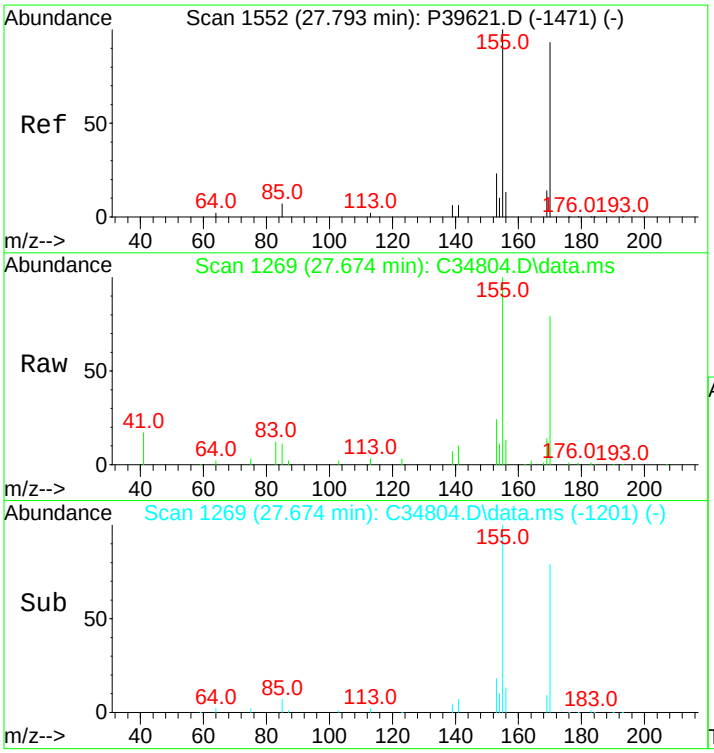


#12
C2-Naphthalenes
Concen: 6793.79 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:156 Resp: 840799

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

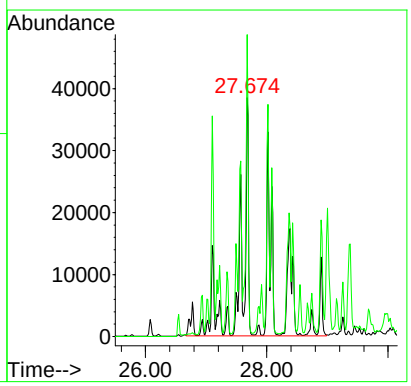


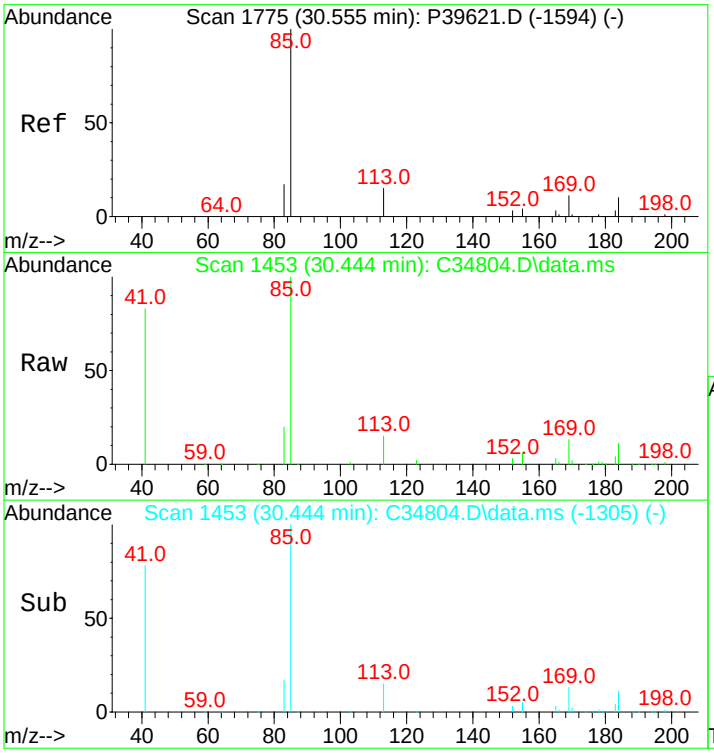


#13
C3-Naphthalenes
Concen: 4740.02 ng/mL m
RT: 27.674 min Scan# 1269
Delta R.T. 0.004 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:170 Resp: 586624

Ion	Ratio	Lower	Upper
170	100		
155	21.3	81.8	122.6#

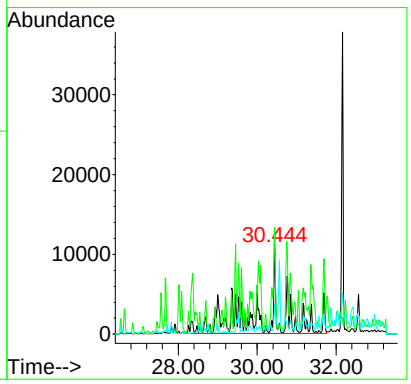


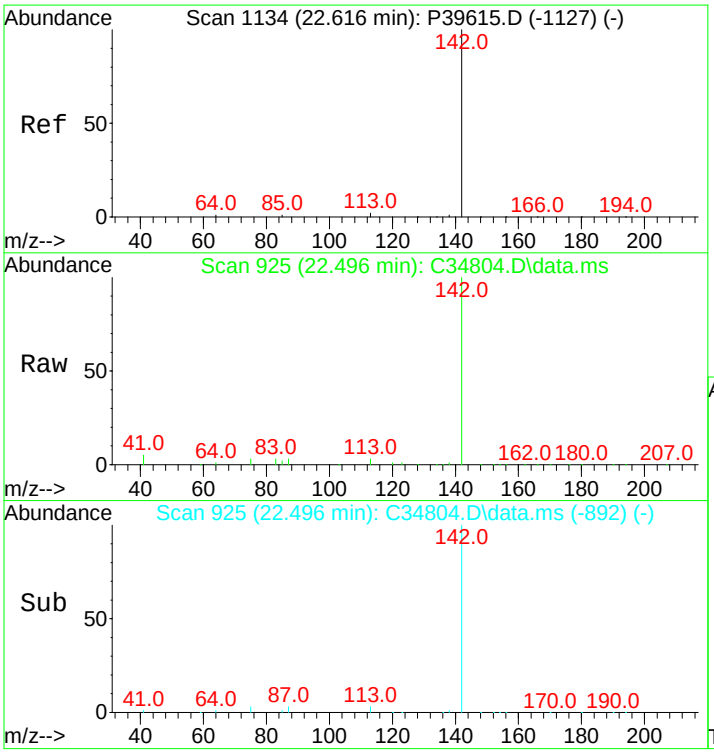


#14
C4-Naphthalenes
Concen: 2472.91 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:184 Resp: 306047

Ion	Ratio	Lower	Upper
184	100		
169	3.3	77.4	116.0#
183	0.6	14.8	22.2#

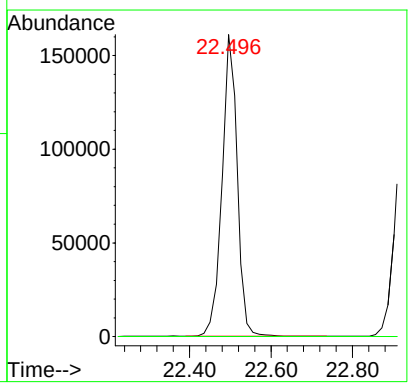


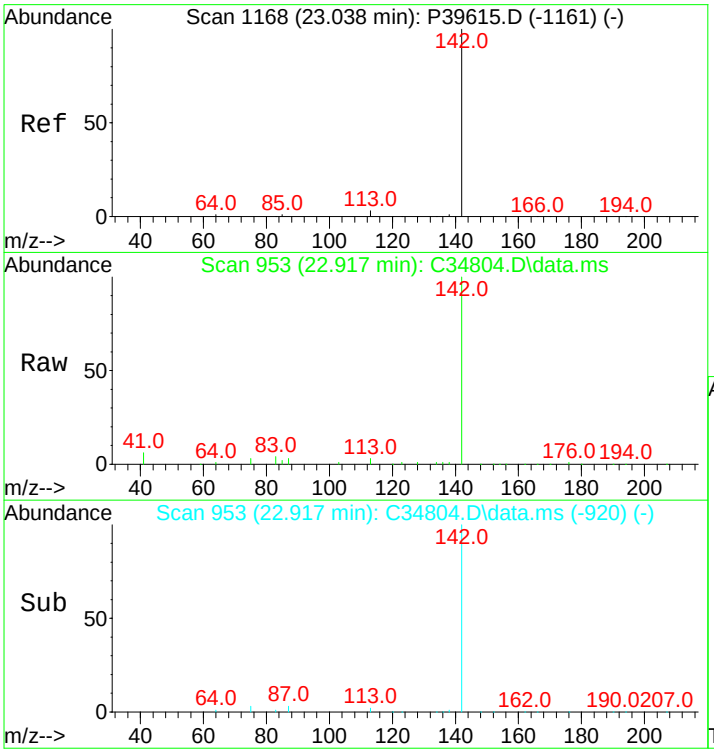


#16
2-Methylnaphthalene
Concen: 5728.37 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 419181

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

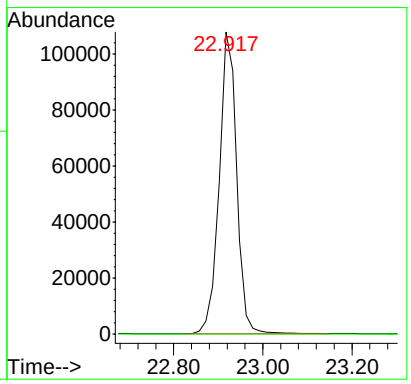


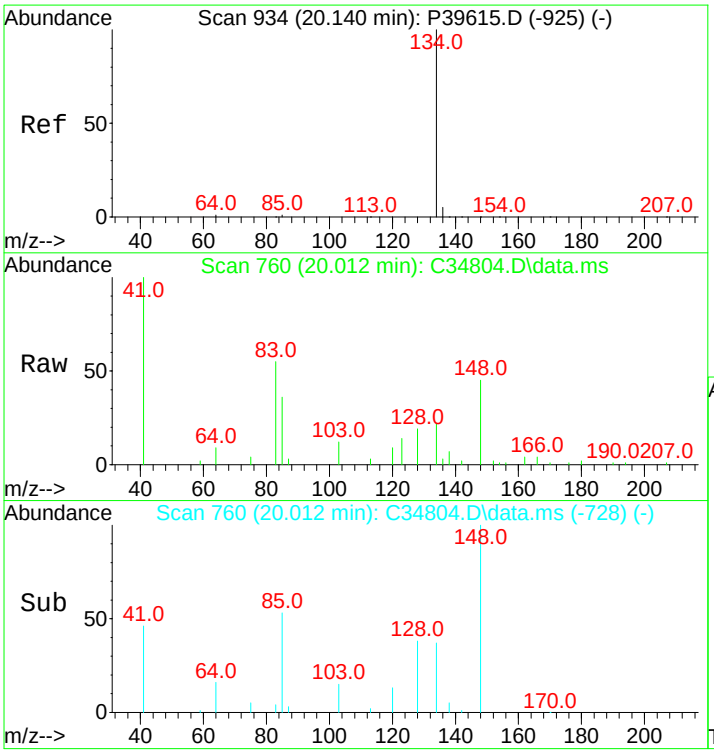


#17
1-Methylnaphthalene
Concen: 4075.41 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:142 Resp: 292319

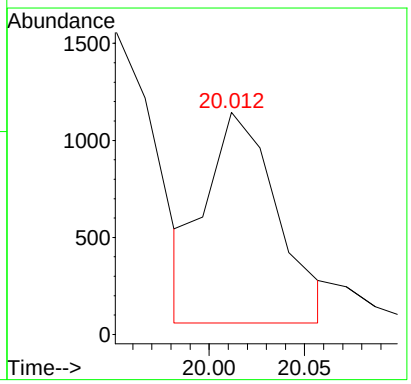
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

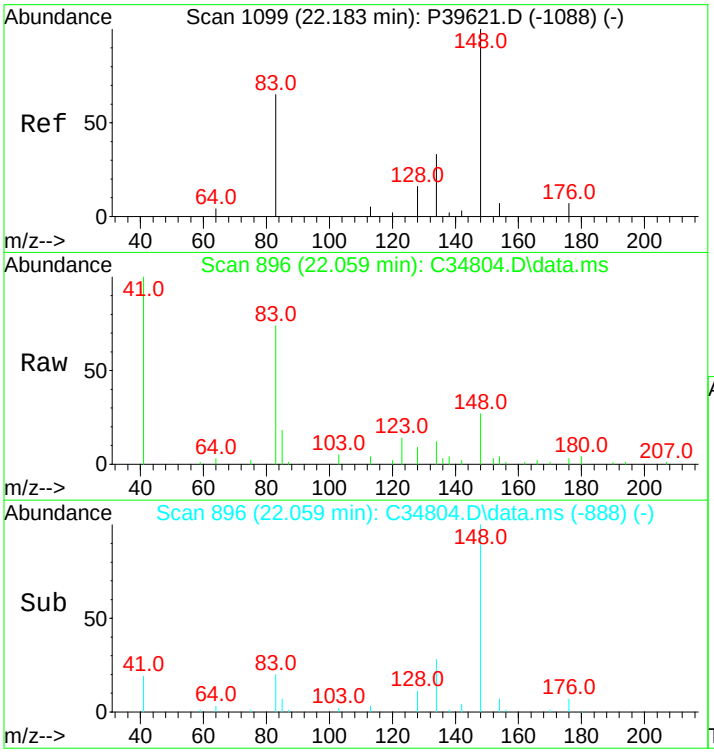




#18
Benzothiophene
Concen: 25.25 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

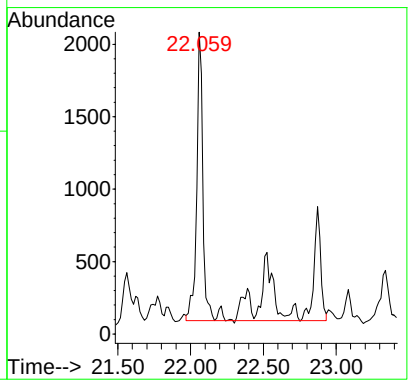
Tgt Ion:134 Resp: 2812

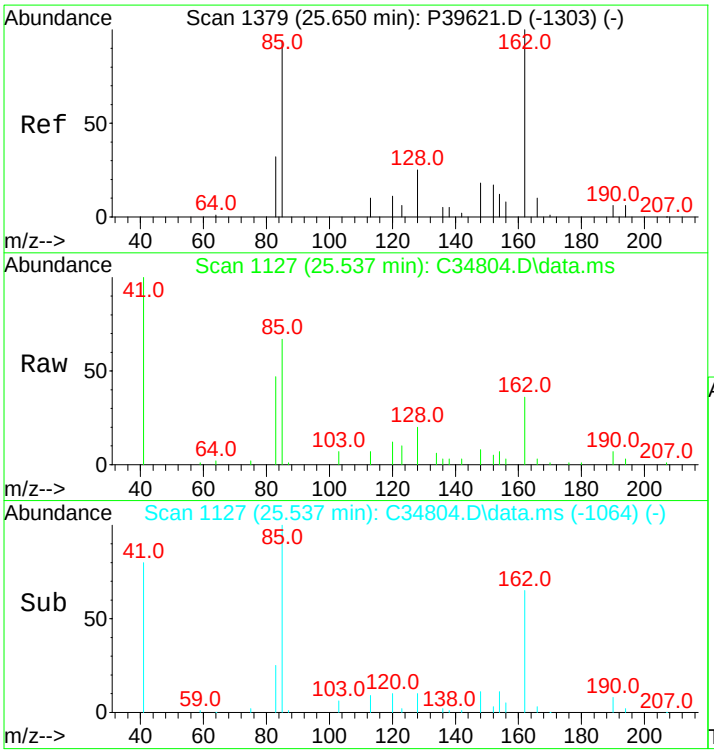




#19
C1-Benzo(b)thiophenes
Concen: 107.15 ng/mL m
RT: 22.059 min Scan# 896
Delta R.T. -0.021 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

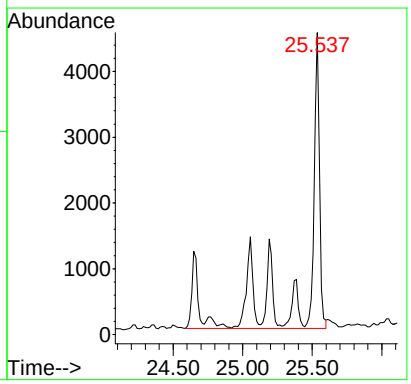
Tgt Ion:148 Resp: 11933

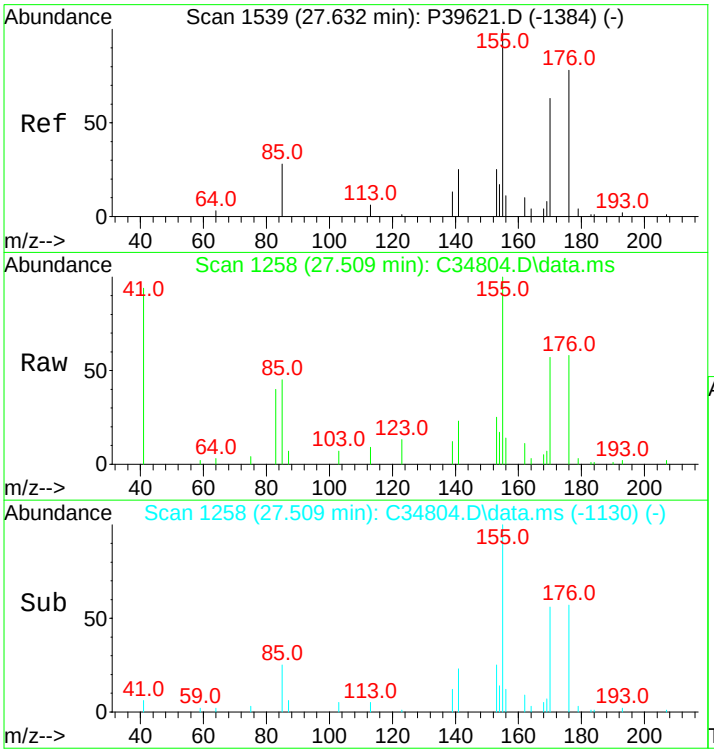




#20
C2-Benzo(b)thiophenes
Concen: 239.62 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

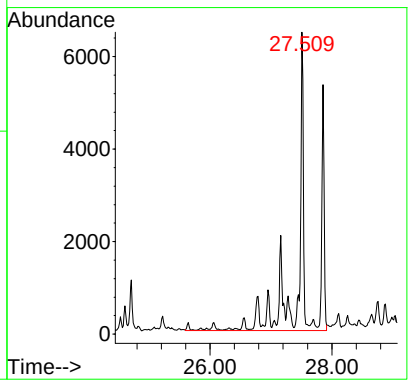
Tgt Ion:162 Resp: 26686

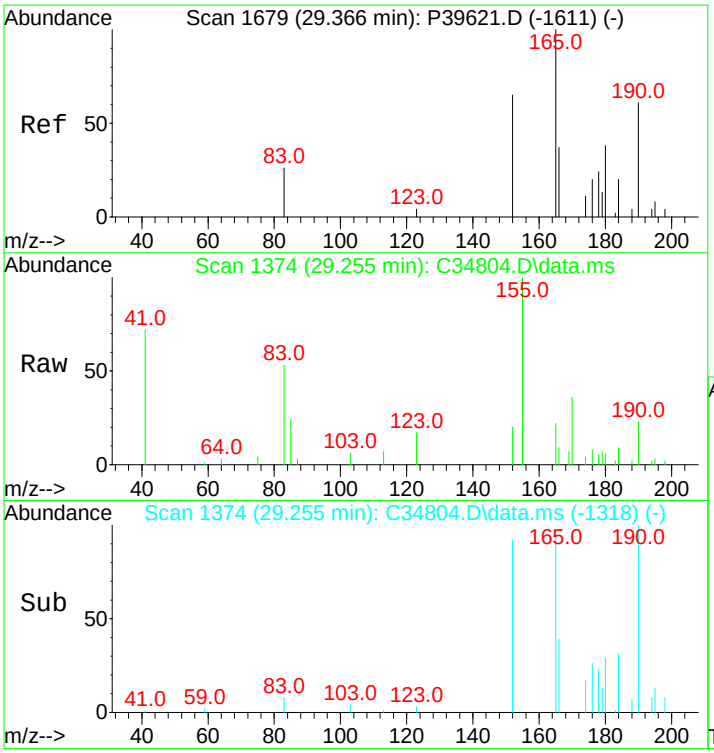




#21
C3-Benzo(b)thiophenes
Concen: 476.63 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.003 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

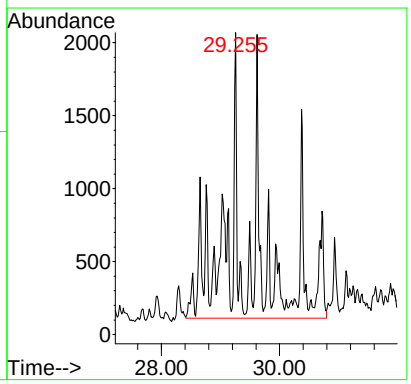
Tgt Ion:176 Resp: 53082

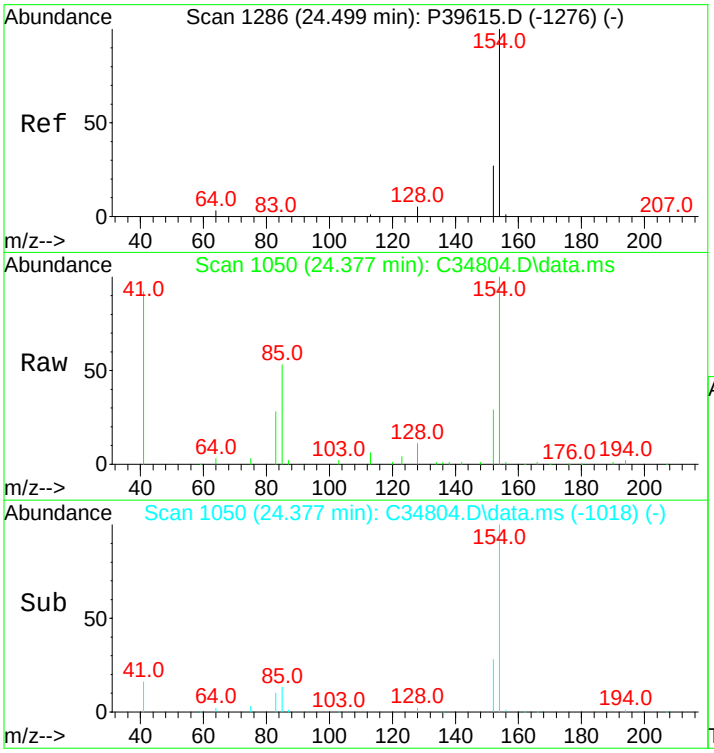




#22
C4-Benzo(b)thiophenes
Concen: 410.64 ng/mL m
RT: 29.255 min Scan# 1374
Delta R.T. 0.026 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:190 Resp: 45732

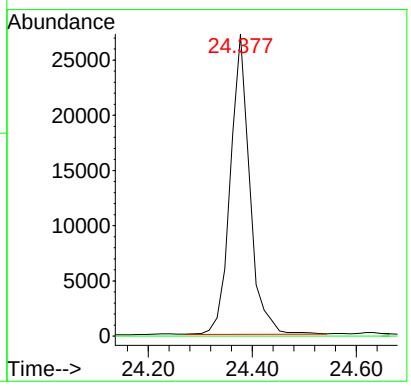


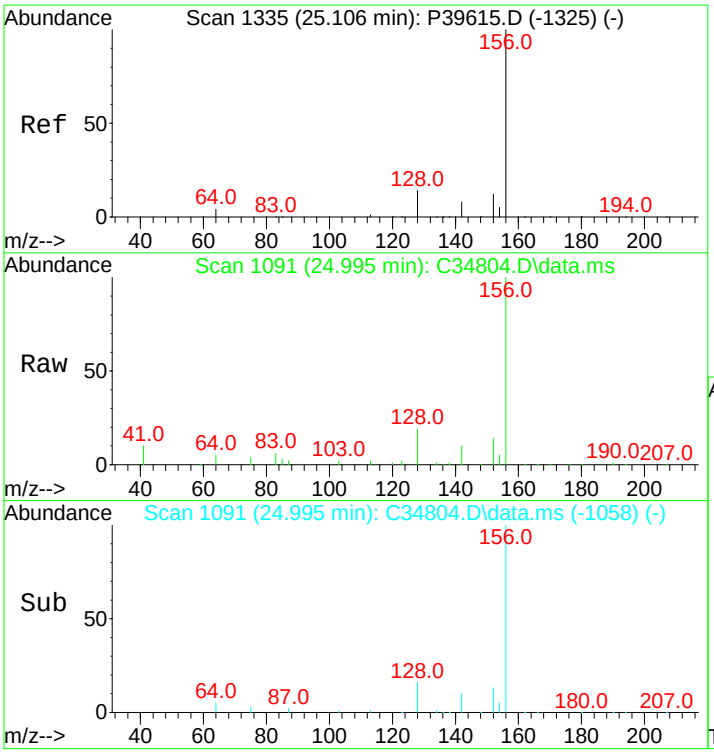


#23
Biphenyl
Concen: 760.05 ng/mL
RT: 24.377 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:154 Resp: 70355

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

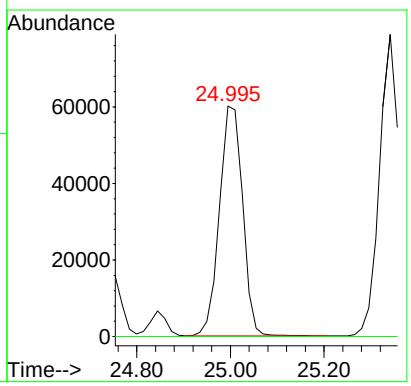


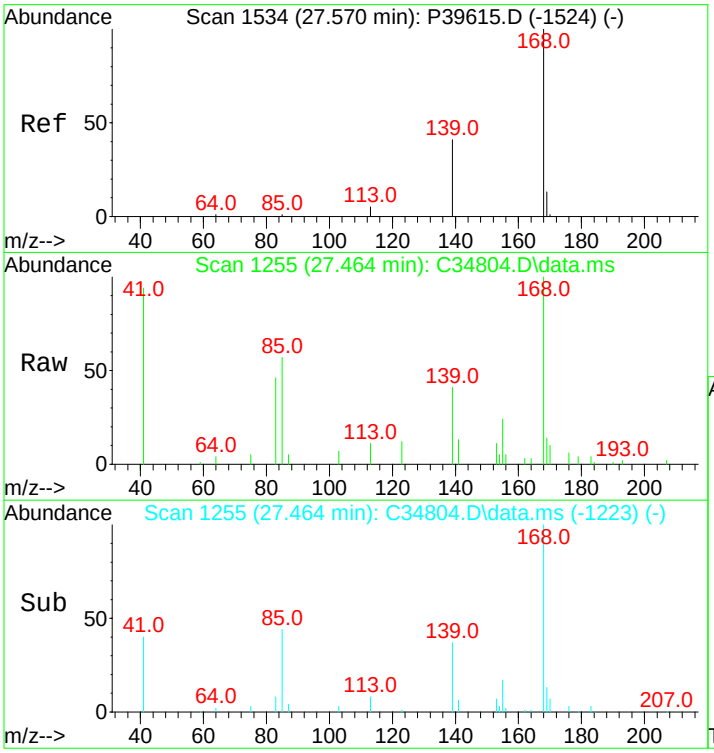


#24
2,6-Dimethylnaphthalene
Concen: 3449.65 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:156 Resp: 207397

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

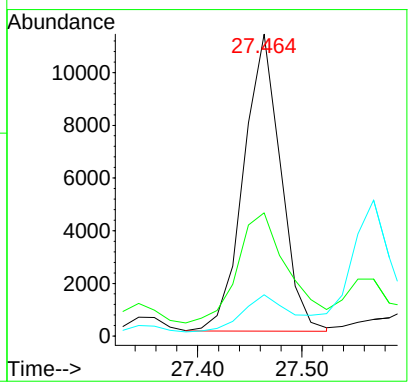


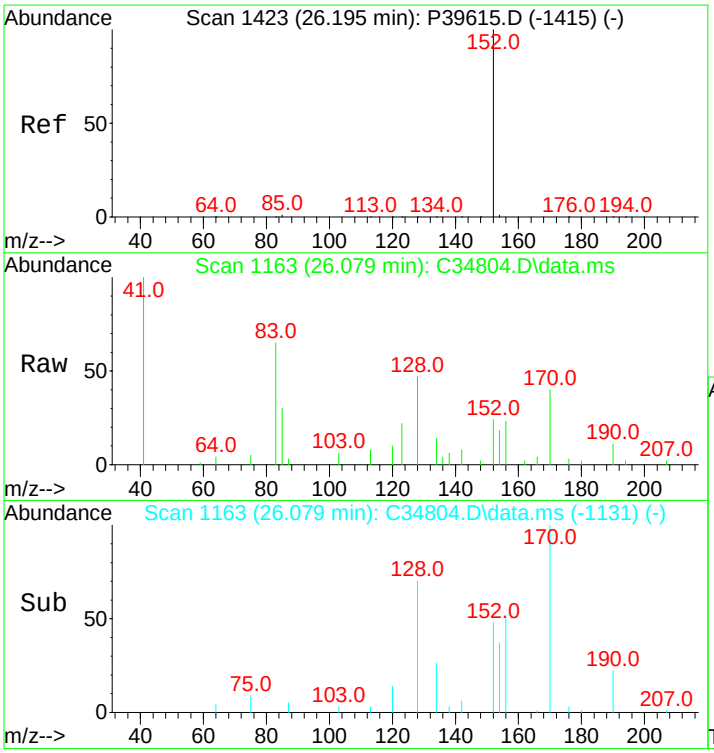


#25
Dibenzofuran
Concen: 264.53 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:168 Resp: 28118

Ion	Ratio	Lower	Upper
168	100		
139	50.2	28.4	42.6#
169	16.9	10.8	16.2#

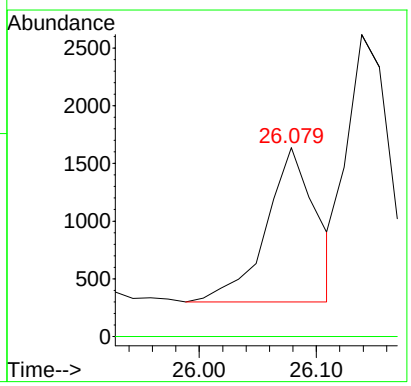


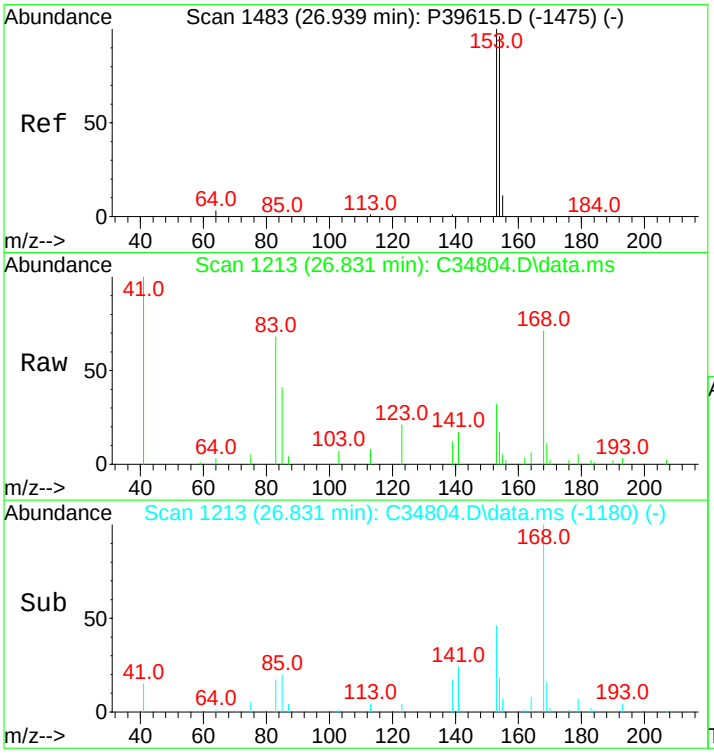


#26
Acenaphthylene
Concen: 32.51 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:152 Resp: 3994

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

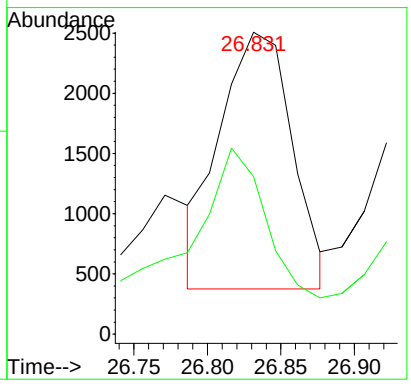


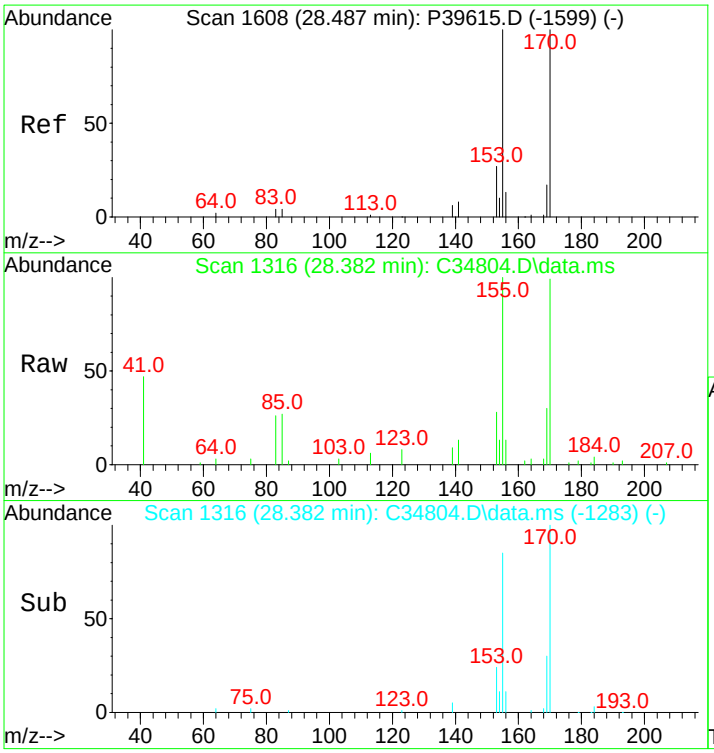


#27
Acenaphthene
Concen: 100.93 ng/mL m
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:153 Resp: 7301

Ion	Ratio	Lower	Upper
153	100		
154	70.0	73.6	110.4#

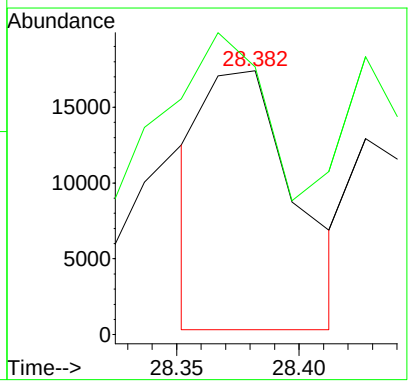


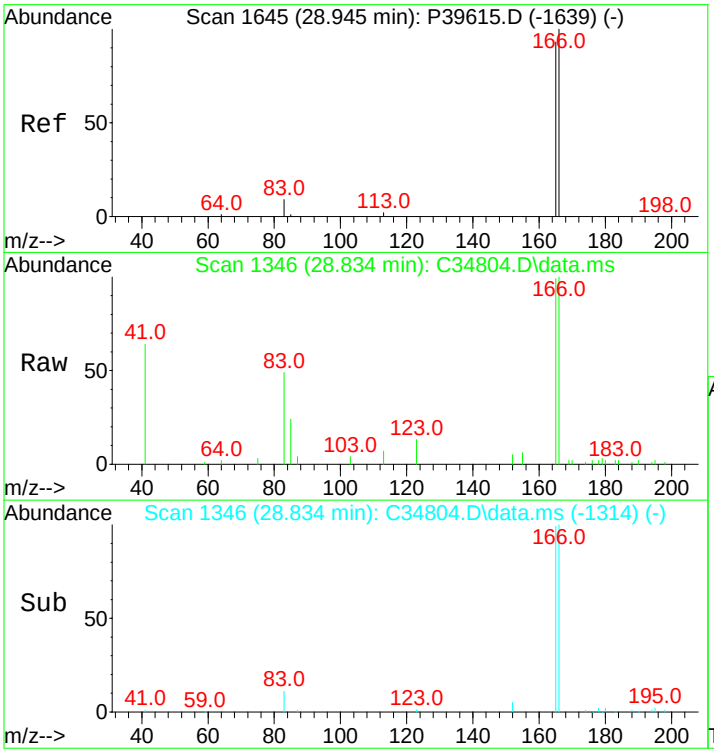


#28
2,3,5-Trimethylnaphthalene
Concen: 909.05 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:170 Resp: 44057

Ion	Ratio	Lower	Upper
170	100		
155	171.6	87.3	130.9#

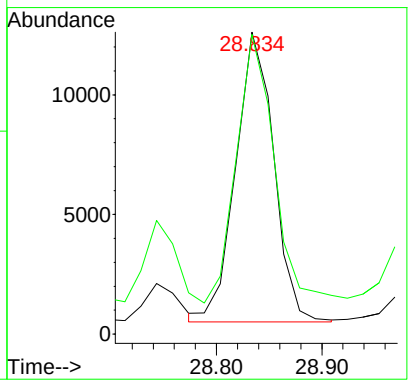


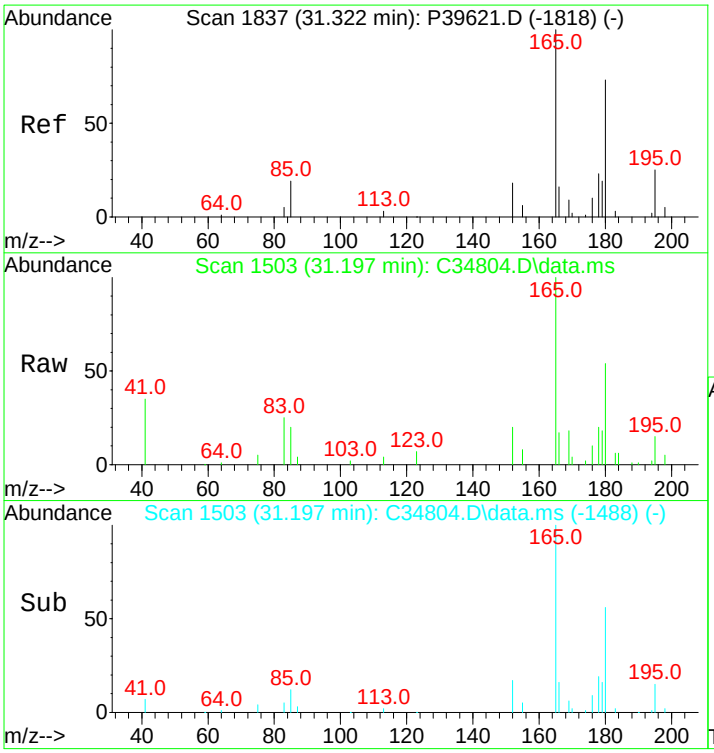


#29
Fluorene
Concen: 380.03 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:166 Resp: 30318

Ion	Ratio	Lower	Upper
166	100		
165	119.0	77.3	115.9#

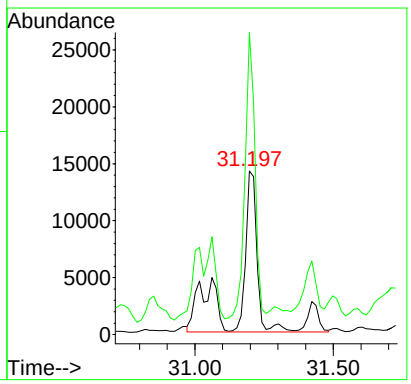


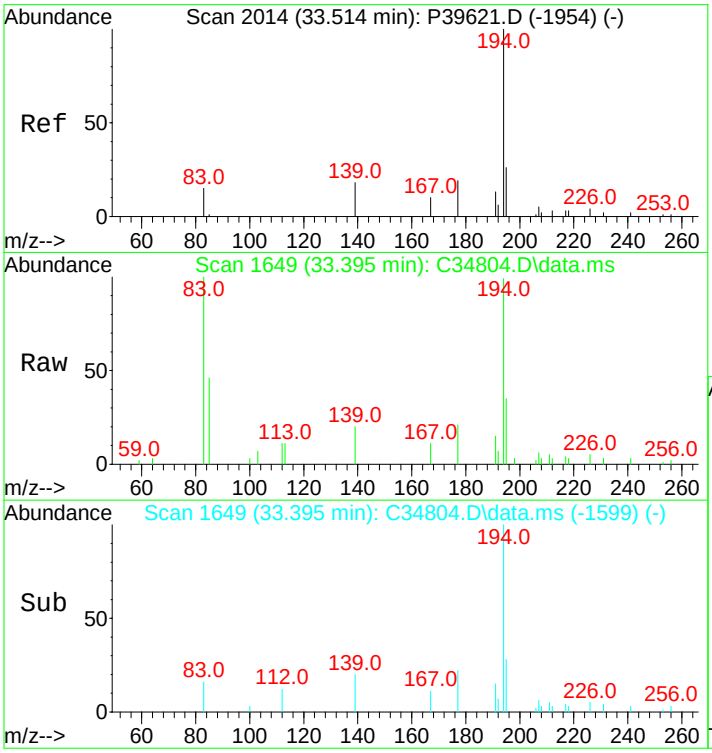


#30
C1-Fluorenes
Concen: 864.66 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:180 Resp: 68981

Ion	Ratio	Lower	Upper
180	100		
165	2.8	111.4	167.2#

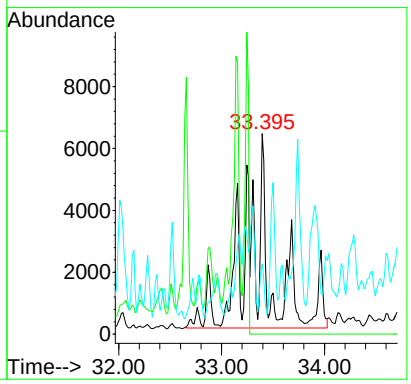


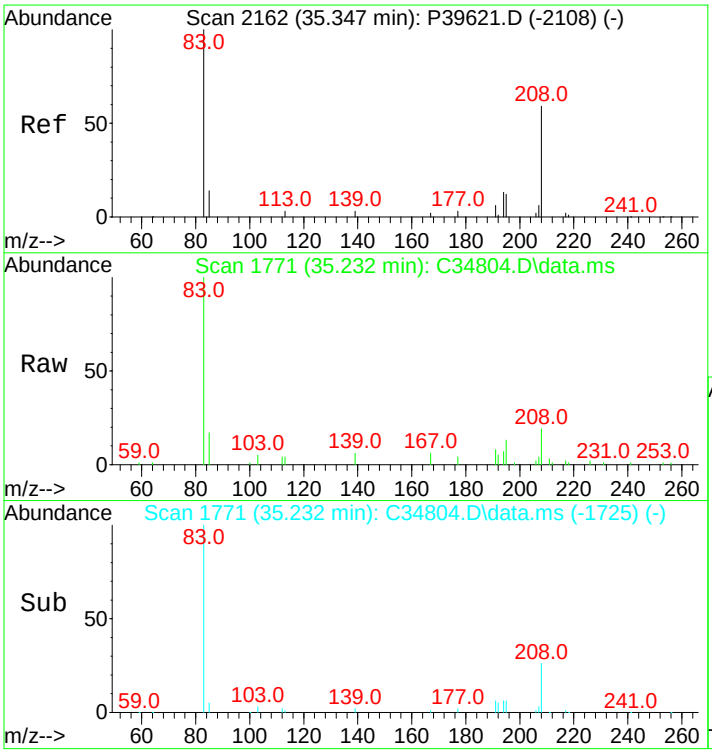


#31
C2-Fluorenes
Concen: 1206.97 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:194 Resp: 96290

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.5	27.3	40.9#

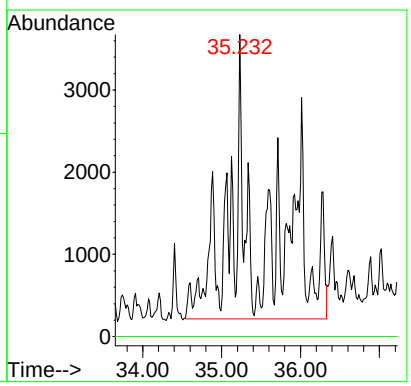


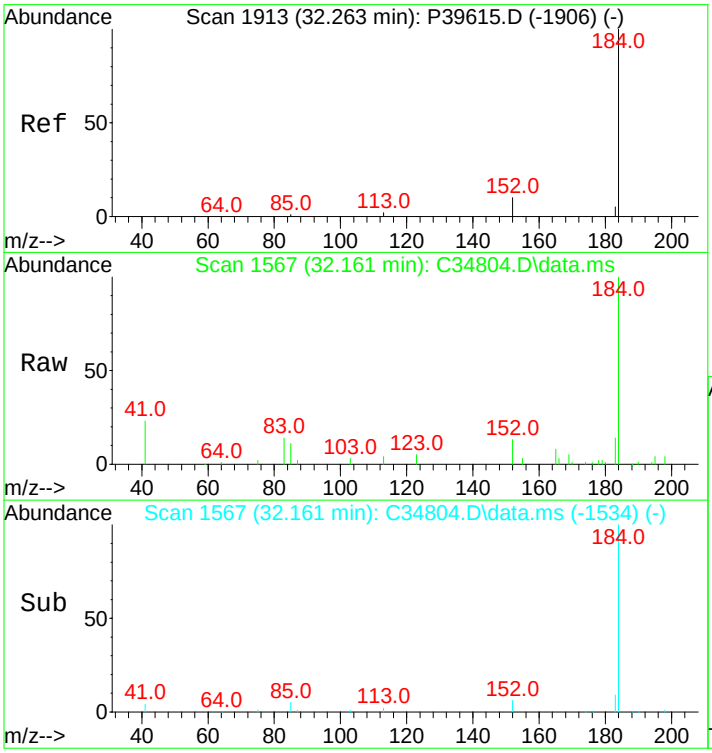


#32
C3-Fluorenes
Concen: 1113.89 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:208 Resp: 88864

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

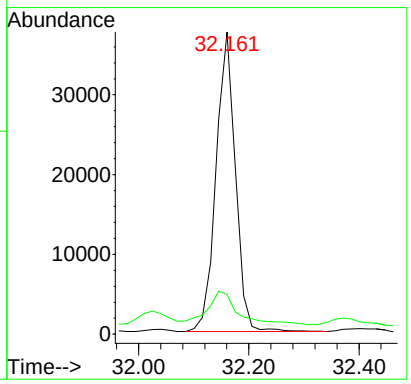


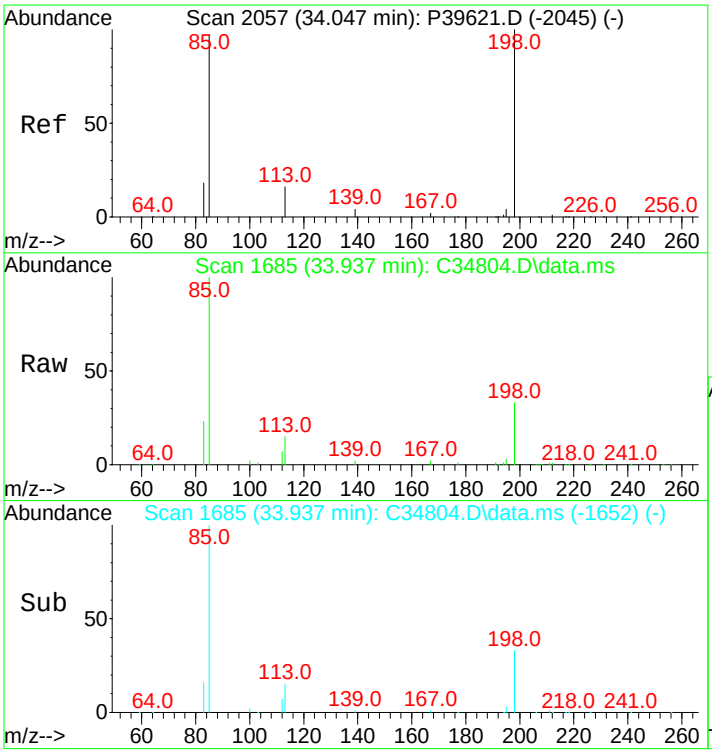


#33
Dibenzothiophene
Concen: 718.58 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:184 Resp: 91894

Ion	Ratio	Lower	Upper
184	100		
152	18.0	7.5	11.3#

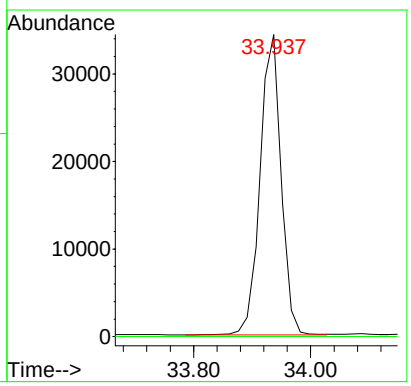


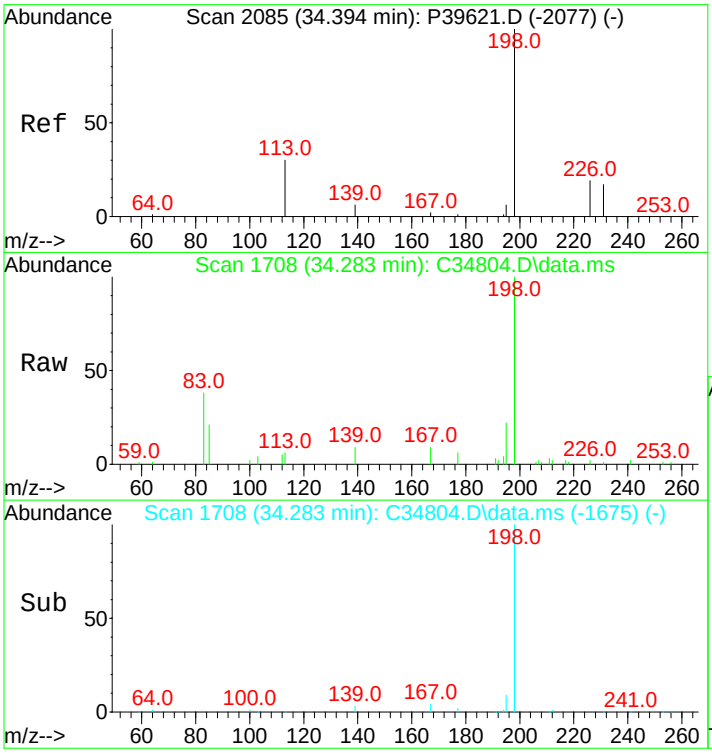


#34
4-Methyldibenzothiophene(4MDT)
Concen: 670.20 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 85707

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

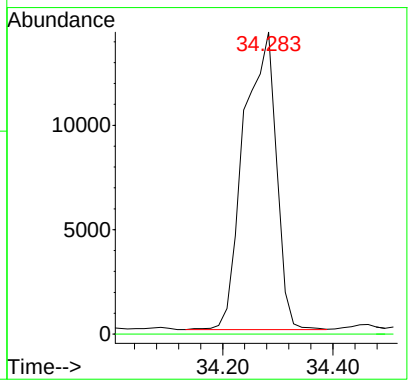


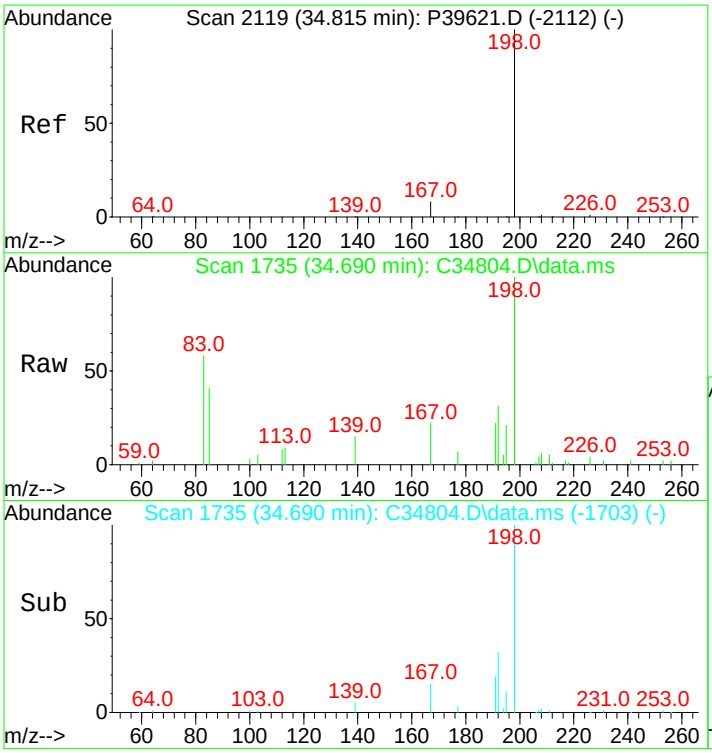


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 455.95 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 58309

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

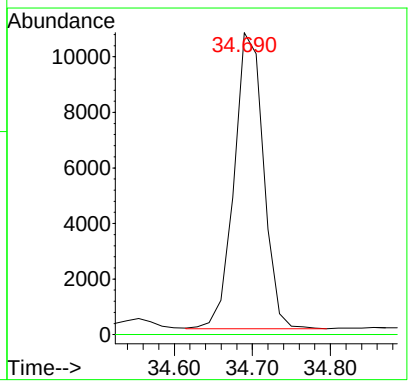


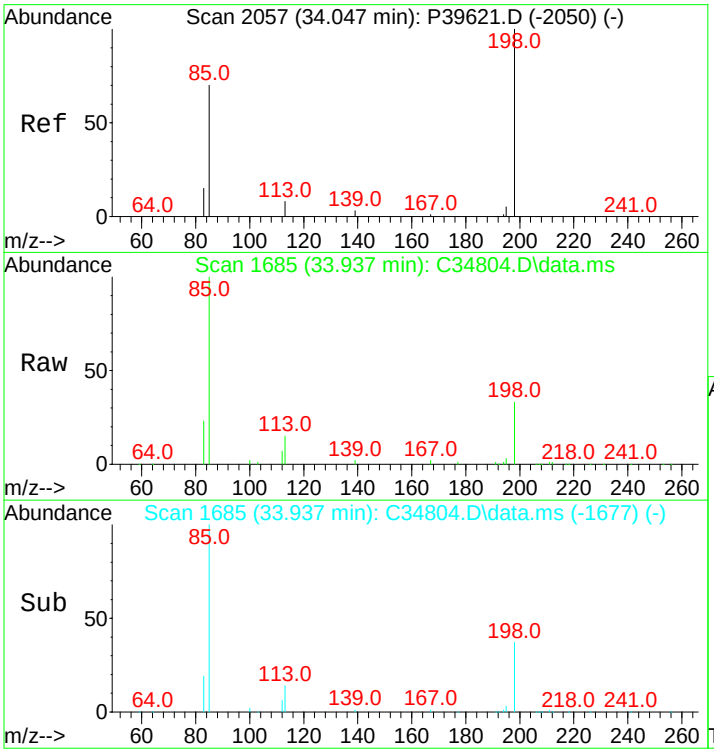


#36
1-Methyldibenzothiophene(1MDT)
Concen: 217.94 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 27871

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

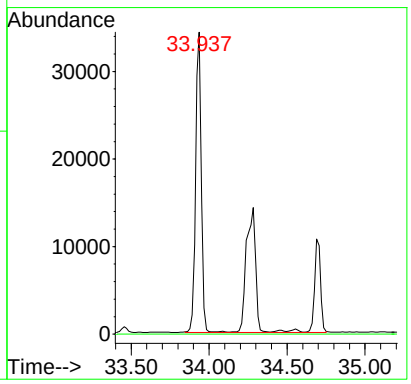


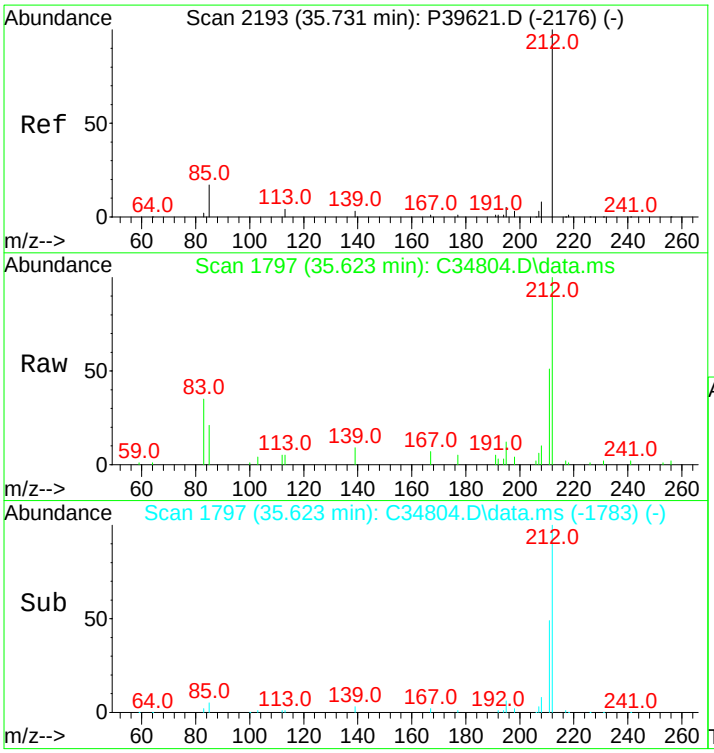


#38
C1-Dibenzothiophenes
Concen: 1364.77 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:198 Resp: 174531

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

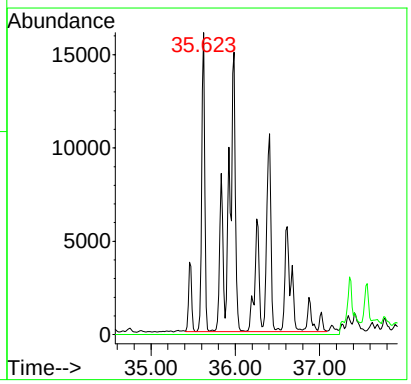


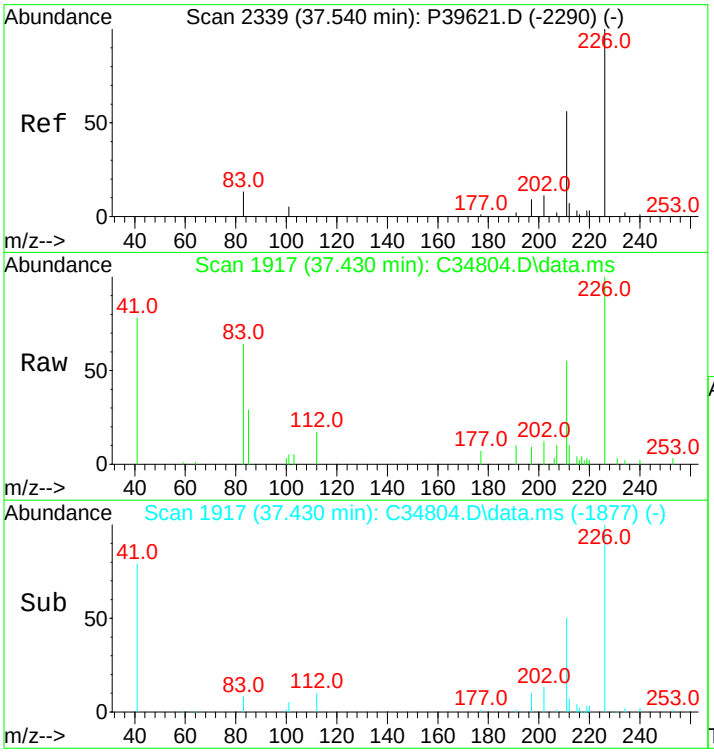


#39
C2-Dibenzothiophenes
Concen: 1811.93 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:212 Resp: 231715

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

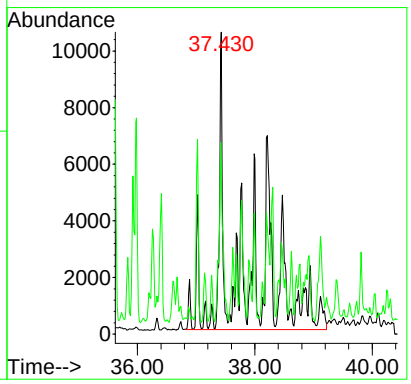


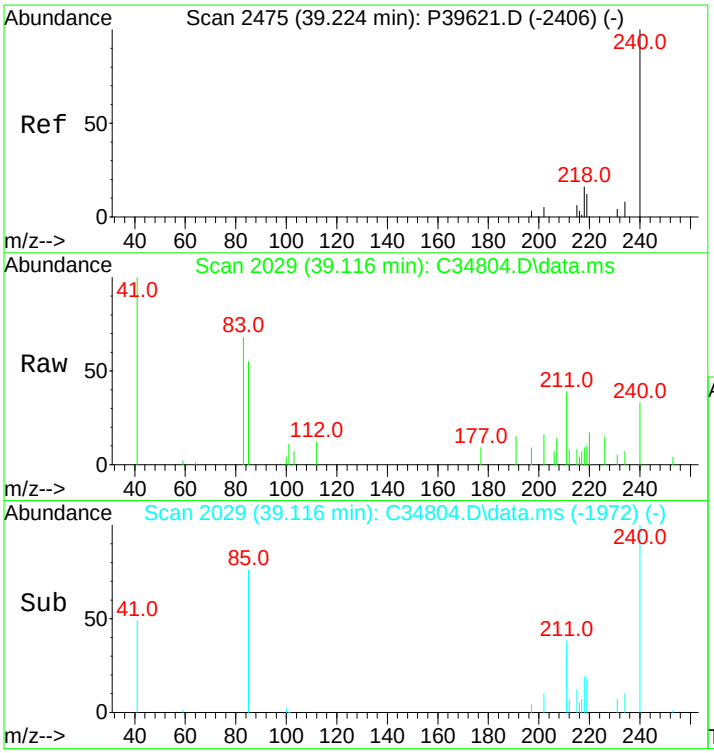


#40
C3-Dibenzothiophenes
Concen: 1631.44 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:226 Resp: 208634

Ion	Ratio	Lower	Upper
226	100		
211	13.7	45.0	67.6#

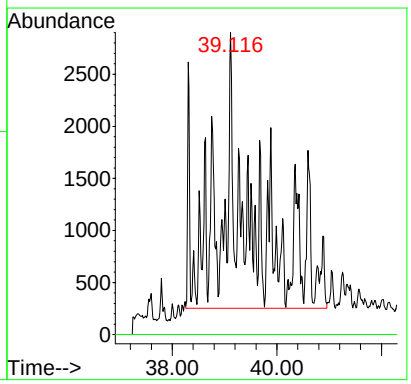


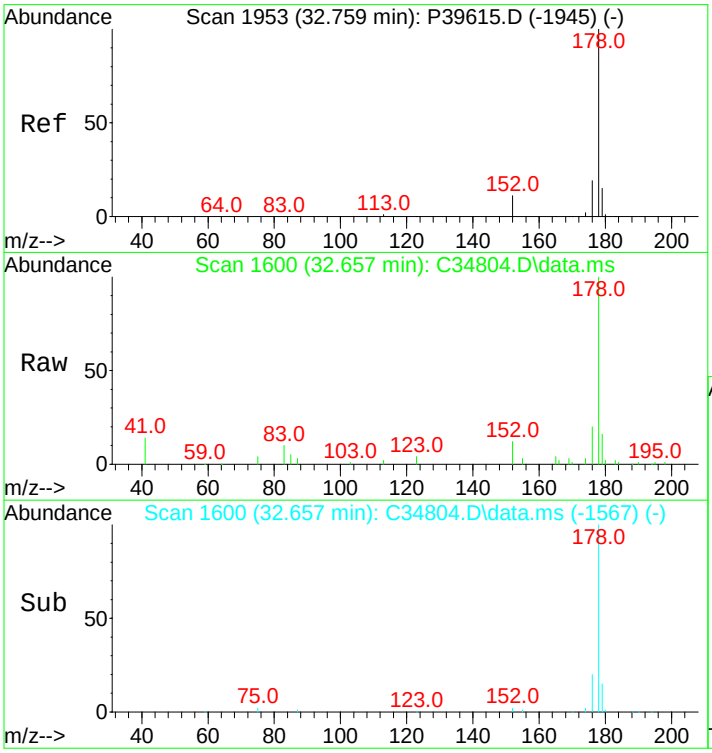


#41
C4-Dibenzothiophenes
Concen: 843.14 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:240 Resp: 107824

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

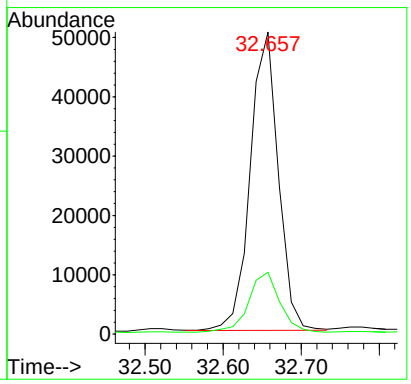


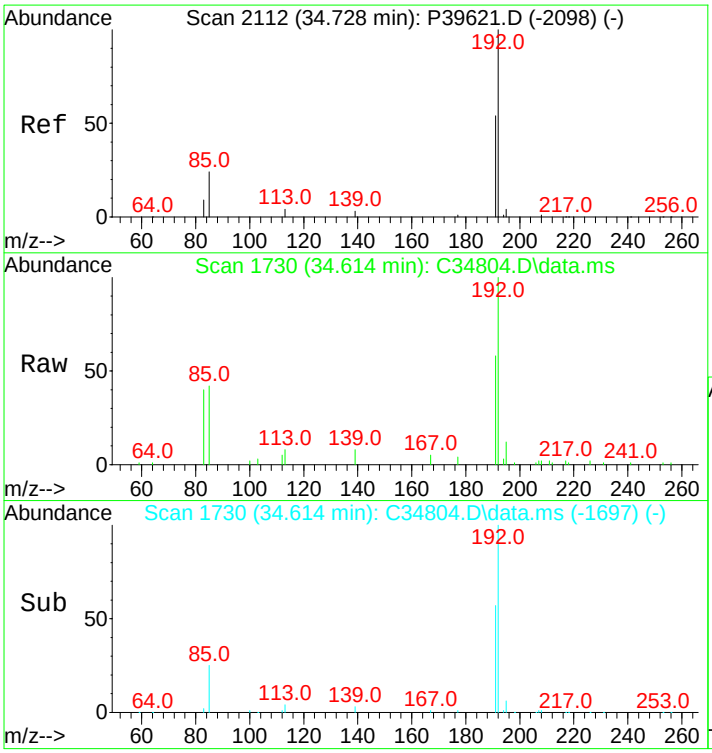


#43
Phenanthrene
Concen: 1122.38 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:178 Resp: 126106

Ion	Ratio	Lower	Upper
178	100		
176	22.1	16.1	24.1

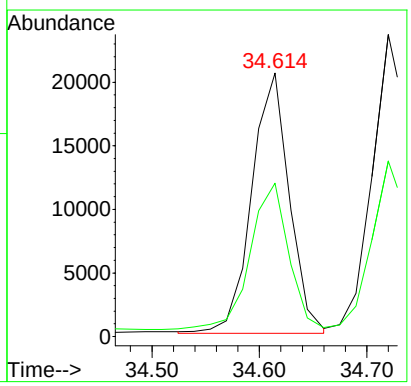


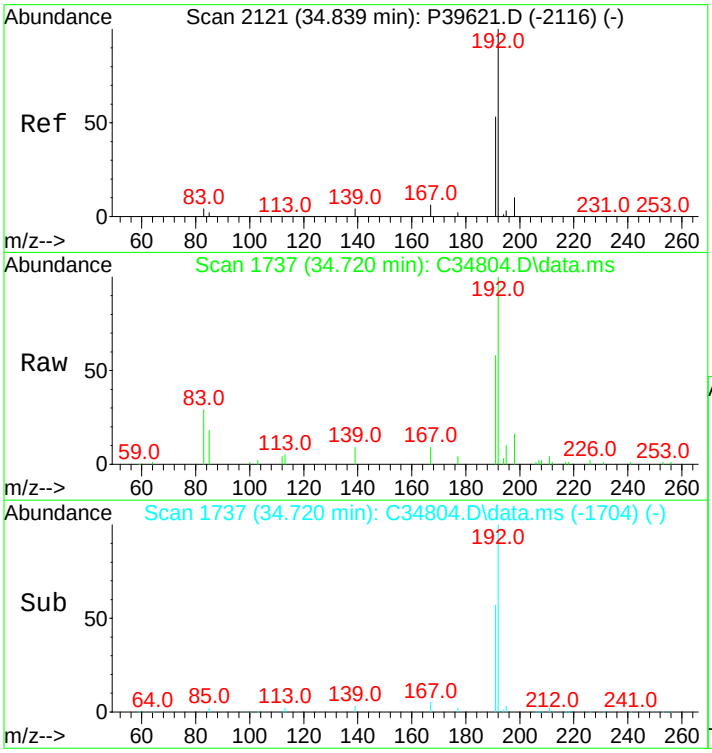


#44
3-Methylphenanthrene(3MP)
Concen: 442.64 ng/mL m
RT: 34.614 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 49733

Ion	Ratio	Lower	Upper
192	100		
191	58.1	46.9	70.3

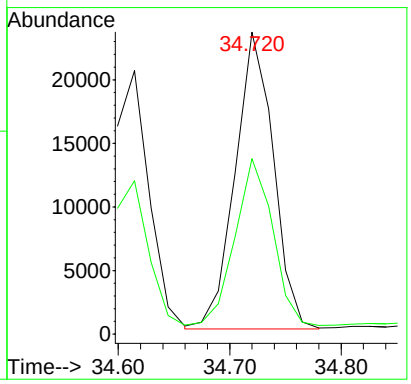


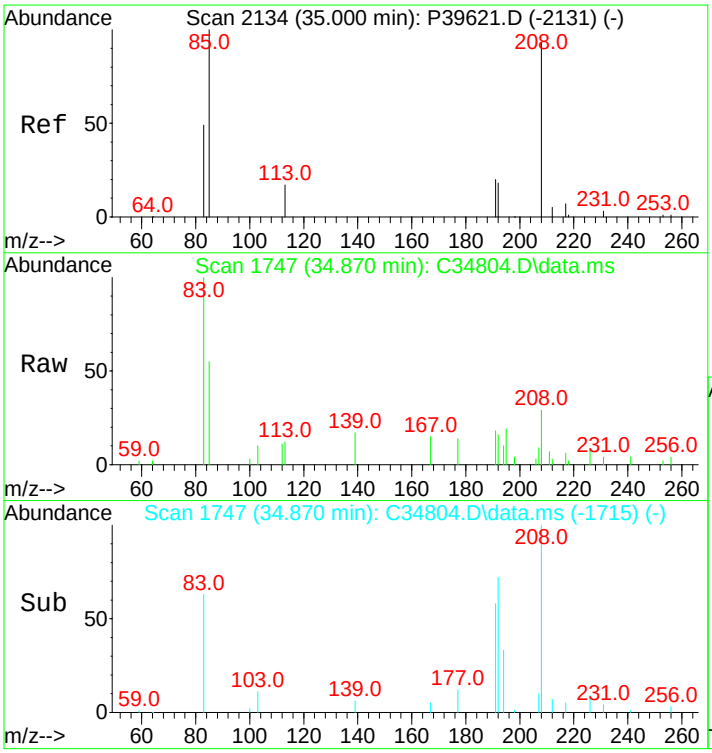


#45
2/4-Methylphenanthrene(2MP)
Concen: 495.34 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 55654

Ion	Ratio	Lower	Upper
192	100		
191	54.8	46.1	69.1

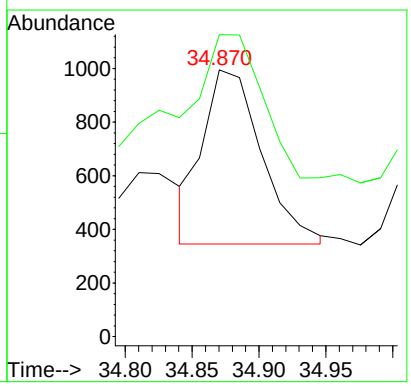


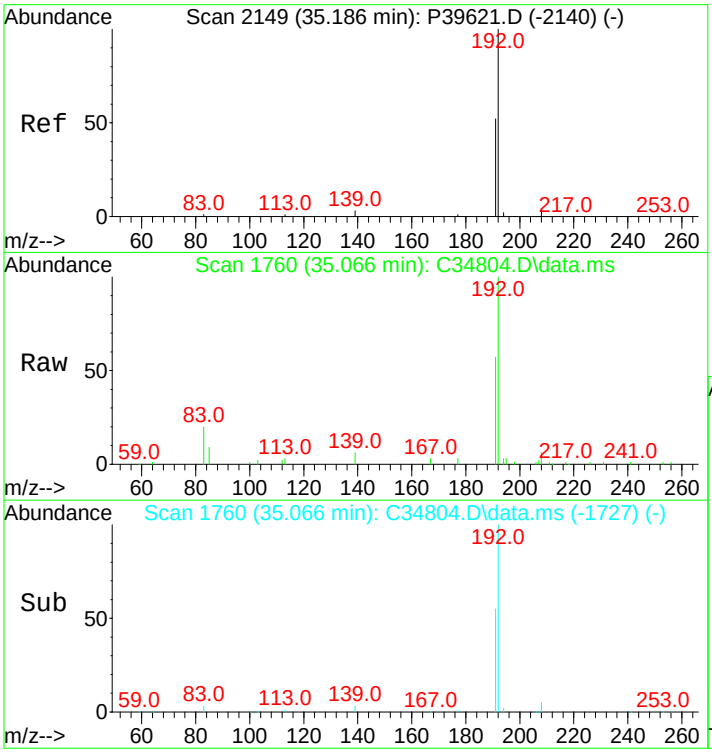


#46
2-Methylanthracene(2MA)
Concen: 17.71 ng/mL m
RT: 34.870 min Scan# 1747
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 1990

Ion	Ratio	Lower	Upper
192	100		
191	124.3	93.4	140.0

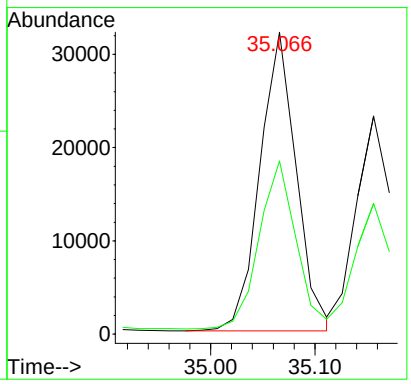


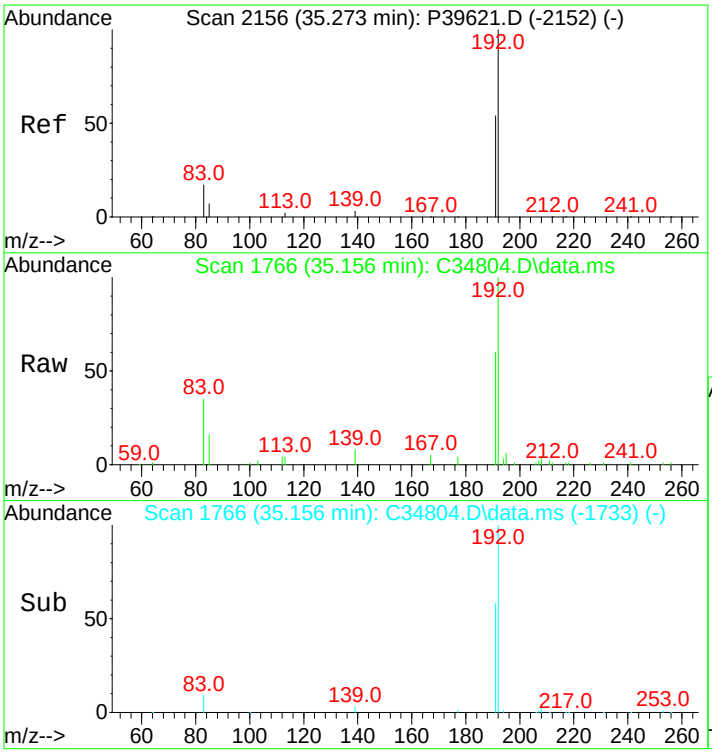


#47
9-Methylphenanthrene(9MP)
Concen: 696.32 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 78236

Ion	Ratio	Lower	Upper
192	100		
191	56.9	45.9	68.9

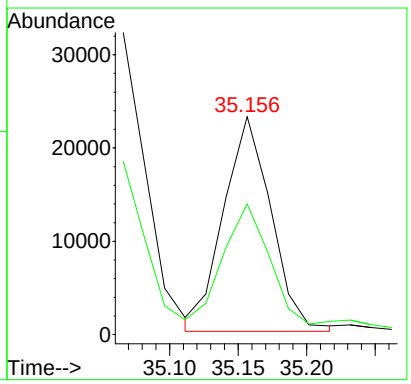


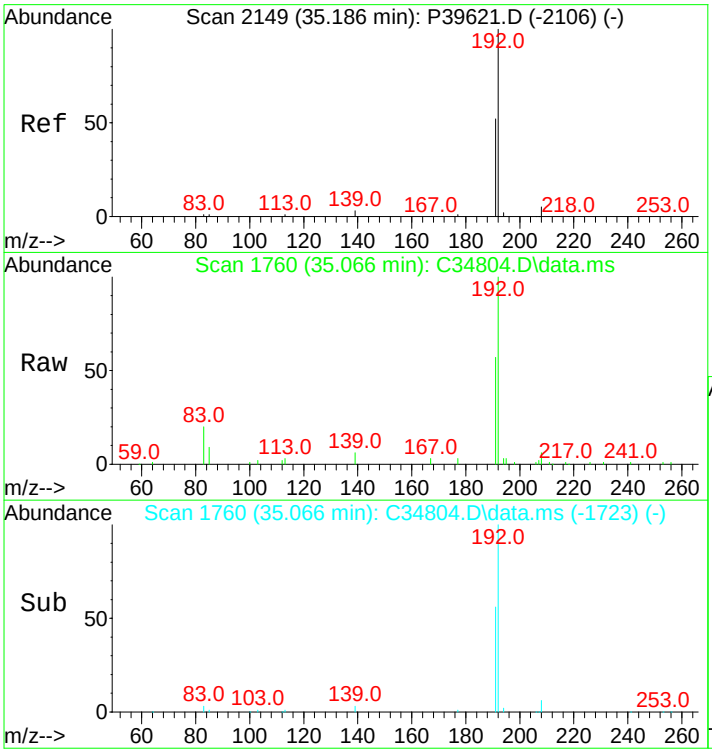


#48
1-Methylphenanthrene(1MP)
Concen: 495.86 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 55713

Ion	Ratio	Lower	Upper
192	100		
191	58.5	49.0	73.4

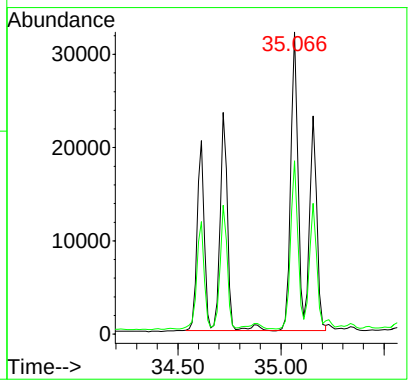


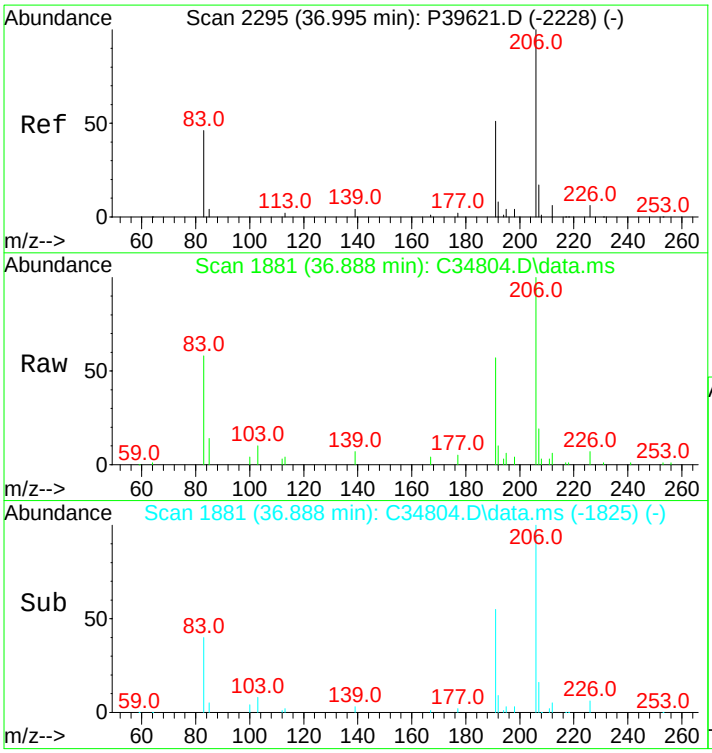


#49
C1-Phenanthrenes/Anthracenes
Concen: 2134.87 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 239866

Ion	Ratio	Lower	Upper
192	100		
191	18.6	44.2	66.2#

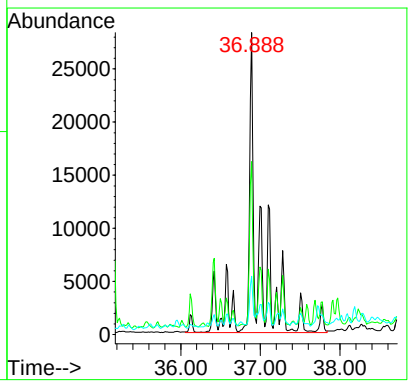


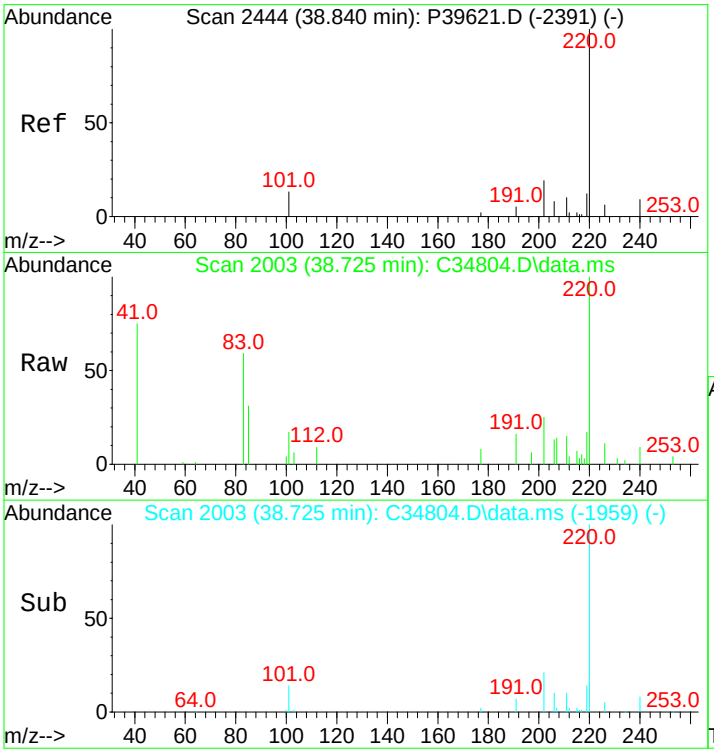


#50
C2-Phenanthrenes/Anthracenes
Concen: 2221.01 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:206 Resp: 249544

Ion	Ratio	Lower	Upper
206	100		
191	17.6	44.0	66.0#
207	5.2	15.1	22.7#

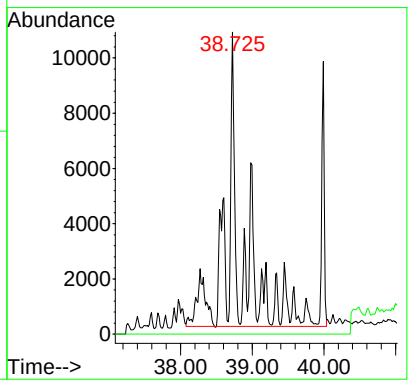


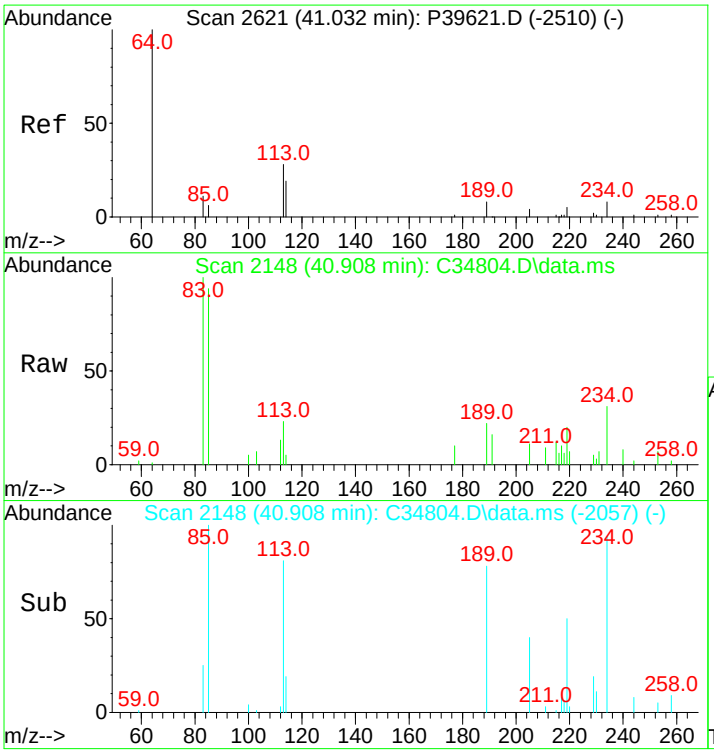


#52
C3-Phenanthrenes/Anthracenes
Concen: 1469.37 ng/mL m
RT: 38.725 min Scan# 2003
Delta R.T. 0.084 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:220 Resp: 165093

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

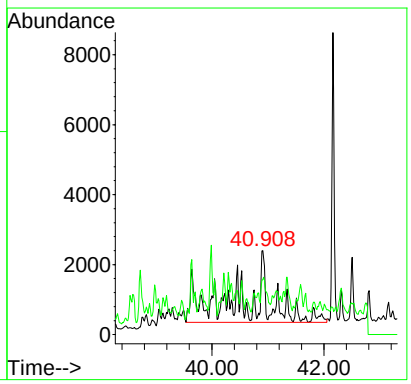


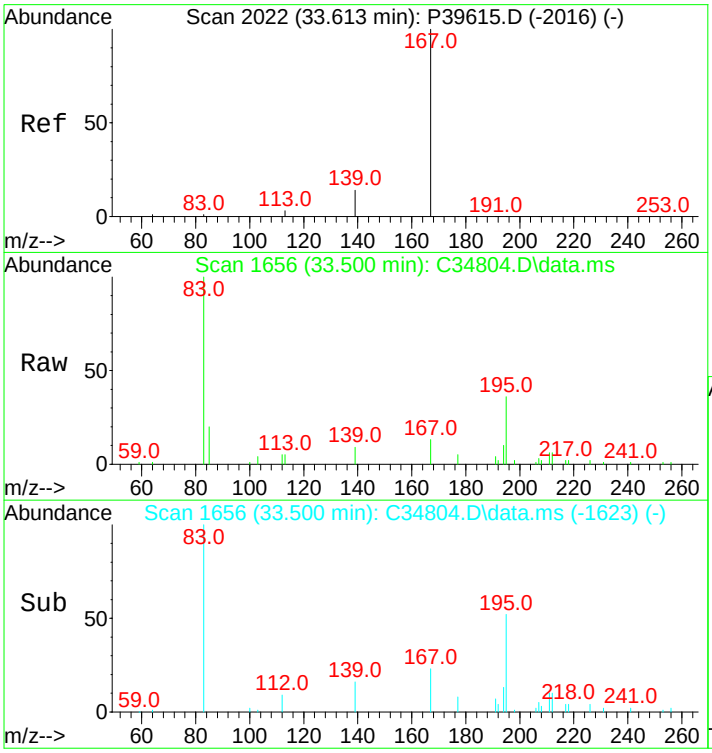


#53
C4-Phenanthrenes/Anthracenes
Concen: 598.36 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 67229

Ion	Ratio	Lower	Upper
234	100		
219	8.1	46.9	70.3#

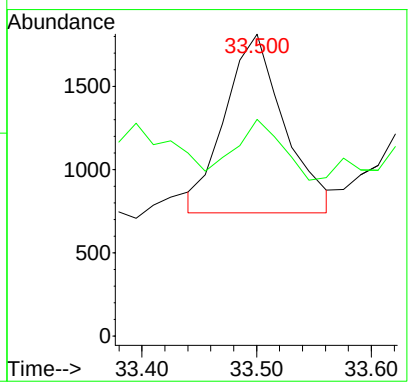


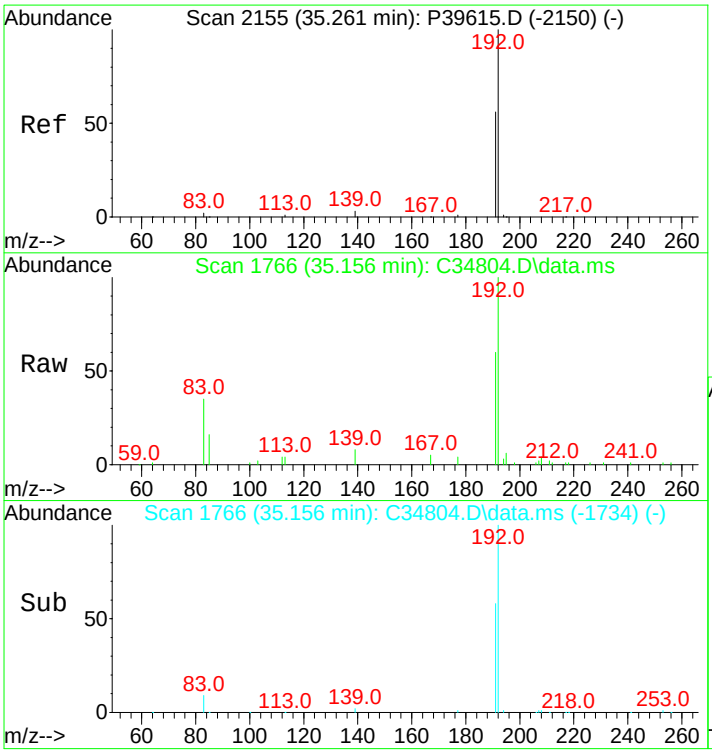


#56
Carbazole
Concen: 34.62 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:167 Resp: 3838

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

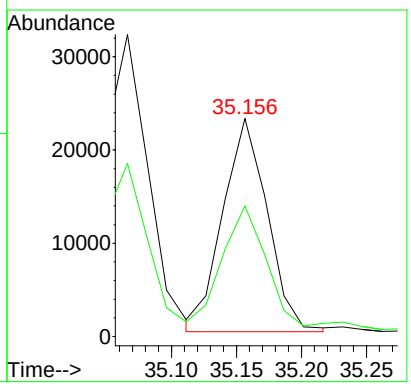


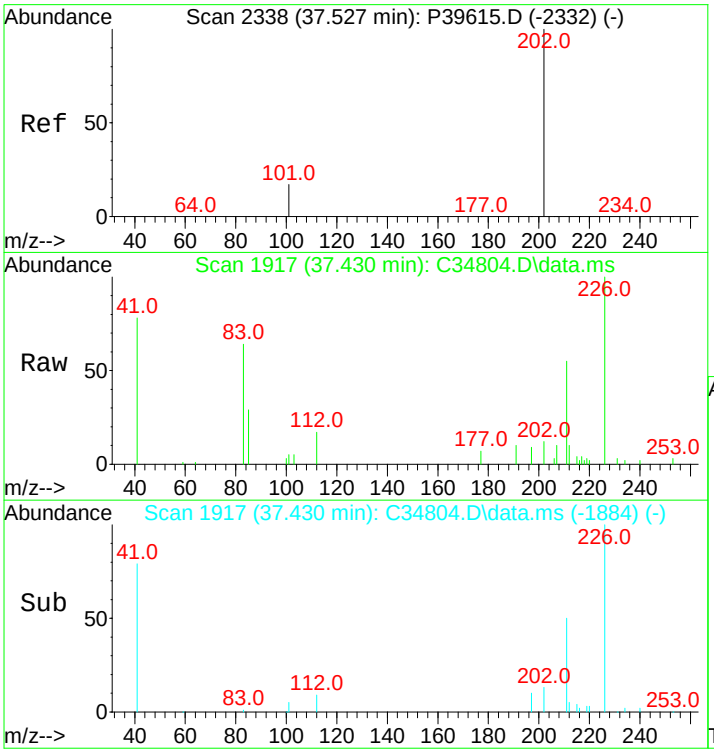


#57
1-Methylphenanthrene
Concen: 767.72 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:192 Resp: 54663

Ion	Ratio	Lower	Upper
192	100		
191	60.3	45.9	68.9

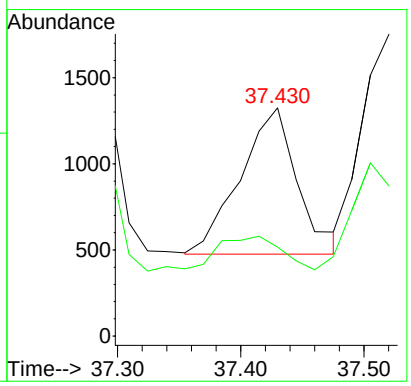


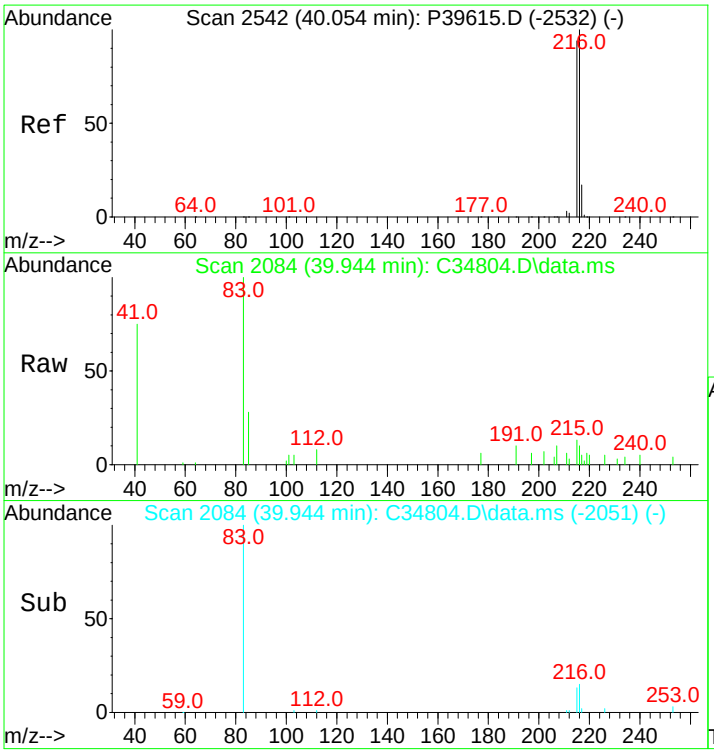


#58
Fluoranthene
Concen: 24.59 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:202 Resp: 2744

Ion	Ratio	Lower	Upper
202	100		
101	91.9	12.9	19.3#

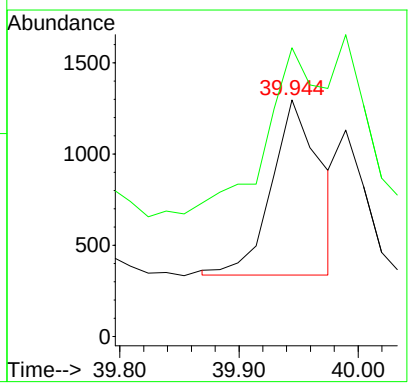


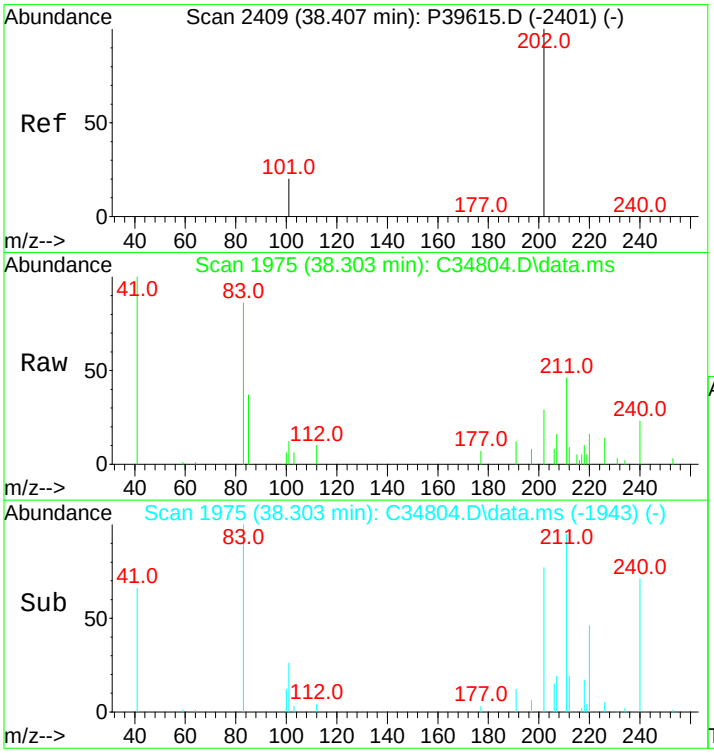


#59
Benzo(b)fluorene
Concen: 42.45 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:216 Resp: 2748

Ion	Ratio	Lower	Upper
216	100		
215	435.5	76.3	114.5#

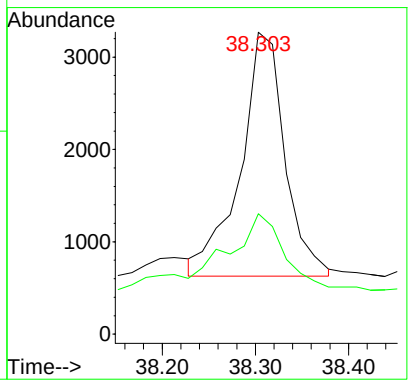


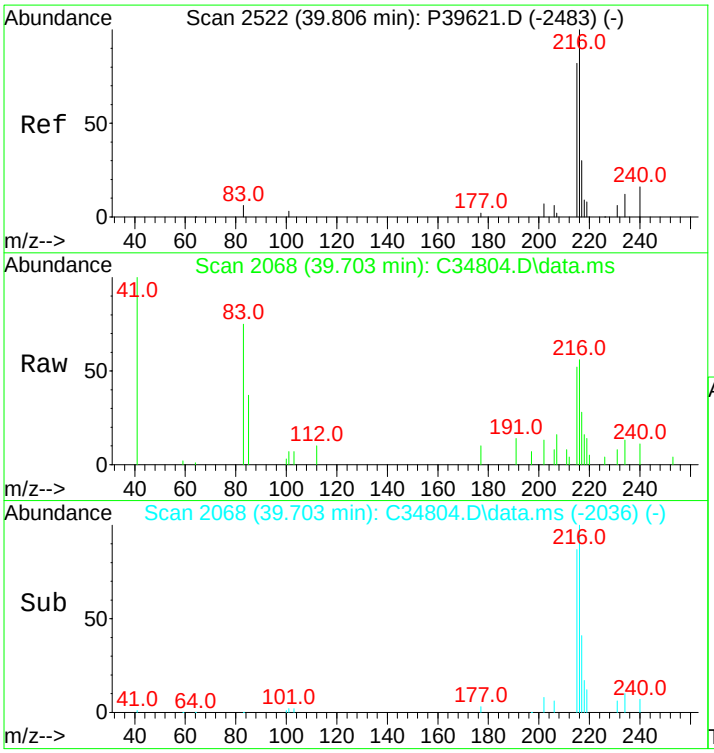


#60
Pyrene
Concen: 77.04 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:202 Resp: 8739

Ion	Ratio	Lower	Upper
202	100		
101	59.6	15.0	22.4#

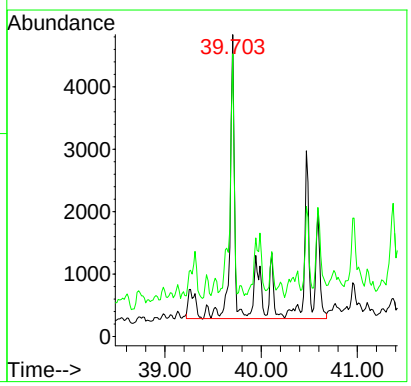


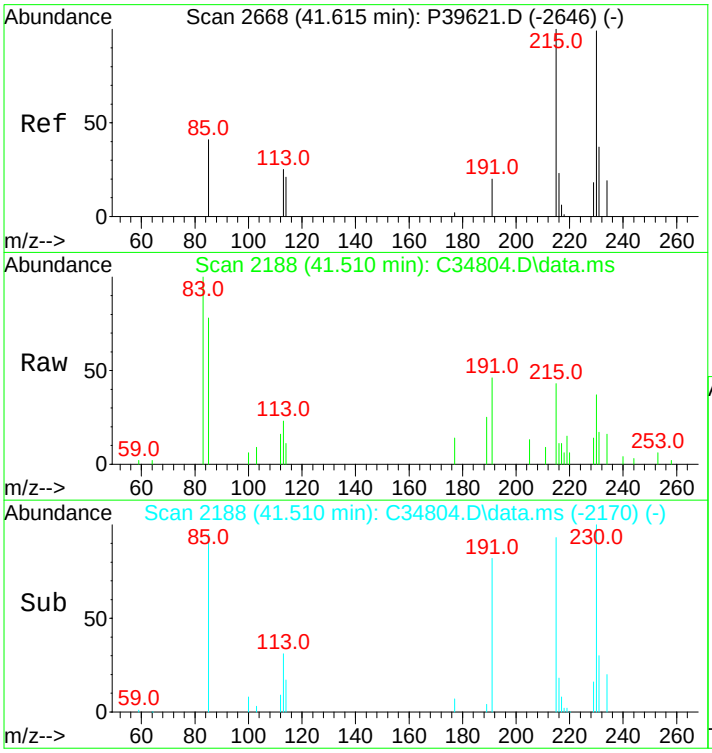


#61
C1-Fluoranthenes/Pyrenes
Concen: 335.56 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:216 Resp: 38064

Ion	Ratio	Lower	Upper
216	100		
215	29.8	71.8	107.6#

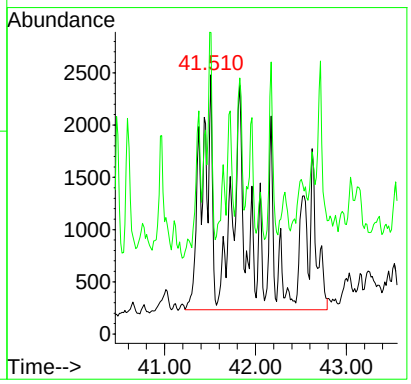


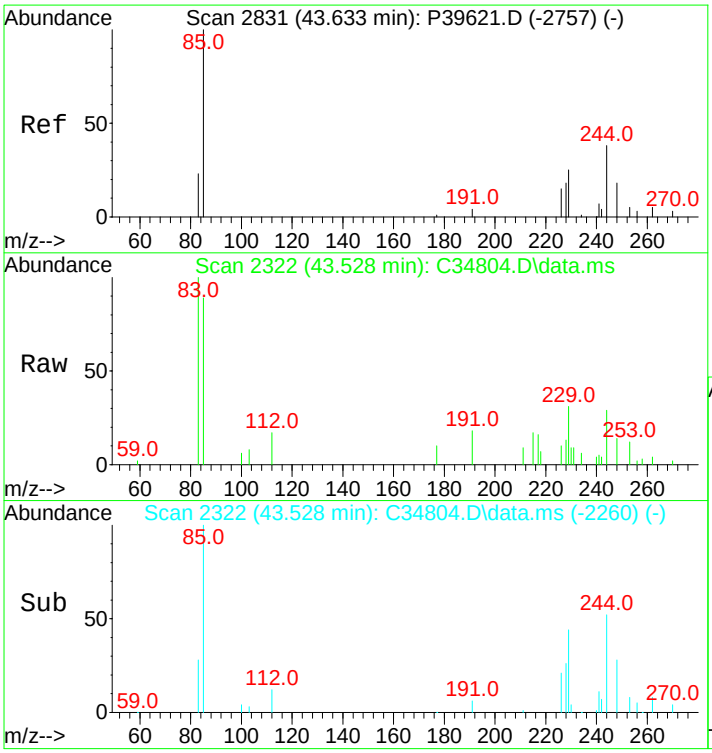


#62
C2-Fluoranthenes/Pyrenes
Concen: 544.11 ng/mL m
RT: 41.510 min Scan# 2188
Delta R.T. 0.111 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:230 Resp: 61720

Ion	Ratio	Lower	Upper
230	100		
215	3.5	99.0	148.4#

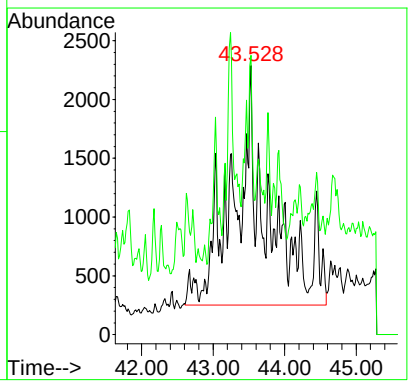


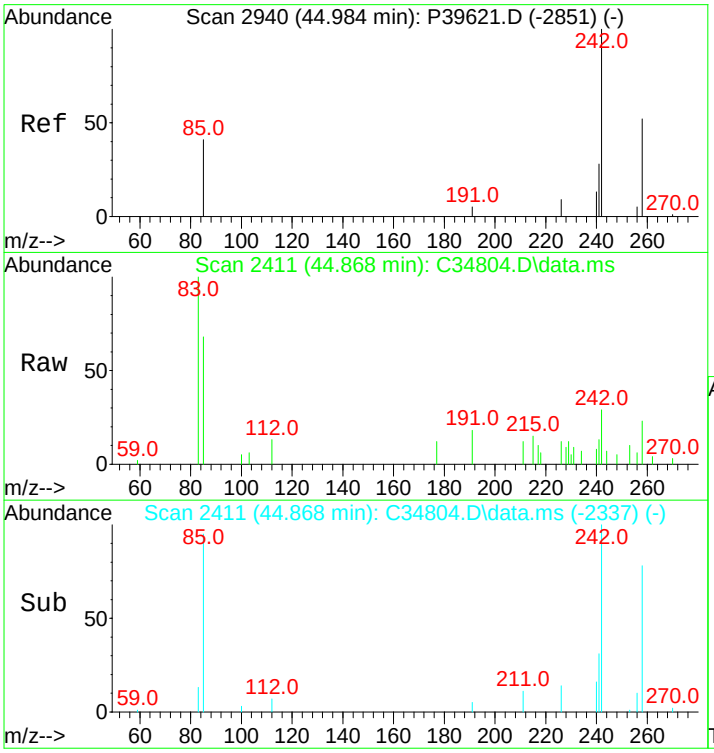


#63
C3-Fluoranthenes/Pyrenes
Concen: 600.08 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:244 Resp: 68069

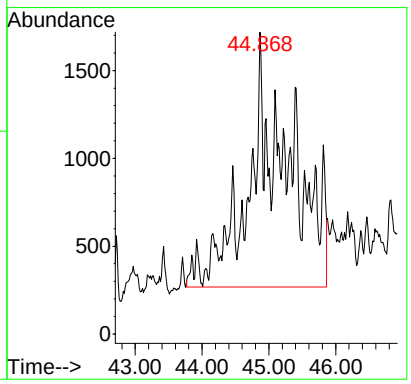
Ion	Ratio	Lower	Upper
244	100		
229	5.8	73.3	109.9#

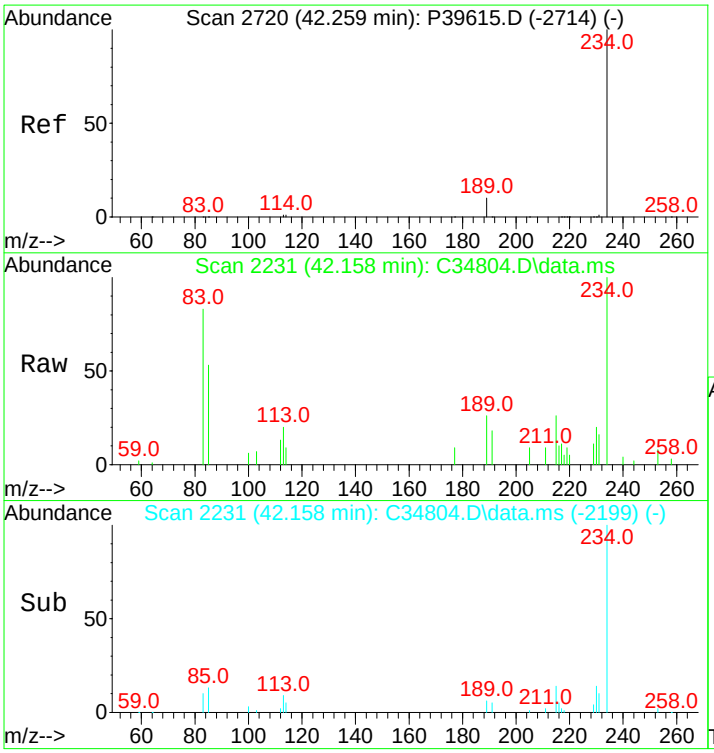




#64
C4-Fluoranthenes/Pyrenes
Concen: 518.60 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.111 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:258 Resp: 58826

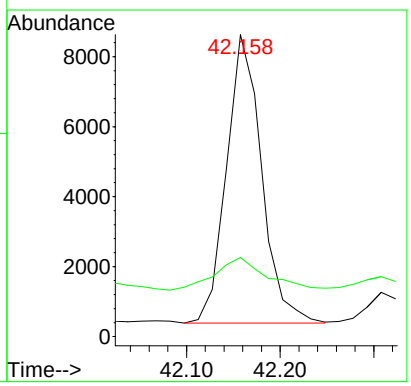


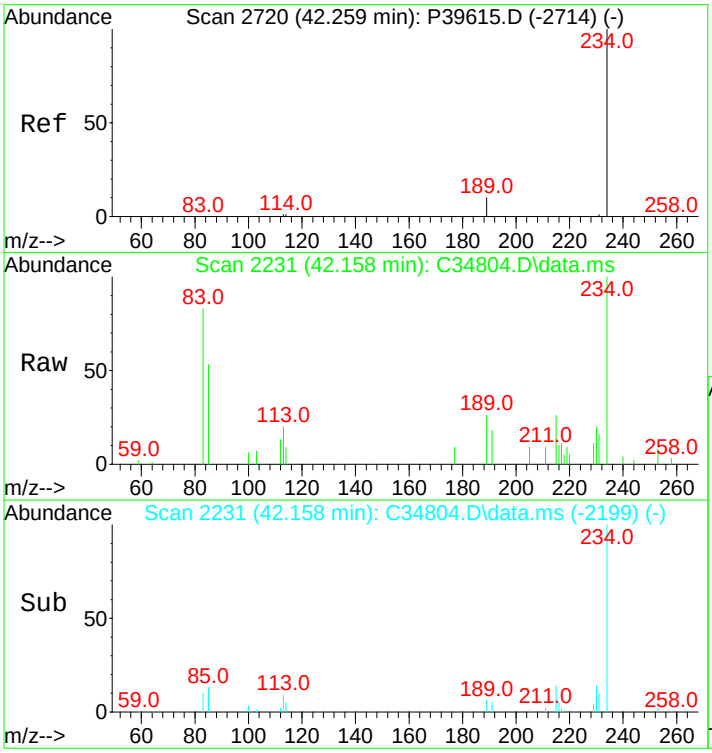


#66
Naphthobenzothiophene
Concen: 176.28 ng/ml m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 21528

Ion	Ratio	Lower	Upper
234	100		
189	1.8	20.5	30.7#

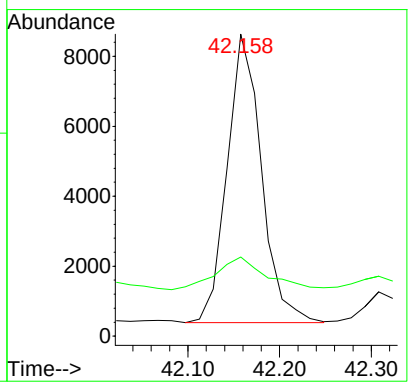


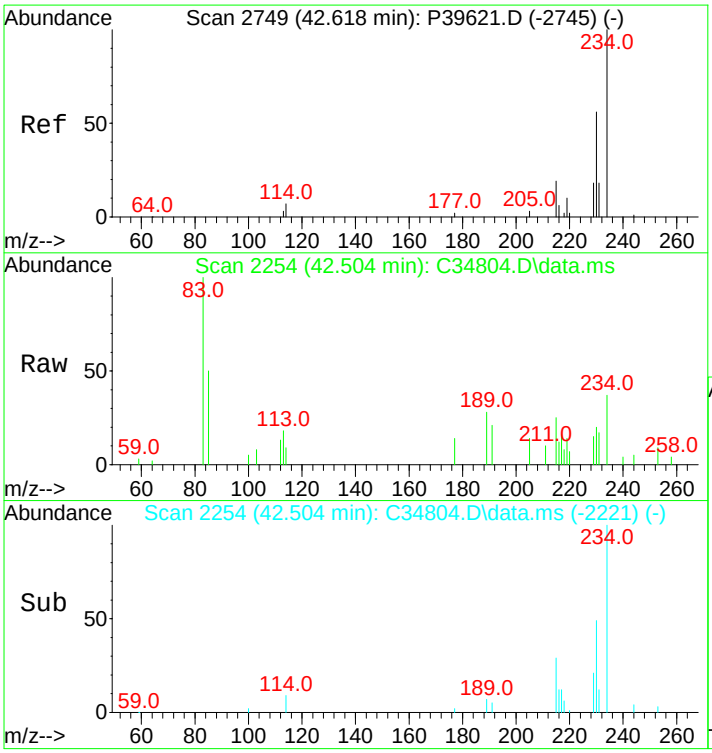


#67
Naphthobenzothiophene-2,1-D
Concen: 176.21 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 21519

Ion	Ratio	Lower	Upper
234	100		
189	1.8	20.5	30.7#

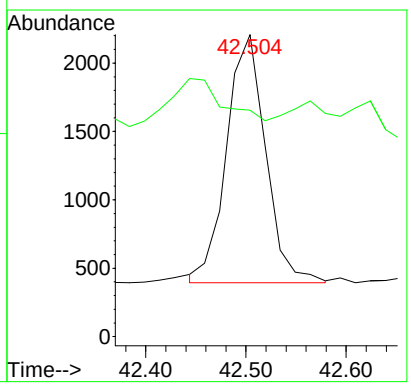


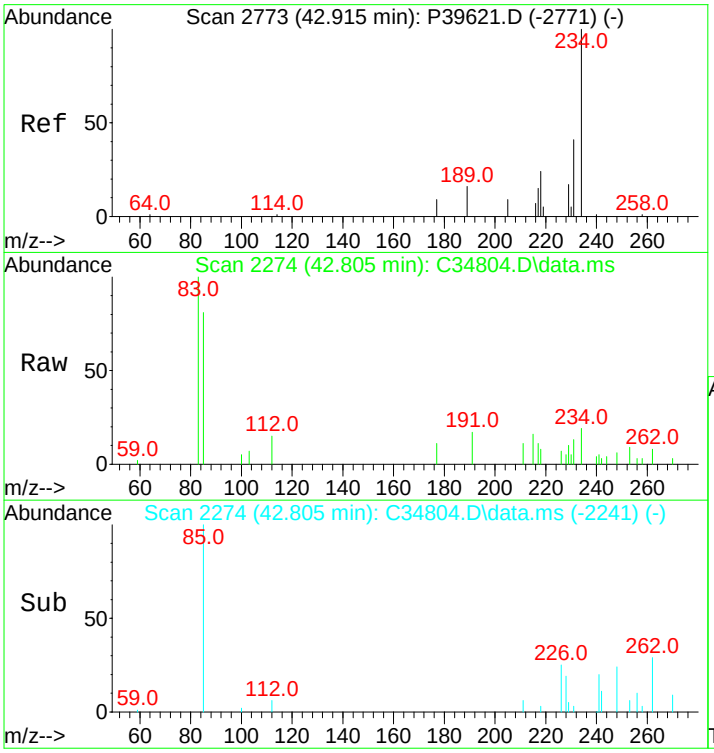


#68
Naphthobenzothiophene-1,2-D
Concen: 39.99 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 4884

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

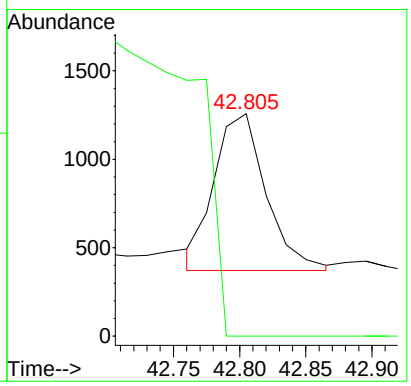


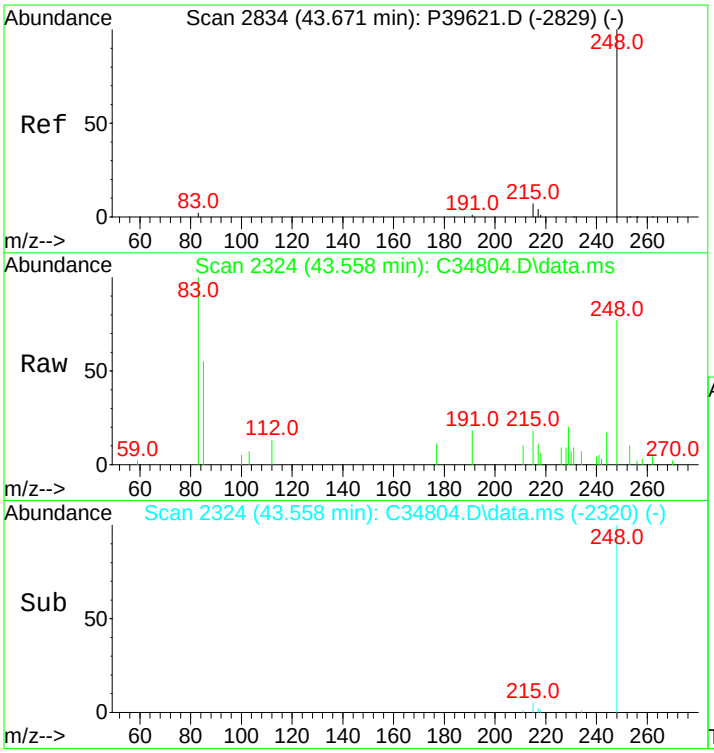


#69
Naphthobenzothiophene-2,3-D
Concen: 19.81 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:234 Resp: 2419

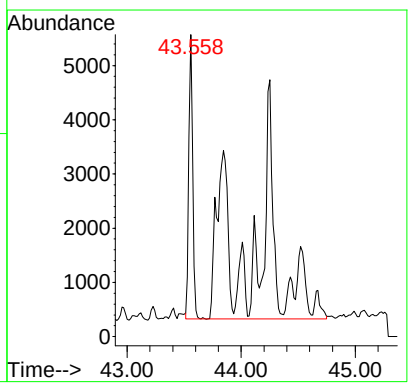
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

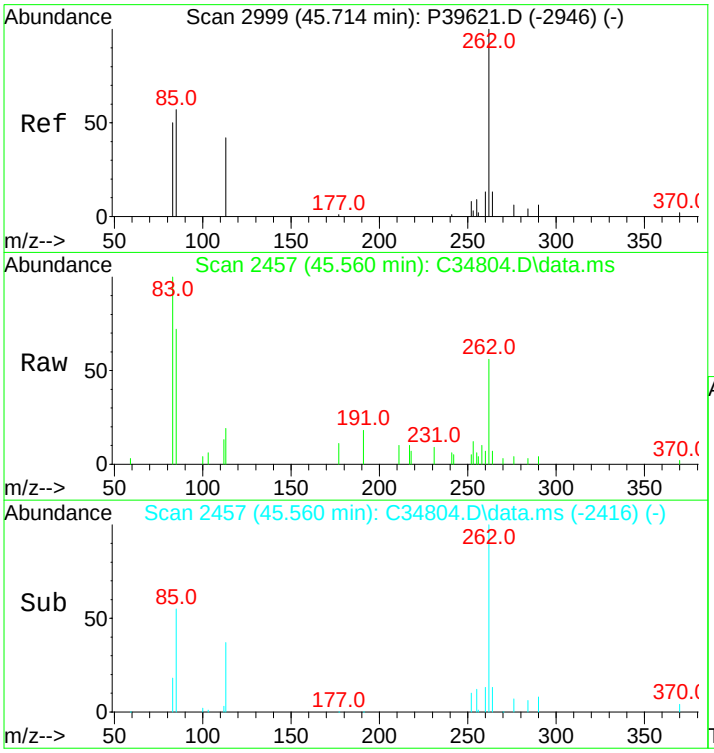




#70
C1-Naphthobenzothiophenes
Concen: 601.82 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

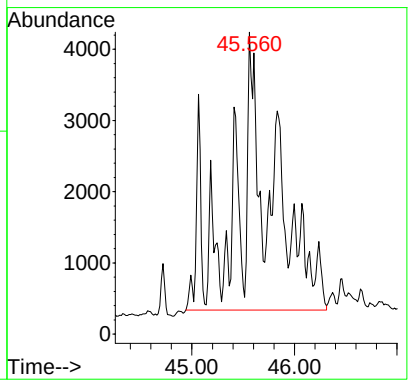
Tgt Ion:248 Resp: 73495

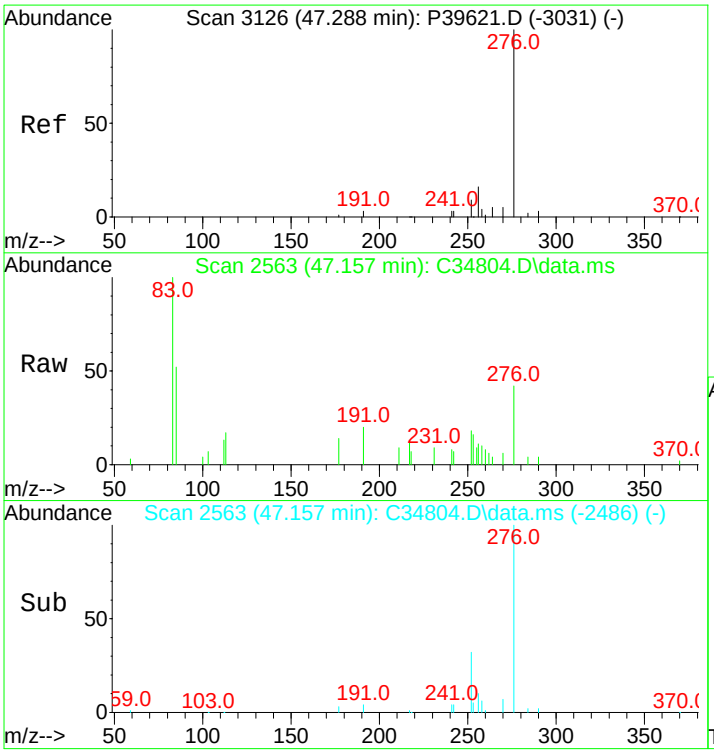




#71
C2-Naphthobenzothiophenes
Concen: 789.51 ng/ml m
RT: 45.560 min Scan# 2457
Delta R.T. 0.129 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

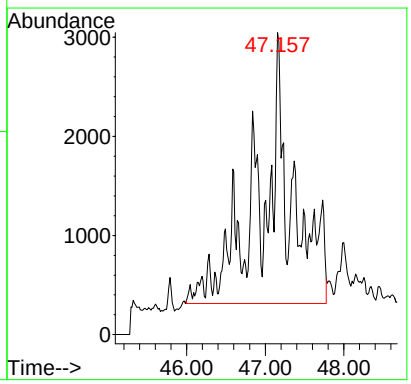
Tgt Ion:262 Resp: 96416

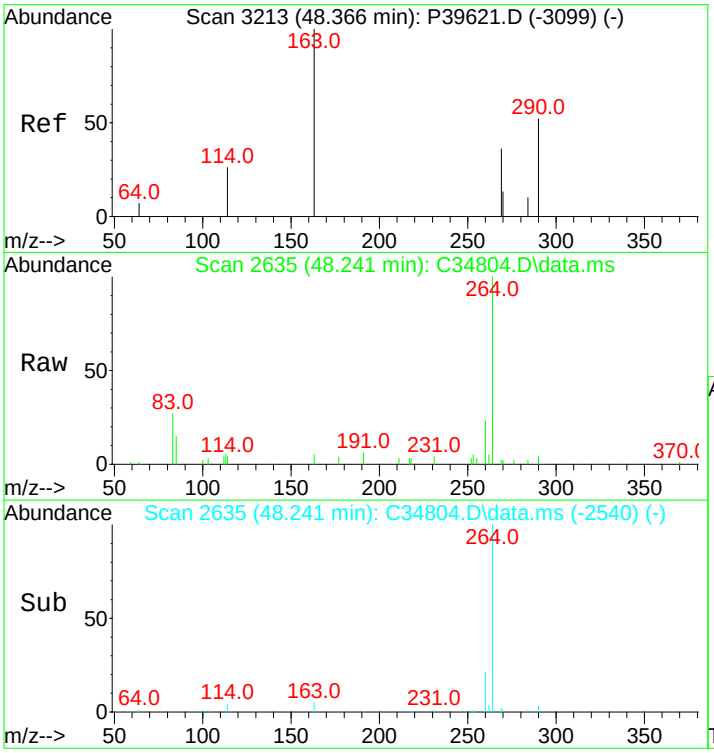




#72
C3-Naphthobenzothiophenes
Concen: 623.44 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

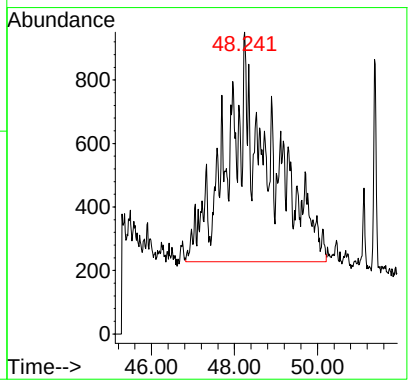
Tgt Ion:276 Resp: 76135

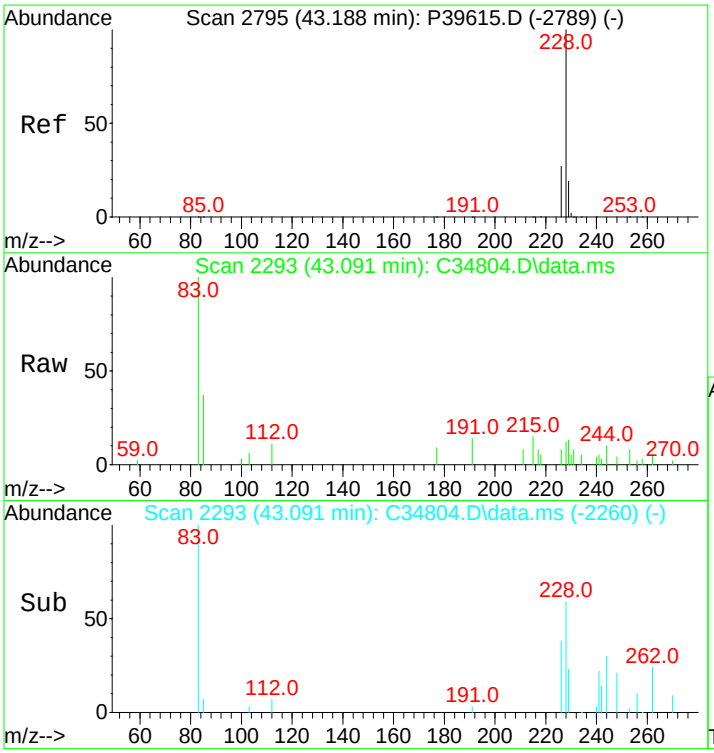




#73
C4-Naphthobenzothiophenes
Concen: 409.40 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:290 Resp: 49996

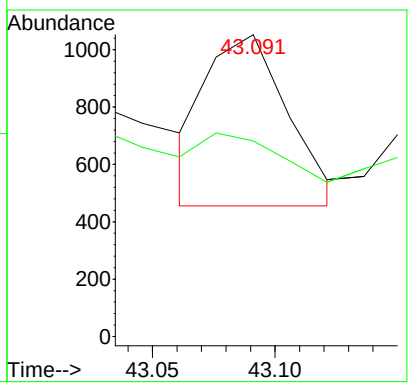


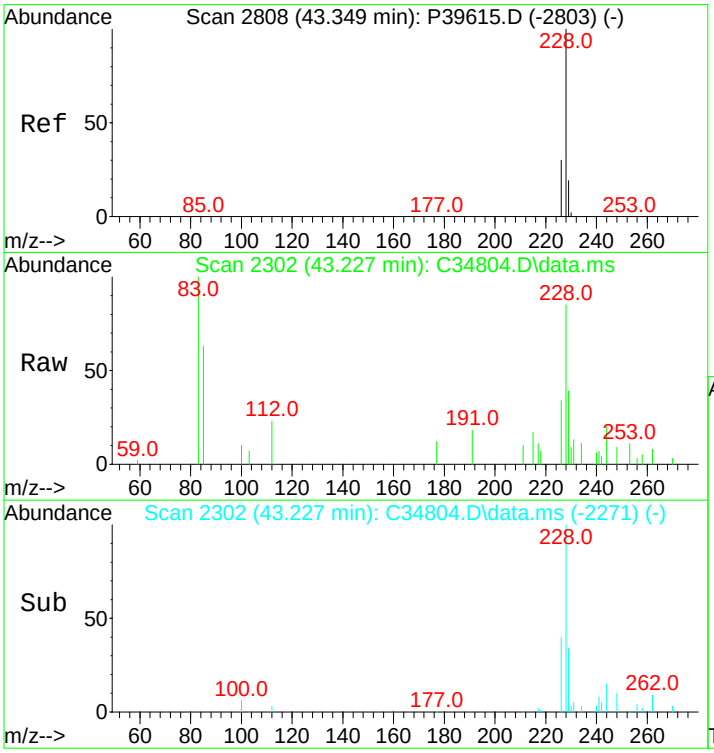


#75
Benz[a]anthracene
Concen: 12.55 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:228 Resp: 1369

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

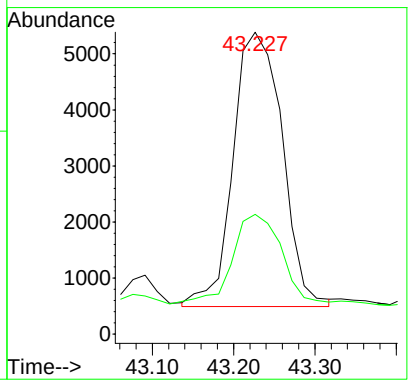


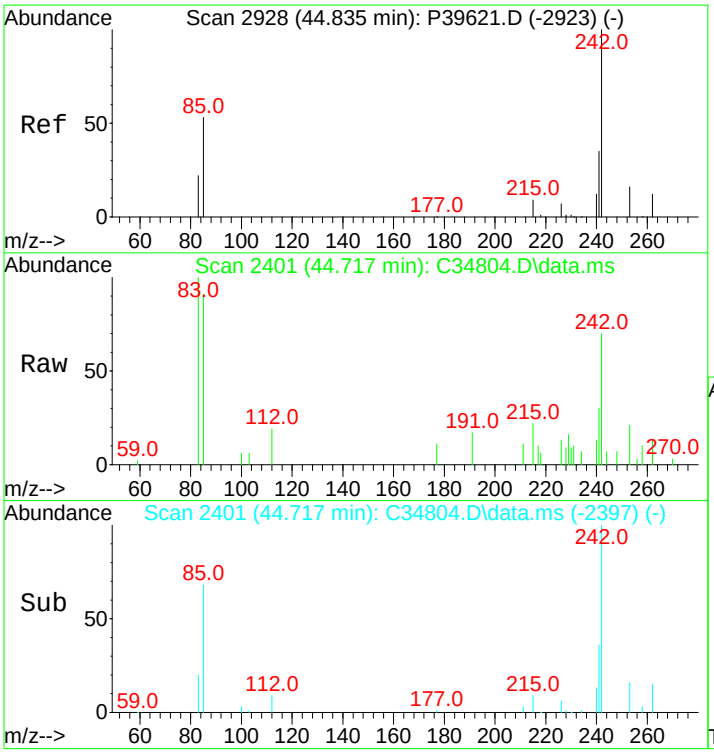


#77
Chrysene/Triphenylene
Concen: 186.62 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:228 Resp: 20557

Ion	Ratio	Lower	Upper
228	100		
226	36.3	23.7	35.5#

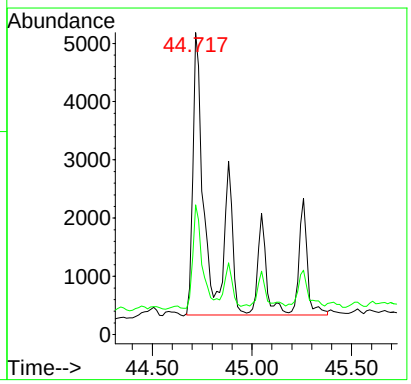


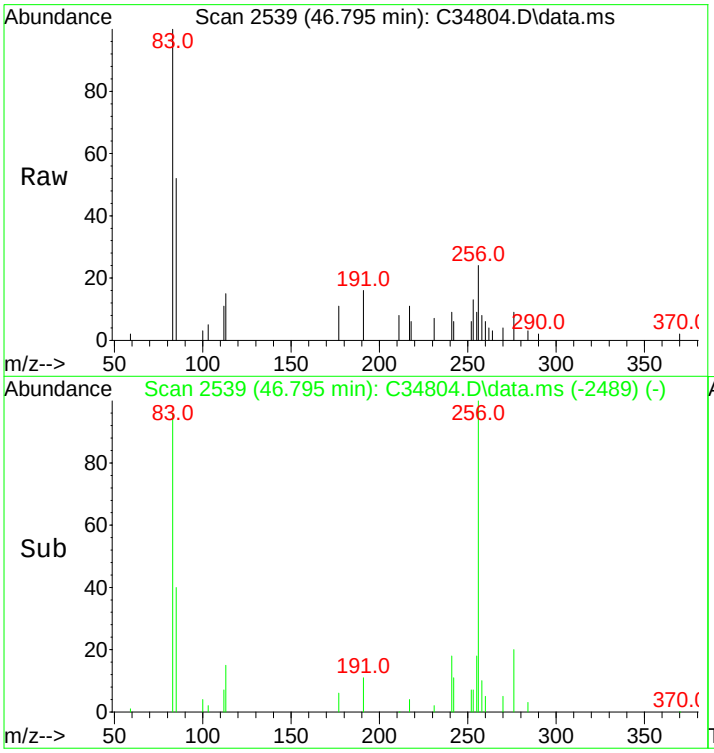


#78
C1-Chrysenes
Concen: 316.84 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:242 Resp: 34901

Ion	Ratio	Lower	Upper
242	100		
241	13.0	31.4	47.2#

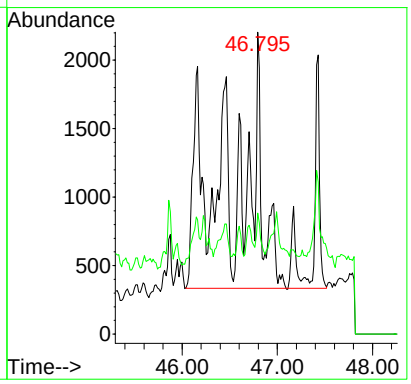


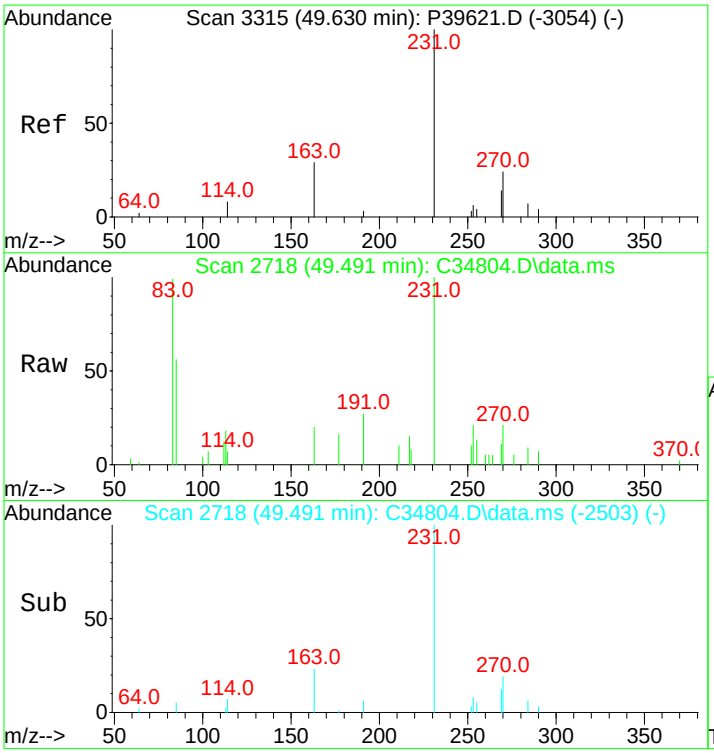


#79
C2-Chrysenes
Concen: 420.26 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:256 Resp: 46293

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

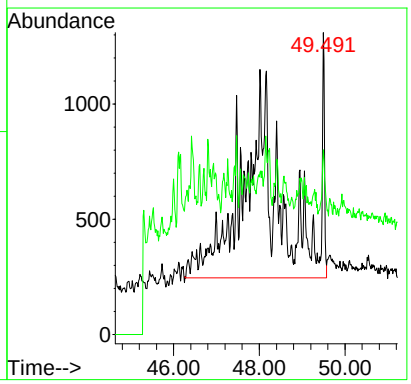


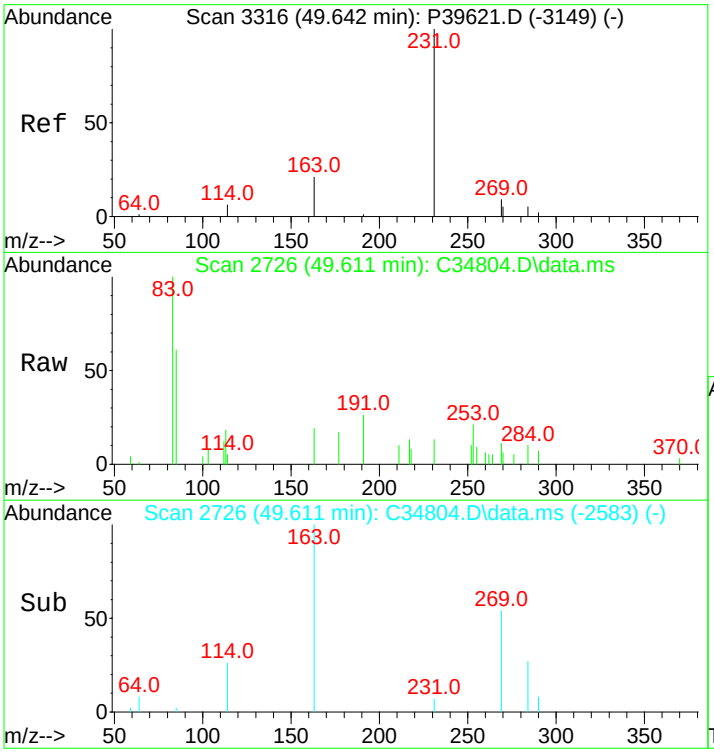


#80
C3-Chrysenes
Concen: 466.76 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:270 Resp: 51416

Ion	Ratio	Lower	Upper
270	100		
255	1.5	33.8	50.8#

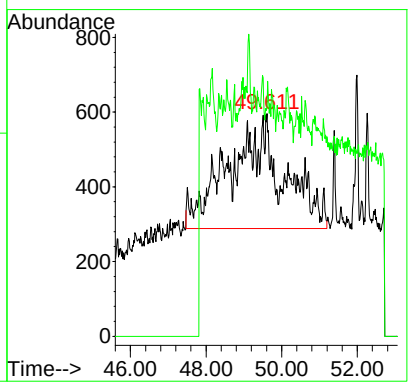


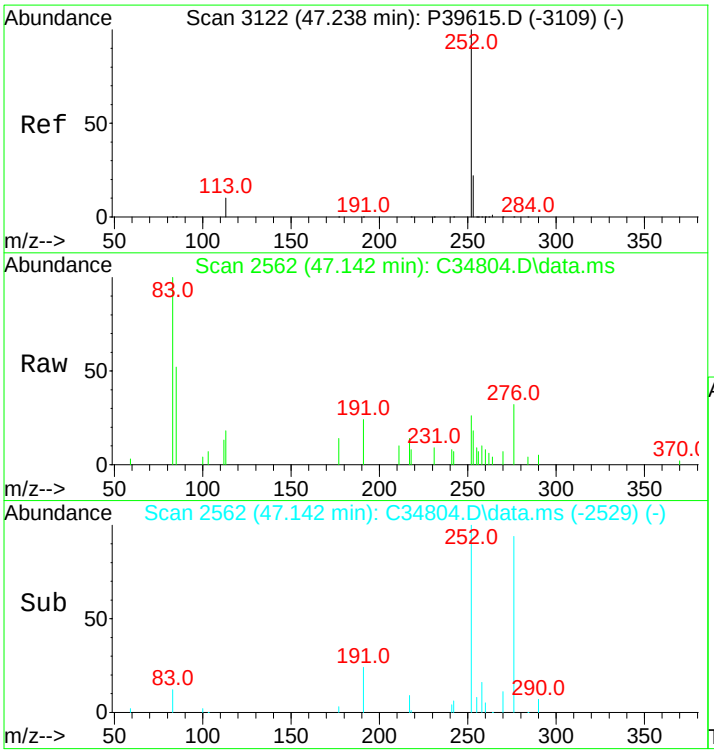


#81
C4-Chrysenes
Concen: 269.32 ng/mL m
RT: 49.611 min Scan# 2726
Delta R.T. 0.011 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:284 Resp: 29667

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

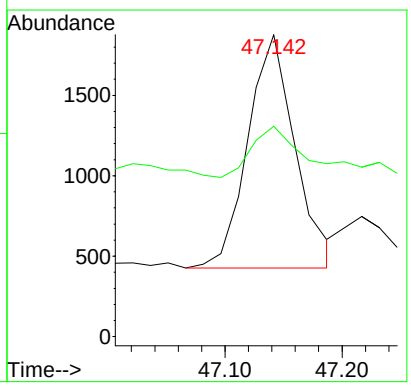


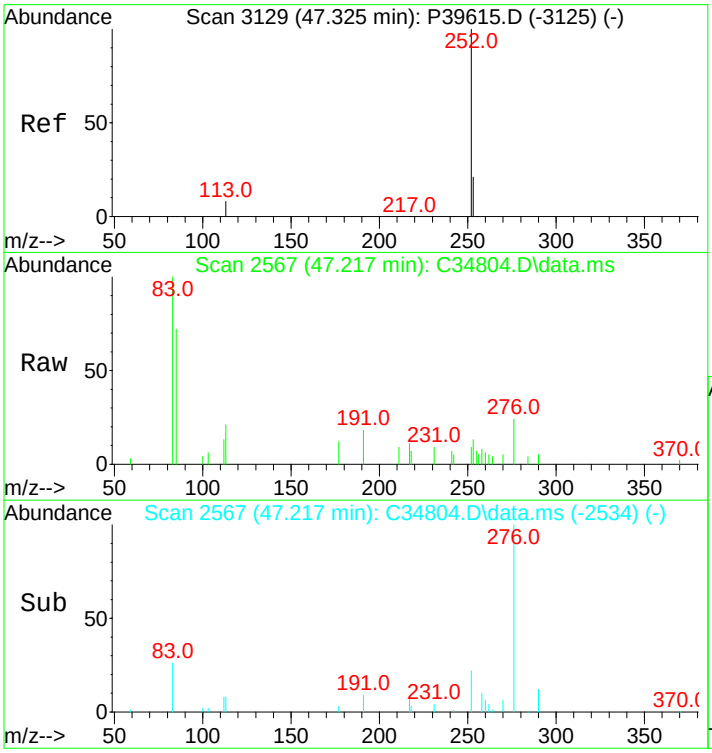


#82
Benzo[b]fluoranthene
Concen: 33.98 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 4074

Ion	Ratio	Lower	Upper
252	100		
253	28.8	19.0	28.4#

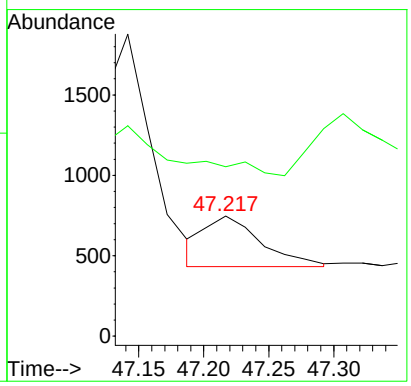


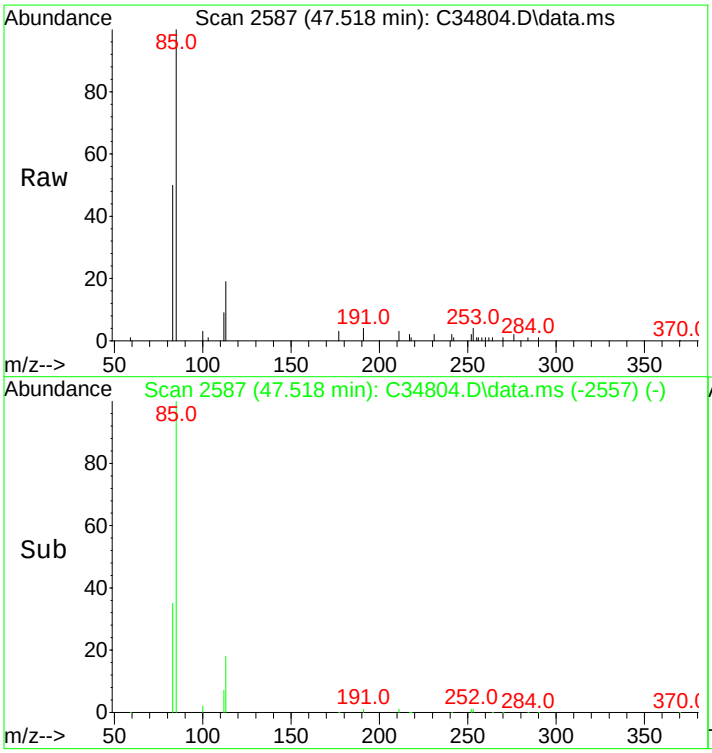


#83
Benzo[j]+[k]fluoranthene
Concen: 7.41 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 967

Ion	Ratio	Lower	Upper
252	100		
253	121.4	19.0	28.4#

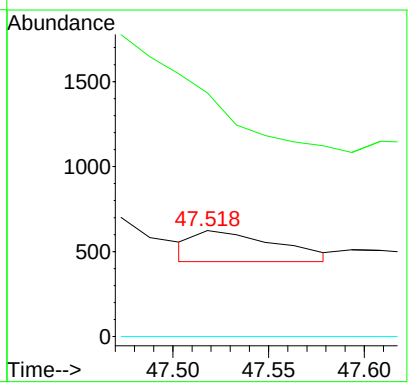


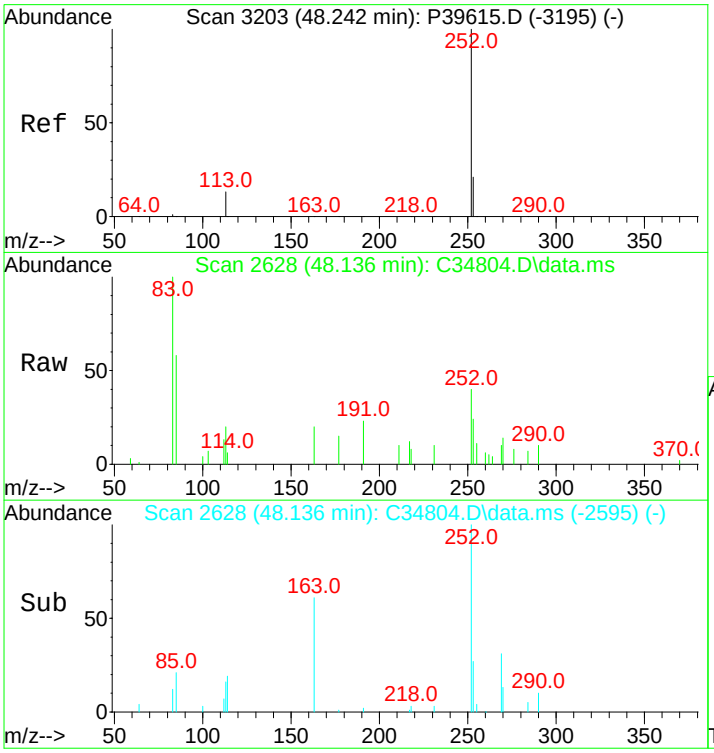


#84
Benzo[a]fluoranthene
Concen: 4.13 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.051 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 539

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

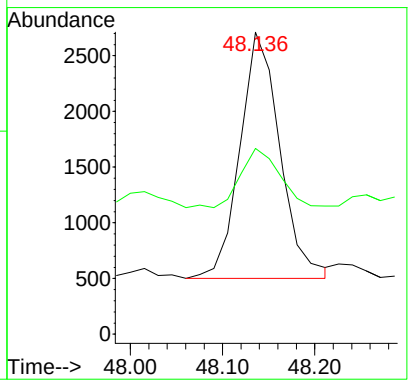


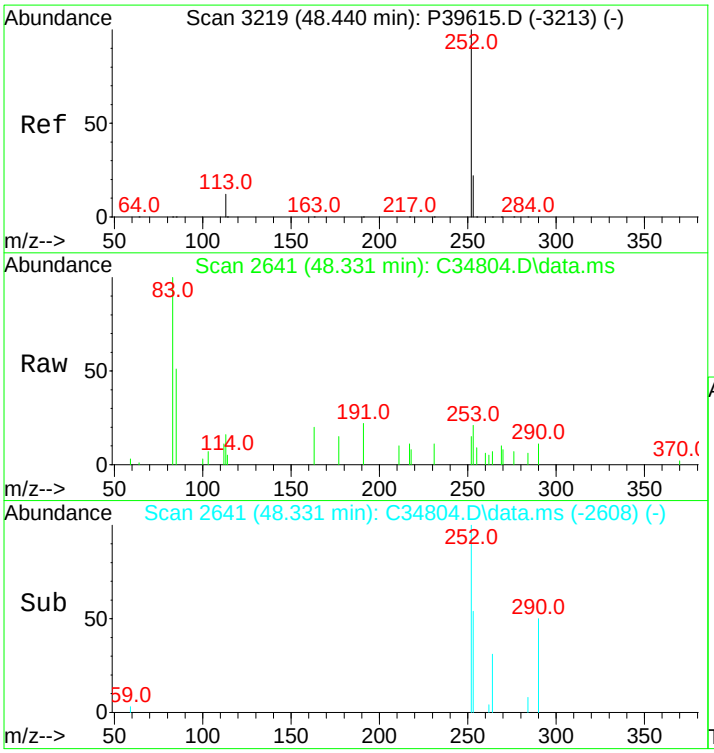


#85
Benzo[e]pyrene
Concen: 56.15 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 6659

Ion	Ratio	Lower	Upper
252	100		
253	23.6	19.2	28.8

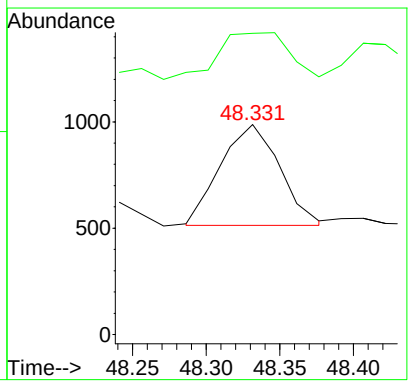


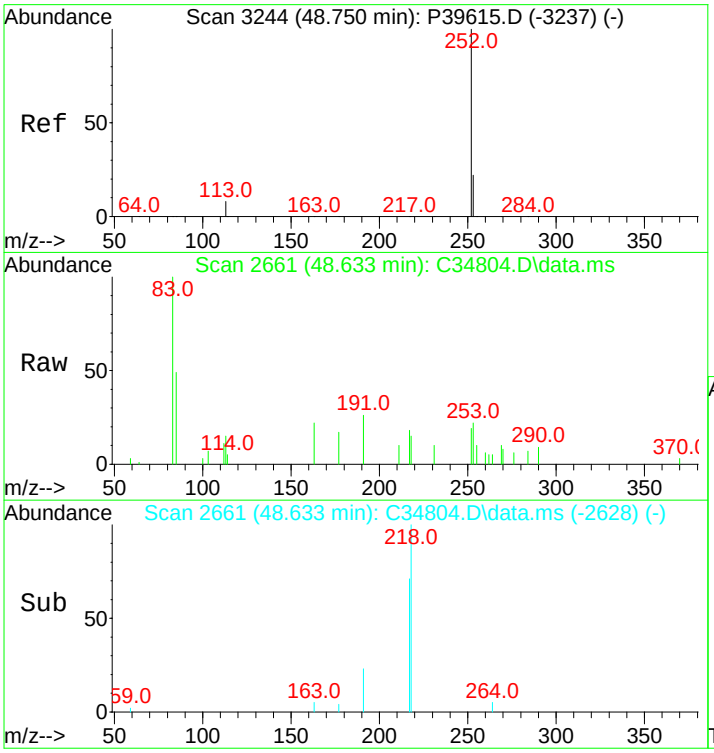


#87
Benzo[a]pyrene
Concen: 11.64 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 1329

Ion	Ratio	Lower	Upper
252	100		
253	118.2	19.5	29.3#

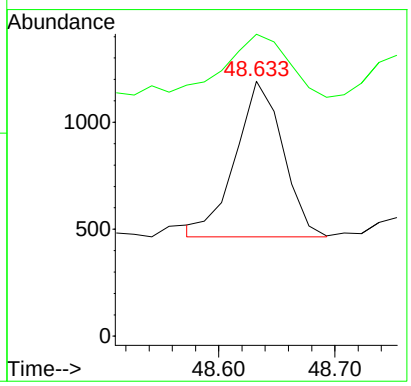


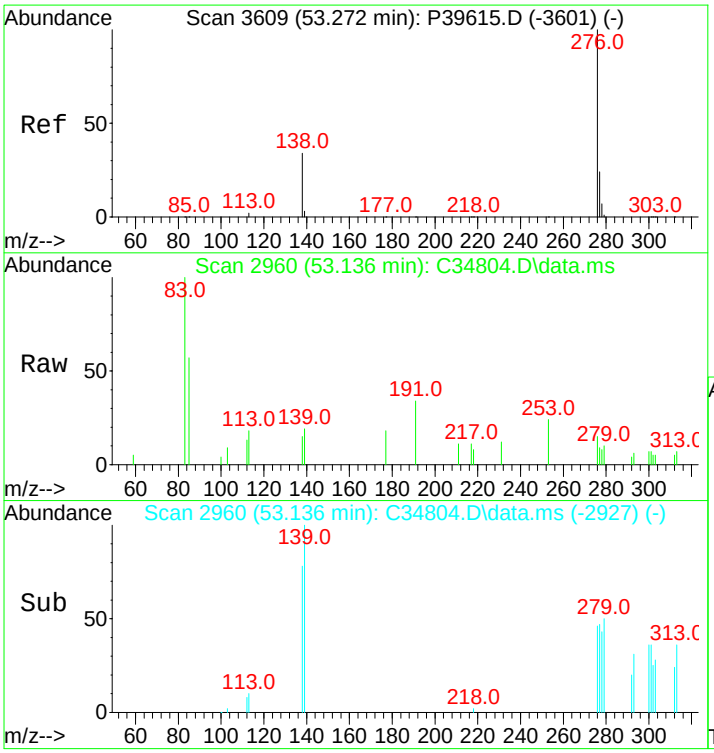


#88
Perylene
Concen: 16.87 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:252 Resp: 2058

Ion	Ratio	Lower	Upper
252	100		
253	57.2	19.6	29.4#

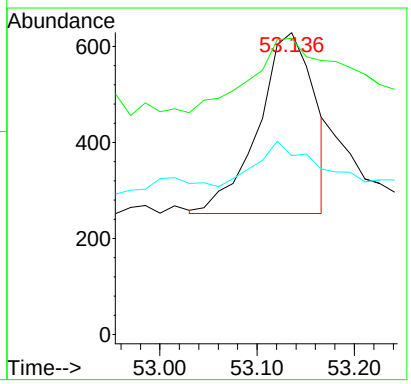


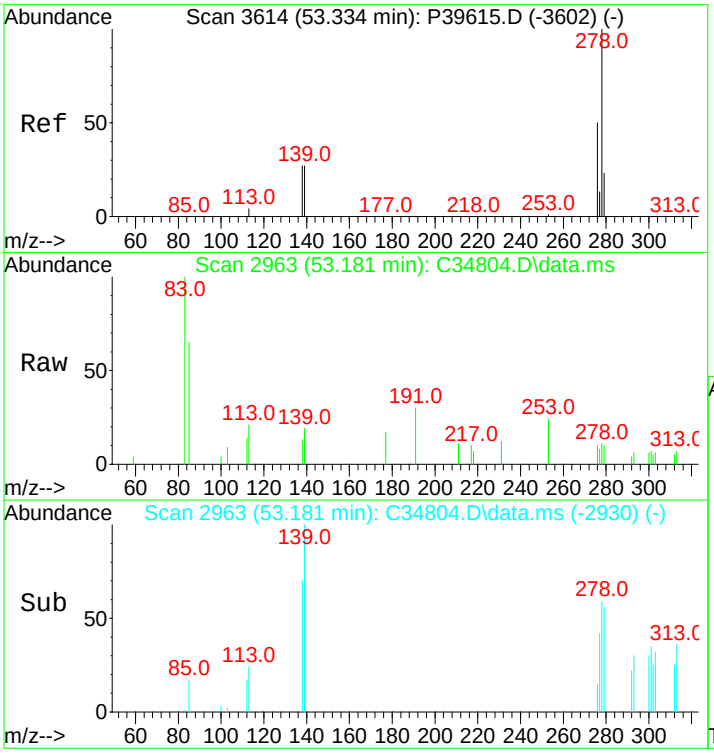


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.43 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:276 Resp: 1518

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

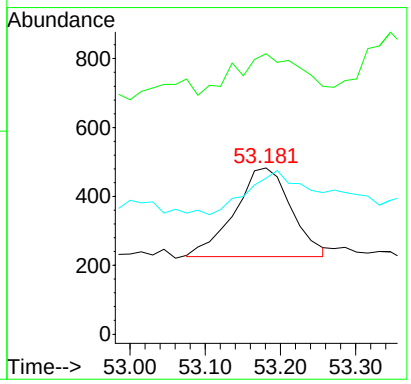


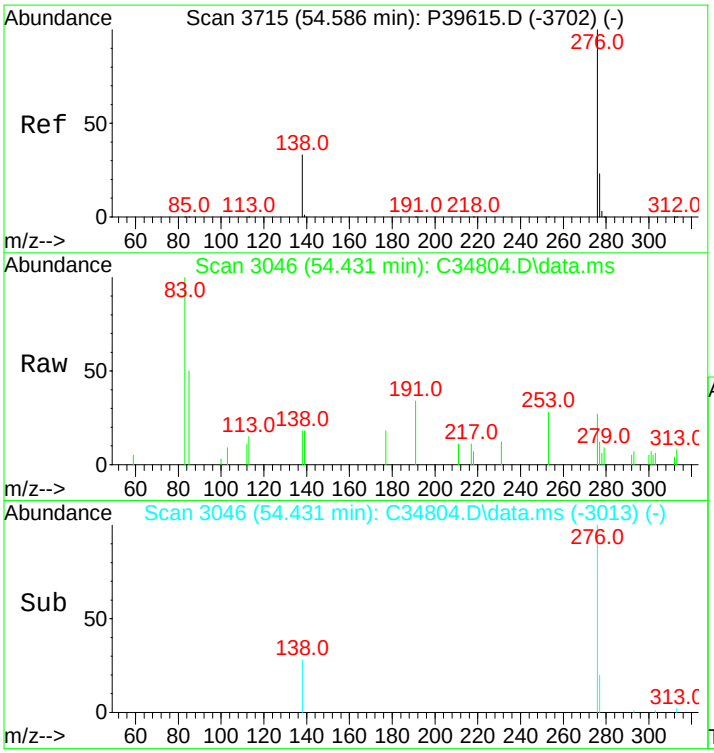


#90
Dibenz[ah]+[ac]anthracene
Concen: 10.67 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:278 Resp: 1349

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

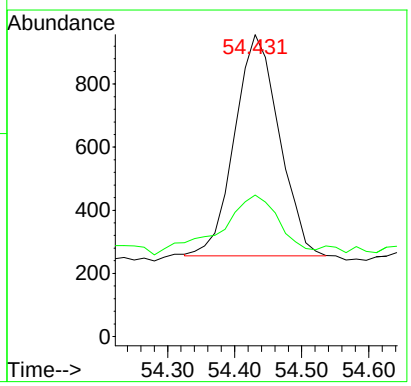


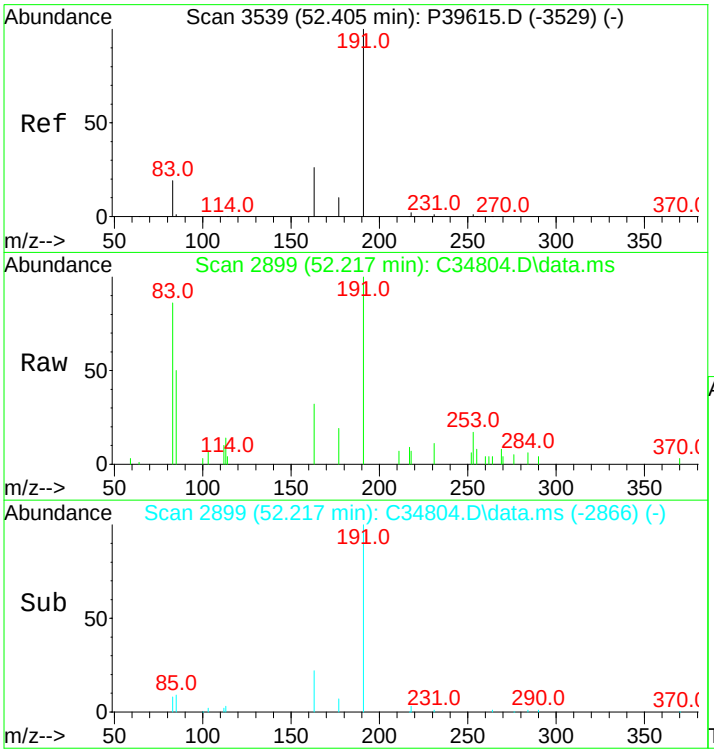


#91
Benzo[g,h,i]perylene
Concen: 23.05 ng/mL m
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:276 Resp: 3235

Ion	Ratio	Lower	Upper
276	100		
277	35.7	18.9	28.3#

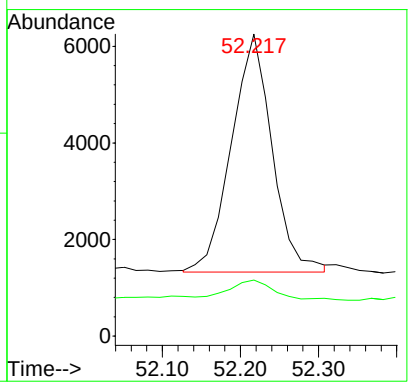


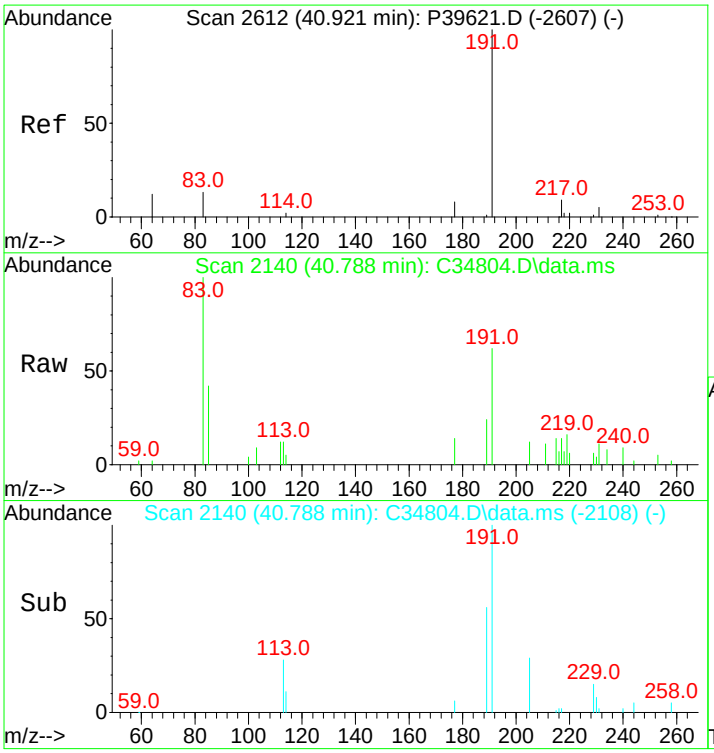


#92
Hopane (T19)
Concen: 786.58 ng/mL m
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:191 Resp: 17821

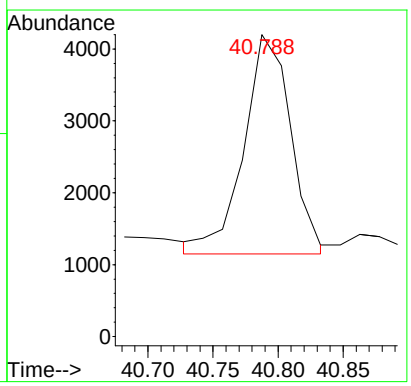
Ion	Ratio	Lower	Upper
191	100		
177	9.6	14.6	21.8#

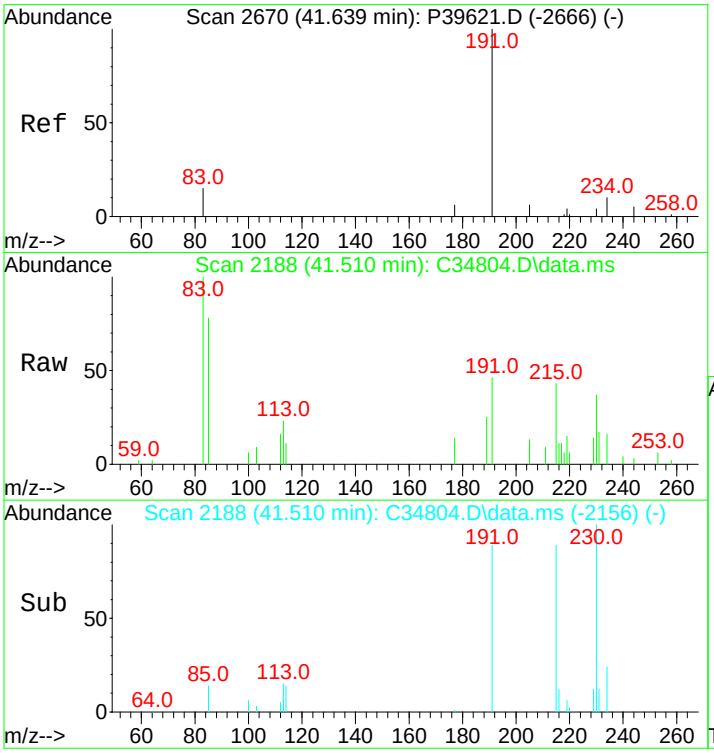




#94
C23 Tricyclic Terpane (T4)
Concen: 337.35 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

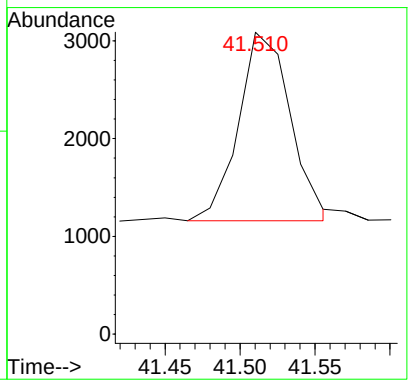
Tgt Ion:191 Resp: 7643

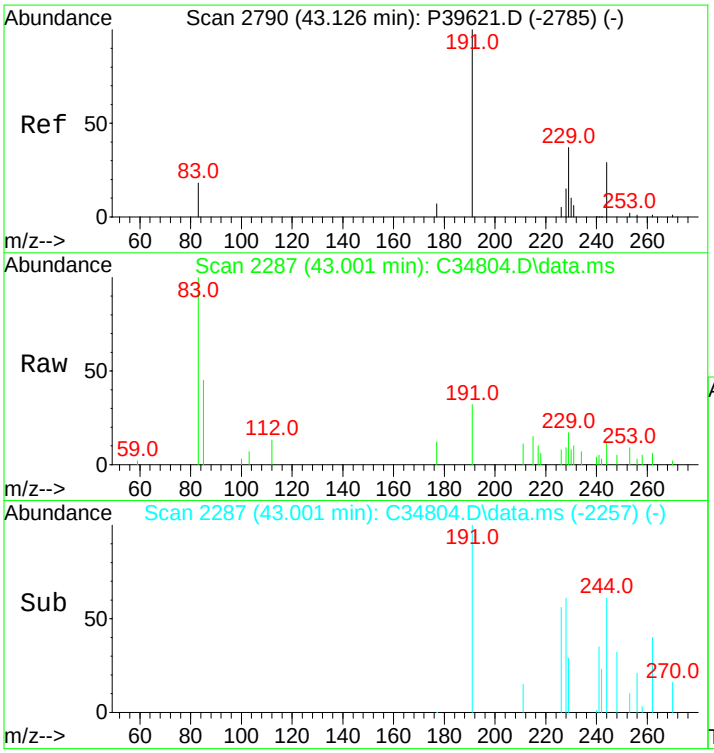




#95
C24 Tricyclic Terpane (T5)
Concen: 204.80 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

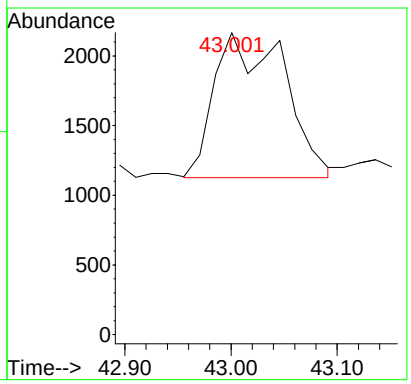
Tgt Ion:191 Resp: 4640

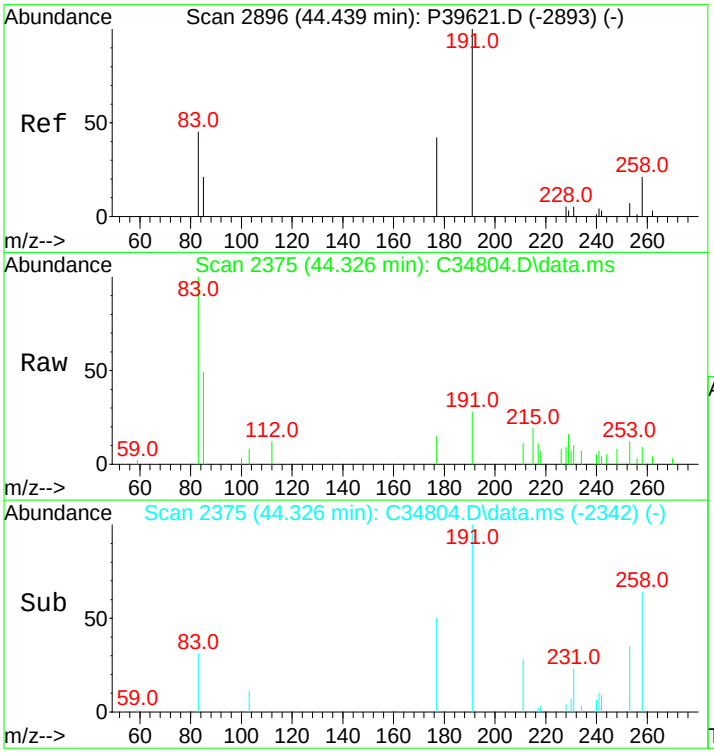




#96
C25 Tricyclic Terpane (T6)
Concen: 209.74 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

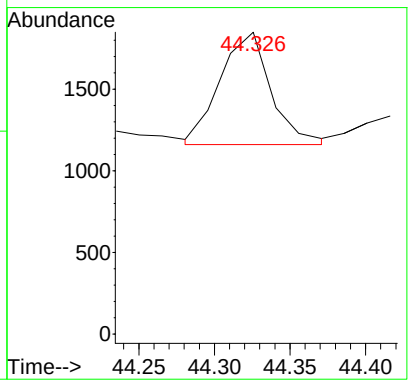
Tgt Ion:191 Resp: 4752

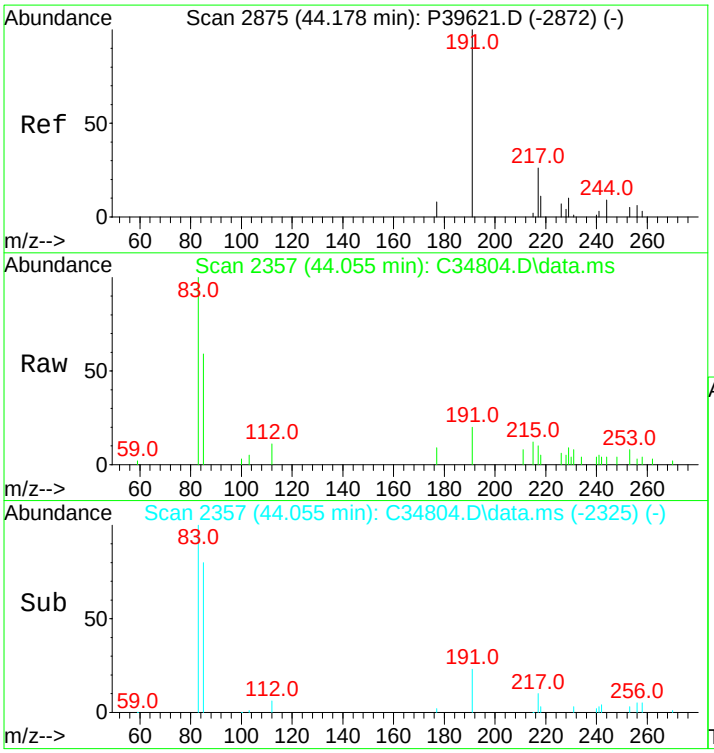




#97
C24 Tetracyclic Terpane (T6a)
Concen: 71.37 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

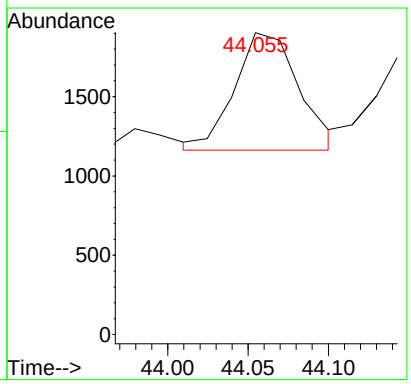
Tgt Ion:191 Resp: 1617

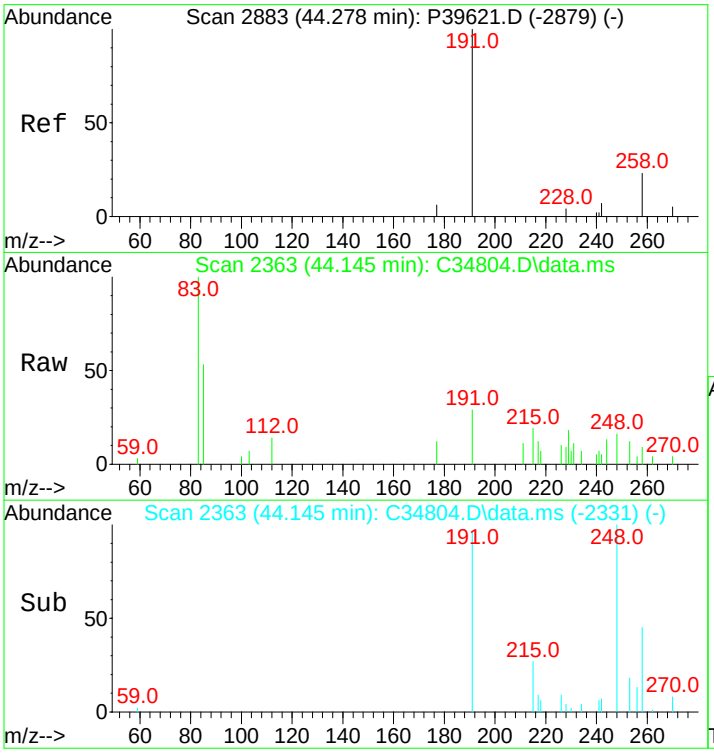




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.10 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

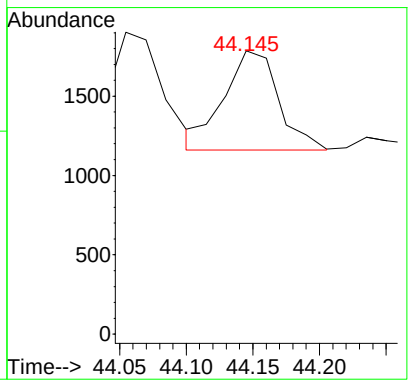
Tgt Ion:191 Resp: 2064

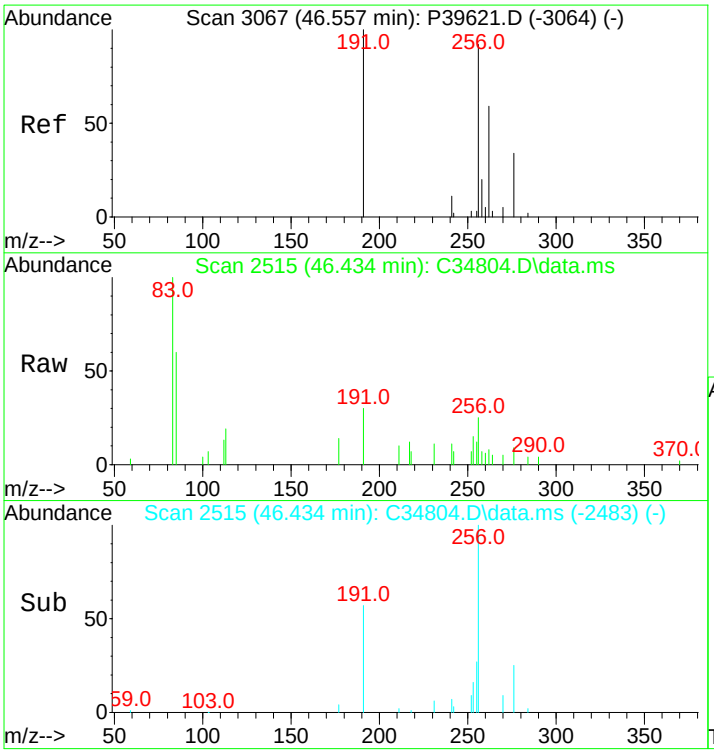




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 78.26 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

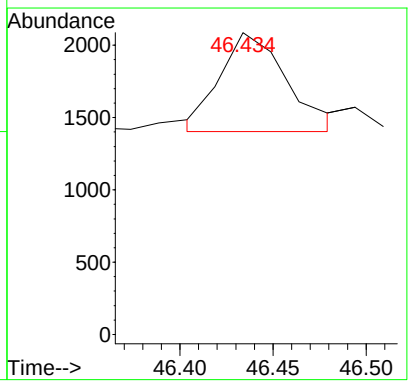
Tgt Ion:191 Resp: 1773

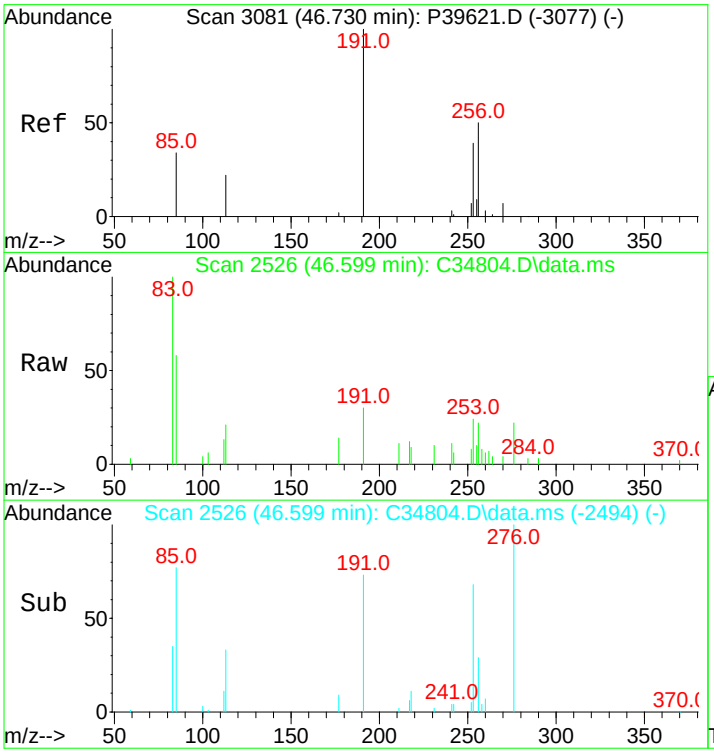




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 74.99 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

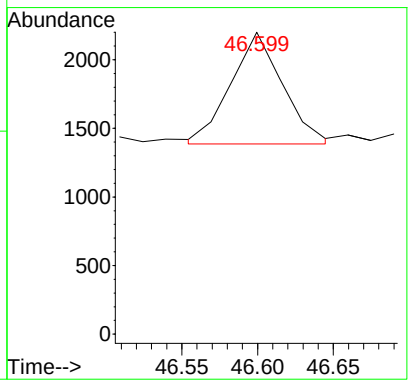
Tgt Ion:191 Resp: 1699

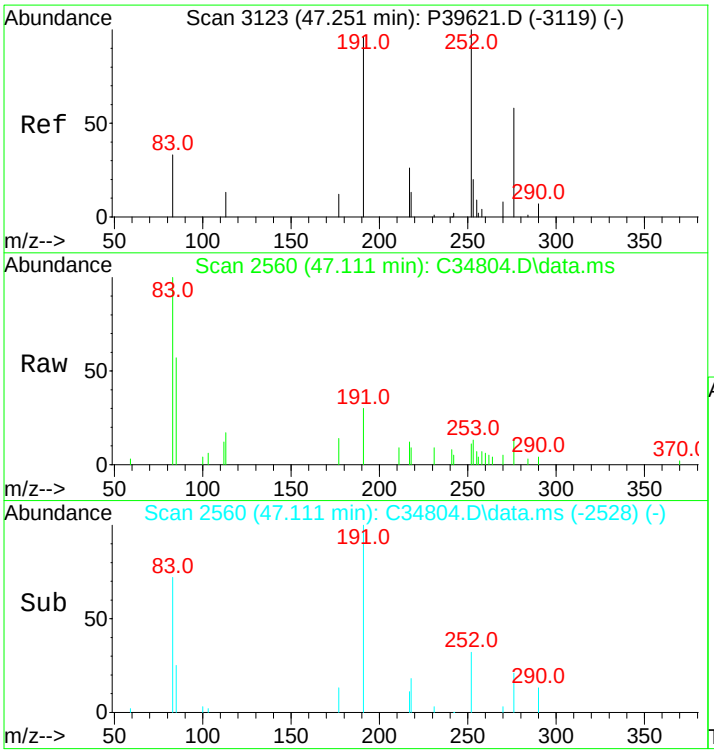




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 85.63 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

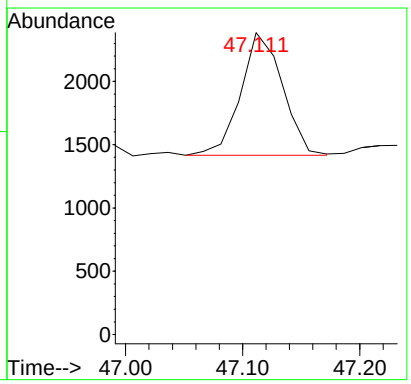
Tgt Ion:191 Resp: 1940

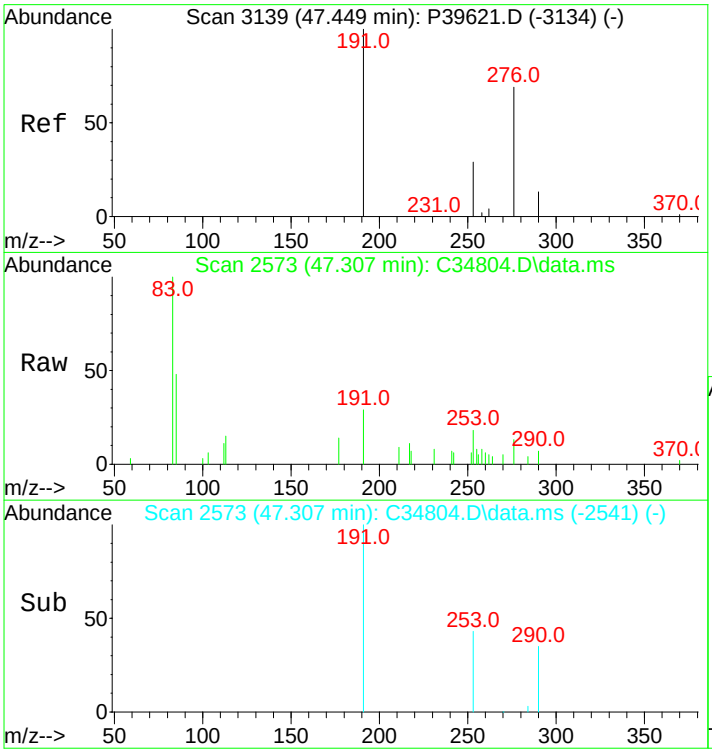




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 106.02 ng/ml
RT: 47.111 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

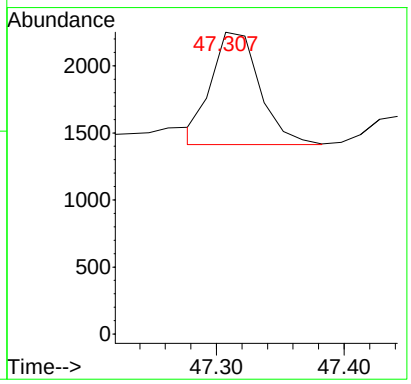
Tgt Ion:191 Resp: 2402

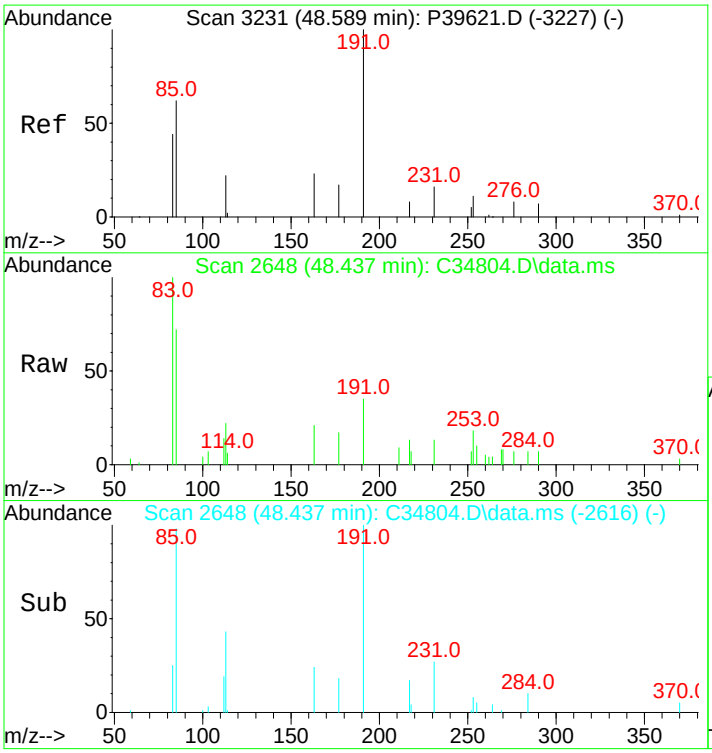




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 97.72 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

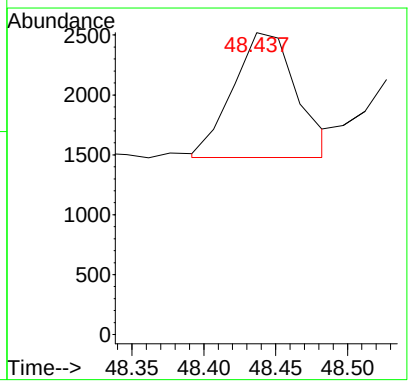
Tgt Ion:191 Resp: 2214

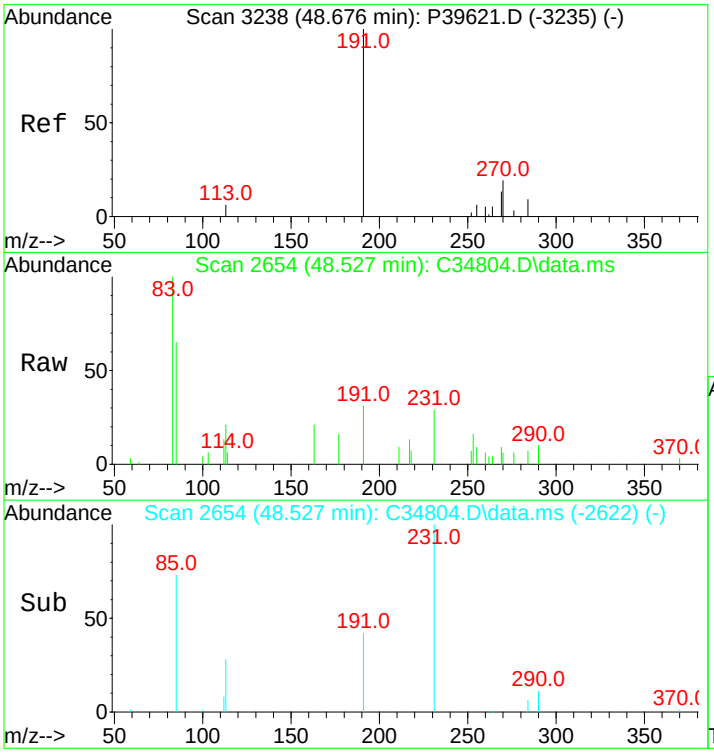




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 142.34 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

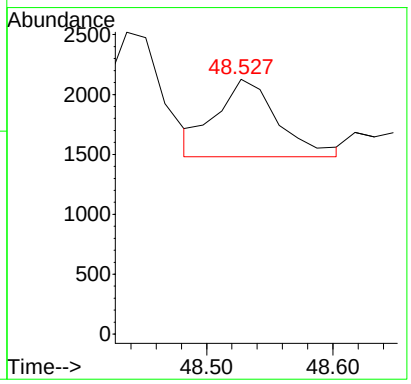
Tgt Ion:191 Resp: 3225

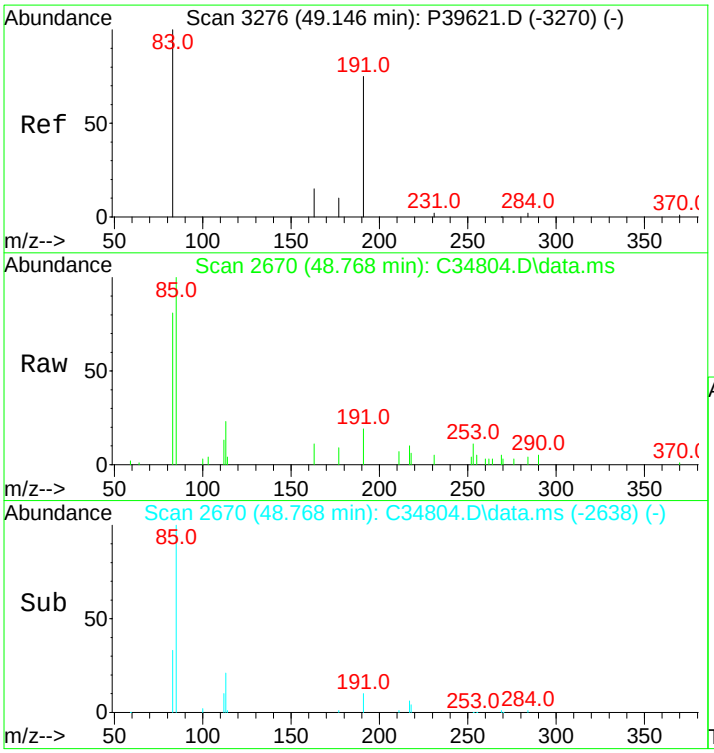




#105
C30 Tricyclic Terpane-22S
Concen: 96.49 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

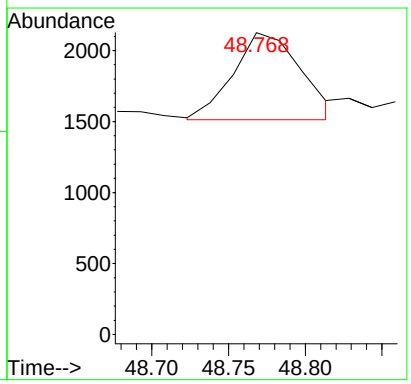
Tgt Ion:191 Resp: 2186

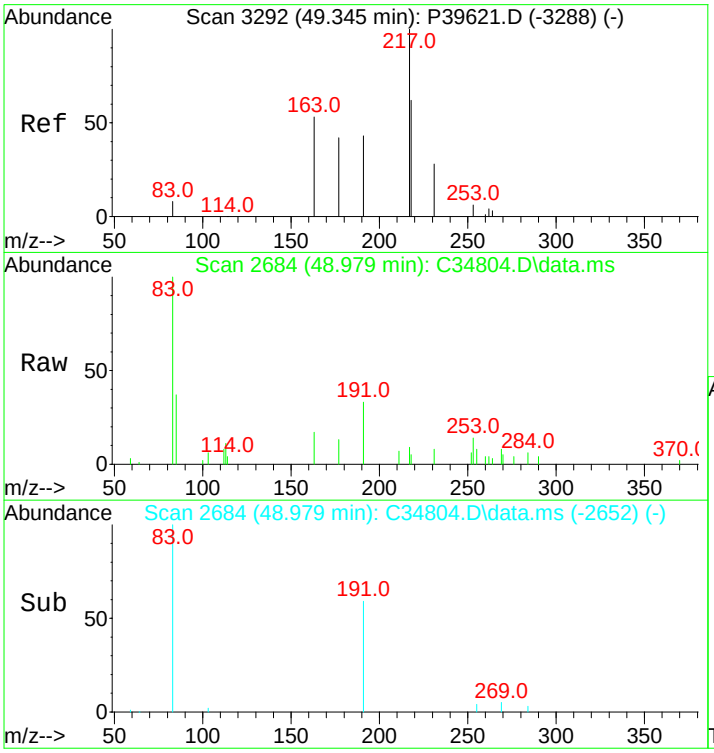




#106
C30 Tricyclic Terpane-22R
Concen: 83.02 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

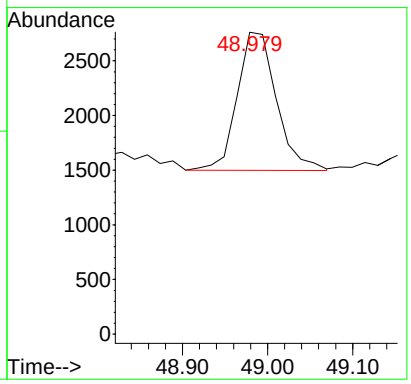
Tgt Ion:191 Resp: 1881

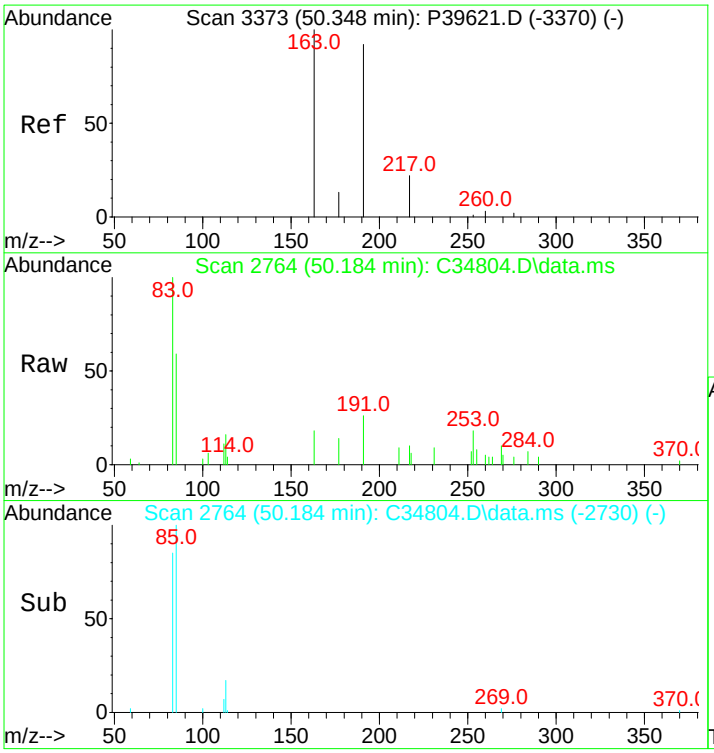




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 178.85 ng/ml
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

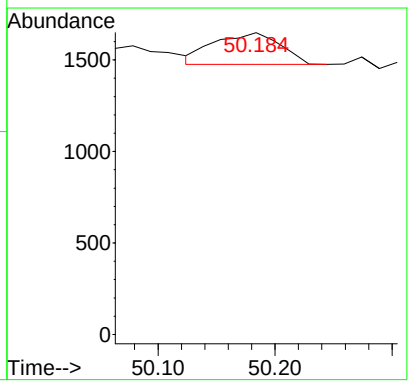
Tgt Ion:191 Resp: 4052

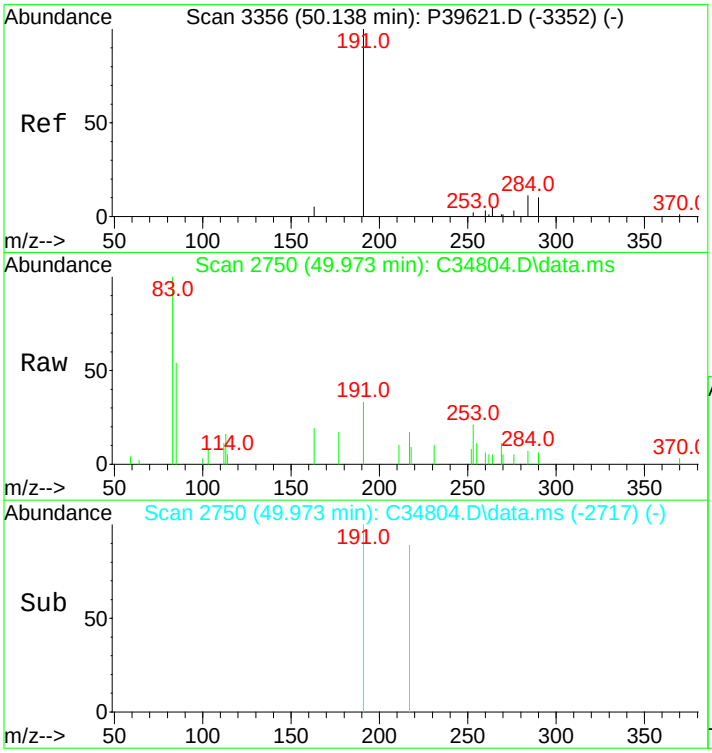




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 29.93 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

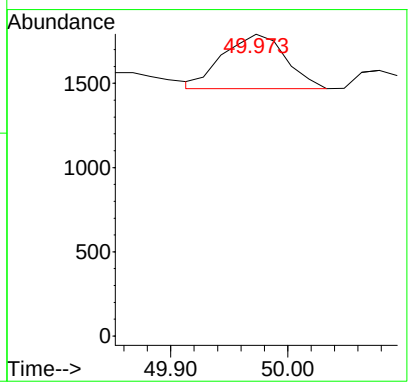
Tgt Ion:191 Resp: 678

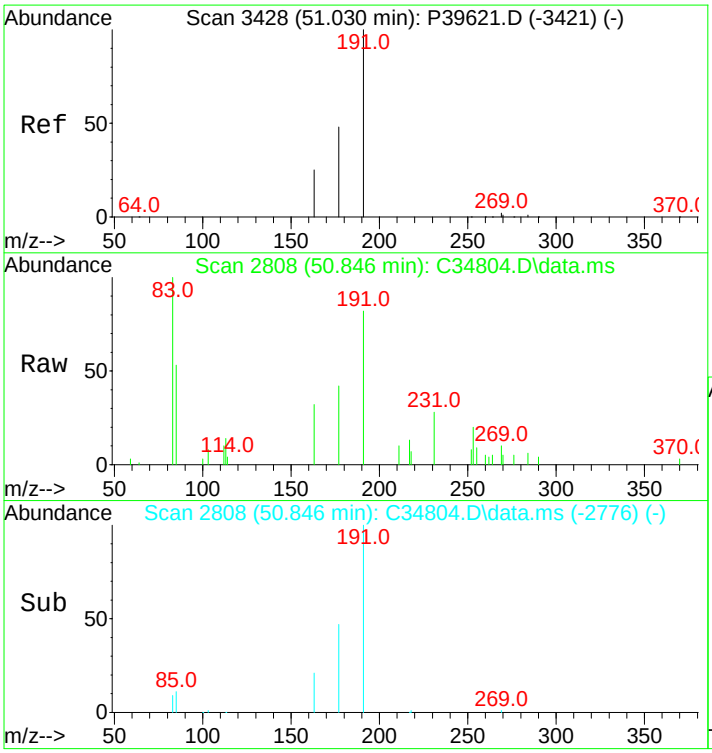




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 53.19 ng/ml
RT: 49.973 min Scan# 2750
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

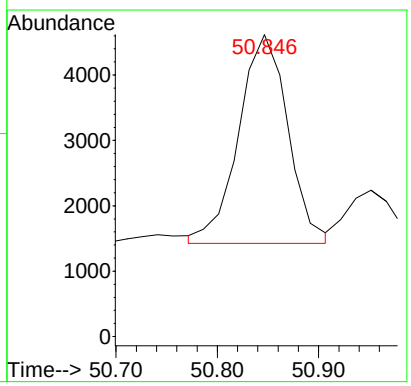
Tgt Ion:191 Resp: 1205

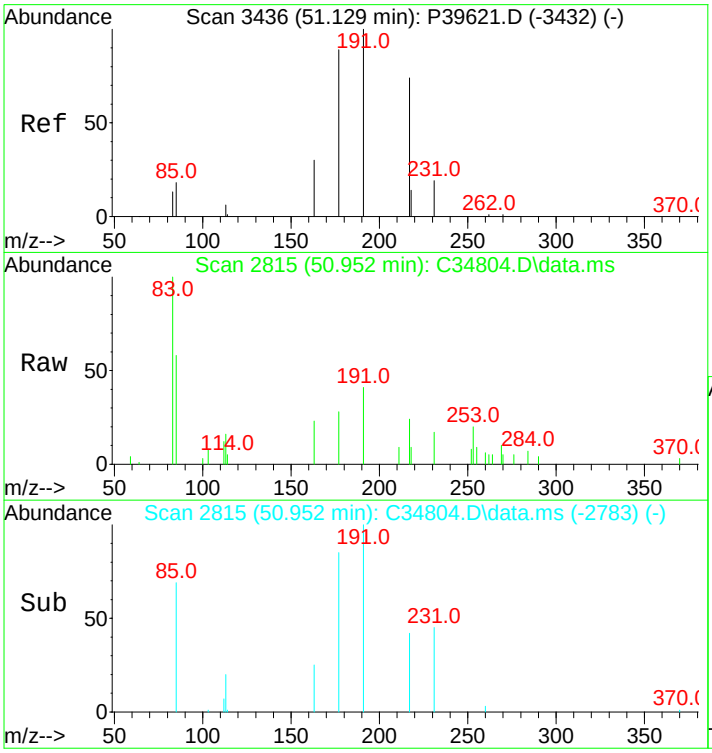




#110
30-Norhopane (T15)
Concen: 475.94 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

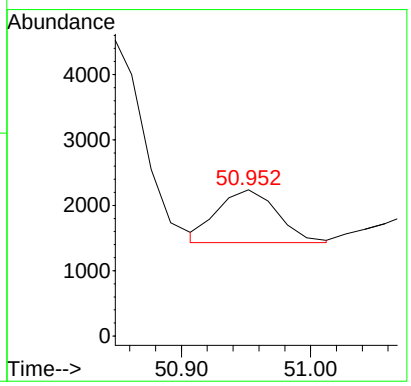
Tgt Ion:191 Resp: 10783

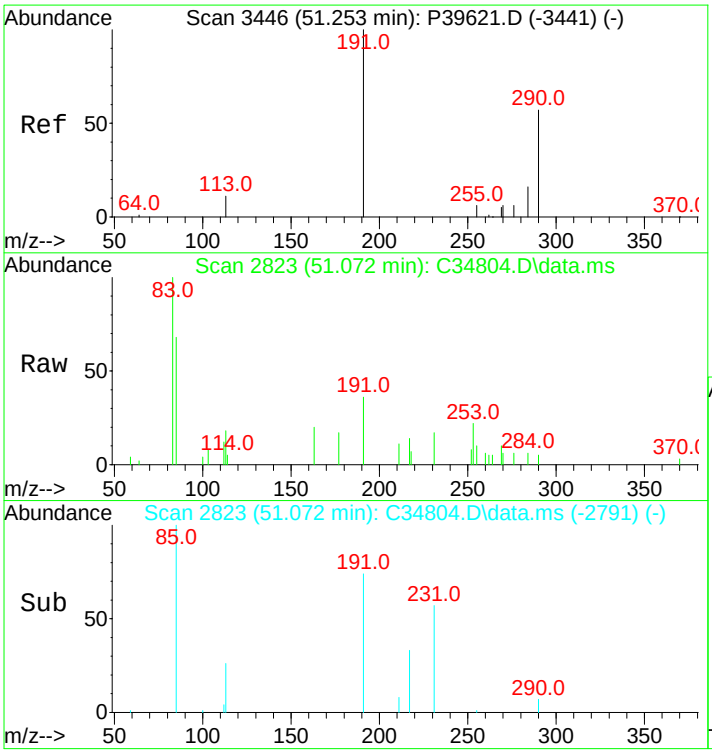




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 114.49 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

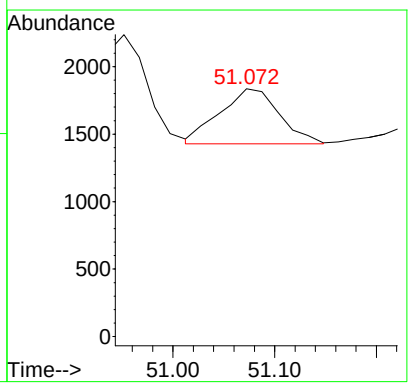
Tgt Ion:191 Resp: 2594

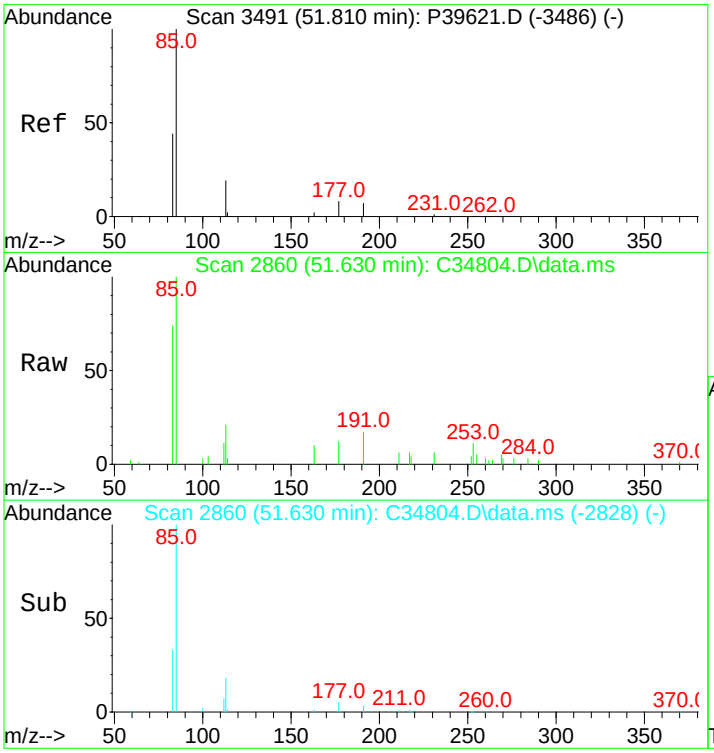




#112
17a(H)-Diahopane (X)
Concen: 73.40 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

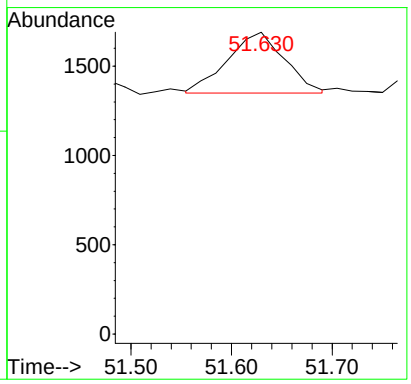
Tgt Ion:191 Resp: 1663

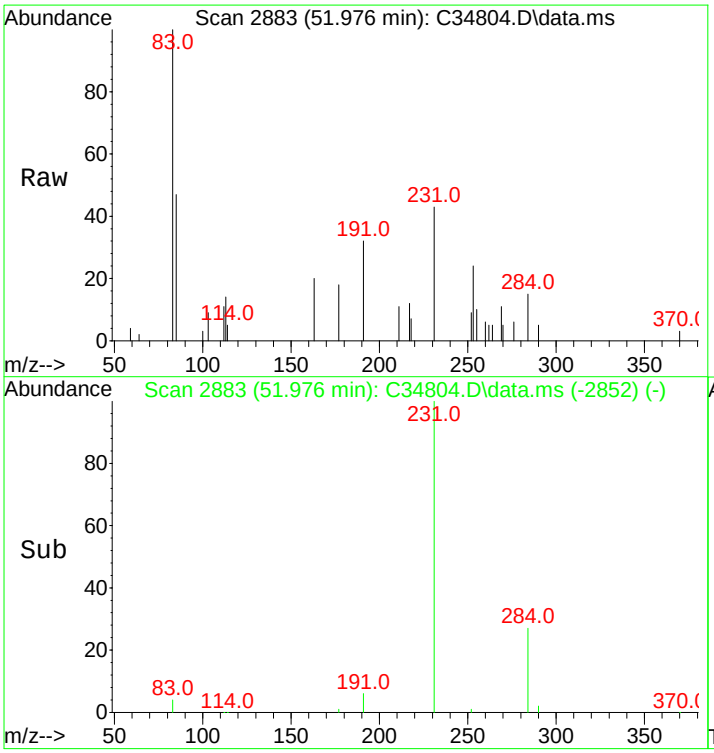




#113
30-Normoretane (T17)
Concen: 59.45 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

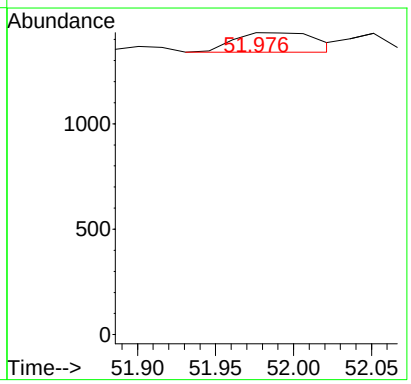
Tgt Ion:191 Resp: 1347

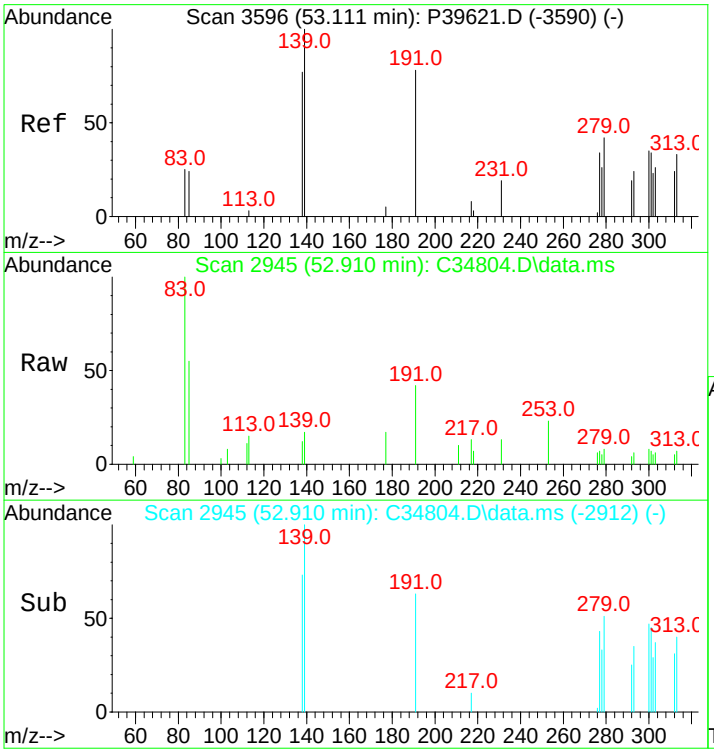




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 15.45 ng/ml
RT: 51.976 min Scan# 2883
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

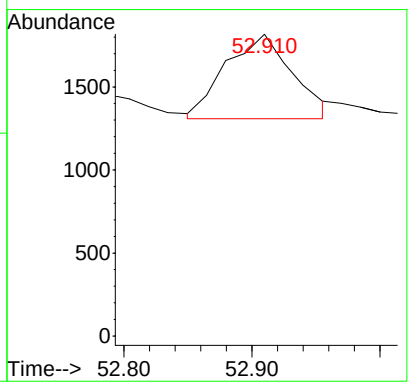
Tgt Ion:191 Resp: 350

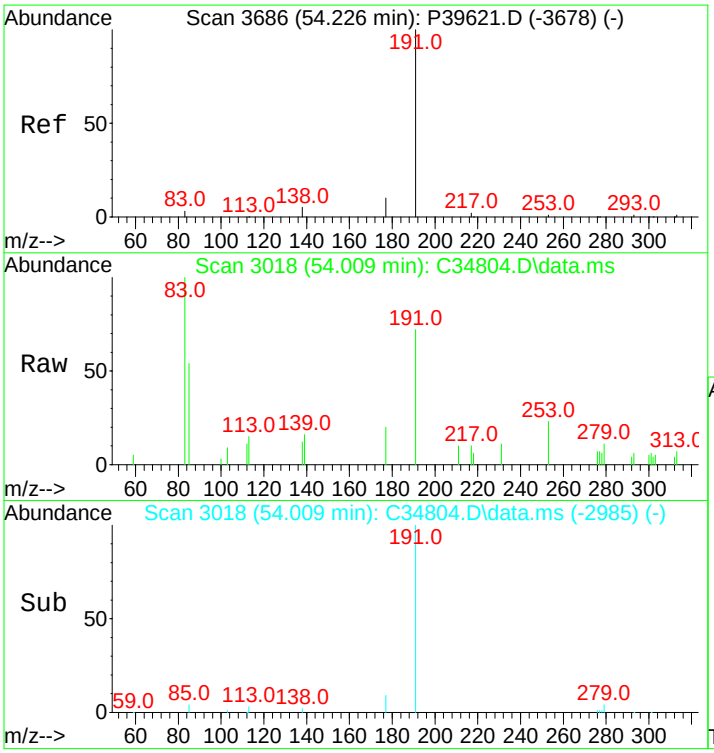




#115
Moretane (T20)
Concen: 81.48 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

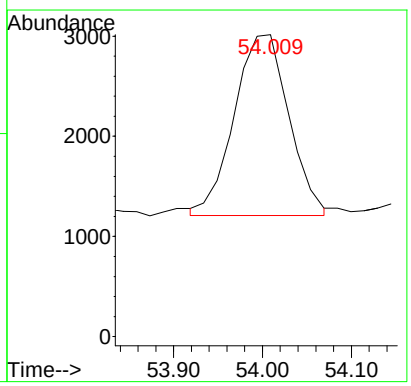
Tgt Ion:191 Resp: 1846

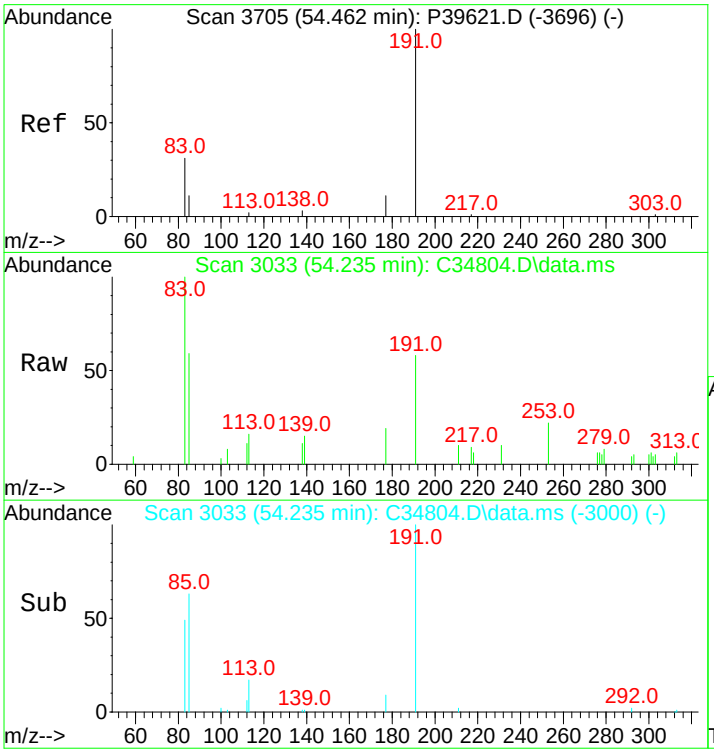




#116
30-Homohopane-22S (T21)
Concen: 340.48 ng/ml m
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

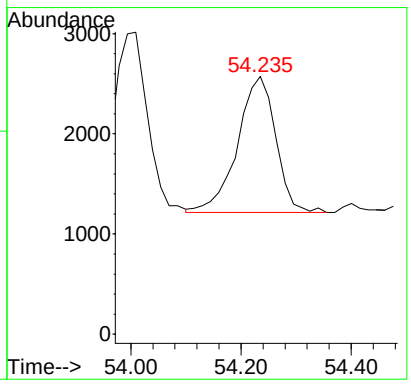
Tgt Ion:191 Resp: 7714

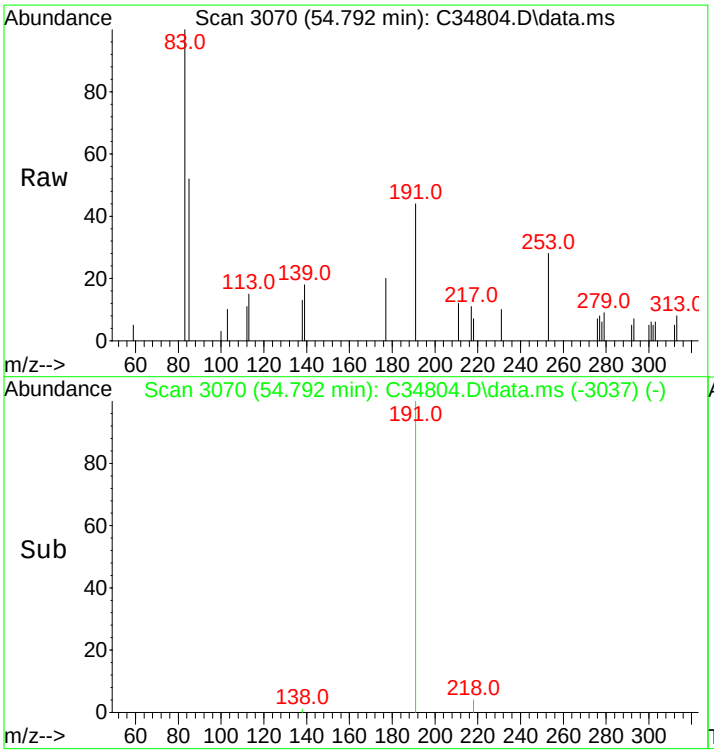




#117
30-Homohopane-22R (T22)
Concen: 288.97 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

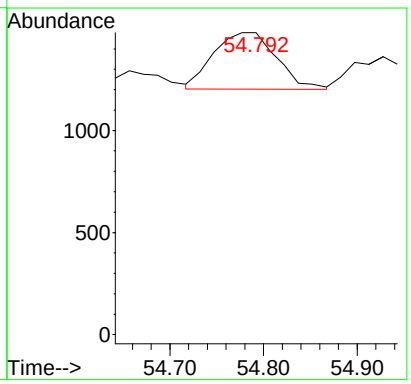
Tgt Ion:191 Resp: 6547

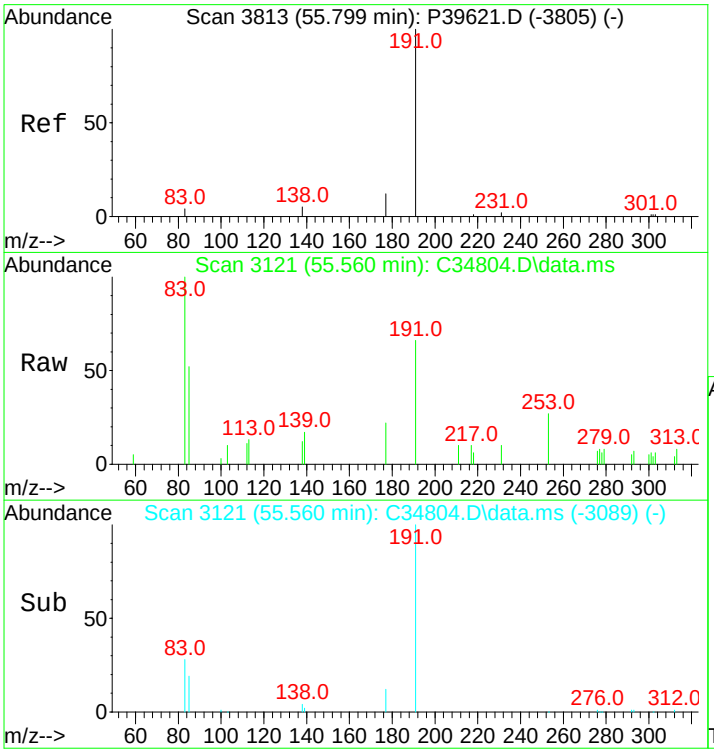




#118
Gammacerane/C32-diahopane
Concen: 57.03 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

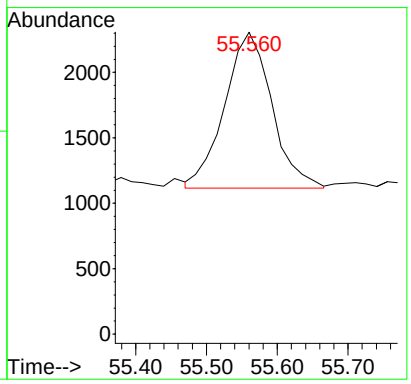
Tgt Ion:191 Resp: 1292

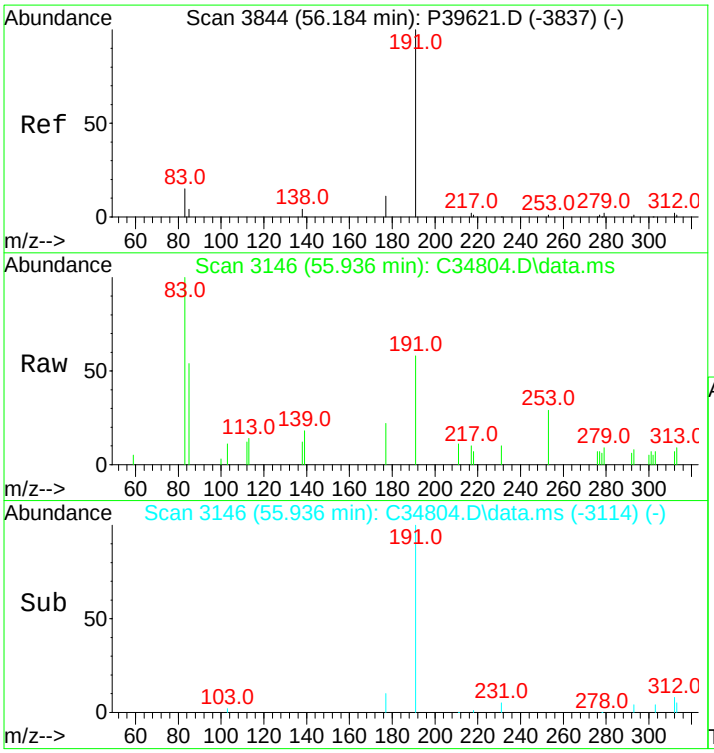




#119
30,31-Bishomohopane-22S (T26)
Concen: 243.51 ng/ml m
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

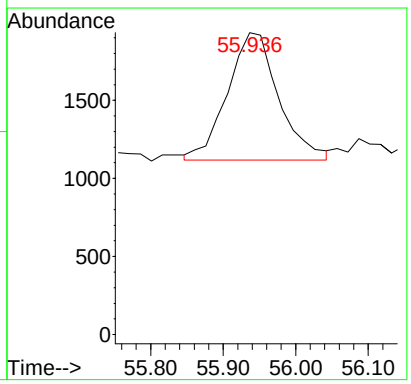
Tgt Ion:191 Resp: 5517

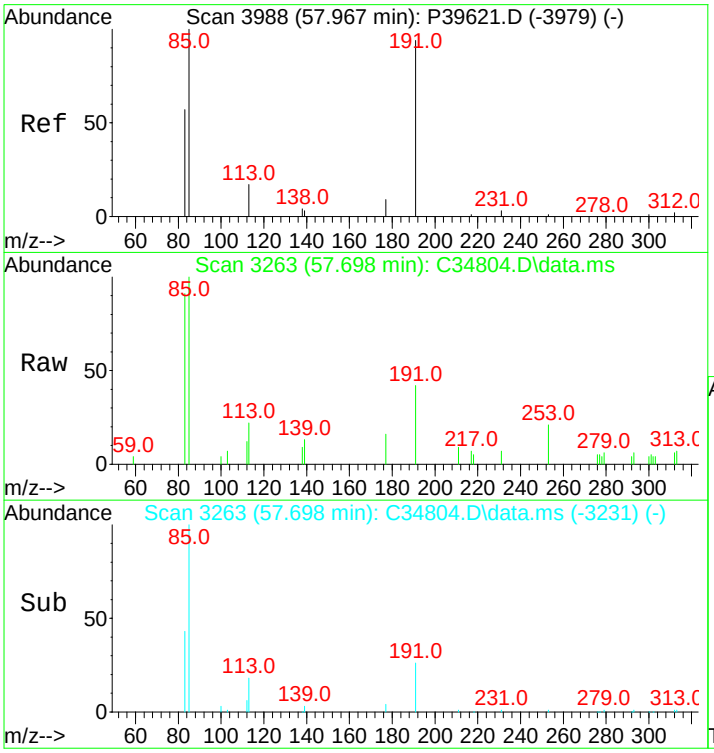




#120
30,31-Bishomohopane-22R (T27)
Concen: 177.21 ng/ml m
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

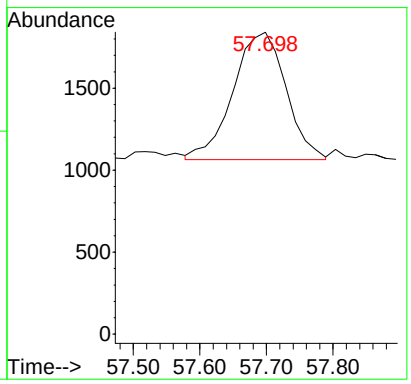
Tgt Ion:191 Resp: 4015

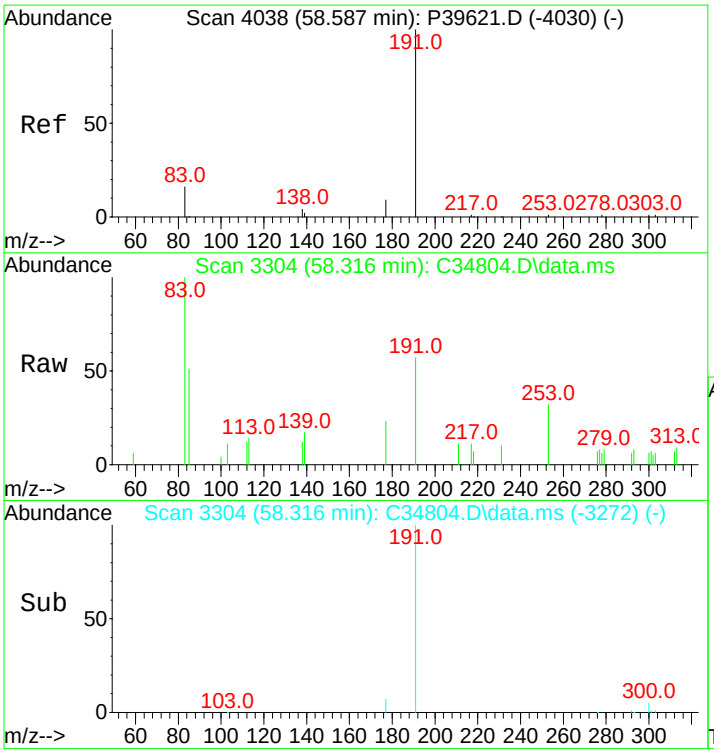




#121
30,31-Trishomohopane-22S (T30)
Concen: 188.95 ng/ml m
RT: 57.698 min Scan# 3263
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

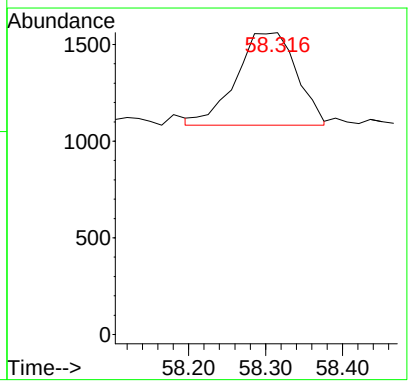
Tgt Ion:191 Resp: 4281

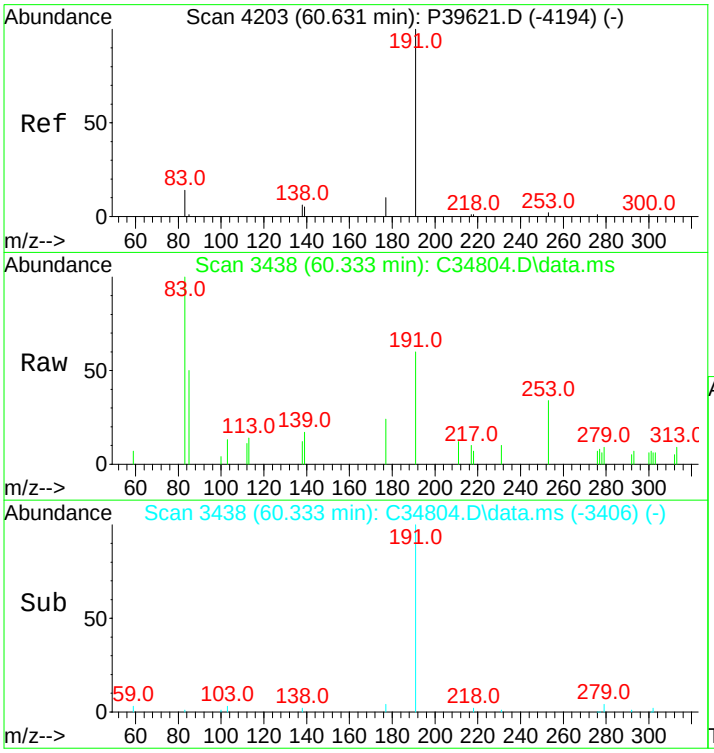




#122
30,31-Trishomohopane-22R (T31)
Concen: 115.24 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

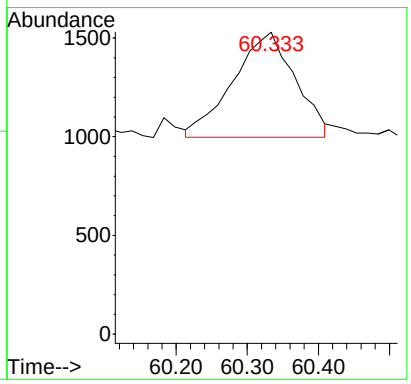
Tgt Ion:191 Resp: 2611

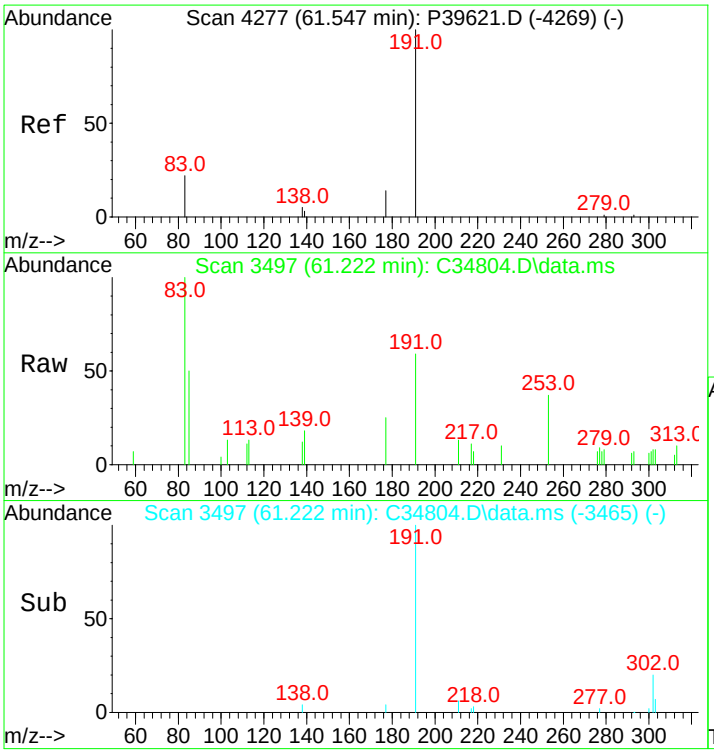




#123
Tetrakishomohopane-22S (T32)
Concen: 141.99 ng/ml m
RT: 60.333 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

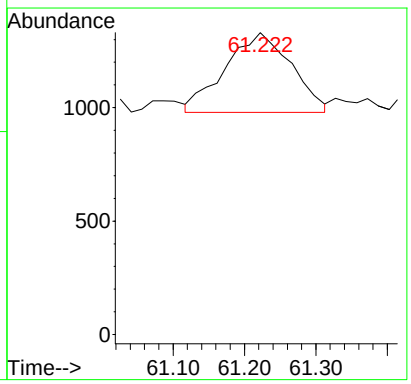
Tgt Ion:191 Resp: 3217

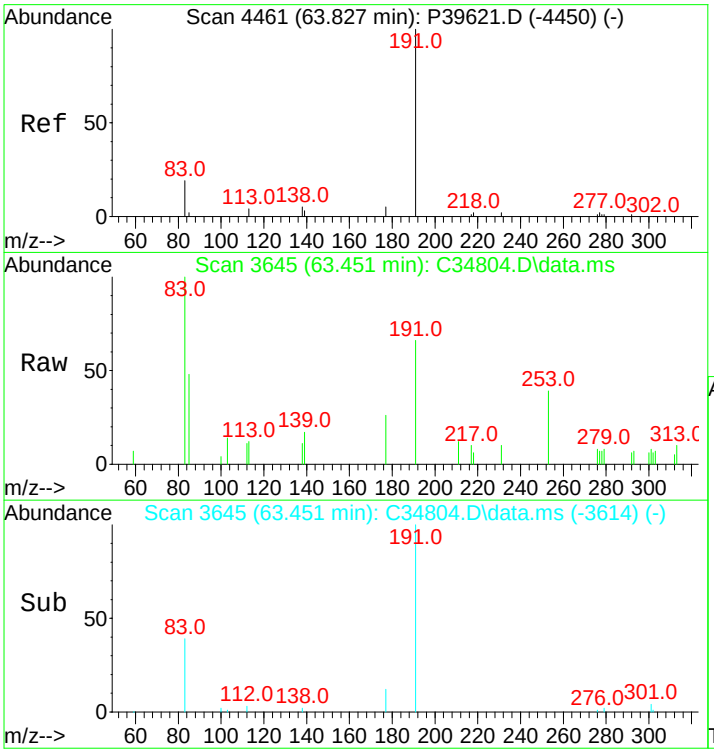




#124
Tetrakishomohopane-22R (T33)
Concen: 99.49 ng/ml m
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

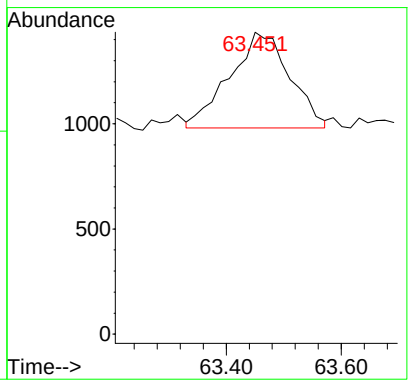
Tgt Ion:191 Resp: 2254

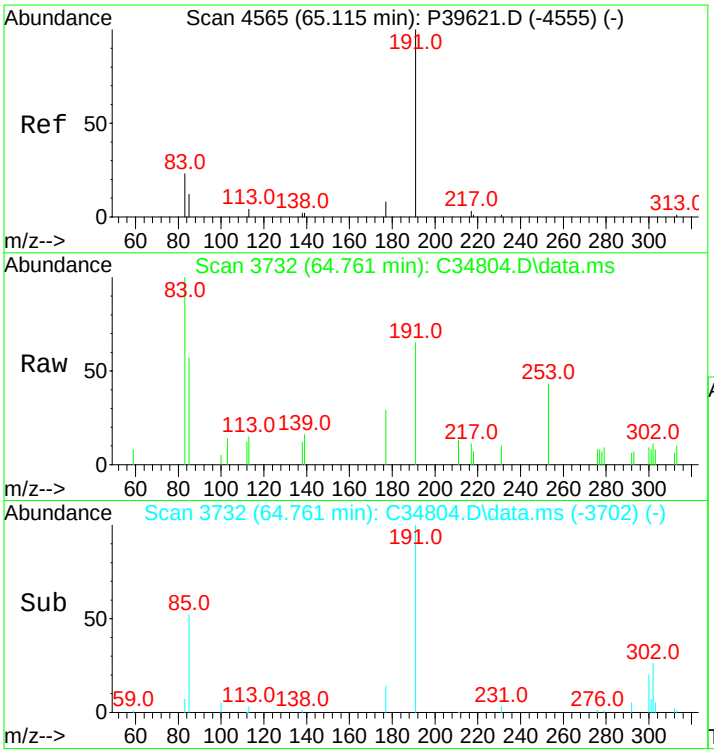




#125
Pentakishomohopane-22S (T34)
Concen: 145.08 ng/ml m
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

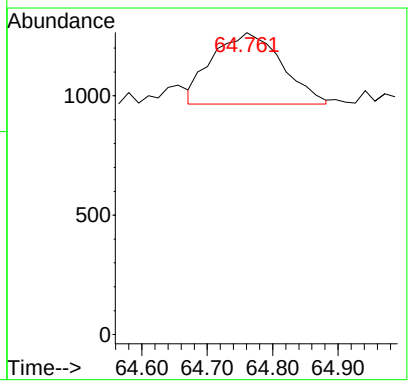
Tgt Ion:191 Resp: 3287

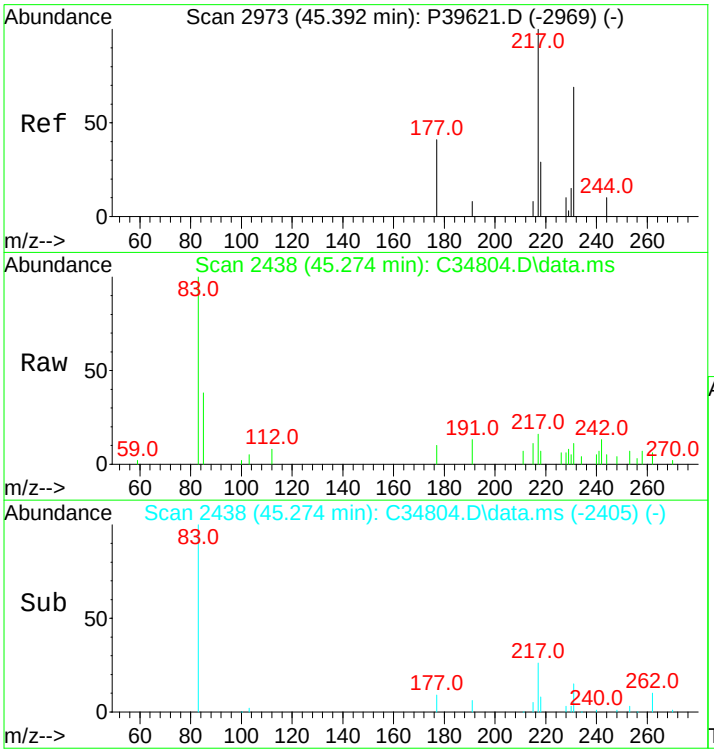




#126
Pentakishomohopane-22R (T35)
Concen: 97.24 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

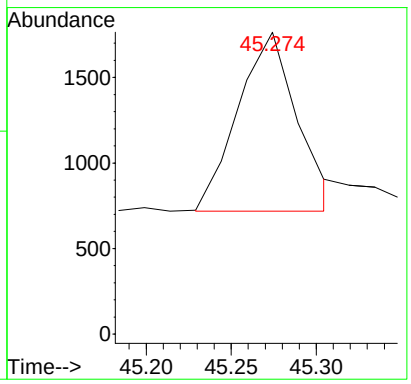
Tgt Ion:191 Resp: 2203

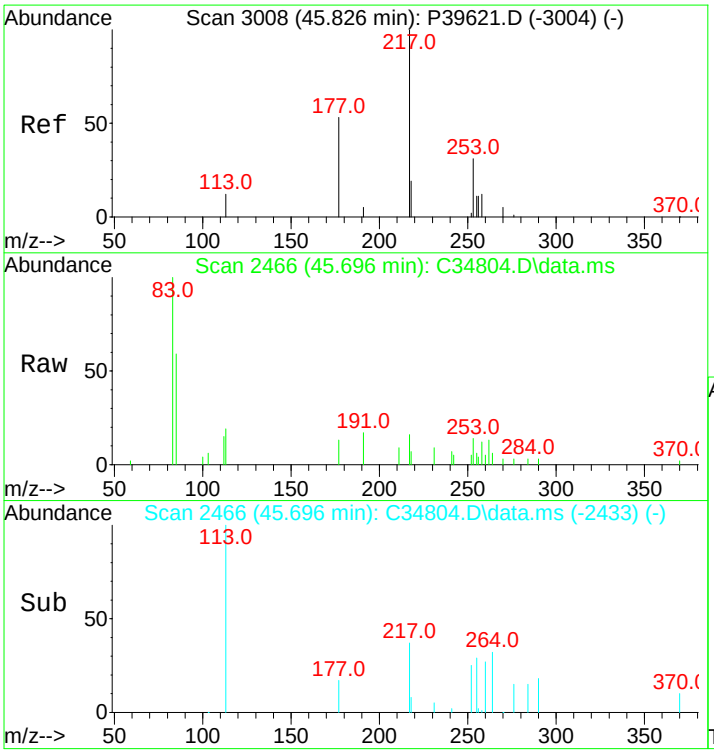




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 236.05 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

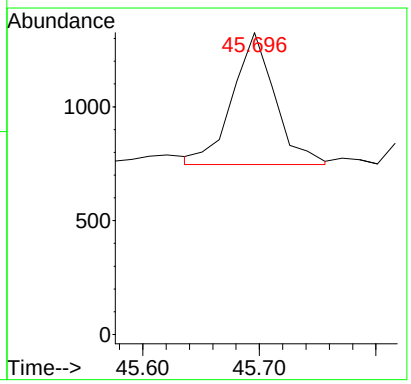
Tgt Ion:217 Resp: 2537

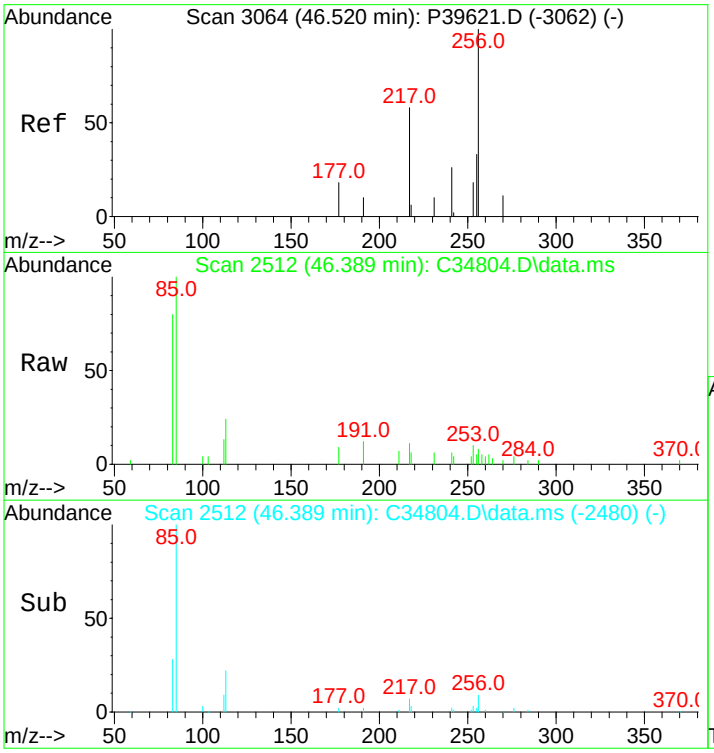




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 135.56 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

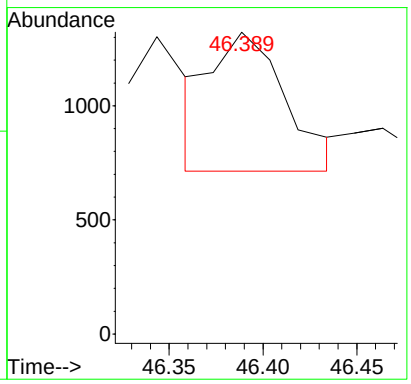
Tgt Ion:217 Resp: 1457

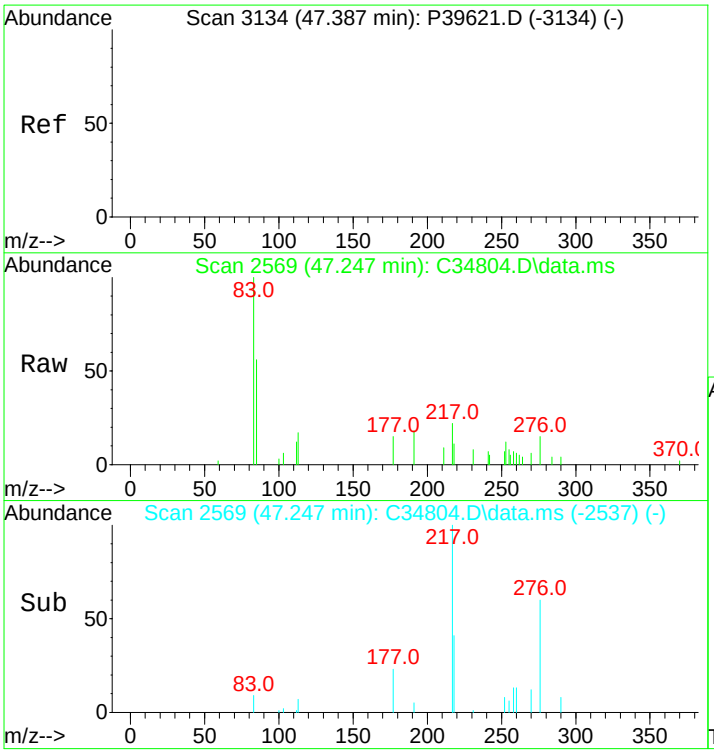




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 156.03 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

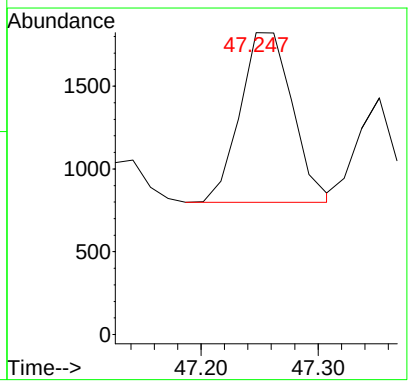
Tgt Ion:217 Resp: 1677

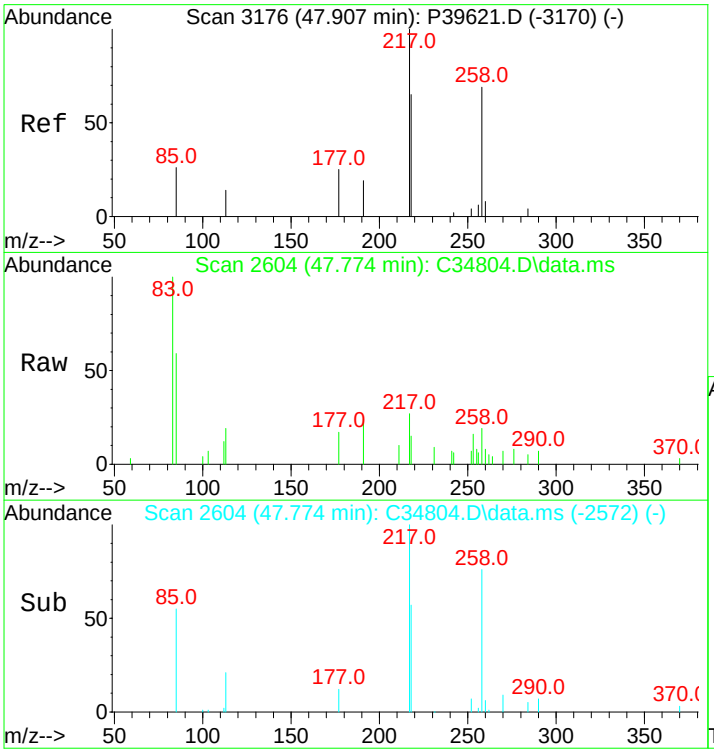




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 296.99 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

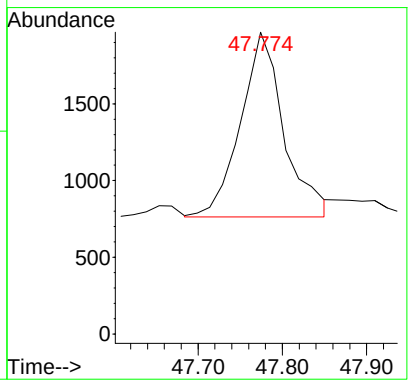
Tgt Ion:217 Resp: 3192

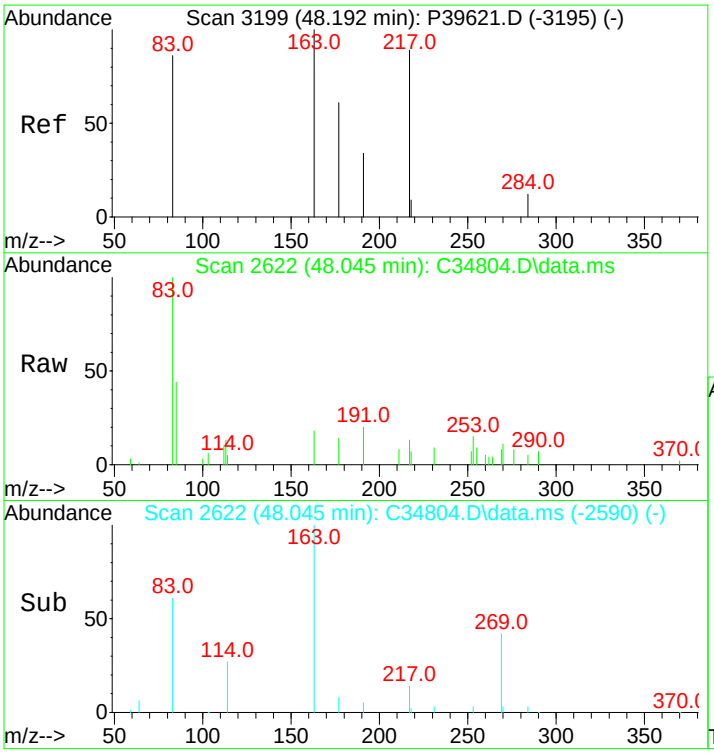




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 400.37 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

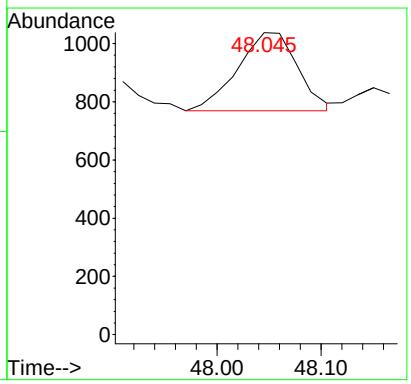
Tgt Ion:217 Resp: 4303

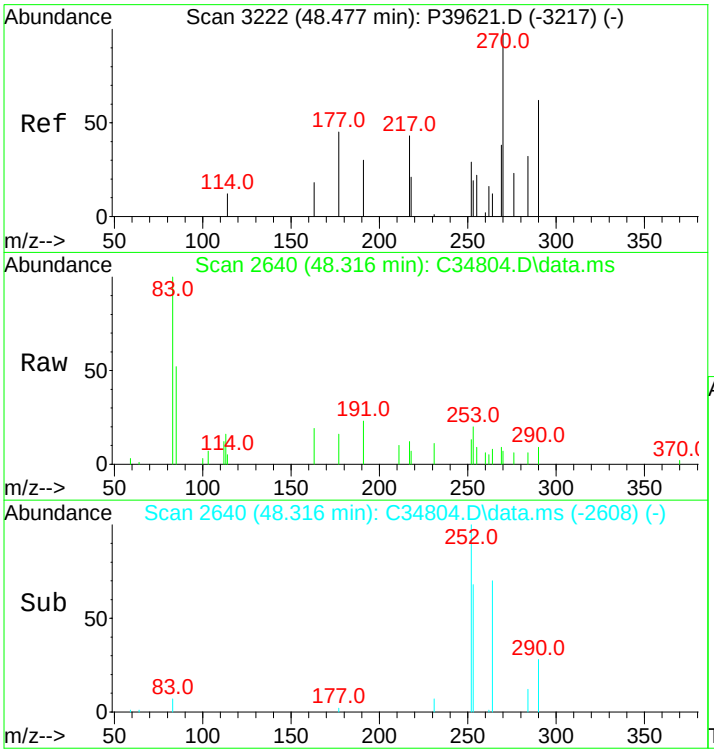




#133
Unknown Sterane (S18)
Concen: 100.67 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

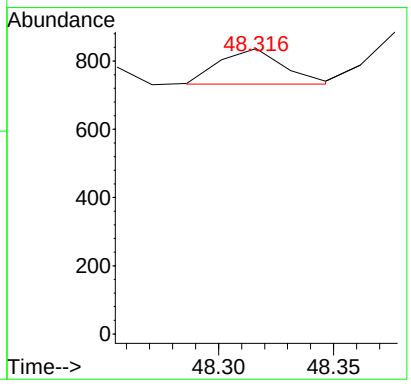
Tgt Ion:217 Resp: 1082

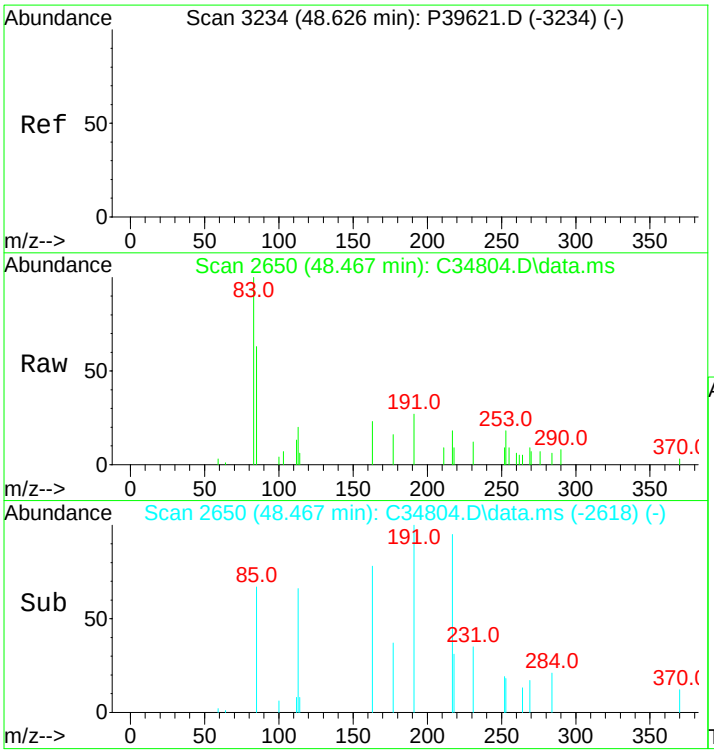




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.70 ng/ml m
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

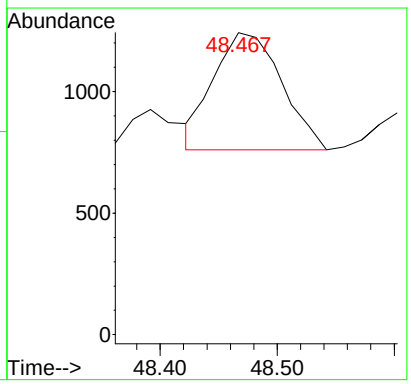
Tgt Ion:217 Resp: 201

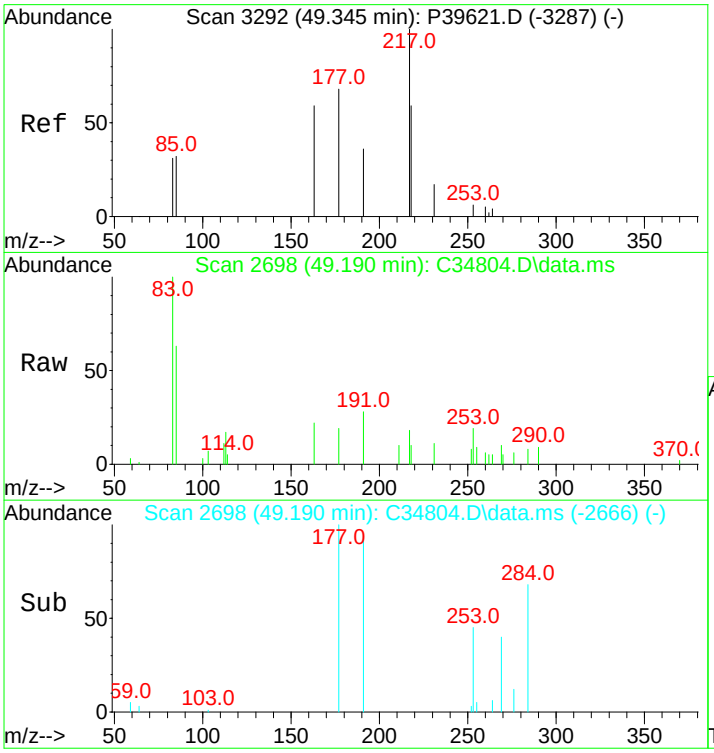




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 180.60 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

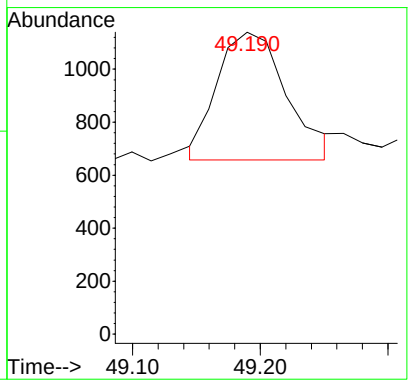
Tgt Ion:217 Resp: 1941

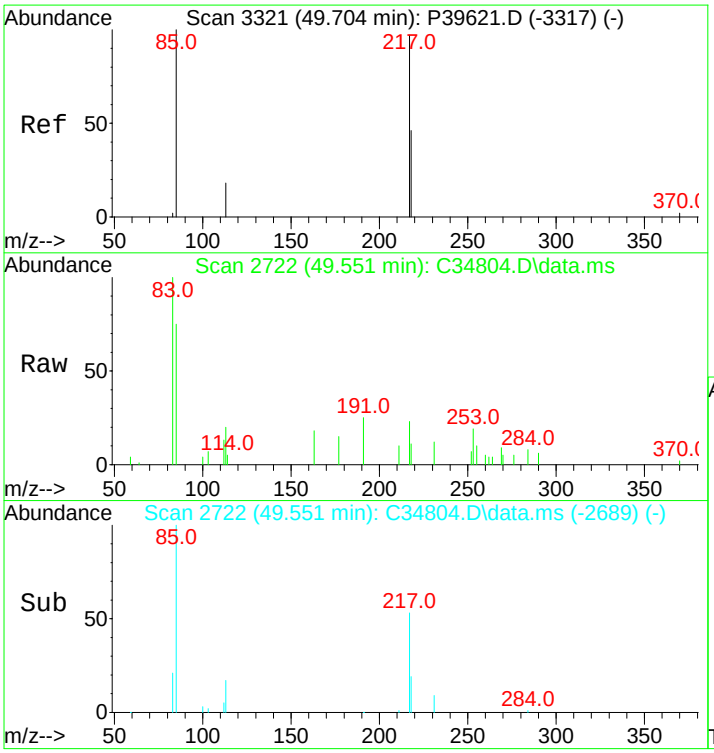




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 168.87 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

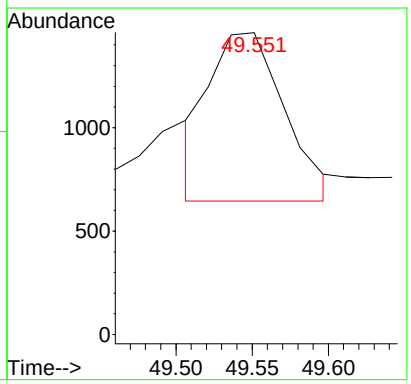
Tgt Ion:217 Resp: 1815

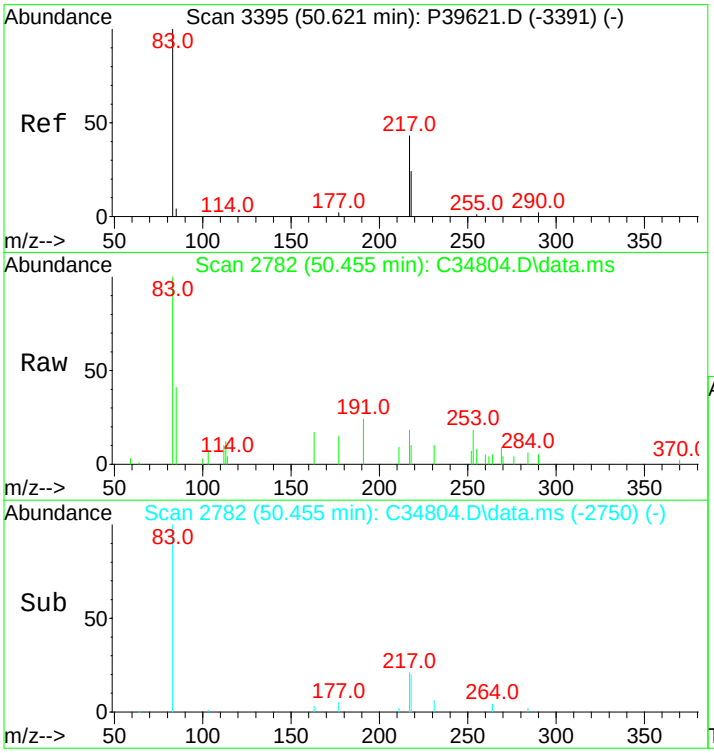




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 260.71 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

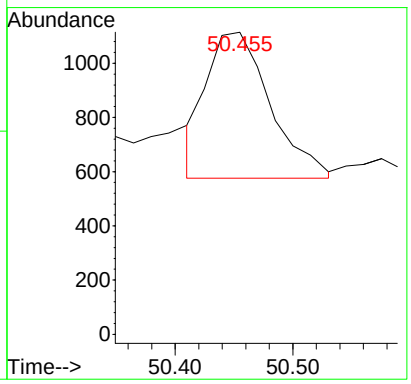
Tgt Ion:217 Resp: 2802

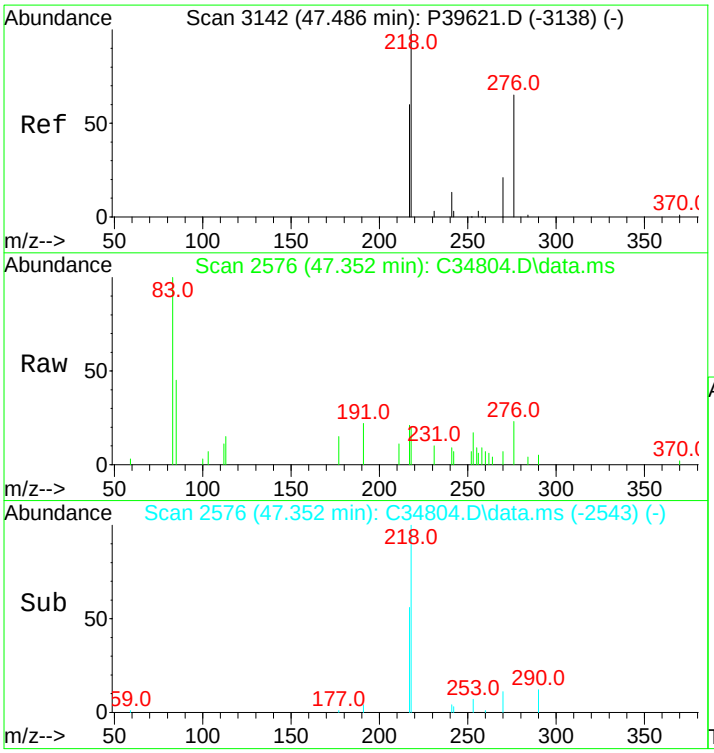




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 188.88 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

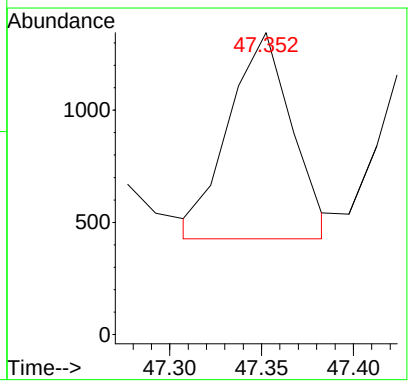
Tgt Ion:217 Resp: 2030

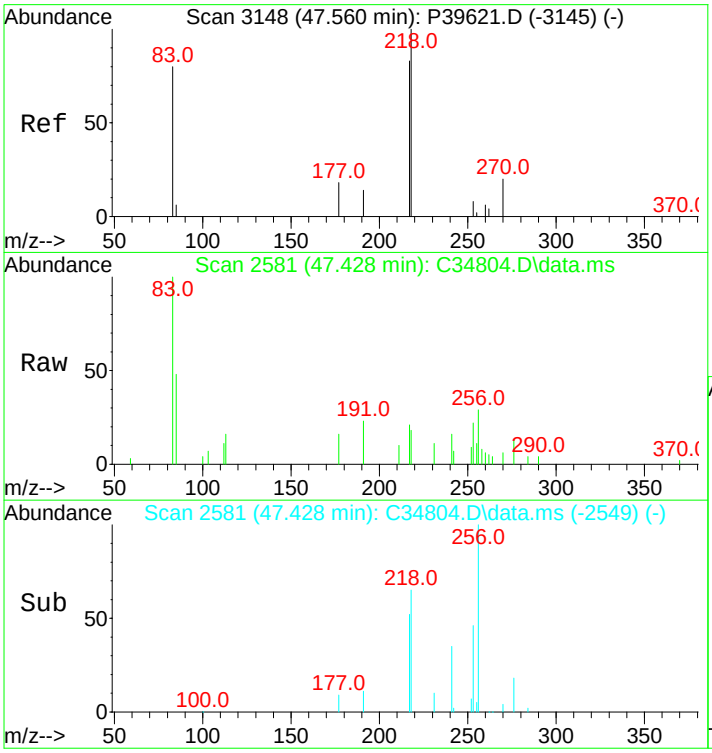




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 203.95 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

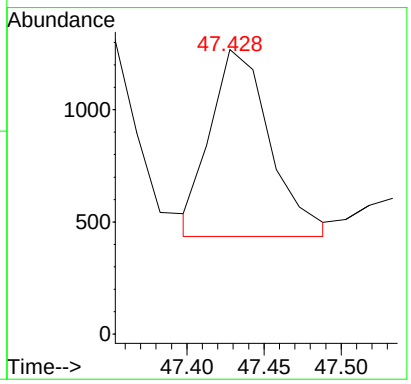
Tgt Ion:218 Resp: 2192

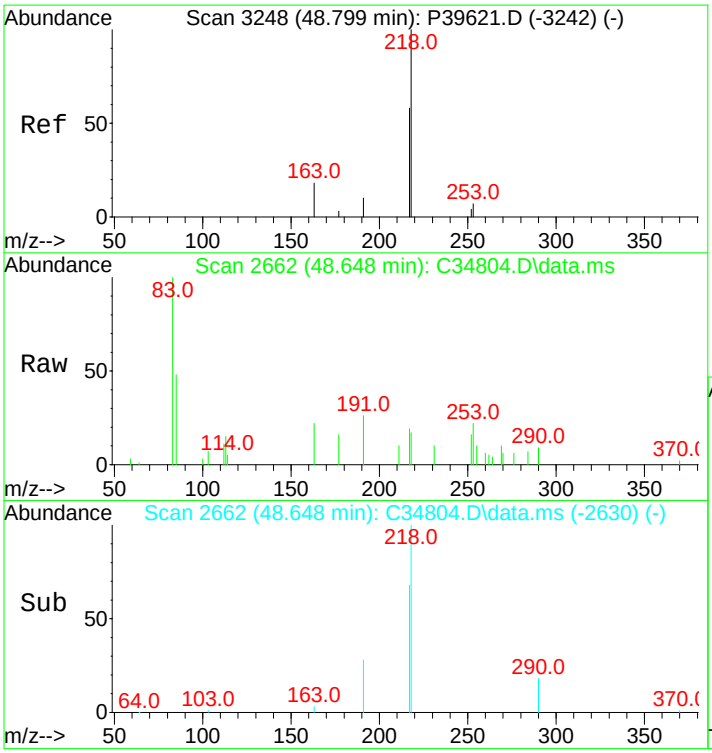




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 208.14 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

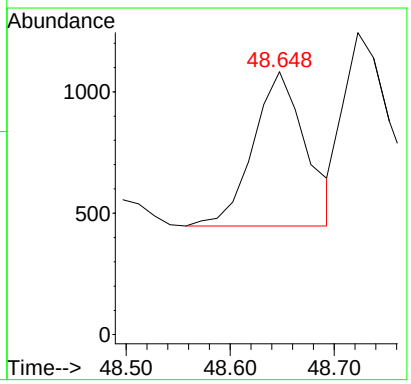
Tgt Ion:218 Resp: 2237

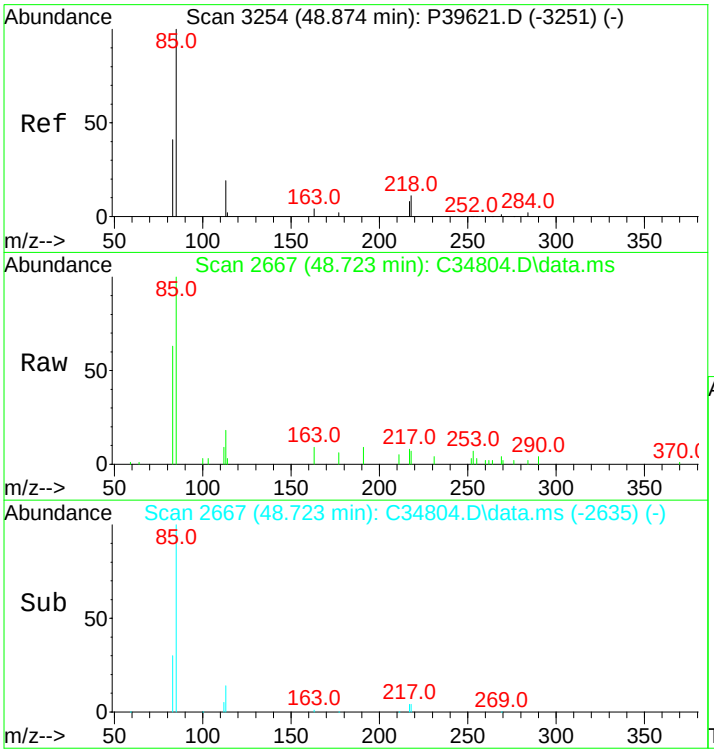




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 208.79 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

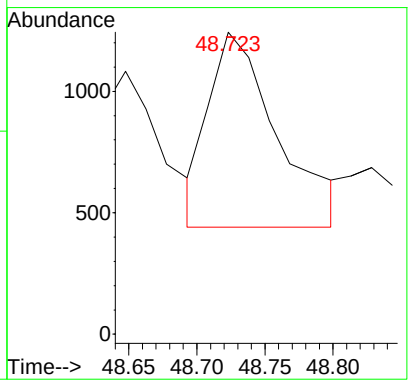
Tgt Ion:218 Resp: 2244

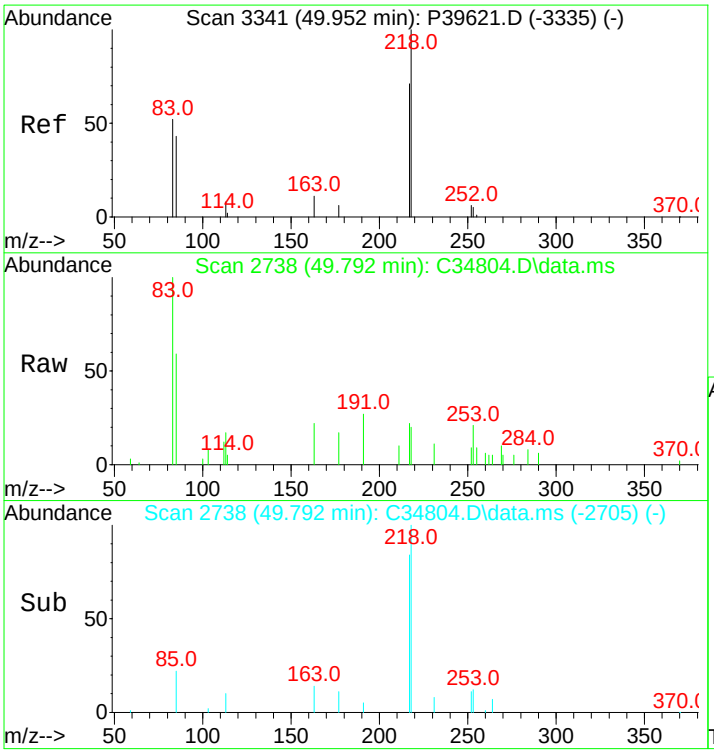




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 261.82 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

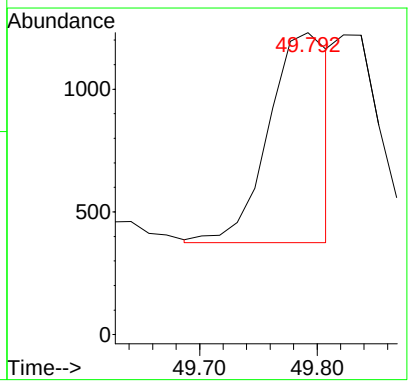
Tgt Ion:218 Resp: 2814

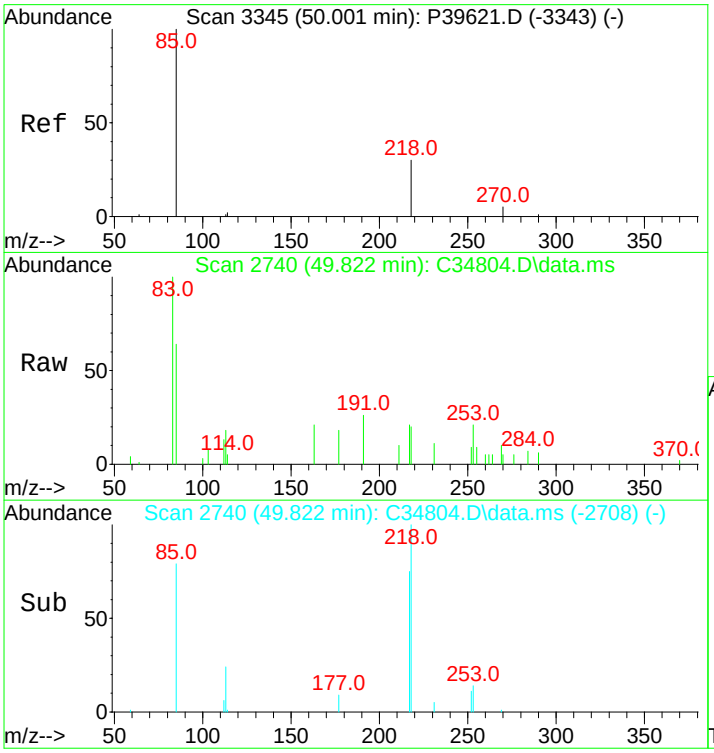




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 283.69 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

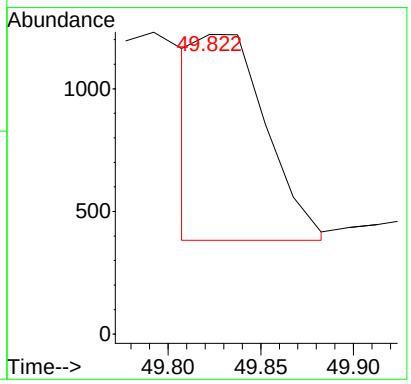
Tgt Ion:218 Resp: 3049

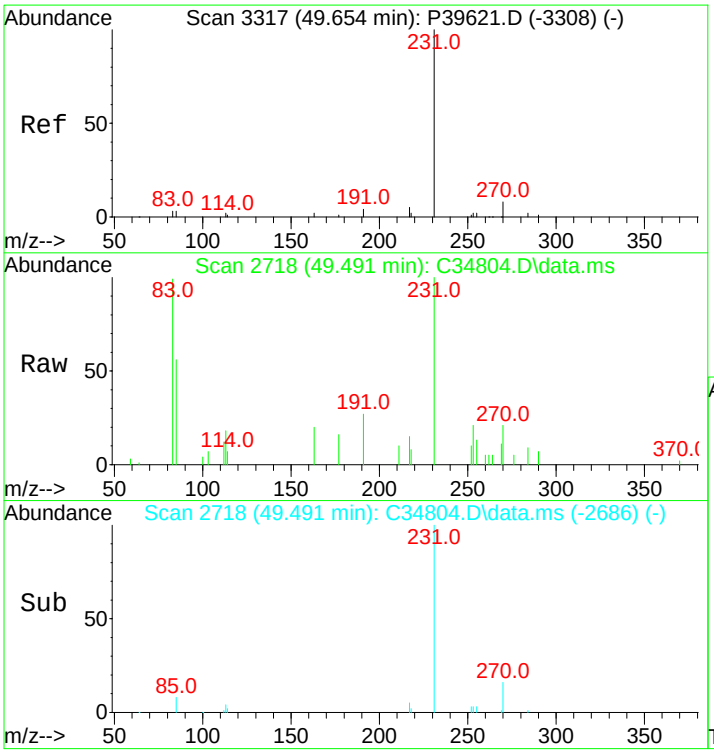




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 198.46 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

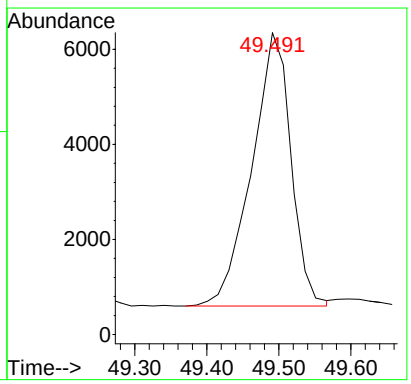
Tgt Ion:218 Resp: 2133

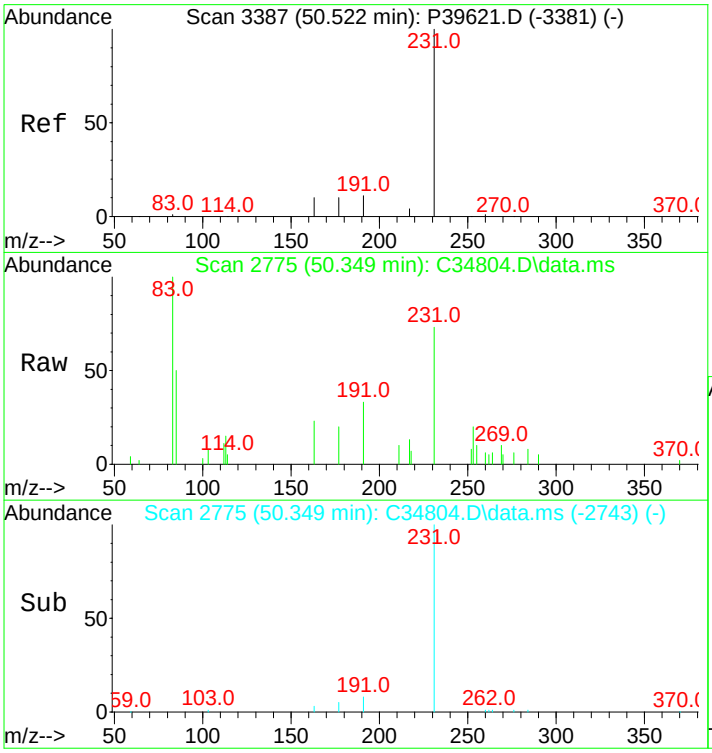




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2009.64 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

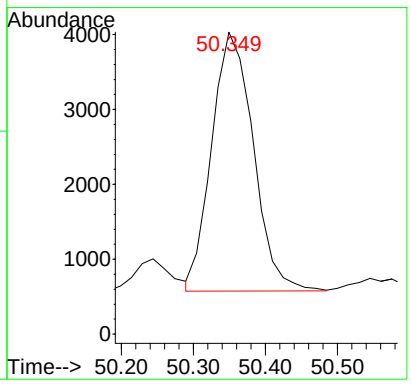
Tgt Ion:231 Resp: 21599

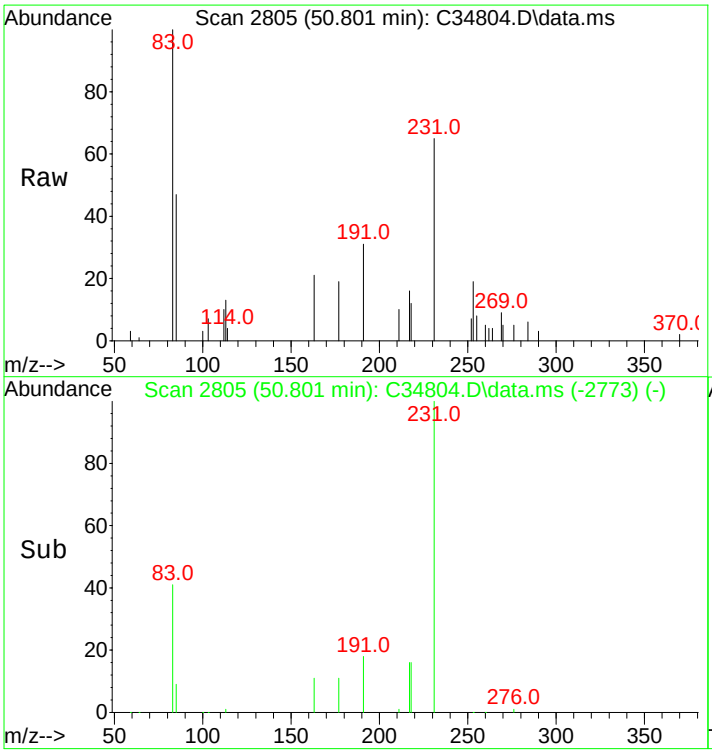




#146
C28,20S-triaromatic steroid
Concen: 1292.19 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

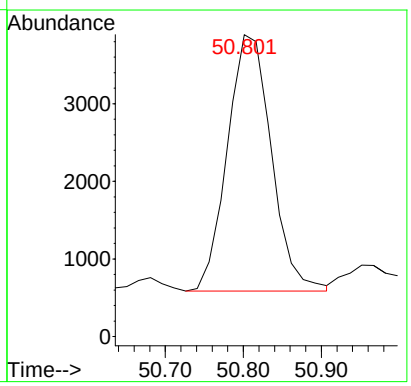
Tgt Ion:231 Resp: 13888

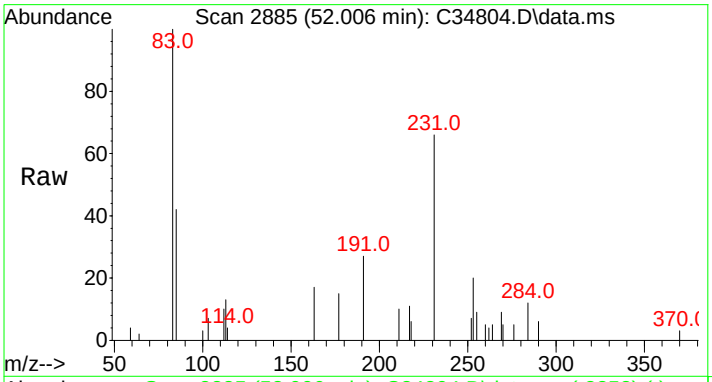




#147
C27,20R-triaromatic steroid
Concen: 1207.70 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

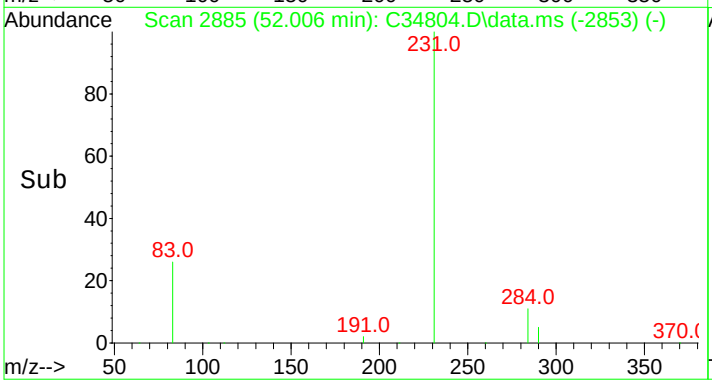
Tgt Ion:231 Resp: 12980

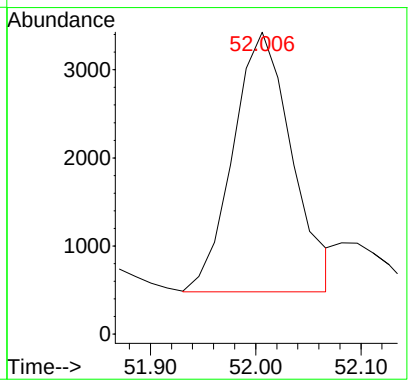




#148
C28,20R-triaromatic steroid
Concen: 1069.81 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34804.D
Acq: 3 May 2012 8:58 am

Tgt Ion:231 Resp: 11498





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17521M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	30080	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	61227	805.135	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.51%			
42) Phenanthrene-d10	32.567	188	53121	883.765	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.38%			
86) Benzo[a]pyrene-d12	48.241	264	55745	894.231	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 89.42%			
127) 5B(H)Cholane - Surr	43.754	217	9090M3	966.555	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.66%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	2356	21.098	ng/mL#	100
11) C1-Naphthalenes	22.511	142	1258M5	11.265	ng/mL	
12) C2-Naphthalenes	25.431	156	856M5	7.665	ng/mL	
13) C3-Naphthalenes	27.690	170	1731M5	15.501	ng/mL	
14) C4-Naphthalenes	30.445	184	3570M5	31.969	ng/mL	
16) 2-Methylnaphthalene	22.511	142	773	11.707	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	382	5.902	ng/mL#	100
21) C3-Benzo(b)thiophenes	26.530	176	1128M5	11.225	ng/mL	
22) C4-Benzo(b)thiophenes	30.384	190	1344M5	13.375	ng/mL	
23) Biphenyl	24.393	154	75M2	0.898	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	139M3	2.562	ng/mL	
25) Dibenzofuran	27.479	168	124	1.293	ng/mL#	47
28) 2,3,5-Trimethylnaphtha...	28.382	170	52M3	1.189	ng/mL	
29) Fluorene	28.849	166	126M3	1.750	ng/mL	
30) C1-Fluorenes	30.986	180	572M5	7.946	ng/mL	
31) C2-Fluorenes	33.395	194	1695M5	23.547	ng/mL	
32) C3-Fluorenes	35.232	208	4427M5	61.500	ng/mL	
33) Dibenzothiophene	32.161	184	173	1.499	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	684M3	5.928	ng/mL	
35) 2/3-Methyldibenzothiop...	34.268	198	419M3	3.631	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	411	3.562	ng/mL#	100
37) OTP	34.329	198	11719M3	101.560	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	13760M5	119.248	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	9078M5	78.672	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	16306M5	141.312	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	14213M5	123.174	ng/mL	
43) Phenanthrene	32.657	178	505M3	4.981	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	354M3	3.492	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	370	3.650	ng/mL	88
46) 2-Methylanthracene(2MA)	34.886	192	91M3	0.898	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	697M3	6.875	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	429M3	4.232	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	2004M5	19.767	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	9035M5	89.120	ng/mL	
51) 5AA IS BKGD	36.632	206	2627M3	25.912	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	10294M5	101.539	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	6175M5	60.910	ng/mL	
56) Carbazole	33.500	167	158M3	1.580	ng/mL	
57) 1-Methylphenanthrene	35.157	192	397M3	6.179	ng/mL	
58) Fluoranthene	37.430	202	411M3	4.082	ng/mL	
60) Pyrene	38.318	202	707M3	6.908	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	2904M5	28.373	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	4882M5	47.699	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	6707M5	65.529	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.410	258	6722M5	65.676	ng/mL	
66) Naphthobenzothiophene	42.158	234	1088	9.874	ng/ml#	74

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
67)	Naphthobenzothiophene-...	42.158	234	1088	9.874	ng/mL#	74
68)	Naphthobenzothiophene-...	42.504	234	297	2.695	ng/mL#	13
69)	Naphthobenzothiophene-...	42.790	234	203M3	1.842	ng/mL	
70)	C1-Naphthobenzothiophenes	43.558	248	6883M5	62.465	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262	11311M5	102.649	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	11245M5	102.050	ng/ml	
73)	C4-Naphthobenzothiophenes	48.226	290	9418M5	85.470	ng/mL	
75)	Benz[a]anthracene	43.091	228	217M3	2.273	ng/mL	
77)	Chrysene/Triphenylene	43.227	228	839M3	8.704	ng/mL	
78)	C1-Chrysenes	44.717	242	2484M5	25.771	ng/mL	
79)	C2-Chrysenes	46.795	256	4583M5	47.547	ng/mL	
80)	C3-Chrysenes	49.491	270	9024M5	93.621	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	522	4.976	ng/mL#	82
83)	Benzo[j]+[k]fluoranthene	47.217	252	208	1.821	ng/mL#	52
85)	Benzo[e]pyrene	48.136	252	694M3	6.688	ng/mL	
87)	Benzo[a]pyrene	48.331	252	425M3	4.254	ng/mL	
88)	Perylene	48.633	252	717	6.715	ng/mL#	61
89)	Indeno[1,2,3-cd]pyrene	53.136	276	585M3	5.032	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.181	278	241M3	2.179	ng/mL	
91)	Benzo[g,h,i]perylene	54.431	276	1087M3	8.850	ng/mL	
92)	Hopane (T19)	52.202	191	3437M3	173.368	ng/mL	
94)	C23 Tricyclic Terpane ...	40.788	191	1600M3	80.707	ng/ml	
95)	C24 Tricyclic Terpane ...	41.510	191	797	40.202	ng/ml	100
96)	C25 Tricyclic Terpane ...	43.001	191	750M3	37.831	ng/ml	
97)	C24 Tetracyclic Terpan...	44.311	191	357	18.008	ng/ml	100
98)	C26 Tricyclic Terpane-...	44.055	191	285M3	14.376	ng/ml	
99)	C26 Tricyclic Terpane-...	44.145	191	297M3	14.981	ng/ml	
100)	C28 Tricyclic Terpane-...	46.434	191	331M3	16.696	ng/ml	
101)	C28 Tricyclic Terpane-...	46.600	191	397M3	20.025	ng/ml	
102)	C29 Tricyclic Terpane-...	47.112	191	764M3	38.537	ng/ml	
103)	C29 Tricyclic Terpane-...	47.307	191	565M3	28.500	ng/ml	
104)	18a-22,29,30-Trisnorne...	48.452	191	458M3	23.102	ng/ml	
105)	C30 Tricyclic Terpane-22S	48.527	191	305M3	15.385	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.768	191	416	20.984	ng/mL	100
107)	17a(H)-22,29,30-Trisno...	48.979	191	1066M3	53.771	ng/ml	
108)	17a/b,21b/a 28,30-Bisn...	50.184	191	593M3	29.912	ng/ml	
109)	17a(H),21b(H)-25-Norho...	49.958	191	260M3	13.115	ng/ml	
110)	30-Norhopane (T15)	50.832	191	2600M3	131.149	ng/ml	
111)	18a(H)-30-Norneohopane...	50.952	191	425	21.438	ng/ml	100
112)	17a(H)-Diahopane (X)	51.042	191	291	14.679	ng/ml	100
115)	Moretane (T20)	52.910	191	447M3	22.547	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191	1553	78.336	ng/ml	100
117)	30-Homohopane-22R (T22)	54.220	191	1210	61.034	ng/ml	100
118)	Gammacerane/C32-diahopane	54.777	191	507M3	25.574	ng/mL	
119)	30,31-Bishomohopane-22...	55.530	191	1099M3	55.435	ng/ml	
120)	30,31-Bishomohopane-22...	55.937	191	613M3	30.921	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191	684M3	34.502	ng/ml	
122)	30,31-Trishomohopane-2...	58.286	191	648M3	32.686	ng/ml	
125)	Pentakishomohopane-22S...	63.406	191	696	35.107	ng/ml	100
128)	13b(H),17a(H)-20S-Diac...	45.274	217	238M3	25.307	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	130	13.823	ng/ml	100
130)	13b,17a-20S-Methyldiac...	46.389	217	139M3	14.780	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	400	42.533	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	411M3	43.702	ng/ml	
133)	Unknown Sterane (S18)	48.091	217	241M3	25.626	ng/ml	
134)	13a,17b-20S-Ethyldiach...	48.301	217	77M3	8.188	ng/ml	
135)	14a,17a-20S-Methylchol...	48.467	217	280	29.773	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217	135M3	14.355	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217	530M3	56.356	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.440	217	325M3	34.558	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.337	218	313M3	33.282	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
140) 14b(H),17b(H)-20S-Chol...	47.428	218	259M3	27.540	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	249M3	26.477	ng/ml	
142) 14b,17b-20S-Methylchol...	48.723	218	277M3	29.454	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	494M3	52.528	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	241M3	25.626	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	2236	237.758	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	1954	207.772	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	1438	152.905	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	1690	179.701	ng/mL	100

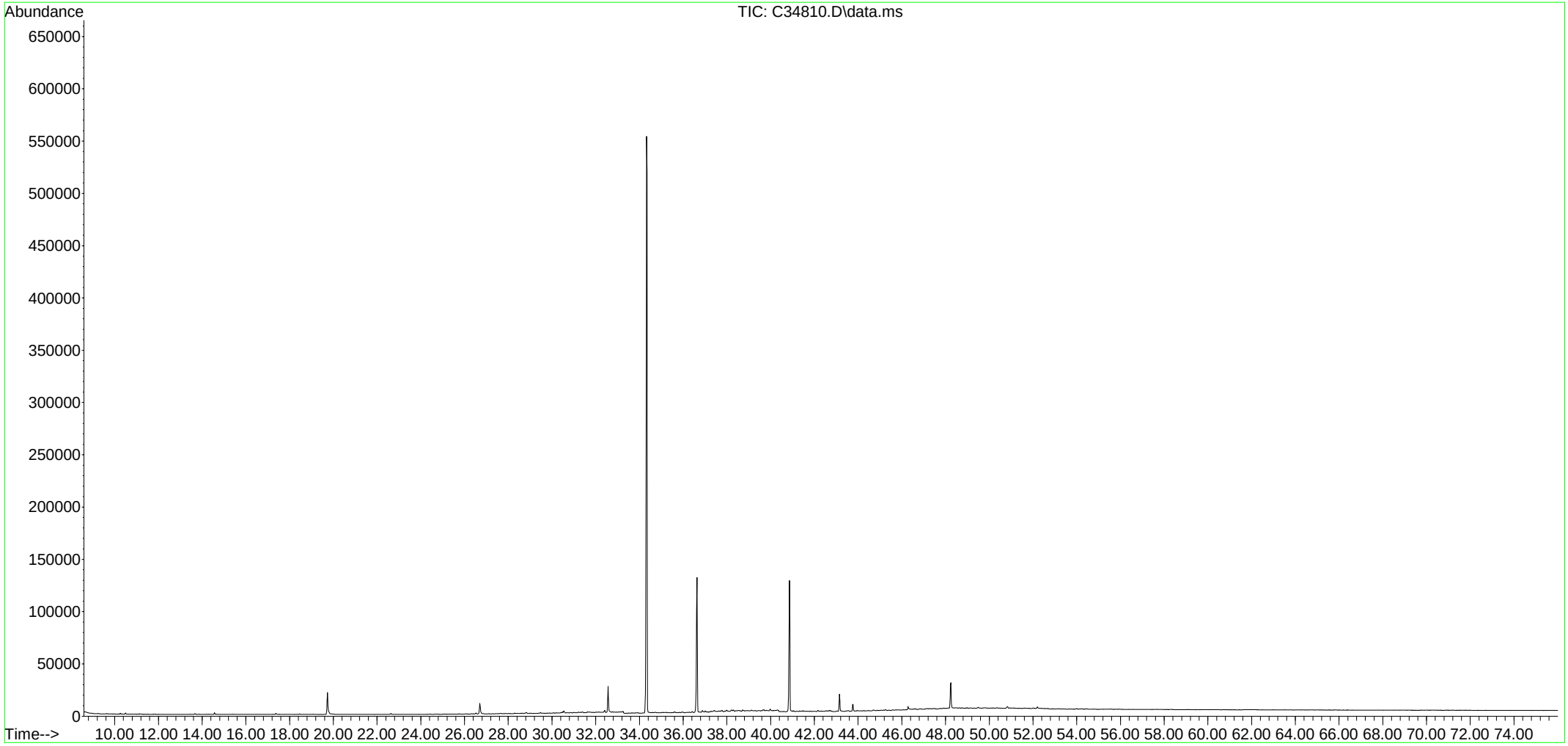
(#) = qualifier out of range (m) = manual integration (+) = signals summed

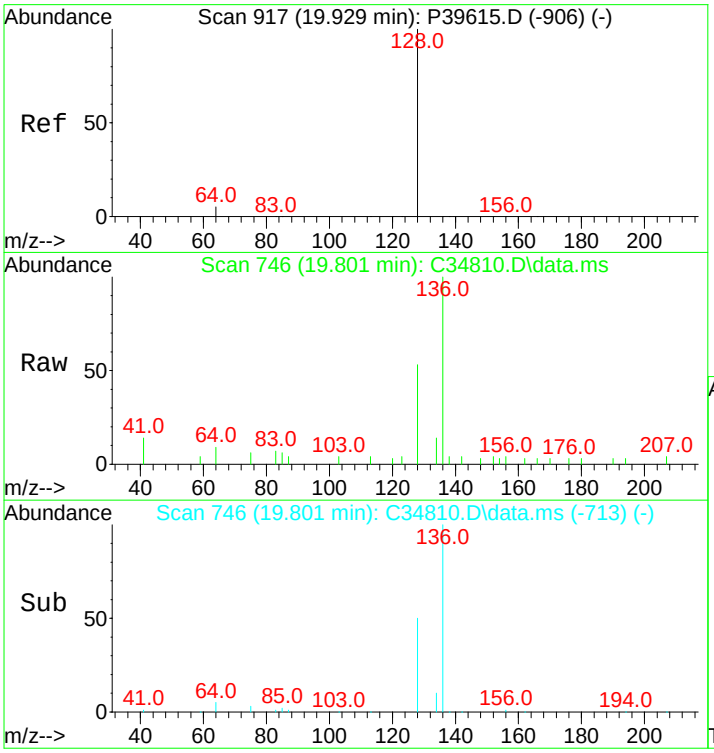
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34810.D
Acq On : 3 May 2012 1:30 pm
Operator : AC
Sample : 1204035-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 05 12:45:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

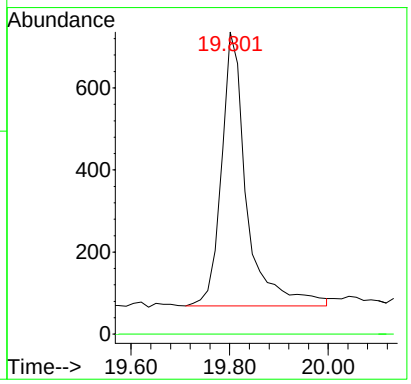


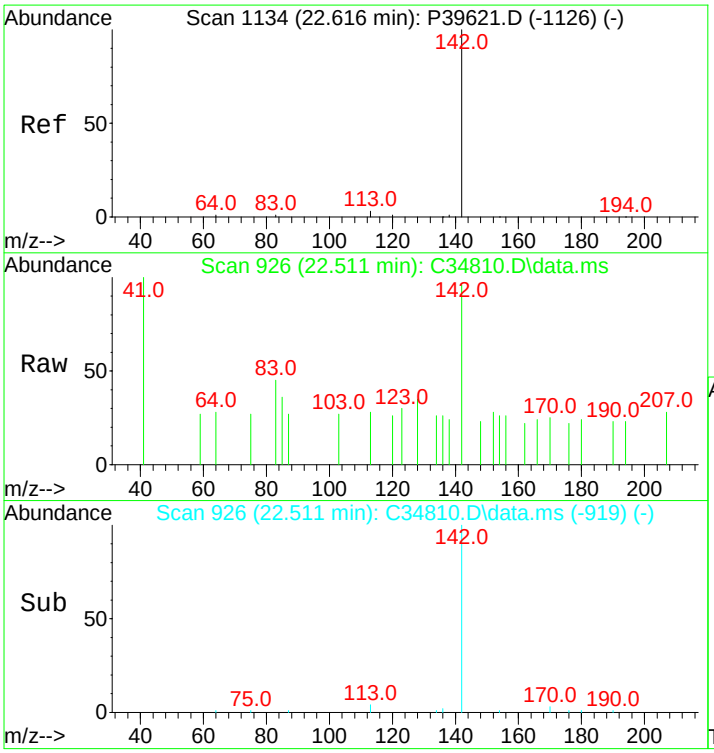


#10
Naphthalene
Concen: 21.10 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:128 Resp: 2356

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

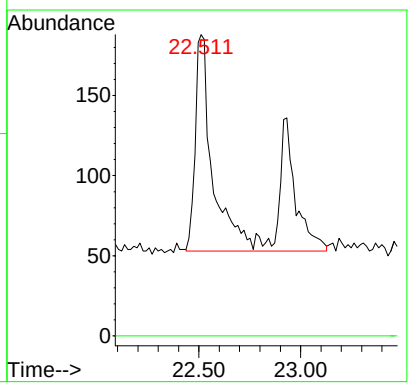


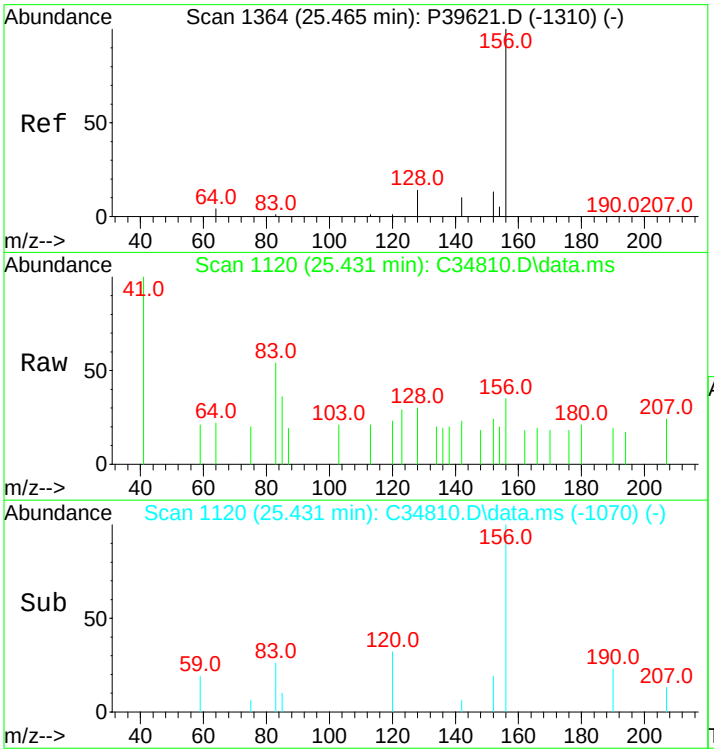


#11
C1-Naphthalenes
Concen: 11.27 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:142 Resp: 1258

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

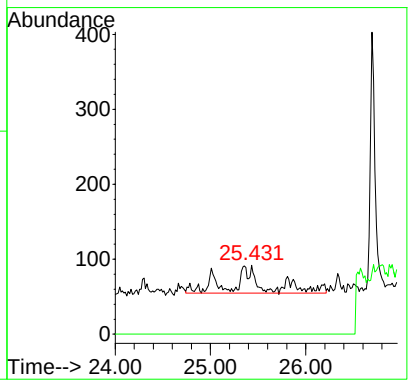


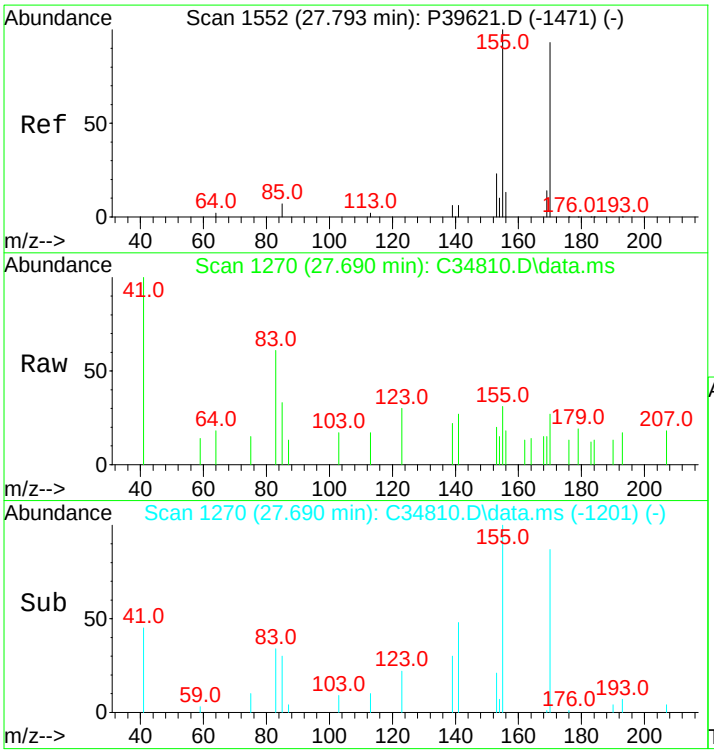


#12
C2-Naphthalenes
Concen: 7.67 ng/mL m
RT: 25.431 min Scan# 1120
Delta R.T. 0.084 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:156 Resp: 856

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

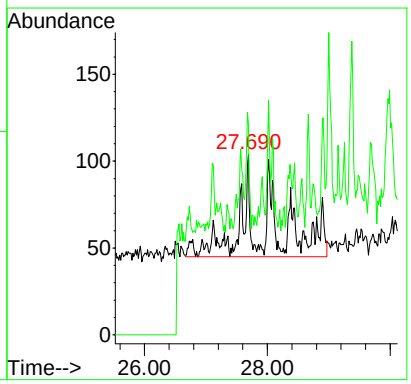


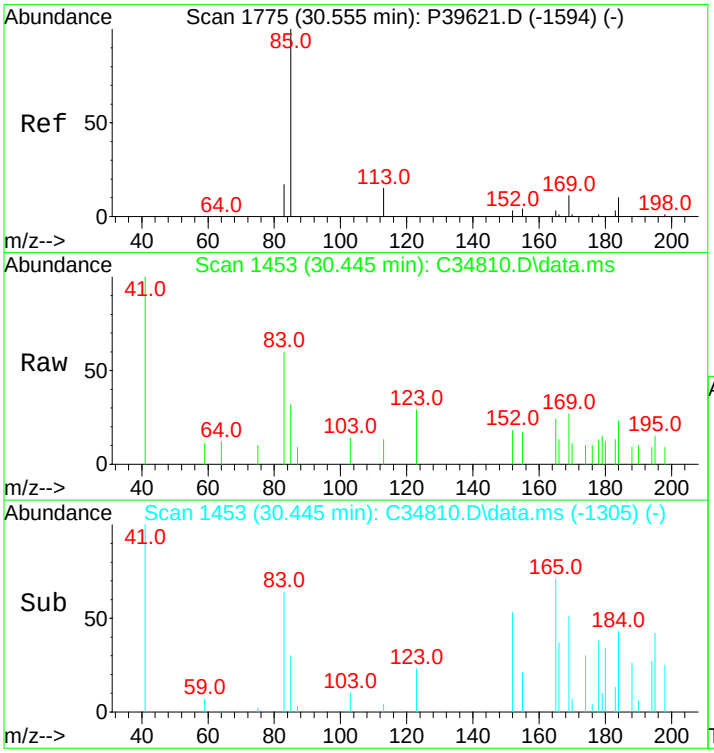


#13
C3-Naphthalenes
Concen: 15.50 ng/mL m
RT: 27.690 min Scan# 1270
Delta R.T. 0.019 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:170 Resp: 1731

Ion	Ratio	Lower	Upper
170	100		
155	10.0	81.8	122.6#

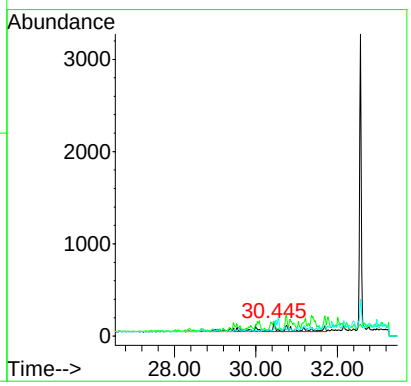


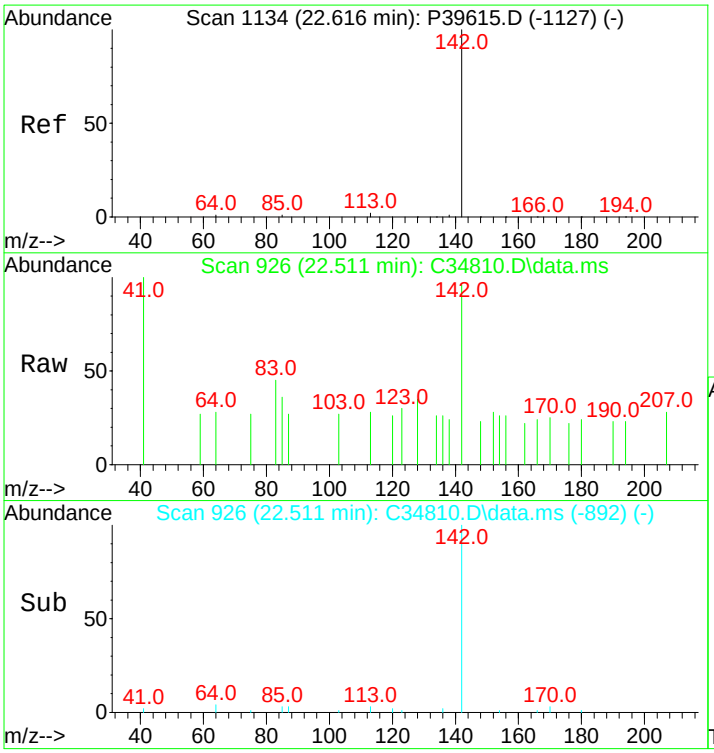


#14
C4-Naphthalenes
Concen: 31.97 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:184 Resp: 3570

Ion	Ratio	Lower	Upper
184	100		
169	7.2	77.4	116.0#
183	0.0	14.8	22.2#

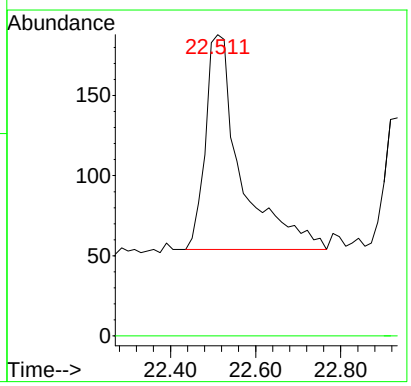


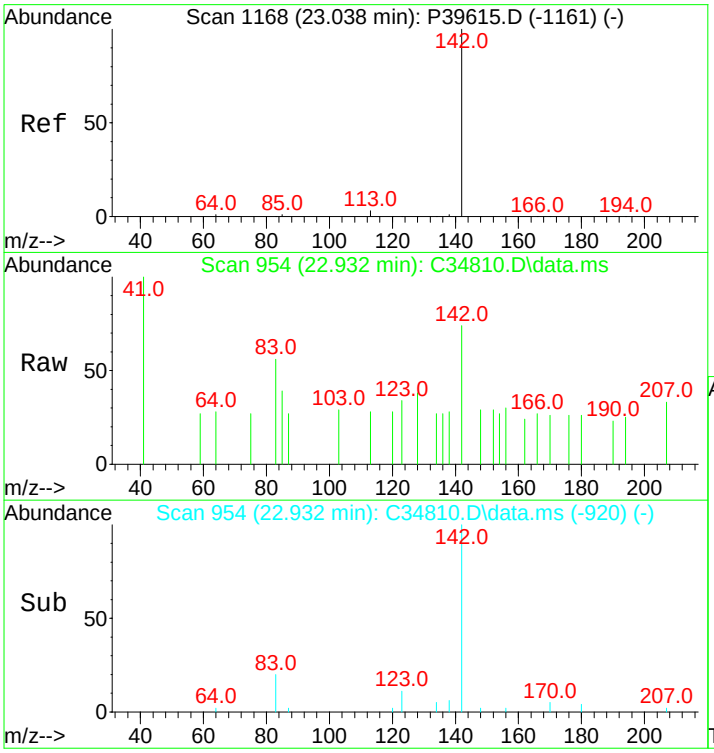


#16
2-Methylnaphthalene
Concen: 11.71 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:142 Resp: 773

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

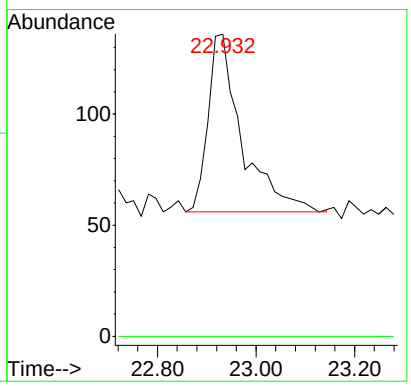


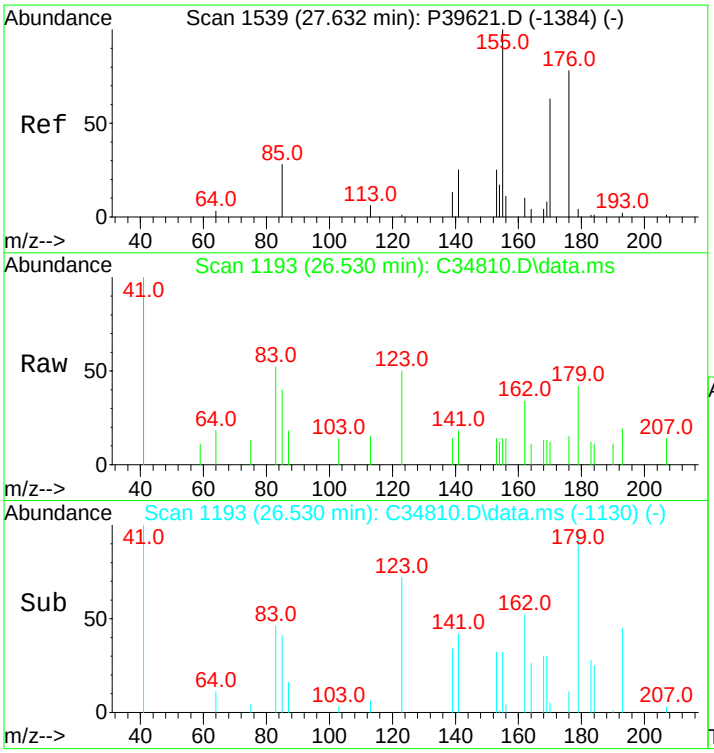


#17
1-Methylnaphthalene
Concen: 5.90 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:142 Resp: 382

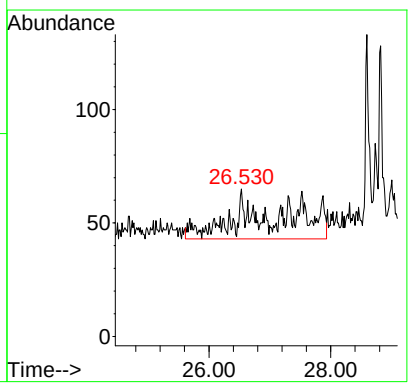
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

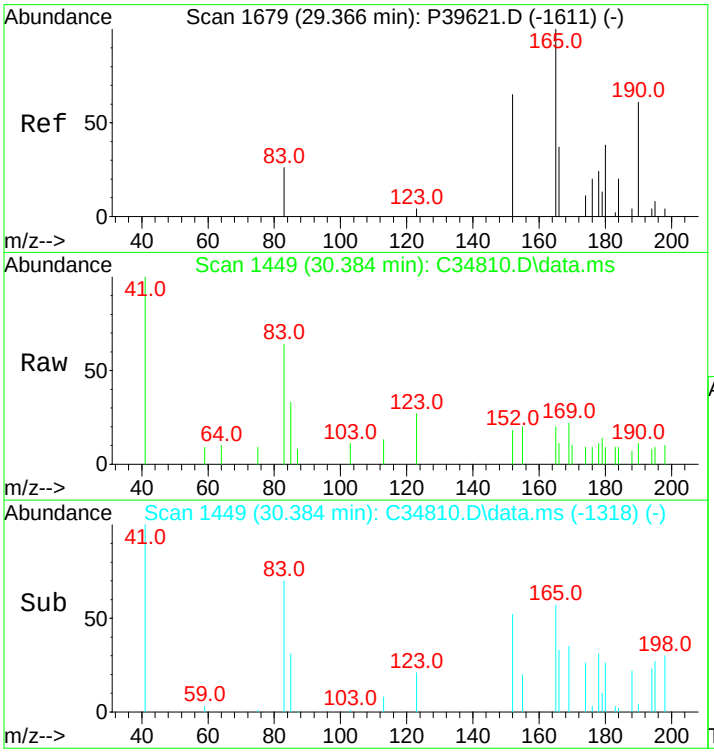




#21
C3-Benzo(b)thiophenes
Concen: 11.23 ng/mL m
RT: 26.530 min Scan# 1193
Delta R.T. -0.975 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

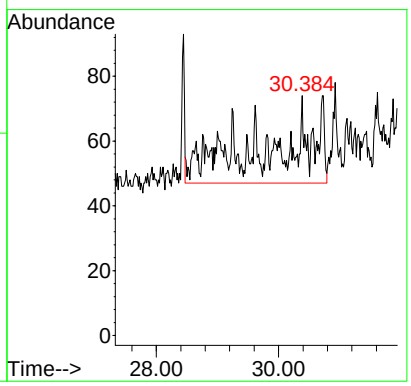
Tgt Ion:176 Resp: 1128

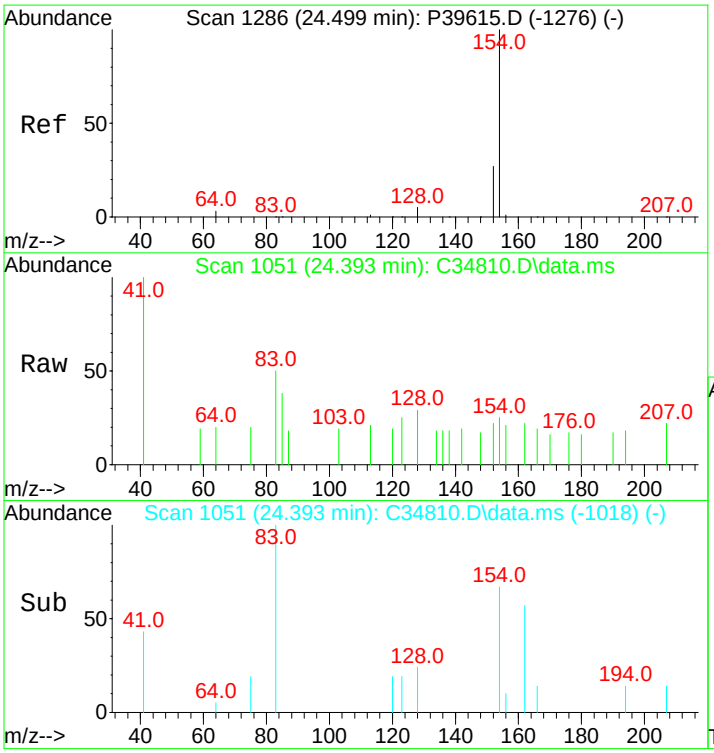




#22
C4-Benzo(b)thiophenes
Concen: 13.37 ng/mL m
RT: 30.384 min Scan# 1449
Delta R.T. 1.155 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:190 Resp: 1344

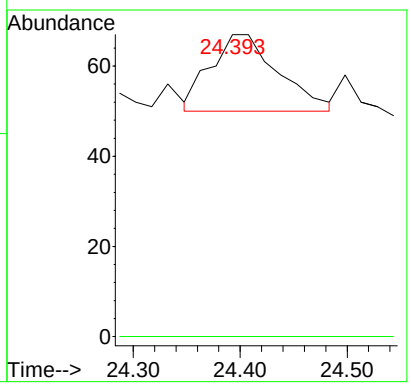


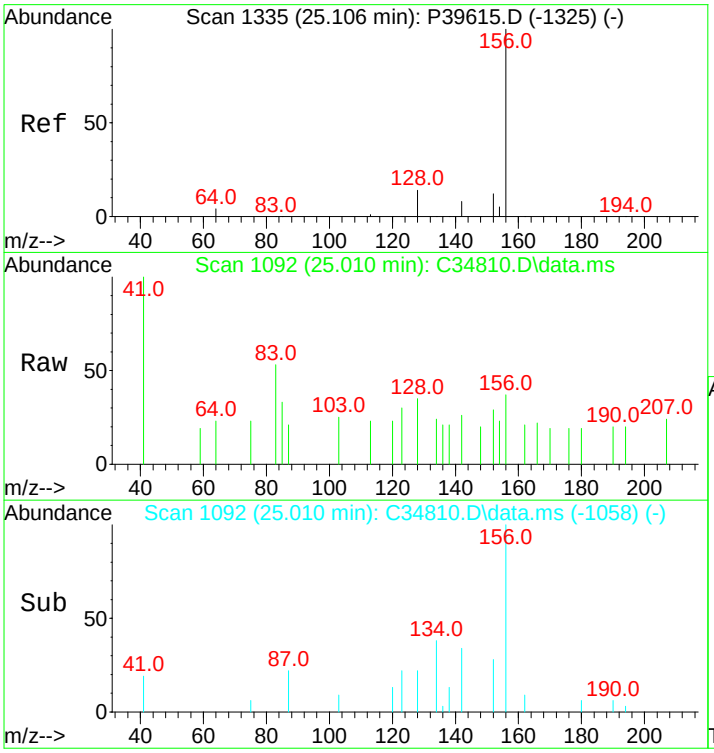


#23
Biphenyl
Concen: 0.90 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:154 Resp: 75

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

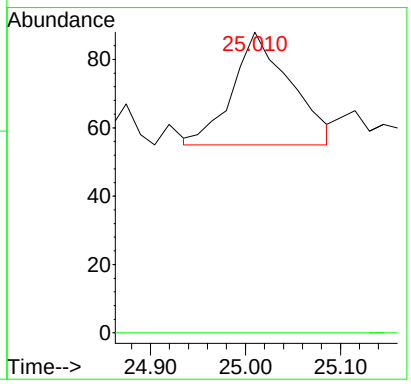


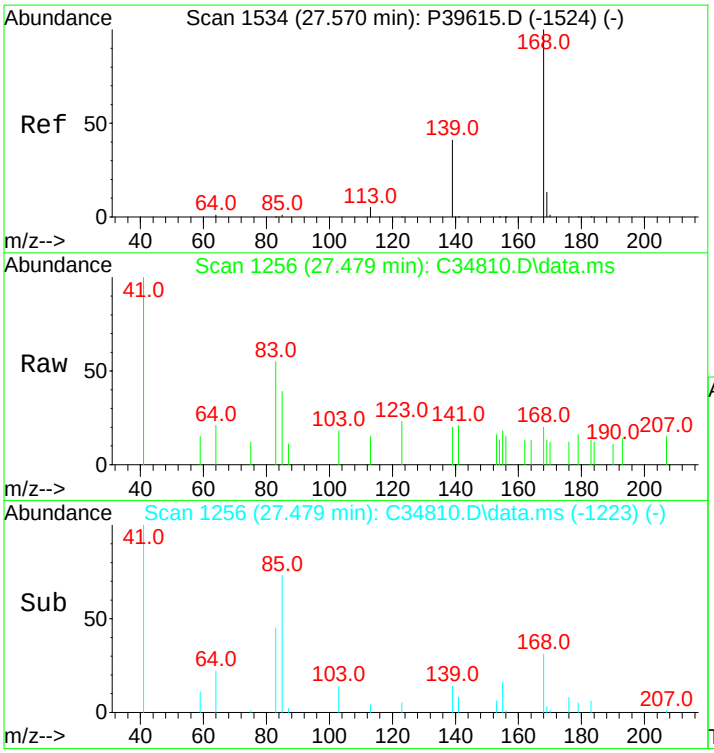


#24
2,6-Dimethylnaphthalene
Concen: 2.56 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:156 Resp: 139

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

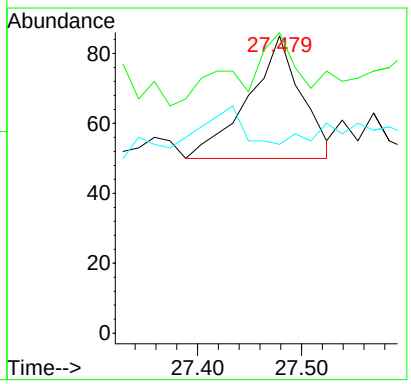


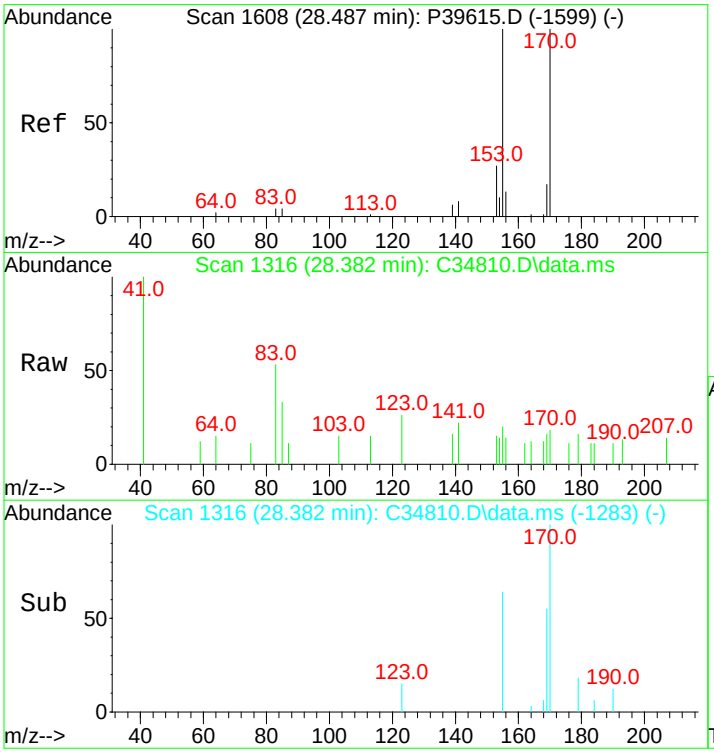


#25
Dibenzofuran
Concen: 1.29 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:168 Resp: 124

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

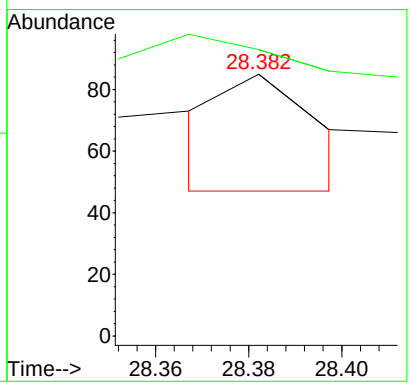


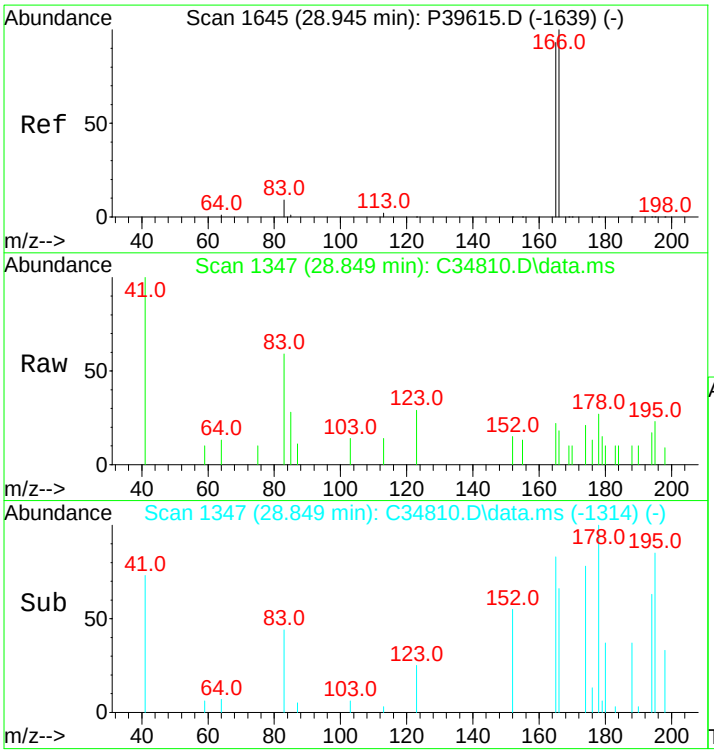


#28
2,3,5-Trimethylnaphthalene
Concen: 1.19 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:170 Resp: 52

Ion	Ratio	Lower	Upper
170	100		
155	344.2	87.3	130.9#

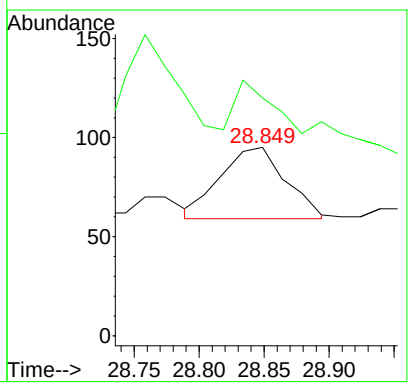


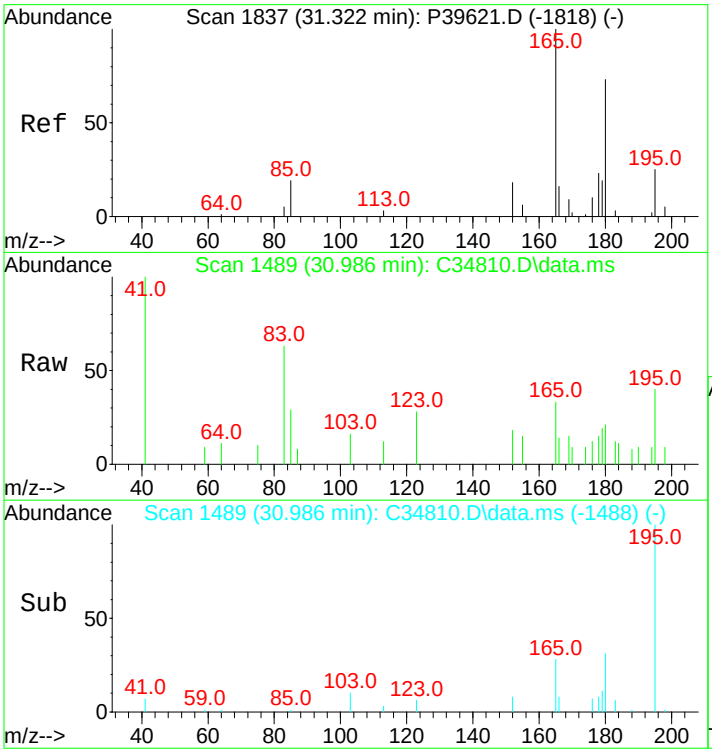


#29
Fluorene
Concen: 1.75 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:166 Resp: 126

Ion	Ratio	Lower	Upper
166	100		
165	0.0	77.3	115.9#

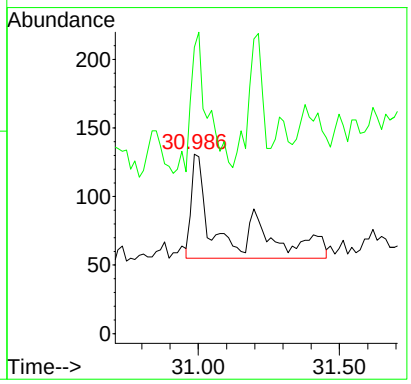


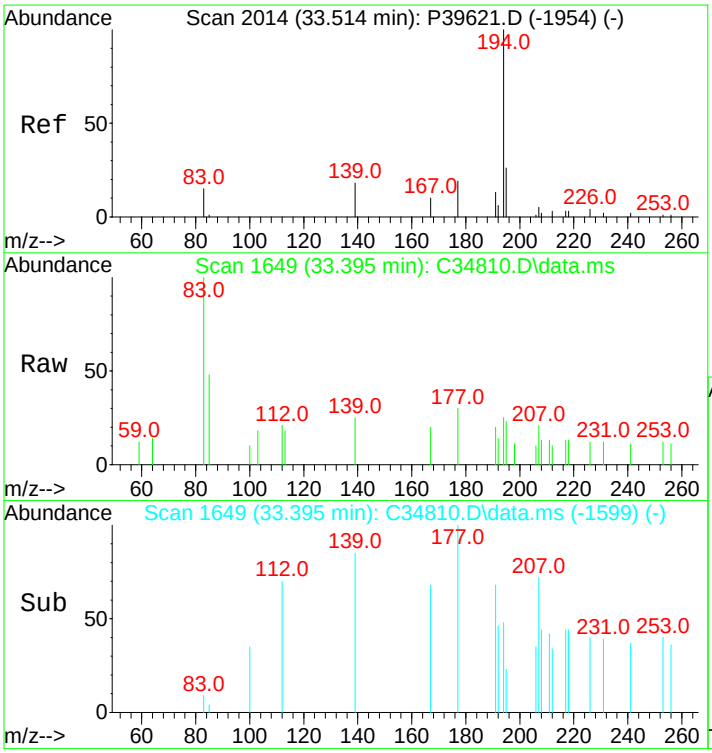


#30
C1-Fluorenes
Concen: 7.95 ng/mL m
RT: 30.986 min Scan# 1489
Delta R.T. -0.191 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:180 Resp: 572

Ion	Ratio	Lower	Upper
180	100		
165	60.8	111.4	167.2#

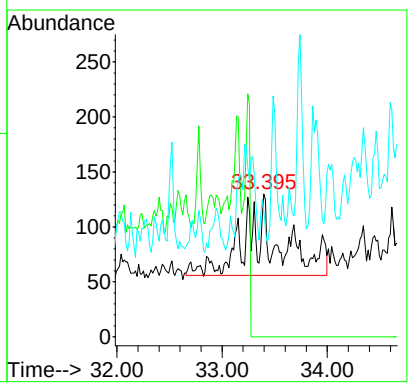


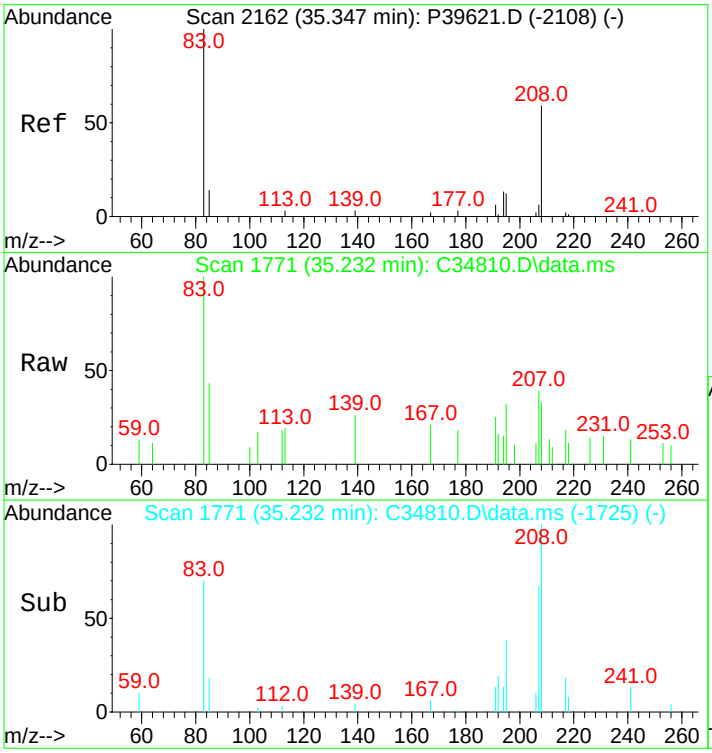


#31
C2-Fluorenes
Concen: 23.55 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:194 Resp: 1695

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	27.3	40.9#

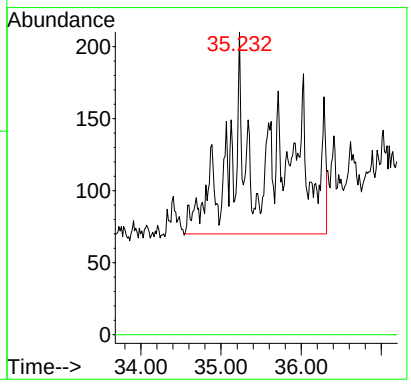


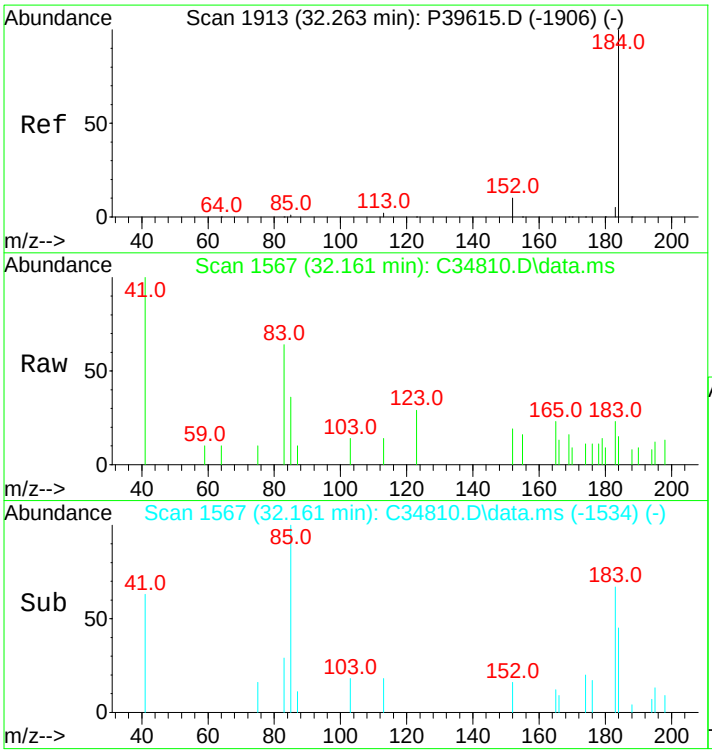


#32
C3-Fluorenes
Concen: 61.50 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:208 Resp: 4427

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

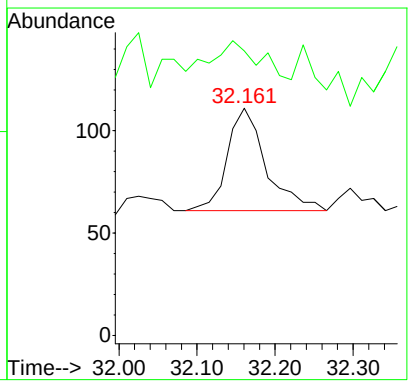


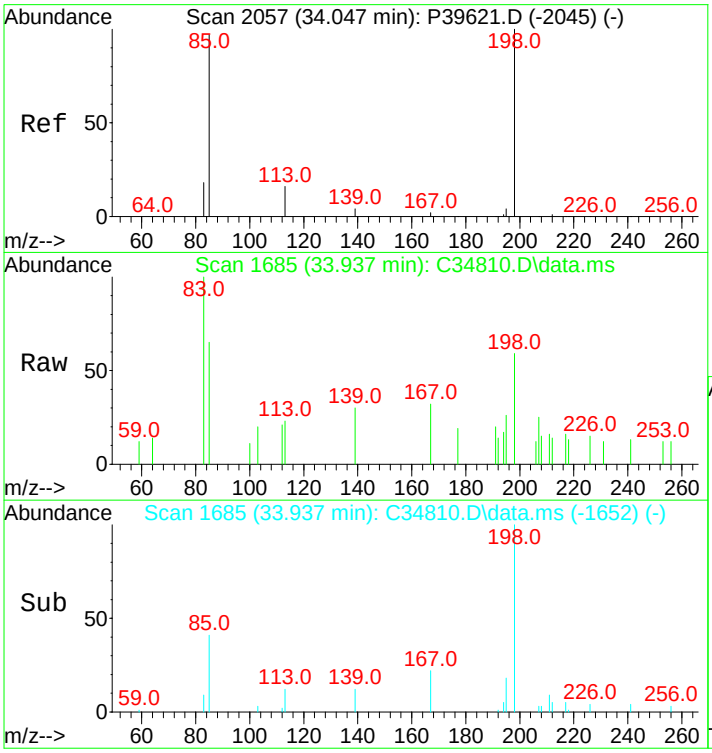


#33
Dibenzothiophene
Concen: 1.50 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:184 Resp: 173

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

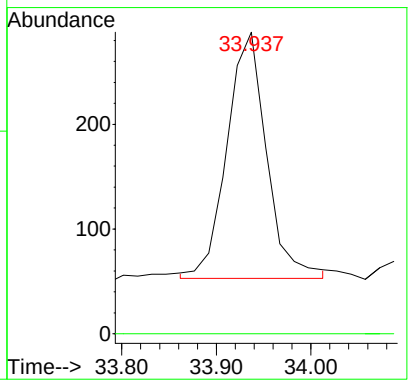


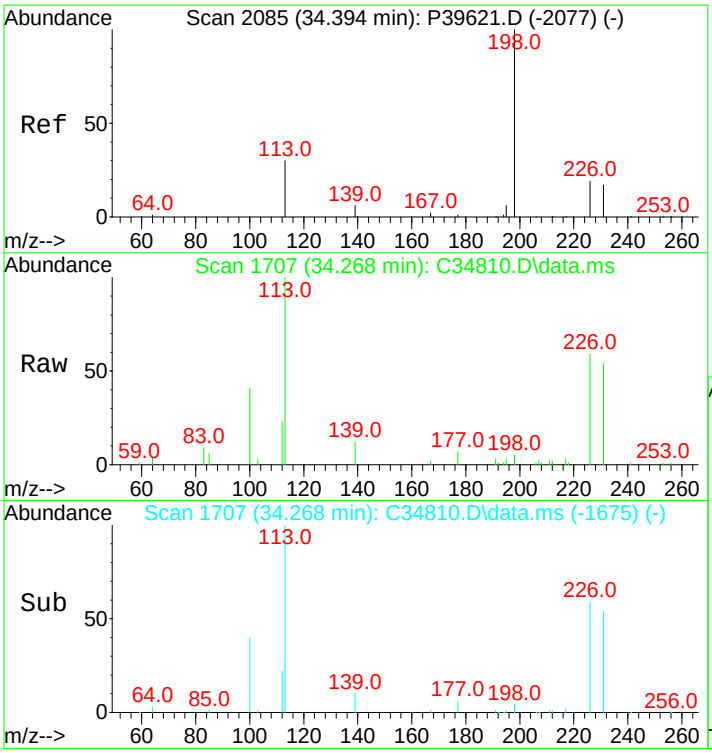


#34
4-Methyldibenzothiophene(4MDT)
Concen: 5.93 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:198 Resp: 684

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

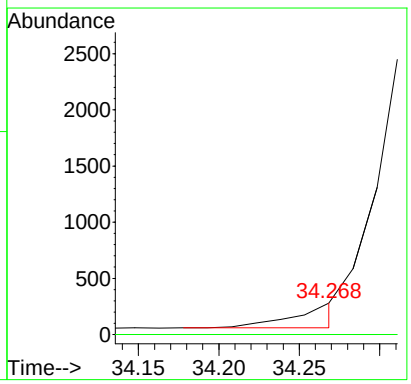


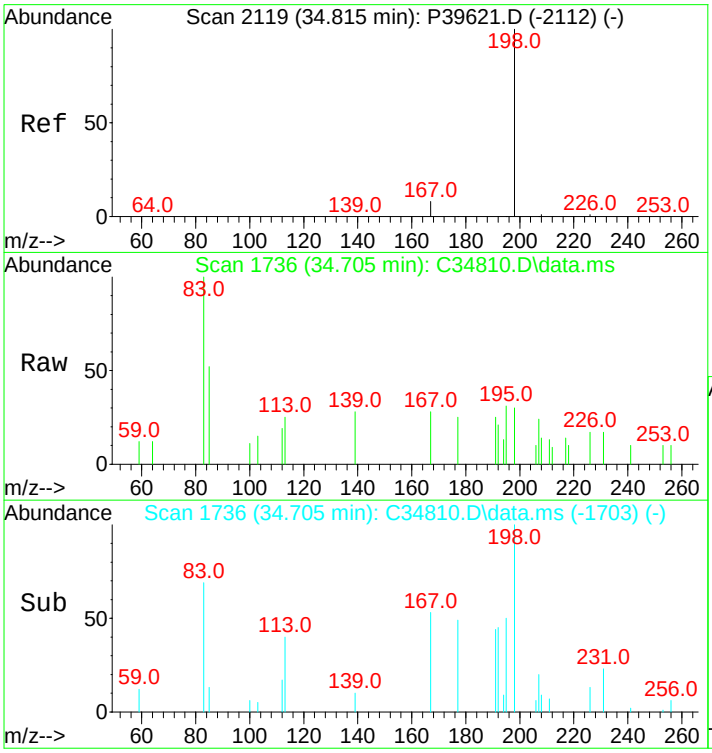


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 3.63 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:198 Resp: 419

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

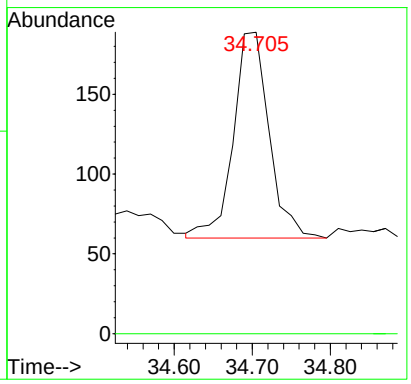


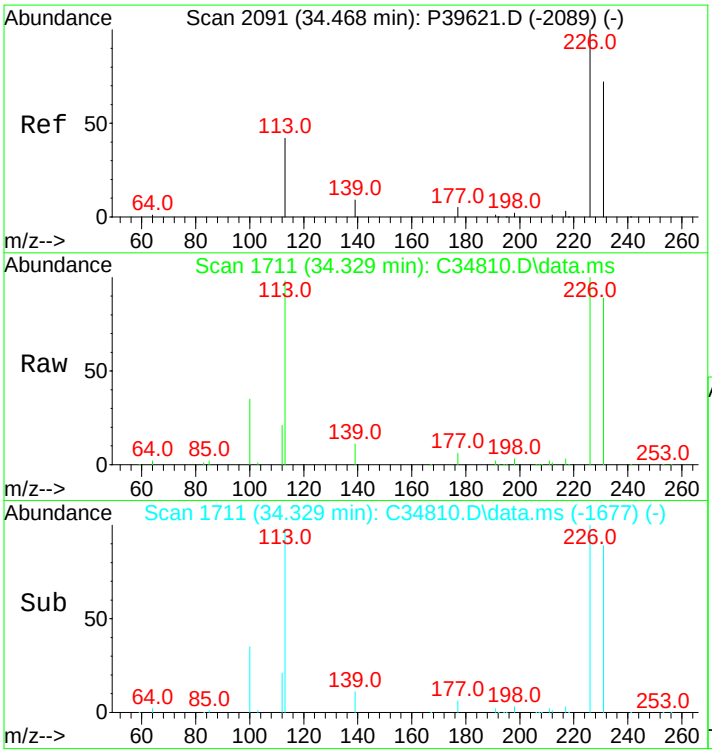


#36
1-Methyldibenzothiophene(1MDT)
Concen: 3.56 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:198 Resp: 411

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

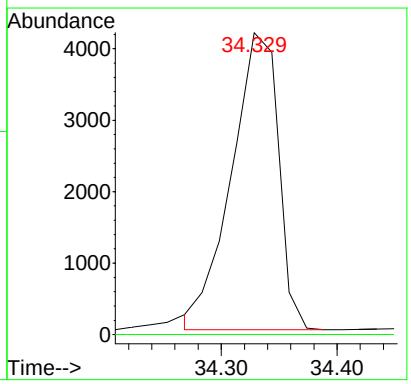


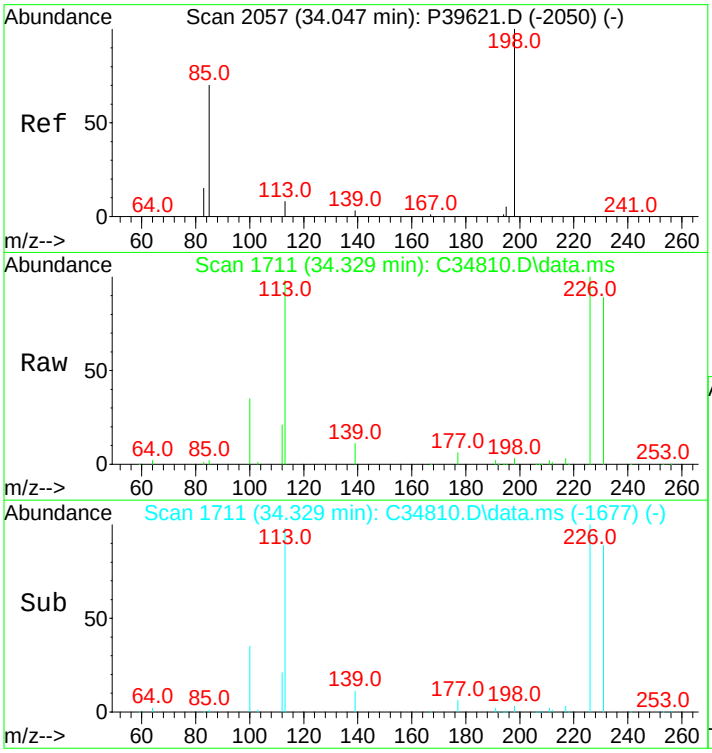


#37
OTP
Concen: 101.56 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:198 Resp: 11719

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

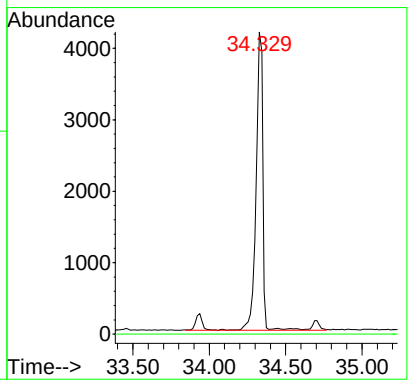


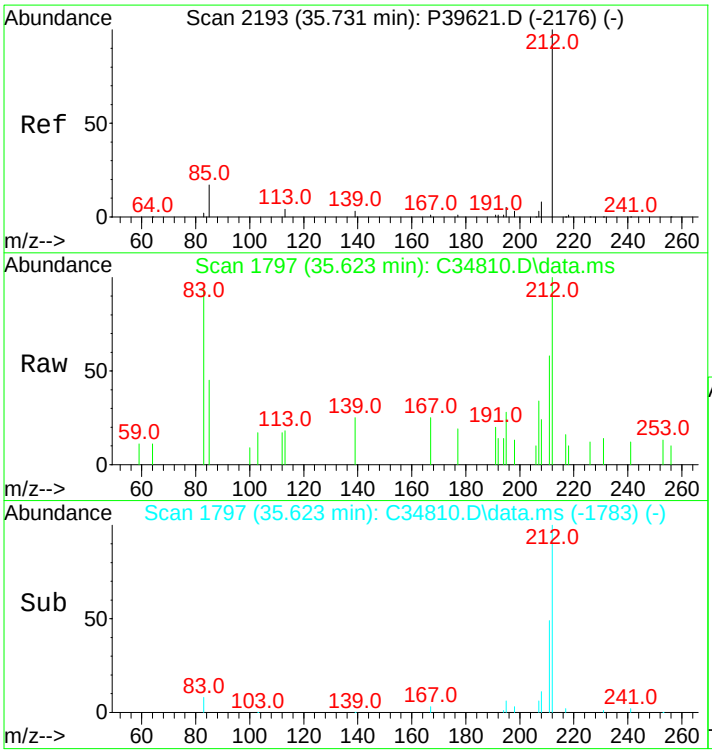


#38
C1-Dibenzothiophenes
Concen: 119.25 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:198 Resp: 13760

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

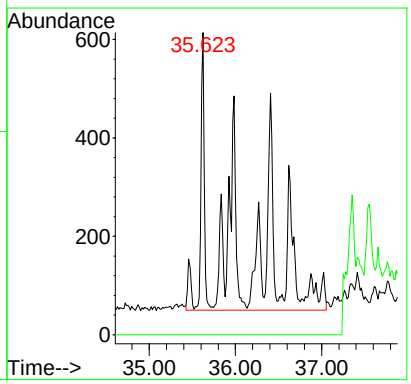


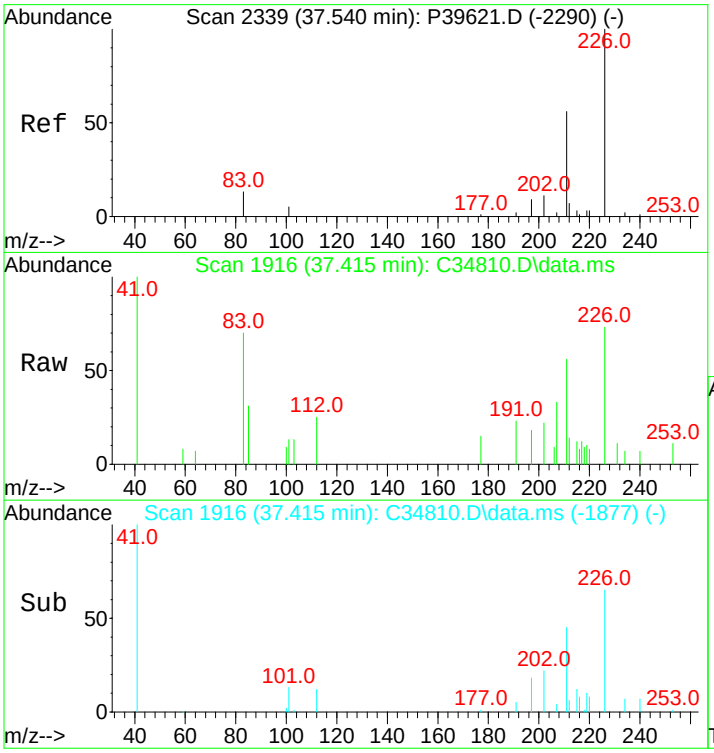


#39
C2-Dibenzothiophenes
Concen: 78.67 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:212 Resp: 9078

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

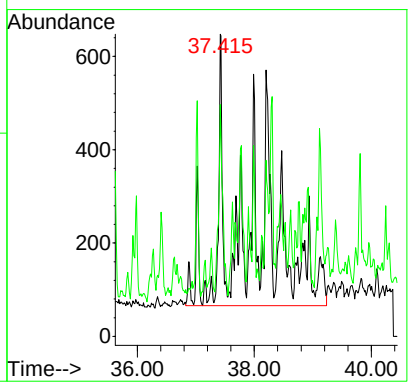


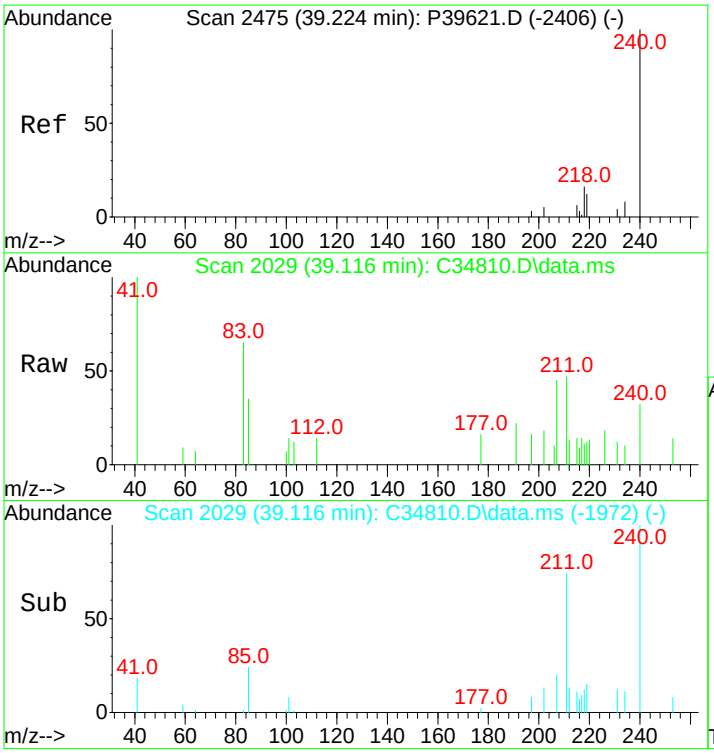


#40
C3-Dibenzothiophenes
Concen: 141.31 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:226 Resp: 16306

Ion	Ratio	Lower	Upper
226	100		
211	12.3	45.0	67.6#

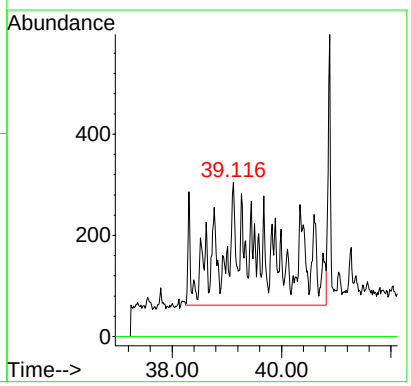


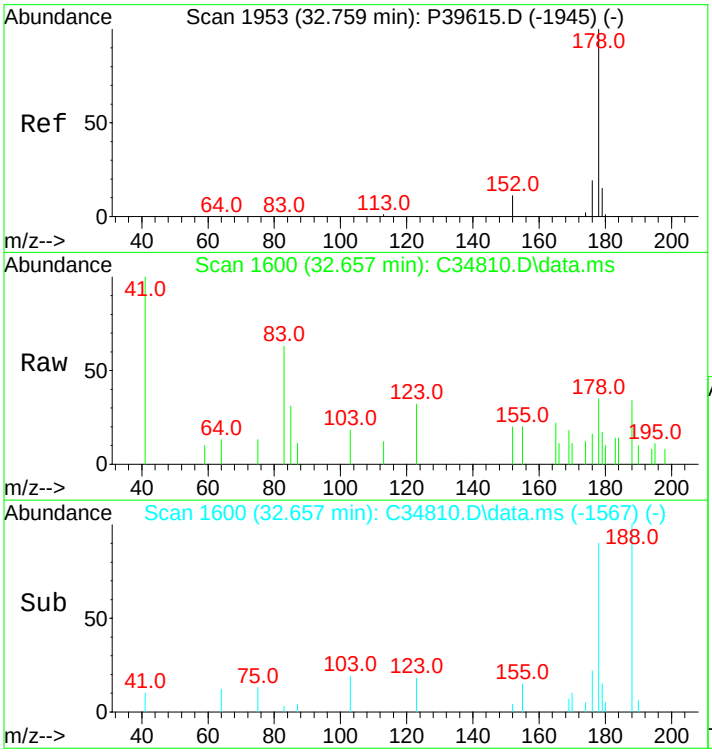


#41
C4-Dibenzothiophenes
Concen: 123.17 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:240 Resp: 14213

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

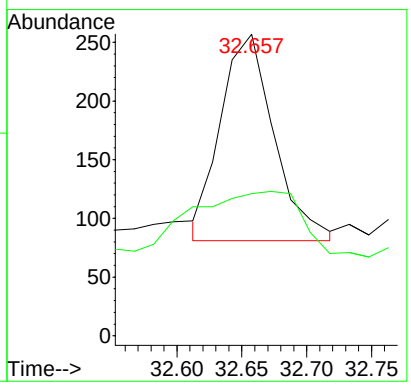


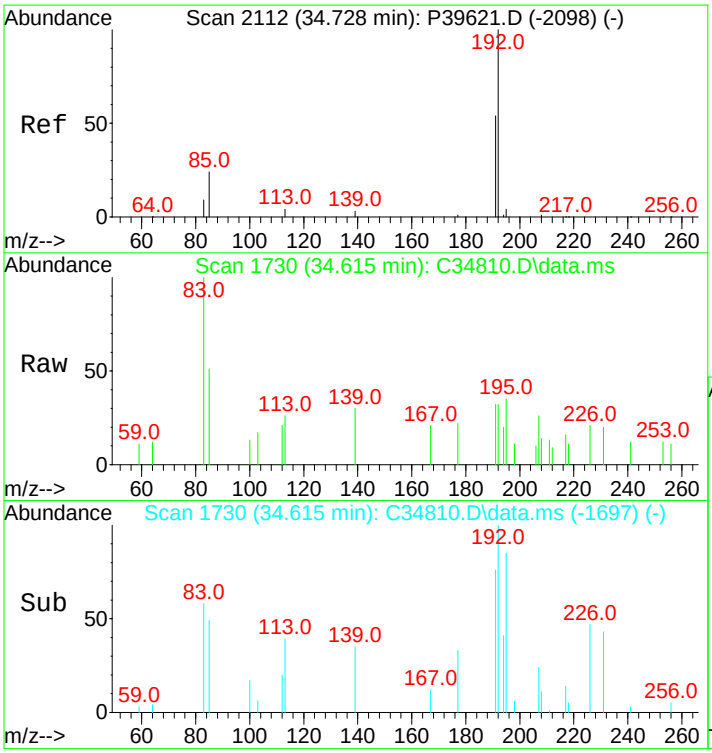


#43
Phenanthrene
Concen: 4.98 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:178 Resp: 505

Ion	Ratio	Lower	Upper
178	100		
176	66.1	16.1	24.1#

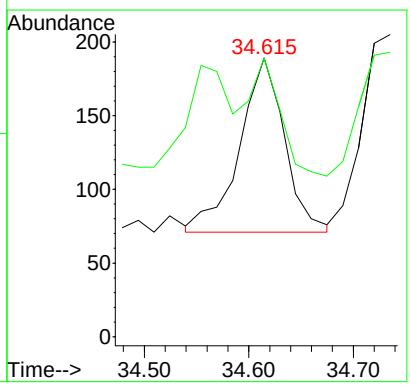


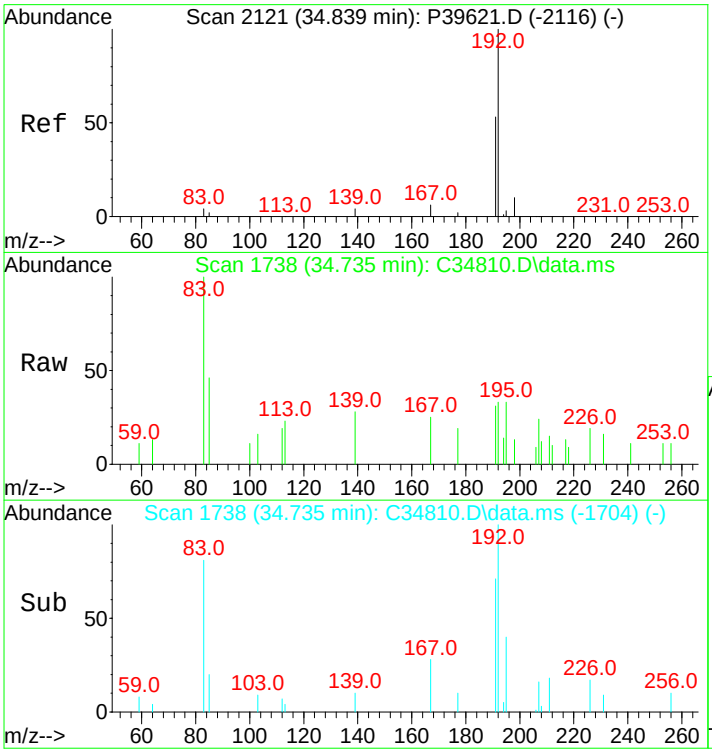


#44
3-Methylphenanthrene(3MP)
Concen: 3.49 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 354

Ion	Ratio	Lower	Upper
192	100		
191	69.8	46.9	70.3

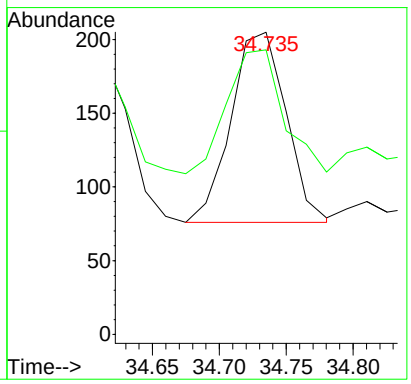


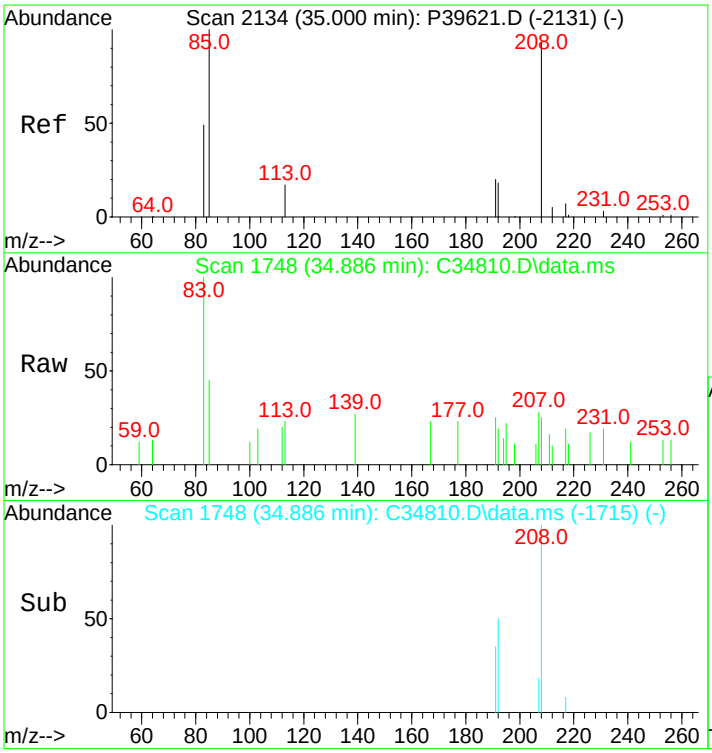


#45
2/4-Methylphenanthrene(2MP)
Concen: 3.65 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 370

Ion	Ratio	Lower	Upper
192	100		
191	66.8	46.1	69.1

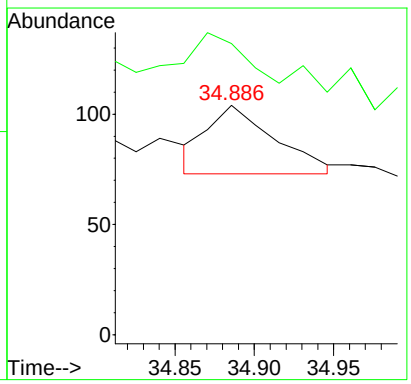


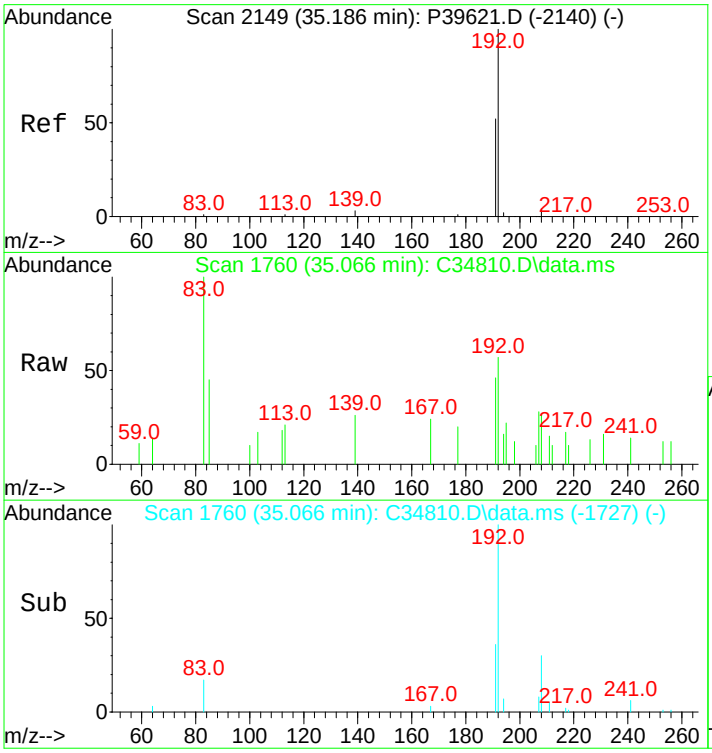


#46
2-Methylanthracene(2MA)
Concen: 0.90 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 91

Ion	Ratio	Lower	Upper
192	100		
191	0.0	93.4	140.0#

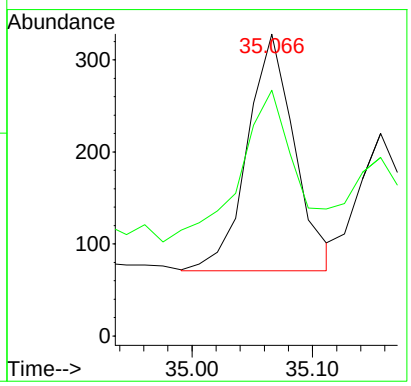


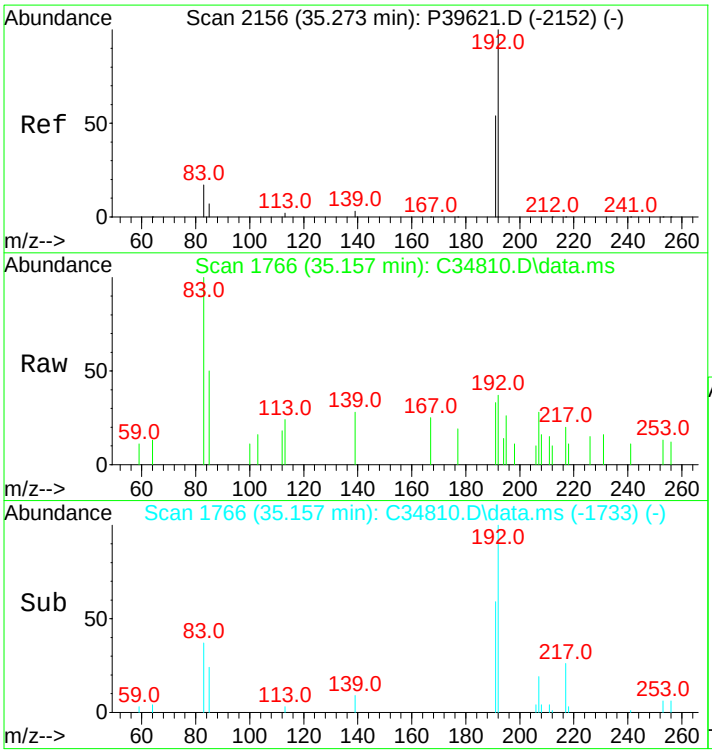


#47
9-Methylphenanthrene(9MP)
Concen: 6.88 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 697

Ion	Ratio	Lower	Upper
192	100		
191	35.4	45.9	68.9#

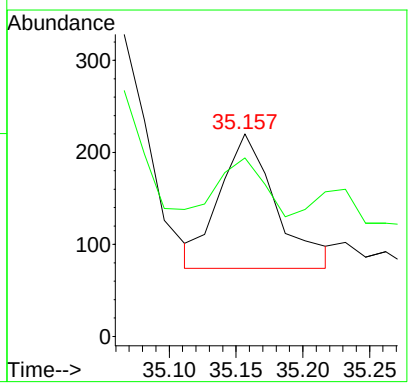


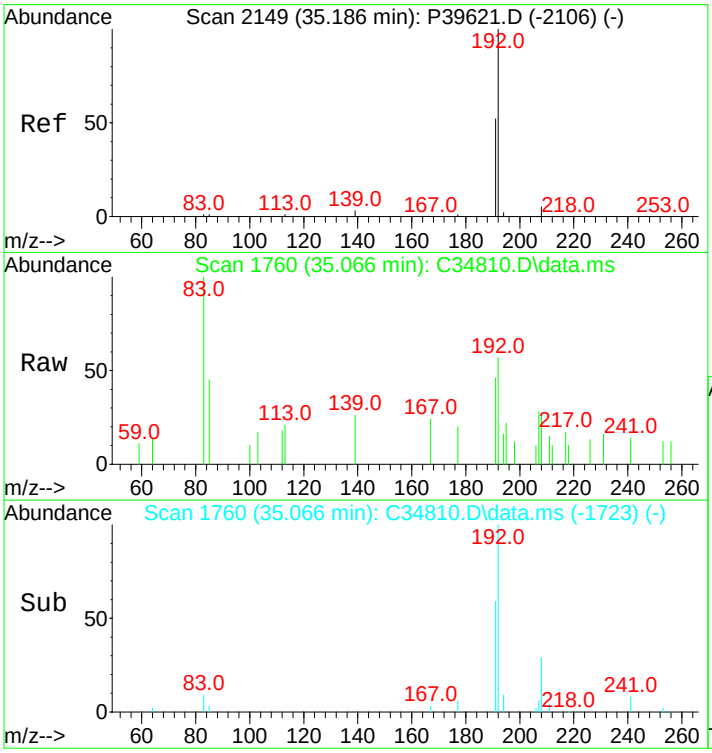


#48
1-Methylphenanthrene(1MP)
Concen: 4.23 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 429

Ion	Ratio	Lower	Upper
192	100		
191	54.1	49.0	73.4

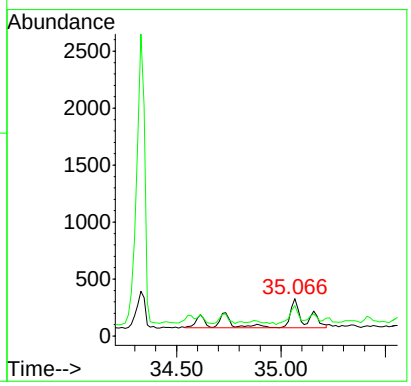


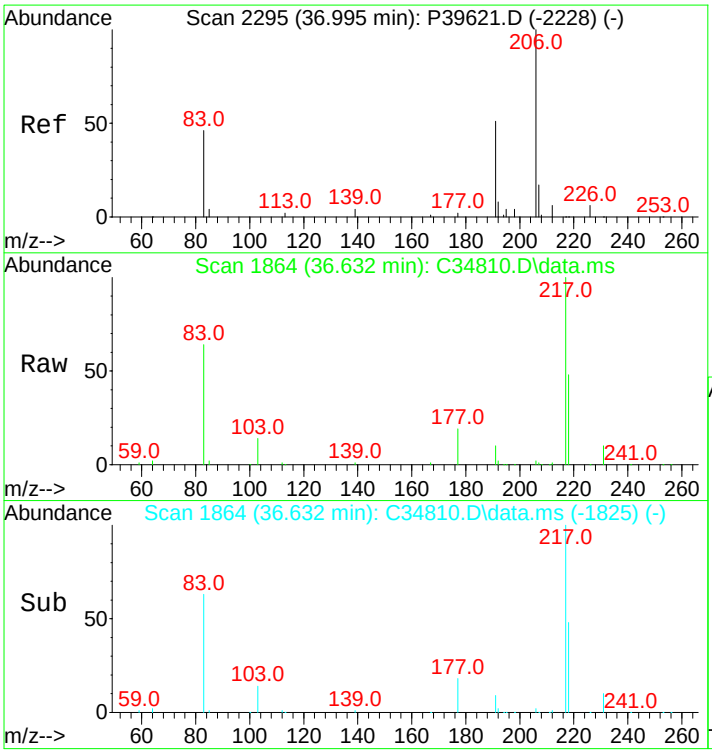


#49
C1-Phenanthrenes/Anthracenes
Concen: 19.77 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 2004

Ion	Ratio	Lower	Upper
192	100		
191	5.8	44.2	66.2#

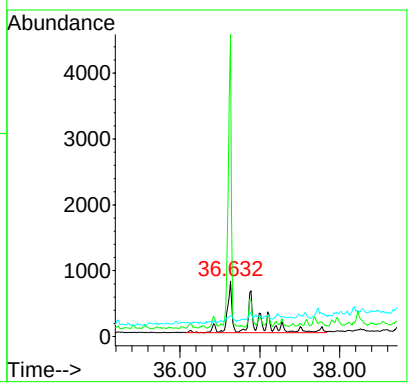


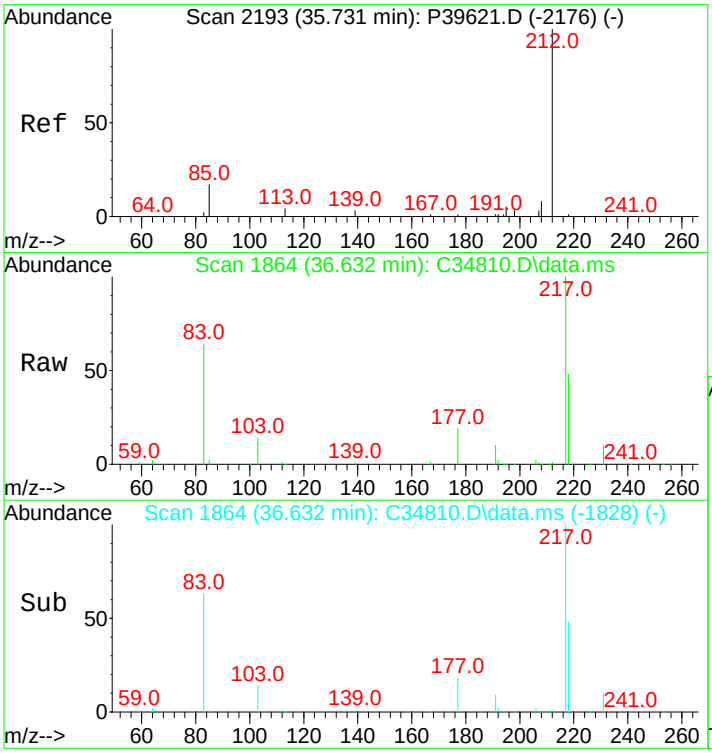


#50
C2-Phenanthrenes/Anthracenes
Concen: 89.12 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. -0.180 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:206 Resp: 9035

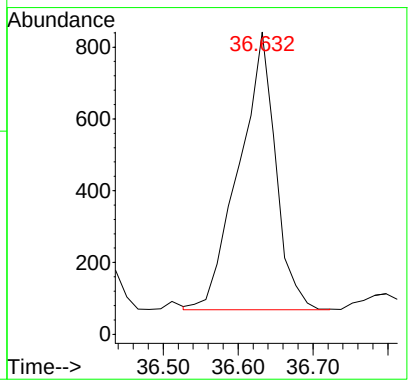
Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	1.6	15.1	22.7#

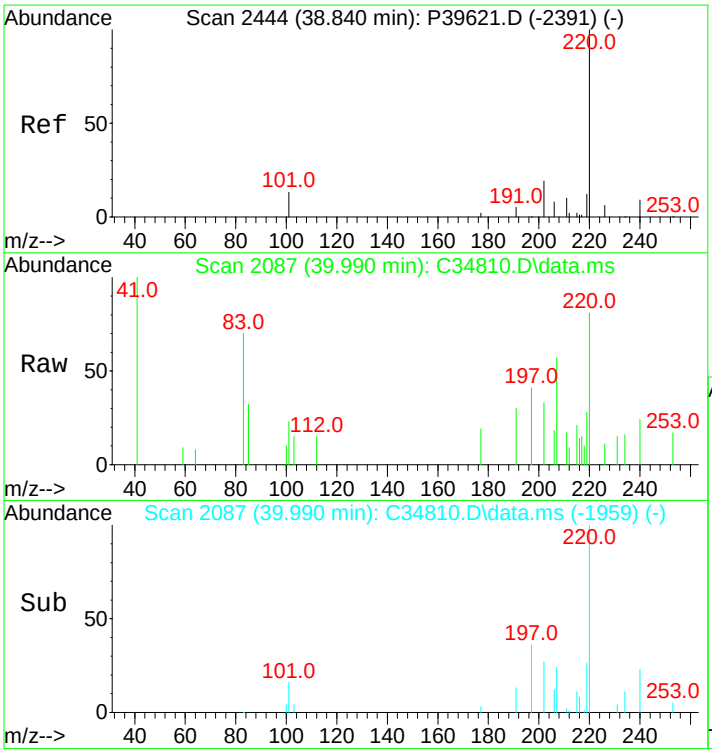




#51
5AA IS BKGD
Concen: 25.91 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. 0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:206 Resp: 2627

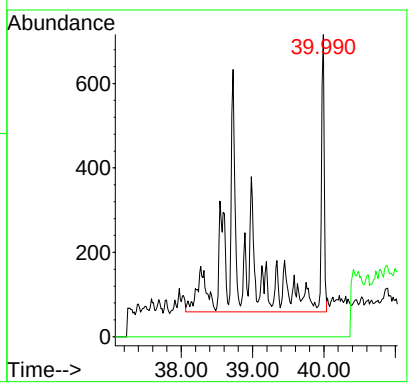


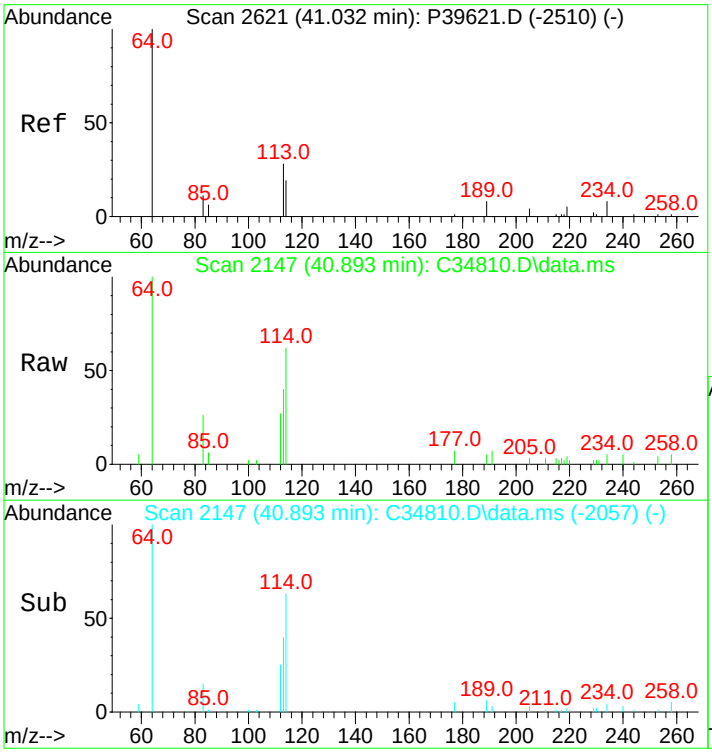


#52
C3-Phenanthrenes/Anthracenes
Concen: 101.54 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:220 Resp: 10294

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

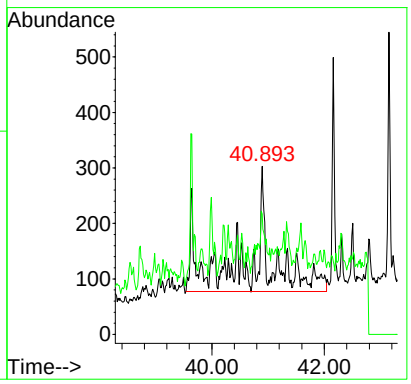


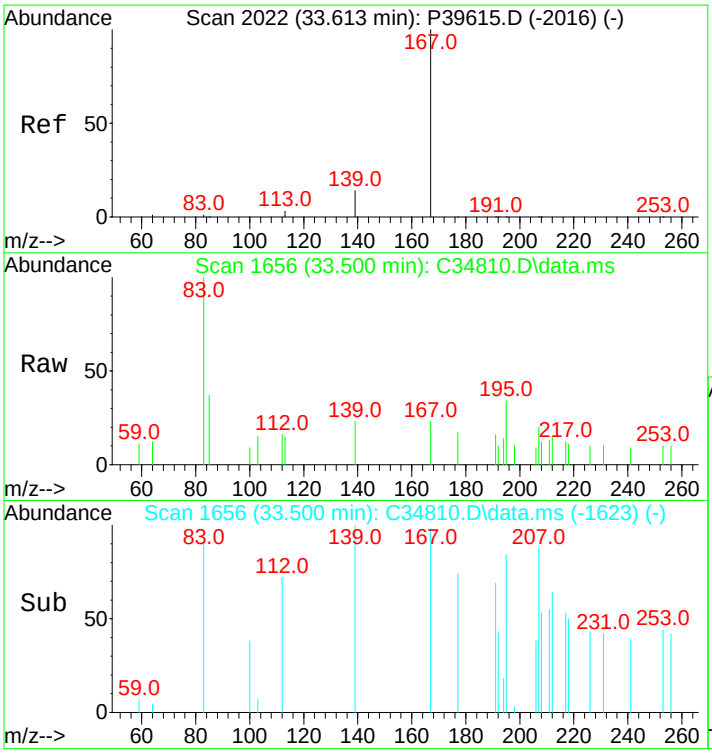


#53
C4-Phenanthrenes/Anthracenes
Concen: 60.91 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:234 Resp: 6175

Ion	Ratio	Lower	Upper
234	100		
219	2.3	46.9	70.3#

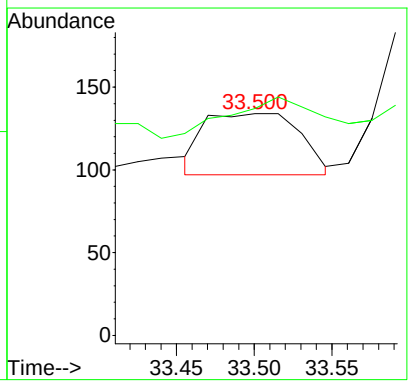


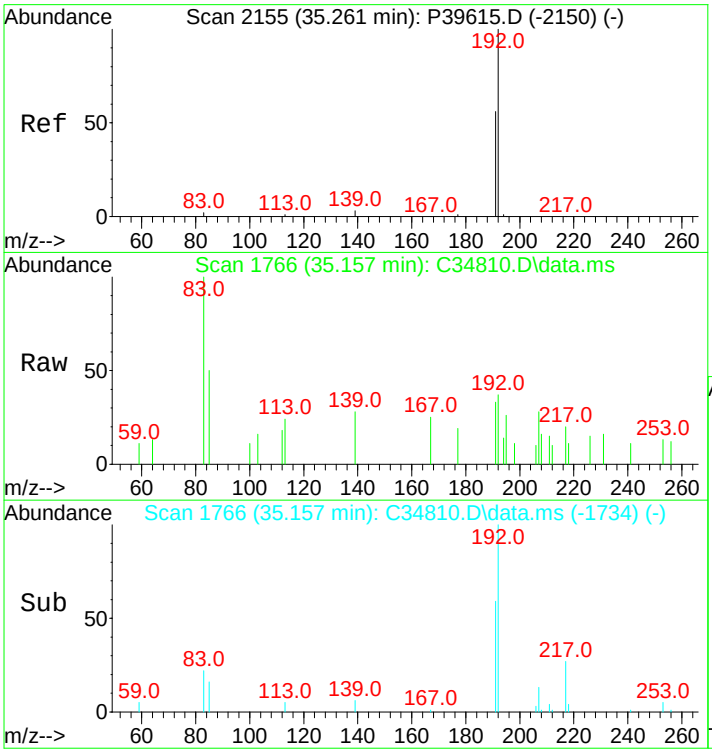


#56
Carbazole
Concen: 1.58 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:167 Resp: 158

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

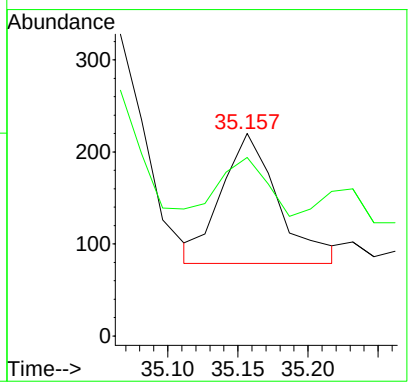


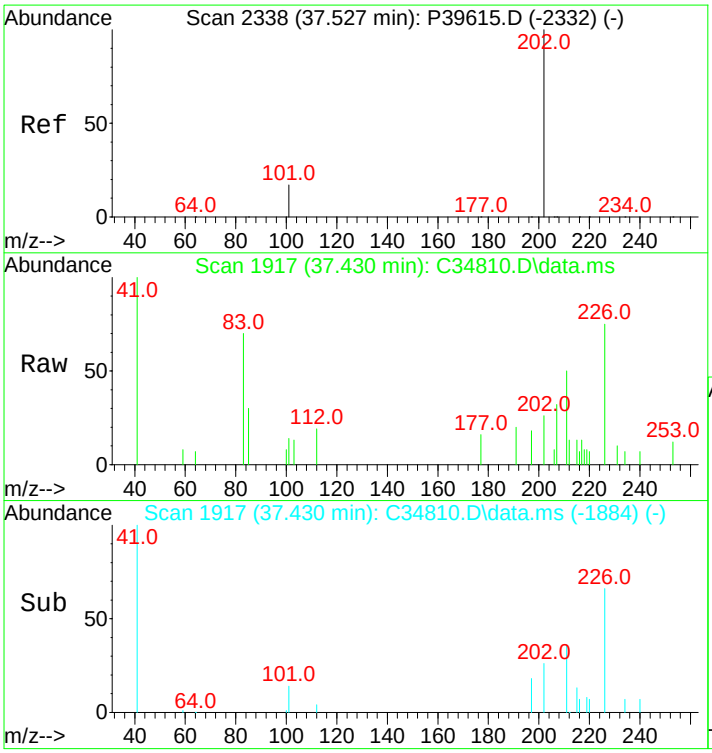


#57
1-Methylphenanthrene
Concen: 6.18 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:192 Resp: 397

Ion	Ratio	Lower	Upper
192	100		
191	48.1	45.9	68.9

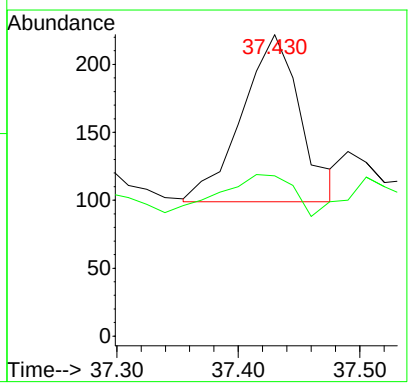


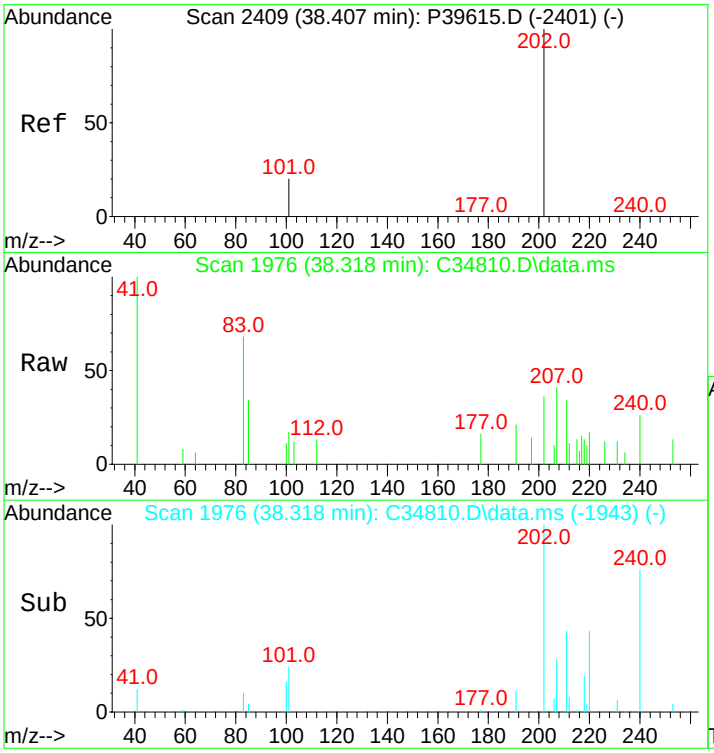


#58
Fluoranthene
Concen: 4.08 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:202 Resp: 411

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

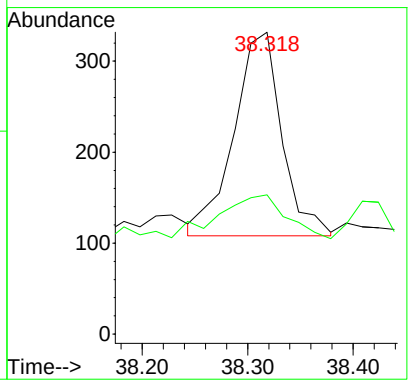


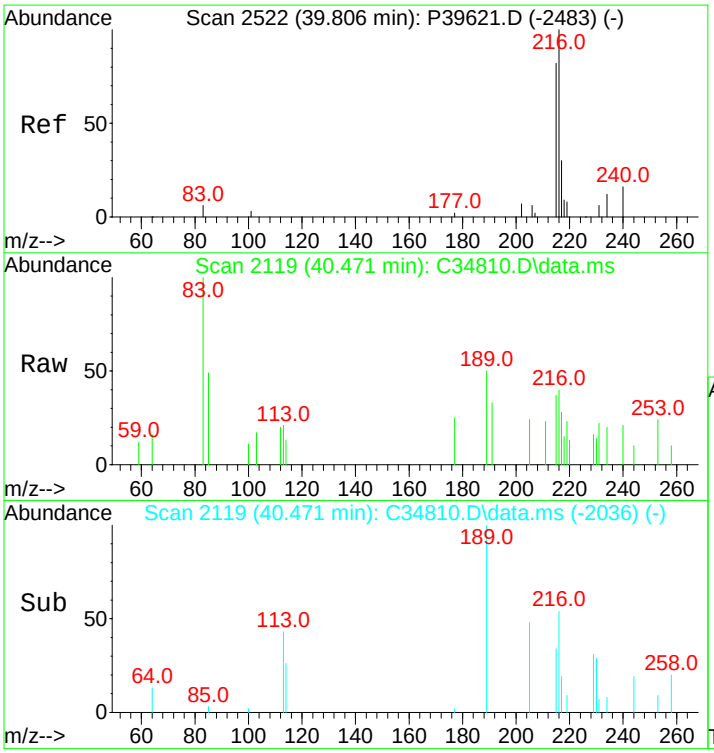


#60
Pyrene
Concen: 6.91 ng/mL m
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:202 Resp: 707

Ion	Ratio	Lower	Upper
202	100		
101	30.1	15.0	22.4#

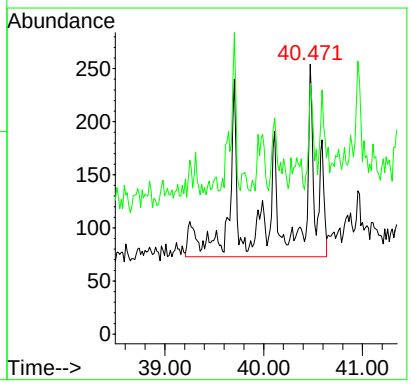


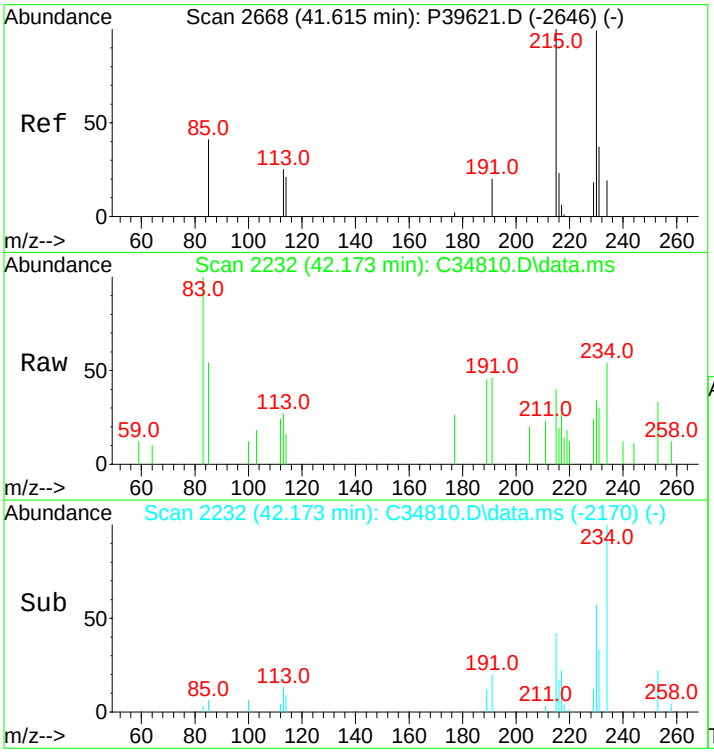


#61
C1-Fluoranthenes/Pyrenes
Concen: 28.37 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:216 Resp: 2904

Ion	Ratio	Lower	Upper
216	100		
215	18.5	71.8	107.6#

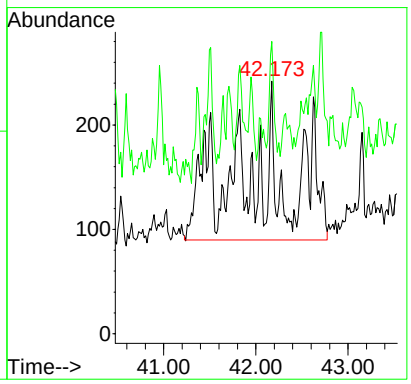


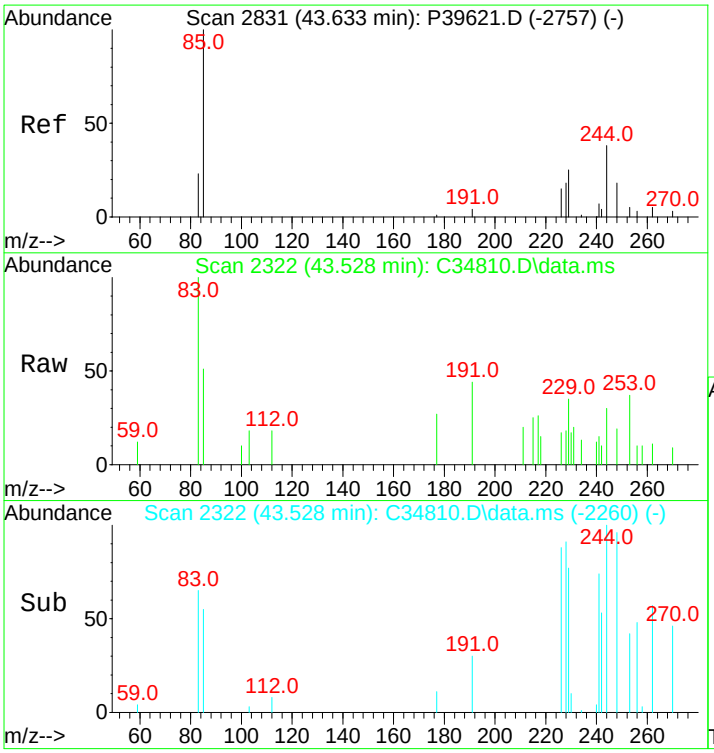


#62
C2-Fluoranthenes/Pyrenes
Concen: 47.70 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:230 Resp: 4882

Ion	Ratio	Lower	Upper
230	100		
215	6.6	99.0	148.4#

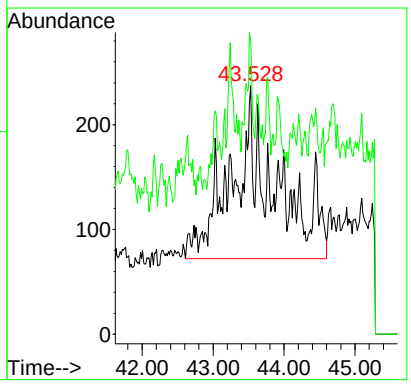


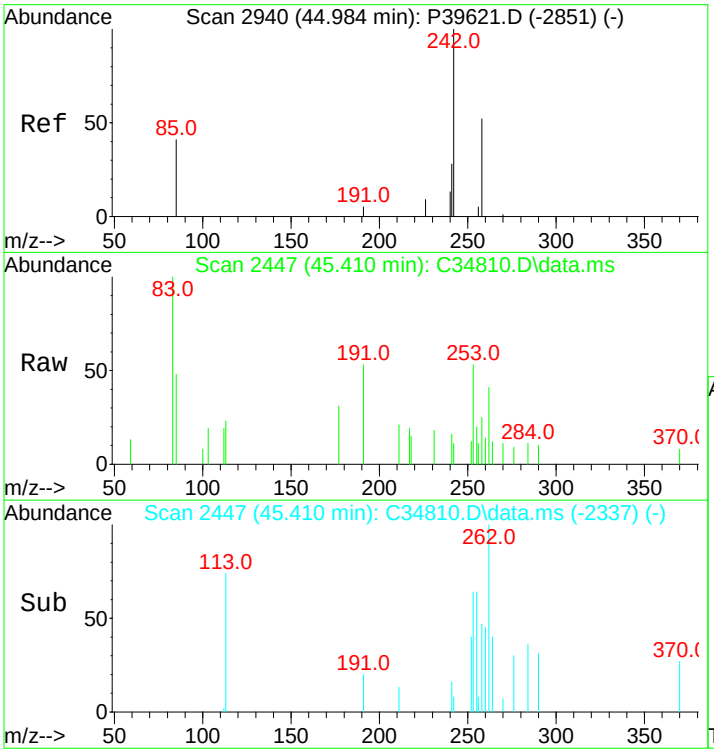


#63
C3-Fluoranthenes/Pyrenes
Concen: 65.53 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:244 Resp: 6707

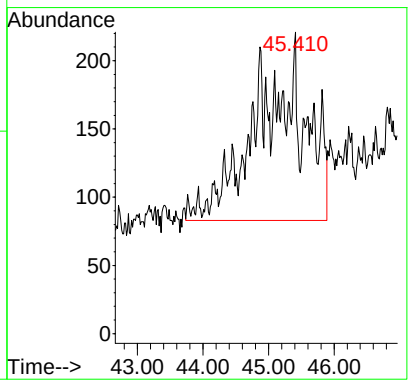
Ion	Ratio	Lower	Upper
244	100		
229	4.3	73.3	109.9#

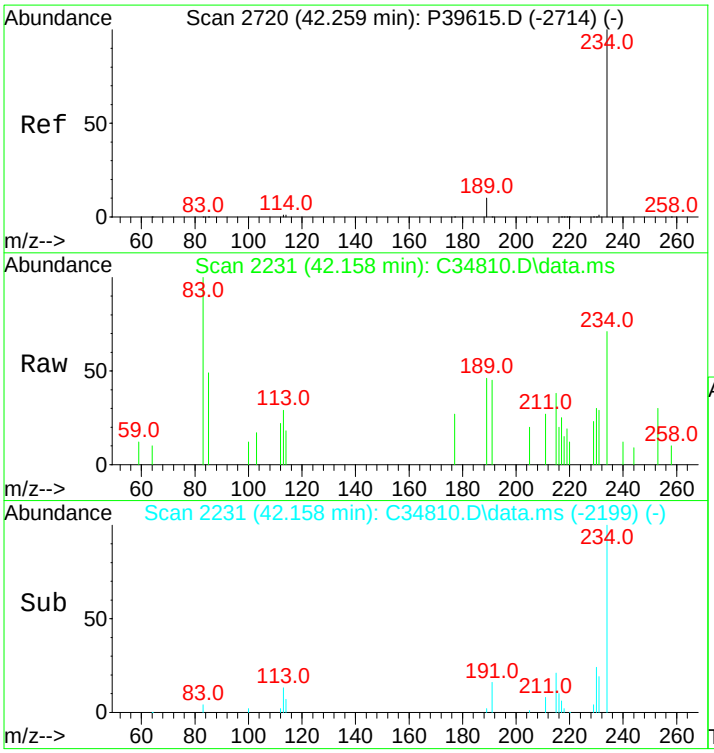




#64
C4-Fluoranthenes/Pyrenes
Concen: 65.68 ng/mL m
RT: 45.410 min Scan# 2447
Delta R.T. 0.654 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:258 Resp: 6722

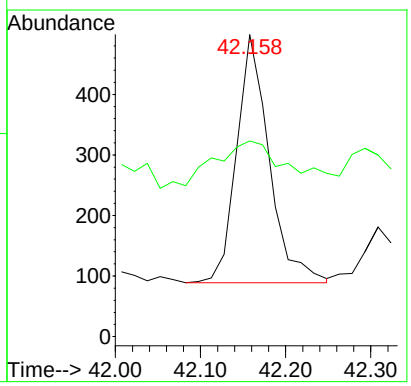


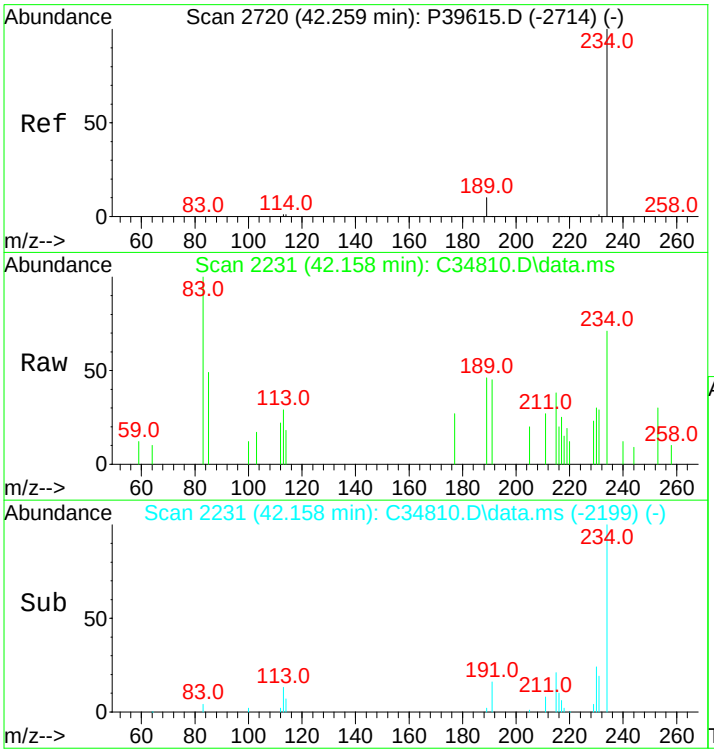


#66
Naphthobenzothiophene
Concen: 9.87 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:234 Resp: 1088

Ion	Ratio	Lower	Upper
234	100		
189	38.6	20.5	30.7#

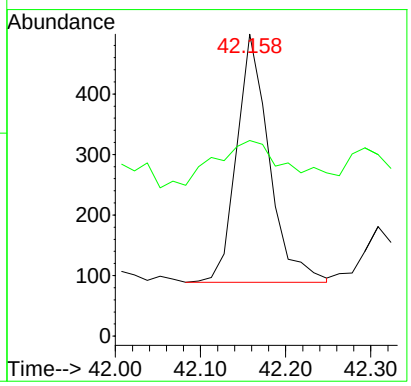


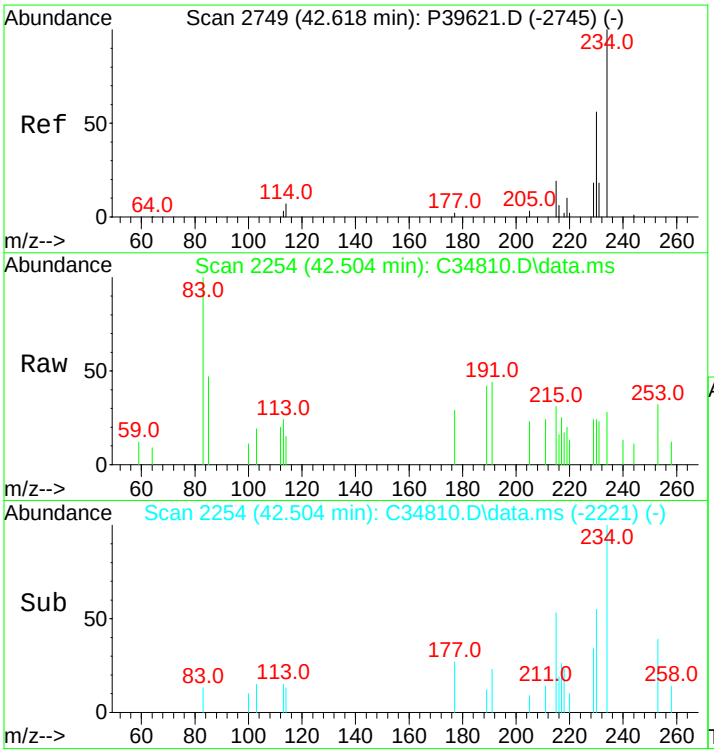


#67
Naphthobenzothiophene-2,1-D
Concen: 9.87 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:234 Resp: 1088

Ion	Ratio	Lower	Upper
234	100		
189	38.6	20.5	30.7#

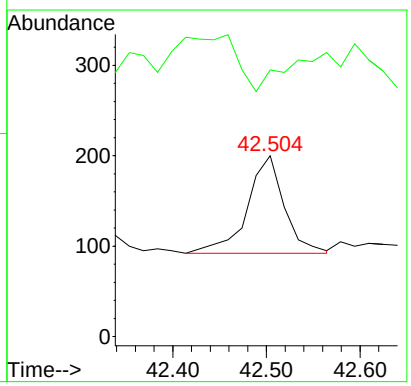


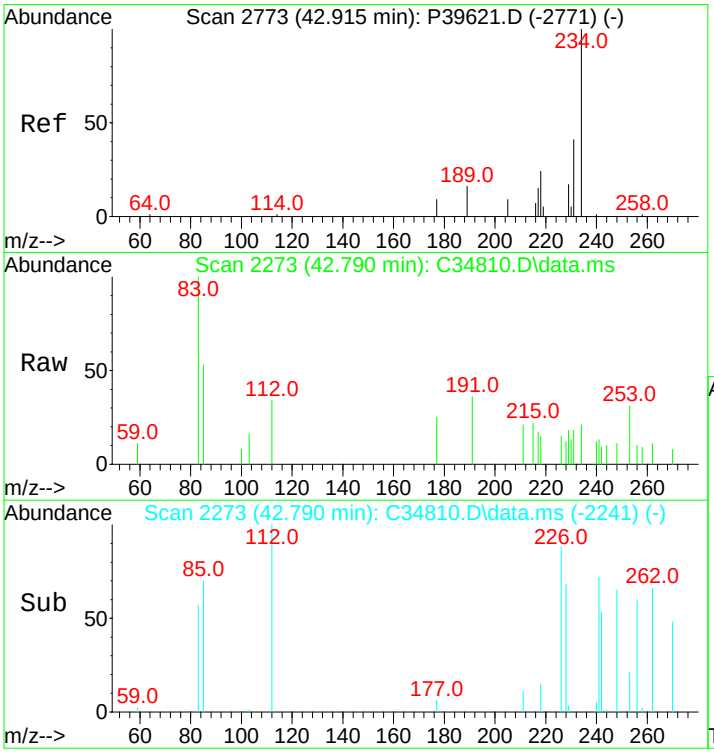


#68
Naphthobenzothiophene-1,2-D
Concen: 2.70 ng/mL
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:234 Resp: 297

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

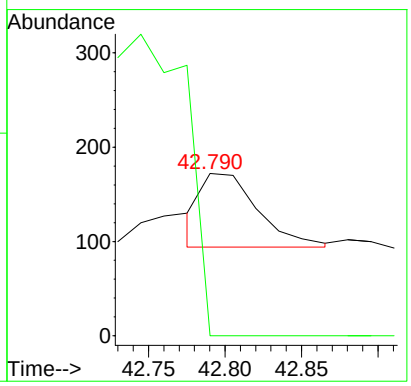


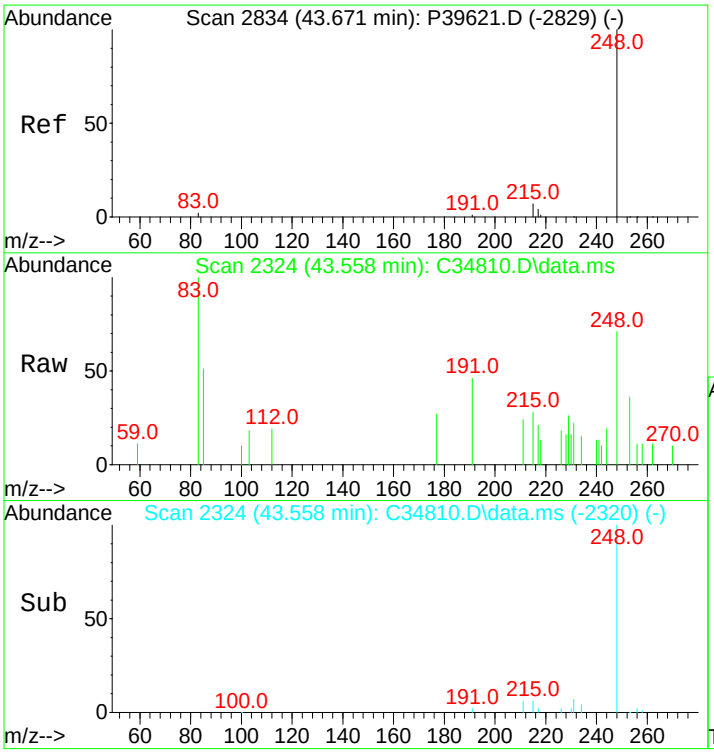


#69
Naphthobenzothiophene-2,3-D
Concen: 1.84 ng/mL m
RT: 42.790 min Scan# 2273
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:234 Resp: 203

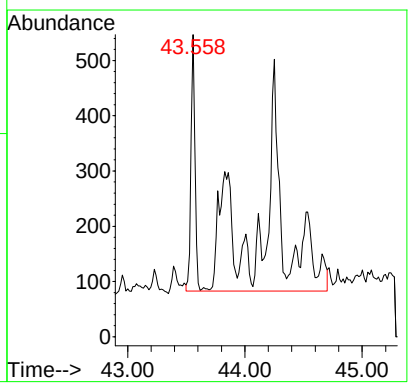
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

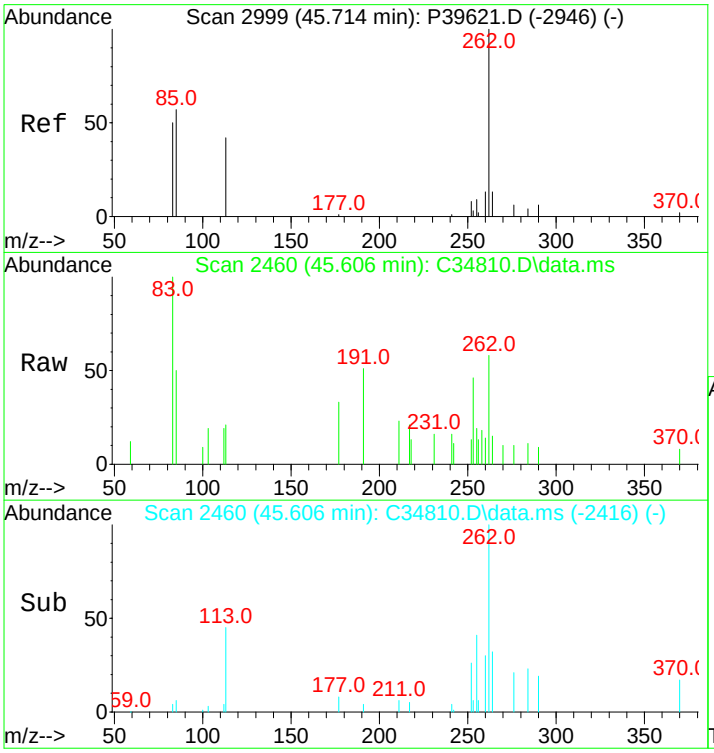




#70
C1-Naphthobenzothiophenes
Concen: 62.46 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

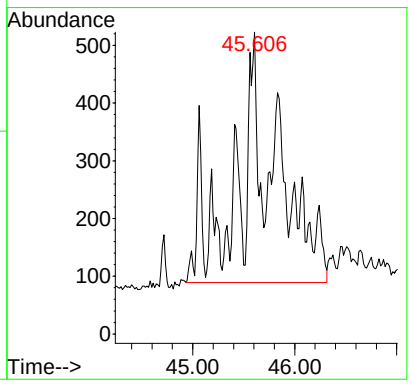
Tgt Ion:248 Resp: 6883

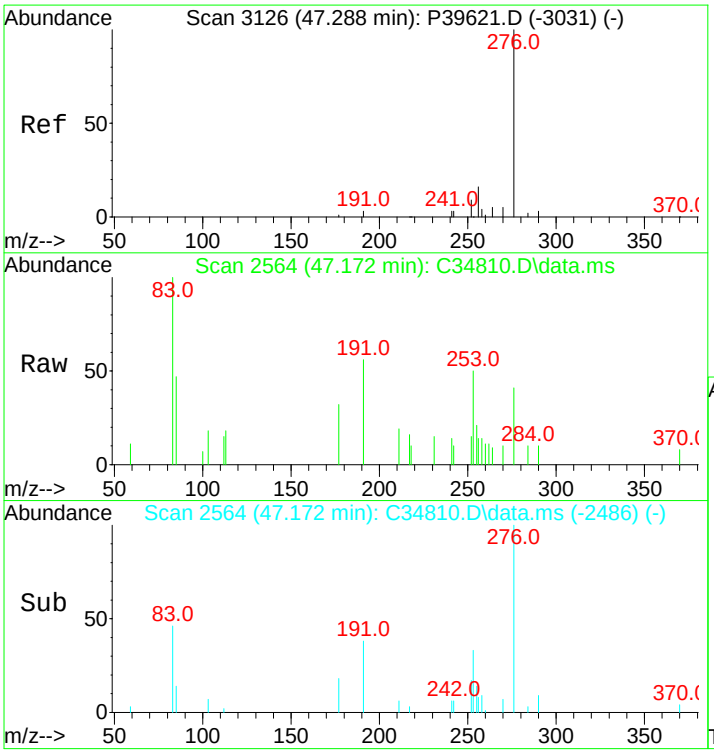




#71
C2-Naphthobenzothiophenes
Concen: 102.65 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

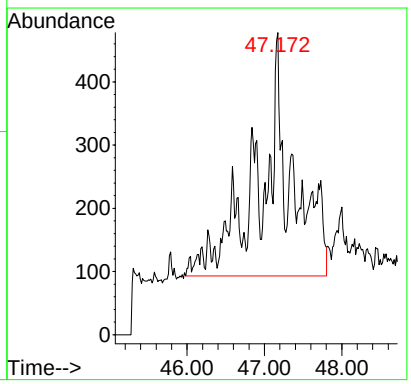
Tgt Ion:262 Resp: 11311

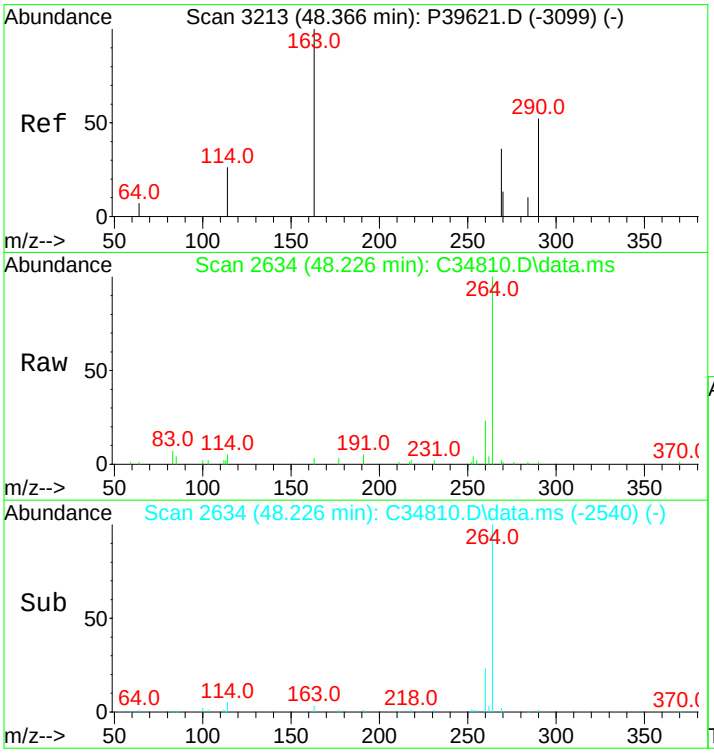




#72
C3-Naphthobenzothiophenes
Concen: 102.05 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

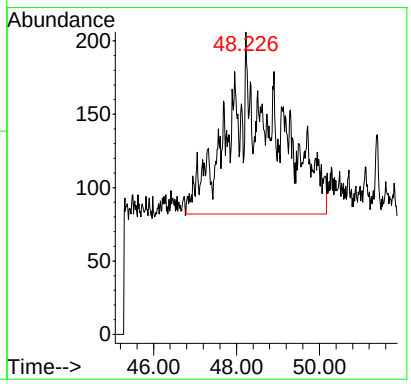
Tgt Ion:276 Resp: 11245

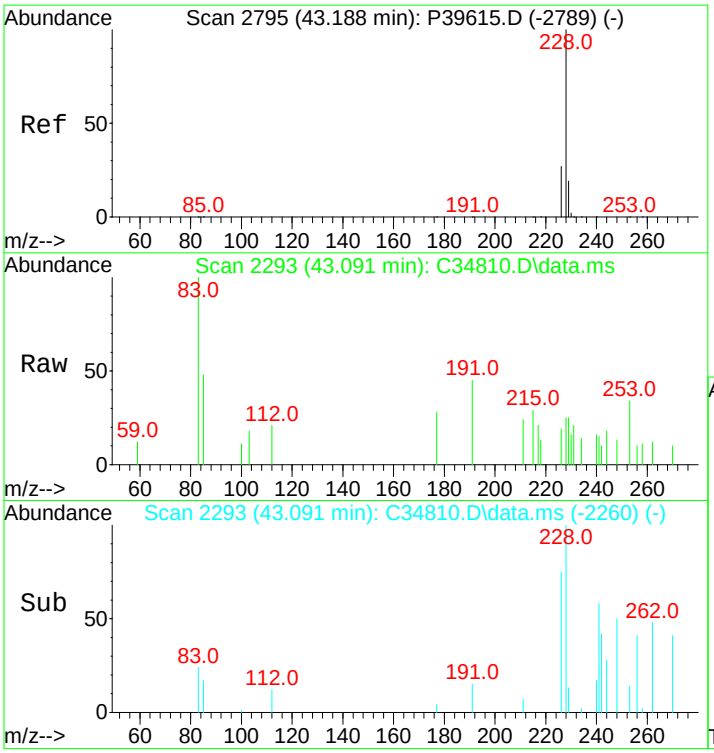




#73
C4-Naphthobenzothiophenes
Concen: 85.47 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.127 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:290 Resp: 9418

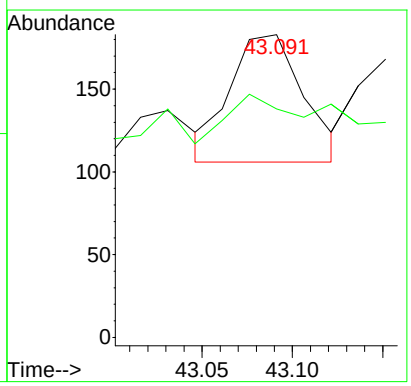


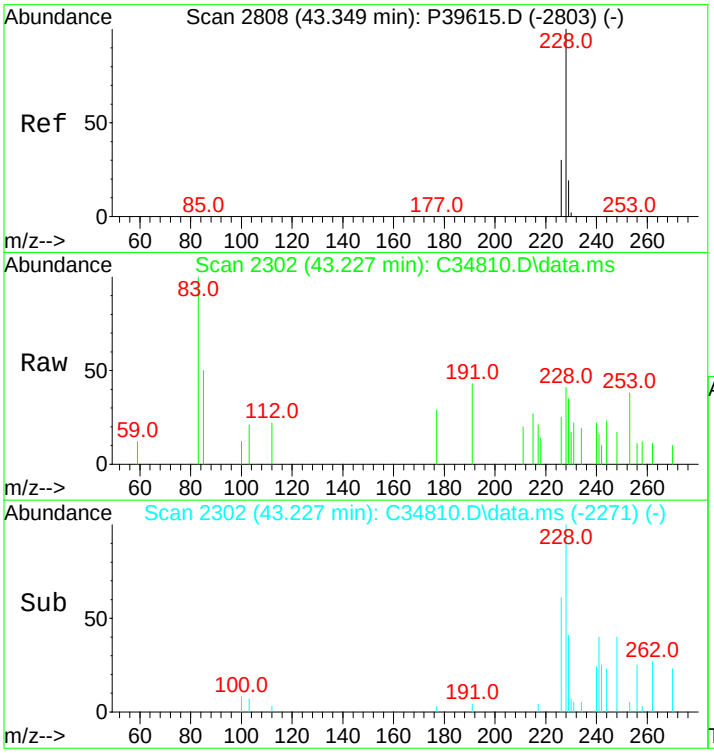


#75
Benz[a]anthracene
Concen: 2.27 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:228 Resp: 217

Ion	Ratio	Lower	Upper
228	100		
226	125.3	21.4	32.0#

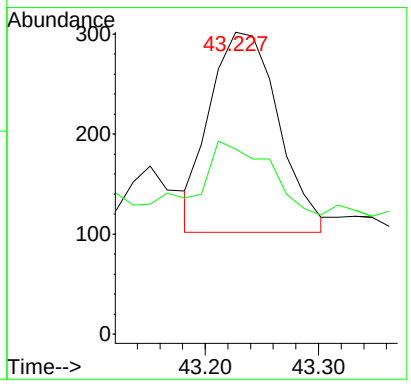


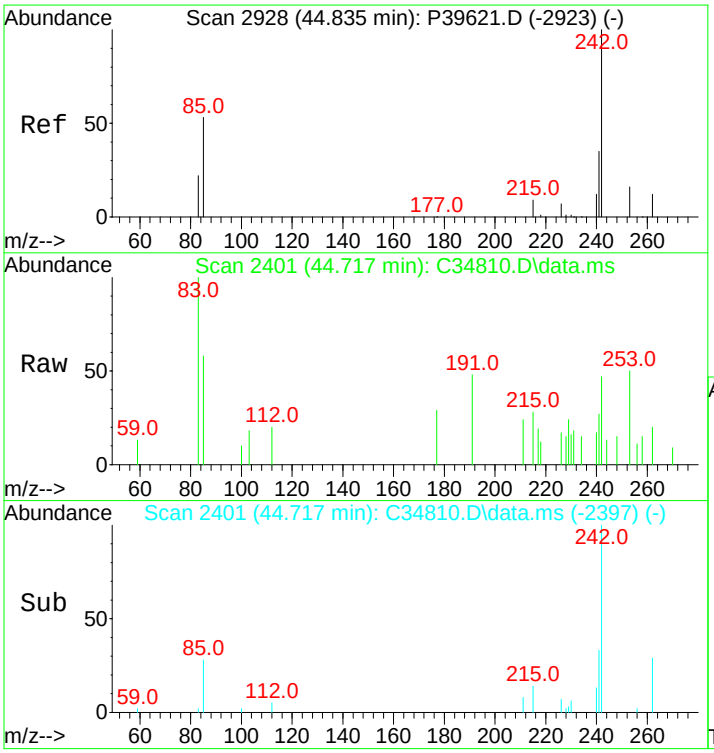


#77
Chrysene/Triphenylene
Concen: 8.70 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:228 Resp: 839

Ion	Ratio	Lower	Upper
228	100		
226	32.4	23.7	35.5

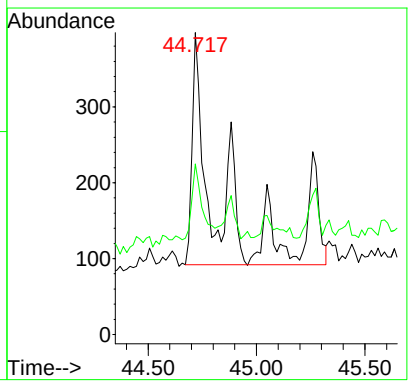


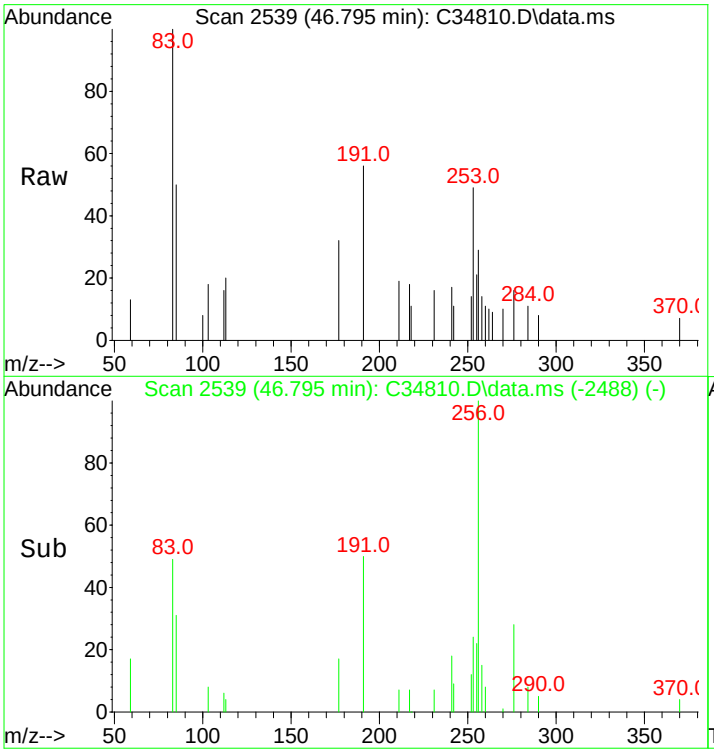


#78
C1-Chrysenes
Concen: 25.77 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:242 Resp: 2484

Ion	Ratio	Lower	Upper
242	100		
241	5.7	31.4	47.2#

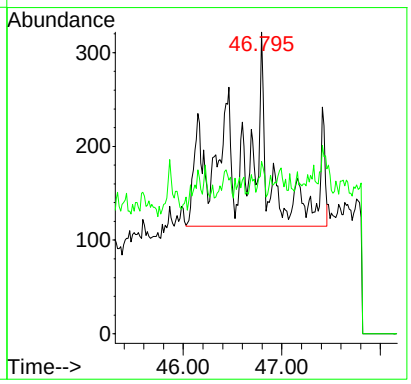


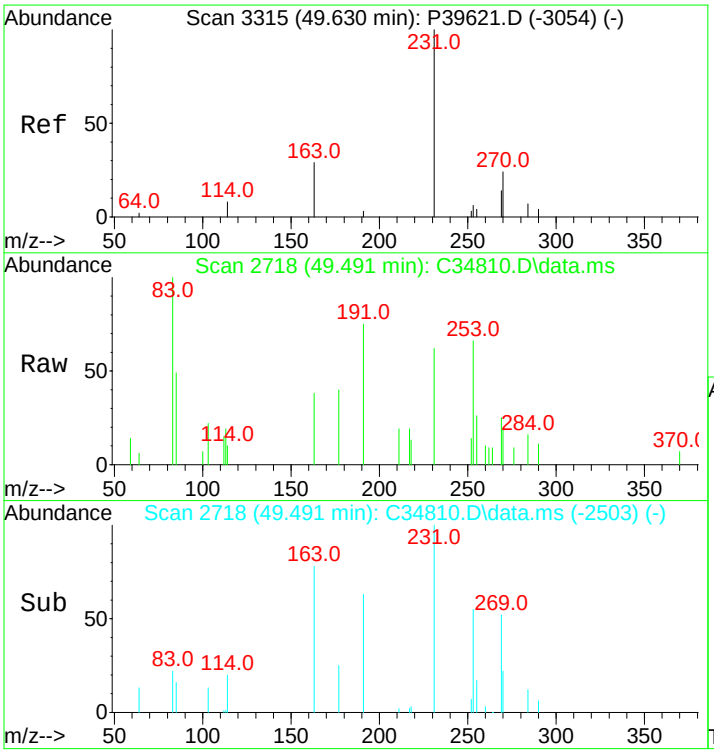


#79
C2-Chrysenes
Concen: 47.55 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:256 Resp: 4583

Ion	Ratio	Lower	Upper
256	100		
241	2.8	21.2	31.8#

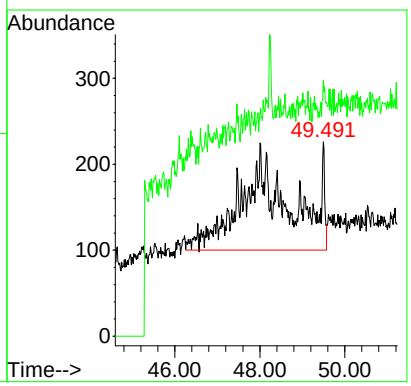


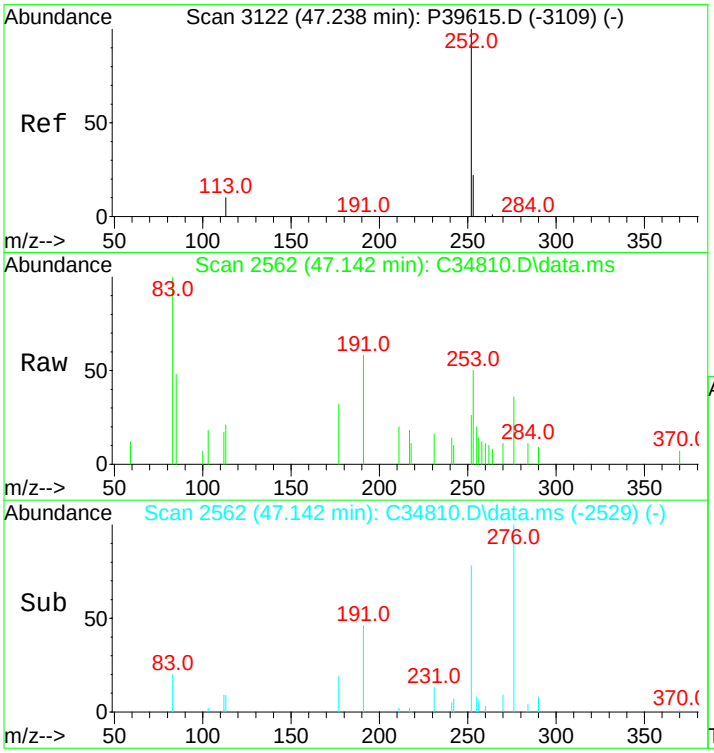


#80
C3-Chrysenes
Concen: 93.62 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:270 Resp: 9024

Ion	Ratio	Lower	Upper
270	100		
255	1.6	33.8	50.8#

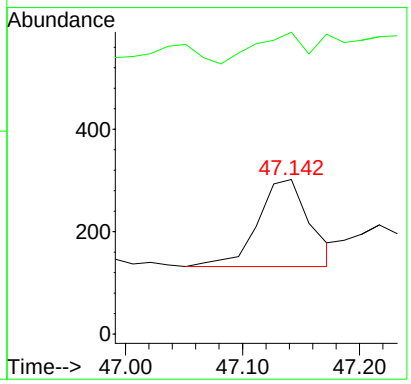


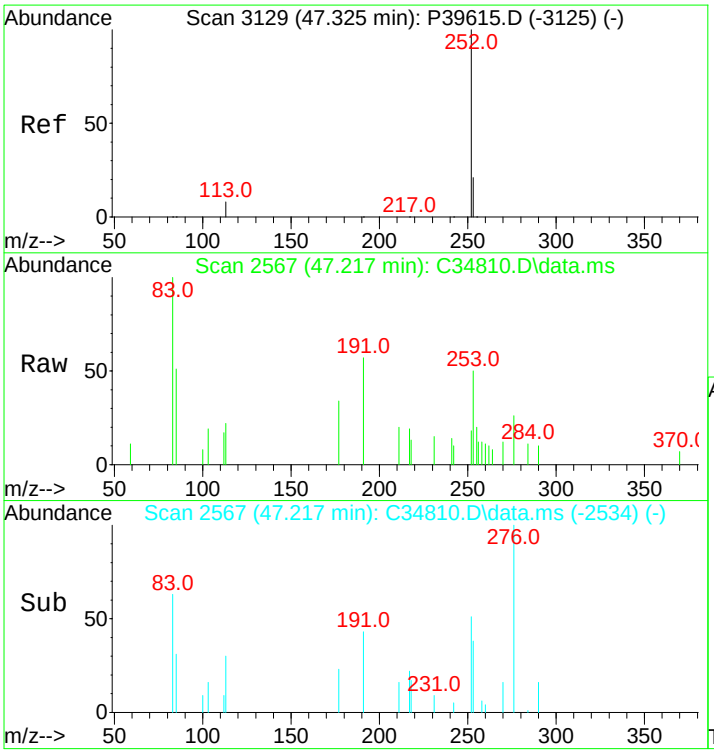


#82
Benzo[b]fluoranthene
Concen: 4.98 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:252 Resp: 522

Ion	Ratio	Lower	Upper
252	100		
253	32.4	19.0	28.4#

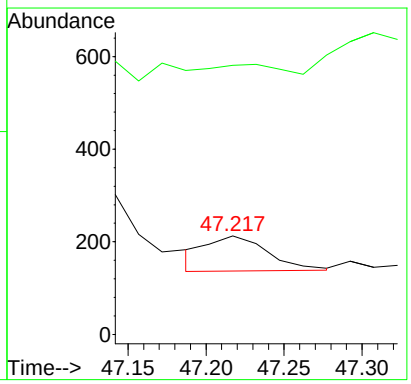


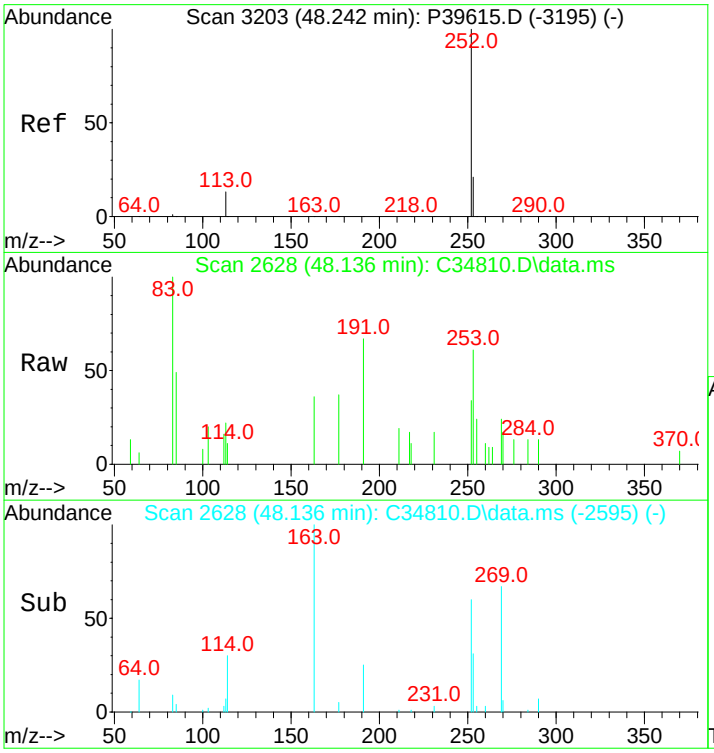


#83
Benzo[j]+[k]fluoranthene
Concen: 1.82 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:252 Resp: 208

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

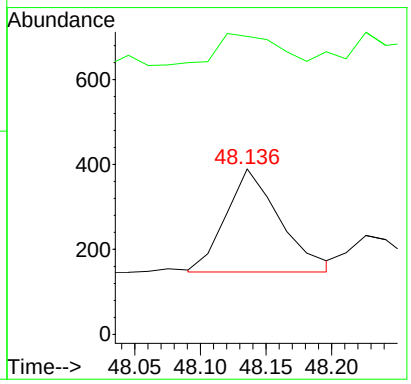


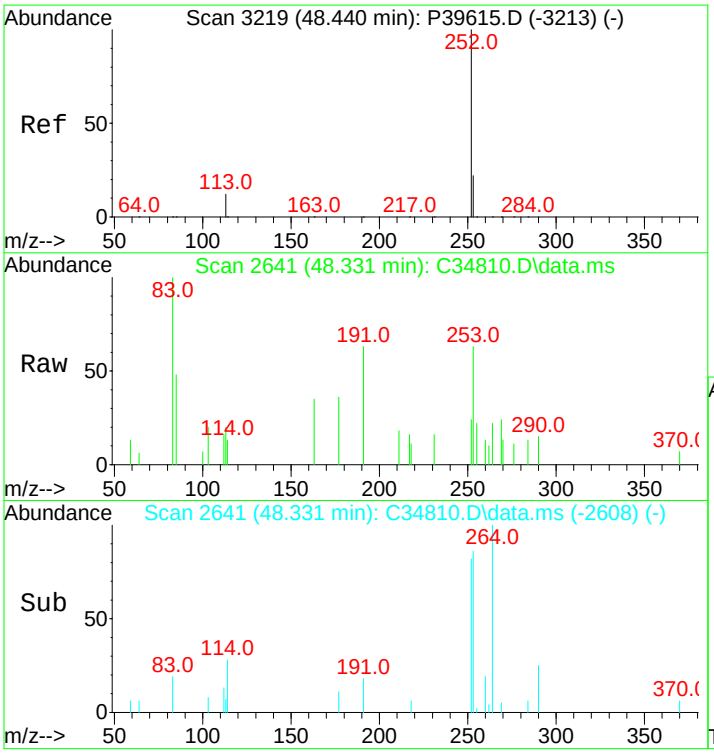


#85
Benzo[e]pyrene
Concen: 6.69 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:252 Resp: 694

Ion	Ratio	Lower	Upper
252	100		
253	32.7	19.2	28.8#

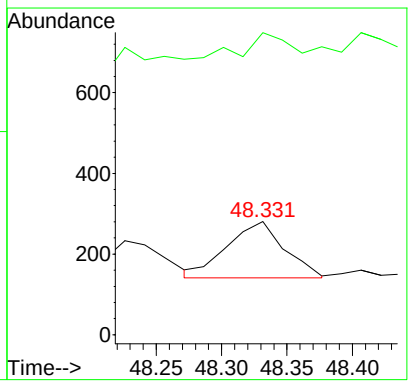


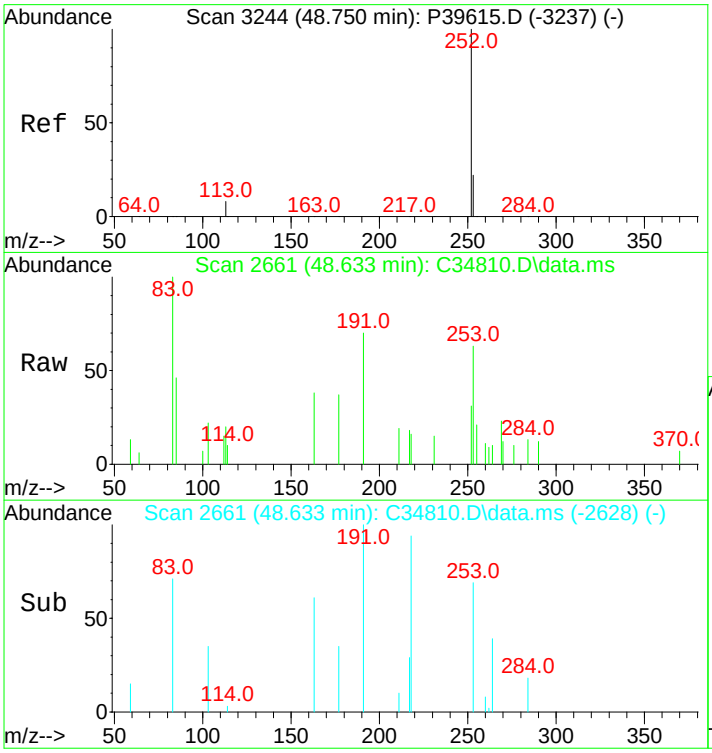


#87
Benzo[a]pyrene
Concen: 4.25 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:252 Resp: 425

Ion	Ratio	Lower	Upper
252	100		
253	63.3	19.5	29.3#

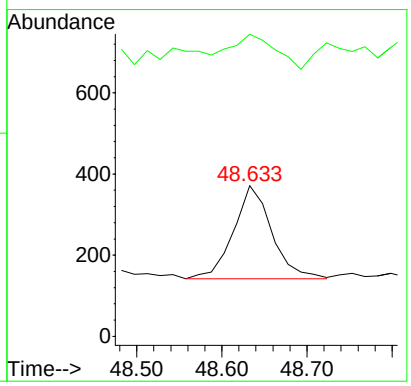


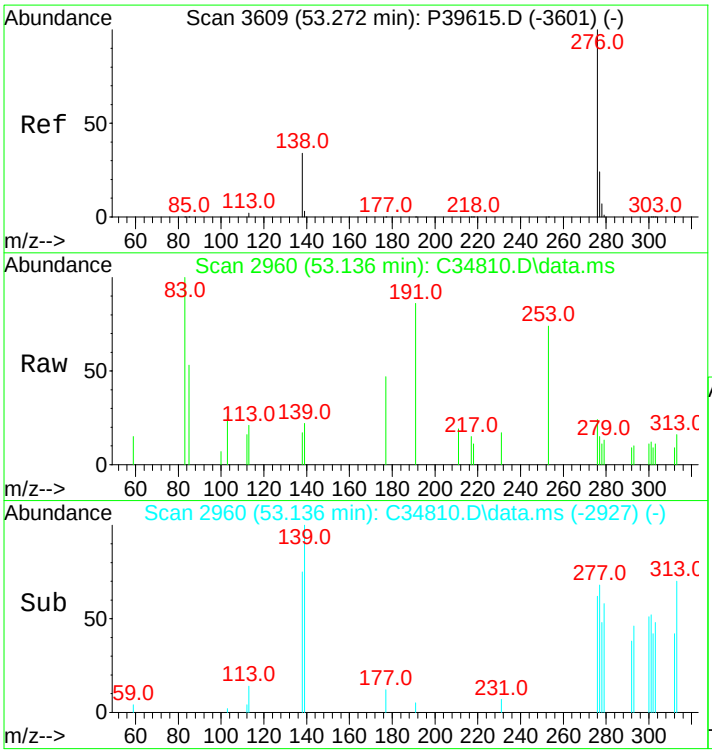


#88
Perylene
Concen: 6.72 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:252 Resp: 717

Ion	Ratio	Lower	Upper
252	100		
253	43.8	19.6	29.4#

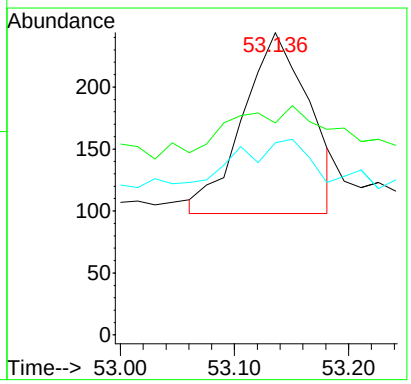


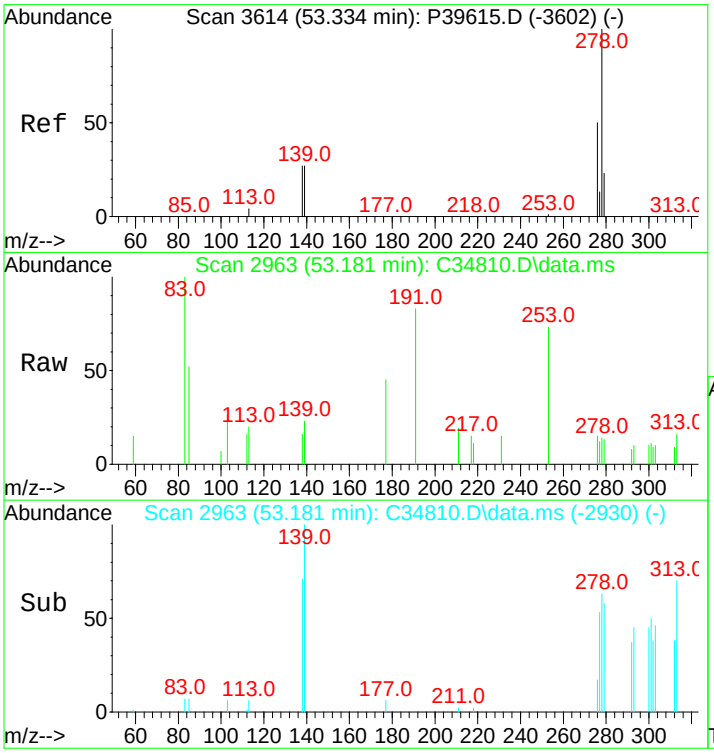


#89
Indeno[1,2,3-cd]pyrene
Concen: 5.03 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:276 Resp: 585

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

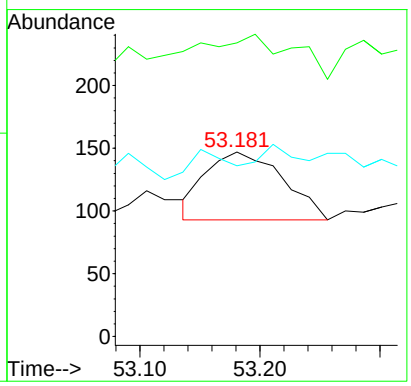


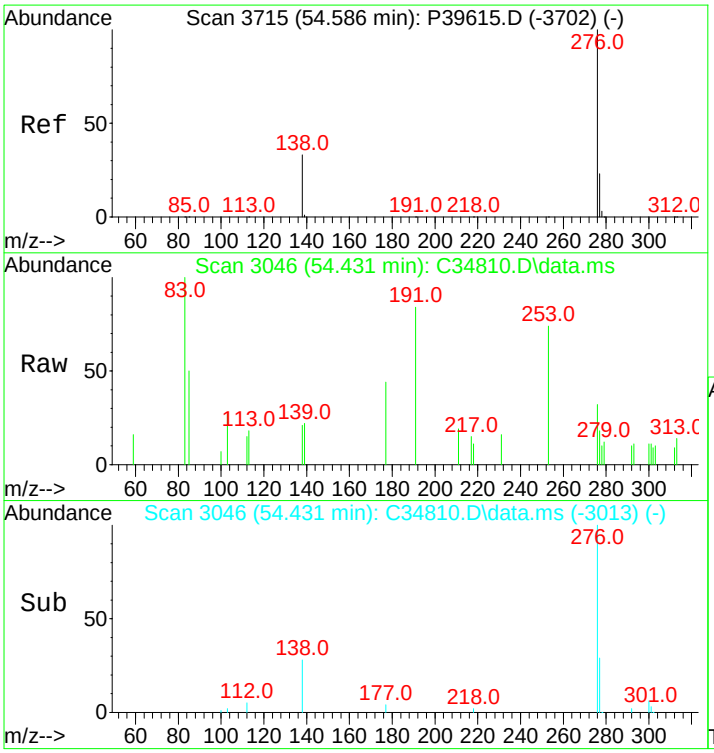


#90
Dibenz[ah]+[ac]anthracene
Concen: 2.18 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:278 Resp: 241

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

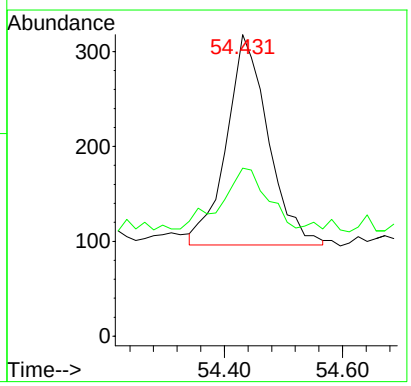


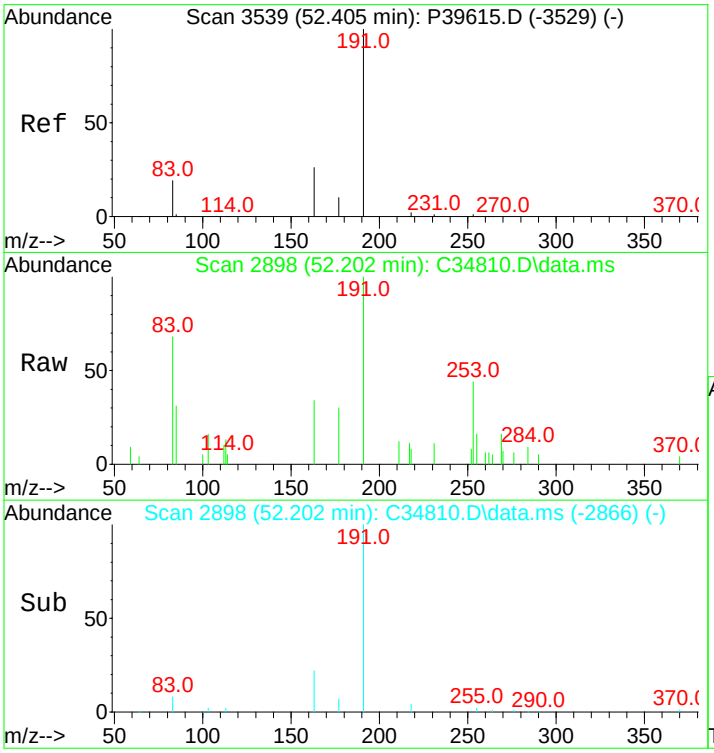


#91
Benzo[g,h,i]perylene
Concen: 8.85 ng/mL m
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:276 Resp: 1087

Ion	Ratio	Lower	Upper
276	100		
277	30.9	18.9	28.3#

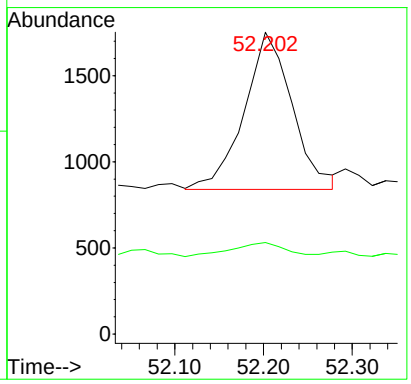


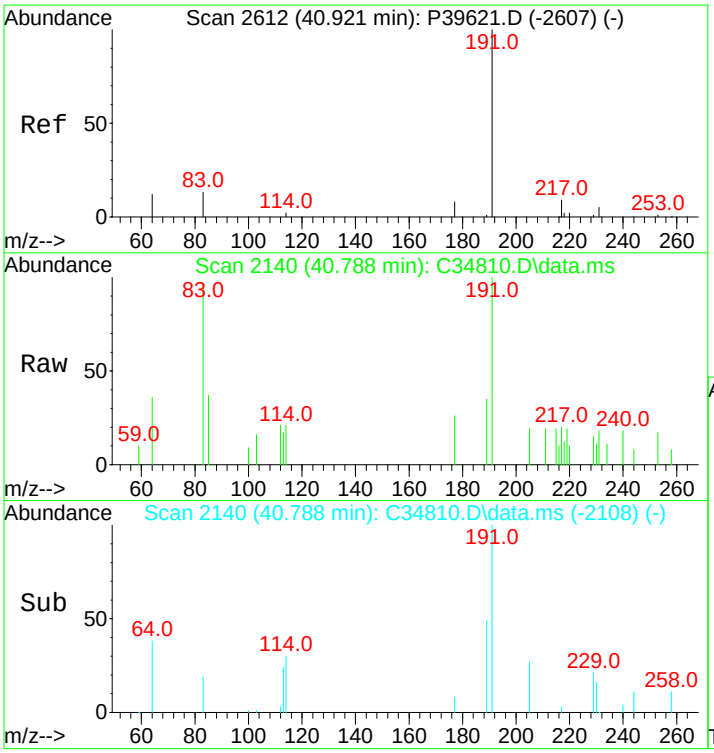


#92
Hopane (T19)
Concen: 173.37 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:191 Resp: 3437

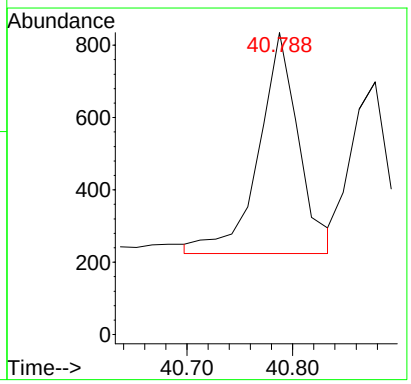
Ion	Ratio	Lower	Upper
191	100		
177	9.7	14.6	21.8#

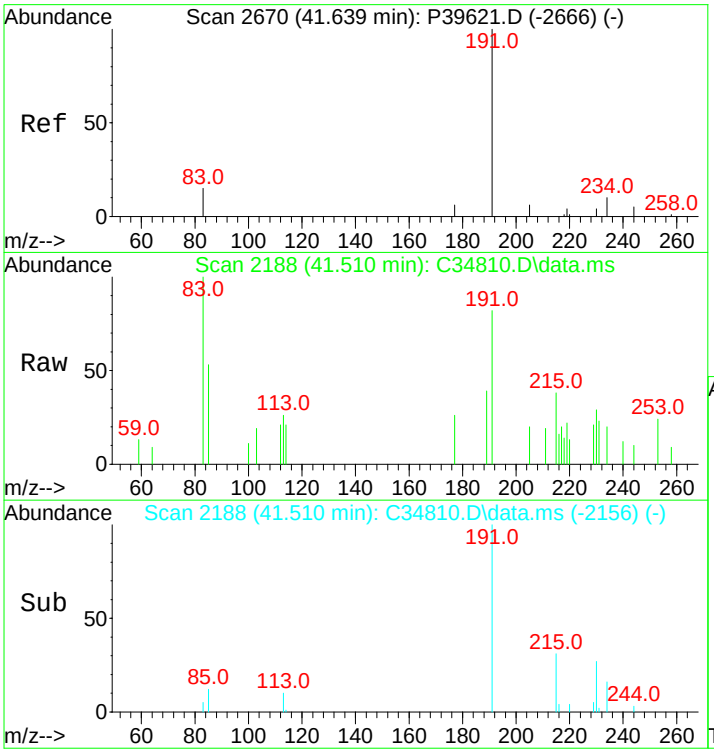




#94
C23 Tricyclic Terpane (T4)
Concen: 80.71 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

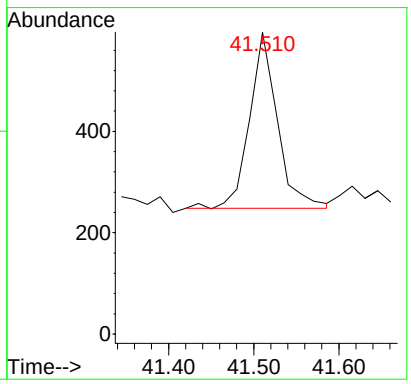
Tgt Ion:191 Resp: 1600

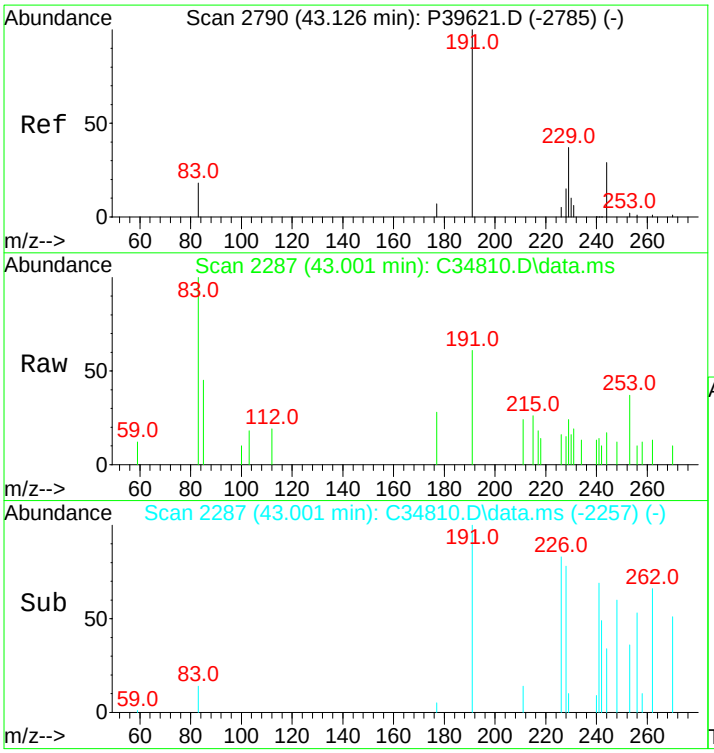




#95
C24 Tricyclic Terpane (T5)
Concen: 40.20 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

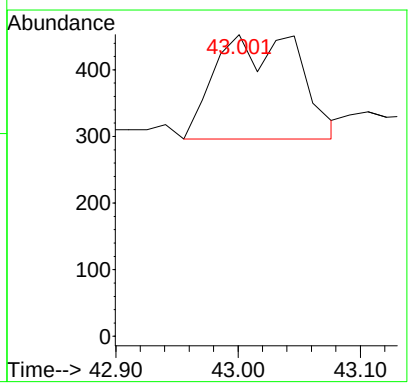
Tgt Ion:191 Resp: 797

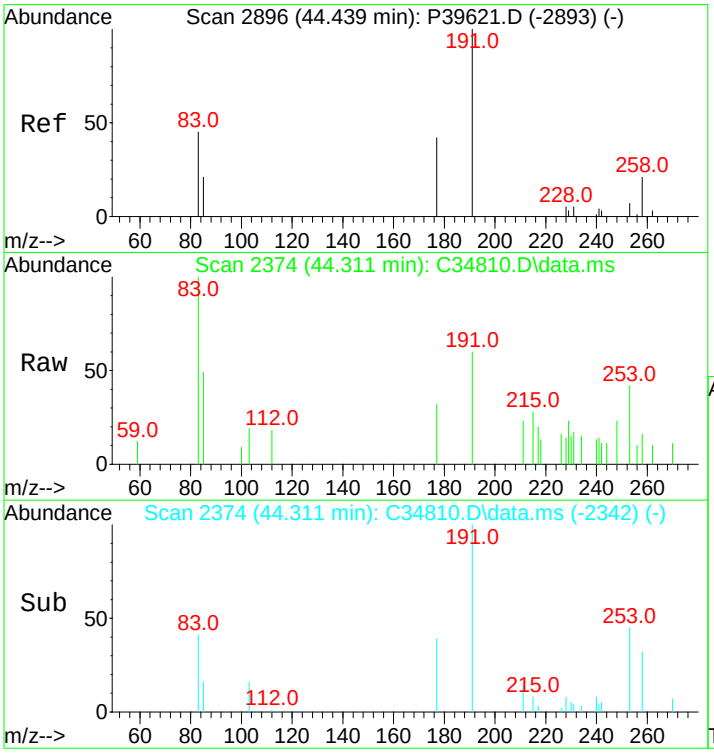




#96
C25 Tricyclic Terpane (T6)
Concen: 37.83 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

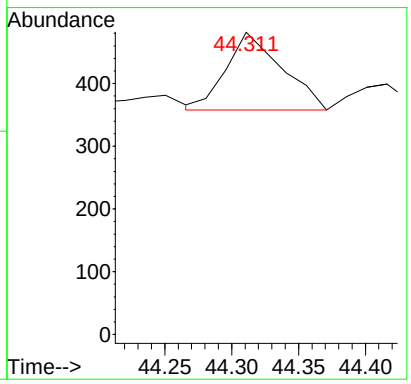
Tgt Ion:191 Resp: 750

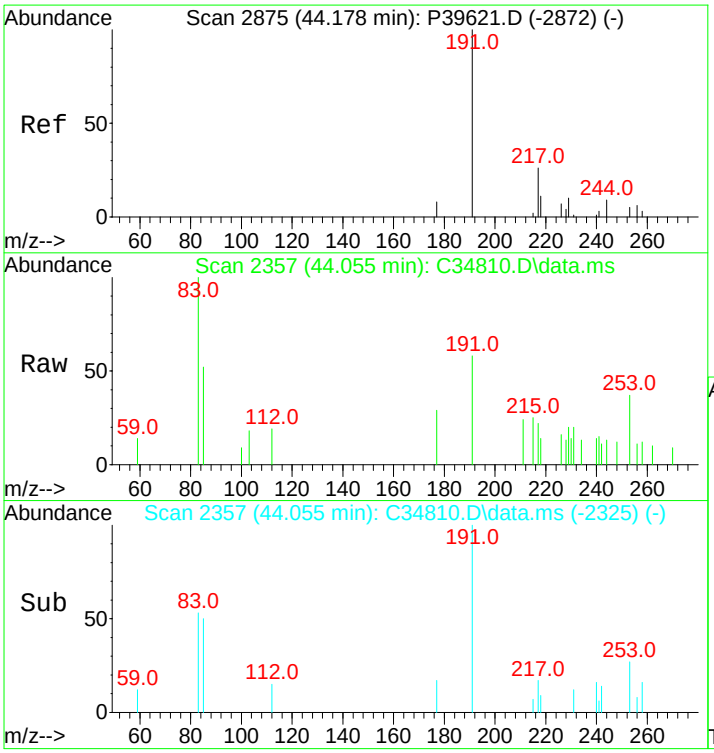




#97
C24 Tetracyclic Terpane (T6a)
Concen: 18.01 ng/ml
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

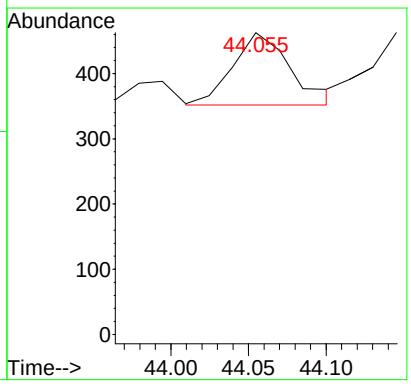
Tgt Ion:191 Resp: 357

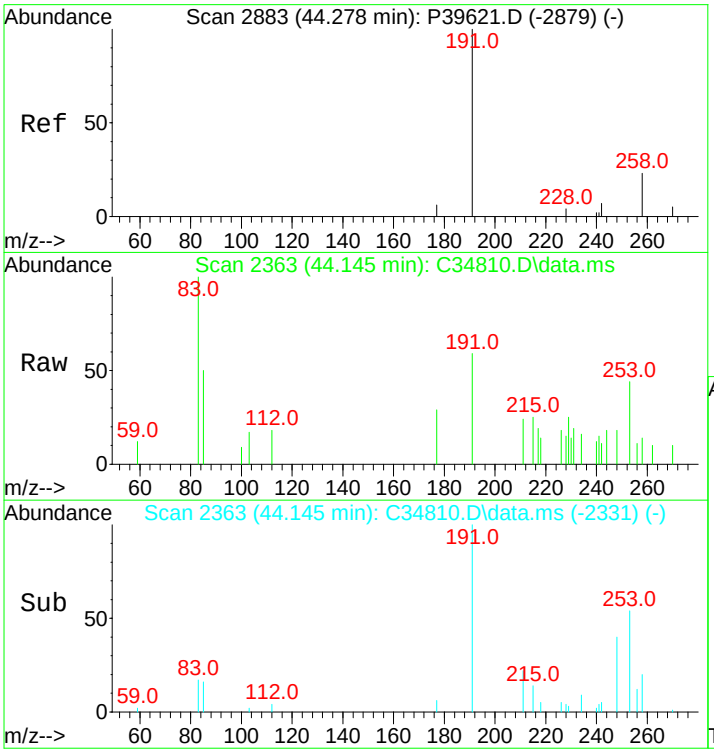




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 14.38 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

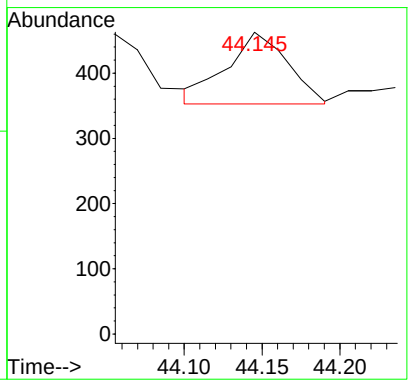
Tgt Ion:191 Resp: 285

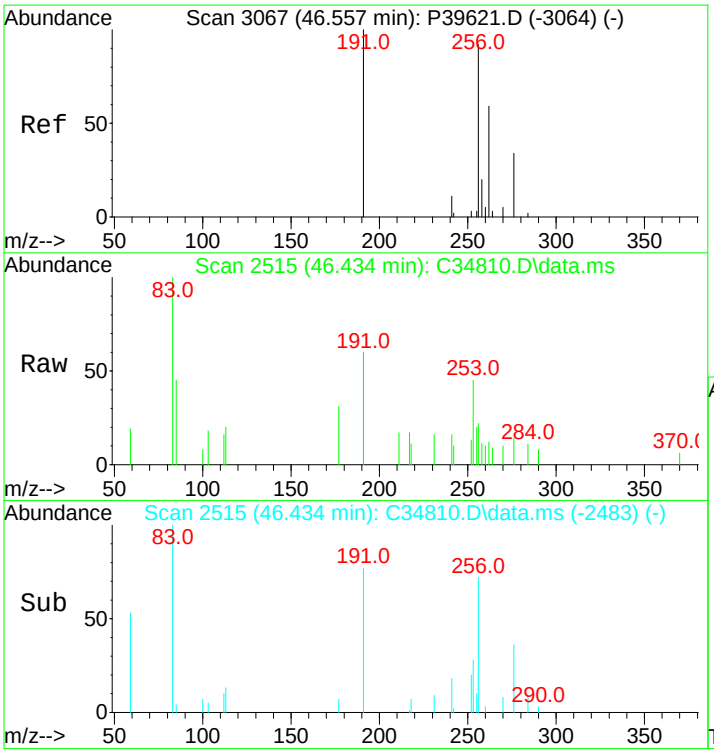




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 14.98 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

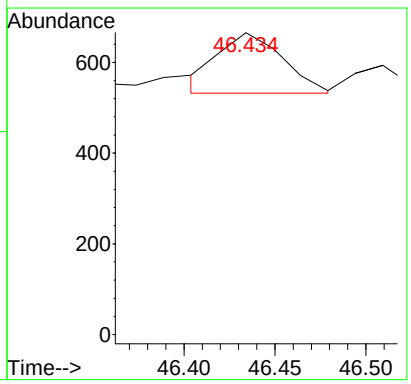
Tgt Ion:191 Resp: 297

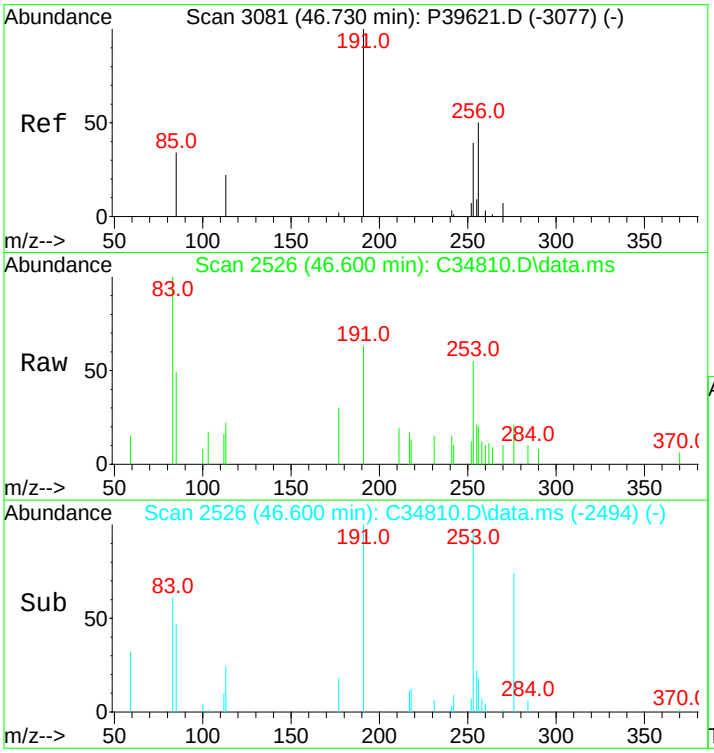




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 16.70 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

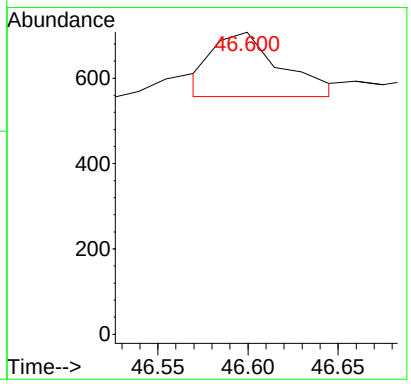
Tgt Ion:191 Resp: 331

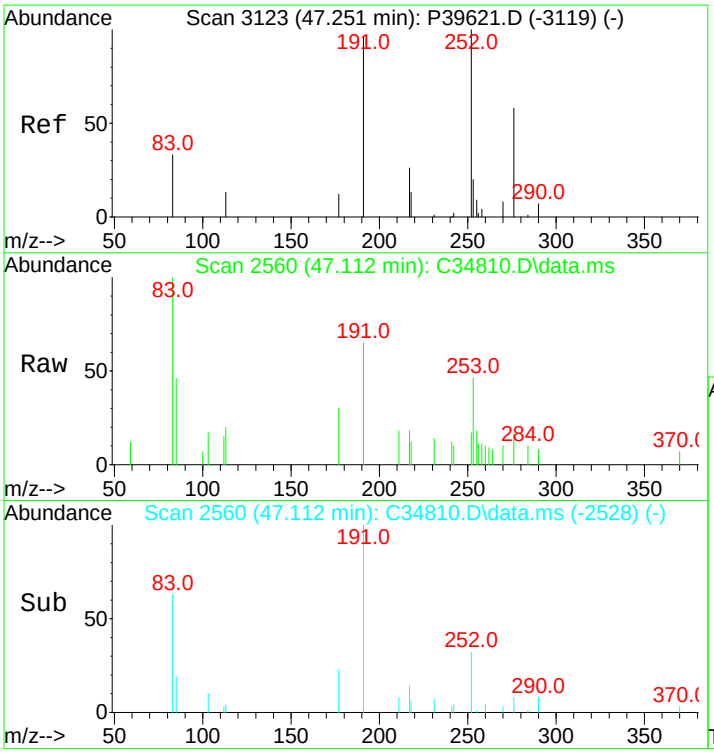




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 20.03 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

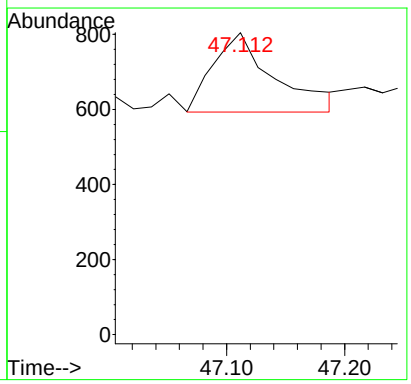
Tgt Ion:191 Resp: 397

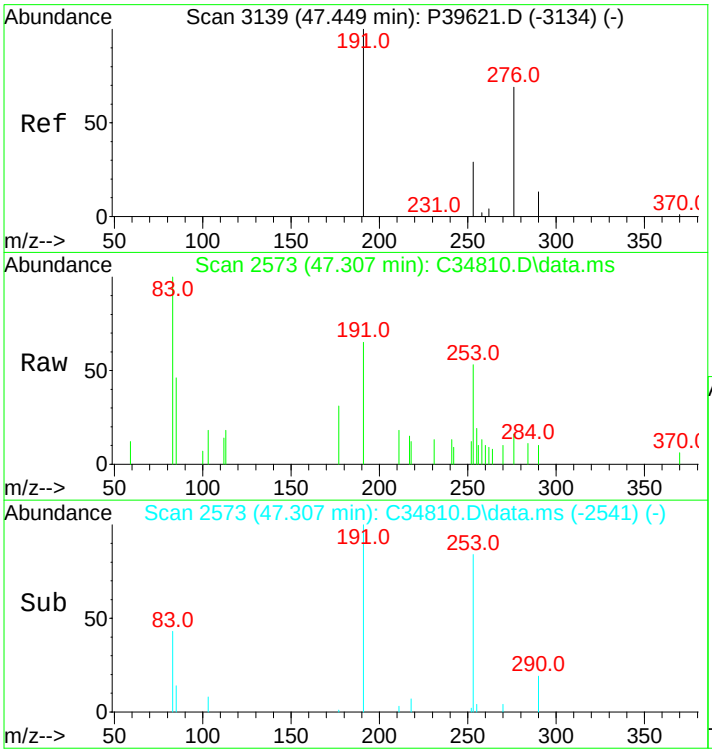




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 38.54 ng/ml m
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

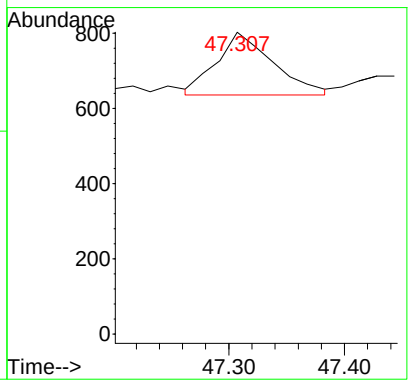
Tgt Ion:191 Resp: 764

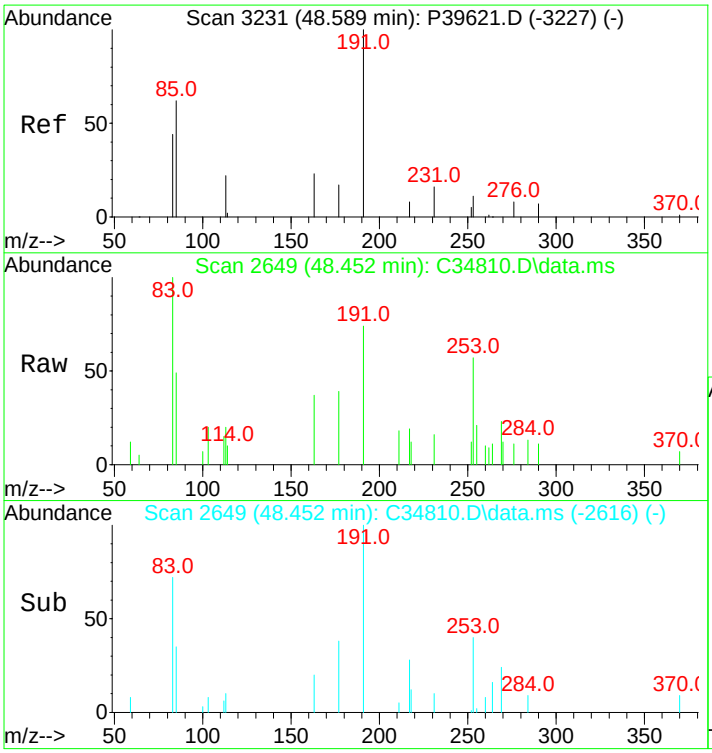




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 28.50 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

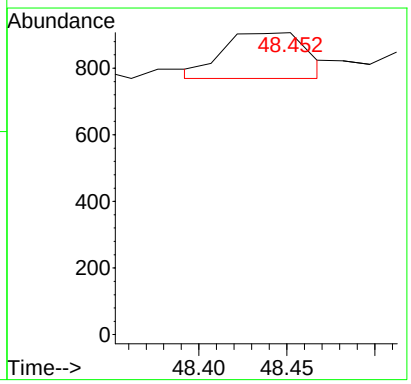
Tgt Ion:191 Resp: 565

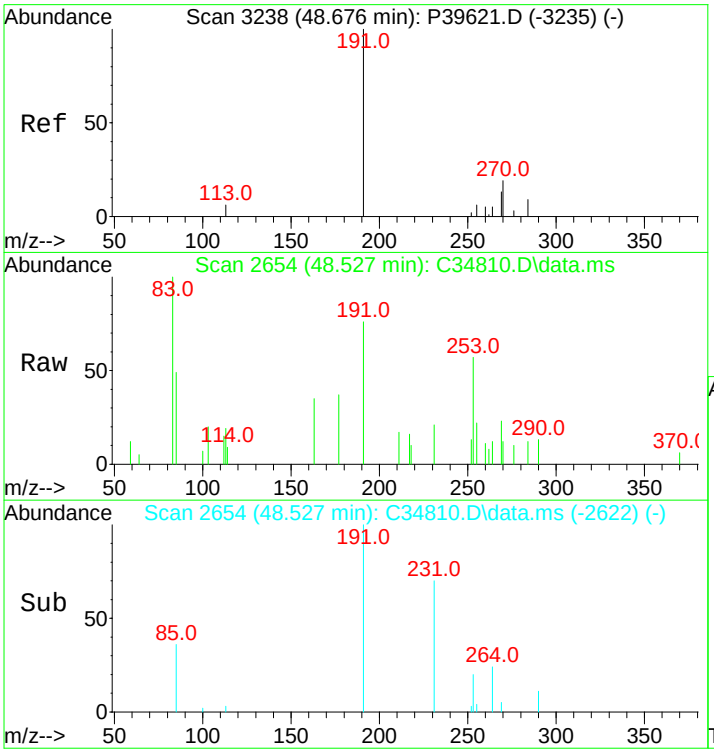




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 23.10 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

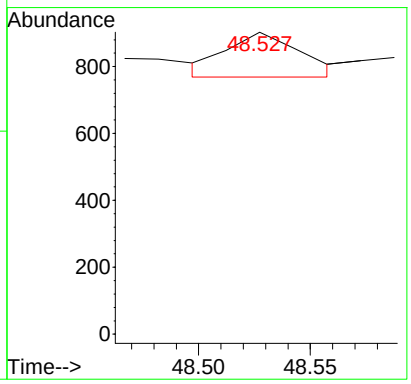
Tgt Ion:191 Resp: 458

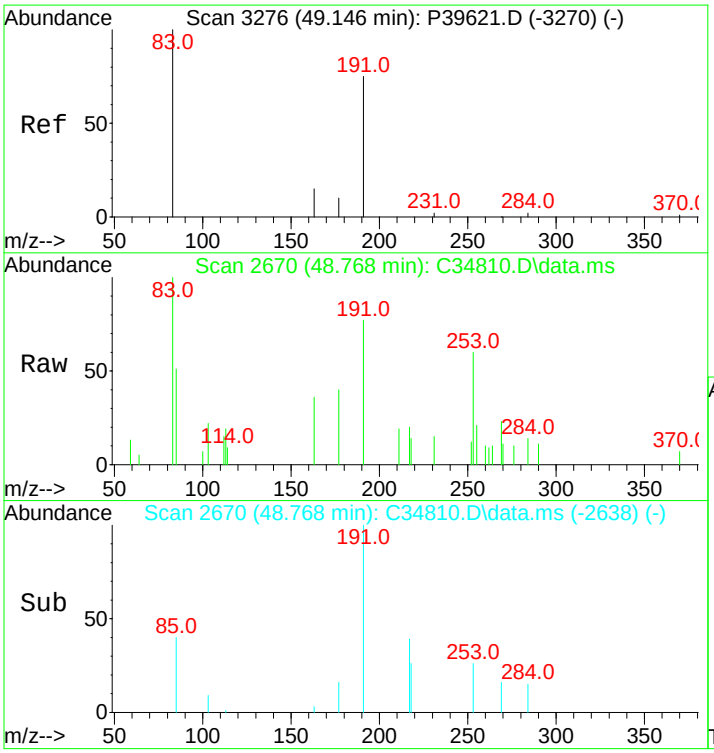




#105
C30 Tricyclic Terpane-22S
Concen: 15.38 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

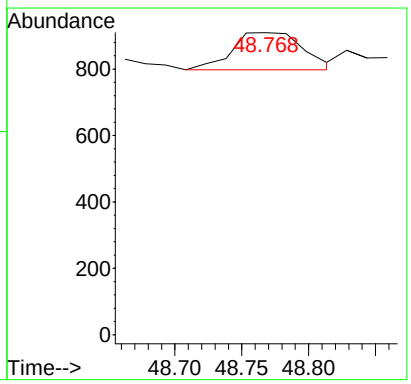
Tgt Ion:191 Resp: 305

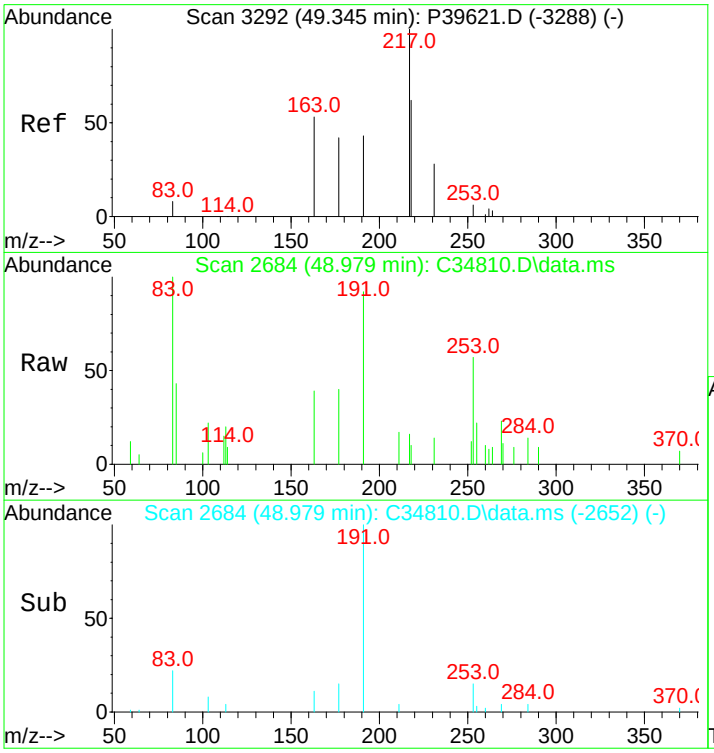




#106
C30 Tricyclic Terpane-22R
Concen: 20.98 ng/mL
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

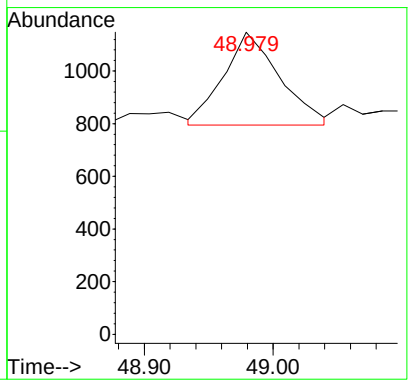
Tgt Ion:191 Resp: 416

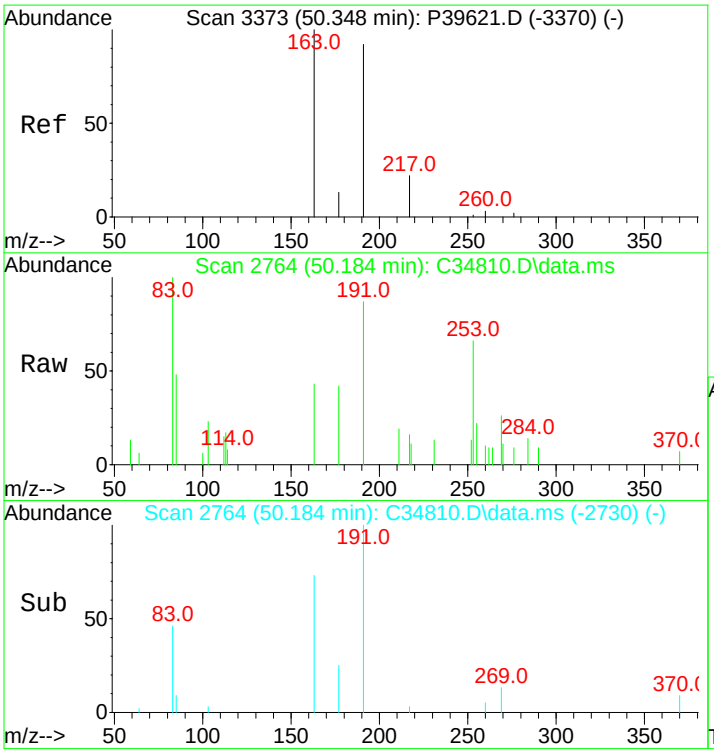




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 53.77 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

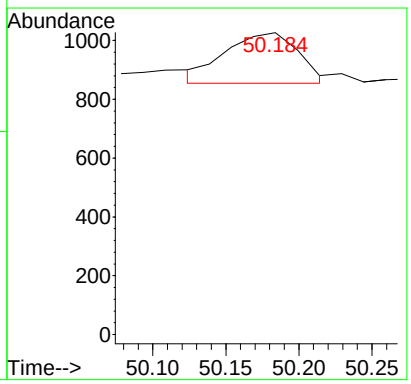
Tgt Ion:191 Resp: 1066

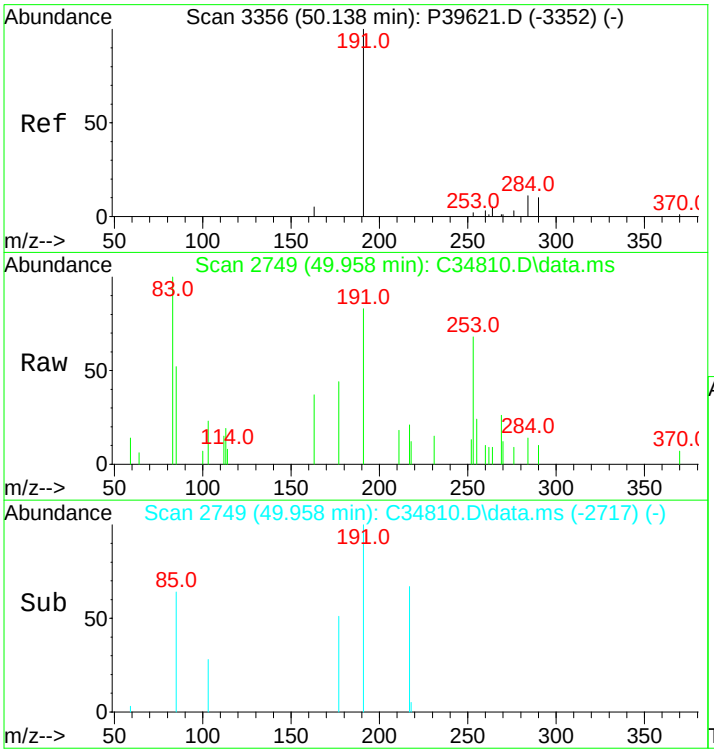




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 29.91 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

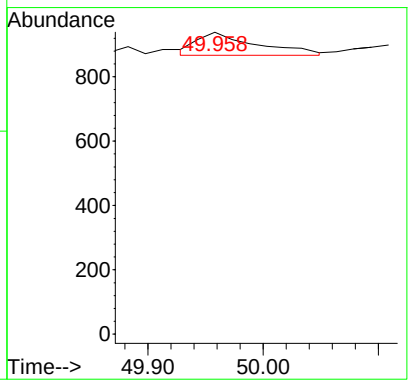
Tgt Ion:191 Resp: 593

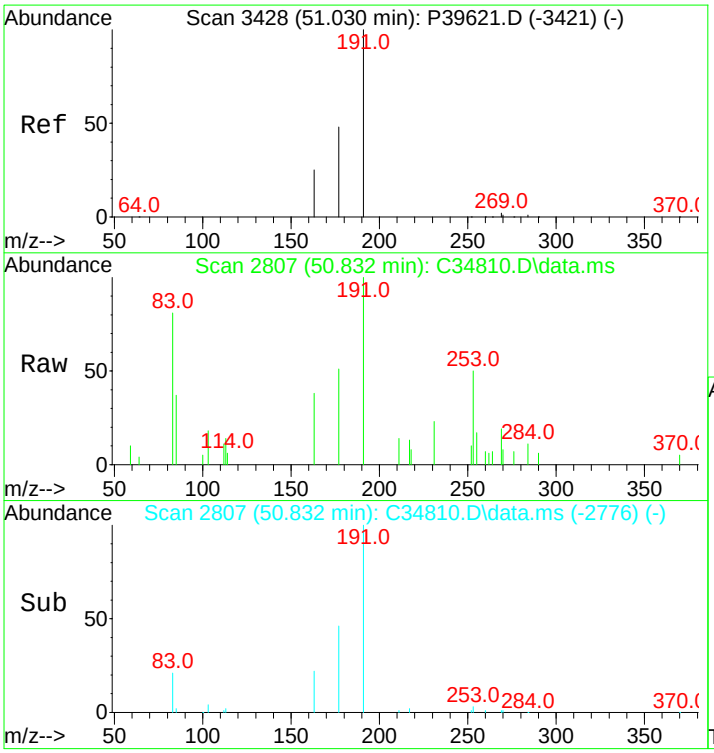




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 13.11 ng/ml m
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

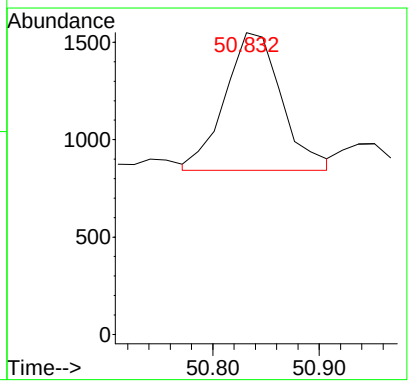
Tgt Ion:191 Resp: 260

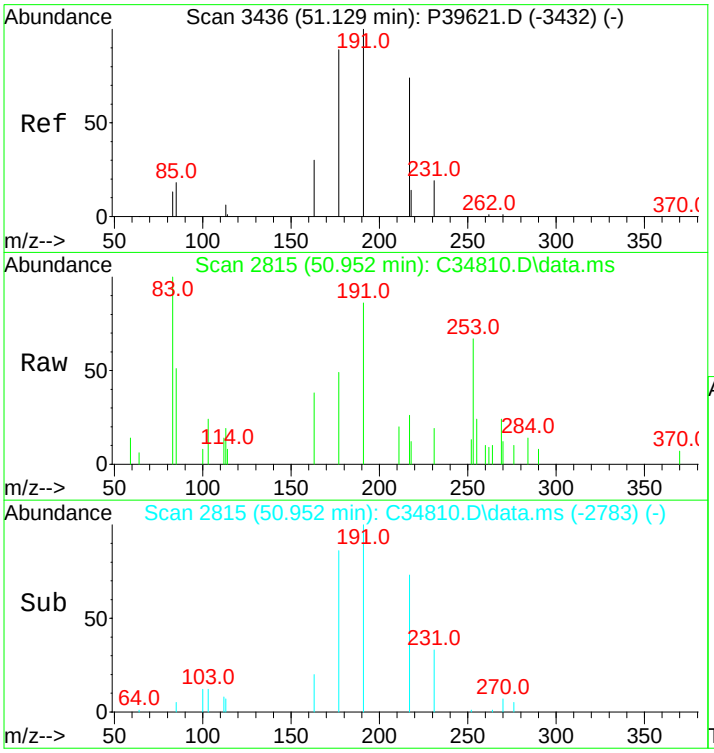




#110
30-Norhopane (T15)
Concen: 131.15 ng/ml m
RT: 50.832 min Scan# 2807
Delta R.T. -0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

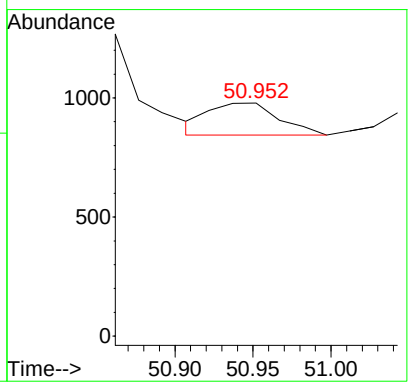
Tgt Ion:191 Resp: 2600

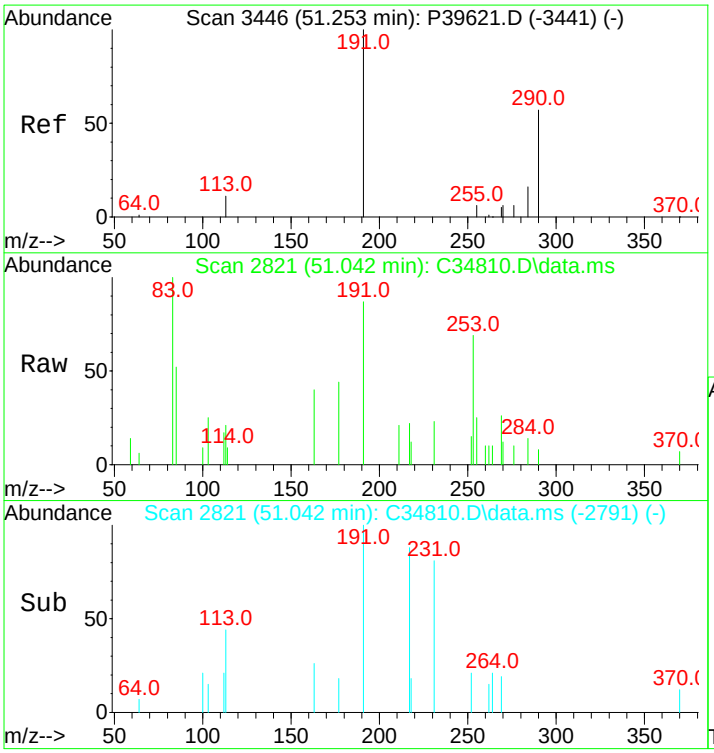




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 21.44 ng/ml
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

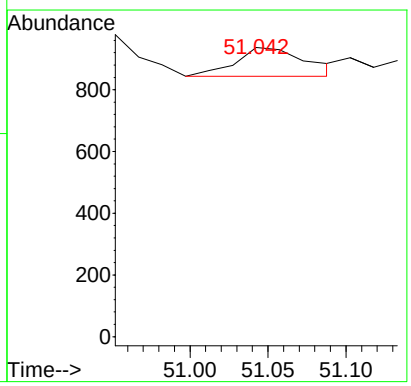
Tgt Ion:191 Resp: 425

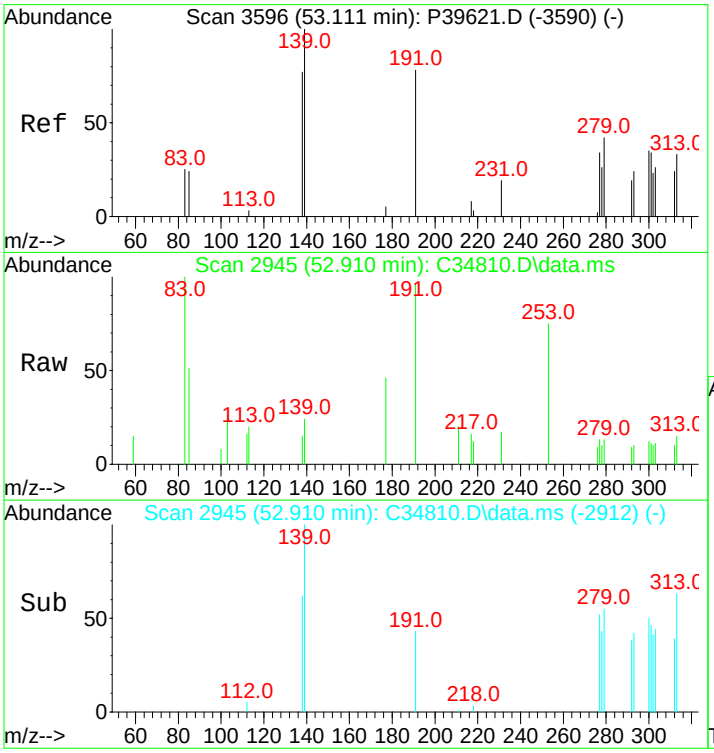




#112
17a(H)-Diahopane (X)
Concen: 14.68 ng/ml
RT: 51.042 min Scan# 2821
Delta R.T. -0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

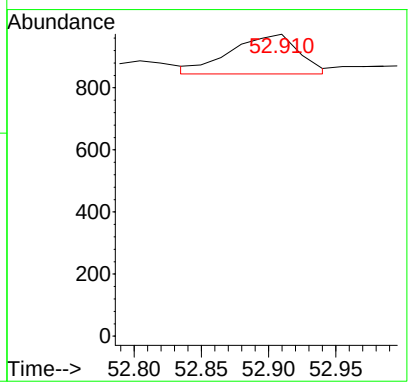
Tgt Ion:191 Resp: 291

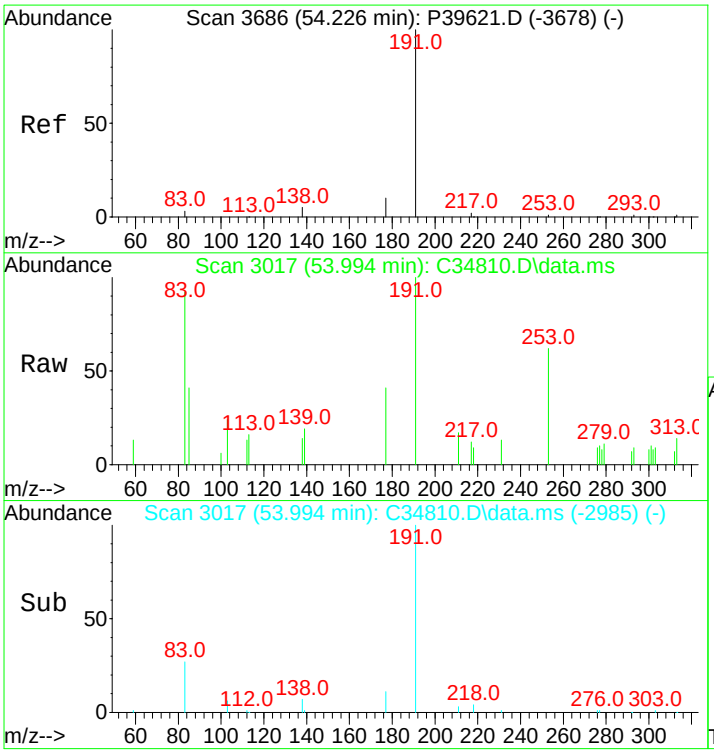




#115
Moretane (T20)
Concen: 22.55 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

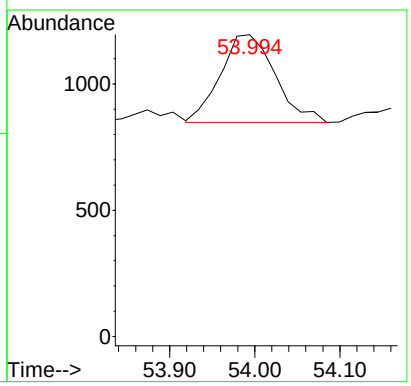
Tgt Ion:191 Resp: 447

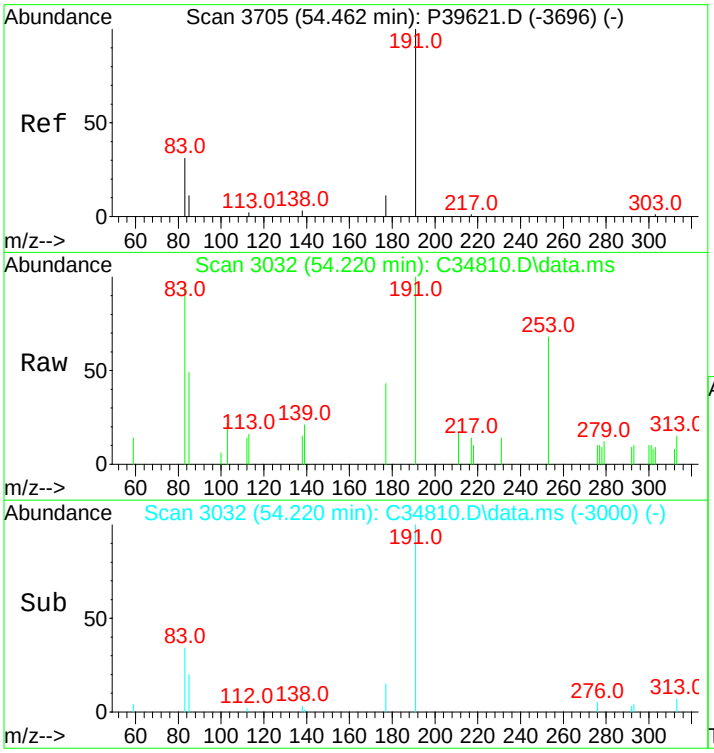




#116
30-Homohopane-22S (T21)
Concen: 78.34 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

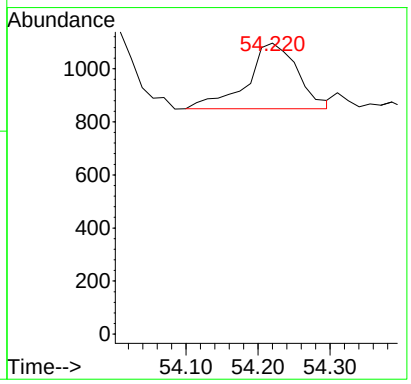
Tgt Ion:191 Resp: 1553

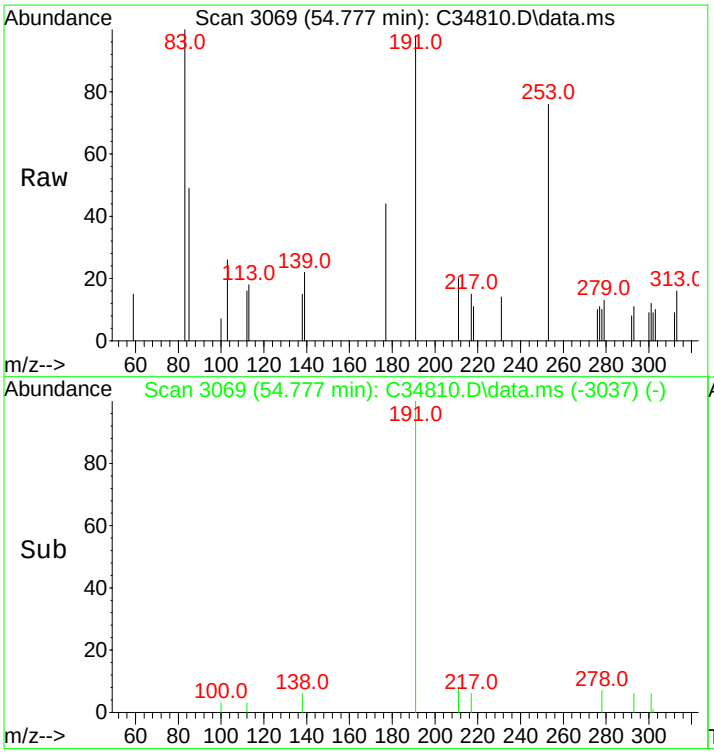




#117
30-Homohopane-22R (T22)
Concen: 61.03 ng/ml
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

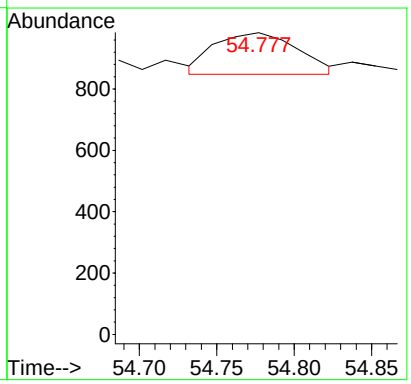
Tgt Ion:191 Resp: 1210

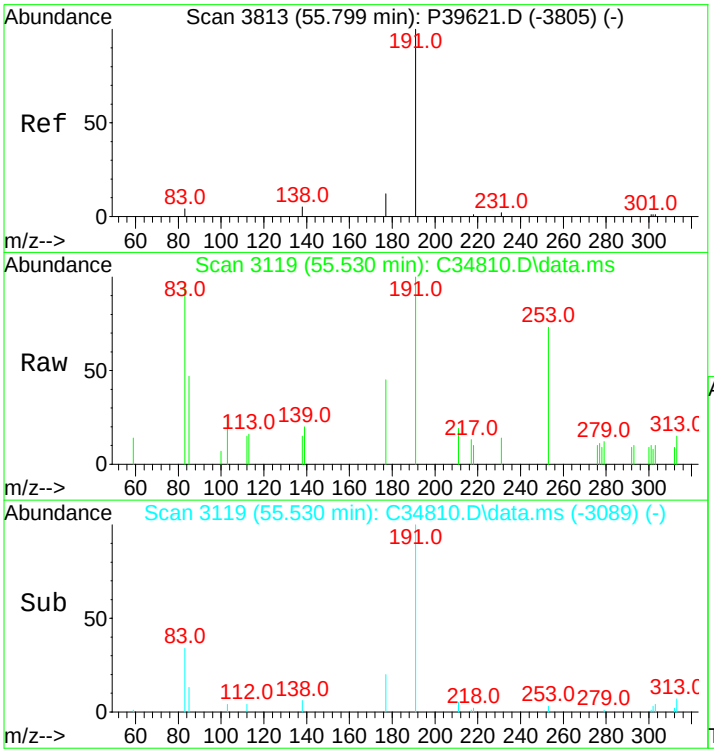




#118
Gammacerane/C32-diahopane
Concen: 25.57 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

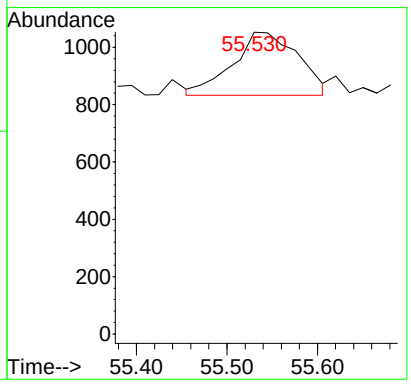
Tgt Ion:191 Resp: 507

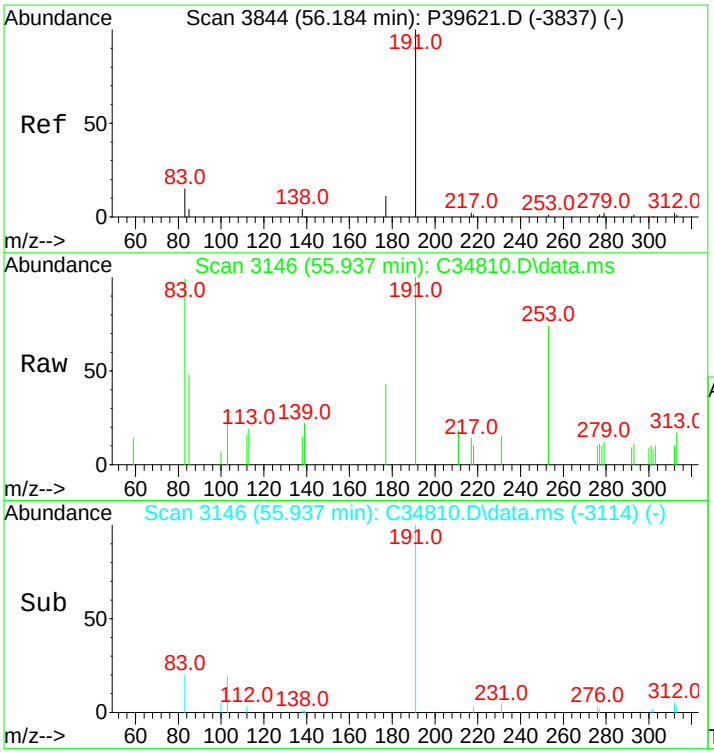




#119
30,31-Bishomohopane-22S (T26)
Concen: 55.44 ng/ml m
RT: 55.530 min Scan# 3119
Delta R.T. -0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

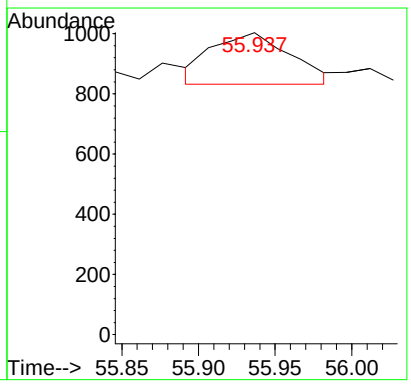
Tgt Ion:191 Resp: 1099

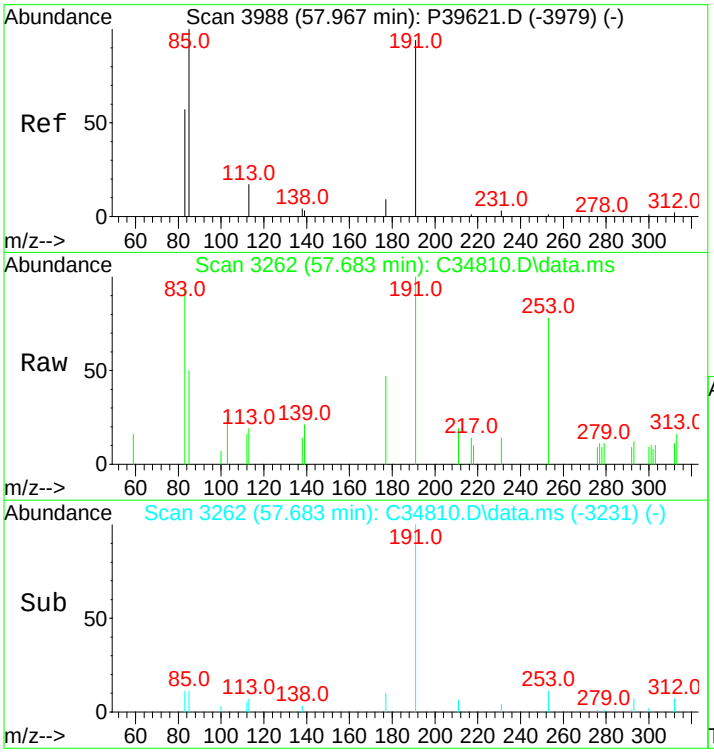




#120
30,31-Bishomohopane-22R (T27)
Concen: 30.92 ng/ml m
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

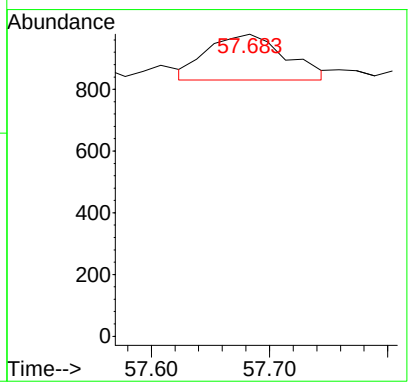
Tgt Ion:191 Resp: 613

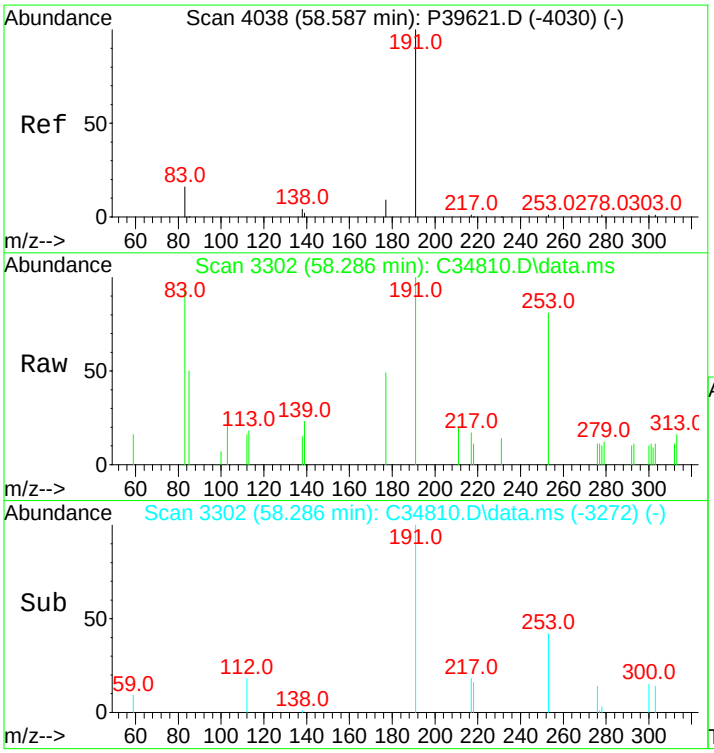




#121
30,31-Trishomohopane-22S (T30)
Concen: 34.50 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

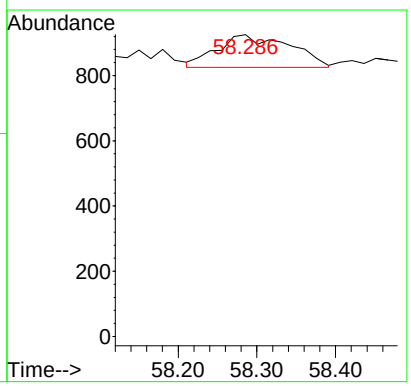
Tgt Ion:191 Resp: 684

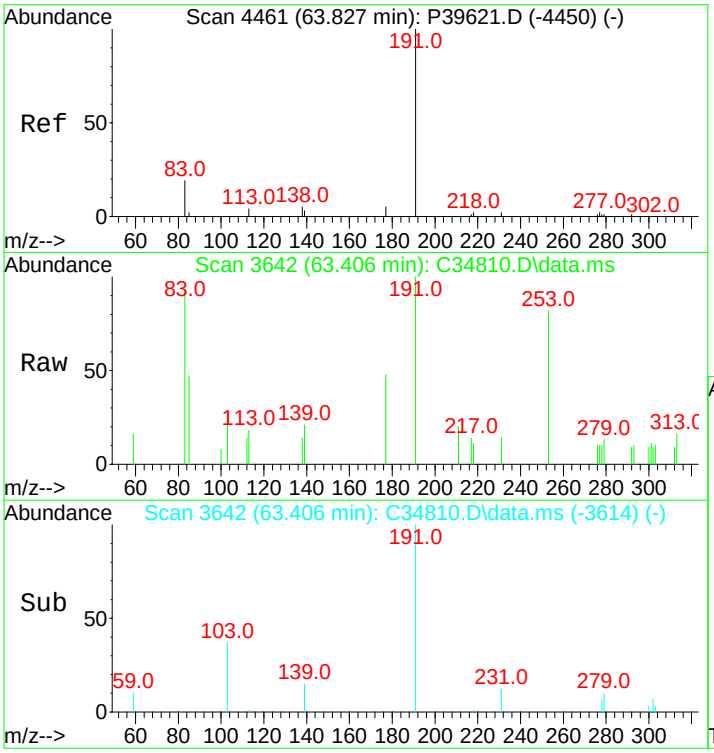




#122
30,31-Trishomohopane-22R (T31)
Concen: 32.69 ng/ml m
RT: 58.286 min Scan# 3302
Delta R.T. -0.045 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

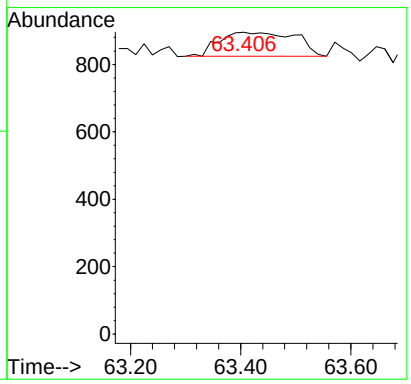
Tgt Ion:191 Resp: 648

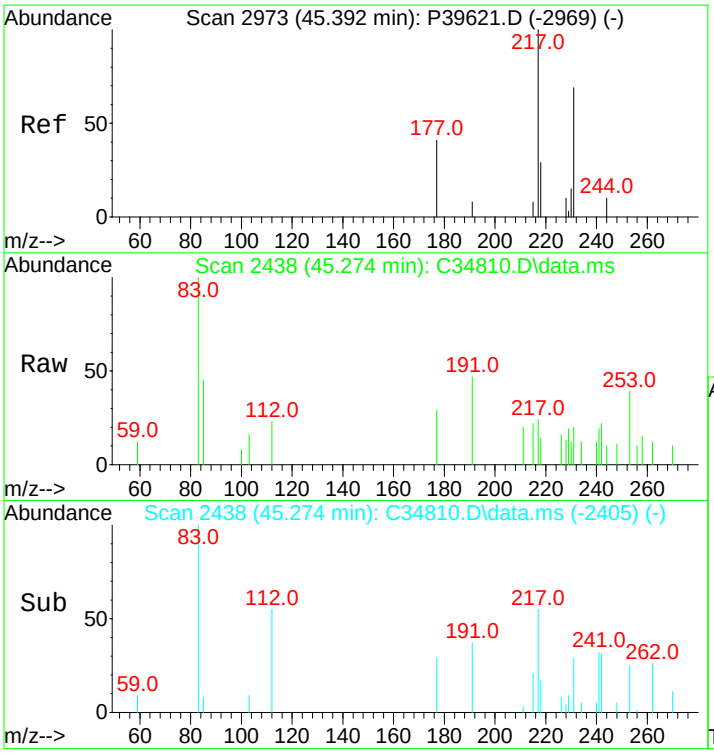




#125
Pentakishomohopane-22S (T34)
Concen: 35.11 ng/ml
RT: 63.406 min Scan# 3642
Delta R.T. -0.075 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

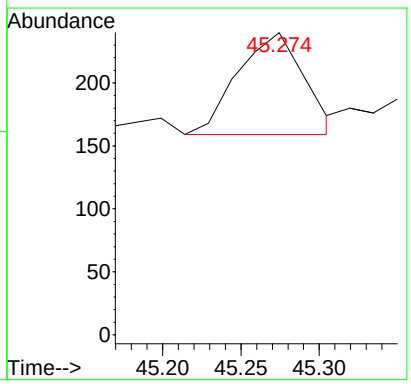
Tgt Ion:191 Resp: 696

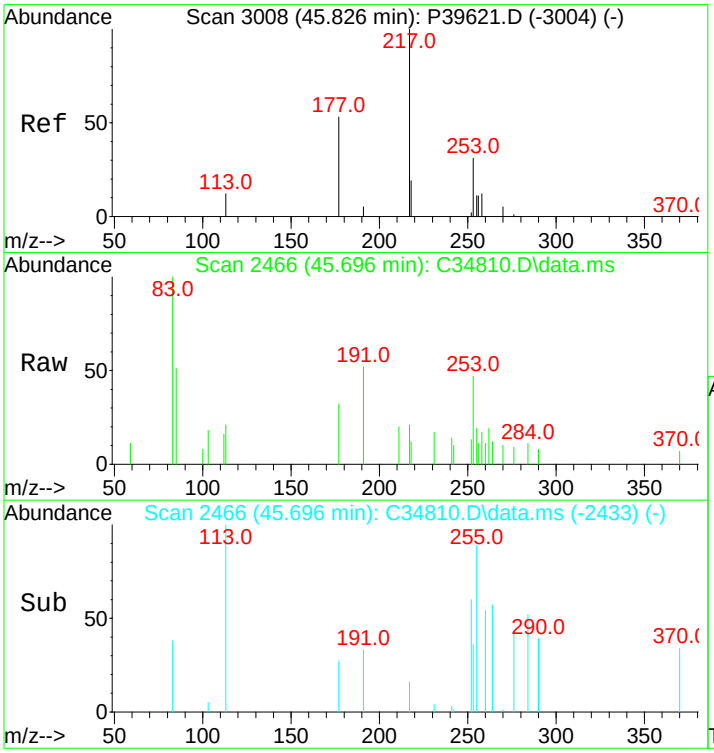




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 25.31 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

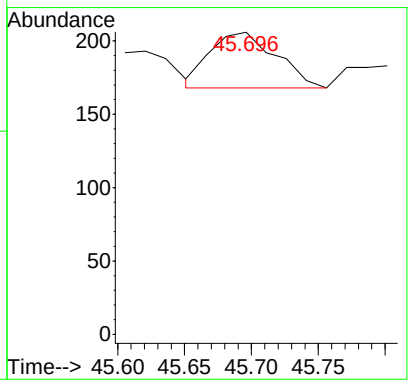
Tgt Ion:217 Resp: 238

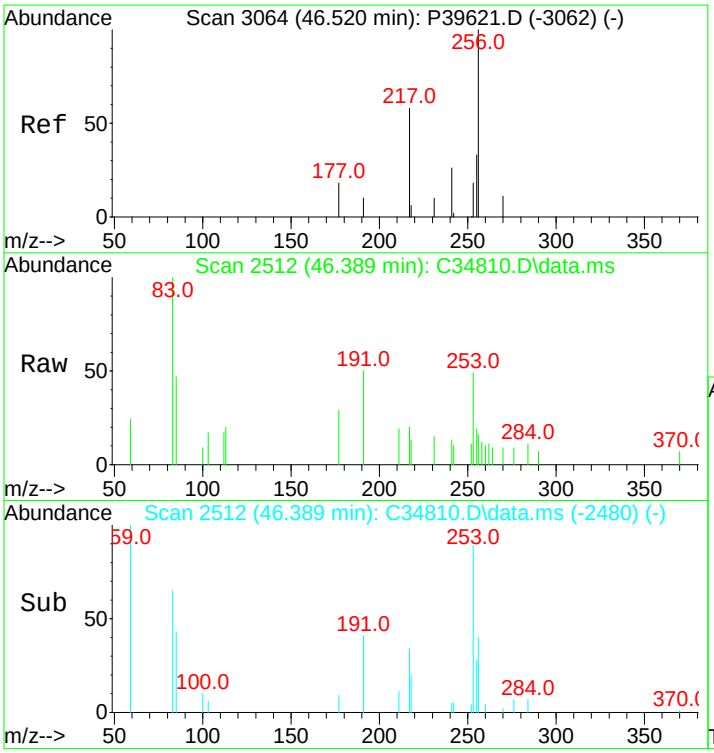




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 13.82 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

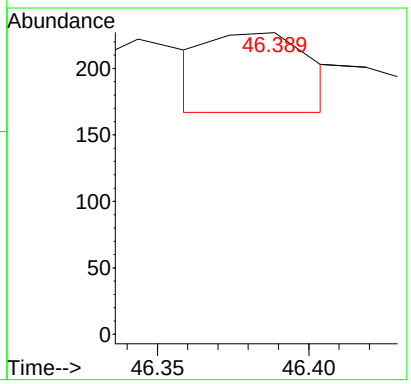
Tgt Ion:217 Resp: 130

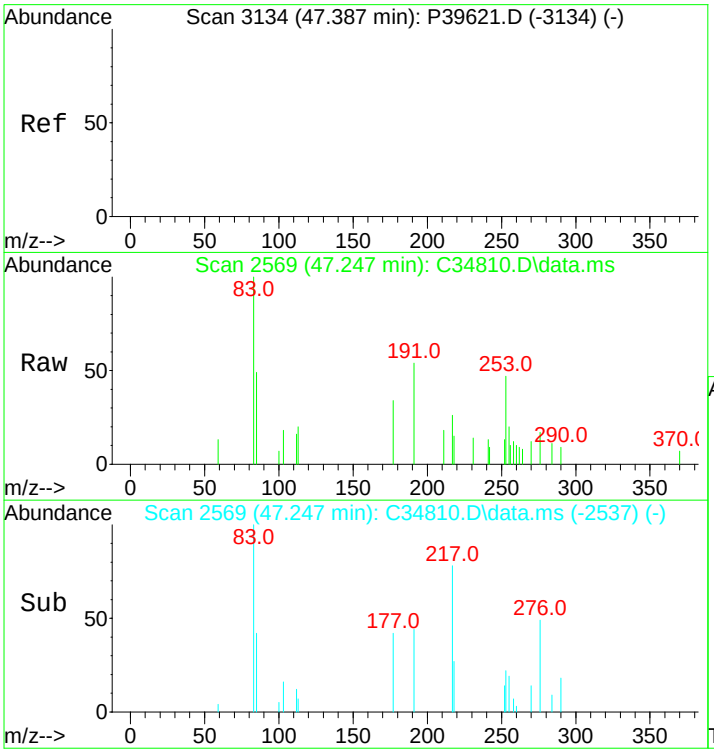




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 14.78 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

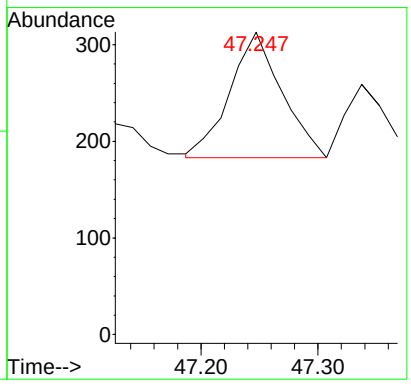
Tgt Ion:217 Resp: 139

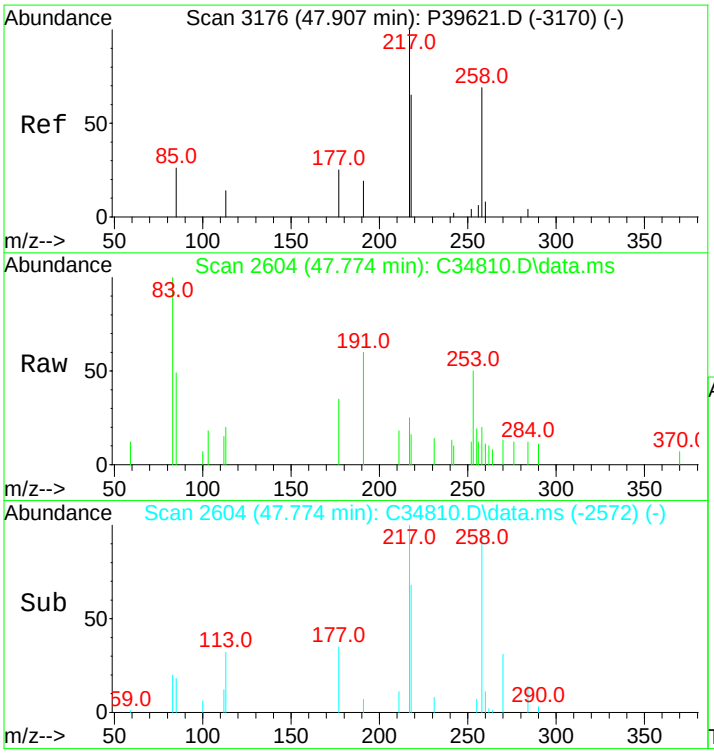




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 42.53 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

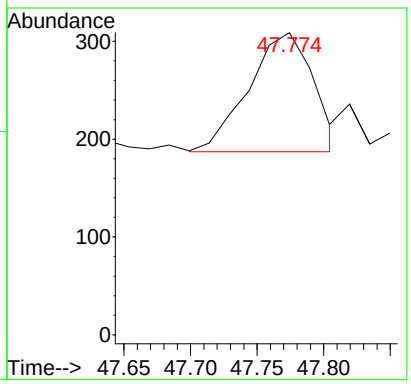
Tgt Ion:217 Resp: 400

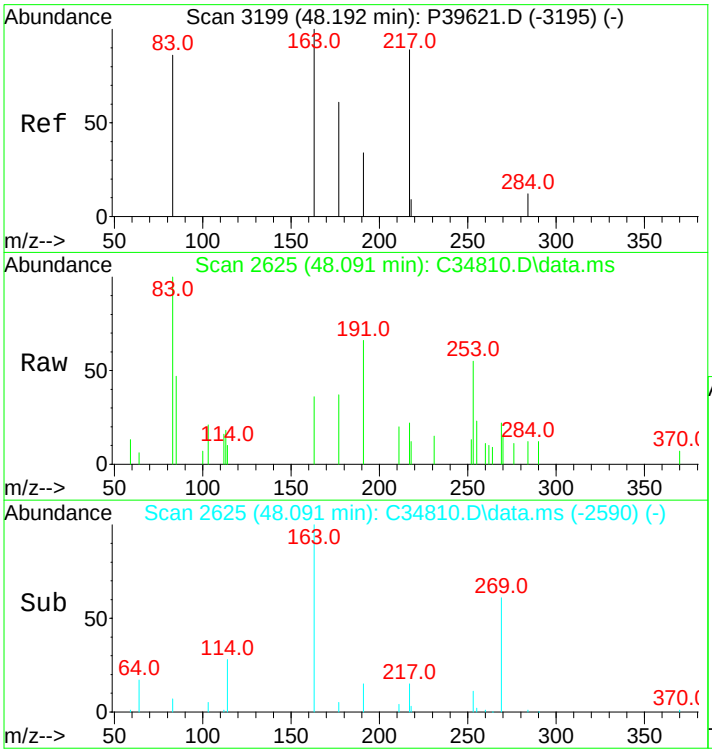




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 43.70 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

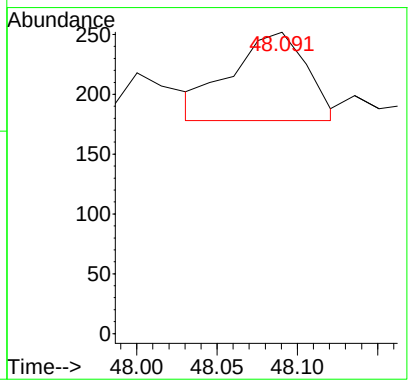
Tgt Ion:217 Resp: 411

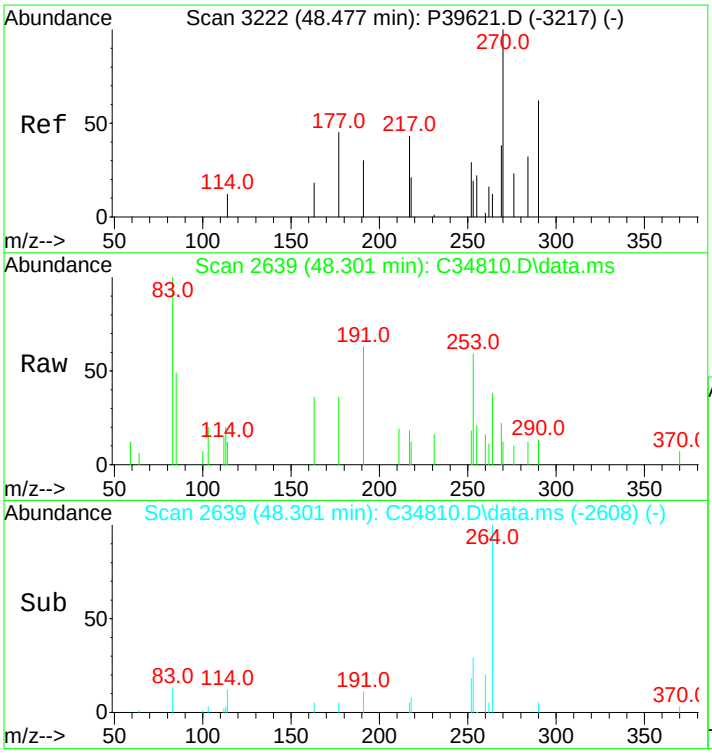




#133
Unknown Sterane (S18)
Concen: 25.63 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

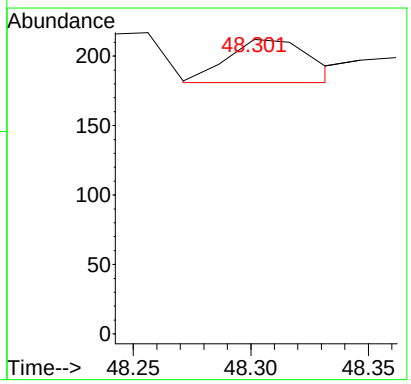
Tgt Ion:217 Resp: 241

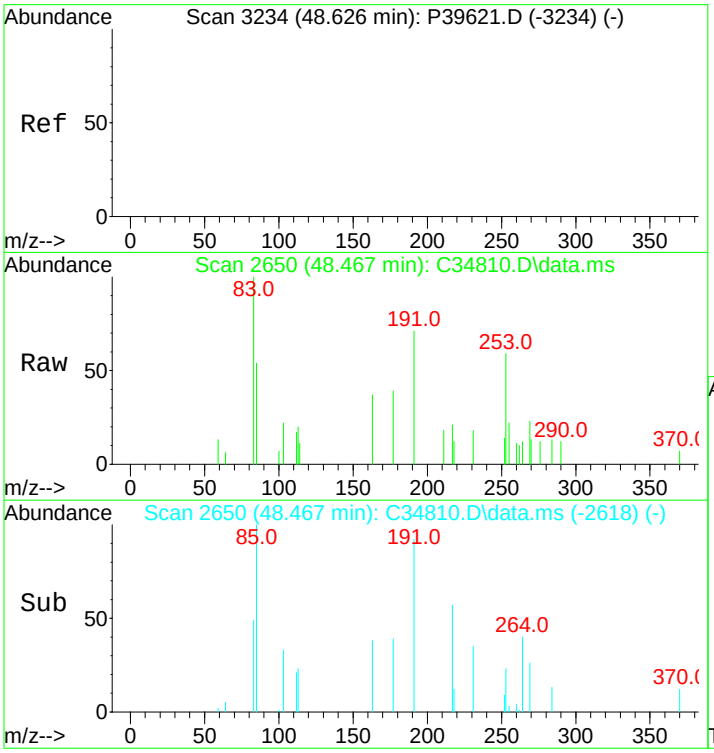




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 8.19 ng/ml m
RT: 48.301 min Scan# 2639
Delta R.T. -0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

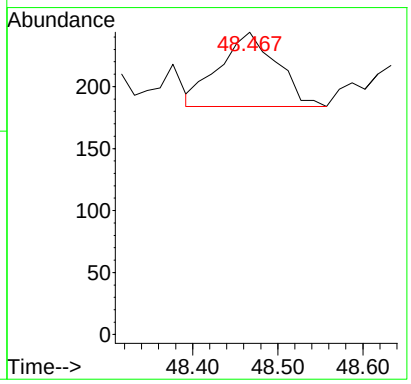
Tgt Ion:217 Resp: 77

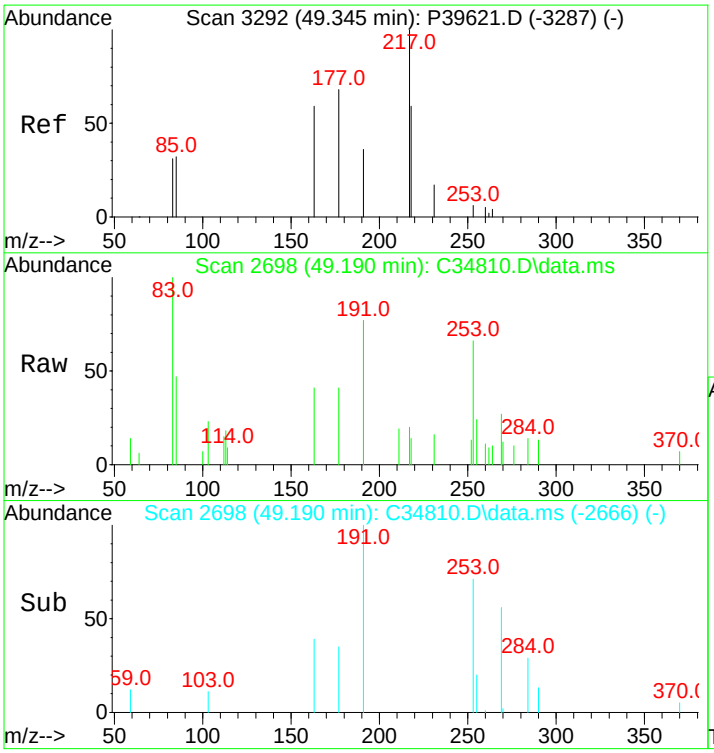




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 29.77 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

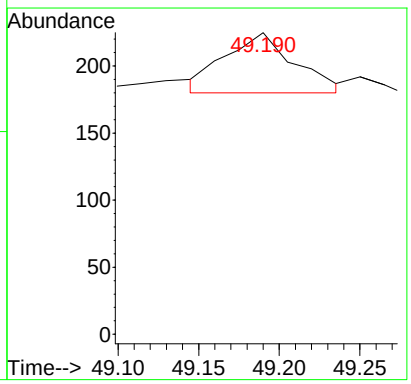
Tgt Ion:217 Resp: 280

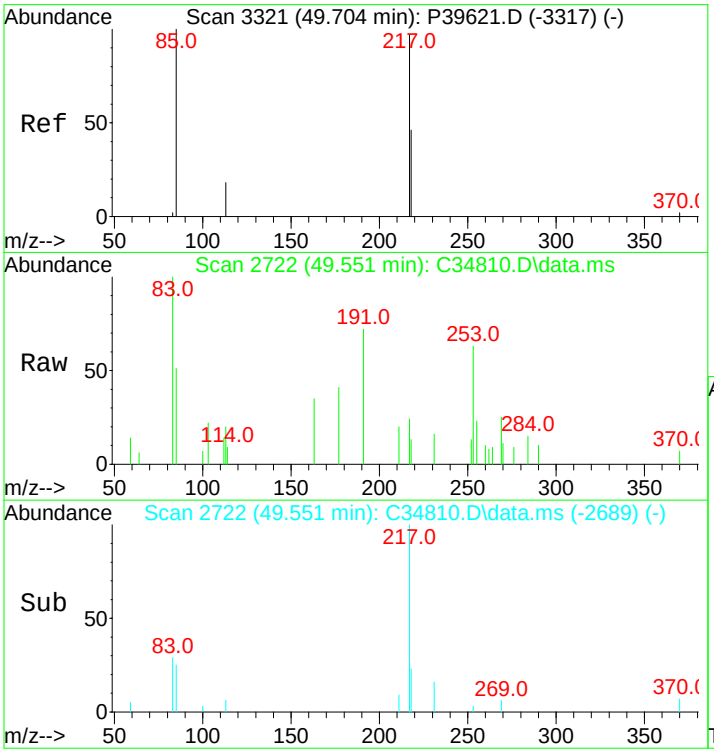




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 14.35 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

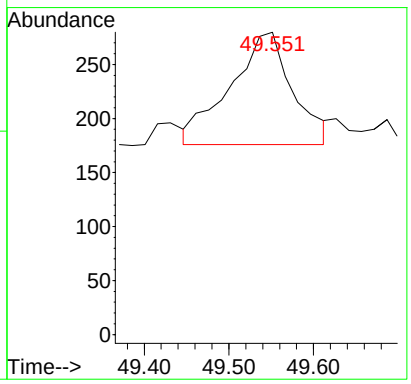
Tgt Ion:217 Resp: 135

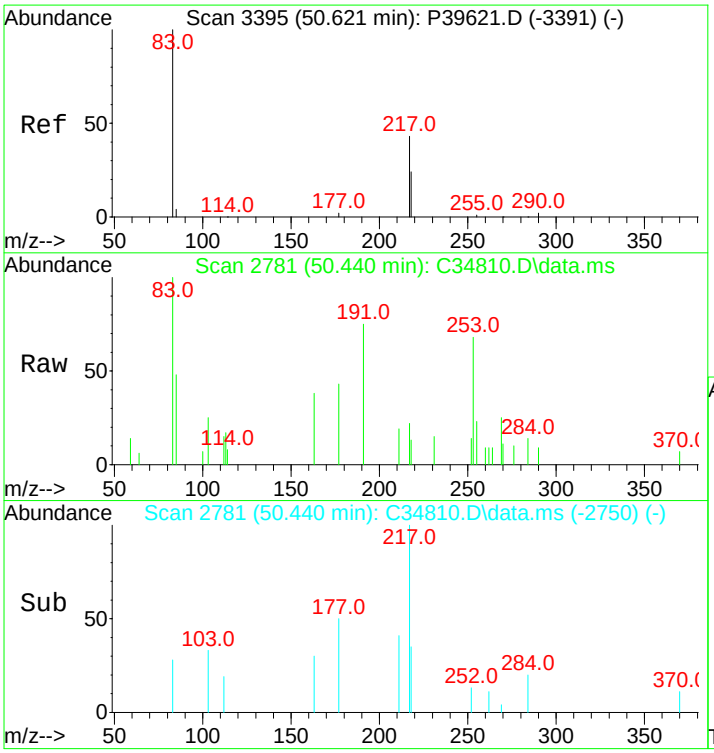




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 56.36 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

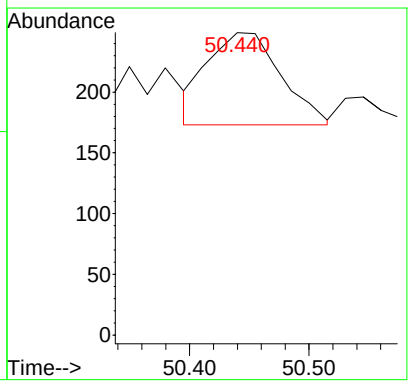
Tgt Ion:217 Resp: 530

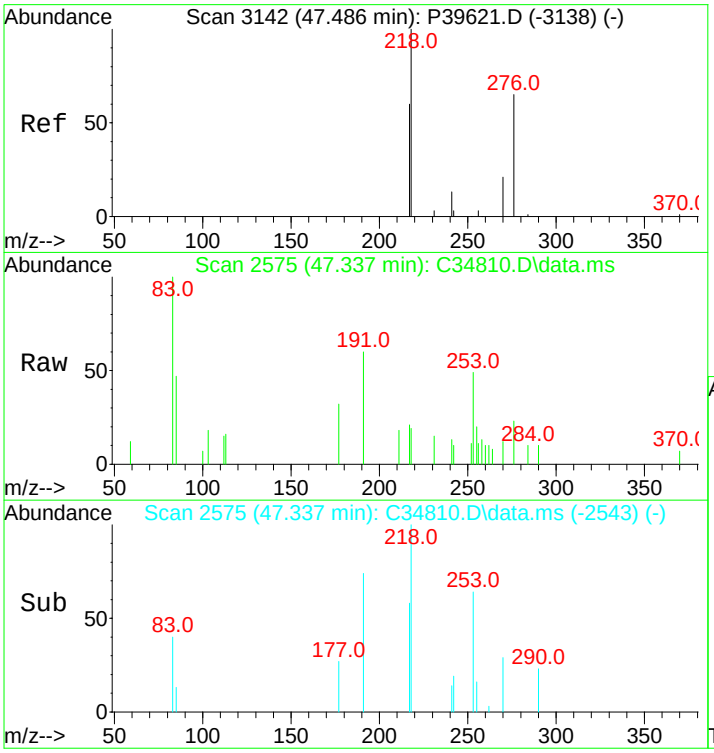




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 34.56 ng/ml m
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

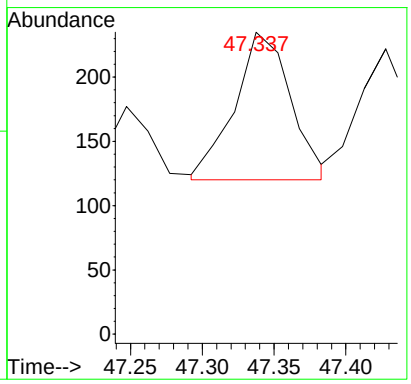
Tgt Ion:217 Resp: 325

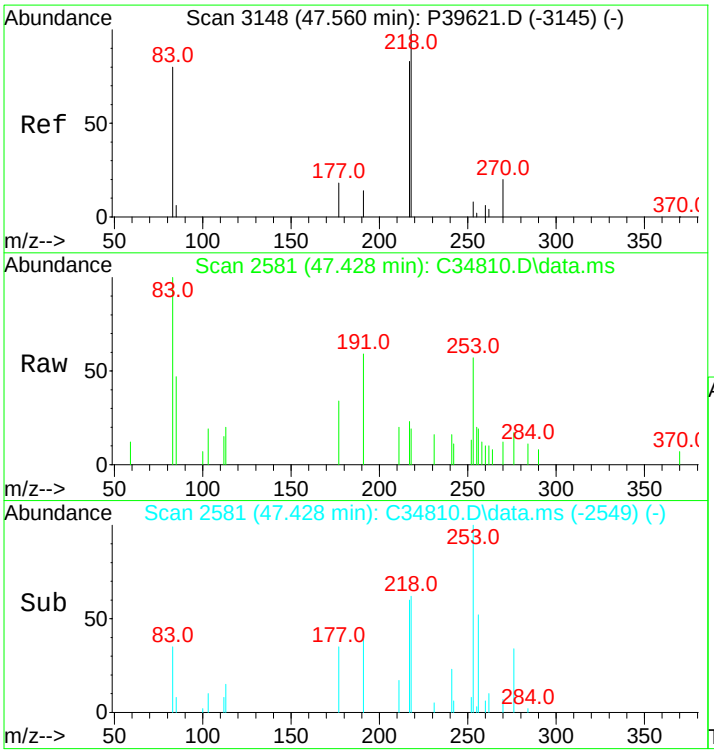




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 33.28 ng/ml m
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

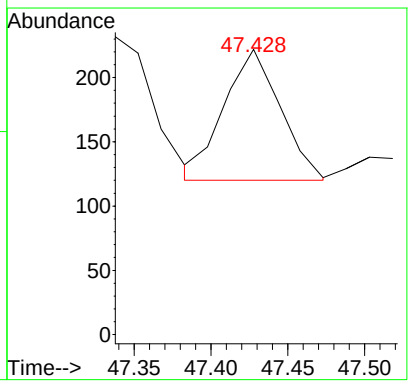
Tgt Ion:218 Resp: 313

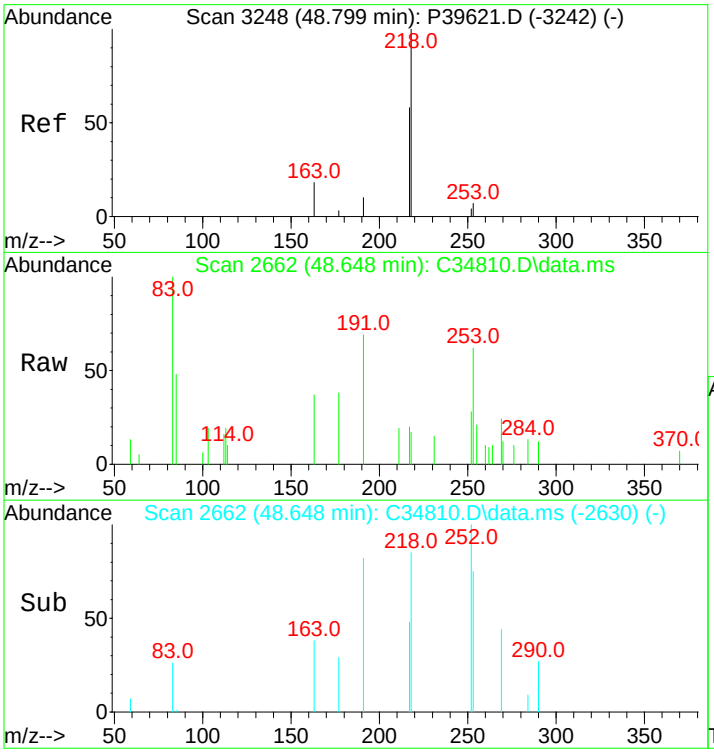




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 27.54 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

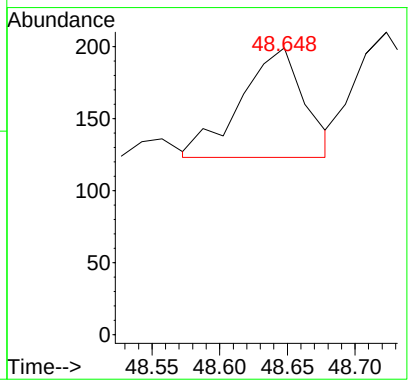
Tgt Ion:218 Resp: 259

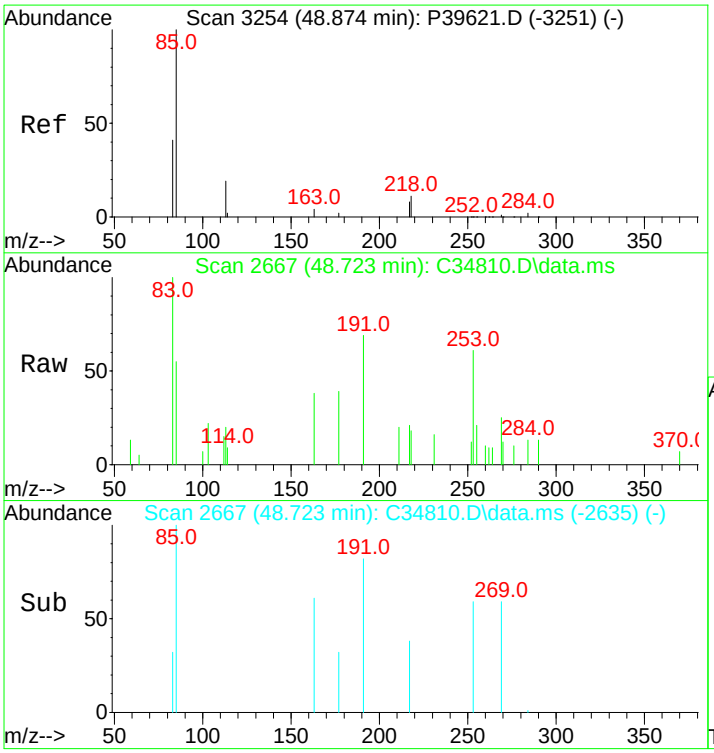




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 26.48 ng/ml m
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

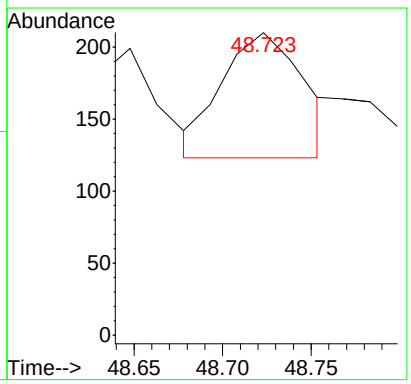
Tgt Ion:218 Resp: 249

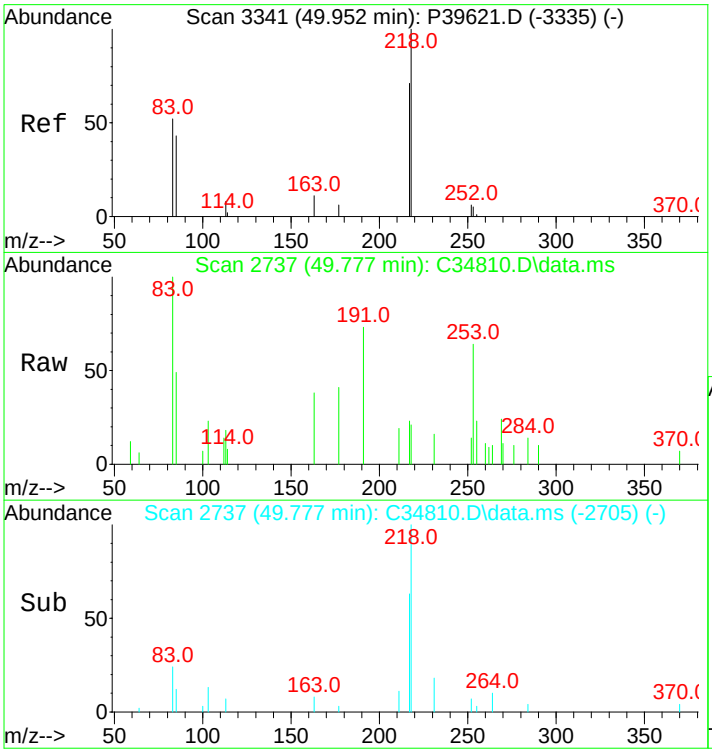




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 29.45 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

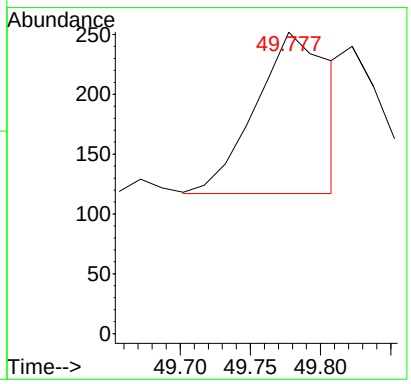
Tgt Ion:218 Resp: 277

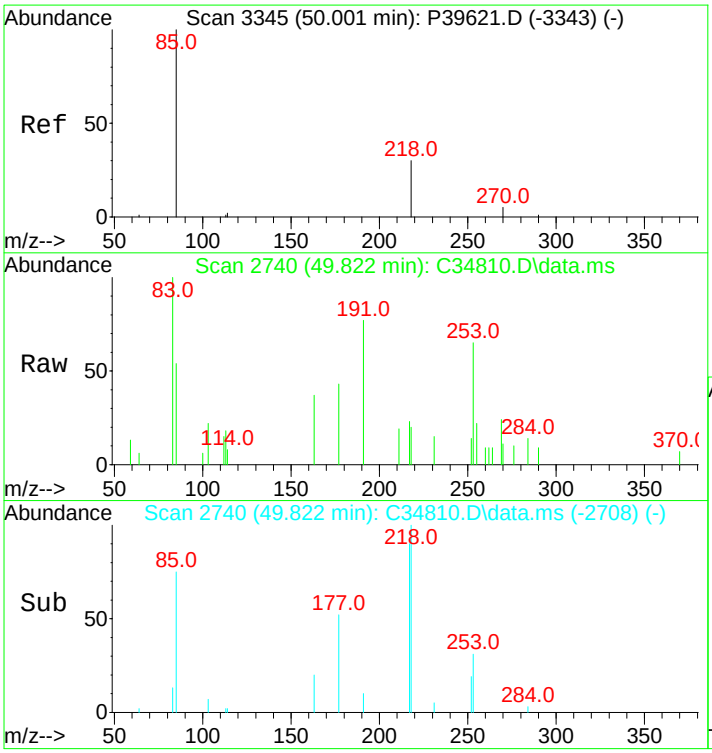




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 52.53 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

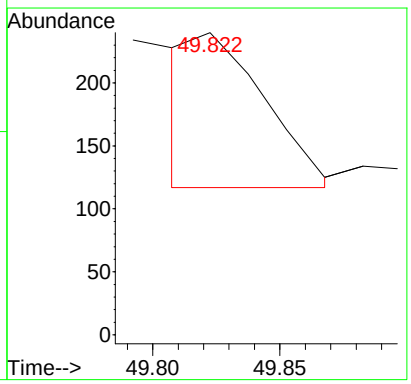
Tgt Ion:218 Resp: 494

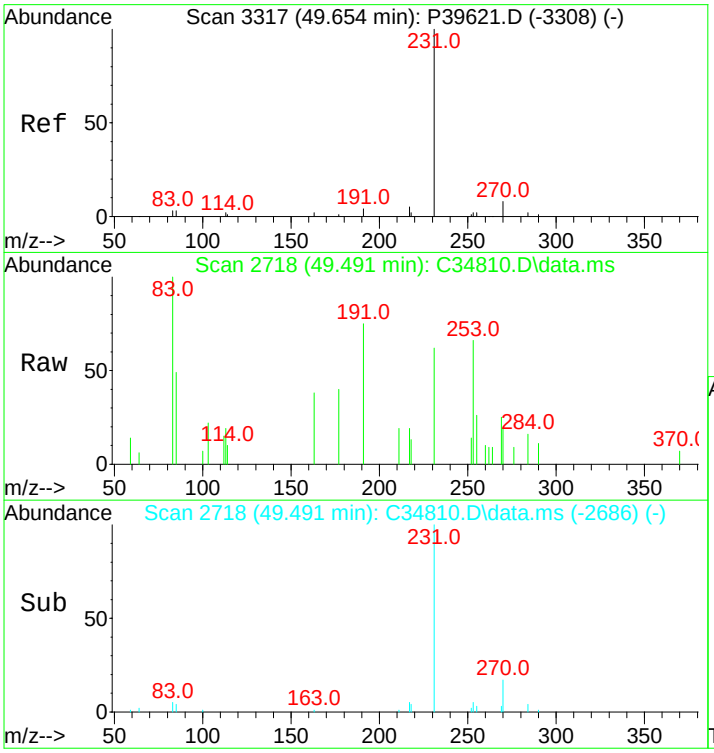




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 25.63 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

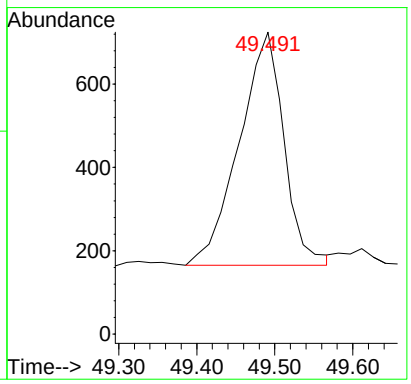
Tgt Ion:218 Resp: 241

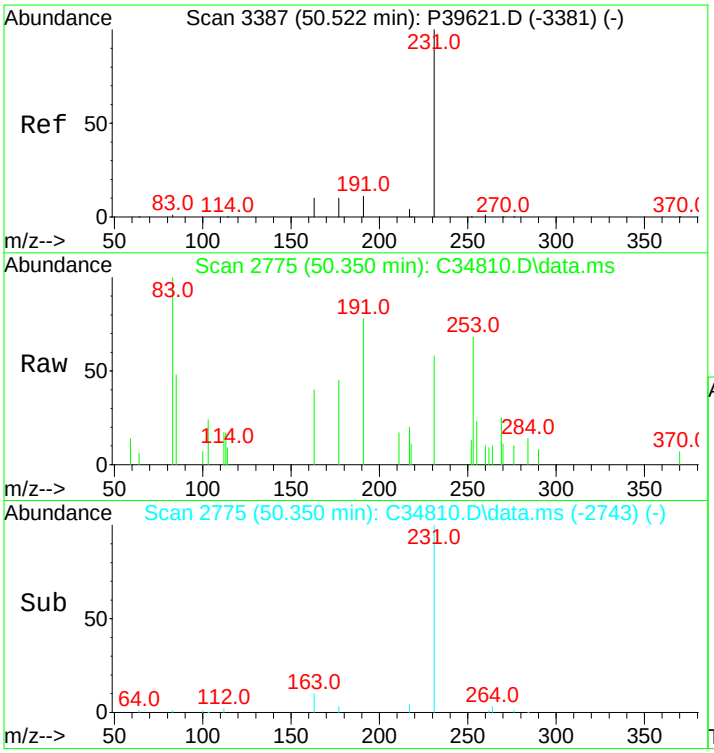




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 237.76 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

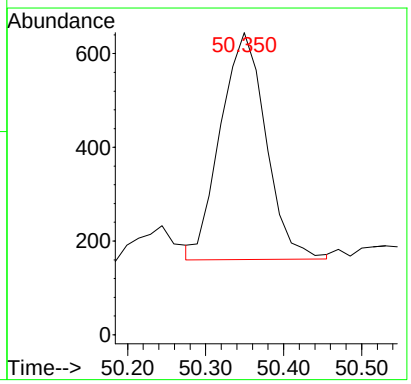
Tgt Ion:231 Resp: 2236

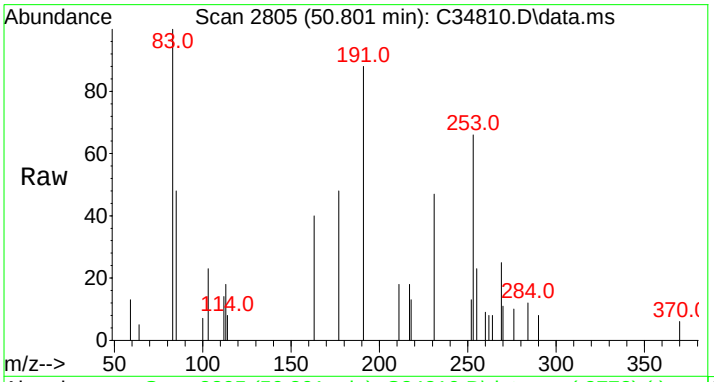




#146
C28,20S-triaromatic steroid
Concen: 207.77 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

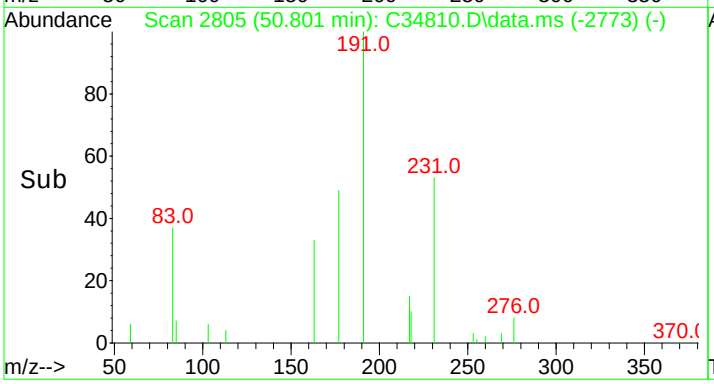
Tgt Ion:231 Resp: 1954

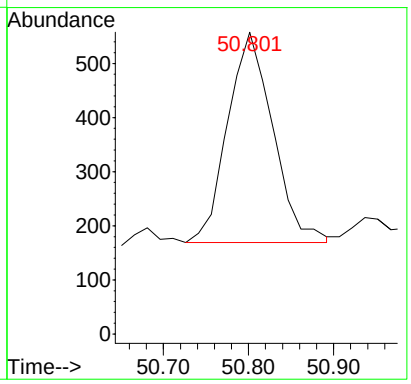


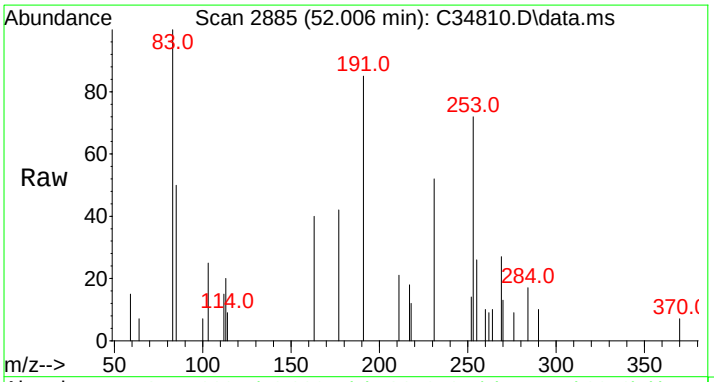


#147
C27,20R-triaromatic steroid
Concen: 152.90 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:231 Resp: 1438

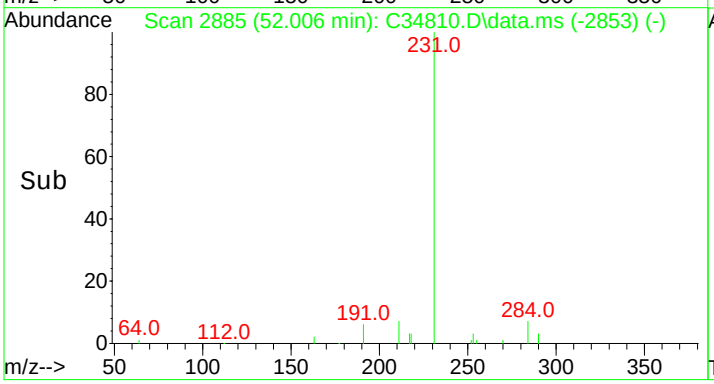


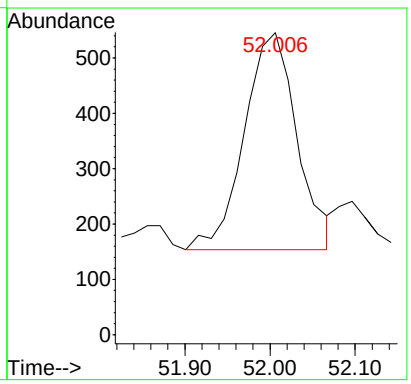




#148
C28,20R-triaromatic steroid
Concen: 179.70 ng/mL
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34810.D
Acq: 3 May 2012 1:30 pm

Tgt Ion:231 Resp: 1690





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34812.D
Acq On : 3 May 2012 2:59 pm
Operator : AC
Sample : 1204035-02
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 05 12:45:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	16001M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	30729	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60145	866.038	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.60%			
42) Phenanthrene-d10	32.567	188	51593	939.882	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.99%			
86) Benzo[a]pyrene-d12	48.241	264	55031	864.133	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.41%			
127) 5B(H)Cholane - Surr	43.769	217	8737	909.399	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.94%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	355M3	3.481	ng/mL	
11) C1-Naphthalenes	22.511	142	254M5	2.491	ng/mL	
16) 2-Methylnaphthalene	22.511	142	115M3	1.907	ng/mL	
17) 1-Methylnaphthalene	22.932	142	54M2	0.914	ng/mL	
43) Phenanthrene	32.657	178	200M3	2.160	ng/mL	
56) Carbazole	33.516	167	68M3	0.744	ng/mL	
58) Fluoranthene	37.445	202	115M3	1.251	ng/mL	
60) Pyrene	38.318	202	101	1.081	ng/mL#	58
75) Benz[a]anthracene	43.106	228	71M3	0.728	ng/mL	
77) Chrysene/Triphenylene	43.257	228	103M3	1.046	ng/mL	
82) Benzo[b]fluoranthene	47.157	252	233	2.174	ng/mL#	52
83) Benzo[j]+[k]fluoranthene	47.232	252	175M3	1.500	ng/mL	
85) Benzo[e]pyrene	48.136	252	242M3	2.283	ng/mL	
87) Benzo[a]pyrene	48.347	252	172M3	1.685	ng/mL	
88) Perylene	48.648	252	187M3	1.714	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	584M3	4.917	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.226	278	190	1.682	ng/mL#	51
91) Benzo[g,h,i]perylene	54.476	276	771	6.144	ng/mL#	83
133) Unknown Sterane (S18)	48.075	217 G	142M2	14.780	ng/ml	

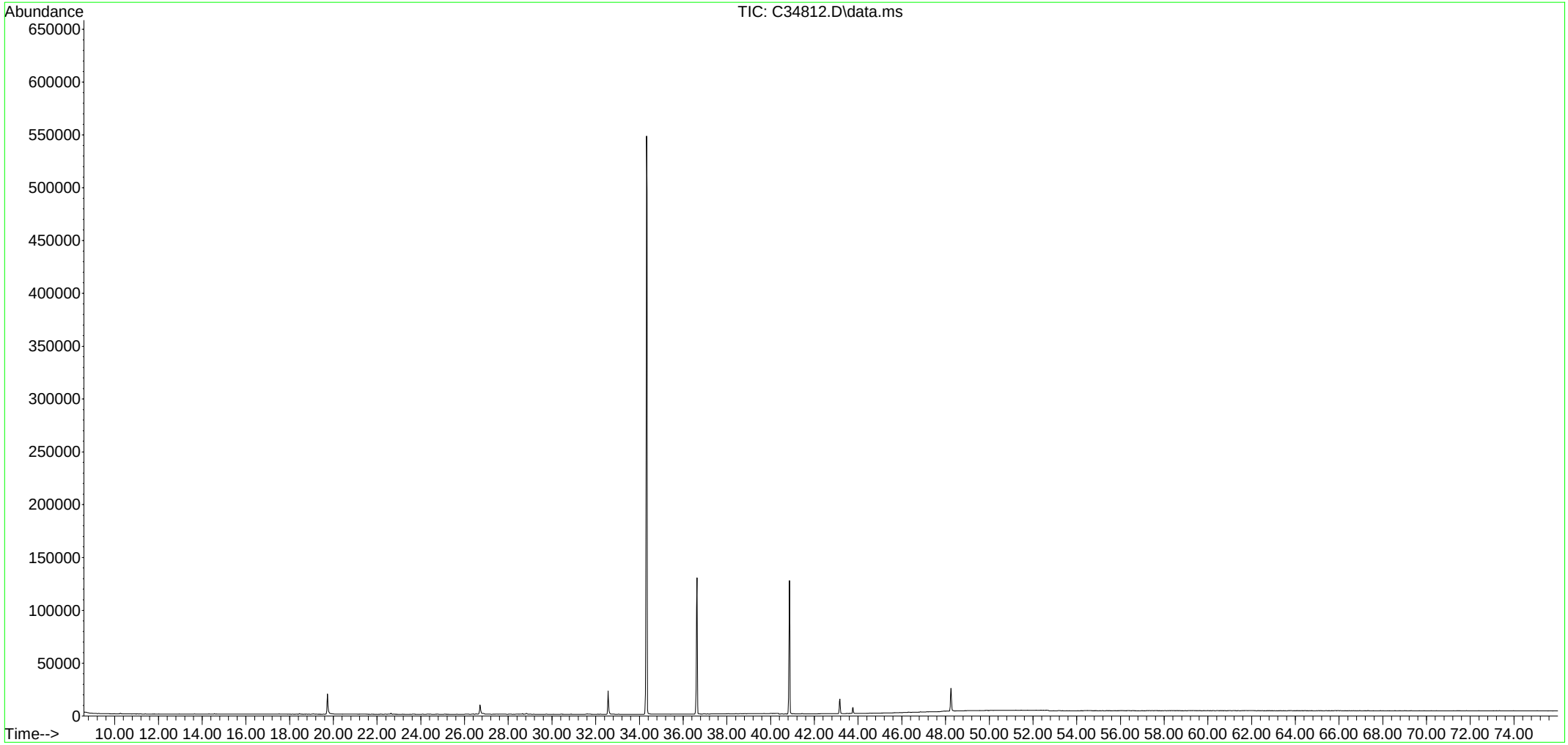
(#) = qualifier out of range (m) = manual integration (+) = signals summed

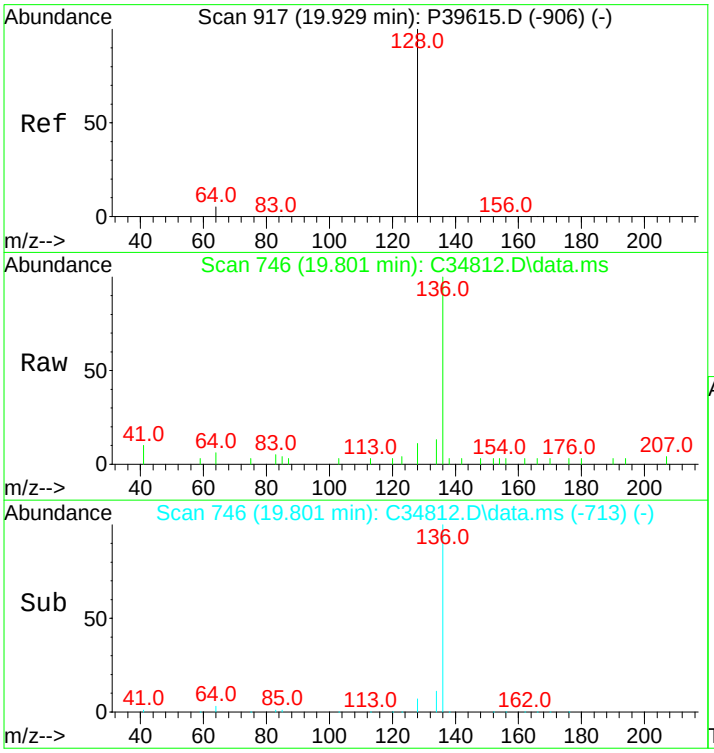
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34812.D
Acq On : 3 May 2012 2:59 pm
Operator : AC
Sample : 1204035-02
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 05 12:45:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

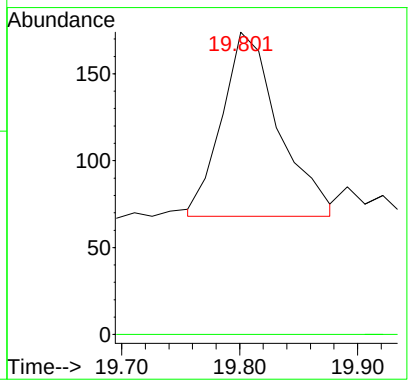


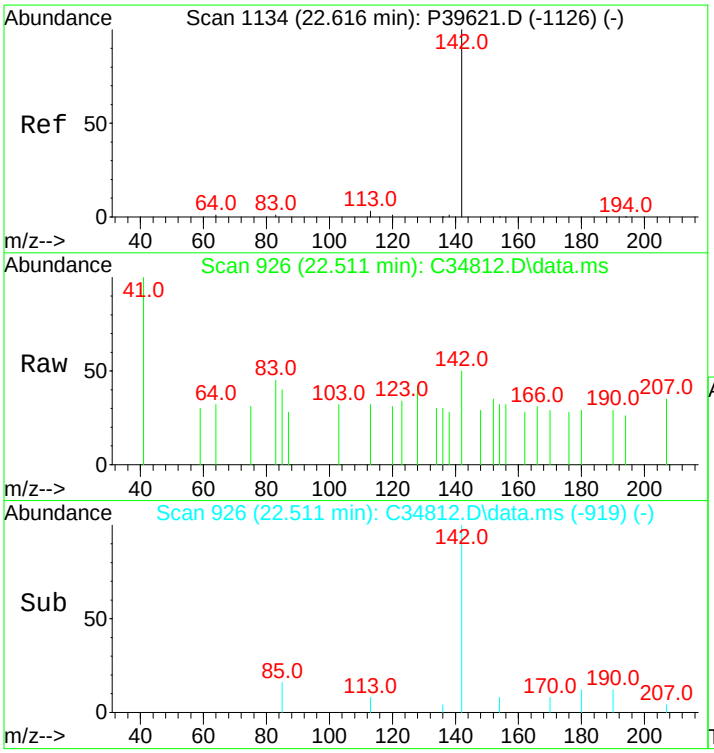


#10
Naphthalene
Concen: 3.48 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:128 Resp: 355

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

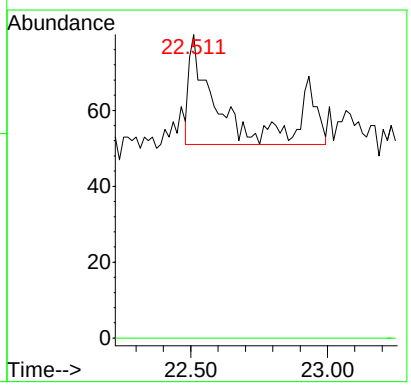


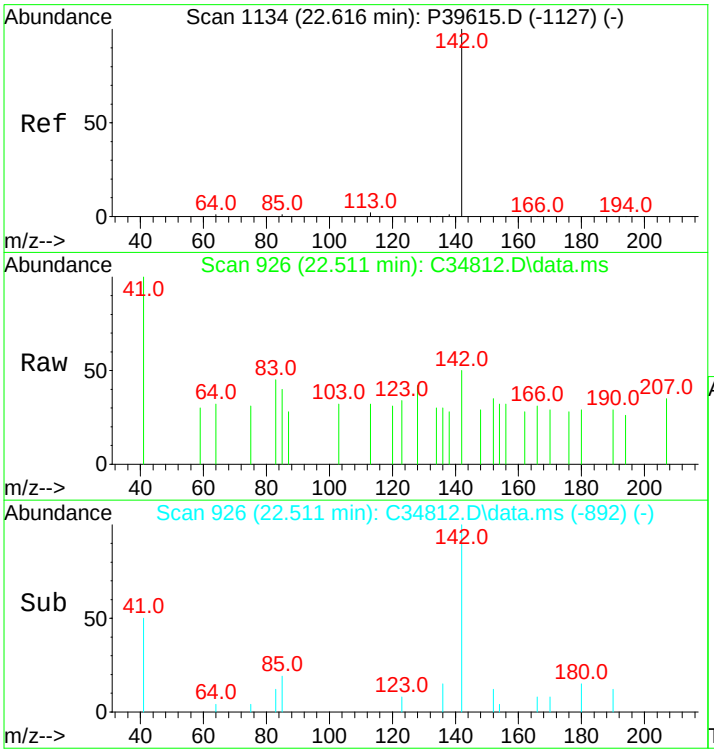


#11
C1-Naphthalenes
Concen: 2.49 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:142 Resp: 254

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

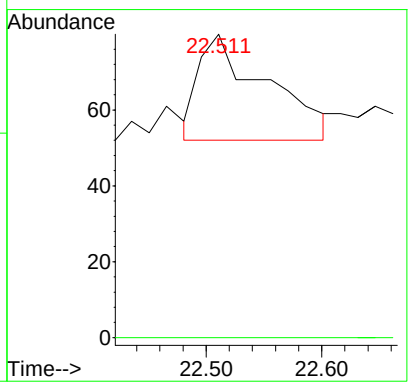


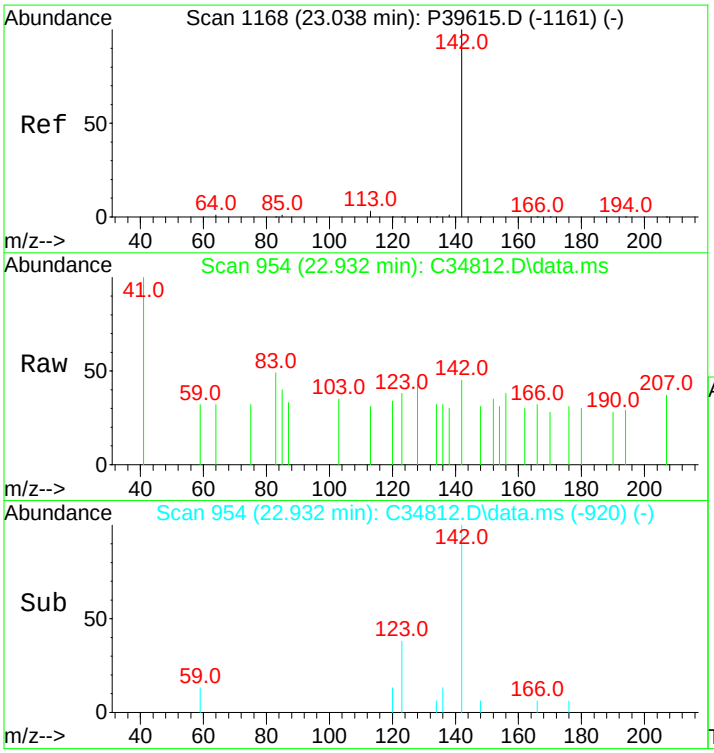


#16
2-Methylnaphthalene
Concen: 1.91 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:142 Resp: 115

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

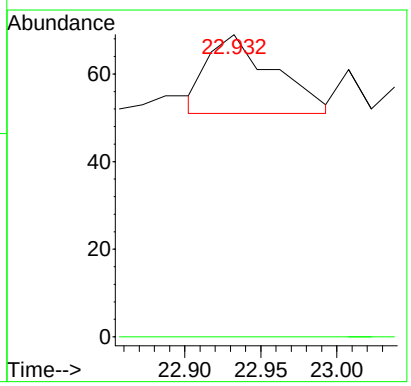


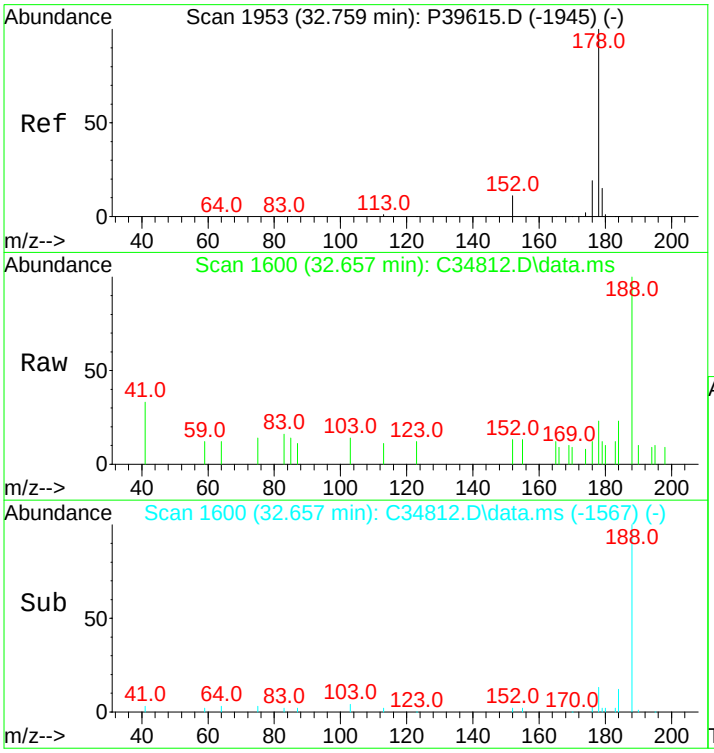


#17
1-Methylnaphthalene
Concen: 0.91 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:142 Resp: 54

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

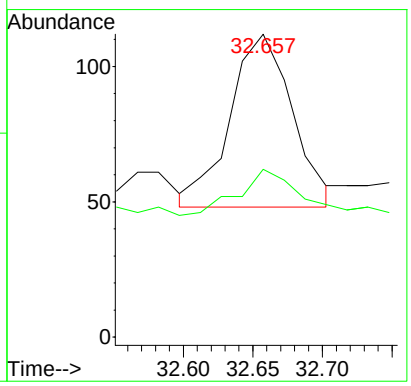


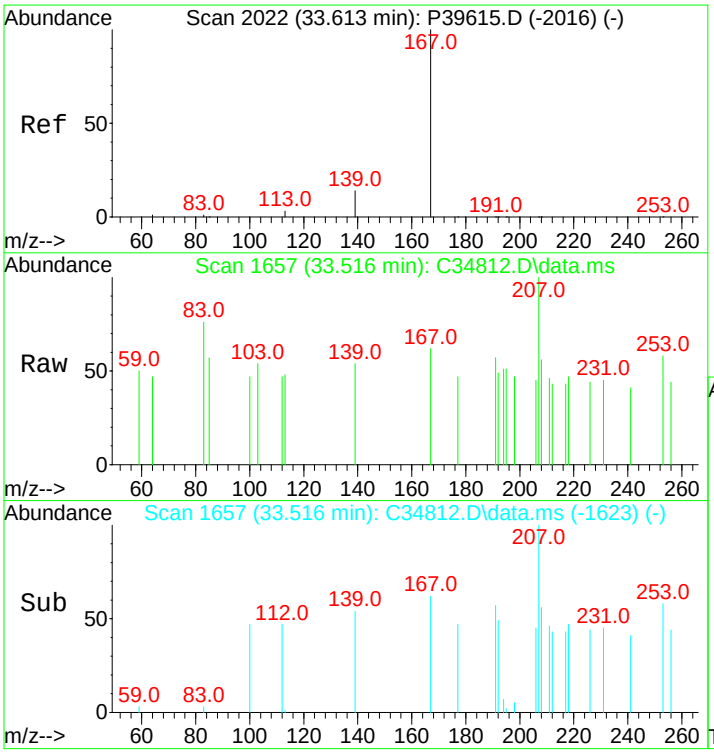


#43
Phenanthrene
Concen: 2.16 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:178 Resp: 200

Ion	Ratio	Lower	Upper
178	100		
176	0.0	16.1	24.1#

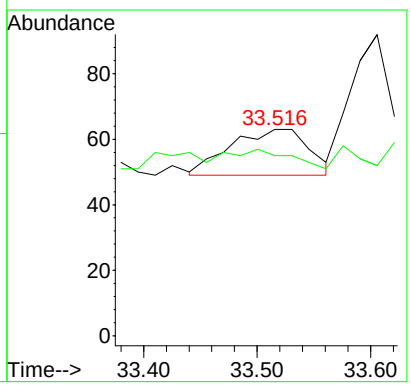


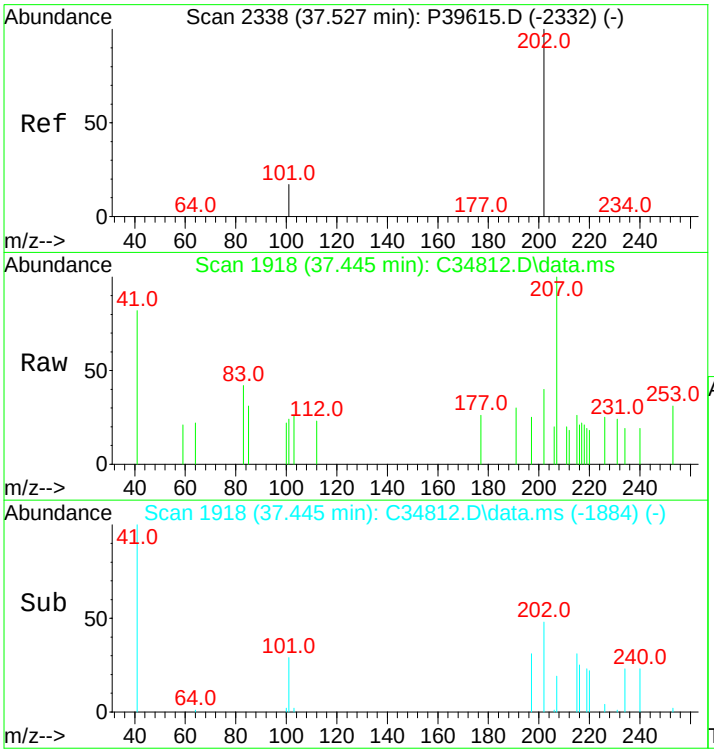


#56
Carbazole
Concen: 0.74 ng/mL m
RT: 33.516 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:167 Resp: 68

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

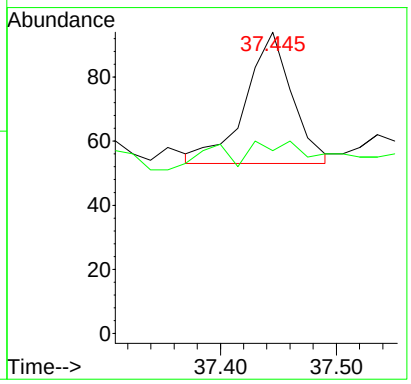


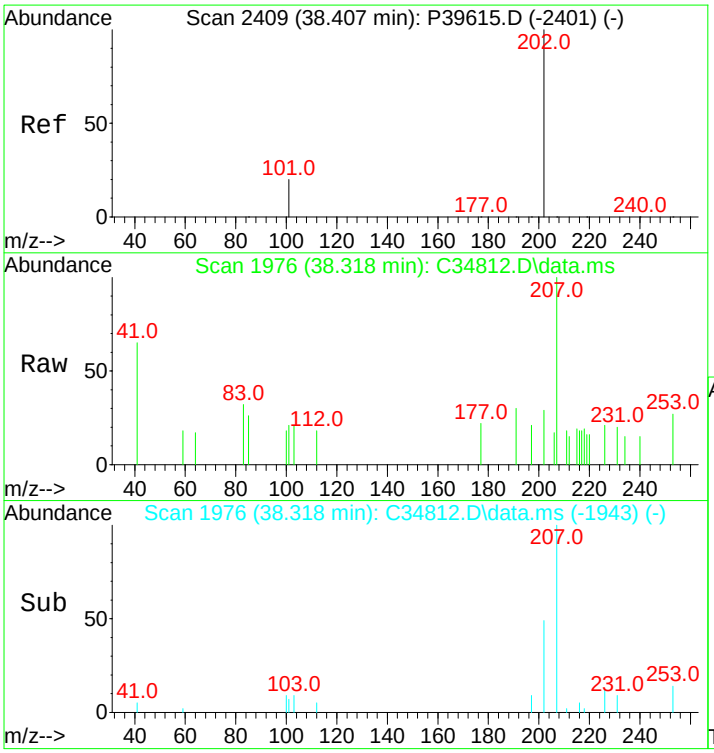


#58
Fluoranthene
Concen: 1.25 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:202 Resp: 115

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

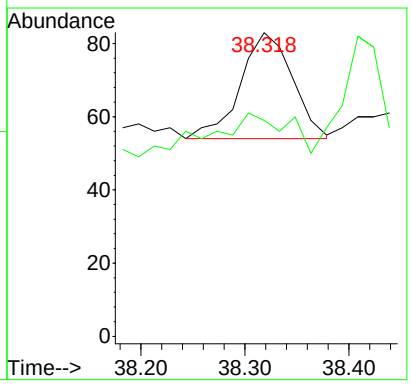


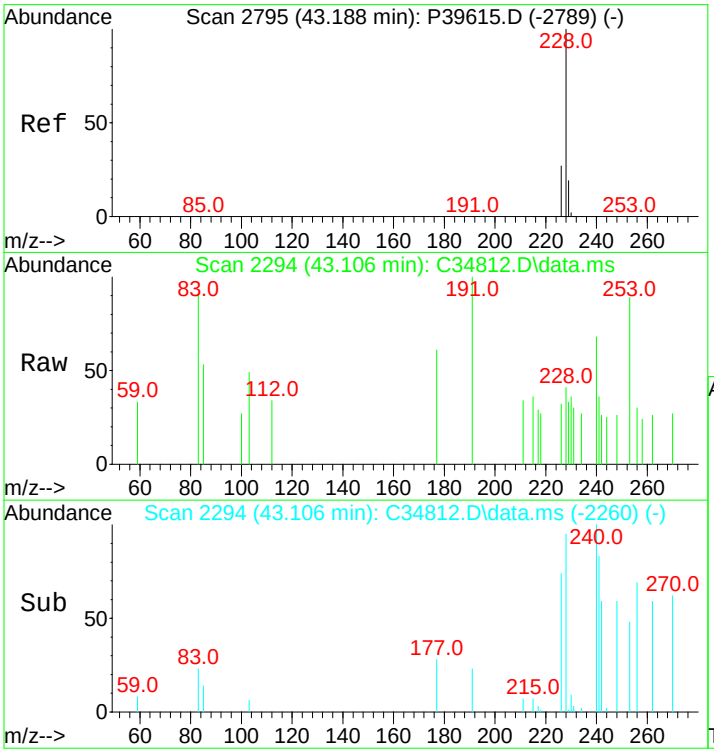


#60
Pyrene
Concen: 1.08 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:202 Resp: 101

Ion	Ratio	Lower	Upper
202	100		
101	0.0	15.0	22.4#

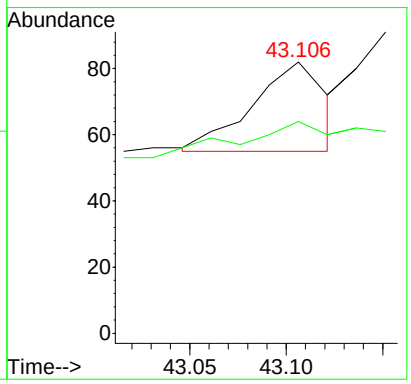


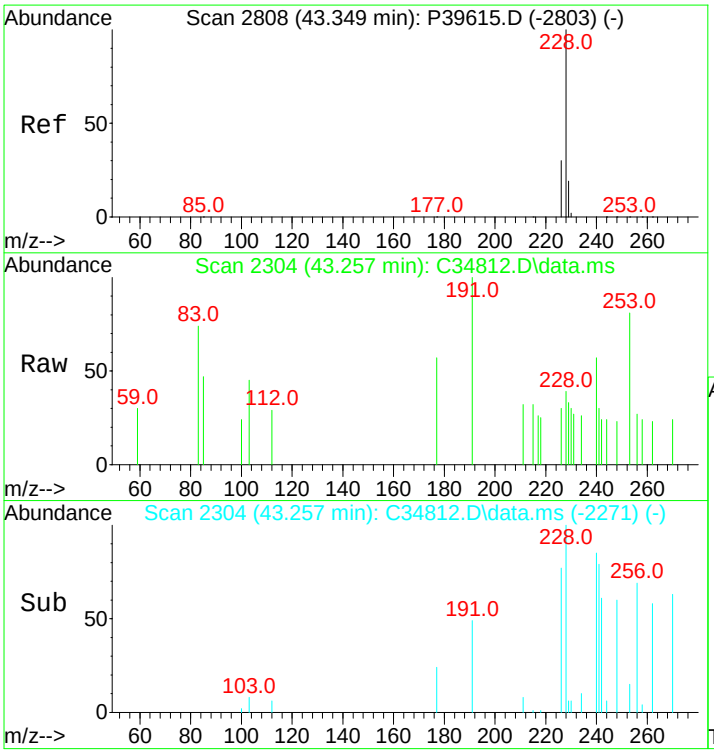


#75
Benz[a]anthracene
Concen: 0.73 ng/mL m
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:228 Resp: 71

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

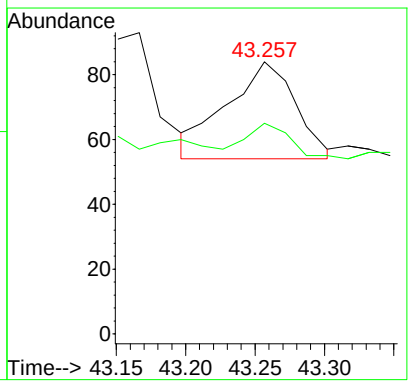


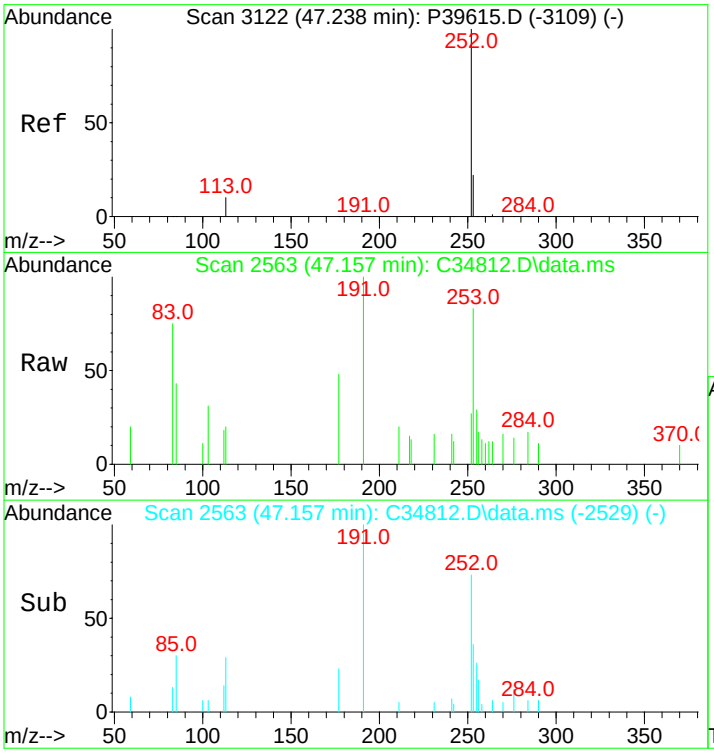


#77
Chrysene/Triphenylene
Concen: 1.05 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:228 Resp: 103

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

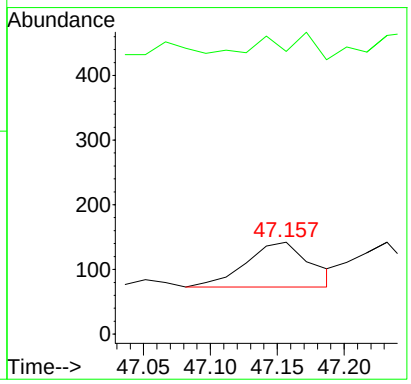


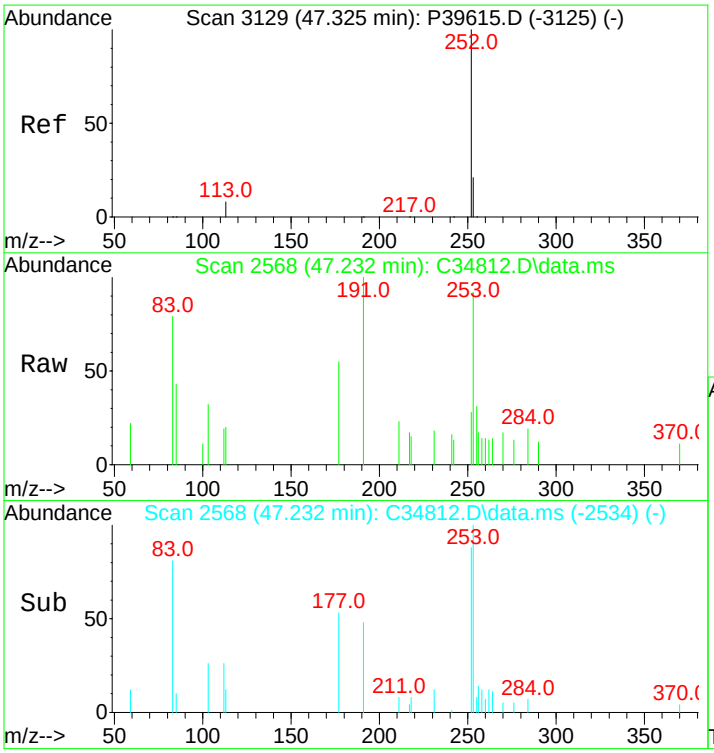


#82
Benzo[b]fluoranthene
Concen: 2.17 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:252 Resp: 233

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

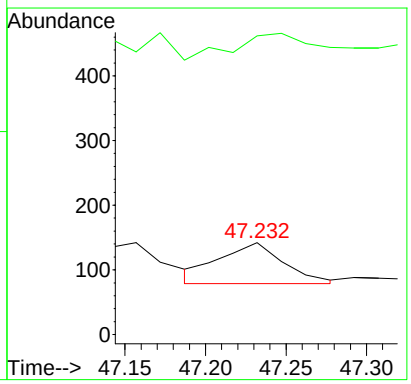


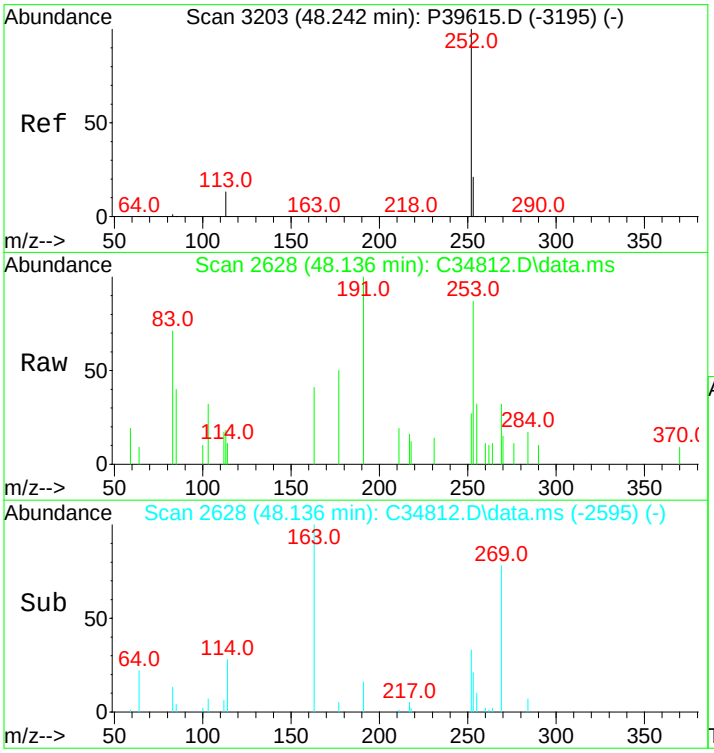


#83
Benzo[j]+[k]fluoranthene
Concen: 1.50 ng/mL m
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:252 Resp: 175

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

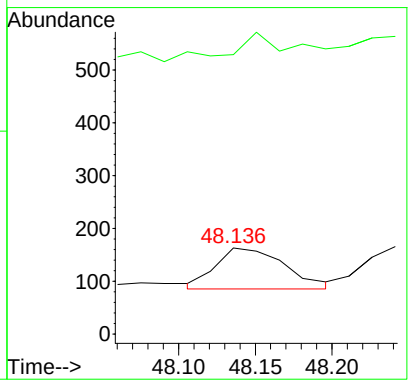


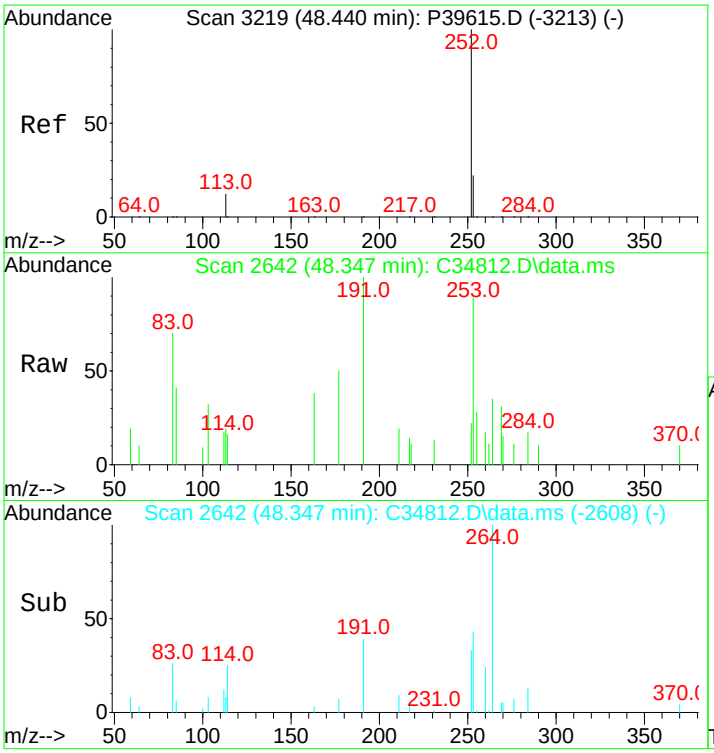


#85
Benzo[e]pyrene
Concen: 2.28 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:252 Resp: 242

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.2	28.8#

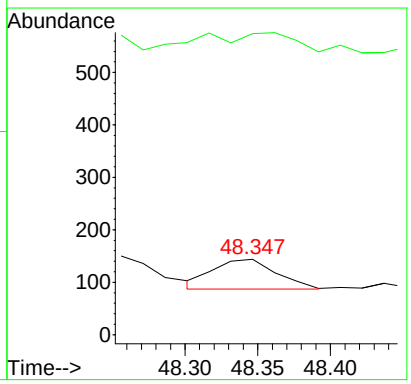


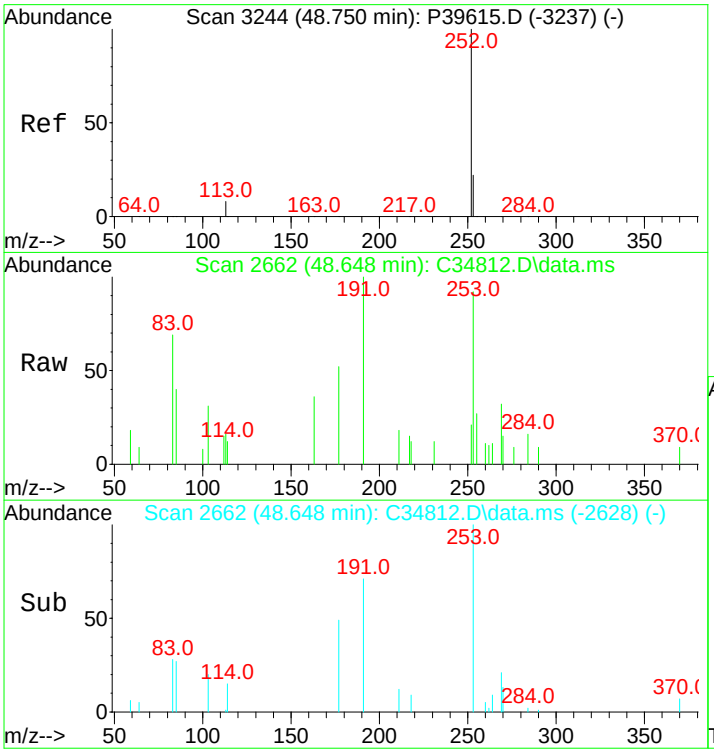


#87
Benzo[a]pyrene
Concen: 1.69 ng/mL m
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:252 Resp: 172

Ion	Ratio	Lower	Upper
252	100		
253	101.7	19.5	29.3#

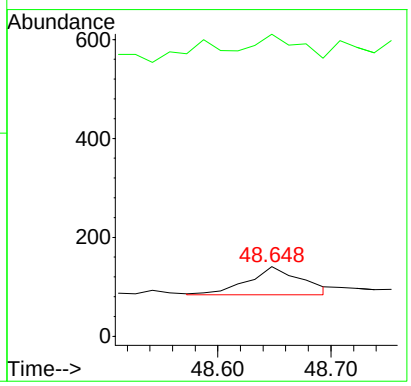


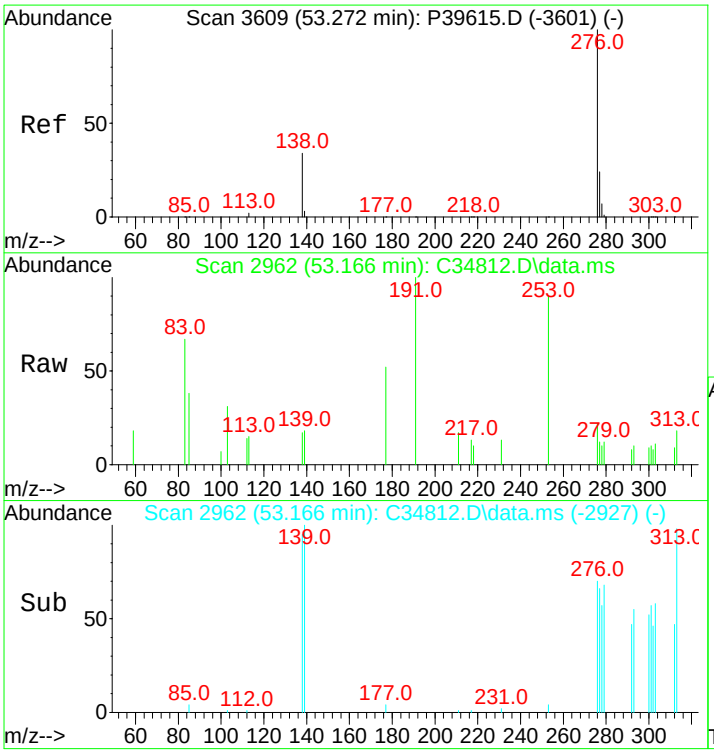


#88
Perylene
Concen: 1.71 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:252 Resp: 187

Ion	Ratio	Lower	Upper
252	100		
253	67.9	19.6	29.4#

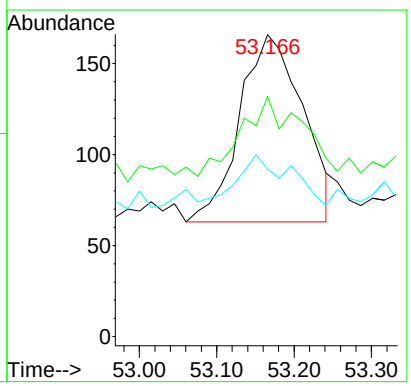


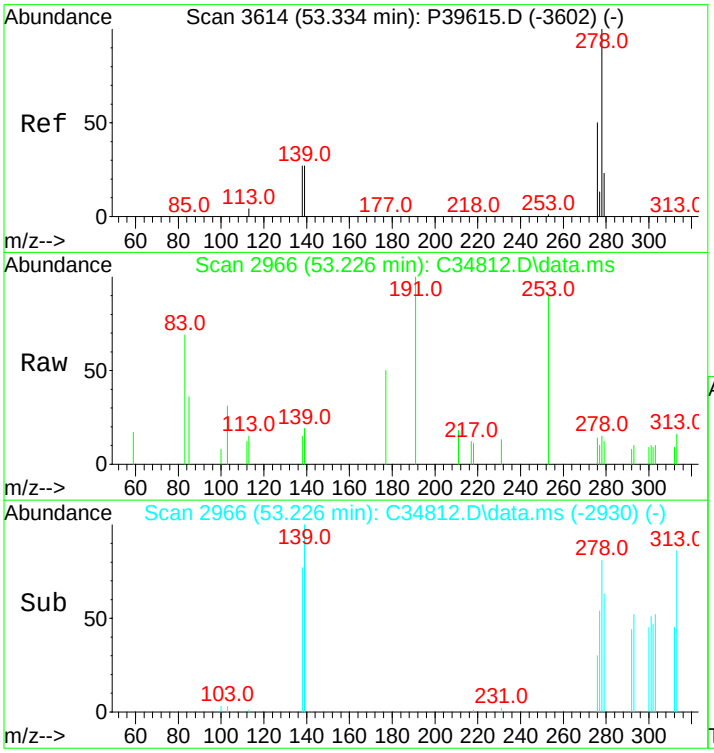


#89
Indeno[1,2,3-cd]pyrene
Concen: 4.92 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:276 Resp: 584

Ion	Ratio	Lower	Upper
276	100		
138	31.5	23.3	34.9
277	0.0	19.0	28.4#

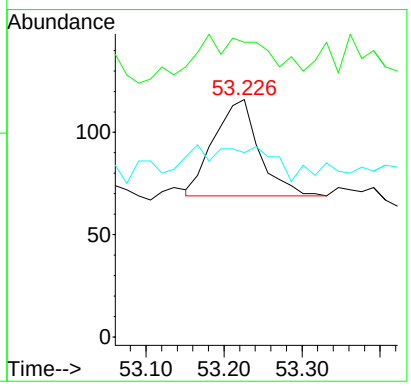


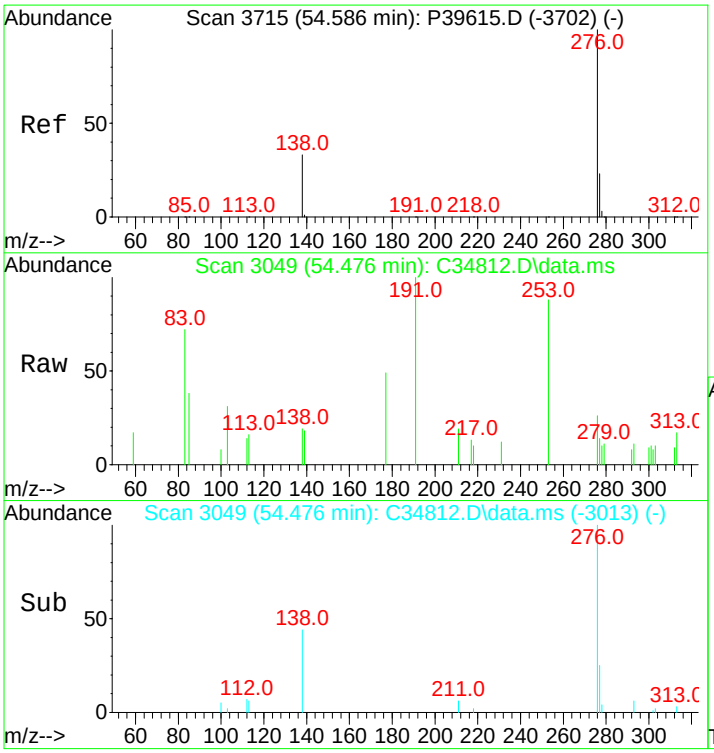


#90
Dibenz[ah]+[ac]anthracene
Concen: 1.68 ng/mL
RT: 53.226 min Scan# 2966
Delta R.T. 0.045 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:278 Resp: 190

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

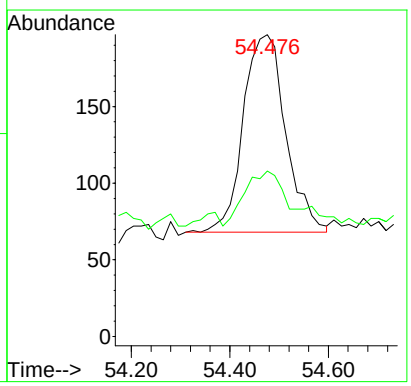


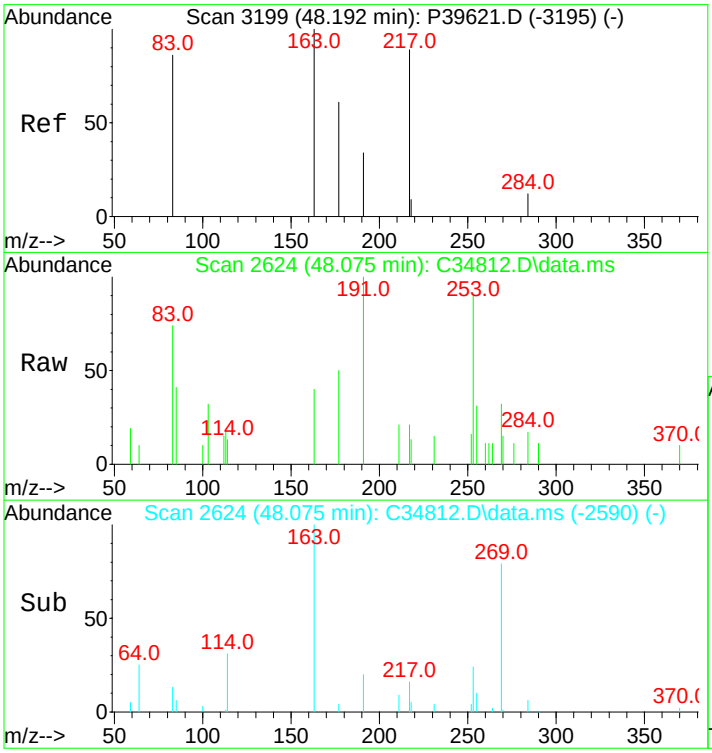


#91
Benzo[g,h,i]perylene
Concen: 6.14 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:276 Resp: 771

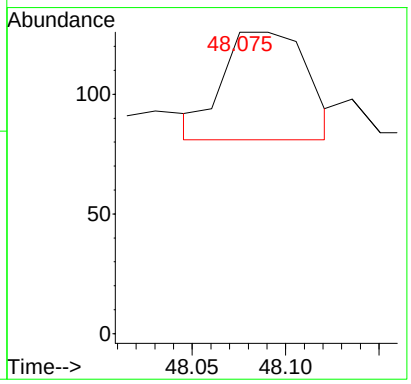
Ion	Ratio	Lower	Upper
276	100		
277	31.9	18.9	28.3#





#133
Unknown Sterane (S18)
Concen: 14.78 ng/ml m
RT: 48.075 min Scan# 2624
Delta R.T. 0.015 min
Lab File: C34812.D
Acq: 3 May 2012 2:59 pm

Tgt Ion:217 Resp: 142



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	15762M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	28777	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	59132	864.363	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 86.44%			
42) Phenanthrene-d10	32.567	188	50792	939.320	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.93%			
86) Benzo[a]pyrene-d12	48.241	264	54088	906.937	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.69%			
127) 5B(H)Cholane - Surr	43.753	217	9104	1011.876	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.19%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	121M3	1.204	ng/mL	
11) C1-Naphthalenes	22.947	142	323M5	3.215	ng/mL	
12) C2-Naphthalenes	25.341	156	2980M5	29.664	ng/mL	
13) C3-Naphthalenes	28.021	170	13827M5	137.639	ng/mL	
14) C4-Naphthalenes	30.444	184	21221M5	211.241	ng/mL	
16) 2-Methylnaphthalene	22.496	142	133	2.239	ng/mL#	100
17) 1-Methylnaphthalene	22.947	142	62M2	1.065	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	540M5	5.973	ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	3348M5	37.035	ng/mL	
22) C4-Benzo(b)thiophenes	30.715	190	6949M5	76.869	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	610	12.500	ng/mL#	100
25) Dibenzofuran	27.464	168	74M2	0.858	ng/mL	
26) Acenaphthylene	26.094	152	113M2	1.133	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	969M3	24.631	ng/mL	
29) Fluorene	28.849	166	141	2.177	ng/mL#	1
30) C1-Fluorenes	31.197	180	2502M5	38.636	ng/mL	
31) C2-Fluorenes	33.395	194	8245M5	127.321	ng/mL	
32) C3-Fluorenes	35.232	208	12659M5	195.483	ng/mL	
33) Dibenzothiophene	32.160	184	1819	17.523	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	6008	57.877	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	5601M3	53.957	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	3301	31.800	ng/mL#	100
37) OTP	34.328	198	10135M3	97.634	ng/mL	
38) C1-Dibenzothiophenes	34.328	198	26364M5	253.975	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	37911M5	365.212	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	43907M5	422.974	ng/mL	
41) C4-Dibenzothiophenes	40.878	240	32012M5	308.384	ng/mL	
43) Phenanthrene	32.657	178	2608	28.596	ng/mL#	42
44) 3-Methylphenanthrene(3MP)	34.614	192	3025	33.168	ng/mL	93
45) 2/4-Methylphenanthrene...	34.735	192	3390	37.170	ng/mL	100
46) 2-Methylanthracene(2MA)	34.885	192	350M3	3.838	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	5098	55.898	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.156	192	3042M3	33.355	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	15428M5	169.163	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.873	206	29844M5	327.230	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.989	220	26487M5	290.421	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	13127M5	143.933	ng/mL	
56) Carbazole	33.485	167	340M3	3.778	ng/mL	
57) 1-Methylphenanthrene	35.156	192	3004M3	51.976	ng/mL	
58) Fluoranthene	37.430	202	790M3	8.722	ng/mL	
59) Benzo(b)fluorene	39.944	216	440M3	8.373	ng/mL	
60) Pyrene	38.303	202	2224	24.154	ng/mL#	72
61) C1-Fluoranthenes/Pyrenes	39.703	216	7986M5	86.733	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.624	230	10660M5	115.774	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	12768M5	138.669	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.395	258	12521M5	135.986	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
66) Naphthobenzothiophene	42.158	234	3515	35.459	ng/ml#	90
67) Naphthobenzothiophene-...	42.158	234	3515	35.459	ng/mL#	90
68) Naphthobenzothiophene-...	42.504	234	881M3	8.887	ng/mL	
69) Naphthobenzothiophene-...	42.790	234	526M3	5.306	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	16069M5	162.103	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	24009M5	242.202	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	20809M5	209.920	ng/ml	
73) C4-Naphthobenzothiophenes	48.226	290	16607M5	167.531	ng/mL	
75) Benz[a]anthracene	43.091	228	546M3	5.978	ng/mL	
77) Chrysene/Triphenylene	43.242	228	2408M3	26.113	ng/mL	
78) C1-Chrysenes	44.717	242	5815M5	63.061	ng/mL	
79) C2-Chrysenes	46.795	256	8717M5	94.531	ng/mL	
80) C3-Chrysenes	49.491	270	13052M5	141.542	ng/mL	
81) C4-Chrysenes	49.506	284	10820M5	117.337	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	967M3	9.635	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	492M3	4.503	ng/mL	
85) Benzo[e]pyrene	48.136	252	1422	14.325	ng/mL#	73
87) Benzo[a]pyrene	48.316	252	729	7.627	ng/mL#	1
88) Perylene	48.633	252	1233	12.071	ng/mL#	81
89) Indeno[1,2,3-cd]pyrene	53.136	276	767M3	6.896	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	281	2.656	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	1527	12.995	ng/mL#	81
92) Hopane (T19)	52.202	191	6359M3	335.283	ng/mL	
94) C23 Tricyclic Terpane ...	40.787	191	2708M3	142.781	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	1552M3	81.830	ng/ml	
96) C25 Tricyclic Terpane ...	43.001	191	1316M3	69.387	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	621	32.743	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	558M3	29.421	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	563M3	29.685	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	675M3	35.590	ng/ml	
101) C28 Tricyclic Terpane-...	46.584	191	670M3	35.326	ng/ml	
102) C29 Tricyclic Terpane-...	47.111	191	973	51.302	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	745M3	39.281	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	723	38.121	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	517M3	27.259	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	591M3	31.161	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	1743M3	91.901	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	1130	59.580	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191	372	19.614	ng/ml	100
110) 30-Norhopane (T15)	50.831	191	4487M3	236.580	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	750M3	39.544	ng/ml	
112) 17a(H)-Diahopane (X)	51.057	191	155	8.172	ng/ml	100
113) 30-Normoretane (T17)	51.615	191	552M3	29.105	ng/ml	
115) Moretane (T20)	52.880	191	537M3	28.314	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	2790	147.105	ng/ml	100
117) 30-Homohopane-22R (T22)	54.220	191	2418	127.491	ng/ml	100
118) Gammacerane/C32-diahopane	54.762	191	1137	59.949	ng/mL	100
119) 30,31-Bishomohopane-22...	55.545	191	2162M3	113.993	ng/ml	
120) 30,31-Bishomohopane-22...	55.936	191	1386M3	73.078	ng/ml	
121) 30,31-Trishomohopane-2...	57.668	191	1419M3	74.818	ng/ml	
122) 30,31-Trishomohopane-2...	58.285	191	919M3	48.455	ng/ml	
123) Tetrakishomohopane-22S...	60.318	191	1223M3	64.484	ng/ml	
124) Tetrakishomohopane-22R...	61.192	191	564M3	29.737	ng/ml	
125) Pentakishomohopane-22S...	63.435	191	1353M3	71.338	ng/ml	
126) Pentakishomohopane-22R...	64.715	191	813M2	42.866	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	514M3	57.129	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.681	217	197	21.896	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	200M3	22.229	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	713	79.247	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	960M3	106.700	ng/ml	
133) Unknown Sterane (S18)	48.045	217	135M3	15.005	ng/ml	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
134) 13a,17b-20S-Ethyldiach...	48.301	217	91M3	10.114	ng/ml	
135) 14a,17a-20S-Methylchol...	48.452	217	317M3	35.233	ng/ml	
136) 14a,17a-20R-Methylchol...	49.190	217	230	25.564	ng/ml	100
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	763M3	84.805	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	518M3	57.574	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.337	218	471M3	52.350	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	546	60.686	ng/ml	100
141) 14b,17b-20R-Methylchol...	48.633	218	497	55.240	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	643M3	71.467	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	685M3	76.135	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	601M3	66.799	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	4362	484.820	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231	3728	414.353	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	2902	322.546	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	3219M3	357.780	ng/mL	

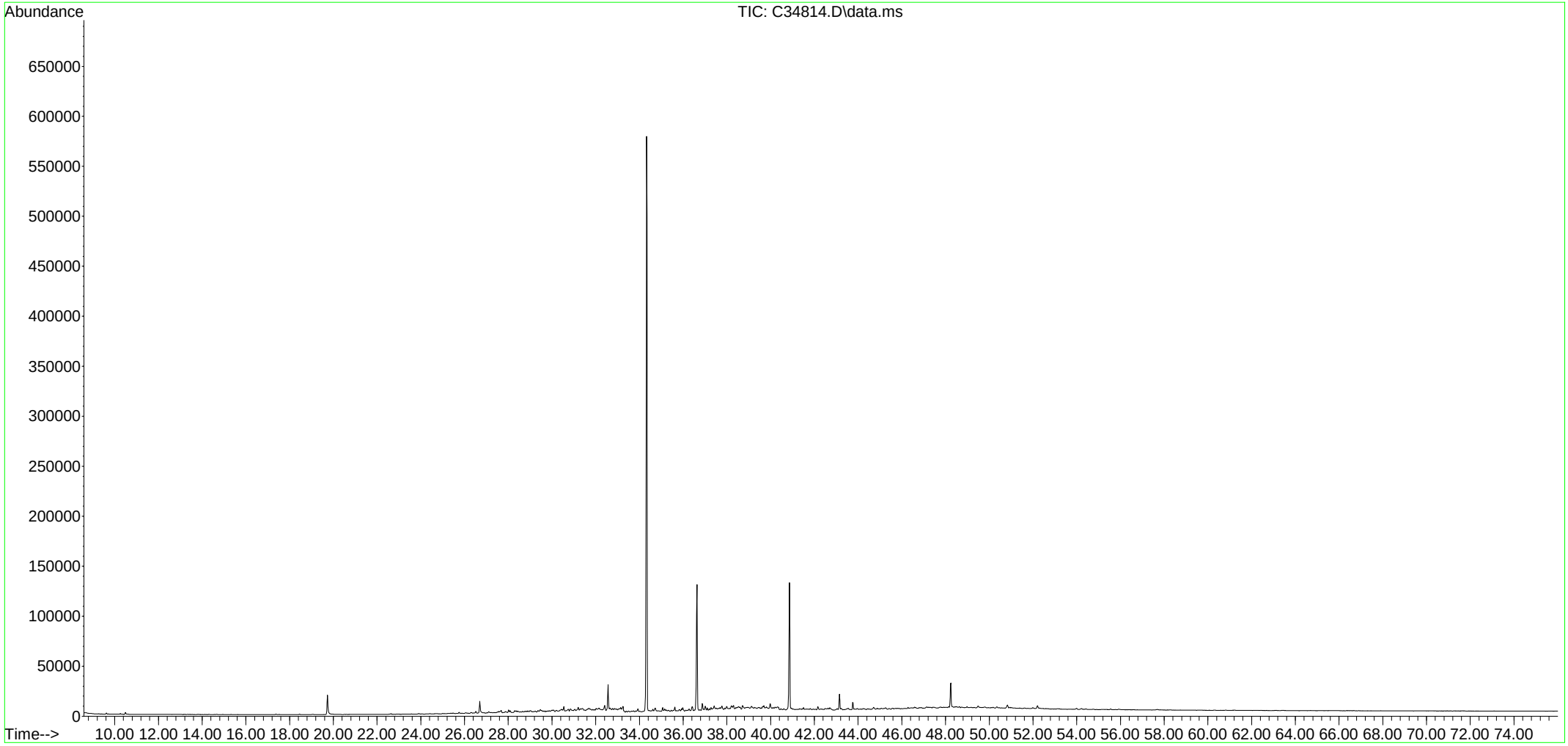
(#) = qualifier out of range (m) = manual integration (+) = signals summed

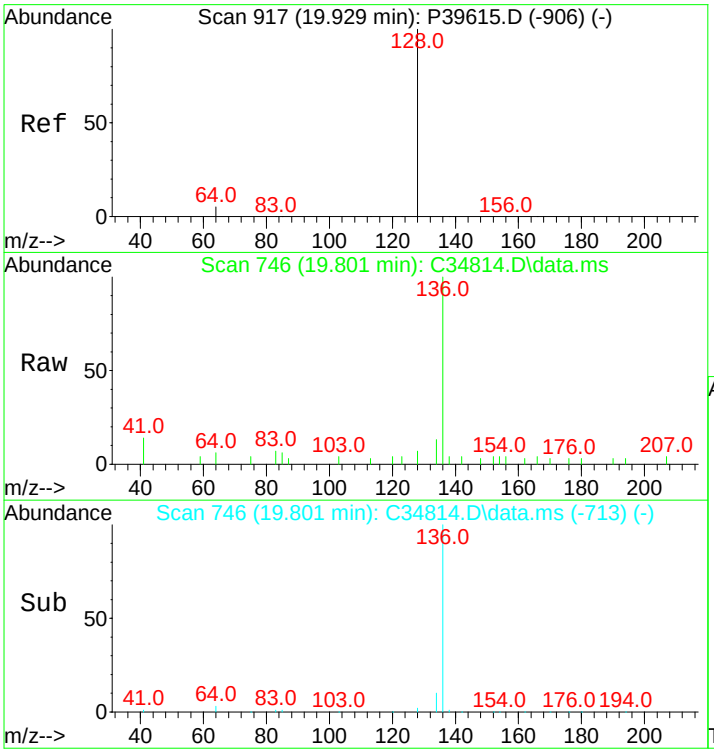
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34814.D
Acq On : 3 May 2012 4:28 pm
Operator : AC
Sample : 1204035-03
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 05 12:46:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

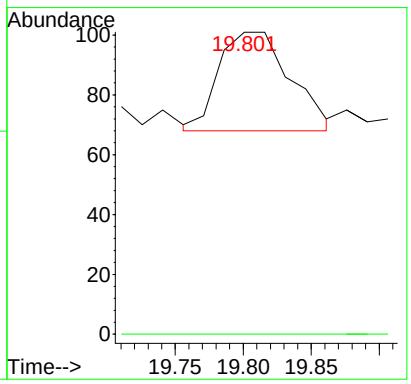


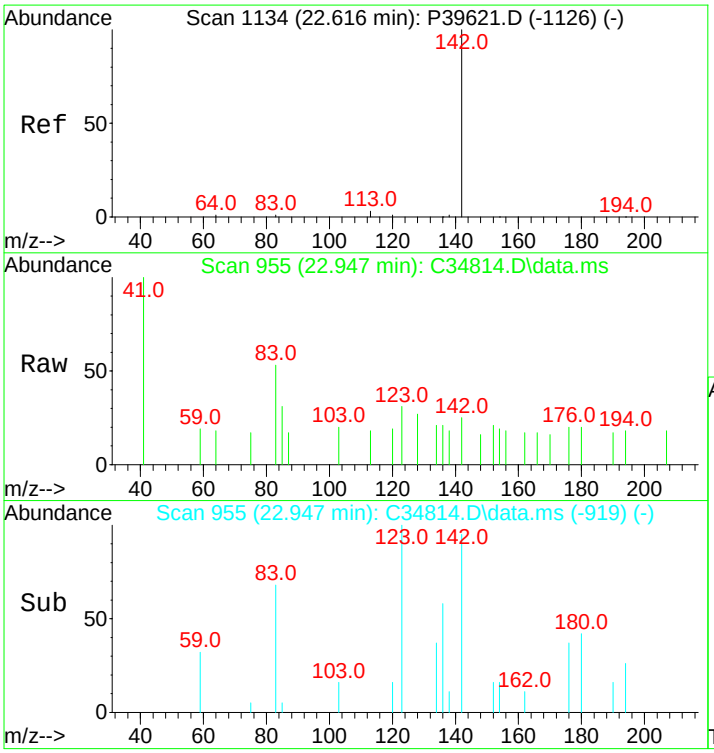


#10
Naphthalene
Concen: 1.20 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:128 Resp: 121

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

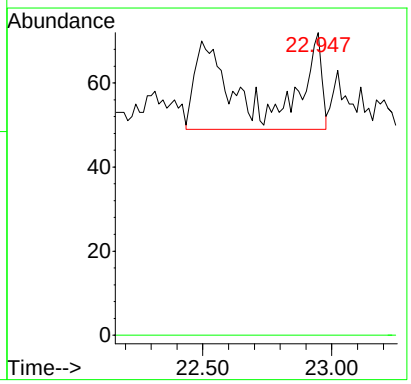


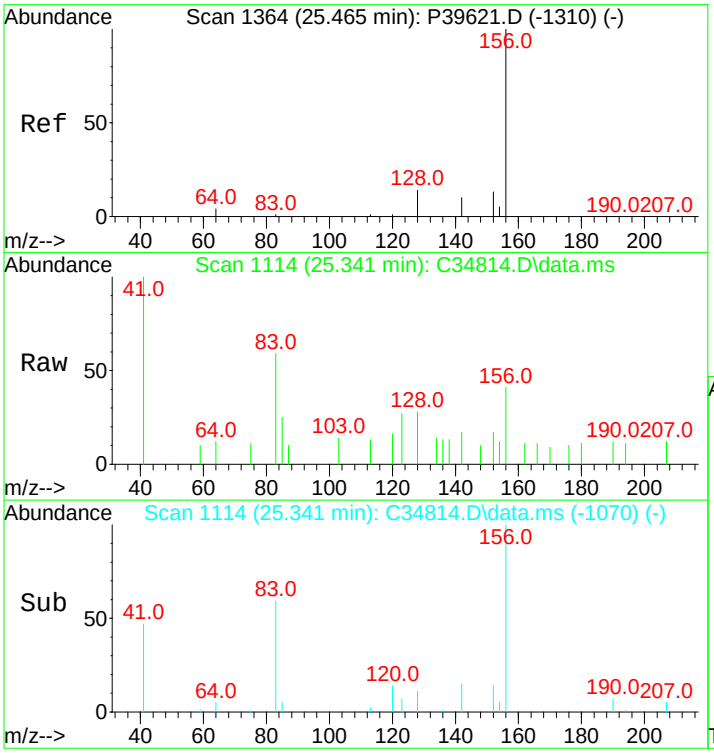


#11
C1-Naphthalenes
Concen: 3.22 ng/mL m
RT: 22.947 min Scan# 955
Delta R.T. 0.433 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:142 Resp: 323

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

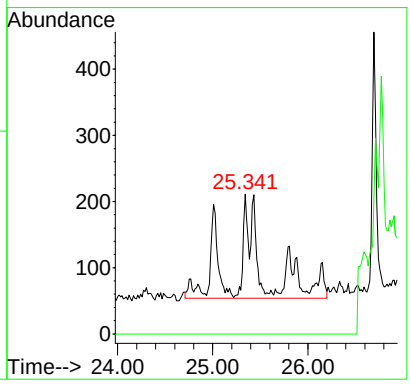


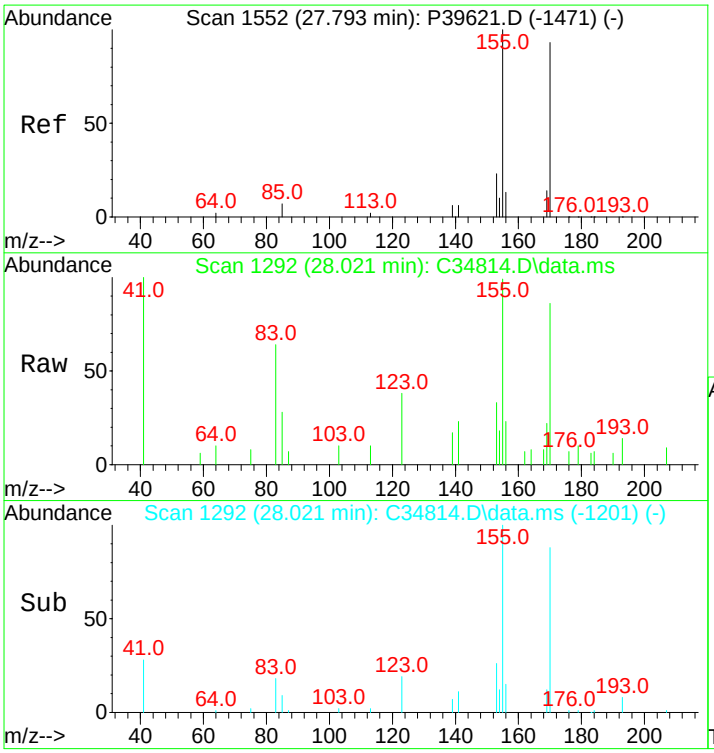


#12
C2-Naphthalenes
Concen: 29.66 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:156 Resp: 2980

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

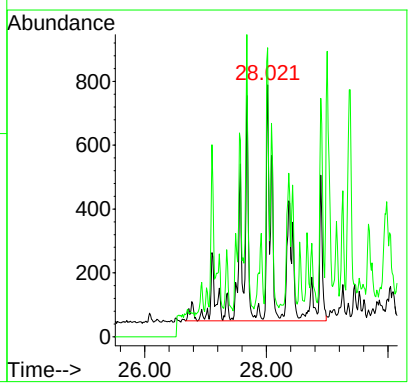


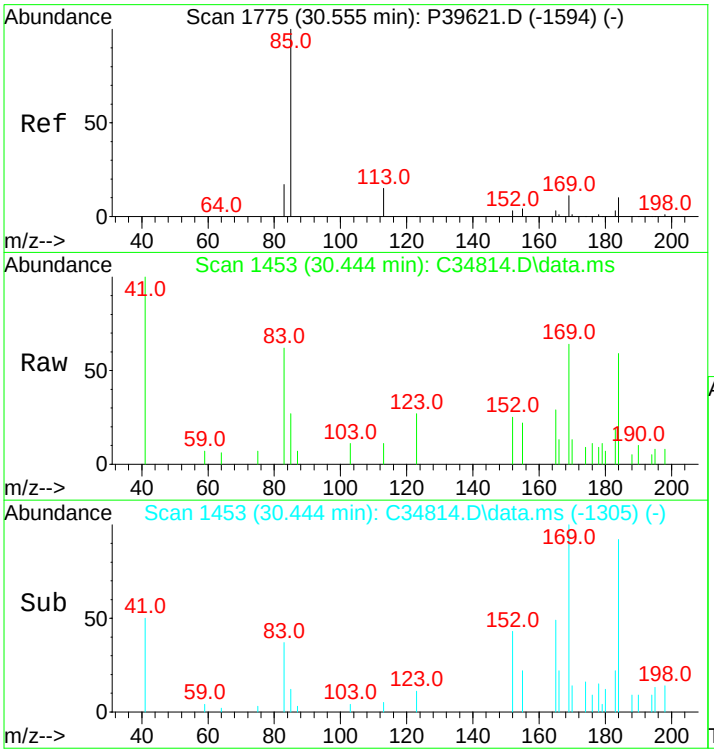


#13
C3-Naphthalenes
Concen: 137.64 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.350 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:170 Resp: 13827

Ion	Ratio	Lower	Upper
170	100		
155	17.1	81.8	122.6#

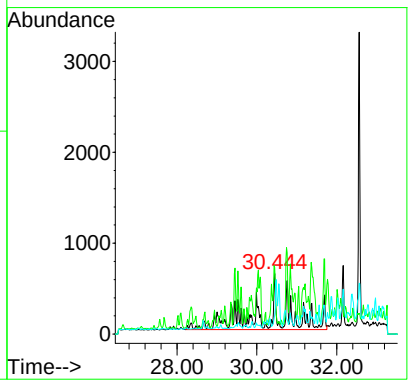


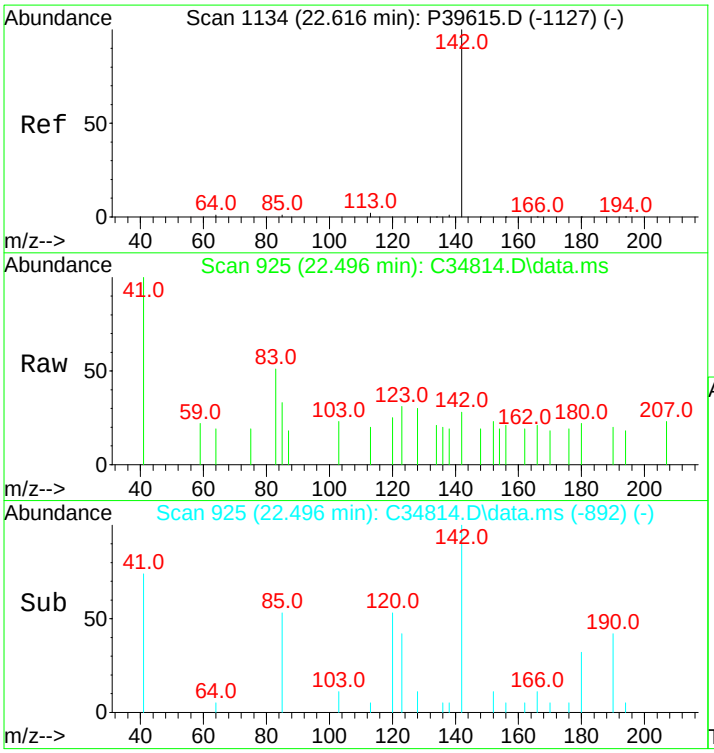


#14
C4-Naphthalenes
Concen: 211.24 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:184 Resp: 21221

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

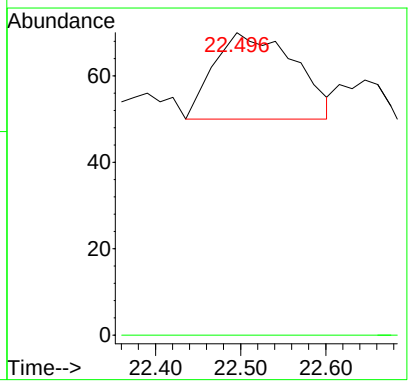


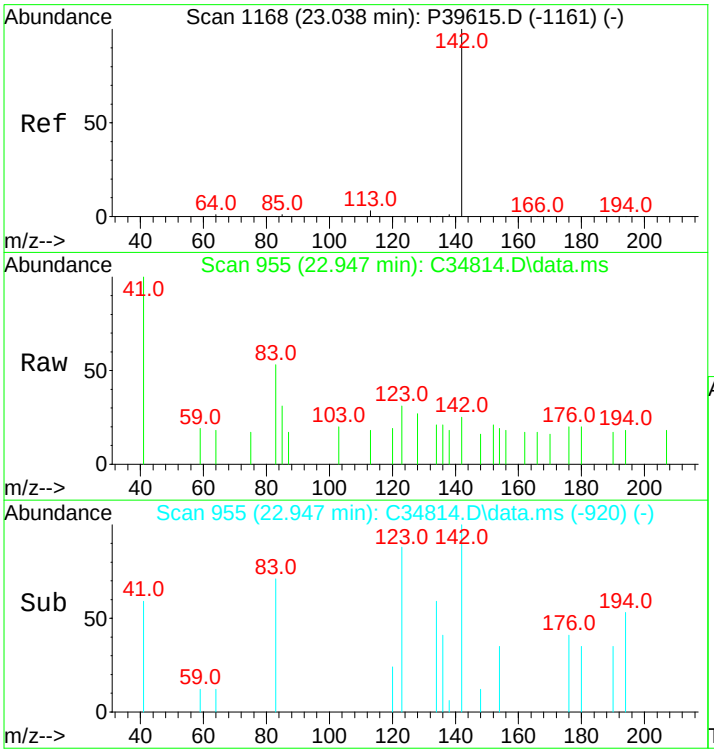


#16
2-Methylnaphthalene
Concen: 2.24 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:142 Resp: 133

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

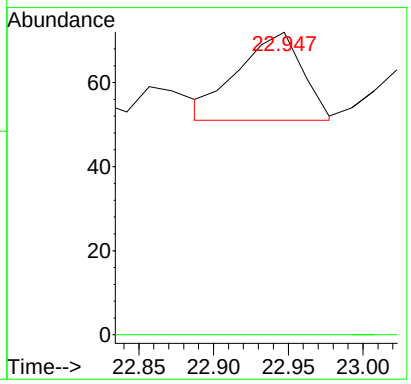


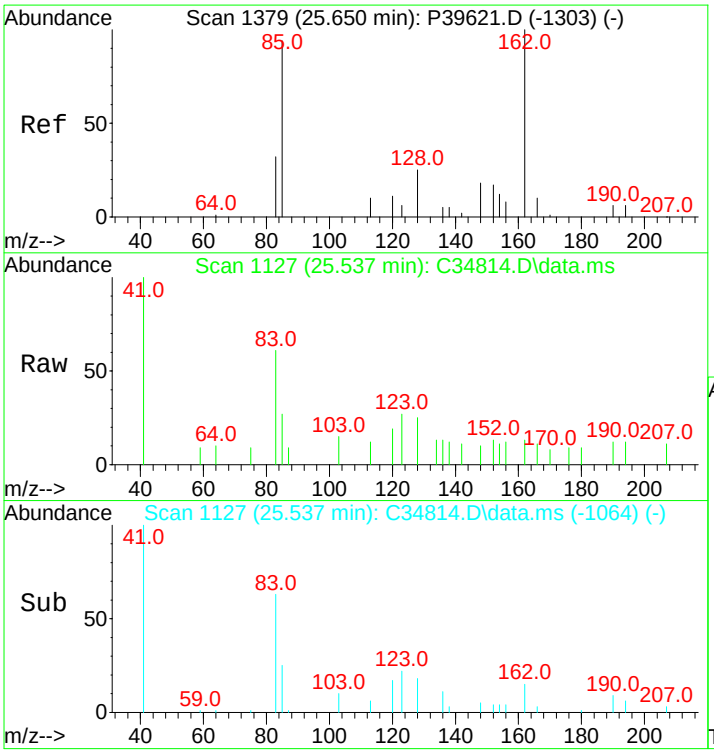


#17
1-Methylnaphthalene
Concen: 1.06 ng/mL m
RT: 22.947 min Scan# 955
Delta R.T. 0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:142 Resp: 62

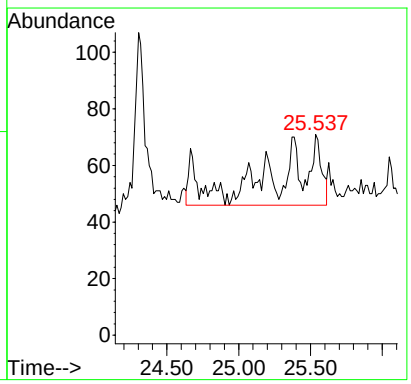
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

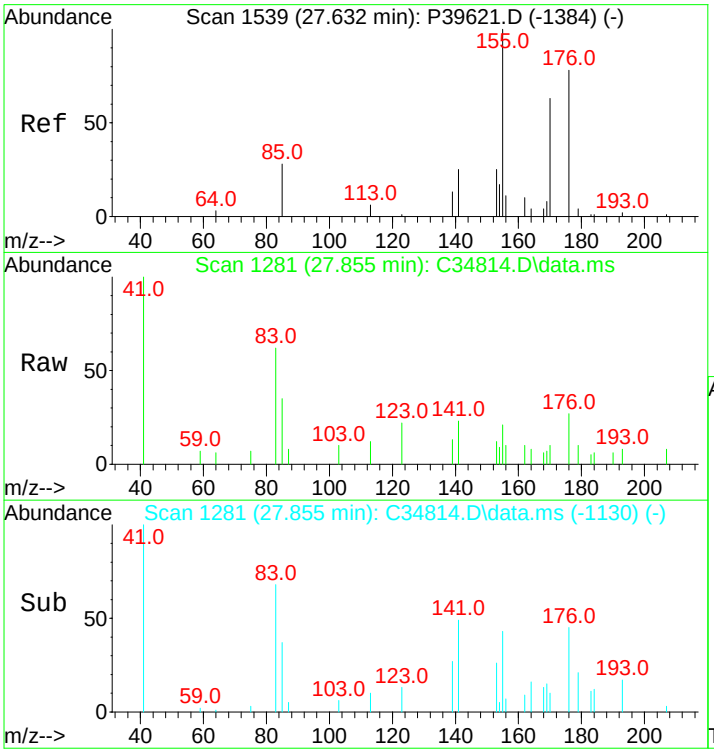




#20
C2-Benzo(b)thiophenes
Concen: 5.97 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

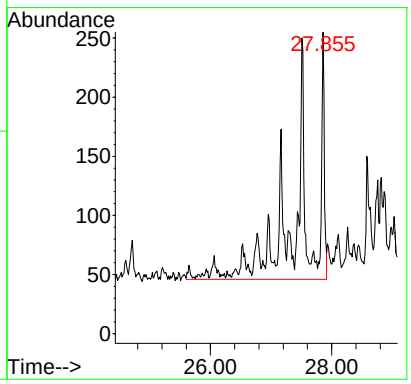
Tgt Ion:162 Resp: 540

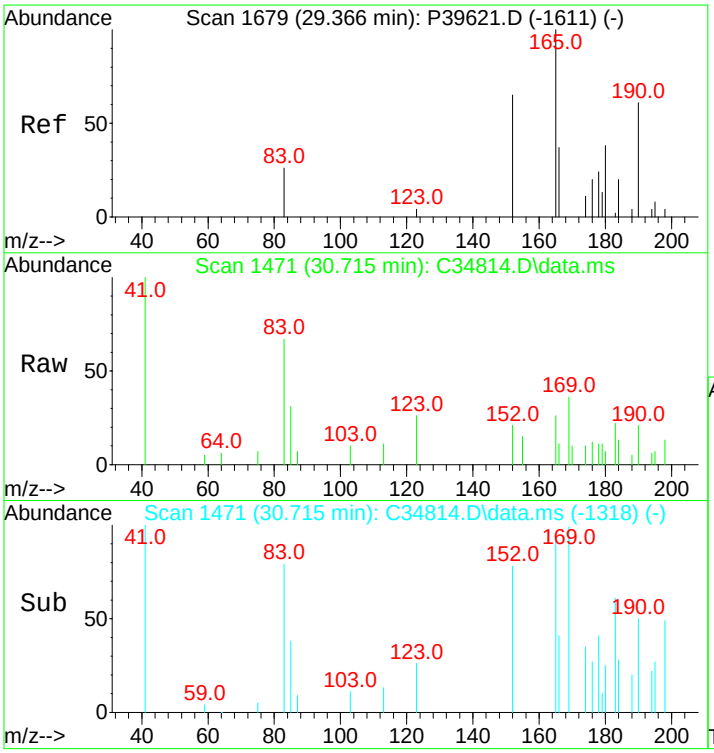




#21
C3-Benzo(b)thiophenes
Concen: 37.04 ng/mL m
RT: 27.855 min Scan# 1281
Delta R.T. 0.350 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

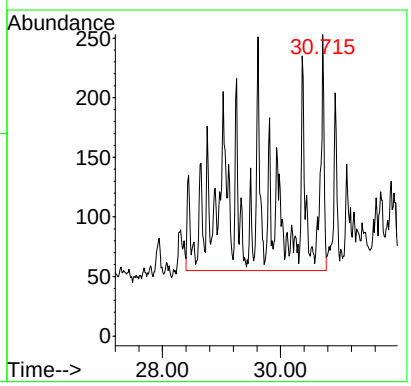
Tgt Ion:176 Resp: 3348

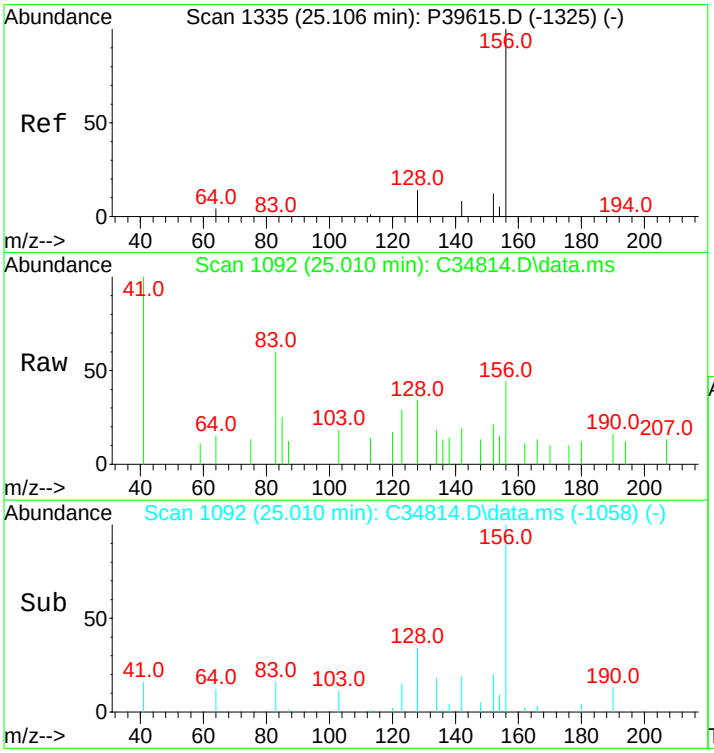




#22
C4-Benzo(b)thiophenes
Concen: 76.87 ng/mL m
RT: 30.715 min Scan# 1471
Delta R.T. 1.486 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:190 Resp: 6949

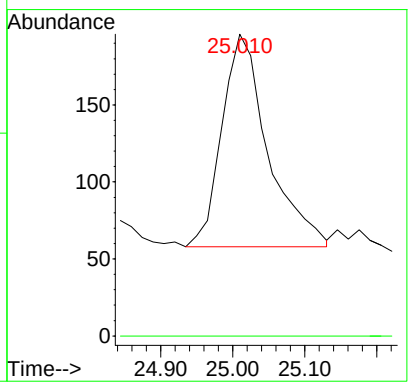


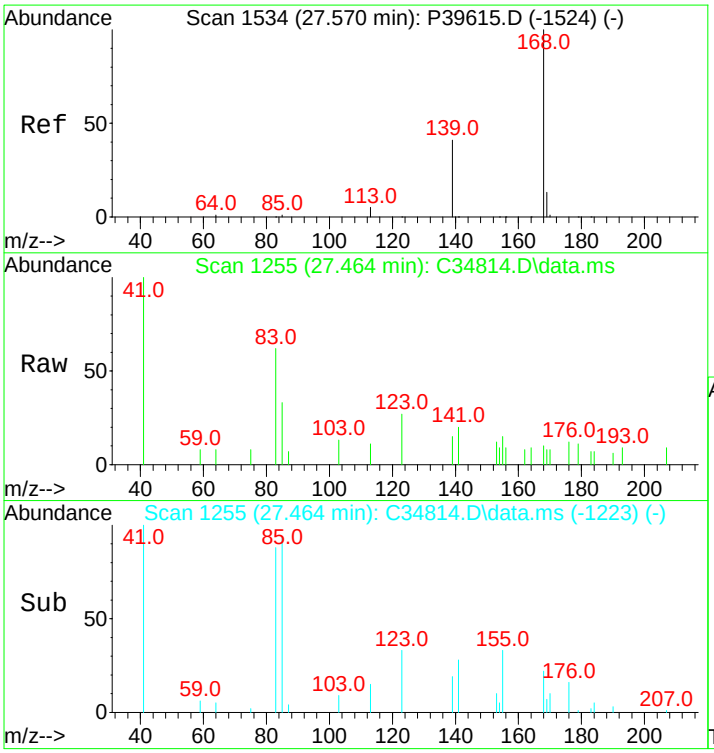


#24
2,6-Dimethylnaphthalene
Concen: 12.50 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:156 Resp: 610

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

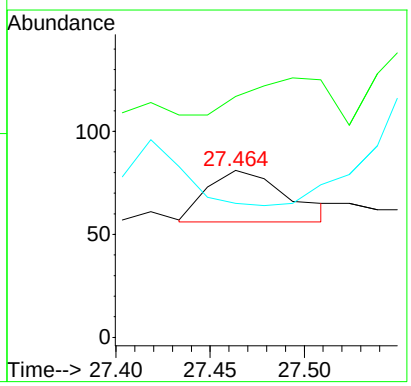


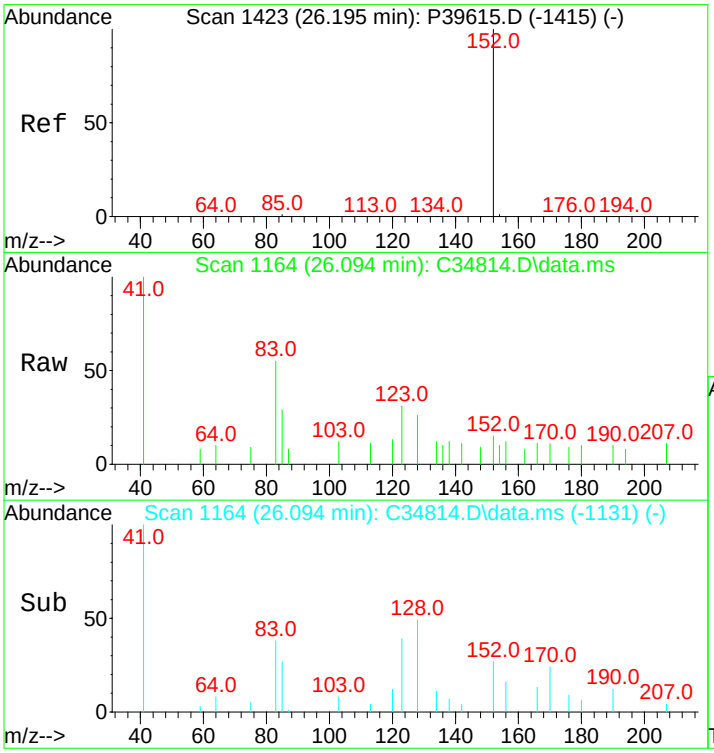


#25
Dibenzofuran
Concen: 0.86 ng/mL m
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:168 Resp: 74

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

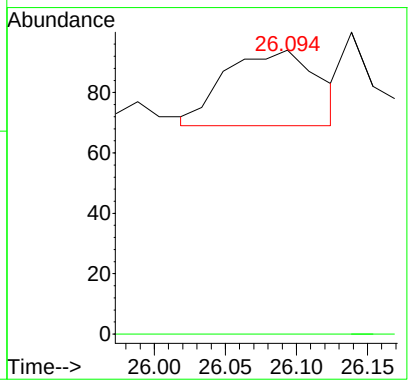


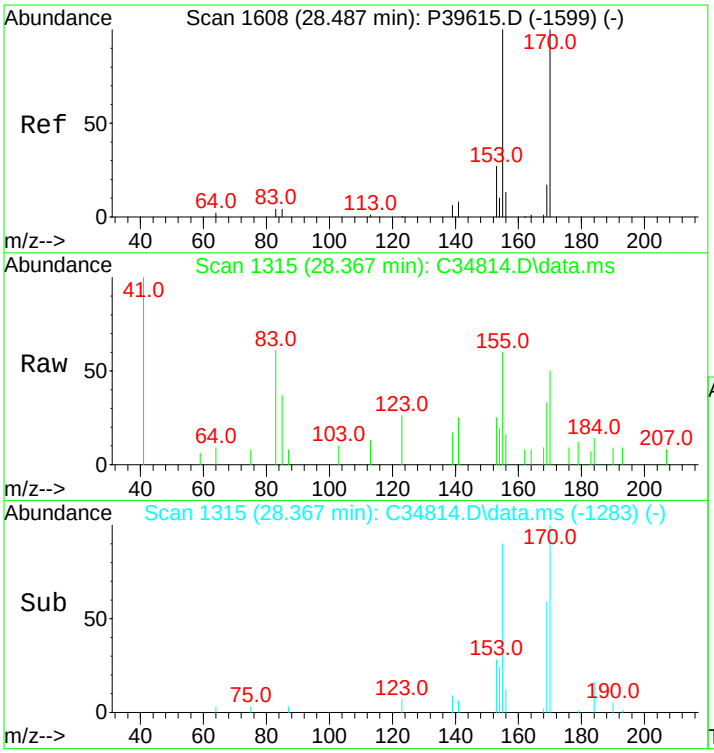


#26
Acenaphthylene
Concen: 1.13 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:152 Resp: 113

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

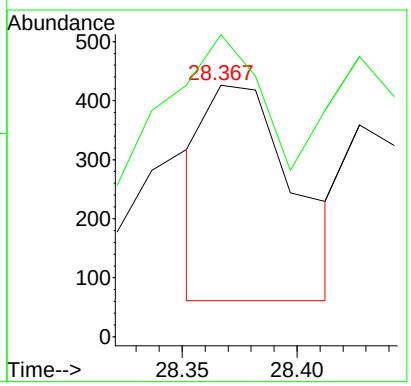


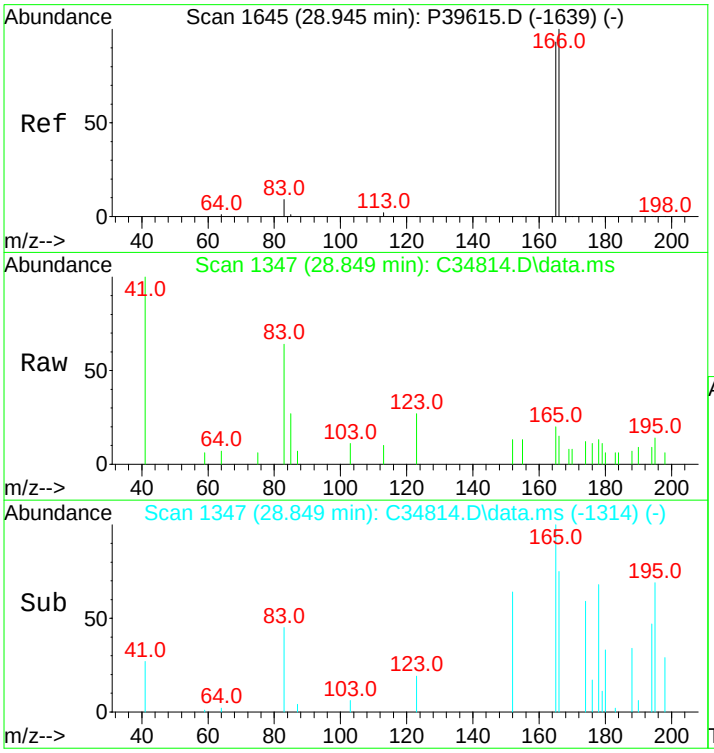


#28
2,3,5-Trimethylnaphthalene
Concen: 24.63 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:170 Resp: 969

Ion	Ratio	Lower	Upper
170	100		
155	163.4	87.3	130.9#

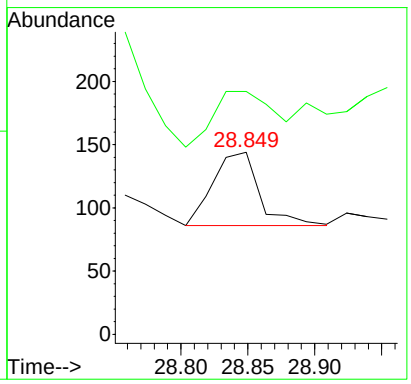


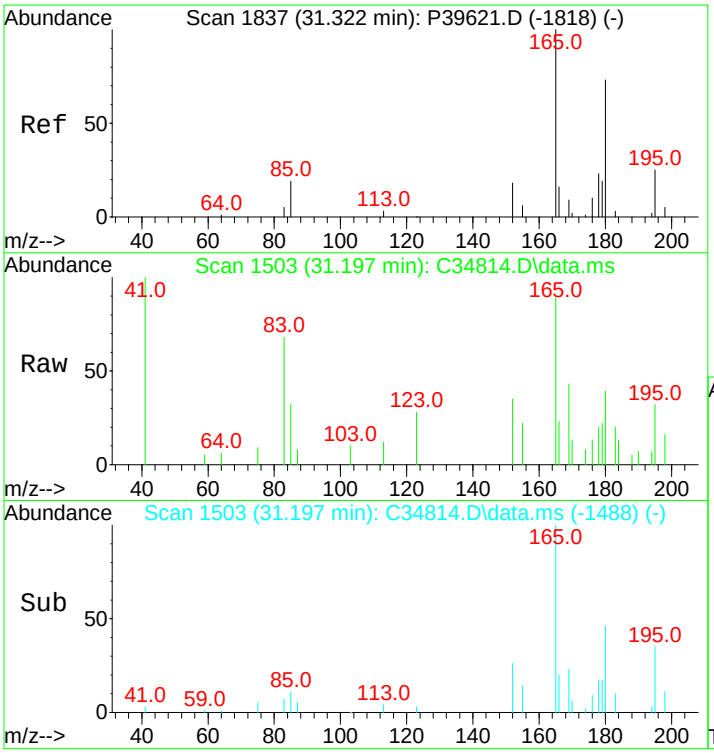


#29
Fluorene
Concen: 2.18 ng/mL
RT: 28.849 min Scan# 1347
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:166 Resp: 141

Ion	Ratio	Lower	Upper
166	100		
165	0.0	77.3	115.9#

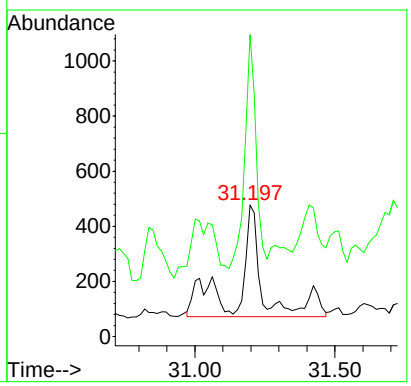


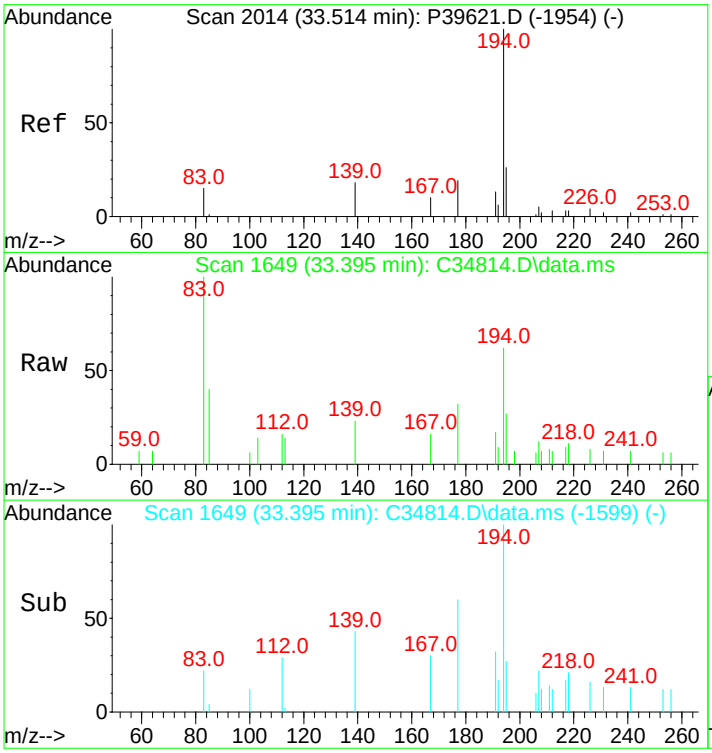


#30
C1-Fluorenes
Concen: 38.64 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:180 Resp: 2502

Ion	Ratio	Lower	Upper
180	100		
165	95.5	111.4	167.2#

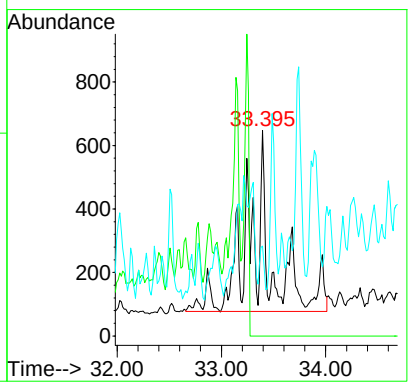


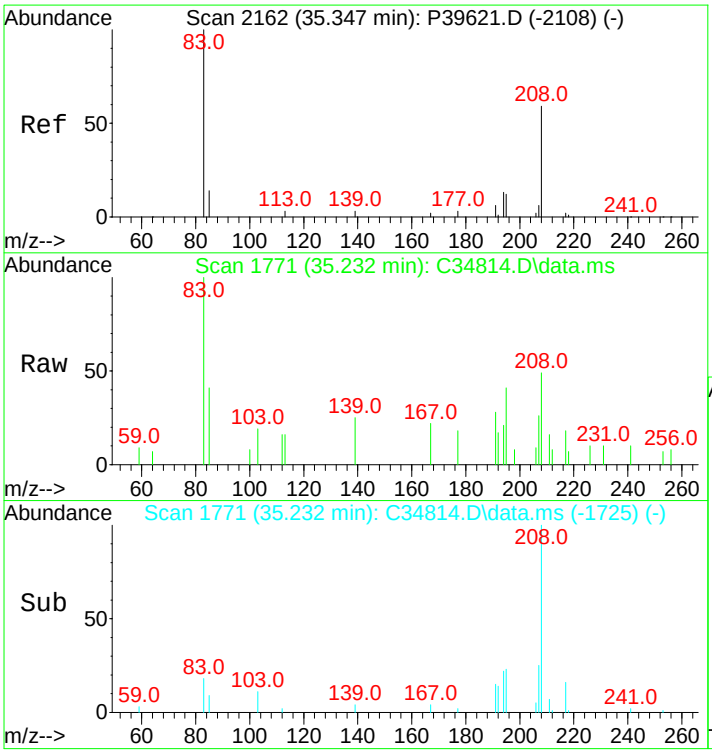


#31
C2-Fluorenes
Concen: 127.32 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:194 Resp: 8245

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.6	27.3	40.9#

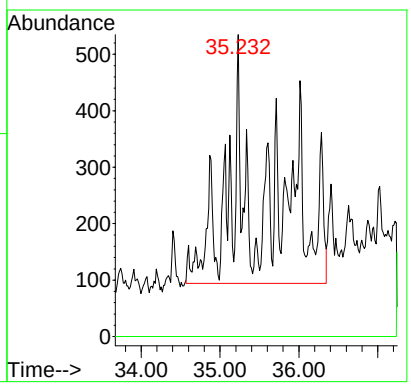


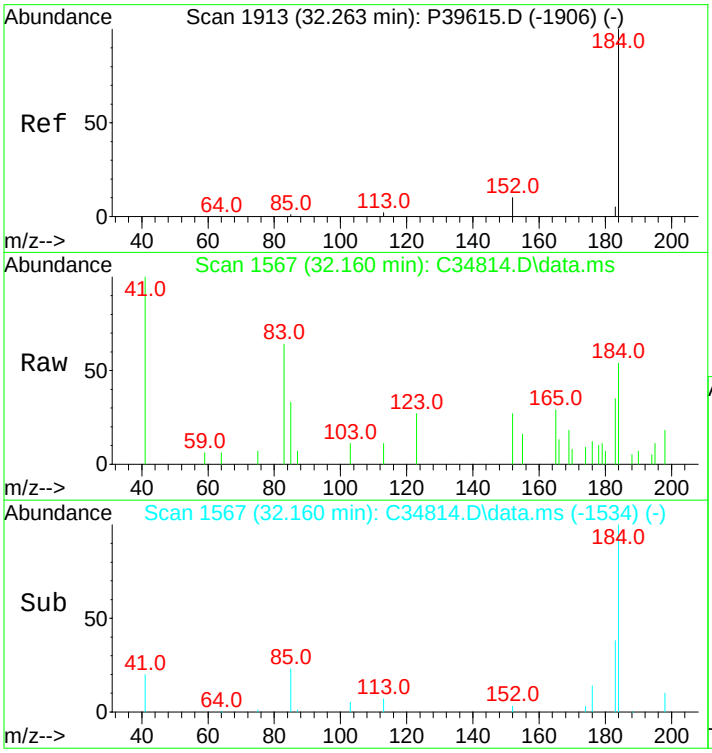


#32
C3-Fluorenes
Concen: 195.48 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:208 Resp: 12659

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

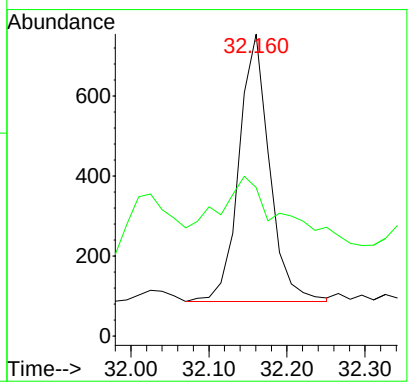


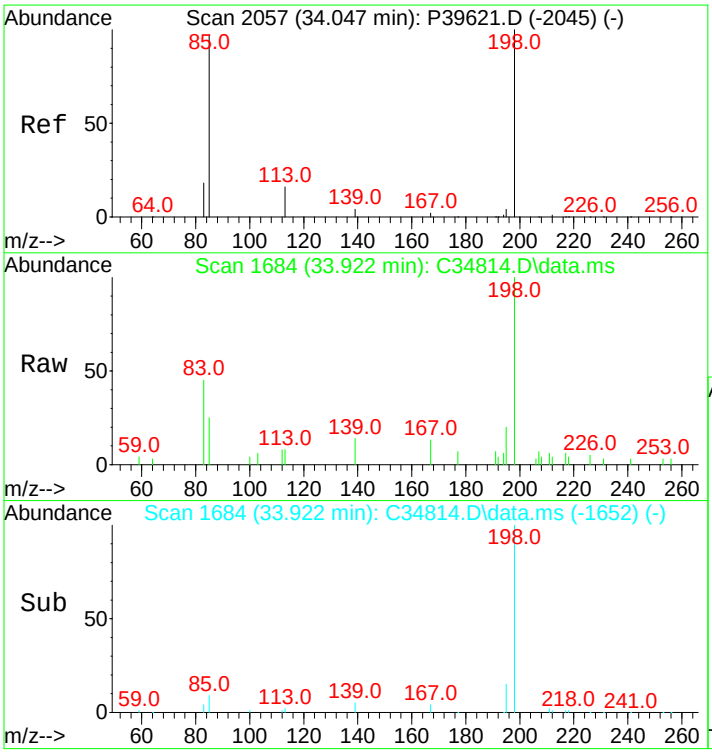


#33
Dibenzothiophene
Concen: 17.52 ng/mL
RT: 32.160 min Scan# 1567
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:184 Resp: 1819

Ion	Ratio	Lower	Upper
184	100		
152	54.4	7.5	11.3#

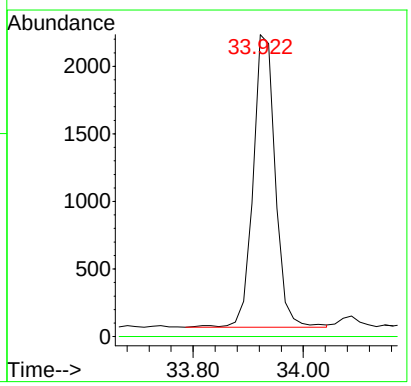


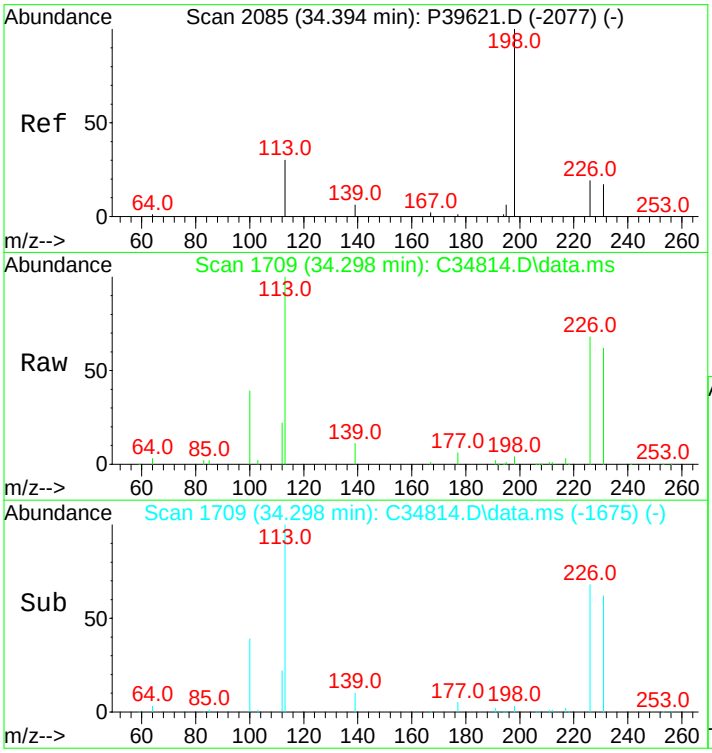


#34
4-Methyldibenzothiophene(4MDT)
Concen: 57.88 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:198 Resp: 6008

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

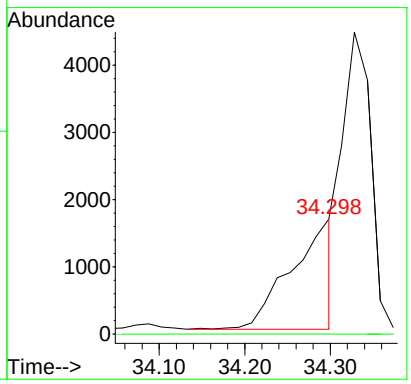


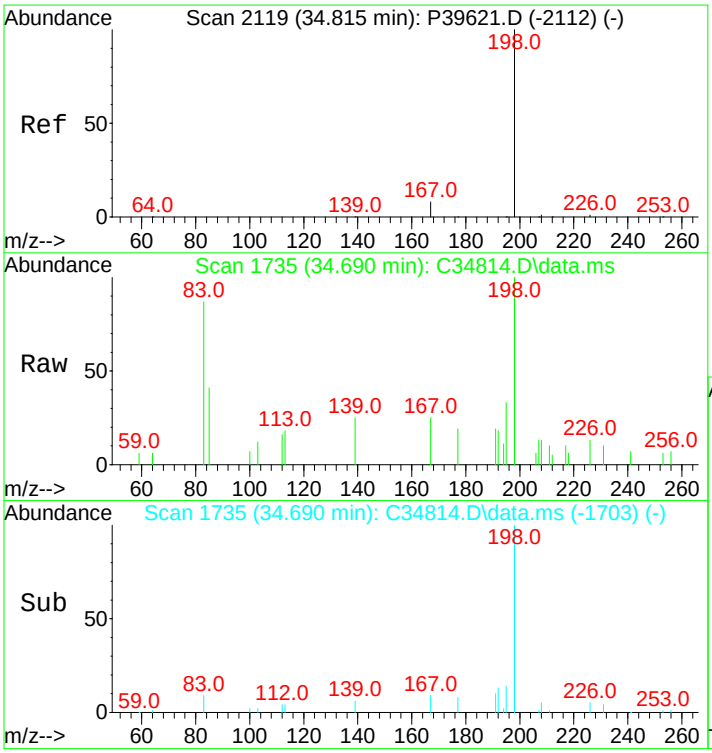


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 53.96 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:198 Resp: 5601

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

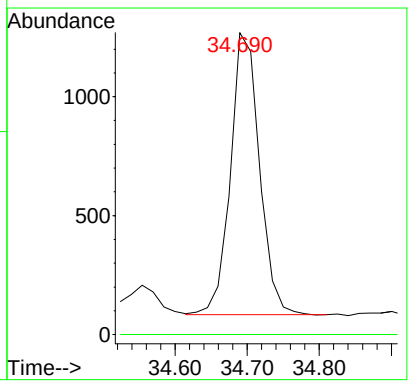


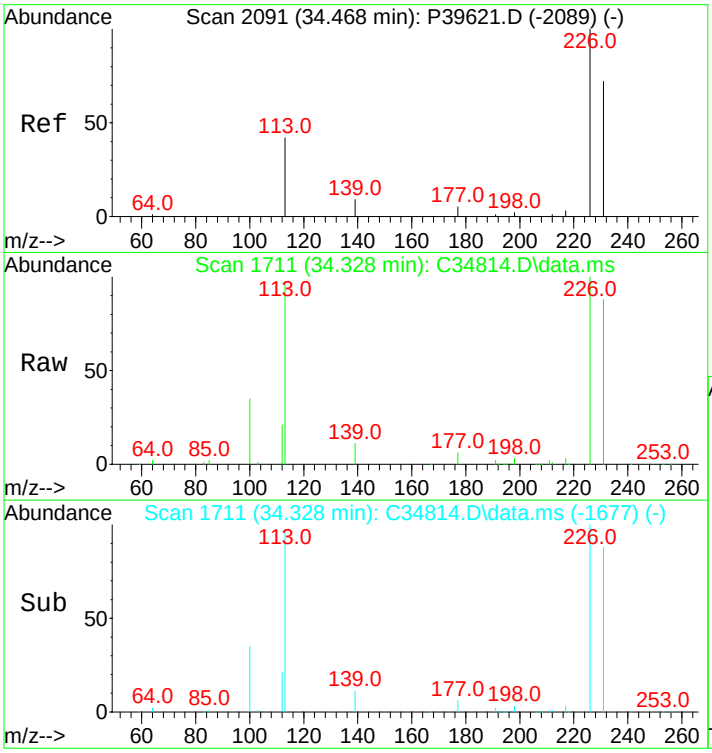


#36
1-Methyldibenzothiophene(1MDT)
Concen: 31.80 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:198 Resp: 3301

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

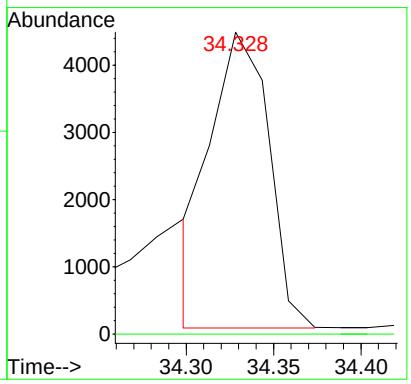


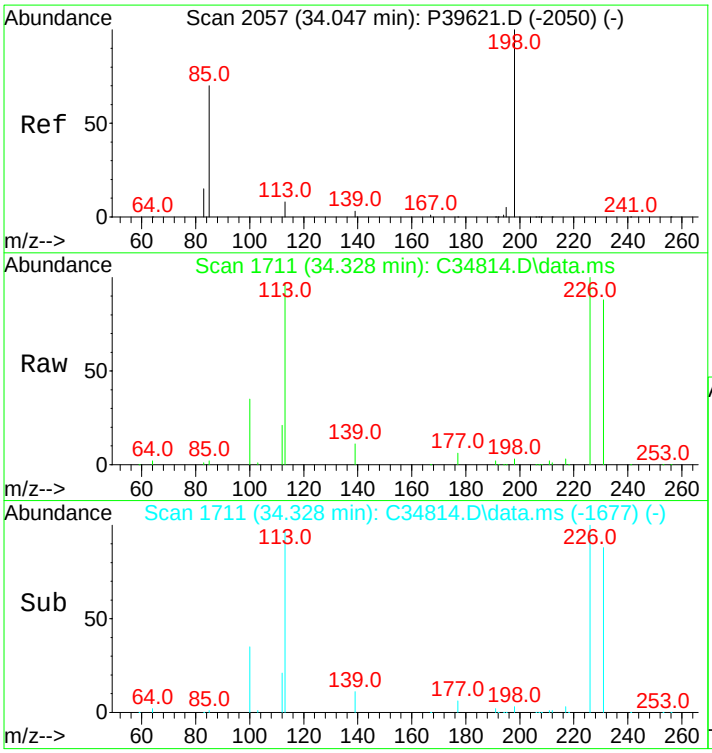


#37
OTP
Concen: 97.63 ng/mL m
RT: 34.328 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:198 Resp: 10135

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

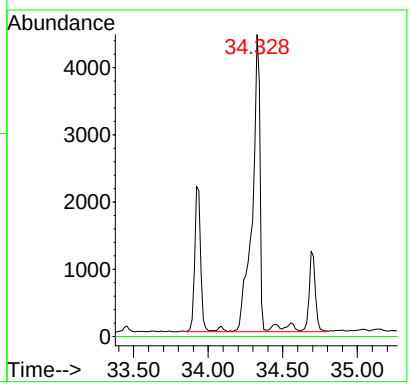


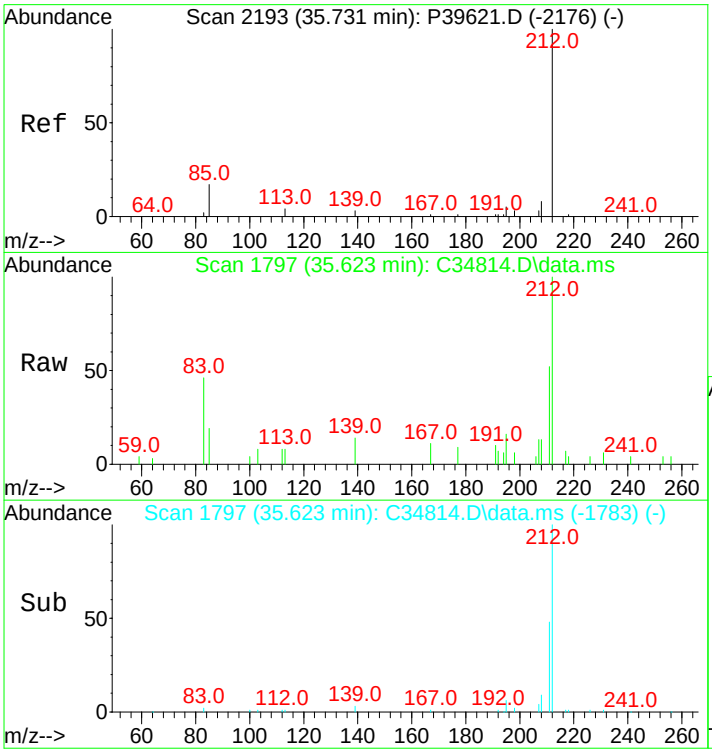


#38
C1-Dibenzothiophenes
Concen: 253.97 ng/mL m
RT: 34.328 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:198 Resp: 26364

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

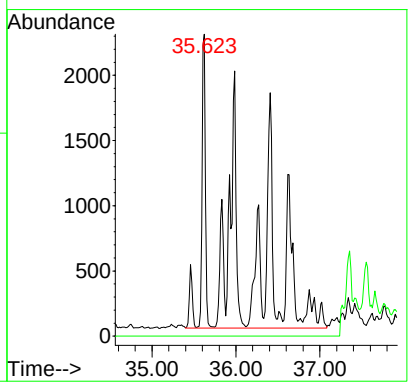


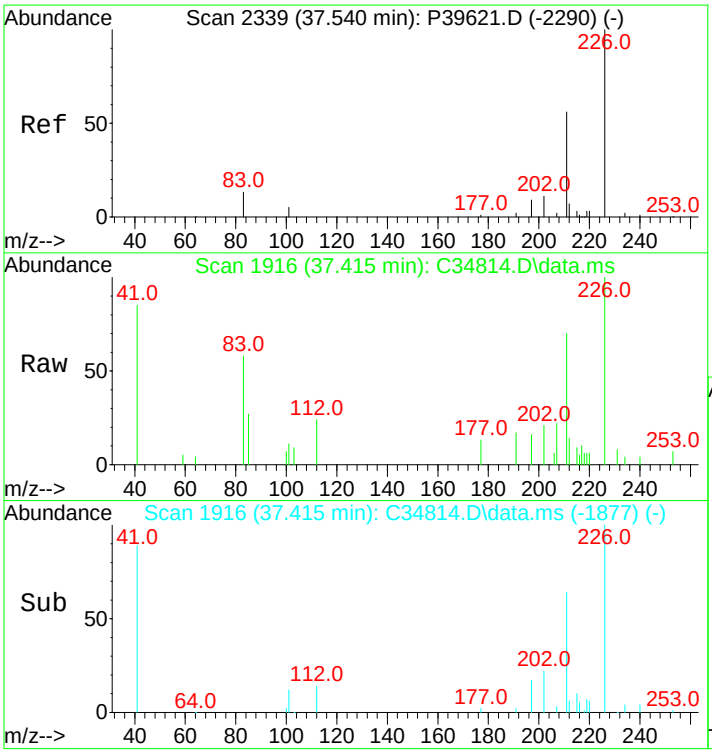


#39
C2-Dibenzothiophenes
Concen: 365.21 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:212 Resp: 37911

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

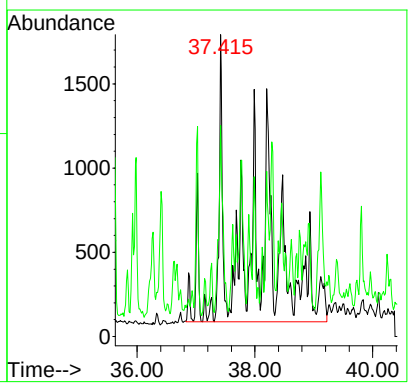


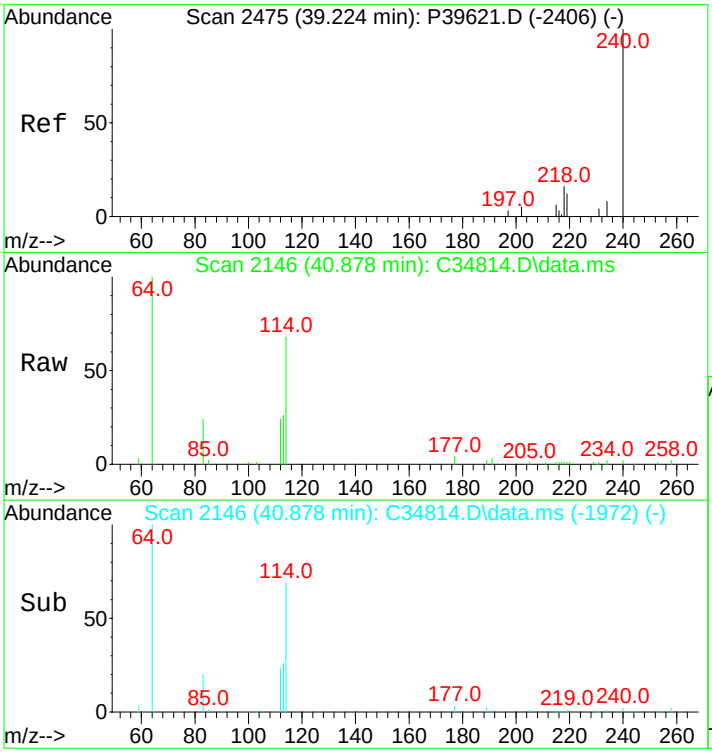


#40
C3-Dibenzothiophenes
Concen: 422.97 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:226 Resp: 43907

Ion	Ratio	Lower	Upper
226	100		
211	12.6	45.0	67.6#

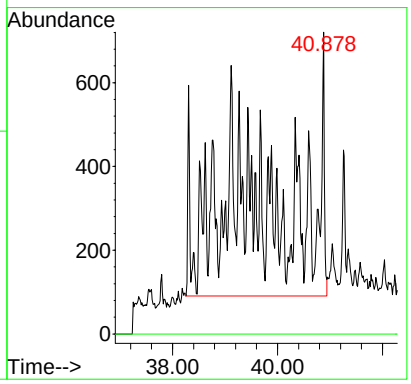


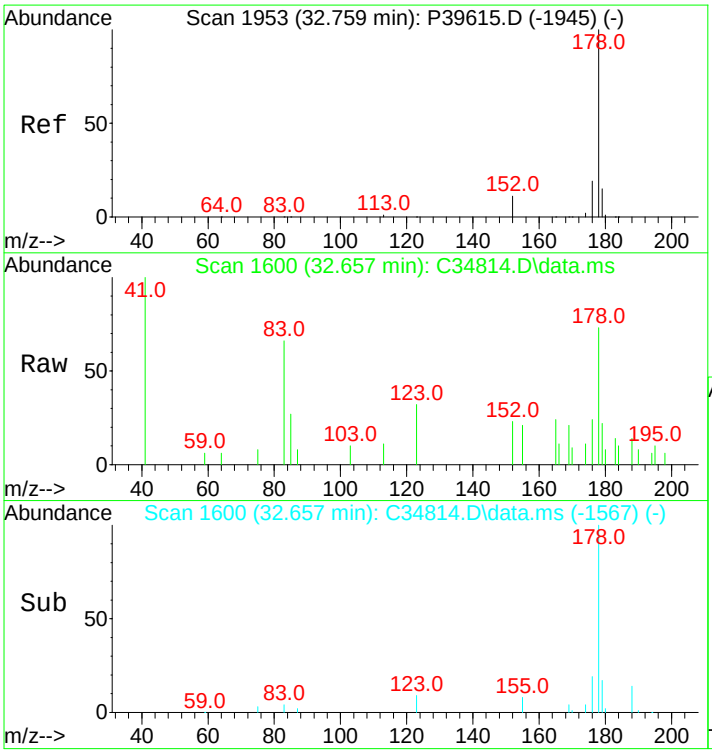


#41
C4-Dibenzothiophenes
Concen: 308.38 ng/mL m
RT: 40.878 min Scan# 2146
Delta R.T. 1.762 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:240 Resp: 32012

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

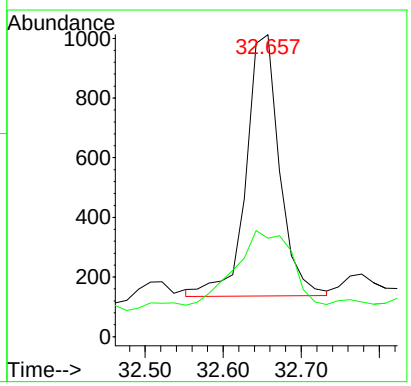


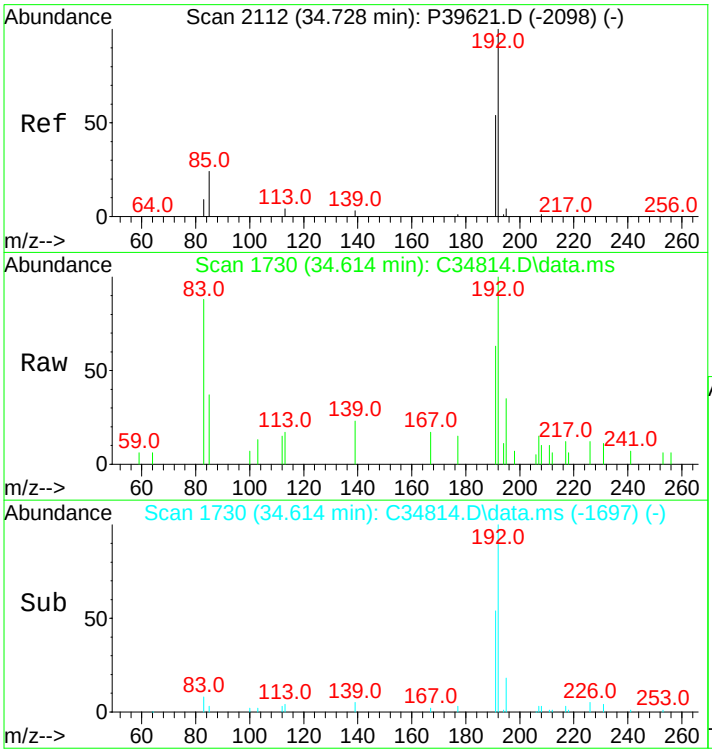


#43
Phenanthrene
Concen: 28.60 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:178 Resp: 2608

Ion	Ratio	Lower	Upper
178	100		
176	46.9	16.1	24.1#

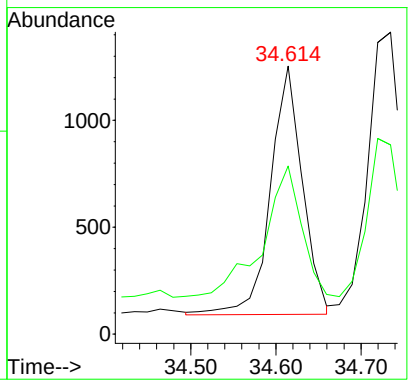


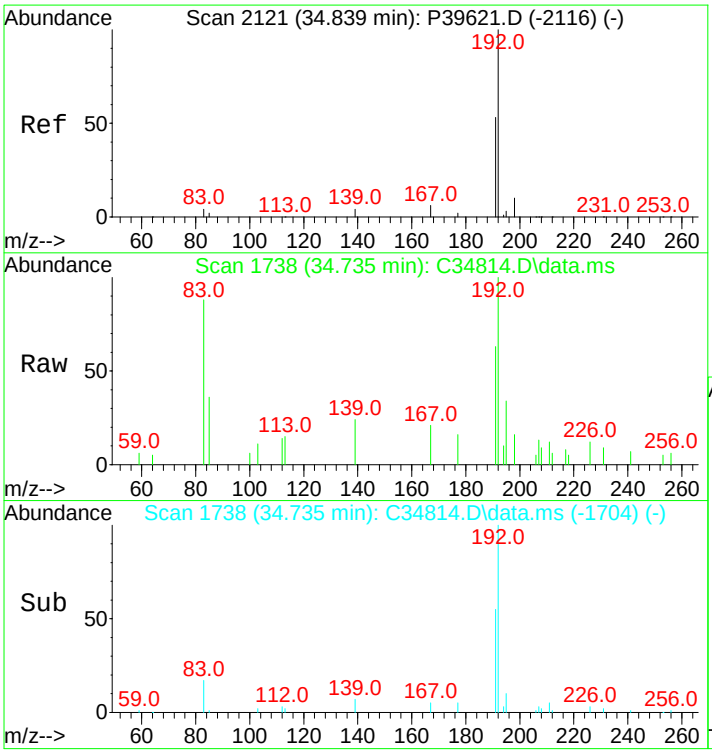


#44
3-Methylphenanthrene(3MP)
Concen: 33.17 ng/mL
RT: 34.614 min Scan# 1730
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 3025

Ion	Ratio	Lower	Upper
192	100		
191	64.2	46.9	70.3

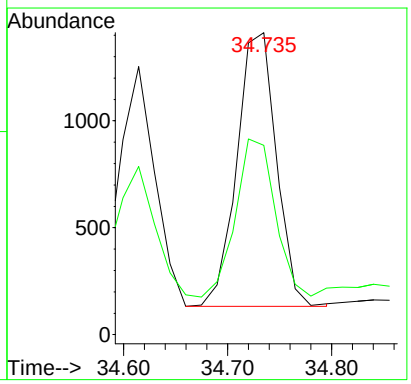


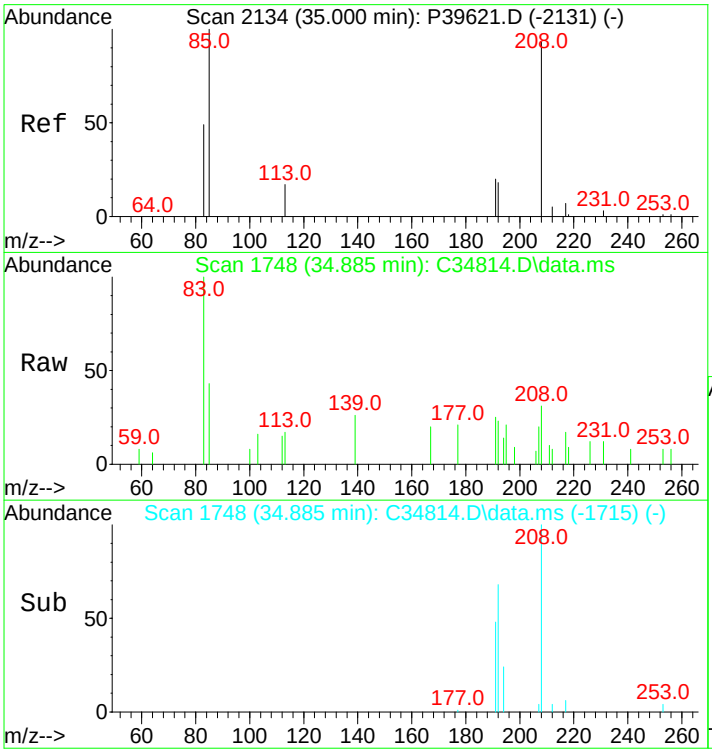


#45
2/4-Methylphenanthrene(2MP)
Concen: 37.17 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 3390

Ion	Ratio	Lower	Upper
192	100		
191	57.9	46.1	69.1

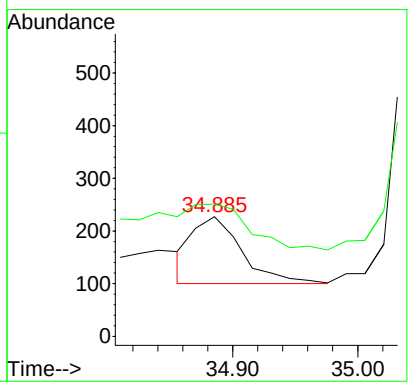


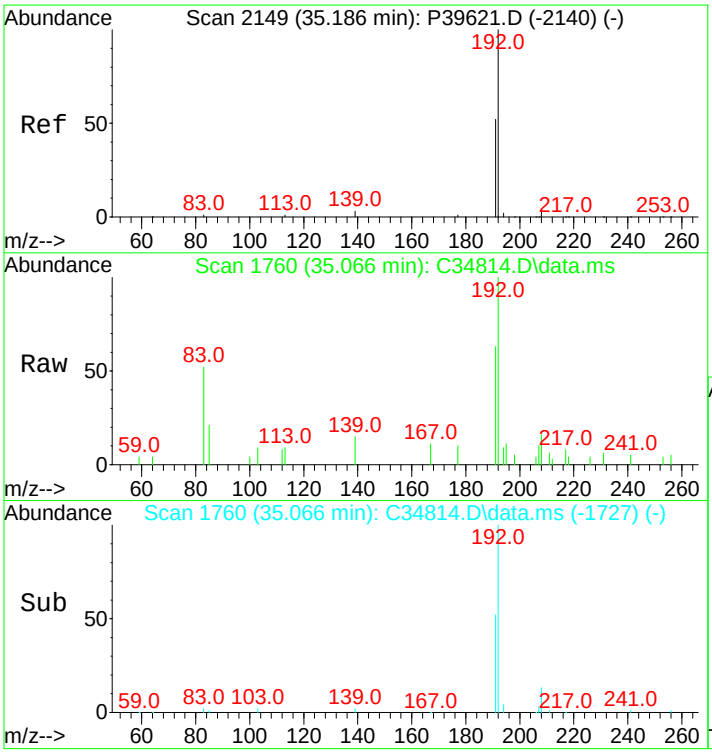


#46
2-Methylanthracene(2MA)
Concen: 3.84 ng/mL m
RT: 34.885 min Scan# 1748
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 350

Ion	Ratio	Lower	Upper
192	100		
191	159.4	93.4	140.0#

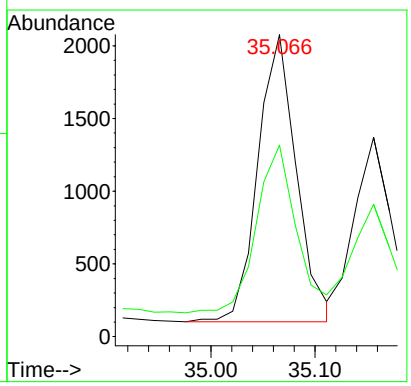


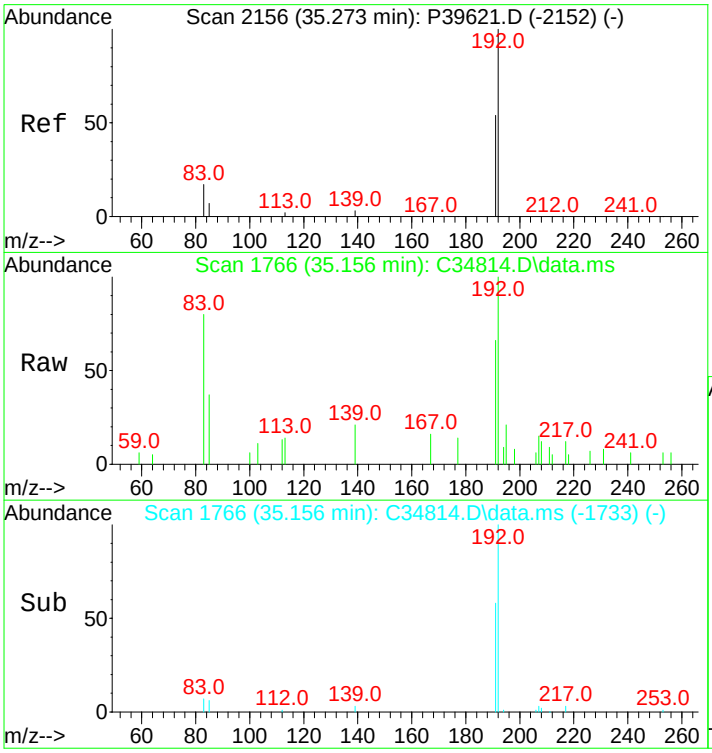


#47
9-Methylphenanthrene(9MP)
Concen: 55.90 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 5098

Ion	Ratio	Lower	Upper
192	100		
191	60.2	45.9	68.9

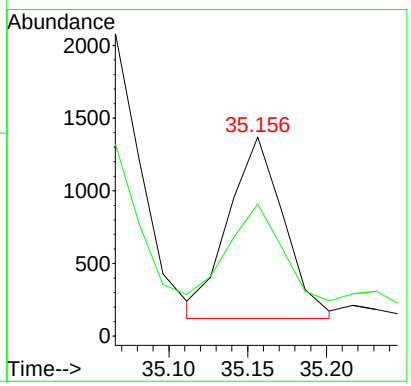


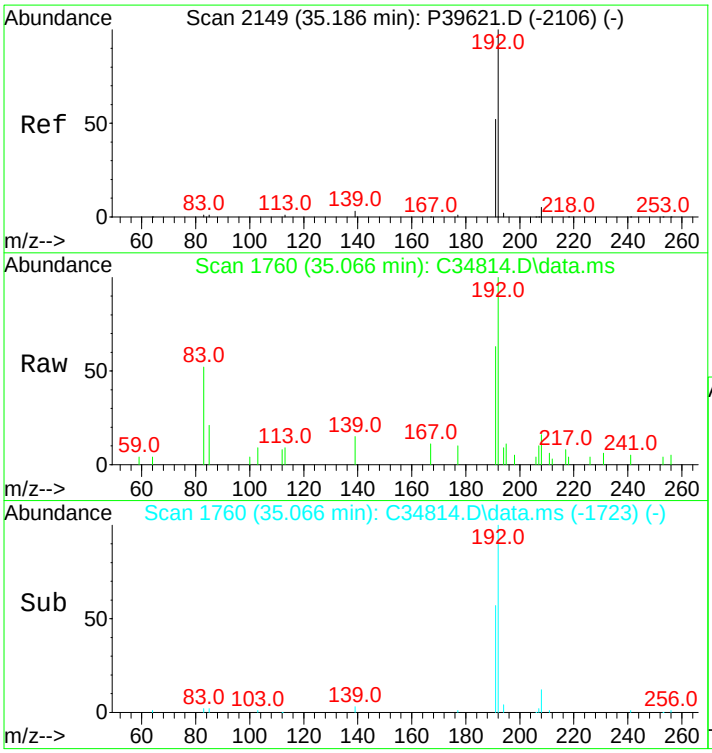


#48
1-Methylphenanthrene(1MP)
Concen: 33.35 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 3042

Ion	Ratio	Lower	Upper
192	100		
191	56.1	49.0	73.4

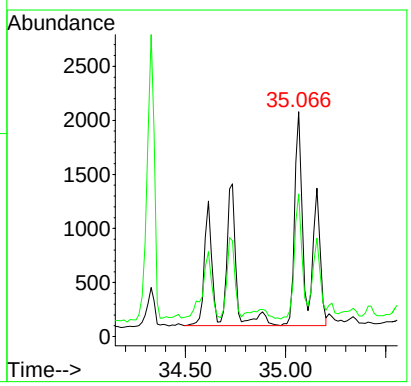


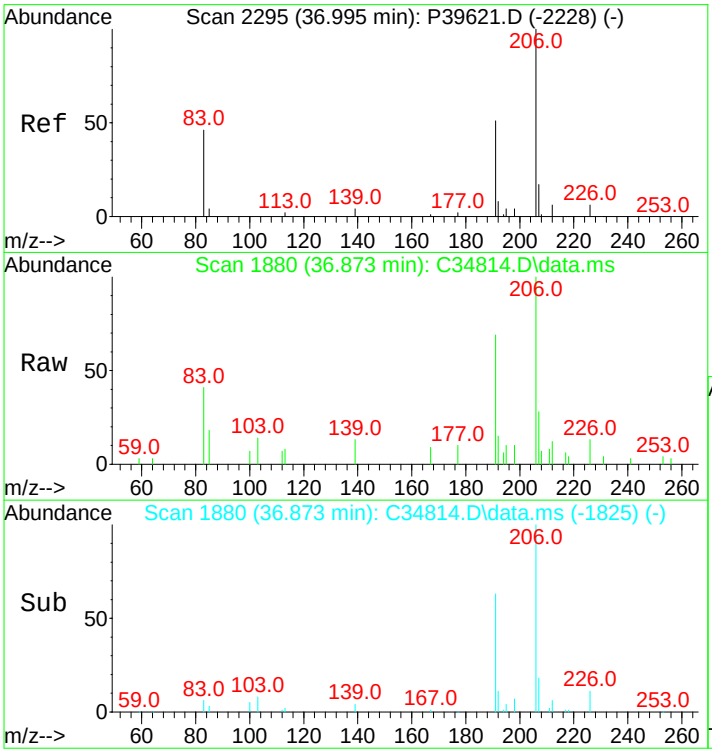


#49
C1-Phenanthrenes/Anthracenes
Concen: 169.16 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 15428

Ion	Ratio	Lower	Upper
192	100		
191	19.9	44.2	66.2#

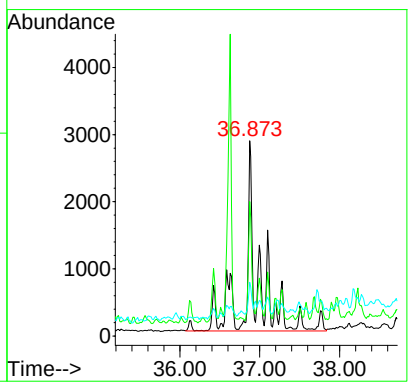


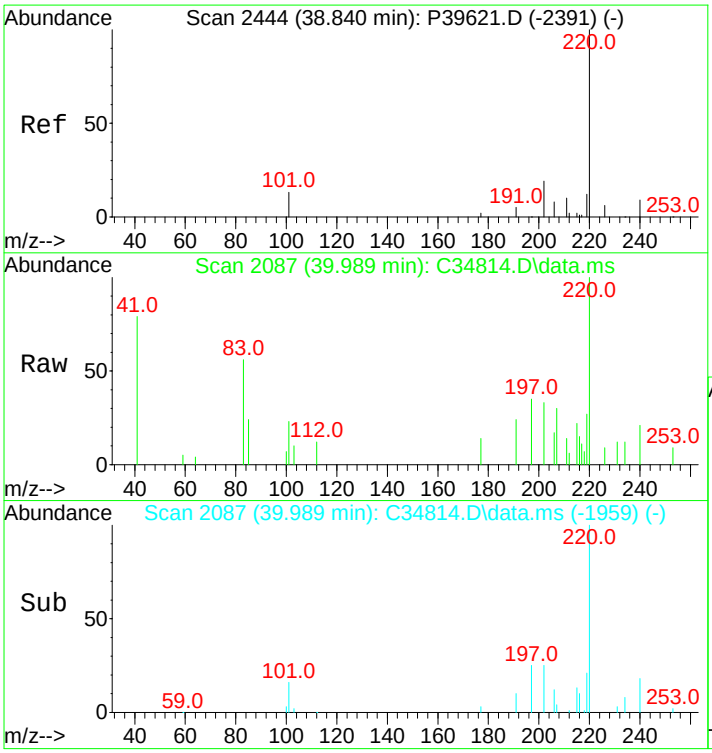


#50
C2-Phenanthrenes/Anthracenes
Concen: 327.23 ng/mL m
RT: 36.873 min Scan# 1880
Delta R.T. 0.060 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:206 Resp: 29844

Ion	Ratio	Lower	Upper
206	100		
191	17.3	44.0	66.0#
207	4.6	15.1	22.7#

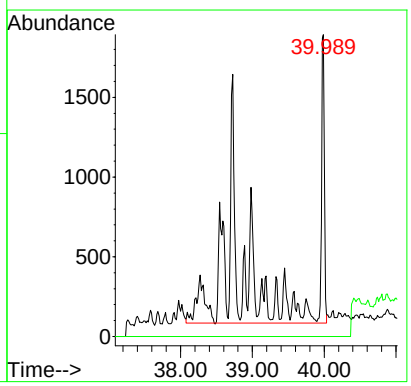


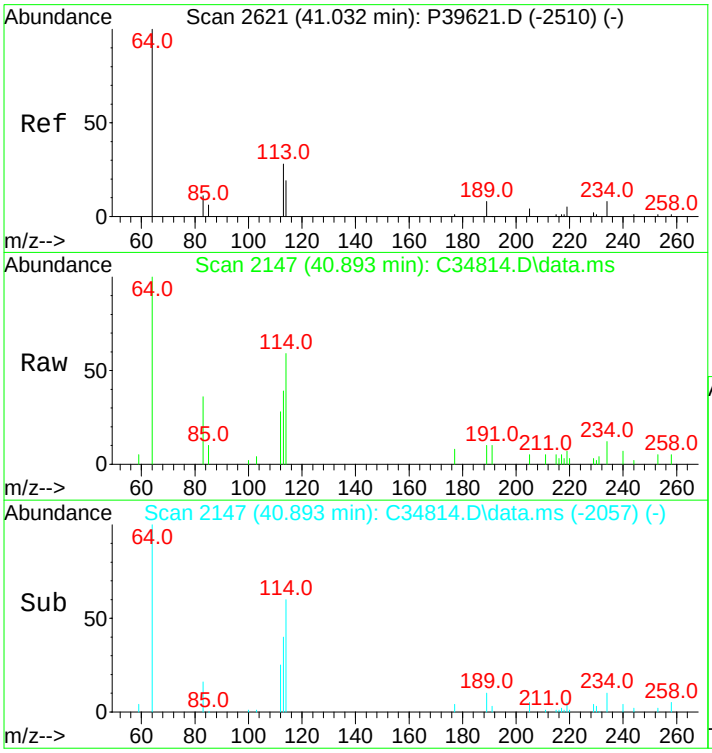


#52
C3-Phenanthrenes/Anthracenes
Concen: 290.42 ng/mL m
RT: 39.989 min Scan# 2087
Delta R.T. 1.348 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:220 Resp: 26487

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

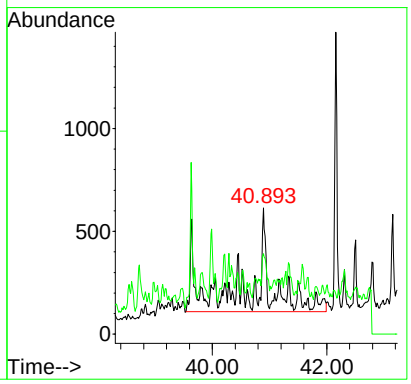


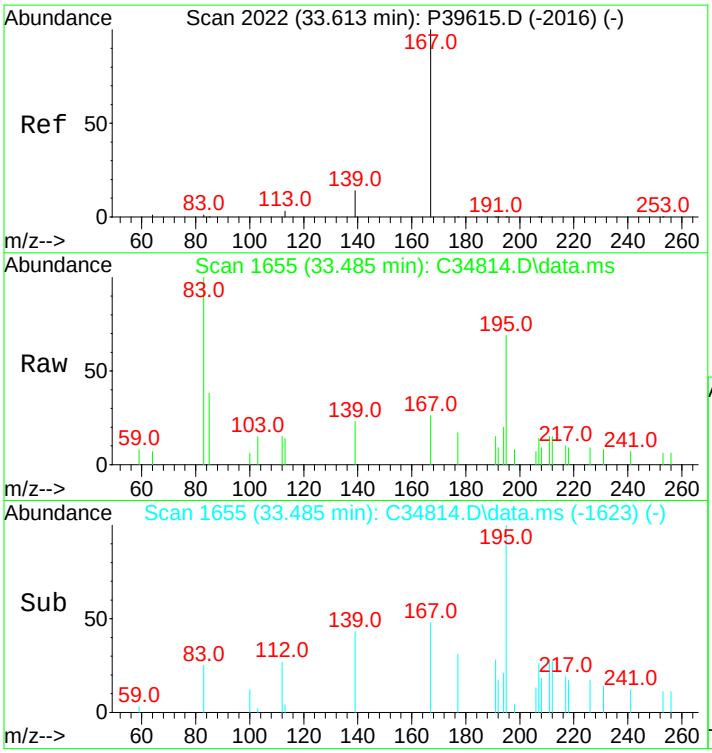


#53
C4-Phenanthrenes/Anthracenes
Concen: 143.93 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.093 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:234 Resp: 13127

Ion	Ratio	Lower	Upper
234	100		
219	2.6	46.9	70.3#

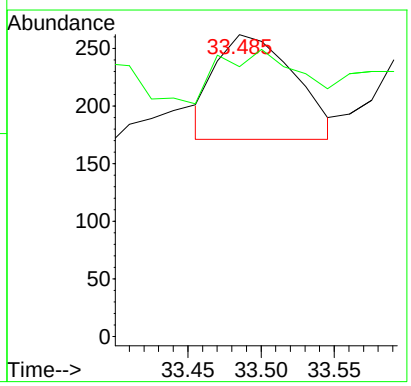


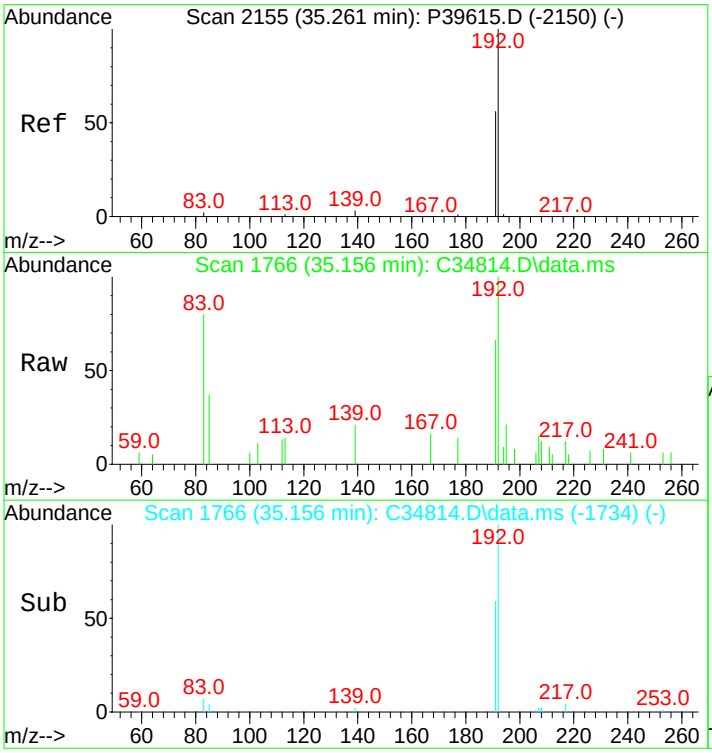


#56
Carbazole
Concen: 3.78 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:167 Resp: 340

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

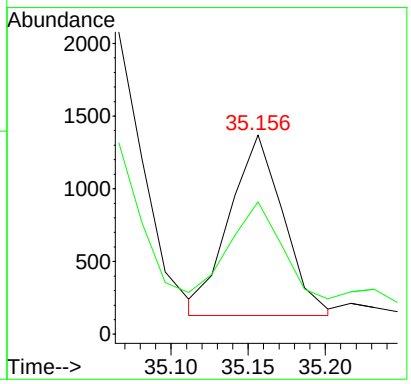


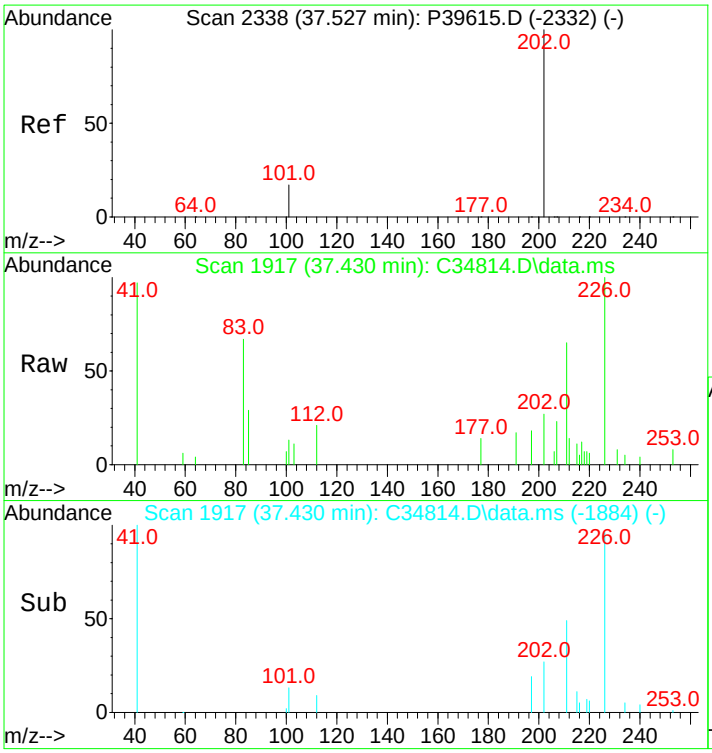


#57
1-Methylphenanthrene
Concen: 51.98 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:192 Resp: 3004

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.9	68.9

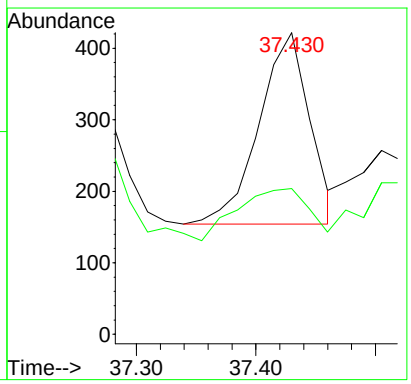


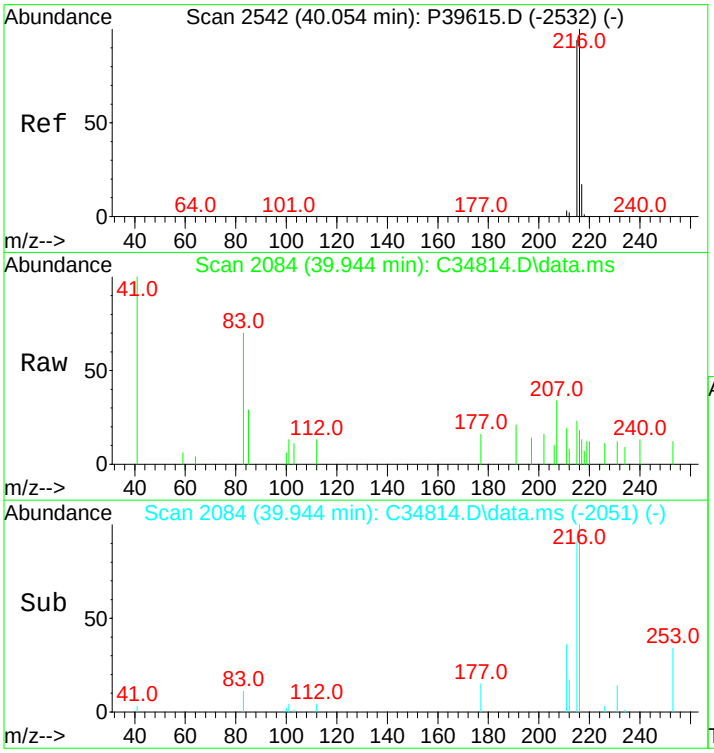


#58
Fluoranthene
Concen: 8.72 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:202 Resp: 790

Ion	Ratio	Lower	Upper
202	100		
101	80.0	12.9	19.3#

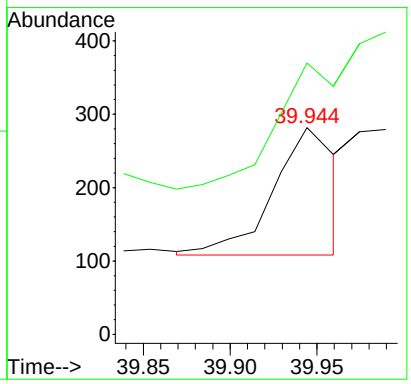


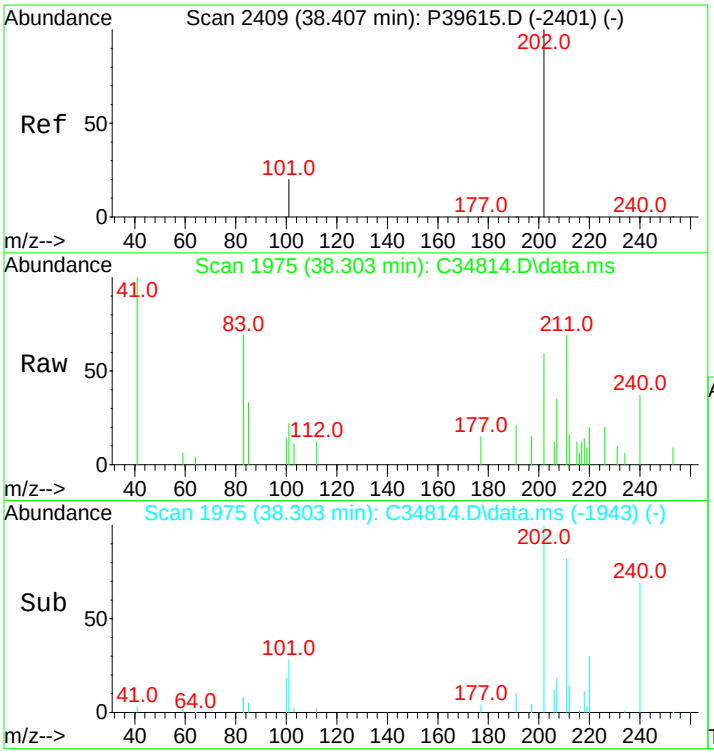


#59
Benzo(b)fluorene
Concen: 8.37 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:216 Resp: 440

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#

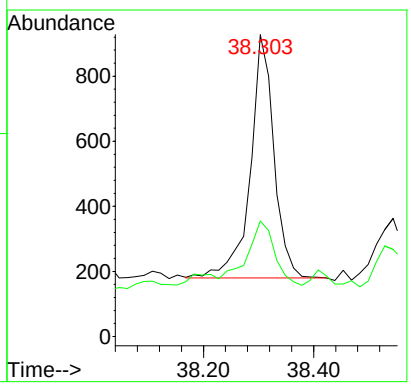


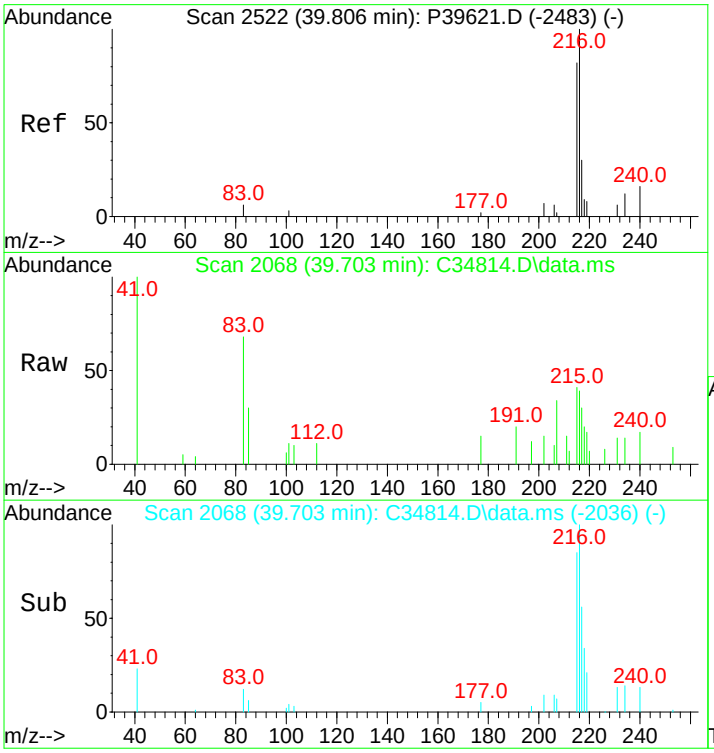


#60
Pyrene
Concen: 24.15 ng/mL
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:202 Resp: 2224

Ion	Ratio	Lower	Upper
202	100		
101	31.3	15.0	22.4#

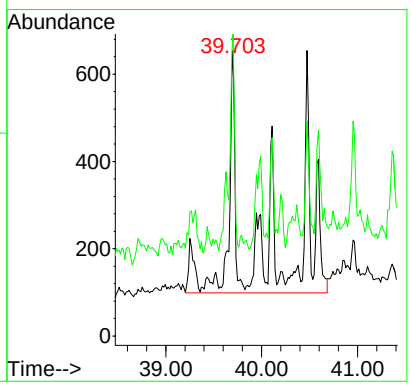


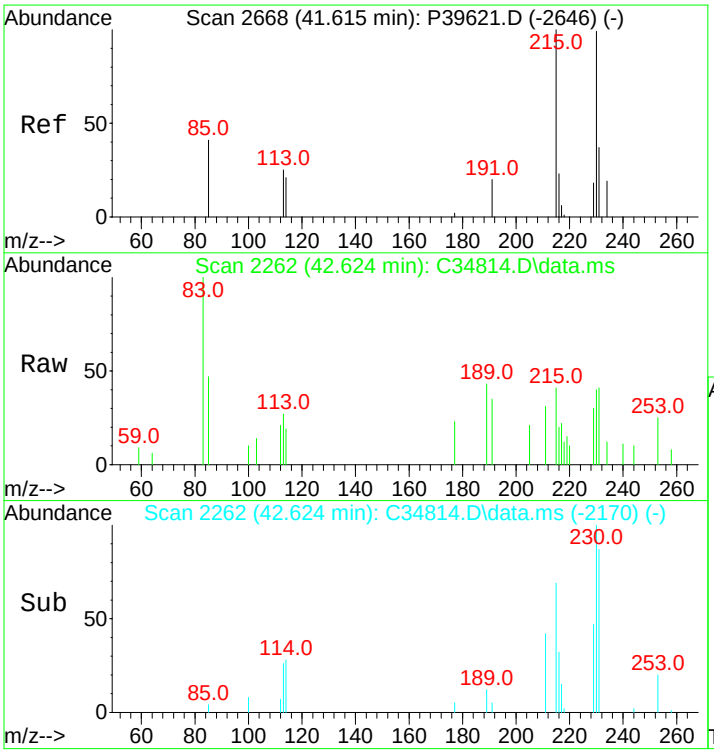


#61
C1-Fluoranthenes/Pyrenes
Concen: 86.73 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:216 Resp: 7986

Ion	Ratio	Lower	Upper
216	100		
215	2.0	71.8	107.6#

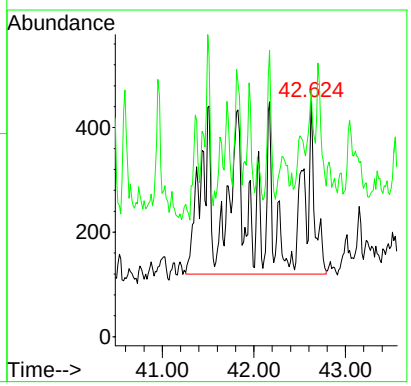


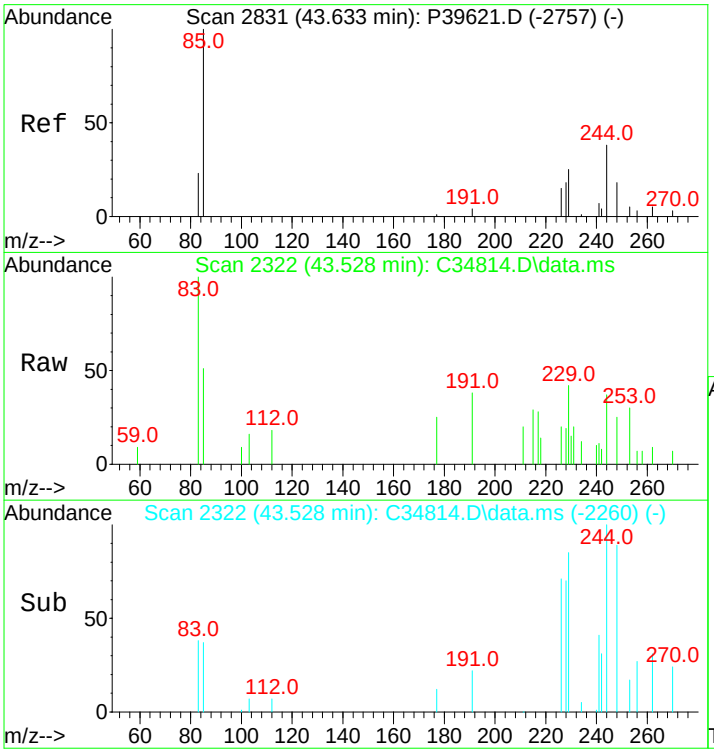


#62
C2-Fluoranthenes/Pyrenes
Concen: 115.77 ng/mL m
RT: 42.624 min Scan# 2262
Delta R.T. 1.225 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:230 Resp: 10660

Ion	Ratio	Lower	Upper
230	100		
215	7.1	99.0	148.4#

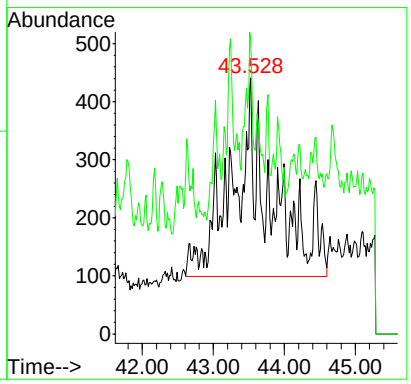


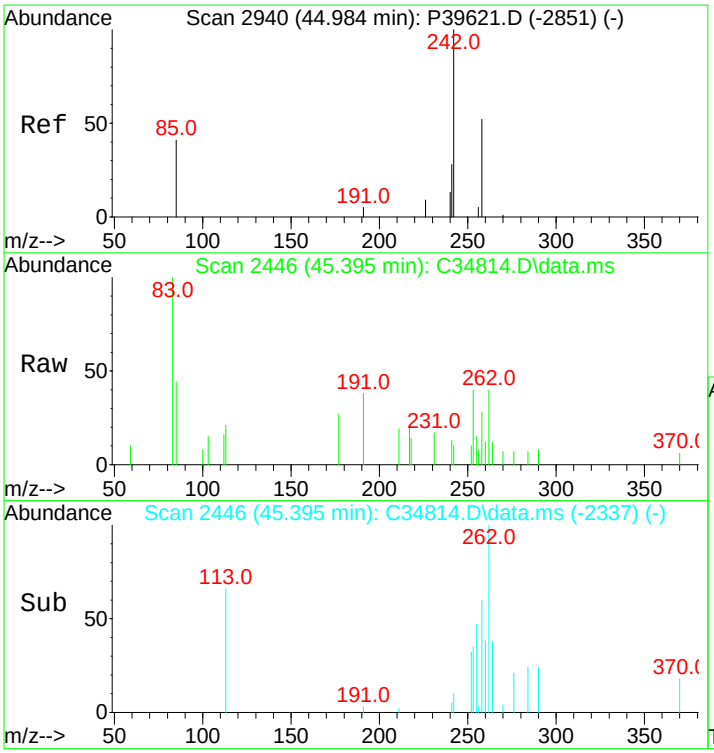


#63
C3-Fluoranthenes/Pyrenes
Concen: 138.67 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:244 Resp: 12768

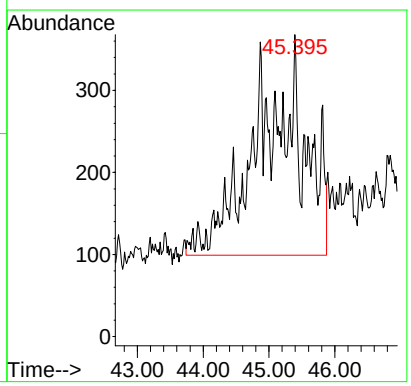
Ion	Ratio	Lower	Upper
244	100		
229	10.5	73.3	109.9#

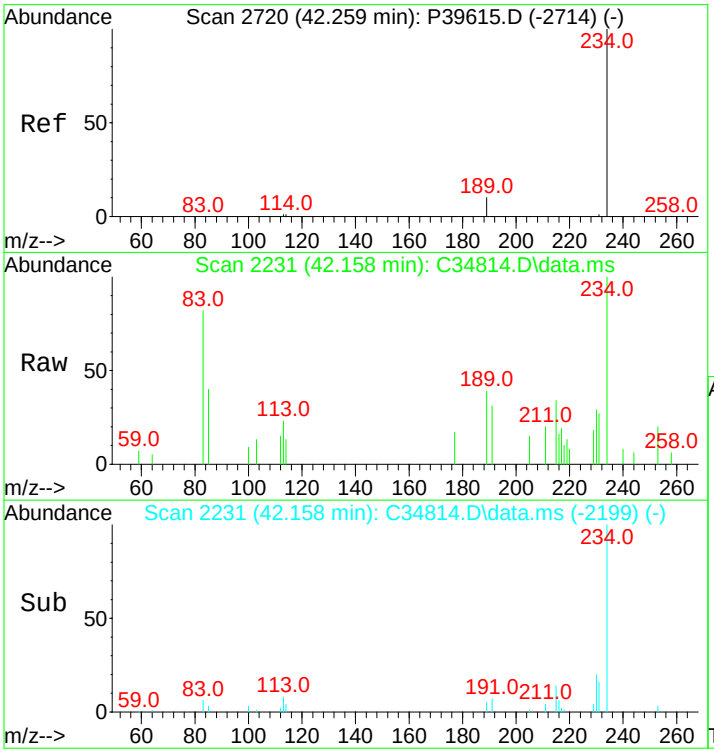




#64
C4-Fluoranthenes/Pyrenes
Concen: 135.99 ng/mL m
RT: 45.395 min Scan# 2446
Delta R.T. 0.638 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:258 Resp: 12521

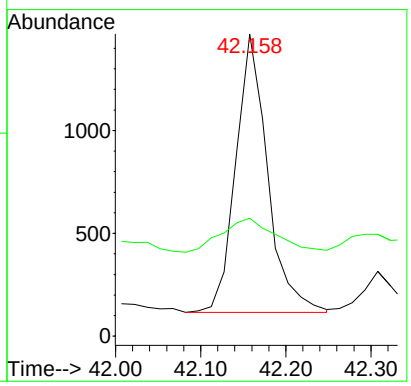


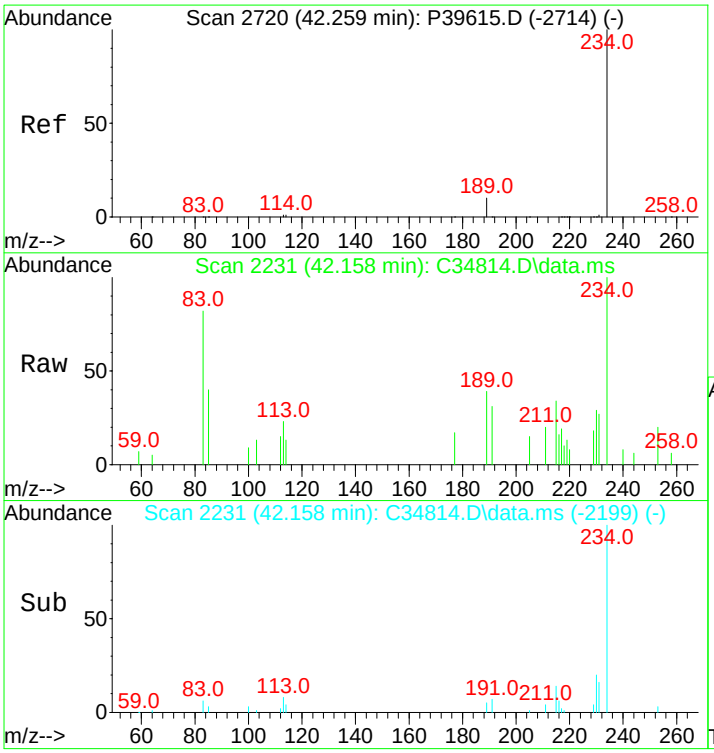


#66
Naphthobenzothiophene
Concen: 35.46 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:234 Resp: 3515

Ion	Ratio	Lower	Upper
234	100		
189	20.4	20.5	30.7#

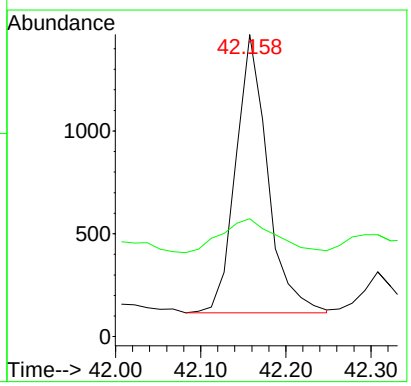


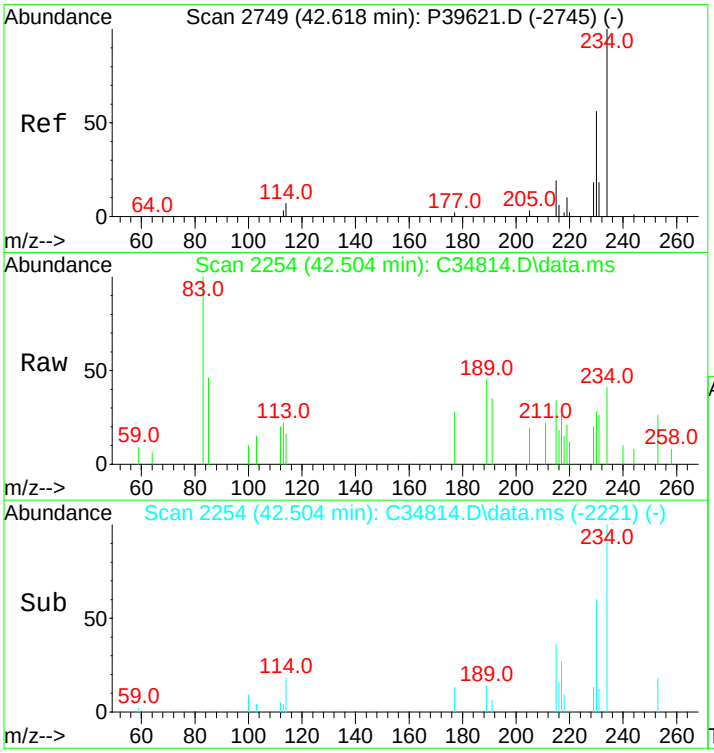


#67
Naphthobenzothiophene-2,1-D
Concen: 35.46 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:234 Resp: 3515

Ion	Ratio	Lower	Upper
234	100		
189	20.4	20.5	30.7#

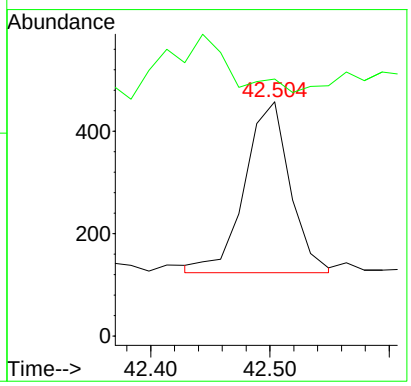


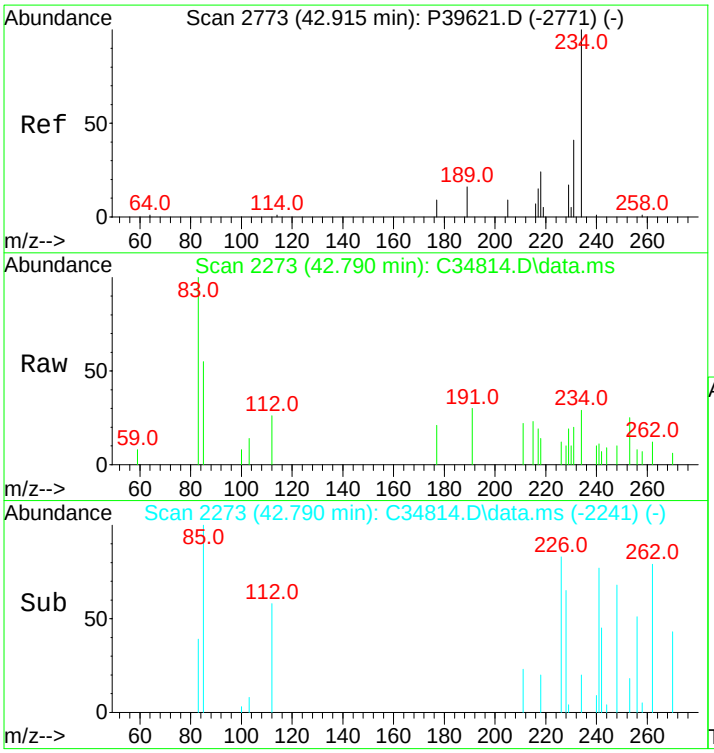


#68
Naphthobenzothiophene-1,2-D
Concen: 8.89 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:234 Resp: 881

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

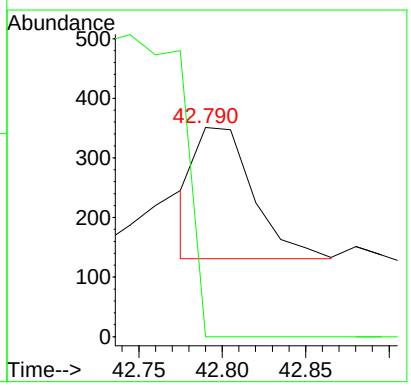


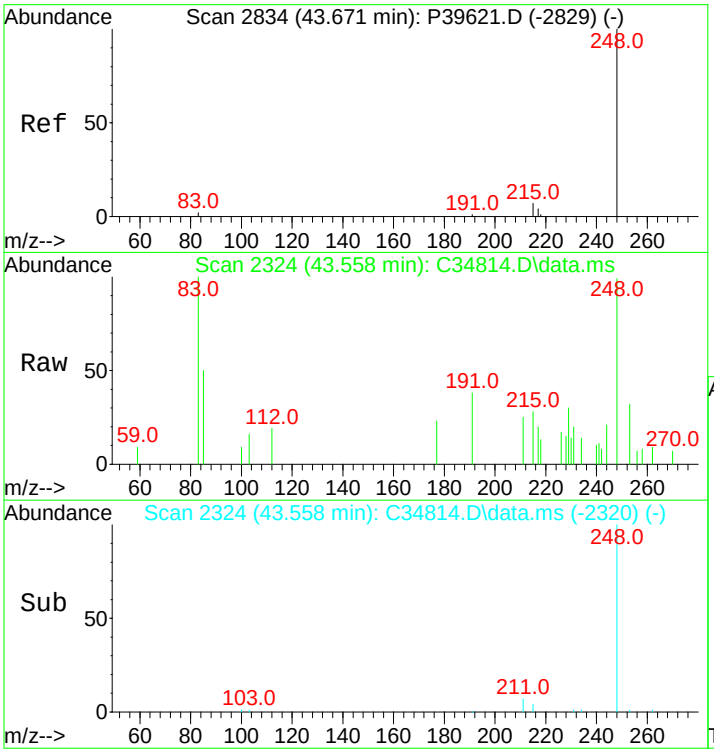


#69
Naphthobenzothiophene-2,3-D
Concen: 5.31 ng/mL m
RT: 42.790 min Scan# 2273
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:234 Resp: 526

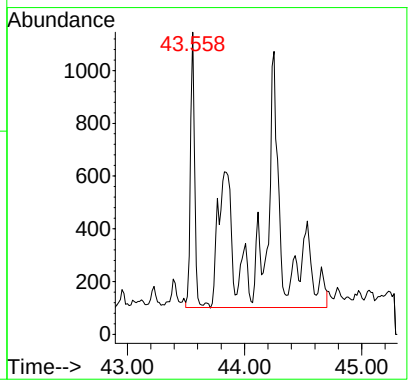
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

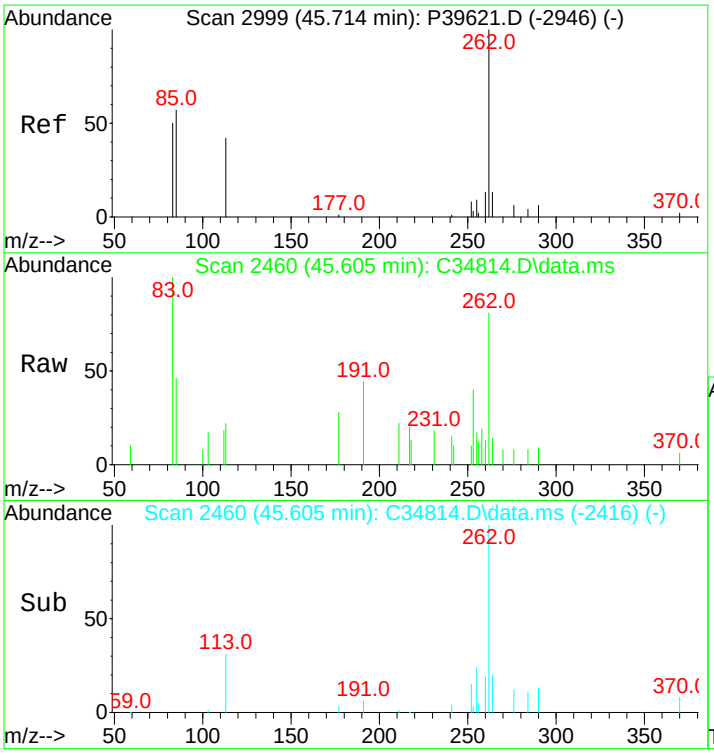




#70
C1-Naphthobenzothiophenes
Concen: 162.10 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

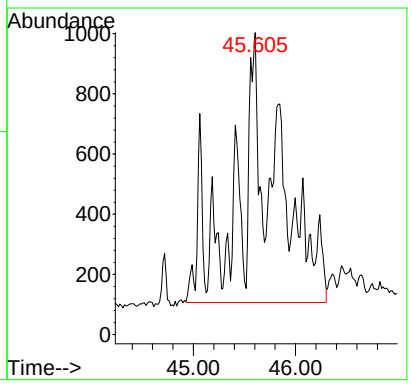
Tgt Ion:248 Resp: 16069

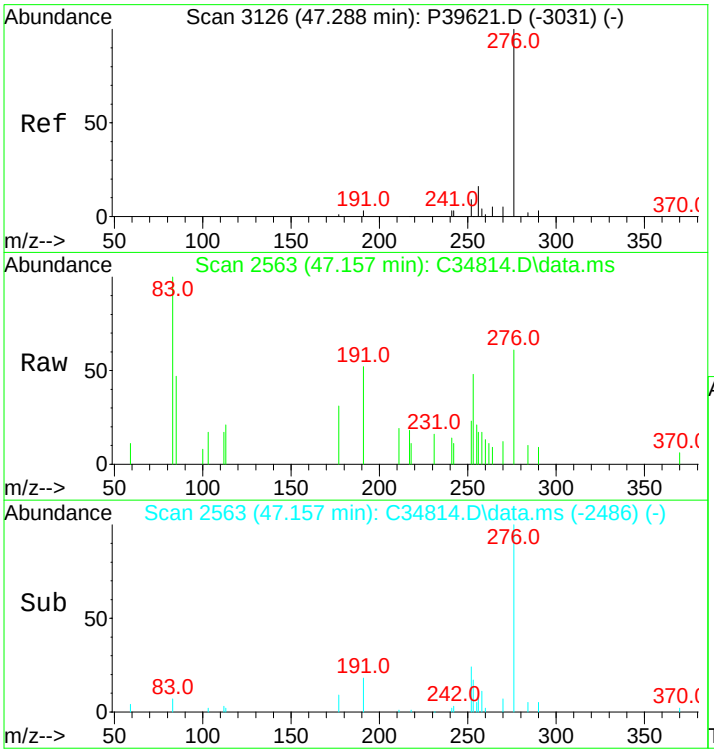




#71
C2-Naphthobenzothiophenes
Concen: 242.20 ng/ml m
RT: 45.605 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

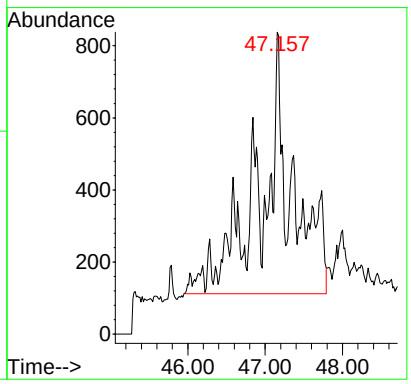
Tgt Ion:262 Resp: 24009

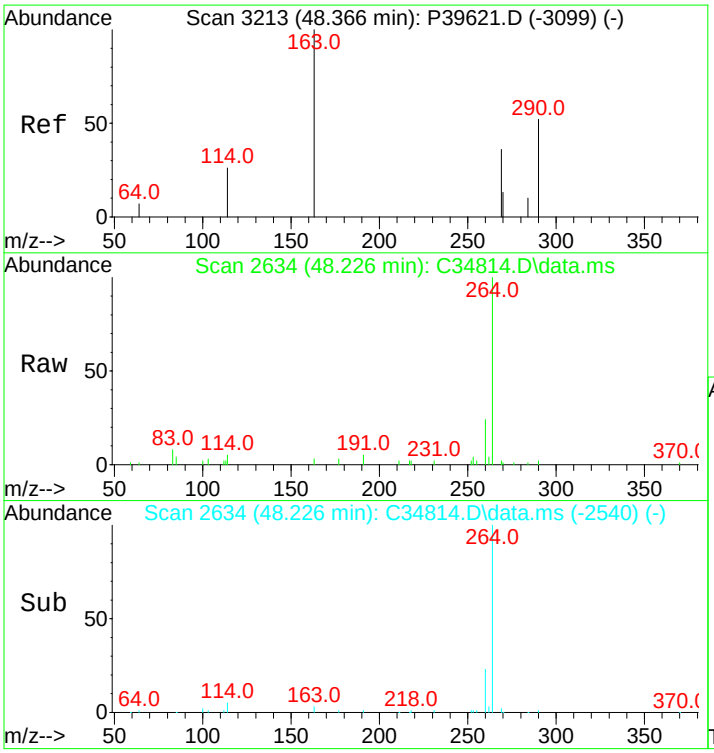




#72
C3-Naphthobenzothiophenes
Concen: 209.92 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

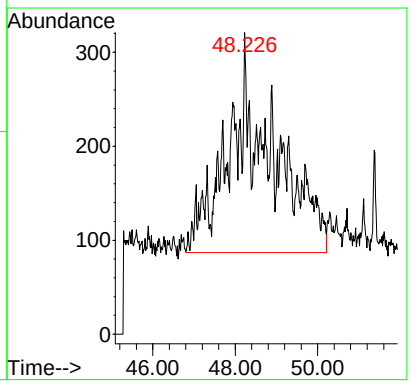
Tgt Ion:276 Resp: 20809

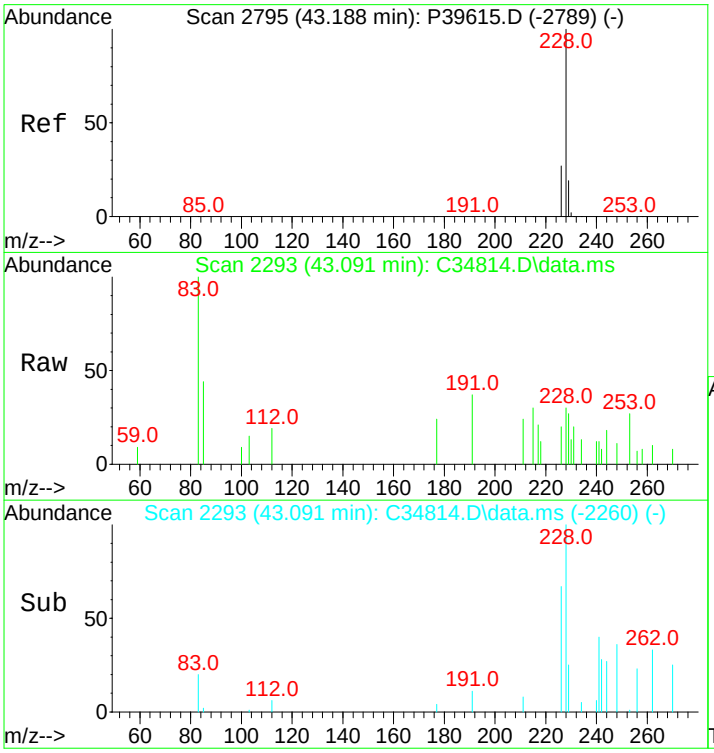




#73
C4-Naphthobenzothiophenes
Concen: 167.53 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.126 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:290 Resp: 16607

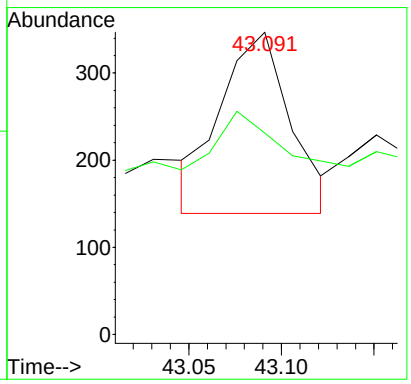


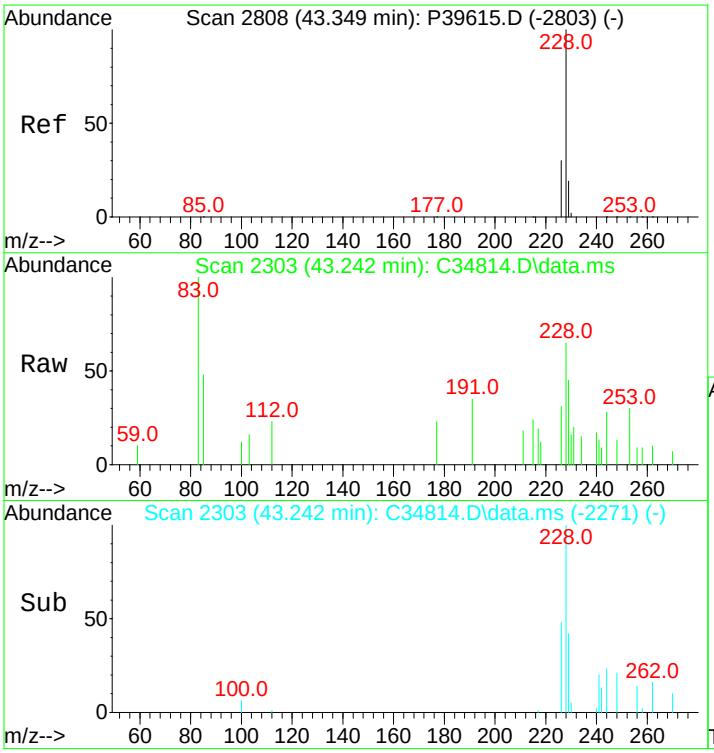


#75
Benz[a]anthracene
Concen: 5.98 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:228 Resp: 546

Ion	Ratio	Lower	Upper
228	100		
226	134.4	21.4	32.0#

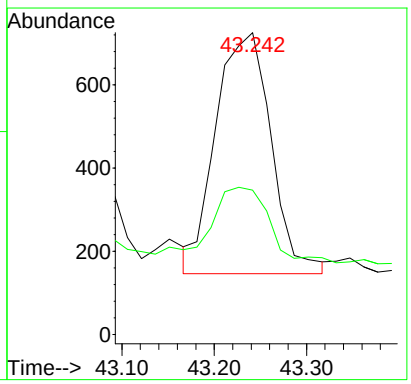


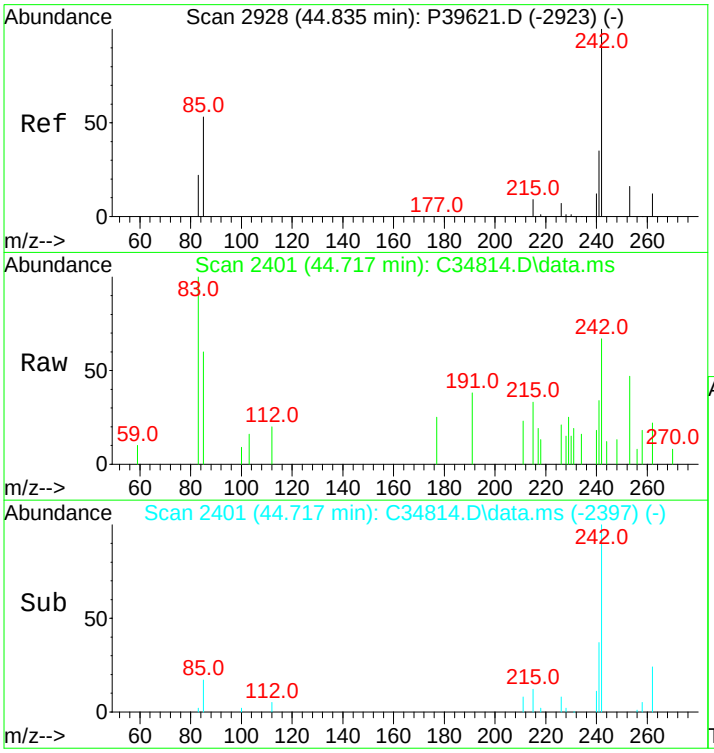


#77
Chrysene/Triphenylene
Concen: 26.11 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:228 Resp: 2408

Ion	Ratio	Lower	Upper
228	100		
226	30.5	23.7	35.5

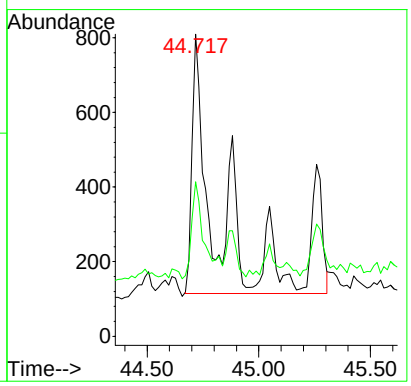


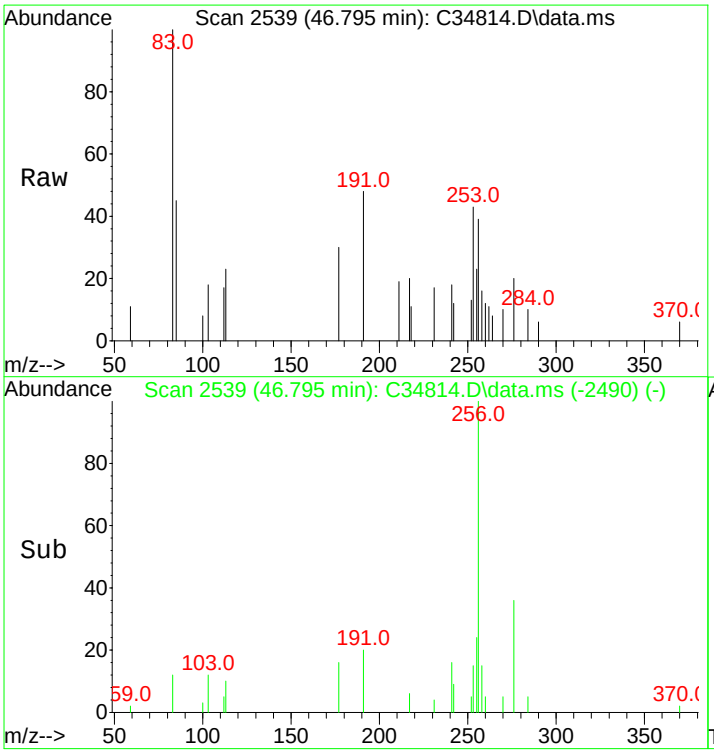


#78
C1-Chrysenes
Concen: 63.06 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.002 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:242 Resp: 5815

Ion	Ratio	Lower	Upper
242	100		
241	9.9	31.4	47.2#

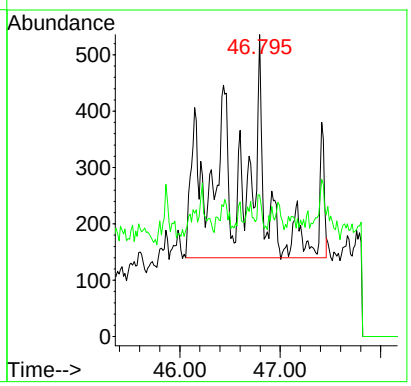


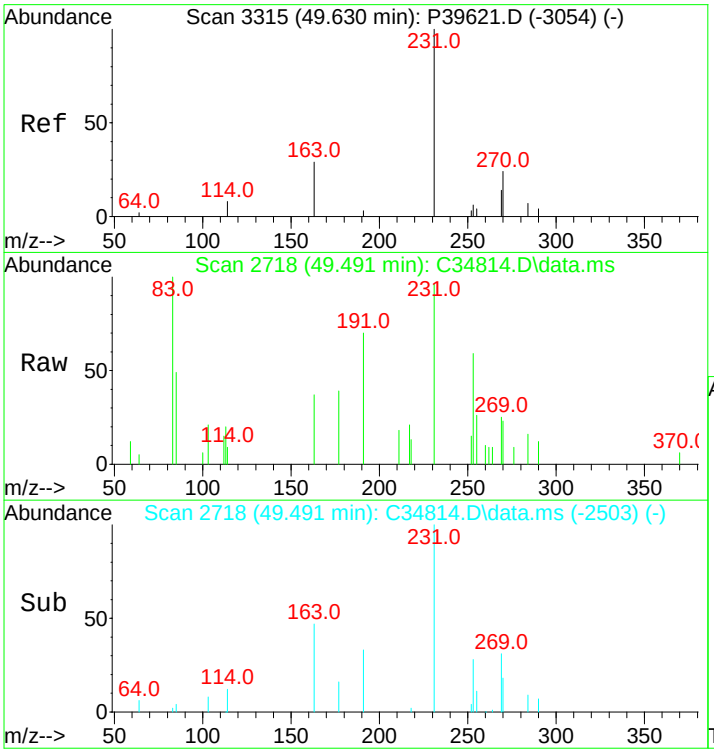


#79
C2-Chrysenes
Concen: 94.53 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:256 Resp: 8717

Ion	Ratio	Lower	Upper
256	100		
241	2.2	21.2	31.8#

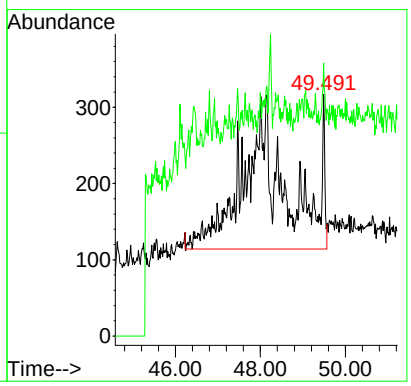


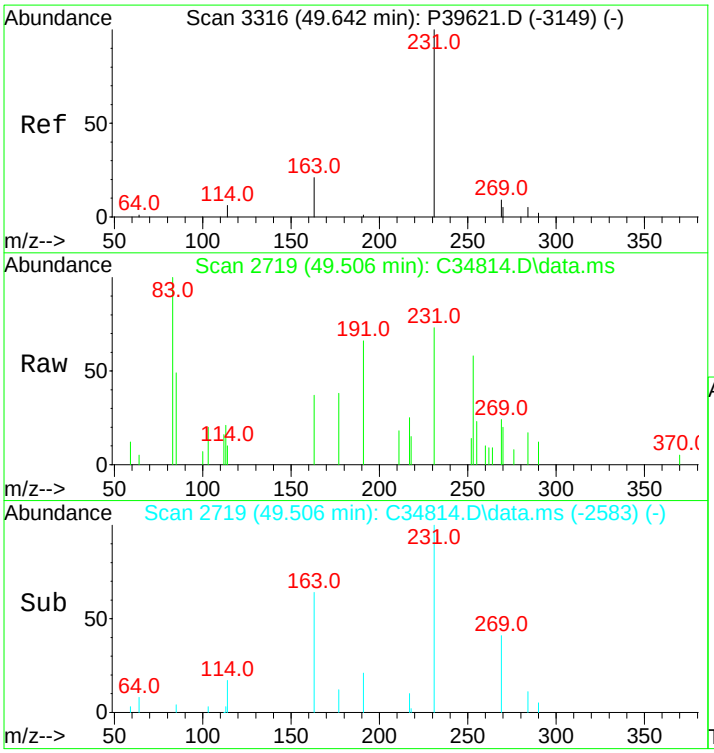


#80
C3-Chrysenes
Concen: 141.54 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:270 Resp: 13052

Ion	Ratio	Lower	Upper
270	100		
255	1.8	33.8	50.8#

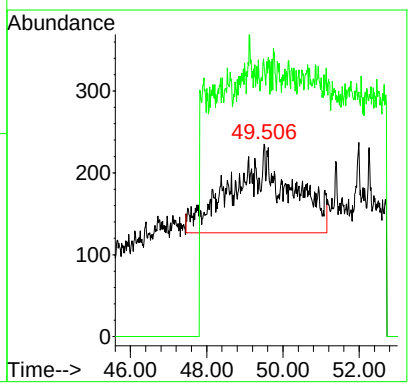


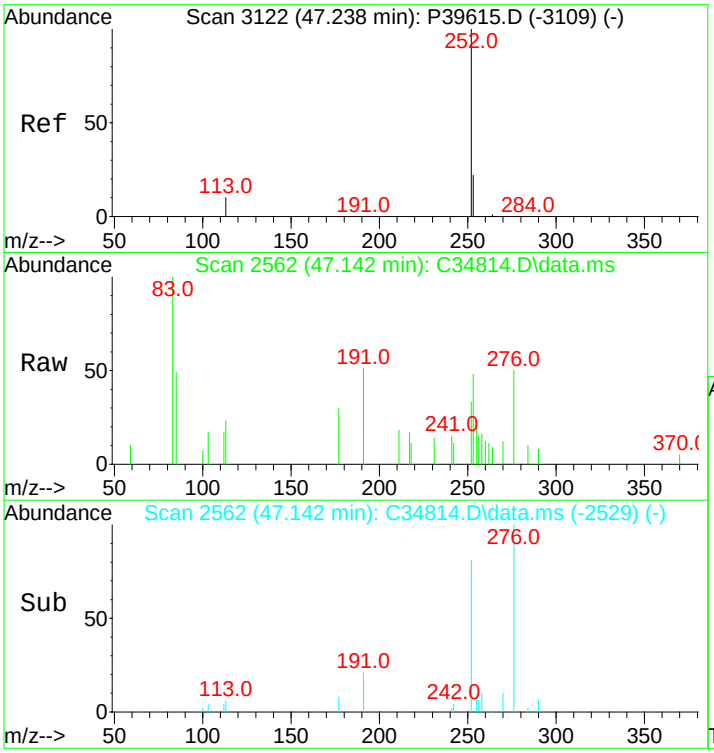


#81
C4-Chrysenes
Concen: 117.34 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:284 Resp: 10820

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

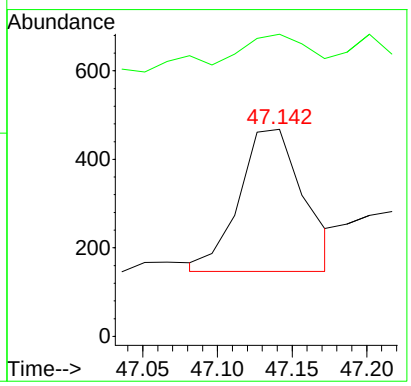


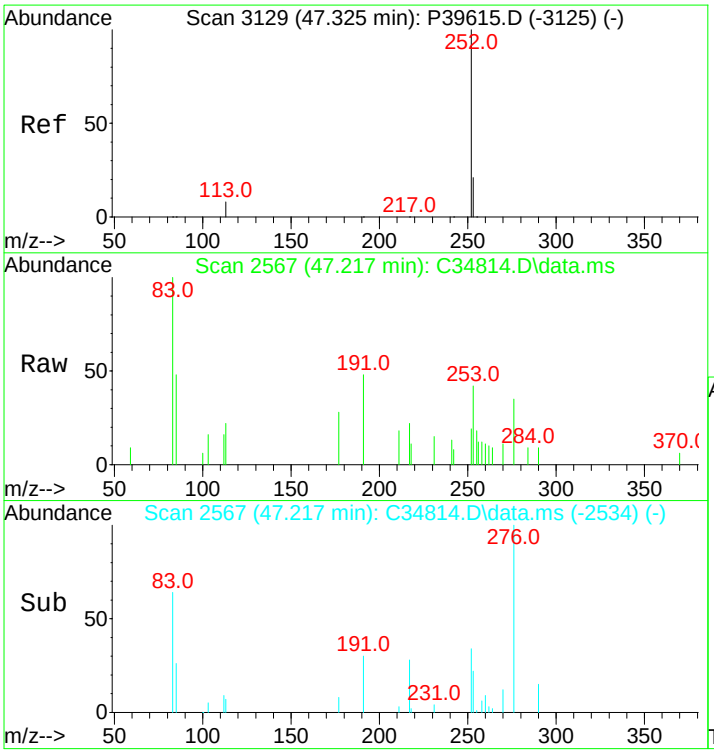


#82
Benzo[b]fluoranthene
Concen: 9.64 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:252 Resp: 967

Ion	Ratio	Lower	Upper
252	100		
253	35.1	19.0	28.4#

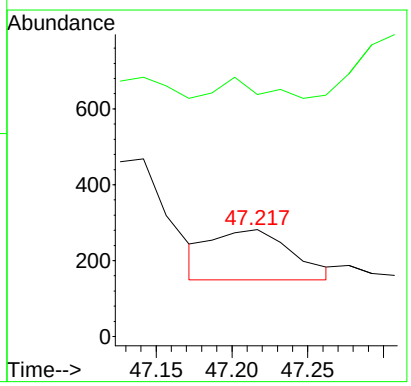


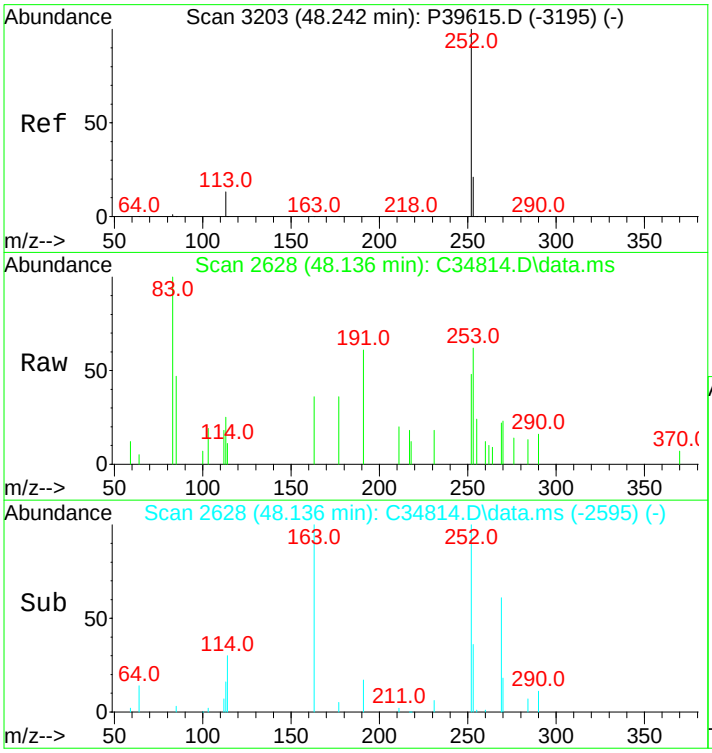


#83
Benzo[j]+[k]fluoranthene
Concen: 4.50 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:252 Resp: 492

Ion	Ratio	Lower	Upper
252	100		
253	68.9	19.0	28.4#

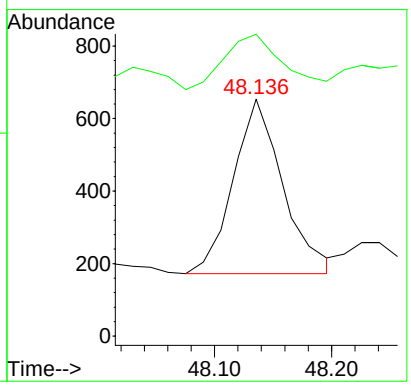


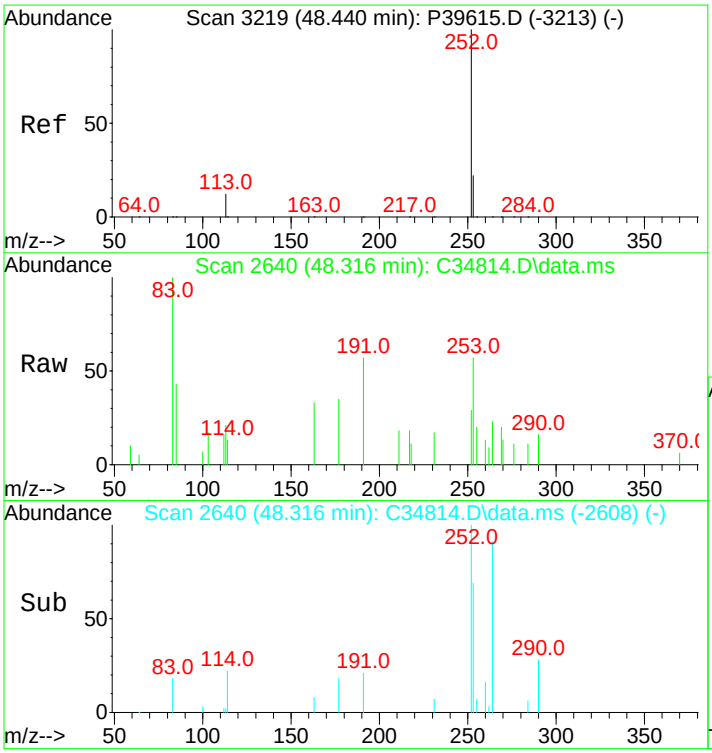


#85
Benzo[e]pyrene
Concen: 14.32 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:252 Resp: 1422

Ion	Ratio	Lower	Upper
252	100		
253	37.5	19.2	28.8#

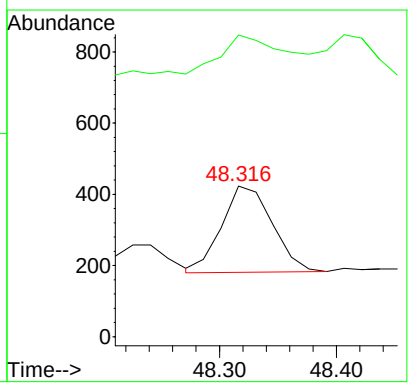


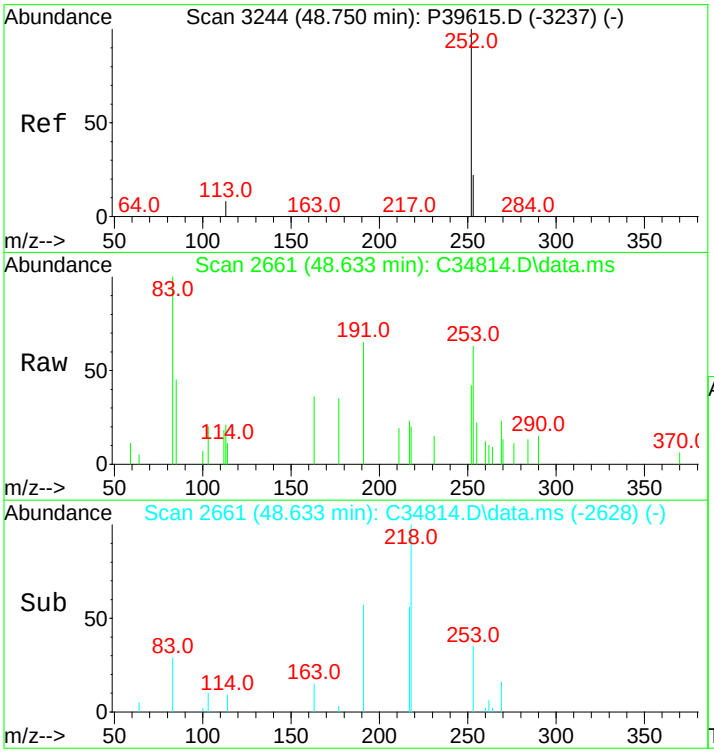


#87
Benzo[a]pyrene
Concen: 7.63 ng/mL
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:252 Resp: 729

Ion	Ratio	Lower	Upper
252	100		
253	73.8	19.5	29.3#

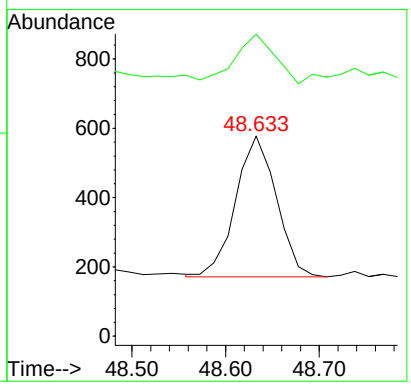


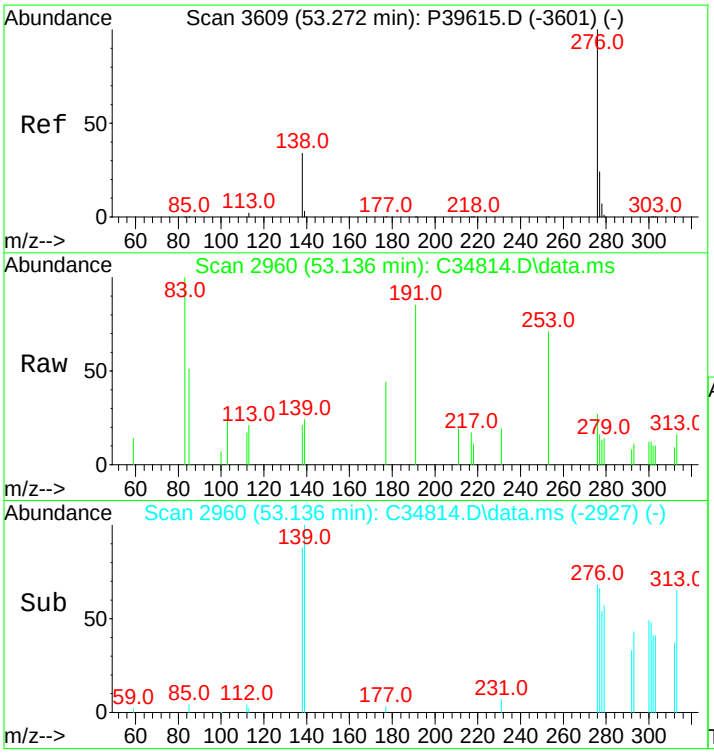


#88
Perylene
Concen: 12.07 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:252 Resp: 1233

Ion	Ratio	Lower	Upper
252	100		
253	34.1	19.6	29.4#

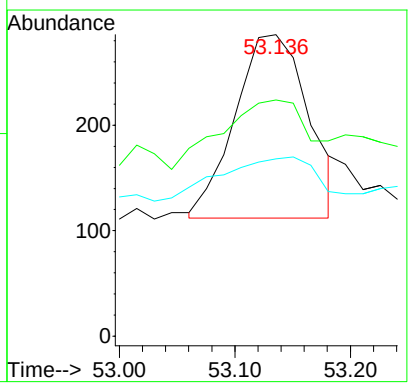


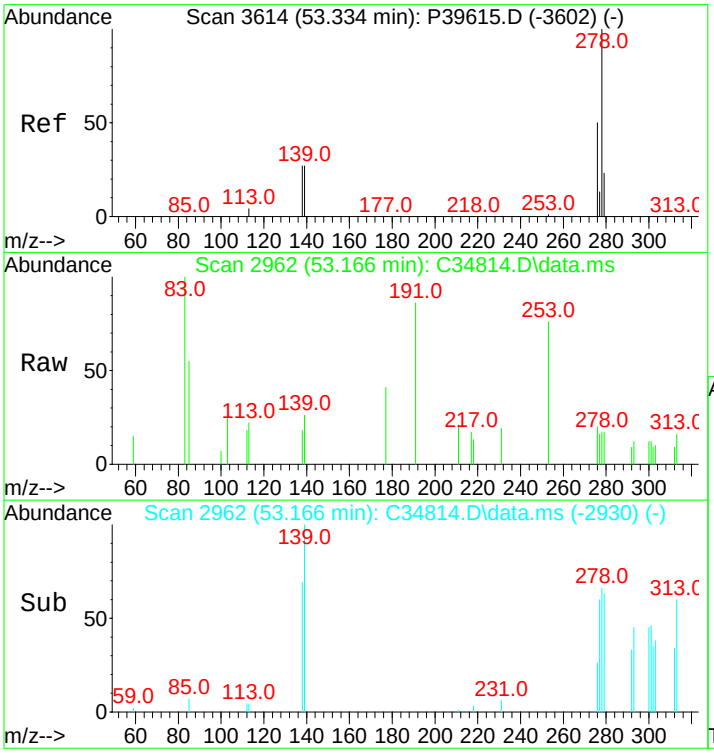


#89
Indeno[1,2,3-cd]pyrene
Concen: 6.90 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:276 Resp: 767

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

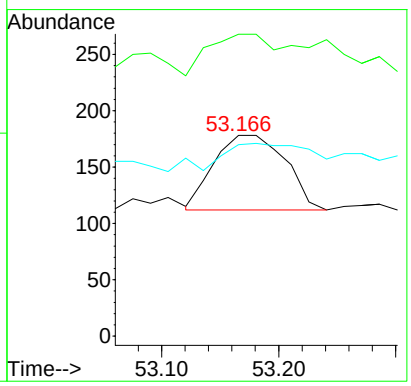


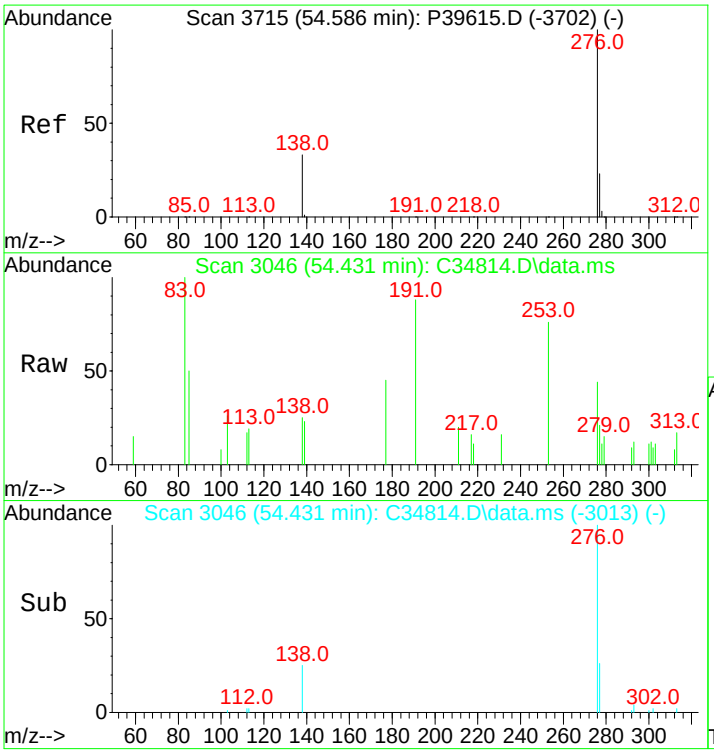


#90
Dibenz[ah]+[ac]anthracene
Concen: 2.66 ng/mL
RT: 53.166 min Scan# 2962
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:278 Resp: 281

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

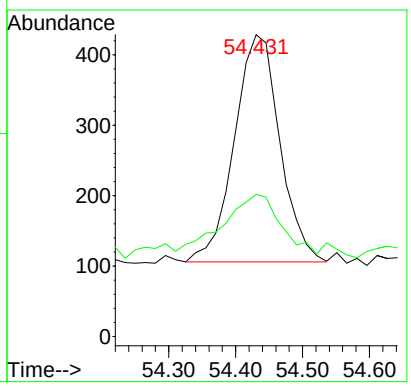


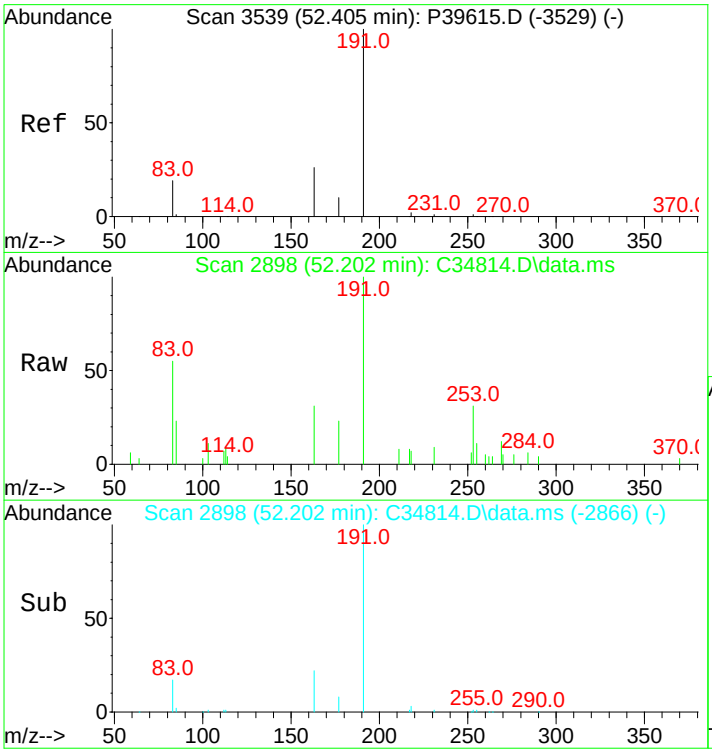


#91
Benzo[g,h,i]perylene
Concen: 12.99 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:276 Resp: 1527

Ion	Ratio	Lower	Upper
276	100		
277	32.8	18.9	28.3#

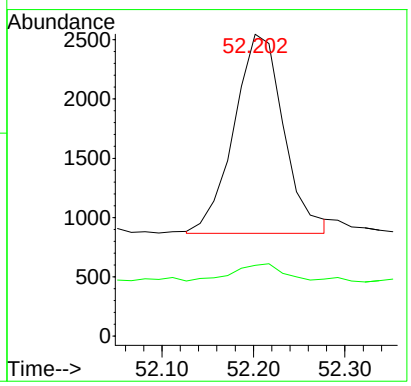


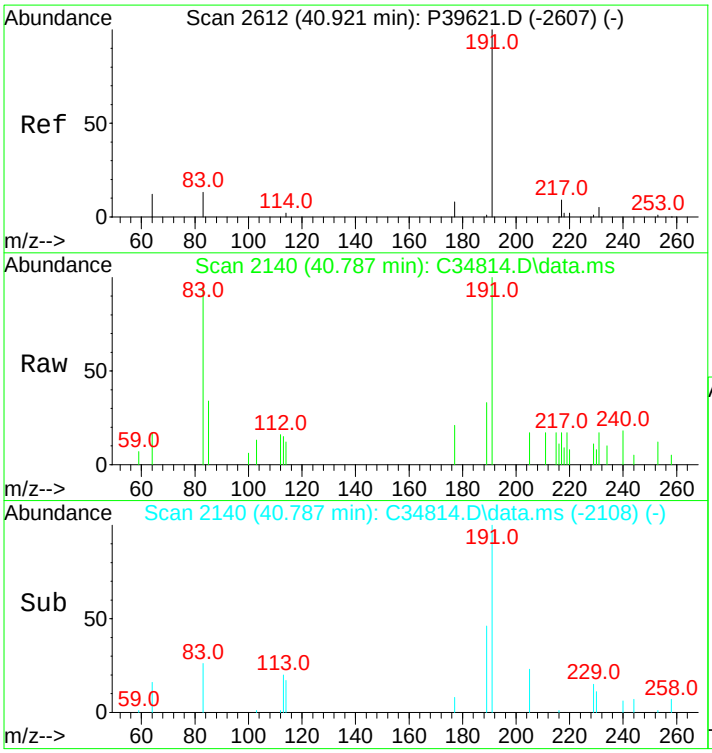


#92
Hopane (T19)
Concen: 335.28 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:191 Resp: 6359

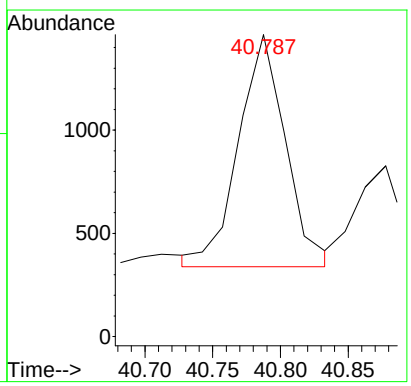
Ion	Ratio	Lower	Upper
191	100		
177	10.4	14.6	21.8#

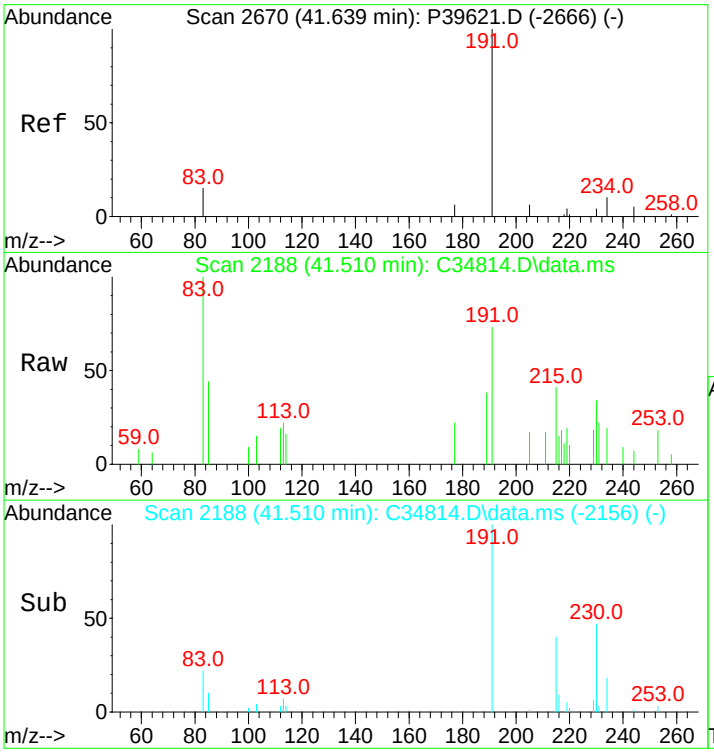




#94
C23 Tricyclic Terpane (T4)
Concen: 142.78 ng/ml m
RT: 40.787 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

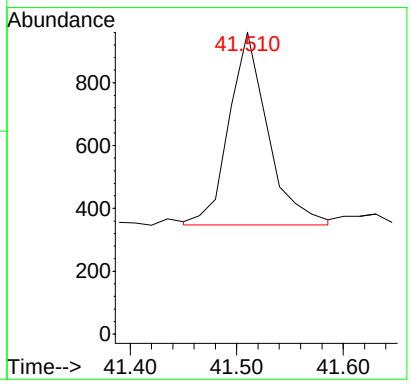
Tgt Ion:191 Resp: 2708

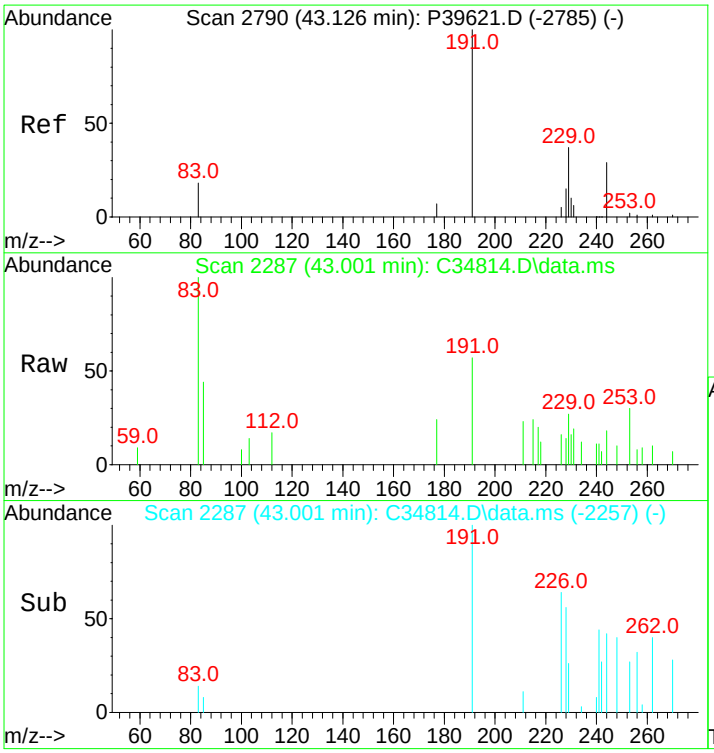




#95
C24 Tricyclic Terpane (T5)
Concen: 81.83 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

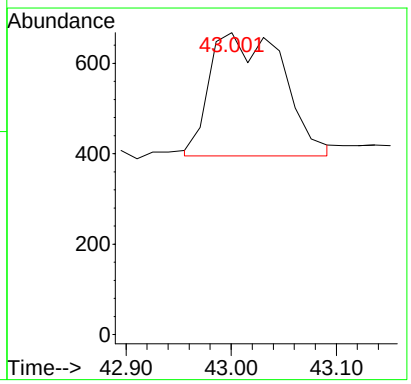
Tgt Ion:191 Resp: 1552

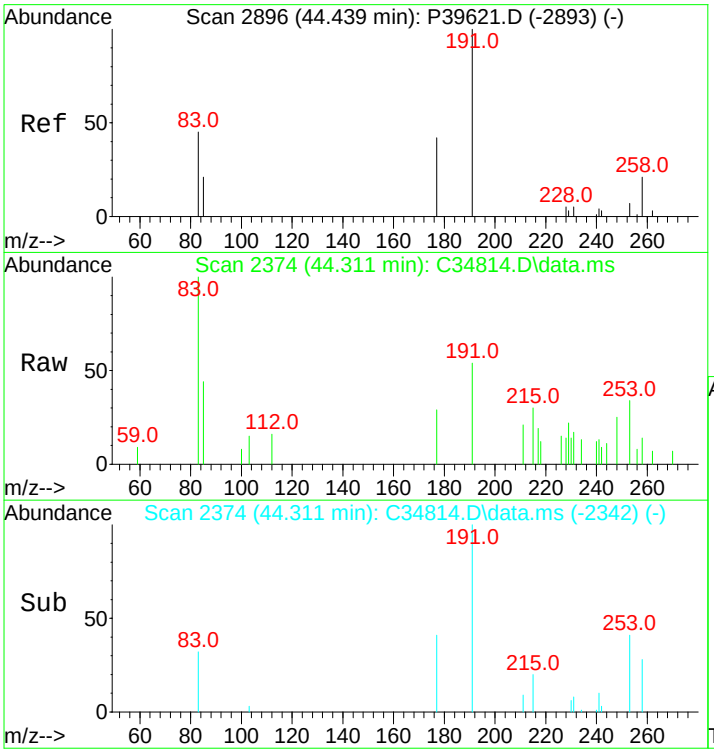




#96
C25 Tricyclic Terpane (T6)
Concen: 69.39 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

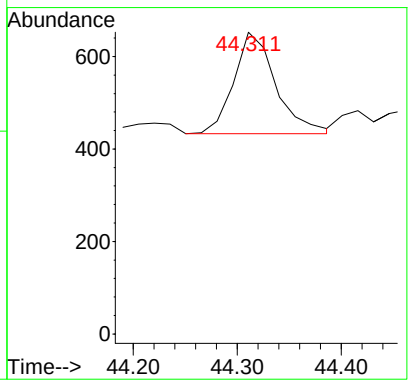
Tgt Ion:191 Resp: 1316

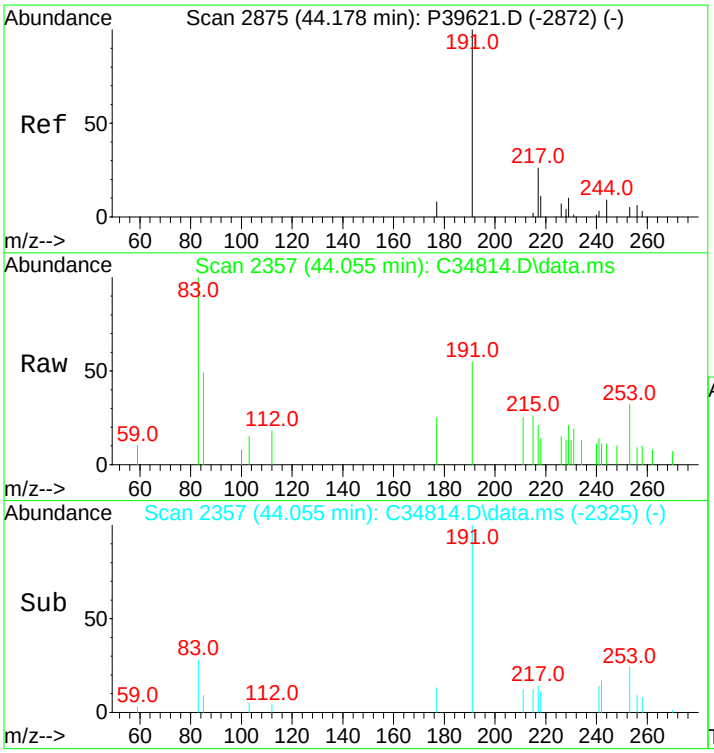




#97
C24 Tetracyclic Terpane (T6a)
Concen: 32.74 ng/ml
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

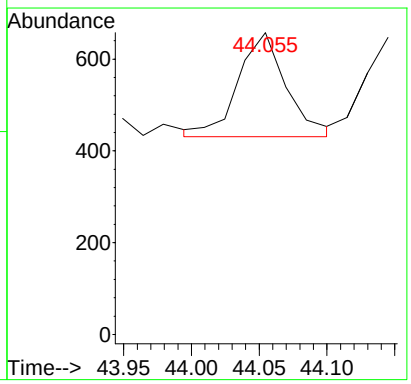
Tgt Ion:191 Resp: 621

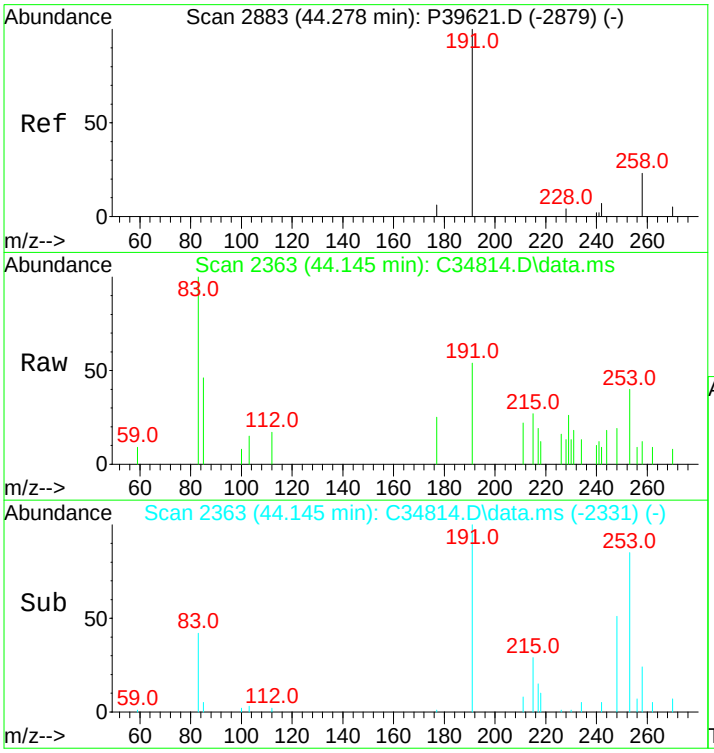




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 29.42 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

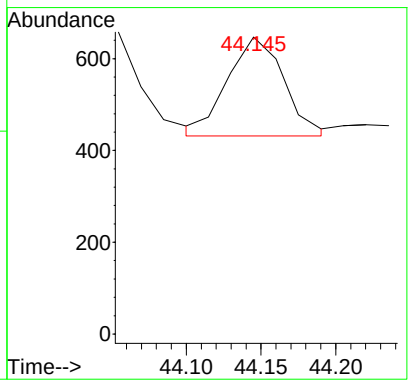
Tgt Ion:191 Resp: 558

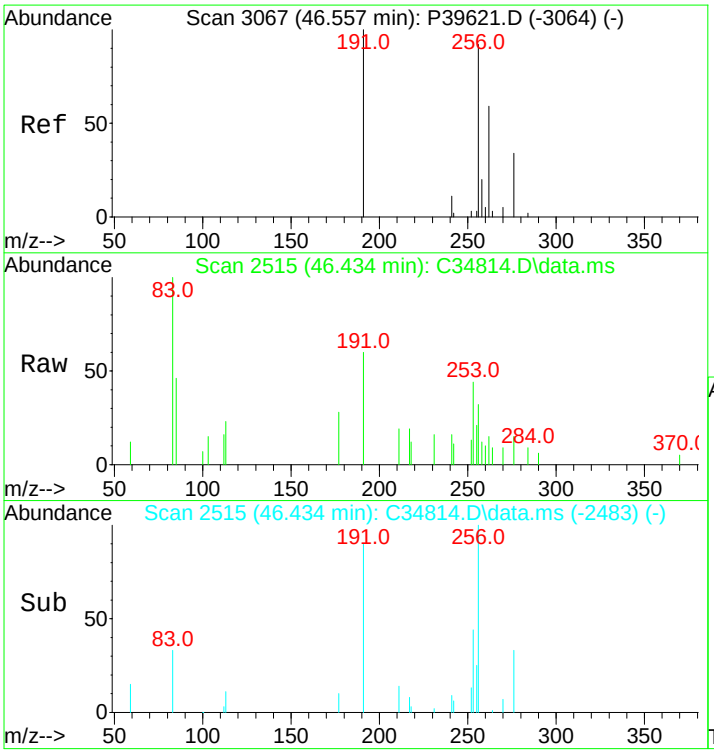




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 29.68 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

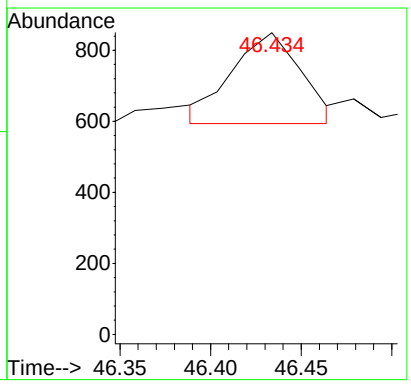
Tgt Ion:191 Resp: 563

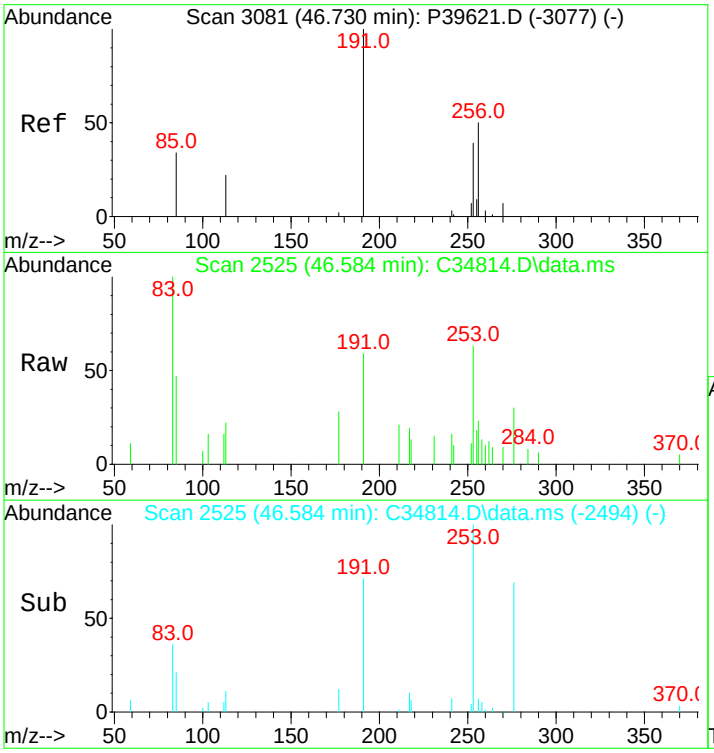




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 35.59 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

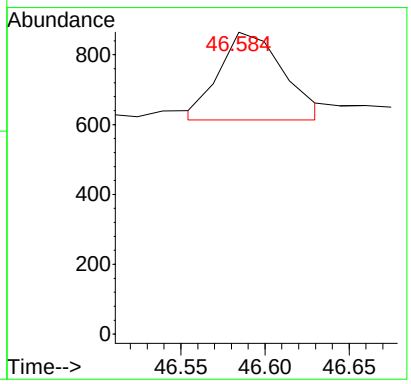
Tgt Ion:191 Resp: 675

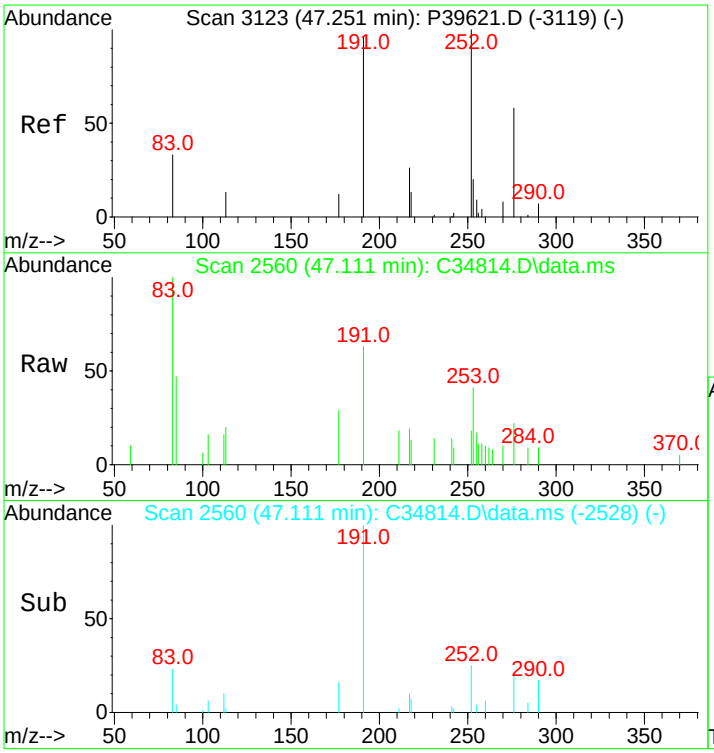




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 35.33 ng/ml m
RT: 46.584 min Scan# 2525
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

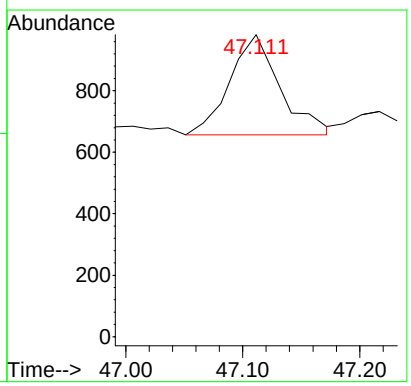
Tgt Ion:191 Resp: 670

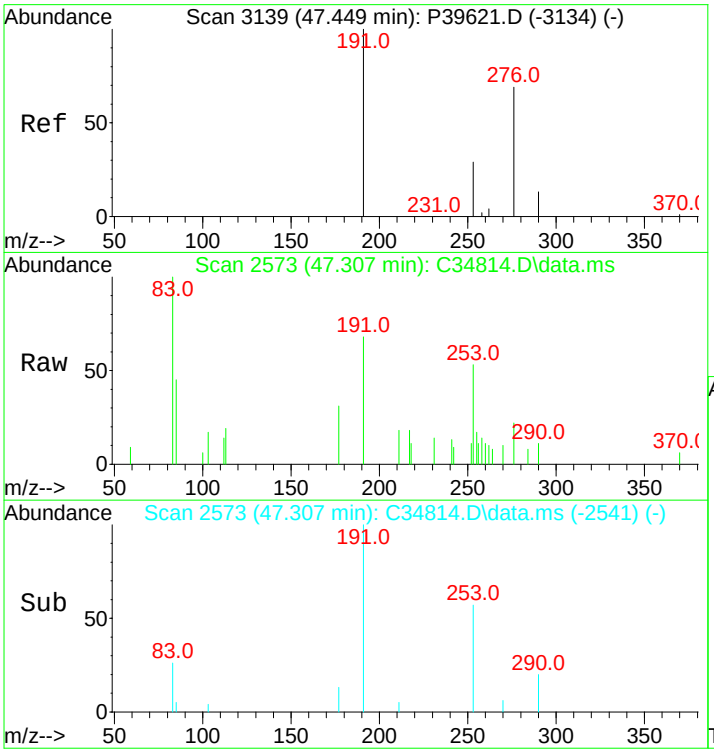




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 51.30 ng/ml
RT: 47.111 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

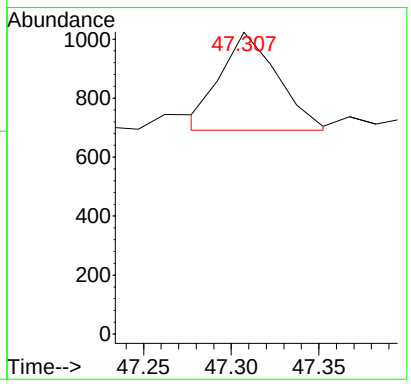
Tgt Ion:191 Resp: 973

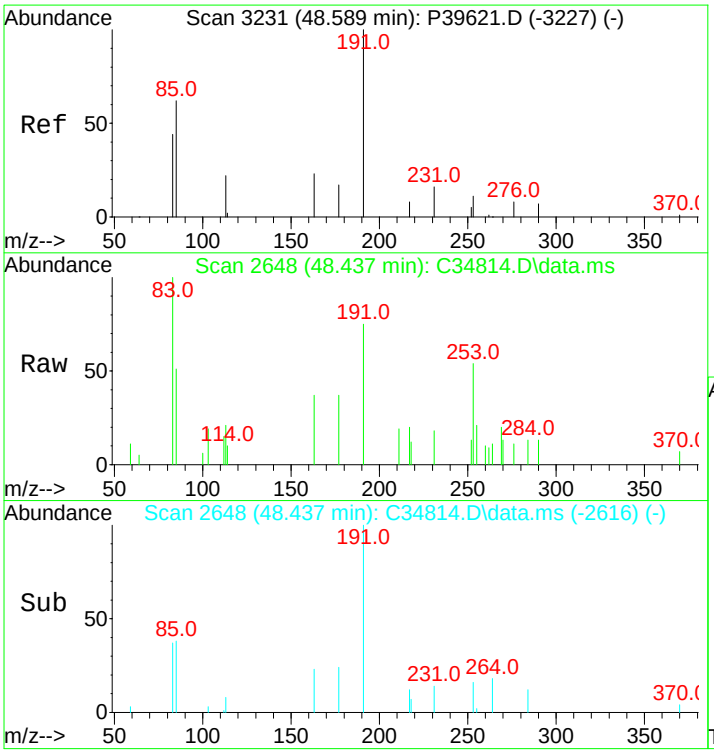




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 39.28 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

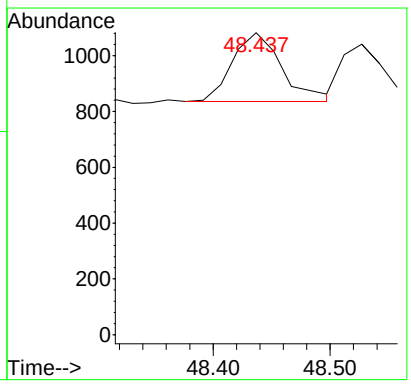
Tgt Ion:191 Resp: 745

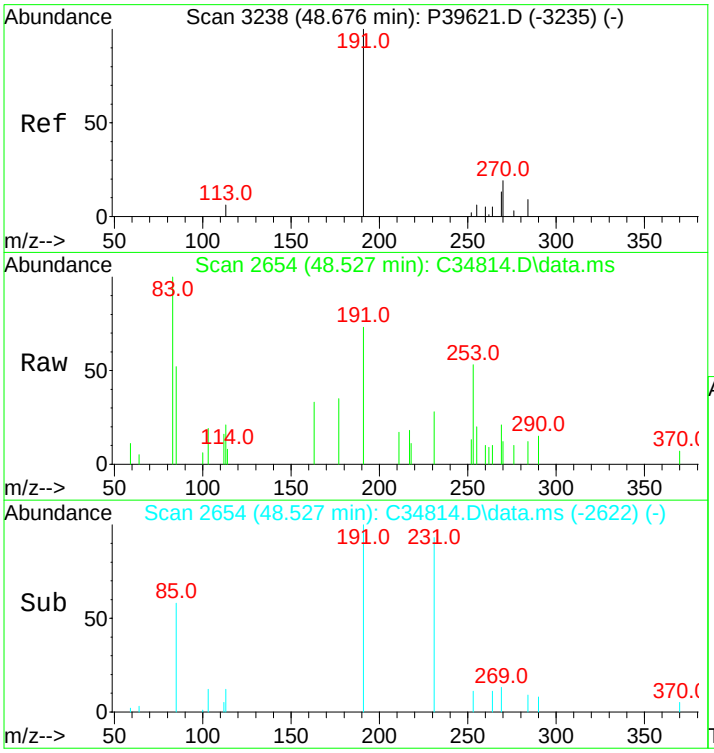




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 38.12 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

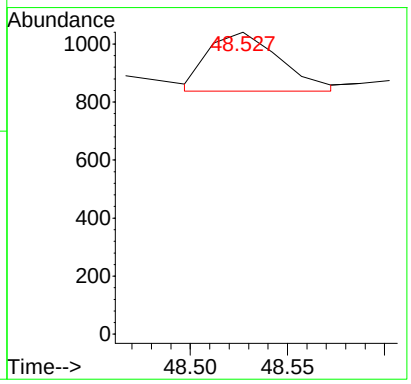
Tgt Ion:191 Resp: 723

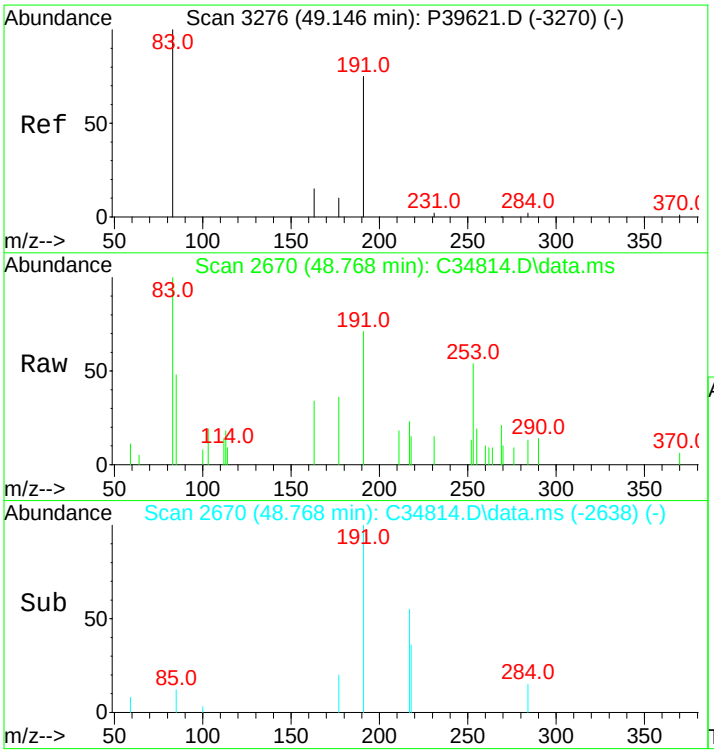




#105
C30 Tricyclic Terpane-22S
Concen: 27.26 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

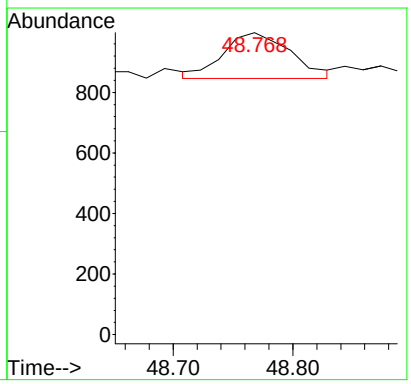
Tgt Ion:191 Resp: 517

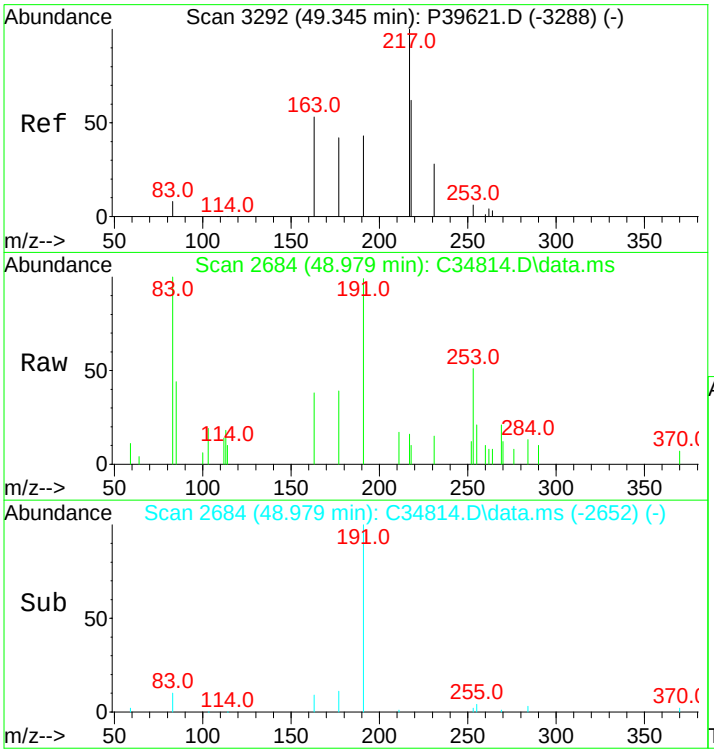




#106
C30 Tricyclic Terpane-22R
Concen: 31.16 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

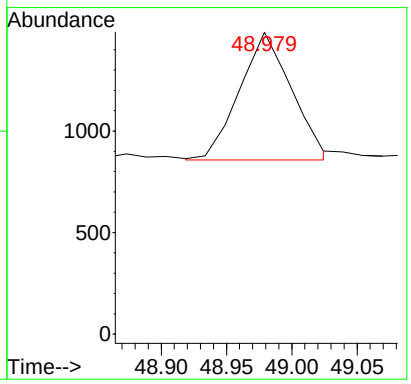
Tgt Ion:191 Resp: 591

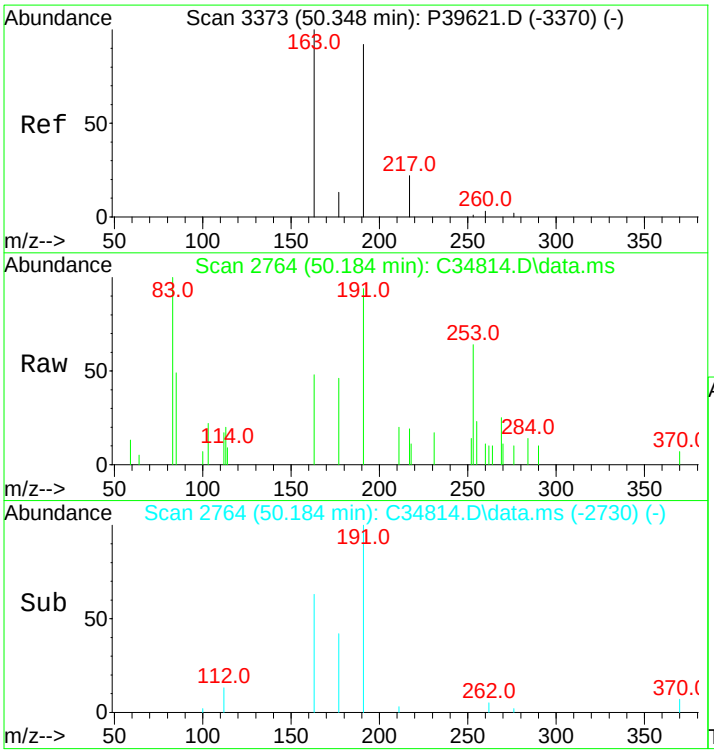




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 91.90 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

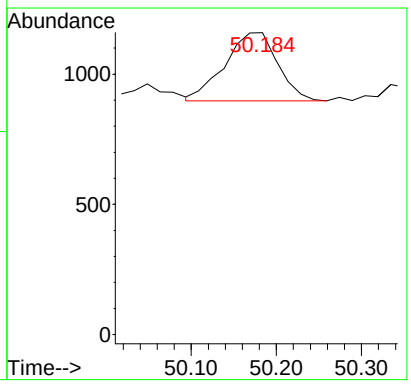
Tgt Ion:191 Resp: 1743

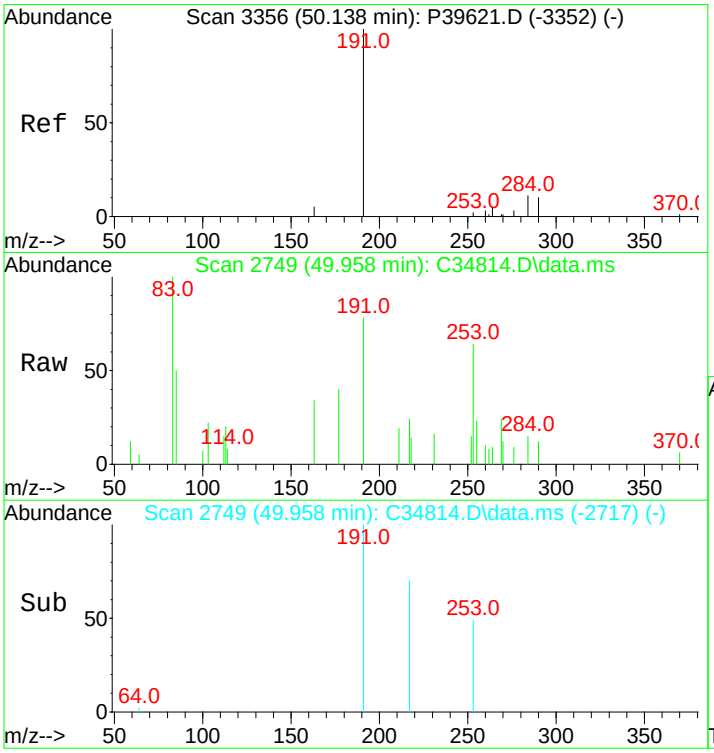




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 59.58 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

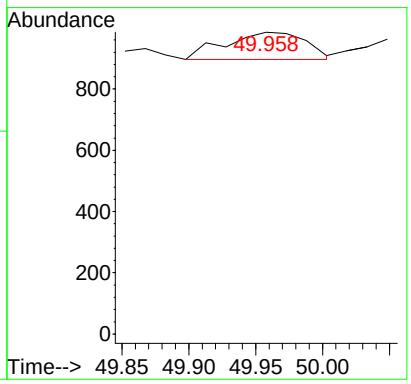
Tgt Ion:191 Resp: 1130

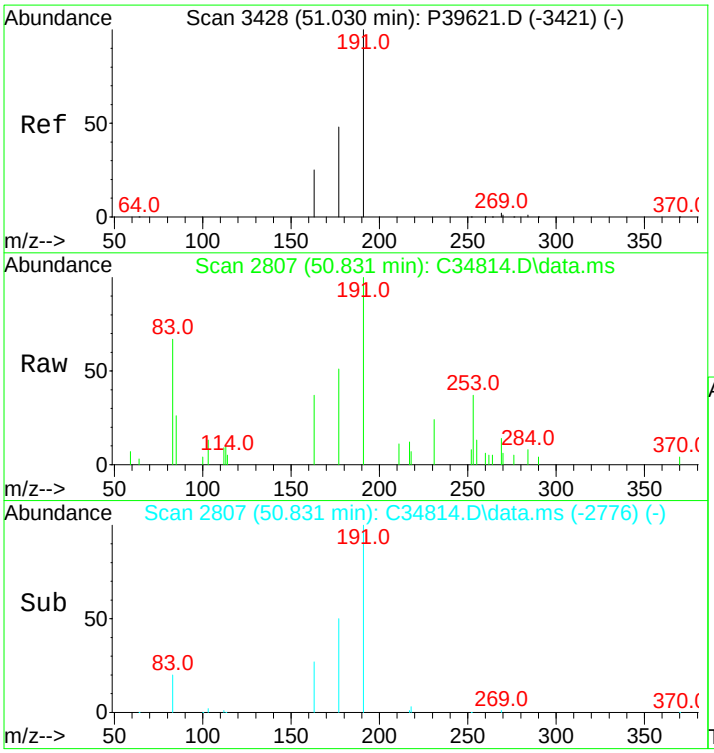




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 19.61 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

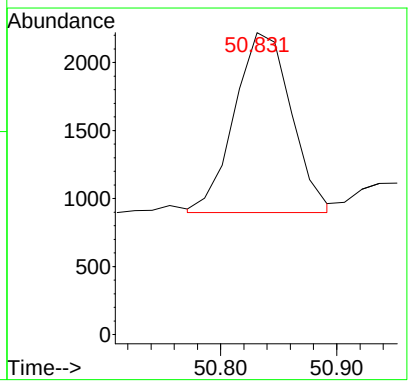
Tgt Ion:191 Resp: 372

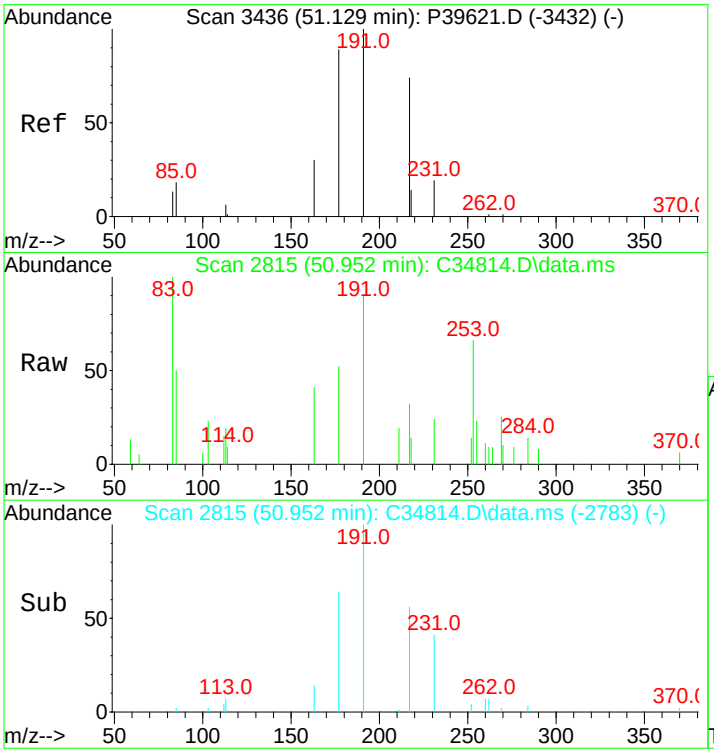




#110
30-Norhopane (T15)
Concen: 236.58 ng/ml m
RT: 50.831 min Scan# 2807
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

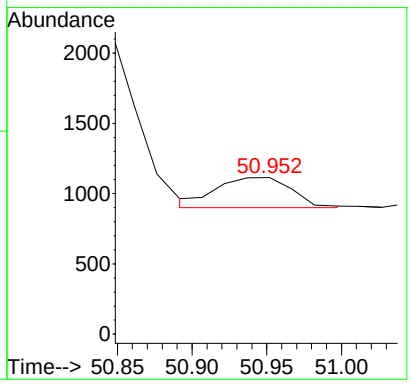
Tgt Ion:191 Resp: 4487

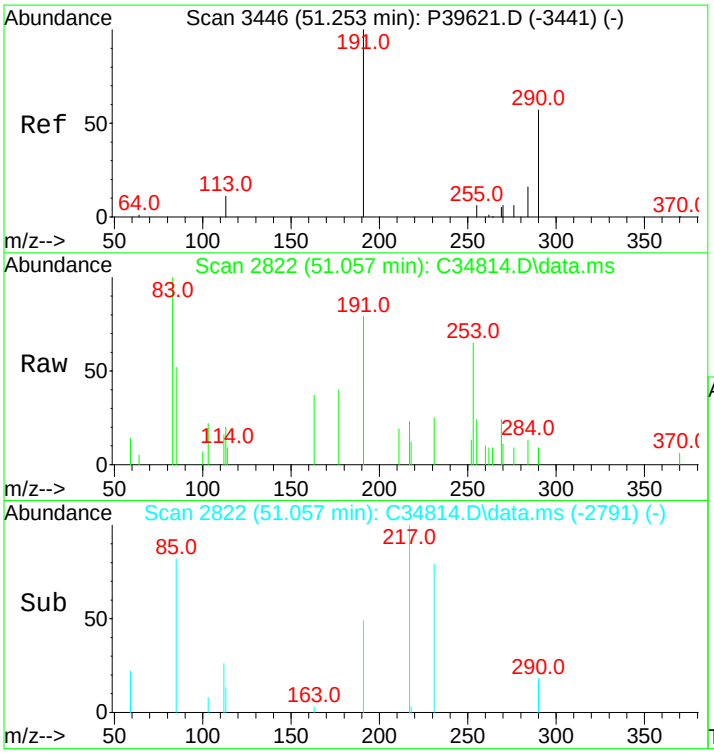




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 39.54 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

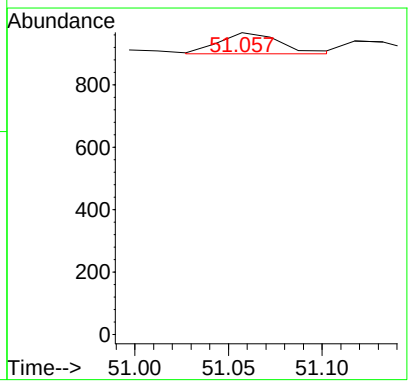
Tgt Ion:191 Resp: 750

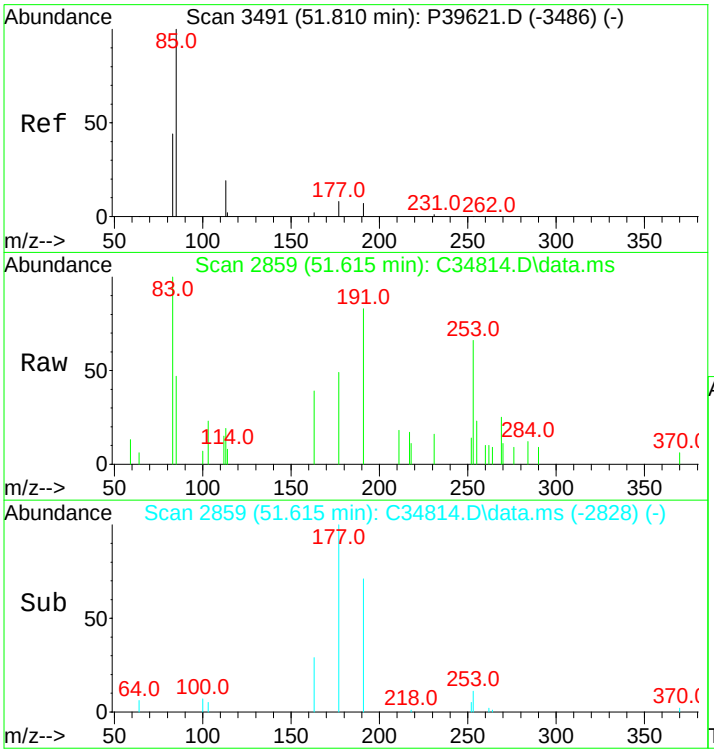




#112
17a(H)-Diahopane (X)
Concen: 8.17 ng/ml
RT: 51.057 min Scan# 2822
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

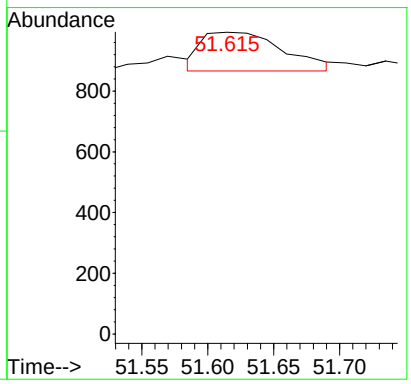
Tgt Ion:191 Resp: 155

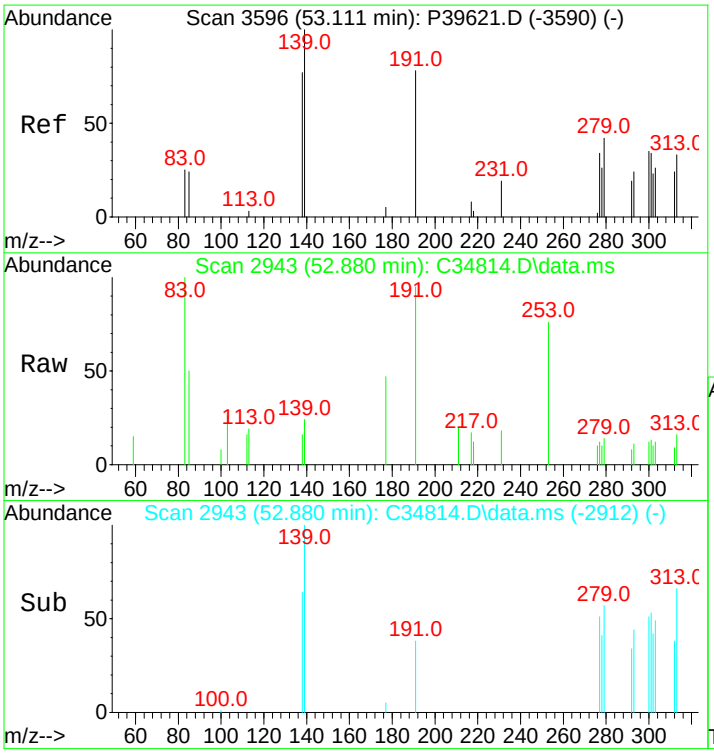




#113
30-Normoretane (T17)
Concen: 29.10 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

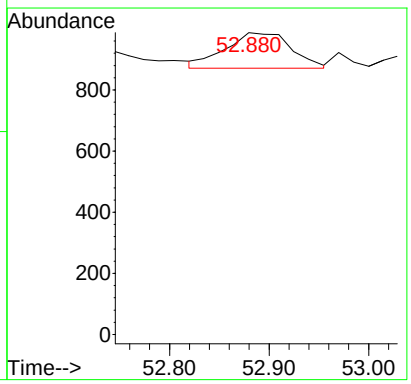
Tgt Ion:191 Resp: 552

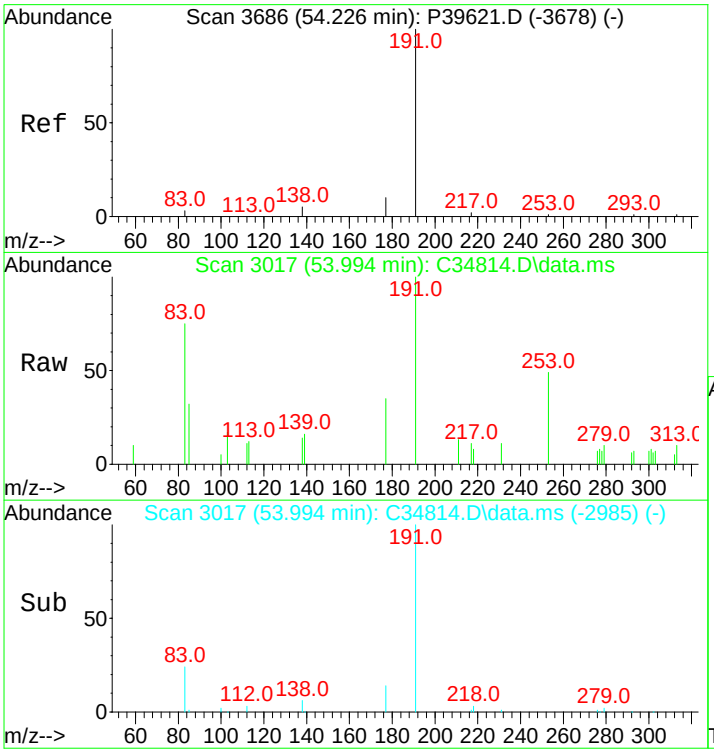




#115
Moretane (T20)
Concen: 28.31 ng/ml m
RT: 52.880 min Scan# 2943
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

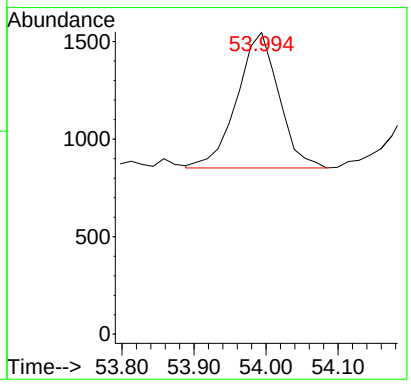
Tgt Ion:191 Resp: 537

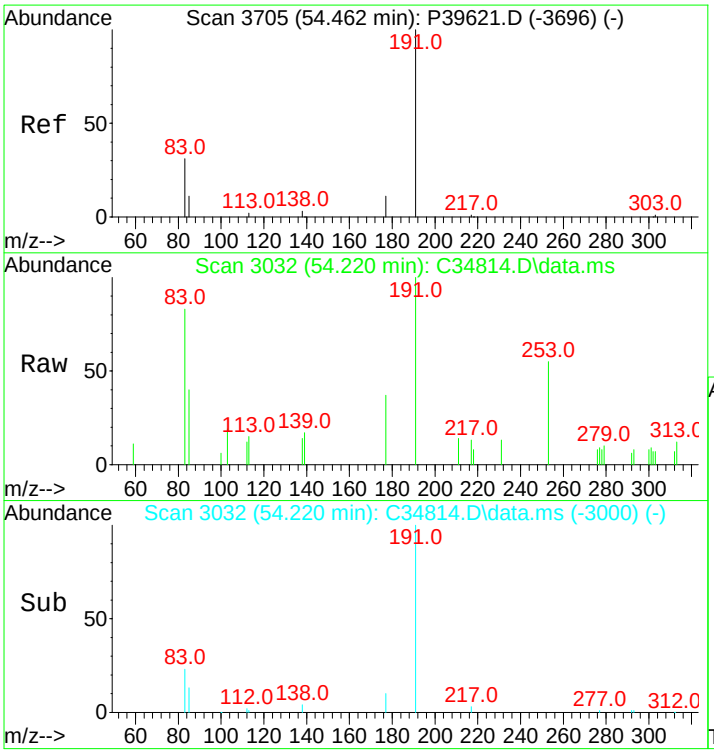




#116
30-Homohopane-22S (T21)
Concen: 147.10 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

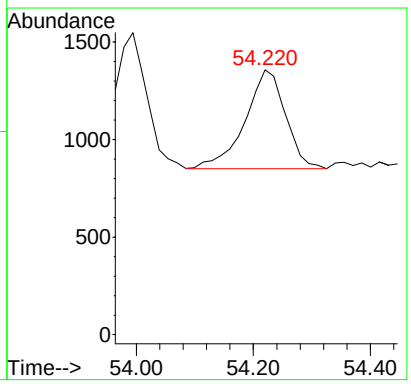
Tgt Ion:191 Resp: 2790

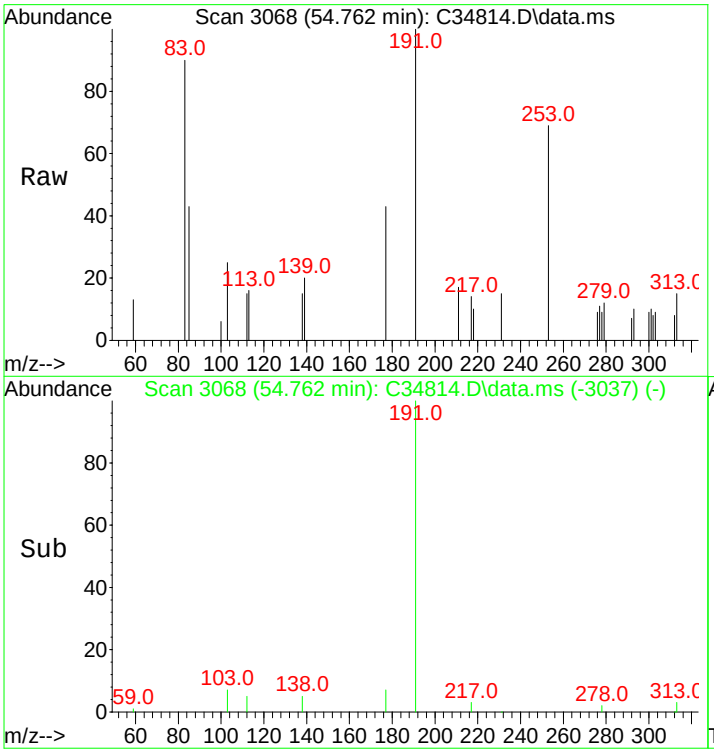




#117
30-Homohopane-22R (T22)
Concen: 127.49 ng/ml
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

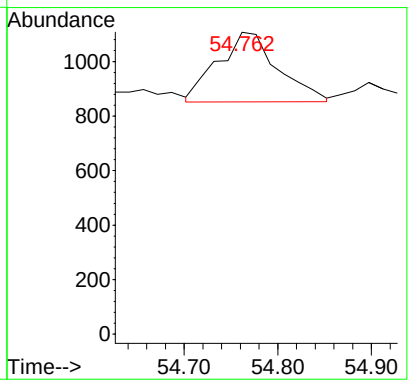
Tgt Ion:191 Resp: 2418

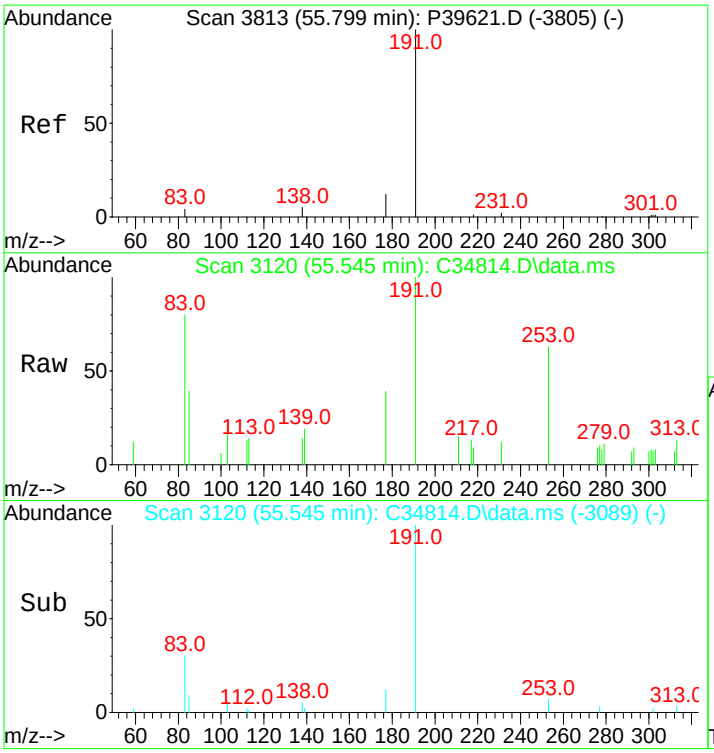




#118
Gammacerane/C32-diahopane
Concen: 59.95 ng/mL
RT: 54.762 min Scan# 3068
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

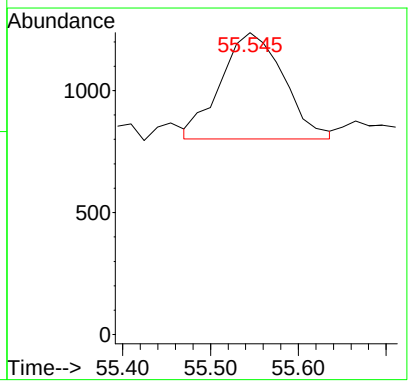
Tgt Ion:191 Resp: 1137

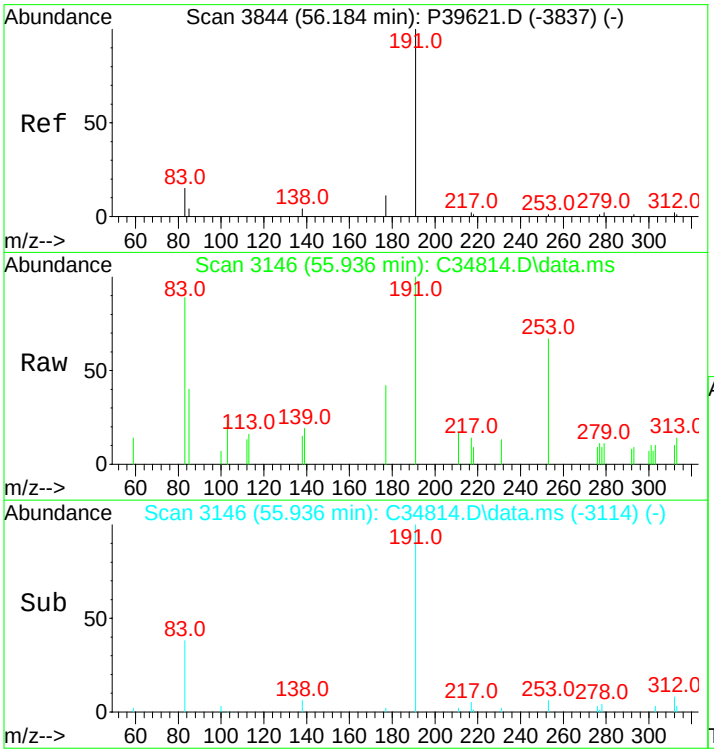




#119
30,31-Bishomohopane-22S (T26)
Concen: 113.99 ng/ml m
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

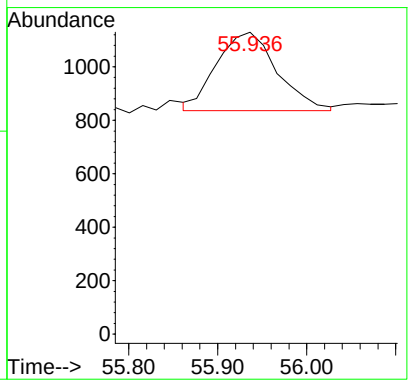
Tgt Ion:191 Resp: 2162

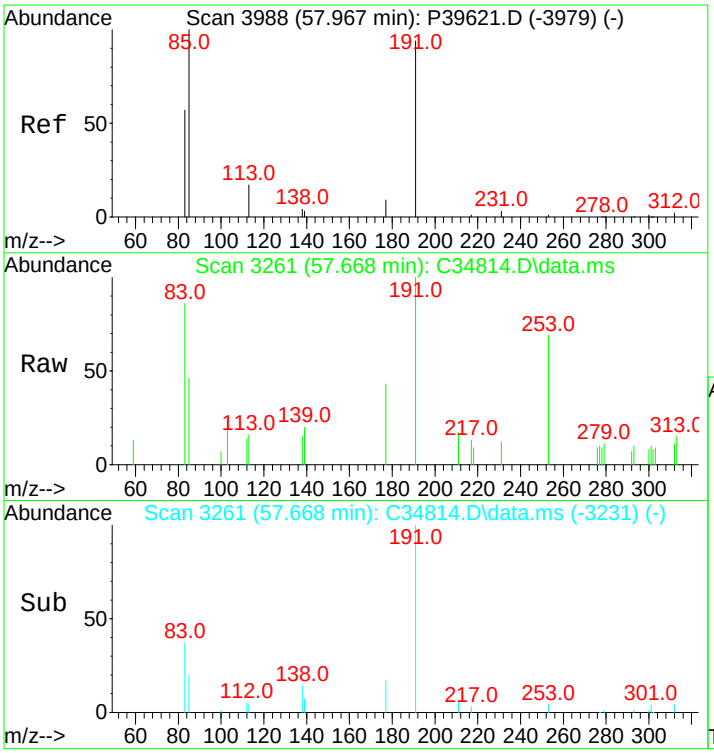




#120
30,31-Bishomohopane-22R (T27)
Concen: 73.08 ng/ml m
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

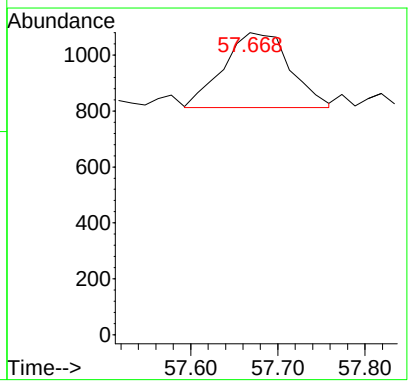
Tgt Ion:191 Resp: 1386

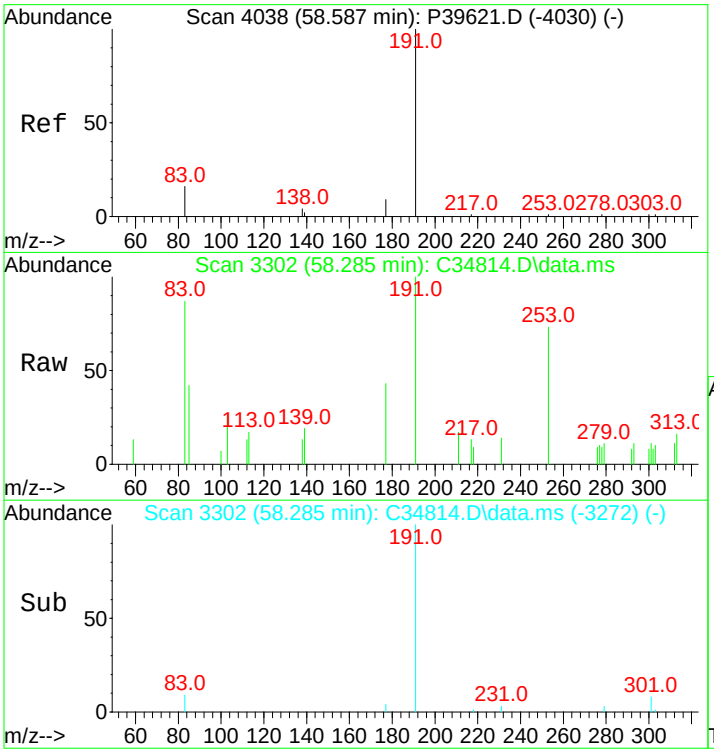




#121
30,31-Trishomohopane-22S (T30)
Concen: 74.82 ng/ml m
RT: 57.668 min Scan# 3261
Delta R.T. -0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

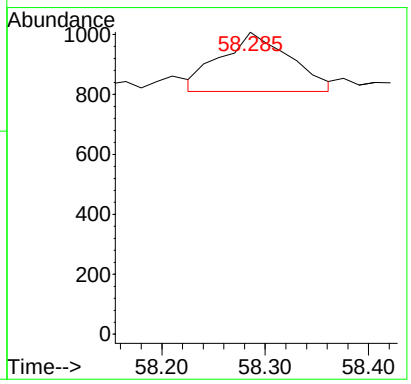
Tgt Ion:191 Resp: 1419

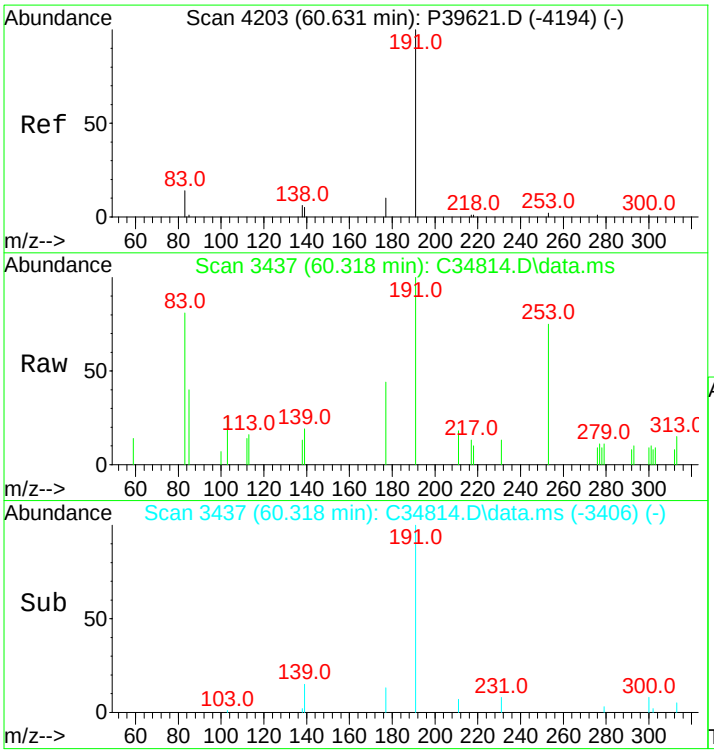




#122
30,31-Trishomohopane-22R (T31)
Concen: 48.45 ng/ml m
RT: 58.285 min Scan# 3302
Delta R.T. -0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

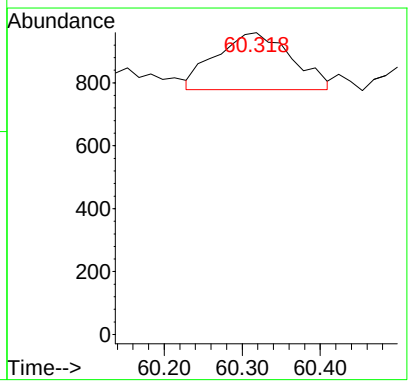
Tgt Ion:191 Resp: 919

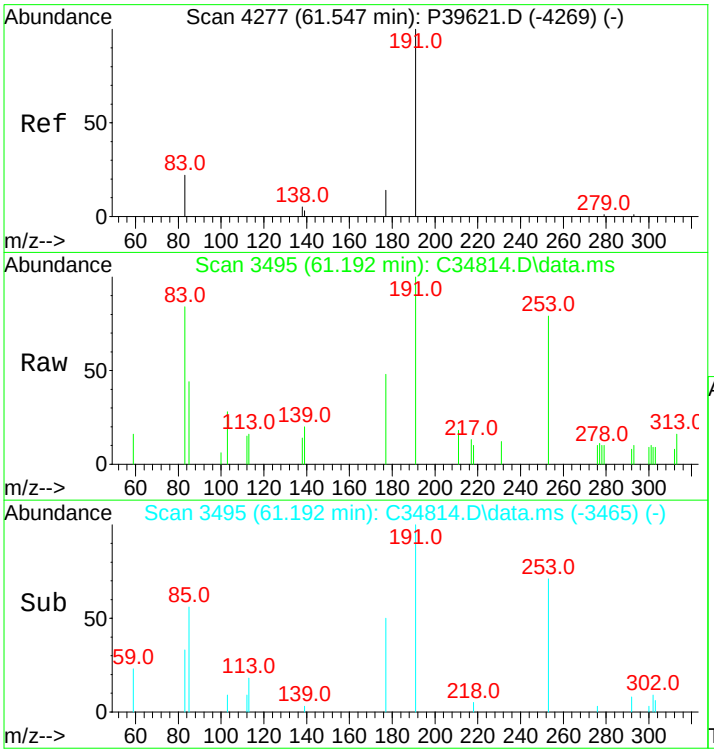




#123
Tetrakishomohopane-22S (T32)
Concen: 64.48 ng/ml m
RT: 60.318 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

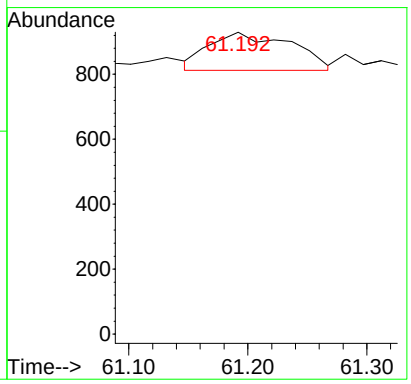
Tgt Ion:191 Resp: 1223

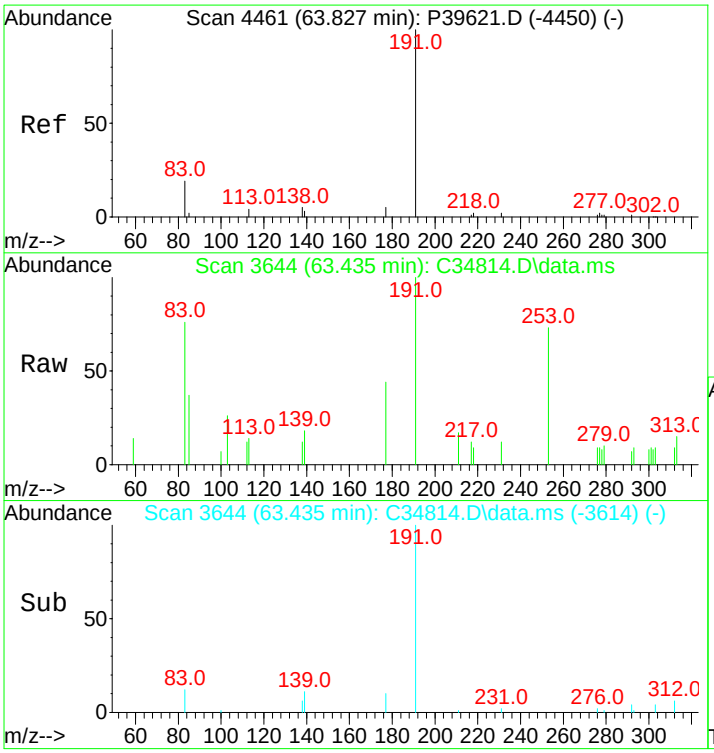




#124
Tetrakishomohopane-22R (T33)
Concen: 29.74 ng/ml m
RT: 61.192 min Scan# 3495
Delta R.T. -0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

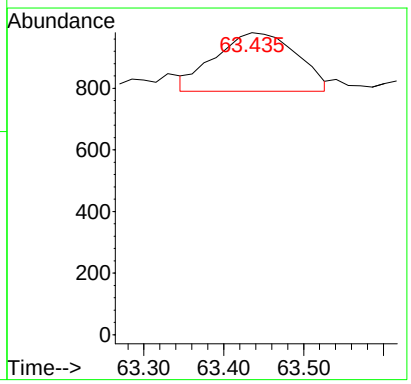
Tgt Ion:191 Resp: 564

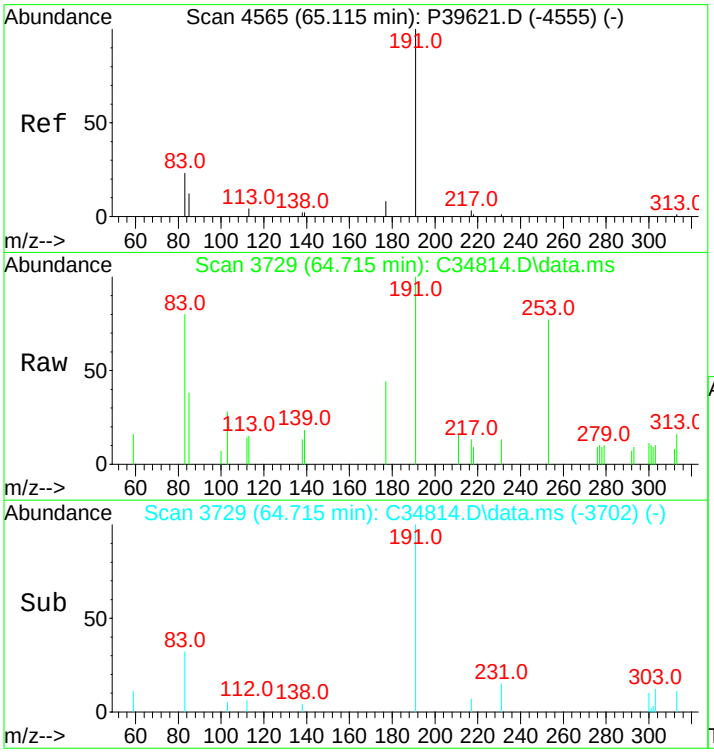




#125
Pentakishomohopane-22S (T34)
Concen: 71.34 ng/ml m
RT: 63.435 min Scan# 3644
Delta R.T. -0.045 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

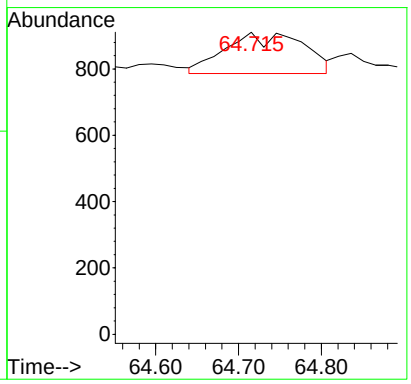
Tgt Ion:191 Resp: 1353

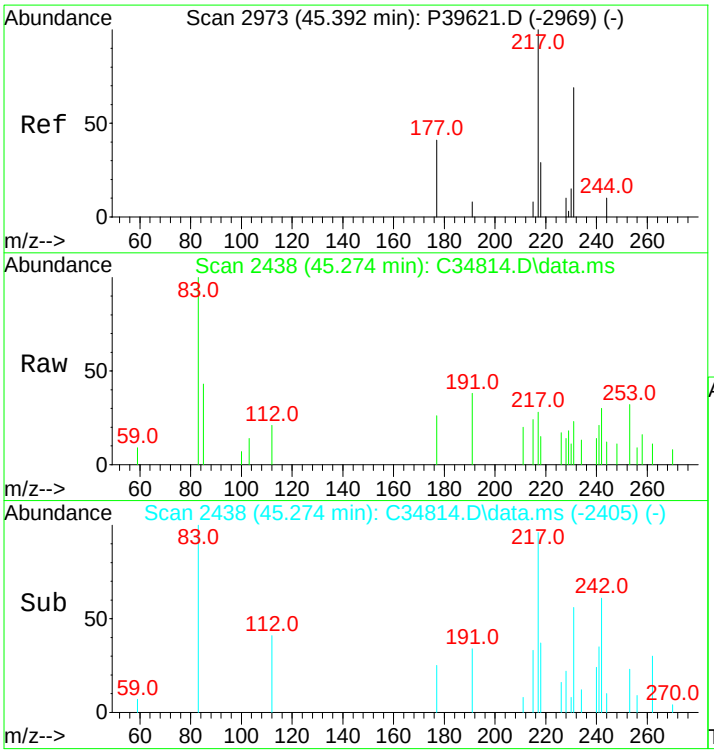




#126
Pentakishomohopane-22R (T35)
Concen: 42.87 ng/ml m
RT: 64.715 min Scan# 3729
Delta R.T. -0.090 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

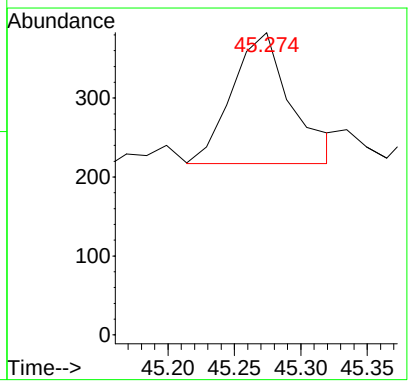
Tgt Ion:191 Resp: 813

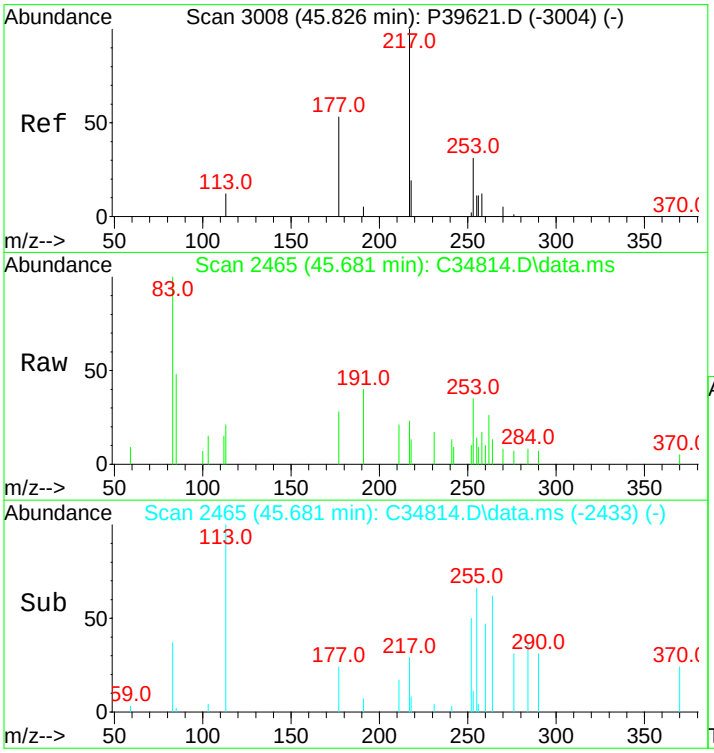




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 57.13 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. -0.000 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

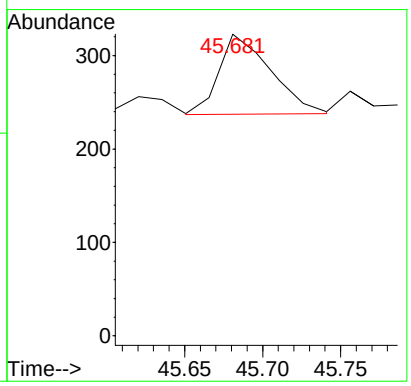
Tgt Ion:217 Resp: 514

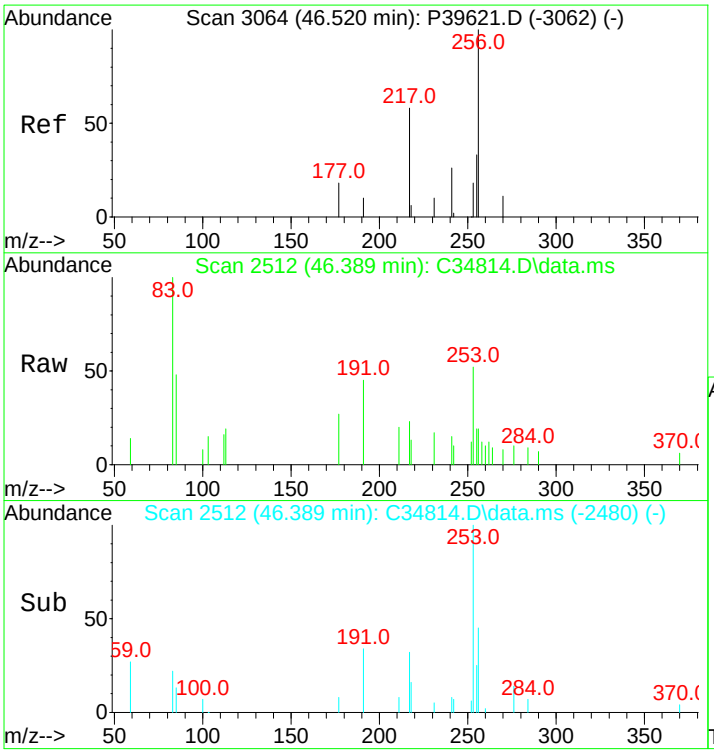




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 21.90 ng/ml
RT: 45.681 min Scan# 2465
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

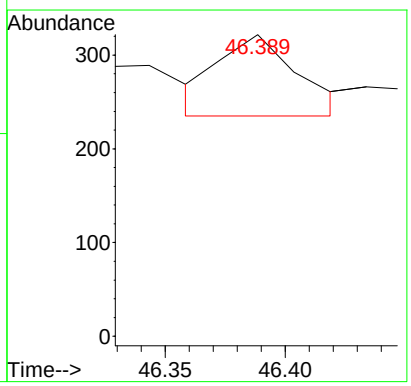
Tgt Ion:217 Resp: 197

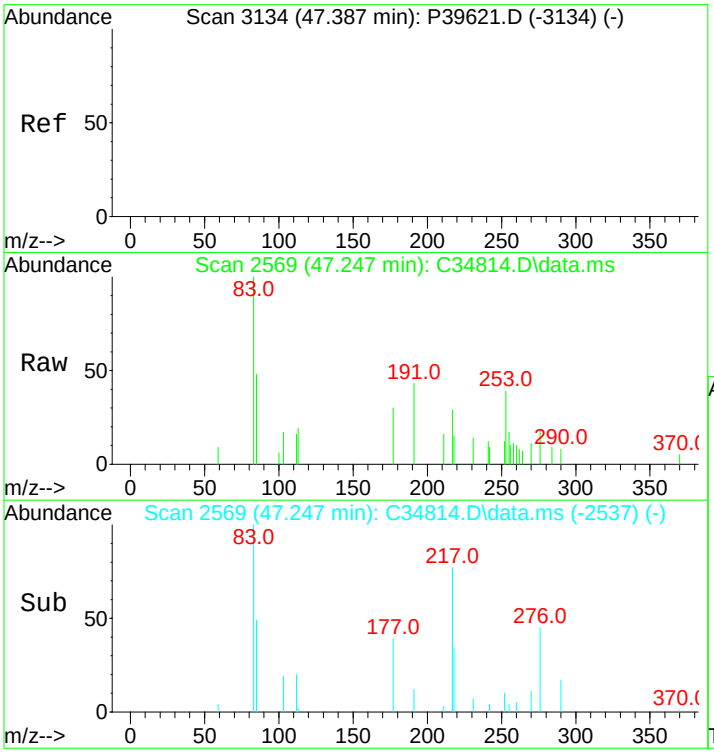




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 22.23 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

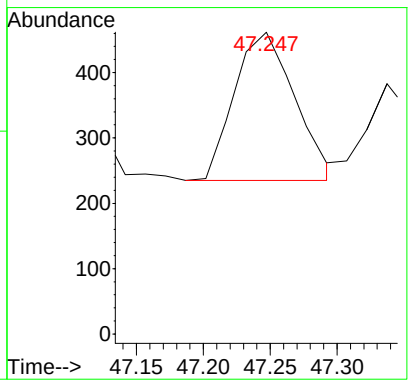
Tgt Ion:217 Resp: 200

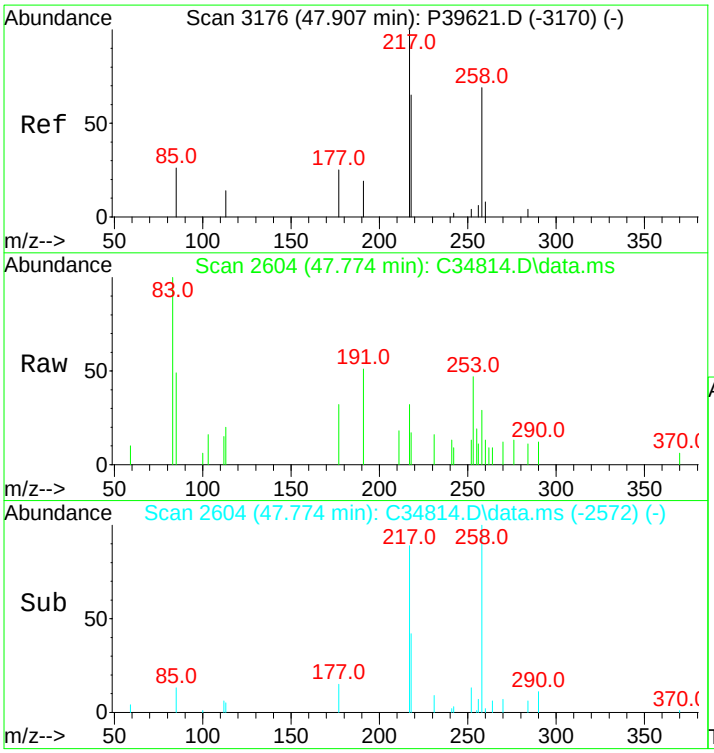




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 79.25 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

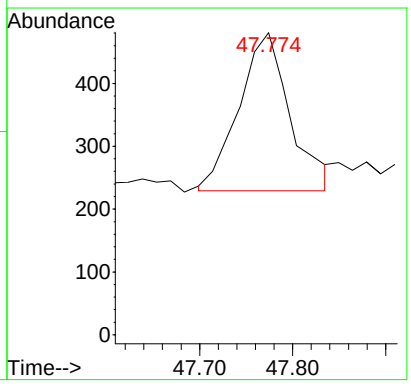
Tgt Ion:217 Resp: 713

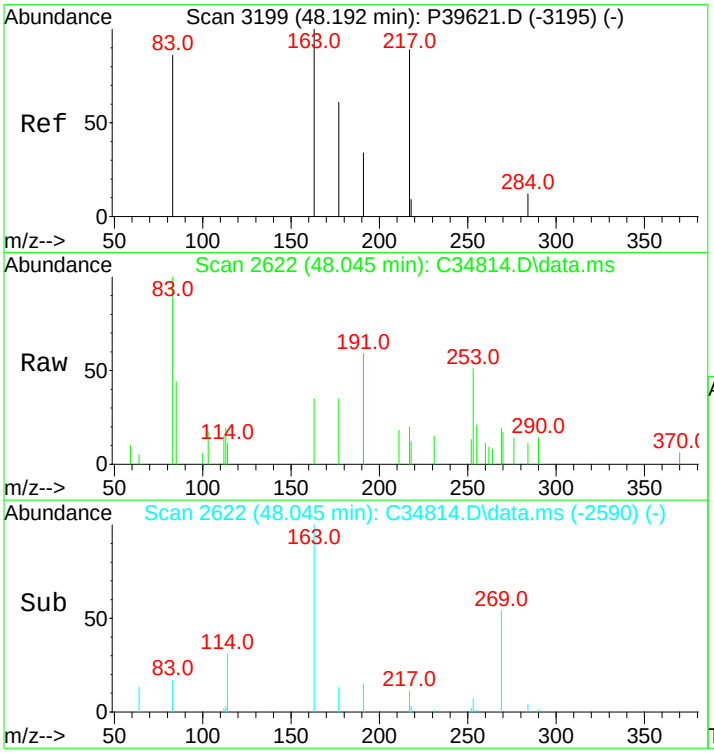




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 106.70 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

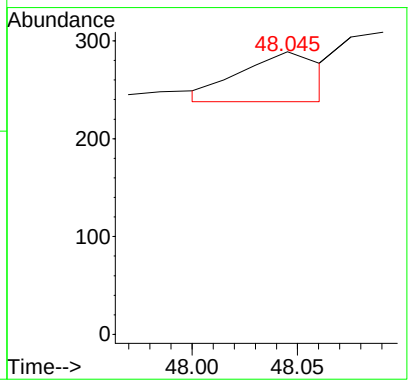
Tgt Ion:217 Resp: 960

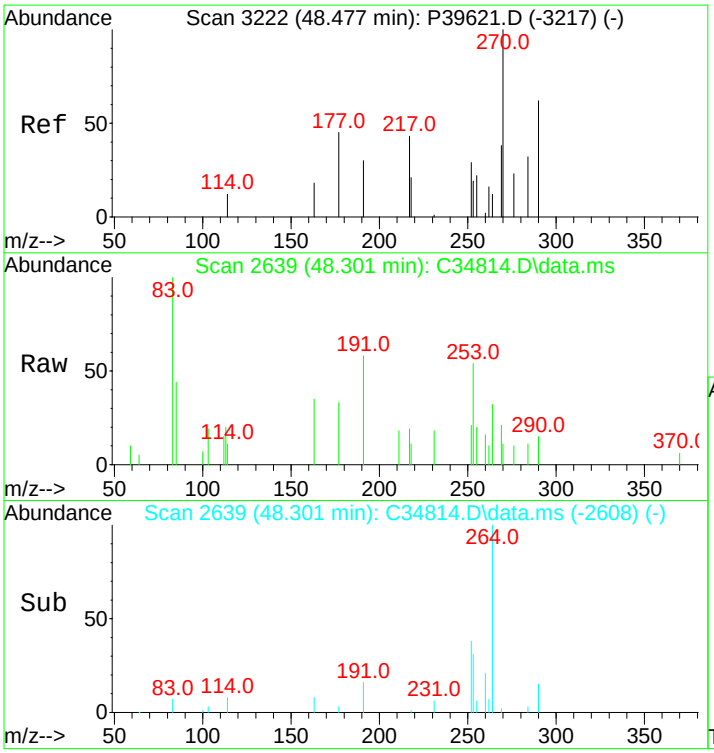




#133
Unknown Sterane (S18)
Concen: 15.00 ng/ml m
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

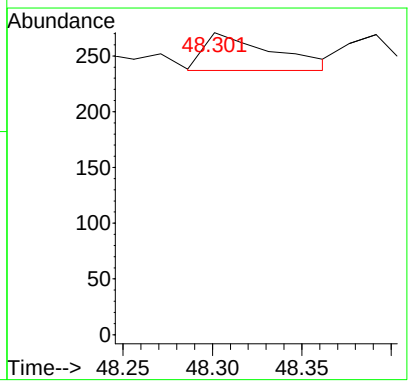
Tgt Ion:217 Resp: 135

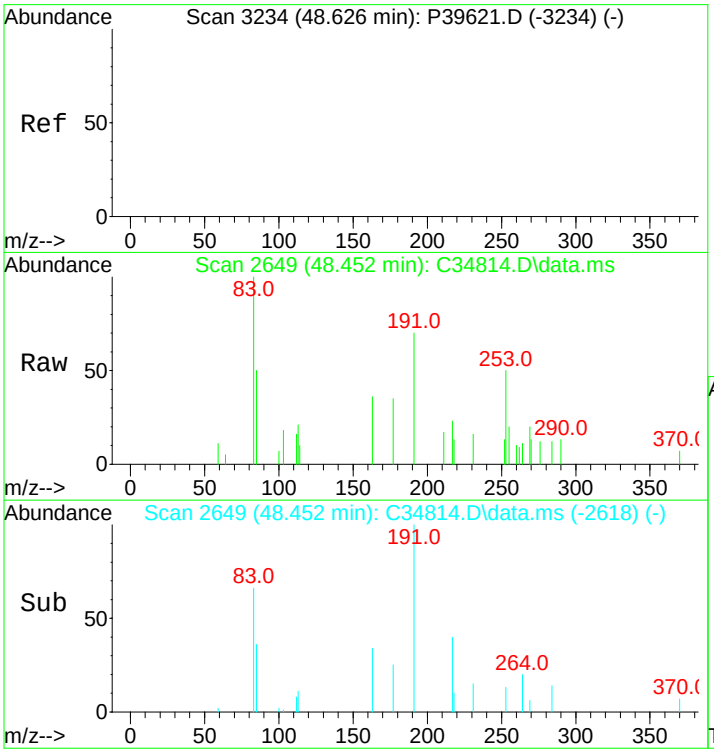




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 10.11 ng/ml m
RT: 48.301 min Scan# 2639
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

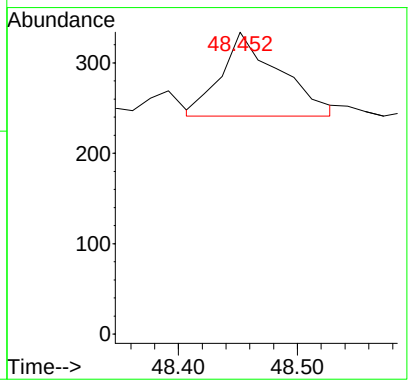
Tgt Ion:217 Resp: 91

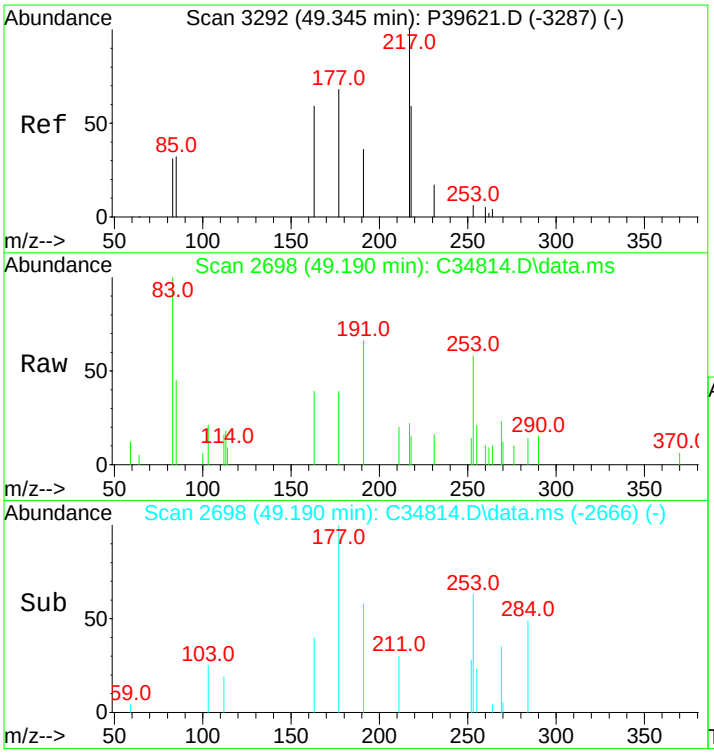




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 35.23 ng/ml m
RT: 48.452 min Scan# 2649
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

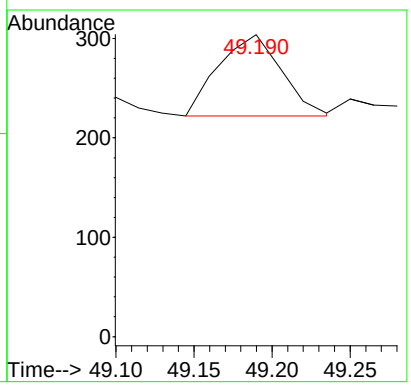
Tgt Ion:217 Resp: 317

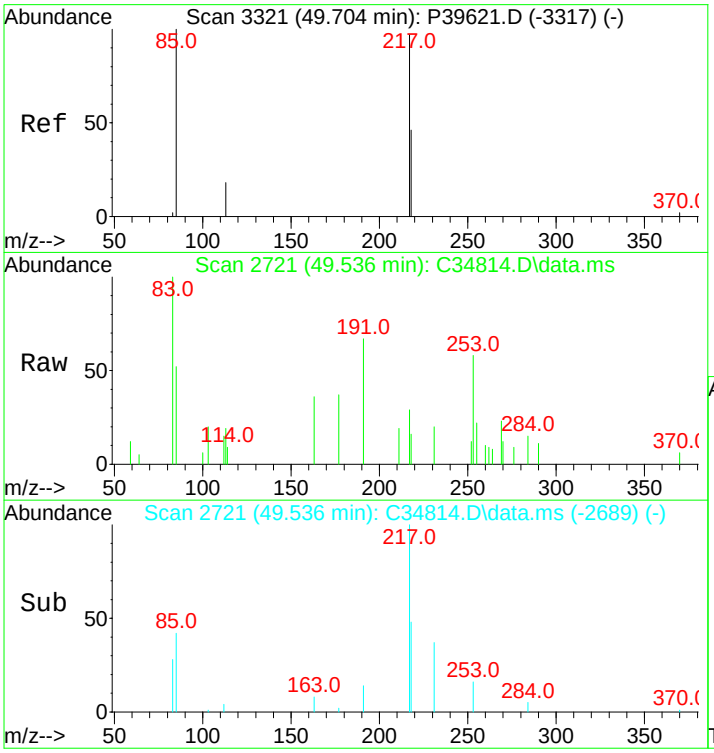




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 25.56 ng/ml
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

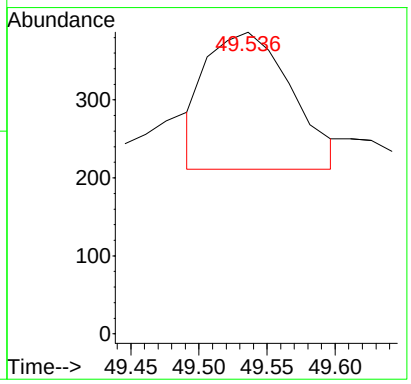
Tgt Ion:217 Resp: 230

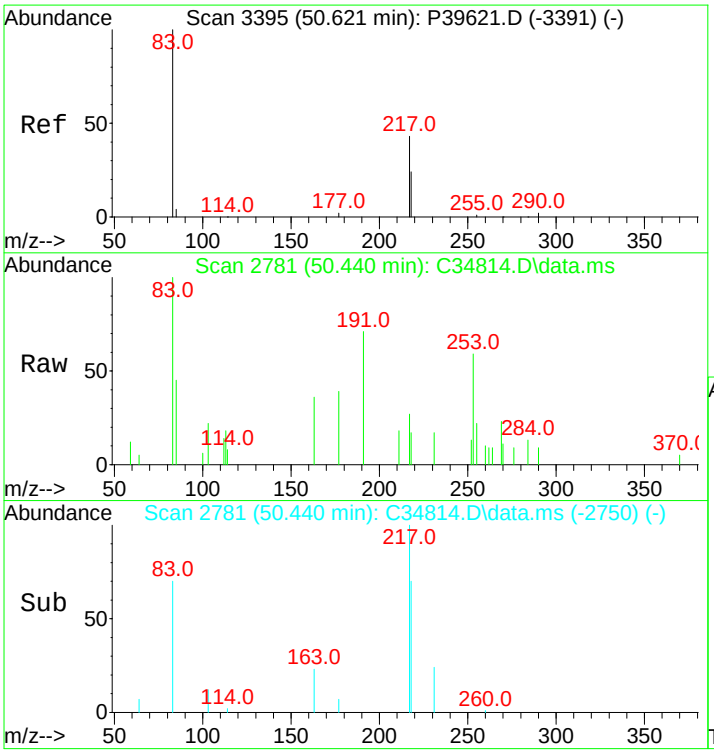




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 84.80 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

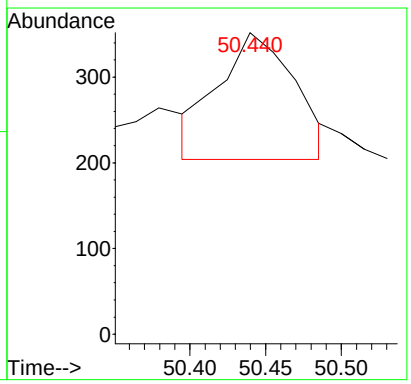
Tgt Ion:217 Resp: 763

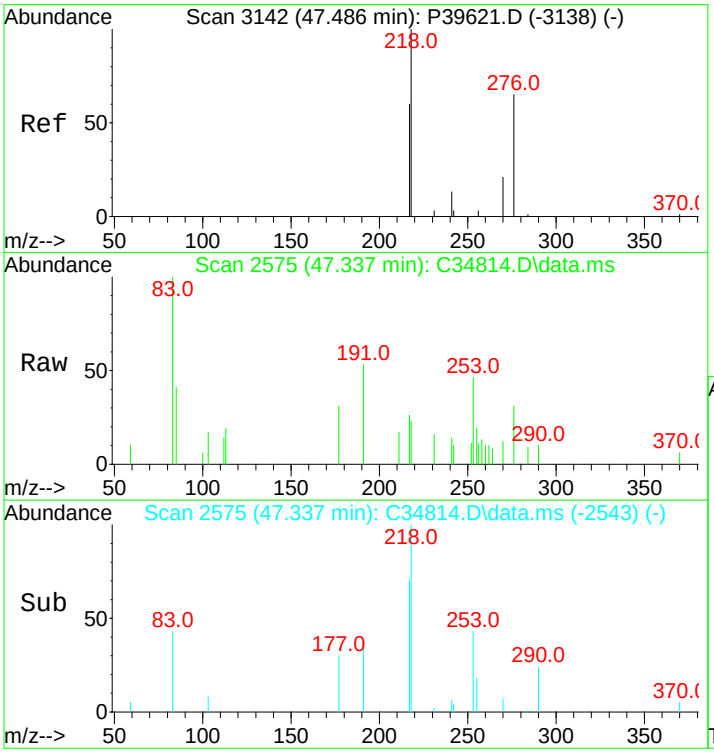




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 57.57 ng/ml m
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

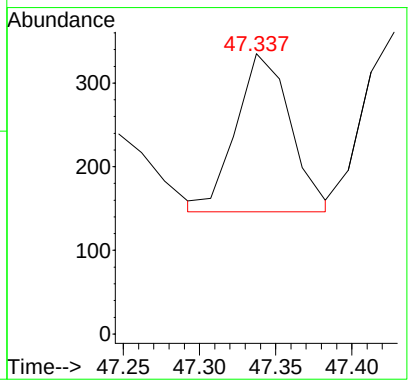
Tgt Ion:217 Resp: 518

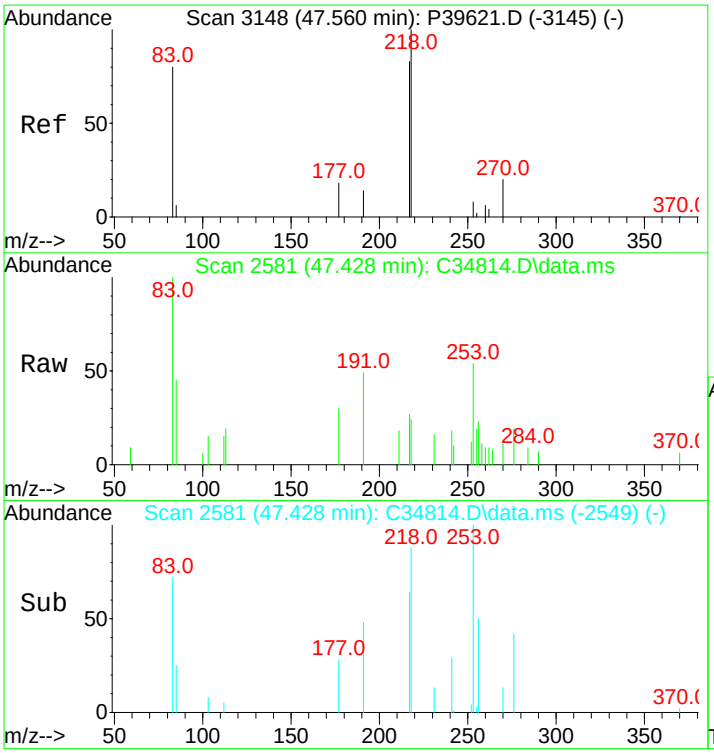




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 52.35 ng/ml m
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

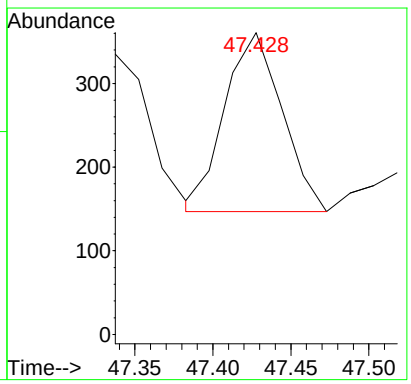
Tgt Ion:218 Resp: 471

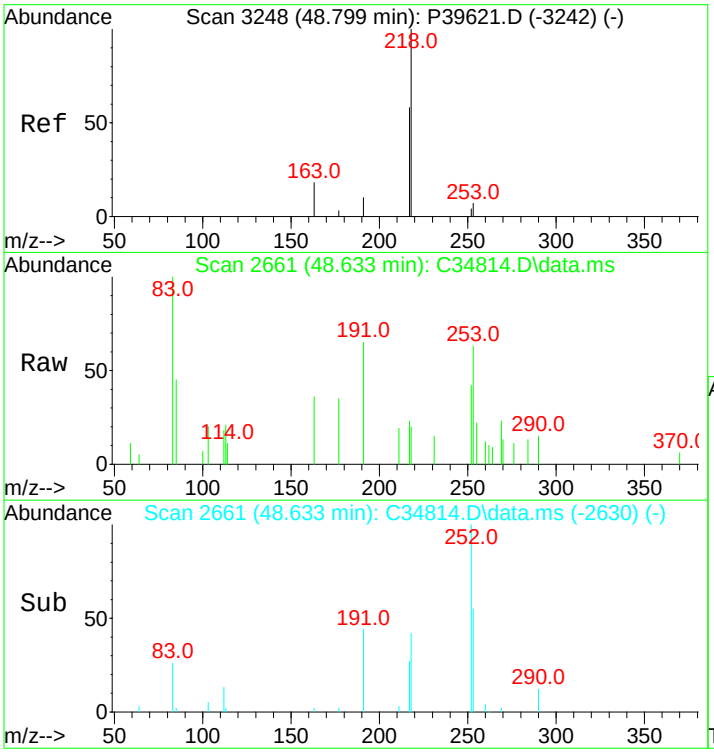




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 60.69 ng/ml
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

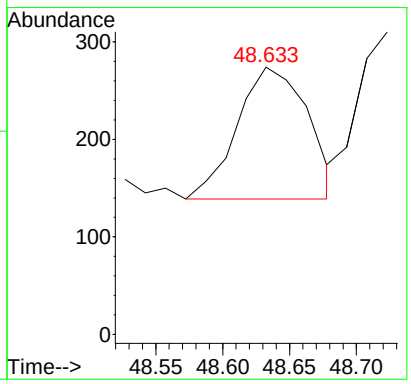
Tgt Ion:218 Resp: 546

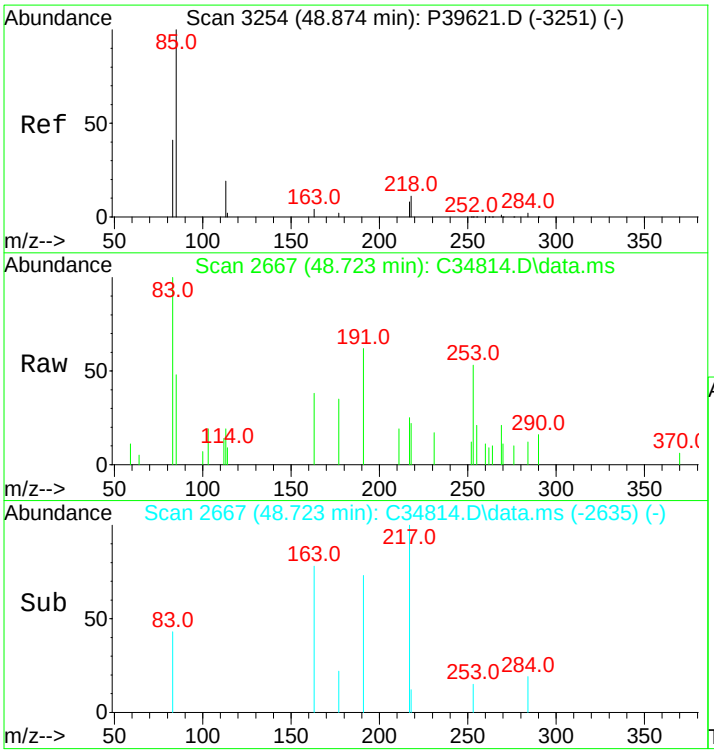




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 55.24 ng/ml
RT: 48.633 min Scan# 2661
Delta R.T. -0.030 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

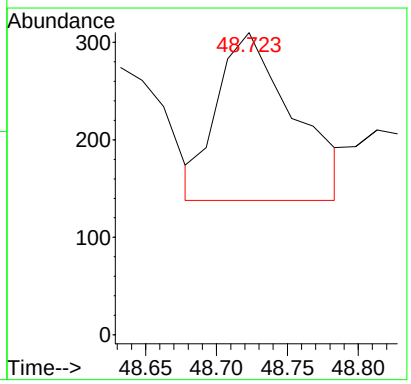
Tgt Ion:218 Resp: 497

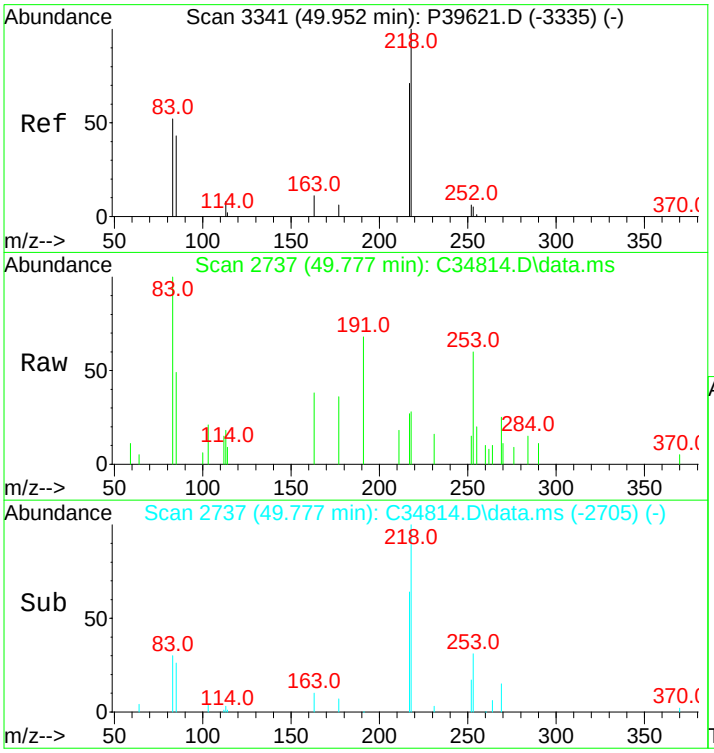




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 71.47 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

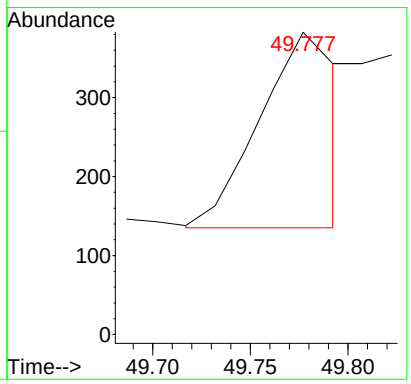
Tgt Ion:218 Resp: 643

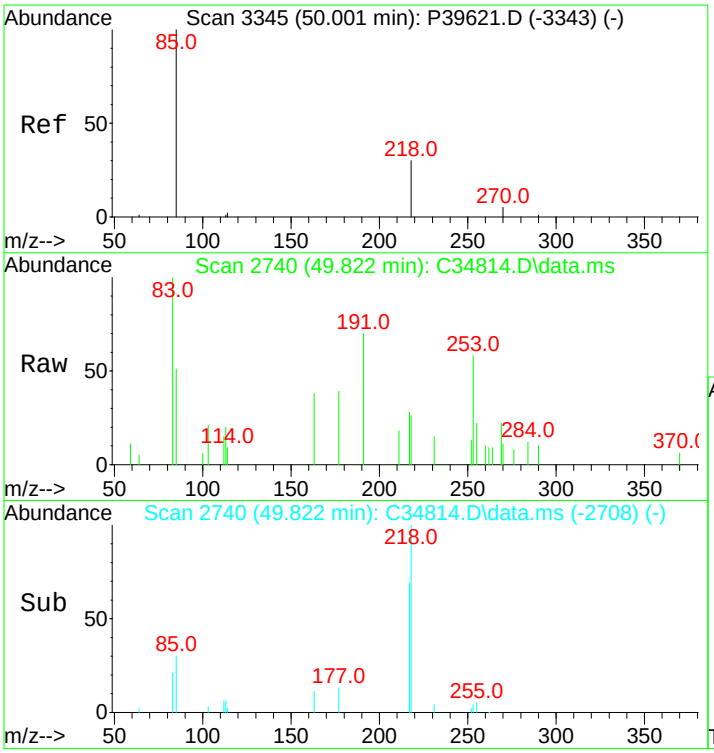




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 76.14 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

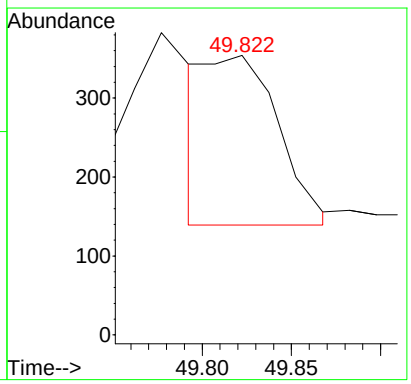
Tgt Ion:218 Resp: 685

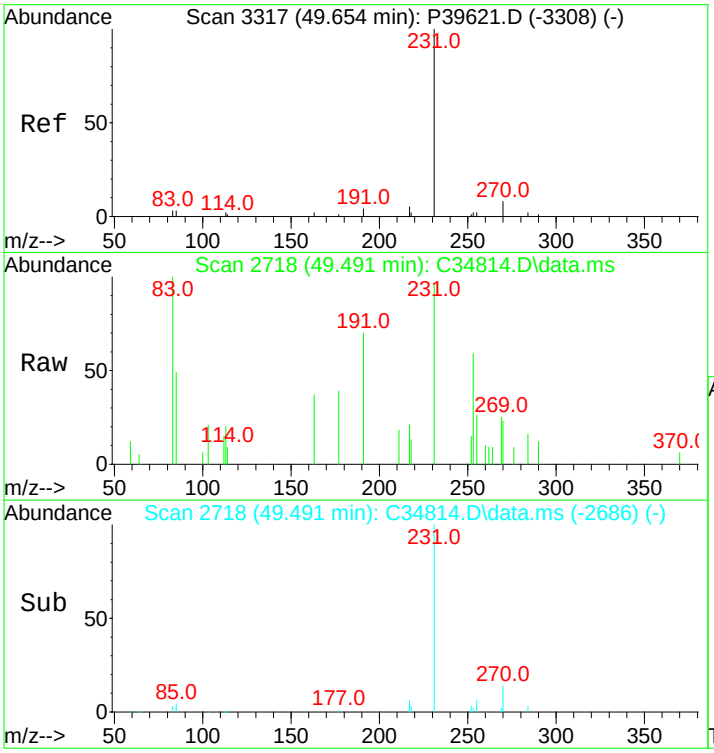




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 66.80 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

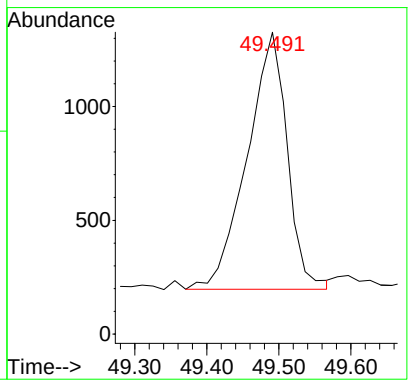
Tgt Ion:218 Resp: 601

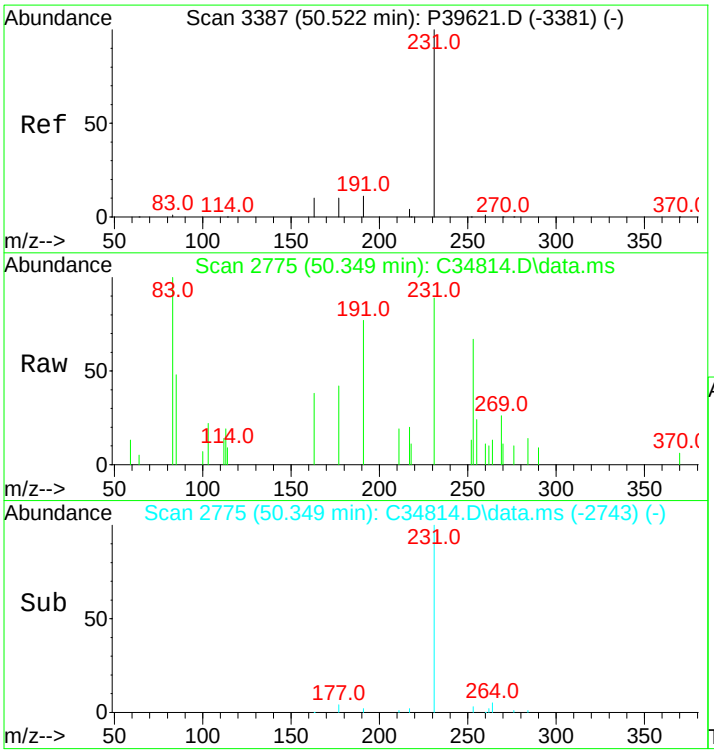




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 484.82 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

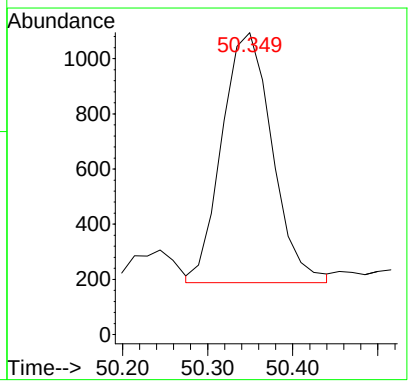
Tgt Ion:231 Resp: 4362

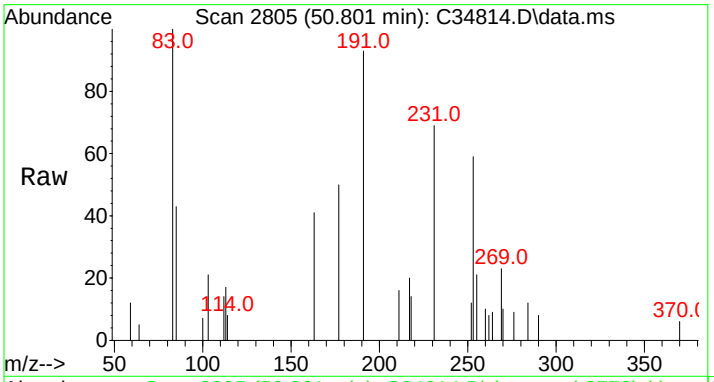




#146
C28,20S-triaromatic steroid
Concen: 414.35 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

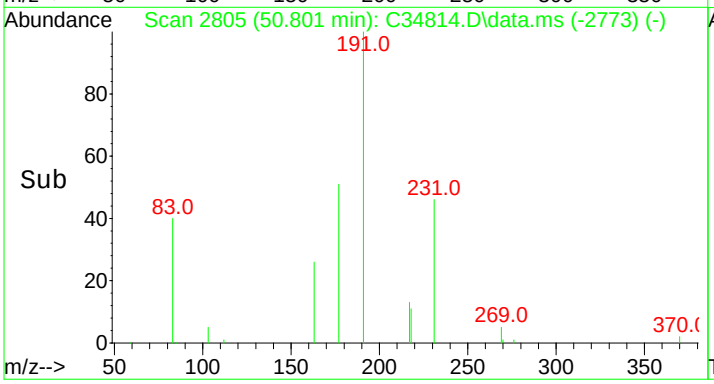
Tgt Ion:231 Resp: 3728

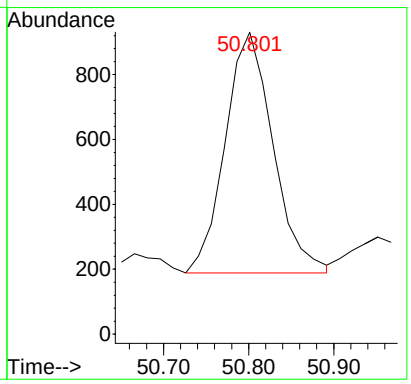


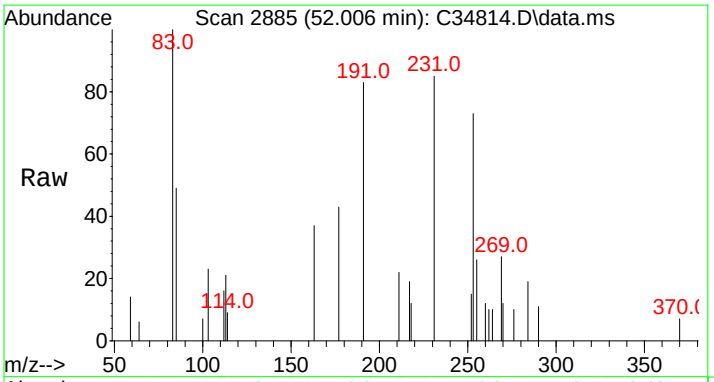


#147
C27,20R-triaromatic steroid
Concen: 322.55 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:231 Resp: 2902

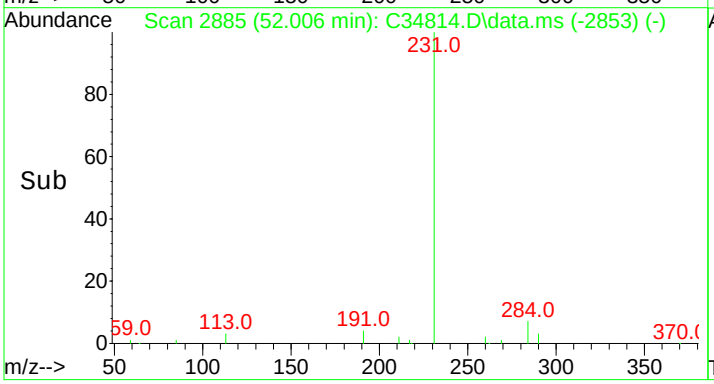


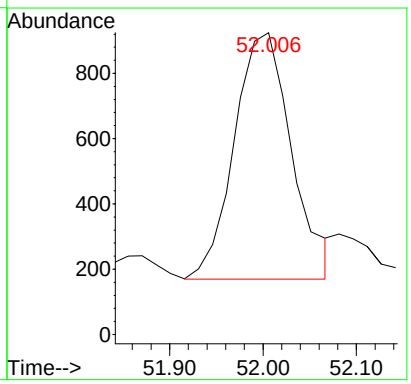




#148
C28,20R-triaromatic steroid
Concen: 357.78 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34814.D
Acq: 3 May 2012 4:28 pm

Tgt Ion:231 Resp: 3219





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18217M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34683	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	62571	791.373	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 79.14%			
42) Phenanthrene-d10	32.567	188	59938	959.080	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.91%			
86) Benzo[a]pyrene-d12	48.241	264	63749	886.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.69%			
127) 5B(H)Cholane - Surr	43.769	217	11540	1064.216	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.42%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	39M2	2.712	ng/mL	
5) C1-Decalins	17.859	152	297M5	20.653	ng/mL	
6) C2-Decalins	20.795	166	1059M5	73.641	ng/mL	
7) C3-Decalins	22.119	180	1338M5	93.042	ng/mL	
8) C4-Decalins	25.492	194	3689M5	256.525	ng/mL	
10) Naphthalene	19.801	128	238M3	2.050	ng/mL	
11) C1-Naphthalenes	22.496	142	1325M5	11.412	ng/mL	
12) C2-Naphthalenes	25.341	156	15706M5	135.274	ng/mL	
13) C3-Naphthalenes	28.021	170	64149M5	552.507	ng/mL	
14) C4-Naphthalenes	30.444	184	98358M5	847.145	ng/mL	
16) 2-Methylnaphthalene	22.496	142	674	9.818	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	574M3	8.530	ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	932M5	8.920	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2407M5	23.038	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	13986M5	133.863	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	30558M5	292.476	ng/mL	
23) Biphenyl	24.378	154	226	2.602	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	3326	58.969	ng/mL#	100
25) Dibenzofuran	27.464	168	381	3.821	ng/mL#	1
26) Acenaphthylene	26.079	152	212M3	1.839	ng/mL	
27) Acenaphthene	26.816	153	259M3	3.817	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	3869M3	85.094	ng/mL	
29) Fluorene	28.834	166	1267M3	16.929	ng/mL	
30) C1-Fluorenes	31.197	180	12136M5	162.151	ng/mL	
31) C2-Fluorenes	33.395	194	42754M5	571.243	ng/mL	
32) C3-Fluorenes	35.232	208	61708M5	824.491	ng/mL	
33) Dibenzothiophene	32.161	184	10918	91.003	ng/mL#	14
34) 4-Methyldibenzothiophe...	33.937	198	30134	251.172	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	25548	212.947	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.705	198	17300	144.198	ng/mL#	100
37) OTP	34.344	198	9594M3	79.968	ng/mL	
38) C1-Dibenzothiophenes	33.937	198	87809M5	731.902	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	183597M5	1530.311	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	219471M5	1829.326	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	153023M5	1275.471	ng/mL	
43) Phenanthrene	32.657	178	14072M3	133.502	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	14850	140.882	ng/mL	85
45) 2/4-Methylphenanthrene...	34.735	192	17288M3	164.012	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	1732M3	16.432	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	25609	242.953	ng/mL	96
48) 1-Methylphenanthrene(1MP)	35.157	192	15115M3	143.396	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	76923M5	729.771	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	144016M5	1366.284	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	133696M5	1268.378	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	70477M5	668.618	ng/mL	
56) Carbazole	33.485	167	1856M3	17.846	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
57) 1-Methylphenanthrene	35.157	192	15358M3	229.916	ng/mL	
58) Fluoranthene	37.430	202	3671M3	35.066	ng/mL	
60) Pyrene	38.303	202	10589M3	99.505	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.703	216	37541M5	352.773	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	54270M5	509.976	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	59846M5	562.373	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.883	258	59783M5	561.781	ng/mL	
66) Naphthobenzothiophene	42.158	234	16355	142.754	ng/ml#	88
67) Naphthobenzothiophene-...	42.158	234	16355	142.754	ng/mL#	88
68) Naphthobenzothiophene-...	42.504	234	4363M3	38.082	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2508M3	21.891	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	78100M5	681.693	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	116254M5	1014.719	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	100756M5	879.445	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	75206M5	656.433	ng/mL	
75) Benz[a]anthracene	43.091	228	2221M3	20.176	ng/mL	
77) Chrysene/Triphenylene	43.227	228	10697M3	96.250	ng/mL	
78) C1-Chrysenes	44.717	242	28260M5	254.278	ng/mL	
79) C2-Chrysenes	46.795	256	45332M5	407.889	ng/mL	
80) C3-Chrysenes	48.015	270	53350M5	480.033	ng/mL	
81) C4-Chrysenes	49.521	284	33895M5	304.981	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3908	32.308	ng/mL#	72
83) Benzo[j]+[k]fluoranthene	47.202	252	1159M3	8.801	ng/mL	
85) Benzo[e]pyrene	48.136	252	5744M3	48.009	ng/mL	
87) Benzo[a]pyrene	48.331	252	2924M3	25.384	ng/mL	
88) Perylene	48.633	252	5727M3	46.520	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	2144M3	15.994	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	791M3	6.203	ng/mL	
91) Benzo[g,h,i]perylene	54.446	276	4950M3	34.951	ng/mL	
92) Hopane (T19)	52.217	191	31425	1374.759	ng/mL#	78
94) C23 Tricyclic Terpane ...	40.788	191	12564M3	549.641	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	7748	338.954	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	6744M3	295.032	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	2463	107.750	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	2601M3	113.787	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2568M3	112.343	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2801M3	122.536	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	3110M3	136.054	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	3635	159.021	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3415M3	149.397	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	4040	176.739	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2615M3	114.399	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	3140M3	137.366	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191	8747M3	382.658	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	5271M3	230.592	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.973	191	1440	62.996	ng/ml	100
110) 30-Norhopane (T15)	50.847	191	21828M3	954.916	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	3217M3	140.735	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	1218M3	53.284	ng/ml	
113) 30-Normoretane (T17)	51.615	191	2427	106.175	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.006	191	764	33.423	ng/ml	100
115) Moretane (T20)	52.910	191	2476M3	108.318	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	12794M3	559.703	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	10376	453.922	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	4866M3	212.874	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	8373	366.296	ng/ml	100
120) 30,31-Bishomohopane-22...	55.952	191	6059M3	265.065	ng/ml	
121) 30,31-Trishomohopane-2...	57.683	191	6682M3	292.319	ng/ml	
122) 30,31-Trishomohopane-2...	58.316	191	4204M3	183.914	ng/ml	
123) Tetrakishomohopane-22S...	60.334	191	4474	195.725	ng/ml	100
124) Tetrakishomohopane-22R...	61.222	191	3310M3	144.804	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S...	63.451	191	5656M3	247.435	ng/ml	
126) Pentakishomohopane-22R...	64.731	191	3628M3	158.715	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	2364	218.007	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	943M3	86.963	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	1040M3	95.909	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	3387	312.348	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	4525M3	417.294	ng/ml	
133) Unknown Sterane (S18)	48.060	217	885	81.614	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	350	32.277	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1692	156.036	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1626M3	149.949	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217	3590M3	331.069	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2726M3	251.391	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.352	218	2470M3	227.783	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	2345M3	216.255	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1962	180.935	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	2676M3	246.780	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	3678M3	339.184	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	2686M3	247.702	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	20730	1911.715	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	17100M3	1576.957	ng/mL	
147) C27,20R-triaromatic st...	50.801	231	13540	1248.655	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	14845M3	1369.002	ng/mL	

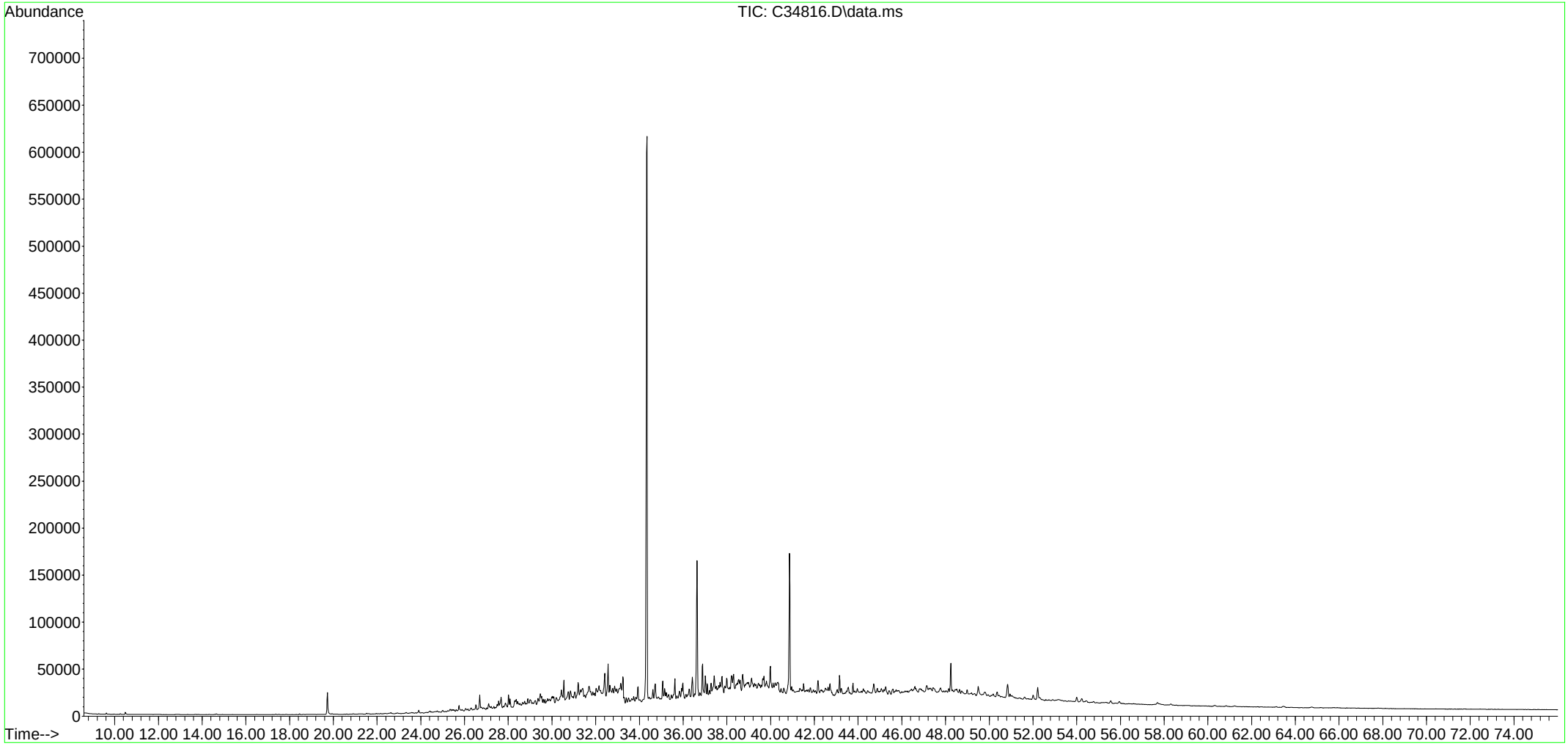
(#) = qualifier out of range (m) = manual integration (+) = signals summed

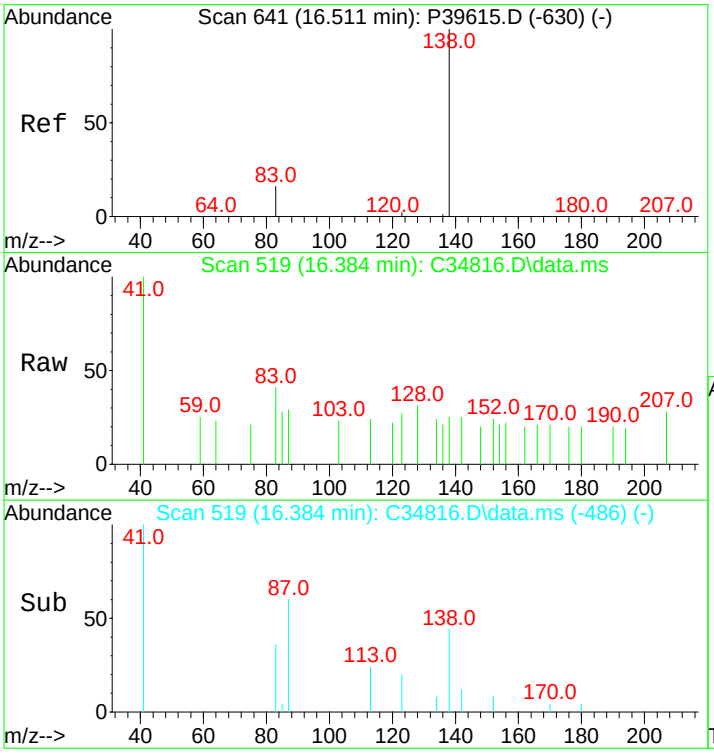
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34816.D
Acq On : 3 May 2012 5:58 pm
Operator : AC
Sample : 1204035-04
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 05 13:20:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

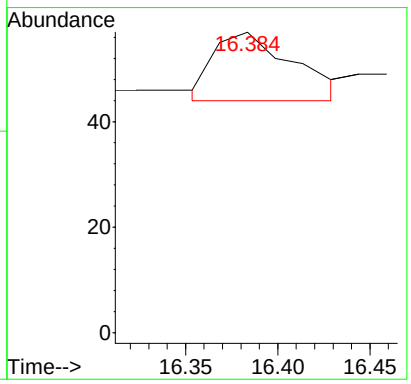
Sub List : Gulf_NEW_POIB_Default - All compounds listed

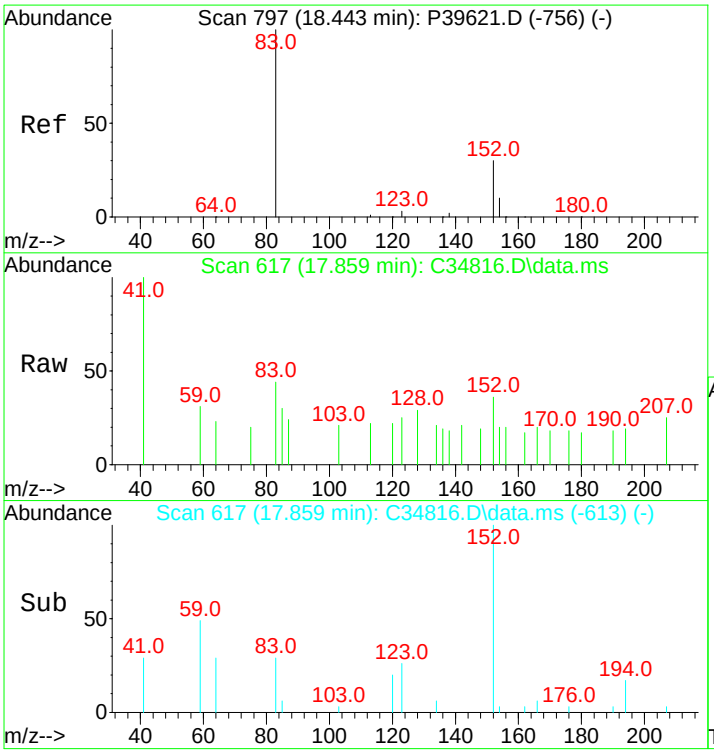




#3
trans-Decalin
Concen: 2.71 ng/mL m
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

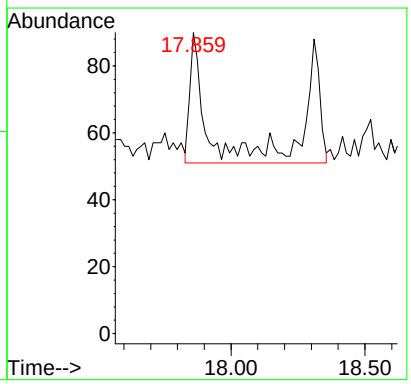
Tgt Ion:138 Resp: 39

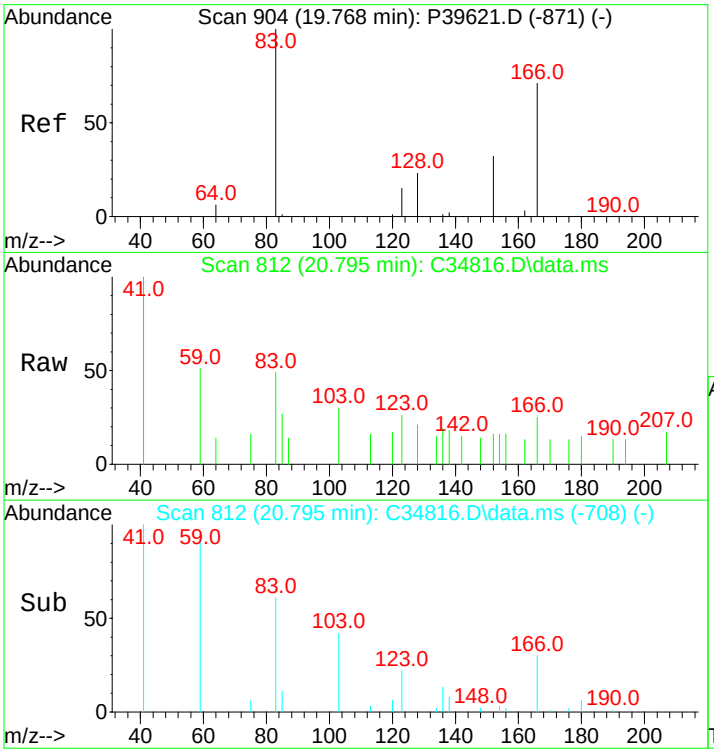




#5
C1-Decalins
Concen: 20.65 ng/mL m
RT: 17.859 min Scan# 617
Delta R.T. -0.489 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

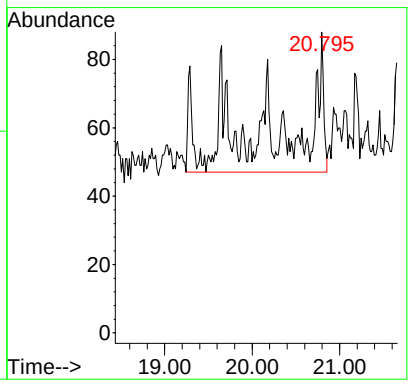
Tgt Ion:152 Resp: 297

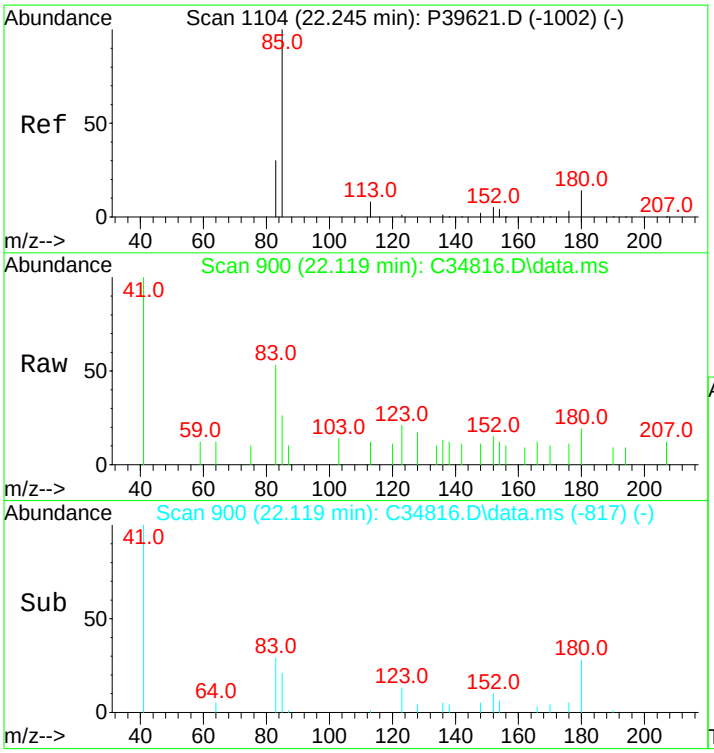




#6
C2-Decalins
Concen: 73.64 ng/mL m
RT: 20.795 min Scan# 812
Delta R.T. 1.112 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

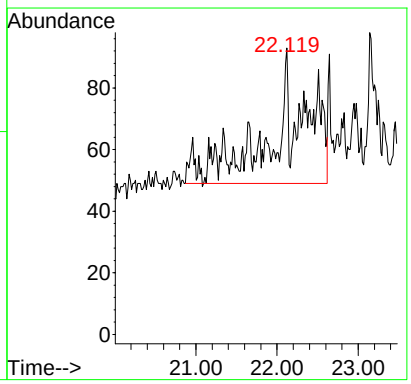
Tgt Ion:166 Resp: 1059

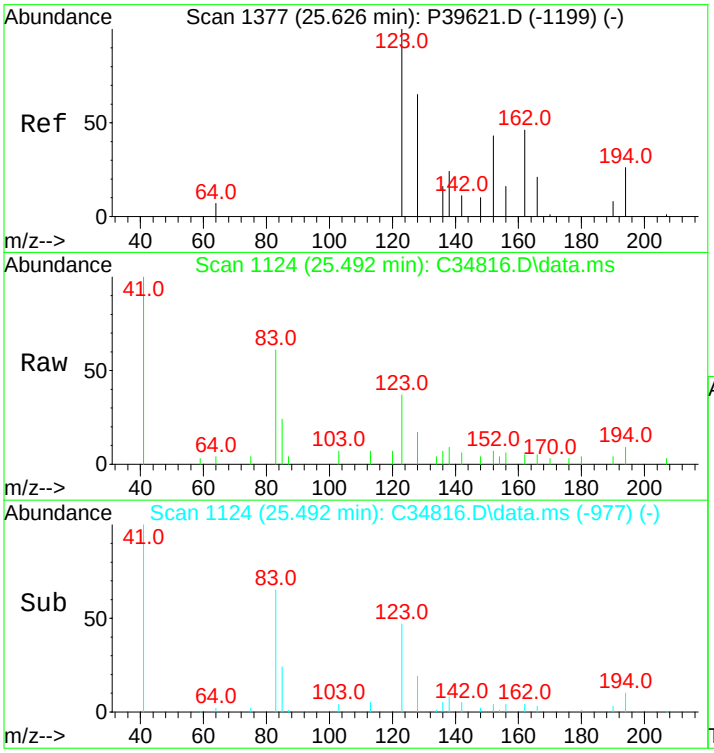




#7
C3-Decalins
Concen: 93.04 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

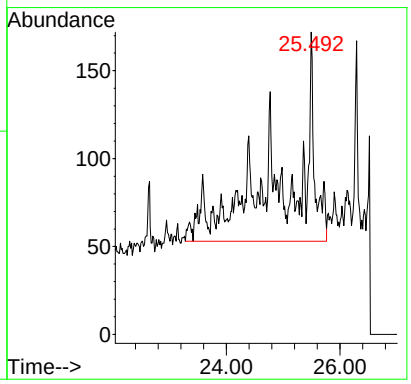
Tgt Ion:180 Resp: 1338

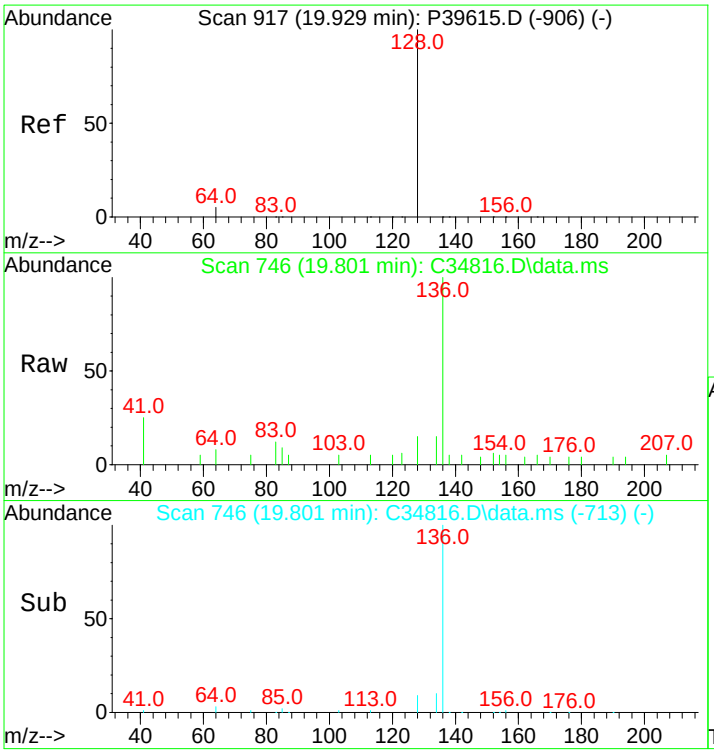




#8
C4-Decalins
Concen: 256.53 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.021 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:194 Resp: 3689

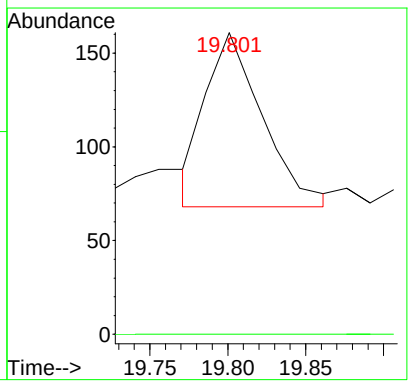


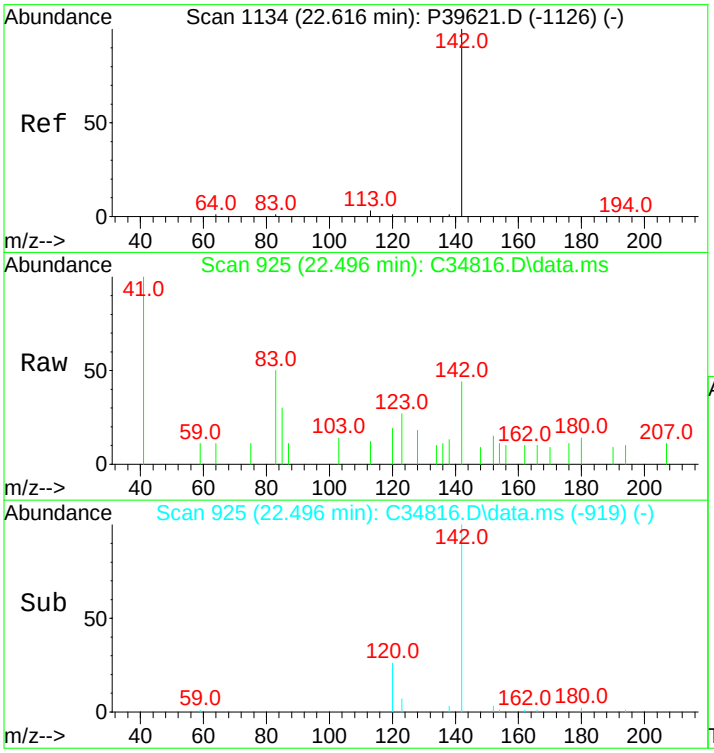


#10
Naphthalene
Concen: 2.05 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:128 Resp: 238

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

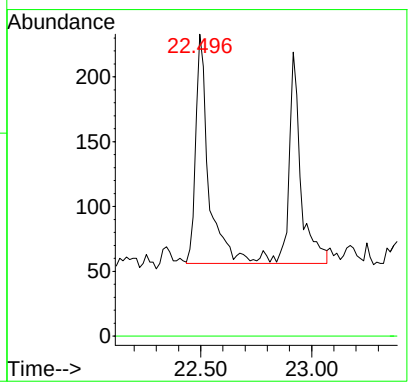


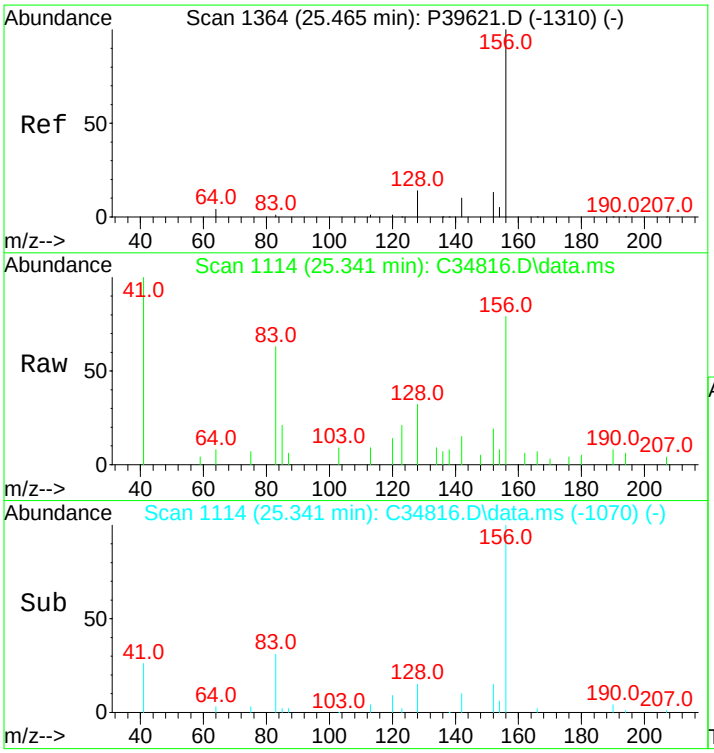


#11
C1-Naphthalenes
Concen: 11.41 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:142 Resp: 1325

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

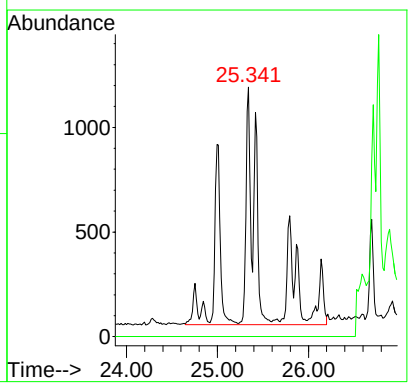


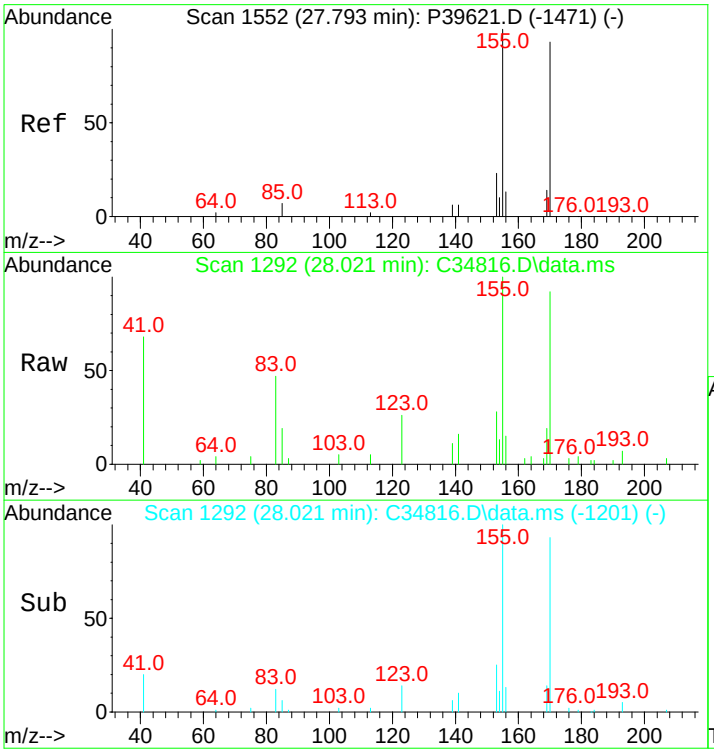


#12
C2-Naphthalenes
Concen: 135.27 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:156 Resp: 15706

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

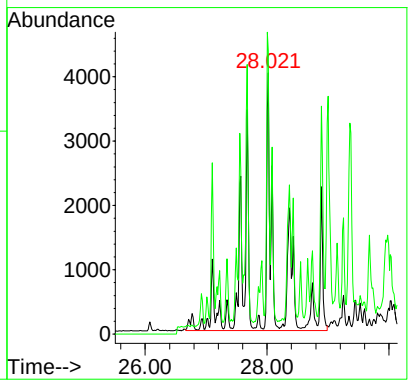


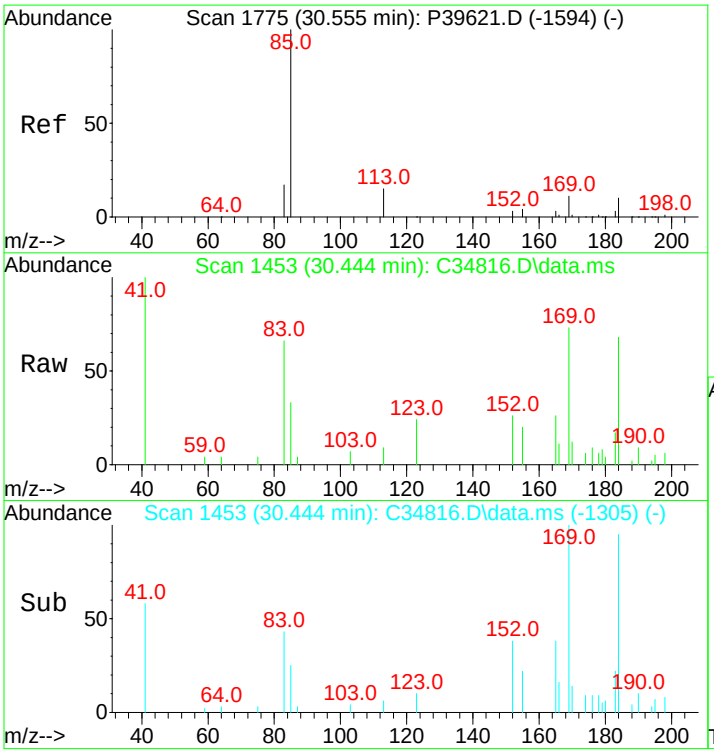


#13
C3-Naphthalenes
Concen: 552.51 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:170 Resp: 64149

Ion	Ratio	Lower	Upper
170	100		
155	16.1	81.8	122.6#

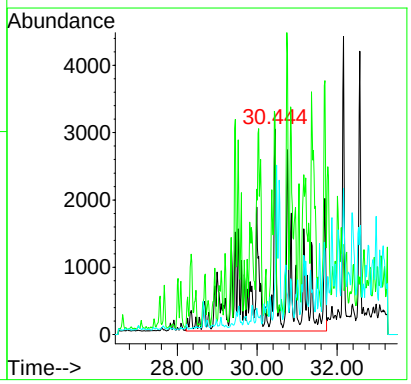


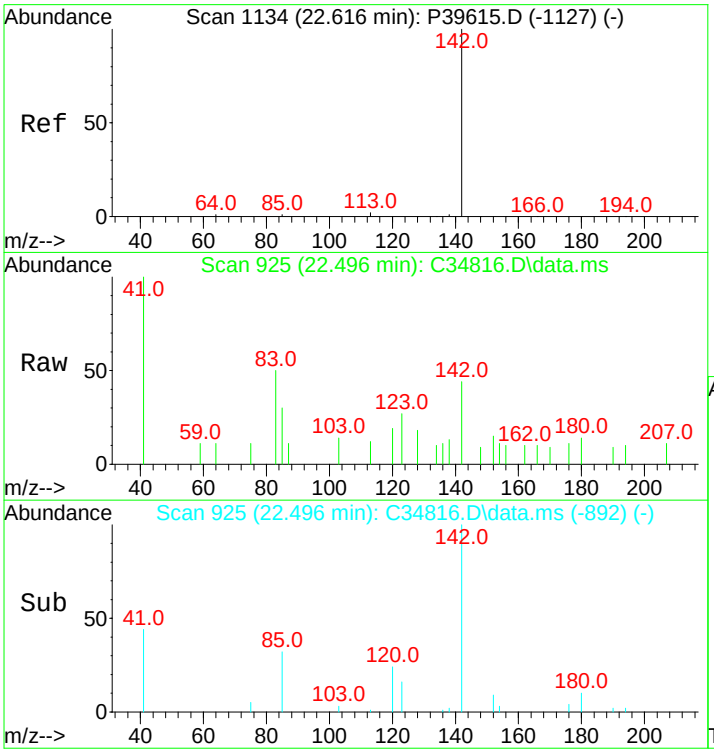


#14
C4-Naphthalenes
Concen: 847.14 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:184 Resp: 98358

Ion	Ratio	Lower	Upper
184	100		
169	10.1	77.4	116.0#
183	0.0	14.8	22.2#

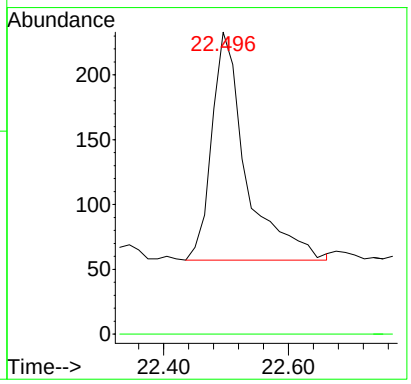


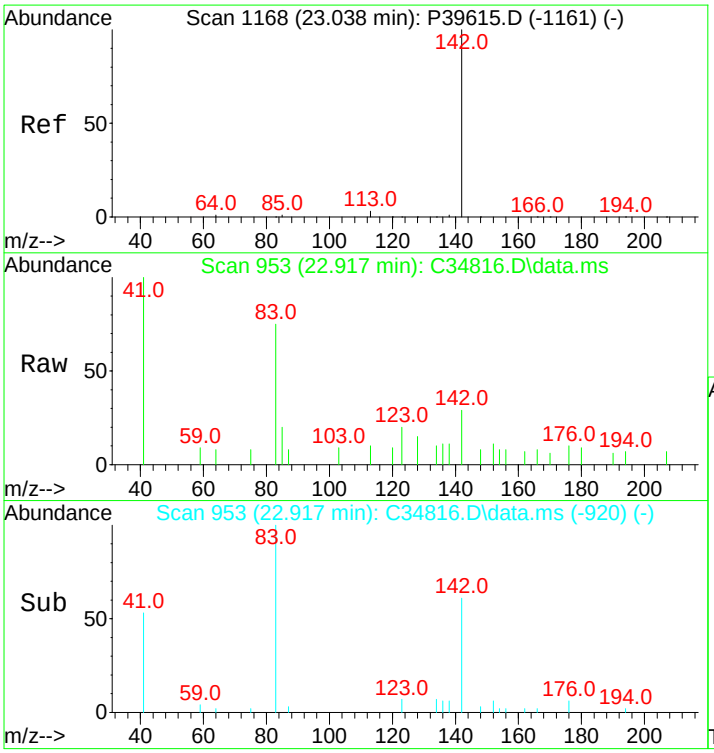


#16
2-Methylnaphthalene
Concen: 9.82 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:142 Resp: 674

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

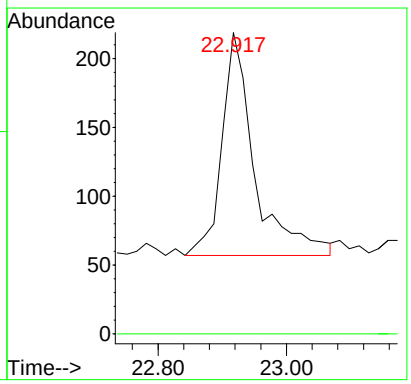


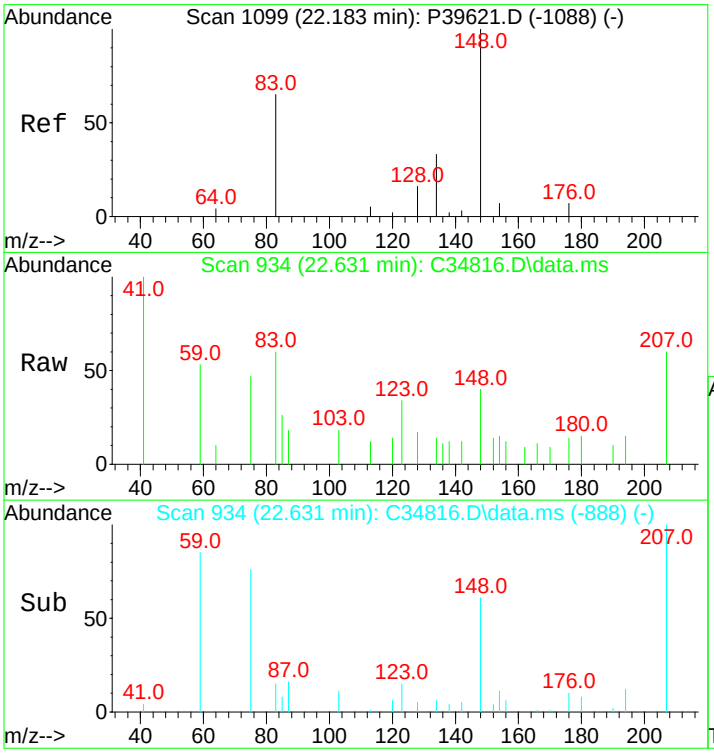


#17
1-Methylnaphthalene
Concen: 8.53 ng/mL m
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:142 Resp: 574

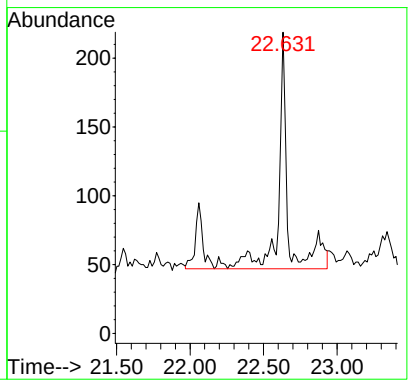
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

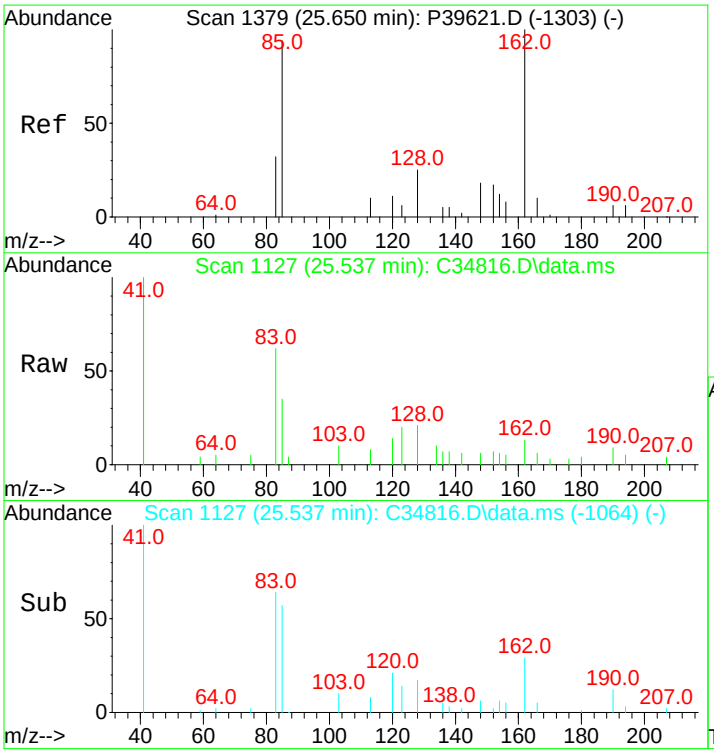




#19
C1-Benzo(b)thiophenes
Concen: 8.92 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

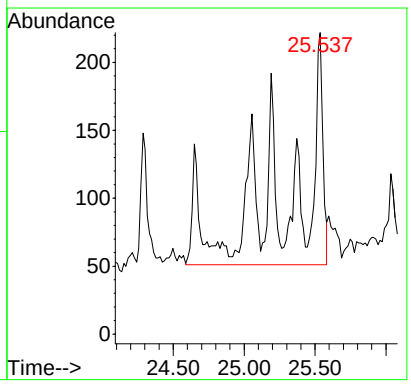
Tgt Ion:148 Resp: 932

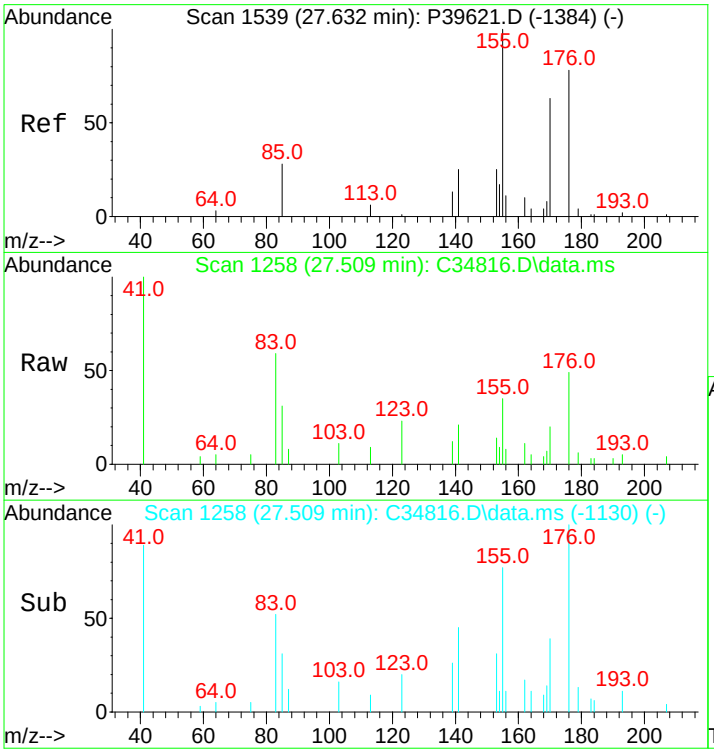




#20
C2-Benzo(b)thiophenes
Concen: 23.04 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

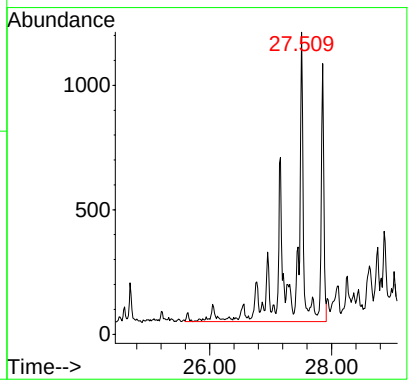
Tgt Ion:162 Resp: 2407

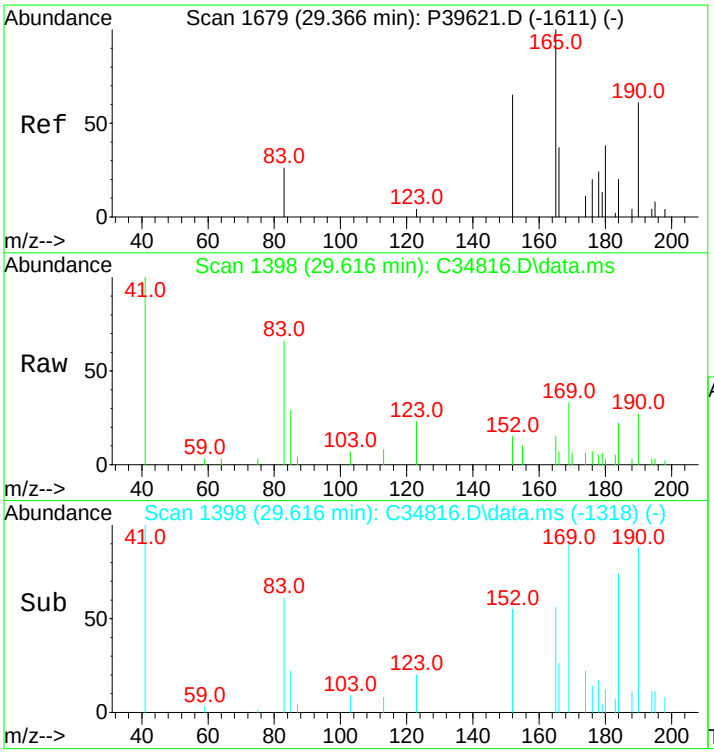




#21
C3-Benzo(b)thiophenes
Concen: 133.86 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

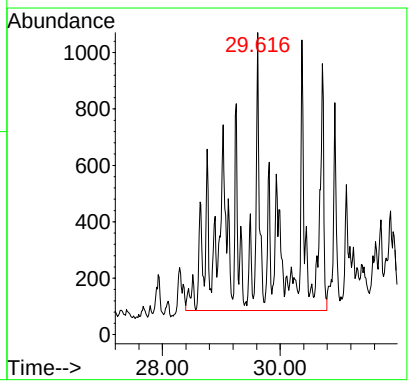
Tgt Ion:176 Resp: 13986

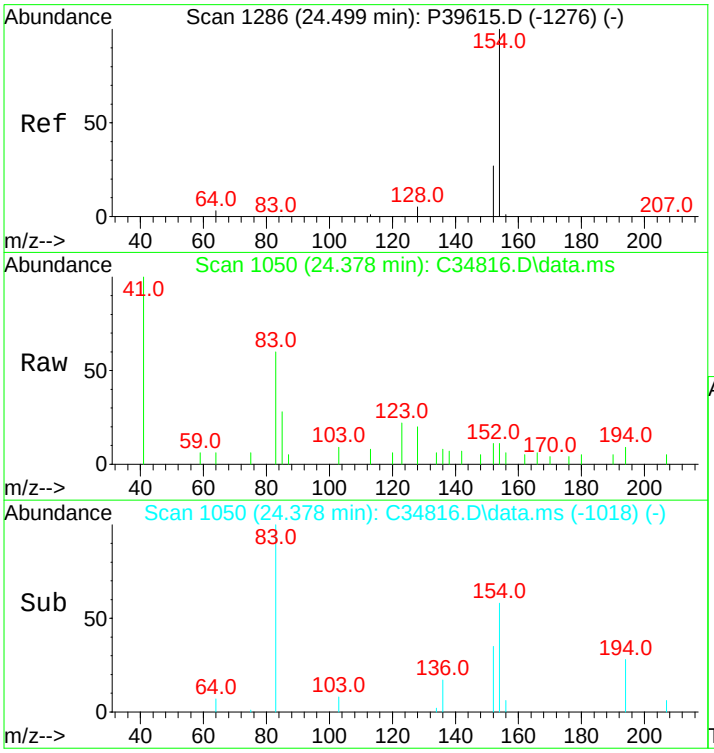




#22
C4-Benzo(b)thiophenes
Concen: 292.48 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:190 Resp: 30558

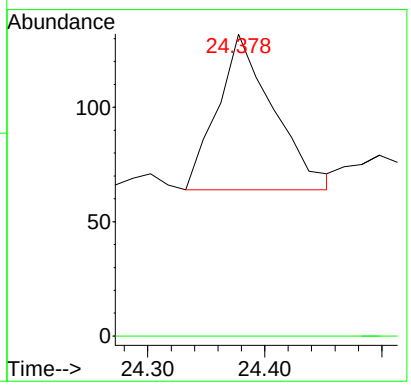


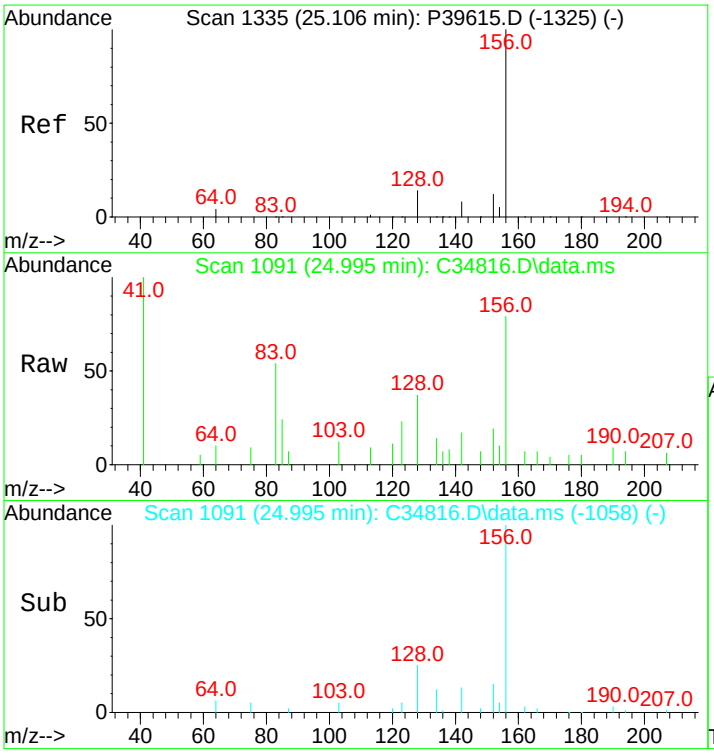


#23
Biphenyl
Concen: 2.60 ng/mL
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:154 Resp: 226

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

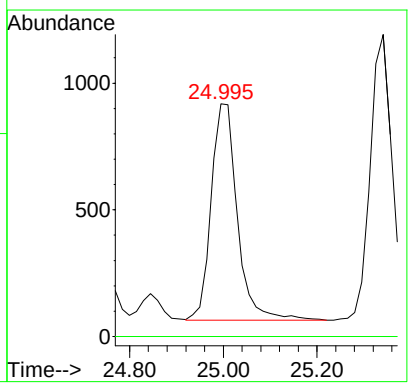


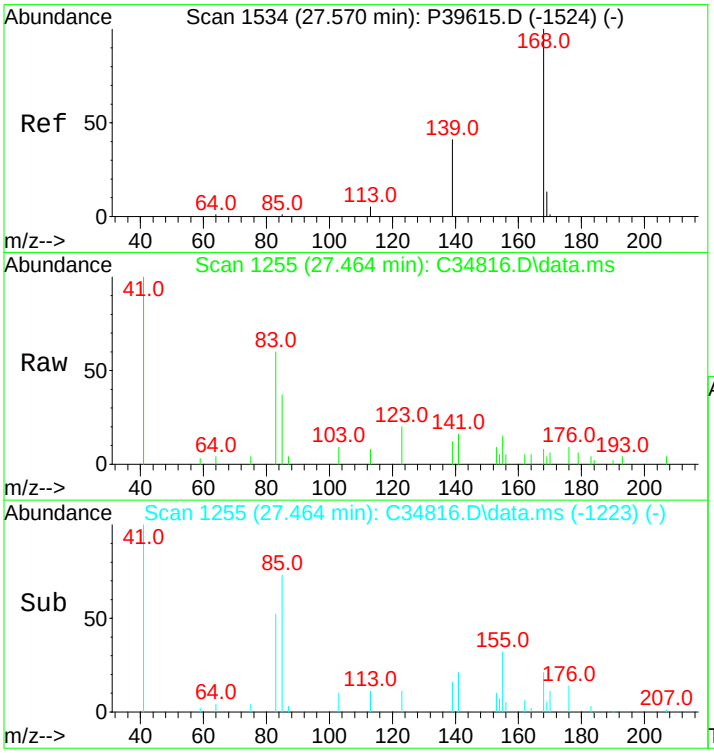


#24
2,6-Dimethylnaphthalene
Concen: 58.97 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:156 Resp: 3326

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

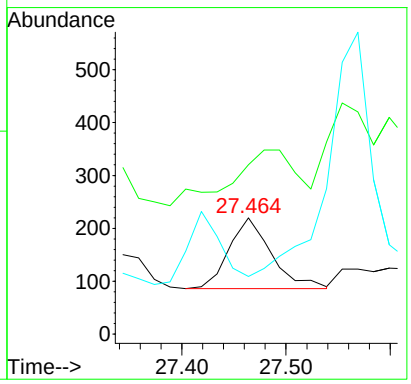


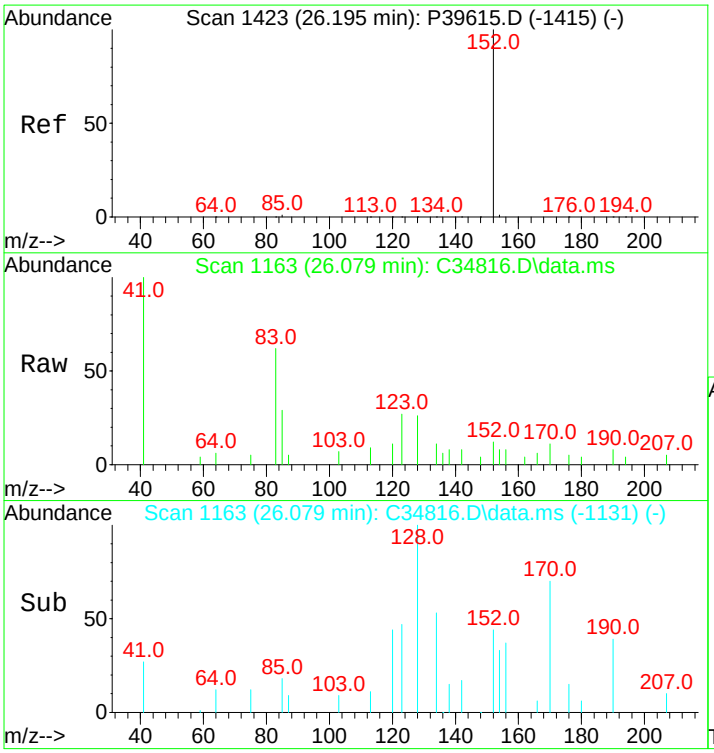


#25
Dibenzofuran
Concen: 3.82 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:168 Resp: 381

Ion	Ratio	Lower	Upper
168	100		
139	119.4	28.4	42.6#
169	0.0	10.8	16.2#

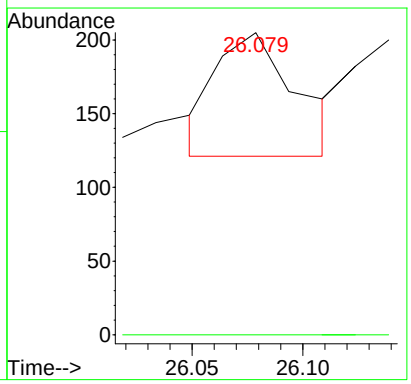


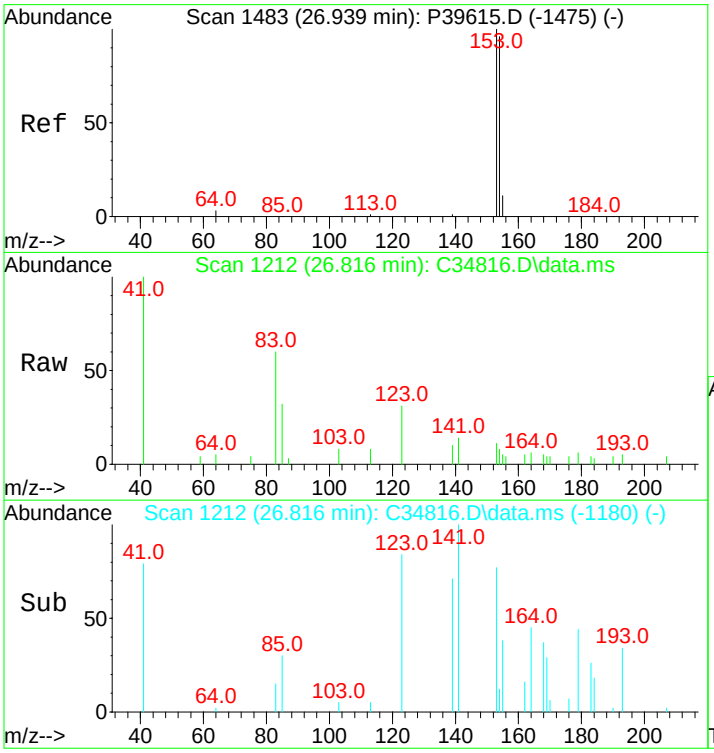


#26
Acenaphthylene
Concen: 1.84 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:152 Resp: 212

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

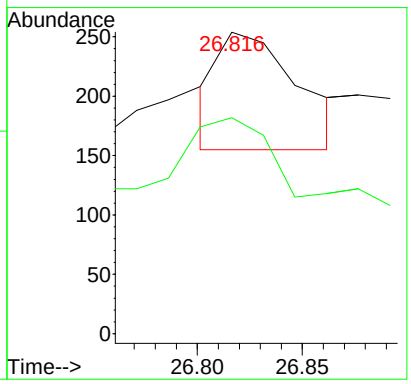


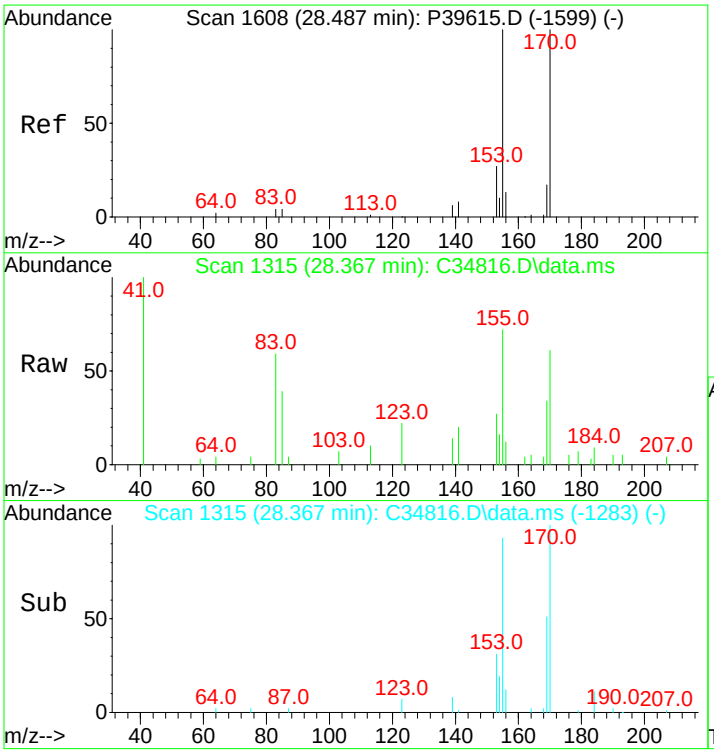


#27
Acenaphthene
Concen: 3.82 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:153 Resp: 259

Ion	Ratio	Lower	Upper
153	100		
154	68.7	73.6	110.4#

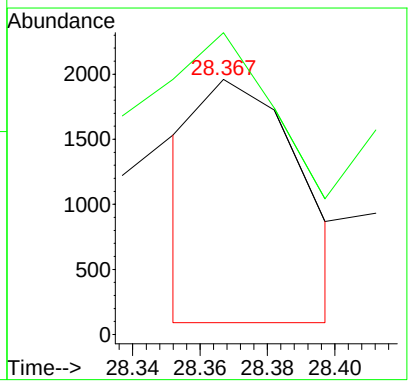


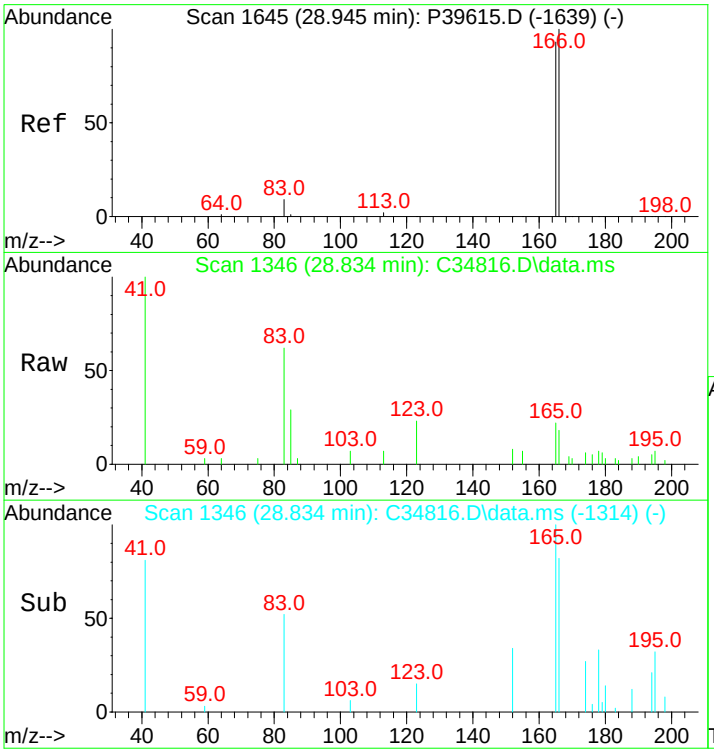


#28
2,3,5-Trimethylnaphthalene
Concen: 85.09 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:170 Resp: 3869

Ion	Ratio	Lower	Upper
170	100		
155	215.2	87.3	130.9#

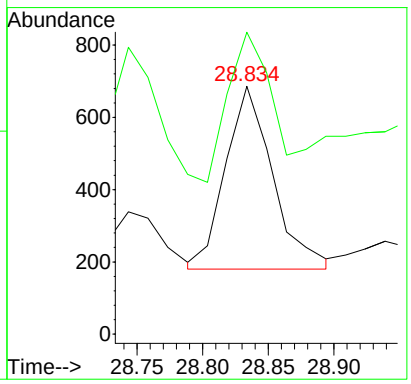


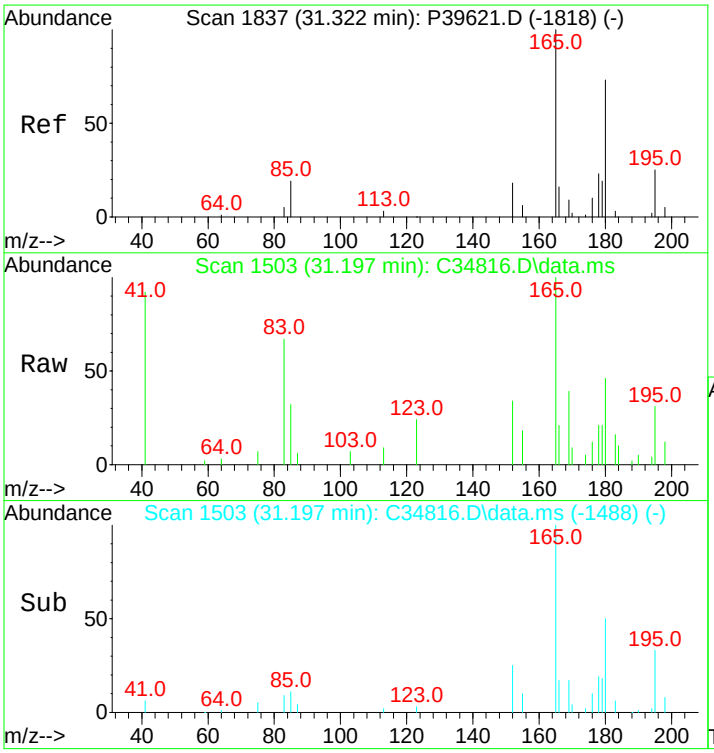


#29
Fluorene
Concen: 16.93 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:166 Resp: 1267

Ion	Ratio	Lower	Upper
166	100		
165	92.8	77.3	115.9

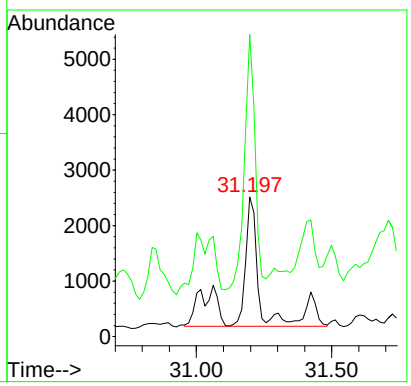


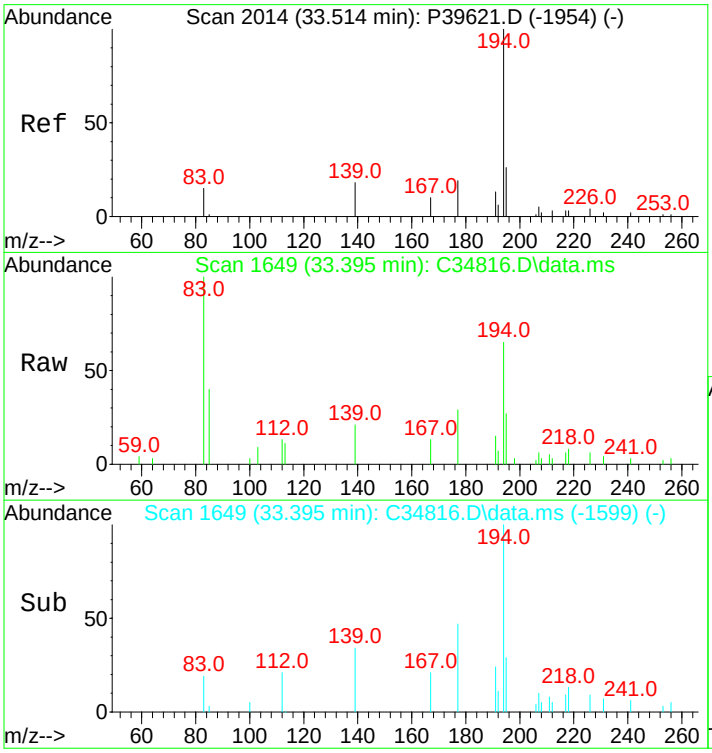


#30
C1-Fluorenes
Concen: 162.15 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:180 Resp: 12136

Ion	Ratio	Lower	Upper
180	100		
165	4.0	111.4	167.2#

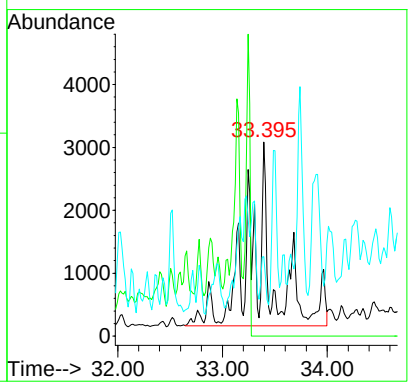


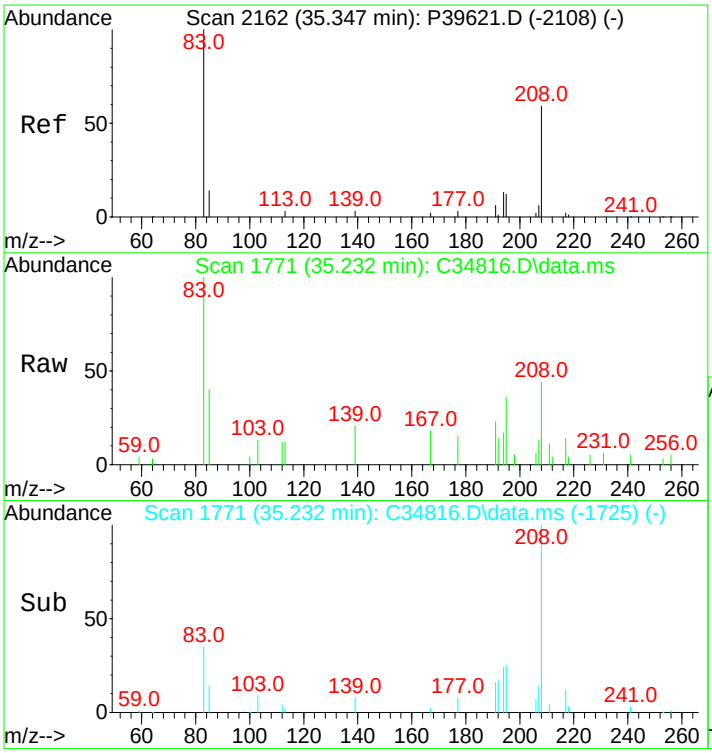


#31
C2-Fluorenes
Concen: 571.24 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:194 Resp: 42754

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.1	27.3	40.9#

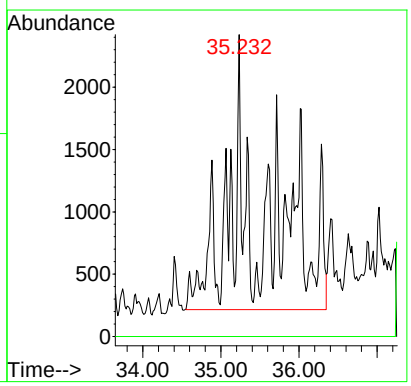


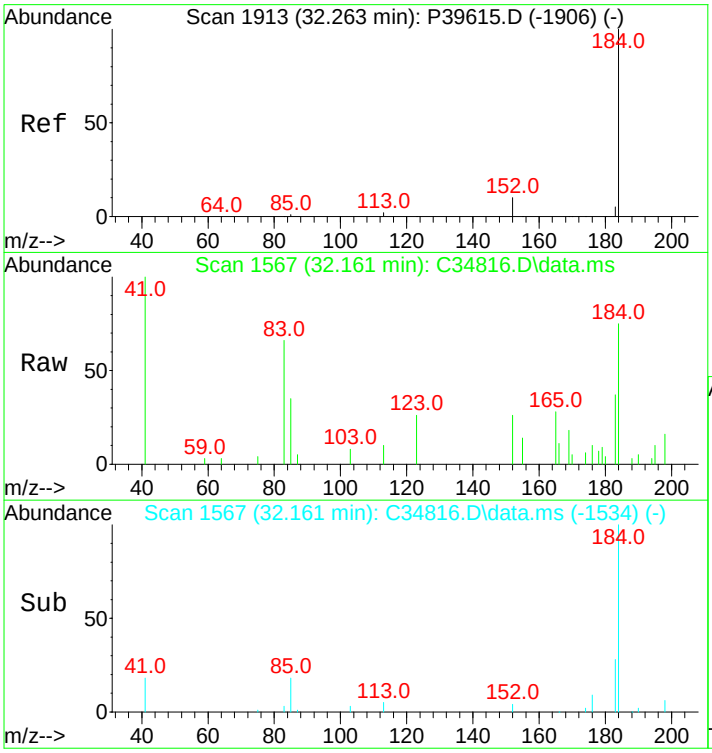


#32
C3-Fluorenes
Concen: 824.49 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:208 Resp: 61708

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

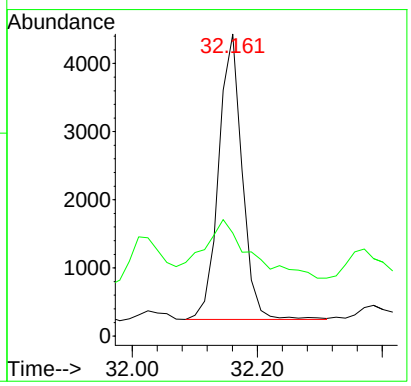


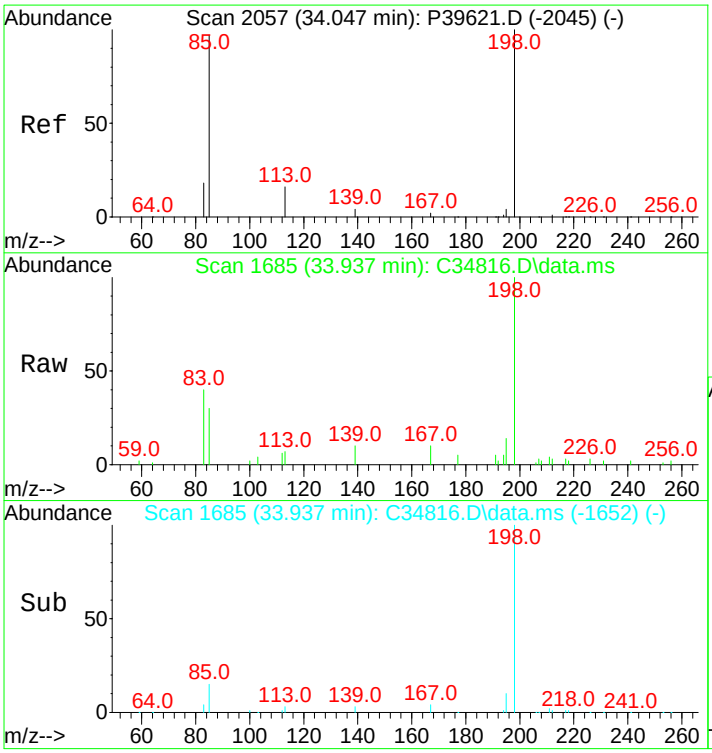


#33
Dibenzothiophene
Concen: 91.00 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:184 Resp: 10918

Ion	Ratio	Lower	Upper
184	100		
152	40.8	7.5	11.3#

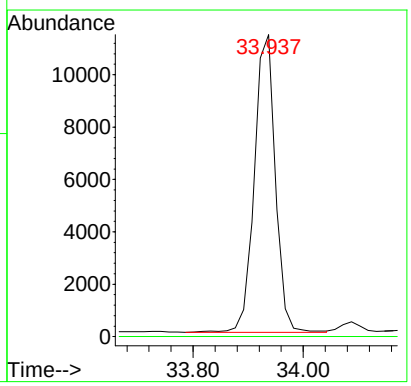


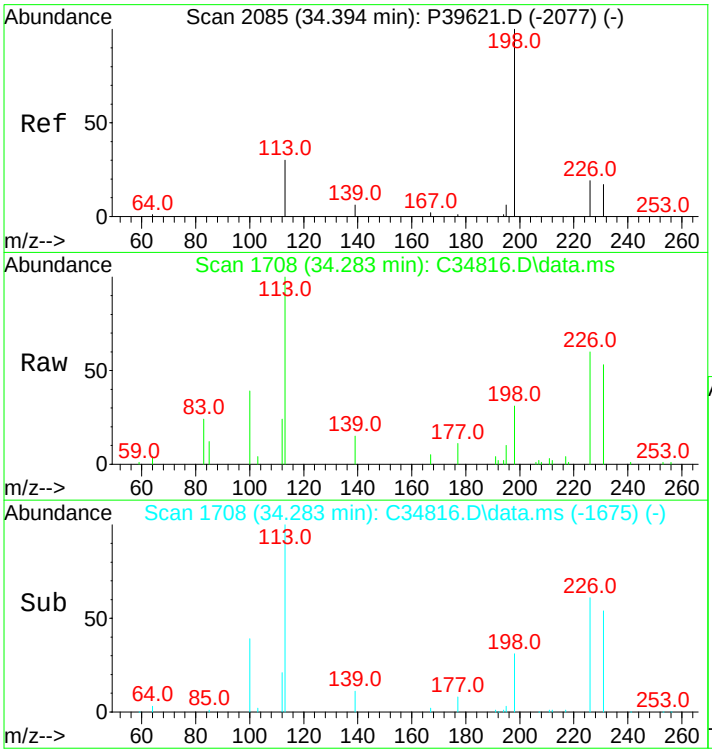


#34
4-Methyldibenzothiophene(4MDT)
Concen: 251.17 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:198 Resp: 30134

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

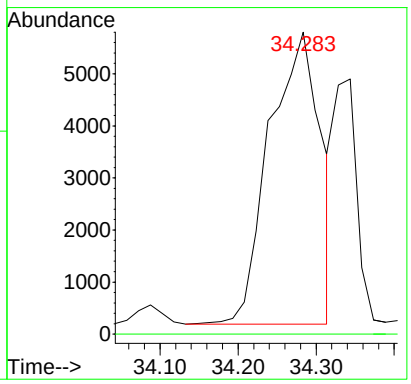


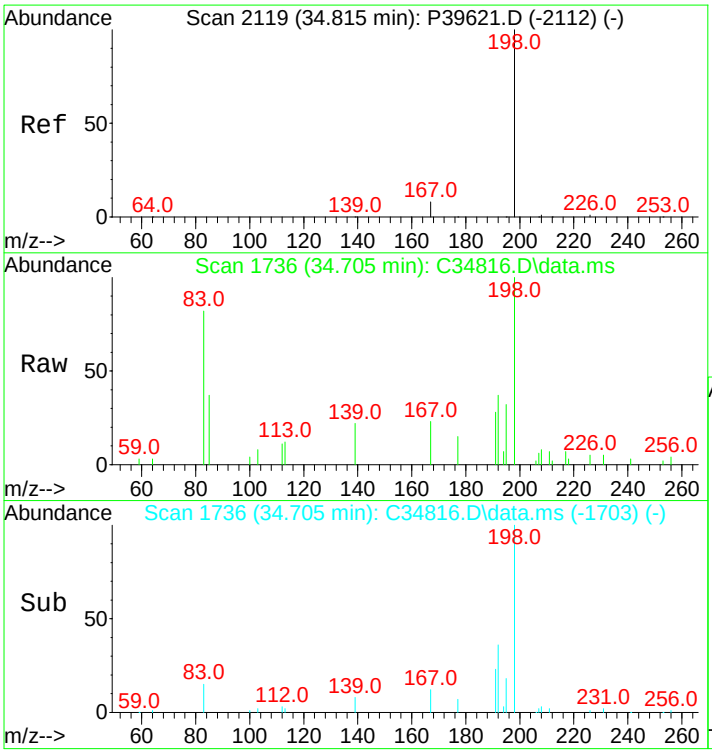


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 212.95 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:198 Resp: 25548

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

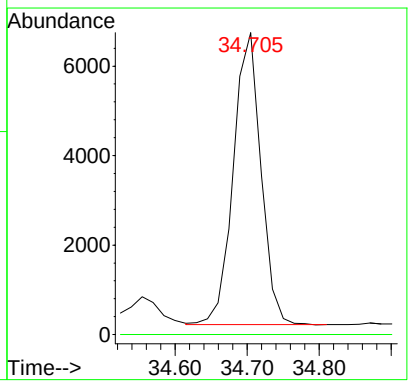


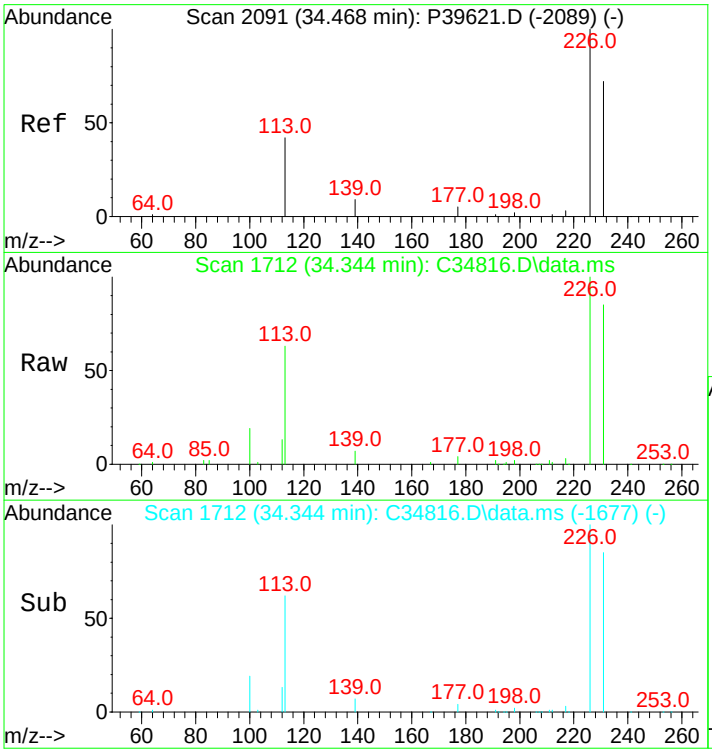


#36
1-Methyldibenzothiophene(1MDT)
Concen: 144.20 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:198 Resp: 17300

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

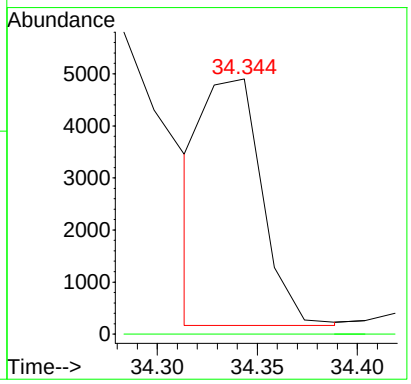


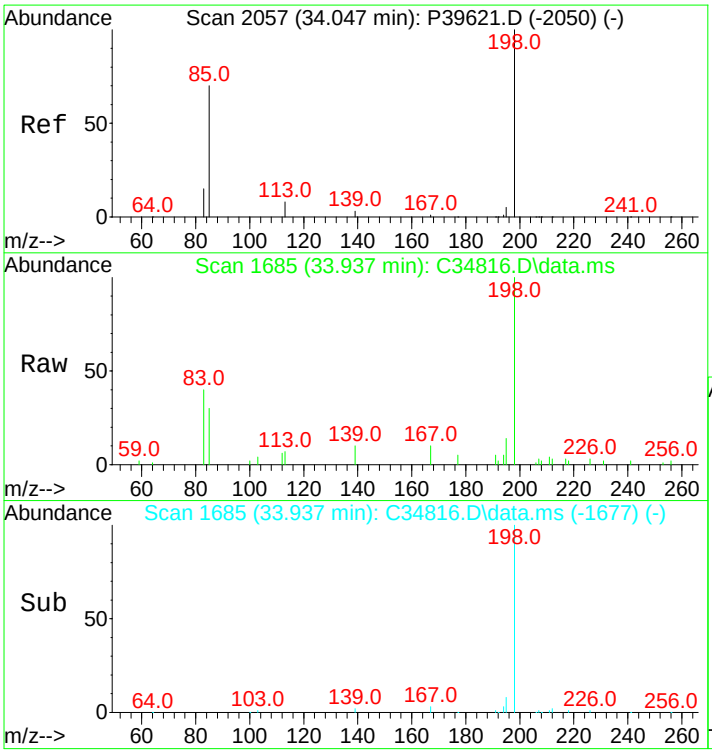


#37
OTP
Concen: 79.97 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:198 Resp: 9594

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

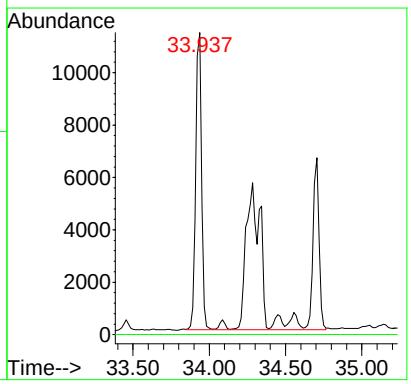


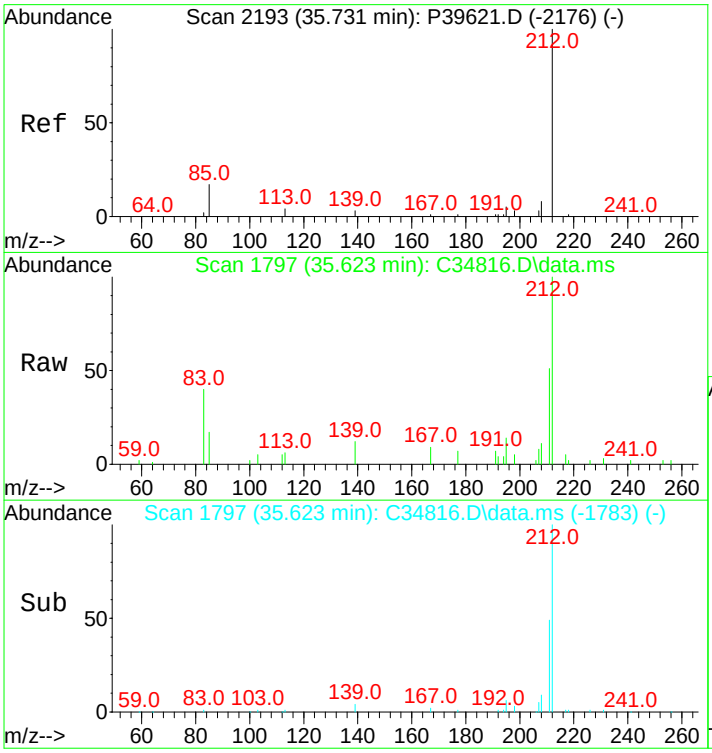


#38
C1-Dibenzothiophenes
Concen: 731.90 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:198 Resp: 87809

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

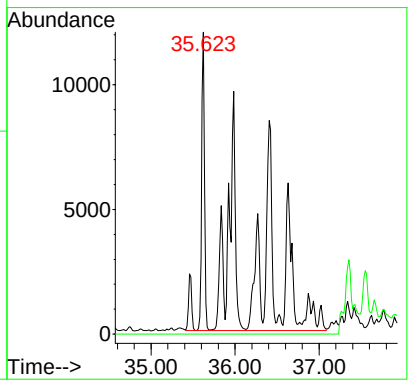


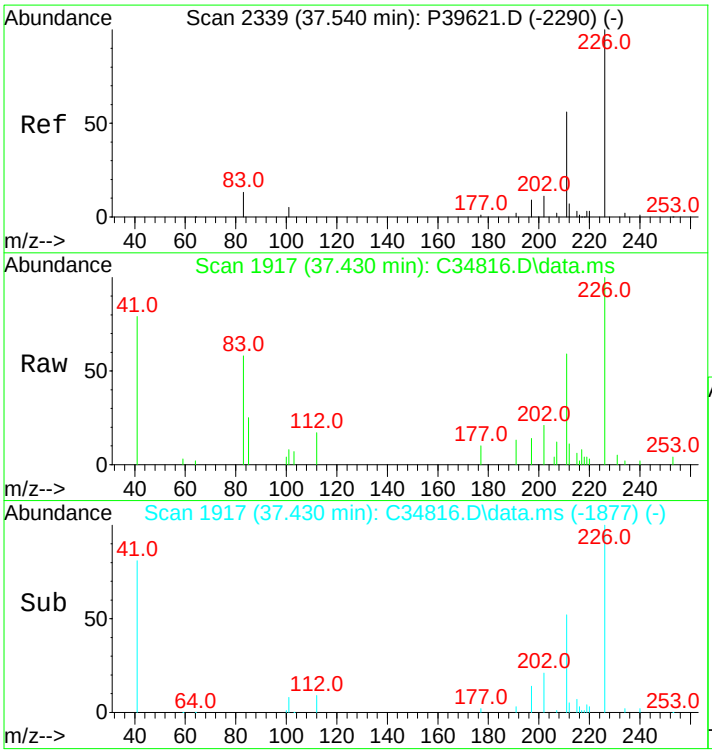


#39
C2-Dibenzothiophenes
Concen: 1530.31 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:212 Resp: 183597

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

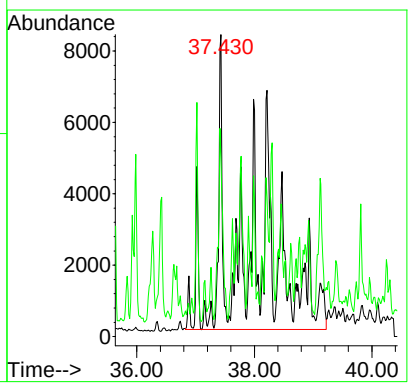


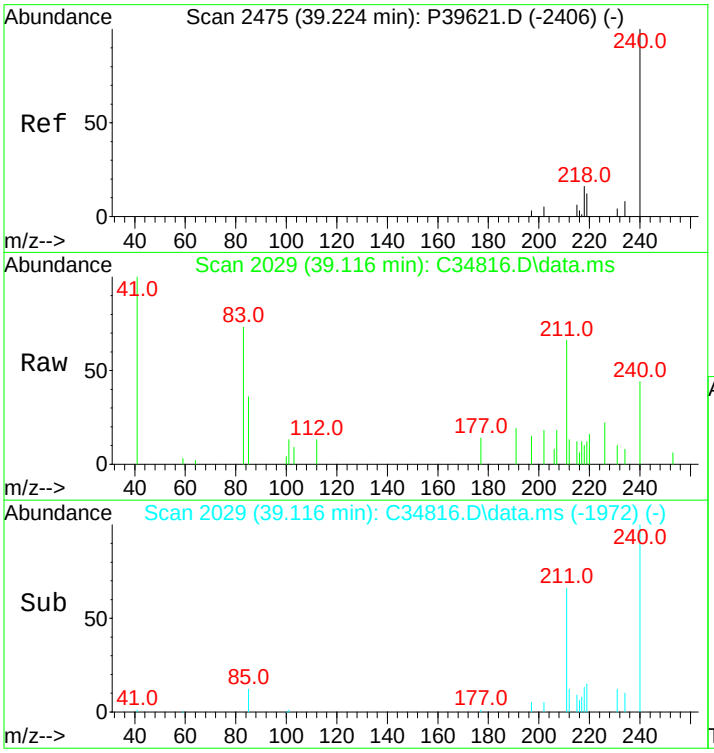


#40
C3-Dibenzothiophenes
Concen: 1829.33 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:226 Resp: 219471

Ion	Ratio	Lower	Upper
226	100		
211	12.3	45.0	67.6#

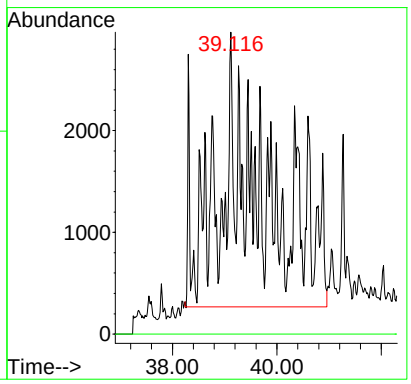


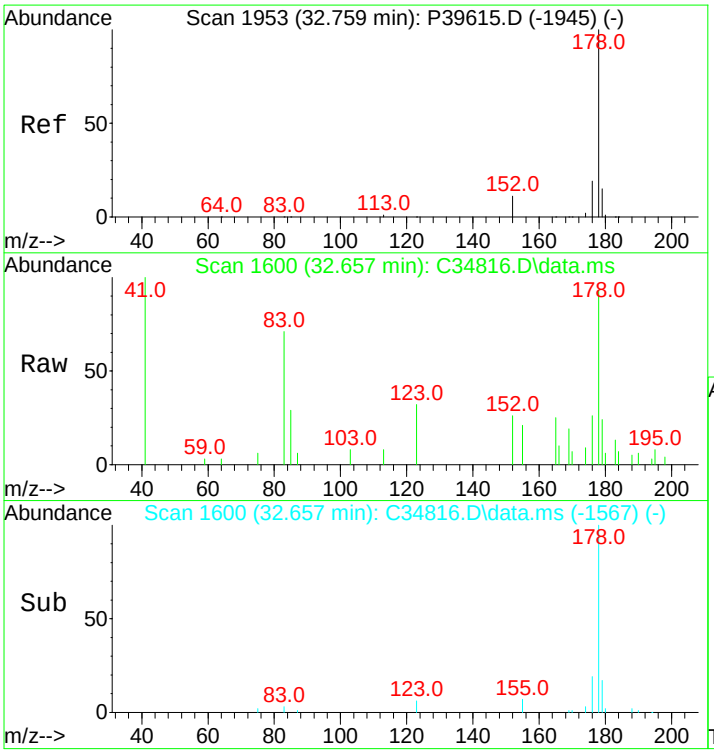


#41
C4-Dibenzothiophenes
Concen: 1275.47 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:240 Resp: 153023

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

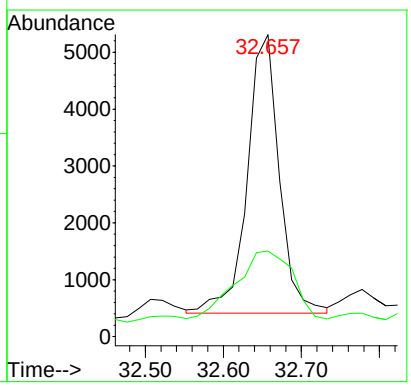


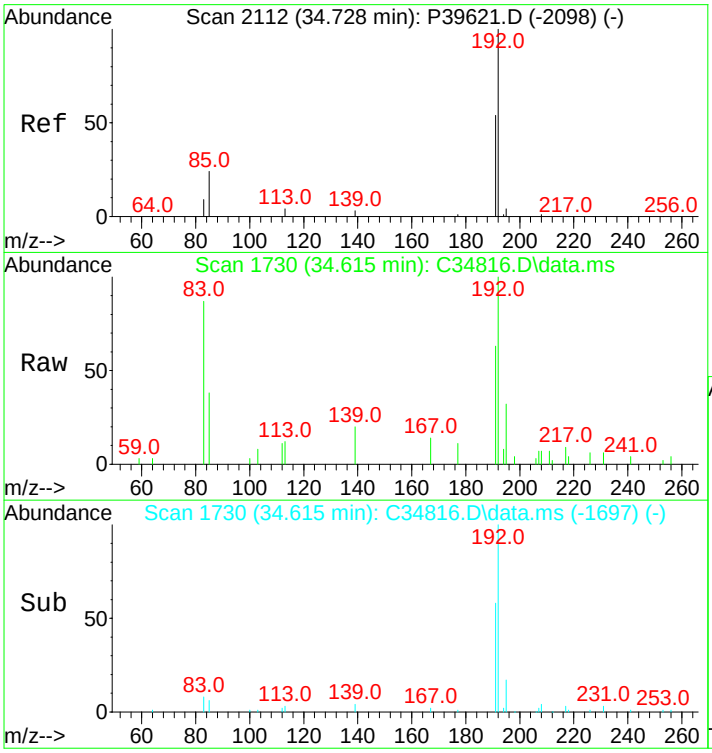


#43
Phenanthrene
Concen: 133.50 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:178 Resp: 14072

Ion	Ratio	Lower	Upper
178	100		
176	42.5	16.1	24.1#

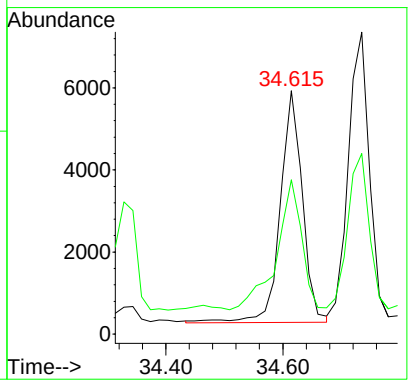


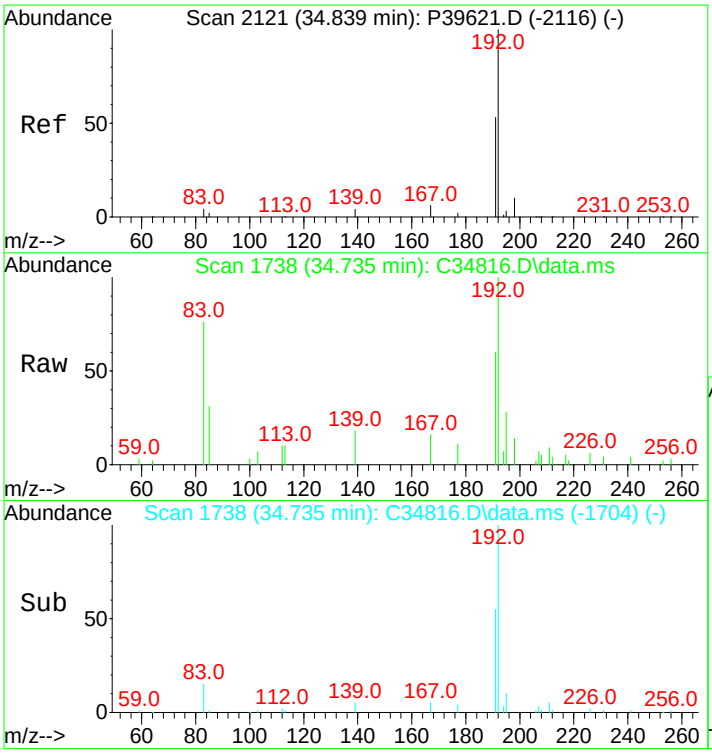


#44
3-Methylphenanthrene(3MP)
Concen: 140.88 ng/mL
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 14850

Ion	Ratio	Lower	Upper
192	100		
191	70.0	46.9	70.3

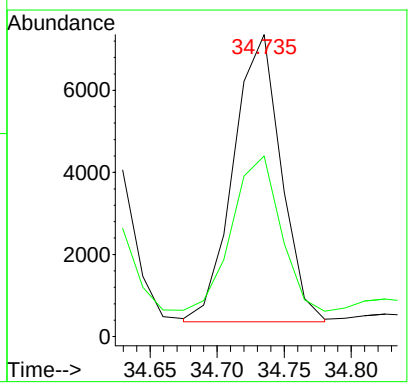


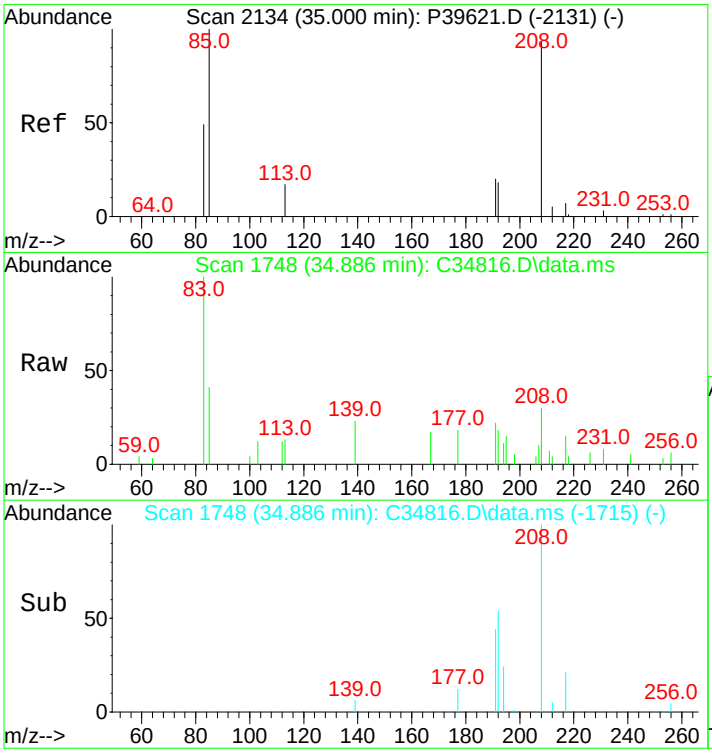


#45
2/4-Methylphenanthrene(2MP)
Concen: 164.01 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 17288

Ion	Ratio	Lower	Upper
192	100		
191	54.9	46.1	69.1

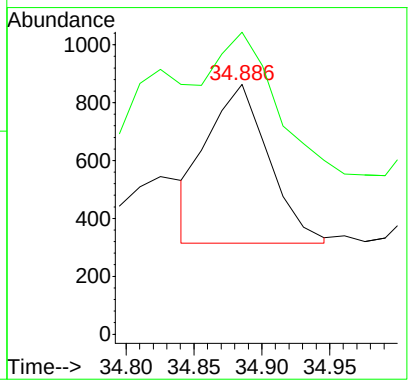


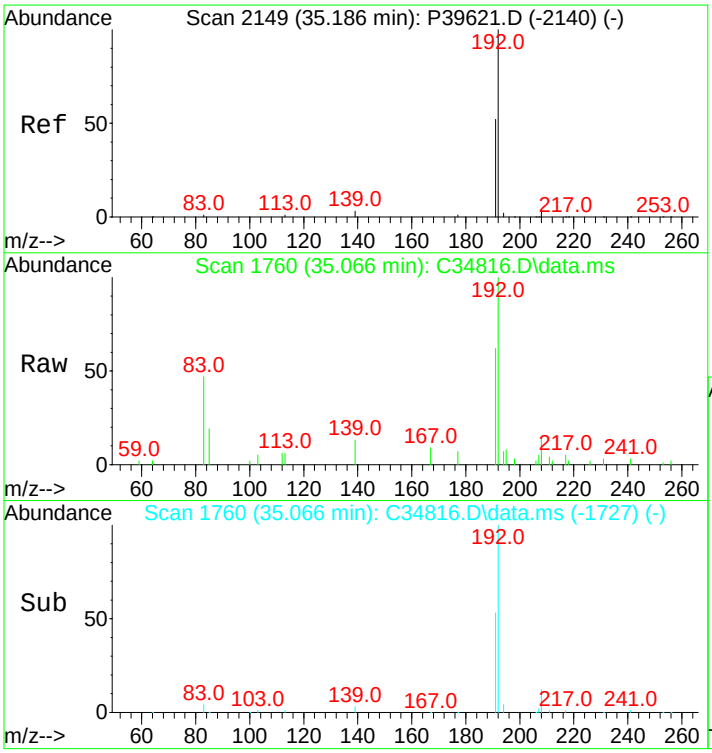


#46
2-Methylanthracene(2MA)
Concen: 16.43 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 1732

Ion	Ratio	Lower	Upper
192	100		
191	85.4	93.4	140.0#

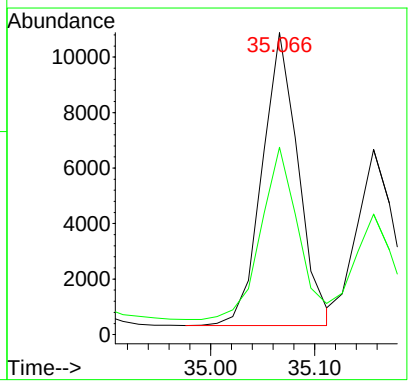


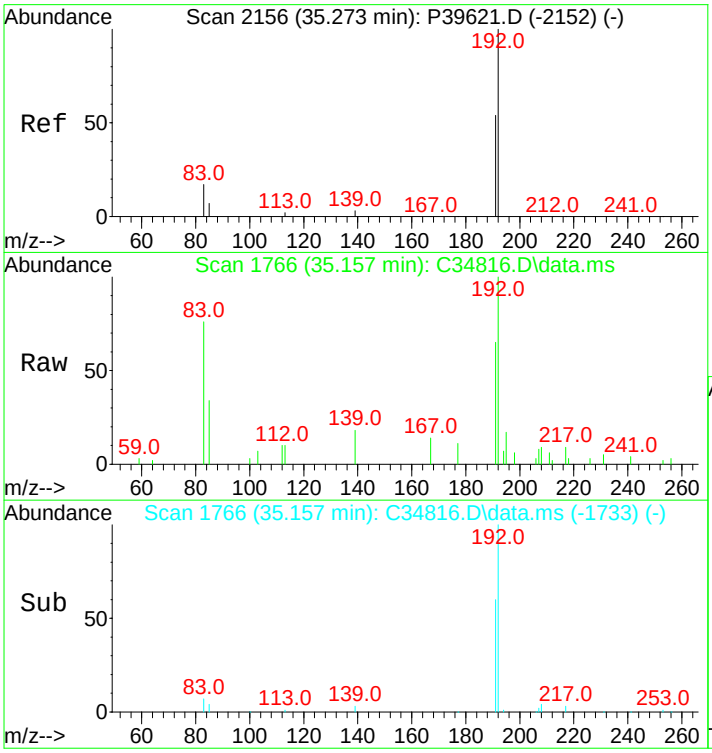


#47
9-Methylphenanthrene(9MP)
Concen: 242.95 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 25609

Ion	Ratio	Lower	Upper
192	100		
191	60.3	45.9	68.9

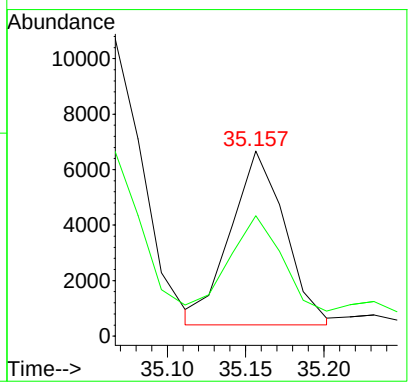


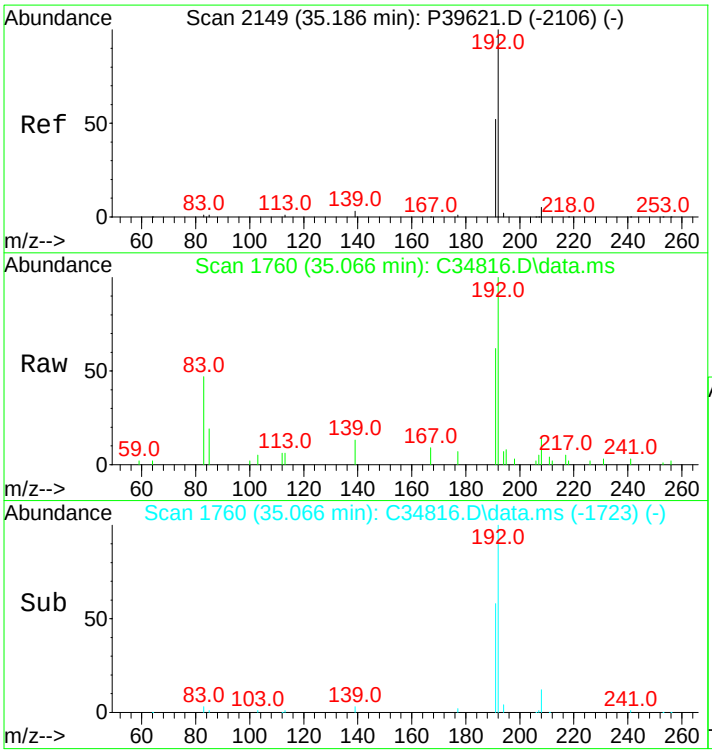


#48
1-Methylphenanthrene(1MP)
Concen: 143.40 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 15115

Ion	Ratio	Lower	Upper
192	100		
191	52.6	49.0	73.4

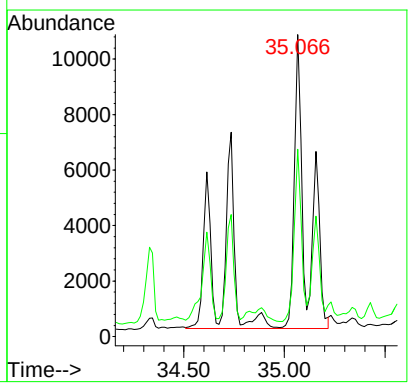


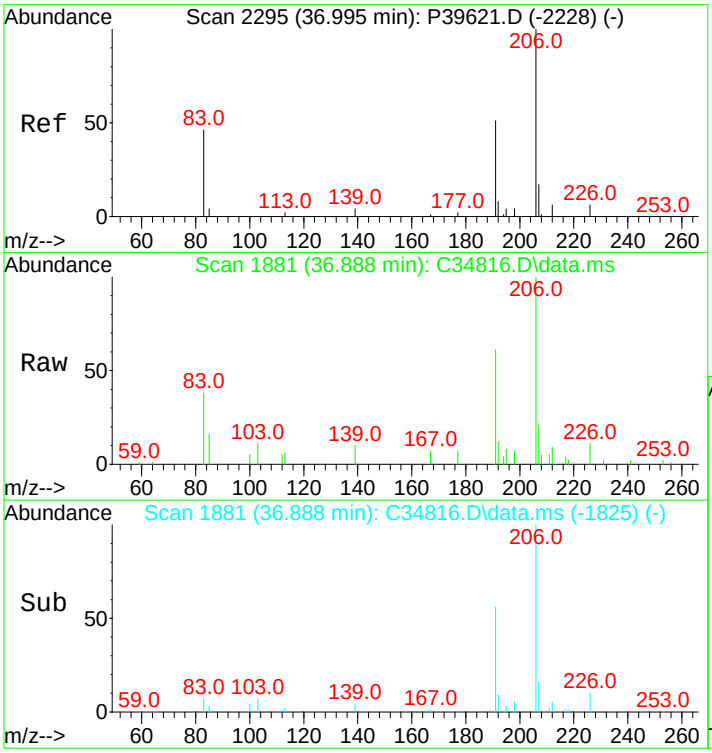


#49
C1-Phenanthrenes/Anthracenes
Concen: 729.77 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 76923

Ion	Ratio	Lower	Upper
192	100		
191	20.1	44.2	66.2#

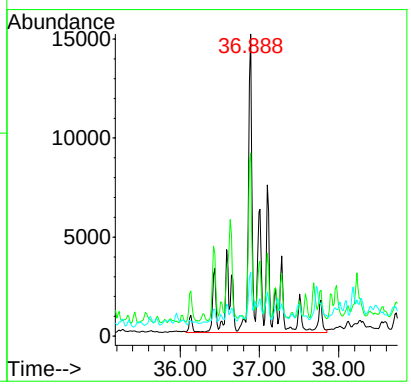


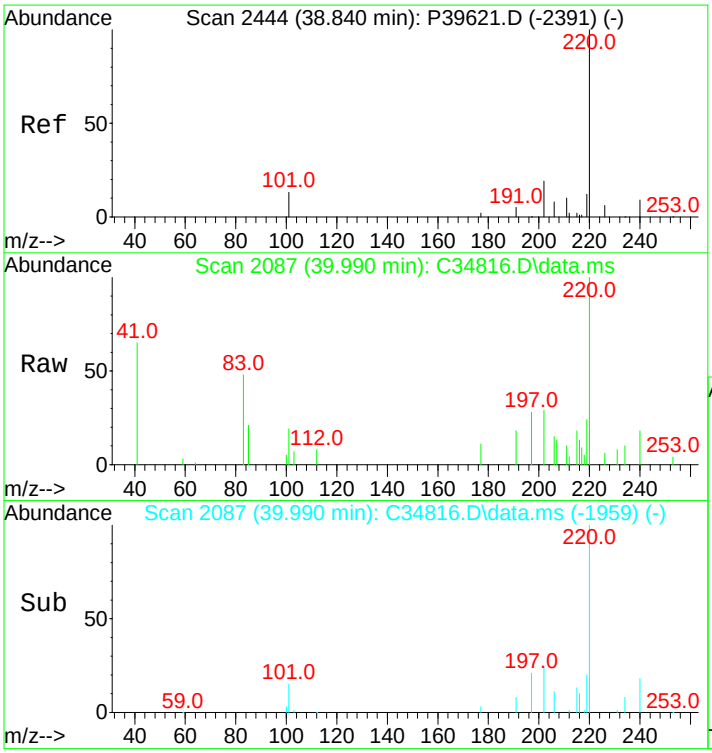


#50
C2-Phenanthrenes/Anthracenes
Concen: 1366.28 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:206 Resp: 144016

Ion	Ratio	Lower	Upper
206	100		
191	17.2	44.0	66.0#
207	4.9	15.1	22.7#

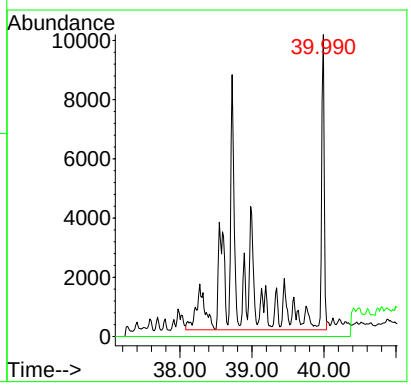


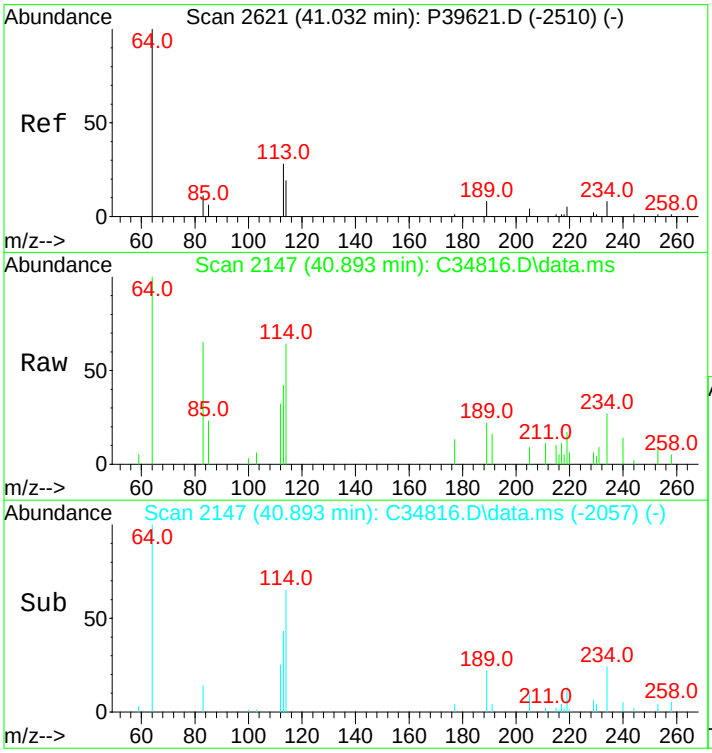


#52
C3-Phenanthrenes/Anthracenes
Concen: 1268.38 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:220 Resp: 133696

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

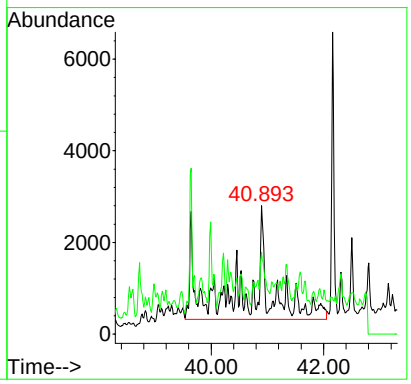


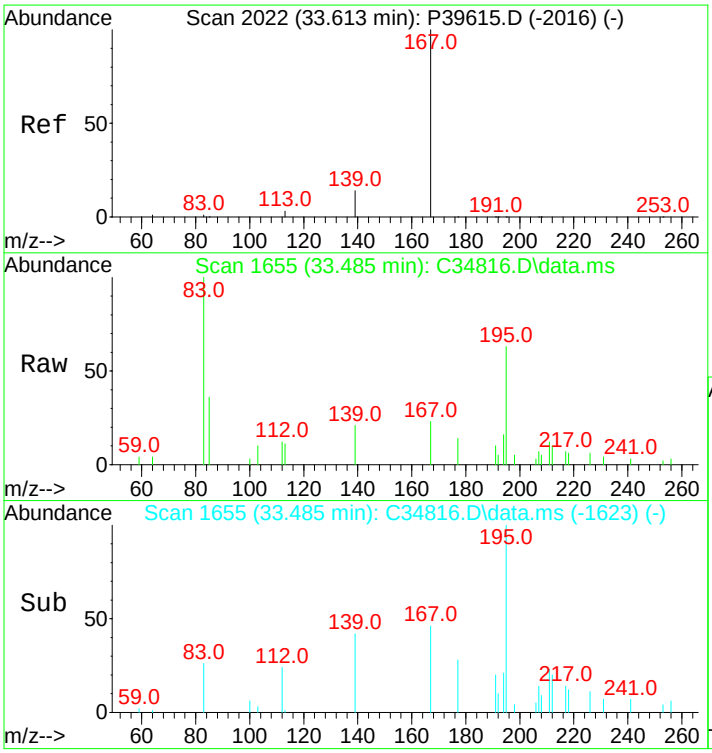


#53
C4-Phenanthrenes/Anthracenes
Concen: 668.62 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:234 Resp: 70477

Ion	Ratio	Lower	Upper
234	100		
219	2.6	46.9	70.3#

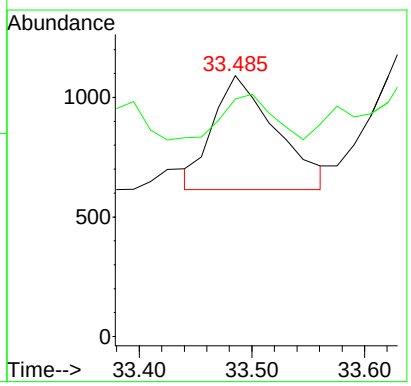


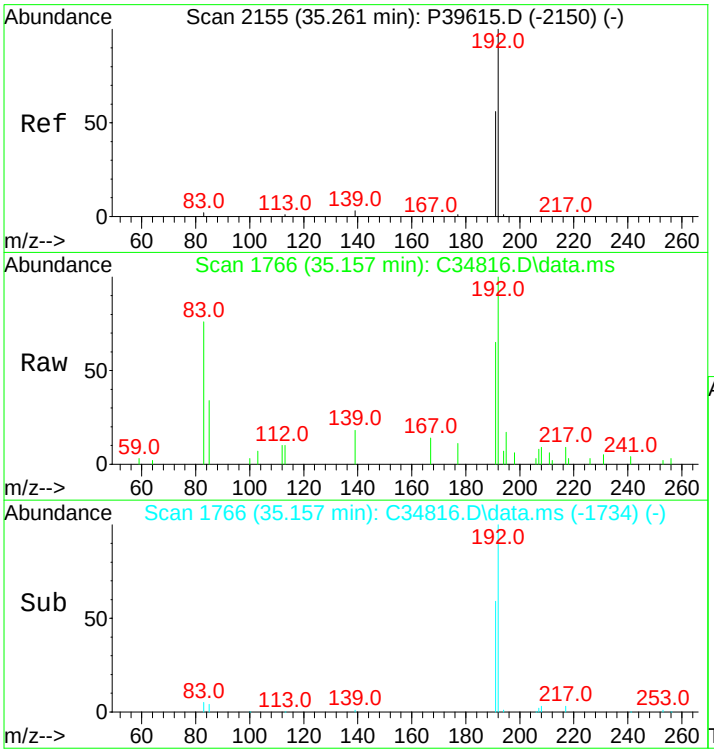


#56
Carbazole
Concen: 17.85 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:167 Resp: 1856

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

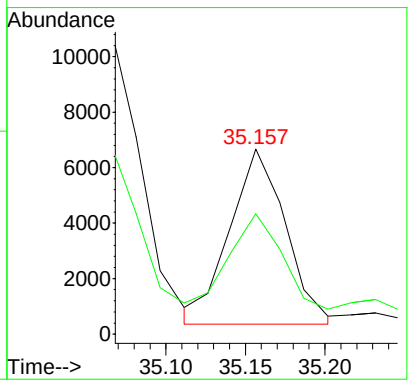


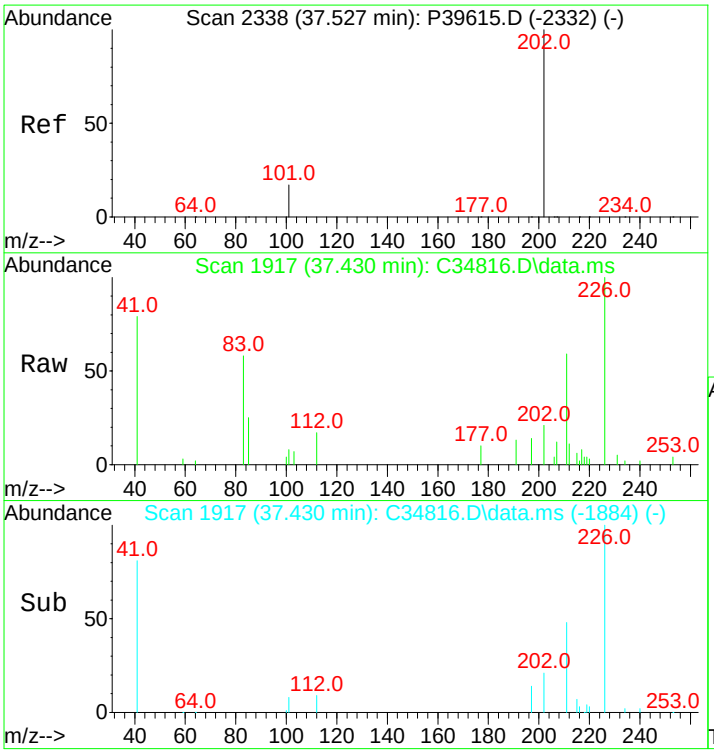


#57
1-Methylphenanthrene
Concen: 229.92 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:192 Resp: 15358

Ion	Ratio	Lower	Upper
192	100		
191	51.8	45.9	68.9

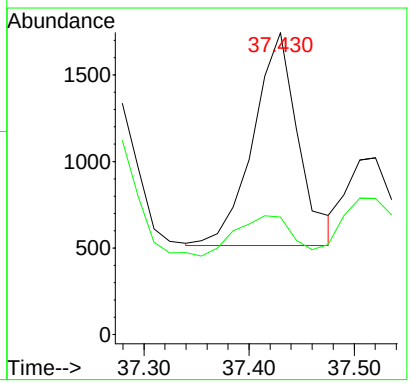


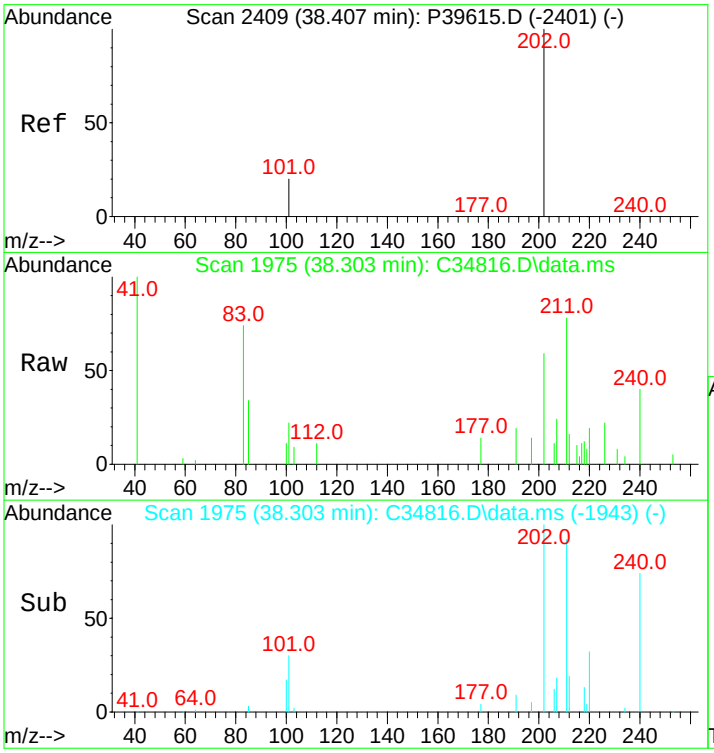


#58
Fluoranthene
Concen: 35.07 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:202 Resp: 3671

Ion	Ratio	Lower	Upper
202	100		
101	81.7	12.9	19.3#

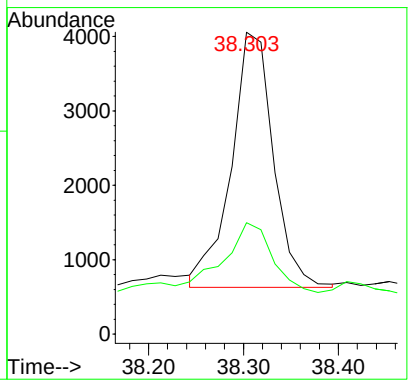


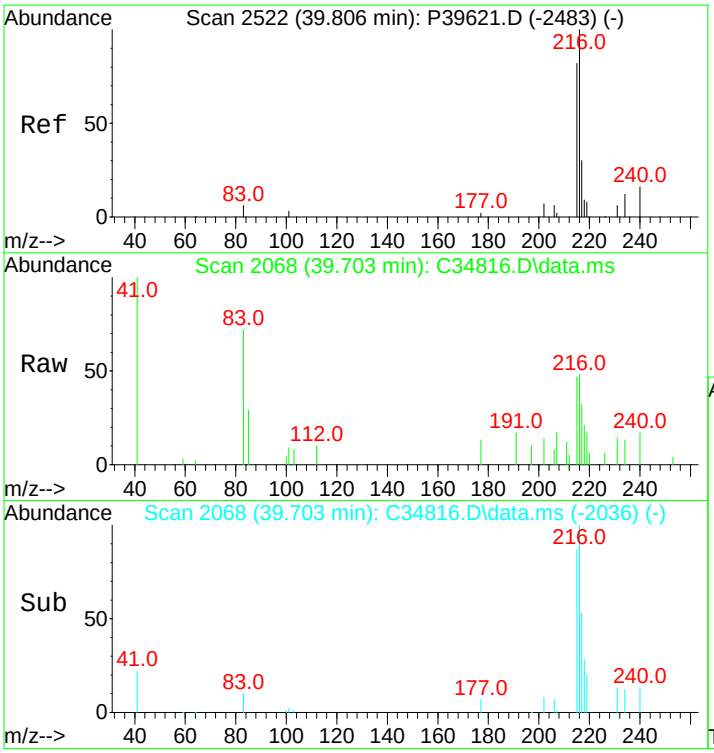


#60
Pyrene
Concen: 99.50 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:202 Resp: 10589

Ion	Ratio	Lower	Upper
202	100		
101	39.2	15.0	22.4#

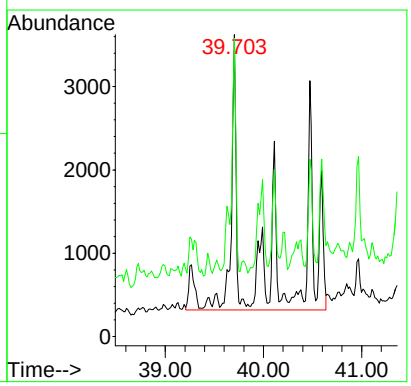


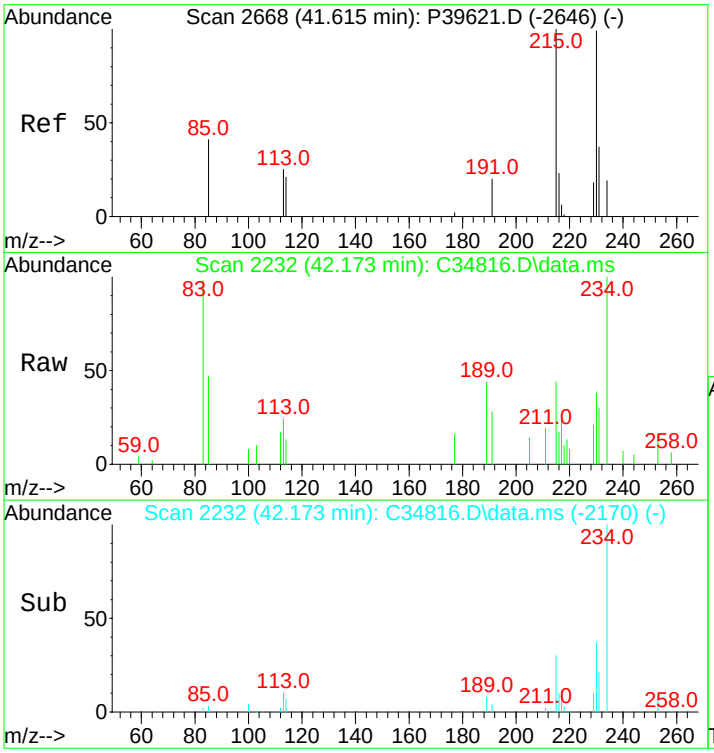


#61
C1-Fluoranthenes/Pyrenes
Concen: 352.77 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:216 Resp: 37541

Ion	Ratio	Lower	Upper
216	100		
215	24.1	71.8	107.6#

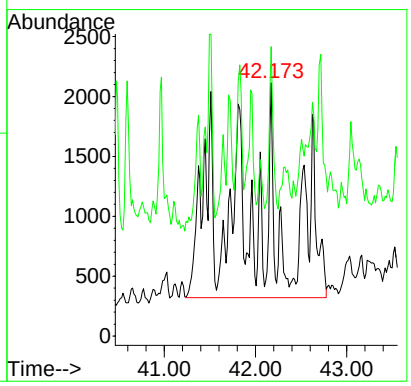


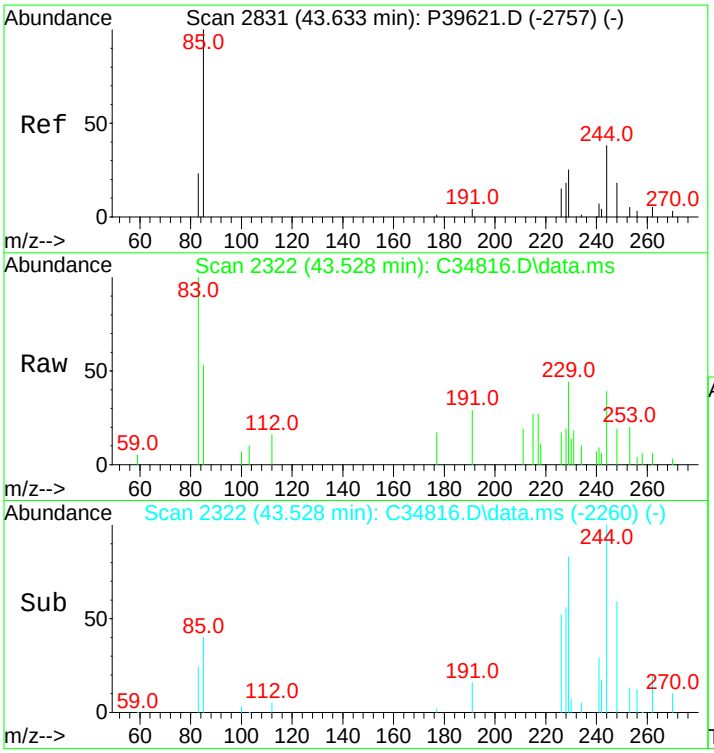


#62
C2-Fluoranthenes/Pyrenes
Concen: 509.98 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:230 Resp: 54270

Ion	Ratio	Lower	Upper
230	100		
215	3.6	99.0	148.4#

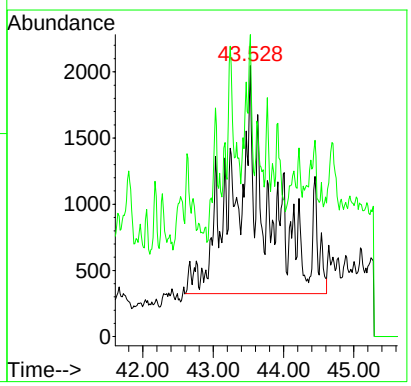


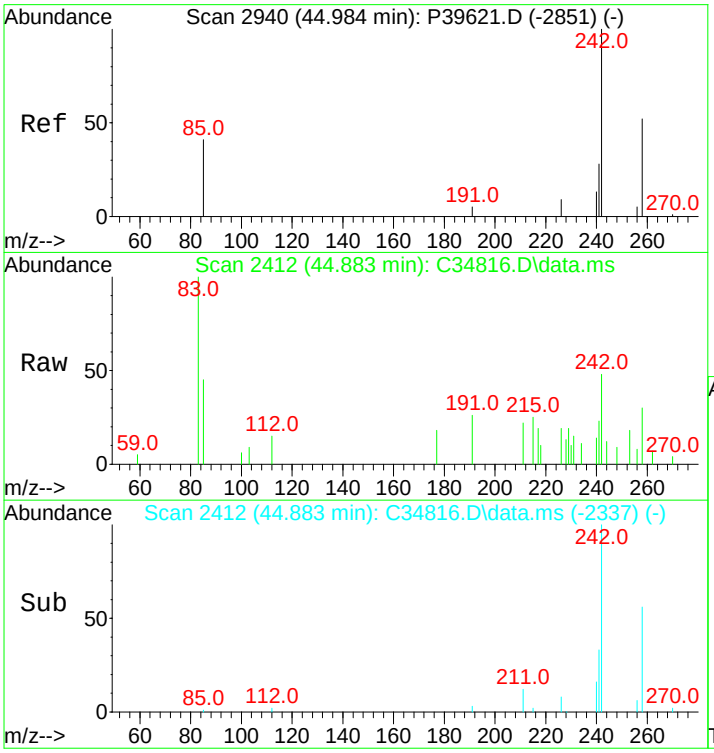


#63
C3-Fluoranthenes/Pyrenes
Concen: 562.37 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:244 Resp: 59846

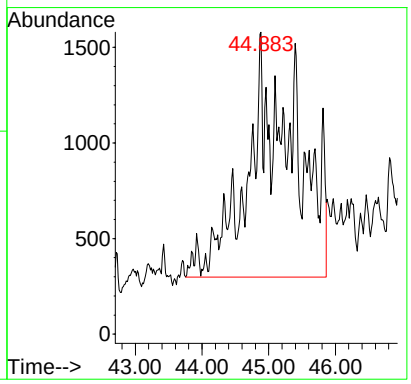
Ion	Ratio	Lower	Upper
244	100		
229	1.8	73.3	109.9#

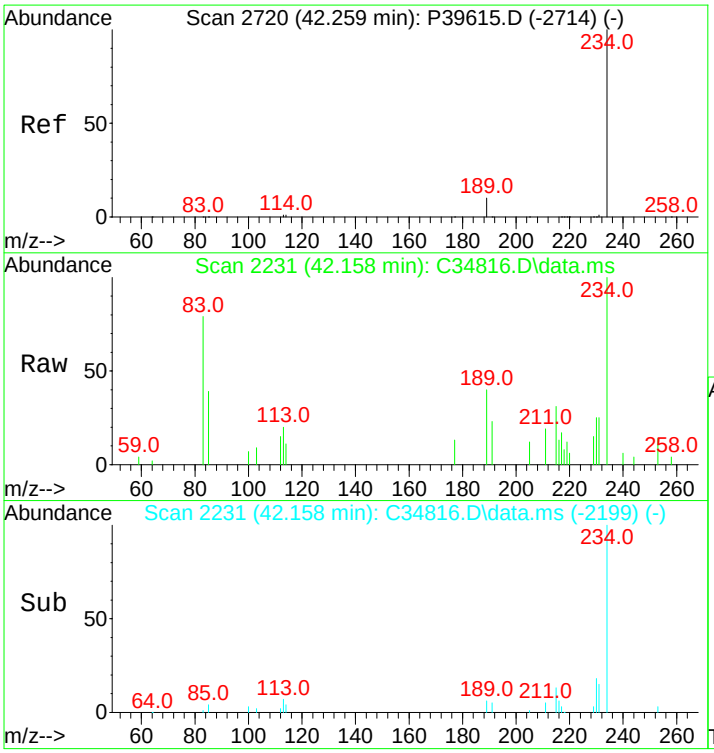




#64
C4-Fluoranthenes/Pyrenes
Concen: 561.78 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.126 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:258 Resp: 59783

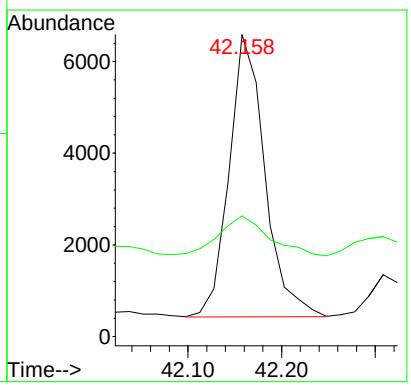


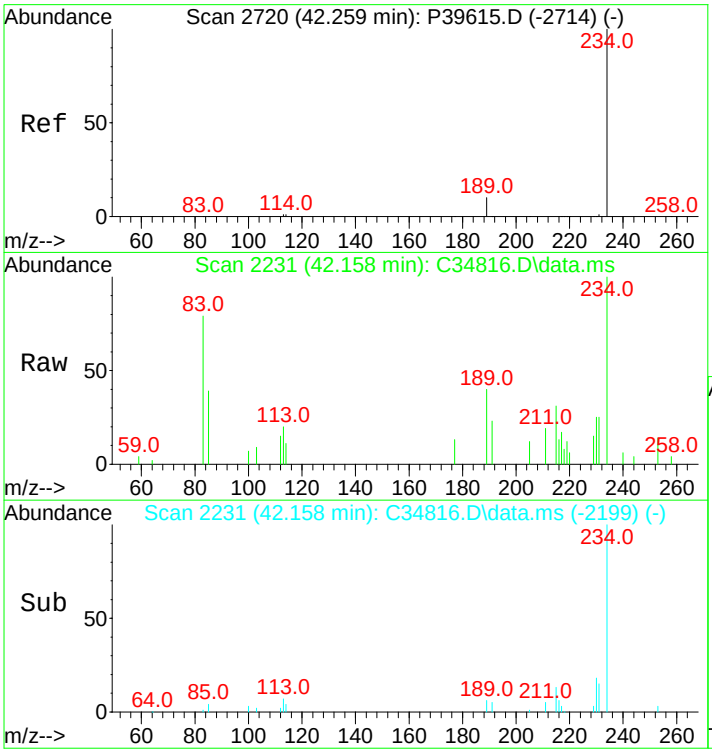


#66
Naphthobenzothiophene
Concen: 142.75 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:234 Resp: 16355

Ion	Ratio	Lower	Upper
234	100		
189	19.7	20.5	30.7#

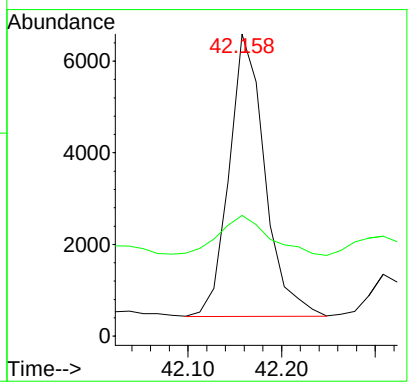


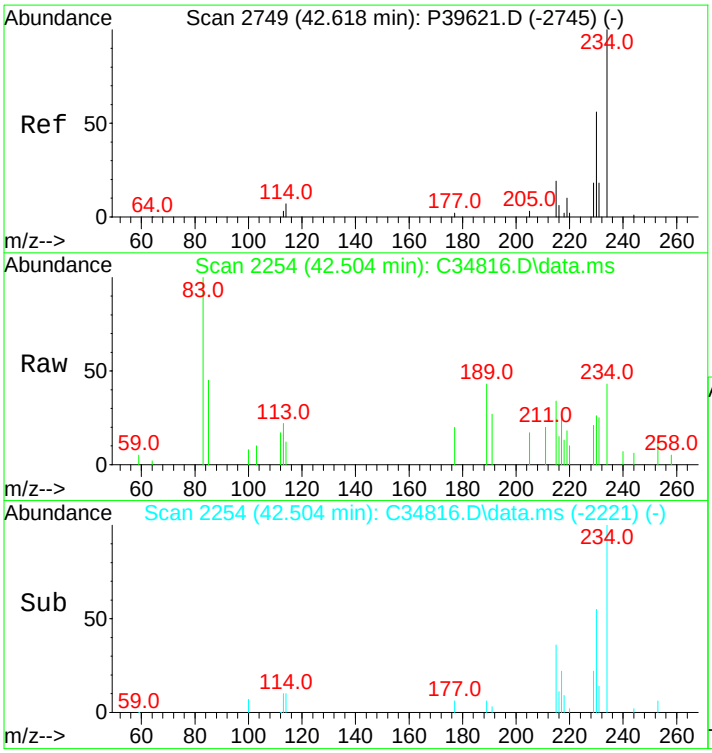


#67
Naphthobenzothiophene-2,1-D
Concen: 142.75 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:234 Resp: 16355

Ion	Ratio	Lower	Upper
234	100		
189	19.7	20.5	30.7#

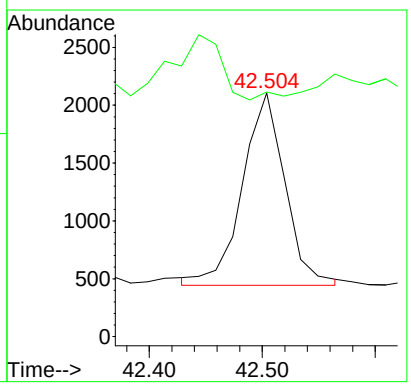


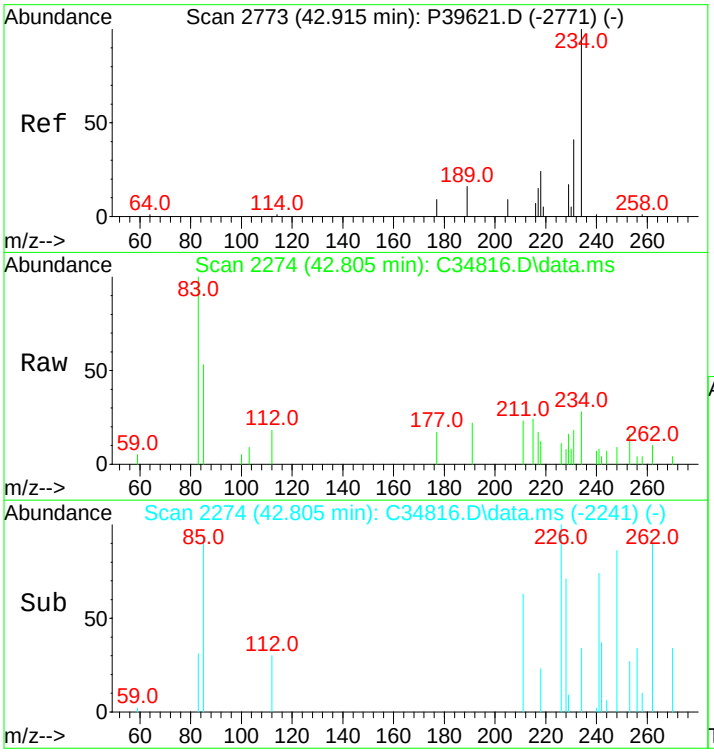


#68
Naphthobenzothiophene-1,2-D
Concen: 38.08 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:234 Resp: 4363

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

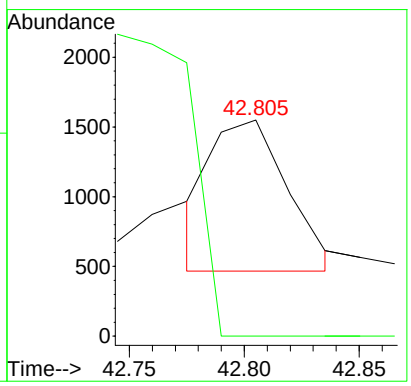


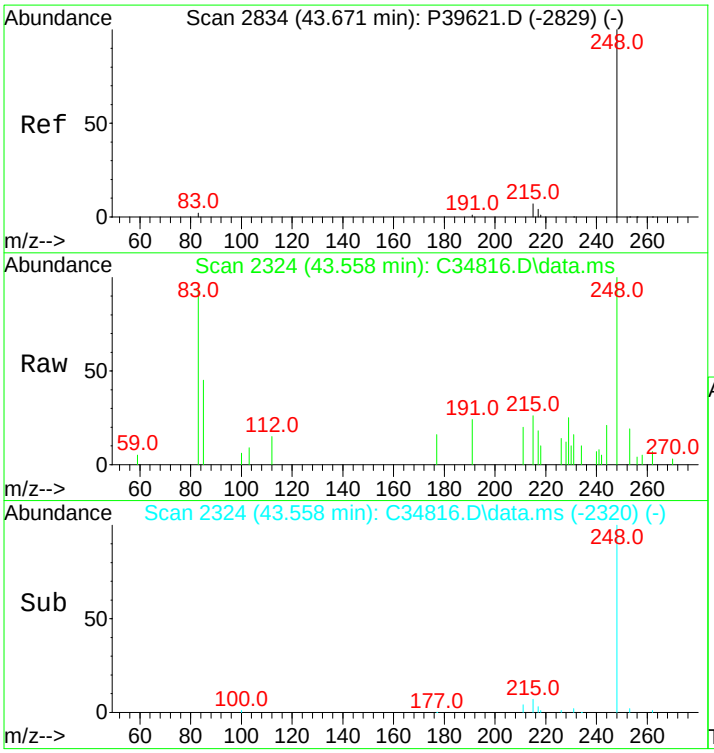


#69
Naphthobenzothiophene-2,3-D
Concen: 21.89 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:234 Resp: 2508

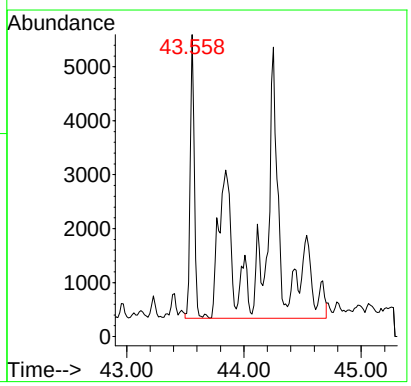
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

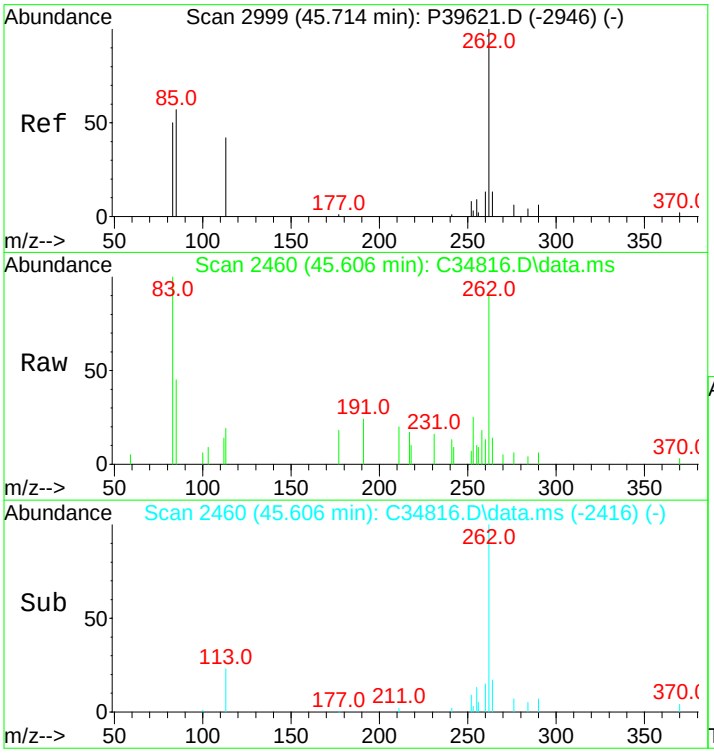




#70
C1-Naphthobenzothiophenes
Concen: 681.69 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

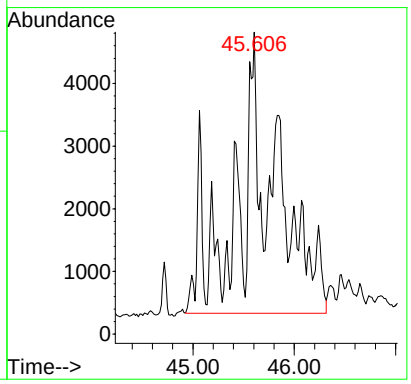
Tgt Ion:248 Resp: 78100

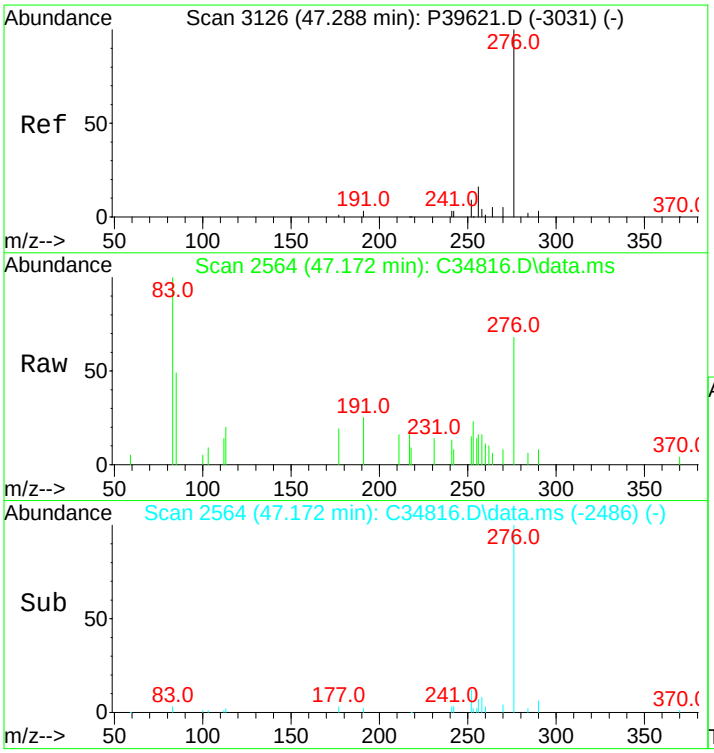




#71
C2-Naphthobenzothiophenes
Concen: 1014.72 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

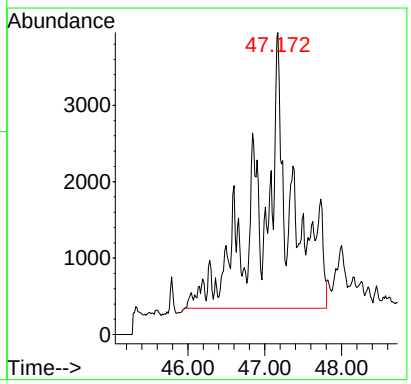
Tgt Ion:262 Resp: 116254

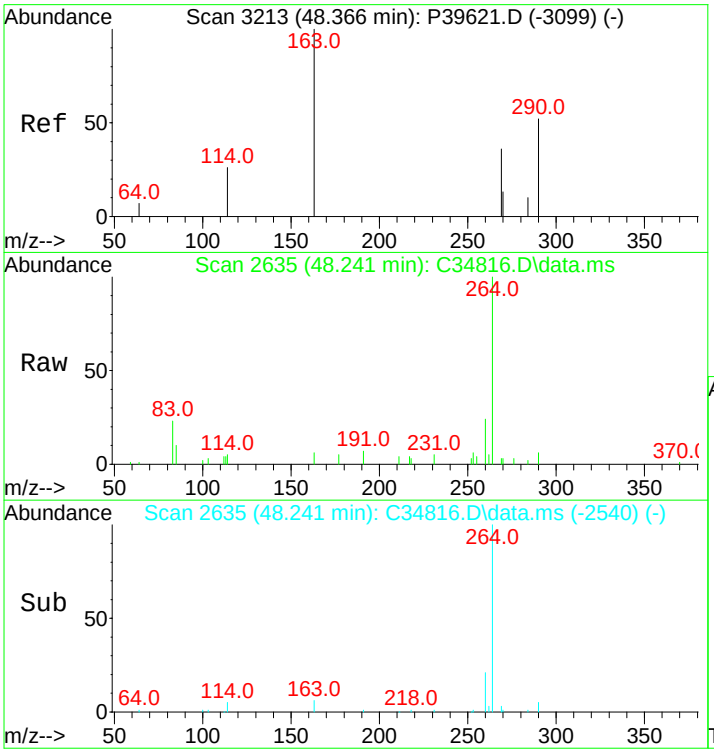




#72
C3-Naphthobenzothiophenes
Concen: 879.44 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

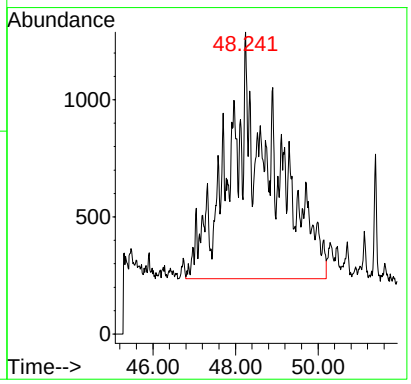
Tgt Ion:276 Resp: 100756

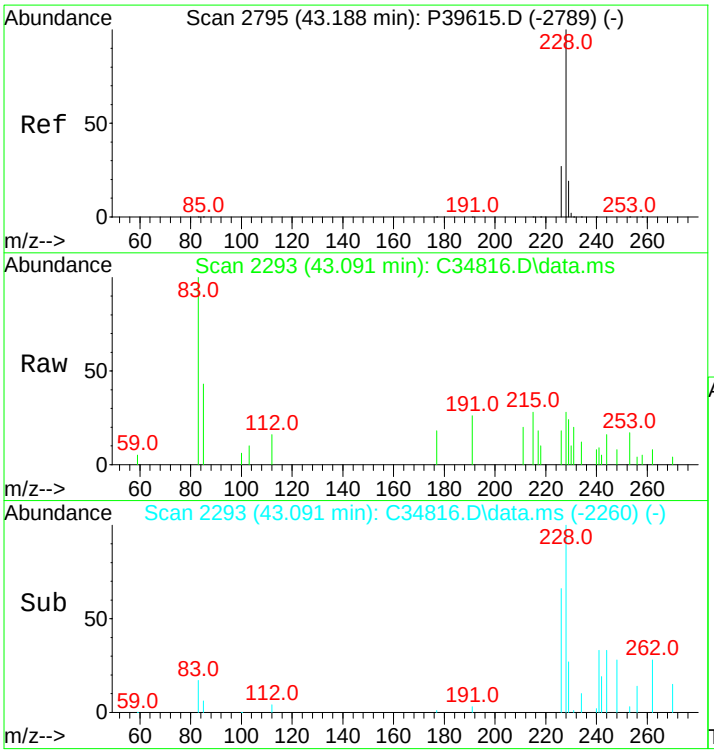




#73
C4-Naphthobenzothiophenes
Concen: 656.43 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:290 Resp: 75206

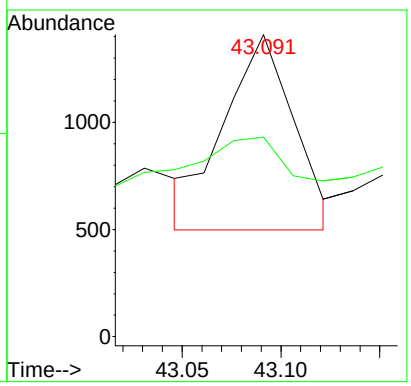


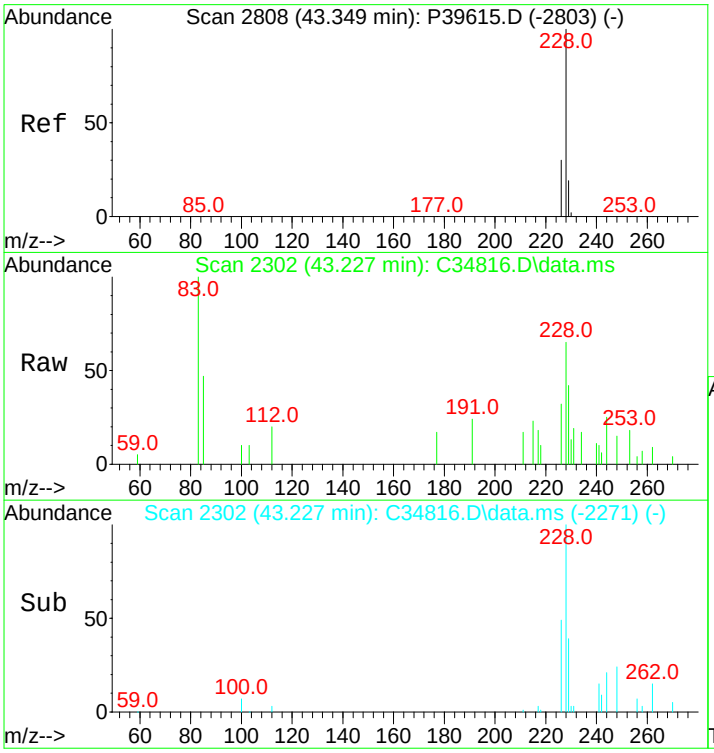


#75
Benz[a]anthracene
Concen: 20.18 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:228 Resp: 2221

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

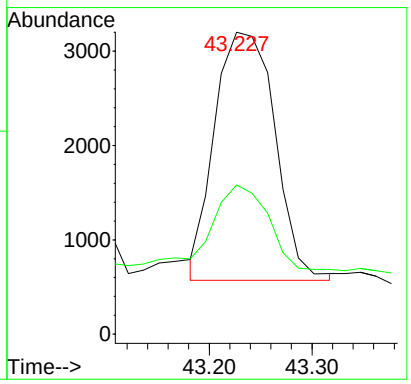


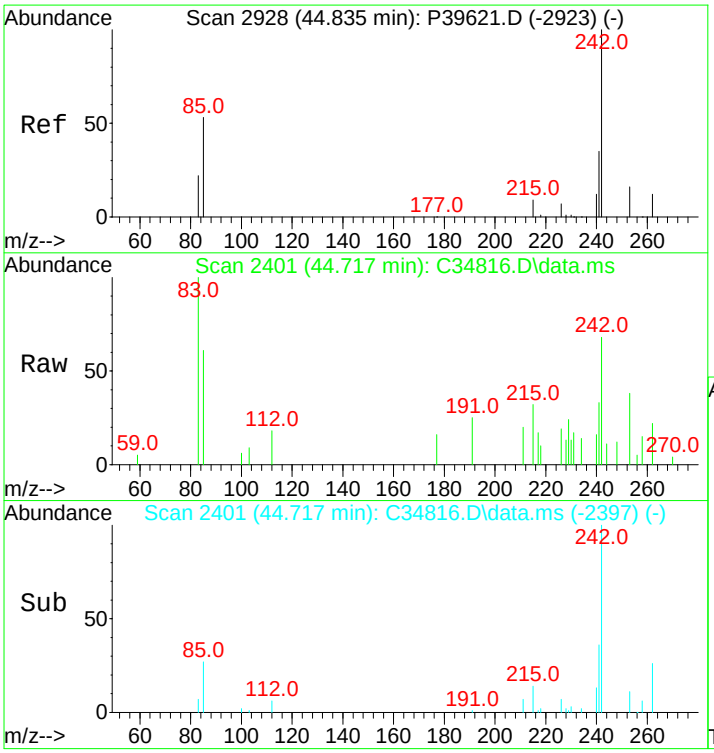


#77
Chrysene/Triphenylene
Concen: 96.25 ng/mL m
RT: 43.227 min Scan# 2302
Delta R.T. -0.030 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:228 Resp: 10697

Ion	Ratio	Lower	Upper
228	100		
226	37.1	23.7	35.5#

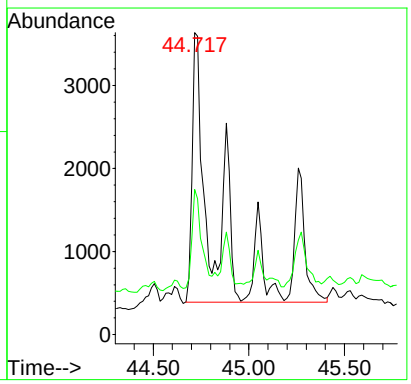


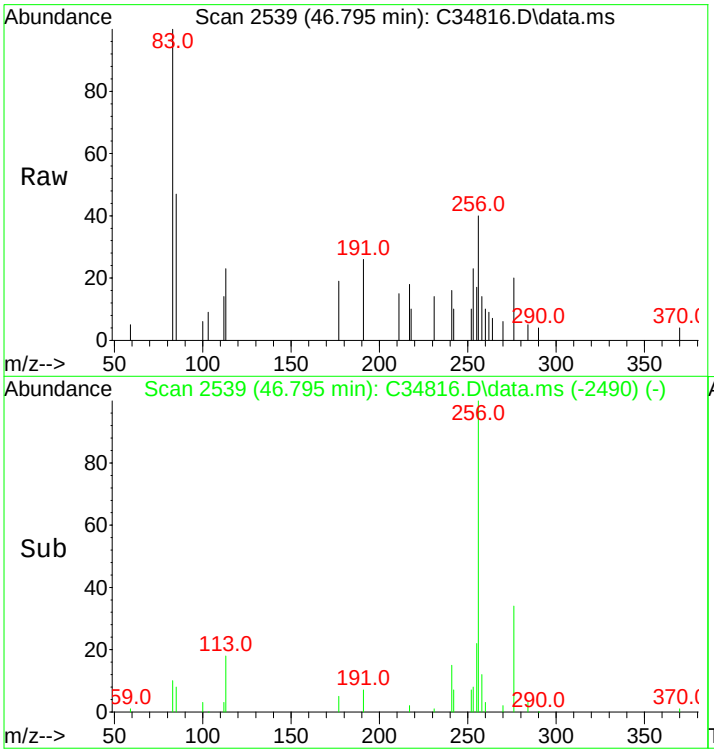


#78
C1-Chrysenes
Concen: 254.28 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:242 Resp: 28260

Ion	Ratio	Lower	Upper
242	100		
241	11.5	31.4	47.2#

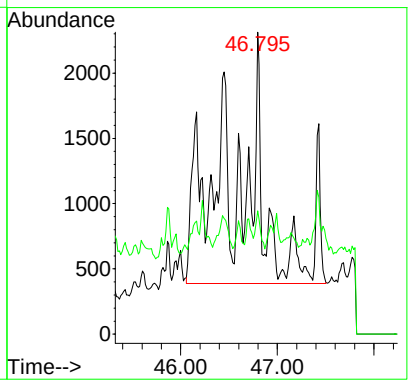


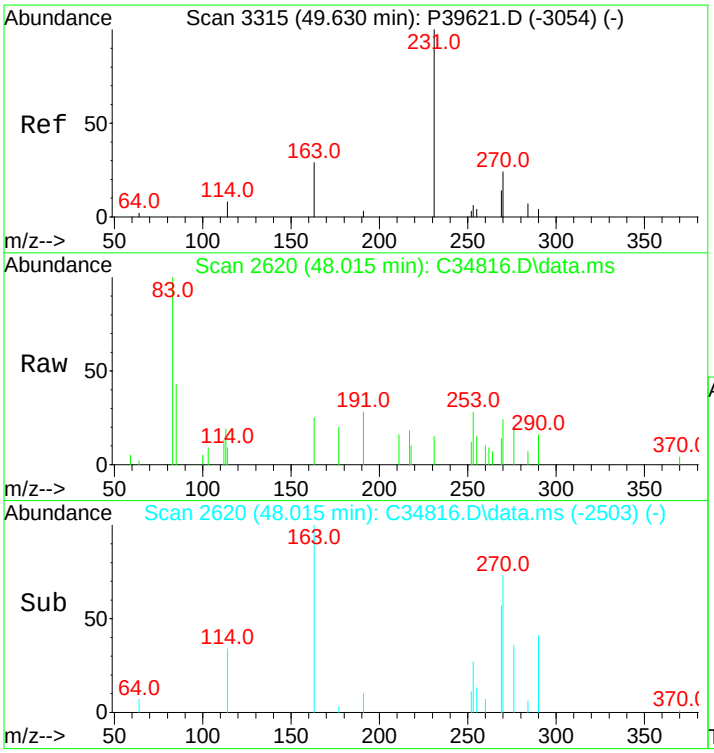


#79
C2-Chrysenes
Concen: 407.89 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:256 Resp: 45332

Ion	Ratio	Lower	Upper
256	100		
241	2.1	21.2	31.8#

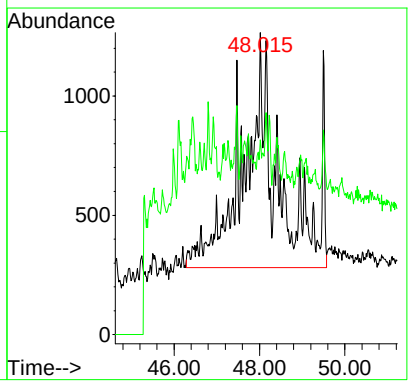


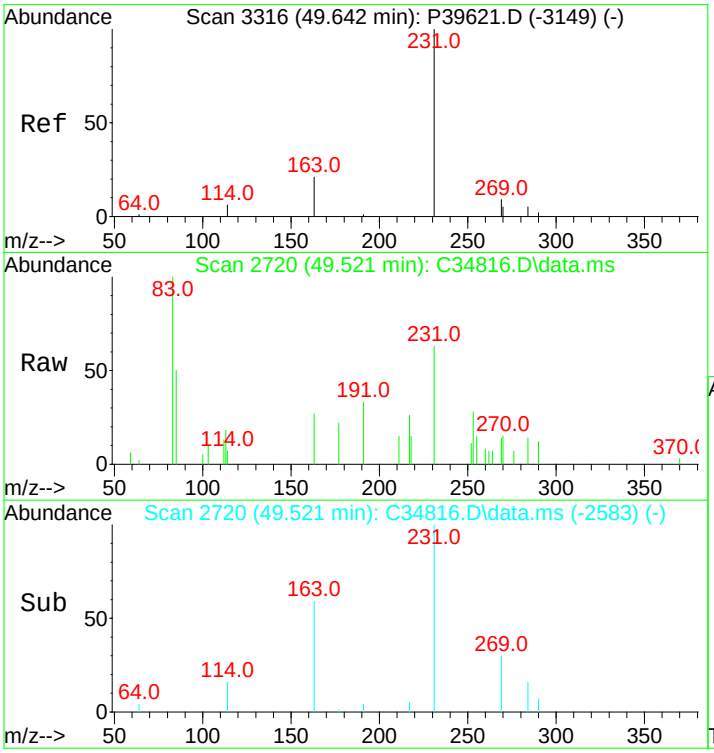


#80
C3-Chrysenes
Concen: 480.03 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:270 Resp: 53350

Ion	Ratio	Lower	Upper
270	100		
255	1.6	33.8	50.8#

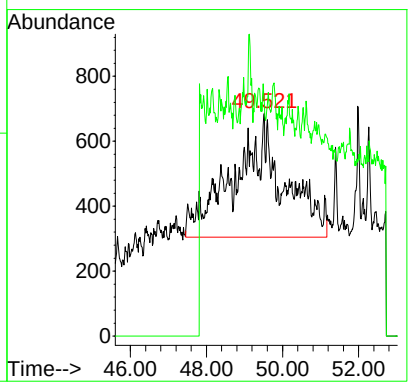


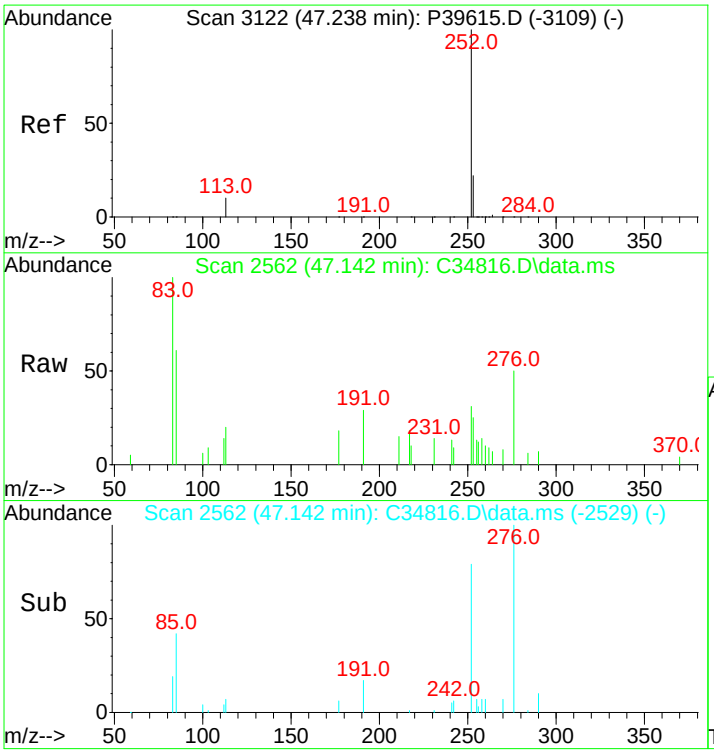


#81
C4-Chrysenes
Concen: 304.98 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:284 Resp: 33895

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

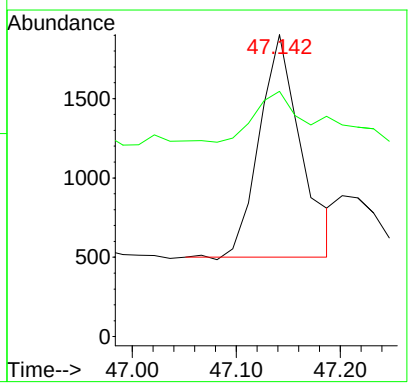


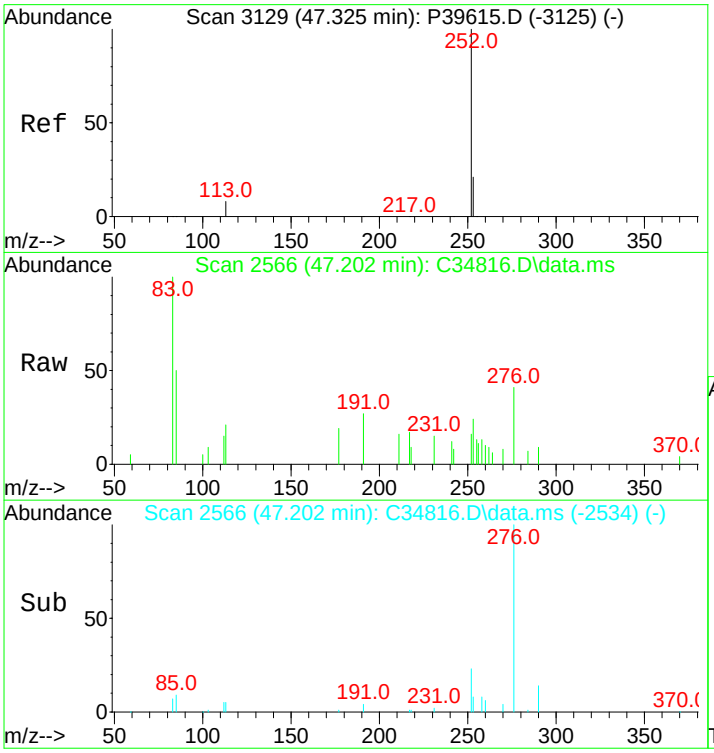


#82
Benzo[b]fluoranthene
Concen: 32.31 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:252 Resp: 3908

Ion	Ratio	Lower	Upper
252	100		
253	37.5	19.0	28.4#

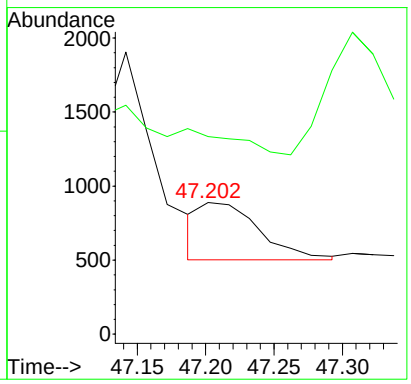


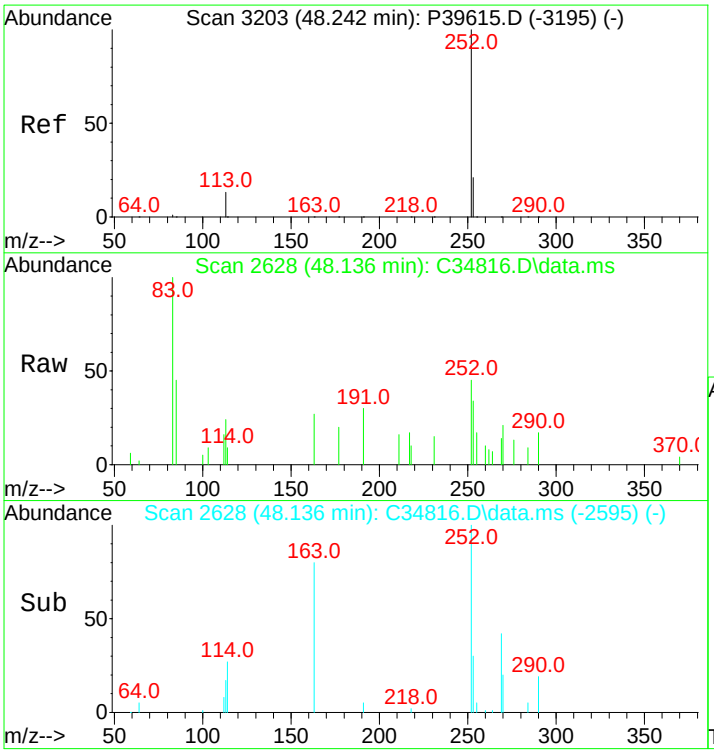


#83
Benzo[j]+[k]fluoranthene
Concen: 8.80 ng/mL m
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:252 Resp: 1159

Ion	Ratio	Lower	Upper
252	100		
253	126.3	19.0	28.4#

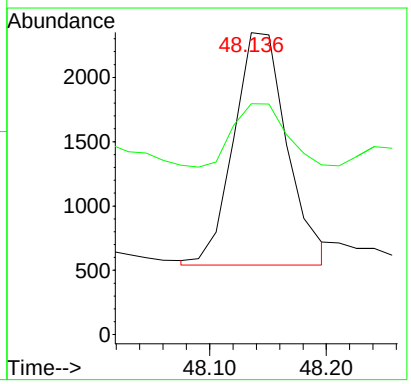


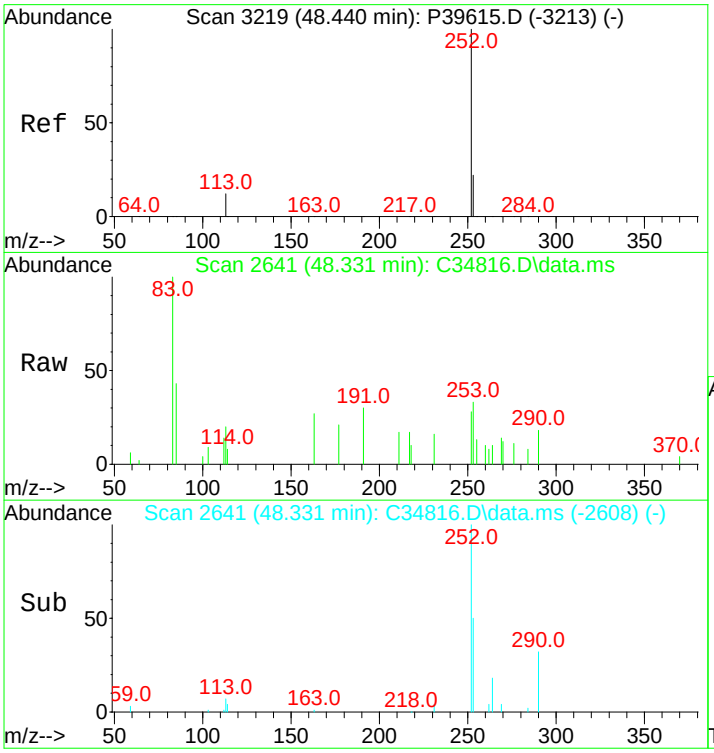


#85
Benzo[e]pyrene
Concen: 48.01 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:252 Resp: 5744

Ion	Ratio	Lower	Upper
252	100		
253	29.7	19.2	28.8#

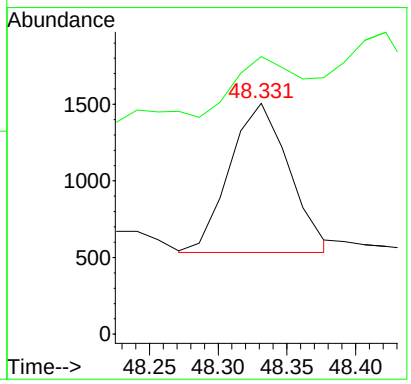


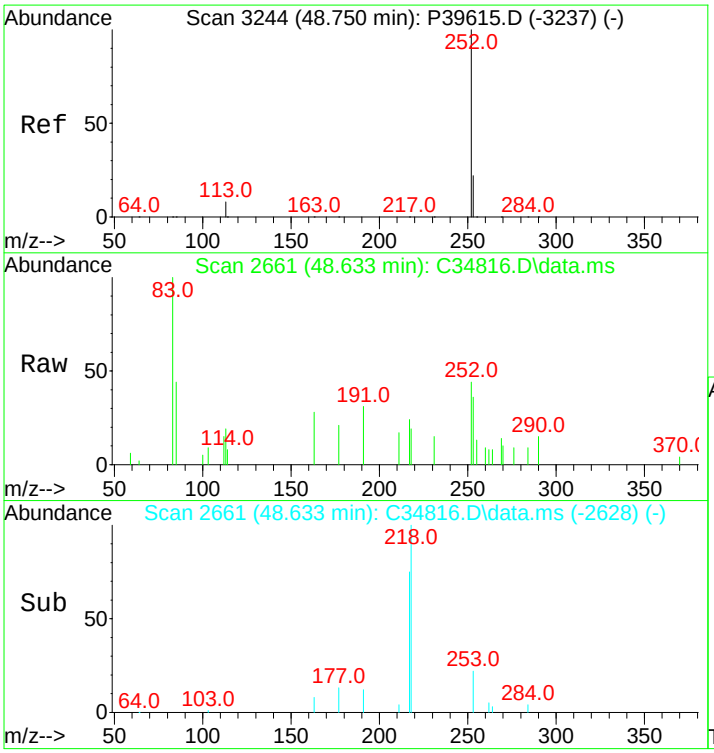


#87
Benzo[a]pyrene
Concen: 25.38 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:252 Resp: 2924

Ion	Ratio	Lower	Upper
252	100		
253	53.7	19.5	29.3#

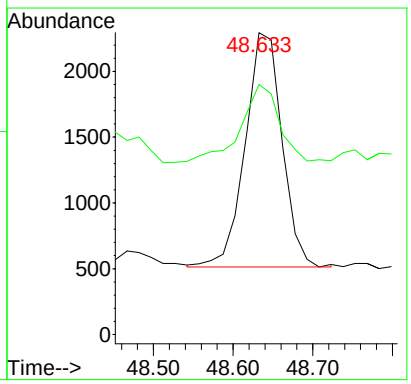


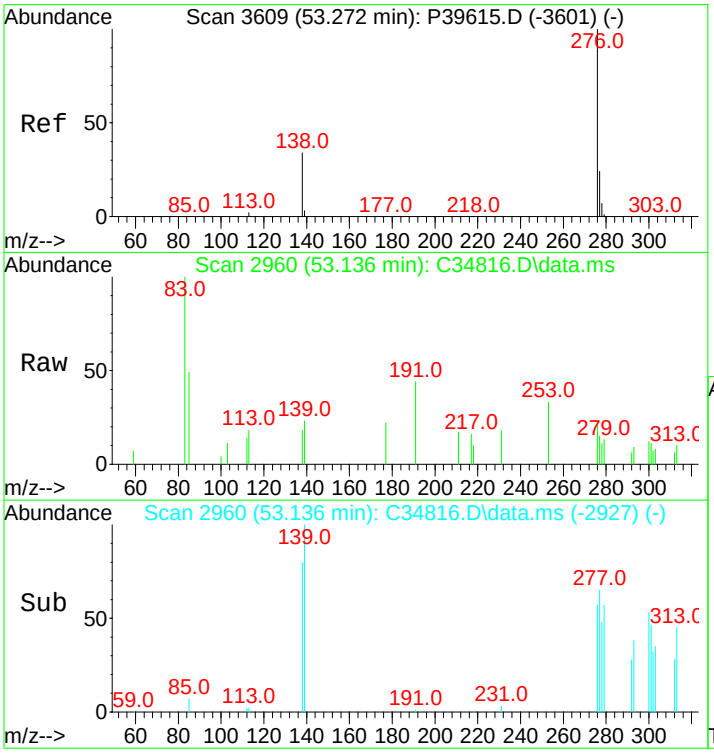


#88
Perylene
Concen: 46.52 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:252 Resp: 5727

Ion	Ratio	Lower	Upper
252	100		
253	35.2	19.6	29.4#

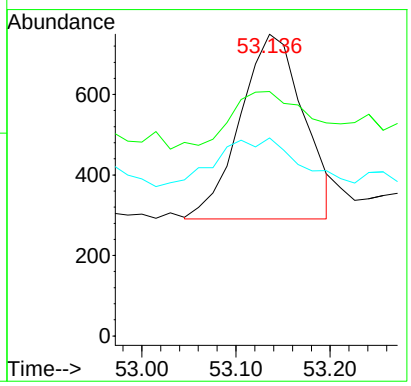


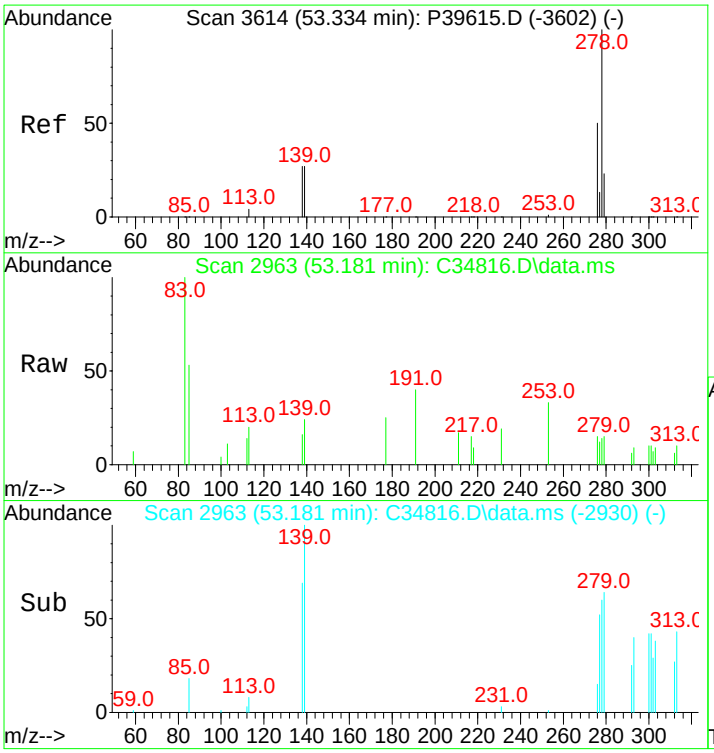


#89
Indeno[1,2,3-cd]pyrene
Concen: 15.99 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:276 Resp: 2144

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

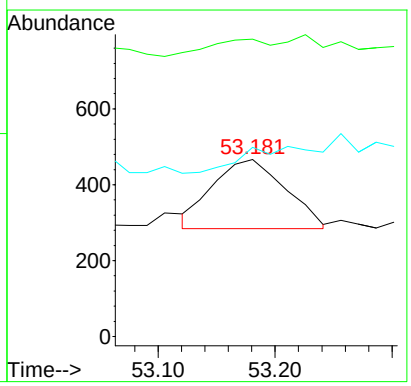


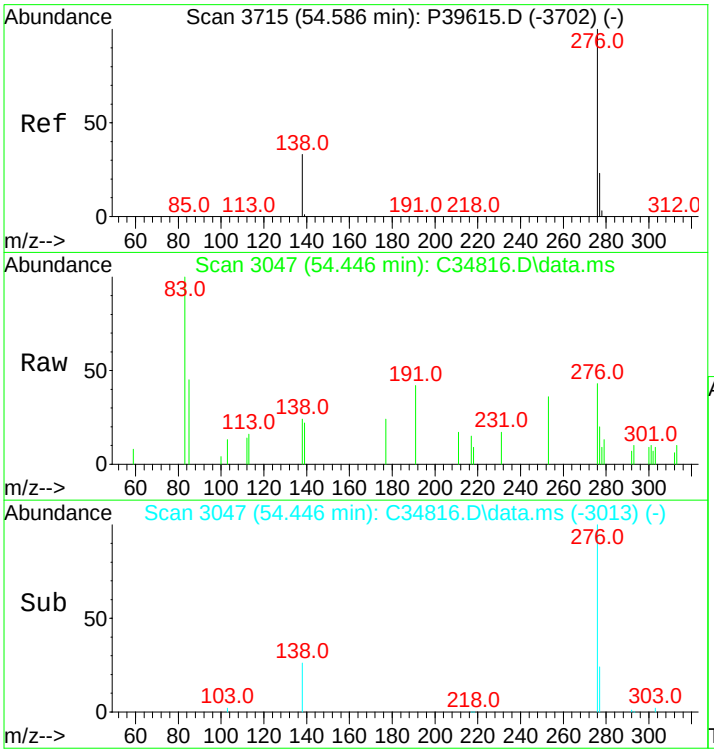


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.20 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:278 Resp: 791

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

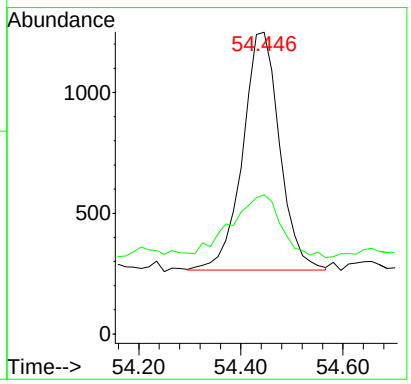


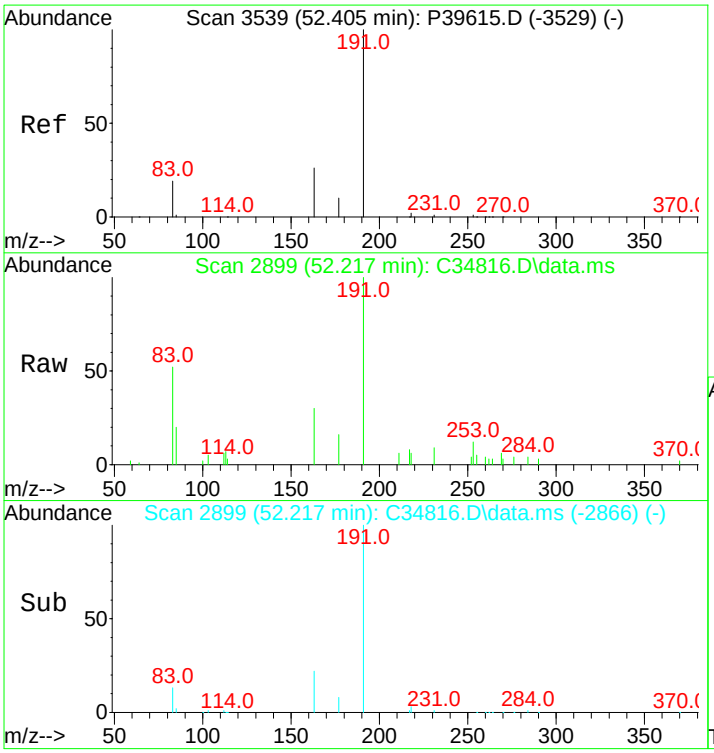


#91
Benzo[g,h,i]perylene
Concen: 34.95 ng/mL m
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:276 Resp: 4950

Ion	Ratio	Lower	Upper
276	100		
277	35.7	18.9	28.3#

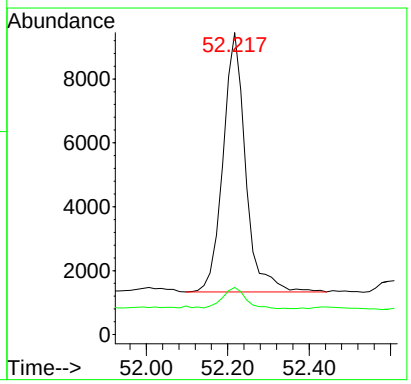


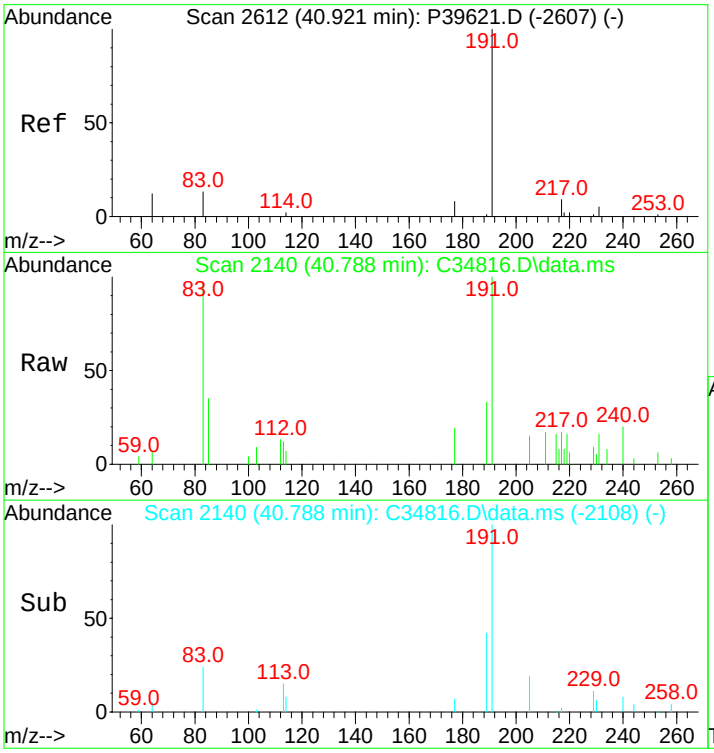


#92
Hopane (T19)
Concen: 1374.76 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:191 Resp: 31425

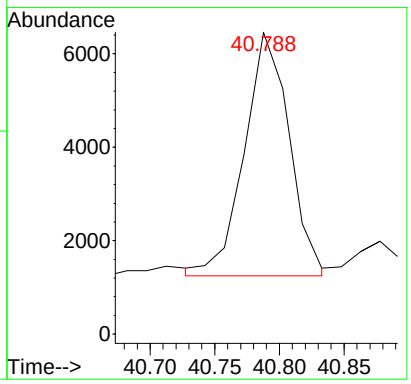
Ion	Ratio	Lower	Upper
191	100		
177	8.2	14.6	21.8#

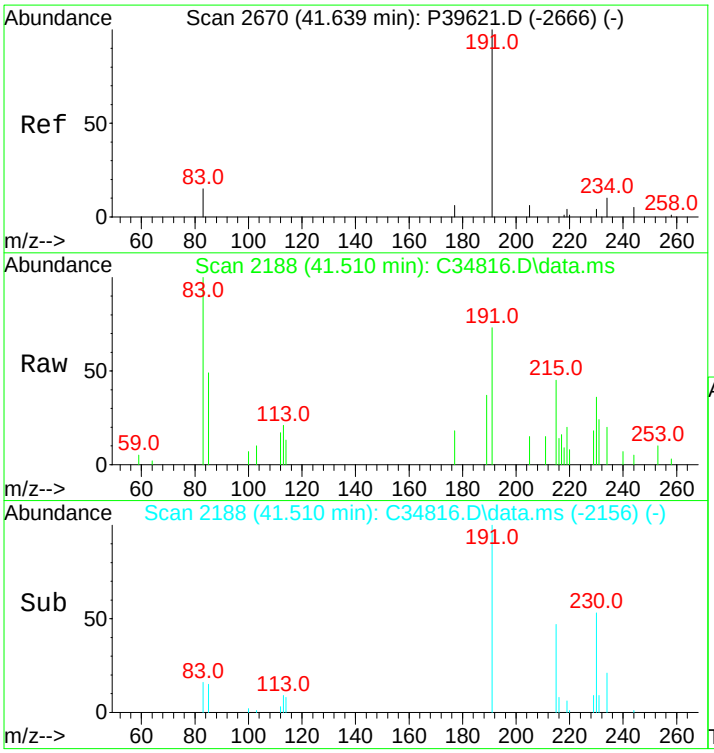




#94
C23 Tricyclic Terpane (T4)
Concen: 549.64 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

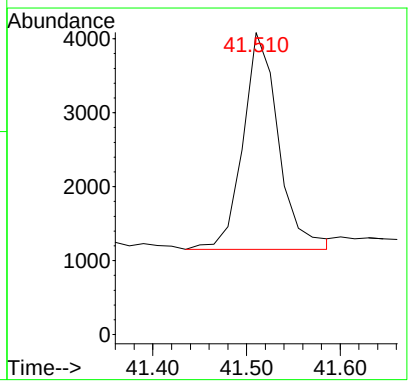
Tgt Ion:191 Resp: 12564

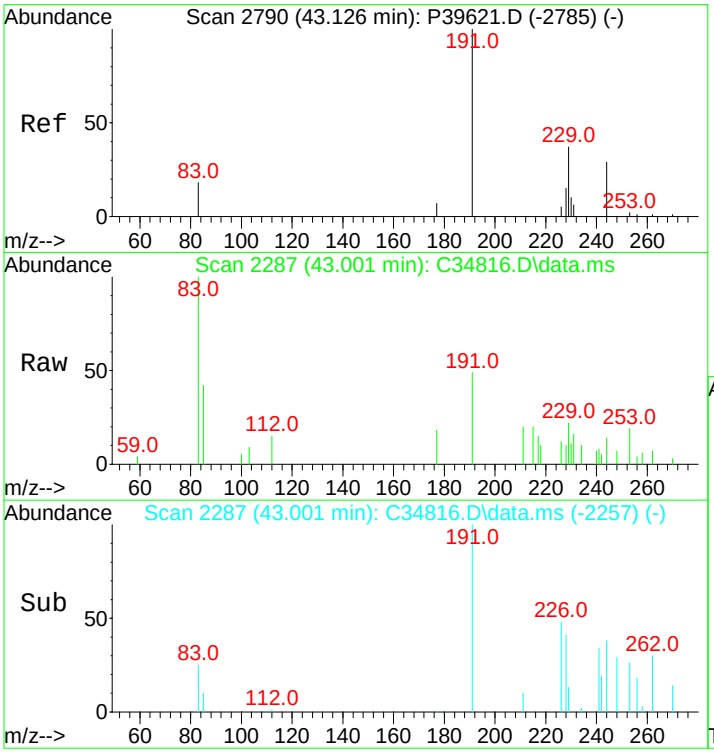




#95
C24 Tricyclic Terpane (T5)
Concen: 338.95 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

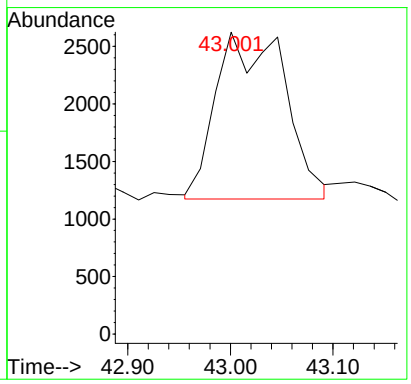
Tgt Ion:191 Resp: 7748

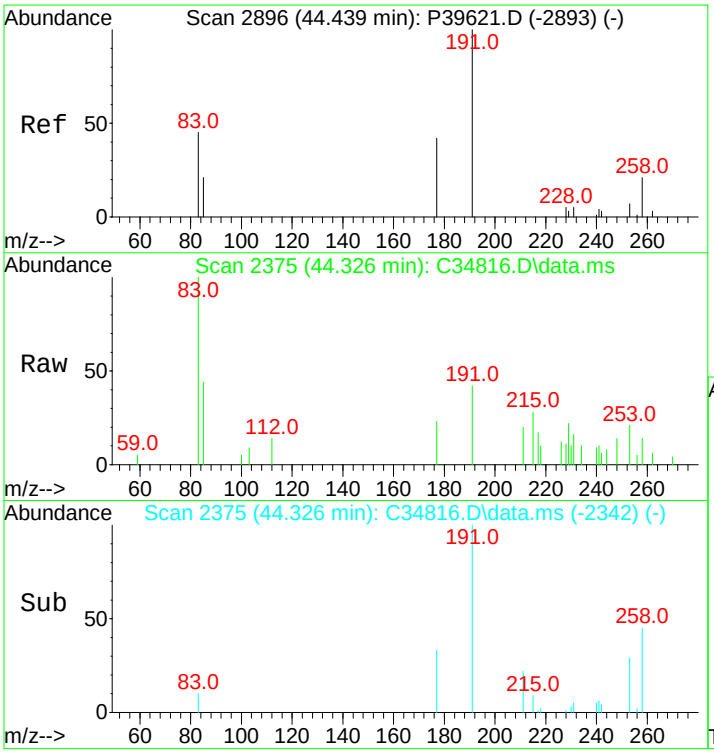




#96
C25 Tricyclic Terpane (T6)
Concen: 295.03 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

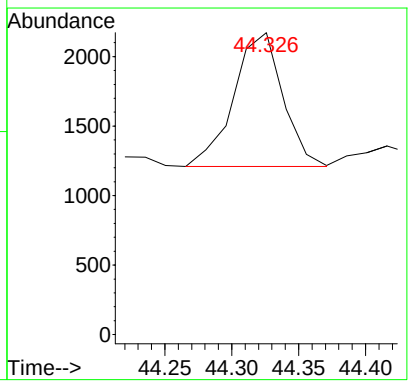
Tgt Ion:191 Resp: 6744

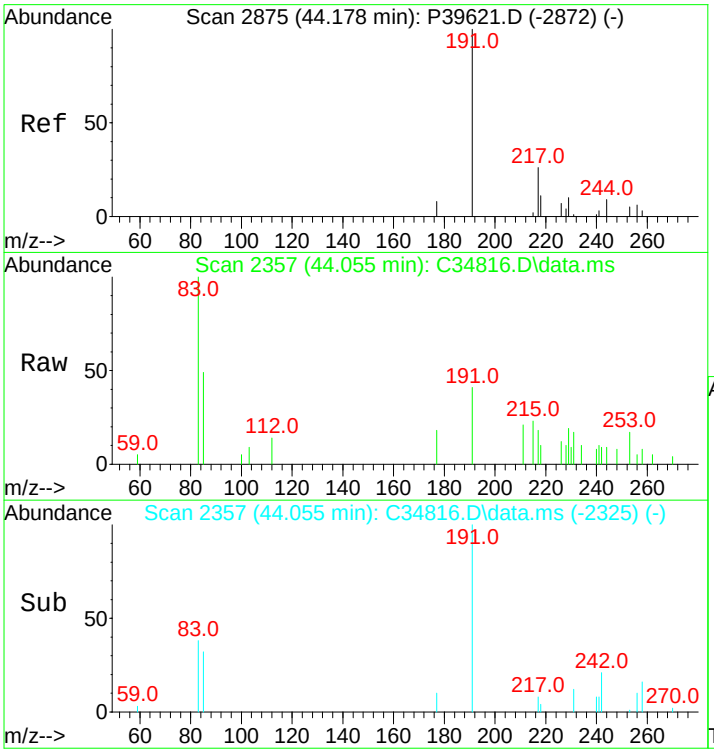




#97
C24 Tetracyclic Terpane (T6a)
Concen: 107.75 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

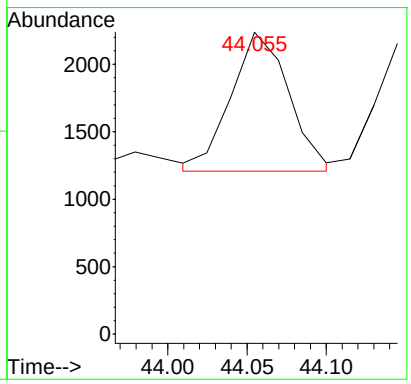
Tgt Ion:191 Resp: 2463

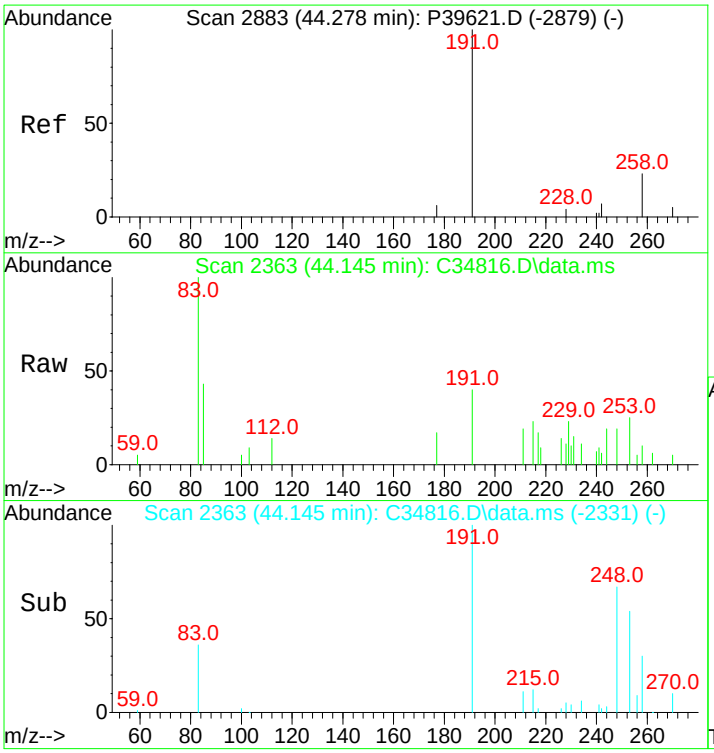




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 113.79 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

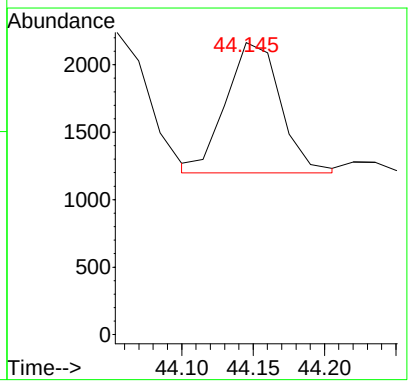
Tgt Ion:191 Resp: 2601

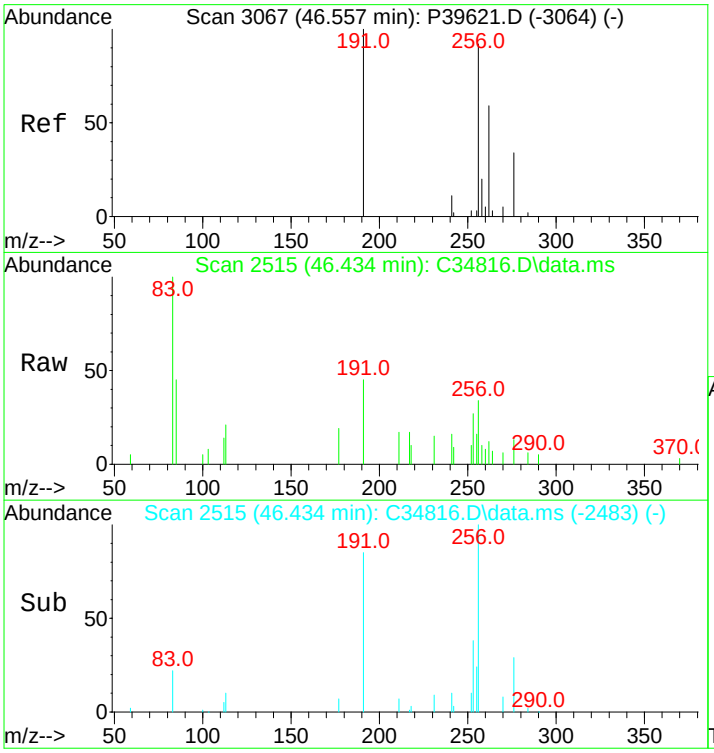




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 112.34 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

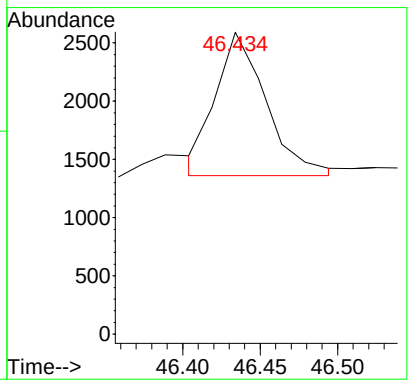
Tgt Ion:191 Resp: 2568

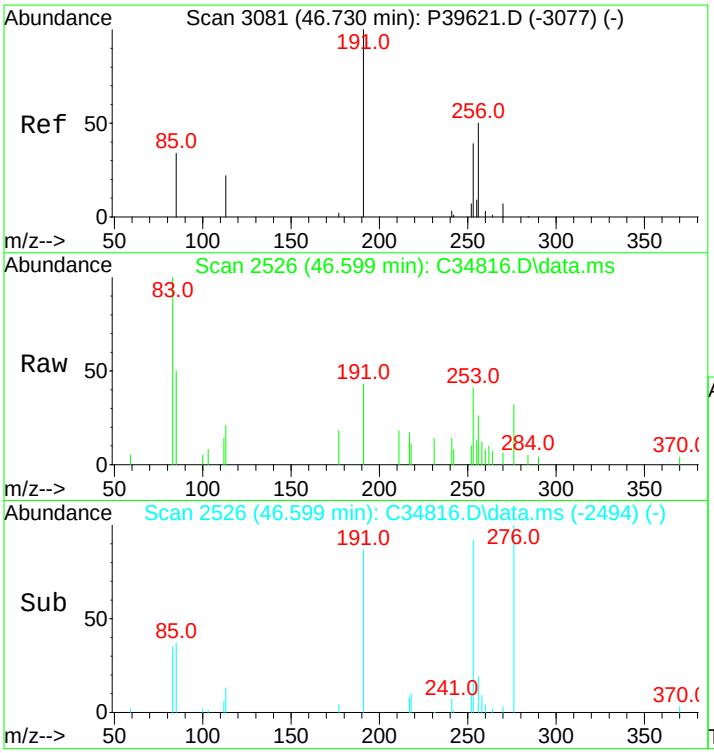




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 122.54 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

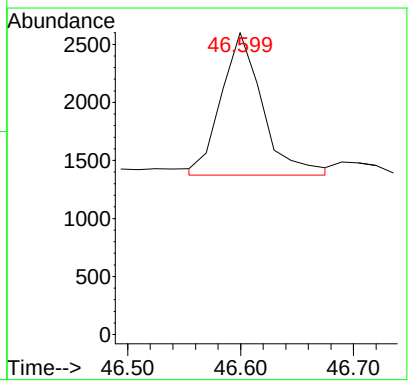
Tgt Ion:191 Resp: 2801

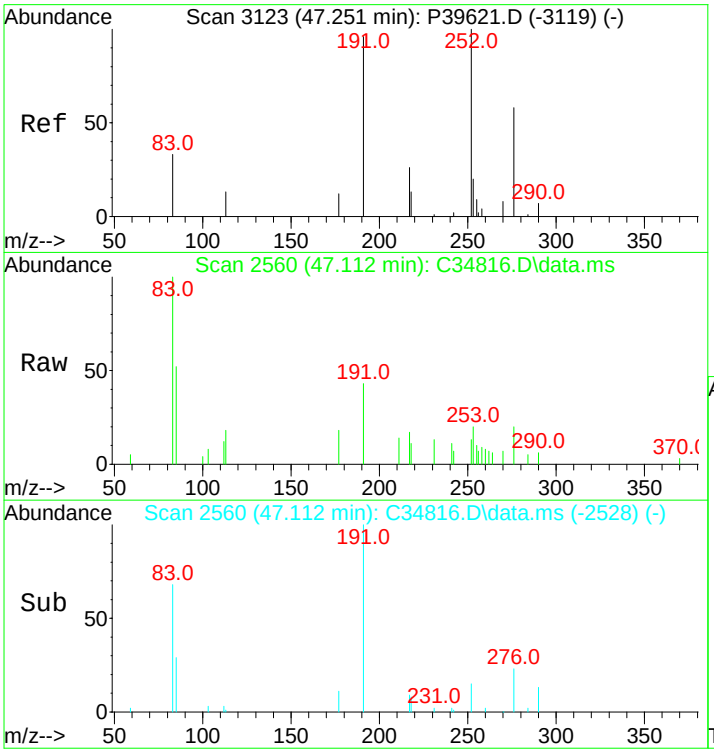




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 136.05 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

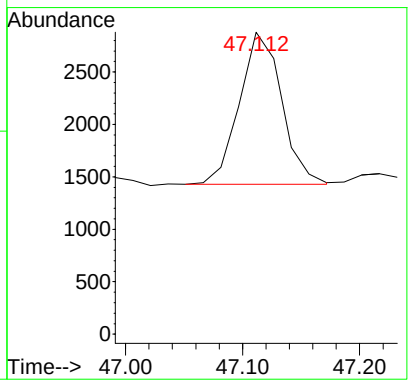
Tgt Ion:191 Resp: 3110

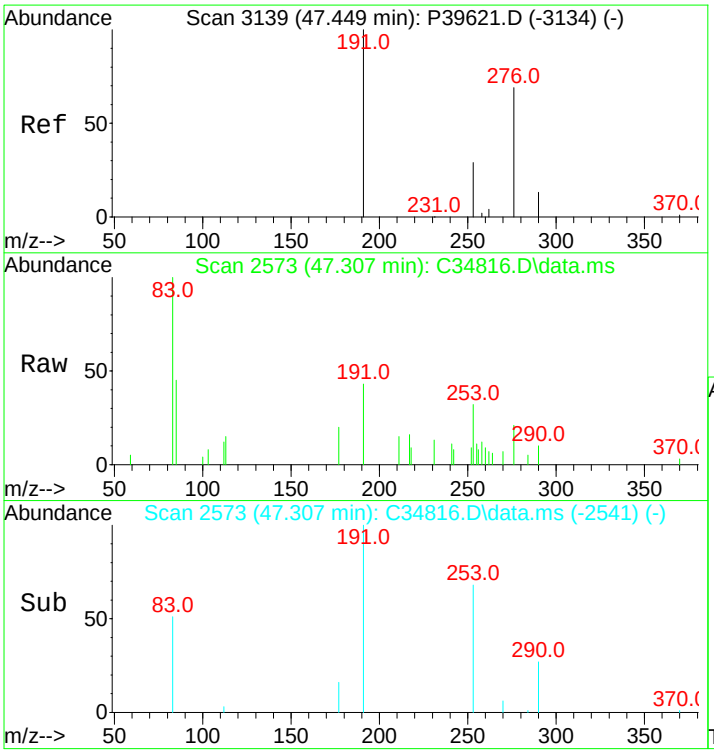




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 159.02 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

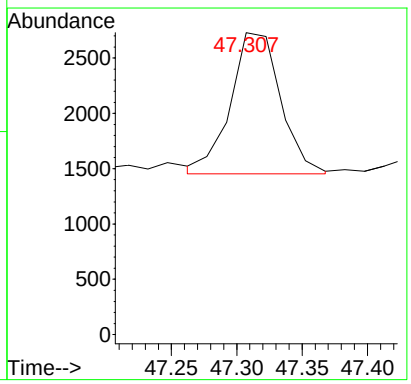
Tgt Ion:191 Resp: 3635

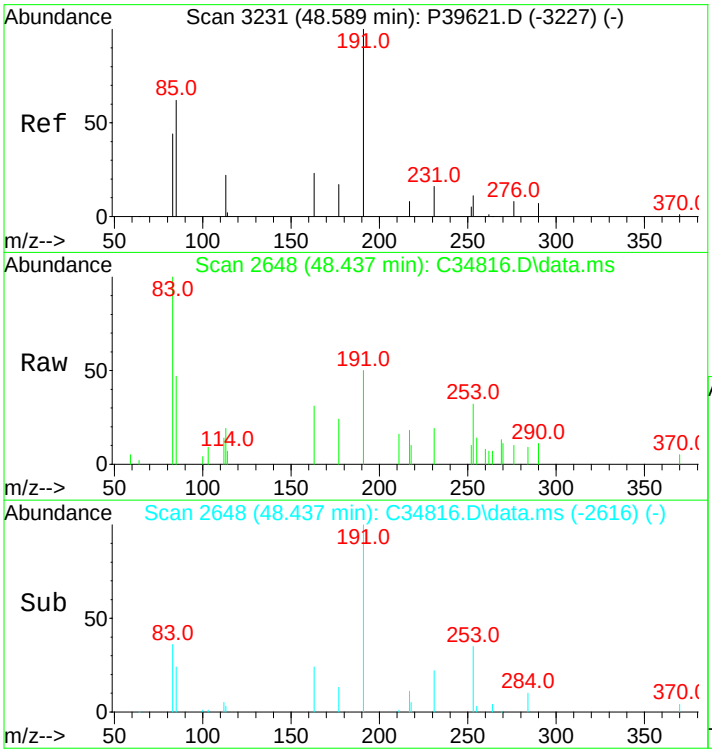




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 149.40 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

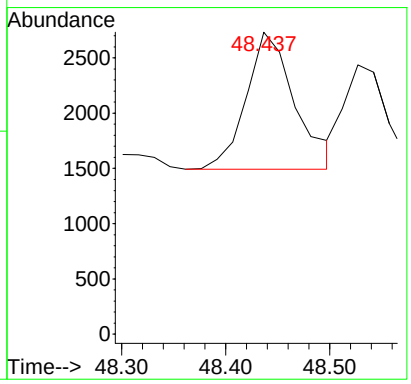
Tgt Ion:191 Resp: 3415

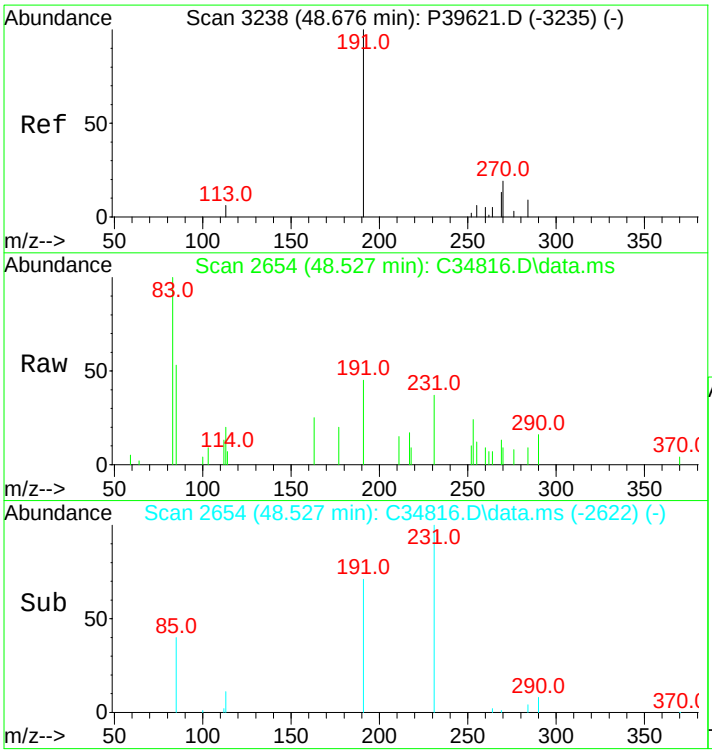




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 176.74 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

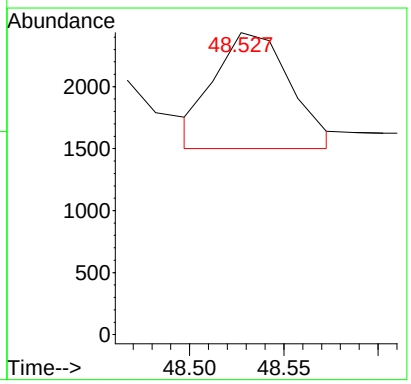
Tgt Ion:191 Resp: 4040

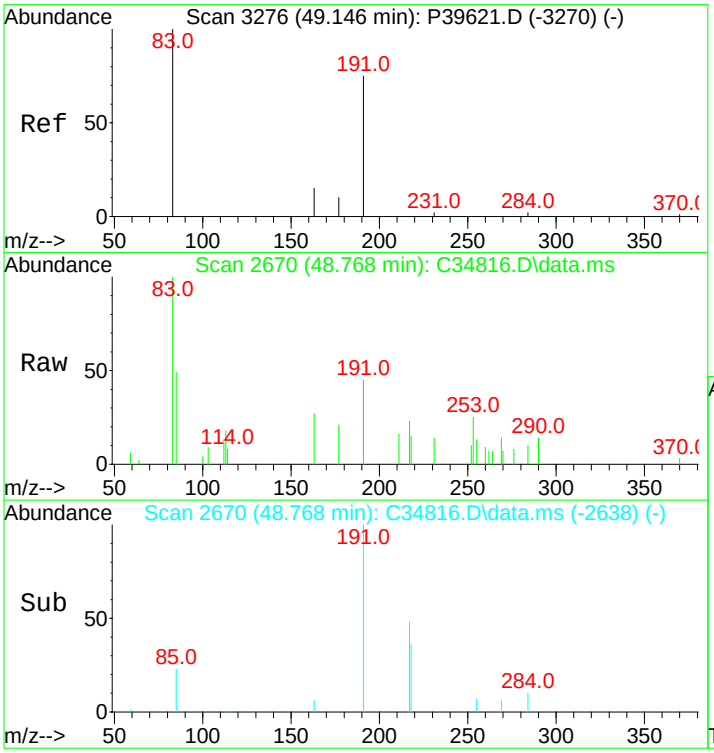




#105
C30 Tricyclic Terpane-22S
Concen: 114.40 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

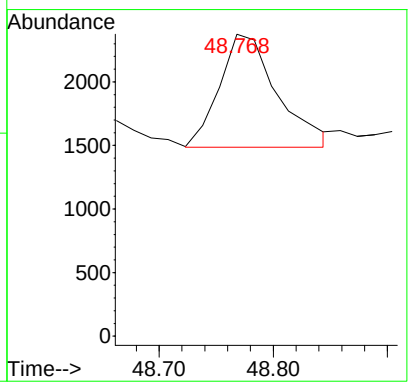
Tgt Ion:191 Resp: 2615

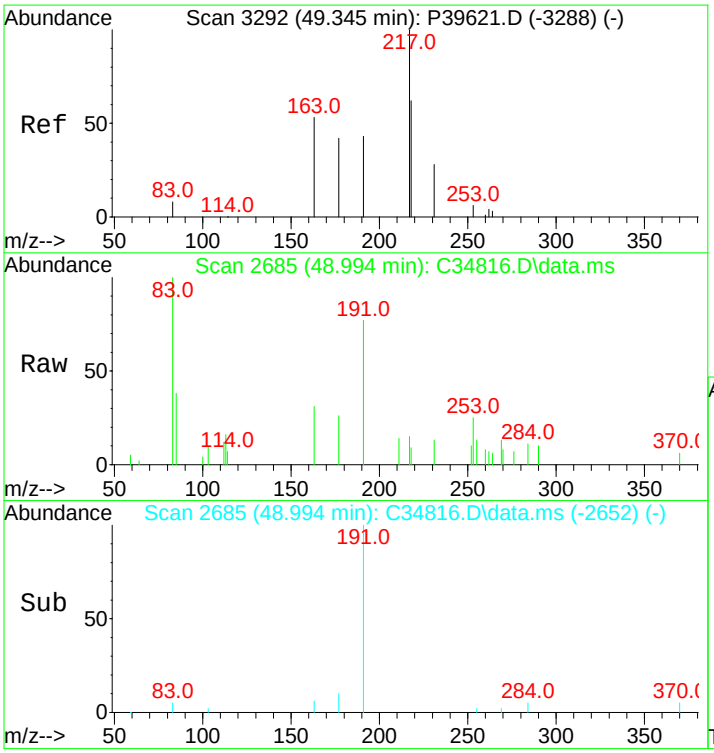




#106
C30 Tricyclic Terpane-22R
Concen: 137.37 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

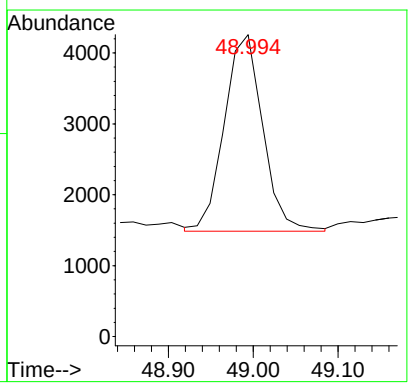
Tgt Ion:191 Resp: 3140

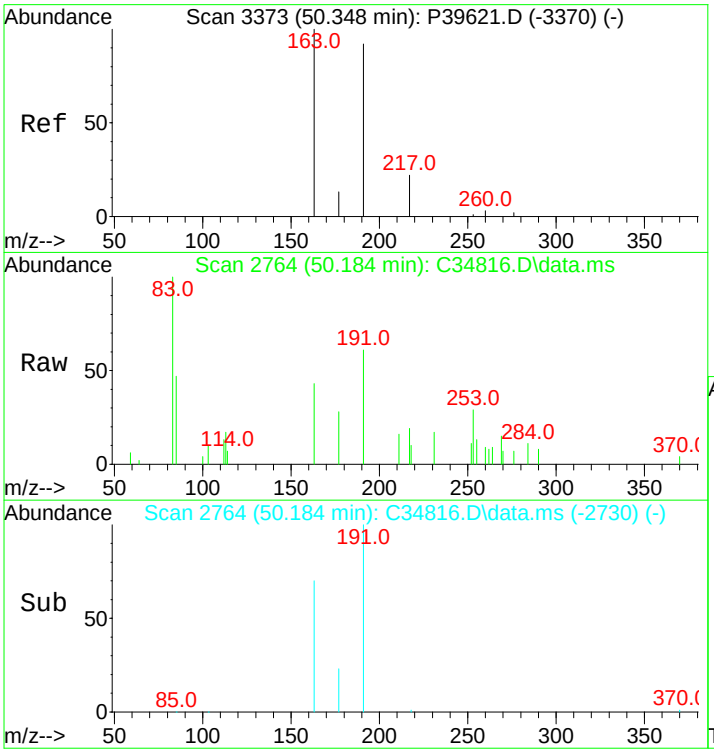




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 382.66 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

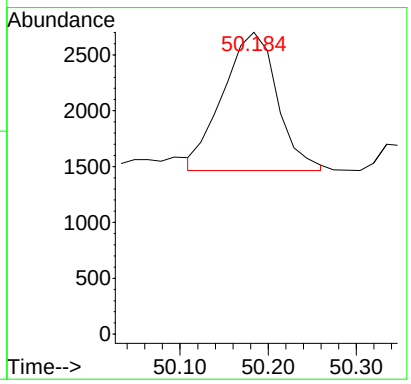
Tgt Ion:191 Resp: 8747

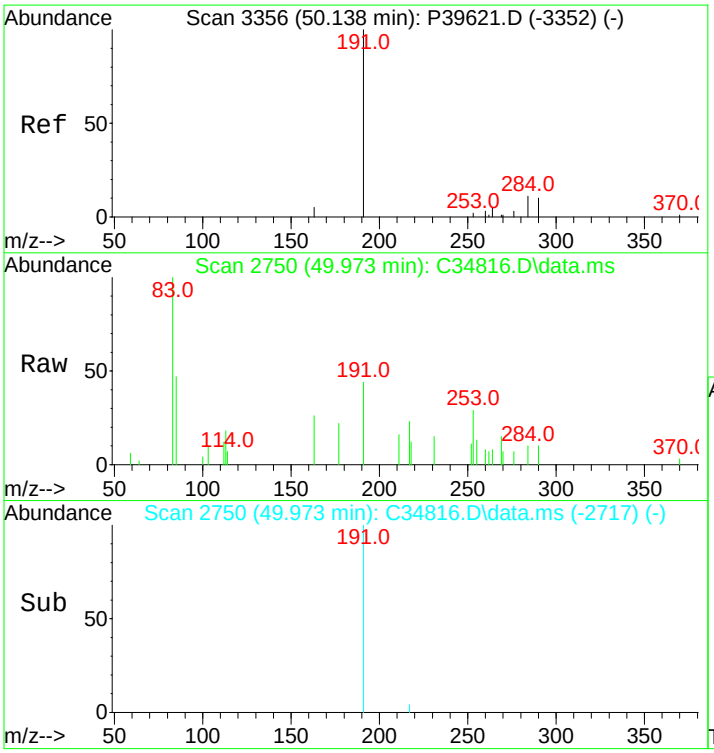




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 230.59 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

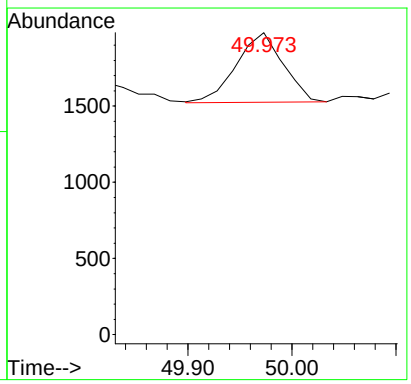
Tgt Ion:191 Resp: 5271

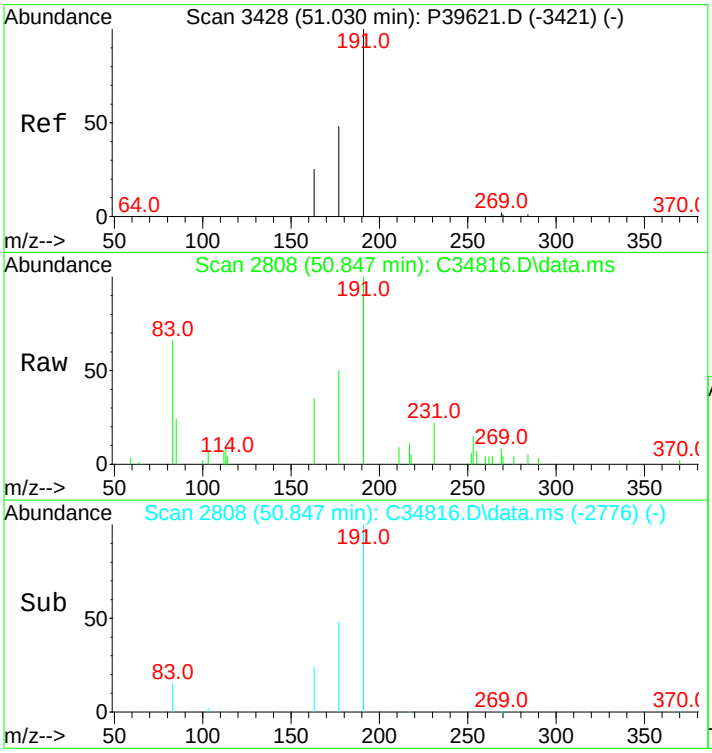




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 63.00 ng/ml
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

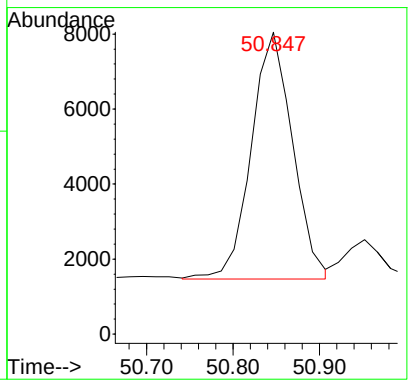
Tgt Ion:191 Resp: 1440

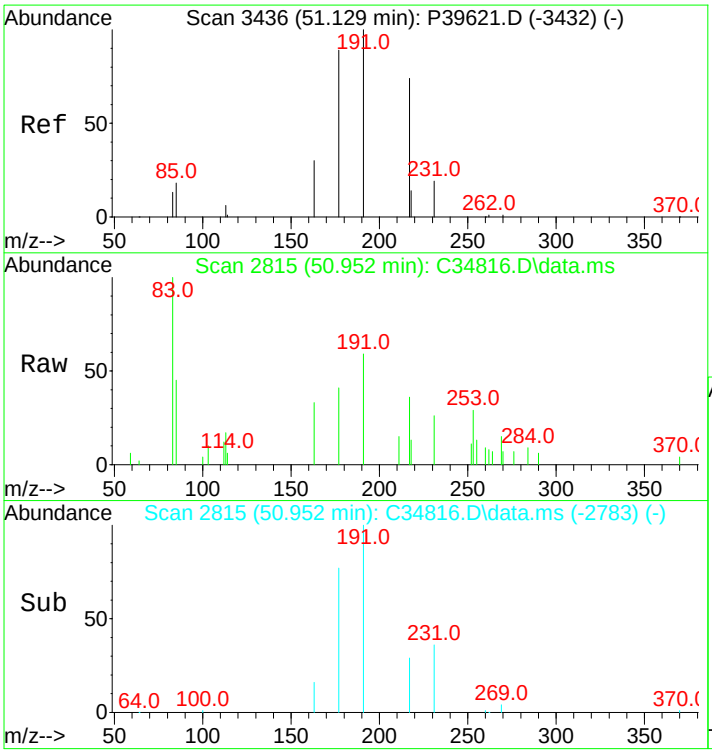




#110
30-Norhopane (T15)
Concen: 954.92 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

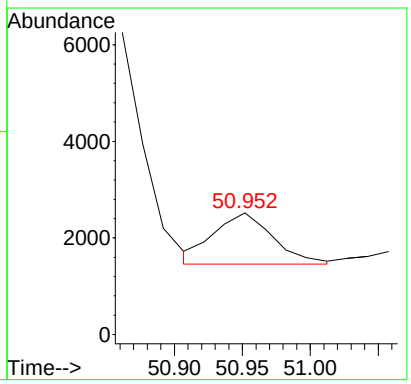
Tgt Ion:191 Resp: 21828

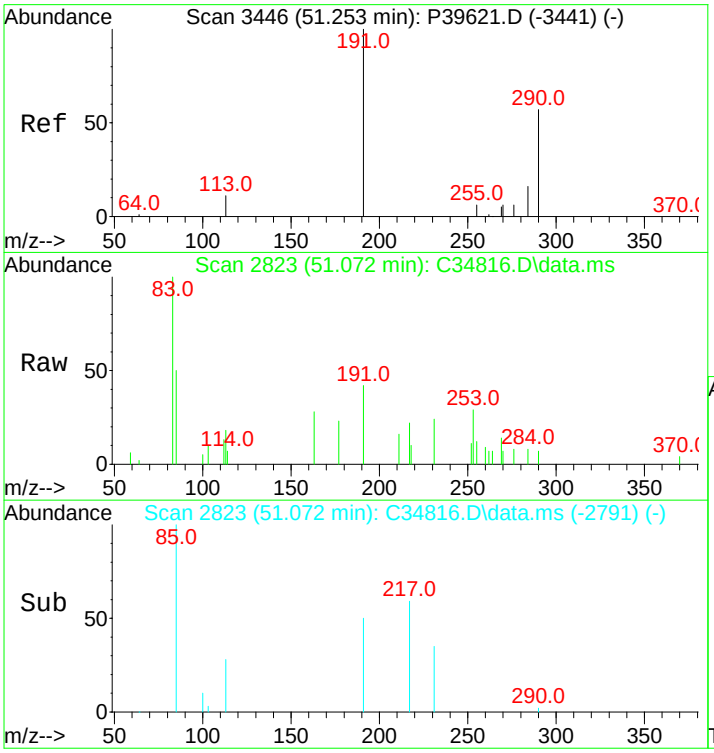




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 140.74 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

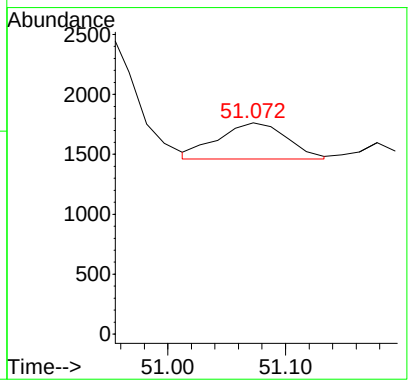
Tgt Ion:191 Resp: 3217

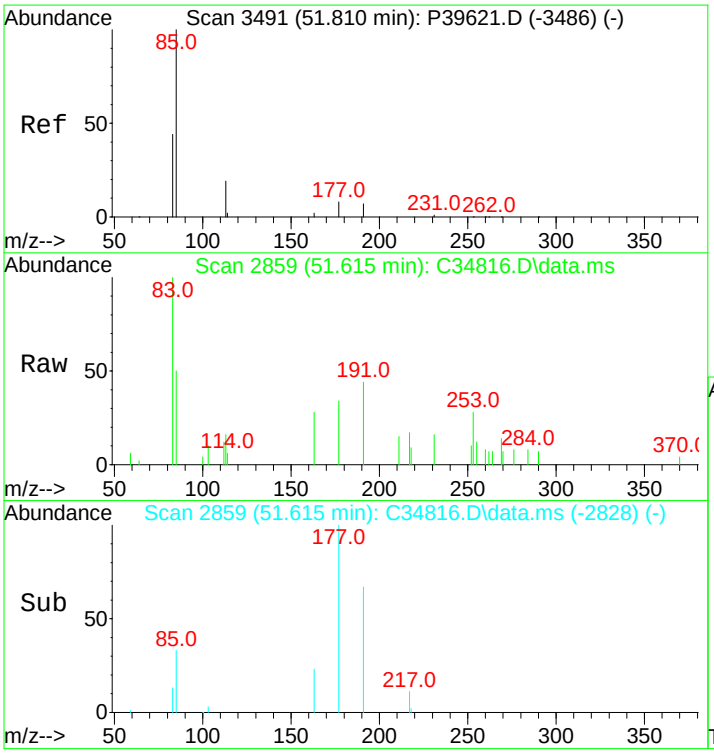




#112
17a(H)-Diahopane (X)
Concen: 53.28 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

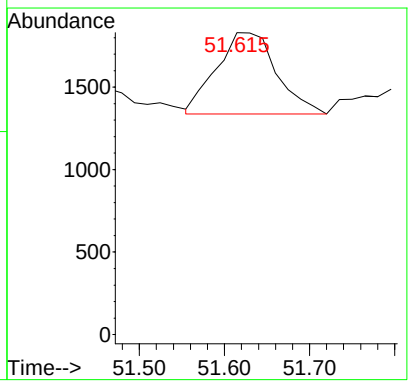
Tgt Ion:191 Resp: 1218

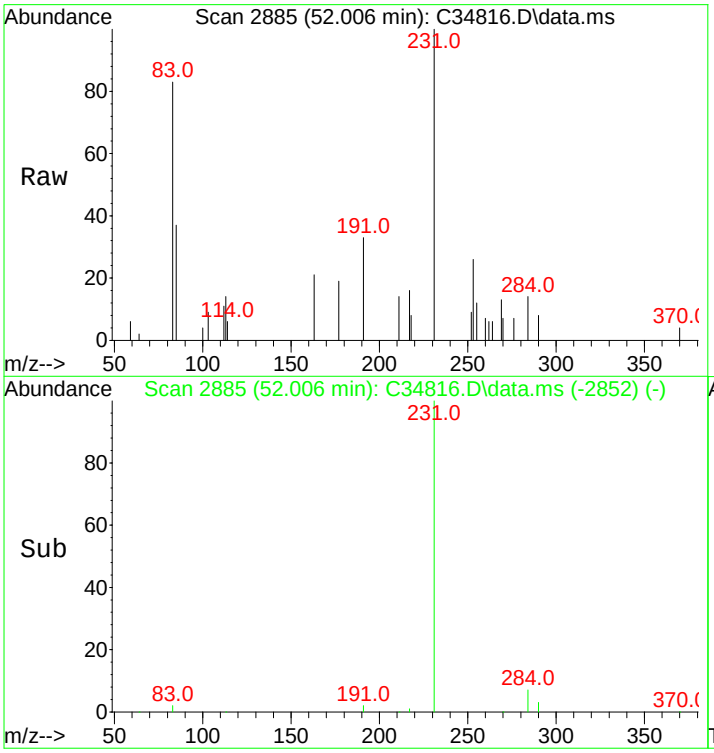




#113
30-Normoretane (T17)
Concen: 106.17 ng/ml
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

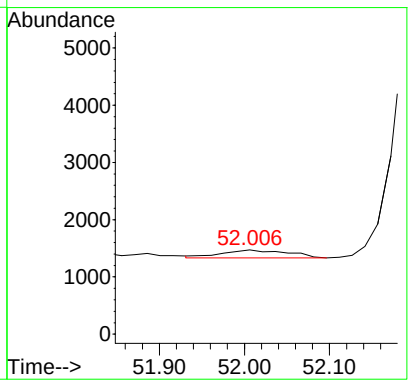
Tgt Ion:191 Resp: 2427

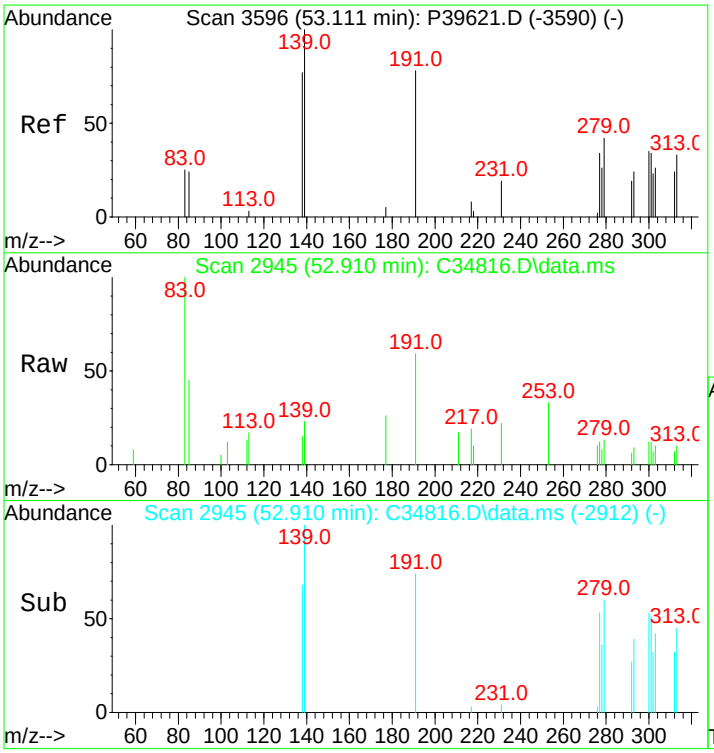




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 33.42 ng/ml
RT: 52.006 min Scan# 2885
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

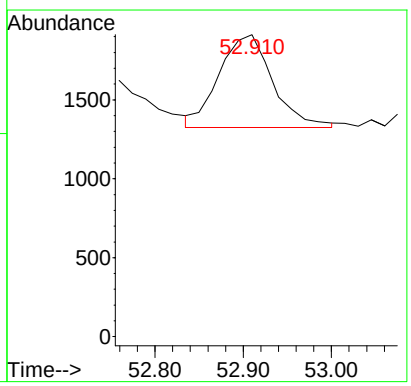
Tgt Ion:191 Resp: 764

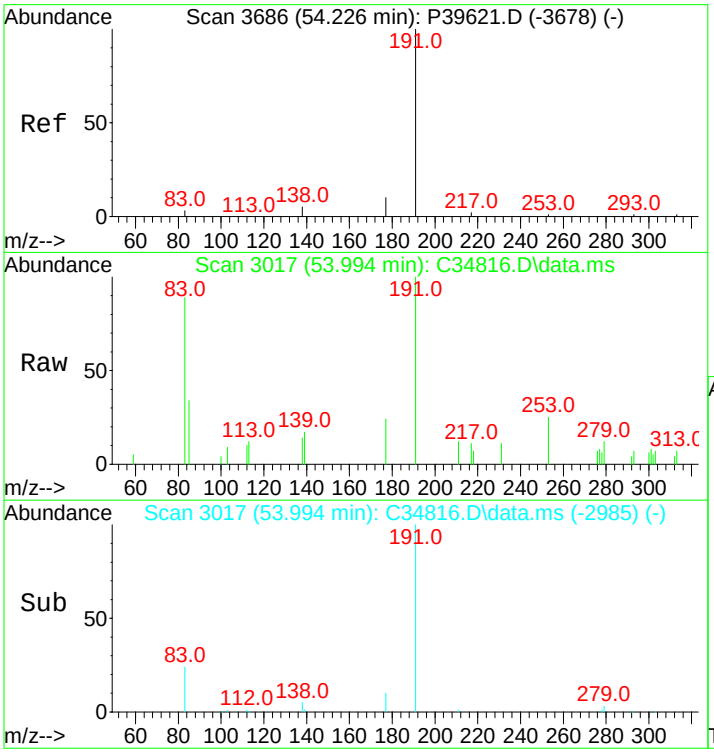




#115
Moretane (T20)
Concen: 108.32 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

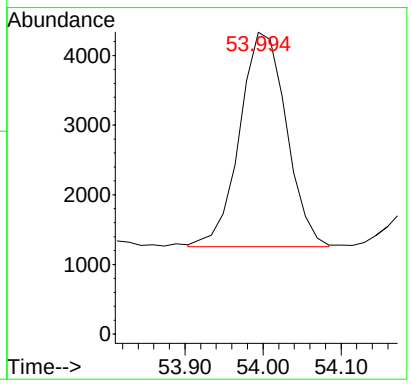
Tgt Ion:191 Resp: 2476

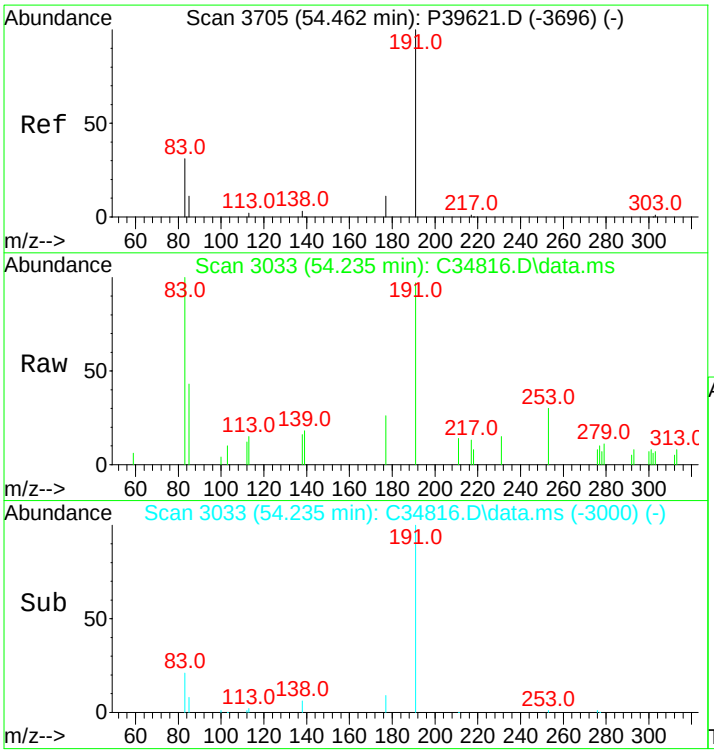




#116
30-Homohopane-22S (T21)
Concen: 559.70 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

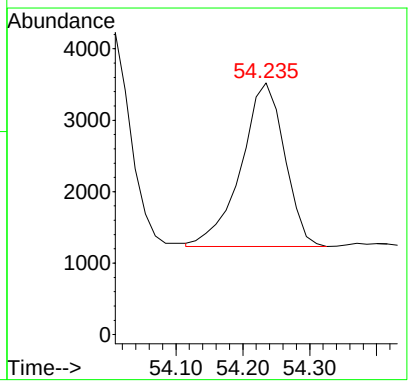
Tgt Ion:191 Resp: 12794

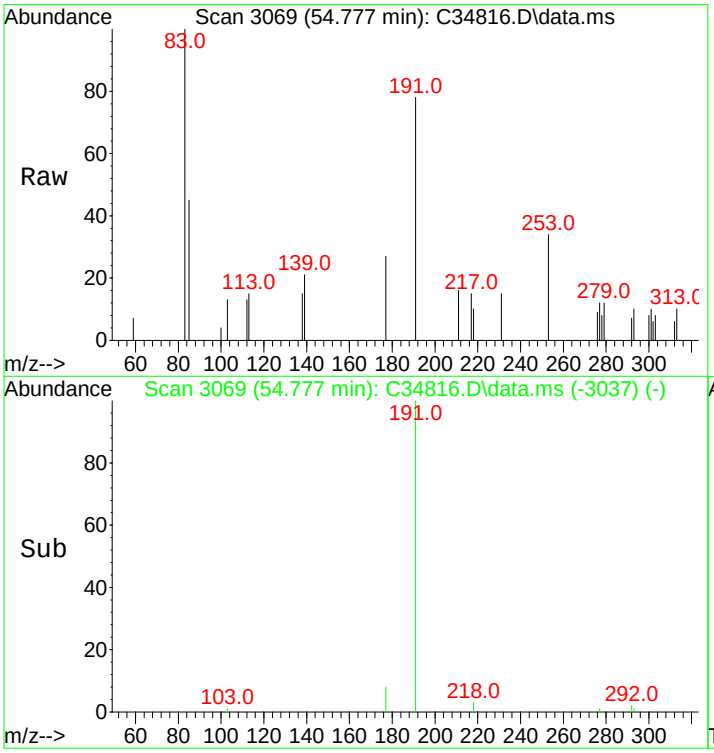




#117
30-Homohopane-22R (T22)
Concen: 453.92 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

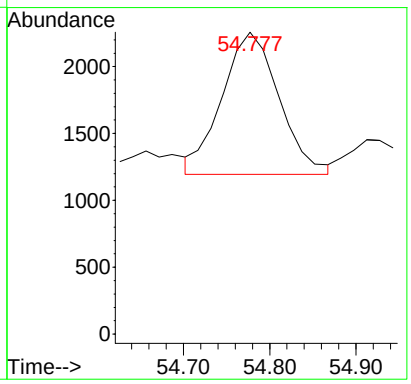
Tgt Ion:191 Resp: 10376

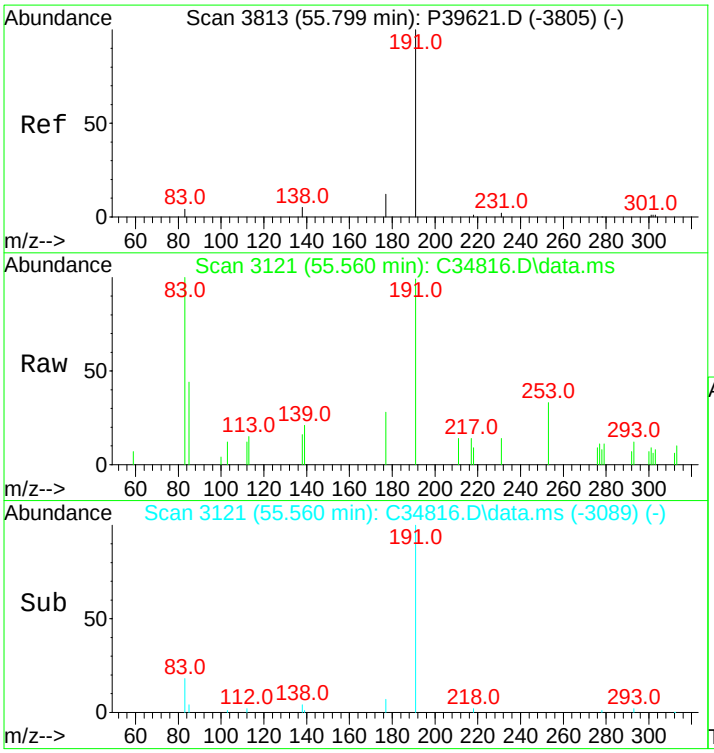




#118
Gammacerane/C32-diahopane
Concen: 212.87 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

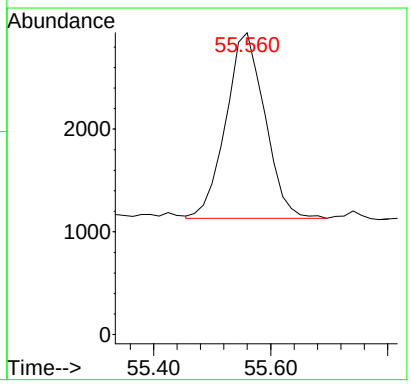
Tgt Ion:191 Resp: 4866

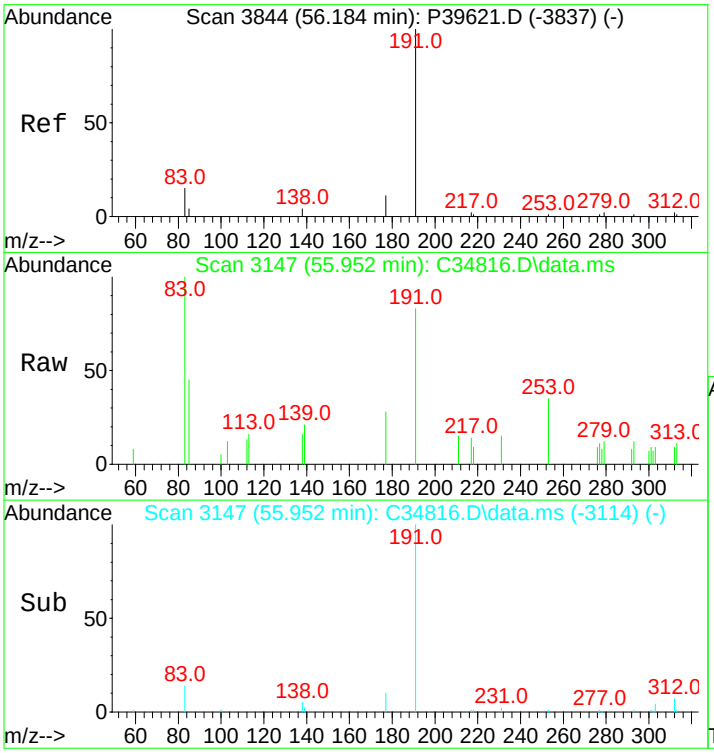




#119
30,31-Bishomohopane-22S (T26)
Concen: 366.30 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

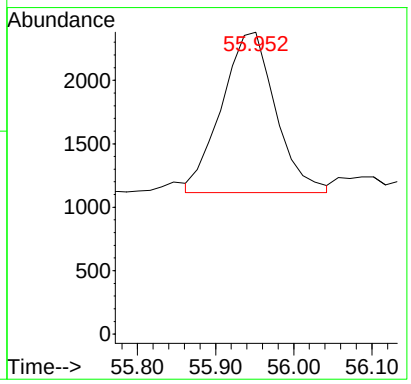
Tgt Ion:191 Resp: 8373

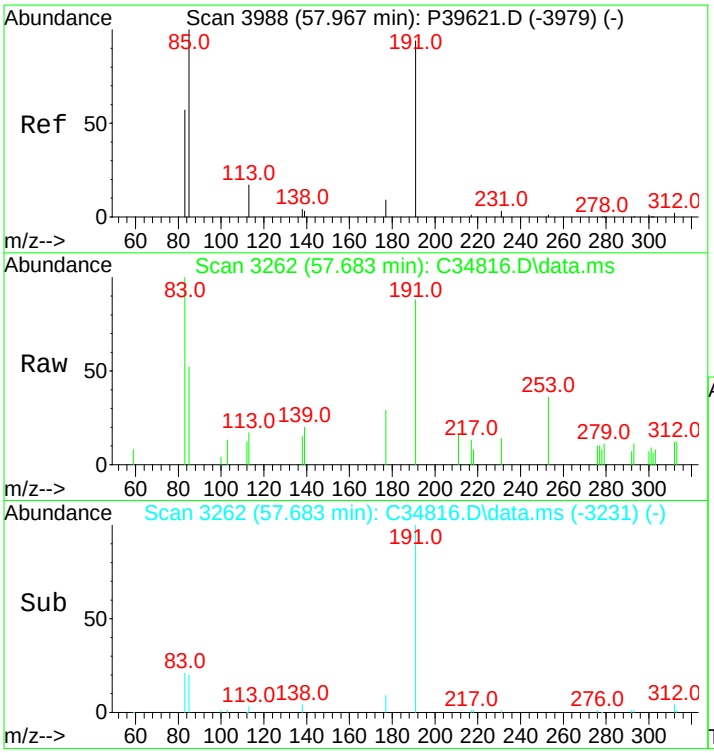




#120
30,31-Bishomohopane-22R (T27)
Concen: 265.06 ng/ml m
RT: 55.952 min Scan# 3147
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

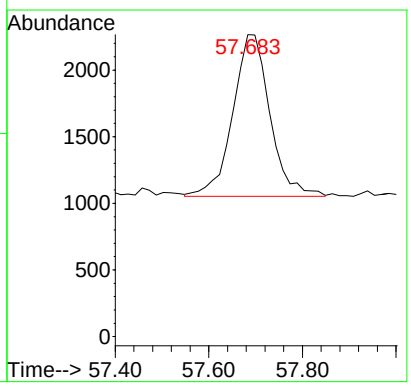
Tgt Ion:191 Resp: 6059

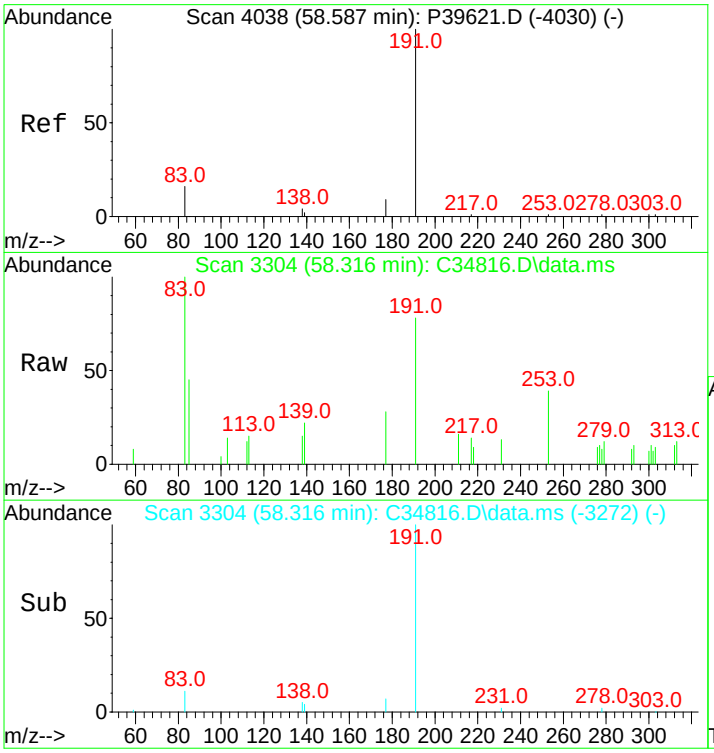




#121
30,31-Trishomohopane-22S (T30)
Concen: 292.32 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

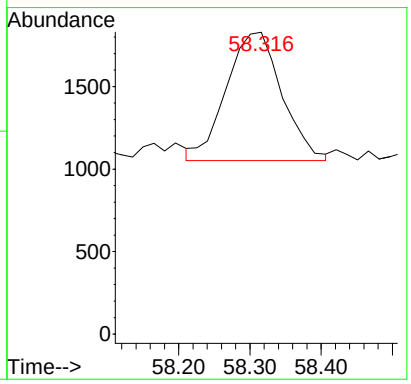
Tgt Ion:191 Resp: 6682

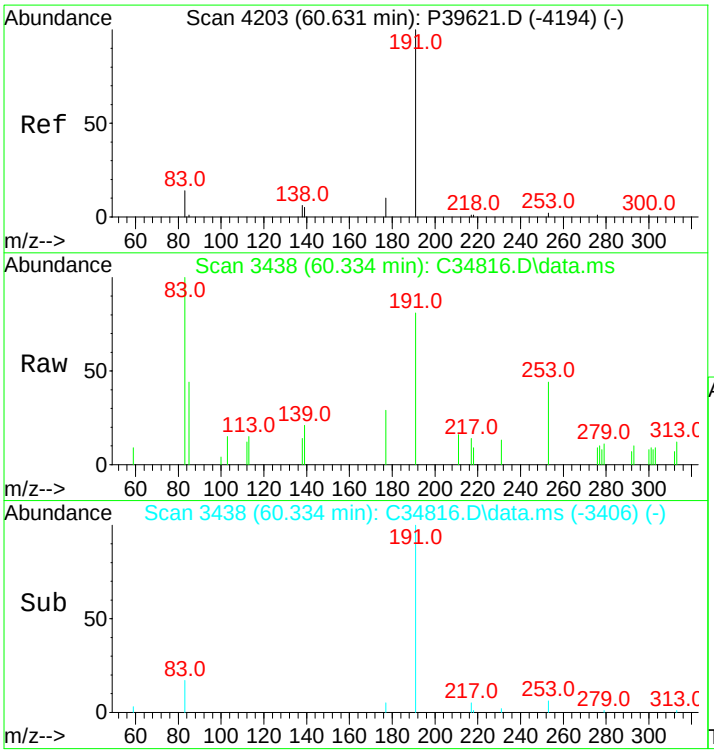




#122
30,31-Trishomohopane-22R (T31)
Concen: 183.91 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

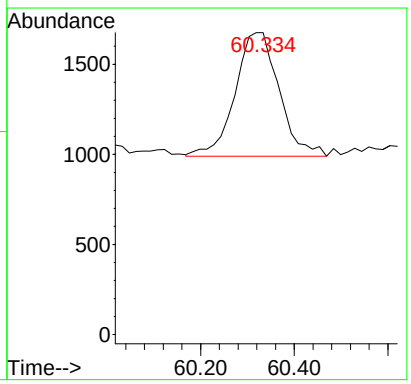
Tgt Ion:191 Resp: 4204

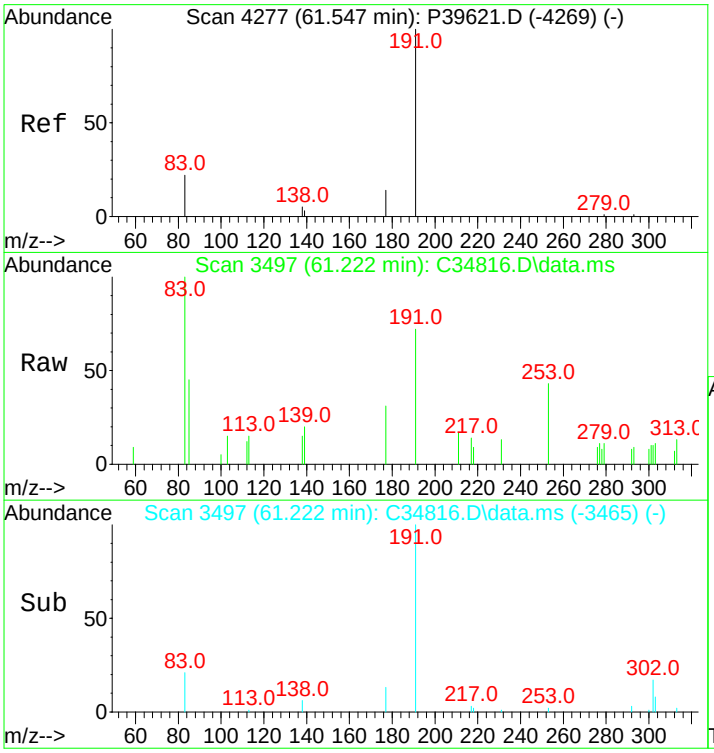




#123
Tetrakishomohopane-22S (T32)
Concen: 195.73 ng/ml
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

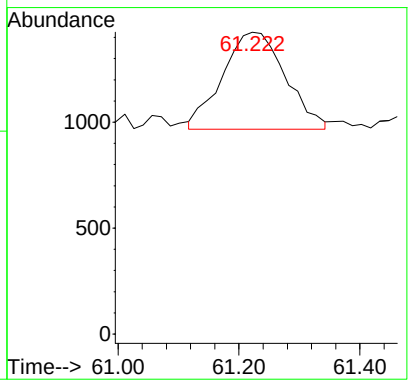
Tgt Ion:191 Resp: 4474

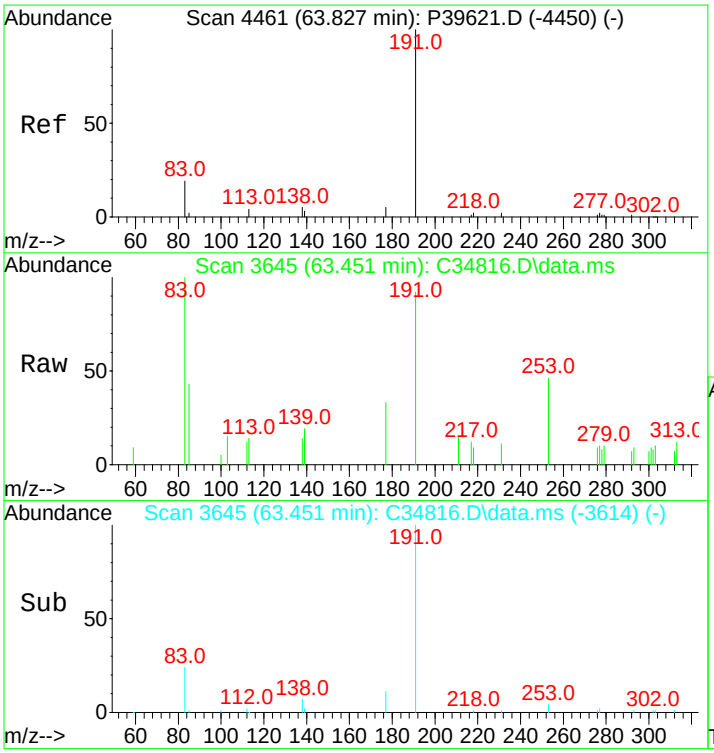




#124
Tetrakishomohopane-22R (T33)
Concen: 144.80 ng/ml m
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

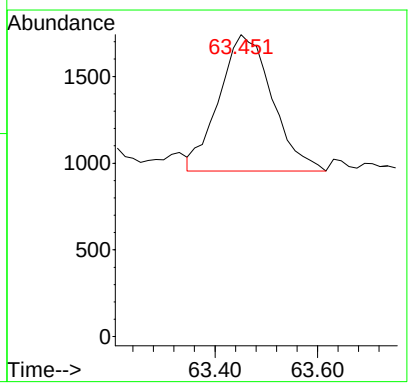
Tgt Ion:191 Resp: 3310

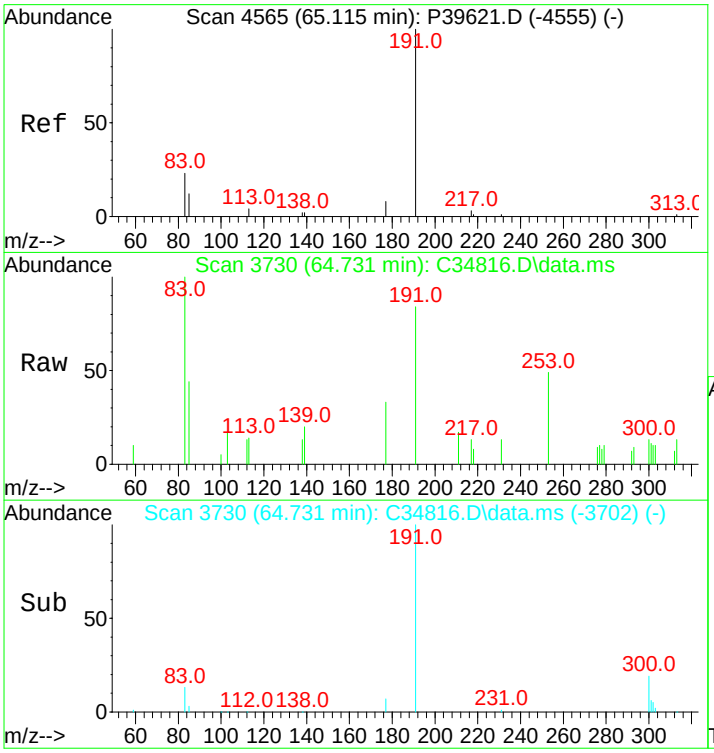




#125
Pentakishomohopane-22S (T34)
Concen: 247.43 ng/ml m
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

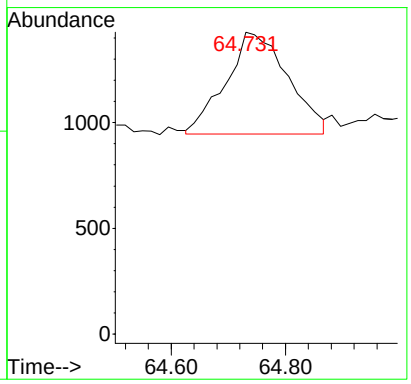
Tgt Ion:191 Resp: 5656

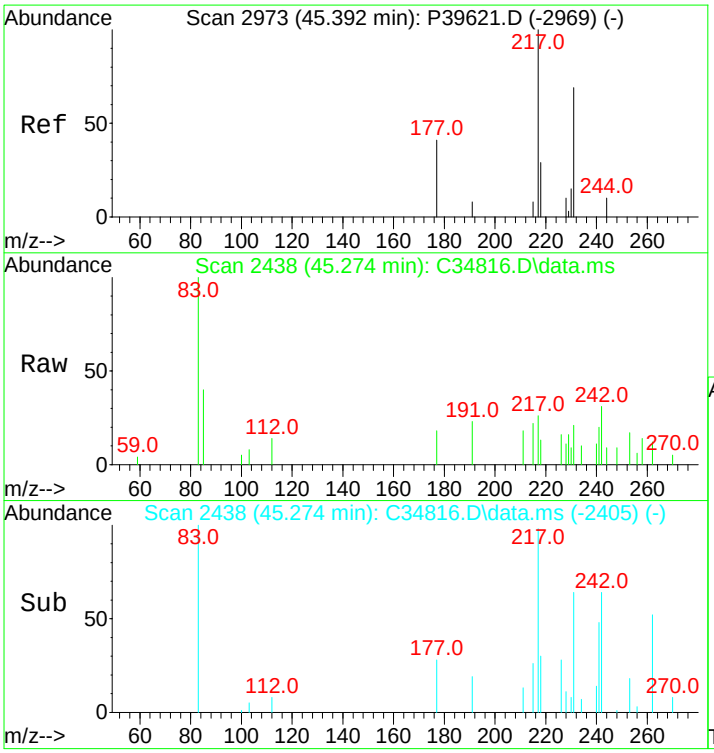




#126
Pentakishomohopane-22R (T35)
Concen: 158.72 ng/ml m
RT: 64.731 min Scan# 3730
Delta R.T. -0.075 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

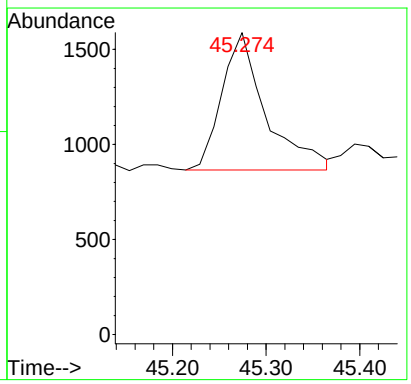
Tgt Ion:191 Resp: 3628

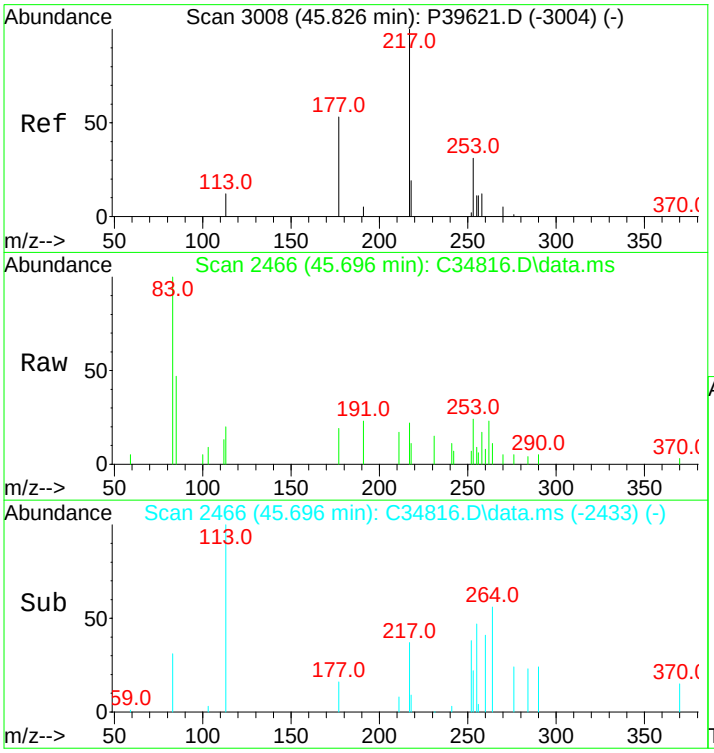




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 218.01 ng/ml
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

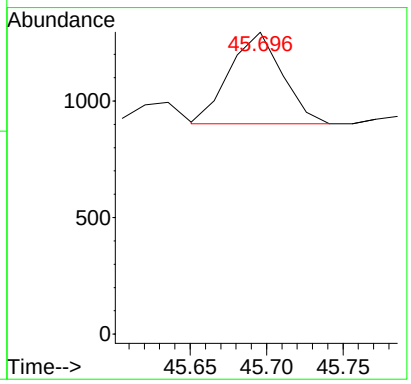
Tgt Ion:217 Resp: 2364

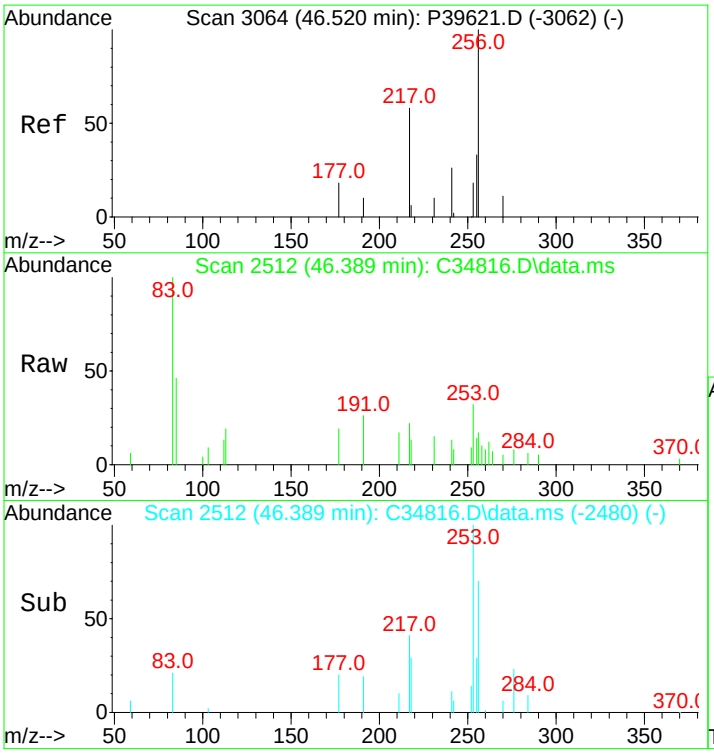




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 86.96 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

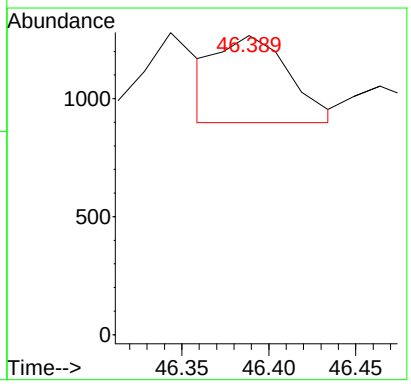
Tgt Ion:217 Resp: 943

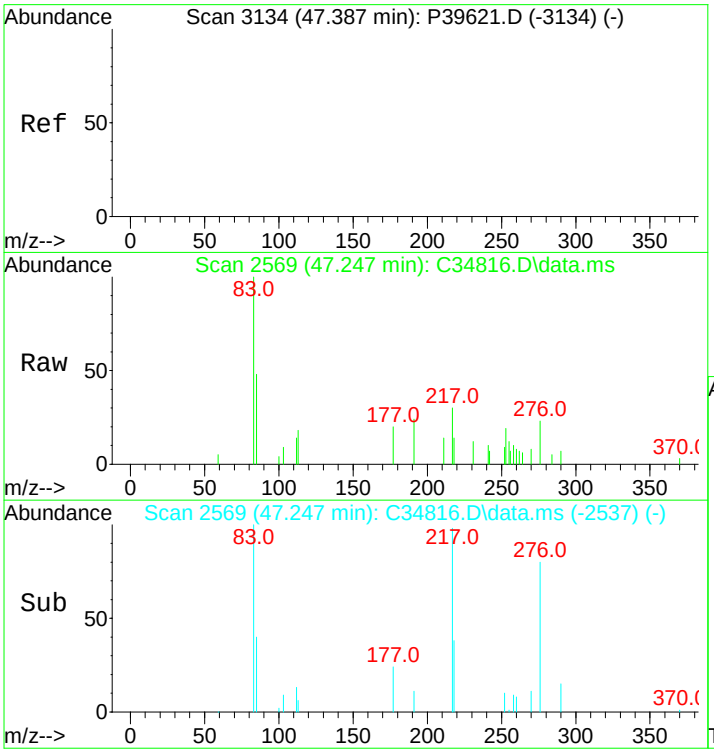




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 95.91 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

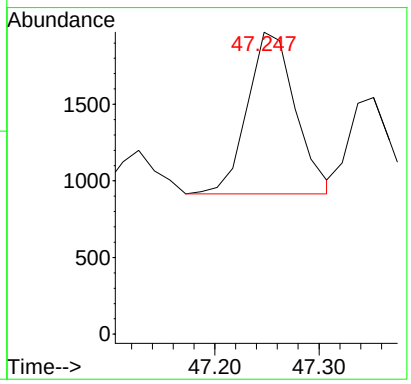
Tgt Ion:217 Resp: 1040

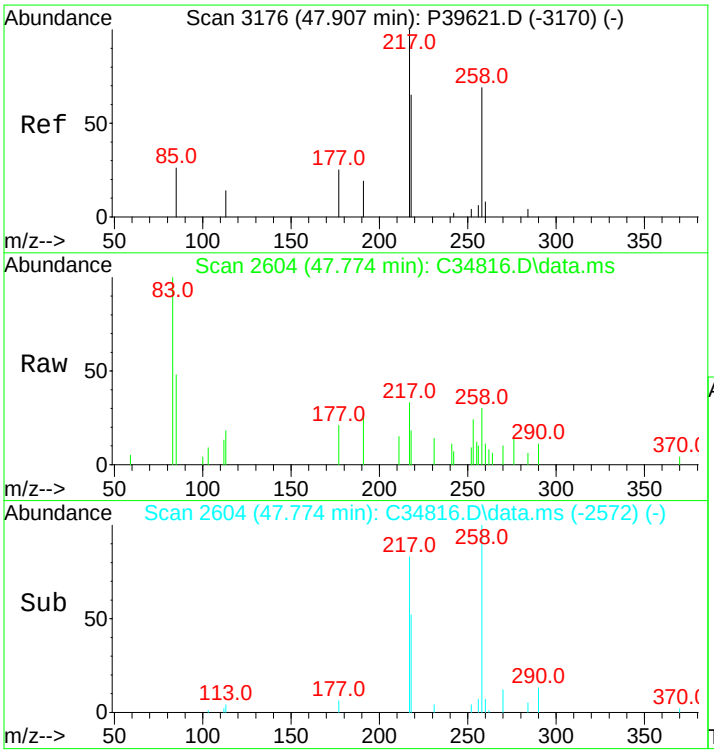




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 312.35 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

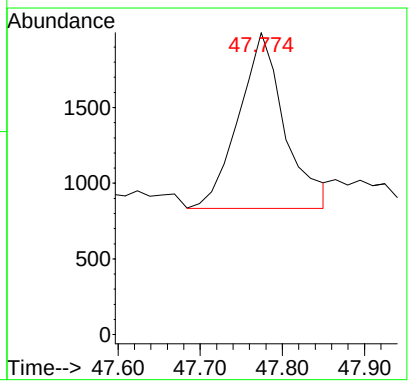
Tgt Ion:217 Resp: 3387

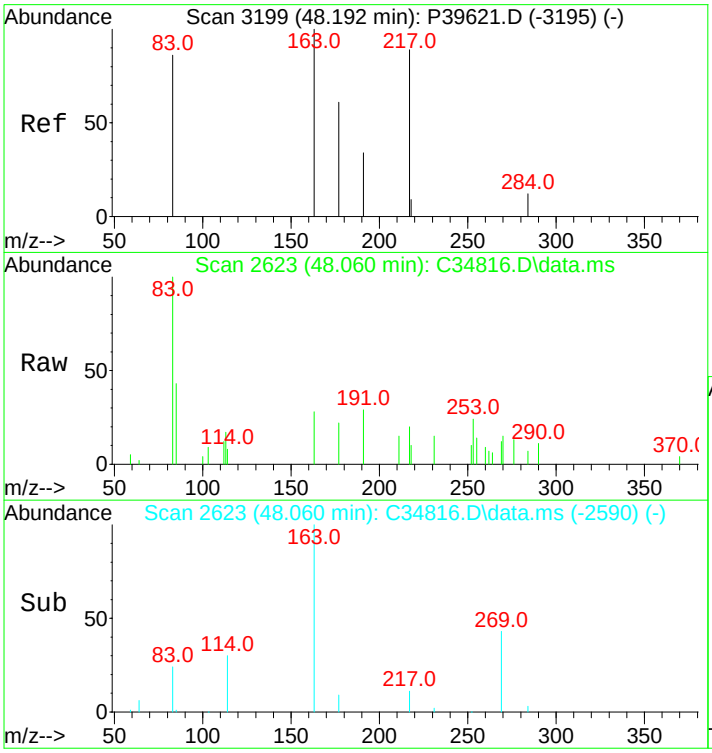




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 417.29 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

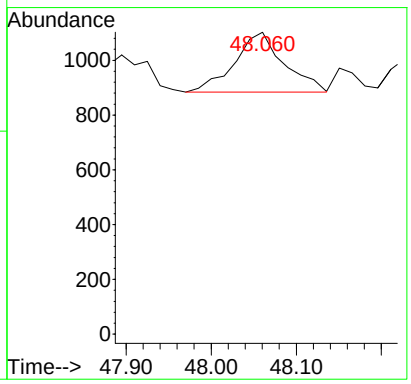
Tgt Ion:217 Resp: 4525

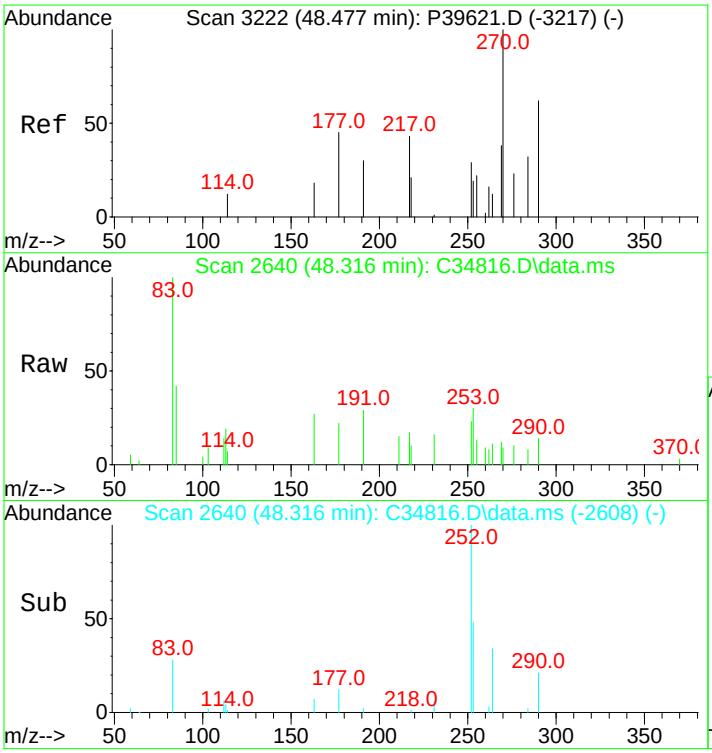




#133
Unknown Sterane (S18)
Concen: 81.61 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

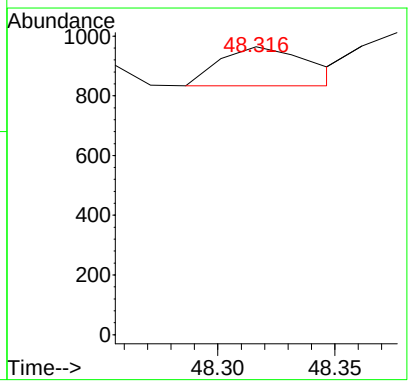
Tgt Ion:217 Resp: 885

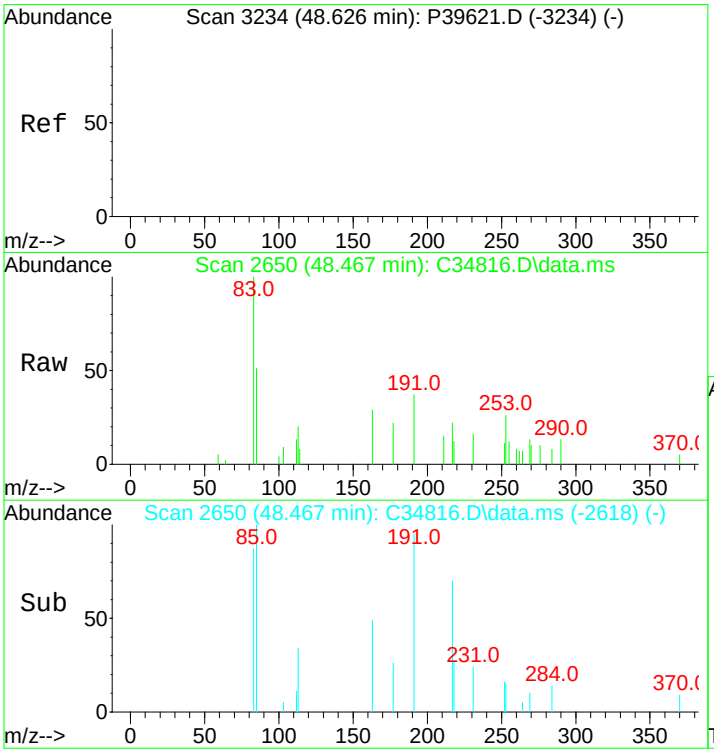




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 32.28 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

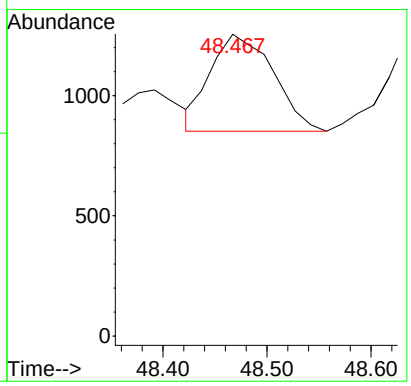
Tgt Ion:217 Resp: 350

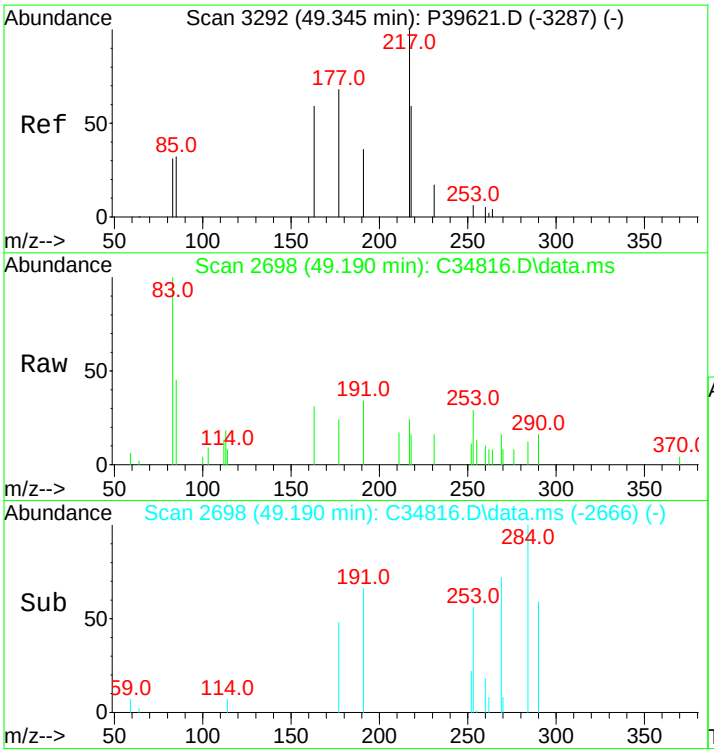




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 156.04 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

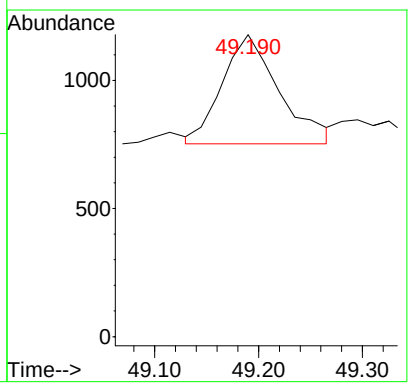
Tgt Ion:217 Resp: 1692

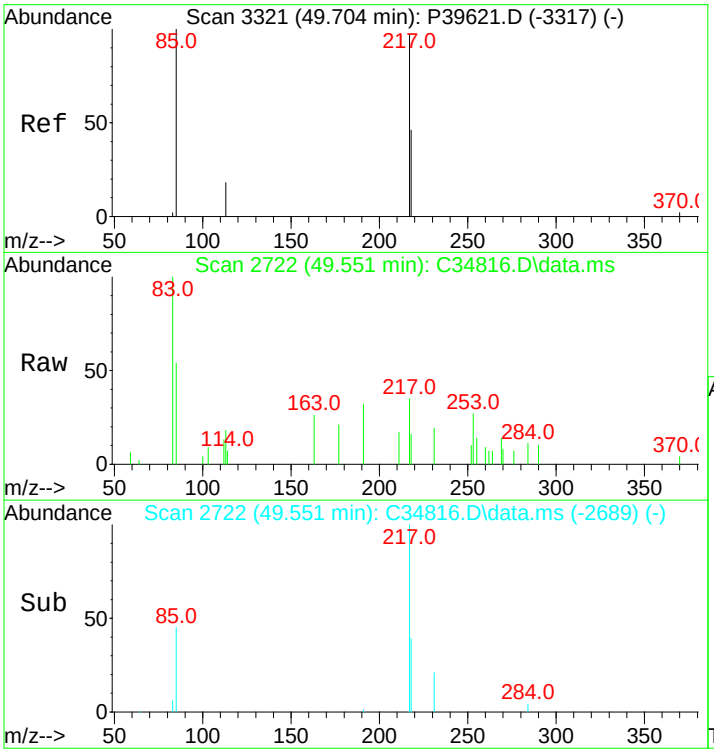




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 149.95 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

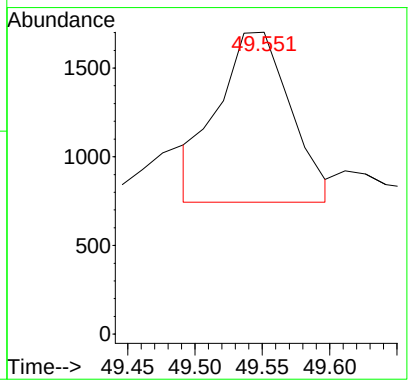
Tgt Ion:217 Resp: 1626

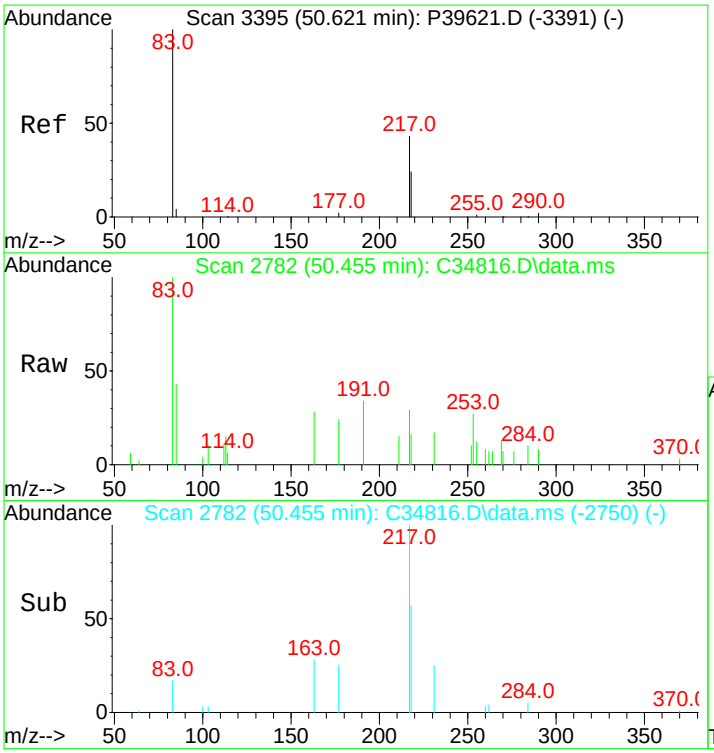




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 331.07 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

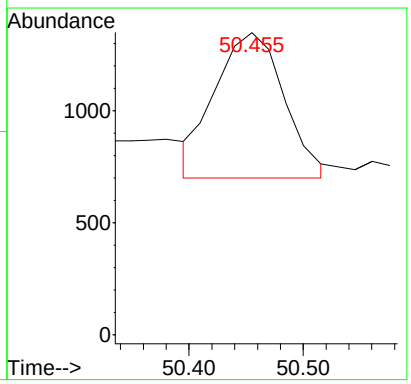
Tgt Ion:217 Resp: 3590

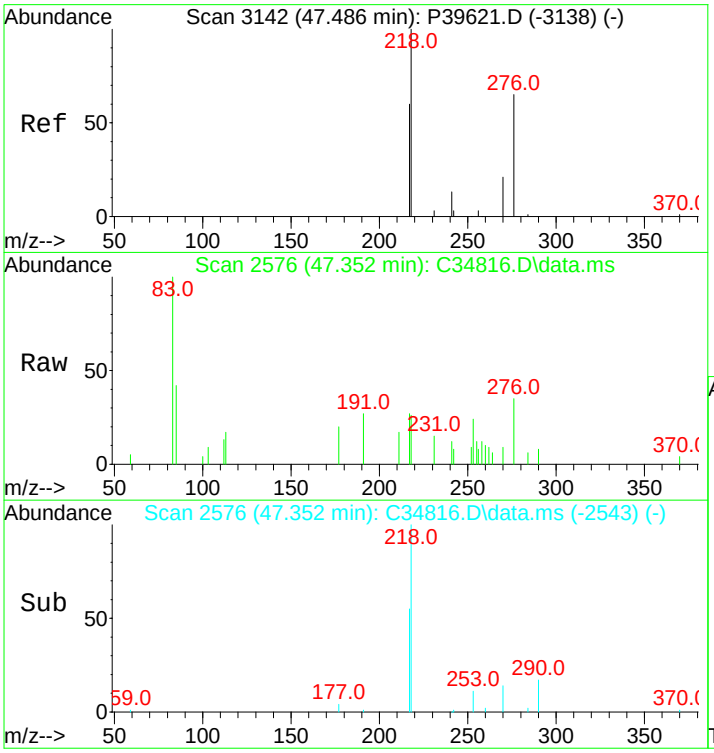




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 251.39 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

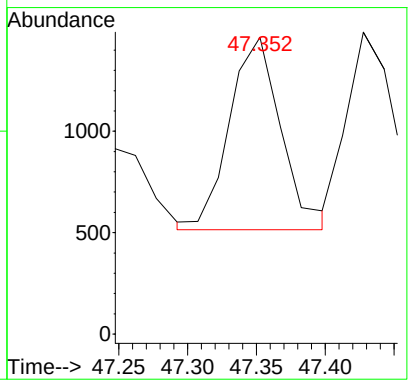
Tgt Ion:217 Resp: 2726

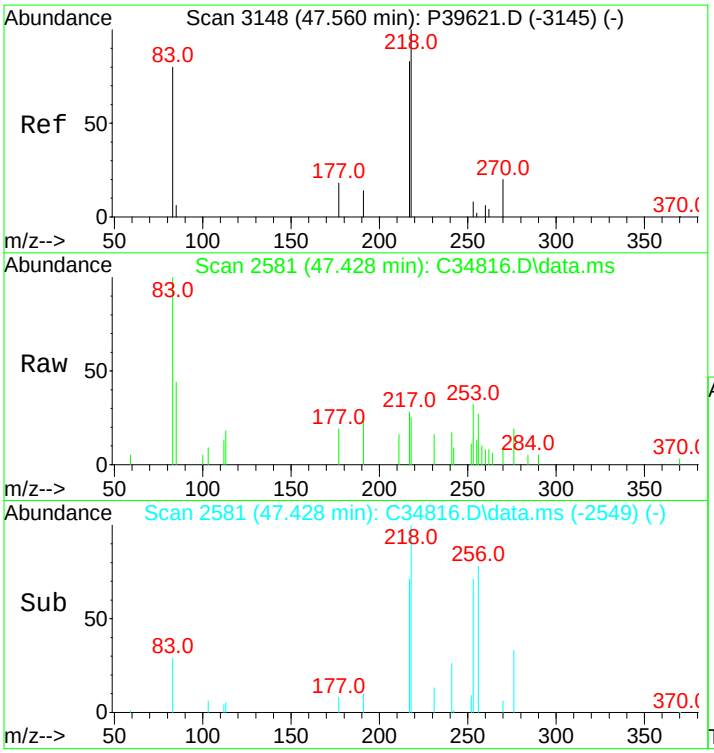




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 227.78 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

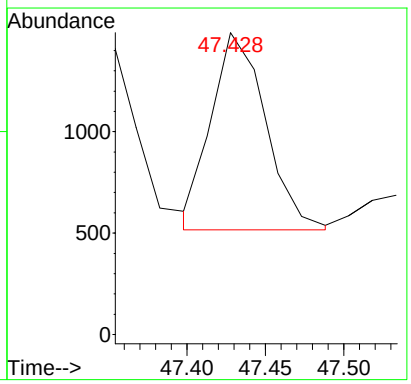
Tgt Ion:218 Resp: 2470

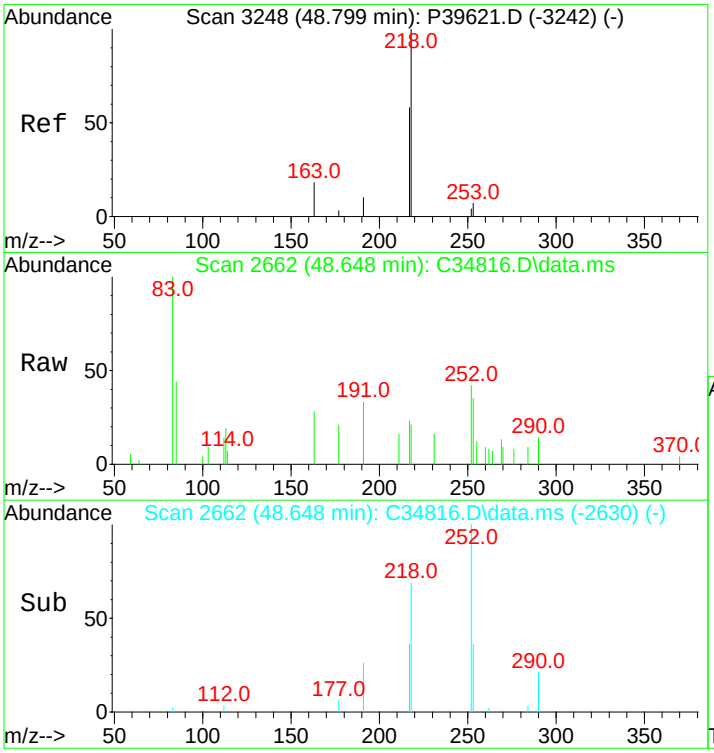




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 216.26 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

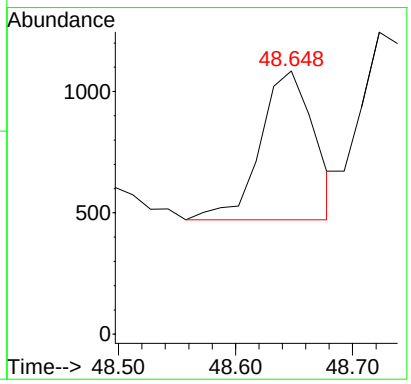
Tgt Ion:218 Resp: 2345

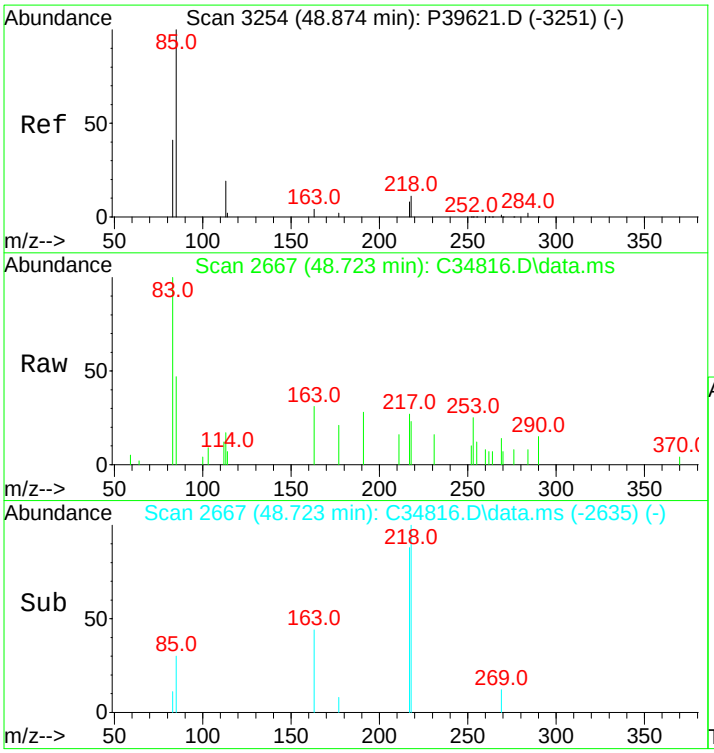




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 180.94 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

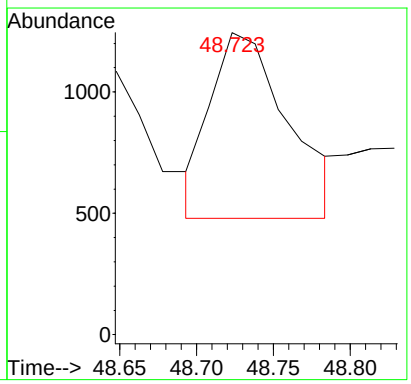
Tgt Ion:218 Resp: 1962

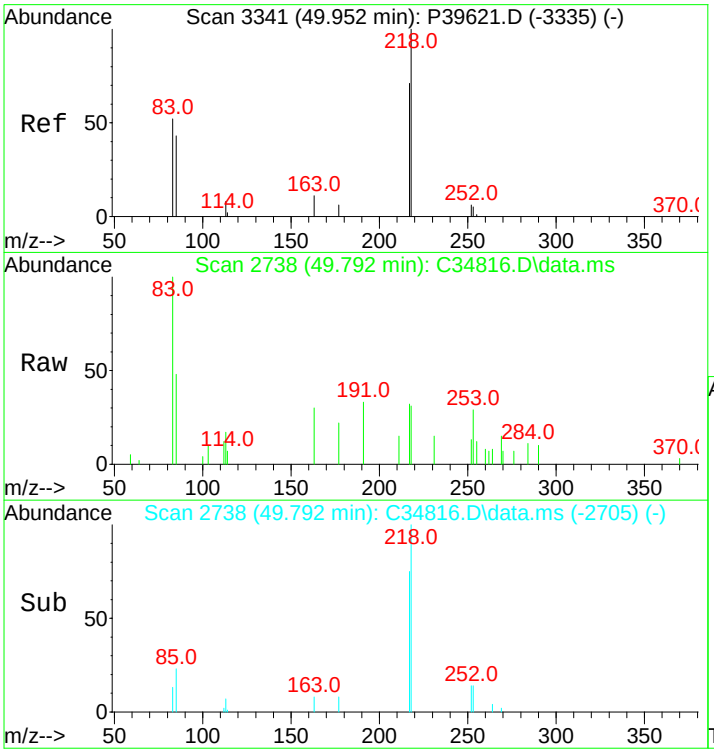




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 246.78 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

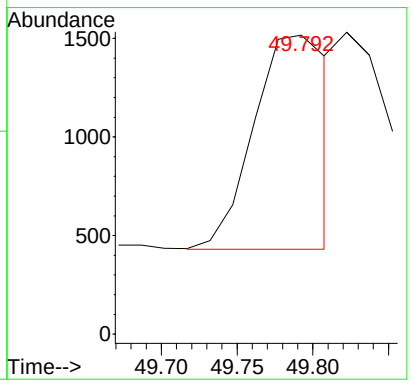
Tgt Ion:218 Resp: 2676

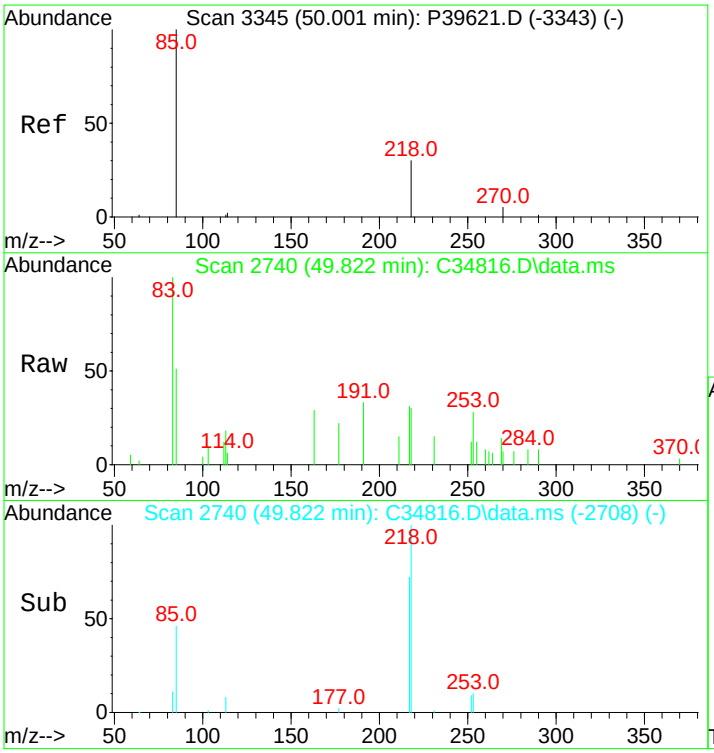




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 339.18 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

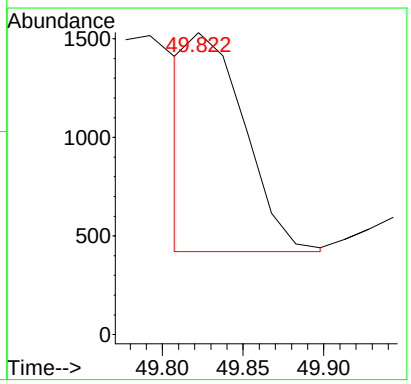
Tgt Ion:218 Resp: 3678

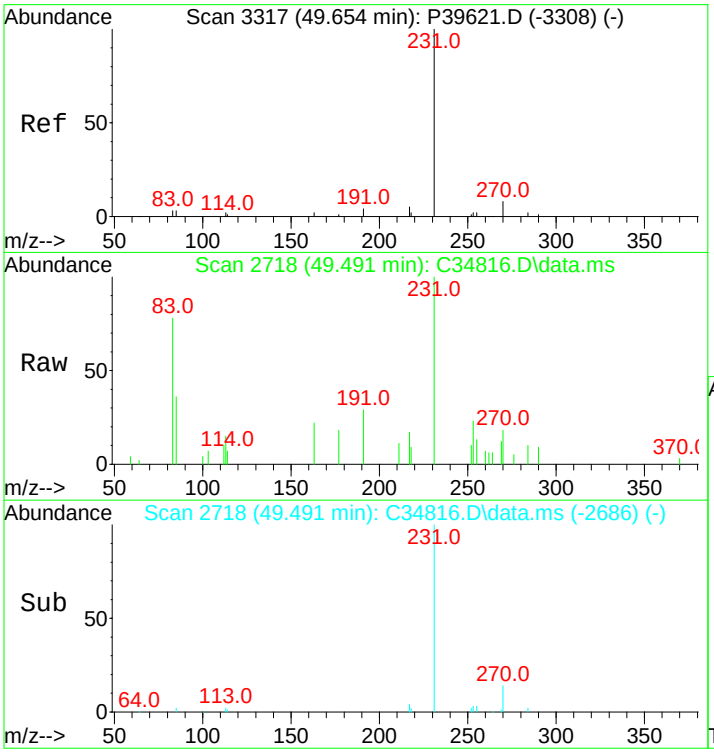




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 247.70 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

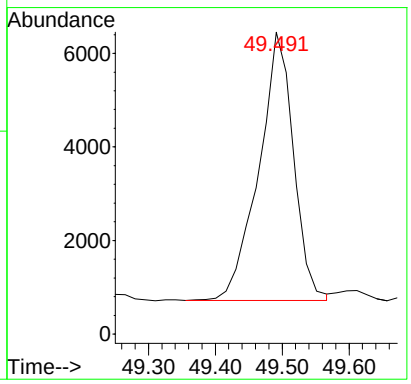
Tgt Ion:218 Resp: 2686

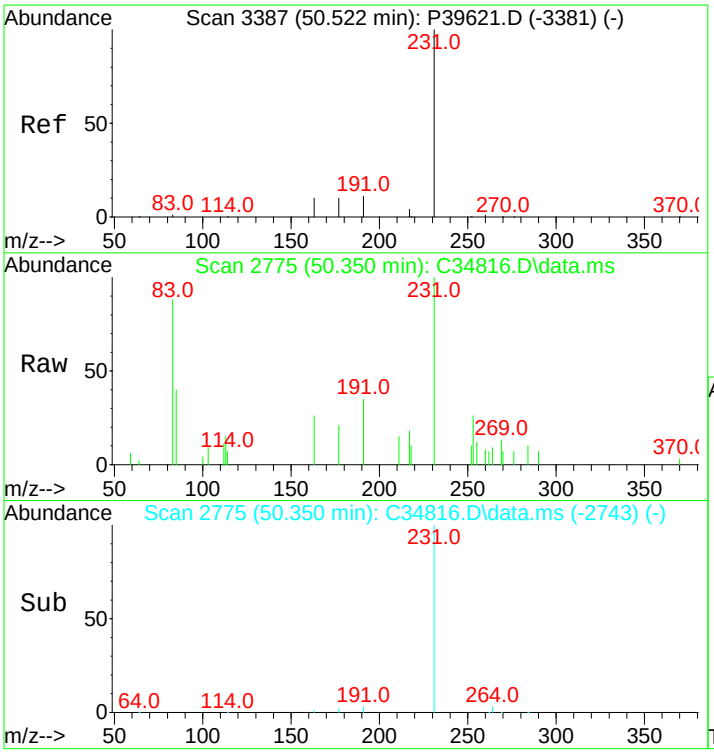




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1911.71 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

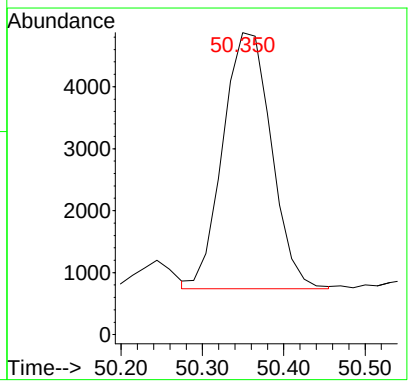
Tgt Ion:231 Resp: 20730

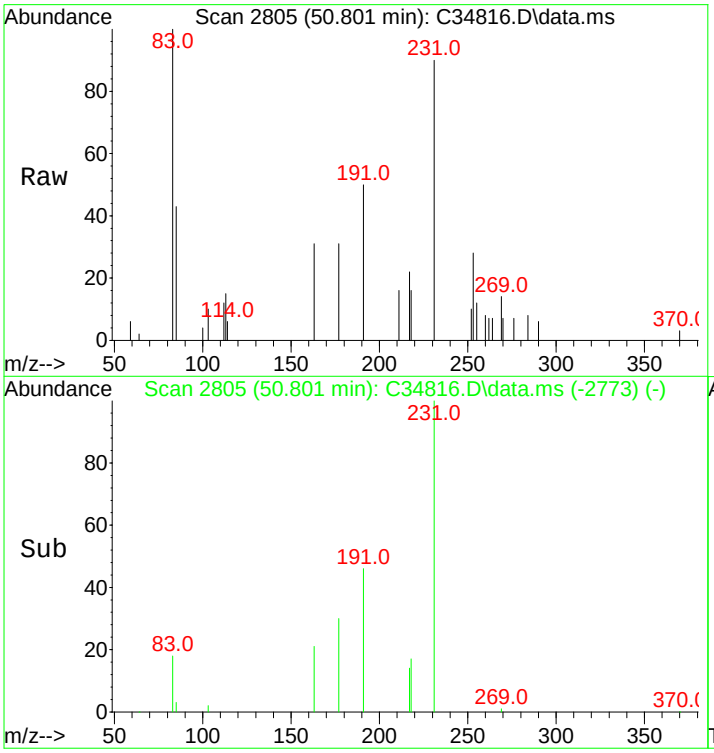




#146
C28,20S-triaromatic steroid
Concen: 1576.96 ng/mL m
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

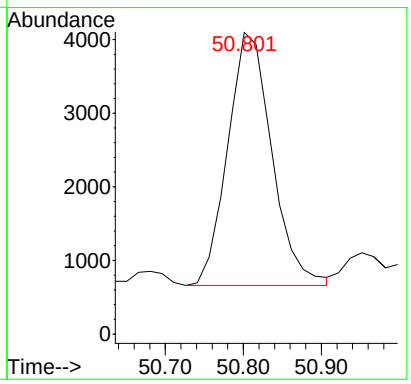
Tgt Ion:231 Resp: 17100

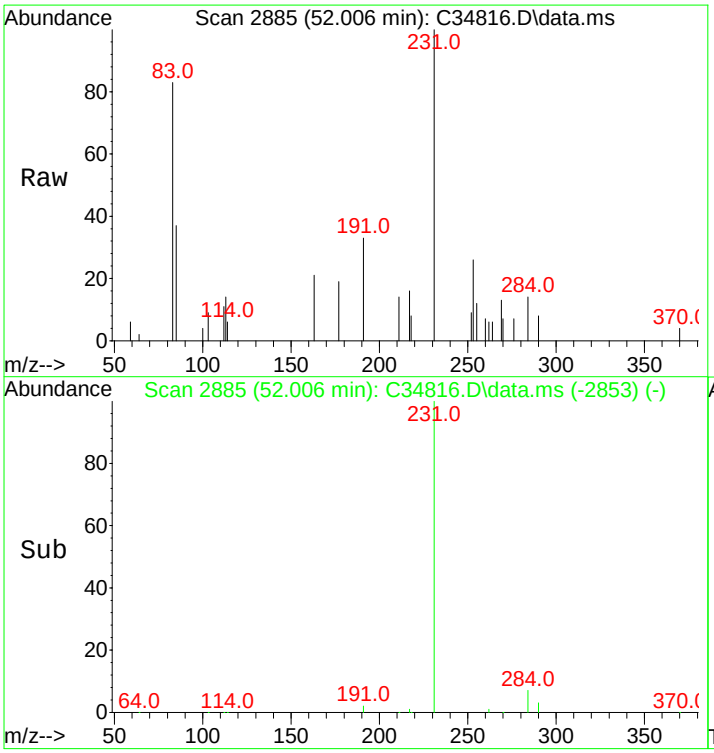




#147
C27,20R-triaromatic steroid
Concen: 1248.65 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

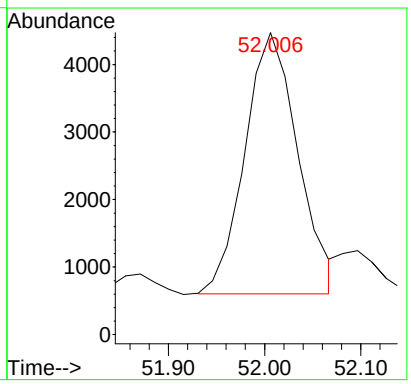
Tgt Ion:231 Resp: 13540





#148
C28,20R-triaromatic steroid
Concen: 1369.00 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34816.D
Acq: 3 May 2012 5:58 pm

Tgt Ion:231 Resp: 14845



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	17910M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32802	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	58300	749.994	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 75.00%			
42) Phenanthrene-d10	32.567	188	54245	882.864	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.29%			
86) Benzo[a]pyrene-d12	48.241	264	58247	856.831	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.68%			
127) 5B(H)Cholane - Surr	43.769	217	10458	1019.738	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.97%			
Target Compounds						Qvalue
5) C1-Decalins	17.859	152	268M5	18.956	ng/mL	
6) C2-Decalins	19.635	166	837M5	59.201	ng/mL	
7) C3-Decalins	22.119	180	1095M5	77.449	ng/mL	
8) C4-Decalins	25.492	194	3025M5	213.958	ng/mL	
10) Naphthalene	19.801	128	238	2.085	ng/mL#	100
11) C1-Naphthalenes	22.496	142	401M5	3.513	ng/mL	
12) C2-Naphthalenes	25.341	156	2072M5	18.152	ng/mL	
13) C3-Naphthalenes	28.021	170	9719M5	85.143	ng/mL	
14) C4-Naphthalenes	30.445	184	22545M5	197.506	ng/mL	
16) 2-Methylnaphthalene	22.496	142	214	3.171	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	145M3	2.192	ng/mL	
20) C2-Benzo(b)thiophenes	25.386	162	659M5	6.416	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	3044M5	29.634	ng/mL	
22) C4-Benzo(b)thiophenes	30.715	190	7734M5	75.292	ng/mL	
23) Biphenyl	24.393	154	109M3	1.277	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	453	8.169	ng/mL#	100
25) Dibenzofuran	27.464	168	206	2.101	ng/mL#	52
26) Acenaphthylene	26.079	152	246M3	2.171	ng/mL	
27) Acenaphthene	26.816	153	125M3	1.874	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	490M3	10.962	ng/mL	
29) Fluorene	28.834	166	253M3	3.438	ng/mL	
30) C1-Fluorenes	31.197	180	1749M5	23.769	ng/mL	
31) C2-Fluorenes	33.395	194	9598M5	130.439	ng/mL	
32) C3-Fluorenes	35.232	208	19814M5	269.276	ng/mL	
33) Dibenzothiophene	32.161	184	962	8.156	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	4404	37.337	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.298	198	4805M3	40.737	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	2498	21.178	ng/mL#	100
37) OTP	34.329	198	10285M3	87.197	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	23622M5	200.268	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	52092M5	441.638	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	89983M5	762.879	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	76749M5	650.681	ng/mL	
43) Phenanthrene	32.657	178	1866	18.006	ng/mL#	1
44) 3-Methylphenanthrene(3MP)	34.615	192	2319M3	22.378	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	2491	24.037	ng/mL	97
46) 2-Methylanthracene(2MA)	34.886	192	395M3	3.812	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	4248	40.992	ng/mL	87
48) 1-Methylphenanthrene(1MP)	35.157	192	2479M3	23.921	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	12462M5	120.254	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	41655M5	401.956	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	52592M5	507.494	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	34219M5	330.201	ng/mL	
56) Carbazole	33.500	167	729M3	7.130	ng/mL	
57) 1-Methylphenanthrene	35.157	192	2397M3	36.499	ng/mL	
58) Fluoranthene	37.430	202	3447M3	33.491	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
59) Benzo(b)fluorene	39.944	216	747M3	12.510	ng/mL	
60) Pyrene	38.303	202	5214	49.836	ng/mL#	61
61) C1-Fluoranthenes/Pyrenes	40.471	216	13688M5	130.831	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	23747M5	226.976	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	31022M5	296.511	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	32705M5	312.597	ng/mL	
66) Naphthobenzothiophene	42.158	234	6207	55.106	ng/ml	91
67) Naphthobenzothiophene-...	42.158	234	6207	55.106	ng/mL	91
68) Naphthobenzothiophene-...	42.504	234	1404M3	12.465	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	1113M3	9.881	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	37469M5	332.653	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	64560M5	573.169	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	60486M5	536.999	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	44410M5	394.275	ng/mL	
75) Benz[a]anthracene	43.091	228	1757M3	16.876	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5169M3	49.177	ng/mL	
78) C1-Chrysenes	44.717	242	14180M5	134.905	ng/mL	
79) C2-Chrysenes	46.795	256	23993M5	228.264	ng/mL	
80) C3-Chrysenes	48.151	270	34436M5	327.616	ng/mL	
81) C4-Chrysenes	49.506	284	21714M5	206.582	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	3107M3	27.159	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.217	252	2019M3	16.210	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	470M2	3.774	ng/mL	
85) Benzo[e]pyrene	48.136	252	4197M3	37.091	ng/mL	
87) Benzo[a]pyrene	48.331	252	2585M3	23.728	ng/mL	
88) Perylene	48.633	252	3544	30.438	ng/mL#	62
89) Indeno[1,2,3-cd]pyrene	53.136	276	2135M3	16.840	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	939M3	7.786	ng/mL	
91) Benzo[g,h,i]perylene	54.431	276	4307	32.155	ng/mL#	89
92) Hopane (T19)	52.202	191	18889M3	873.728	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	7812M3	361.351	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	4513	208.753	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	4506M4	208.429	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	1662	76.877	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	1765M3	81.642	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	1642M3	75.952	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1774M3	82.058	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1734M3	80.208	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	2237	103.475	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	2136M3	98.803	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2791	129.100	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	1648M3	76.230	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1559M3	72.113	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	5177	239.467	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	3332	154.125	ng/ml	100
109) 17a(H),21b(H)-25-Norho...	49.958	191	1018	47.089	ng/ml	100
110) 30-Norhopane (T15)	50.847	191	14266M3	659.887	ng/ml	
111) 18a(H)-30-Norneohopane...	50.937	191	2043M3	94.501	ng/ml	
112) 17a(H)-Diahopane (X)	51.057	191	535M3	24.747	ng/ml	
113) 30-Normoretane (T17)	51.615	191	1368M3	63.278	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.006	191	470	21.740	ng/ml	100
115) Moretane (T20)	52.895	191	1748M3	80.855	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	8731	403.861	ng/ml	100
117) 30-Homohopane-22R (T22)	54.220	191	6876	318.056	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	3162M3	146.261	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	5932	274.390	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	3856	178.363	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	4376	202.416	ng/ml	100
122) 30,31-Trishomohopane-2...	58.286	191	2523M3	116.704	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	3113M3	143.995	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191	2394M3	110.737	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S...	63.451	191	3306M3	152.922	ng/ml	
126) Pentakishomohopane-22R...	64.731	191	2675M3	123.735	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1483	144.604	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.696	217	641	62.503	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	662M3	64.550	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	2239M3	218.320	ng/ml	
132) 14a,17a-20R-Chol/13b,1...	47.774	217	2661M3	259.469	ng/ml	
133) Unknown Sterane (S18)	48.060	217	609M3	59.382	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	358	34.908	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1245	121.397	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1195M3	116.522	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	2558M3	249.425	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	1975M3	192.578	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	1455M3	141.874	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1646M3	160.498	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1252	122.080	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	1880M3	183.315	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	2717M3	264.929	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1536M3	149.772	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	13170	1284.180	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	11399	1111.493	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	8466	825.502	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	9333M3	910.042	ng/mL	

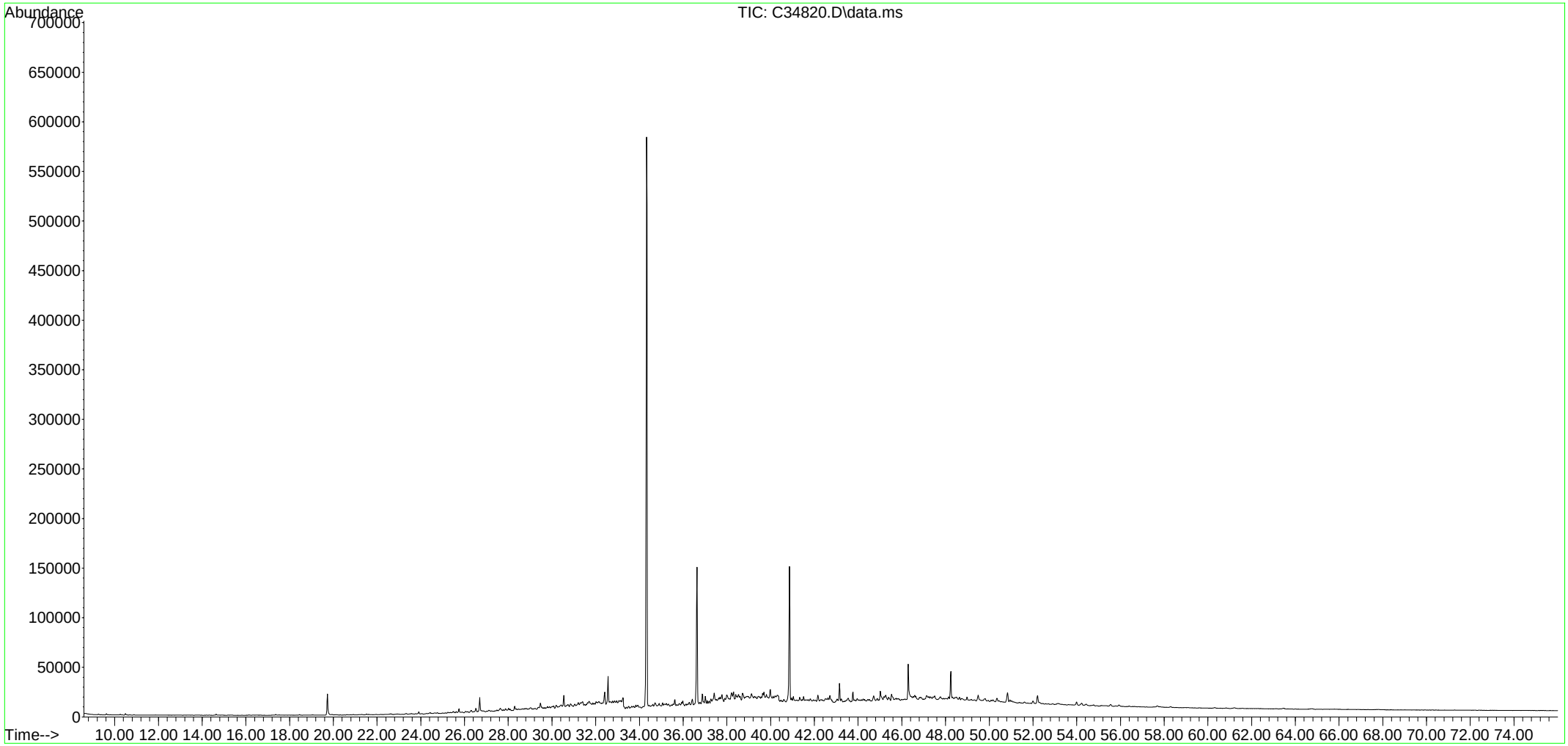
(#) = qualifier out of range (m) = manual integration (+) = signals summed

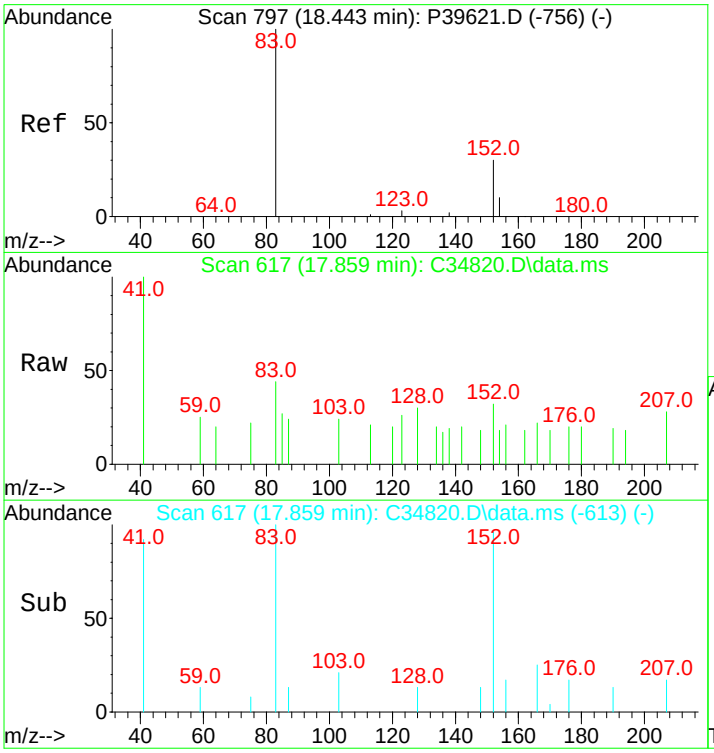
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34820.D
Acq On : 3 May 2012 8:59 pm
Operator : AC
Sample : 1204035-08
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 05 12:46:18 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

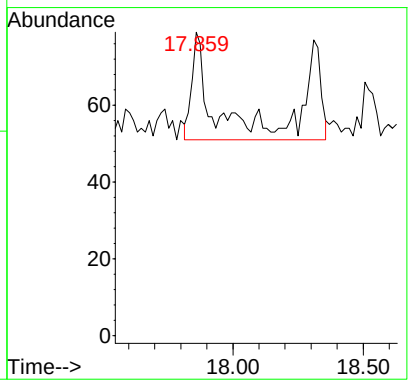
Sub List : Gulf_NEW_POIB_Default - All compounds listed

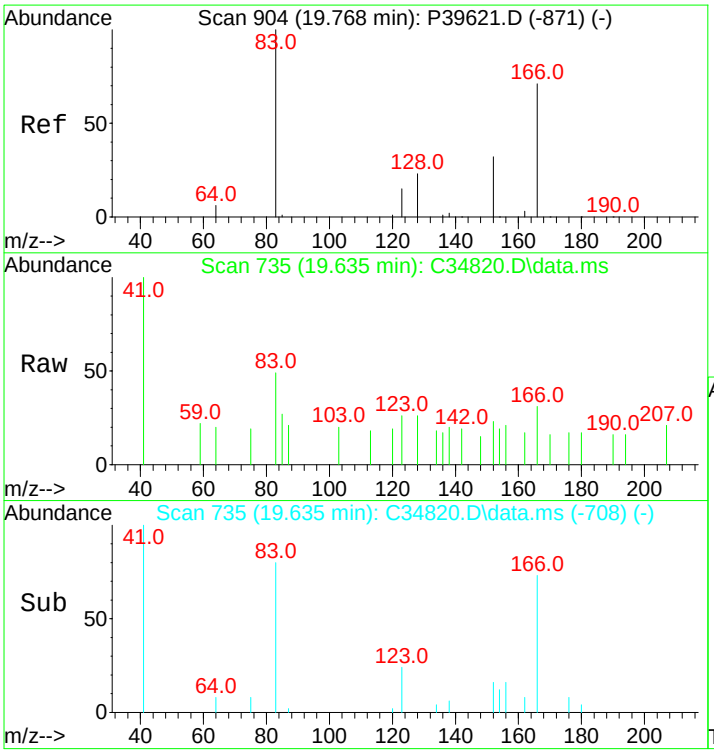




#5
C1-Decalins
Concen: 18.96 ng/mL m
RT: 17.859 min Scan# 617
Delta R.T. -0.489 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

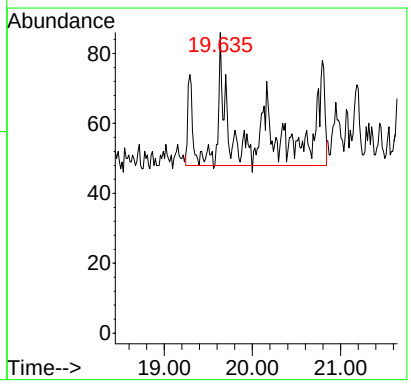
Tgt Ion:152 Resp: 268

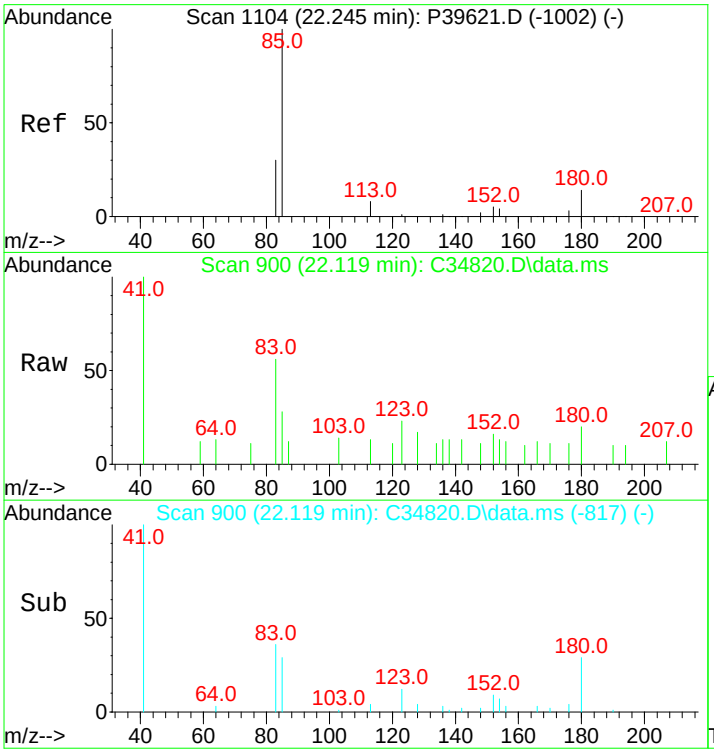




#6
C2-Decalins
Concen: 59.20 ng/mL m
RT: 19.635 min Scan# 735
Delta R.T. -0.047 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

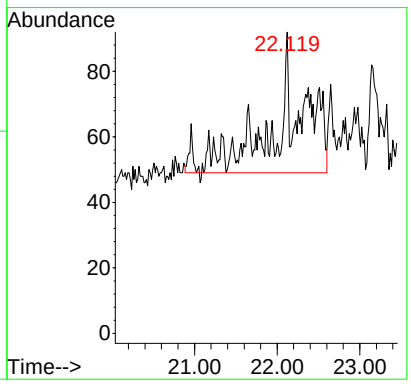
Tgt Ion:166 Resp: 837

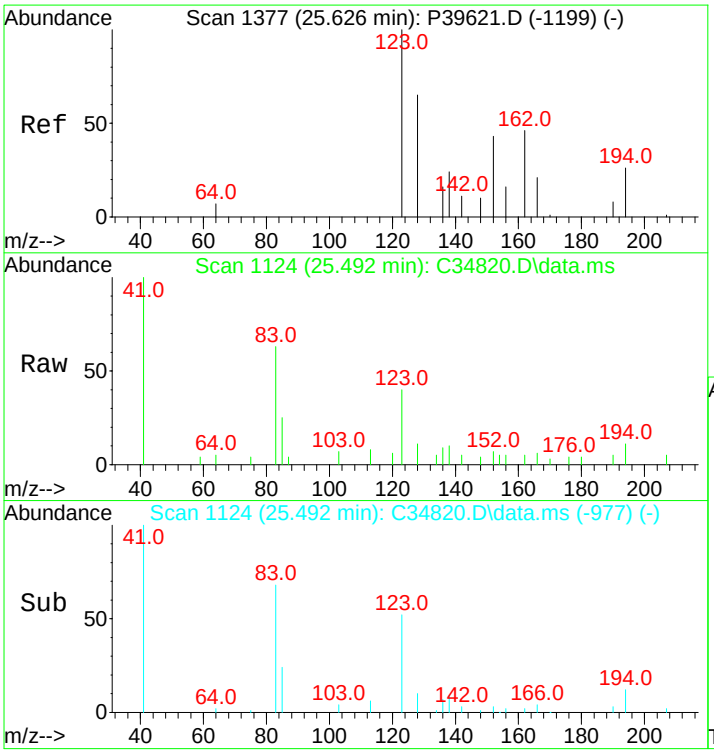




#7
C3-Decalins
Concen: 77.45 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

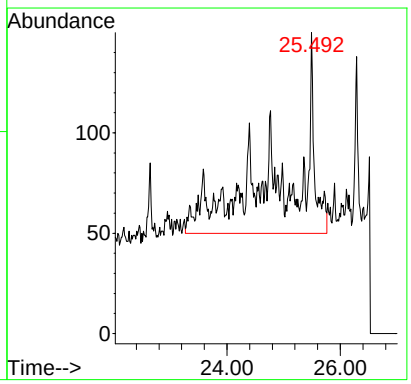
Tgt Ion:180 Resp: 1095

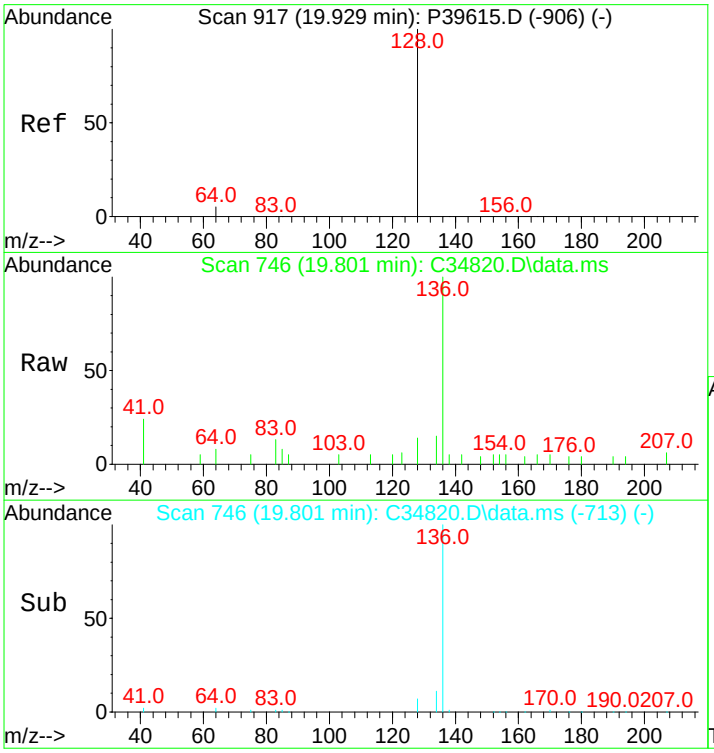




#8
C4-Decalins
Concen: 213.96 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:194 Resp: 3025

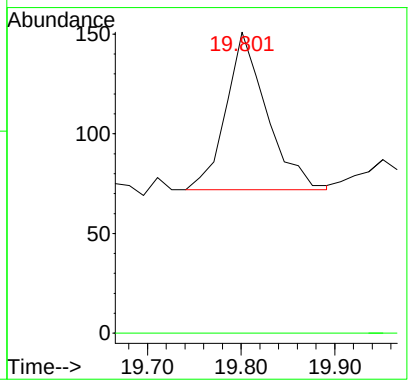


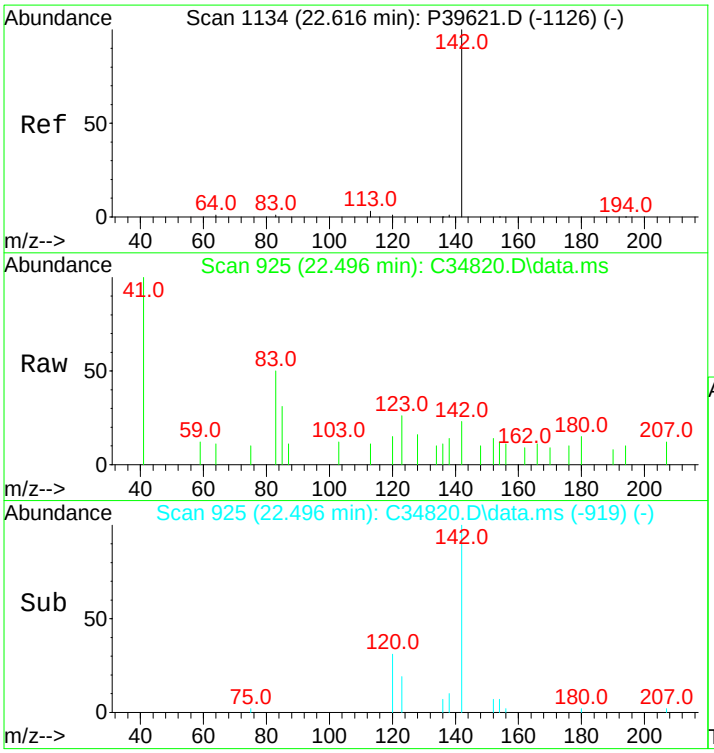


#10
Naphthalene
Concen: 2.09 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:128 Resp: 238

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

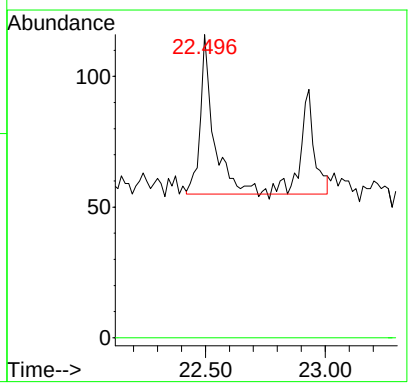


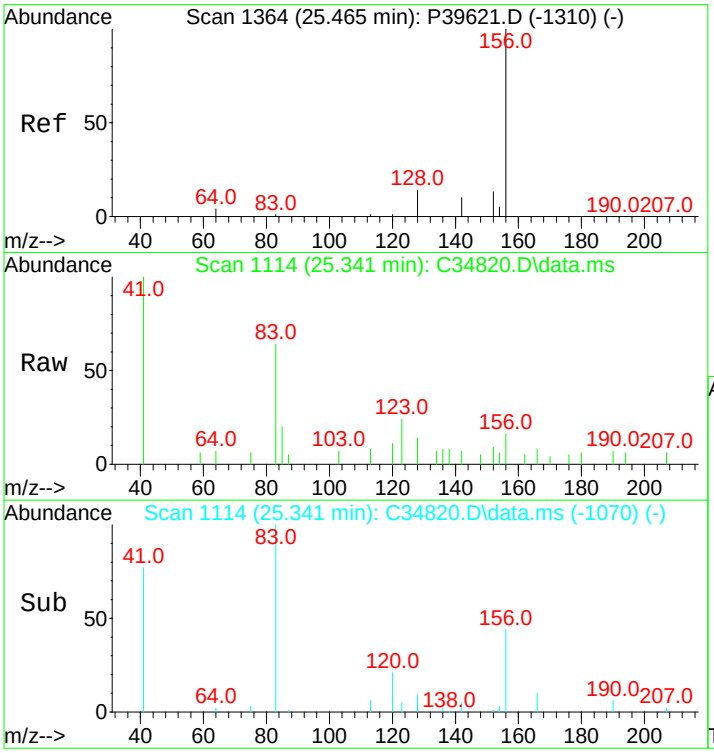


#11
C1-Naphthalenes
Concen: 3.51 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:142 Resp: 401

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

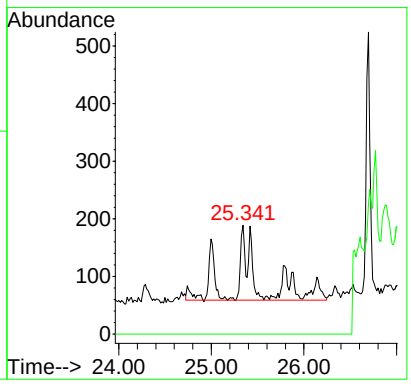


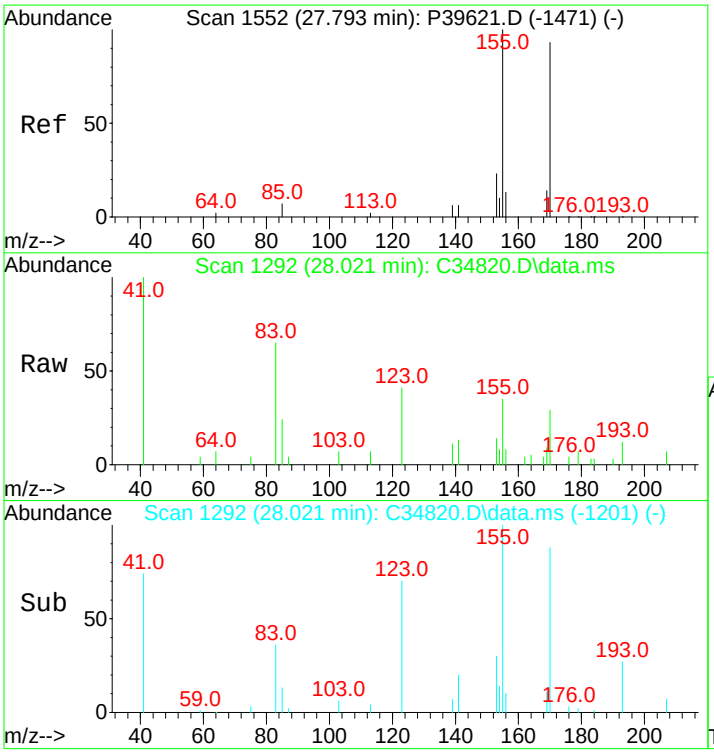


#12
C2-Naphthalenes
Concen: 18.15 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:156 Resp: 2072

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

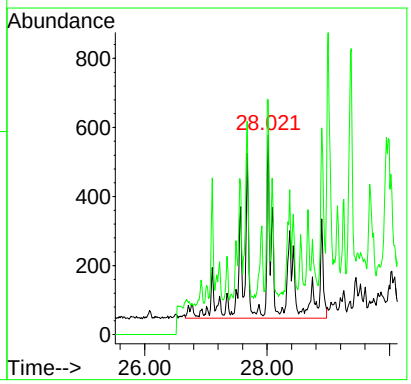


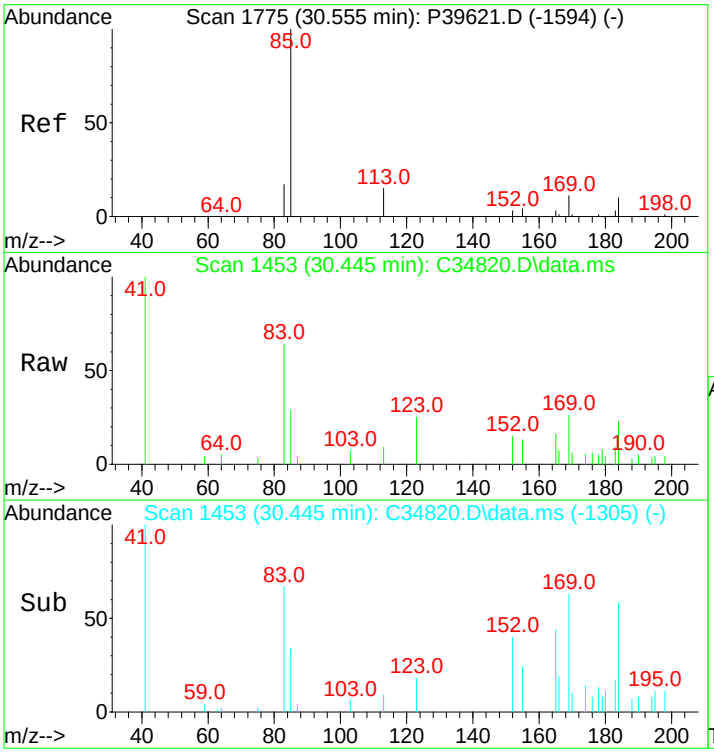


#13
C3-Naphthalenes
Concen: 85.14 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:170 Resp: 9719

Ion	Ratio	Lower	Upper
170	100		
155	15.9	81.8	122.6#

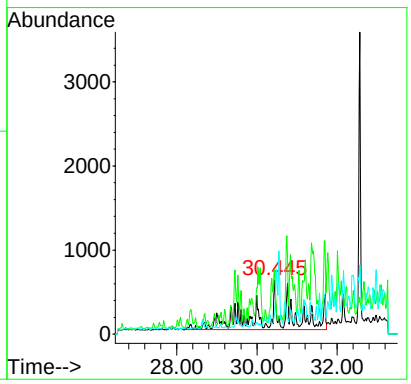


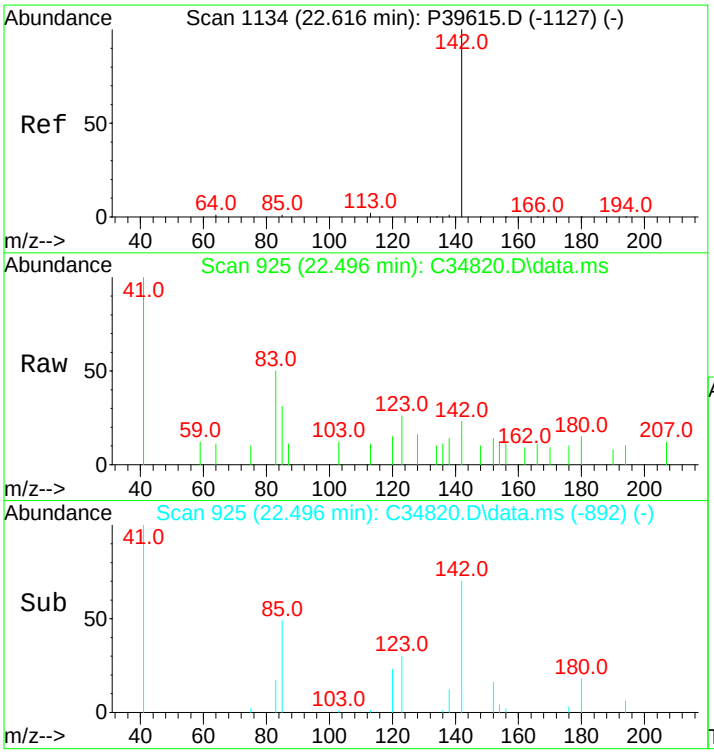


#14
C4-Naphthalenes
Concen: 197.51 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:184 Resp: 22545

Ion	Ratio	Lower	Upper
184	100		
169	9.2	77.4	116.0#
183	0.0	14.8	22.2#

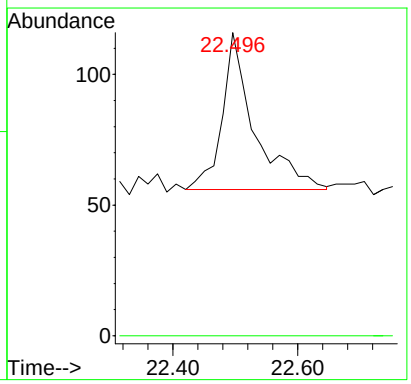


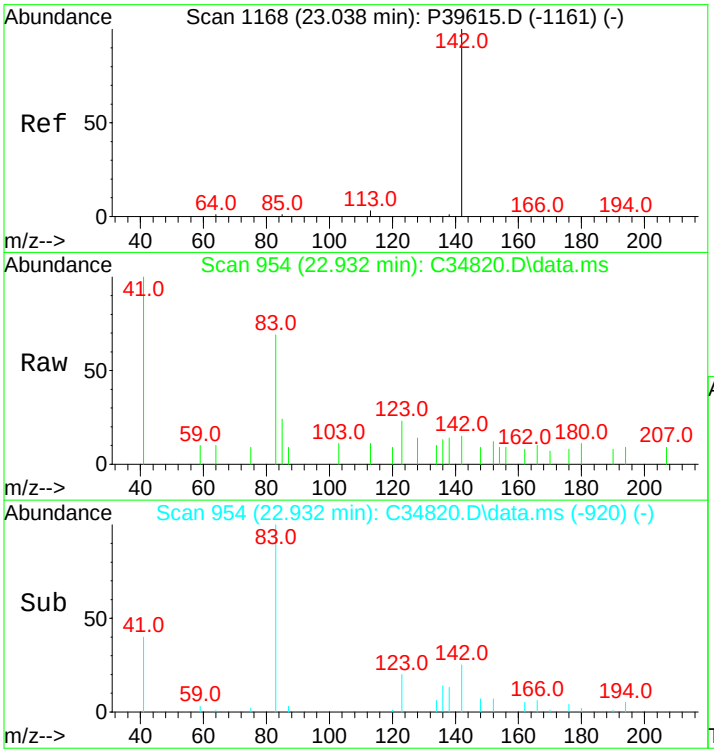


#16
2-Methylnaphthalene
Concen: 3.17 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:142 Resp: 214

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

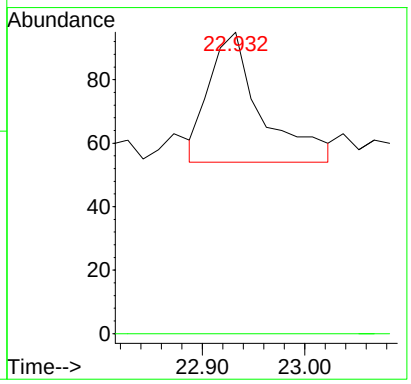


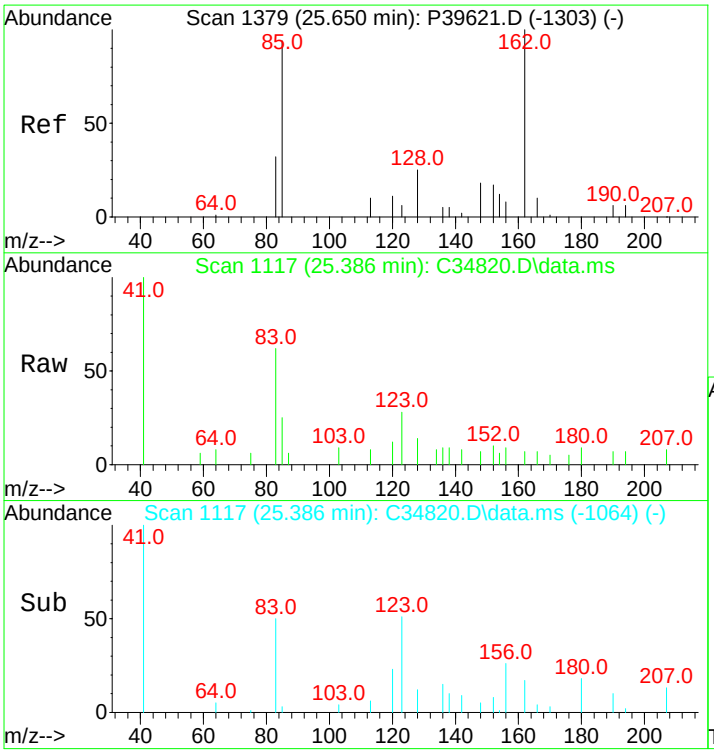


#17
1-Methylnaphthalene
Concen: 2.19 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:142 Resp: 145

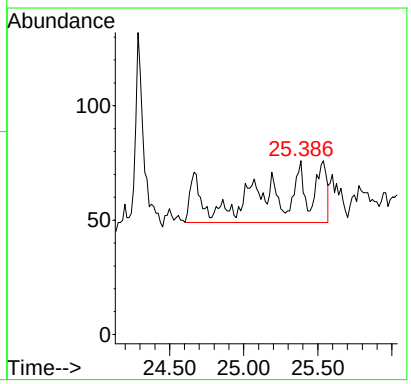
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

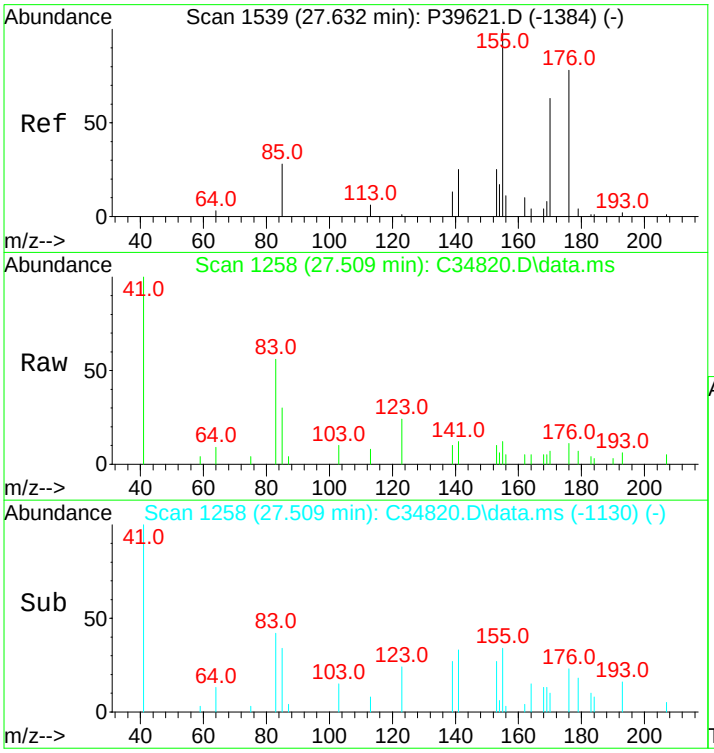




#20
C2-Benzo(b)thiophenes
Concen: 6.42 ng/mL m
RT: 25.386 min Scan# 1117
Delta R.T. -0.156 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

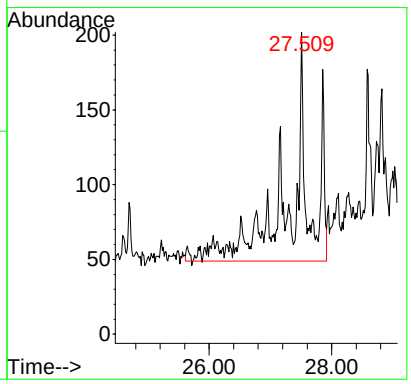
Tgt Ion:162 Resp: 659

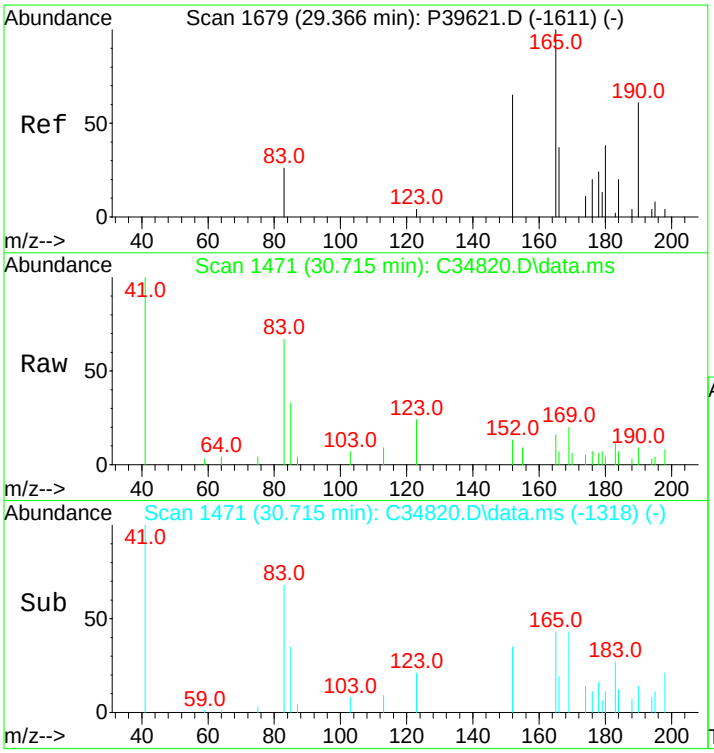




#21
C3-Benzo(b)thiophenes
Concen: 29.63 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

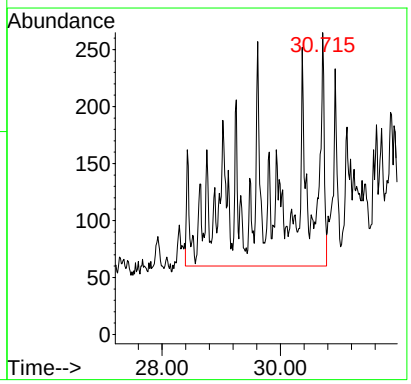
Tgt Ion:176 Resp: 3044

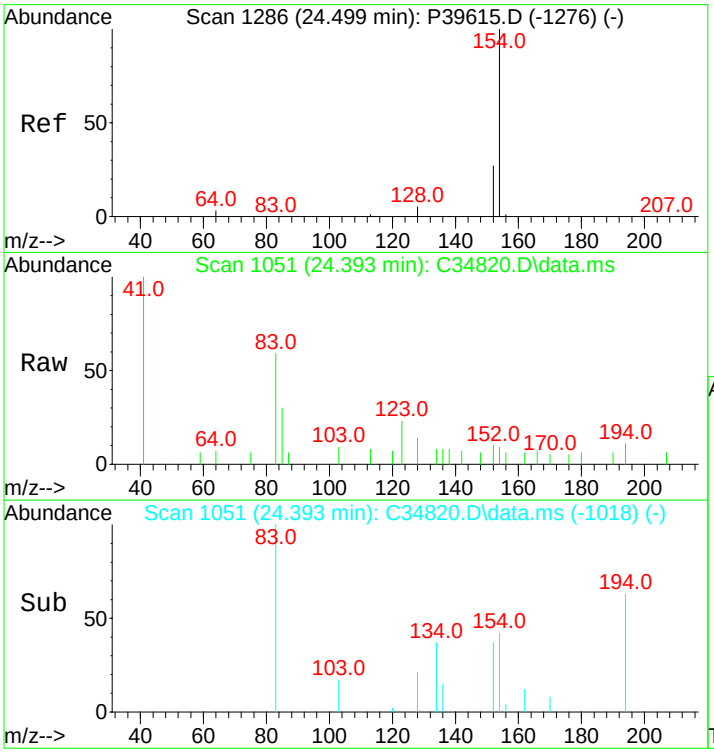




#22
C4-Benzo(b)thiophenes
Concen: 75.29 ng/mL m
RT: 30.715 min Scan# 1471
Delta R.T. 1.487 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:190 Resp: 7734

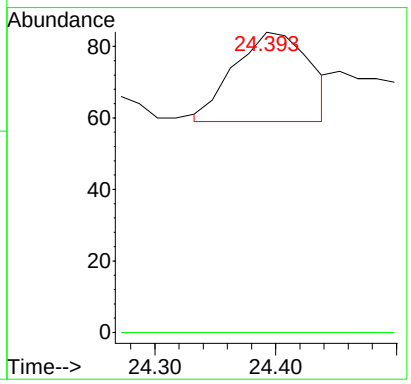


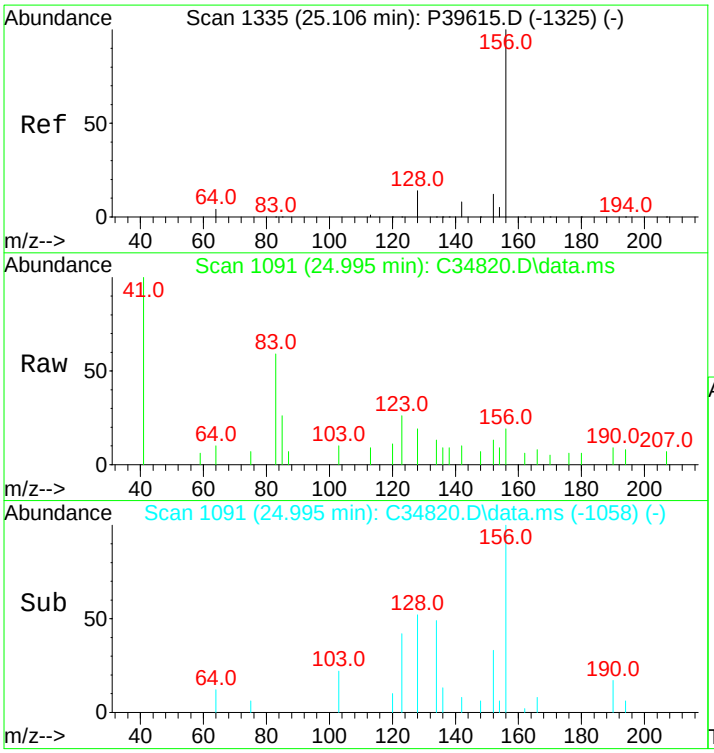


#23
Biphenyl
Concen: 1.28 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:154 Resp: 109

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

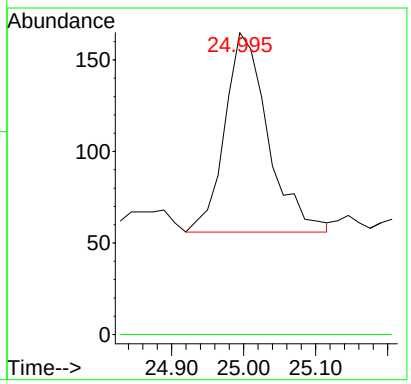


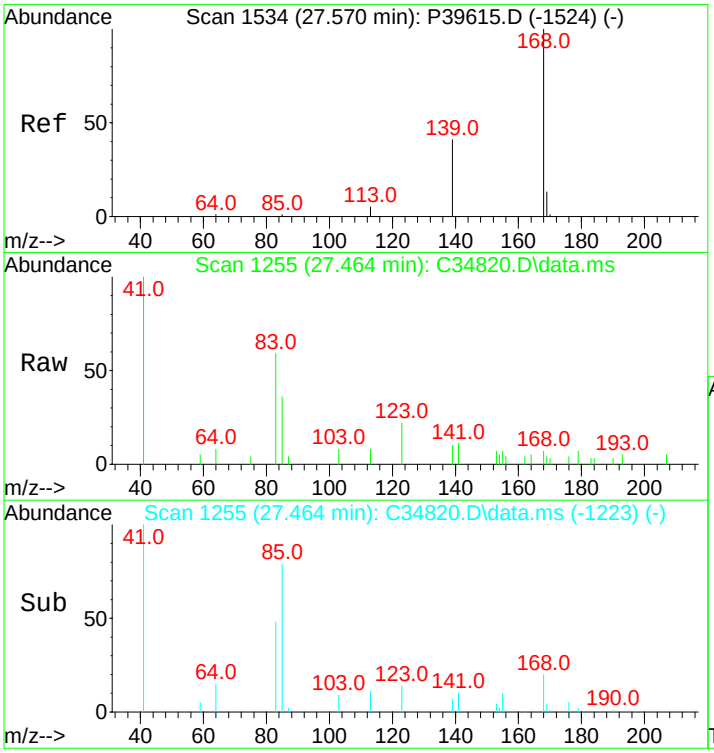


#24
2,6-Dimethylnaphthalene
Concen: 8.17 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:156 Resp: 453

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

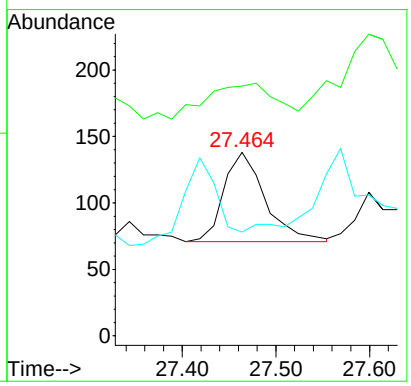


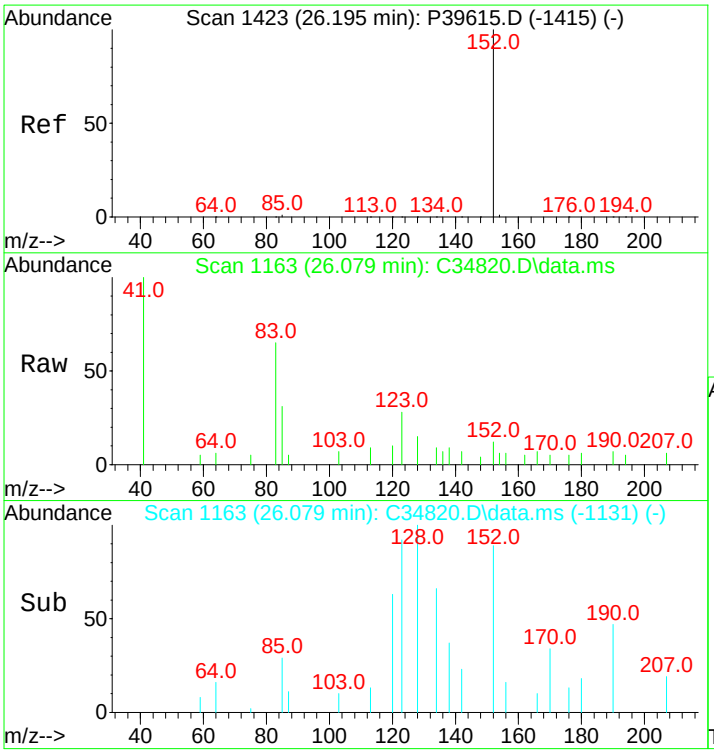


#25
Dibenzofuran
Concen: 2.10 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:168 Resp: 206

Ion	Ratio	Lower	Upper
168	100		
139	67.0	28.4	42.6#
169	0.0	10.8	16.2#

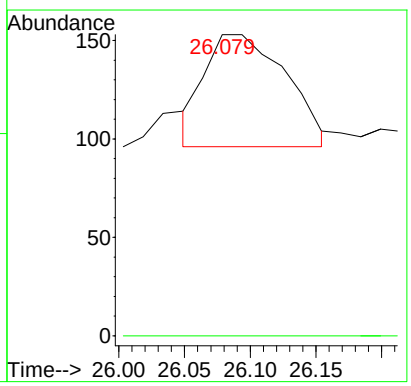


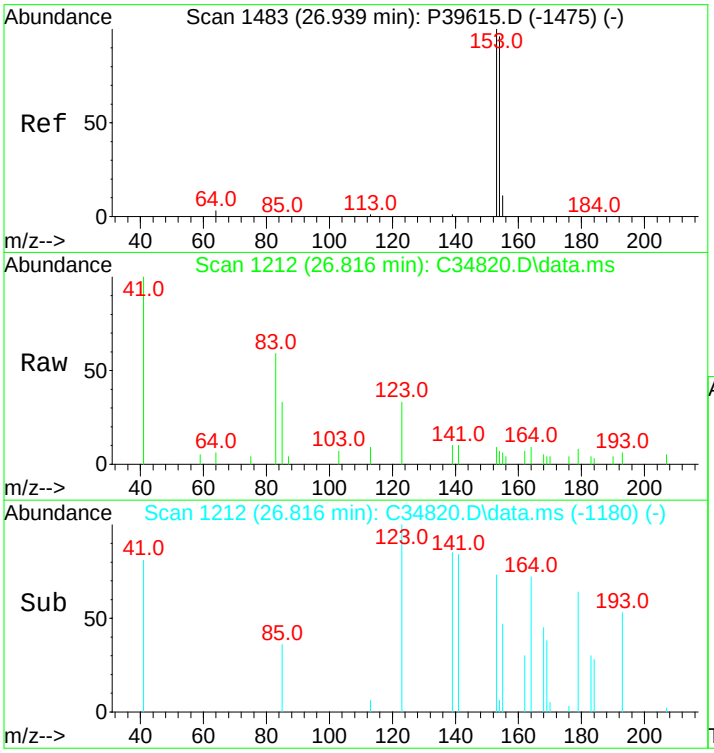


#26
Acenaphthylene
Concen: 2.17 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:152 Resp: 246

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

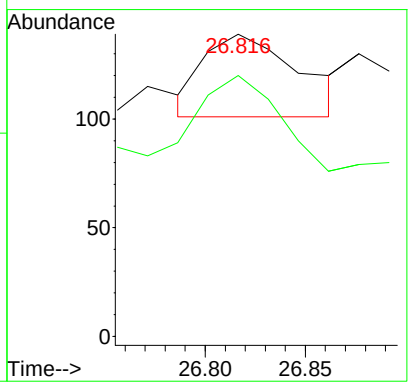


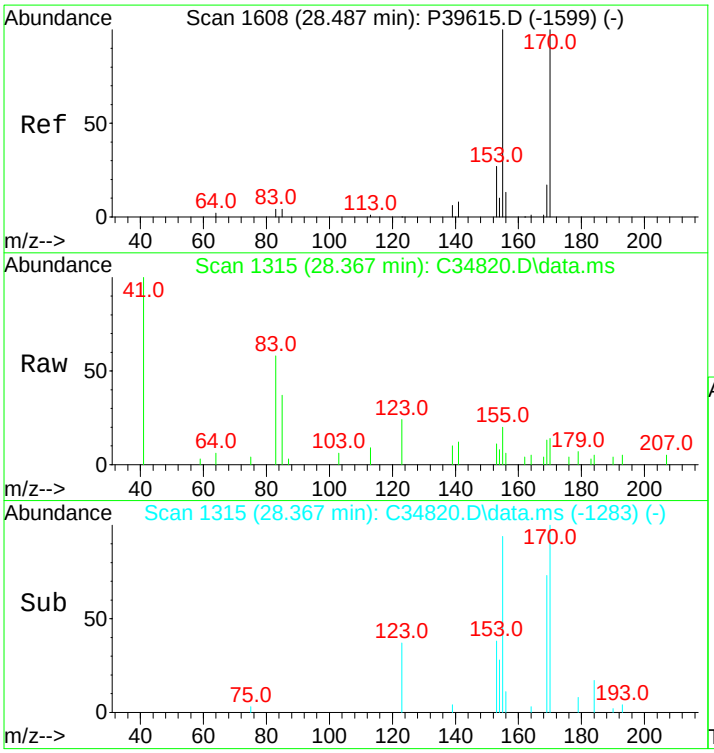


#27
Acenaphthene
Concen: 1.87 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:153 Resp: 125

Ion	Ratio	Lower	Upper
153	100		
154	0.0	73.6	110.4#

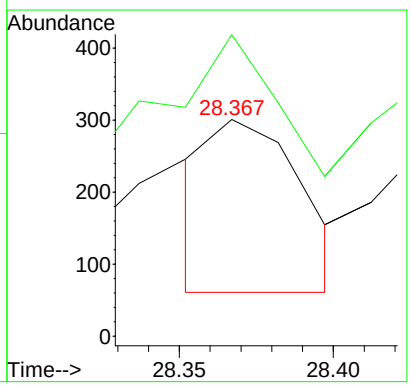


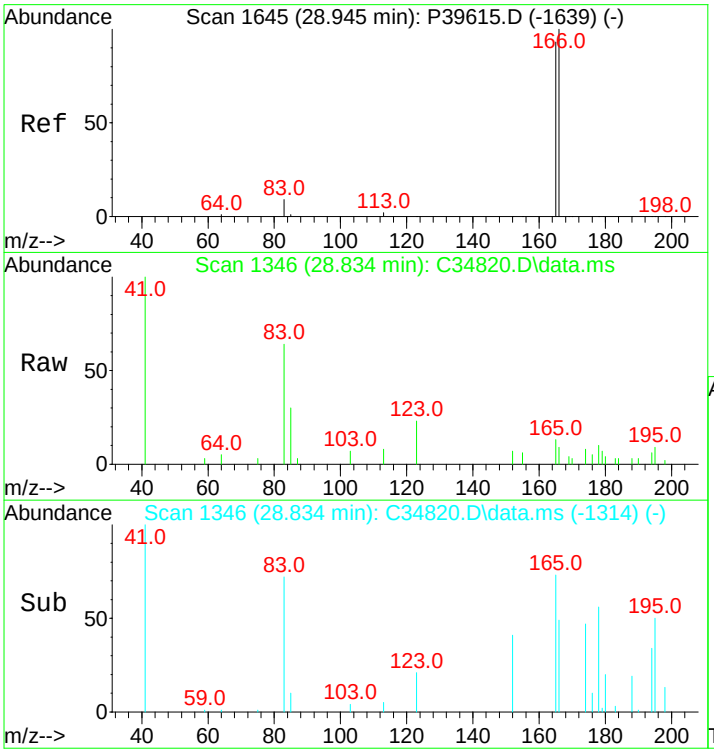


#28
2,3,5-Trimethylnaphthalene
Concen: 10.96 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:170 Resp: 490

Ion	Ratio	Lower	Upper
170	100		
155	243.3	87.3	130.9#

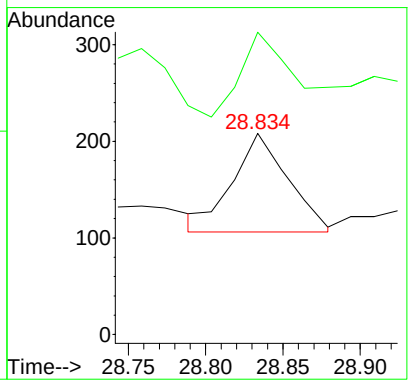


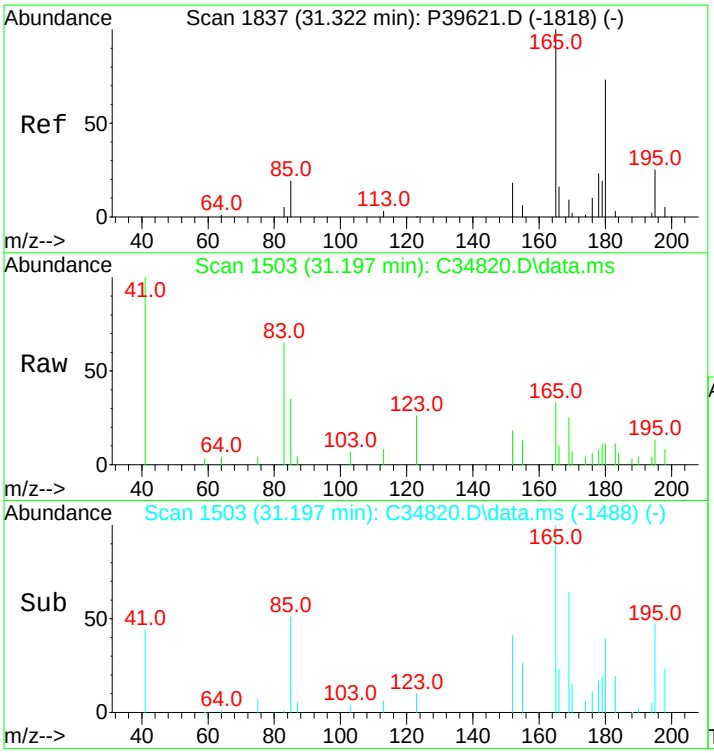


#29
Fluorene
Concen: 3.44 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:166 Resp: 253

Ion	Ratio	Lower	Upper
166	100		
165	129.2	77.3	115.9#

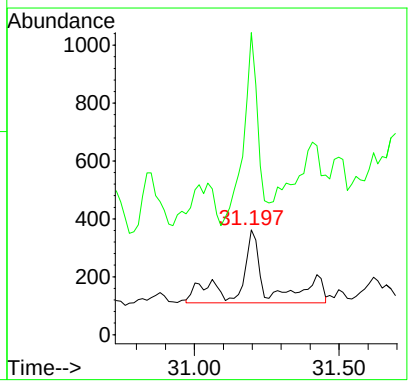


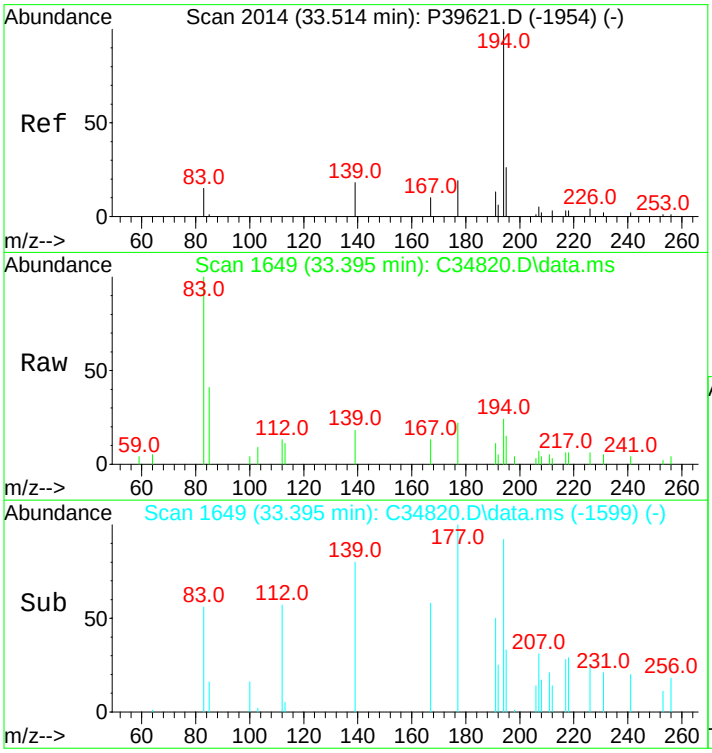


#30
C1-Fluorenes
Concen: 23.77 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:180 Resp: 1749

Ion	Ratio	Lower	Upper
180	100		
165	133.8	111.4	167.2

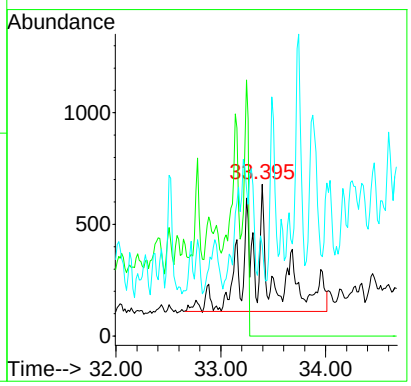


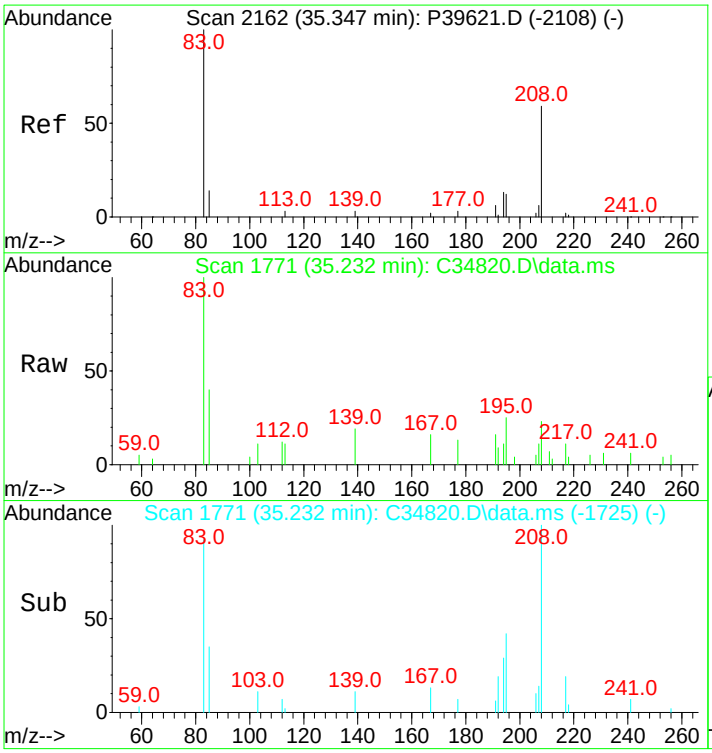


#31
C2-Fluorenes
Concen: 130.44 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:194 Resp: 9598

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.2	27.3	40.9#

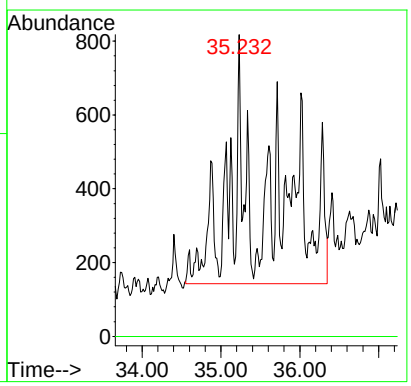


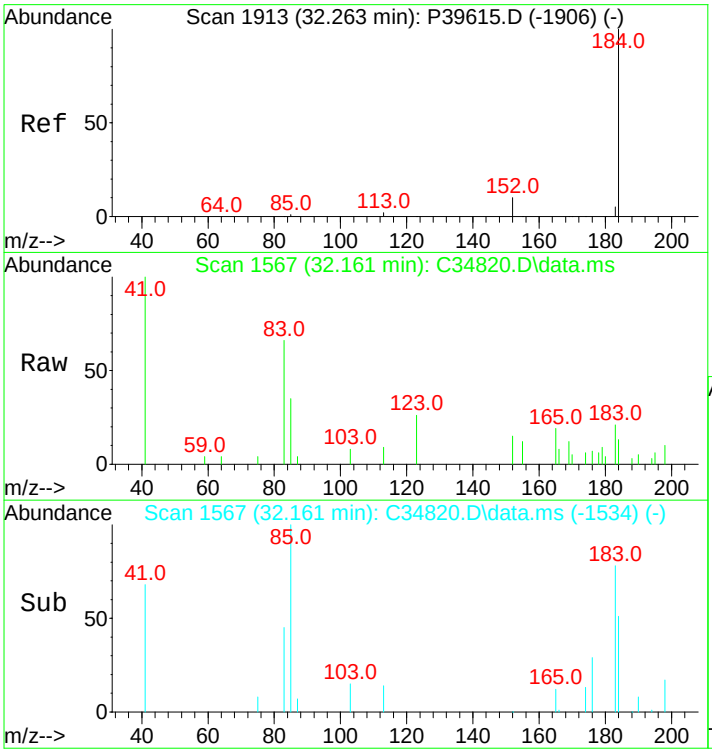


#32
C3-Fluorenes
Concen: 269.28 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:208 Resp: 19814

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

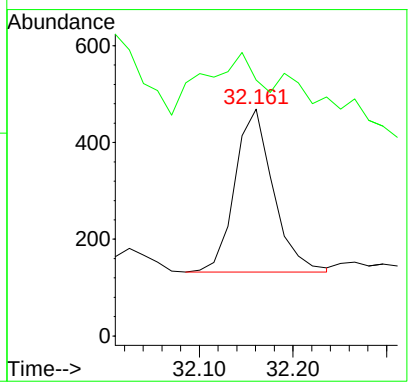


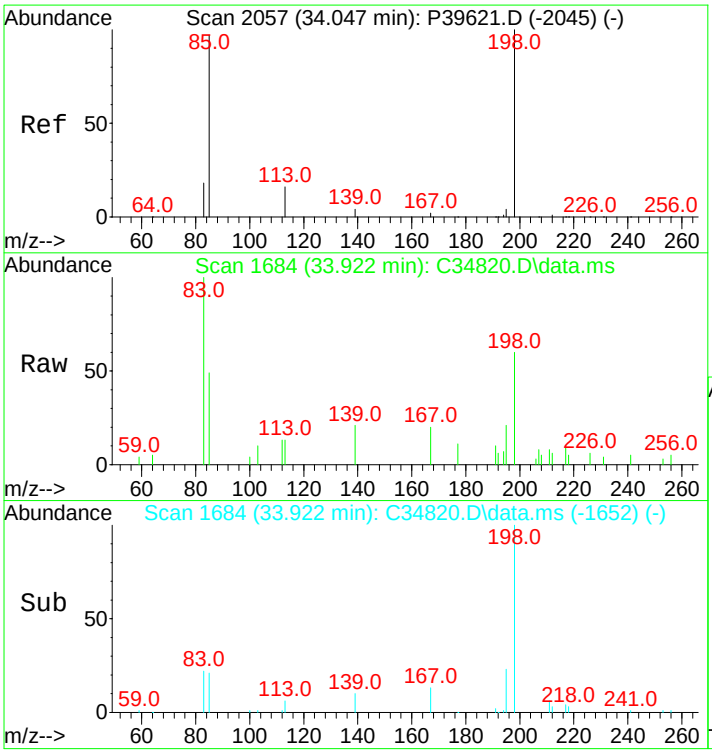


#33
Dibenzothiophene
Concen: 8.16 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:184 Resp: 962

Ion	Ratio	Lower	Upper
184	100		
152	53.7	7.5	11.3#

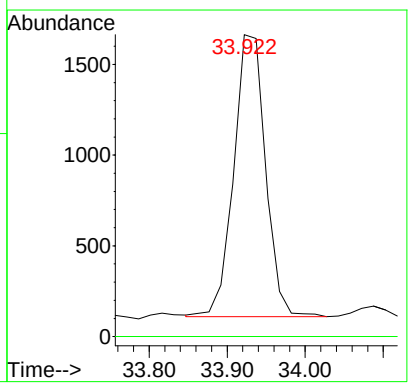


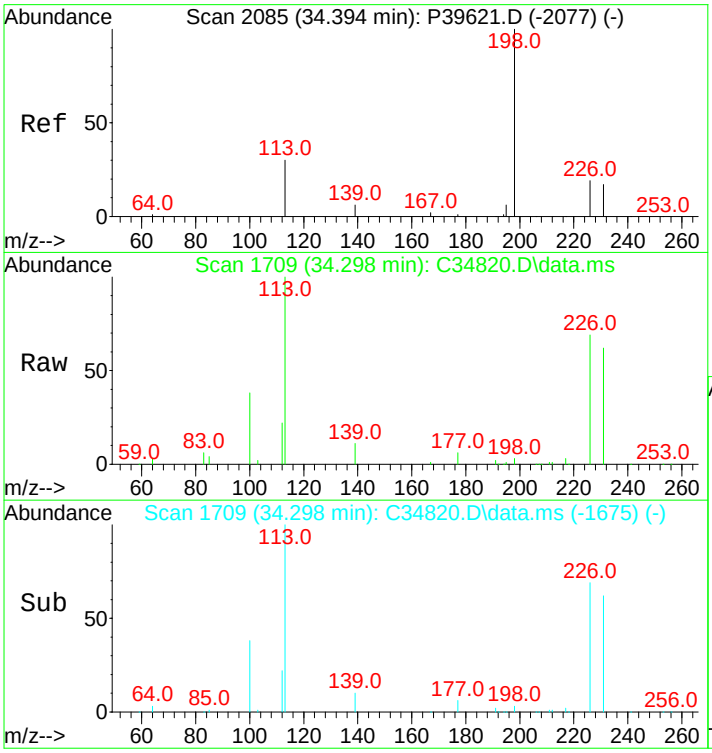


#34
4-Methyldibenzothiophene(4MDT)
Concen: 37.34 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:198 Resp: 4404

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

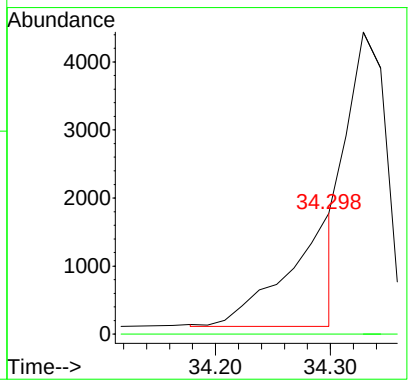


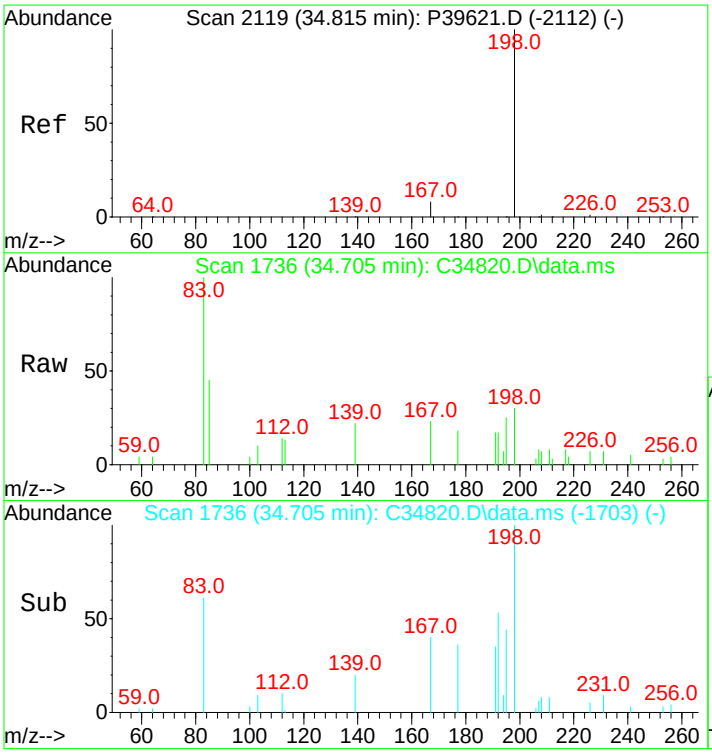


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 40.74 ng/mL m
RT: 34.298 min Scan# 1709
Delta R.T. 0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:198 Resp: 4805

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

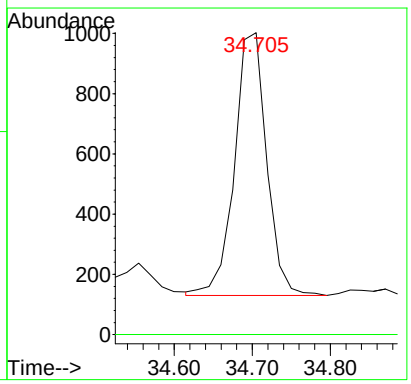


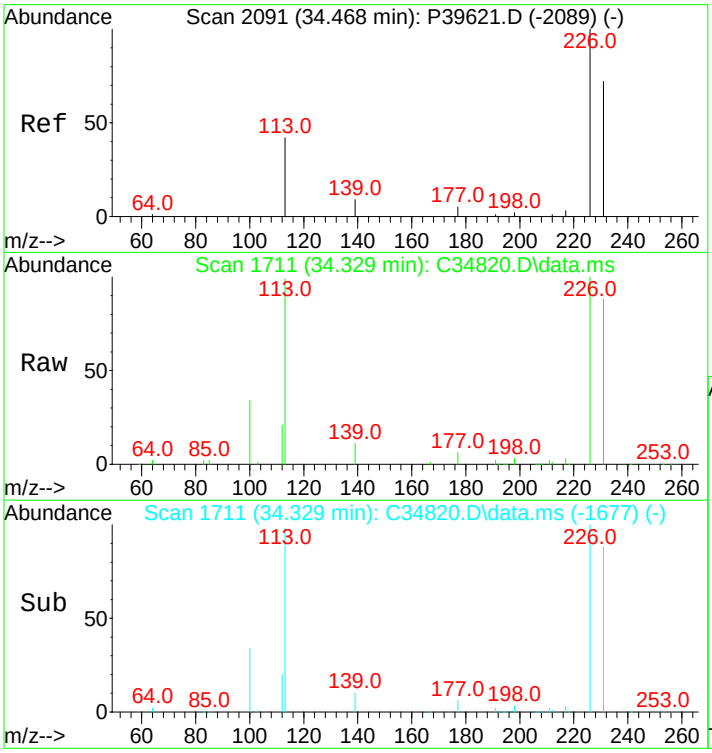


#36
1-Methyldibenzothiophene(1MDT)
Concen: 21.18 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:198 Resp: 2498

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

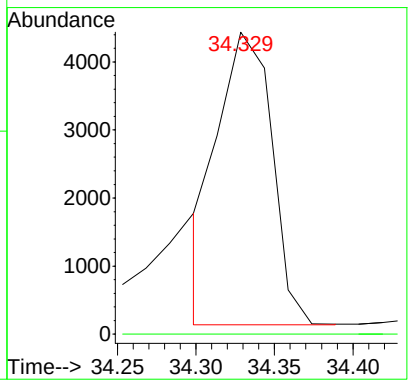


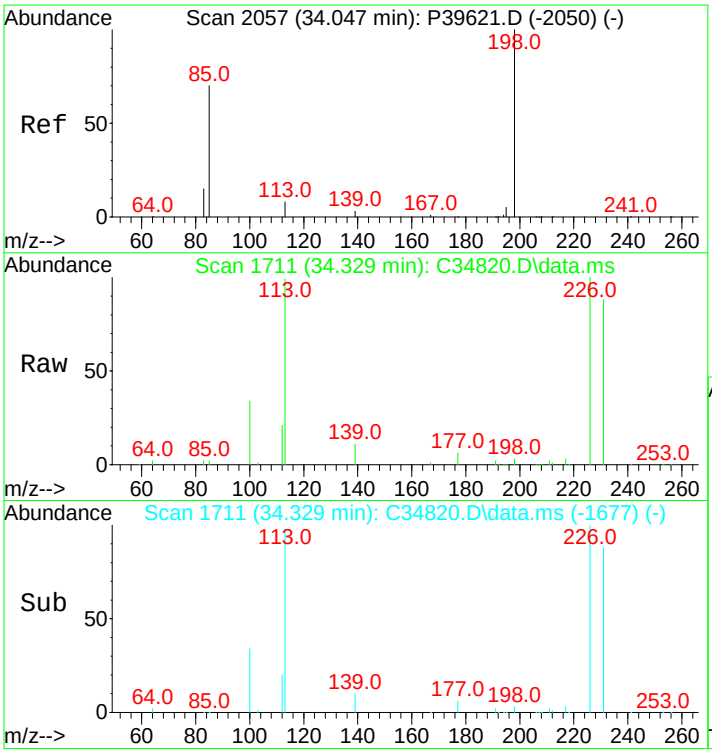


#37
OTP
Concen: 87.20 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:198 Resp: 10285

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

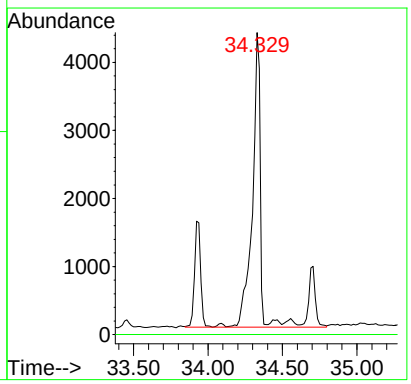


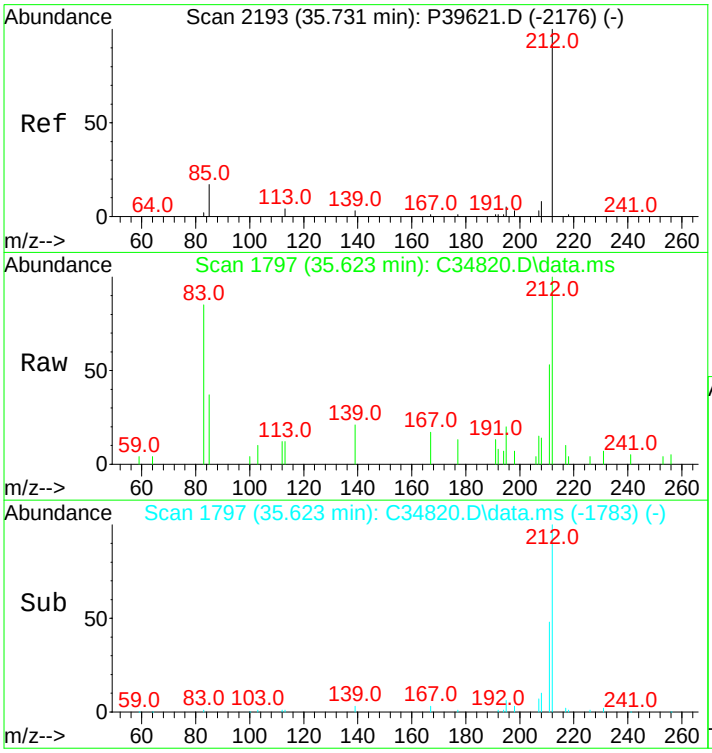


#38
C1-Dibenzothiophenes
Concen: 200.27 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:198 Resp: 23622

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

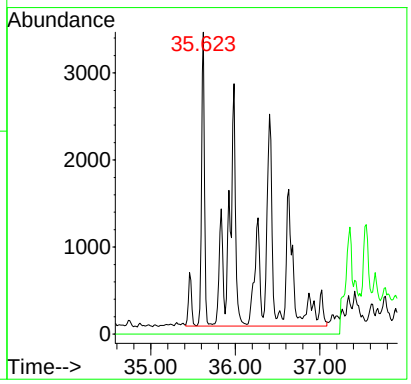


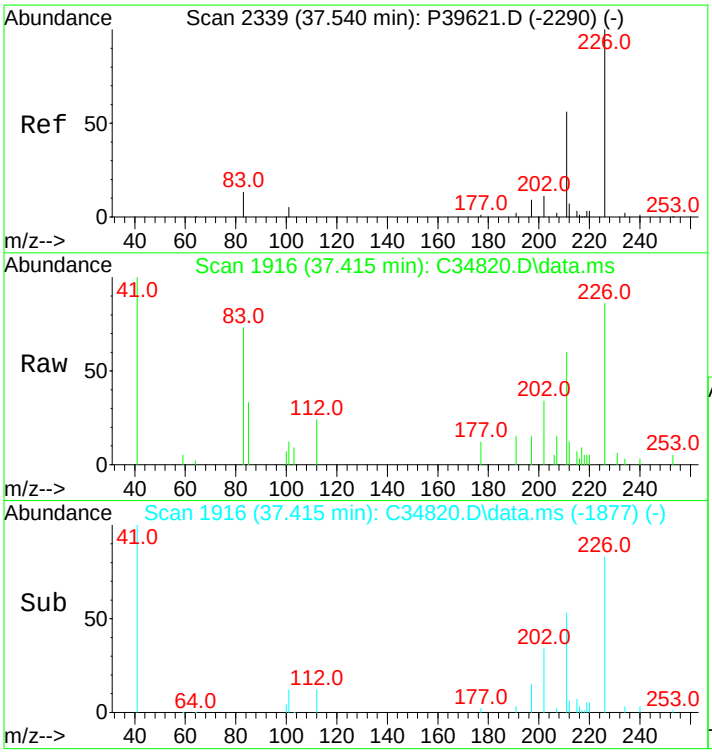


#39
C2-Dibenzothiophenes
Concen: 441.64 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:212 Resp: 52092

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

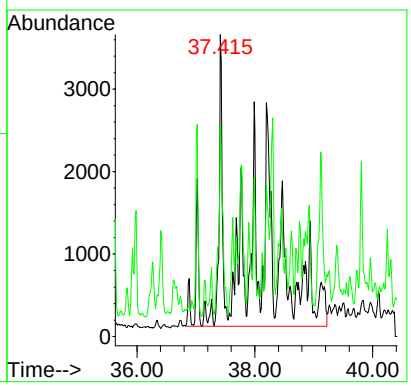


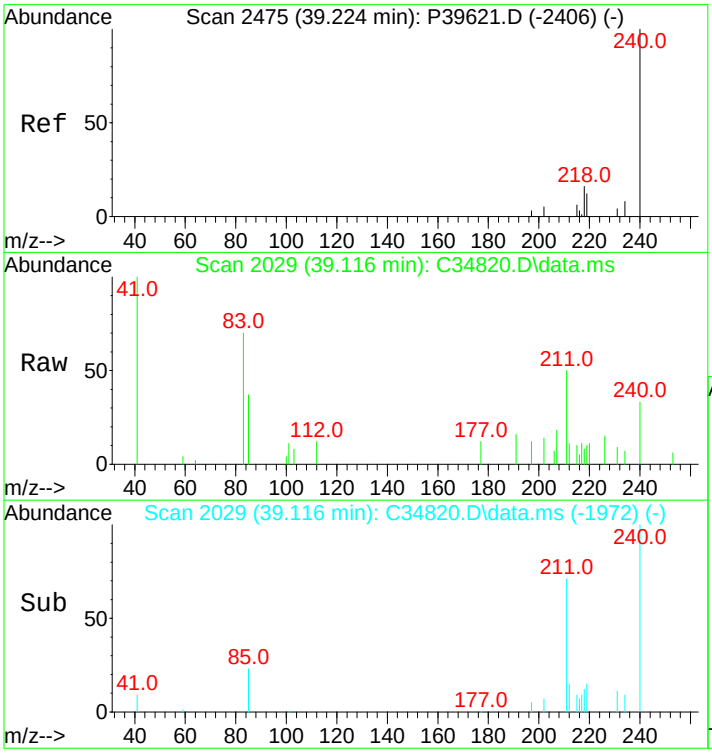


#40
C3-Dibenzothiophenes
Concen: 762.88 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:226 Resp: 89983

Ion	Ratio	Lower	Upper
226	100		
211	12.2	45.0	67.6#

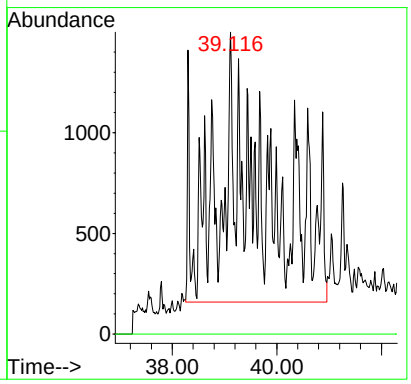


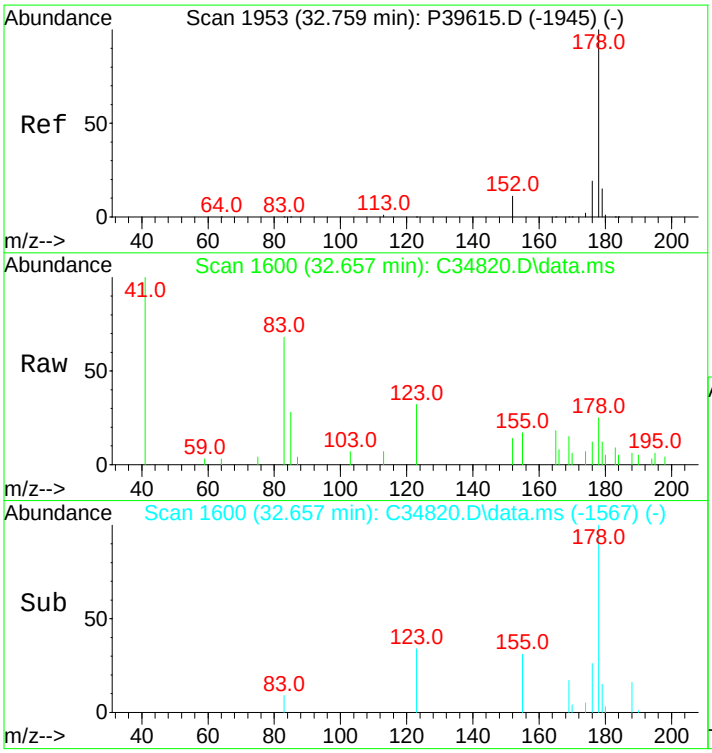


#41
C4-Dibenzothiophenes
Concen: 650.68 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:240 Resp: 76749

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

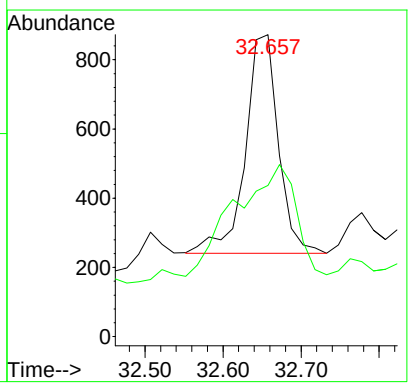


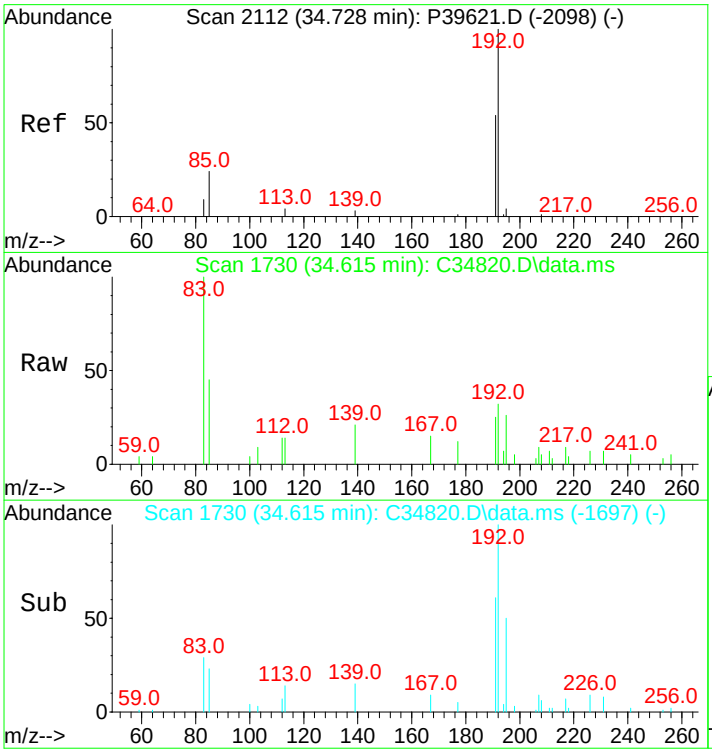


#43
Phenanthrene
Concen: 18.01 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:178 Resp: 1866

Ion	Ratio	Lower	Upper
178	100		
176	109.8	16.1	24.1#

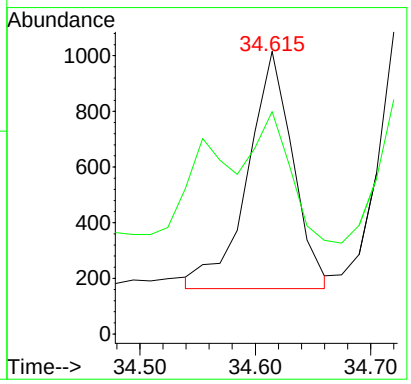


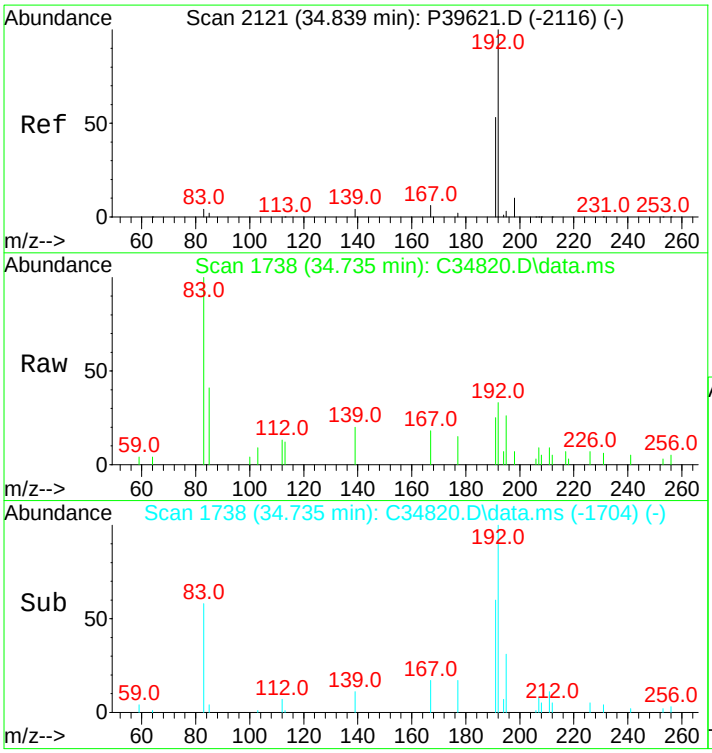


#44
3-Methylphenanthrene(3MP)
Concen: 22.38 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 2319

Ion	Ratio	Lower	Upper
192	100		
191	53.0	46.9	70.3

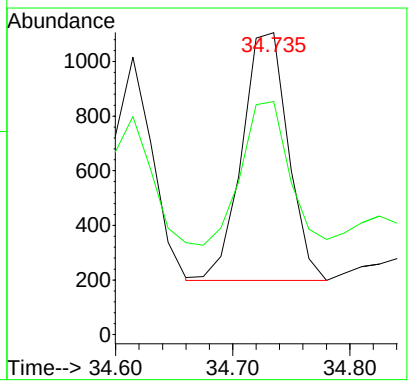


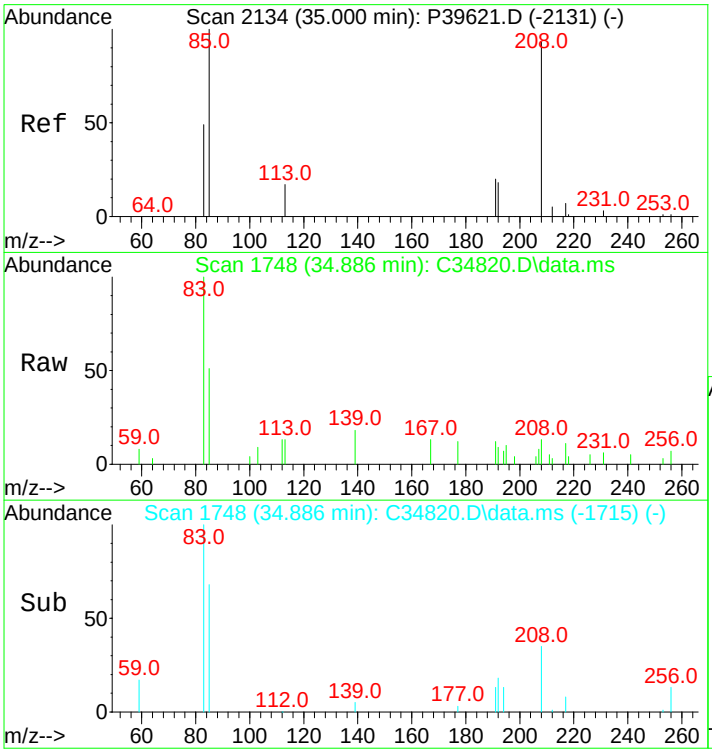


#45
2/4-Methylphenanthrene(2MP)
Concen: 24.04 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 2491

Ion	Ratio	Lower	Upper
192	100		
191	59.7	46.1	69.1

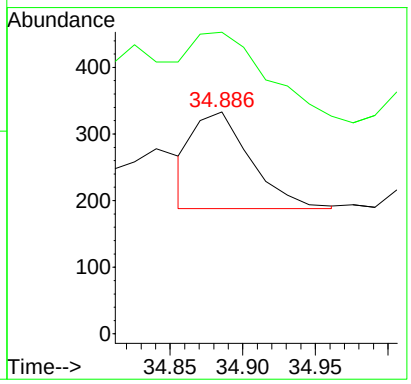


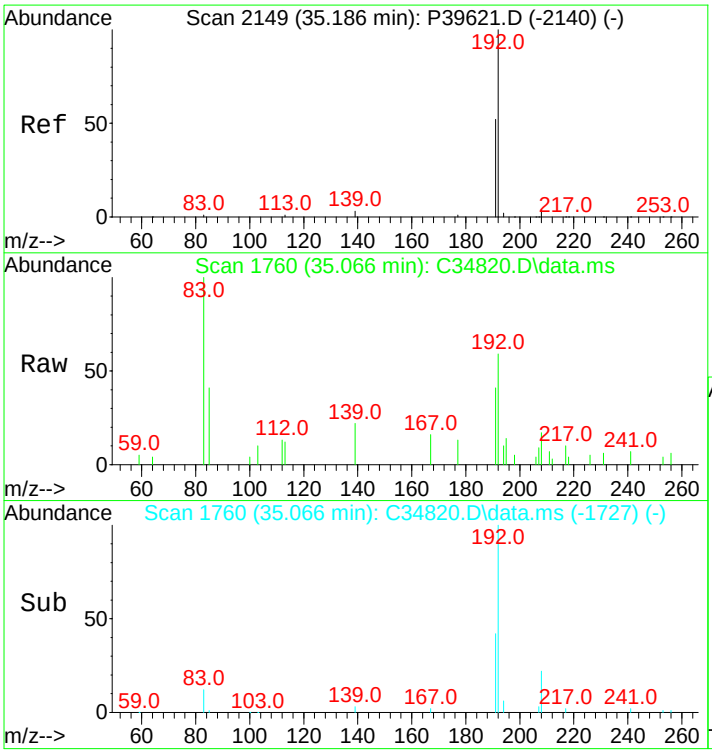


#46
2-Methylanthracene(2MA)
Concen: 3.81 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 395

Ion	Ratio	Lower	Upper
192	100		
191	123.3	93.4	140.0

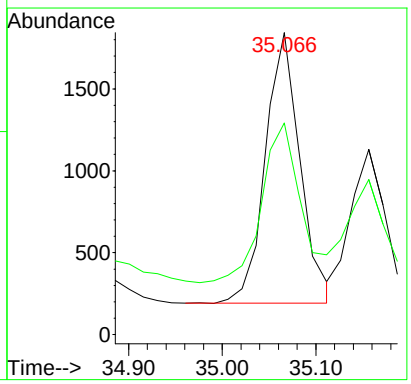


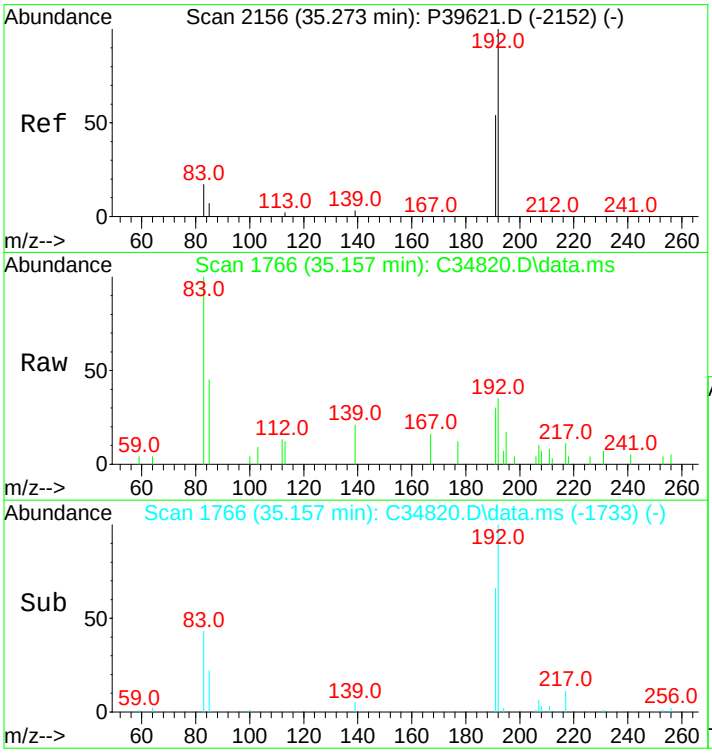


#47
9-Methylphenanthrene(9MP)
Concen: 40.99 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 4248

Ion	Ratio	Lower	Upper
192	100		
191	66.7	45.9	68.9

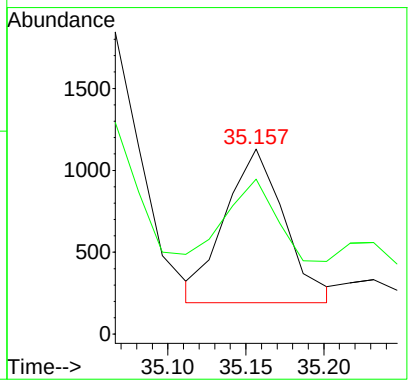


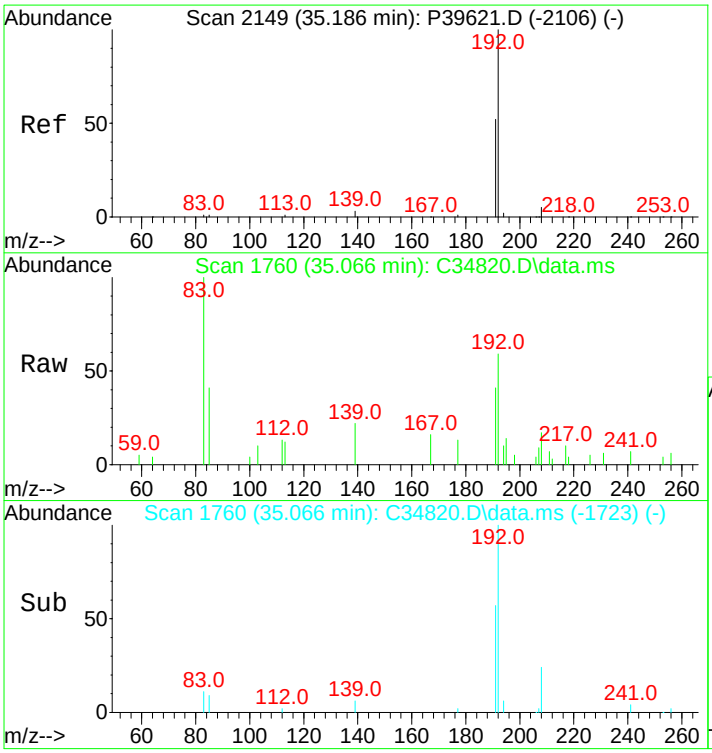


#48
1-Methylphenanthrene(1MP)
Concen: 23.92 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 2479

Ion	Ratio	Lower	Upper
192	100		
191	114.3	49.0	73.4#

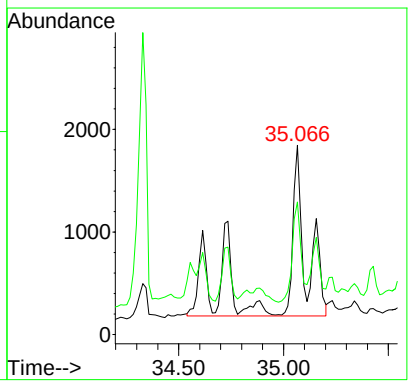


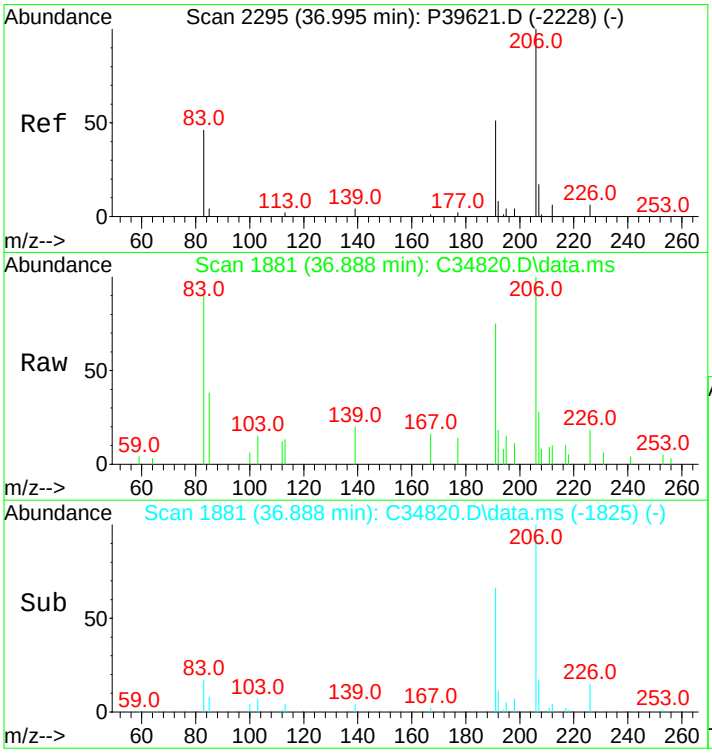


#49
C1-Phenanthrenes/Anthracenes
Concen: 120.25 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 12462

Ion	Ratio	Lower	Upper
192	100		
191	7.5	44.2	66.2#

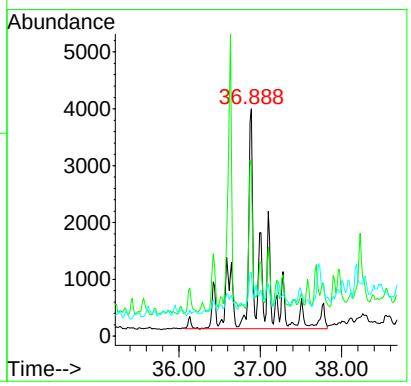


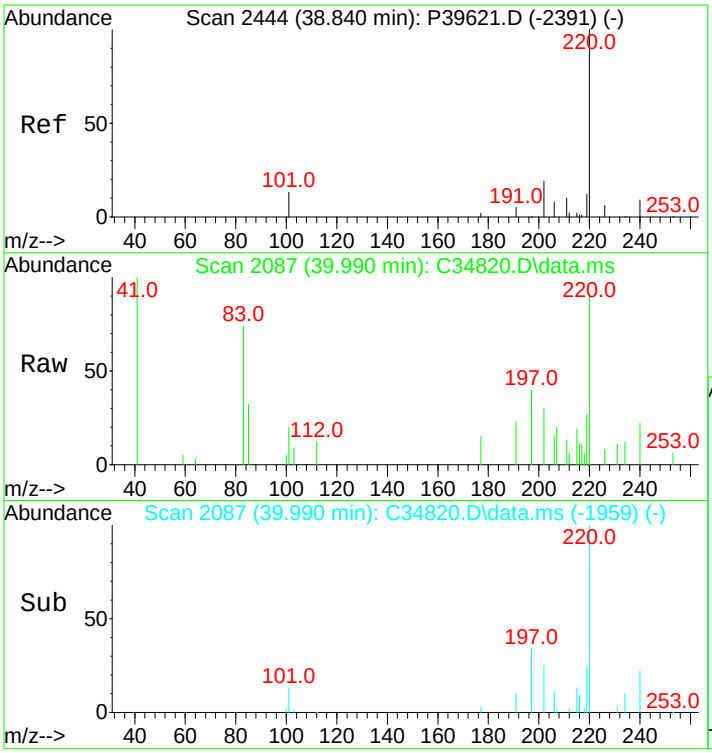


#50
C2-Phenanthrenes/Anthracenes
Concen: 401.96 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:206 Resp: 41655

Ion	Ratio	Lower	Upper
206	100		
191	19.0	44.0	66.0#
207	4.3	15.1	22.7#

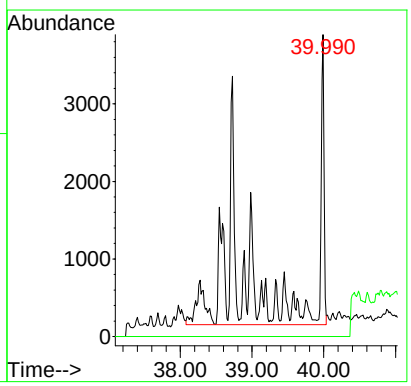


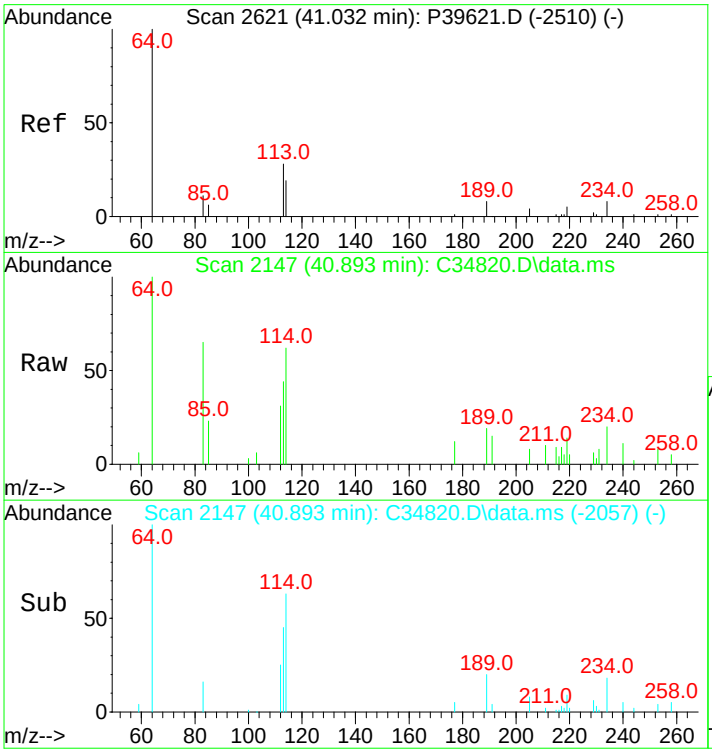


#52
C3-Phenanthrenes/Anthracenes
Concen: 507.49 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:220 Resp: 52592

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

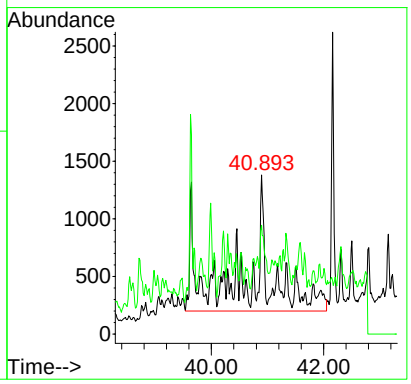


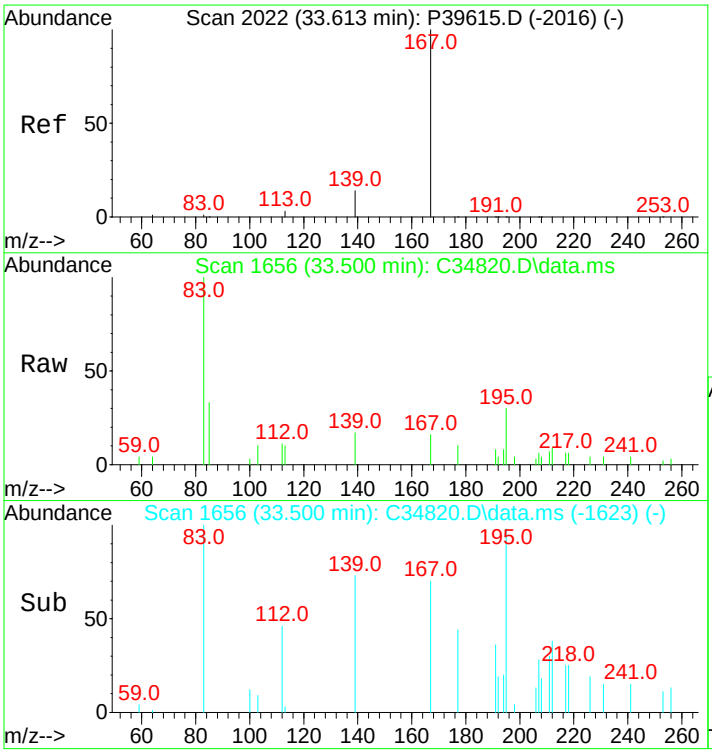


#53
C4-Phenanthrenes/Anthracenes
Concen: 330.20 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:234 Resp: 34219

Ion	Ratio	Lower	Upper
234	100		
219	1.1	46.9	70.3#

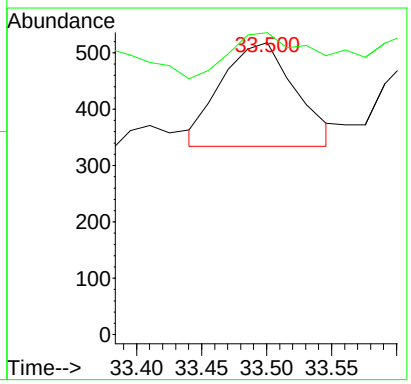


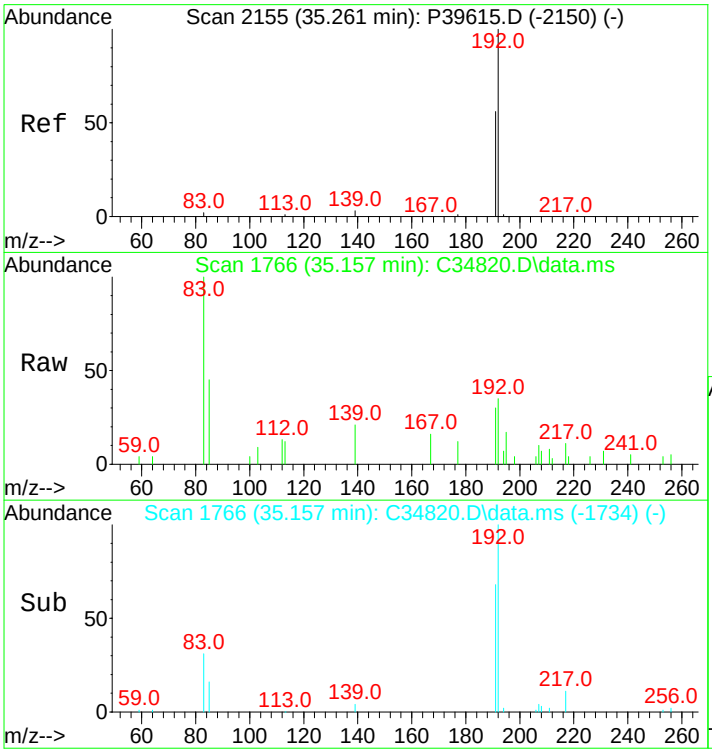


#56
Carbazole
Concen: 7.13 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:167 Resp: 729

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

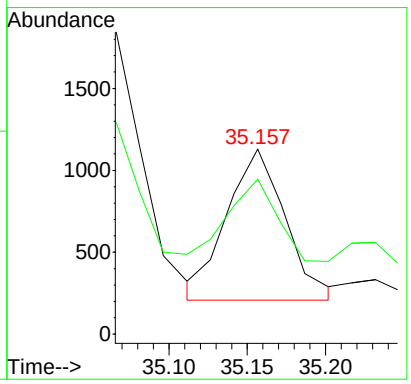


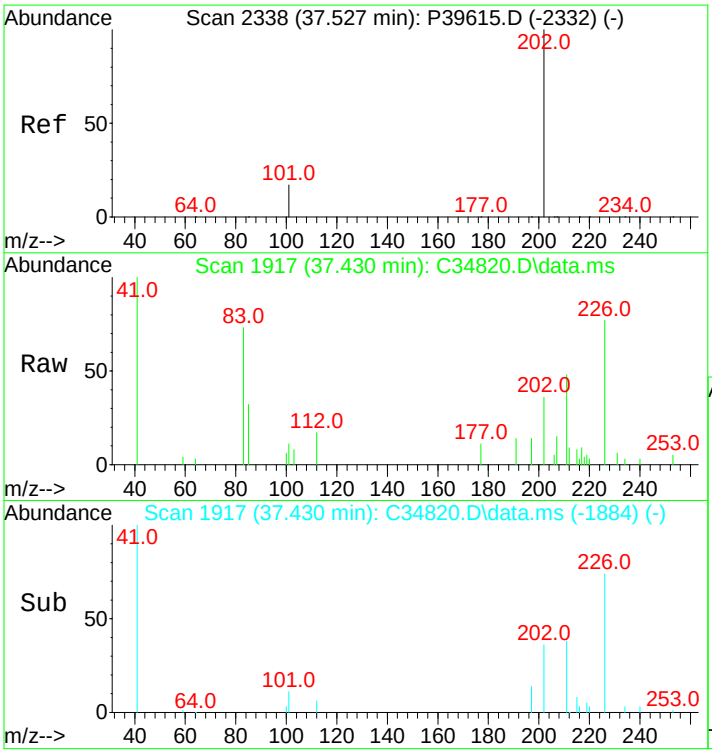


#57
1-Methylphenanthrene
Concen: 36.50 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:192 Resp: 2397

Ion	Ratio	Lower	Upper
192	100		
191	55.7	45.9	68.9

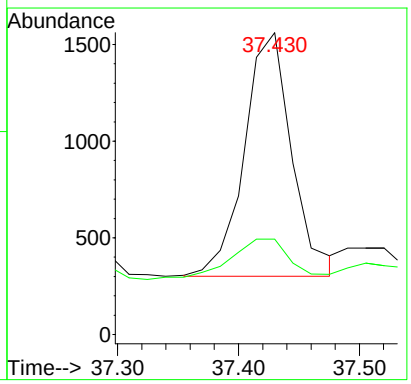


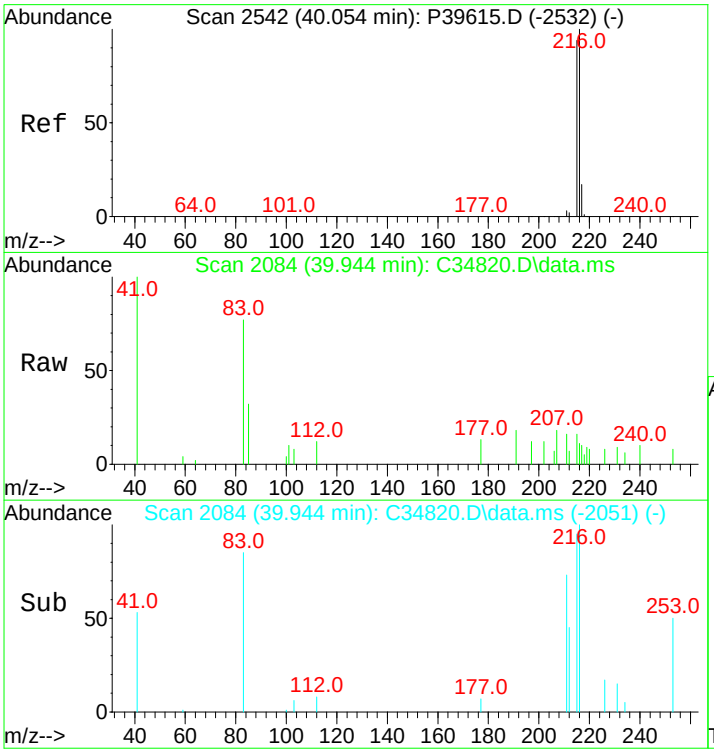


#58
Fluoranthene
Concen: 33.49 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:202 Resp: 3447

Ion	Ratio	Lower	Upper
202	100		
101	32.3	12.9	19.3#

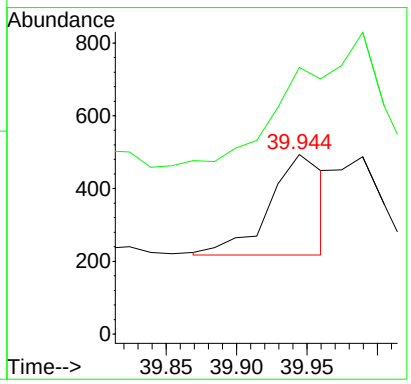


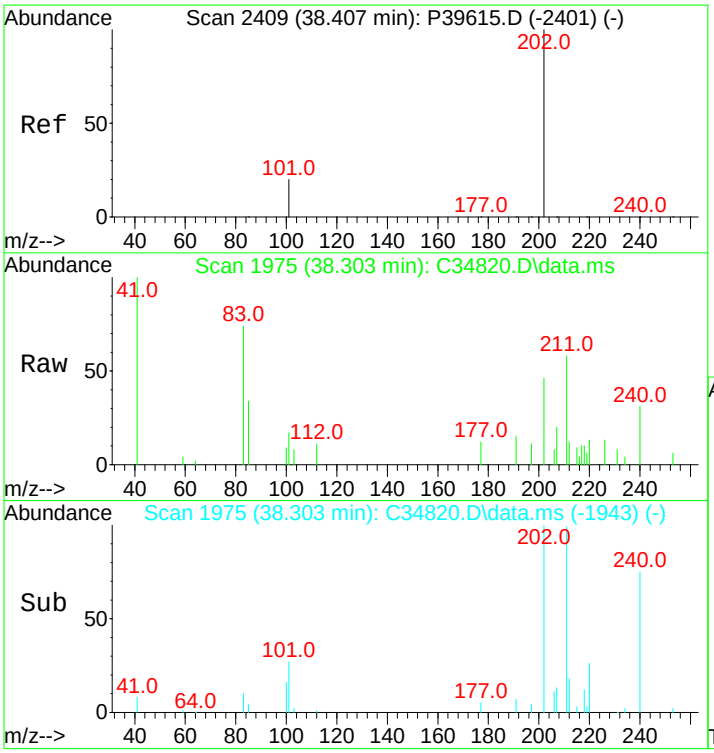


#59
Benzo(b)fluorene
Concen: 12.51 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:216 Resp: 747

Ion	Ratio	Lower	Upper
216	100		
215	461.6	76.3	114.5#

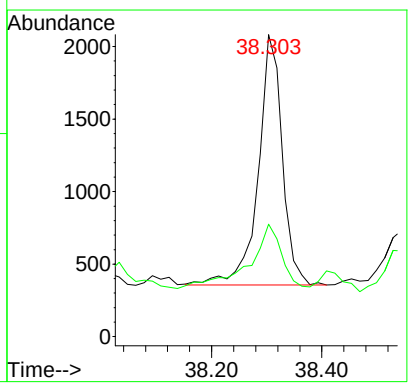


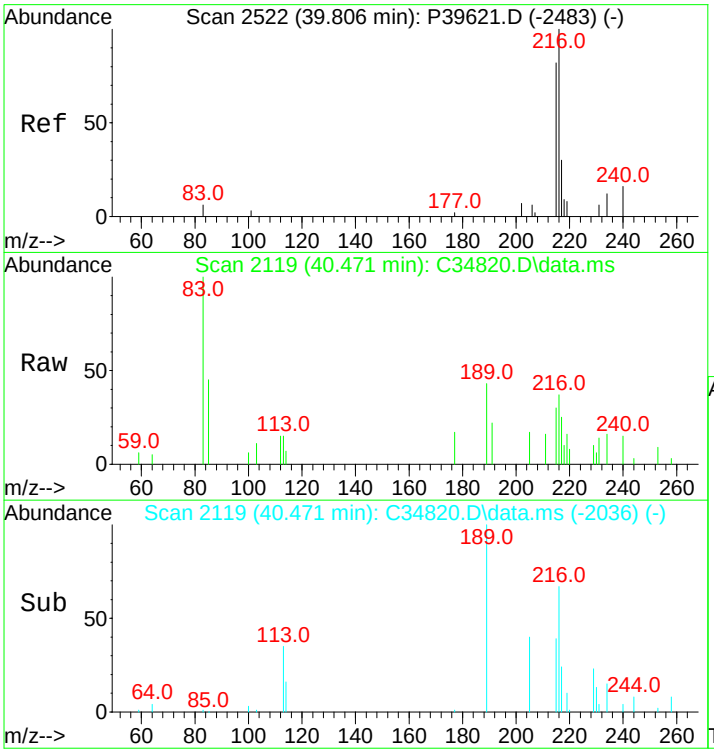


#60
Pyrene
Concen: 49.84 ng/mL
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:202 Resp: 5214

Ion	Ratio	Lower	Upper
202	100		
101	36.1	15.0	22.4#

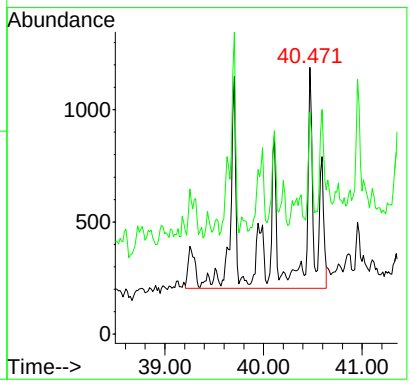


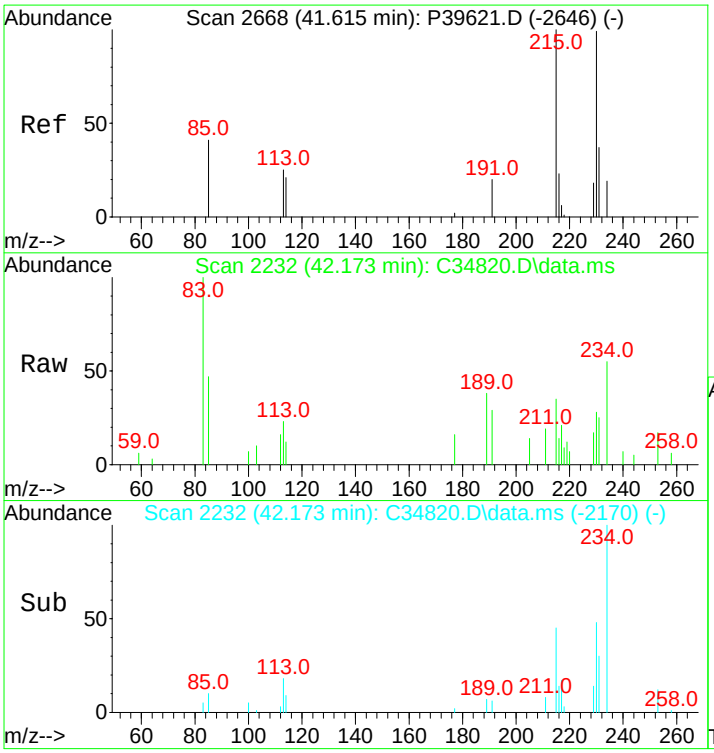


#61
C1-Fluoranthenes/Pyrenes
Concen: 130.83 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:216 Resp: 13688

Ion	Ratio	Lower	Upper
216	100		
215	1.5	71.8	107.6#

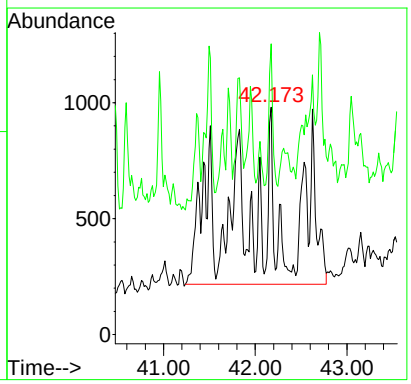


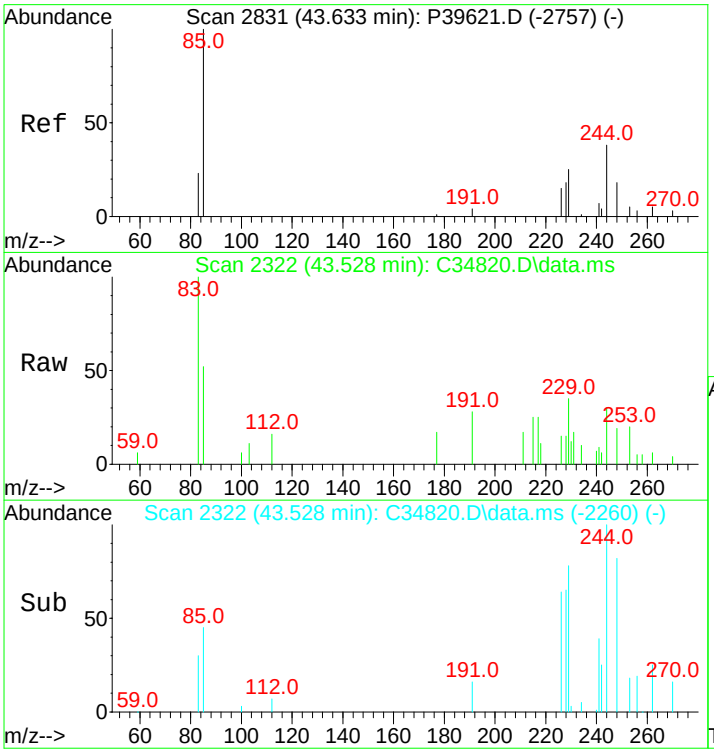


#62
C2-Fluoranthenes/Pyrenes
Concen: 226.98 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:230 Resp: 23747

Ion	Ratio	Lower	Upper
230	100		
215	3.8	99.0	148.4#

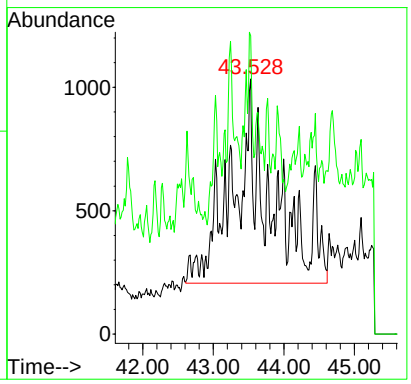


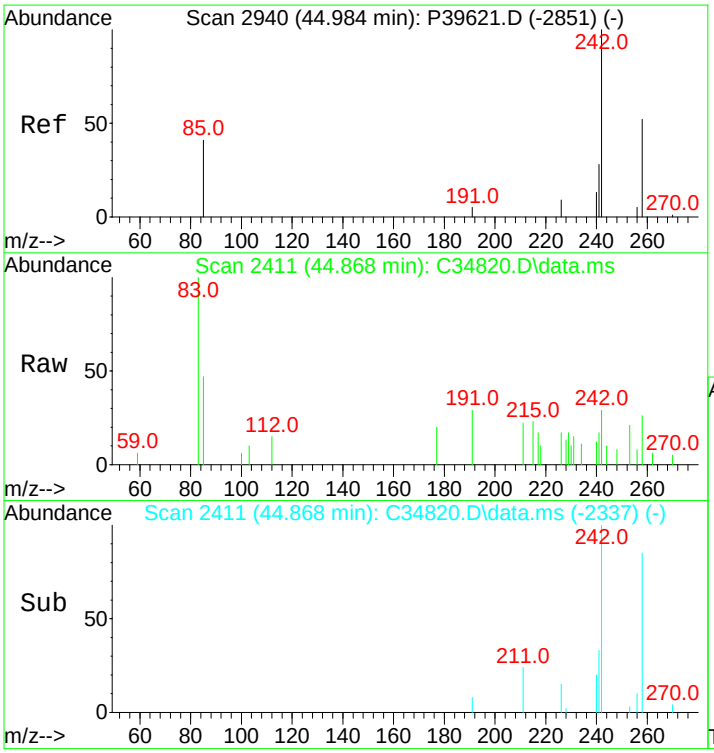


#63
C3-Fluoranthenes/Pyrenes
Concen: 296.51 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:244 Resp: 31022

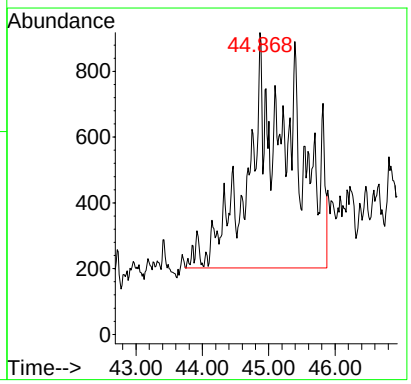
Ion	Ratio	Lower	Upper
244	100		
229	2.6	73.3	109.9#

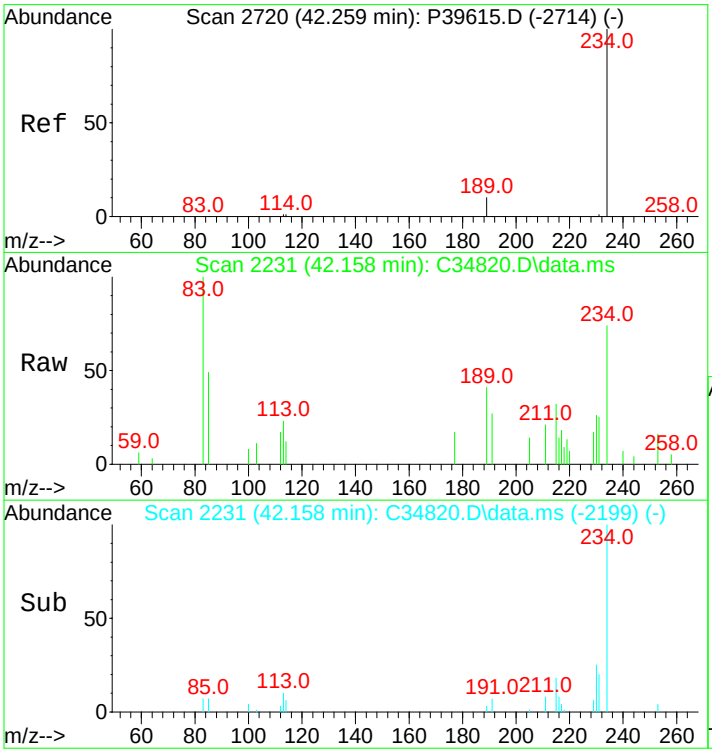




#64
C4-Fluoranthenes/Pyrenes
Concen: 312.60 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.111 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:258 Resp: 32705

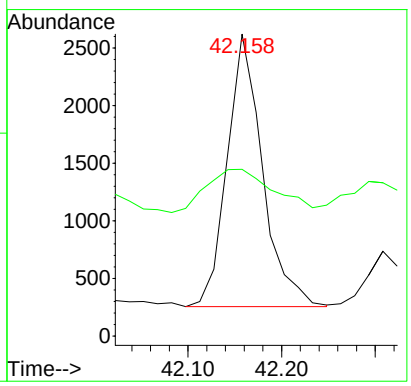


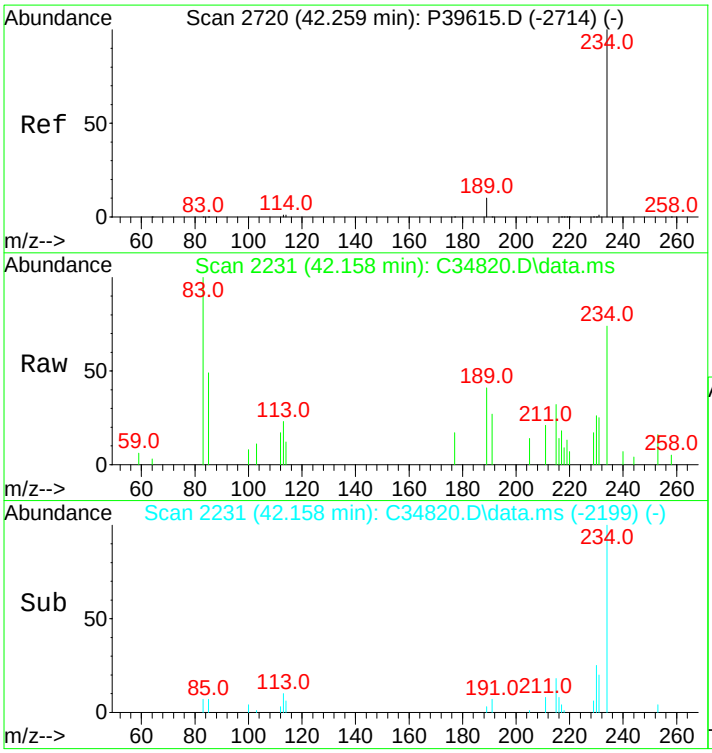


#66
Naphthobenzothiophene
Concen: 55.11 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:234 Resp: 6207

Ion	Ratio	Lower	Upper
234	100		
189	30.2	20.5	30.7

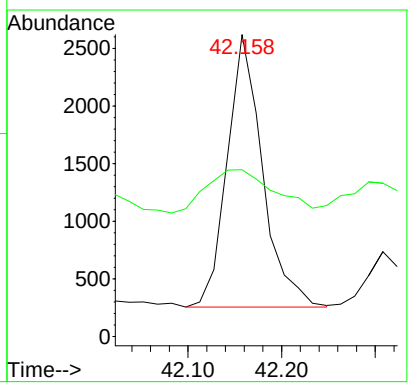


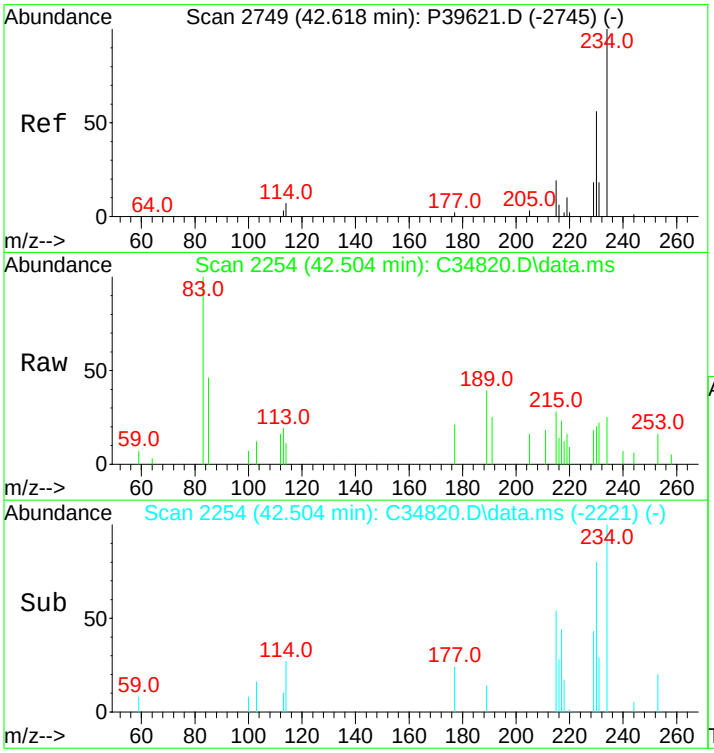


#67
Naphthobenzothiophene-2,1-D
Concen: 55.11 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:234 Resp: 6207

Ion	Ratio	Lower	Upper
234	100		
189	30.2	20.5	30.7

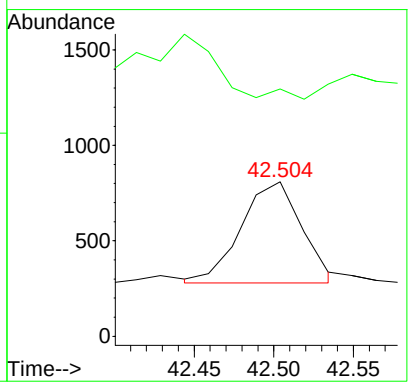


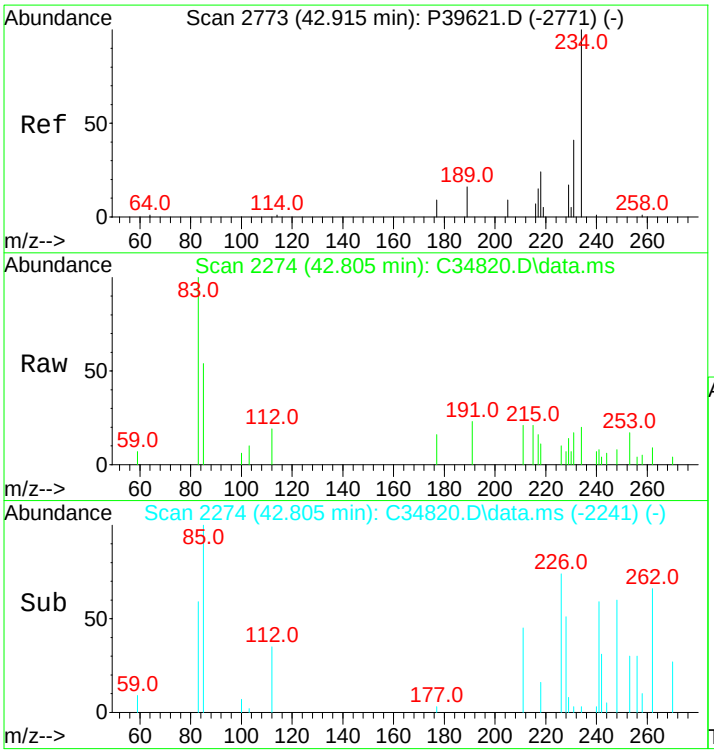


#68
Naphthobenzothiophene-1,2-D
Concen: 12.46 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:234 Resp: 1404

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

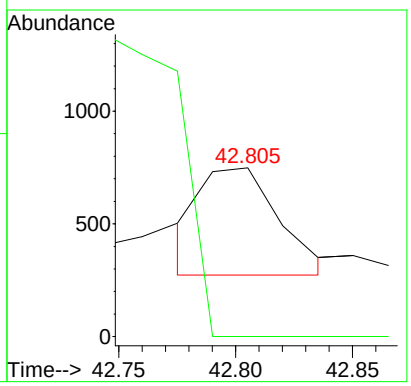


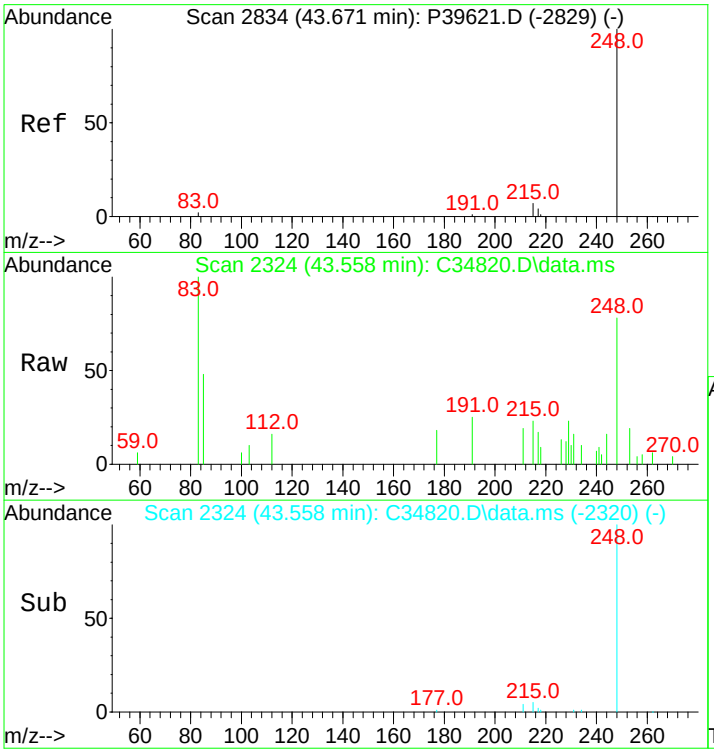


#69
Naphthobenzothiophene-2,3-D
Concen: 9.88 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:234 Resp: 1113

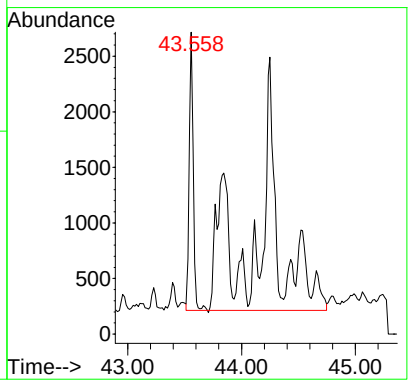
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

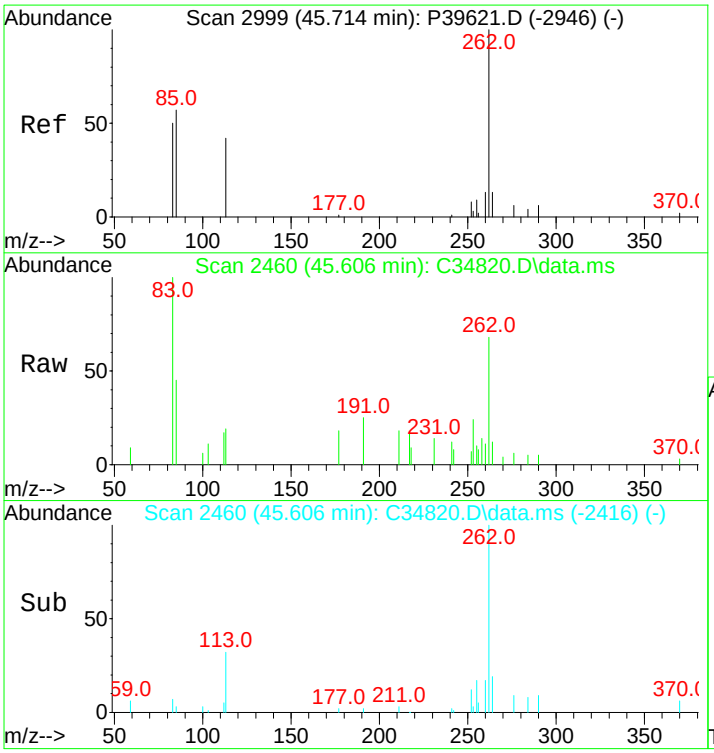




#70
C1-Naphthobenzothiophenes
Concen: 332.65 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

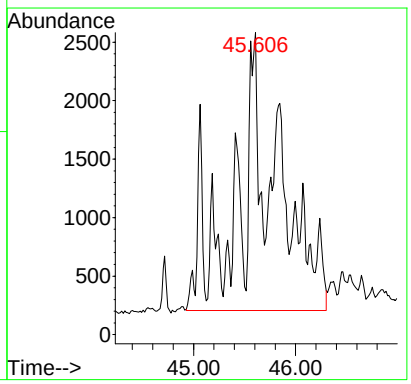
Tgt Ion:248 Resp: 37469

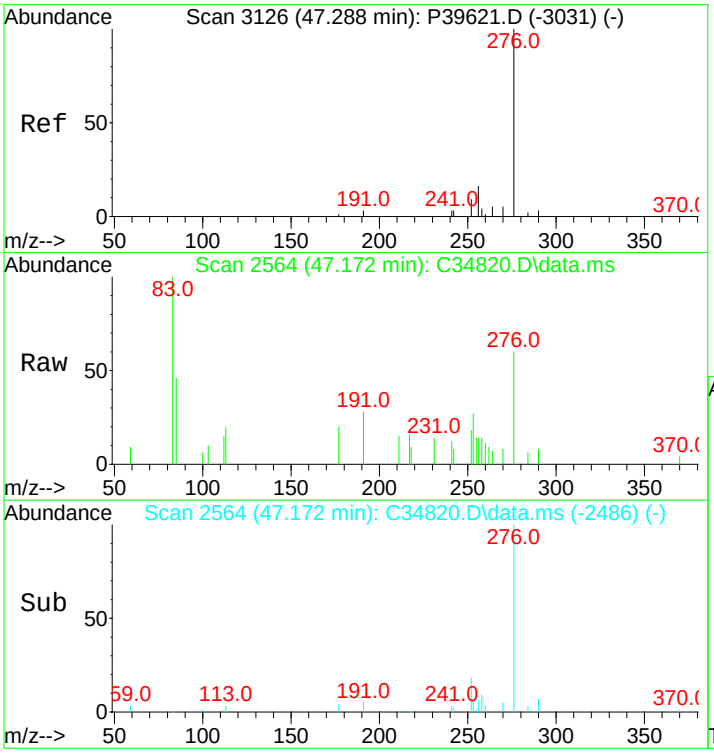




#71
C2-Naphthobenzothiophenes
Concen: 573.17 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

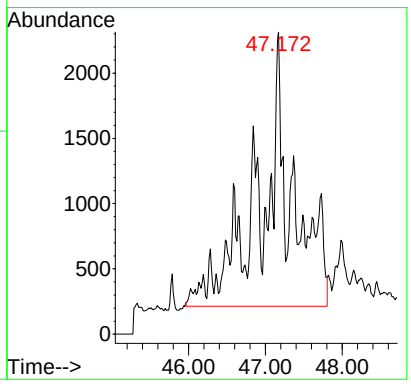
Tgt Ion:262 Resp: 64560

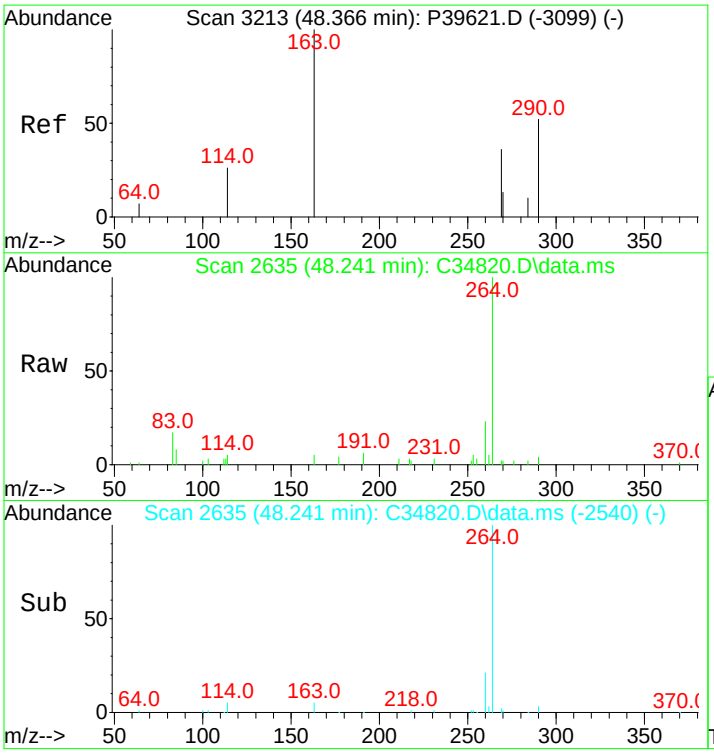




#72
C3-Naphthobenzothiophenes
Concen: 537.00 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

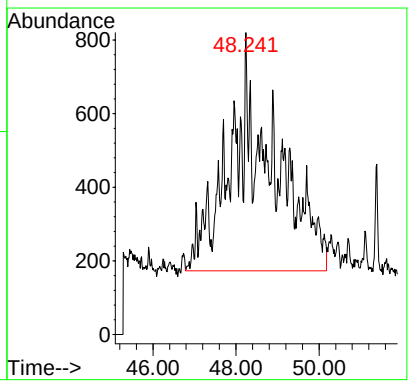
Tgt Ion:276 Resp: 60486

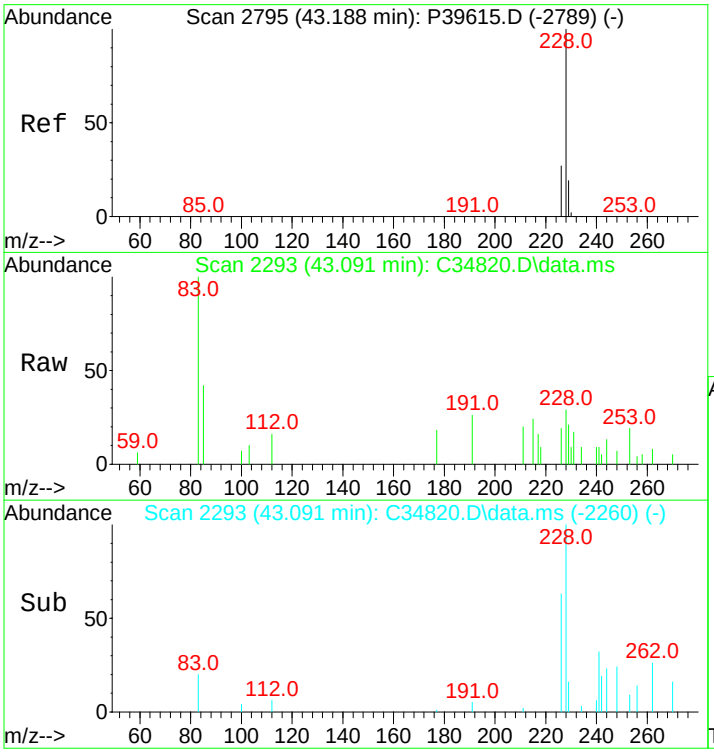




#73
C4-Naphthobenzothiophenes
Concen: 394.28 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:290 Resp: 44410

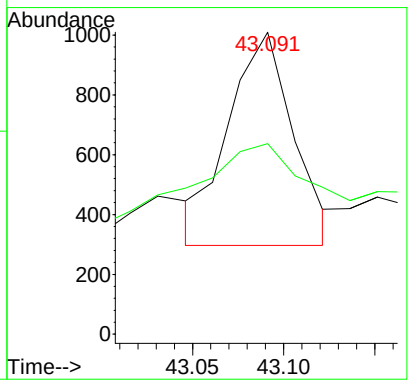


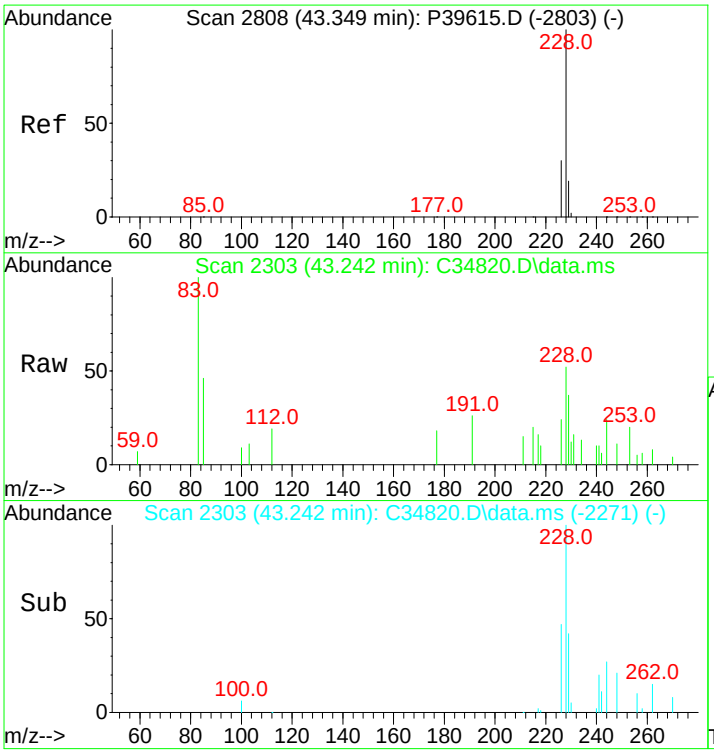


#75
Benz[a]anthracene
Concen: 16.88 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:228 Resp: 1757

Ion	Ratio	Lower	Upper
228	100		
226	101.7	21.4	32.0#

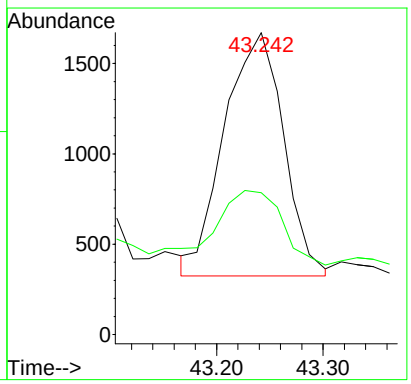


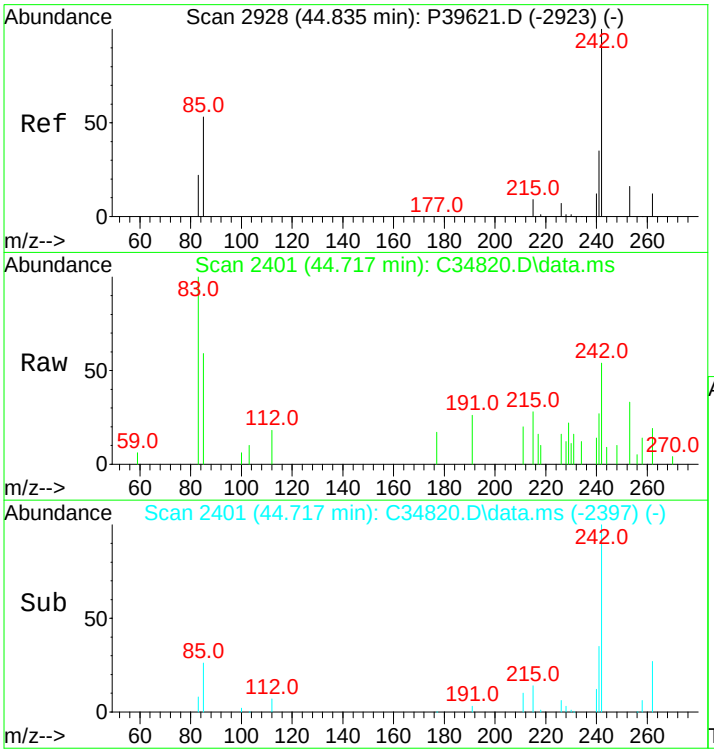


#77
Chrysene/Triphenylene
Concen: 49.18 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:228 Resp: 5169

Ion	Ratio	Lower	Upper
228	100		
226	34.6	23.7	35.5

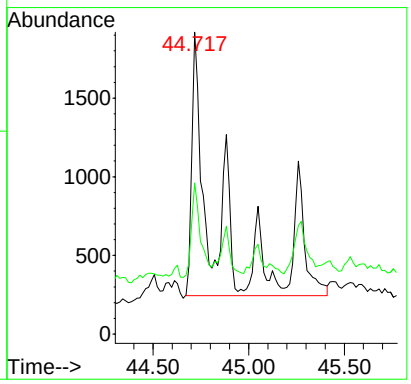


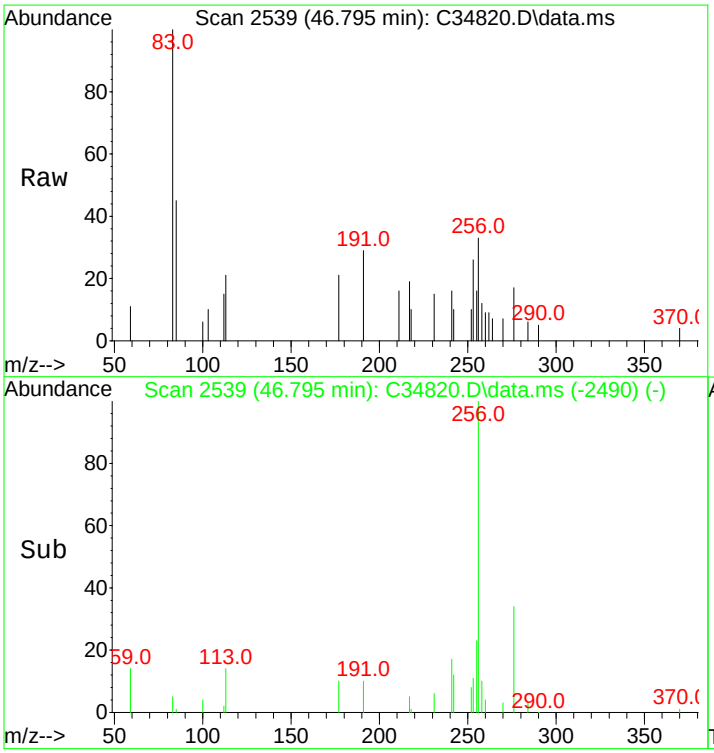


#78
C1-Chrysenes
Concen: 134.91 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:242 Resp: 14180

Ion	Ratio	Lower	Upper
242	100		
241	10.0	31.4	47.2#

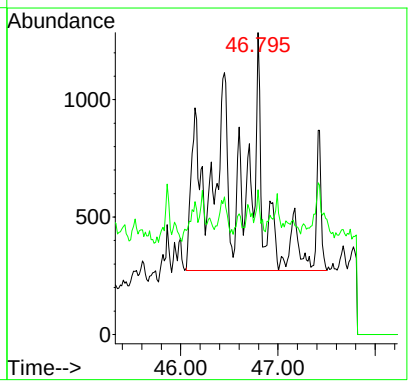


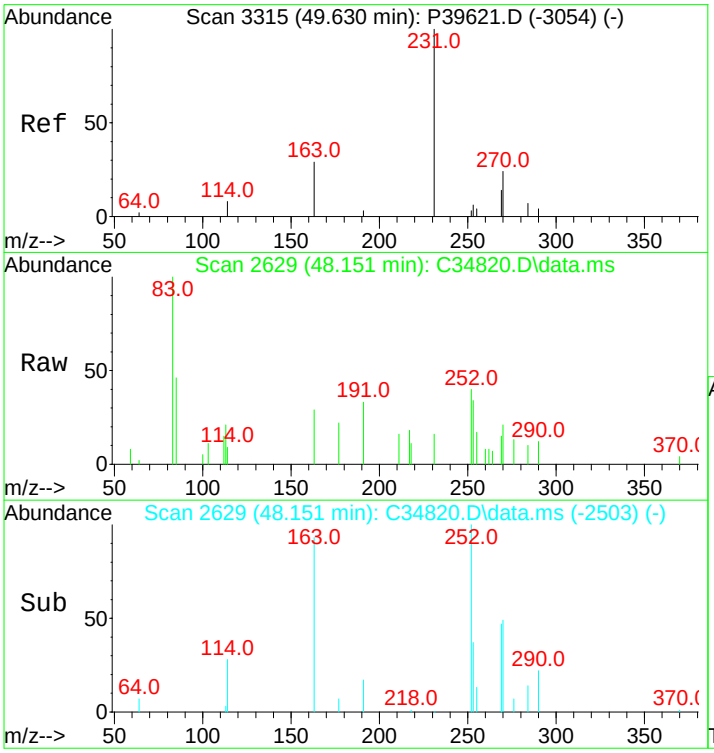


#79
C2-Chrysenes
Concen: 228.26 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:256 Resp: 23993

Ion	Ratio	Lower	Upper
256	100		
241	2.0	21.2	31.8#

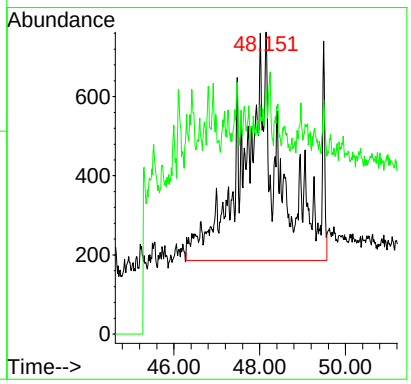


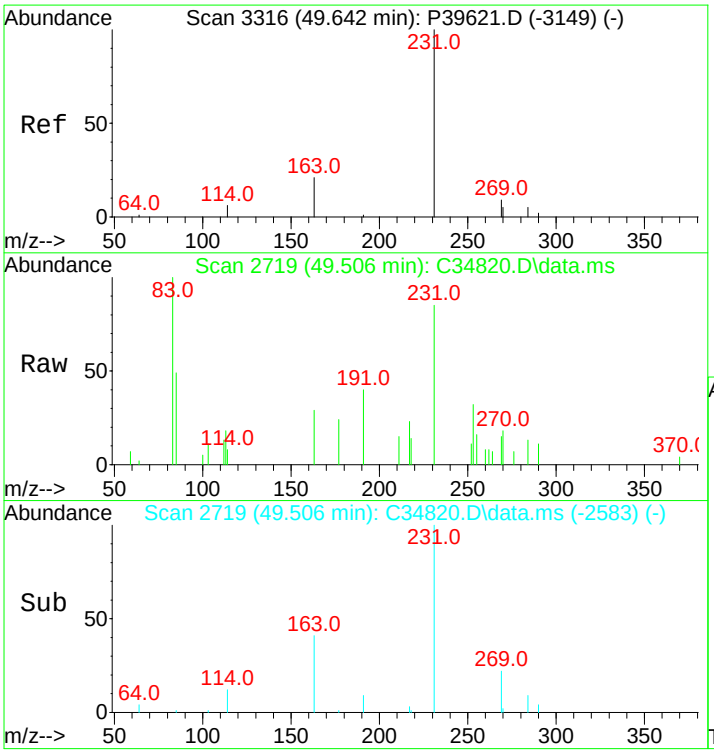


#80
C3-Chrysenes
Concen: 327.62 ng/mL m
RT: 48.151 min Scan# 2629
Delta R.T. -1.345 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:270 Resp: 34436

Ion	Ratio	Lower	Upper
270	100		
255	2.2	33.8	50.8#

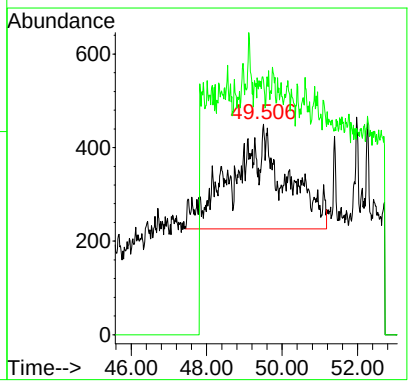


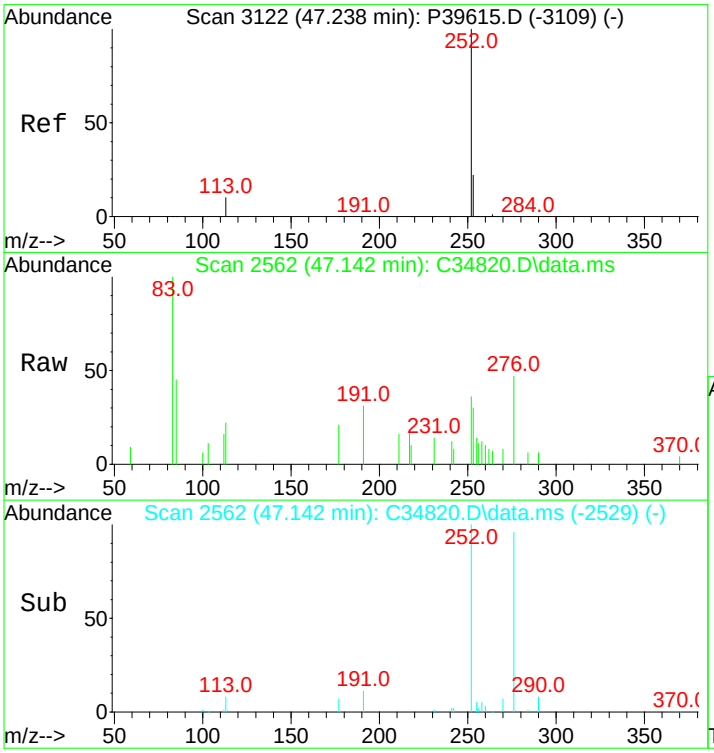


#81
C4-Chrysenes
Concen: 206.58 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:284 Resp: 21714

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

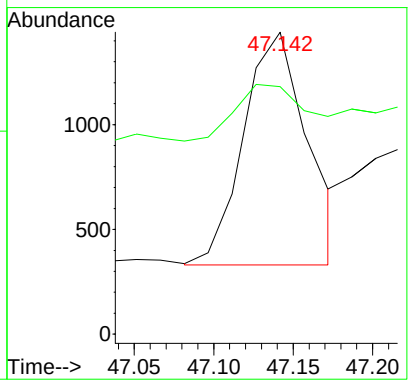


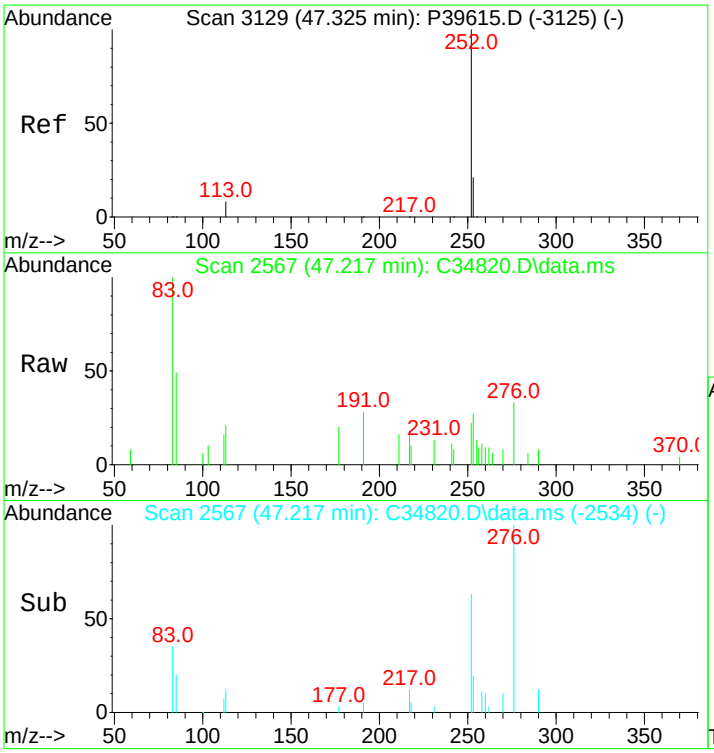


#82
Benzo[b]fluoranthene
Concen: 27.16 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 3107

Ion	Ratio	Lower	Upper
252	100		
253	27.5	19.0	28.4

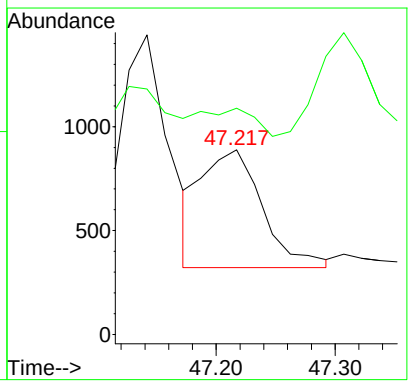


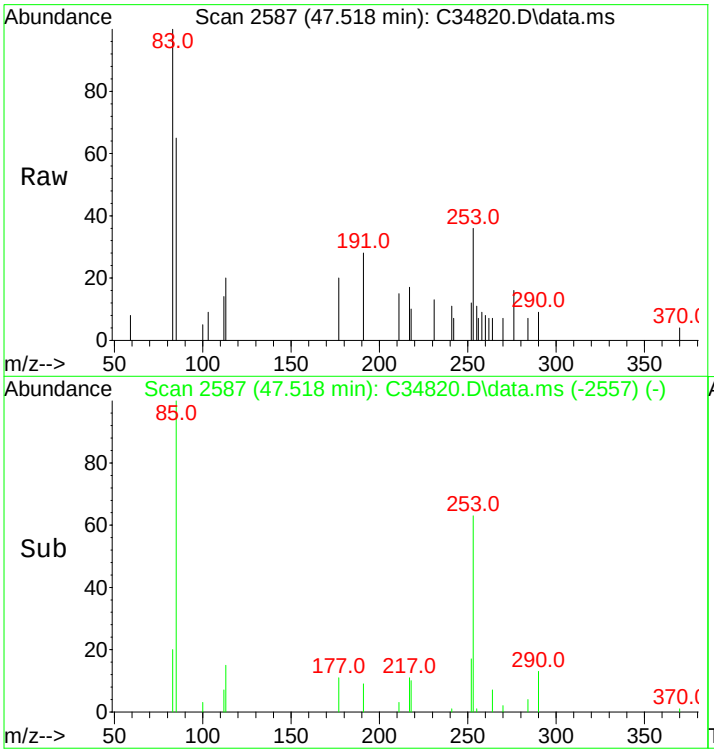


#83
Benzo[j]+[k]fluoranthene
Concen: 16.21 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 2019

Ion	Ratio	Lower	Upper
252	100		
253	42.2	19.0	28.4#

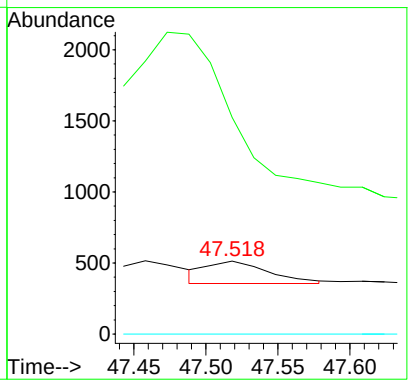


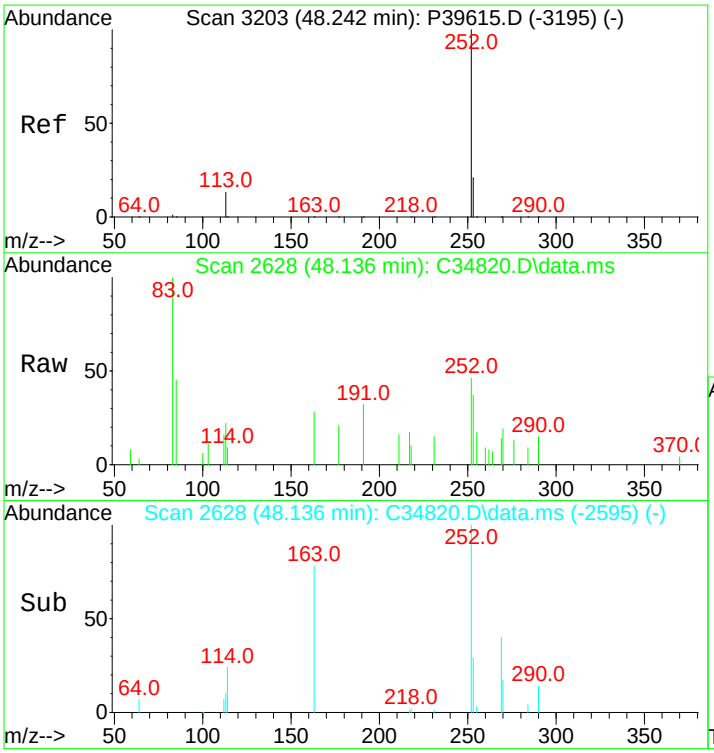


#84
Benzo[a]fluoranthene
Concen: 3.77 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 470

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

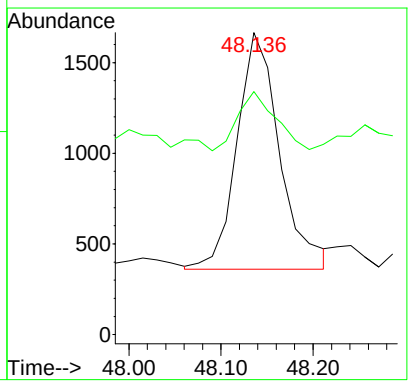


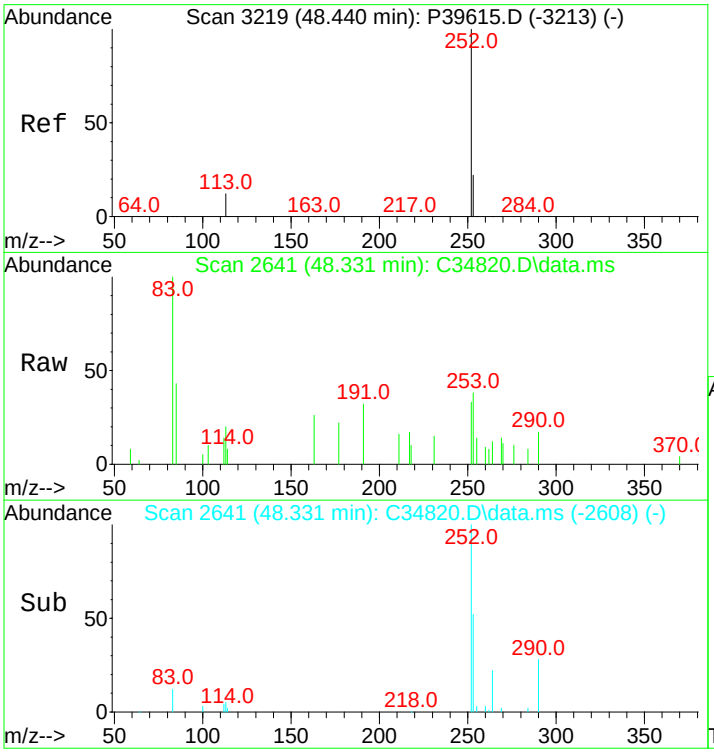


#85
Benzo[e]pyrene
Concen: 37.09 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 4197

Ion	Ratio	Lower	Upper
252	100		
253	23.3	19.2	28.8

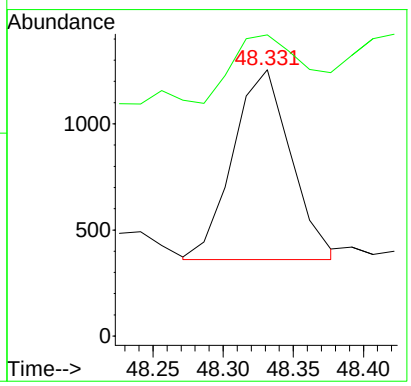


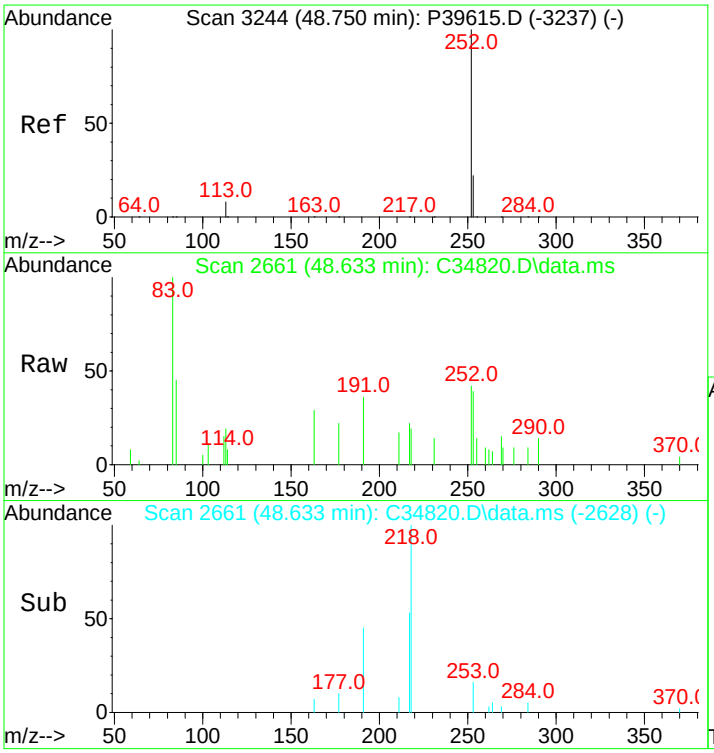


#87
Benzo[a]pyrene
Concen: 23.73 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 2585

Ion	Ratio	Lower	Upper
252	100		
253	36.4	19.5	29.3#

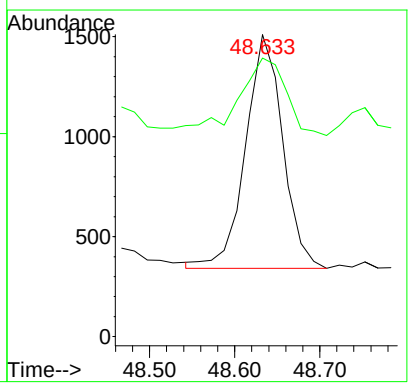


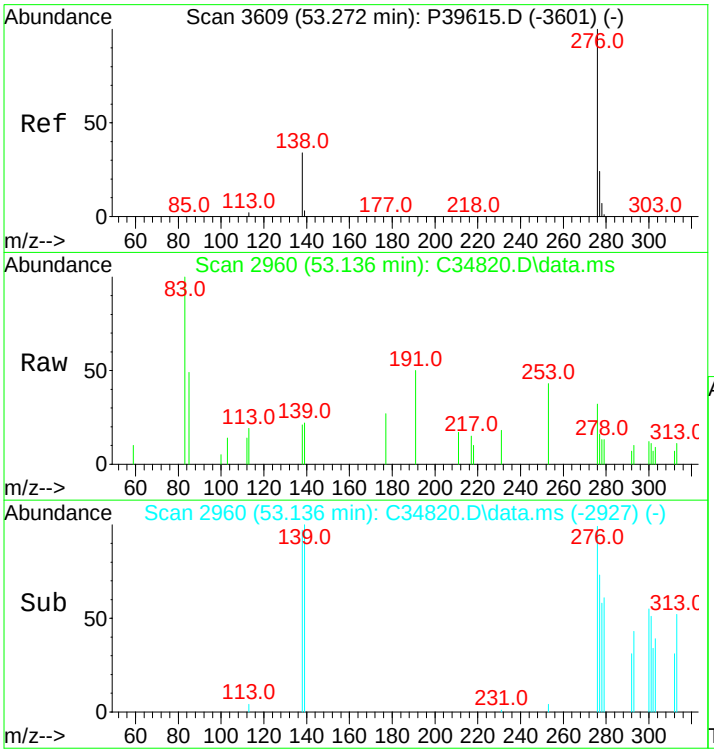


#88
Perylene
Concen: 30.44 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:252 Resp: 3544

Ion	Ratio	Lower	Upper
252	100		
253	43.2	19.6	29.4#

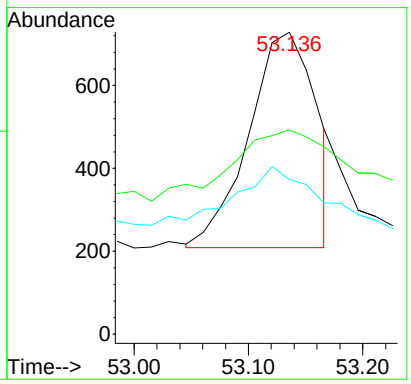


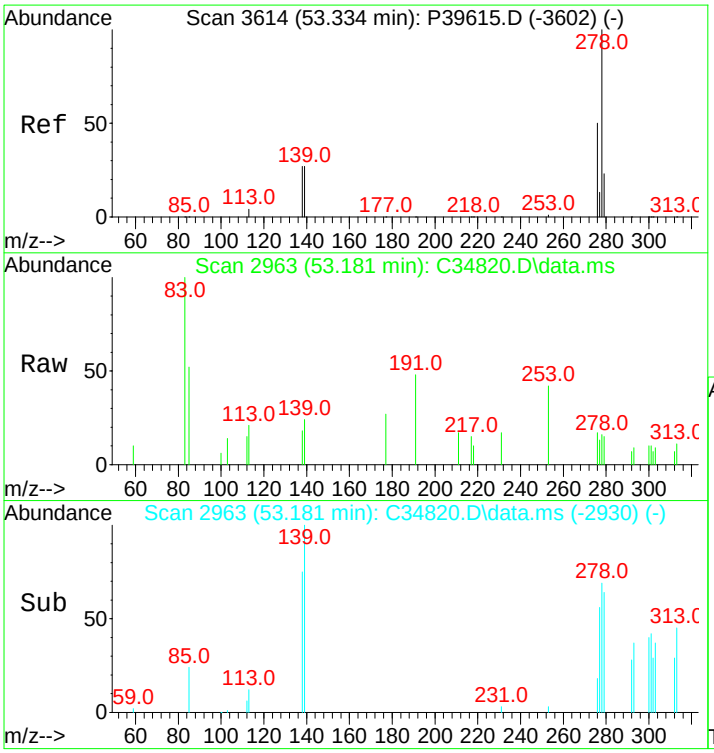


#89
Indeno[1,2,3-cd]pyrene
Concen: 16.84 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:276 Resp: 2135

Ion	Ratio	Lower	Upper
276	100		
138	27.0	23.3	34.9
277	31.1	19.0	28.4#

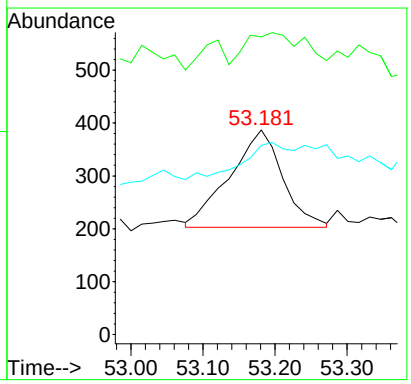


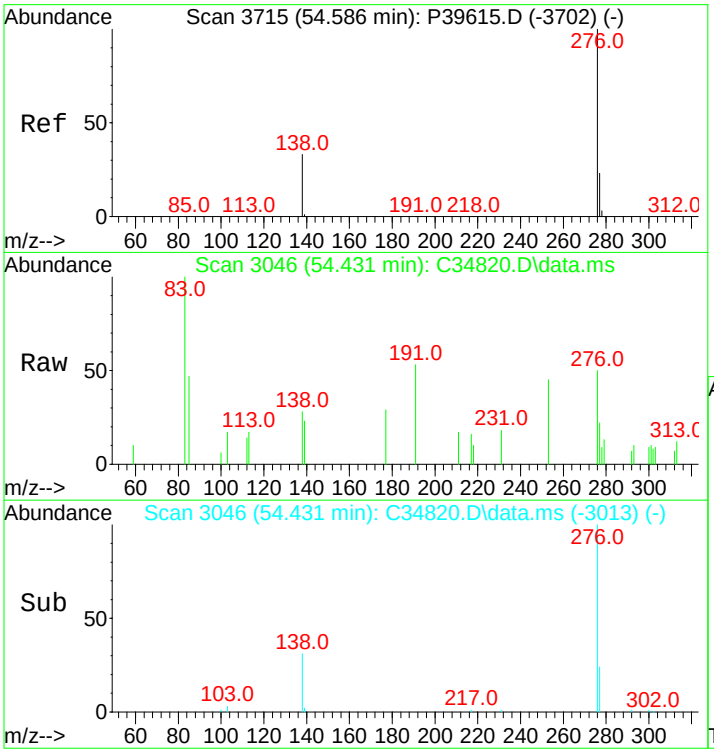


#90
Dibenz[ah]+[ac]anthracene
Concen: 7.79 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:278 Resp: 939

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

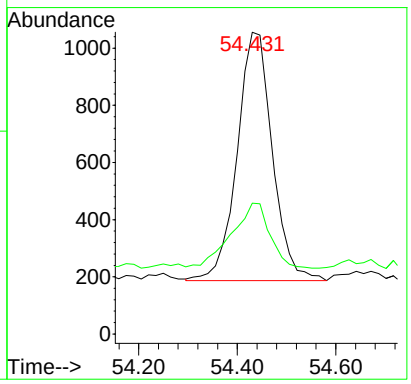


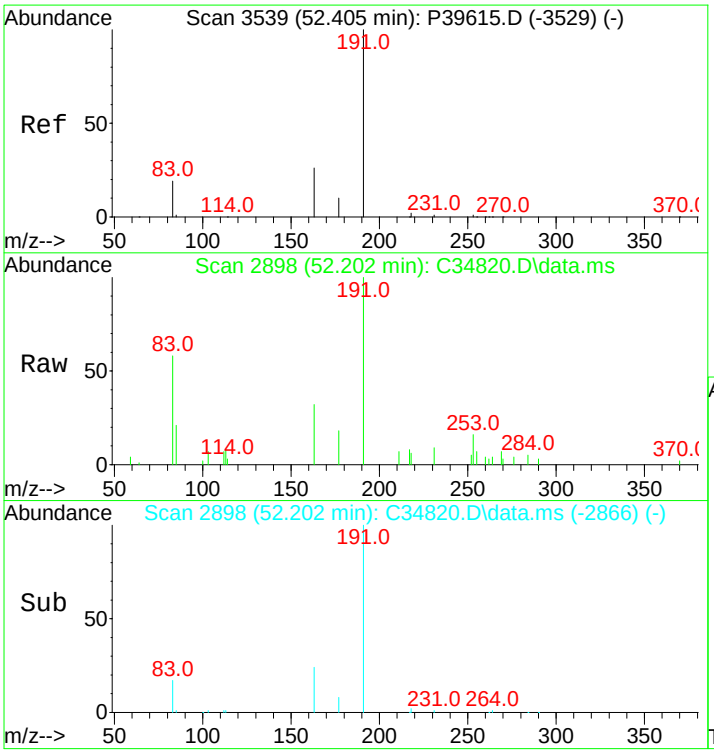


#91
Benzo[g,h,i]perylene
Concen: 32.15 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:276 Resp: 4307

Ion	Ratio	Lower	Upper
276	100		
277	28.8	18.9	28.3#

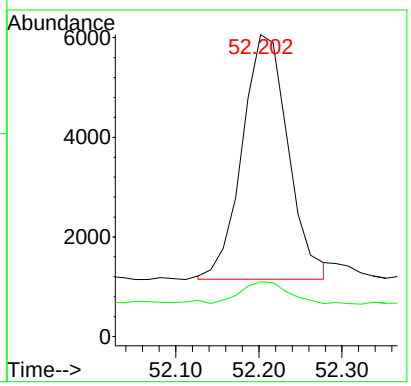


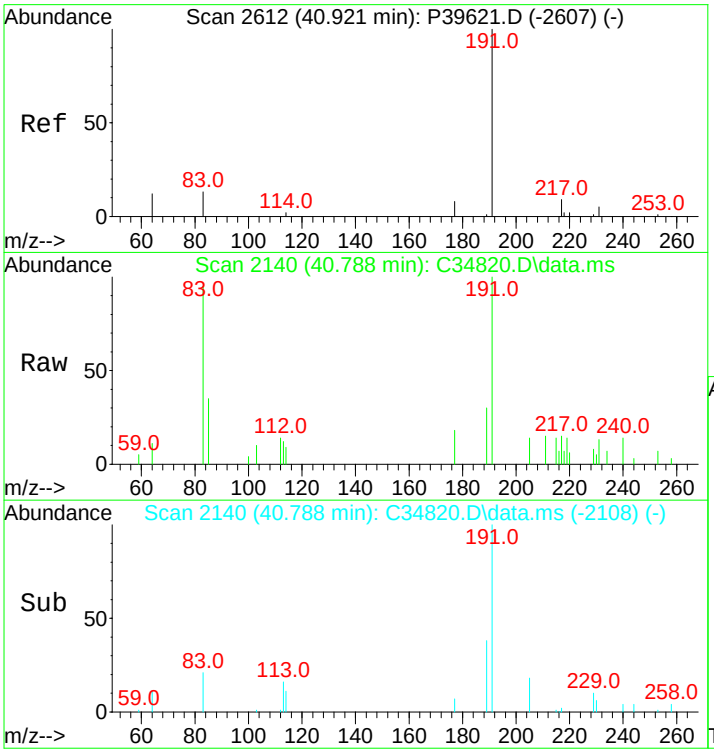


#92
Hopane (T19)
Concen: 873.73 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:191 Resp: 18889

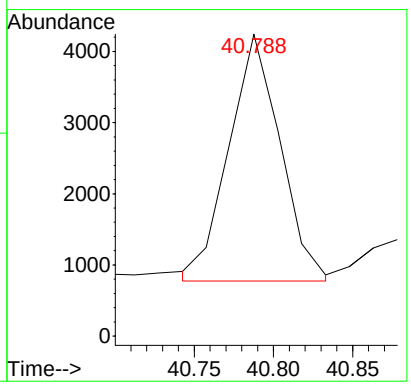
Ion	Ratio	Lower	Upper
191	100		
177	10.4	14.6	21.8#

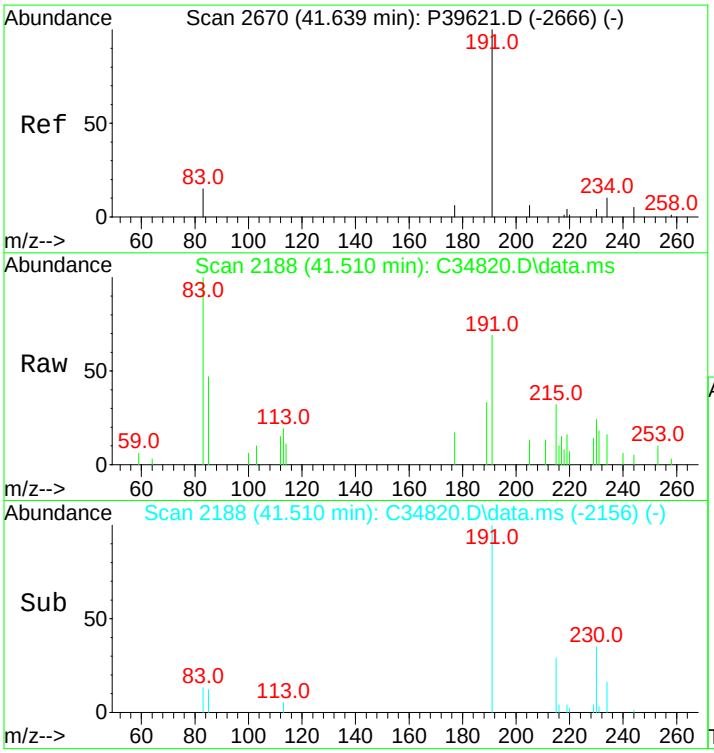




#94
C23 Tricyclic Terpane (T4)
Concen: 361.35 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

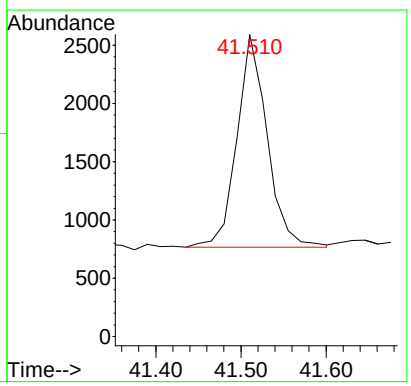
Tgt Ion:191 Resp: 7812

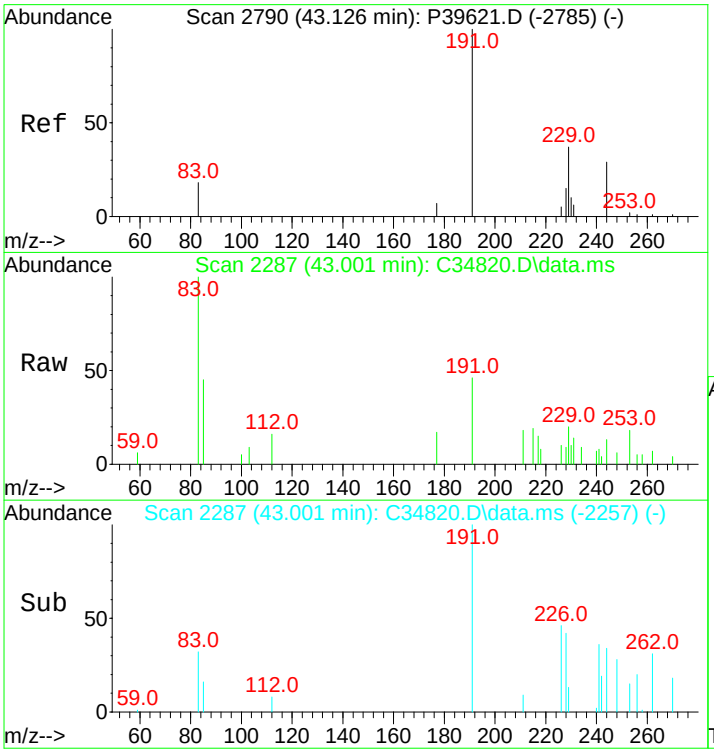




#95
C24 Tricyclic Terpane (T5)
Concen: 208.75 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

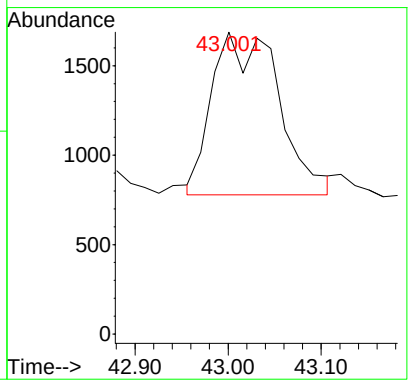
Tgt Ion:191 Resp: 4513

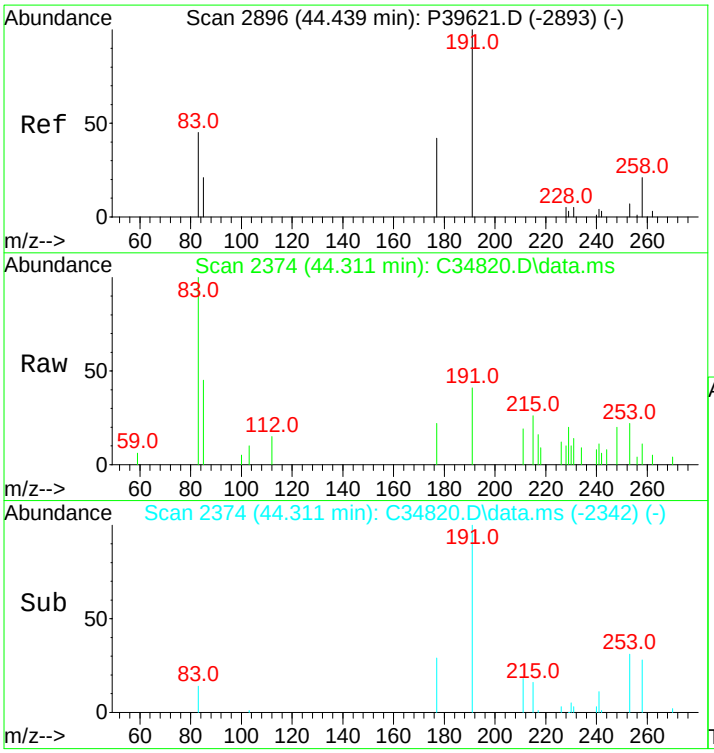




#96
C25 Tricyclic Terpane (T6)
Concen: 208.43 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

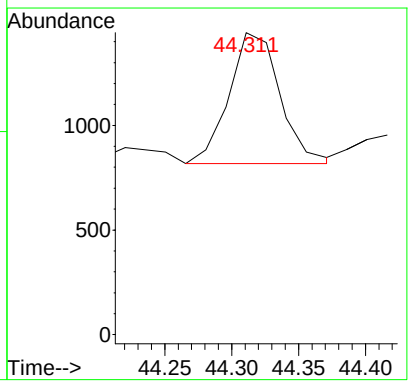
Tgt Ion:191 Resp: 4506

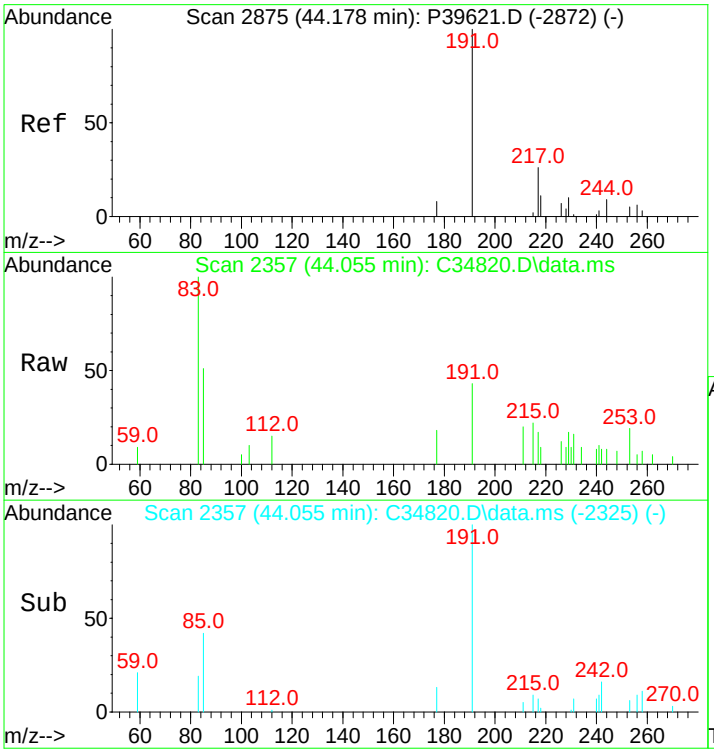




#97
C24 Tetracyclic Terpane (T6a)
Concen: 76.88 ng/ml
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

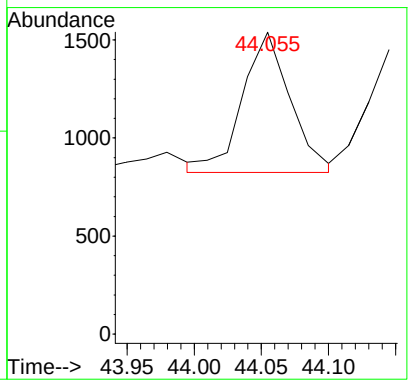
Tgt Ion:191 Resp: 1662

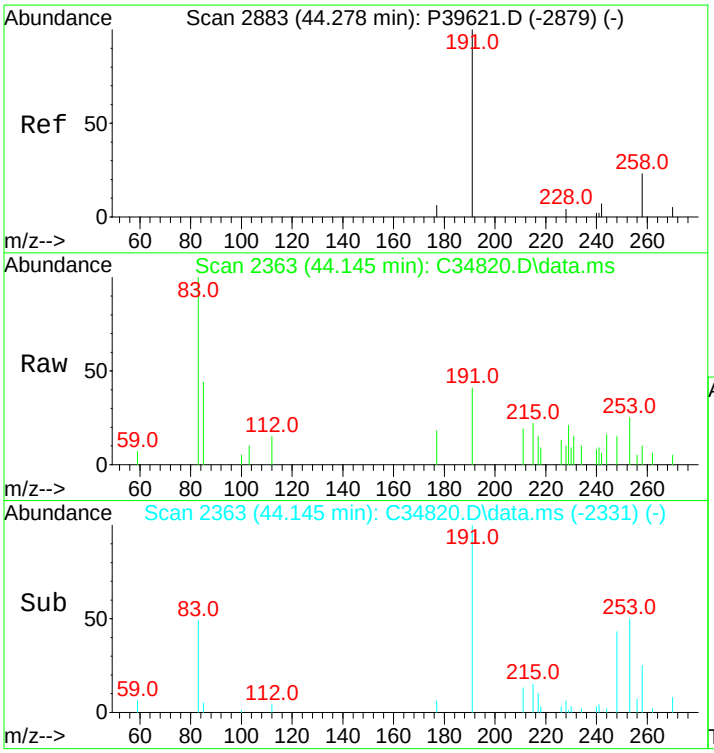




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 81.64 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

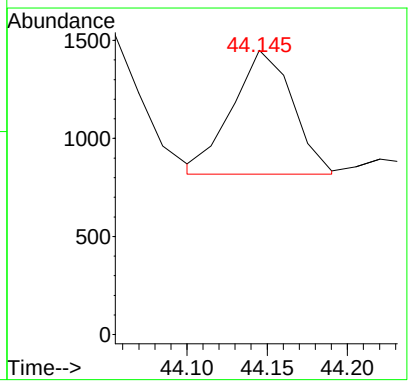
Tgt Ion:191 Resp: 1765

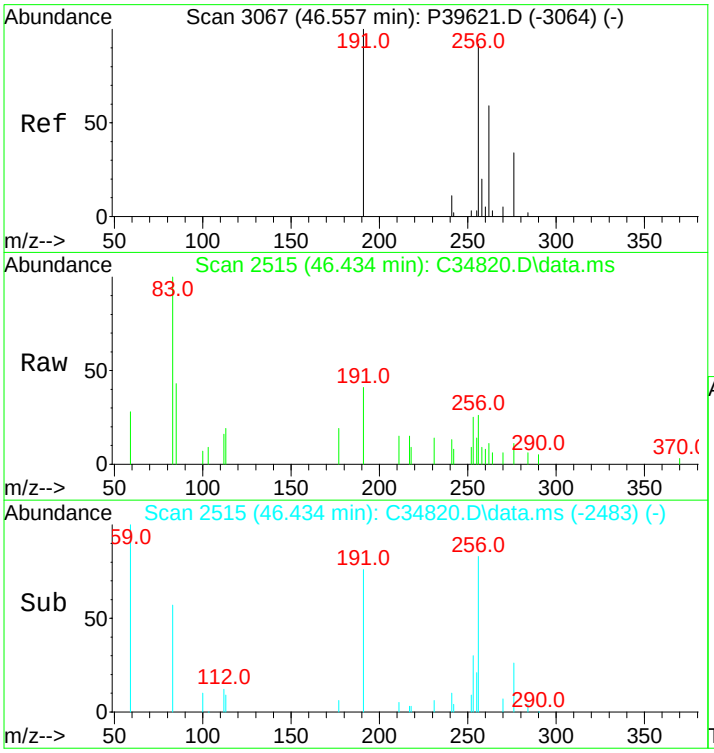




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 75.95 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

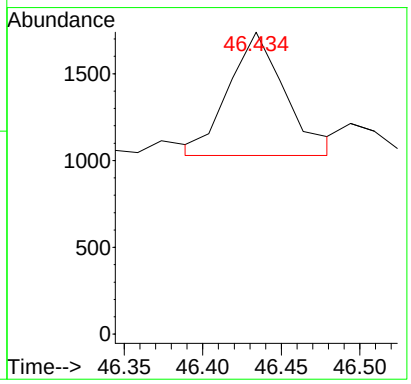
Tgt Ion:191 Resp: 1642

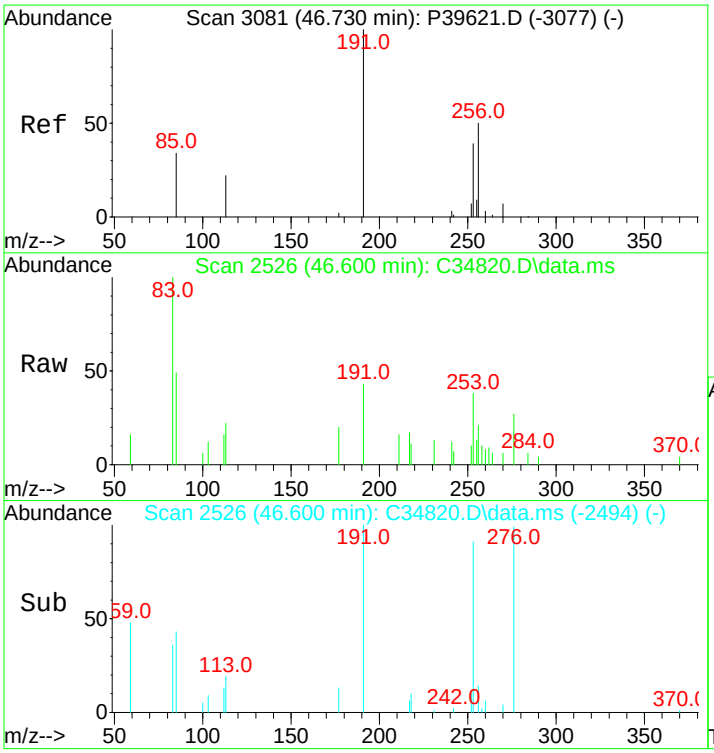




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 82.06 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

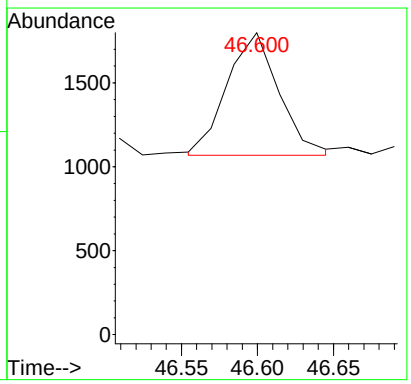
Tgt Ion:191 Resp: 1774

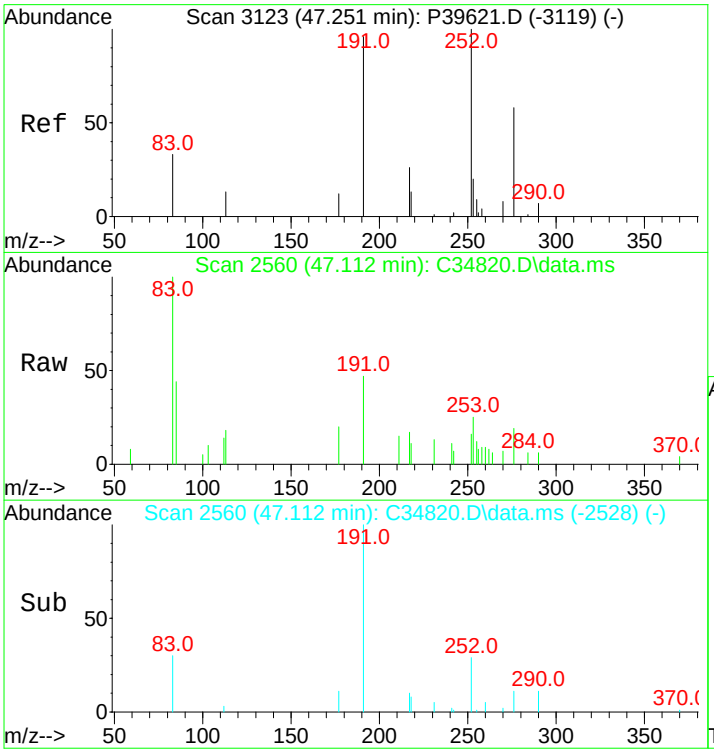




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 80.21 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

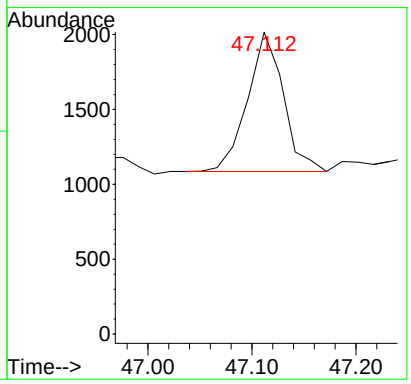
Tgt Ion:191 Resp: 1734

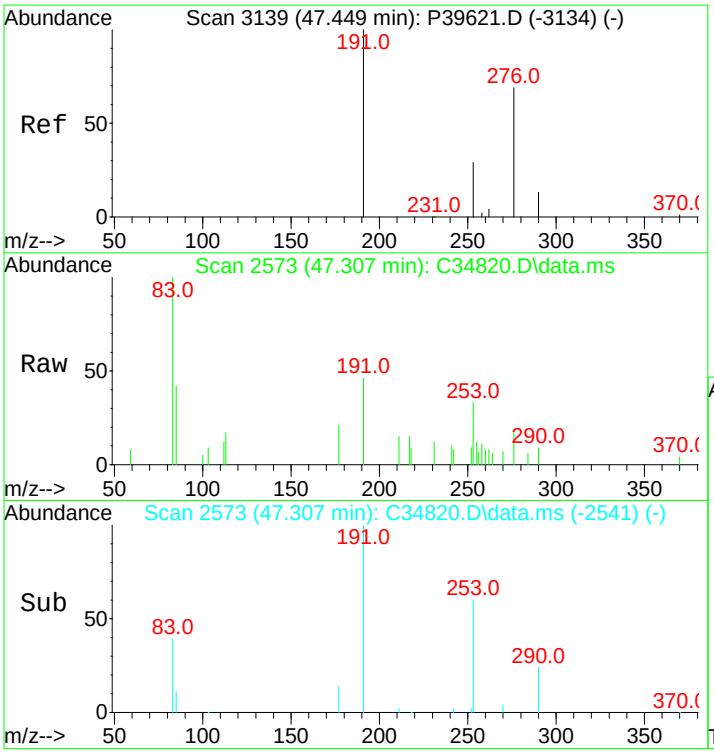




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 103.47 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

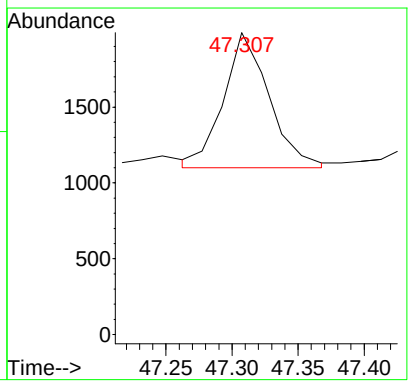
Tgt Ion:191 Resp: 2237

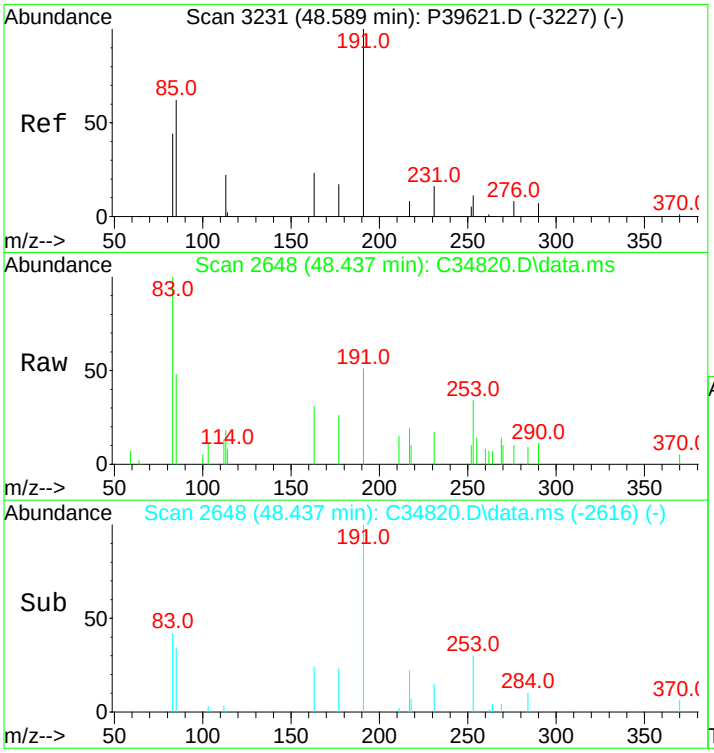




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 98.80 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

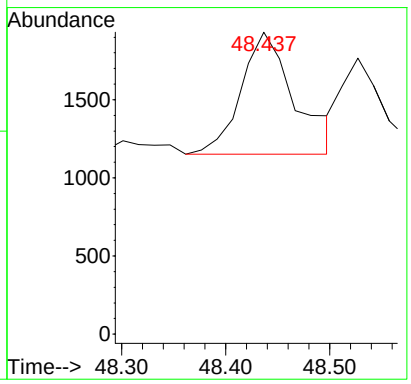
Tgt Ion:191 Resp: 2136

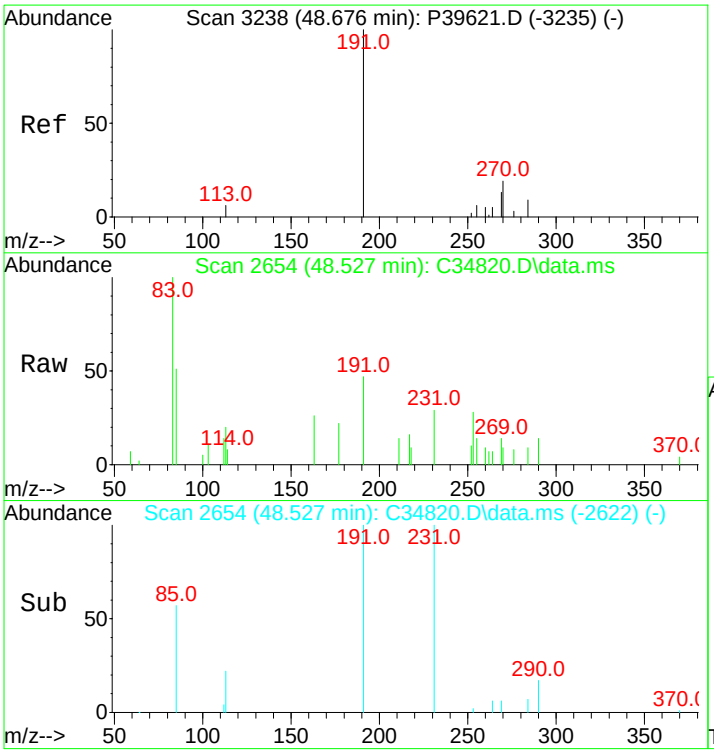




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 129.10 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

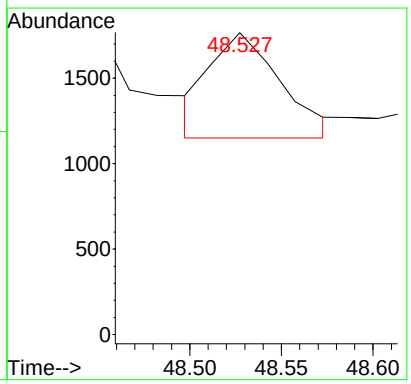
Tgt Ion:191 Resp: 2791

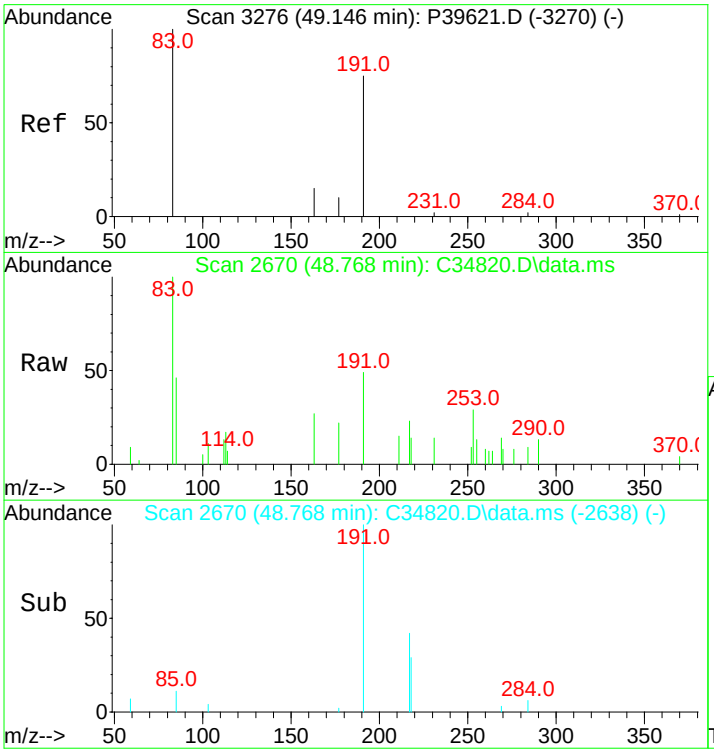




#105
C30 Tricyclic Terpane-22S
Concen: 76.23 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

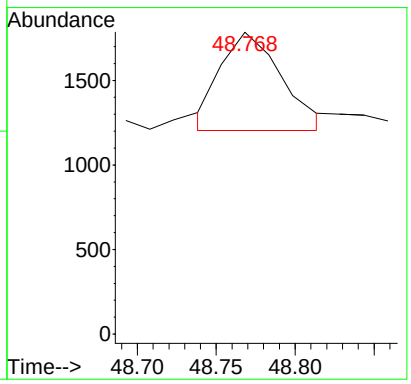
Tgt Ion:191 Resp: 1648

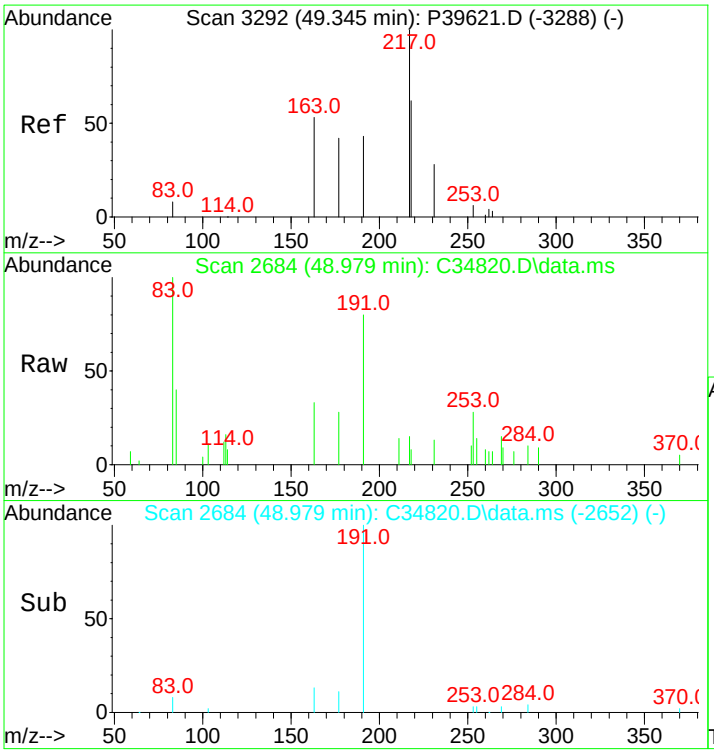




#106
C30 Tricyclic Terpane-22R
Concen: 72.11 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

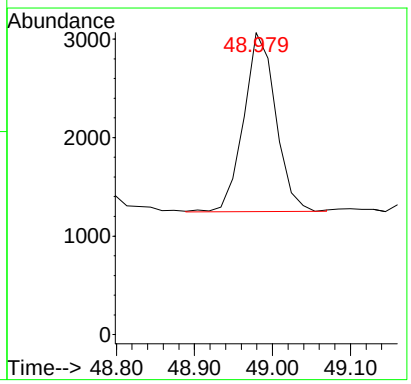
Tgt Ion:191 Resp: 1559

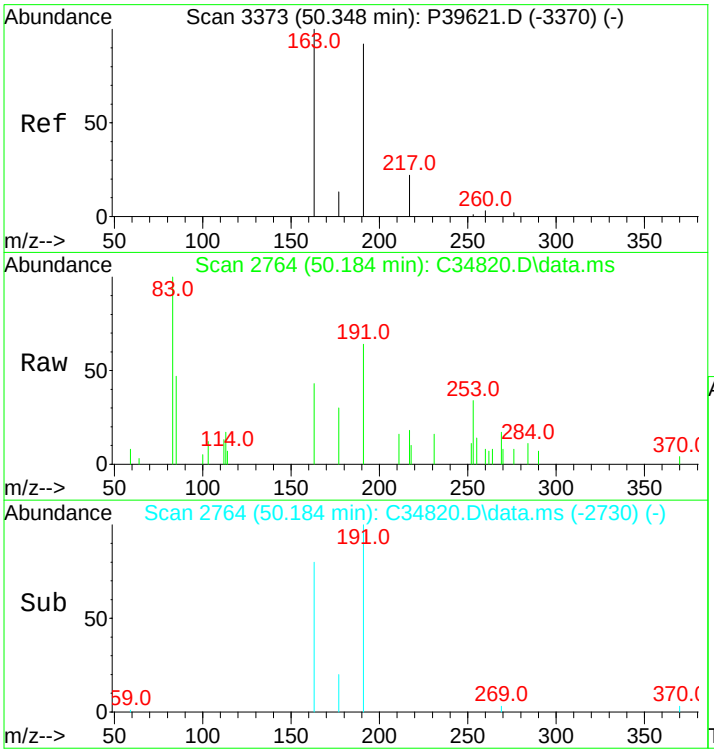




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 239.47 ng/ml
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

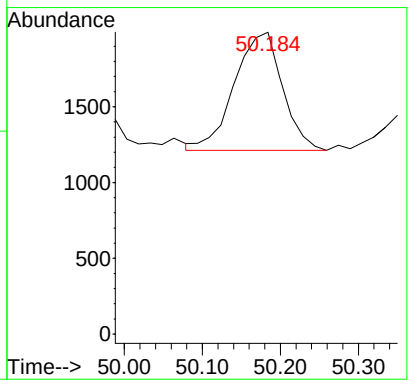
Tgt Ion:191 Resp: 5177

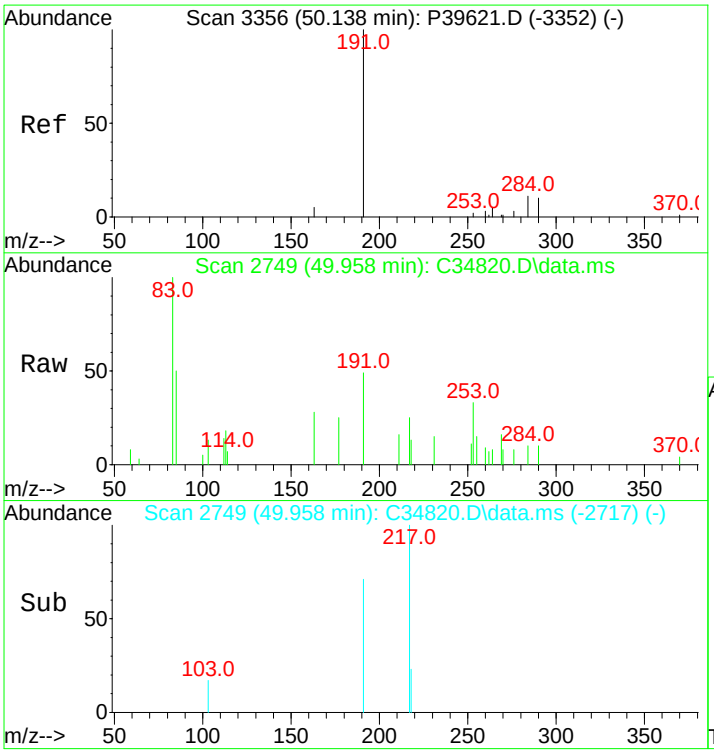




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 154.12 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

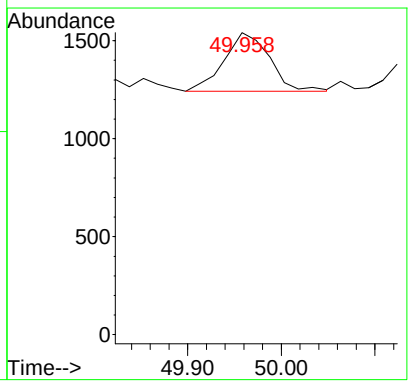
Tgt Ion:191 Resp: 3332

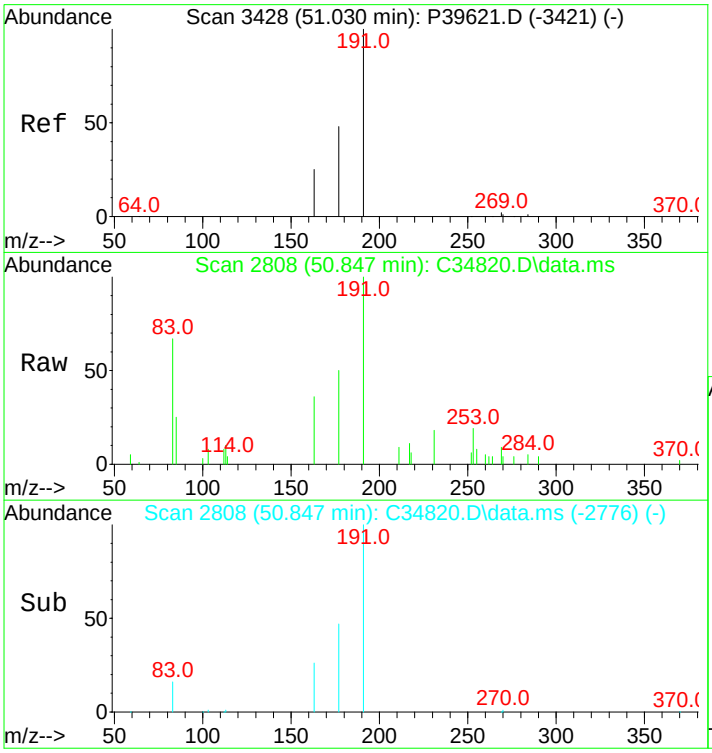




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 47.09 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

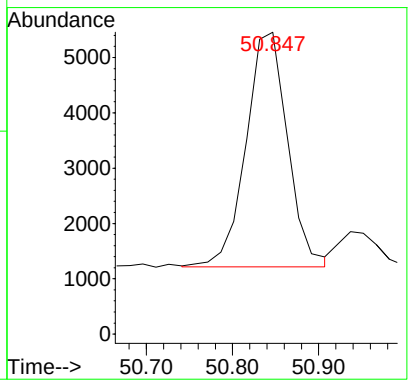
Tgt Ion:191 Resp: 1018

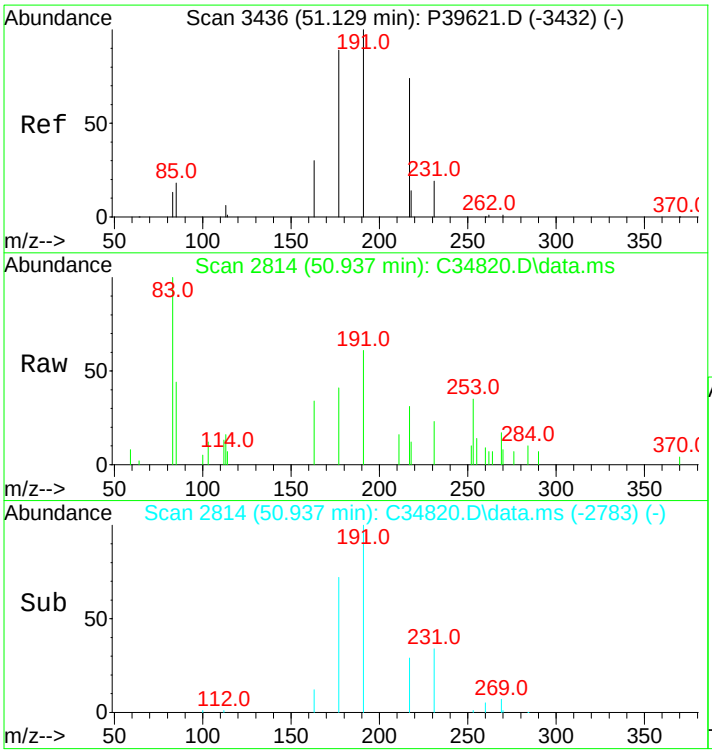




#110
30-Norhopane (T15)
Concen: 659.89 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

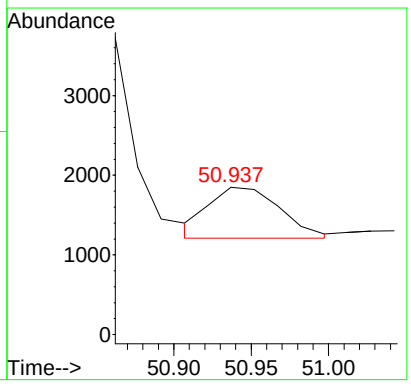
Tgt Ion:191 Resp: 14266

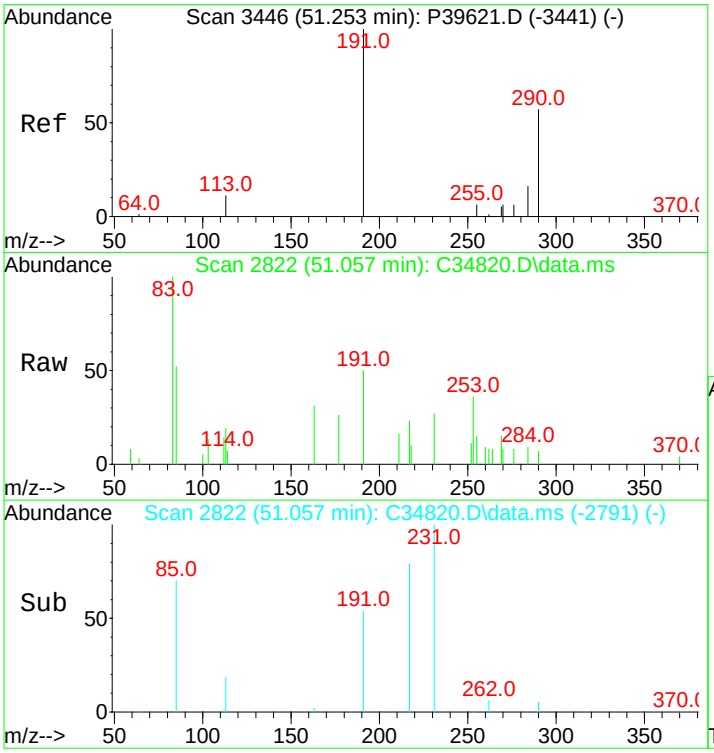




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 94.50 ng/ml m
RT: 50.937 min Scan# 2814
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

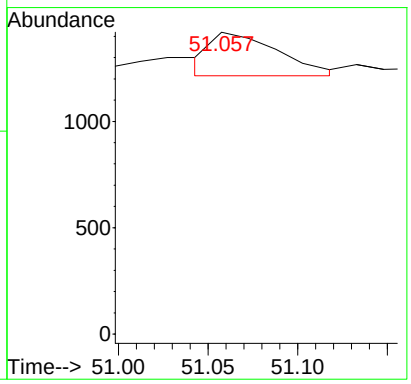
Tgt Ion:191 Resp: 2043

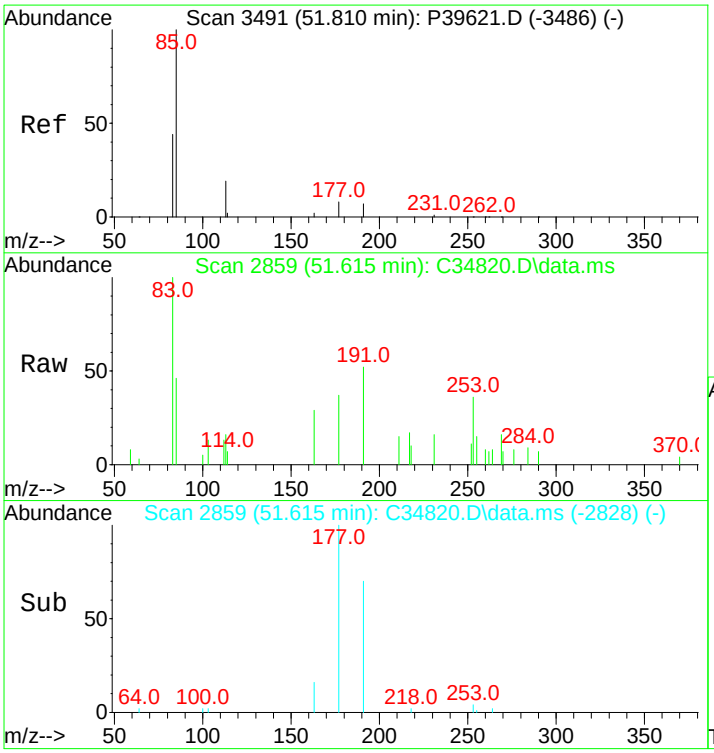




#112
17a(H)-Diahopane (X)
Concen: 24.75 ng/ml m
RT: 51.057 min Scan# 2822
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

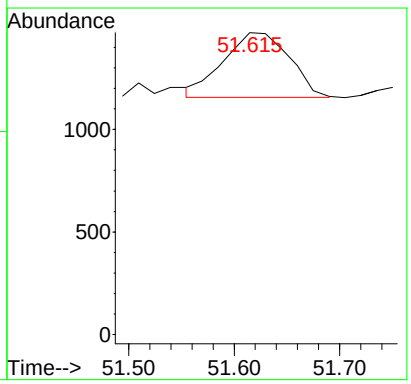
Tgt Ion:191 Resp: 535

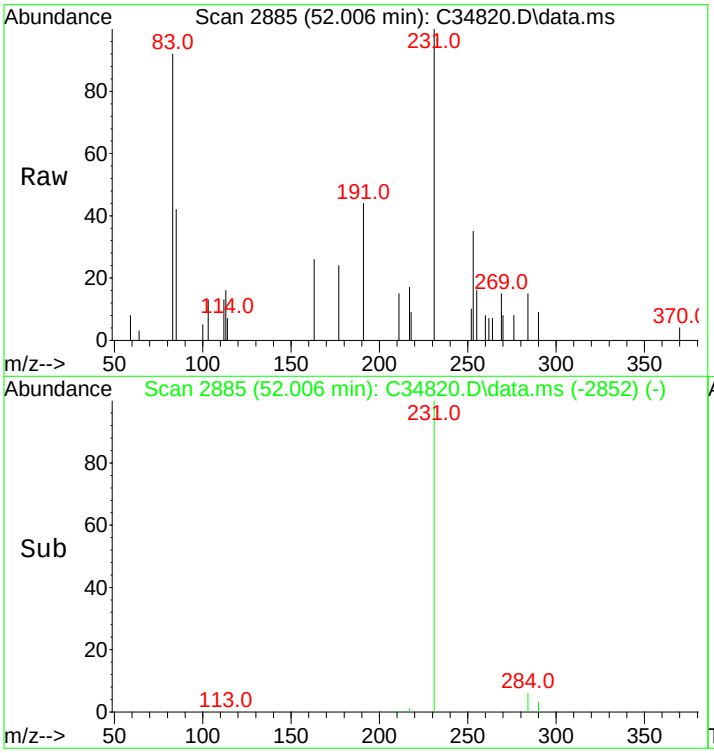




#113
30-Normoretane (T17)
Concen: 63.28 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

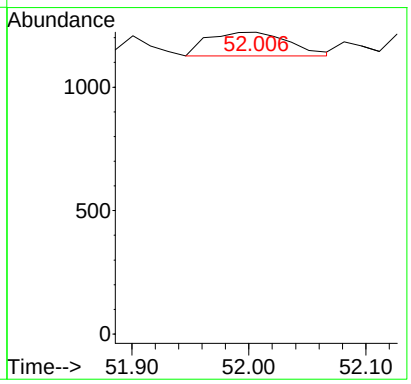
Tgt Ion:191 Resp: 1368

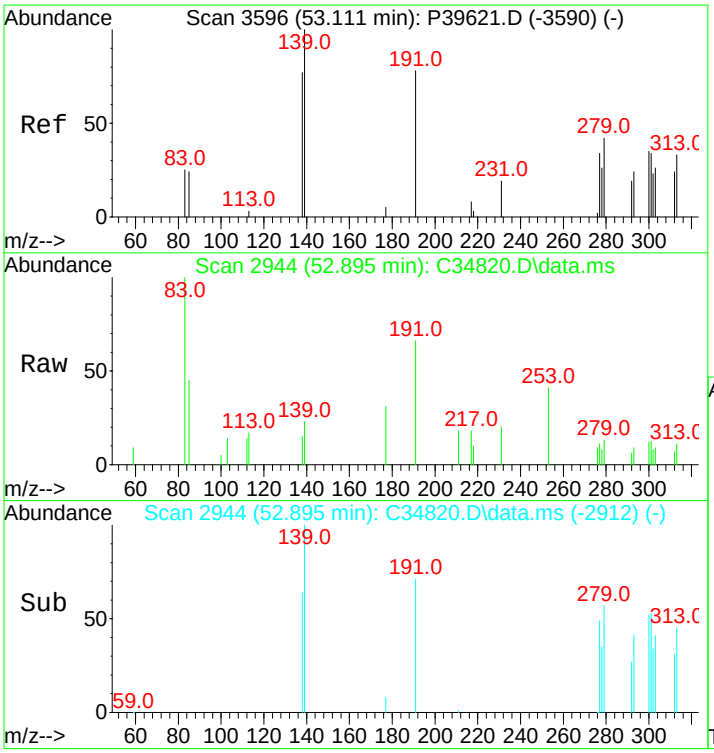




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 21.74 ng/ml
RT: 52.006 min Scan# 2885
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

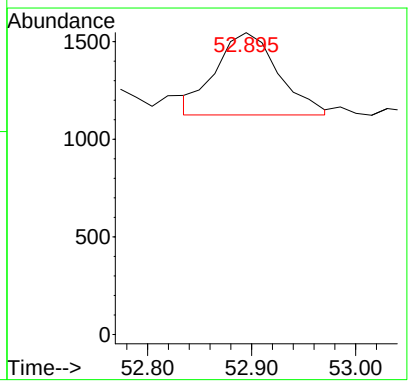
Tgt Ion:191 Resp: 470

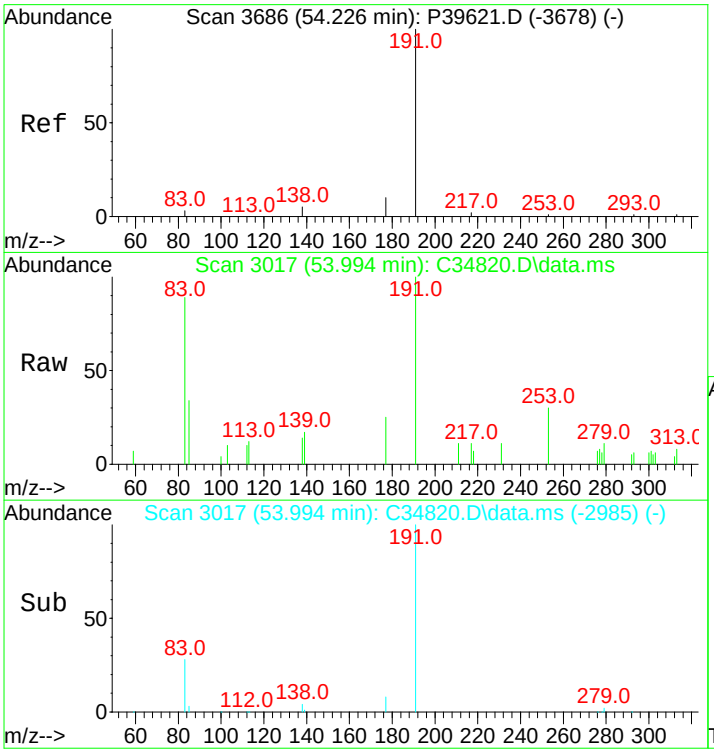




#115
Moretane (T20)
Concen: 80.86 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

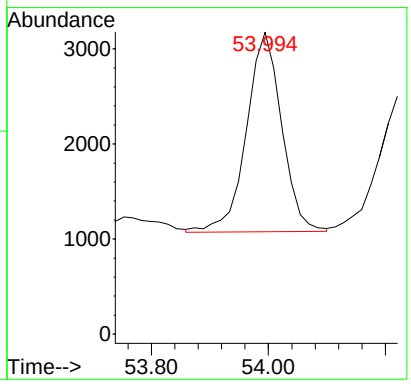
Tgt Ion:191 Resp: 1748

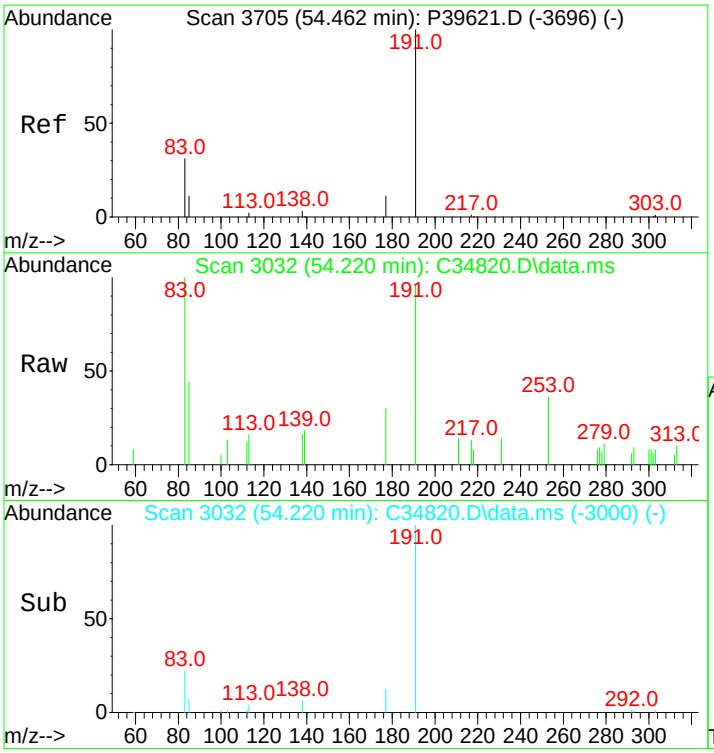




#116
30-Homohopane-22S (T21)
Concen: 403.86 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

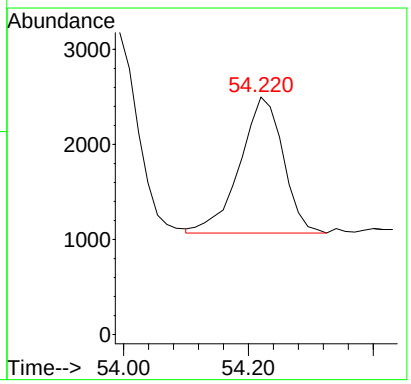
Tgt Ion:191 Resp: 8731

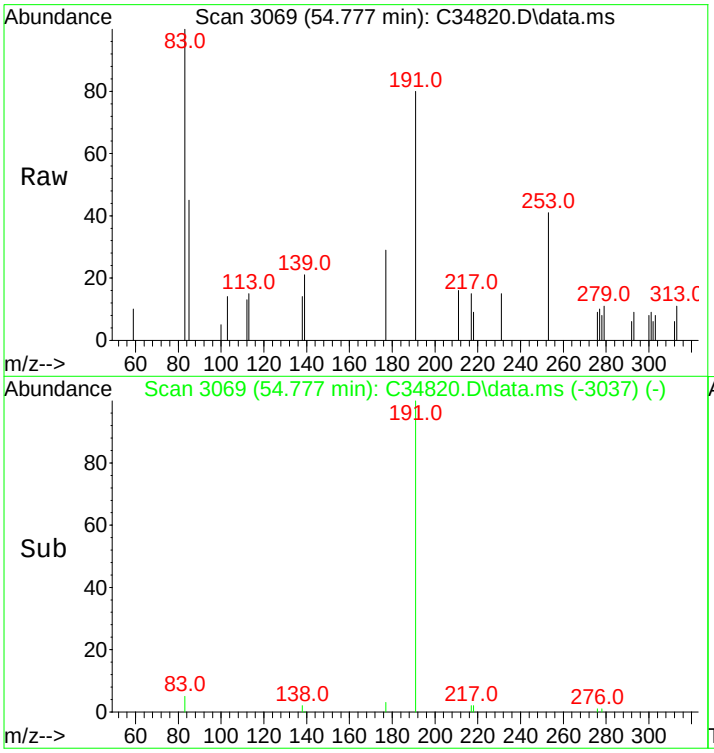




#117
30-Homohopane-22R (T22)
Concen: 318.06 ng/ml
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

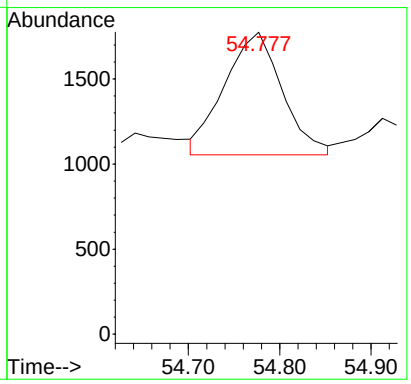
Tgt Ion:191 Resp: 6876

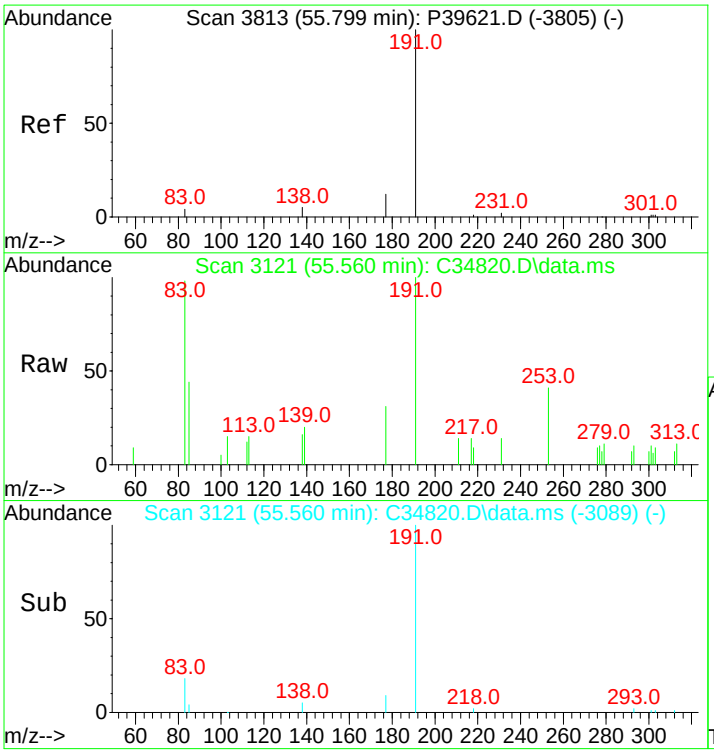




#118
Gammacerane/C32-diahopane
Concen: 146.26 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

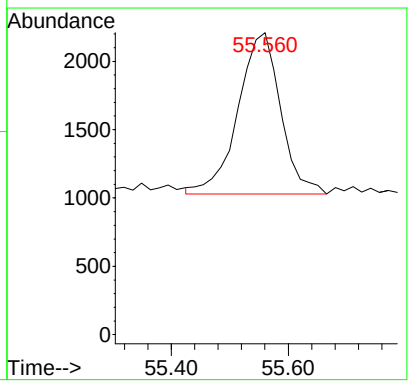
Tgt Ion:191 Resp: 3162

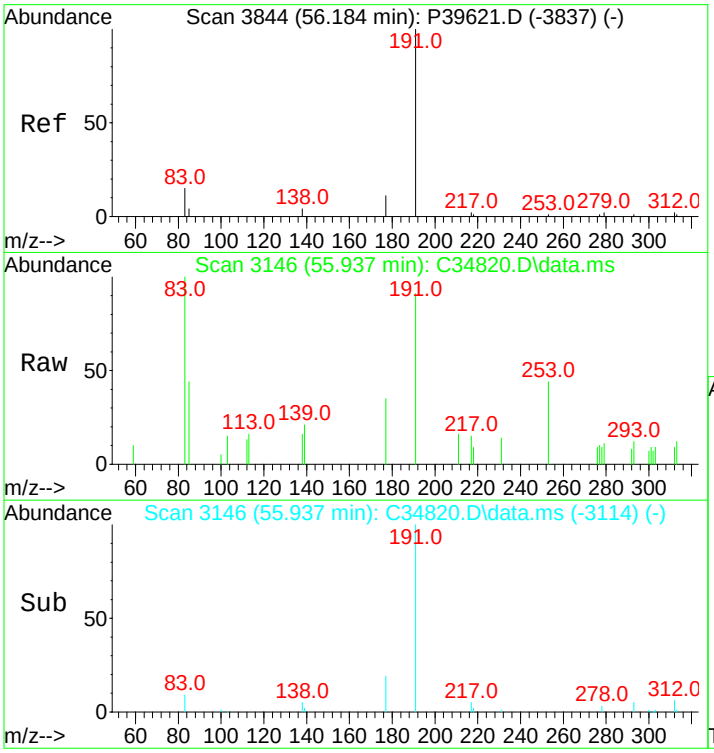




#119
30,31-Bishomohopane-22S (T26)
Concen: 274.39 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

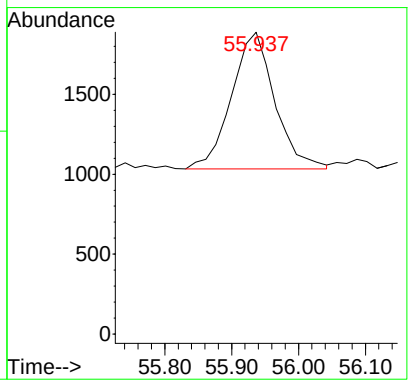
Tgt Ion:191 Resp: 5932

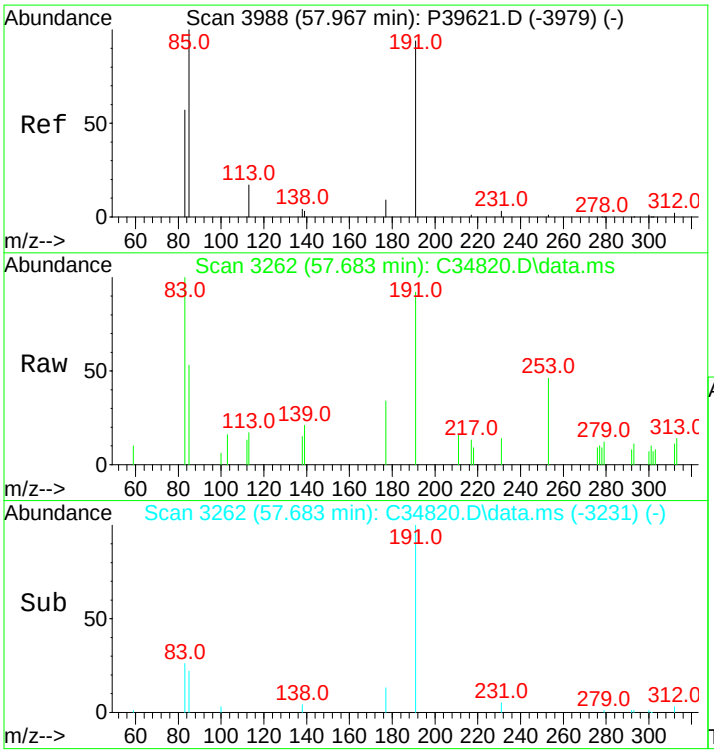




#120
30,31-Bishomohopane-22R (T27)
Concen: 178.36 ng/ml
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

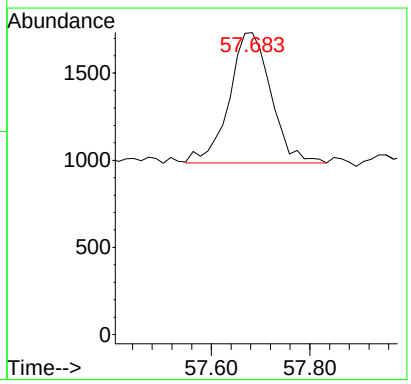
Tgt Ion:191 Resp: 3856

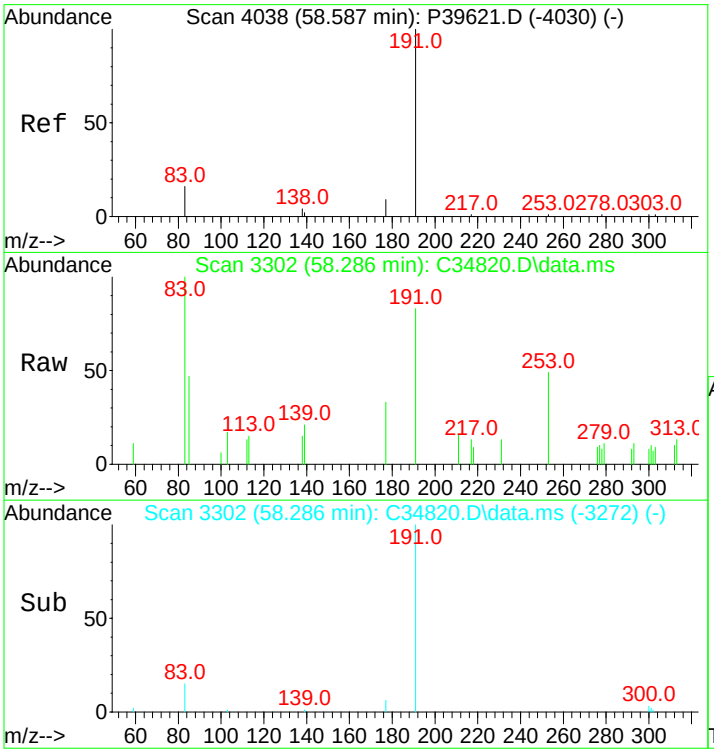




#121
30,31-Trishomohopane-22S (T30)
Concen: 202.42 ng/ml
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

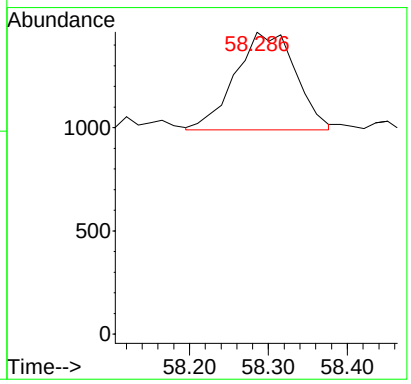
Tgt Ion:191 Resp: 4376

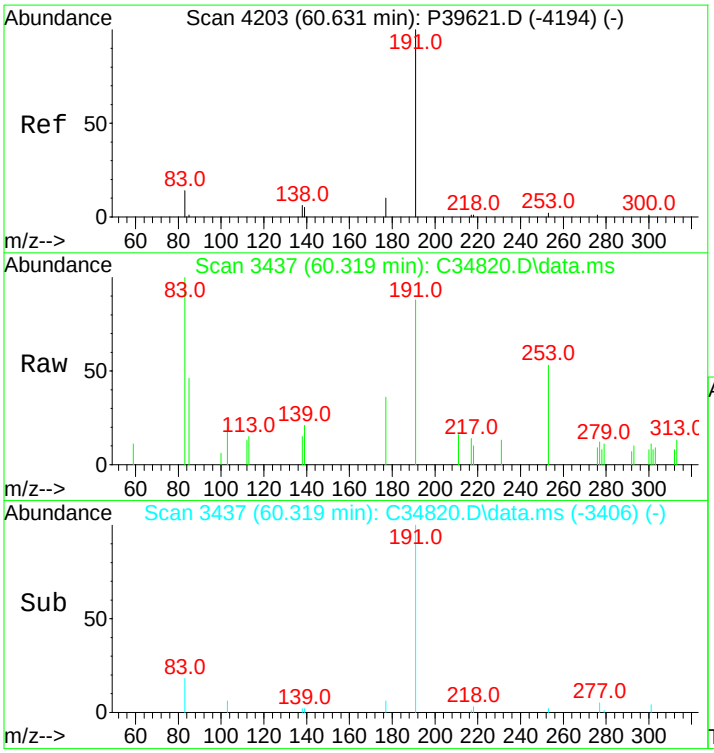




#122
30,31-Trishomohopane-22R (T31)
Concen: 116.70 ng/ml m
RT: 58.286 min Scan# 3302
Delta R.T. -0.045 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

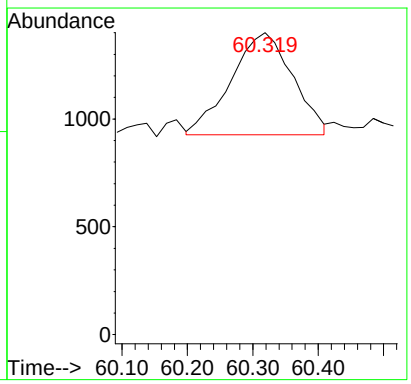
Tgt Ion:191 Resp: 2523

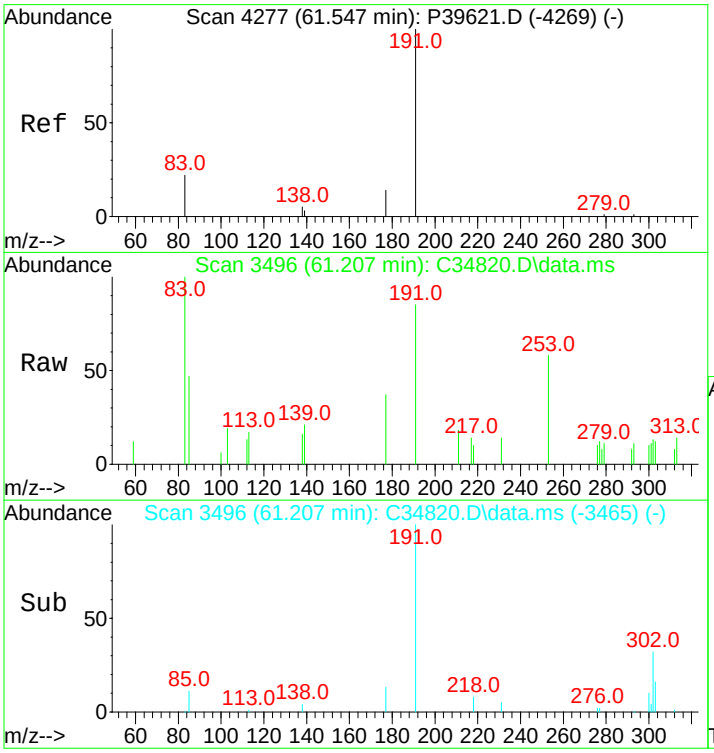




#123
Tetrakishomohopane-22S (T32)
Concen: 143.99 ng/ml m
RT: 60.319 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

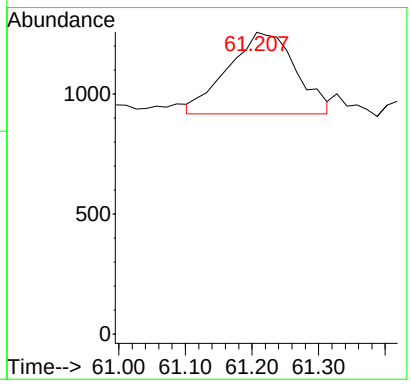
Tgt Ion:191 Resp: 3113

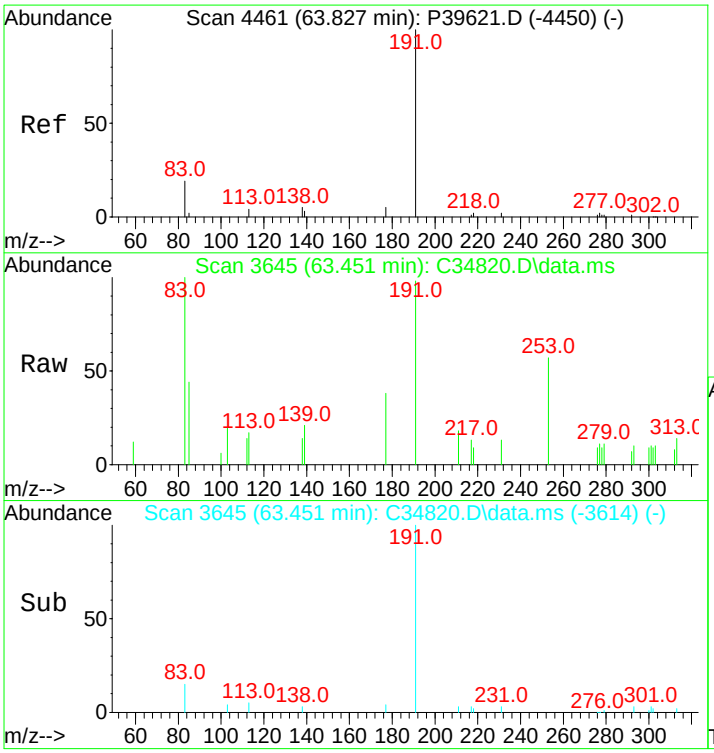




#124
Tetrakishomohopane-22R (T33)
Concen: 110.74 ng/ml m
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

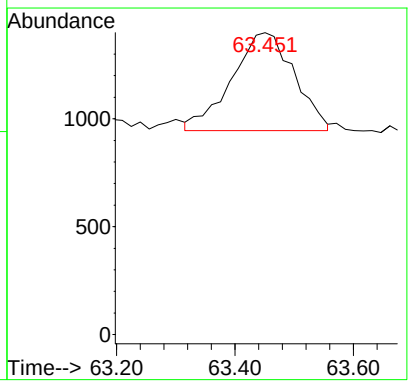
Tgt Ion:191 Resp: 2394

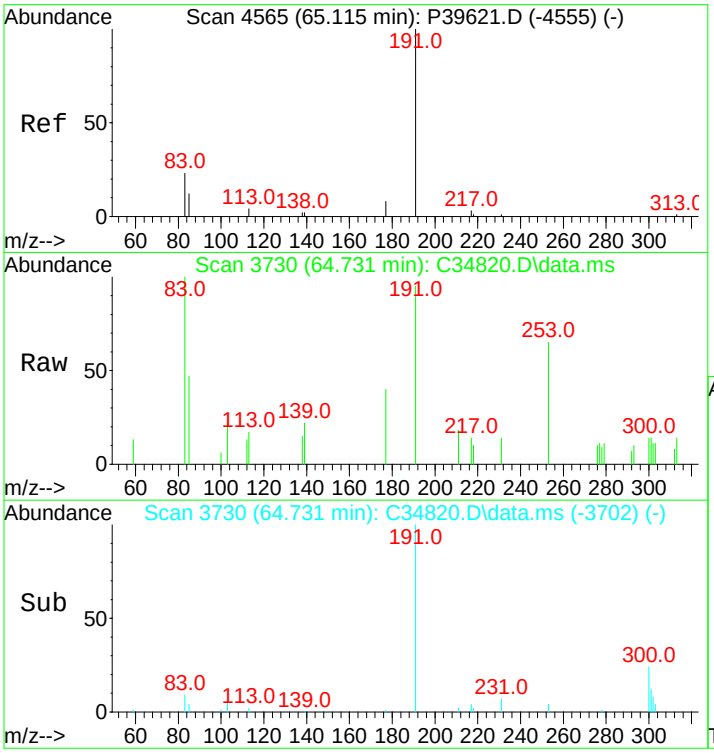




#125
Pentakishomohopane-22S (T34)
Concen: 152.92 ng/ml m
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

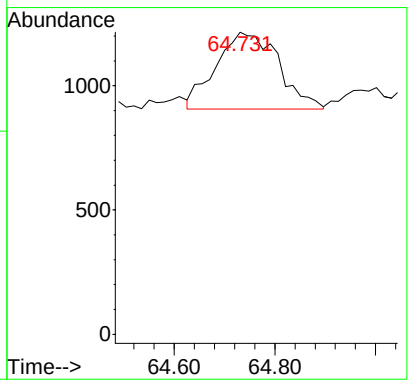
Tgt Ion:191 Resp: 3306

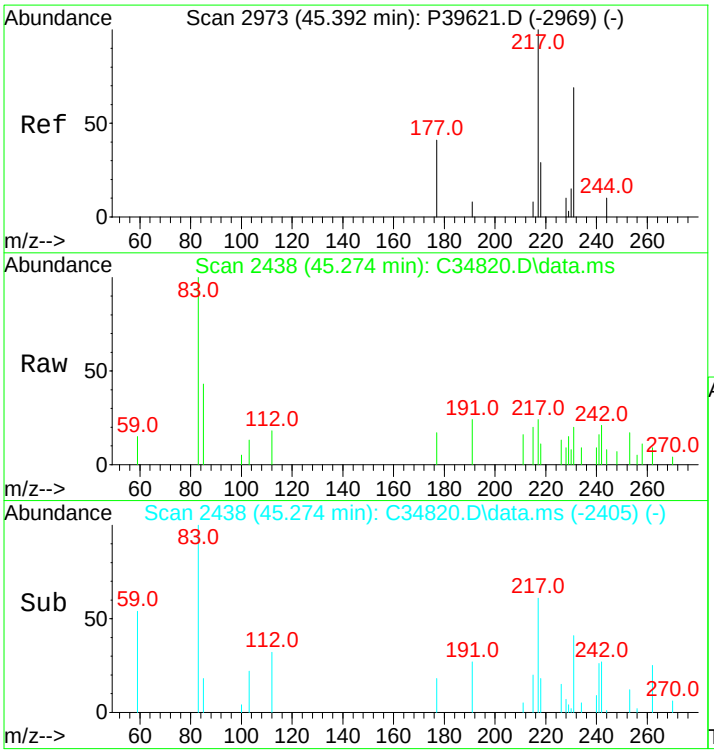




#126
Pentakishomohopane-22R (T35)
Concen: 123.73 ng/ml m
RT: 64.731 min Scan# 3730
Delta R.T. -0.075 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

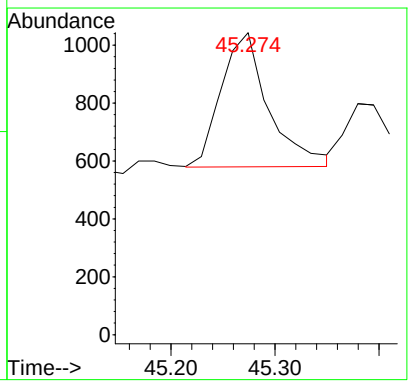
Tgt Ion:191 Resp: 2675

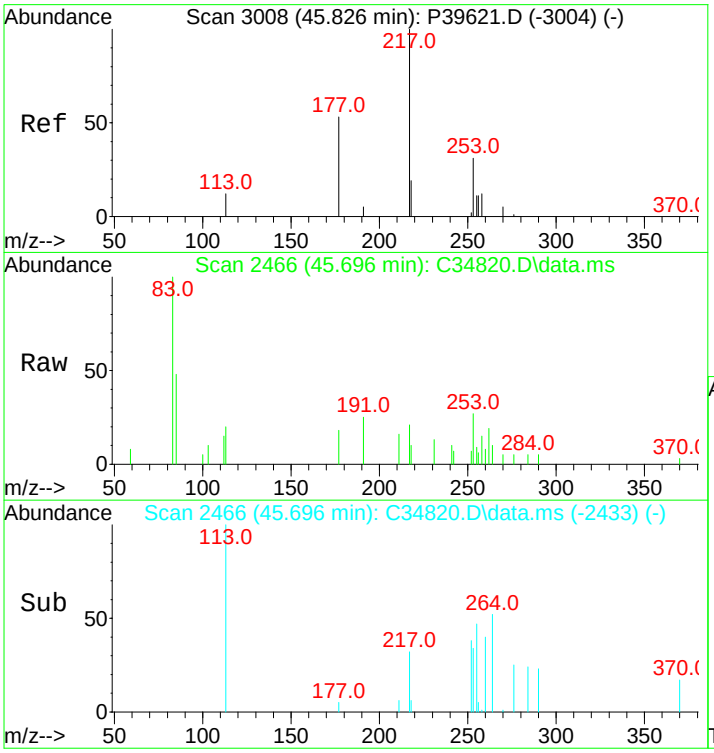




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 144.60 ng/ml
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

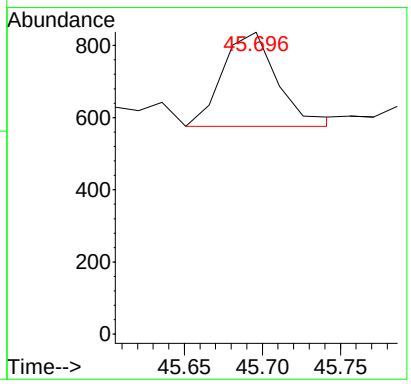
Tgt Ion:217 Resp: 1483

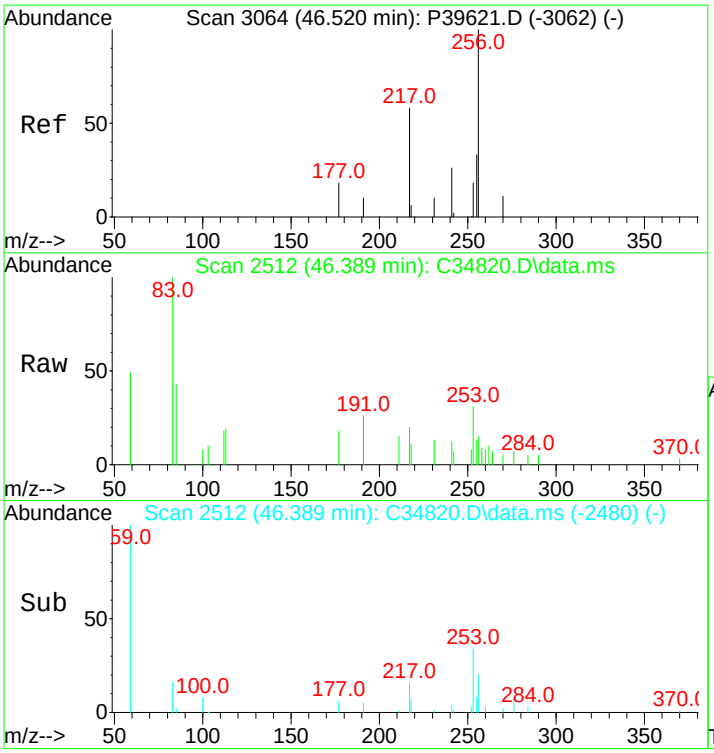




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 62.50 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

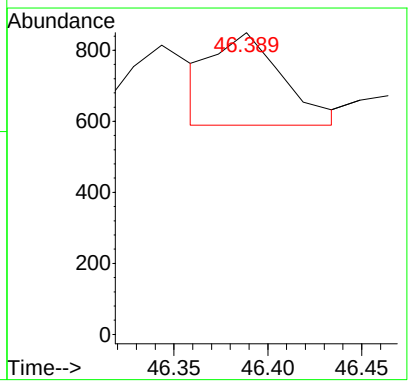
Tgt Ion:217 Resp: 641

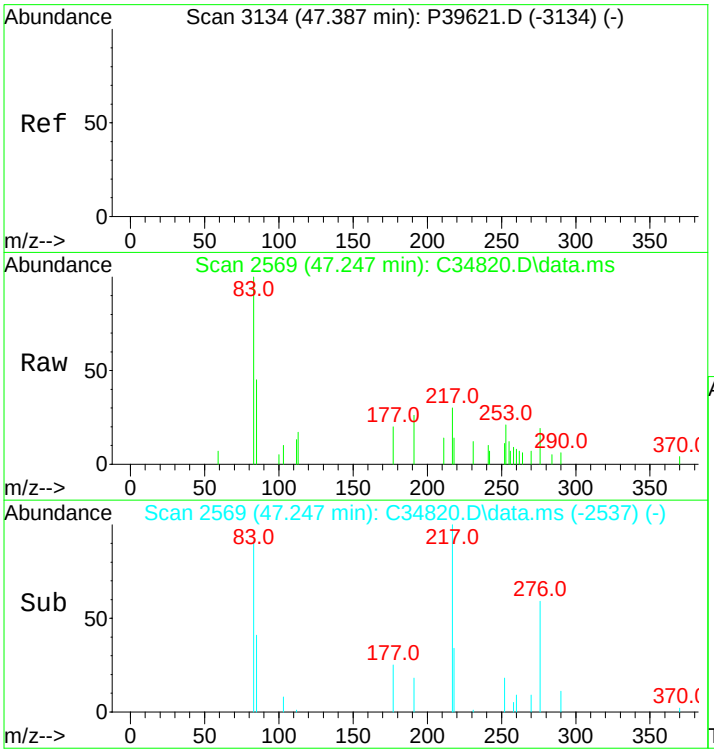




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 64.55 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

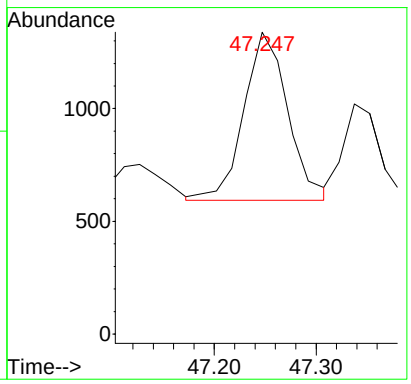
Tgt Ion:217 Resp: 662

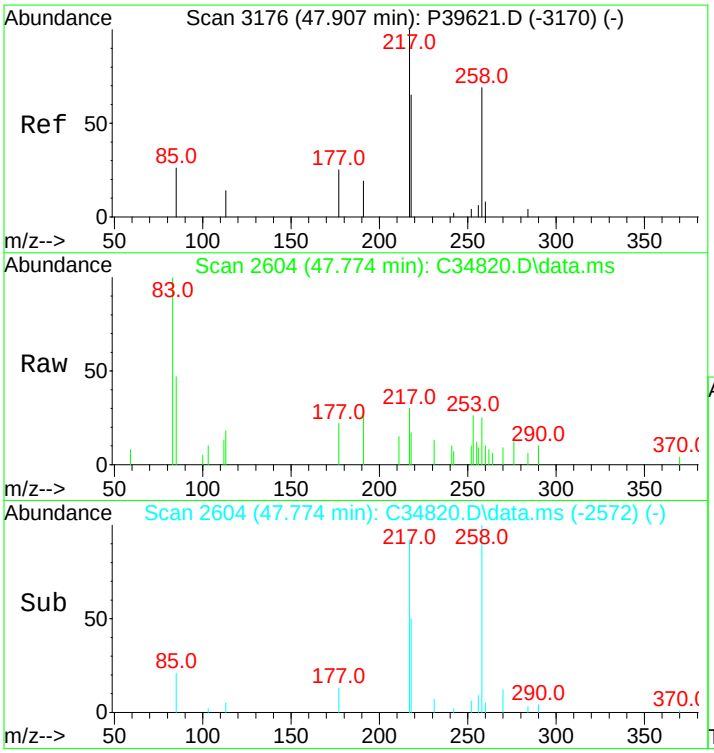




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 218.32 ng/ml m
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

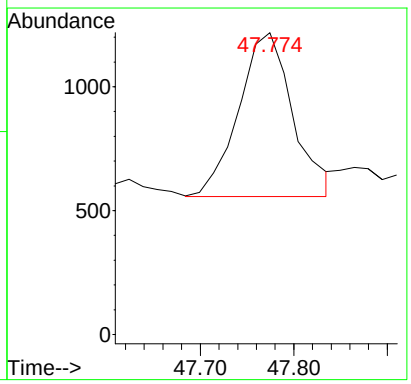
Tgt Ion:217 Resp: 2239

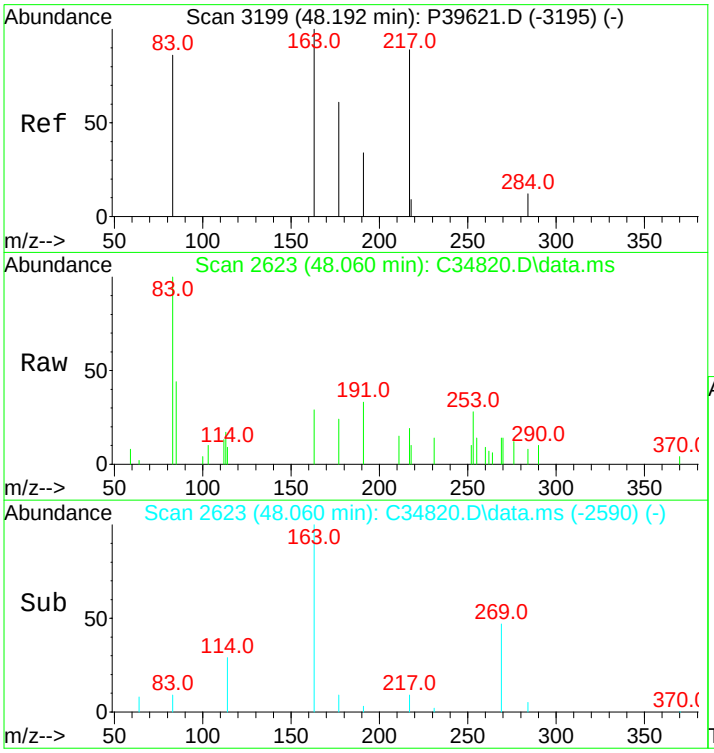




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 259.47 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

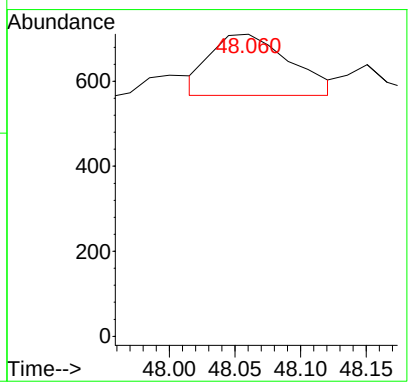
Tgt Ion:217 Resp: 2661

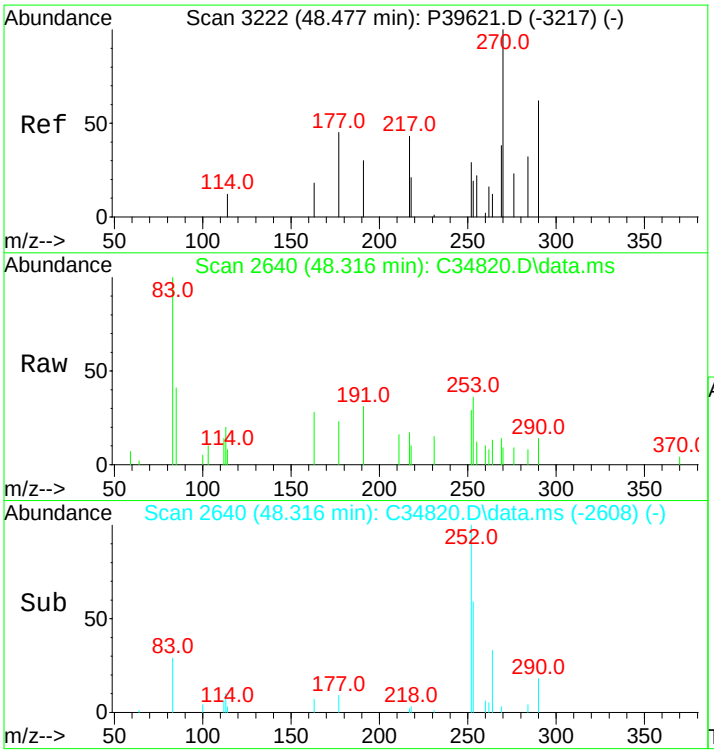




#133
Unknown Sterane (S18)
Concen: 59.38 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

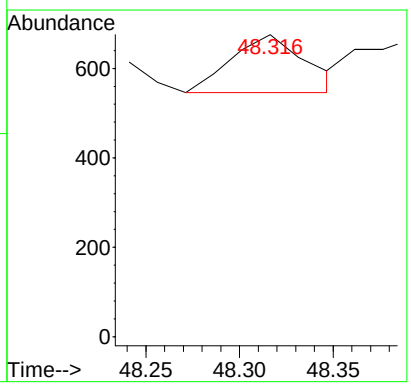
Tgt Ion:217 Resp: 609

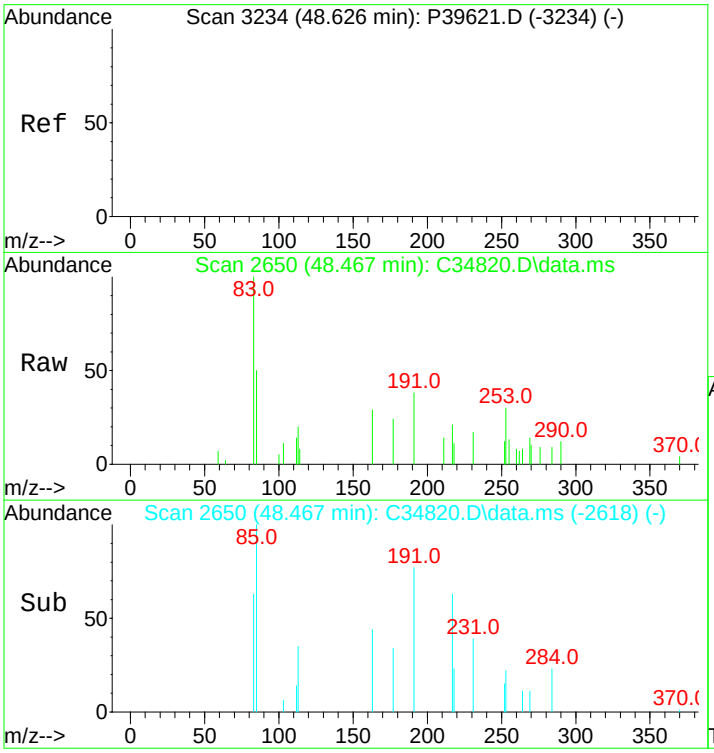




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 34.91 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

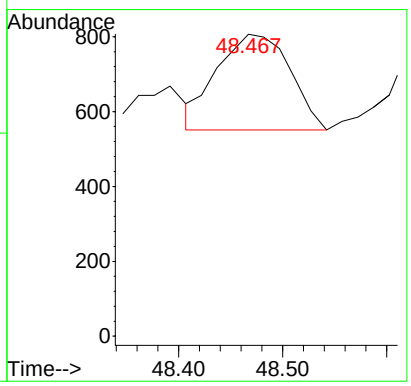
Tgt Ion:217 Resp: 358

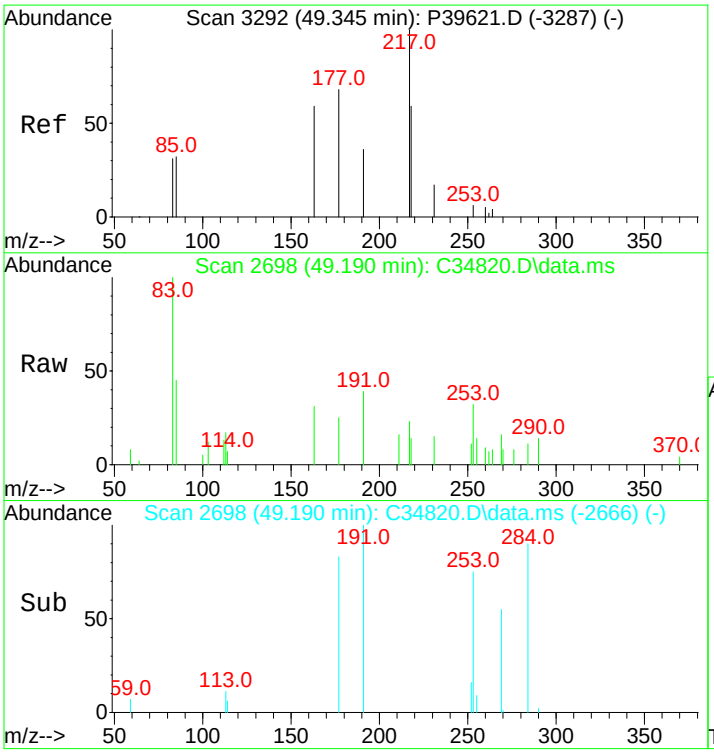




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 121.40 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

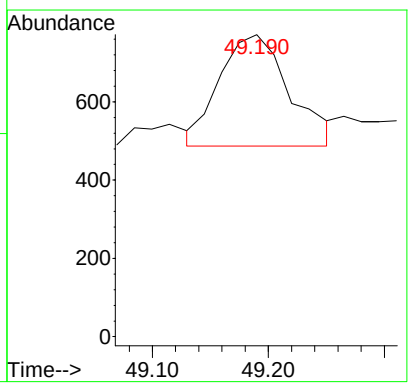
Tgt Ion:217 Resp: 1245

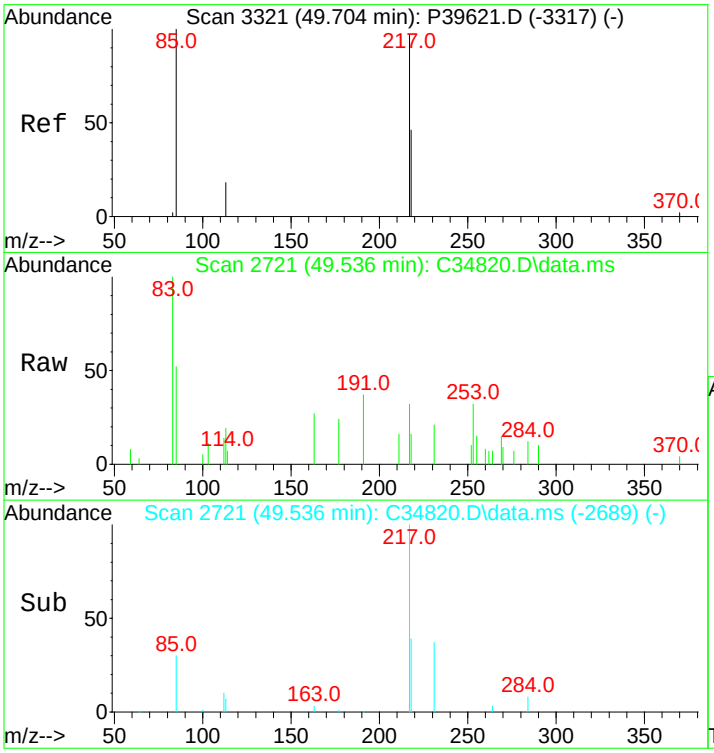




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 116.52 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

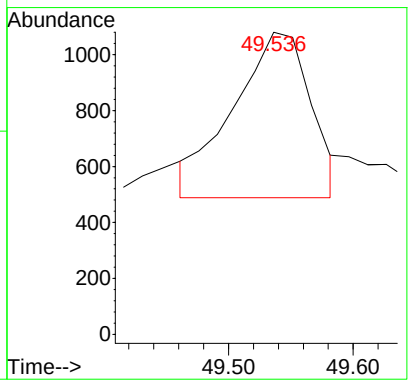
Tgt Ion:217 Resp: 1195

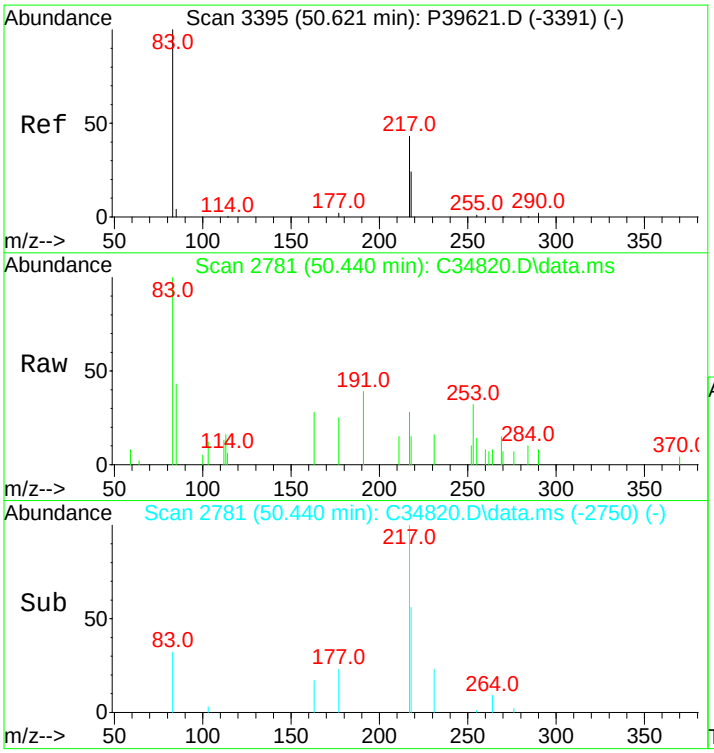




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 249.43 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

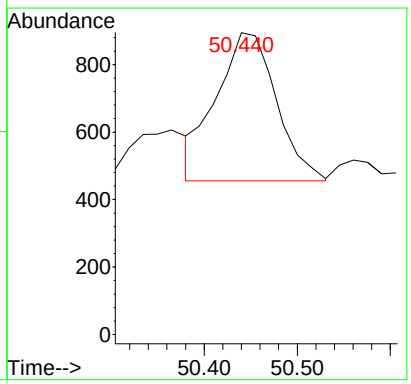
Tgt Ion:217 Resp: 2558

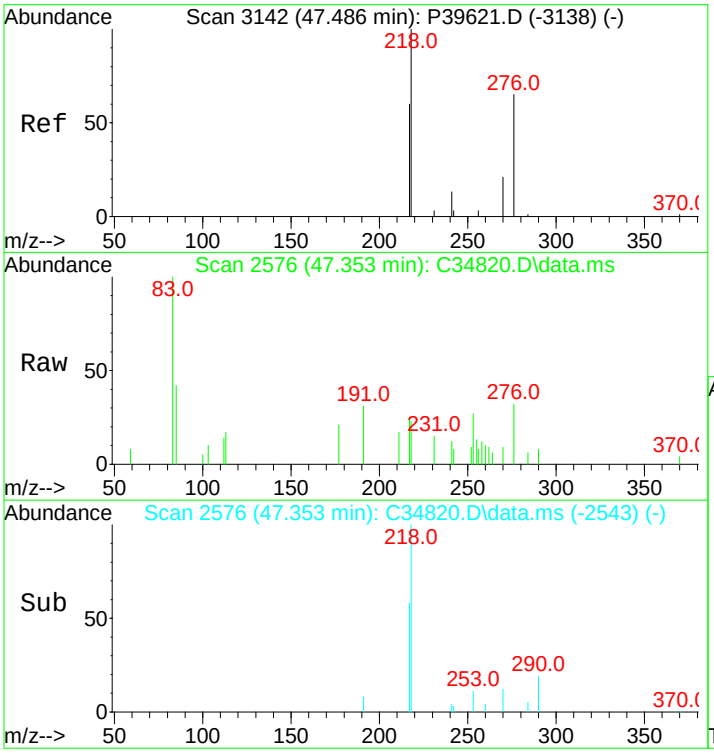




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 192.58 ng/ml m
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

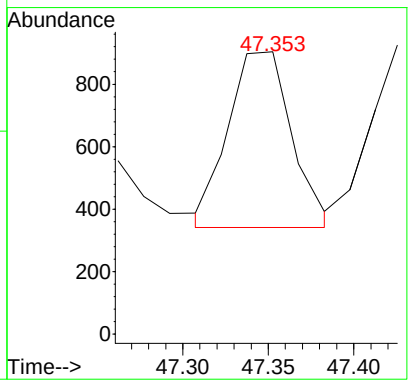
Tgt Ion:217 Resp: 1975

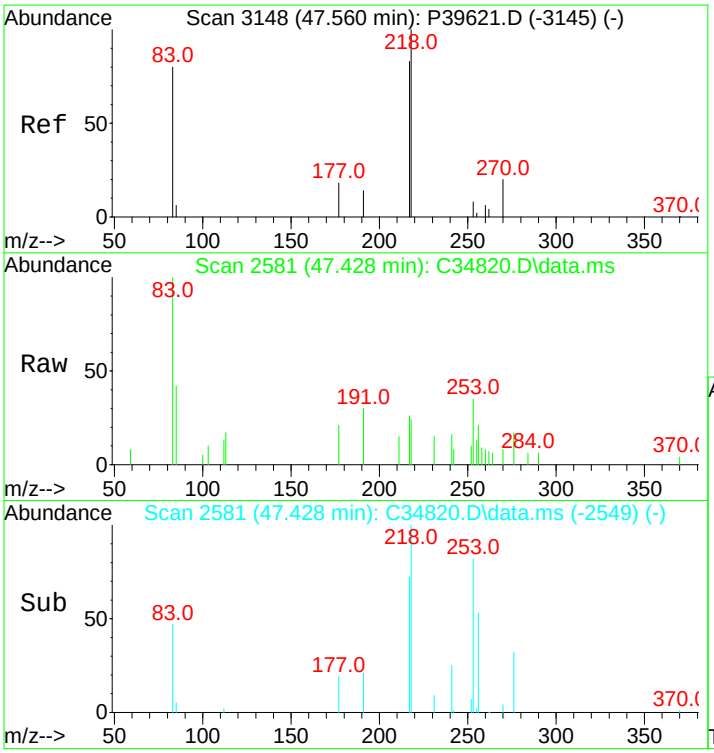




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 141.87 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

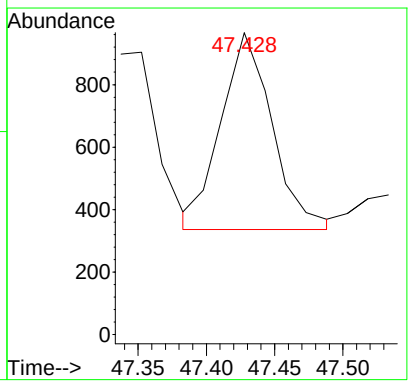
Tgt Ion:218 Resp: 1455

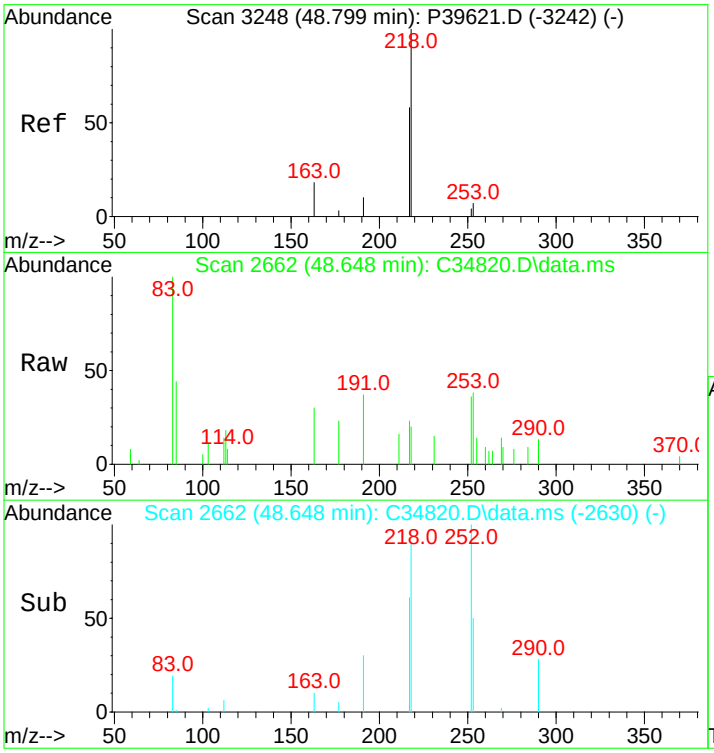




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 160.50 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

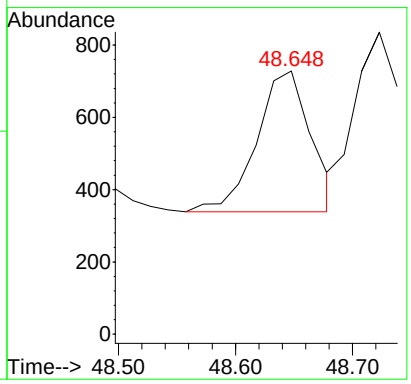
Tgt Ion:218 Resp: 1646

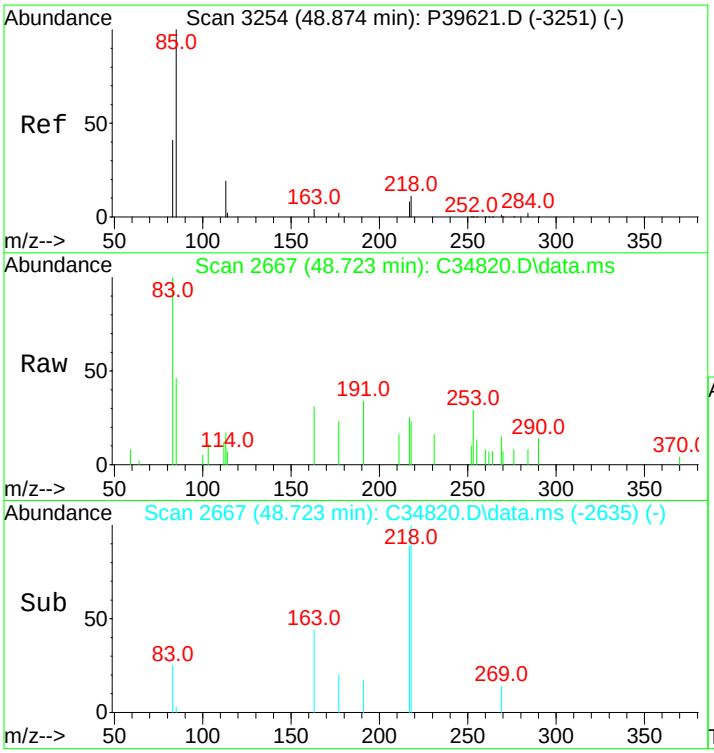




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 122.08 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

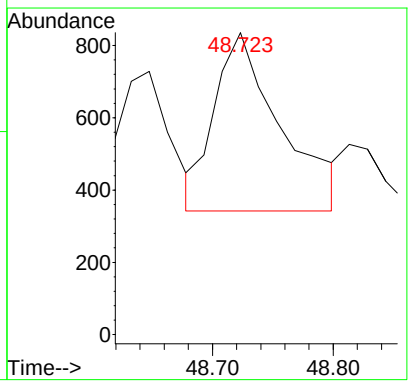
Tgt Ion:218 Resp: 1252

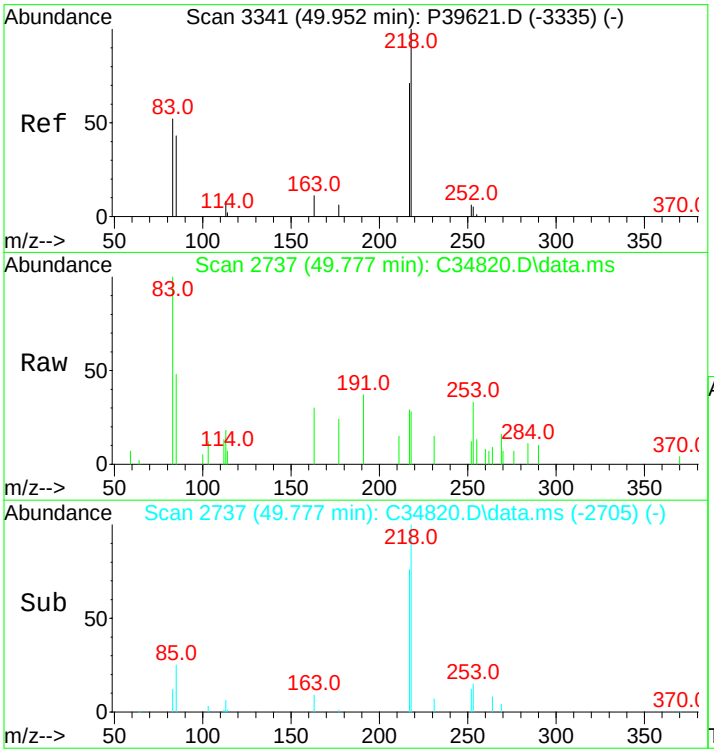




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 183.31 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

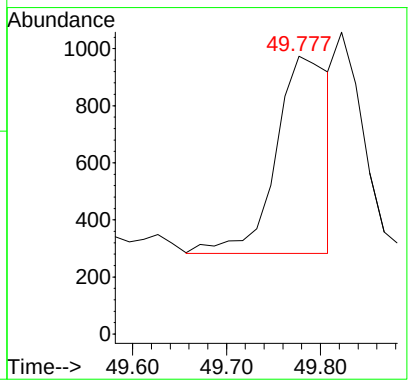
Tgt Ion:218 Resp: 1880

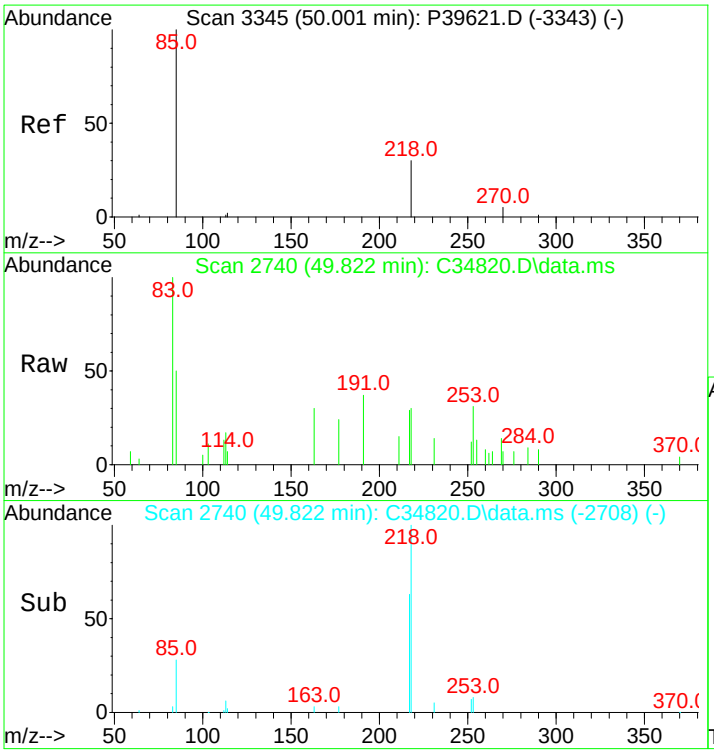




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 264.93 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

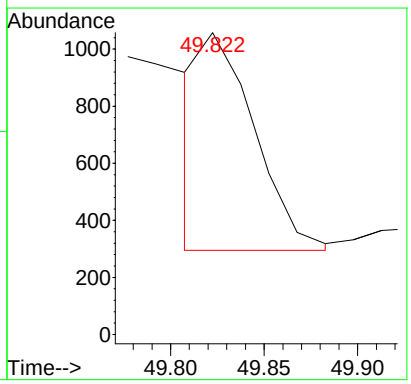
Tgt Ion:218 Resp: 2717

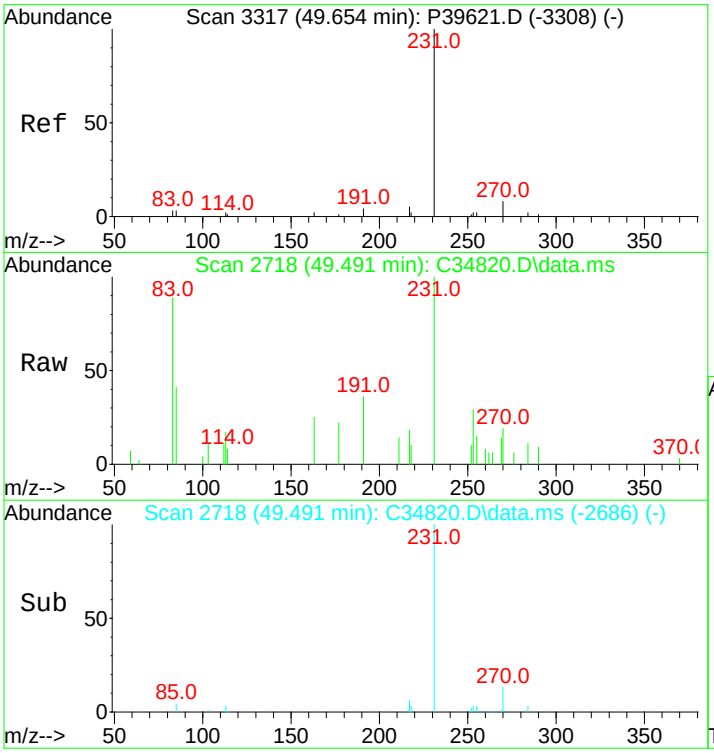




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 149.77 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

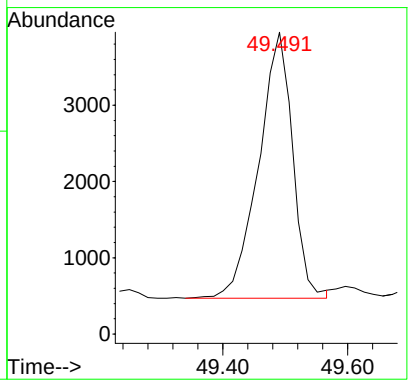
Tgt Ion:218 Resp: 1536

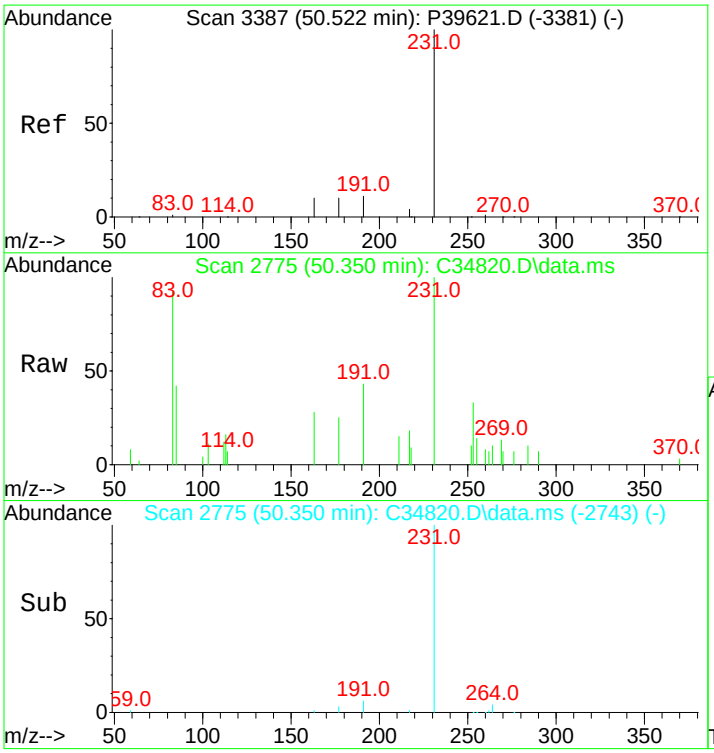




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1284.18 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

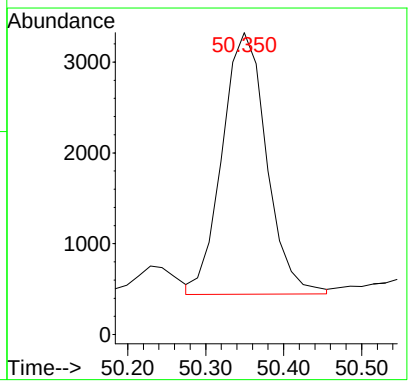
Tgt Ion:231 Resp: 13170

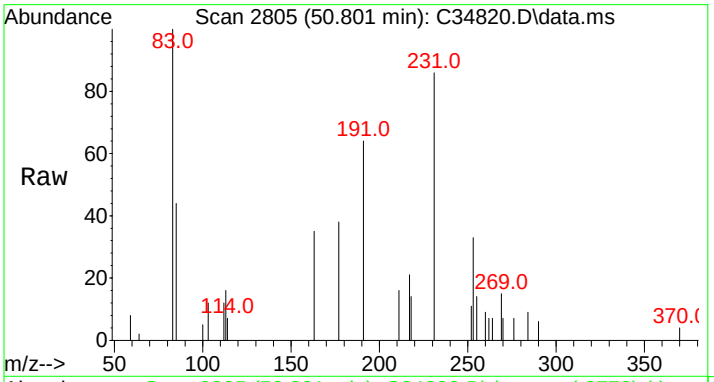




#146
C28,20S-triaromatic steroid
Concen: 1111.49 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

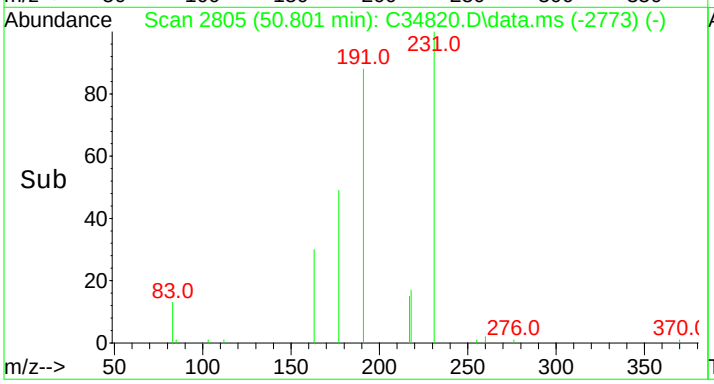
Tgt Ion:231 Resp: 11399

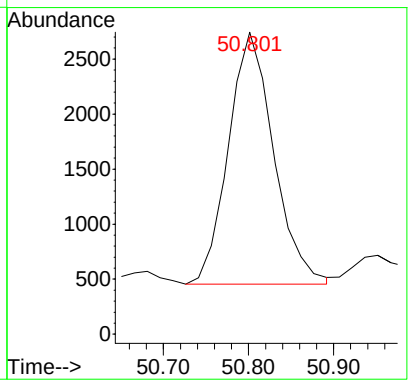


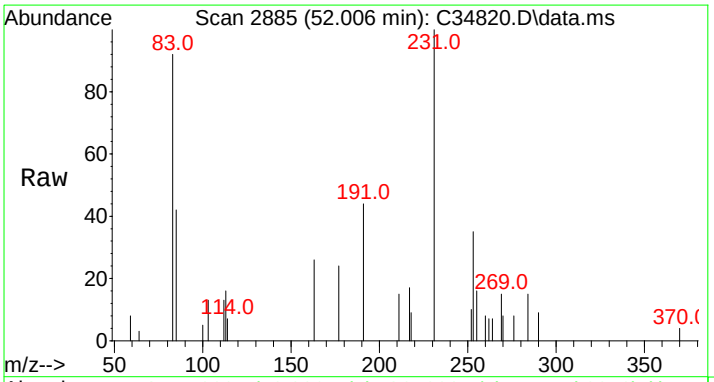


#147
C27,20R-triaromatic steroid
Concen: 825.50 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:231 Resp: 8466

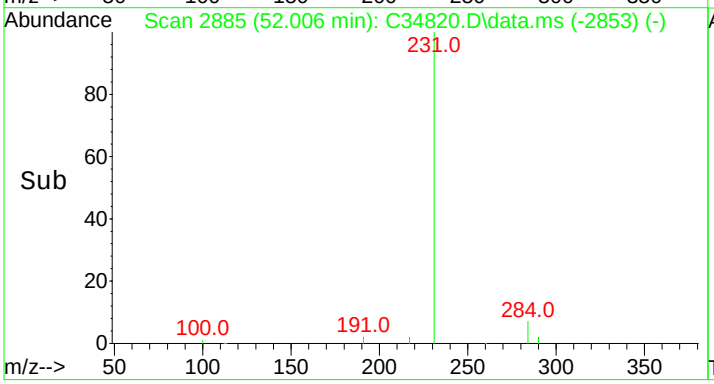


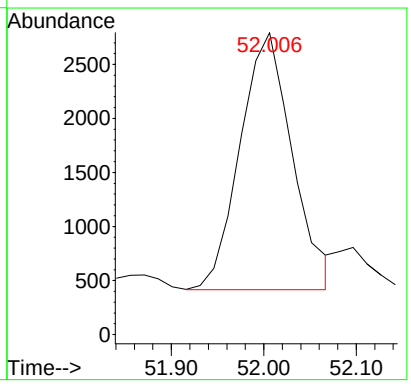




#148
C28,20R-triaromatic steroid
Concen: 910.04 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34820.D
Acq: 3 May 2012 8:59 pm

Tgt Ion:231 Resp: 9333





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17787M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	30242	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	63870	827.330	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.73%			
42) Phenanthrene-d10	32.567	188	52355	857.996	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.80%			
86) Benzo[a]pyrene-d12	48.241	264	55432	884.447	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.44%			
127) 5B(H)Cholane - Surr	43.769	217	8811	931.870	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.19%			
Target Compounds						Qvalue
10) Naphthalene	19.816	128	186	1.641	ng/mL#	100
11) C1-Naphthalenes	22.511	142	284M5	2.505	ng/mL	
16) 2-Methylnaphthalene	22.511	142	104	1.552	ng/mL#	100
25) Dibenzofuran	27.479	168	208	2.136	ng/mL#	62
27) Acenaphthene	26.831	153	61M3	0.921	ng/mL	
29) Fluorene	28.849	166	141M3	1.929	ng/mL	
33) Dibenzothiophene	32.160	184	121	1.033	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	82M3	0.700	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	64M3	0.546	ng/mL	
37) OTP	34.328	198	11448	97.728	ng/mL#	100
38) C1-Dibenzothiophenes	34.328	198	11706M5	99.930	ng/mL	
39) C2-Dibenzothiophenes	36.421	212	903M5	7.709	ng/mL	
43) Phenanthrene	32.657	178	1223M3	11.883	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.614	192	103M3	1.001	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	108	1.049	ng/mL#	22
46) 2-Methylanthracene(2MA)	34.885	192	71M3	0.690	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.081	192	112M3	1.088	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.156	192	87M3	0.845	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.735	192	565M5	5.490	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	3045M5	29.586	ng/mL	
51) 5AA IS BKGD	36.632	206	2020	19.627	ng/mL	100
52) C3-Phenanthrenes/Anthr...	38.725	220	884M5	8.589	ng/mL	
55) Anthracene	32.838	178	154M3	1.532	ng/mL	
56) Carbazole	33.515	167	102M3	1.004	ng/mL	
57) 1-Methylphenanthrene	35.156	192	87M3	1.334	ng/mL	
58) Fluoranthene	37.430	202	2885M3	28.225	ng/mL	
59) Benzo(b)fluorene	39.944	216	161M3	2.715	ng/mL	
60) Pyrene	38.318	202	2307	22.203	ng/mL#	87
61) C1-Fluoranthenes/Pyrenes	39.703	216	1257M5	12.098	ng/mL	
66) Naphthobenzothiophene	42.173	234	396	3.540	ng/ml#	49
67) Naphthobenzothiophene-...	42.173	234	396	3.540	ng/mL#	49
68) Naphthobenzothiophene-...	42.504	234	65M3	0.581	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	132M3	1.180	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	839M5	7.500	ng/ml	
71) C2-Naphthobenzothiophenes	45.605	262	1266M5	11.317	ng/ml	
75) Benz[a]anthracene	43.091	228	801M3	8.345	ng/mL	
77) Chrysene/Triphenylene	43.242	228	1368M3	14.117	ng/mL	
78) C1-Chrysenes	44.732	242	658M5	6.790	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	1767	16.753	ng/mL#	72
83) Benzo[j]+[k]fluoranthene	47.217	252	1430M3	12.453	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	171M2	1.489	ng/mL	
85) Benzo[e]pyrene	48.136	252	1310M3	12.557	ng/mL	
87) Benzo[a]pyrene	48.331	252	1222M3	12.166	ng/mL	
88) Perylene	48.648	252	738	6.875	ng/mL#	72
89) Indeno[1,2,3-cd]pyrene	53.151	276	1689M3	14.450	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	488M3	4.389	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
91)	Benzo[g,h,i]perylene	54.446	276		1939	15.701	ng/mL	95
92)	Hopane (T19)	52.187	191		1045M3	52.429	ng/mL	
94)	C23 Tricyclic Terpane ...	40.787	191		114M3	5.720	ng/ml	
107)	17a(H)-22,29,30-Trisno...	48.979	191		423M2	21.223	ng/ml	
110)	30-Norhopane (T15)	50.831	191		589M3	29.551	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191		507M2	25.437	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.259	217		123M3	13.009	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.262	217		145	15.335	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.759	217		149M3	15.759	ng/ml	
133)	Unknown Sterane (S18)	48.075	217	G	185M3	19.566	ng/ml	
136)	14a,17a-20R-Methylchol...	49.190	217		109M2	11.528	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.777	218		100	10.576	ng/ml	100
144)	14b(H),17b(H)-20S-Ethy...	49.807	218		103M3	10.893	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.476	231		210M3	22.210	ng/mL	
146)	C28,20S-triaromatic st...	50.364	231		218	23.056	ng/mL	100
147)	C27,20R-triaromatic st...	50.786	231		138	14.595	ng/mL	100
148)	C28,20R-triaromatic st...	52.006	231		262	27.710	ng/mL	100

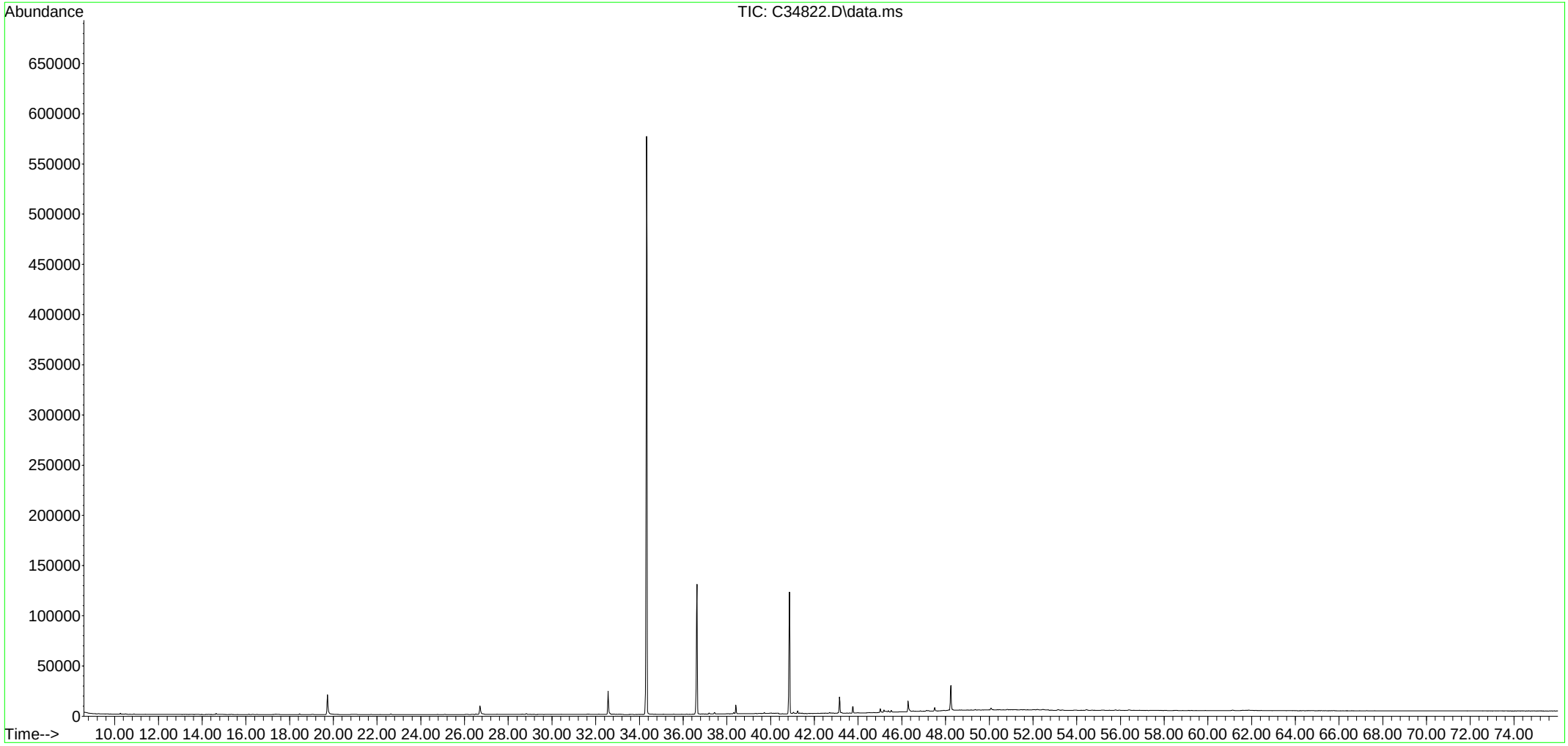
(#) = qualifier out of range (m) = manual integration (+) = signals summed

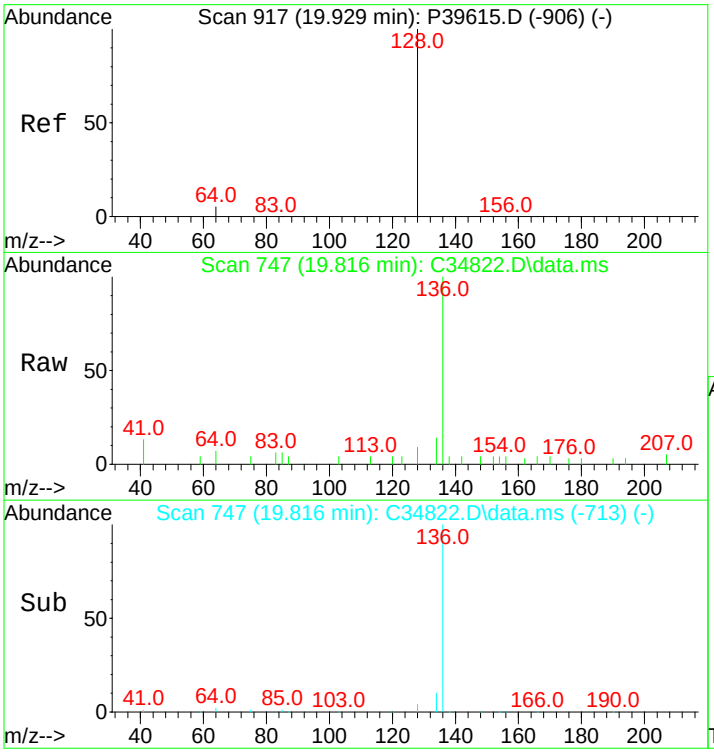
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34822.D
Acq On : 3 May 2012 10:29 pm
Operator : AC
Sample : 1204035-09
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 05 12:46:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

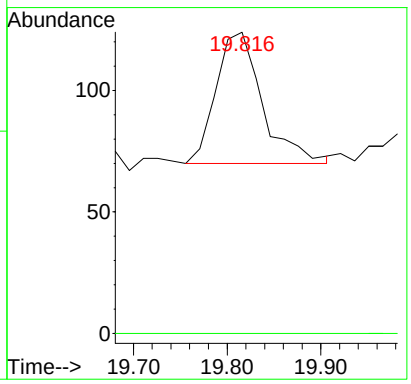


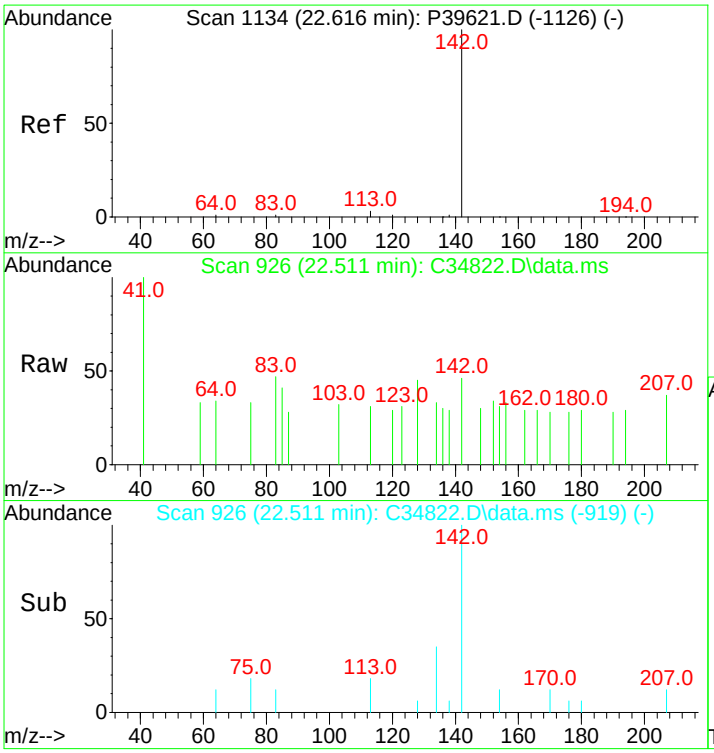


#10
Naphthalene
Concen: 1.64 ng/mL
RT: 19.816 min Scan# 747
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:128 Resp: 186

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

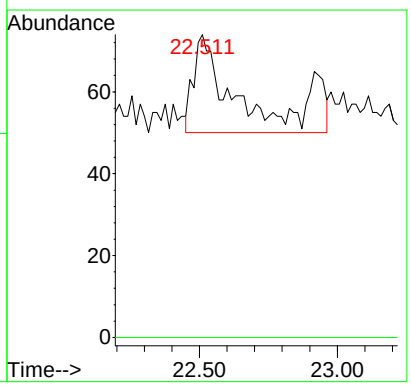


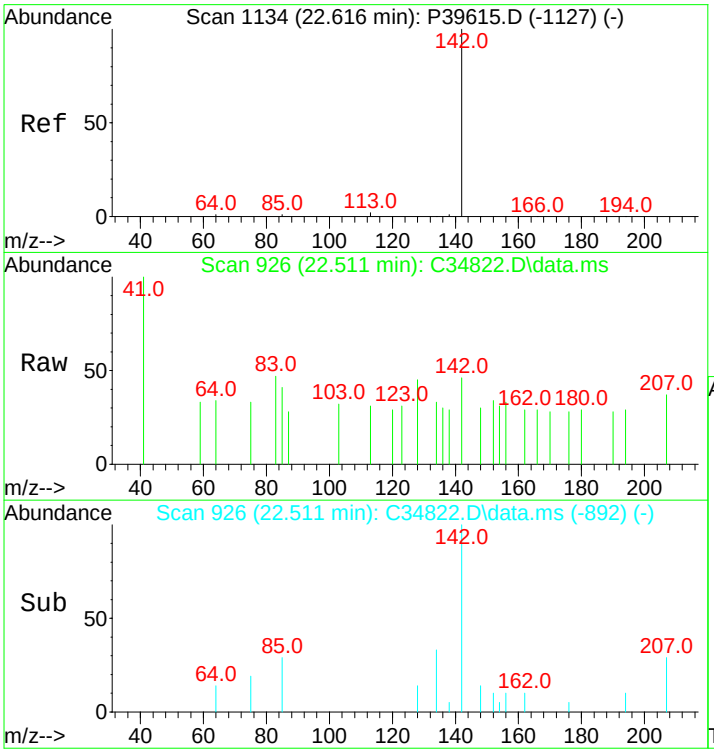


#11
C1-Naphthalenes
Concen: 2.51 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:142 Resp: 284

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

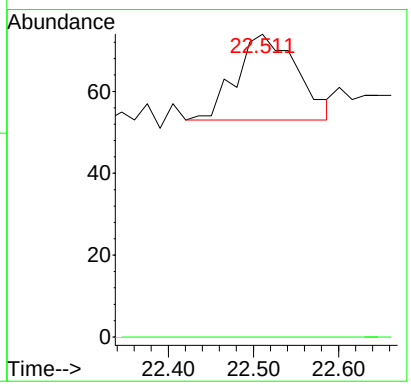


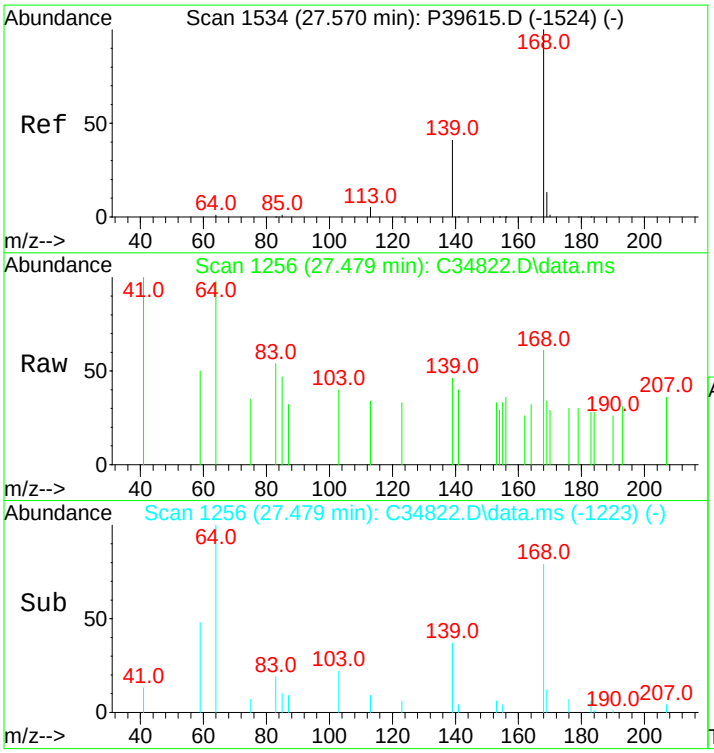


#16
2-Methylnaphthalene
Concen: 1.55 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:142 Resp: 104

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

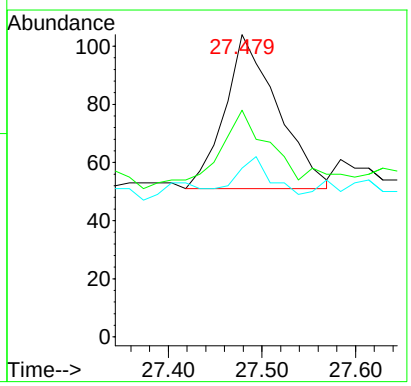


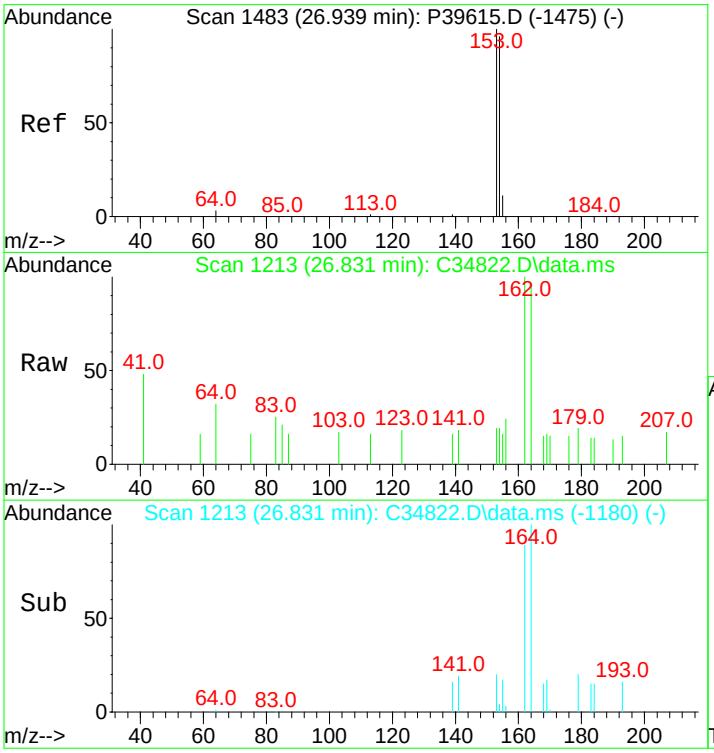


#25
Dibenzofuran
Concen: 2.14 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:168 Resp: 208

Ion	Ratio	Lower	Upper
168	100		
139	58.7	28.4	42.6#
169	0.0	10.8	16.2#

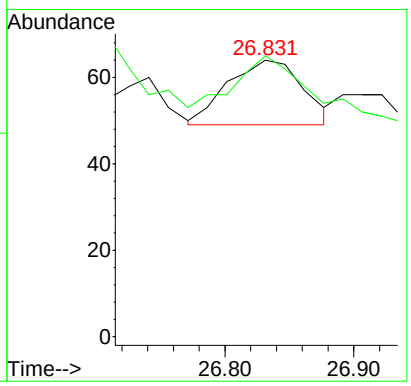


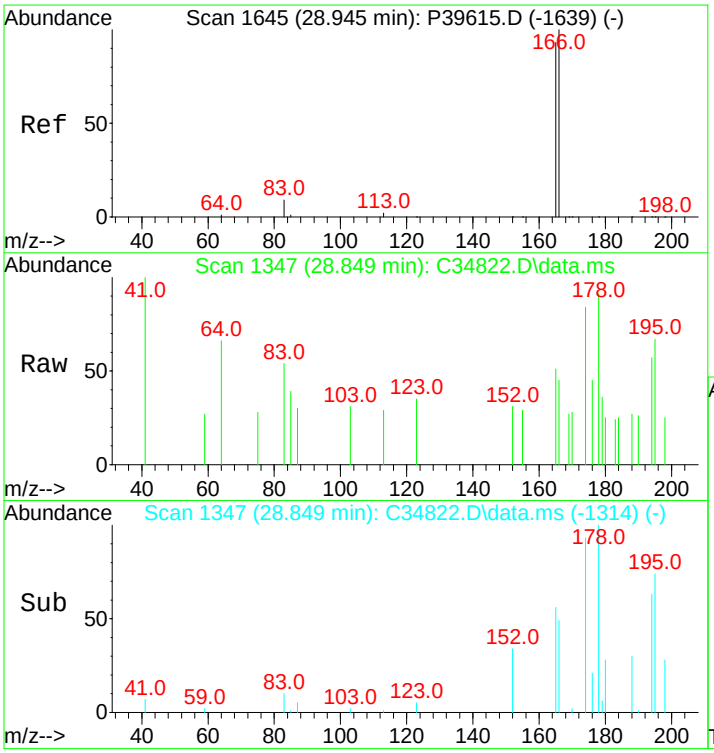


#27
Acenaphthene
Concen: 0.92 ng/mL m
RT: 26.831 min Scan# 1213
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:153 Resp: 61

Ion	Ratio	Lower	Upper
153	100		
154	0.0	73.6	110.4#

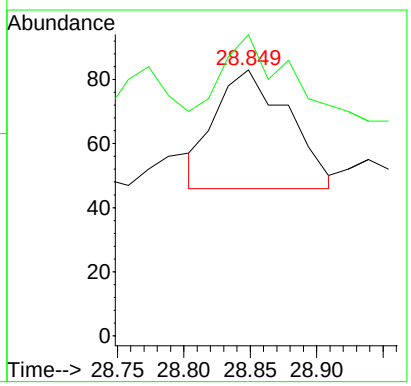


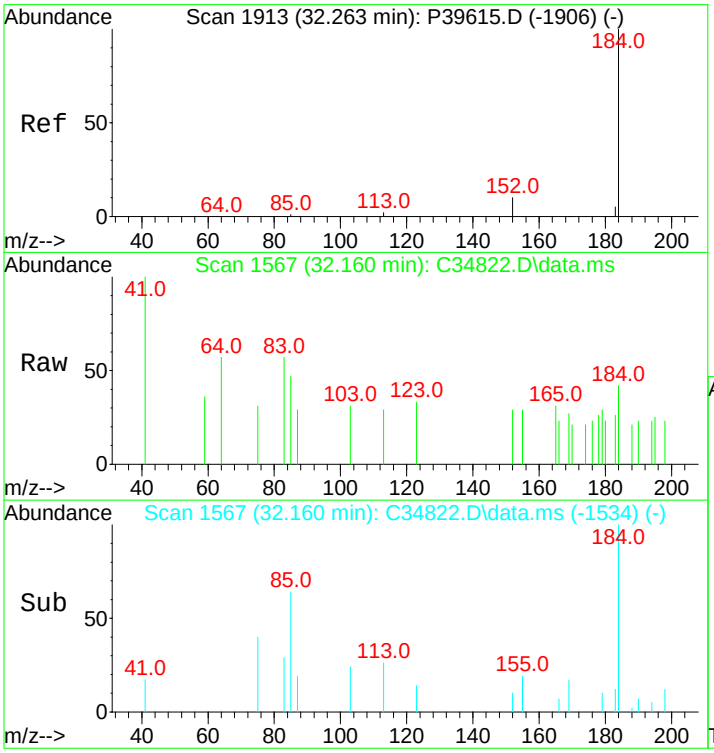


#29
Fluorene
Concen: 1.93 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:166 Resp: 141

Ion	Ratio	Lower	Upper
166	100		
165	0.0	77.3	115.9#

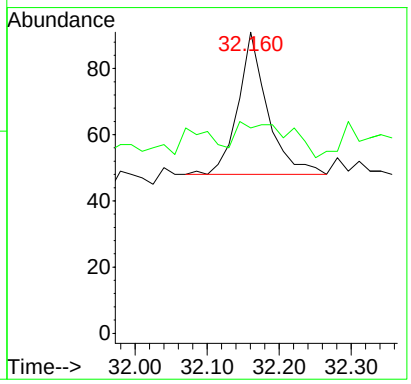


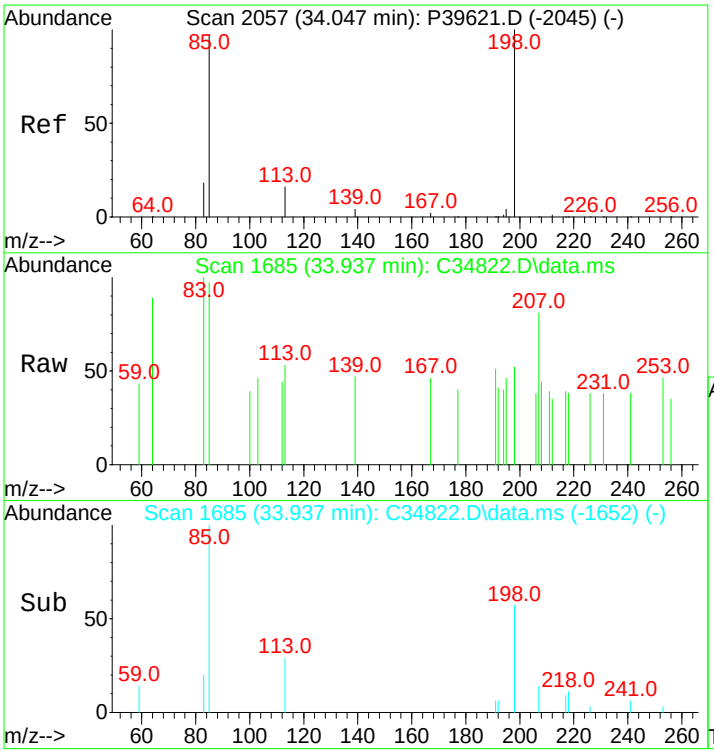


#33
Dibenzothiophene
Concen: 1.03 ng/mL
RT: 32.160 min Scan# 1567
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:184 Resp: 121

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

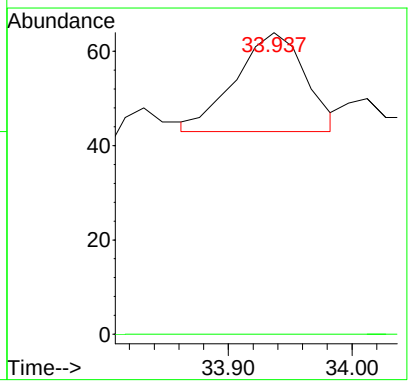


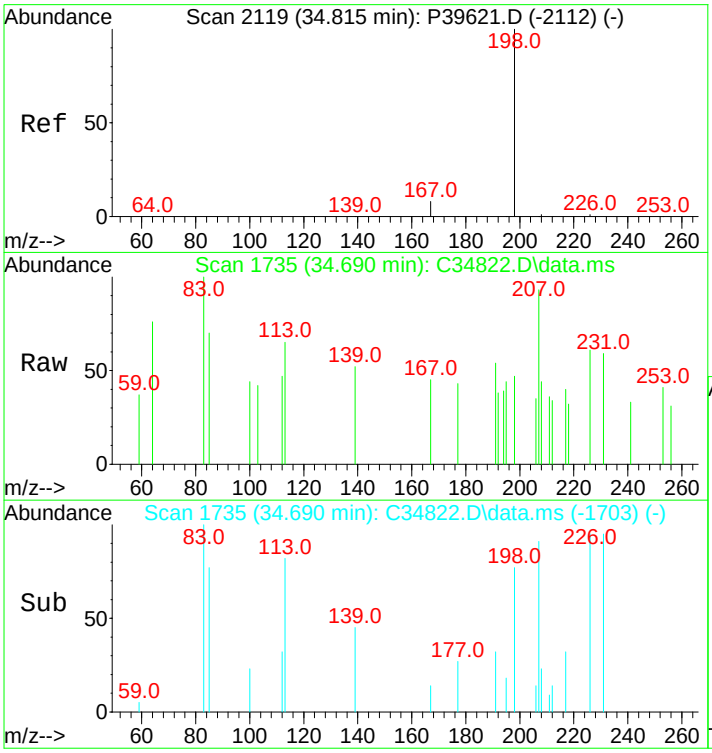


#34
4-Methyldibenzothiophene(4MDT)
Concen: 0.70 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:198 Resp: 82

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

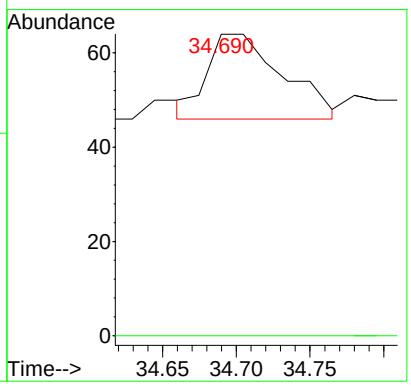


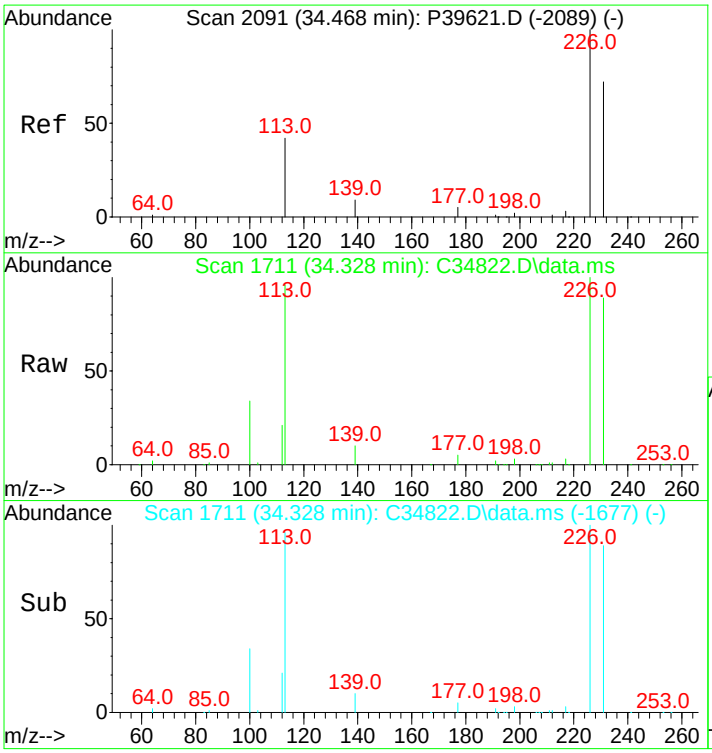


#36
1-Methyldibenzothiophene(1MDT)
Concen: 0.55 ng/mL m
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:198 Resp: 64

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

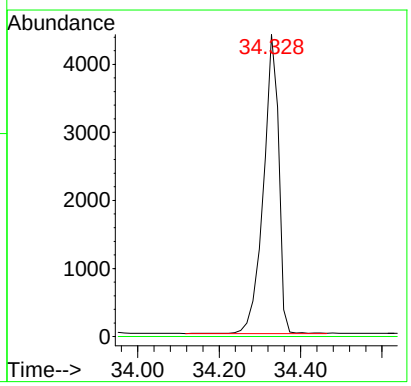


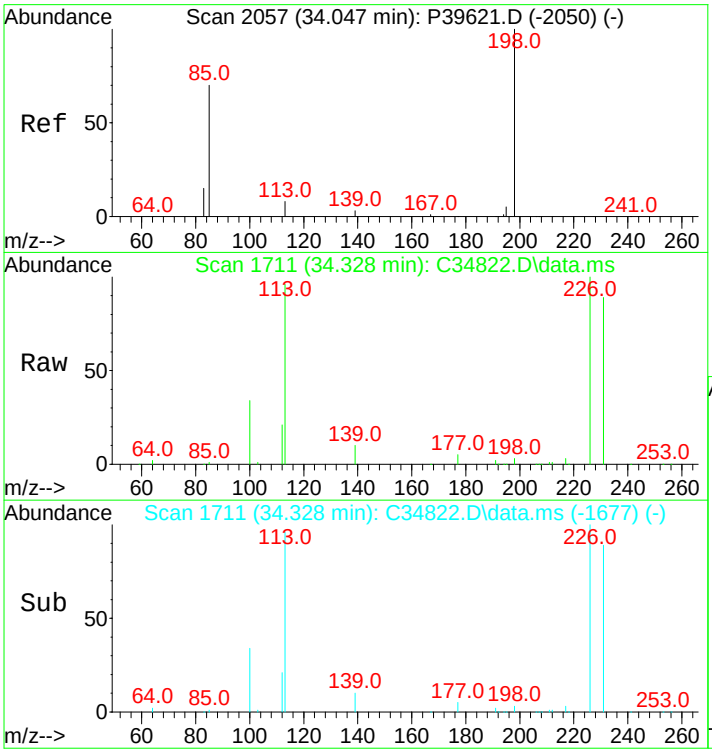


#37
OTP
Concen: 97.73 ng/mL
RT: 34.328 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:198 Resp: 11448

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

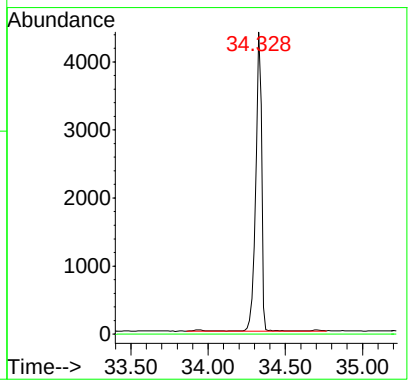


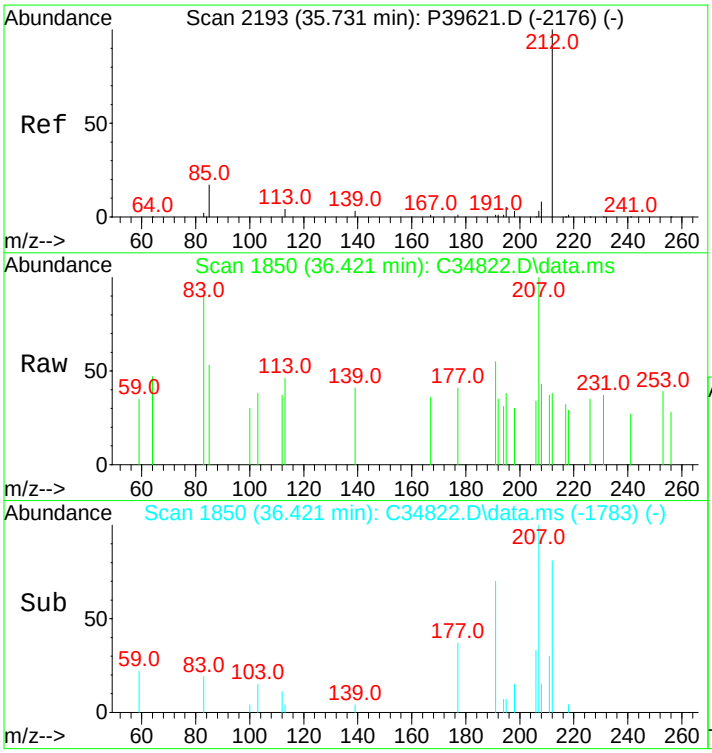


#38
C1-Dibenzothiophenes
Concen: 99.93 ng/mL m
RT: 34.328 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:198 Resp: 11706

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

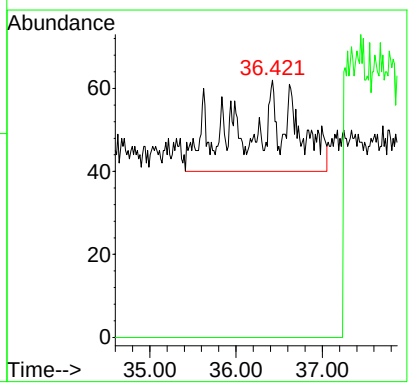


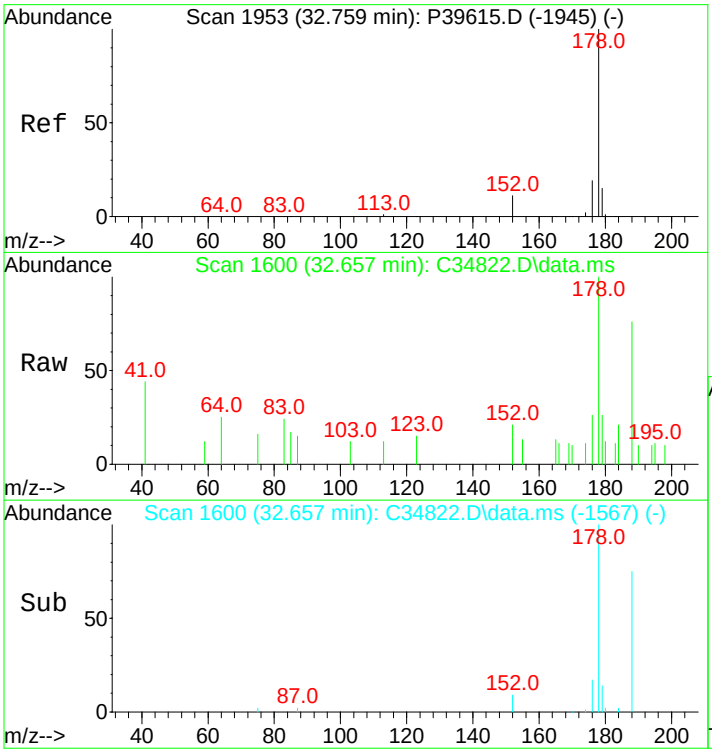


#39
C2-Dibenzothiophenes
Concen: 7.71 ng/mL m
RT: 36.421 min Scan# 1850
Delta R.T. 0.508 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:212 Resp: 903

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

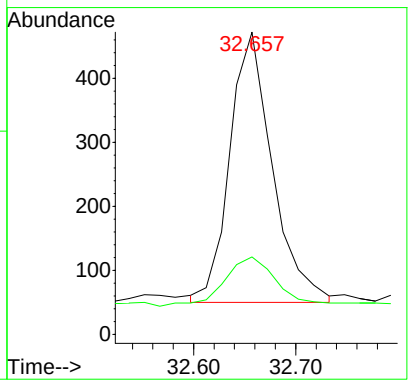


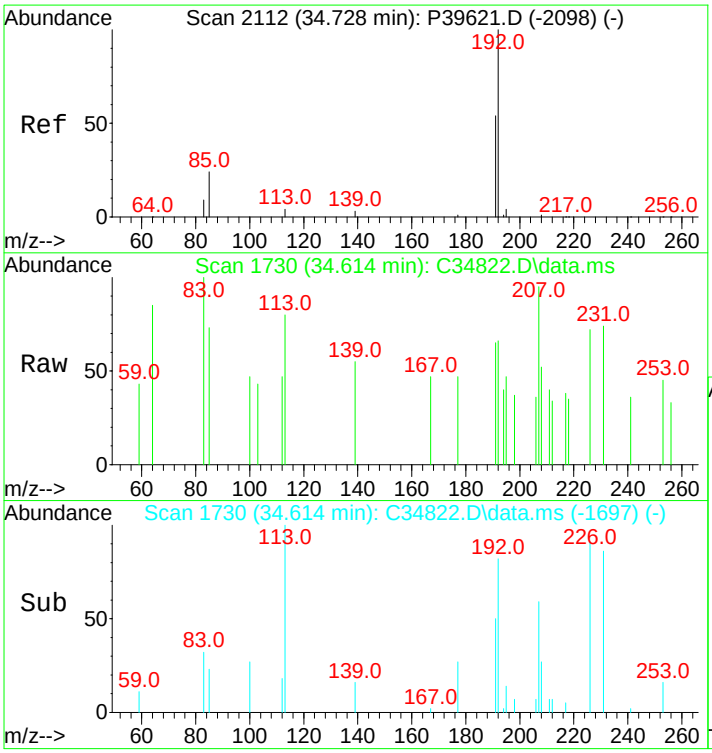


#43
Phenanthrene
Concen: 11.88 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:178 Resp: 1223

Ion	Ratio	Lower	Upper
178	100		
176	23.9	16.1	24.1

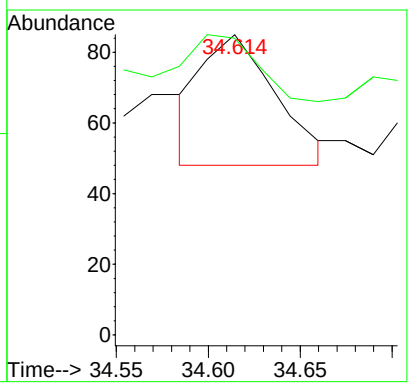


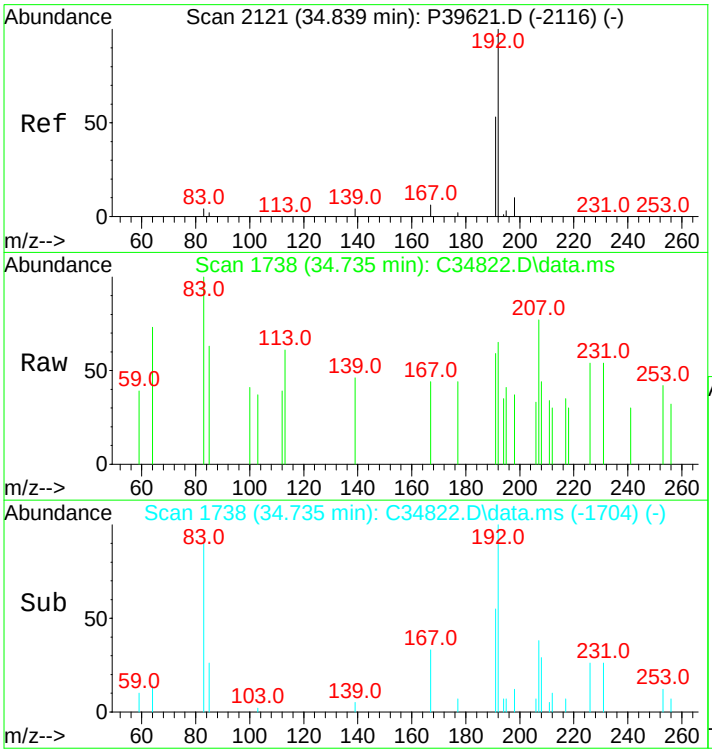


#44
3-Methylphenanthrene(3MP)
Concen: 1.00 ng/mL m
RT: 34.614 min Scan# 1730
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 103

Ion	Ratio	Lower	Upper
192	100		
191	0.0	46.9	70.3#

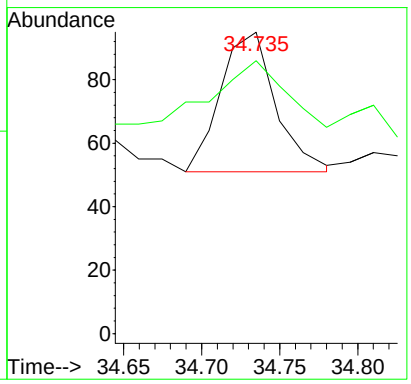


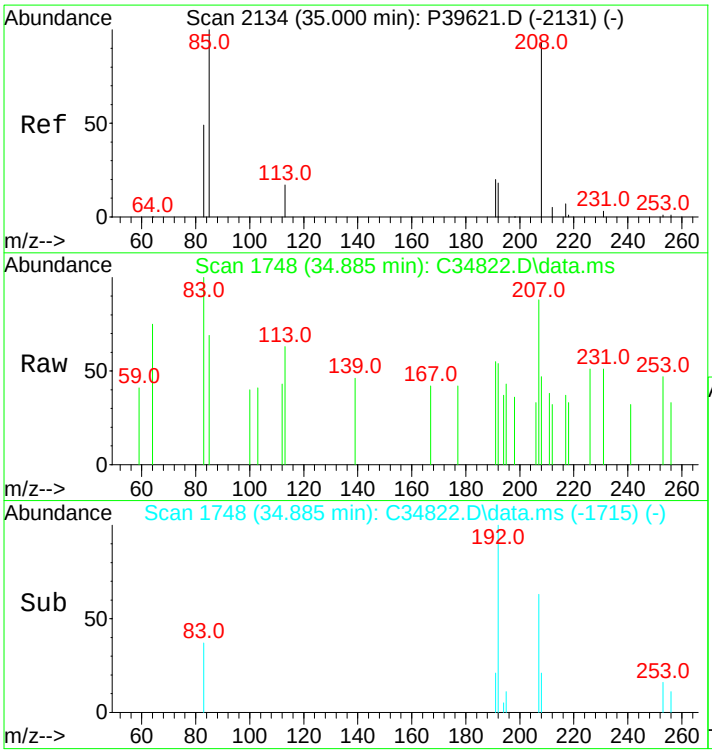


#45
2/4-Methylphenanthrene(2MP)
Concen: 1.05 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 108

Ion	Ratio	Lower	Upper
192	100		
191	0.0	46.1	69.1#

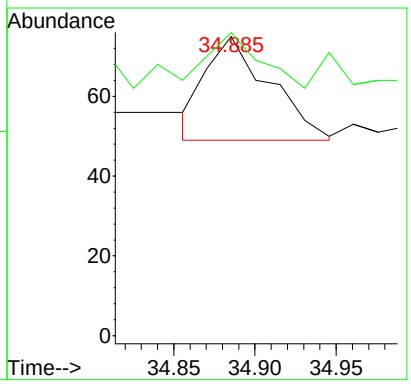


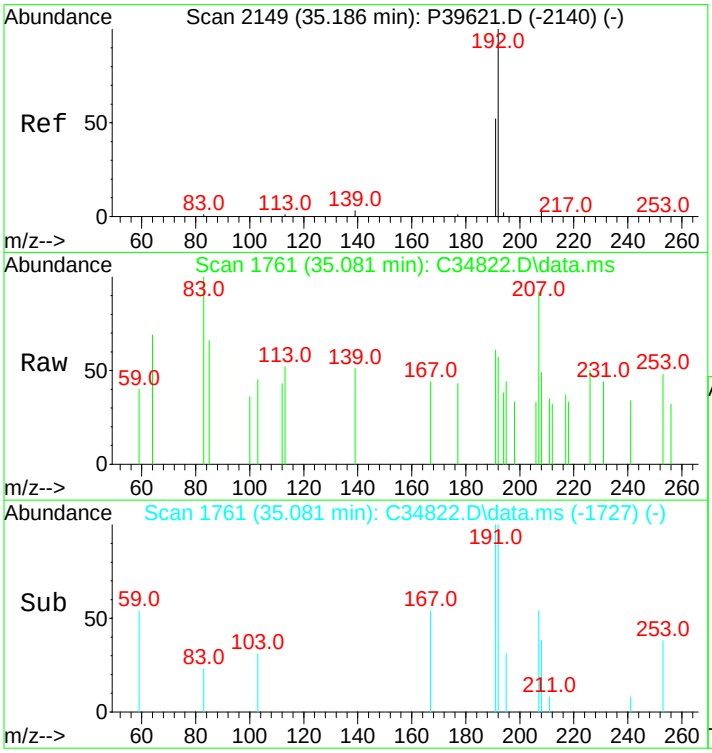


#46
2-Methylanthracene(2MA)
Concen: 0.69 ng/mL m
RT: 34.885 min Scan# 1748
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 71

Ion	Ratio	Lower	Upper
192	100		
191	154.9	93.4	140.0#

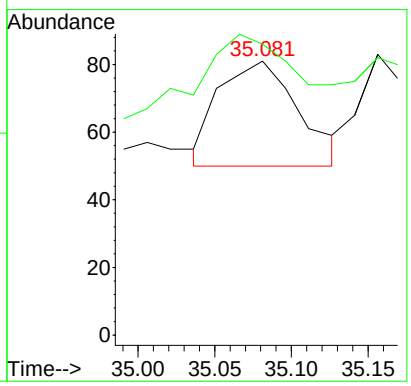


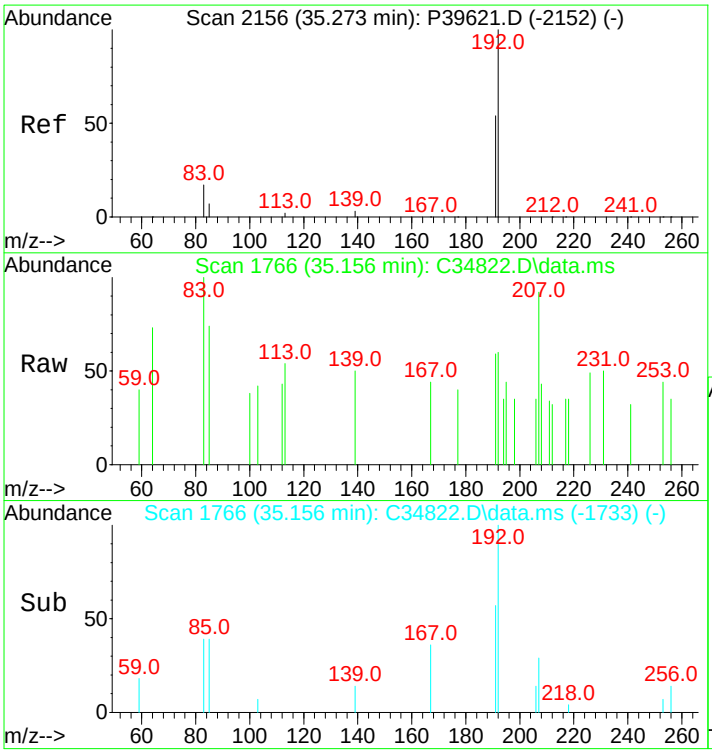


#47
9-Methylphenanthrene(9MP)
Concen: 1.09 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 112

Ion	Ratio	Lower	Upper
192	100		
191	98.2	45.9	68.9#

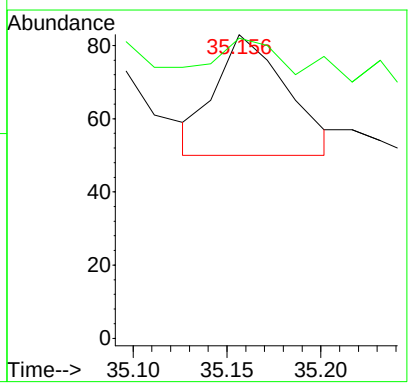


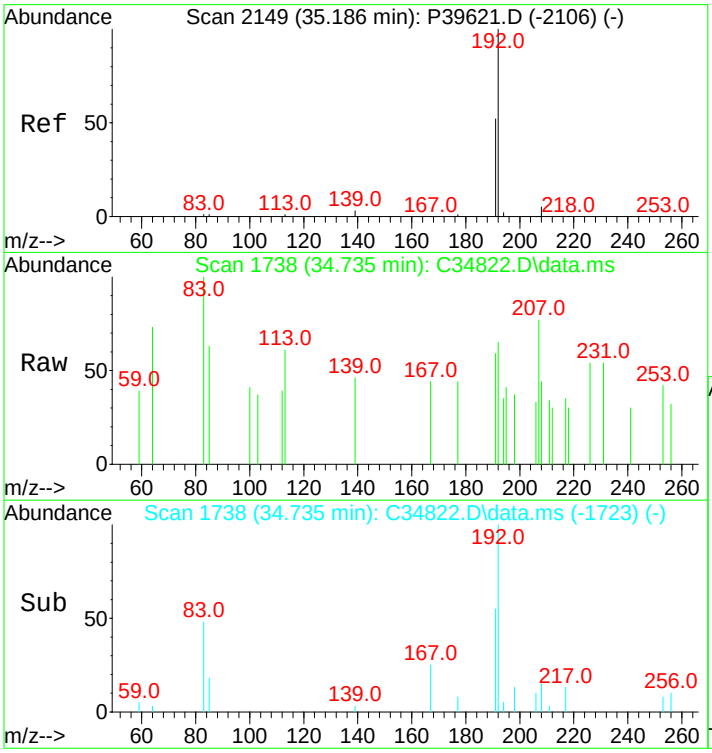


#48
1-Methylphenanthrene(1MP)
Concen: 0.85 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 87

Ion	Ratio	Lower	Upper
192	100		
191	126.4	49.0	73.4#

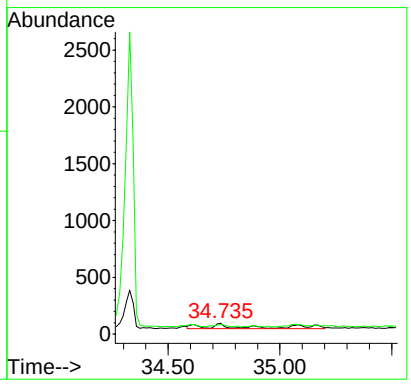


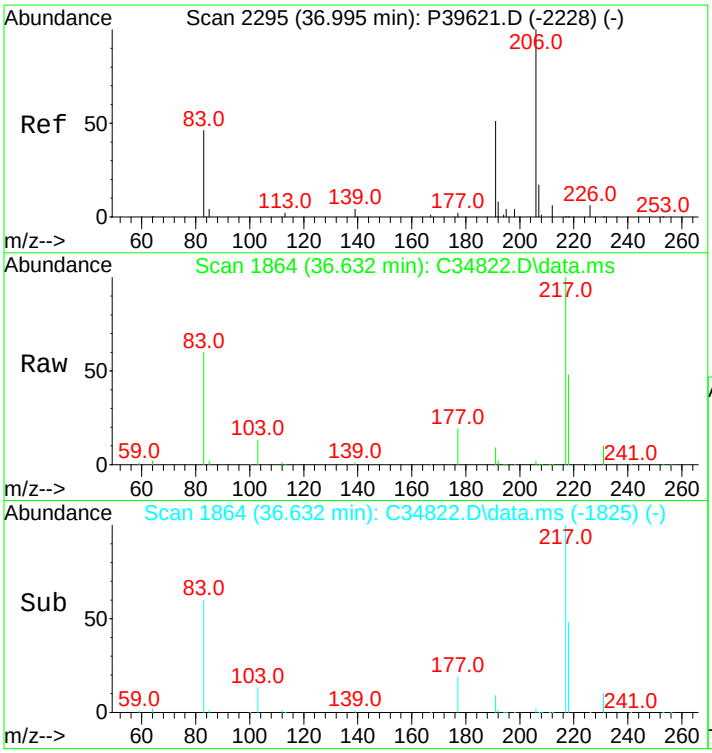


#49
C1-Phenanthrenes/Anthracenes
Concen: 5.49 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. -0.279 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 565

Ion	Ratio	Lower	Upper
192	100		
191	19.5	44.2	66.2#

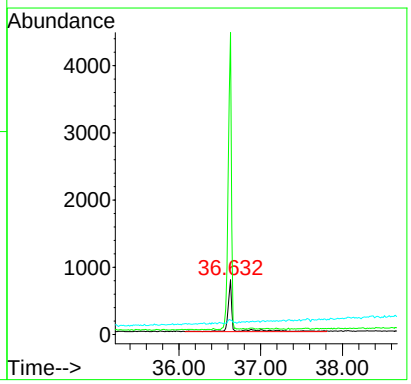


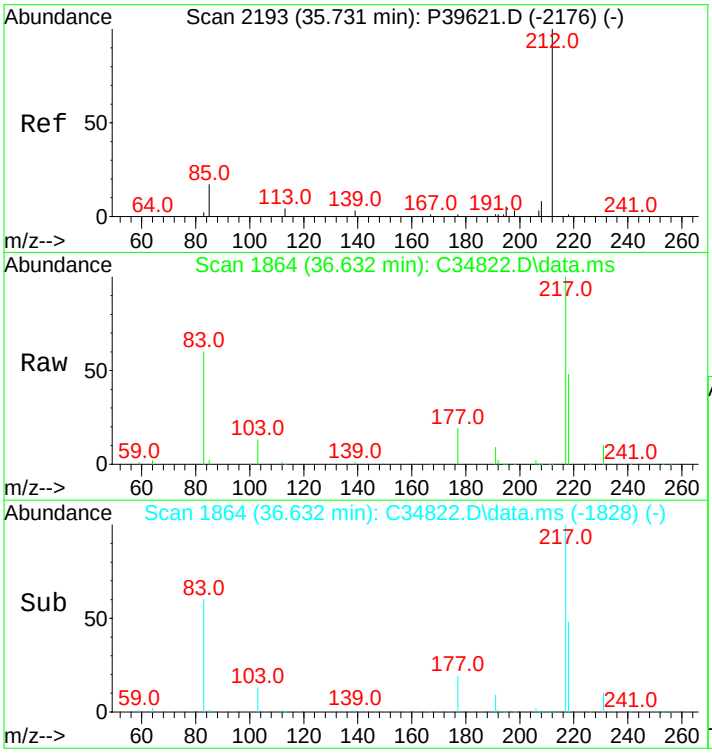


#50
C2-Phenanthrenes/Anthracenes
Concen: 29.59 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. -0.180 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:206 Resp: 3045

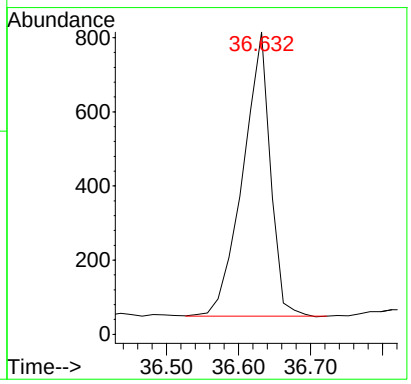
Ion	Ratio	Lower	Upper
206	100		
191	389.8	44.0	66.0#
207	8.5	15.1	22.7#

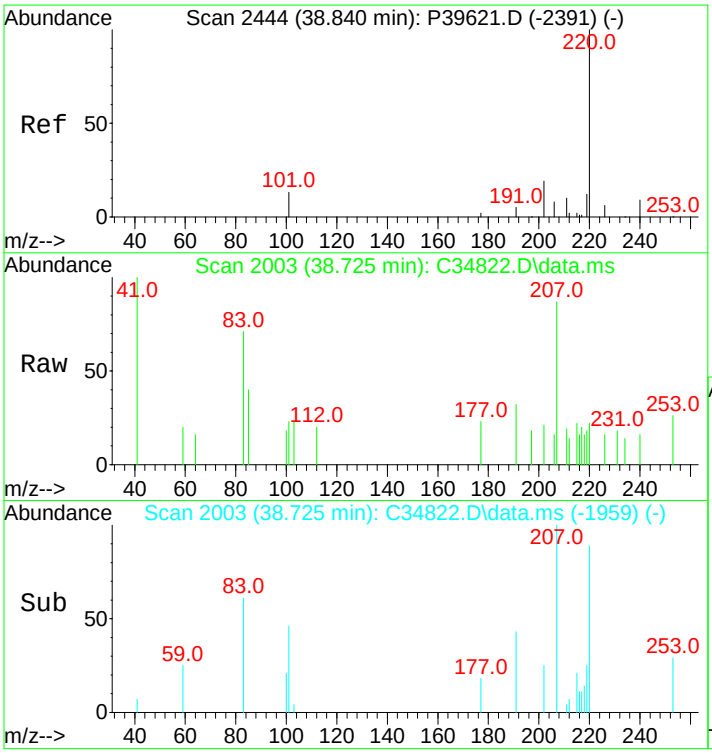




#51
5AA IS BKGD
Concen: 19.63 ng/mL
RT: 36.632 min Scan# 1864
Delta R.T. 0.045 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:206 Resp: 2020

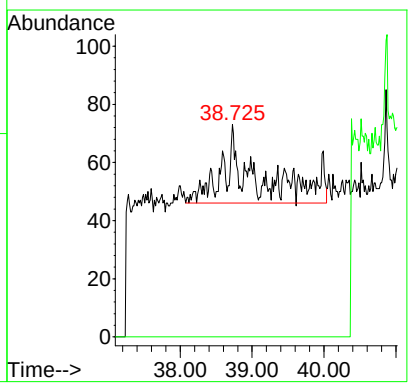


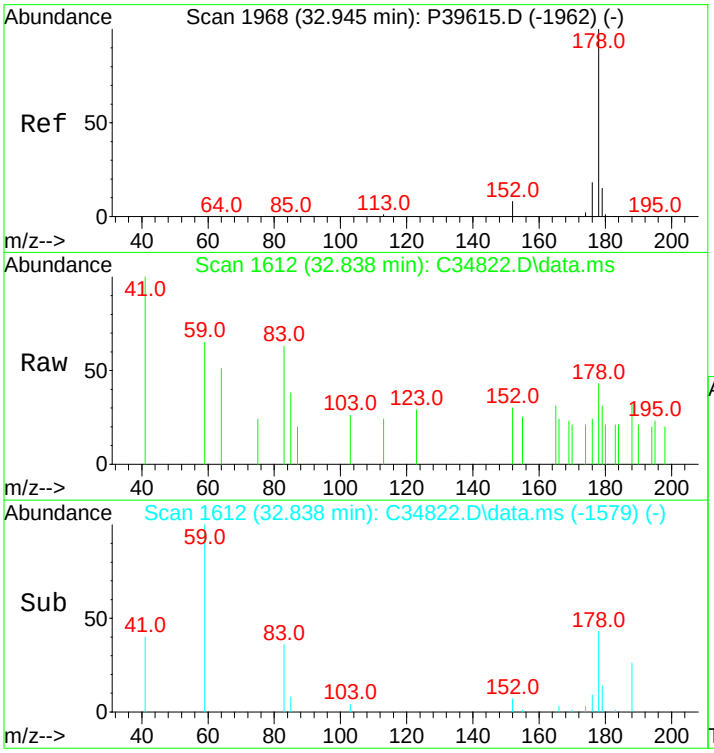


#52
C3-Phenanthrenes/Anthracenes
Concen: 8.59 ng/mL m
RT: 38.725 min Scan# 2003
Delta R.T. 0.084 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:220 Resp: 884

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

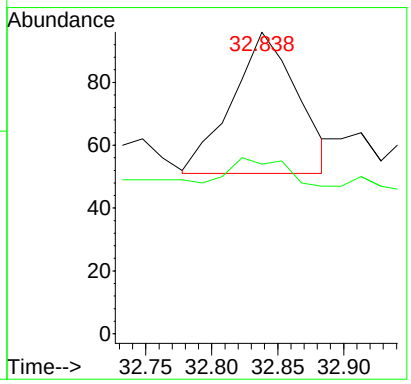


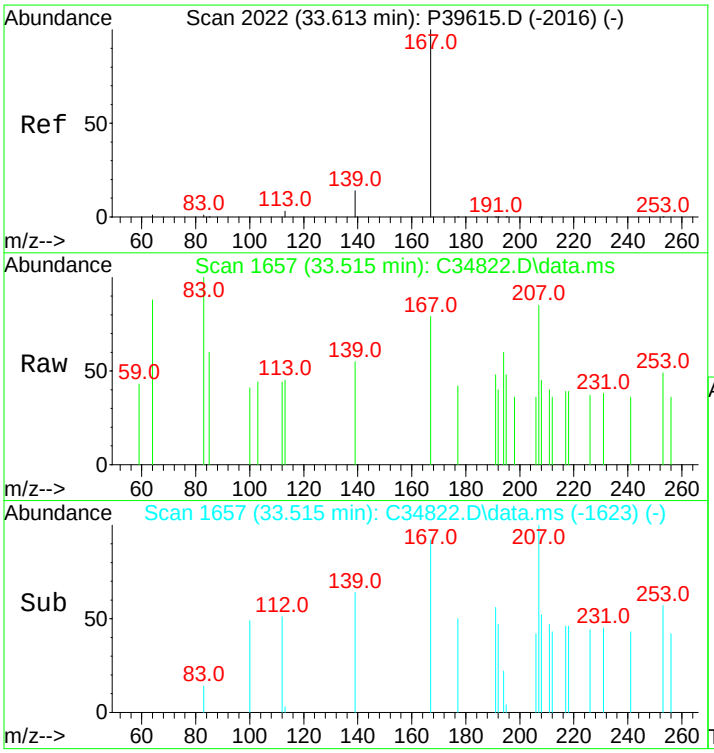


#55
Anthracene
Concen: 1.53 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:178 Resp: 154

Ion	Ratio	Lower	Upper
178	100		
176	153.2	15.5	23.3#

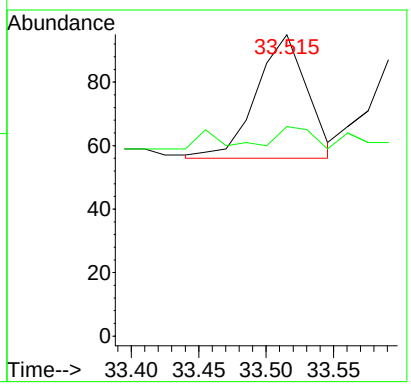


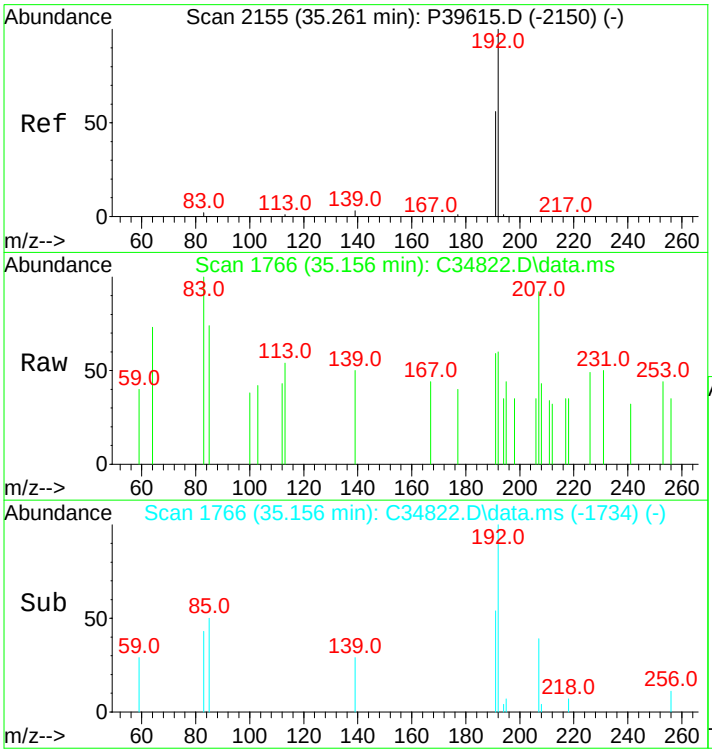


#56
Carbazole
Concen: 1.00 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:167 Resp: 102

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

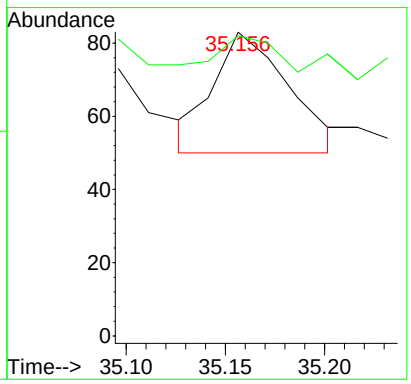


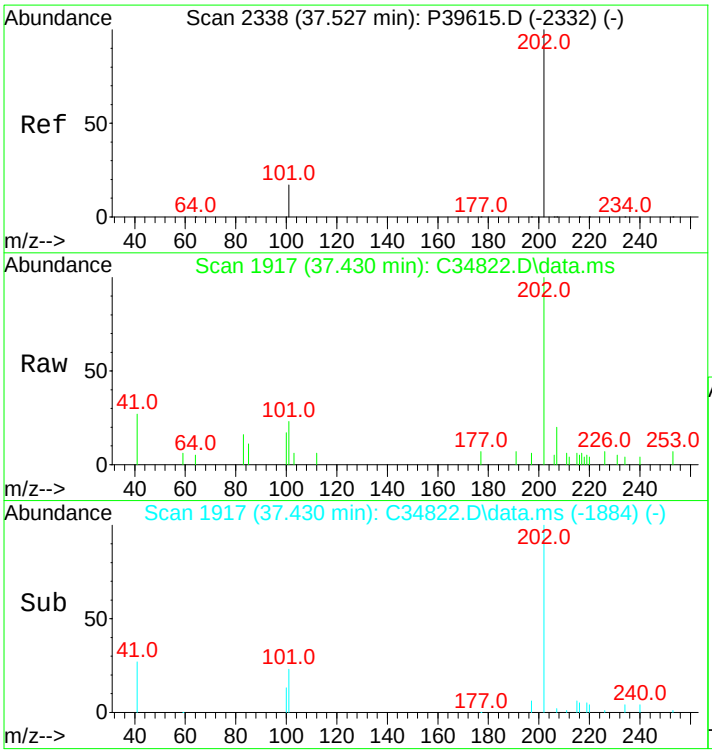


#57
1-Methylphenanthrene
Concen: 1.33 ng/mL m
RT: 35.156 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:192 Resp: 87

Ion	Ratio	Lower	Upper
192	100		
191	126.4	45.9	68.9#

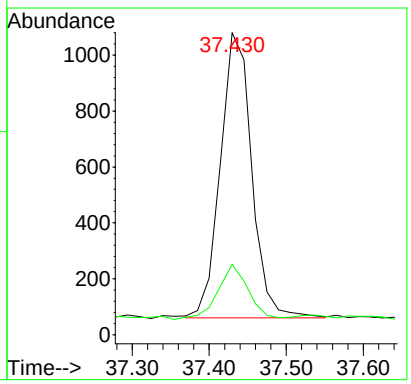


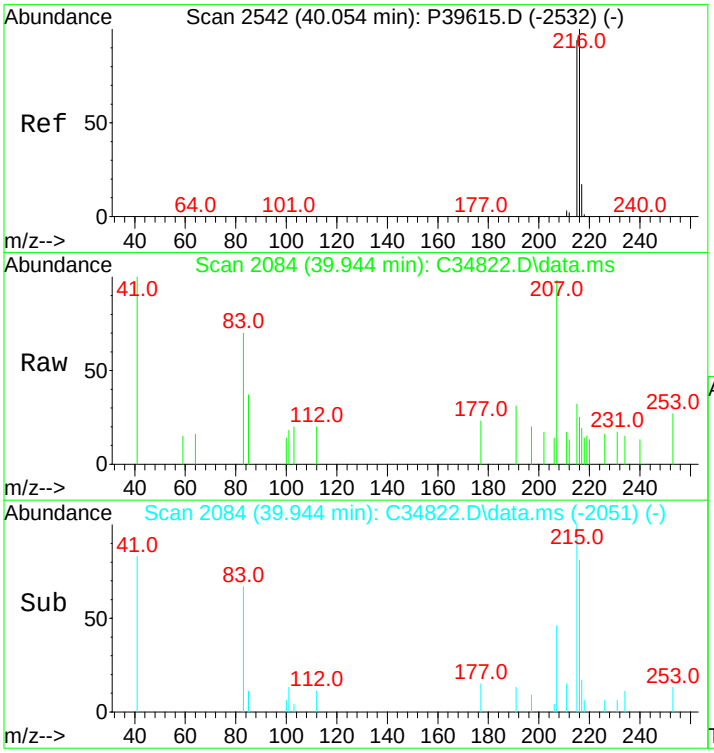


#58
Fluoranthene
Concen: 28.22 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:202 Resp: 2885

Ion	Ratio	Lower	Upper
202	100		
101	21.9	12.9	19.3#

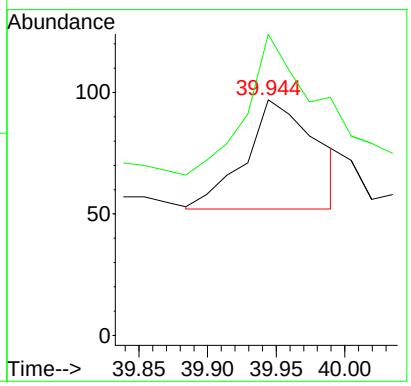


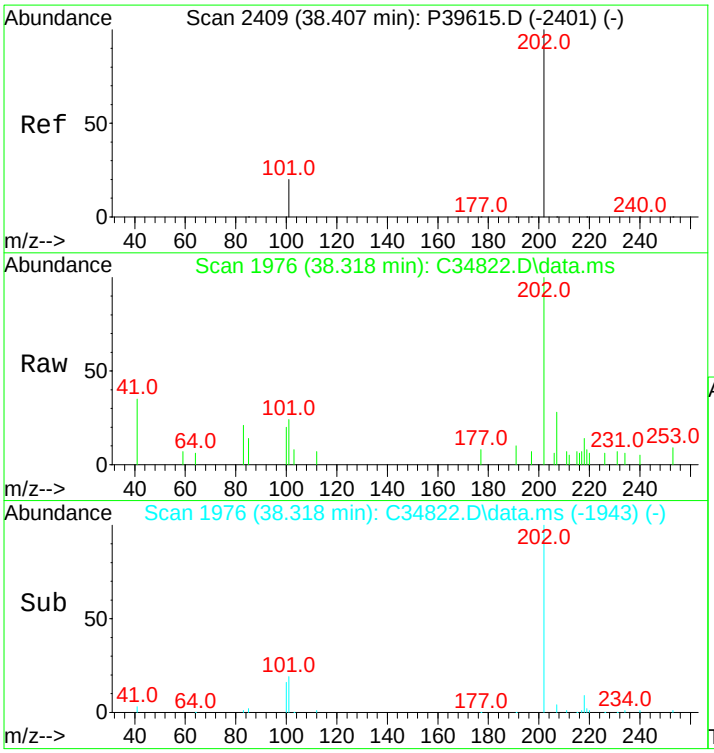


#59
Benzo(b)fluorene
Concen: 2.71 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:216 Resp: 161

Ion	Ratio	Lower	Upper
216	100		
215	179.5	76.3	114.5#

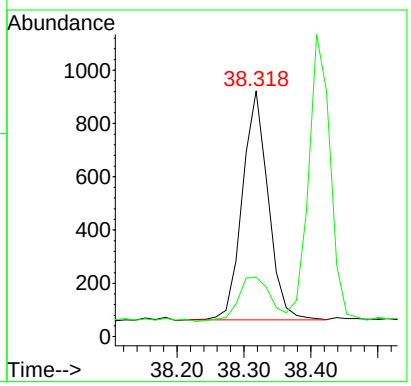


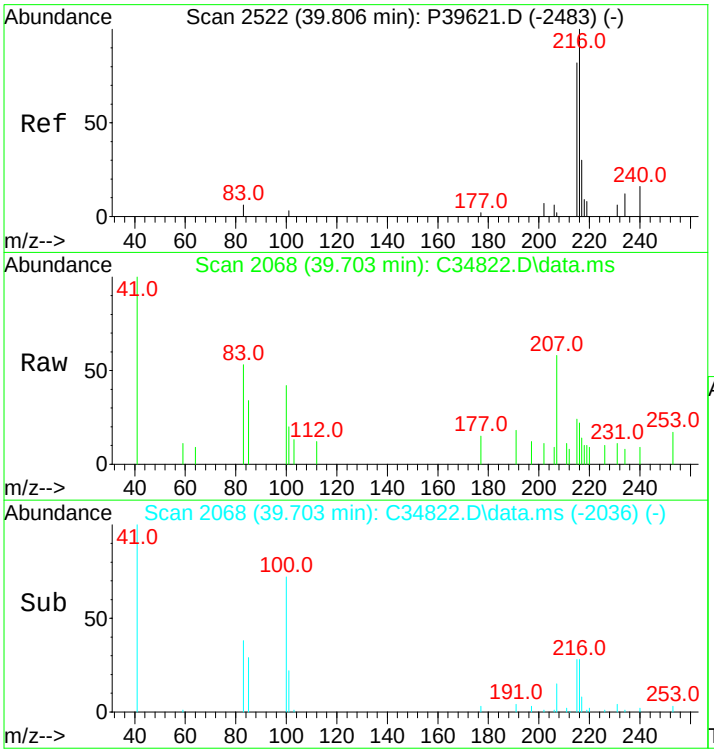


#60
Pyrene
Concen: 22.20 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:202 Resp: 2307

Ion	Ratio	Lower	Upper
202	100		
101	24.8	15.0	22.4#

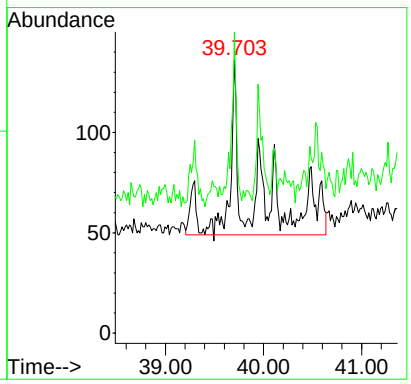


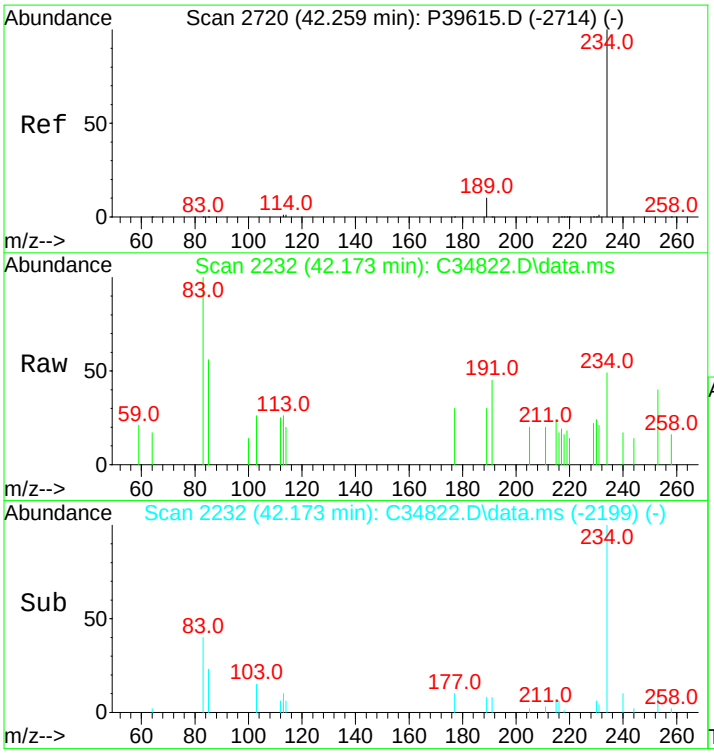


#61
C1-Fluoranthenes/Pyrenes
Concen: 12.10 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:216 Resp: 1257

Ion	Ratio	Lower	Upper
216	100		
215	23.0	71.8	107.6#

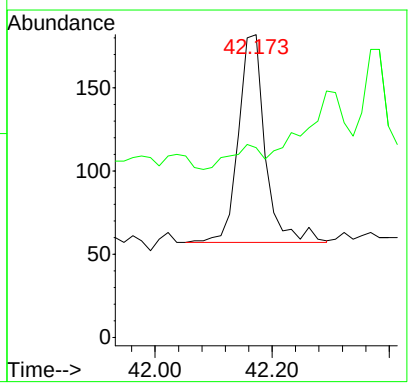


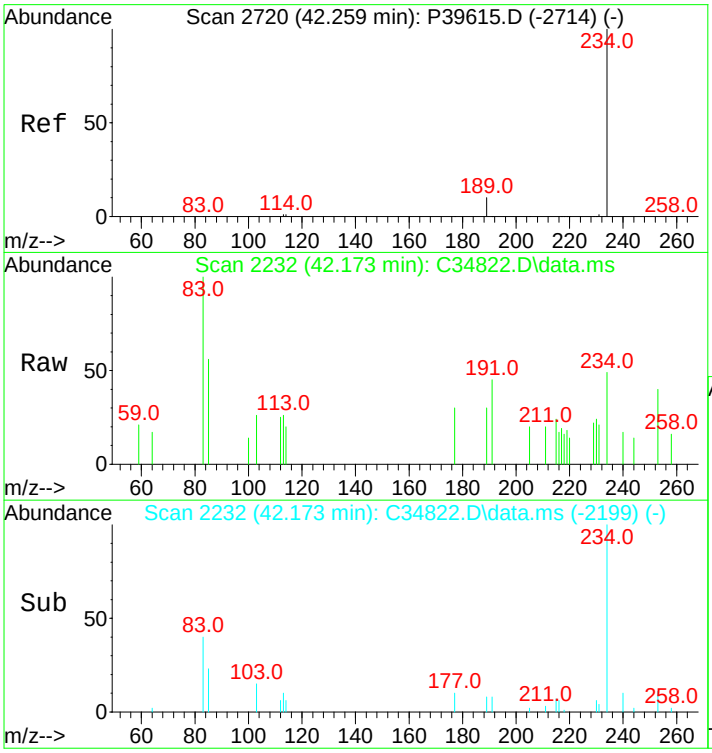


#66
Naphthobenzothiophene
Concen: 3.54 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:234 Resp: 396

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

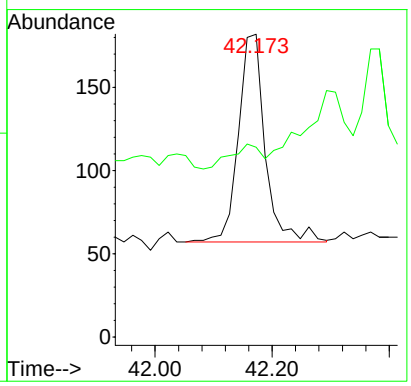


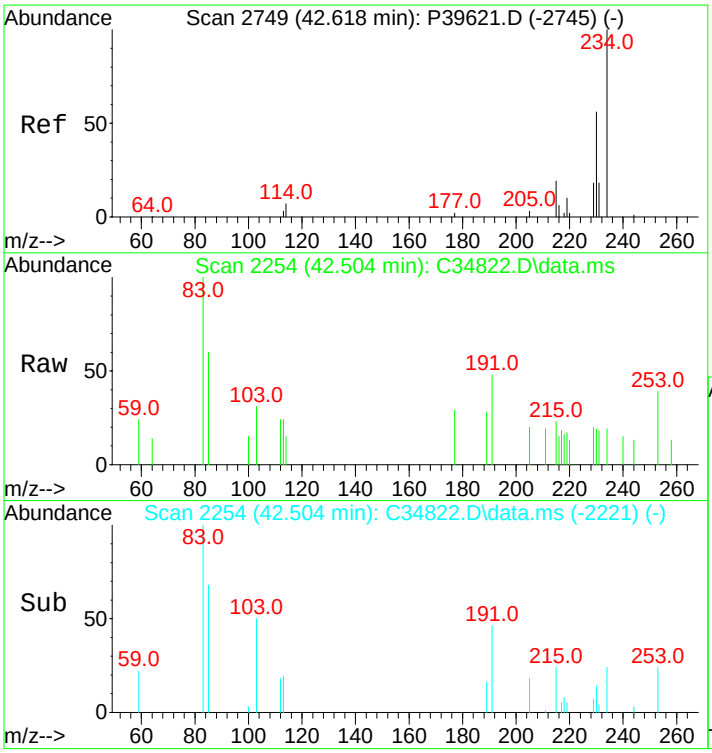


#67
Naphthobenzothiophene-2,1-D
Concen: 3.54 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:234 Resp: 396

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.5	30.7#

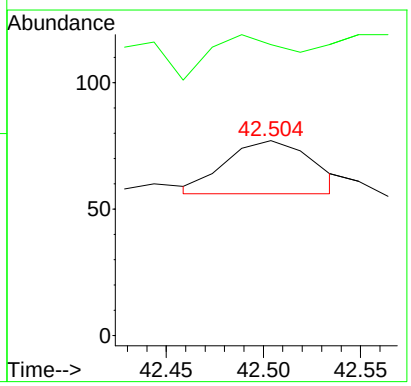


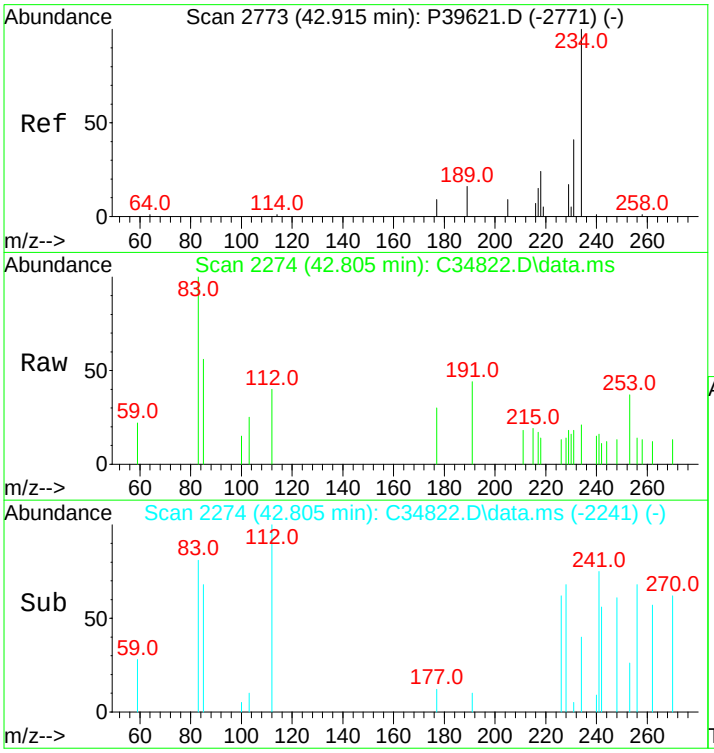


#68
Naphthobenzothiophene-1,2-D
Concen: 0.58 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:234 Resp: 65

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

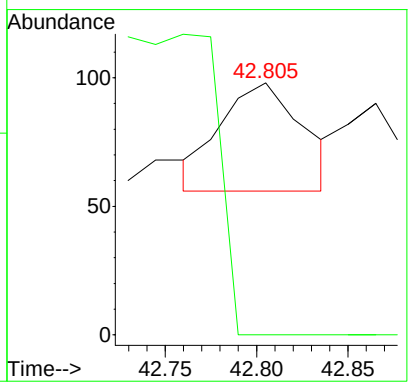


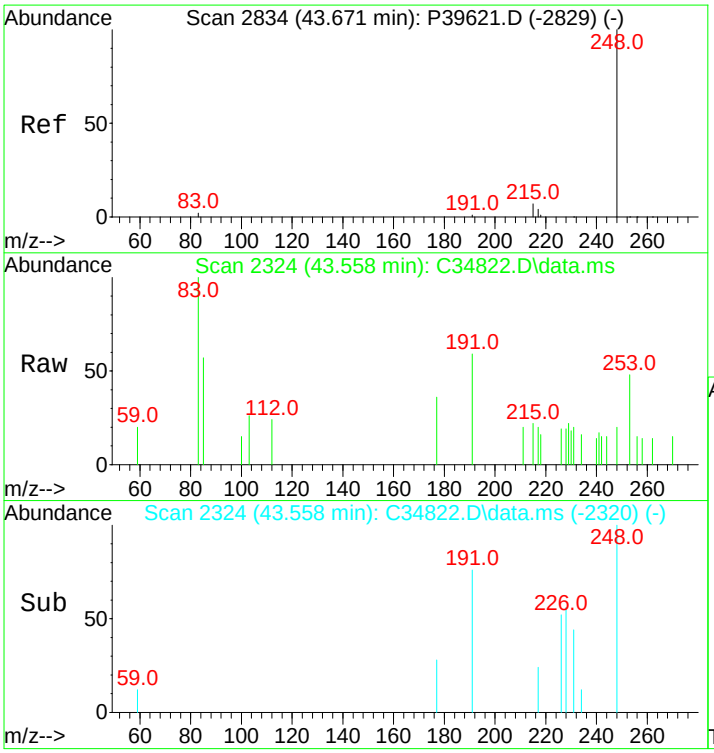


#69
Naphthobenzothiophene-2,3-D
Concen: 1.18 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:234 Resp: 132

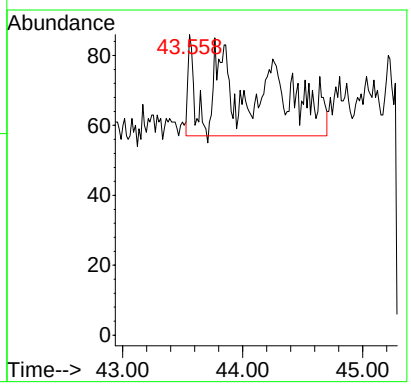
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

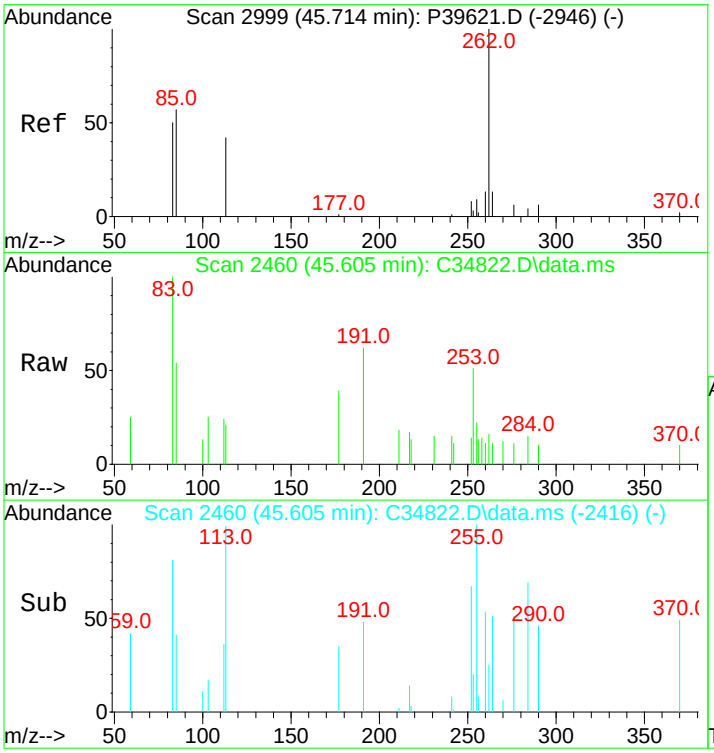




#70
C1-Naphthobenzothiophenes
Concen: 7.50 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

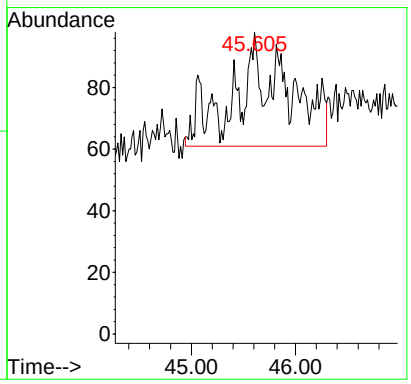
Tgt Ion:248 Resp: 839

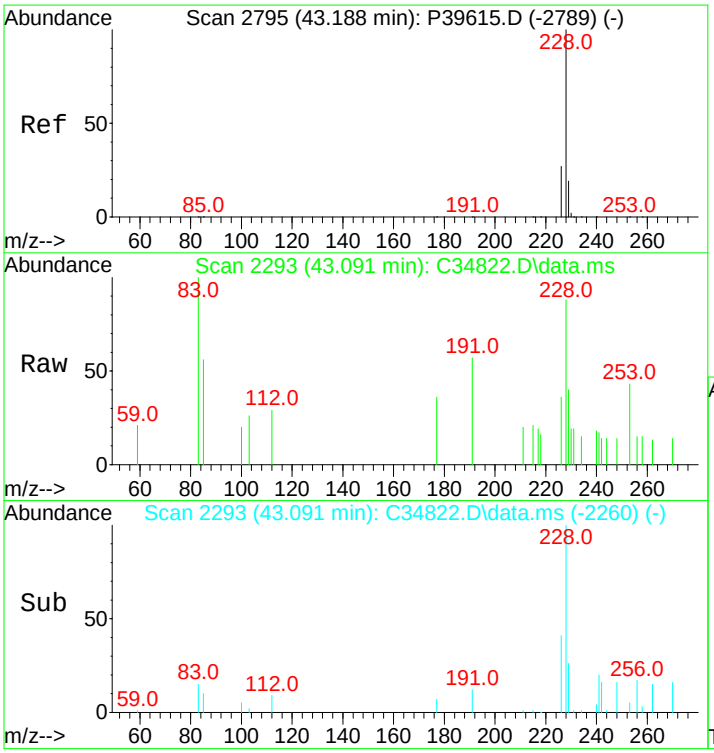




#71
C2-Naphthobenzothiophenes
Concen: 11.32 ng/ml m
RT: 45.605 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:262 Resp: 1266

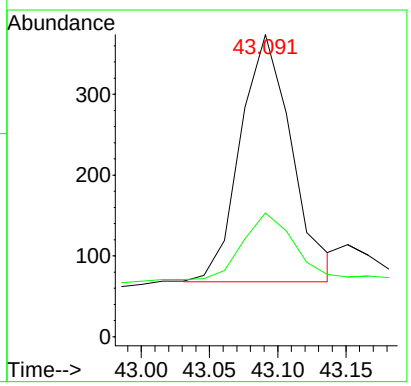


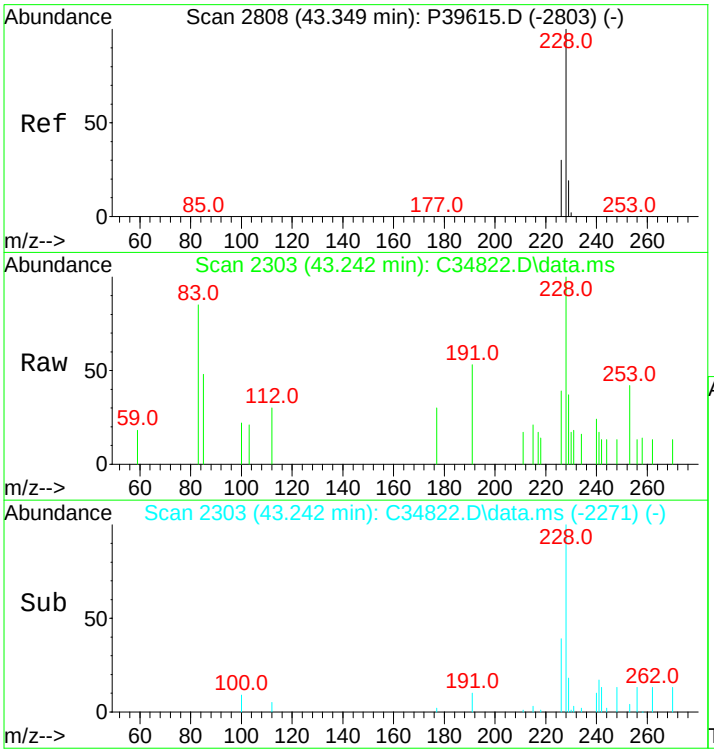


#75
Benz[a]anthracene
Concen: 8.34 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:228 Resp: 801

Ion	Ratio	Lower	Upper
228	100		
226	55.3	21.4	32.0#

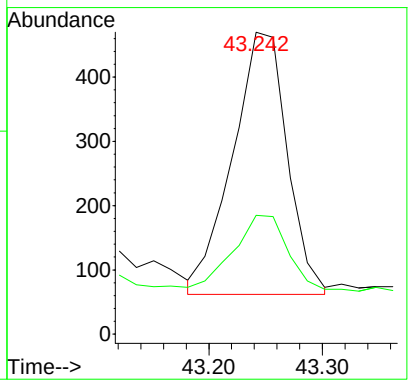


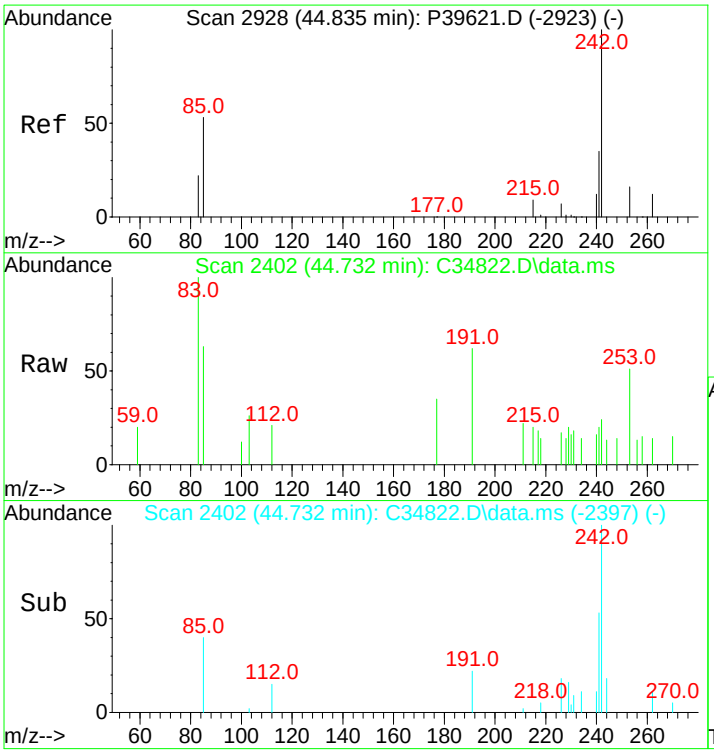


#77
Chrysene/Triphenylene
Concen: 14.12 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:228 Resp: 1368

Ion	Ratio	Lower	Upper
228	100		
226	29.1	23.7	35.5

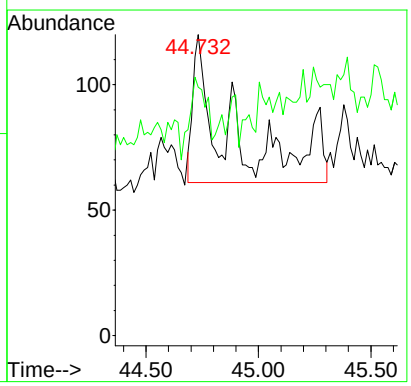


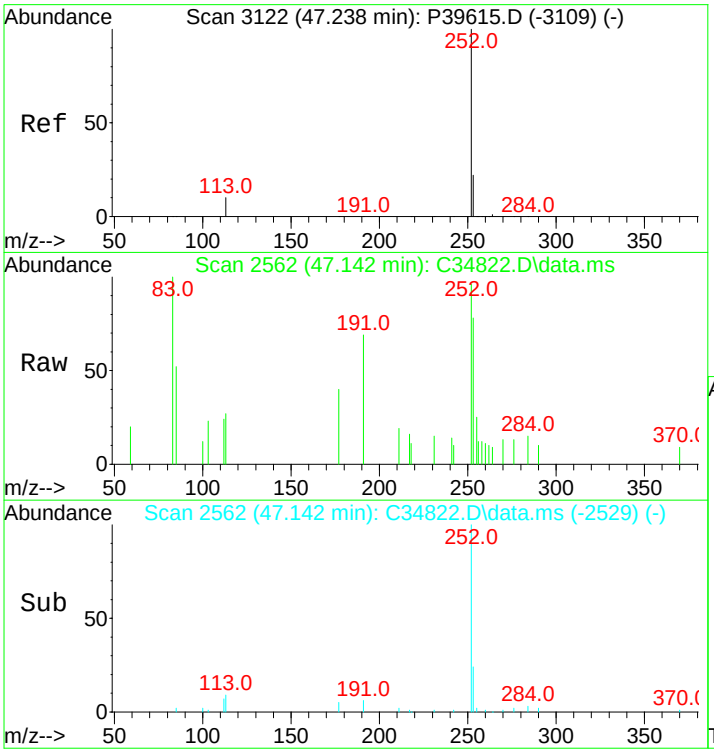


#78
C1-Chrysenes
Concen: 6.79 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:242 Resp: 658

Ion	Ratio	Lower	Upper
242	100		
241	0.0	31.4	47.2#

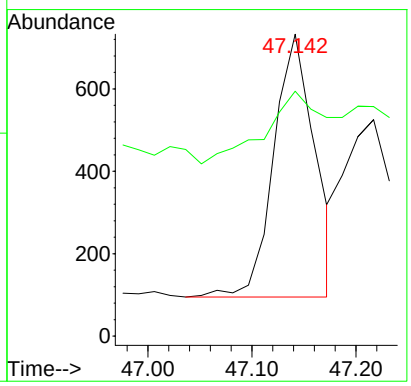


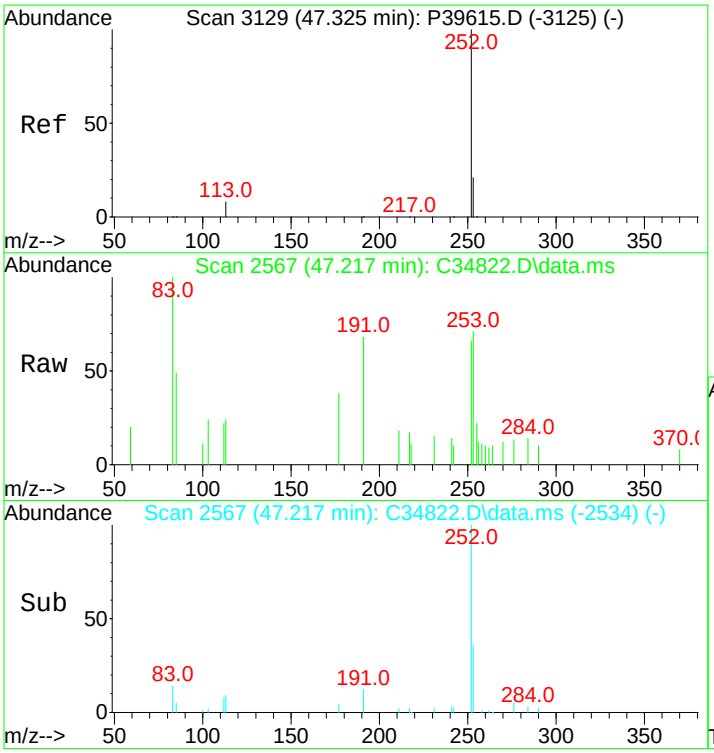


#82
Benzo[b]fluoranthene
Concen: 16.75 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 1767

Ion	Ratio	Lower	Upper
252	100		
253	37.2	19.0	28.4#

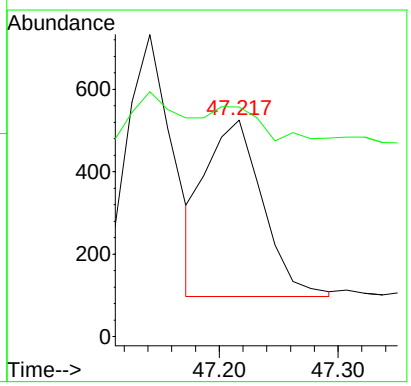


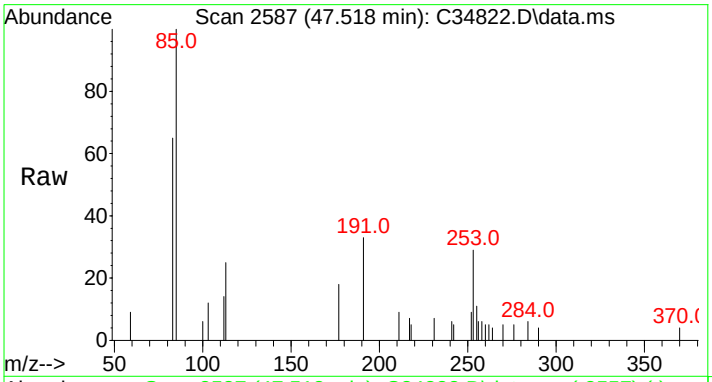


#83
Benzo[j]+[k]fluoranthene
Concen: 12.45 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 1430

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

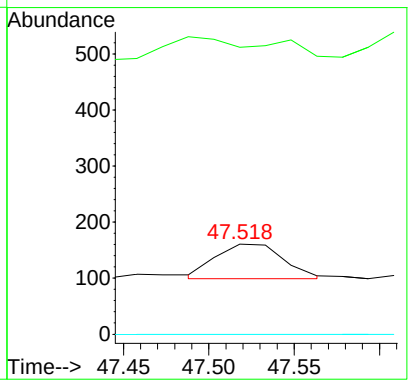


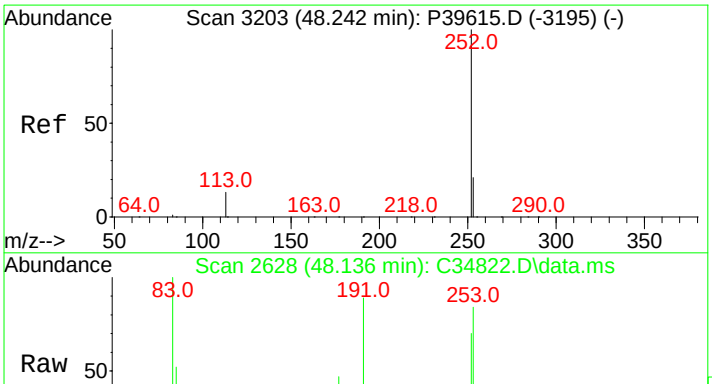


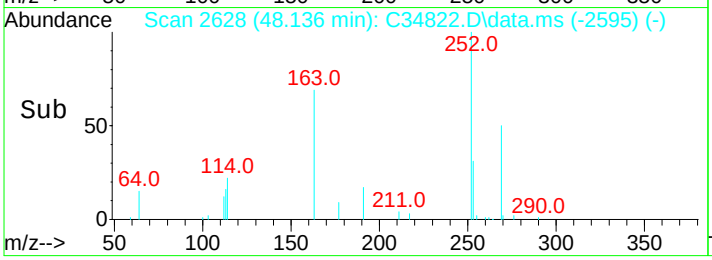
#84
Benzo[a]fluoranthene
Concen: 1.49 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.051 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 171

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0



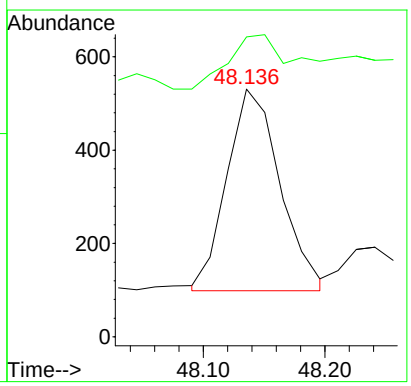


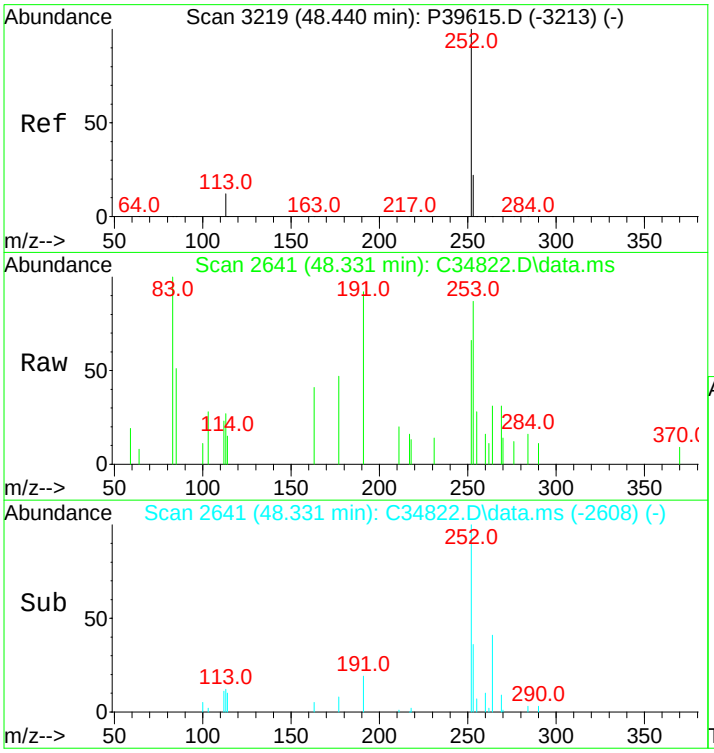


#85
Benzo[e]pyrene
Concen: 12.56 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 1310

Ion	Ratio	Lower	Upper
252	100		
253	19.7	19.2	28.8

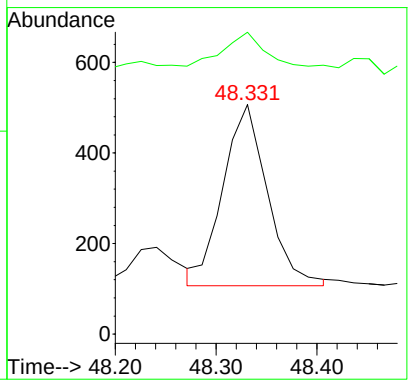


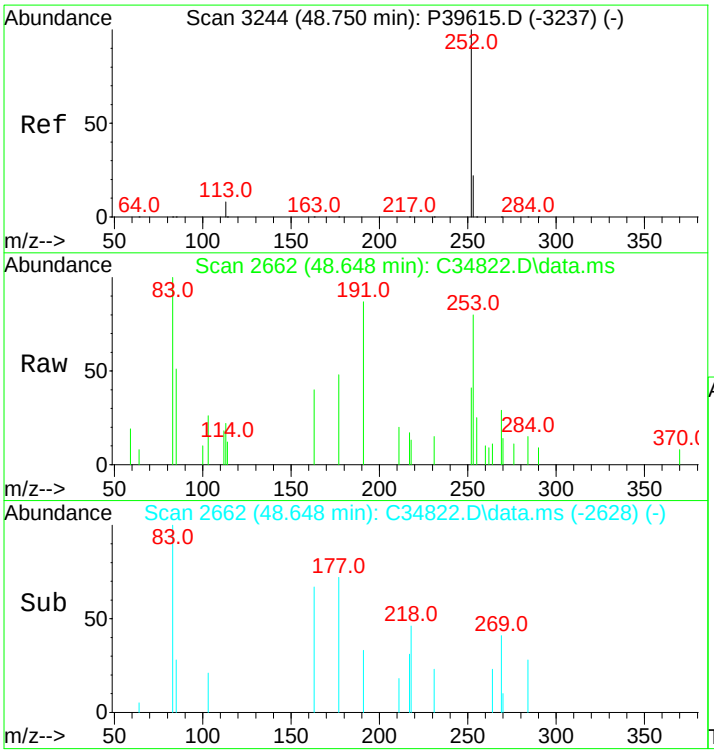


#87
Benzo[a]pyrene
Concen: 12.17 ng/mL m
RT: 48.331 min Scan# 2641
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 1222

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.5	29.3

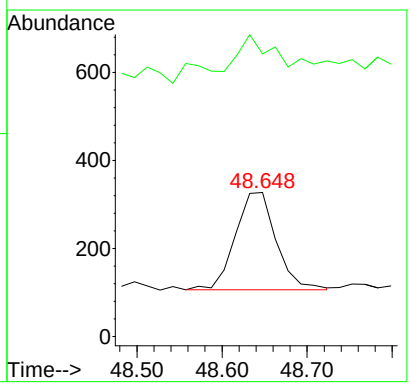


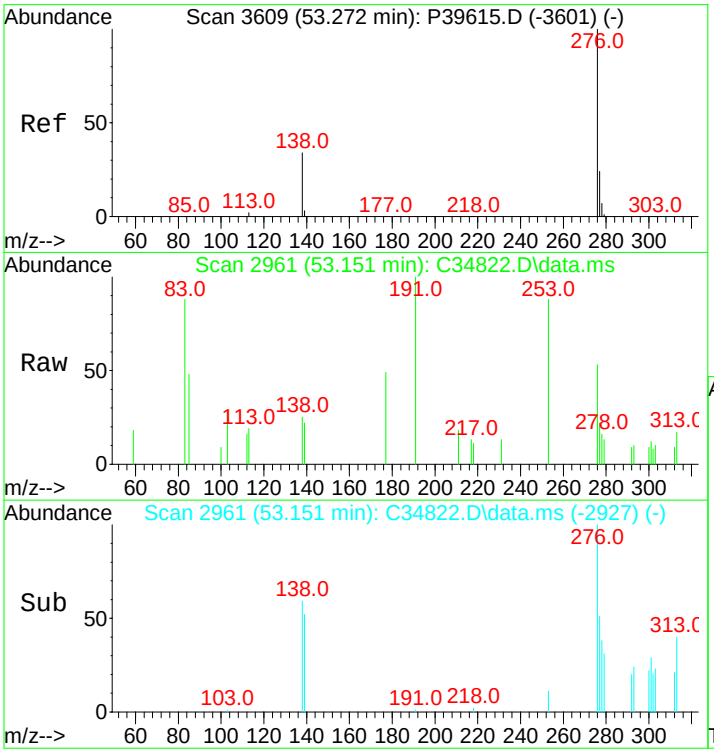


#88
Perylene
Concen: 6.88 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:252 Resp: 738

Ion	Ratio	Lower	Upper
252	100		
253	38.2	19.6	29.4#

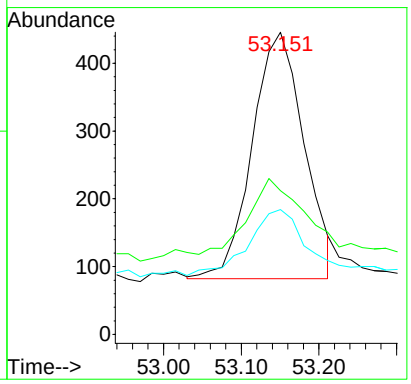


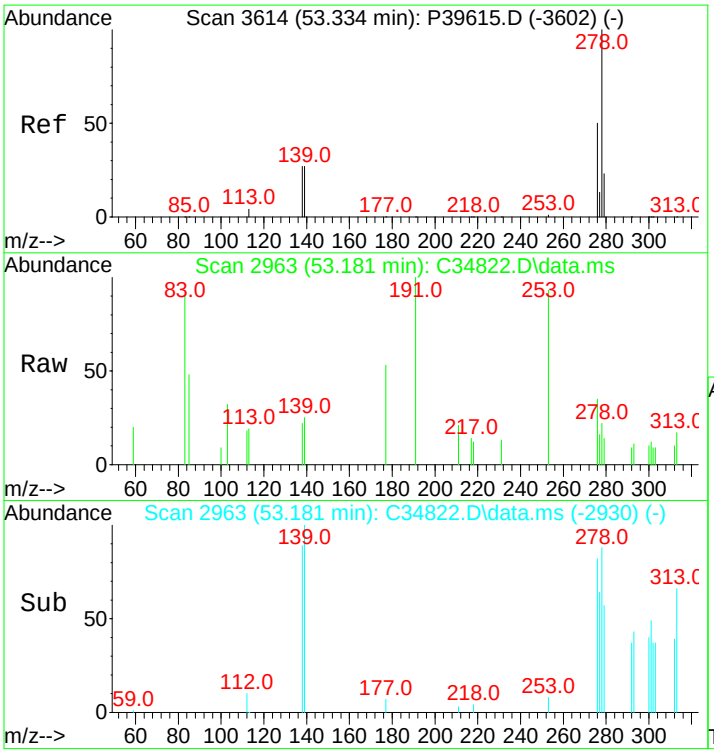


#89
Indeno[1,2,3-cd]pyrene
Concen: 14.45 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:276 Resp: 1689

Ion	Ratio	Lower	Upper
276	100		
138	31.0	23.3	34.9
277	24.1	19.0	28.4

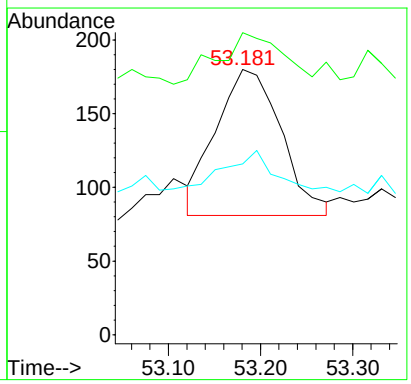


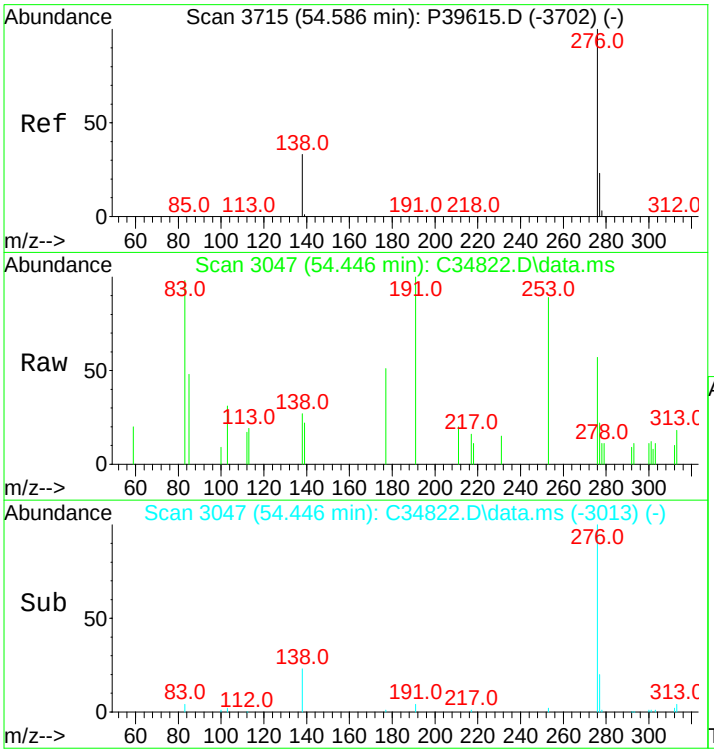


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.39 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:278 Resp: 488

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

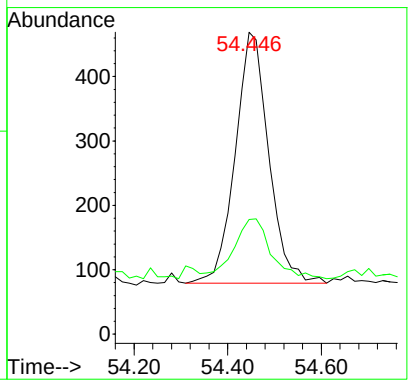


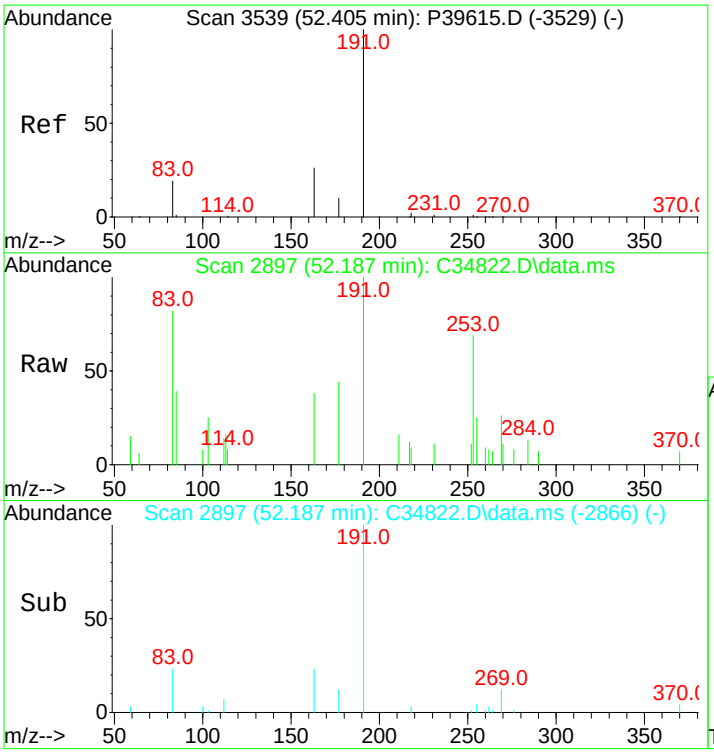


#91
Benzo[g,h,i]perylene
Concen: 15.70 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:276 Resp: 1939

Ion	Ratio	Lower	Upper
276	100		
277	26.2	18.9	28.3

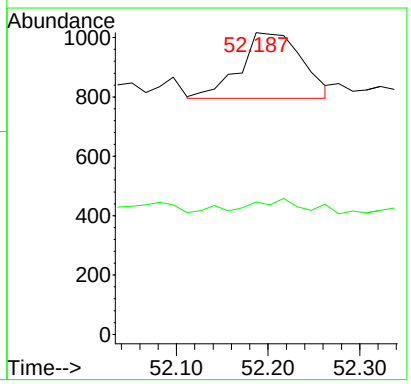


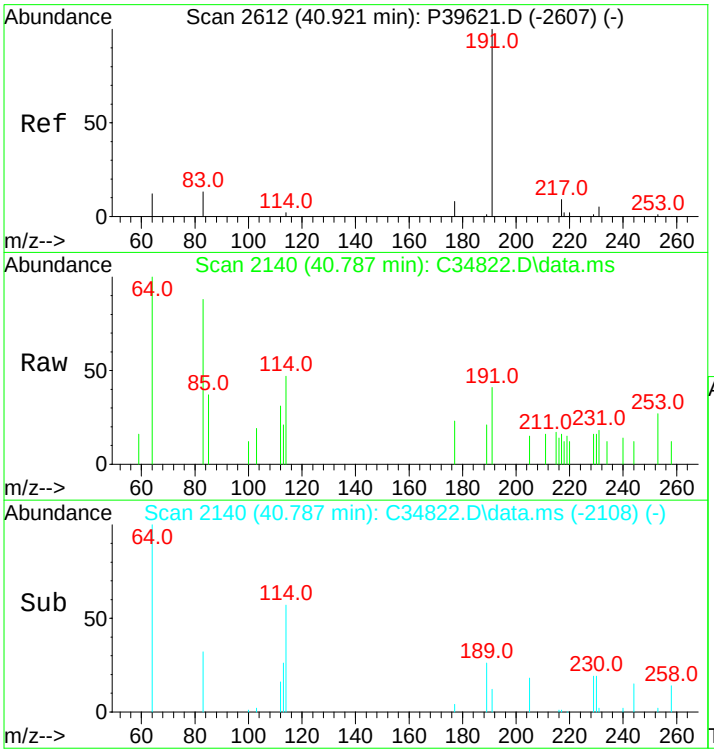


#92
Hopane (T19)
Concen: 52.43 ng/mL m
RT: 52.187 min Scan# 2897
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:191 Resp: 1045

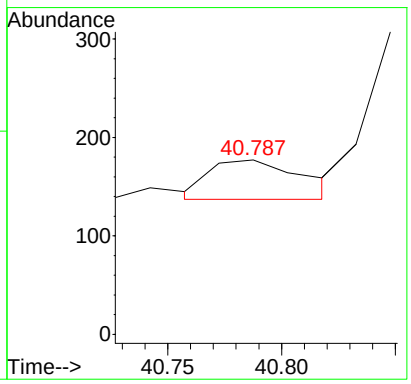
Ion	Ratio	Lower	Upper
191	100		
177	0.0	14.6	21.8#

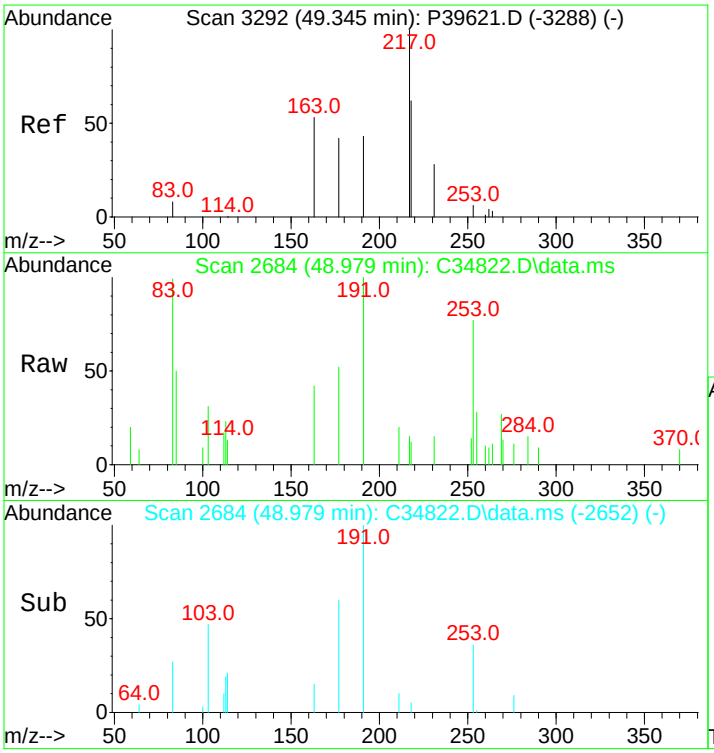




#94
C23 Tricyclic Terpane (T4)
Concen: 5.72 ng/ml m
RT: 40.787 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

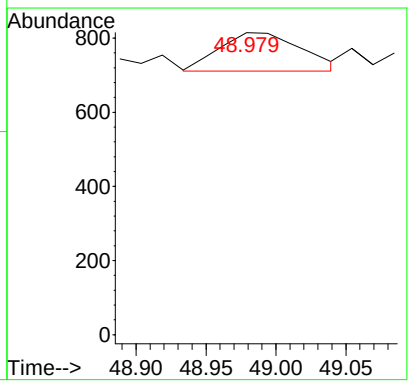
Tgt Ion:191 Resp: 114

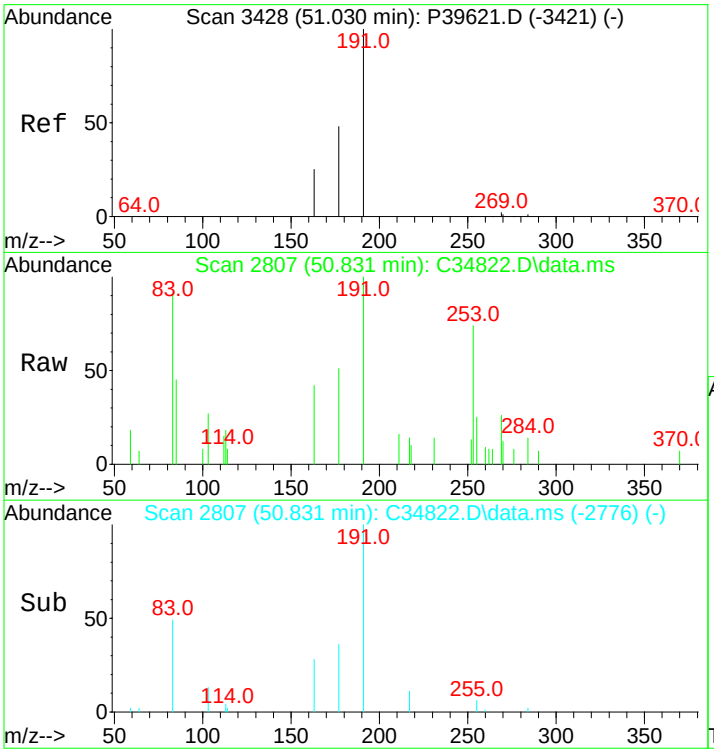




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 21.22 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

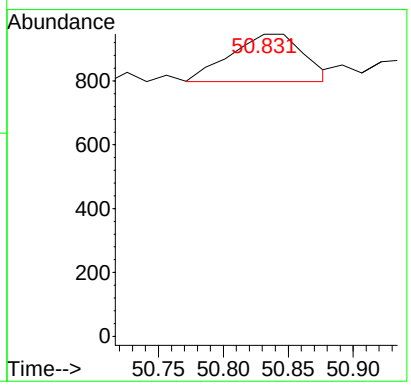
Tgt Ion:191 Resp: 423

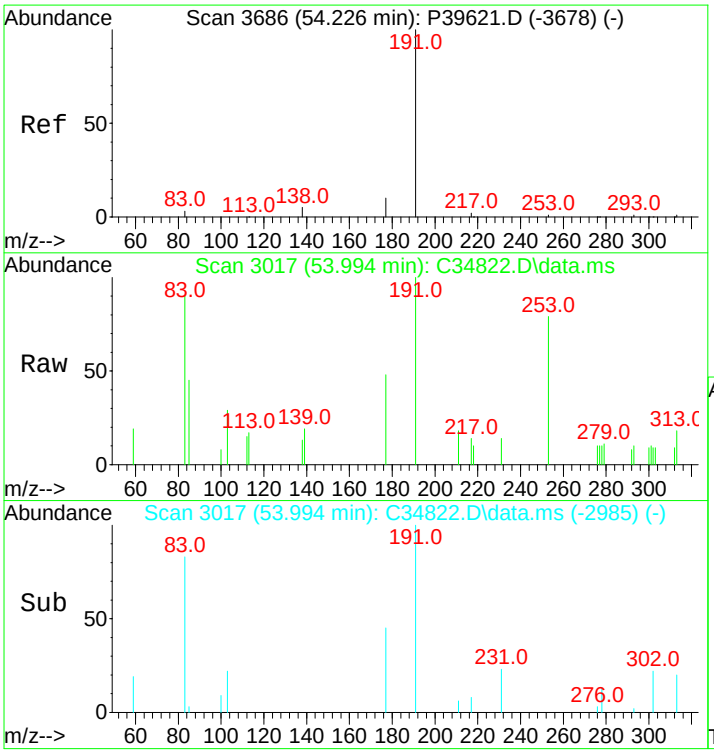




#110
30-Norhopane (T15)
Concen: 29.55 ng/ml m
RT: 50.831 min Scan# 2807
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

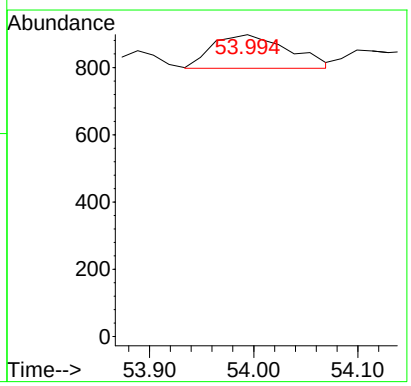
Tgt Ion:191 Resp: 589

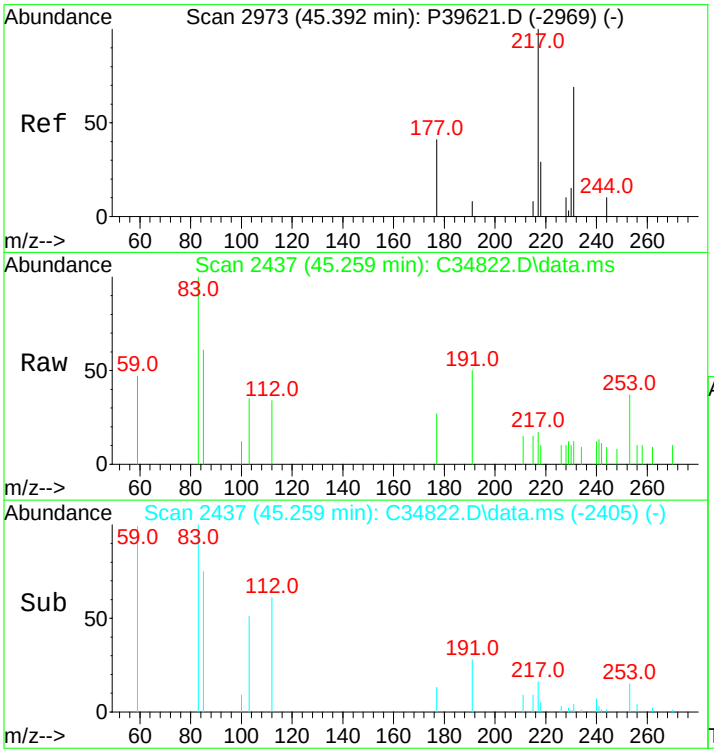




#116
30-Homohopane-22S (T21)
Concen: 25.44 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

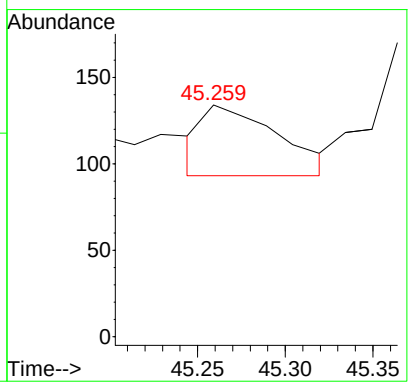
Tgt Ion:191 Resp: 507

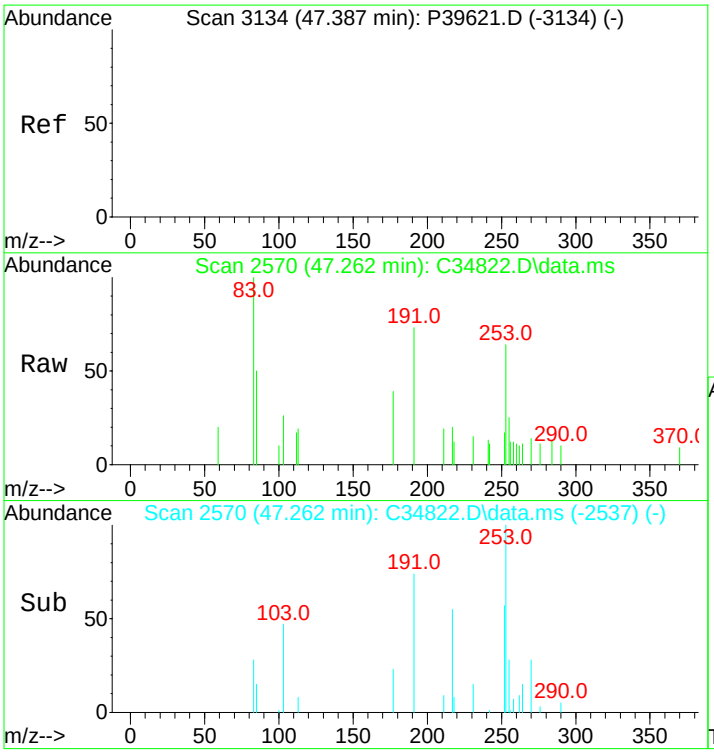




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 13.01 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

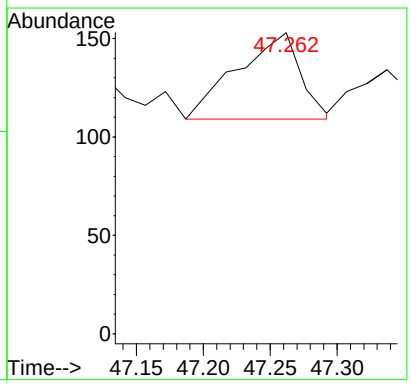
Tgt Ion:217 Resp: 123

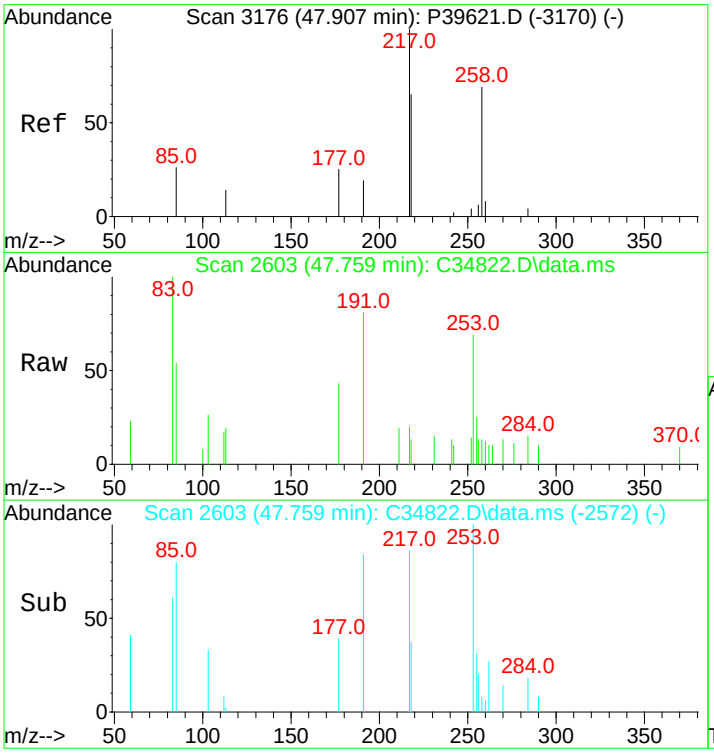




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 15.34 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

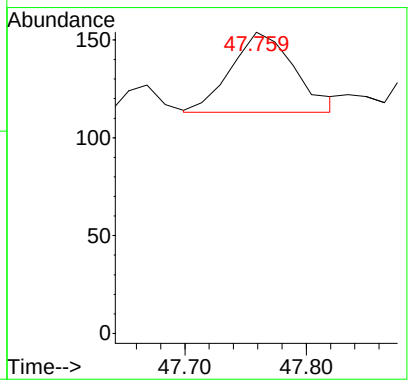
Tgt Ion:217 Resp: 145

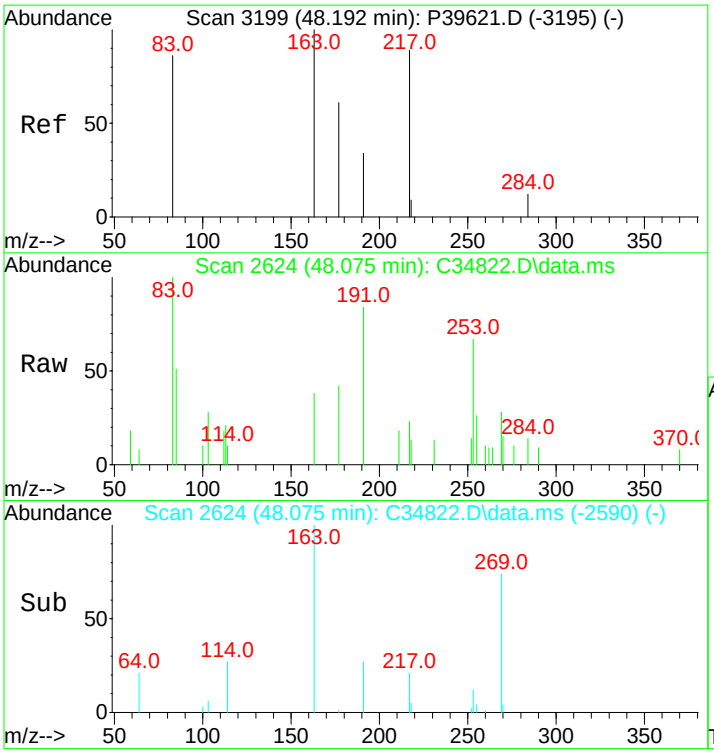




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 15.76 ng/ml m
RT: 47.759 min Scan# 2603
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

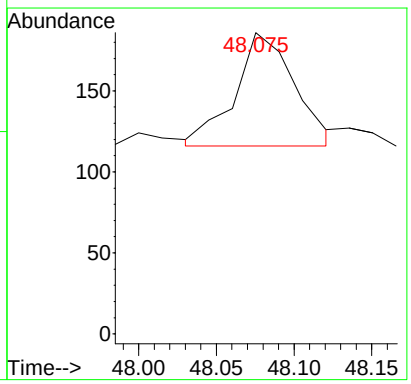
Tgt Ion:217 Resp: 149

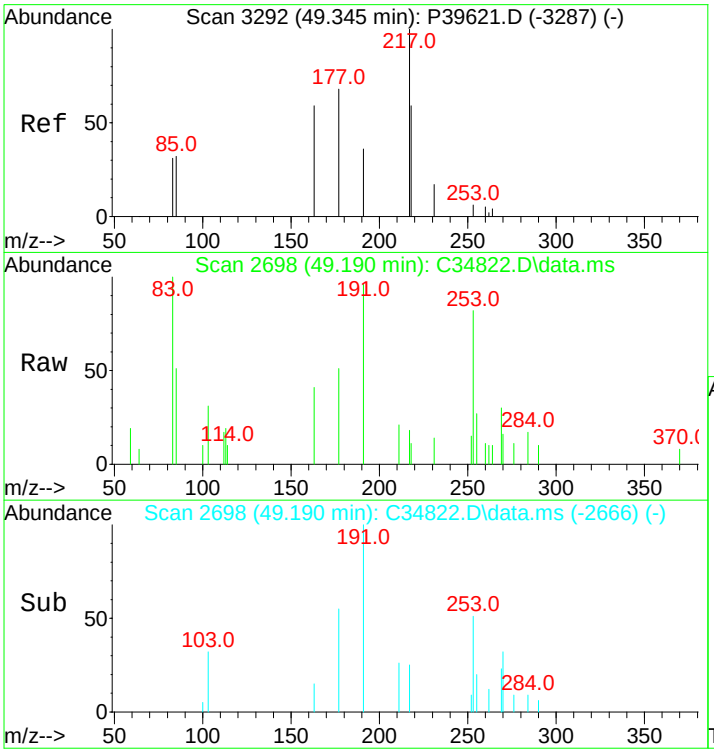




#133
Unknown Sterane (S18)
Concen: 19.57 ng/ml m
RT: 48.075 min Scan# 2624
Delta R.T. 0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

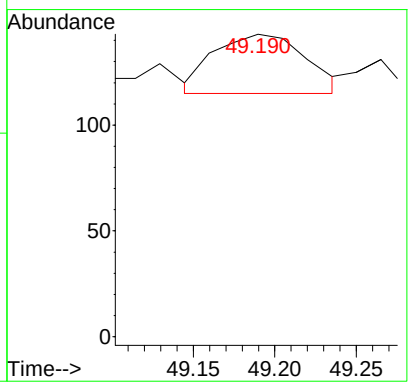
Tgt Ion:217 Resp: 185

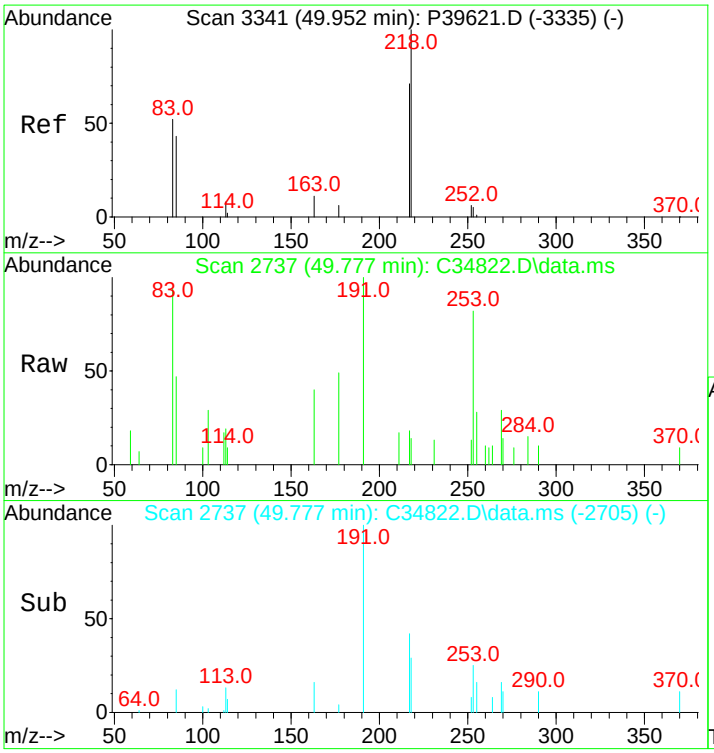




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 11.53 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

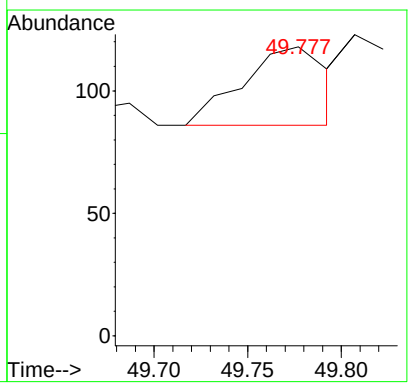
Tgt Ion:217 Resp: 109

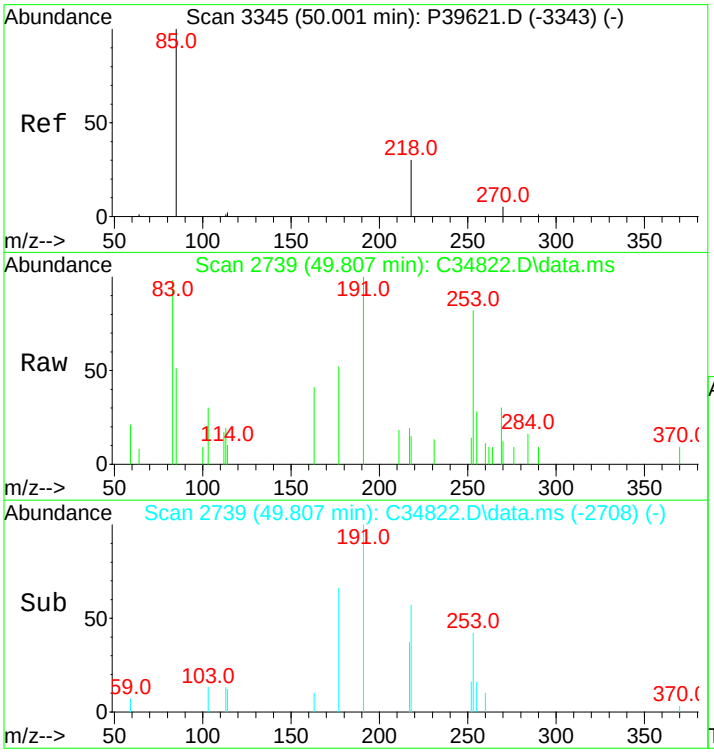




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 10.58 ng/ml
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

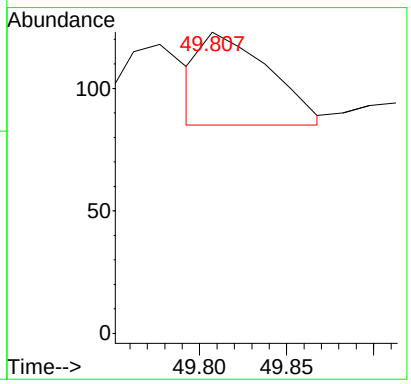
Tgt Ion:218 Resp: 100

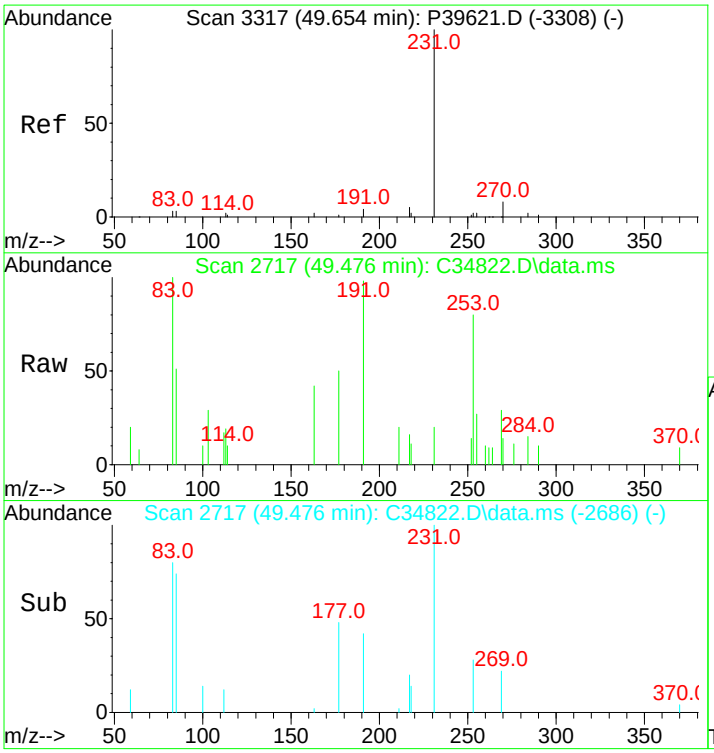




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 10.89 ng/ml m
RT: 49.807 min Scan# 2739
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

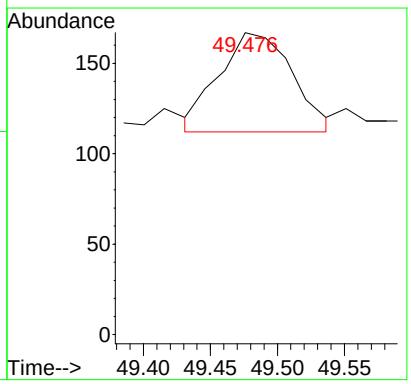
Tgt Ion:218 Resp: 103

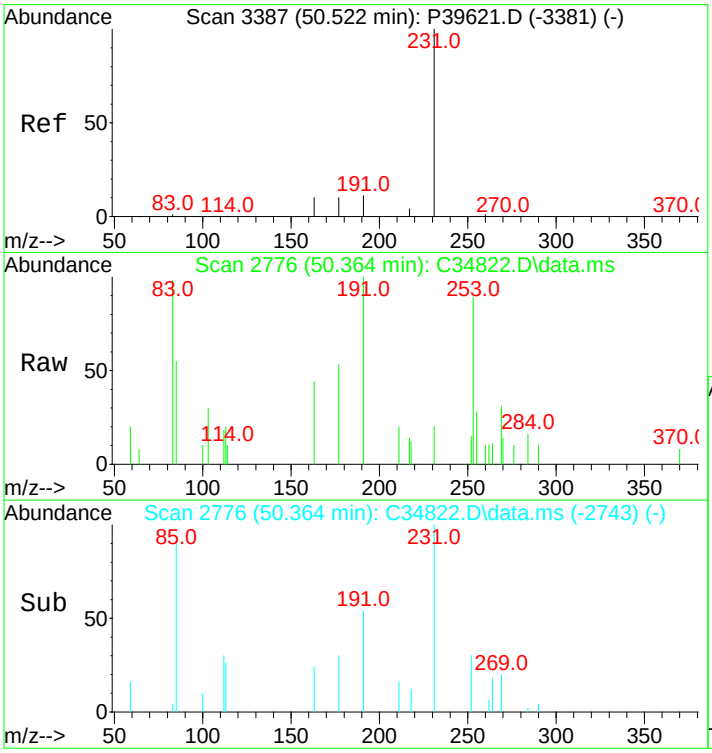




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 22.21 ng/mL m
RT: 49.476 min Scan# 2717
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

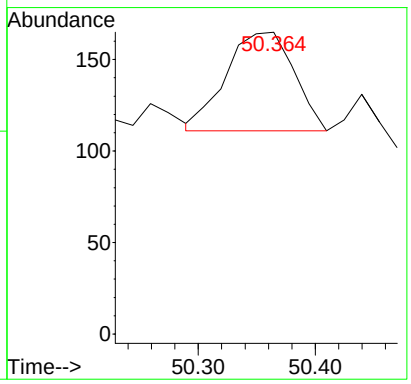
Tgt Ion:231 Resp: 210

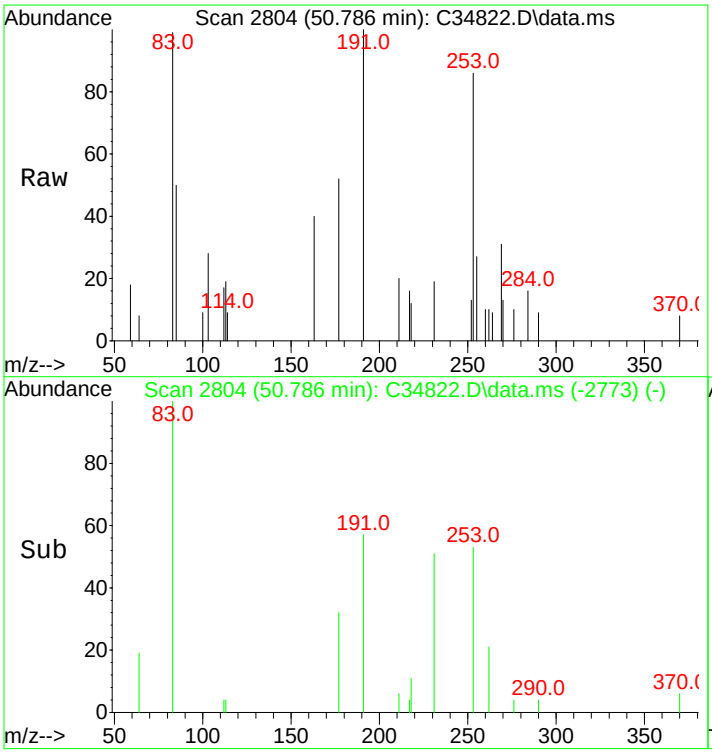




#146
C28,20S-triaromatic steroid
Concen: 23.06 ng/mL
RT: 50.364 min Scan# 2776
Delta R.T. -0.000 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

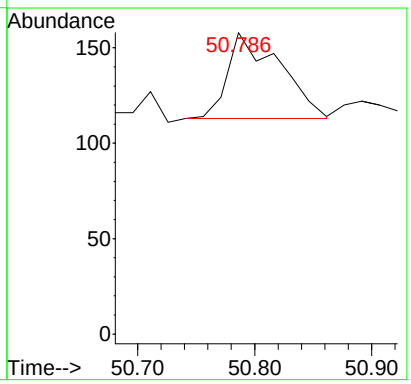
Tgt Ion:231 Resp: 218

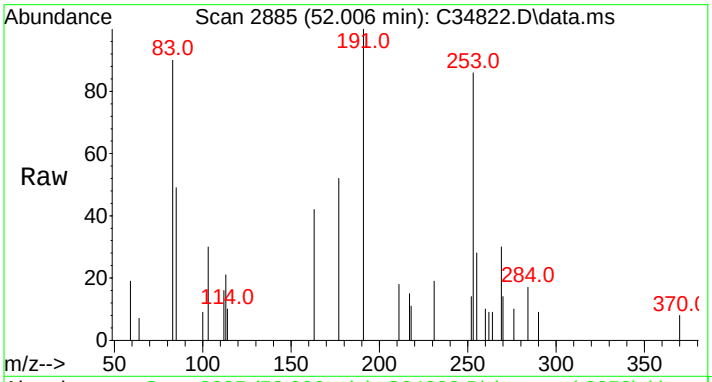




#147
C27,20R-triaromatic steroid
Concen: 14.60 ng/mL
RT: 50.786 min Scan# 2804
Delta R.T. -0.030 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

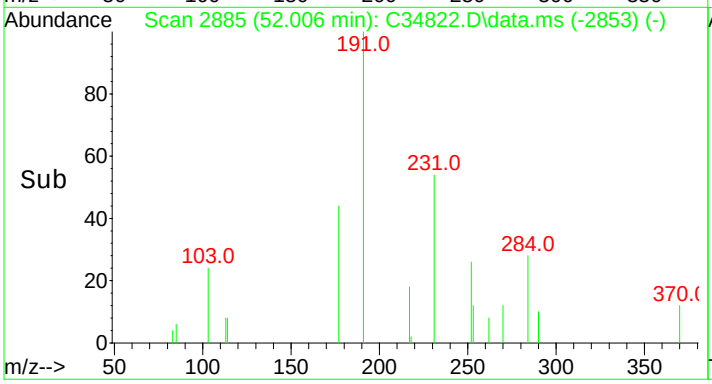
Tgt Ion:231 Resp: 138

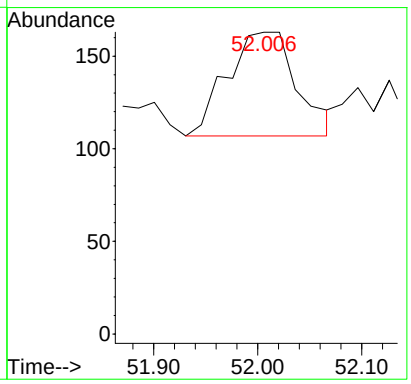




#148
C28,20R-triaromatic steroid
Concen: 27.71 ng/mL
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34822.D
Acq: 3 May 2012 10:29 pm

Tgt Ion:231 Resp: 262





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18044M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	31540	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	66683	851.465	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.15%			
42) Phenanthrene-d10	32.567	188	55038	889.118	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.91%			
86) Benzo[a]pyrene-d12	48.241	264	60881	931.412	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 93.14%			
127) 5B(H)Cholane - Surr	43.769	217	9724	986.106	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 98.61%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	612	5.322	ng/mL#	100
11) C1-Naphthalenes	22.511	142	978M5	8.504	ng/mL	
12) C2-Naphthalenes	25.341	156	1592M5	13.843	ng/mL	
13) C3-Naphthalenes	28.894	170	1633M5	14.200	ng/mL	
14) C4-Naphthalenes	31.694	184	2568M5	22.330	ng/mL	
16) 2-Methylnaphthalene	22.511	142	516	7.588	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	435	6.526	ng/mL#	100
18) Benzothiophene	20.012	134	177M3	1.710	ng/mL	
23) Biphenyl	24.408	154	155M3	1.802	ng/mL	
24) 2,6-Dimethylnaphthalene	25.025	156	294	5.262	ng/mL#	100
25) Dibenzofuran	27.479	168	387	3.918	ng/mL#	77
26) Acenaphthylene	26.094	152	246	2.155	ng/mL#	100
27) Acenaphthene	26.817	153	145M3	2.157	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	131M3	2.909	ng/mL	
29) Fluorene	28.849	166	348M3	4.694	ng/mL	
30) C1-Fluorenes	31.197	180	515M5	6.947	ng/mL	
31) C2-Fluorenes	33.531	194	1508M5	20.342	ng/mL	
32) C3-Fluorenes	35.909	208	3706M5	49.991	ng/mL	
33) Dibenzothiophene	32.161	184	484	4.073	ng/mL#	74
34) 4-Methyldibenzothiophe...	33.937	198	295	2.482	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.690	198	164	1.380	ng/mL#	100
37) OTP	34.329	198	12545	105.567	ng/mL#	100
38) C1-Dibenzothiophenes	34.329	198	13418M5	112.913	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	3267M5	27.492	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	6883M5	57.921	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	8178M5	68.818	ng/mL	
43) Phenanthrene	32.657	178	2684	25.707	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.615	192	493M3	4.722	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	622	5.958	ng/mL	95
46) 2-Methylanthracene(2MA)	34.886	192	486M3	4.655	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	865	8.285	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.157	192	454M3	4.348	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	3079M5	29.491	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.632	206	6927M5	66.347	ng/mL	
51) 5AA IS BKGD	36.632	206	2406	23.045	ng/mL	100
52) C3-Phenanthrenes/Anthr...	38.544	220	7516M5	71.988	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	8174M5	78.290	ng/mL	
55) Anthracene	32.838	178	1078M3	10.571	ng/mL	
56) Carbazole	33.501	167	369	3.582	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	483M3	7.300	ng/mL	
58) Fluoranthene	37.430	202	7810M3	75.319	ng/mL	
59) Benzo(b)fluorene	39.945	216	921M3	15.310	ng/mL	
60) Pyrene	38.303	202	7580	71.912	ng/mL#	90
61) C1-Fluoranthenes/Pyrenes	39.704	216	8290M5	78.648	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	8647M5	82.035	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.633	244	11029M5	104.633	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
64) C4-Fluoranthenes/Pyrenes	45.395	258	11033M5	104.671	ng/mL	
66) Naphthobenzothiophene	42.158	234	1406	12.390	ng/ml#	82
67) Naphthobenzothiophene-...	42.158	234	1406	12.390	ng/mL#	82
68) Naphthobenzothiophene-...	42.504	234	334M3	2.943	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	428M3	3.772	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	4556M5	40.148	ng/ml	
71) C2-Naphthobenzothiophenes	45.561	262	8043M5	70.876	ng/ml	
72) C3-Naphthobenzothiophenes	47.157	276	8644M5	76.172	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	8004M5	70.532	ng/mL	
75) Benz[a]anthracene	43.091	228	3896M3	38.918	ng/mL	
77) Chrysene/Triphenylene	43.242	228	5317M3	52.609	ng/mL	
78) C1-Chrysenes	44.717	242	5780M5	57.190	ng/mL	
79) C2-Chrysenes	46.449	256	6374M5	63.067	ng/mL	
80) C3-Chrysenes	47.473	270	12124M5	119.960	ng/mL	
81) C4-Chrysenes	48.979	284	8947M5	88.526	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	5715	51.955	ng/mL	100
83) Benzo[j]+[k]fluoranthene	47.202	252	4642	38.761	ng/mL	99
84) Benzo[a]fluoranthene	47.518	252	1013M3	8.459	ng/mL	
85) Benzo[e]pyrene	48.136	252	4817M3	44.273	ng/mL	
87) Benzo[a]pyrene	48.332	252	4365	41.669	ng/mL	98
88) Perylene	48.633	252	1719M3	15.355	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.136	276	4009M3	32.886	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.166	278	1123	9.684	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	4912	38.139	ng/mL	94
92) Hopane (T19)	52.202	191	7602M3	365.708	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191	1630M3	78.414	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	1251	60.182	ng/ml	100
96) C25 Tricyclic Terpane ...	43.061	191	2263M3	108.866	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	992M3	47.722	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	810M3	38.966	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	703M3	33.819	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	906M3	43.585	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	1012M3	48.684	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	803	38.630	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	863M3	41.516	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	2075	99.822	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	726M3	34.926	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	750	36.080	ng/mL	100
107) 17a(H)-22,29,30-Trisno...	48.979	191	2058M3	99.004	ng/ml	
108) 17a/b,21b/a 28,30-Bisn...	50.169	191	352M3	16.934	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	563M3	27.084	ng/ml	
110) 30-Norhopane (T15)	50.832	191	4654	223.889	ng/ml	100
111) 18a(H)-30-Norneohopane...	50.937	191	1878M3	90.345	ng/ml	
112) 17a(H)-Diahopane (X)	51.073	191	514	24.727	ng/ml	100
113) 30-Normoretane (T17)	51.630	191	1257	60.470	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.021	191	874M3	42.045	ng/ml	
115) Moretane (T20)	52.895	191	992M3	47.722	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	1922M3	92.461	ng/ml	
117) 30-Homohopane-22R (T22)	54.220	191	1923	92.509	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	734M3	35.310	ng/mL	
119) 30,31-Bishomohopane-22...	55.560	191	1905	91.643	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	1497	72.016	ng/ml	100
121) 30,31-Trishomohopane-2...	57.668	191	1044	50.223	ng/ml	100
122) 30,31-Trishomohopane-2...	58.286	191	812M3	39.063	ng/ml	
123) Tetrakishomohopane-22S...	60.319	191	850M3	40.891	ng/ml	
124) Tetrakishomohopane-22R...	61.207	191	967M3	46.519	ng/ml	
125) Pentakishomohopane-22S...	63.436	191	997M3	47.962	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.259	217	995M3	100.902	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	567M3	57.499	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	477M3	48.372	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1837	186.289	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1666M3	168.948	ng/ml	
133) Unknown Sterane (S18)	48.045	217	537M3	54.457	ng/ml	
135) 14a,17a-20S-Methylchol...	48.467	217	799	81.026	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	568	57.601	ng/ml	100
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	984M3	99.787	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	843	85.488	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.338	218	897M3	90.964	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	969M3	98.266	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	679	68.857	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	995M3	100.902	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	1340M3	135.889	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.823	218	1271M3	128.892	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	2559	259.507	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	3546	359.598	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	1360	137.917	ng/mL	100
148) C28,20R-triaromatic st...	51.991	231	2342M3	237.501	ng/mL	

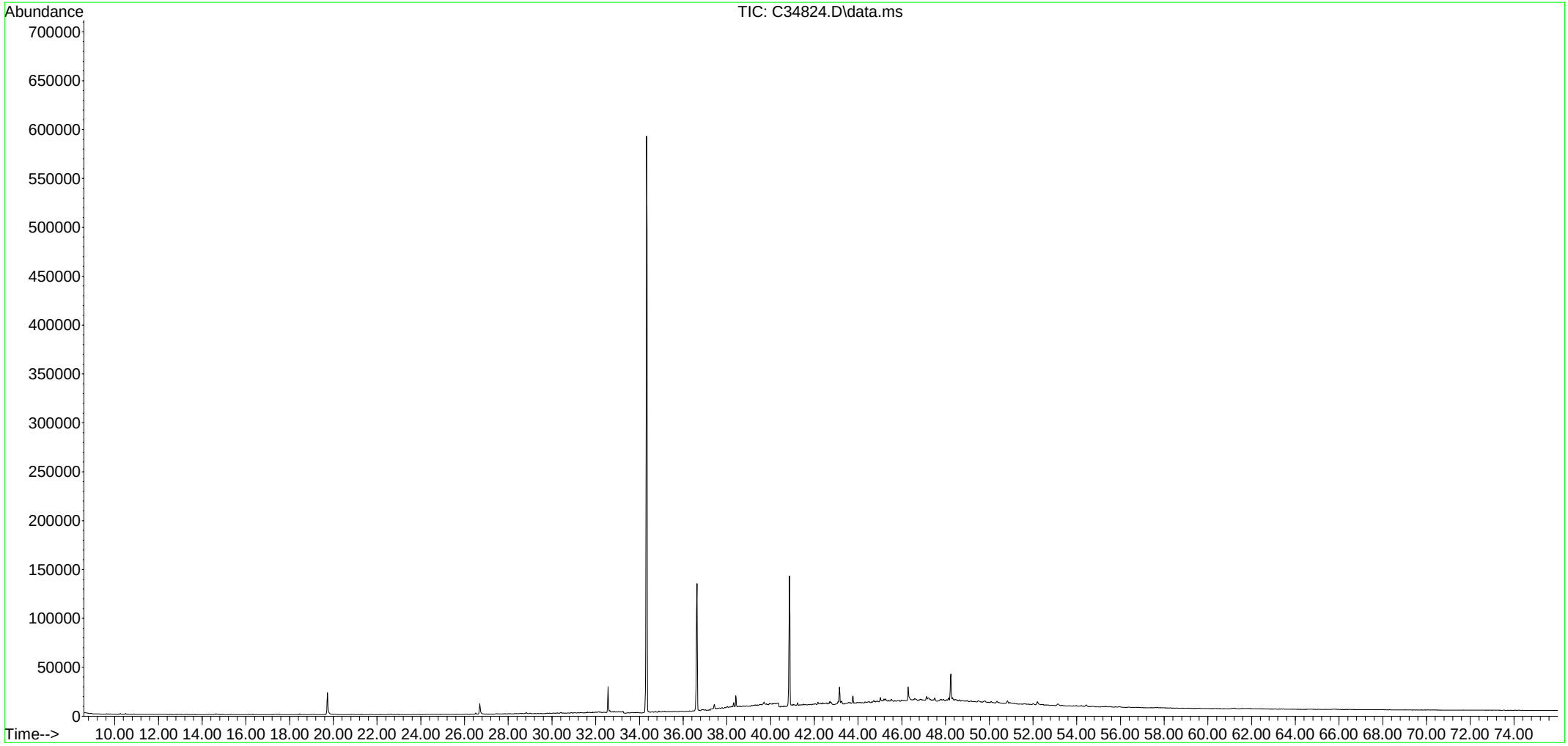
(#) = qualifier out of range (m) = manual integration (+) = signals summed

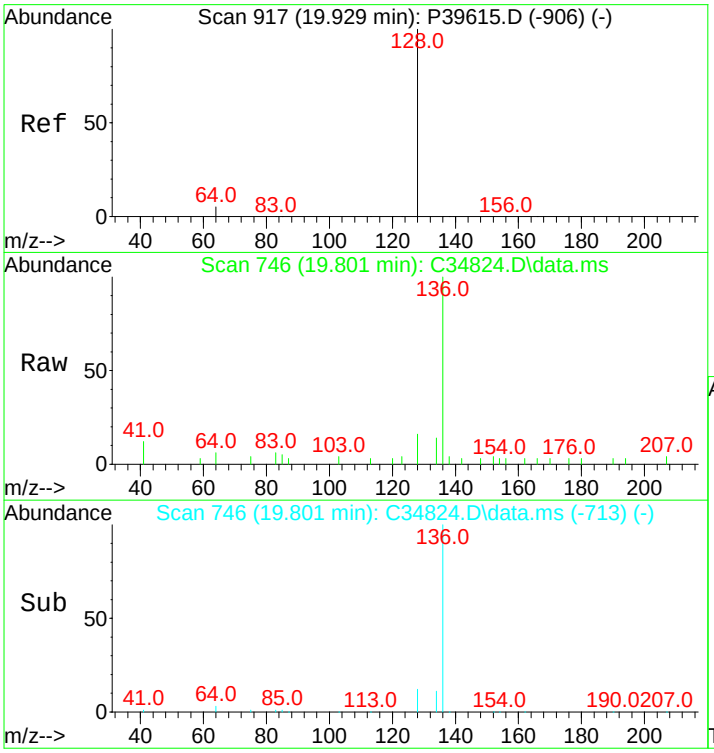
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34824.D
Acq On : 4 May 2012 12:00 am
Operator : AC
Sample : 1204035-10
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 05 12:46:28 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

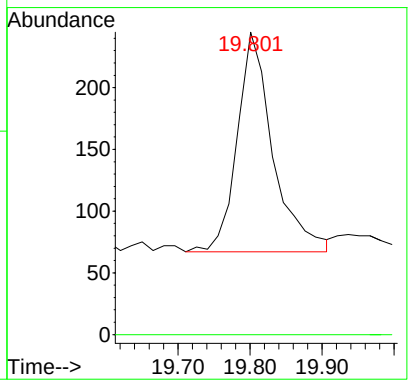


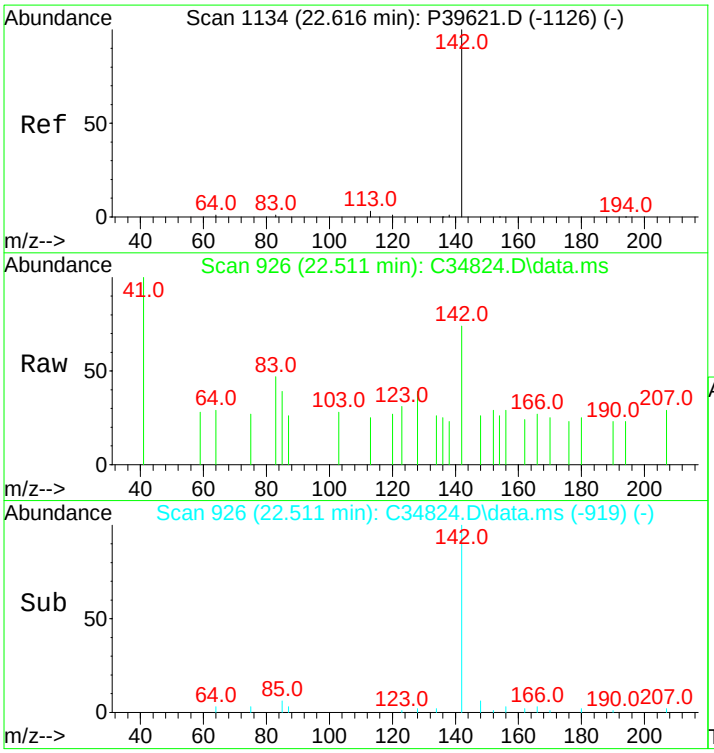


#10
Naphthalene
Concen: 5.32 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:128 Resp: 612

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

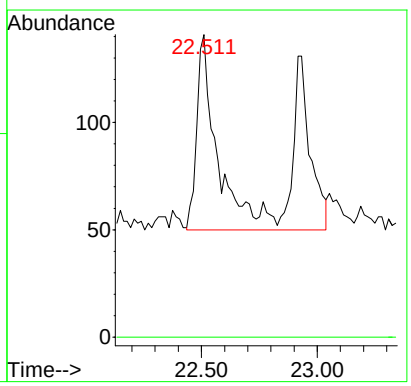


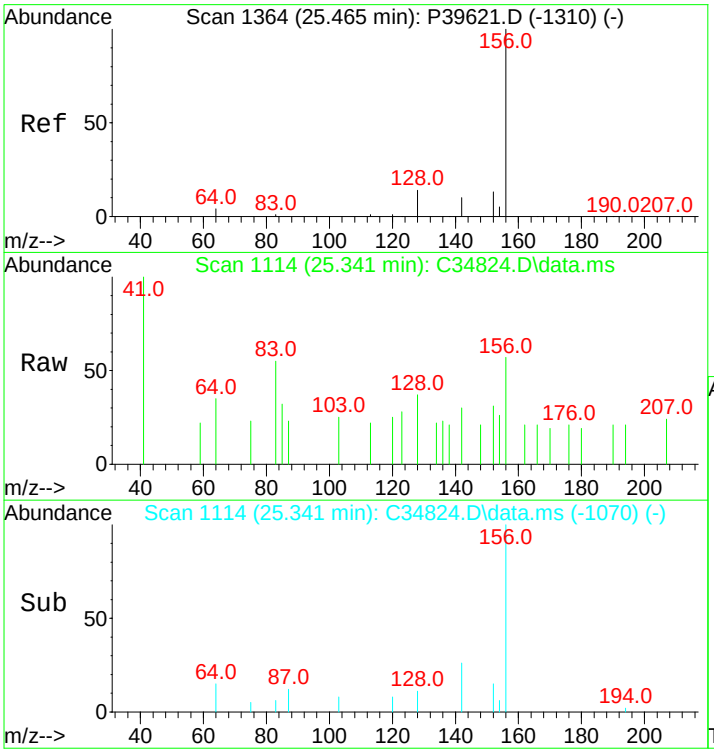


#11
C1-Naphthalenes
Concen: 8.50 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:142 Resp: 978

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

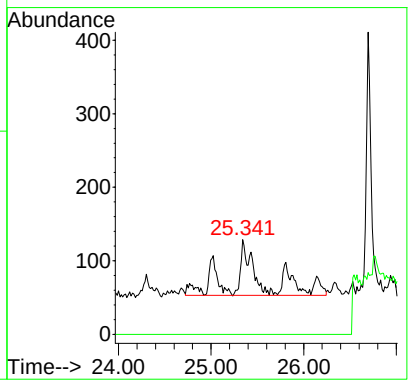


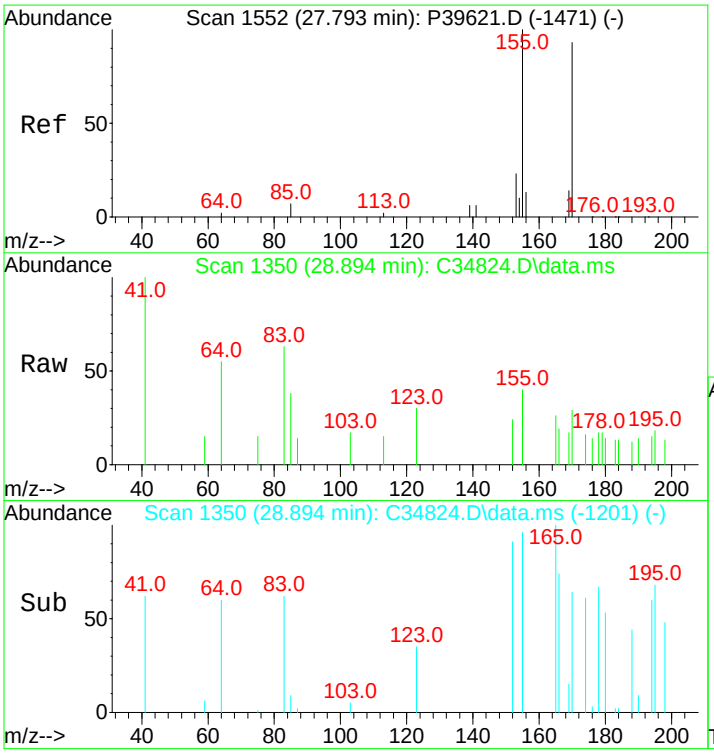


#12
C2-Naphthalenes
Concen: 13.84 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:156 Resp: 1592

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

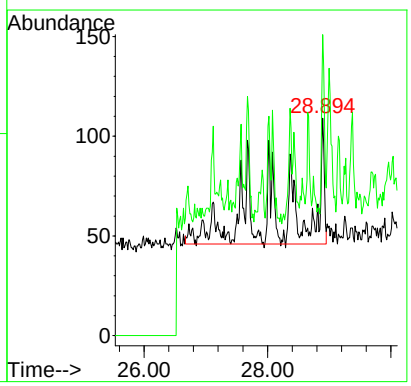


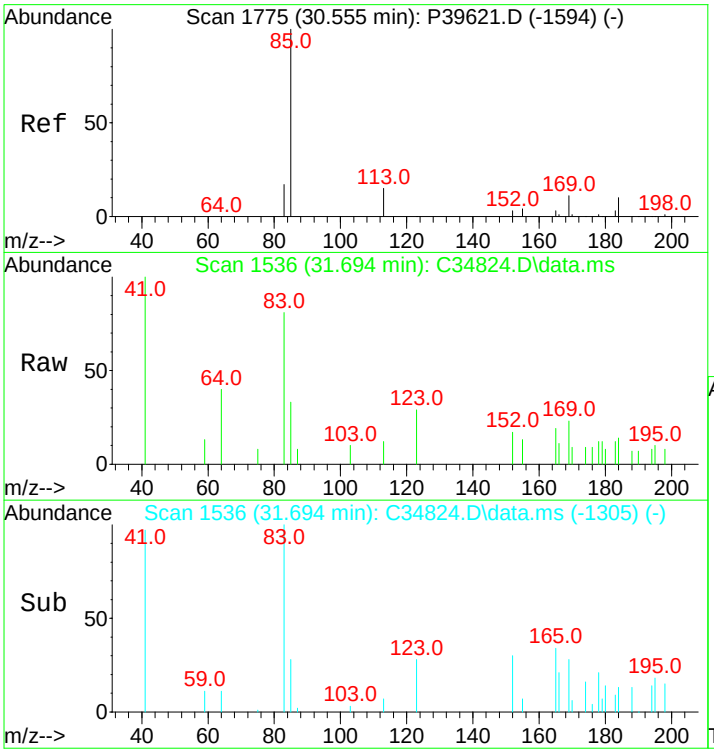


#13
C3-Naphthalenes
Concen: 14.20 ng/mL m
RT: 28.894 min Scan# 1350
Delta R.T. 1.224 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:170 Resp: 1633

Ion	Ratio	Lower	Upper
170	100		
155	9.4	81.8	122.6#

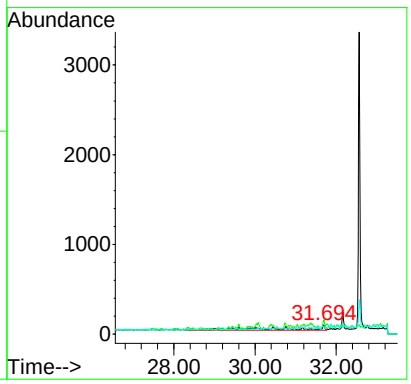


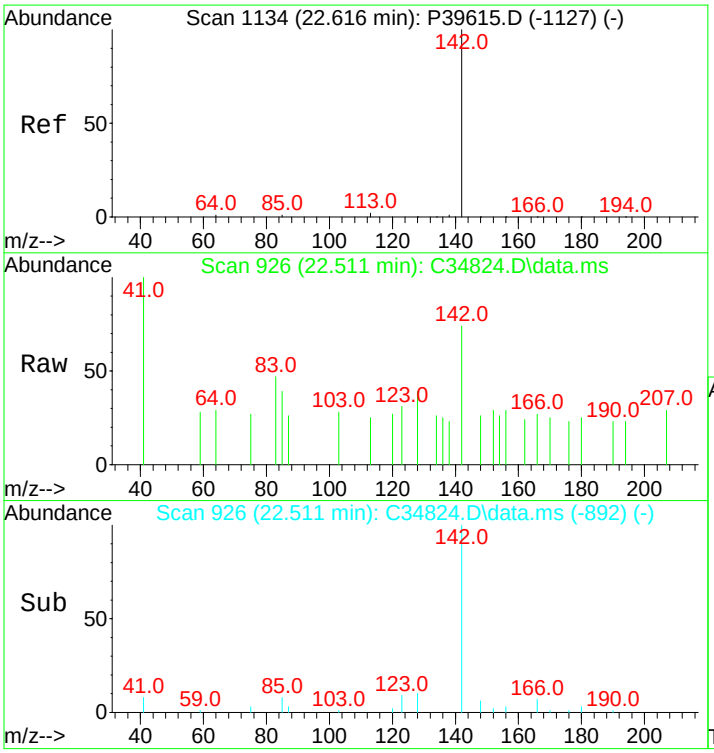


#14
C4-Naphthalenes
Concen: 22.33 ng/mL m
RT: 31.694 min Scan# 1536
Delta R.T. 1.281 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:184 Resp: 2568

Ion	Ratio	Lower	Upper
184	100		
169	0.0	77.4	116.0#
183	0.0	14.8	22.2#

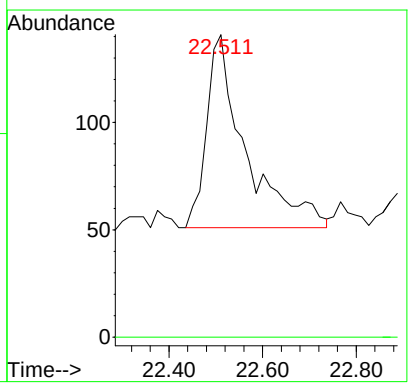


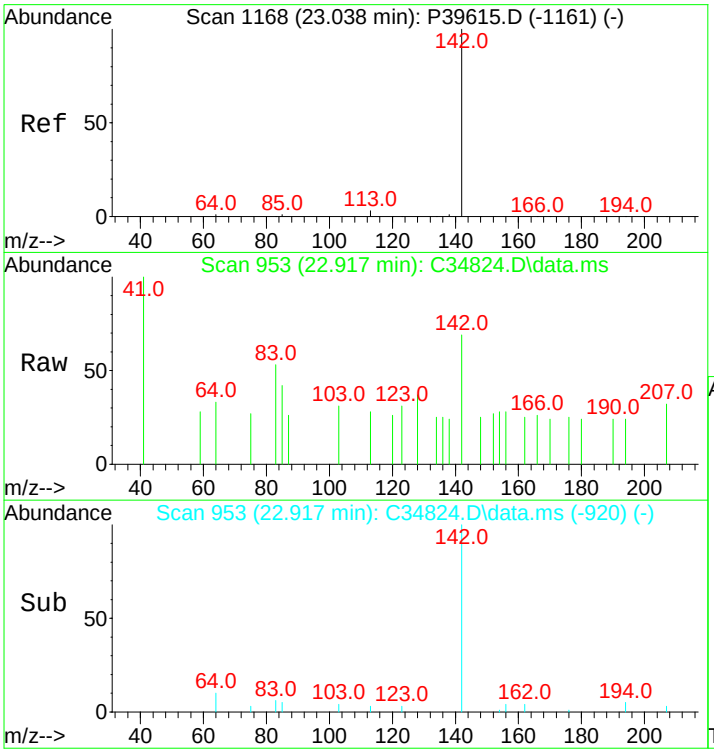


#16
2-Methylnaphthalene
Concen: 7.59 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:142 Resp: 516

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

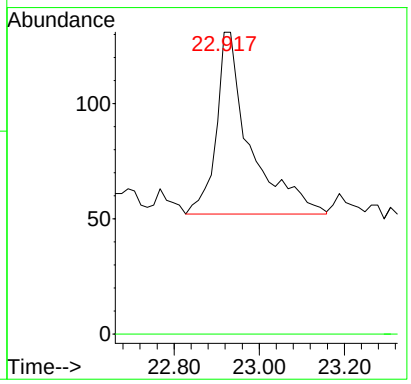


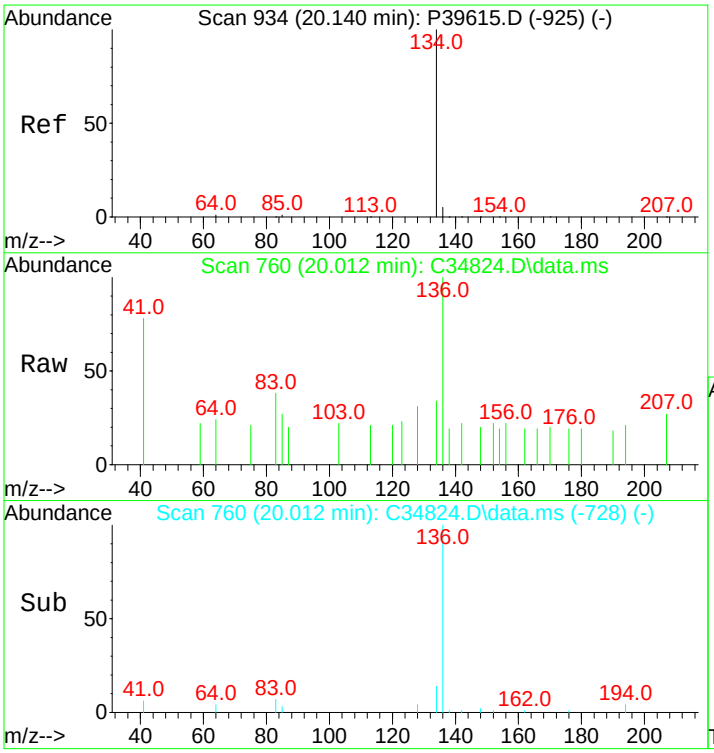


#17
1-Methylnaphthalene
Concen: 6.53 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:142 Resp: 435

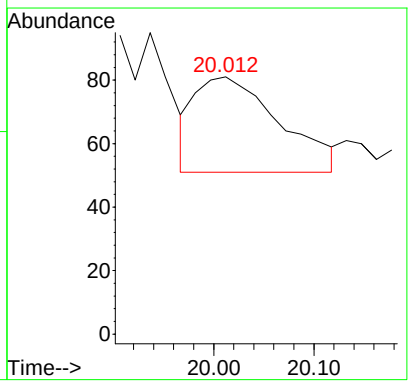
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

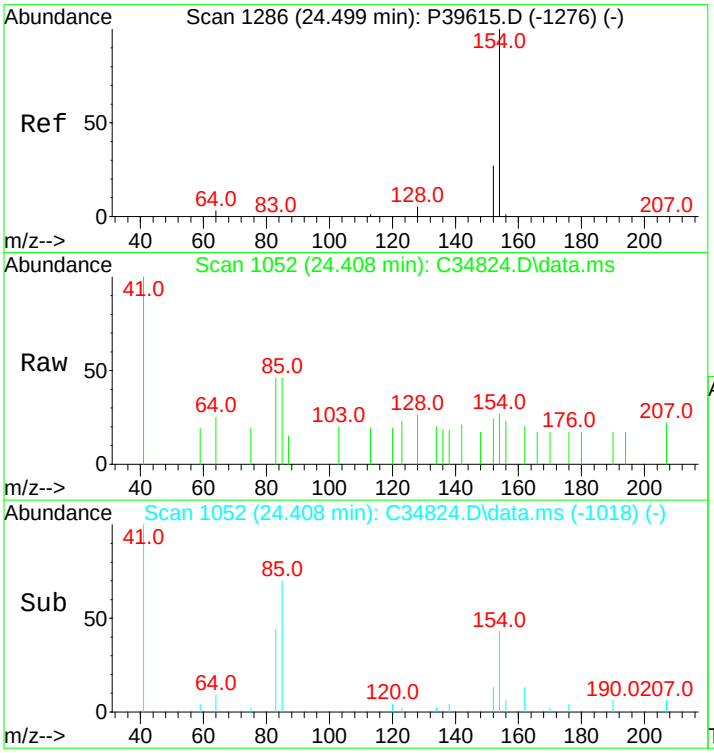




#18
Benzothiophene
Concen: 1.71 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:134 Resp: 177

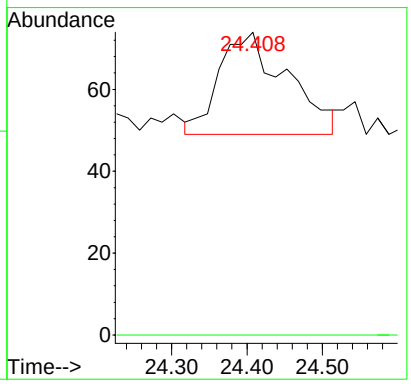


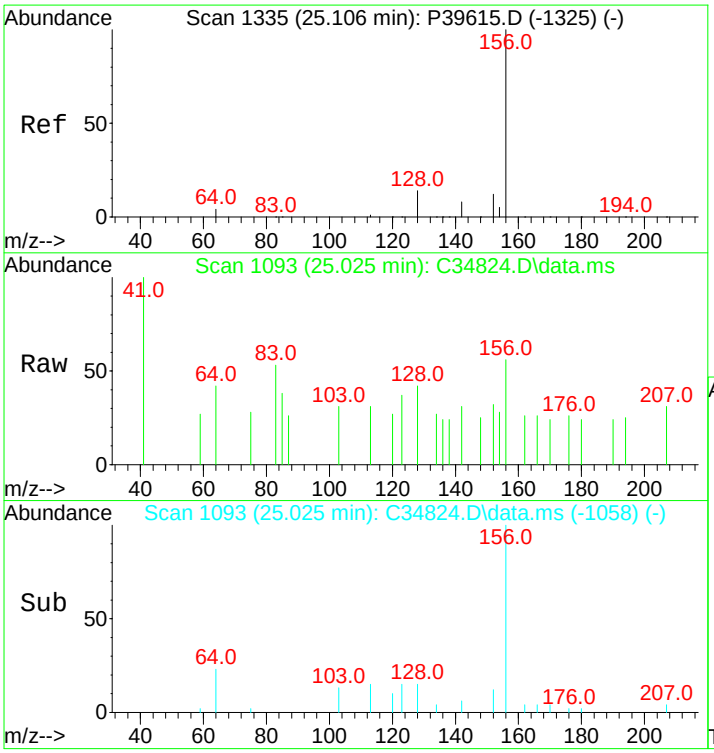


#23
Biphenyl
Concen: 1.80 ng/mL m
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:154 Resp: 155

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

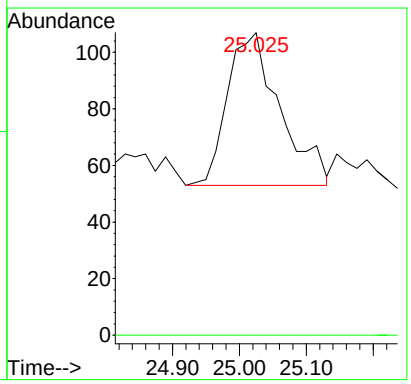


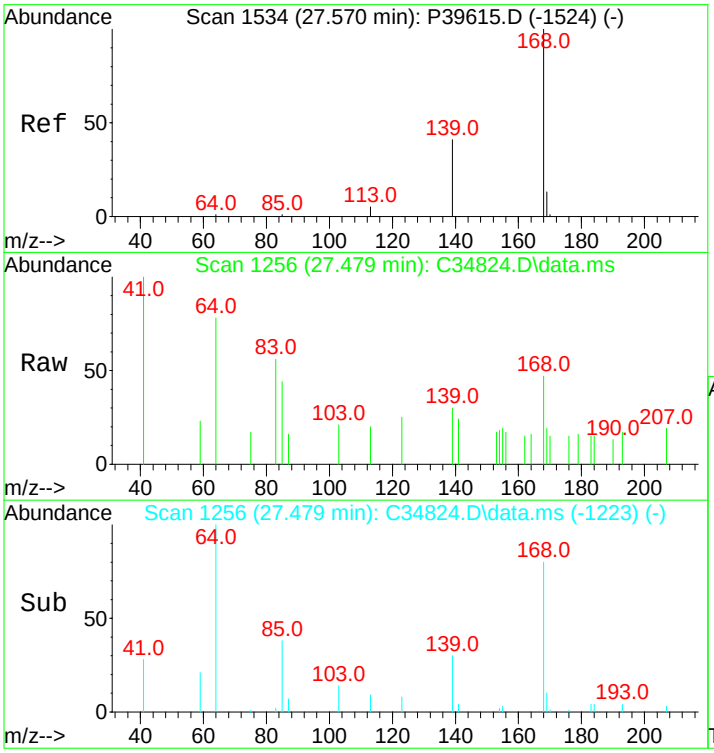


#24
2,6-Dimethylnaphthalene
Concen: 5.26 ng/mL
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:156 Resp: 294

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

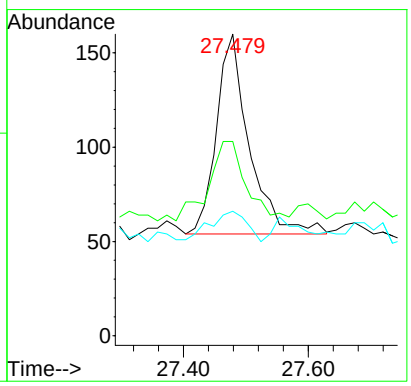


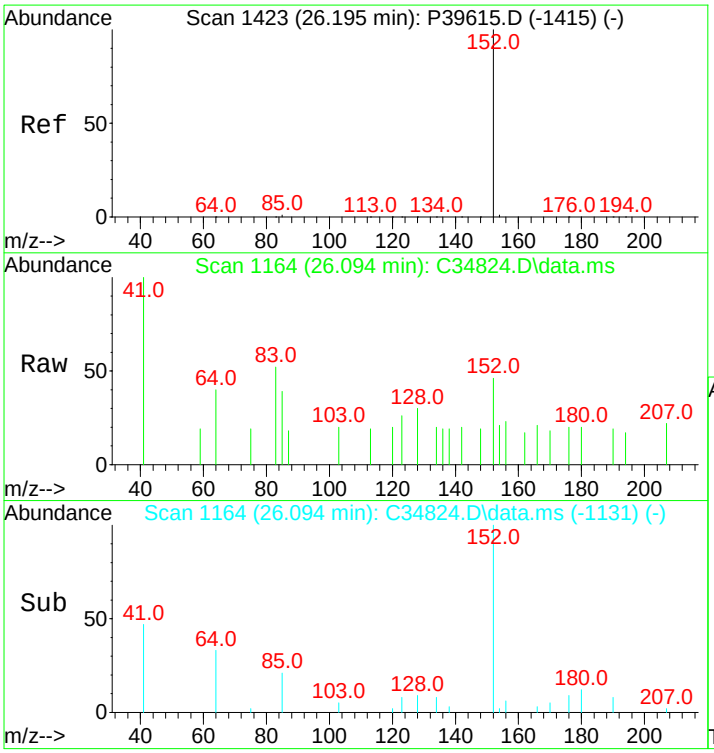


#25
Dibenzofuran
Concen: 3.92 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:168 Resp: 387

Ion	Ratio	Lower	Upper
168	100		
139	46.3	28.4	42.6#
169	0.0	10.8	16.2#

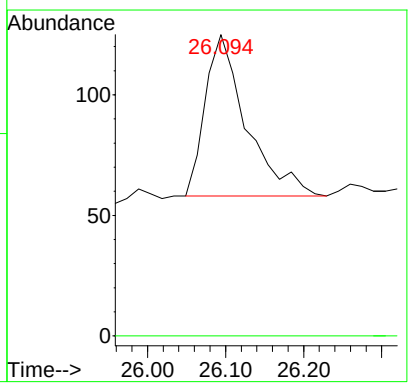


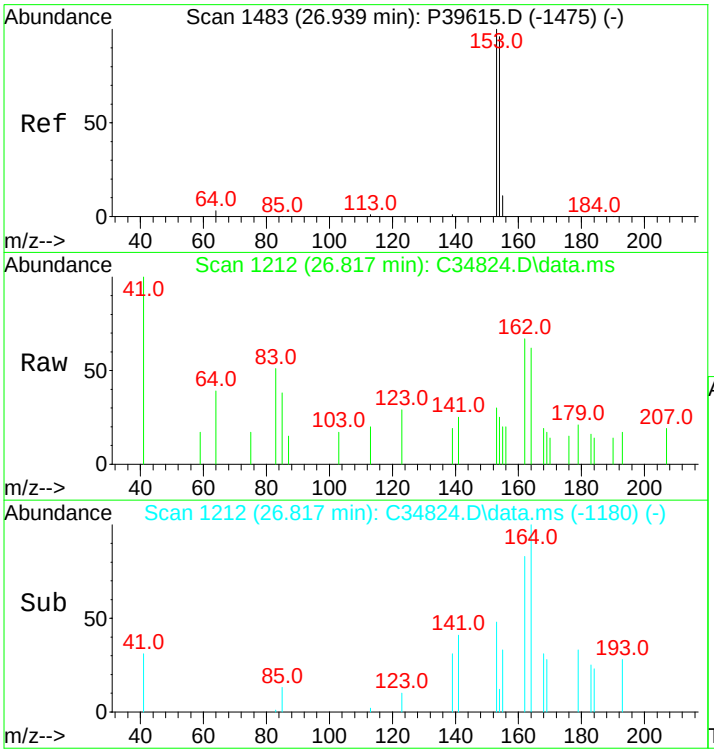


#26
Acenaphthylene
Concen: 2.15 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:152 Resp: 246

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

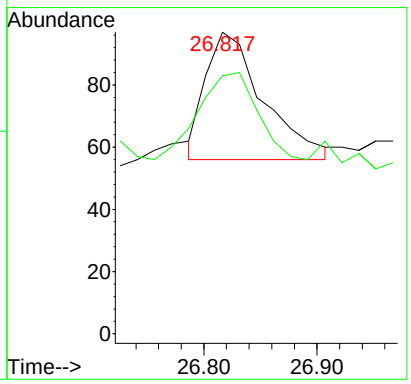


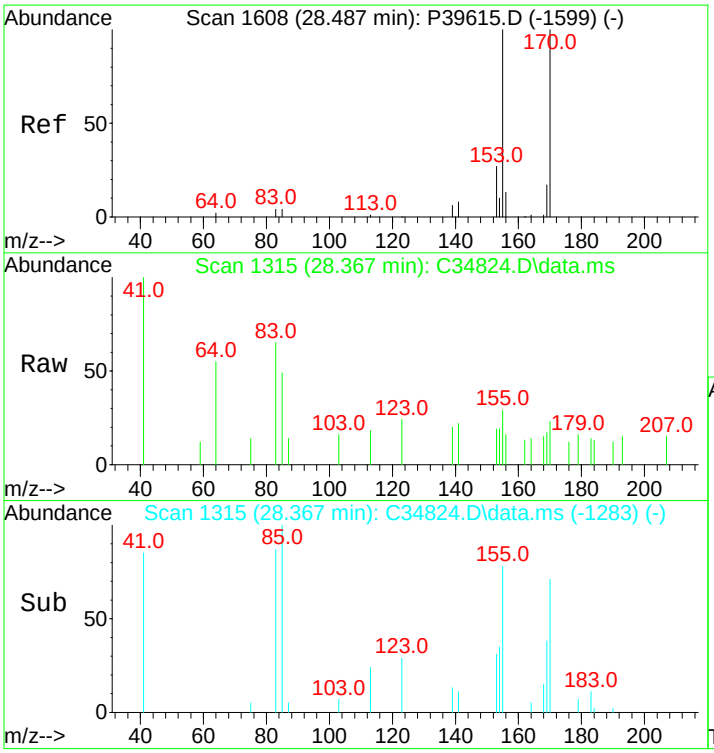


#27
Acenaphthene
Concen: 2.16 ng/mL m
RT: 26.817 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:153 Resp: 145

Ion	Ratio	Lower	Upper
153	100		
154	77.9	73.6	110.4

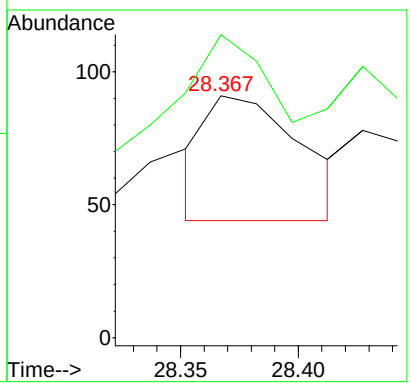


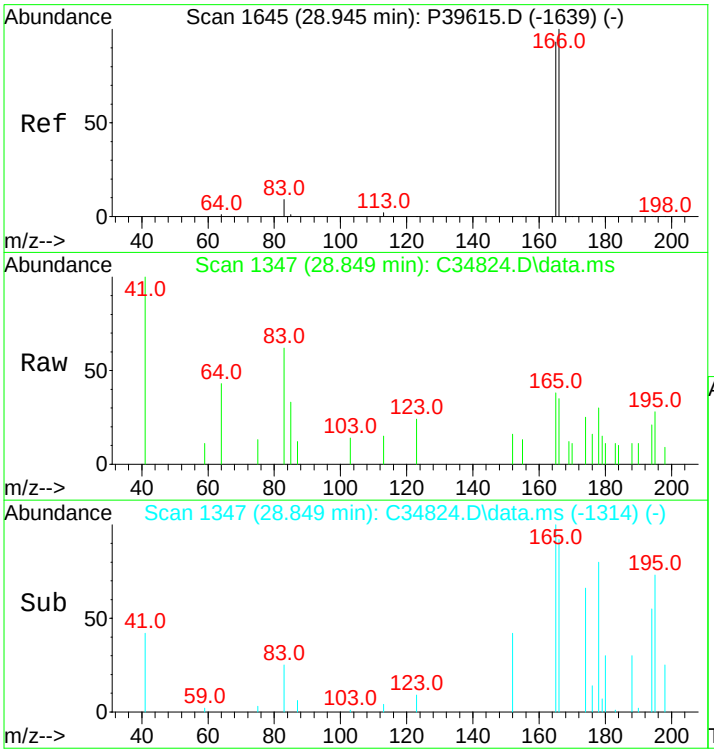


#28
2,3,5-Trimethylnaphthalene
Concen: 2.91 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:170 Resp: 131

Ion	Ratio	Lower	Upper
170	100		
155	158.8	87.3	130.9#

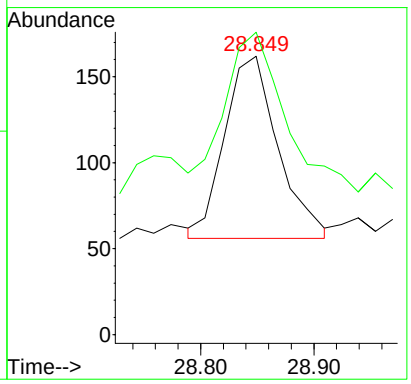


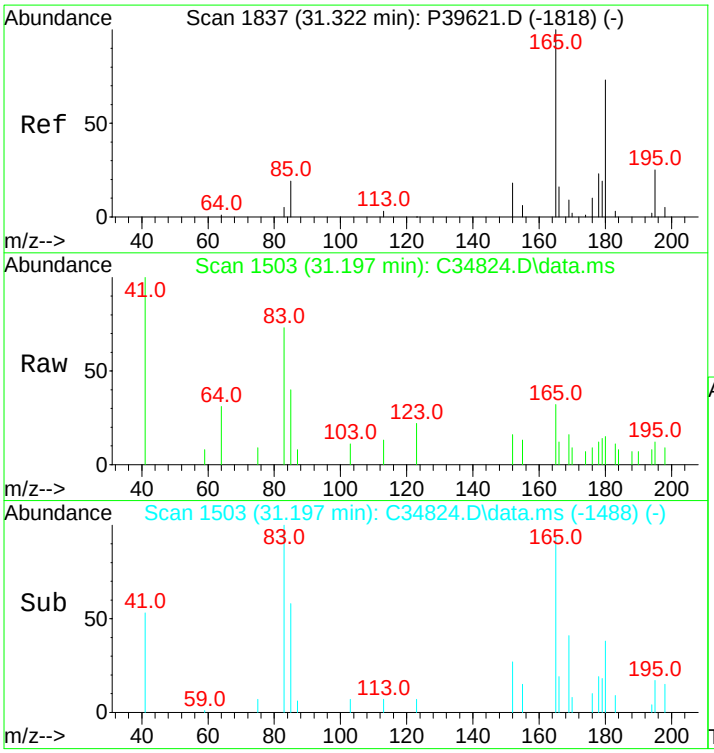


#29
Fluorene
Concen: 4.69 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:166 Resp: 348

Ion	Ratio	Lower	Upper
166	100		
165	151.4	77.3	115.9#

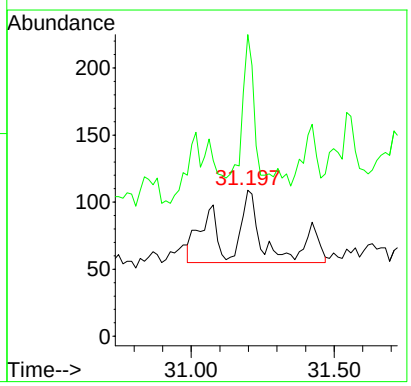


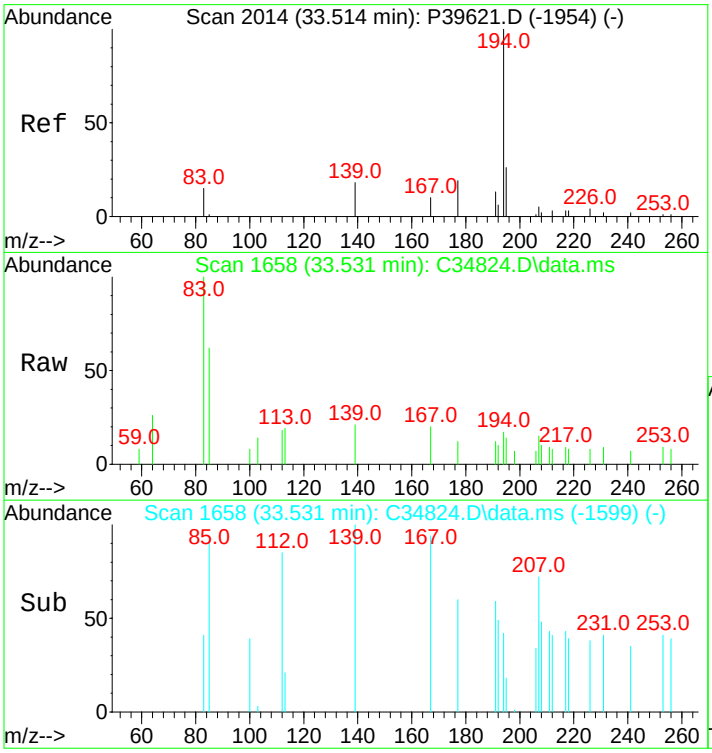


#30
C1-Fluorenes
Concen: 6.95 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:180 Resp: 515

Ion	Ratio	Lower	Upper
180	100		
165	53.4	111.4	167.2#

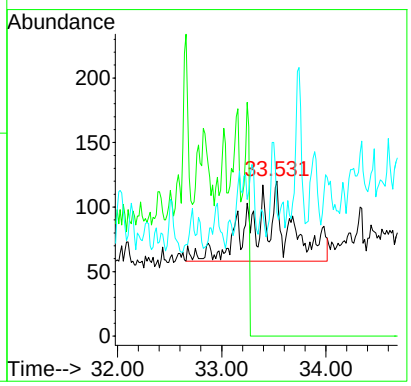


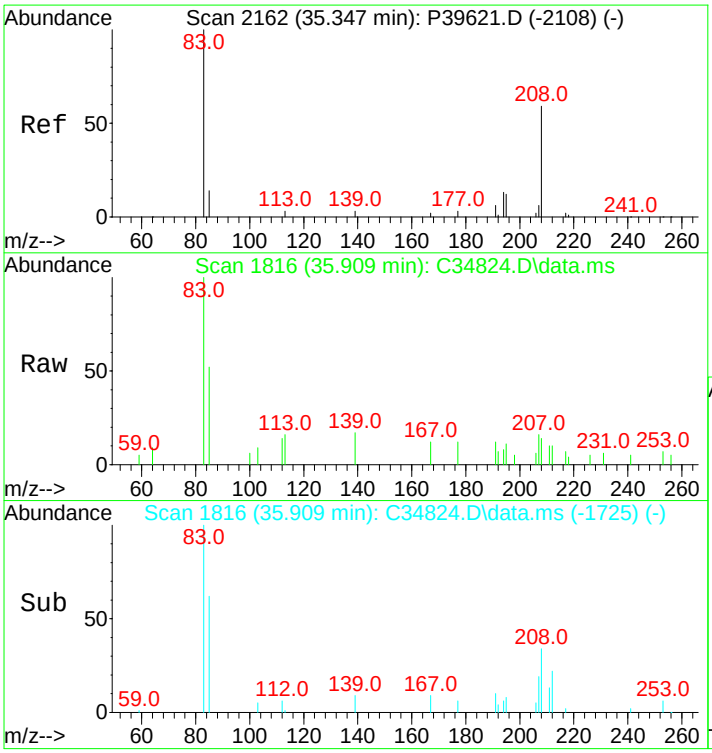


#31
C2-Fluorenes
Concen: 20.34 ng/mL m
RT: 33.531 min Scan# 1658
Delta R.T. 0.181 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:194 Resp: 1508

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	27.3	40.9#

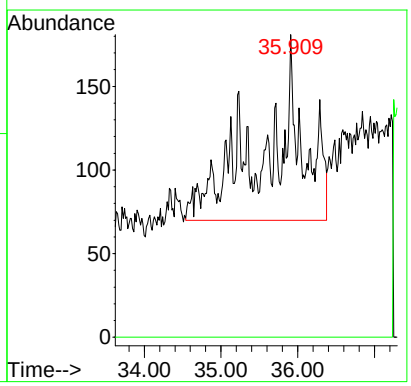


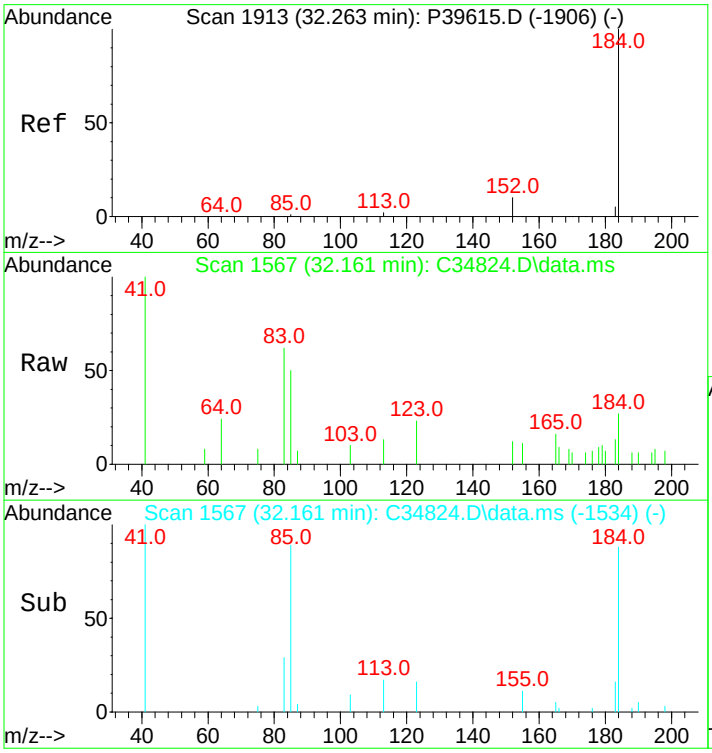


#32
C3-Fluorenes
Concen: 49.99 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:208 Resp: 3706

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

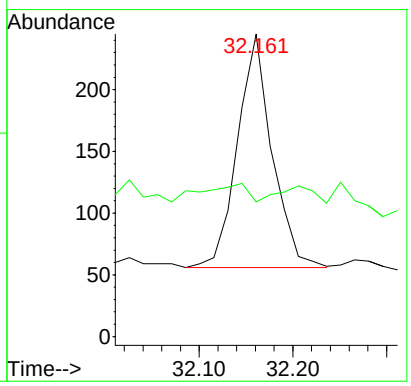


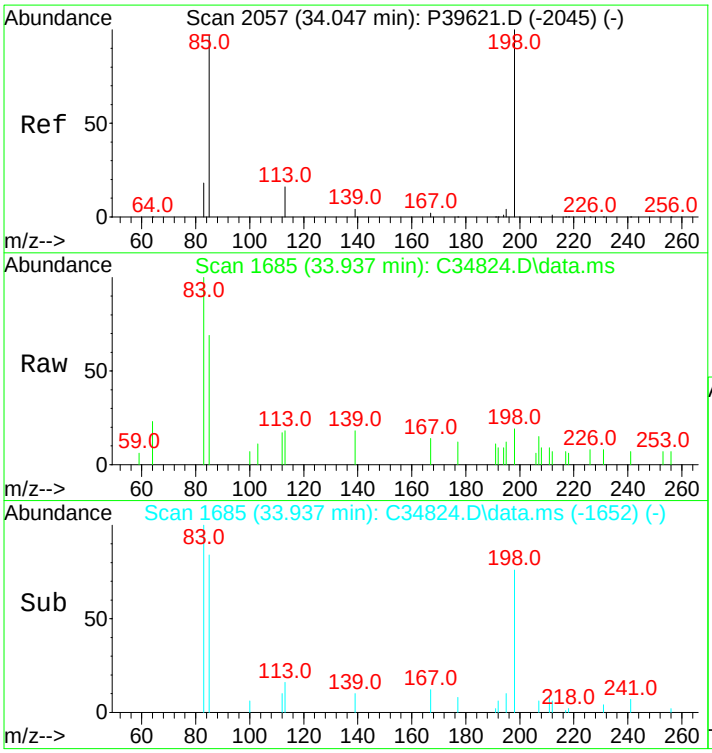


#33
Dibenzothiophene
Concen: 4.07 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:184 Resp: 484

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

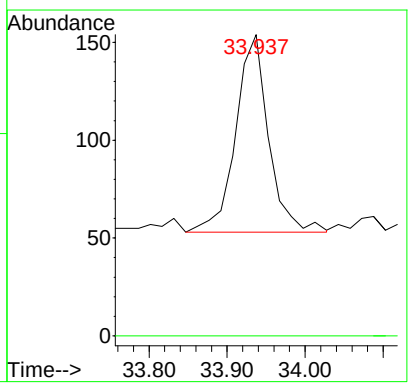


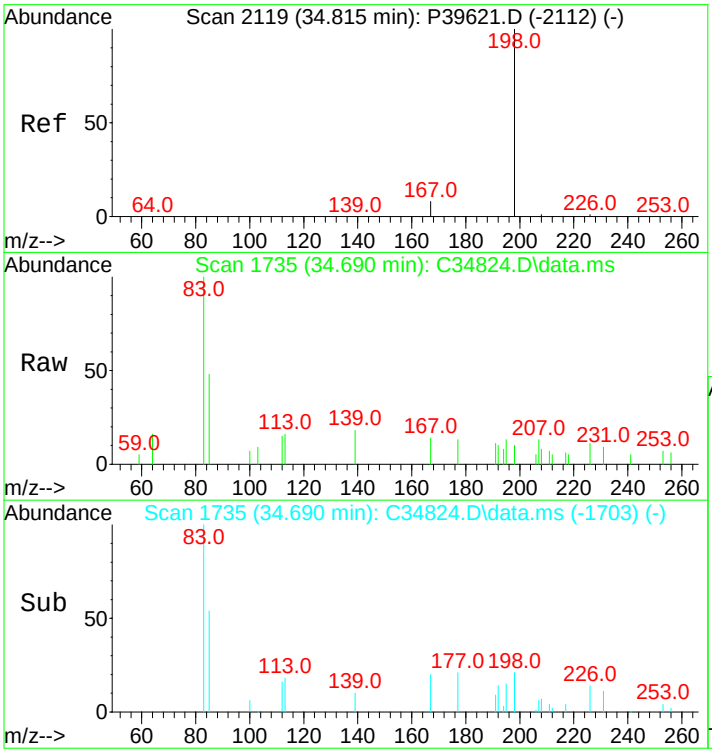


#34
4-Methyldibenzothiophene(4MDT)
Concen: 2.48 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:198 Resp: 295

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

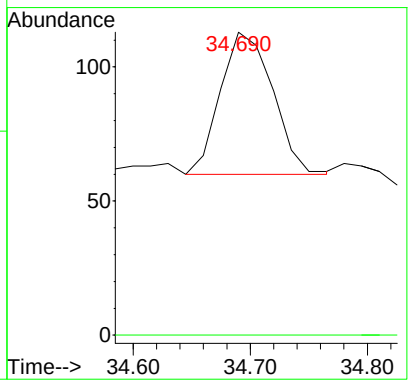


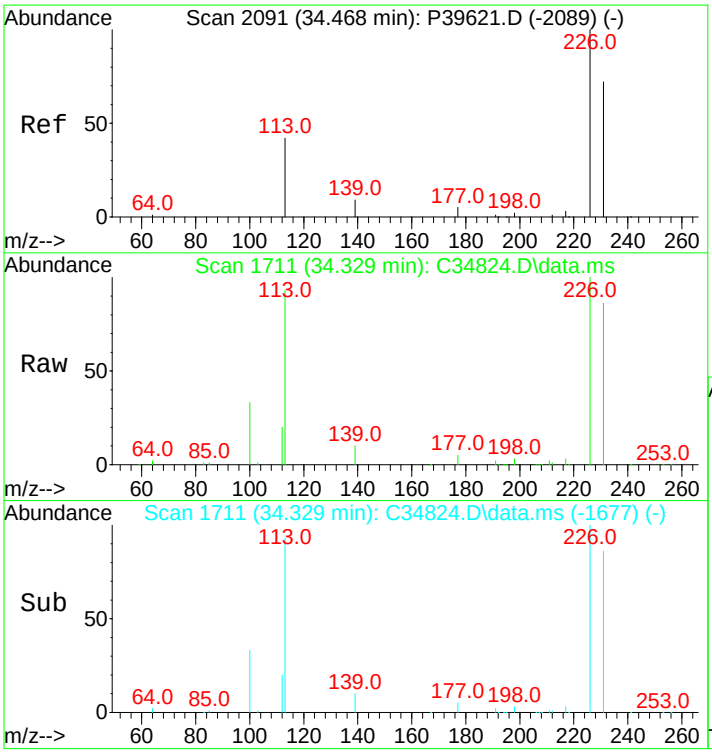


#36
1-Methyldibenzothiophene(1MDT)
Concen: 1.38 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:198 Resp: 164

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

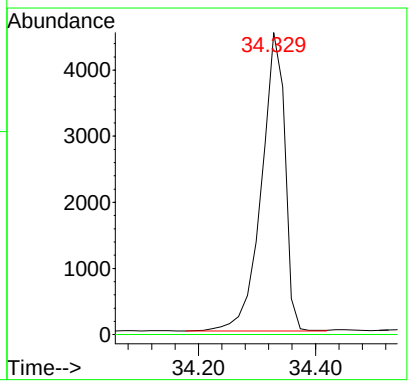


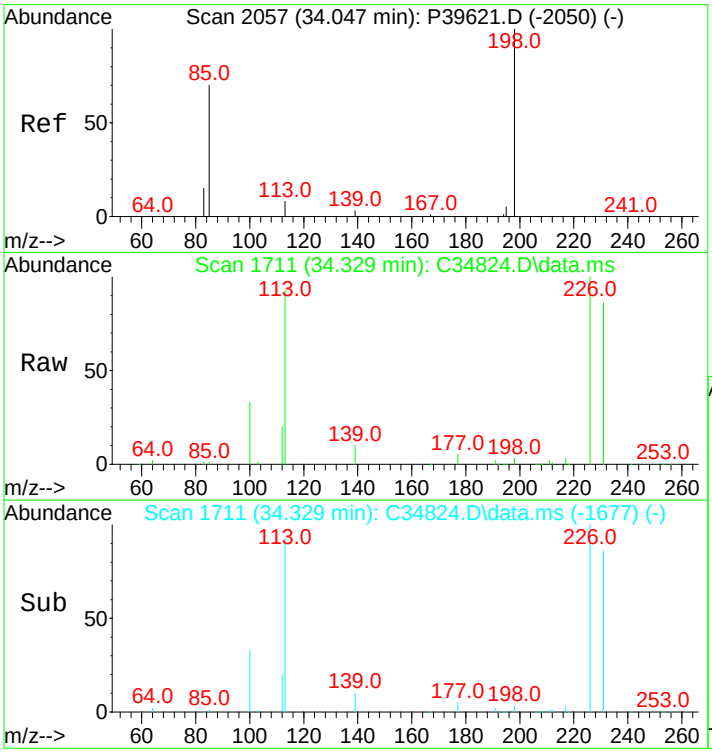


#37
OTP
Concen: 105.57 ng/mL
RT: 34.329 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:198 Resp: 12545

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

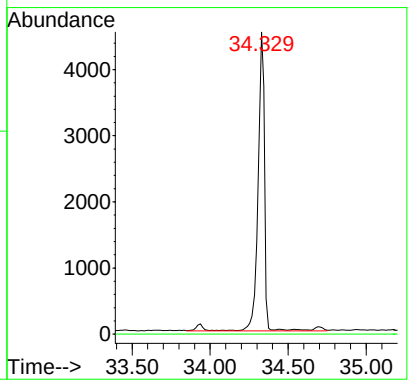


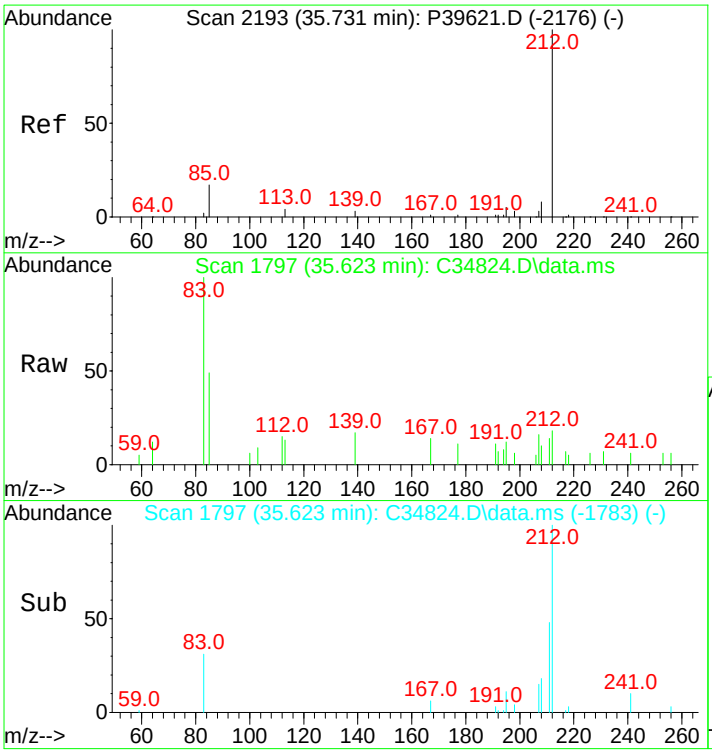


#38
C1-Dibenzothiophenes
Concen: 112.91 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:198 Resp: 13418

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

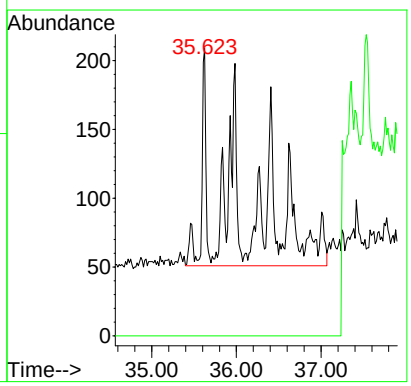


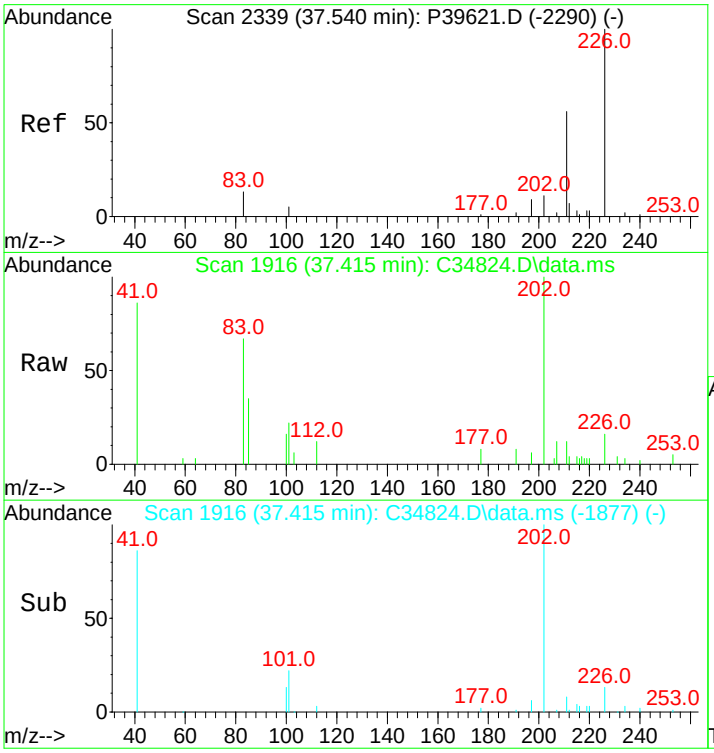


#39
C2-Dibenzothiophenes
Concen: 27.49 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:212 Resp: 3267

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

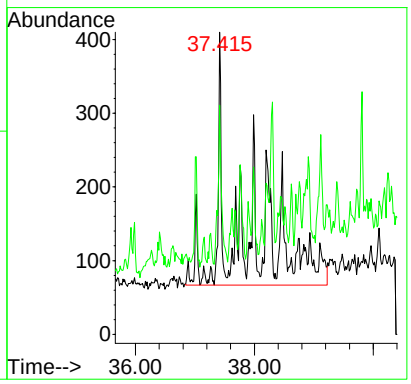


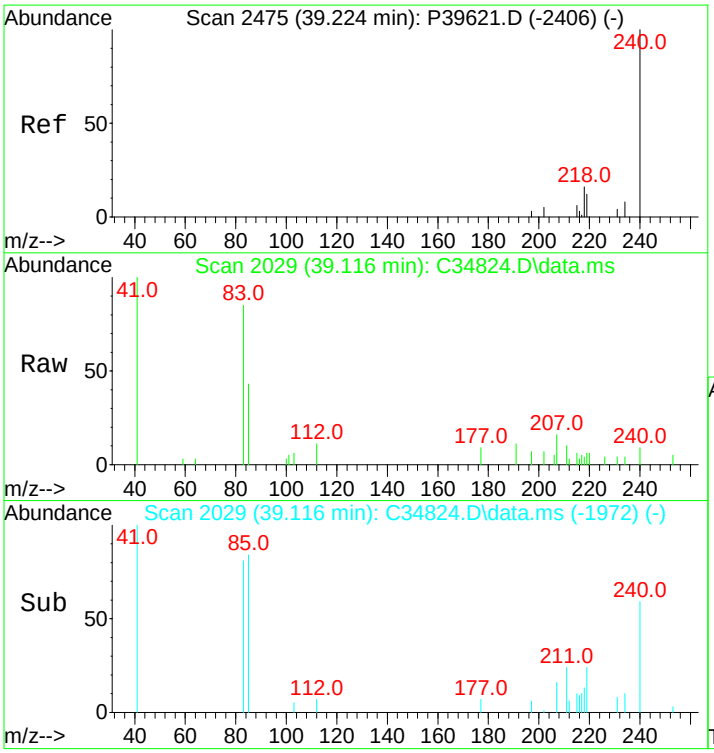


#40
C3-Dibenzothiophenes
Concen: 57.92 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:226 Resp: 6883

Ion	Ratio	Lower	Upper
226	100		
211	13.0	45.0	67.6#

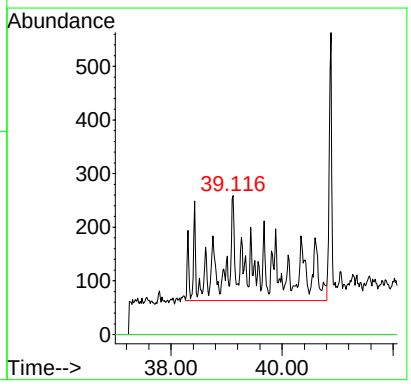


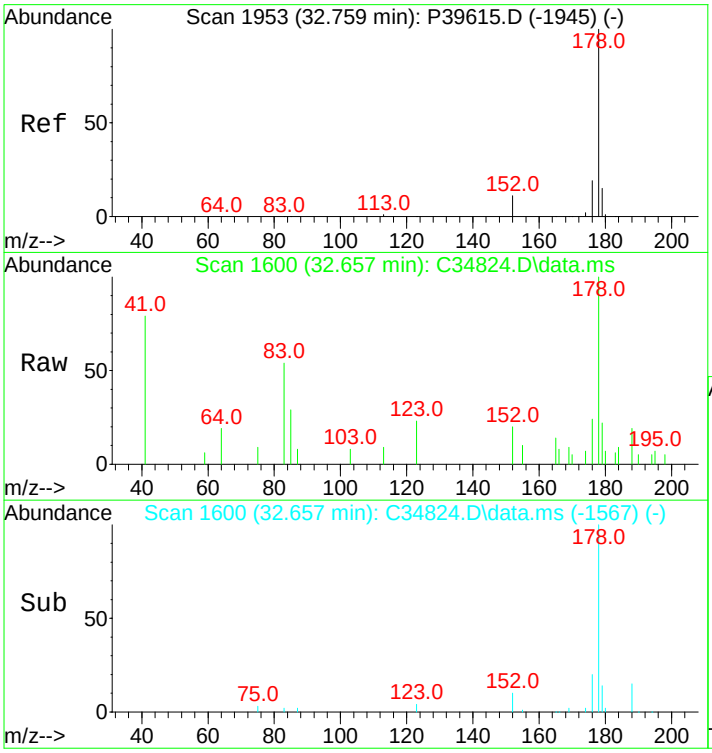


#41
C4-Dibenzothiophenes
Concen: 68.82 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:240 Resp: 8178

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

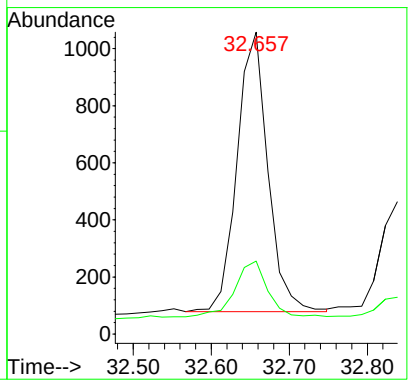


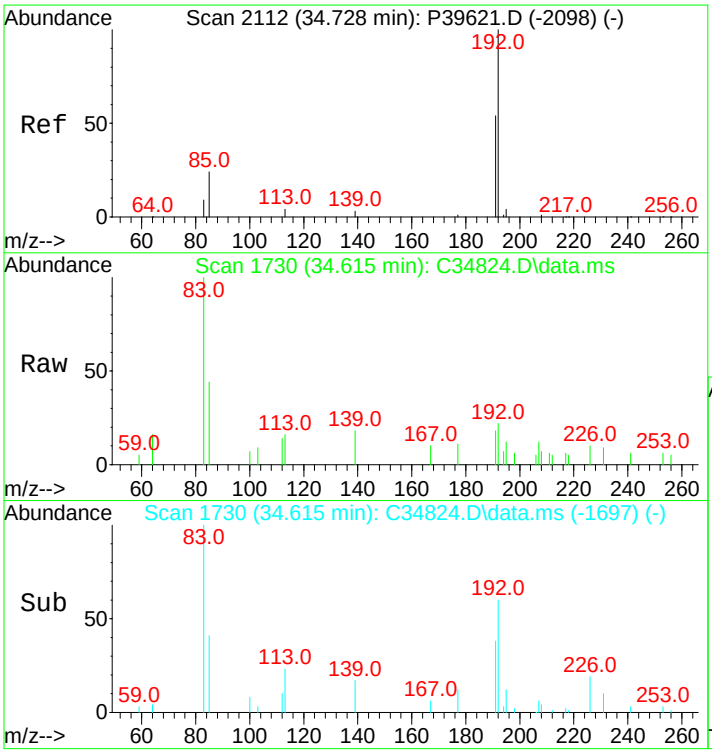


#43
Phenanthrene
Concen: 25.71 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:178 Resp: 2684

Ion	Ratio	Lower	Upper
178	100		
176	21.4	16.1	24.1

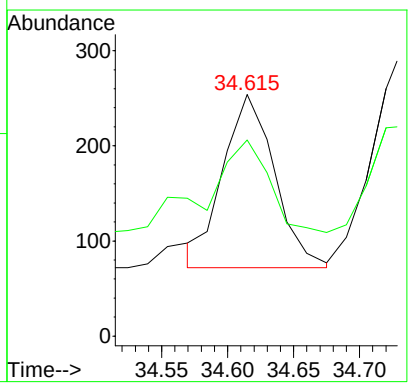


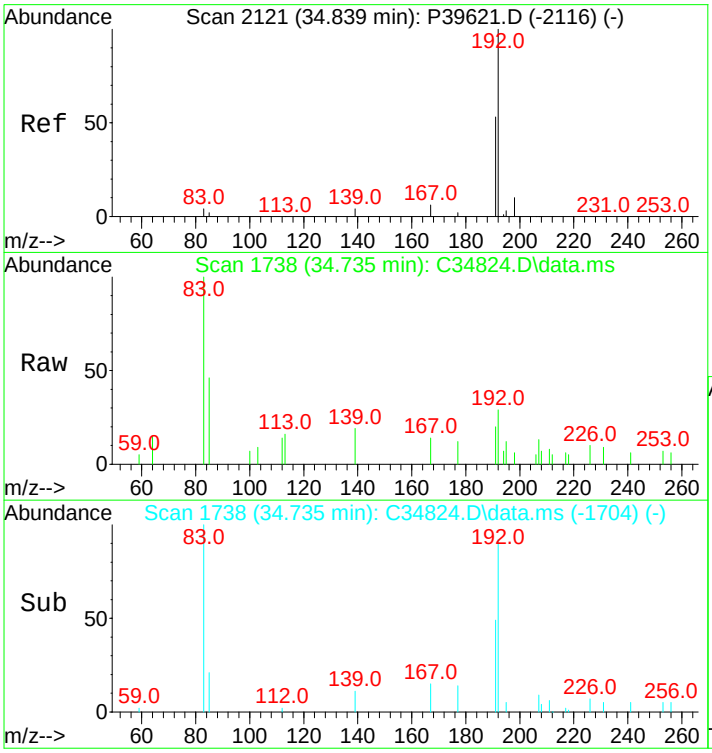


#44
3-Methylphenanthrene(3MP)
Concen: 4.72 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 493

Ion	Ratio	Lower	Upper
192	100		
191	72.2	46.9	70.3#

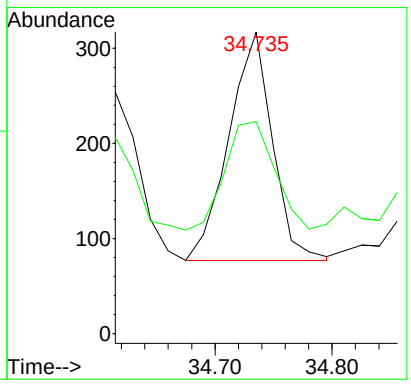


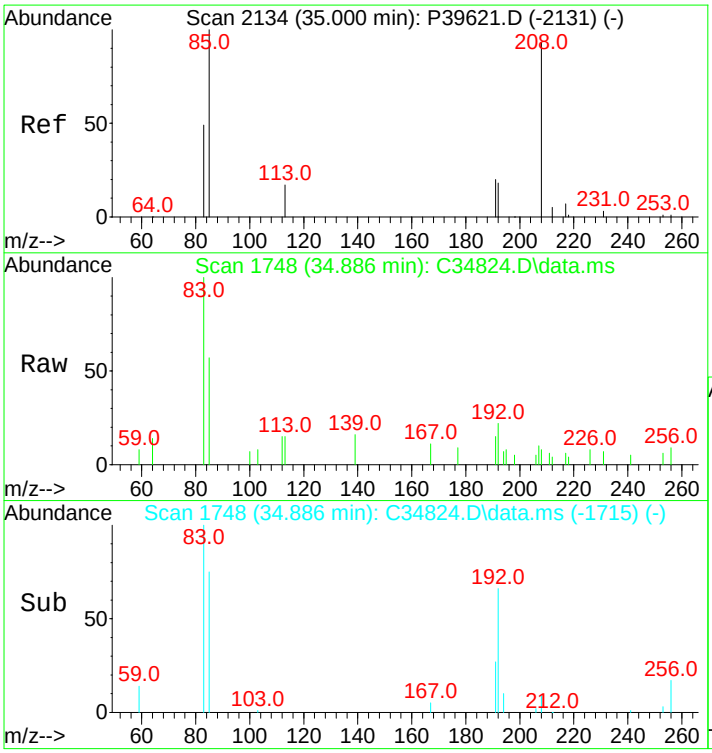


#45
2/4-Methylphenanthrene(2MP)
Concen: 5.96 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 622

Ion	Ratio	Lower	Upper
192	100		
191	53.7	46.1	69.1

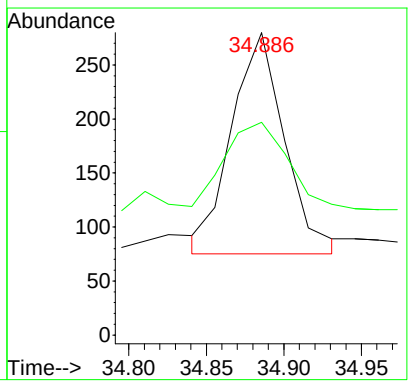


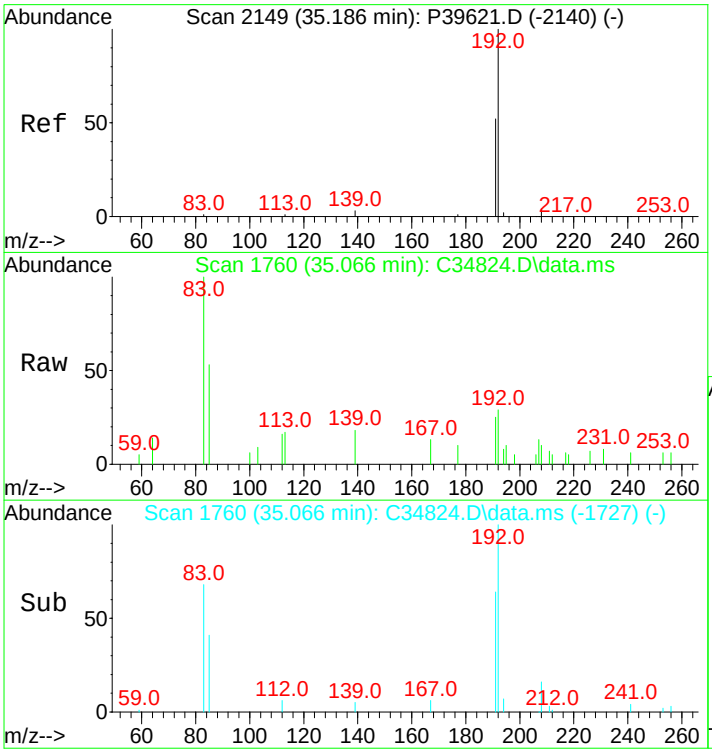


#46
2-Methylanthracene(2MA)
Concen: 4.65 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 486

Ion	Ratio	Lower	Upper
192	100		
191	67.1	93.4	140.0#

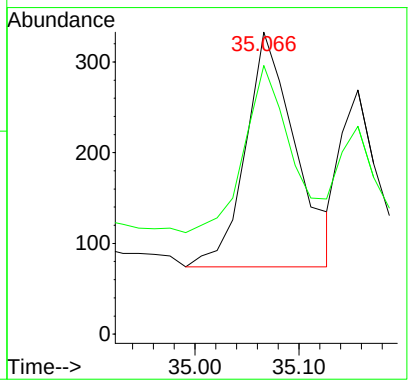


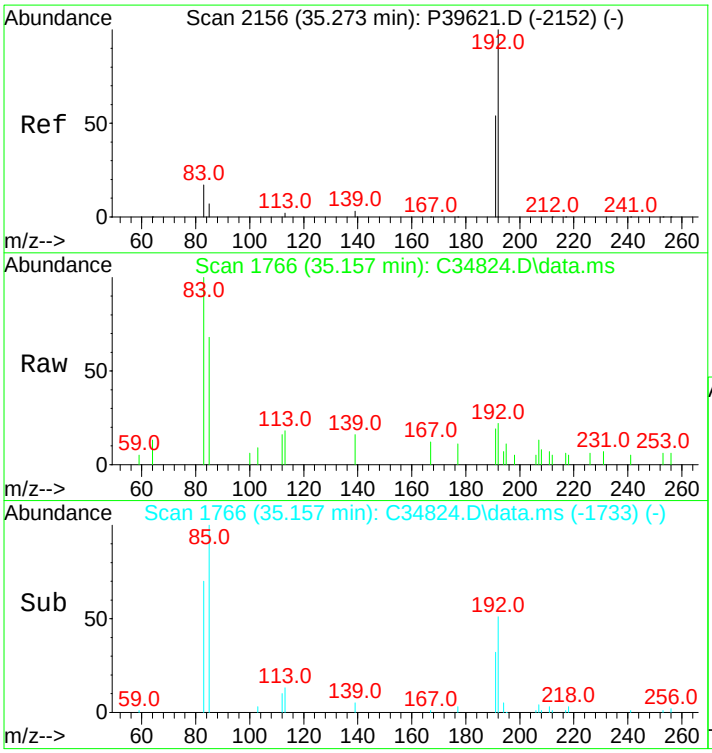


#47
9-Methylphenanthrene(9MP)
Concen: 8.28 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 865

Ion	Ratio	Lower	Upper
192	100		
191	67.5	45.9	68.9

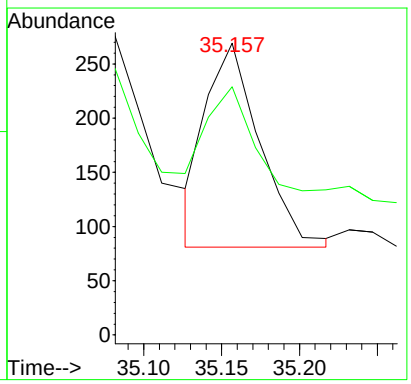


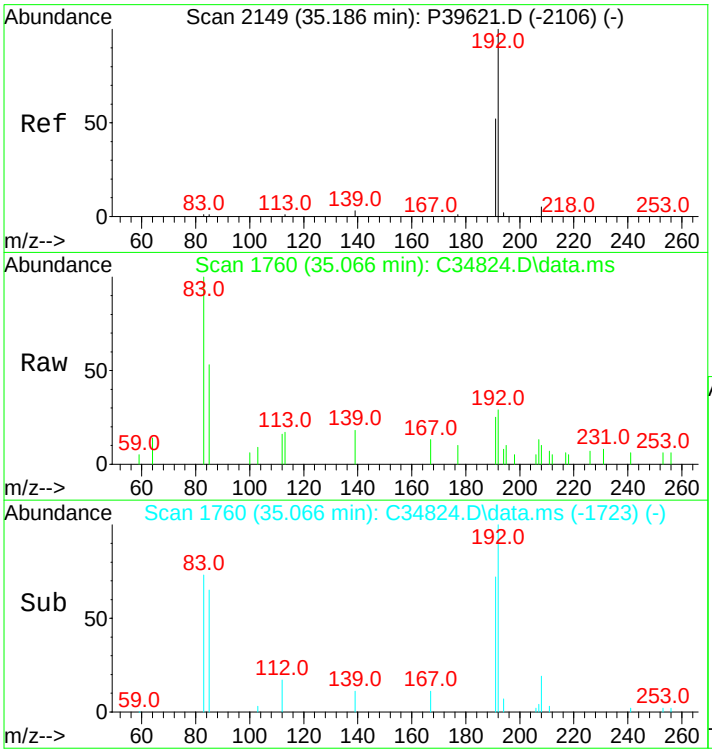


#48
1-Methylphenanthrene(1MP)
Concen: 4.35 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 454

Ion	Ratio	Lower	Upper
192	100		
191	63.7	49.0	73.4

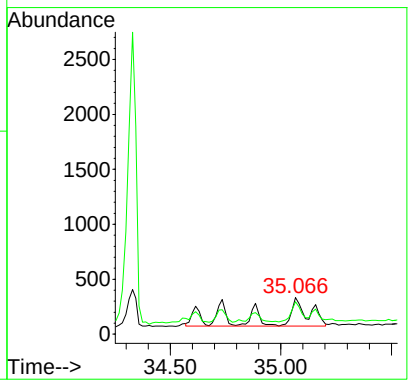


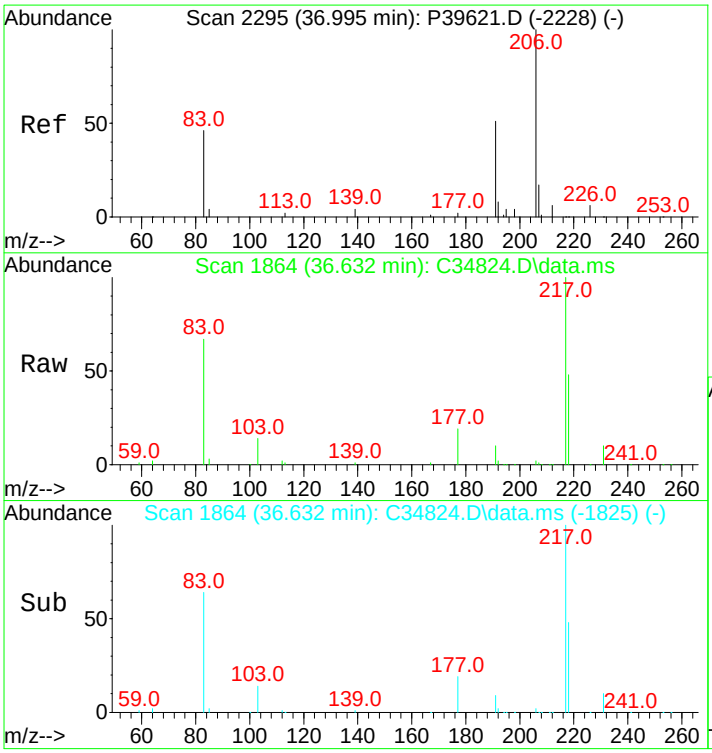


#49
C1-Phenanthrenes/Anthracenes
Concen: 29.49 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.053 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 3079

Ion	Ratio	Lower	Upper
192	100		
191	10.6	44.2	66.2#

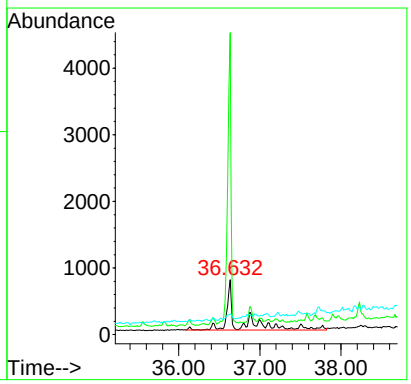


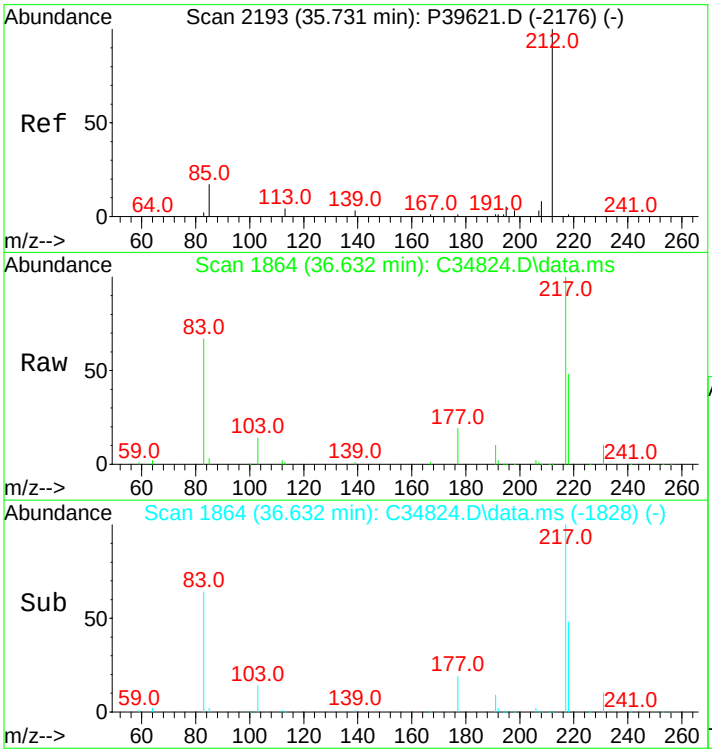


#50
C2-Phenanthrenes/Anthracenes
Concen: 66.35 ng/mL m
RT: 36.632 min Scan# 1864
Delta R.T. -0.180 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:206 Resp: 6927

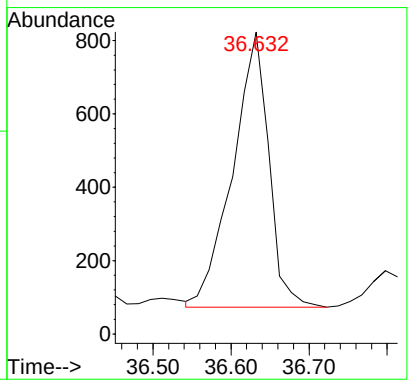
Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.0	66.0#
207	0.0	15.1	22.7#

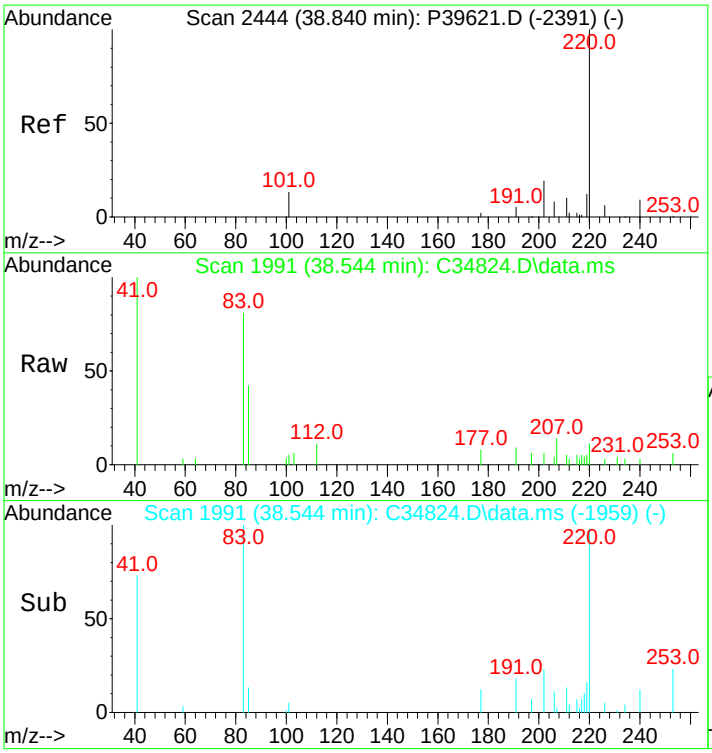




#51
5AA IS BKGD
Concen: 23.04 ng/mL
RT: 36.632 min Scan# 1864
Delta R.T. 0.045 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:206 Resp: 2406

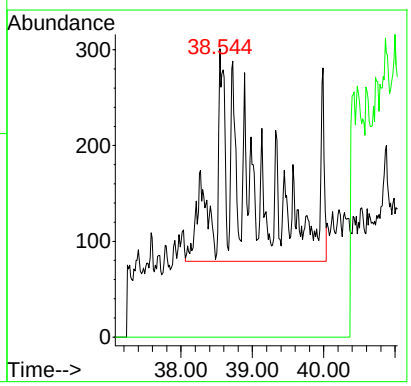


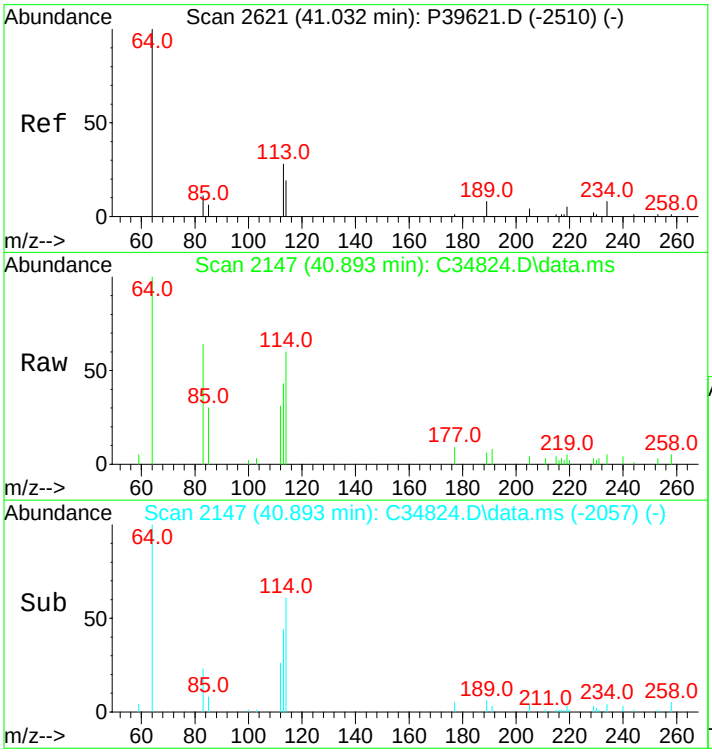


#52
C3-Phenanthrenes/Anthracenes
Concen: 71.99 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. -0.097 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:220 Resp: 7516

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

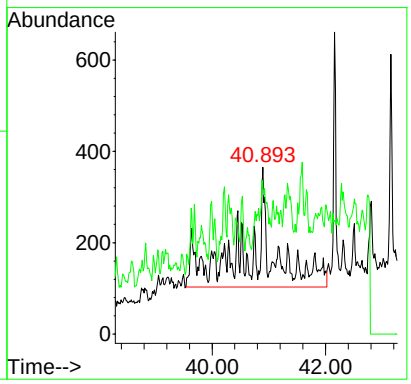


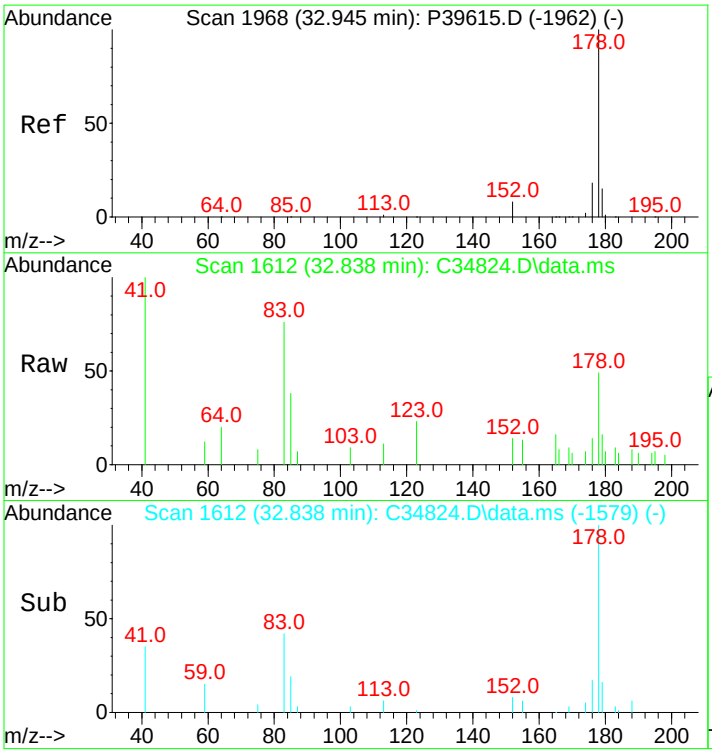


#53
C4-Phenanthrenes/Anthracenes
Concen: 78.29 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:234 Resp: 8174

Ion	Ratio	Lower	Upper
234	100		
219	7.3	46.9	70.3#

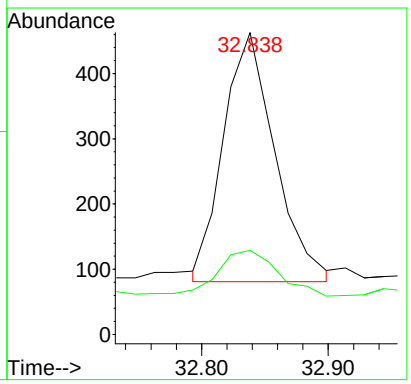


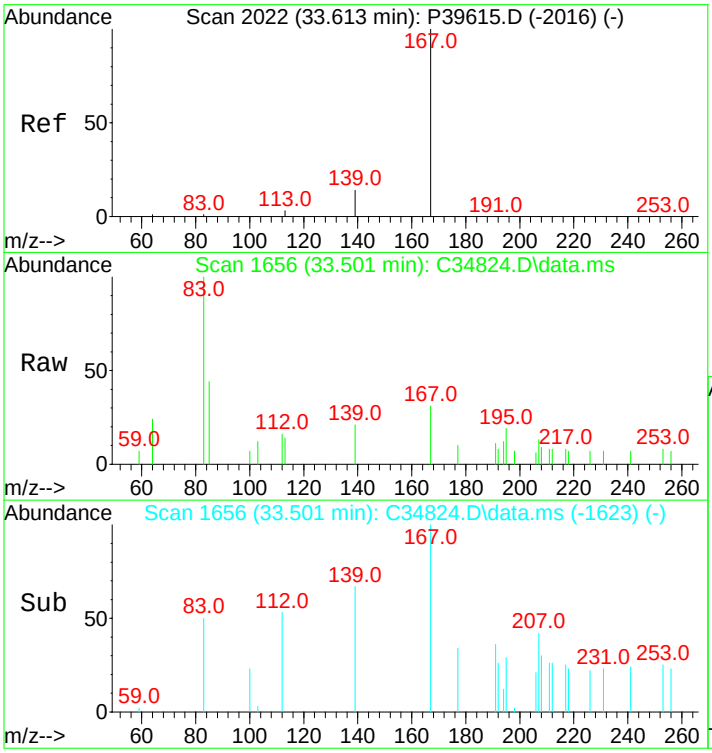


#55
Anthracene
Concen: 10.57 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:178 Resp: 1078

Ion	Ratio	Lower	Upper
178	100		
176	20.5	15.5	23.3

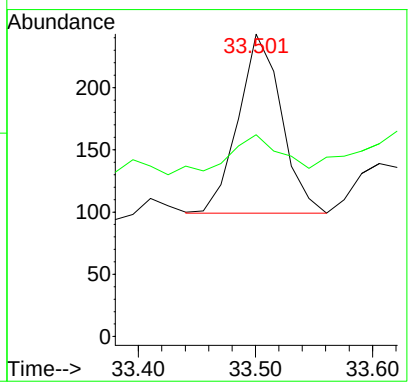


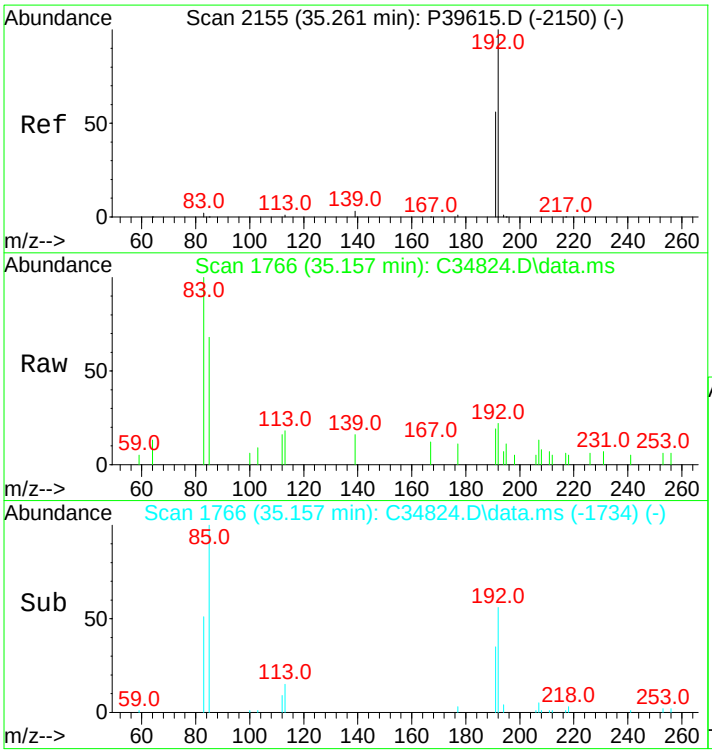


#56
Carbazole
Concen: 3.58 ng/mL
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:167 Resp: 369

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

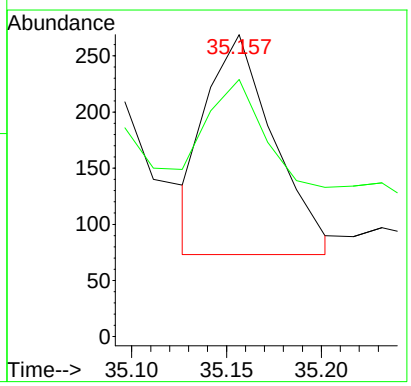


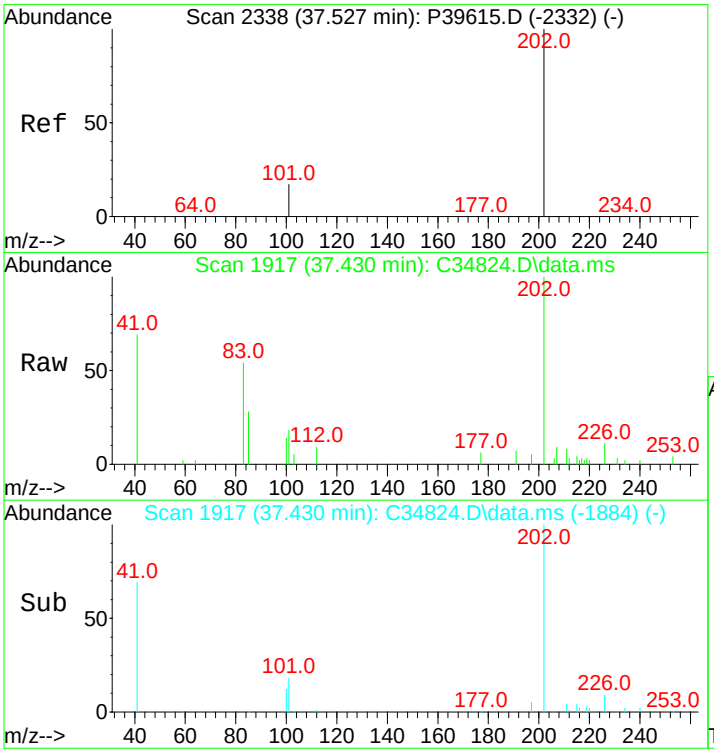


#57
1-Methylphenanthrene
Concen: 7.30 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:192 Resp: 483

Ion	Ratio	Lower	Upper
192	100		
191	120.9	45.9	68.9#

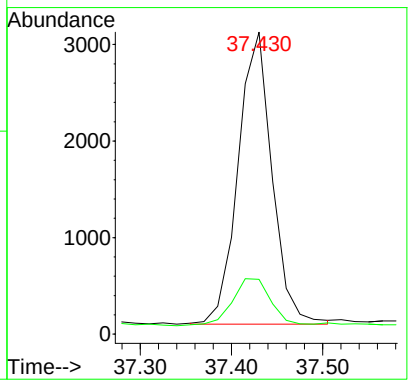


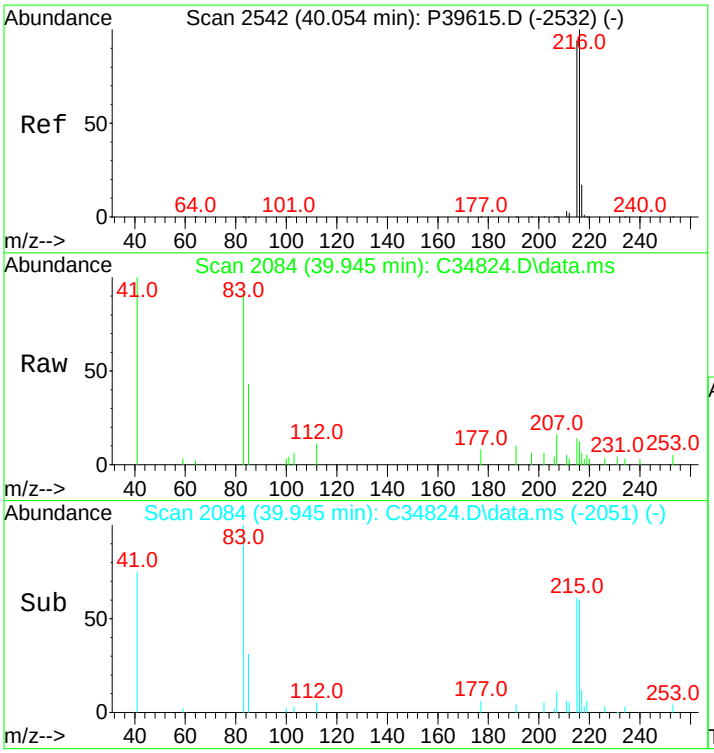


#58
Fluoranthene
Concen: 75.32 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:202 Resp: 7810

Ion	Ratio	Lower	Upper
202	100		
101	21.0	12.9	19.3#

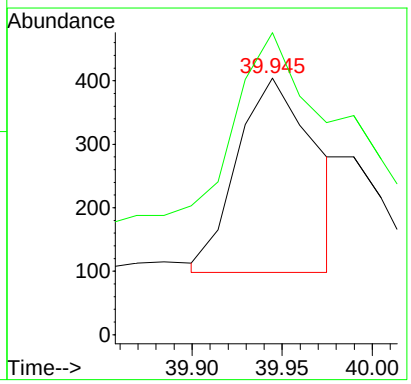


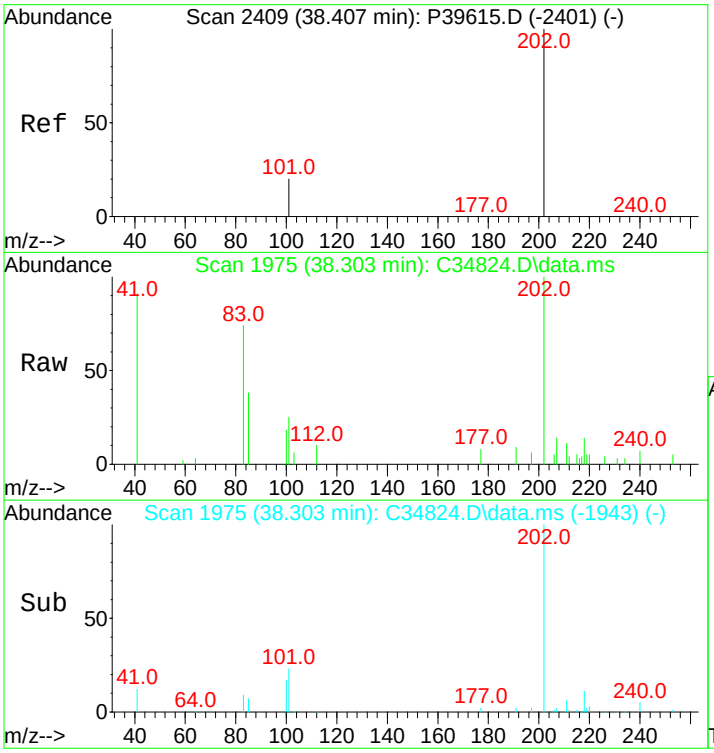


#59
Benzo(b)fluorene
Concen: 15.31 ng/mL m
RT: 39.945 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:216 Resp: 921

Ion	Ratio	Lower	Upper
216	100		
215	138.3	76.3	114.5#

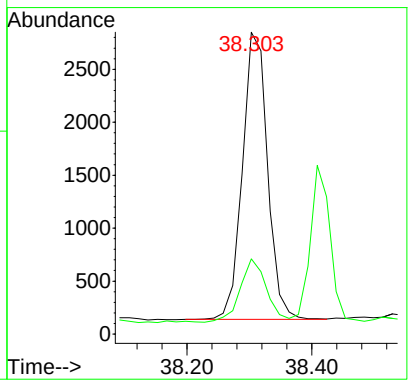


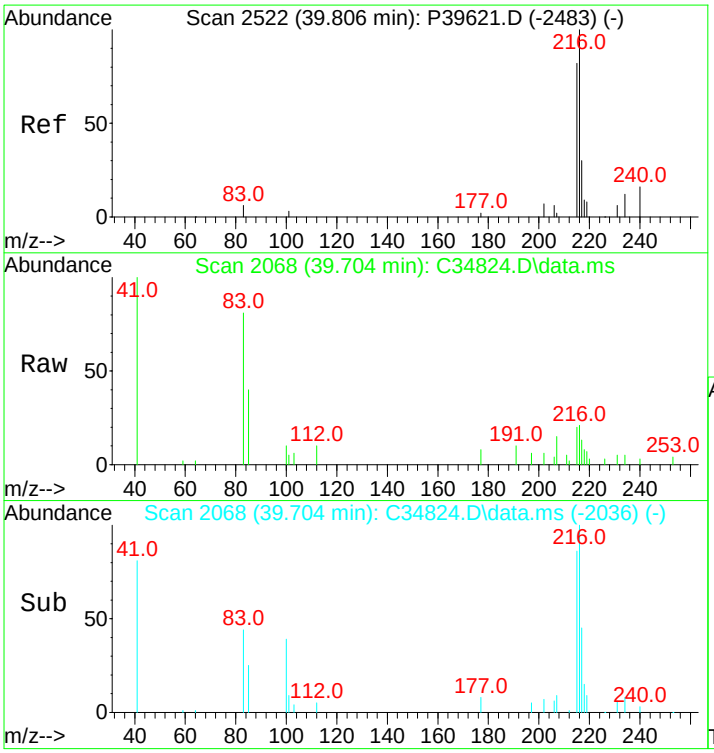


#60
Pyrene
Concen: 71.91 ng/mL
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:202 Resp: 7580

Ion	Ratio	Lower	Upper
202	100		
101	23.1	15.0	22.4#

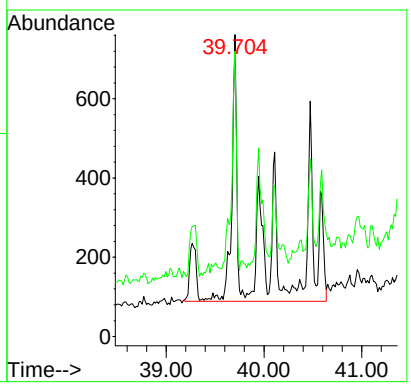


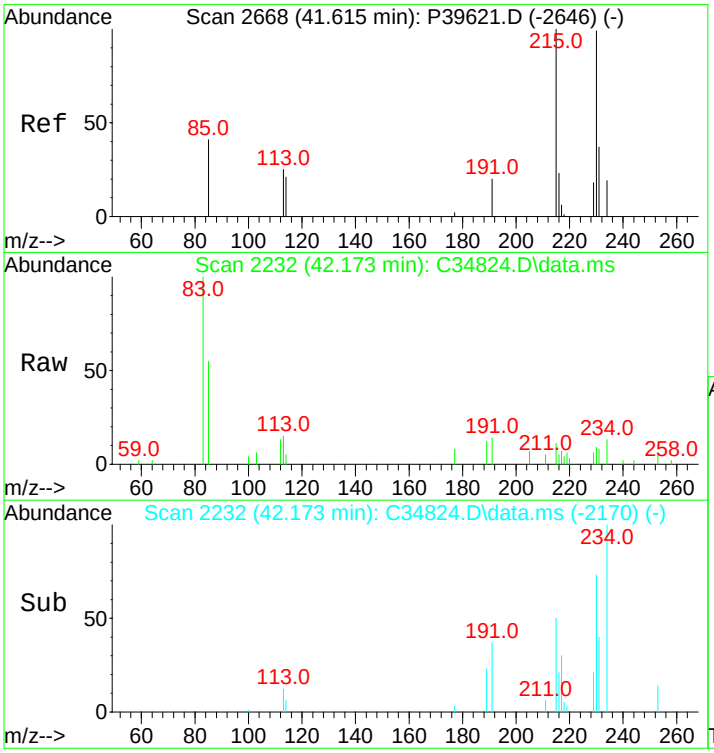


#61
C1-Fluoranthenes/Pyrenes
Concen: 78.65 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:216 Resp: 8290

Ion	Ratio	Lower	Upper
216	100		
215	22.2	71.8	107.6#

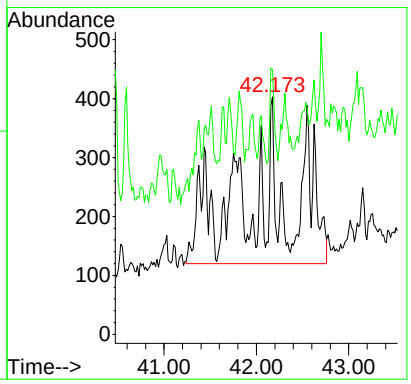


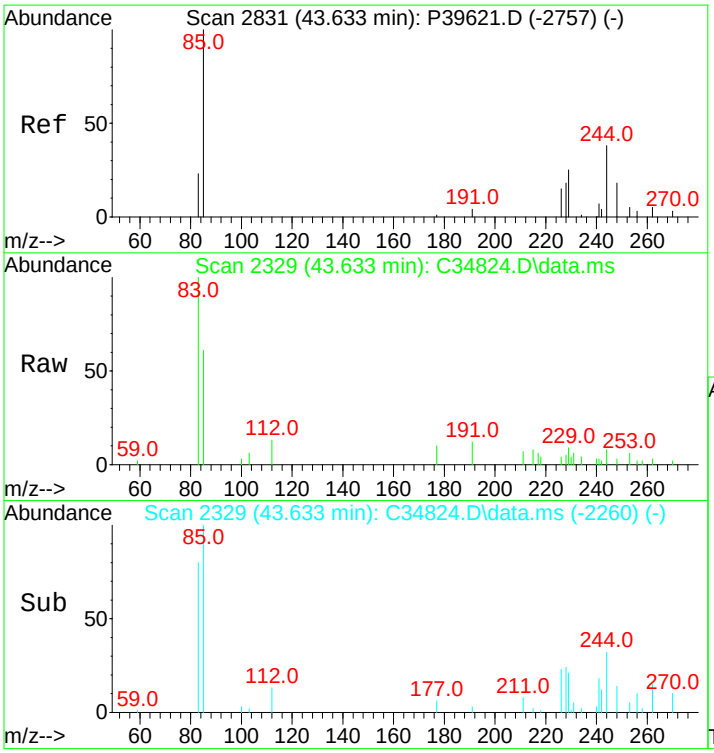


#62
C2-Fluoranthenes/Pyrenes
Concen: 82.03 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:230 Resp: 8647

Ion	Ratio	Lower	Upper
230	100		
215	6.1	99.0	148.4#

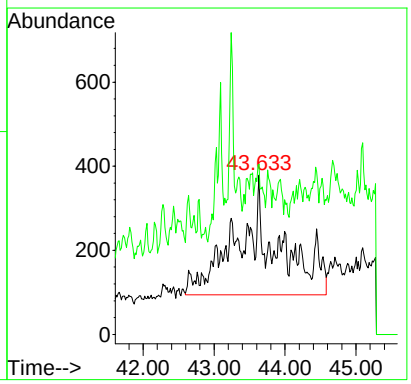


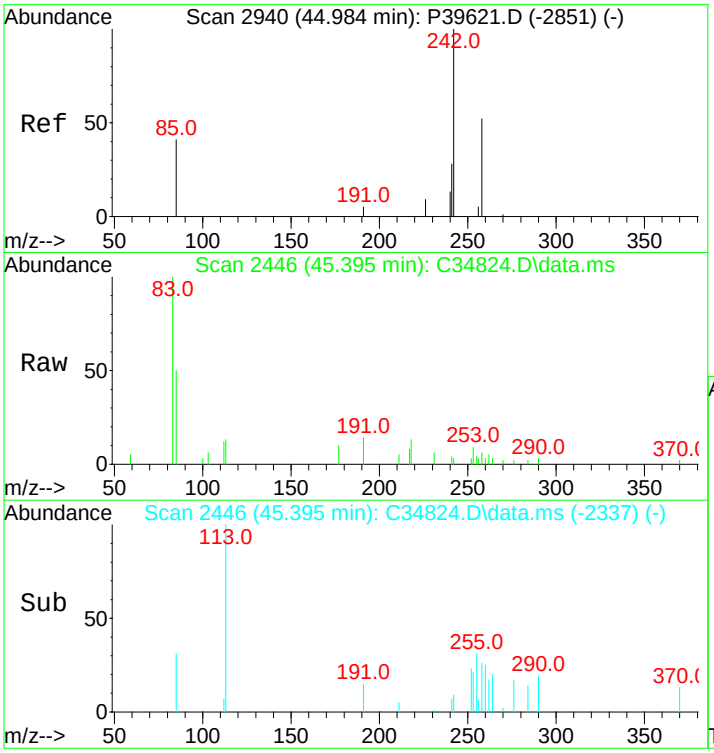


#63
C3-Fluoranthenes/Pyrenes
Concen: 104.63 ng/mL m
RT: 43.633 min Scan# 2329
Delta R.T. 0.226 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:244 Resp: 11029

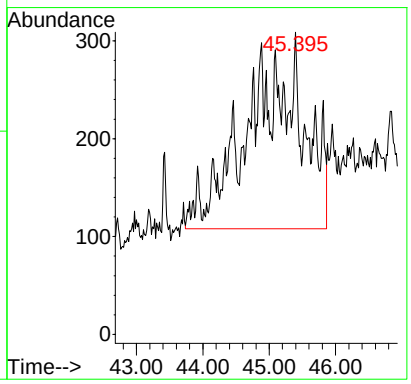
Ion	Ratio	Lower	Upper
244	100		
229	6.8	73.3	109.9#

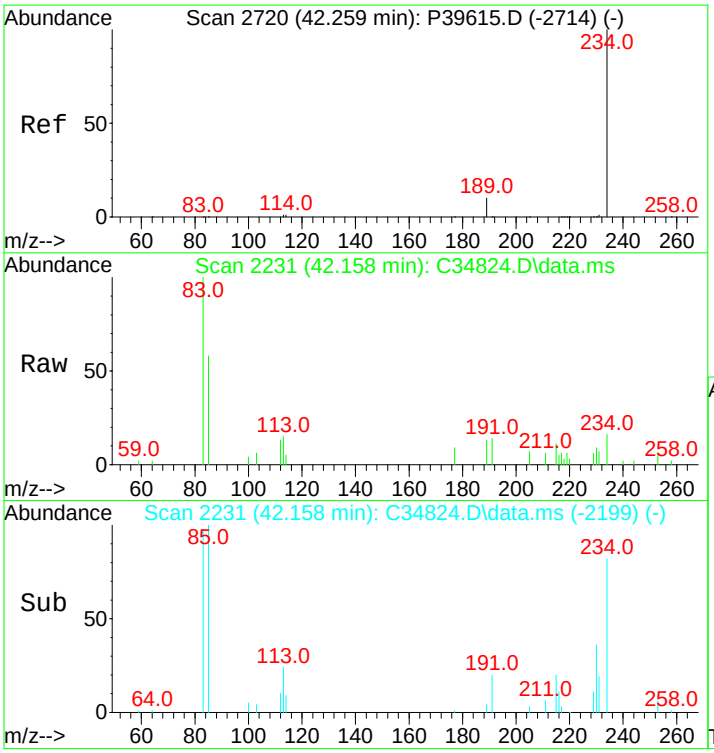




#64
C4-Fluoranthenes/Pyrenes
Concen: 104.67 ng/mL m
RT: 45.395 min Scan# 2446
Delta R.T. 0.639 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:258 Resp: 11033

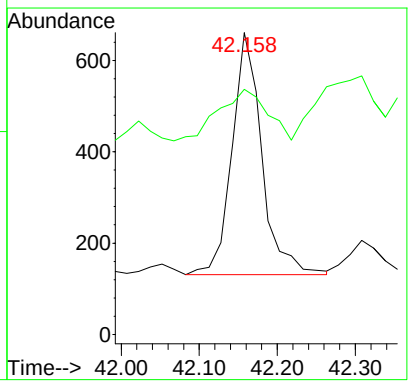


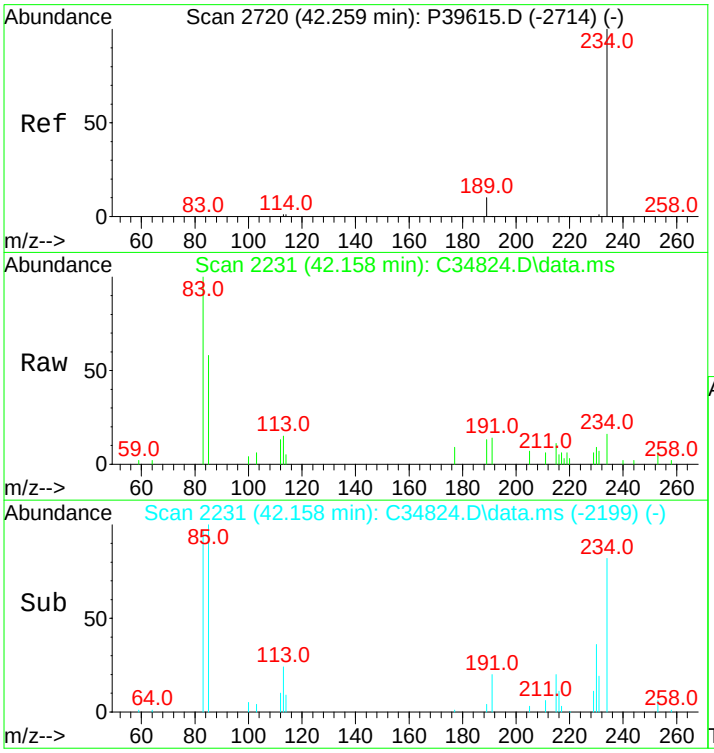


#66
Naphthobenzothiophene
Concen: 12.39 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:234 Resp: 1406

Ion	Ratio	Lower	Upper
234	100		
189	34.6	20.5	30.7#

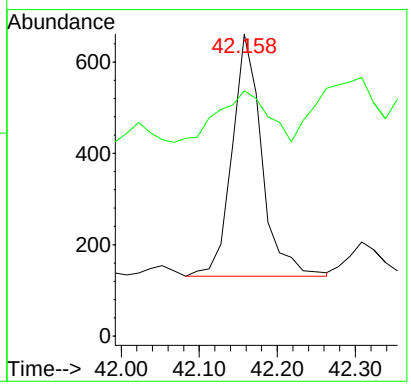


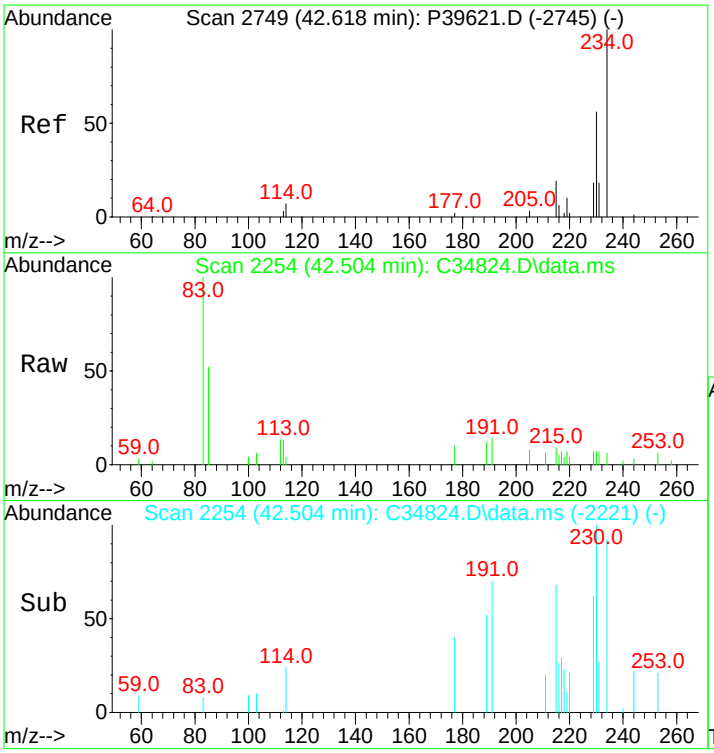


#67
Naphthobenzothiophene-2,1-D
Concen: 12.39 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:234 Resp: 1406

Ion	Ratio	Lower	Upper
234	100		
189	34.6	20.5	30.7#

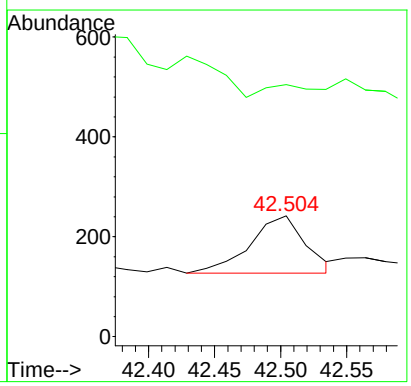


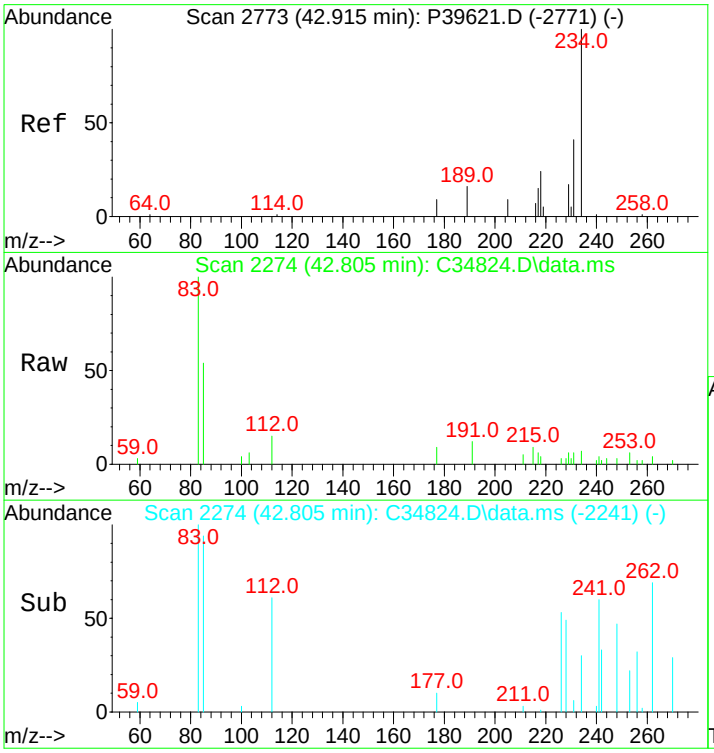


#68
Naphthobenzothiophene-1,2-D
Concen: 2.94 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:234 Resp: 334

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

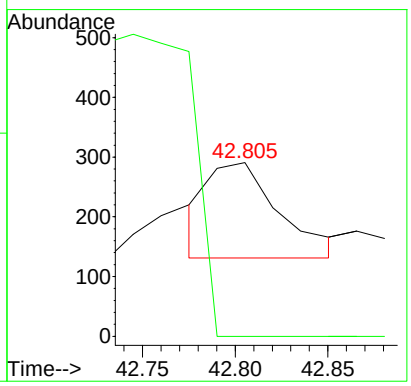


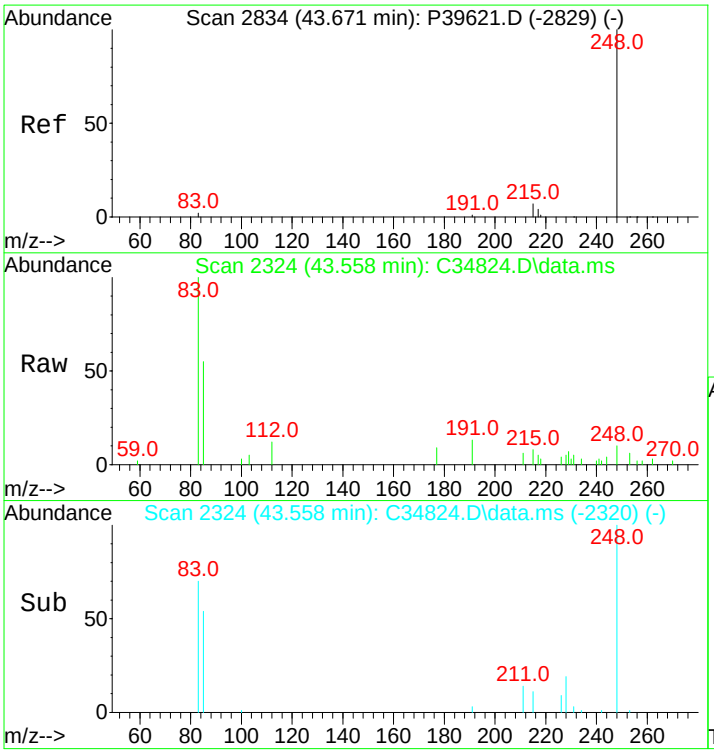


#69
Naphthobenzothiophene-2,3-D
Concen: 3.77 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:234 Resp: 428

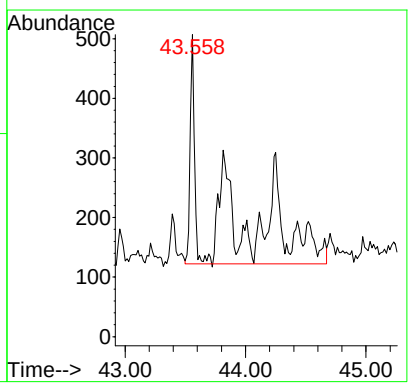
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

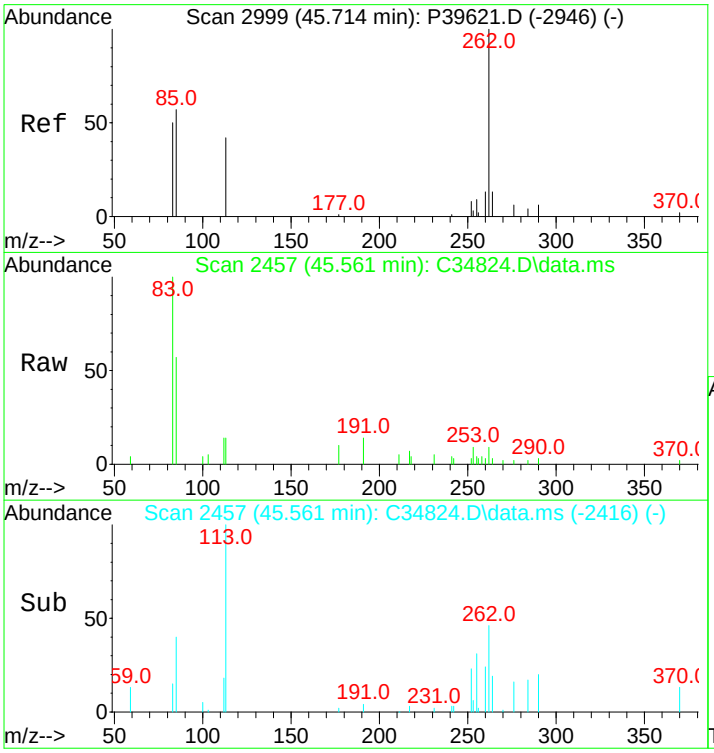




#70
C1-Naphthobenzothiophenes
Concen: 40.15 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

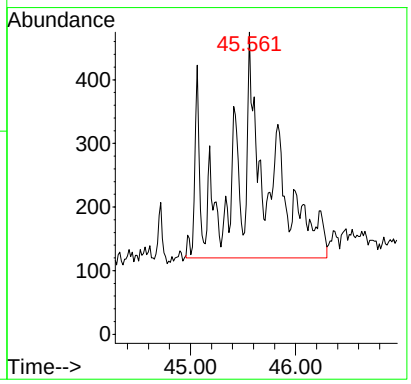
Tgt Ion:248 Resp: 4556

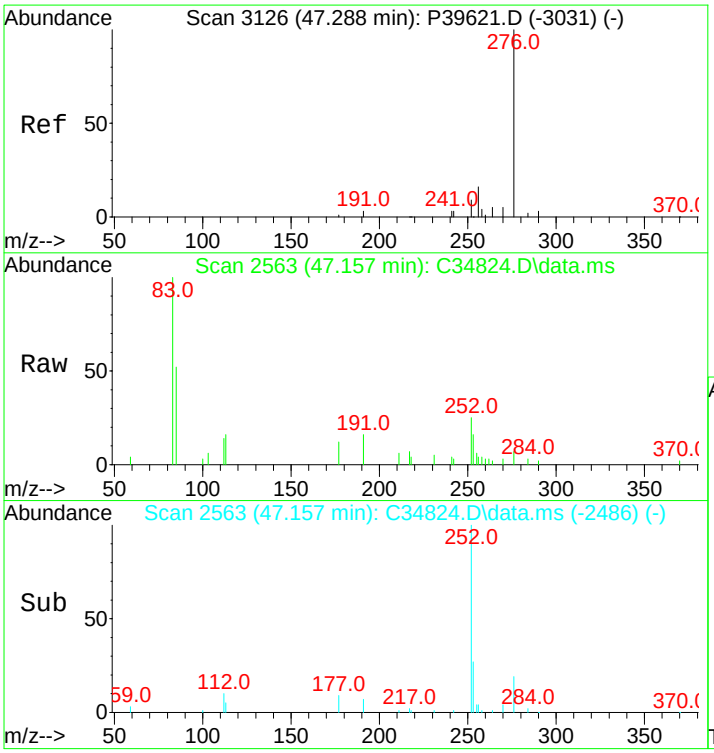




#71
C2-Naphthobenzothiophenes
Concen: 70.88 ng/ml m
RT: 45.561 min Scan# 2457
Delta R.T. 0.130 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

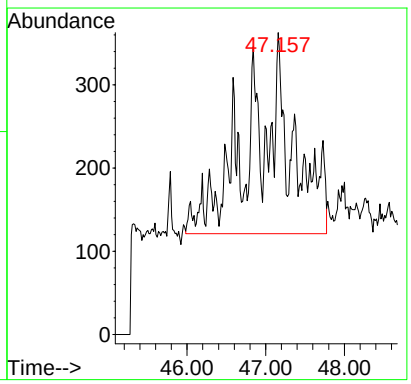
Tgt Ion:262 Resp: 8043

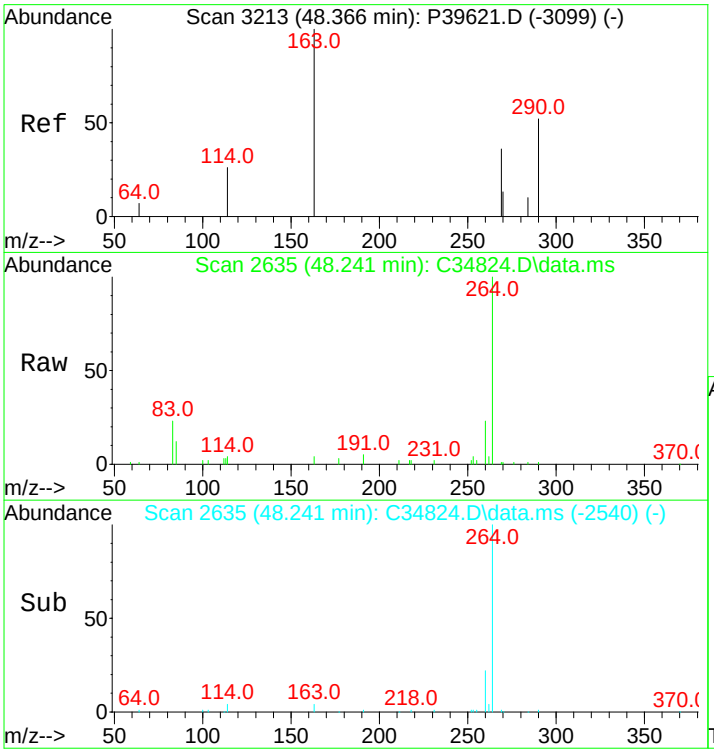




#72
C3-Naphthobenzothiophenes
Concen: 76.17 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

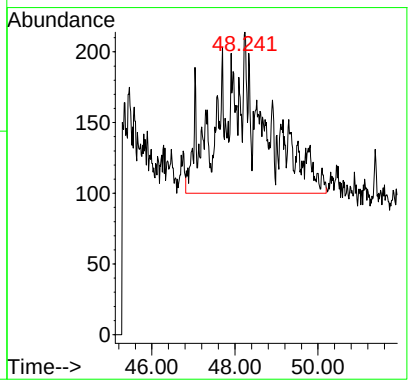
Tgt Ion:276 Resp: 8644

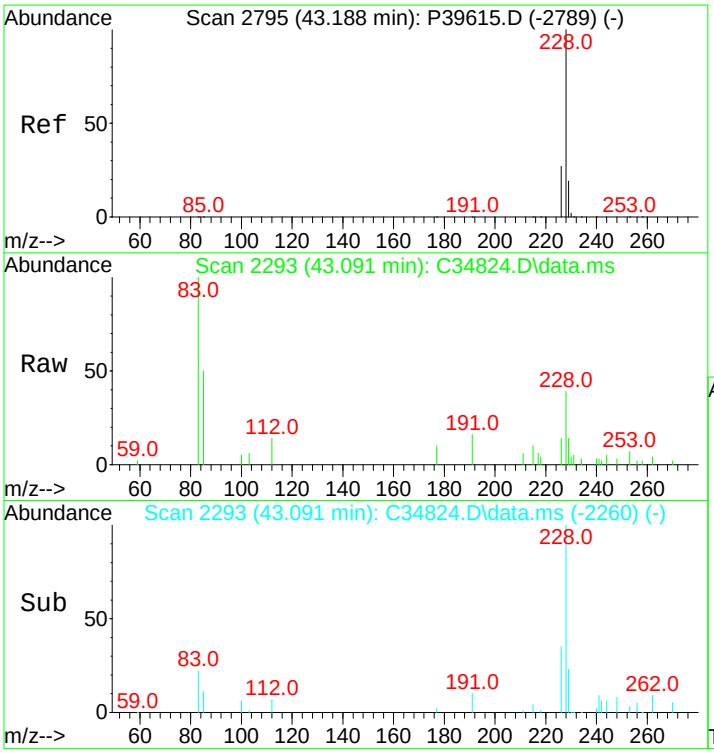




#73
C4-Naphthobenzothiophenes
Concen: 70.53 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:290 Resp: 8004

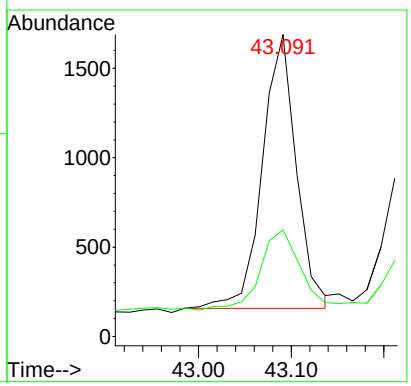


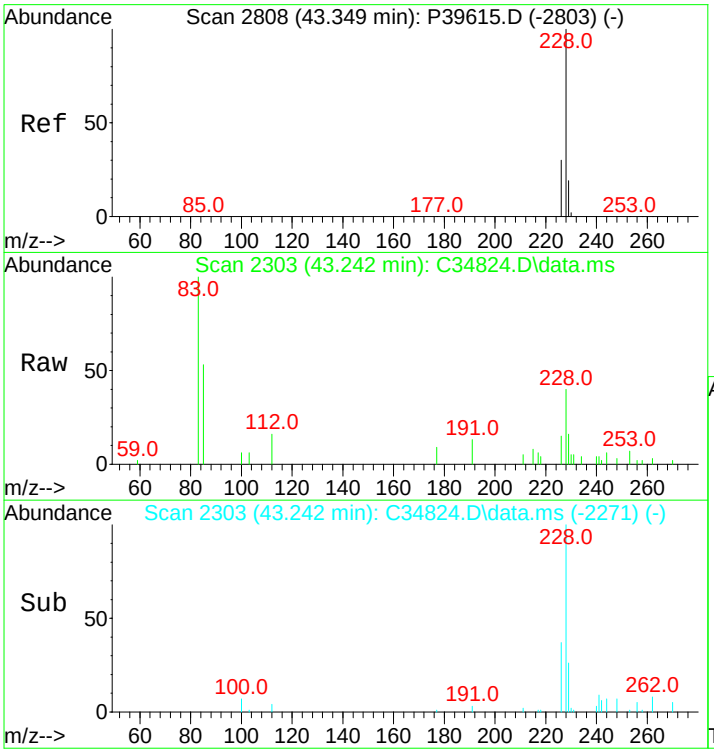


#75
Benz[a]anthracene
Concen: 38.92 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:228 Resp: 3896

Ion	Ratio	Lower	Upper
228	100		
226	30.7	21.4	32.0

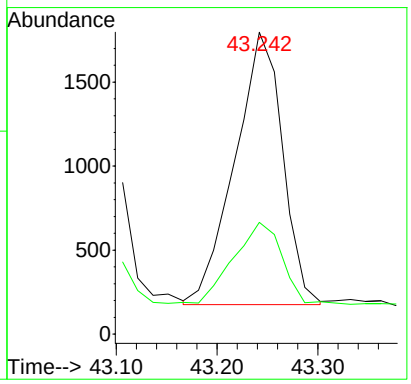


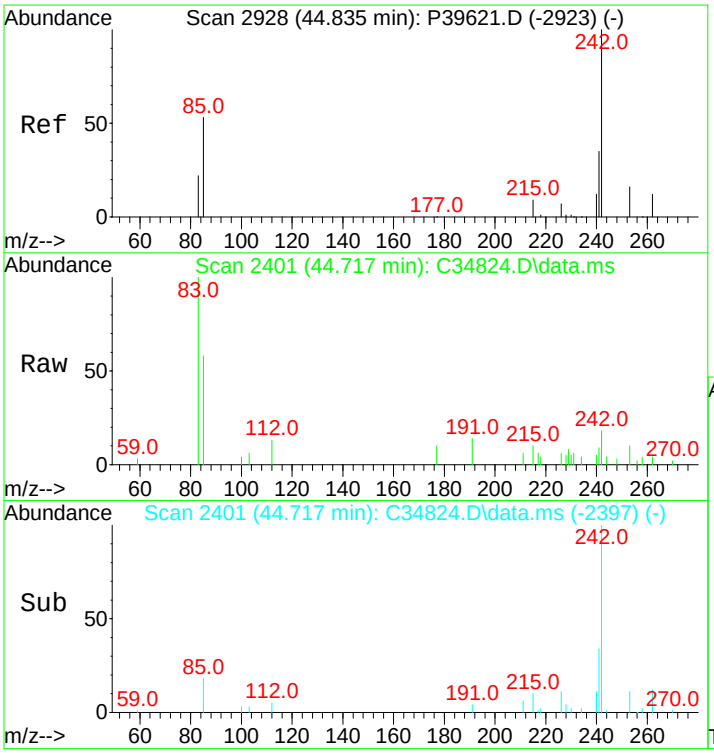


#77
Chrysene/Triphenylene
Concen: 52.61 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:228 Resp: 5317

Ion	Ratio	Lower	Upper
228	100		
226	31.0	23.7	35.5

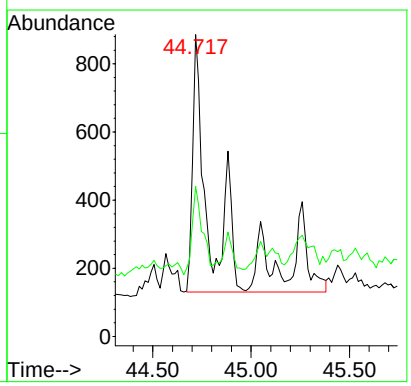


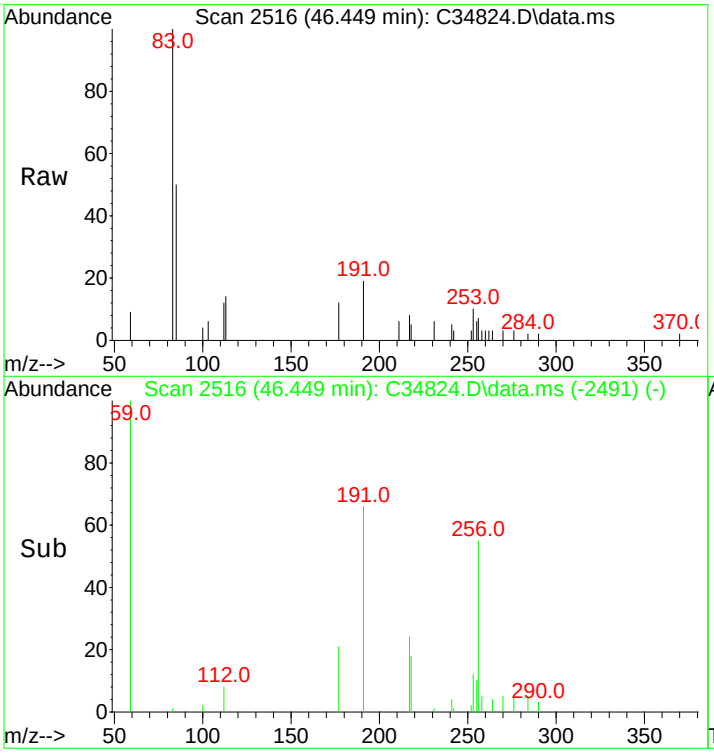


#78
C1-Chrysenes
Concen: 57.19 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:242 Resp: 5780

Ion	Ratio	Lower	Upper
242	100		
241	12.2	31.4	47.2#

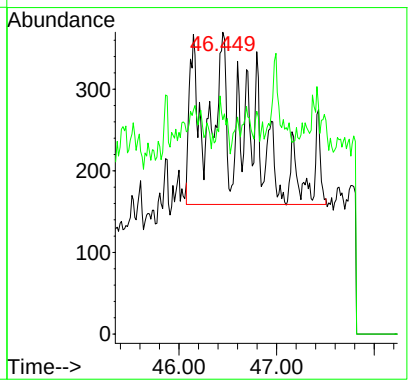


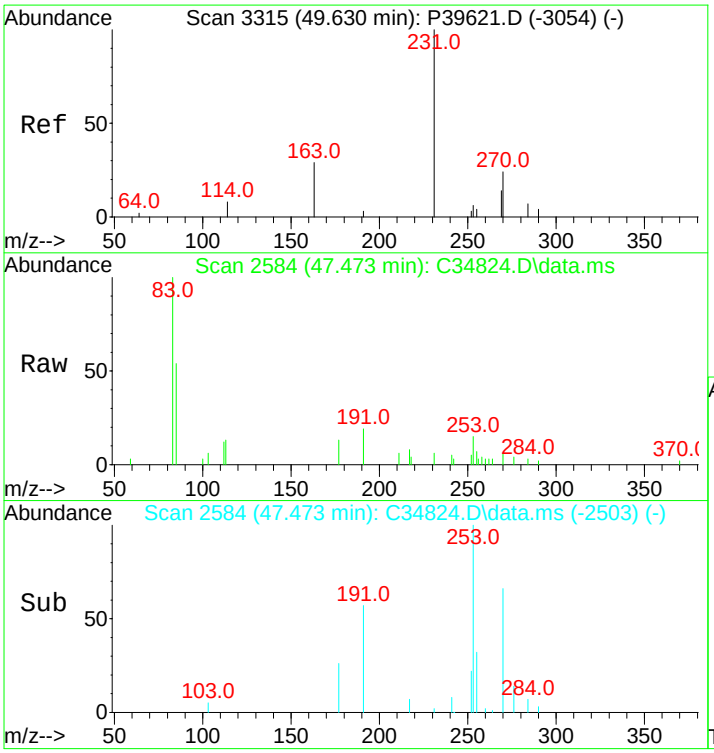


#79
C2-Chrysenes
Concen: 63.07 ng/mL m
RT: 46.449 min Scan# 2516
Delta R.T. -0.340 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:256 Resp: 6374

Ion	Ratio	Lower	Upper
256	100		
241	0.0	21.2	31.8#

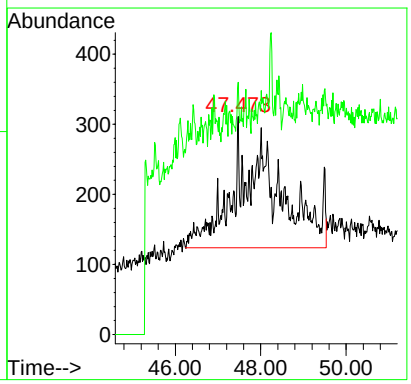


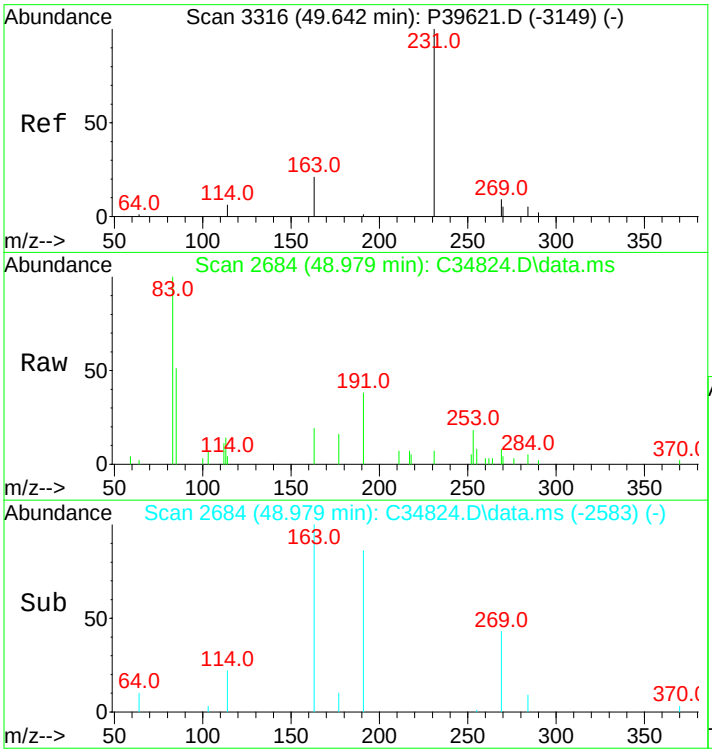


#80
C3-Chrysenes
Concen: 119.96 ng/mL m
RT: 47.473 min Scan# 2584
Delta R.T. -2.022 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:270 Resp: 12124

Ion	Ratio	Lower	Upper
270	100		
255	1.0	33.8	50.8#

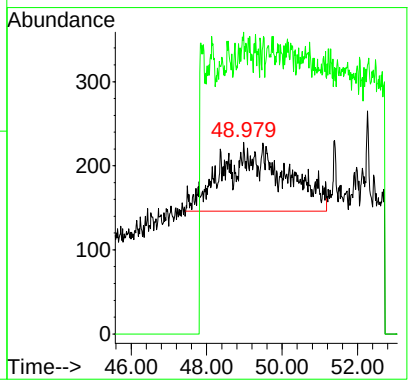


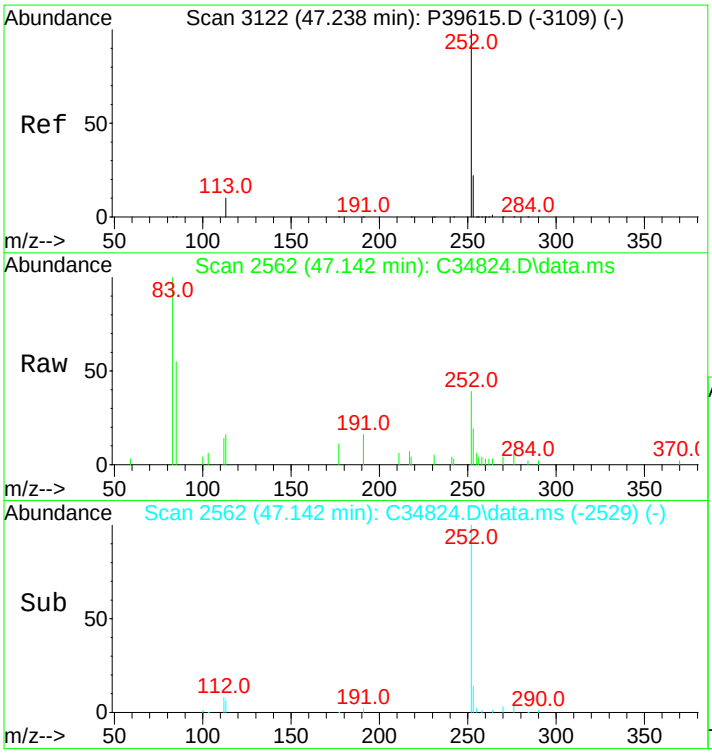


#81
C4-Chrysenes
Concen: 88.53 ng/mL m
RT: 48.979 min Scan# 2684
Delta R.T. -0.621 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:284 Resp: 8947

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

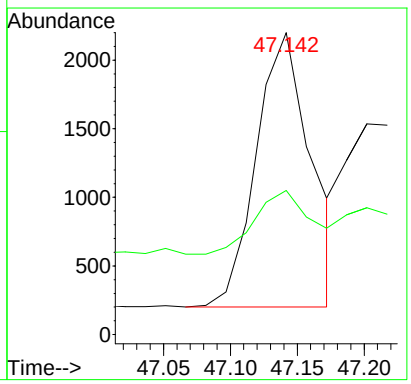


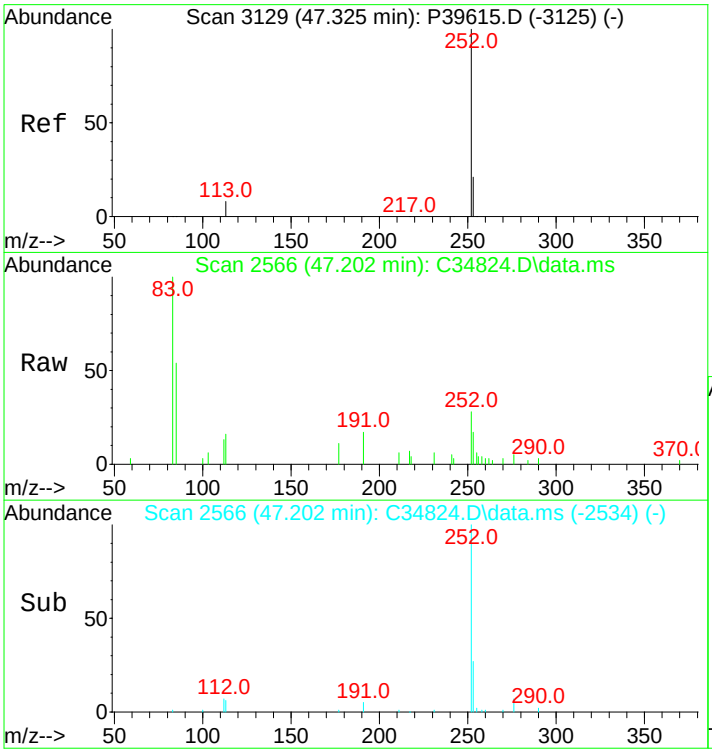


#82
Benzo[b]fluoranthene
Concen: 51.96 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 5715

Ion	Ratio	Lower	Upper
252	100		
253	23.8	19.0	28.4

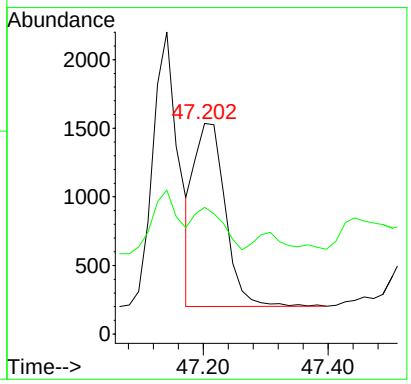


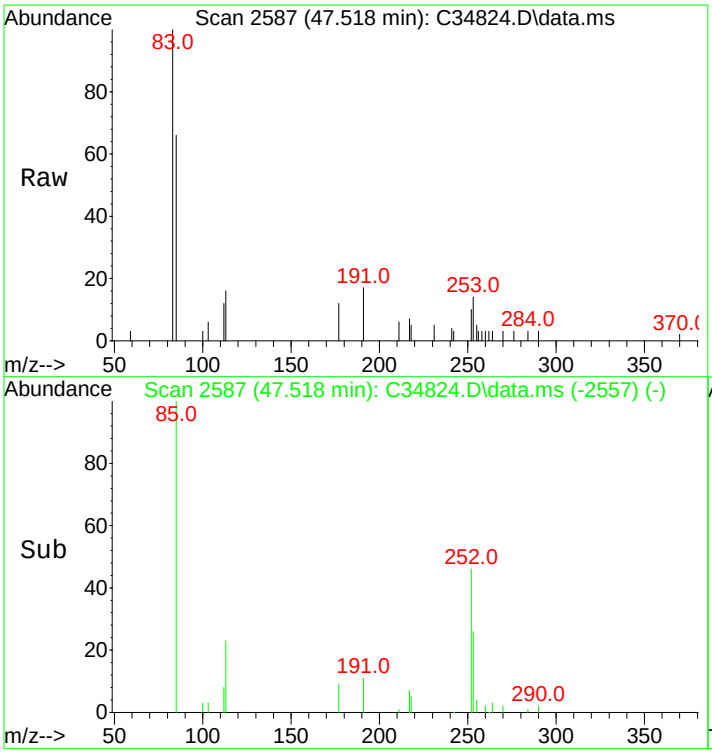


#83
Benzo[j]+[k]fluoranthene
Concen: 38.76 ng/mL
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 4642

Ion	Ratio	Lower	Upper
252	100		
253	23.2	19.0	28.4

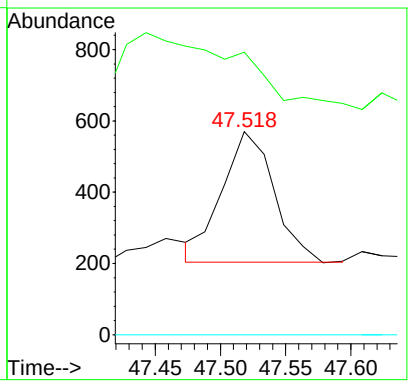


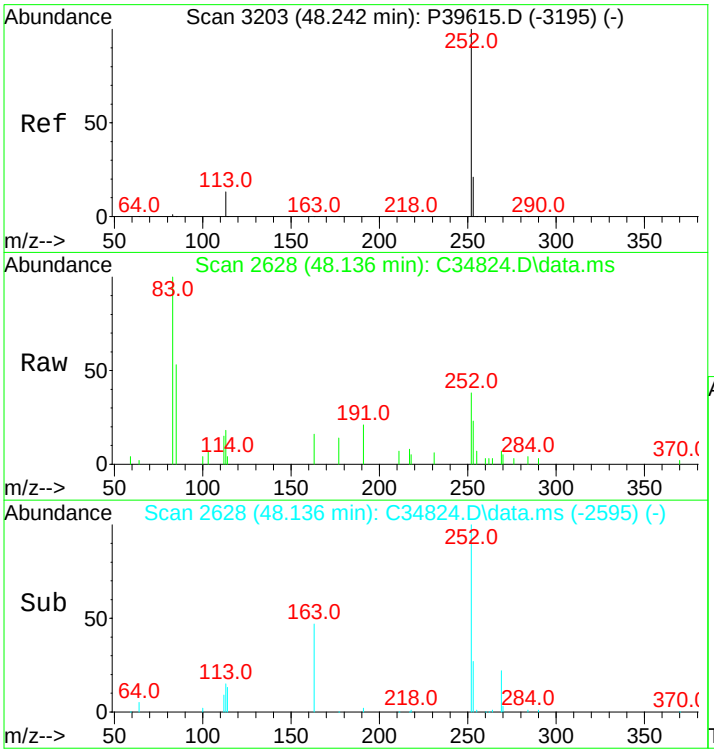


#84
Benzo[a]fluoranthene
Concen: 8.46 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 1013

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

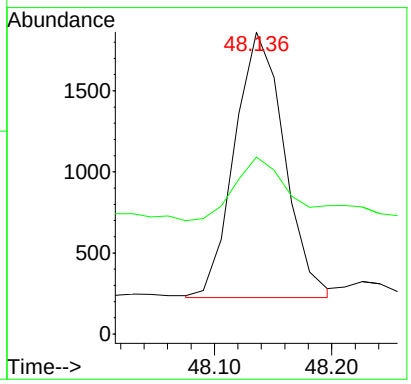


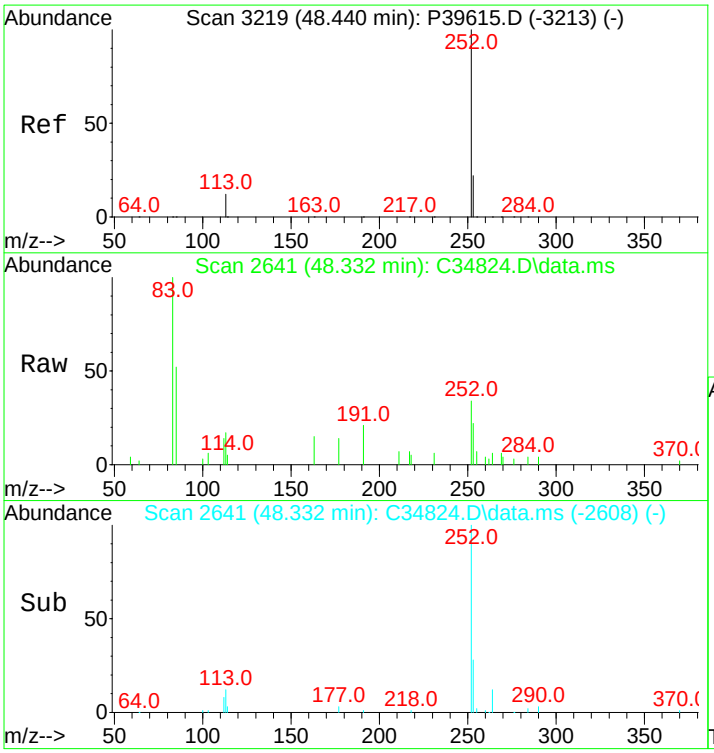


#85
Benzo[e]pyrene
Concen: 44.27 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 4817

Ion	Ratio	Lower	Upper
252	100		
253	21.2	19.2	28.8

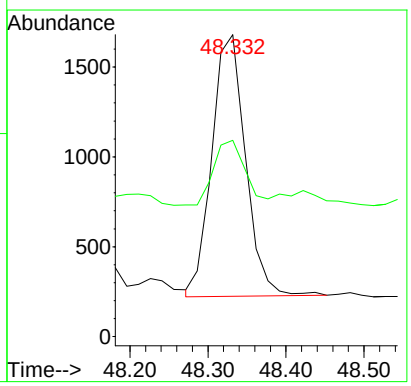


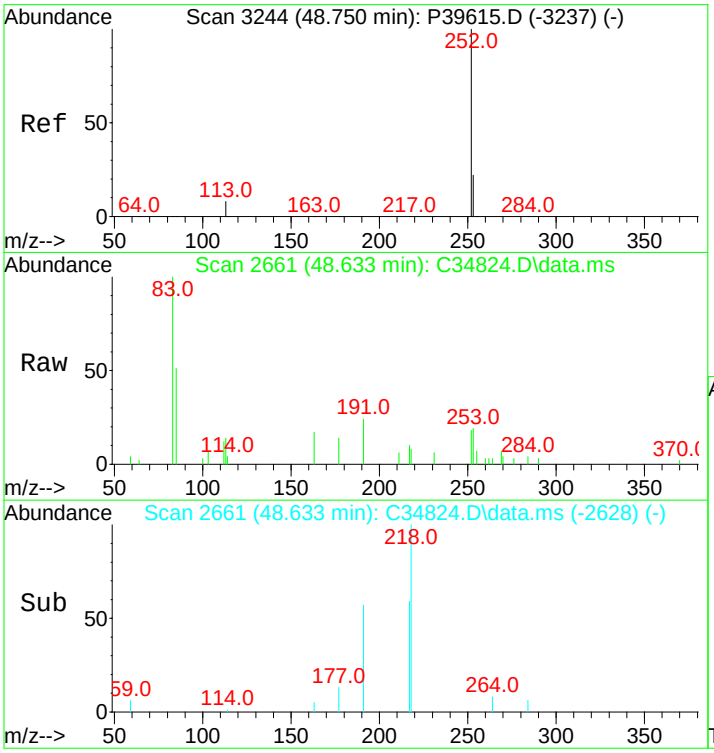


#87
Benzo[a]pyrene
Concen: 41.67 ng/mL
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 4365

Ion	Ratio	Lower	Upper
252	100		
253	23.3	19.5	29.3

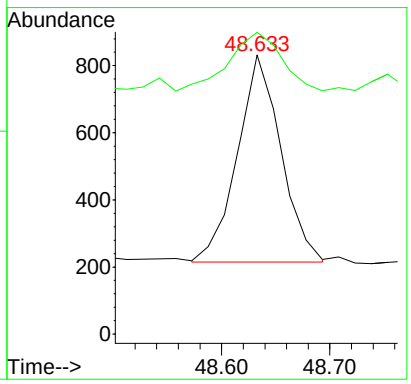


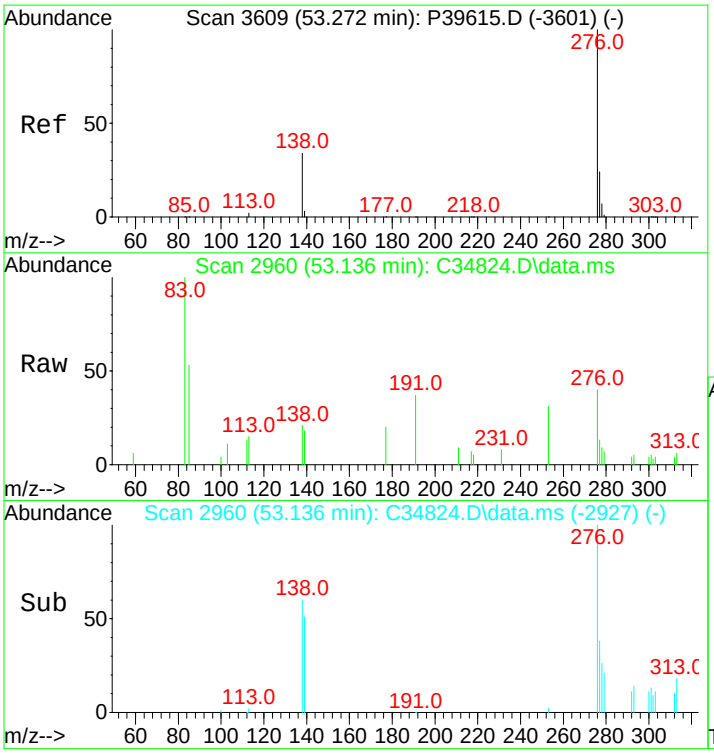


#88
Perylene
Concen: 15.35 ng/mL m
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:252 Resp: 1719

Ion	Ratio	Lower	Upper
252	100		
253	59.3	19.6	29.4#

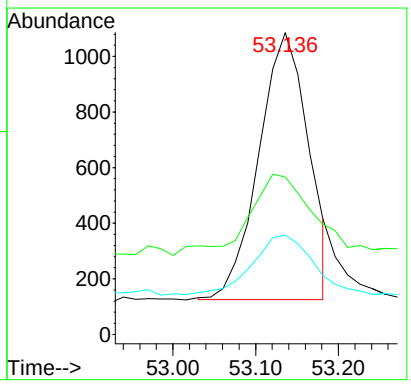


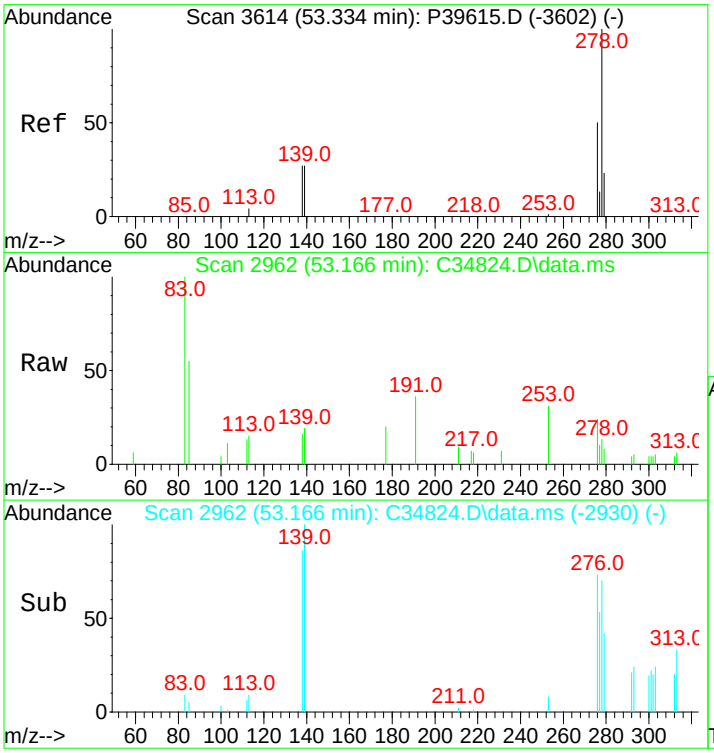


#89
Indeno[1,2,3-cd]pyrene
Concen: 32.89 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:276 Resp: 4009

Ion	Ratio	Lower	Upper
276	100		
138	51.0	23.3	34.9#
277	26.5	19.0	28.4

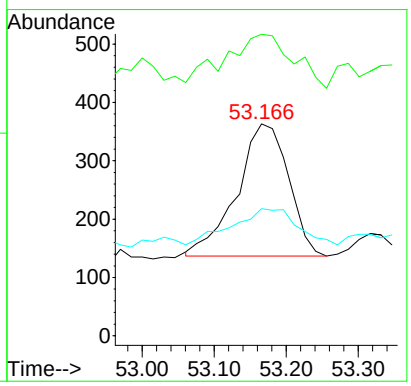


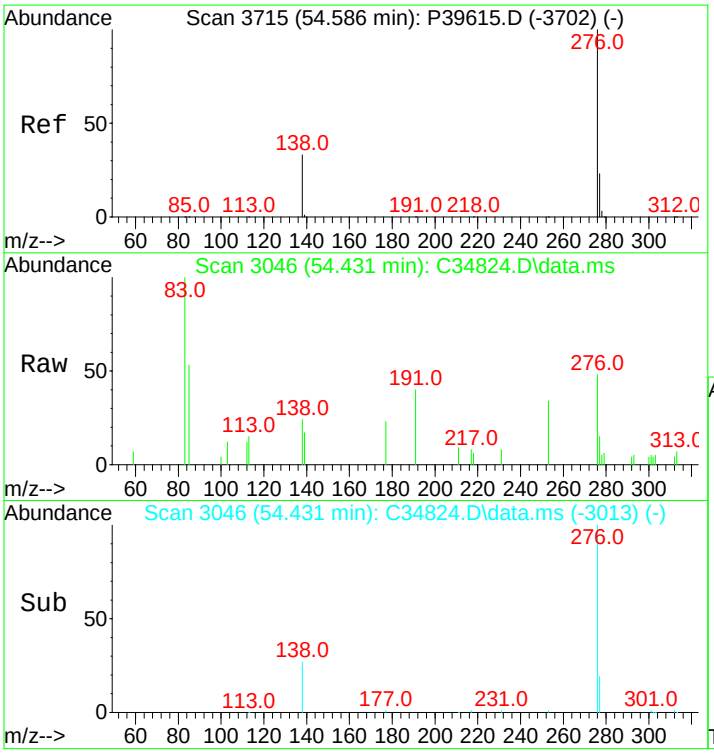


#90
Dibenz[ah]+[ac]anthracene
Concen: 9.68 ng/mL
RT: 53.166 min Scan# 2962
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:278 Resp: 1123

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

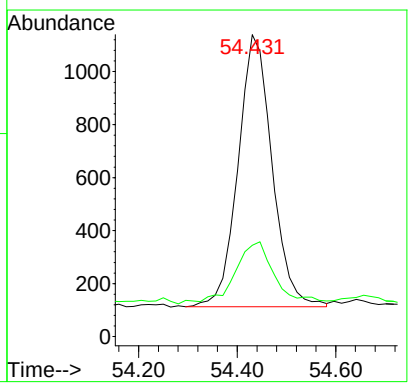


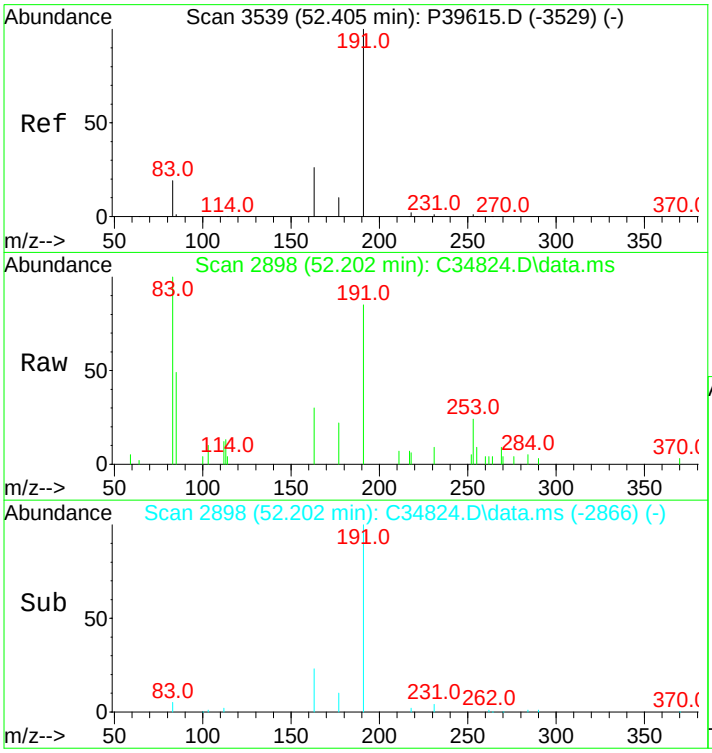


#91
Benzo[g,h,i]perylene
Concen: 38.14 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:276 Resp: 4912

Ion	Ratio	Lower	Upper
276	100		
277	26.6	18.9	28.3

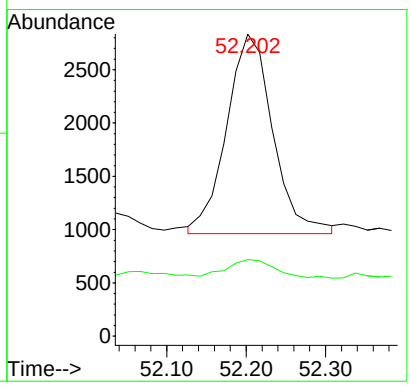


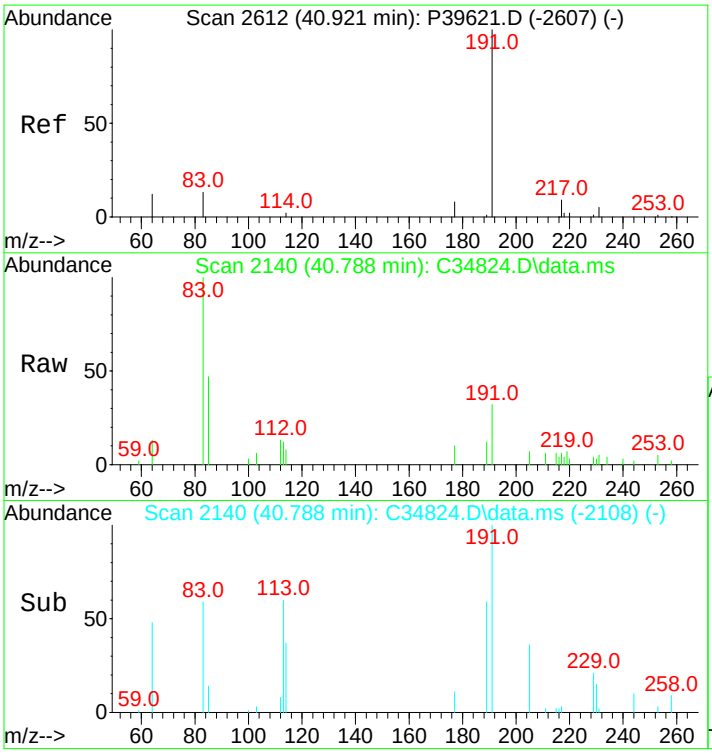


#92
Hopane (T19)
Concen: 365.71 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:191 Resp: 7602

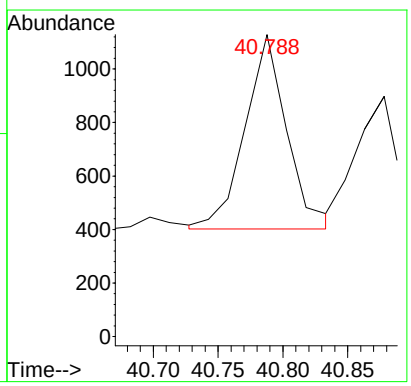
Ion	Ratio	Lower	Upper
191	100		
177	9.6	14.6	21.8#

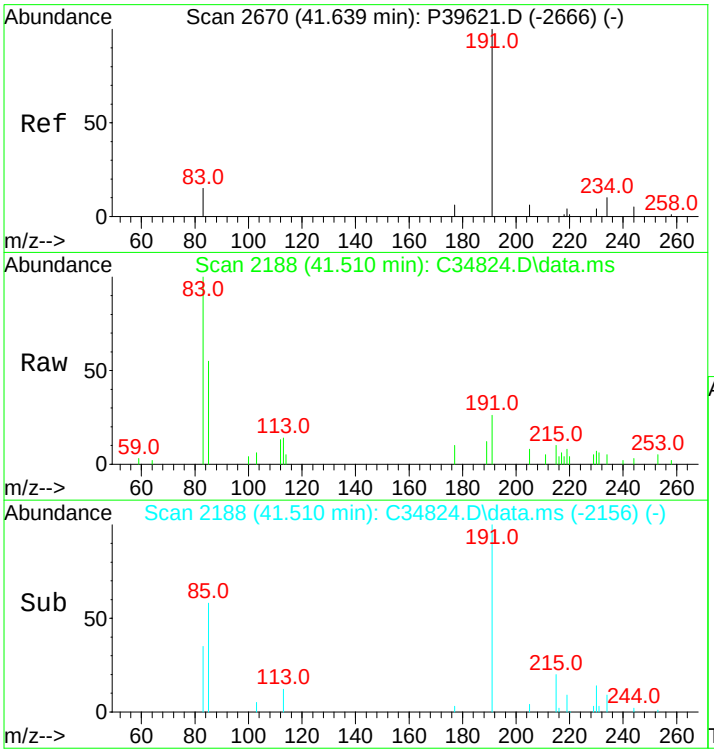




#94
C23 Tricyclic Terpane (T4)
Concen: 78.41 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

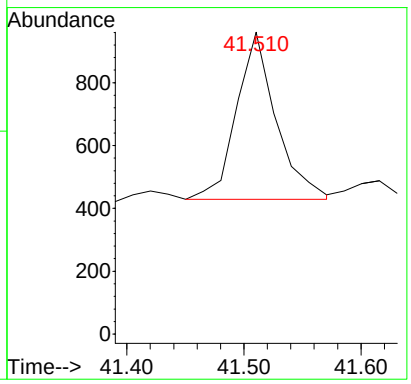
Tgt Ion:191 Resp: 1630

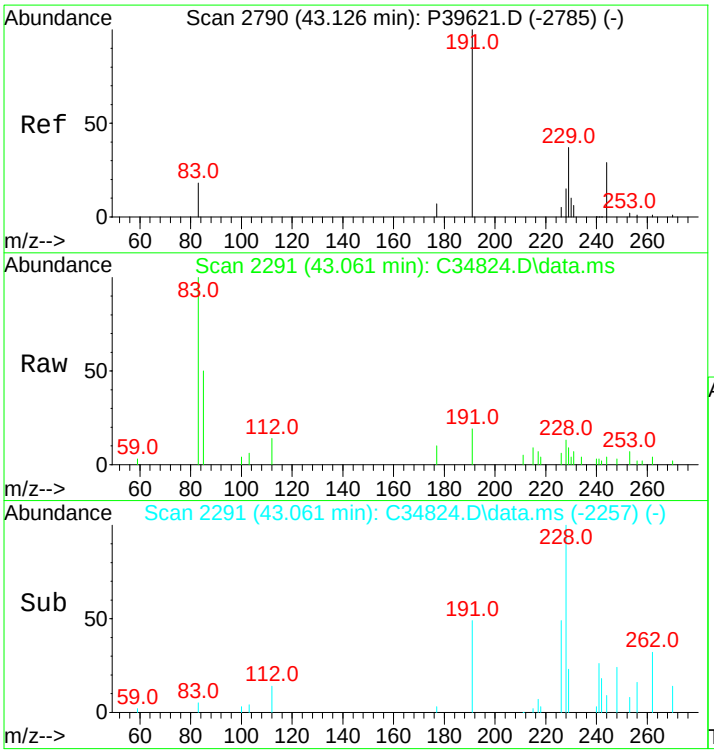




#95
C24 Tricyclic Terpane (T5)
Concen: 60.18 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

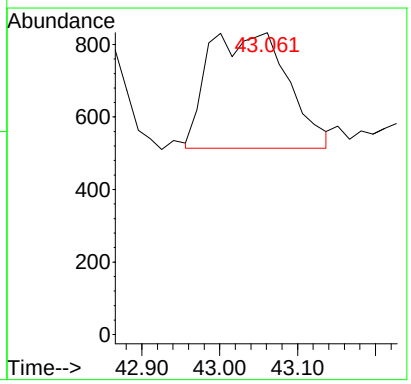
Tgt Ion:191 Resp: 1251

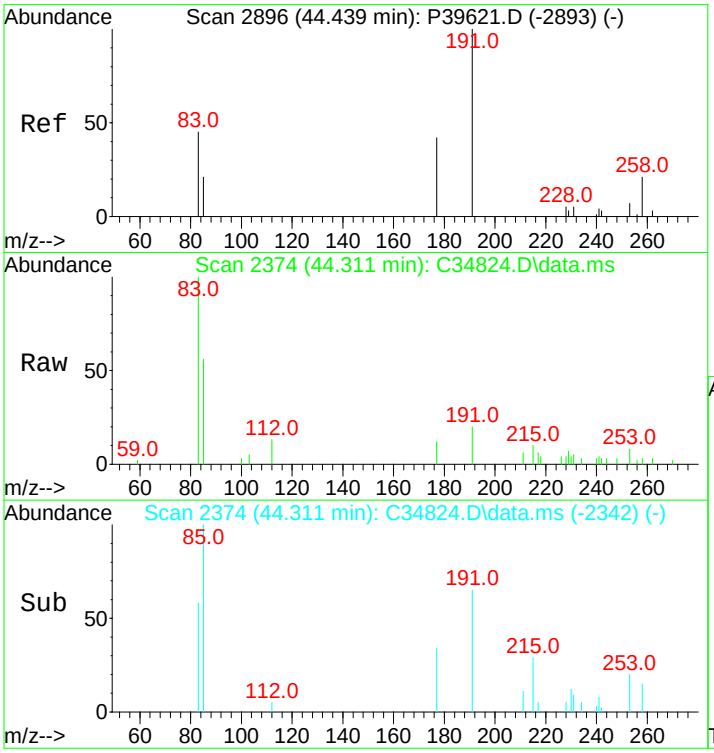




#96
C25 Tricyclic Terpane (T6)
Concen: 108.87 ng/ml m
RT: 43.061 min Scan# 2291
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

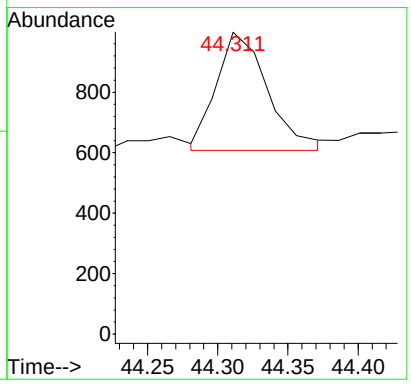
Tgt Ion:191 Resp: 2263

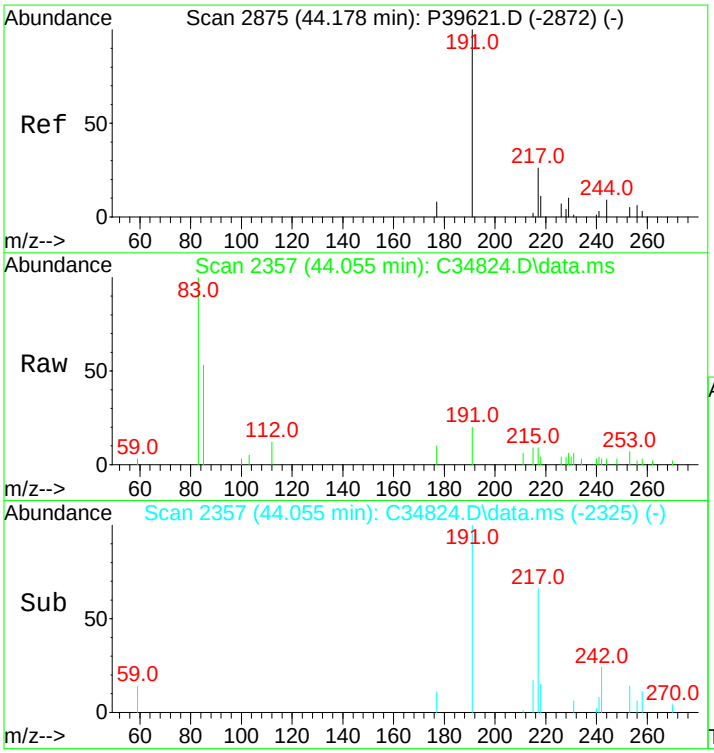




#97
C24 Tetracyclic Terpane (T6a)
Concen: 47.72 ng/ml m
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

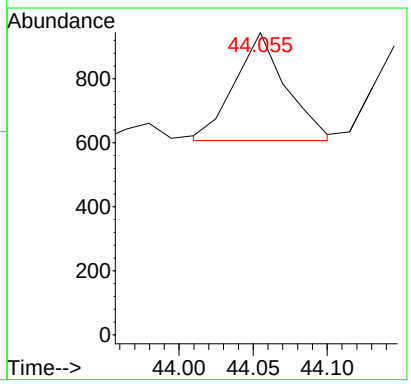
Tgt Ion:191 Resp: 992

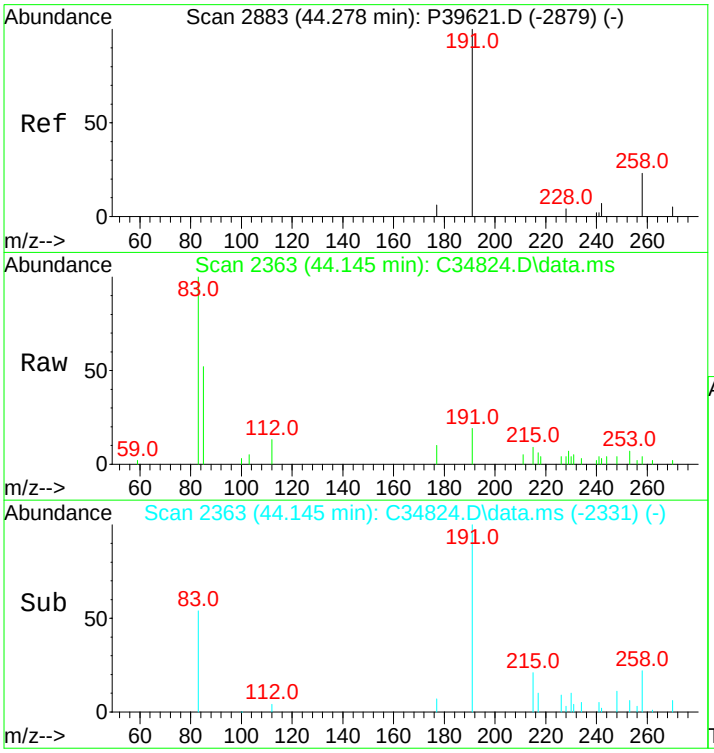




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 38.97 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

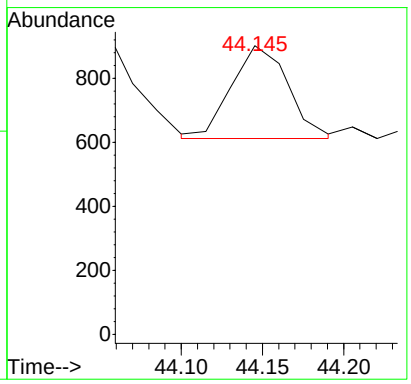
Tgt Ion:191 Resp: 810

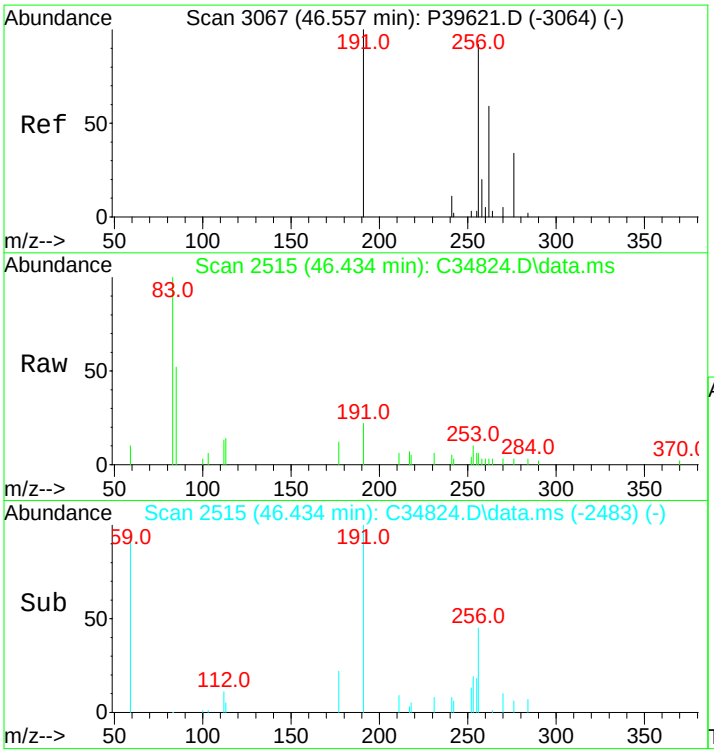




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 33.82 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

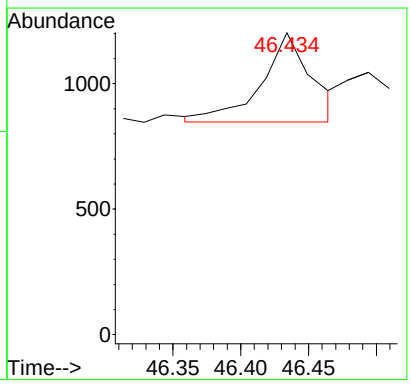
Tgt Ion:191 Resp: 703

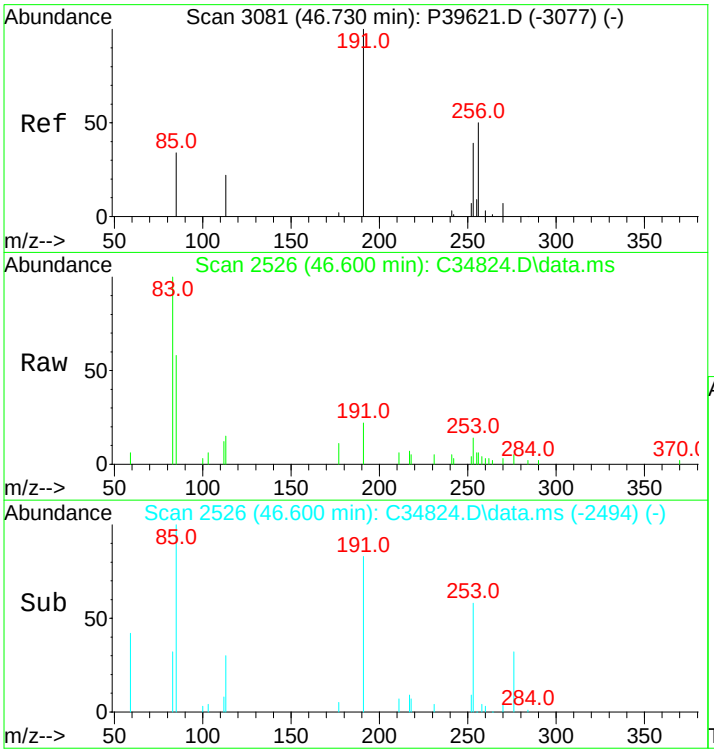




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 43.58 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

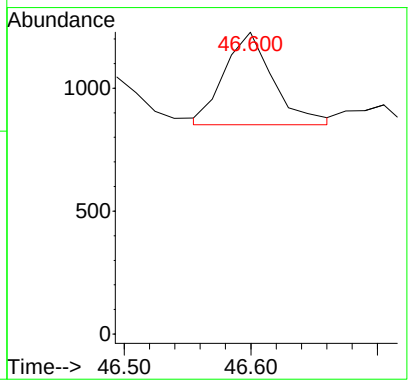
Tgt Ion:191 Resp: 906

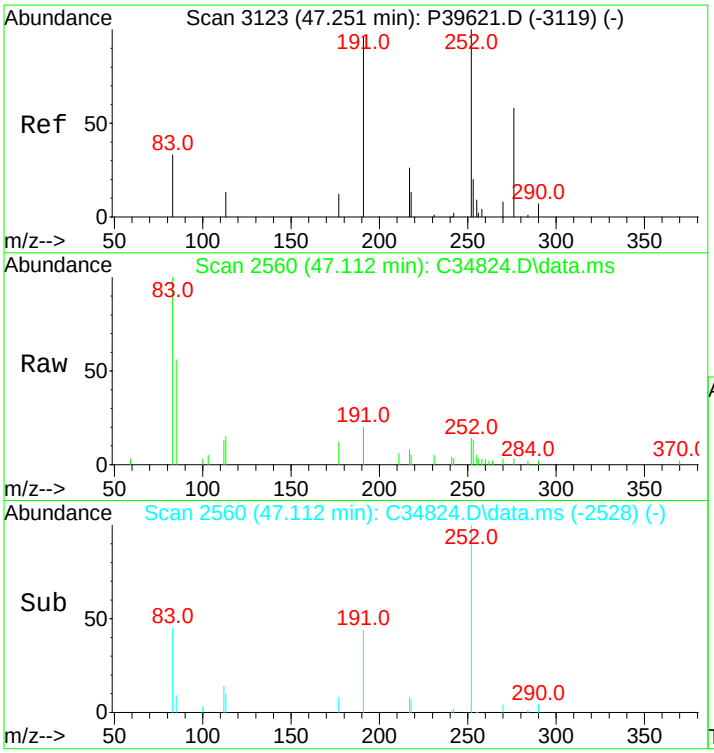




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 48.68 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

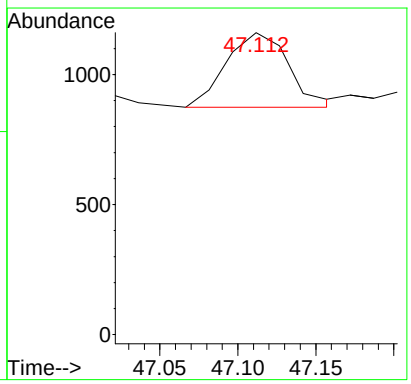
Tgt Ion:191 Resp: 1012

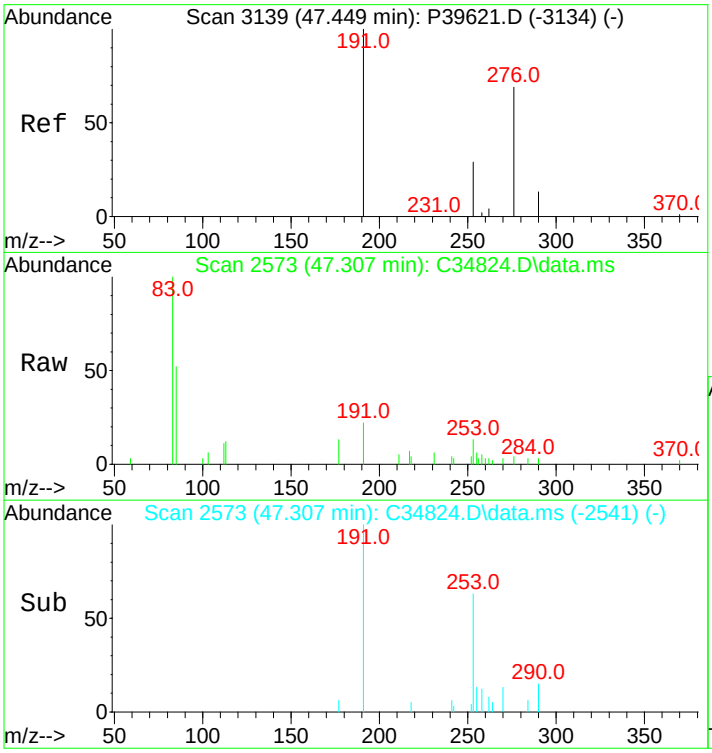




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 38.63 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

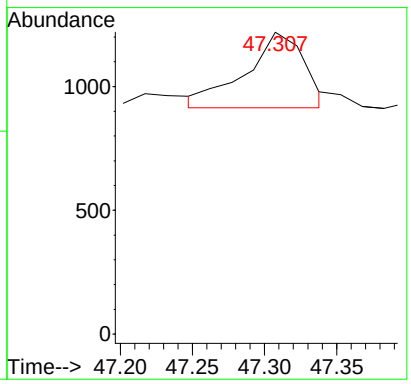
Tgt Ion:191 Resp: 803

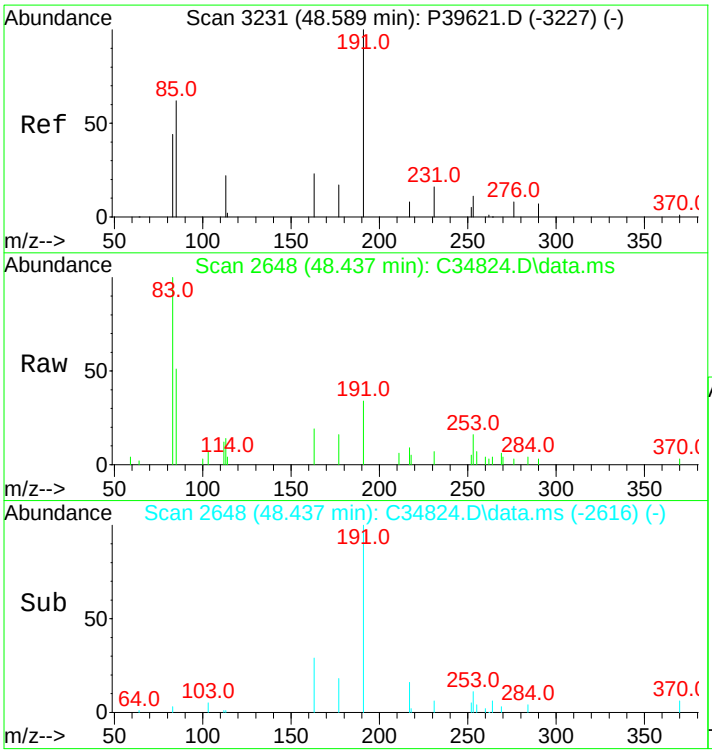




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 41.52 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

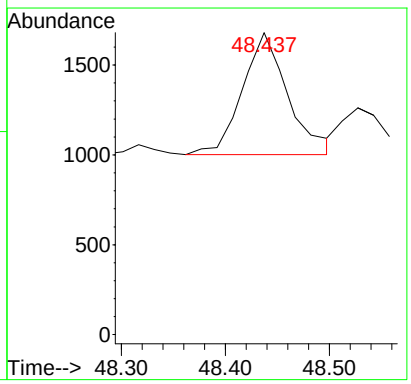
Tgt Ion:191 Resp: 863

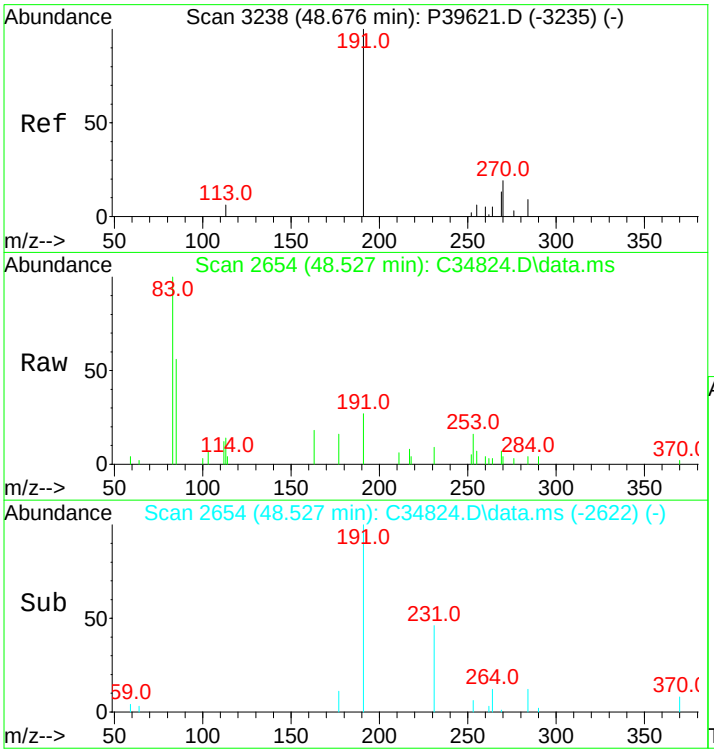




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 99.82 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

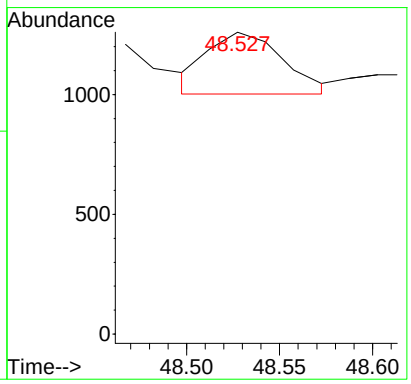
Tgt Ion:191 Resp: 2075

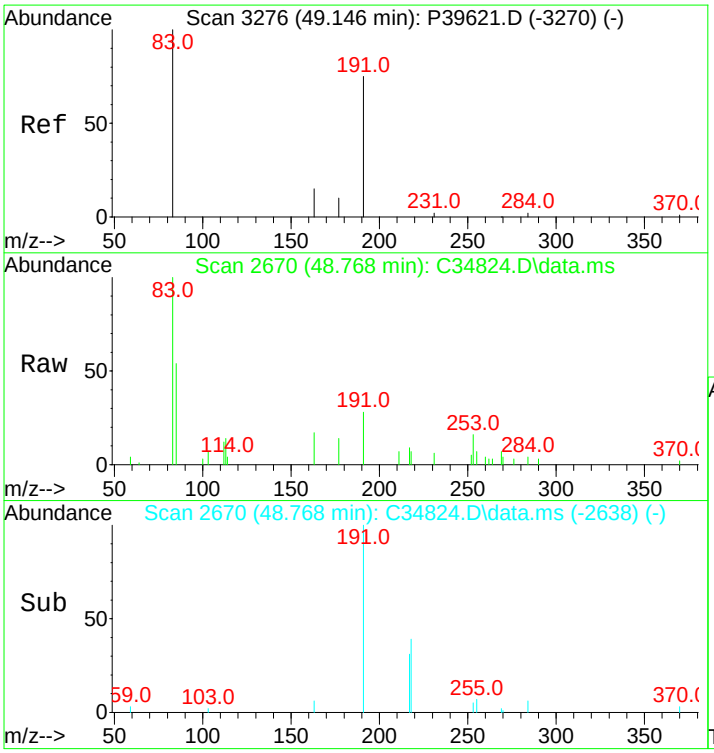




#105
C30 Tricyclic Terpane-22S
Concen: 34.93 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

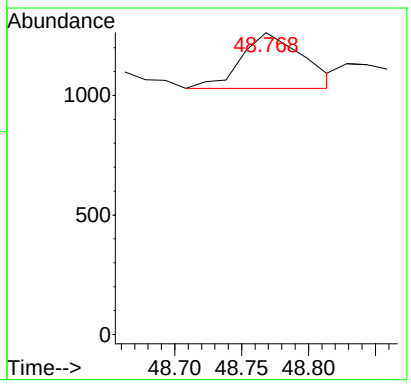
Tgt Ion:191 Resp: 726

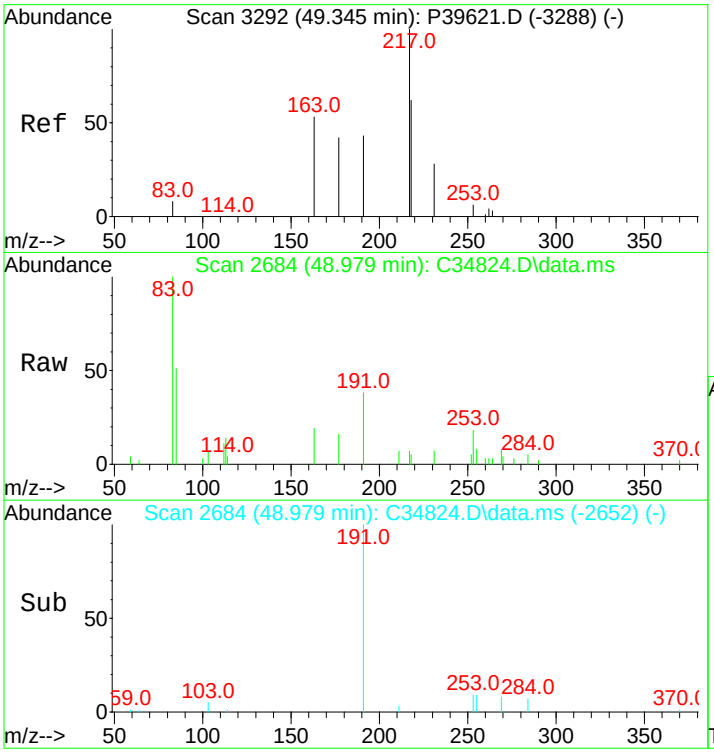




#106
C30 Tricyclic Terpane-22R
Concen: 36.08 ng/mL
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

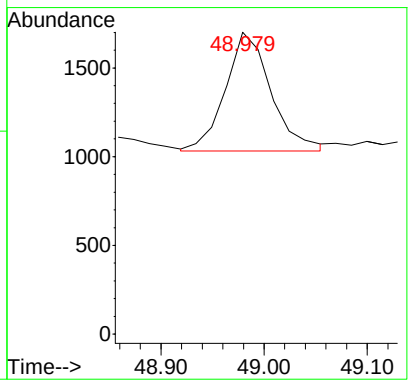
Tgt Ion:191 Resp: 750

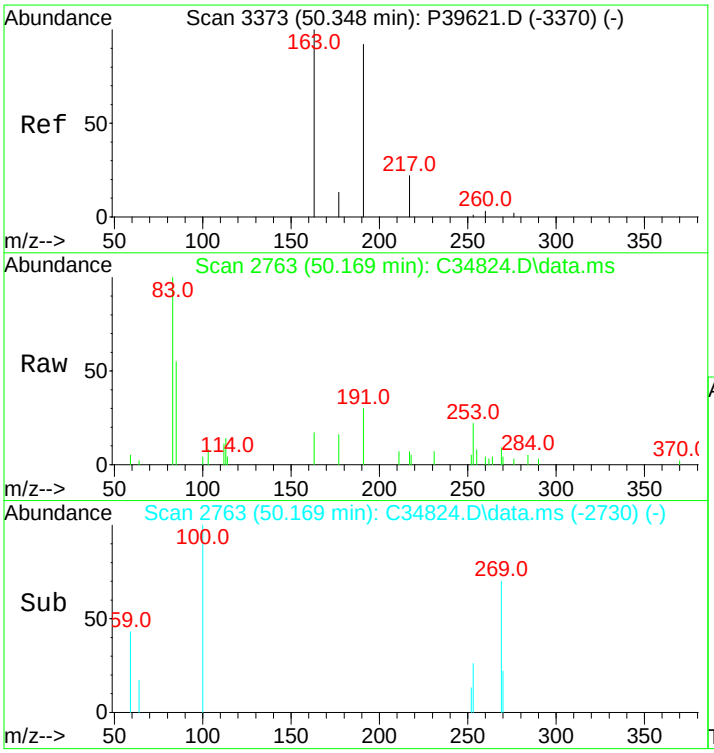




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 99.00 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

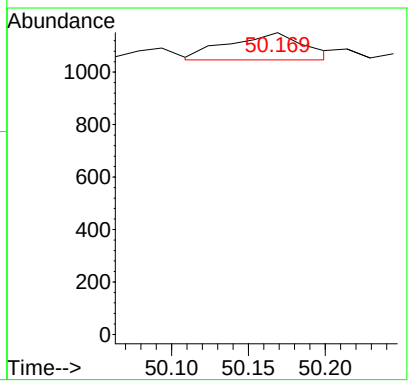
Tgt Ion:191 Resp: 2058

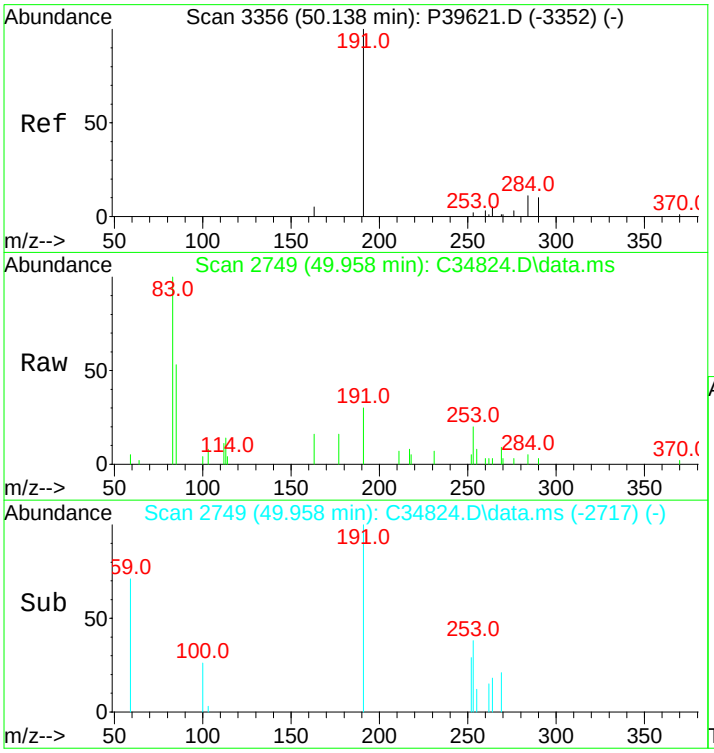




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 16.93 ng/ml m
RT: 50.169 min Scan# 2763
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

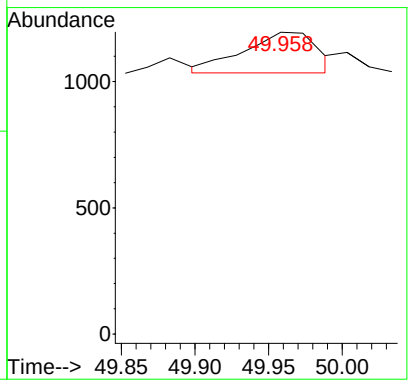
Tgt Ion:191 Resp: 352

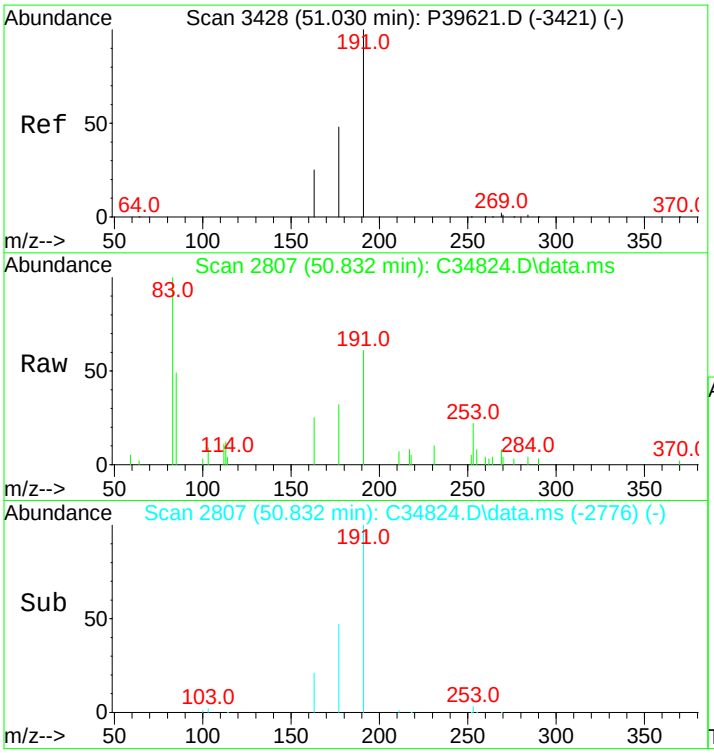




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 27.08 ng/ml m
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

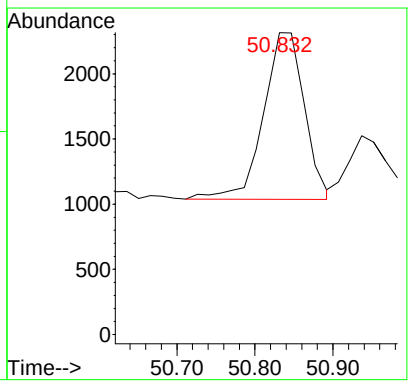
Tgt Ion:191 Resp: 563

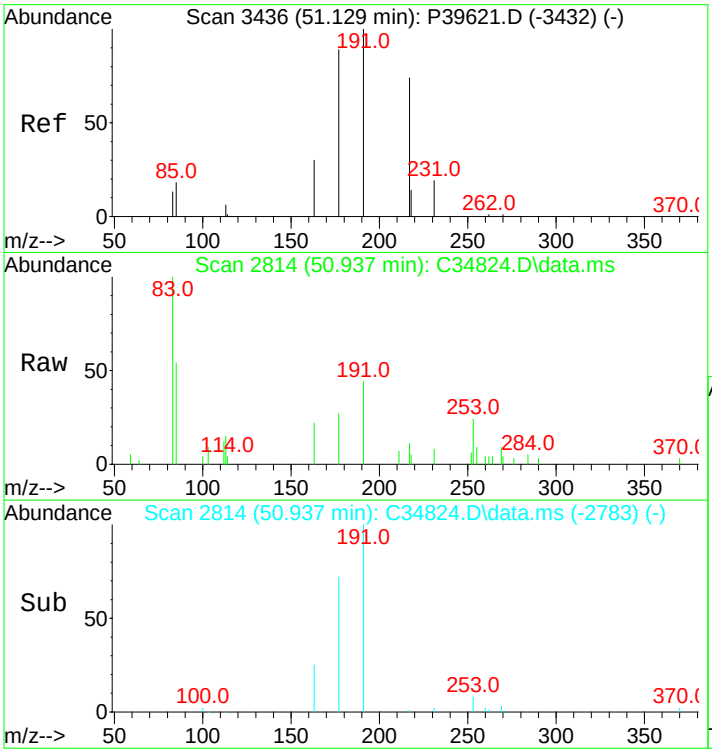




#110
30-Norhopane (T15)
Concen: 223.89 ng/ml
RT: 50.832 min Scan# 2807
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

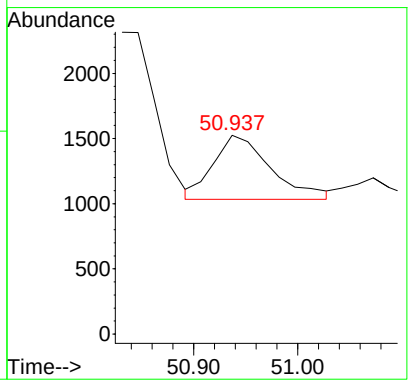
Tgt Ion:191 Resp: 4654

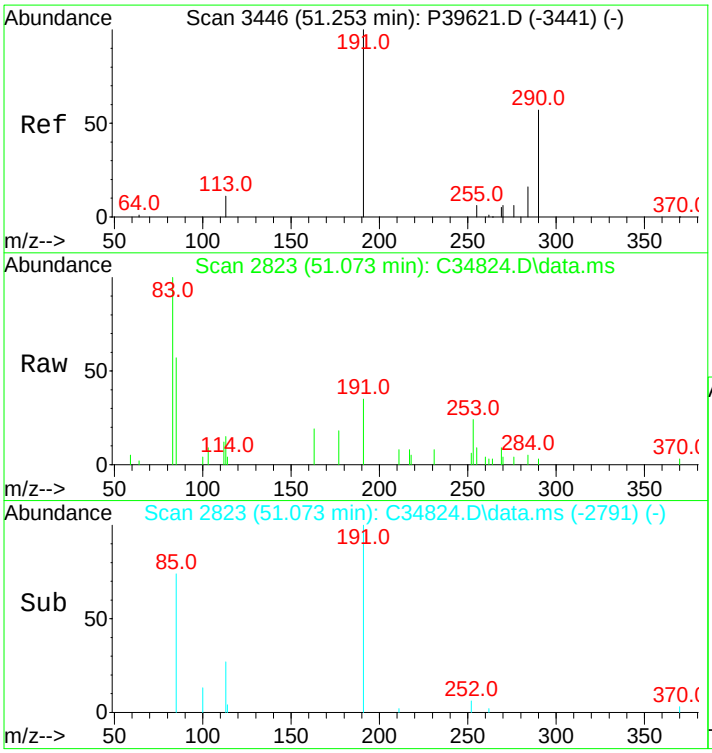




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 90.34 ng/ml m
RT: 50.937 min Scan# 2814
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

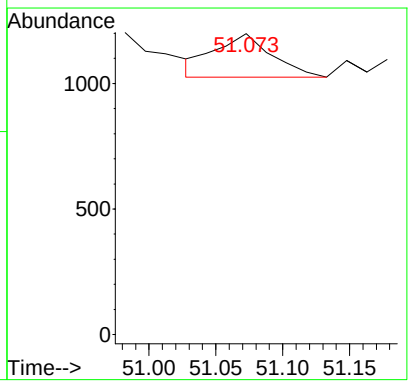
Tgt Ion:191 Resp: 1878

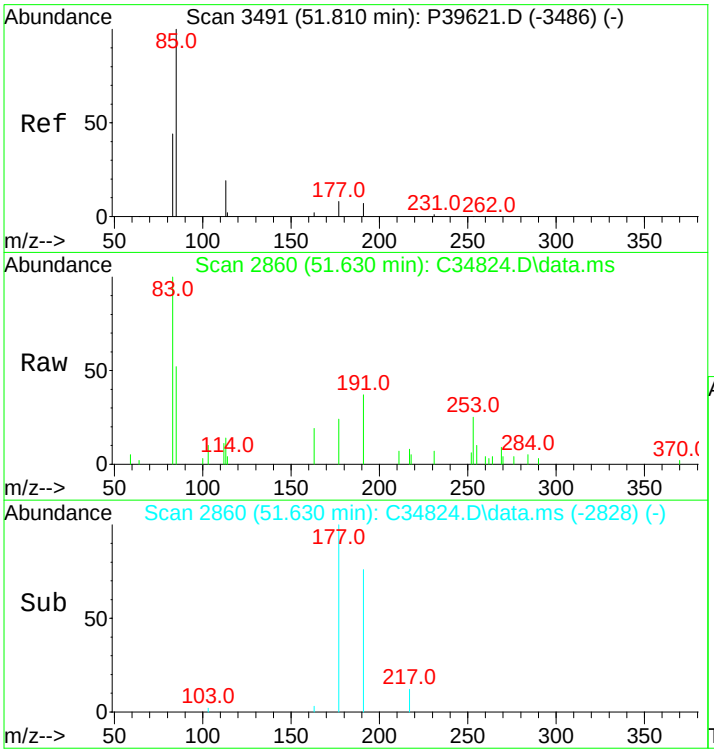




#112
17a(H)-Diahopane (X)
Concen: 24.73 ng/ml
RT: 51.073 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

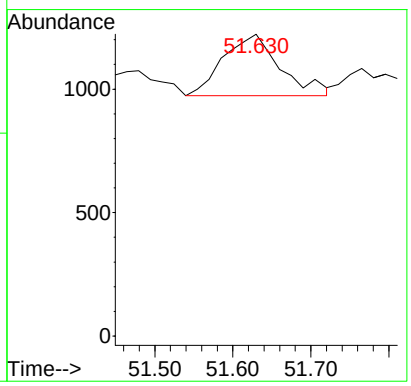
Tgt Ion:191 Resp: 514

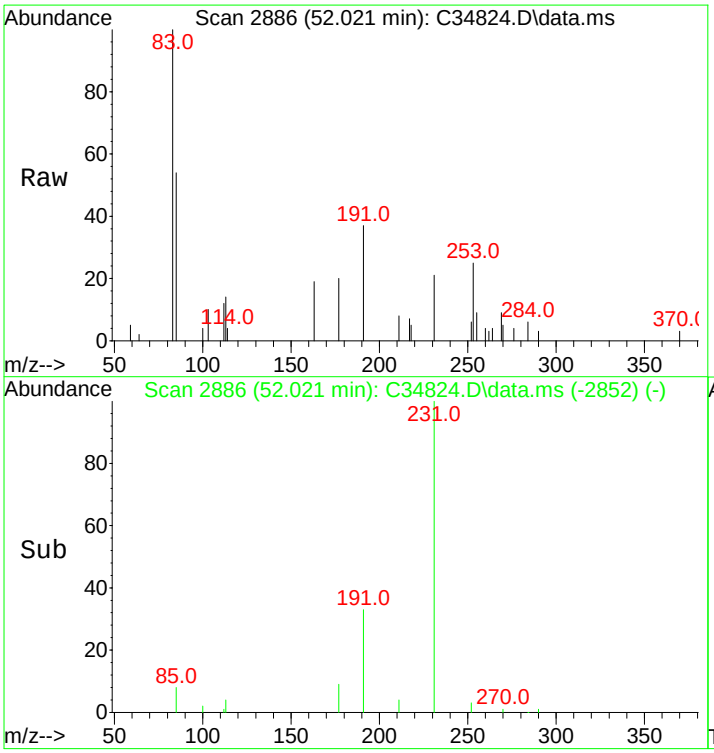




#113
30-Normoretane (T17)
Concen: 60.47 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

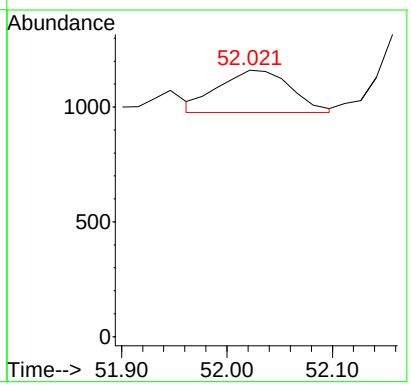
Tgt Ion:191 Resp: 1257

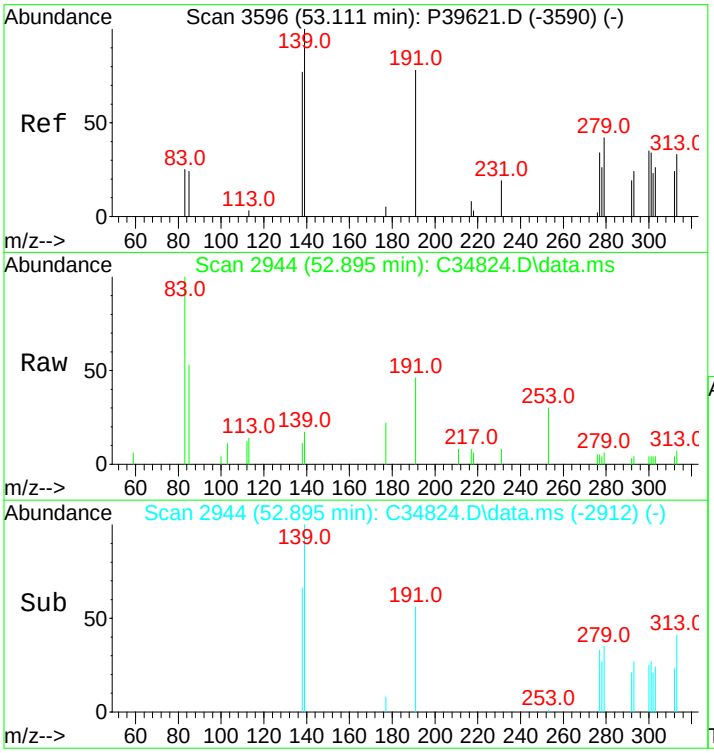




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 42.05 ng/ml m
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

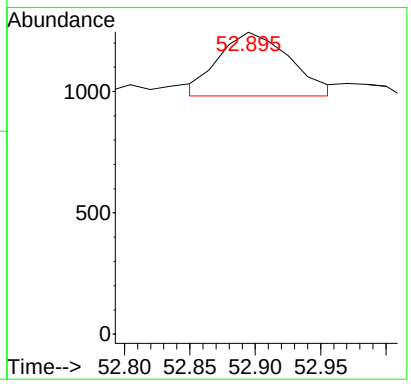
Tgt Ion:191 Resp: 874

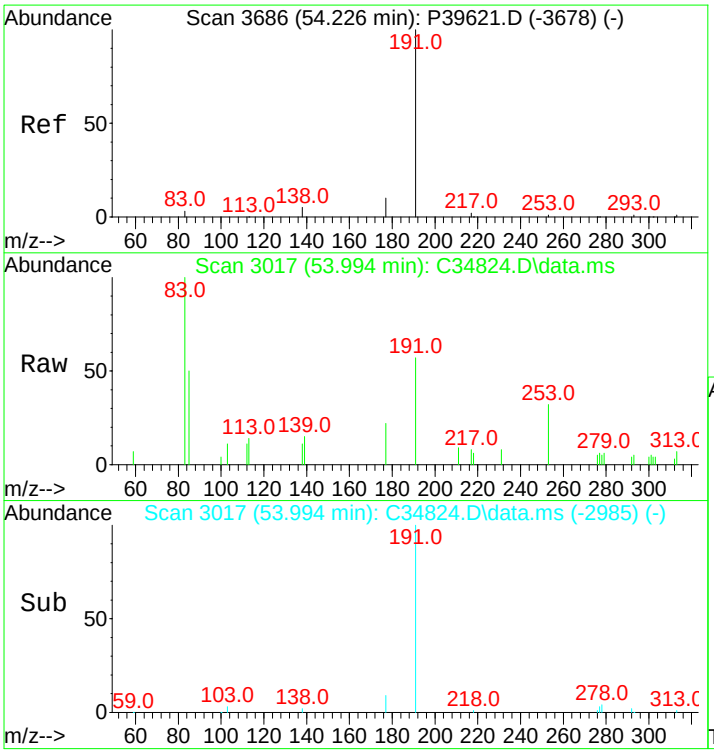




#115
Moretane (T20)
Concen: 47.72 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

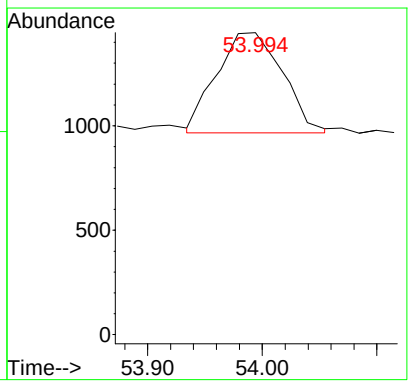
Tgt Ion:191 Resp: 992

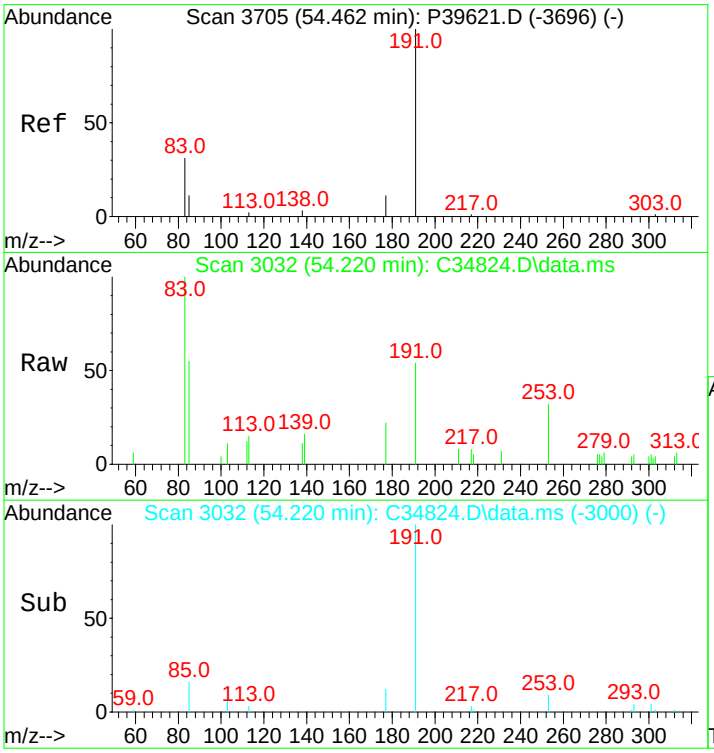




#116
30-Homohopane-22S (T21)
Concen: 92.46 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

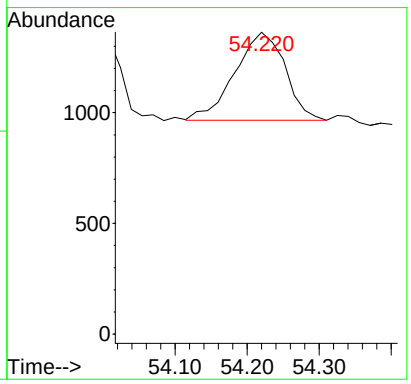
Tgt Ion:191 Resp: 1922

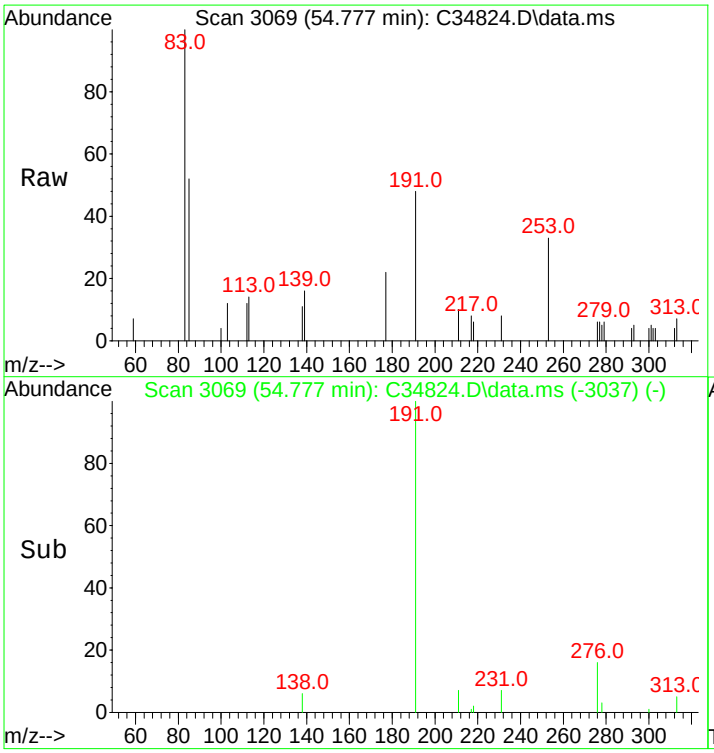




#117
30-Homohopane-22R (T22)
Concen: 92.51 ng/ml
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

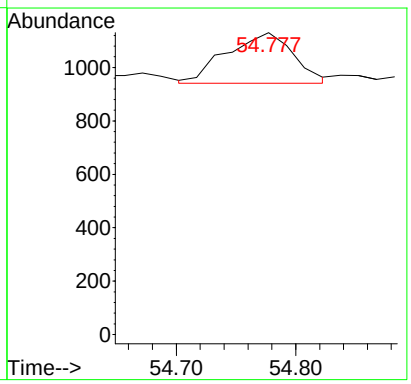
Tgt Ion:191 Resp: 1923

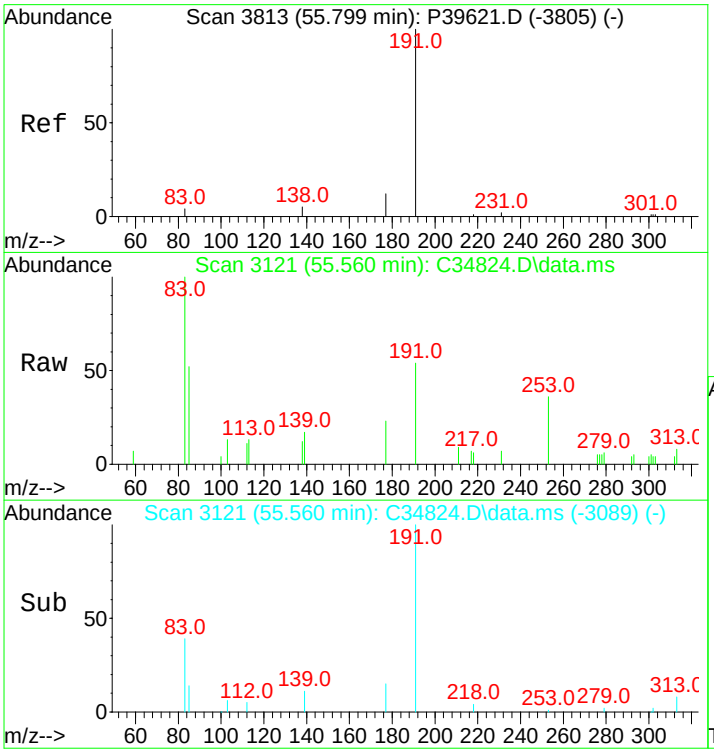




#118
Gammacerane/C32-diahopane
Concen: 35.31 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

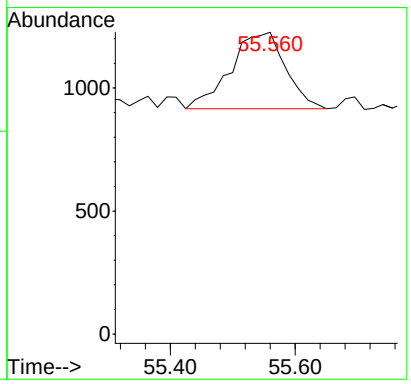
Tgt Ion:191 Resp: 734

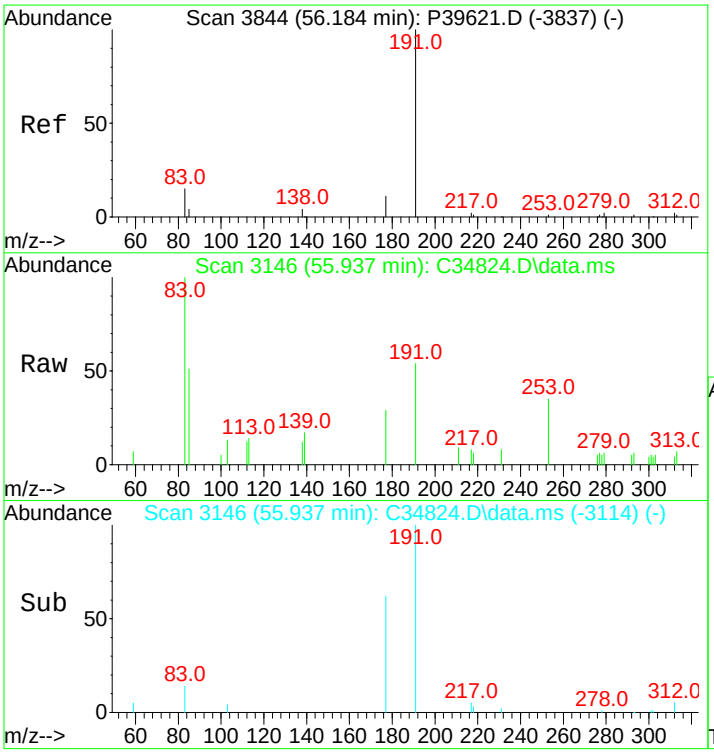




#119
30,31-Bishomohopane-22S (T26)
Concen: 91.64 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

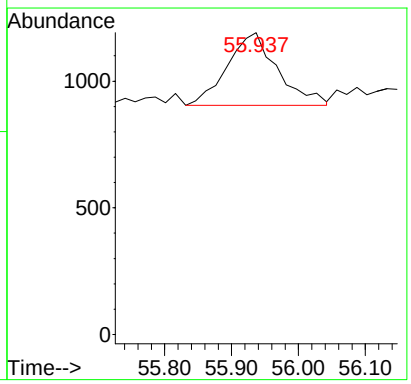
Tgt Ion:191 Resp: 1905

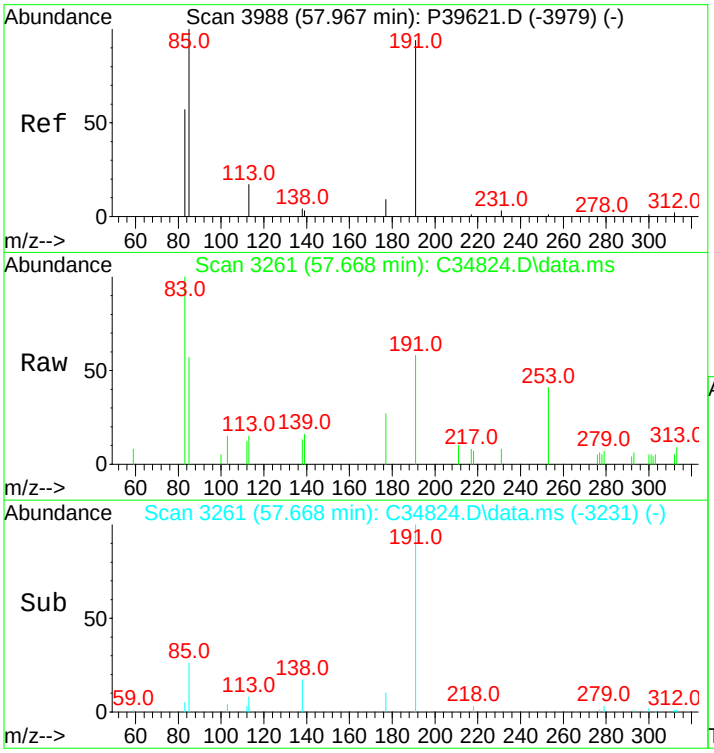




#120
30,31-Bishomohopane-22R (T27)
Concen: 72.02 ng/ml
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

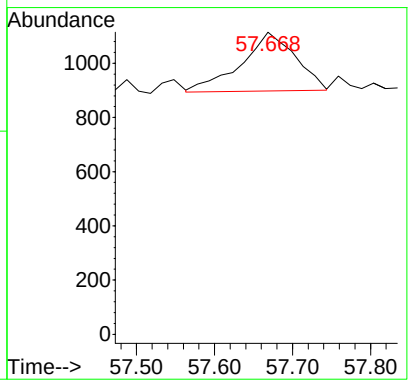
Tgt Ion:191 Resp: 1497

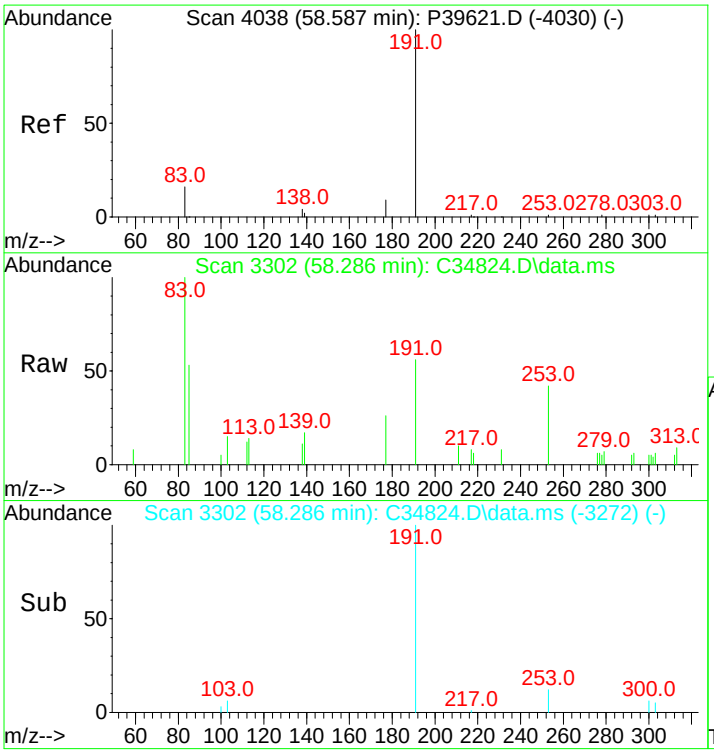




#121
30,31-Trishomohopane-22S (T30)
Concen: 50.22 ng/ml
RT: 57.668 min Scan# 3261
Delta R.T. -0.045 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

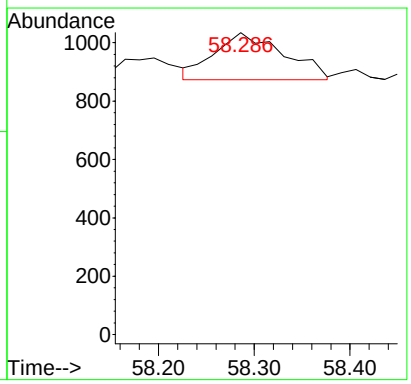
Tgt Ion:191 Resp: 1044

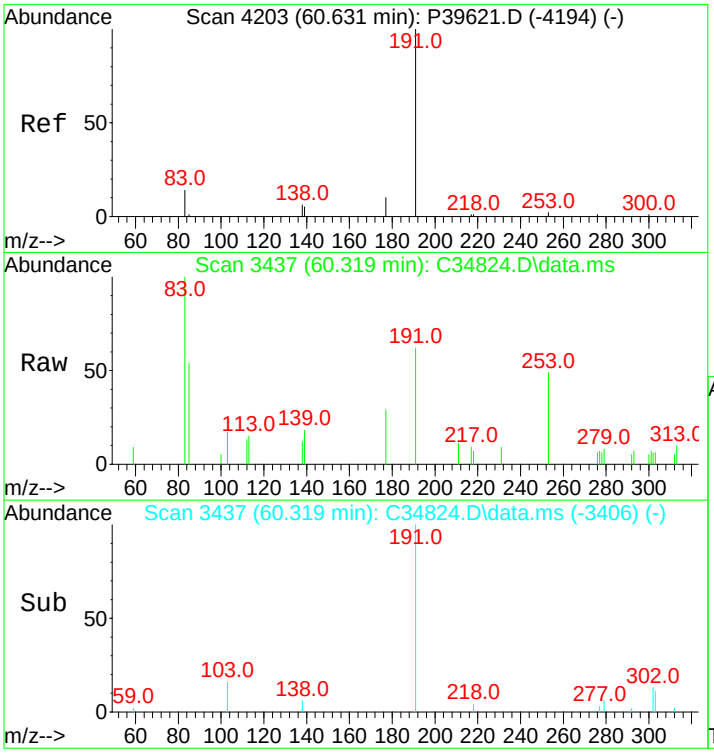




#122
30,31-Trishomohopane-22R (T31)
Concen: 39.06 ng/ml m
RT: 58.286 min Scan# 3302
Delta R.T. -0.045 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

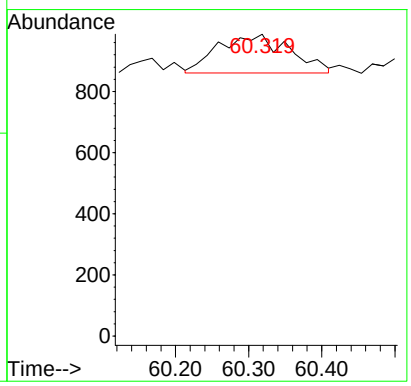
Tgt Ion:191 Resp: 812

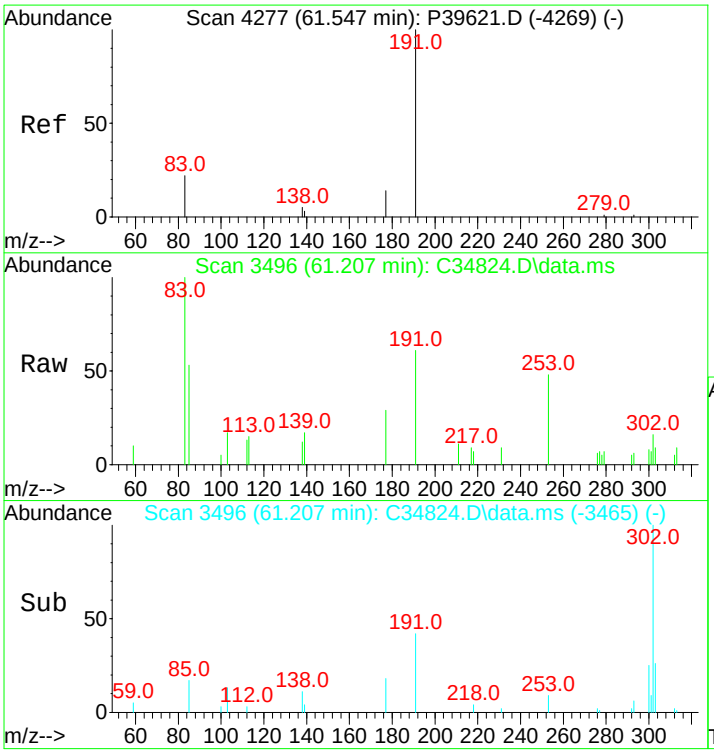




#123
Tetrakishomohopane-22S (T32)
Concen: 40.89 ng/ml m
RT: 60.319 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

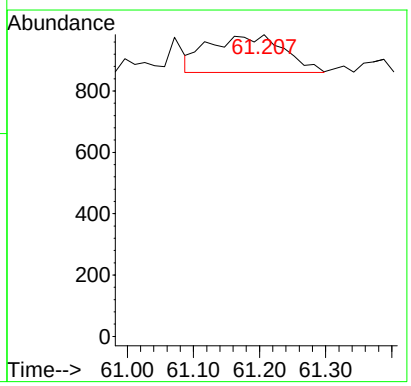
Tgt Ion:191 Resp: 850

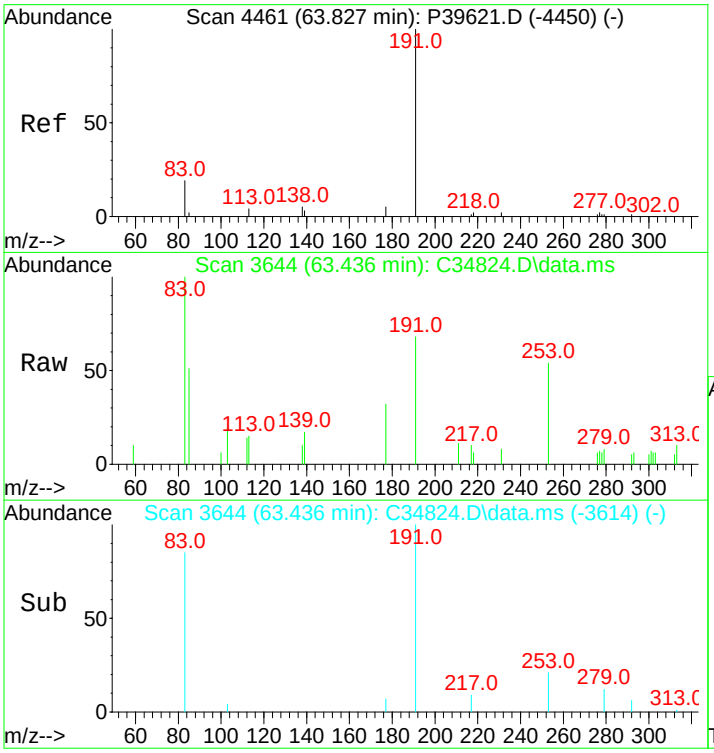




#124
Tetrakishomohopane-22R (T33)
Concen: 46.52 ng/ml m
RT: 61.207 min Scan# 3496
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

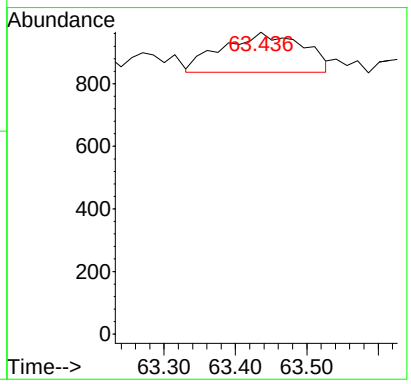
Tgt Ion:191 Resp: 967

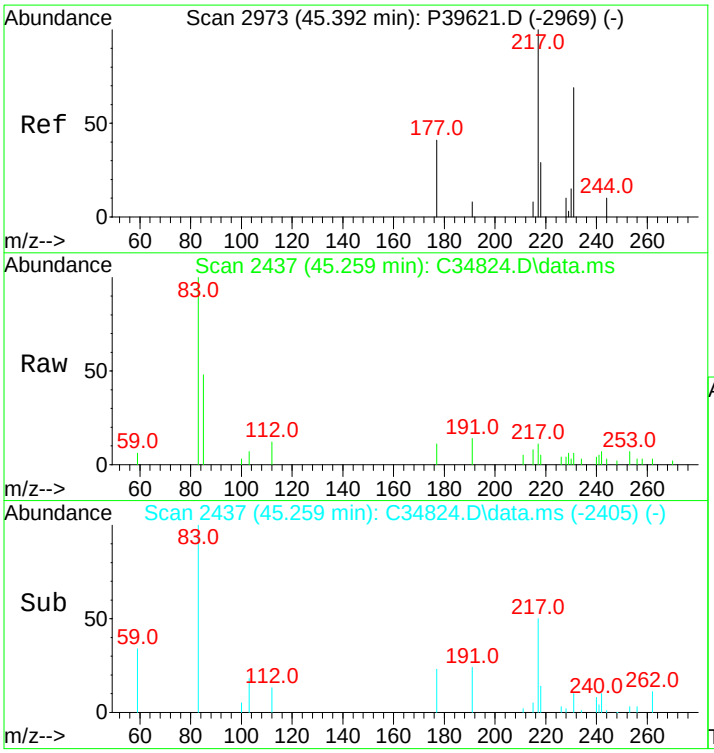




#125
Pentakishomohopane-22S (T34)
Concen: 47.96 ng/ml m
RT: 63.436 min Scan# 3644
Delta R.T. -0.045 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

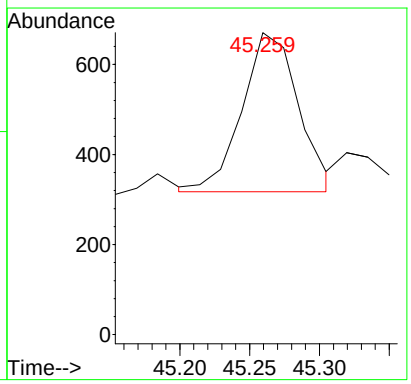
Tgt Ion:191 Resp: 997

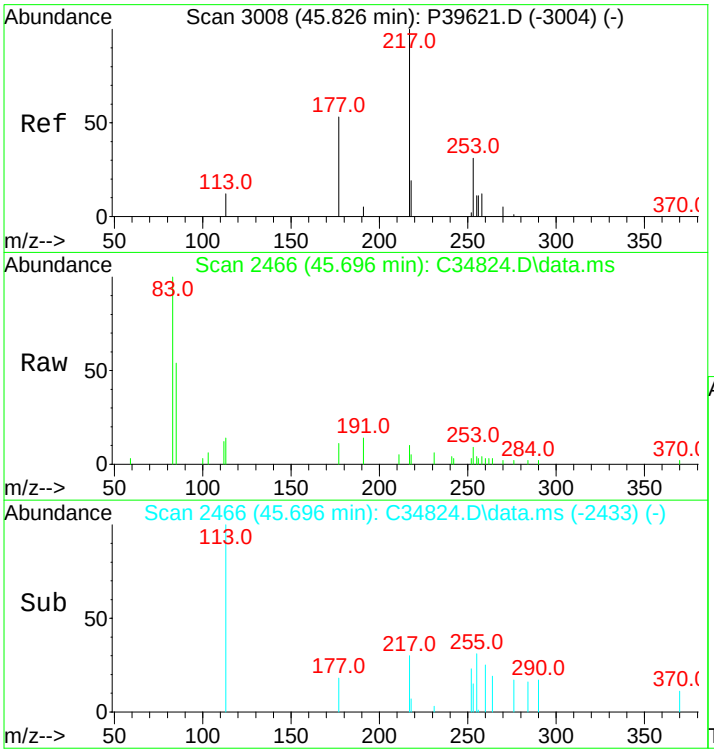




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 100.90 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

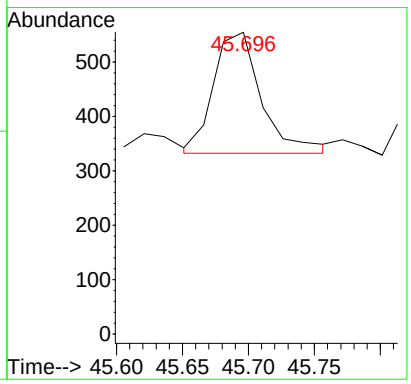
Tgt Ion:217 Resp: 995

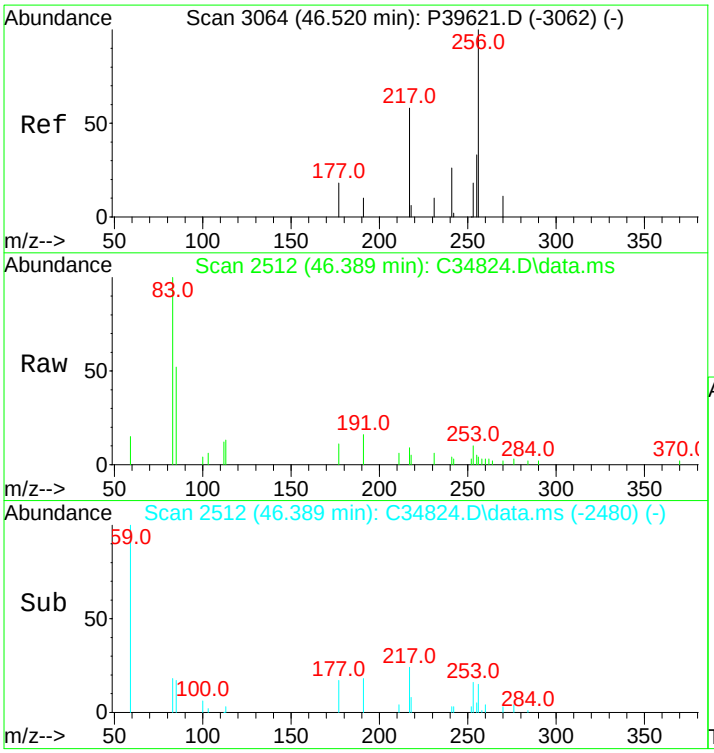




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 57.50 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

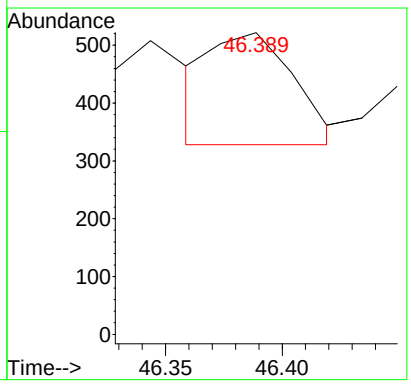
Tgt Ion:217 Resp: 567

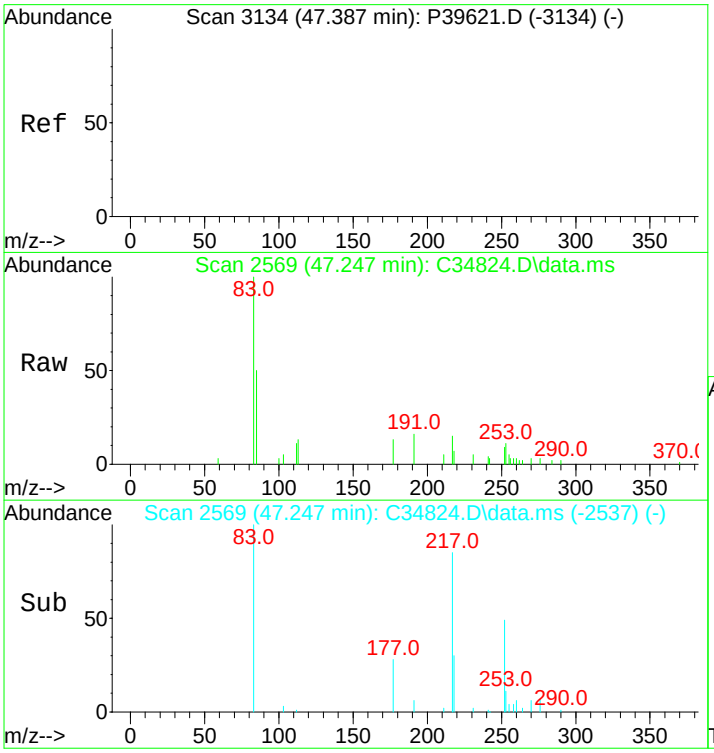




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 48.37 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

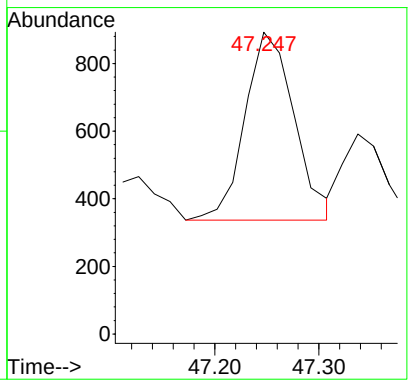
Tgt Ion:217 Resp: 477

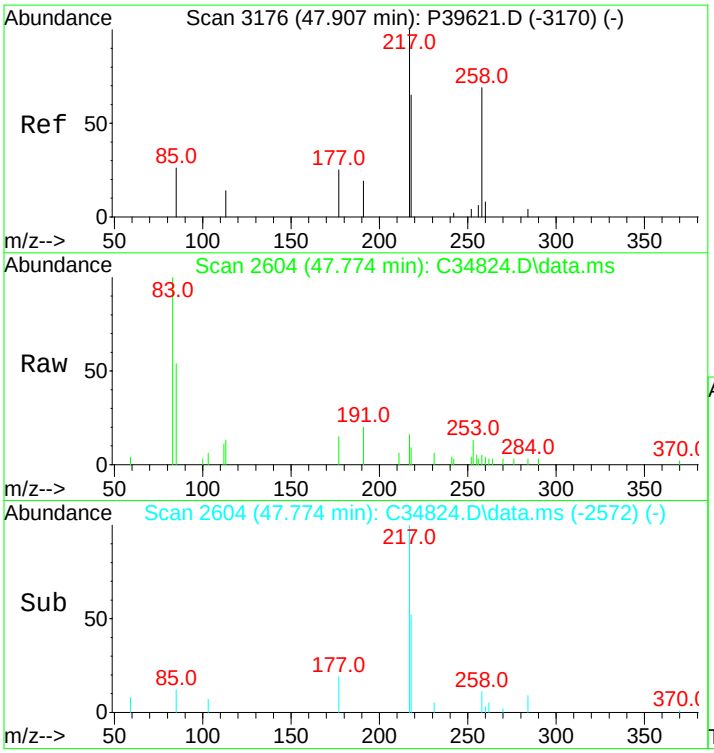




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 186.29 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

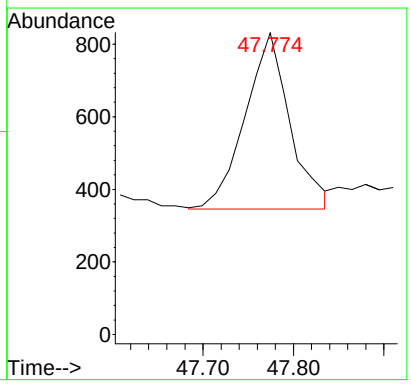
Tgt Ion:217 Resp: 1837

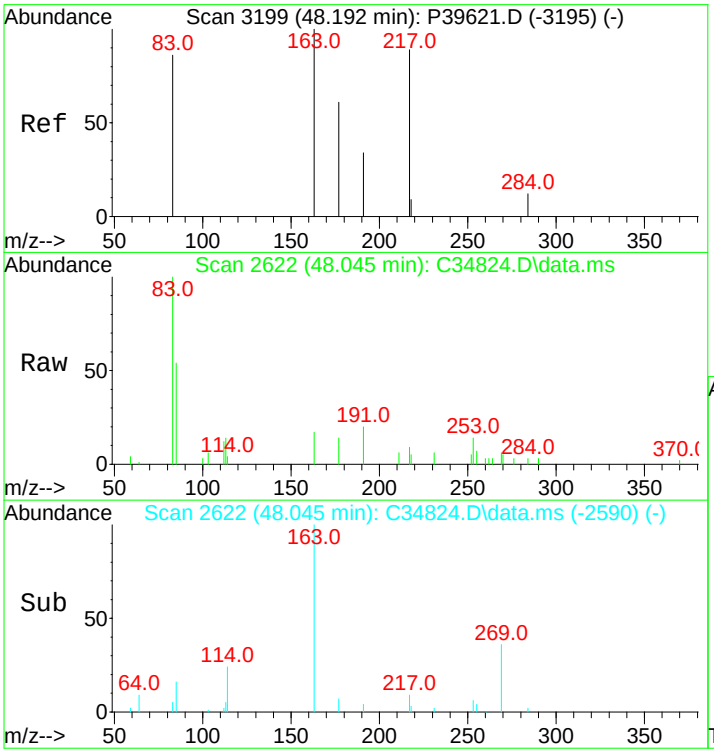




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 168.95 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

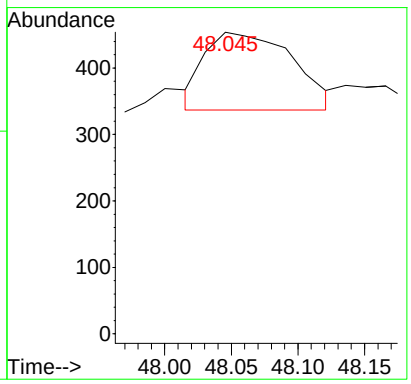
Tgt Ion:217 Resp: 1666

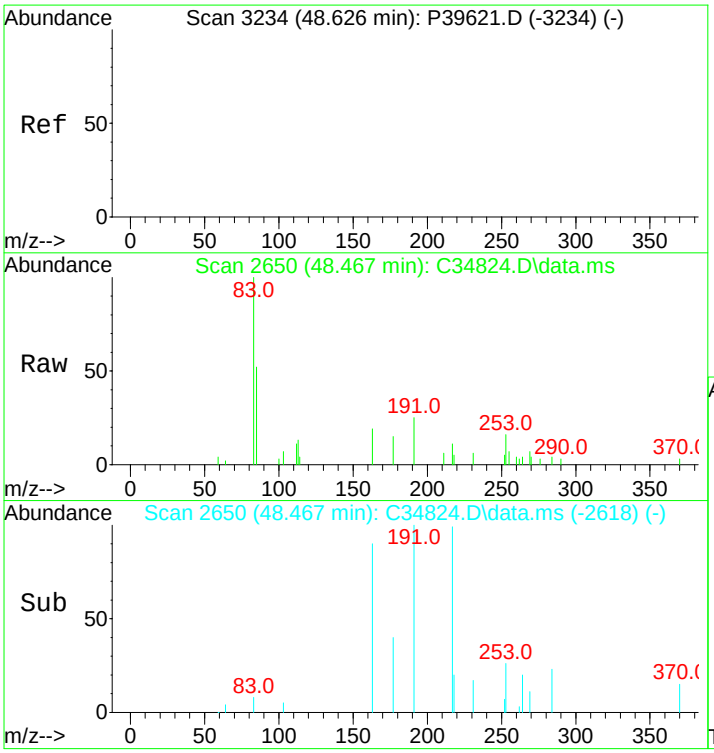




#133
Unknown Sterane (S18)
Concen: 54.46 ng/ml m
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

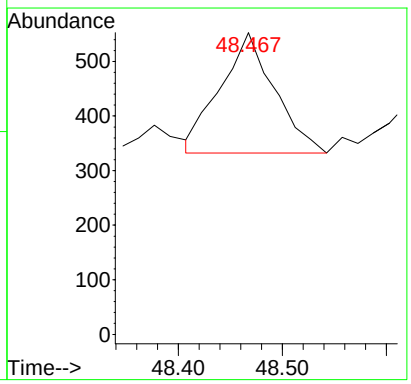
Tgt Ion:217 Resp: 537

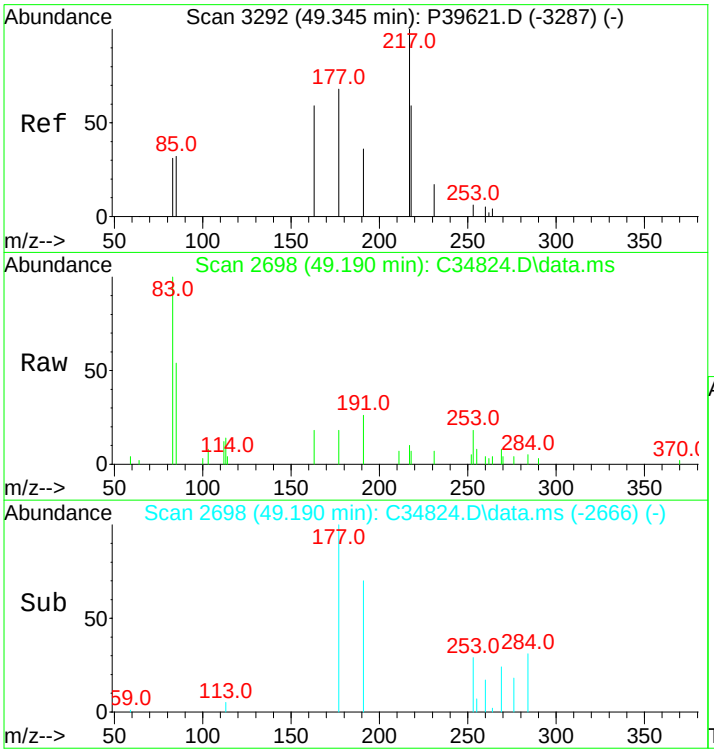




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 81.03 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

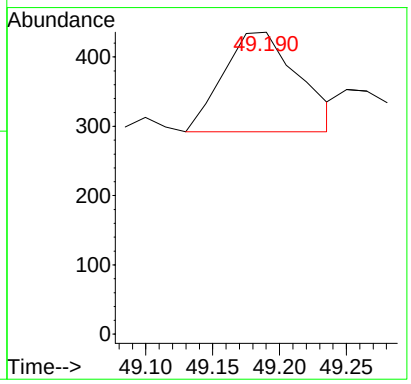
Tgt Ion:217 Resp: 799

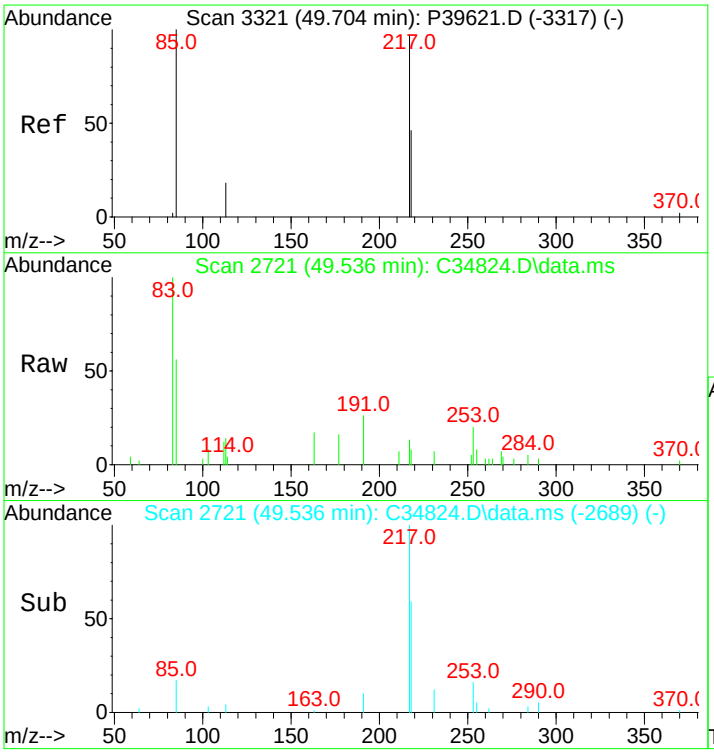




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 57.60 ng/ml
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

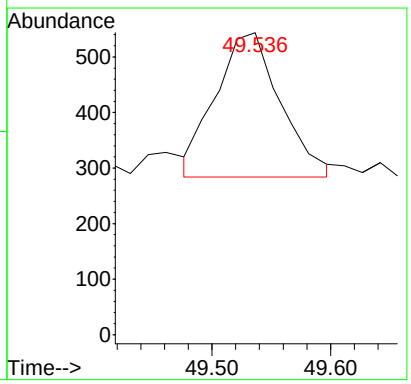
Tgt Ion:217 Resp: 568

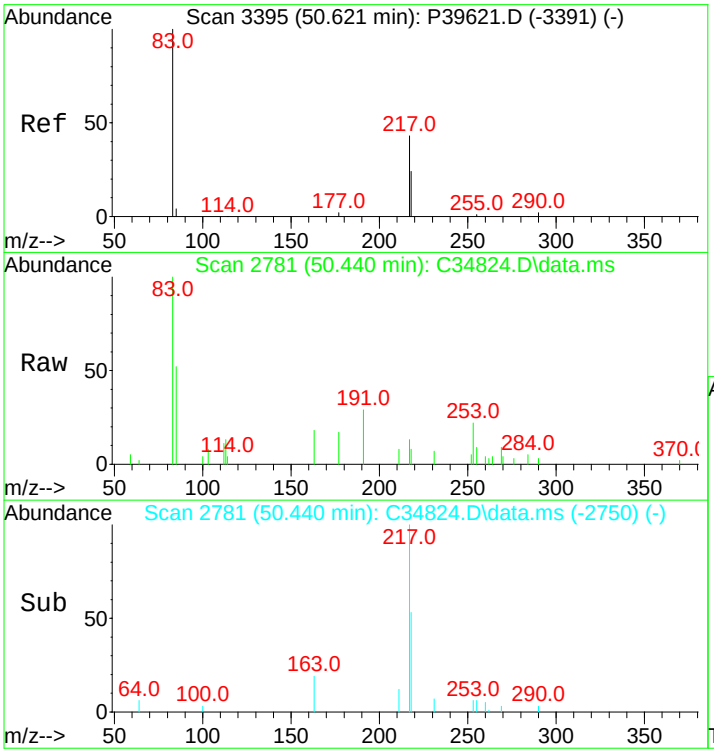




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 99.79 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

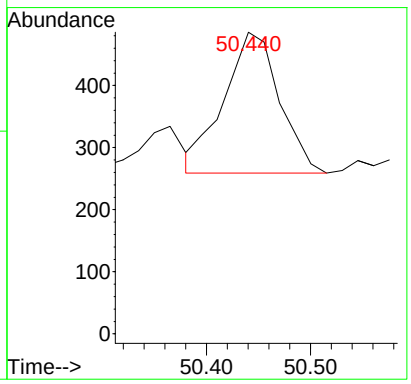
Tgt Ion:217 Resp: 984

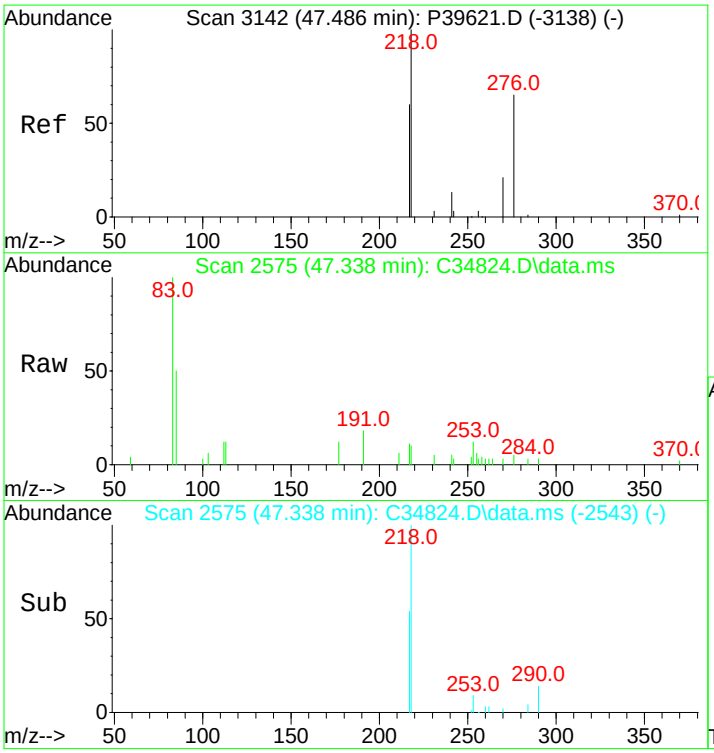




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 85.49 ng/ml
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

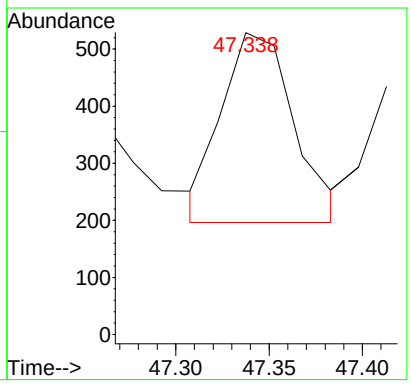
Tgt Ion:217 Resp: 843

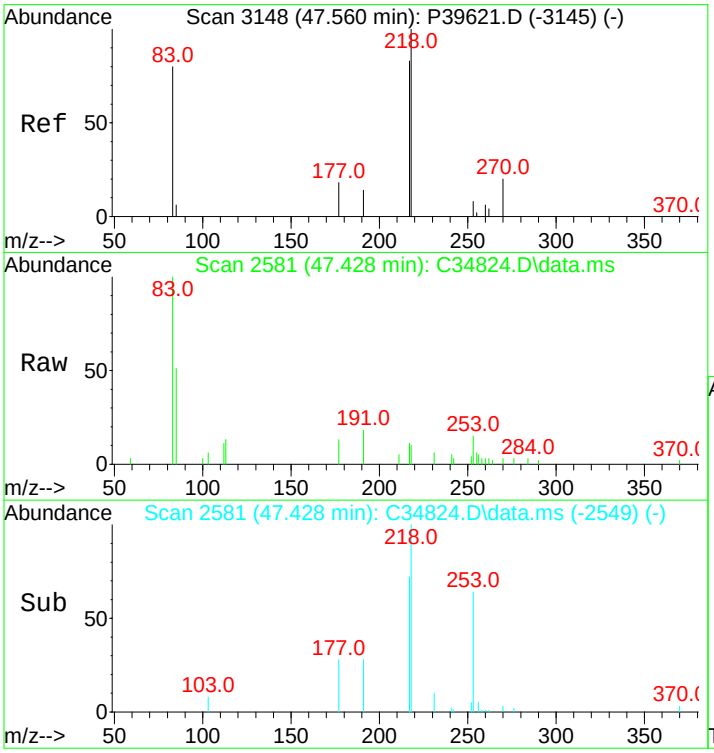




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 90.96 ng/ml m
RT: 47.338 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

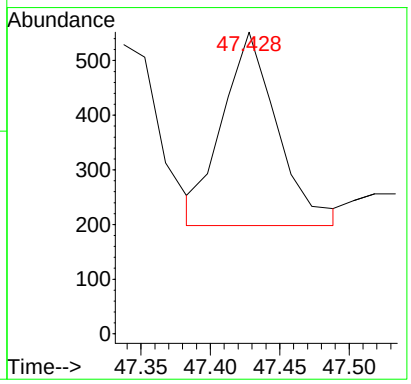
Tgt Ion:218 Resp: 897

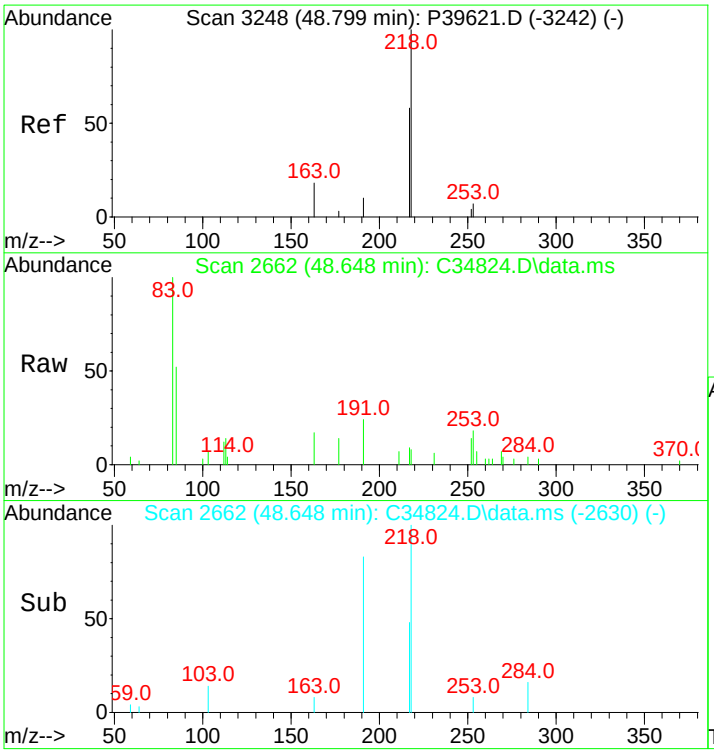




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 98.27 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

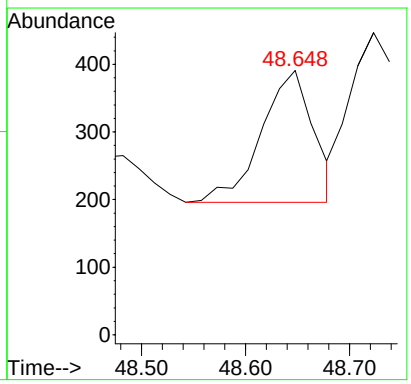
Tgt Ion:218 Resp: 969

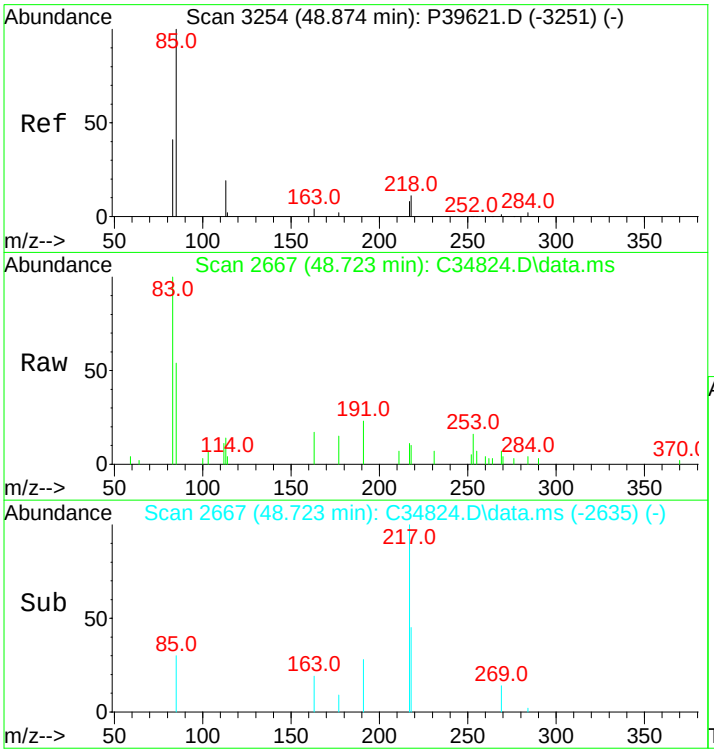




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 68.86 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

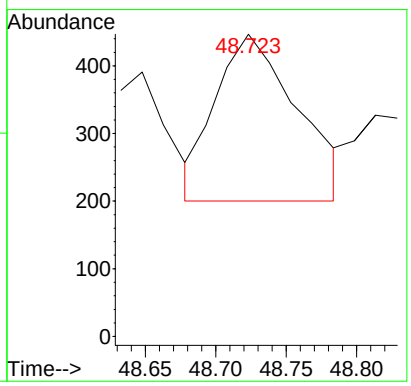
Tgt Ion:218 Resp: 679

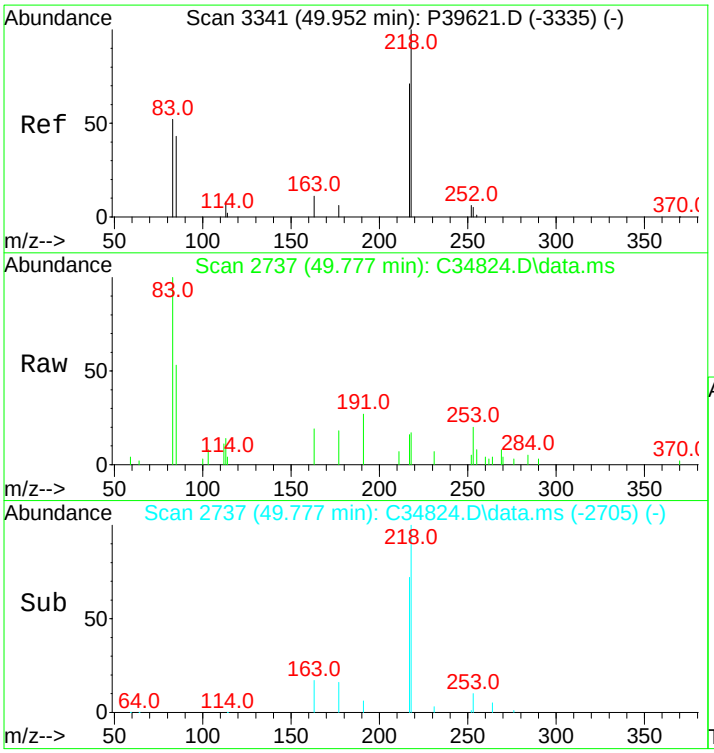




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 100.90 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

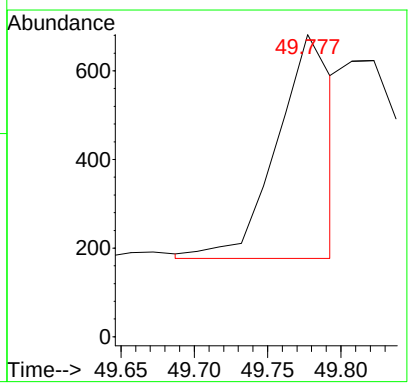
Tgt Ion:218 Resp: 995

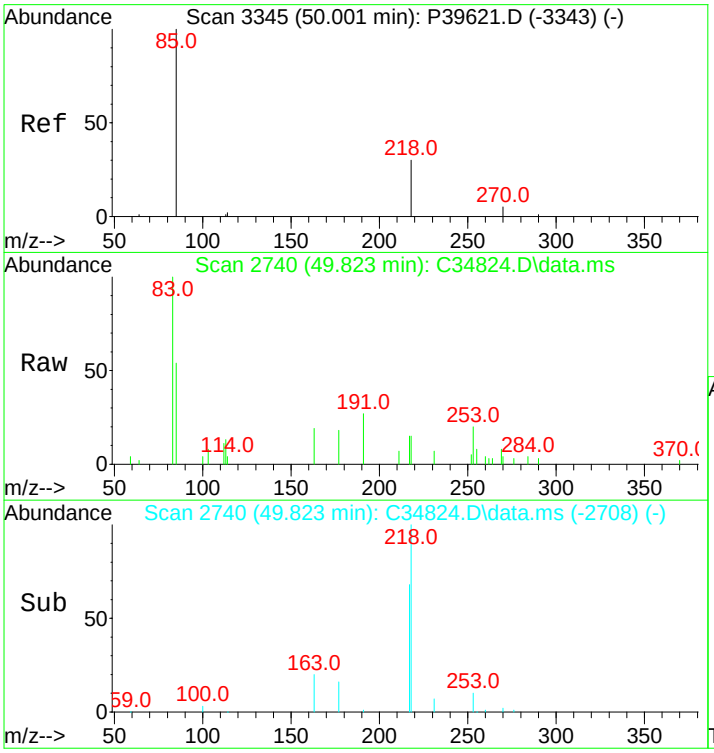




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 135.89 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

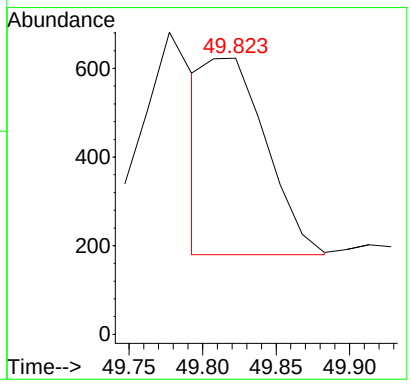
Tgt Ion:218 Resp: 1340

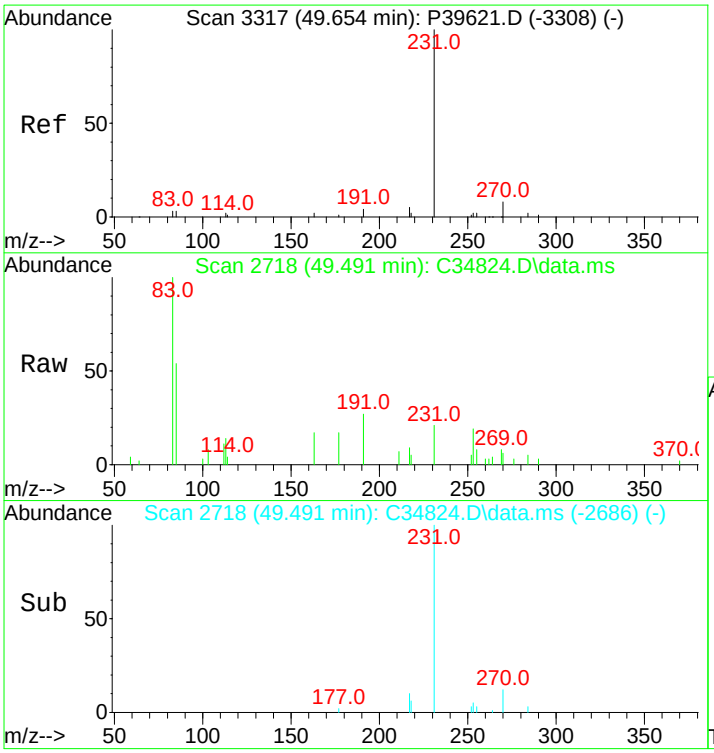




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 128.89 ng/ml m
RT: 49.823 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

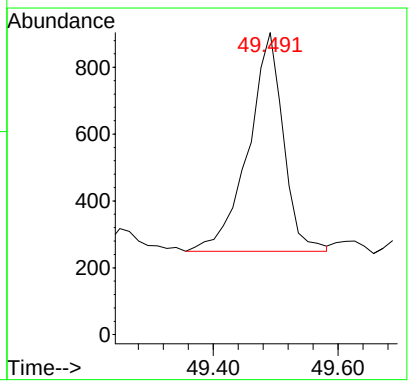
Tgt Ion:218 Resp: 1271

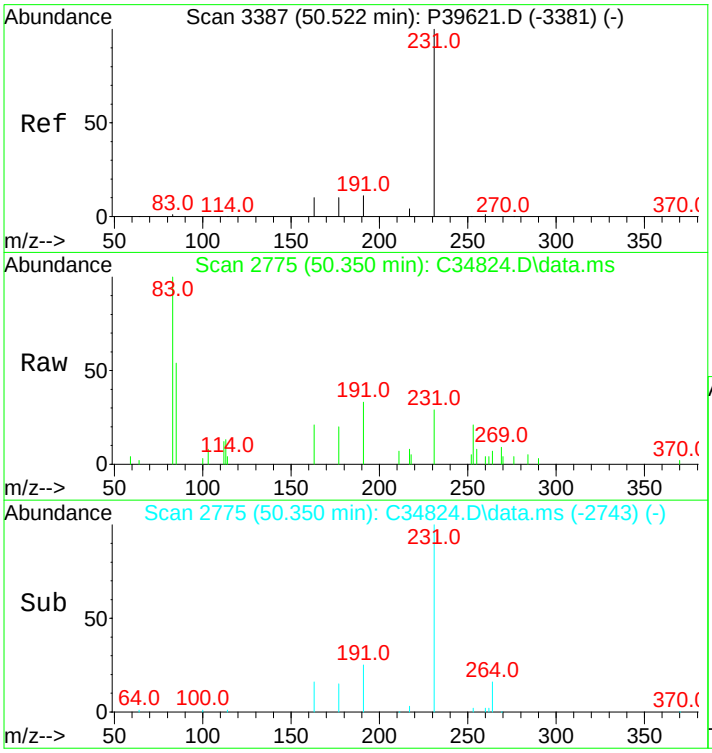




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 259.51 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

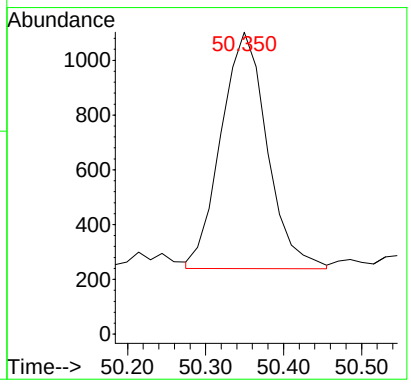
Tgt Ion:231 Resp: 2559

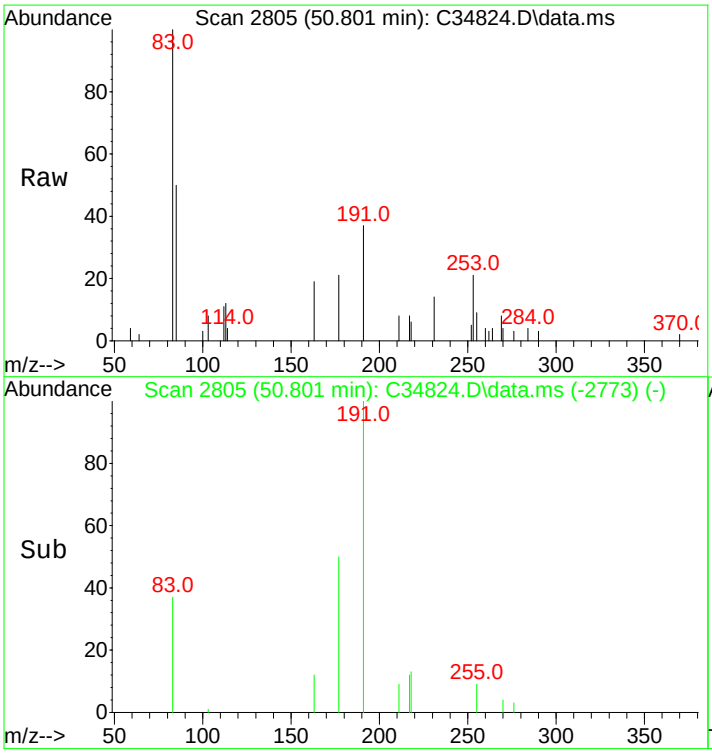




#146
C28,20S-triaromatic steroid
Concen: 359.60 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

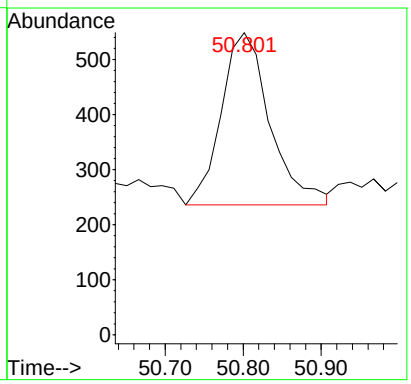
Tgt Ion:231 Resp: 3546

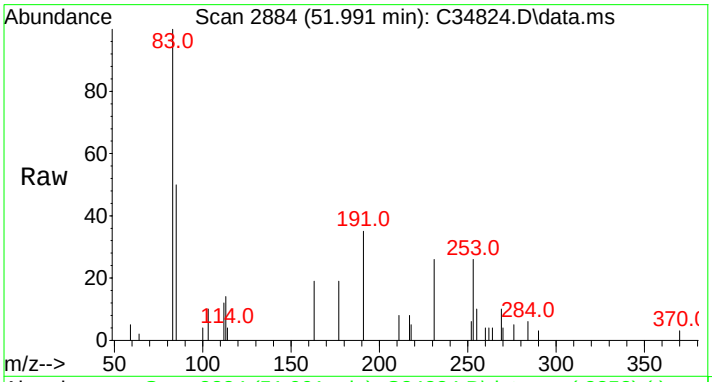




#147
C27,20R-triaromatic steroid
Concen: 137.92 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

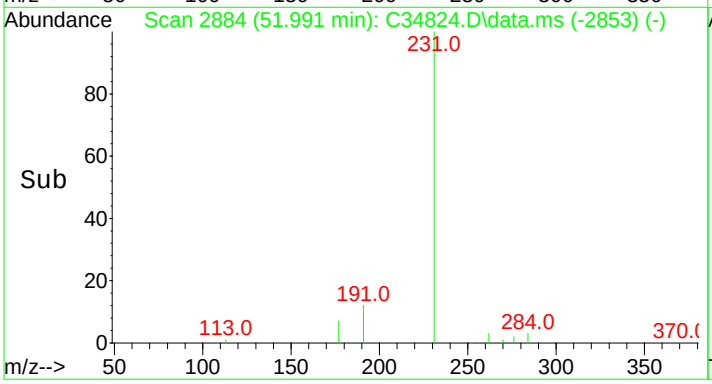
Tgt Ion:231 Resp: 1360

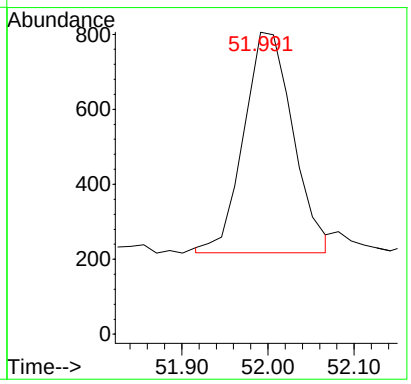




#148
C28,20R-triaromatic steroid
Concen: 237.50 ng/mL m
RT: 51.991 min Scan# 2884
Delta R.T. -0.030 min
Lab File: C34824.D
Acq: 4 May 2012 12:00 am

Tgt Ion:231 Resp: 2342





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18863M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	34050	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60307	736.617	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 73.66%			
42) Phenanthrene-d10	32.567	188	54364	840.099	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 84.01%			
86) Benzo[a]pyrene-d12	48.241	264	58083	823.102	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 82.31%			
127) 5B(H)Cholane - Surr	43.754	217	9813	921.775	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.18%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	201M3	1.672	ng/mL	
11) C1-Naphthalenes	22.511	142	382M5	3.177	ng/mL	
12) C2-Naphthalenes	25.432	156	1440M5	11.978	ng/mL	
13) C3-Naphthalenes	28.021	170	5080M5	42.255	ng/mL	
14) C4-Naphthalenes	30.445	184	8736M5	72.665	ng/mL	
16) 2-Methylnaphthalene	22.511	142	165M3	2.321	ng/mL	
17) 1-Methylnaphthalene	22.932	142	98M3	1.406	ng/mL	
21) C3-Benzo(b)thiophenes	27.855	176	1798M5	16.620	ng/mL	
22) C4-Benzo(b)thiophenes	30.716	190	2426M5	22.424	ng/mL	
24) 2,6-Dimethylnaphthalene	25.025	156	310M3	5.308	ng/mL	
25) Dibenzofuran	27.479	168	133M3	1.288	ng/mL	
26) Acenaphthylene	26.079	152	132M3	1.106	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	365M3	7.753	ng/mL	
29) Fluorene	28.834	166	150M3	1.936	ng/mL	
30) C1-Fluorenes	31.197	180	966M5	12.465	ng/mL	
31) C2-Fluorenes	33.395	194	4180M5	53.937	ng/mL	
32) C3-Fluorenes	35.232	208	10070M5	129.939	ng/mL	
33) Dibenzothiophene	32.161	184	827	6.657	ng/mL#	16
34) 4-Methyldibenzothiophe...	33.922	198	2576	20.736	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	2125M3	17.106	ng/mL	
36) 1-Methyldibenzothiophe...	34.690	198	1535	12.356	ng/mL#	100
37) OTP	34.329	198	12490M3	100.541	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	18844M5	151.689	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	24305M5	195.648	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	40831M5	328.678	ng/mL	
41) C4-Dibenzothiophenes	40.878	240	32770M5	263.789	ng/mL	
43) Phenanthrene	32.657	178	1454	13.322	ng/mL#	15
44) 3-Methylphenanthrene(3MP)	34.615	192	1387M3	12.708	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	1632	14.953	ng/mL	99
46) 2-Methylanthracene(2MA)	34.886	192	247M3	2.263	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	2565	23.501	ng/mL	92
48) 1-Methylphenanthrene(1MP)	35.157	192	1448M3	13.267	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	7378M5	67.598	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.873	206	22460M4	205.781	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	25725M5	235.696	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	14878M5	136.314	ng/mL	
56) Carbazole	33.485	167	259M3	2.405	ng/mL	
57) 1-Methylphenanthrene	35.157	192	1443M3	20.863	ng/mL	
58) Fluoranthene	37.430	202	2112M3	19.484	ng/mL	
59) Benzo(b)fluorene	39.945	216	529M3	8.412	ng/mL	
60) Pyrene	38.303	202	2849M3	25.855	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.704	216	7719M5	70.051	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	11858M5	107.614	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.513	244	14182M5	128.704	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.868	258	14211M5	128.967	ng/mL	
66) Naphthobenzothiophene	42.158	234	3399	28.652	ng/ml	100

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
67)	Naphthobenzothiophene-...	42.158	234	3399	28.652	ng/mL	100
68)	Naphthobenzothiophene-...	42.504	234	888M3	7.485	ng/mL	
69)	Naphthobenzothiophene-...	42.805	234	546M3	4.603	ng/mL	
70)	C1-Naphthobenzothiophenes	43.558	248	17583M5	148.217	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262	27241M5	229.629	ng/ml	
72)	C3-Naphthobenzothiophenes	47.157	276	25527M5	215.181	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290	17844M5	150.417	ng/mL	
75)	Benz[a]anthracene	43.091	228	868M3	8.032	ng/mL	
77)	Chrysene/Triphenylene	43.242	228	2976M3	27.275	ng/mL	
78)	C1-Chrysenes	44.717	242	6440M5	59.023	ng/mL	
79)	C2-Chrysenes	46.795	256	10214M5	93.612	ng/mL	
80)	C3-Chrysenes	49.491	270	14511M5	132.994	ng/mL	
81)	C4-Chrysenes	49.506	284	10821M5	99.175	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252	1859	15.654	ng/mL#	78
83)	Benzo[j]+[k]fluoranthene	47.202	252	1135	8.779	ng/mL#	52
84)	Benzo[a]fluoranthene	47.518	252	232	1.794	ng/mL#	1
85)	Benzo[e]pyrene	48.136	252	1990M3	16.942	ng/mL	
87)	Benzo[a]pyrene	48.332	252	1341M3	11.858	ng/mL	
88)	Perylene	48.633	252	1539	12.734	ng/mL#	71
89)	Indeno[1,2,3-cd]pyrene	53.136	276	1512M3	11.489	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.166	278	398	3.179	ng/mL#	51
91)	Benzo[g,h,i]perylene	54.446	276	2411	17.340	ng/mL#	80
92)	Hopane (T19)	52.202	191	7661M3	341.379	ng/mL	
94)	C23 Tricyclic Terpane ...	40.788	191	3189M3	142.104	ng/ml	
95)	C24 Tricyclic Terpane ...	41.510	191	1838	81.902	ng/ml	100
96)	C25 Tricyclic Terpane ...	43.046	191	1707M4	76.065	ng/ml	
97)	C24 Tetracyclic Terpan...	44.311	191	523M3	23.305	ng/ml	
98)	C26 Tricyclic Terpane-...	44.055	191	561M3	24.998	ng/ml	
99)	C26 Tricyclic Terpane-...	44.145	191	631M3	28.118	ng/ml	
100)	C28 Tricyclic Terpane-...	46.434	191	677M3	30.168	ng/ml	
101)	C28 Tricyclic Terpane-...	46.585	191	650	28.964	ng/ml	100
102)	C29 Tricyclic Terpane-...	47.112	191	1001	44.605	ng/ml	100
103)	C29 Tricyclic Terpane-...	47.307	191	856M3	38.144	ng/ml	
104)	18a-22,29,30-Trisnorne...	48.422	191	1233	54.943	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.527	191	1047M3	46.655	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.768	191	817M3	36.406	ng/mL	
107)	17a(H)-22,29,30-Trisno...	48.979	191	2172M3	96.786	ng/ml	
108)	17a/b,21b/a 28,30-Bisn...	50.184	191	1278	56.948	ng/ml	100
109)	17a(H),21b(H)-25-Norho...	49.958	191	410M3	18.270	ng/ml	
110)	30-Norhopane (T15)	50.832	191	5362M3	238.934	ng/ml	
111)	18a(H)-30-Norneohopane...	50.937	191	819M3	36.495	ng/ml	
113)	30-Normoretane (T17)	51.630	191	721M3	32.128	ng/ml	
115)	Moretane (T20)	52.895	191	718M3	31.994	ng/ml	
116)	30-Homohopane-22S (T21)	53.994	191	3454M3	153.912	ng/ml	
117)	30-Homohopane-22R (T22)	54.220	191	2935	130.785	ng/ml	100
118)	Gammacerane/C32-diahopane	54.762	191	1427M3	63.588	ng/mL	
119)	30,31-Bishomohopane-22...	55.530	191	2499	111.357	ng/ml	100
120)	30,31-Bishomohopane-22...	55.922	191	1396M3	62.207	ng/ml	
121)	30,31-Trishomohopane-2...	57.683	191	1537M3	68.490	ng/ml	
122)	30,31-Trishomohopane-2...	58.271	191	924	41.174	ng/ml	100
123)	Tetrakishomohopane-22S...	60.304	191	1381M3	61.538	ng/ml	
124)	Tetrakishomohopane-22R...	61.192	191	862M3	38.411	ng/ml	
125)	Pentakishomohopane-22S...	63.421	191	1517M3	67.598	ng/ml	
126)	Pentakishomohopane-22R...	64.746	191	872M3	38.857	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.259	217	491M3	46.122	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217	232M3	21.793	ng/ml	
130)	13b,17a-20S-Methyldiac...	46.389	217	243M3	22.826	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.247	217	928	87.171	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217	1007M3	94.592	ng/ml	
133)	Unknown Sterane (S18)	48.076	217	398M3	37.386	ng/ml	
134)	13a,17b-20S-Ethyldiach...	48.316	217	104	9.769	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
135) 14a,17a-20S-Methylchol...	48.467	217	384	36.071	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.175	217	412M3	38.701	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	918M3	86.232	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217	749	70.357	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.338	218	680M3	63.875	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	649M3	60.963	ng/ml	
141) 14b,17b-20R-Methylchol...	48.633	218	516	48.470	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	719M3	67.539	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	851M3	79.938	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.807	218	727M3	68.290	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	4979	467.698	ng/mL	100
146) C28,20S-triaromatic st...	50.350	231	4378	411.244	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	3353	314.961	ng/mL	100
148) C28,20R-triaromatic st...	51.991	231	3776M3	354.695	ng/mL	

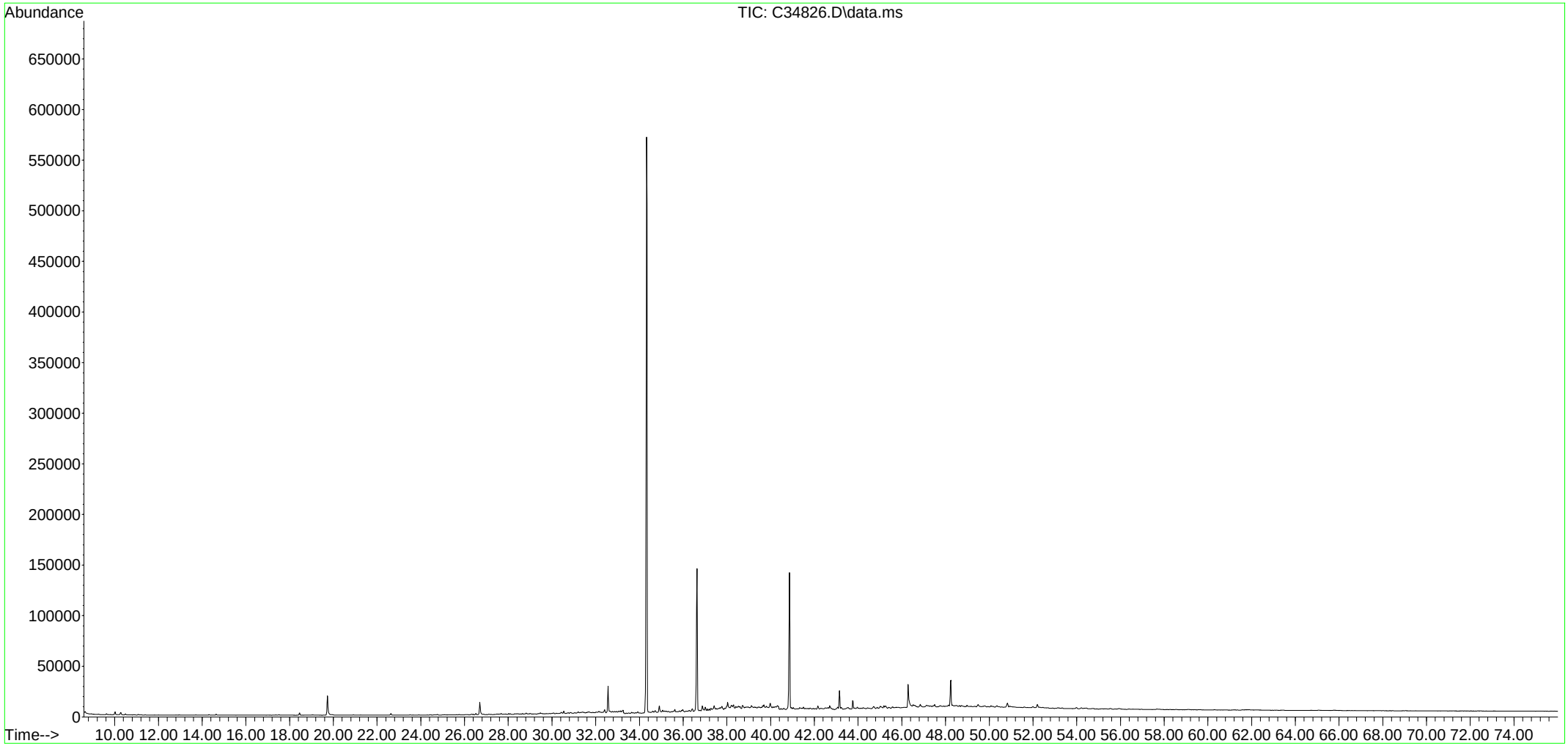
(#) = qualifier out of range (m) = manual integration (+) = signals summed

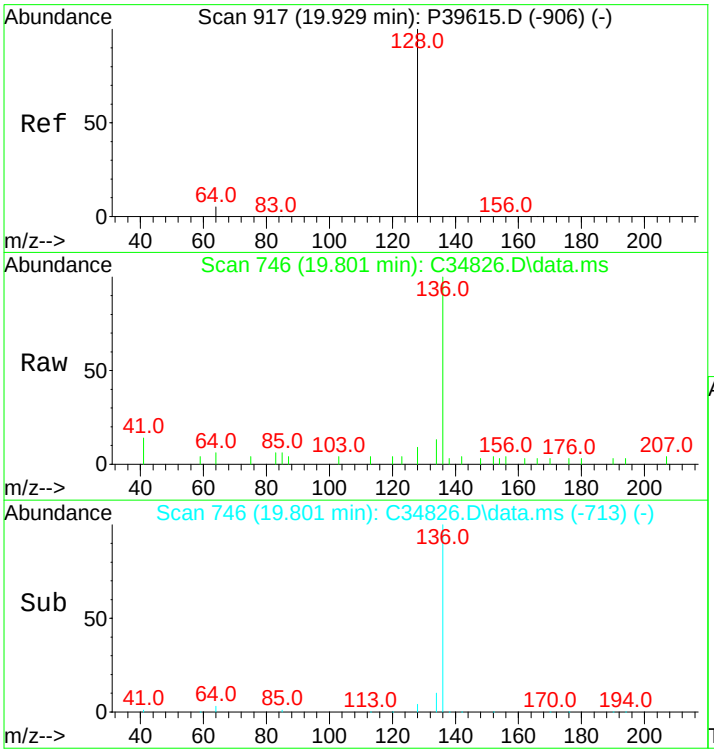
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34826.D
Acq On : 4 May 2012 1:31 am
Operator : AC
Sample : 1204035-11
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 05 12:46:32 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

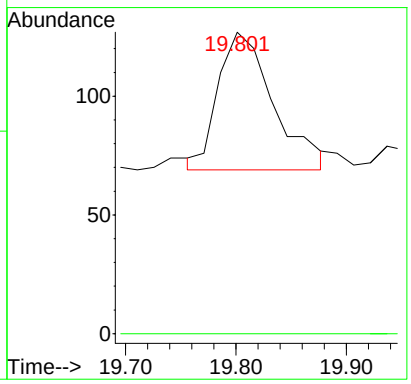


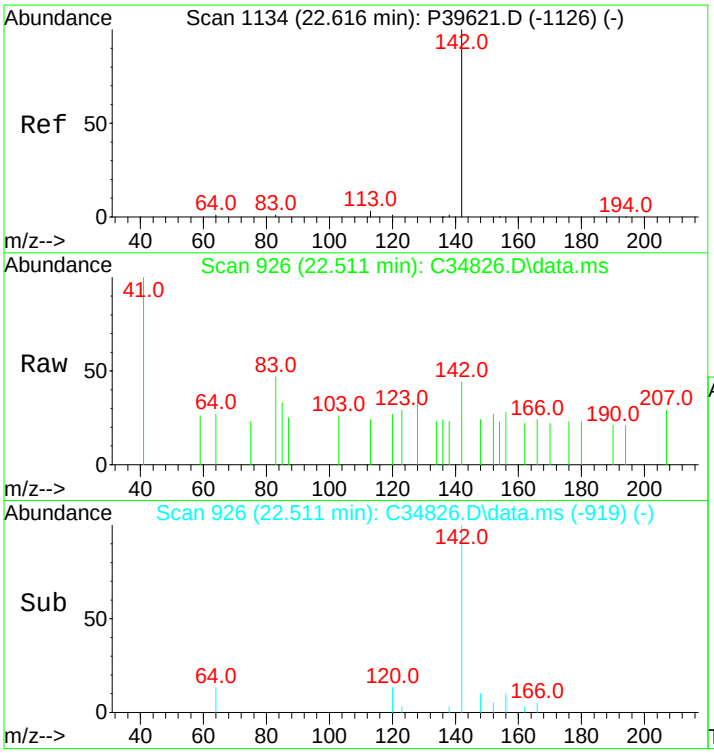


#10
Naphthalene
Concen: 1.67 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:128 Resp: 201

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

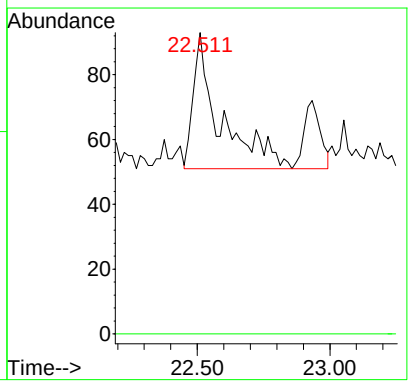


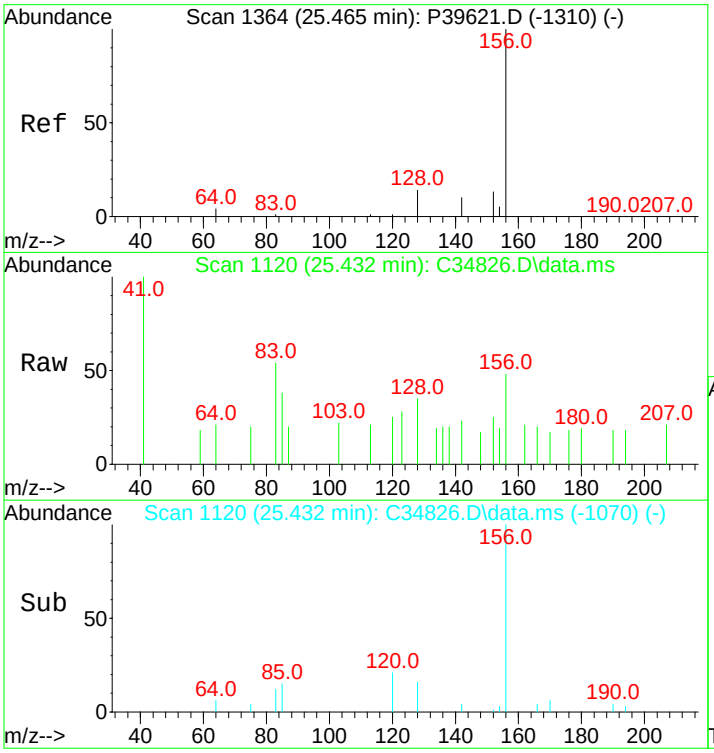


#11
C1-Naphthalenes
Concen: 3.18 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:142 Resp: 382

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

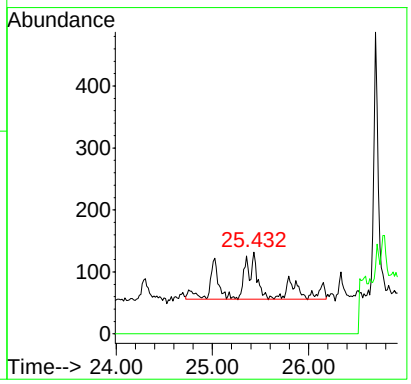


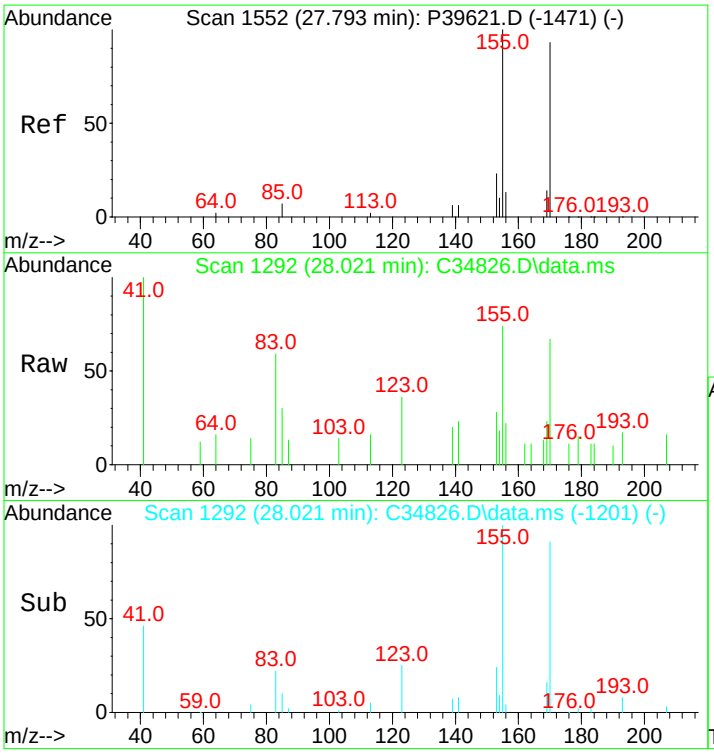


#12
C2-Naphthalenes
Concen: 11.98 ng/mL m
RT: 25.432 min Scan# 1120
Delta R.T. 0.084 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:156 Resp: 1440

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

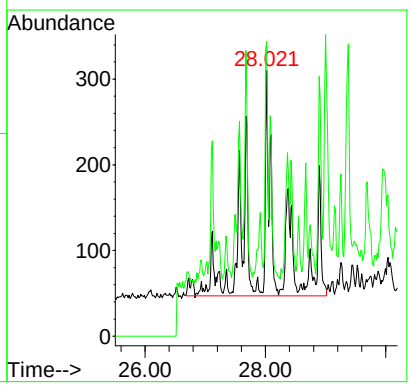


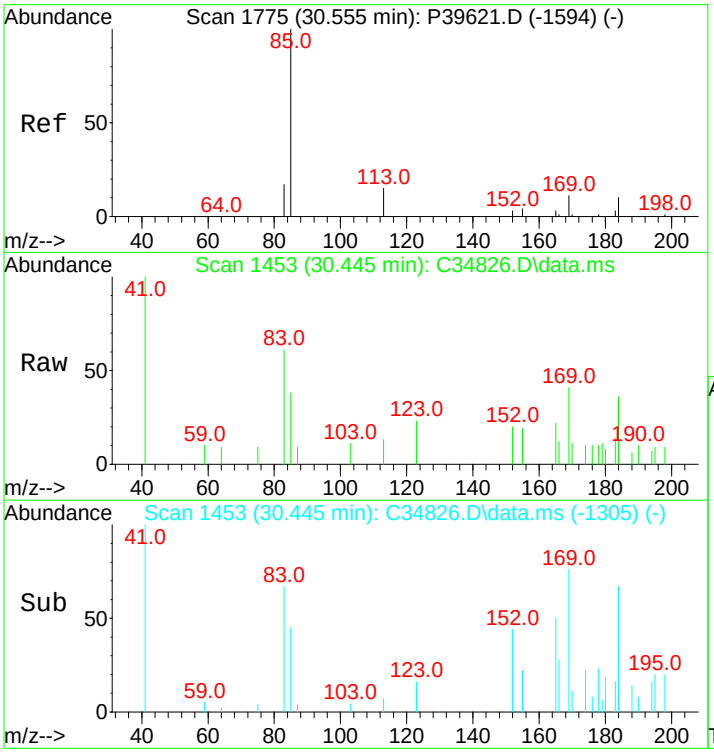


#13
C3-Naphthalenes
Concen: 42.25 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:170 Resp: 5080

Ion	Ratio	Lower	Upper
170	100		
155	15.4	81.8	122.6#

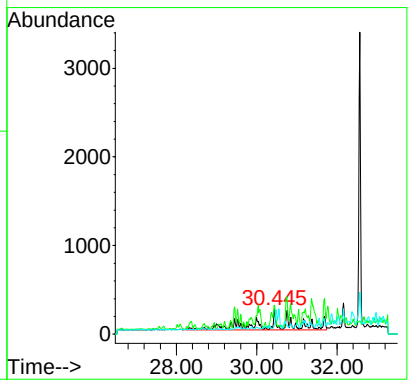


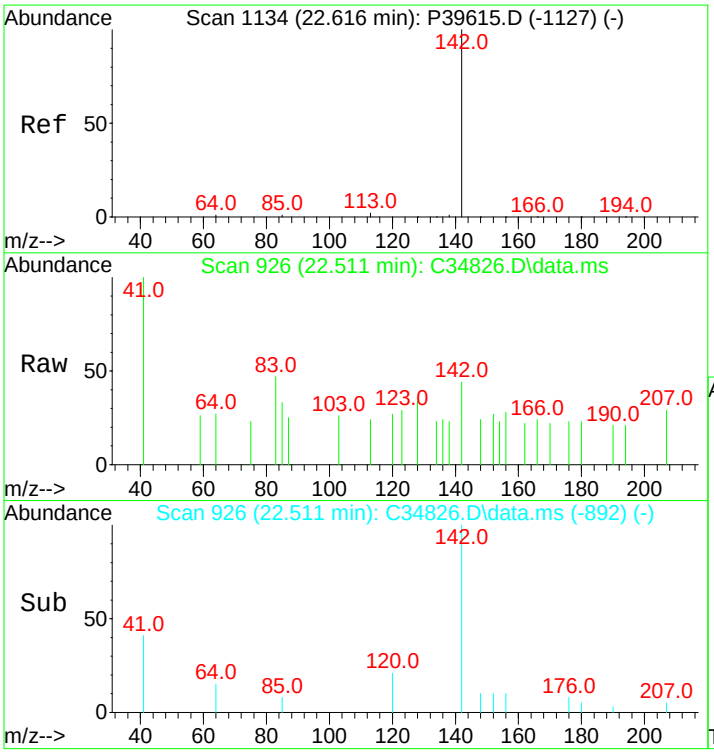


#14
C4-Naphthalenes
Concen: 72.67 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:184 Resp: 8736

Ion	Ratio	Lower	Upper
184	100		
169	9.9	77.4	116.0#
183	0.0	14.8	22.2#

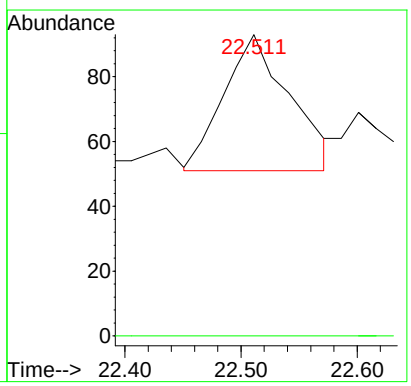


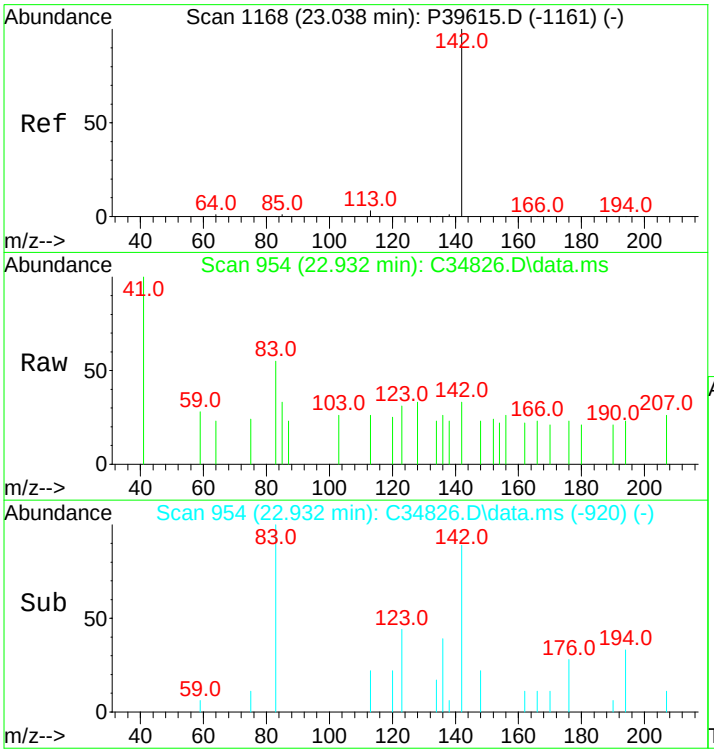


#16
2-Methylnaphthalene
Concen: 2.32 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:142 Resp: 165

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

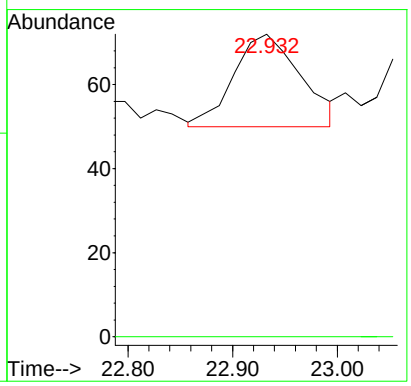


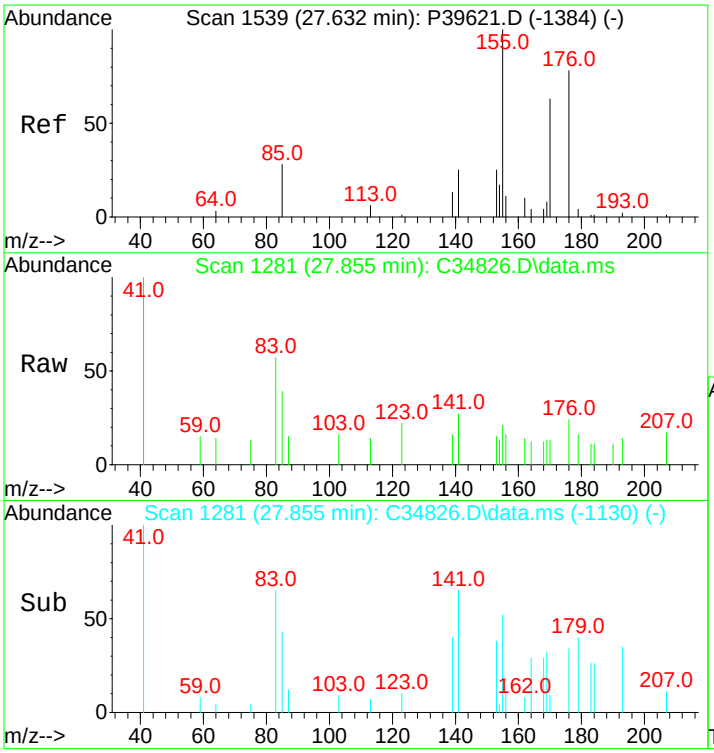


#17
1-Methylnaphthalene
Concen: 1.41 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:142 Resp: 98

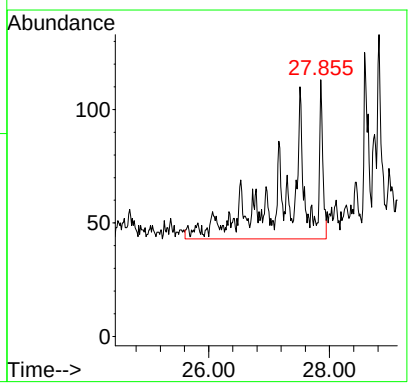
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

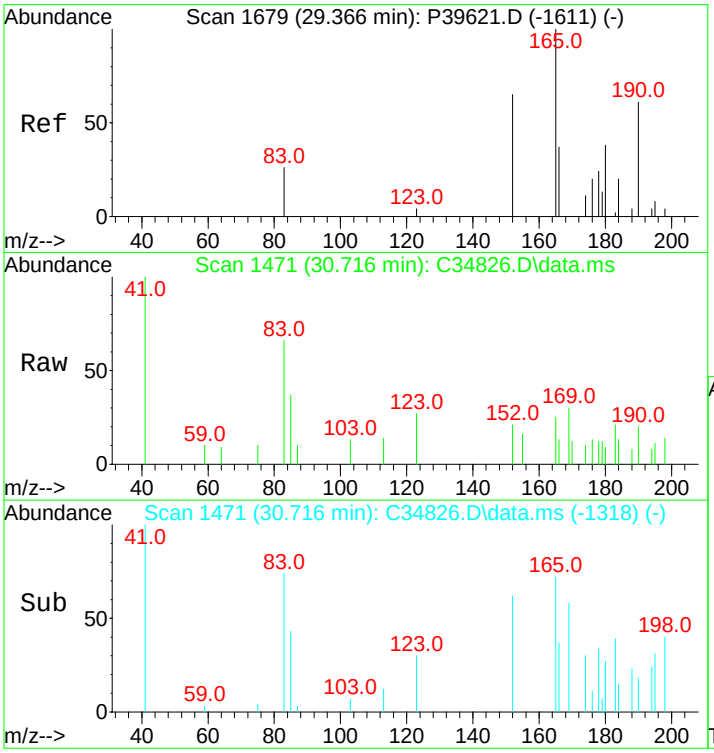




#21
C3-Benzo(b)thiophenes
Concen: 16.62 ng/mL m
RT: 27.855 min Scan# 1281
Delta R.T. 0.350 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

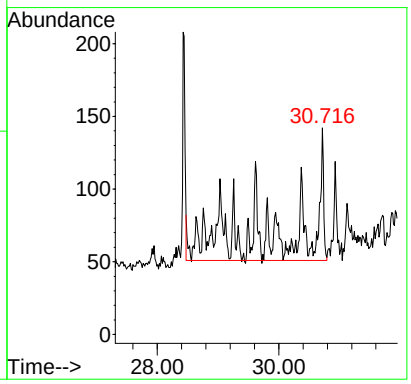
Tgt Ion:176 Resp: 1798

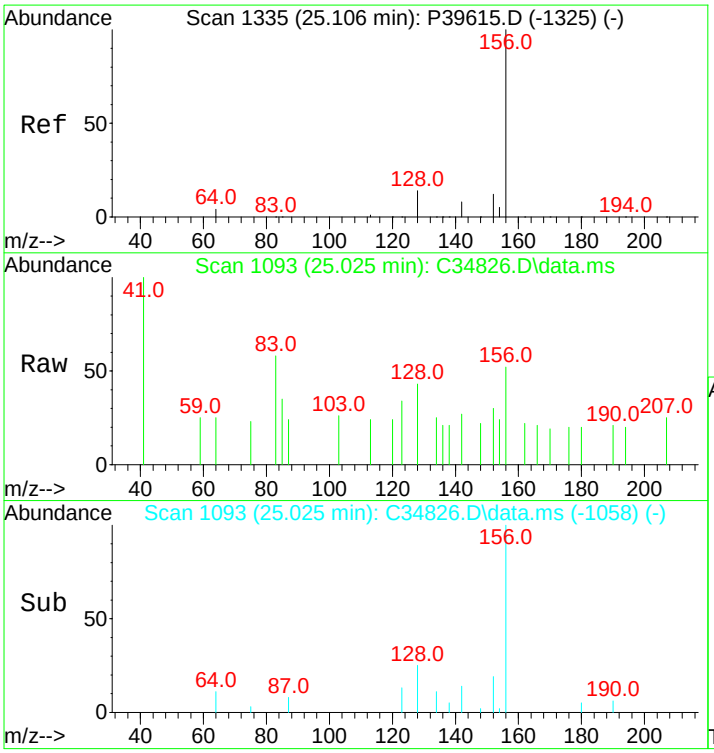




#22
C4-Benzo(b)thiophenes
Concen: 22.42 ng/mL m
RT: 30.716 min Scan# 1471
Delta R.T. 1.487 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:190 Resp: 2426

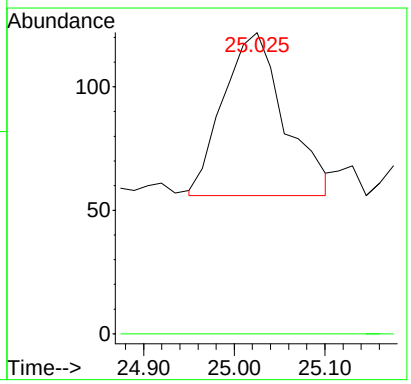


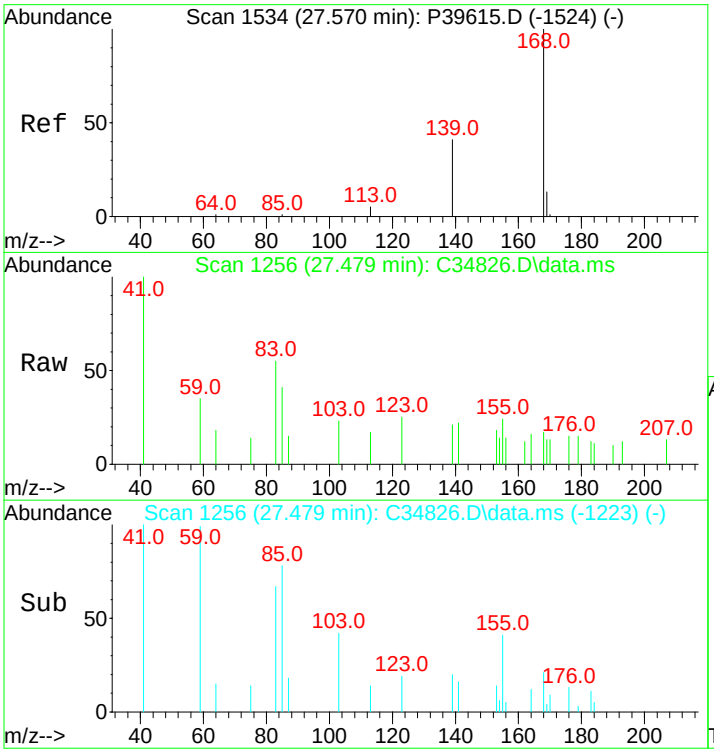


#24
2,6-Dimethylnaphthalene
Concen: 5.31 ng/mL m
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:156 Resp: 310

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

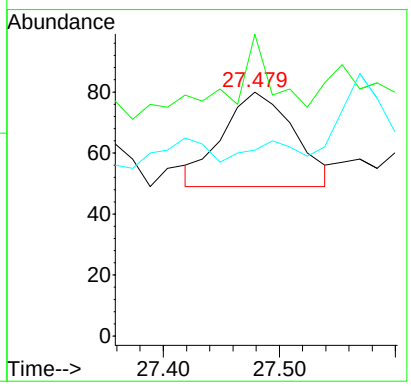


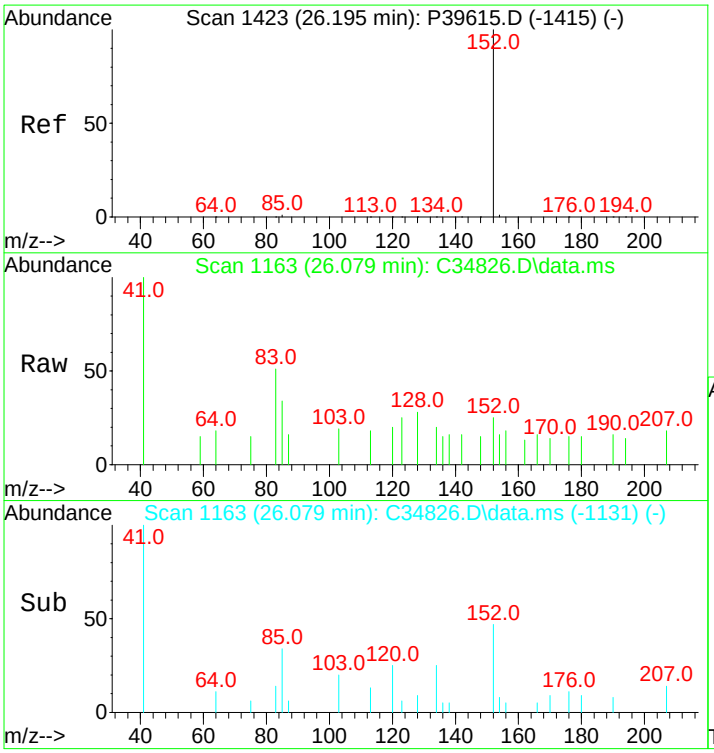


#25
Dibenzofuran
Concen: 1.29 ng/mL m
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:168 Resp: 133

Ion	Ratio	Lower	Upper
168	100		
139	0.0	28.4	42.6#
169	0.0	10.8	16.2#

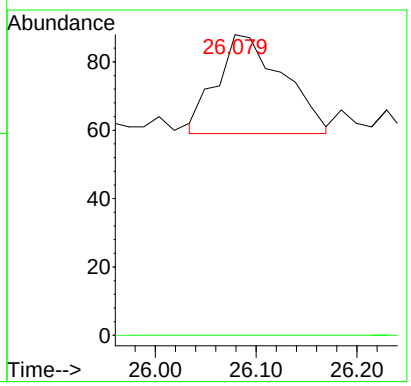


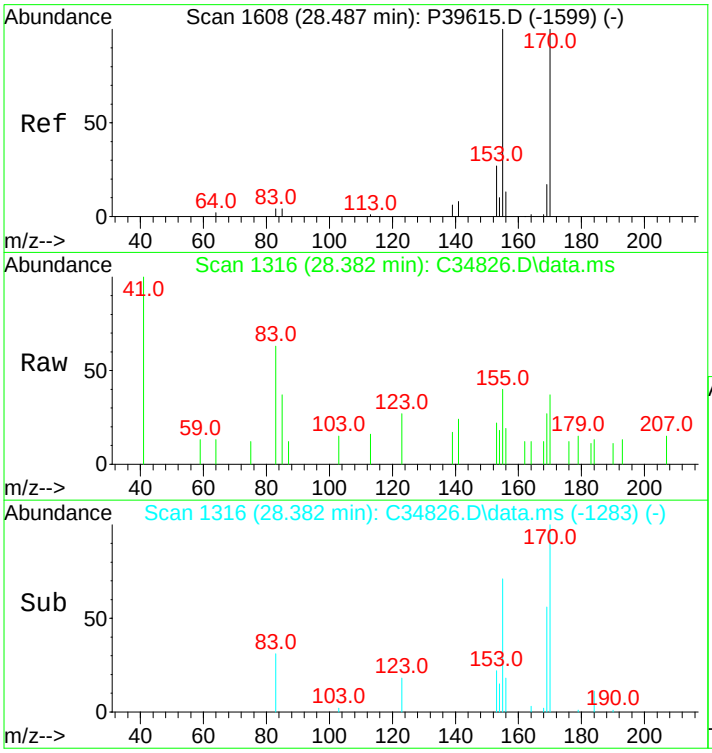


#26
Acenaphthylene
Concen: 1.11 ng/mL m
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:152 Resp: 132

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

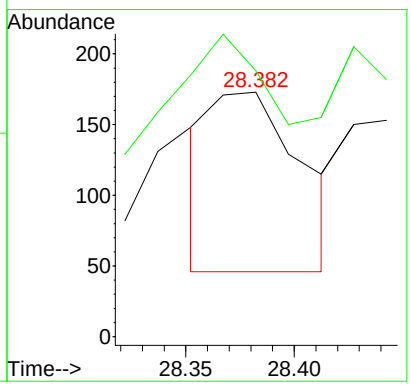


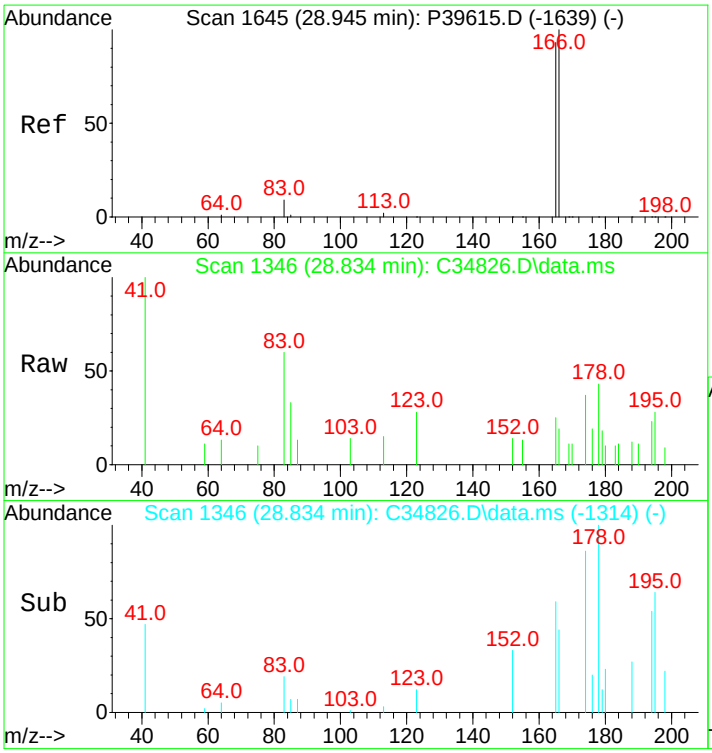


#28
2,3,5-Trimethylnaphthalene
Concen: 7.75 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:170 Resp: 365

Ion	Ratio	Lower	Upper
170	100		
155	160.5	87.3	130.9#

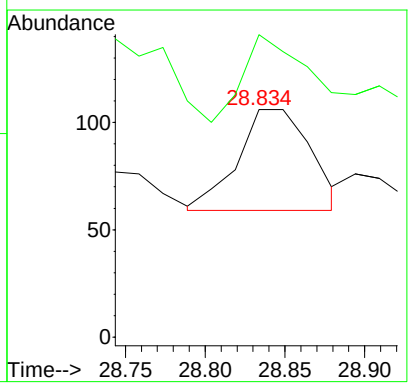


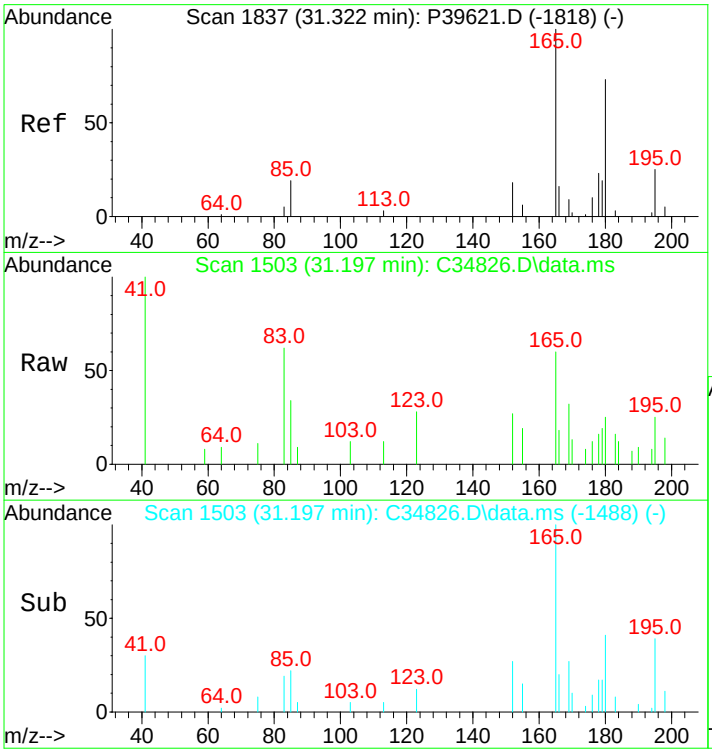


#29
Fluorene
Concen: 1.94 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:166 Resp: 150

Ion	Ratio	Lower	Upper
166	100		
165	133.3	77.3	115.9#

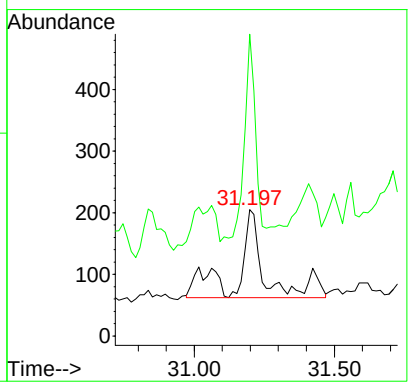


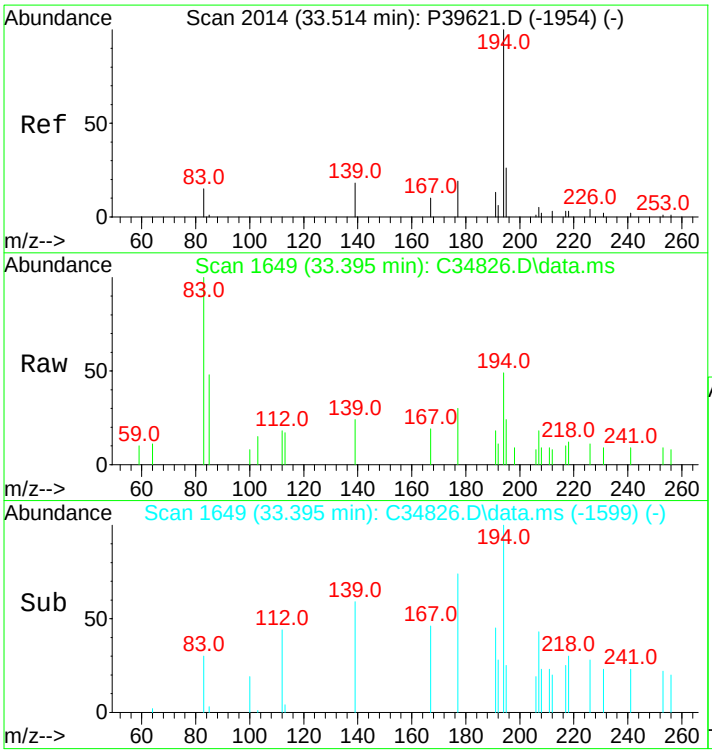


#30
C1-Fluorenes
Concen: 12.46 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:180 Resp: 966

Ion	Ratio	Lower	Upper
180	100		
165	91.1	111.4	167.2#

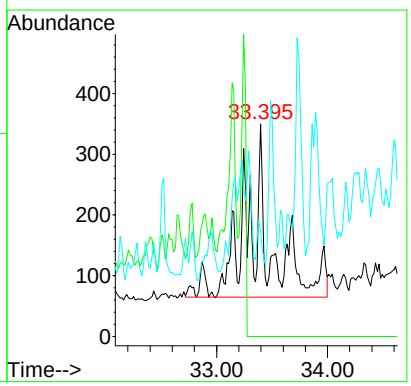


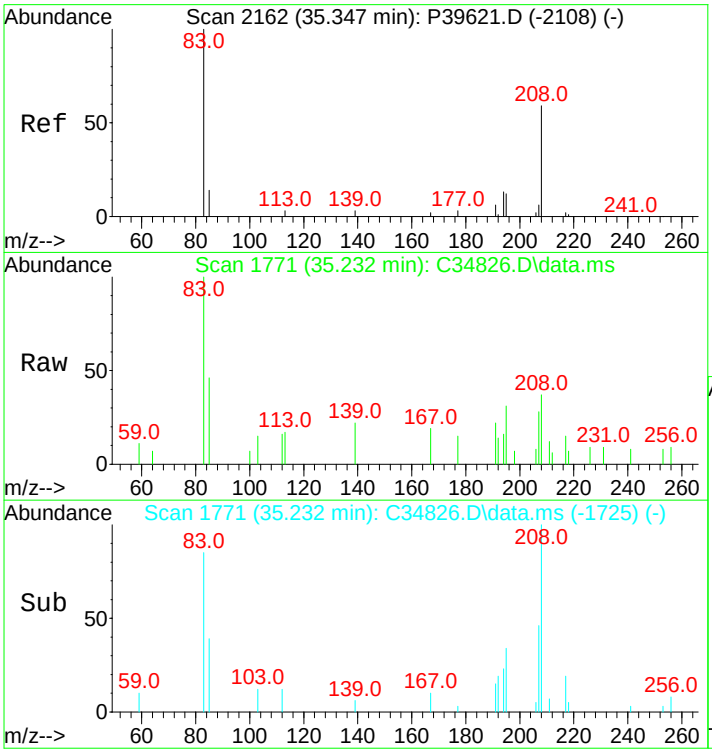


#31
C2-Fluorenes
Concen: 53.94 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:194 Resp: 4180

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.8	27.3	40.9#

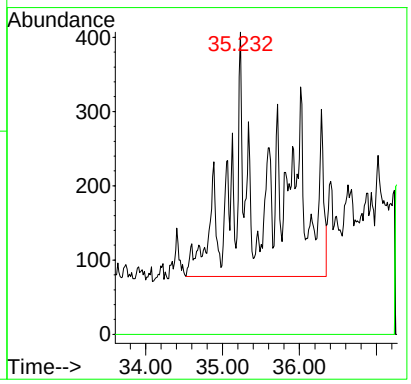


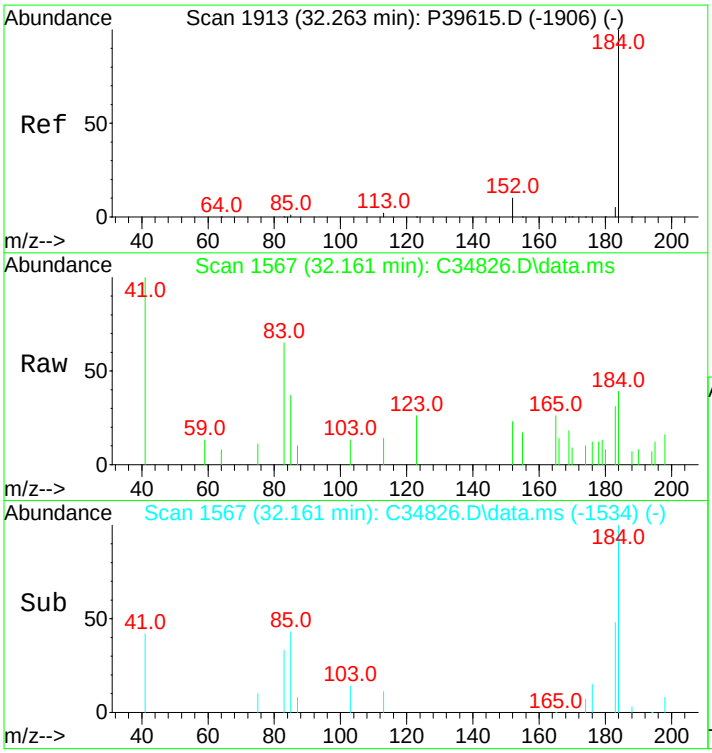


#32
C3-Fluorenes
Concen: 129.94 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:208 Resp: 10070

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

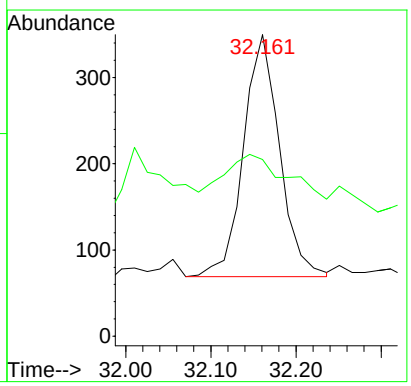


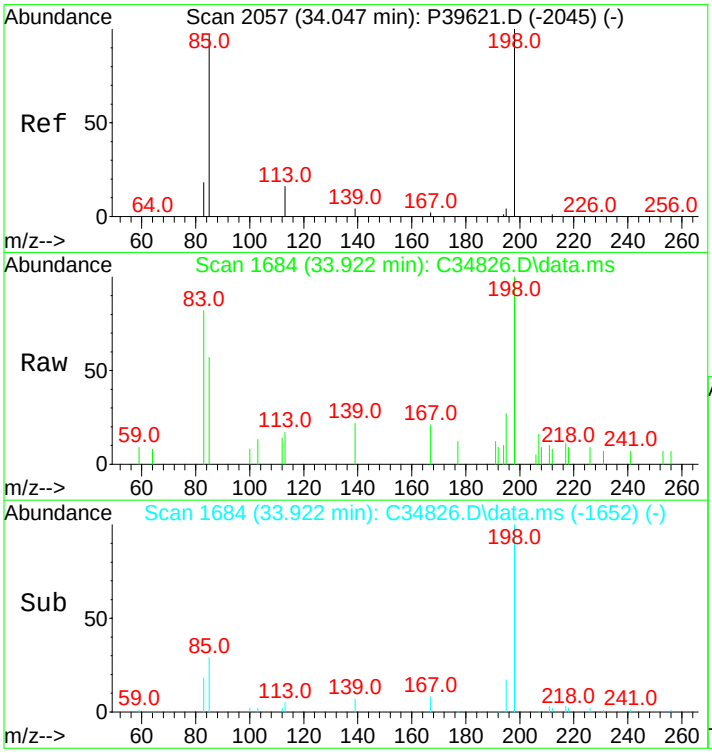


#33
Dibenzothiophene
Concen: 6.66 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:184 Resp: 827

Ion	Ratio	Lower	Upper
184	100		
152	39.9	7.5	11.3#

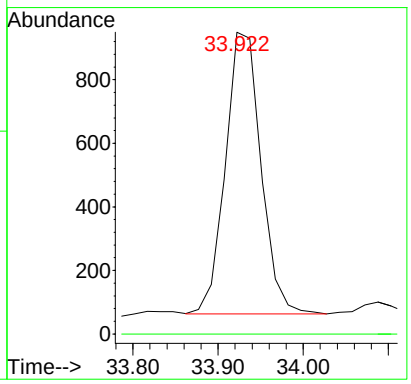


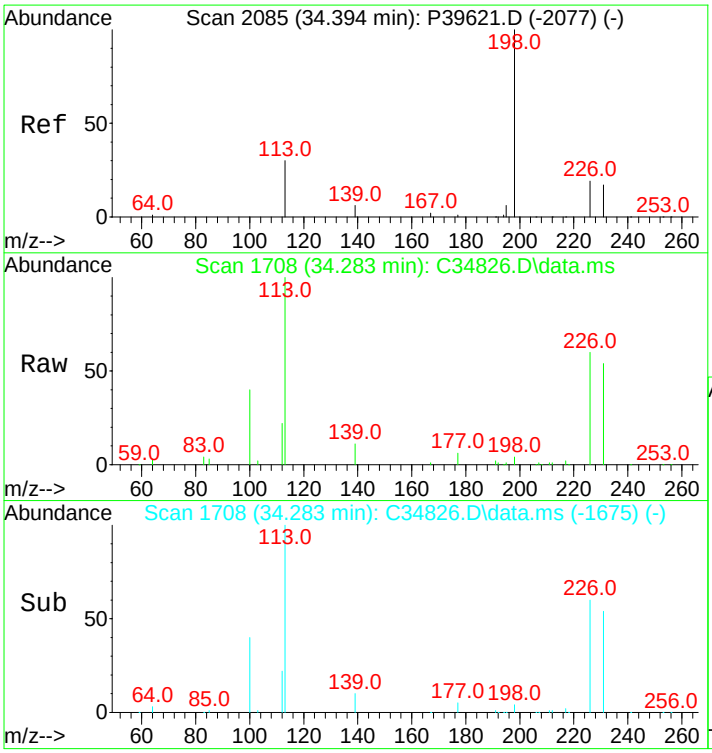


#34
4-Methyldibenzothiophene(4MDT)
Concen: 20.74 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:198 Resp: 2576

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

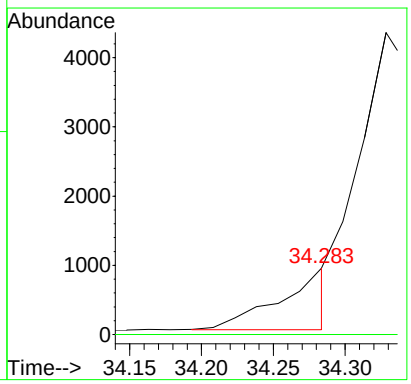


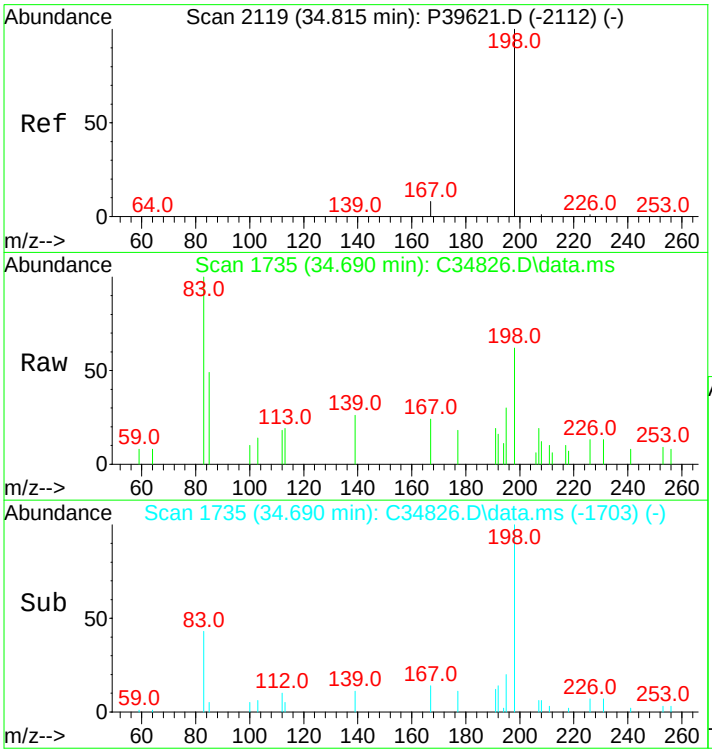


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 17.11 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:198 Resp: 2125

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

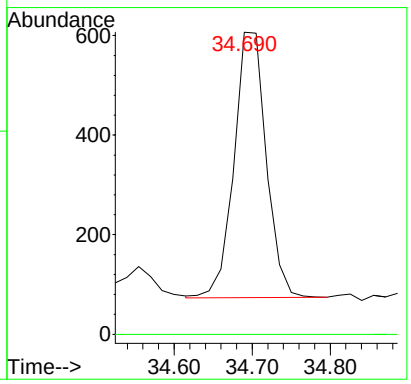


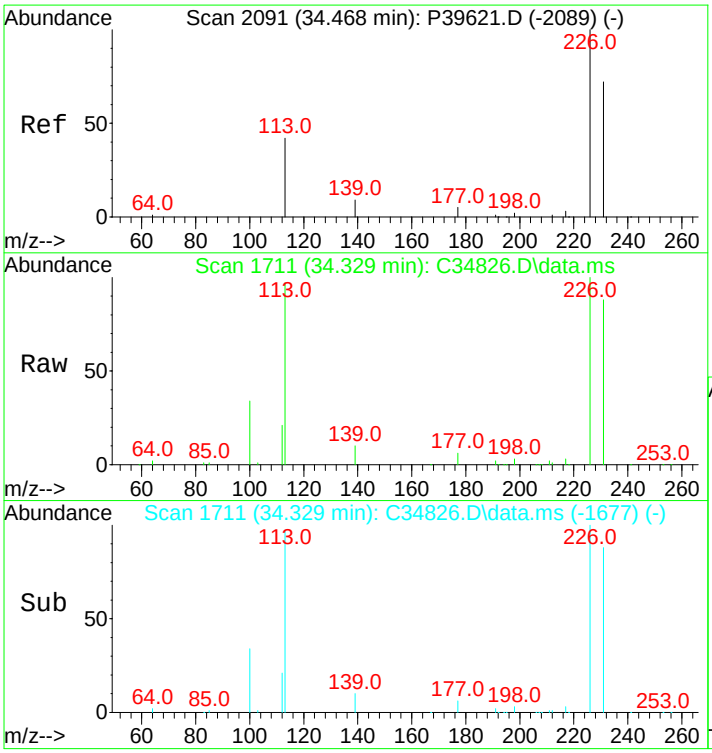


#36
1-Methyldibenzothiophene(1MDT)
Concen: 12.36 ng/mL
RT: 34.690 min Scan# 1735
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:198 Resp: 1535

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

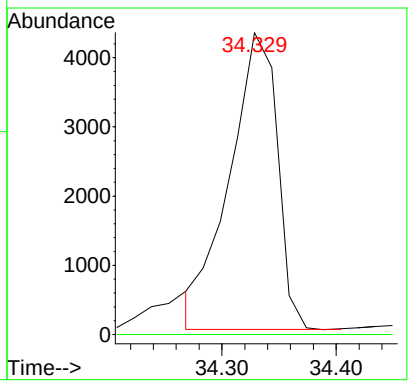


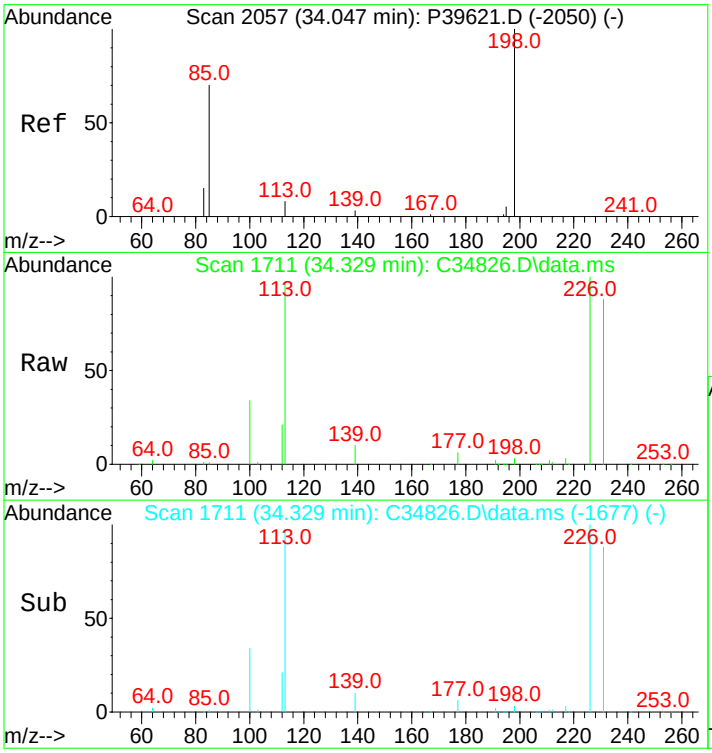


#37
OTP
Concen: 100.54 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:198 Resp: 12490

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

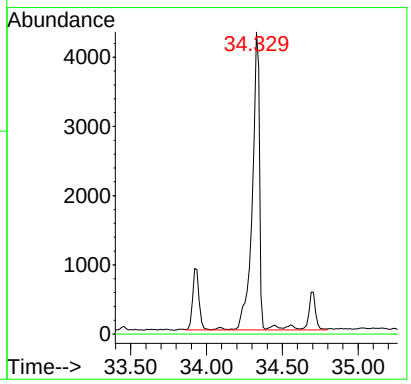


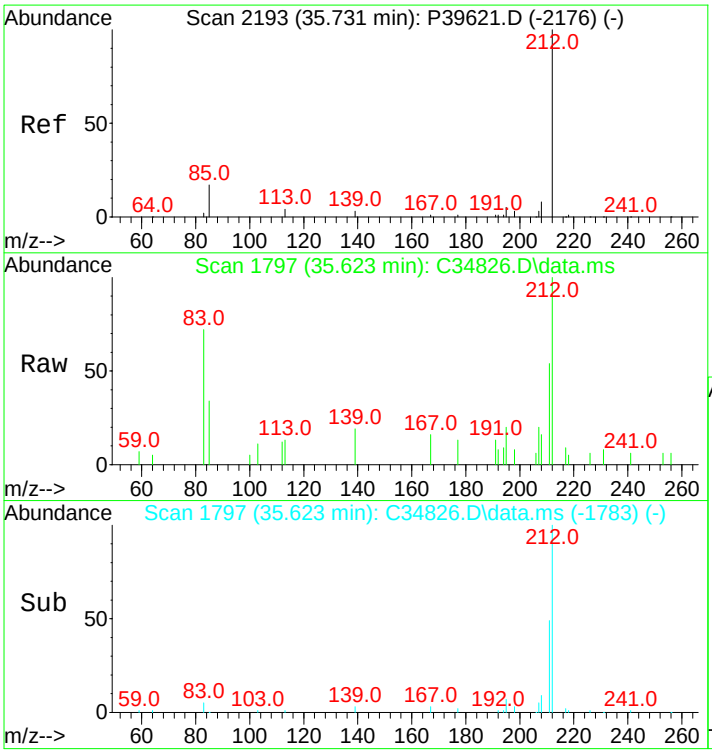


#38
C1-Dibenzothiophenes
Concen: 151.69 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:198 Resp: 18844

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

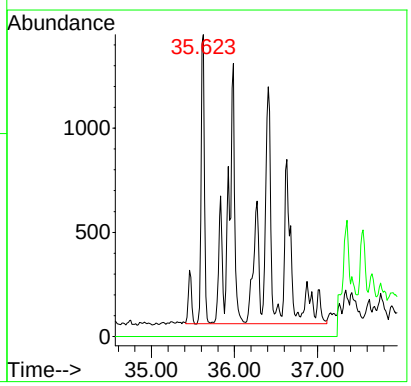


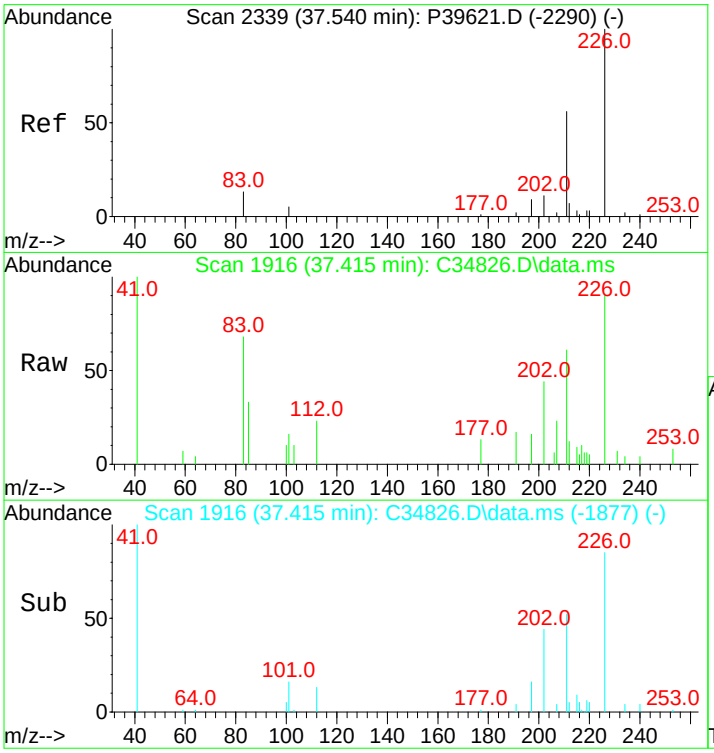


#39
C2-Dibenzothiophenes
Concen: 195.65 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:212 Resp: 24305

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

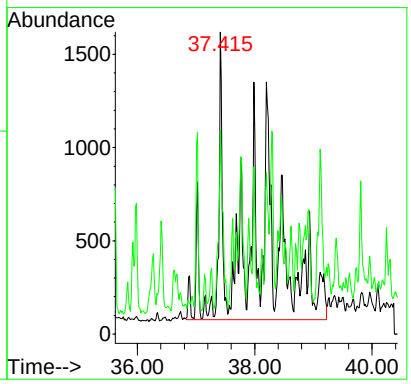


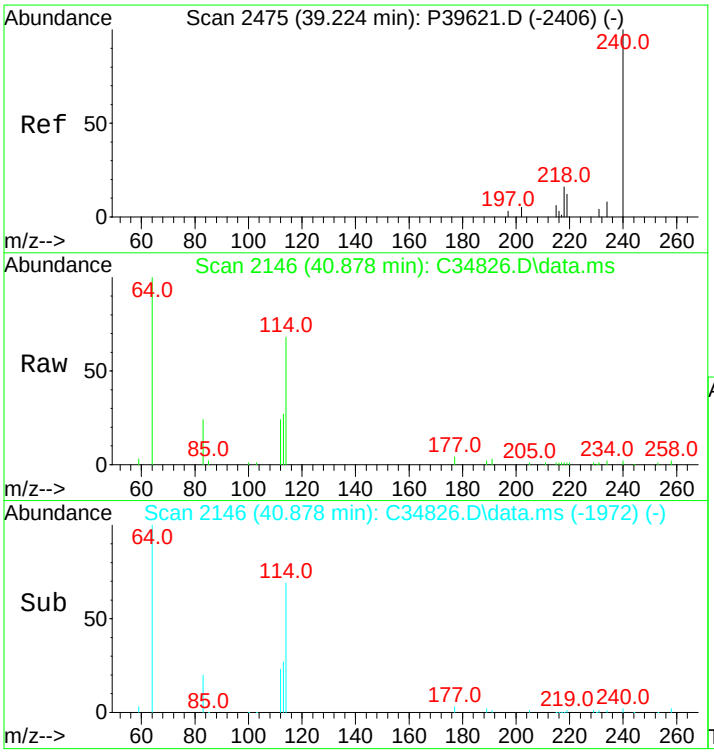


#40
C3-Dibenzothiophenes
Concen: 328.68 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:226 Resp: 40831

Ion	Ratio	Lower	Upper
226	100		
211	11.5	45.0	67.6#

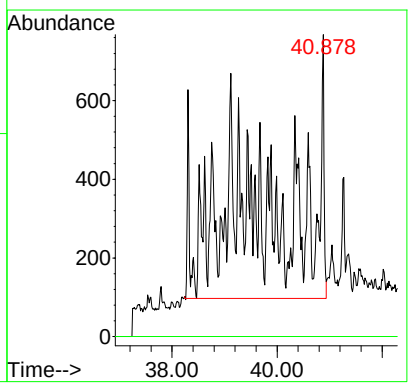


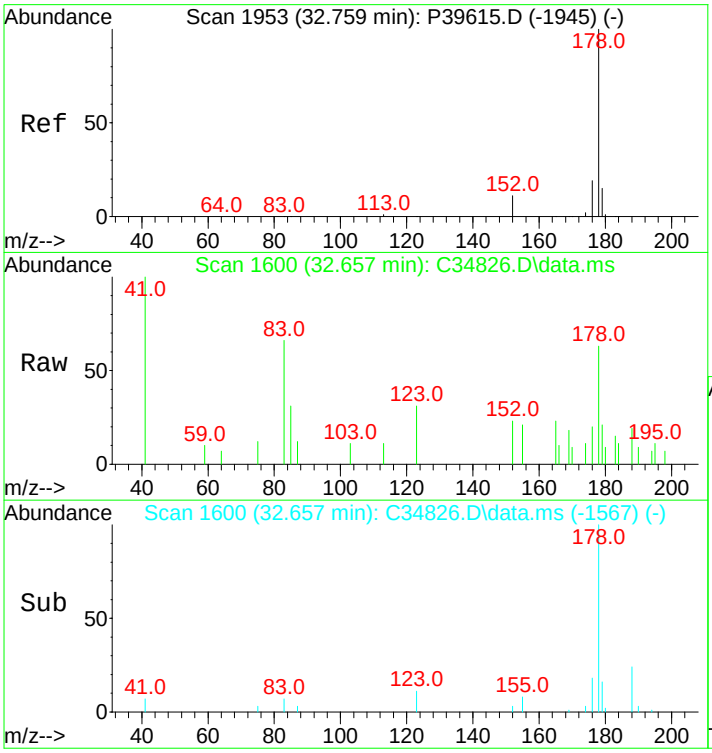


#41
C4-Dibenzothiophenes
Concen: 263.79 ng/mL m
RT: 40.878 min Scan# 2146
Delta R.T. 1.762 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:240 Resp: 32770

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

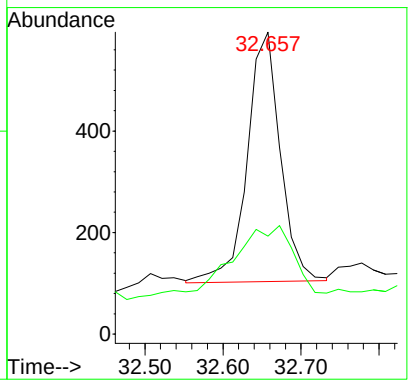


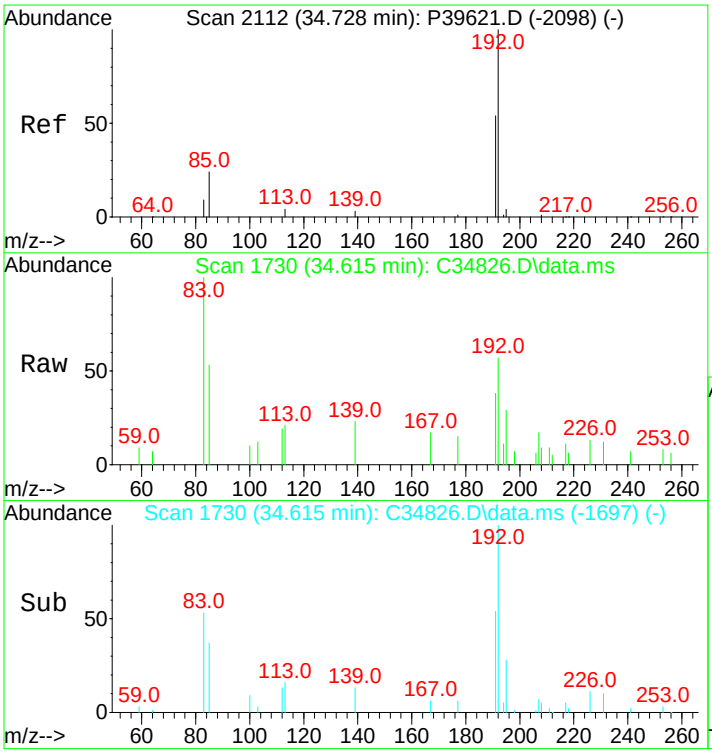


#43
Phenanthrene
Concen: 13.32 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:178 Resp: 1454

Ion	Ratio	Lower	Upper
178	100		
176	59.3	16.1	24.1#

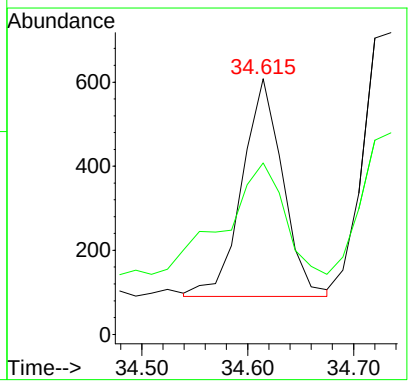


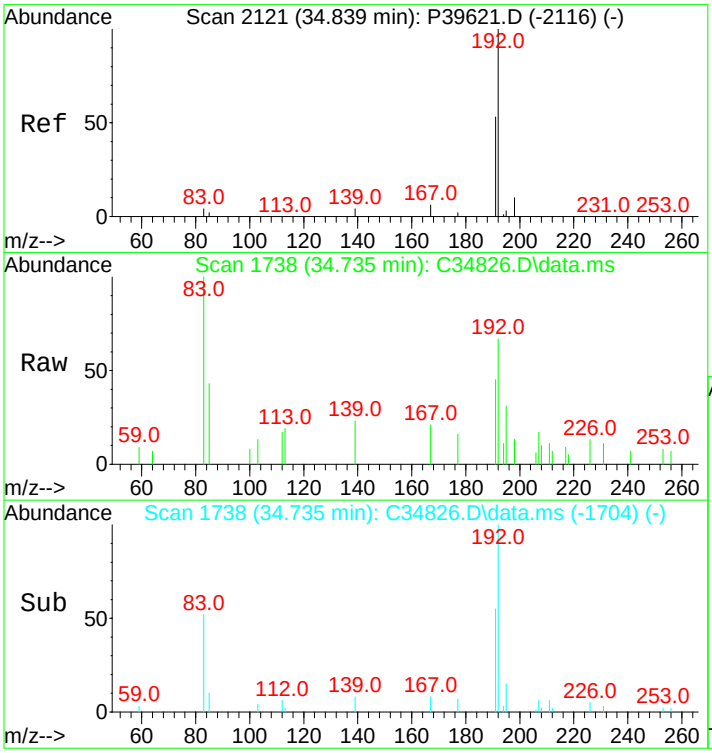


#44
3-Methylphenanthrene(3MP)
Concen: 12.71 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 1387

Ion	Ratio	Lower	Upper
192	100		
191	73.3	46.9	70.3#

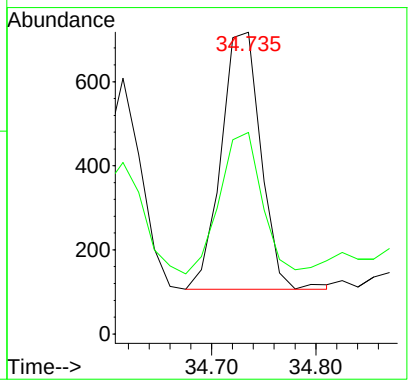


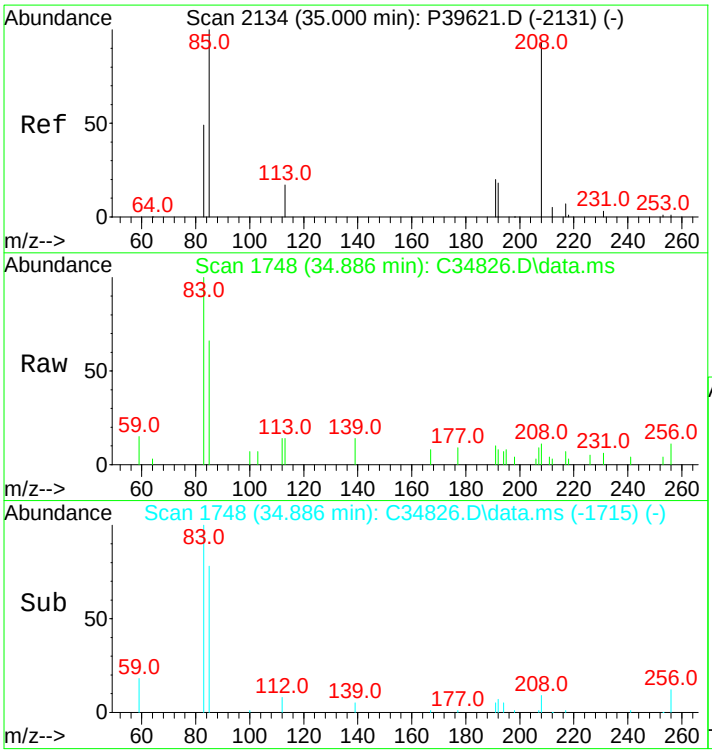


#45
2/4-Methylphenanthrene(2MP)
Concen: 14.95 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 1632

Ion	Ratio	Lower	Upper
192	100		
191	58.0	46.1	69.1

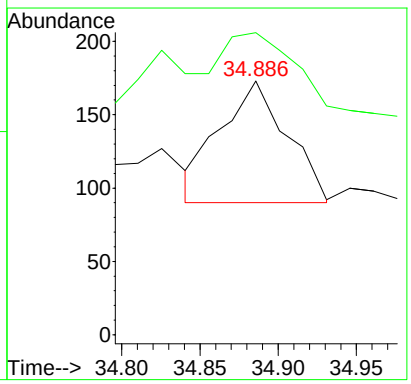


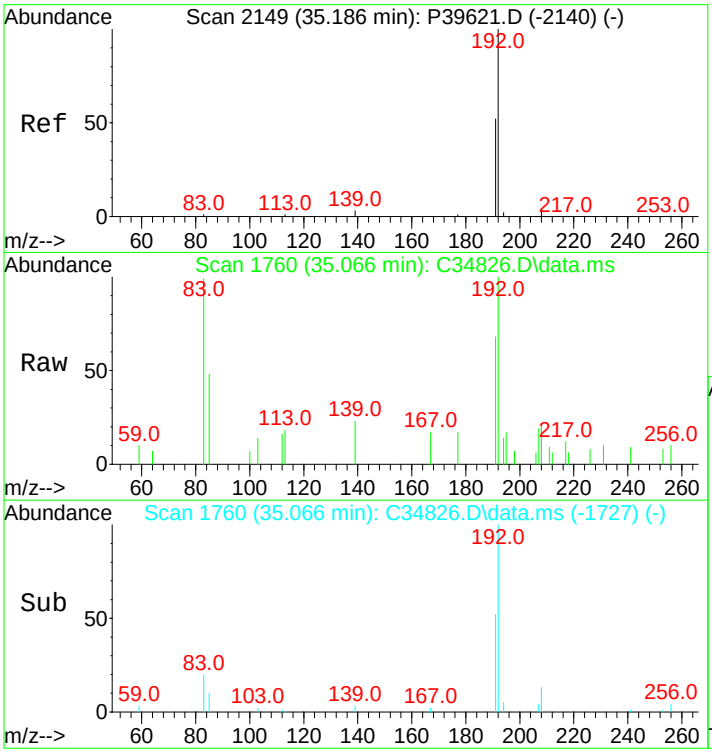


#46
2-Methylanthracene(2MA)
Concen: 2.26 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 247

Ion	Ratio	Lower	Upper
192	100		
191	100.0	93.4	140.0

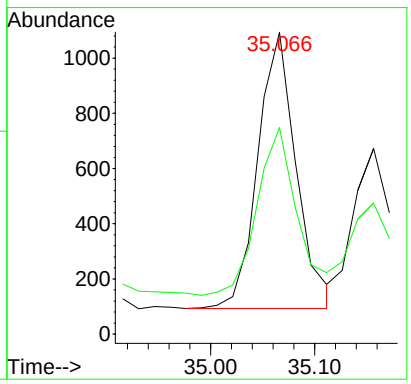


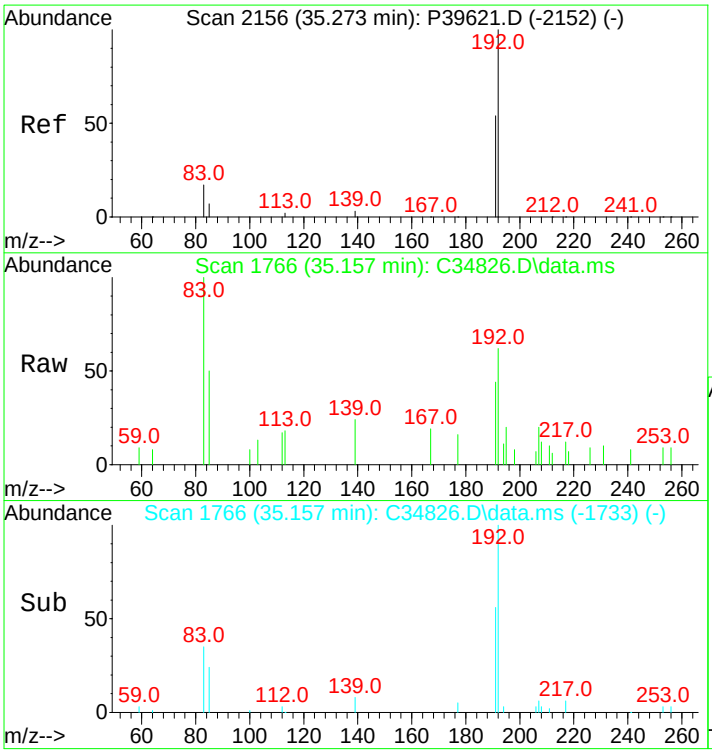


#47
9-Methylphenanthrene(9MP)
Concen: 23.50 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 2565

Ion	Ratio	Lower	Upper
192	100		
191	63.5	45.9	68.9

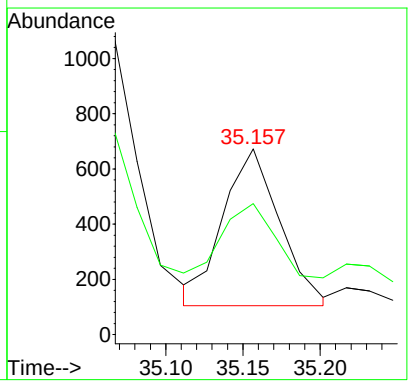


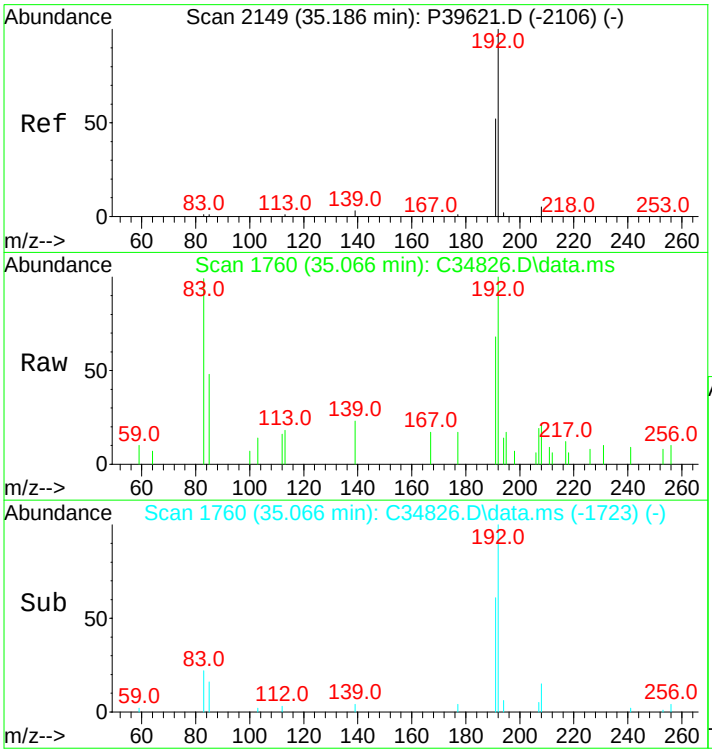


#48
1-Methylphenanthrene(1MP)
Concen: 13.27 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 1448

Ion	Ratio	Lower	Upper
192	100		
191	53.9	49.0	73.4

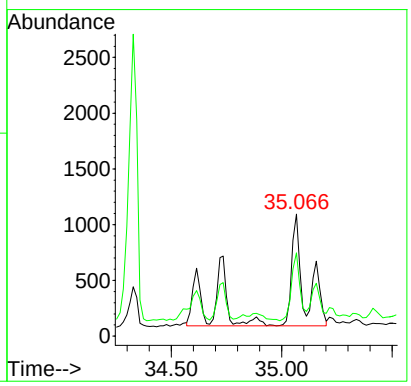


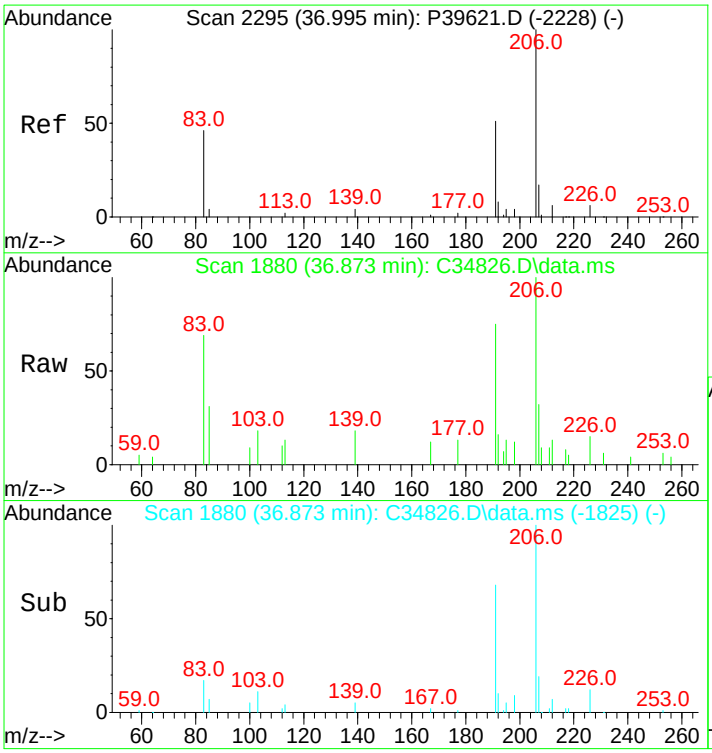


#49
C1-Phenanthrenes/Anthracenes
Concen: 67.60 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.053 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 7378

Ion	Ratio	Lower	Upper
192	100		
191	22.1	44.2	66.2#

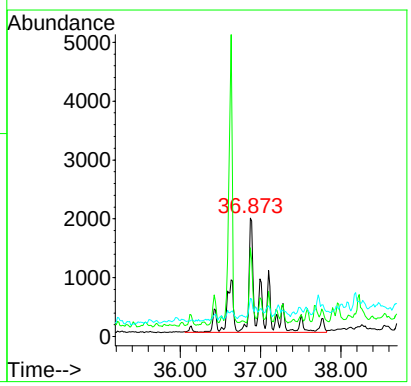


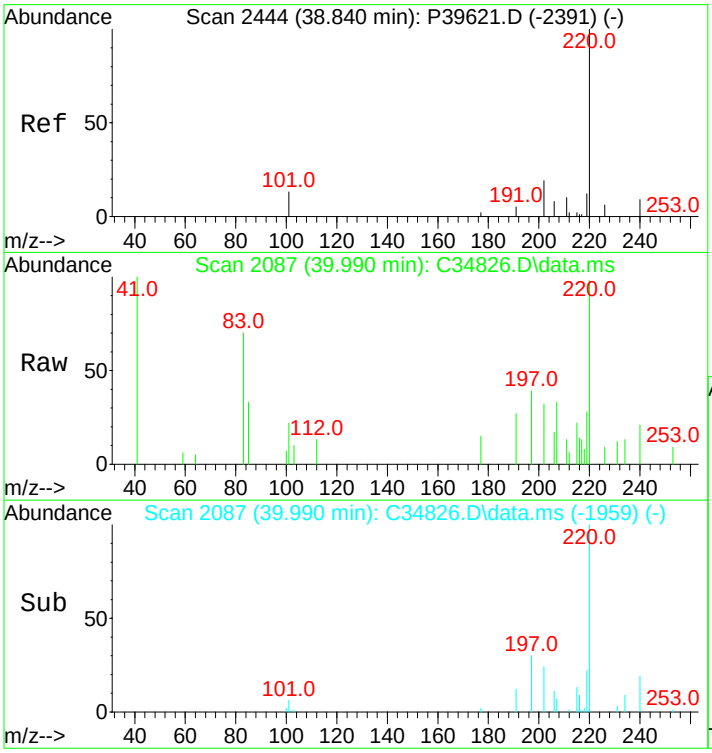


#50
C2-Phenanthrenes/Anthracenes
Concen: 205.78 ng/mL m
RT: 36.873 min Scan# 1880
Delta R.T. 0.061 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:206 Resp: 22460

Ion	Ratio	Lower	Upper
206	100		
191	16.0	44.0	66.0#
207	4.5	15.1	22.7#

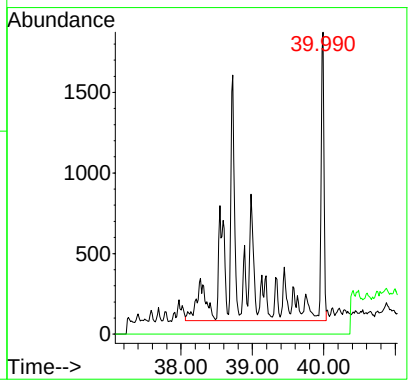


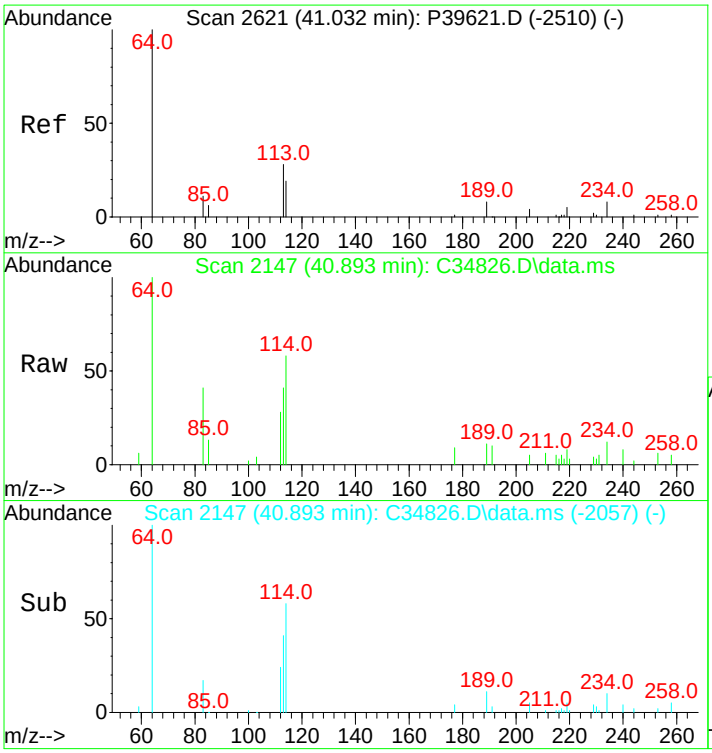


#52
C3-Phenanthrenes/Anthracenes
Concen: 235.70 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:220 Resp: 25725

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

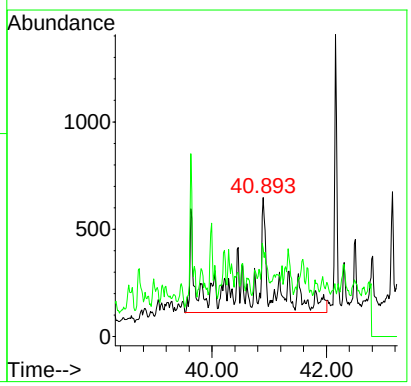


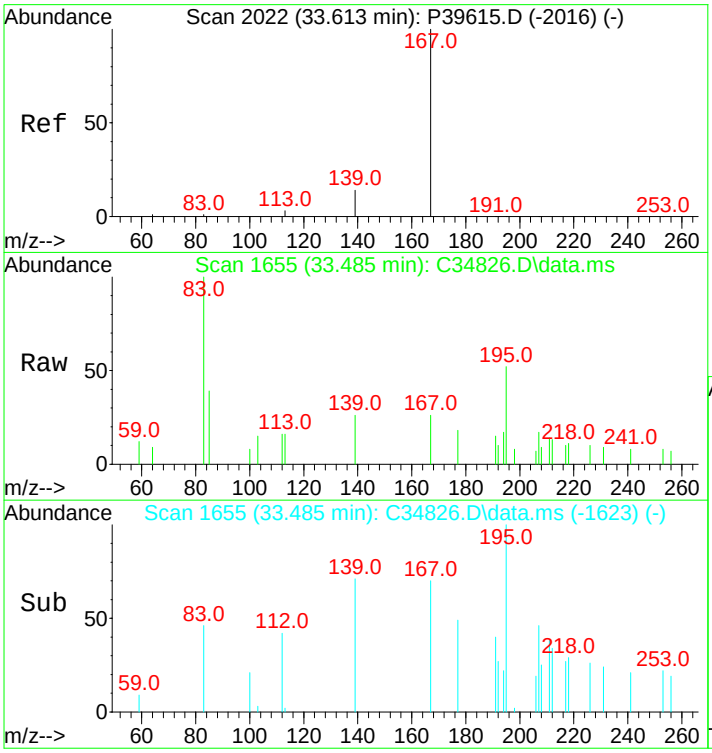


#53
C4-Phenanthrenes/Anthracenes
Concen: 136.31 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:234 Resp: 14878

Ion	Ratio	Lower	Upper
234	100		
219	3.0	46.9	70.3#

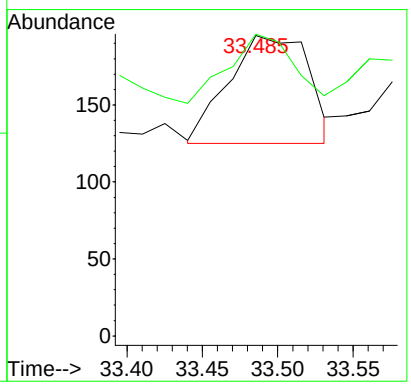


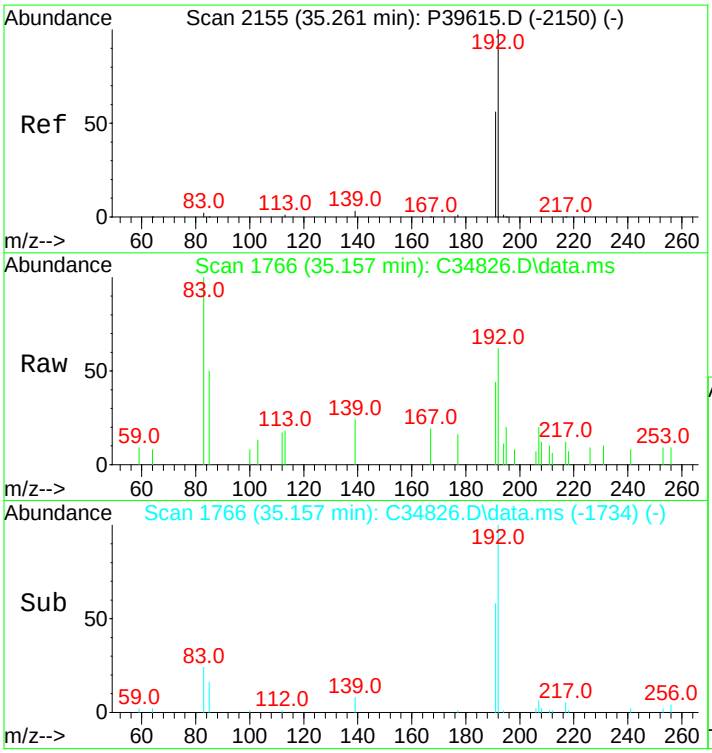


#56
Carbazole
Concen: 2.41 ng/mL m
RT: 33.485 min Scan# 1655
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:167 Resp: 259

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

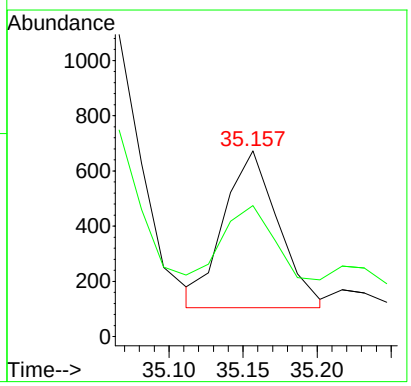


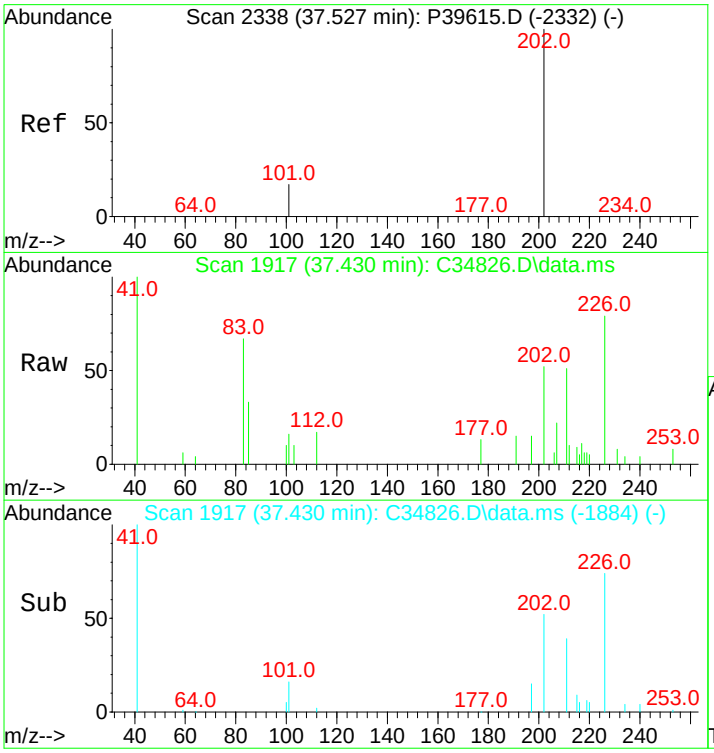


#57
1-Methylphenanthrene
Concen: 20.86 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:192 Resp: 1443

Ion	Ratio	Lower	Upper
192	100		
191	54.3	45.9	68.9

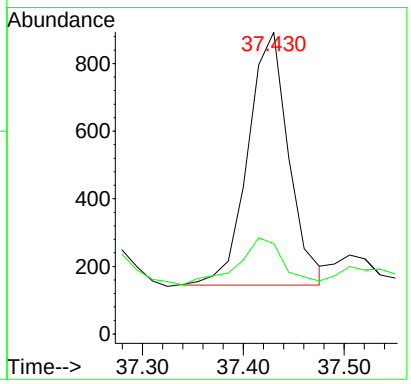


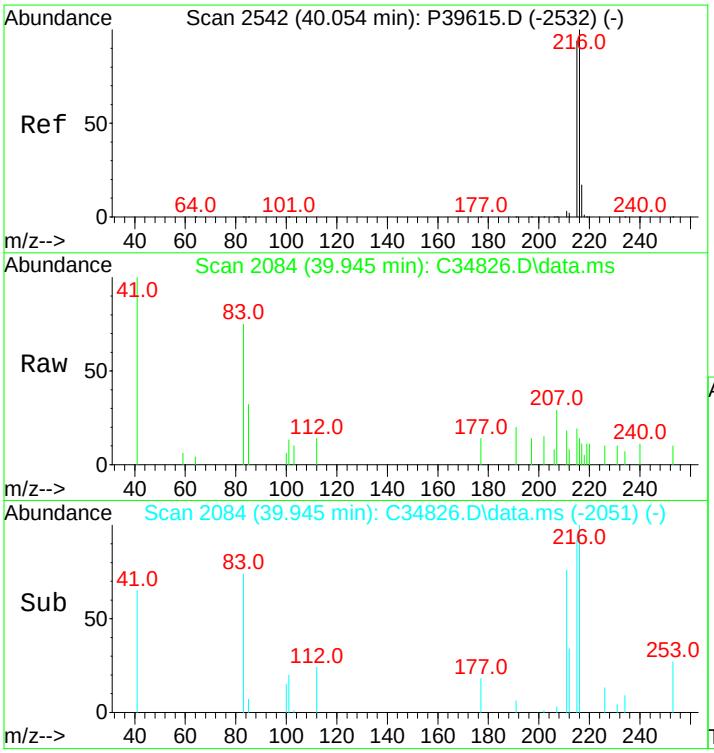


#58
Fluoranthene
Concen: 19.48 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:202 Resp: 2112

Ion	Ratio	Lower	Upper
202	100		
101	28.9	12.9	19.3#

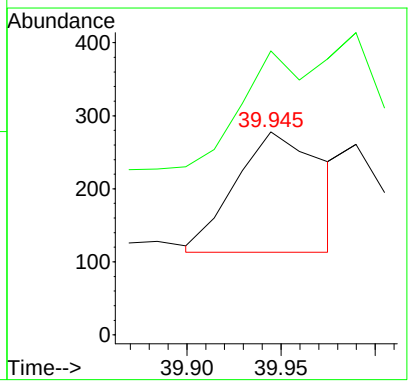


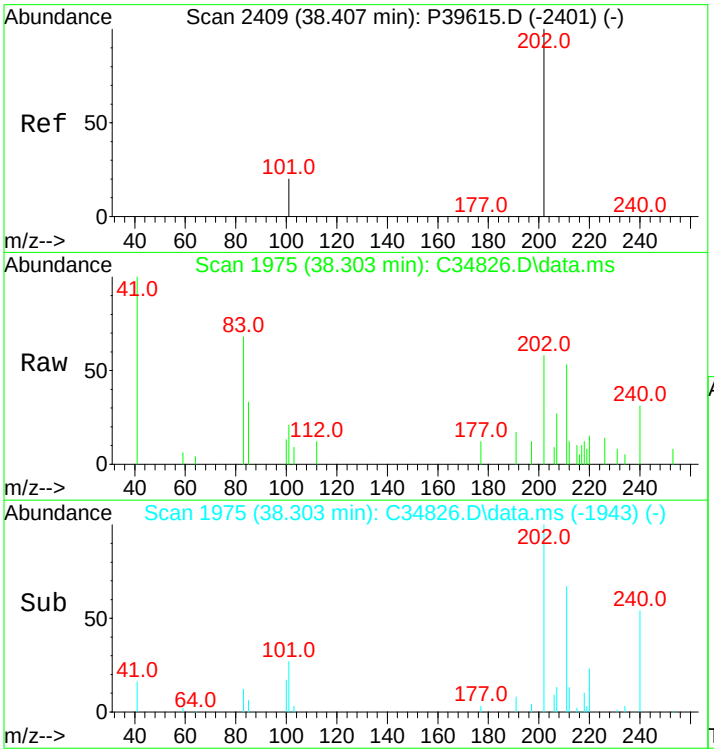


#59
Benzo(b)fluorene
Concen: 8.41 ng/mL m
RT: 39.945 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:216 Resp: 529

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#

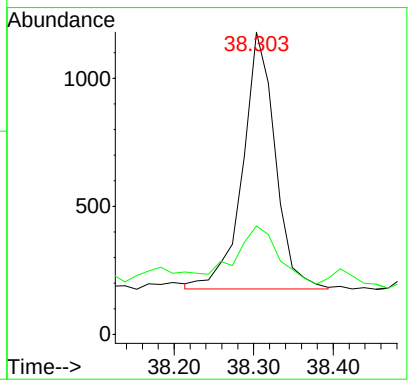


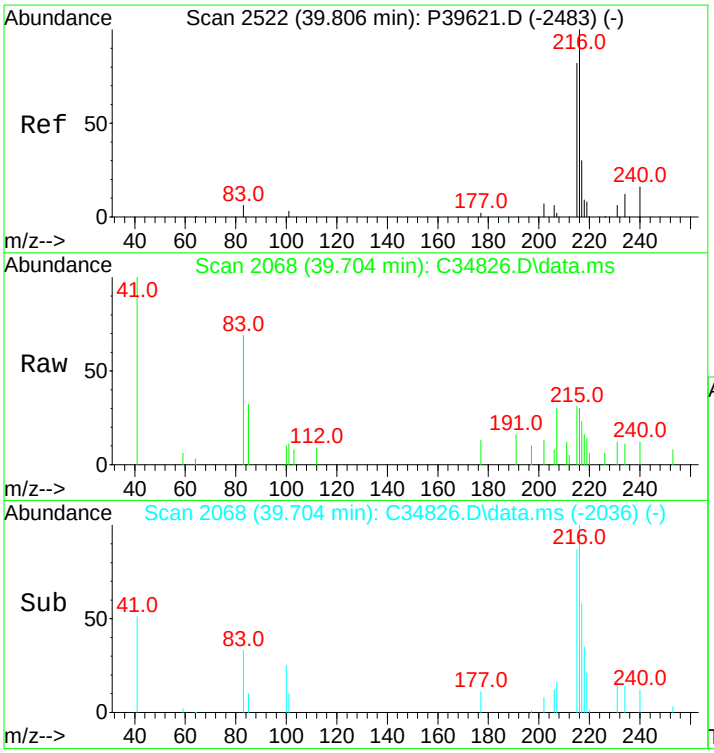


#60
Pyrene
Concen: 25.86 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:202 Resp: 2849

Ion	Ratio	Lower	Upper
202	100		
101	29.7	15.0	22.4#

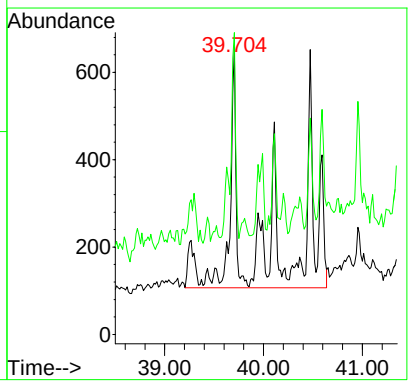


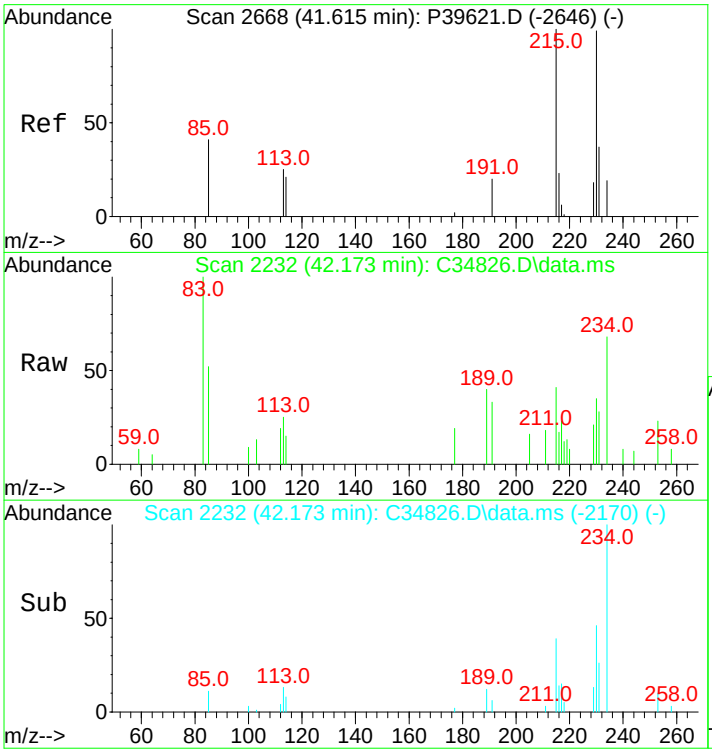


#61
C1-Fluoranthenes/Pyrenes
Concen: 70.05 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:216 Resp: 7719

Ion	Ratio	Lower	Upper
216	100		
215	8.4	71.8	107.6#

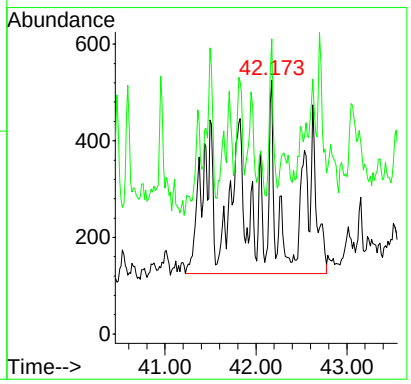


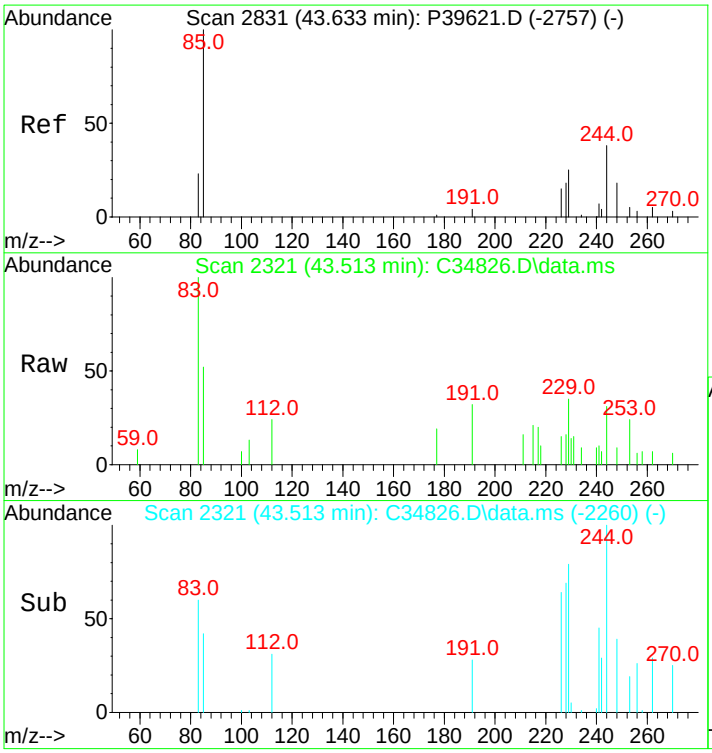


#62
C2-Fluoranthenes/Pyrenes
Concen: 107.61 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:230 Resp: 11858

Ion	Ratio	Lower	Upper
230	100		
215	4.0	99.0	148.4#

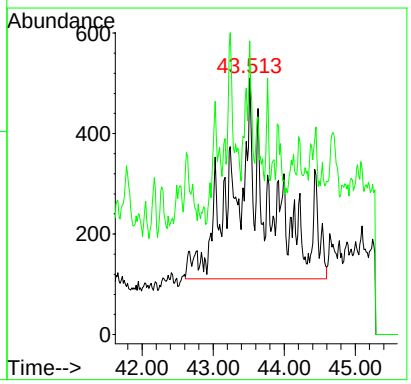


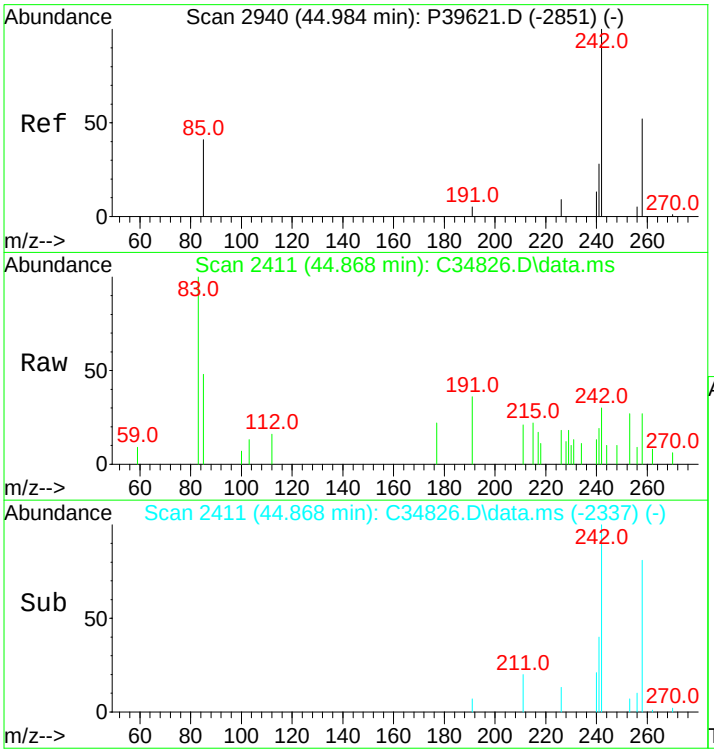


#63
C3-Fluoranthenes/Pyrenes
Concen: 128.70 ng/mL m
RT: 43.513 min Scan# 2321
Delta R.T. 0.105 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:244 Resp: 14182

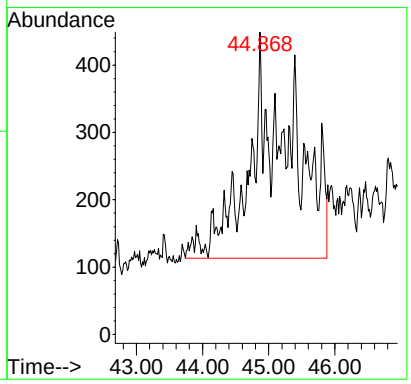
Ion	Ratio	Lower	Upper
244	100		
229	2.9	73.3	109.9#

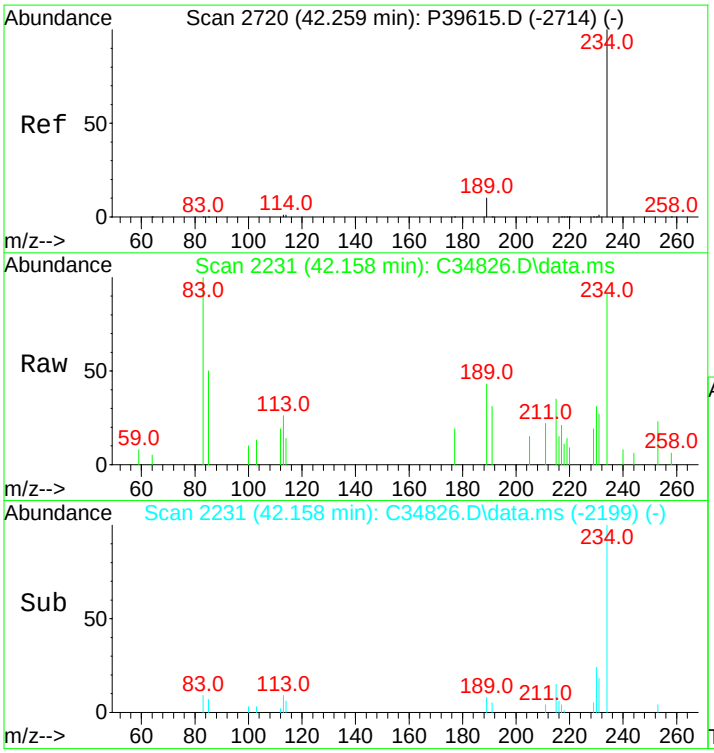




#64
C4-Fluoranthenes/Pyrenes
Concen: 128.97 ng/mL m
RT: 44.868 min Scan# 2411
Delta R.T. 0.112 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:258 Resp: 14211

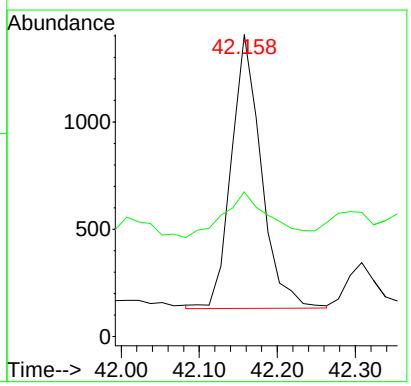


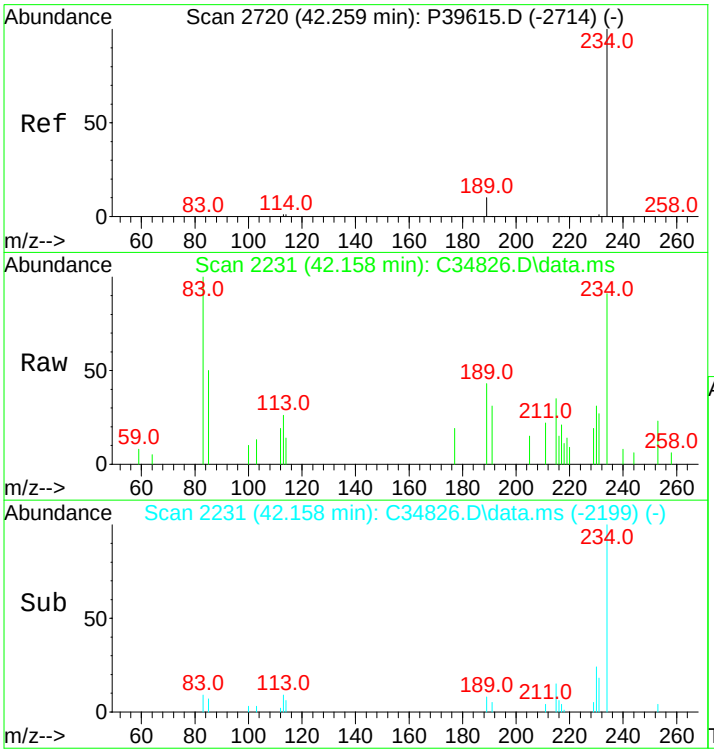


#66
Naphthobenzothiophene
Concen: 28.65 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:234 Resp: 3399

Ion	Ratio	Lower	Upper
234	100		
189	25.7	20.5	30.7

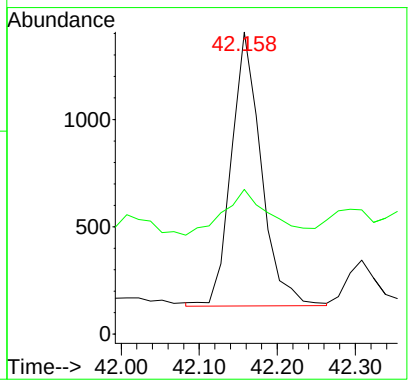


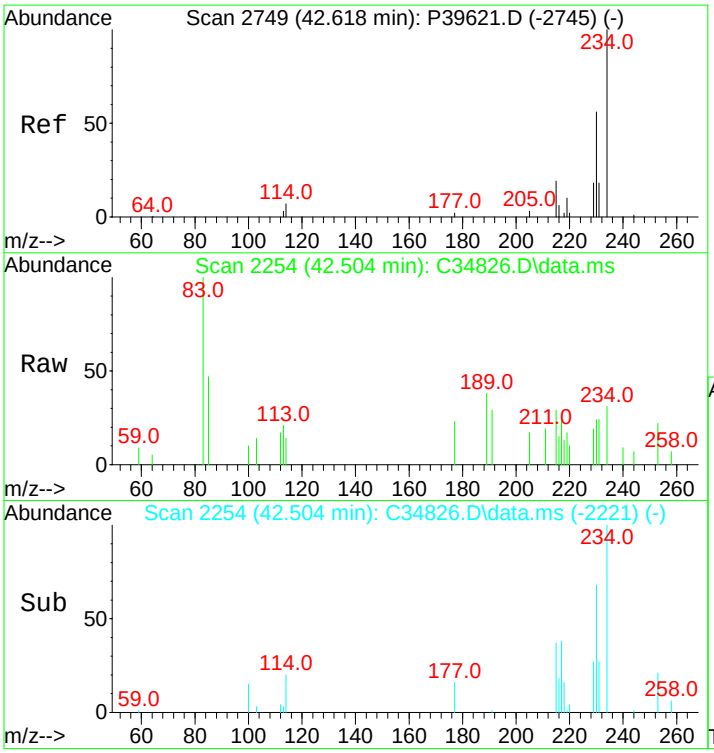


#67
Naphthobenzothiophene-2,1-D
Concen: 28.65 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:234 Resp: 3399

Ion	Ratio	Lower	Upper
234	100		
189	25.7	20.5	30.7

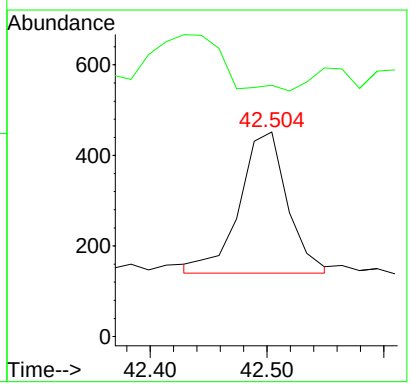


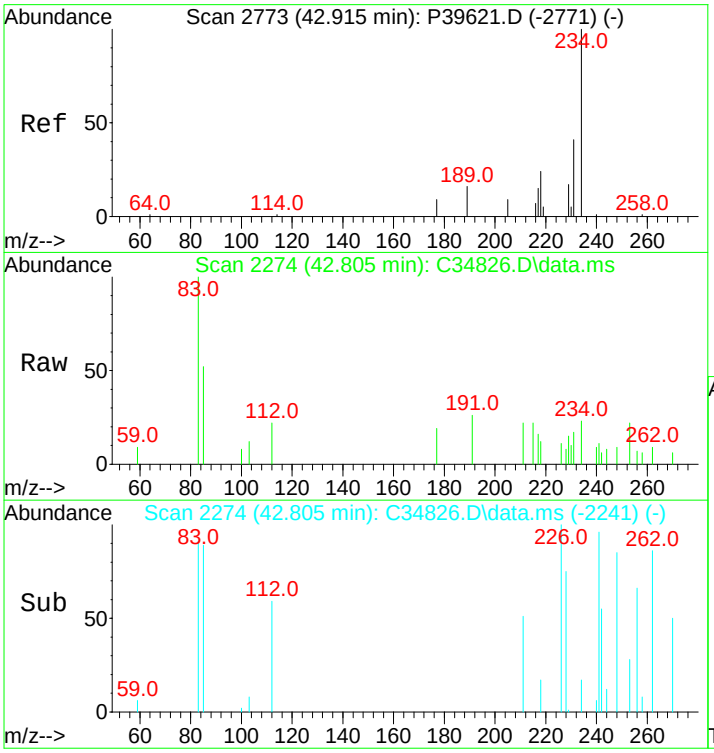


#68
Naphthobenzothiophene-1,2-D
Concen: 7.49 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:234 Resp: 888

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

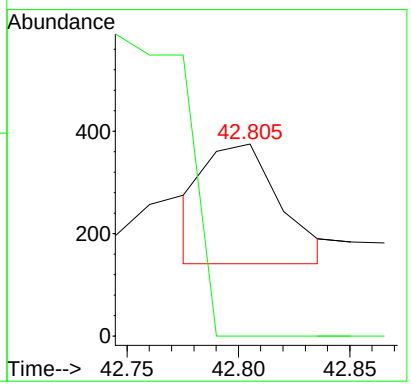


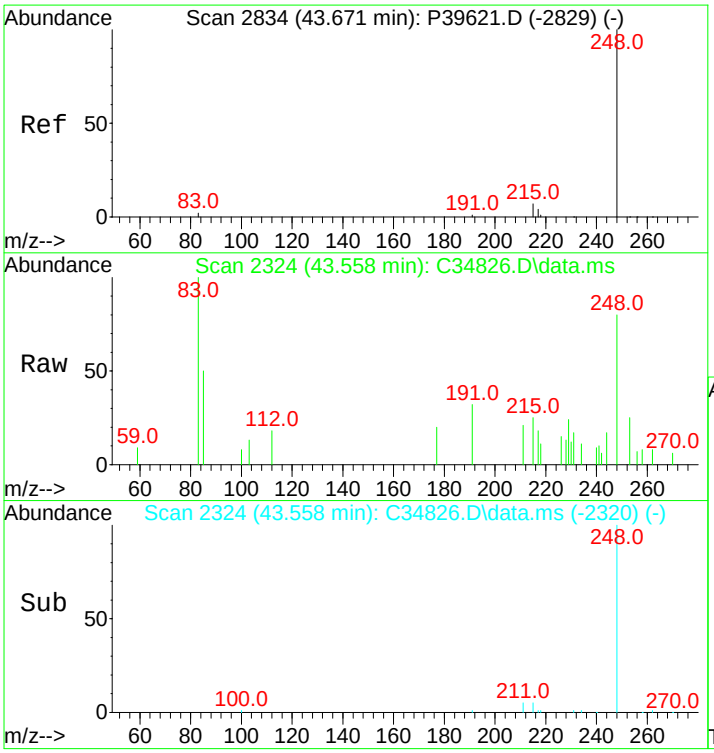


#69
Naphthobenzothiophene-2,3-D
Concen: 4.60 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:234 Resp: 546

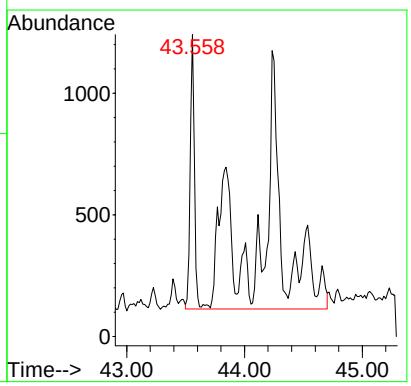
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

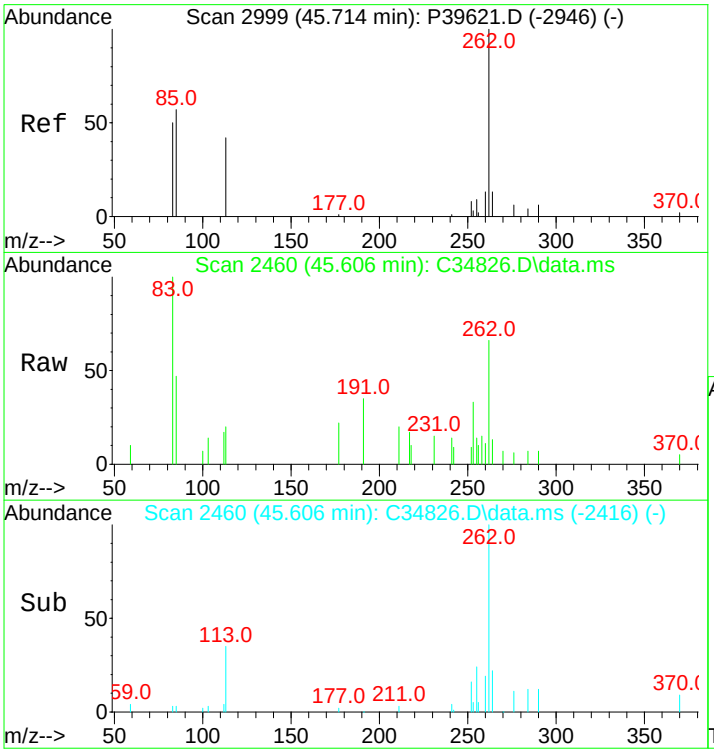




#70
C1-Naphthobenzothiophenes
Concen: 148.22 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

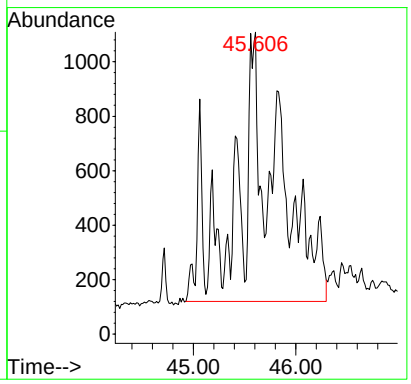
Tgt Ion:248 Resp: 17583

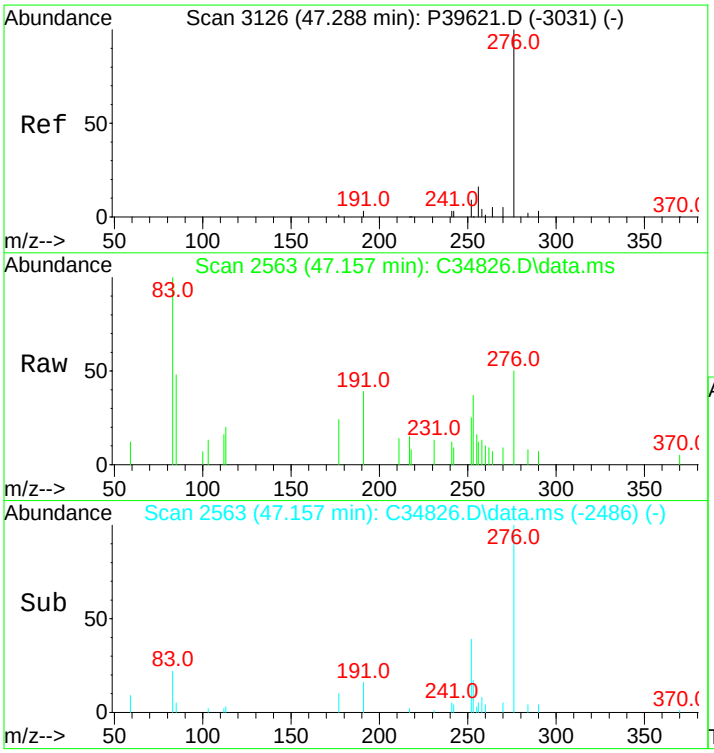




#71
C2-Naphthobenzothiophenes
Concen: 229.63 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

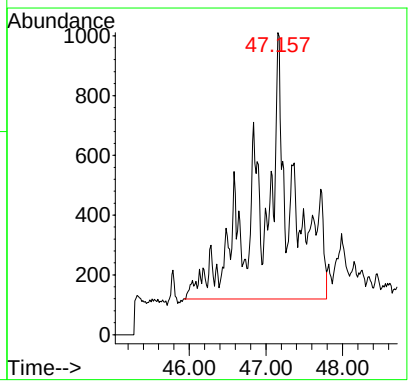
Tgt Ion:262 Resp: 27241

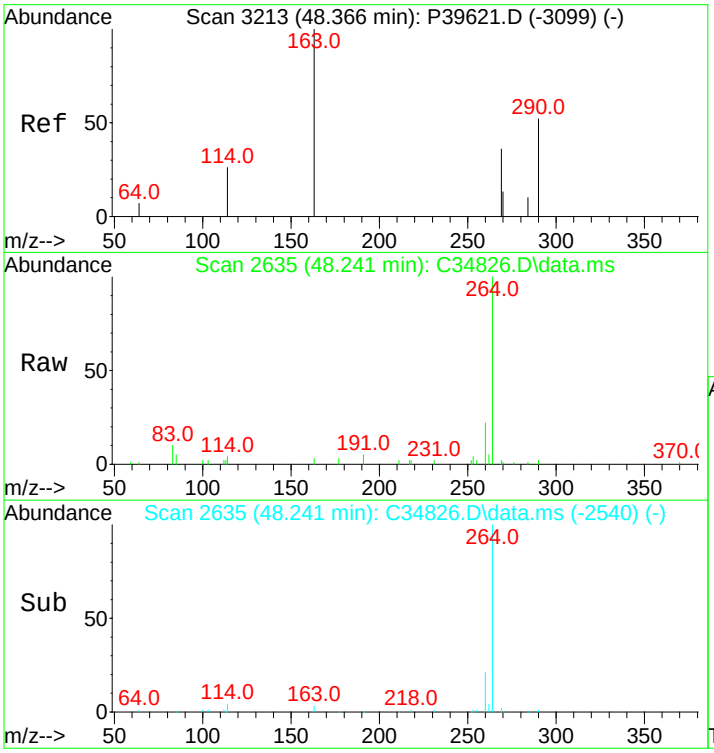




#72
C3-Naphthobenzothiophenes
Concen: 215.18 ng/ml m
RT: 47.157 min Scan# 2563
Delta R.T. 0.122 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

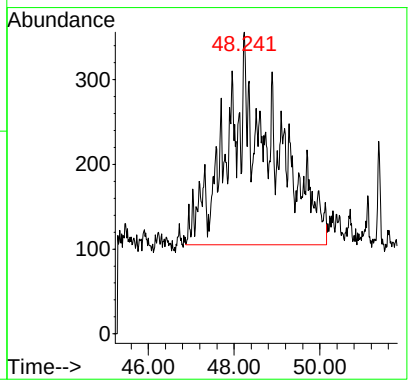
Tgt Ion:276 Resp: 25527

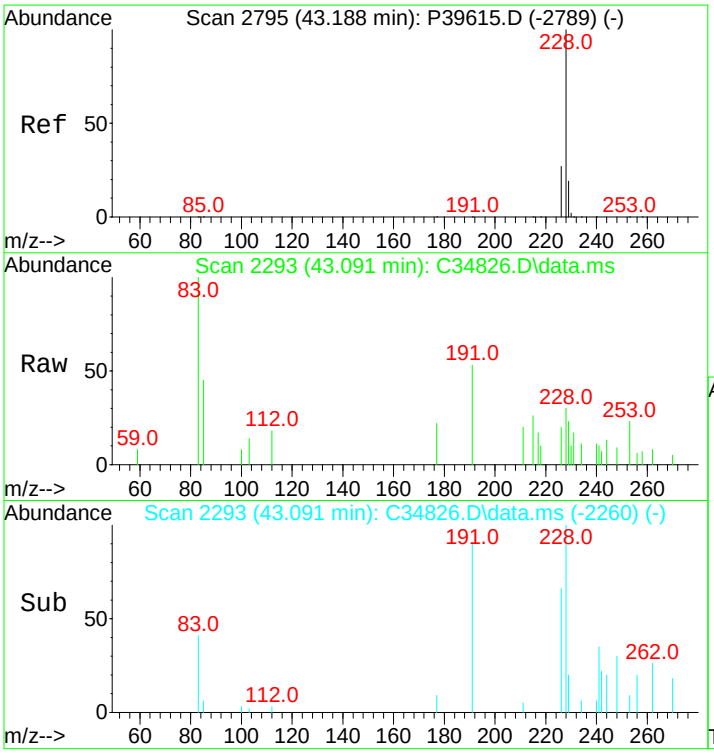




#73
C4-Naphthobenzothiophenes
Concen: 150.42 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:290 Resp: 17844

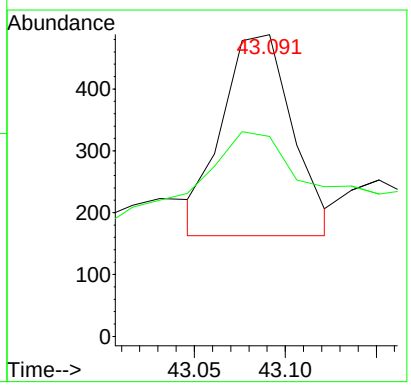


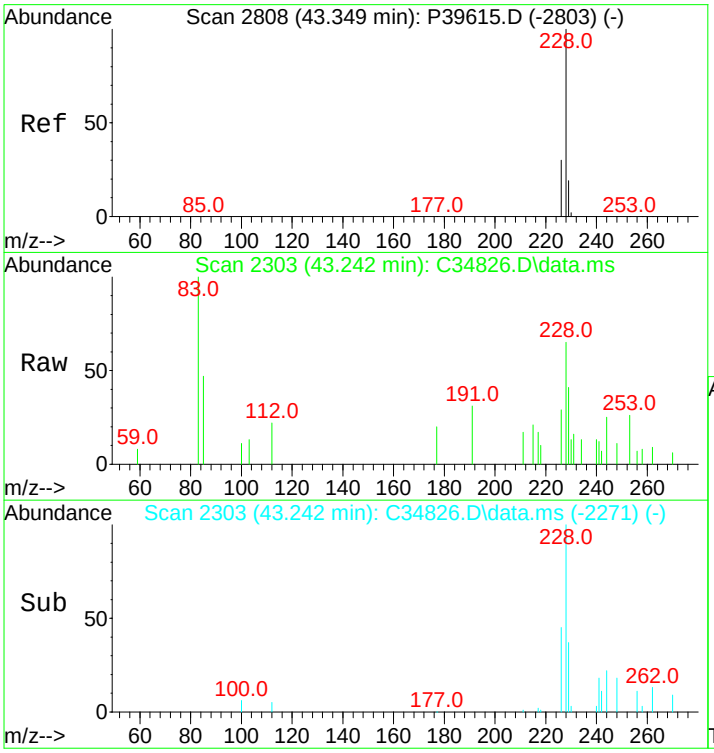


#75
Benz[a]anthracene
Concen: 8.03 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:228 Resp: 868

Ion	Ratio	Lower	Upper
228	100		
226	108.2	21.4	32.0#

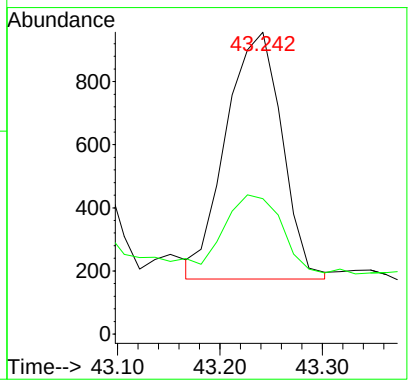


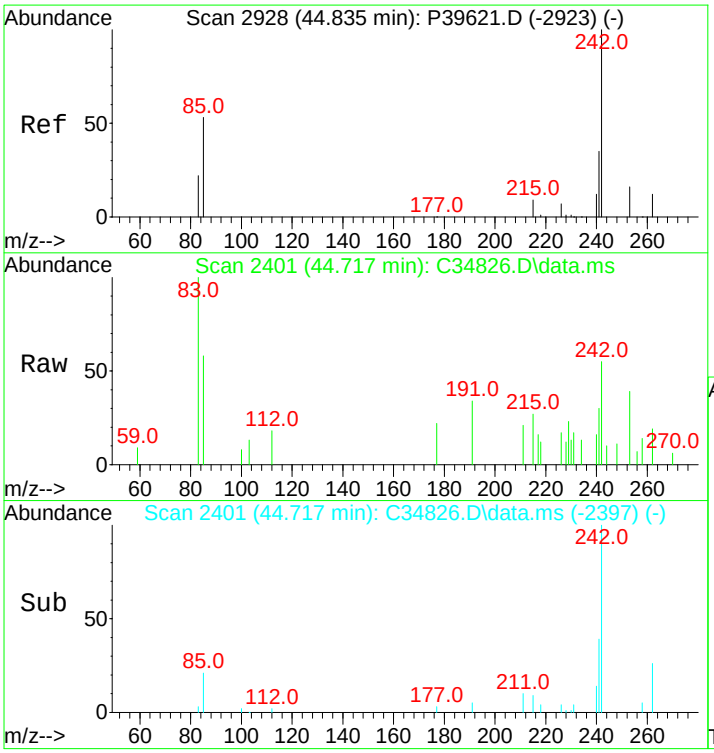


#77
Chrysene/Triphenylene
Concen: 27.28 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:228 Resp: 2976

Ion	Ratio	Lower	Upper
228	100		
226	31.6	23.7	35.5

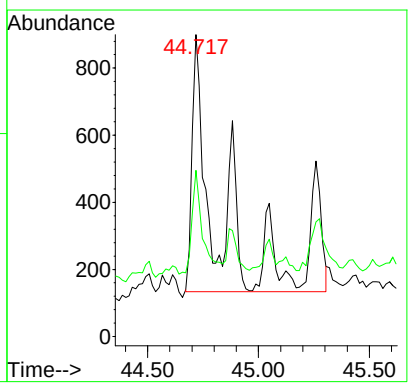


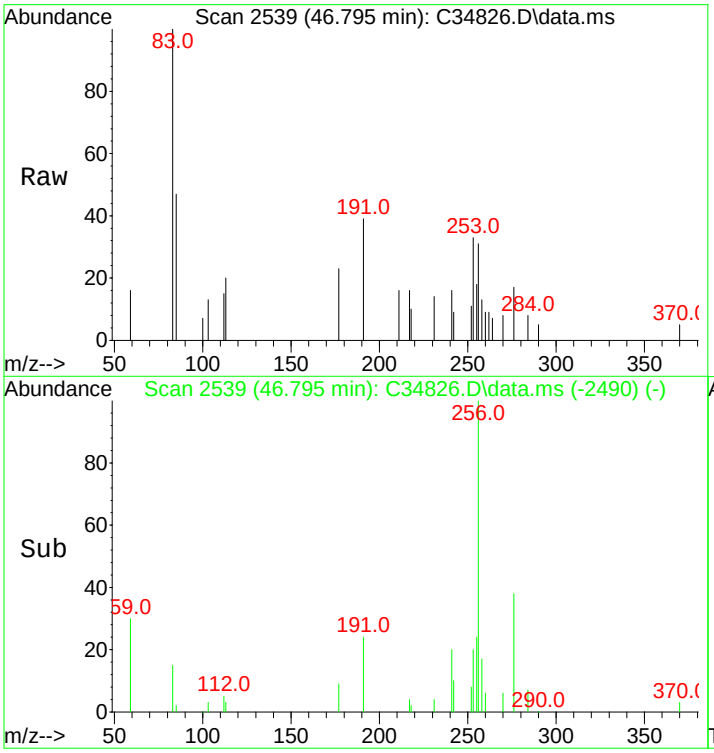


#78
C1-Chrysenes
Concen: 59.02 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:242 Resp: 6440

Ion	Ratio	Lower	Upper
242	100		
241	11.0	31.4	47.2#

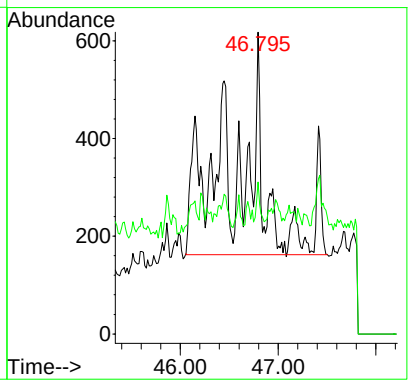


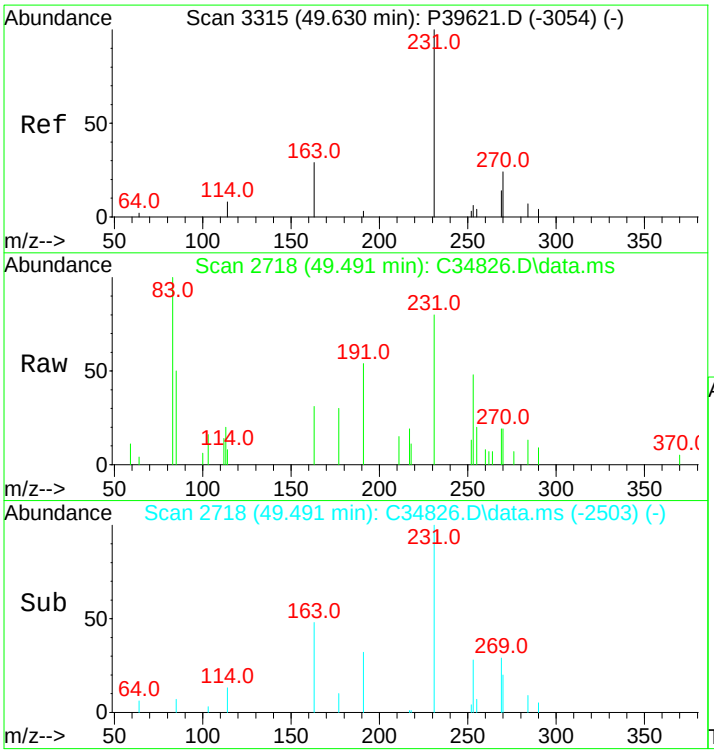


#79
C2-Chrysenes
Concen: 93.61 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:256 Resp: 10214

Ion	Ratio	Lower	Upper
256	100		
241	1.6	21.2	31.8#

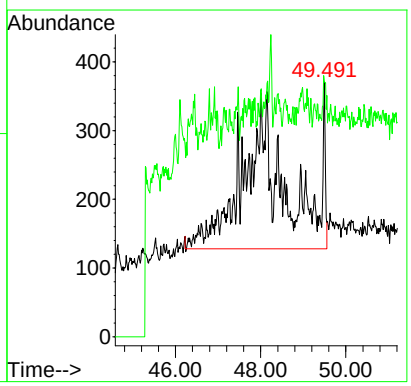


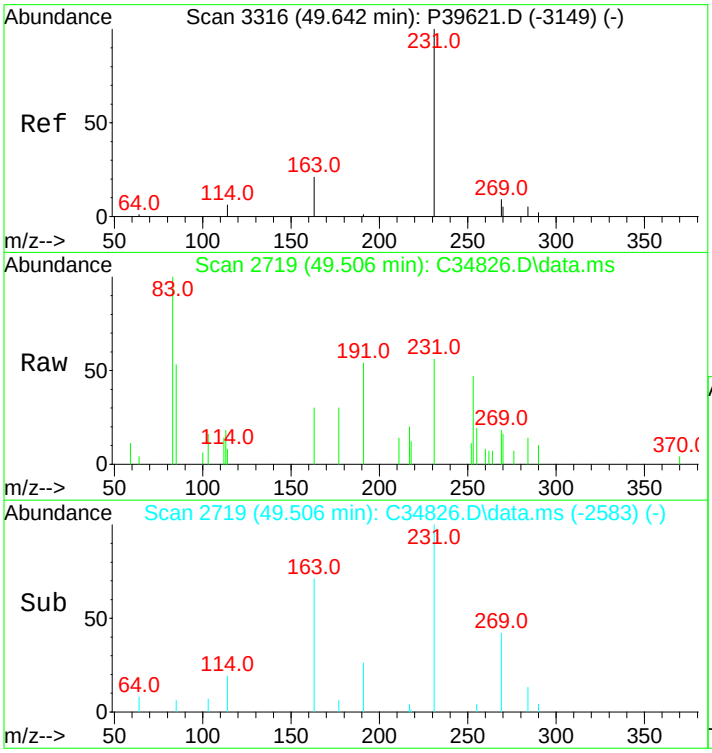


#80
C3-Chrysenes
Concen: 132.99 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:270 Resp: 14511

Ion	Ratio	Lower	Upper
270	100		
255	1.8	33.8	50.8#

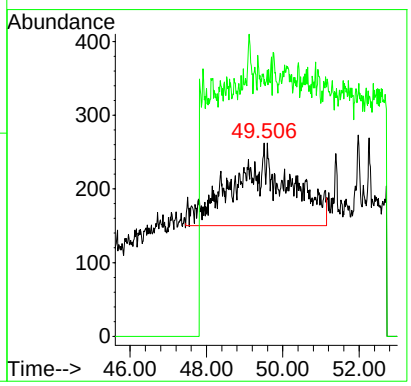


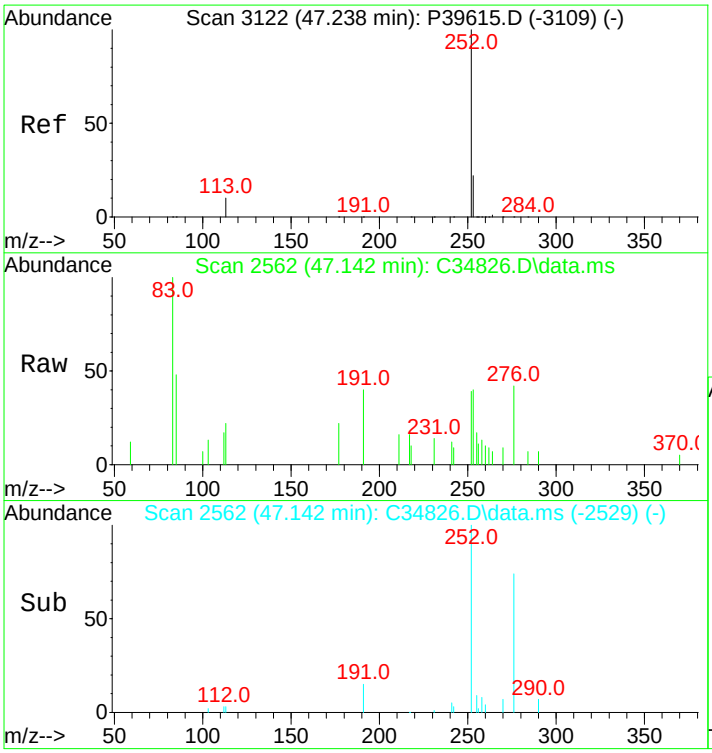


#81
C4-Chrysenes
Concen: 99.18 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:284 Resp: 10821

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

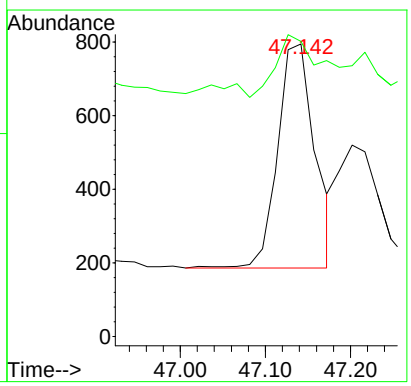


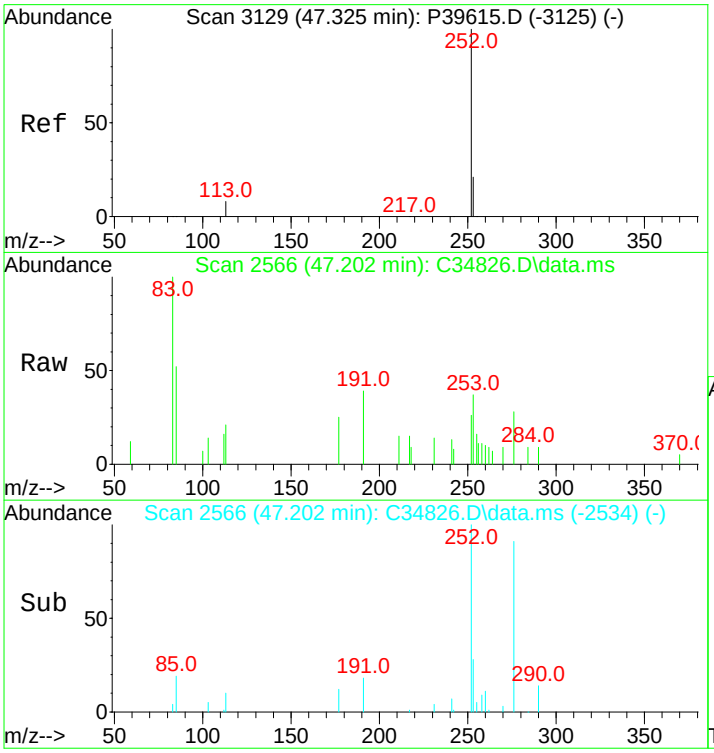


#82
Benzo[b]fluoranthene
Concen: 15.65 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 1859

Ion	Ratio	Lower	Upper
252	100		
253	34.3	19.0	28.4#

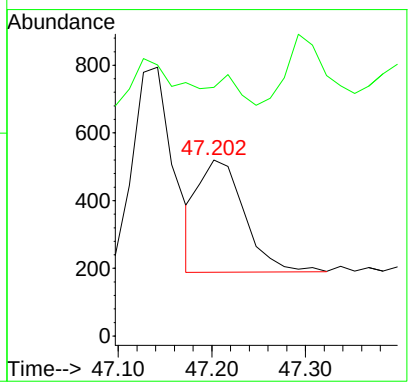


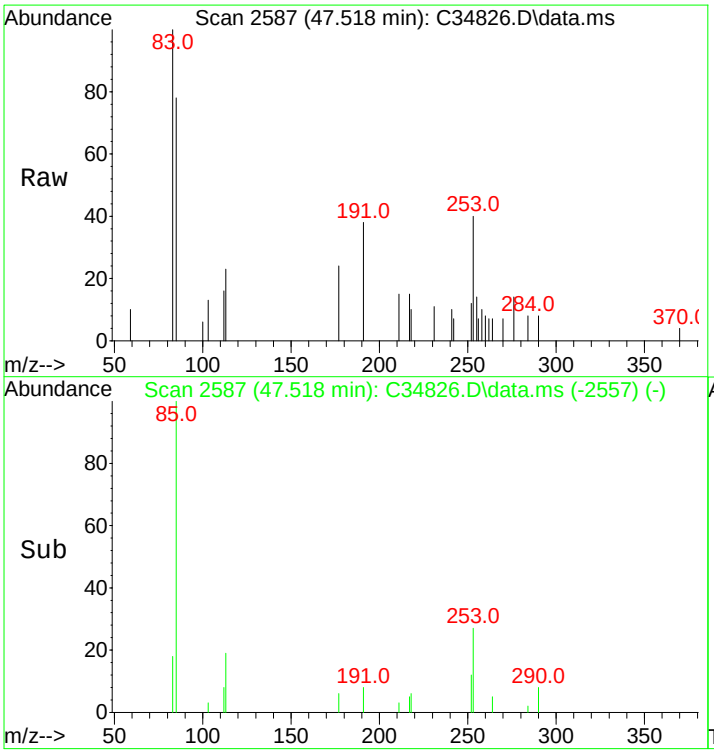


#83
Benzo[j]+[k]fluoranthene
Concen: 8.78 ng/mL
RT: 47.202 min Scan# 2566
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 1135

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

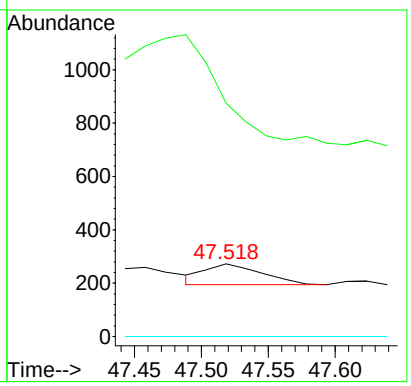


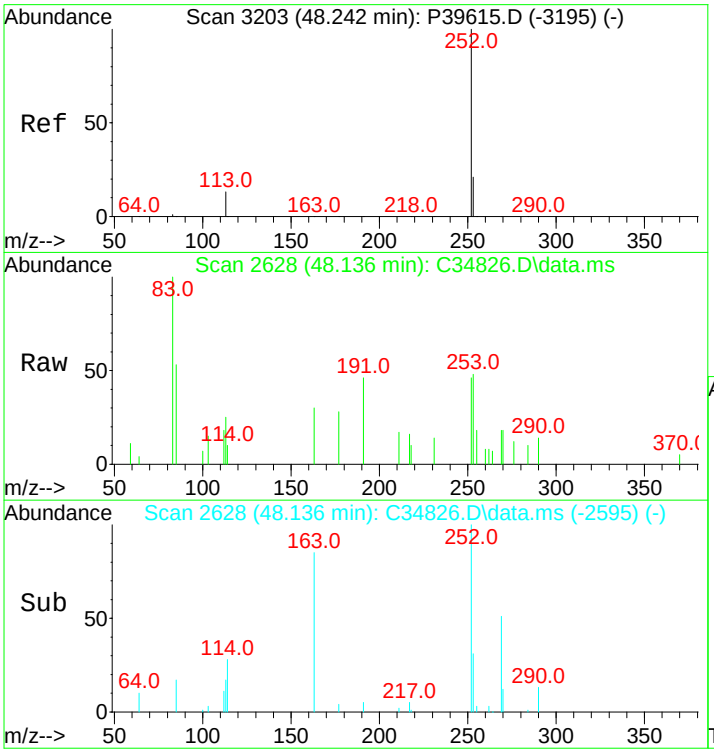


#84
Benzo[a]fluoranthene
Concen: 1.79 ng/mL
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 232

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

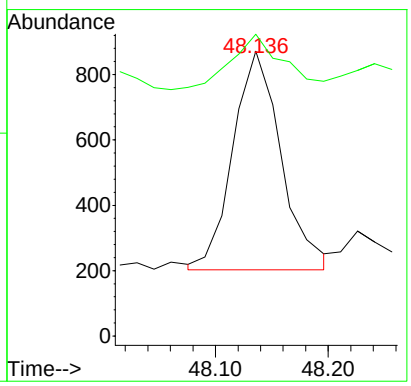


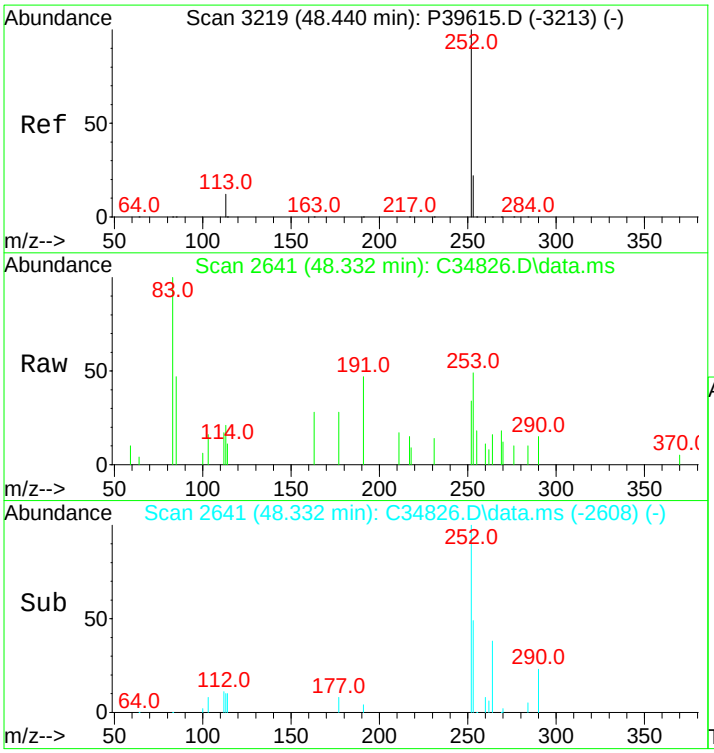


#85
Benzo[e]pyrene
Concen: 16.94 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 1990

Ion	Ratio	Lower	Upper
252	100		
253	28.9	19.2	28.8#

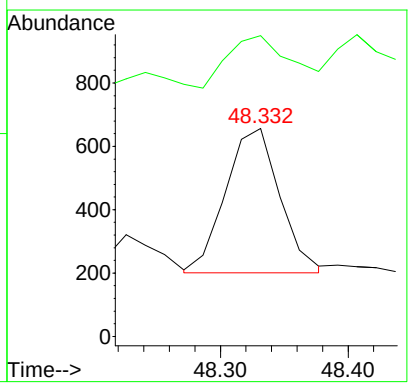


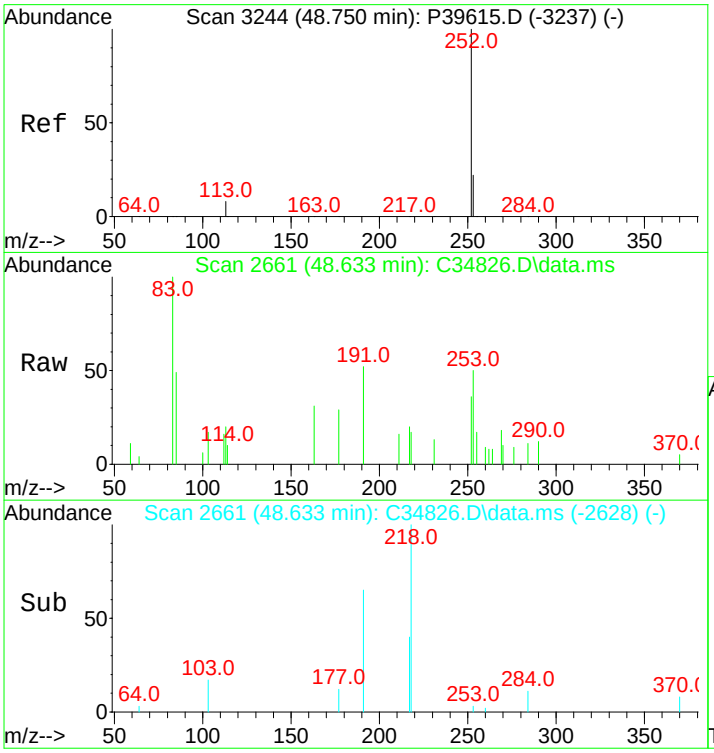


#87
Benzo[a]pyrene
Concen: 11.86 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 1341

Ion	Ratio	Lower	Upper
252	100		
253	43.0	19.5	29.3#

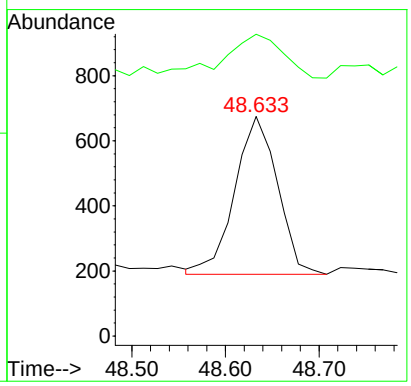


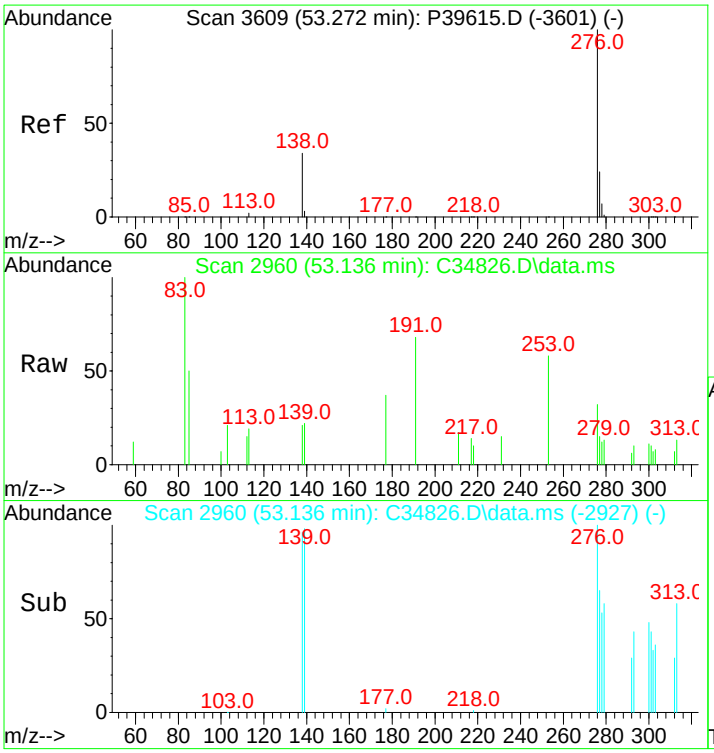


#88
Perylene
Concen: 12.73 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:252 Resp: 1539

Ion	Ratio	Lower	Upper
252	100		
253	39.0	19.6	29.4#

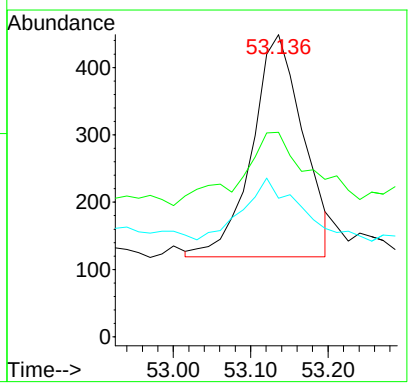


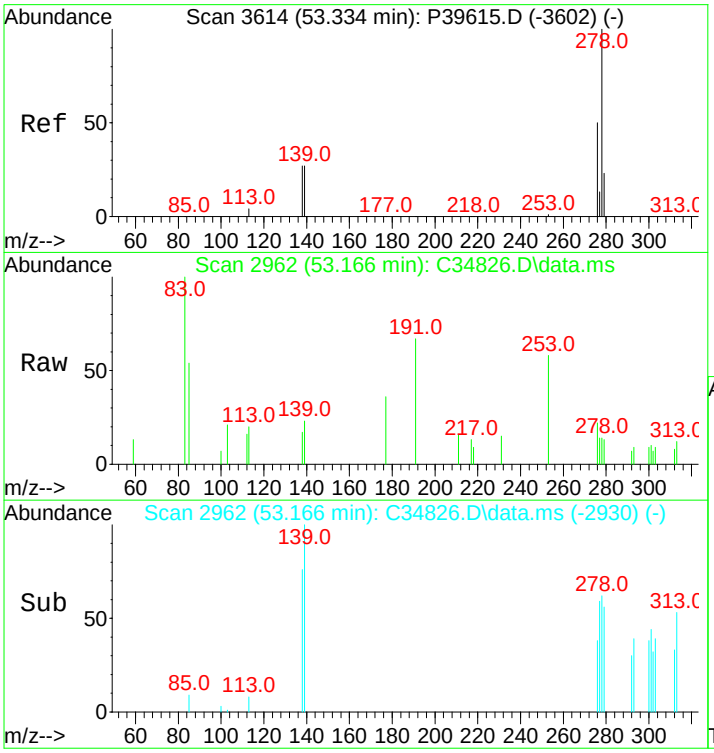


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.49 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:276 Resp: 1512

Ion	Ratio	Lower	Upper
276	100		
138	31.4	23.3	34.9
277	30.7	19.0	28.4#

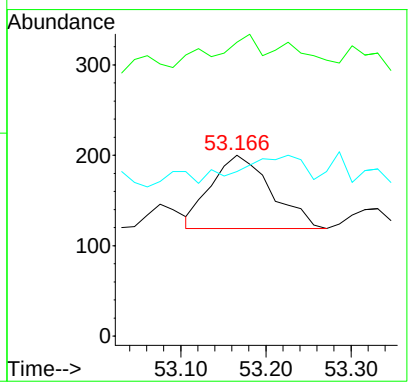


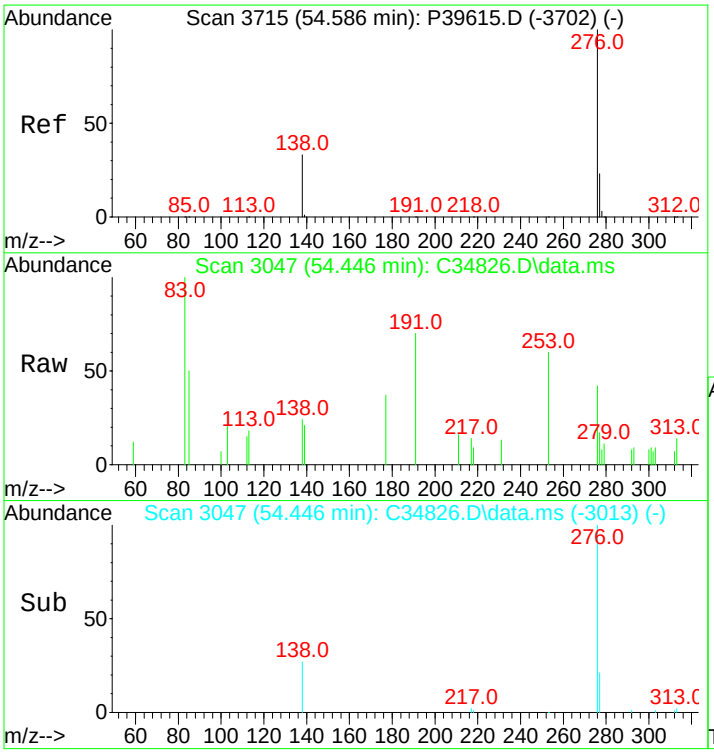


#90
Dibenz[ah]+[ac]anthracene
Concen: 3.18 ng/mL
RT: 53.166 min Scan# 2962
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:278 Resp: 398

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

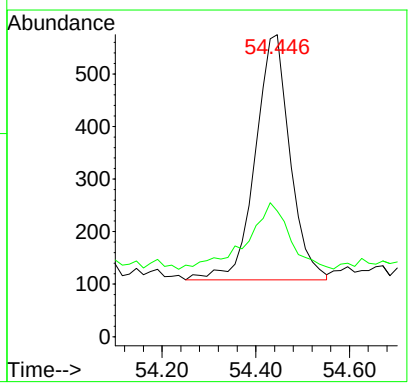


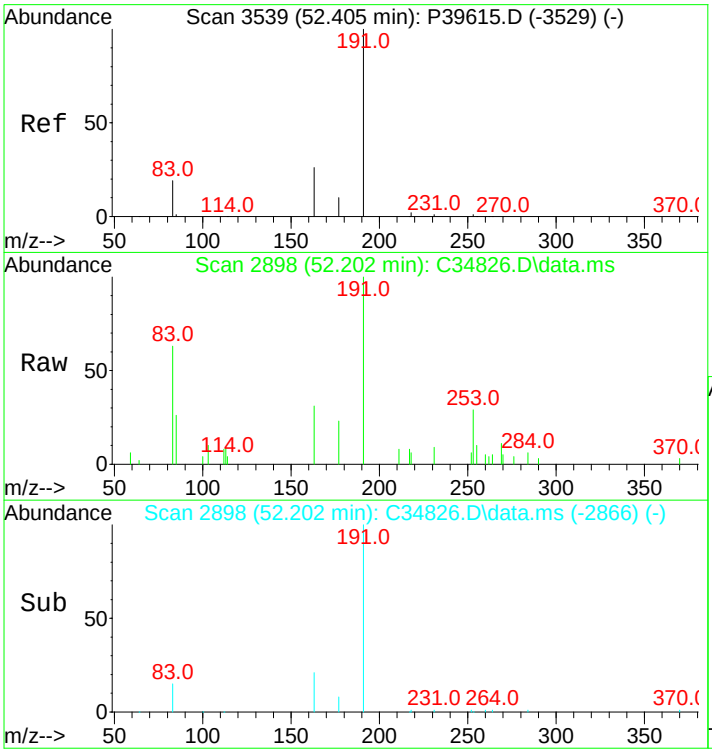


#91
Benzo[g,h,i]perylene
Concen: 17.34 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:276 Resp: 2411

Ion	Ratio	Lower	Upper
276	100		
277	33.6	18.9	28.3#

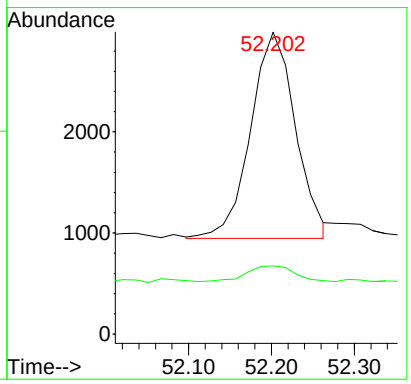


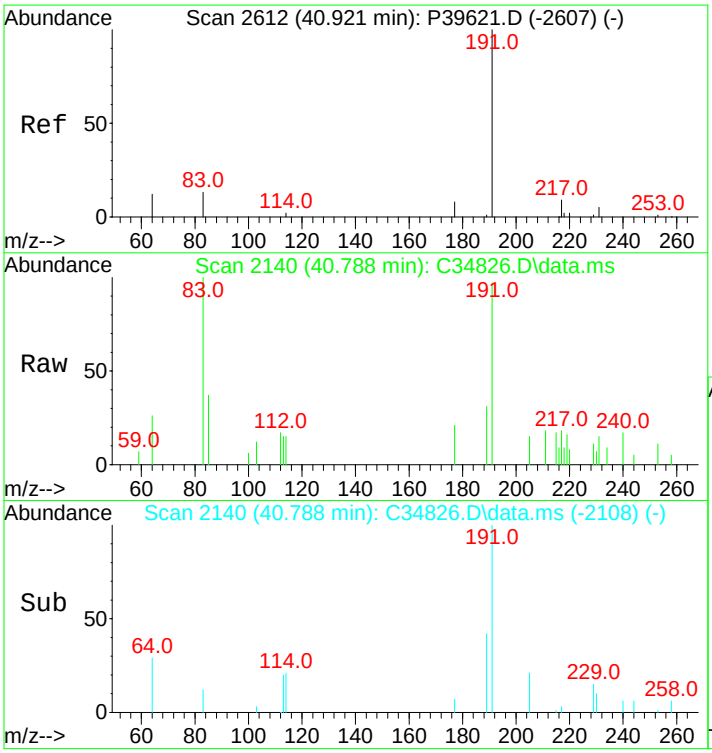


#92
Hopane (T19)
Concen: 341.38 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:191 Resp: 7661

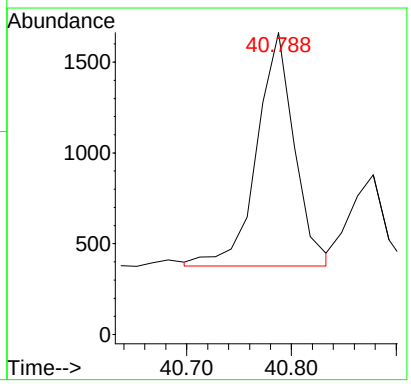
Ion	Ratio	Lower	Upper
191	100		
177	8.2	14.6	21.8#

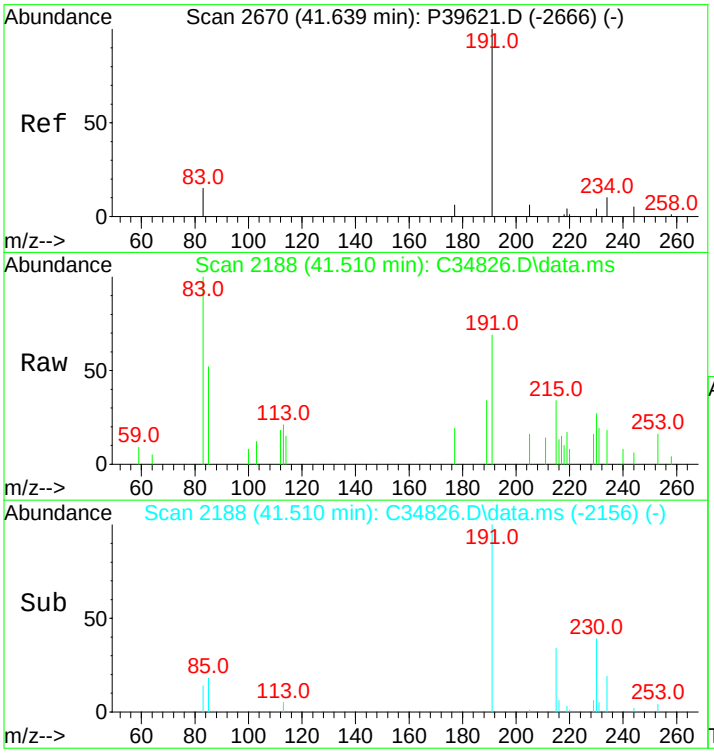




#94
C23 Tricyclic Terpane (T4)
Concen: 142.10 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

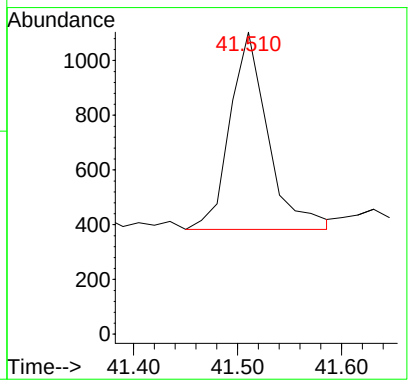
Tgt Ion:191 Resp: 3189

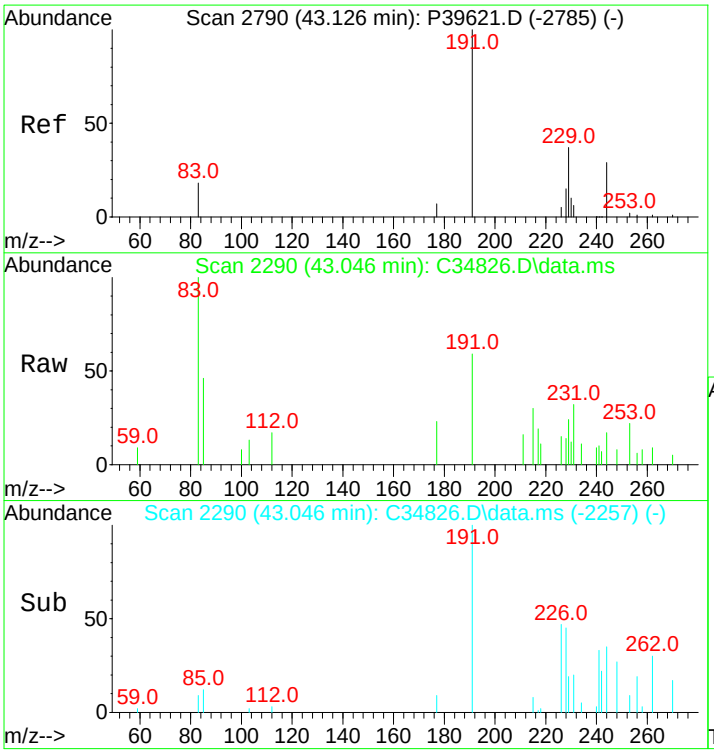




#95
C24 Tricyclic Terpane (T5)
Concen: 81.90 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

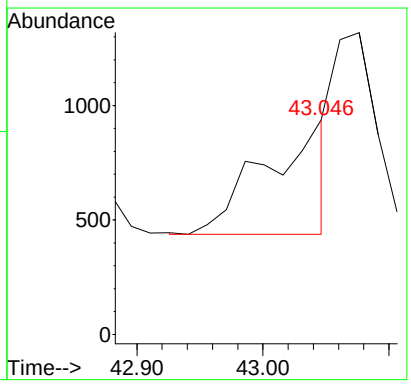
Tgt Ion:191 Resp: 1838

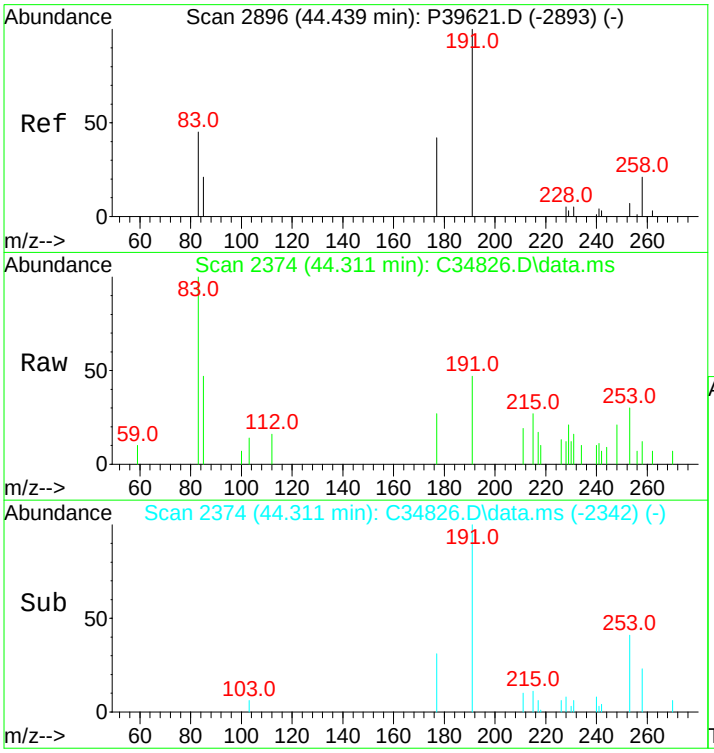




#96
C25 Tricyclic Terpane (T6)
Concen: 76.06 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

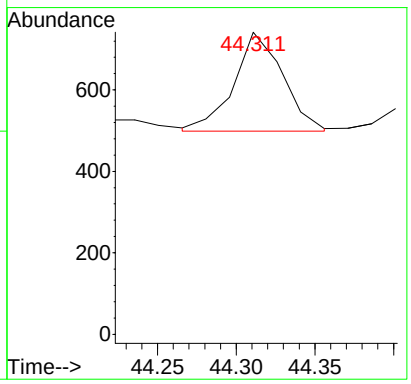
Tgt Ion:191 Resp: 1707

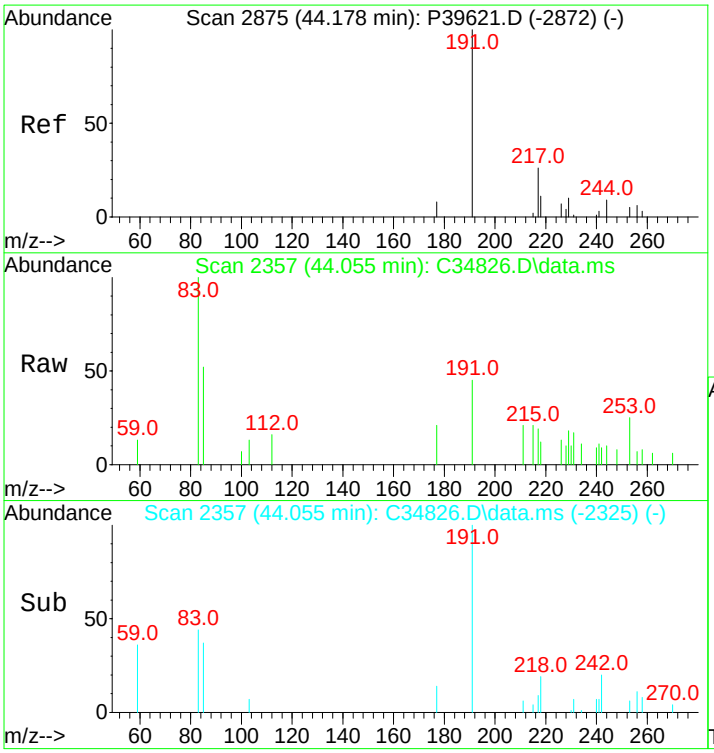




#97
C24 Tetracyclic Terpane (T6a)
Concen: 23.31 ng/ml m
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

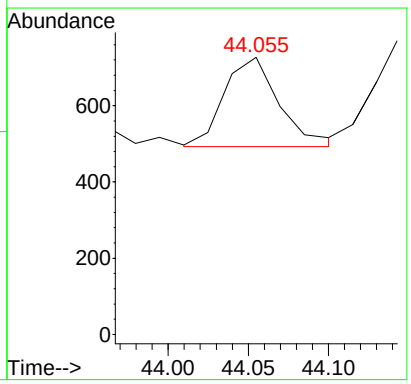
Tgt Ion:191 Resp: 523

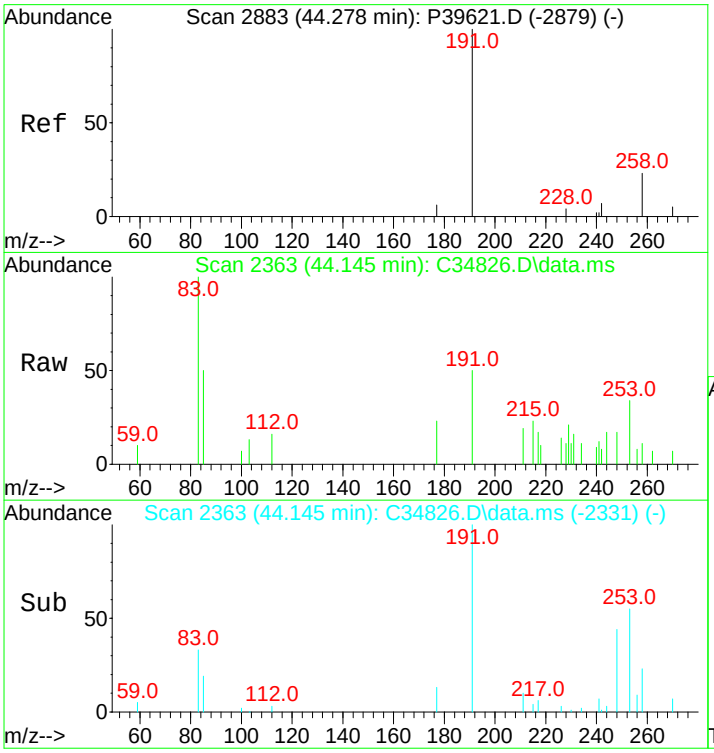




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 25.00 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

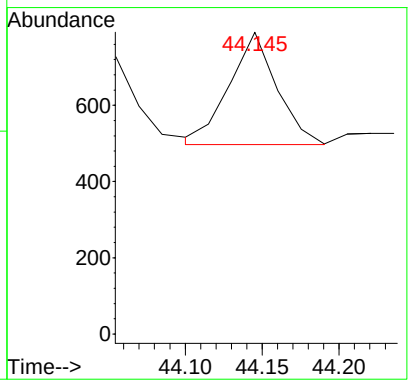
Tgt Ion:191 Resp: 561

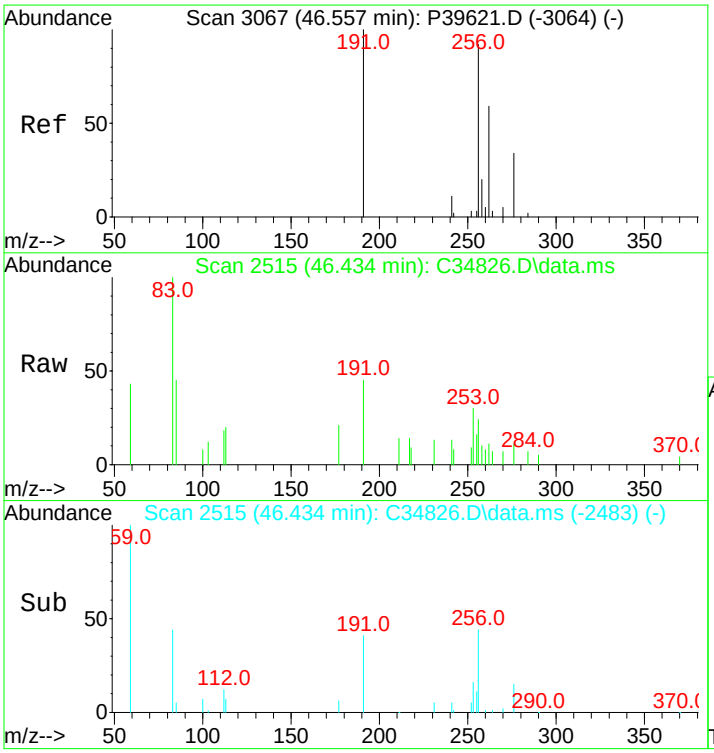




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 28.12 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

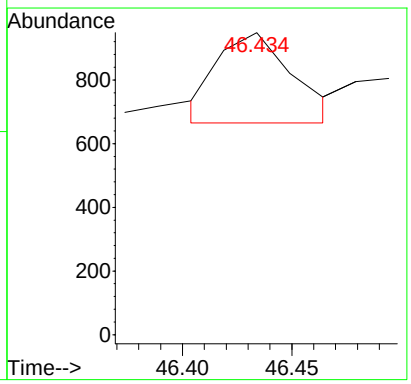
Tgt Ion:191 Resp: 631

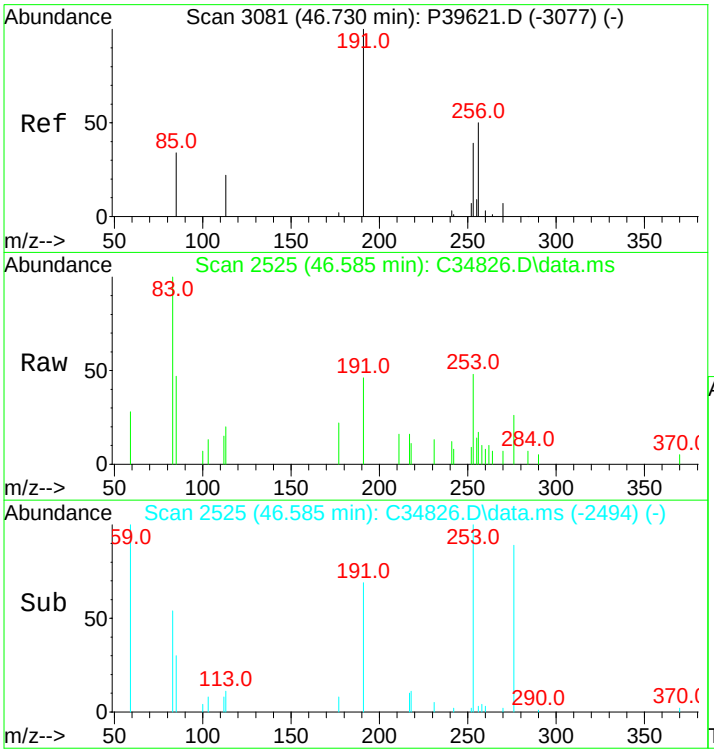




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 30.17 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

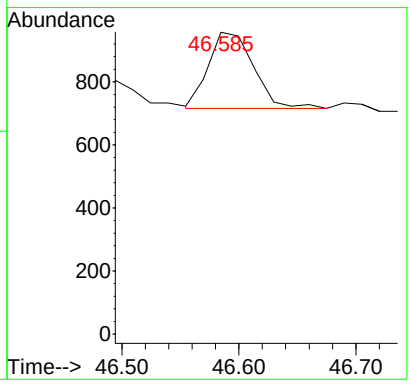
Tgt Ion:191 Resp: 677

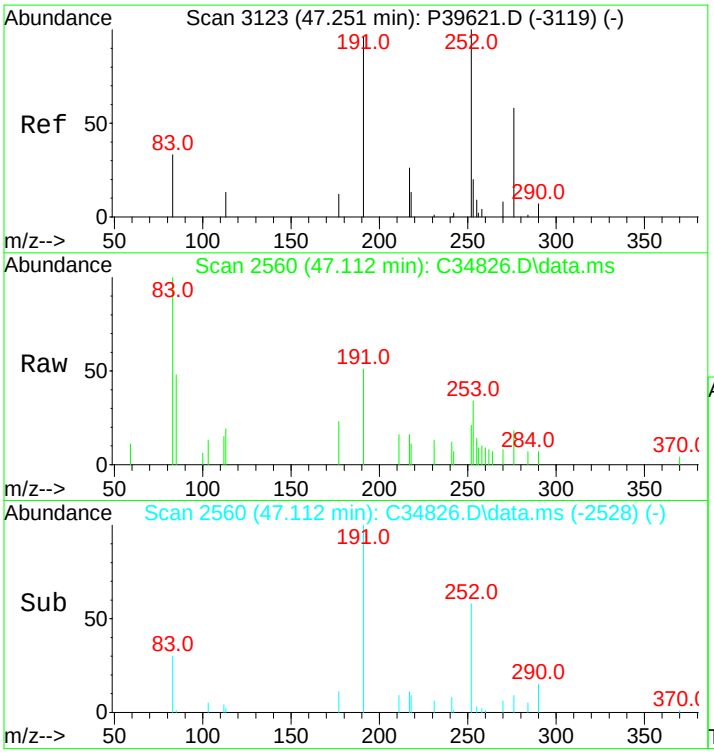




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 28.96 ng/ml
RT: 46.585 min Scan# 2525
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

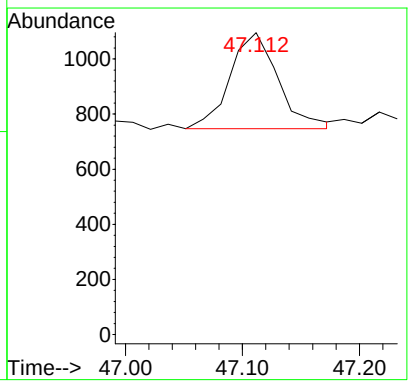
Tgt Ion:191 Resp: 650

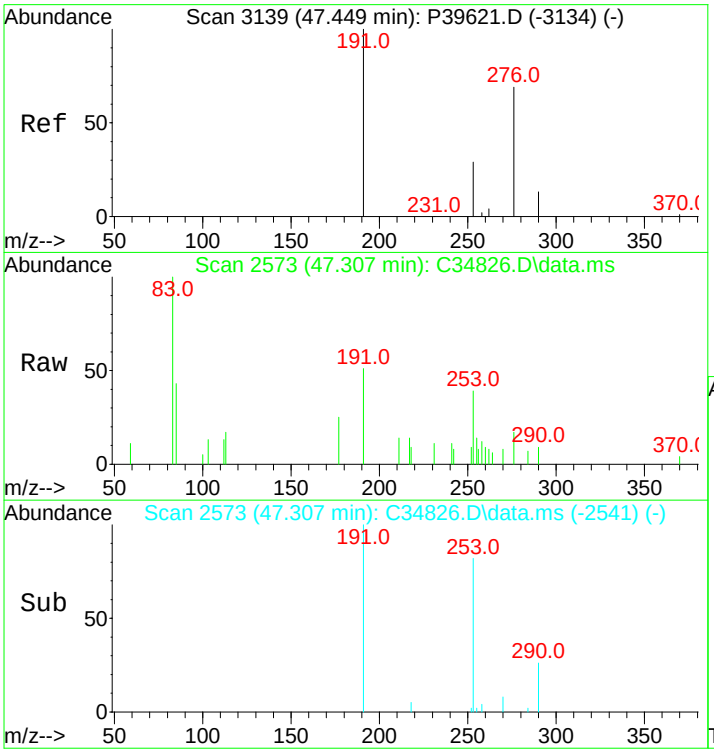




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 44.61 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

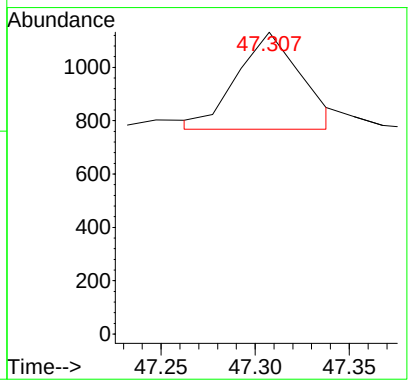
Tgt Ion:191 Resp: 1001

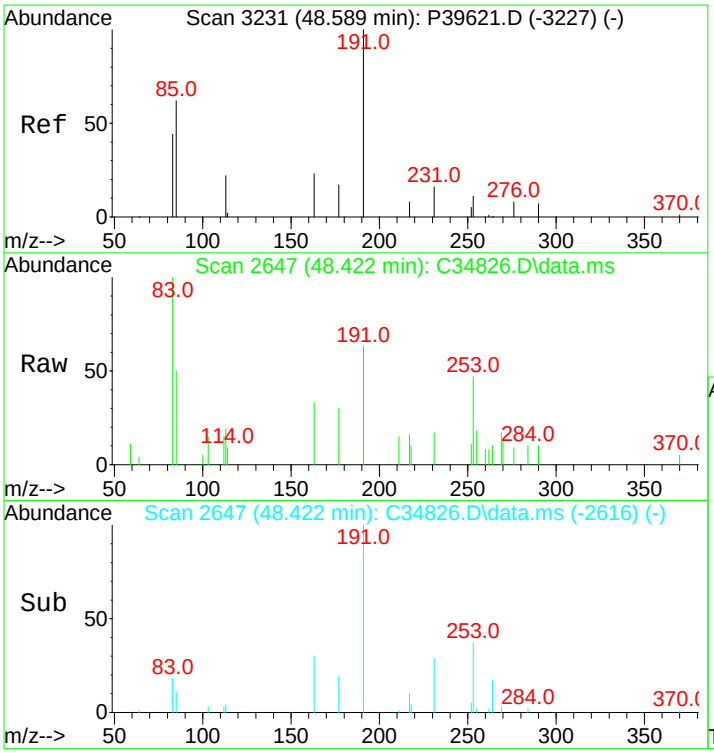




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 38.14 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

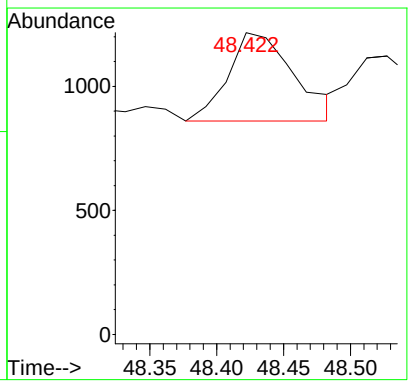
Tgt Ion:191 Resp: 856

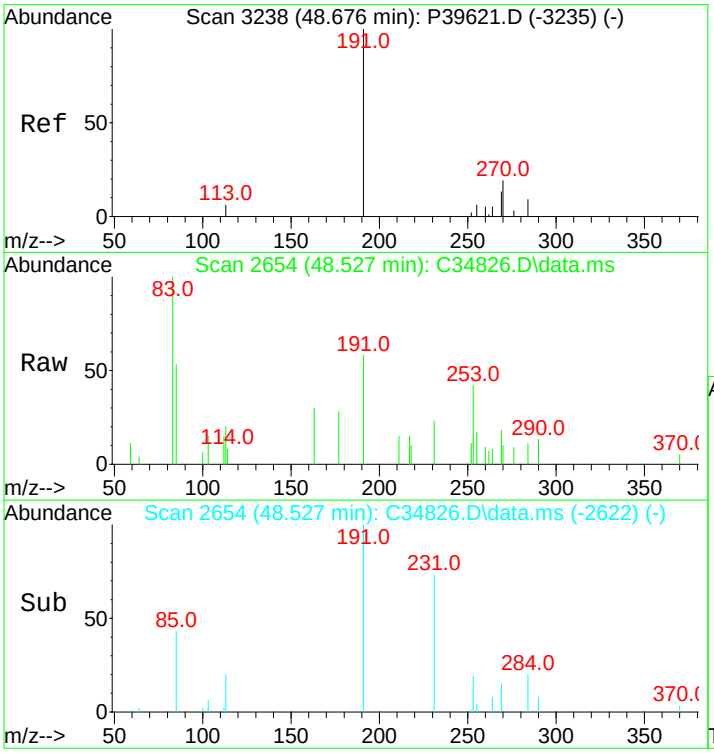




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 54.94 ng/ml
RT: 48.422 min Scan# 2647
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

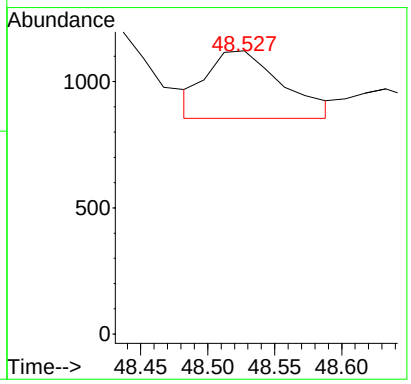
Tgt Ion:191 Resp: 1233

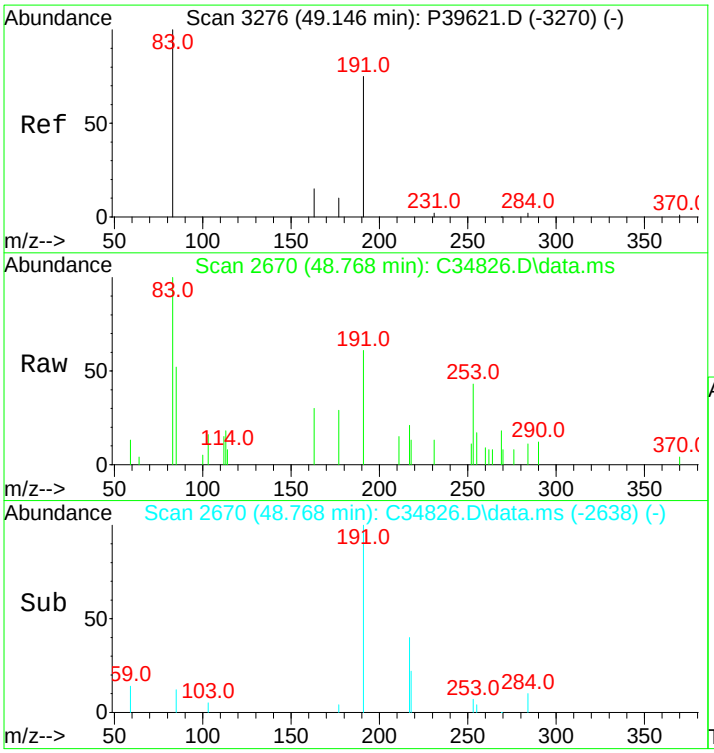




#105
C30 Tricyclic Terpane-22S
Concen: 46.65 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

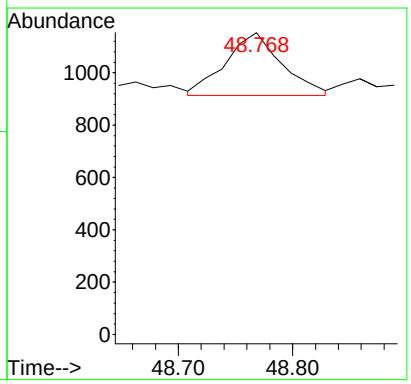
Tgt Ion:191 Resp: 1047

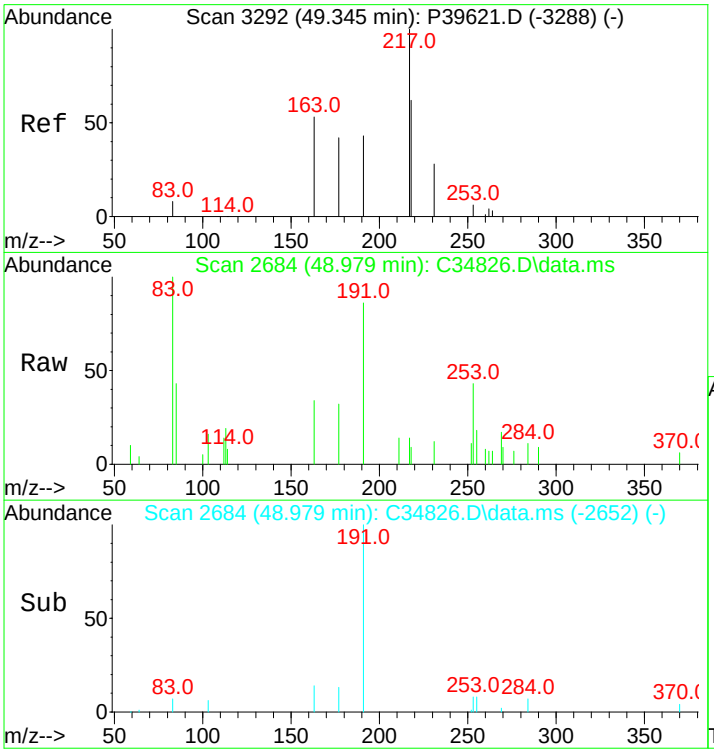




#106
C30 Tricyclic Terpane-22R
Concen: 36.41 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

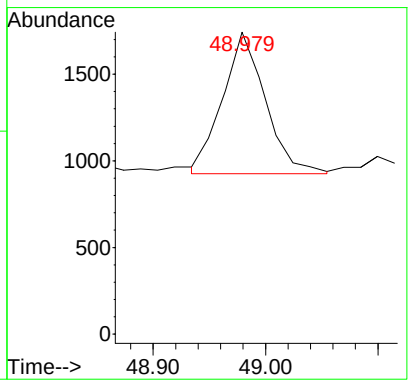
Tgt Ion:191 Resp: 817

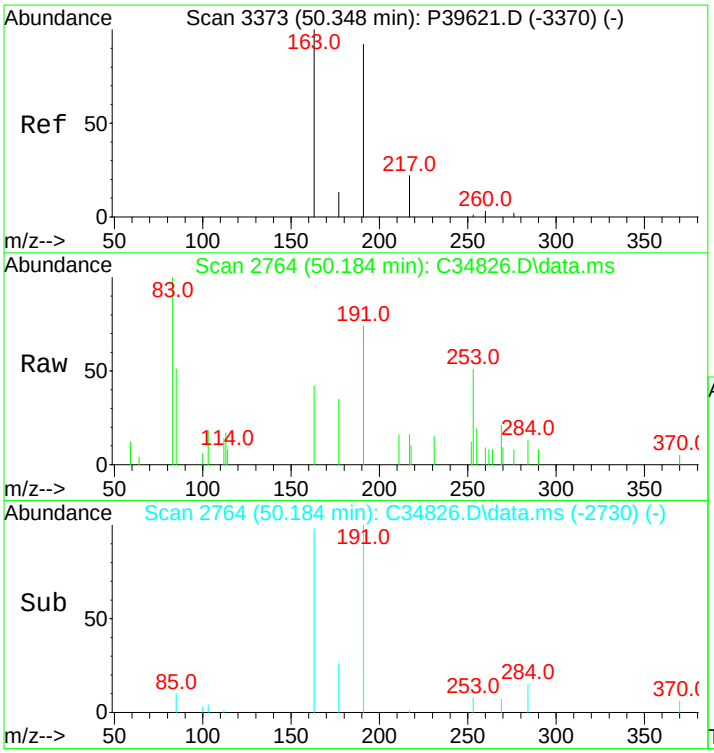




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 96.79 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

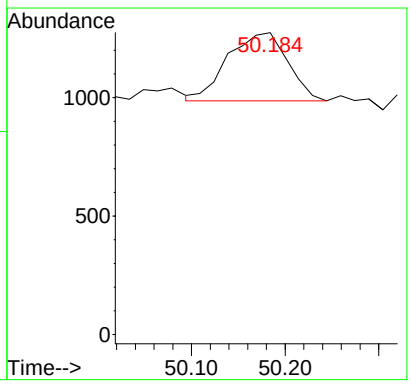
Tgt Ion:191 Resp: 2172

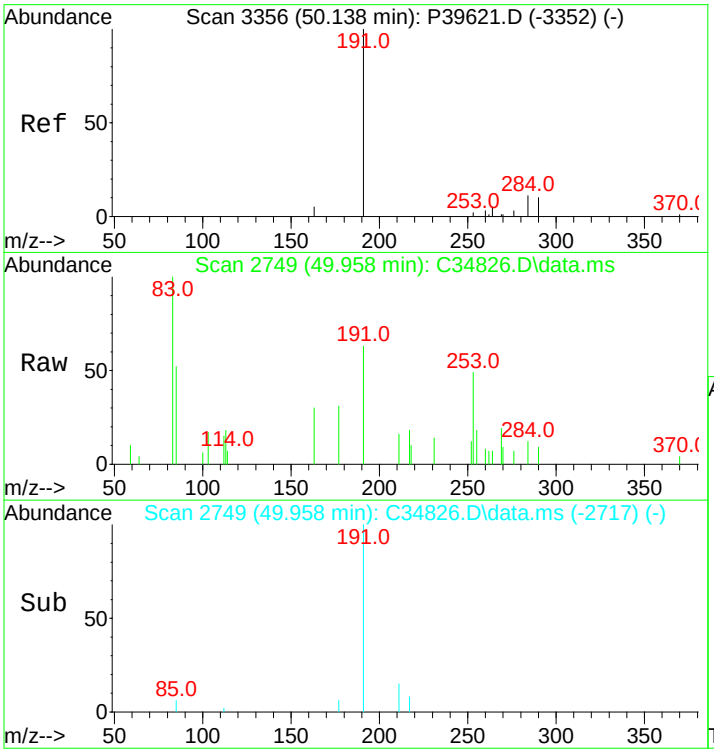




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 56.95 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

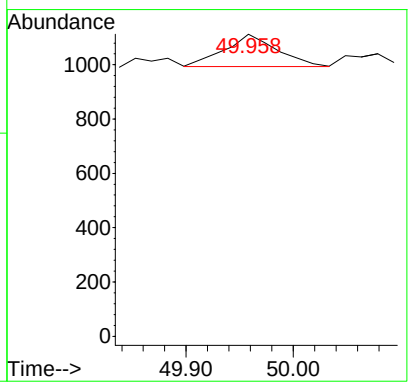
Tgt Ion:191 Resp: 1278

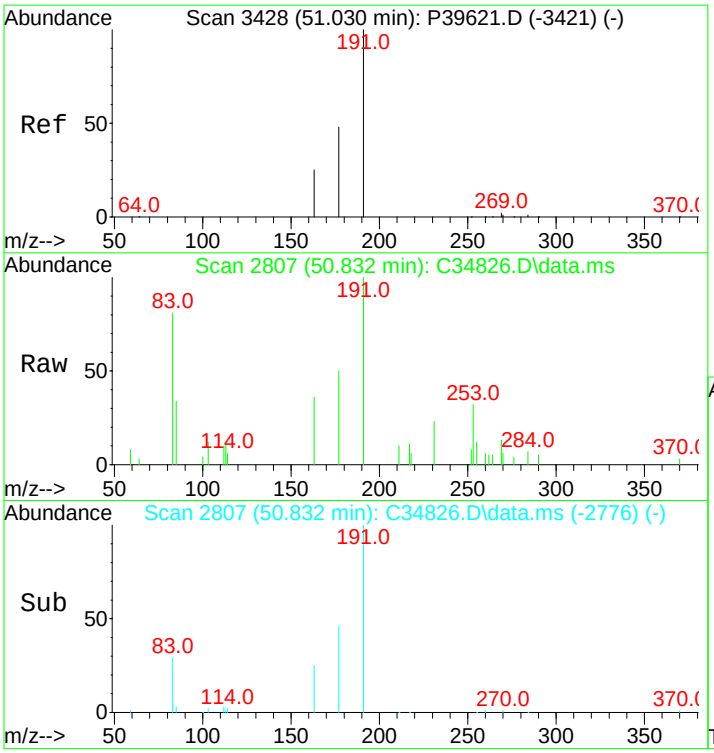




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 18.27 ng/ml m
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

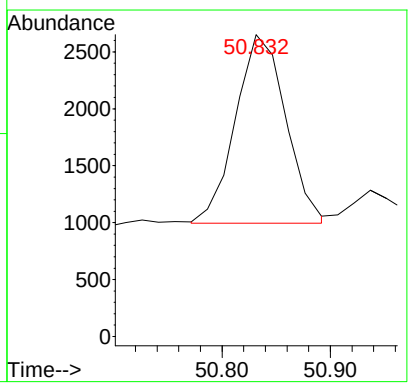
Tgt Ion:191 Resp: 410

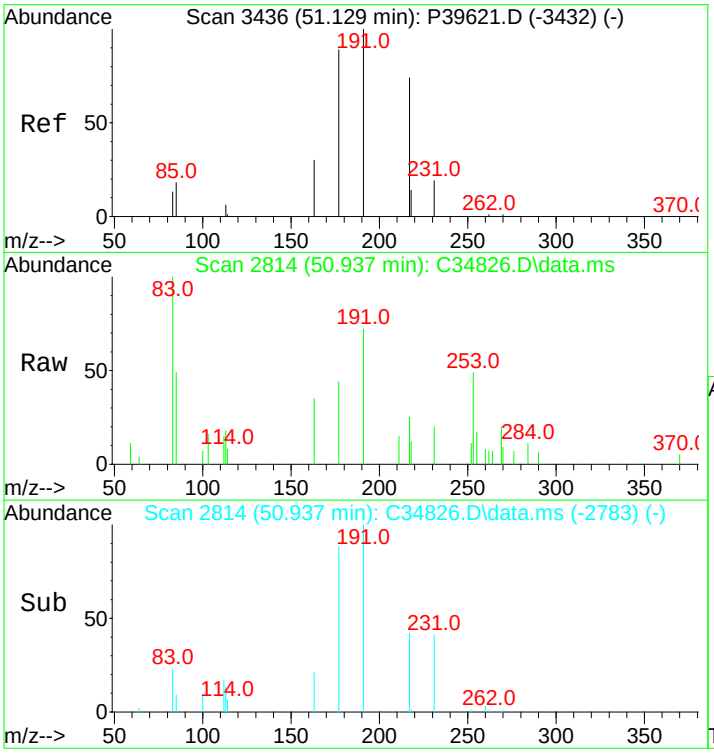




#110
30-Norhopane (T15)
Concen: 238.93 ng/ml m
RT: 50.832 min Scan# 2807
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

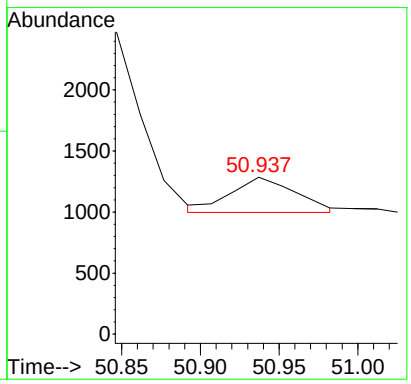
Tgt Ion:191 Resp: 5362

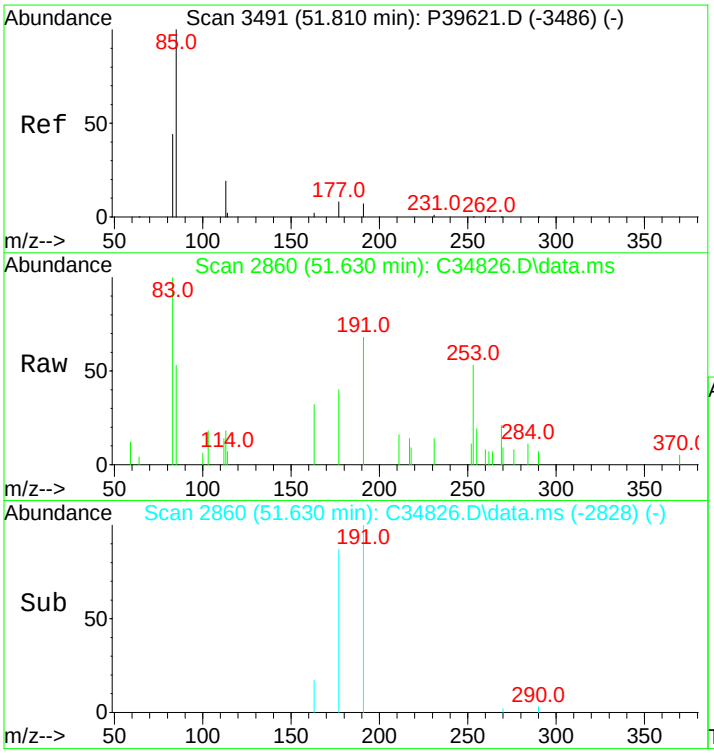




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 36.50 ng/ml m
RT: 50.937 min Scan# 2814
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

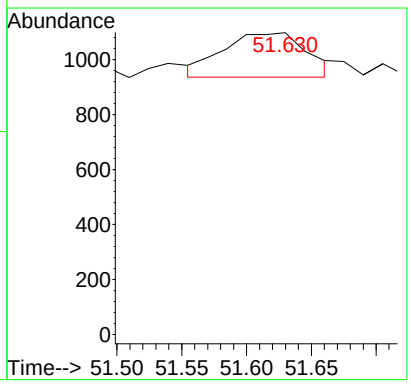
Tgt Ion:191 Resp: 819

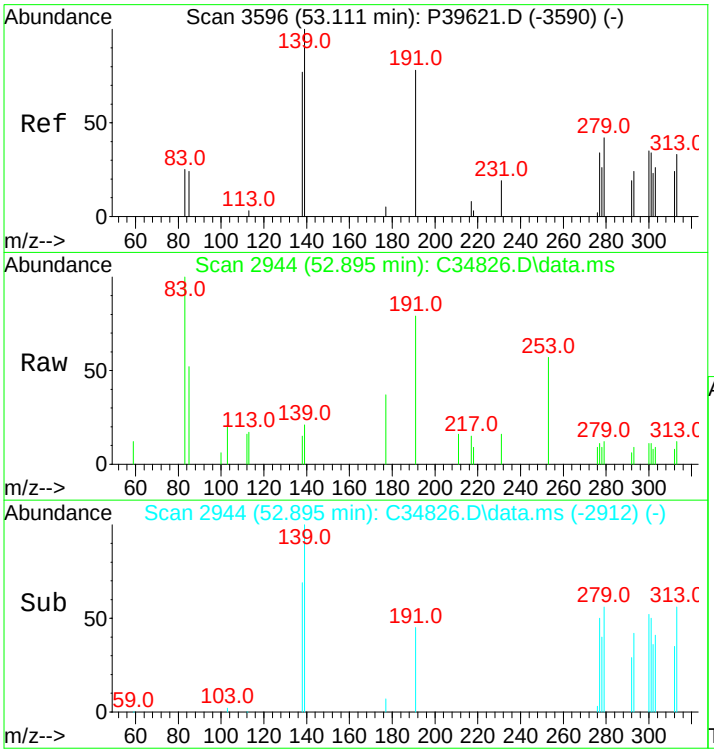




#113
30-Normoretane (T17)
Concen: 32.13 ng/ml m
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

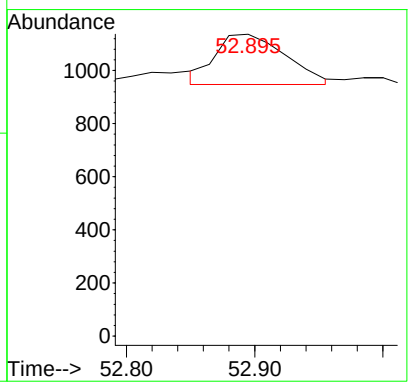
Tgt Ion:191 Resp: 721

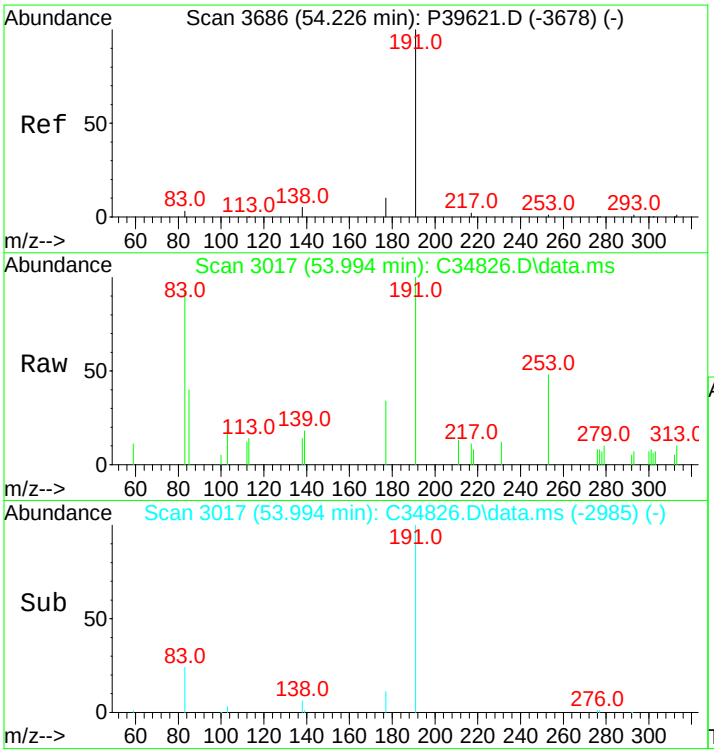




#115
Moretane (T20)
Concen: 31.99 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

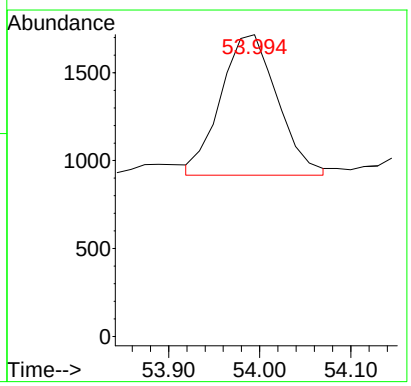
Tgt Ion:191 Resp: 718

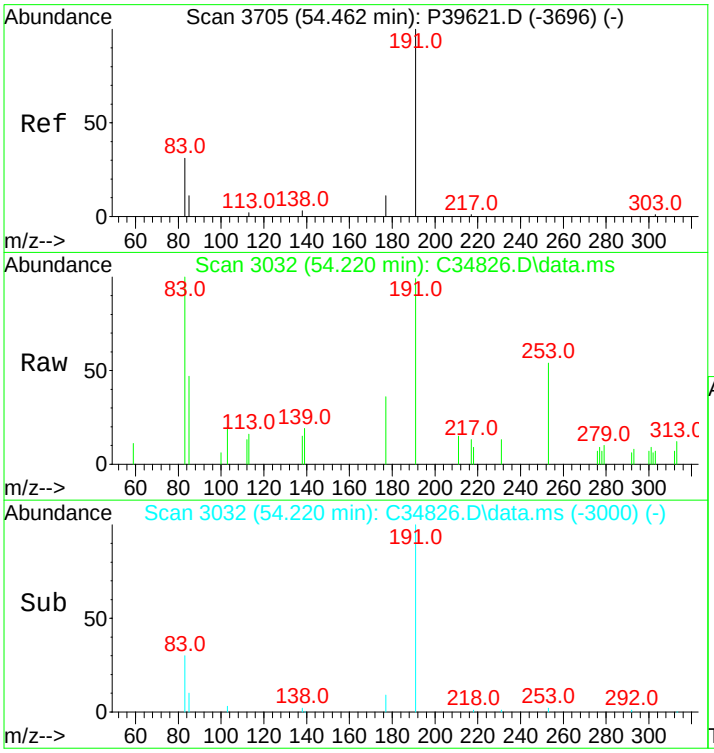




#116
30-Homohopane-22S (T21)
Concen: 153.91 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

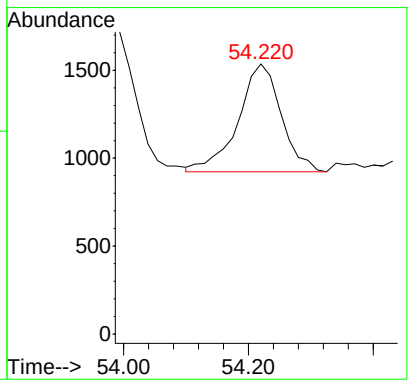
Tgt Ion:191 Resp: 3454

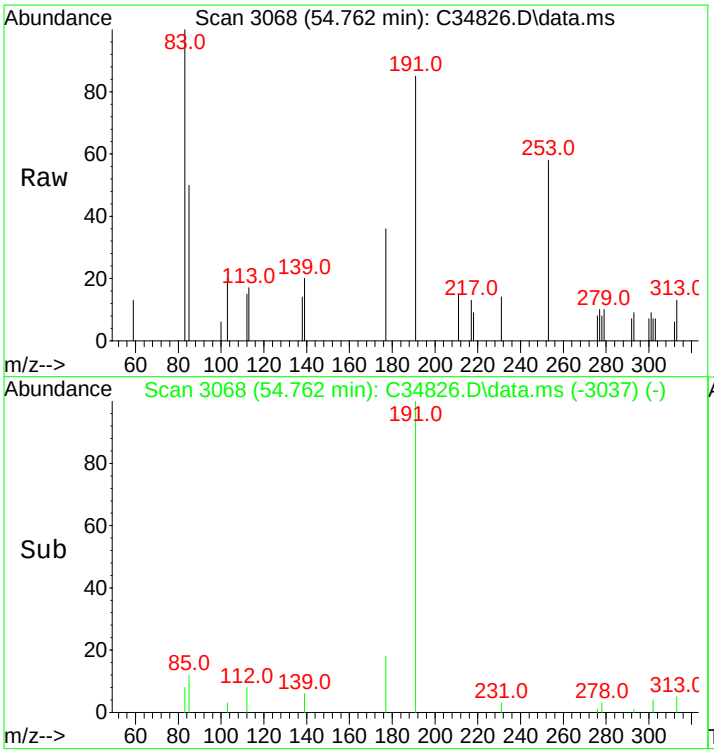




#117
30-Homohopane-22R (T22)
Concen: 130.79 ng/ml
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

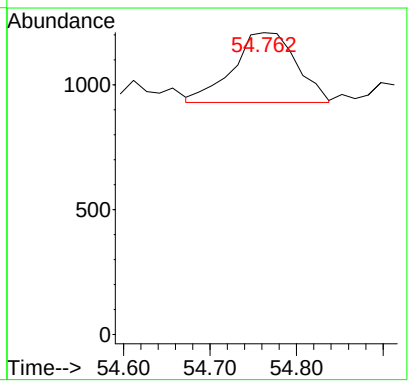
Tgt Ion:191 Resp: 2935

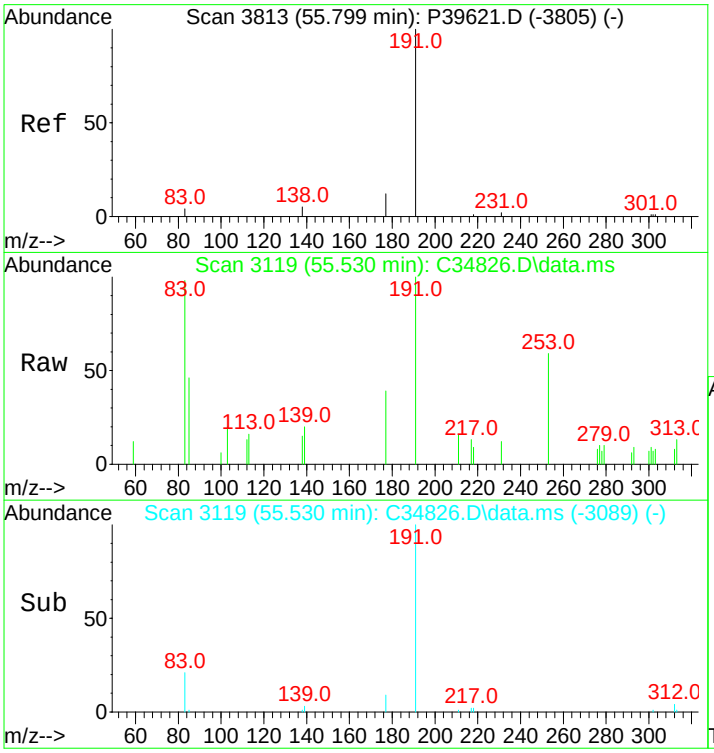




#118
Gammacerane/C32-diahopane
Concen: 63.59 ng/mL m
RT: 54.762 min Scan# 3068
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

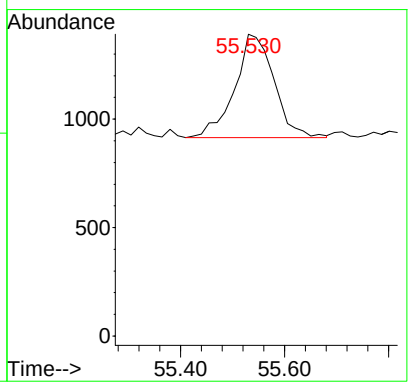
Tgt Ion:191 Resp: 1427

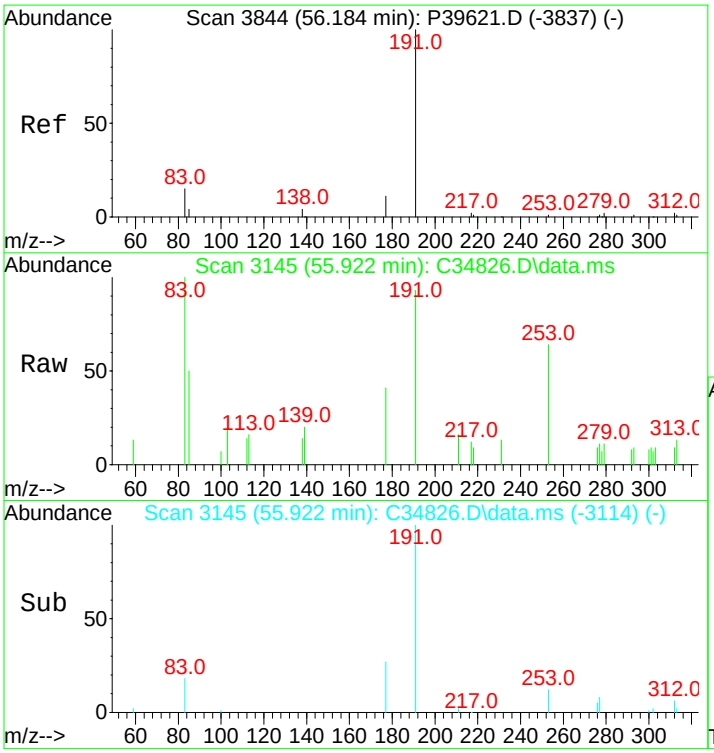




#119
30,31-Bishomohopane-22S (T26)
Concen: 111.36 ng/ml
RT: 55.530 min Scan# 3119
Delta R.T. -0.045 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

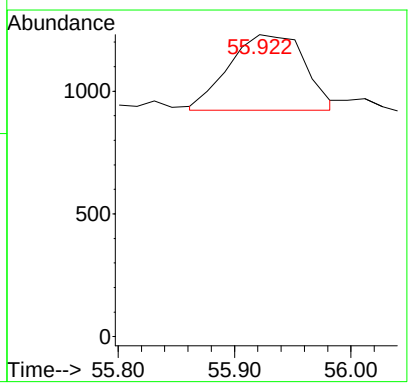
Tgt Ion:191 Resp: 2499

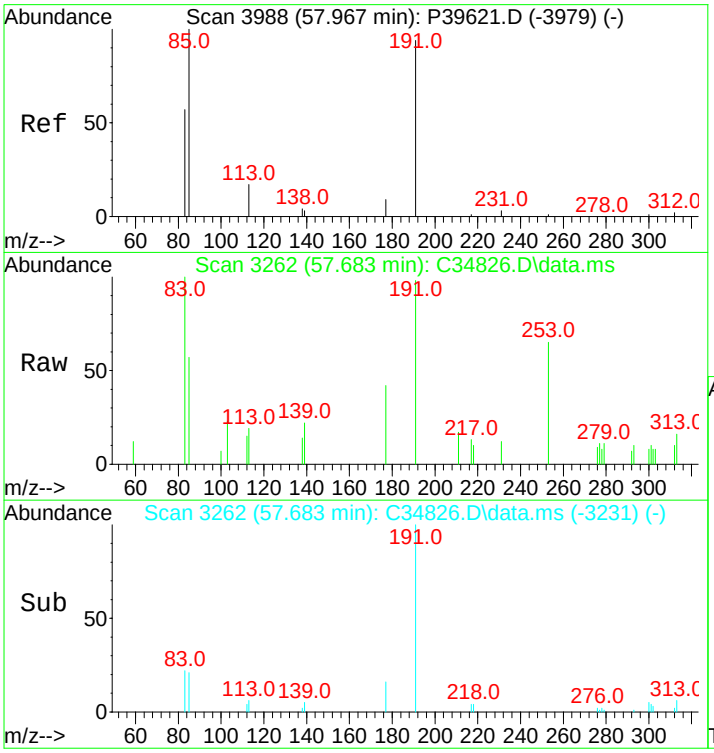




#120
30,31-Bishomohopane-22R (T27)
Concen: 62.21 ng/ml m
RT: 55.922 min Scan# 3145
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

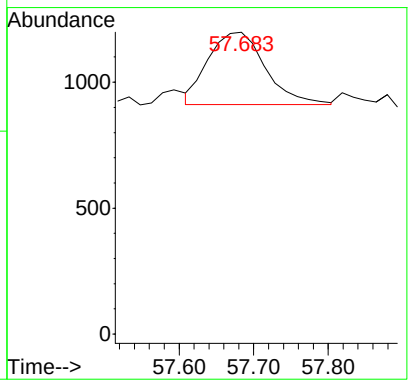
Tgt Ion:191 Resp: 1396

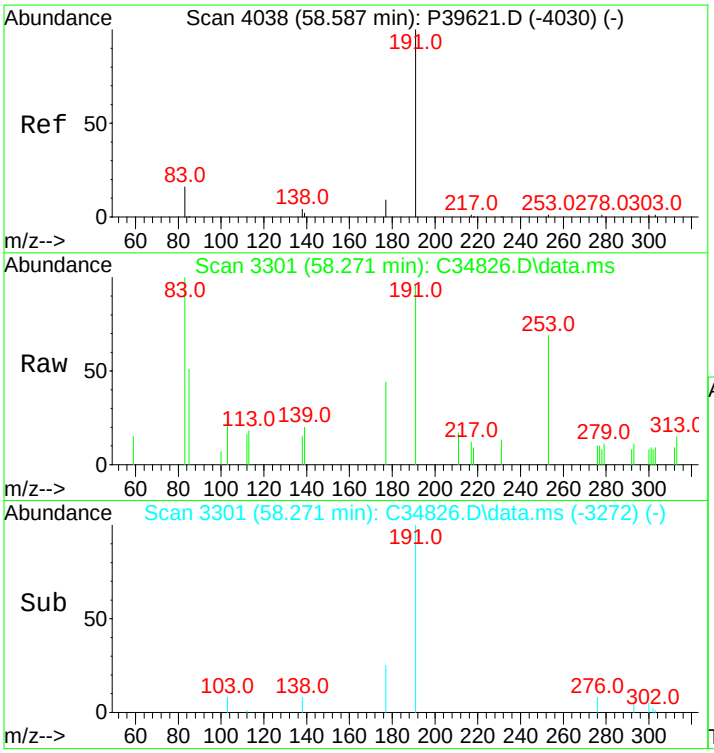




#121
30,31-Trishomohopane-22S (T30)
Concen: 68.49 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

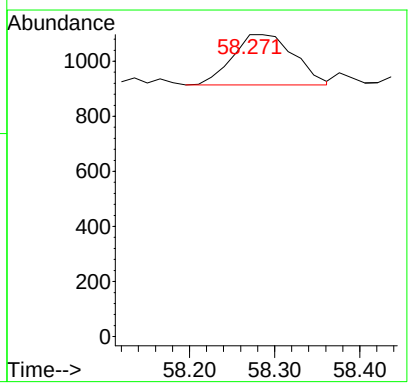
Tgt Ion:191 Resp: 1537

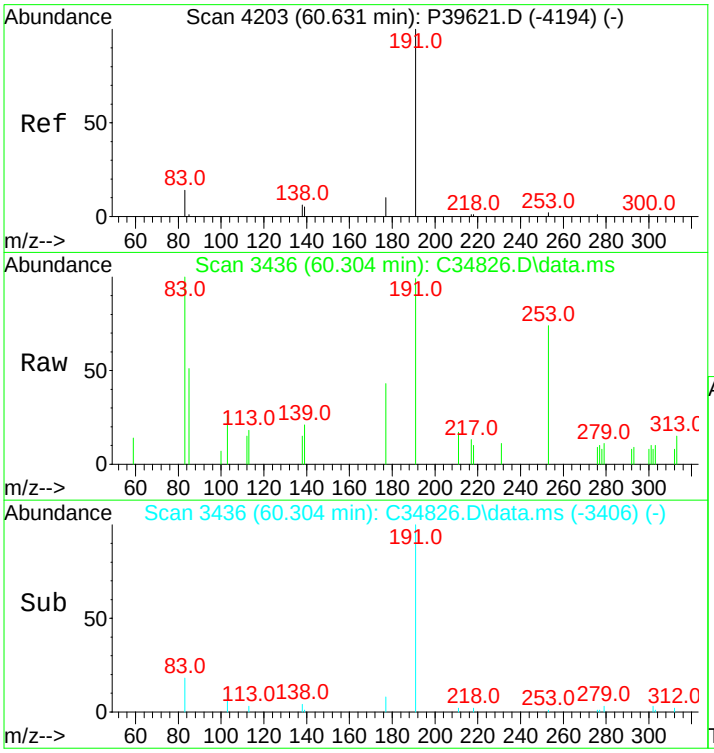




#122
30,31-Trishomohopane-22R (T31)
Concen: 41.17 ng/ml
RT: 58.271 min Scan# 3301
Delta R.T. -0.060 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

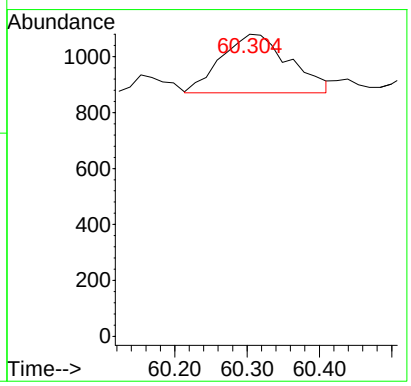
Tgt Ion:191 Resp: 924

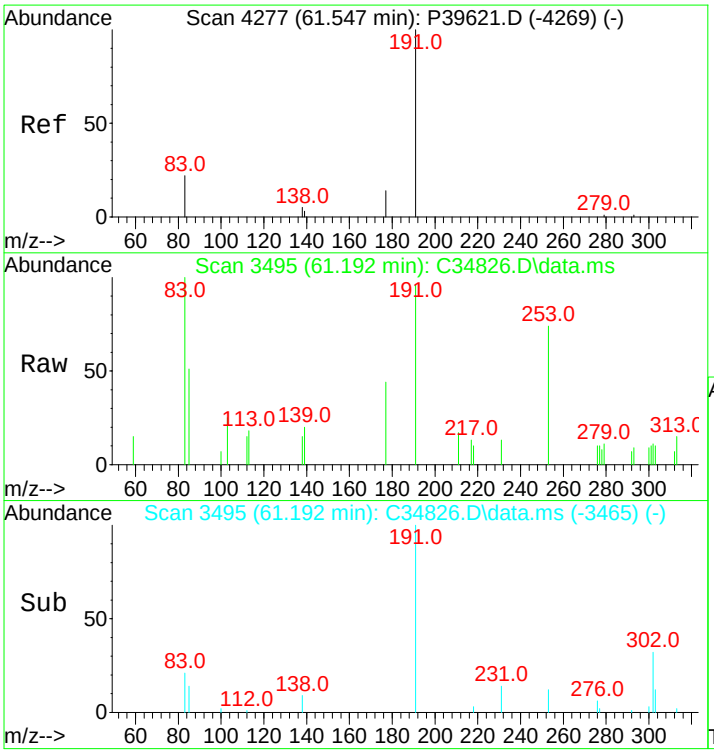




#123
Tetrakishomohopane-22S (T32)
Concen: 61.54 ng/ml m
RT: 60.304 min Scan# 3436
Delta R.T. -0.045 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

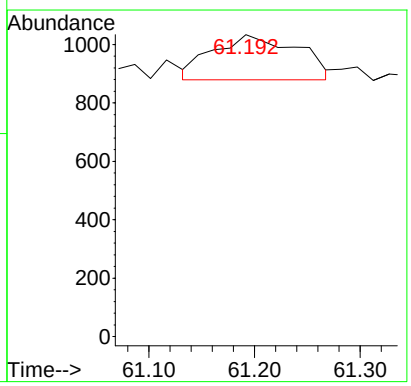
Tgt Ion:191 Resp: 1381

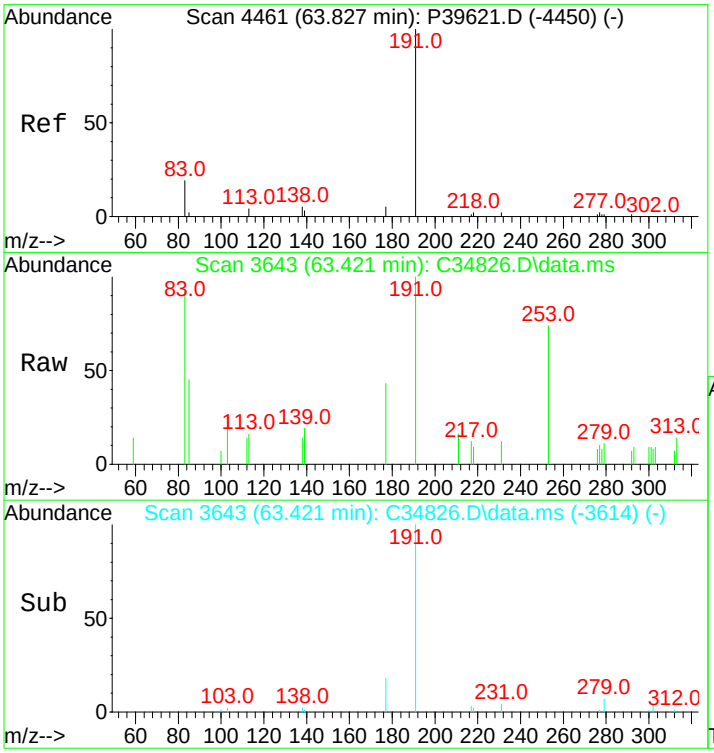




#124
Tetrakishomohopane-22R (T33)
Concen: 38.41 ng/ml m
RT: 61.192 min Scan# 3495
Delta R.T. -0.045 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

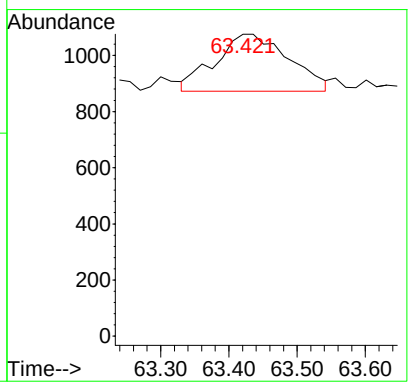
Tgt Ion:191 Resp: 862

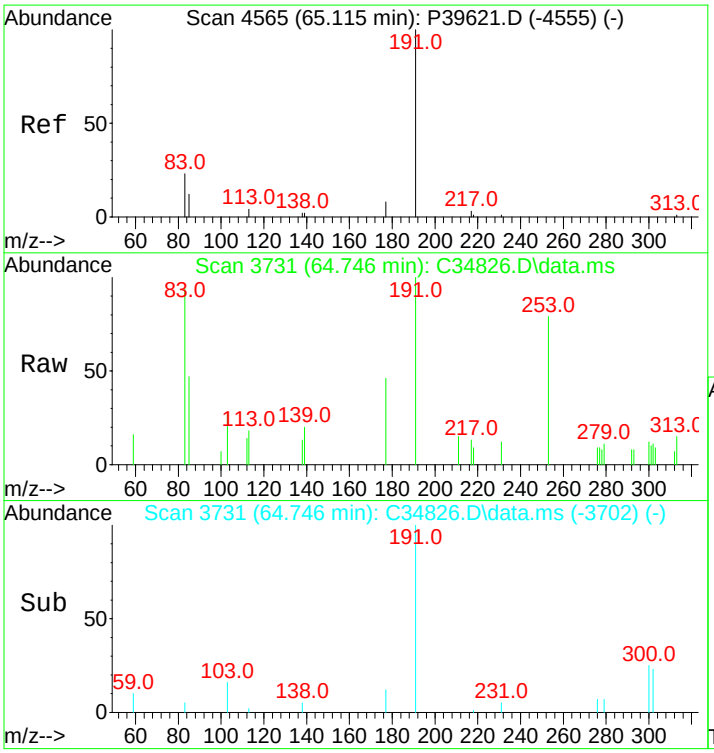




#125
Pentakishomohopane-22S (T34)
Concen: 67.60 ng/ml m
RT: 63.421 min Scan# 3643
Delta R.T. -0.060 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

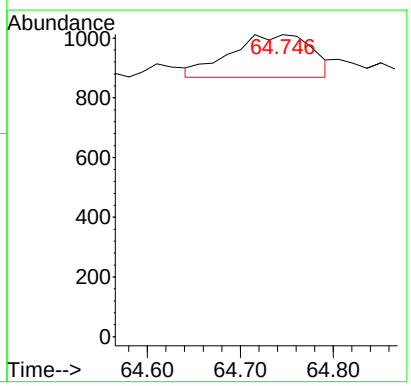
Tgt Ion:191 Resp: 1517

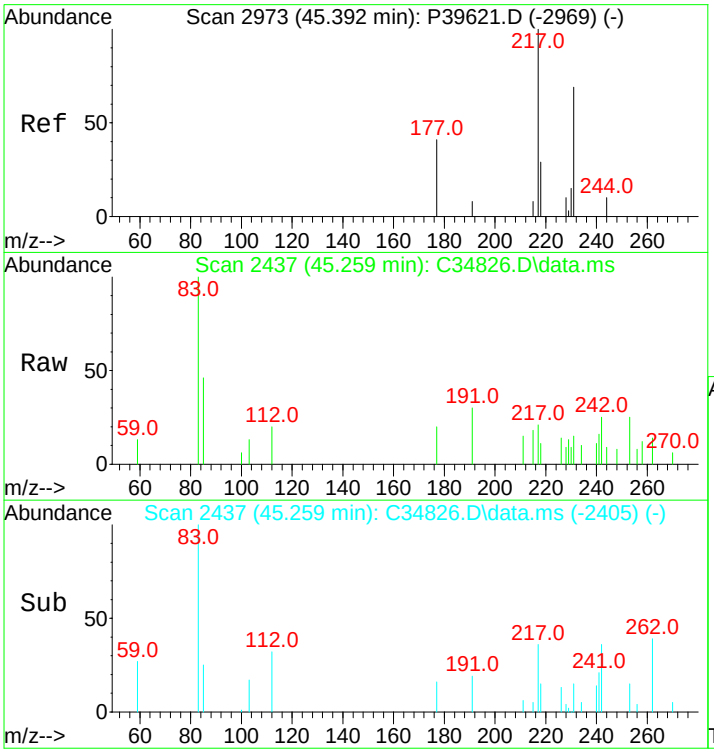




#126
Pentakishomohopane-22R (T35)
Concen: 38.86 ng/ml m
RT: 64.746 min Scan# 3731
Delta R.T. -0.060 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

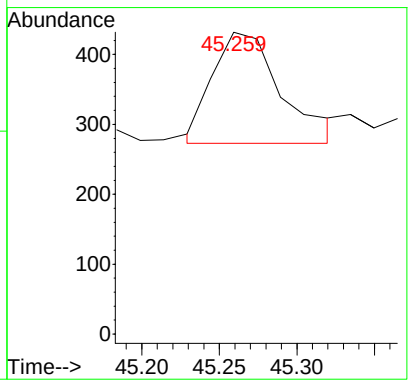
Tgt Ion:191 Resp: 872

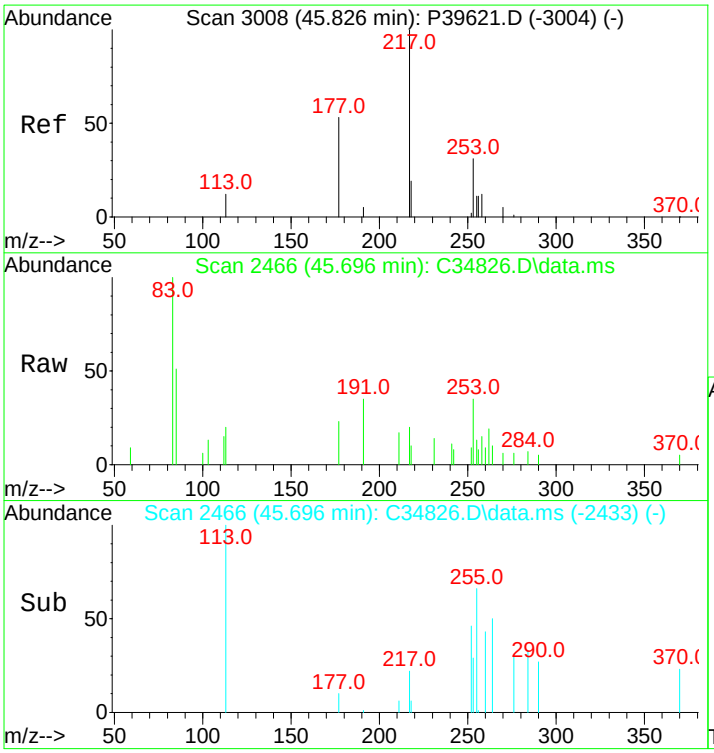




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 46.12 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

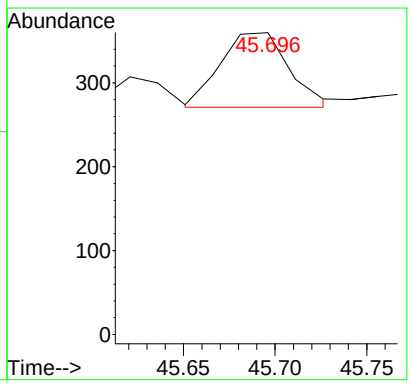
Tgt Ion:217 Resp: 491

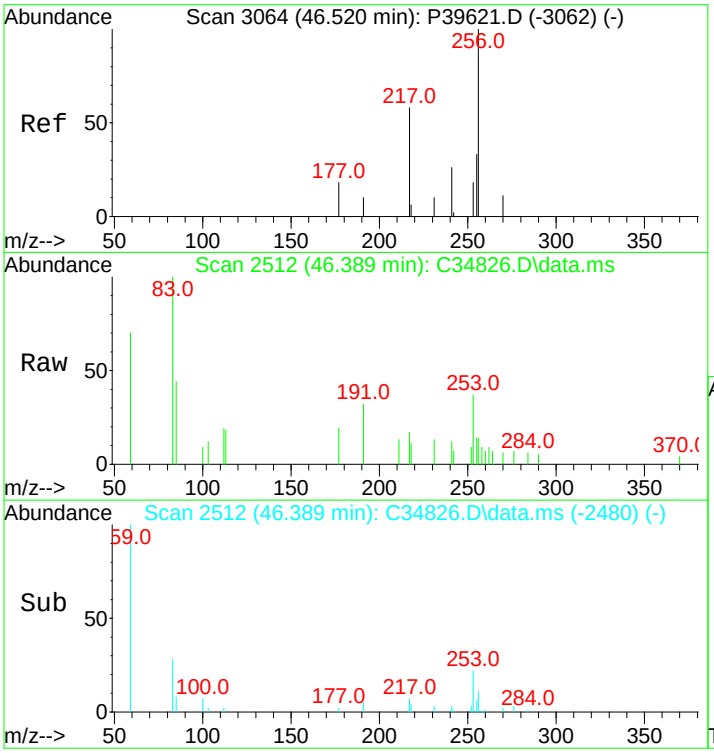




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 21.79 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

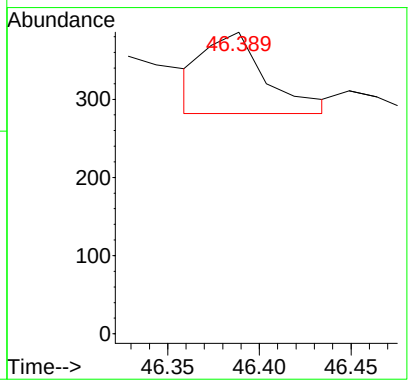
Tgt Ion:217 Resp: 232

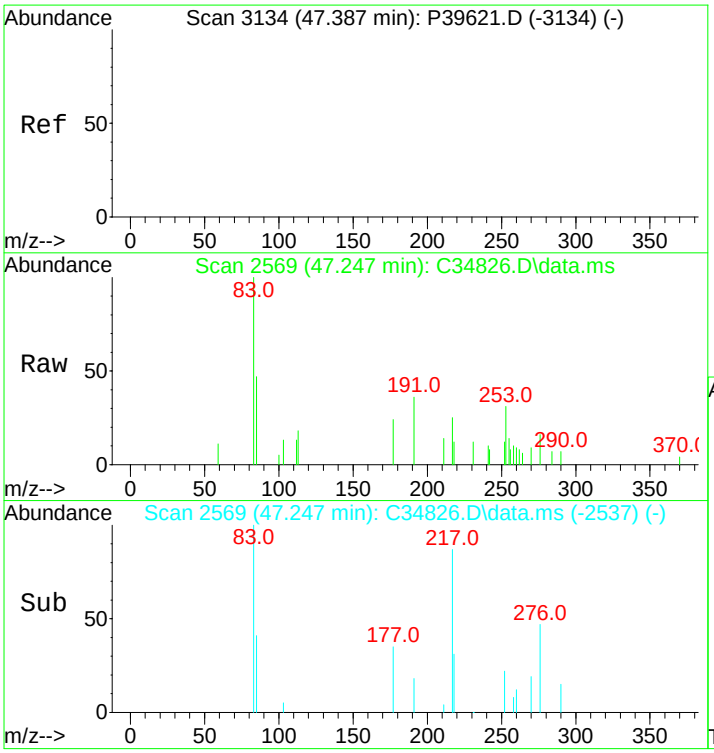




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 22.83 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

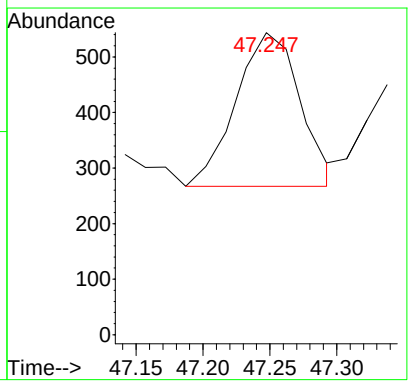
Tgt Ion:217 Resp: 243

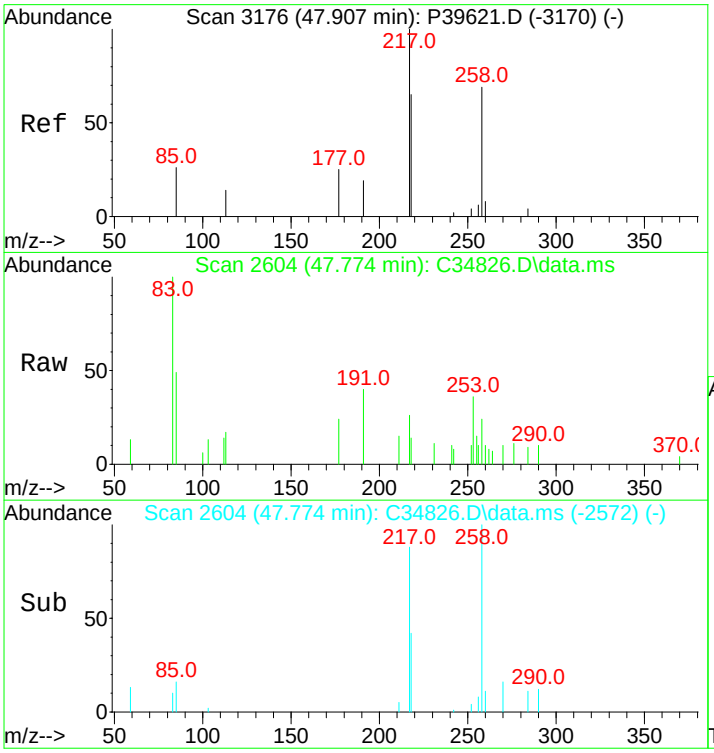




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 87.17 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

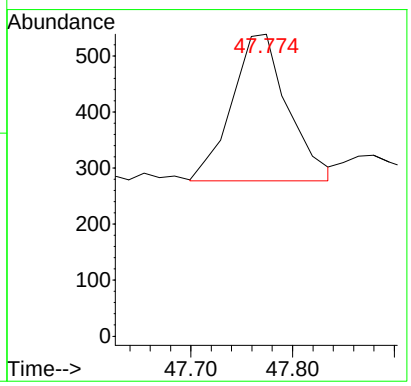
Tgt Ion:217 Resp: 928

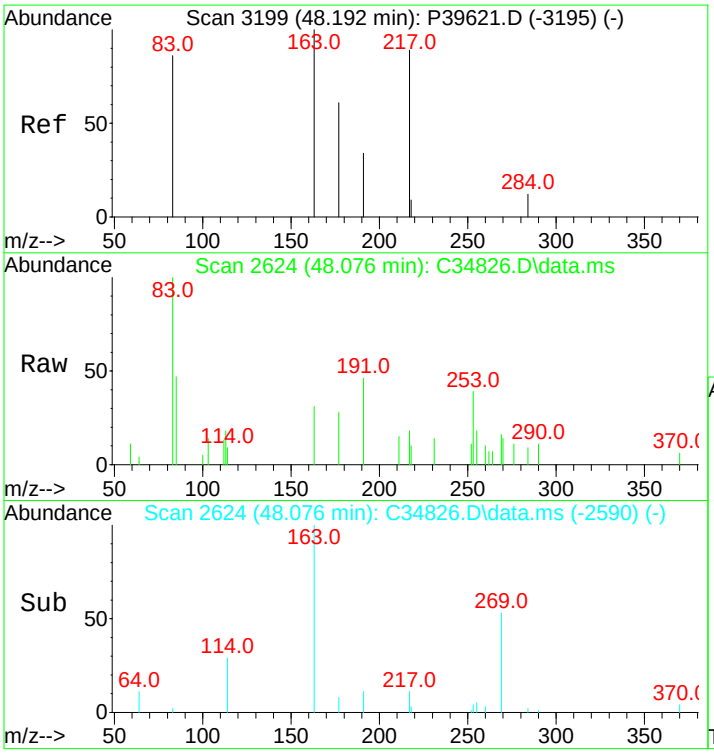




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 94.59 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

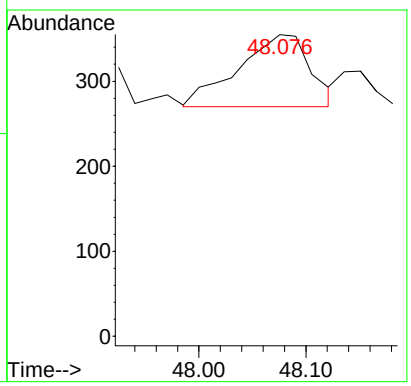
Tgt Ion:217 Resp: 1007

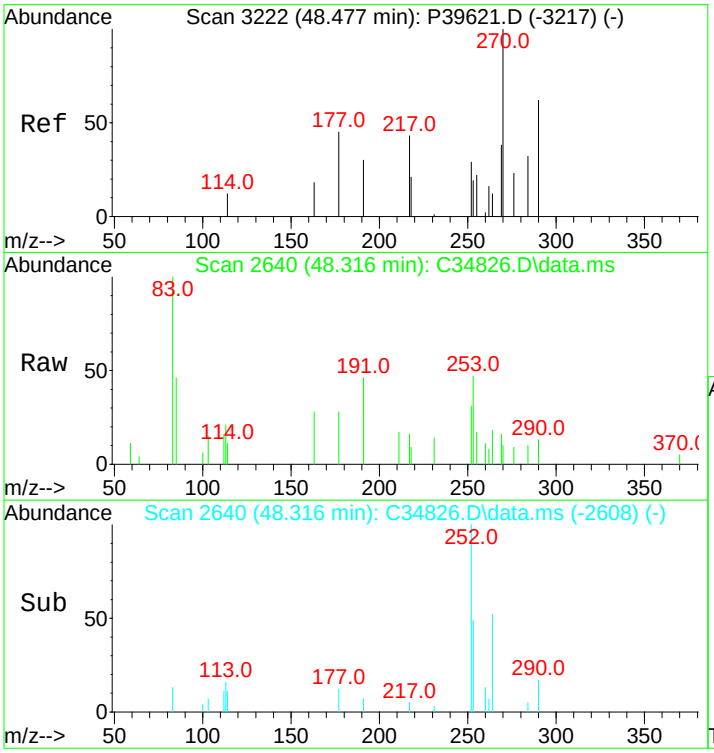




#133
Unknown Sterane (S18)
Concen: 37.39 ng/ml m
RT: 48.076 min Scan# 2624
Delta R.T. 0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

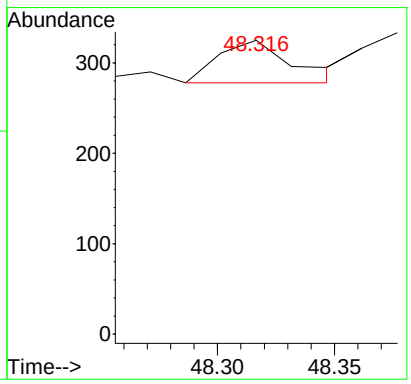
Tgt Ion:217 Resp: 398

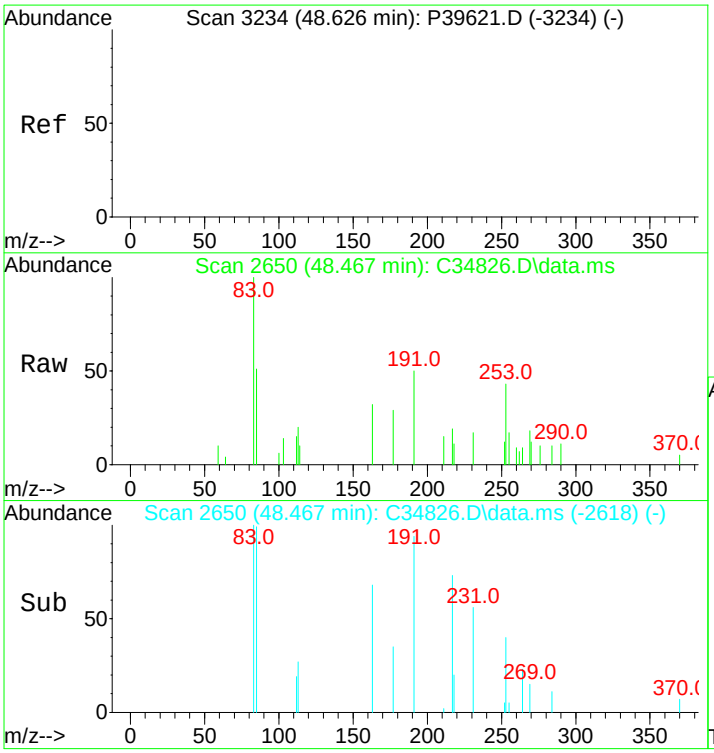




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 9.77 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

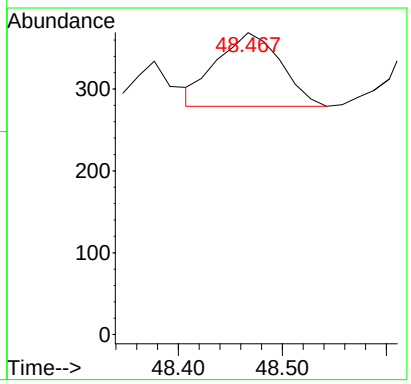
Tgt Ion:217 Resp: 104

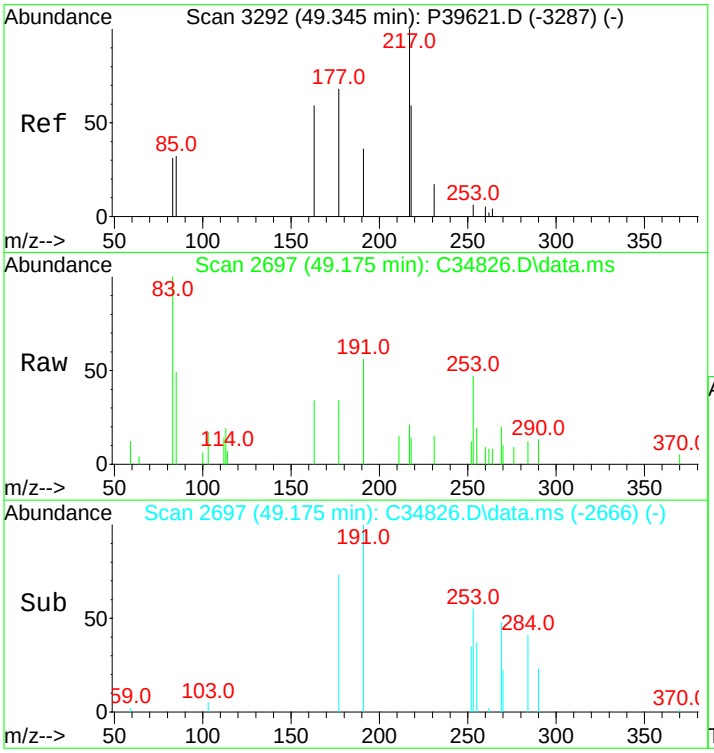




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 36.07 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

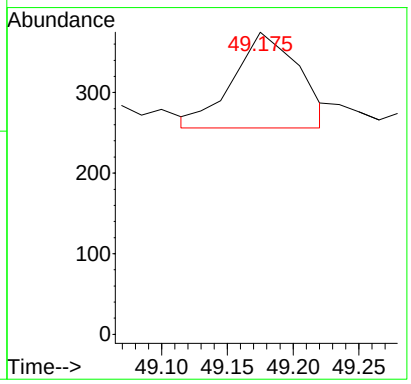
Tgt Ion:217 Resp: 384

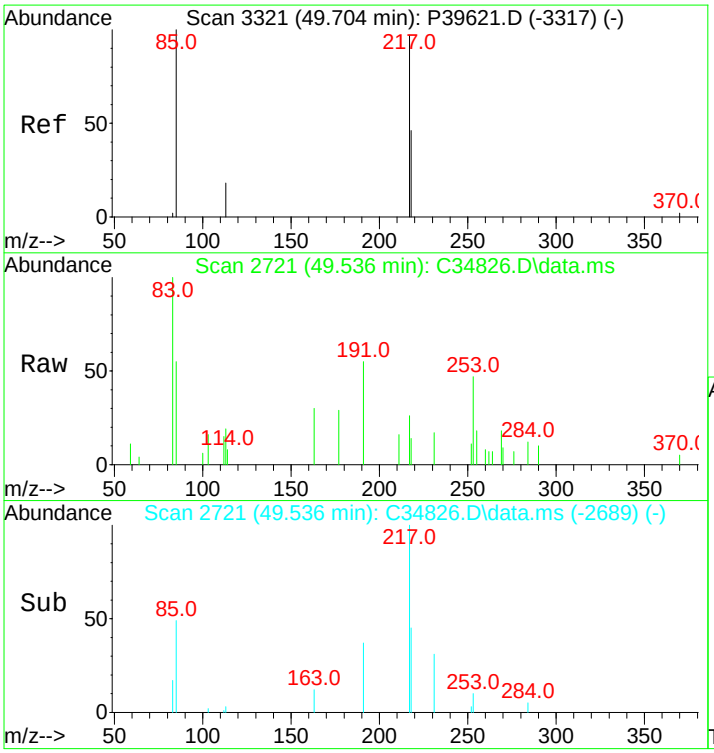




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 38.70 ng/ml m
RT: 49.175 min Scan# 2697
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

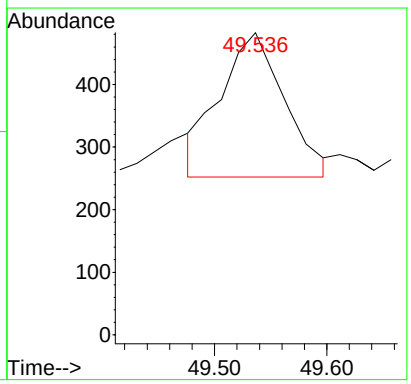
Tgt Ion:217 Resp: 412

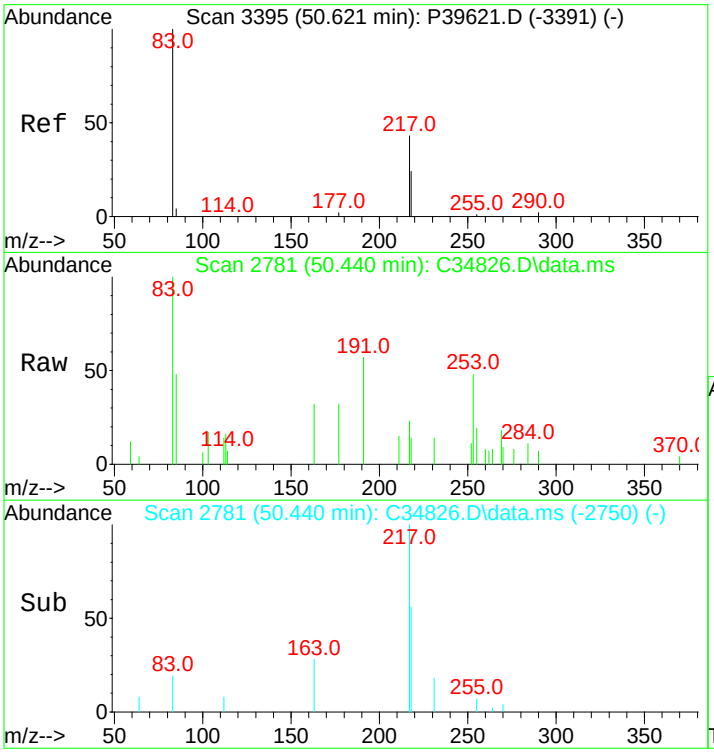




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 86.23 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

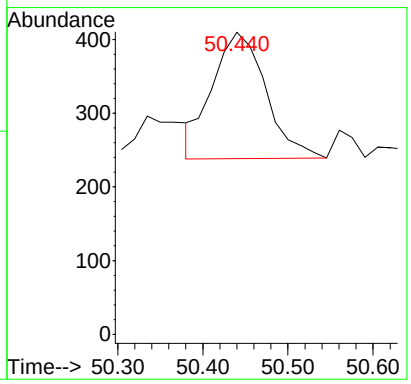
Tgt Ion:217 Resp: 918

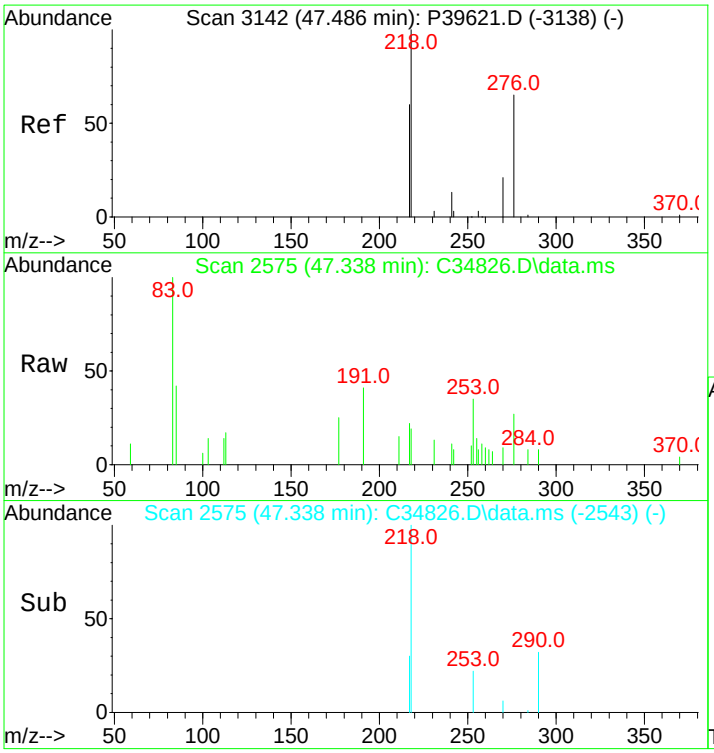




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 70.36 ng/ml
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

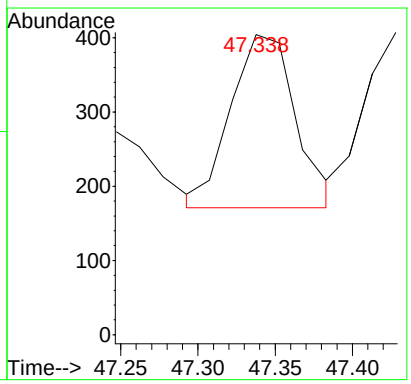
Tgt Ion:217 Resp: 749

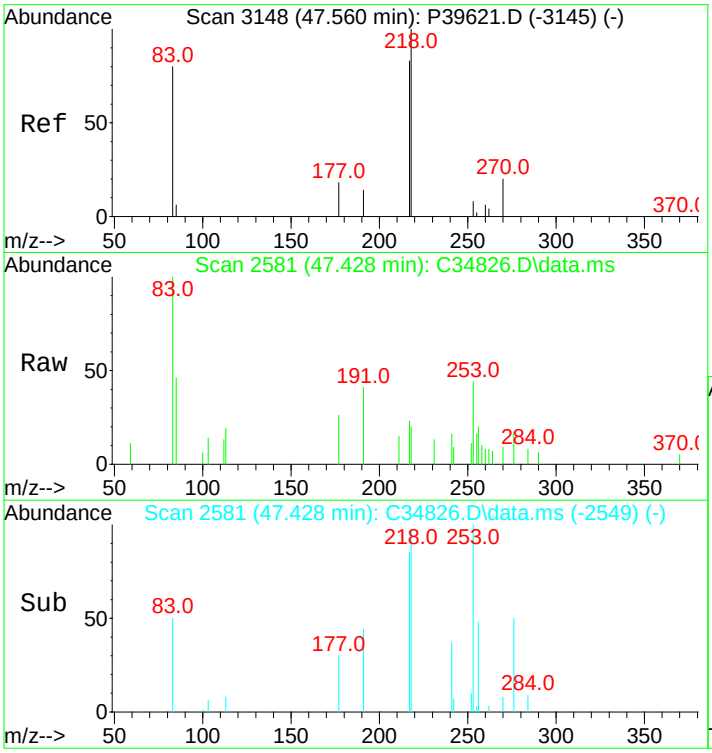




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 63.88 ng/ml m
RT: 47.338 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

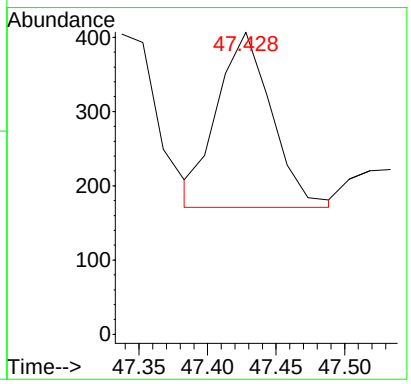
Tgt Ion:218 Resp: 680

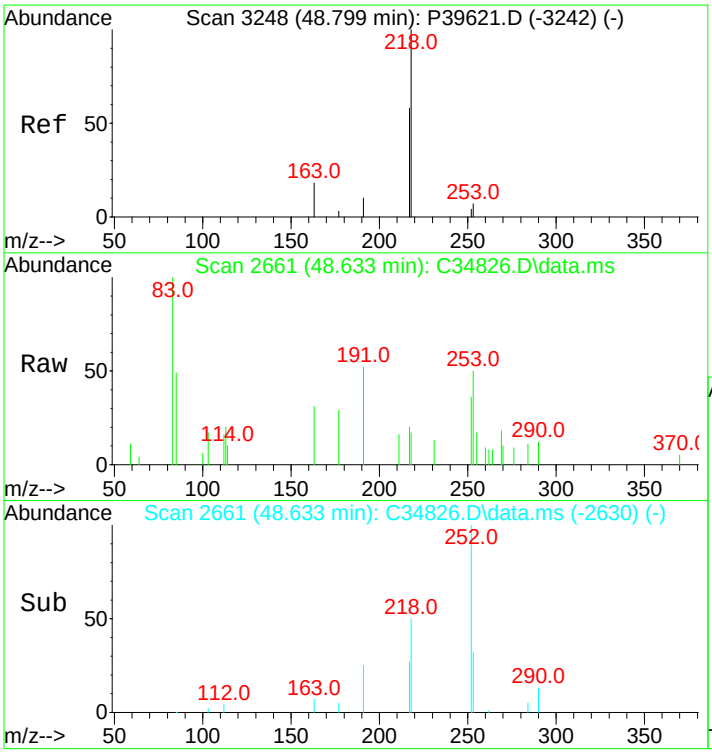




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 60.96 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

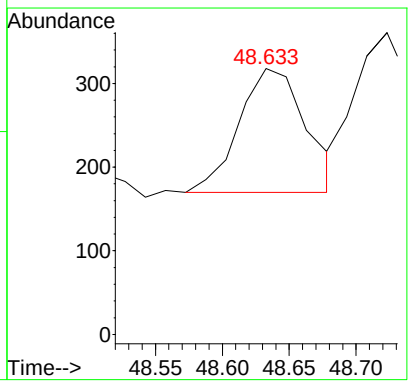
Tgt Ion:218 Resp: 649

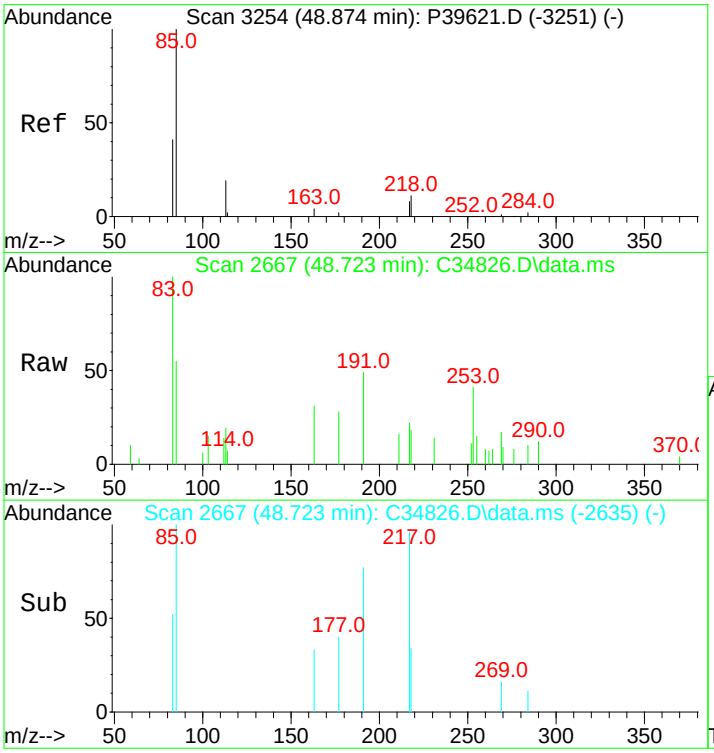




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 48.47 ng/ml
RT: 48.633 min Scan# 2661
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

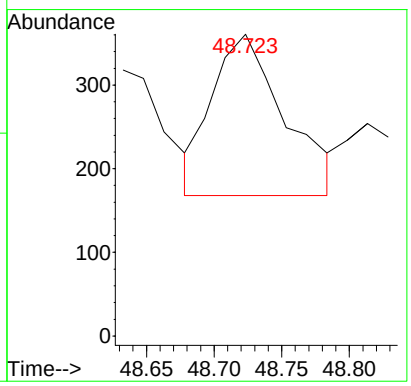
Tgt Ion:218 Resp: 516

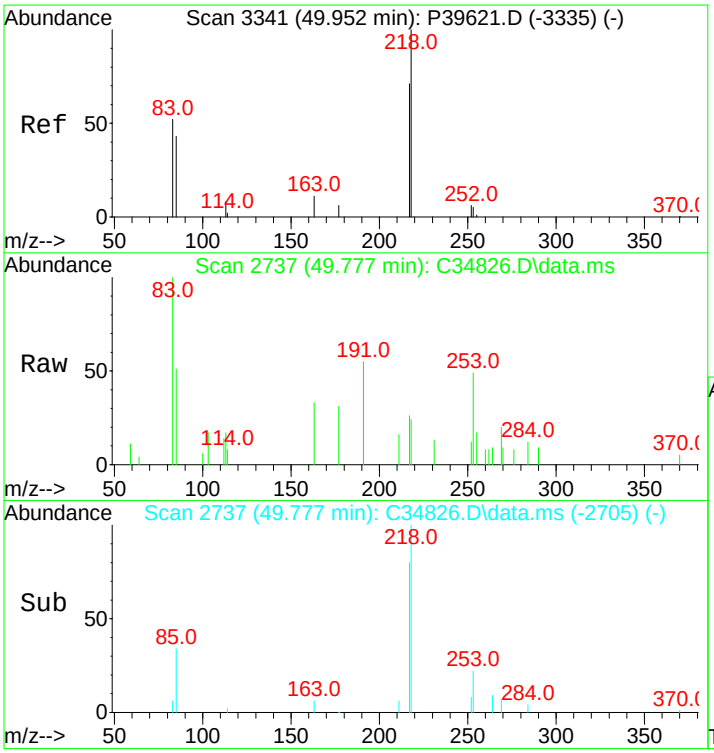




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 67.54 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

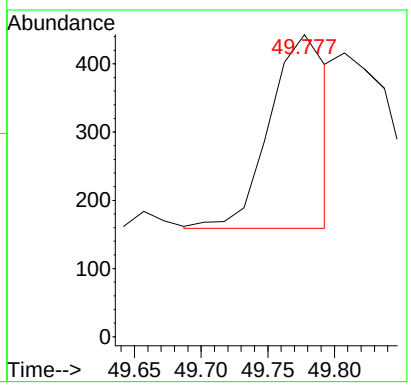
Tgt Ion:218 Resp: 719

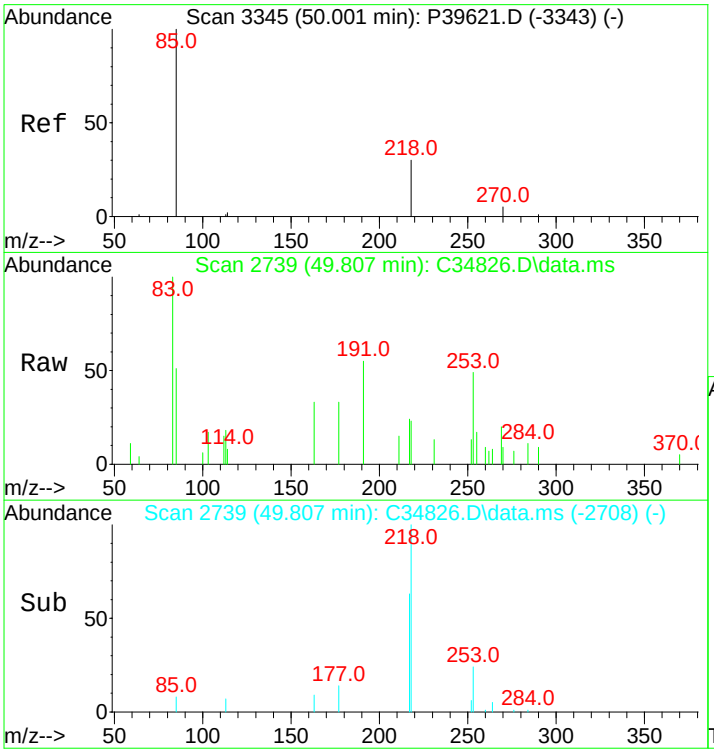




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 79.94 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

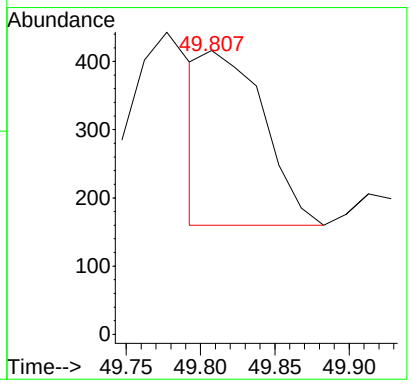
Tgt Ion:218 Resp: 851

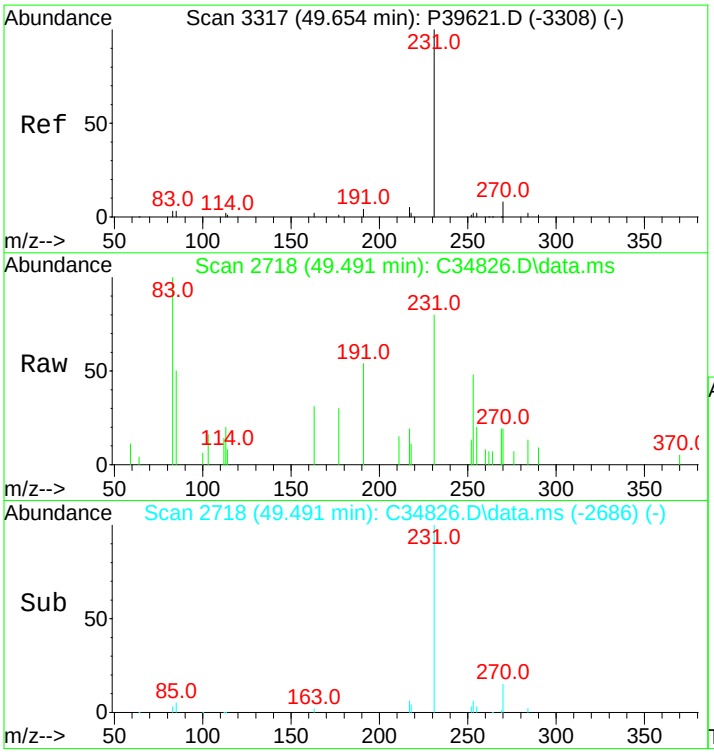




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 68.29 ng/ml m
RT: 49.807 min Scan# 2739
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

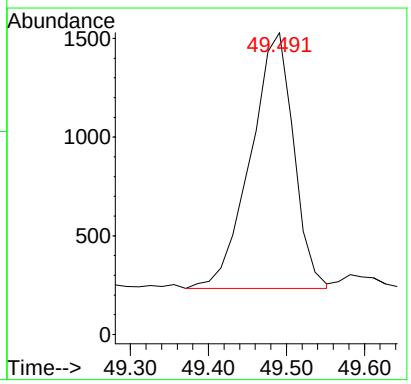
Tgt Ion:218 Resp: 727

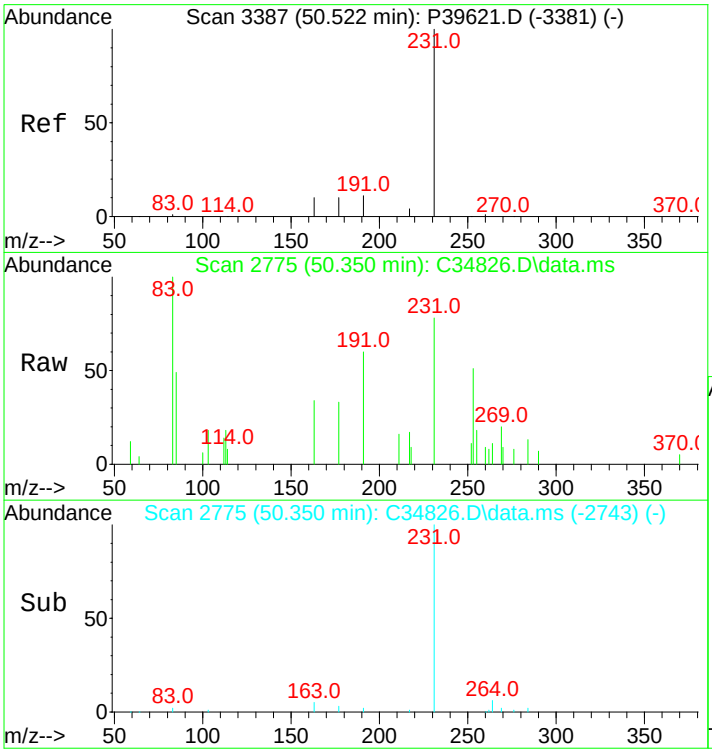




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 467.70 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

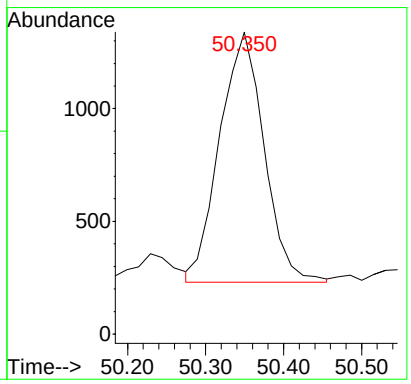
Tgt Ion:231 Resp: 4979

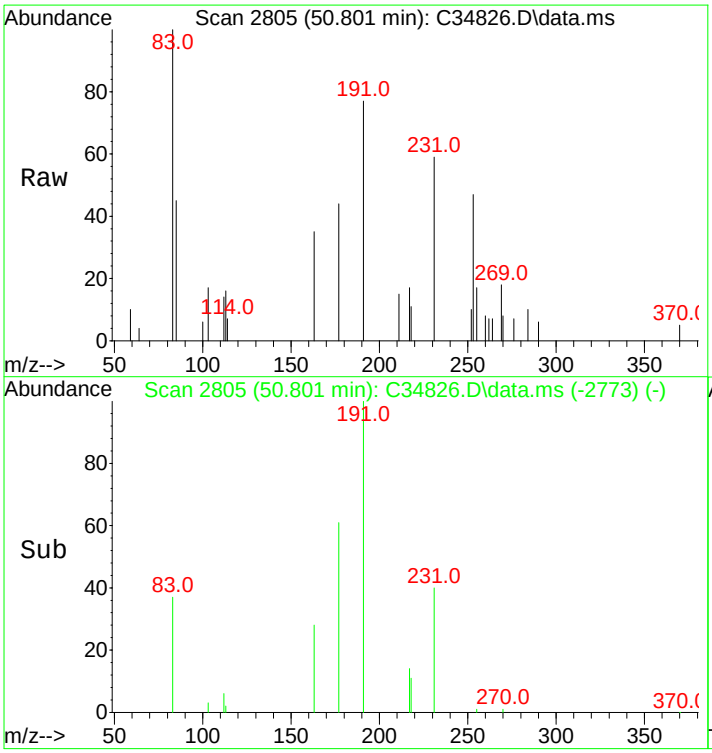




#146
C28,20S-triaromatic steroid
Concen: 411.24 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

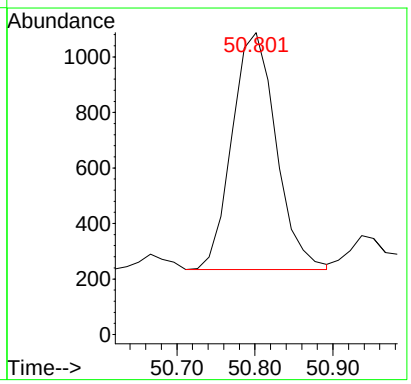
Tgt Ion:231 Resp: 4378

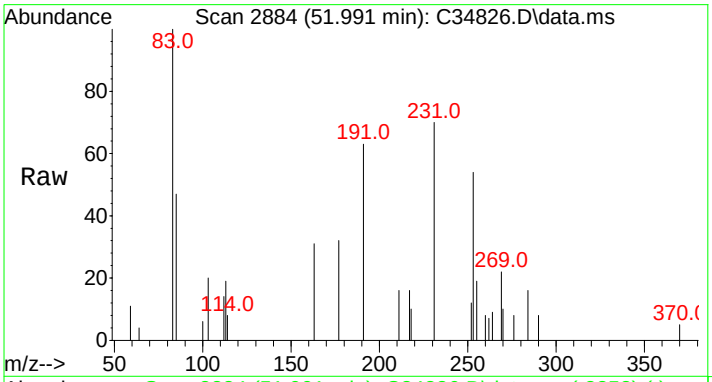




#147
C27,20R-triaromatic steroid
Concen: 314.96 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

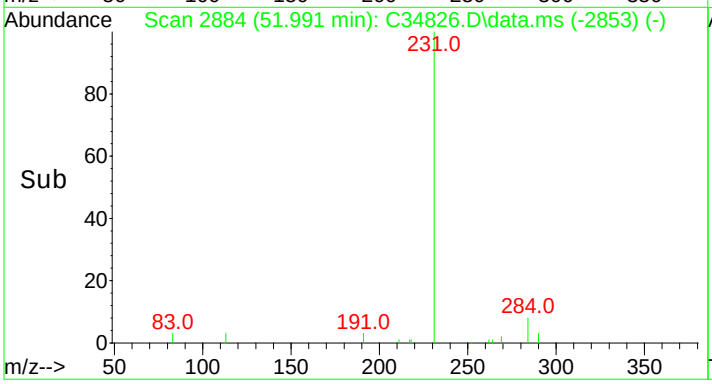
Tgt Ion:231 Resp: 3353

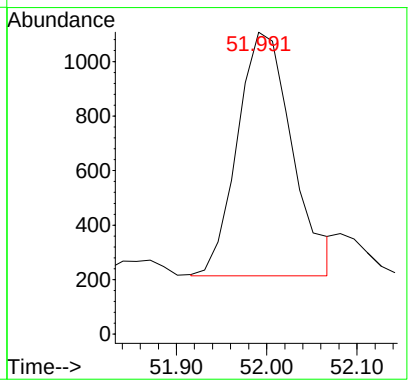




#148
C28,20R-triaromatic steroid
Concen: 354.70 ng/mL m
RT: 51.991 min Scan# 2884
Delta R.T. -0.030 min
Lab File: C34826.D
Acq: 4 May 2012 1:31 am

Tgt Ion:231 Resp: 3776





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18147M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	35318	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	60078	762.773	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 76.28%			
42) Phenanthrene-d10	32.567	188	54943M3	882.546	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.25%			
86) Benzo[a]pyrene-d12	48.241	264	62545	854.512	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.45%			
127) 5B(H)Cholane - Surr	43.769	217	10654	964.844	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.48%			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	157M3	1.357	ng/mL	
11) C1-Naphthalenes	22.496	142	396M5	3.424	ng/mL	
12) C2-Naphthalenes	25.341	156	3570M5	30.867	ng/mL	
13) C3-Naphthalenes	28.021	170	15468M5	133.738	ng/mL	
14) C4-Naphthalenes	30.761	184	34251M5	296.137	ng/mL	
16) 2-Methylnaphthalene	22.496	142	140M3	2.047	ng/mL	
17) 1-Methylnaphthalene	22.917	142	115	1.716	ng/mL#	100
20) C2-Benzo(b)thiophenes	25.537	162	694M5	6.668	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	3983M5	38.269	ng/mL	
22) C4-Benzo(b)thiophenes	30.716	190	9337M5	89.711	ng/mL	
23) Biphenyl	24.393	154	105M3	1.214	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	714	12.708	ng/mL#	100
25) Dibenzofuran	27.464	168	233	2.346	ng/mL#	52
26) Acenaphthylene	26.079	152	161	1.402	ng/mL#	100
27) Acenaphthene	26.816	153	142M3	2.101	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	893M3	19.716	ng/mL	
29) Fluorene	28.834	166	393M3	5.271	ng/mL	
30) C1-Fluorenes	31.197	180	3749M5	50.284	ng/mL	
31) C2-Fluorenes	33.395	194	19621M5	263.171	ng/mL	
32) C3-Fluorenes	35.232	208	42038M5	563.843	ng/mL	
33) Dibenzothiophene	32.161	184	3327	27.838	ng/mL#	1
34) 4-Methyldibenzothiophe...	33.922	198	11772	98.500	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	10000M3	83.673	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	7644	63.960	ng/mL#	100
37) OTP	34.329	198	10875M3	90.995	ng/mL	
38) C1-Dibenzothiophenes	34.329	198	43281M5	362.146	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	109507M5	916.279	ng/mL	
40) C3-Dibenzothiophenes	37.415	226	165583M5	1385.485	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	126987M5	1062.540	ng/mL	
43) Phenanthrene	32.642	178	4919M3	46.847	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.615	192	5800M3	55.237	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	6847M3	65.208	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	917M3	8.733	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	11661	111.055	ng/mL	91
48) 1-Methylphenanthrene(1MP)	35.157	192	6369M3	60.656	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	32588M5	310.356	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	89342M5	850.860	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	101318M5	964.915	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.893	234	57700M5	549.513	ng/mL	
56) Carbazole	33.501	167	998	9.633	ng/mL#	64
57) 1-Methylphenanthrene	35.157	192	6304M3	94.738	ng/mL	
58) Fluoranthene	37.430	202	3725M3	35.720	ng/mL	
60) Pyrene	38.303	202	8889M3	83.852	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.471	216	29636M5	279.564	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.173	230	44209M5	417.035	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.528	244	54209M5	511.367	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
64) C4-Fluoranthenes/Pyrenes	44.883	258	52225M5	492.652	ng/mL	
66) Naphthobenzothiophene	42.158	234	12861	112.690	ng/ml	94
67) Naphthobenzothiophene-...	42.158	234	12861	112.690	ng/mL	94
68) Naphthobenzothiophene-...	42.504	234	3246M3	28.442	ng/mL	
69) Naphthobenzothiophene-...	42.805	234	2343M3	20.530	ng/mL	
70) C1-Naphthobenzothiophenes	43.558	248	67385M5	590.436	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	101920m	893.036	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	88098M5	771.926	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	67207M5	588.876	ng/mL	
75) Benz[a]anthracene	43.091	228	2194M3	19.572	ng/mL	
77) Chrysene/Triphenylene	43.242	228	9666M3	85.409	ng/mL	
78) C1-Chrysenes	44.717	242	25121M5	221.970	ng/mL	
79) C2-Chrysenes	46.795	256	40736M5	359.945	ng/mL	
80) C3-Chrysenes	49.491	270	50182M5	443.410	ng/mL	
81) C4-Chrysenes	49.521	284	30064M5	265.646	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	4744	38.515	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.217	252	1854M3	13.825	ng/mL	
84) Benzo[a]fluoranthene	47.518	252	417M3	3.110	ng/mL	
85) Benzo[e]pyrene	48.136	252	5966M3	48.968	ng/mL	
87) Benzo[a]pyrene	48.332	252	3112M3	26.530	ng/mL	
88) Perylene	48.633	252	5190	41.400	ng/mL#	76
89) Indeno[1,2,3-cd]pyrene	53.136	276	2790M3	20.439	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	1127	8.679	ng/mL#	51
91) Benzo[g,h,i]perylene	54.431	276	5963	41.347	ng/mL#	82
92) Hopane (T19)	52.217	191	28410	1220.515	ng/mL#	79
94) C23 Tricyclic Terpane ...	40.788	191	11411M3	490.225	ng/ml	
95) C24 Tricyclic Terpane ...	41.510	191	6704	288.009	ng/ml	100
96) C25 Tricyclic Terpane ...	43.001	191	6486M3	278.643	ng/ml	
97) C24 Tetracyclic Terpan...	44.311	191	2178M3	93.568	ng/ml	
98) C26 Tricyclic Terpane-...	44.055	191	2388M3	102.590	ng/ml	
99) C26 Tricyclic Terpane-...	44.145	191	2259M3	97.048	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	2571M3	110.452	ng/ml	
101) C28 Tricyclic Terpane-...	46.600	191	2829M3	121.536	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	3481	149.546	ng/ml	100
103) C29 Tricyclic Terpane-...	47.307	191	3101M3	133.221	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	3466	148.902	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.527	191	2730M3	117.283	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	2379M3	102.204	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191	7577	325.514	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.184	191	4564M3	196.073	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191	1429M3	61.391	ng/ml	
110) 30-Norhopane (T15)	50.847	191	20549M3	882.800	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	3104M3	133.350	ng/ml	
112) 17a(H)-Diahopane (X)	51.073	191	1164	50.006	ng/ml	100
113) 30-Normoretane (T17)	51.630	191	2101	90.261	ng/ml	100
114) 18a(H)&18b(H)-Oleanane...	52.006	191	513M3	22.039	ng/ml	
115) Moretane (T20)	52.895	191	2517	108.132	ng/ml	100
116) 30-Homohopane-22S (T21)	53.994	191	12377	531.725	ng/ml	100
117) 30-Homohopane-22R (T22)	54.235	191	10025	430.681	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	4477	192.335	ng/mL	100
119) 30,31-Bishomohopane-22...	55.560	191	8593	369.162	ng/ml	100
120) 30,31-Bishomohopane-22...	55.937	191	5576	239.549	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	6210M3	266.786	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	3792	162.907	ng/ml	100
123) Tetrakishomohopane-22S...	60.334	191	4012M3	172.358	ng/ml	
124) Tetrakishomohopane-22R...	61.222	191	2807M3	120.591	ng/ml	
125) Pentakishomohopane-22S...	63.466	191	4547M3	195.342	ng/ml	
126) Pentakishomohopane-22R...	64.761	191	3330M3	143.059	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	1902M3	172.248	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217	801	72.540	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217	818M3	74.079	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
131) 14a,17a-20S-Chol/13b,1...	47.247	217	3043	275.579	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	3581M3	324.301	ng/ml	
133) Unknown Sterane (S18)	48.045	217	958	86.758	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217	288	26.082	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.467	217	1684	152.506	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	1382M3	125.156	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	3275M3	296.589	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	2455M3	222.329	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218	2086M3	188.912	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	2282M3	206.662	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	1860M3	168.445	ng/ml	
142) 14b,17b-20S-Methylchol...	48.723	218	2690M3	243.611	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218	3521M3	318.868	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	2167M3	196.247	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	19173M3	1736.339	ng/mL	
146) C28,20S-triaromatic st...	50.350	231	16438	1488.652	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	12389	1121.968	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231	13740M3	1244.317	ng/mL	

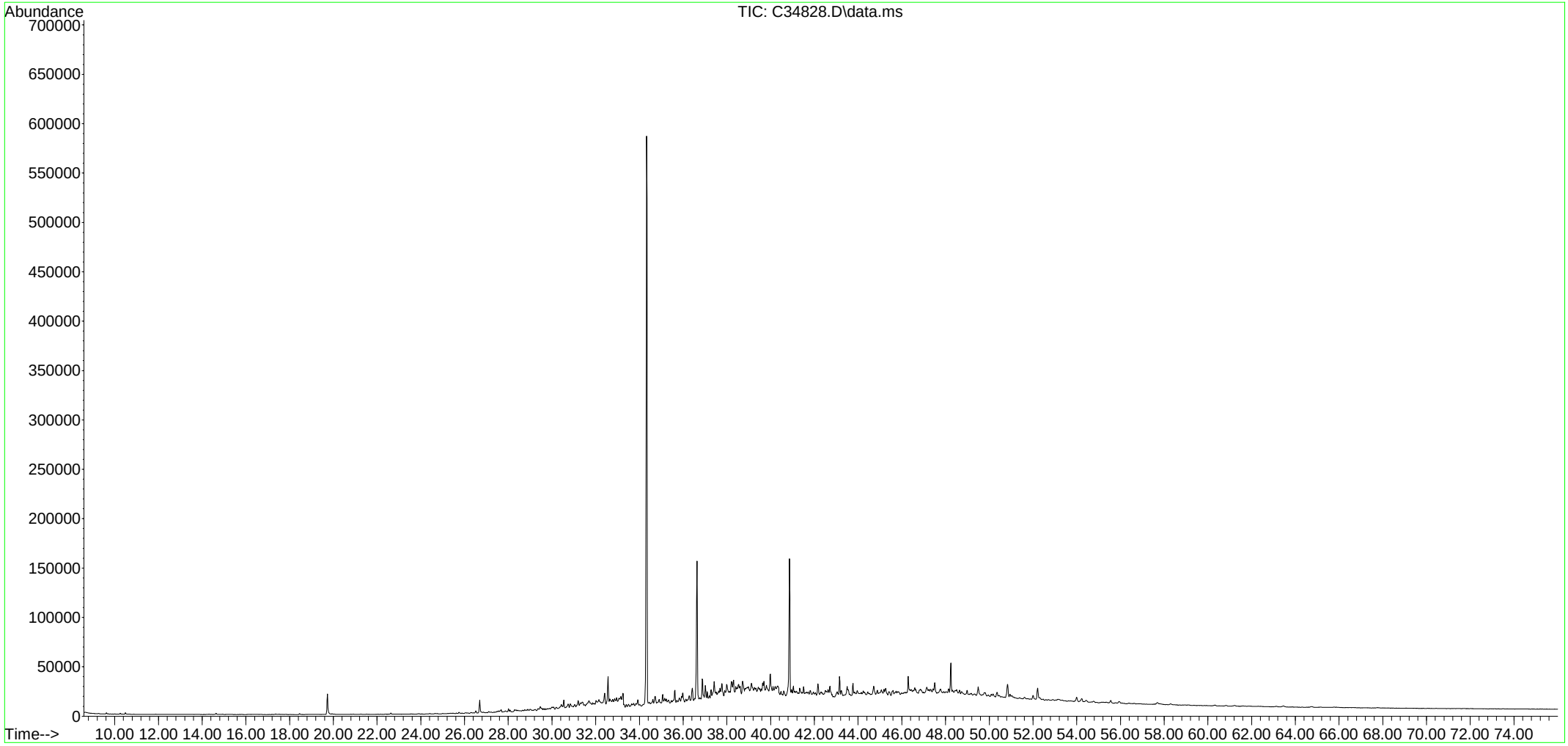
(#) = qualifier out of range (m) = manual integration (+) = signals summed

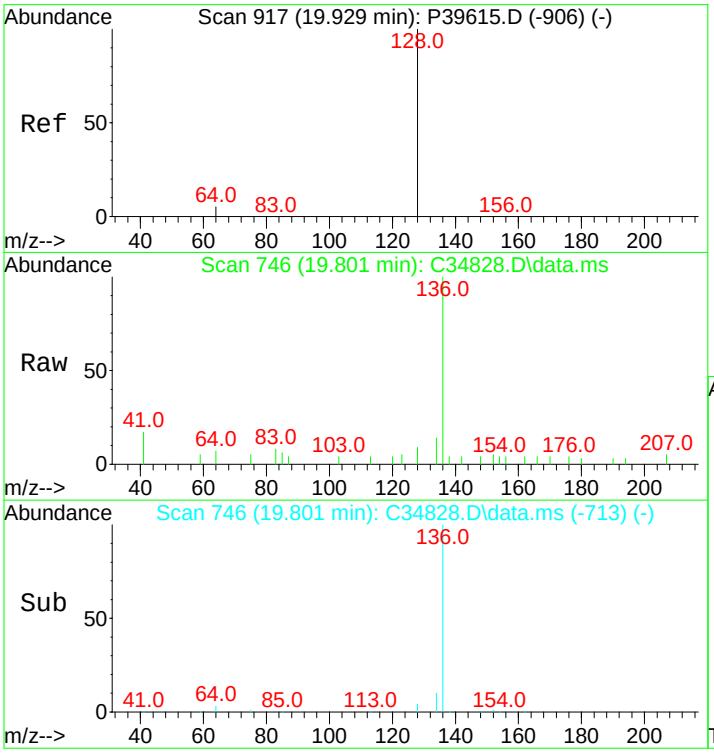
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34828.D
Acq On : 4 May 2012 3:02 am
Operator : AC
Sample : 1204035-12
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 05 12:46:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

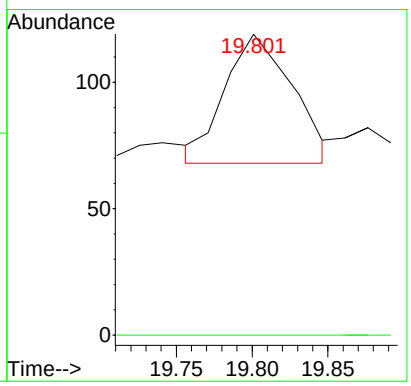


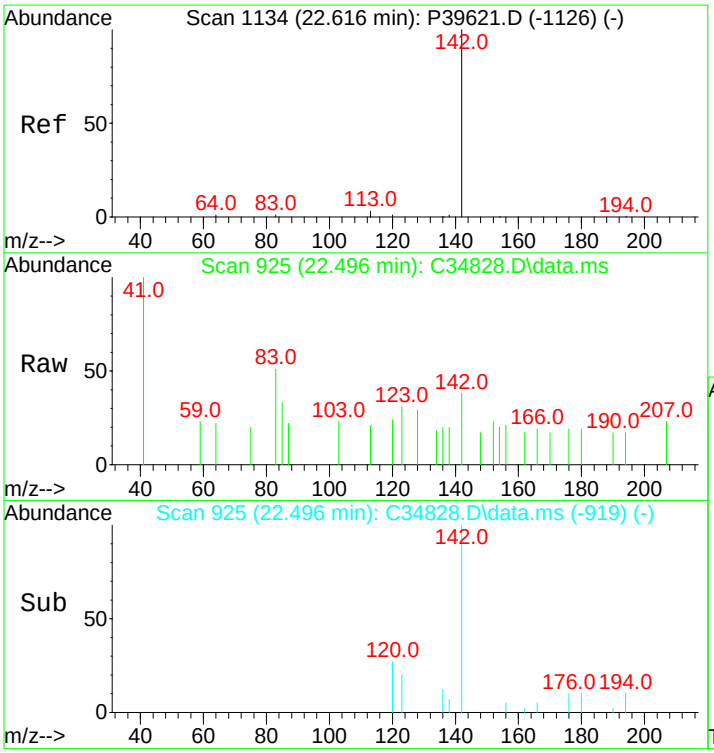


#10
Naphthalene
Concen: 1.36 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:128 Resp: 157

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

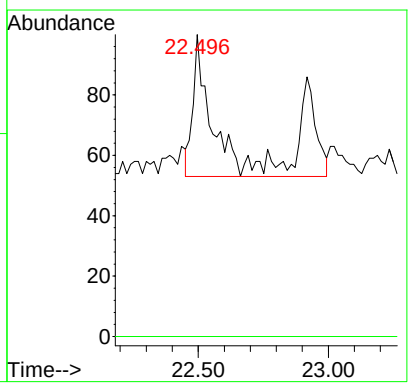


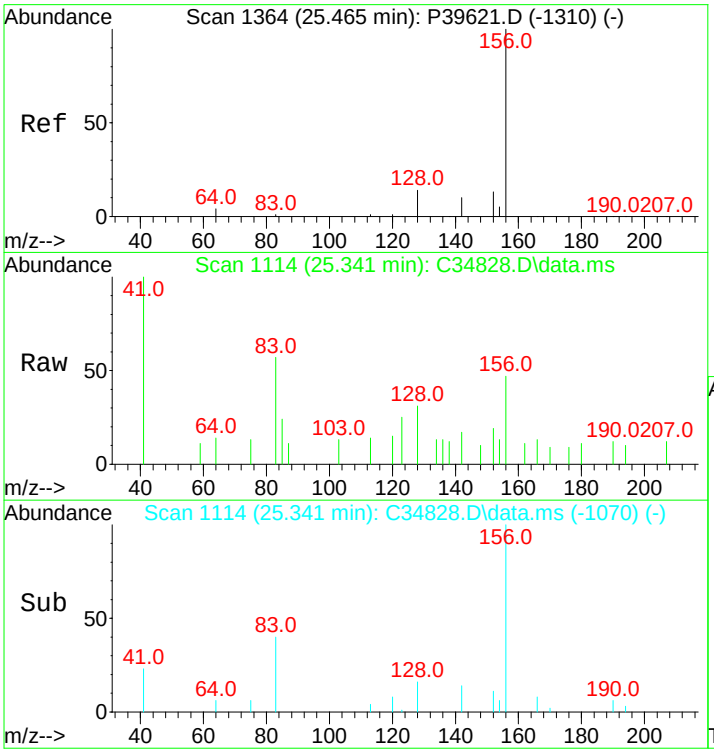


#11
C1-Naphthalenes
Concen: 3.42 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:142 Resp: 396

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

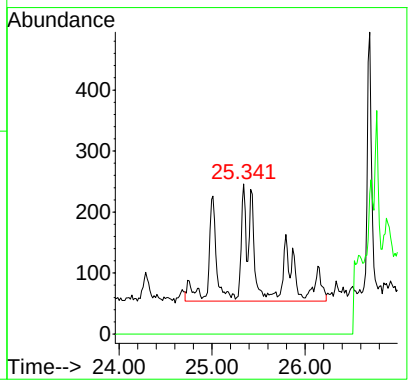


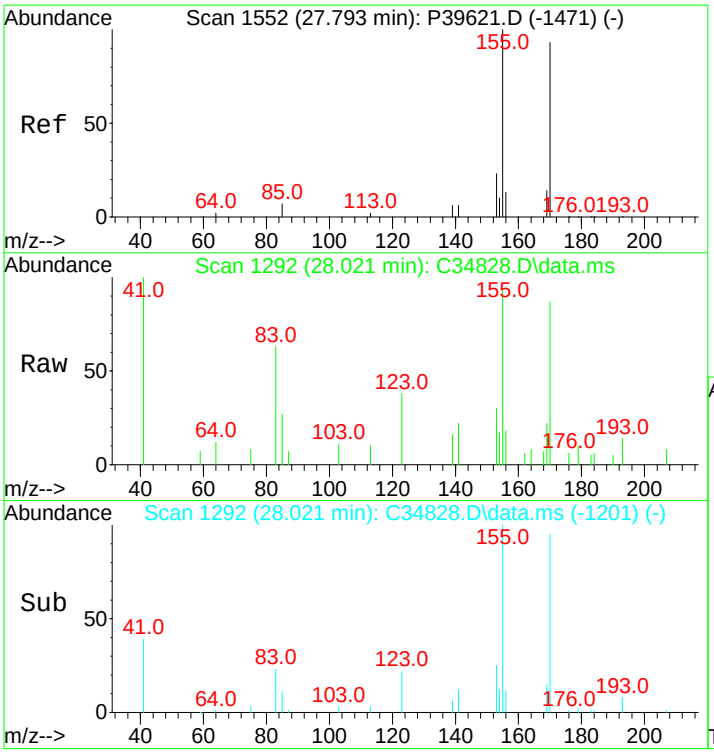


#12
C2-Naphthalenes
Concen: 30.87 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:156 Resp: 3570

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

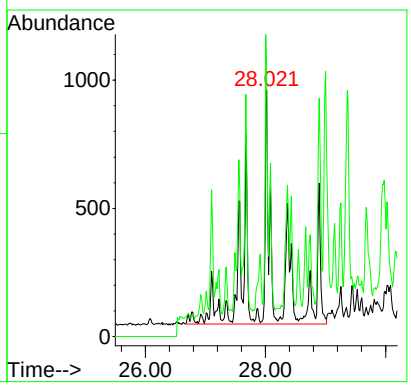


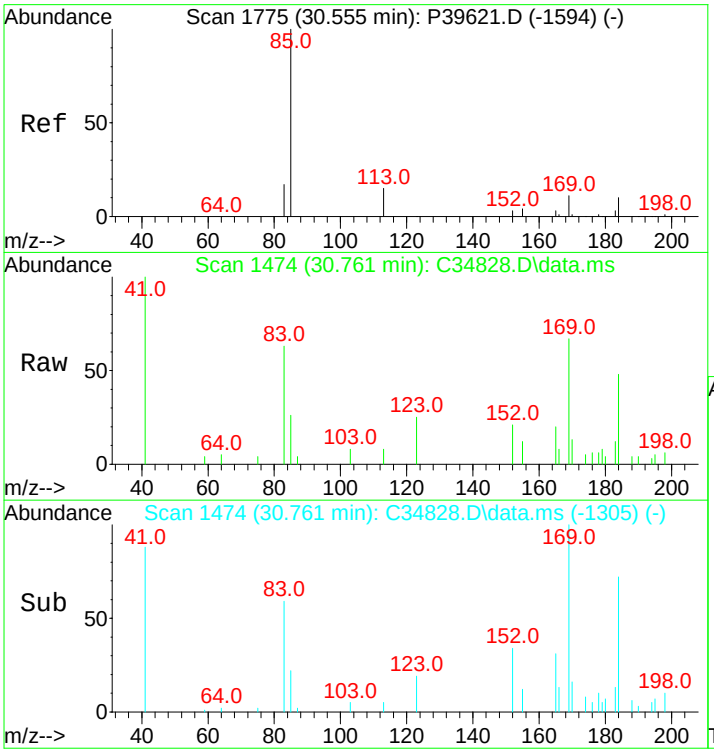


#13
C3-Naphthalenes
Concen: 133.74 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:170 Resp: 15468

Ion	Ratio	Lower	Upper
170	100		
155	19.0	81.8	122.6#

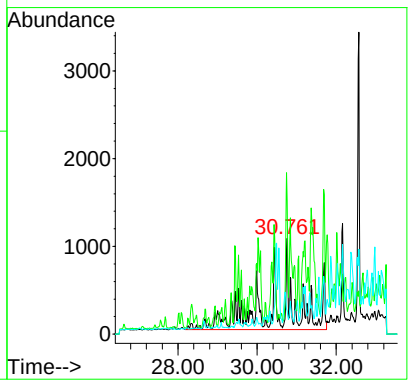


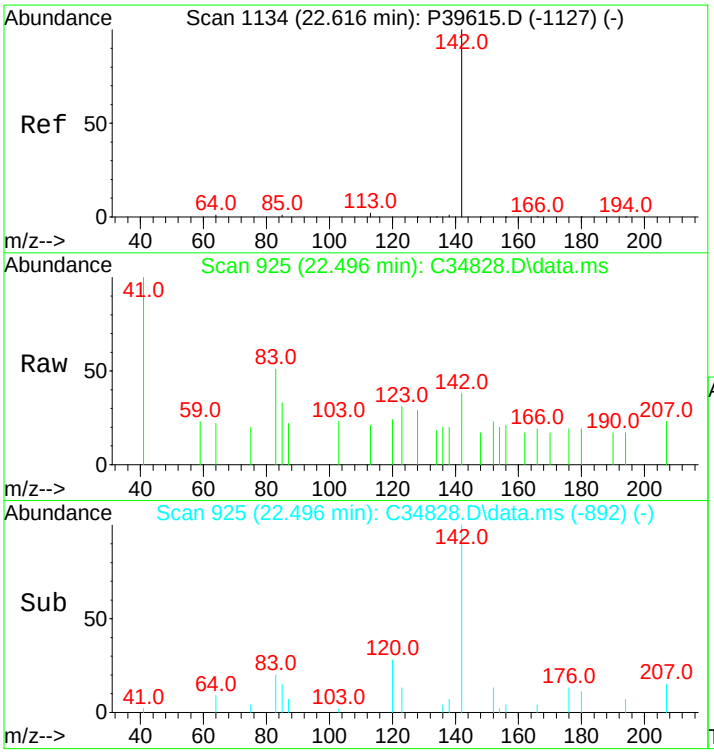


#14
C4-Naphthalenes
Concen: 296.14 ng/mL m
RT: 30.761 min Scan# 1474
Delta R.T. 0.348 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:184 Resp: 34251

Ion	Ratio	Lower	Upper
184	100		
169	9.9	77.4	116.0#
183	0.0	14.8	22.2#

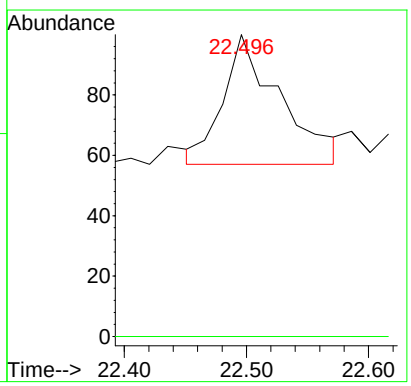


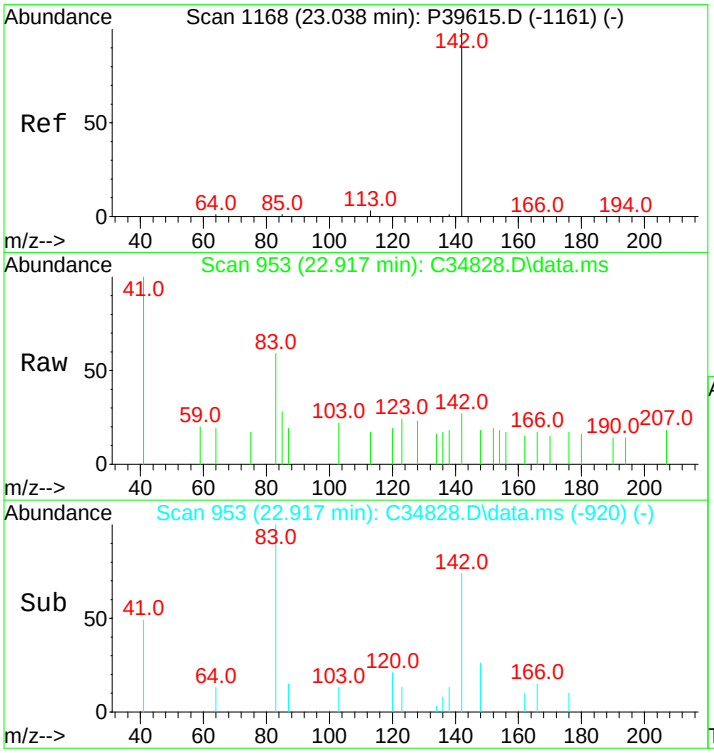


#16
2-Methylnaphthalene
Concen: 2.05 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:142 Resp: 140

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

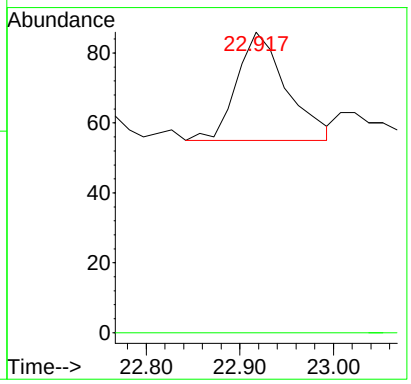


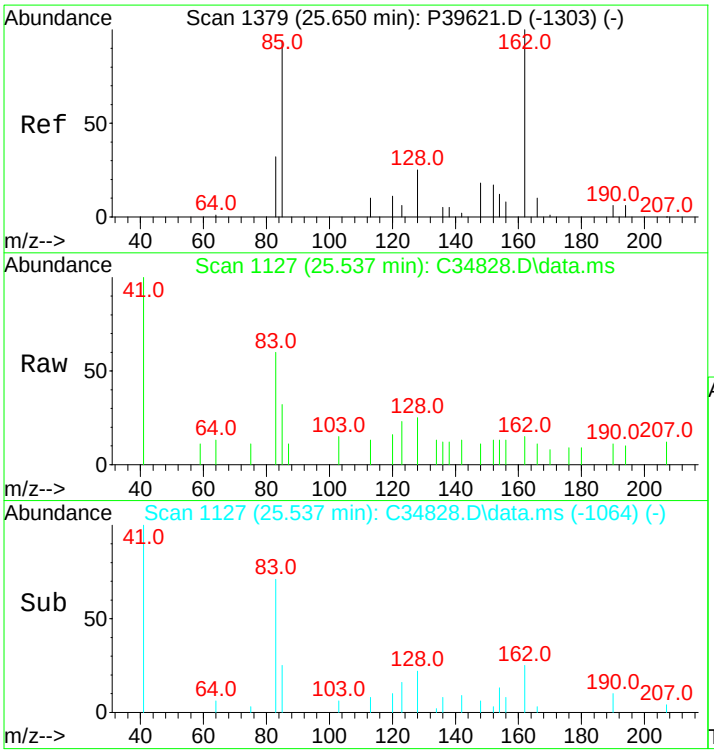


#17
1-Methylnaphthalene
Concen: 1.72 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:142 Resp: 115

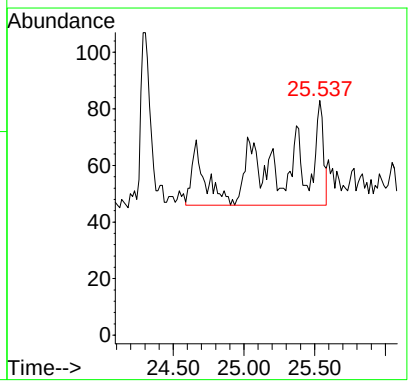
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

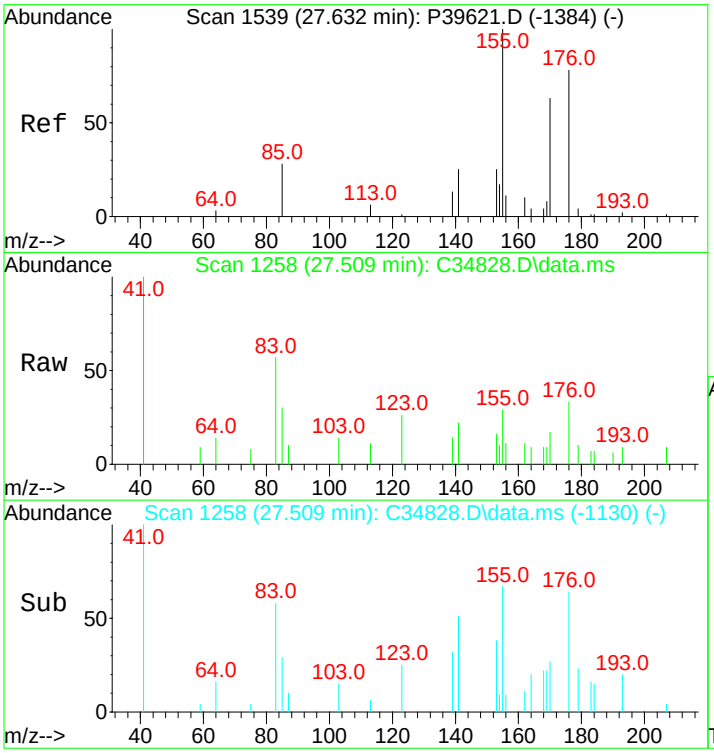




#20
C2-Benzo(b)thiophenes
Concen: 6.67 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

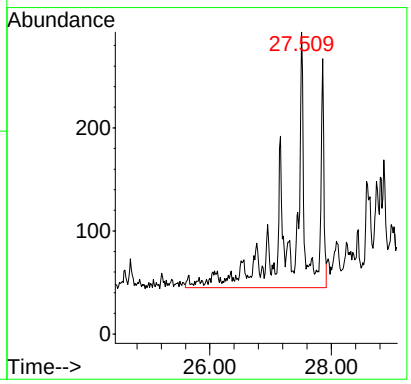
Tgt Ion:162 Resp: 694

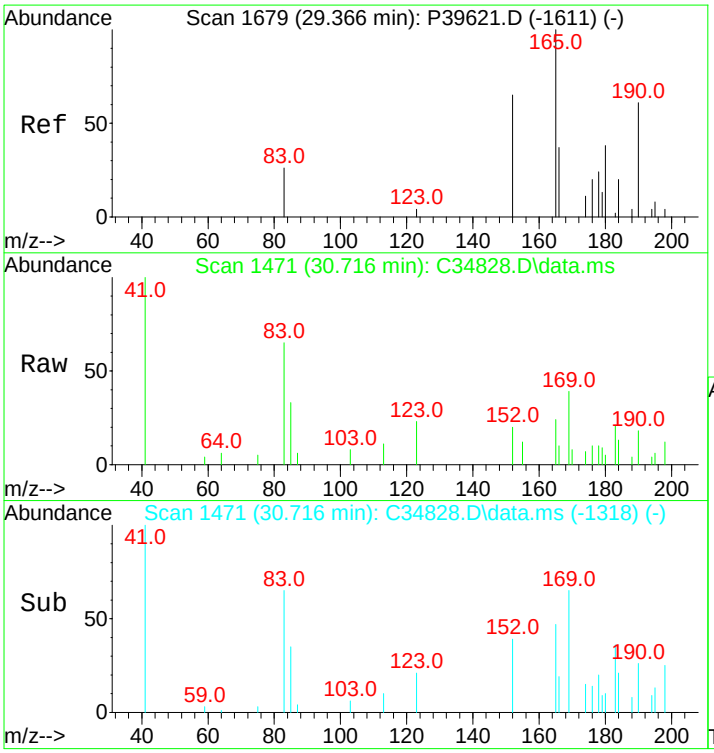




#21
C3-Benzo(b)thiophenes
Concen: 38.27 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

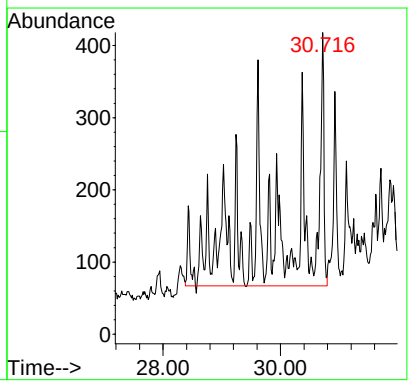
Tgt Ion:176 Resp: 3983

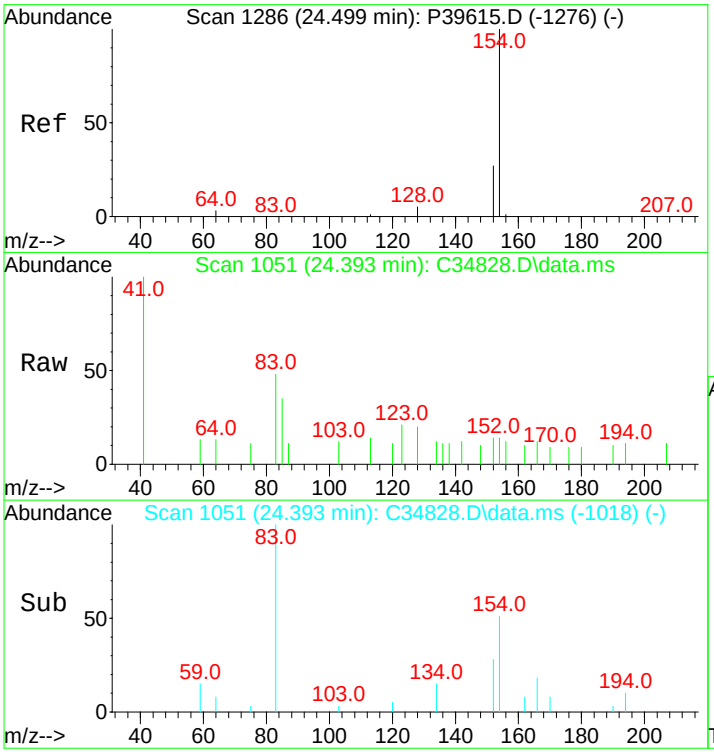




#22
C4-Benzo(b)thiophenes
Concen: 89.71 ng/mL m
RT: 30.716 min Scan# 1471
Delta R.T. 1.487 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:190 Resp: 9337

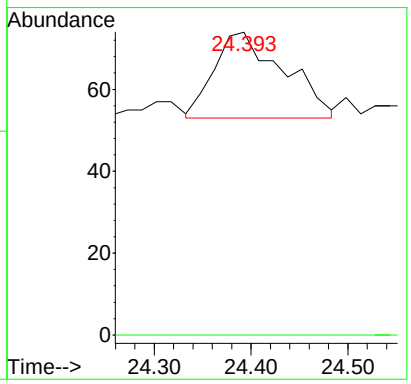


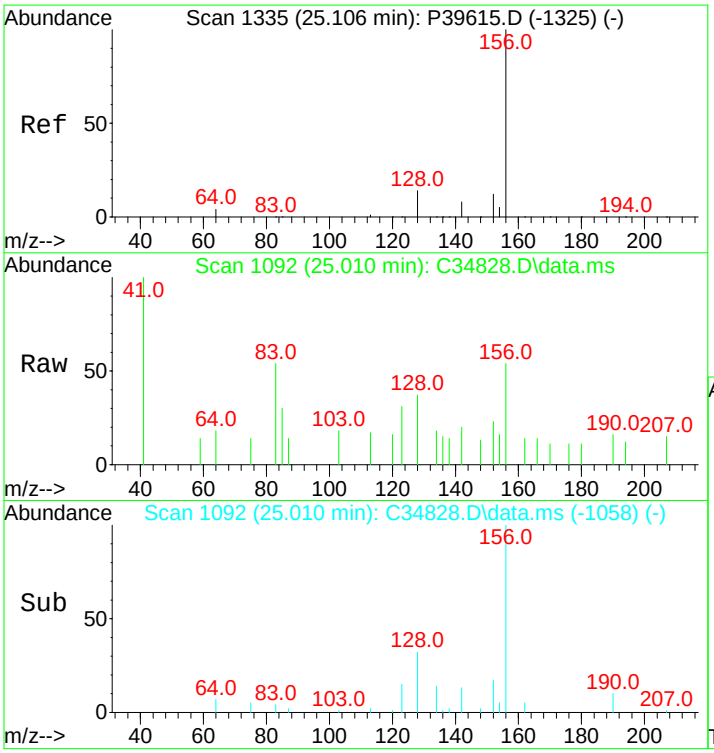


#23
Biphenyl
Concen: 1.21 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:154 Resp: 105

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

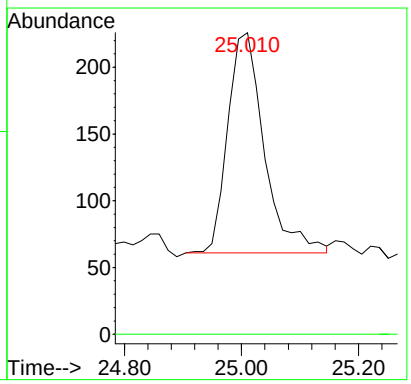


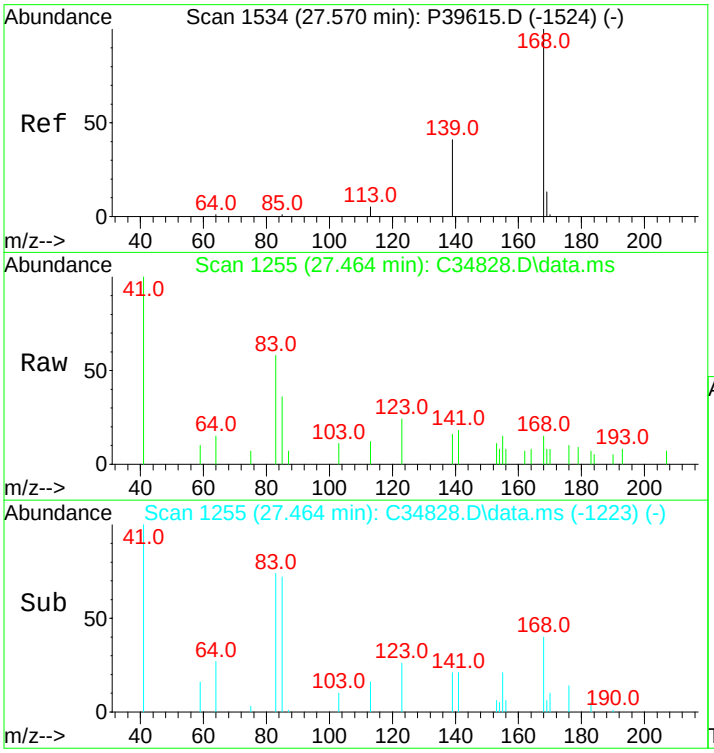


#24
2,6-Dimethylnaphthalene
Concen: 12.71 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:156 Resp: 714

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

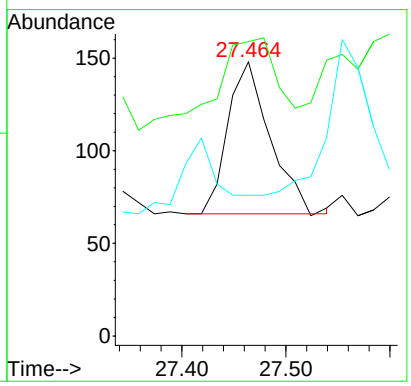


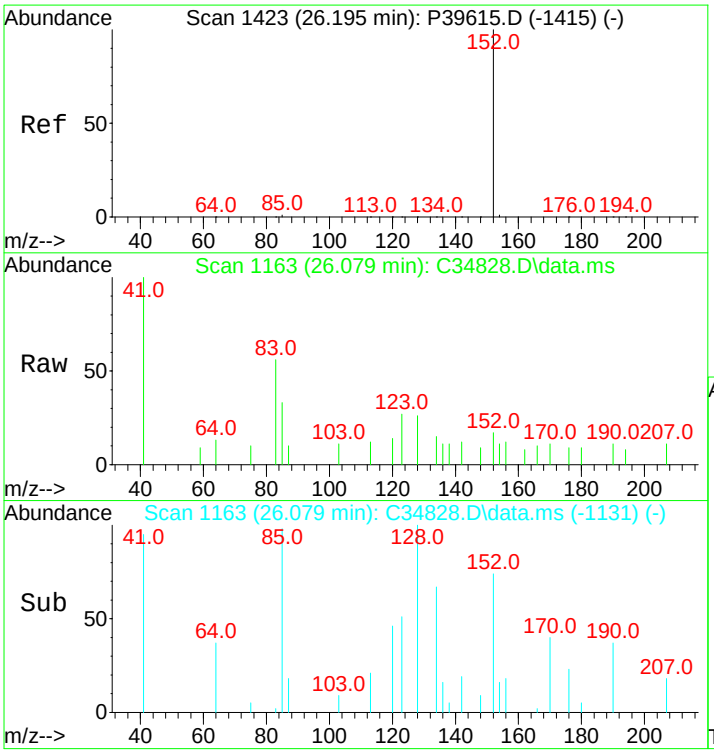


#25
Dibenzofuran
Concen: 2.35 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:168 Resp: 233

Ion	Ratio	Lower	Upper
168	100		
139	67.0	28.4	42.6#
169	0.0	10.8	16.2#

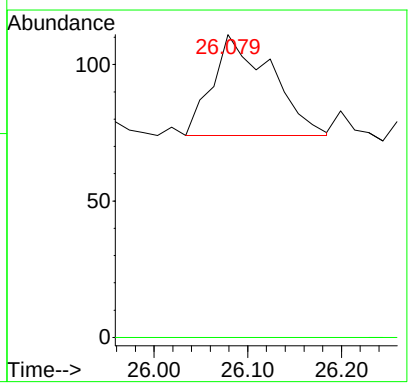


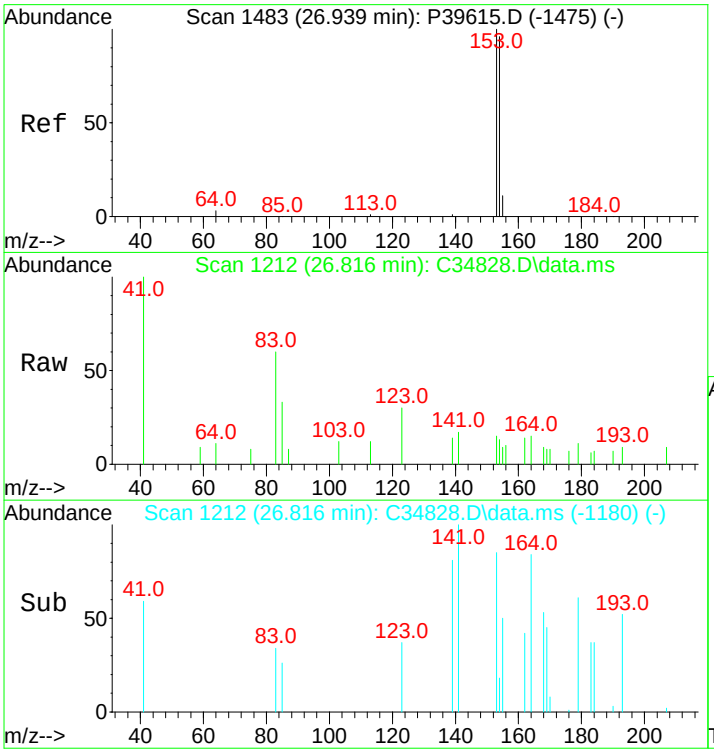


#26
Acenaphthylene
Concen: 1.40 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:152 Resp: 161

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

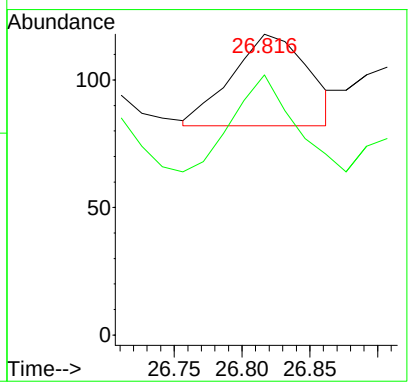


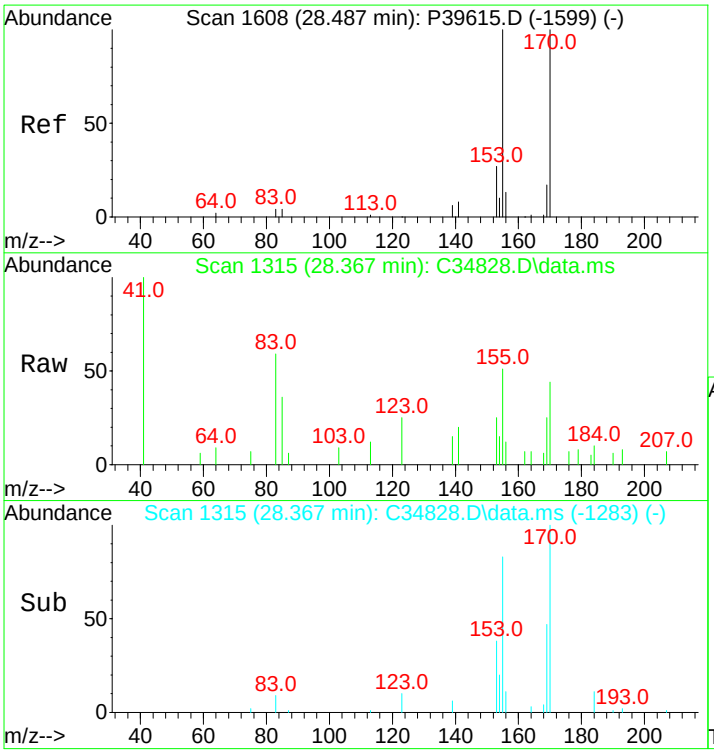


#27
Acenaphthene
Concen: 2.10 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:153 Resp: 142

Ion	Ratio	Lower	Upper
153	100		
154	85.2	73.6	110.4

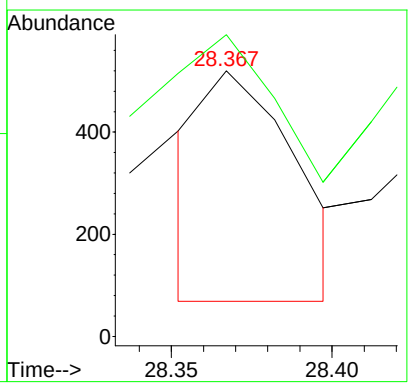


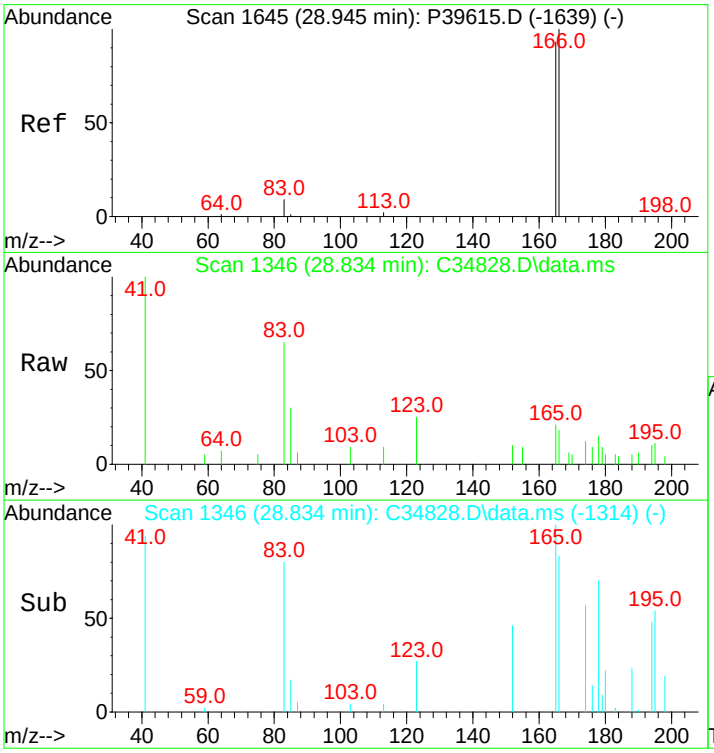


#28
2,3,5-Trimethylnaphthalene
Concen: 19.72 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:170 Resp: 893

Ion	Ratio	Lower	Upper
170	100		
155	212.5	87.3	130.9#

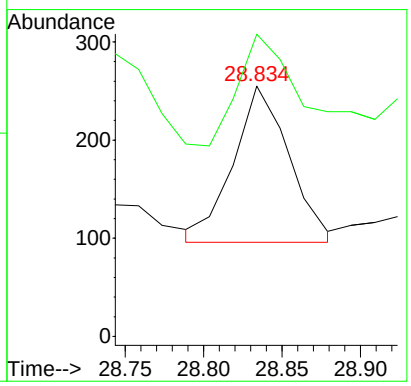


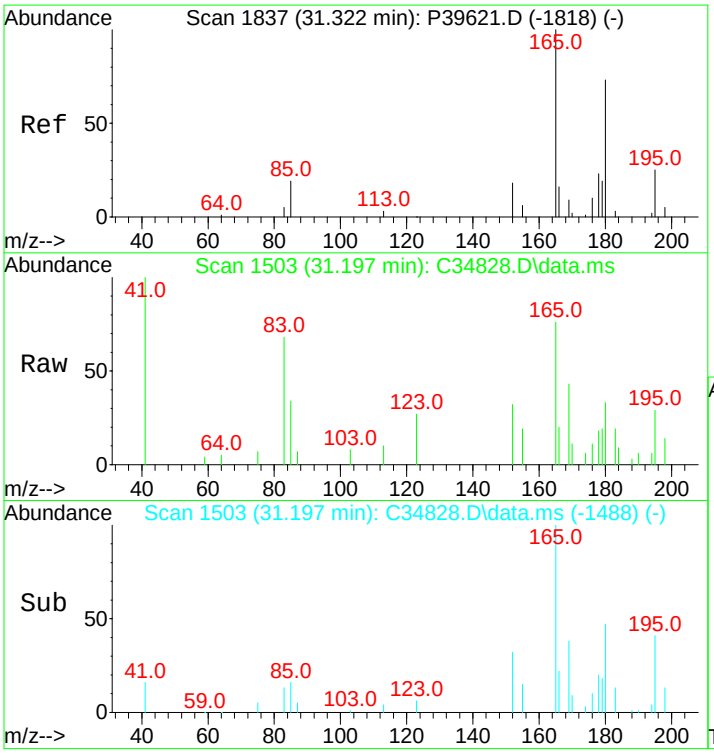


#29
Fluorene
Concen: 5.27 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:166 Resp: 393

Ion	Ratio	Lower	Upper
166	100		
165	136.4	77.3	115.9#

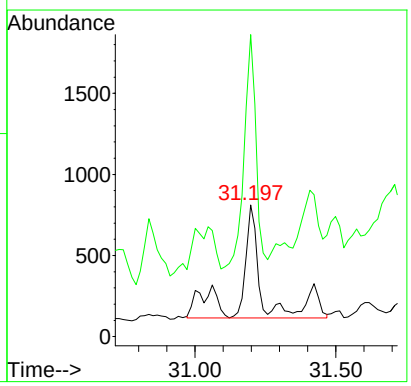


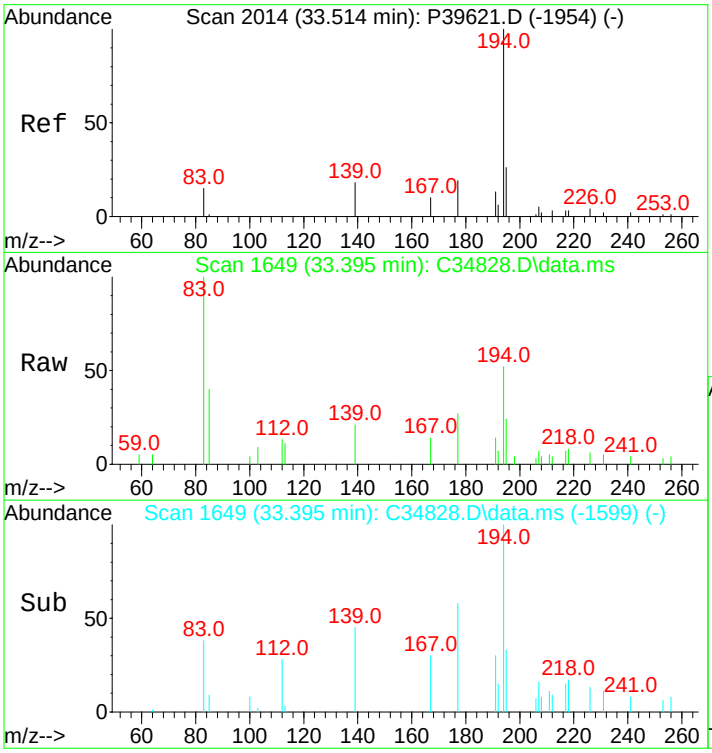


#30
C1-Fluorenes
Concen: 50.28 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:180 Resp: 3749

Ion	Ratio	Lower	Upper
180	100		
165	109.7	111.4	167.2#

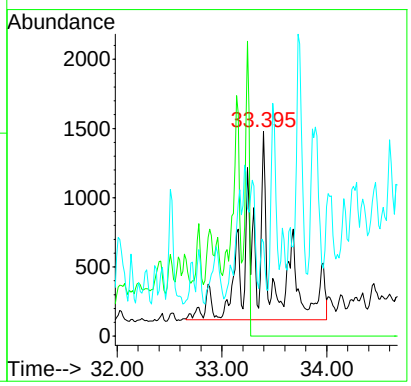


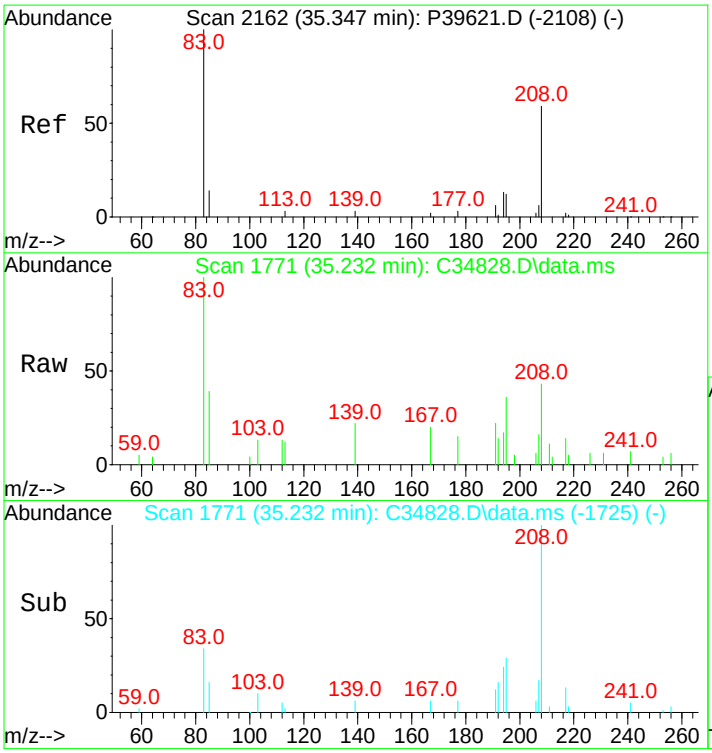


#31
C2-Fluorenes
Concen: 263.17 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:194 Resp: 19621

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.0	27.3	40.9#

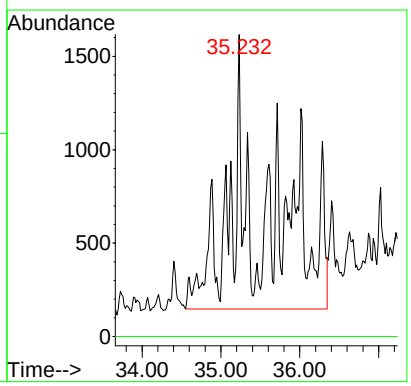


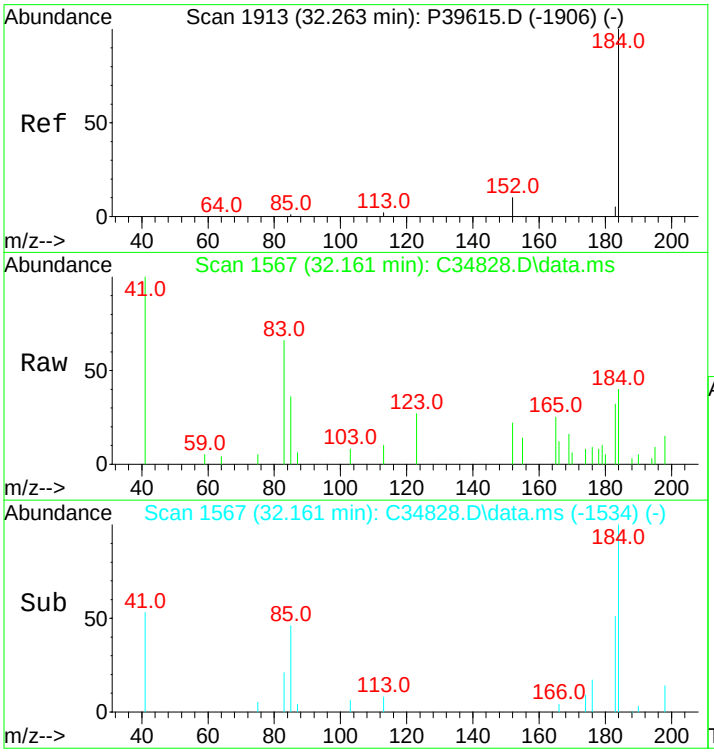


#32
C3-Fluorenes
Concen: 563.84 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:208 Resp: 42038

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

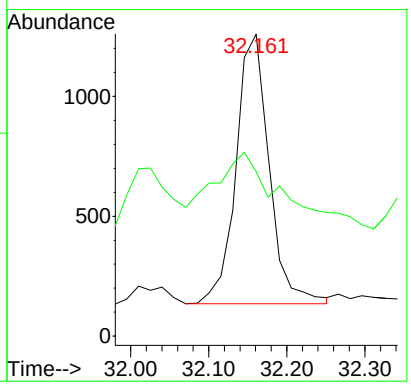


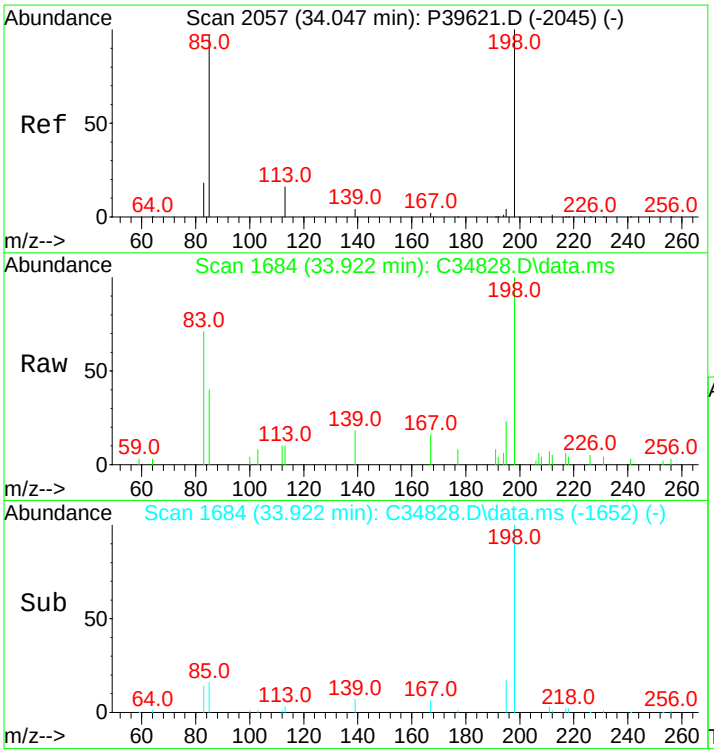


#33
Dibenzothiophene
Concen: 27.84 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:184 Resp: 3327

Ion	Ratio	Lower	Upper
184	100		
152	58.7	7.5	11.3#

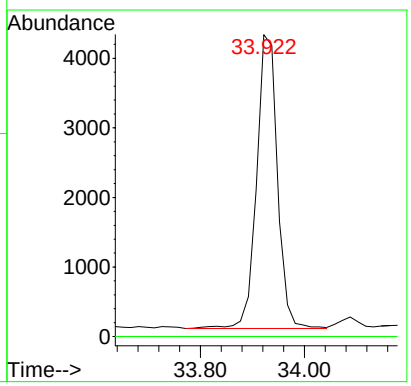


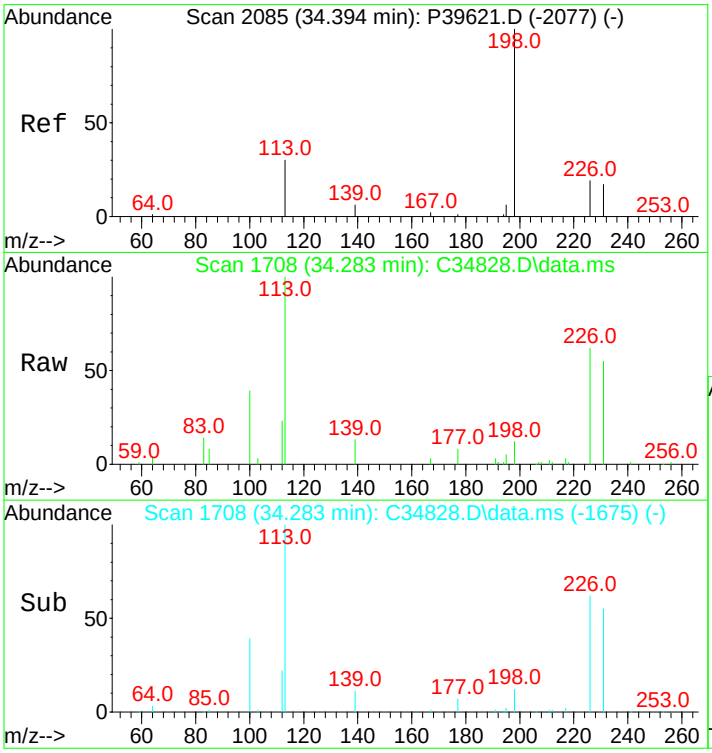


#34
4-Methyldibenzothiophene(4MDT)
Concen: 98.50 ng/mL
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:198 Resp: 11772

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

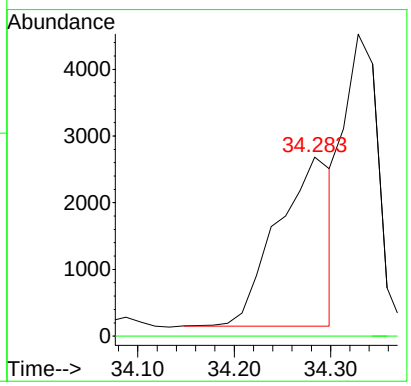


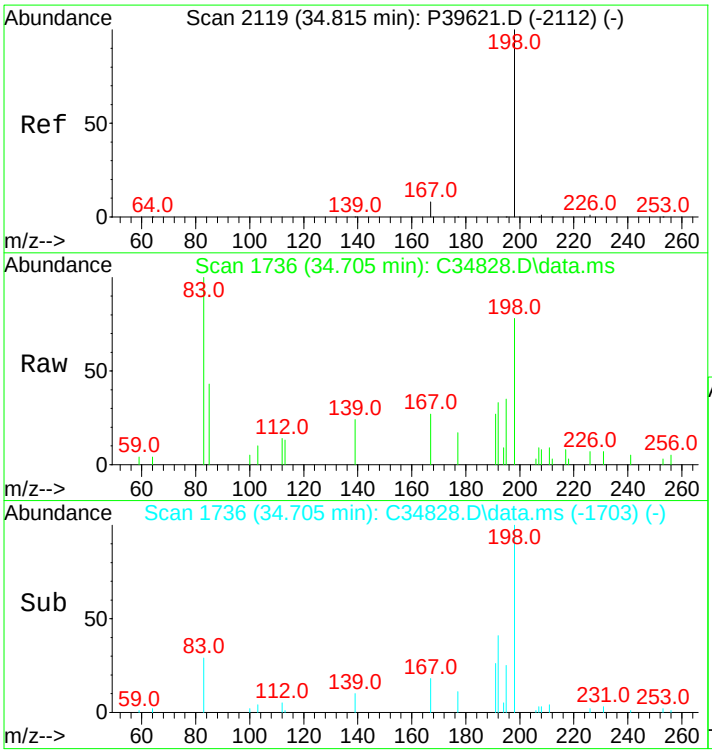


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 83.67 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:198 Resp: 10000

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

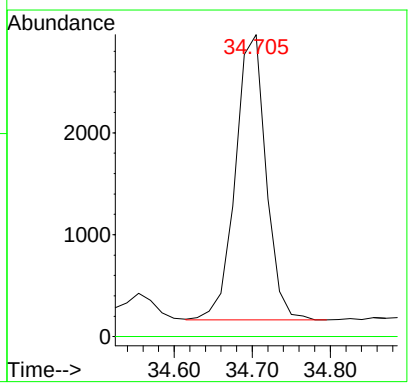


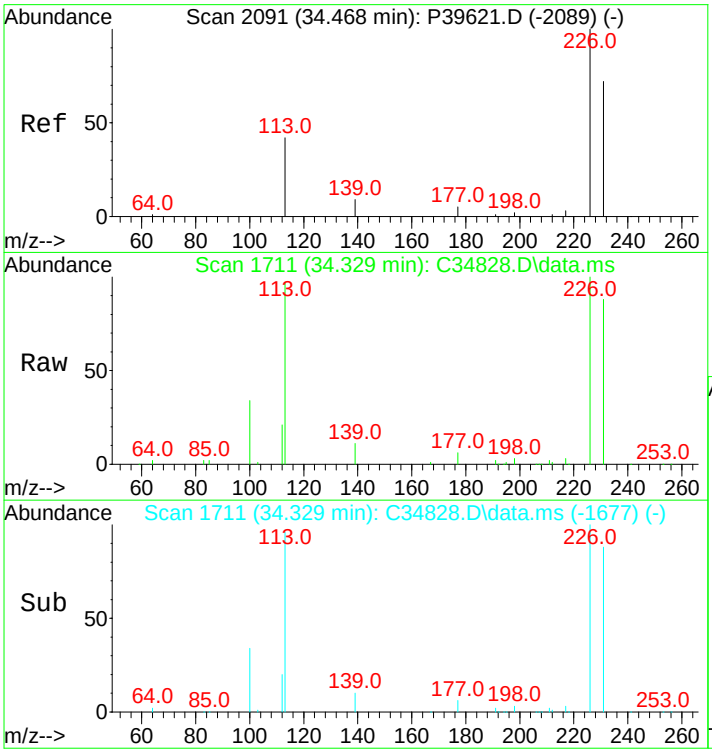


#36
1-Methyldibenzothiophene(1MDT)
Concen: 63.96 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:198 Resp: 7644

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

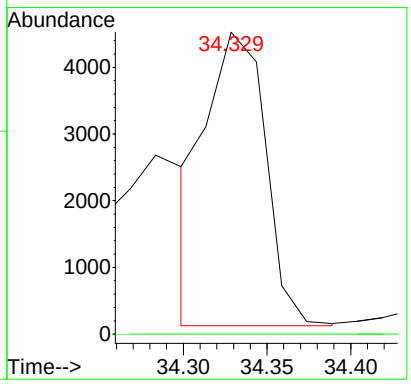


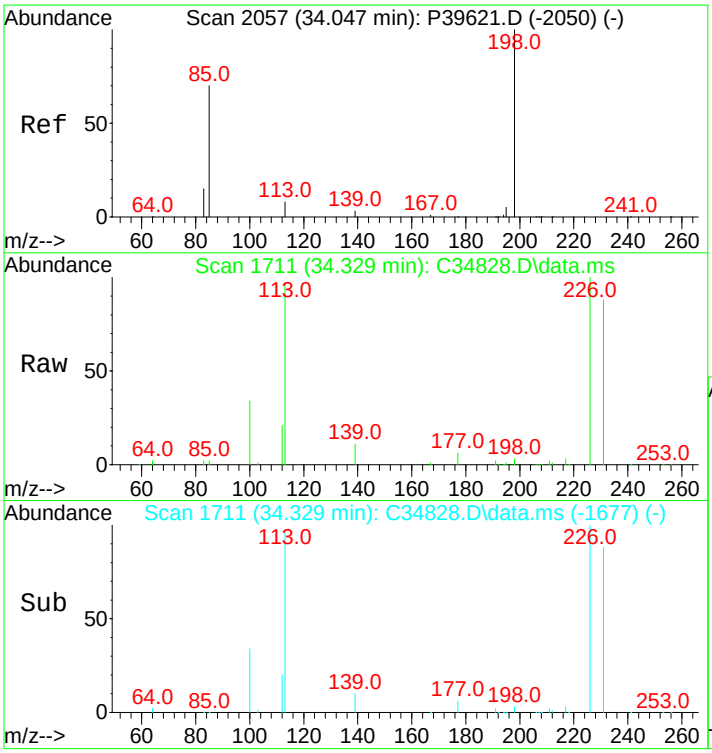


#37
OTP
Concen: 90.99 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:198 Resp: 10875

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

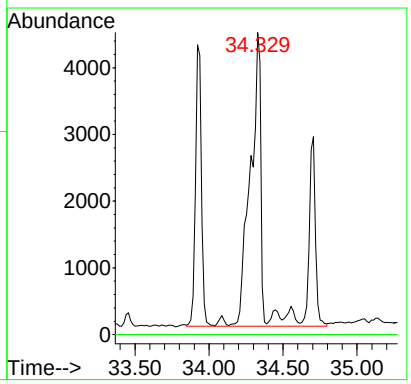


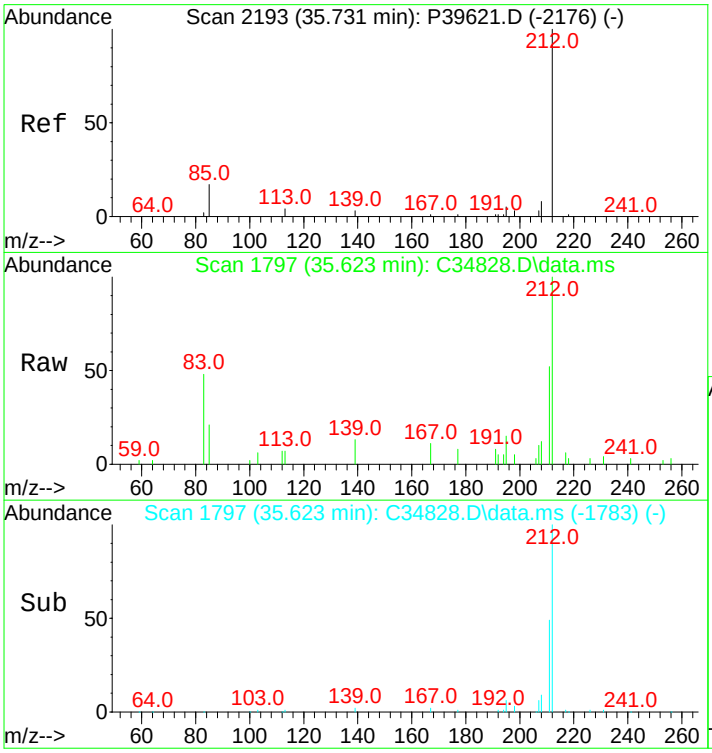


#38
C1-Dibenzothiophenes
Concen: 362.15 ng/mL m
RT: 34.329 min Scan# 1711
Delta R.T. 0.454 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:198 Resp: 43281

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

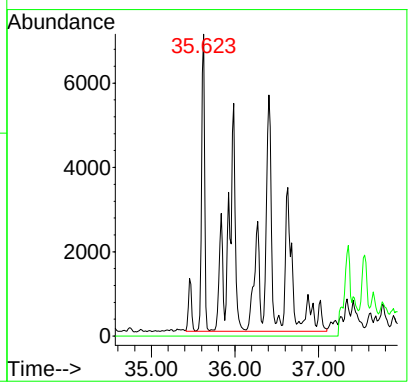


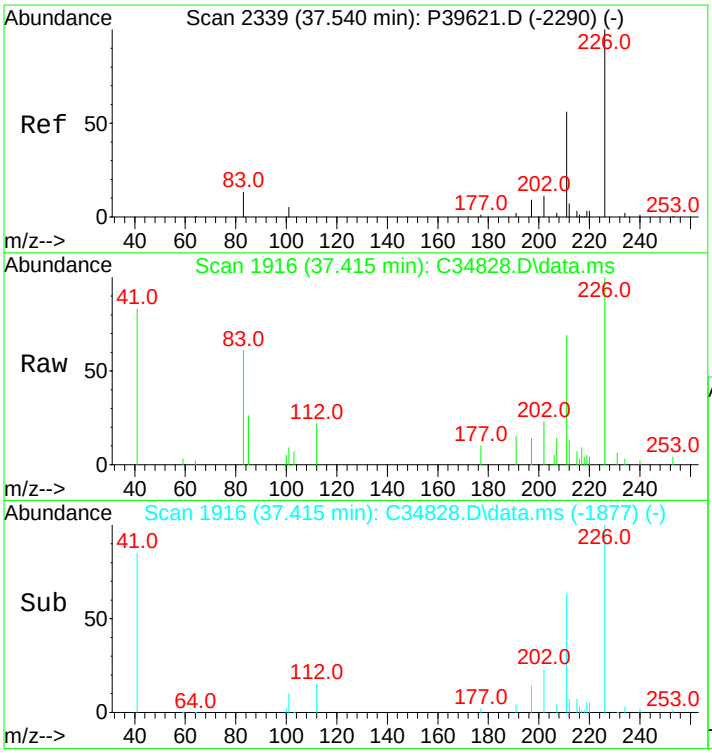


#39
C2-Dibenzothiophenes
Concen: 916.28 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:212 Resp: 109507

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

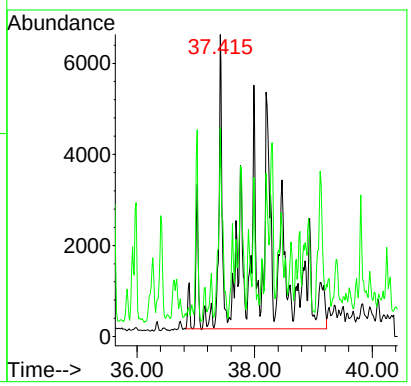


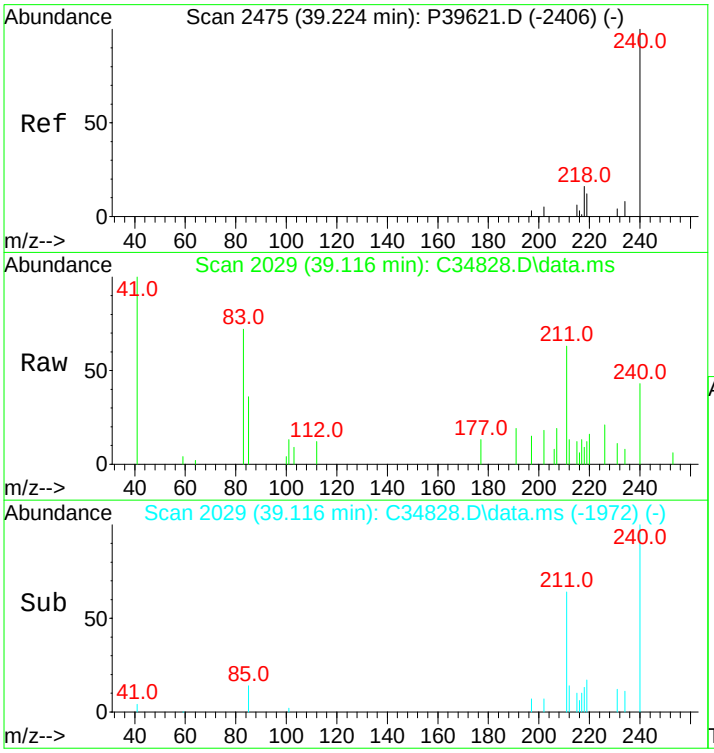


#40
C3-Dibenzothiophenes
Concen: 1385.48 ng/mL m
RT: 37.415 min Scan# 1916
Delta R.T. 0.063 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:226 Resp: 165583

Ion	Ratio	Lower	Upper
226	100		
211	1.5	45.0	67.6#

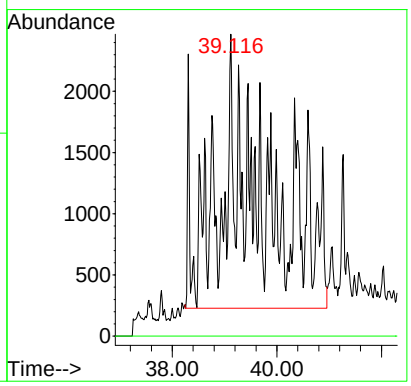


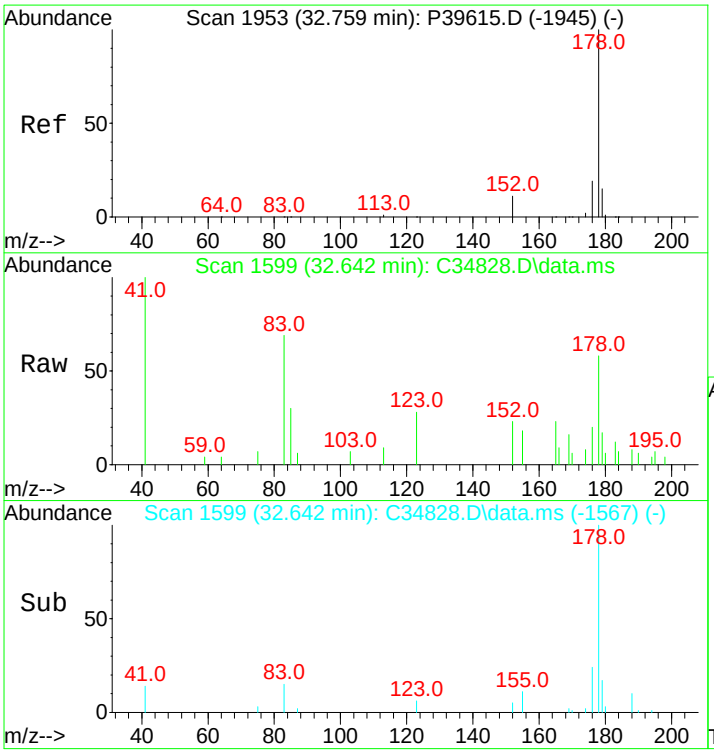


#41
C4-Dibenzothiophenes
Concen: 1062.54 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:240 Resp: 126987

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

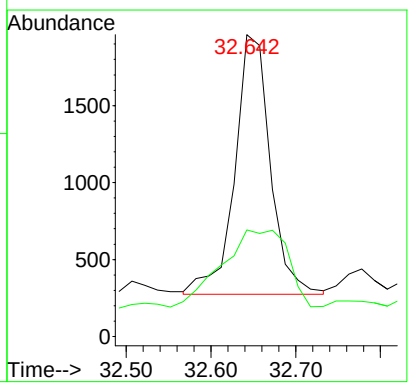


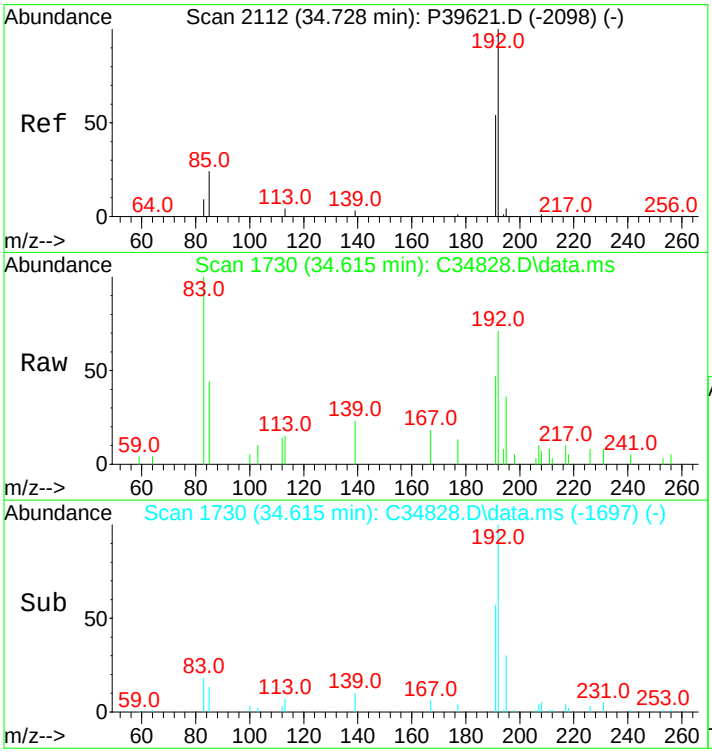


#43
Phenanthrene
Concen: 46.85 ng/mL m
RT: 32.642 min Scan# 1599
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:178 Resp: 4919

Ion	Ratio	Lower	Upper
178	100		
176	54.9	16.1	24.1#

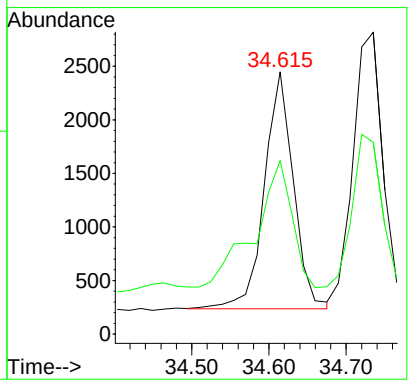


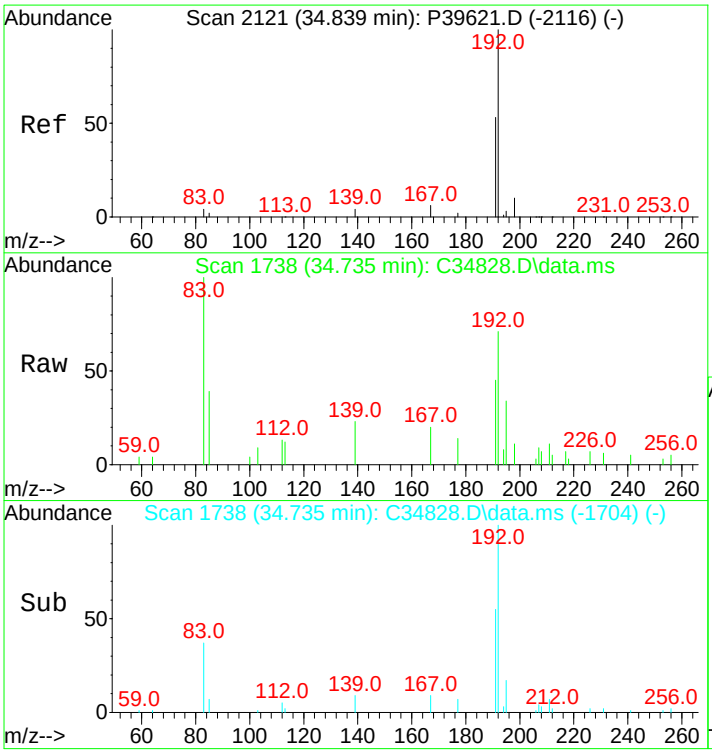


#44
3-Methylphenanthrene(3MP)
Concen: 55.24 ng/mL m
RT: 34.615 min Scan# 1730
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 5800

Ion	Ratio	Lower	Upper
192	100		
191	73.3	46.9	70.3#

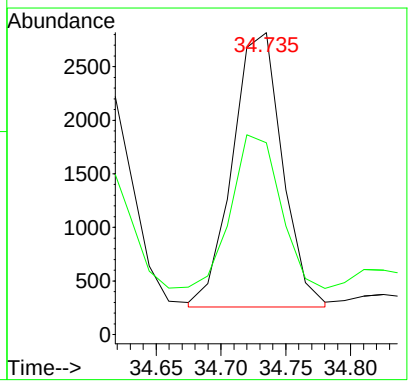


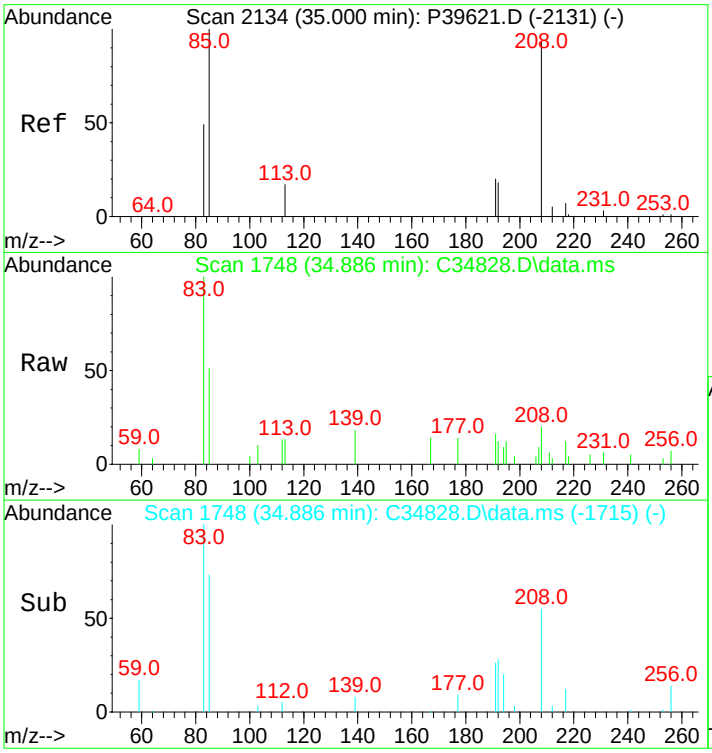


#45
2/4-Methylphenanthrene(2MP)
Concen: 65.21 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 6847

Ion	Ratio	Lower	Upper
192	100		
191	55.3	46.1	69.1

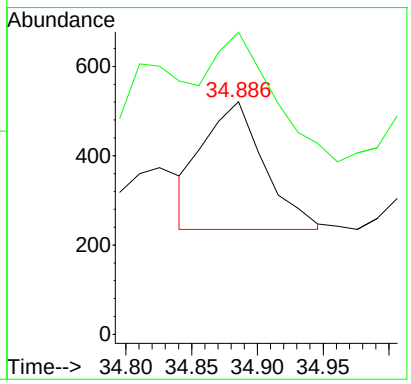


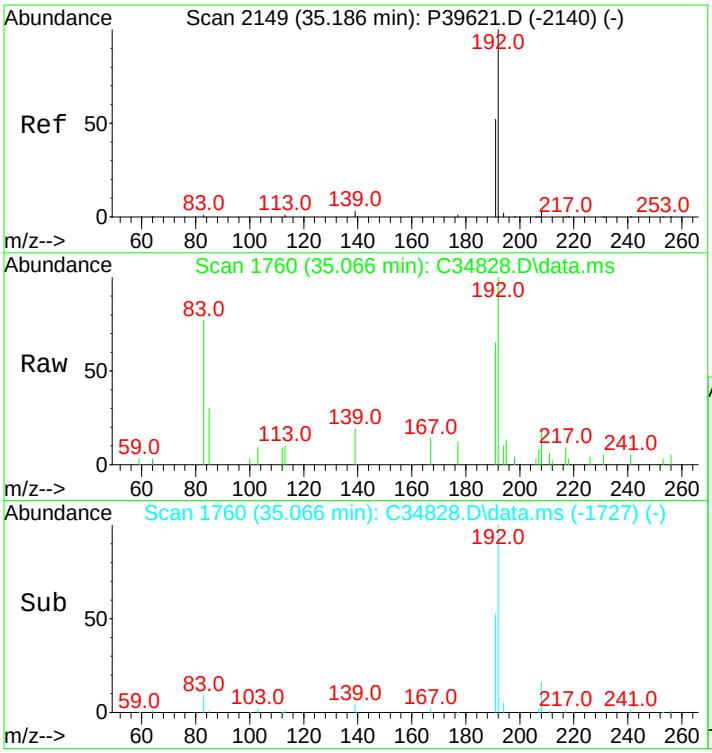


#46
2-Methylanthracene(2MA)
Concen: 8.73 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 917

Ion	Ratio	Lower	Upper
192	100		
191	97.2	93.4	140.0

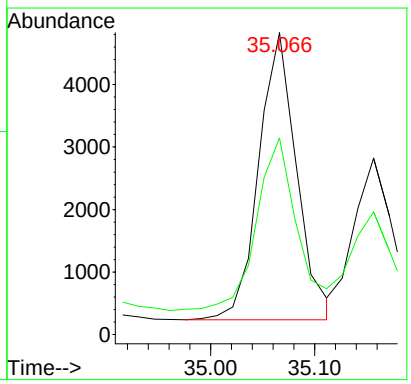


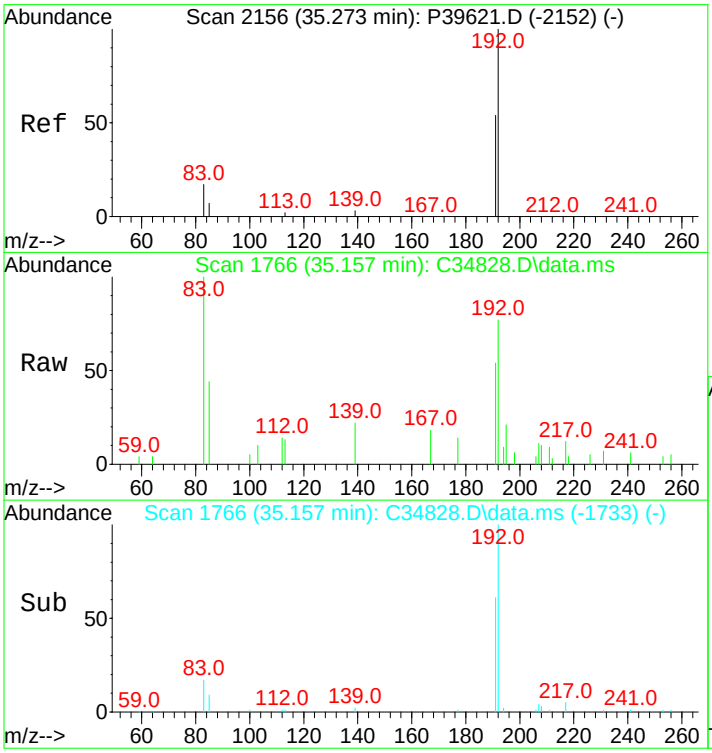


#47
9-Methylphenanthrene(9MP)
Concen: 111.06 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 11661

Ion	Ratio	Lower	Upper
192	100		
191	64.0	45.9	68.9

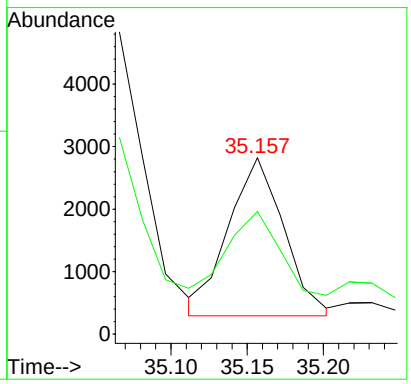


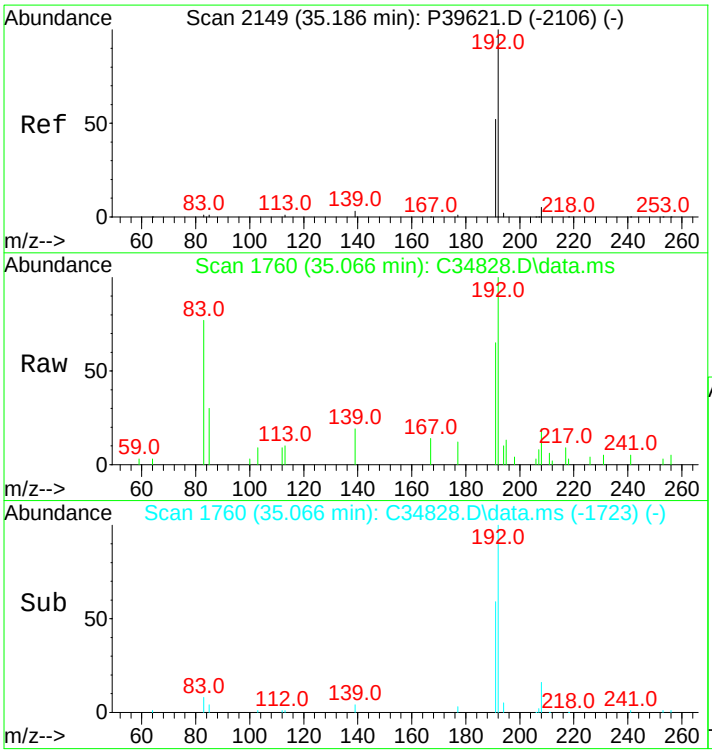


#48
1-Methylphenanthrene(1MP)
Concen: 60.66 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 6369

Ion	Ratio	Lower	Upper
192	100		
191	53.4	49.0	73.4

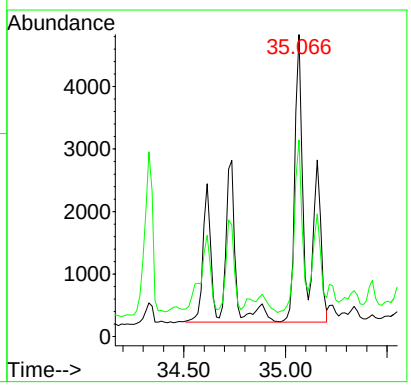


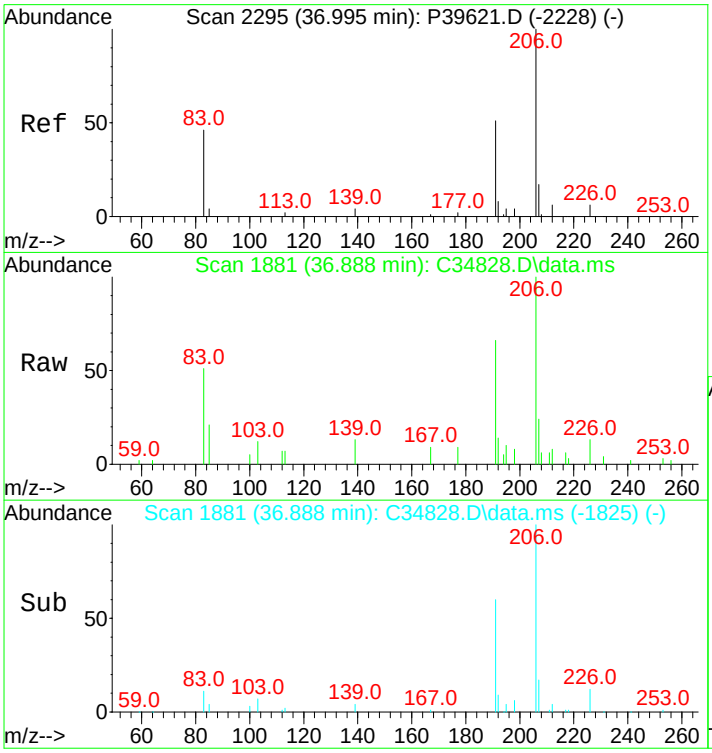


#49
C1-Phenanthrenes/Anthracenes
Concen: 310.36 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.053 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 32588

Ion	Ratio	Lower	Upper
192	100		
191	22.9	44.2	66.2#

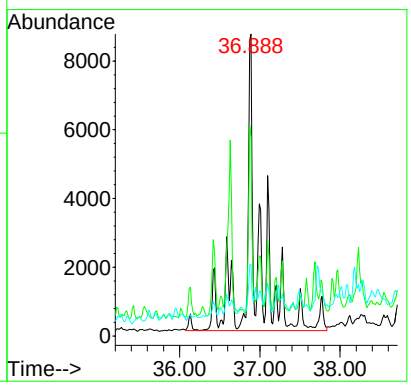


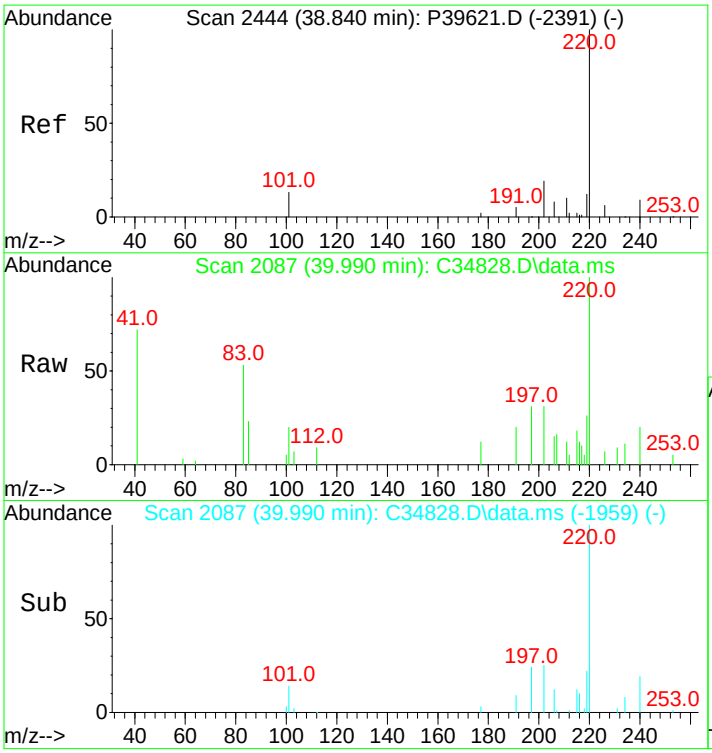


#50
C2-Phenanthrenes/Anthracenes
Concen: 850.86 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:206 Resp: 89342

Ion	Ratio	Lower	Upper
206	100		
191	18.0	44.0	66.0#
207	4.6	15.1	22.7#

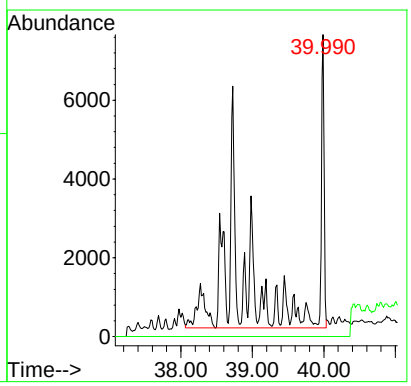


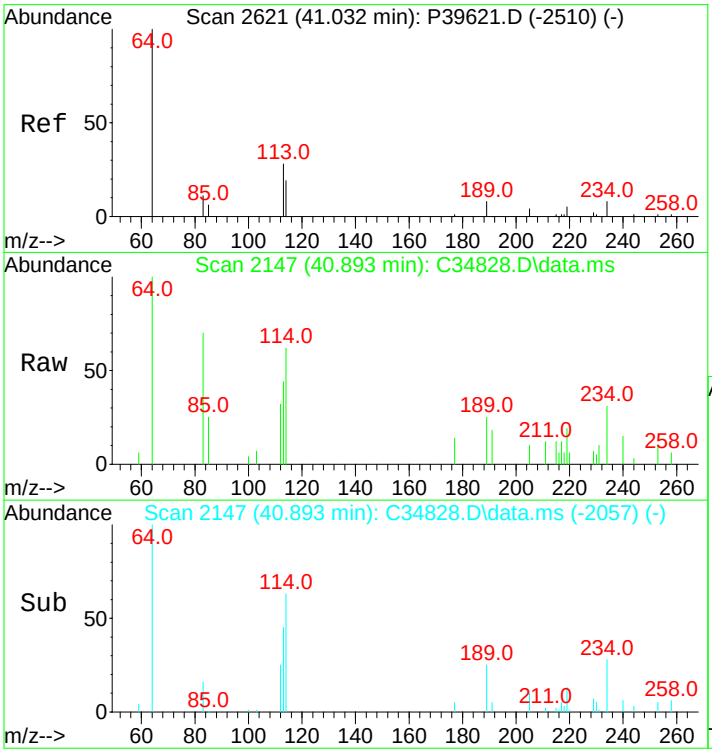


#52
C3-Phenanthrenes/Anthracenes
Concen: 964.91 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:220 Resp: 101318

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

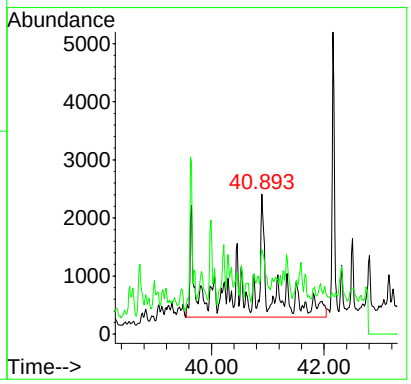


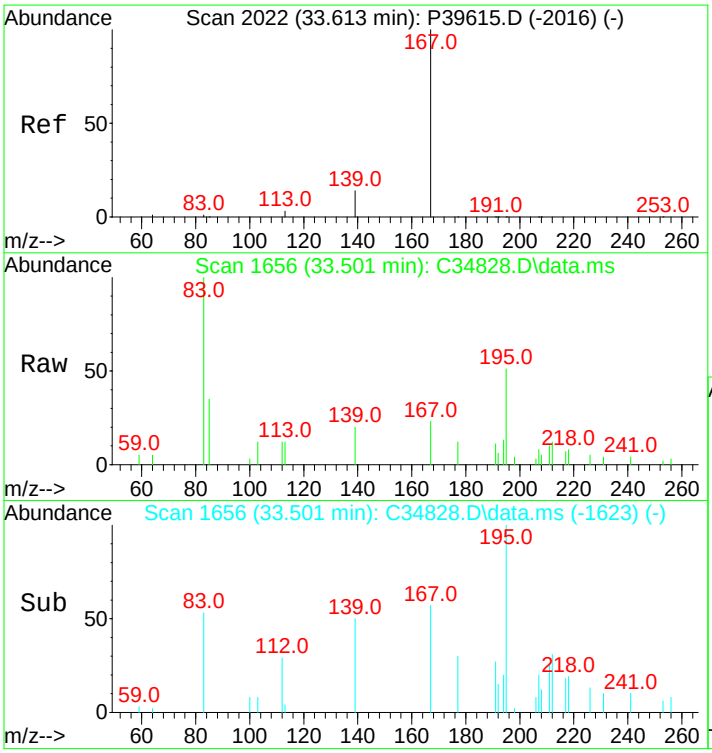


#53
C4-Phenanthrenes/Anthracenes
Concen: 549.51 ng/mL m
RT: 40.893 min Scan# 2147
Delta R.T. 0.094 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:234 Resp: 57700

Ion	Ratio	Lower	Upper
234	100		
219	0.9	46.9	70.3#

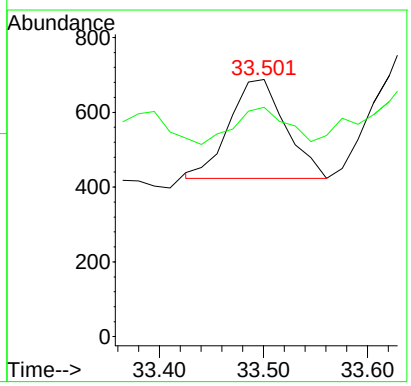


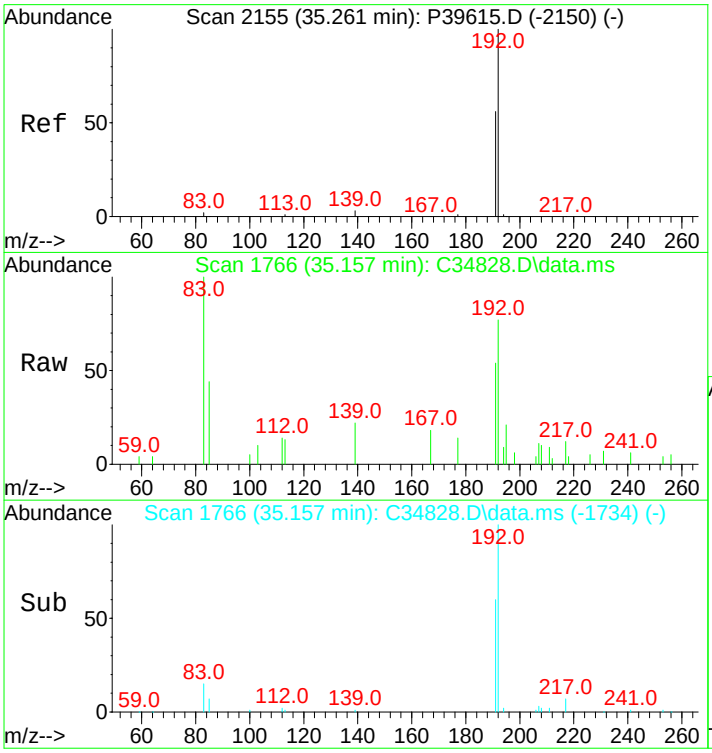


#56
Carbazole
Concen: 9.63 ng/mL
RT: 33.501 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:167 Resp: 998

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

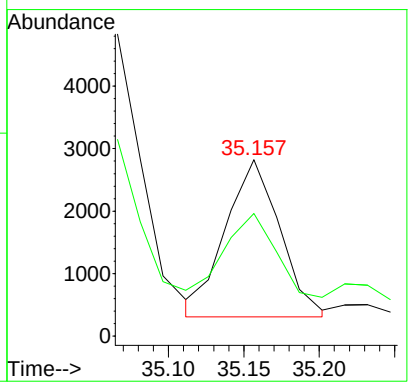


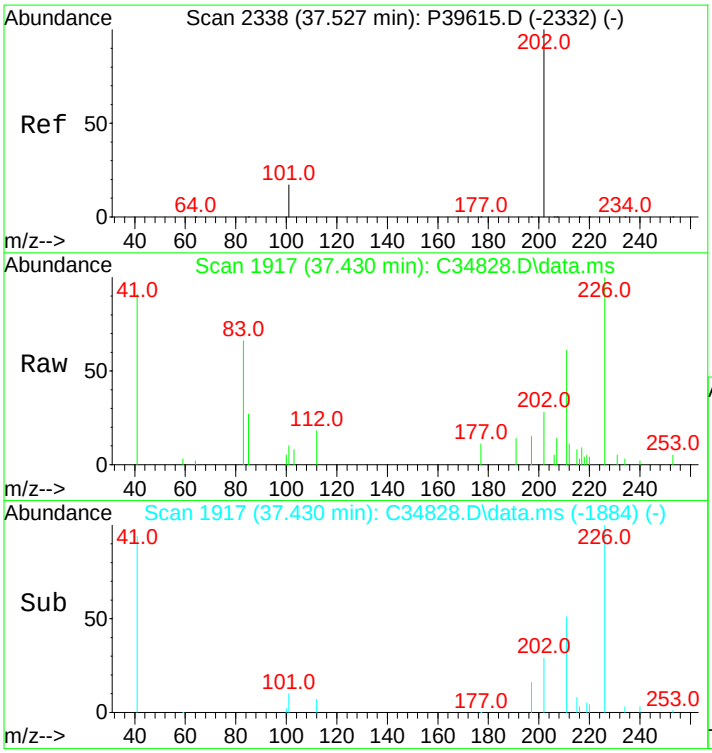


#57
1-Methylphenanthrene
Concen: 94.74 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:192 Resp: 6304

Ion	Ratio	Lower	Upper
192	100		
191	56.1	45.9	68.9

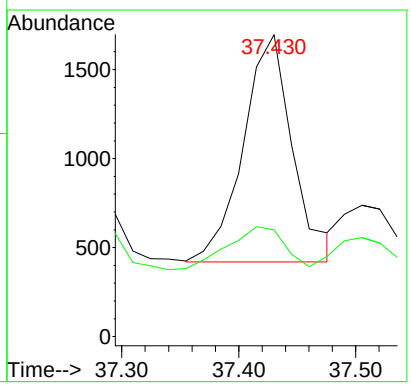


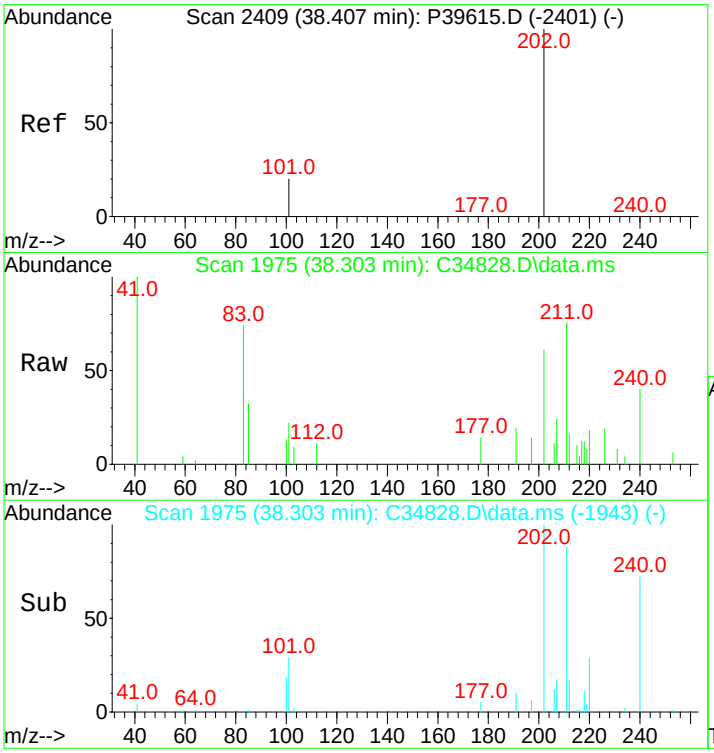


#58
Fluoranthene
Concen: 35.72 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:202 Resp: 3725

Ion	Ratio	Lower	Upper
202	100		
101	56.6	12.9	19.3#

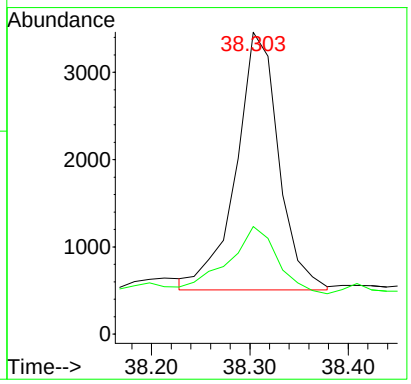


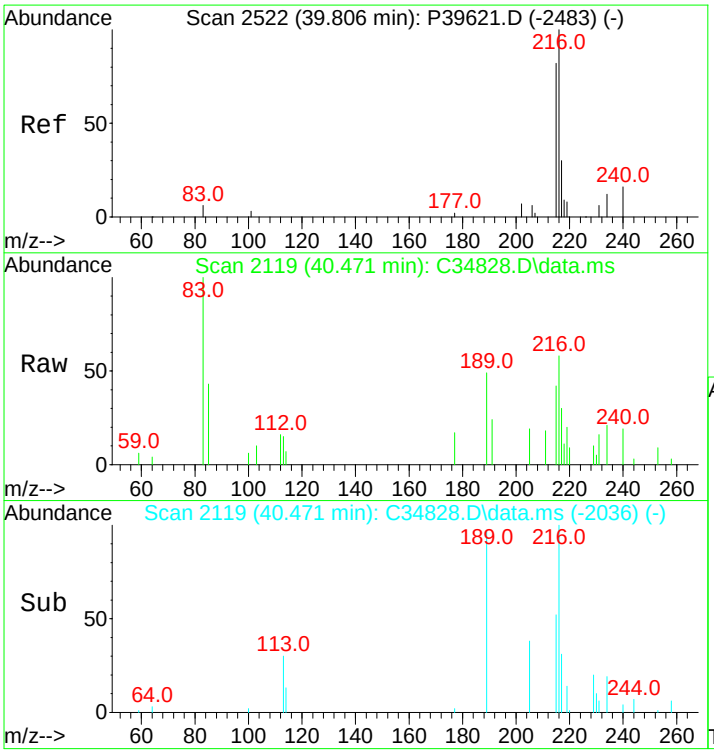


#60
Pyrene
Concen: 83.85 ng/mL m
RT: 38.303 min Scan# 1975
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:202 Resp: 8889

Ion	Ratio	Lower	Upper
202	100		
101	30.6	15.0	22.4#

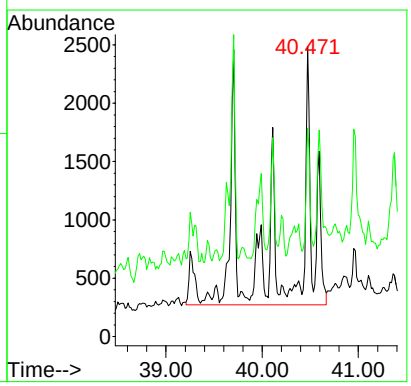


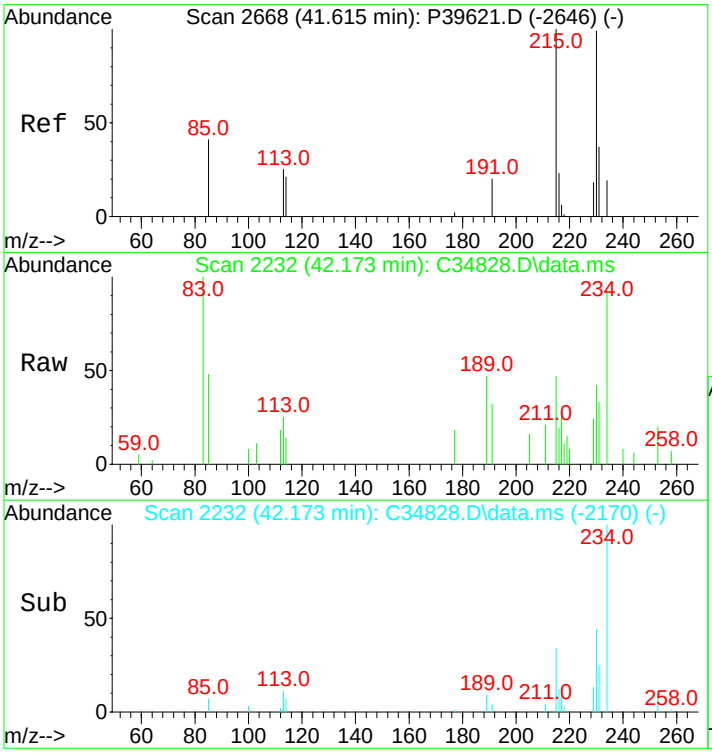


#61
C1-Fluoranthenes/Pyrenes
Concen: 279.56 ng/mL m
RT: 40.471 min Scan# 2119
Delta R.T. 0.856 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:216 Resp: 29636

Ion	Ratio	Lower	Upper
216	100		
215	23.3	71.8	107.6#

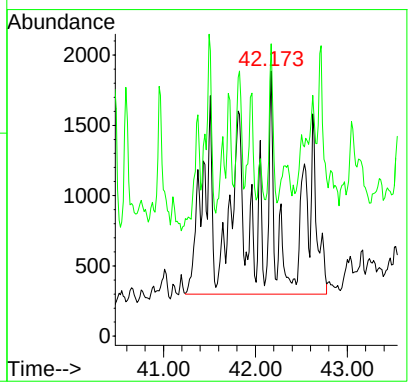


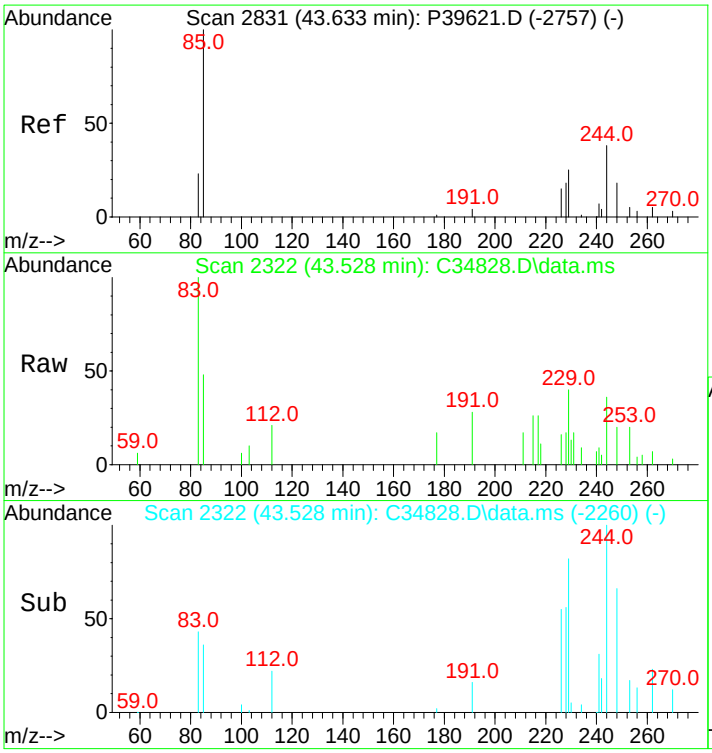


#62
C2-Fluoranthenes/Pyrenes
Concen: 417.03 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:230 Resp: 44209

Ion	Ratio	Lower	Upper
230	100		
215	4.1	99.0	148.4#

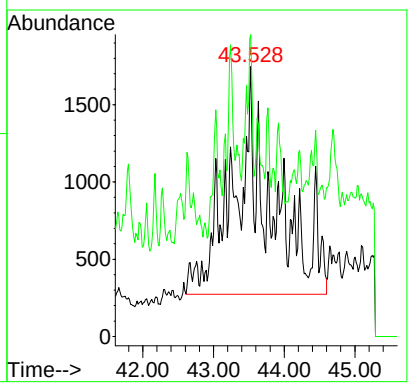


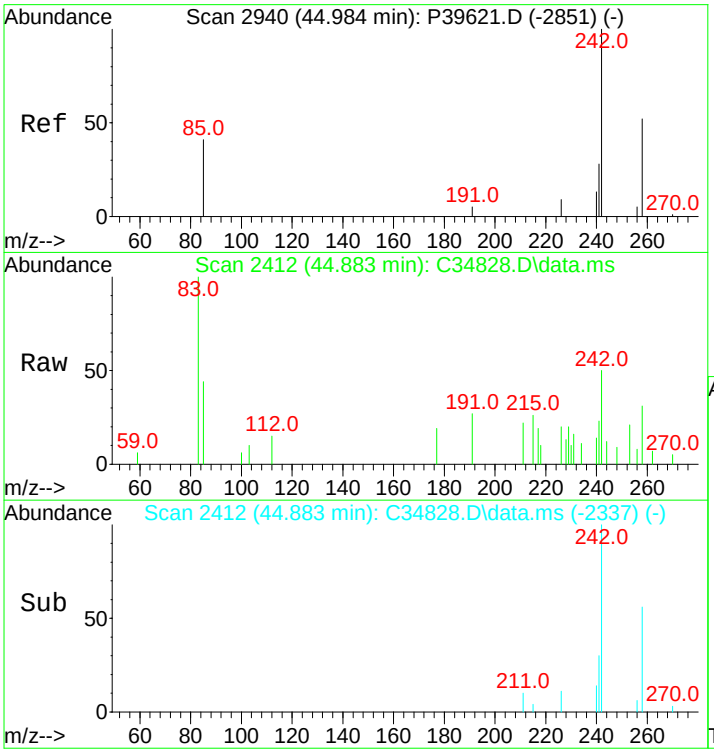


#63
C3-Fluoranthenes/Pyrenes
Concen: 511.37 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:244 Resp: 54209

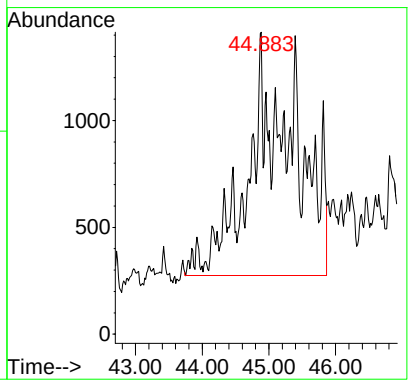
Ion	Ratio	Lower	Upper
244	100		
229	2.4	73.3	109.9#

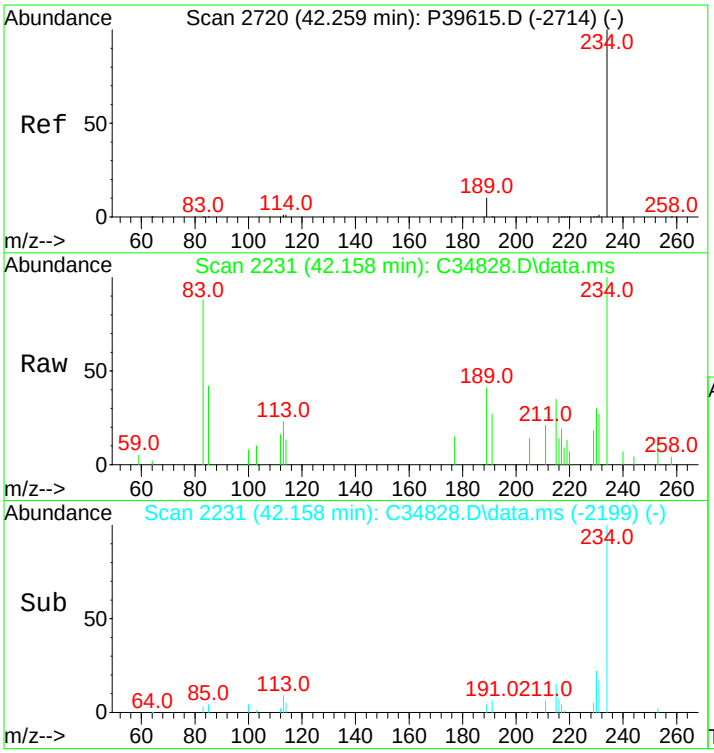




#64
C4-Fluoranthenes/Pyrenes
Concen: 492.65 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:258 Resp: 52225

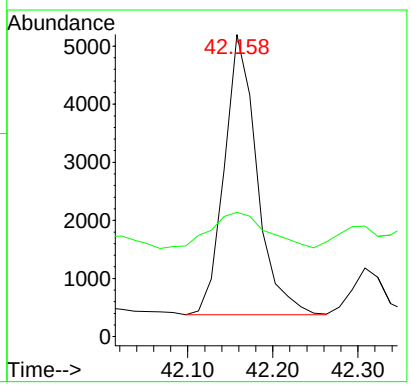


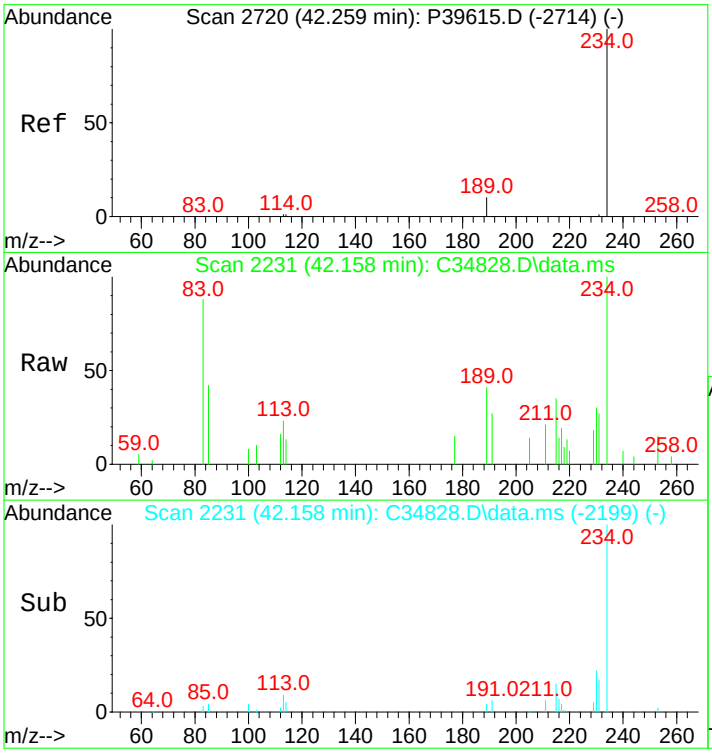


#66
Naphthobenzothiophene
Concen: 112.69 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:234 Resp: 12861

Ion	Ratio	Lower	Upper
234	100		
189	22.3	20.5	30.7

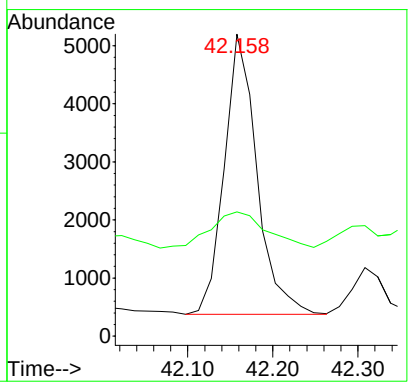


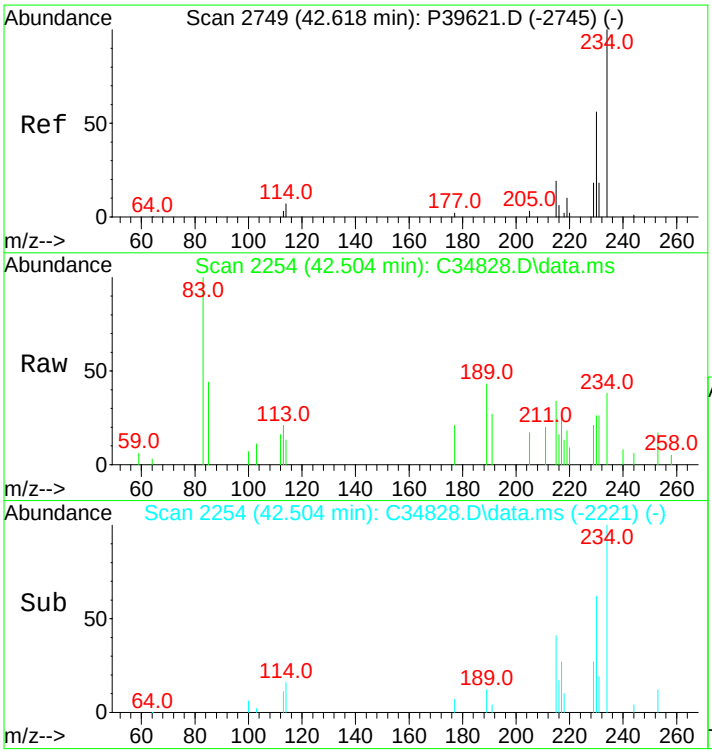


#67
Naphthobenzothiophene-2,1-D
Concen: 112.69 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:234 Resp: 12861

Ion	Ratio	Lower	Upper
234	100		
189	22.3	20.5	30.7

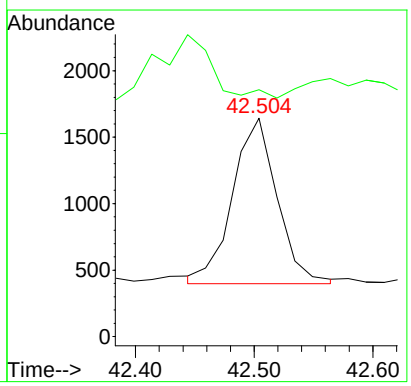


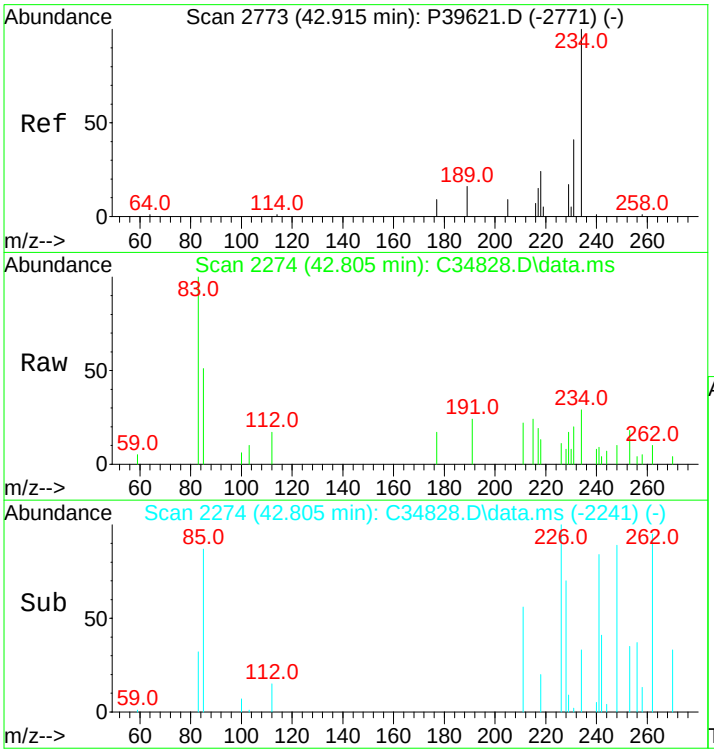


#68
Naphthobenzothiophene-1,2-D
Concen: 28.44 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:234 Resp: 3246

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

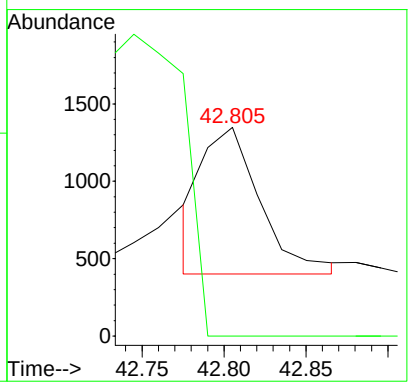


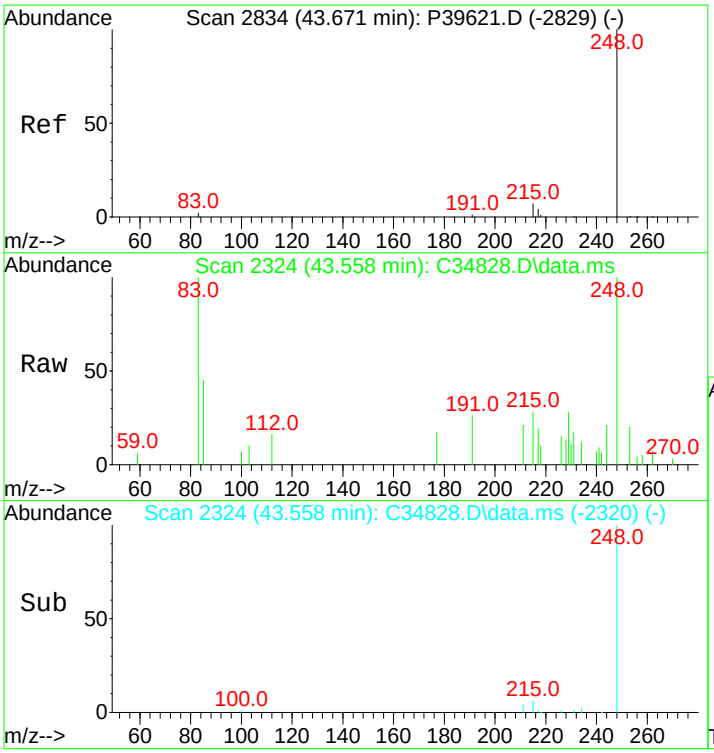


#69
Naphthobenzothiophene-2,3-D
Concen: 20.53 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:234 Resp: 2343

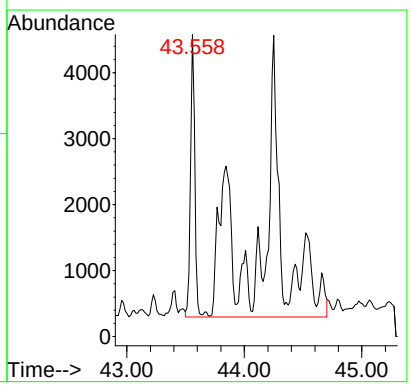
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

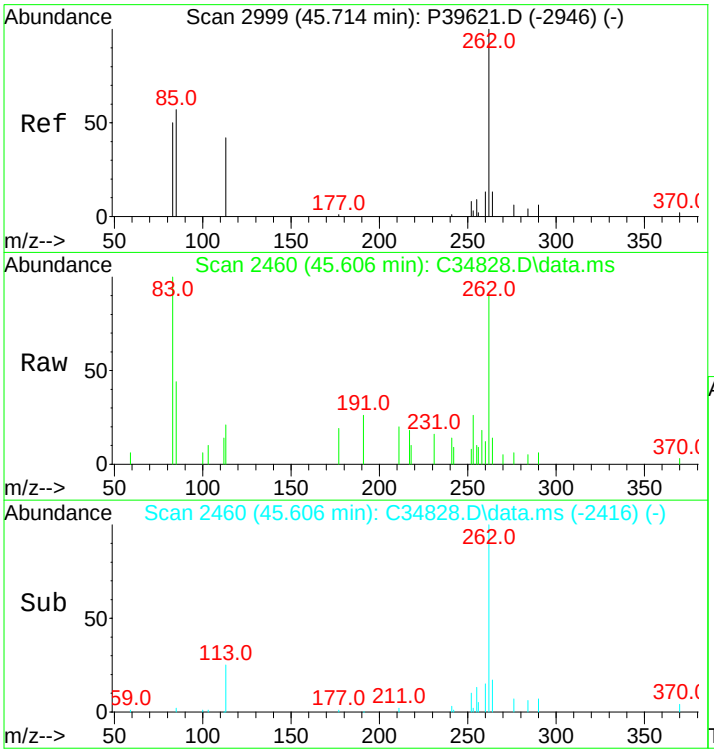




#70
C1-Naphthobenzothiophenes
Concen: 590.44 ng/ml m
RT: 43.558 min Scan# 2324
Delta R.T. -0.569 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

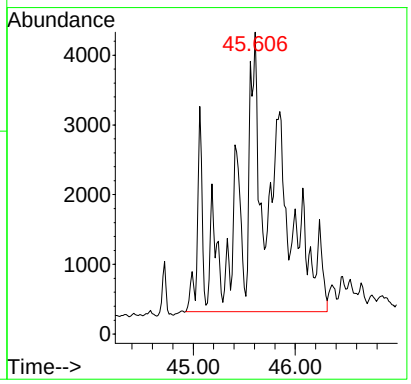
Tgt Ion:248 Resp: 67385

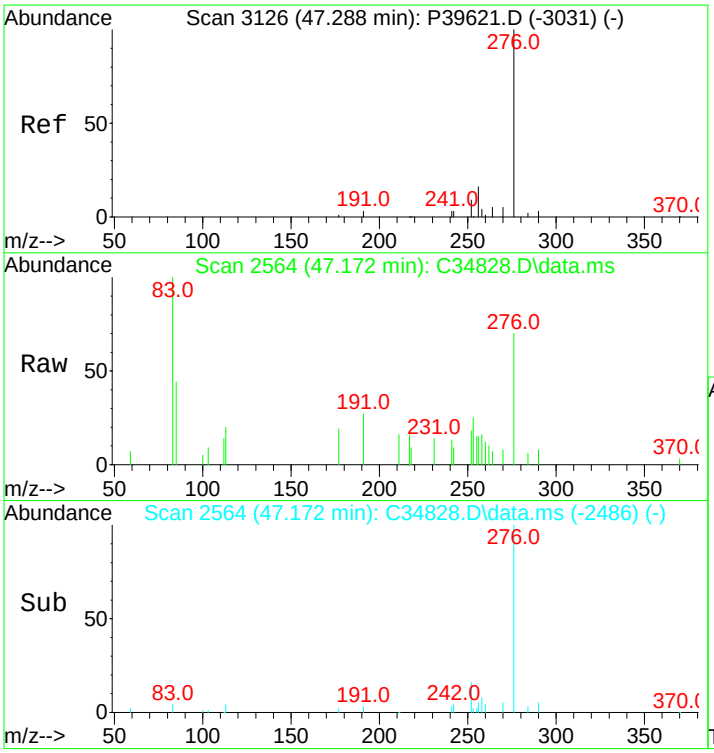




#71
C2-Naphthobenzothiophenes
Concen: 893.04 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

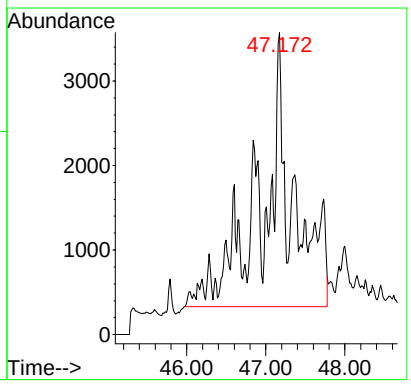
Tgt Ion:262 Resp: 101920

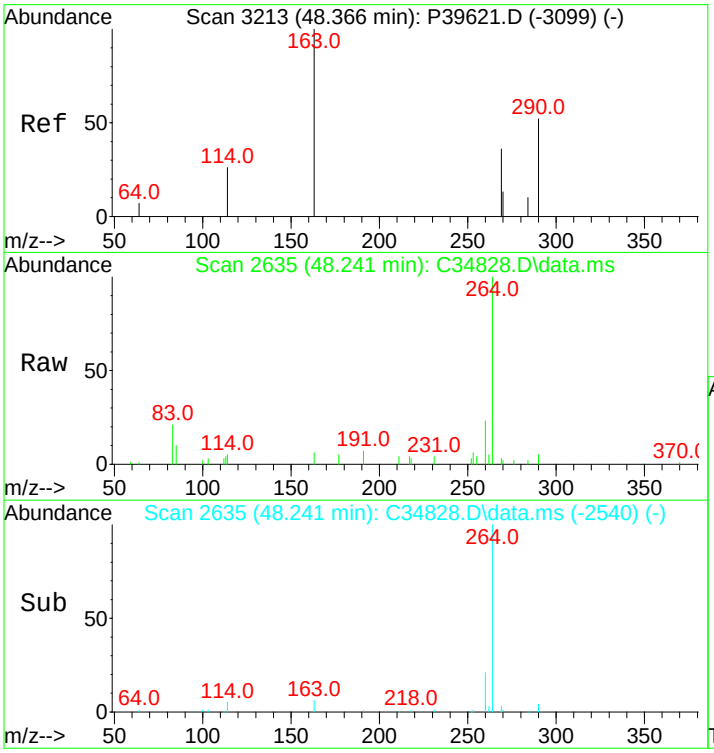




#72
C3-Naphthobenzothiophenes
Concen: 771.93 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

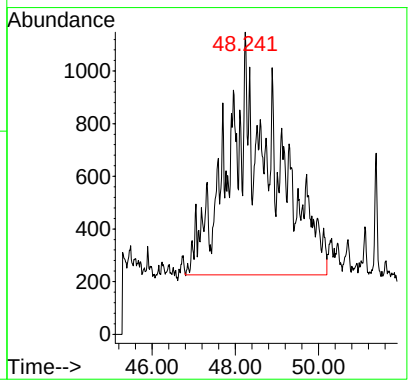
Tgt Ion:276 Resp: 88098

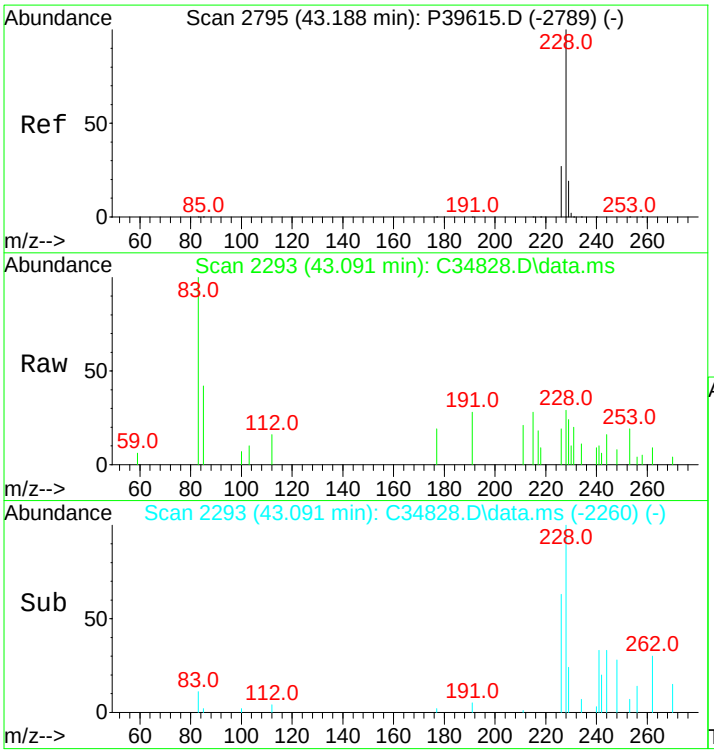




#73
C4-Naphthobenzothiophenes
Concen: 588.88 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.142 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:290 Resp: 67207

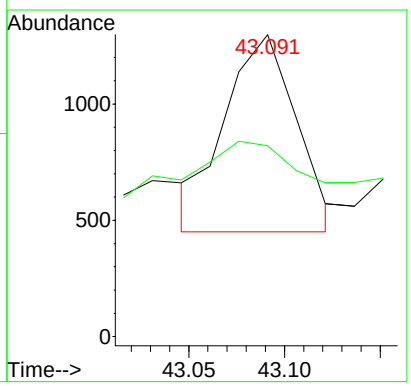


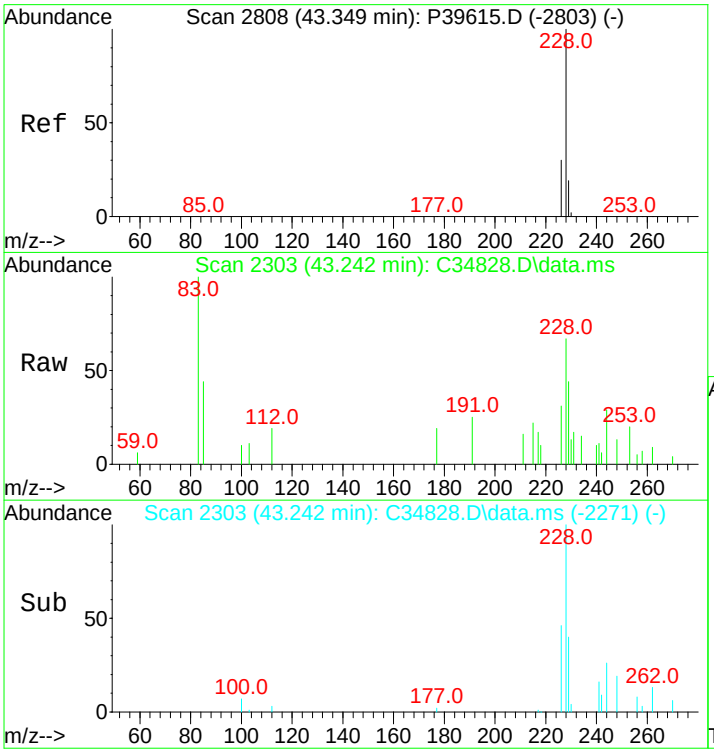


#75
Benz[a]anthracene
Concen: 19.57 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:228 Resp: 2194

Ion	Ratio	Lower	Upper
228	100		
226	136.5	21.4	32.0#

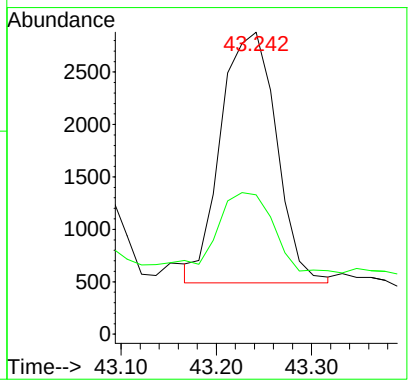


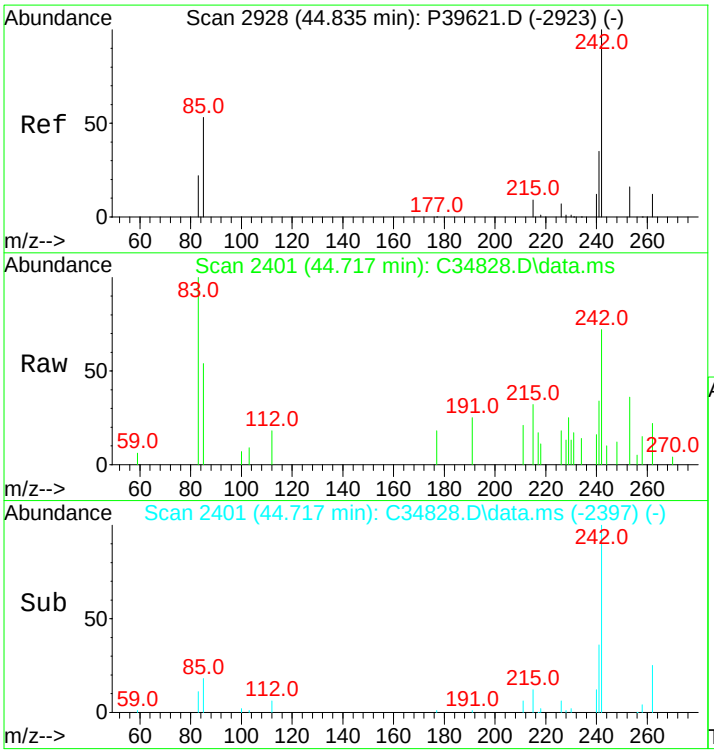


#77
Chrysene/Triphenylene
Concen: 85.41 ng/mL m
RT: 43.242 min Scan# 2303
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:228 Resp: 9666

Ion	Ratio	Lower	Upper
228	100		
226	31.0	23.7	35.5

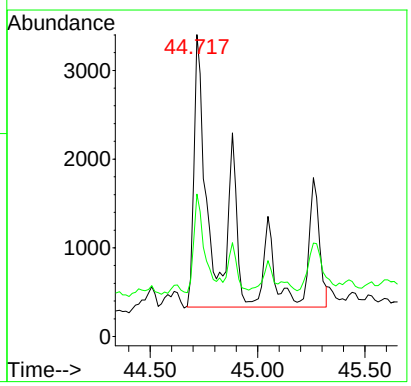


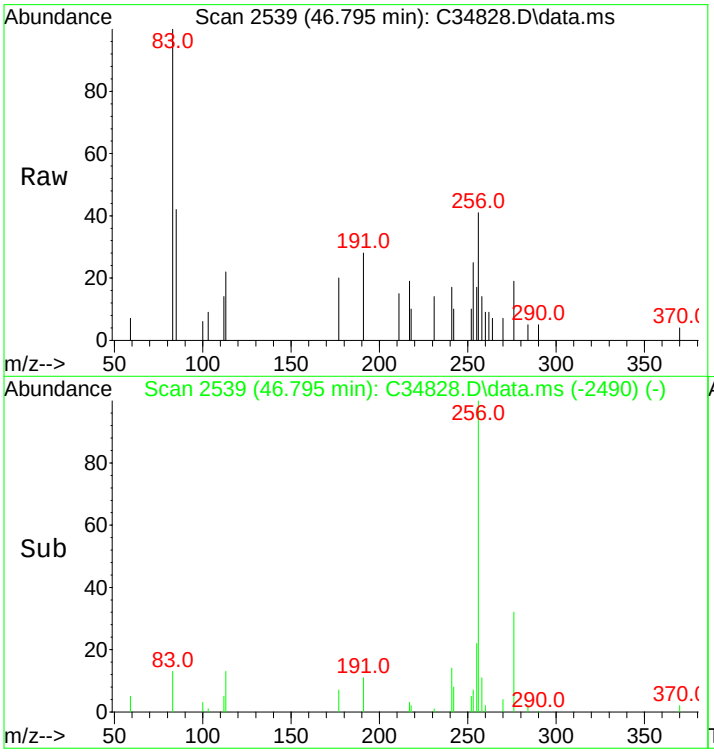


#78
C1-Chrysenes
Concen: 221.97 ng/mL m
RT: 44.717 min Scan# 2401
Delta R.T. 0.003 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:242 Resp: 25121

Ion	Ratio	Lower	Upper
242	100		
241	10.9	31.4	47.2#

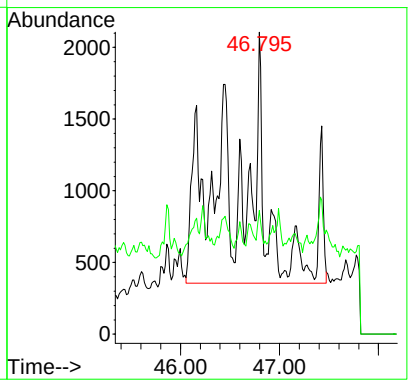


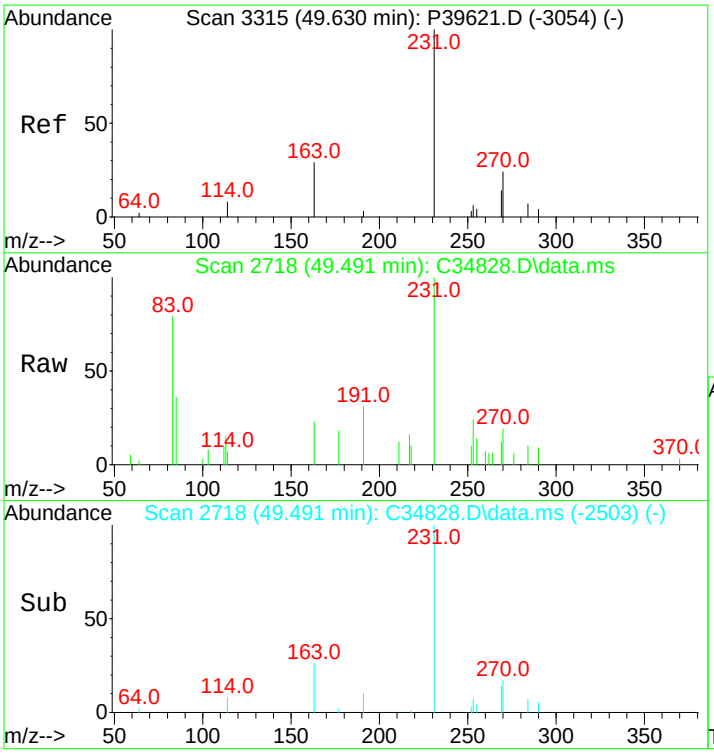


#79
C2-Chrysenes
Concen: 359.94 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.006 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:256 Resp: 40736

Ion	Ratio	Lower	Upper
256	100		
241	1.5	21.2	31.8#

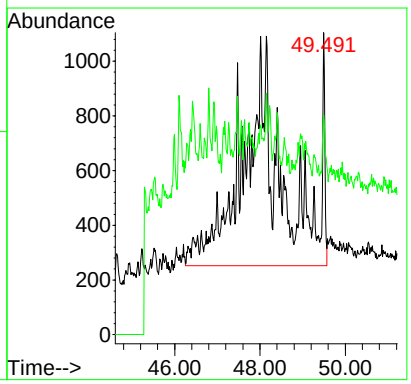


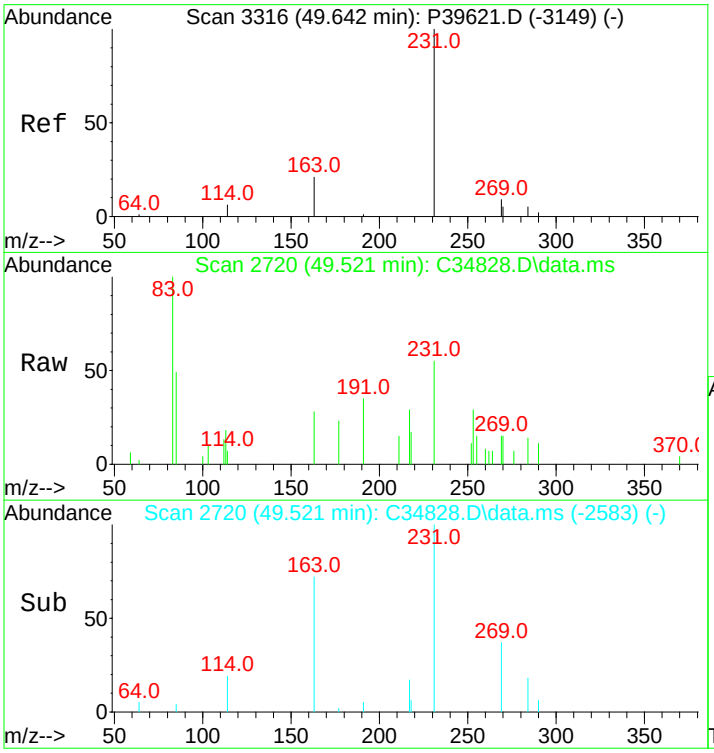


#80
C3-Chrysenes
Concen: 443.41 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.004 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:270 Resp: 50182

Ion	Ratio	Lower	Upper
270	100		
255	1.7	33.8	50.8#

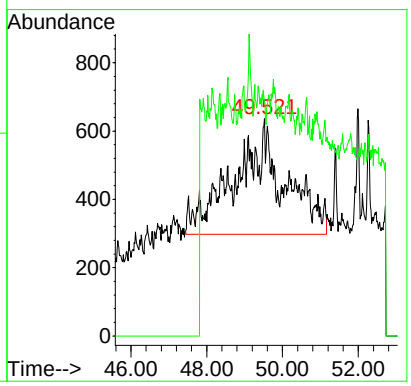


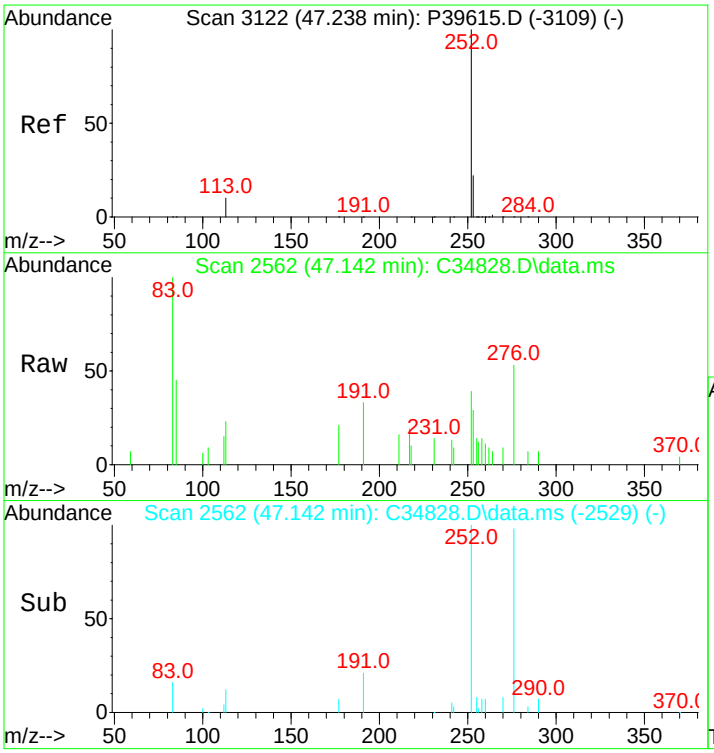


#81
C4-Chrysenes
Concen: 265.65 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:284 Resp: 30064

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

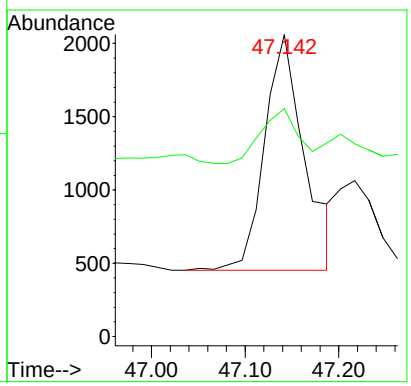


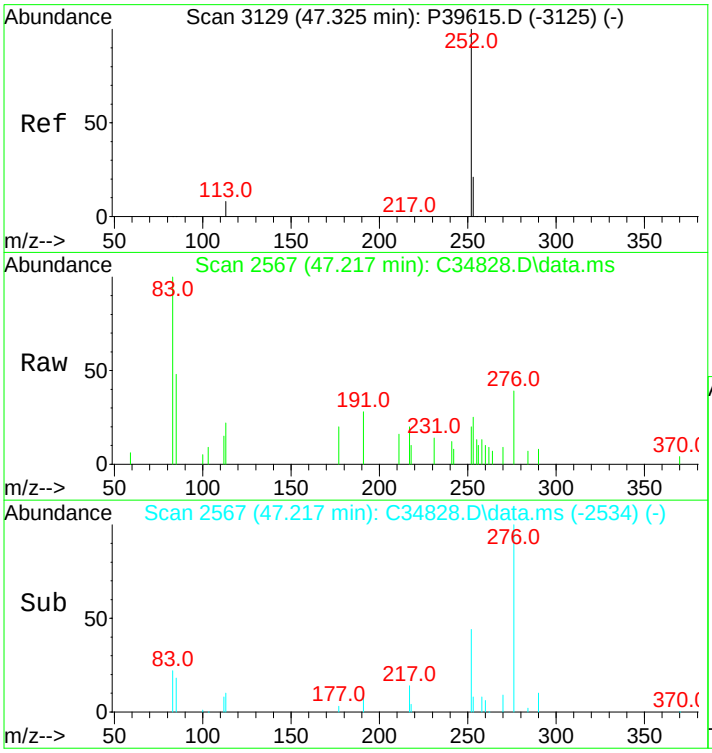


#82
Benzo[b]fluoranthene
Concen: 38.51 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 4744

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.0	28.4

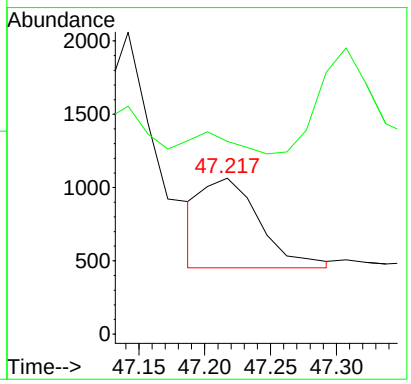


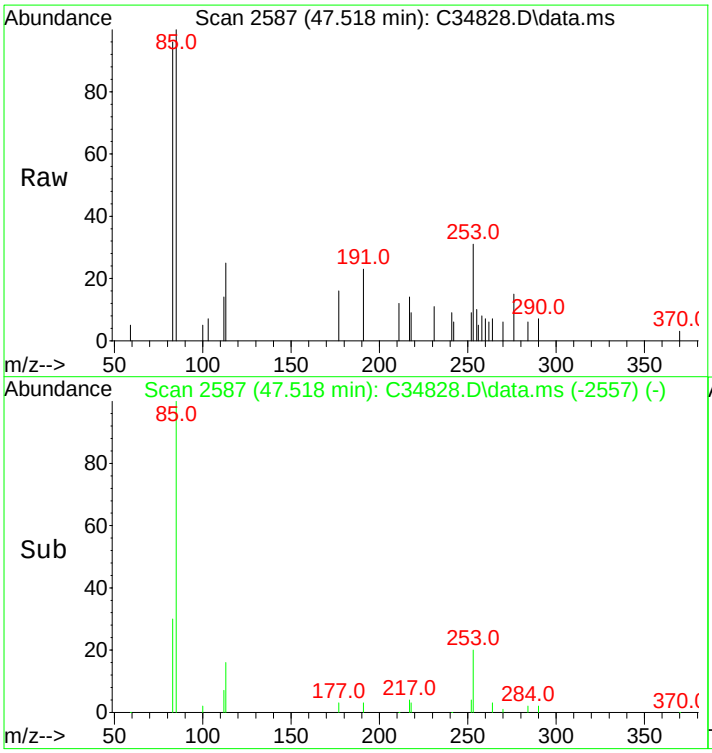


#83
Benzo[j]+[k]fluoranthene
Concen: 13.83 ng/mL m
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 1854

Ion	Ratio	Lower	Upper
252	100		
253	56.2	19.0	28.4#

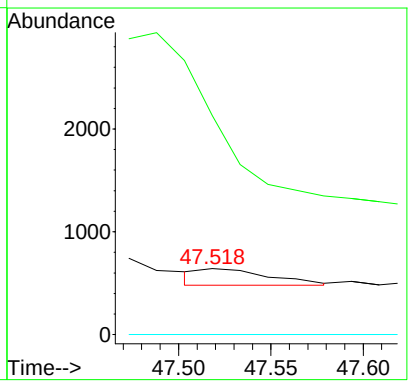


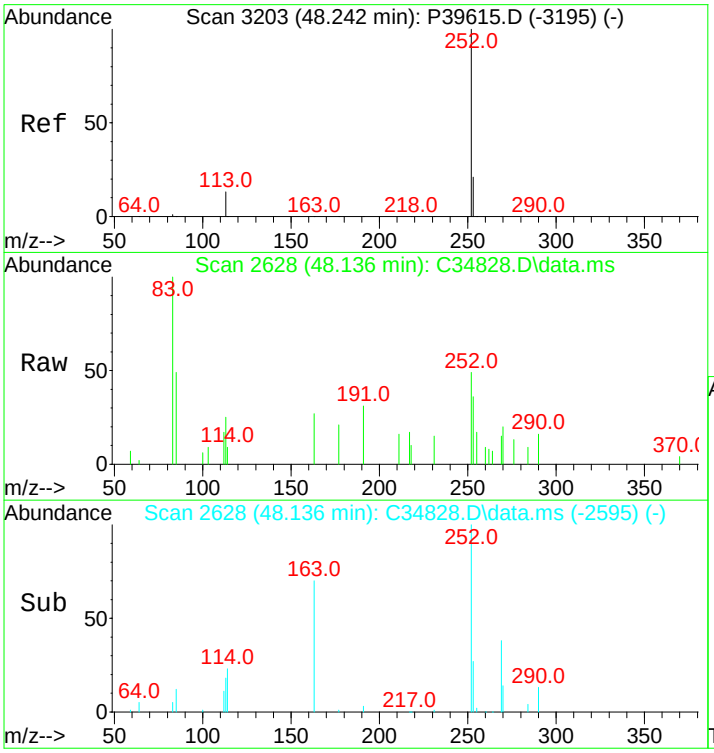


#84
Benzo[a]fluoranthene
Concen: 3.11 ng/mL m
RT: 47.518 min Scan# 2587
Delta R.T. -0.050 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 417

Ion	Ratio	Lower	Upper
252	100		
253	2480.8	146.1	219.1#
125	0.0	0.0	0.0

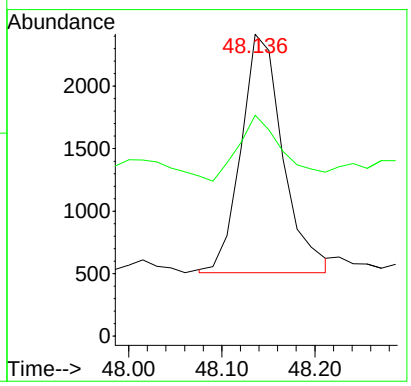


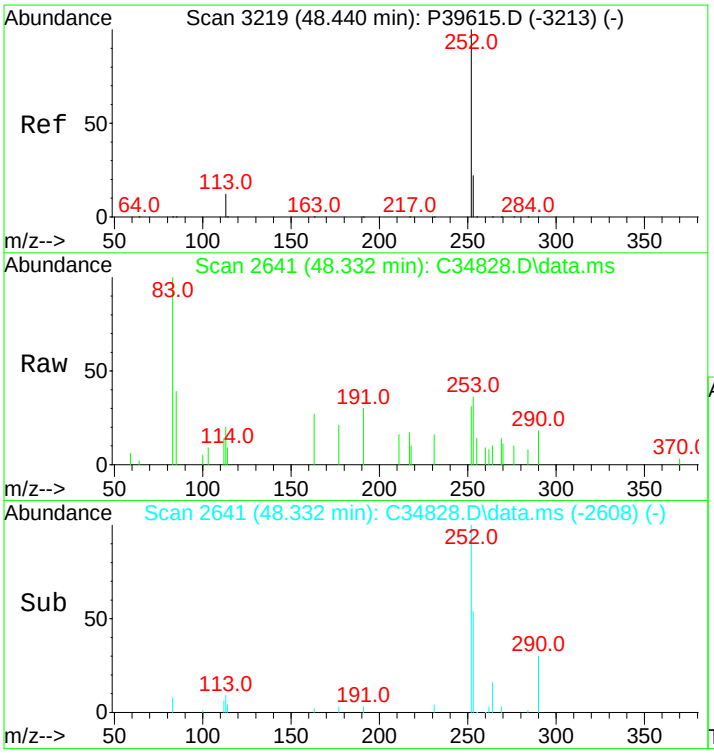


#85
Benzo[e]pyrene
Concen: 48.97 ng/mL m
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 5966

Ion	Ratio	Lower	Upper
252	100		
253	29.1	19.2	28.8#

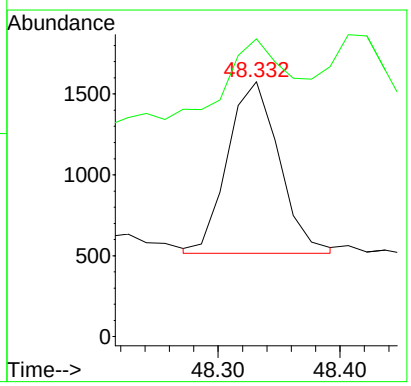


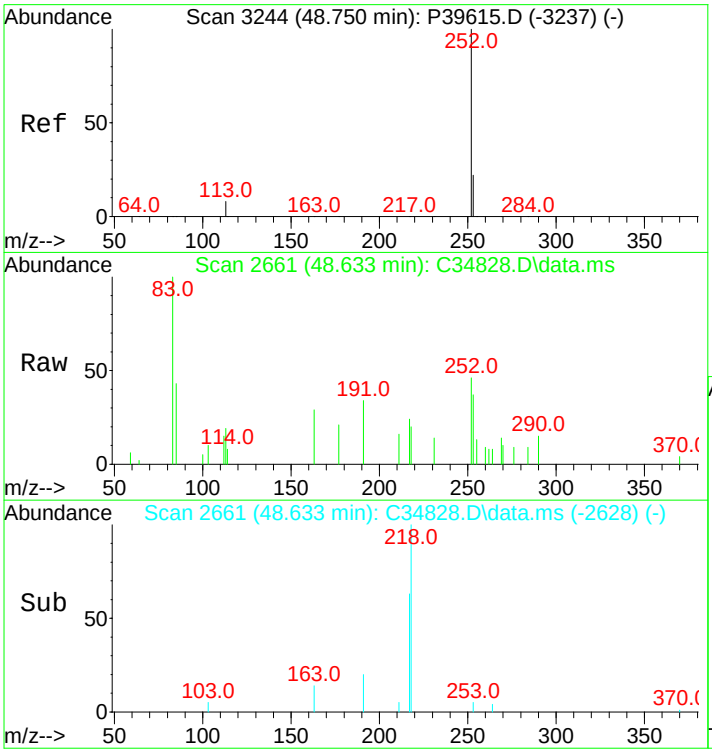


#87
Benzo[a]pyrene
Concen: 26.53 ng/mL m
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 3112

Ion	Ratio	Lower	Upper
252	100		
253	55.9	19.5	29.3#

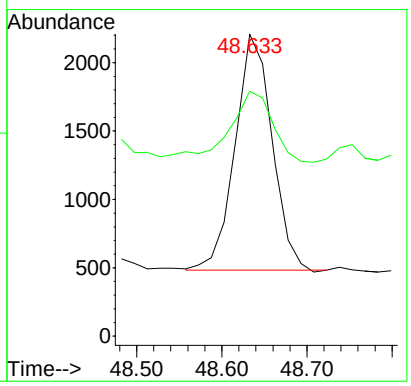


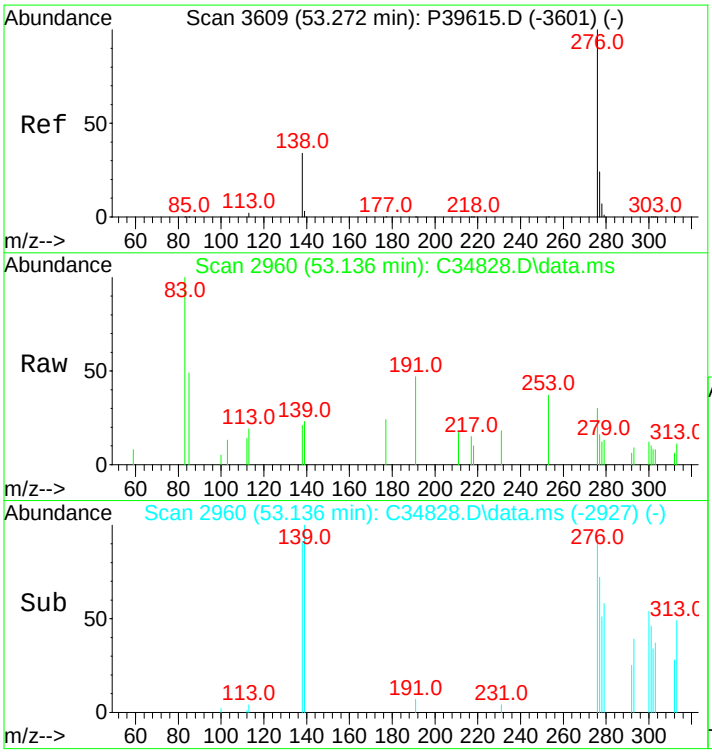


#88
Perylene
Concen: 41.40 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:252 Resp: 5190

Ion	Ratio	Lower	Upper
252	100		
253	36.6	19.6	29.4#

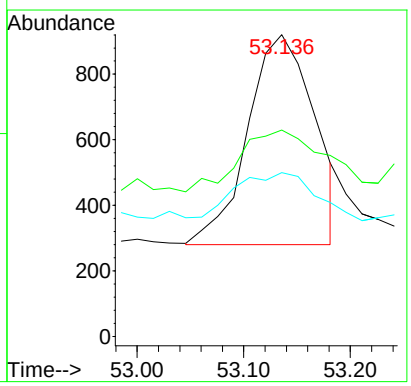


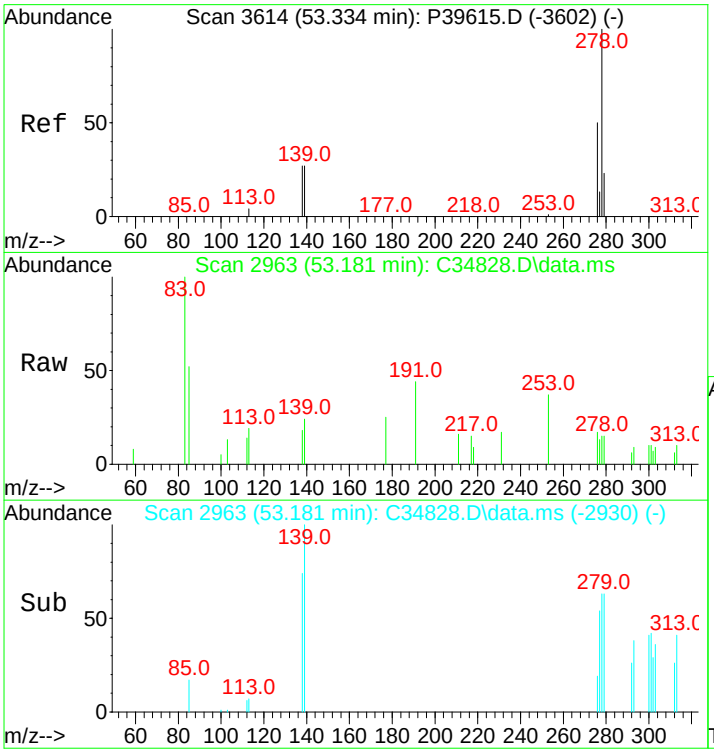


#89
Indeno[1,2,3-cd]pyrene
Concen: 20.44 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:276 Resp: 2790

Ion	Ratio	Lower	Upper
276	100		
138	27.7	23.3	34.9
277	27.3	19.0	28.4

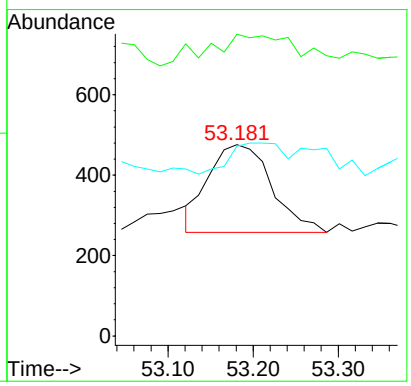


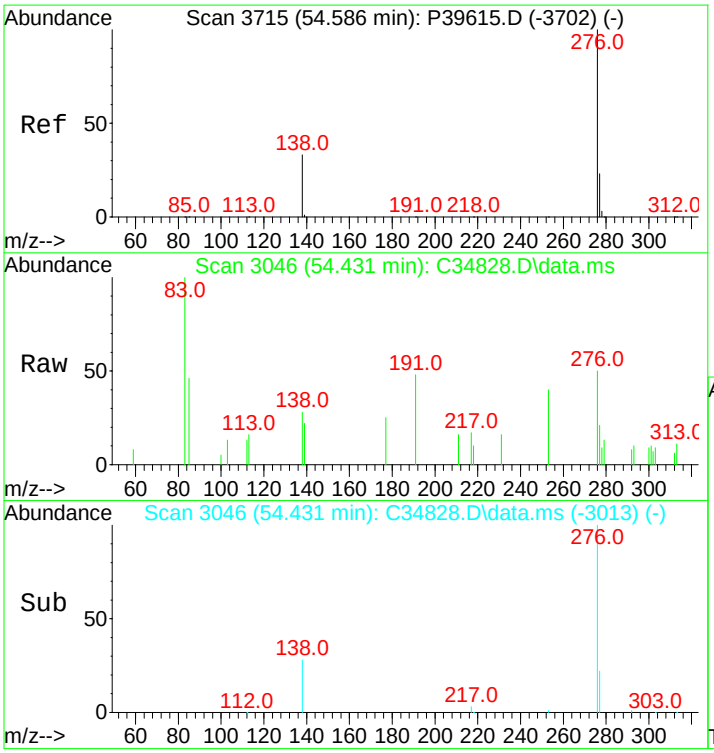


#90
Dibenz[ah]+[ac]anthracene
Concen: 8.68 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:278 Resp: 1127

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

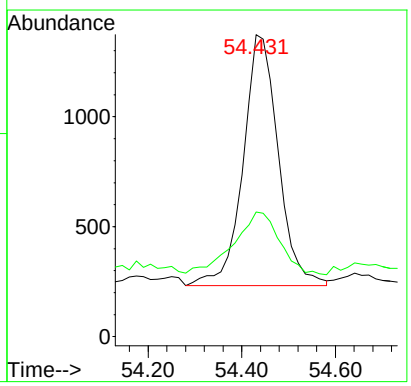


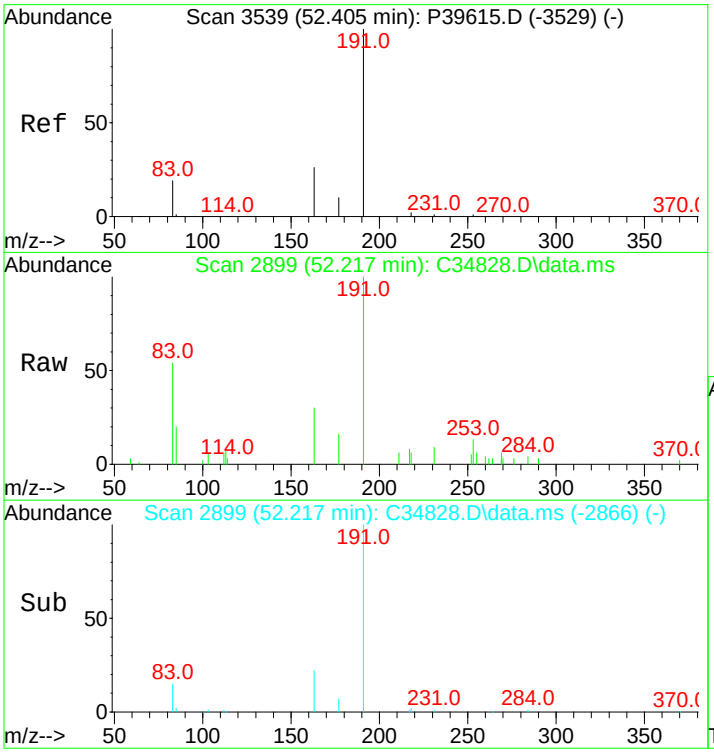


#91
Benzo[g,h,i]perylene
Concen: 41.35 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:276 Resp: 5963

Ion	Ratio	Lower	Upper
276	100		
277	32.6	18.9	28.3#

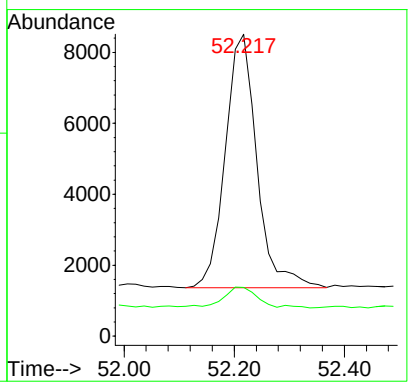


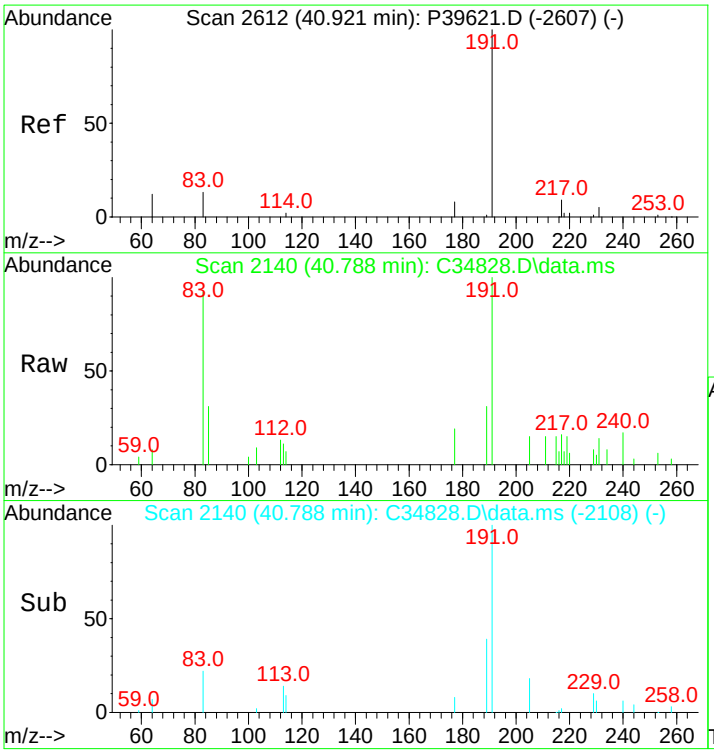


#92
Hopane (T19)
Concen: 1220.51 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:191 Resp: 28410

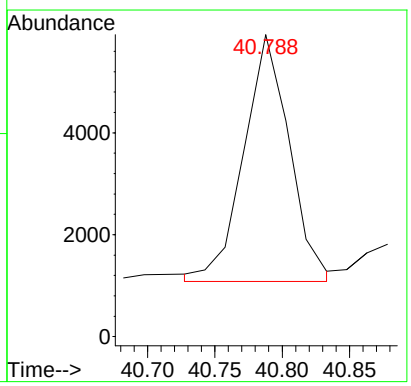
Ion	Ratio	Lower	Upper
191	100		
177	8.7	14.6	21.8#

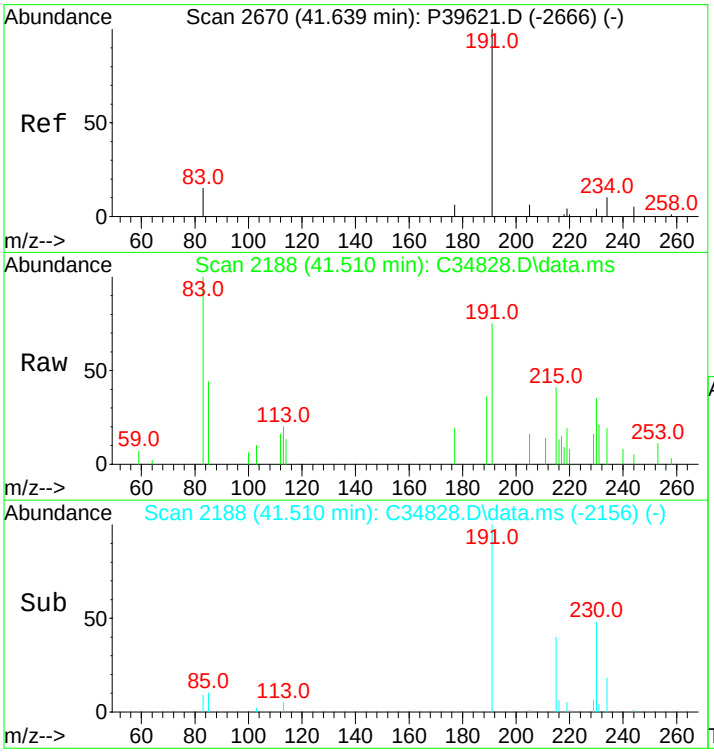




#94
C23 Tricyclic Terpane (T4)
Concen: 490.22 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

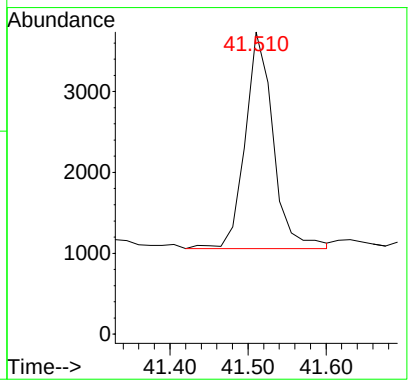
Tgt Ion:191 Resp: 11411

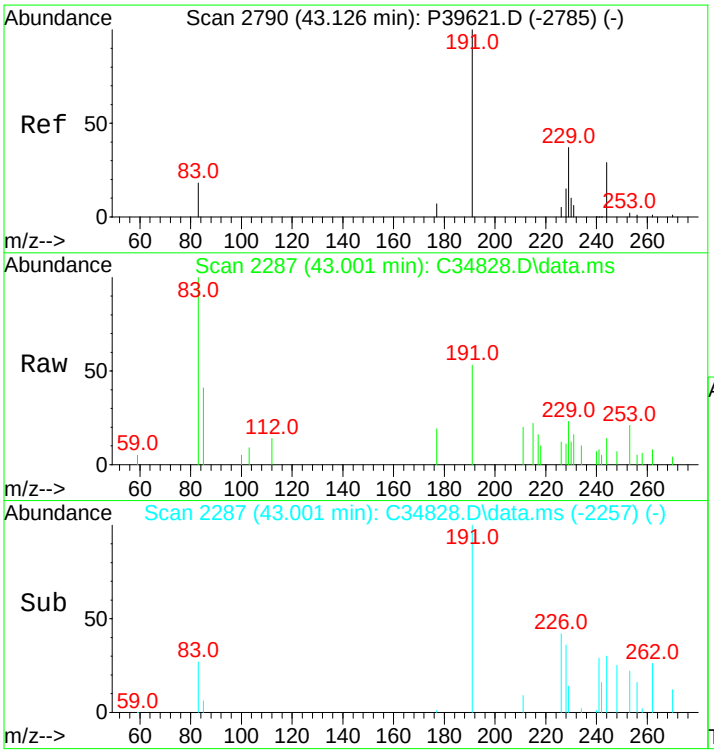




#95
C24 Tricyclic Terpane (T5)
Concen: 288.01 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

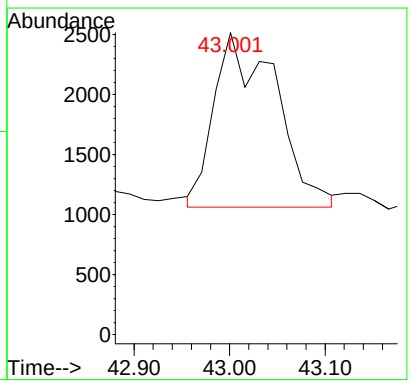
Tgt Ion:191 Resp: 6704

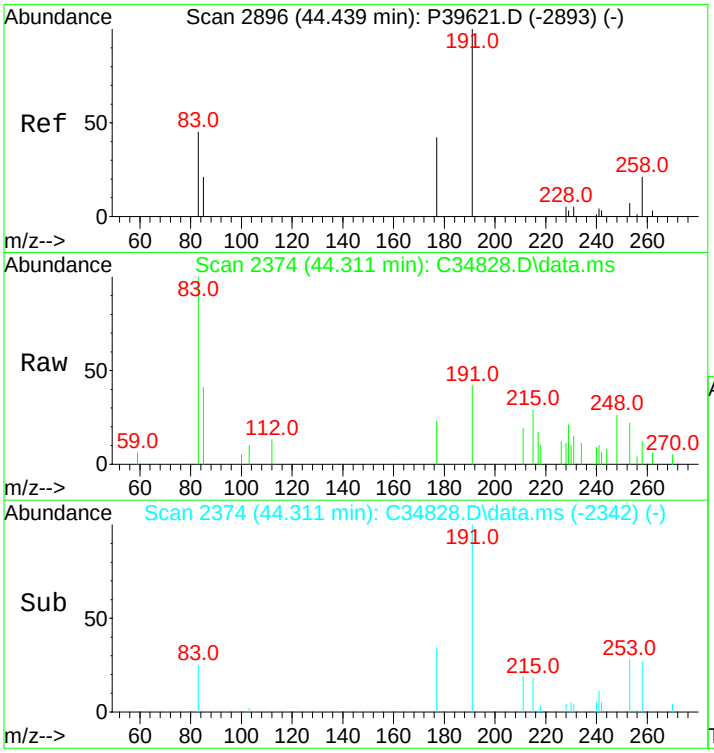




#96
C25 Tricyclic Terpane (T6)
Concen: 278.64 ng/ml m
RT: 43.001 min Scan# 2287
Delta R.T. -0.045 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

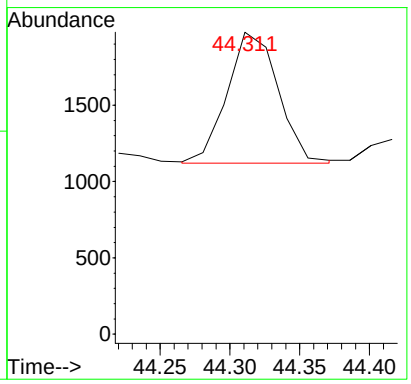
Tgt Ion:191 Resp: 6486

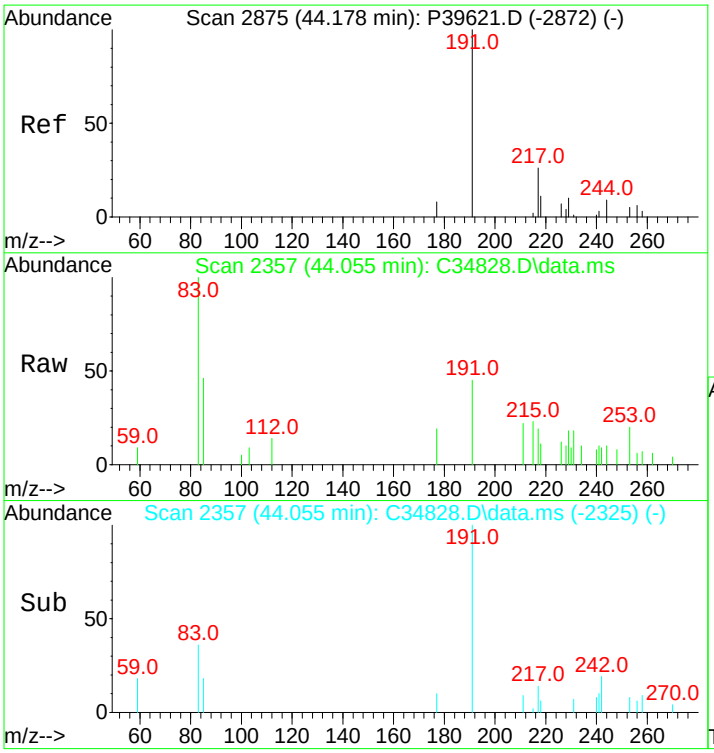




#97
C24 Tetracyclic Terpane (T6a)
Concen: 93.57 ng/ml m
RT: 44.311 min Scan# 2374
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

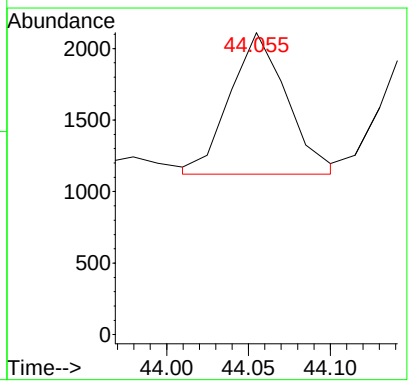
Tgt Ion:191 Resp: 2178

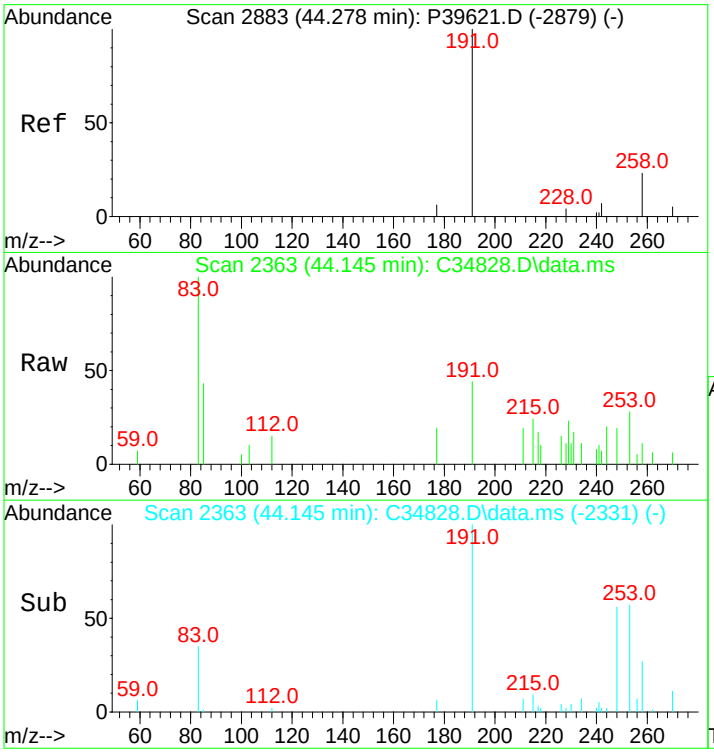




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 102.59 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

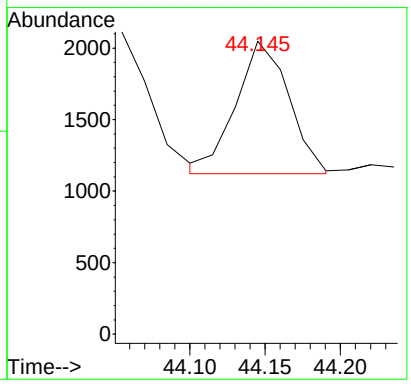
Tgt Ion:191 Resp: 2388

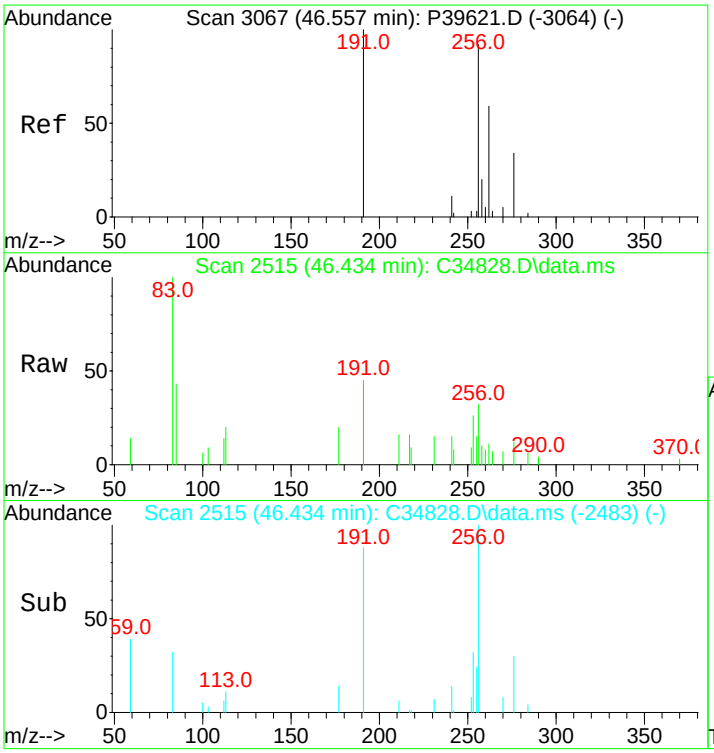




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 97.05 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

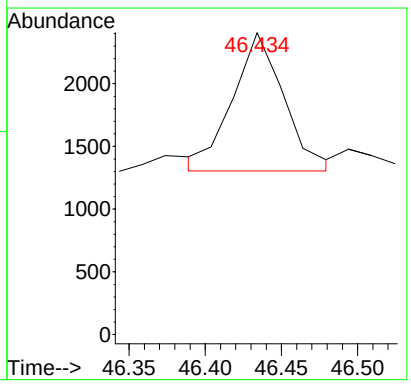
Tgt Ion:191 Resp: 2259

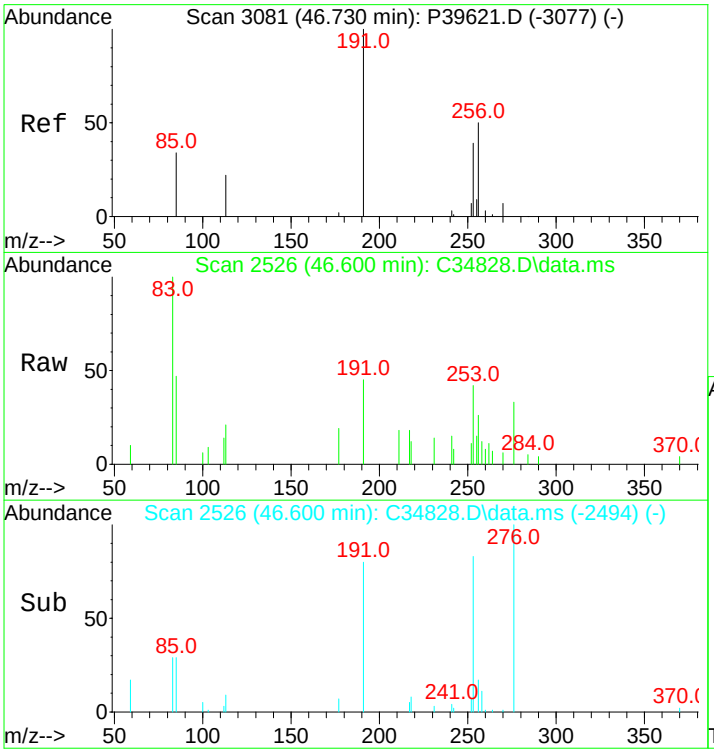




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 110.45 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

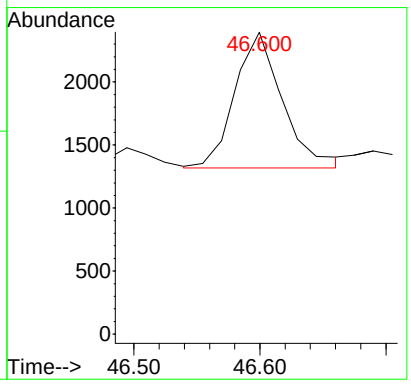
Tgt Ion:191 Resp: 2571

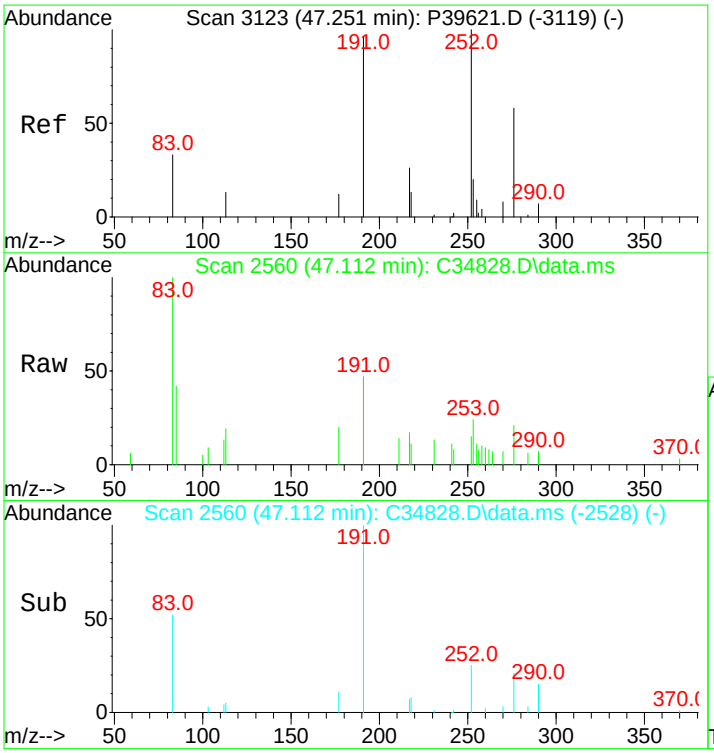




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 121.54 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

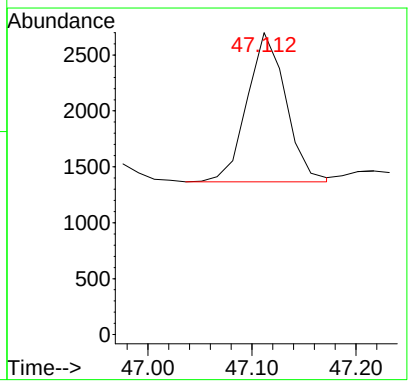
Tgt Ion:191 Resp: 2829

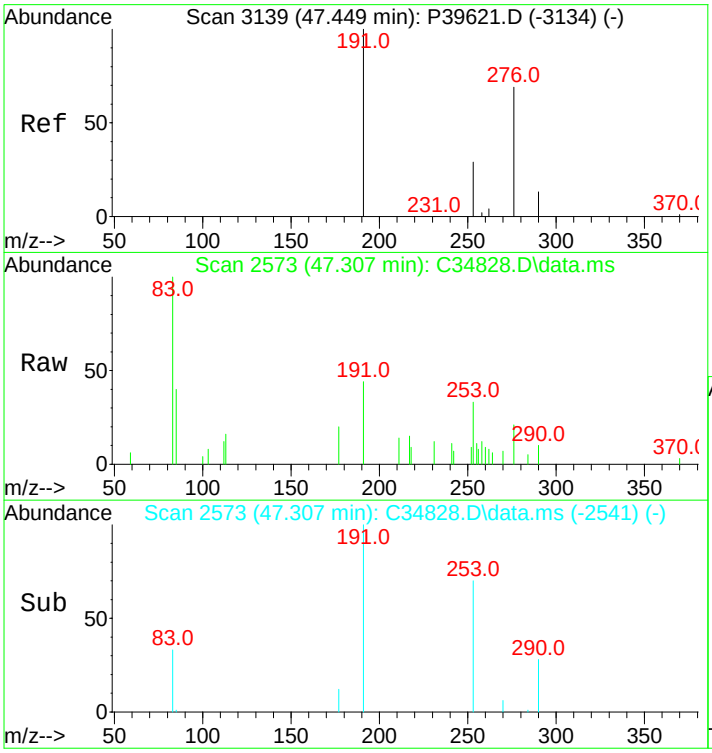




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 149.55 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

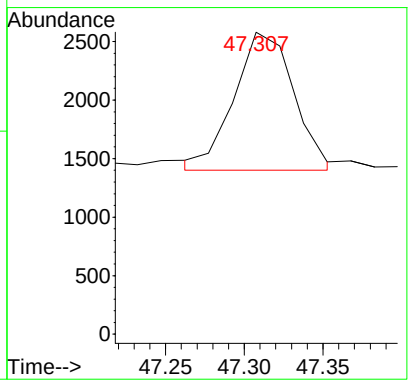
Tgt Ion:191 Resp: 3481

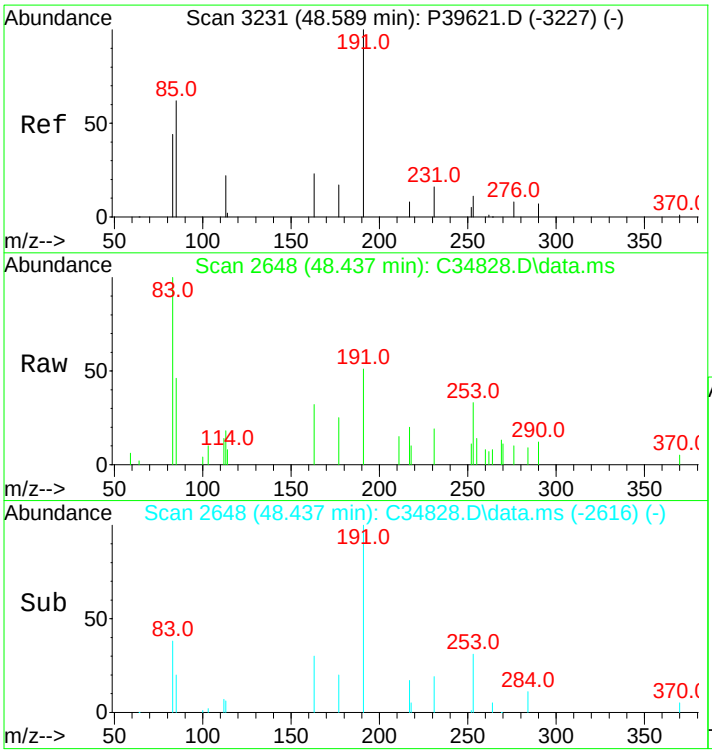




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 133.22 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

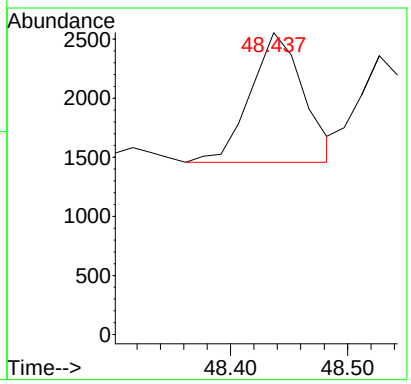
Tgt Ion:191 Resp: 3101

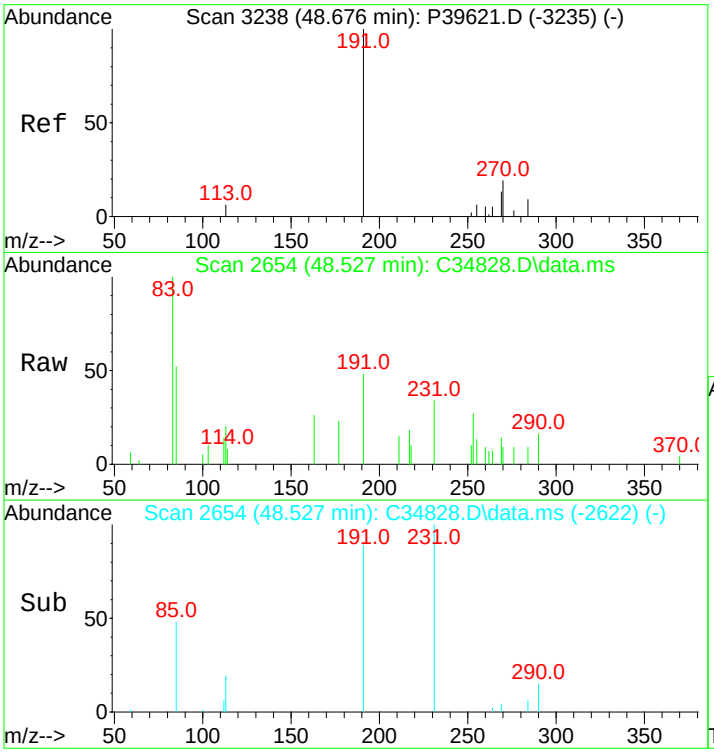




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 148.90 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

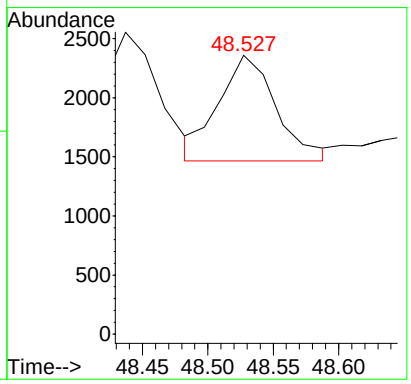
Tgt Ion:191 Resp: 3466

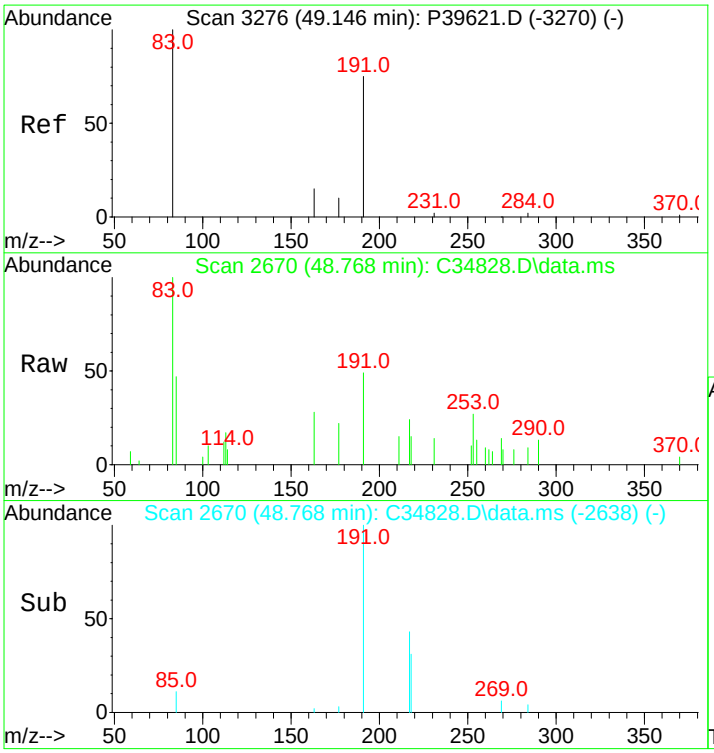




#105
C30 Tricyclic Terpane-22S
Concen: 117.28 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

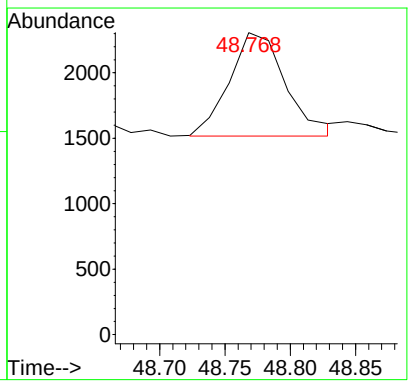
Tgt Ion:191 Resp: 2730

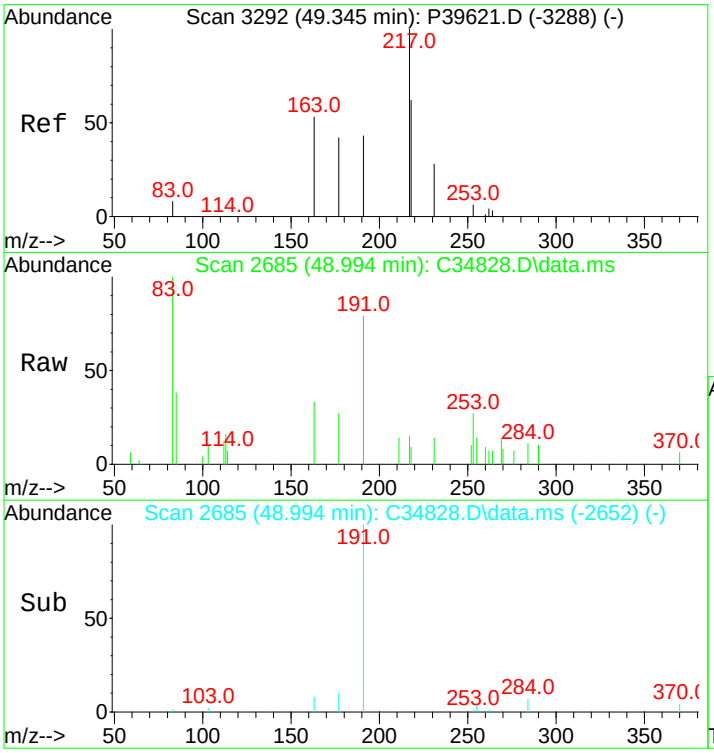




#106
C30 Tricyclic Terpane-22R
Concen: 102.20 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

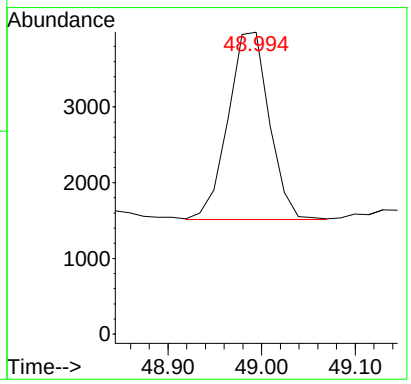
Tgt Ion:191 Resp: 2379

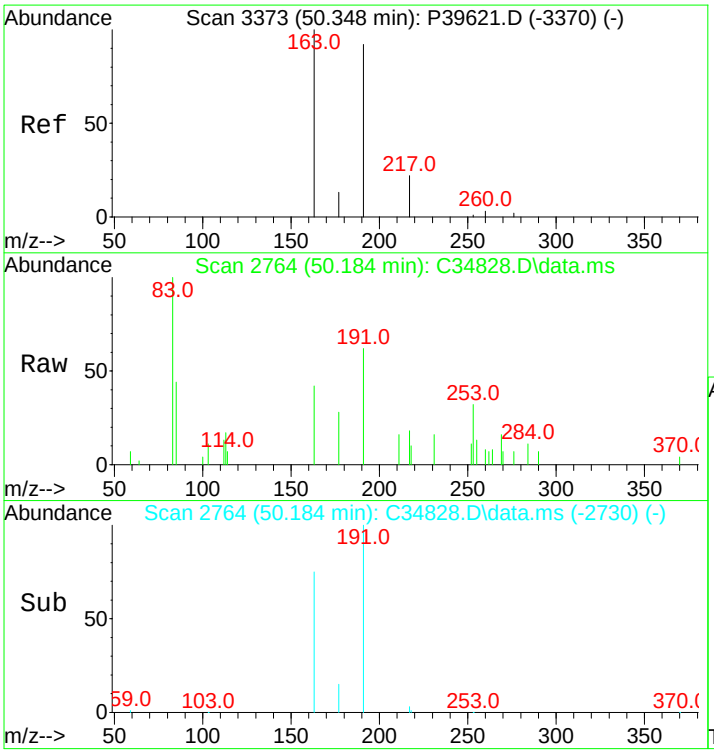




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 325.51 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

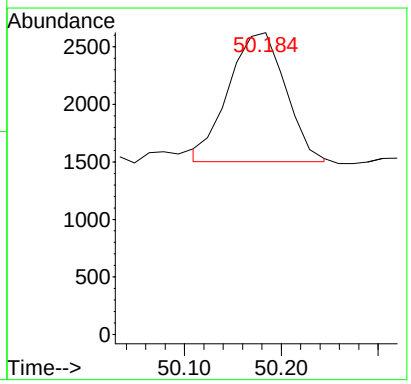
Tgt Ion:191 Resp: 7577

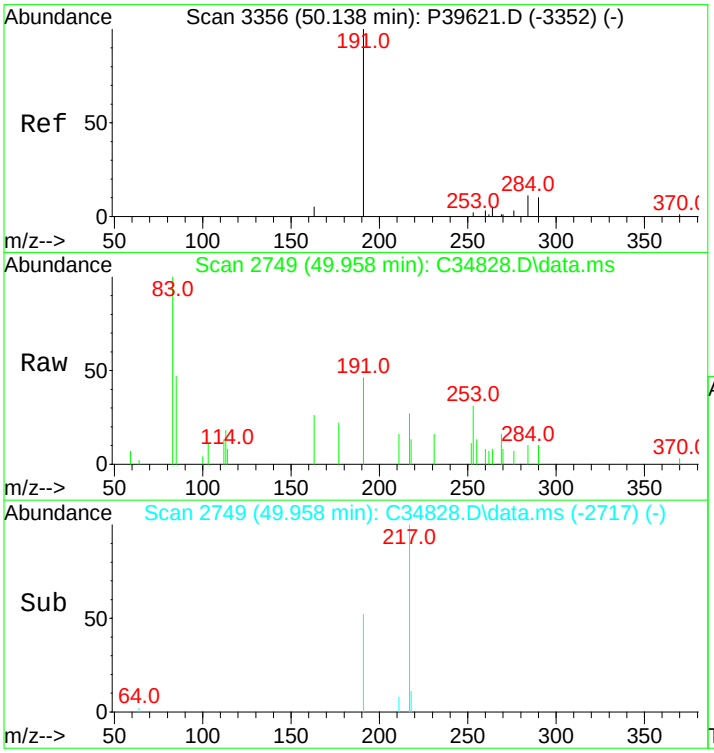




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 196.07 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

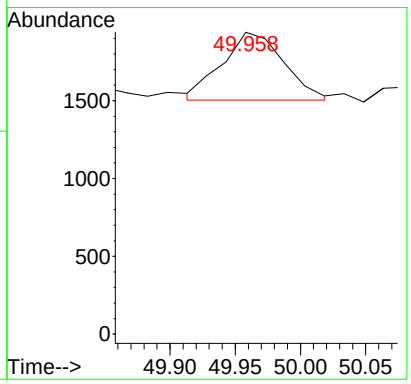
Tgt Ion:191 Resp: 4564

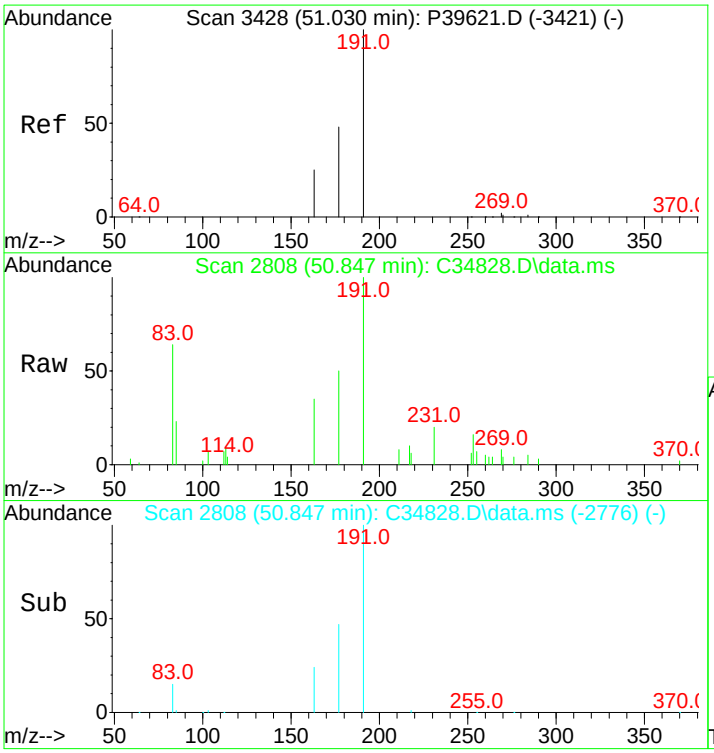




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 61.39 ng/ml m
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

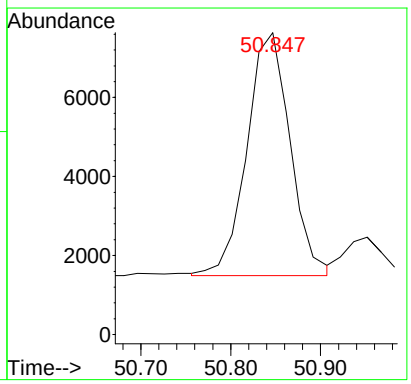
Tgt Ion:191 Resp: 1429

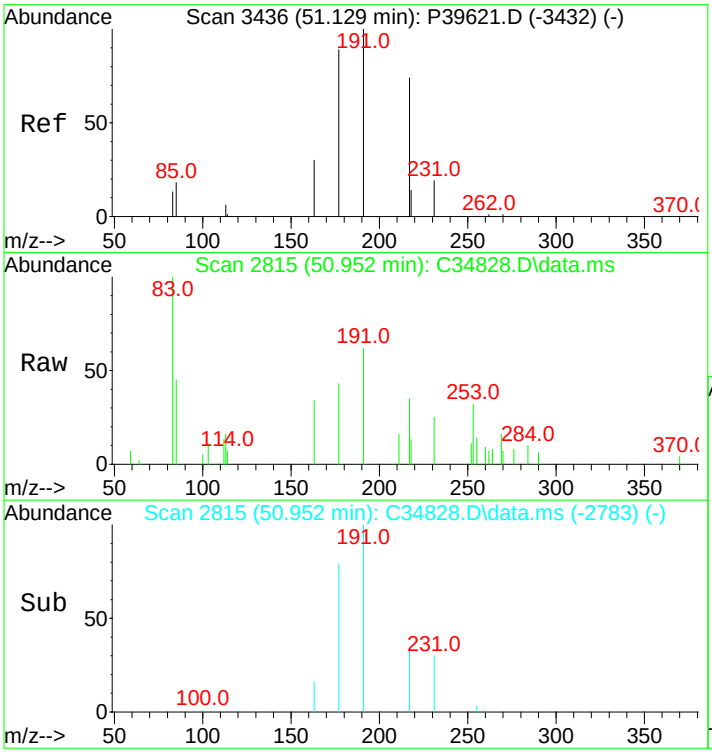




#110
30-Norhopane (T15)
Concen: 882.80 ng/ml m
RT: 50.847 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

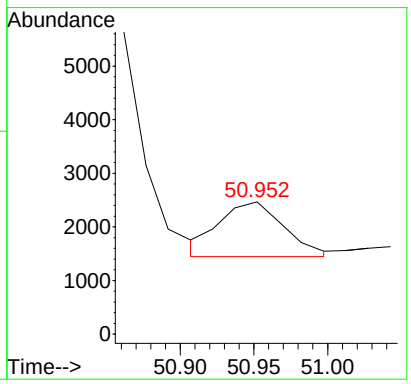
Tgt Ion:191 Resp: 20549

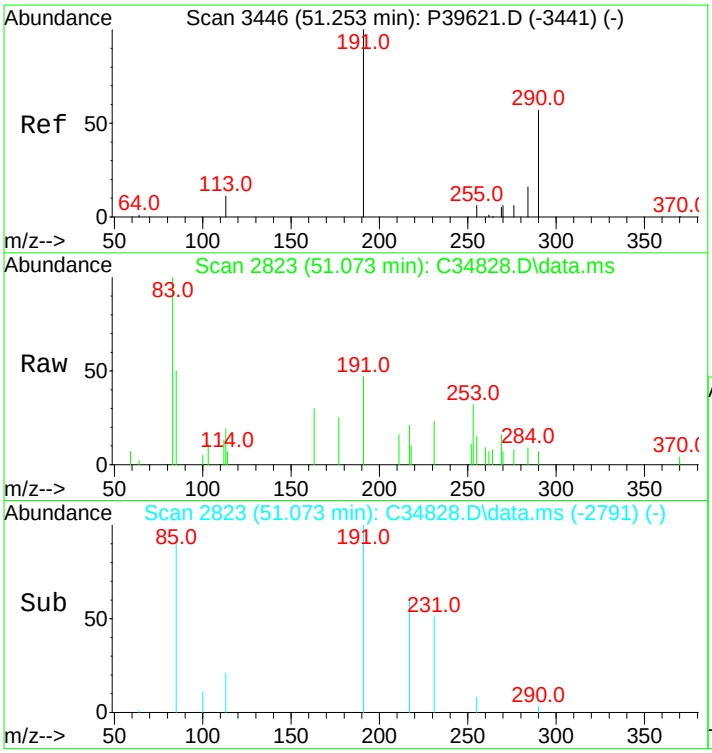




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 133.35 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

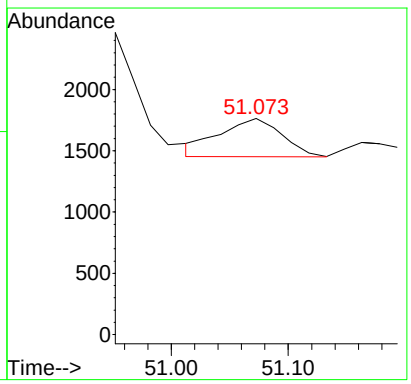
Tgt Ion:191 Resp: 3104

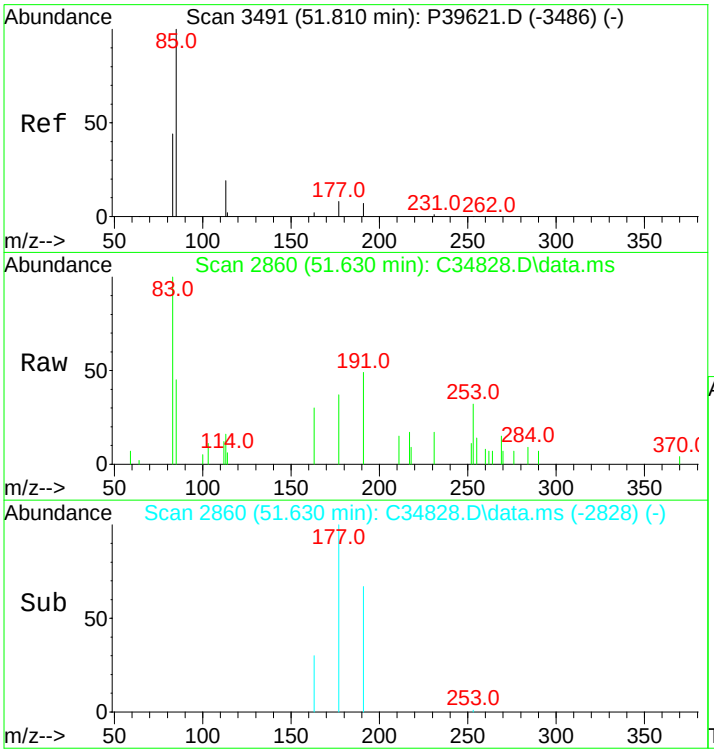




#112
17a(H)-Diahopane (X)
Concen: 50.01 ng/ml
RT: 51.073 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

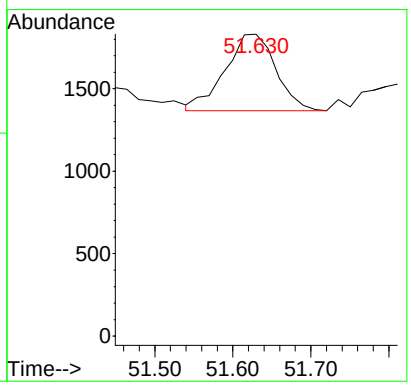
Tgt Ion:191 Resp: 1164

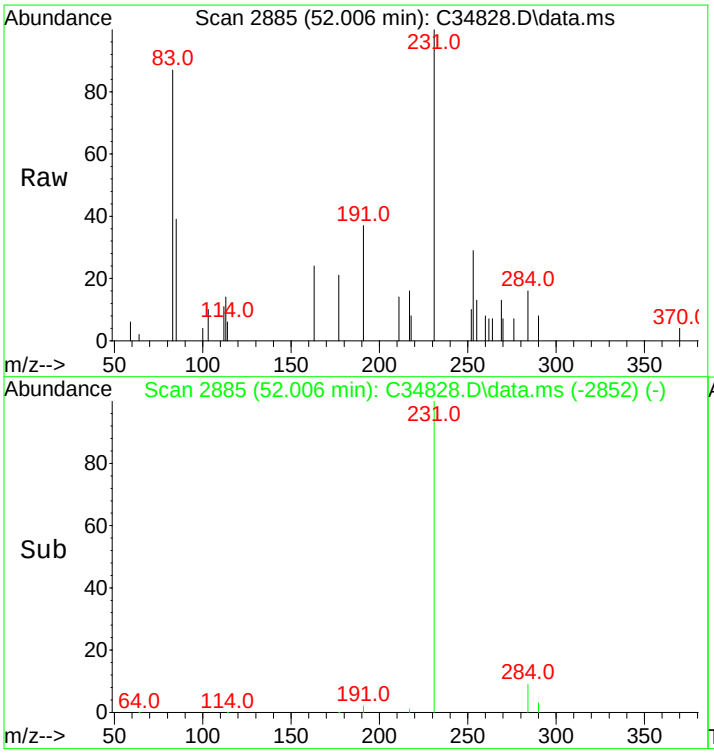




#113
30-Normoretane (T17)
Concen: 90.26 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

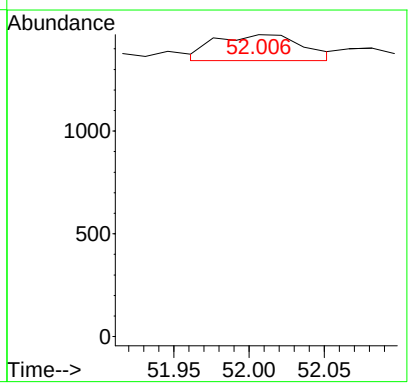
Tgt Ion:191 Resp: 2101

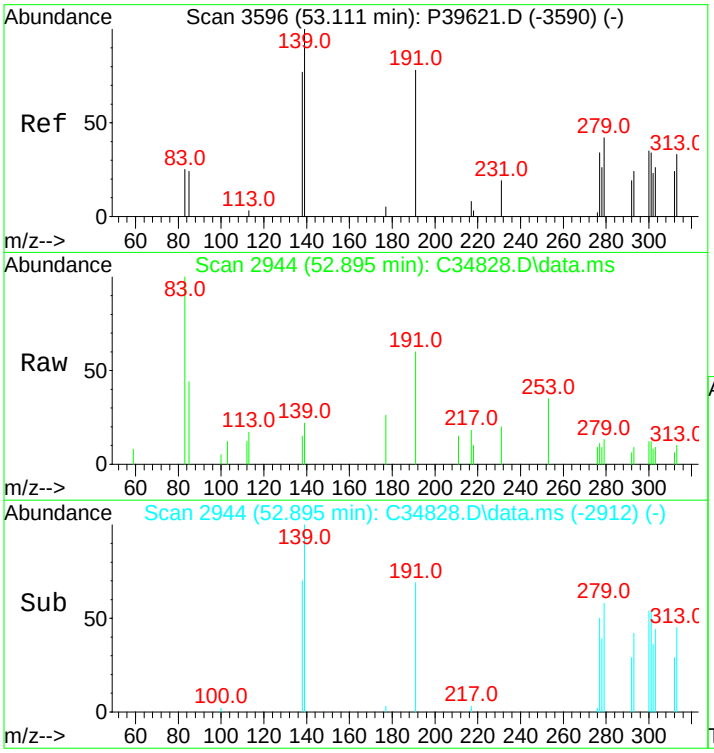




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 22.04 ng/ml m
RT: 52.006 min Scan# 2885
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

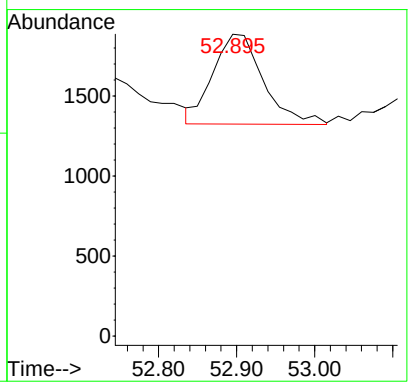
Tgt Ion:191 Resp: 513

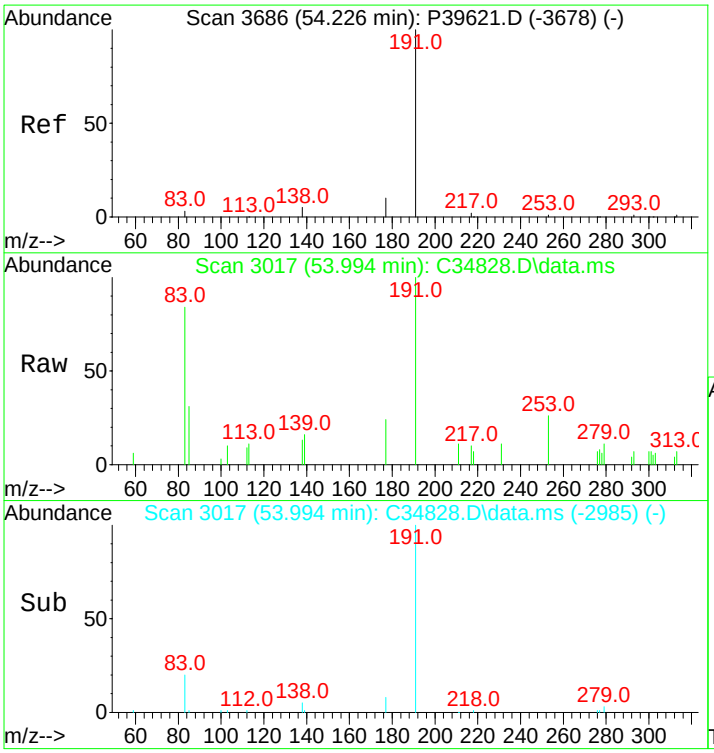




#115
Moretane (T20)
Concen: 108.13 ng/ml
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

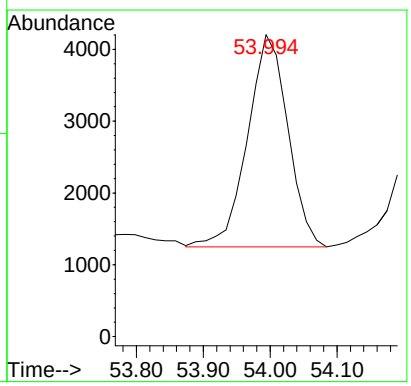
Tgt Ion:191 Resp: 2517

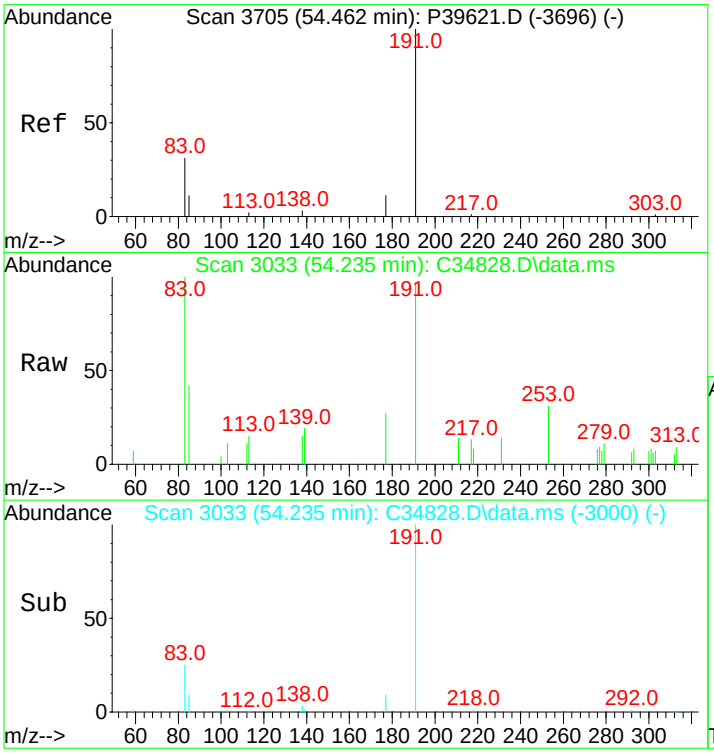




#116
30-Homohopane-22S (T21)
Concen: 531.73 ng/ml
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

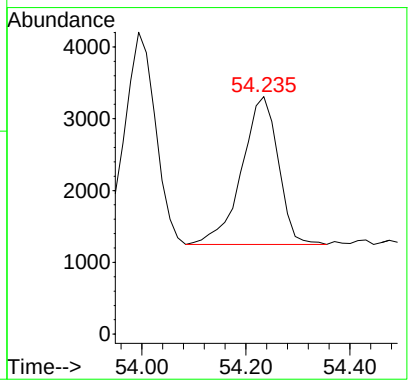
Tgt Ion:191 Resp: 12377

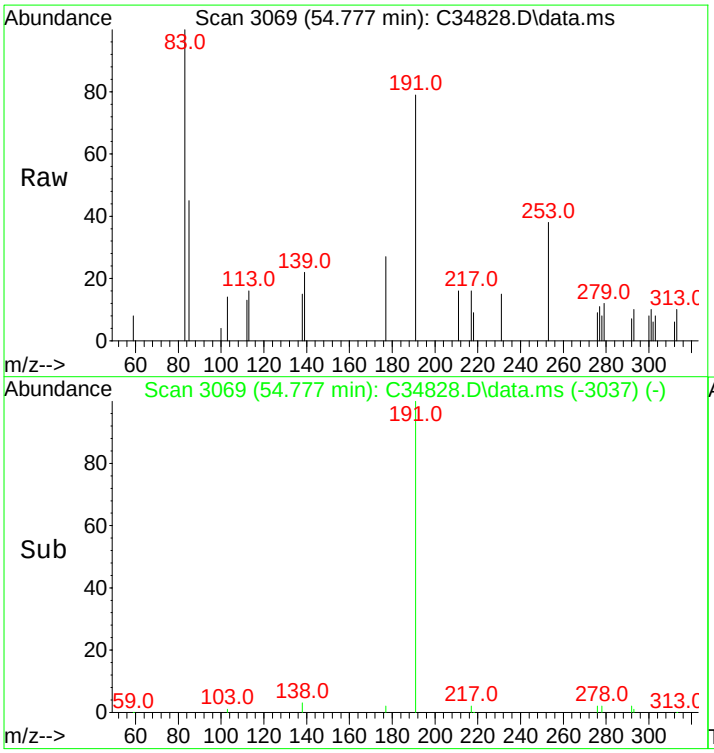




#117
30-Homohopane-22R (T22)
Concen: 430.68 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

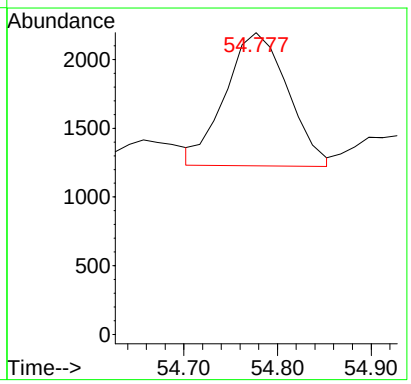
Tgt Ion:191 Resp: 10025

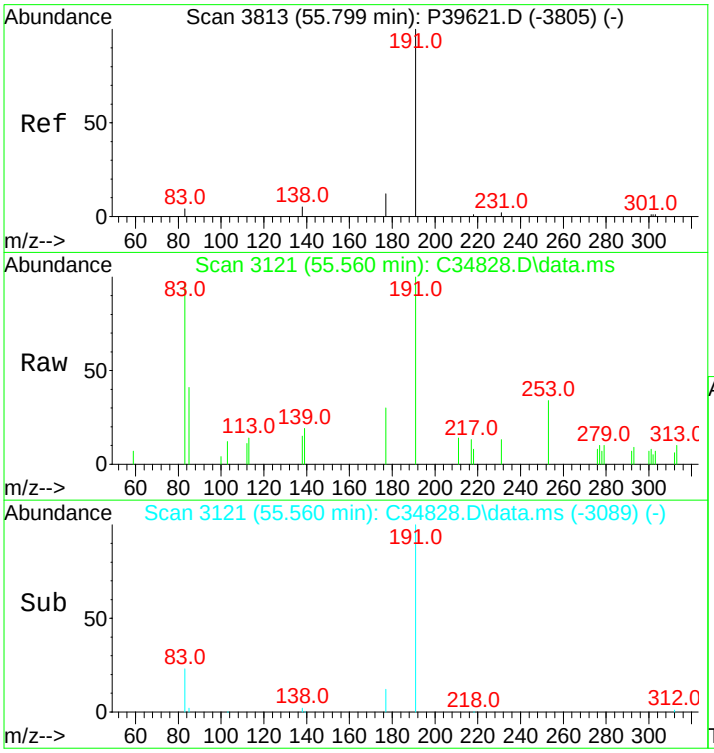




#118
Gammacerane/C32-diahopane
Concen: 192.34 ng/mL
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

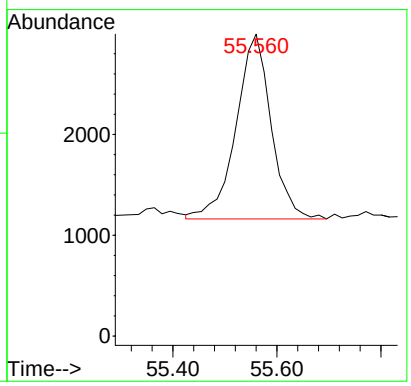
Tgt Ion:191 Resp: 4477

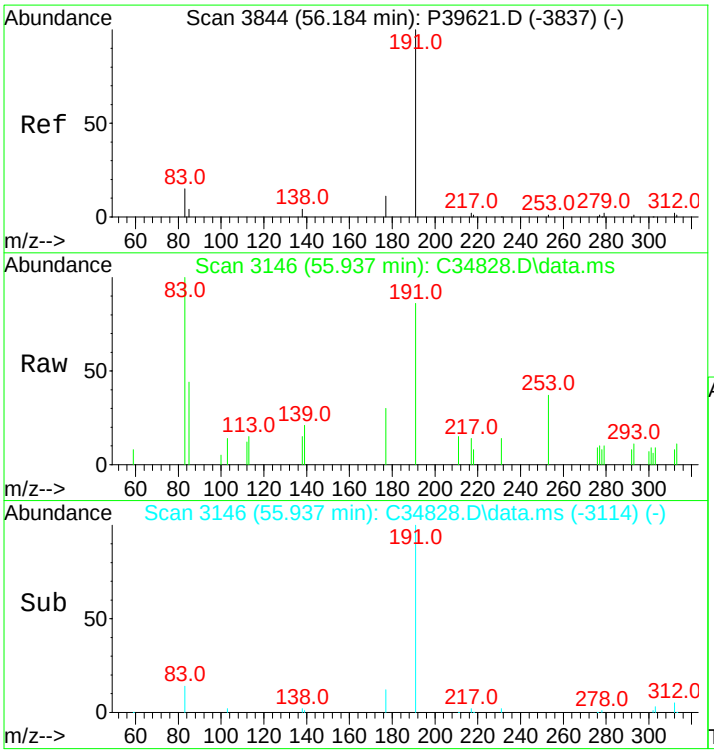




#119
30,31-Bishomohopane-22S (T26)
Concen: 369.16 ng/ml
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

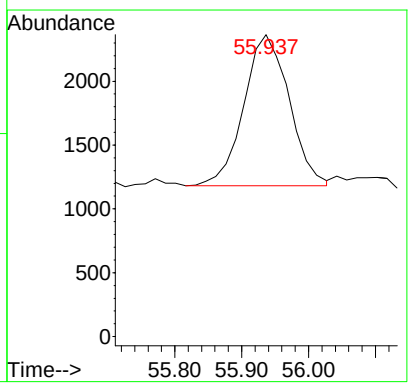
Tgt Ion:191 Resp: 8593

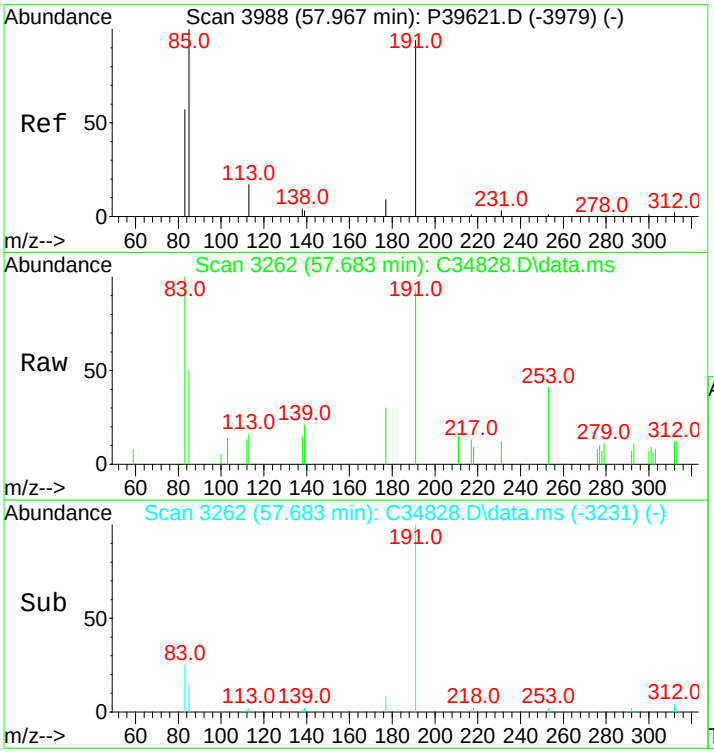




#120
30,31-Bishomohopane-22R (T27)
Concen: 239.55 ng/ml
RT: 55.937 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

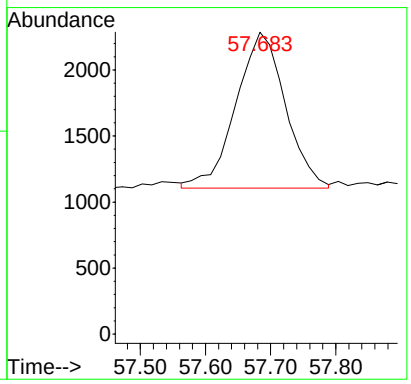
Tgt Ion:191 Resp: 5576

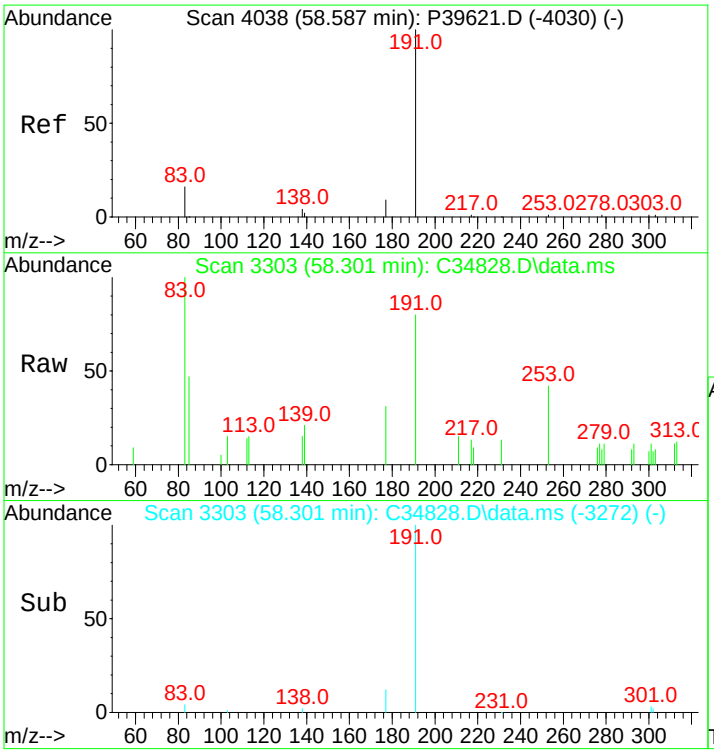




#121
30,31-Trishomohopane-22S (T30)
Concen: 266.79 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

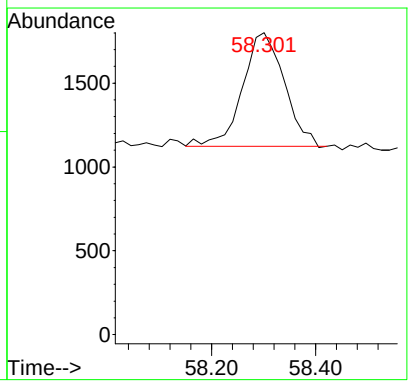
Tgt Ion:191 Resp: 6210

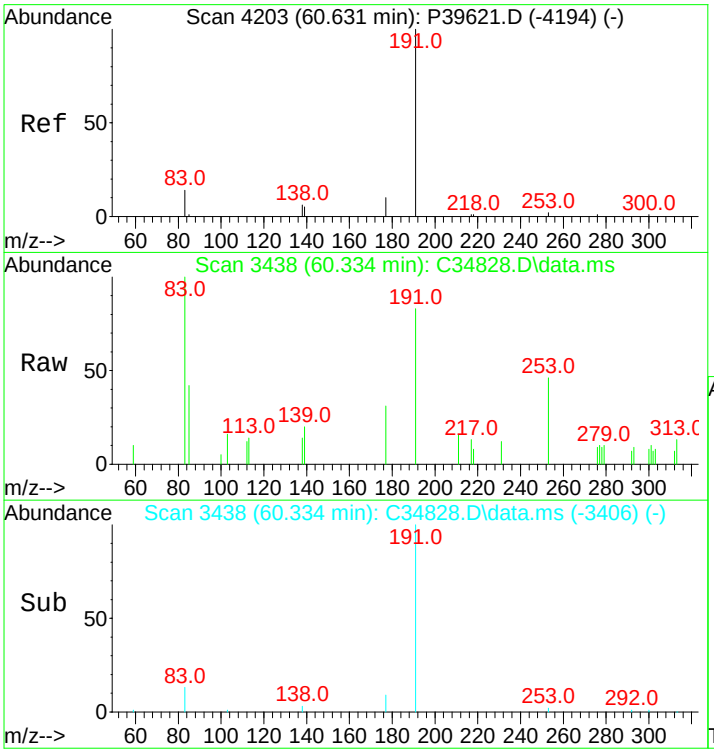




#122
30,31-Trishomohopane-22R (T31)
Concen: 162.91 ng/ml
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

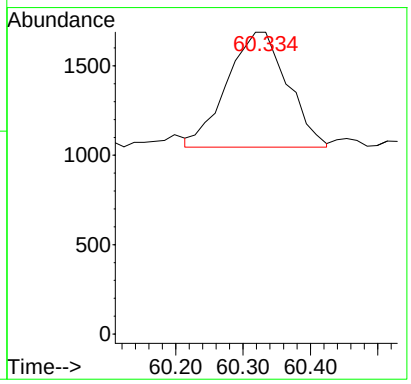
Tgt Ion:191 Resp: 3792

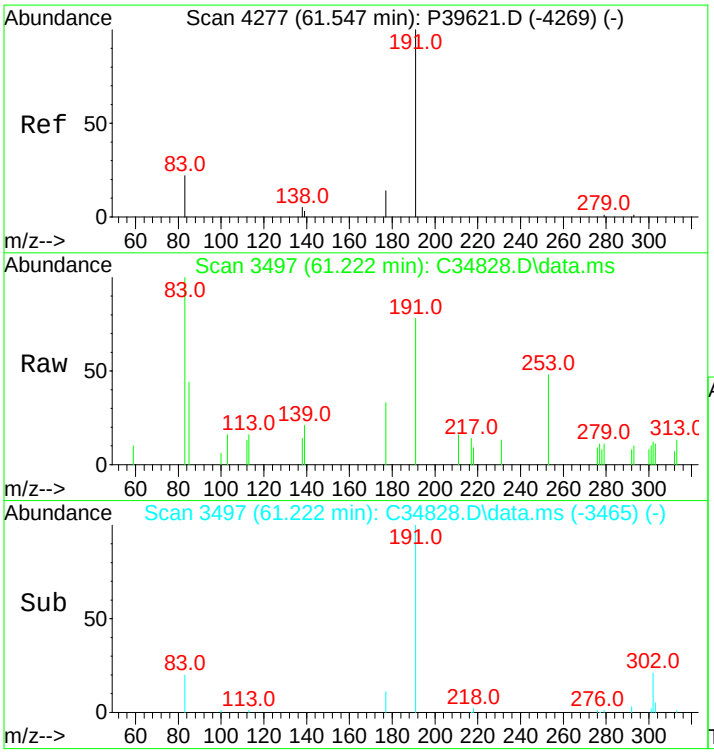




#123
Tetrakishomohopane-22S (T32)
Concen: 172.36 ng/ml m
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

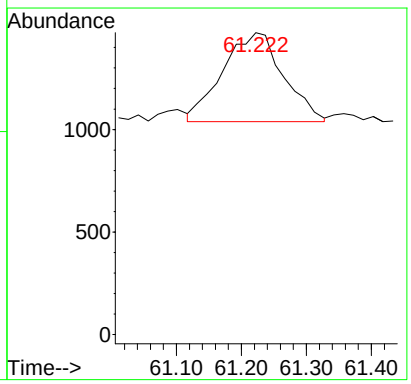
Tgt Ion:191 Resp: 4012

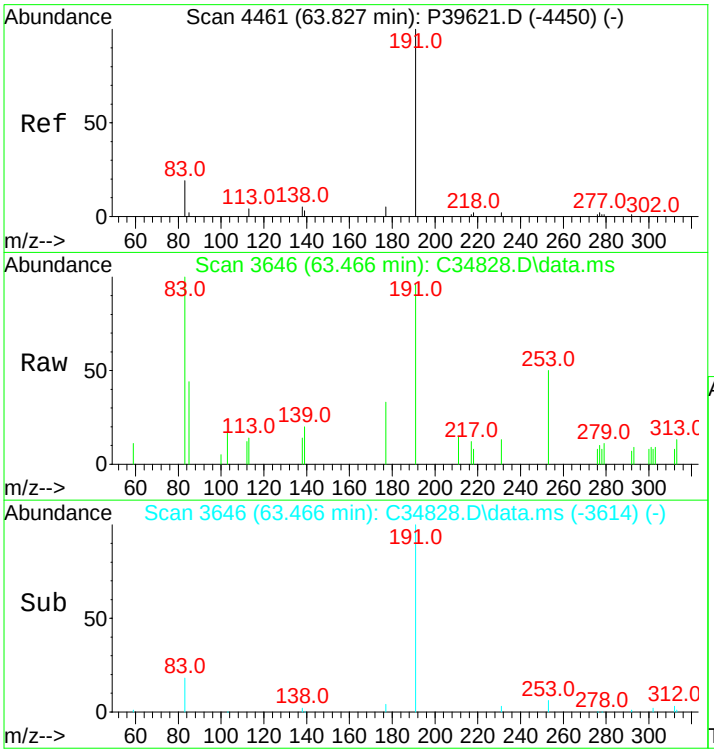




#124
Tetrakishomohopane-22R (T33)
Concen: 120.59 ng/ml m
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

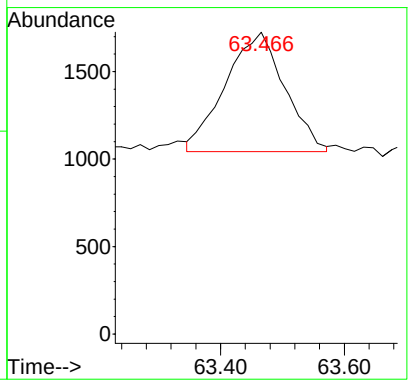
Tgt Ion:191 Resp: 2807

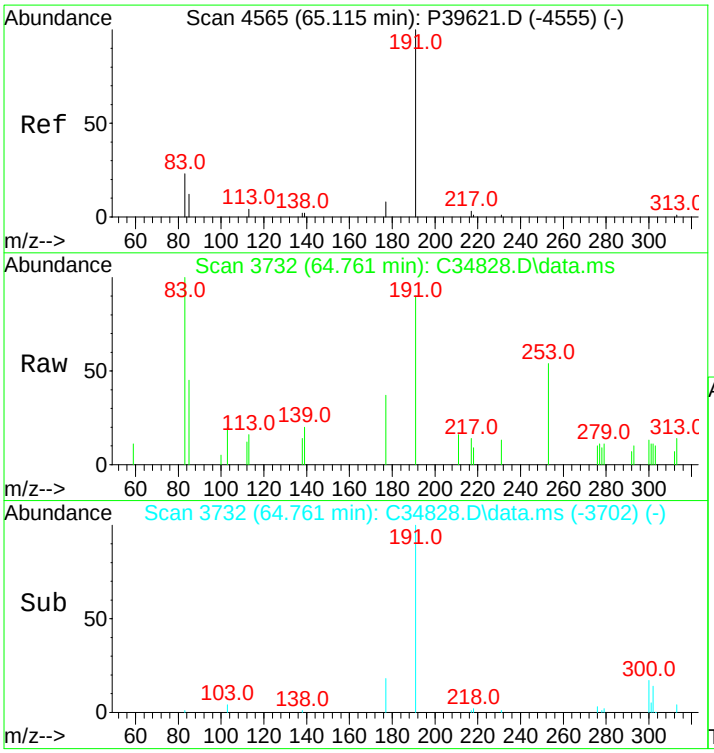




#125
Pentakishomohopane-22S (T34)
Concen: 195.34 ng/ml m
RT: 63.466 min Scan# 3646
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

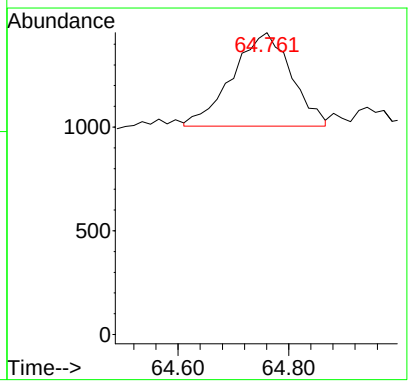
Tgt Ion:191 Resp: 4547

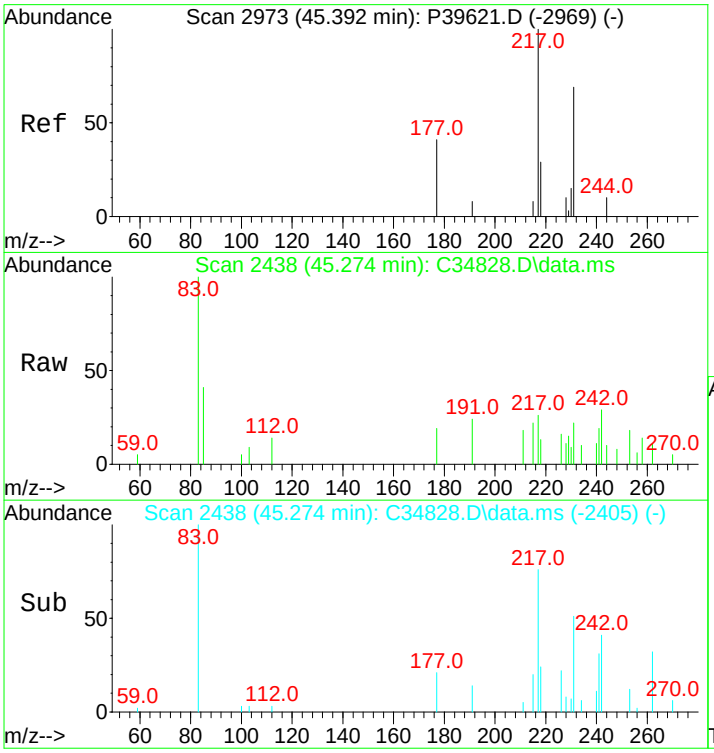




#126
Pentakishomohopane-22R (T35)
Concen: 143.06 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

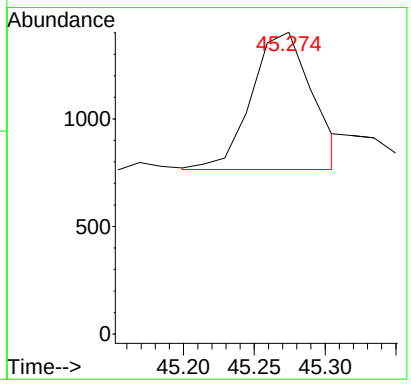
Tgt Ion:191 Resp: 3330

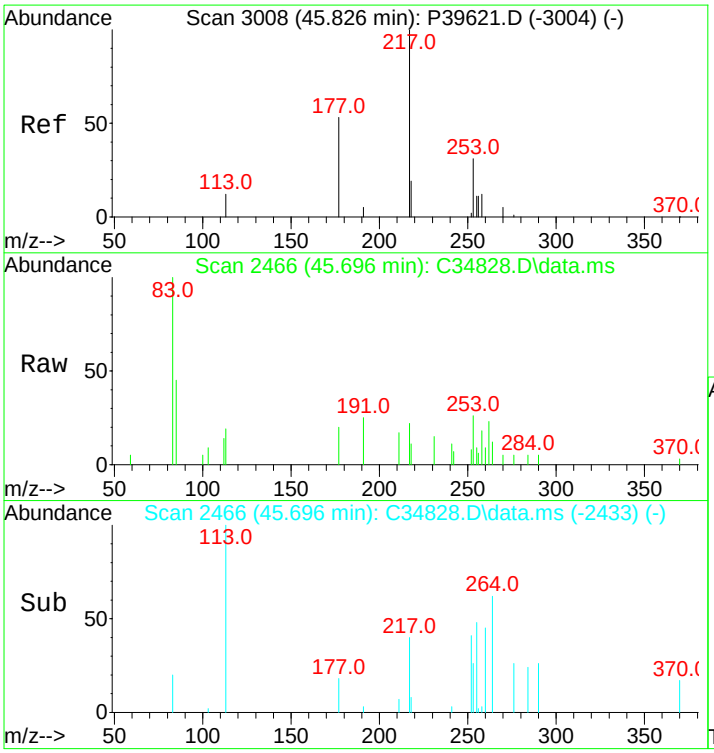




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 172.25 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

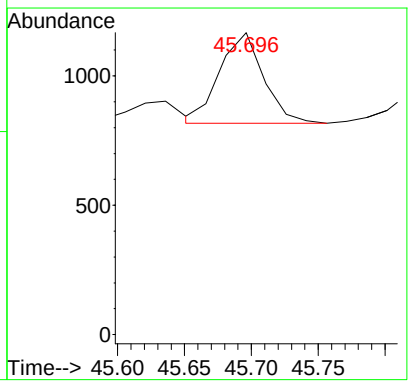
Tgt Ion:217 Resp: 1902

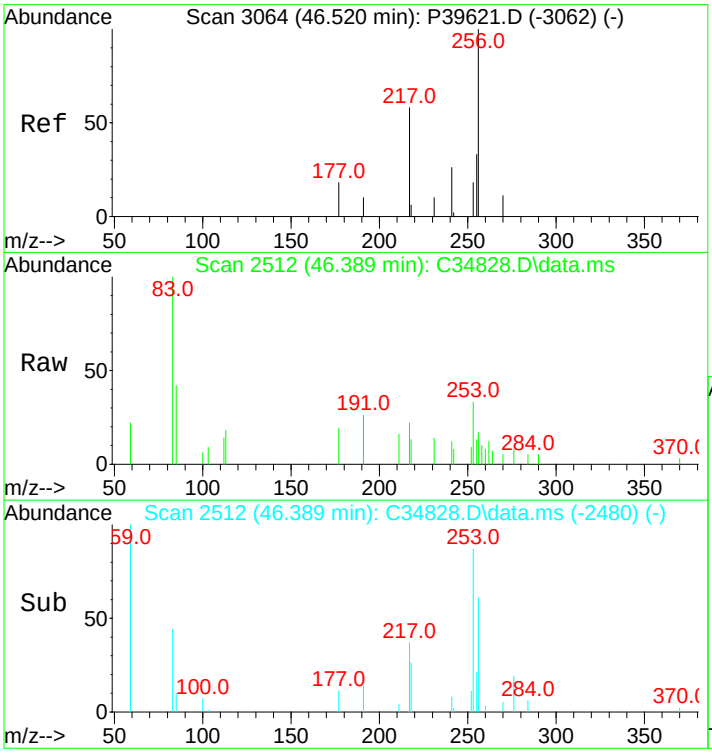




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 72.54 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

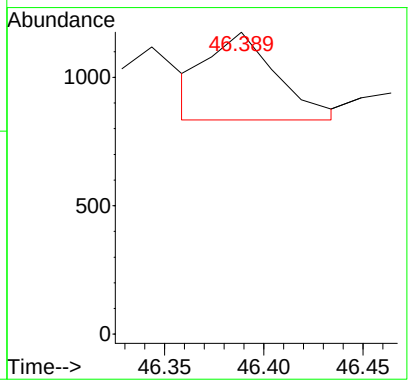
Tgt Ion:217 Resp: 801

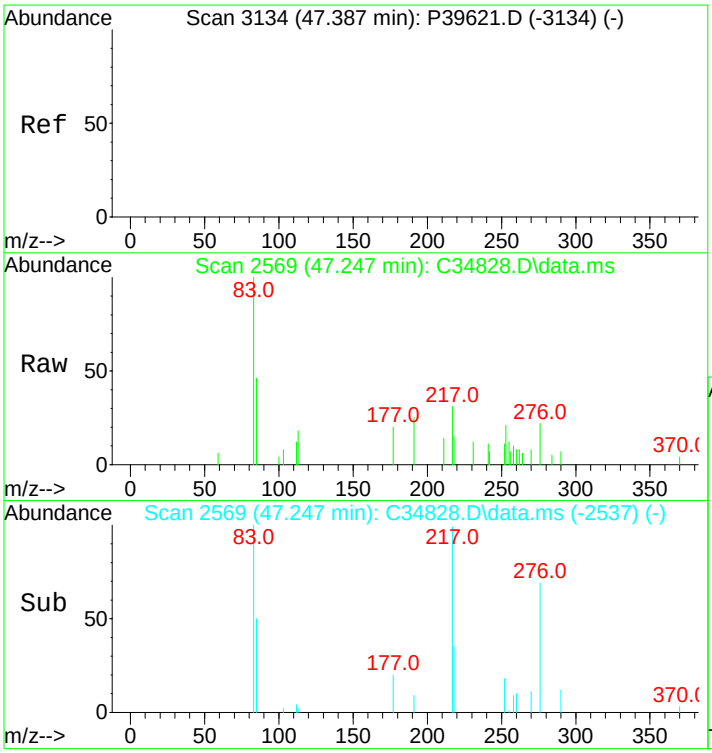




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 74.08 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

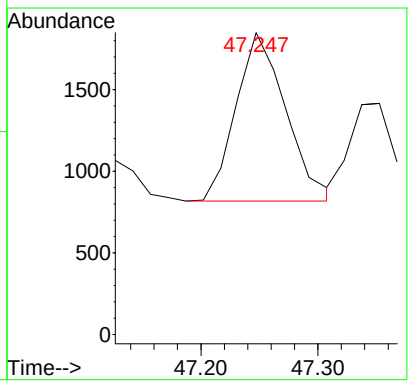
Tgt Ion:217 Resp: 818

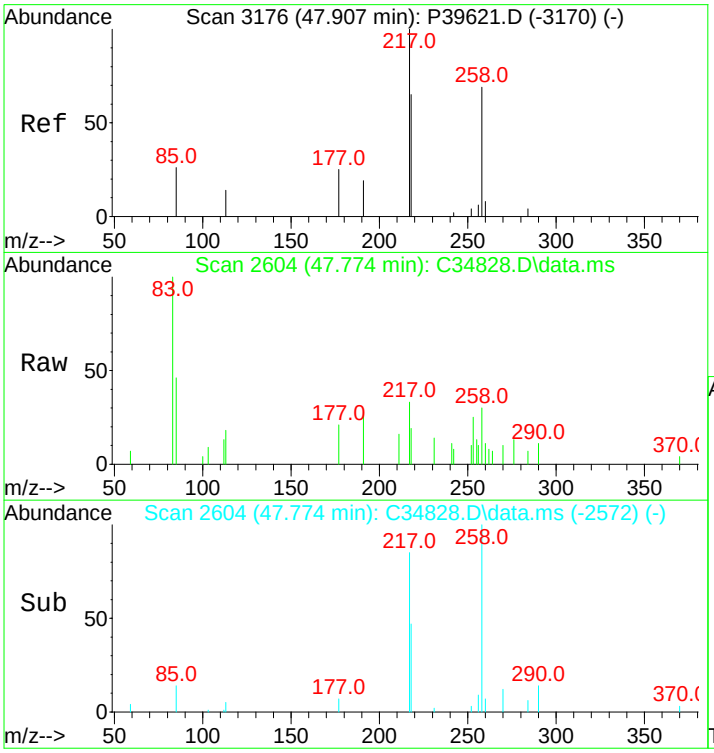




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 275.58 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

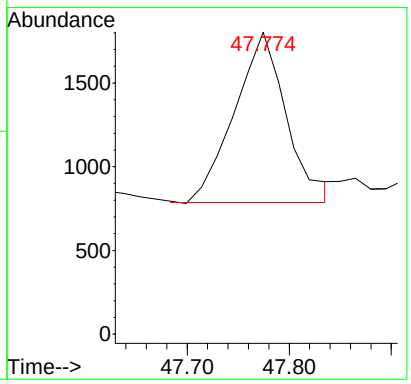
Tgt Ion:217 Resp: 3043

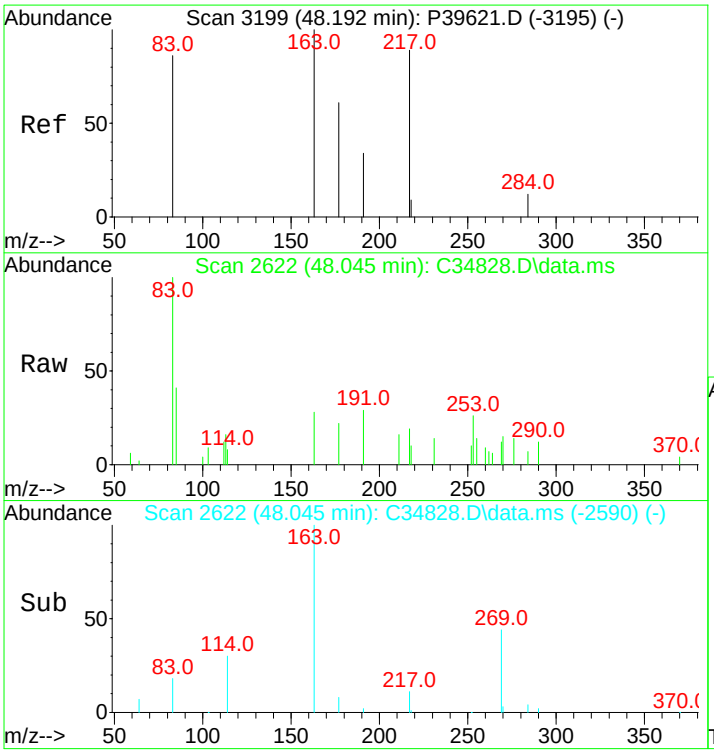




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 324.30 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

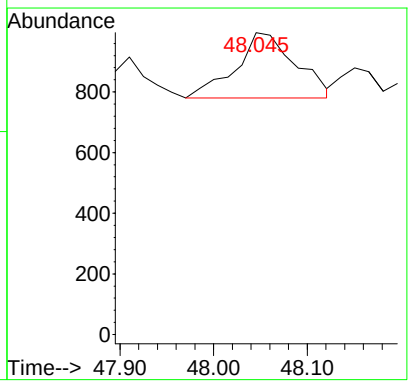
Tgt Ion:217 Resp: 3581

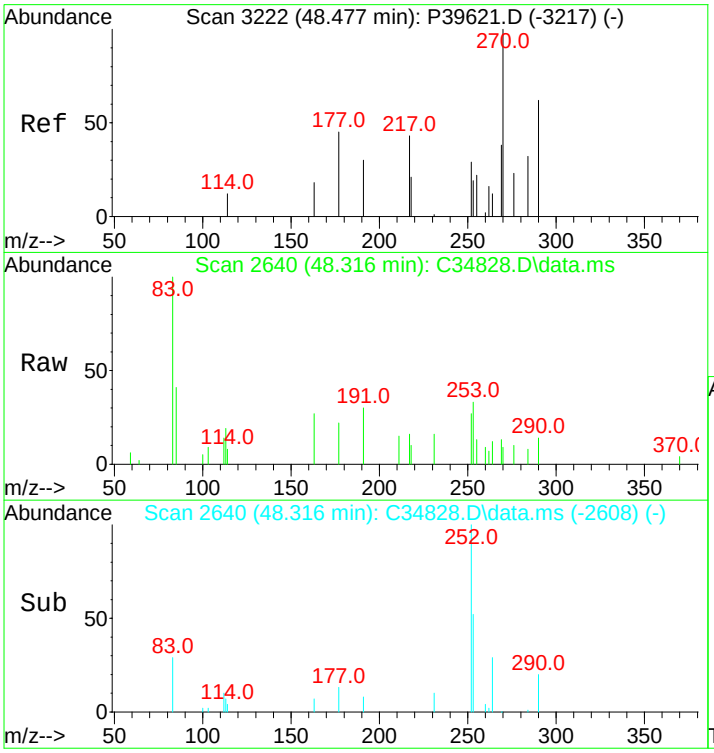




#133
Unknown Sterane (S18)
Concen: 86.76 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

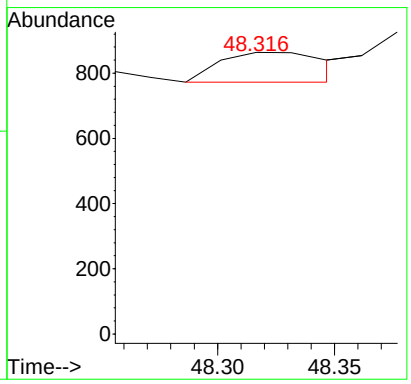
Tgt Ion:217 Resp: 958

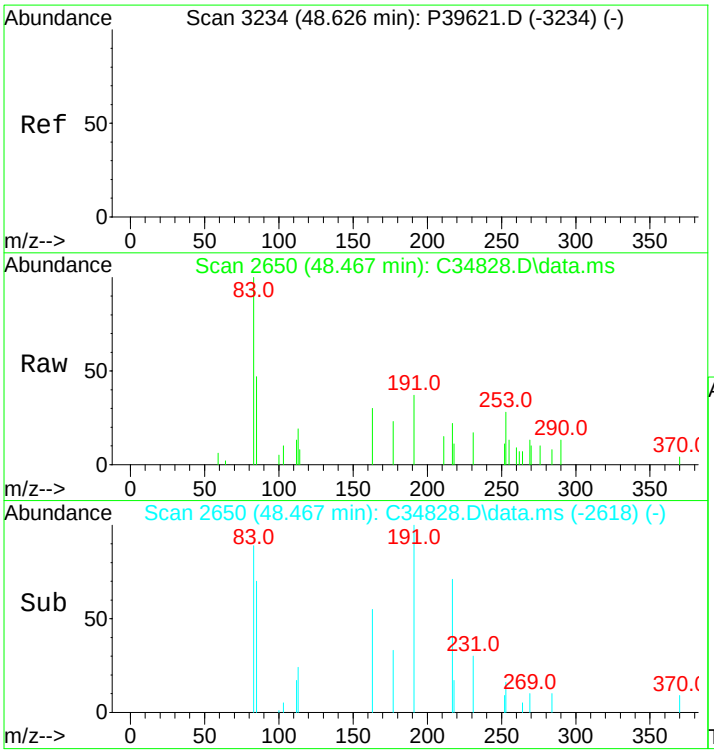




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 26.08 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

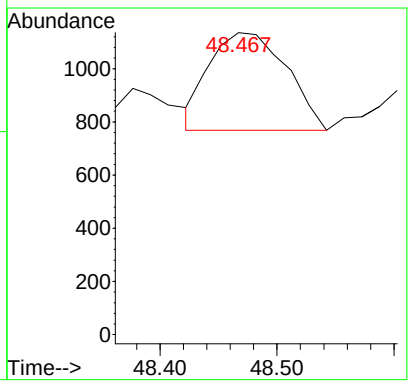
Tgt Ion:217 Resp: 288

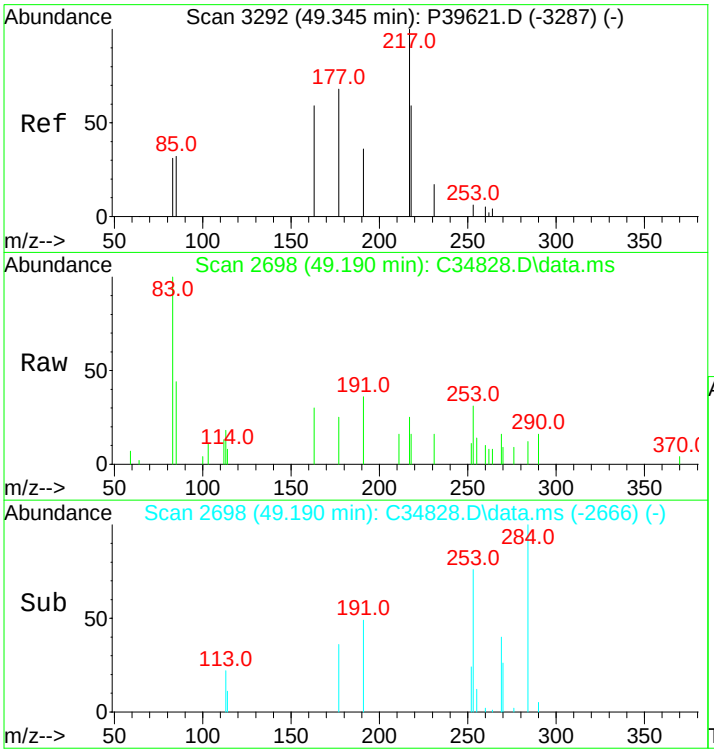




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 152.51 ng/ml
RT: 48.467 min Scan# 2650
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

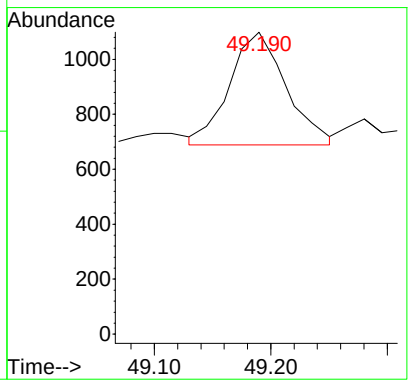
Tgt Ion:217 Resp: 1684

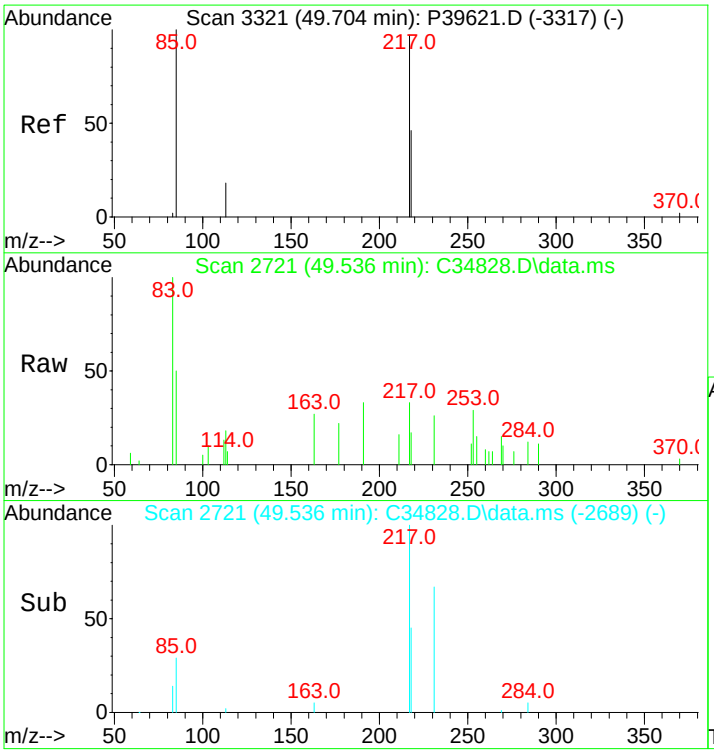




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 125.16 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

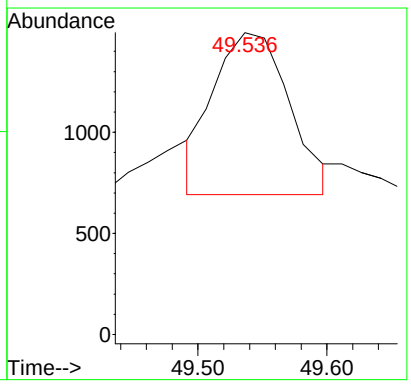
Tgt Ion:217 Resp: 1382

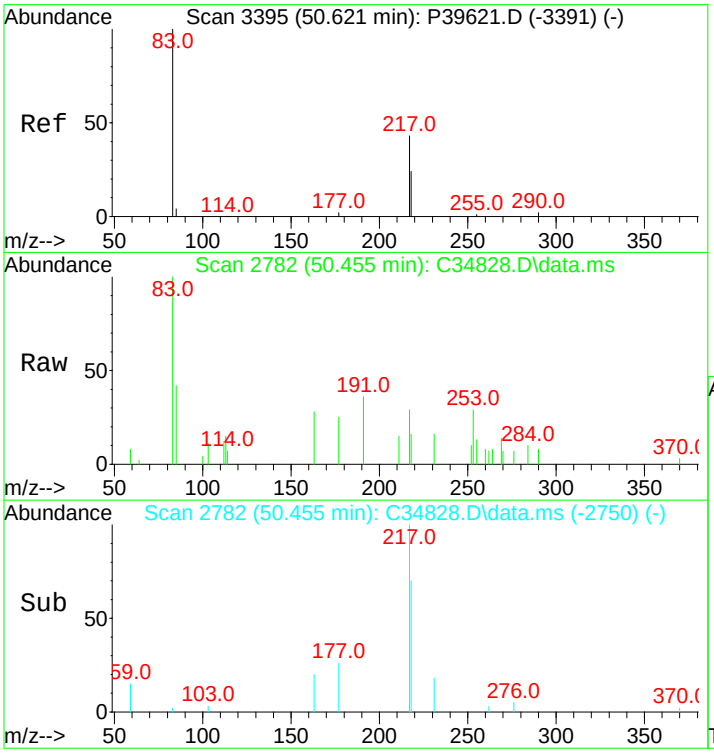




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 296.59 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

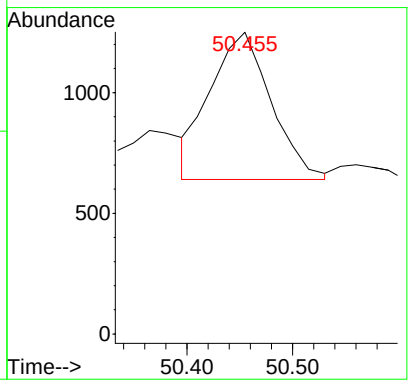
Tgt Ion:217 Resp: 3275

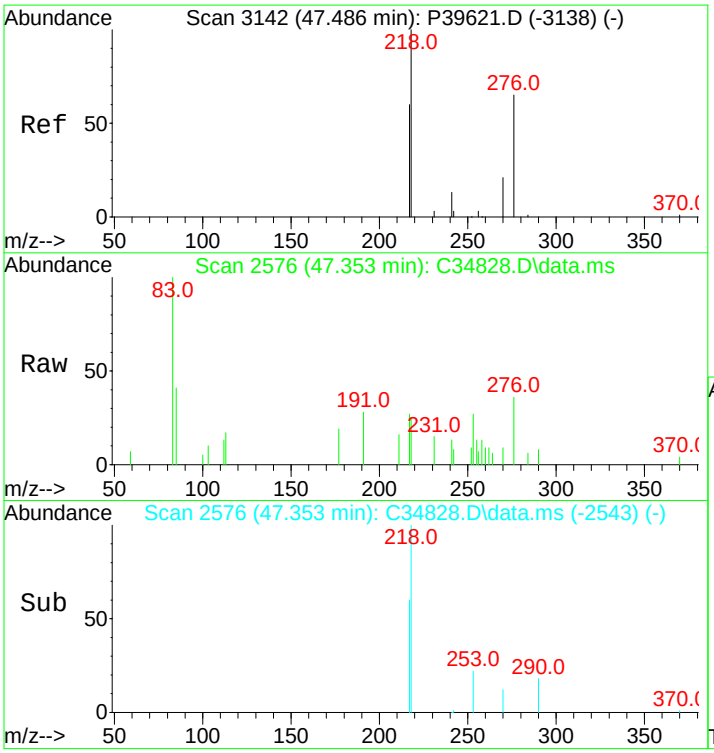




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 222.33 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

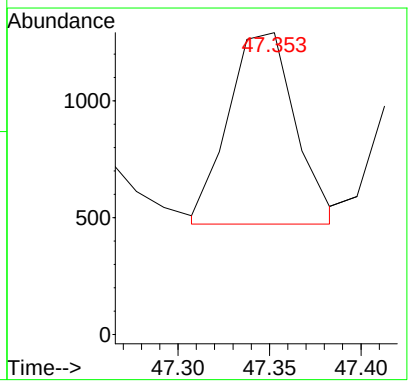
Tgt Ion:217 Resp: 2455

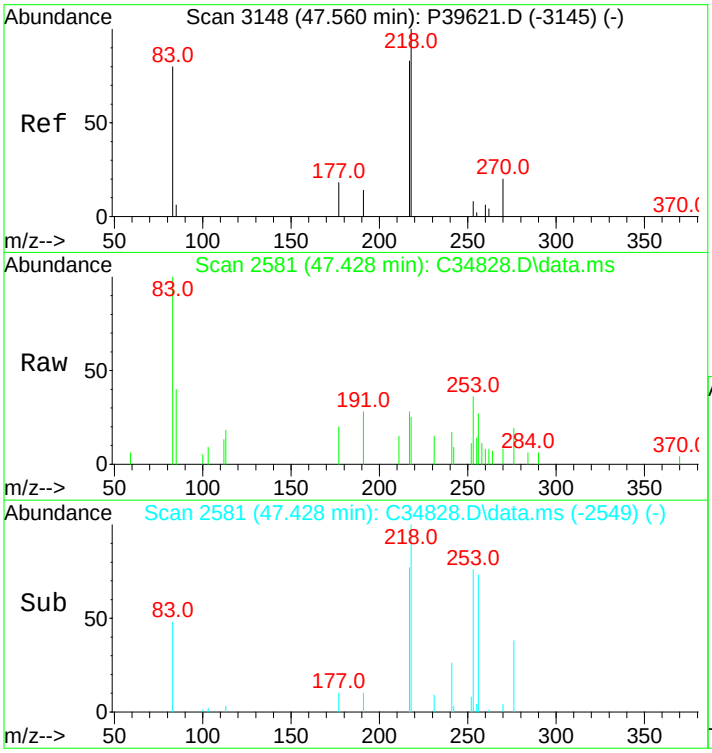




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 188.91 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

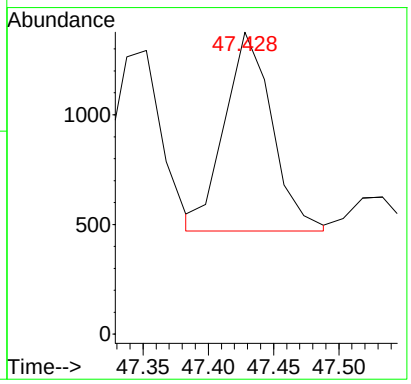
Tgt Ion:218 Resp: 2086

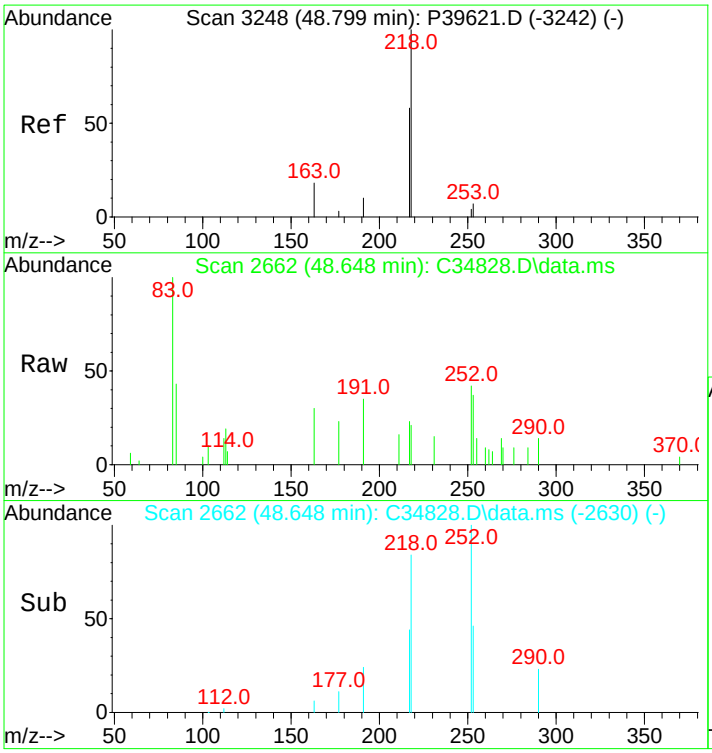




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 206.66 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

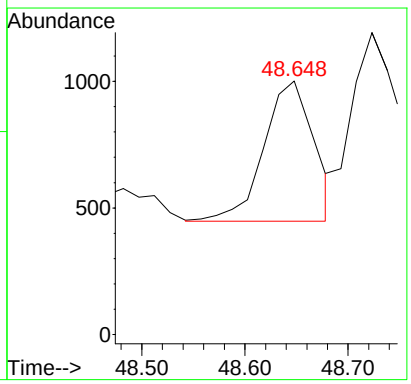
Tgt Ion:218 Resp: 2282

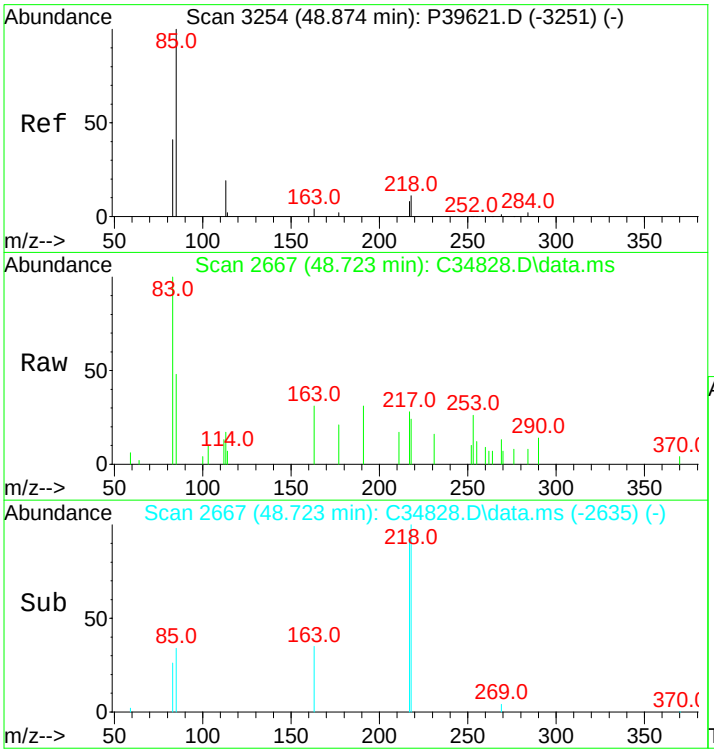




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 168.44 ng/ml m
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

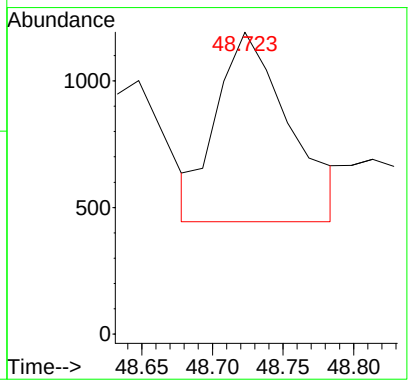
Tgt Ion:218 Resp: 1860

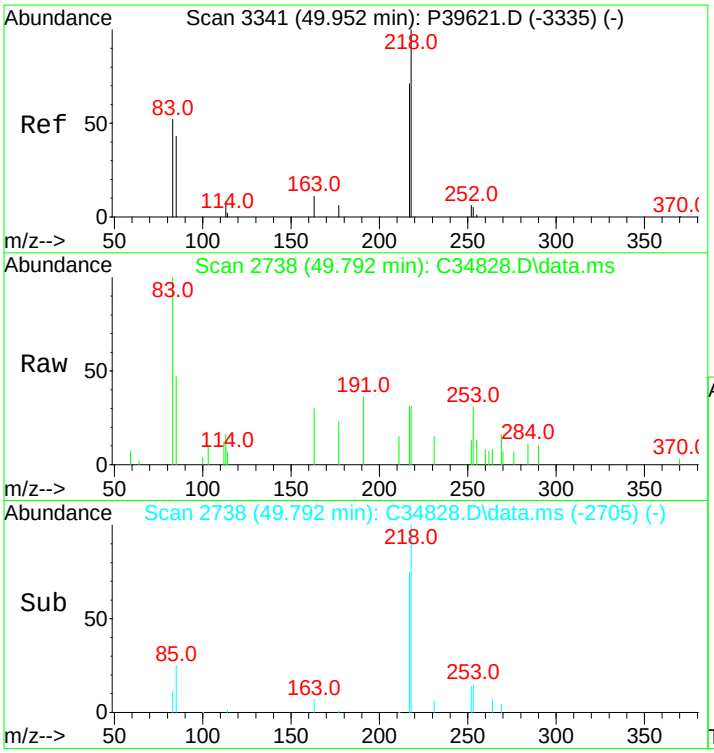




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 243.61 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

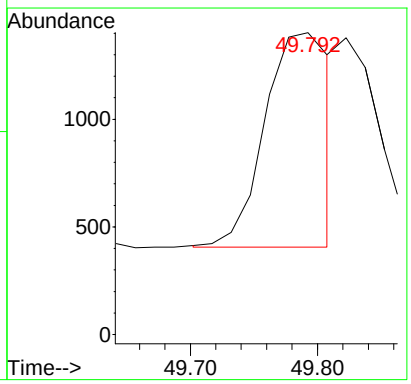
Tgt Ion:218 Resp: 2690

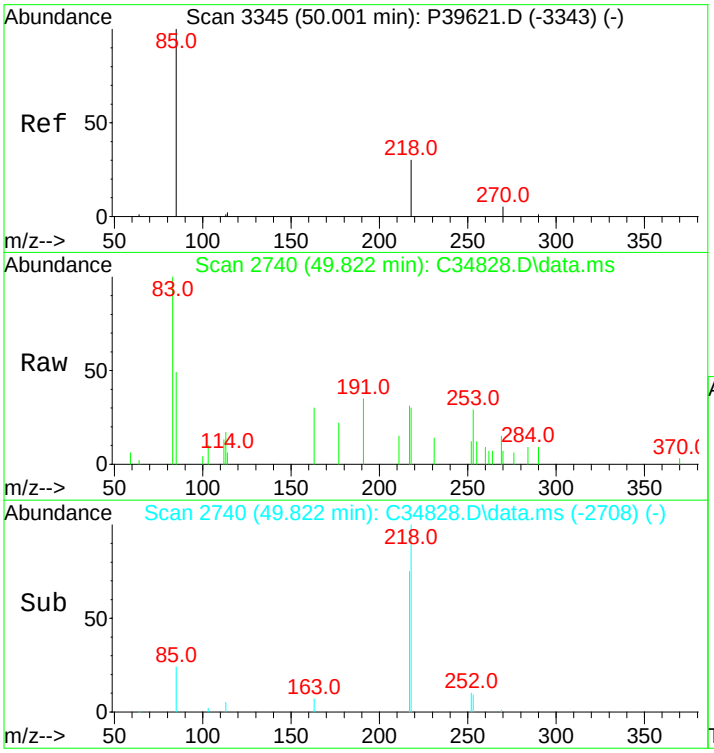




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 318.87 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

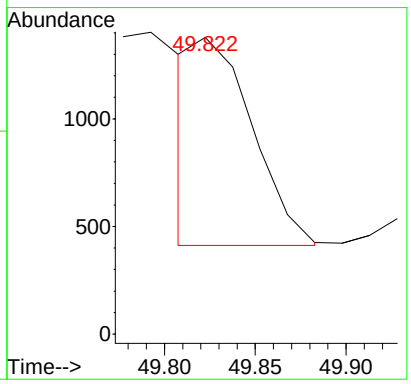
Tgt Ion:218 Resp: 3521

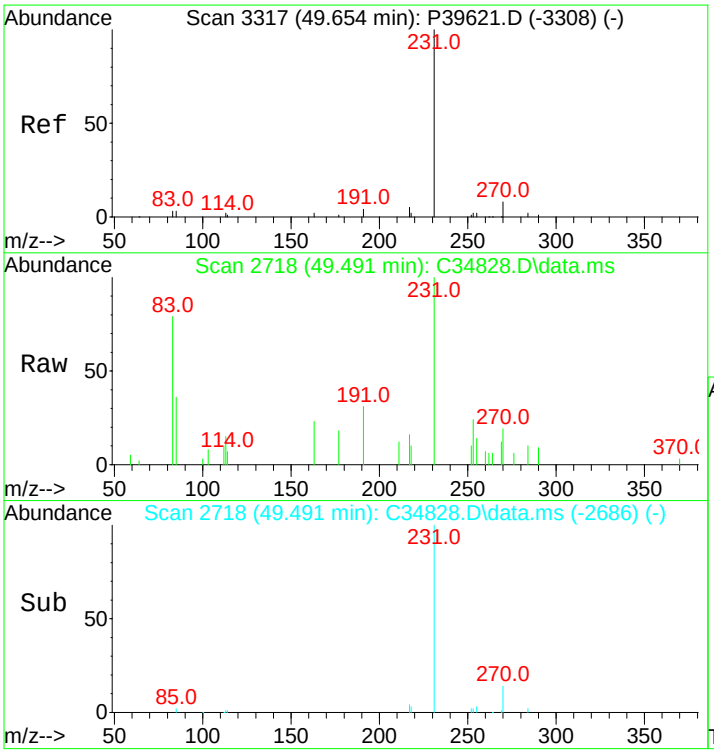




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 196.25 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

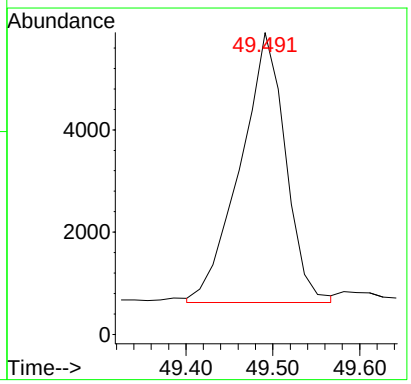
Tgt Ion:218 Resp: 2167

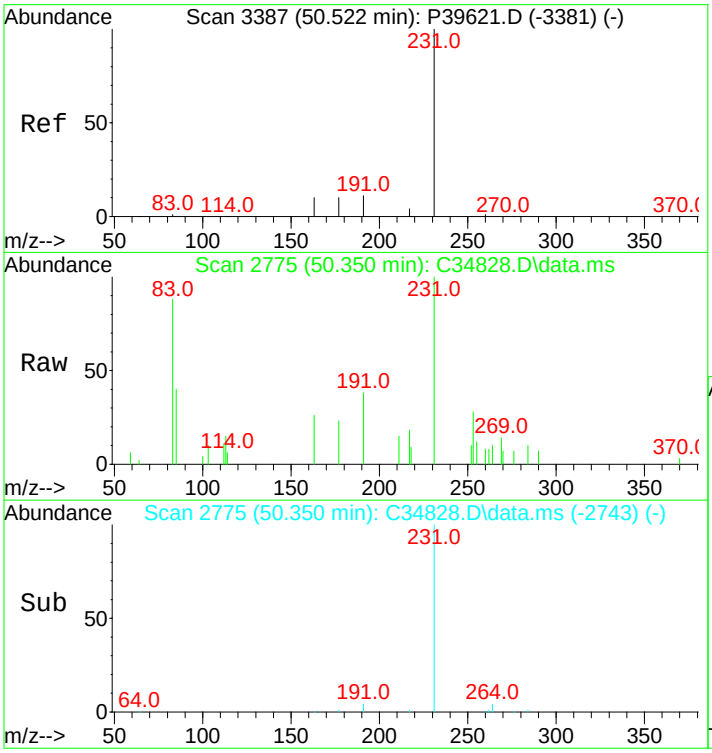




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1736.34 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

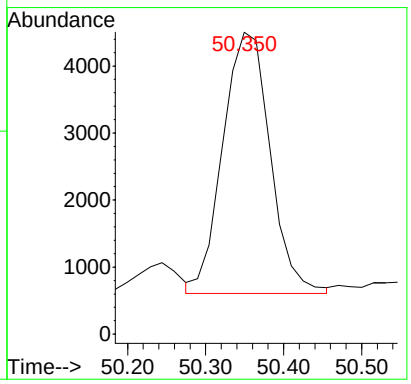
Tgt Ion:231 Resp: 19173

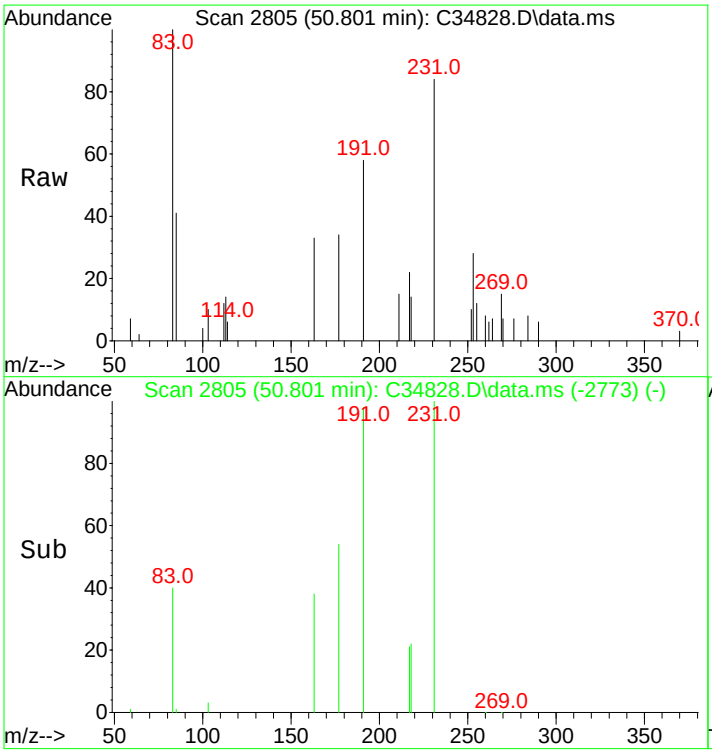




#146
C28,20S-triaromatic steroid
Concen: 1488.65 ng/mL
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

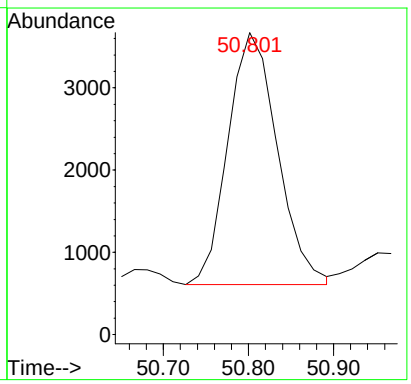
Tgt Ion:231 Resp: 16438

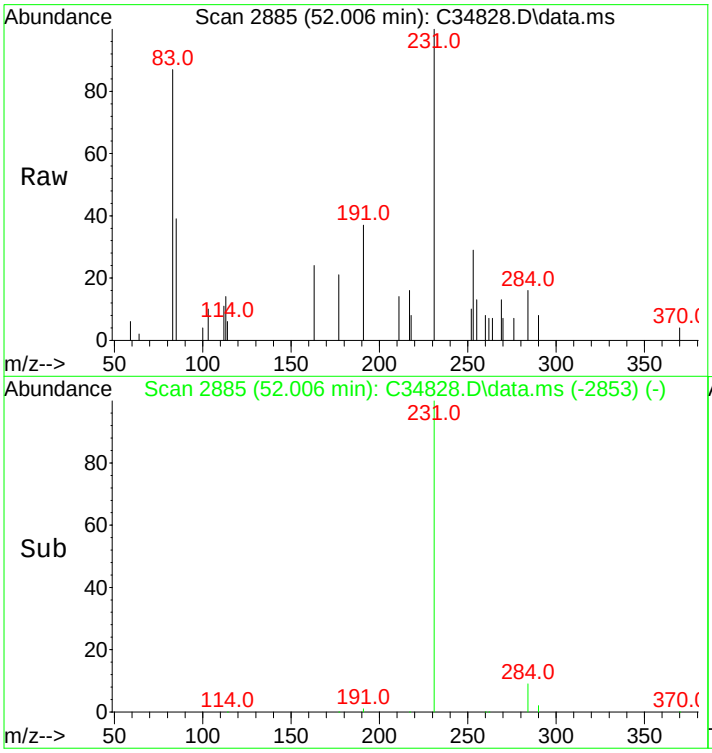


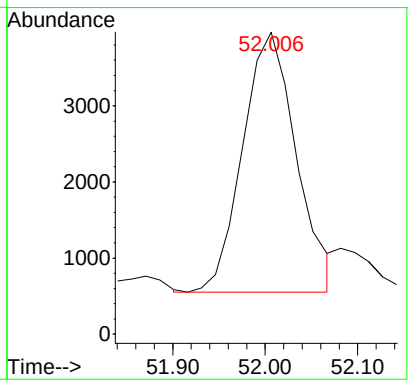


#147
C27,20R-triaromatic steroid
Concen: 1121.97 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:231 Resp: 12389







#148
C28,20R-triaromatic steroid
Concen: 1244.32 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34828.D
Acq: 4 May 2012 3:02 am

Tgt Ion:231 Resp: 13740

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

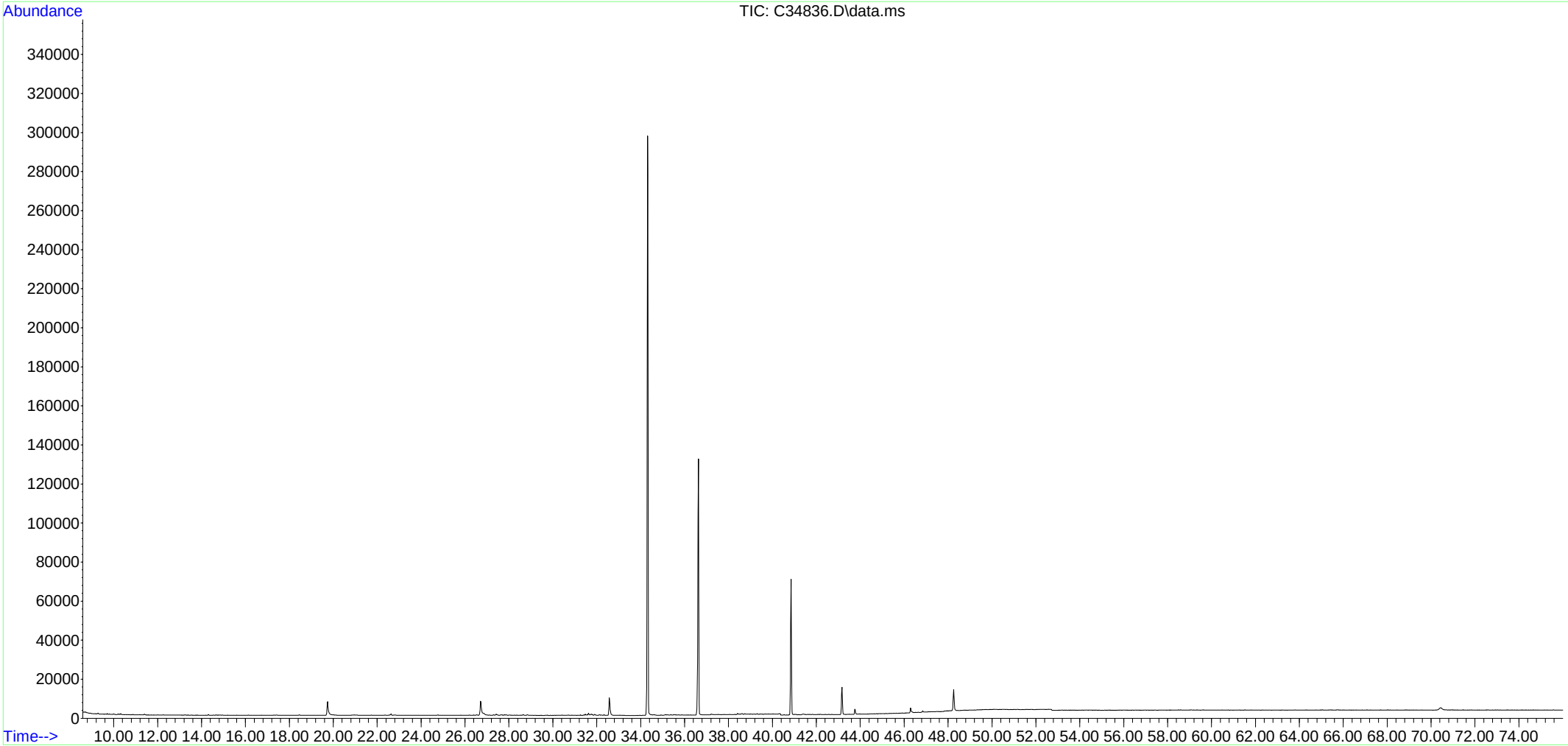
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17315M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30629	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	28930	384.956	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	26282	442.451	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.25%#			
86) Benzo[a]pyrene-d12	48.256	264	27389	431.484	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.15%#			
127) 5B(H)Cholane - Surr	43.754	217	4348	454.043	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.40%#			
Target Compounds						Qvalue
43) Phenanthrene	32.658	178	56M2	0.559	ng/mL	
58) Fluoranthene	37.445	202	62M3	0.623	ng/mL	
75) Benz[a]anthracene	43.091	228	37M3	0.381	ng/mL	
77) Chrysene/Triphenylene	43.257	228	61M3	0.622	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	109M2	1.020	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.232	252	66M2	0.567	ng/mL	
85) Benzo[e]pyrene	48.151	252	118	1.117	ng/mL#	1
87) Benzo[a]pyrene	48.347	252	73M2	0.718	ng/mL	
88) Perylene	48.648	252	85M4	0.782	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.166	276	273M3	2.306	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	154M4	1.367	ng/mL	
91) Benzo[g,h,i]perylene	54.476	276	441	3.526	ng/mL#	69
133) Unknown Sterane (S18)	48.091	217	76M2	7.936	ng/ml	

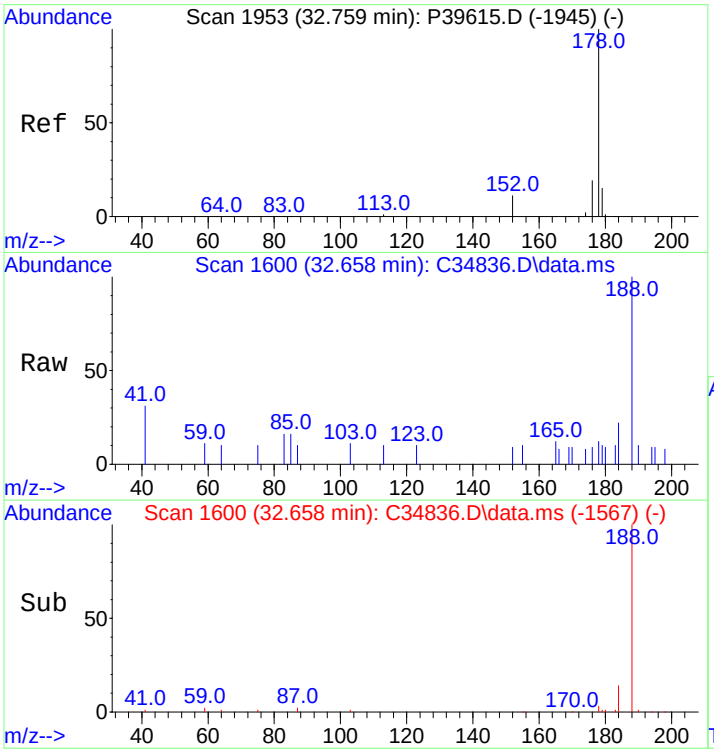
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34836.D
Acq On : 4 May 2012 9:05 am
Operator : AC
Sample : SS043012B07
Misc : 1X ETR1204031_35
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 06 14:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

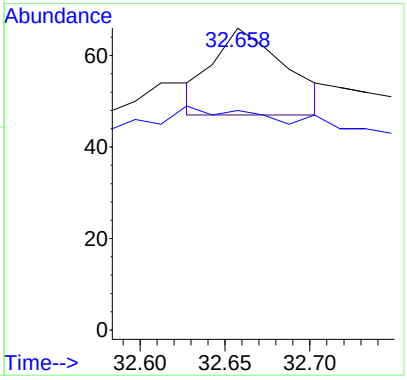


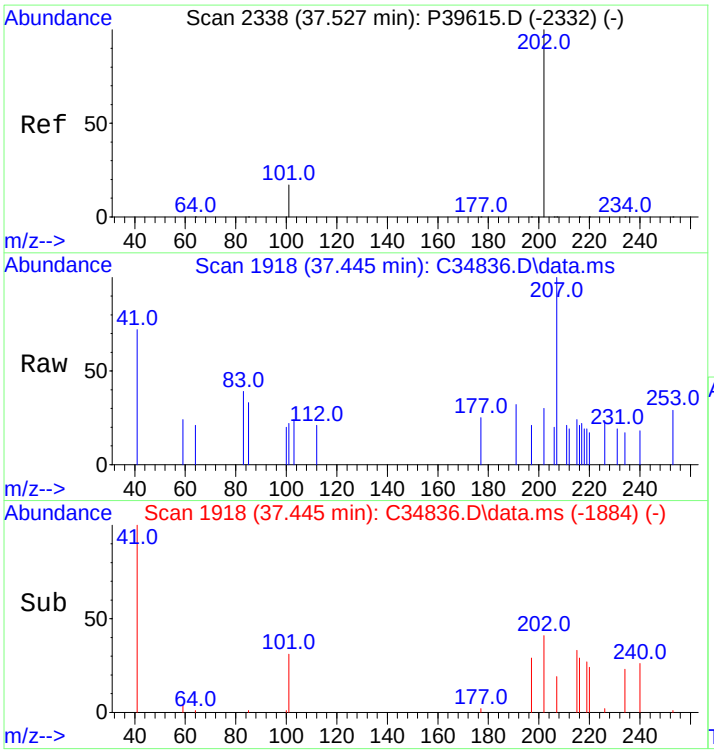


#43
Phenanthrene
Concen: 0.56 ng/mL m
RT: 32.658 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:178 Resp: 56

Ion	Ratio	Lower	Upper
178	100		
176	0.0	16.1	24.1#

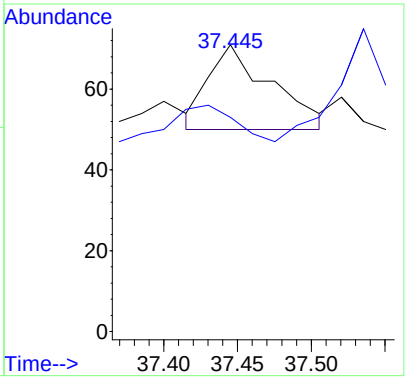


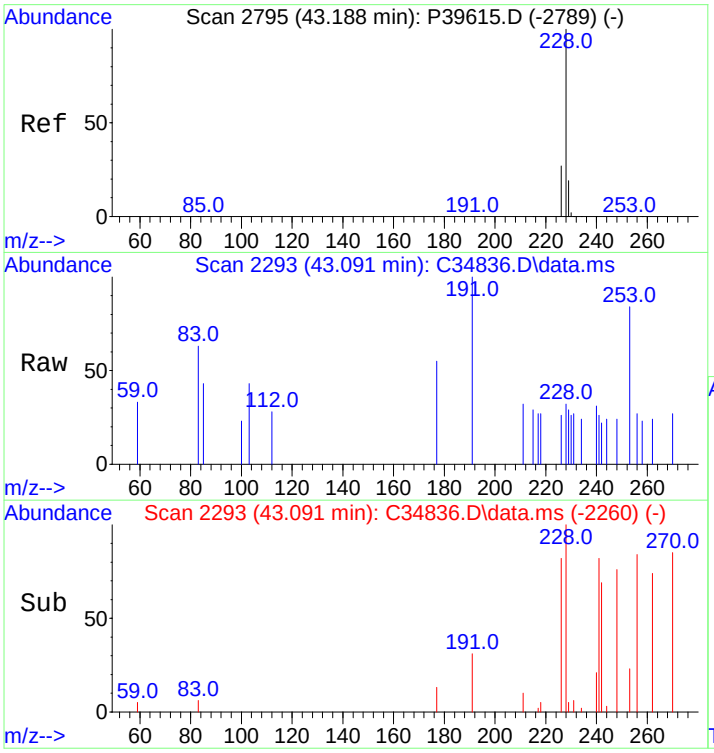


#58
Fluoranthene
Concen: 0.62 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:202 Resp: 62

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.9	19.3#

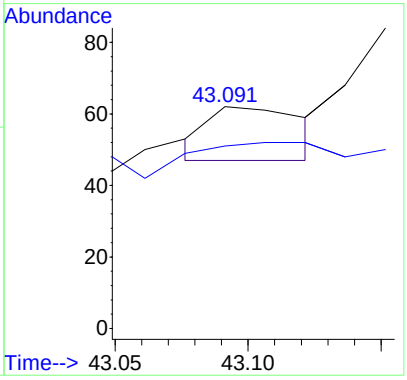


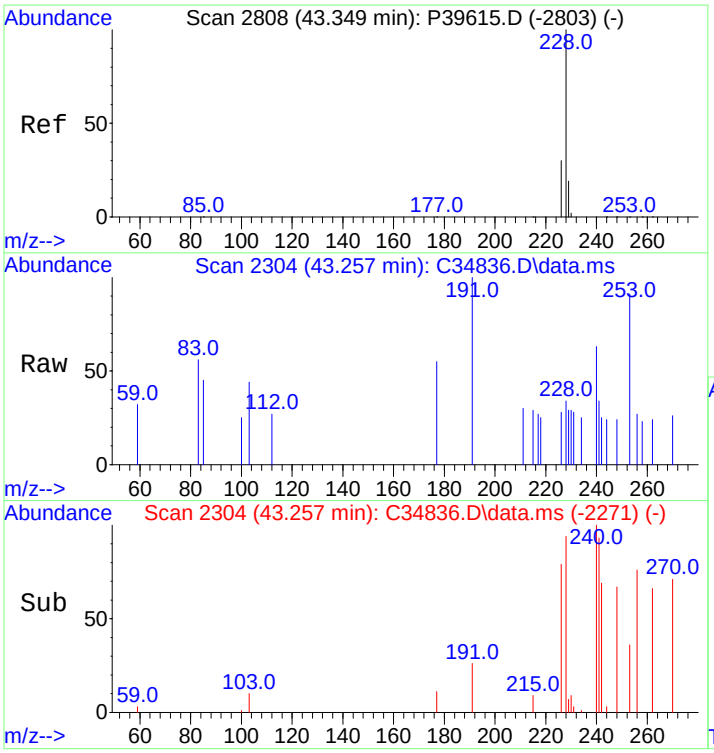


#75
Benz[a]anthracene
Concen: 0.38 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:228 Resp: 37

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.4	32.0#

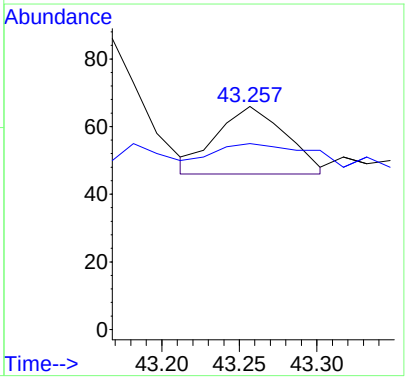


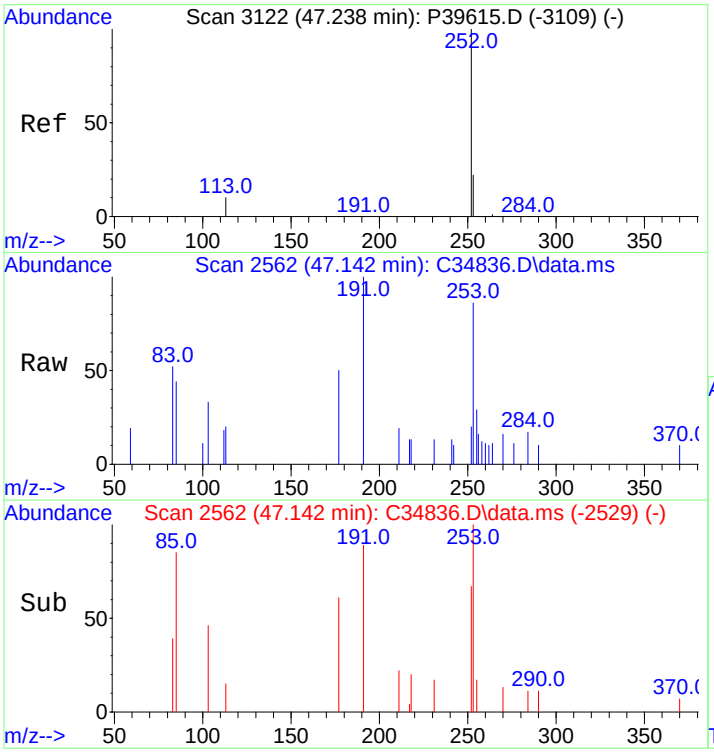


#77
Chrysene/Triphenylene
Concen: 0.62 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:228 Resp: 61

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.7	35.5#

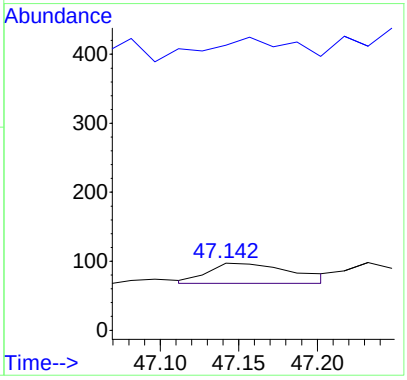


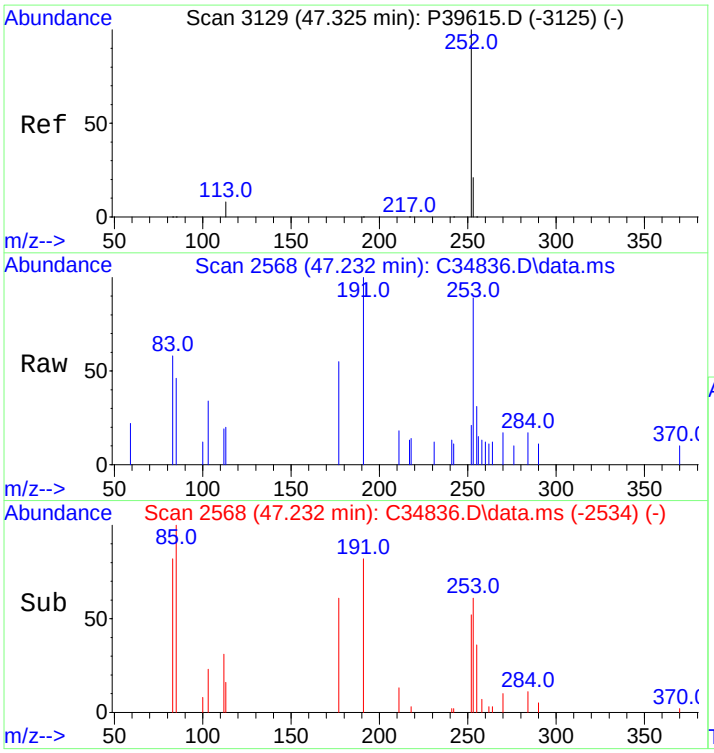


#82
Benzo[b]fluoranthene
Concen: 1.02 ng/mL m
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 109

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

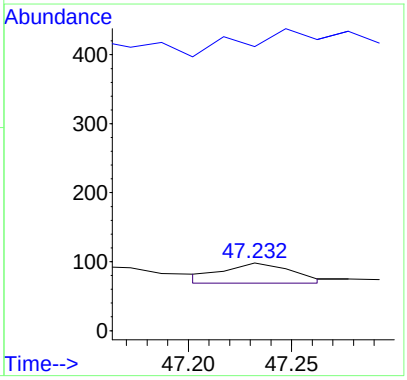


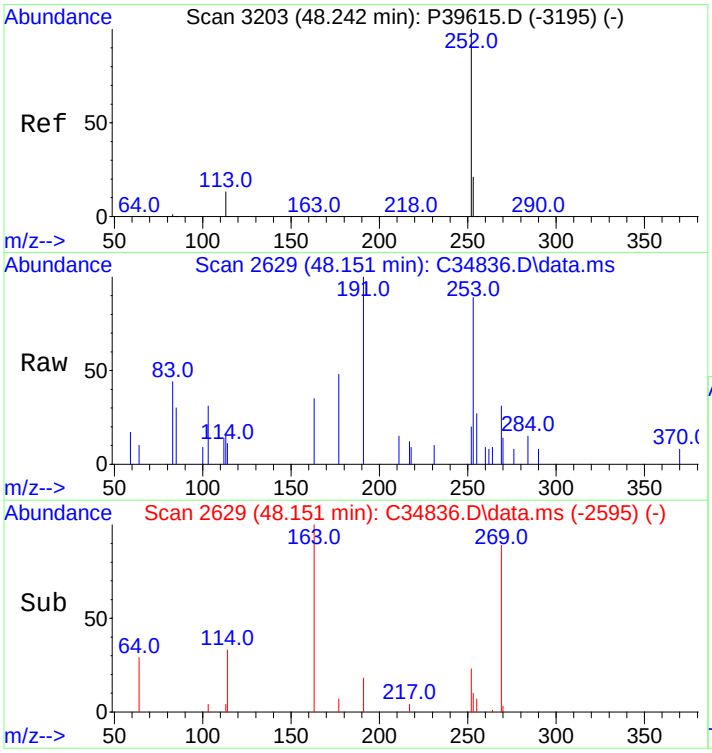


#83
Benzo[j]+[k]fluoranthene
Concen: 0.57 ng/mL m
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 66

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.0	28.4#

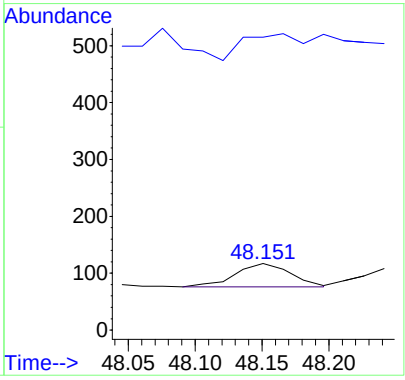


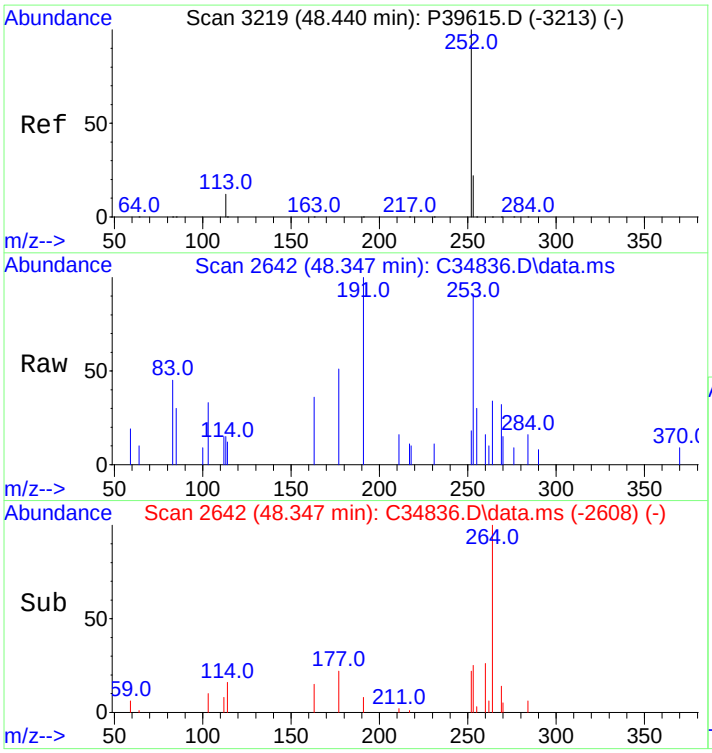


#85
Benzo[e]pyrene
Concen: 1.12 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 118

Ion	Ratio	Lower	Upper
252	100		
253	122.0	19.2	28.8#

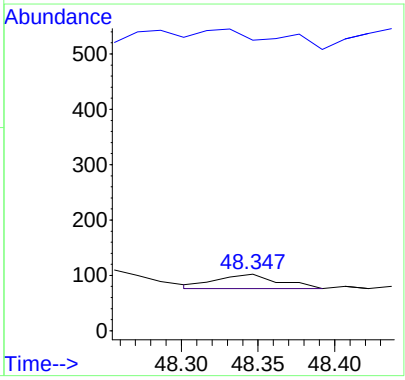


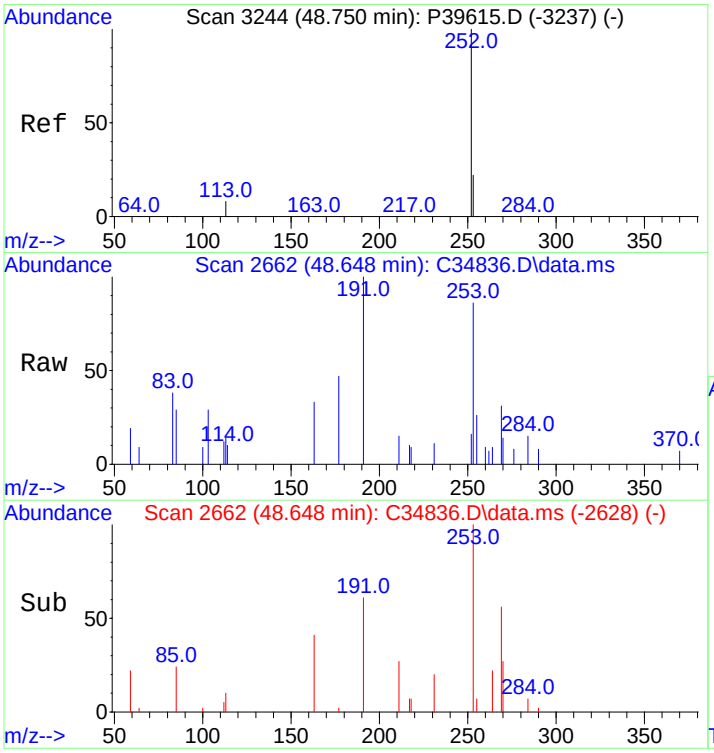


#87
Benzo[a]pyrene
Concen: 0.72 ng/mL m
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 73

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.5	29.3#

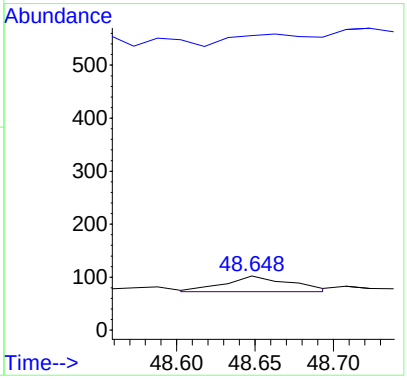


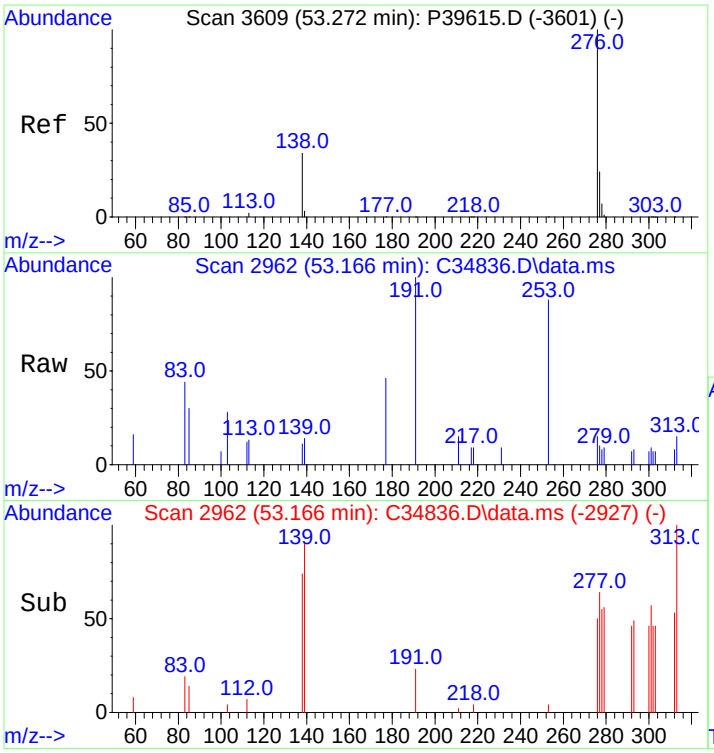


#88
Perylene
Concen: 0.78 ng/mL m
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:252 Resp: 85

Ion	Ratio	Lower	Upper
252	100		
253	0.0	19.6	29.4#

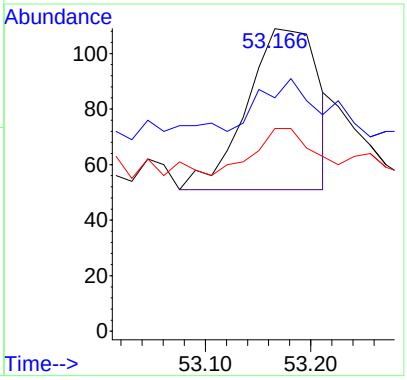


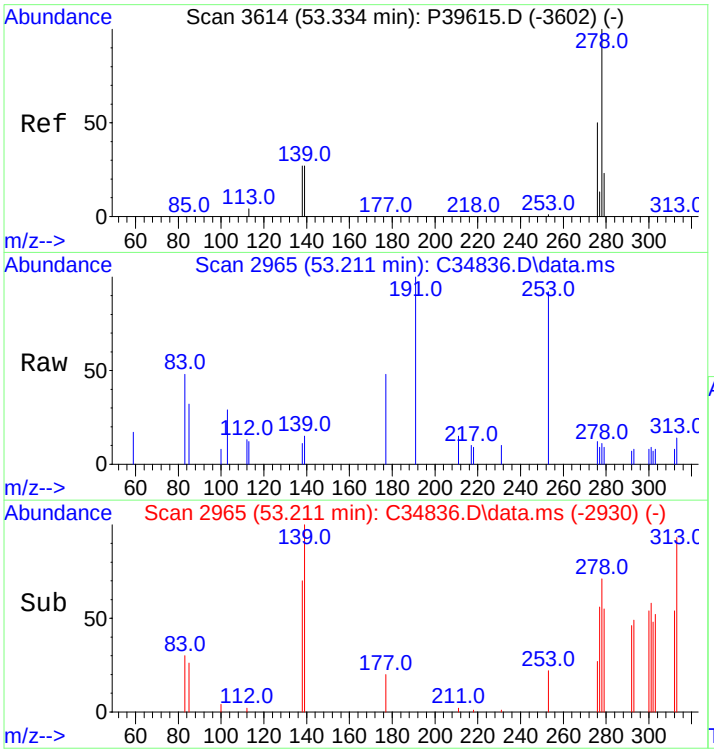


#89
Indeno[1,2,3-cd]pyrene
Concen: 2.31 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:276 Resp: 273

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.3	34.9#
277	0.0	19.0	28.4#

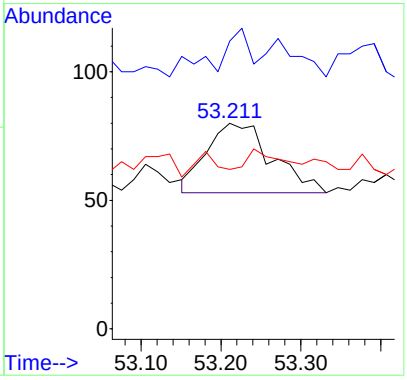


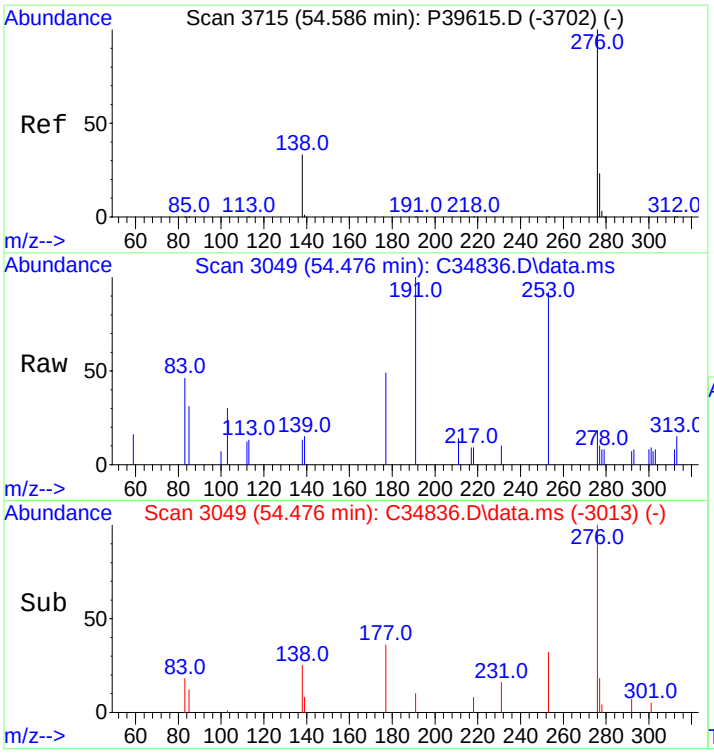


#90
Dibenz[ah]+[ac]anthracene
Concen: 1.37 ng/mL m
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:278 Resp: 154

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	0.0	19.2	28.8#

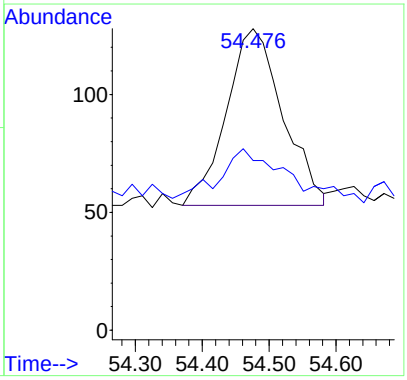


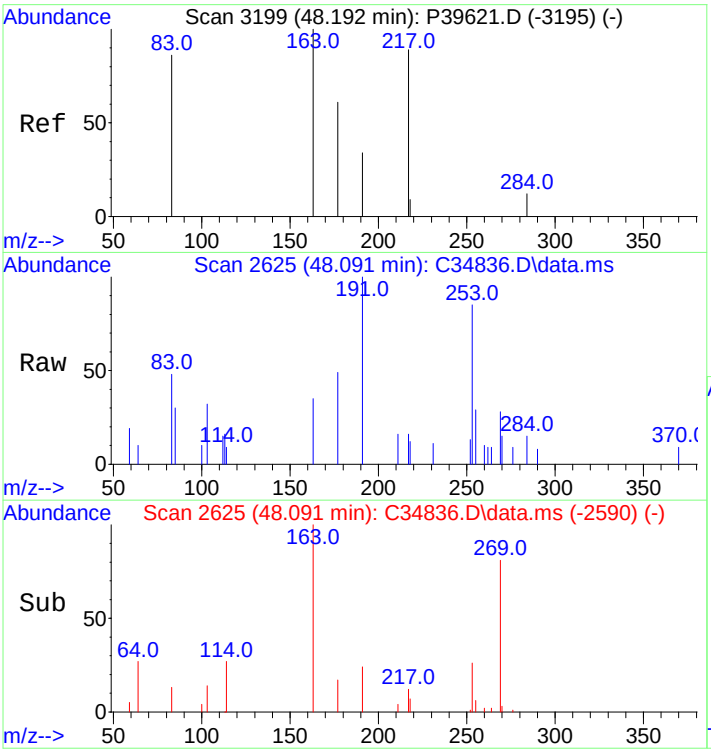


#91
Benzo[g,h,i]perylene
Concen: 3.53 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:276 Resp: 441

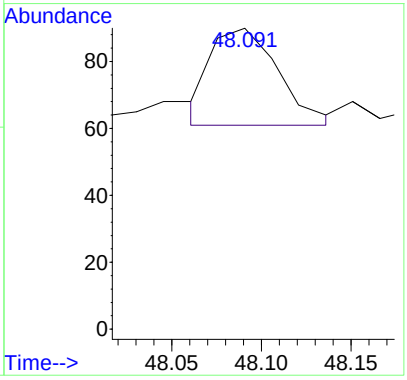
Ion	Ratio	Lower	Upper
276	100		
277	38.5	18.9	28.3#





#133
Unknown Sterane (S18)
Concen: 7.94 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34836.D
Acq: 4 May 2012 9:05 am

Tgt Ion:217 Resp: 76



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

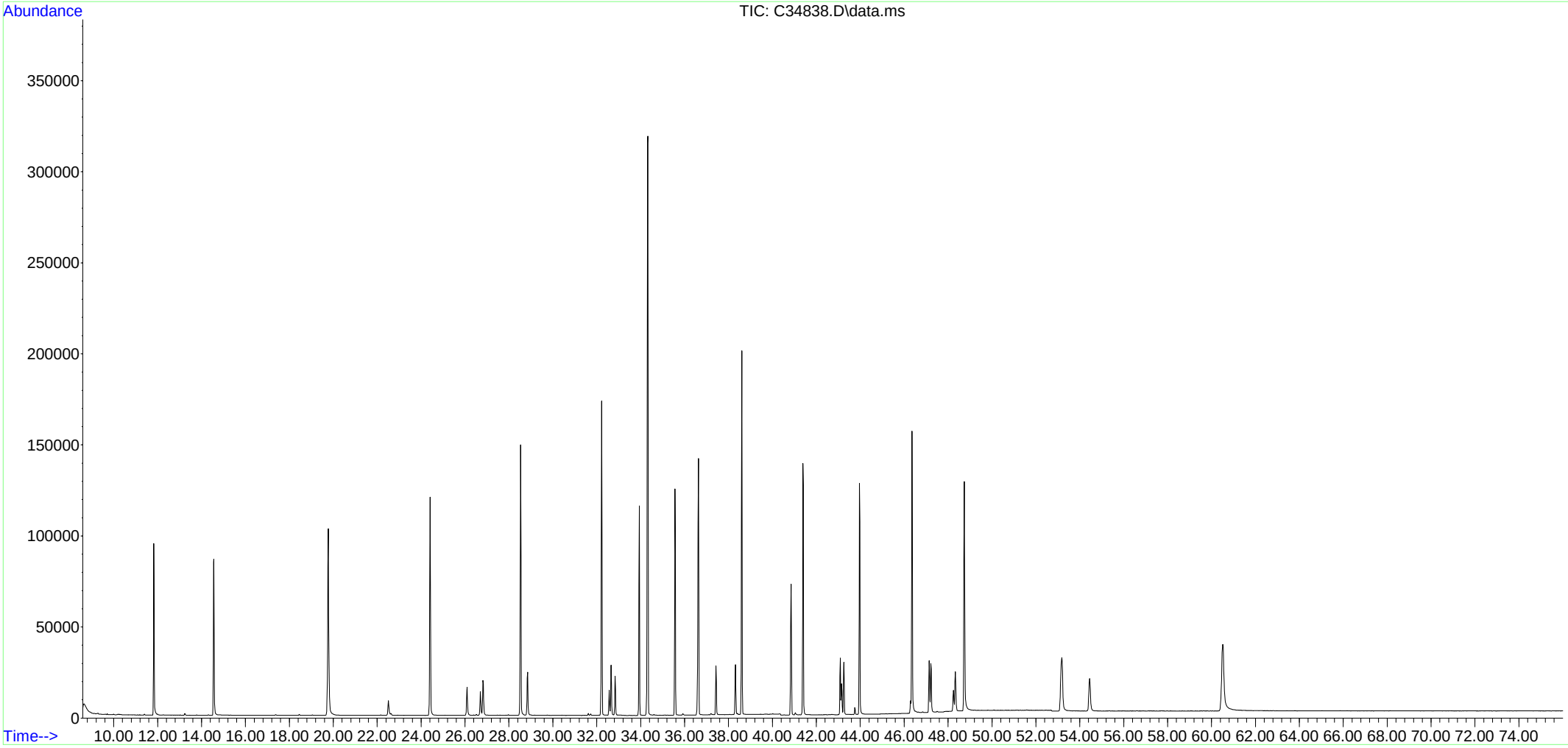
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18337M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	33254	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	32814	412.302	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.23%#			
42) Phenanthrene-d10	32.567	188	28601	454.656	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.47%#			
86) Benzo[a]pyrene-d12	48.241	264	28767	417.419	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.74%#			
127) 5B(H)Cholane - Surr	43.754	217	4648	447.057	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.71%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47023	402.353	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28114	406.844	ng/mL#	100
26) Acenaphthylene	26.094	152	45575	392.841	ng/mL#	100
27) Acenaphthene	26.816	153	27866M3	407.940	ng/mL	
29) Fluorene	28.849	166	32136M3	426.565	ng/mL	
43) Phenanthrene	32.657	178	46538	438.618	ng/mL	99
55) Anthracene	32.838	178	36708M3	354.197	ng/mL	
58) Fluoranthene	37.430	202	52667M3	499.798	ng/mL	
60) Pyrene	38.318	202	54521	508.981	ng/mL	95
75) Benz[a]anthracene	43.091	228	47507	450.100	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47220	443.134	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	55443	478.057	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	53206	421.375	ng/mL	96
87) Benzo[a]pyrene	48.331	252	47749	432.328	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.151	276	62256M3	484.372	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	54640	446.892	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	57920	426.535	ng/mL	99

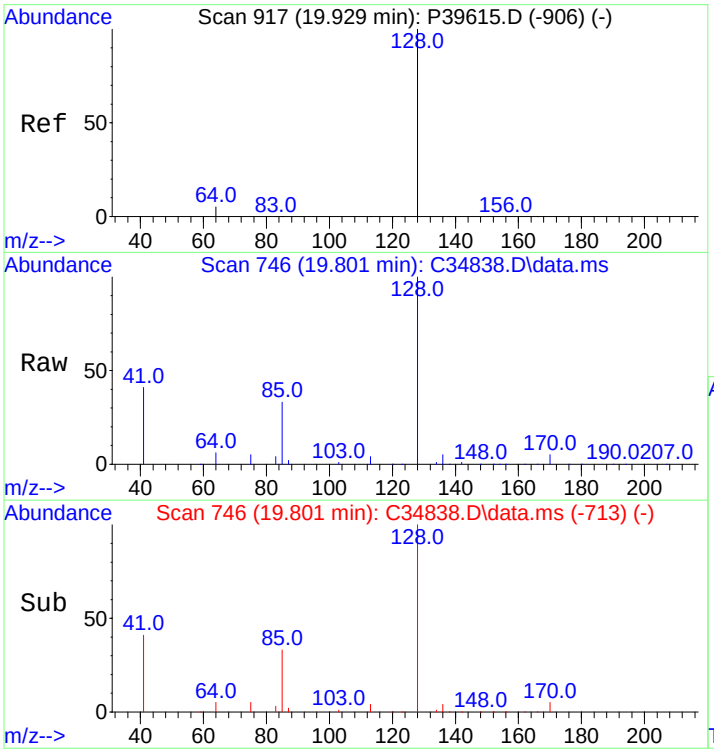
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34838.D
Acq On : 4 May 2012 1:33 pm
Operator : AC
Sample : SS043012LCS02
Misc : 1X ETR1204031_35
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 06 14:48:51 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

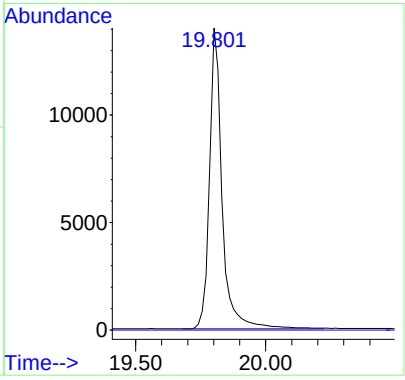


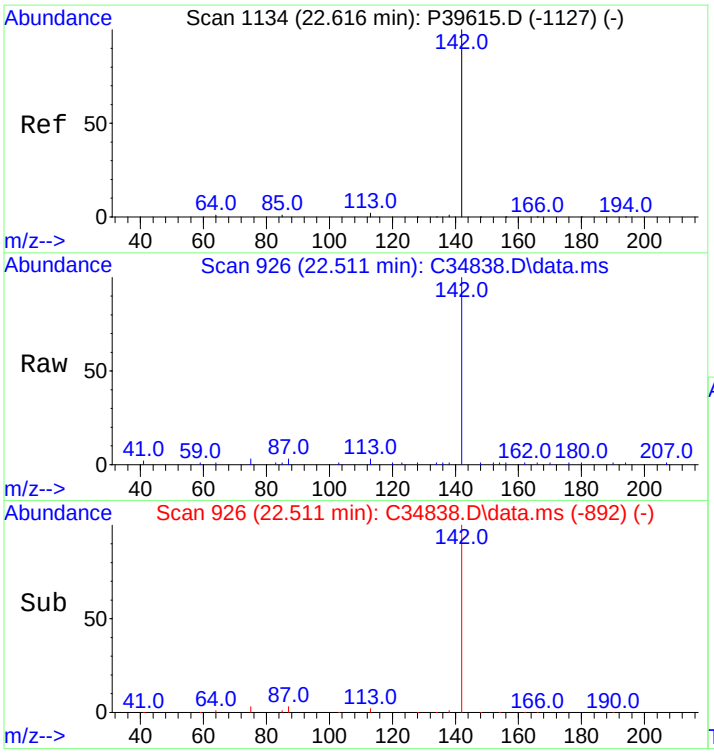


#10
Naphthalene
Concen: 402.35 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:128 Resp: 47023

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

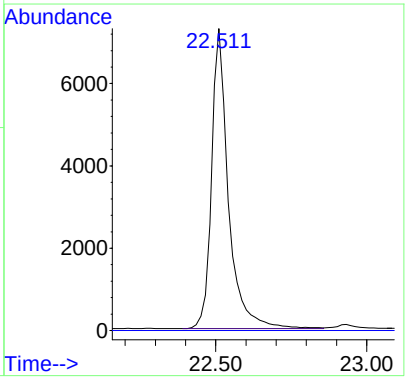


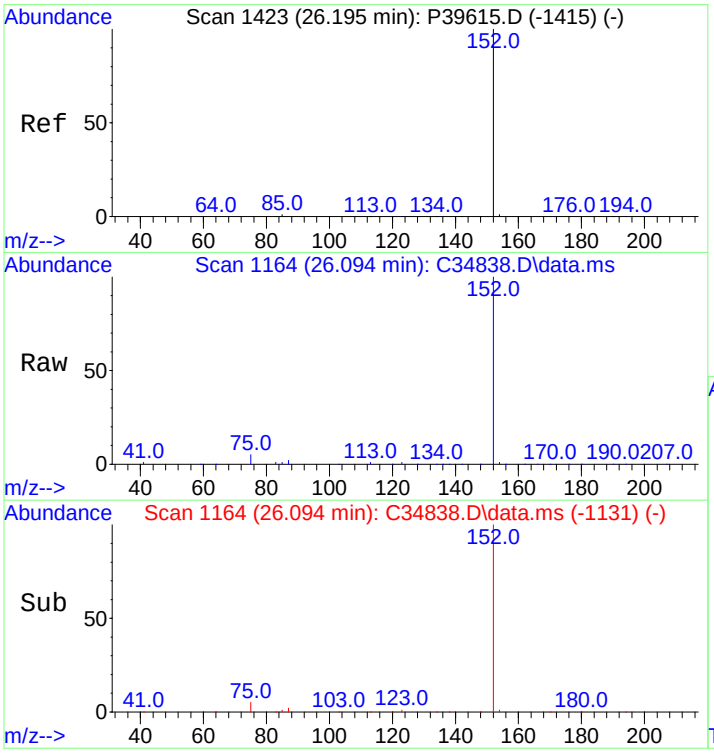


#16
2-Methylnaphthalene
Concen: 406.84 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:142 Resp: 28114

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

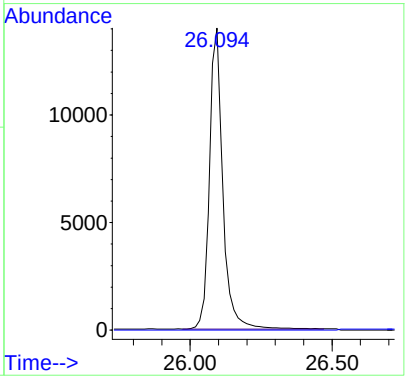


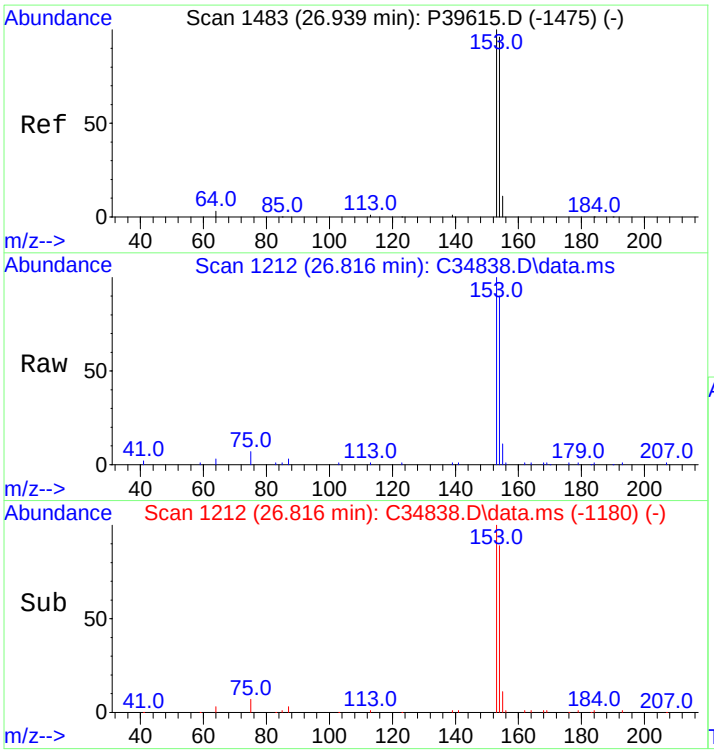


#26
Acenaphthylene
Concen: 392.84 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:152 Resp: 45575

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

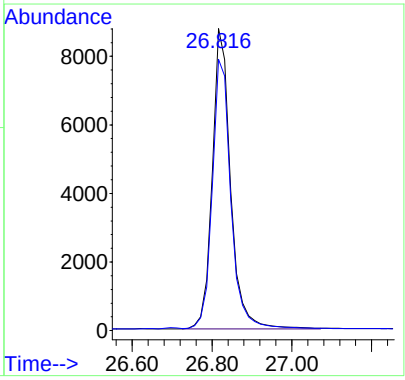


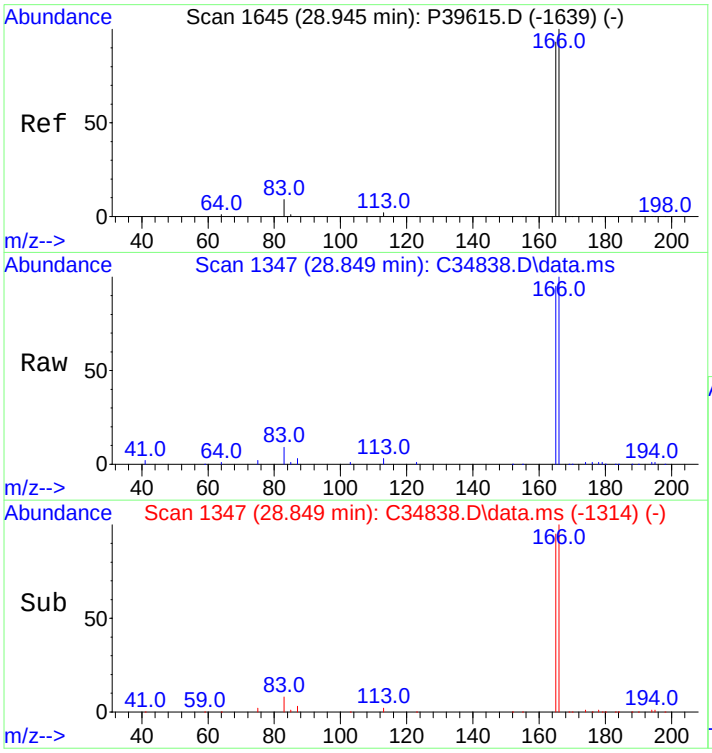


#27
Acenaphthene
Concen: 407.94 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:153 Resp: 27866

Ion	Ratio	Lower	Upper
153	100		
154	91.5	73.6	110.4

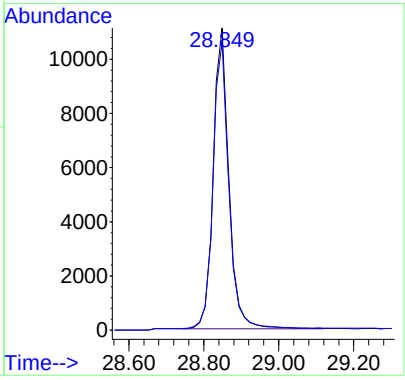


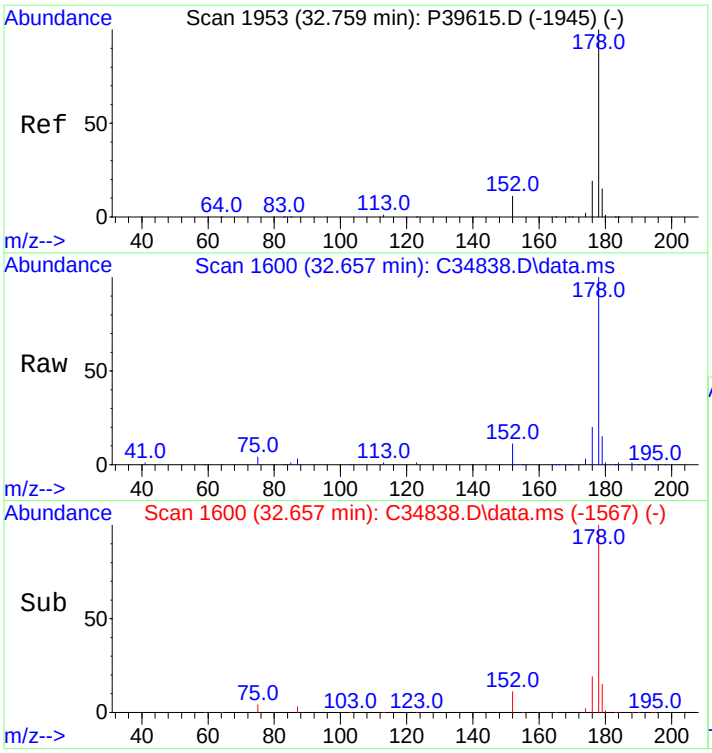


#29
Fluorene
Concen: 426.56 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:166 Resp: 32136

Ion	Ratio	Lower	Upper
166	100		
165	100.3	77.3	115.9

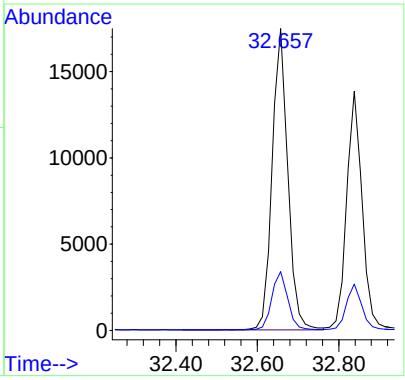


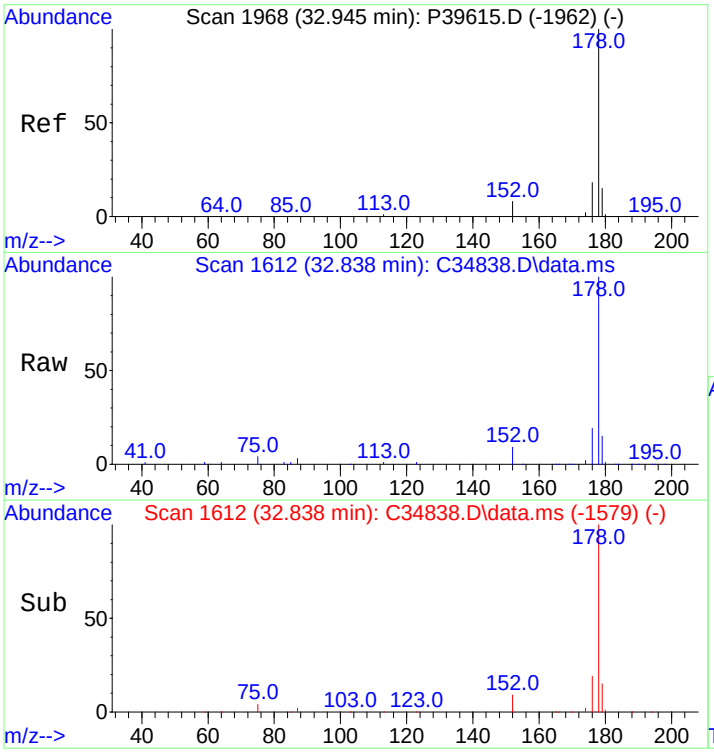


#43
Phenanthrene
Concen: 438.62 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:178 Resp: 46538

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

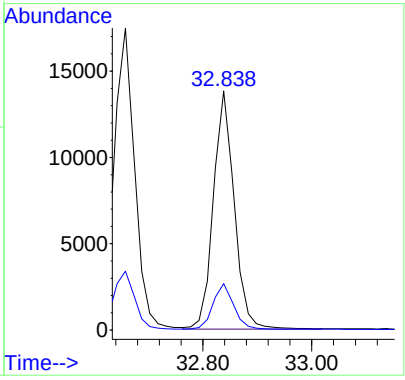


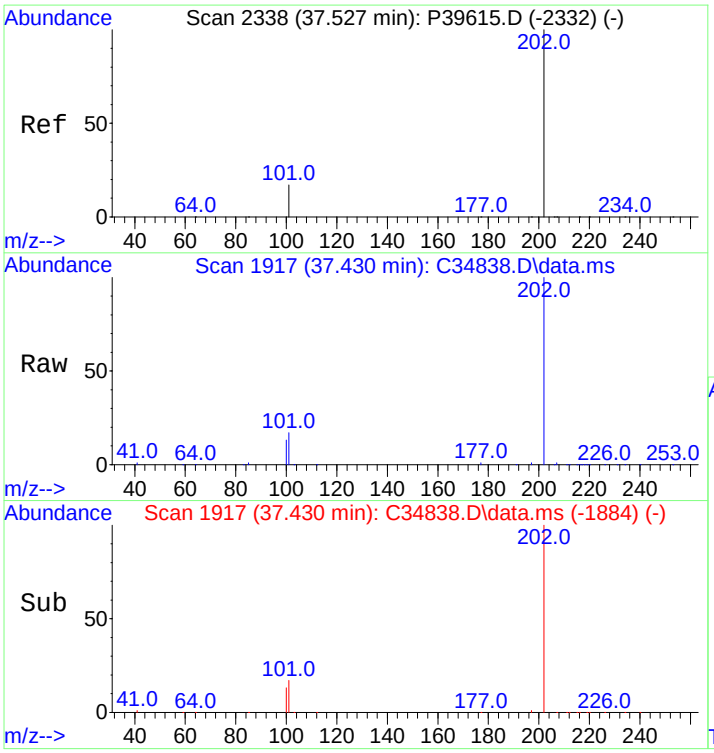


#55
Anthracene
Concen: 354.20 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:178 Resp: 36708

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

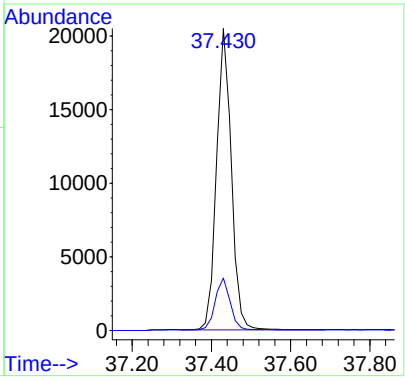


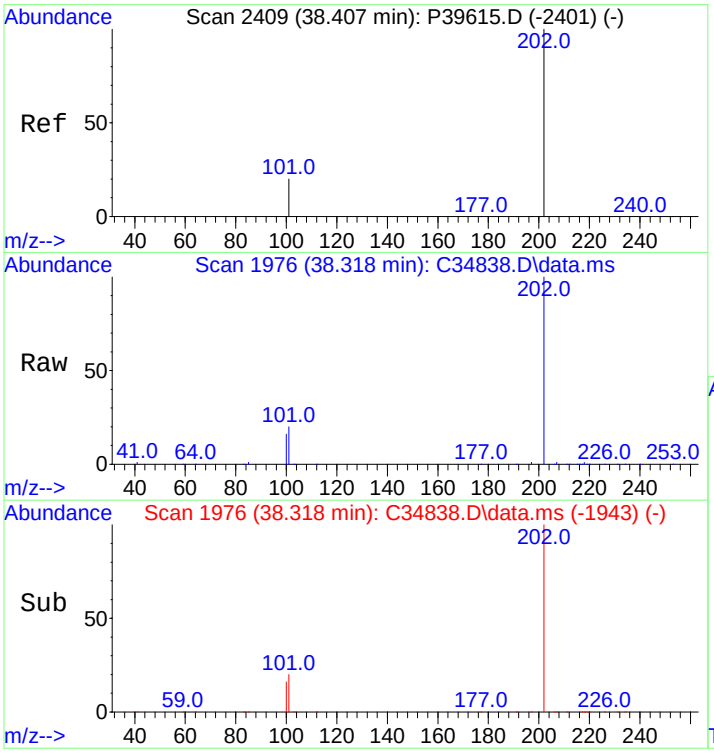


#58
Fluoranthene
Concen: 499.80 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:202 Resp: 52667

Ion	Ratio	Lower	Upper
202	100		
101	17.8	12.9	19.3

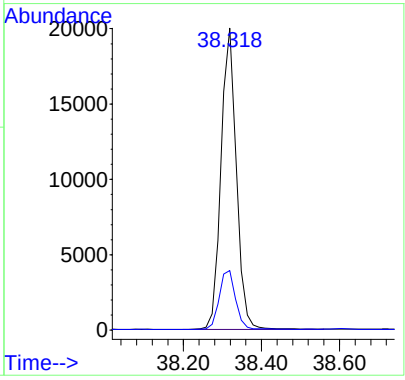


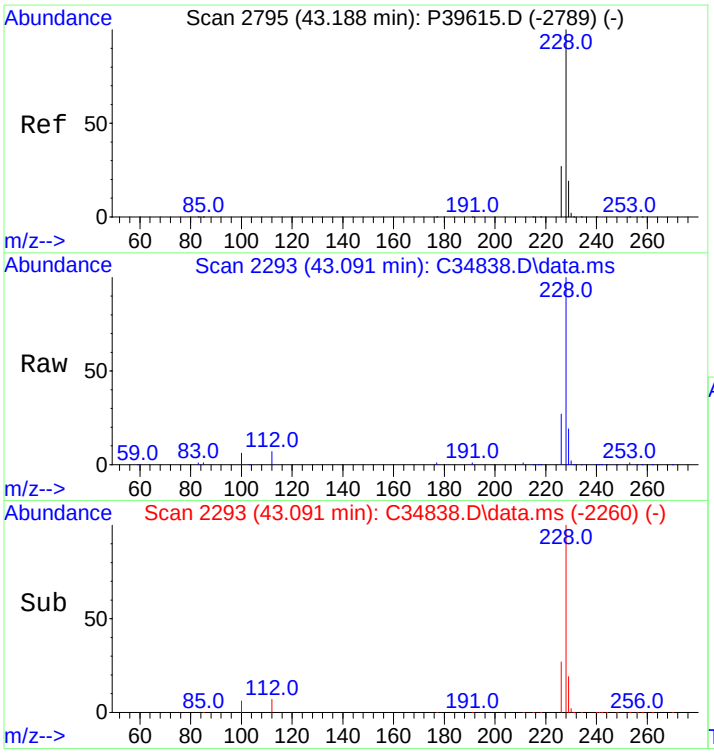


#60
Pyrene
Concen: 508.98 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:202 Resp: 54521

Ion	Ratio	Lower	Upper
202	100		
101	20.9	15.0	22.4

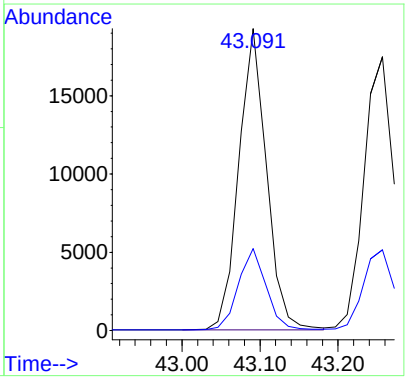


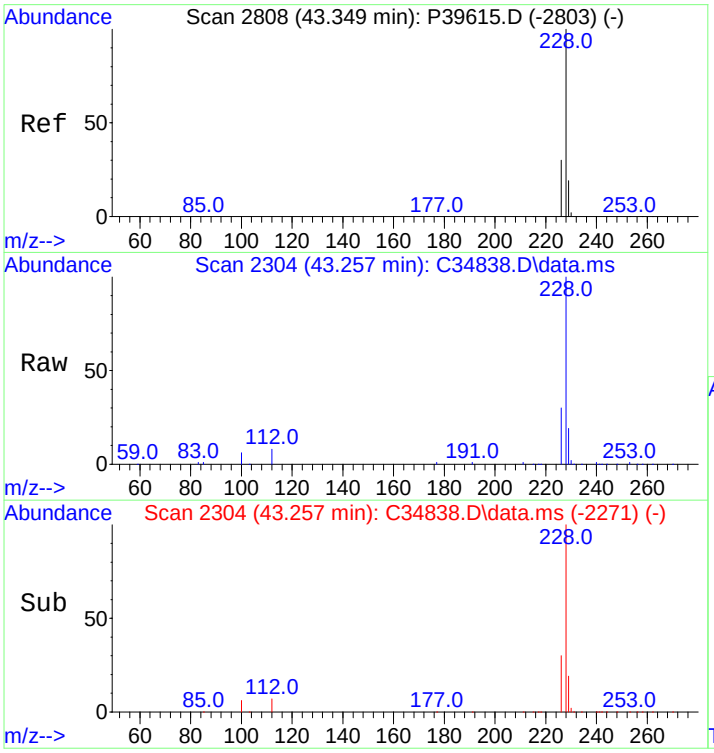


#75
Benz[a]anthracene
Concen: 450.10 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:228 Resp: 47507

Ion	Ratio	Lower	Upper
228	100		
226	27.1	21.4	32.0

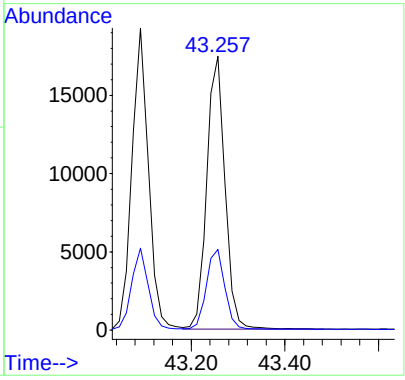


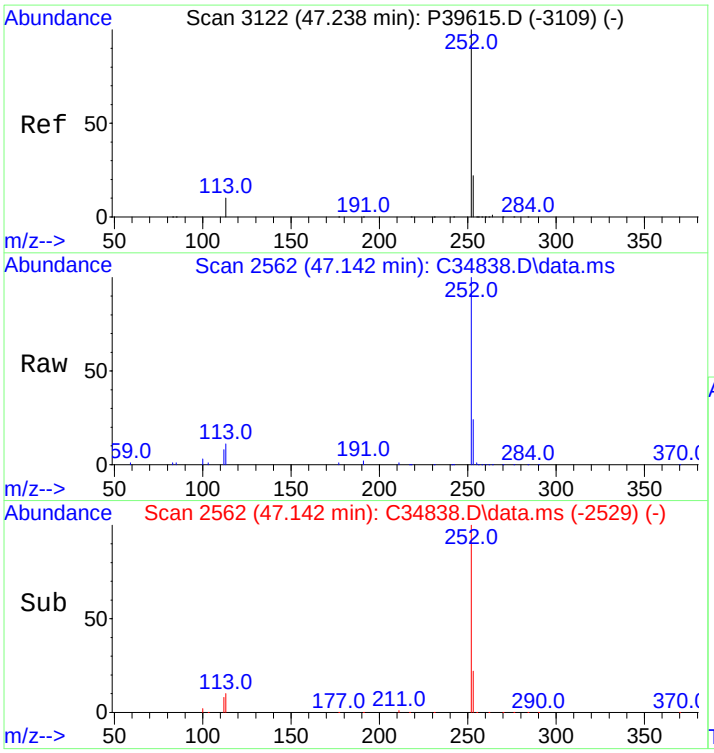


#77
Chrysene/Triphenylene
Concen: 443.13 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:228 Resp: 47220

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.7	35.5

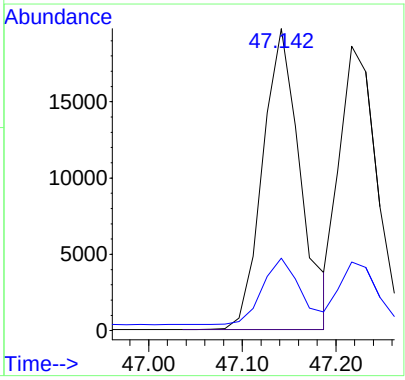


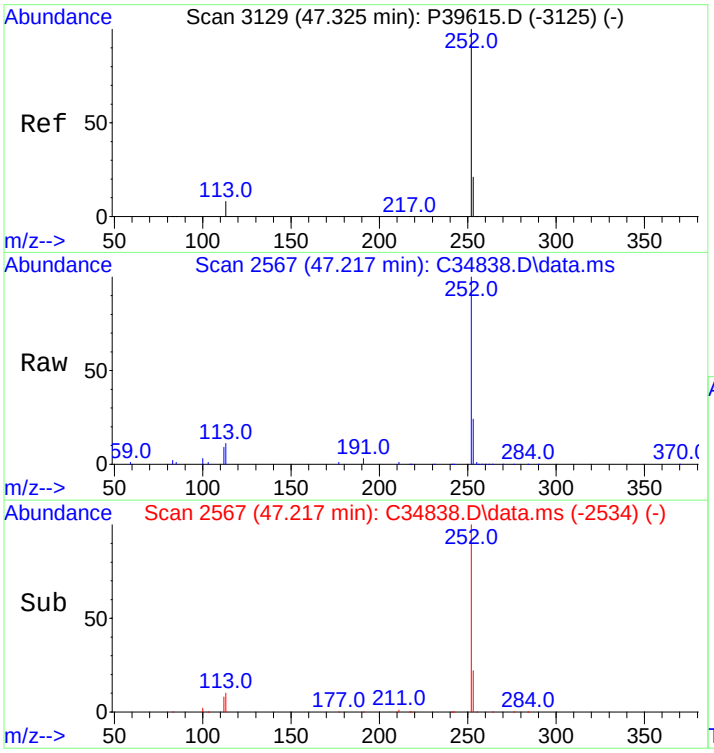


#82
Benzo[b]fluoranthene
Concen: 478.06 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 55443

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

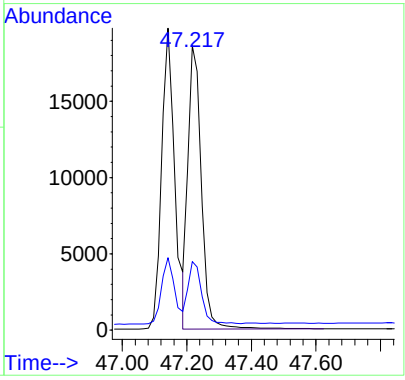


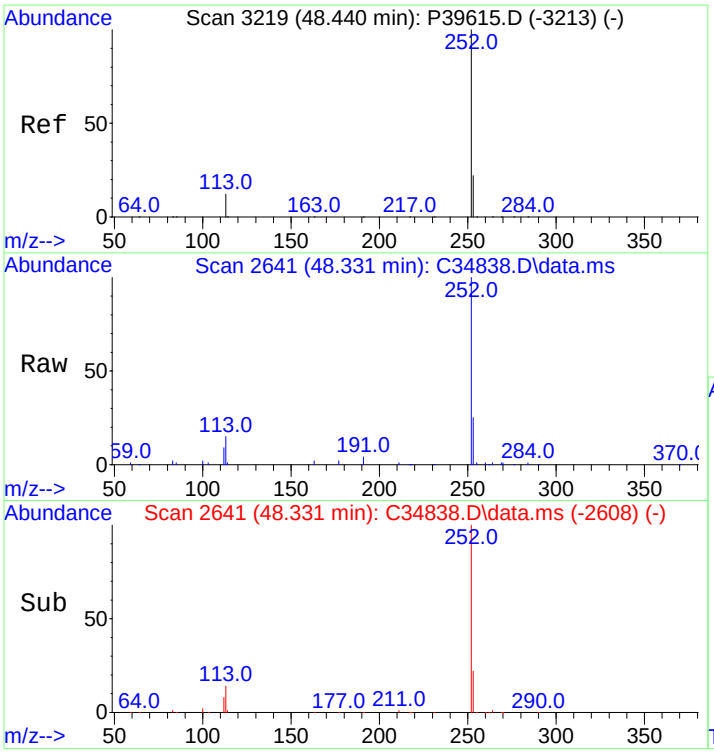


#83
Benzo[j]+[k]fluoranthene
Concen: 421.37 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 53206

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.0	28.4

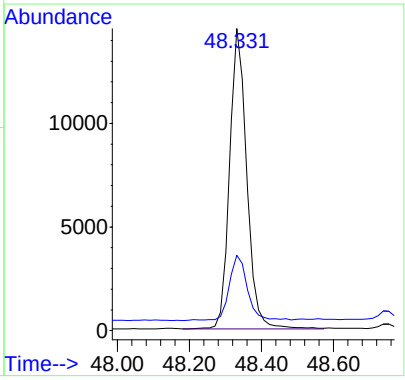


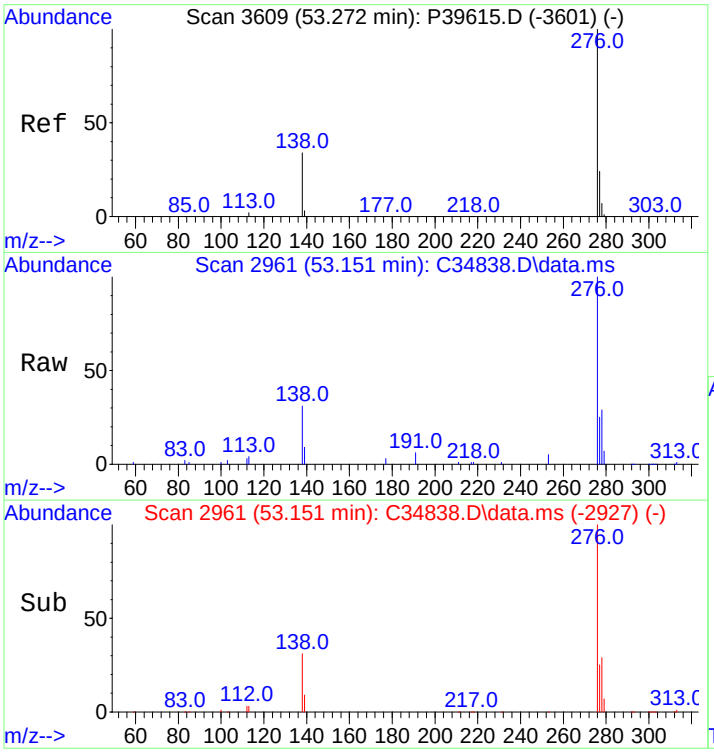


#87
Benzo[a]pyrene
Concen: 432.33 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:252 Resp: 47749

Ion	Ratio	Lower	Upper
252	100		
253	23.1	19.5	29.3

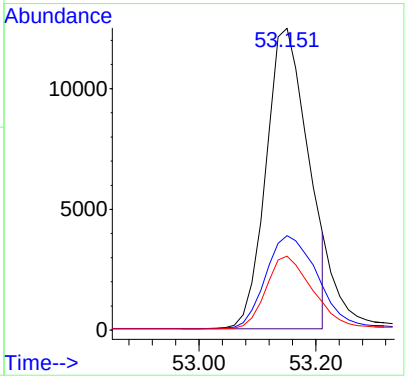


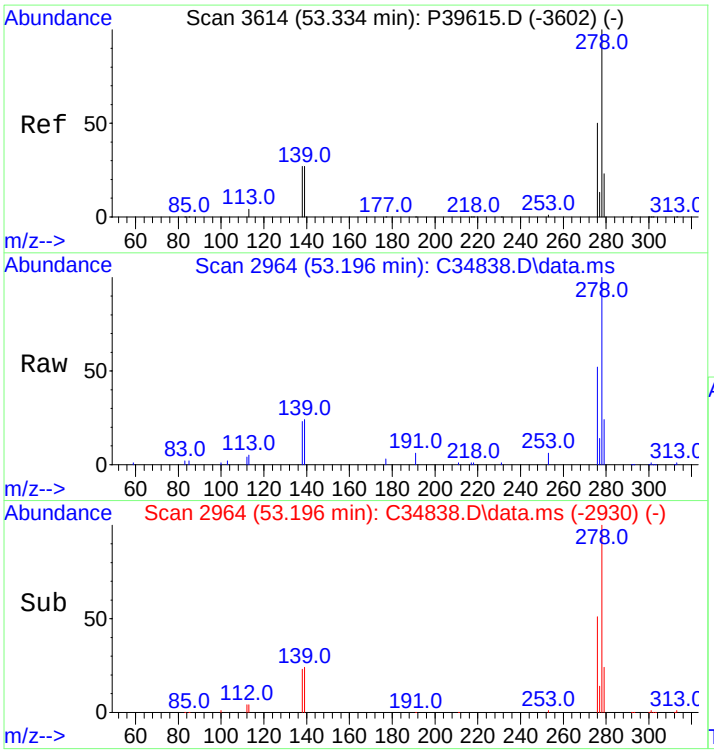


#89
Indeno[1,2,3-cd]pyrene
Concen: 484.37 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:276 Resp: 62256

Ion	Ratio	Lower	Upper
276	100		
138	39.4	23.3	34.9#
277	27.7	19.0	28.4

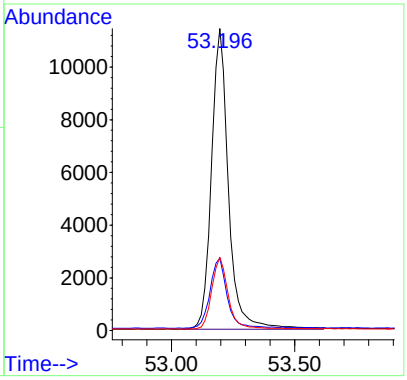


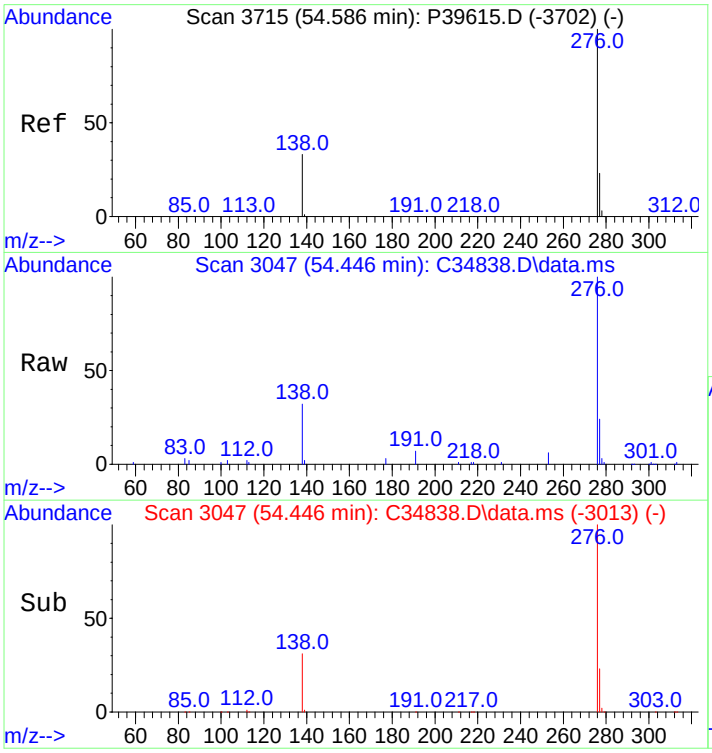


#90
Dibenz[ah]+[ac]anthracene
Concen: 446.89 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:278 Resp: 54640

Ion	Ratio	Lower	Upper
278	100		
139	23.3	19.1	28.7
279	22.7	19.2	28.8

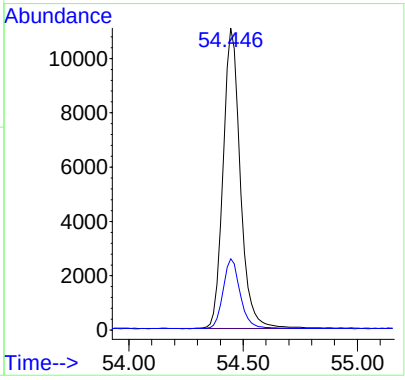




#91
Benzo[g,h,i]perylene
Concen: 426.54 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34838.D
Acq: 4 May 2012 1:33 pm

Tgt Ion:276 Resp: 57920

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

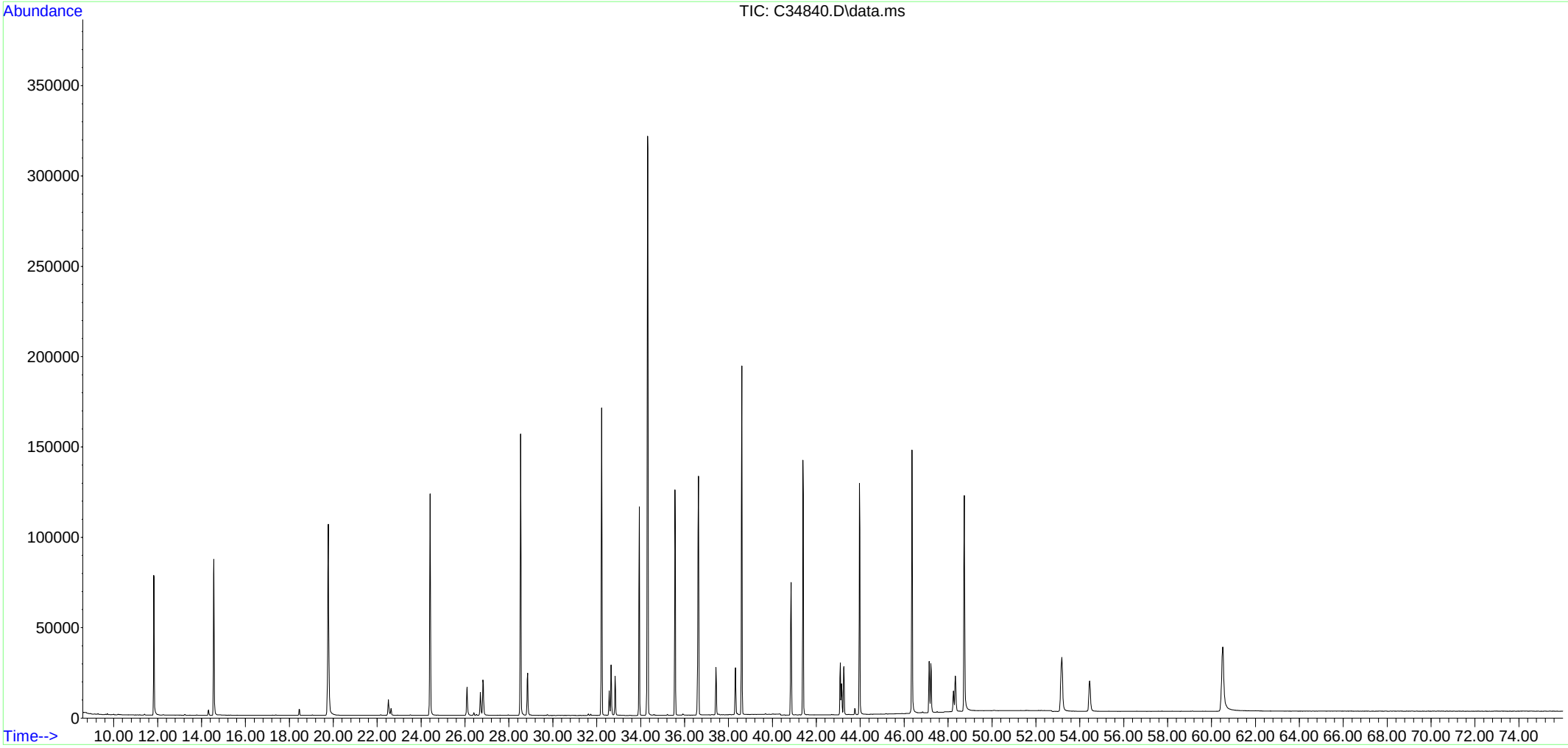
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	18527M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	32423	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	30958	384.993	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.50%#			
42) Phenanthrene-d10	32.567	188	28827	453.549	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.35%#			
86) Benzo[a]pyrene-d12	48.241	264	28441	423.266	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.33%#			
127) 5B(H)Cholane - Surr	43.754	217	4632	456.936	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.69%#			
Target Compounds						Qvalue
10) Naphthalene	19.801	128	47851	405.238	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	28766	412.010	ng/mL#	100
26) Acenaphthylene	26.094	152	46895M3	400.073	ng/mL	
27) Acenaphthene	26.816	153	28581	414.117	ng/mL	99
29) Fluorene	28.849	166	32410M4	425.790	ng/mL	
43) Phenanthrene	32.657	178	45989	428.999	ng/mL	99
55) Anthracene	32.838	178	36580M3	349.342	ng/mL	
58) Fluoranthene	37.430	202	50677M3	475.982	ng/mL	
60) Pyrene	38.318	202	53251	492.027	ng/mL	95
75) Benz[a]anthracene	43.091	228	45909	446.108	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45853	441.334	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	54206	479.370	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	52374	425.417	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46433	431.188	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	59936M3	478.273	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	52761	442.584	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	56235	424.741	ng/mL	99

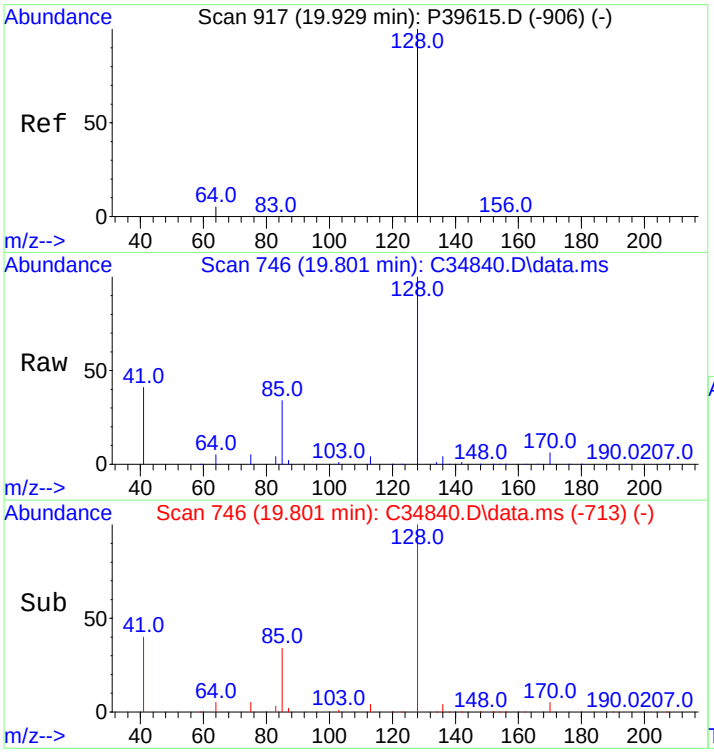
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34840.D
Acq On : 4 May 2012 3:05 pm
Operator : AC
Sample : SS043012LCSD02
Misc : 1X ETR1204031_35
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 06 14:50:44 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

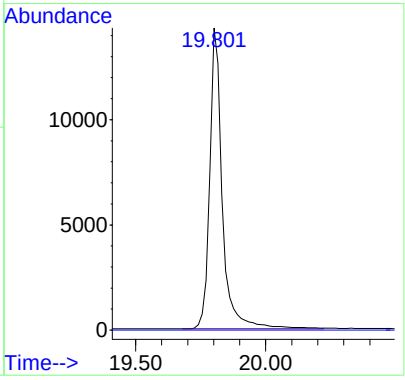


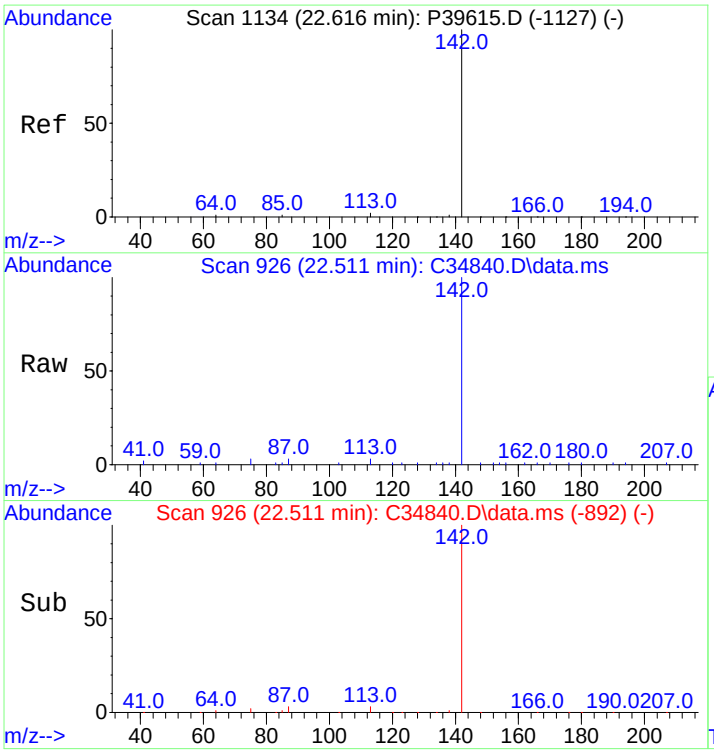


#10
Naphthalene
Concen: 405.24 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:128 Resp: 47851

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

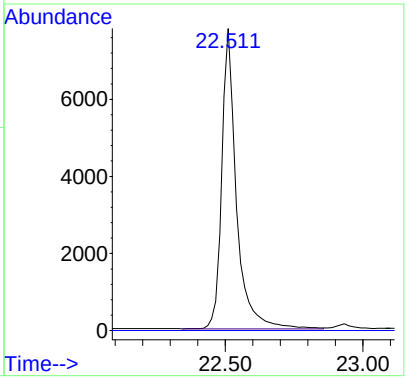


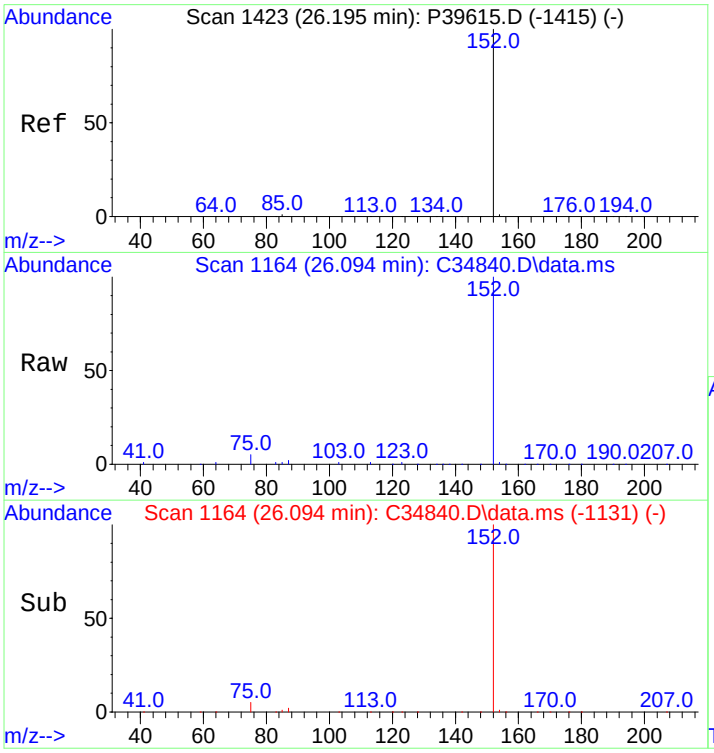


#16
2-Methylnaphthalene
Concen: 412.01 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:142 Resp: 28766

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

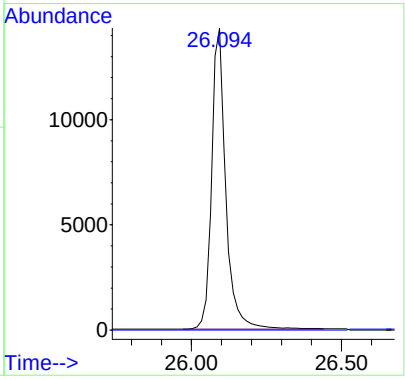


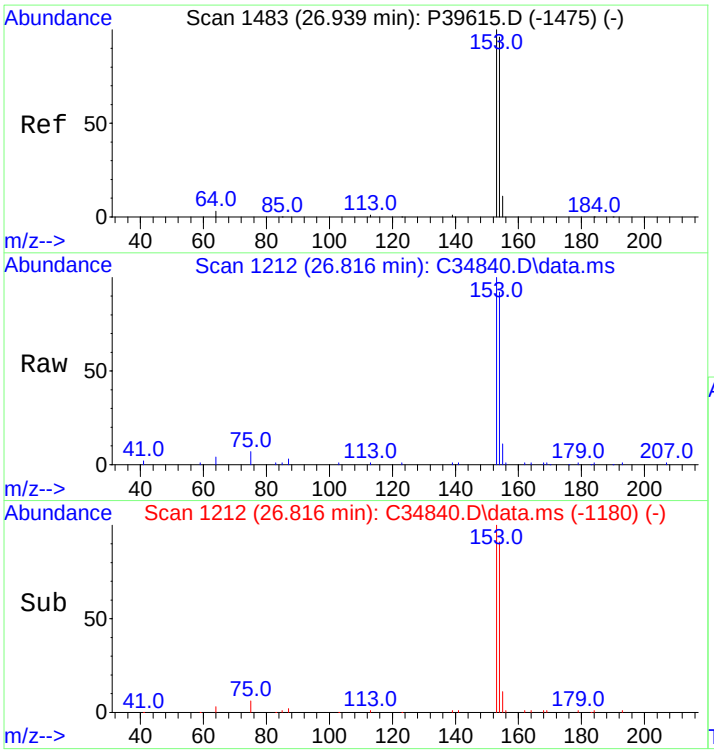


#26
Acenaphthylene
Concen: 400.07 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:152 Resp: 46895

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

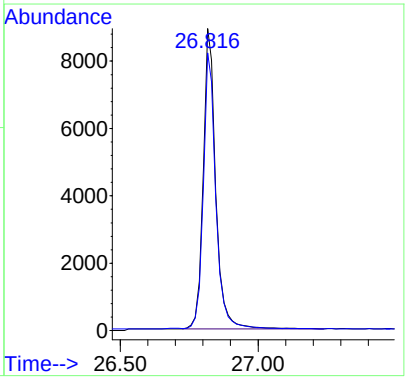


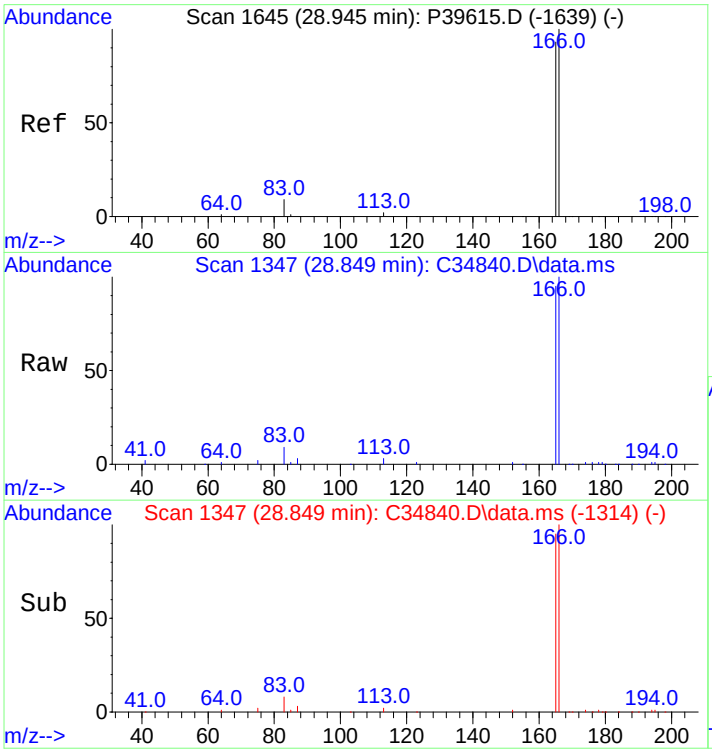


#27
Acenaphthene
Concen: 414.12 ng/mL
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:153 Resp: 28581

Ion	Ratio	Lower	Upper
153	100		
154	91.3	73.6	110.4

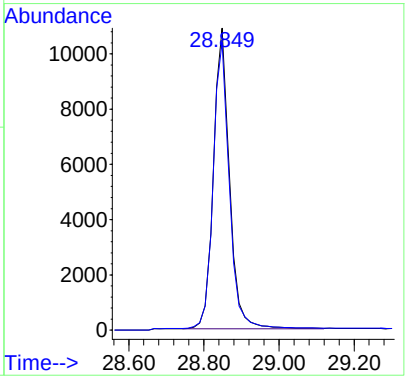


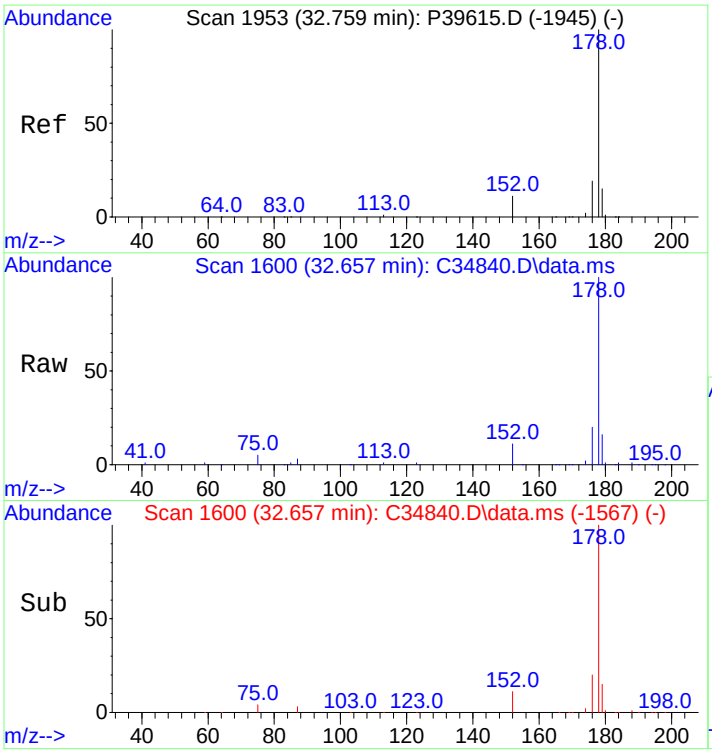


#29
Fluorene
Concen: 425.79 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:166 Resp: 32410

Ion	Ratio	Lower	Upper
166	100		
165	101.0	77.3	115.9

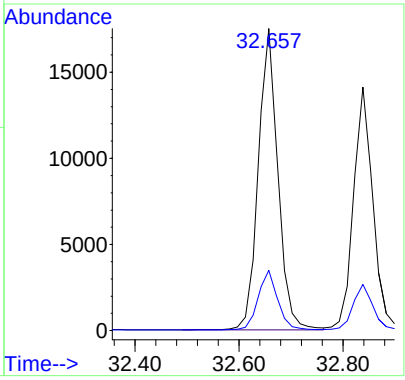


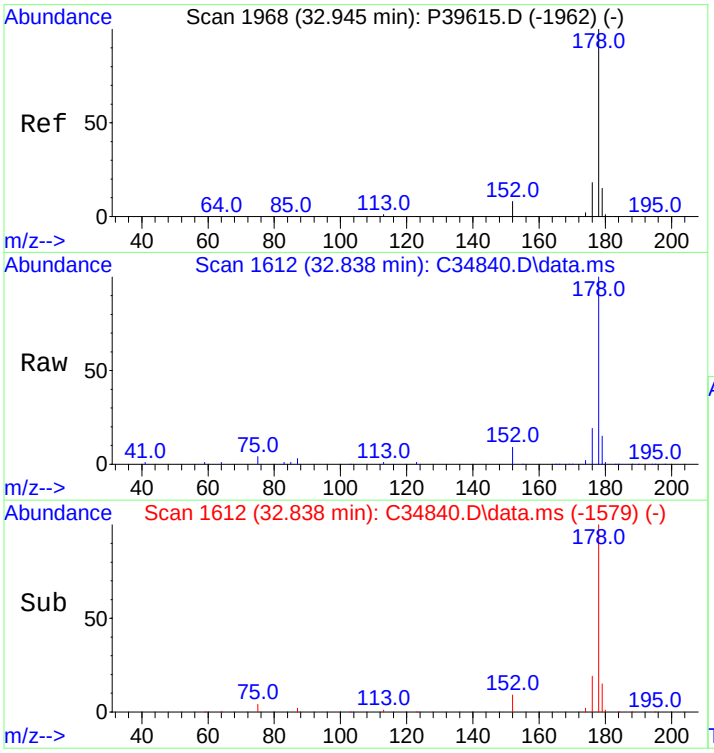


#43
Phenanthrene
Concen: 429.00 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:178 Resp: 45989

Ion	Ratio	Lower	Upper
178	100		
176	19.6	16.1	24.1

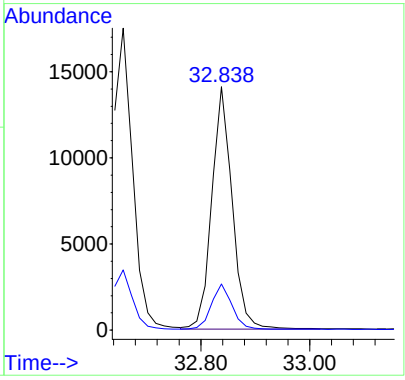


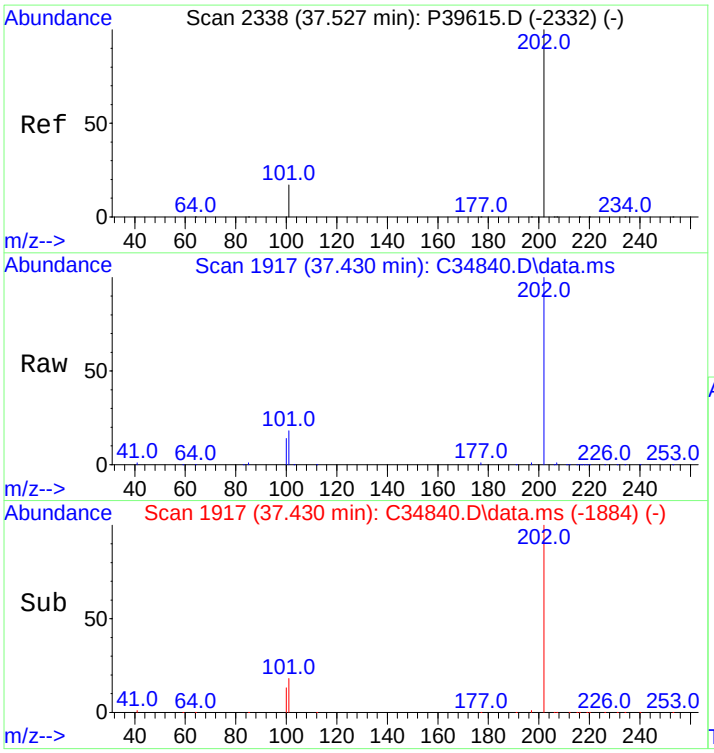


#55
Anthracene
Concen: 349.34 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:178 Resp: 36580

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

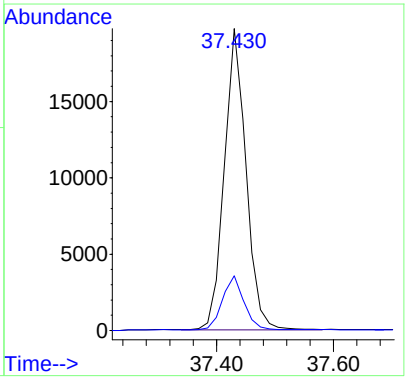


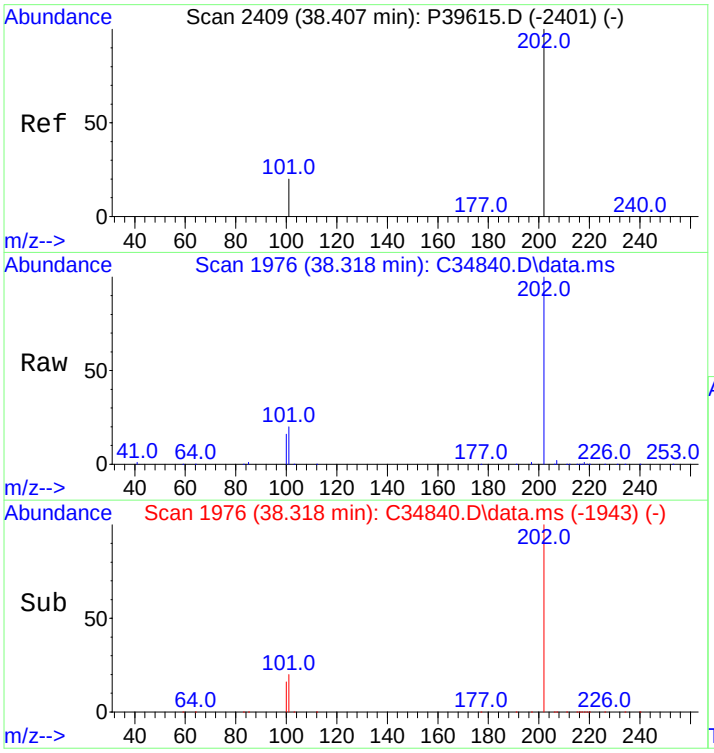


#58
Fluoranthene
Concen: 475.98 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:202 Resp: 50677

Ion	Ratio	Lower	Upper
202	100		
101	18.5	12.9	19.3

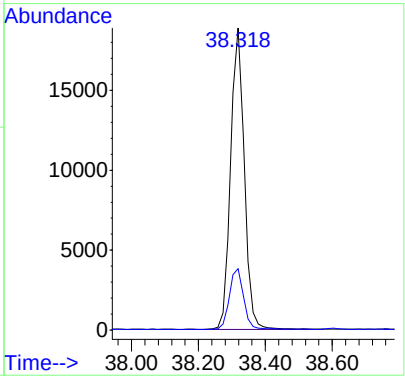


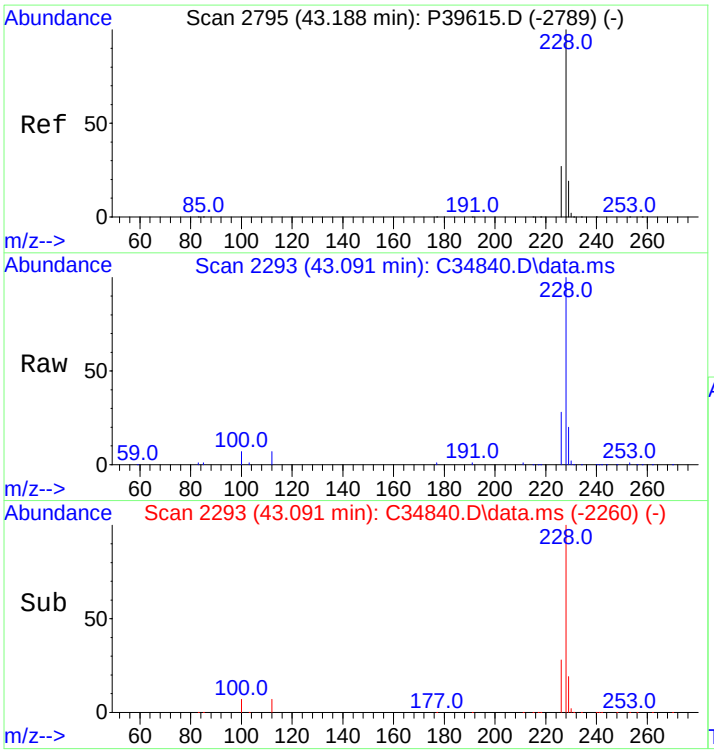


#60
Pyrene
Concen: 492.03 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:202 Resp: 53251

Ion	Ratio	Lower	Upper
202	100		
101	21.1	15.0	22.4

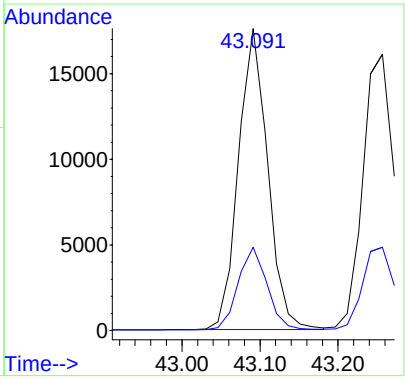


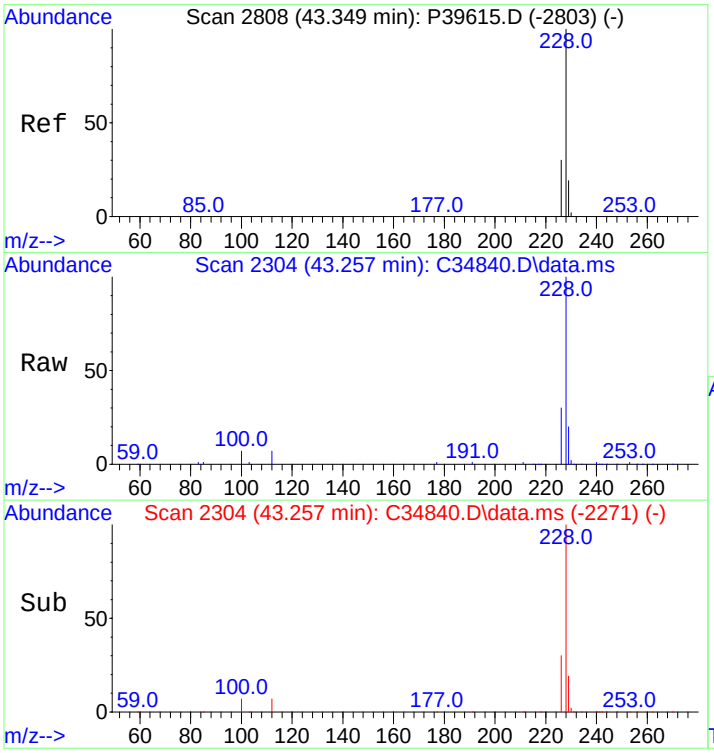


#75
Benz[a]anthracene
Concen: 446.11 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:228 Resp: 45909

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

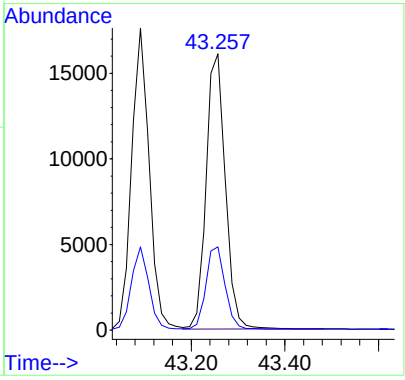


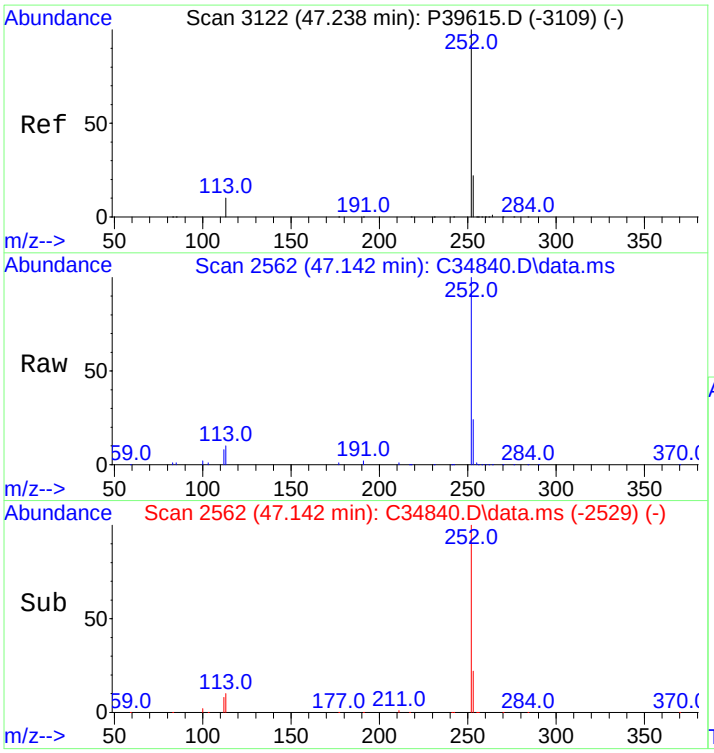


#77
Chrysene/Triphenylene
Concen: 441.33 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:228 Resp: 45853

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

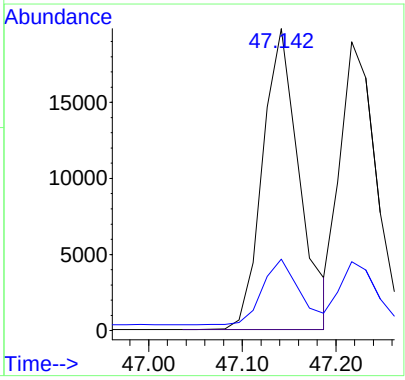


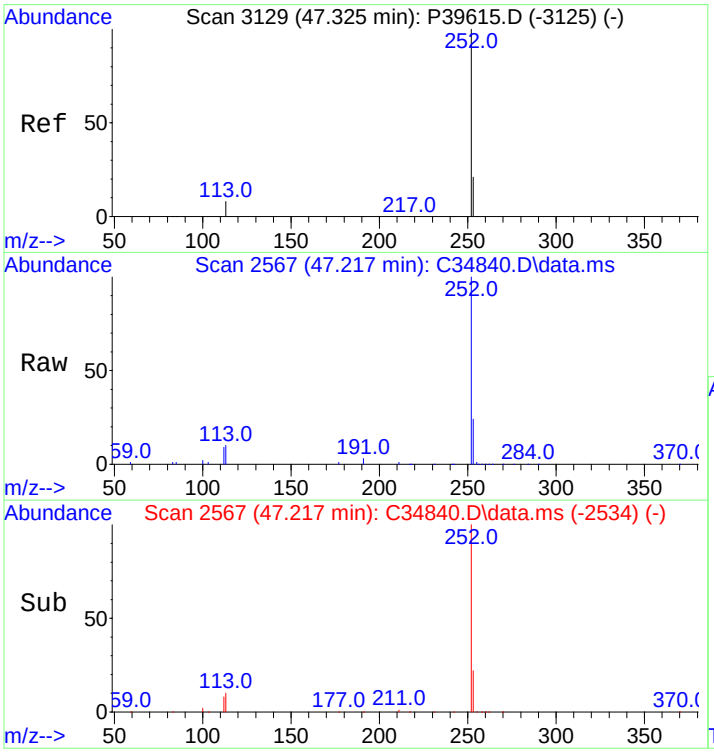


#82
Benzo[b]fluoranthene
Concen: 479.37 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 54206

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

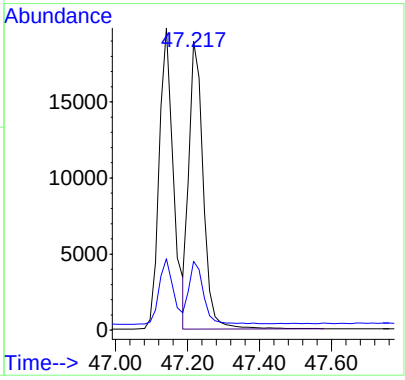


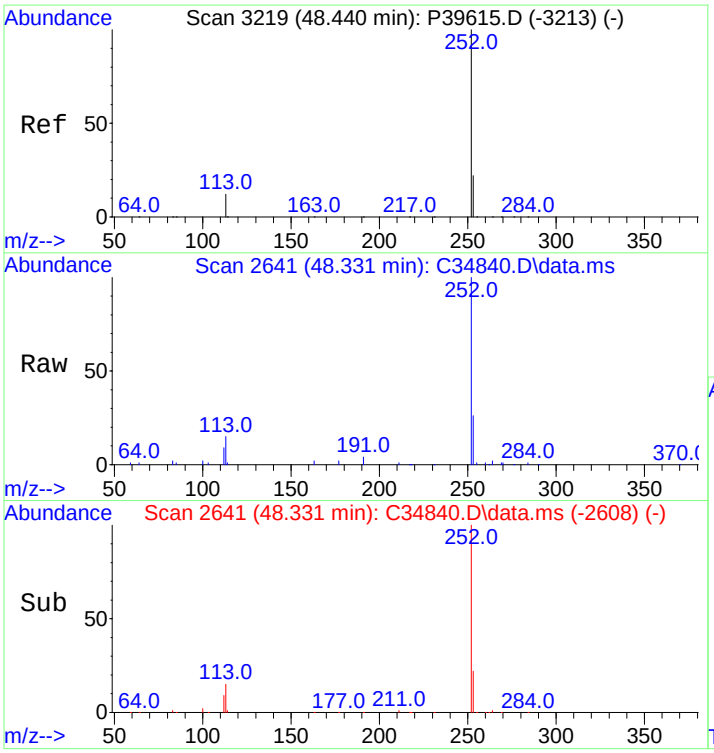


#83
Benzo[j]+[k]fluoranthene
Concen: 425.42 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 52374

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

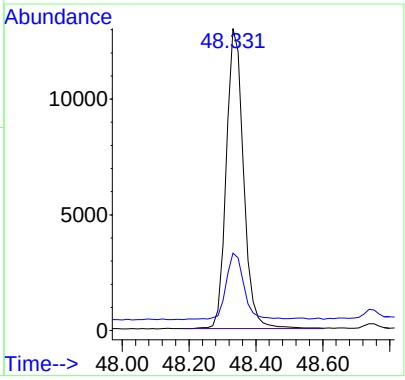


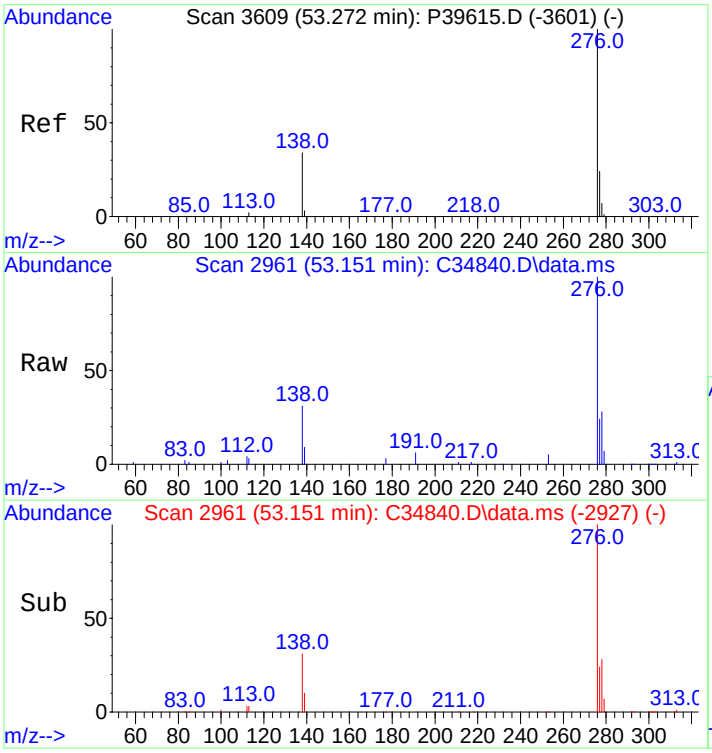


#87
Benzo[a]pyrene
Concen: 431.19 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:252 Resp: 46433

Ion	Ratio	Lower	Upper
252	100		
253	23.3	19.5	29.3

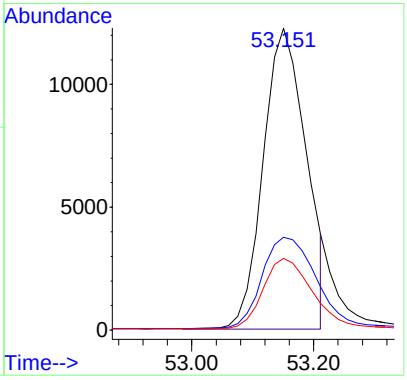


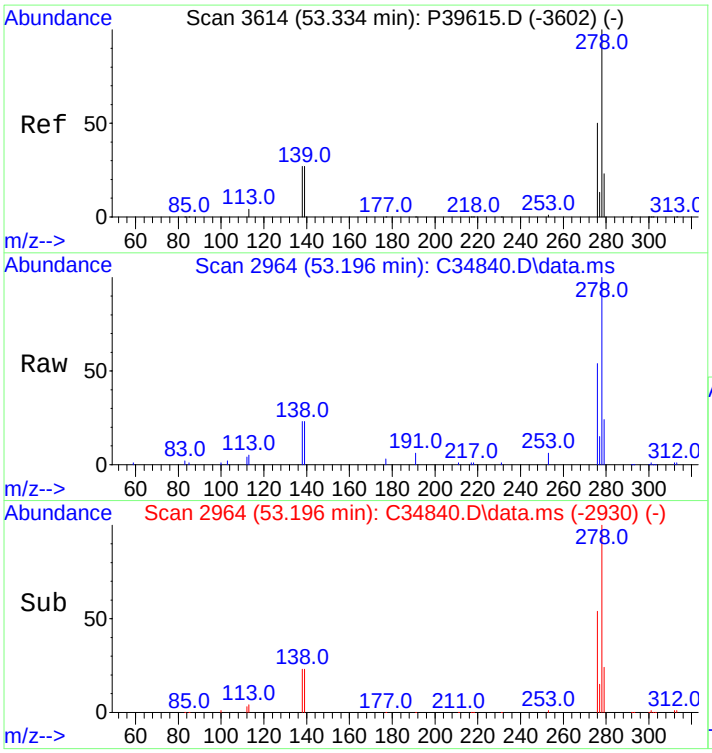


#89
Indeno[1,2,3-cd]pyrene
Concen: 478.27 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:276 Resp: 59936

Ion	Ratio	Lower	Upper
276	100		
138	38.8	23.3	34.9#
277	27.6	19.0	28.4

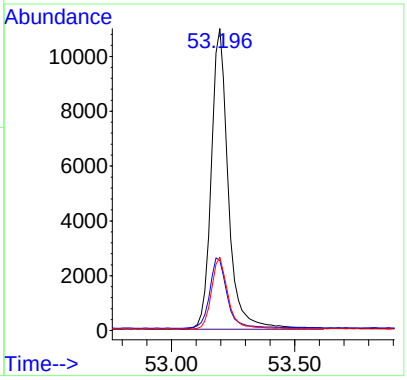


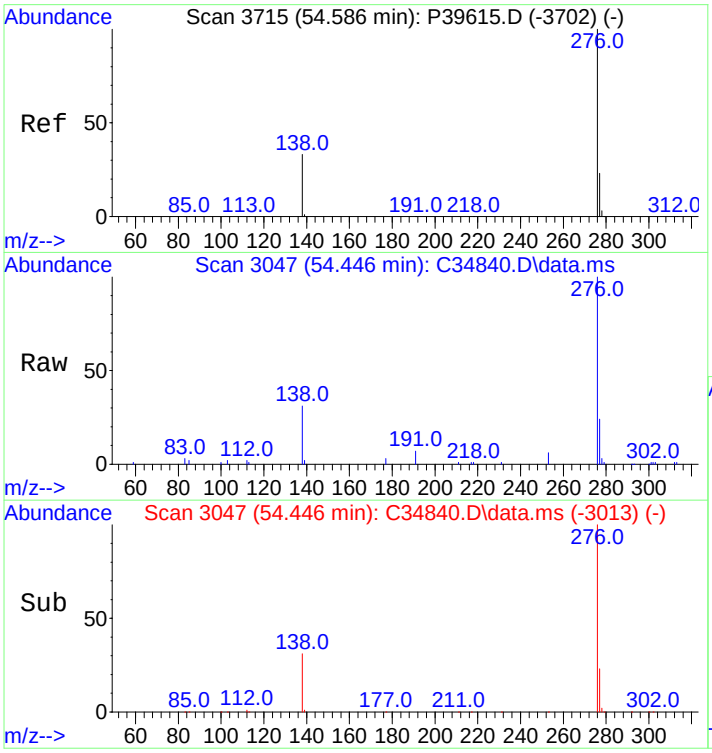


#90
Dibenz[ah]+[ac]anthracene
Concen: 442.58 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:278 Resp: 52761

Ion	Ratio	Lower	Upper
278	100		
139	23.5	19.1	28.7
279	22.7	19.2	28.8

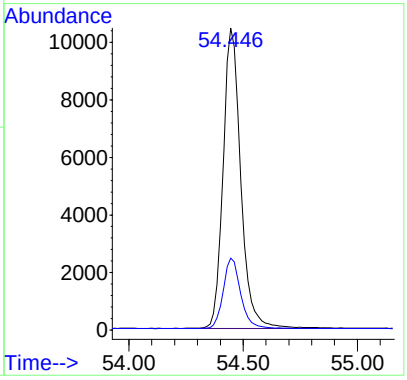




#91
Benzo[g,h,i]perylene
Concen: 424.74 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34840.D
Acq: 4 May 2012 3:05 pm

Tgt Ion:276 Resp: 56235

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20466M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	42622	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	83629	941.475	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.15%			
42) Phenanthrene-d10	32.567	188	82257	1171.574	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 117.16%			
86) Benzo[a]pyrene-d12	48.256	264	88771	1004.984	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.50%			
127) 5B(H)Cholane - Surr	43.769	217	16348	1226.793	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 122.68%			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	117M3	7.242	ng/mL	
5) C1-Decalins	18.311	152	483M5	29.896	ng/mL	
6) C2-Decalins	19.635	166	1809M5	111.971	ng/mL	
7) C3-Decalins	22.119	180	2122M5	131.344	ng/mL	
8) C4-Decalins	25.492	194	5720M5	354.047	ng/mL	
10) Naphthalene	19.801	128	2964	22.723	ng/mL#	100
11) C1-Naphthalenes	22.496	142	2785M5	21.351	ng/mL	
12) C2-Naphthalenes	25.341	156	17848M5	136.830	ng/mL	
13) C3-Naphthalenes	28.021	170	69450M5	532.432	ng/mL	
14) C4-Naphthalenes	30.445	184	102606M5	786.619	ng/mL	
16) 2-Methylnaphthalene	22.496	142	1613	20.914	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	1060M4	14.021	ng/mL	
18) Benzothiophene	20.012	134	227M3	1.934	ng/mL	
19) C1-Benzo(b)thiophenes	22.631	148	1052M5	8.962	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2504M5	21.333	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	15599M5	132.894	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	32118M5	273.626	ng/mL	
23) Biphenyl	24.378	154	710M3	7.277	ng/mL	
24) 2,6-Dimethylnaphthalene	24.995	156	3764	59.401	ng/mL#	100
25) Dibenzofuran	27.464	168	1636	14.603	ng/mL#	63
26) Acenaphthylene	26.079	152	7316	56.501	ng/mL#	100
27) Acenaphthene	26.816	153	2112M3	27.702	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	4999M3	97.865	ng/mL	
29) Fluorene	28.834	166	3502M3	41.649	ng/mL	
30) C1-Fluorenes	31.197	180	12101M5	143.916	ng/mL	
31) C2-Fluorenes	33.395	194	43845M6	521.445	ng/mL	
32) C3-Fluorenes	35.232	208	81045M5	963.861	ng/mL	
33) Dibenzothiophene	32.161	184	11546	85.662	ng/mL#	17
34) 4-Methyldibenzothiophe...	33.937	198	26355	195.533	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	23338	173.150	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.705	198	16017	118.834	ng/mL#	100
37) OTP	34.344	198	13437	99.692	ng/mL#	100
38) C1-Dibenzothiophenes	33.937	198	86281M5	640.137	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	196440M5	1457.430	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	301511M5	2236.975	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	237263M5	1760.305	ng/mL	
43) Phenanthrene	32.657	178	52050M3	439.537	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.630	192	18251M3	154.121	ng/mL	
45) 2/4-Methylphenanthrene...	34.735	192	21594	182.351	ng/mL	100
46) 2-Methylanthracene(2MA)	34.886	192	6892M4	58.200	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.066	192	31288	264.212	ng/mL	90
48) 1-Methylphenanthrene(1MP)	35.172	192	17909M4	151.233	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	99895M5	843.564	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	170654M5	1441.089	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	193096M5	1630.600	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	110358M5	931.919	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55)	Anthracene	32.838	178	18246	157.742	ng/mL	97
56)	Carbazole	33.500	167	3742M3	32.027	ng/mL	
57)	1-Methylphenanthrene	35.172	192	17957M3	239.283	ng/mL	
58)	Fluoranthene	37.430	202	126530M3	1075.834	ng/mL	
59)	Benzo(b)fluorene	39.944	216	12800M3	187.592	ng/mL	
60)	Pyrene	38.318	202	131088	1096.469	ng/mL	92
61)	C1-Fluoranthenes/Pyrenes	39.704	216	129157M5	1080.317	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	42.173	230	111659M5	933.958	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.528	244	114885M5	960.941	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.883	258	111338M5	931.273	ng/mL	
66)	Naphthobenzothiophene	42.173	234	29837	231.812	ng/ml#	83
67)	Naphthobenzothiophene-...	42.173	234	29837	231.812	ng/mL#	83
68)	Naphthobenzothiophene-...	42.504	234	7176M3	55.752	ng/mL	
69)	Naphthobenzothiophene-...	42.805	234	11424M3	88.756	ng/mL	
70)	C1-Naphthobenzothiophenes	43.573	248	132037M5	1025.834	ng/ml	
71)	C2-Naphthobenzothiophenes	45.575	262	196386M5	1525.781	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276	169423M5	1316.297	ng/ml	
73)	C4-Naphthobenzothiophenes	48.256	290	124734M5	969.095	ng/mL	
75)	Benz[a]anthracene	43.091	228	74632M3	551.679	ng/mL	
77)	Chrysene/Triphenylene	43.257	228	84848m	621.242	ng/mL	
78)	C1-Chrysenes	44.732	242	82873M5	606.782	ng/mL	
79)	C2-Chrysenes	46.810	256	92759M5	679.165	ng/mL	
80)	C3-Chrysenes	49.506	270	105770M5	774.430	ng/mL	
81)	C4-Chrysenes	49.612	284	59784M5	437.728	ng/mL	
82)	Benzo[b]fluoranthene	47.157	252	76431	514.176	ng/mL	99
83)	Benzo[j]+[k]fluoranthene	47.217	252	66317	409.773	ng/mL	97
84)	Benzo[a]fluoranthene	47.533	252	19761M4	122.103	ng/mL	
85)	Benzo[e]pyrene	48.151	252	61505	418.314	ng/mL	97
87)	Benzo[a]pyrene	48.347	252	85710M3	605.467	ng/mL	
88)	Perylene	48.648	252	34207	226.105	ng/mL	99
89)	Indeno[1,2,3-cd]pyrene	53.166	276	59626M3	361.946	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278	16514M3	105.379	ng/mL	
91)	Benzo[g,h,i]perylene	54.476	276	62510M3	359.158	ng/mL	
92)	Hopane (T19)	52.232	191	56587M3	2014.423	ng/mL	
94)	C23 Tricyclic Terpane ...	40.803	191	22681M3	807.414	ng/ml	
95)	C24 Tricyclic Terpane ...	41.525	191	12979M3	462.035	ng/ml	
96)	C25 Tricyclic Terpane ...	43.046	191	13341M3	474.922	ng/ml	
97)	C24 Tetracyclic Terpan...	44.326	191	4745M3	168.916	ng/ml	
98)	C26 Tricyclic Terpane-...	44.055	191	4893M3	174.184	ng/ml	
99)	C26 Tricyclic Terpane-...	44.160	191	4592M3	163.469	ng/ml	
100)	C28 Tricyclic Terpane-...	46.449	191	4320M3	153.786	ng/ml	
101)	C28 Tricyclic Terpane-...	46.600	191	5844M3	208.039	ng/ml	
102)	C29 Tricyclic Terpane-...	47.127	191	6341	225.731	ng/ml	100
103)	C29 Tricyclic Terpane-...	47.322	191	5695	202.735	ng/ml	100
104)	18a-22,29,30-Trisnorne...	48.452	191	6932	246.770	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.542	191	4539	161.582	ng/mL	100
106)	C30 Tricyclic Terpane-22R	48.783	191	4829M3	171.906	ng/mL	
107)	17a(H)-22,29,30-Trisno...	48.994	191	15845	564.061	ng/ml	100
108)	17a/b,21b/a 28,30-Bisn...	50.184	191	9990	355.631	ng/ml	100
109)	17a(H),21b(H)-25-Norho...	49.973	191	5247M3	186.786	ng/ml	
110)	30-Norhopane (T15)	50.862	191	42810	1523.980	ng/ml	100
111)	18a(H)-30-Norneohopane...	50.952	191	6383M3	227.226	ng/ml	
112)	17a(H)-Diahopane (X)	51.088	191	2199M3	78.282	ng/ml	
113)	30-Normoretane (T17)	51.630	191	4640	165.178	ng/ml	100
114)	18a(H)&18b(H)-Oleanane...	52.021	191	1183	42.113	ng/ml	100
115)	Moretane (T20)	52.910	191	4871M3	173.401	ng/ml	
116)	30-Homohopane-22S (T21)	54.009	191	25733	916.061	ng/ml	100
117)	30-Homohopane-22R (T22)	54.250	191	20317	723.259	ng/ml	100
118)	Gammacerane/C32-diahopane	54.792	191	7766	276.459	ng/mL	100
119)	30,31-Bishomohopane-22...	55.560	191	24976M3	889.113	ng/ml	
120)	30,31-Bishomohopane-22...	55.967	191	11184	398.136	ng/ml	100

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

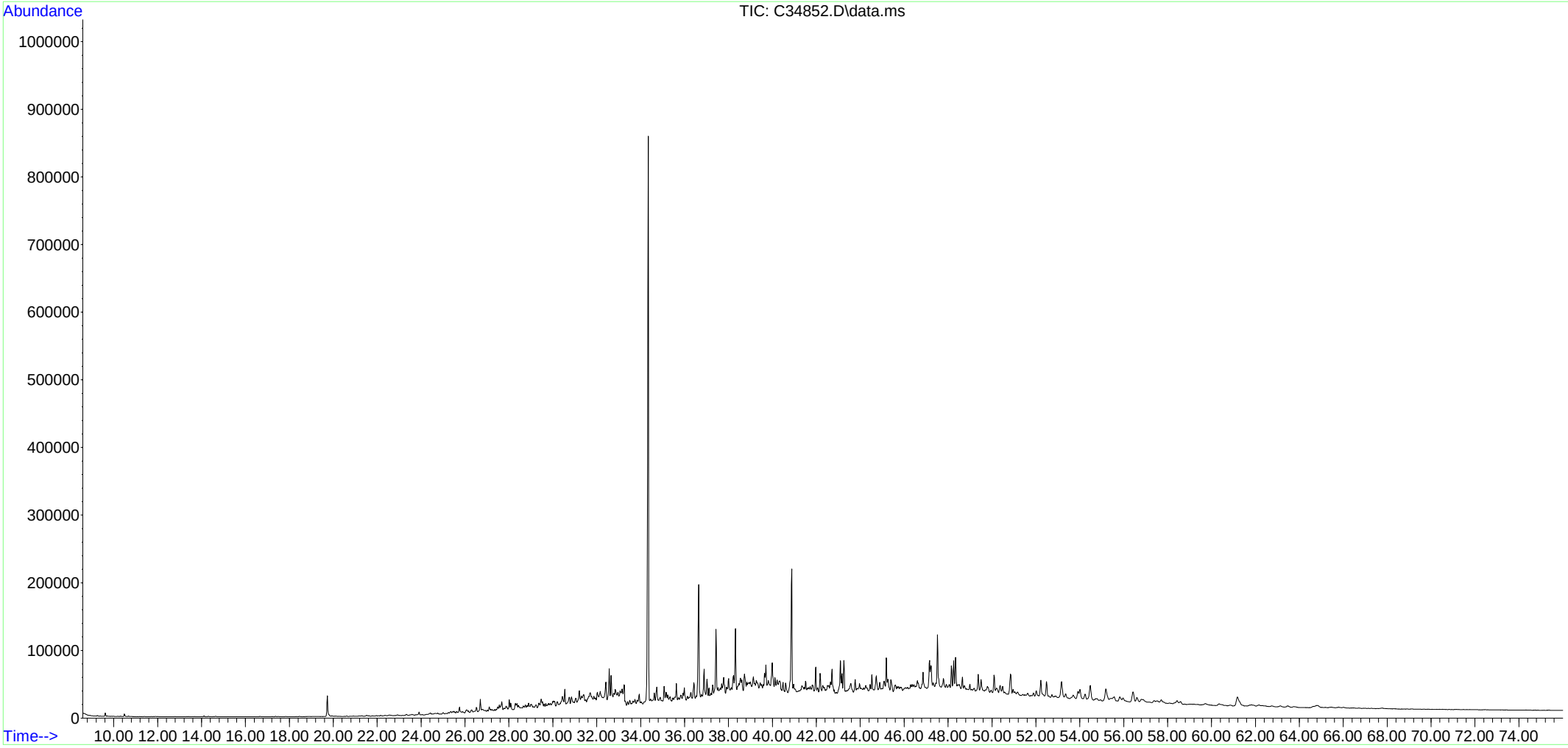
Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
121) 30,31-Trishomohopane-2...	57.713	191		12399	441.388	ng/ml	100
122) 30,31-Trishomohopane-2...	58.316	191		7138M3	254.103	ng/ml	
123) Tetrakishomohopane-22S...	60.349	191		8114M3	288.848	ng/ml	
124) Tetrakishomohopane-22R...	61.192	191	G	16895	601.440	ng/ml	100
125) Pentakishomohopane-22S...	63.466	191		9239M3	328.896	ng/ml	
126) Pentakishomohopane-22R...	64.776	191		5917M3	210.637	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217		3417M3	256.420	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217		1711M3	128.398	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217		1392M3	104.459	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.262	217		6084	456.558	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.789	217		7453M3	559.291	ng/ml	
133) Unknown Sterane (S18)	48.060	217		1525	114.440	ng/ml	100
134) 13a,17b-20S-Ethyldiach...	48.316	217		957	71.816	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217		3109	233.307	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.205	217		3018M3	226.478	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.551	217		6616M3	496.480	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217		6034M3	452.806	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.353	218		4125M3	309.550	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.443	218		4480M3	336.190	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218		3804	285.461	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.738	218		5367M3	402.752	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.792	218		6805M3	510.663	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.838	218		5782M3	433.895	ng/ml	
145) C26,20R- +C27,20S- tri...	49.506	231		36428	2733.644	ng/mL	100
146) C28,20S-triaromatic st...	50.365	231		32276M3	2422.068	ng/mL	
147) C27,20R-triaromatic st...	50.816	231		24602	1846.193	ng/mL	100
148) C28,20R-triaromatic st...	52.021	231		27469M3	2061.339	ng/mL	

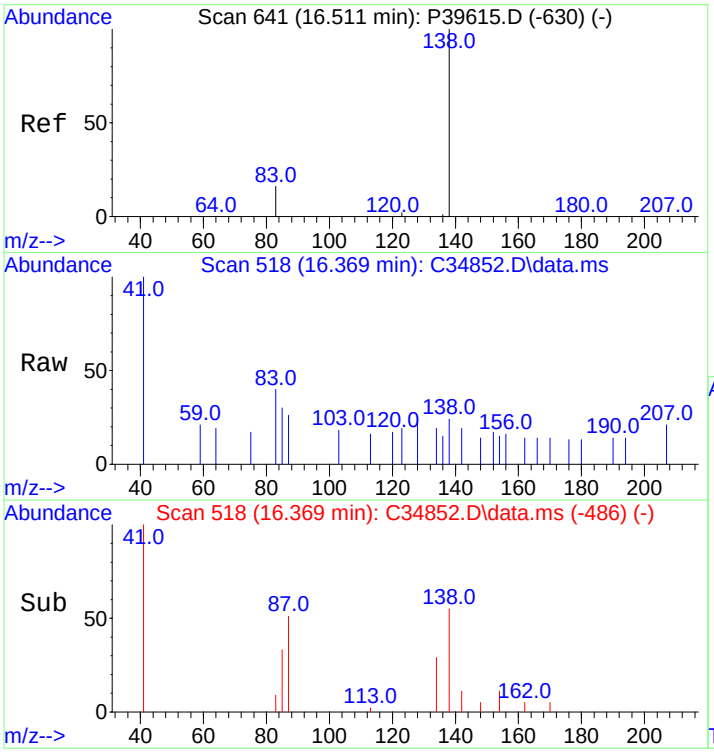
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34852.D
Acq On : 5 May 2012 12:32 am
Operator : AC
Sample : 1204035-05
Misc : 1X
ALS Vial : 39 Sample Multiplier: 1

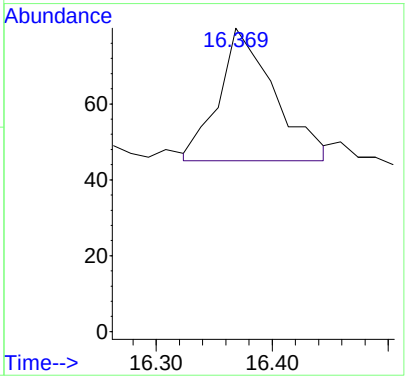
Quant Time: May 06 15:03:31 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

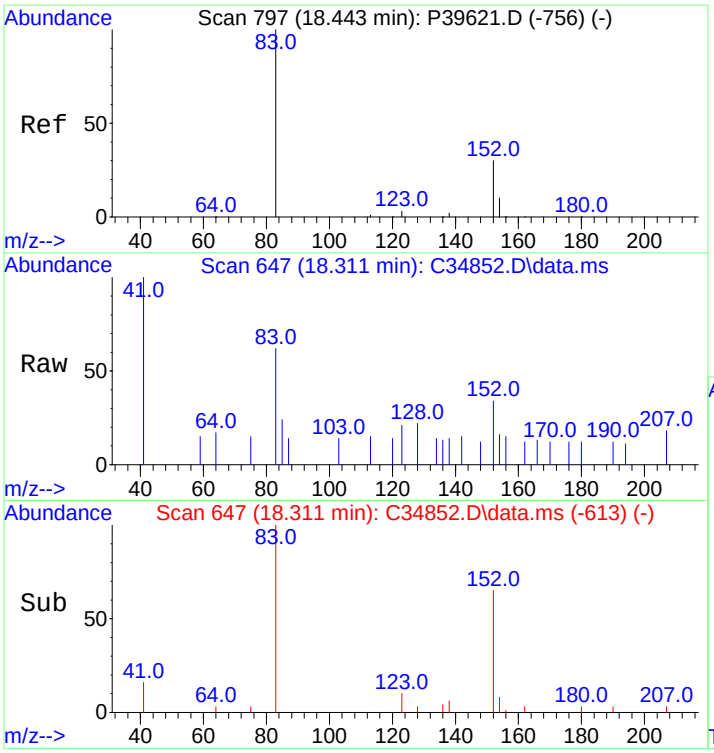




#3
trans-Decalin
Concen: 7.24 ng/mL m
RT: 16.369 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

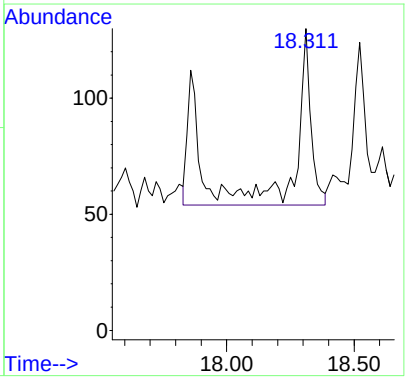
Tgt Ion:138 Resp: 117

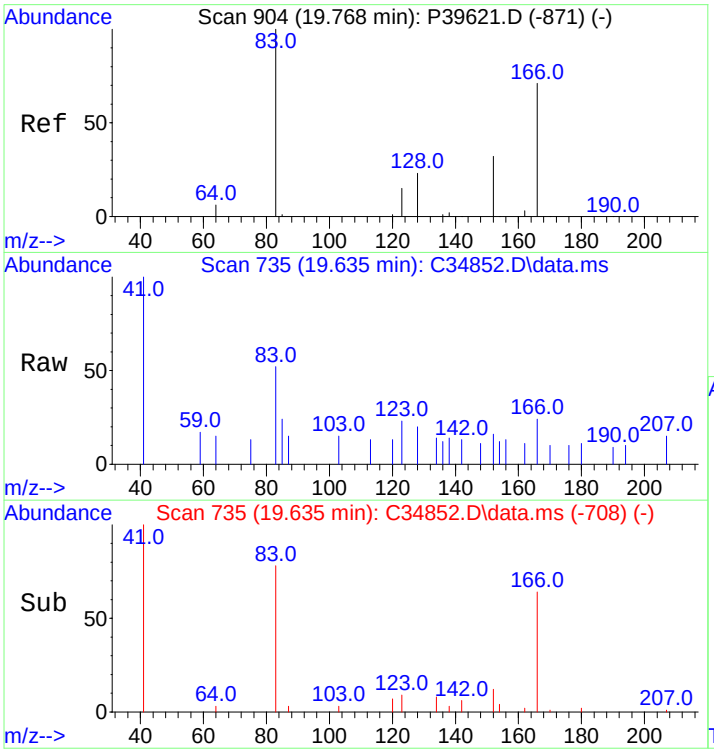




#5
C1-Decalins
Concen: 29.90 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.037 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

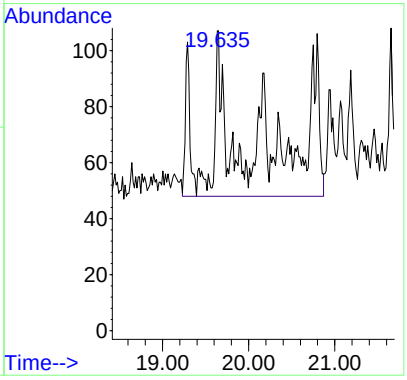
Tgt Ion:152 Resp: 483

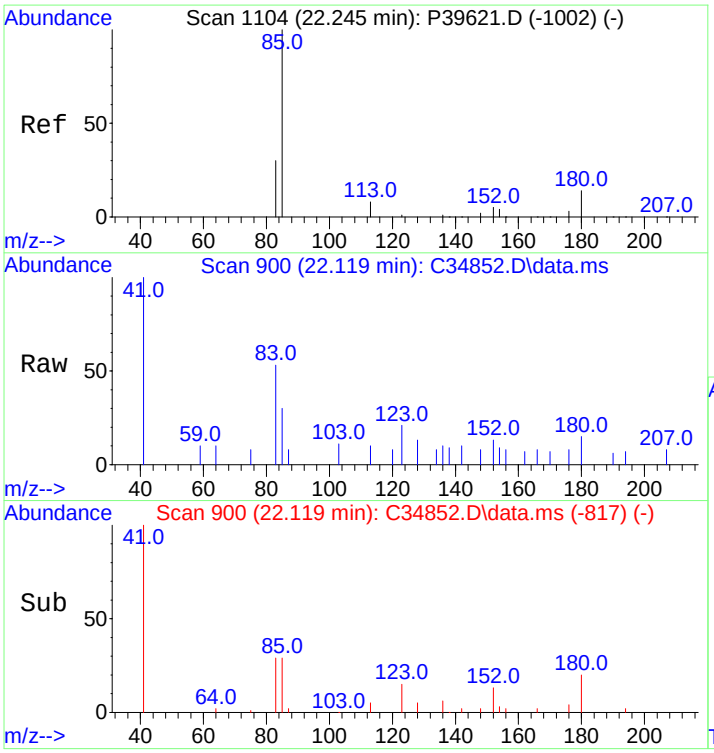




#6
C2-Decalins
Concen: 111.97 ng/mL m
RT: 19.635 min Scan# 735
Delta R.T. -0.047 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

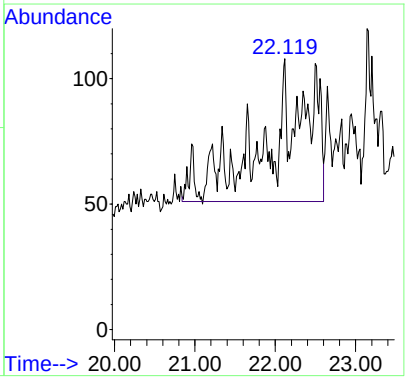
Tgt Ion:166 Resp: 1809

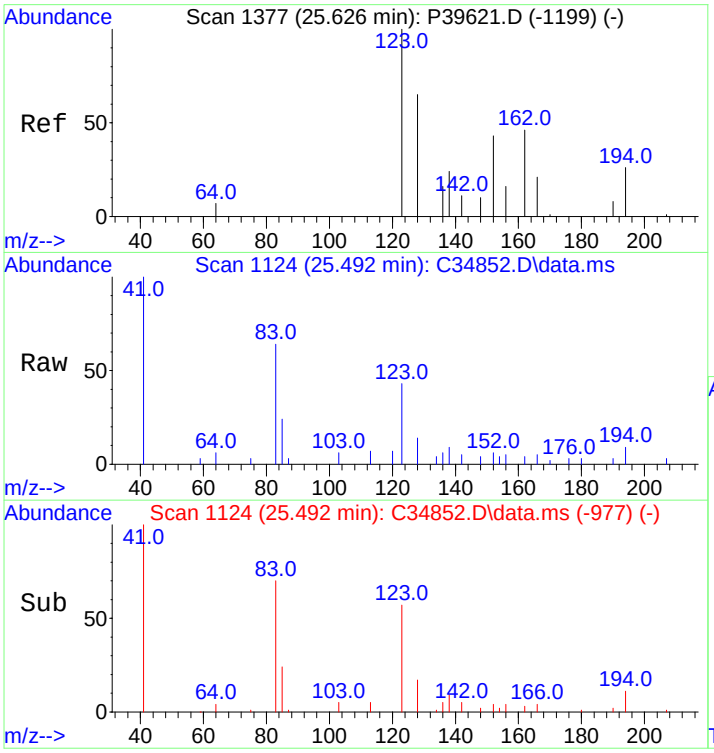




#7
C3-Decalins
Concen: 131.34 ng/mL m
RT: 22.119 min Scan# 900
Delta R.T. -0.021 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

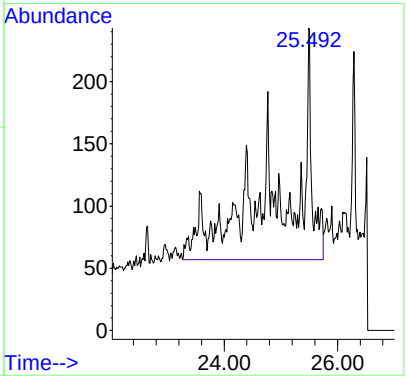
Tgt Ion:180 Resp: 2122

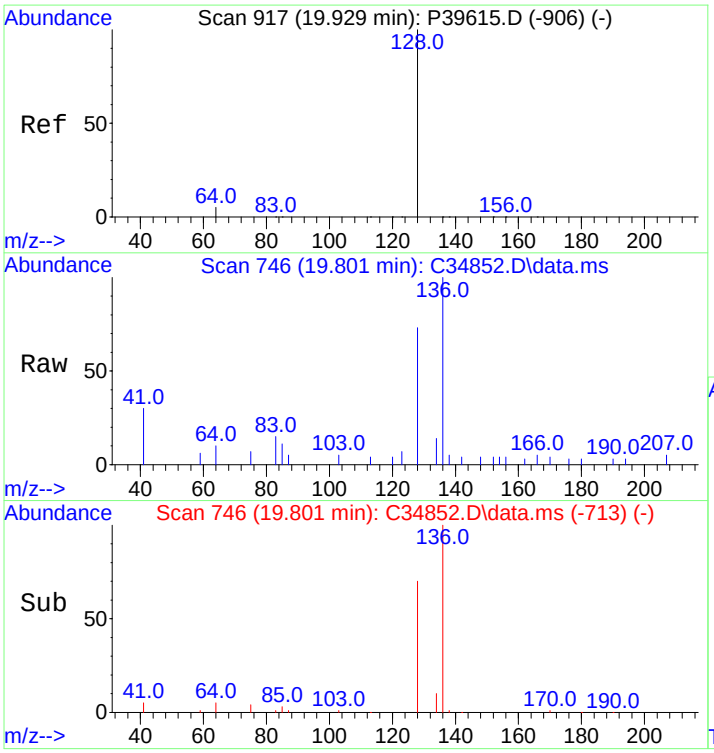




#8
C4-Decalins
Concen: 354.05 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:194 Resp: 5720

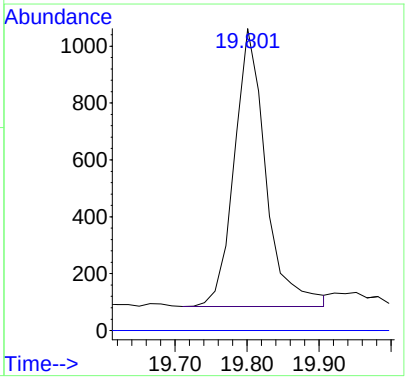


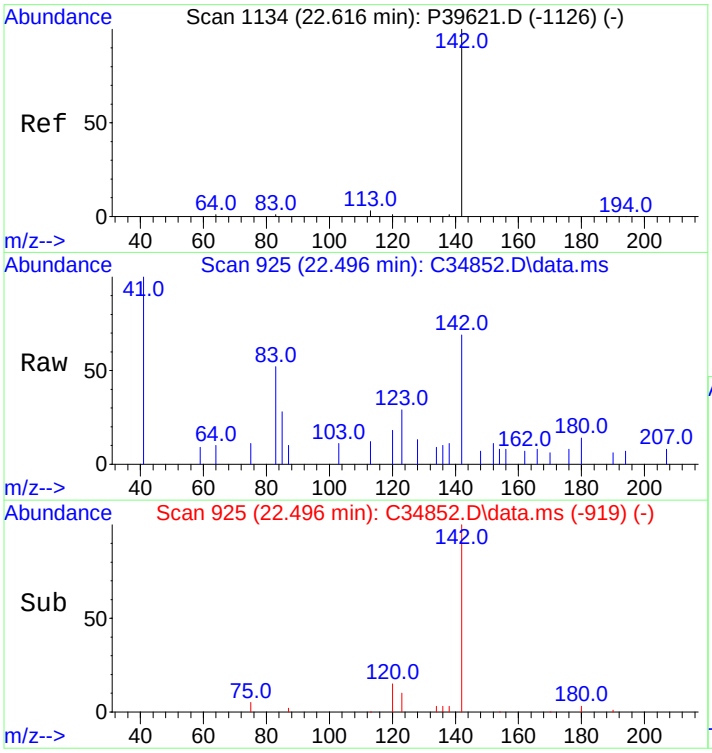


#10
Naphthalene
Concen: 22.72 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:128 Resp: 2964

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

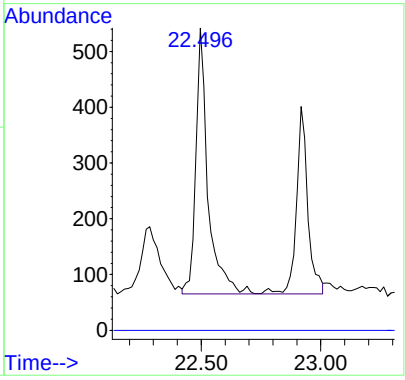


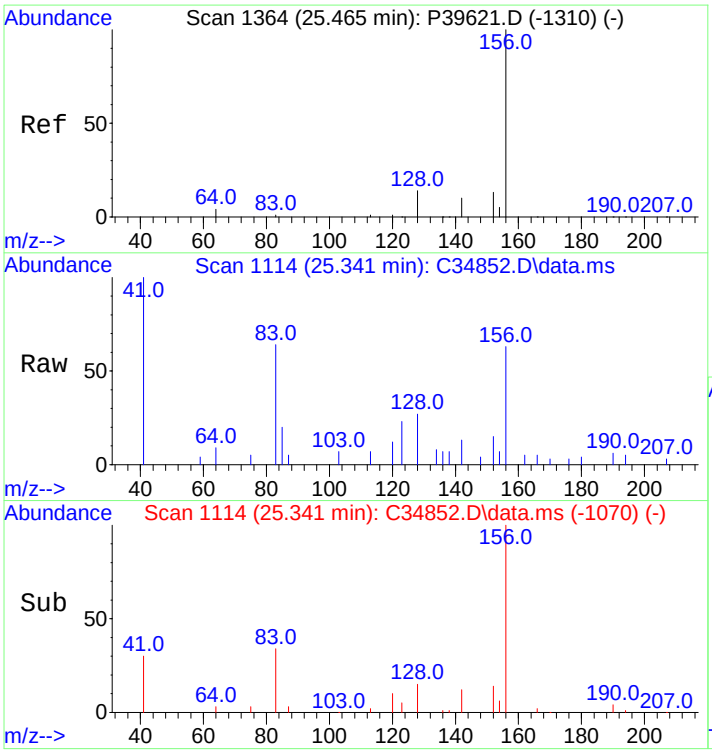


#11
C1-Naphthalenes
Concen: 21.35 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:142 Resp: 2785

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

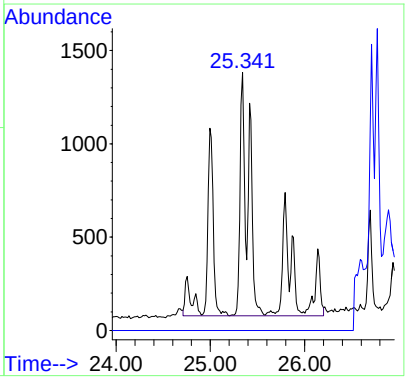


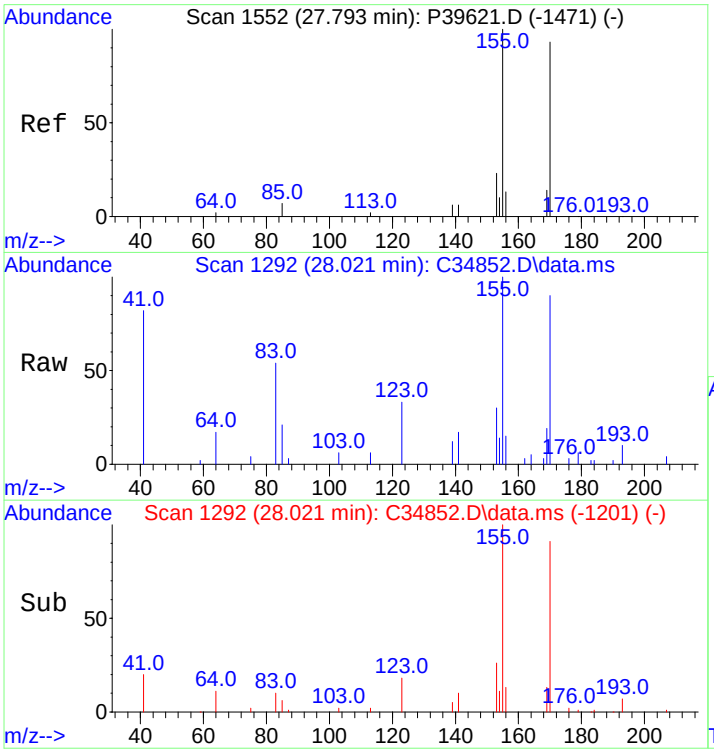


#12
C2-Naphthalenes
Concen: 136.83 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:156 Resp: 17848

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

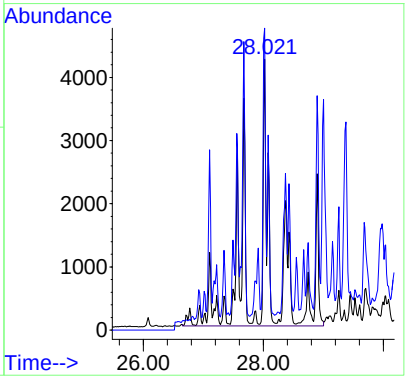


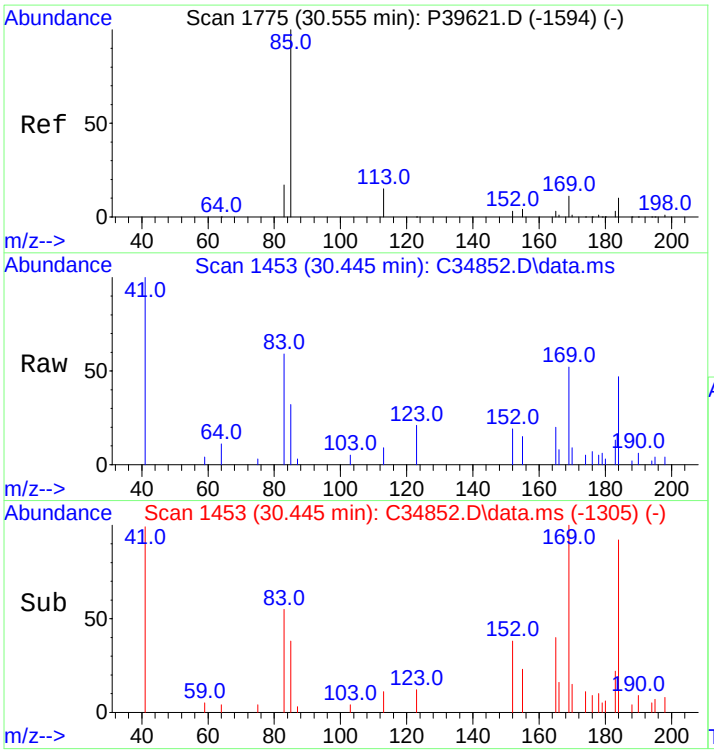


#13
C3-Naphthalenes
Concen: 532.43 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:170 Resp: 69450

Ion	Ratio	Lower	Upper
170	100		
155	15.9	81.8	122.6#

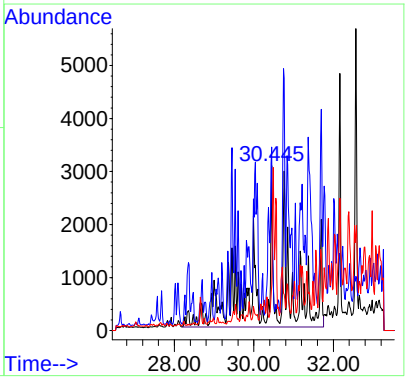


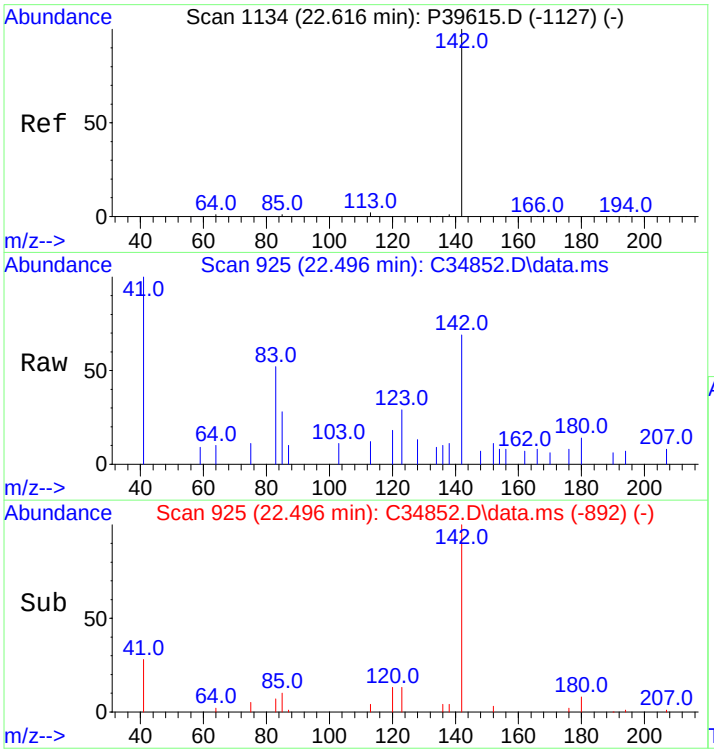


#14
C4-Naphthalenes
Concen: 786.62 ng/mL m
RT: 30.445 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:184 Resp: 102606

Ion	Ratio	Lower	Upper
184	100		
169	10.1	77.4	116.0#
183	0.0	14.8	22.2#

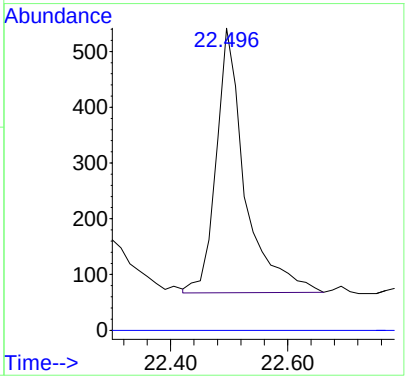


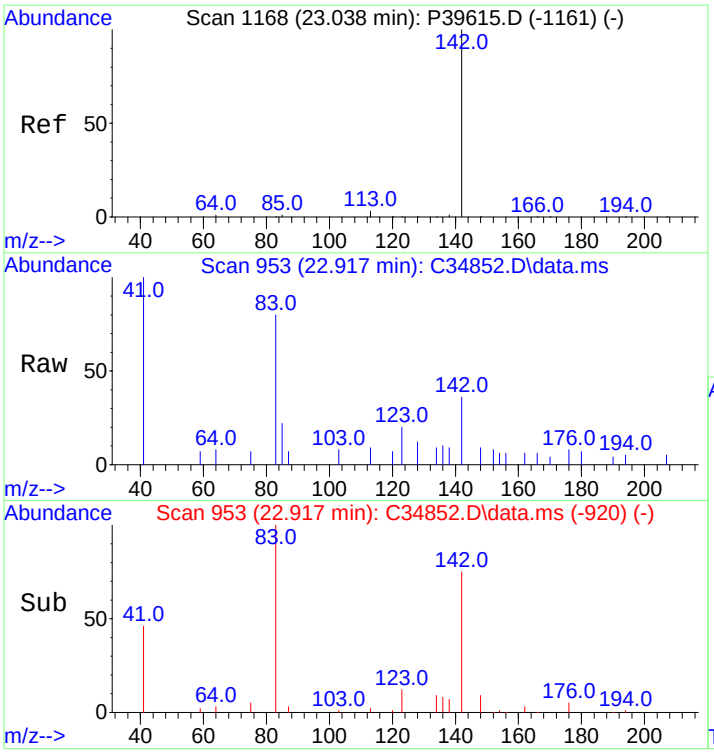


#16
2-Methylnaphthalene
Concen: 20.91 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:142 Resp: 1613

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

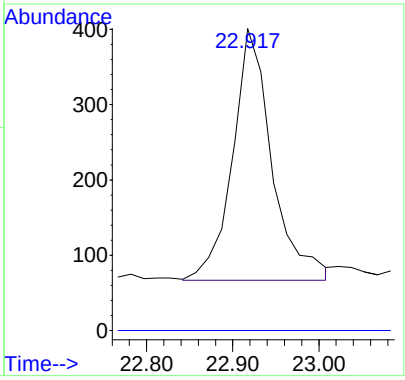


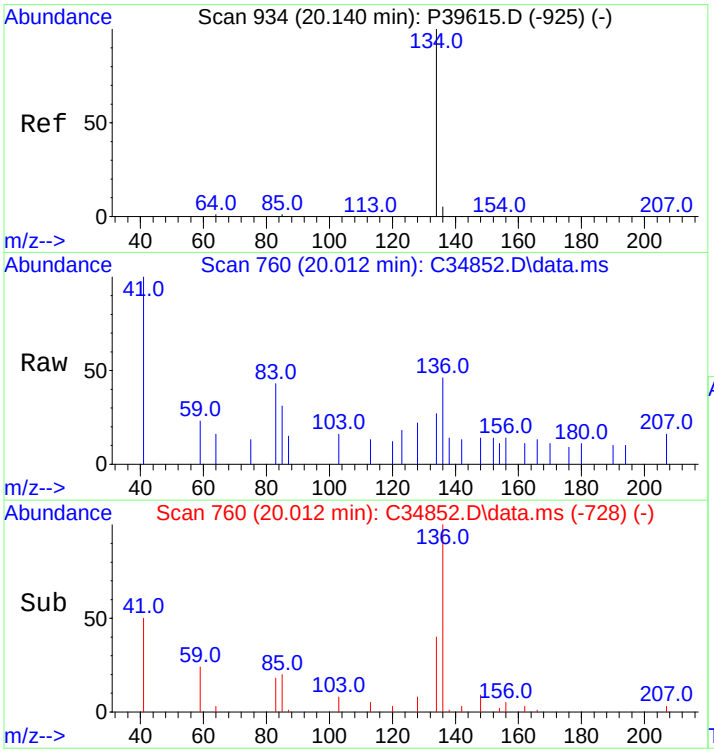


#17
1-Methylnaphthalene
Concen: 14.02 ng/mL m
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:142 Resp: 1060

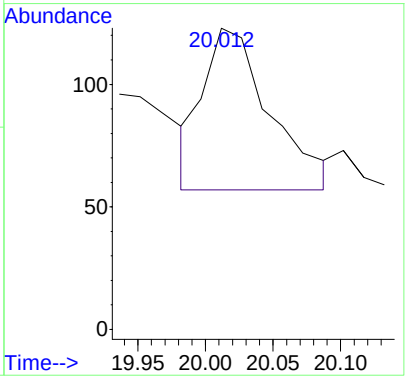
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

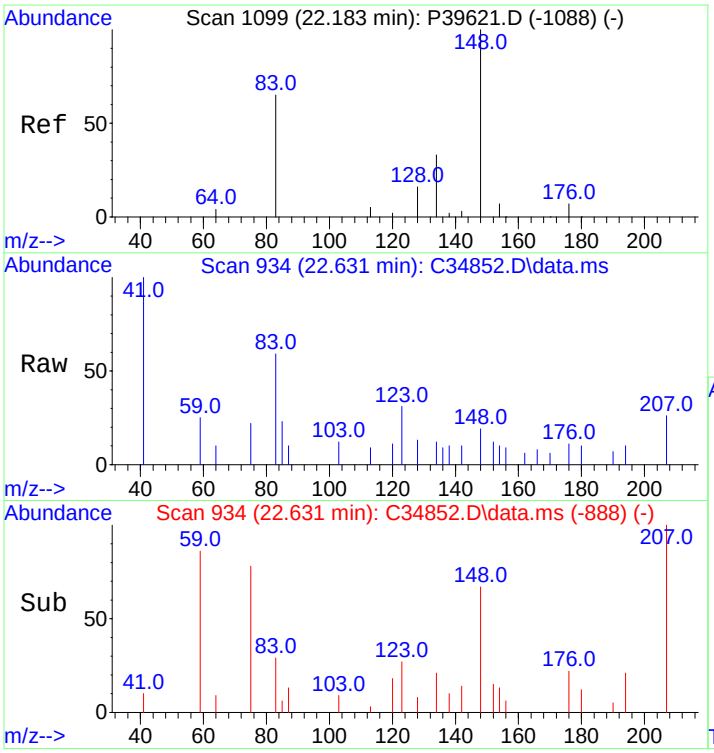




#18
Benzothiophene
Concen: 1.93 ng/mL m
RT: 20.012 min Scan# 760
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

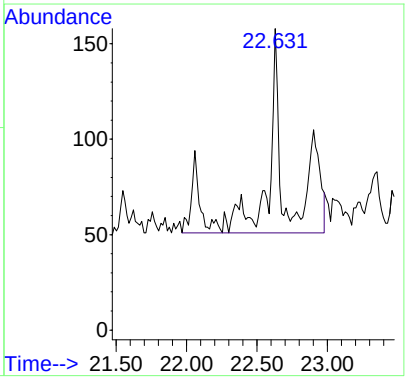
Tgt Ion:134 Resp: 227

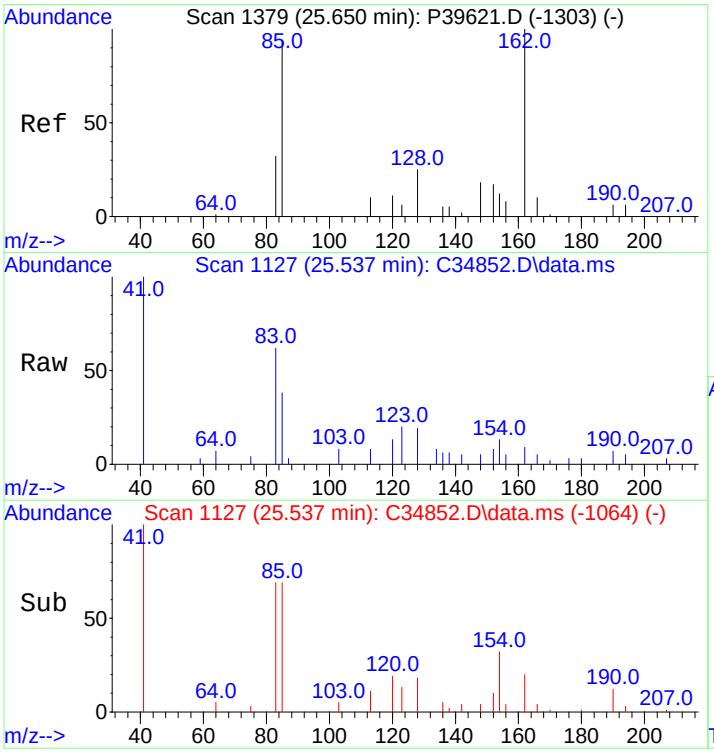




#19
C1-Benzo(b)thiophenes
Concen: 8.96 ng/mL m
RT: 22.631 min Scan# 934
Delta R.T. 0.551 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

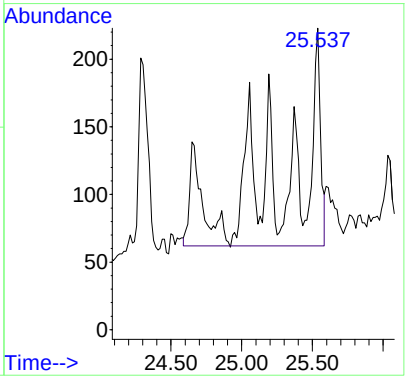
Tgt Ion:148 Resp: 1052

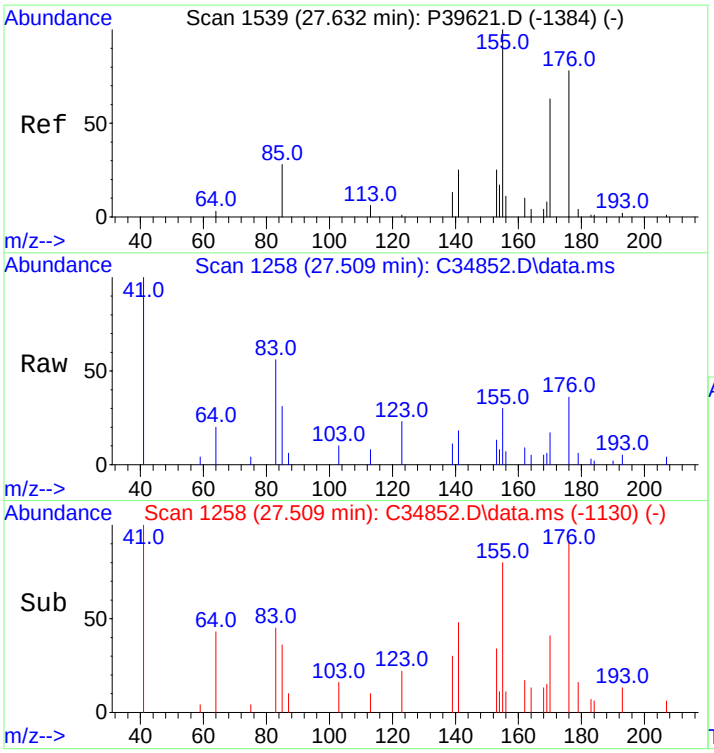




#20
C2-Benzo(b)thiophenes
Concen: 21.33 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

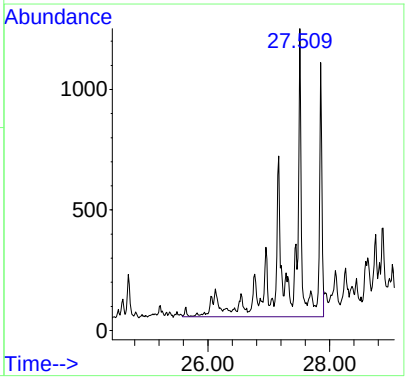
Tgt Ion:162 Resp: 2504

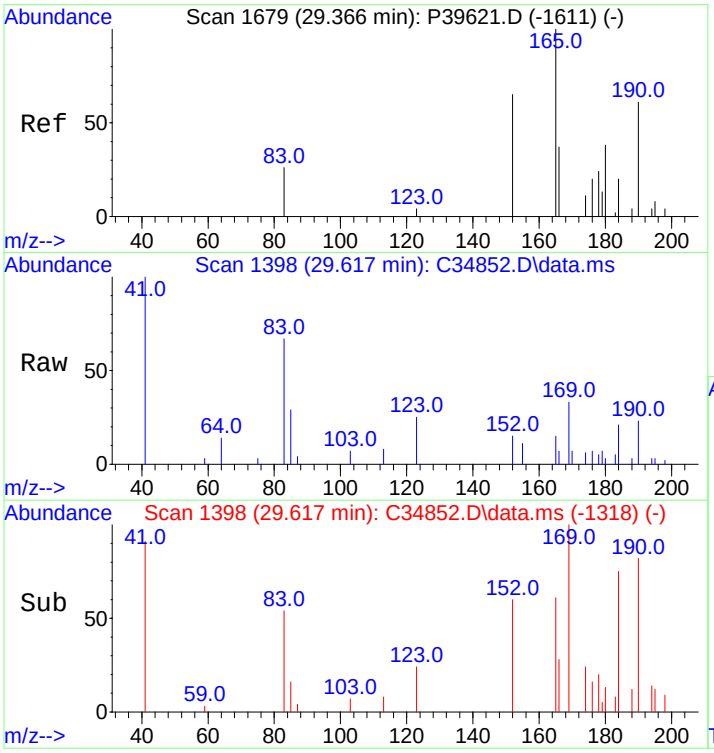




#21
C3-Benzo(b)thiophenes
Concen: 132.89 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

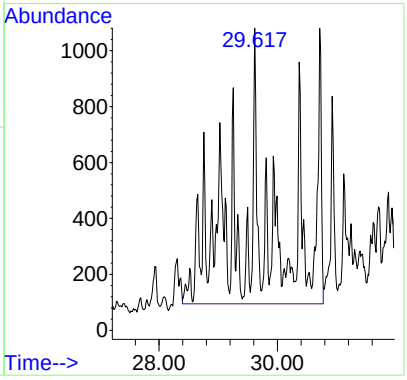
Tgt Ion:176 Resp: 15599

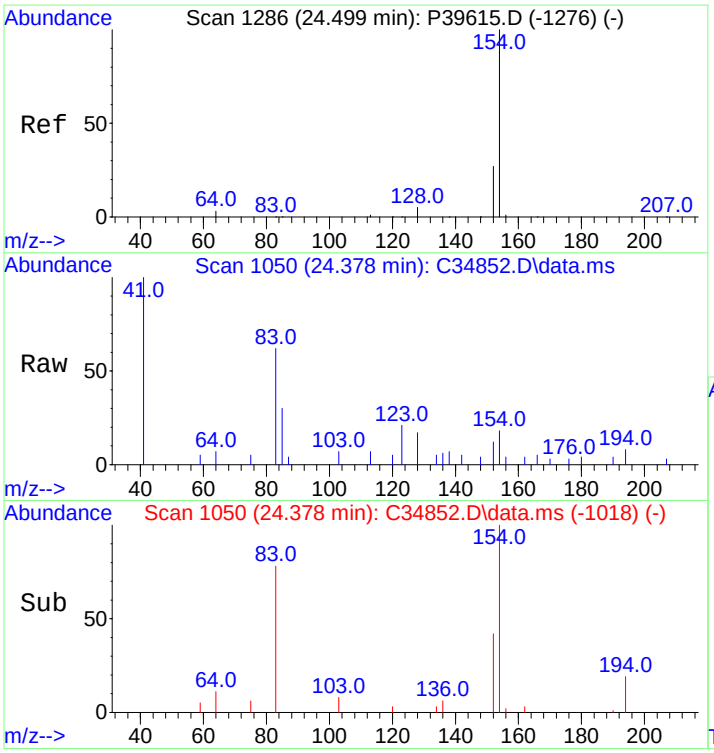




#22
C4-Benzo(b)thiophenes
Concen: 273.63 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:190 Resp: 32118

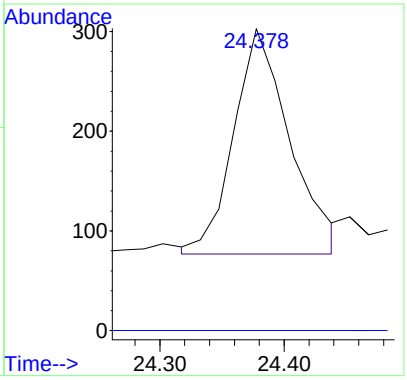


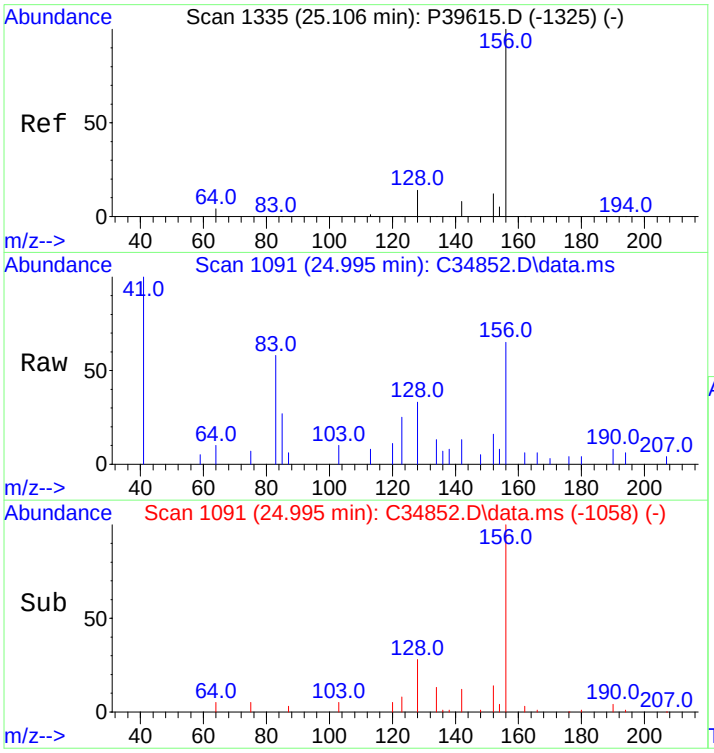


#23
Biphenyl
Concen: 7.28 ng/mL m
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:154 Resp: 710

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

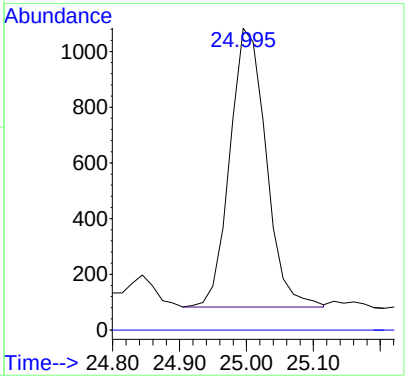


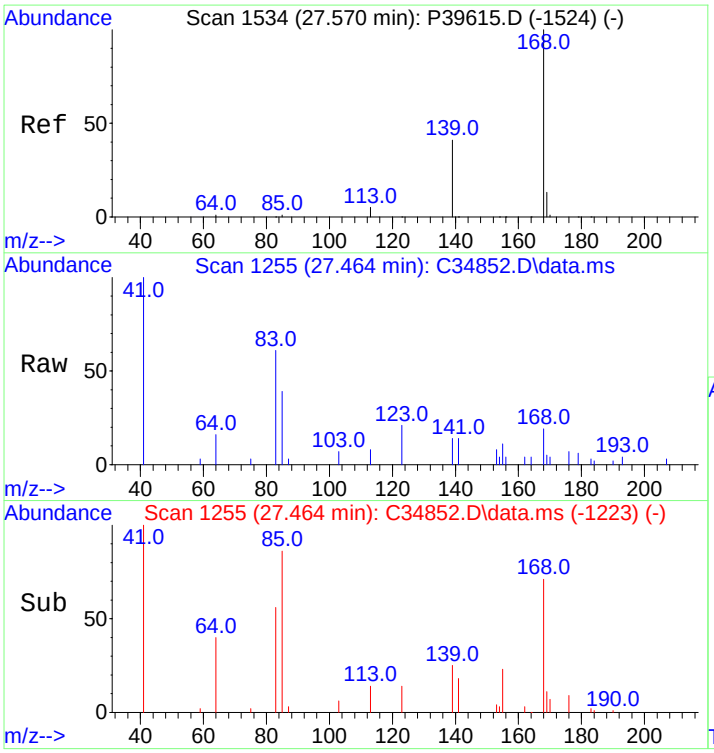


#24
2,6-Dimethylnaphthalene
Concen: 59.40 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:156 Resp: 3764

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

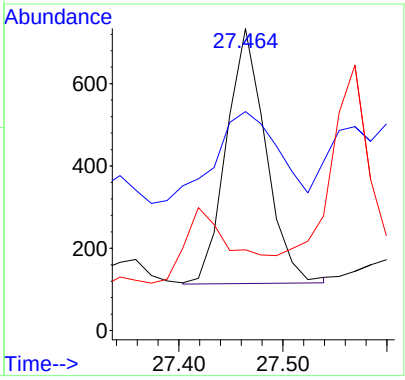


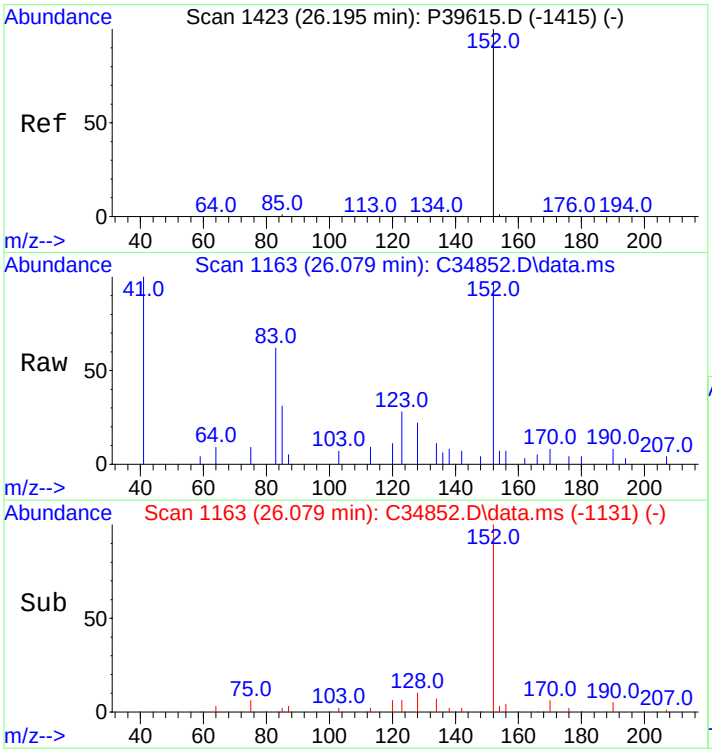


#25
Dibenzofuran
Concen: 14.60 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:168 Resp: 1636

Ion	Ratio	Lower	Upper
168	100		
139	58.1	28.4	42.6#
169	0.0	10.8	16.2#

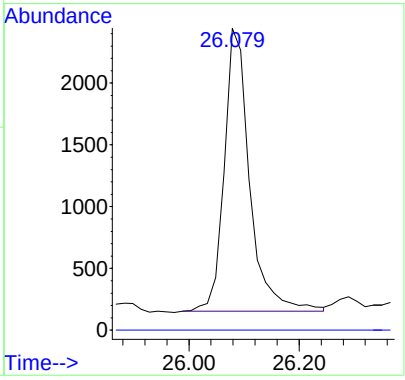


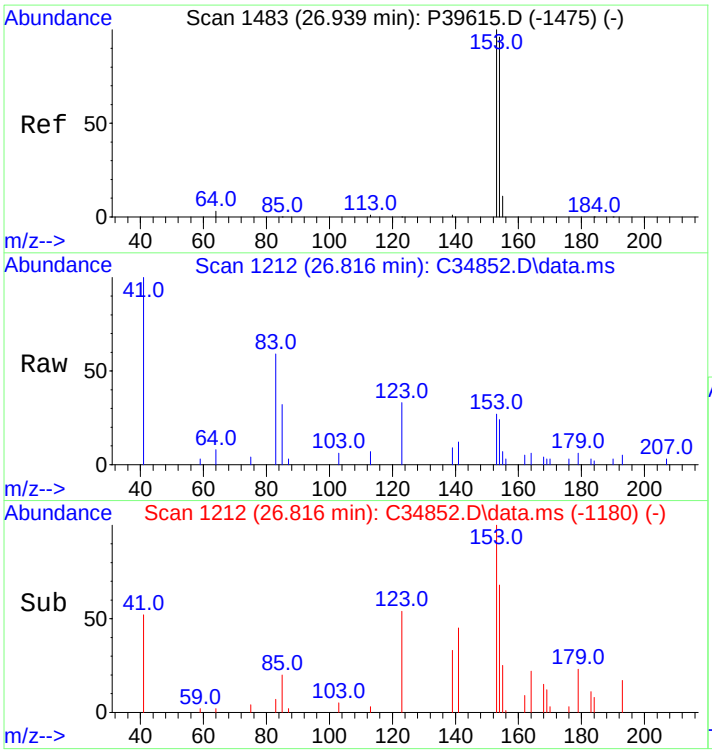


#26
Acenaphthylene
Concen: 56.50 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:152 Resp: 7316

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

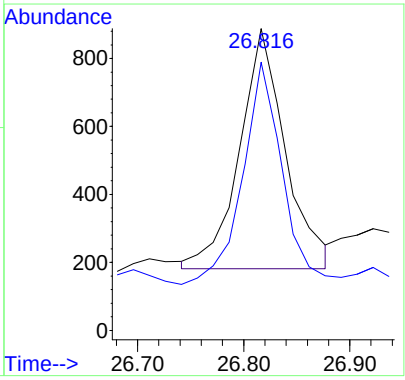


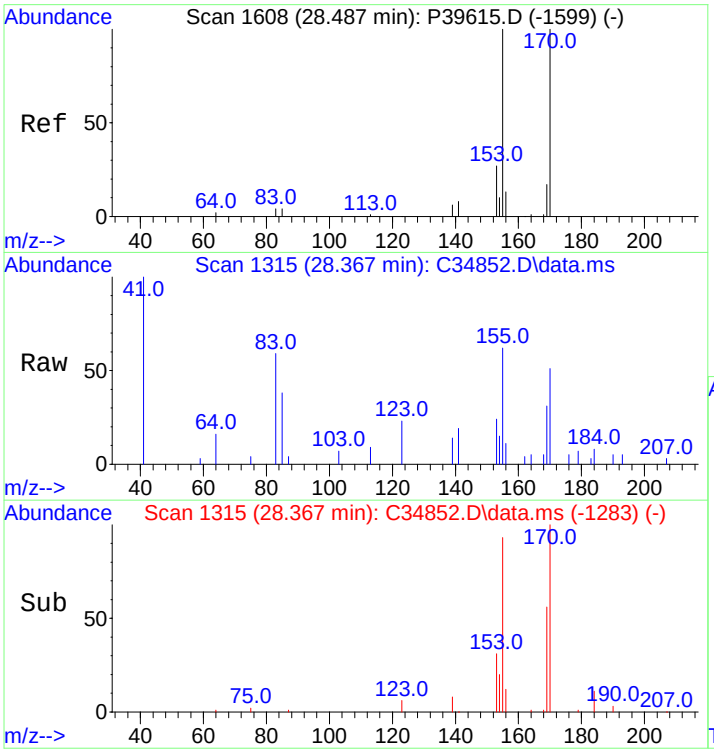


#27
Acenaphthene
Concen: 27.70 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:153 Resp: 2112

Ion	Ratio	Lower	Upper
153	100		
154	82.1	73.6	110.4

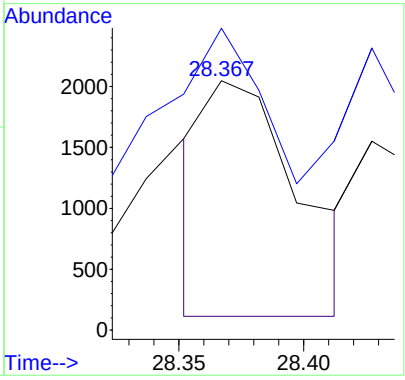


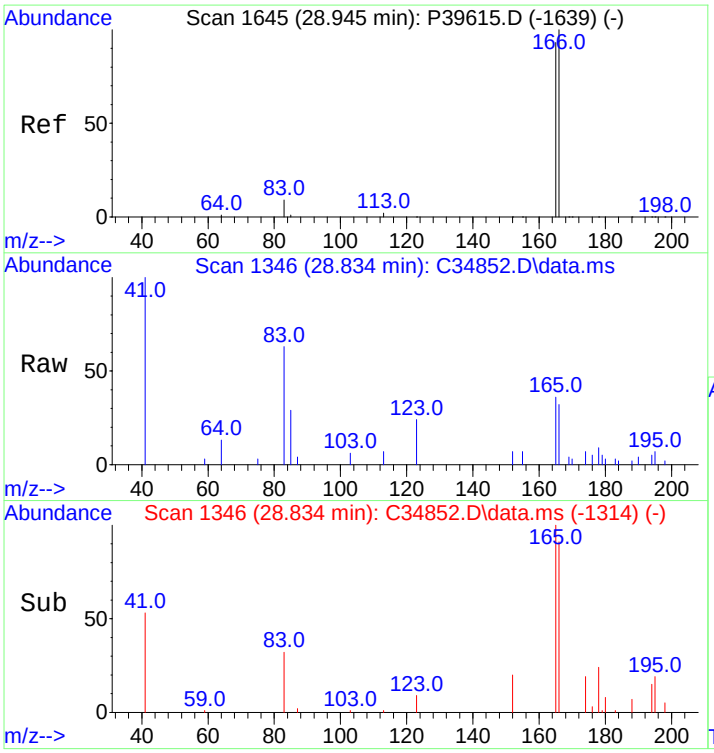


#28
2,3,5-Trimethylnaphthalene
Concen: 97.87 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:170 Resp: 4999

Ion	Ratio	Lower	Upper
170	100		
155	168.6	87.3	130.9#

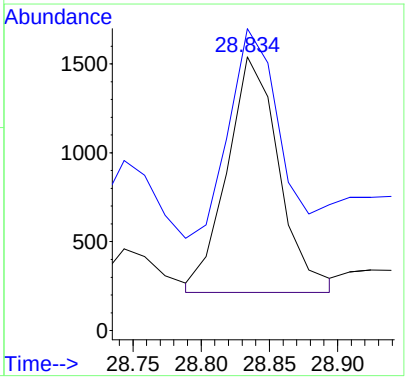


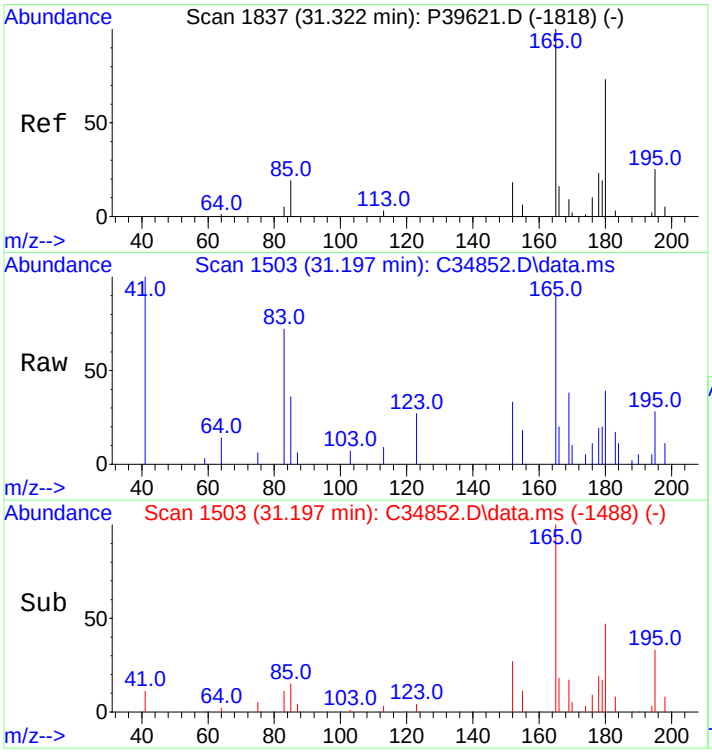


#29
Fluorene
Concen: 41.65 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:166 Resp: 3502

Ion	Ratio	Lower	Upper
166	100		
165	92.4	77.3	115.9

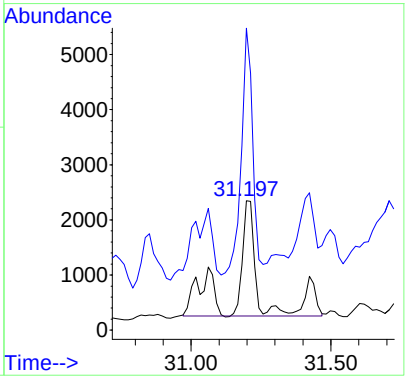


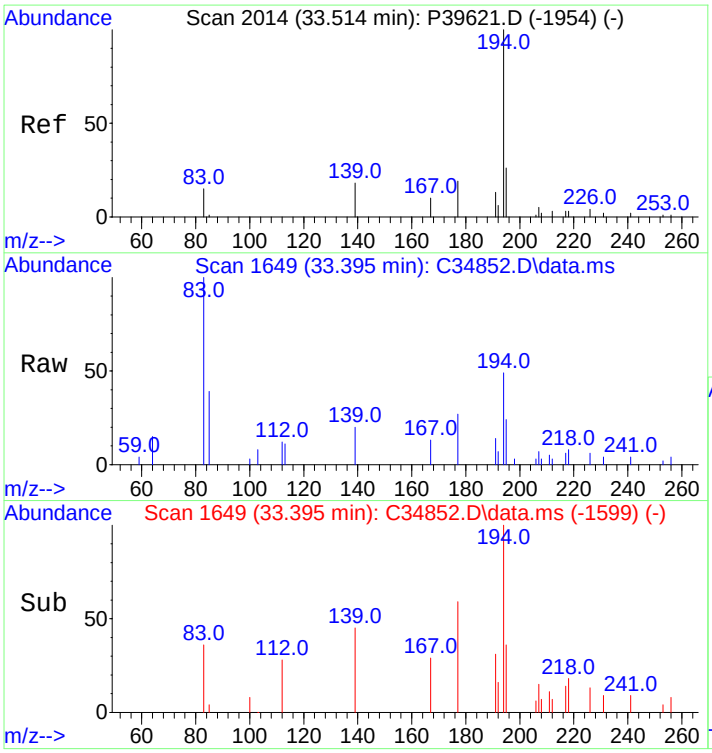


#30
C1-Fluorenes
Concen: 143.92 ng/mL m
RT: 31.197 min Scan# 1503
Delta R.T. 0.020 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:180 Resp: 12101

Ion	Ratio	Lower	Upper
180	100		
165	21.8	111.4	167.2#

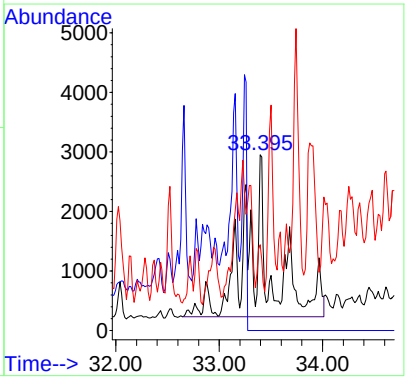


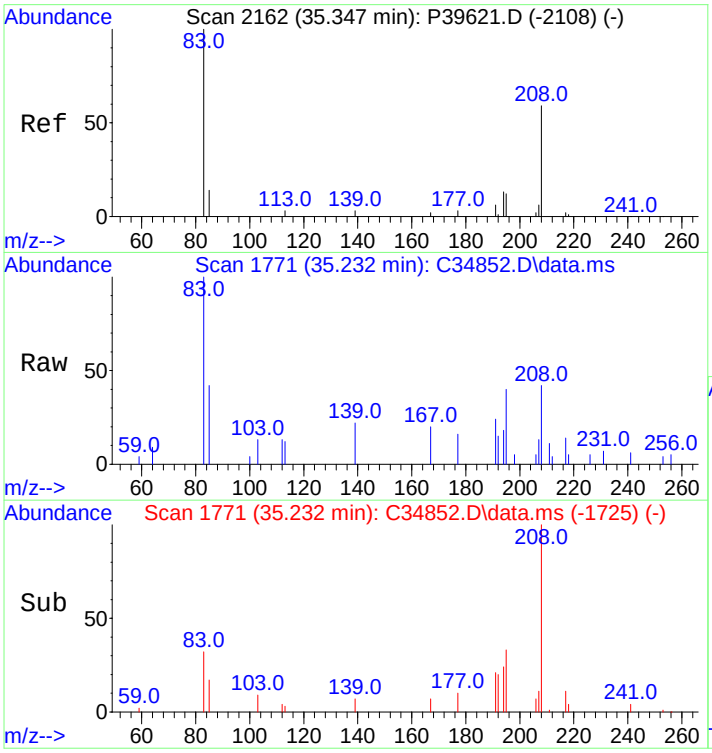


#31
C2-Fluorenes
Concen: 521.44 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:194 Resp: 43845

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	5.2	27.3	40.9#

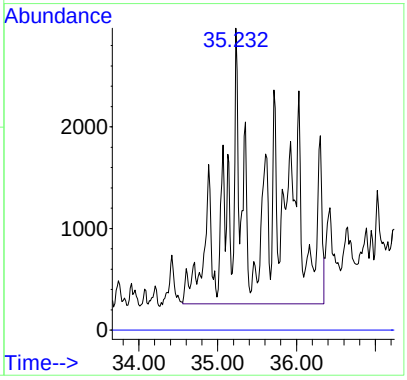


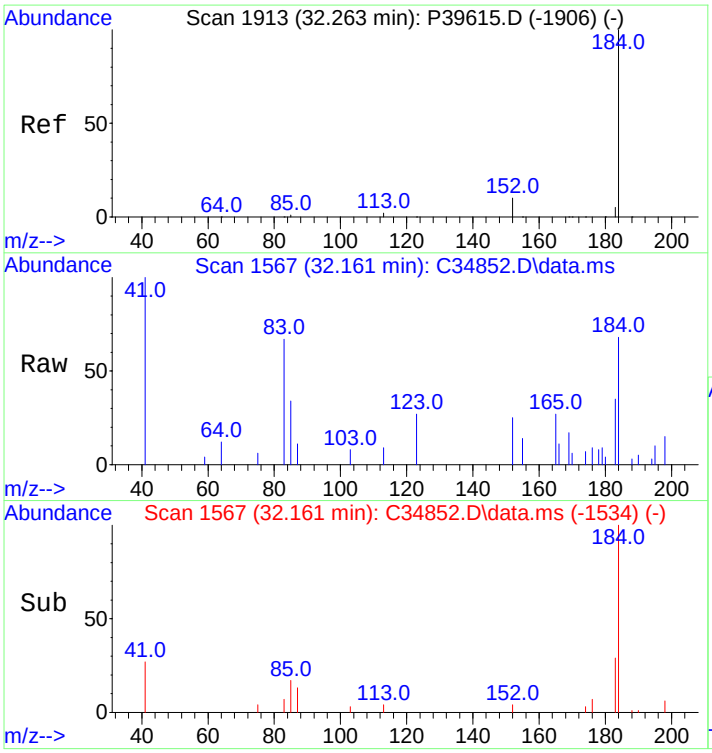


#32
C3-Fluorenes
Concen: 963.86 ng/mL m
RT: 35.232 min Scan# 1771
Delta R.T. 0.053 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:208 Resp: 81045

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

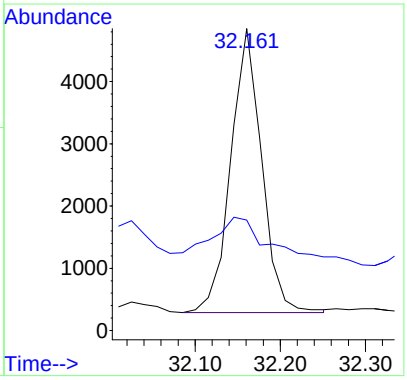


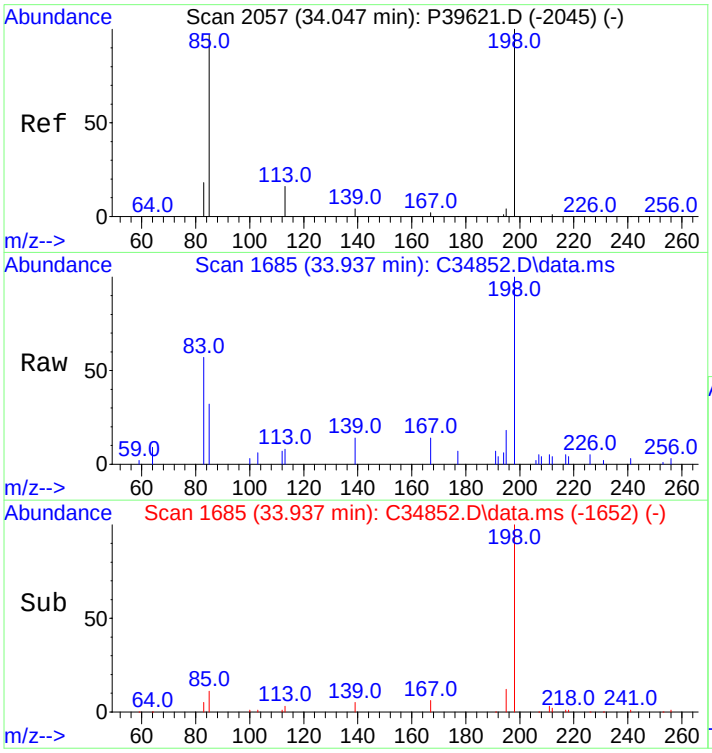


#33
Dibenzothiophene
Concen: 85.66 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:184 Resp: 11546

Ion	Ratio	Lower	Upper
184	100		
152	39.7	7.5	11.3#

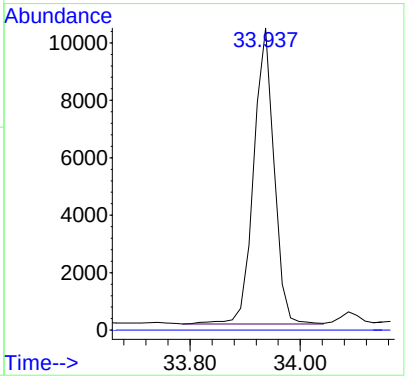


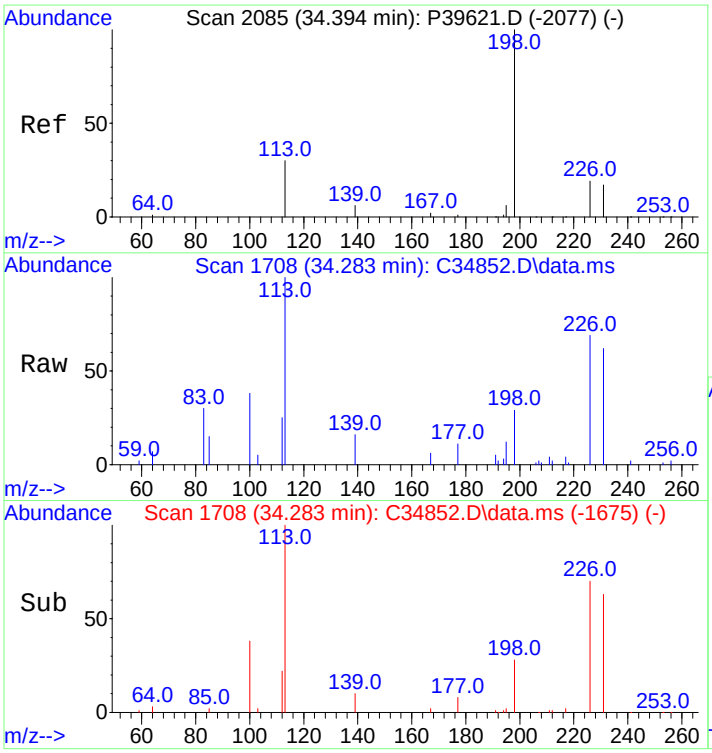


#34
4-Methyldibenzothiophene(4MDT)
Concen: 195.53 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:198 Resp: 26355

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

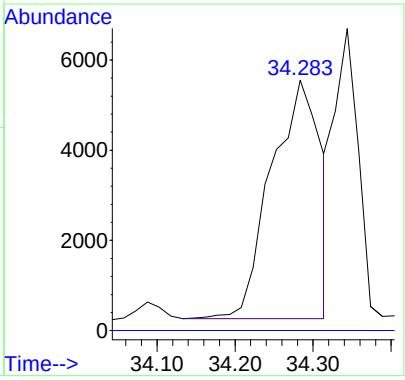


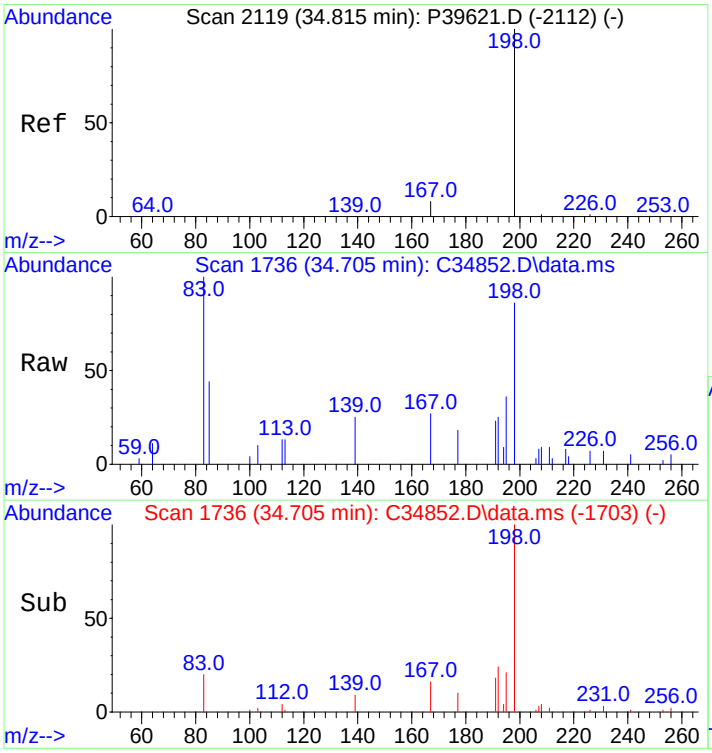


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 173.15 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:198 Resp: 23338

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

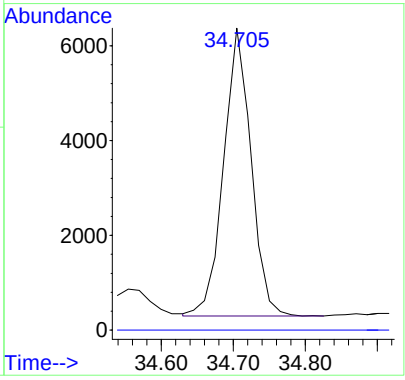


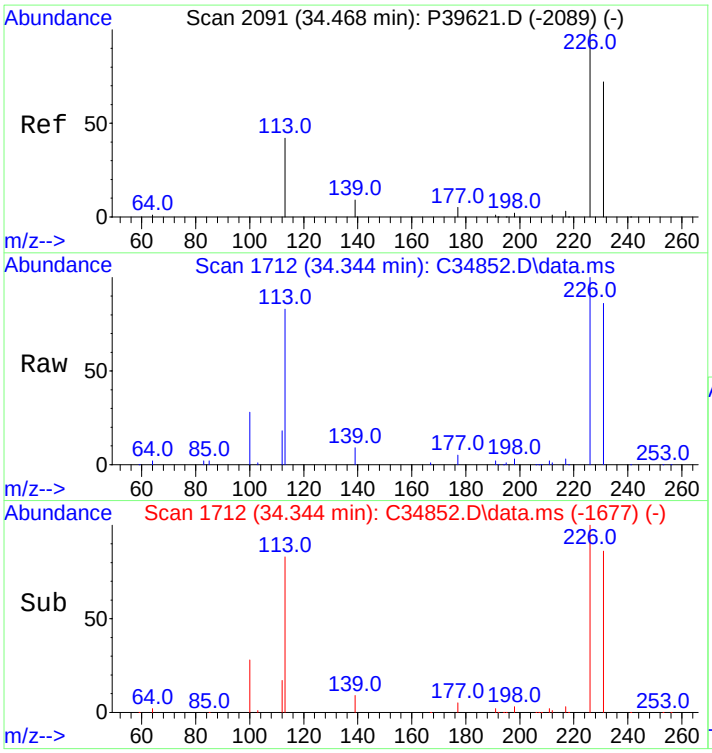


#36
1-Methyldibenzothiophene(1MDT)
Concen: 118.83 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:198 Resp: 16017

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

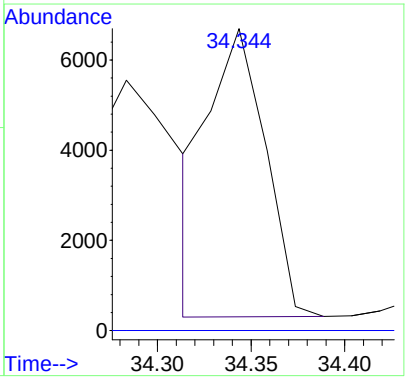


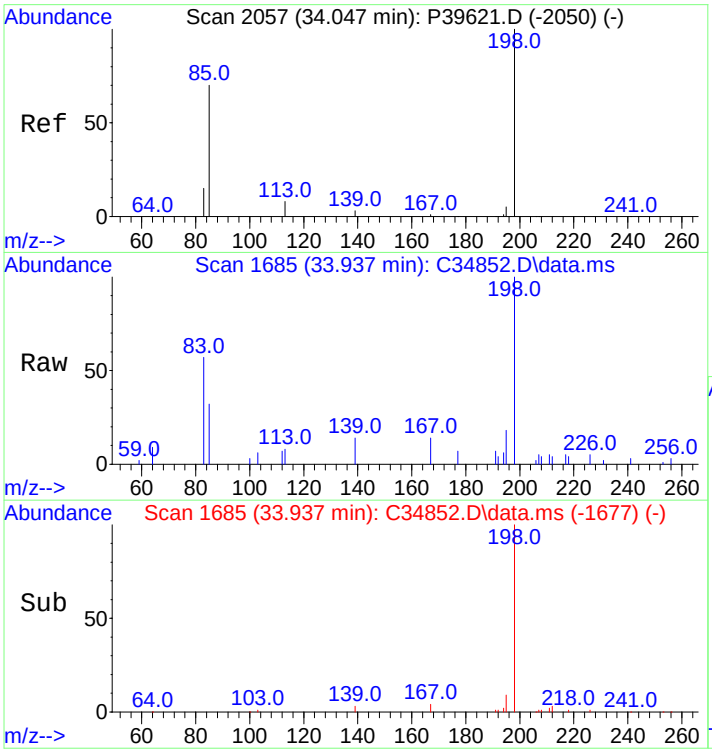


#37
OTP
Concen: 99.69 ng/mL
RT: 34.344 min Scan# 1712
Delta R.T. 0.030 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:198 Resp: 13437

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

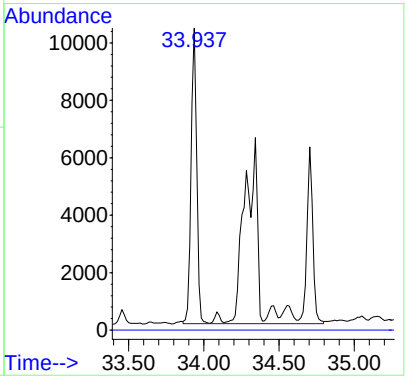


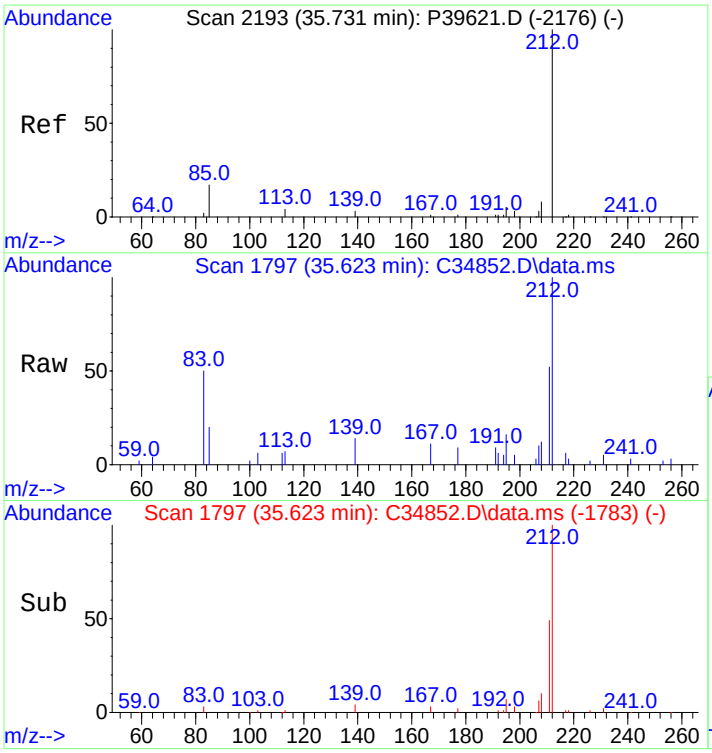


#38
C1-Dibenzothiophenes
Concen: 640.14 ng/mL m
RT: 33.937 min Scan# 1685
Delta R.T. 0.062 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:198 Resp: 86281

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

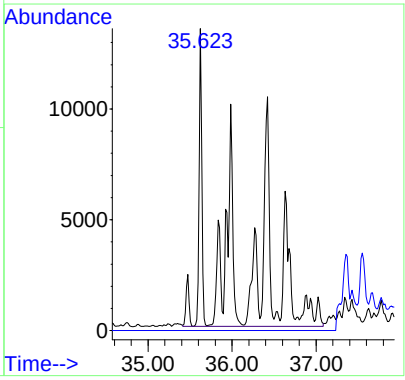


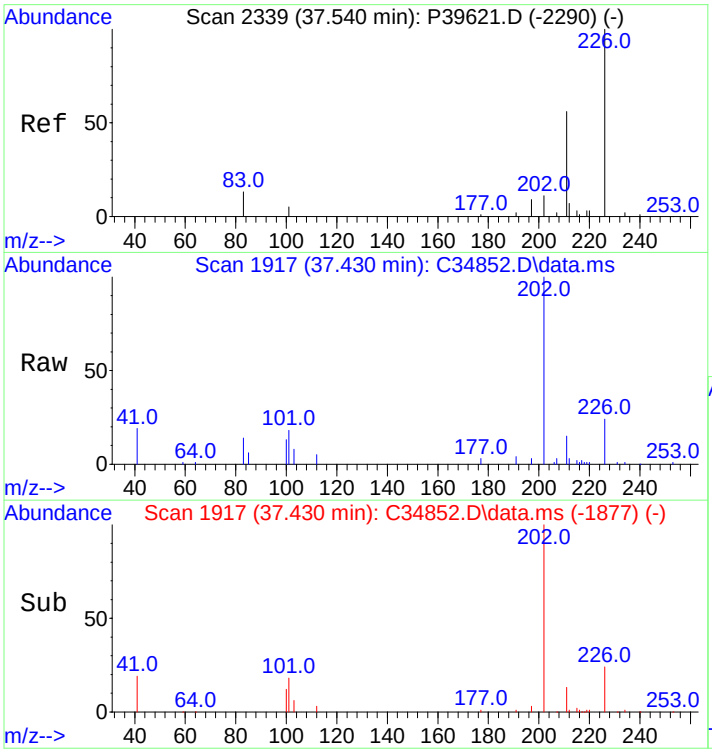


#39
C2-Dibenzothiophenes
Concen: 1457.43 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:212 Resp: 196440

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

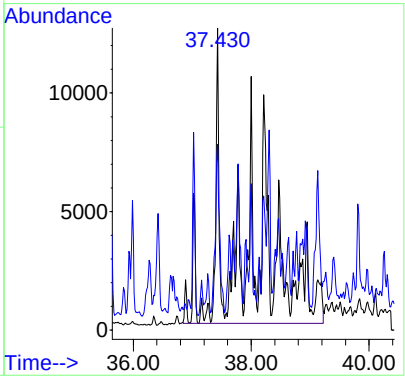


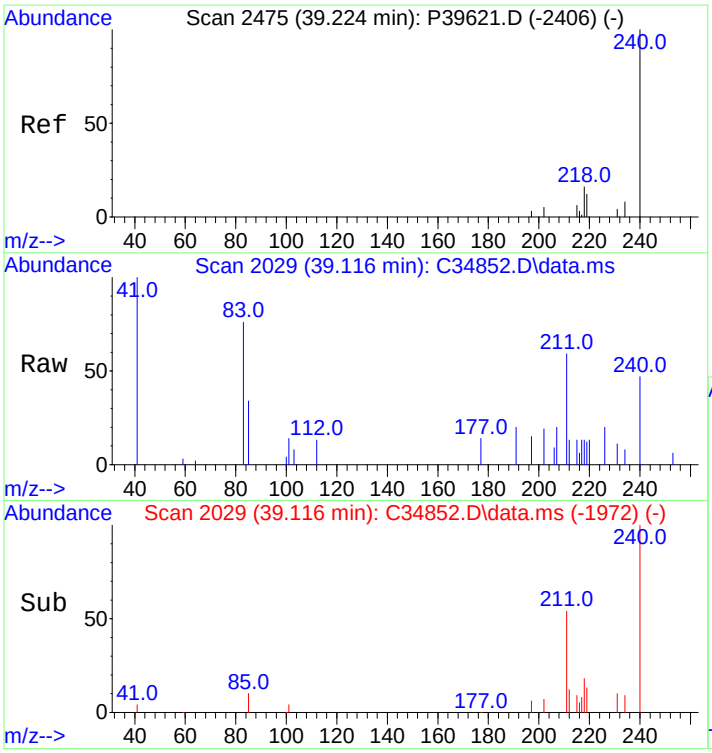


#40
C3-Dibenzothiophenes
Concen: 2236.97 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:226 Resp: 301511

Ion	Ratio	Lower	Upper
226	100		
211	1.7	45.0	67.6#

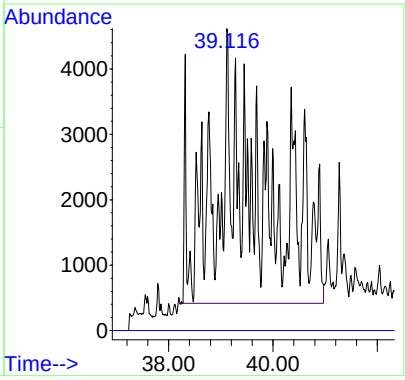


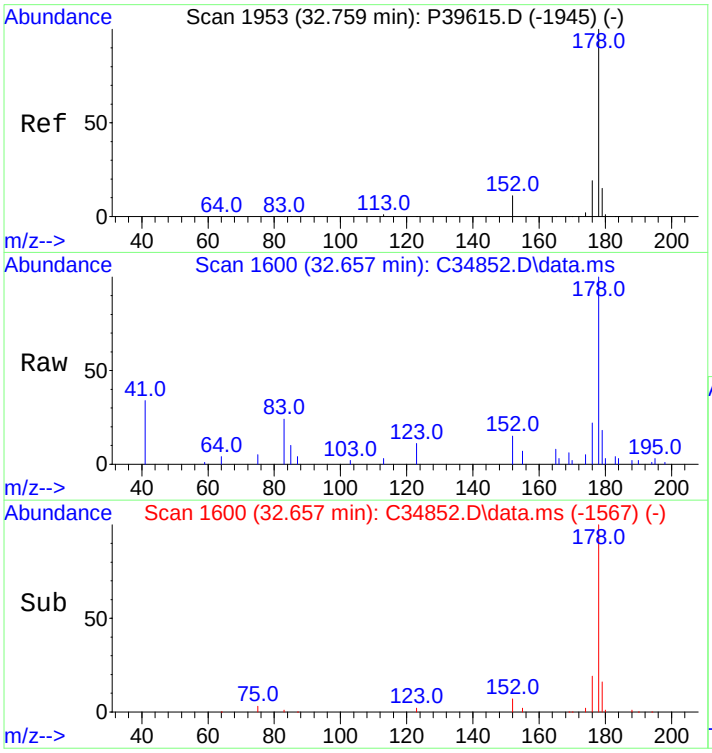


#41
C4-Dibenzothiophenes
Concen: 1760.30 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:240 Resp: 237263

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

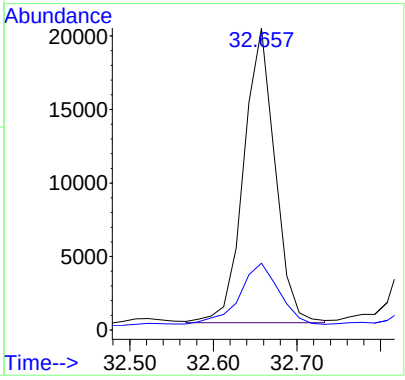


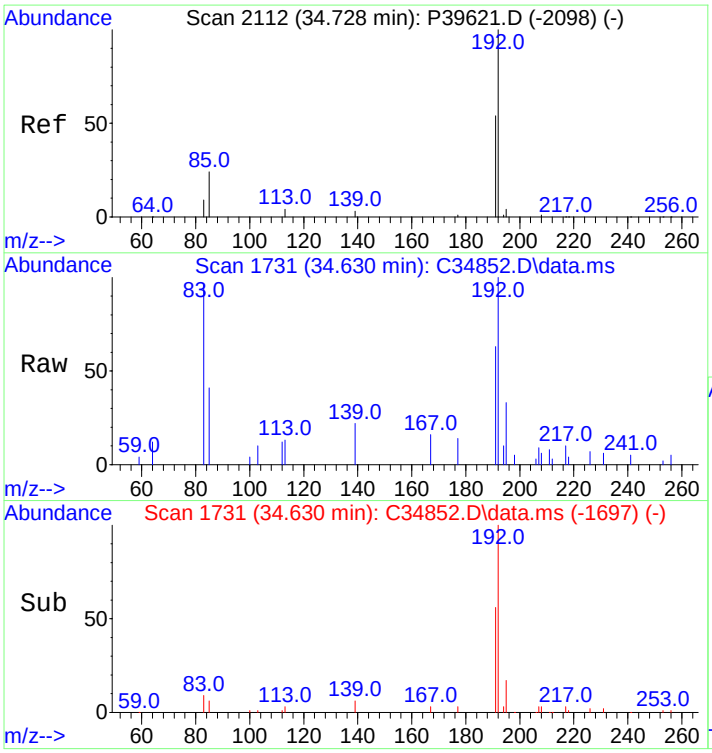


#43
Phenanthrene
Concen: 439.54 ng/mL m
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:178 Resp: 52050

Ion	Ratio	Lower	Upper
178	100		
176	8.1	16.1	24.1#

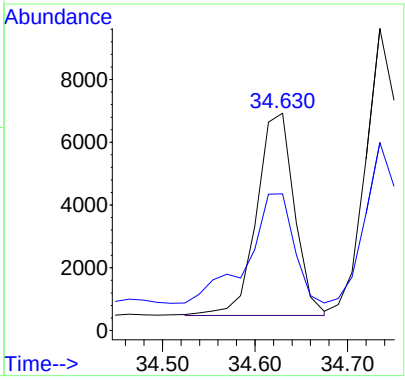


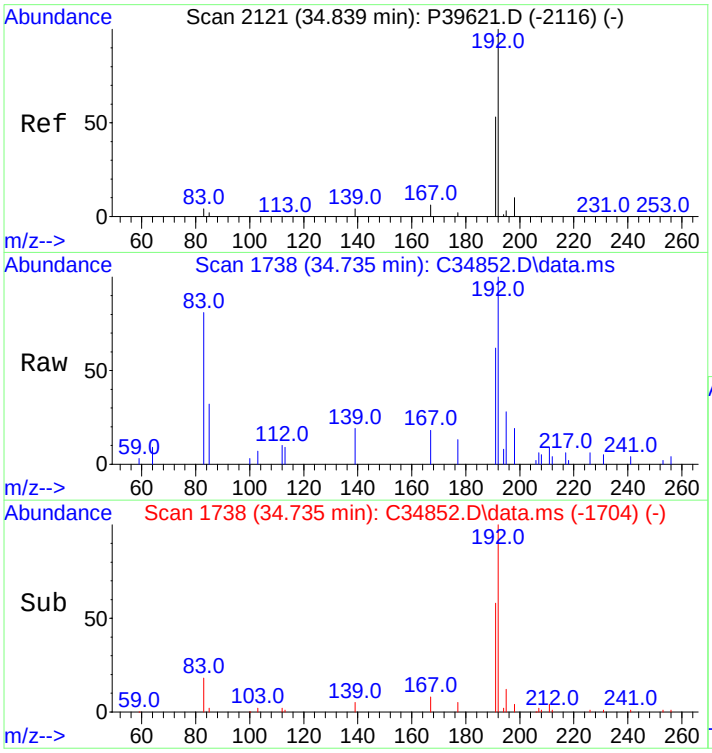


#44
3-Methylphenanthrene(3MP)
Concen: 154.12 ng/mL m
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 18251

Ion	Ratio	Lower	Upper
192	100		
191	73.6	46.9	70.3#

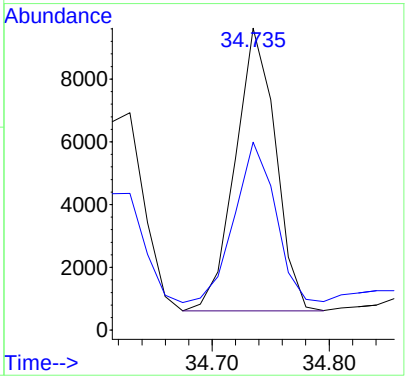


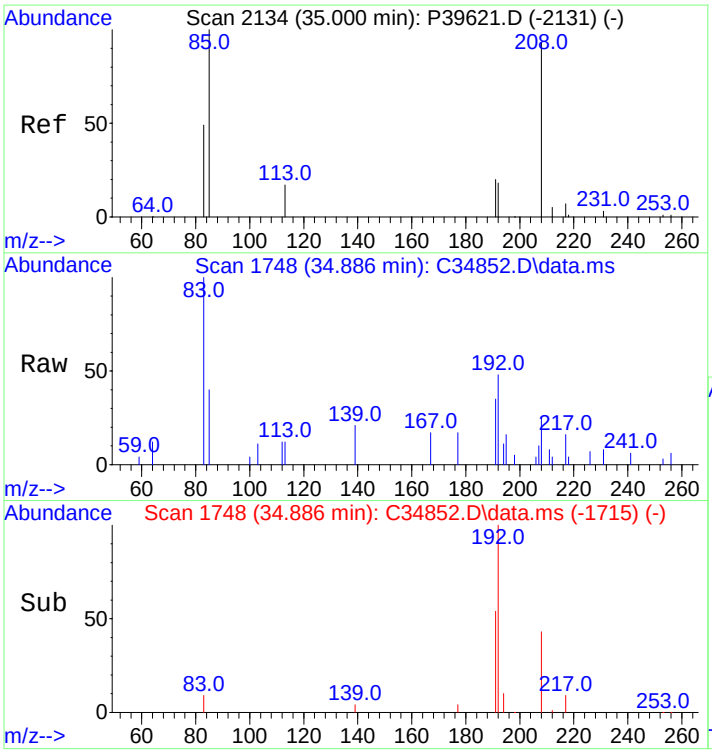


#45
2/4-Methylphenanthrene(2MP)
Concen: 182.35 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 21594

Ion	Ratio	Lower	Upper
192	100		
191	57.5	46.1	69.1

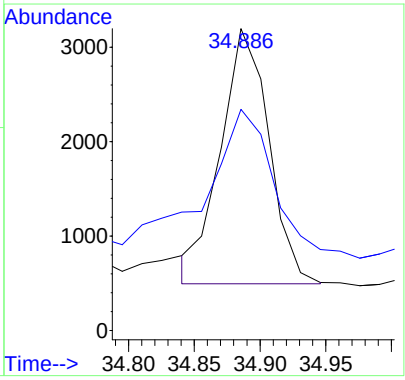


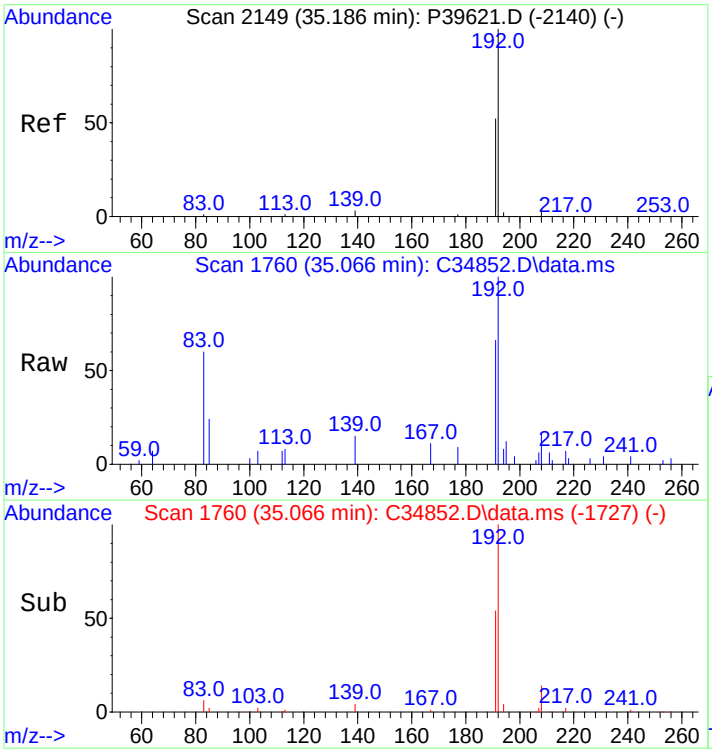


#46
2-Methylanthracene(2MA)
Concen: 58.20 ng/mL m
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 6892

Ion	Ratio	Lower	Upper
192	100		
191	86.0	93.4	140.0#

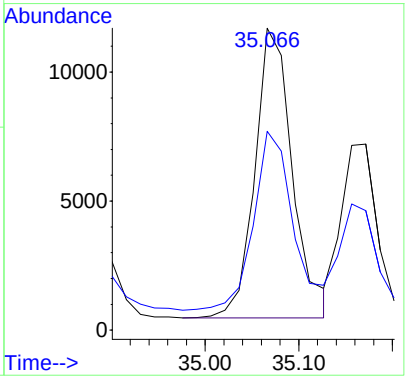


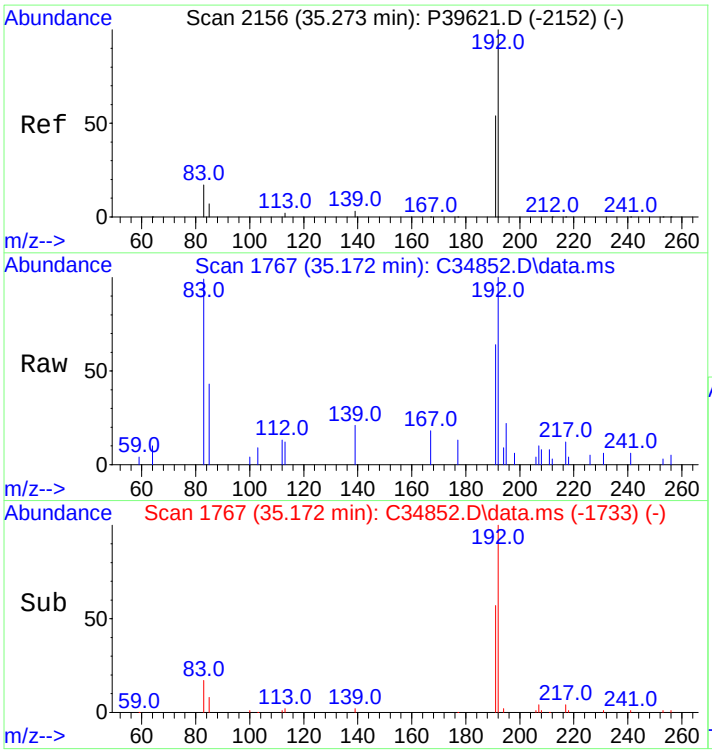


#47
9-Methylphenanthrene(9MP)
Concen: 264.21 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 31288

Ion	Ratio	Lower	Upper
192	100		
191	64.8	45.9	68.9

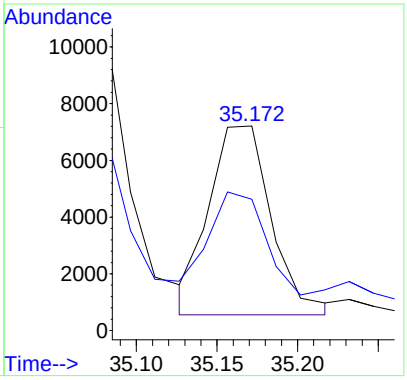


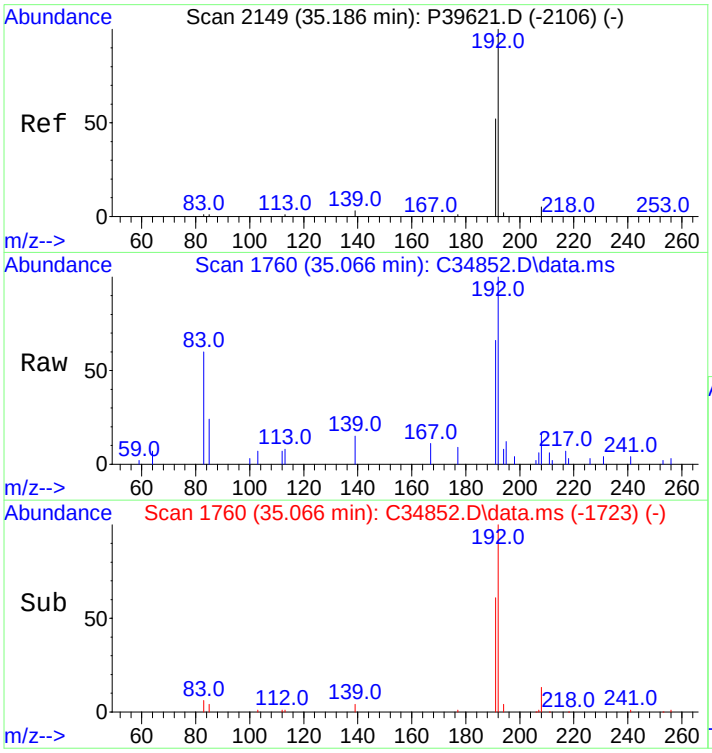


#48
1-Methylphenanthrene(1MP)
Concen: 151.23 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 17909

Ion	Ratio	Lower	Upper
192	100		
191	50.9	49.0	73.4

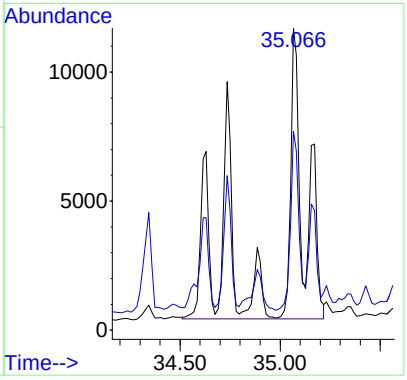


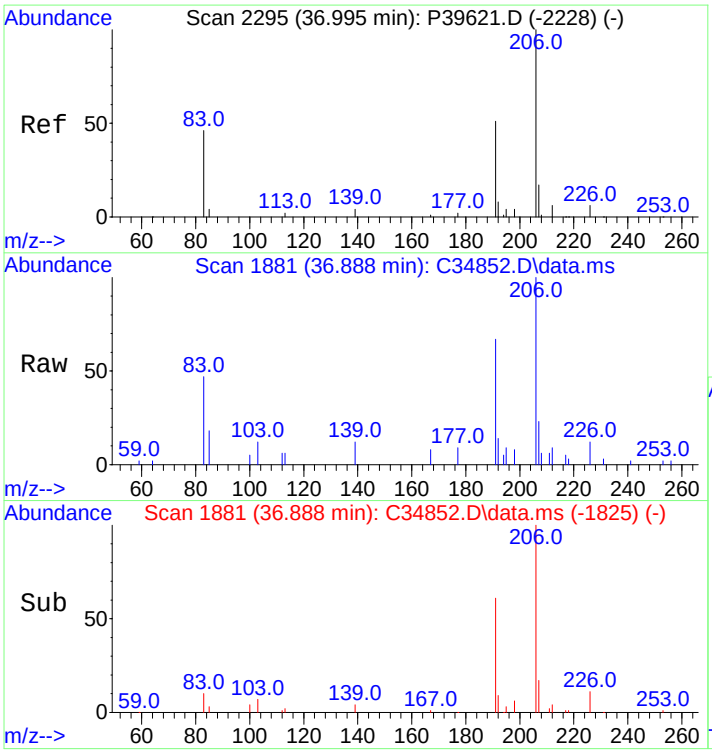


#49
C1-Phenanthrenes/Anthracenes
Concen: 843.56 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 99895

Ion	Ratio	Lower	Upper
192	100		
191	20.3	44.2	66.2#

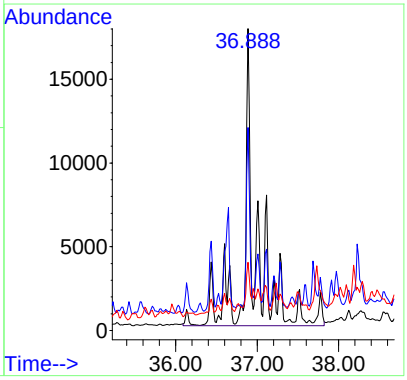


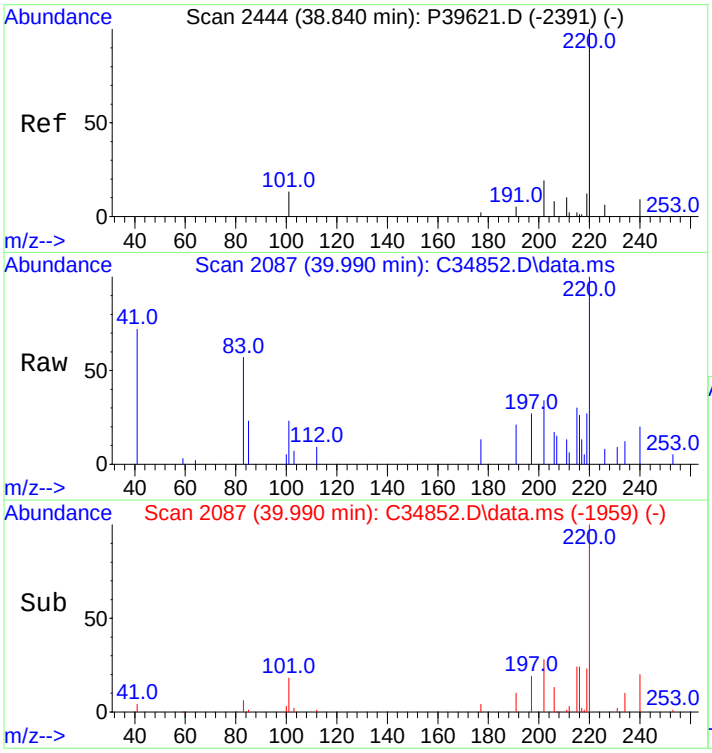


#50
C2-Phenanthrenes/Anthracenes
Concen: 1441.09 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:206 Resp: 170654

Ion	Ratio	Lower	Upper
206	100		
191	17.4	44.0	66.0#
207	4.7	15.1	22.7#

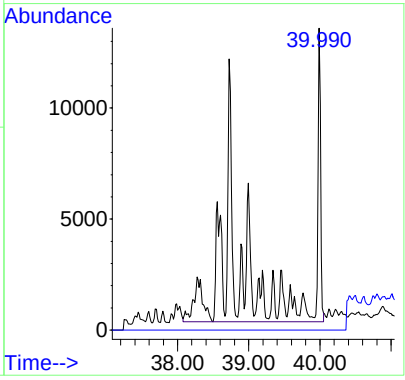


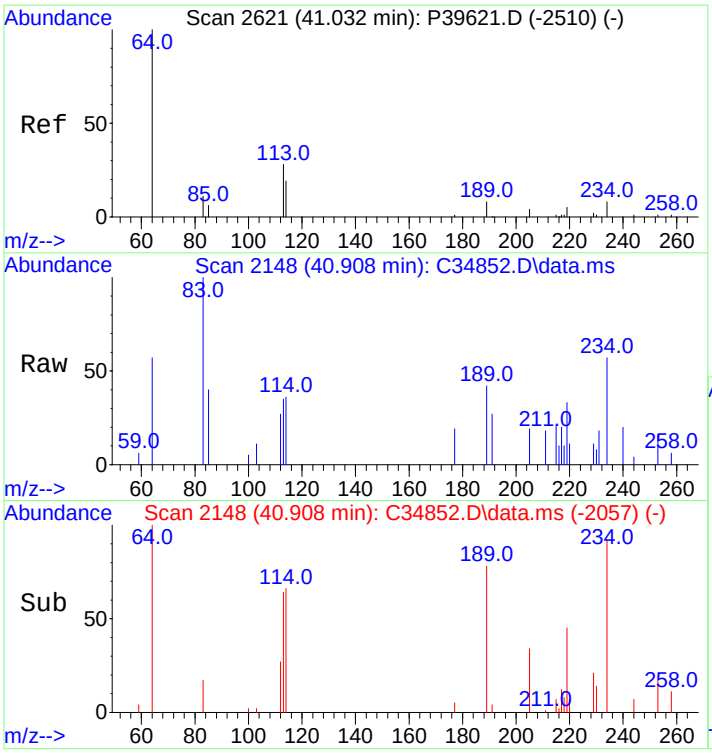


#52
C3-Phenanthrenes/Anthracenes
Concen: 1630.60 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:220 Resp: 193096

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

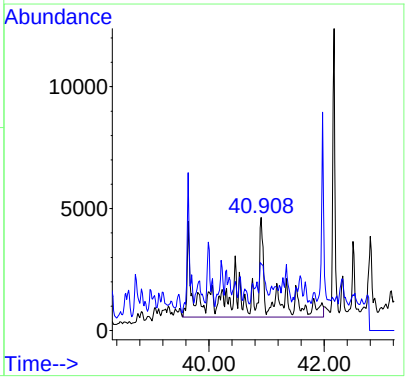


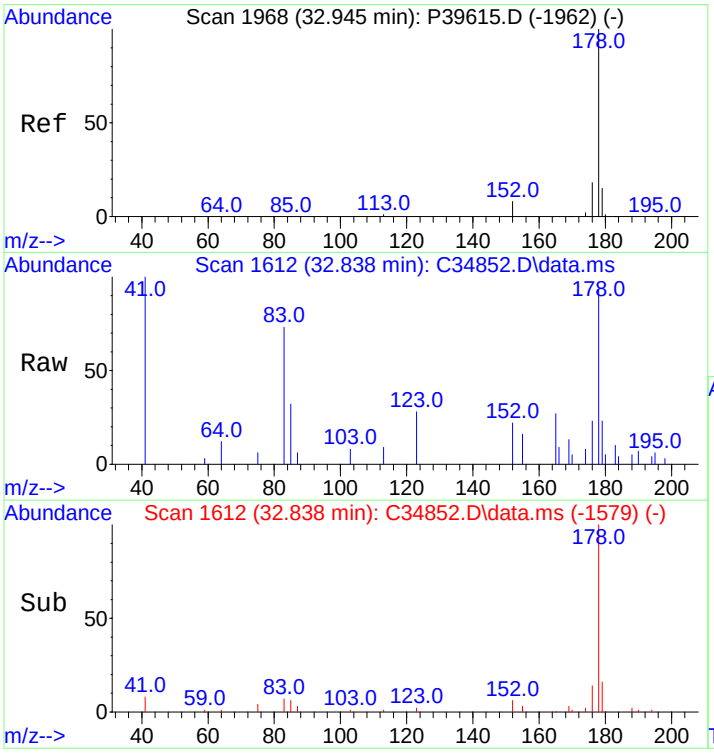


#53
C4-Phenanthrenes/Anthracenes
Concen: 931.92 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:234 Resp: 110358

Ion	Ratio	Lower	Upper
234	100		
219	2.4	46.9	70.3#

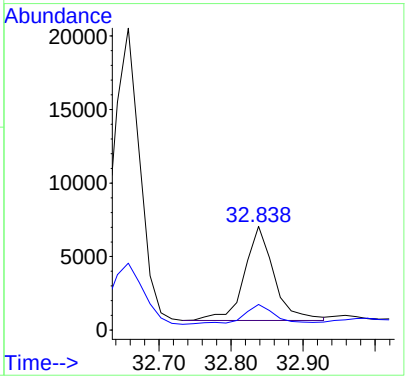


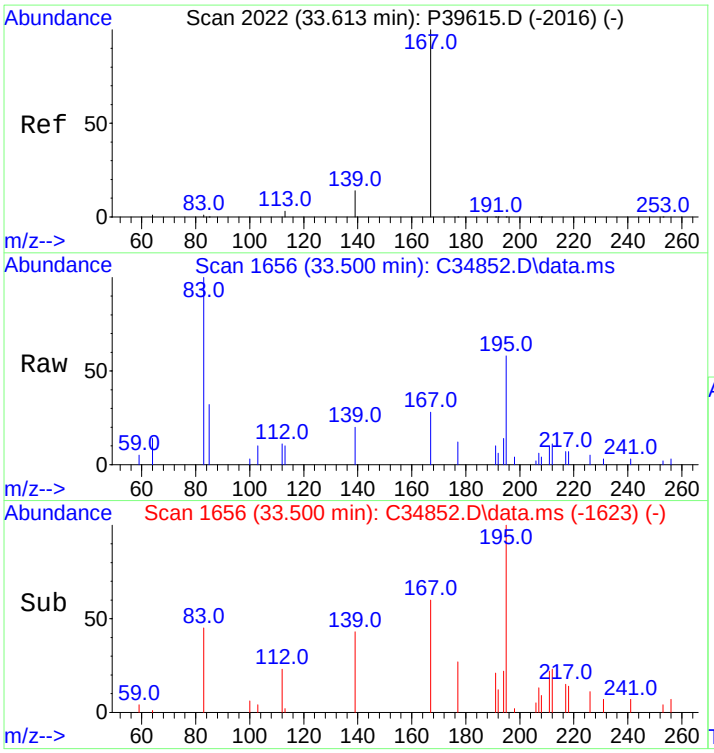


#55
Anthracene
Concen: 157.74 ng/mL
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:178 Resp: 18246

Ion	Ratio	Lower	Upper
178	100		
176	18.0	15.5	23.3

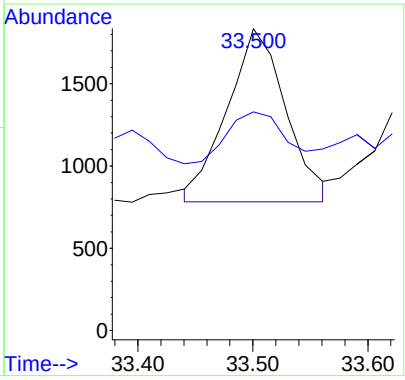


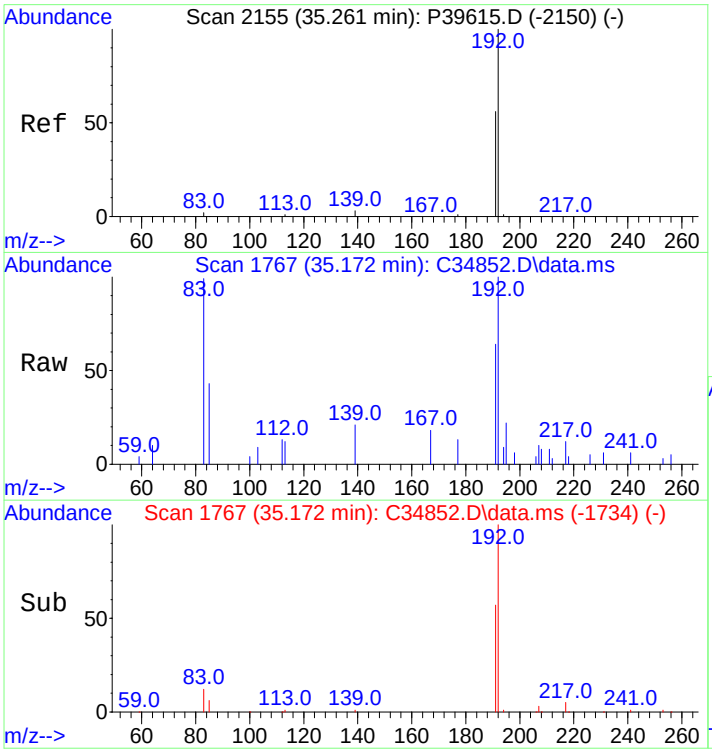


#56
Carbazole
Concen: 32.03 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:167 Resp: 3742

Ion	Ratio	Lower	Upper
167	100		
139	26.7	11.8	17.8#

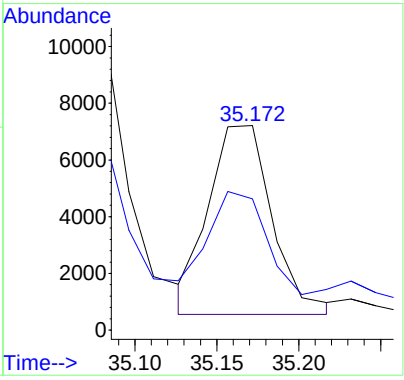


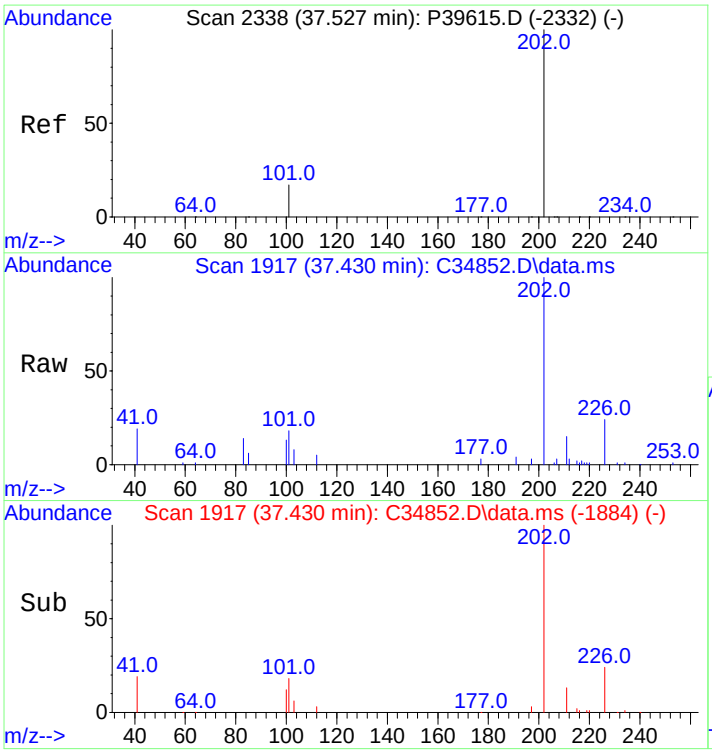


#57
1-Methylphenanthrene
Concen: 239.28 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:192 Resp: 17957

Ion	Ratio	Lower	Upper
192	100		
191	53.2	45.9	68.9

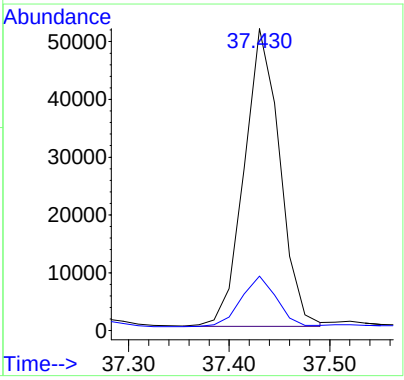


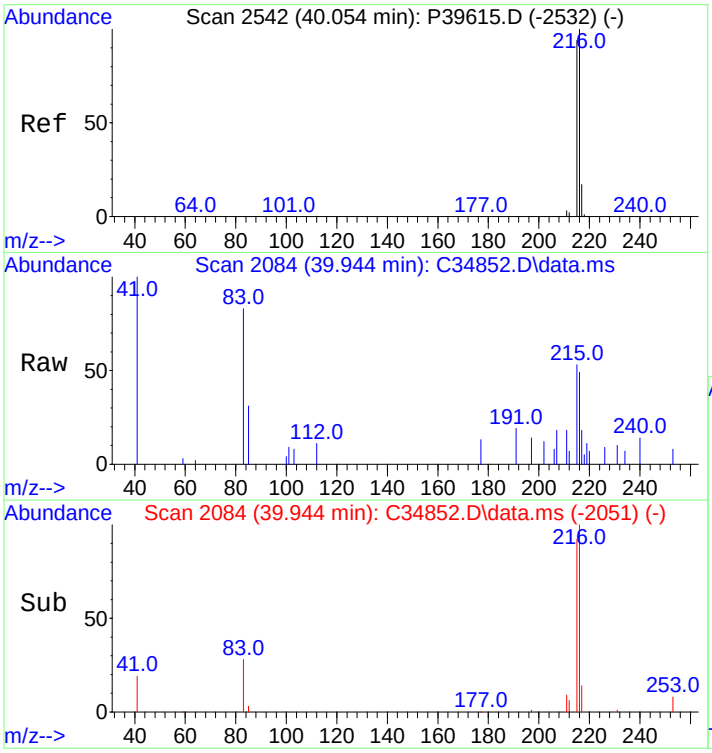


#58
Fluoranthene
Concen: 1075.83 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:202 Resp: 126530

Ion	Ratio	Lower	Upper
202	100		
101	17.8	12.9	19.3

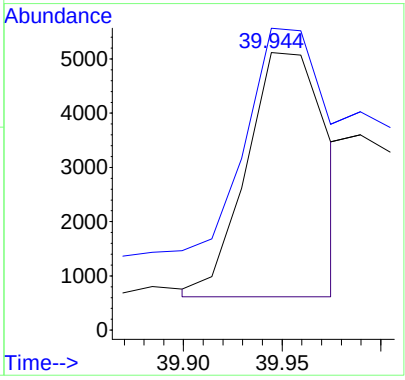


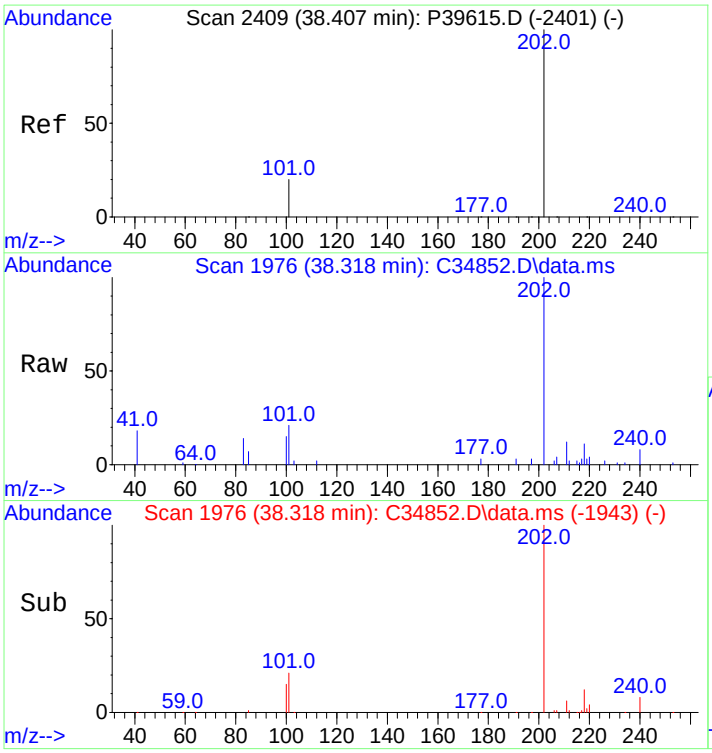


#59
Benzo(b)fluorene
Concen: 187.59 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:216 Resp: 12800

Ion	Ratio	Lower	Upper
216	100		
215	147.4	76.3	114.5#

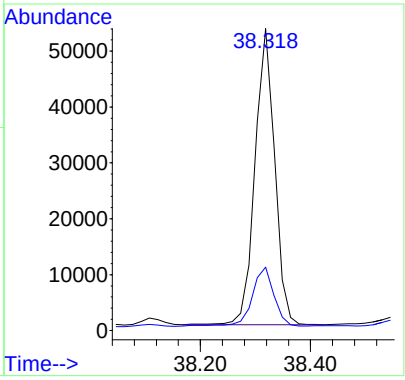


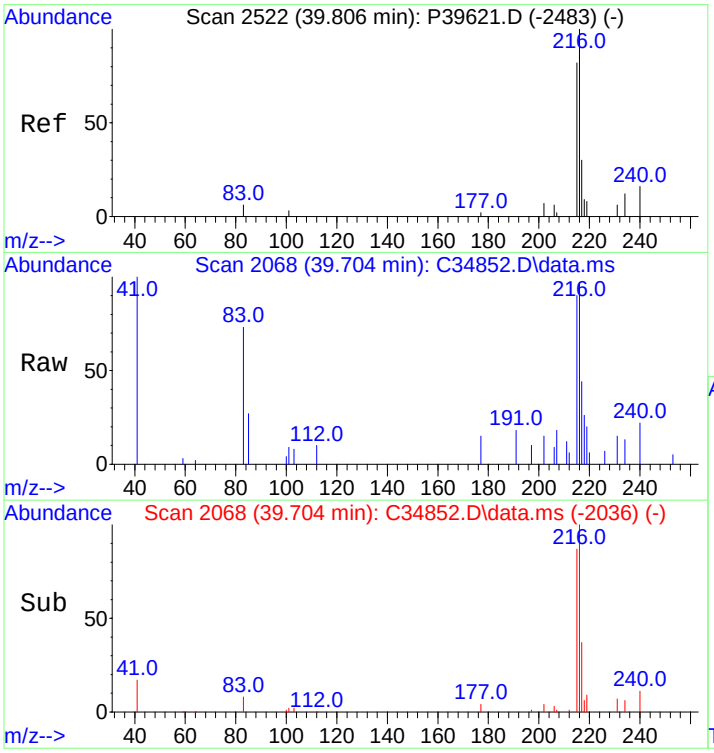


#60
Pyrene
Concen: 1096.47 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:202 Resp: 131088

Ion	Ratio	Lower	Upper
202	100		
101	22.2	15.0	22.4

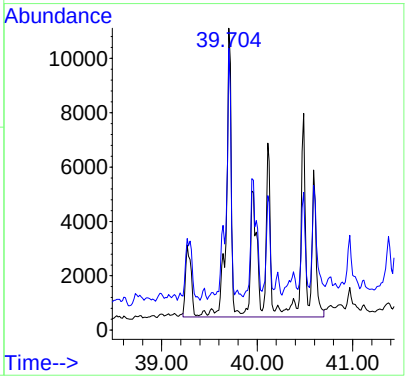


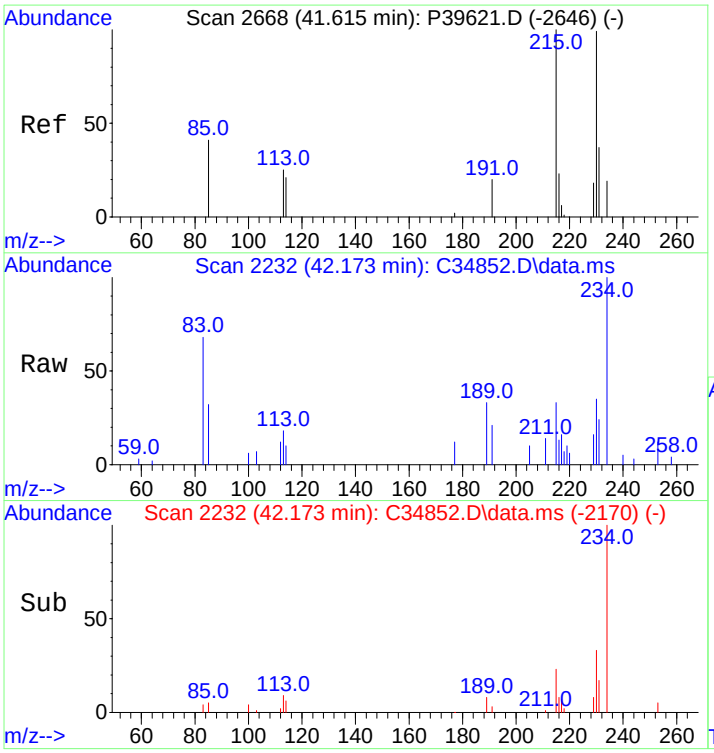


#61
C1-Fluoranthenes/Pyrenes
Concen: 1080.32 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:216 Resp: 129157

Ion	Ratio	Lower	Upper
216	100		
215	24.3	71.8	107.6#

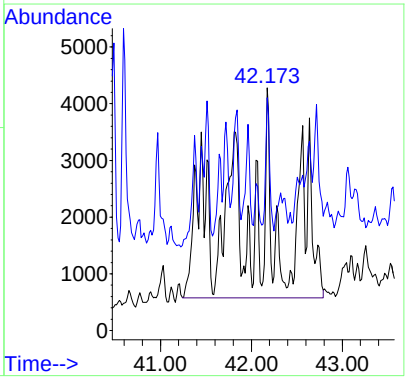


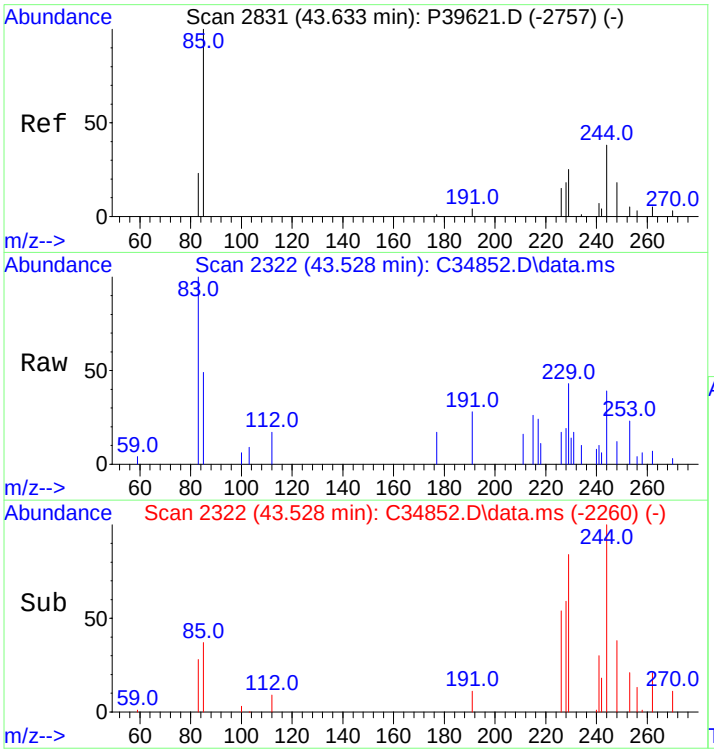


#62
C2-Fluoranthenes/Pyrenes
Concen: 933.96 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.774 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:230 Resp: 111659

Ion	Ratio	Lower	Upper
230	100		
215	4.7	99.0	148.4#

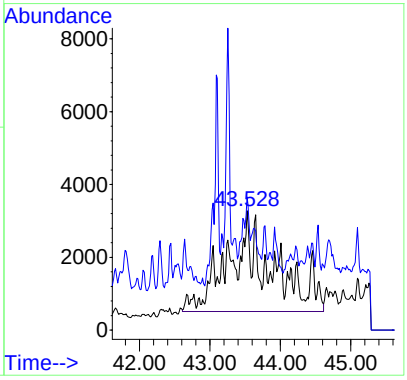


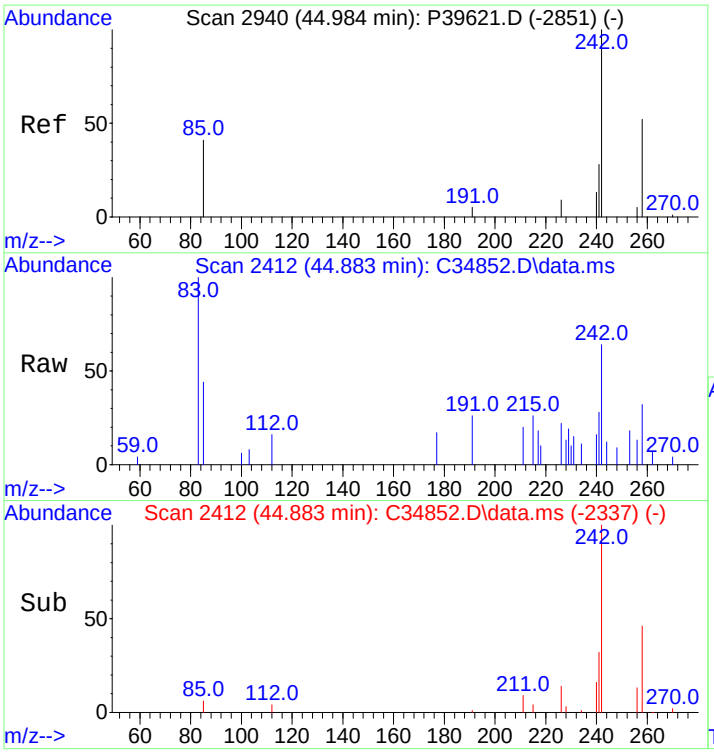


#63
C3-Fluoranthenes/Pyrenes
Concen: 960.94 ng/mL m
RT: 43.528 min Scan# 2322
Delta R.T. 0.120 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:244 Resp: 114885

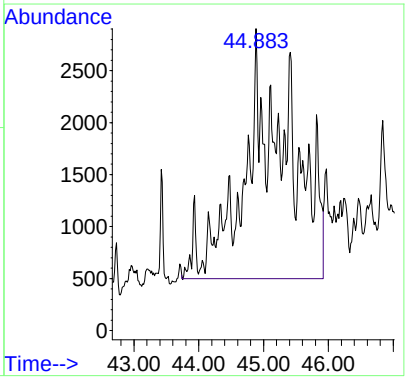
Ion	Ratio	Lower	Upper
244	100		
229	0.3	73.3	109.9#

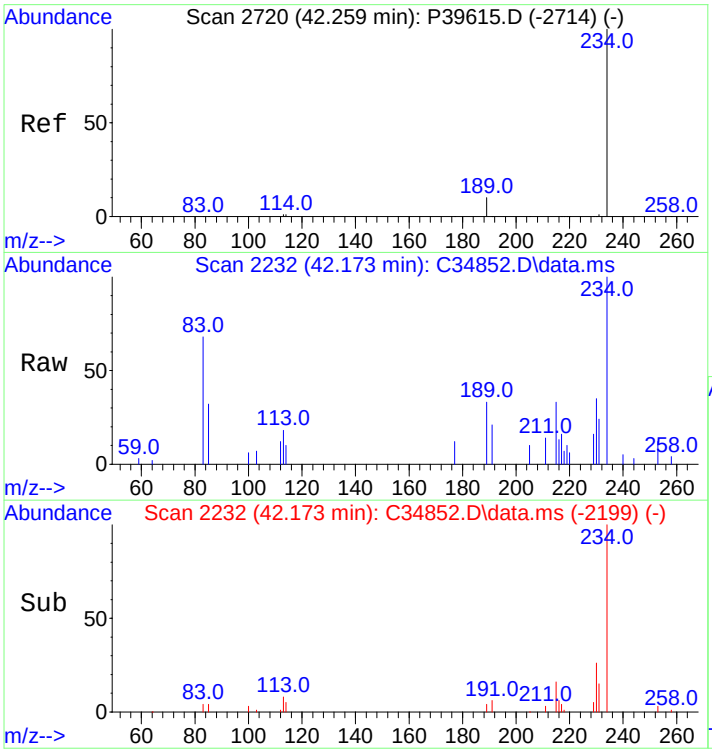




#64
C4-Fluoranthenes/Pyrenes
Concen: 931.27 ng/mL m
RT: 44.883 min Scan# 2412
Delta R.T. 0.127 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:258 Resp: 111338

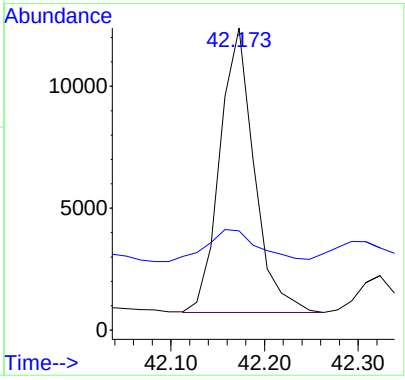


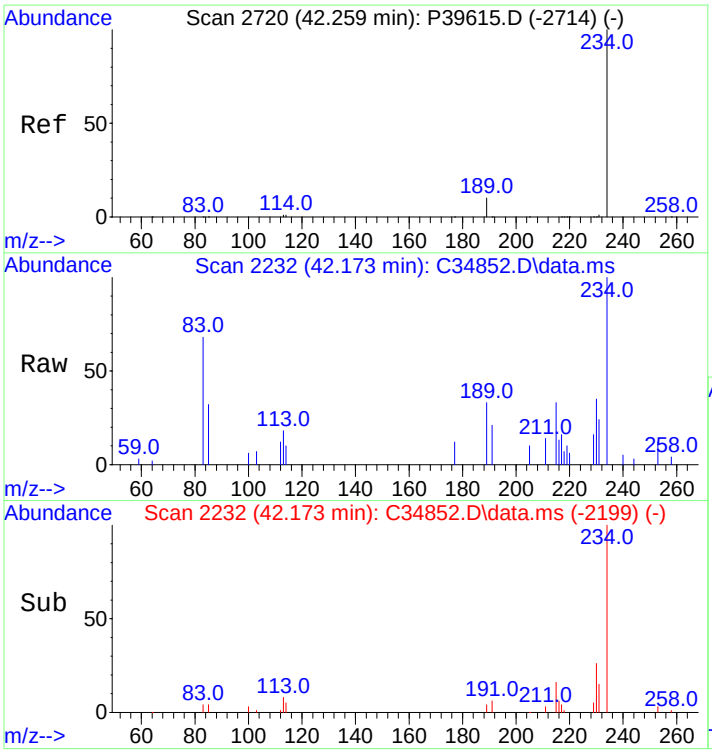


#66
Naphthobenzothiophene
Concen: 231.81 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:234 Resp: 29837

Ion	Ratio	Lower	Upper
234	100		
189	17.0	20.5	30.7#

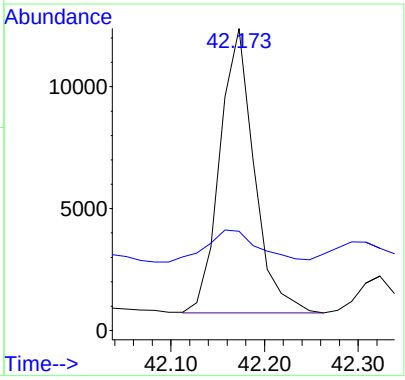


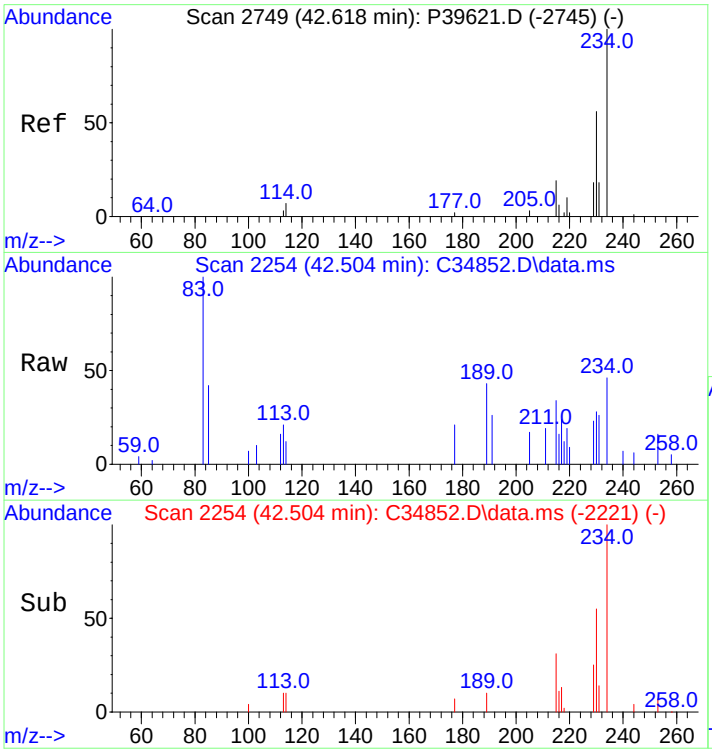


#67
Naphthobenzothiophene-2,1-D
Concen: 231.81 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:234 Resp: 29837

Ion	Ratio	Lower	Upper
234	100		
189	17.0	20.5	30.7#

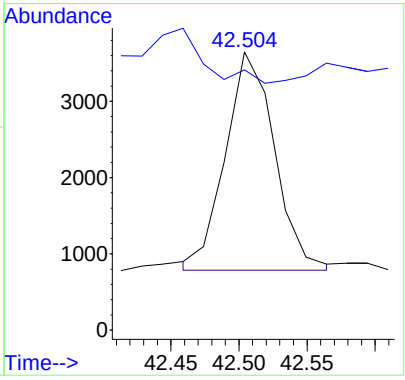


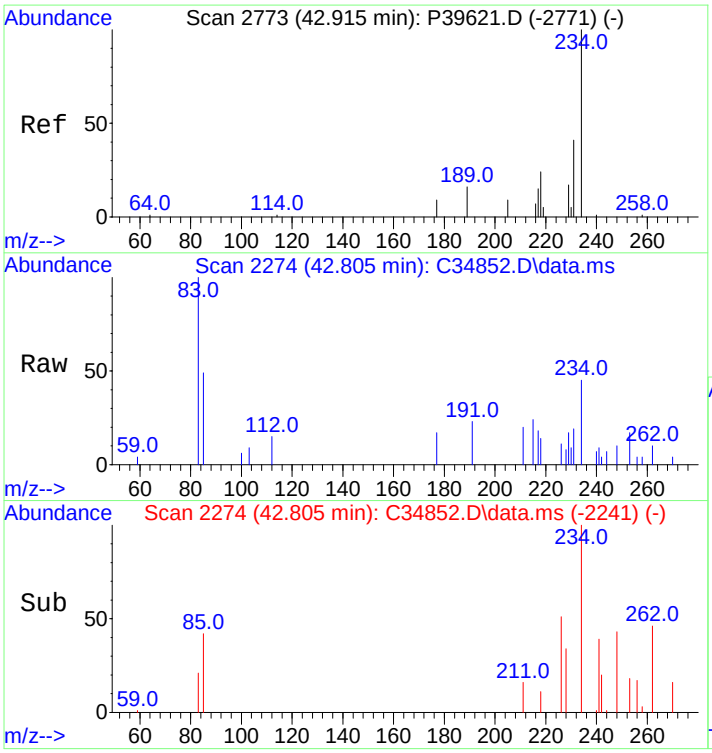


#68
Naphthobenzothiophene-1,2-D
Concen: 55.75 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:234 Resp: 7176

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

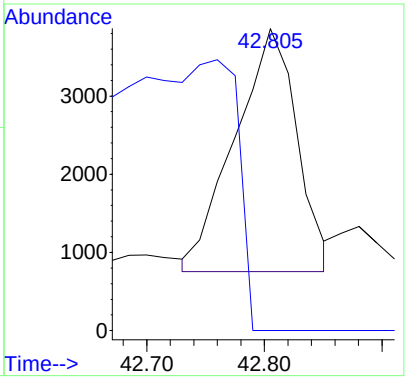


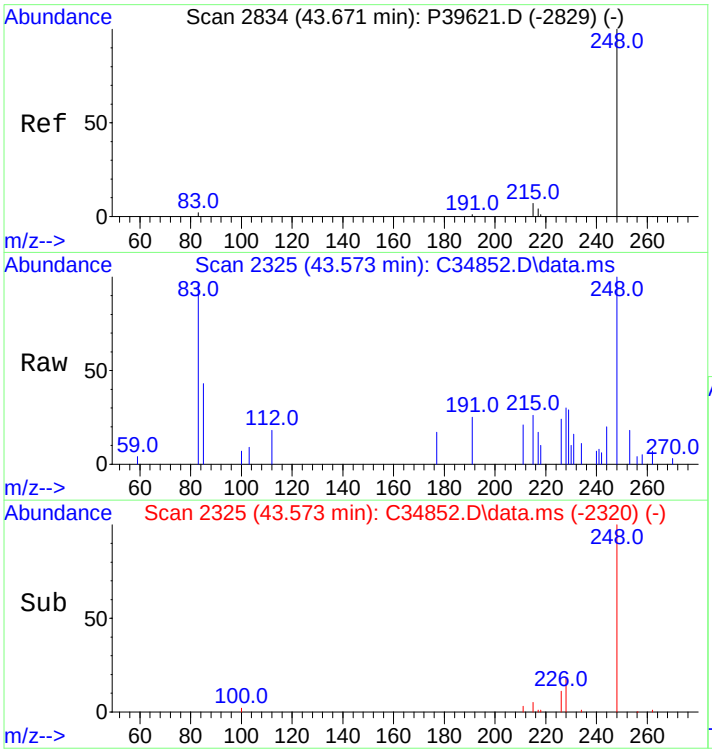


#69
Naphthobenzothiophene-2,3-D
Concen: 88.76 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:234 Resp: 11424

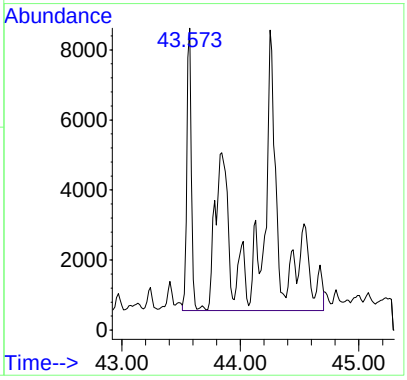
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

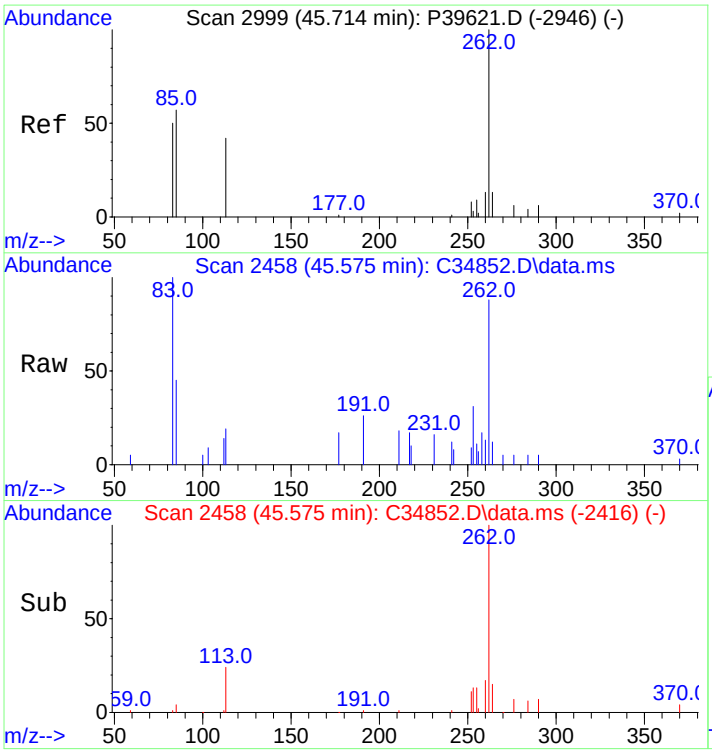




#70
C1-Naphthobenzothiophenes
Concen: 1025.83 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

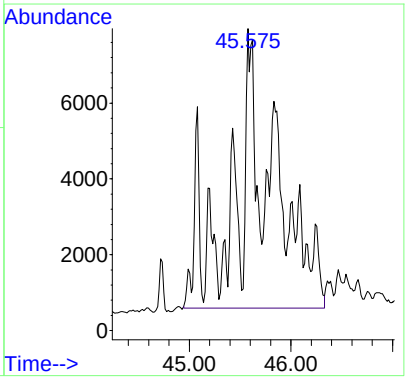
Tgt Ion:248 Resp: 132037

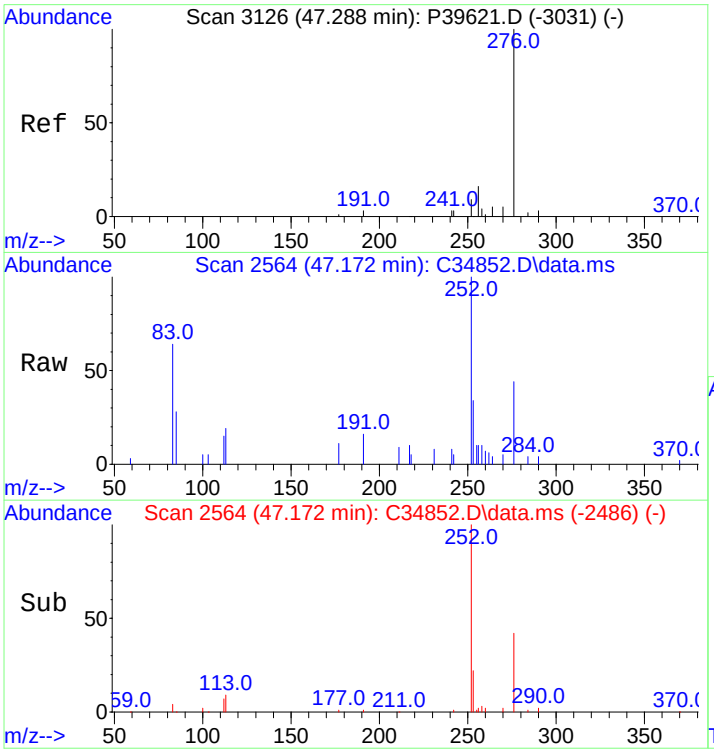




#71
C2-Naphthobenzothiophenes
Concen: 1525.78 ng/ml m
RT: 45.575 min Scan# 2458
Delta R.T. 0.145 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

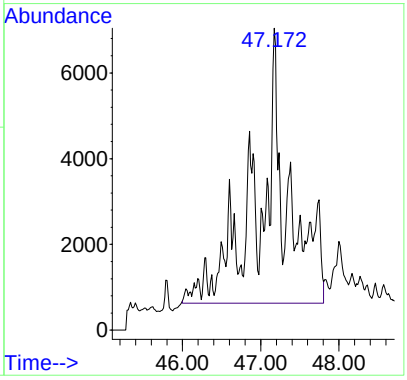
Tgt Ion:262 Resp: 196386

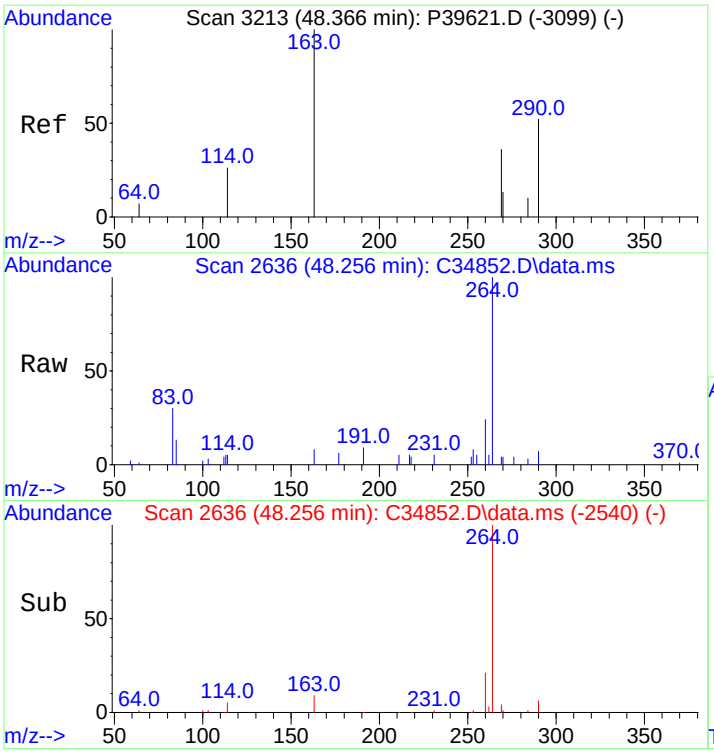




#72
C3-Naphthobenzothiophenes
Concen: 1316.30 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

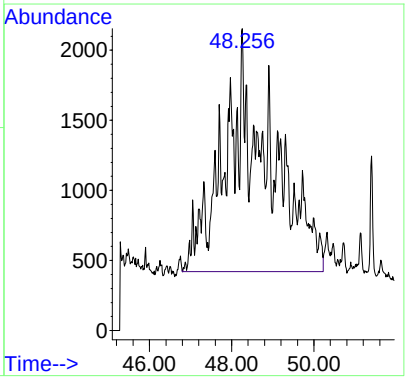
Tgt Ion:276 Resp: 169423

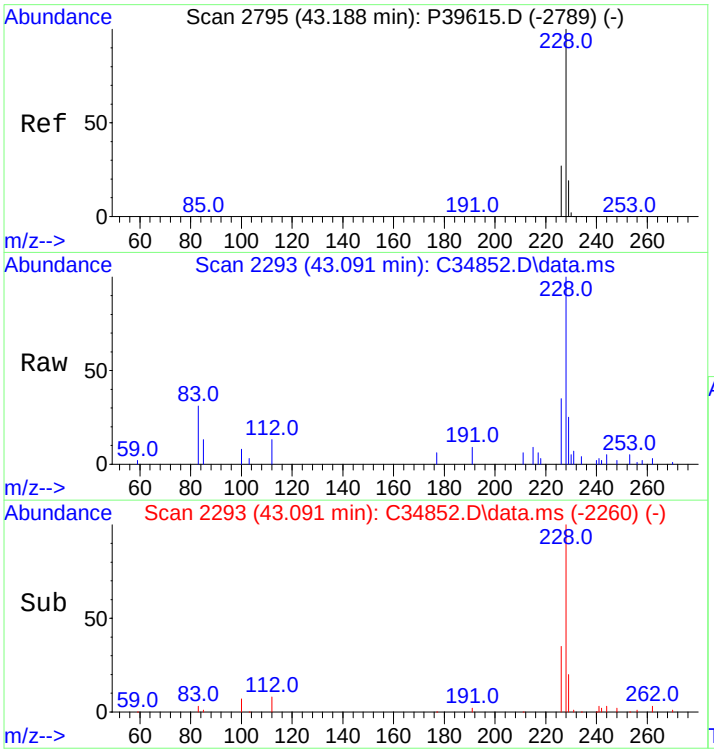




#73
C4-Naphthobenzothiophenes
Concen: 969.10 ng/mL m
RT: 48.256 min Scan# 2636
Delta R.T. 0.157 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:290 Resp: 124734

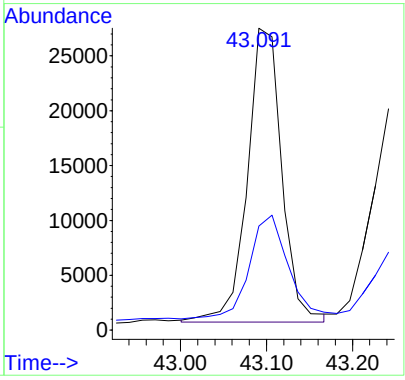


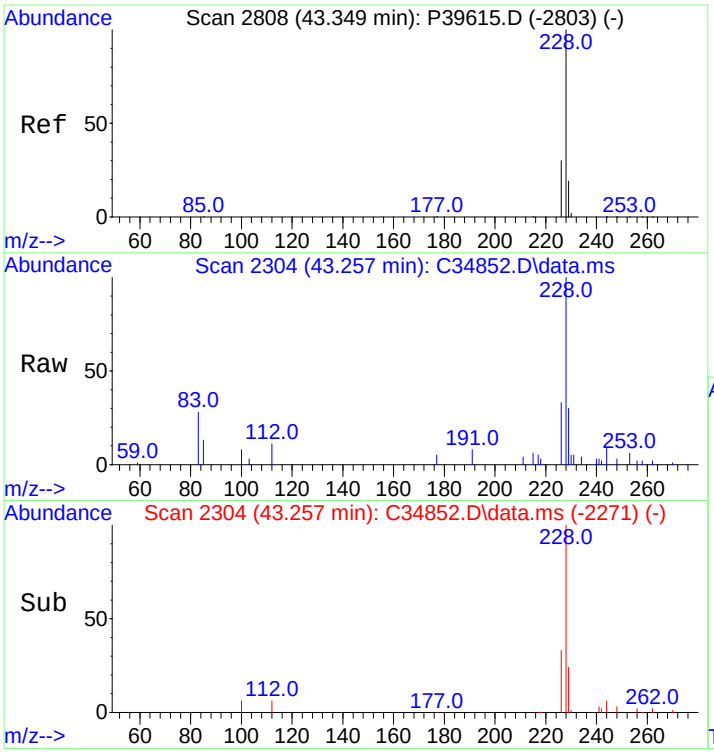


#75
Benz[a]anthracene
Concen: 551.68 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:228 Resp: 74632

Ion	Ratio	Lower	Upper
228	100		
226	33.6	21.4	32.0#

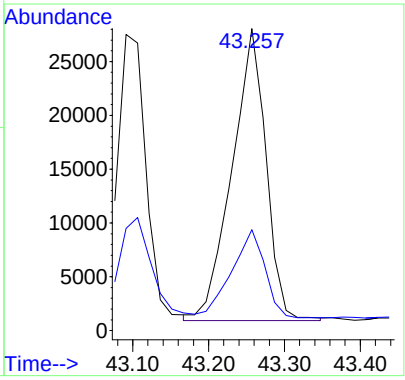


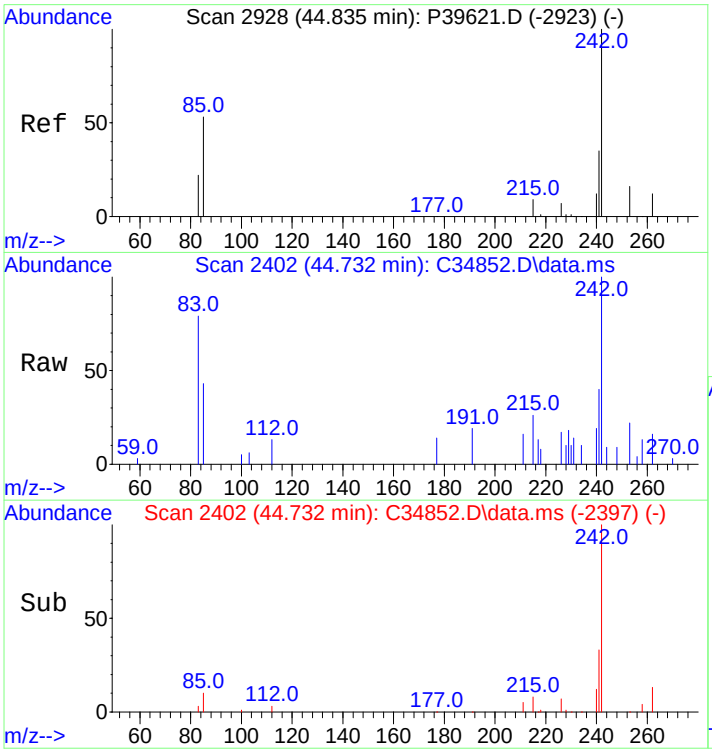


#77
Chrysene/Triphenylene
Concen: 621.24 ng/mL m
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:228 Resp: 84848

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

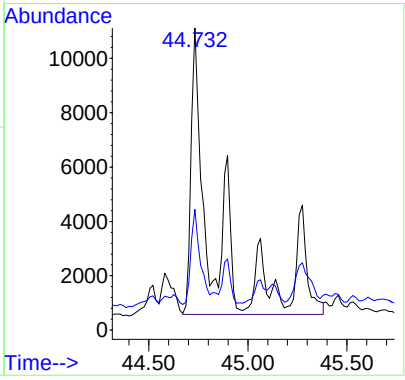


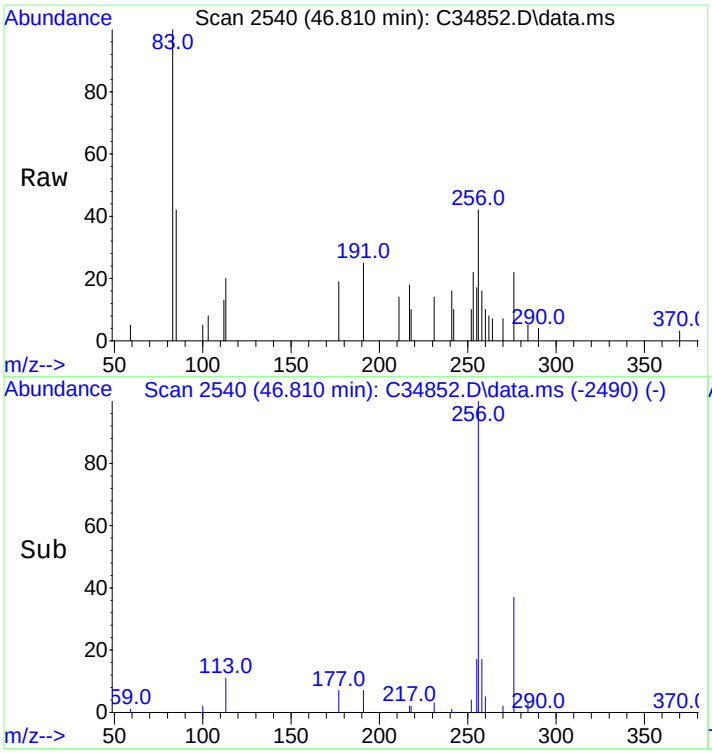


#78
C1-Chrysenes
Concen: 606.78 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:242 Resp: 82873

Ion	Ratio	Lower	Upper
242	100		
241	3.7	31.4	47.2#

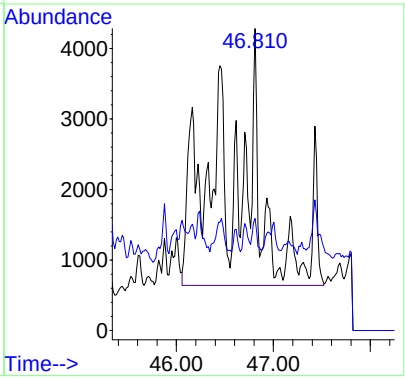


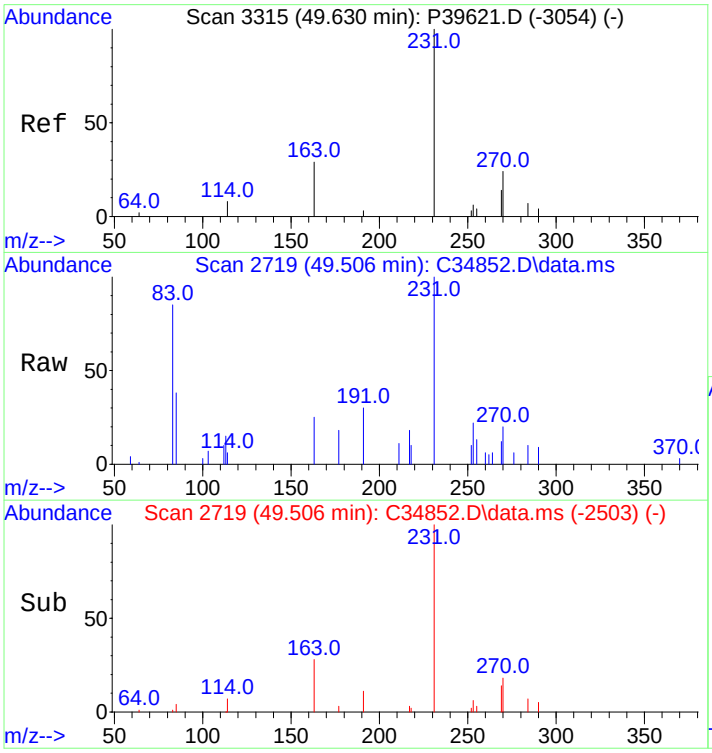


#79
C2-Chrysenes
Concen: 679.17 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:256 Resp: 92759

Ion	Ratio	Lower	Upper
256	100		
241	1.5	21.2	31.8#

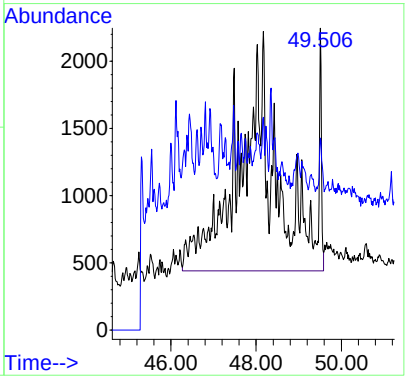


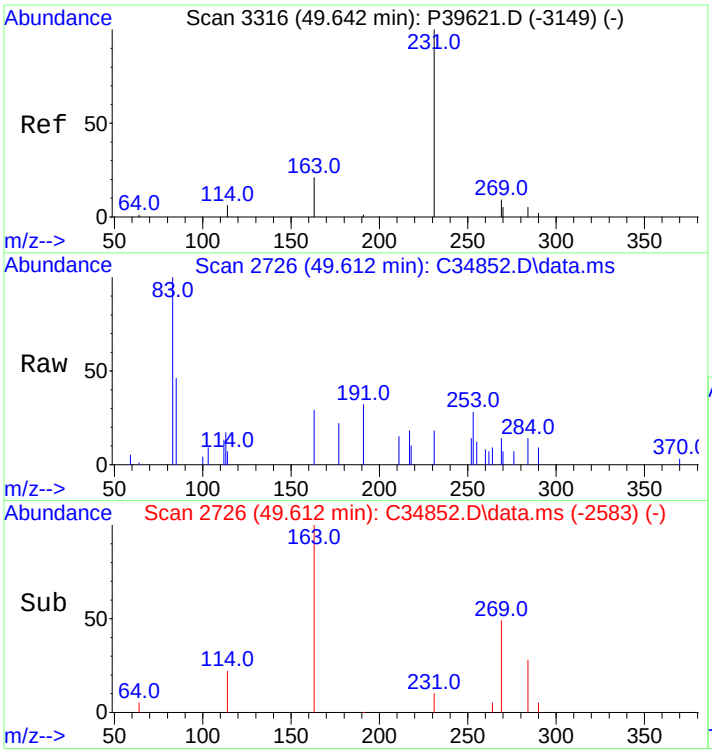


#80
C3-Chrysenes
Concen: 774.43 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.011 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:270 Resp: 105770

Ion	Ratio	Lower	Upper
270	100		
255	1.5	33.8	50.8#

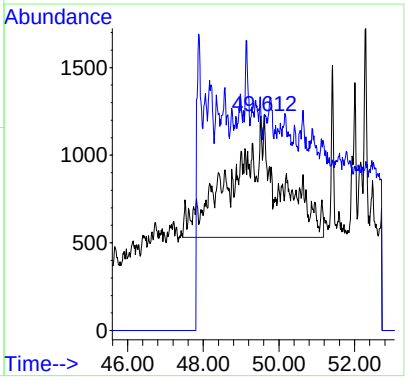


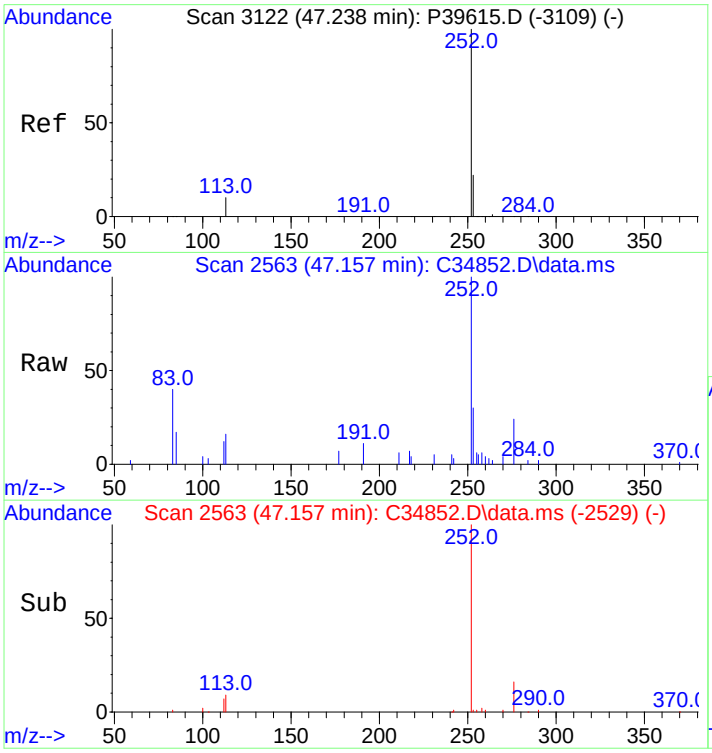


#81
C4-Chrysenes
Concen: 437.73 ng/mL m
RT: 49.612 min Scan# 2726
Delta R.T. 0.011 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:284 Resp: 59784

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

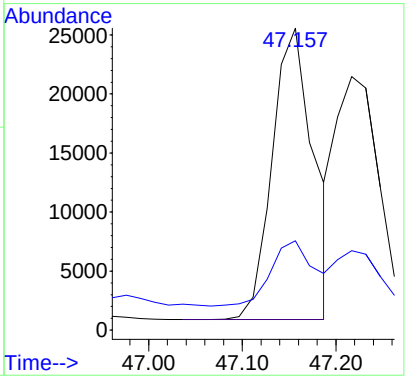


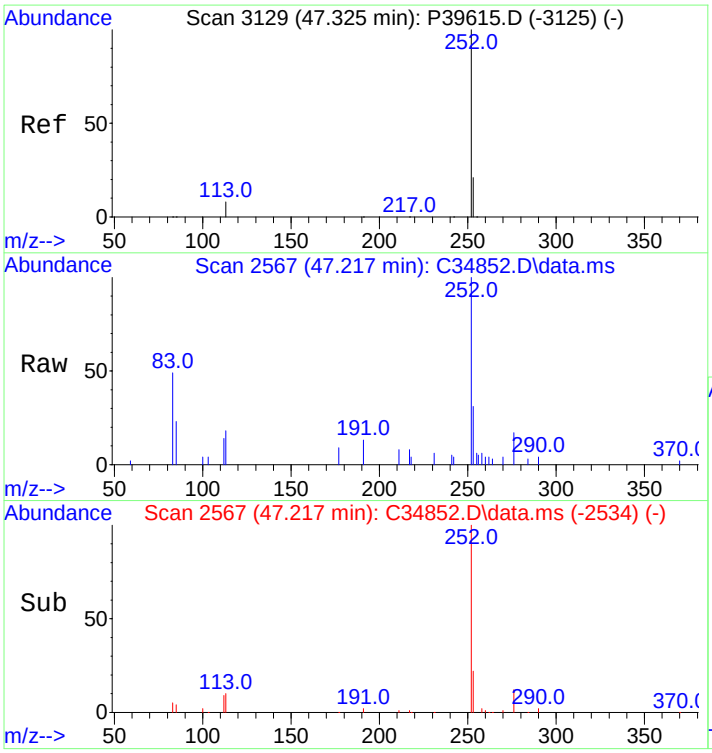


#82
Benzo[b]fluoranthene
Concen: 514.18 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 76431

Ion	Ratio	Lower	Upper
252	100		
253	23.3	19.0	28.4

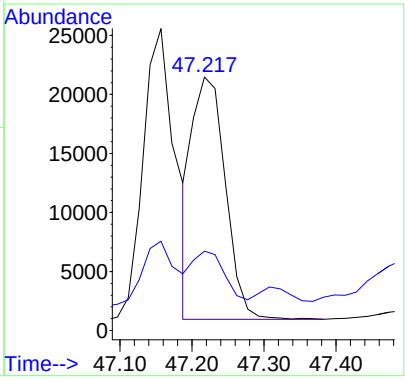


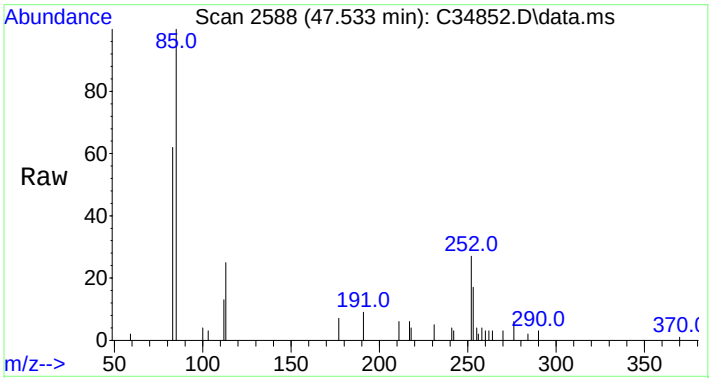


#83
Benzo[j]+[k]fluoranthene
Concen: 409.77 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 66317

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.0	28.4

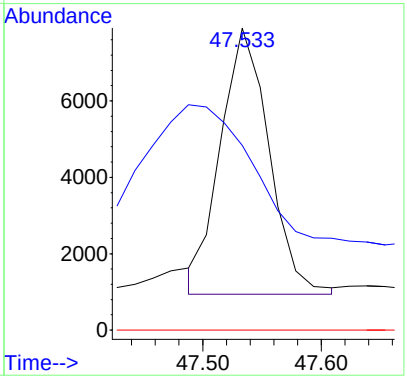


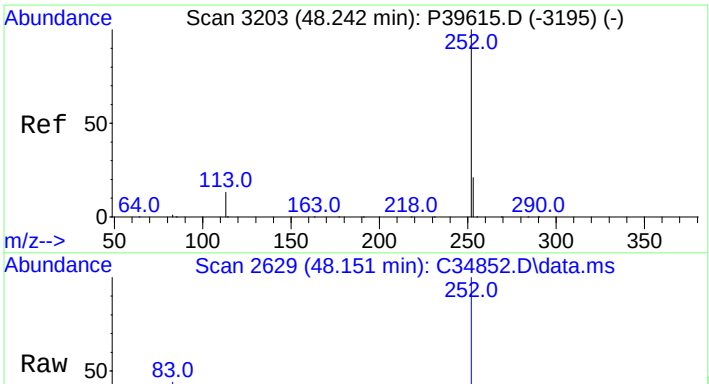


#84
Benzo[a]fluoranthene
Concen: 122.10 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 19761

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

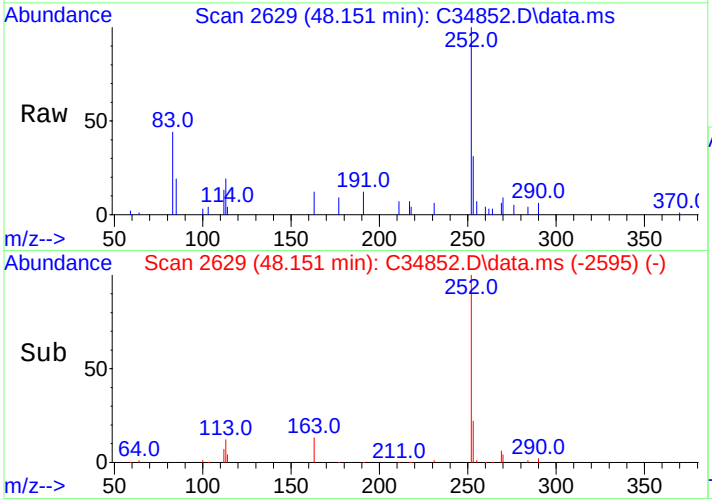


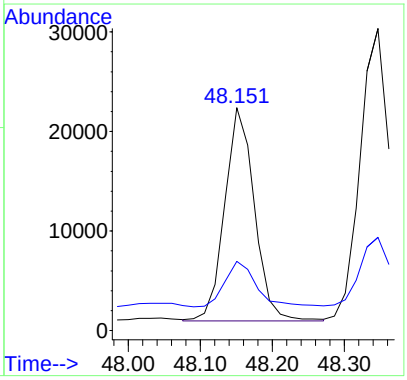


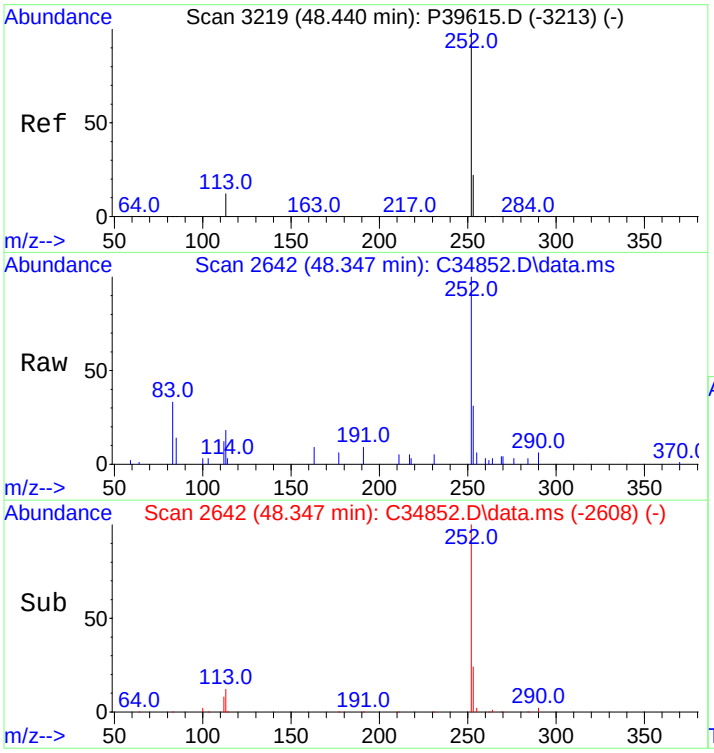
#85
Benzo[e]pyrene
Concen: 418.31 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 61505

Ion	Ratio	Lower	Upper
252	100		
253	25.6	19.2	28.8



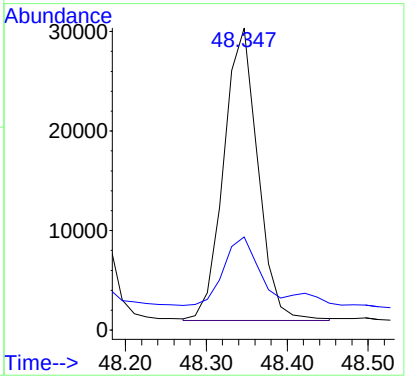


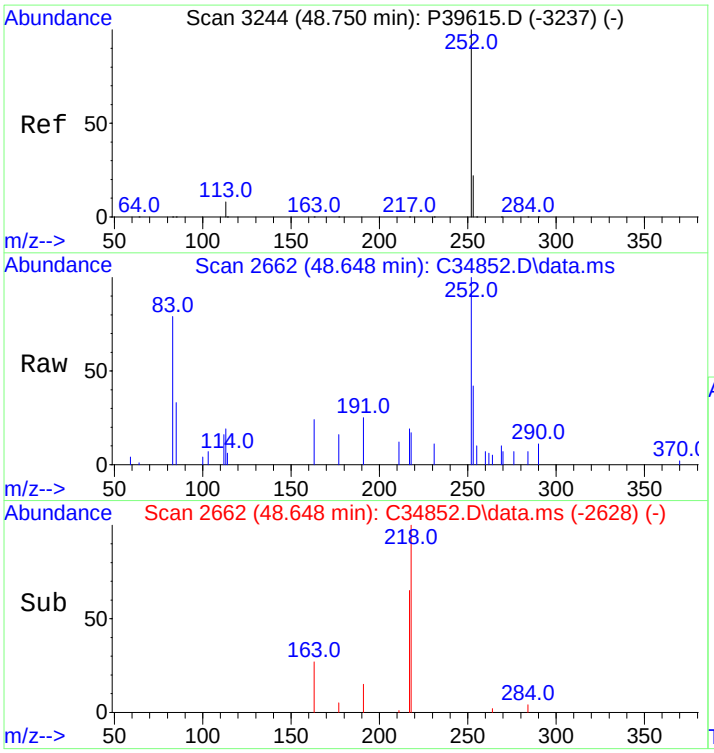


#87
Benzo[a]pyrene
Concen: 605.47 ng/mL m
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 85710

Ion	Ratio	Lower	Upper
252	100		
253	17.9	19.5	29.3#

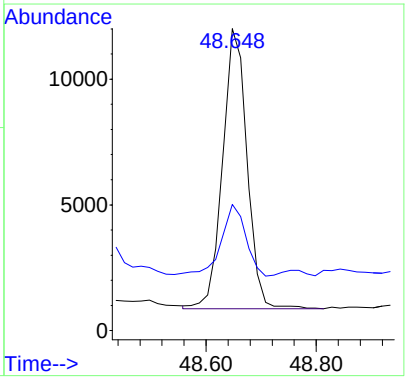


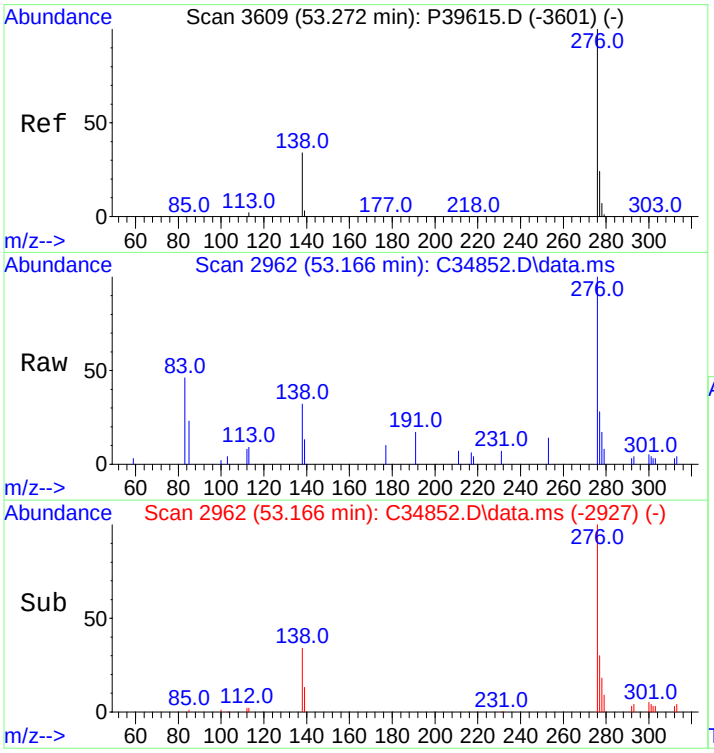


#88
Perylene
Concen: 226.10 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:252 Resp: 34207

Ion	Ratio	Lower	Upper
252	100		
253	25.0	19.6	29.4

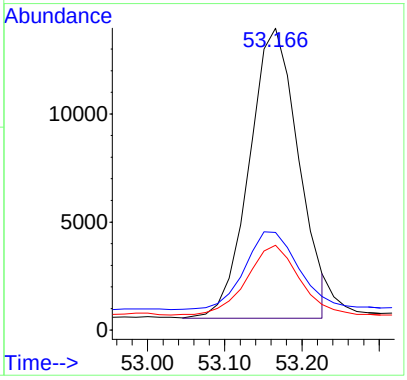


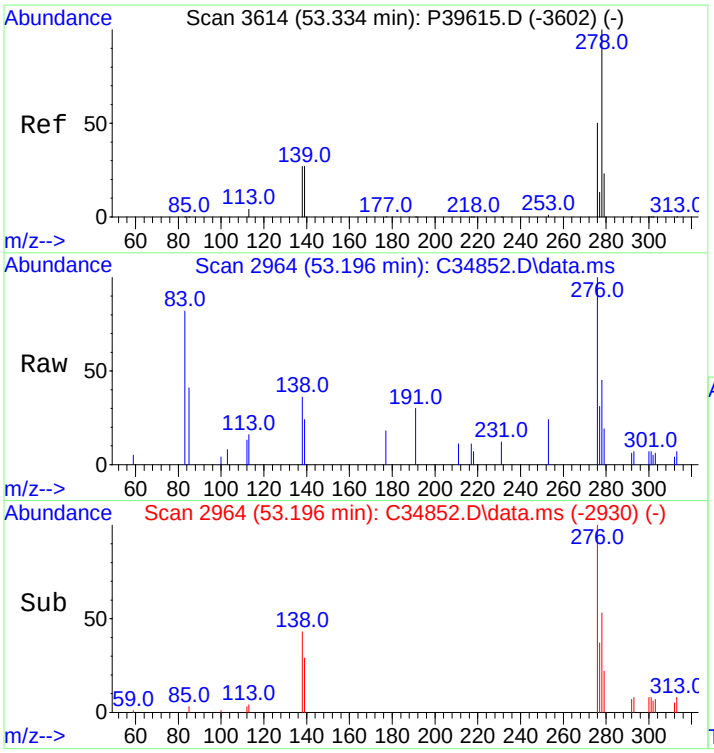


#89
Indeno[1,2,3-cd]pyrene
Concen: 361.95 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:276 Resp: 59626

Ion	Ratio	Lower	Upper
276	100		
138	29.0	23.3	34.9
277	25.7	19.0	28.4

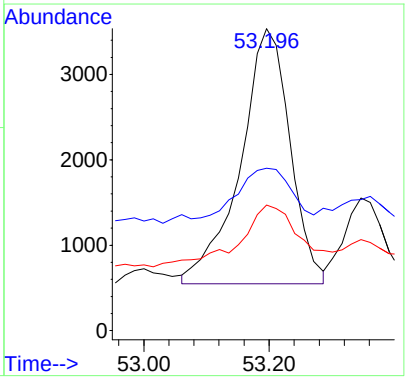


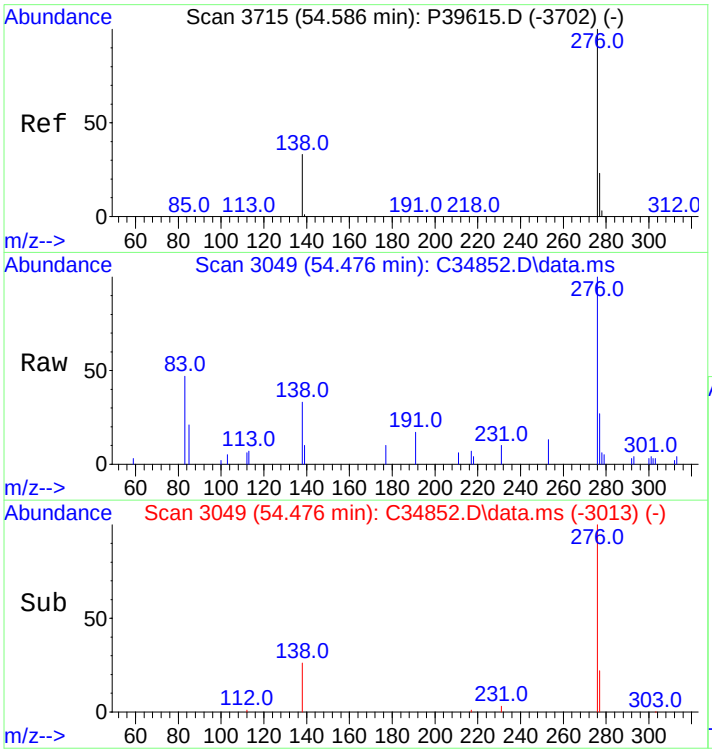


#90
Dibenz[ah]+[ac]anthracene
Concen: 105.38 ng/mL m
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:278 Resp: 16514

Ion	Ratio	Lower	Upper
278	100		
139	0.0	19.1	28.7#
279	15.0	19.2	28.8#

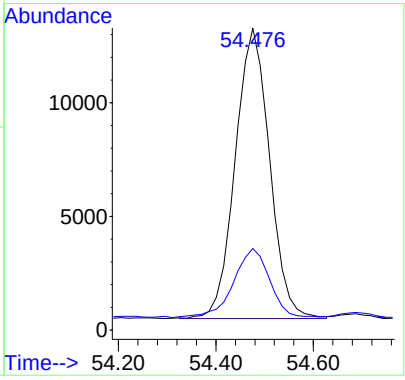


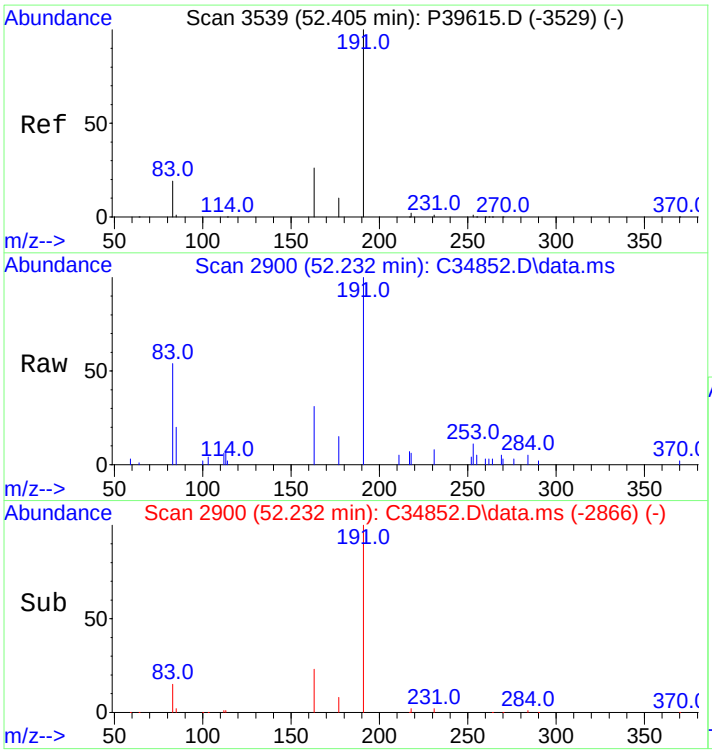


#91
Benzo[g,h,i]perylene
Concen: 359.16 ng/mL m
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:276 Resp: 62510

Ion	Ratio	Lower	Upper
276	100		
277	24.9	18.9	28.3

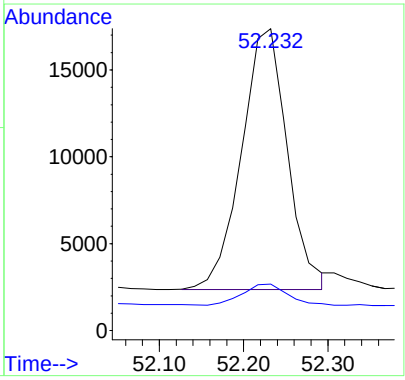


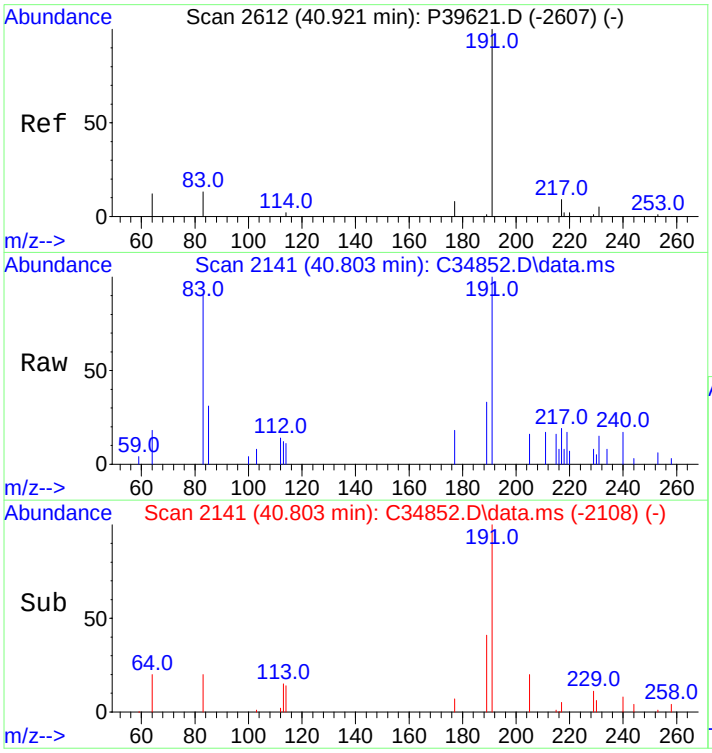


#92
Hopane (T19)
Concen: 2014.42 ng/mL m
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:191 Resp: 56587

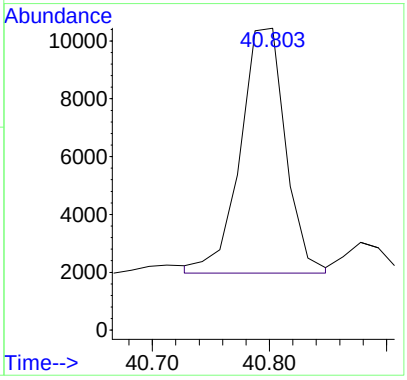
Ion	Ratio	Lower	Upper
191	100		
177	8.6	14.6	21.8#

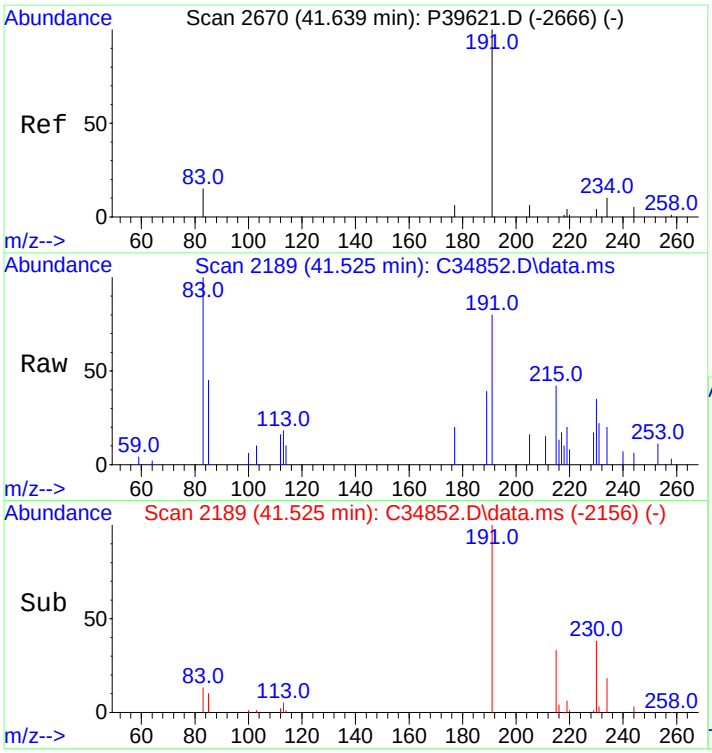




#94
C23 Tricyclic Terpane (T4)
Concen: 807.41 ng/ml m
RT: 40.803 min Scan# 2141
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

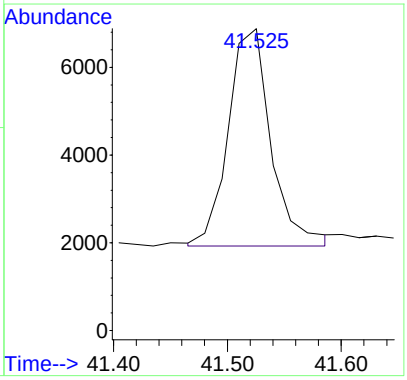
Tgt Ion:191 Resp: 22681

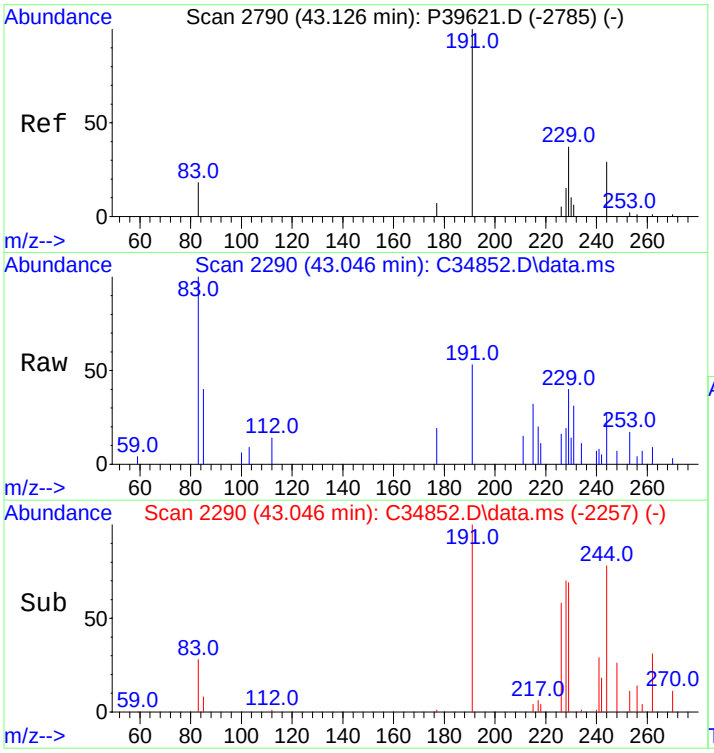




#95
C24 Tricyclic Terpane (T5)
Concen: 462.04 ng/ml m
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

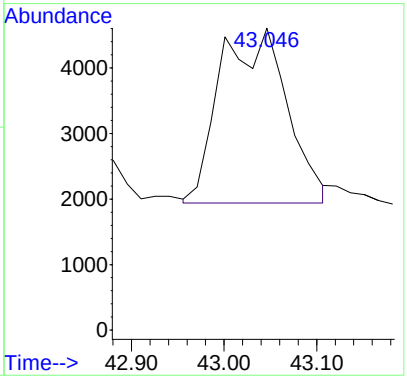
Tgt Ion:191 Resp: 12979

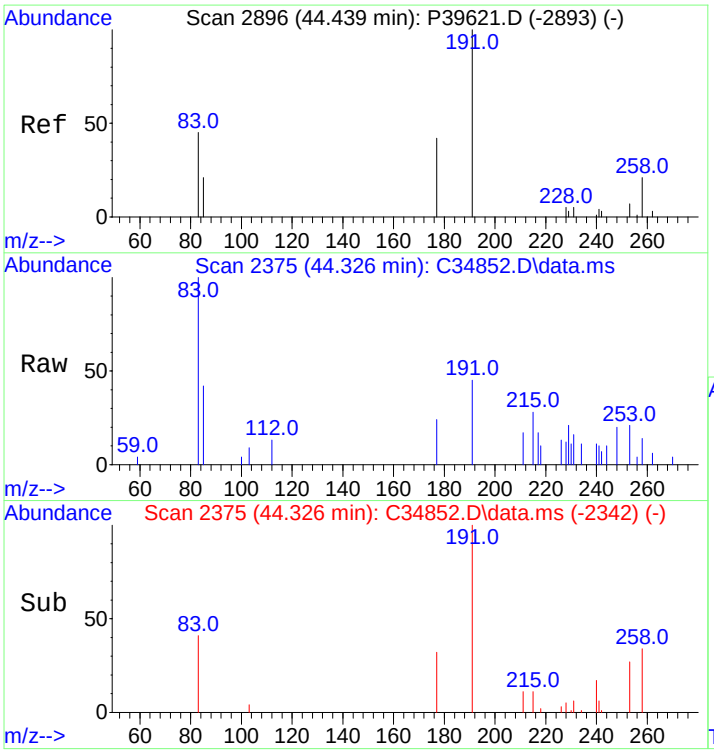




#96
C25 Tricyclic Terpane (T6)
Concen: 474.92 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

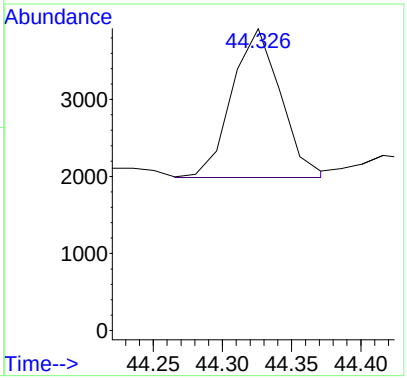
Tgt Ion:191 Resp: 13341

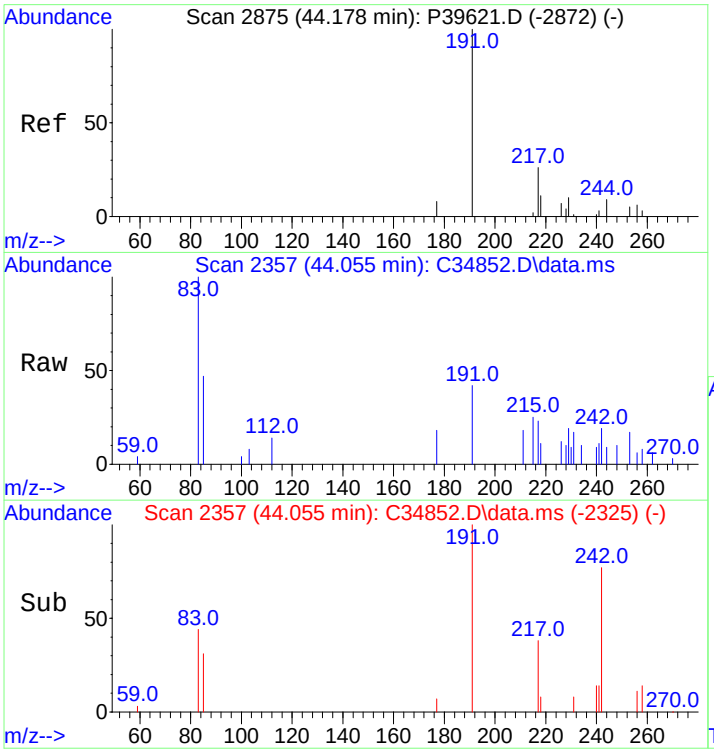




#97
C24 Tetracyclic Terpane (T6a)
Concen: 168.92 ng/ml m
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

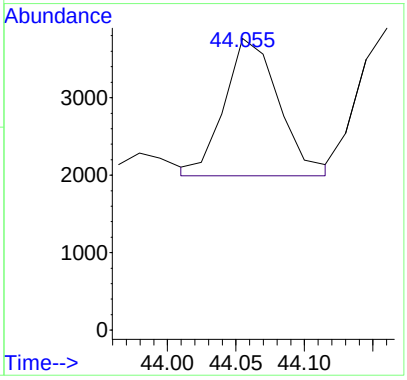
Tgt Ion:191 Resp: 4745

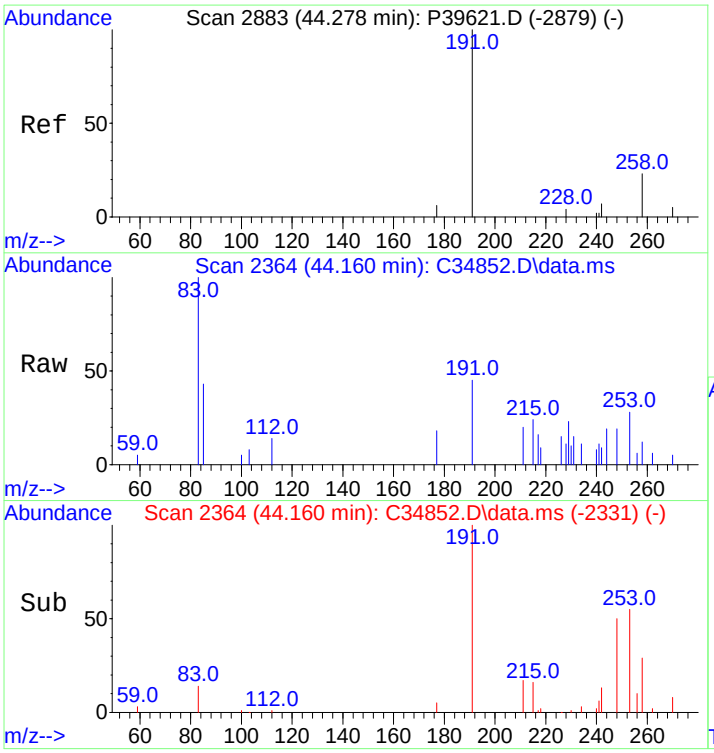




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 174.18 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

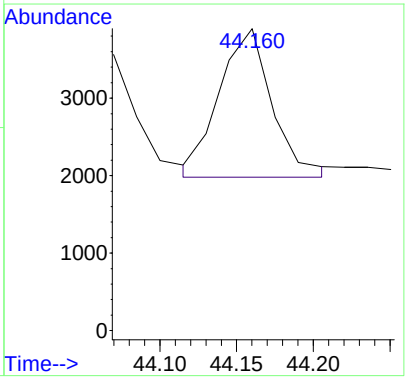
Tgt Ion:191 Resp: 4893

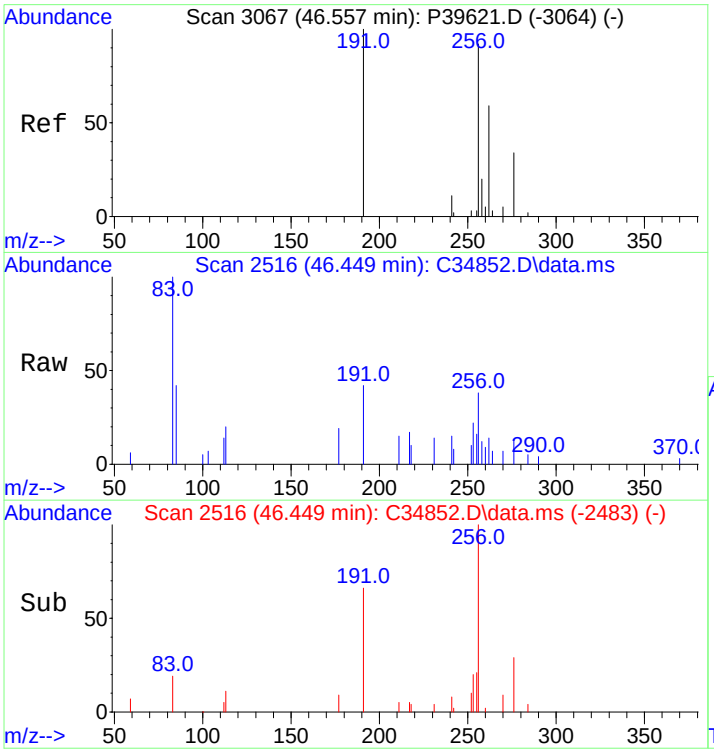




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 163.47 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

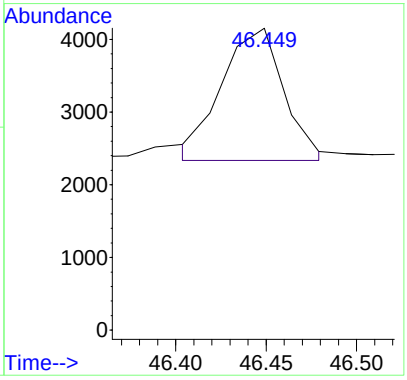
Tgt Ion:191 Resp: 4592

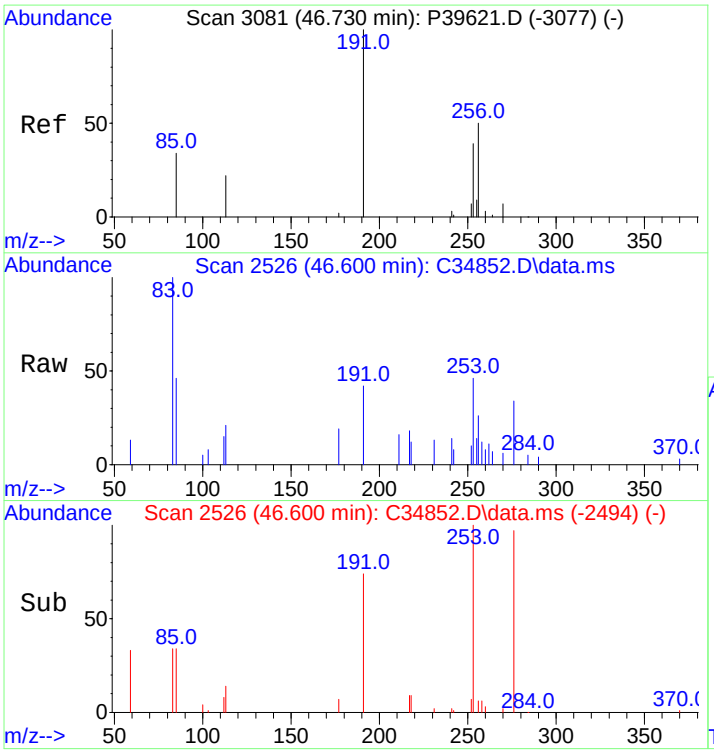




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 153.79 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

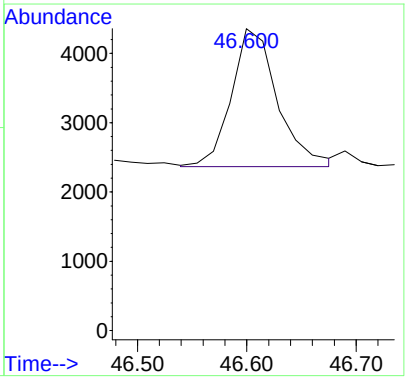
Tgt Ion:191 Resp: 4320

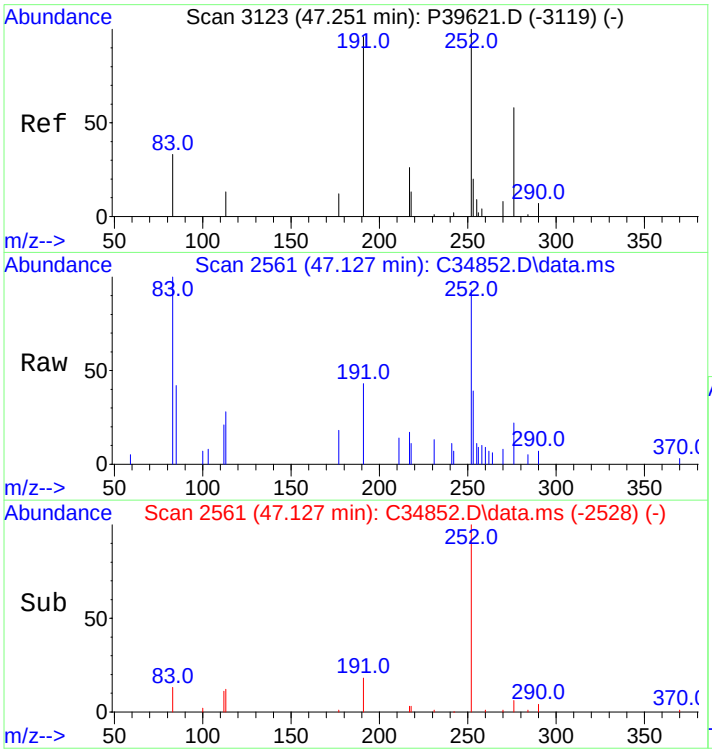




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 208.04 ng/ml m
RT: 46.600 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

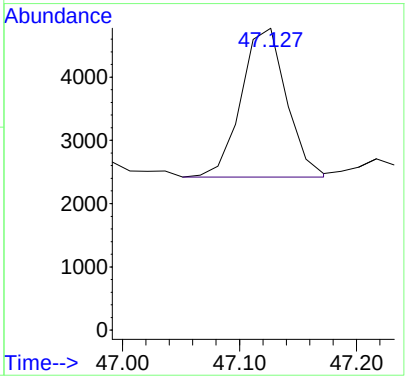
Tgt Ion:191 Resp: 5844

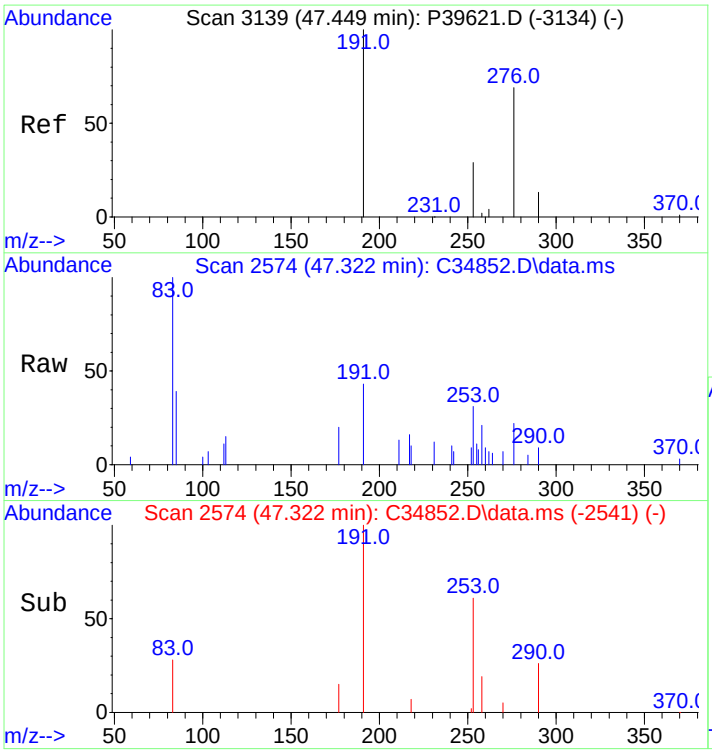




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 225.73 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

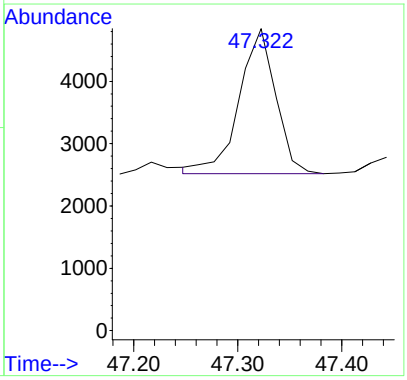
Tgt Ion:191 Resp: 6341

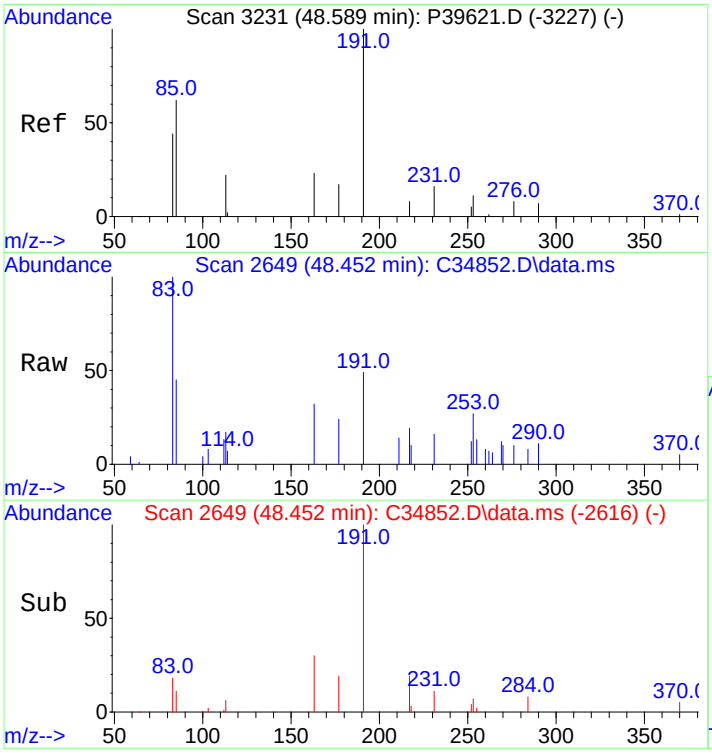




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 202.73 ng/ml
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

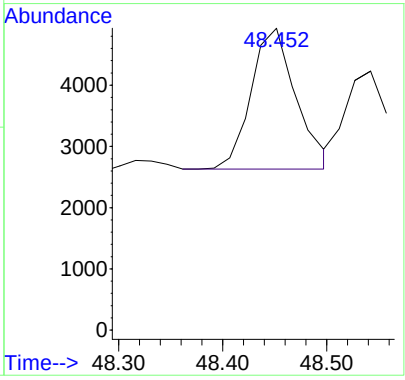
Tgt Ion:191 Resp: 5695

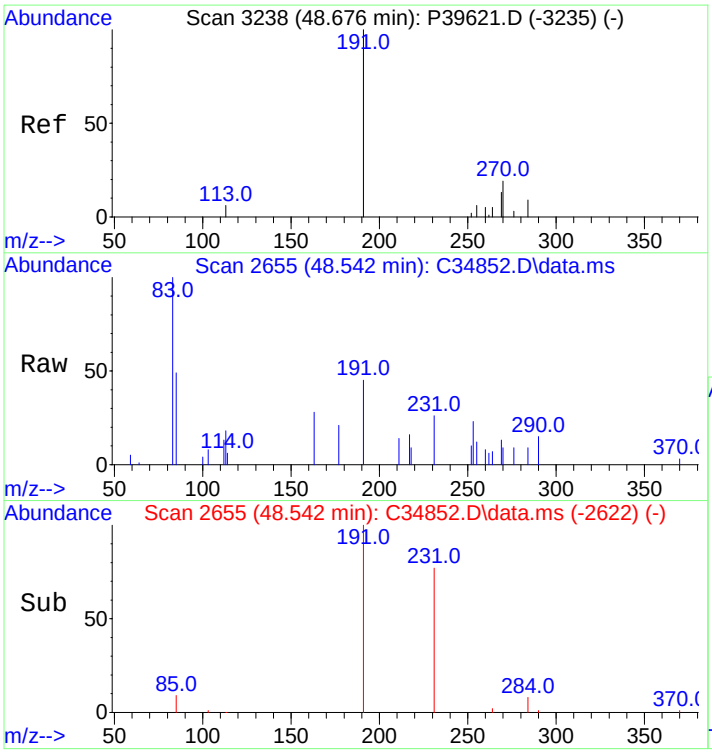




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 246.77 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

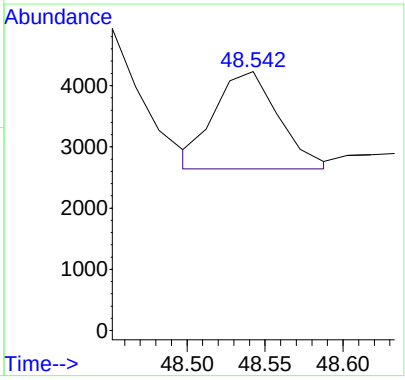
Tgt Ion:191 Resp: 6932

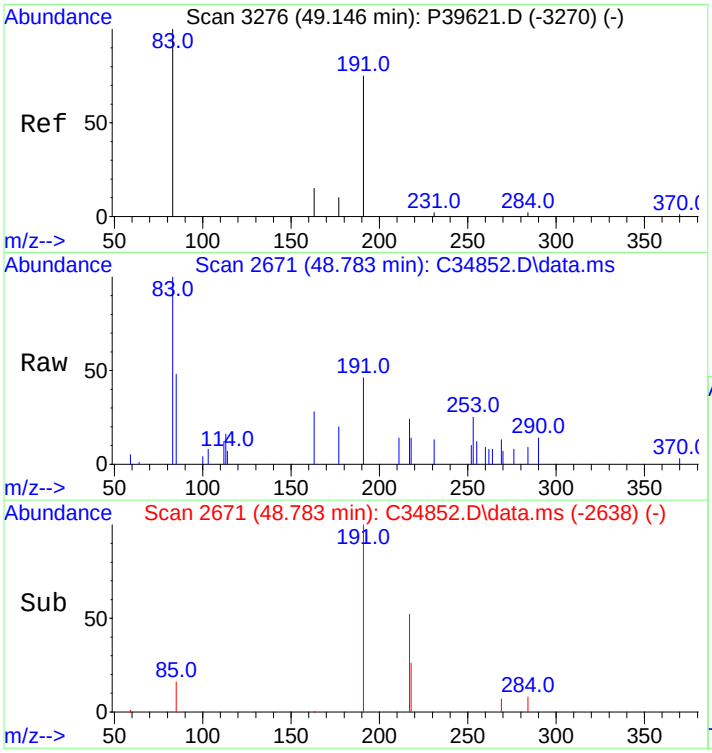




#105
C30 Tricyclic Terpane-22S
Concen: 161.58 ng/mL
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

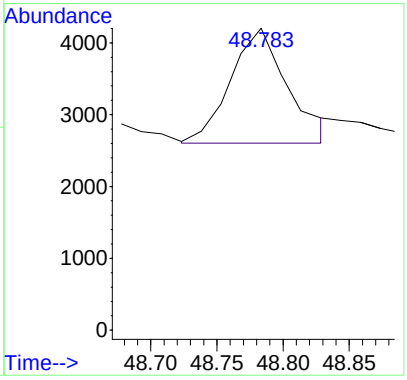
Tgt Ion:191 Resp: 4539

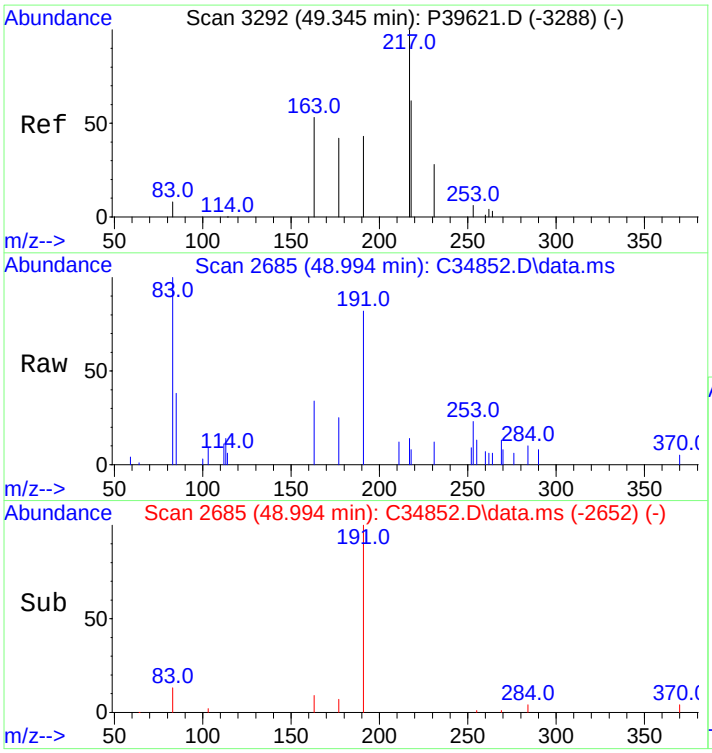




#106
C30 Tricyclic Terpane-22R
Concen: 171.91 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

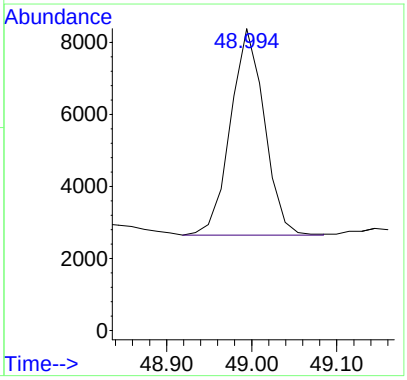
Tgt Ion:191 Resp: 4829

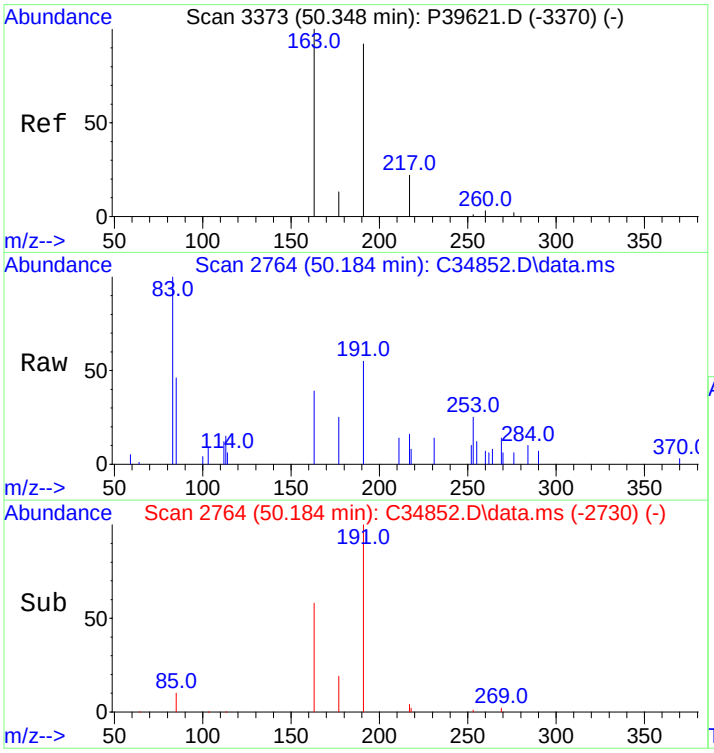




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 564.06 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

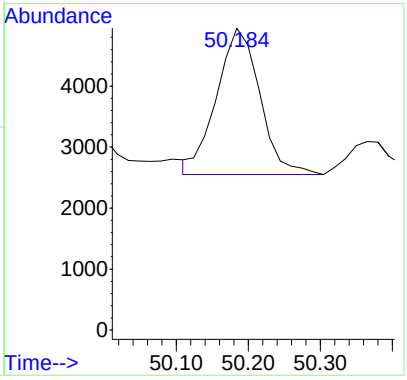
Tgt Ion:191 Resp: 15845

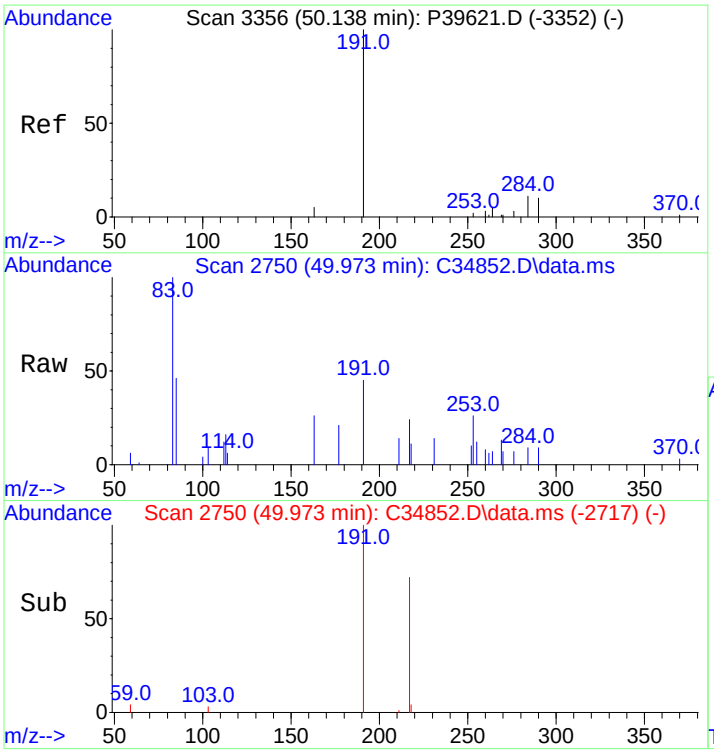




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 355.63 ng/ml
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

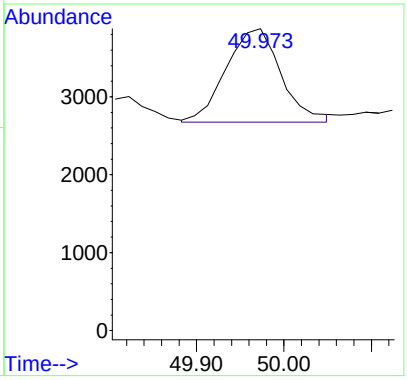
Tgt Ion:191 Resp: 9990

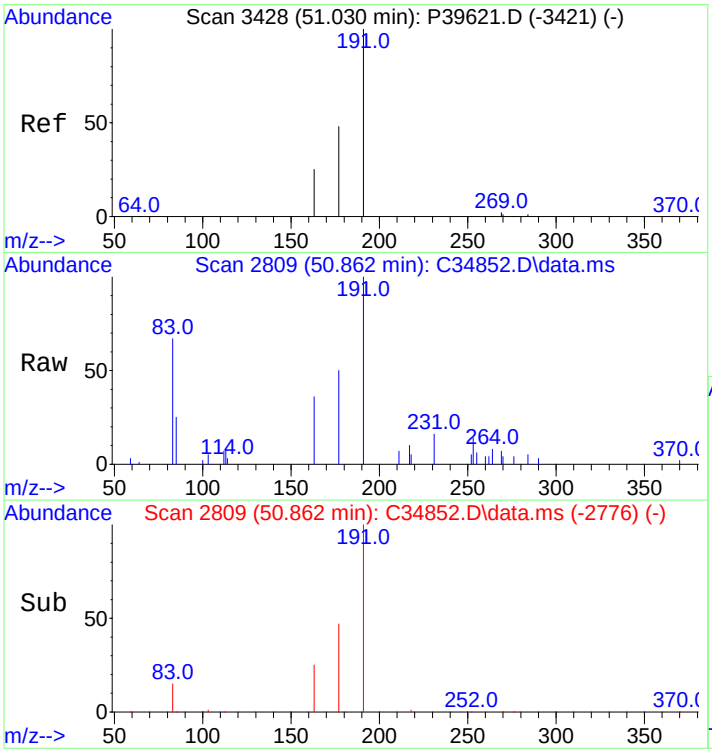




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 186.79 ng/ml m
RT: 49.973 min Scan# 2750
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

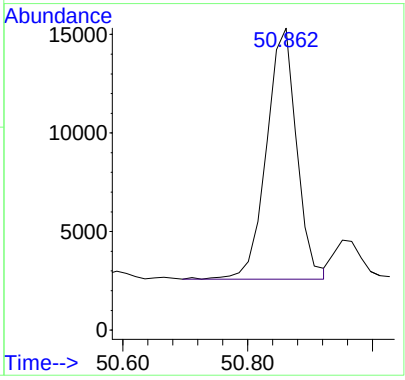
Tgt Ion:191 Resp: 5247

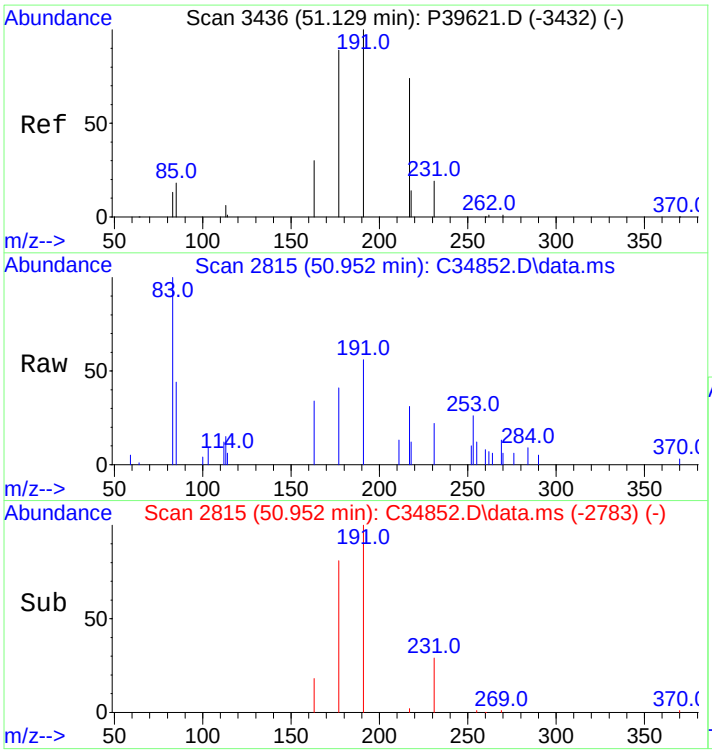




#110
30-Norhopane (T15)
Concen: 1523.98 ng/ml
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

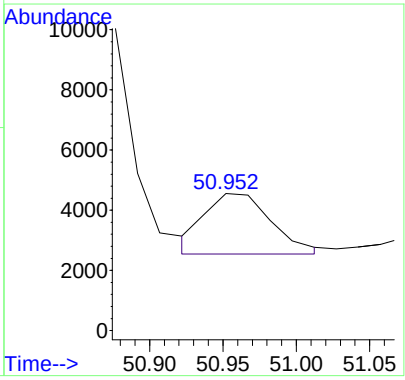
Tgt Ion:191 Resp: 42810

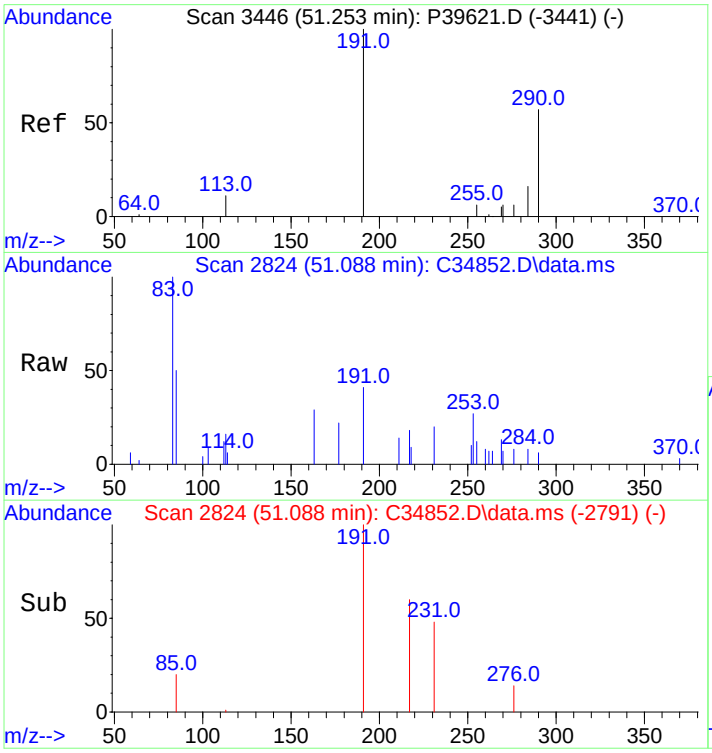




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 227.23 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

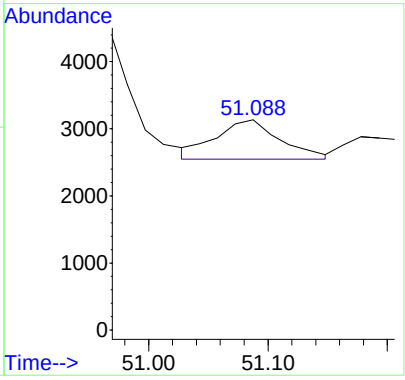
Tgt Ion:191 Resp: 6383

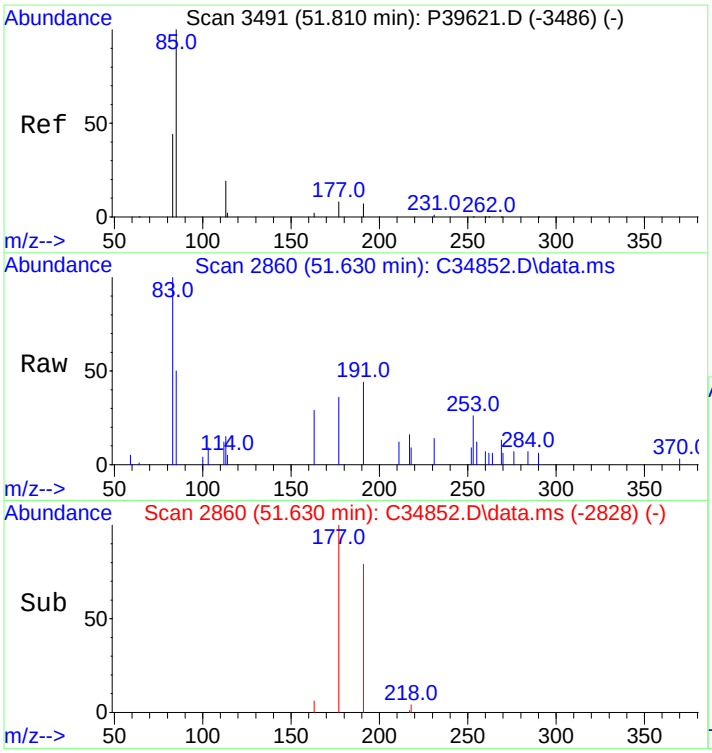




#112
17a(H)-Diahopane (X)
Concen: 78.28 ng/ml m
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

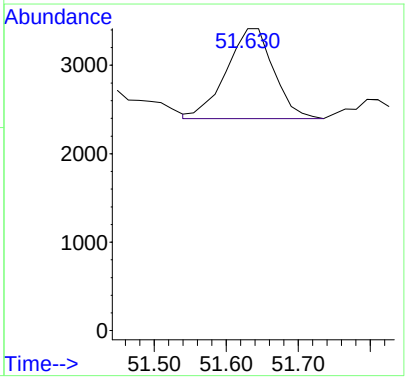
Tgt Ion:191 Resp: 2199

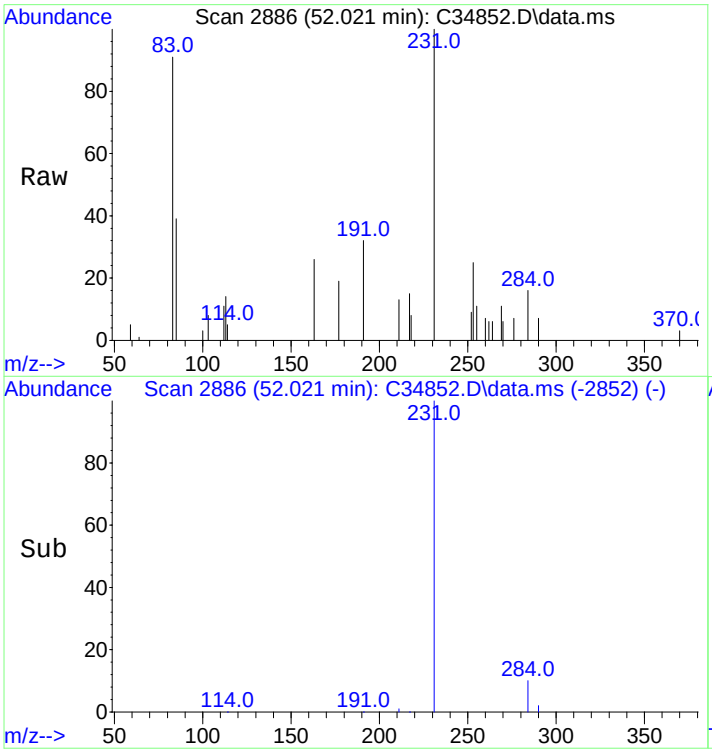




#113
30-Normoretane (T17)
Concen: 165.18 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

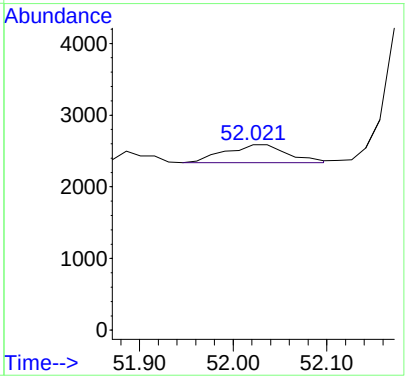
Tgt Ion:191 Resp: 4640

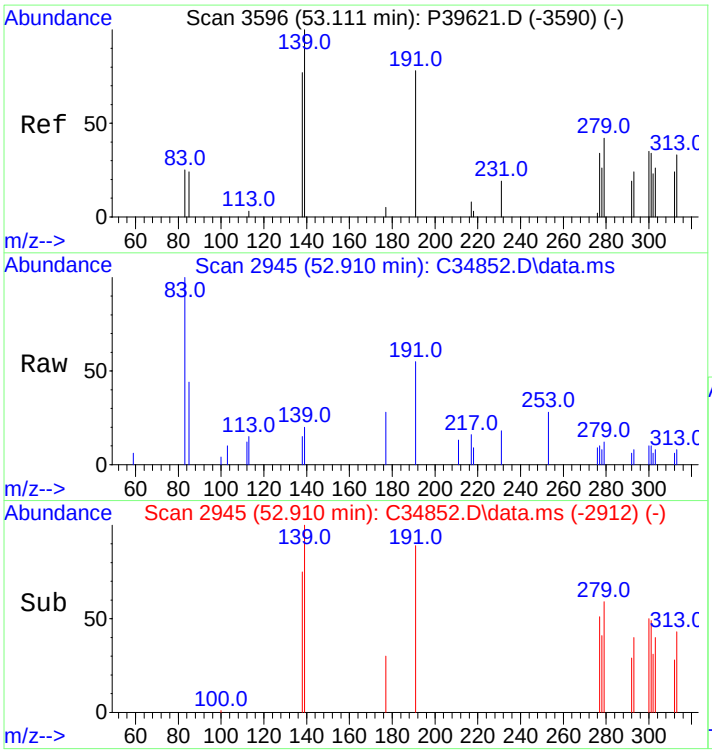




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 42.11 ng/ml
RT: 52.021 min Scan# 2886
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

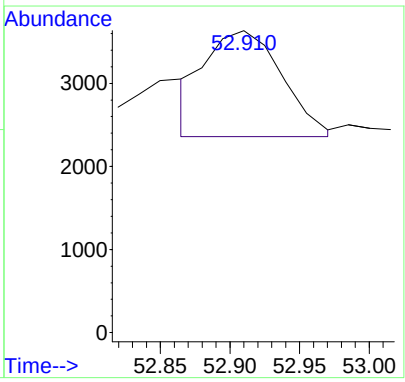
Tgt Ion:191 Resp: 1183

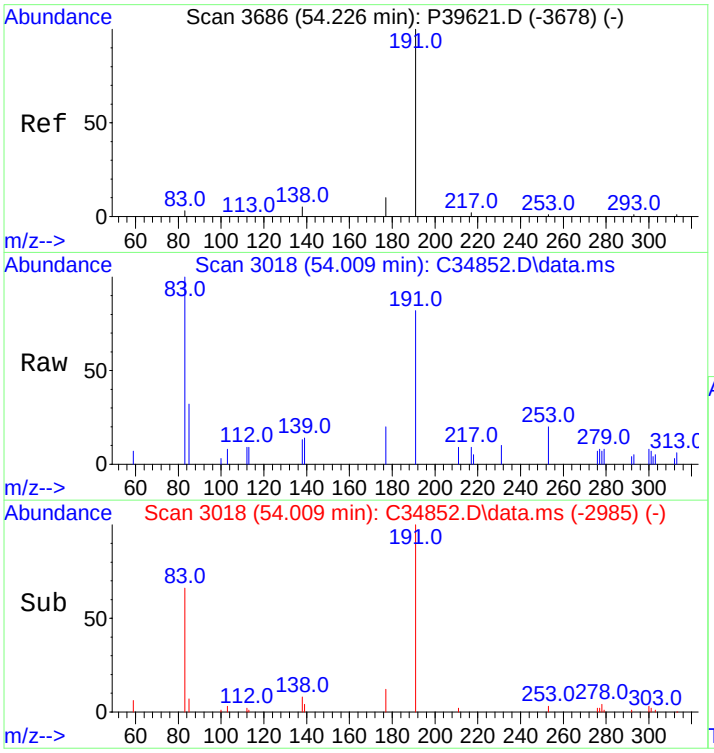




#115
Moretane (T20)
Concen: 173.40 ng/ml m
RT: 52.910 min Scan# 2945
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

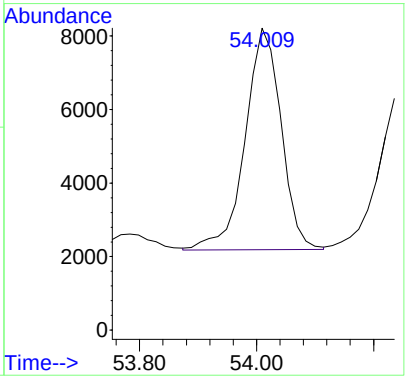
Tgt Ion:191 Resp: 4871

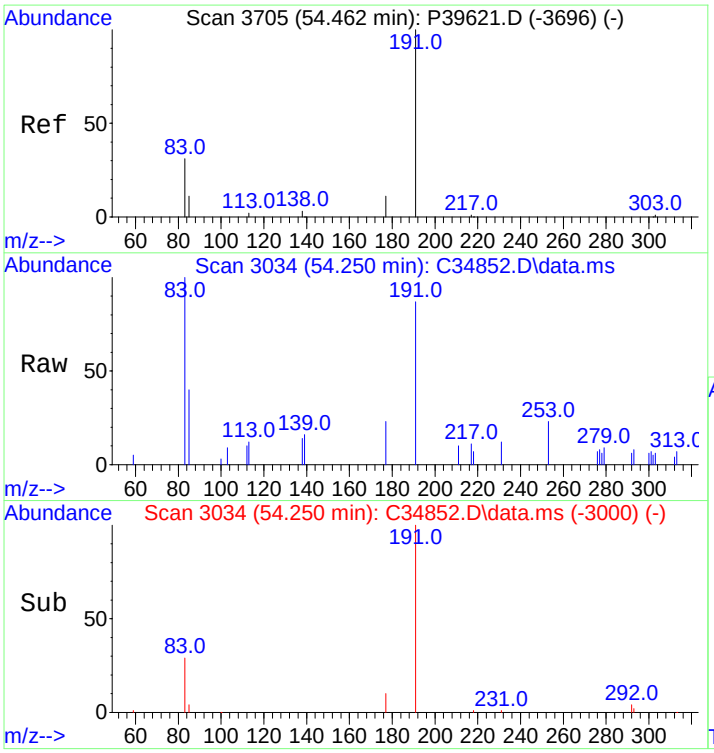




#116
30-Homohopane-22S (T21)
Concen: 916.06 ng/ml
RT: 54.009 min Scan# 3018
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

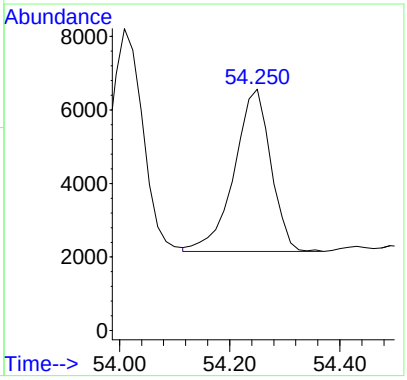
Tgt Ion:191 Resp: 25733

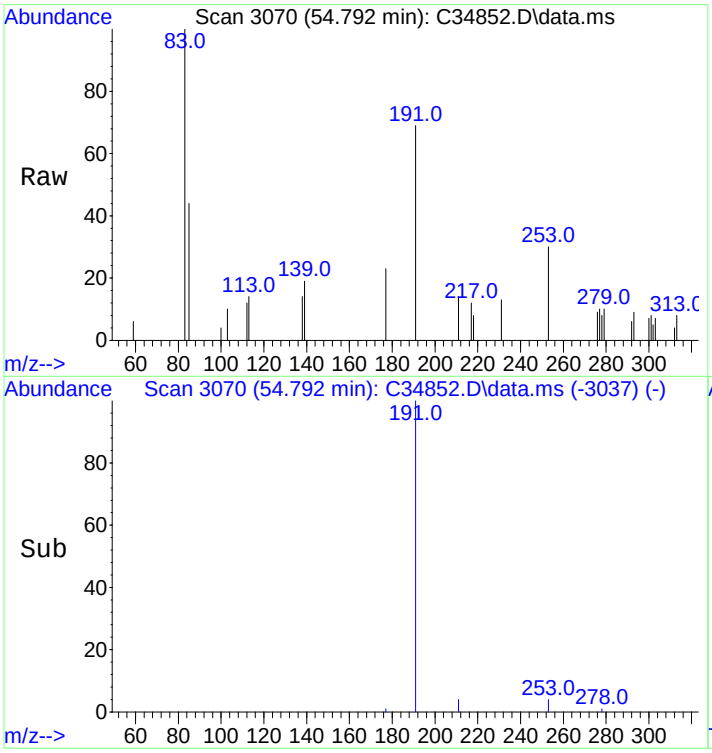




#117
30-Homohopane-22R (T22)
Concen: 723.26 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

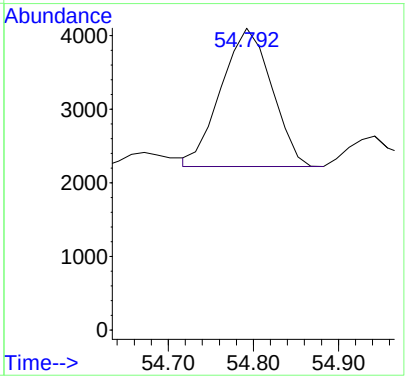
Tgt Ion:191 Resp: 20317

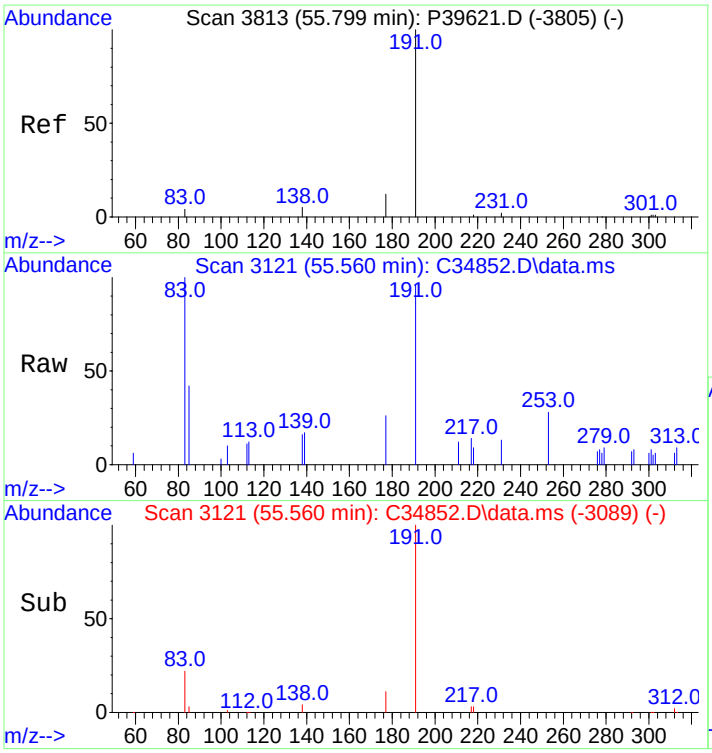




#118
Gammacerane/C32-diahopane
Concen: 276.46 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

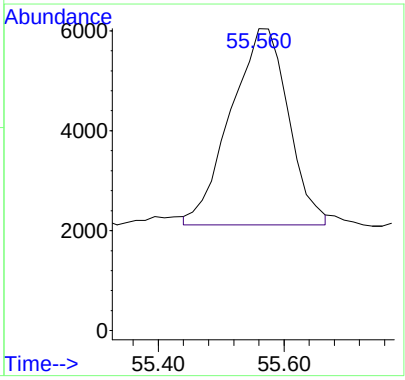
Tgt Ion:191 Resp: 7766

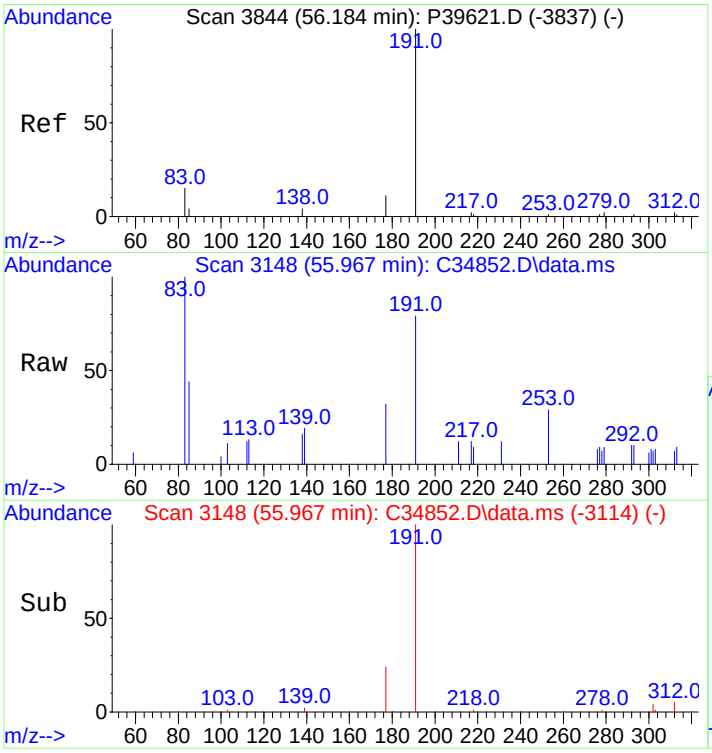




#119
30,31-Bishomohopane-22S (T26)
Concen: 889.11 ng/ml m
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

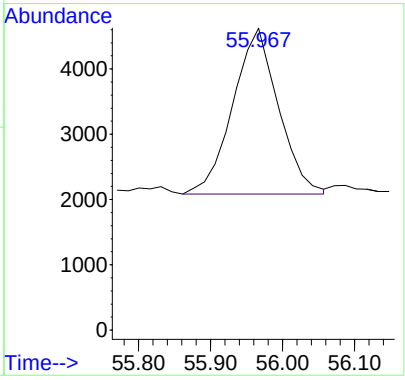
Tgt Ion:191 Resp: 24976

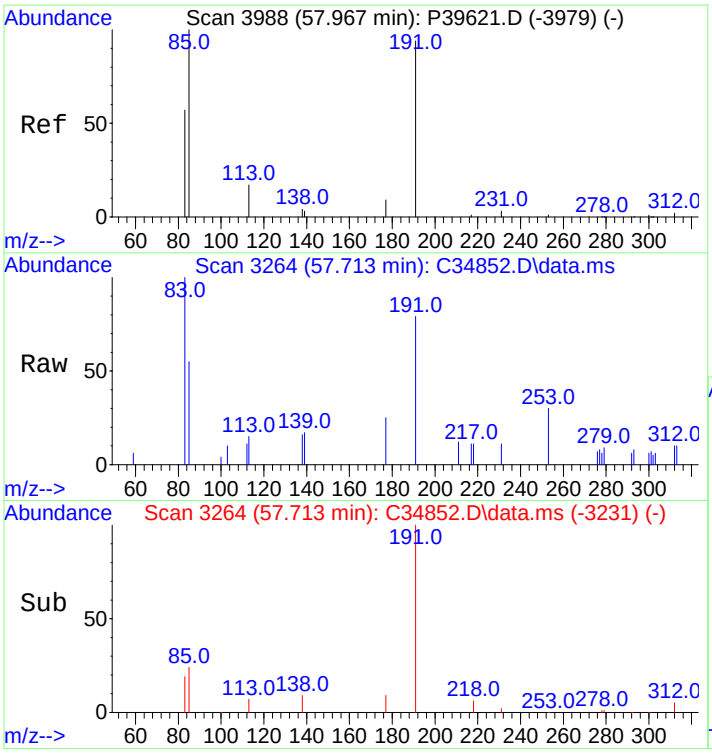




#120
30,31-Bishomohopane-22R (T27)
Concen: 398.14 ng/ml
RT: 55.967 min Scan# 3148
Delta R.T. 0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

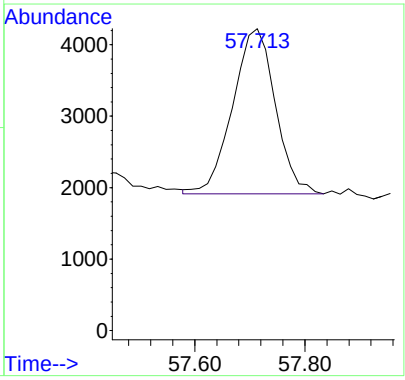
Tgt Ion:191 Resp: 11184

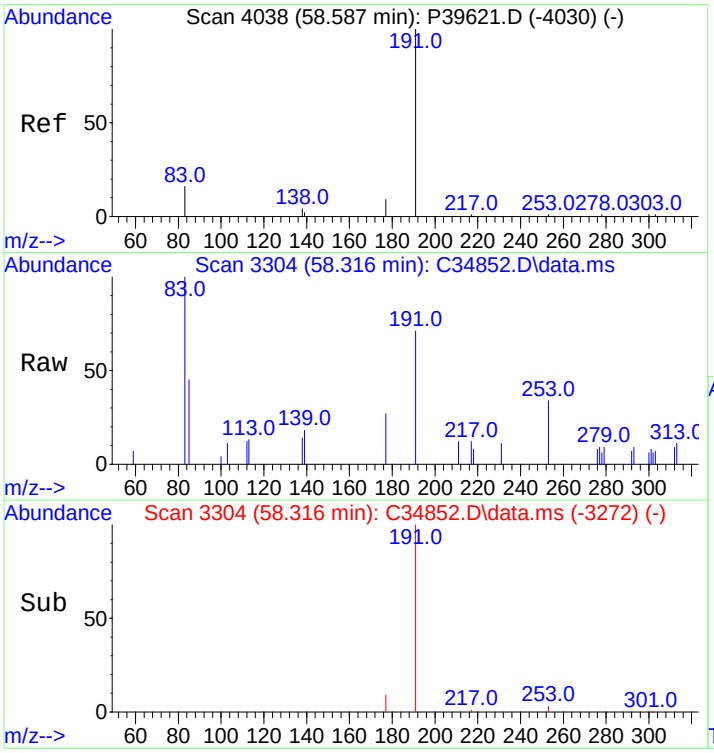




#121
30,31-Trishomohopane-22S (T30)
Concen: 441.39 ng/ml
RT: 57.713 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

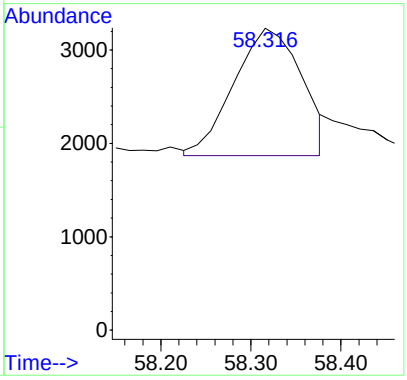
Tgt Ion:191 Resp: 12399

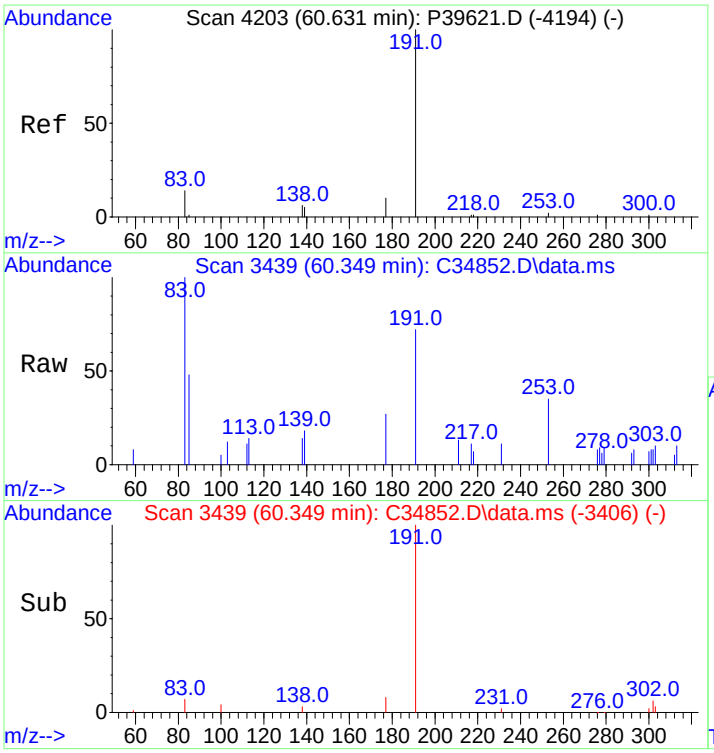




#122
30,31-Trishomohopane-22R (T31)
Concen: 254.10 ng/ml m
RT: 58.316 min Scan# 3304
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

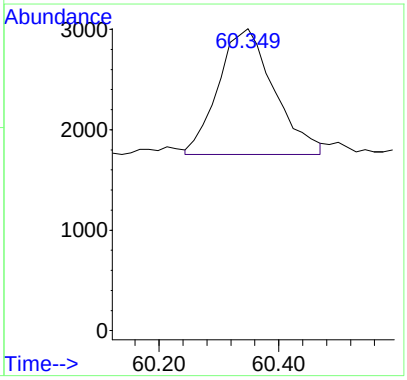
Tgt Ion:191 Resp: 7138

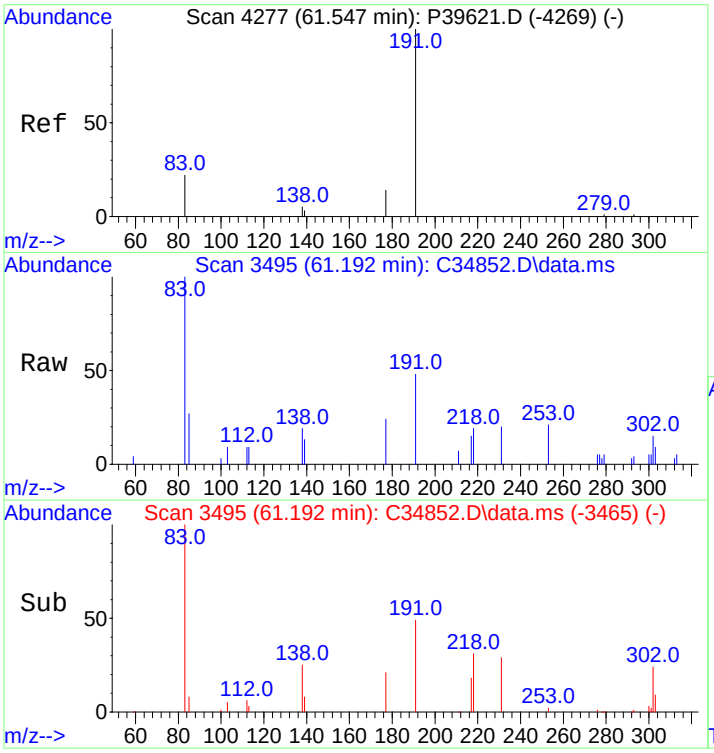




#123
Tetrakishomohopane-22S (T32)
Concen: 288.85 ng/ml m
RT: 60.349 min Scan# 3439
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

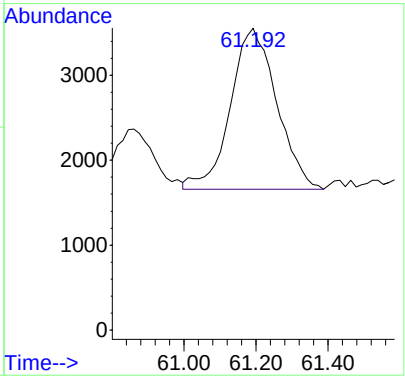
Tgt Ion:191 Resp: 8114

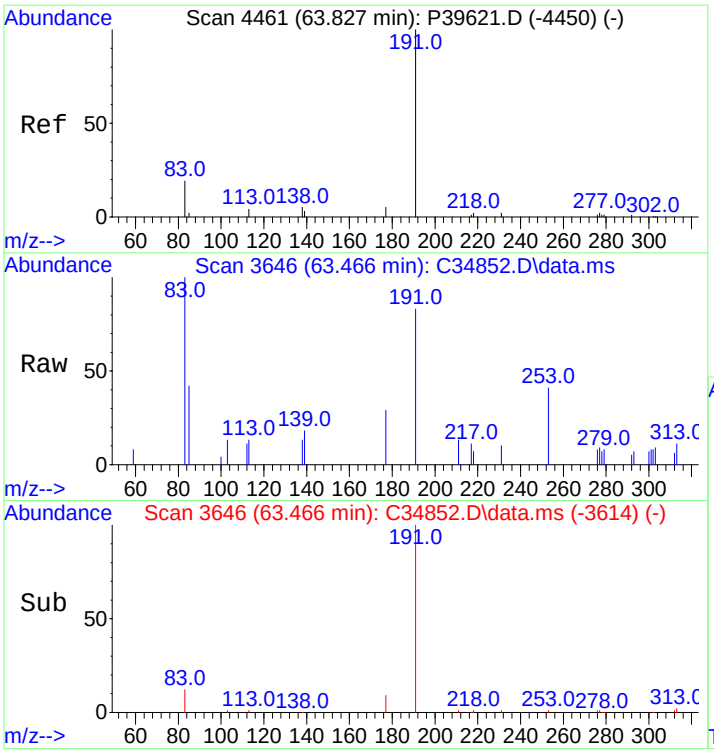




#124
Tetrakishomohopane-22R (T33)
Concen: 601.44 ng/ml
RT: 61.192 min Scan# 3495
Delta R.T. -0.045 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

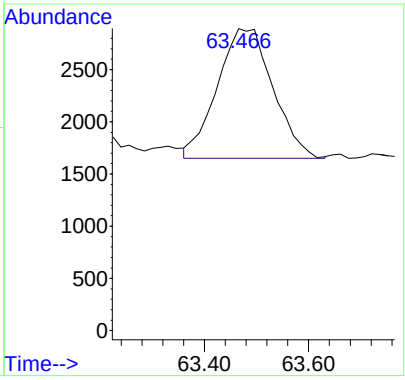
Tgt Ion:191 Resp: 16895

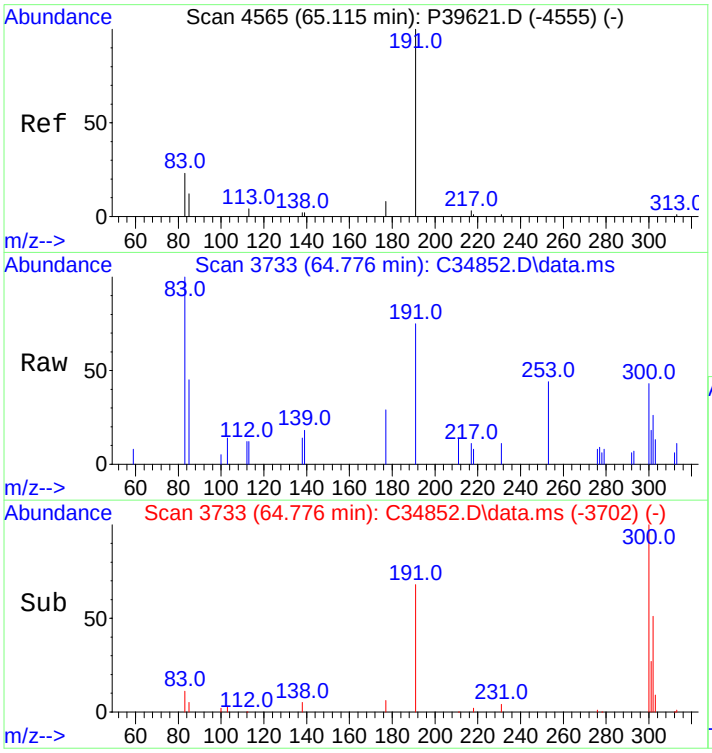




#125
Pentakishomohopane-22S (T34)
Concen: 328.90 ng/ml m
RT: 63.466 min Scan# 3646
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

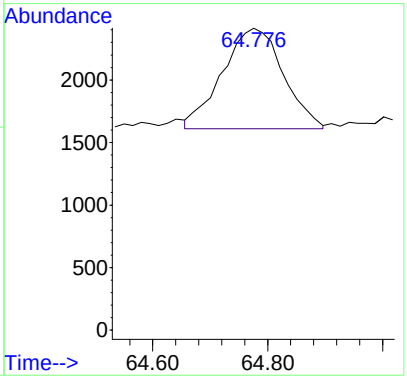
Tgt Ion:191 Resp: 9239

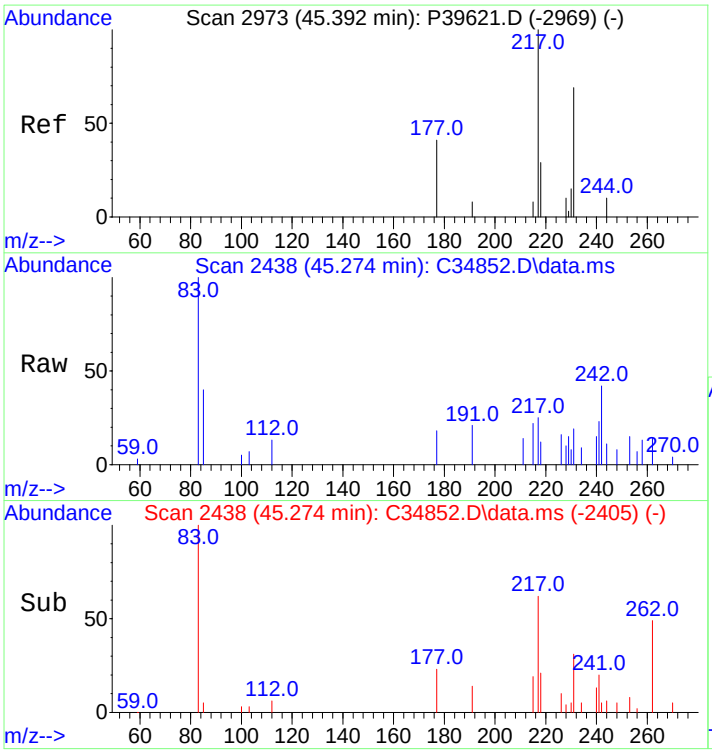




#126
Pentakishomohopane-22R (T35)
Concen: 210.64 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

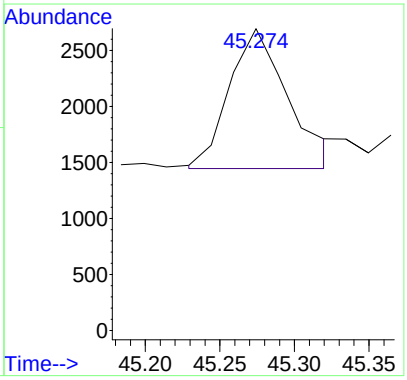
Tgt Ion:191 Resp: 5917

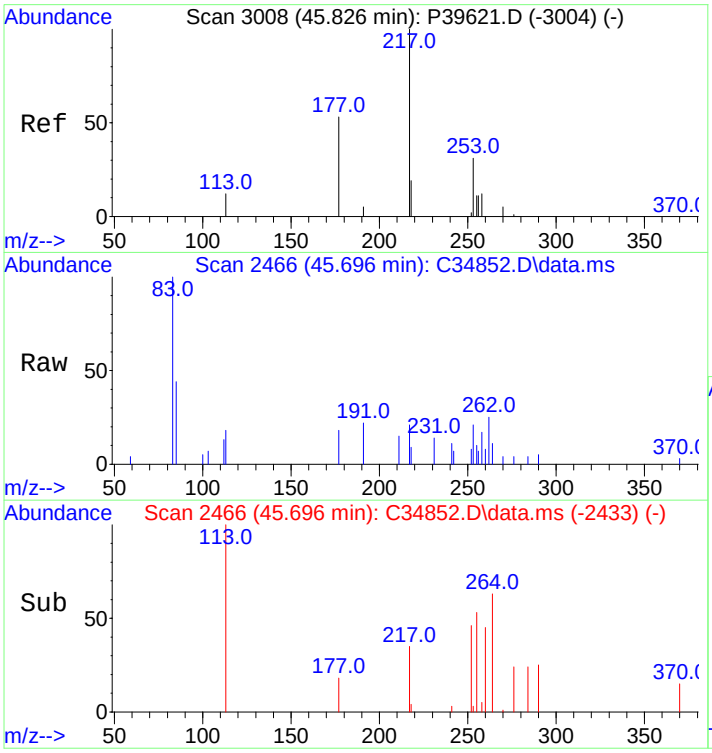




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 256.42 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

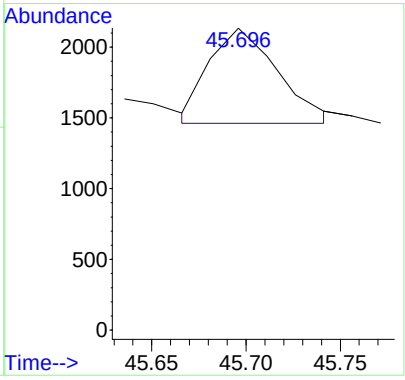
Tgt Ion:217 Resp: 3417

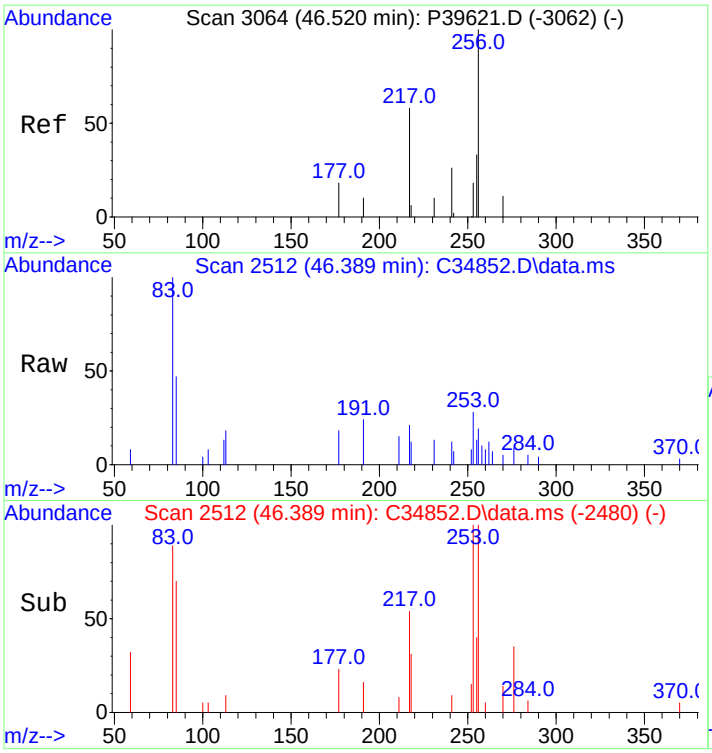




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 128.40 ng/ml m
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

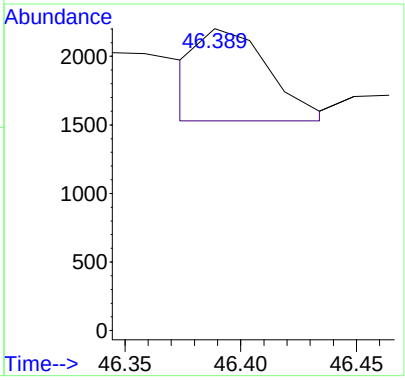
Tgt Ion:217 Resp: 1711

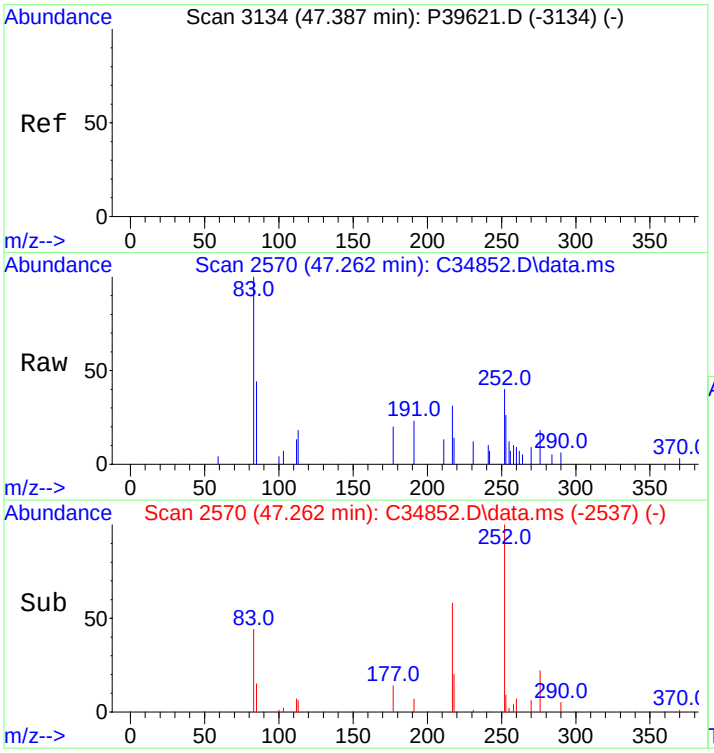




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 104.46 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

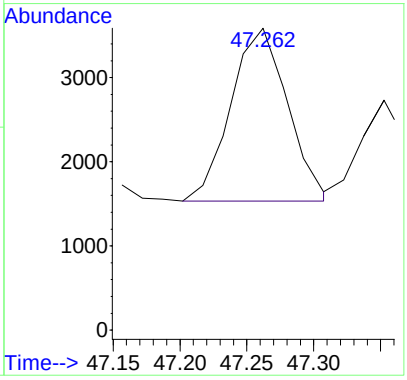
Tgt Ion:217 Resp: 1392

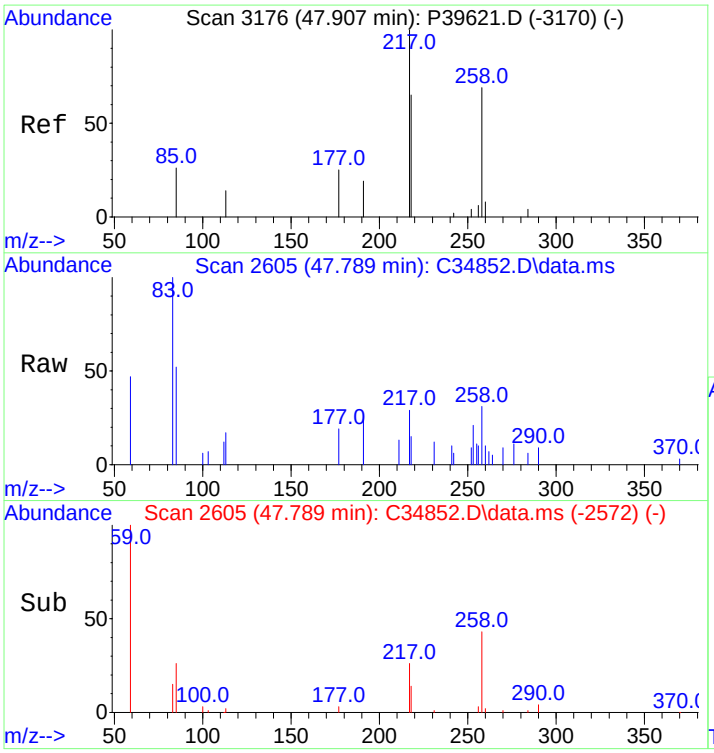




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 456.56 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

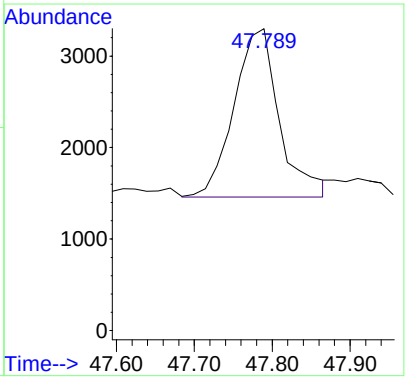
Tgt Ion:217 Resp: 6084

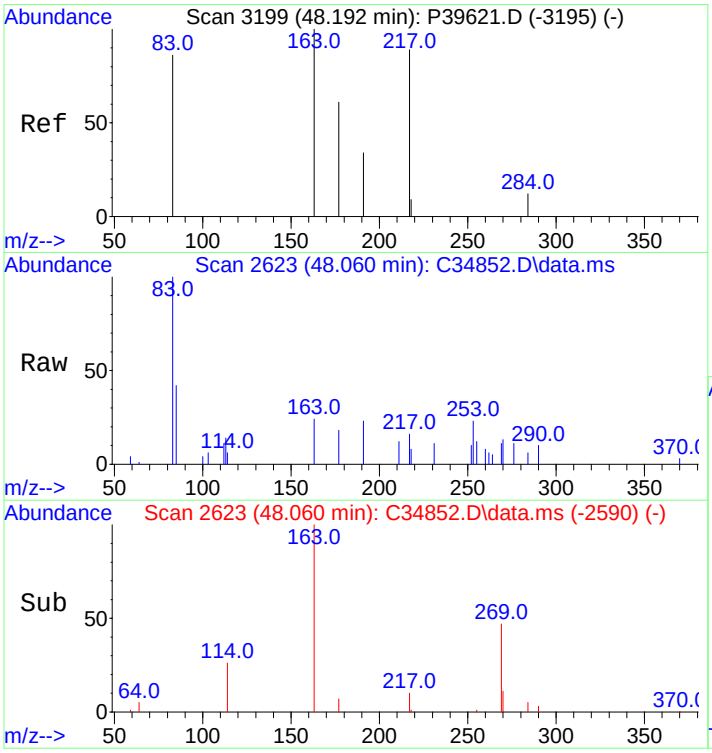




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 559.29 ng/ml m
RT: 47.789 min Scan# 2605
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

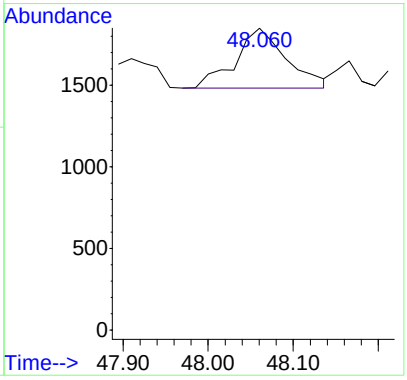
Tgt Ion:217 Resp: 7453

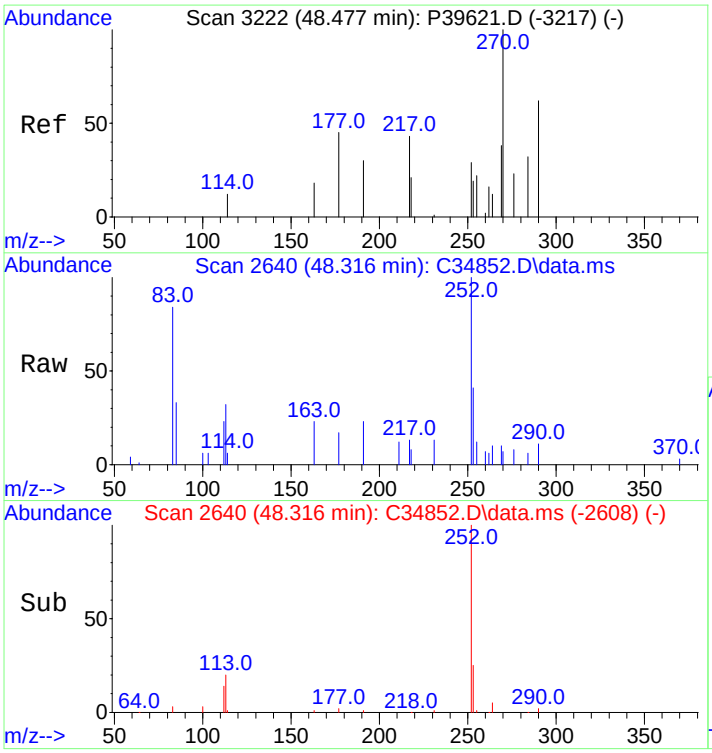




#133
Unknown Sterane (S18)
Concen: 114.44 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

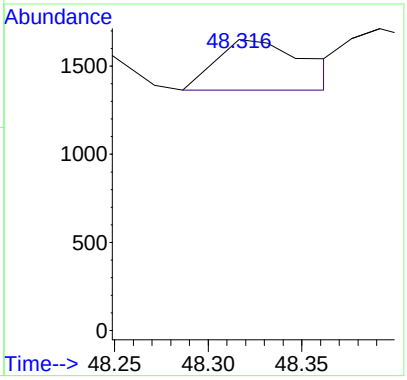
Tgt Ion:217 Resp: 1525

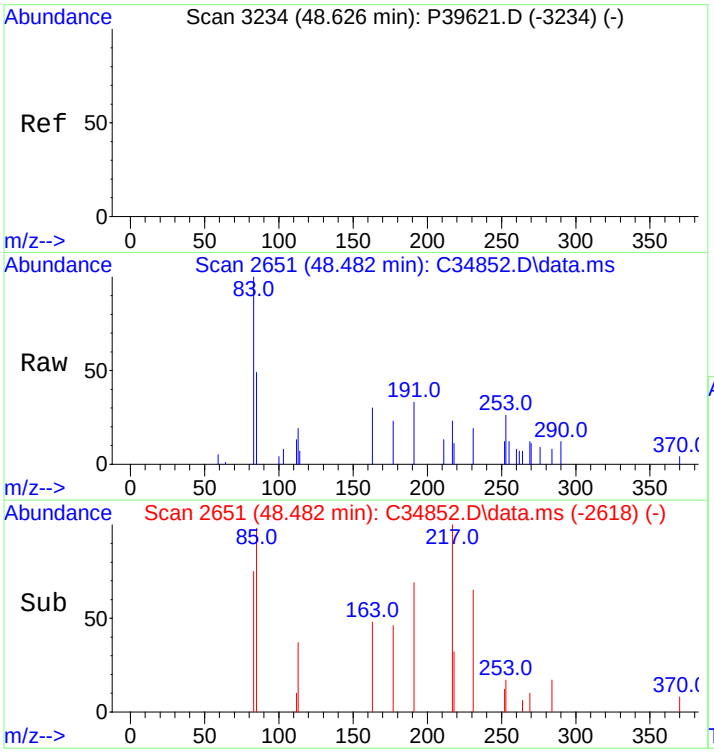




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 71.82 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

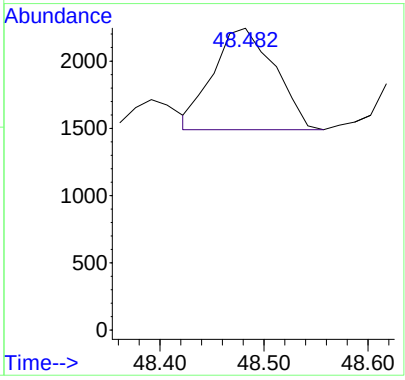
Tgt Ion:217 Resp: 957

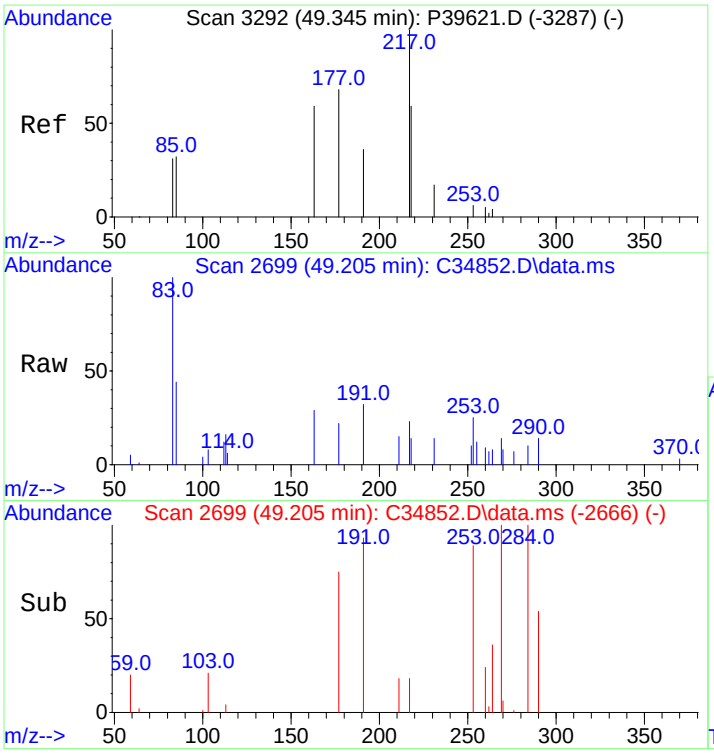




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 233.31 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

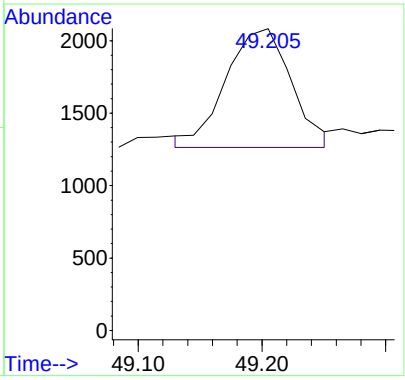
Tgt Ion:217 Resp: 3109

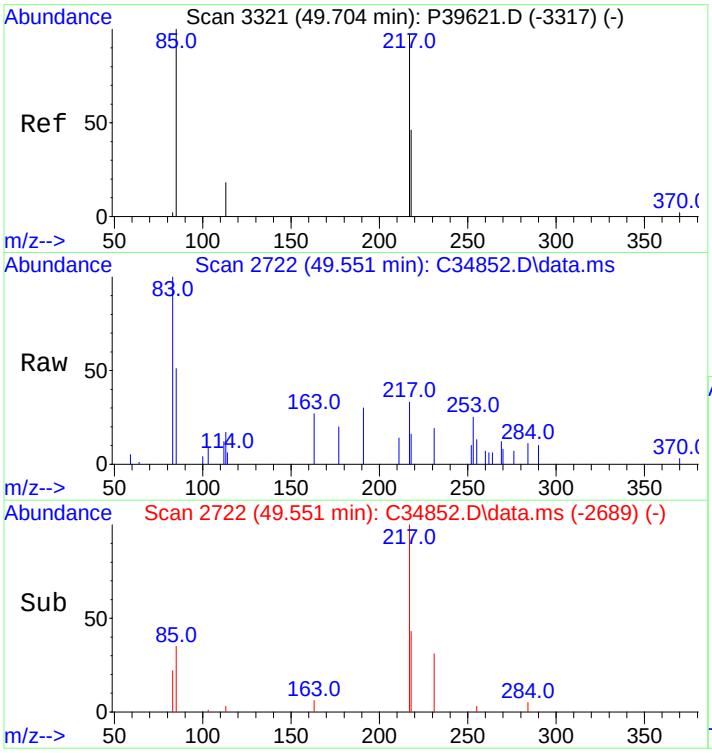




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 226.48 ng/ml m
RT: 49.205 min Scan# 2699
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

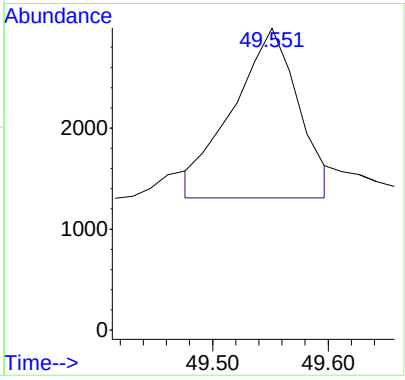
Tgt Ion:217 Resp: 3018

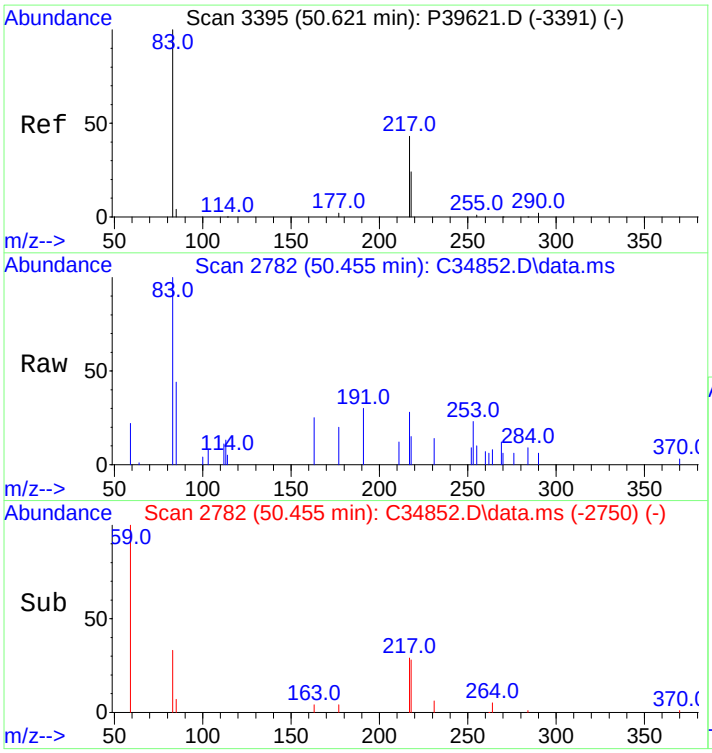




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 496.48 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

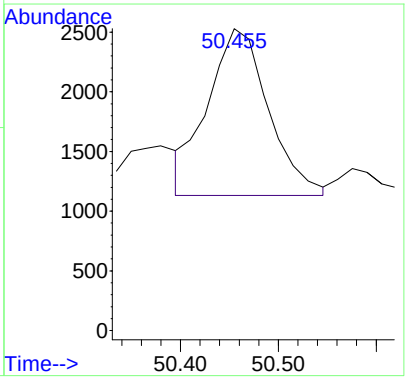
Tgt Ion:217 Resp: 6616

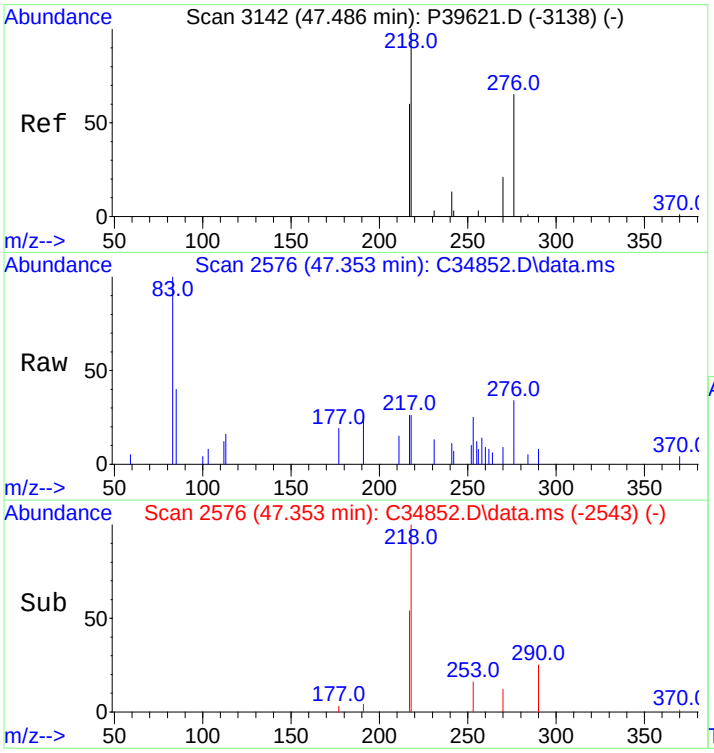




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 452.81 ng/ml m
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

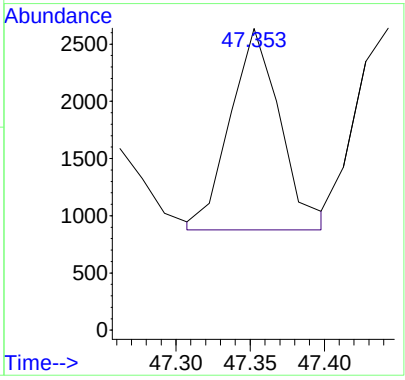
Tgt Ion:217 Resp: 6034

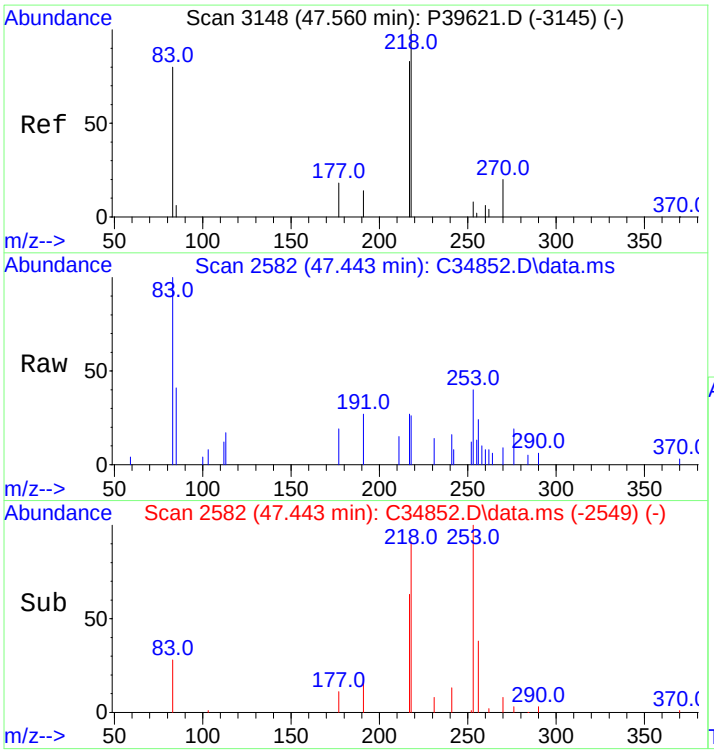




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 309.55 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

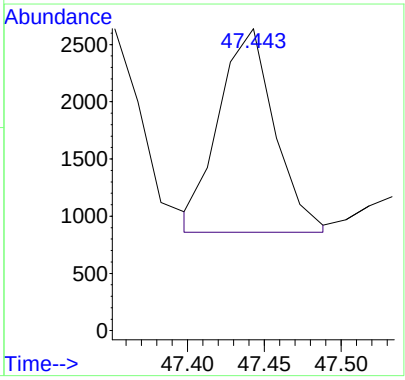
Tgt Ion:218 Resp: 4125

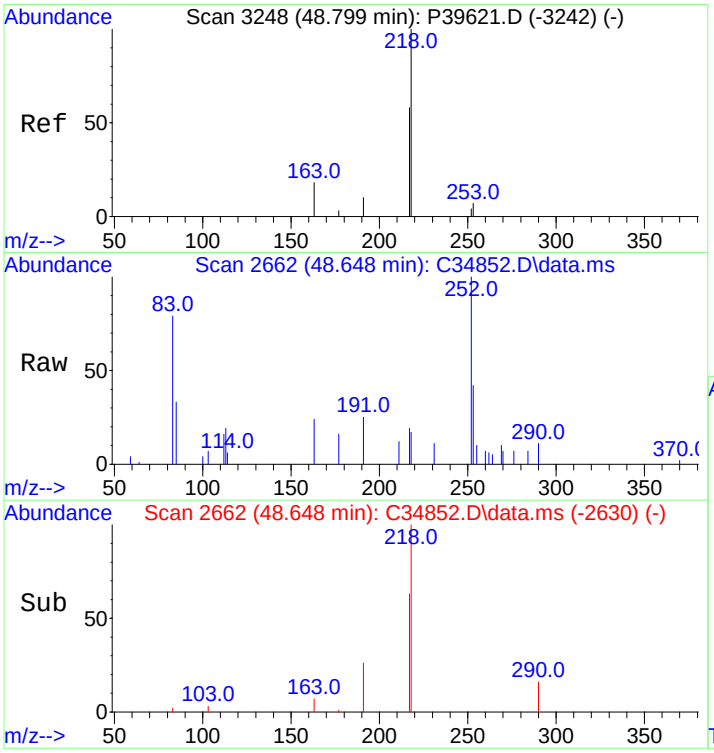




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 336.19 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

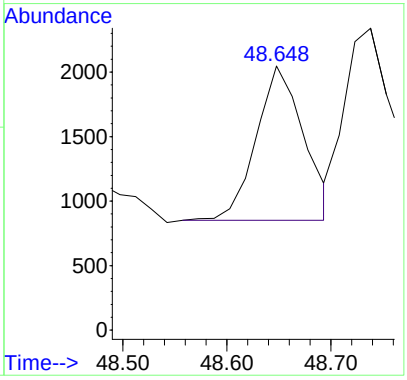
Tgt Ion:218 Resp: 4480

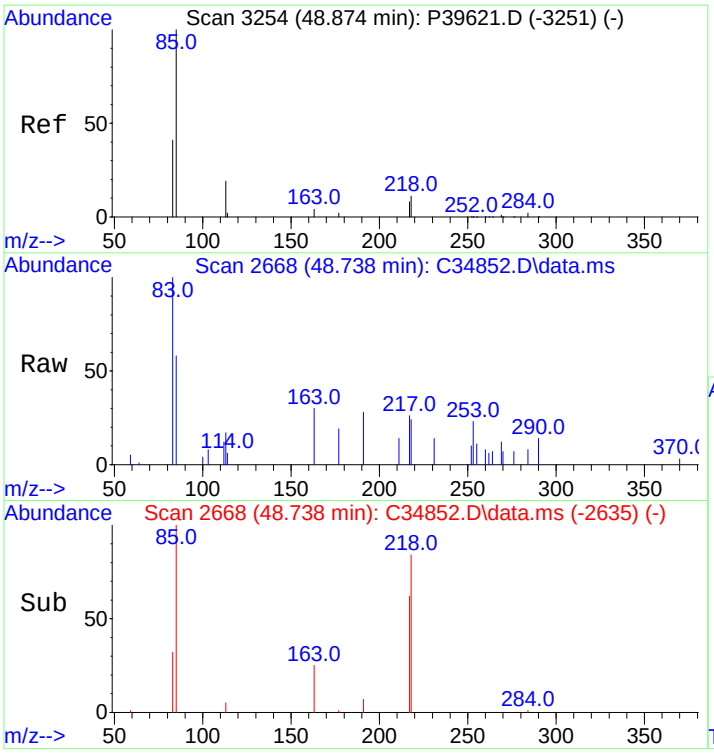




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 285.46 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

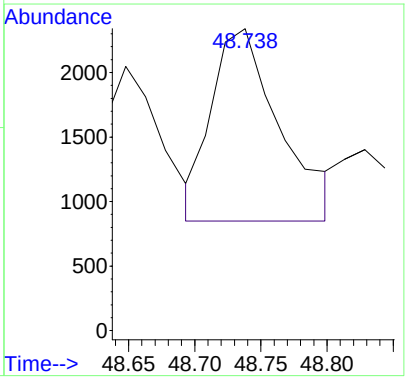
Tgt Ion:218 Resp: 3804

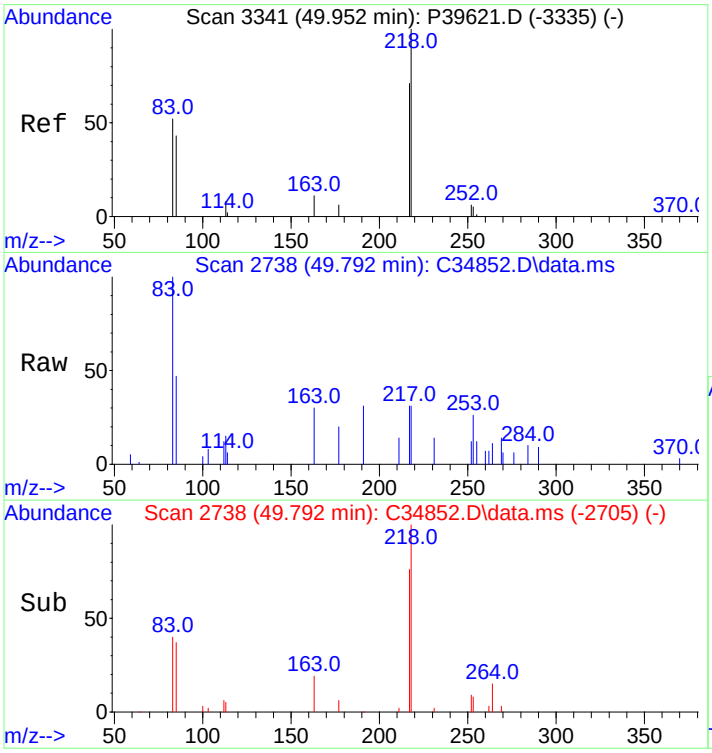




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 402.75 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

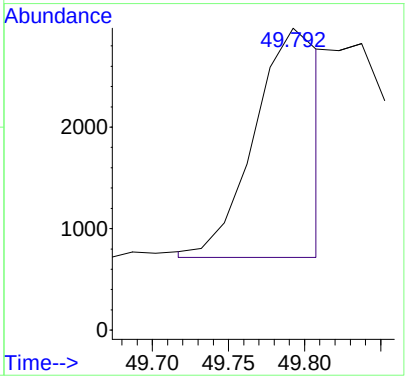
Tgt Ion:218 Resp: 5367

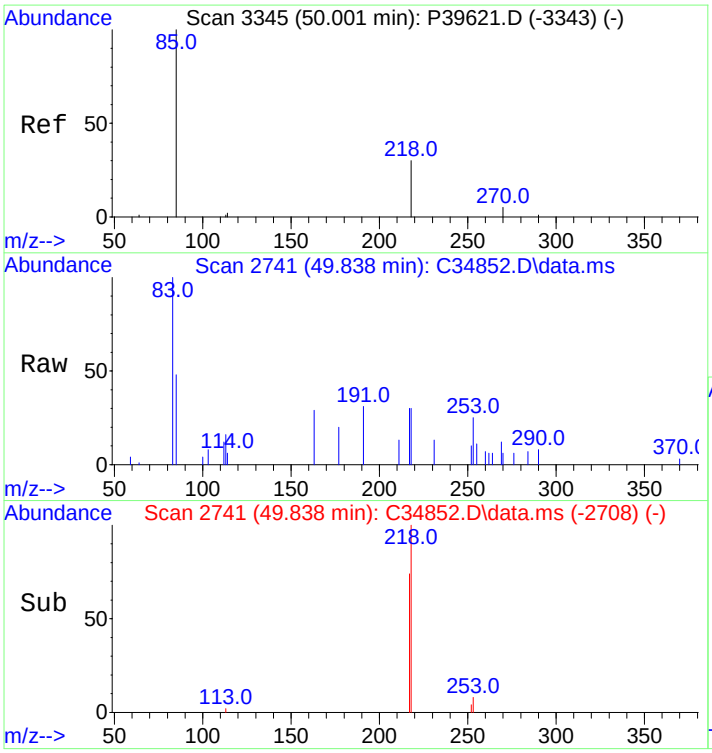




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 510.66 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

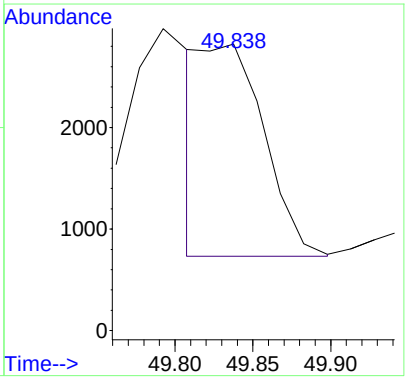
Tgt Ion:218 Resp: 6805

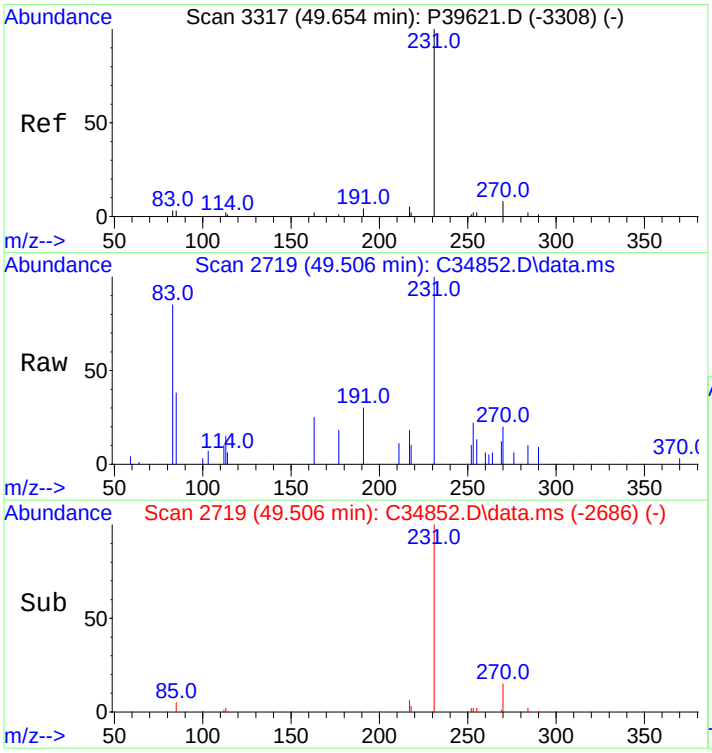




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 433.90 ng/ml m
RT: 49.838 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

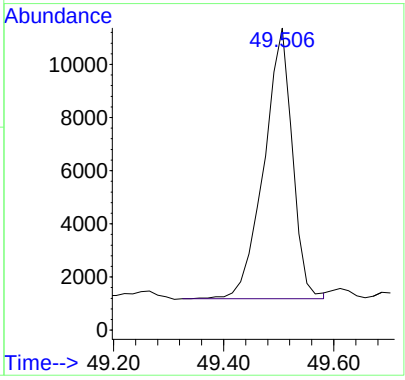
Tgt Ion:218 Resp: 5782

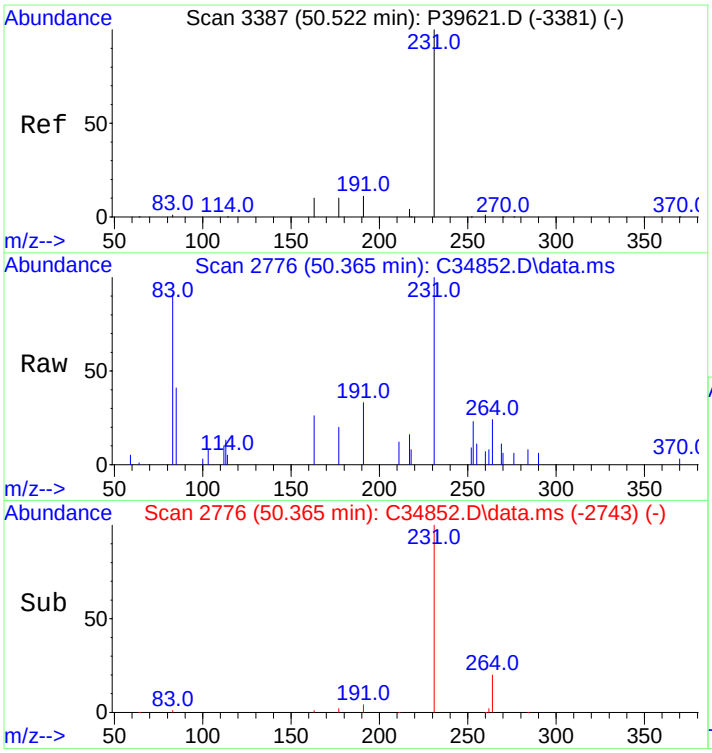




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2733.64 ng/mL
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

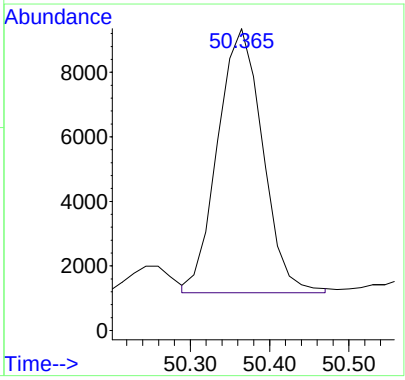
Tgt Ion:231 Resp: 36428

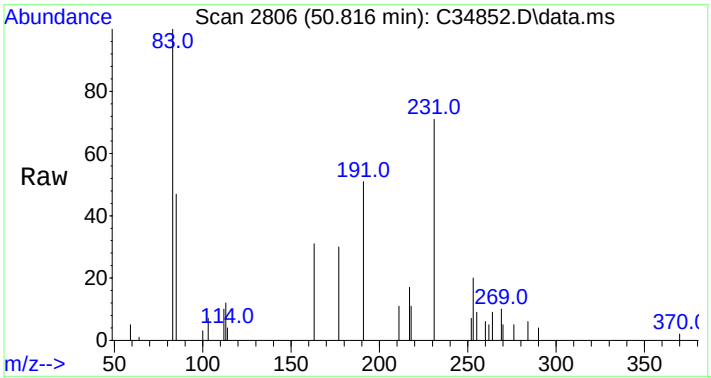




#146
C28,20S-triaromatic steroid
Concen: 2422.07 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

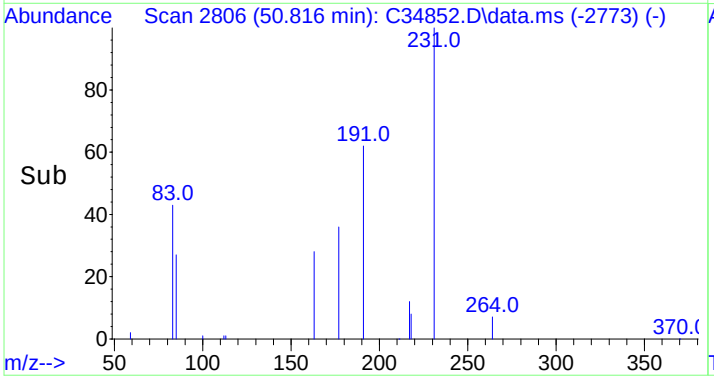
Tgt Ion:231 Resp: 32276

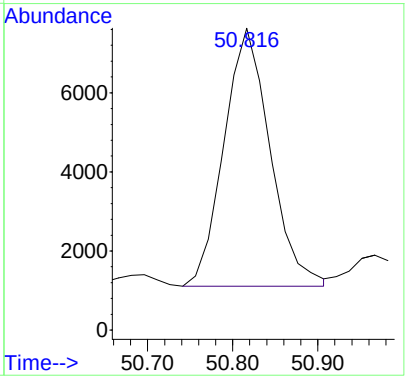


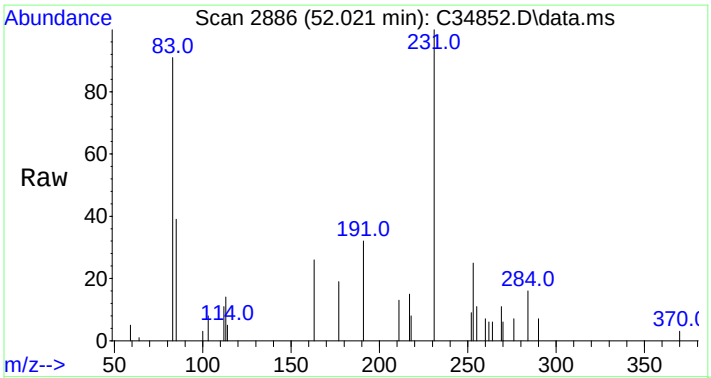


#147
C27,20R-triaromatic steroid
Concen: 1846.19 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:231 Resp: 24602

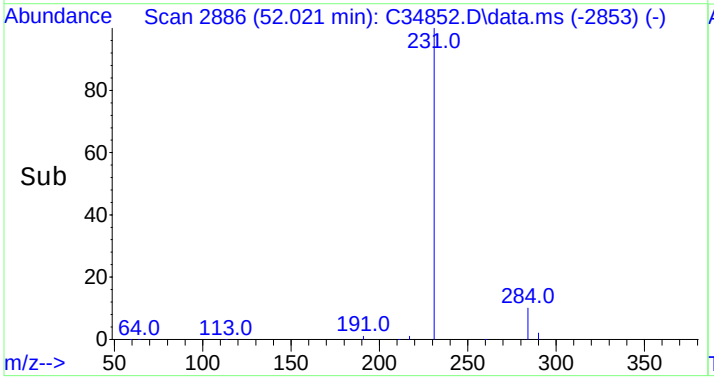


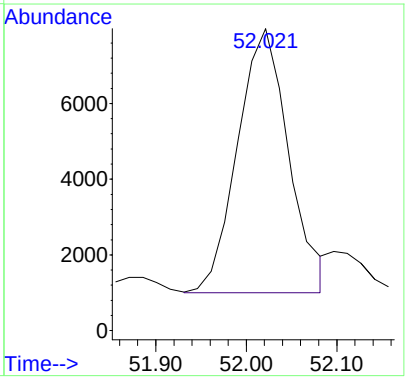




#148
C28,20R-triaromatic steroid
Concen: 2061.34 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34852.D
Acq: 5 May 2012 12:32 am

Tgt Ion:231 Resp: 27469





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20897M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	42470	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	129553	1428.395	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 142.84%#			
42) Phenanthrene-d10	32.567	188	124120	1731.360	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 173.14%#			
86) Benzo[a]pyrene-d12	48.256	264	135728	1542.087	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 154.21%#			
127) 5B(H)Cholane - Surr	43.769	217	23129	1741.867	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 174.19%#			
Target Compounds						Qvalue
3) trans-Decalin	16.369	138	224M3	13.579	ng/mL	
5) C1-Decalins	18.311	152	546M5	33.098	ng/mL	
6) C2-Decalins	19.289	166	1735M5	105.175	ng/mL	
7) C3-Decalins	22.104	180	2353M5	142.638	ng/mL	
8) C4-Decalins	25.492	194	5251M5	318.314	ng/mL	
10) Naphthalene	19.801	128	8607M3	64.624	ng/mL	
11) C1-Naphthalenes	22.496	142	9683M5	72.703	ng/mL	
12) C2-Naphthalenes	25.341	156	23874M5	179.253	ng/mL	
13) C3-Naphthalenes	28.021	170	58899M5	442.230	ng/mL	
14) C4-Naphthalenes	30.444	184	81076M5	608.742	ng/mL	
16) 2-Methylnaphthalene	22.496	142	5439	69.067	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	3902	50.550	ng/mL#	100
18) Benzothiophene	20.027	134	414	3.454	ng/mL	100
19) C1-Benzo(b)thiophenes	22.902	148	1694M5	14.134	ng/mL	
20) C2-Benzo(b)thiophenes	25.537	162	2823M5	23.554	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	12854M5	107.250	ng/mL	
22) C4-Benzo(b)thiophenes	29.617	190	24967M5	208.317	ng/mL	
23) Biphenyl	24.378	154	1627M3	16.333	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	5518	85.285	ng/mL#	100
25) Dibenzofuran	27.464	168	6324M3	55.284	ng/mL	
26) Acenaphthylene	26.079	152	15166	114.711	ng/mL#	100
27) Acenaphthene	26.816	153	7049M3	90.551	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	4334M3	83.096	ng/mL	
29) Fluorene	28.834	166	10176M3	118.526	ng/mL	
30) C1-Fluorenes	31.212	180	12315M5	143.440	ng/mL	
31) C2-Fluorenes	33.410	194	37040M5	431.428	ng/mL	
32) C3-Fluorenes	35.909	208	72049M5	839.200	ng/mL	
33) Dibenzothiophene	32.161	184	16320	118.584	ng/mL#	51
34) 4-Methyldibenzothiophe...	33.937	198	22781	165.531	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.283	198	22060	160.292	ng/mL#	100
36) 1-Methyldibenzothiophe...	34.705	198	12742	92.586	ng/mL#	100
37) OTP	34.359	198	22432M3	162.995	ng/mL	
38) C1-Dibenzothiophenes	34.359	198	85010M5	617.699	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	156241M5	1135.277	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	212903M5	1546.994	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	160590M5	1166.878	ng/mL	
43) Phenanthrene	32.657	178	176383	1458.747	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.630	192	26468	218.899	ng/mL	93
45) 2/4-Methylphenanthrene...	34.735	192	32419M3	268.116	ng/mL	
46) 2-Methylanthracene(2MA)	34.886	192	10939	90.469	ng/mL#	50
47) 9-Methylphenanthrene(9MP)	35.081	192	35201	291.124	ng/mL	86
48) 1-Methylphenanthrene(1MP)	35.172	192	21856M3	180.757	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.081	192	126600M5	1047.025	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	159988M5	1323.155	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	144566M5	1195.610	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	78786M5	651.587	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
55) Anthracene	32.838	178		41149M3	348.407	ng/mL	
56) Carbazole	33.515	167		18487M3	154.962	ng/mL	
57) 1-Methylphenanthrene	35.172	192		21910M3	285.937	ng/mL	
58) Fluoranthene	37.430	202		464182M3	3865.351	ng/mL	
59) Benzo(b)fluorene	39.944	216		27502M3	394.746	ng/mL	
60) Pyrene	38.318	202		406059	3326.378	ng/mL	95
61) C1-Fluoranthenes/Pyrenes	39.704	216		222268M5	1820.788	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230		157133M5	1287.211	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244		103637M5	848.980	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258		94155M5	771.304	ng/mL	
66) Naphthobenzothiophene	42.173	234		57874	440.366	ng/ml#	73
67) Naphthobenzothiophene-...	42.173	234		57874	440.366	ng/mL#	73
68) Naphthobenzothiophene-...	42.504	234		12507	95.166	ng/mL#	13
69) Naphthobenzothiophene-...	42.805	234		22409M3	170.511	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248		116281M5	884.788	ng/ml	
71) C2-Naphthobenzothiophenes	45.575	262		147936M5	1125.653	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276		124946M5	950.721	ng/ml	
73) C4-Naphthobenzothiophenes	48.256	290		90439M5	688.155	ng/mL	
75) Benz[a]anthracene	43.106	228		194854M3	1445.515	ng/mL	
77) Chrysene/Triphenylene	43.257	228		251807	1850.286	ng/mL	100
78) C1-Chrysenes	44.732	242		118602M5	871.491	ng/mL	
79) C2-Chrysenes	46.449	256		87816M5	645.275	ng/mL	
80) C3-Chrysenes	48.030	270		94411M5	693.735	ng/mL	
81) C4-Chrysenes	49.521	284		50326M5	369.797	ng/mL	
82) Benzo[b]fluoranthene	47.157	252		267749	1807.682	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.217	252		236429	1466.123	ng/mL	100
84) Benzo[a]fluoranthene	47.533	252		51549M3	319.661	ng/mL	
85) Benzo[e]pyrene	48.151	252		193285	1319.294	ng/mL	99
87) Benzo[a]pyrene	48.347	252		250208	1773.830	ng/mL	99
88) Perylene	48.648	252		82859	549.650	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.181	276		213461M3	1300.403	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278		59202	379.131	ng/mL#	88
91) Benzo[g,h,i]perylene	54.506	276		214645	1237.682	ng/mL	99
92) Hopane (T19)	52.232	191		45242M3	1616.320	ng/mL	
94) C23 Tricyclic Terpane ...	40.788	191		14627M3	522.566	ng/ml	
95) C24 Tricyclic Terpane ...	41.525	191		8688	310.388	ng/ml	100
96) C25 Tricyclic Terpane ...	43.046	191		8366M3	298.885	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191		3605	128.793	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191		3991M3	142.583	ng/ml	
99) C26 Tricyclic Terpane-...	44.160	191		3593M3	128.364	ng/ml	
100) C28 Tricyclic Terpane-...	46.449	191		3440M3	122.898	ng/ml	
101) C28 Tricyclic Terpane-...	46.615	191		5395M3	192.742	ng/ml	
102) C29 Tricyclic Terpane-...	47.127	191		4371	156.159	ng/ml	100
103) C29 Tricyclic Terpane-...	47.322	191		4384M3	156.623	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.452	191		6620	236.507	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.542	191		3710M3	132.544	ng/mL	
106) C30 Tricyclic Terpane-22R	48.783	191		3238M3	115.681	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.994	191		12106	432.500	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.199	191		7387M3	263.909	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.958	191		6566	234.578	ng/ml	100
110) 30-Norhopane (T15)	50.862	191		34491M3	1232.229	ng/ml	
111) 18a(H)-30-Norneohopane...	50.967	191		6371M3	227.611	ng/ml	
112) 17a(H)-Diahopane (X)	51.088	191		1358	48.516	ng/ml	100
113) 30-Normoretane (T17)	51.645	191		4067M3	145.298	ng/ml	
114) 18a(H)&18b(H)-Oleanane...	52.036	191		2238M3	79.955	ng/ml	
115) Moretane (T20)	52.895	191		3865M3	138.081	ng/ml	
116) 30-Homohopane-22S (T21)	54.024	191		19819M3	708.056	ng/ml	
117) 30-Homohopane-22R (T22)	54.250	191		16311	582.728	ng/ml	100
118) Gammacerane/C32-diahopane	54.807	191		6502	232.291	ng/mL	100
119) 30,31-Bishomohopane-22...	55.545	191	G	47070M3	1681.627	ng/ml	
120) 30,31-Bishomohopane-22...	55.982	191		14274	509.954	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

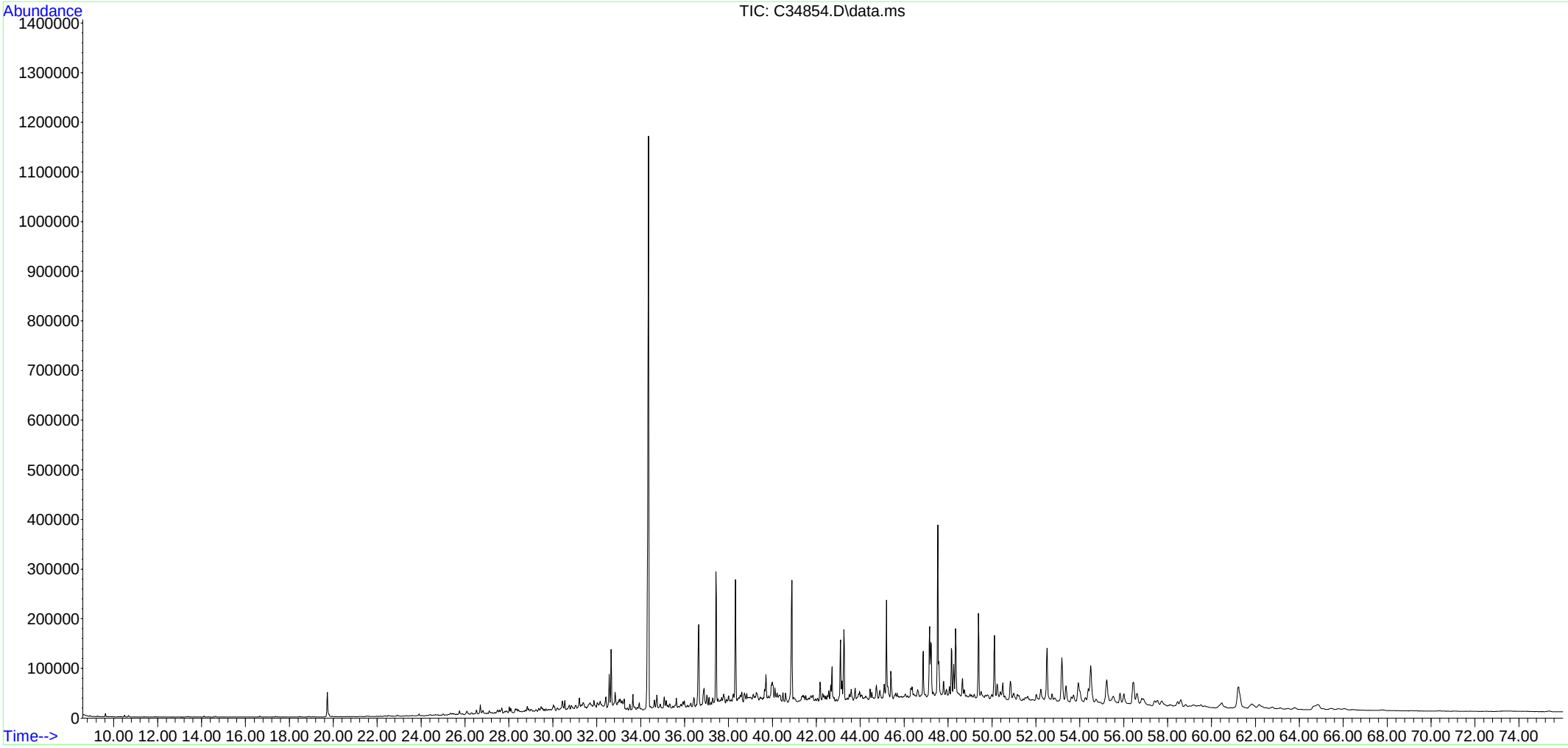
	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
121)	30,31-Trishomohopane-2...	57.713	191		13173M3	470.620	ng/ml	
122)	30,31-Trishomohopane-2...	58.331	191		4953	176.951	ng/ml	100
123)	Tetrakishomohopane-22S...	60.379	191		10596M3	378.554	ng/ml	
124)	Tetrakishomohopane-22R...	61.222	191	G	39170	1399.391	ng/ml	100
125)	Pentakishomohopane-22S...	63.496	191		8317	297.134	ng/ml	100
126)	Pentakishomohopane-22R...	64.791	191		5437M3	194.243	ng/ml	
128)	13b(H),17a(H)-20S-Diac...	45.274	217		3309M3	249.204	ng/ml	
129)	13b(H),17a(H)-20R-Diac...	45.696	217		1450	109.201	ng/ml	100
130)	13b,17a-20S-Methyldiac...	46.389	217		1326M3	99.862	ng/ml	
131)	14a,17a-20S-Chol/13b,1...	47.262	217		5281	397.717	ng/ml	100
132)	14a,17a-20R-Chol/13b,1...	47.774	217		6325M3	476.342	ng/ml	
133)	Unknown Sterane (S18)	48.060	217		1415	106.565	ng/ml	100
134)	13a,17b-20S-Ethyldiach...	48.316	217		309	23.271	ng/ml	100
135)	14a,17a-20S-Methylchol...	48.482	217		2744	206.653	ng/ml	100
136)	14a,17a-20R-Methylchol...	49.190	217		2535M3	190.913	ng/ml	
137)	14a(H),17a(H)-20S-Ethy...	49.551	217		4686M3	352.907	ng/ml	
138)	14a(H),17a(H)-20R-Ethy...	50.470	217		4543M3	342.138	ng/ml	
139)	14b(H),17b(H)-20R-Chol...	47.353	218		3371M3	253.873	ng/ml	
140)	14b(H),17b(H)-20S-Chol...	47.443	218		3642M3	274.283	ng/ml	
141)	14b,17b-20R-Methylchol...	48.648	218		3033	228.418	ng/ml	100
142)	14b,17b-20S-Methylchol...	48.738	218		4366M3	328.808	ng/ml	
143)	14b(H),17b(H)-20R-Ethy...	49.792	218		5002M3	376.705	ng/ml	
144)	14b(H),17b(H)-20S-Ethy...	49.837	218		5099M3	384.011	ng/ml	
145)	C26,20R- +C27,20S- tri...	49.506	231		24781M3	1866.281	ng/mL	
146)	C28,20S-triaromatic st...	50.365	231		22716	1710.764	ng/mL	100
147)	C27,20R-triaromatic st...	50.816	231		16859	1269.667	ng/mL	100
148)	C28,20R-triaromatic st...	52.021	231		18581M3	1399.353	ng/mL	

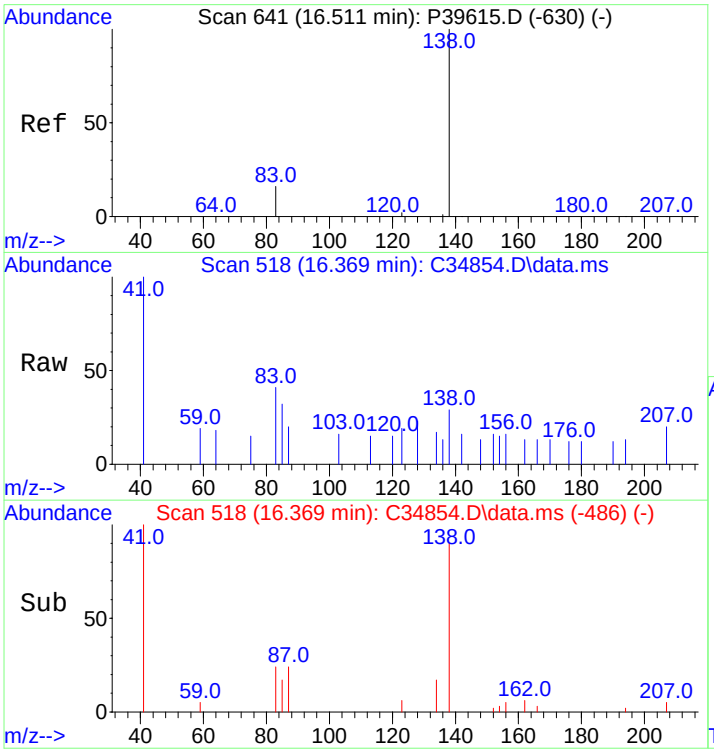
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34854.D
Acq On : 5 May 2012 2:06 am
Operator : AC
Sample : 1204035-06
Misc : 1X
ALS Vial : 40 Sample Multiplier: 1

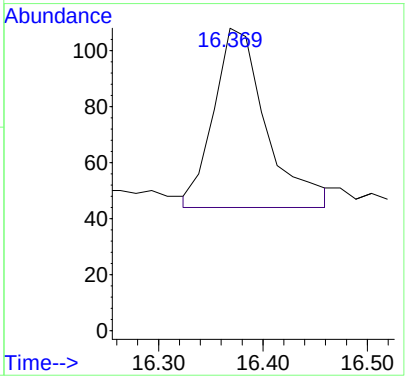
Quant Time: May 06 15:15:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

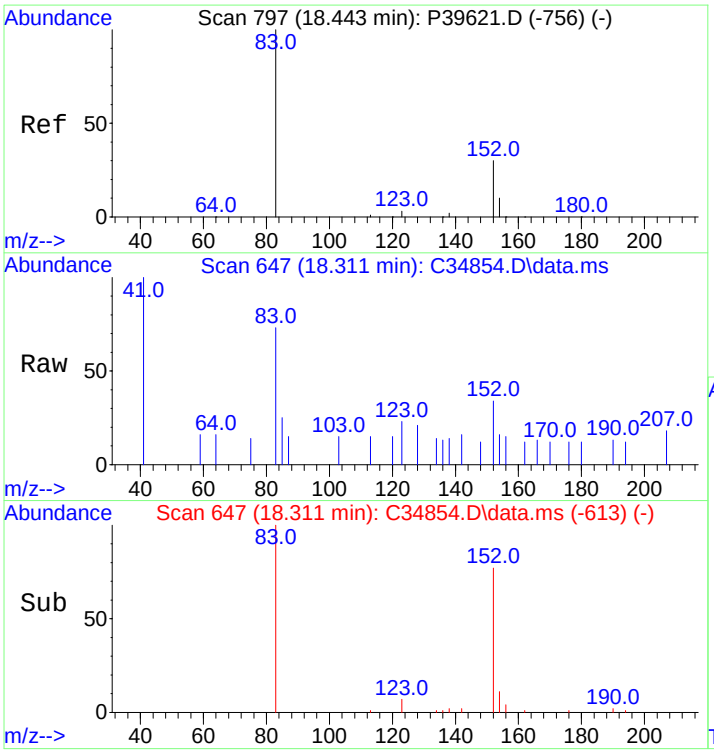




#3
trans-Decalin
Concen: 13.58 ng/mL m
RT: 16.369 min Scan# 518
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

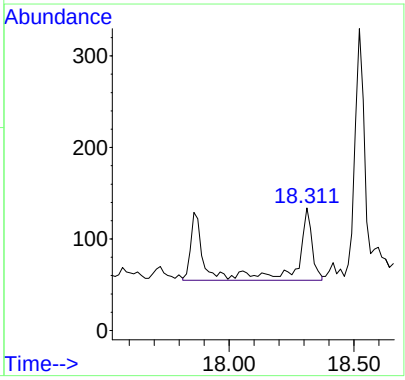
Tgt Ion:138 Resp: 224

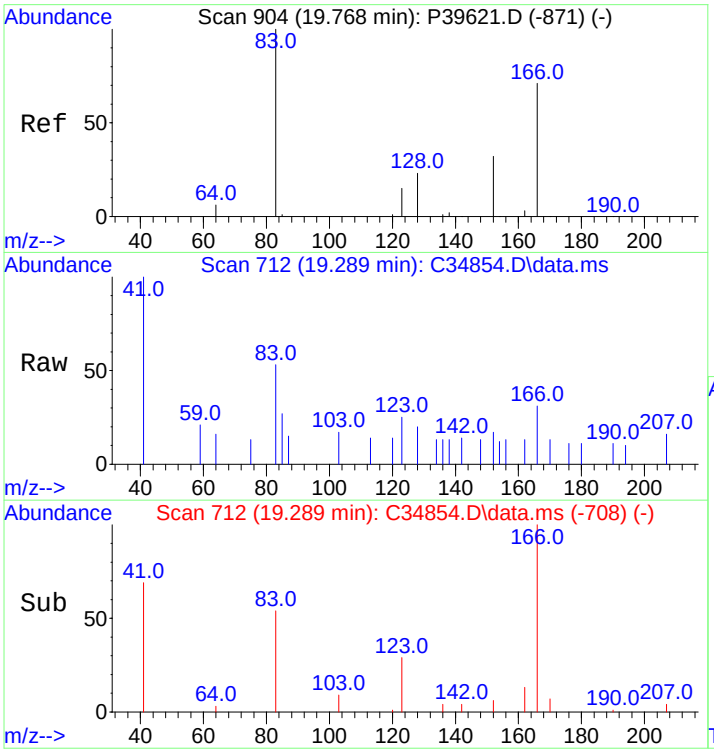




#5
C1-Decalins
Concen: 33.10 ng/mL m
RT: 18.311 min Scan# 647
Delta R.T. -0.038 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

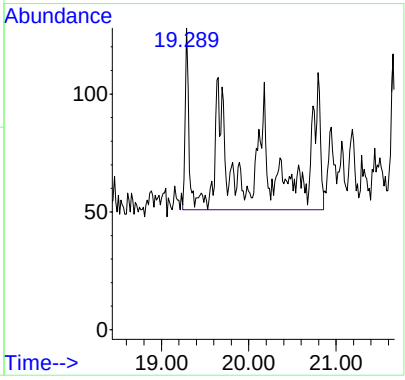
Tgt Ion:152 Resp: 546

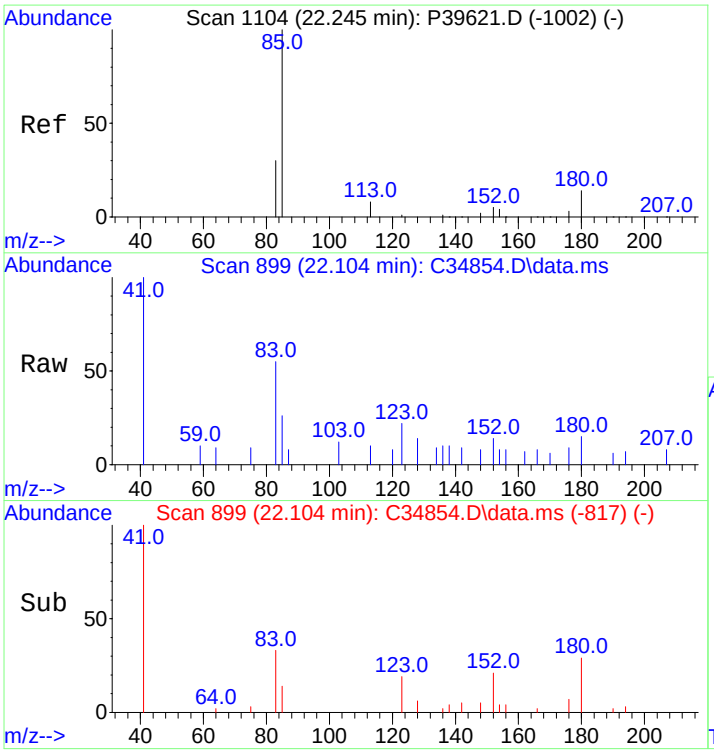




#6
C2-Decalins
Concen: 105.18 ng/mL m
RT: 19.289 min Scan# 712
Delta R.T. -0.393 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

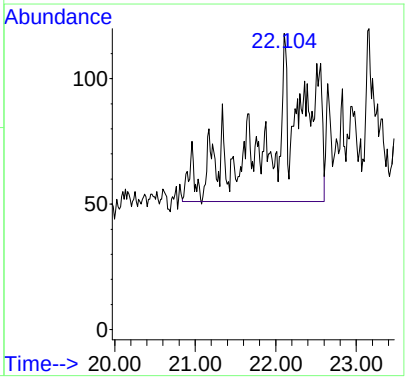
Tgt Ion:166 Resp: 1735

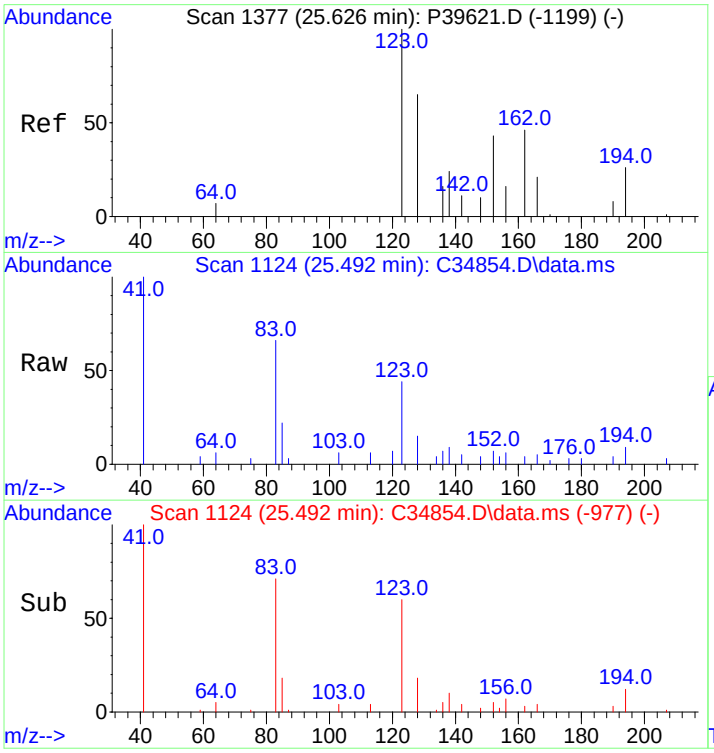




#7
C3-Decalins
Concen: 142.64 ng/mL m
RT: 22.104 min Scan# 899
Delta R.T. -0.036 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

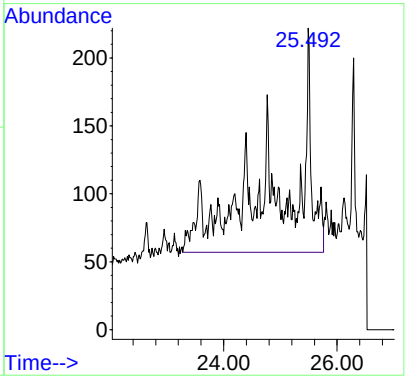
Tgt Ion:180 Resp: 2353

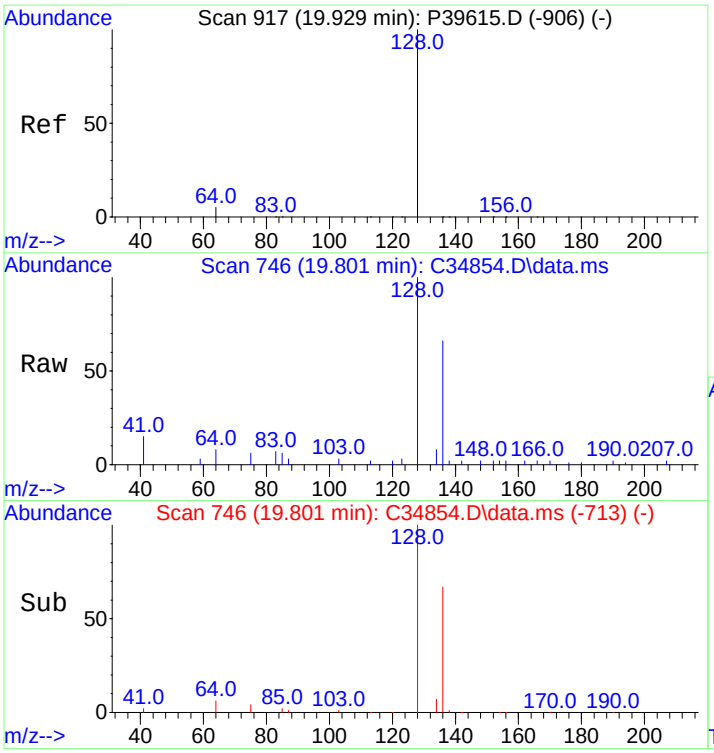




#8
C4-Decalins
Concen: 318.31 ng/mL m
RT: 25.492 min Scan# 1124
Delta R.T. -0.020 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:194 Resp: 5251

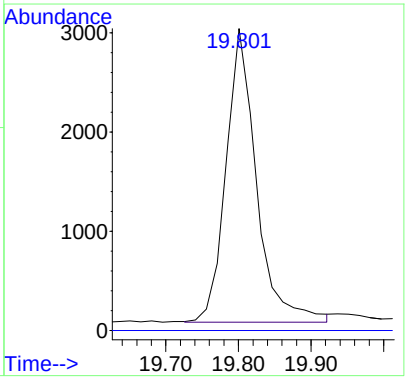


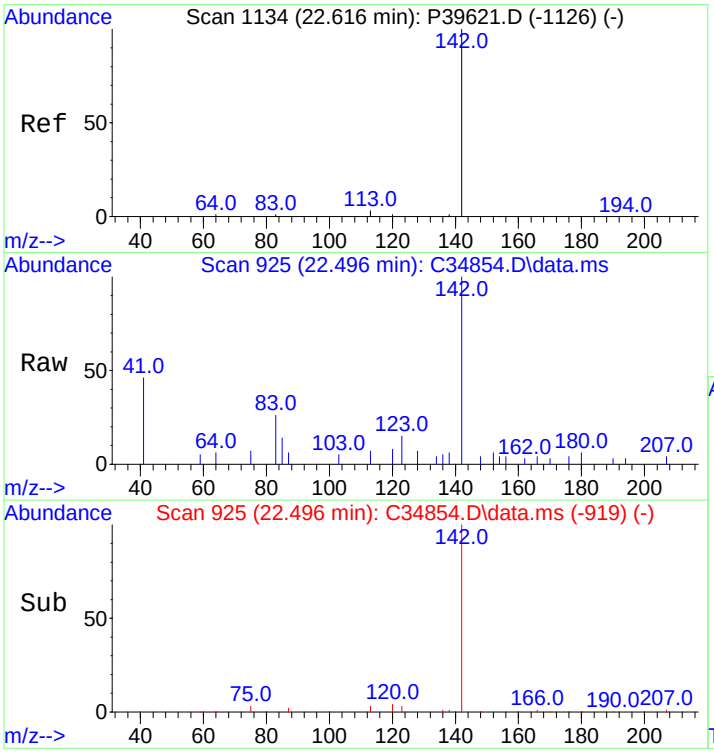


#10
Naphthalene
Concen: 64.62 ng/mL m
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:128 Resp: 8607

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

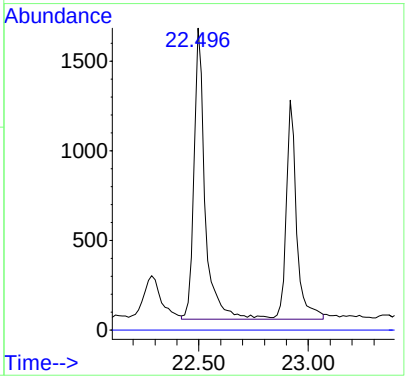


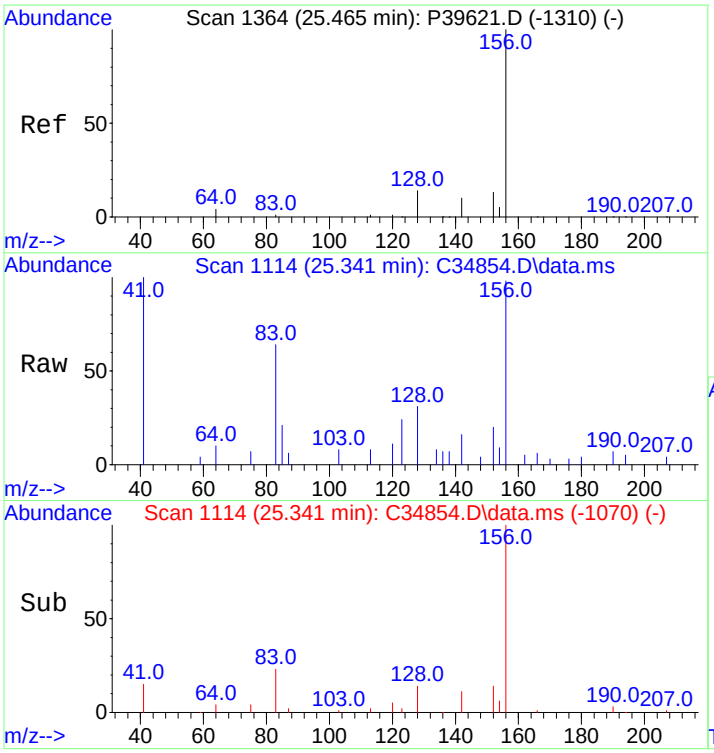


#11
C1-Naphthalenes
Concen: 72.70 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:142 Resp: 9683

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

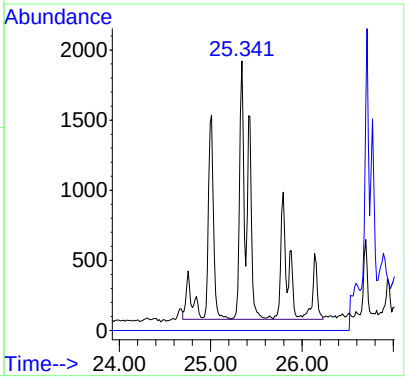


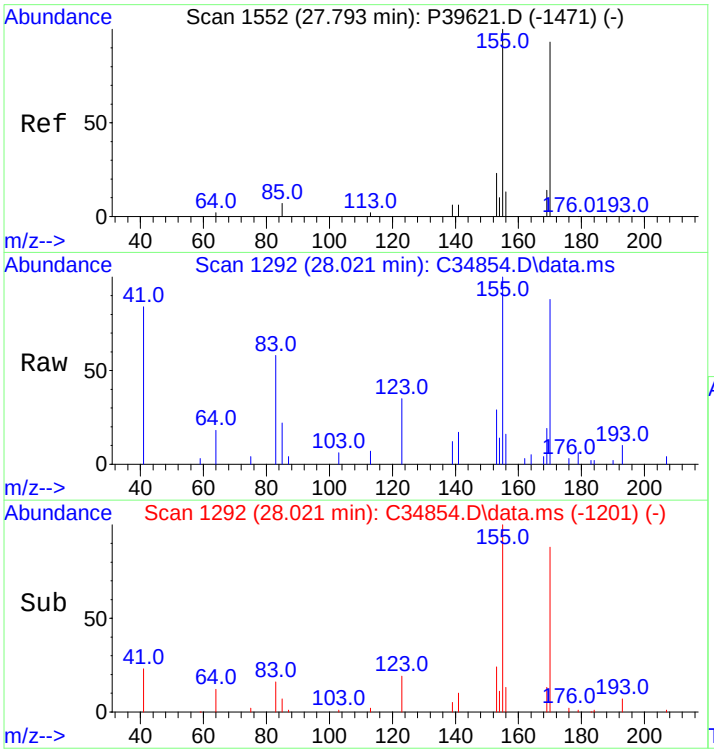


#12
C2-Naphthalenes
Concen: 179.25 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:156 Resp: 23874

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

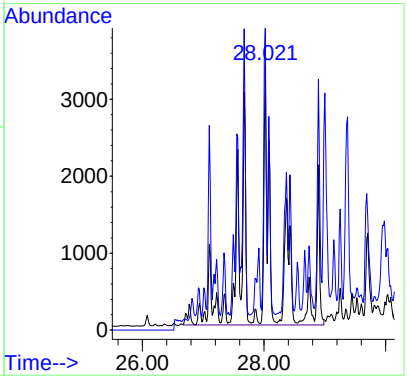


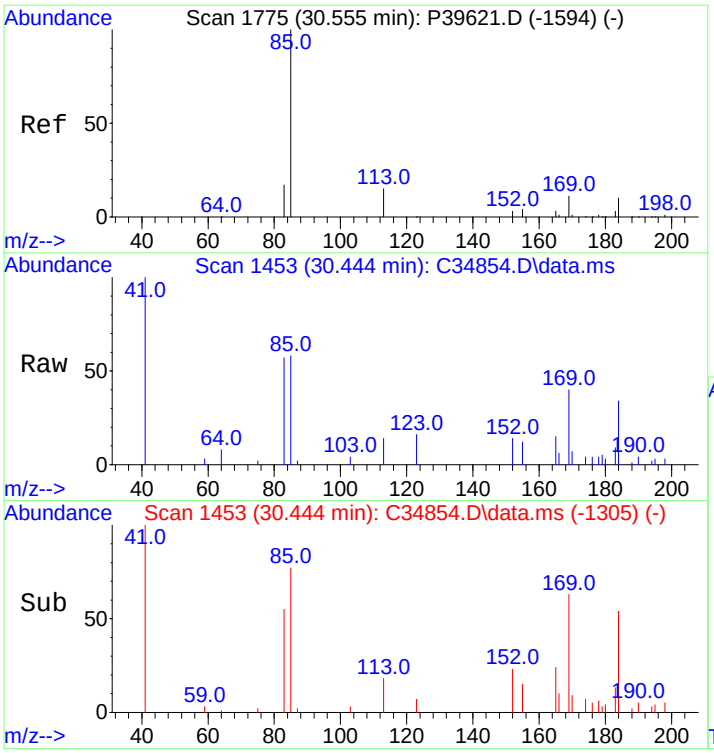


#13
C3-Naphthalenes
Concen: 442.23 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:170 Resp: 58899

Ion	Ratio	Lower	Upper
170	100		
155	16.3	81.8	122.6#

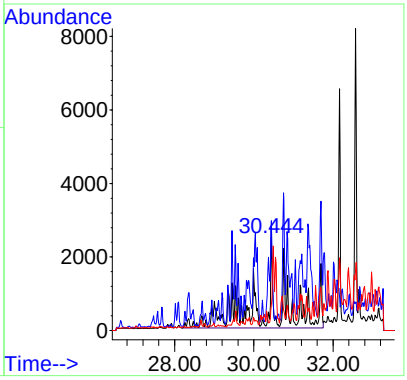


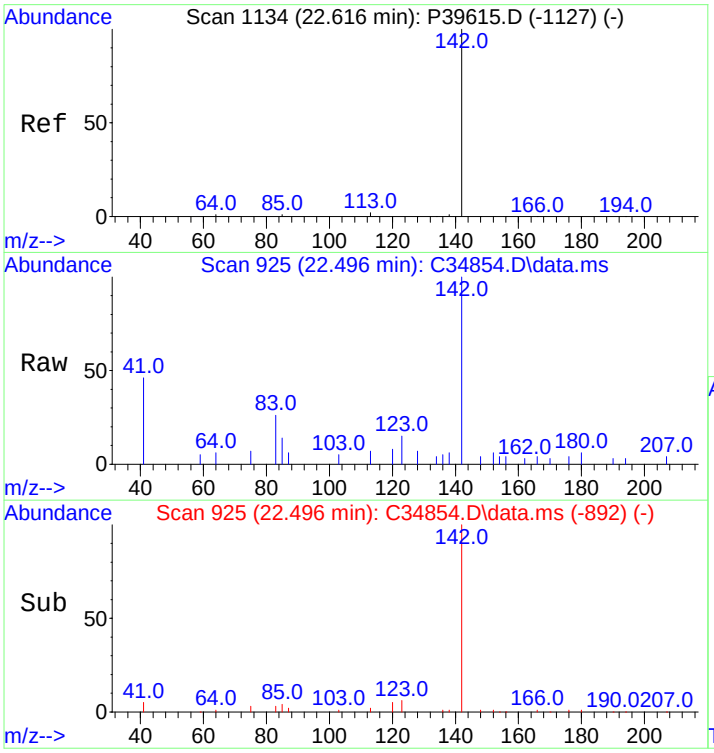


#14
C4-Naphthalenes
Concen: 608.74 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:184 Resp: 81076

Ion	Ratio	Lower	Upper
184	100		
169	2.7	77.4	116.0#
183	0.5	14.8	22.2#

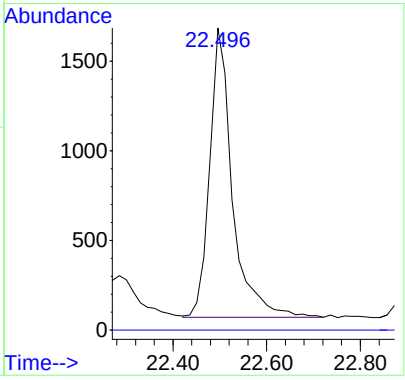


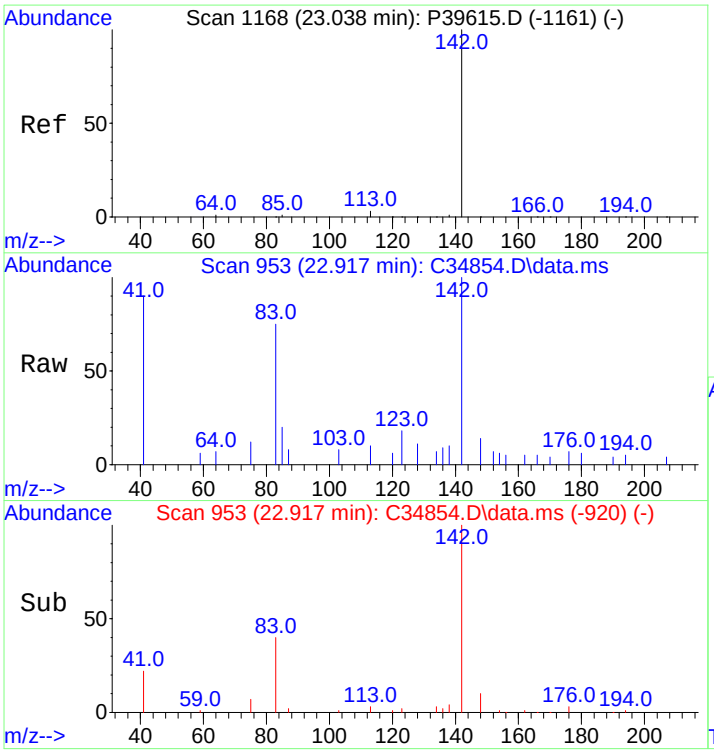


#16
2-Methylnaphthalene
Concen: 69.07 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:142 Resp: 5439

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

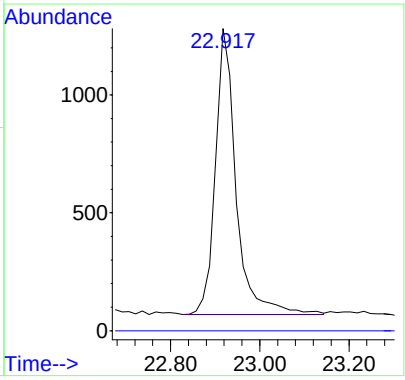


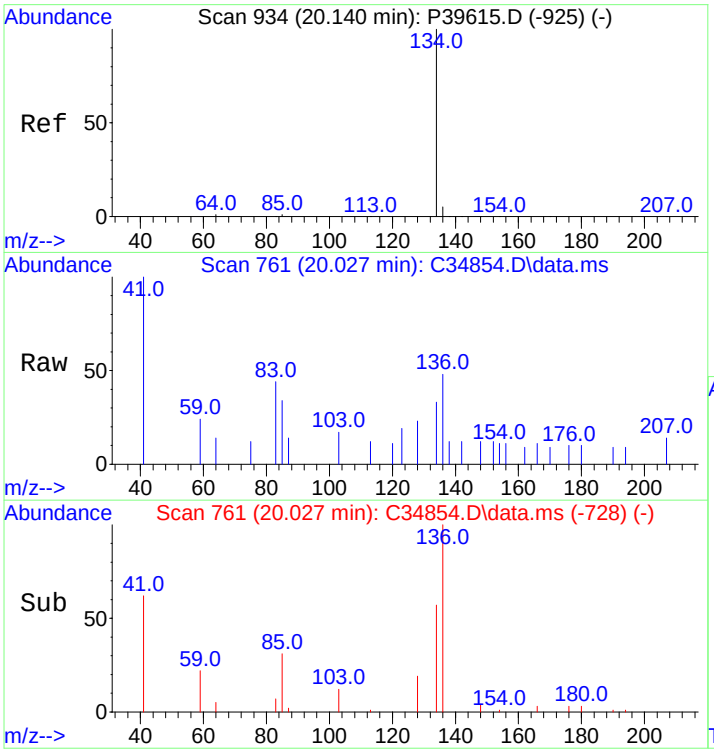


#17
1-Methylnaphthalene
Concen: 50.55 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:142 Resp: 3902

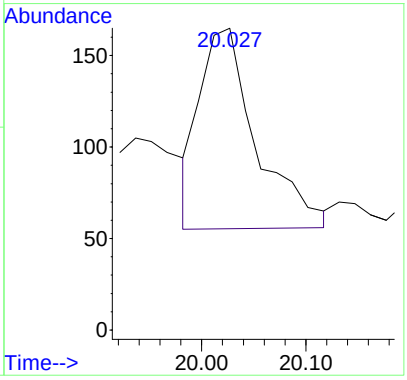
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

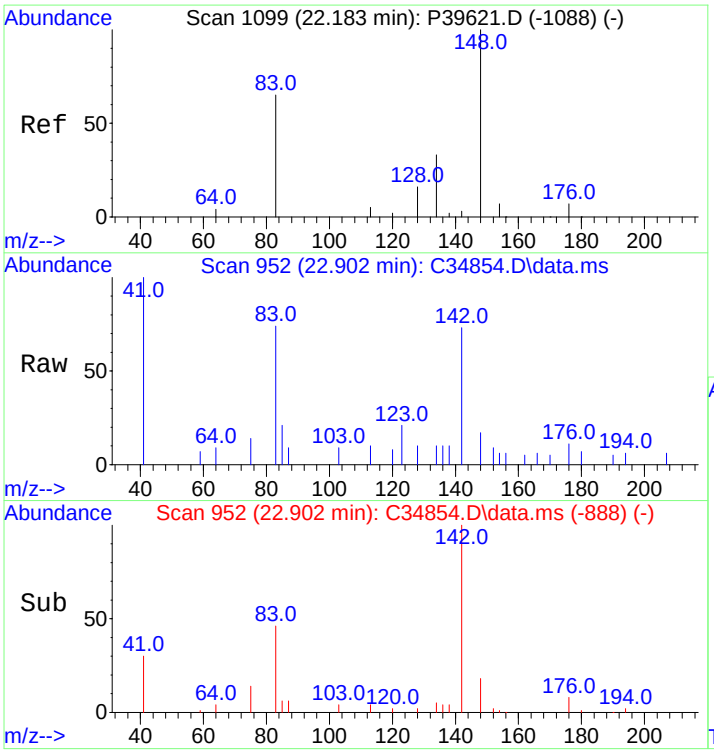




#18
Benzothiophene
Concen: 3.45 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

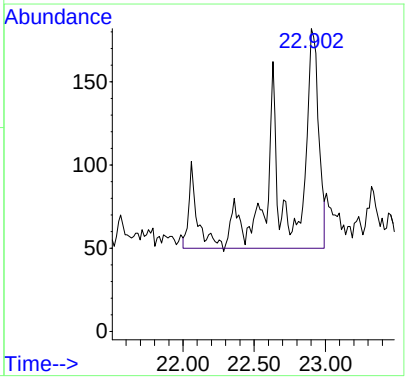
Tgt Ion:134 Resp: 414

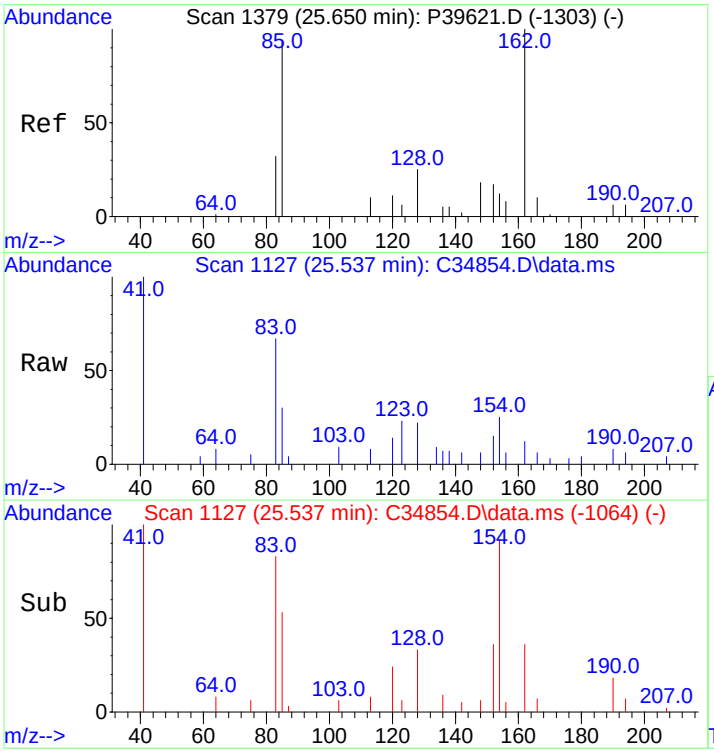




#19
C1-Benzo(b)thiophenes
Concen: 14.13 ng/mL m
RT: 22.902 min Scan# 952
Delta R.T. 0.822 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

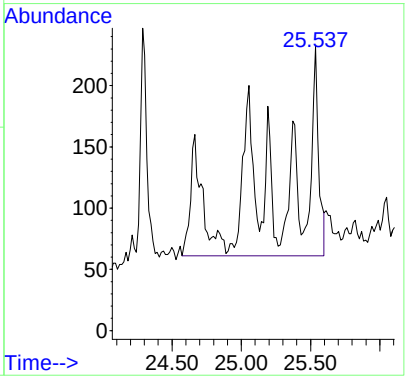
Tgt Ion:148 Resp: 1694

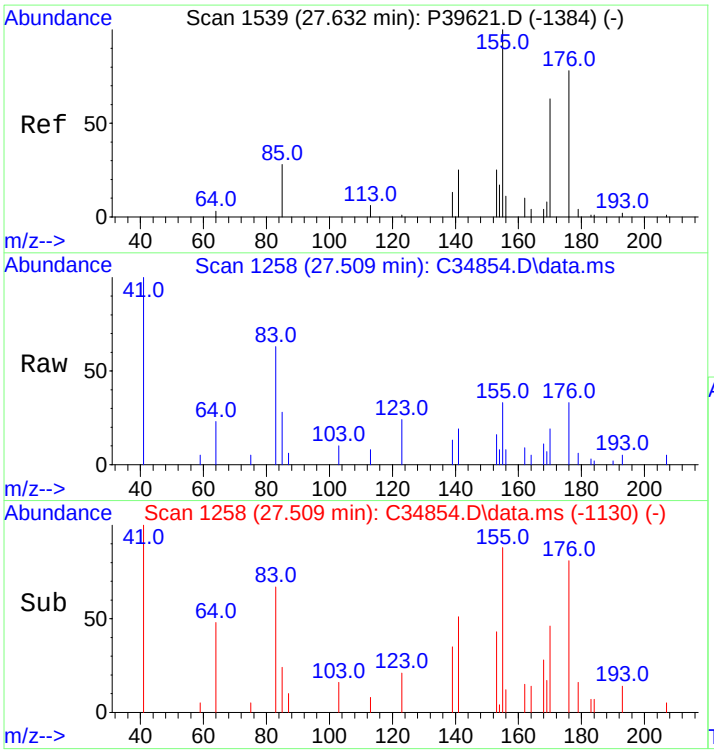




#20
C2-Benzo(b)thiophenes
Concen: 23.55 ng/mL m
RT: 25.537 min Scan# 1127
Delta R.T. -0.005 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

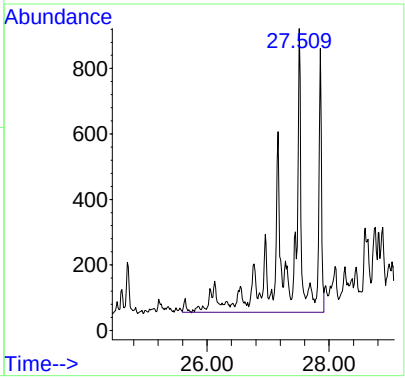
Tgt Ion:162 Resp: 2823

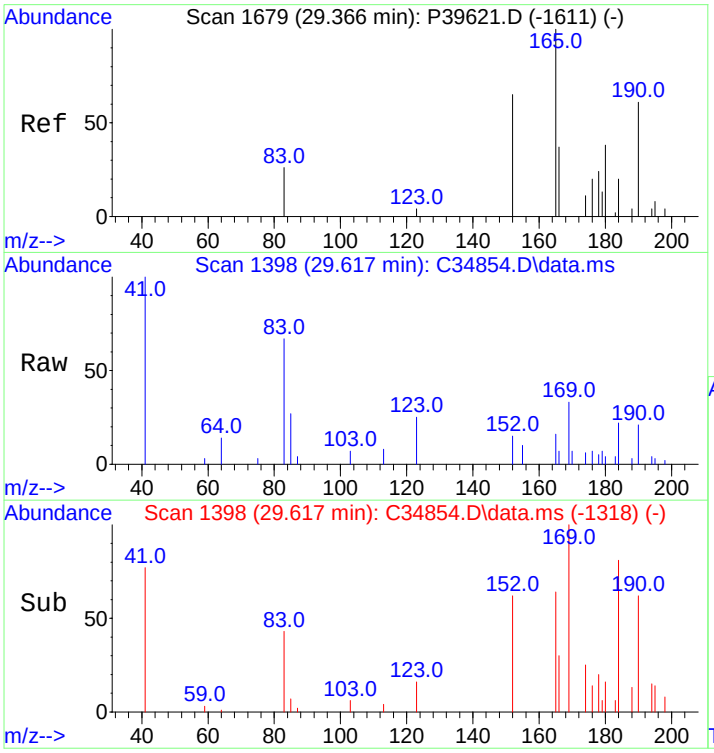




#21
C3-Benzo(b)thiophenes
Concen: 107.25 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.004 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

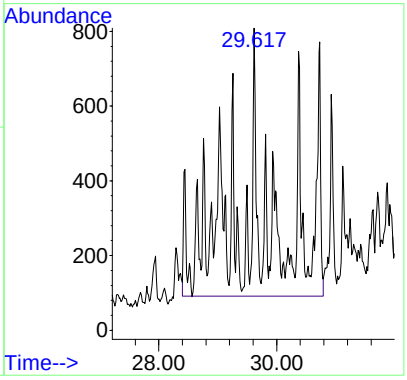
Tgt Ion:176 Resp: 12854

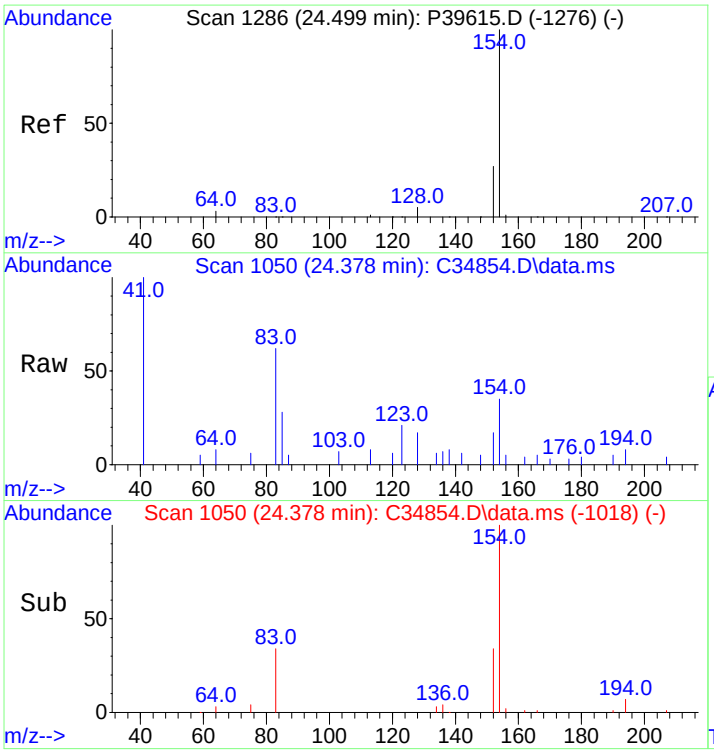




#22
C4-Benzo(b)thiophenes
Concen: 208.32 ng/mL m
RT: 29.617 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:190 Resp: 24967

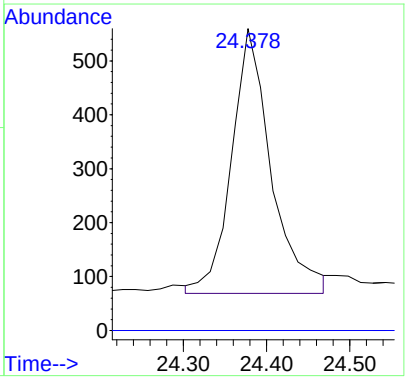


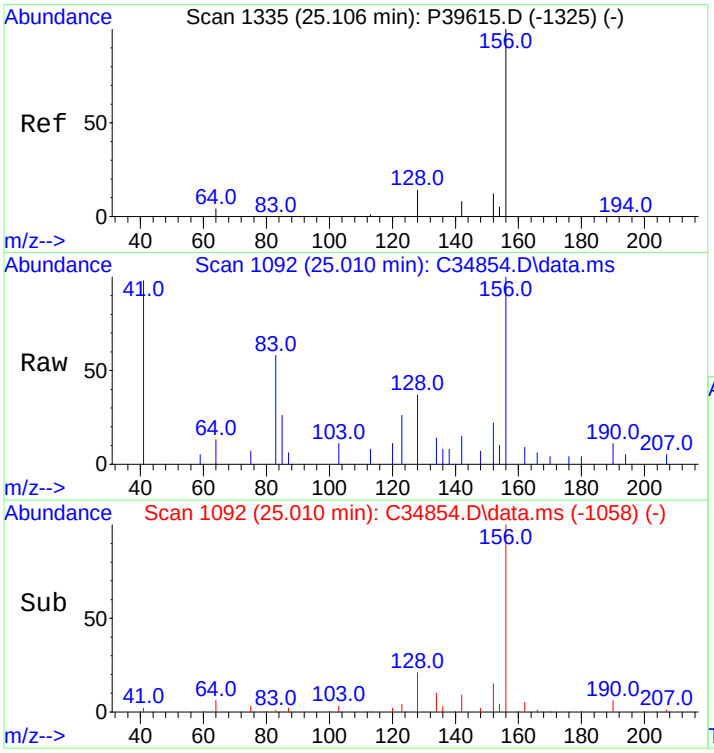


#23
Biphenyl
Concen: 16.33 ng/mL m
RT: 24.378 min Scan# 1050
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:154 Resp: 1627

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

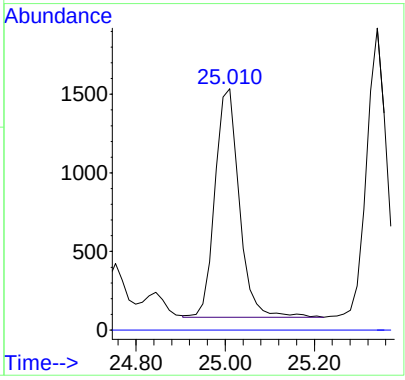


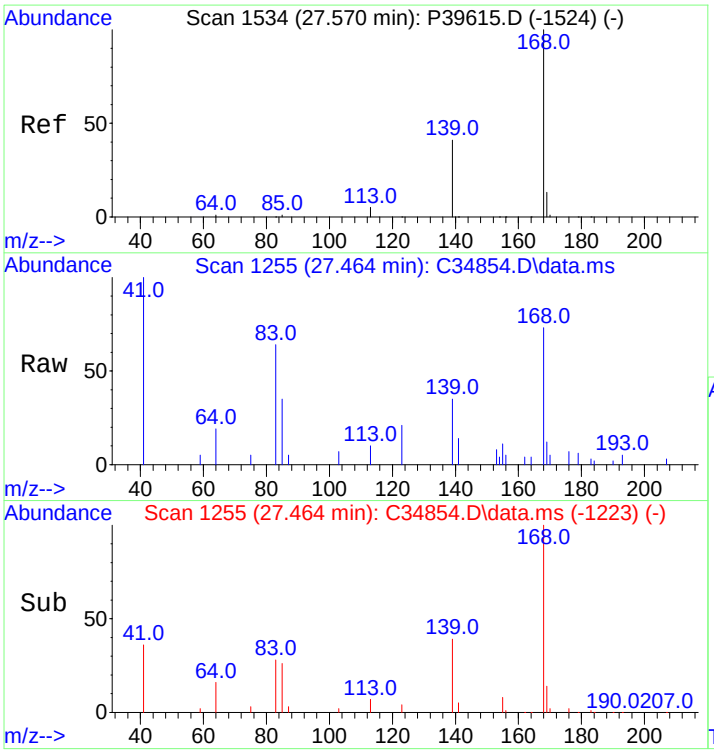


#24
2,6-Dimethylnaphthalene
Concen: 85.29 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:156 Resp: 5518

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

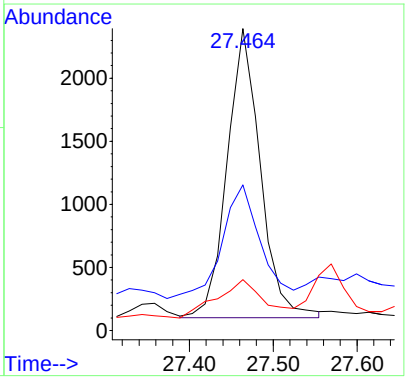


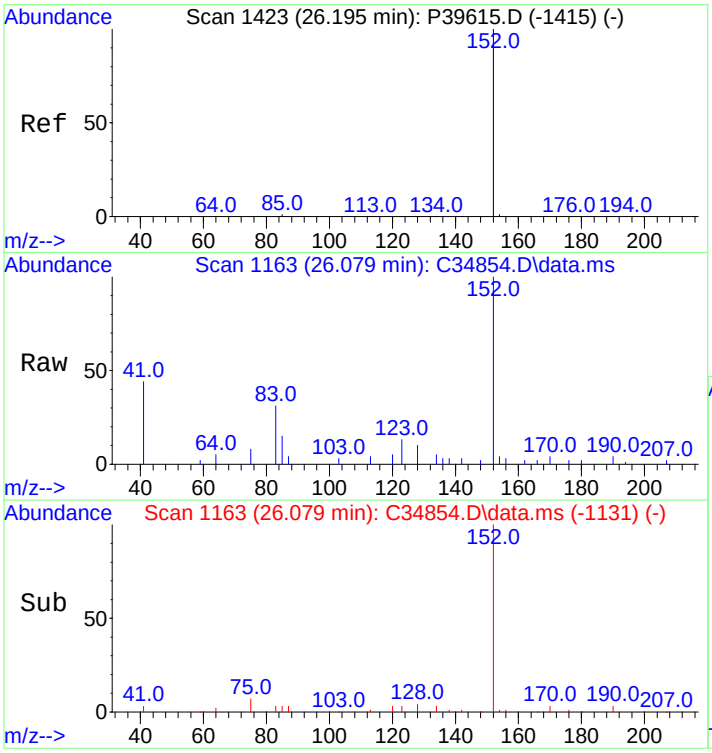


#25
Dibenzofuran
Concen: 55.28 ng/mL m
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:168 Resp: 6324

Ion	Ratio	Lower	Upper
168	100		
139	45.1	28.4	42.6#
169	19.2	10.8	16.2#

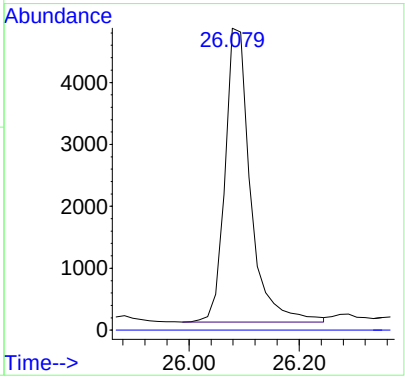


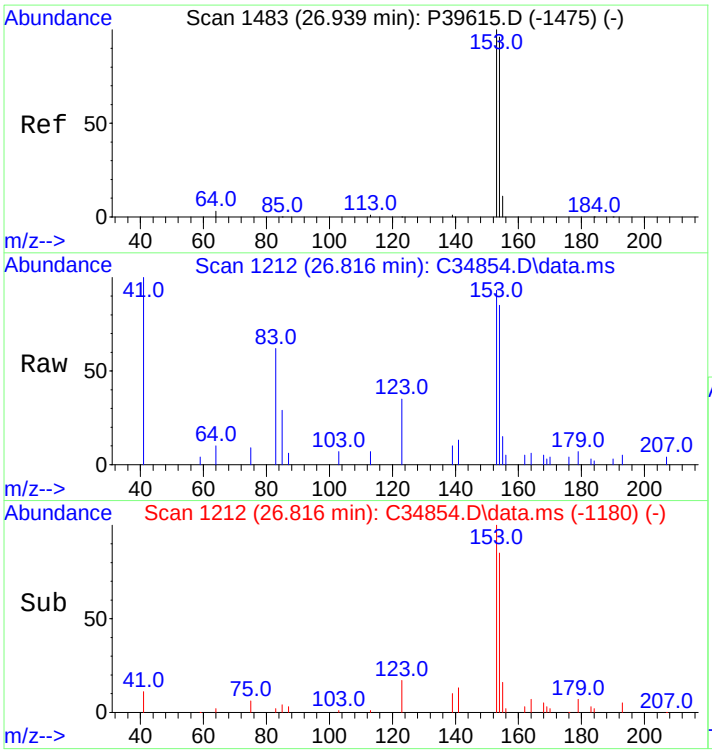


#26
Acenaphthylene
Concen: 114.71 ng/mL
RT: 26.079 min Scan# 1163
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:152 Resp: 15166

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

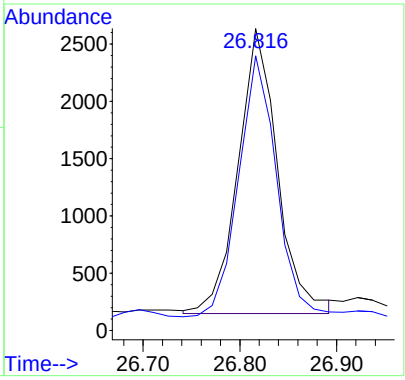


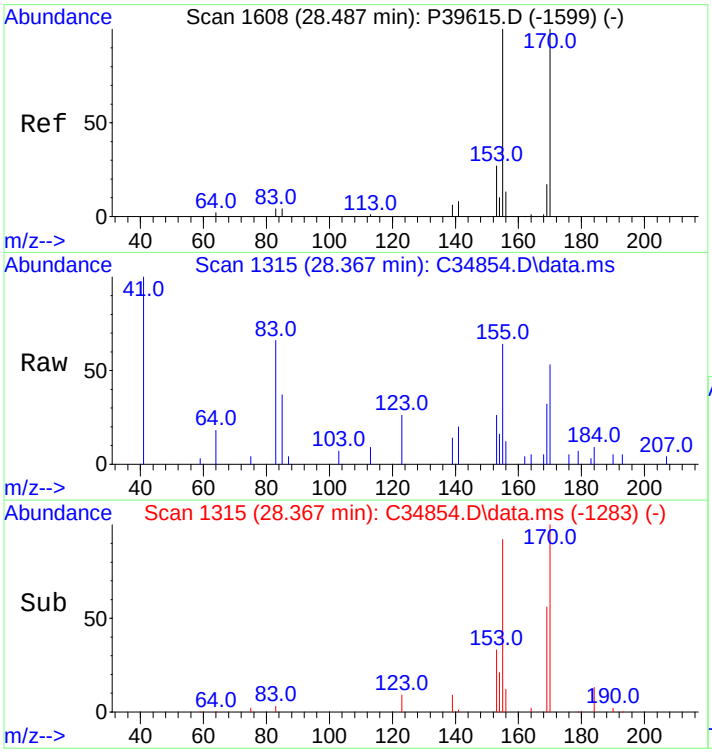


#27
Acenaphthene
Concen: 90.55 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:153 Resp: 7049

Ion	Ratio	Lower	Upper
153	100		
154	90.0	73.6	110.4

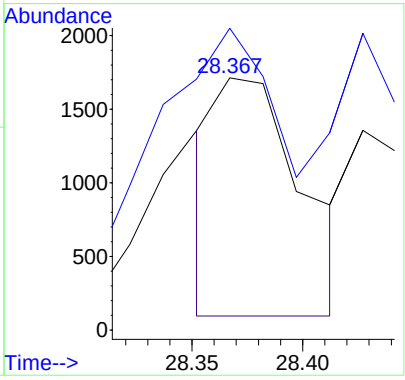


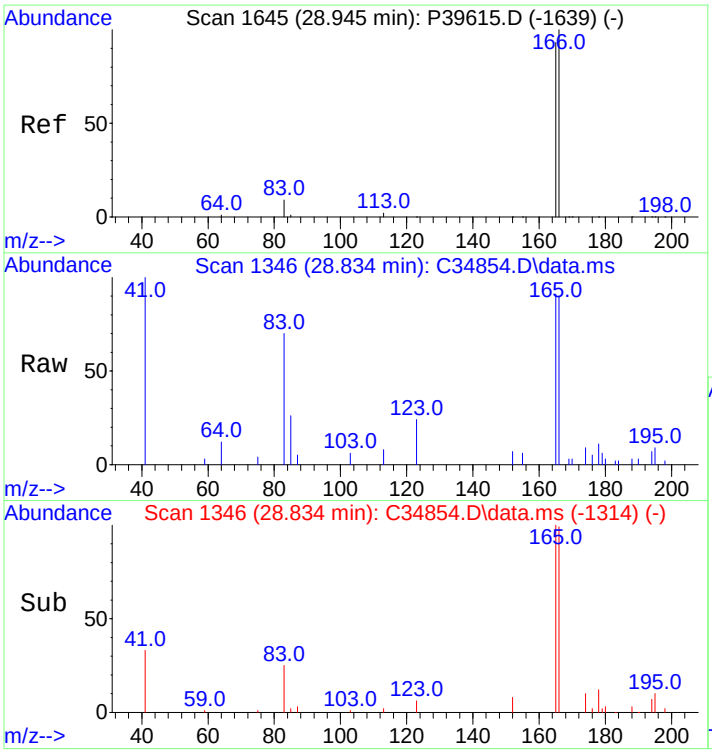


#28
2,3,5-Trimethylnaphthalene
Concen: 83.10 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:170 Resp: 4334

Ion	Ratio	Lower	Upper
170	100		
155	172.2	87.3	130.9#

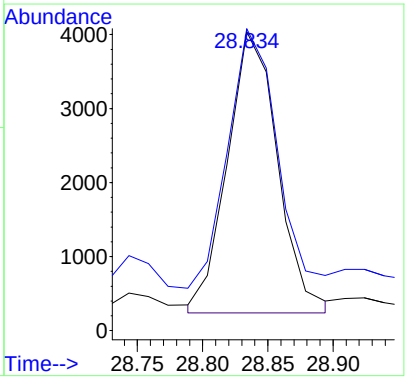


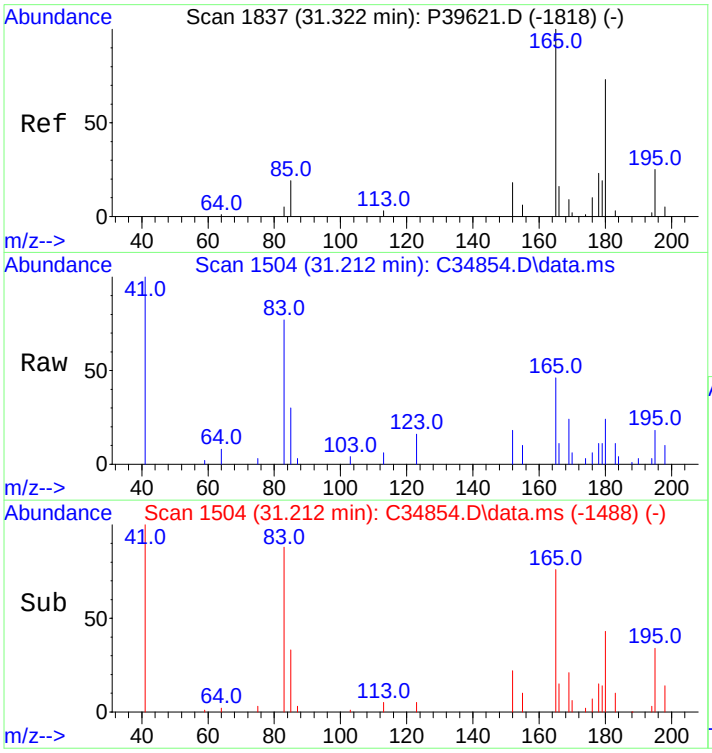


#29
Fluorene
Concen: 118.53 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:166 Resp: 10176

Ion	Ratio	Lower	Upper
166	100		
165	94.2	77.3	115.9

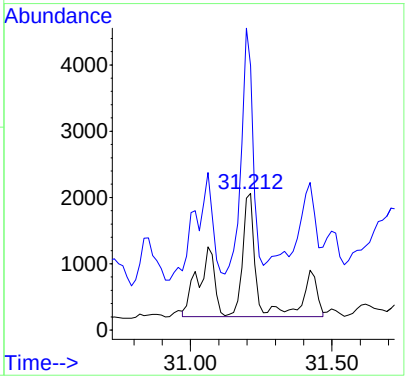


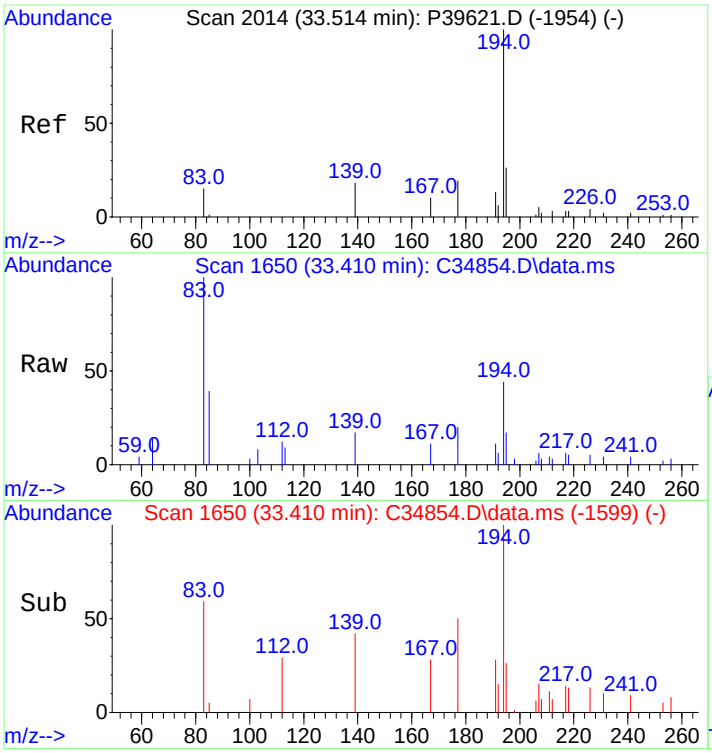


#30
C1-Fluorenes
Concen: 143.44 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:180 Resp: 12315

Ion	Ratio	Lower	Upper
180	100		
165	39.2	111.4	167.2#

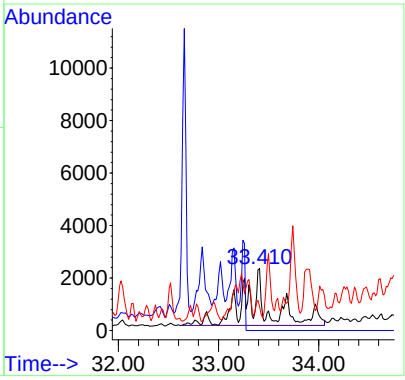


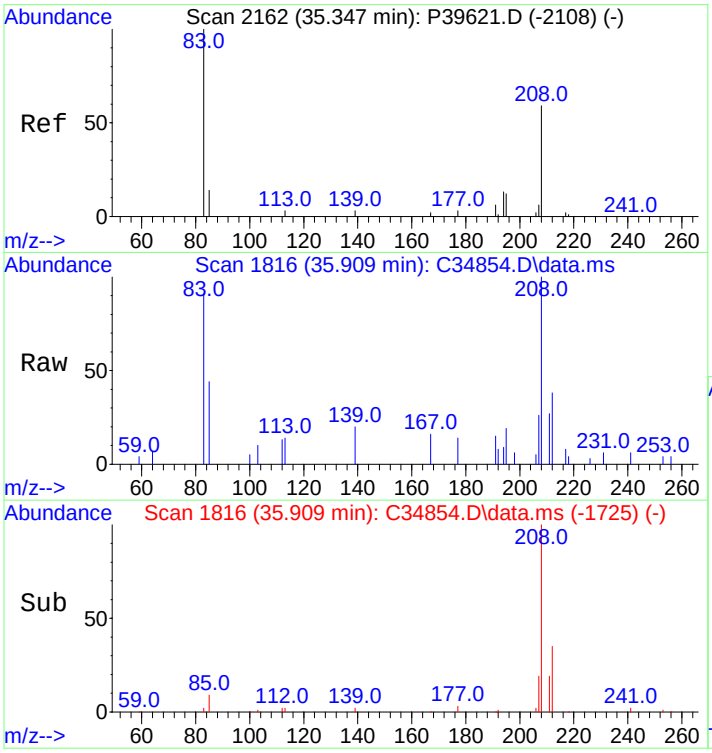


#31
C2-Fluorenes
Concen: 431.43 ng/mL m
RT: 33.410 min Scan# 1650
Delta R.T. 0.060 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:194 Resp: 37040

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	12.1	27.3	40.9#

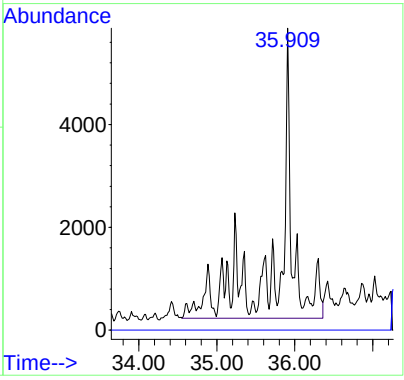


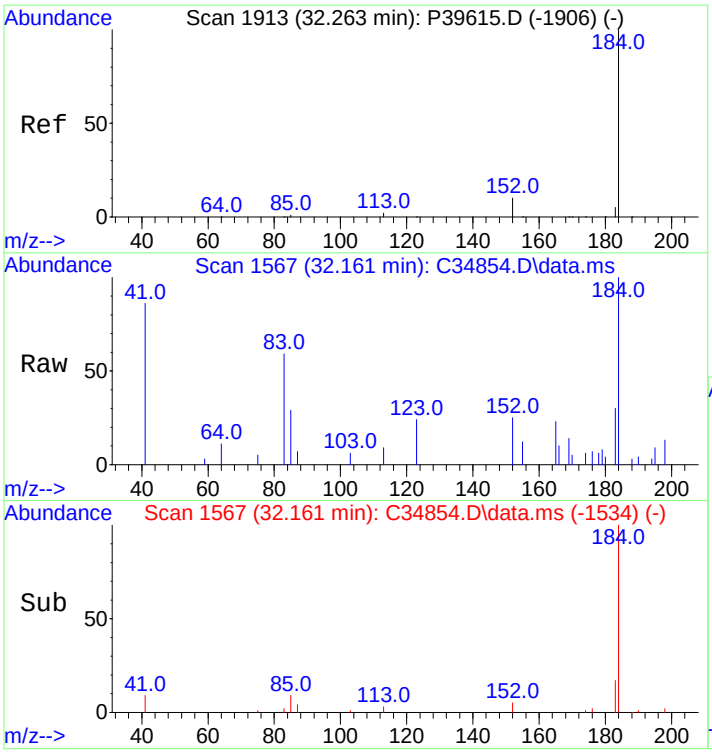


#32
C3-Fluorenes
Concen: 839.20 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:208 Resp: 72049

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

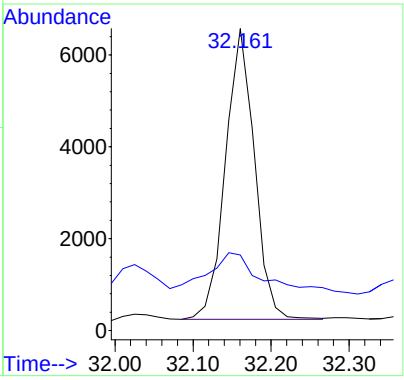


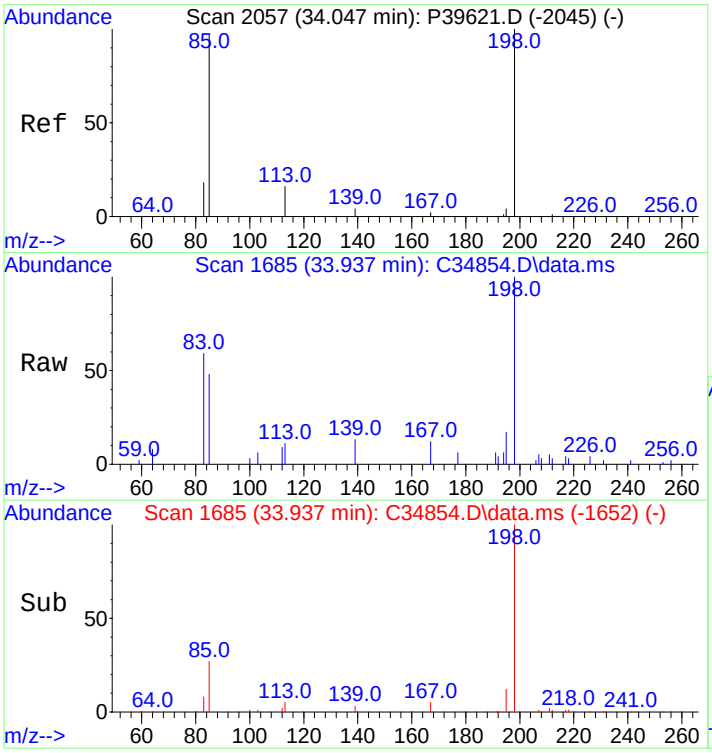


#33
Dibenzothiophene
Concen: 118.58 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:184 Resp: 16320

Ion	Ratio	Lower	Upper
184	100		
152	27.4	7.5	11.3#

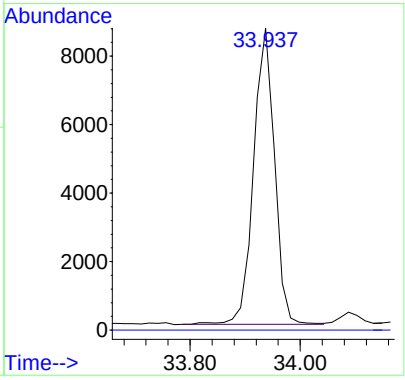


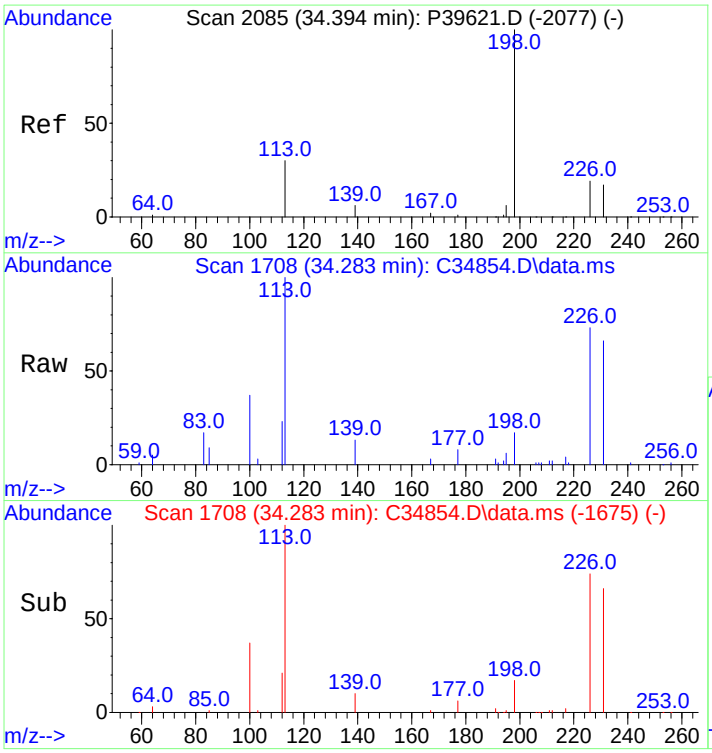


#34
4-Methyldibenzothiophene(4MDT)
Concen: 165.53 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:198 Resp: 22781

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

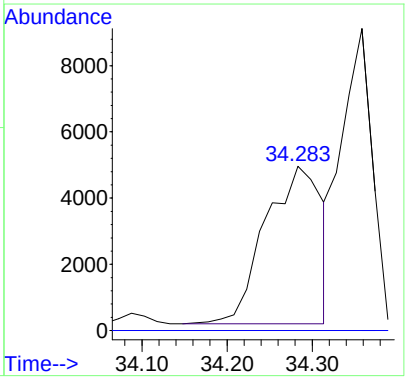


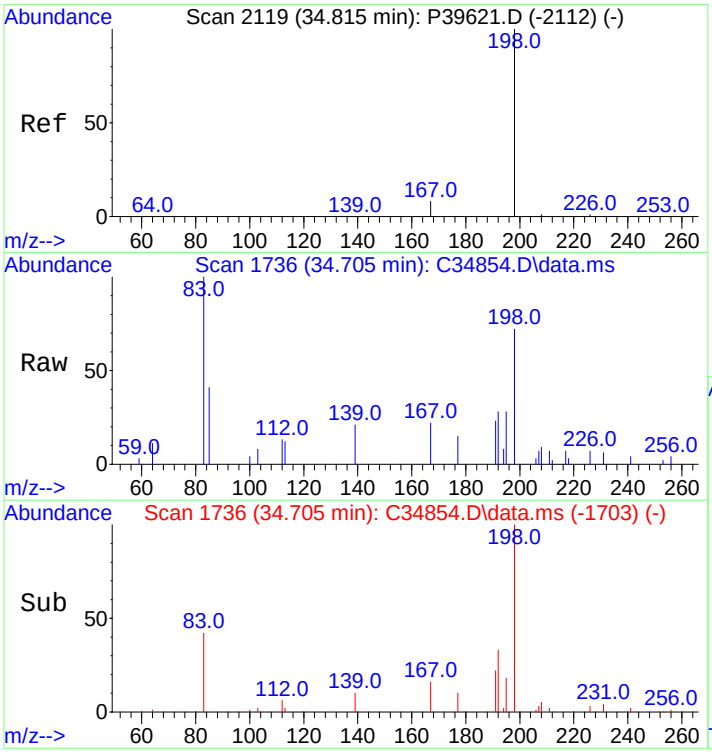


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 160.29 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:198 Resp: 22060

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

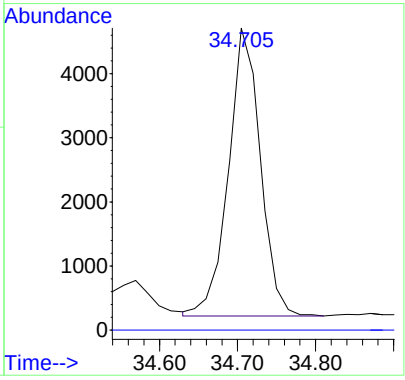


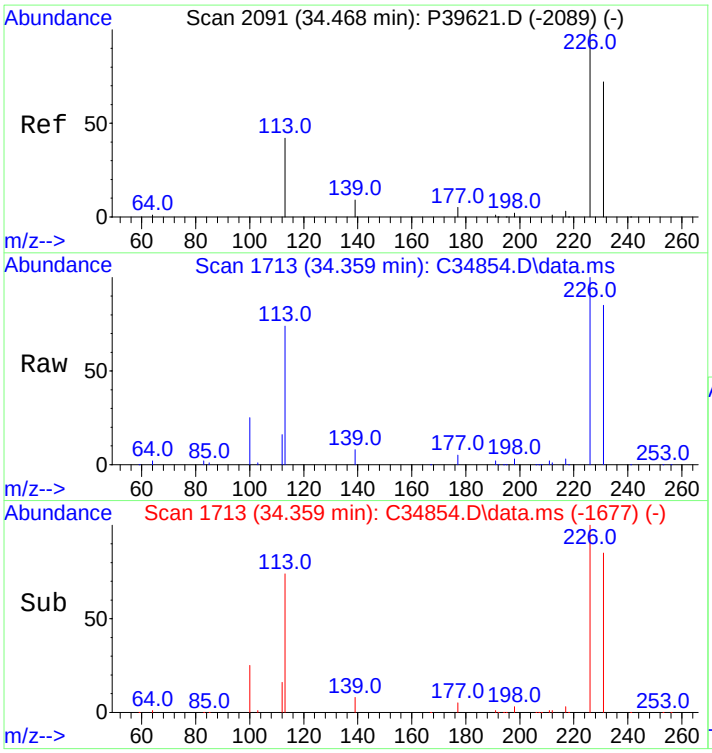


#36
1-Methyldibenzothiophene(1MDT)
Concen: 92.59 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:198 Resp: 12742

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

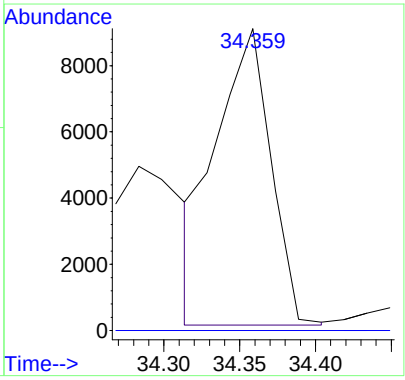


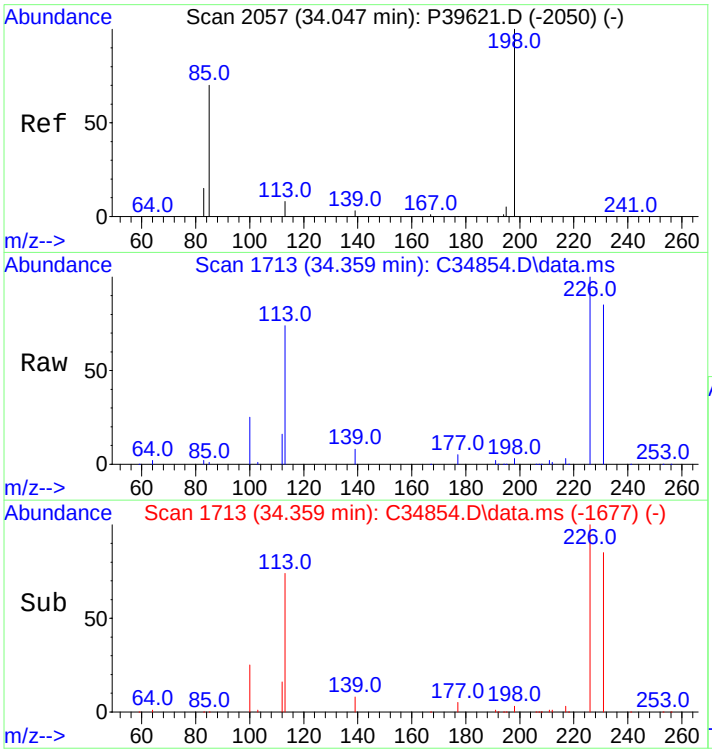


#37
OTP
Concen: 163.00 ng/mL m
RT: 34.359 min Scan# 1713
Delta R.T. 0.045 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:198 Resp: 22432

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

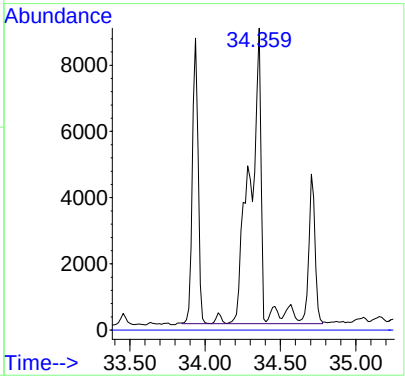


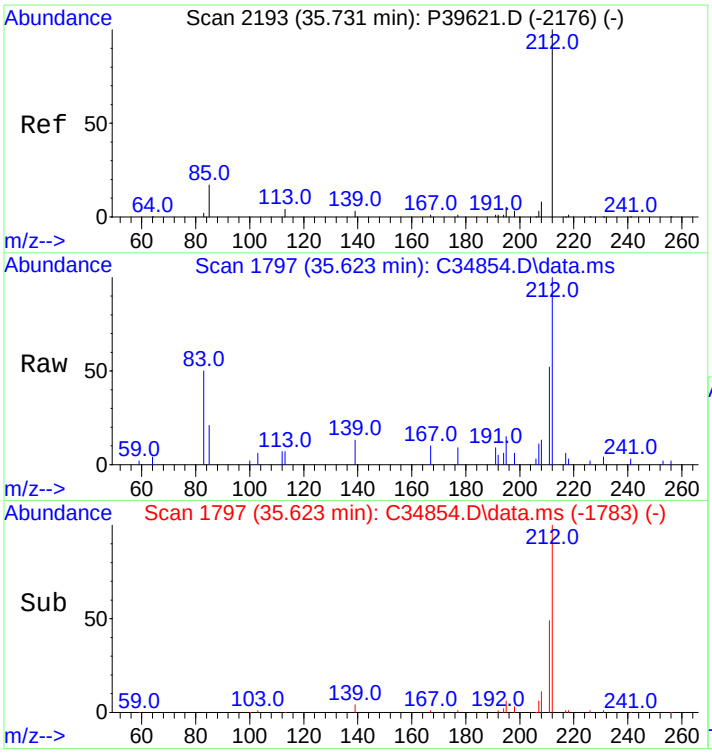


#38
C1-Dibenzothiophenes
Concen: 617.70 ng/mL m
RT: 34.359 min Scan# 1713
Delta R.T. 0.484 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:198 Resp: 85010

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

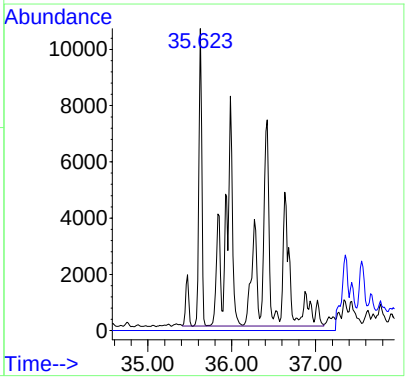


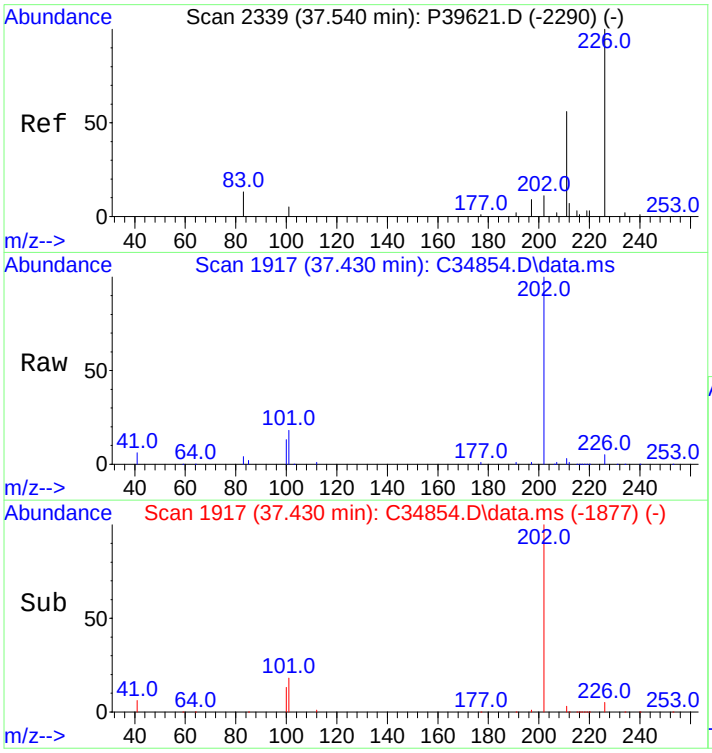


#39
C2-Dibenzothiophenes
Concen: 1135.28 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:212 Resp: 156241

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

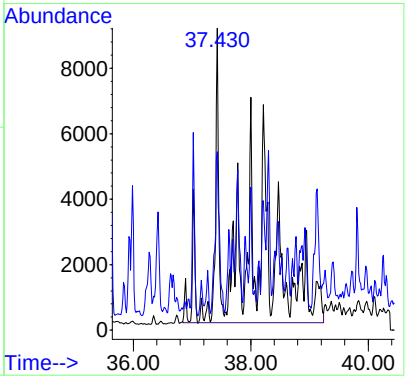


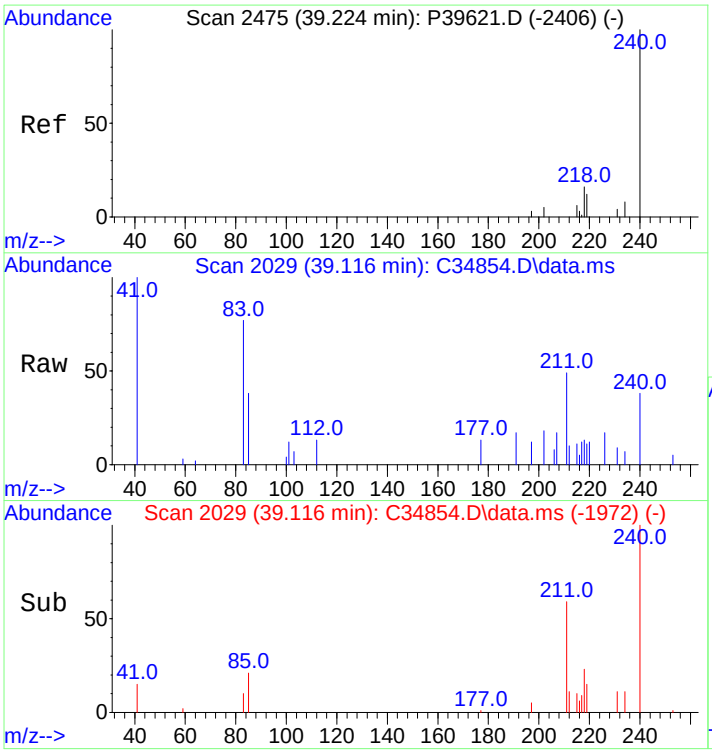


#40
C3-Dibenzothiophenes
Concen: 1546.99 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:226 Resp: 212903

Ion	Ratio	Lower	Upper
226	100		
211	1.7	45.0	67.6#

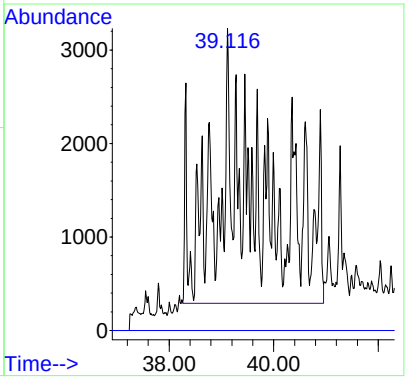


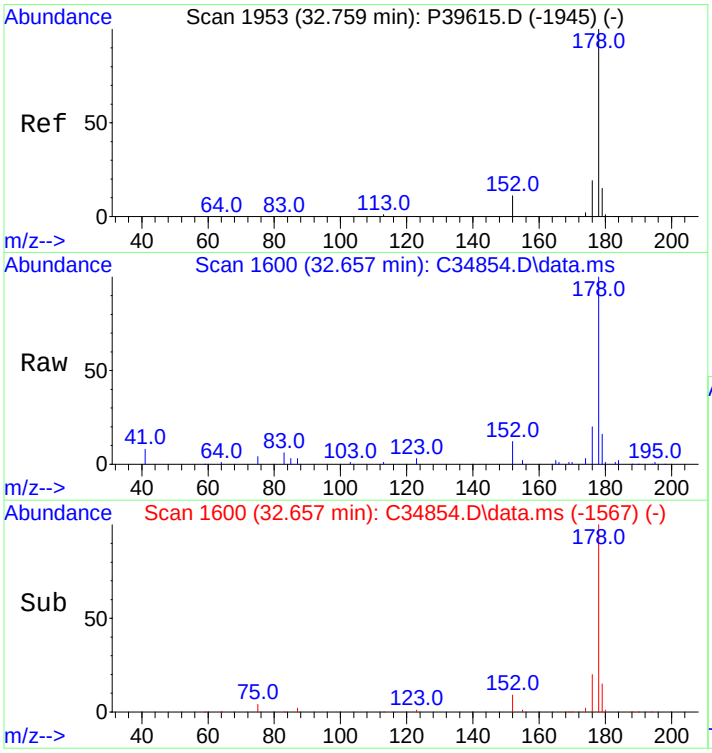


#41
C4-Dibenzothiophenes
Concen: 1166.88 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:240 Resp: 160590

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

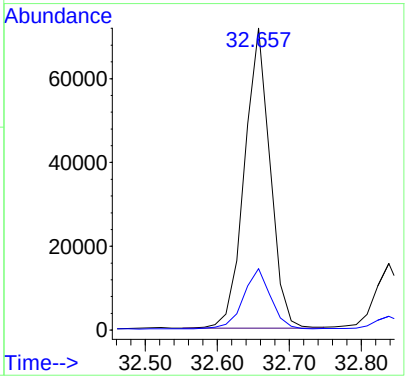


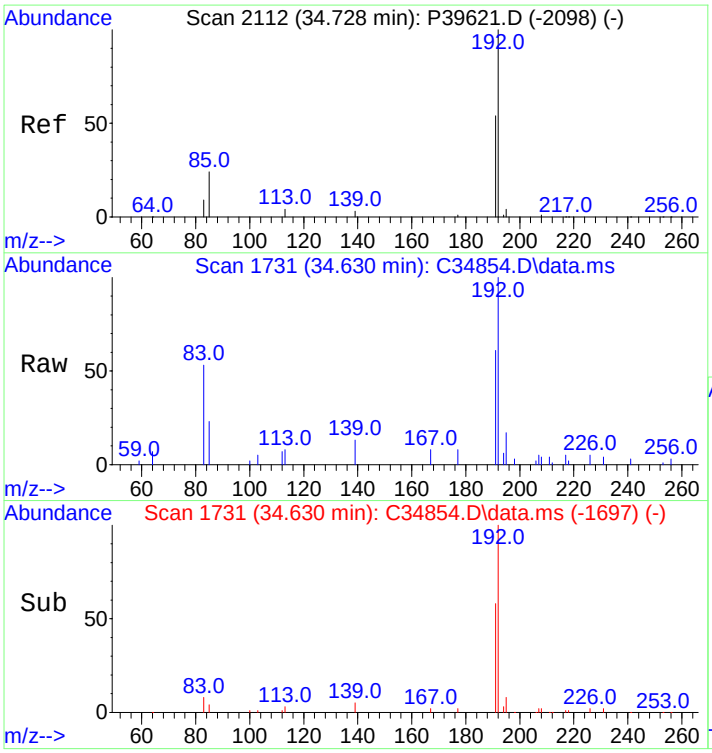


#43
Phenanthrene
Concen: 1458.75 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:178 Resp: 176383

Ion	Ratio	Lower	Upper
178	100		
176	21.3	16.1	24.1

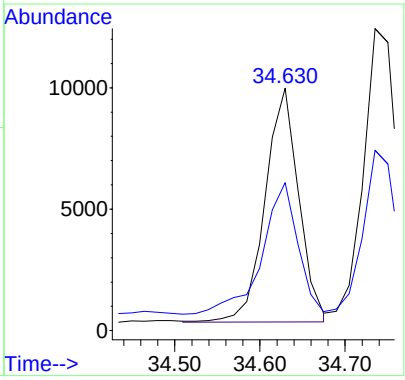


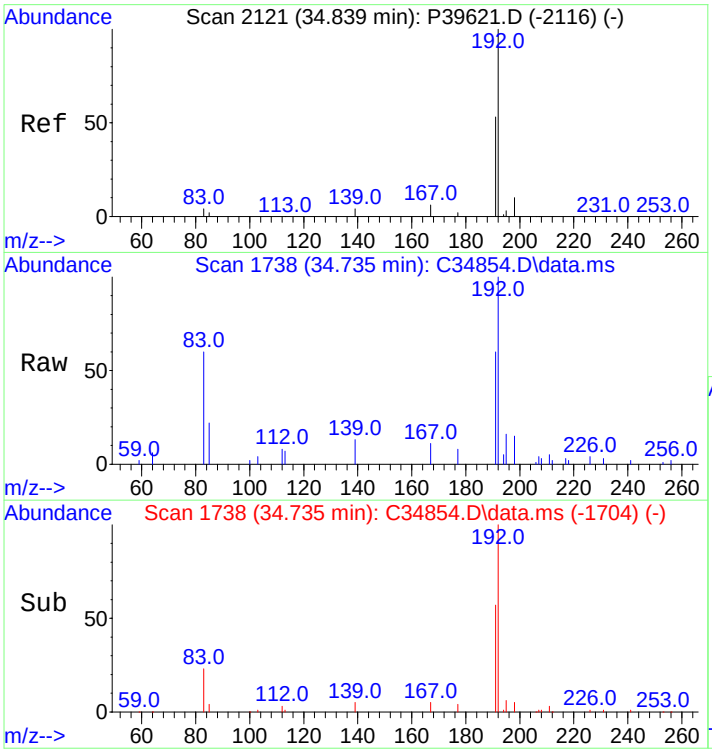


#44
3-Methylphenanthrene(3MP)
Concen: 218.90 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 26468

Ion	Ratio	Lower	Upper
192	100		
191	64.0	46.9	70.3

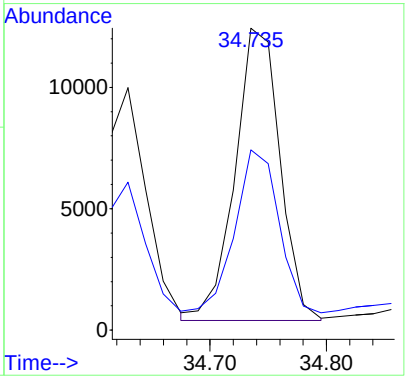


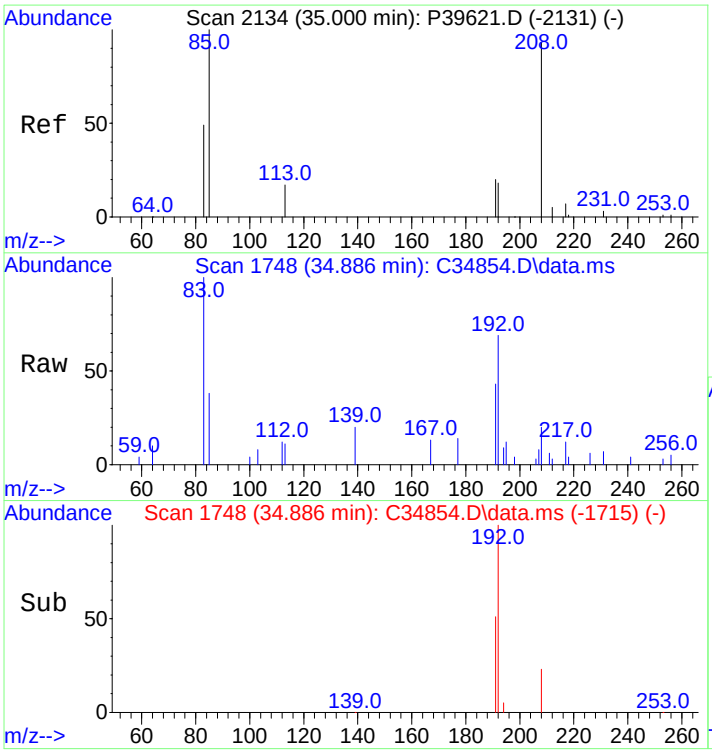


#45
2/4-Methylphenanthrene(2MP)
Concen: 268.12 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 32419

Ion	Ratio	Lower	Upper
192	100		
191	54.2	46.1	69.1

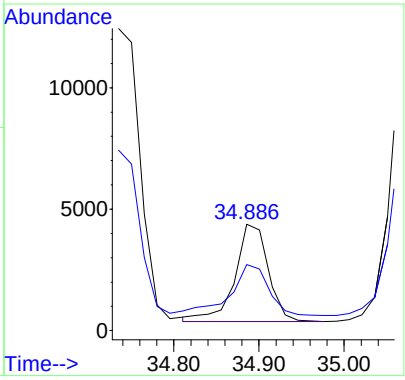


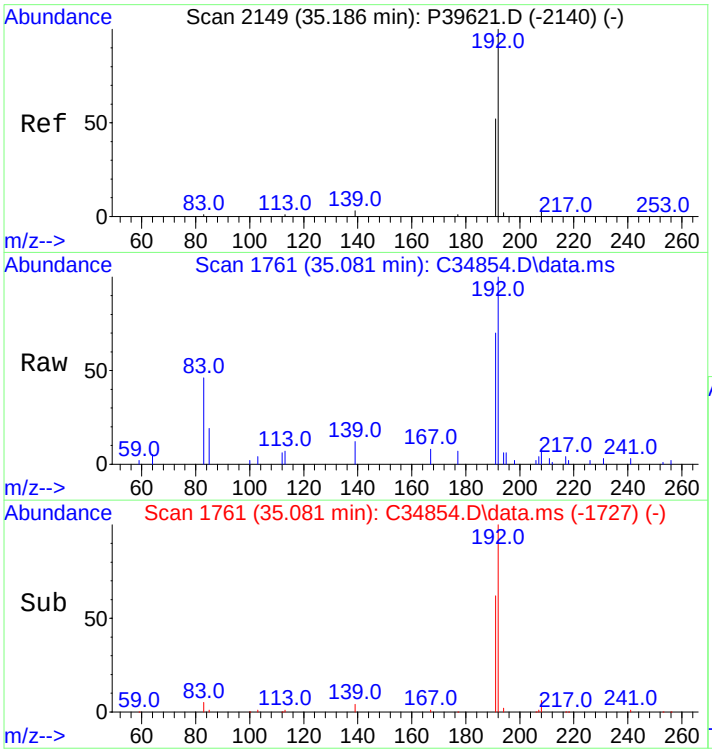


#46
2-Methylanthracene(2MA)
Concen: 90.47 ng/mL
RT: 34.886 min Scan# 1748
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 10939

Ion	Ratio	Lower	Upper
192	100		
191	61.6	93.4	140.0#

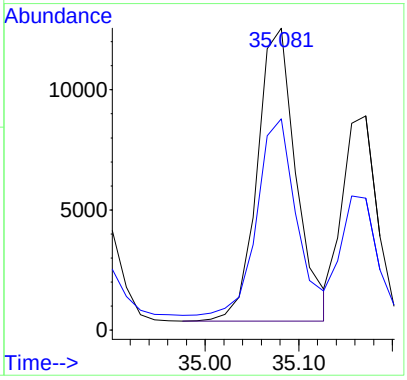


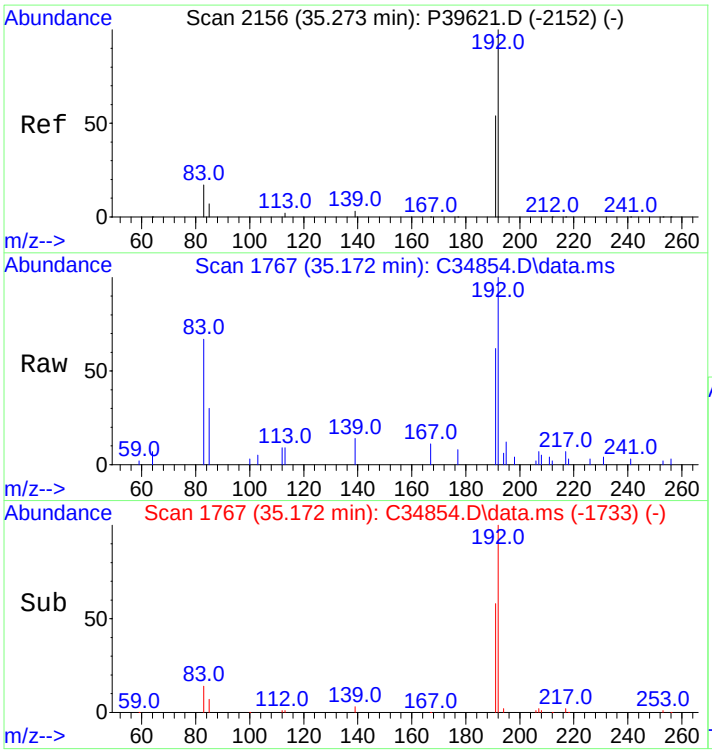


#47
9-Methylphenanthrene(9MP)
Concen: 291.12 ng/mL
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 35201

Ion	Ratio	Lower	Upper
192	100		
191	67.9	45.9	68.9

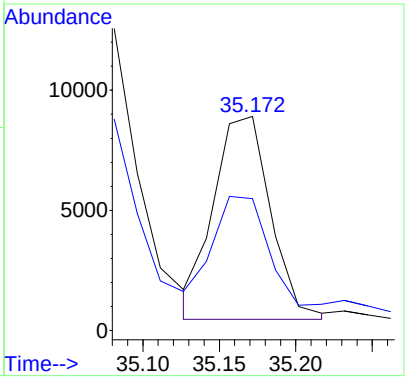


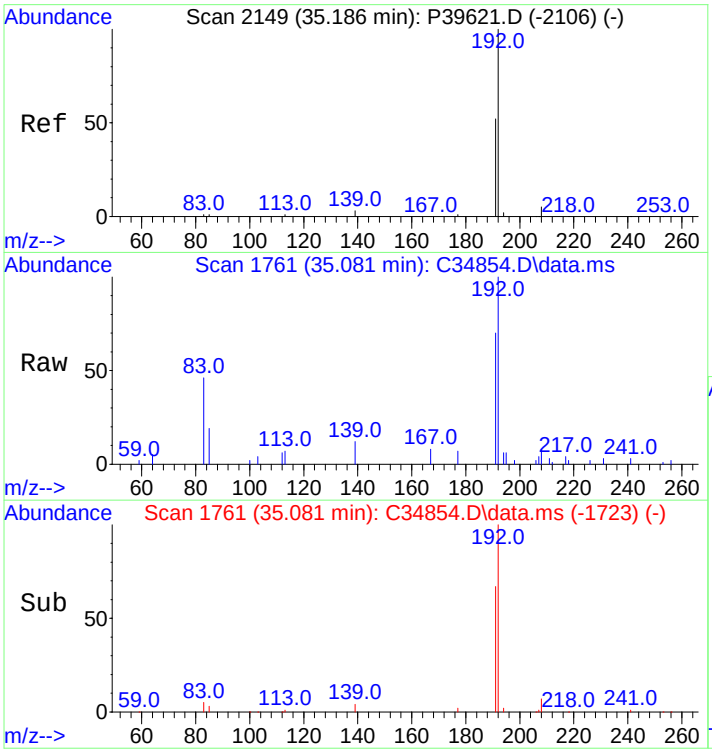


#48
1-Methylphenanthrene(1MP)
Concen: 180.76 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 21856

Ion	Ratio	Lower	Upper
192	100		
191	59.4	49.0	73.4

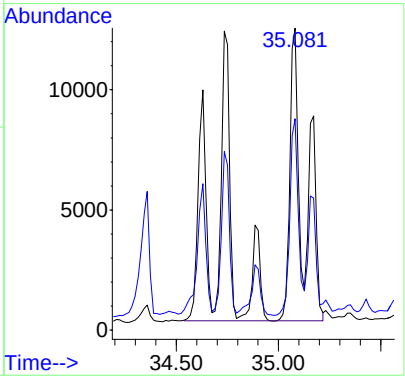


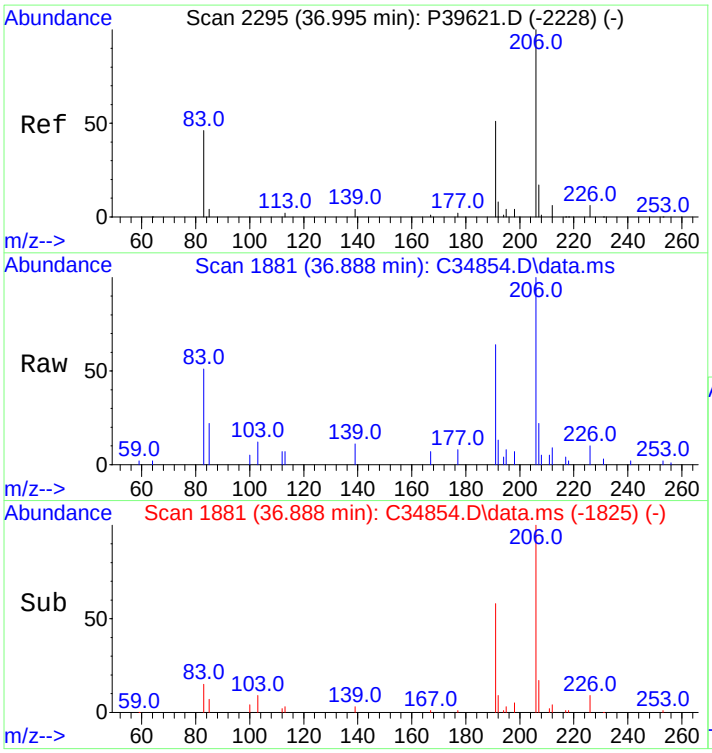


#49
C1-Phenanthrenes/Anthracenes
Concen: 1047.02 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.068 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 126600

Ion	Ratio	Lower	Upper
192	100		
191	5.3	44.2	66.2#

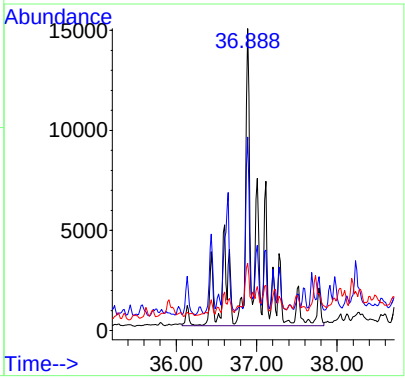


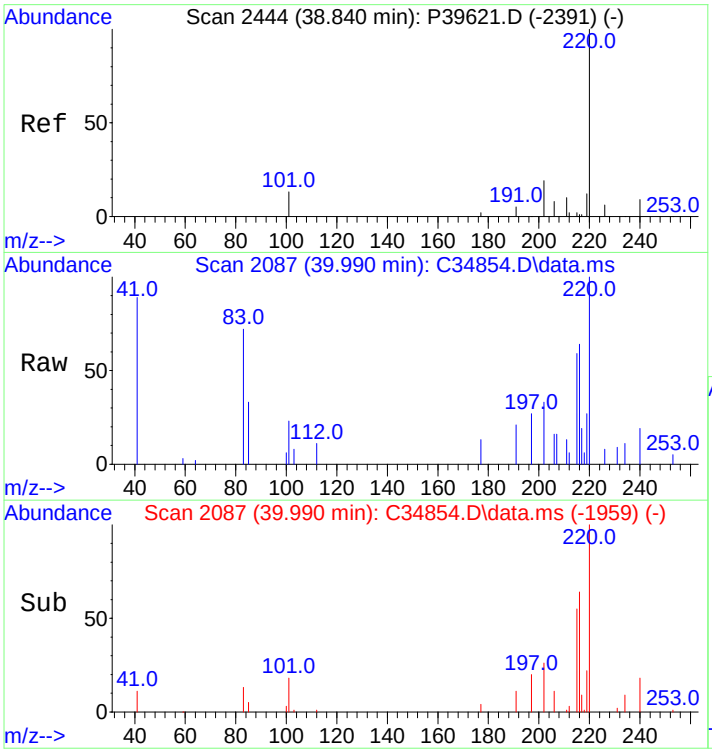


#50
C2-Phenanthrenes/Anthracenes
Concen: 1323.15 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:206 Resp: 159988

Ion	Ratio	Lower	Upper
206	100		
191	16.6	44.0	66.0#
207	4.8	15.1	22.7#

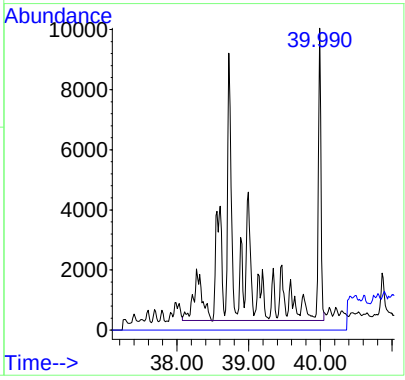


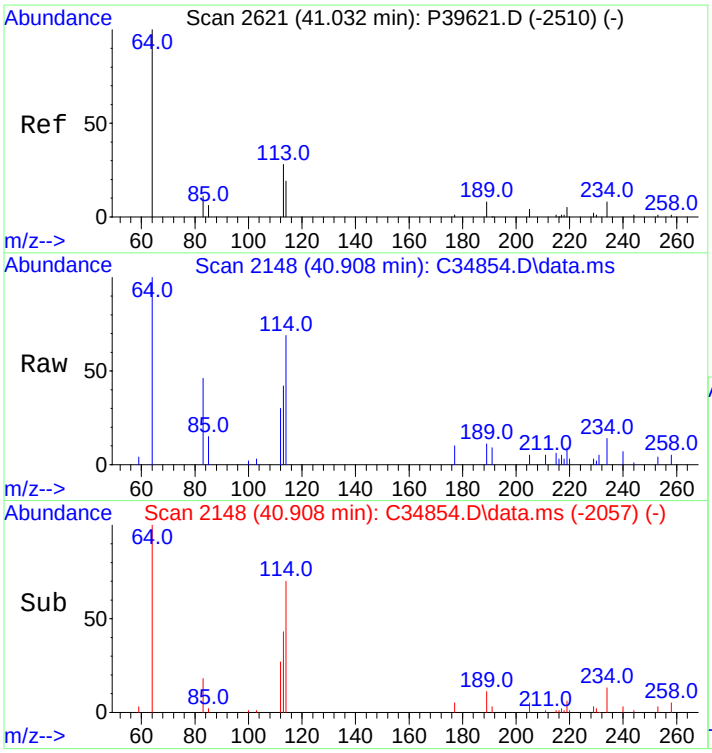


#52
C3-Phenanthrenes/Anthracenes
Concen: 1195.61 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:220 Resp: 144566

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

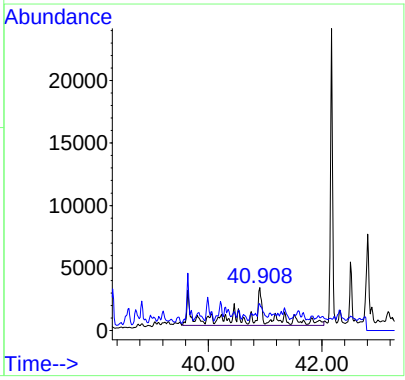


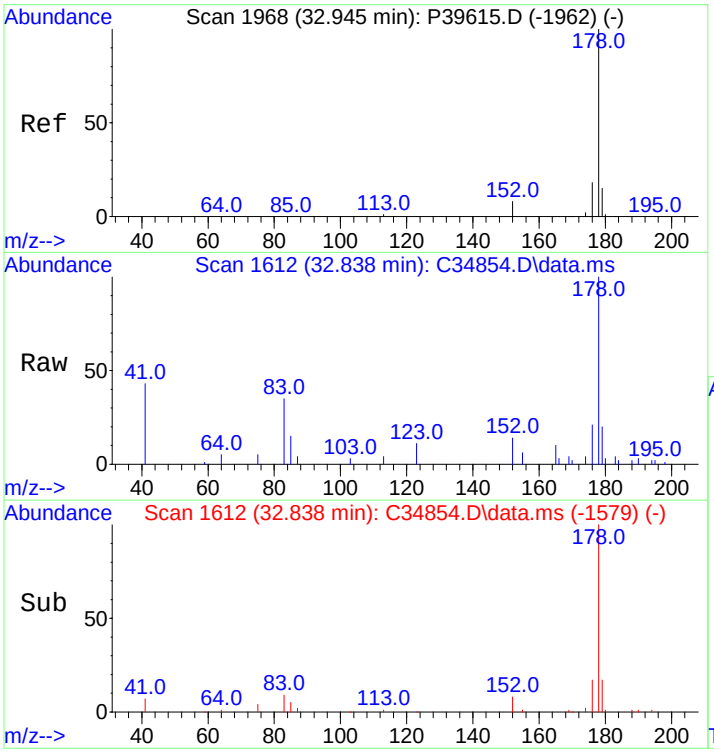


#53
C4-Phenanthrenes/Anthracenes
Concen: 651.59 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:234 Resp: 78786

Ion	Ratio	Lower	Upper
234	100		
219	1.3	46.9	70.3#

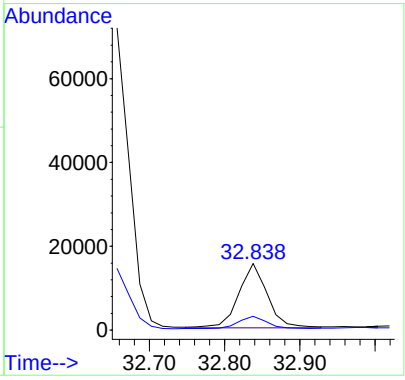


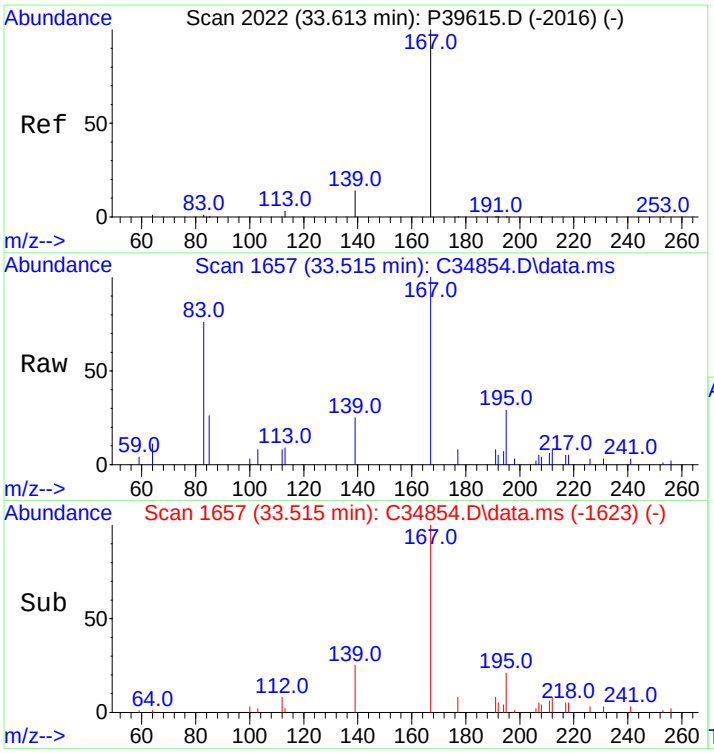


#55
Anthracene
Concen: 348.41 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:178 Resp: 41149

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.5	23.3

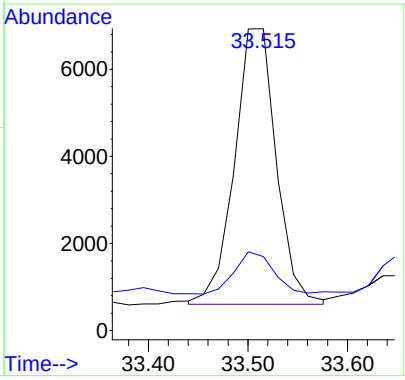


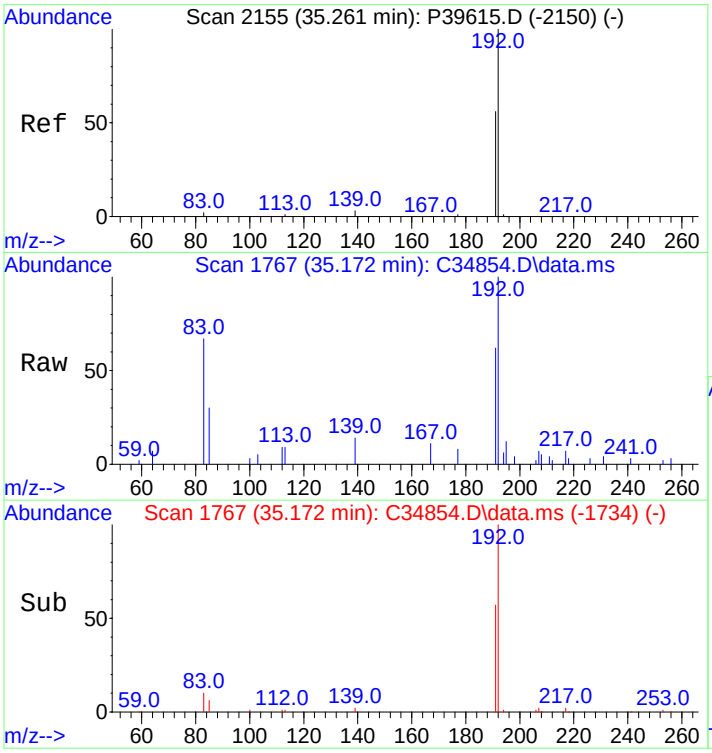


#56
Carbazole
Concen: 154.96 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:167 Resp: 18487

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.8	17.8

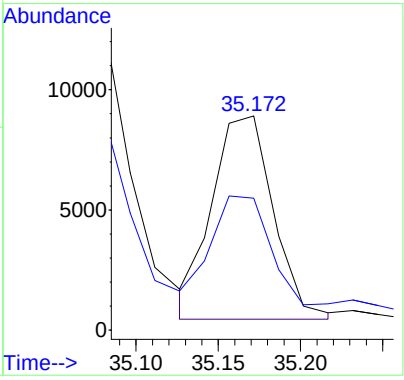


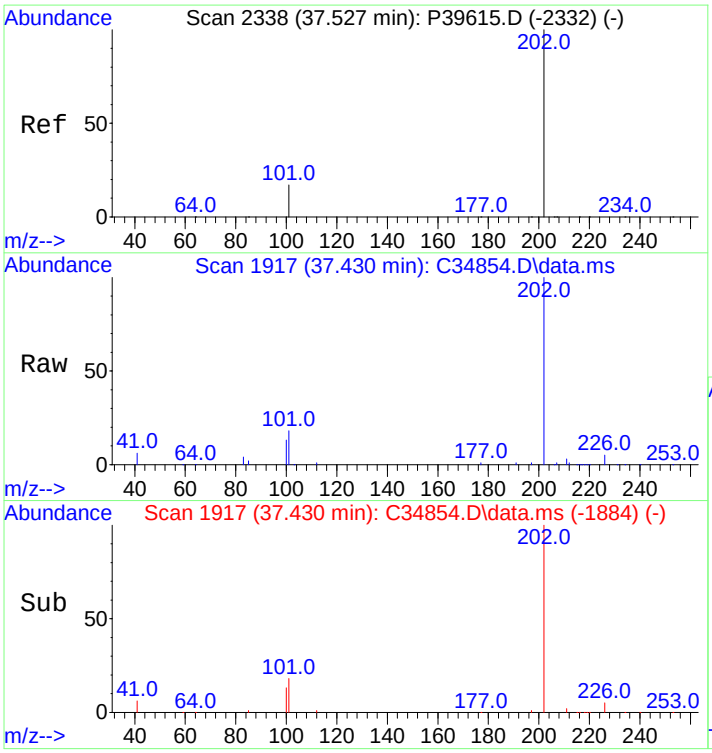


#57
1-Methylphenanthrene
Concen: 285.94 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:192 Resp: 21910

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.9	68.9

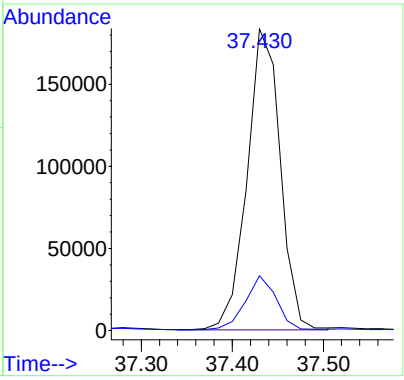


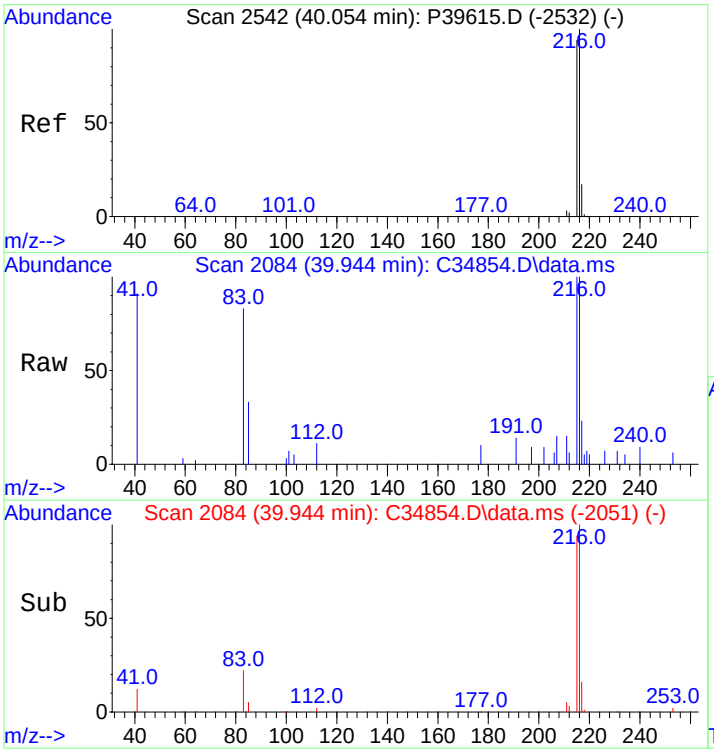


#58
Fluoranthene
Concen: 3865.35 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:202 Resp: 464182

Ion	Ratio	Lower	Upper
202	100		
101	18.2	12.9	19.3

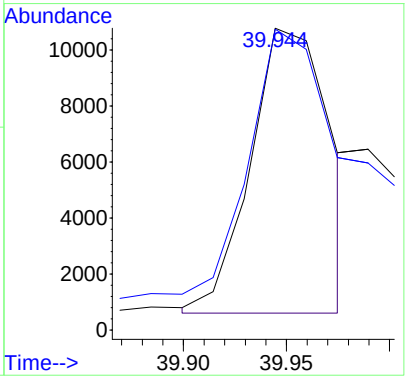


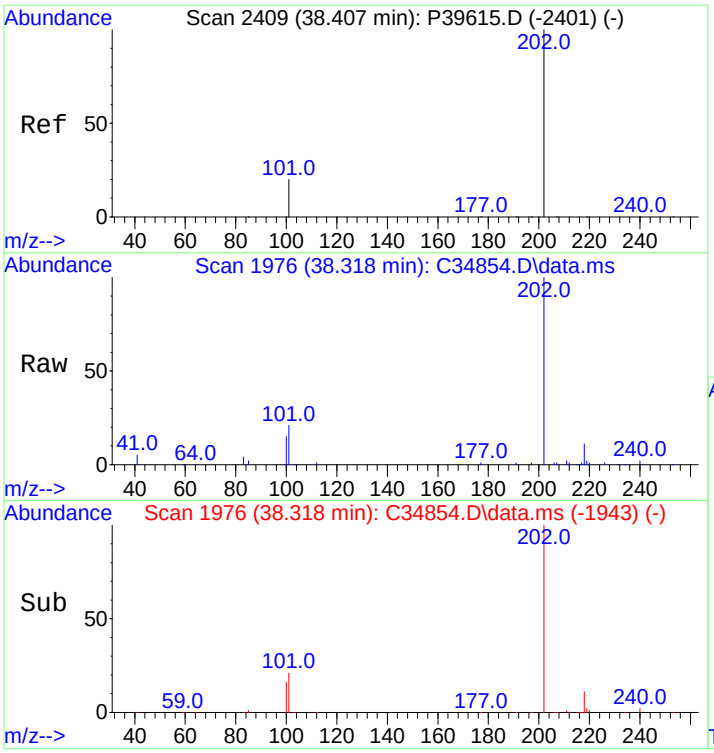


#59
Benzo(b)fluorene
Concen: 394.75 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:216 Resp: 27502

Ion	Ratio	Lower	Upper
216	100		
215	137.2	76.3	114.5#

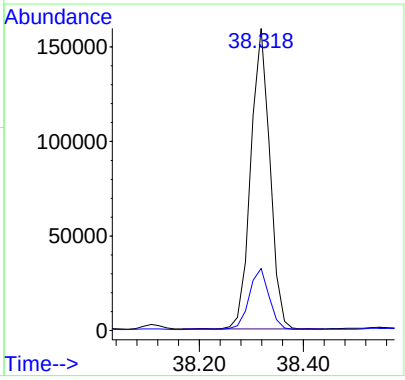


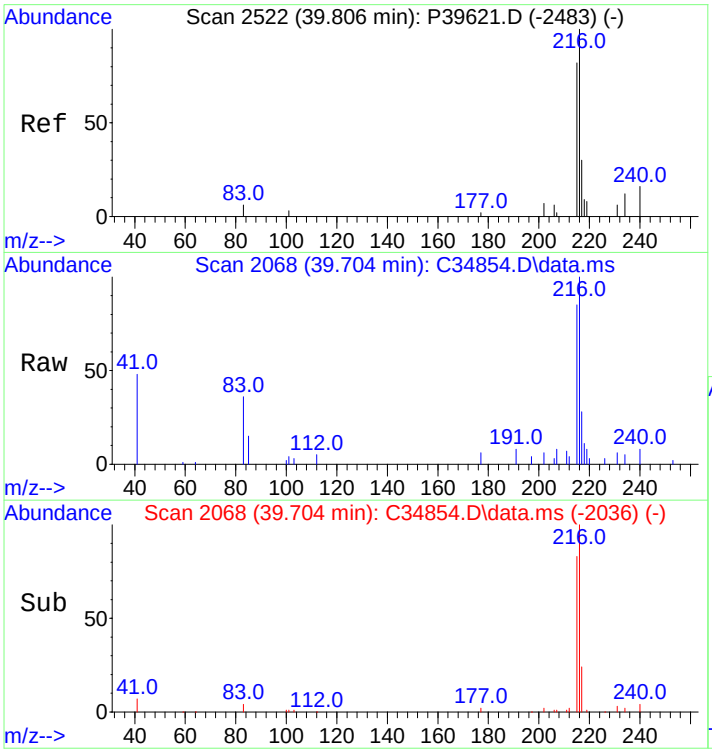


#60
Pyrene
Concen: 3326.38 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:202 Resp: 406059

Ion	Ratio	Lower	Upper
202	100		
101	21.1	15.0	22.4

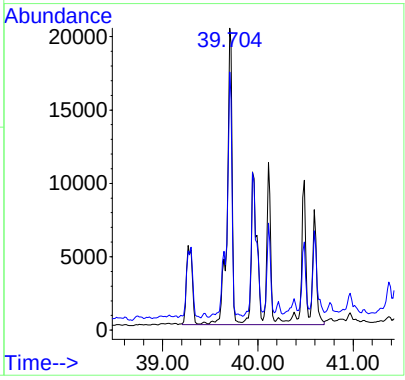


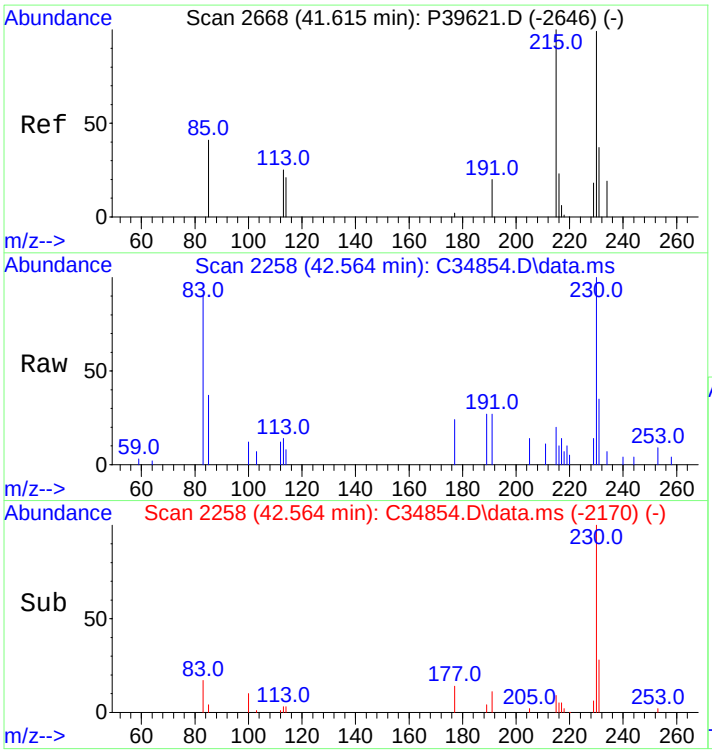


#61
C1-Fluoranthenes/Pyrenes
Concen: 1820.79 ng/mL m
RT: 39.704 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:216 Resp: 222268

Ion	Ratio	Lower	Upper
216	100		
215	27.9	71.8	107.6#

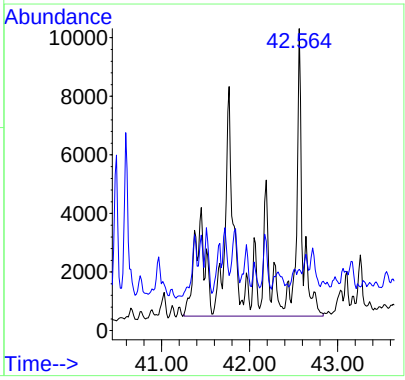


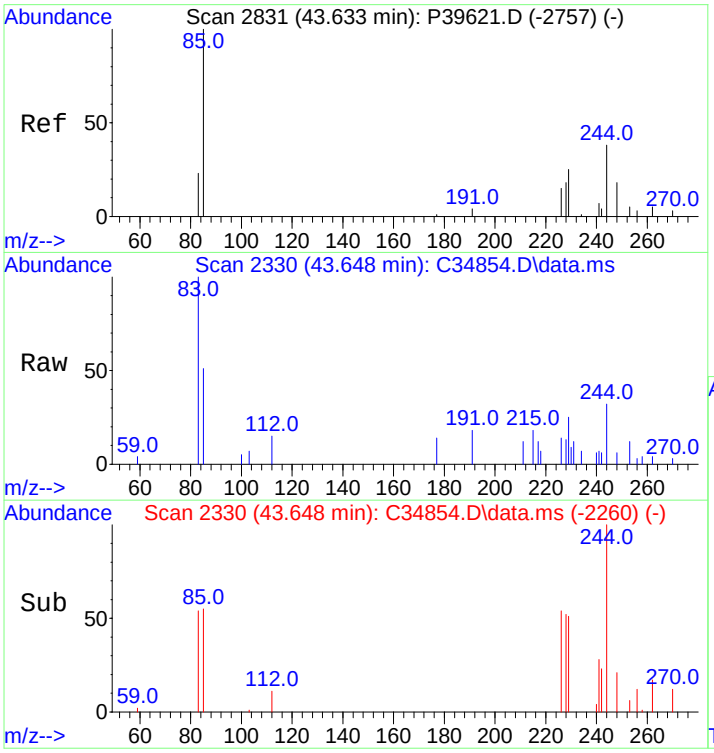


#62
C2-Fluoranthenes/Pyrenes
Concen: 1287.21 ng/mL m
RT: 42.564 min Scan# 2258
Delta R.T. 1.165 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:230 Resp: 157133

Ion	Ratio	Lower	Upper
230	100		
215	3.8	99.0	148.4#

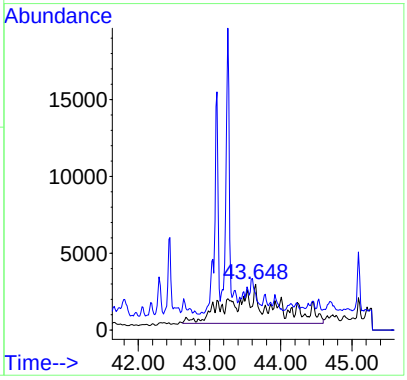


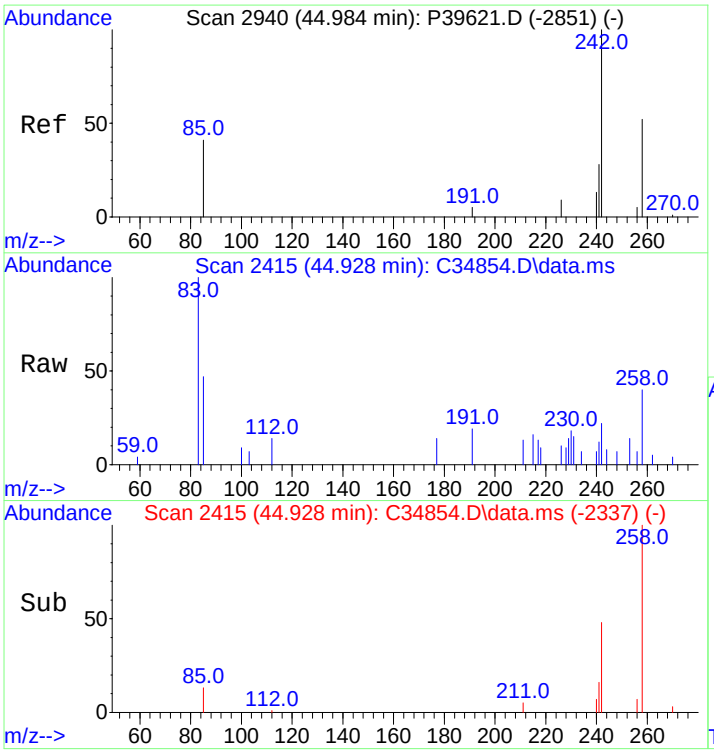


#63
C3-Fluoranthenes/Pyrenes
Concen: 848.98 ng/mL m
RT: 43.648 min Scan# 2330
Delta R.T. 0.241 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:244 Resp: 103637

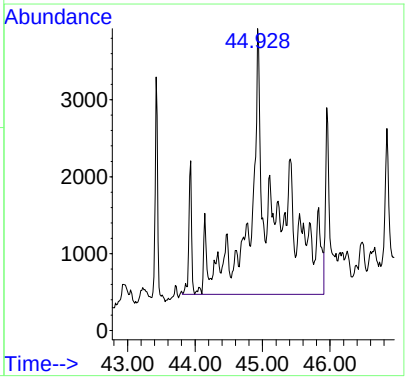
Ion	Ratio	Lower	Upper
244	100		
229	0.0	73.3	109.9#

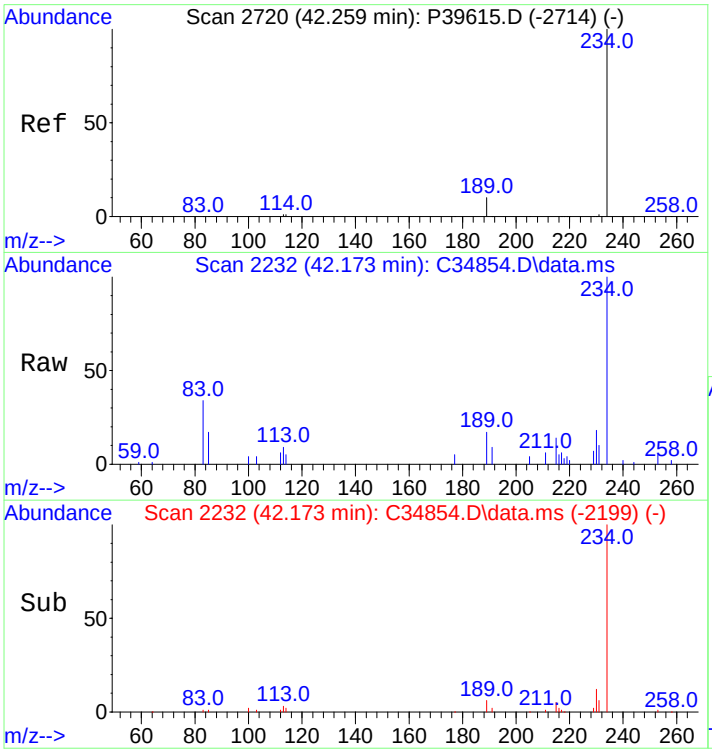




#64
C4-Fluoranthenes/Pyrenes
Concen: 771.30 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:258 Resp: 94155

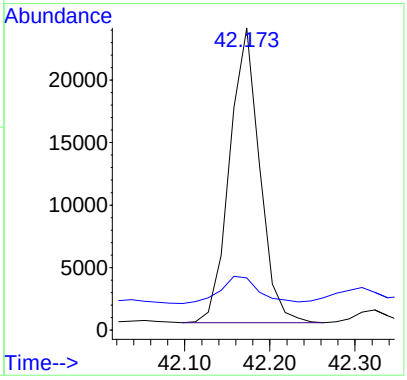


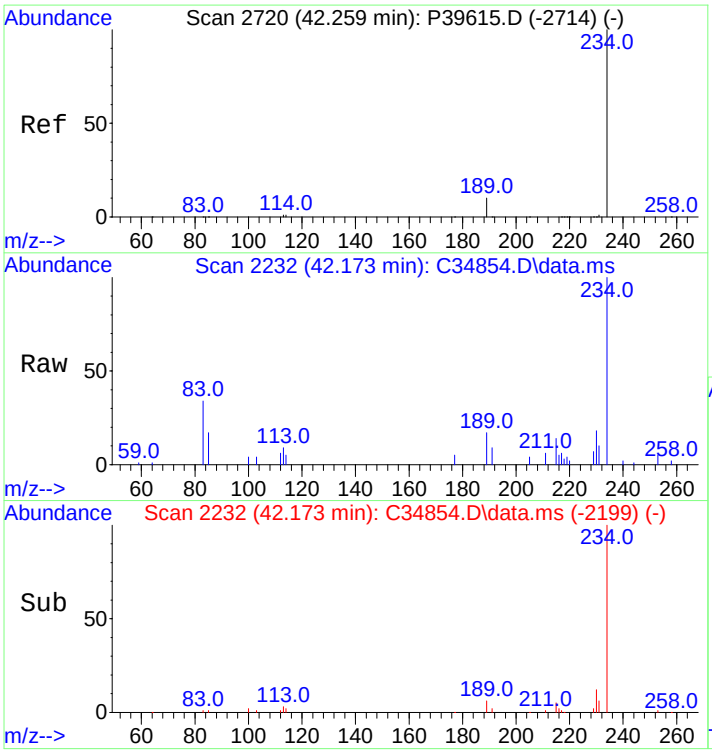


#66
Naphthobenzothiophene
Concen: 440.37 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:234 Resp: 57874

Ion	Ratio	Lower	Upper
234	100		
189	11.9	20.5	30.7#

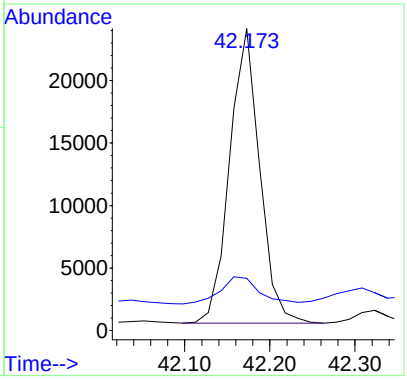


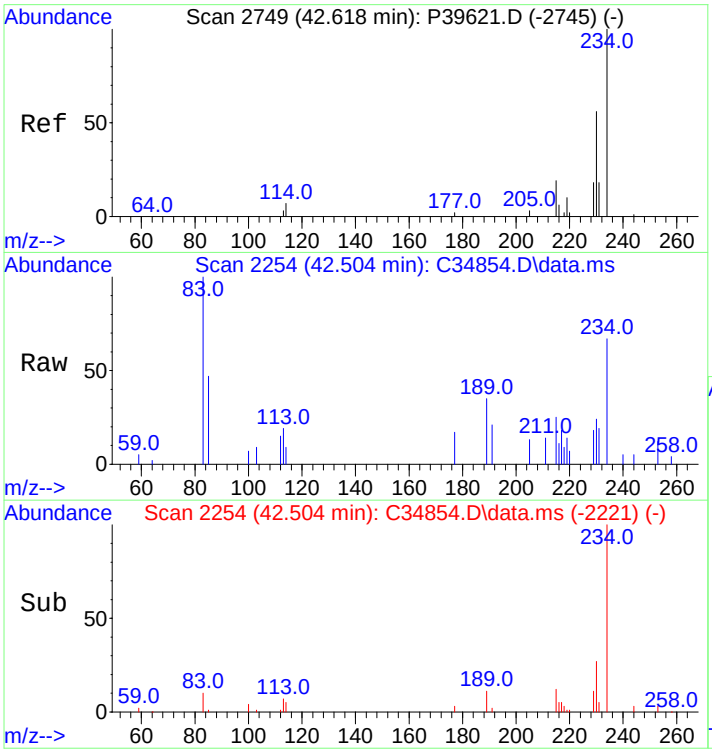


#67
Naphthobenzothiophene-2,1-D
Concen: 440.37 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:234 Resp: 57874

Ion	Ratio	Lower	Upper
234	100		
189	11.9	20.5	30.7#

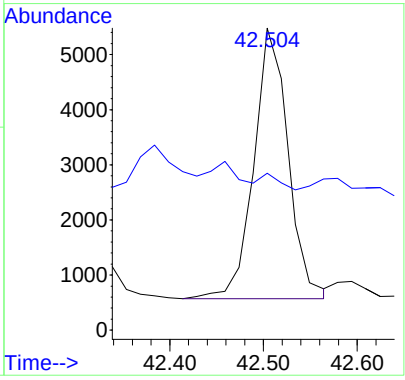


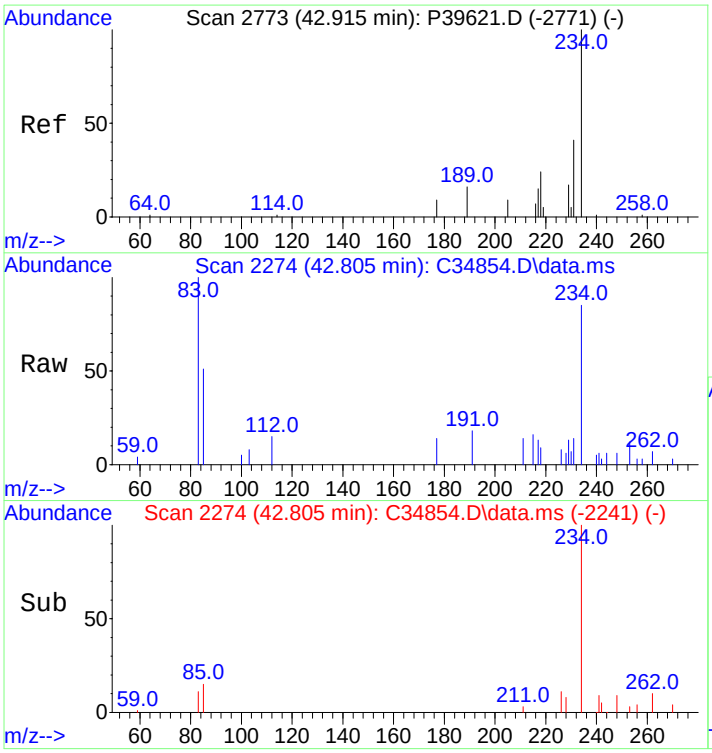


#68
Naphthobenzothiophene-1,2-D
Concen: 95.17 ng/mL
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:234 Resp: 12507

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

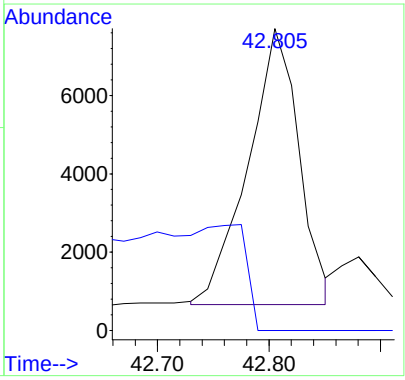


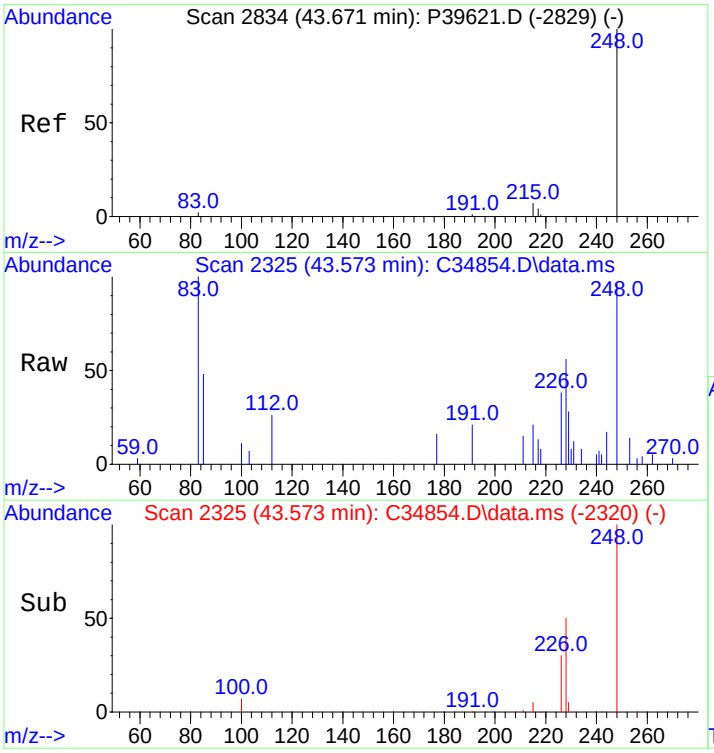


#69
Naphthobenzothiophene-2,3-D
Concen: 170.51 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:234 Resp: 22409

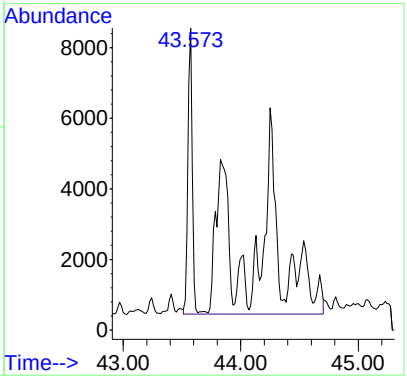
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

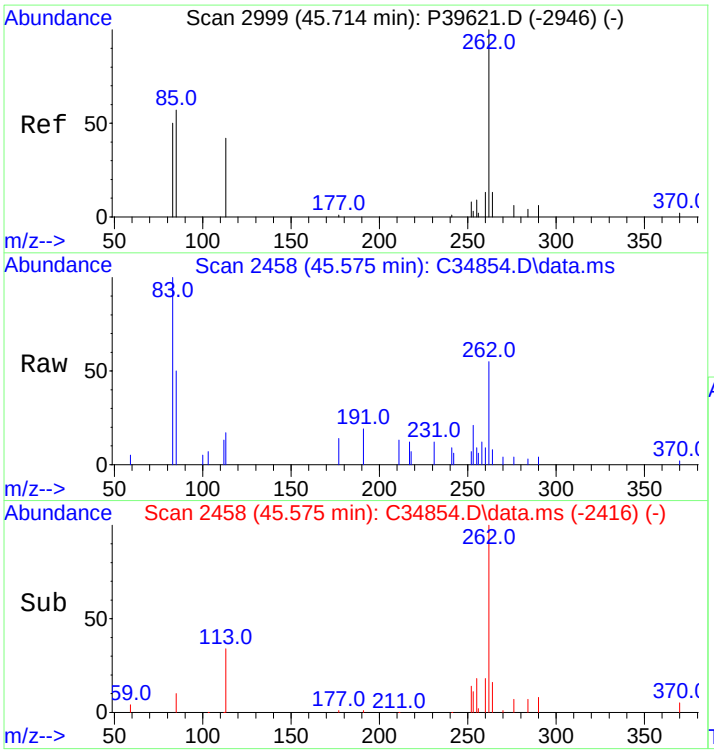




#70
C1-Naphthobenzothiophenes
Concen: 884.79 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

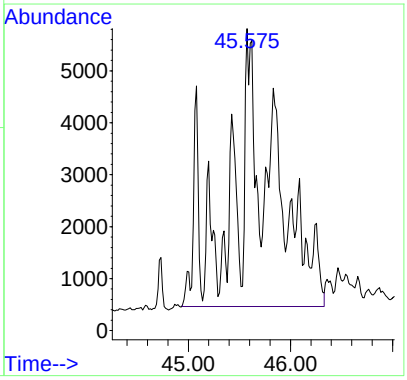
Tgt Ion:248 Resp: 116281

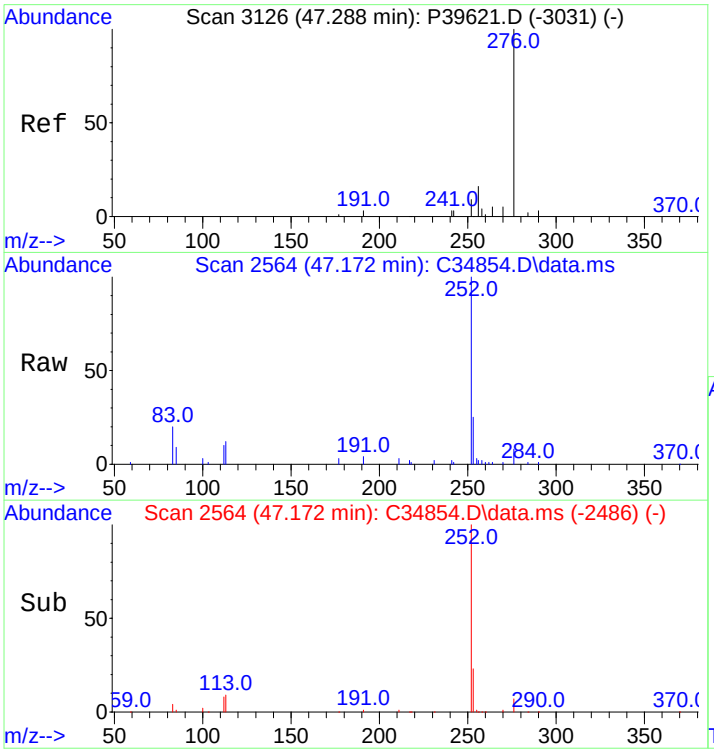




#71
C2-Naphthobenzothiophenes
Concen: 1125.65 ng/ml m
RT: 45.575 min Scan# 2458
Delta R.T. 0.145 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

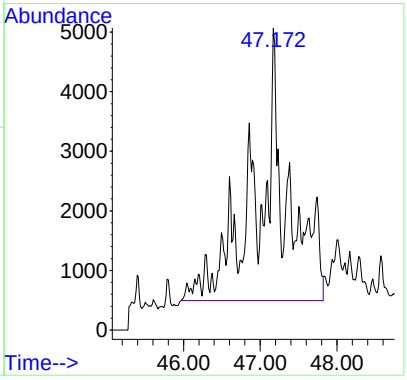
Tgt Ion:262 Resp: 147936

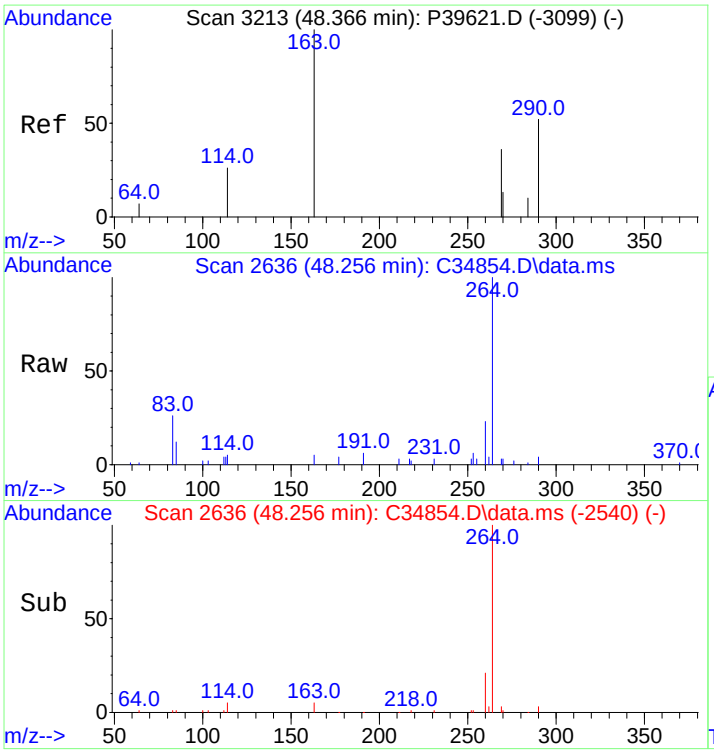




#72
C3-Naphthobenzothiophenes
Concen: 950.72 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

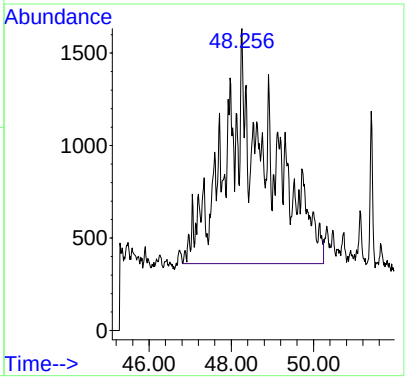
Tgt Ion:276 Resp: 124946

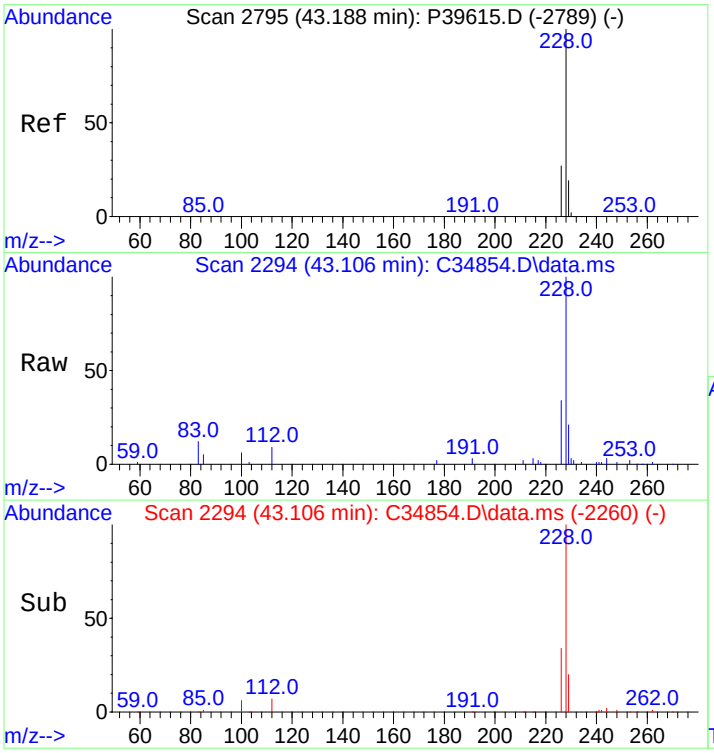




#73
C4-Naphthobenzothiophenes
Concen: 688.16 ng/mL m
RT: 48.256 min Scan# 2636
Delta R.T. 0.157 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:290 Resp: 90439

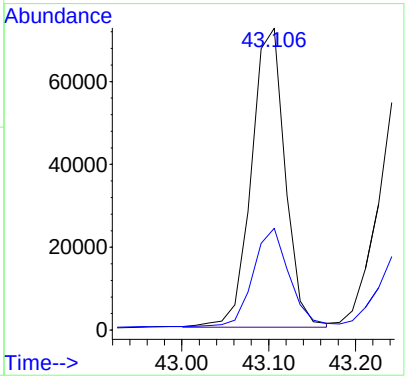


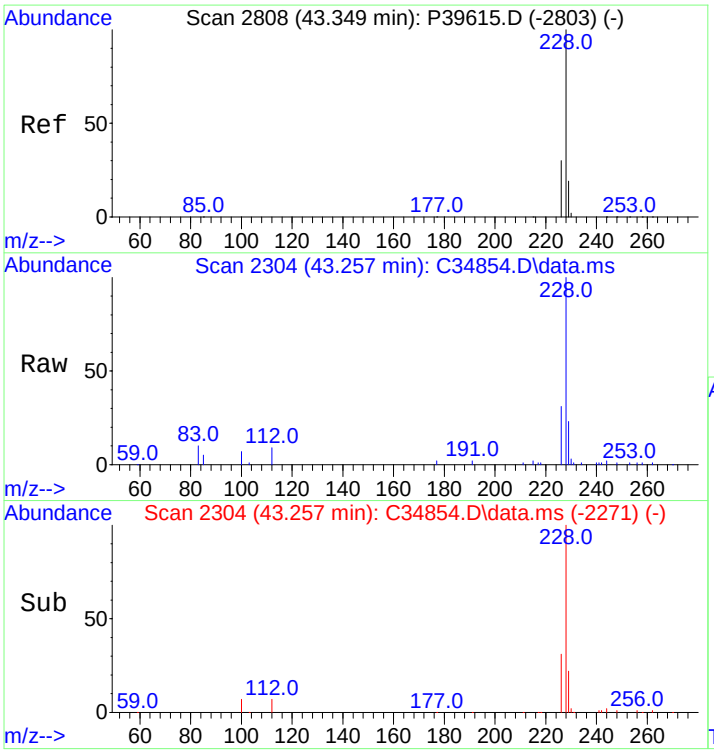


#75
Benz[a]anthracene
Concen: 1445.52 ng/mL m
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:228 Resp: 194854

Ion	Ratio	Lower	Upper
228	100		
226	38.2	21.4	32.0#

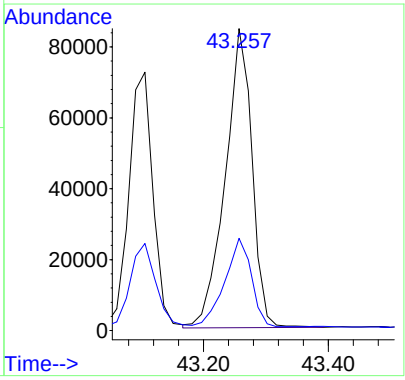


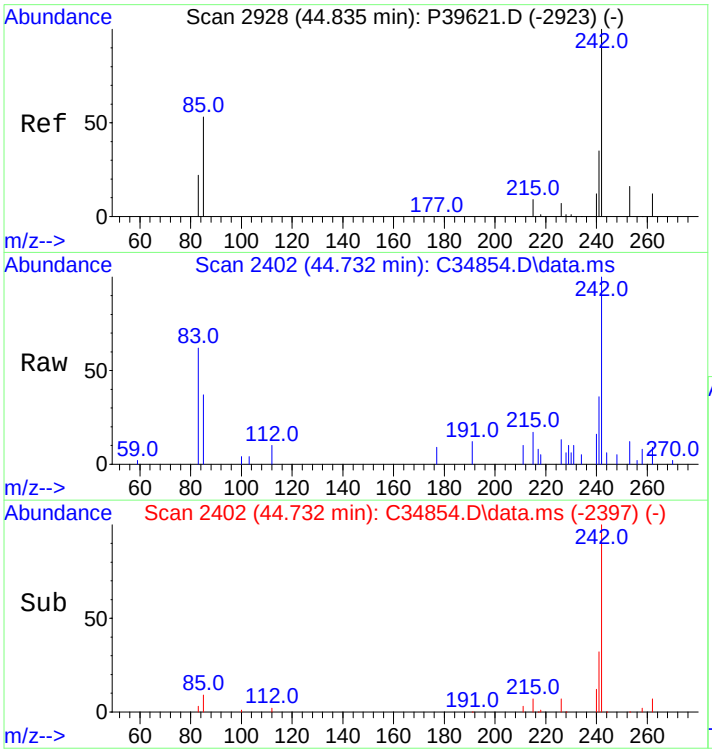


#77
Chrysene/Triphenylene
Concen: 1850.29 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:228 Resp: 251807

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

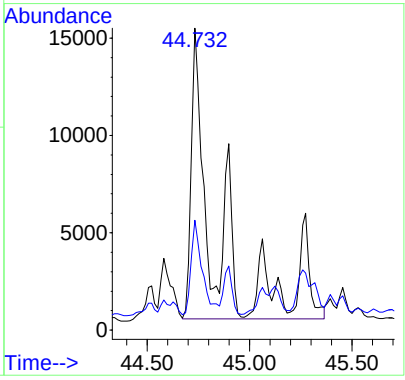


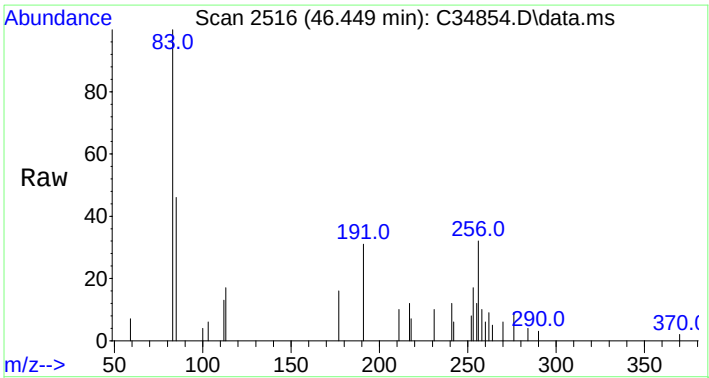


#78
C1-Chrysenes
Concen: 871.49 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:242 Resp: 118602

Ion	Ratio	Lower	Upper
242	100		
241	4.3	31.4	47.2#

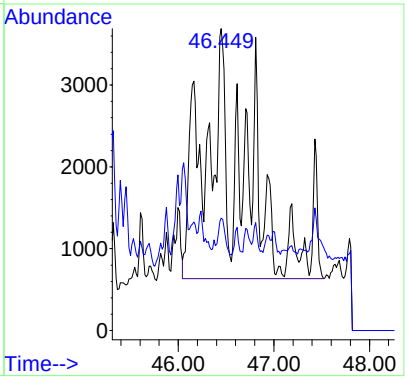


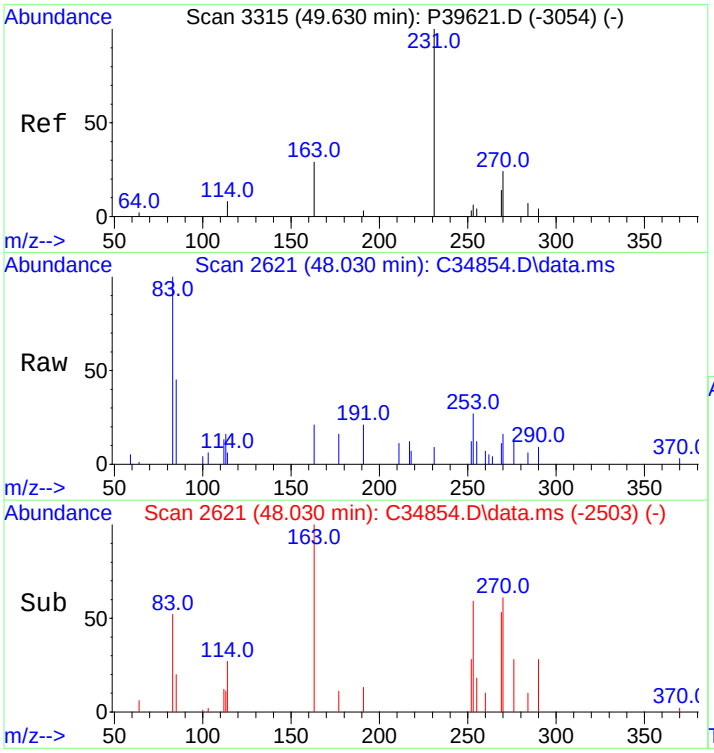


#79
C2-Chrysenes
Concen: 645.27 ng/mL m
RT: 46.449 min Scan# 2516
Delta R.T. -0.340 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:256 Resp: 87816

Ion	Ratio	Lower	Upper
256	100		
241	1.1	21.2	31.8#

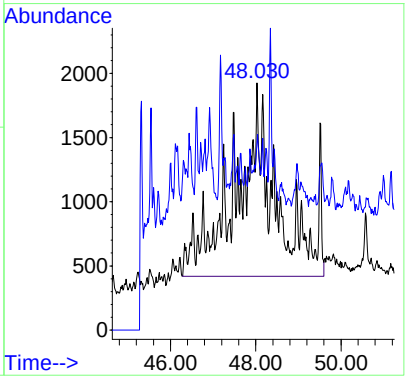


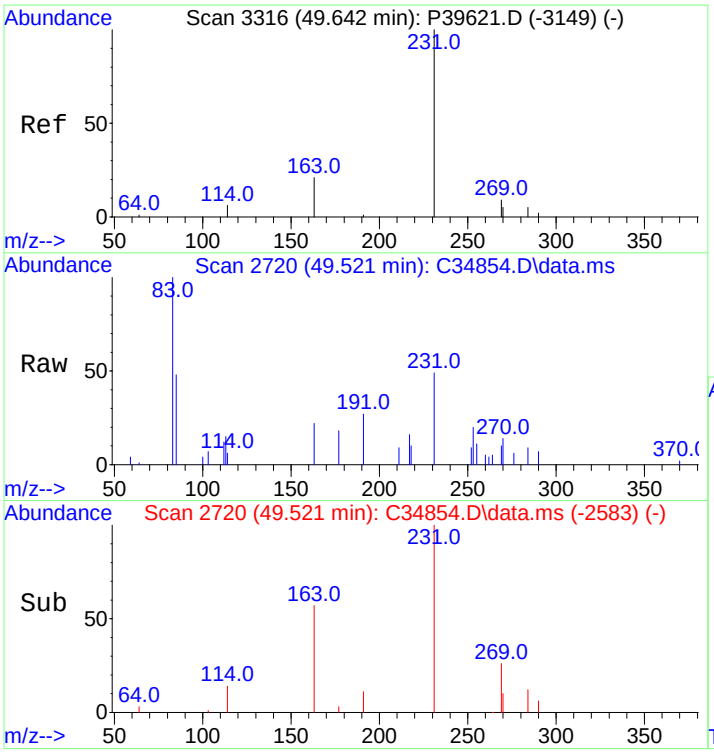


#80
C3-Chrysenes
Concen: 693.74 ng/mL m
RT: 48.030 min Scan# 2621
Delta R.T. -1.465 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:270 Resp: 94411

Ion	Ratio	Lower	Upper
270	100		
255	0.4	33.8	50.8#

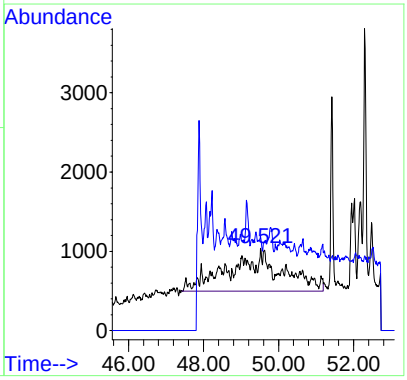


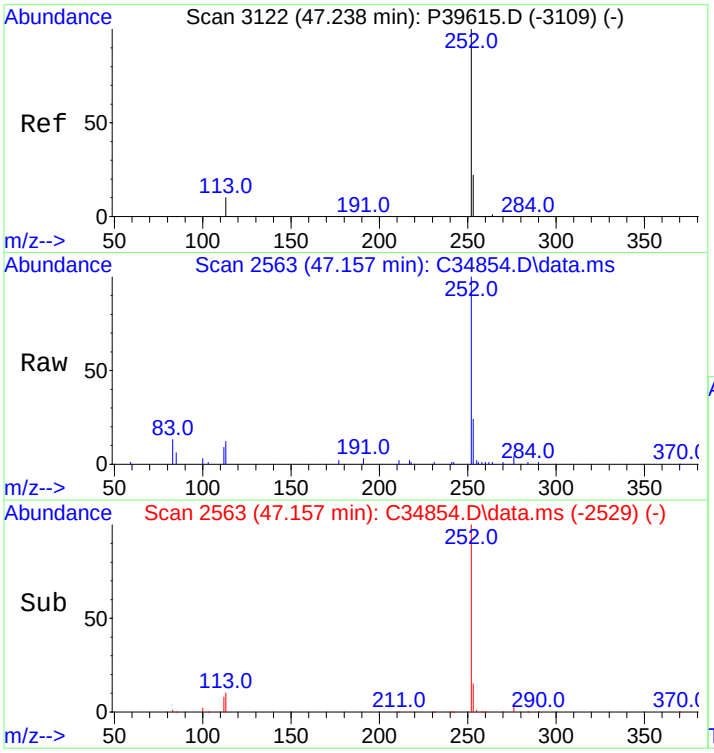


#81
C4-Chrysenes
Concen: 369.80 ng/mL m
RT: 49.521 min Scan# 2720
Delta R.T. -0.079 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:284 Resp: 50326

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

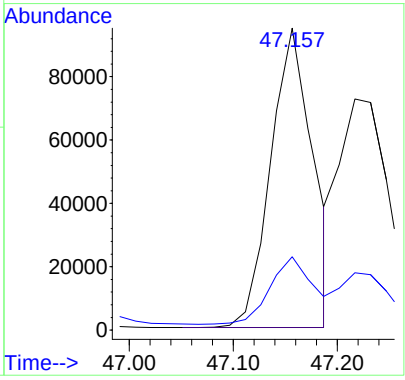


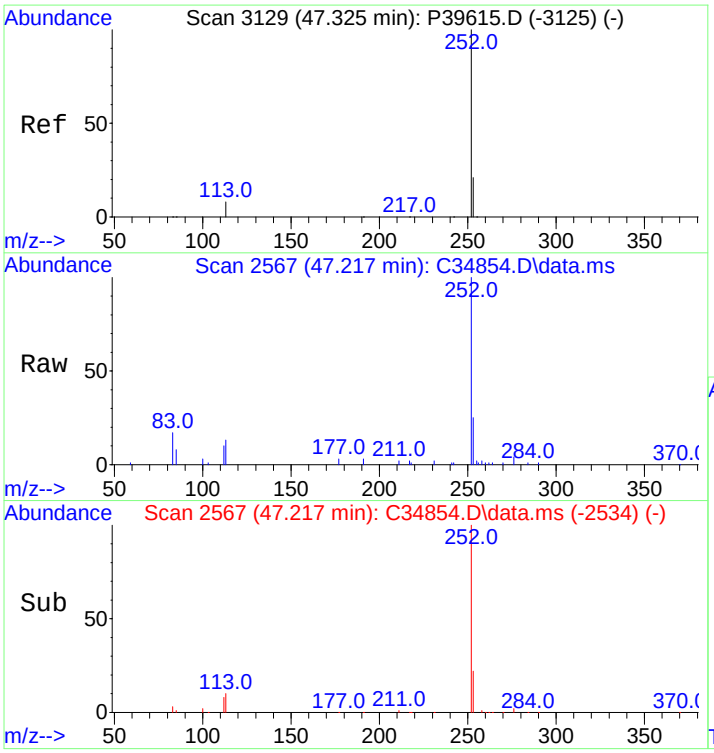


#82
Benzo[b]fluoranthene
Concen: 1807.68 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 267749

Ion	Ratio	Lower	Upper
252	100		
253	22.9	19.0	28.4

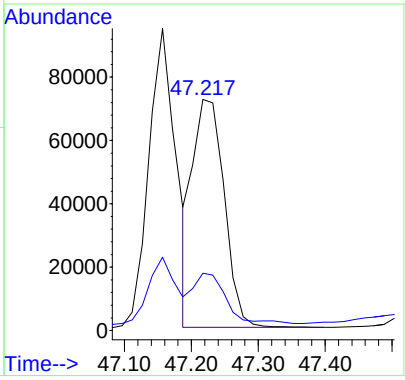


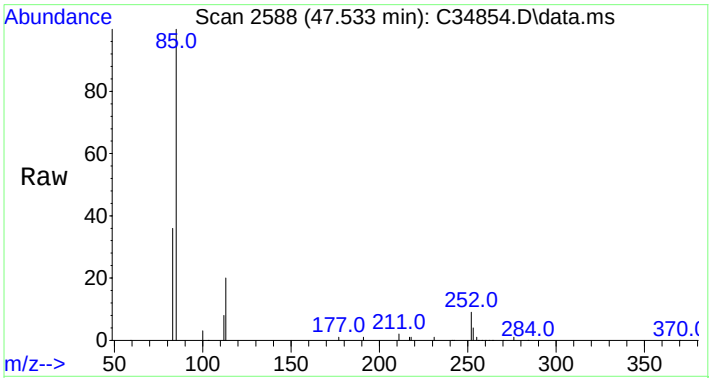


#83
Benzo[j]+[k]fluoranthene
Concen: 1466.12 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 236429

Ion	Ratio	Lower	Upper
252	100		
253	23.6	19.0	28.4

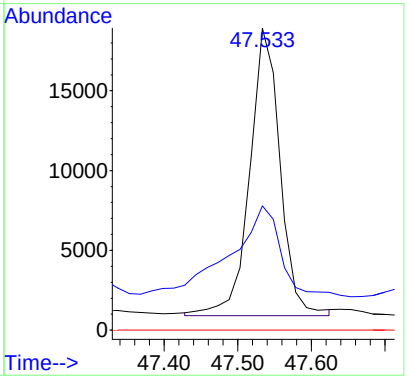


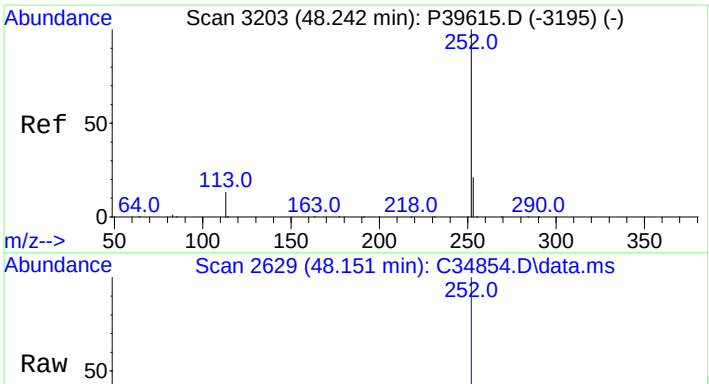


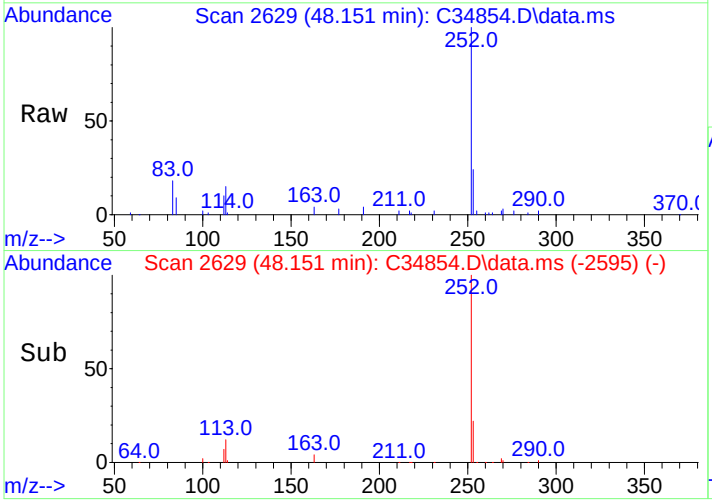
#84
Benzo[a]fluoranthene
Concen: 319.66 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.035 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 51549

Ion	Ratio	Lower	Upper
252	100		
253	54.2	146.1	219.1#
125	0.0	0.0	0.0



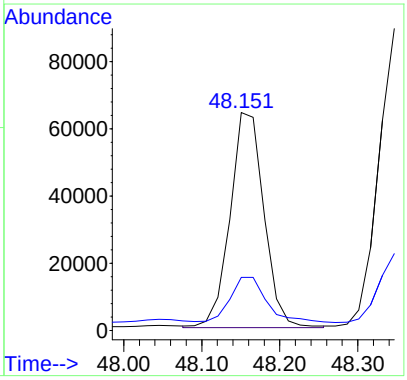


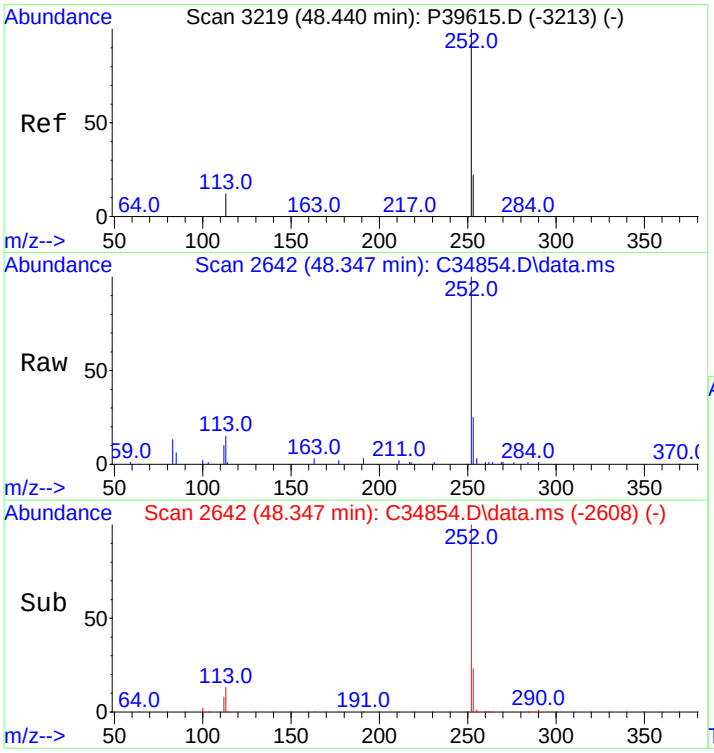


#85
Benzo[e]pyrene
Concen: 1319.29 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 193285

Ion	Ratio	Lower	Upper
252	100		
253	24.3	19.2	28.8

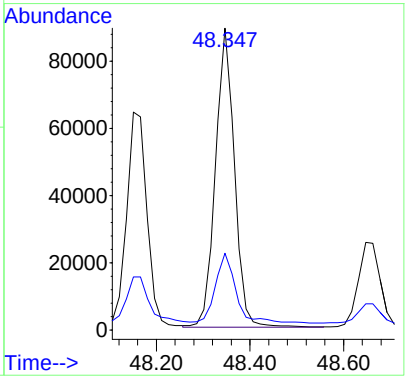


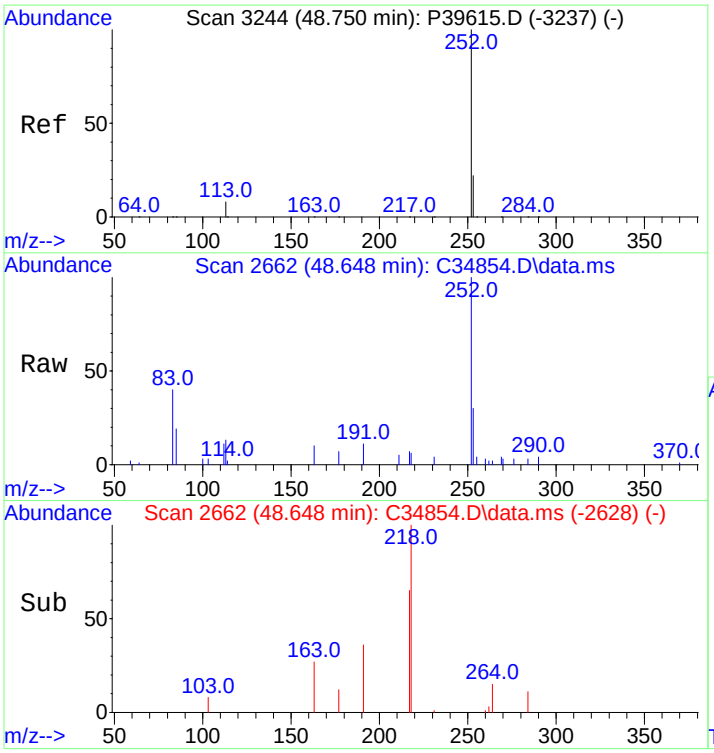


#87
Benzo[a]pyrene
Concen: 1773.83 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 250208

Ion	Ratio	Lower	Upper
252	100		
253	25.1	19.5	29.3

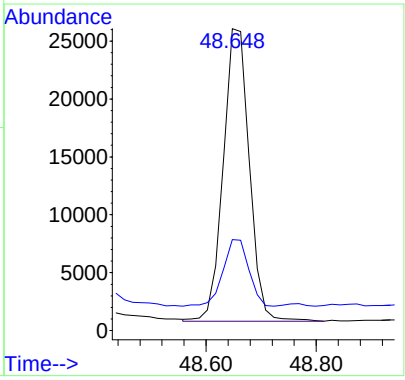


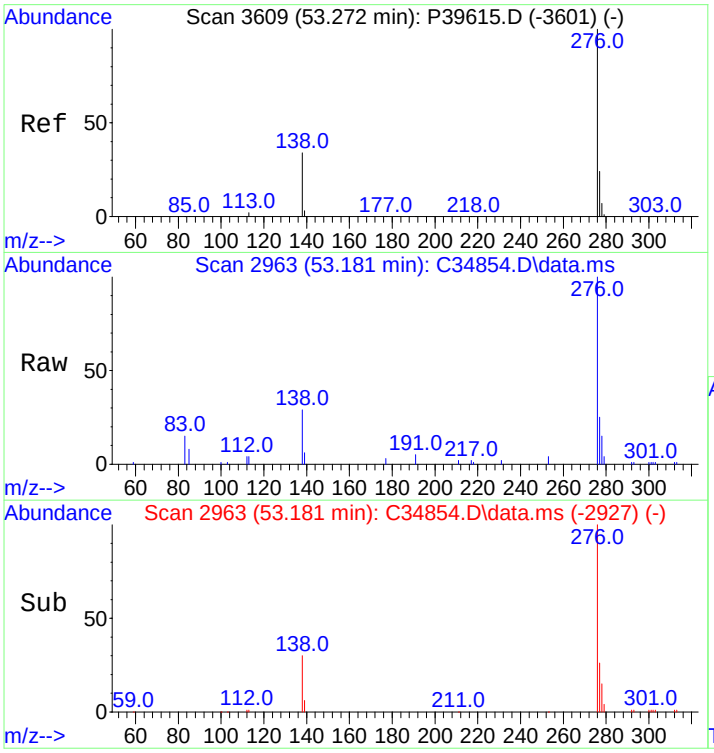


#88
Perylene
Concen: 549.65 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:252 Resp: 82859

Ion	Ratio	Lower	Upper
252	100		
253	22.6	19.6	29.4

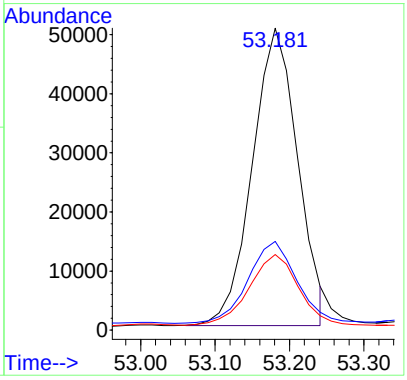


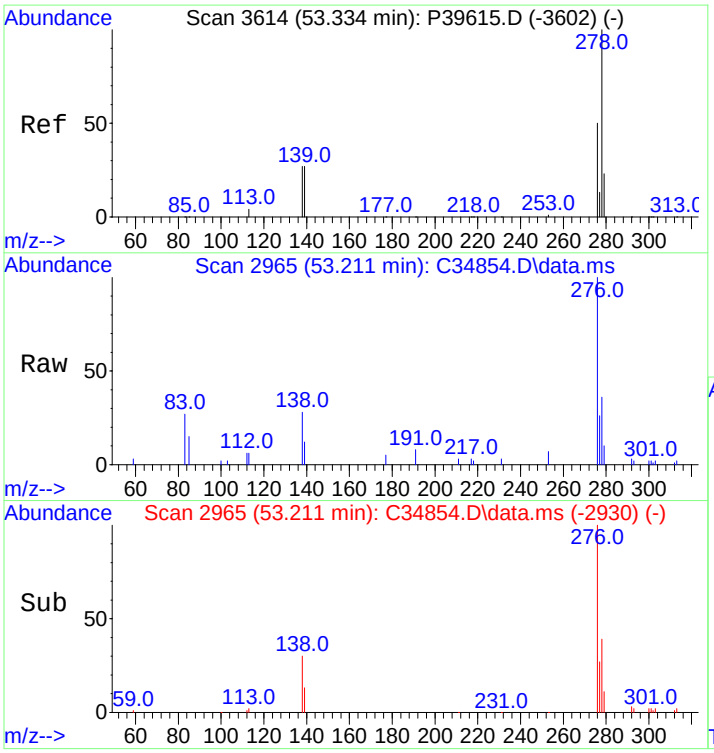


#89
Indeno[1,2,3-cd]pyrene
Concen: 1300.40 ng/mL m
RT: 53.181 min Scan# 2963
Delta R.T. 0.045 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:276 Resp: 213461

Ion	Ratio	Lower	Upper
276	100		
138	29.7	23.3	34.9
277	26.1	19.0	28.4

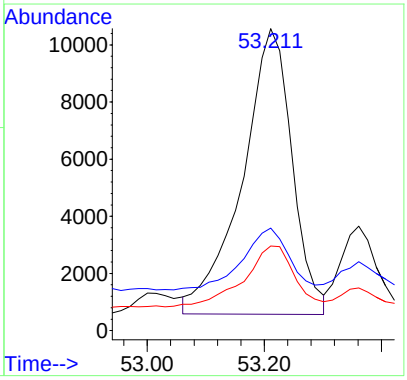


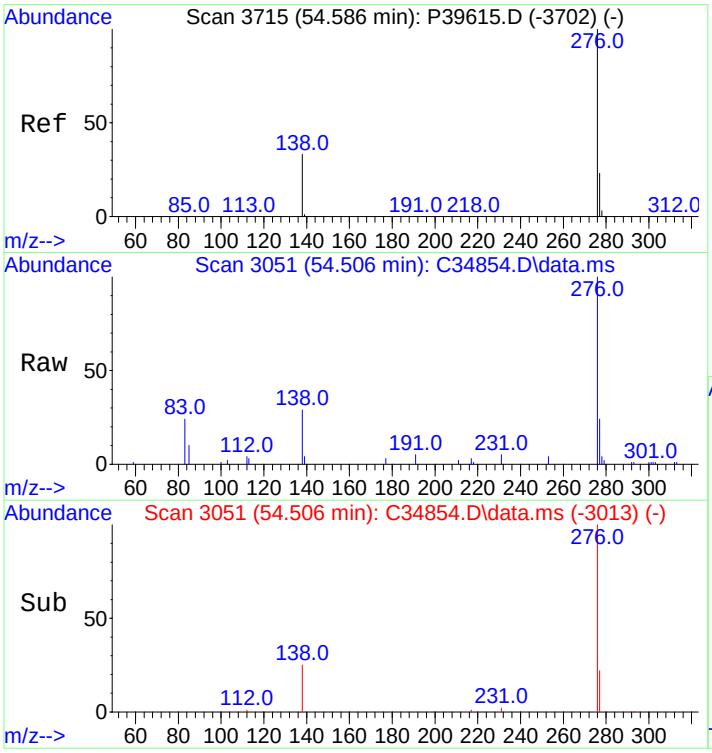


#90
Dibenz[ah]+[ac]anthracene
Concen: 379.13 ng/mL
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:278 Resp: 59202

Ion	Ratio	Lower	Upper
278	100		
139	16.6	19.1	28.7#
279	19.3	19.2	28.8

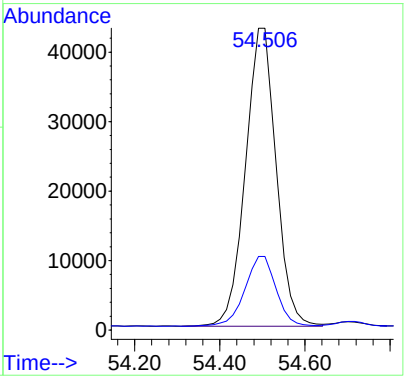


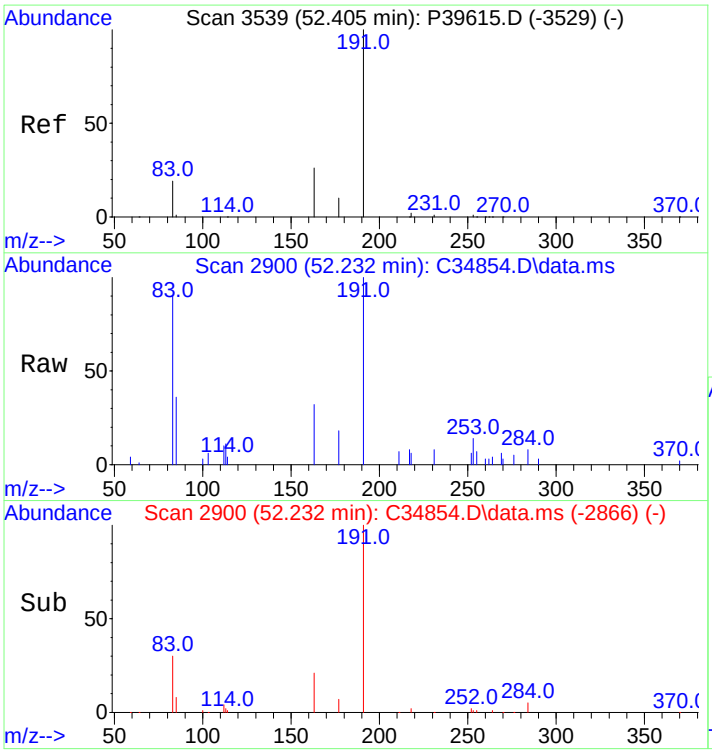


#91
Benzo[g,h,i]perylene
Concen: 1237.68 ng/mL
RT: 54.506 min Scan# 3051
Delta R.T. 0.075 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:276 Resp: 214645

Ion	Ratio	Lower	Upper
276	100		
277	24.0	18.9	28.3

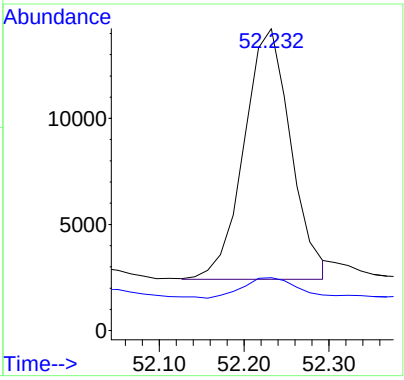


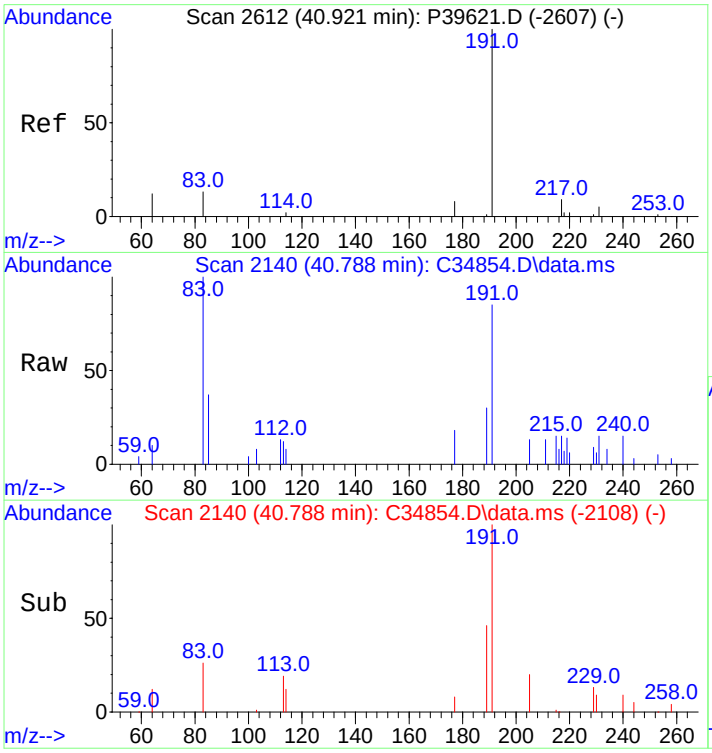


#92
Hopane (T19)
Concen: 1616.32 ng/mL m
RT: 52.232 min Scan# 2900
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:191 Resp: 45242

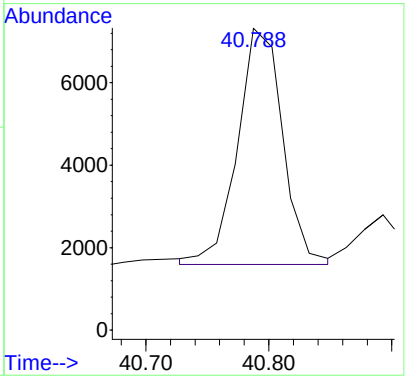
Ion	Ratio	Lower	Upper
191	100		
177	10.2	14.6	21.8#

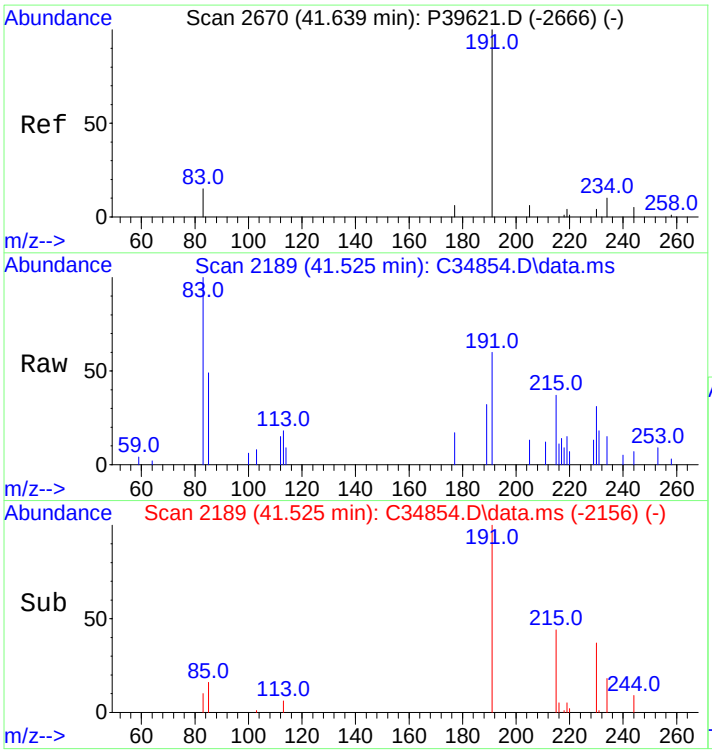




#94
C23 Tricyclic Terpane (T4)
Concen: 522.57 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

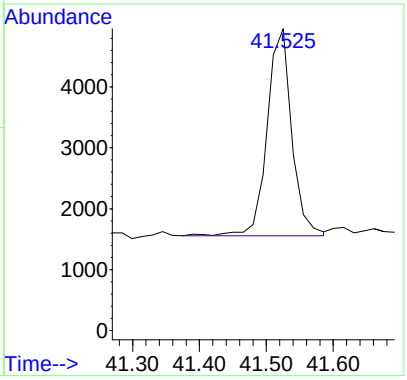
Tgt Ion:191 Resp: 14627

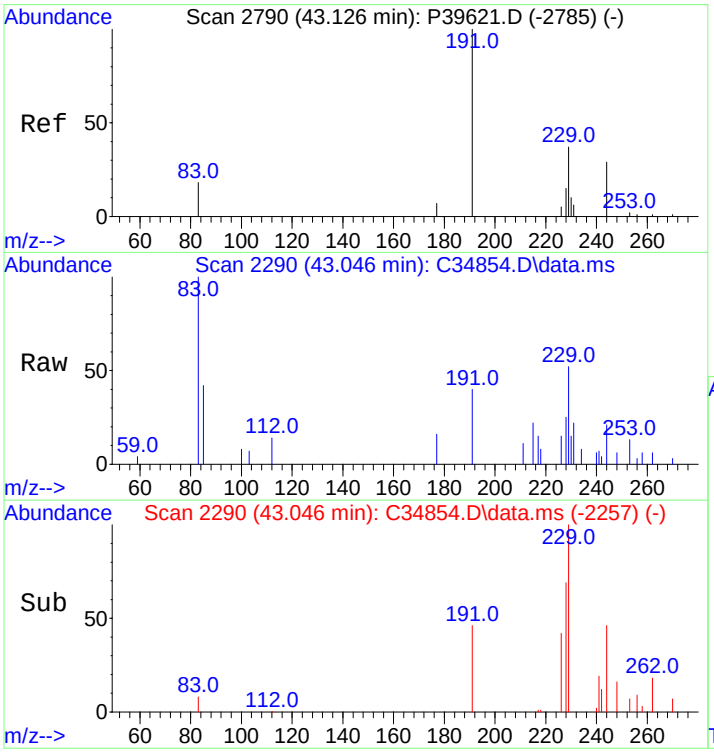




#95
C24 Tricyclic Terpane (T5)
Concen: 310.39 ng/ml
RT: 41.525 min Scan# 2189
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

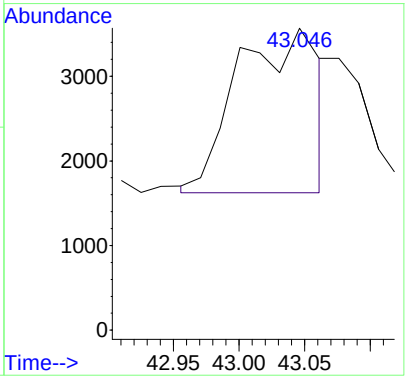
Tgt Ion:191 Resp: 8688

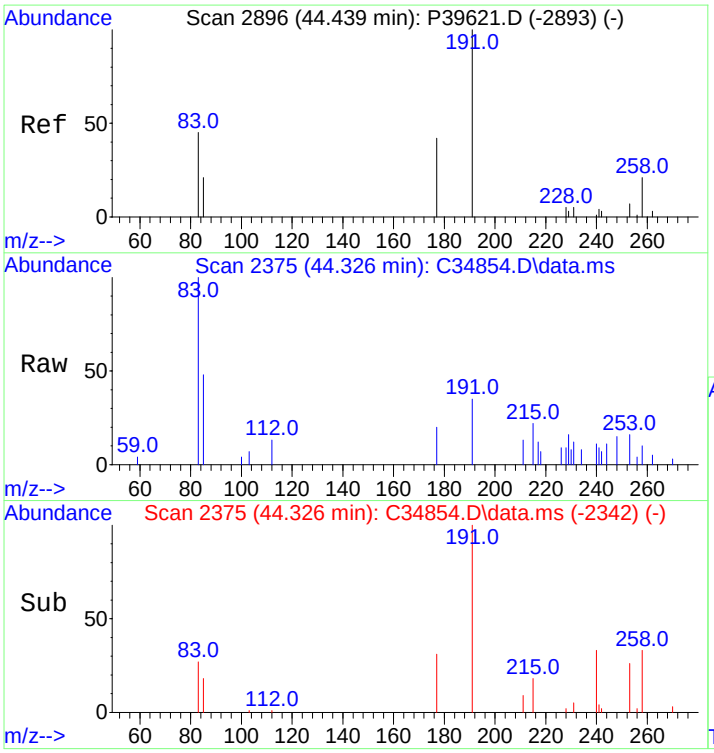




#96
C25 Tricyclic Terpane (T6)
Concen: 298.88 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

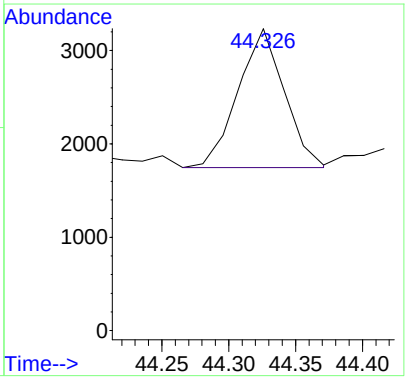
Tgt Ion:191 Resp: 8366

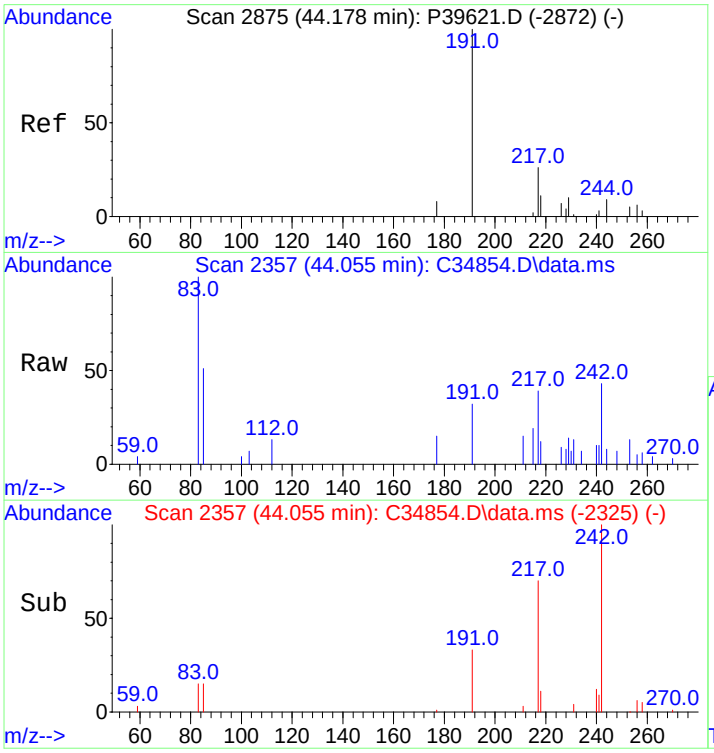




#97
C24 Tetracyclic Terpane (T6a)
Concen: 128.79 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

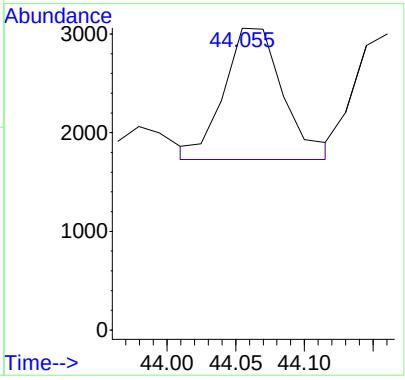
Tgt Ion:191 Resp: 3605

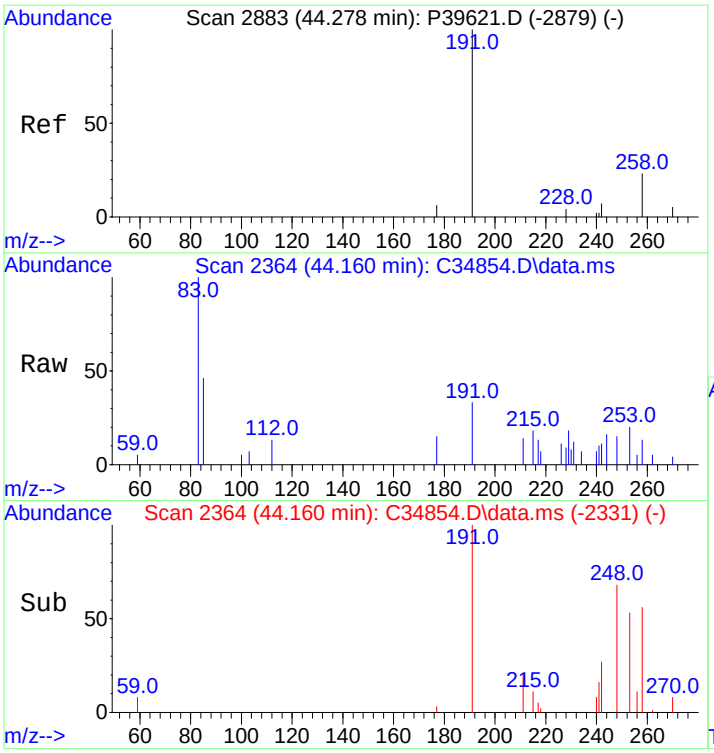




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 142.58 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

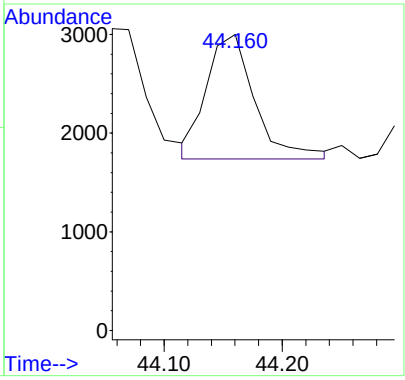
Tgt Ion:191 Resp: 3991

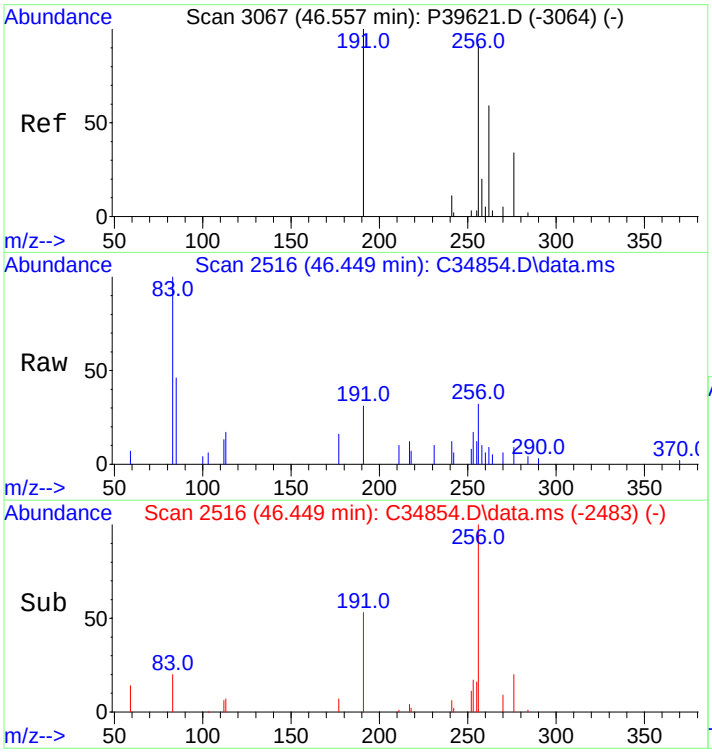




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 128.36 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

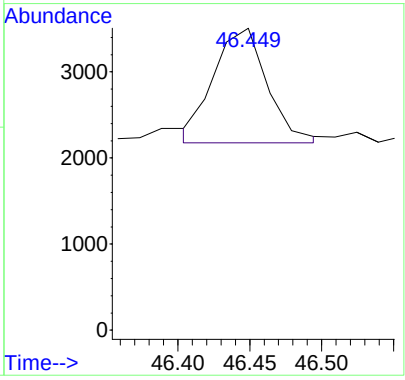
Tgt Ion:191 Resp: 3593

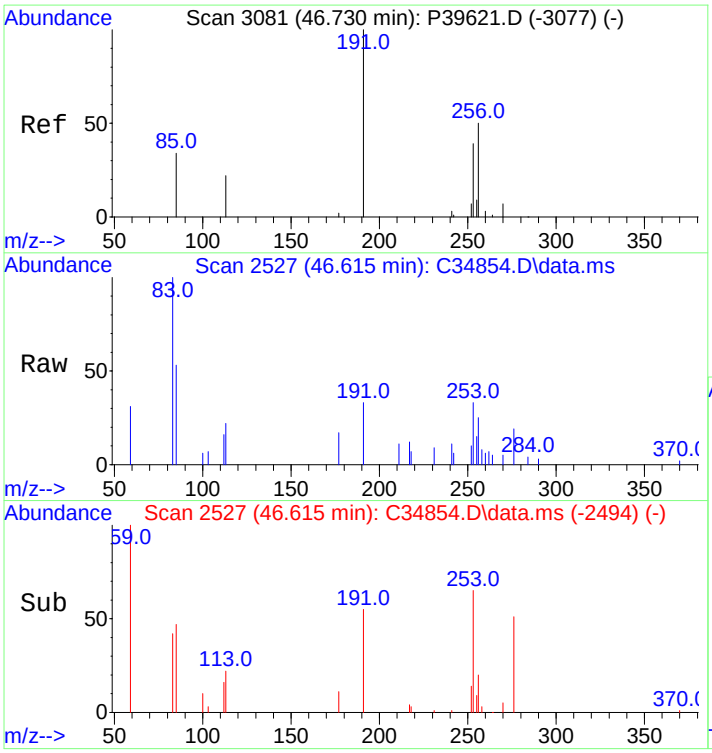




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 122.90 ng/ml m
RT: 46.449 min Scan# 2516
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

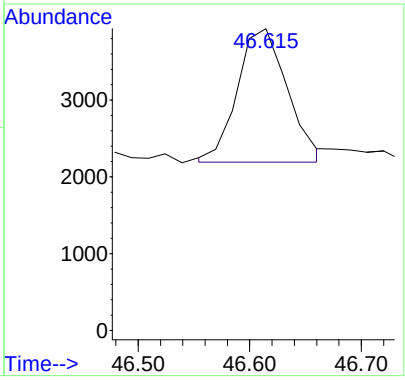
Tgt Ion:191 Resp: 3440

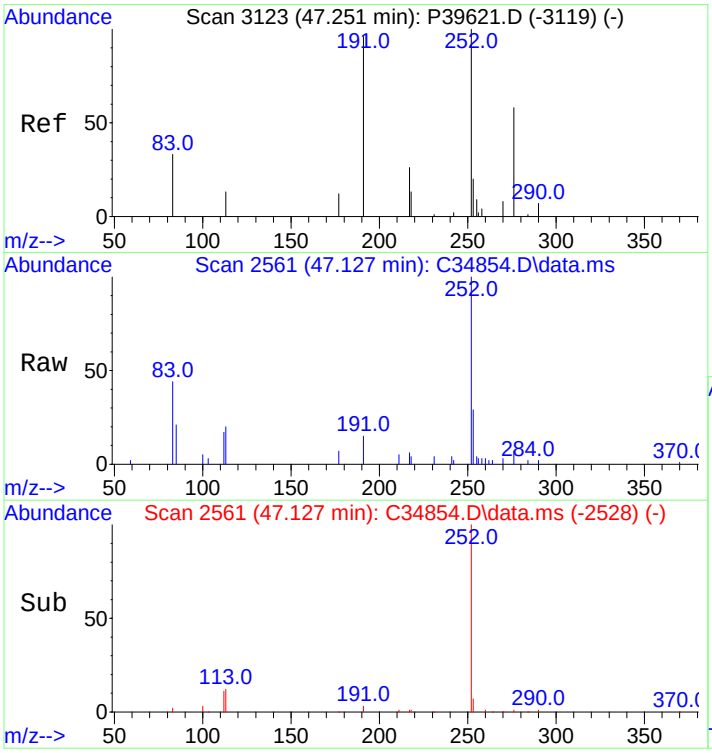




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 192.74 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

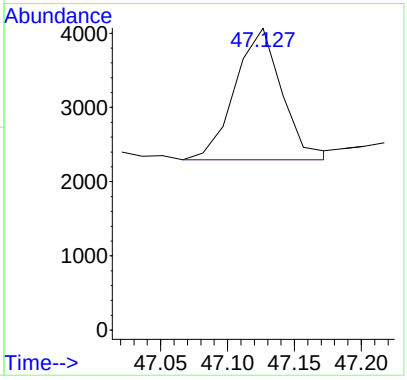
Tgt Ion:191 Resp: 5395

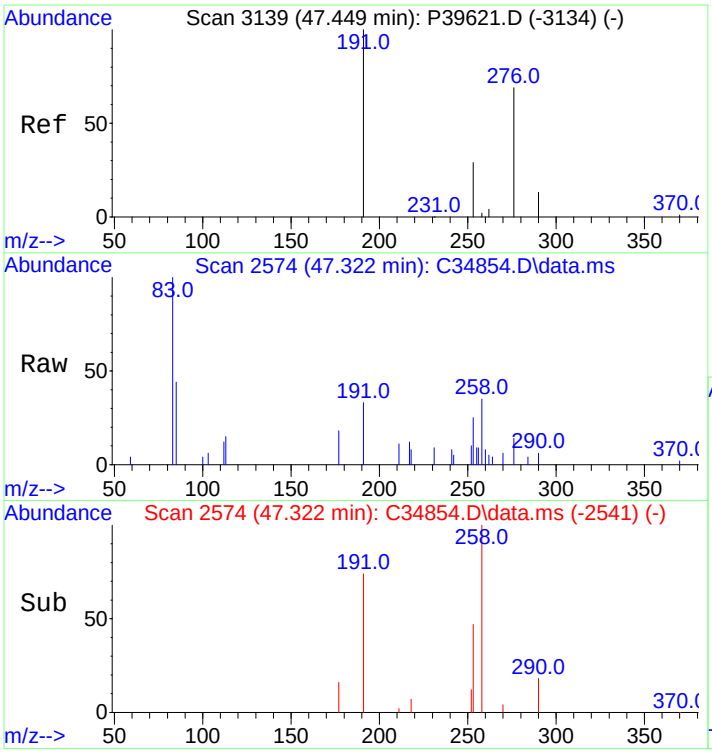




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 156.16 ng/ml
RT: 47.127 min Scan# 2561
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

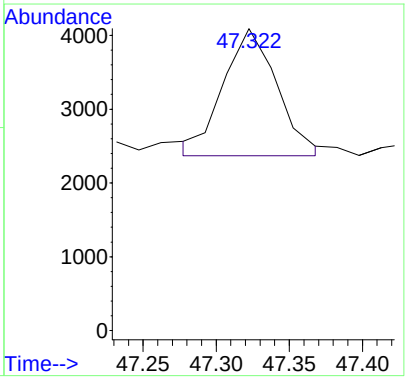
Tgt Ion:191 Resp: 4371

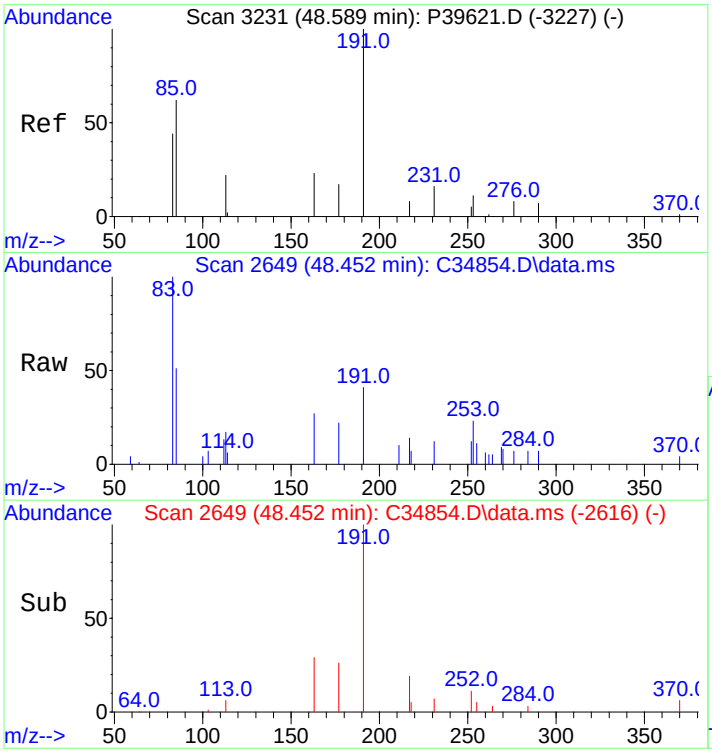




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 156.62 ng/ml m
RT: 47.322 min Scan# 2574
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

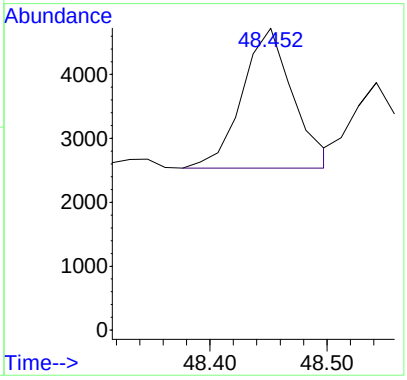
Tgt Ion:191 Resp: 4384

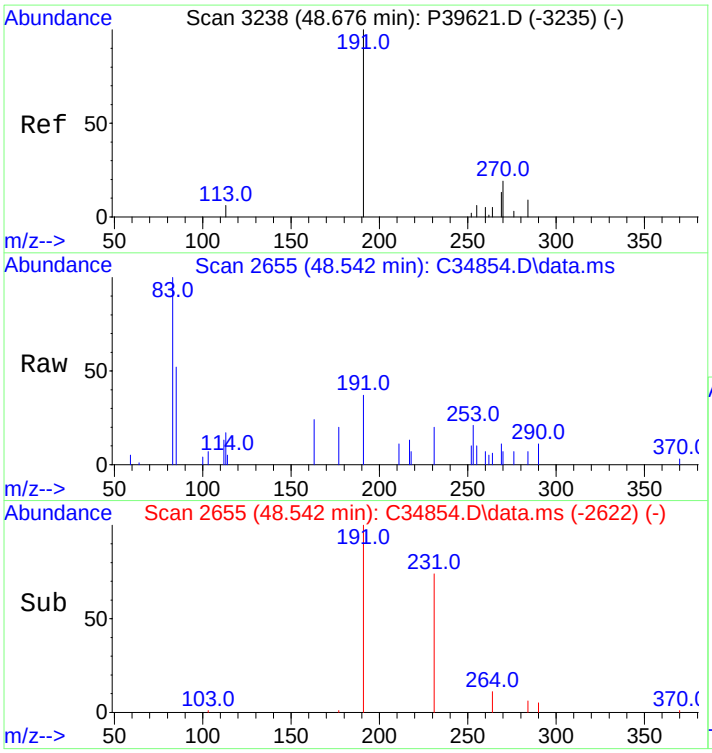




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 236.51 ng/ml
RT: 48.452 min Scan# 2649
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

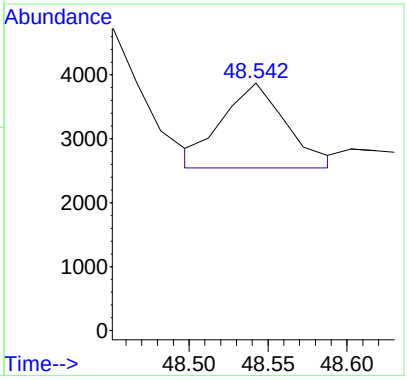
Tgt Ion:191 Resp: 6620

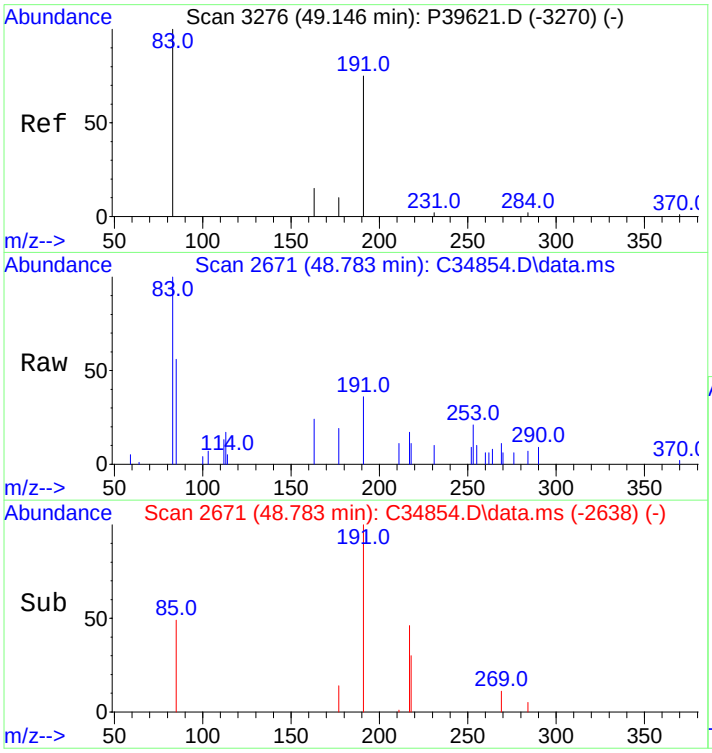




#105
C30 Tricyclic Terpane-22S
Concen: 132.54 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

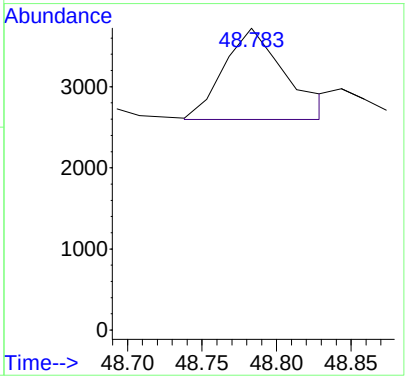
Tgt Ion:191 Resp: 3710

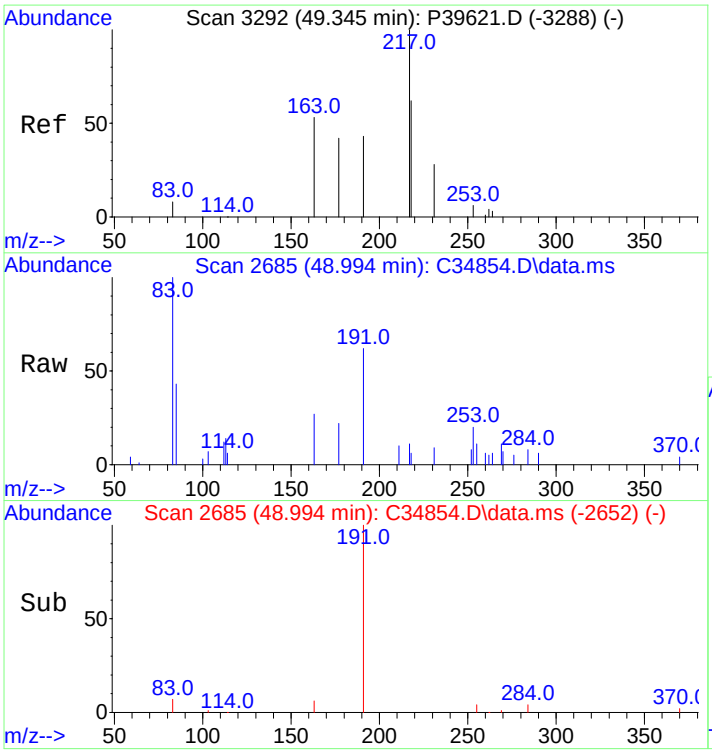




#106
C30 Tricyclic Terpane-22R
Concen: 115.68 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

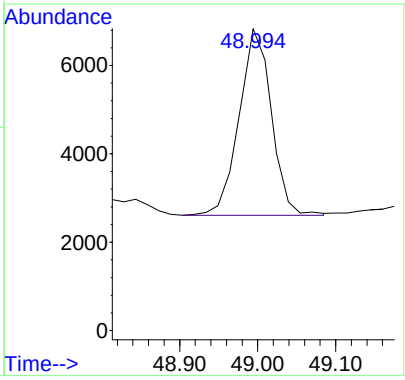
Tgt Ion:191 Resp: 3238

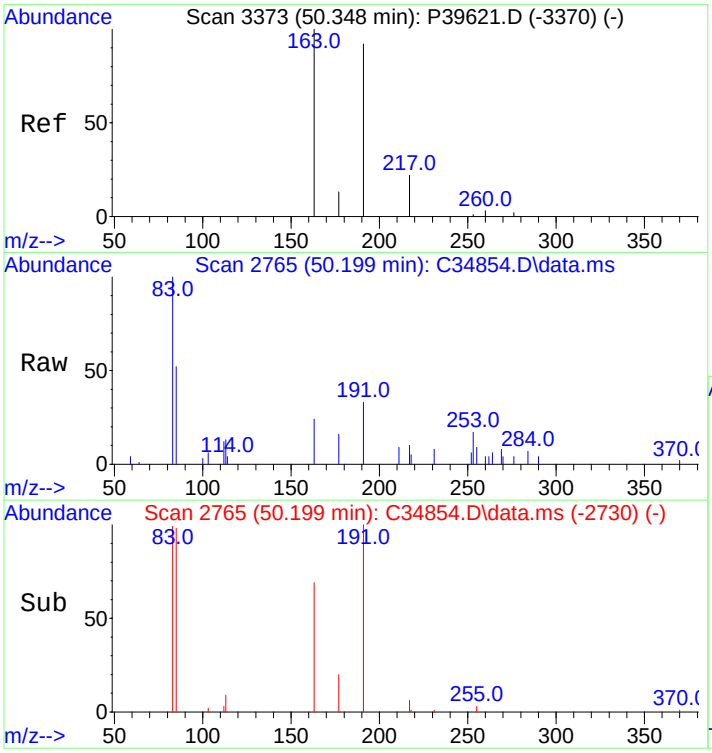




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 432.50 ng/ml
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

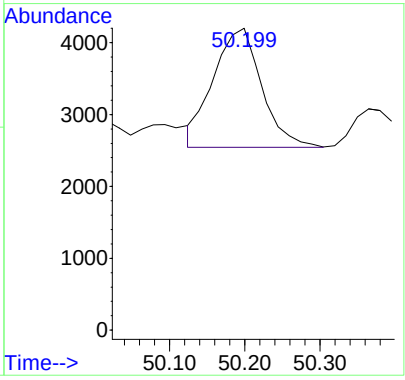
Tgt Ion:191 Resp: 12106

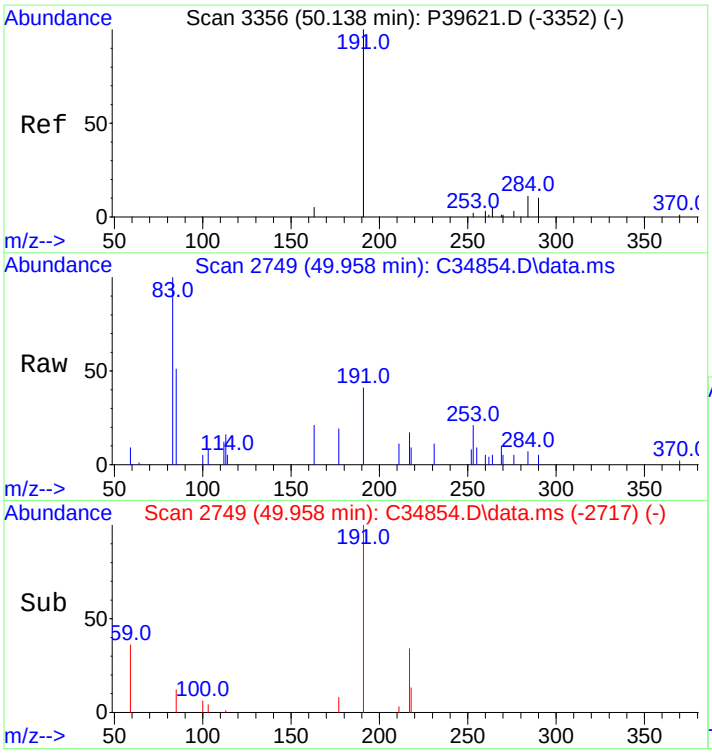




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 263.91 ng/ml m
RT: 50.199 min Scan# 2765
Delta R.T. 0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

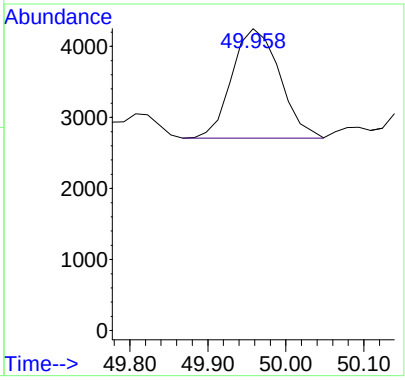
Tgt Ion:191 Resp: 7387

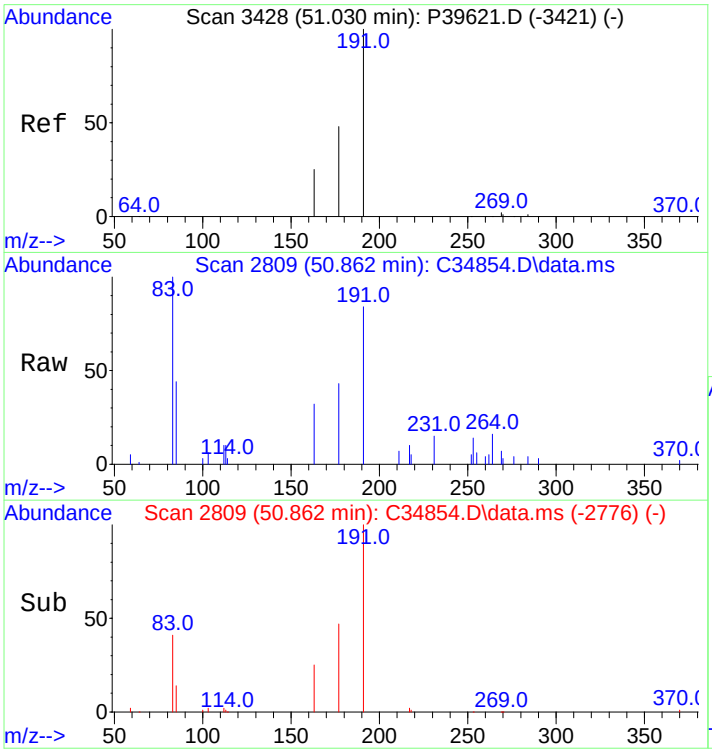




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 234.58 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

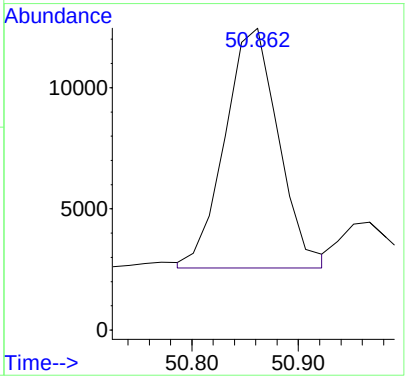
Tgt Ion:191 Resp: 6566

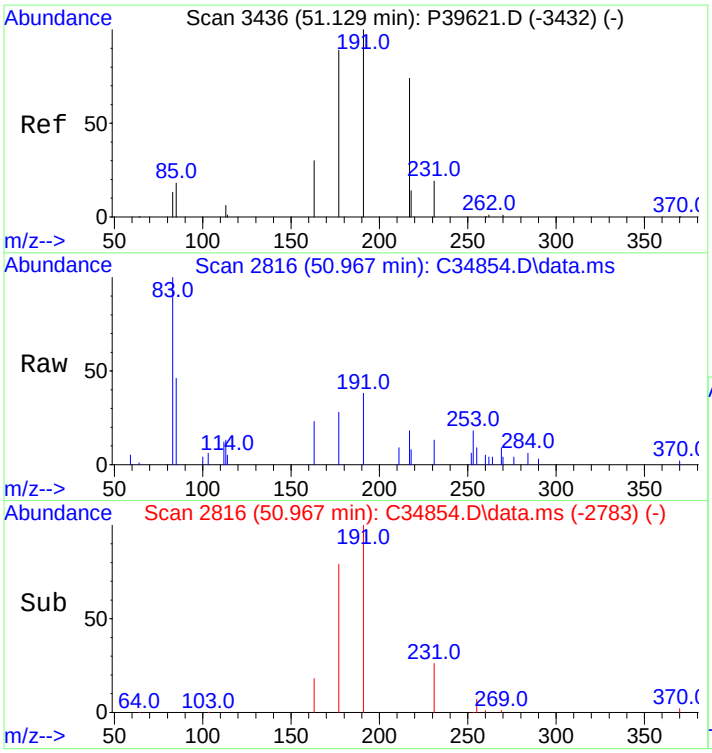




#110
30-Norhopane (T15)
Concen: 1232.23 ng/ml m
RT: 50.862 min Scan# 2809
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

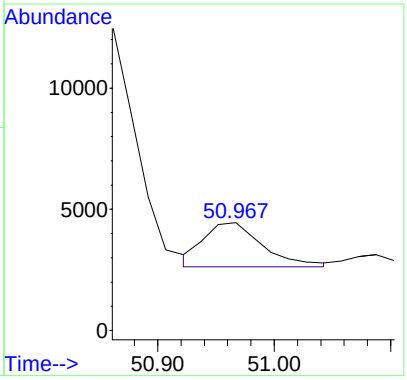
Tgt Ion:191 Resp: 34491

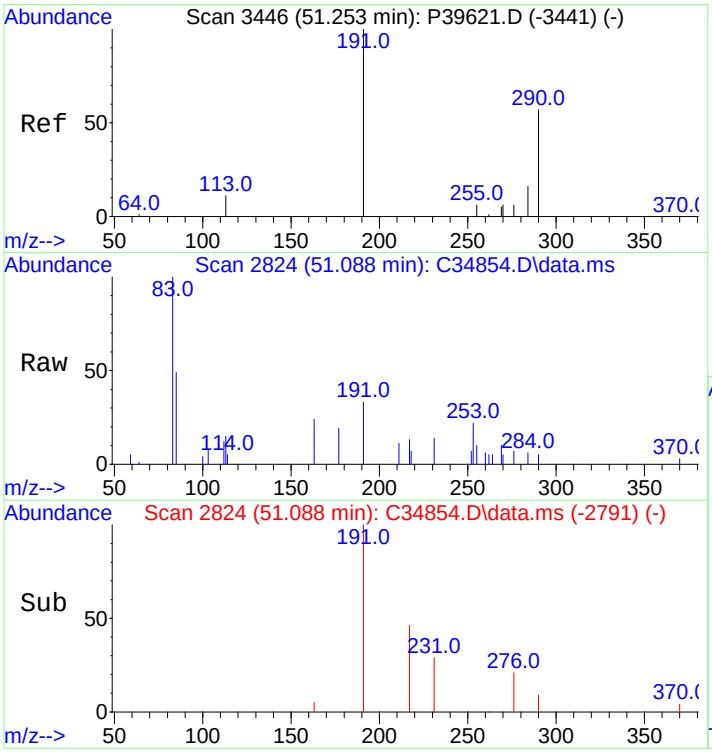




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 227.61 ng/ml m
RT: 50.967 min Scan# 2816
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

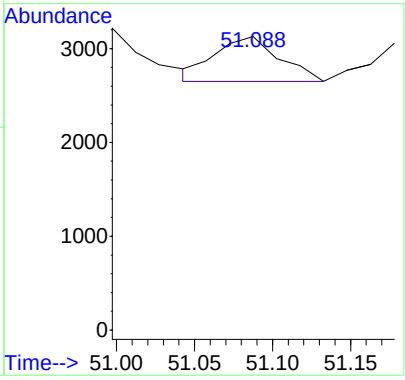
Tgt Ion:191 Resp: 6371

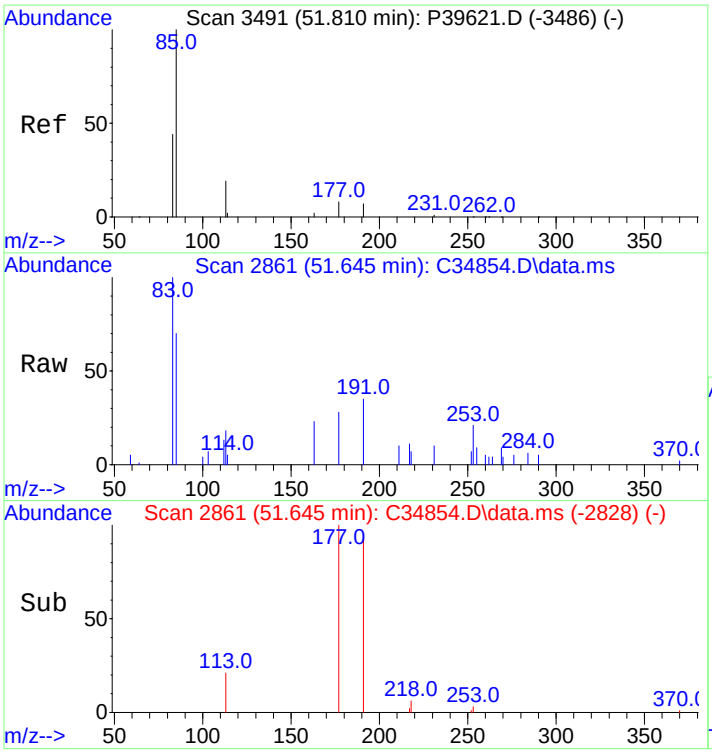




#112
17a(H)-Diahopane (X)
Concen: 48.52 ng/ml
RT: 51.088 min Scan# 2824
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

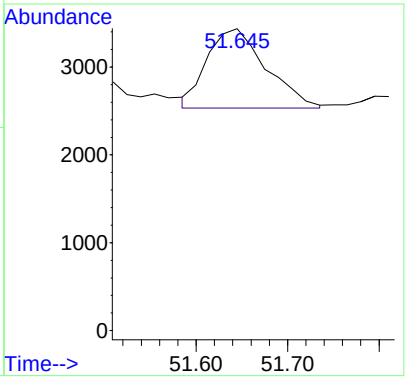
Tgt Ion:191 Resp: 1358

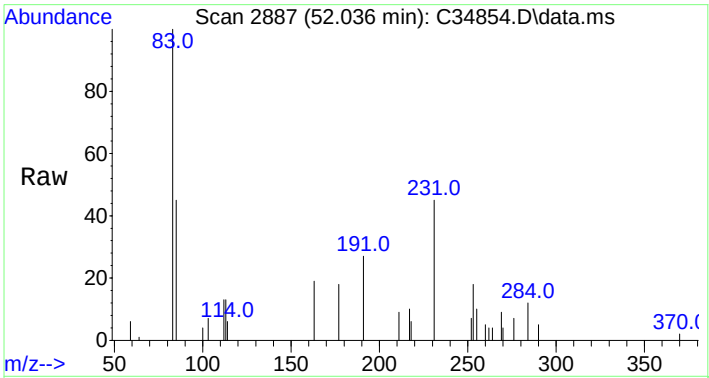




#113
30-Normoretane (T17)
Concen: 145.30 ng/ml m
RT: 51.645 min Scan# 2861
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

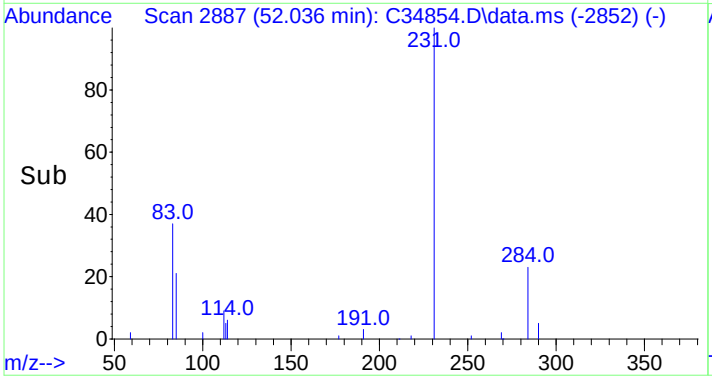
Tgt Ion:191 Resp: 4067

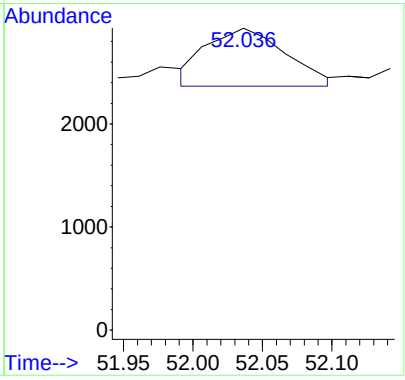


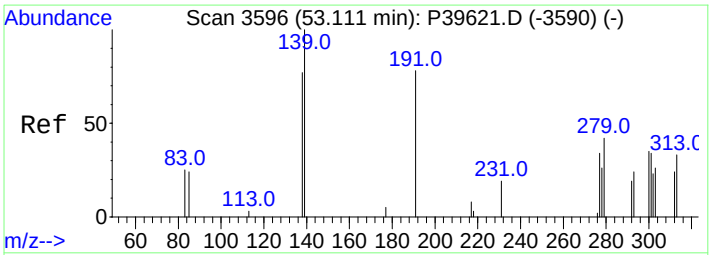


#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 79.96 ng/ml m
RT: 52.036 min Scan# 2887
Delta R.T. 0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:191 Resp: 2238

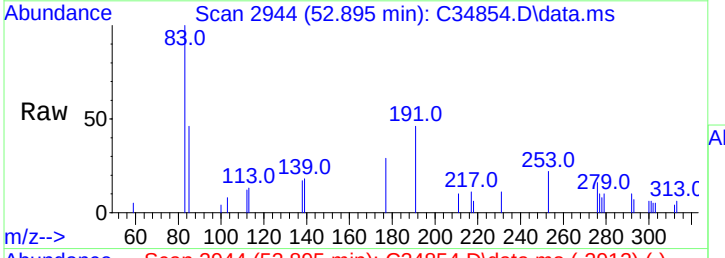


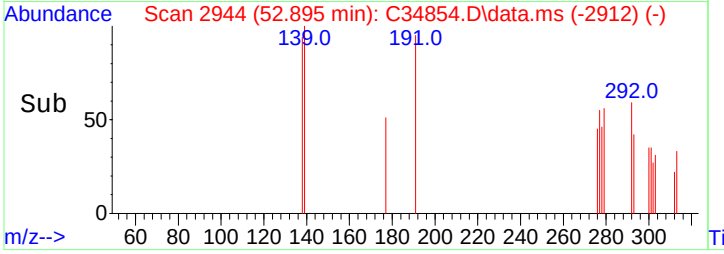


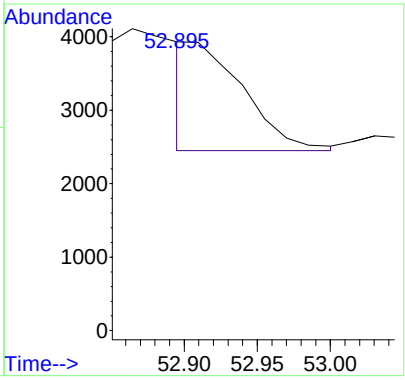


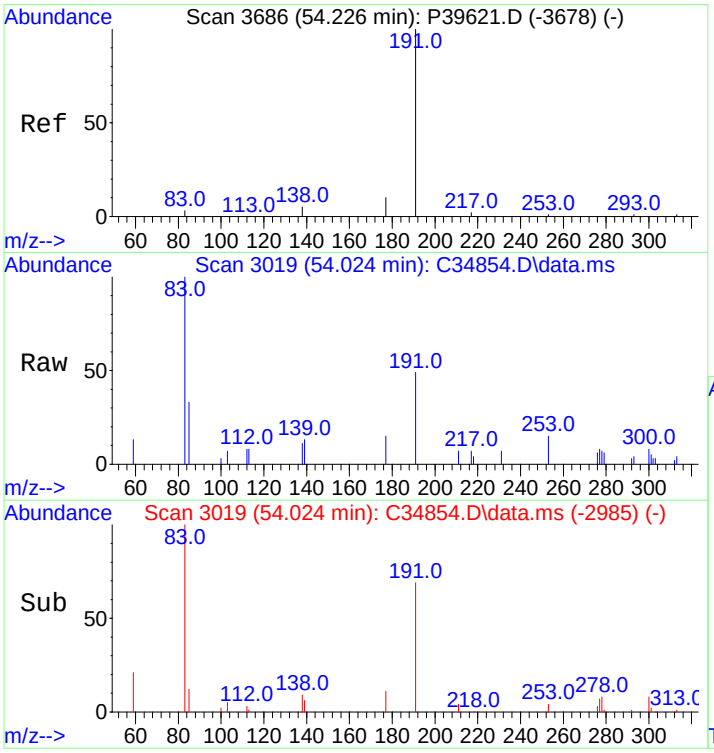
#115
Moretane (T20)
Concen: 138.08 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:191 Resp: 3865



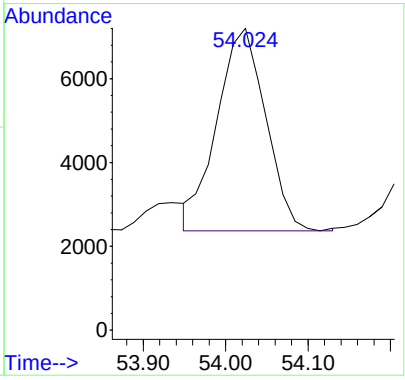


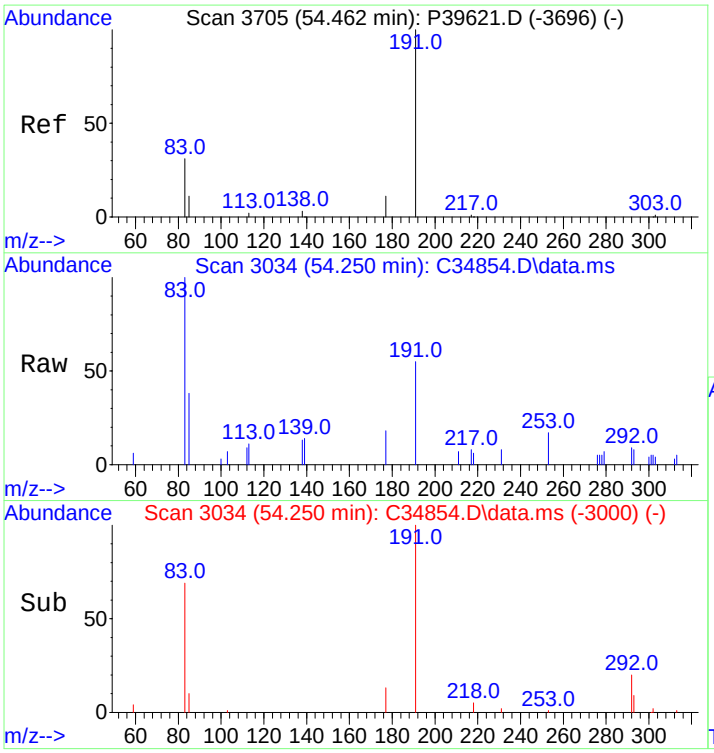




#116
30-Homohopane-22S (T21)
Concen: 708.06 ng/ml m
RT: 54.024 min Scan# 3019
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

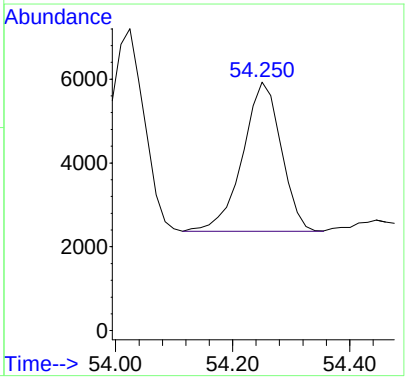
Tgt Ion:191 Resp: 19819

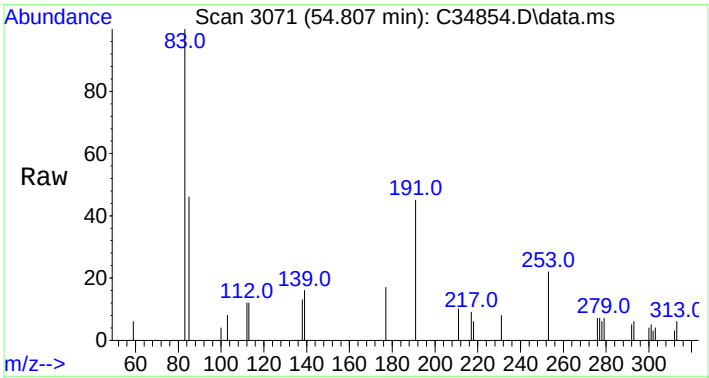




#117
30-Homohopane-22R (T22)
Concen: 582.73 ng/ml
RT: 54.250 min Scan# 3034
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

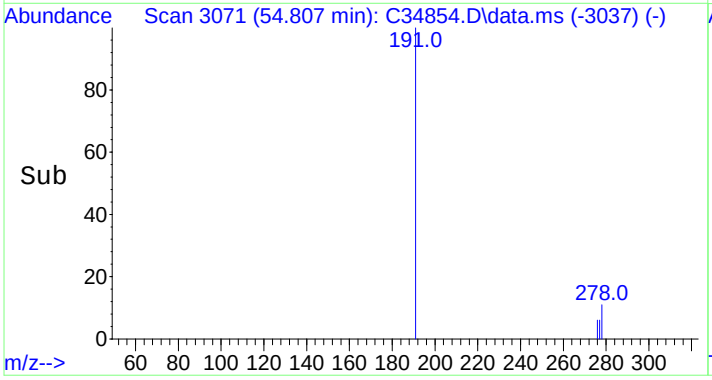
Tgt Ion:191 Resp: 16311

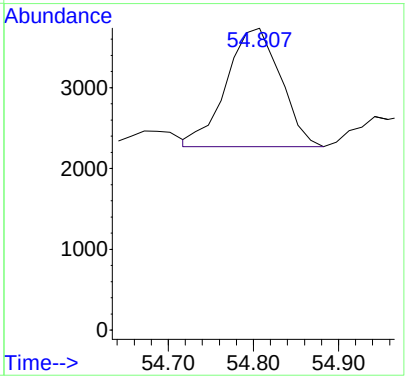


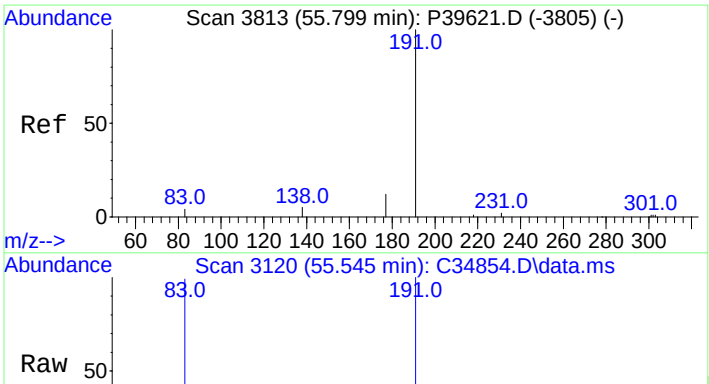


#118
Gammacerane/C32-diahopane
Concen: 232.29 ng/mL
RT: 54.807 min Scan# 3071
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:191 Resp: 6502

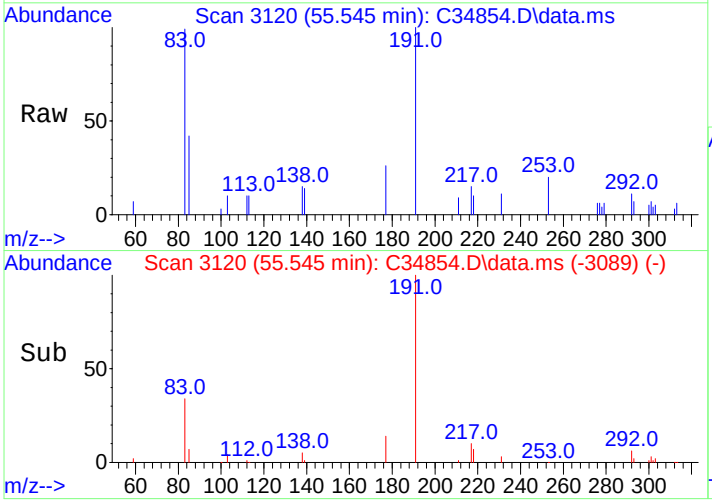


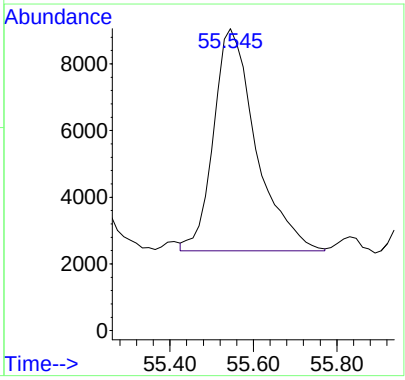


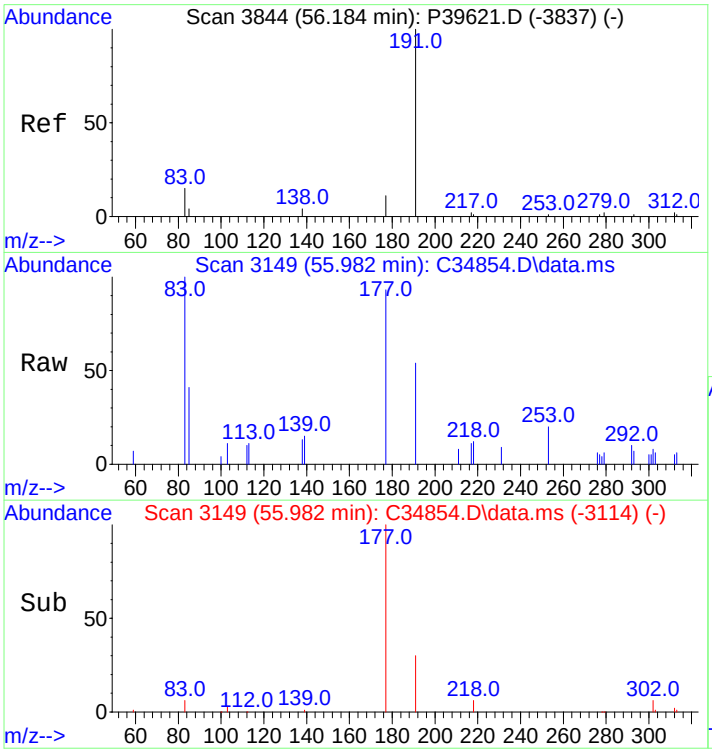


#119
30,31-Bishomohopane-22S (T26)
Concen: 1681.63 ng/ml m
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:191 Resp: 47070

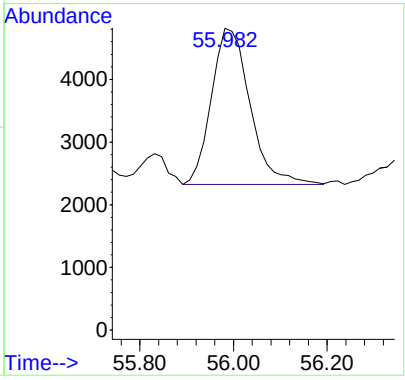


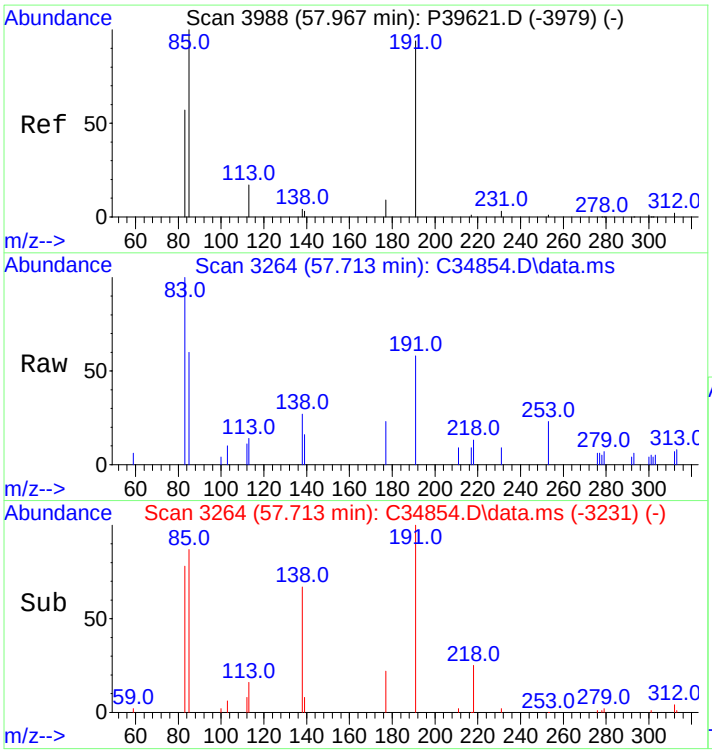




#120
30,31-Bishomohopane-22R (T27)
Concen: 509.95 ng/ml
RT: 55.982 min Scan# 3149
Delta R.T. 0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

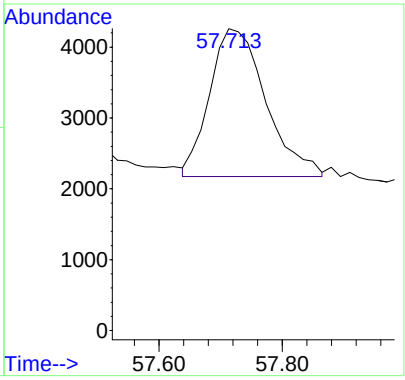
Tgt Ion:191 Resp: 14274

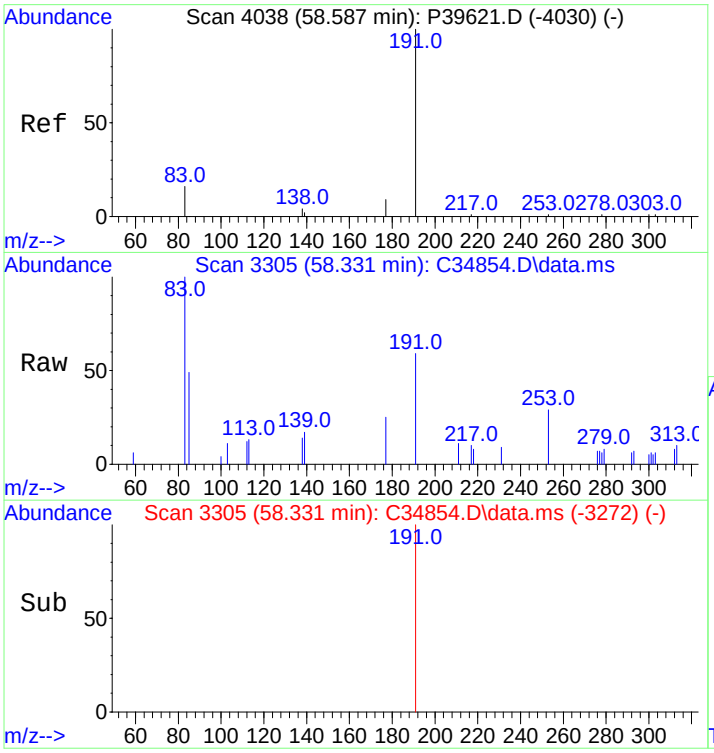




#121
30,31-Trishomohopane-22S (T30)
Concen: 470.62 ng/ml m
RT: 57.713 min Scan# 3264
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

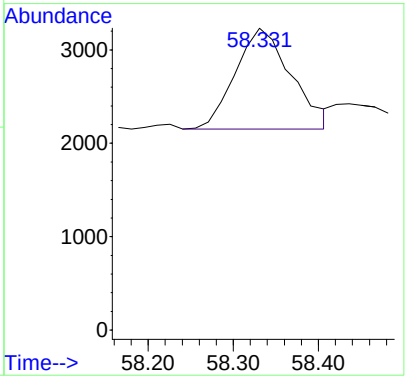
Tgt Ion:191 Resp: 13173

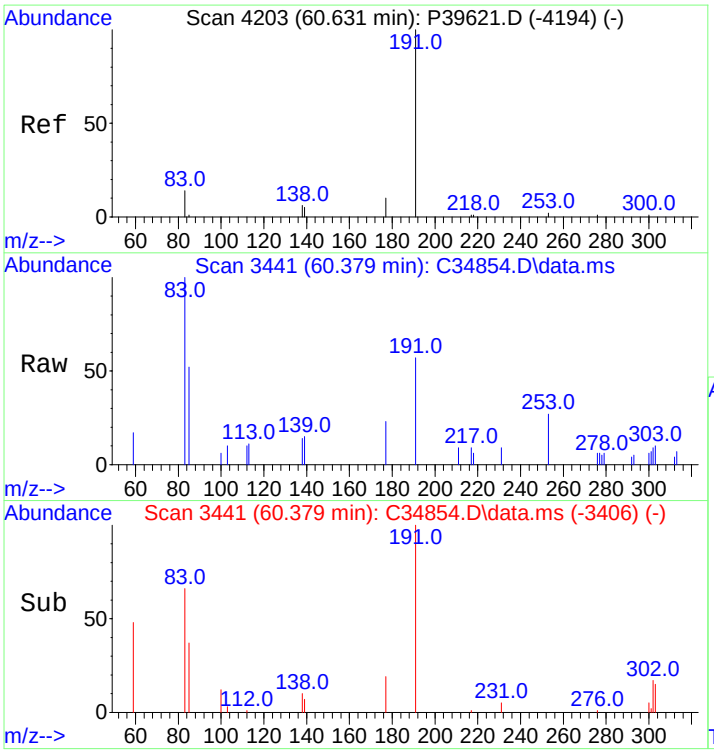




#122
30,31-Trishomohopane-22R (T31)
Concen: 176.95 ng/ml
RT: 58.331 min Scan# 3305
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

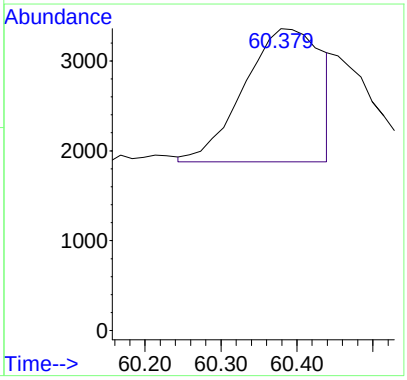
Tgt Ion:191 Resp: 4953

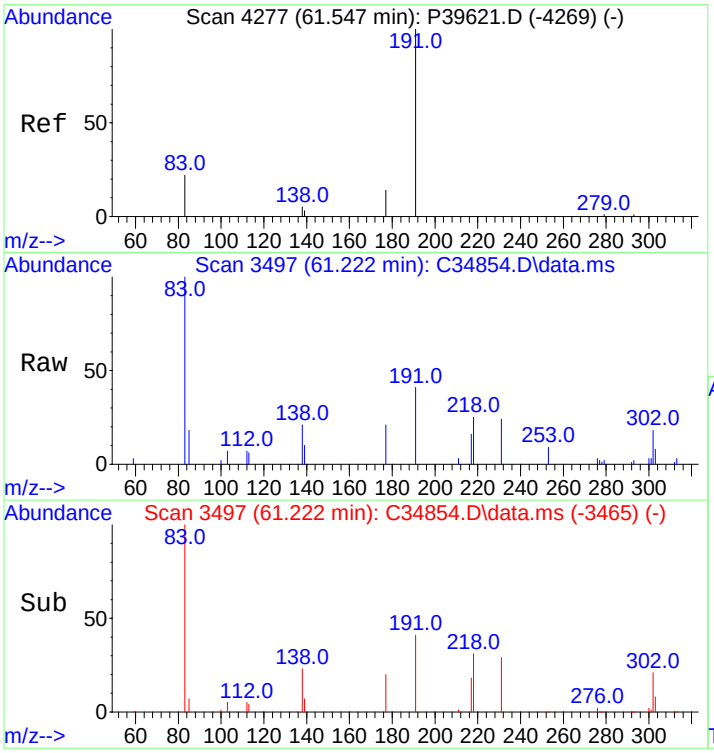




#123
Tetrakishomohopane-22S (T32)
Concen: 378.55 ng/ml m
RT: 60.379 min Scan# 3441
Delta R.T. 0.030 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

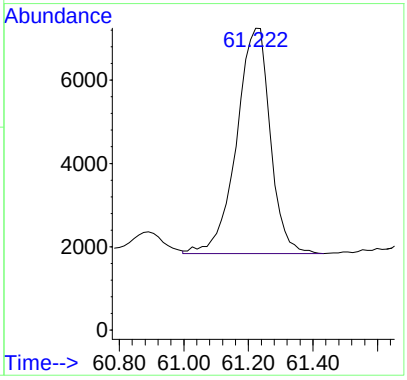
Tgt Ion:191 Resp: 10596

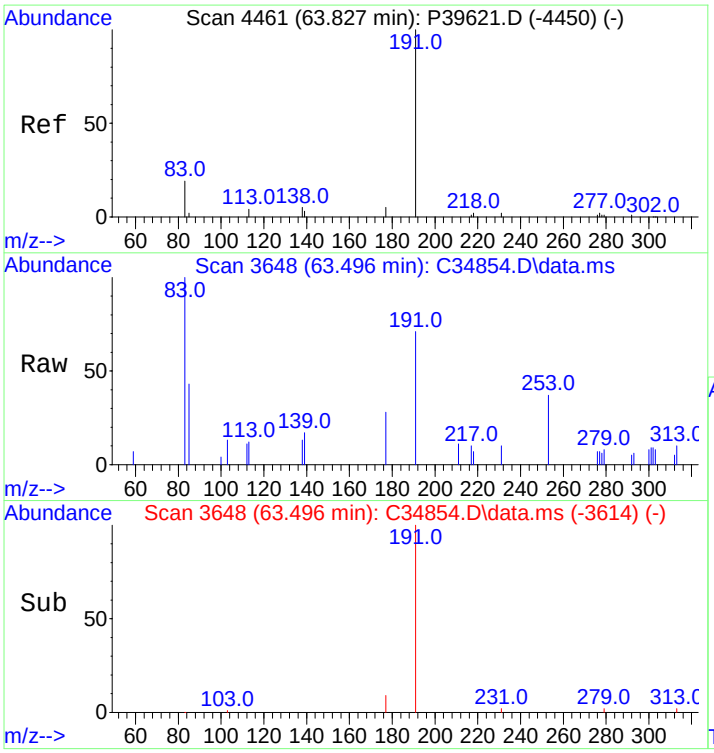




#124
Tetrakishomohopane-22R (T33)
Concen: 1399.39 ng/ml
RT: 61.222 min Scan# 3497
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

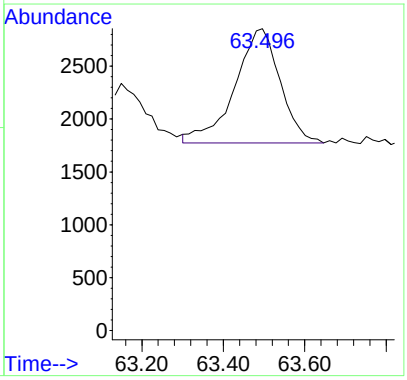
Tgt Ion:191 Resp: 39170

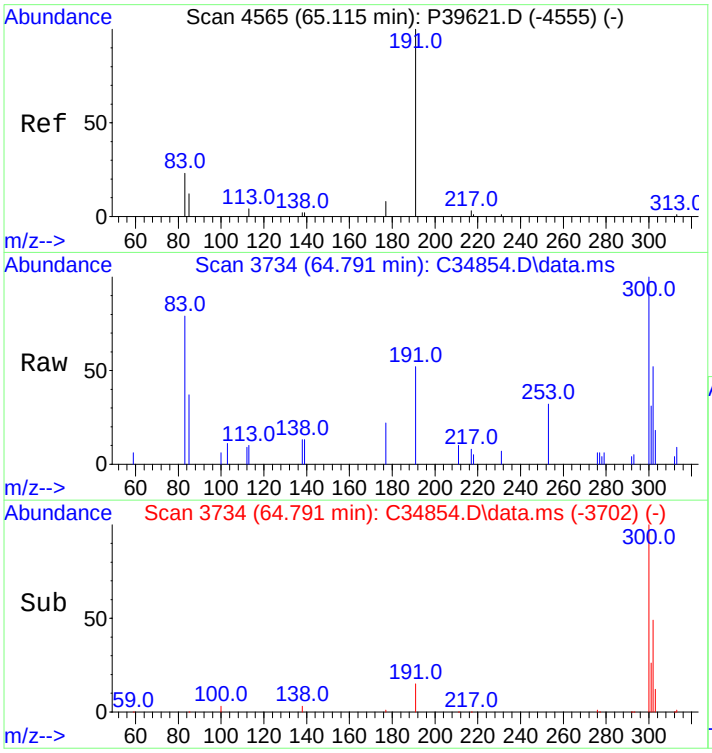




#125
Pentakishomohopane-22S (T34)
Concen: 297.13 ng/ml
RT: 63.496 min Scan# 3648
Delta R.T. 0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

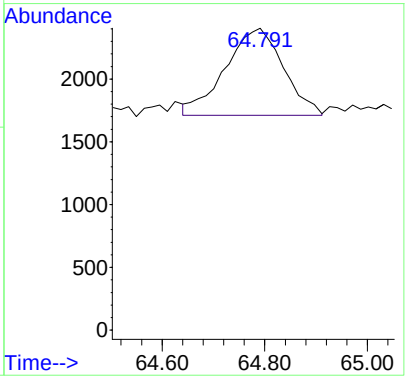
Tgt Ion:191 Resp: 8317

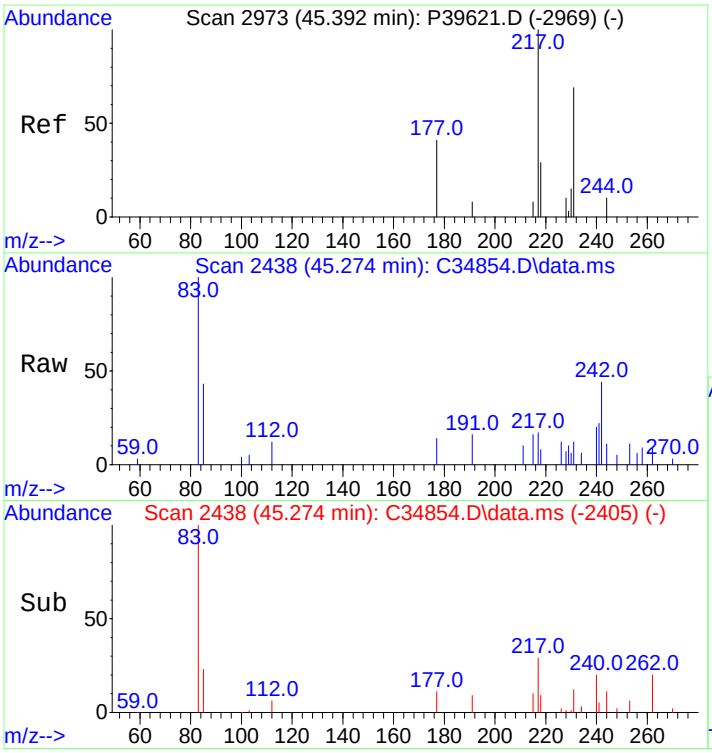




#126
Pentakishomohopane-22R (T35)
Concen: 194.24 ng/ml m
RT: 64.791 min Scan# 3734
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

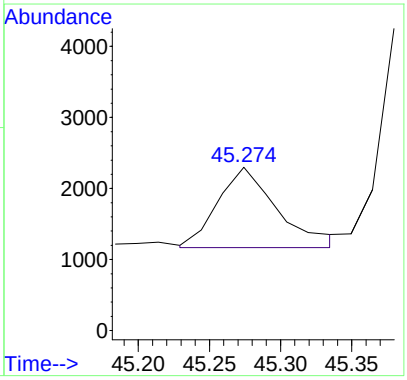
Tgt Ion:191 Resp: 5437

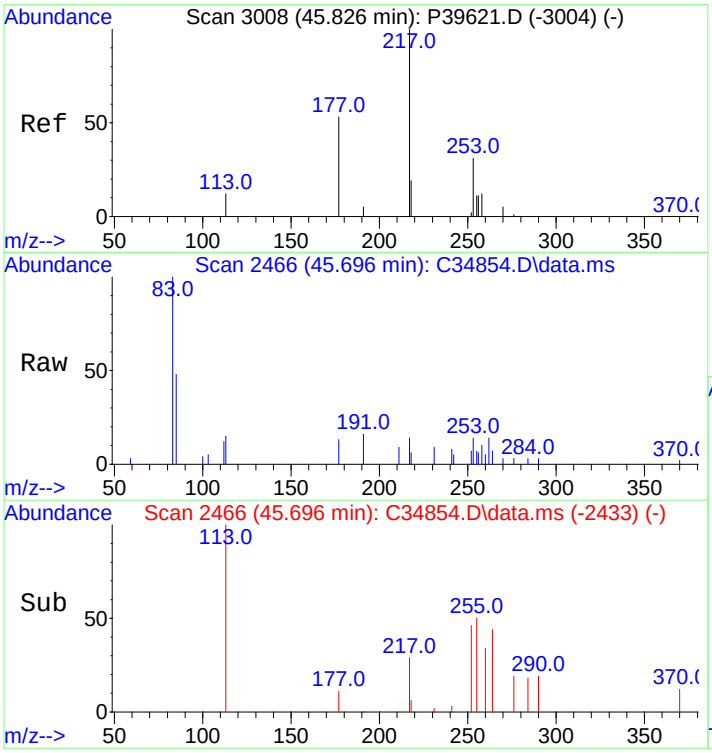




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 249.20 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

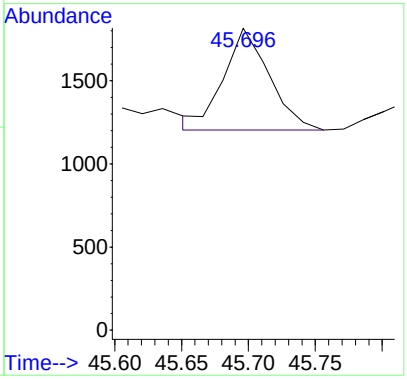
Tgt Ion:217 Resp: 3309

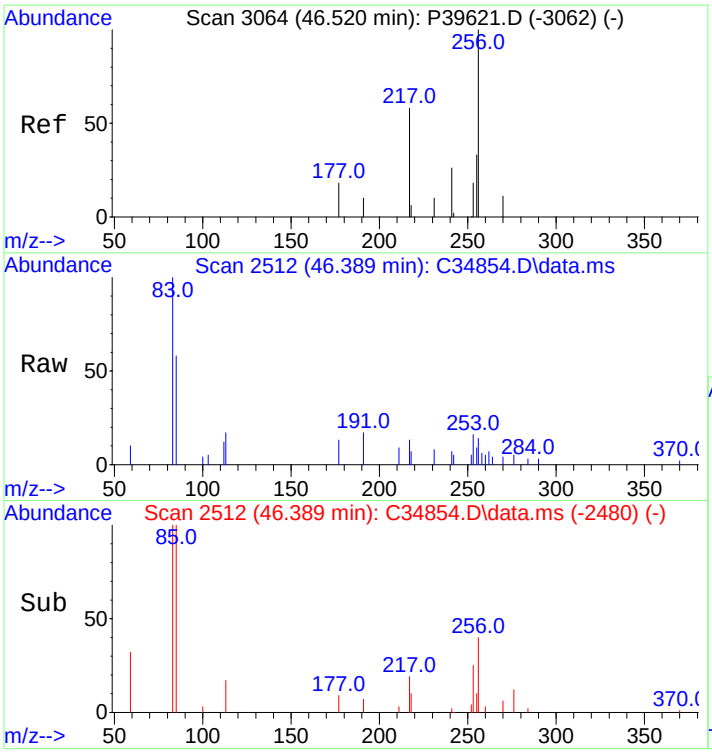




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 109.20 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

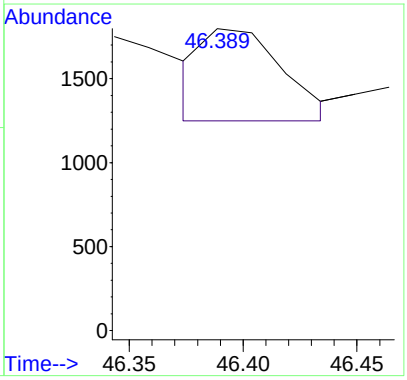
Tgt Ion:217 Resp: 1450

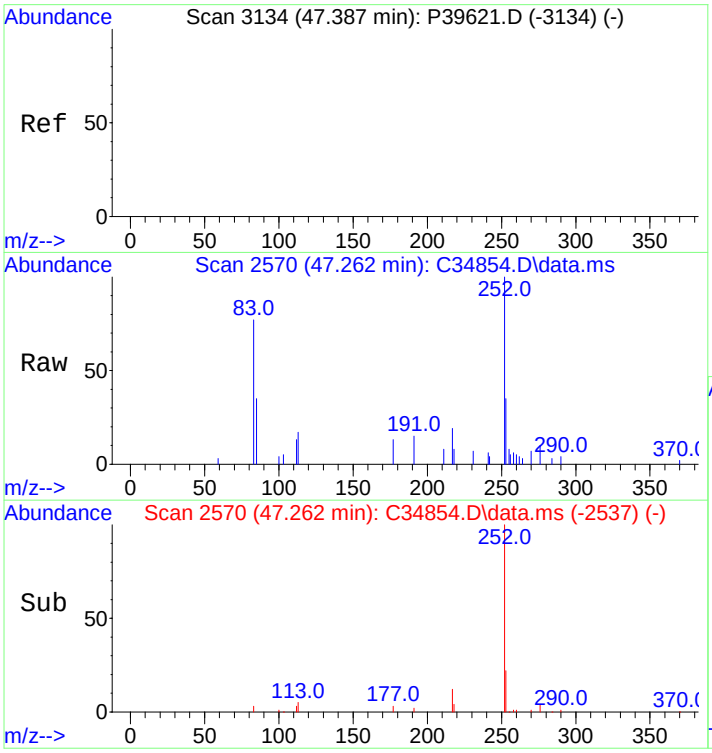




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 99.86 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

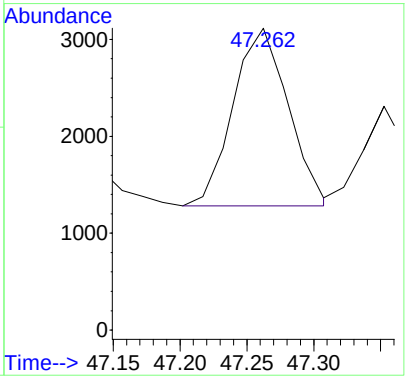
Tgt Ion:217 Resp: 1326

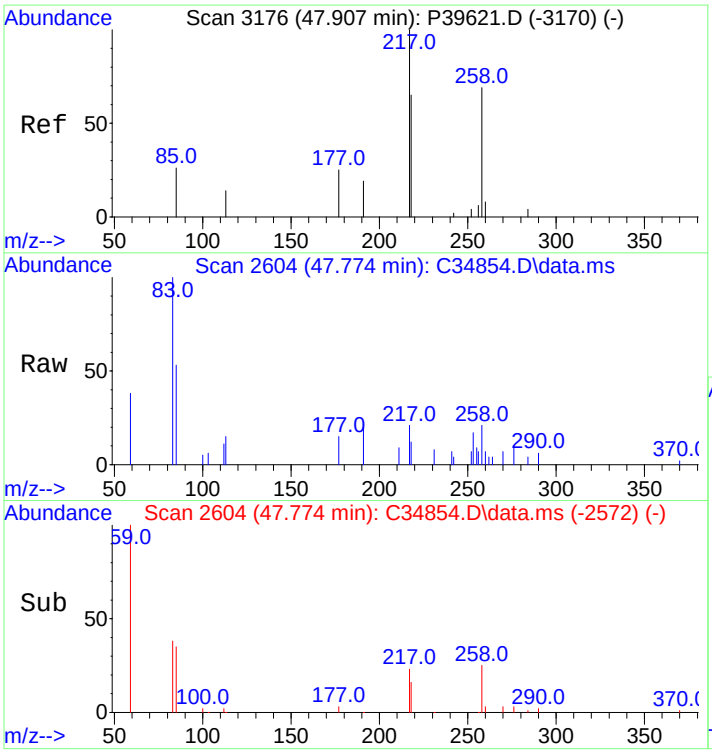




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 397.72 ng/ml
RT: 47.262 min Scan# 2570
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

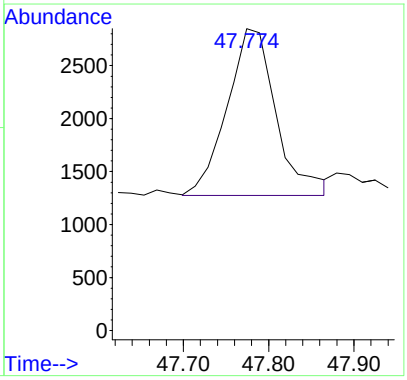
Tgt Ion:217 Resp: 5281

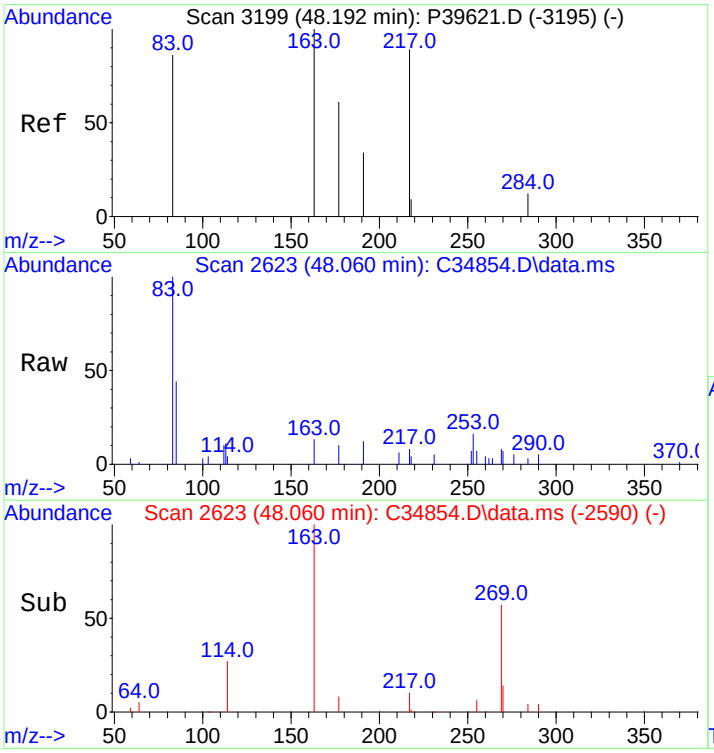




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 476.34 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

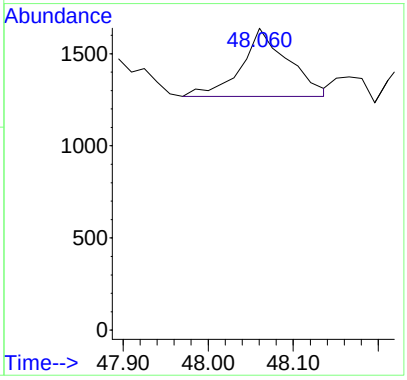
Tgt Ion:217 Resp: 6325

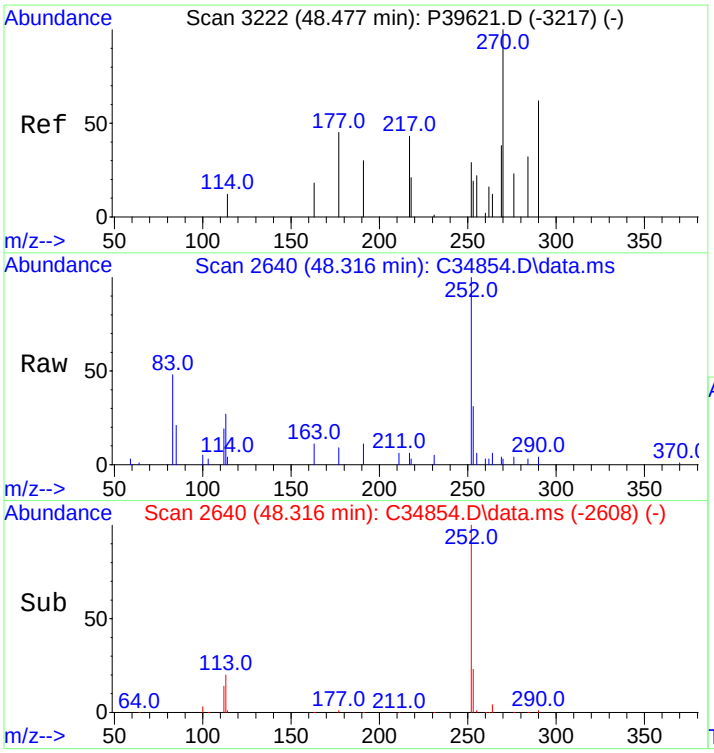




#133
Unknown Sterane (S18)
Concen: 106.57 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

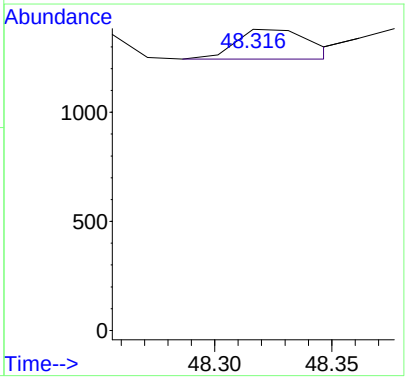
Tgt Ion:217 Resp: 1415

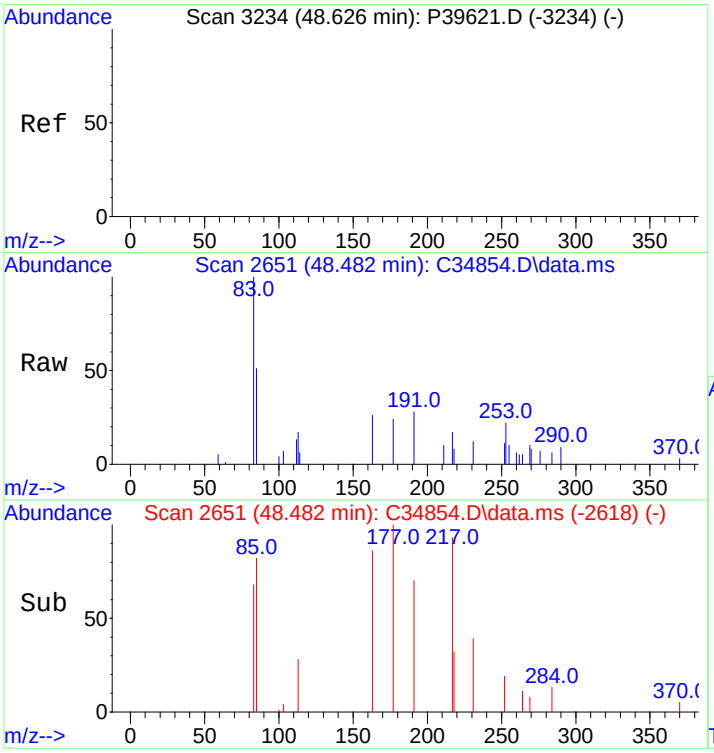




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 23.27 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

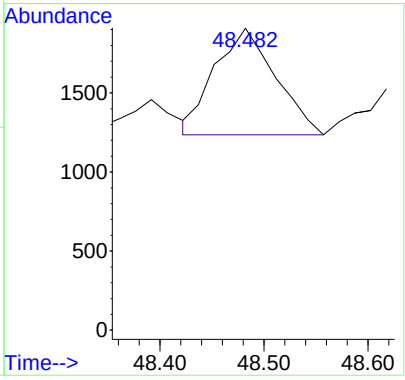
Tgt Ion:217 Resp: 309

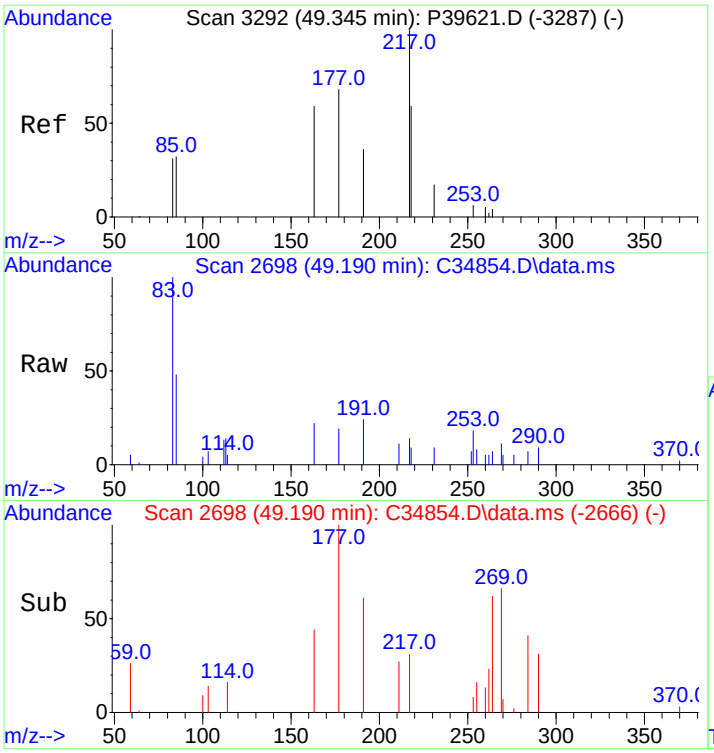




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 206.65 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

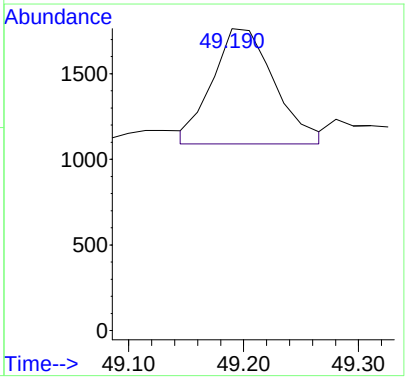
Tgt Ion:217 Resp: 2744

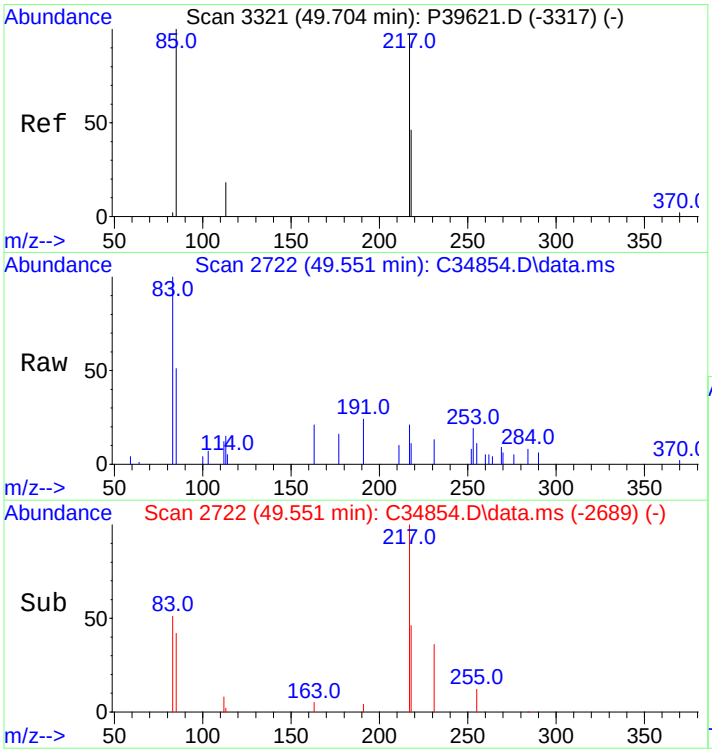




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 190.91 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

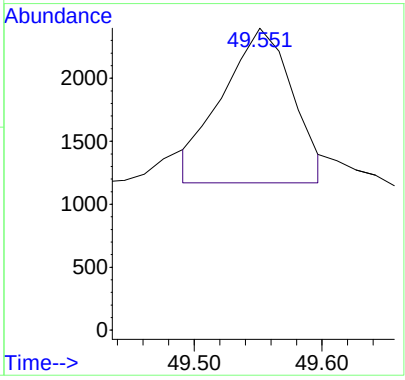
Tgt Ion:217 Resp: 2535

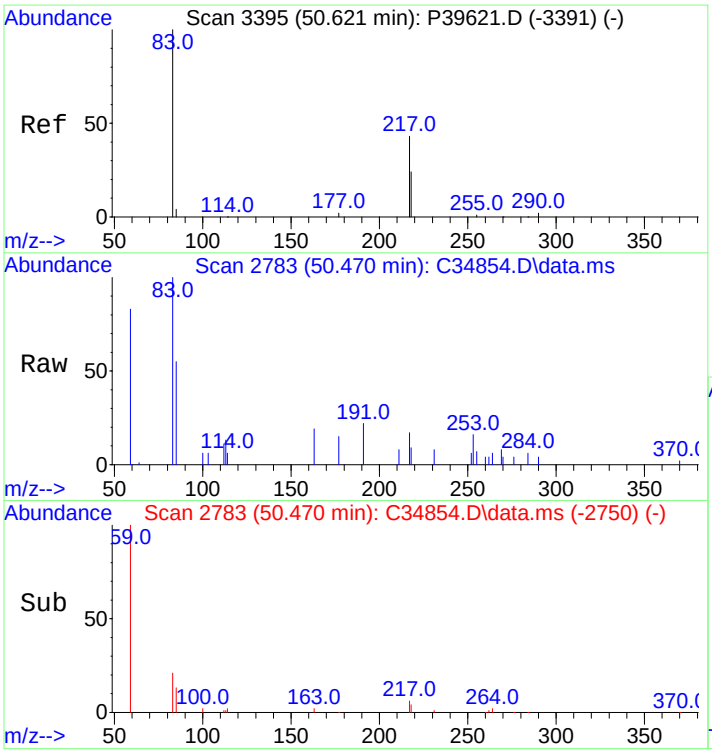




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 352.91 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

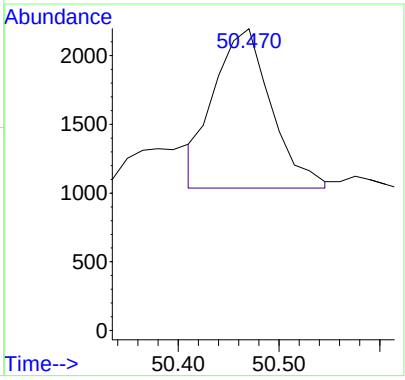
Tgt Ion:217 Resp: 4686

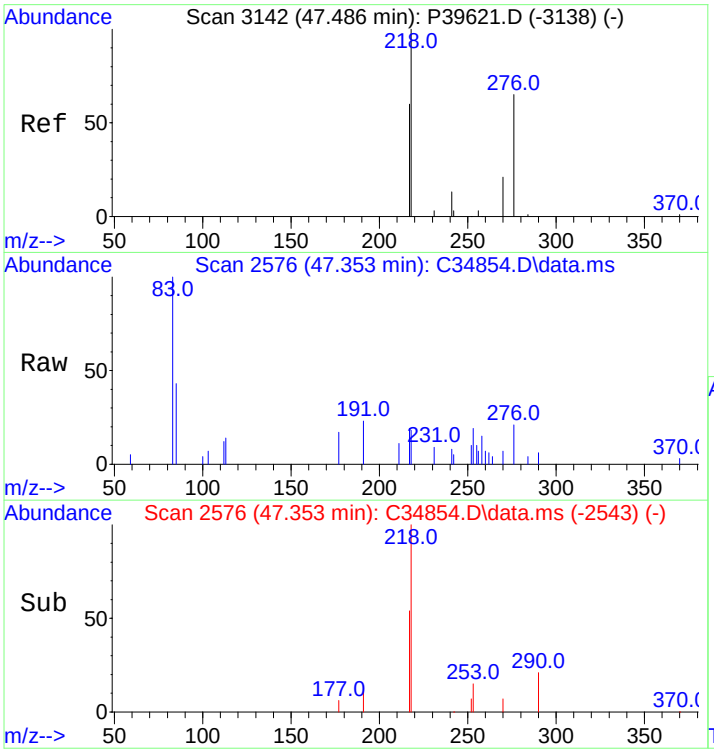




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 342.14 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

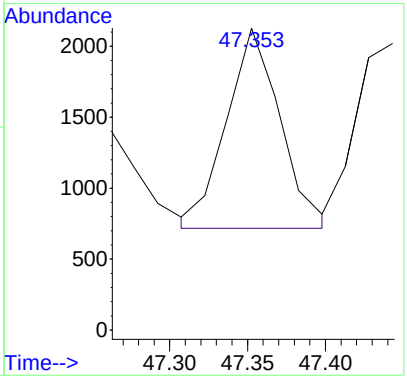
Tgt Ion:217 Resp: 4543

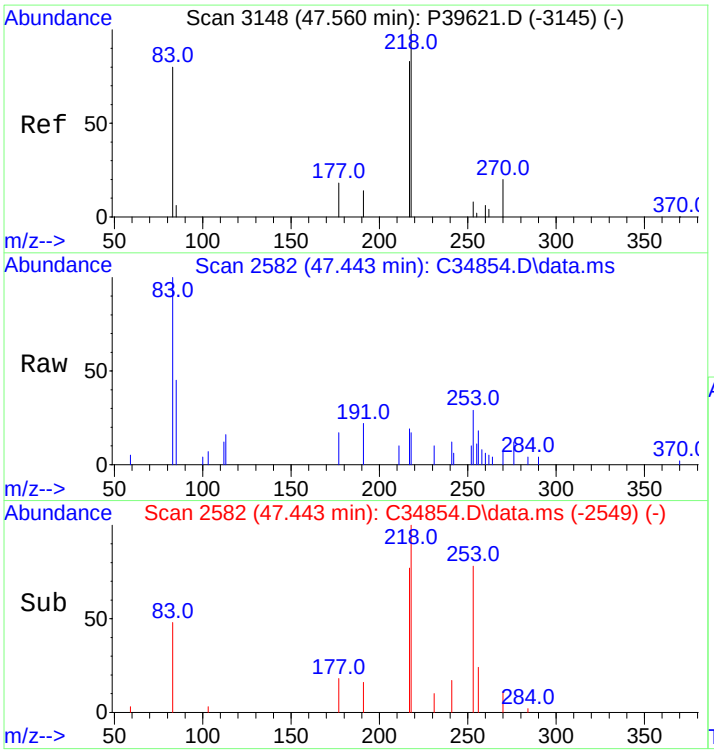




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 253.87 ng/ml m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

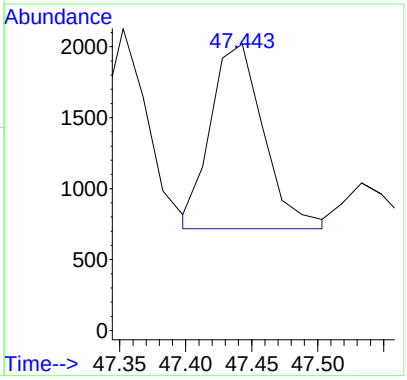
Tgt Ion:218 Resp: 3371

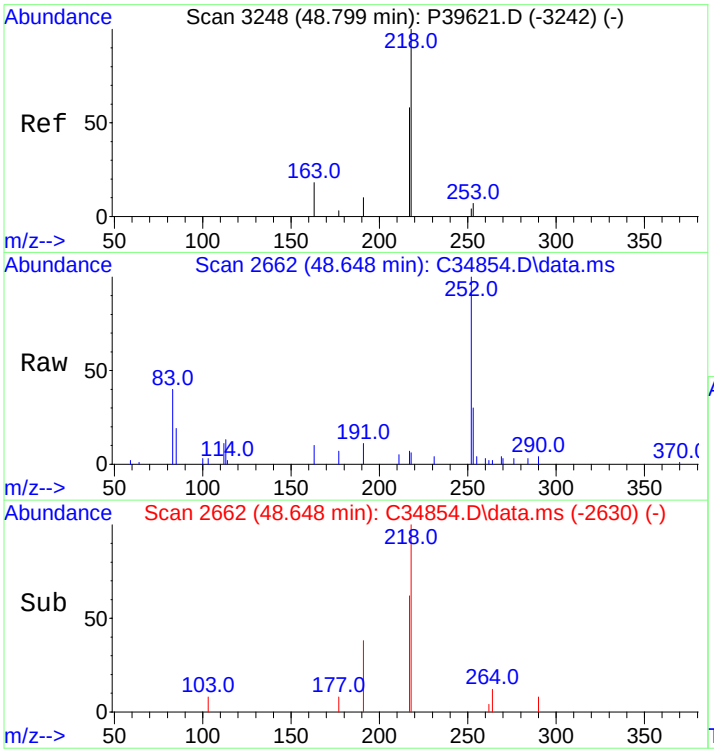




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 274.28 ng/ml m
RT: 47.443 min Scan# 2582
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

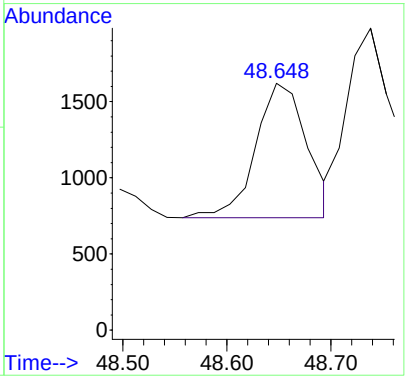
Tgt Ion:218 Resp: 3642

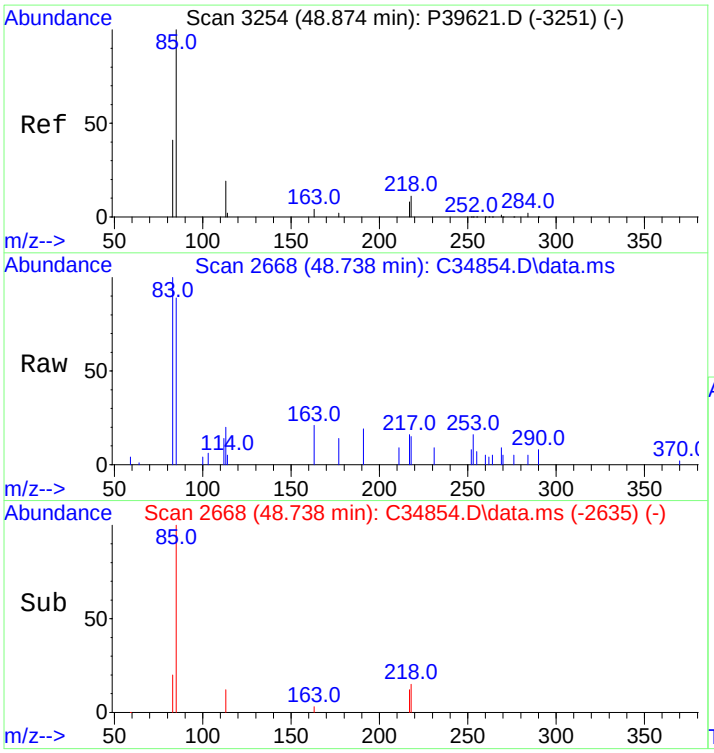




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 228.42 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

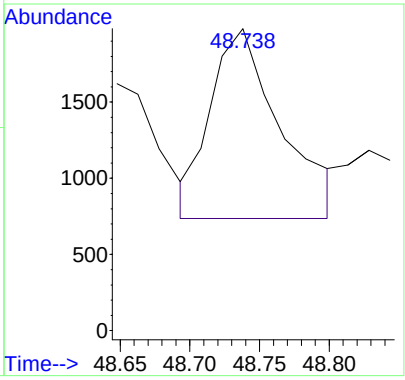
Tgt Ion:218 Resp: 3033

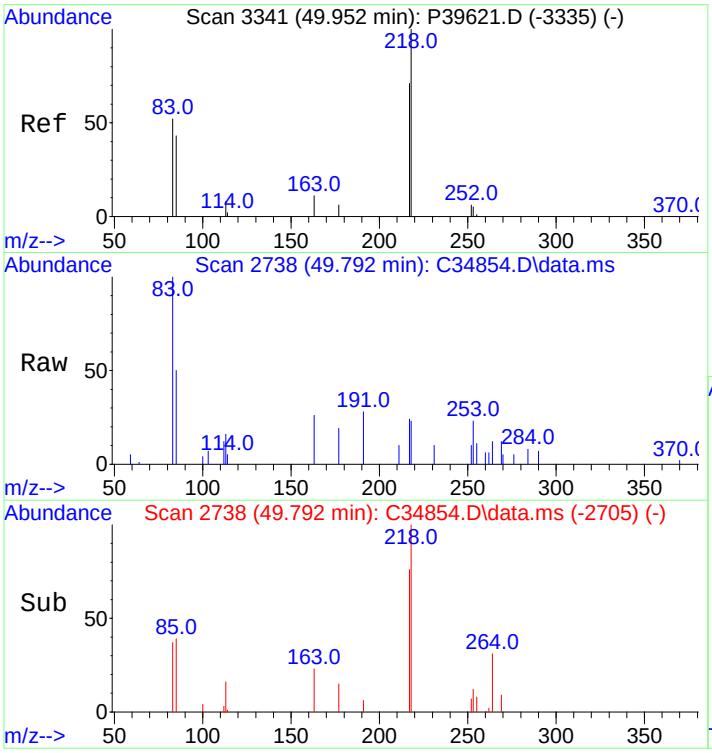




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 328.81 ng/ml m
RT: 48.738 min Scan# 2668
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

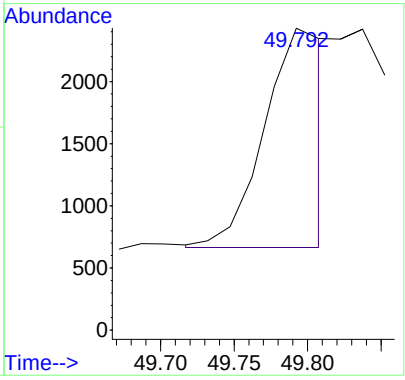
Tgt Ion:218 Resp: 4366

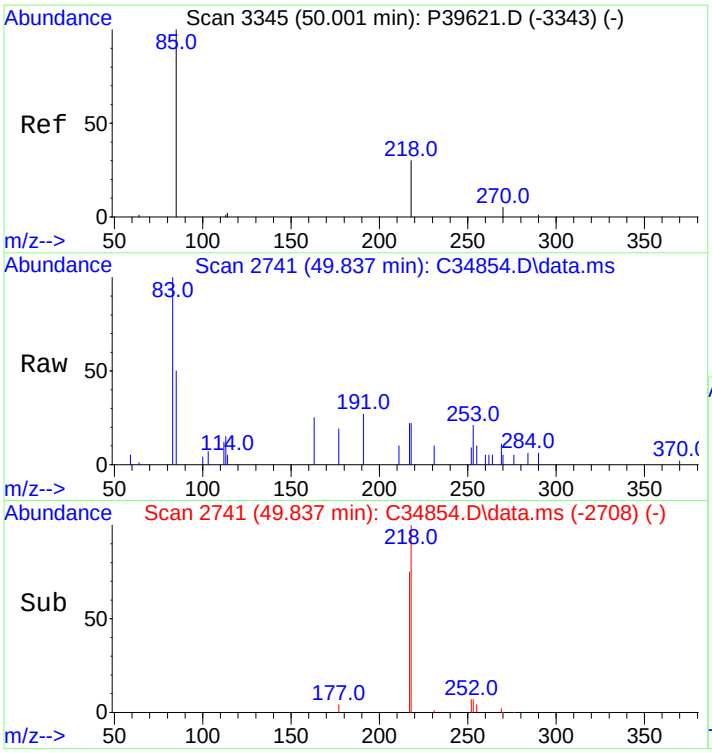




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 376.71 ng/ml m
RT: 49.792 min Scan# 2738
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

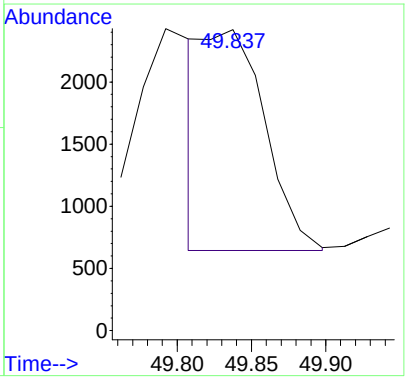
Tgt Ion:218 Resp: 5002

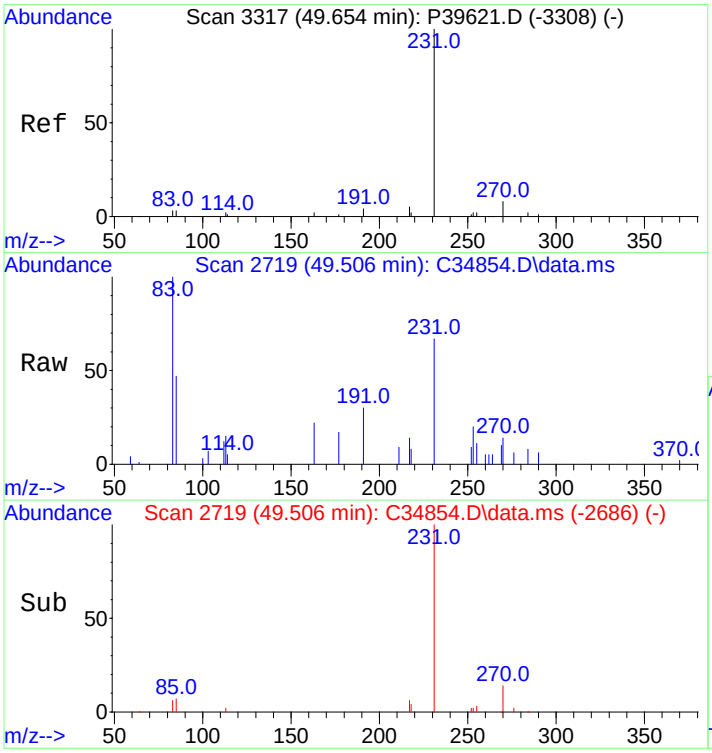




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 384.01 ng/ml m
RT: 49.837 min Scan# 2741
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

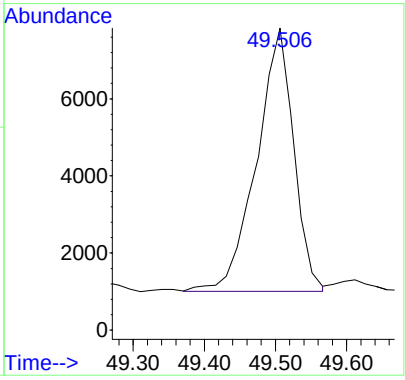
Tgt Ion:218 Resp: 5099

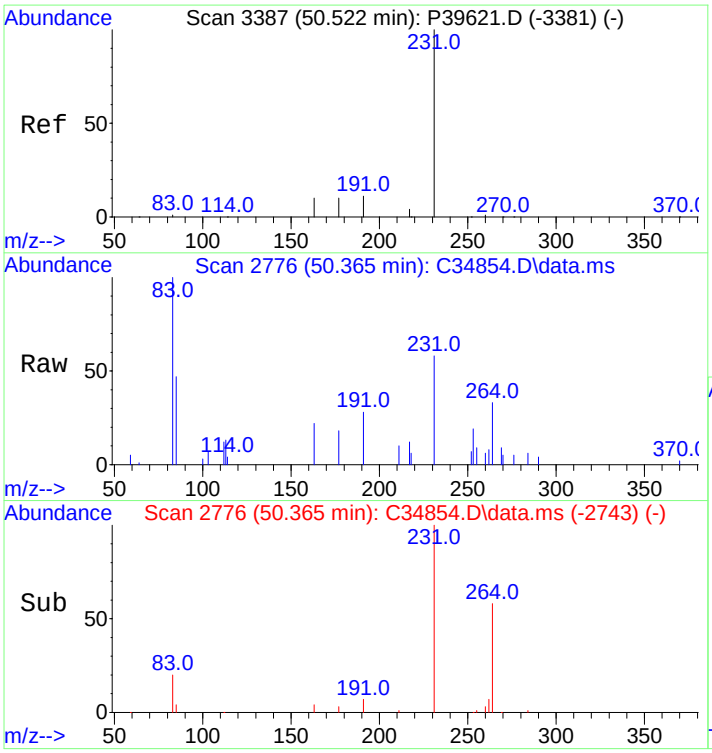




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1866.28 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

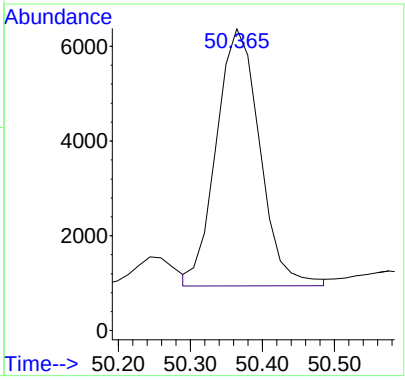
Tgt Ion:231 Resp: 24781

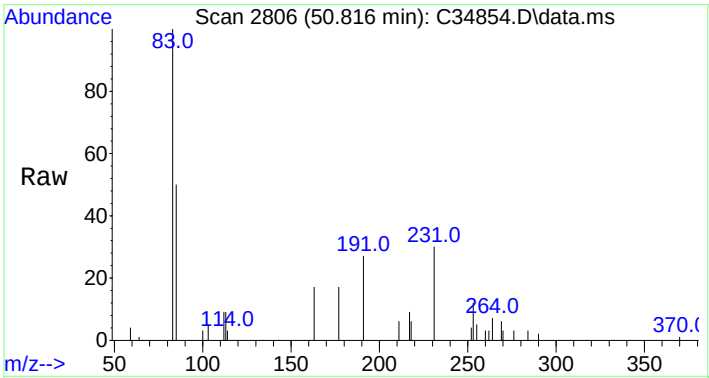




#146
C28,20S-triaromatic steroid
Concen: 1710.76 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

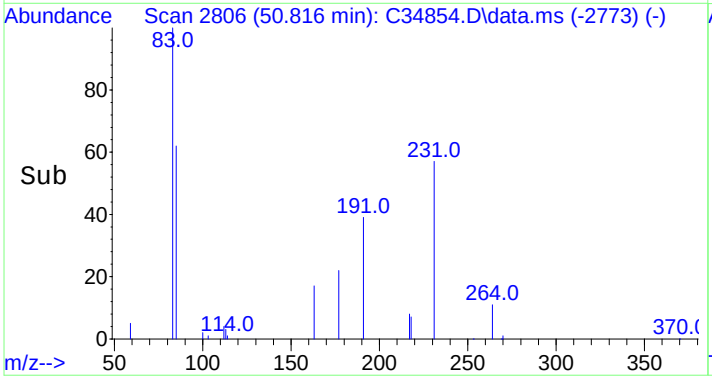
Tgt Ion:231 Resp: 22716

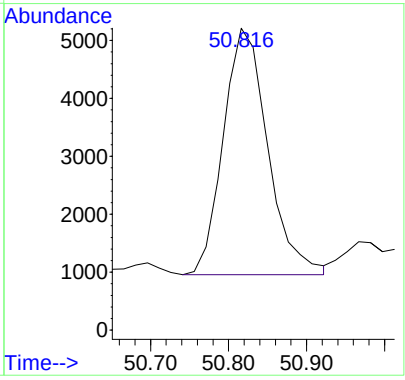


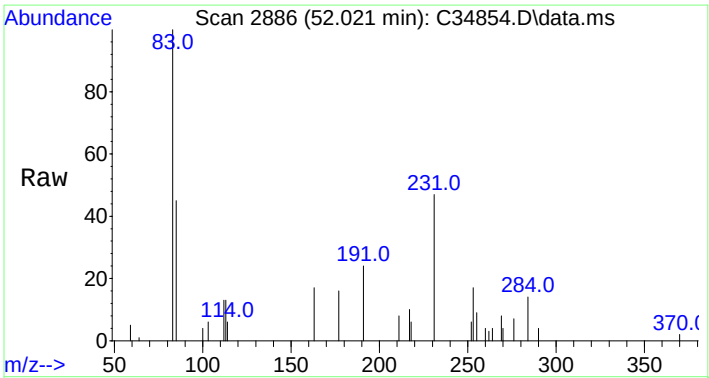


#147
C27,20R-triaromatic steroid
Concen: 1269.67 ng/mL
RT: 50.816 min Scan# 2806
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:231 Resp: 16859

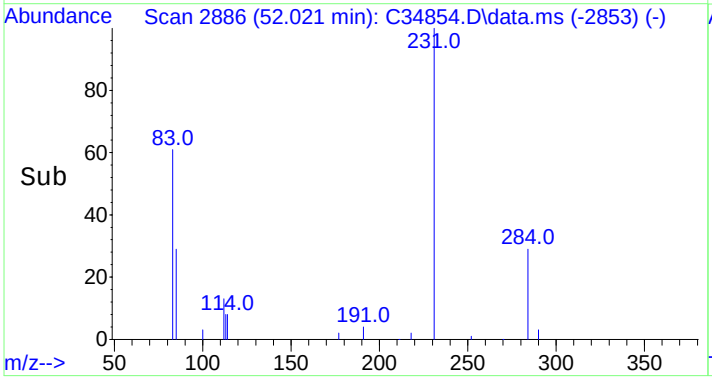


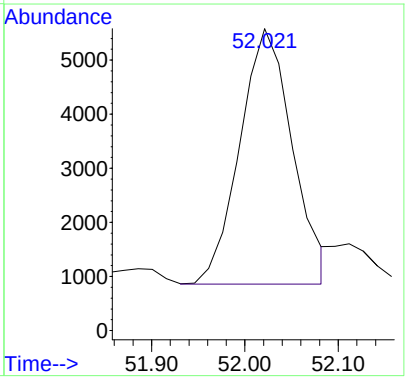




#148
C28,20R-triaromatic steroid
Concen: 1399.35 ng/mL m
RT: 52.021 min Scan# 2886
Delta R.T. 0.000 min
Lab File: C34854.D
Acq: 5 May 2012 2:06 am

Tgt Ion:231 Resp: 18581





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	20276M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	39612	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	167486	1903.185	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 190.32%#			
42) Phenanthrene-d10	32.567	188	152314	2189.713	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 218.97%#			
86) Benzo[a]pyrene-d12	48.256	264	148258	1805.981	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 180.60%#			
127) 5B(H)Cholane - Surr	43.769	217	27686	2235.496	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 223.55%#			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	49M2	3.061	ng/mL	
5) C1-Decalins	17.874	152	229M5	14.307	ng/mL	
6) C2-Decalins	20.810	166	781M5	48.794	ng/mL	
10) Naphthalene	19.801	128	2663	20.607	ng/mL#	100
11) C1-Naphthalenes	22.496	142	1877M5	14.525	ng/mL	
12) C2-Naphthalenes	25.341	156	5692M5	44.046	ng/mL	
13) C3-Naphthalenes	28.021	170	11819M5	91.458	ng/mL	
14) C4-Naphthalenes	30.444	184	19949M5	154.370	ng/mL	
16) 2-Methylnaphthalene	22.496	142	1128	14.763	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	775M3	10.348	ng/mL	
18) Benzothiophene	20.027	134	279M3	2.399	ng/mL	
20) C2-Benzo(b)thiophenes	24.829	162	1123M5	9.657	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	2936M5	25.247	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	5178M5	44.527	ng/mL	
23) Biphenyl	24.393	154	500M3	5.173	ng/mL	
24) 2,6-Dimethylnaphthalene	25.010	156	1098	17.490	ng/mL#	100
25) Dibenzofuran	27.464	168	2718	24.488	ng/mL	92
26) Acenaphthylene	26.094	152	2321	18.093	ng/mL#	100
27) Acenaphthene	26.816	153	3035M3	40.182	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.367	170	893M3	17.646	ng/mL	
29) Fluorene	28.834	166	4341M3	52.111	ng/mL	
30) C1-Fluorenes	31.212	180	3775M5	45.316	ng/mL	
31) C2-Fluorenes	33.395	194	11572M5	138.914	ng/mL	
32) C3-Fluorenes	35.909	208	31304M5	375.784	ng/mL	
33) Dibenzothiophene	32.161	184	8743	65.474	ng/mL#	75
34) 4-Methyldibenzothiophe...	33.937	198	6647	49.778	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.313	198	10155M3	76.048	ng/mL	
36) 1-Methyldibenzothiophe...	34.705	198	4378	32.786	ng/mL#	100
37) OTP	34.374	198	29266M3	219.165	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	53027M5	397.105	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	52998M5	396.888	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	76858M5	575.569	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	53954M5	404.047	ng/mL	
43) Phenanthrene	32.657	178	127201	1084.215	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.630	192	12987	110.696	ng/mL	95
45) 2/4-Methylphenanthrene...	34.750	192	15505M3	132.159	ng/mL	
46) 2-Methylanthracene(2MA)	34.901	192	4105	34.990	ng/mL#	49
47) 9-Methylphenanthrene(9MP)	35.081	192	13476M3	114.865	ng/mL	
48) 1-Methylphenanthrene(1MP)	35.157	192	9388M3	80.020	ng/mL	
49) C1-Phenanthrenes/Anthr...	34.750	192	56028M5	477.562	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	58901M5	502.051	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	53975M5	460.063	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	28024M5	238.866	ng/mL	
55) Anthracene	32.838	178	23725M3	207.031	ng/mL	
56) Carbazole	33.515	167	17901M3	154.646	ng/mL	
57) 1-Methylphenanthrene	35.157	192	9372M3	126.055	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
58) Fluoranthene	37.430	202	309113M3	2652.892	ng/mL	
59) Benzo(b)fluorene	39.944	216	10978M3	162.397	ng/mL	
60) Pyrene	38.318	202	239244	2019.878	ng/mL	92
61) C1-Fluoranthenes/Pyrenes	39.703	216	85870M5	724.979	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.564	230	71531M5	603.919	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.648	244	40969M5	345.891	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.928	258	37001M5	312.390	ng/mL	
66) Naphthobenzothiophene	42.173	234	24969	195.809	ng/ml#	71
67) Naphthobenzothiophene-...	42.173	234	24969	195.809	ng/mL#	71
68) Naphthobenzothiophene-...	42.504	234	5526	43.335	ng/mL#	13
69) Naphthobenzothiophene-...	42.805	234	10506M3	82.389	ng/mL	
70) C1-Naphthobenzothiophenes	43.573	248	39132M5	306.877	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	53237M5	417.490	ng/ml	
72) C3-Naphthobenzothiophenes	47.172	276	48325M5	378.969	ng/ml	
73) C4-Naphthobenzothiophenes	48.241	290	37808M5	296.494	ng/mL	
75) Benz[a]anthracene	43.091	228	101954M3	810.911	ng/mL	
77) Chrysene/Triphenylene	43.257	228	112449	885.895	ng/mL	100
78) C1-Chrysenes	44.732	242	41117M5	323.928	ng/mL	
79) C2-Chrysenes	46.434	256	30522M5	240.458	ng/mL	
80) C3-Chrysenes	48.015	270	38358M5	302.192	ng/mL	
81) C4-Chrysenes	49.612	284	25545M5	201.248	ng/mL	
82) Benzo[b]fluoranthene	47.142	252	103736	750.895	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.217	252	86677	576.274	ng/mL	100
84) Benzo[a]fluoranthene	47.533	252	16443M3	109.322	ng/mL	
85) Benzo[e]pyrene	48.151	252	73228	535.891	ng/mL	97
87) Benzo[a]pyrene	48.331	252	92119	700.189	ng/mL	98
88) Perylene	48.648	252	29469	209.588	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.151	276	84561M3	552.313	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	24984	171.542	ng/mL#	89
91) Benzo[g,h,i]perylene	54.461	276	81329	502.793	ng/mL	100
92) Hopane (T19)	52.217	191	14859	569.155	ng/mL#	85
94) C23 Tricyclic Terpane ...	40.788	191	5401	206.878	ng/ml	100
95) C24 Tricyclic Terpane ...	41.510	191	2887	110.583	ng/ml	100
96) C25 Tricyclic Terpane ...	43.046	191	3338M3	127.858	ng/ml	
97) C24 Tetracyclic Terpan...	44.326	191	1193	45.696	ng/ml	100
98) C26 Tricyclic Terpane-...	44.055	191	1163M3	44.547	ng/ml	
99) C26 Tricyclic Terpane-...	44.160	191	1169M3	44.777	ng/ml	
100) C28 Tricyclic Terpane-...	46.434	191	1110M3	42.517	ng/ml	
101) C28 Tricyclic Terpane-...	46.599	191	1585M3	60.711	ng/ml	
102) C29 Tricyclic Terpane-...	47.112	191	1624M3	62.205	ng/ml	
103) C29 Tricyclic Terpane-...	47.307	191	1591M3	60.941	ng/ml	
104) 18a-22,29,30-Trisnorne...	48.437	191	1907M3	73.045	ng/ml	
105) C30 Tricyclic Terpane-22S	48.527	191	1087M3	41.636	ng/mL	
106) C30 Tricyclic Terpane-22R	48.768	191	1099M3	42.096	ng/mL	
107) 17a(H)-22,29,30-Trisno...	48.979	191	4299	164.668	ng/ml	100
108) 17a/b,21b/a 28,30-Bisn...	50.169	191	2508M3	96.066	ng/ml	
109) 17a(H),21b(H)-25-Norho...	49.943	191	2261M3	86.605	ng/ml	
110) 30-Norhopane (T15)	50.846	191	10671M3	408.739	ng/ml	
111) 18a(H)-30-Norneohopane...	50.952	191	1532M3	58.681	ng/ml	
112) 17a(H)-Diahopane (X)	51.072	191	457M3	17.505	ng/ml	
113) 30-Normoretane (T17)	51.630	191	1477	56.575	ng/ml	100
115) Moretane (T20)	52.895	191	1267M3	48.531	ng/ml	
116) 30-Homohopane-22S (T21)	53.994	191	7338M3	281.073	ng/ml	
117) 30-Homohopane-22R (T22)	54.235	191	6017	230.474	ng/ml	100
118) Gammacerane/C32-diahopane	54.777	191	2478	94.917	ng/mL	100
119) 30,31-Bishomohopane-22...	55.545	191	7127	272.991	ng/ml	100
120) 30,31-Bishomohopane-22...	55.936	191	3196	122.419	ng/ml	100
121) 30,31-Trishomohopane-2...	57.683	191	3660M3	140.192	ng/ml	
122) 30,31-Trishomohopane-2...	58.301	191	1919M3	73.505	ng/ml	
123) Tetrakishomohopane-22S...	60.334	191	2809M3	107.595	ng/ml	
124) Tetrakishomohopane-22R...	61.162	191 G	5129M3	196.460	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

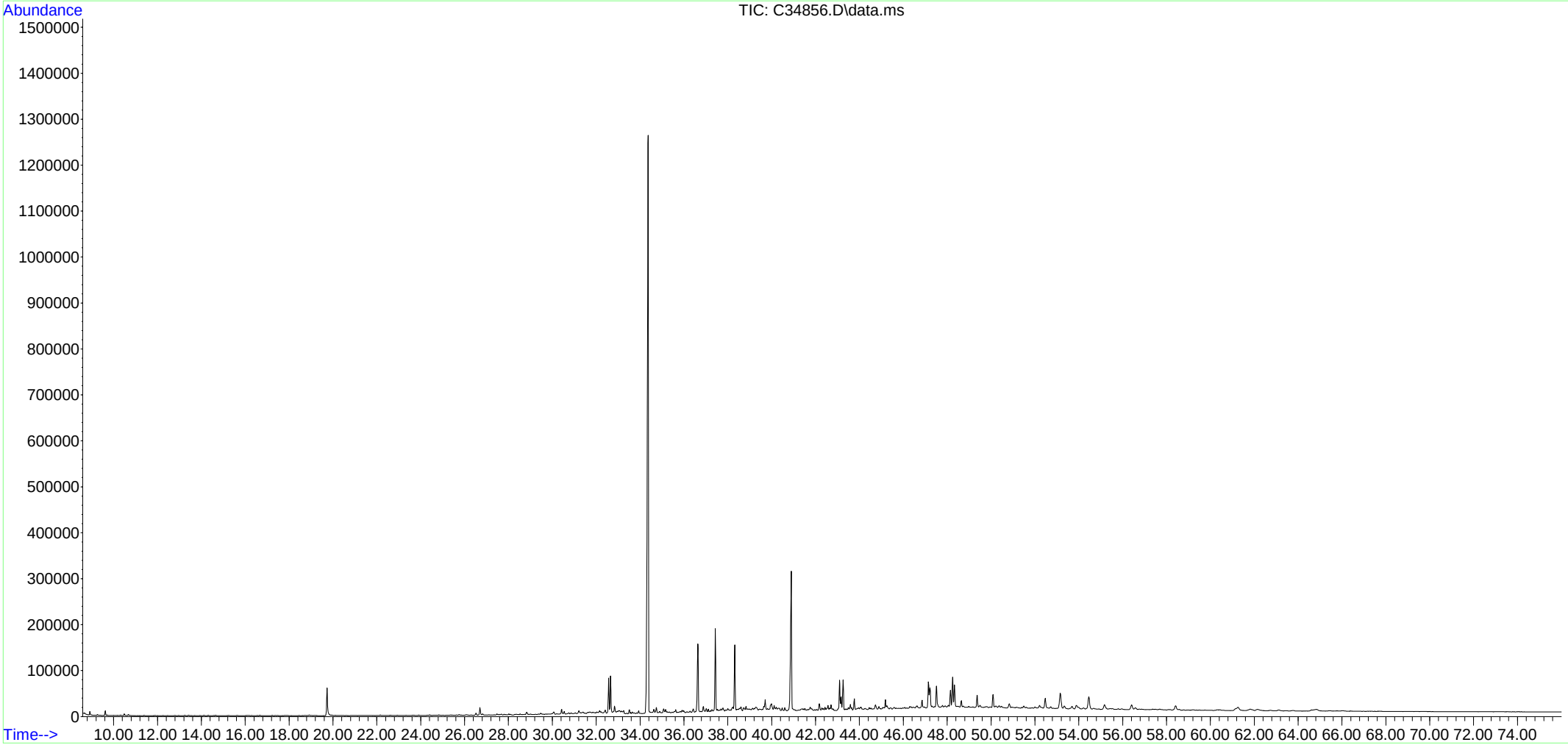
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
125) Pentakishomohopane-22S...	63.481	191	2672	102.348	ng/ml	100
126) Pentakishomohopane-22R...	64.776	191	2099M3	80.400	ng/ml	
128) 13b(H),17a(H)-20S-Diac...	45.274	217	904	72.993	ng/ml	100
129) 13b(H),17a(H)-20R-Diac...	45.681	217	340M3	27.453	ng/ml	
130) 13b,17a-20S-Methyldiac...	46.389	217	289M3	23.335	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217	1601	129.272	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217	1794M3	144.856	ng/ml	
133) Unknown Sterane (S18)	48.090	217 G	842M3	67.987	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217	120M3	9.689	ng/ml	
135) 14a,17a-20S-Methylchol...	48.482	217	1024	82.683	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217	717M3	57.894	ng/ml	
137) 14a(H),17a(H)-20S-Ethy...	49.536	217	1829M3	147.682	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.455	217	1567	126.527	ng/ml	100
139) 14b(H),17b(H)-20R-Chol...	47.352	218	1205M3	97.297	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218	1209M3	97.620	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218	903	72.912	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218	1425M3	115.061	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218	1969M3	158.986	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218	1294M3	104.484	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231	9960M3	804.217	ng/mL	
146) C28,20S-triaromatic st...	50.349	231	8392	677.609	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231	6733M4	543.654	ng/mL	
148) C28,20R-triaromatic st...	52.006	231	7714M3	622.864	ng/mL	

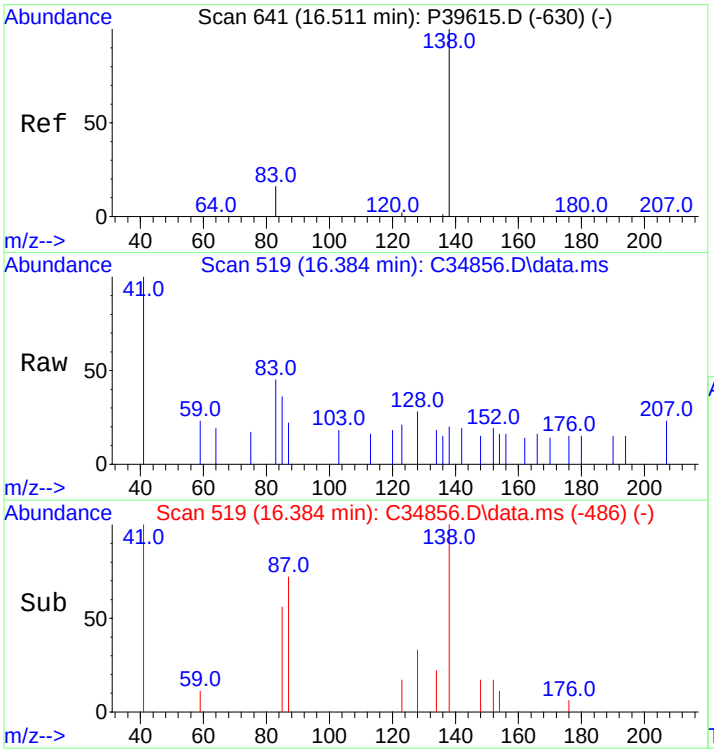
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34856.D
Acq On : 5 May 2012 3:42 am
Operator : AC
Sample : 1204035-07
Misc : 1X
ALS Vial : 41 Sample Multiplier: 1

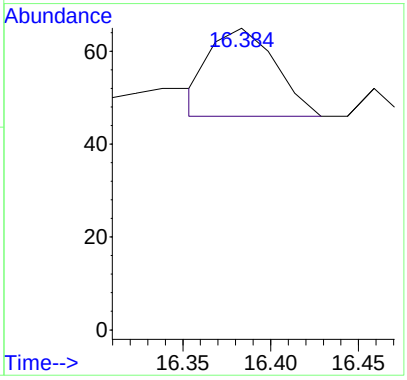
Quant Time: May 06 15:17:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

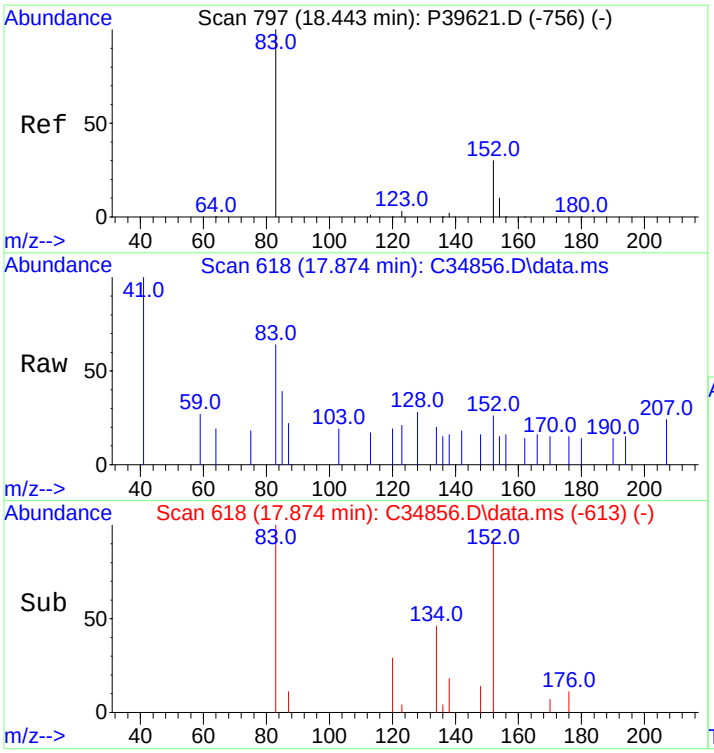




#3
trans-Decalin
Concen: 3.06 ng/mL m
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

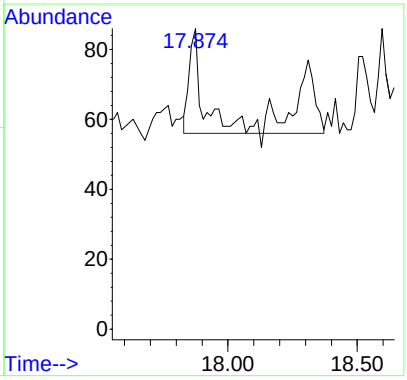
Tgt Ion:138 Resp: 49

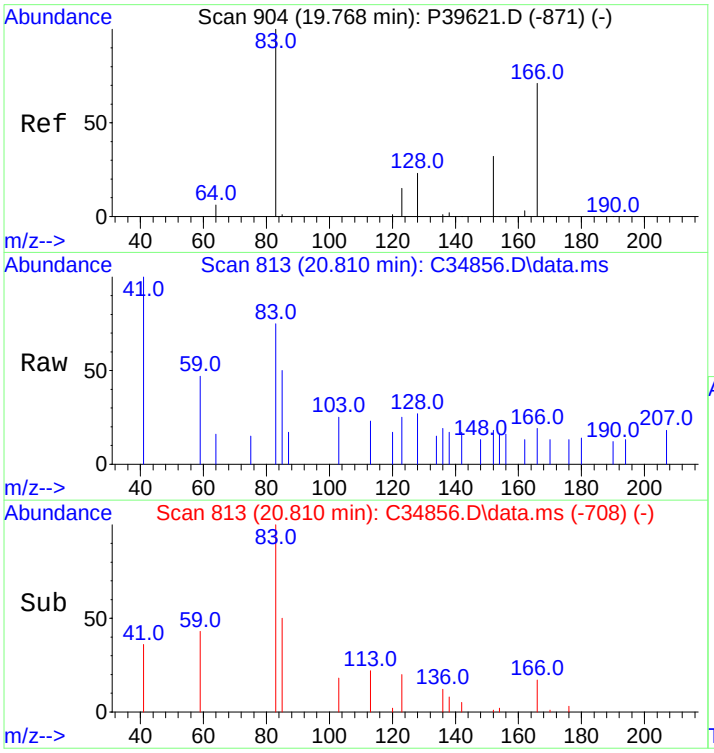




#5
C1-Decalins
Concen: 14.31 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

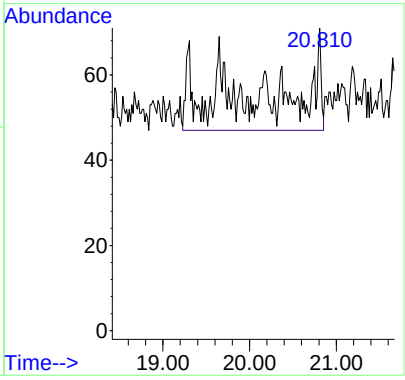
Tgt Ion:152 Resp: 229

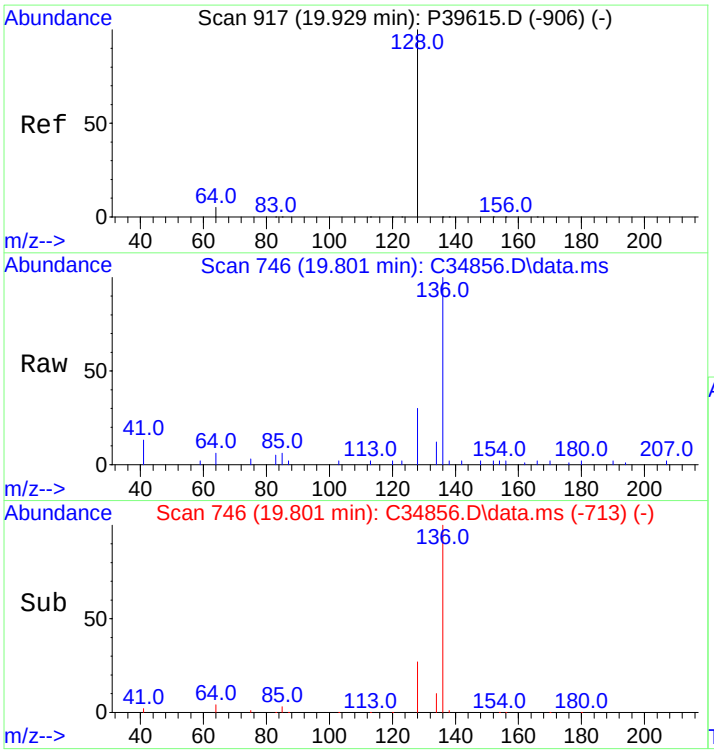




#6
C2-Decalins
Concen: 48.79 ng/mL m
RT: 20.810 min Scan# 813
Delta R.T. 1.127 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:166 Resp: 781

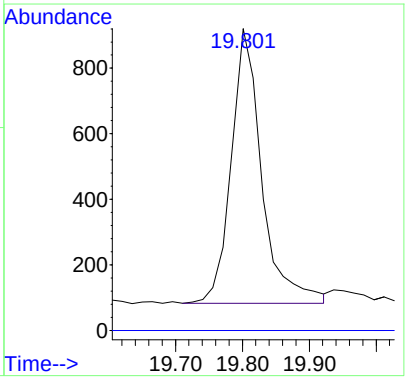


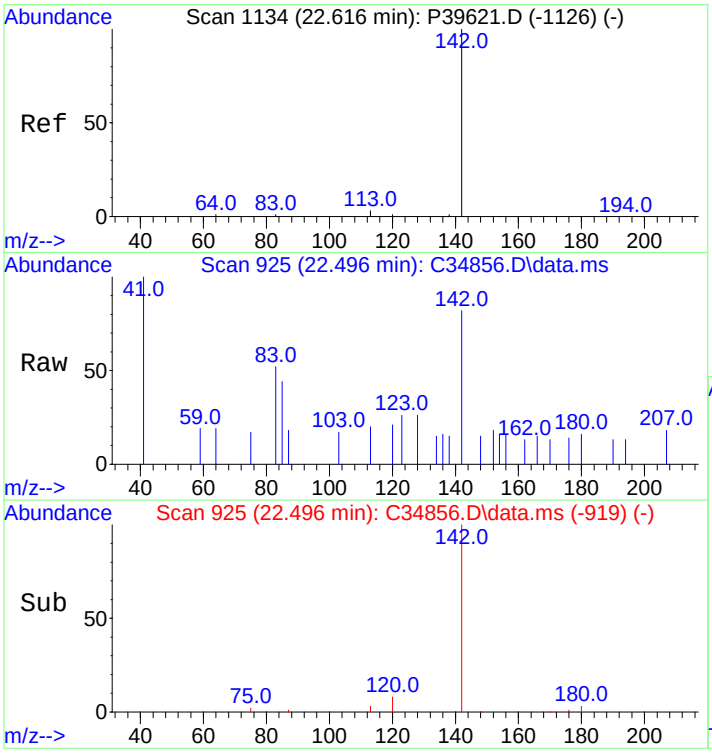


#10
Naphthalene
Concen: 20.61 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:128 Resp: 2663

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

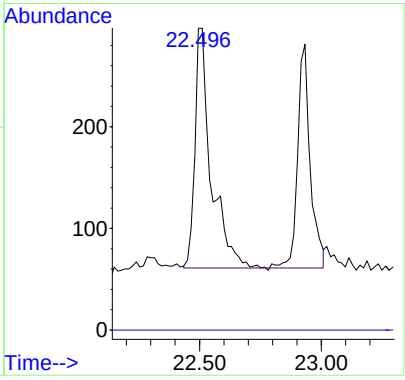


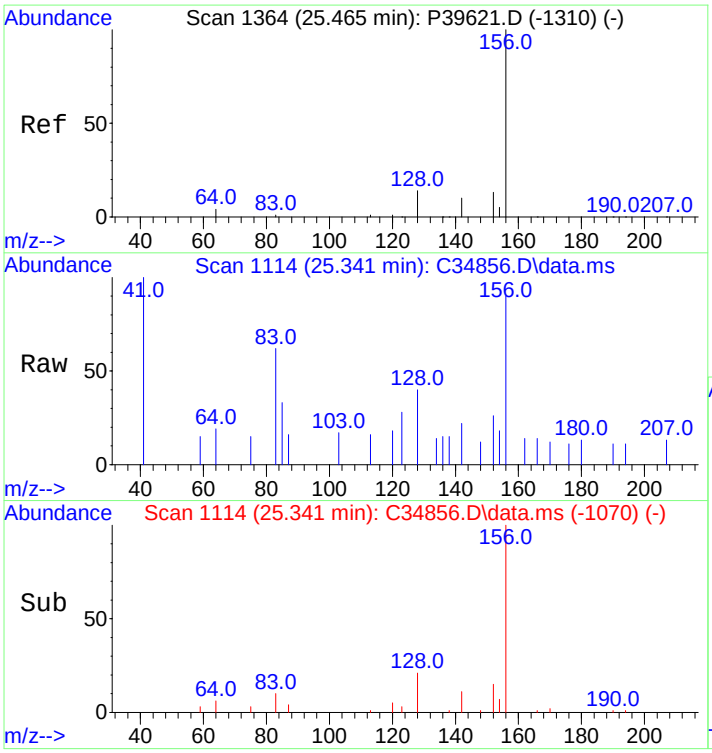


#11
C1-Naphthalenes
Concen: 14.52 ng/mL m
RT: 22.496 min Scan# 925
Delta R.T. -0.019 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:142 Resp: 1877

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

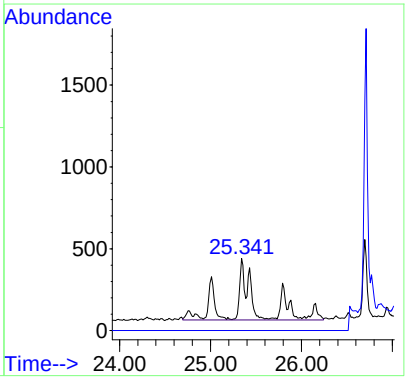


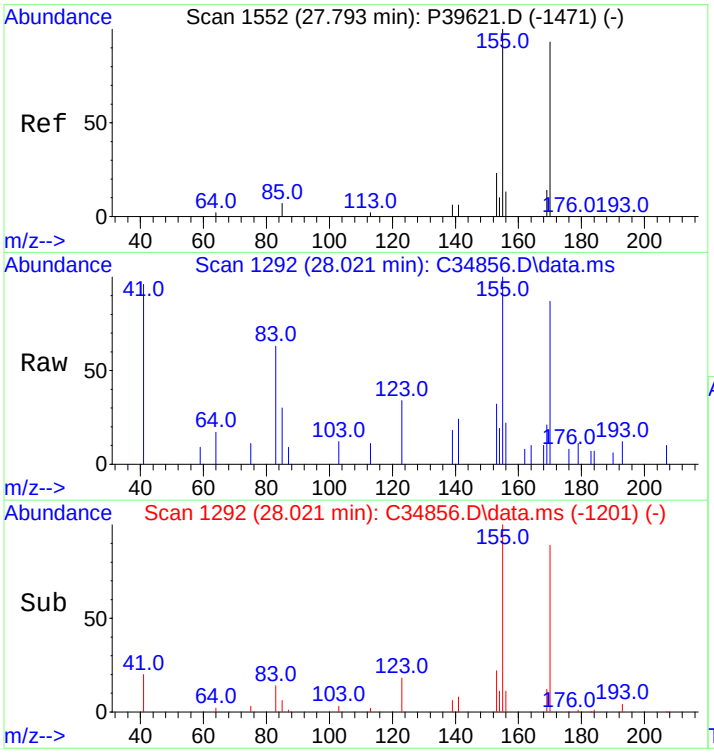


#12
C2-Naphthalenes
Concen: 44.05 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:156 Resp: 5692

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

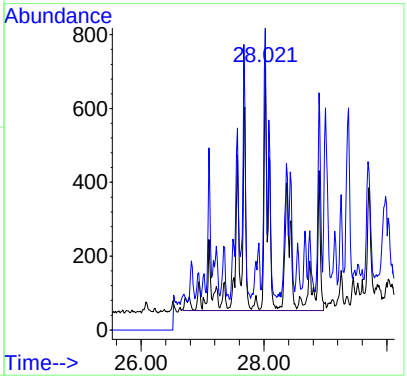


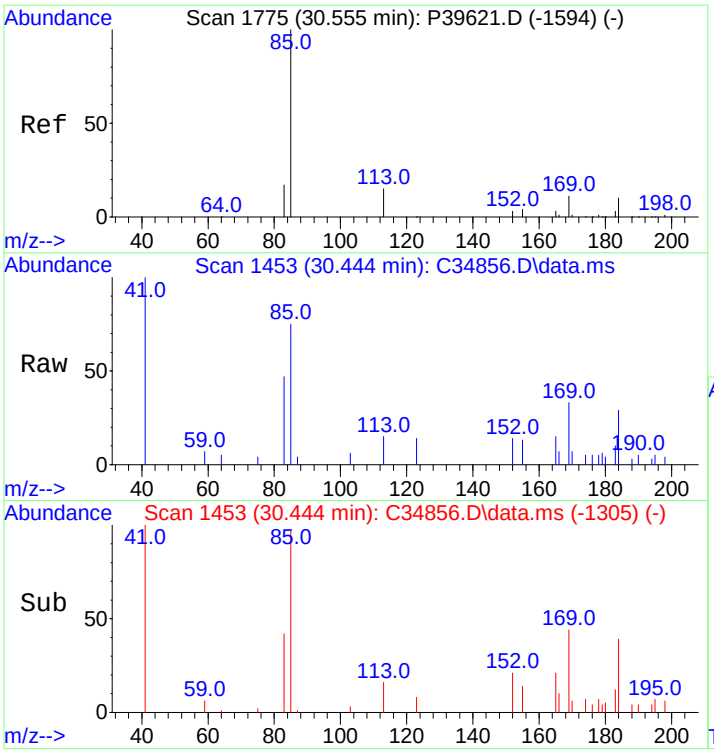


#13
C3-Naphthalenes
Concen: 91.46 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:170 Resp: 11819

Ion	Ratio	Lower	Upper
170	100		
155	15.7	81.8	122.6#

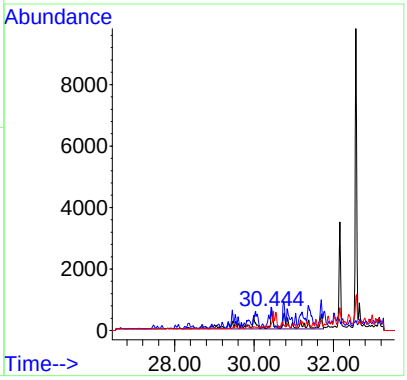


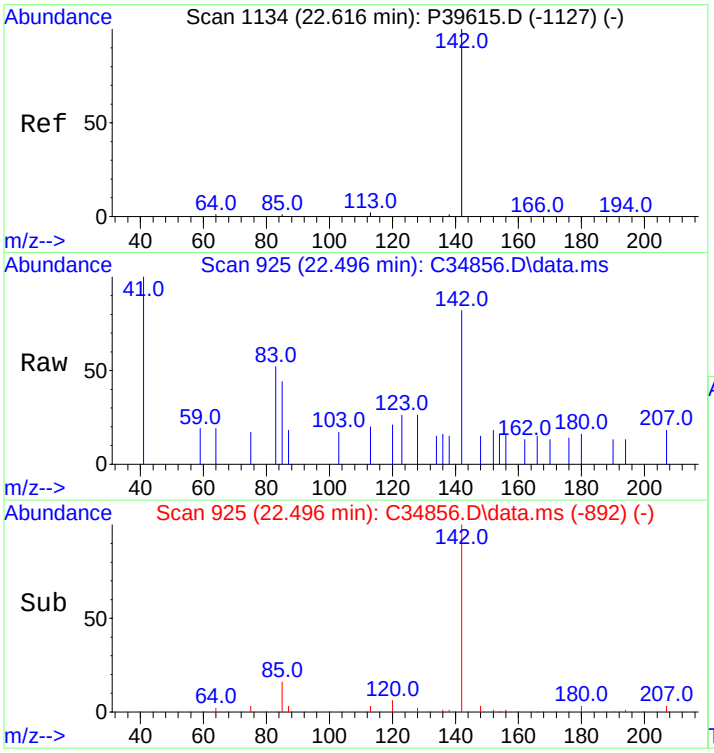


#14
C4-Naphthalenes
Concen: 154.37 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:184 Resp: 19949

Ion	Ratio	Lower	Upper
184	100		
169	10.9	77.4	116.0#
183	0.0	14.8	22.2#

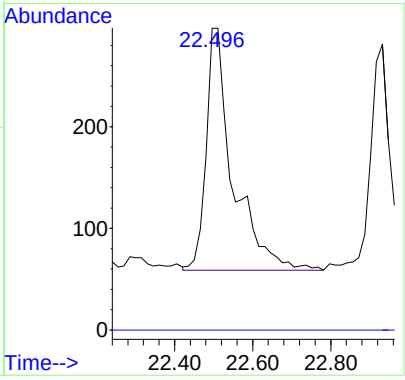


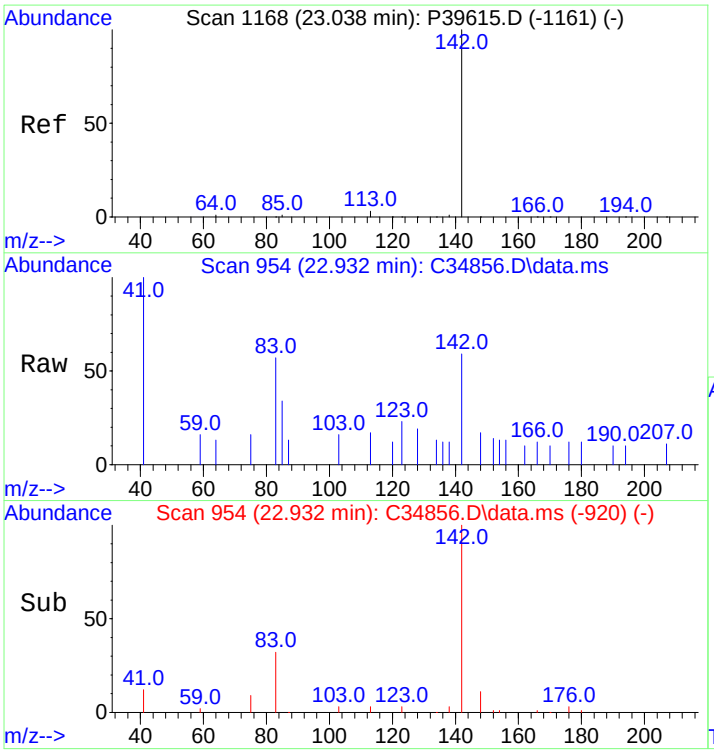


#16
2-Methylnaphthalene
Concen: 14.76 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:142 Resp: 1128

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

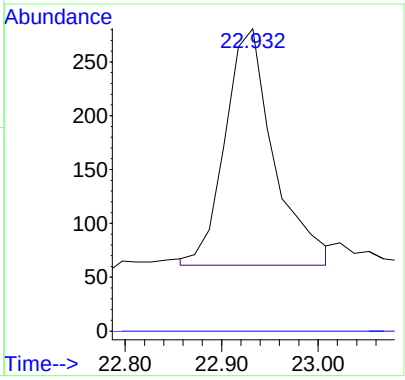


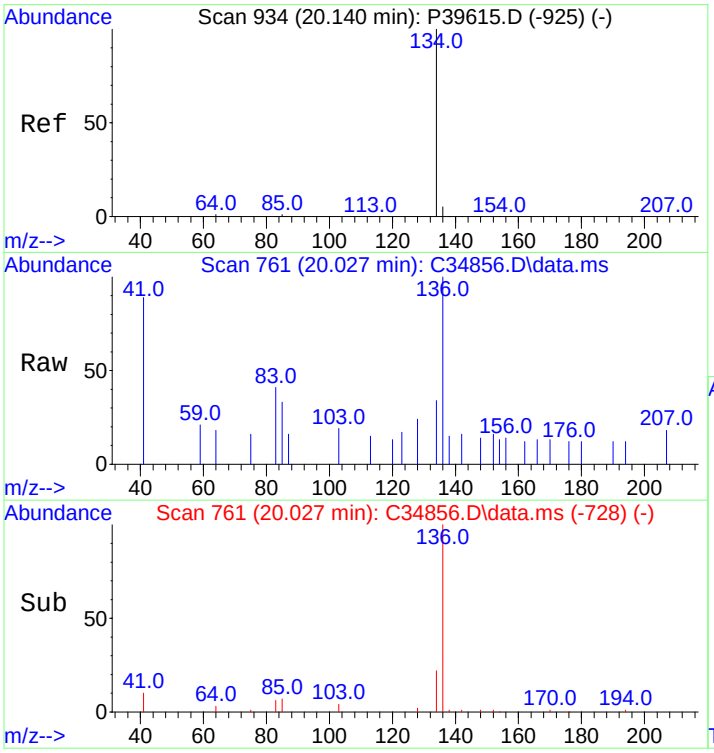


#17
1-Methylnaphthalene
Concen: 10.35 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:142 Resp: 775

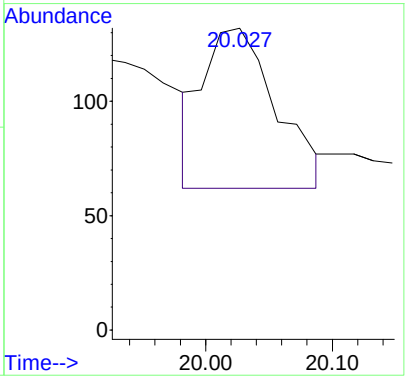
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

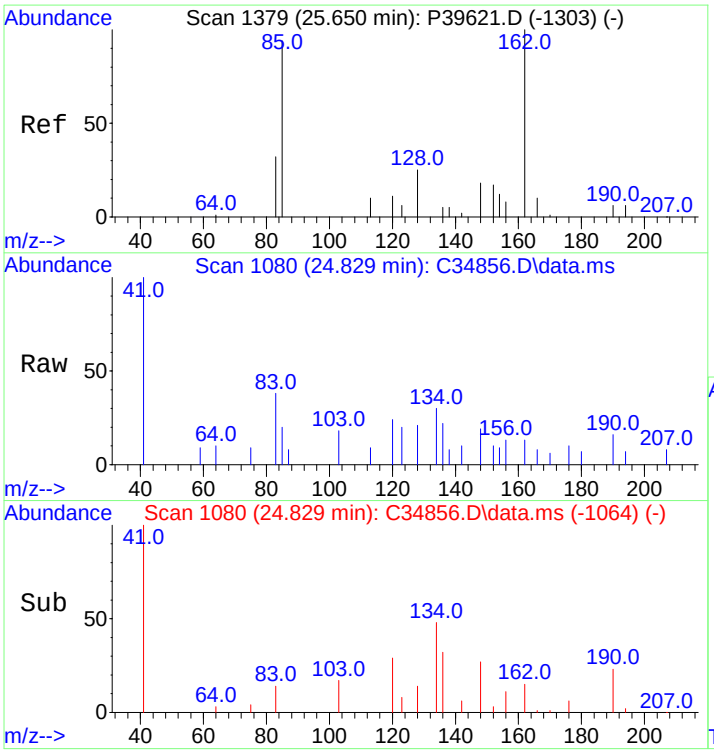




#18
Benzothiophene
Concen: 2.40 ng/mL m
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

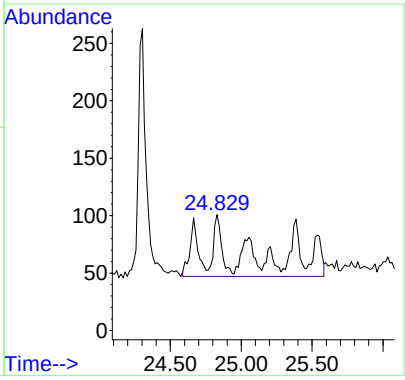
Tgt Ion:134 Resp: 279

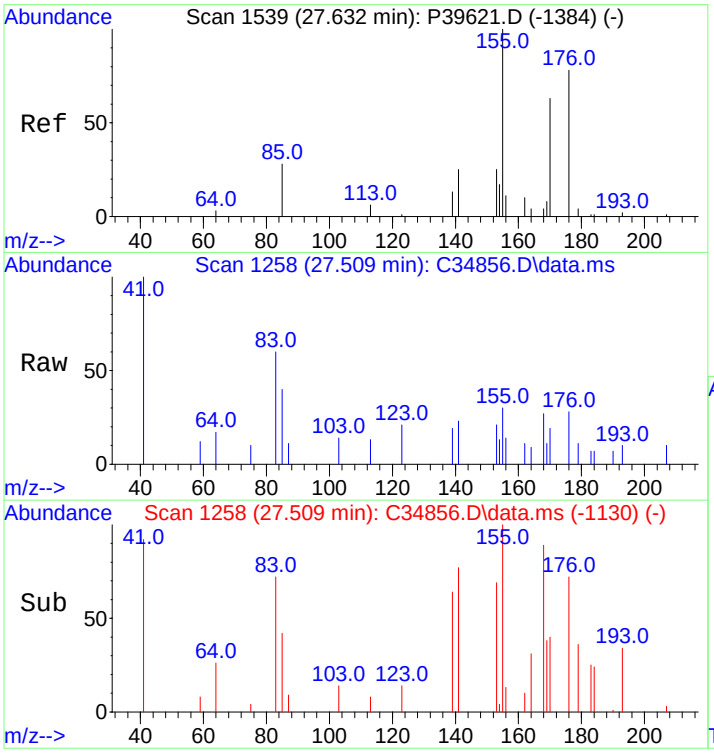




#20
C2-Benzo(b)thiophenes
Concen: 9.66 ng/mL m
RT: 24.829 min Scan# 1080
Delta R.T. -0.713 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

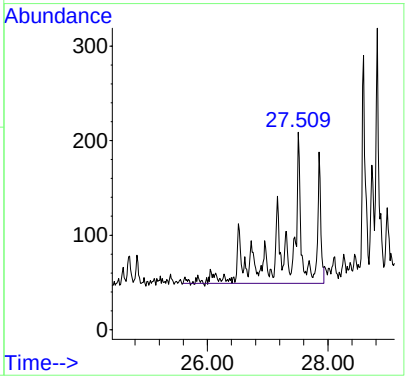
Tgt Ion:162 Resp: 1123

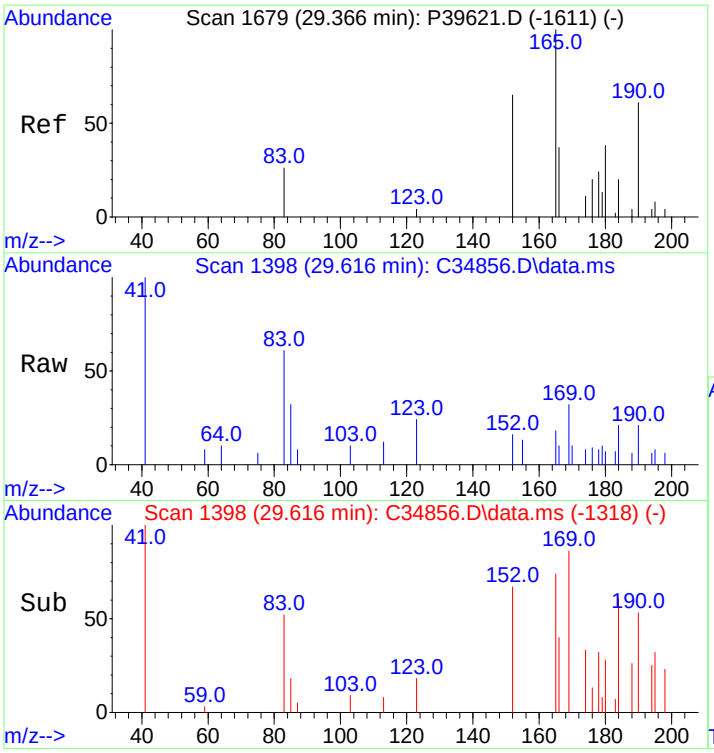




#21
C3-Benzo(b)thiophenes
Concen: 25.25 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.003 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

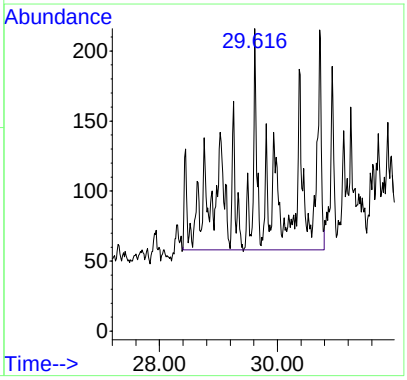
Tgt Ion:176 Resp: 2936

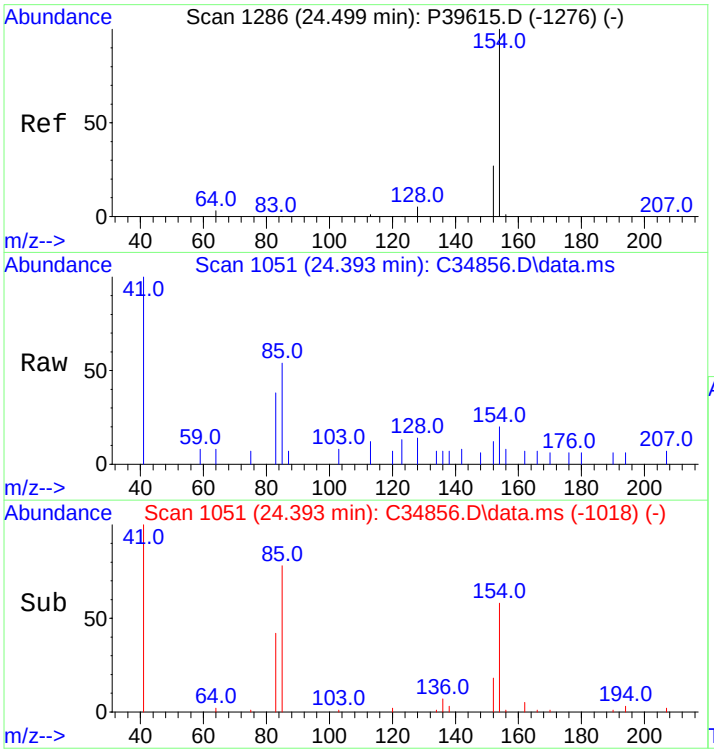




#22
C4-Benzo(b)thiophenes
Concen: 44.53 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:190 Resp: 5178

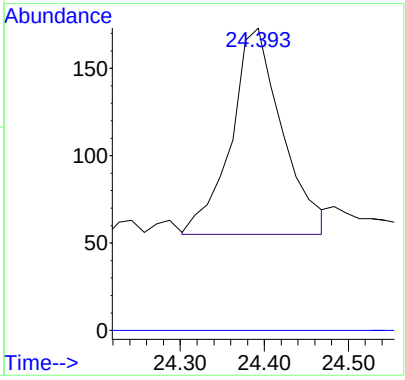


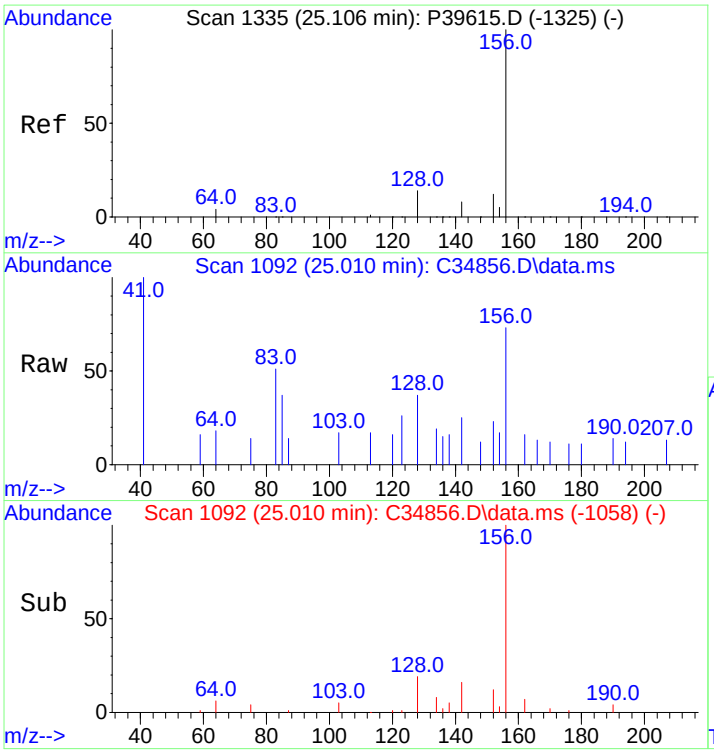


#23
Biphenyl
Concen: 5.17 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:154 Resp: 500

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

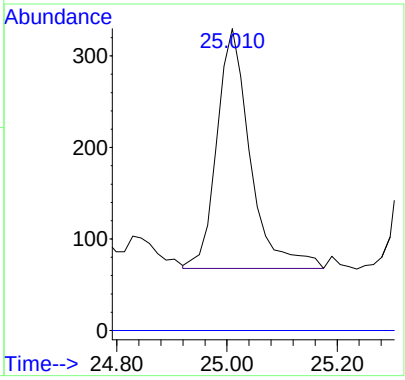


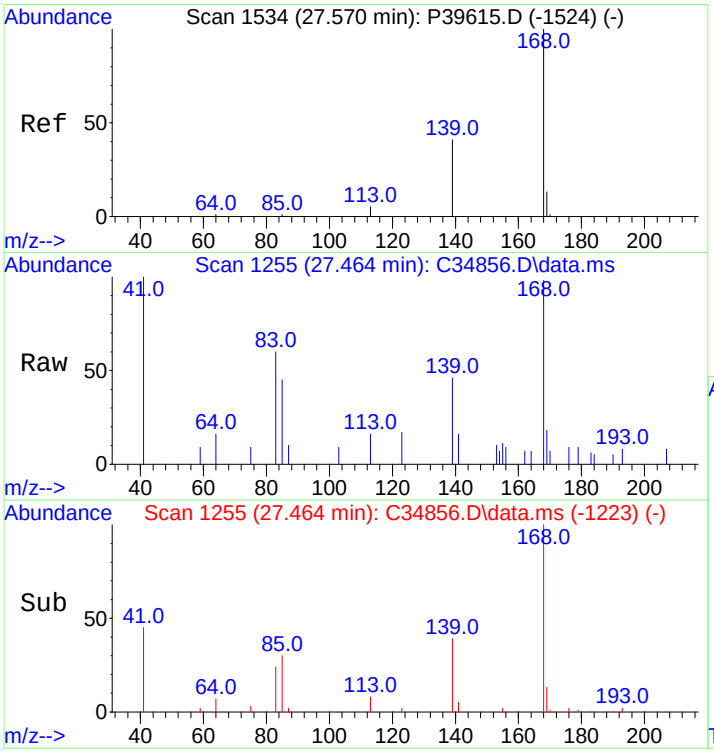


#24
2,6-Dimethylnaphthalene
Concen: 17.49 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:156 Resp: 1098

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

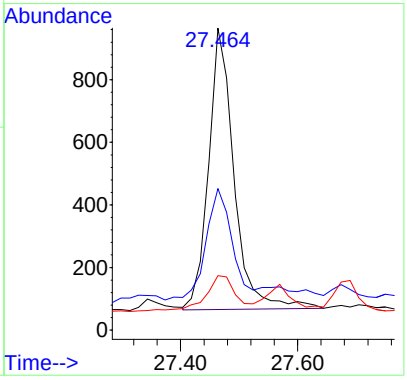


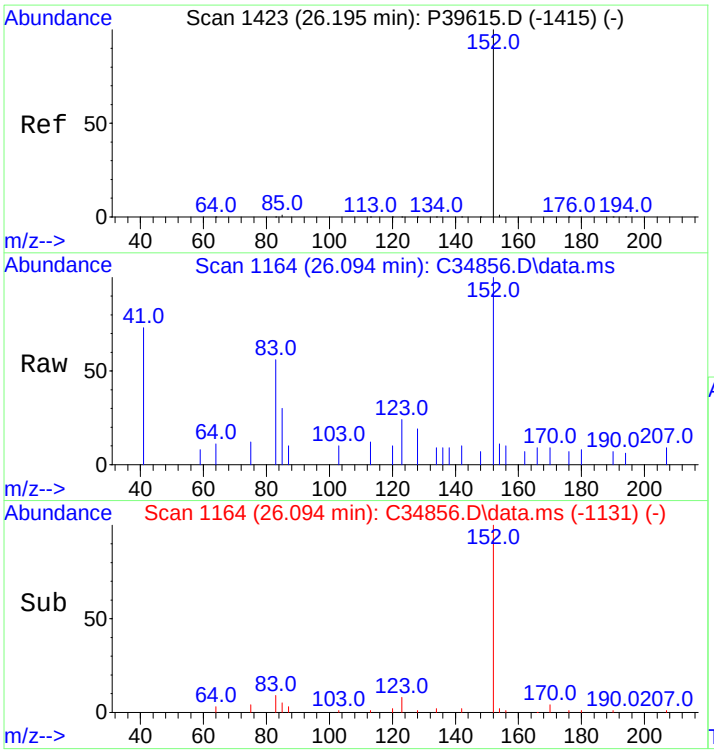


#25
Dibenzofuran
Concen: 24.49 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:168 Resp: 2718

Ion	Ratio	Lower	Upper
168	100		
139	40.8	28.4	42.6
169	16.1	10.8	16.2

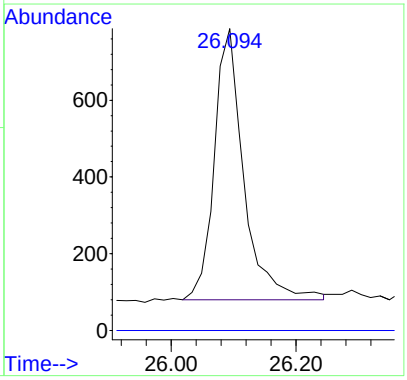


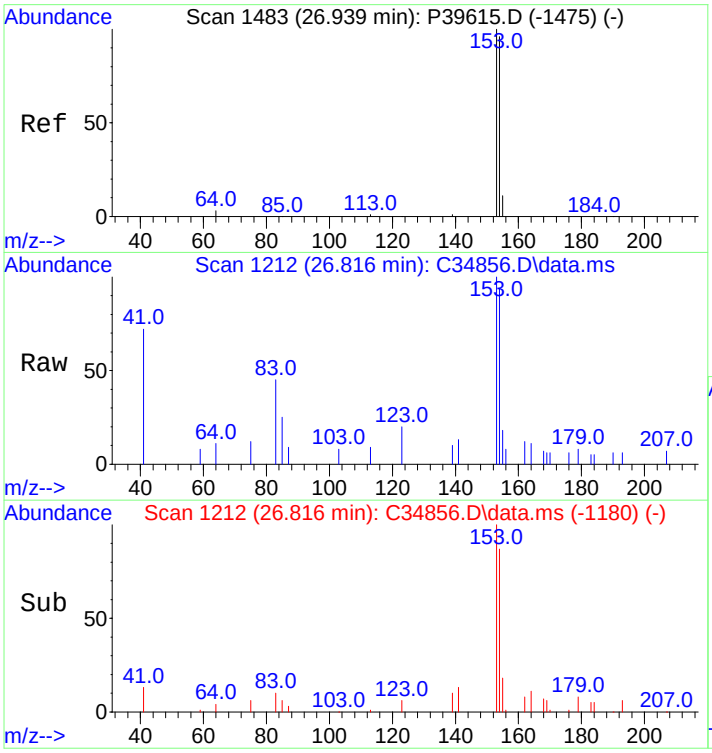


#26
Acenaphthylene
Concen: 18.09 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:152 Resp: 2321

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

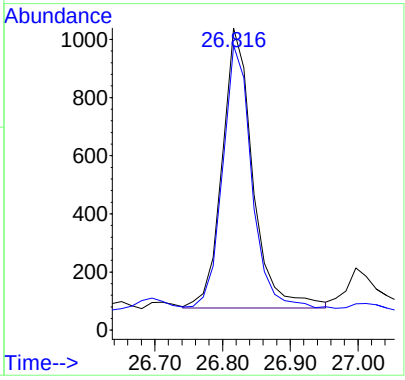


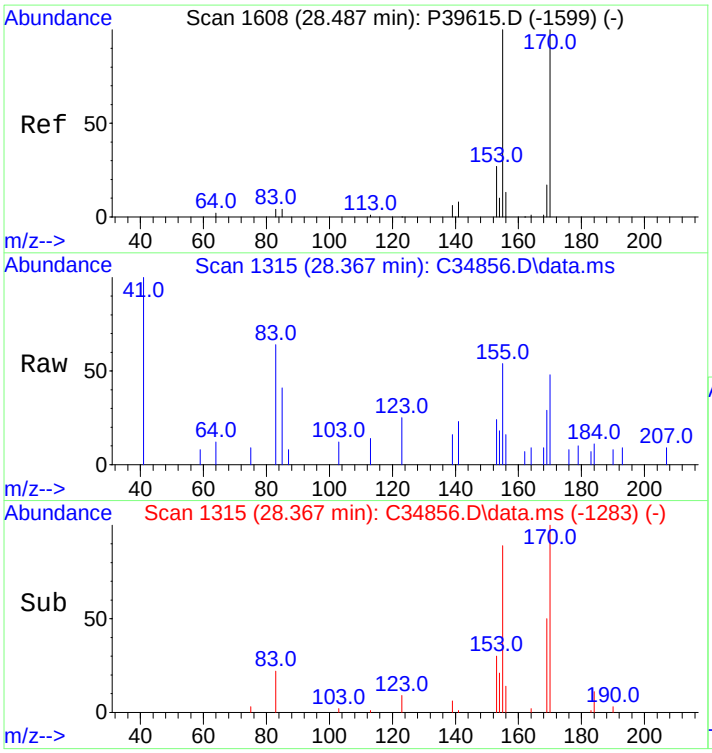


#27
Acenaphthene
Concen: 40.18 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:153 Resp: 3035

Ion	Ratio	Lower	Upper
153	100		
154	90.3	73.6	110.4

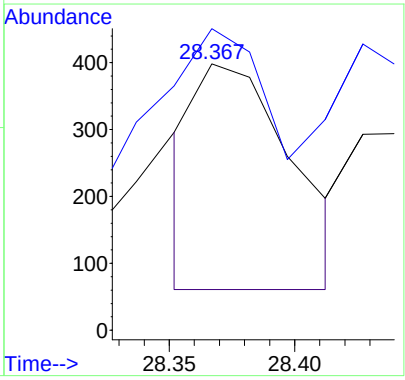


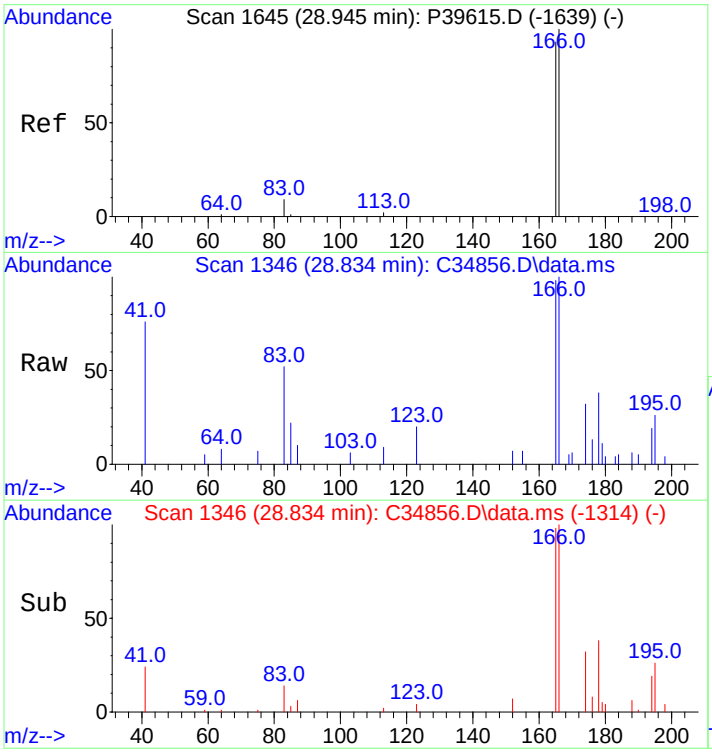


#28
2,3,5-Trimethylnaphthalene
Concen: 17.65 ng/mL m
RT: 28.367 min Scan# 1315
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:170 Resp: 893

Ion	Ratio	Lower	Upper
170	100		
155	159.1	87.3	130.9#

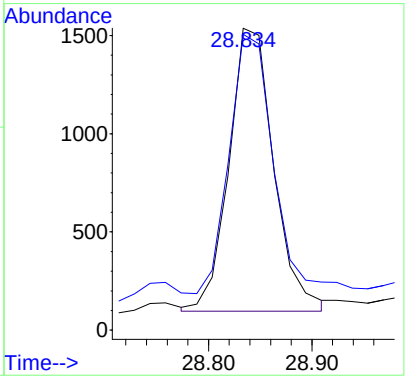


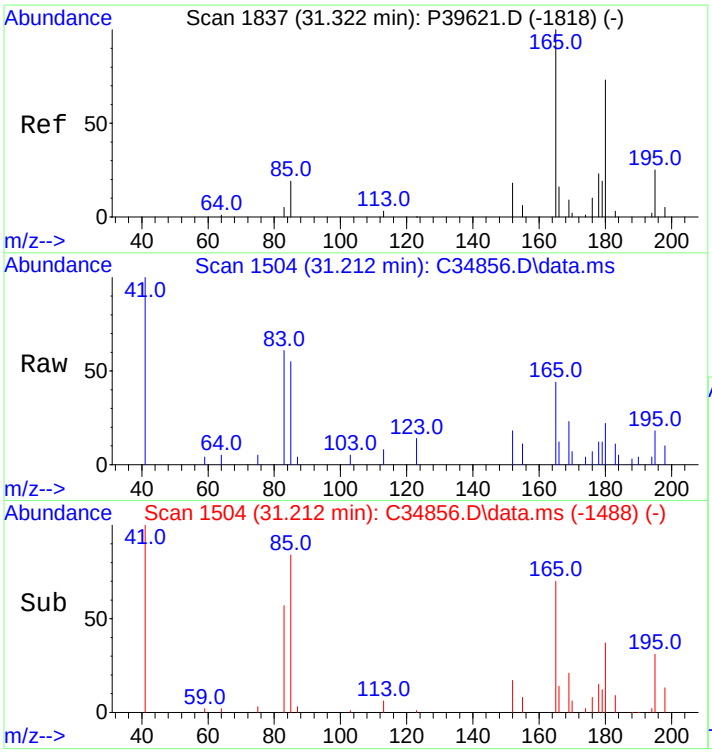


#29
Fluorene
Concen: 52.11 ng/mL m
RT: 28.834 min Scan# 1346
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:166 Resp: 4341

Ion	Ratio	Lower	Upper
166	100		
165	101.1	77.3	115.9

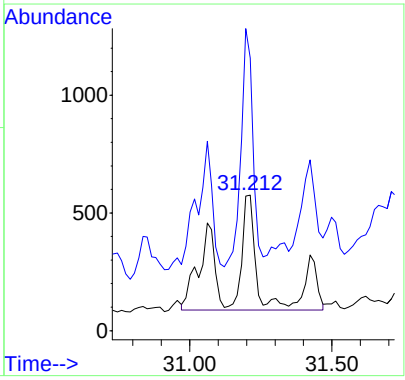


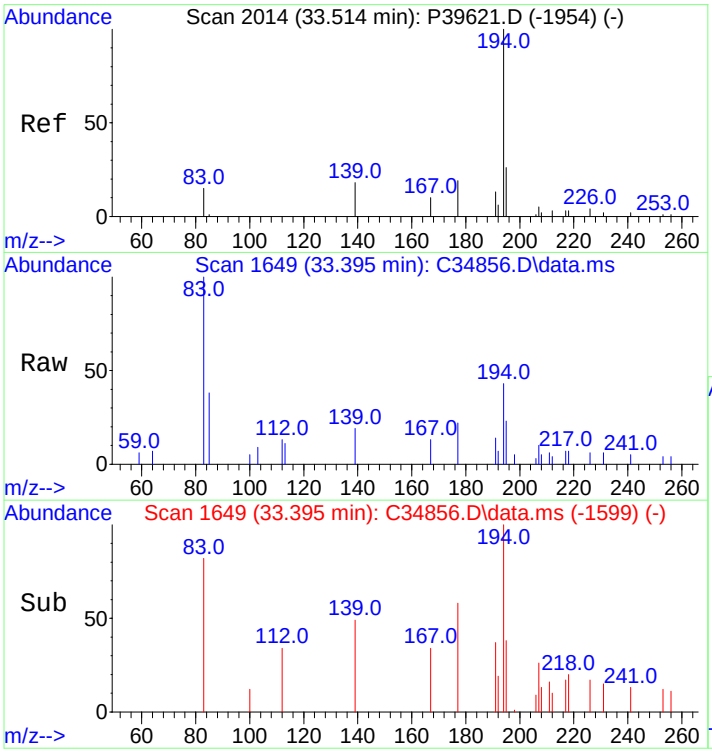


#30
C1-Fluorenes
Concen: 45.32 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:180 Resp: 3775

Ion	Ratio	Lower	Upper
180	100		
165	43.6	111.4	167.2#

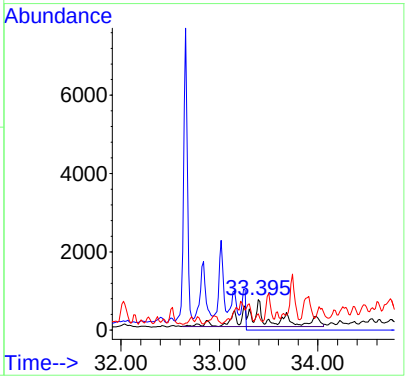


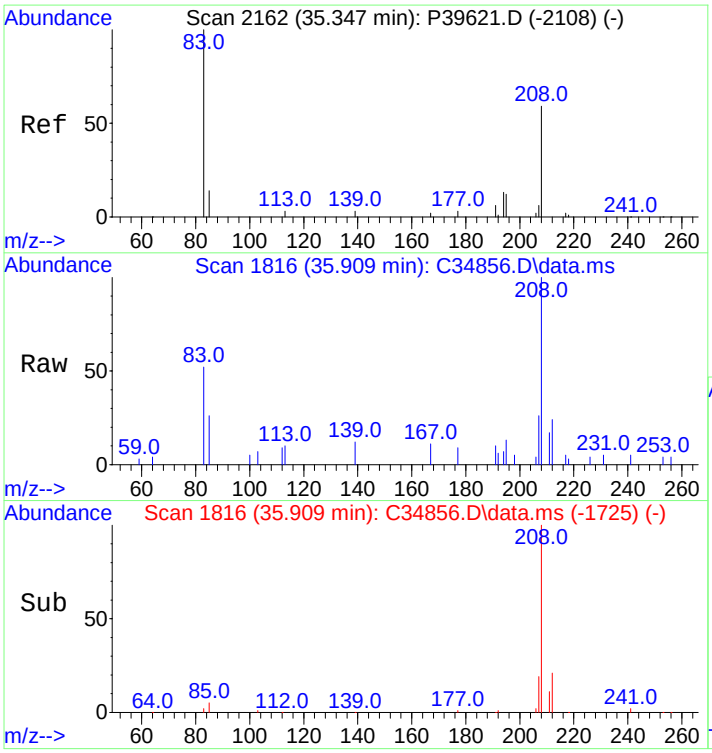


#31
C2-Fluorenes
Concen: 138.91 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:194 Resp: 11572

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.5	27.3	40.9#

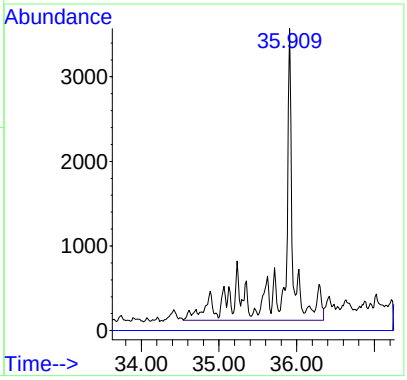


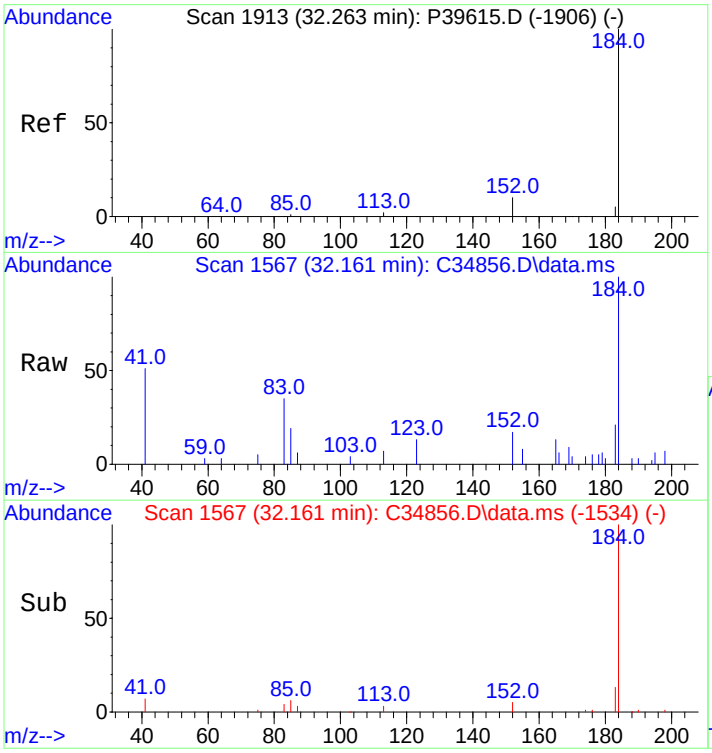


#32
C3-Fluorenes
Concen: 375.78 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:208 Resp: 31304

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

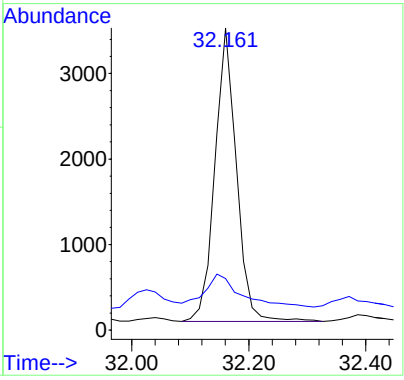


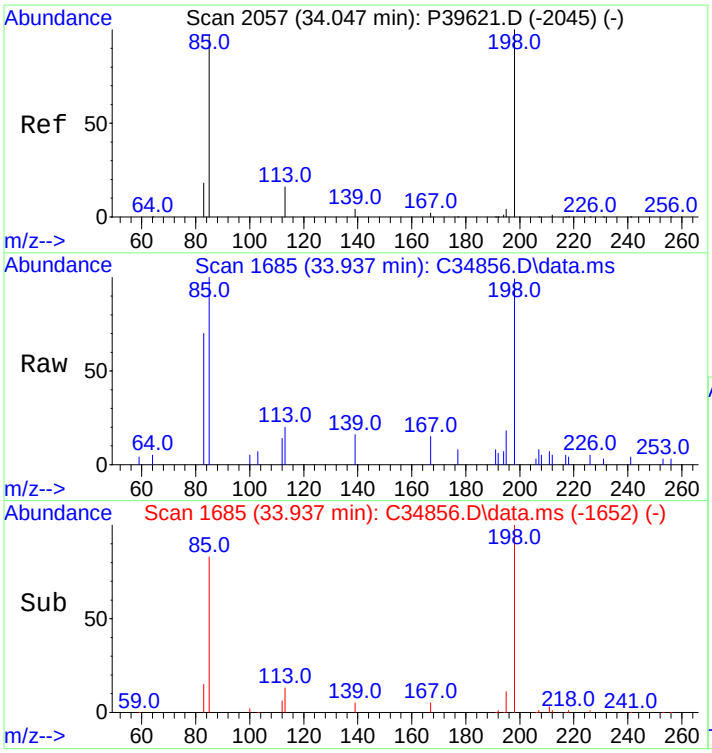


#33
Dibenzothiophene
Concen: 65.47 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:184 Resp: 8743

Ion	Ratio	Lower	Upper
184	100		
152	18.6	7.5	11.3#

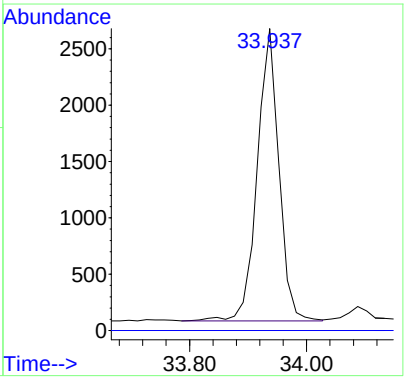


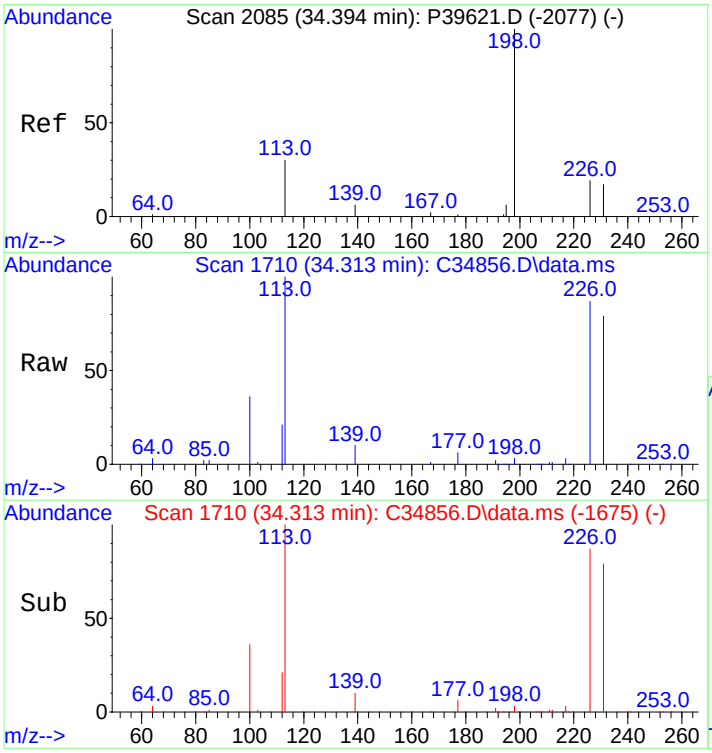


#34
4-Methyldibenzothiophene(4MDT)
Concen: 49.78 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:198 Resp: 6647

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

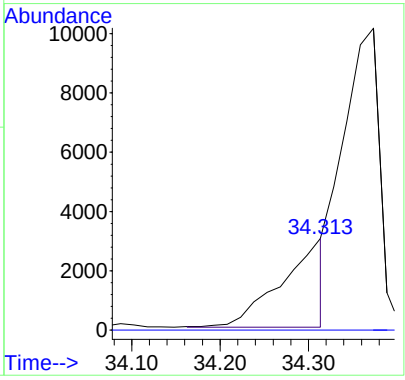


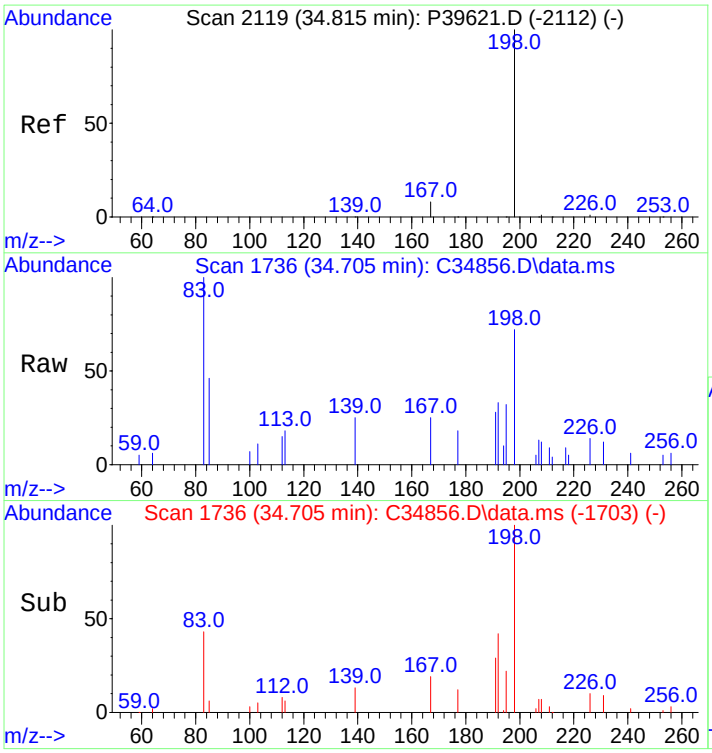


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 76.05 ng/mL m
RT: 34.313 min Scan# 1710
Delta R.T. 0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:198 Resp: 10155

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

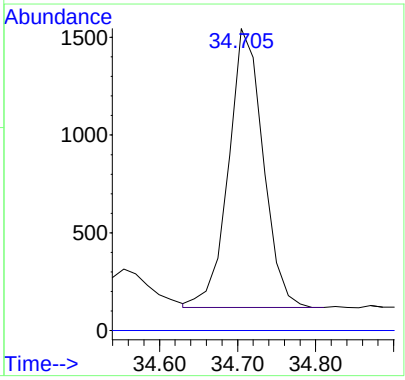


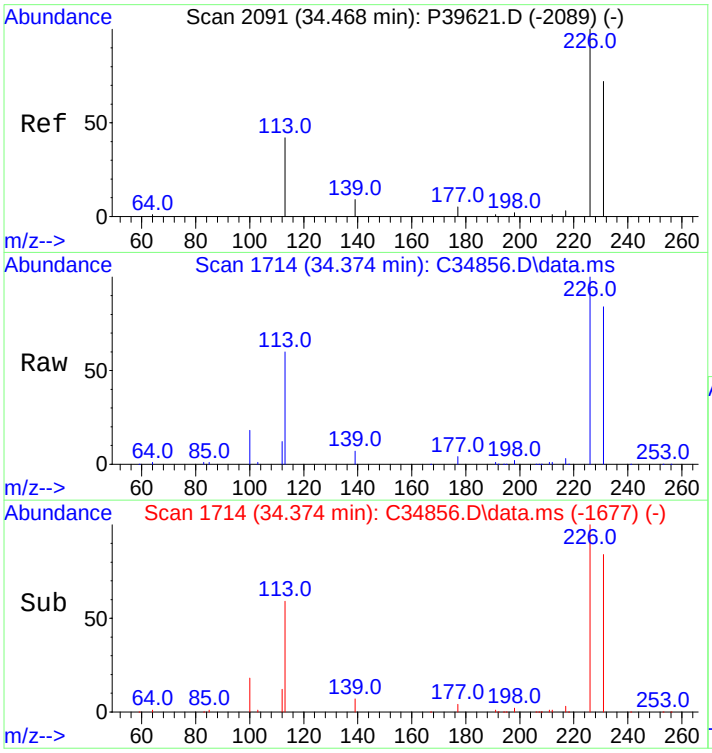


#36
1-Methyldibenzothiophene(1MDT)
Concen: 32.79 ng/mL
RT: 34.705 min Scan# 1736
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:198 Resp: 4378

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

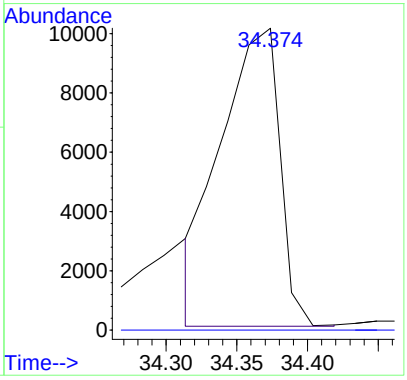


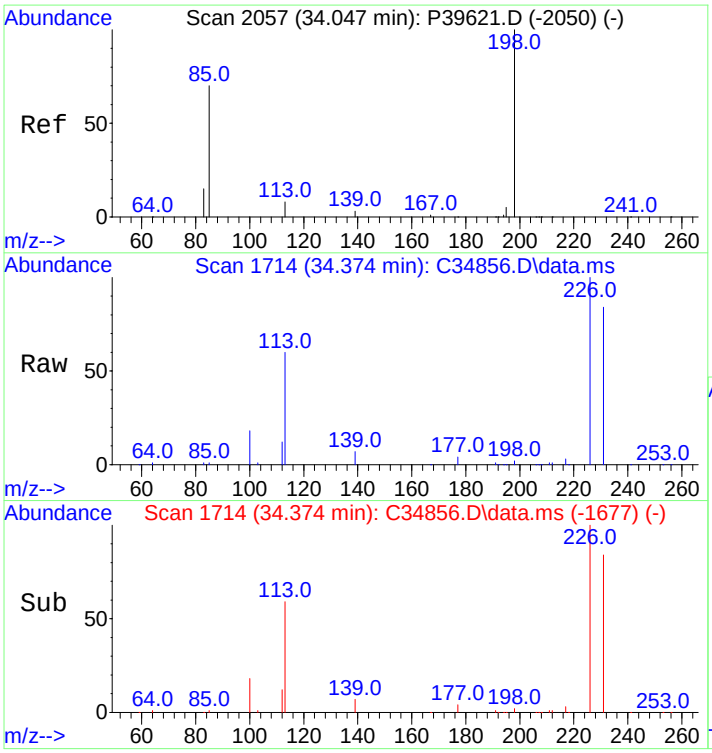


#37
OTP
Concen: 219.17 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:198 Resp: 29266

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

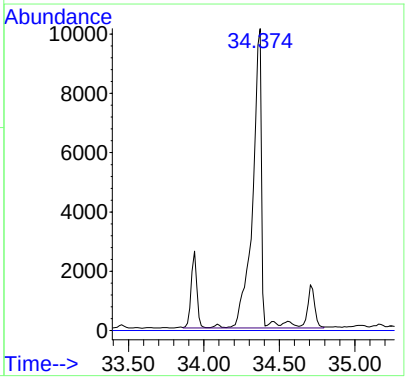


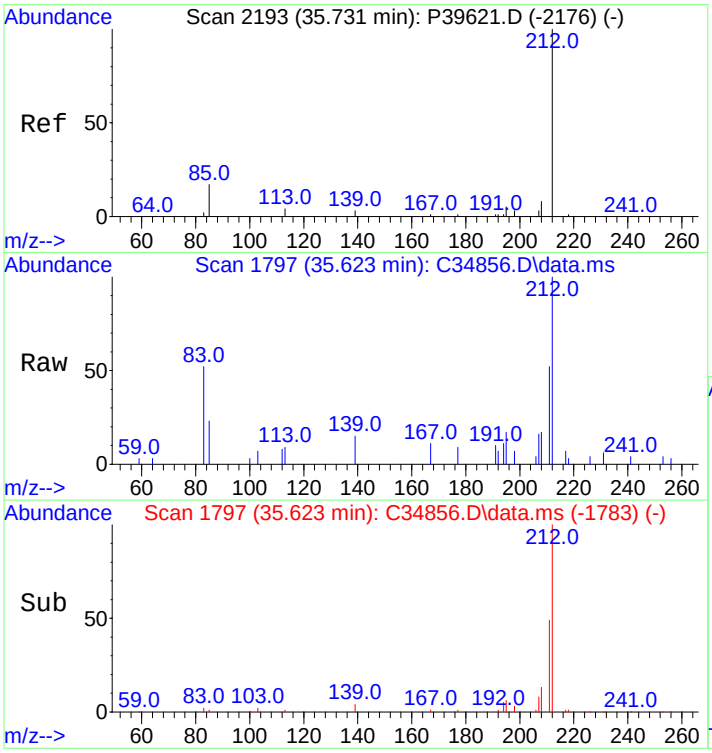


#38
C1-Dibenzothiophenes
Concen: 397.11 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:198 Resp: 53027

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

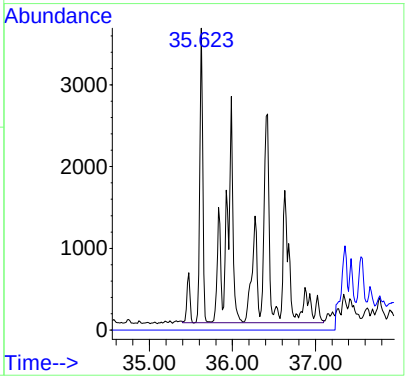


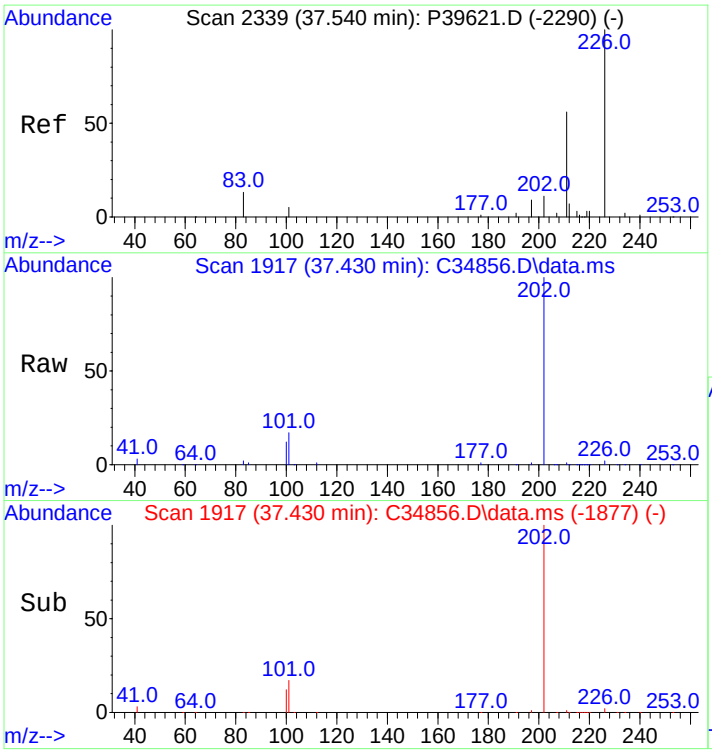


#39
C2-Dibenzothiophenes
Concen: 396.89 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:212 Resp: 52998

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

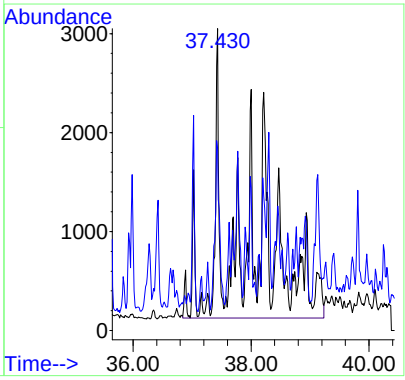


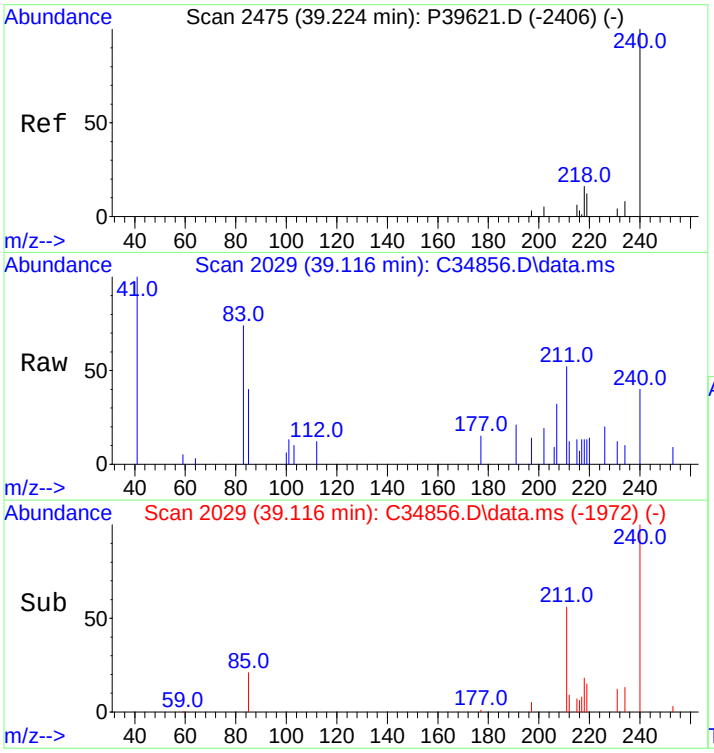


#40
C3-Dibenzothiophenes
Concen: 575.57 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:226 Resp: 76858

Ion	Ratio	Lower	Upper
226	100		
211	11.9	45.0	67.6#

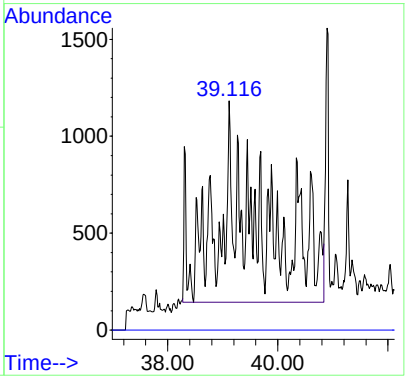


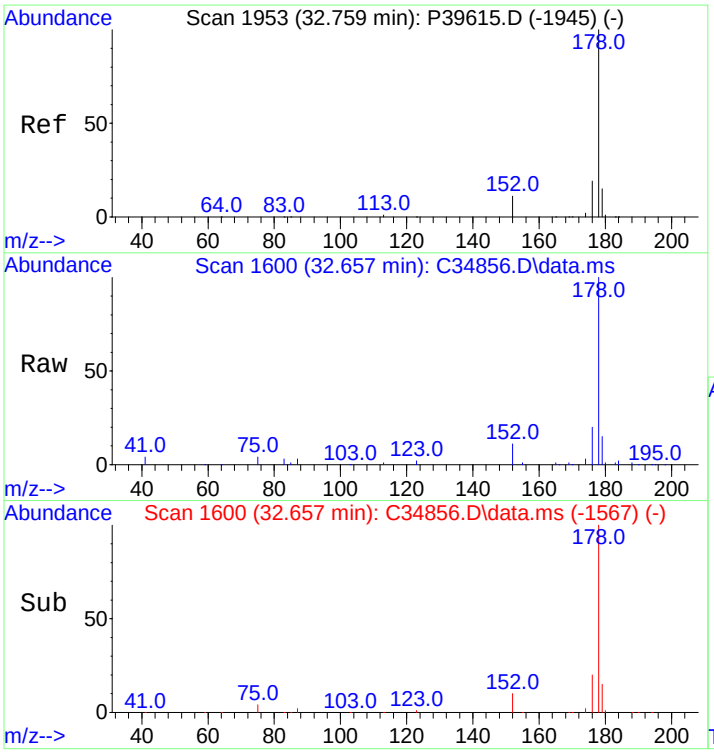


#41
C4-Dibenzothiophenes
Concen: 404.05 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:240 Resp: 53954

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

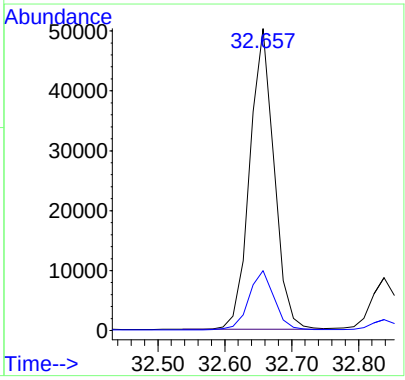


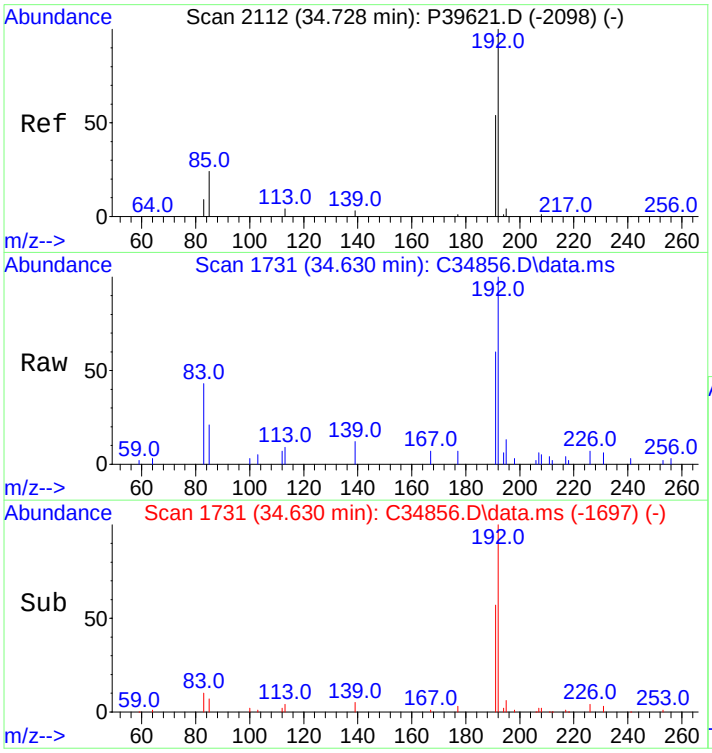


#43
Phenanthrene
Concen: 1084.22 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:178 Resp: 127201

Ion	Ratio	Lower	Upper
178	100		
176	20.6	16.1	24.1

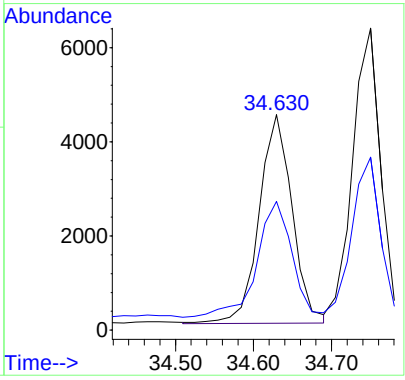


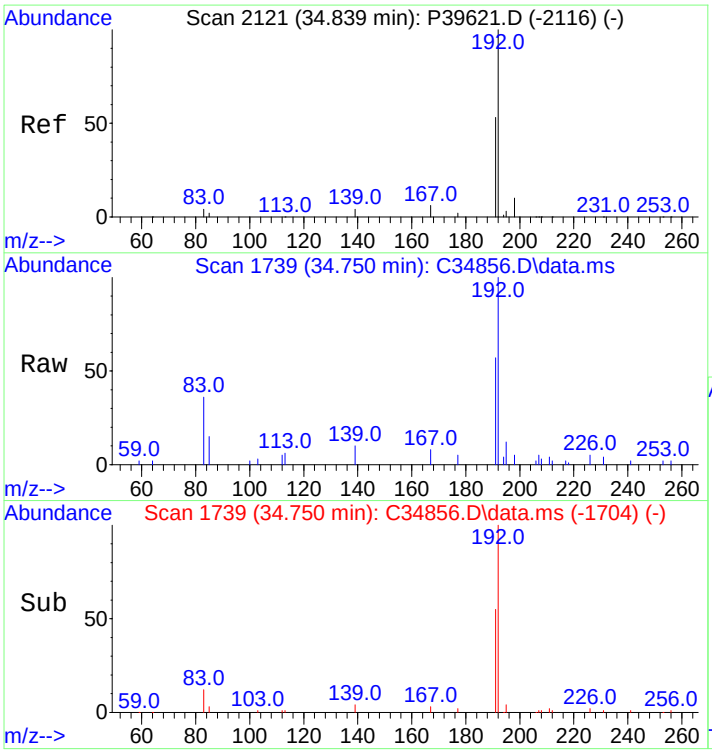


#44
3-Methylphenanthrene(3MP)
Concen: 110.70 ng/mL
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 12987

Ion	Ratio	Lower	Upper
192	100		
191	62.1	46.9	70.3

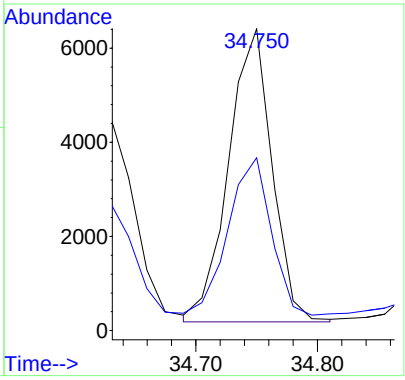


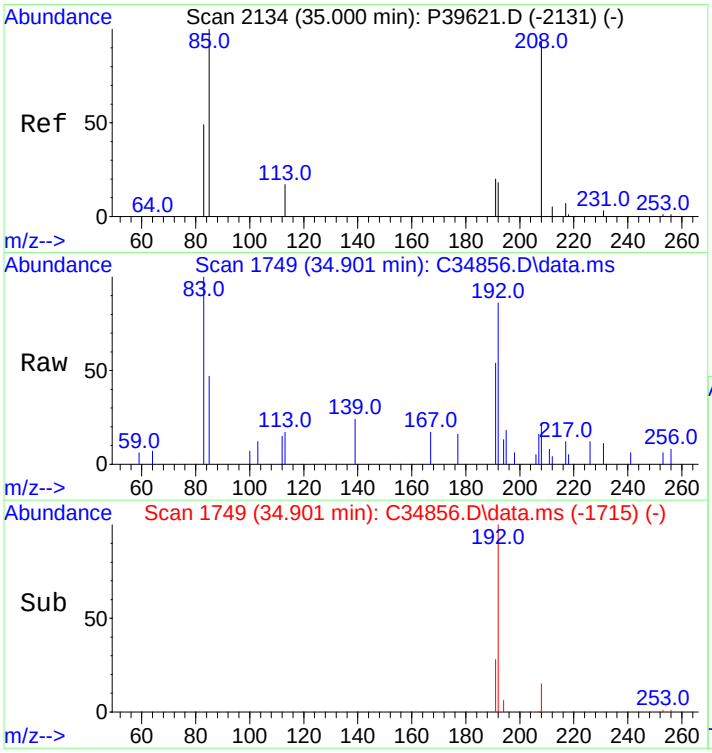


#45
2/4-Methylphenanthrene(2MP)
Concen: 132.16 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. 0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 15505

Ion	Ratio	Lower	Upper
192	100		
191	52.0	46.1	69.1

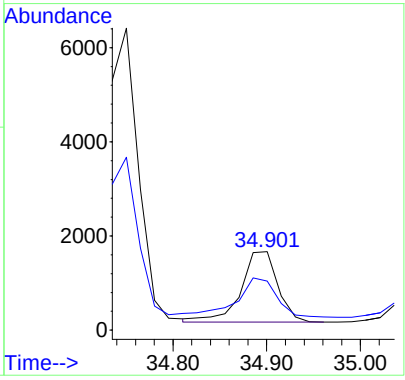


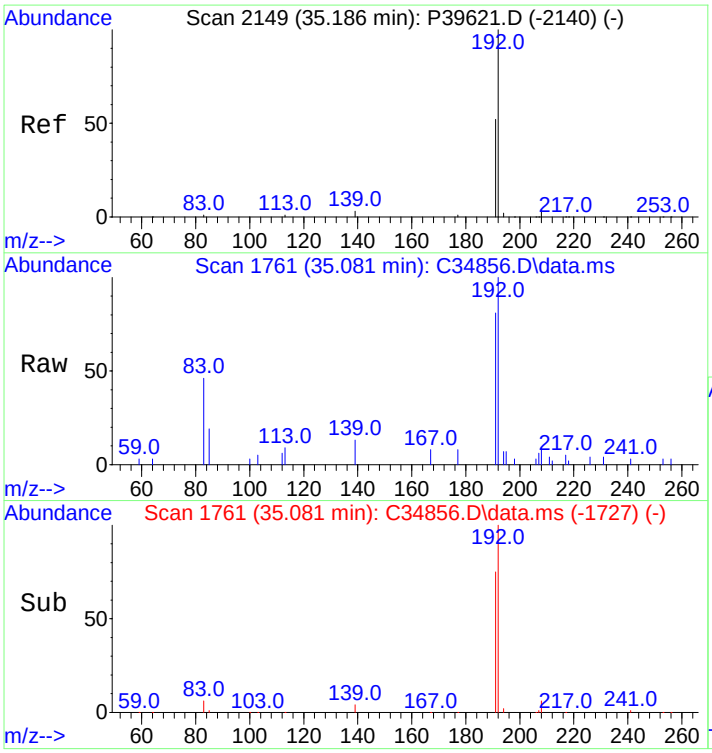


#46
2-Methylanthracene(2MA)
Concen: 34.99 ng/mL
RT: 34.901 min Scan# 1749
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 4105

Ion	Ratio	Lower	Upper
192	100		
191	60.9	93.4	140.0#

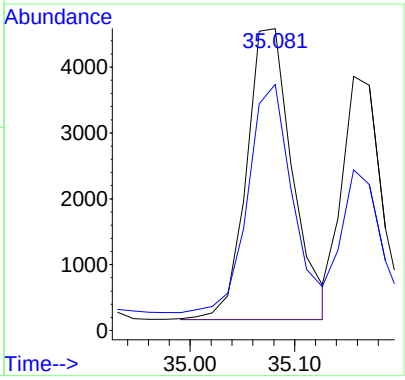


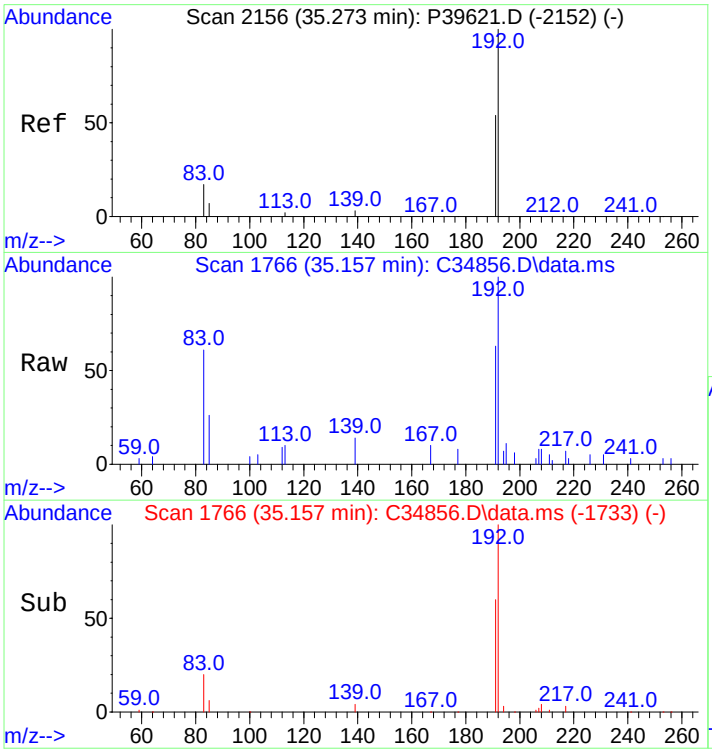


#47
9-Methylphenanthrene(9MP)
Concen: 114.86 ng/mL m
RT: 35.081 min Scan# 1761
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 13476

Ion	Ratio	Lower	Upper
192	100		
191	41.2	45.9	68.9#

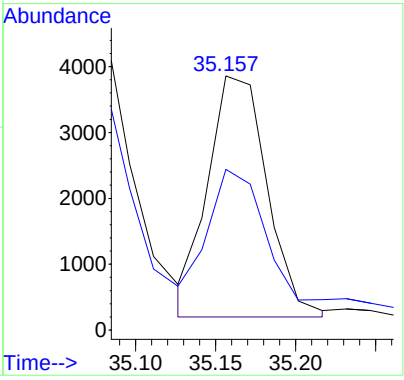


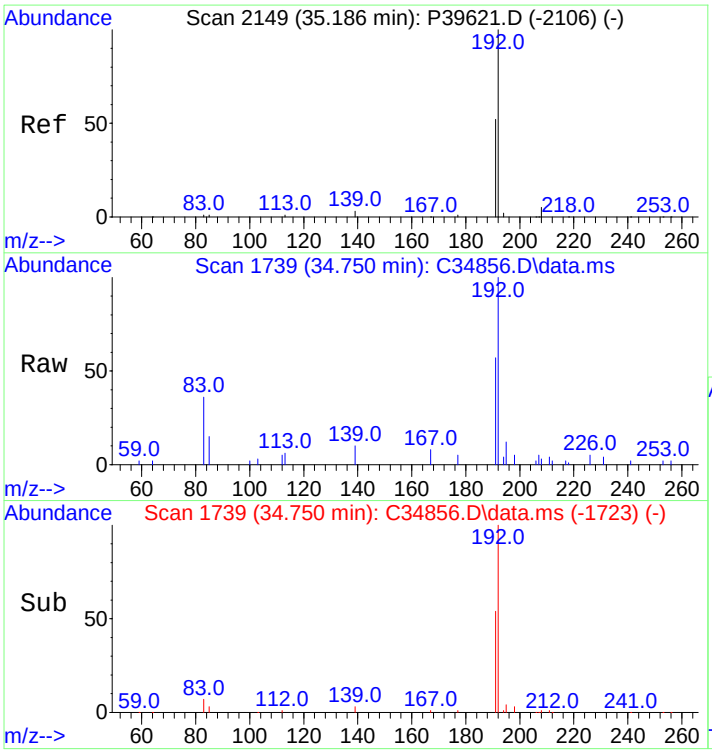


#48
1-Methylphenanthrene(1MP)
Concen: 80.02 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 9388

Ion	Ratio	Lower	Upper
192	100		
191	56.8	49.0	73.4

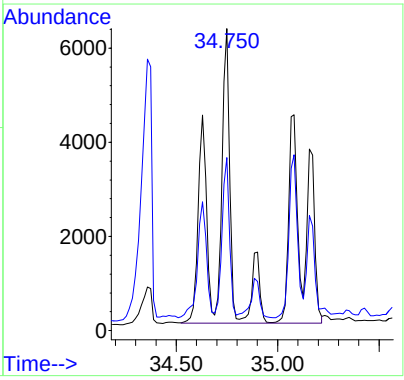


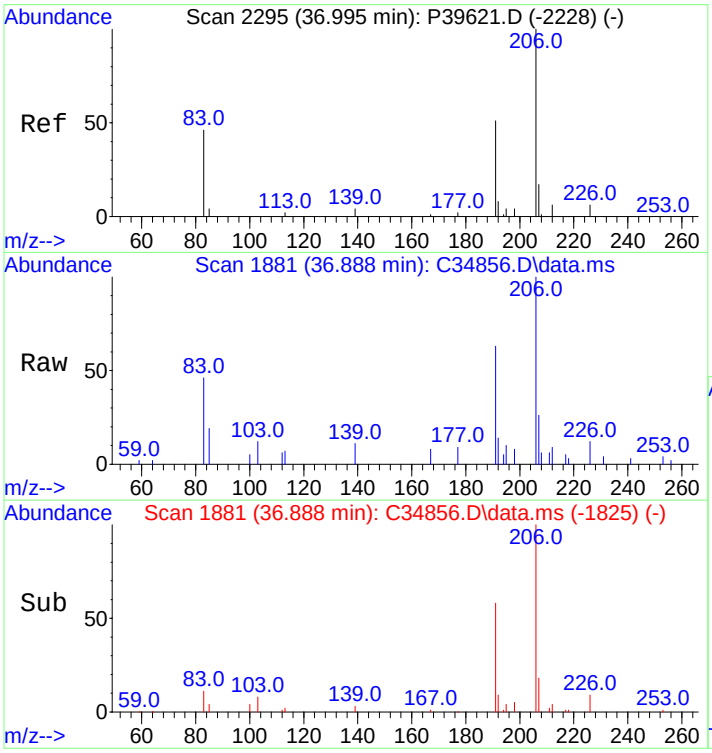


#49
C1-Phenanthrenes/Anthracenes
Concen: 477.56 ng/mL m
RT: 34.750 min Scan# 1739
Delta R.T. -0.264 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 56028

Ion	Ratio	Lower	Upper
192	100		
191	4.5	44.2	66.2#

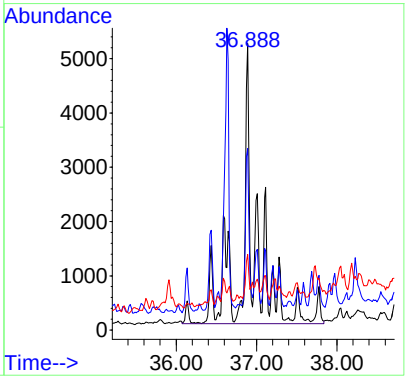


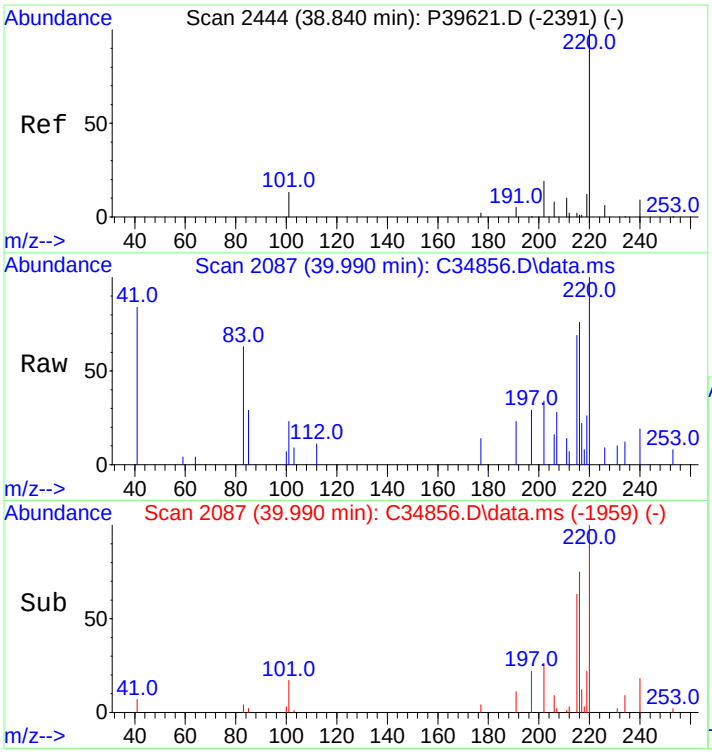


#50
C2-Phenanthrenes/Anthracenes
Concen: 502.05 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:206 Resp: 58901

Ion	Ratio	Lower	Upper
206	100		
191	14.8	44.0	66.0#
207	4.2	15.1	22.7#

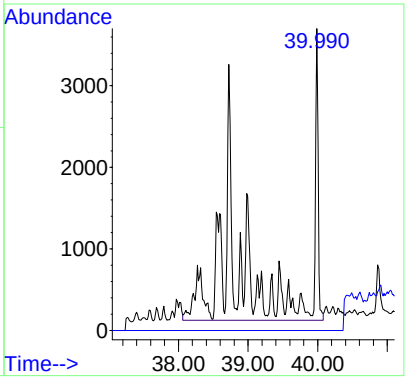


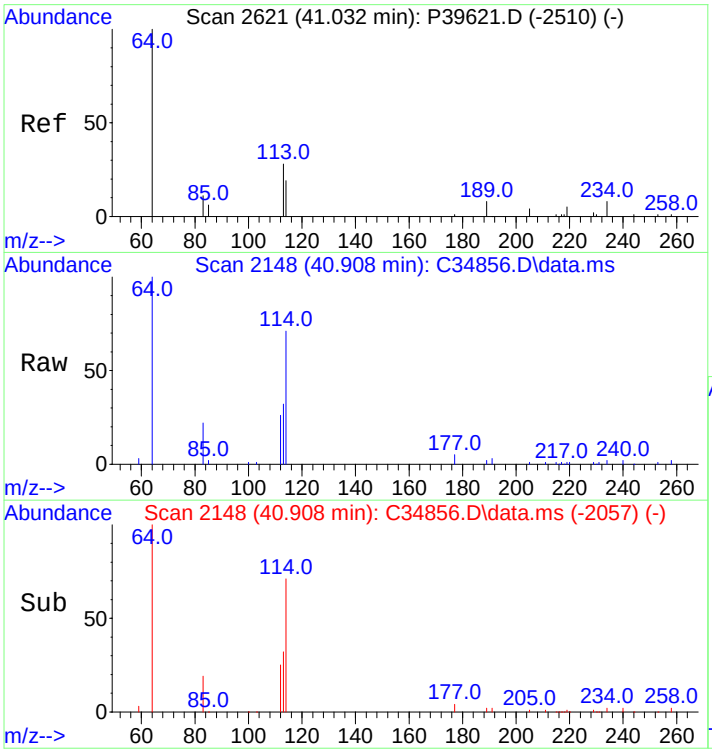


#52
C3-Phenanthrenes/Anthracenes
Concen: 460.06 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:220 Resp: 53975

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

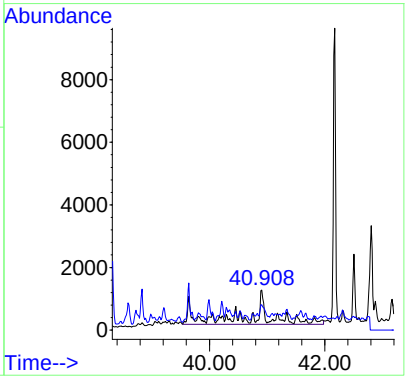


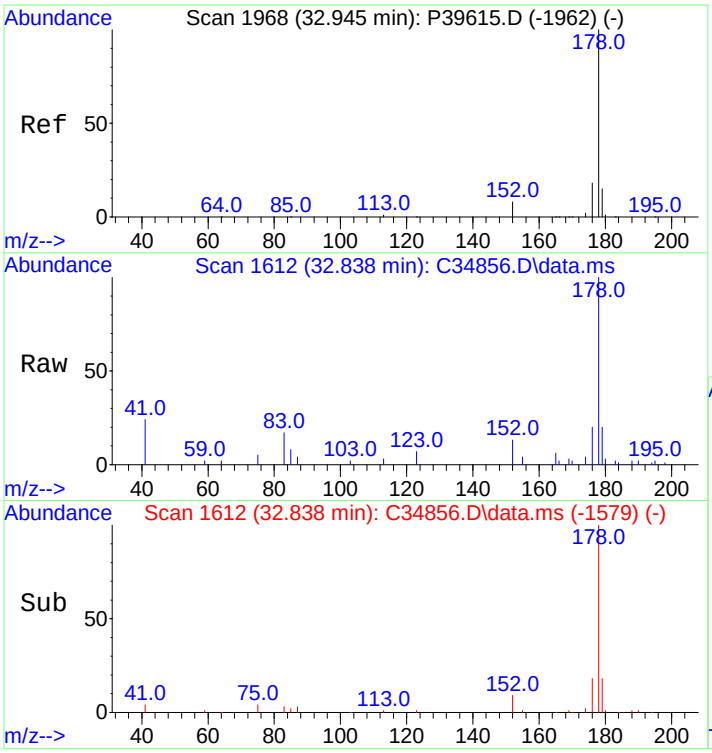


#53
C4-Phenanthrenes/Anthracenes
Concen: 238.87 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:234 Resp: 28024

Ion	Ratio	Lower	Upper
234	100		
219	7.6	46.9	70.3#

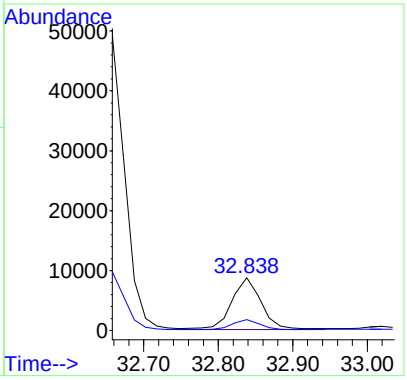


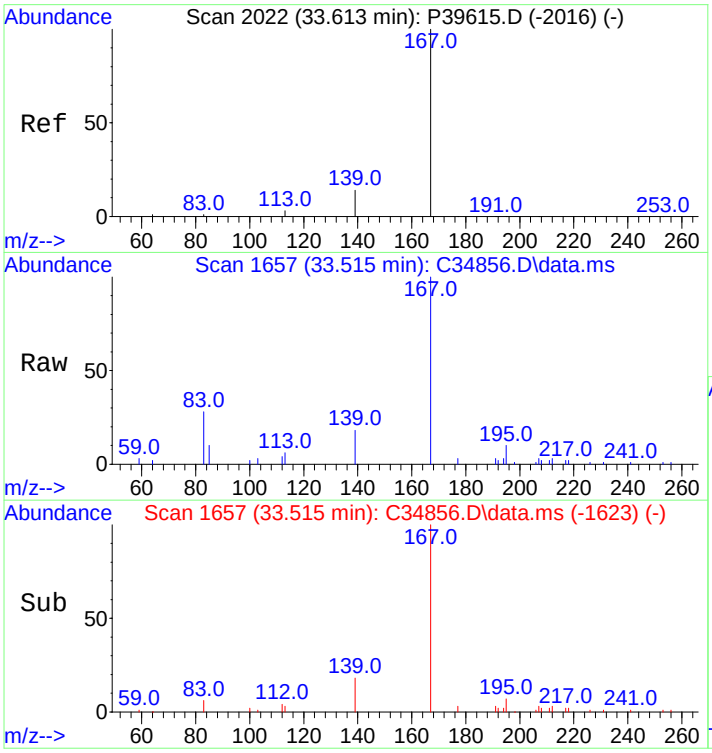


#55
Anthracene
Concen: 207.03 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:178 Resp: 23725

Ion	Ratio	Lower	Upper
178	100		
176	17.7	15.5	23.3

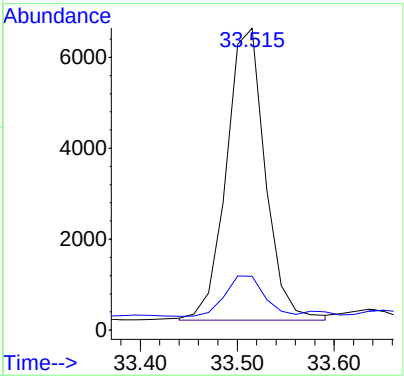


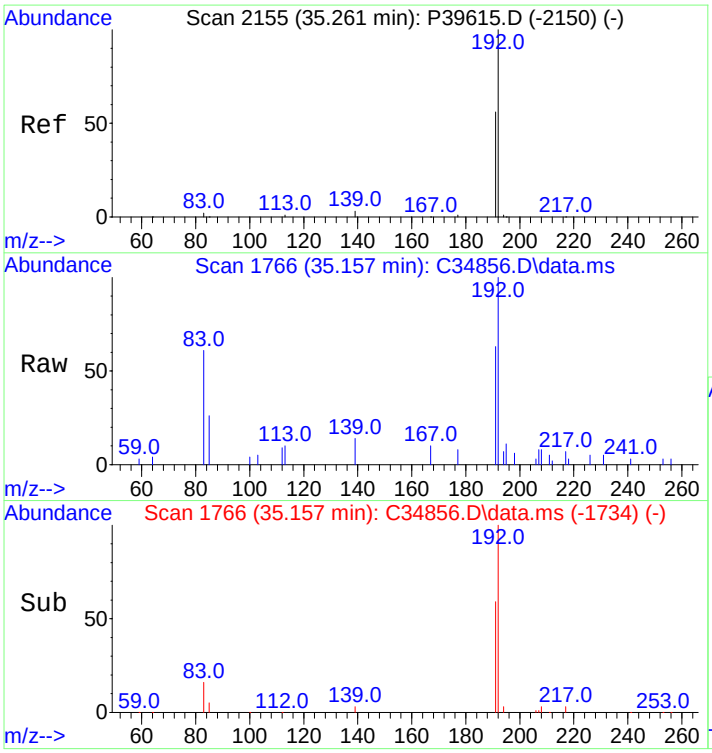


#56
Carbazole
Concen: 154.65 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:167 Resp: 17901

Ion	Ratio	Lower	Upper
167	100		
139	14.2	11.8	17.8

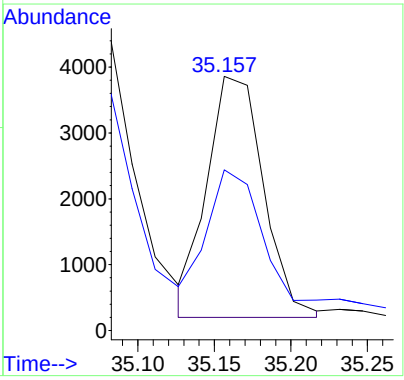


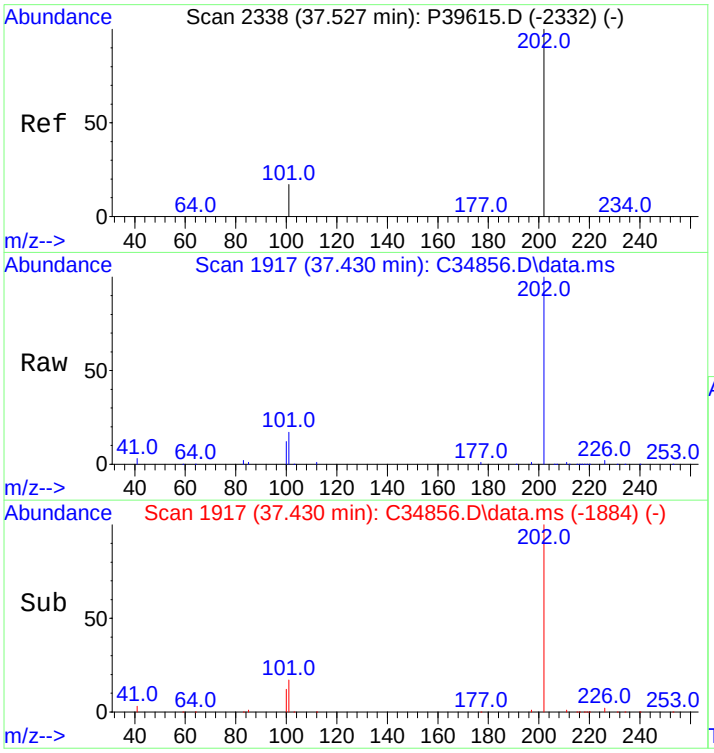


#57
1-Methylphenanthrene
Concen: 126.06 ng/mL m
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:192 Resp: 9372

Ion	Ratio	Lower	Upper
192	100		
191	56.9	45.9	68.9

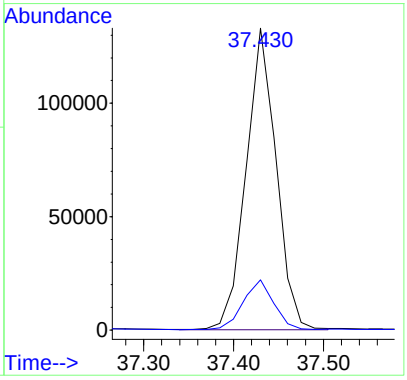


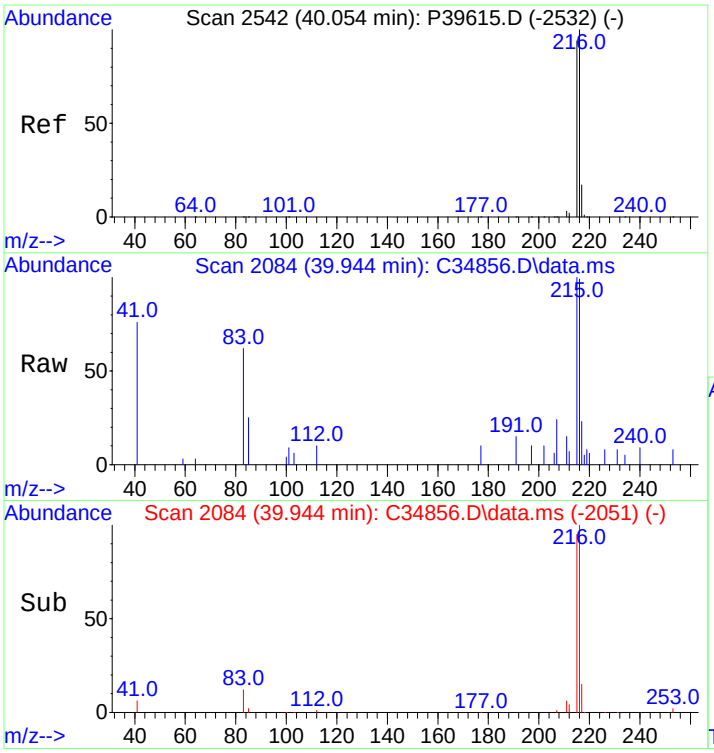


#58
Fluoranthene
Concen: 2652.89 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:202 Resp: 309113

Ion	Ratio	Lower	Upper
202	100		
101	17.5	12.9	19.3

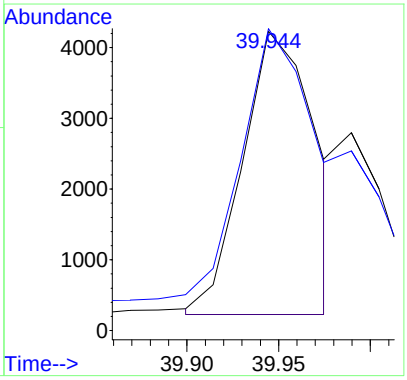


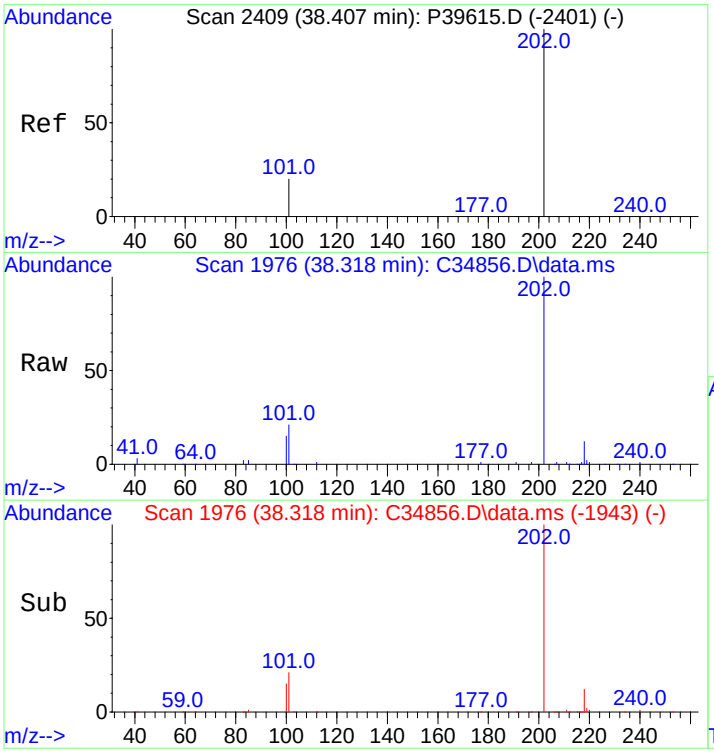


#59
Benzo(b)fluorene
Concen: 162.40 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:216 Resp: 10978

Ion	Ratio	Lower	Upper
216	100		
215	131.4	76.3	114.5#

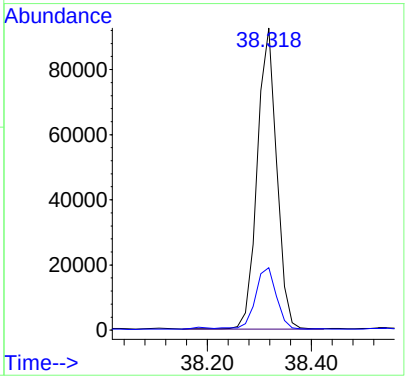


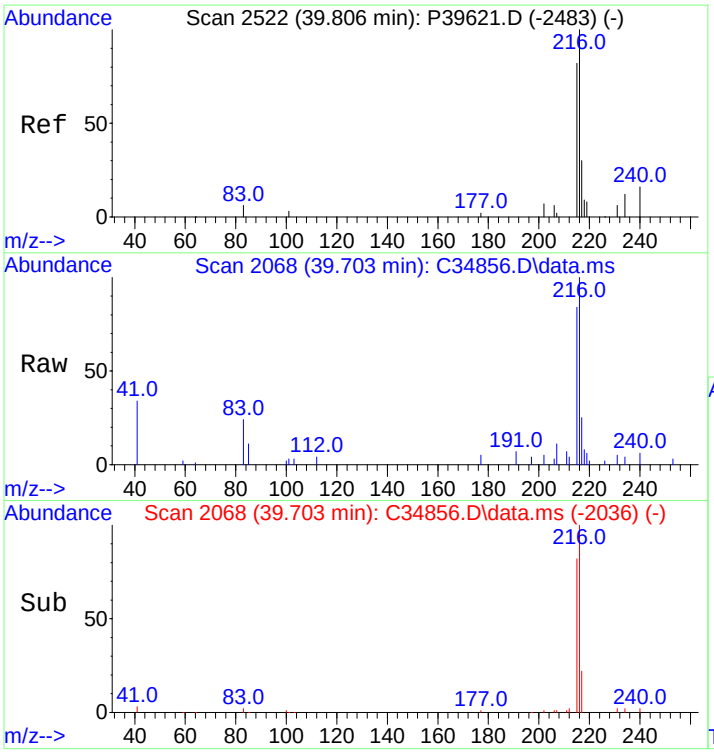


#60
Pyrene
Concen: 2019.88 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:202 Resp: 239244

Ion	Ratio	Lower	Upper
202	100		
101	22.2	15.0	22.4

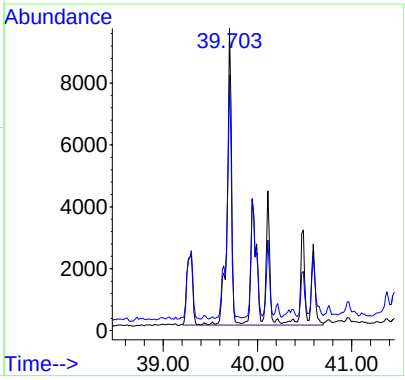


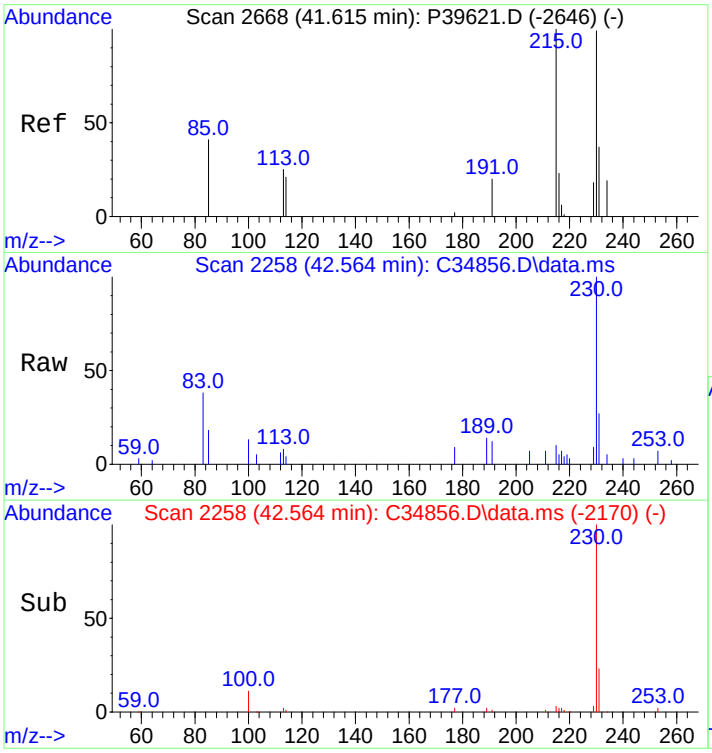


#61
C1-Fluoranthenes/Pyrenes
Concen: 724.98 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:216 Resp: 85870

Ion	Ratio	Lower	Upper
216	100		
215	29.9	71.8	107.6#

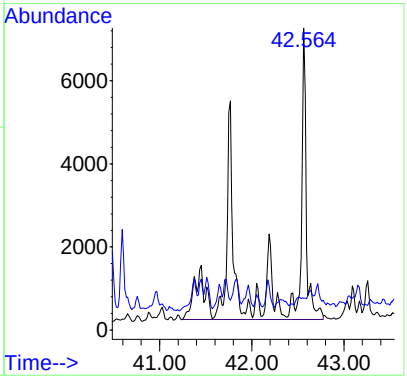


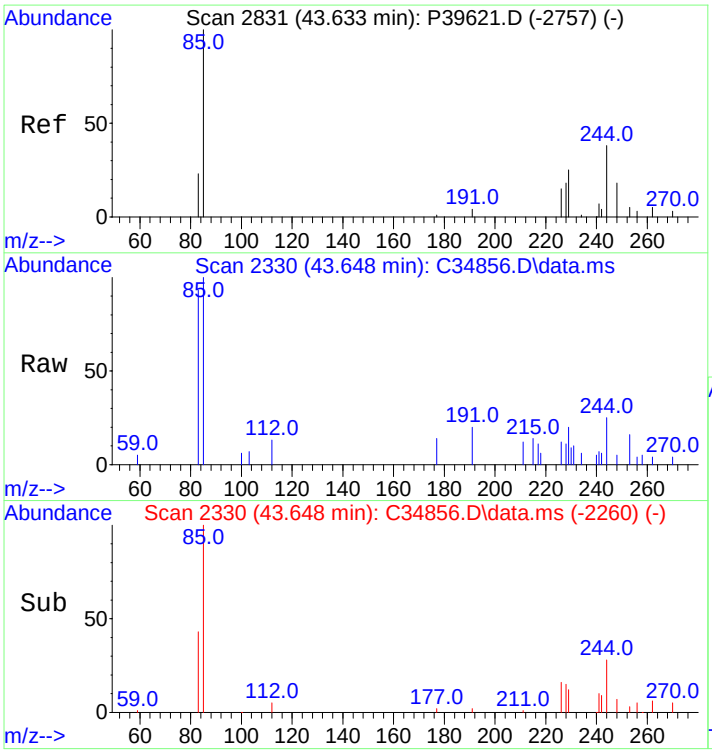


#62
C2-Fluoranthenes/Pyrenes
Concen: 603.92 ng/mL m
RT: 42.564 min Scan# 2258
Delta R.T. 1.165 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:230 Resp: 71531

Ion	Ratio	Lower	Upper
230	100		
215	3.0	99.0	148.4#

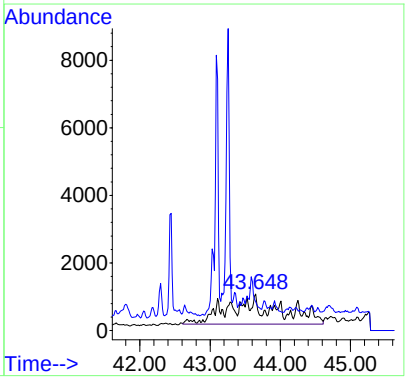


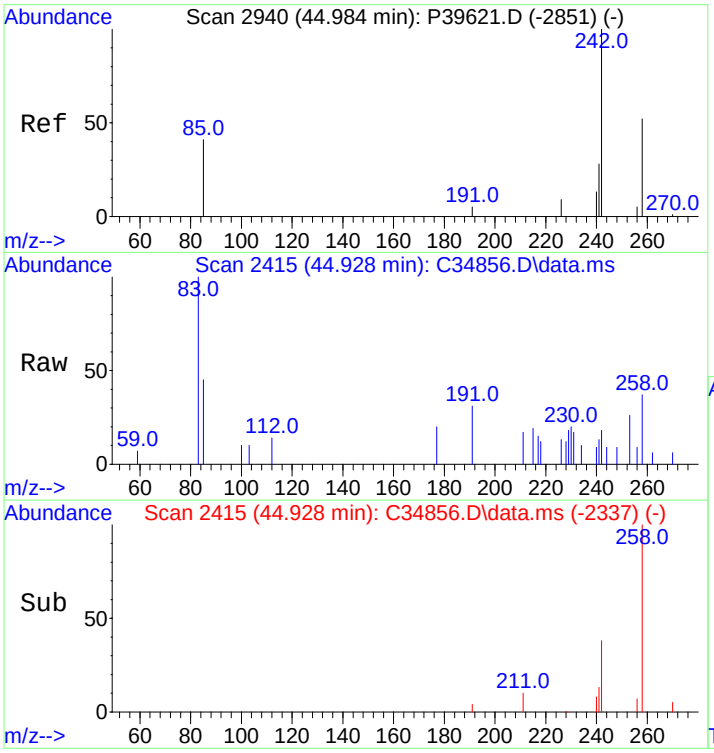


#63
C3-Fluoranthenes/Pyrenes
Concen: 345.89 ng/mL m
RT: 43.648 min Scan# 2330
Delta R.T. 0.241 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:244 Resp: 40969

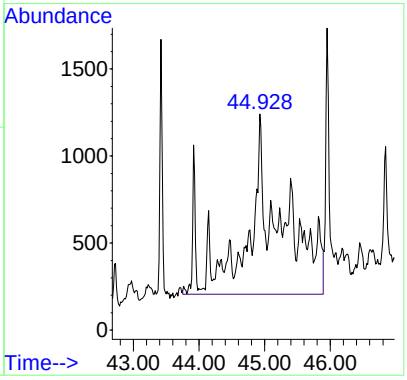
Ion	Ratio	Lower	Upper
244	100		
229	2.7	73.3	109.9#

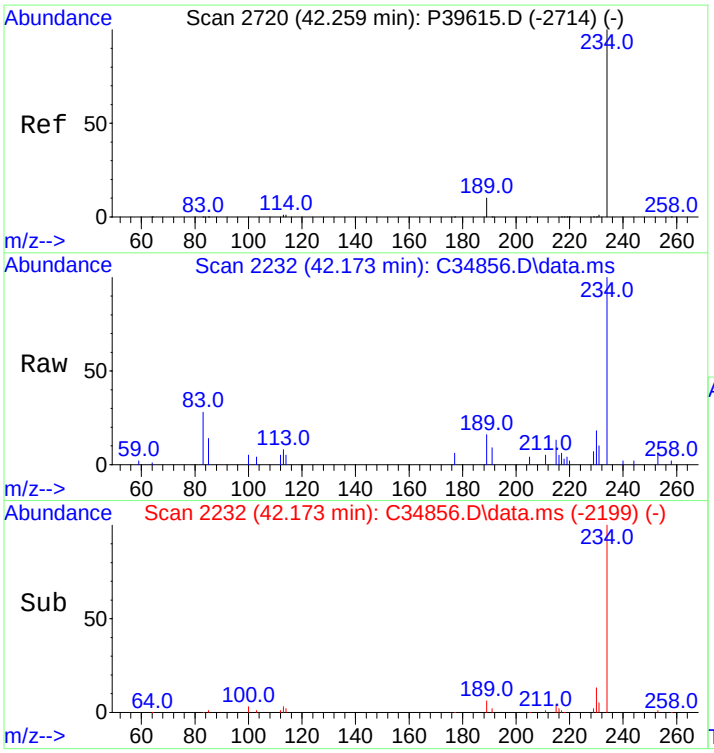




#64
C4-Fluoranthenes/Pyrenes
Concen: 312.39 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:258 Resp: 37001

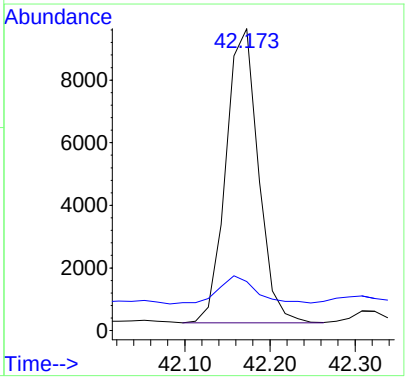


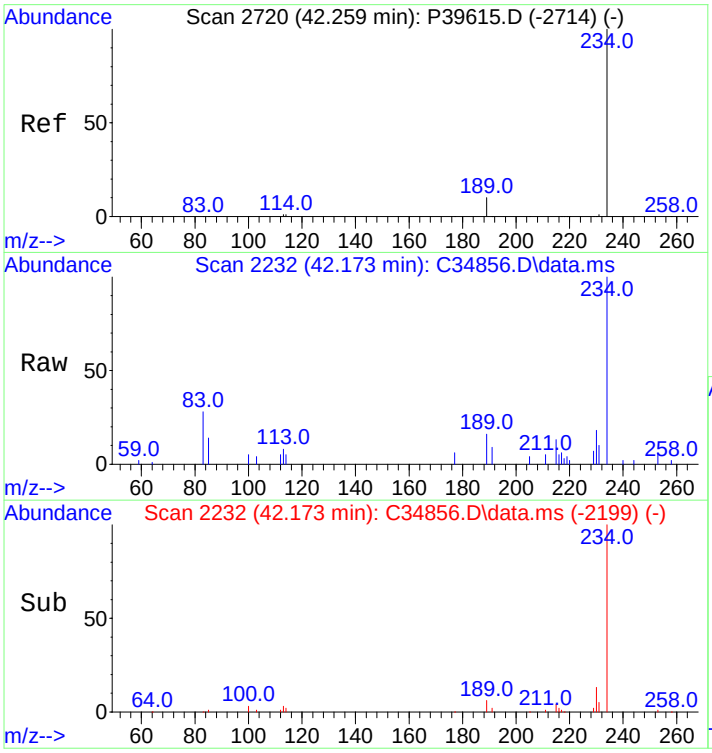


#66
Naphthobenzothiophene
Concen: 195.81 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:234 Resp: 24969

Ion	Ratio	Lower	Upper
234	100		
189	11.1	20.5	30.7#

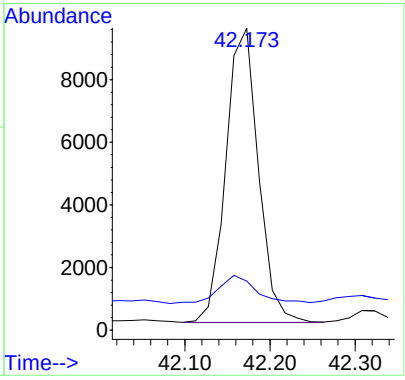


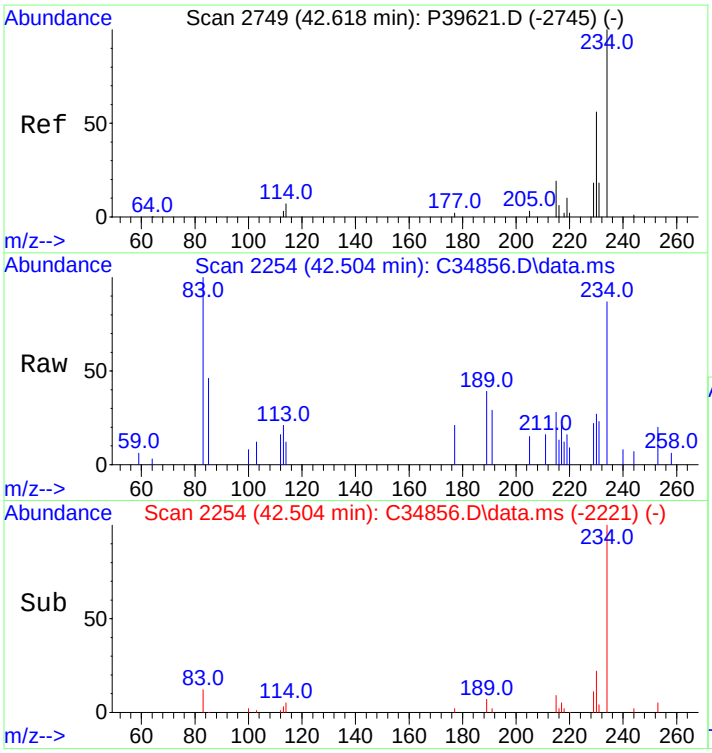


#67
Naphthobenzothiophene-2,1-D
Concen: 195.81 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:234 Resp: 24969

Ion	Ratio	Lower	Upper
234	100		
189	11.1	20.5	30.7#

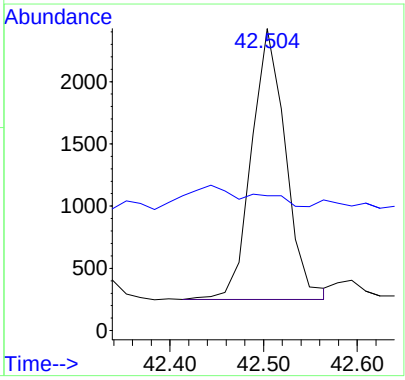


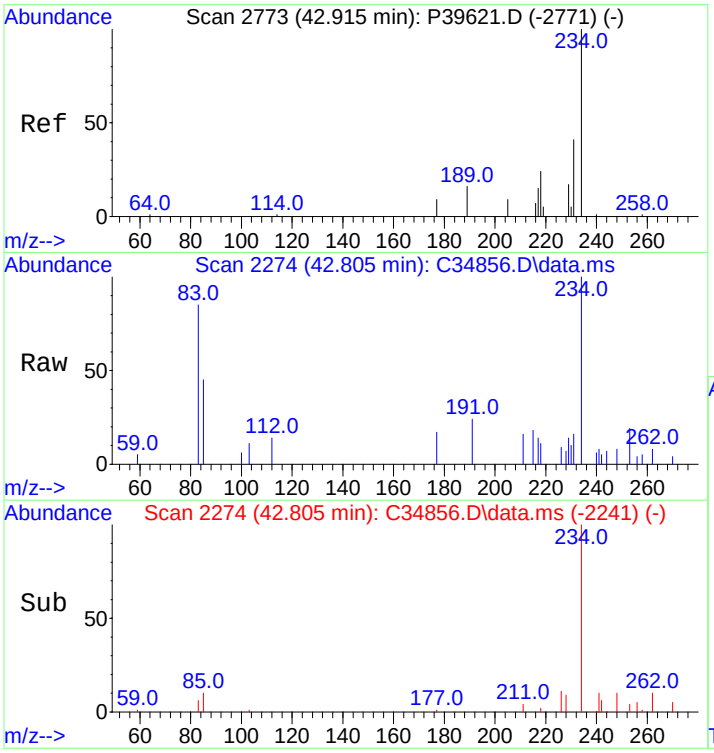


#68
Naphthobenzothiophene-1,2-D
Concen: 43.34 ng/mL
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:234 Resp: 5526

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

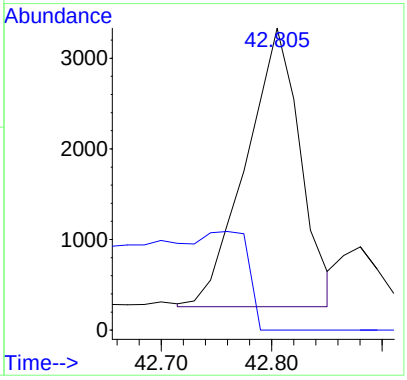


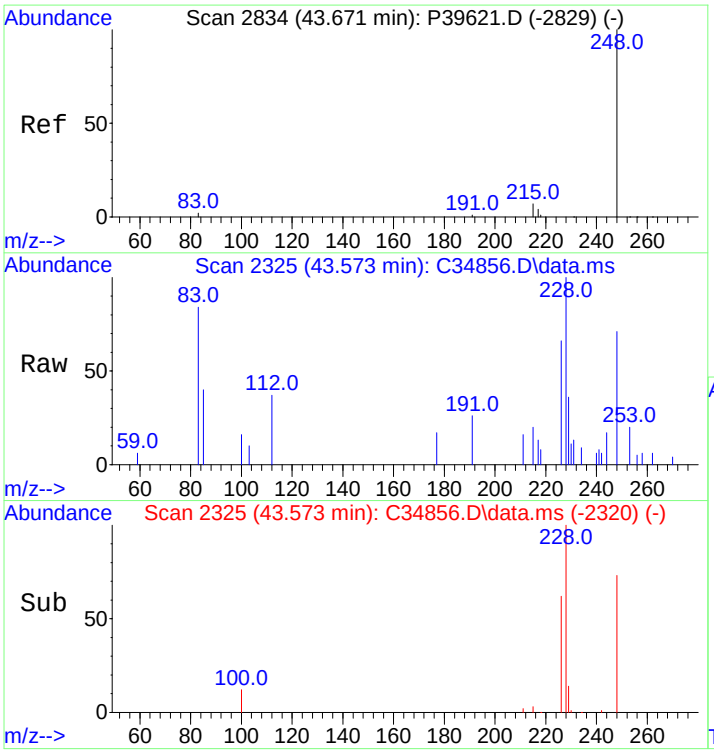


#69
Naphthobenzothiophene-2,3-D
Concen: 82.39 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:234 Resp: 10506

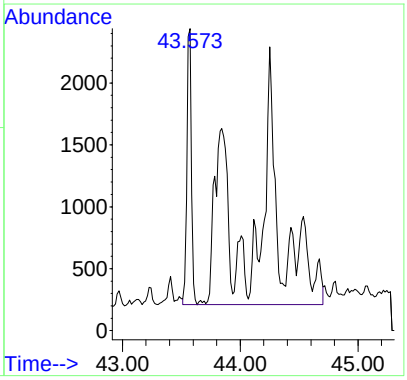
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

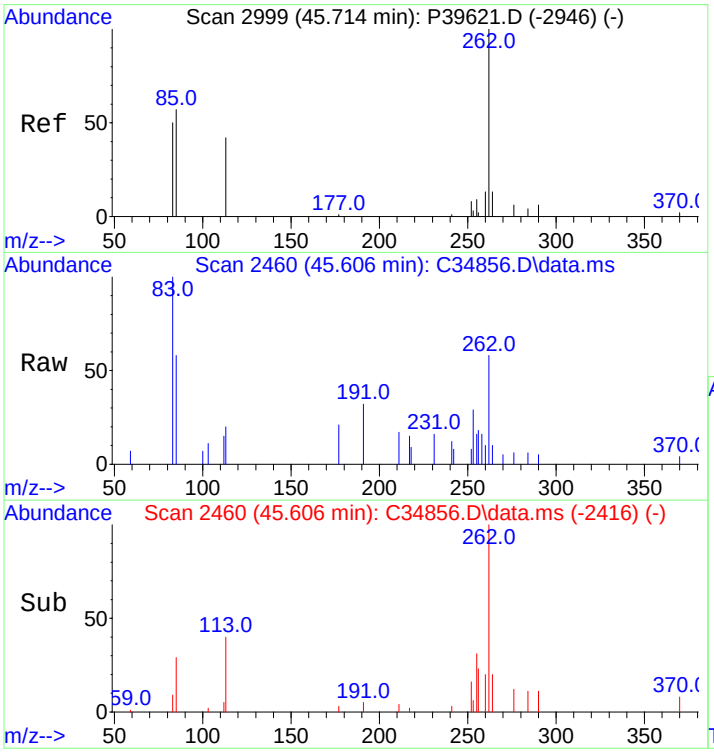




#70
C1-Naphthobenzothiophenes
Concen: 306.88 ng/ml m
RT: 43.573 min Scan# 2325
Delta R.T. -0.554 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

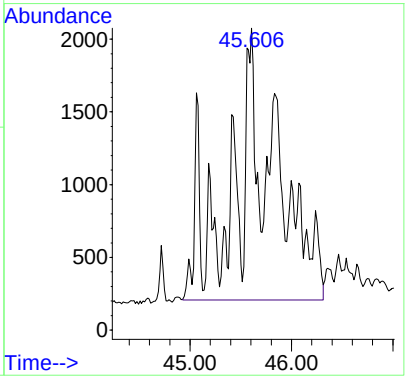
Tgt Ion:248 Resp: 39132

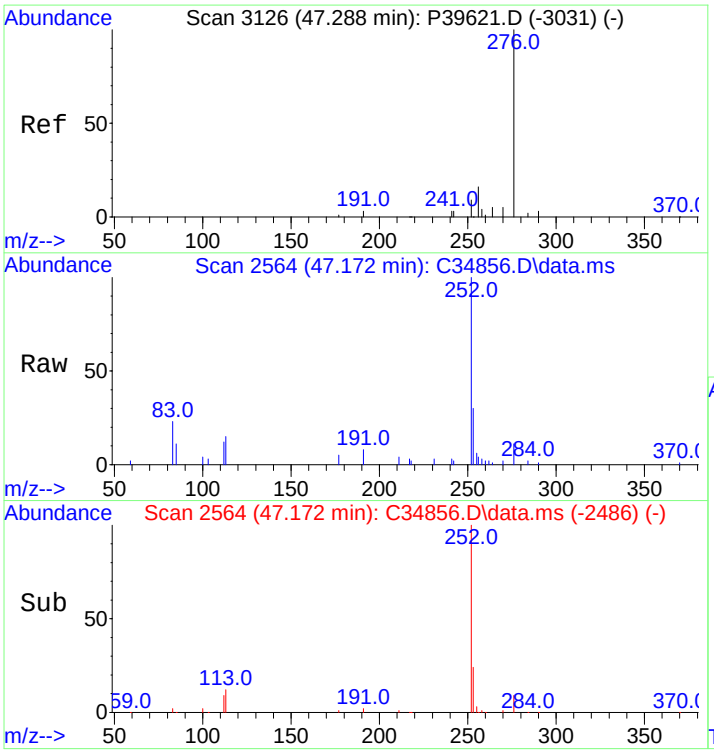




#71
C2-Naphthobenzothiophenes
Concen: 417.49 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

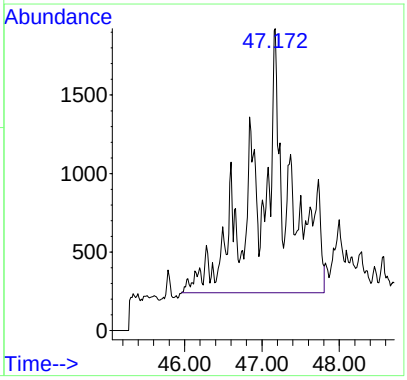
Tgt Ion:262 Resp: 53237

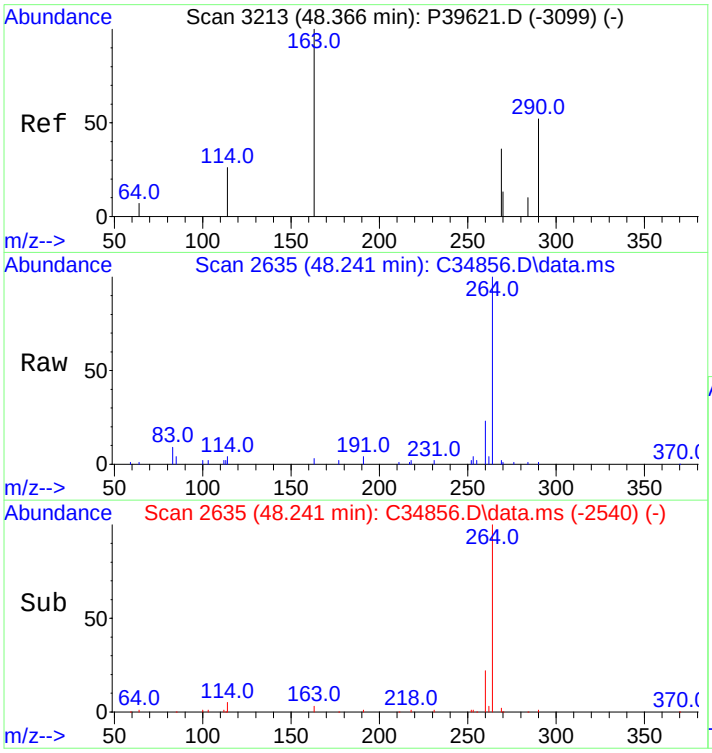




#72
C3-Naphthobenzothiophenes
Concen: 378.97 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

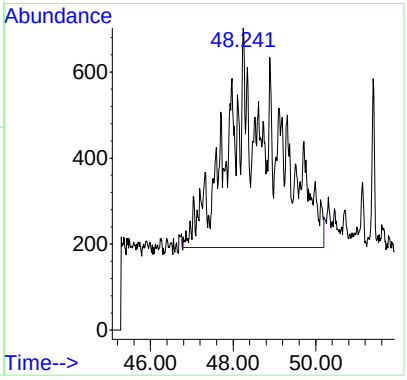
Tgt Ion:276 Resp: 48325

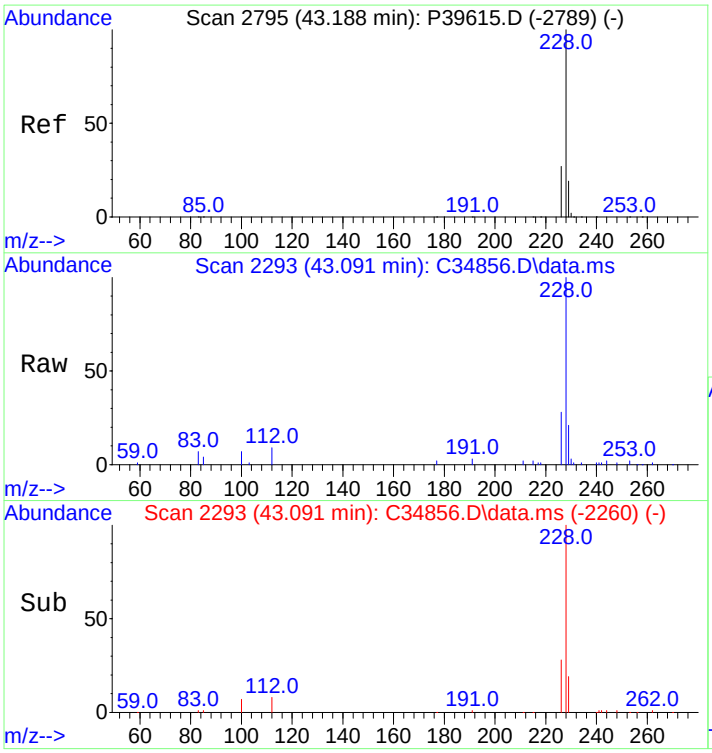




#73
C4-Naphthobenzothiophenes
Concen: 296.49 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:290 Resp: 37808

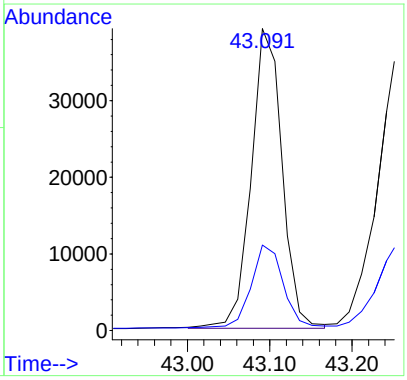


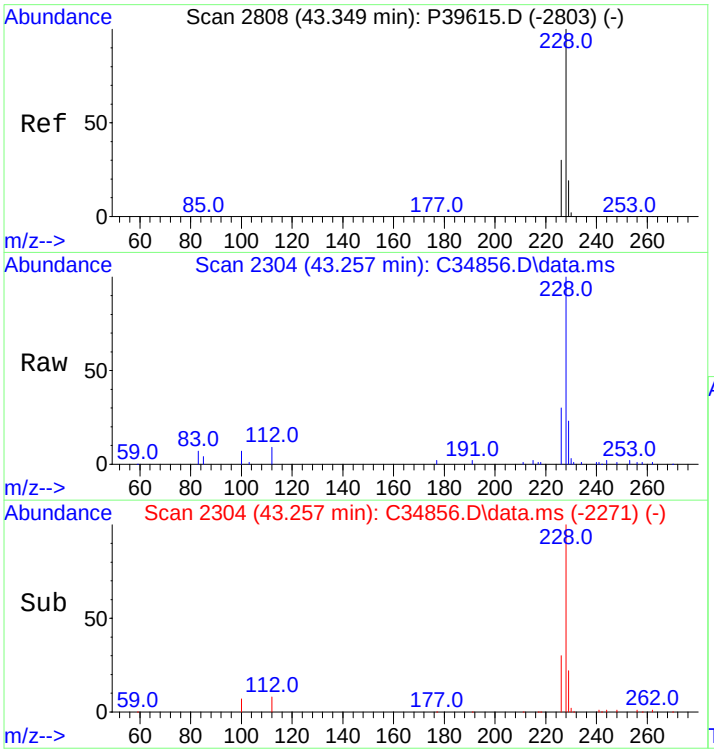


#75
Benz[a]anthracene
Concen: 810.91 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:228 Resp: 101954

Ion	Ratio	Lower	Upper
228	100		
226	29.0	21.4	32.0

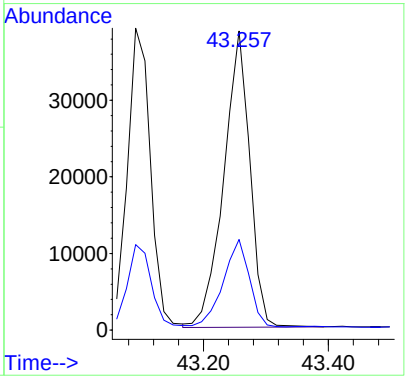


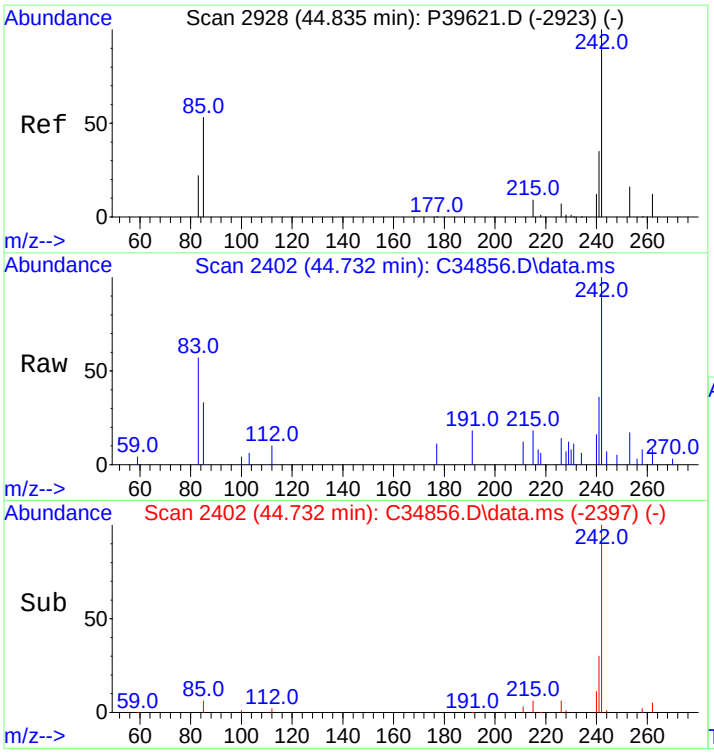


#77
Chrysene/Triphenylene
Concen: 885.89 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:228 Resp: 112449

Ion	Ratio	Lower	Upper
228	100		
226	29.7	23.7	35.5

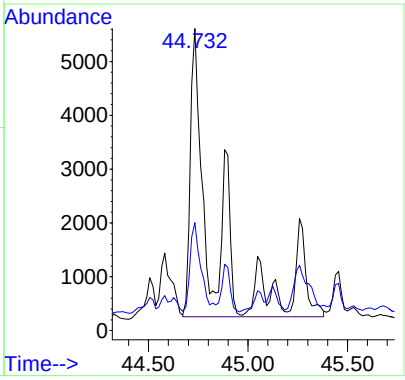


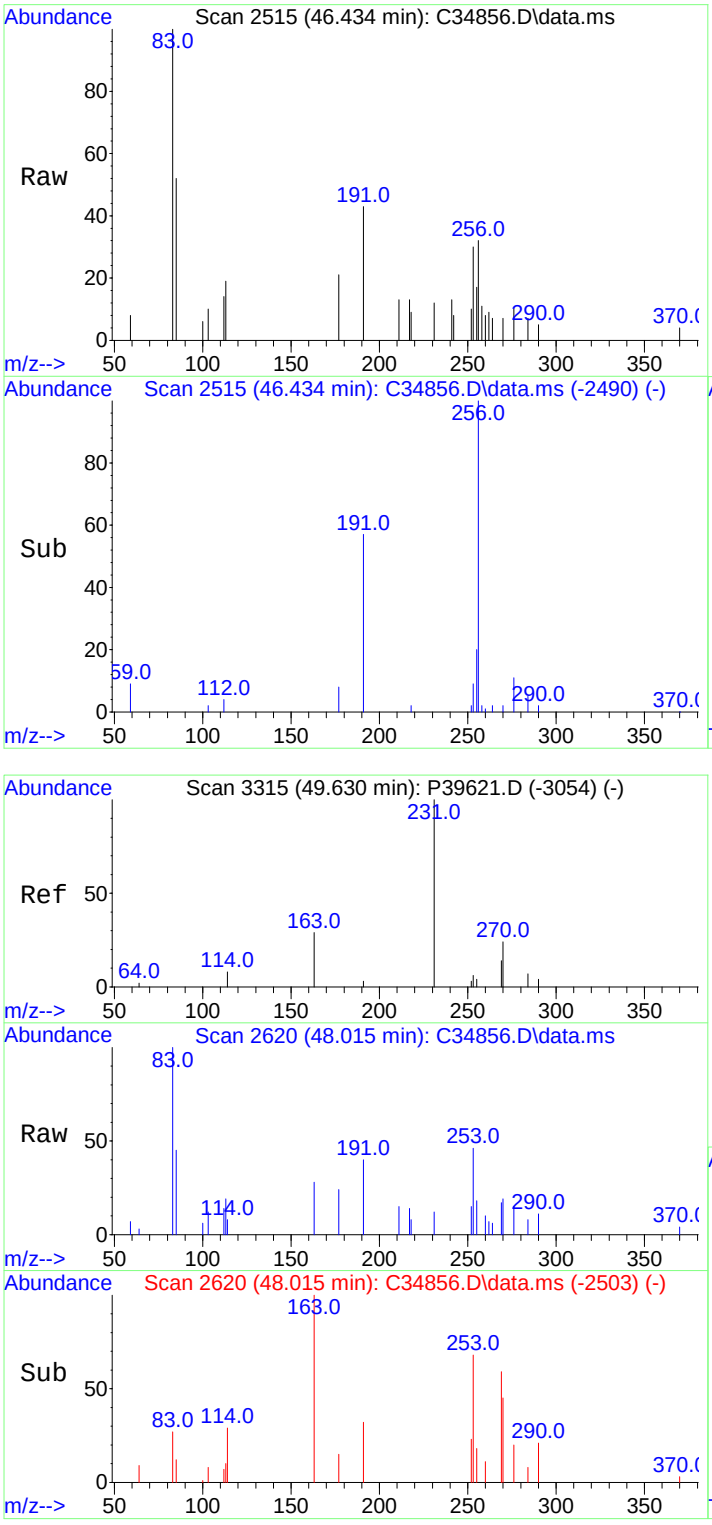


#78
C1-Chrysenes
Concen: 323.93 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:242 Resp: 41117

Ion	Ratio	Lower	Upper
242	100		
241	3.1	31.4	47.2#

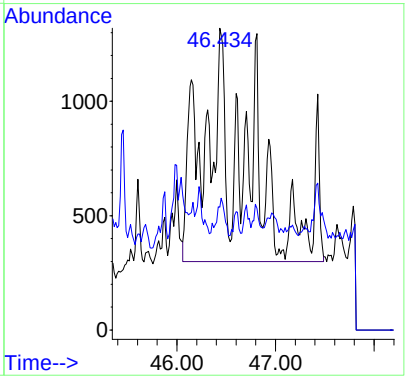




#79
C2-Chrysenes
Concen: 240.46 ng/mL m
RT: 46.434 min Scan# 2515
Delta R.T. -0.355 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:256 Resp: 30522

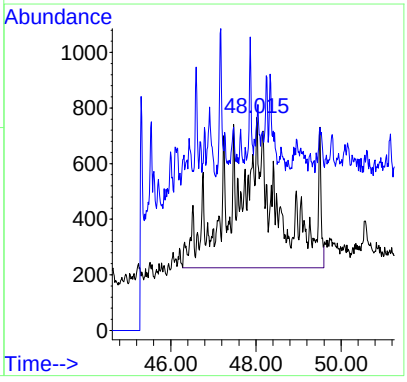
Ion	Ratio	Lower	Upper
256	100		
241	1.3	21.2	31.8#

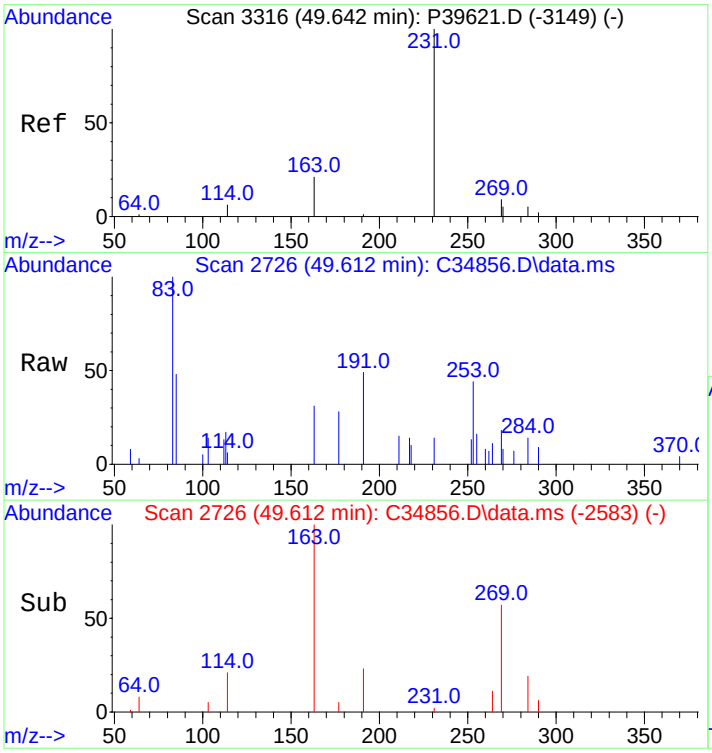


#80
C3-Chrysenes
Concen: 302.19 ng/mL m
RT: 48.015 min Scan# 2620
Delta R.T. -1.480 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:270 Resp: 38358

Ion	Ratio	Lower	Upper
270	100		
255	1.5	33.8	50.8#

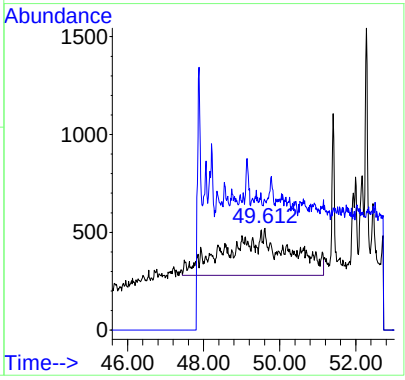


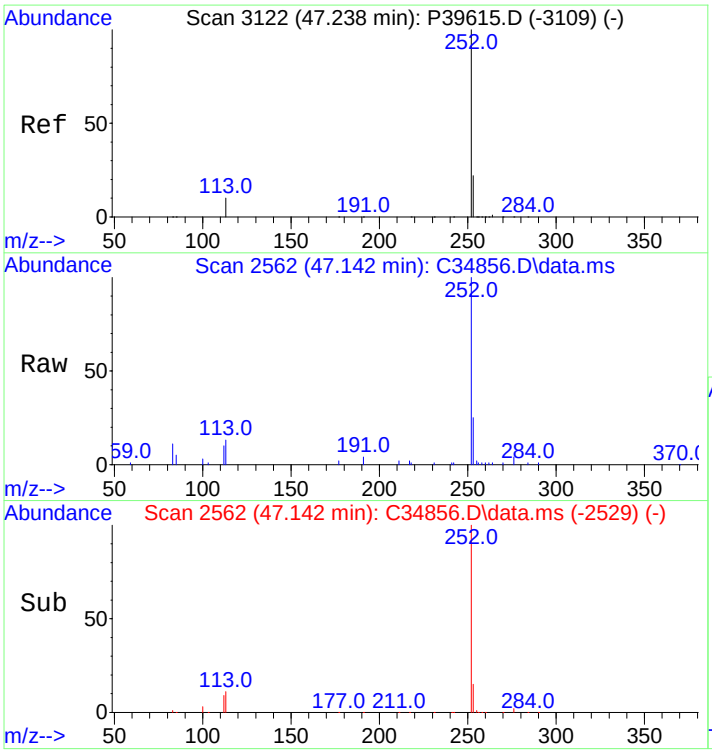


#81
C4-Chrysenes
Concen: 201.25 ng/mL m
RT: 49.612 min Scan# 2726
Delta R.T. 0.011 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:284 Resp: 25545

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

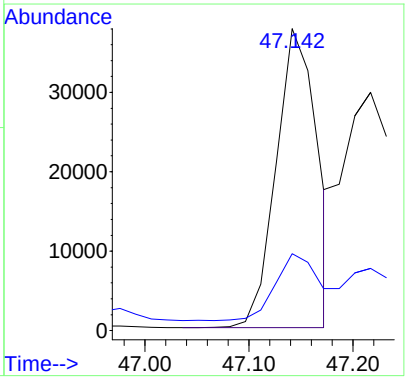


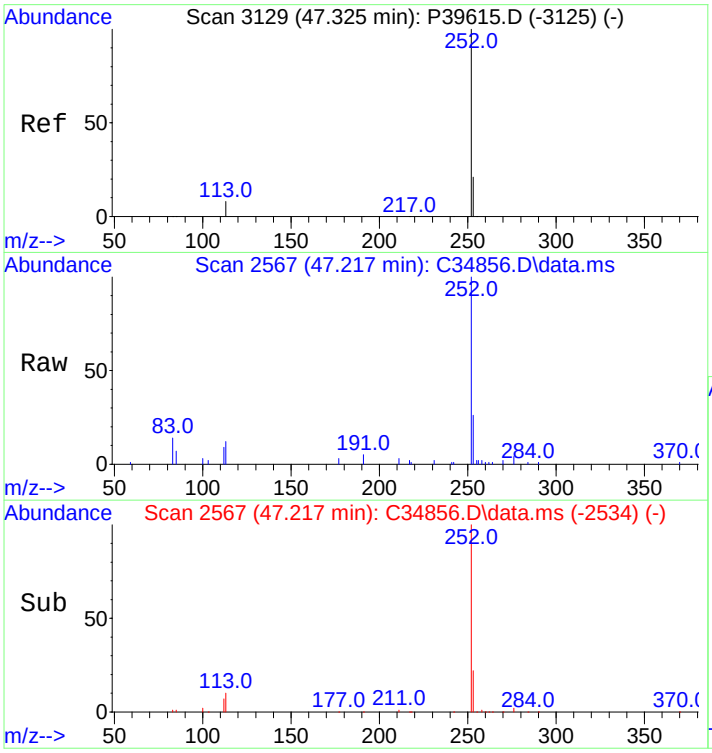


#82
Benzo[b]fluoranthene
Concen: 750.90 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 103736

Ion	Ratio	Lower	Upper
252	100		
253	26.3	19.0	28.4

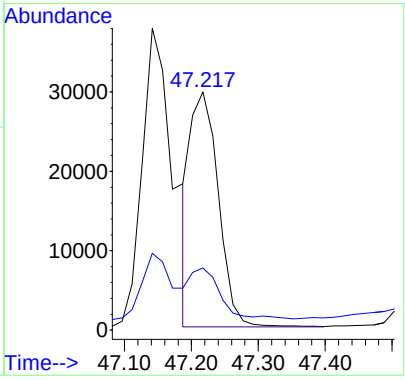


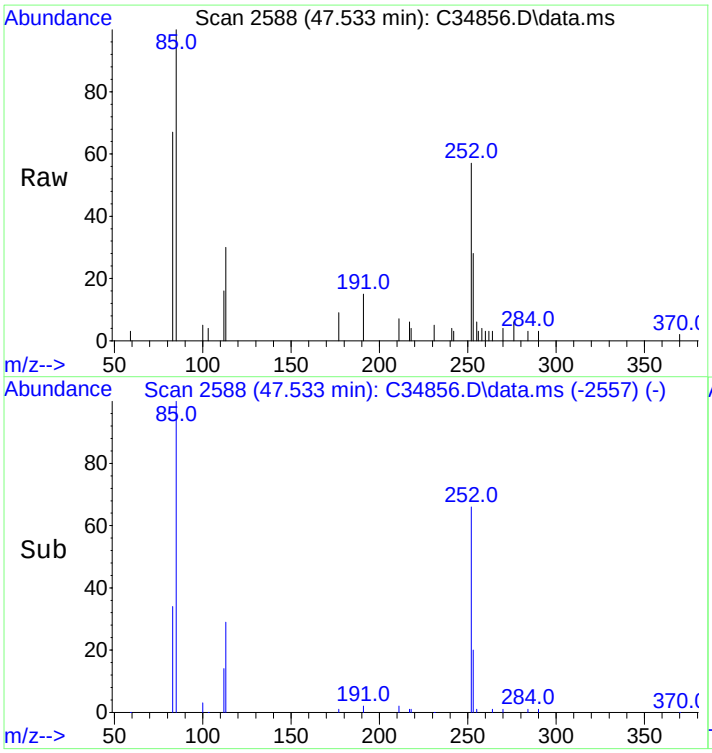


#83
Benzo[j]+[k]fluoranthene
Concen: 576.27 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 86677

Ion	Ratio	Lower	Upper
252	100		
253	23.9	19.0	28.4

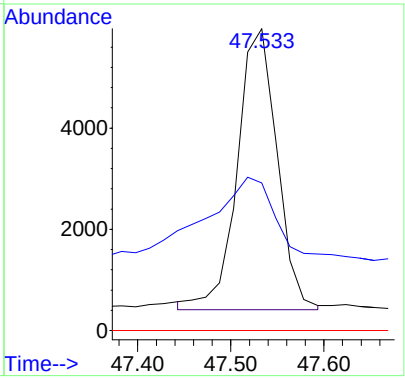


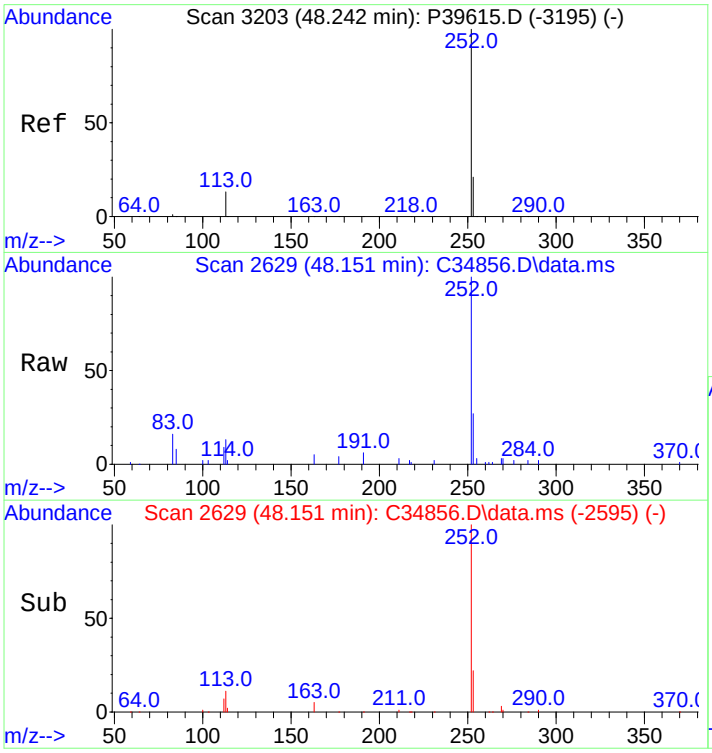


#84
Benzo[a]fluoranthene
Concen: 109.32 ng/mL m
RT: 47.533 min Scan# 2588
Delta R.T. -0.036 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 16443

Ion	Ratio	Lower	Upper
252	100		
253	55.7	146.1	219.1#
125	0.0	0.0	0.0

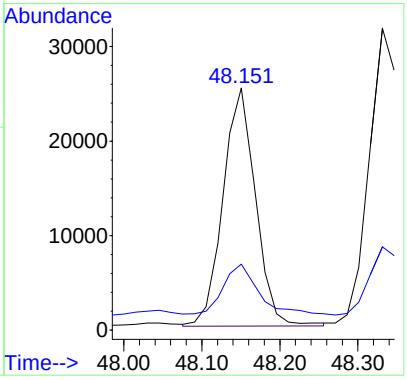


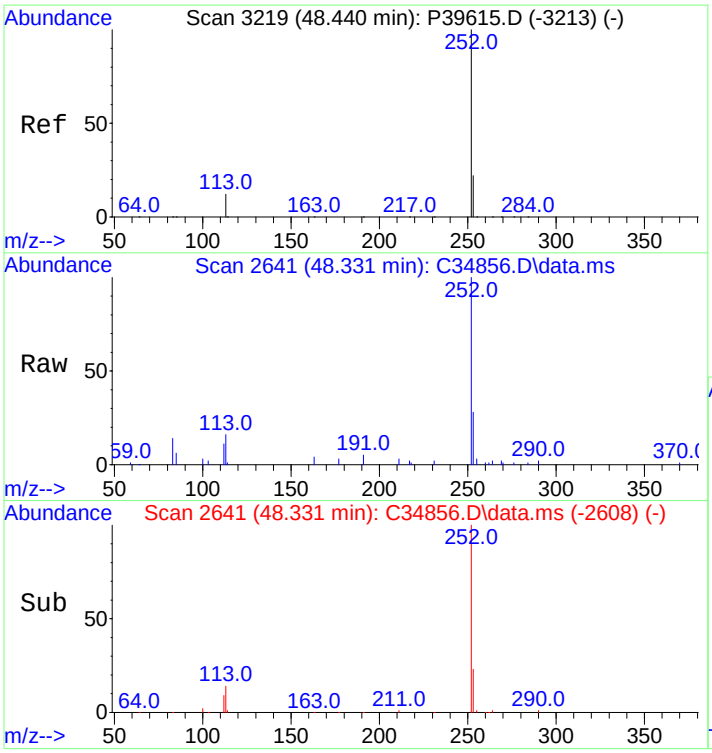


#85
Benzo[e]pyrene
Concen: 535.89 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 73228

Ion	Ratio	Lower	Upper
252	100		
253	25.6	19.2	28.8

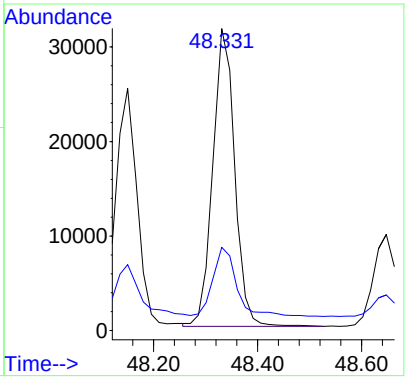


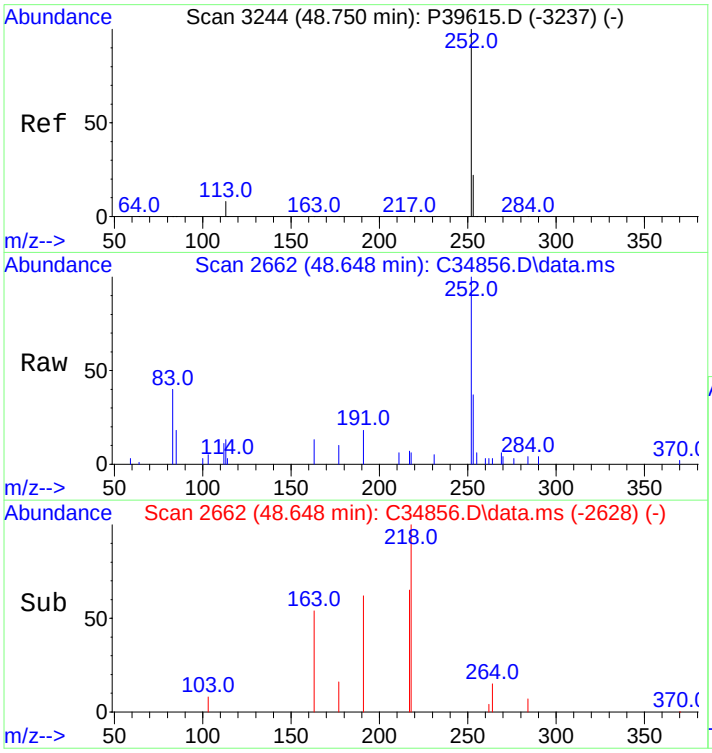


#87
Benzo[a]pyrene
Concen: 700.19 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 92119

Ion	Ratio	Lower	Upper
252	100		
253	25.3	19.5	29.3

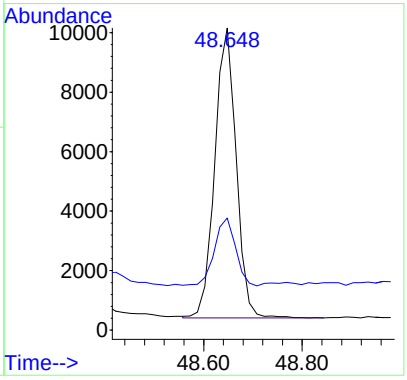


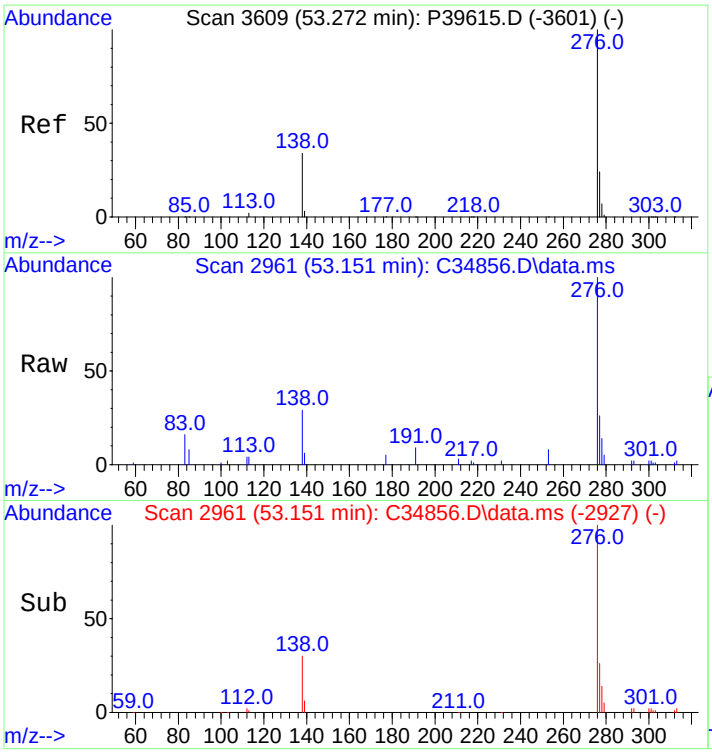


#88
Perylene
Concen: 209.59 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:252 Resp: 29469

Ion	Ratio	Lower	Upper
252	100		
253	23.4	19.6	29.4

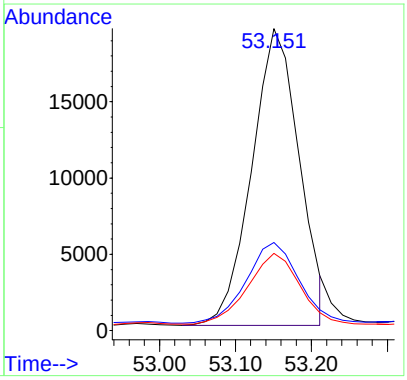


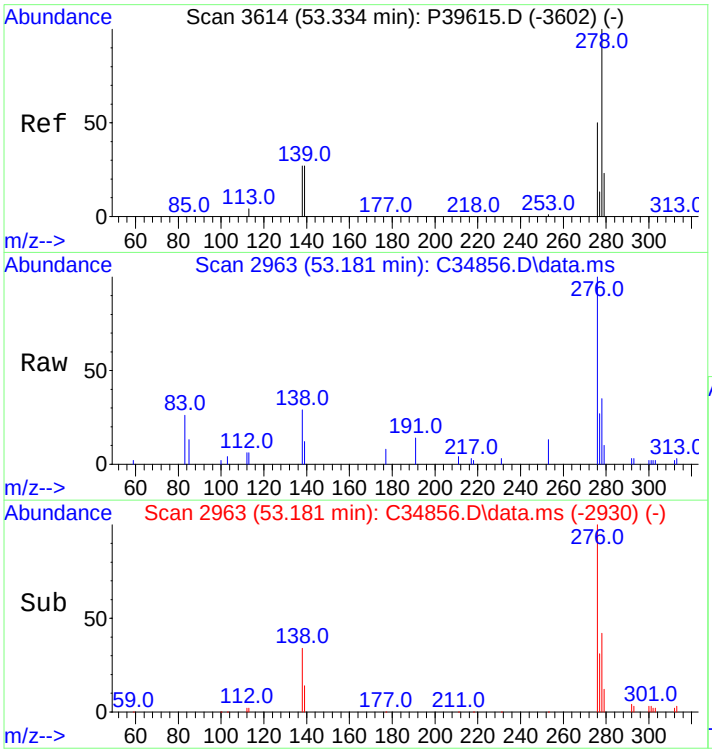


#89
Indeno[1,2,3-cd]pyrene
Concen: 552.31 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:276 Resp: 84561

Ion	Ratio	Lower	Upper
276	100		
138	30.3	23.3	34.9
277	26.6	19.0	28.4

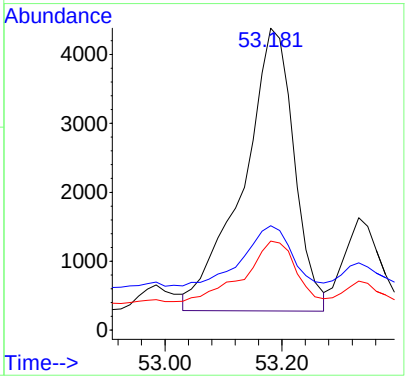


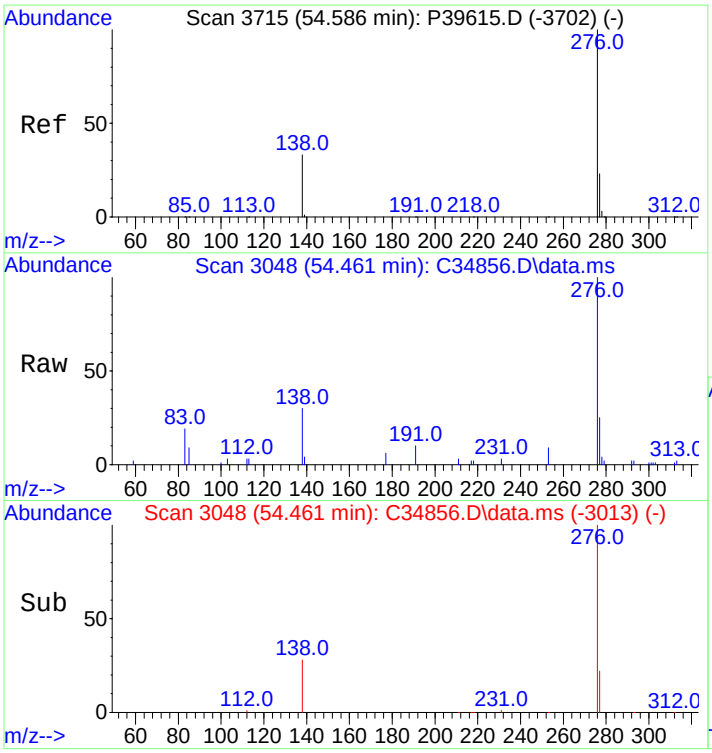


#90
Dibenz[ah]+[ac]anthracene
Concen: 171.54 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:278 Resp: 24984

Ion	Ratio	Lower	Upper
278	100		
139	16.1	19.1	28.7#
279	20.7	19.2	28.8

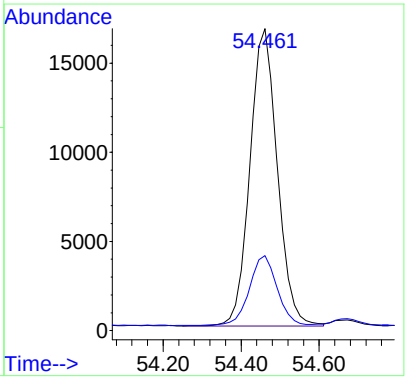


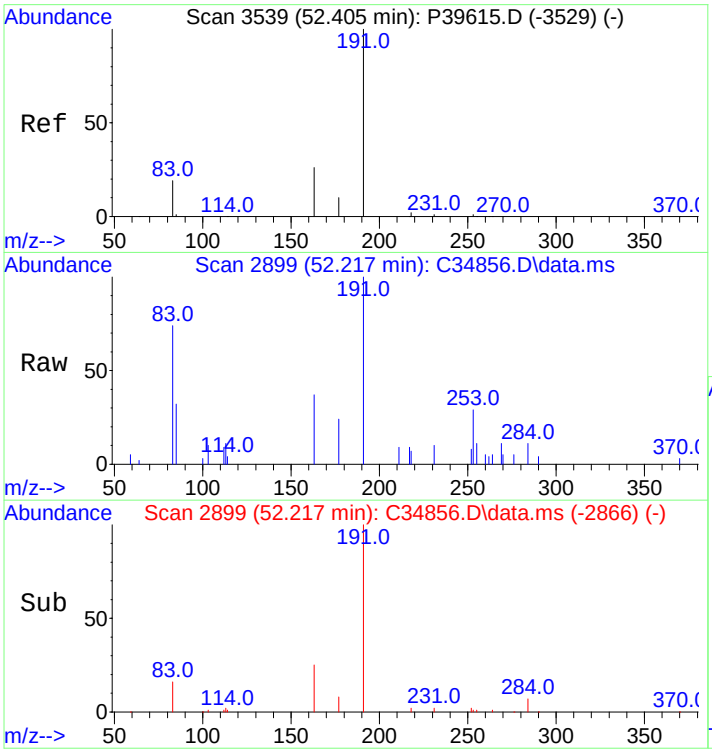


#91
Benzo[g,h,i]perylene
Concen: 502.79 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:276 Resp: 81329

Ion	Ratio	Lower	Upper
276	100		
277	23.8	18.9	28.3

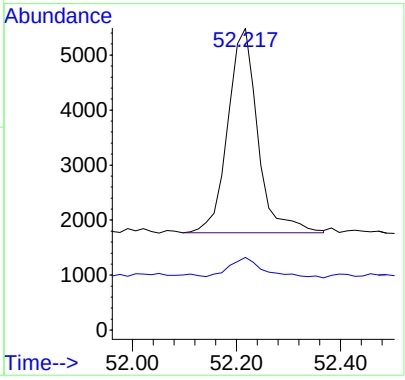


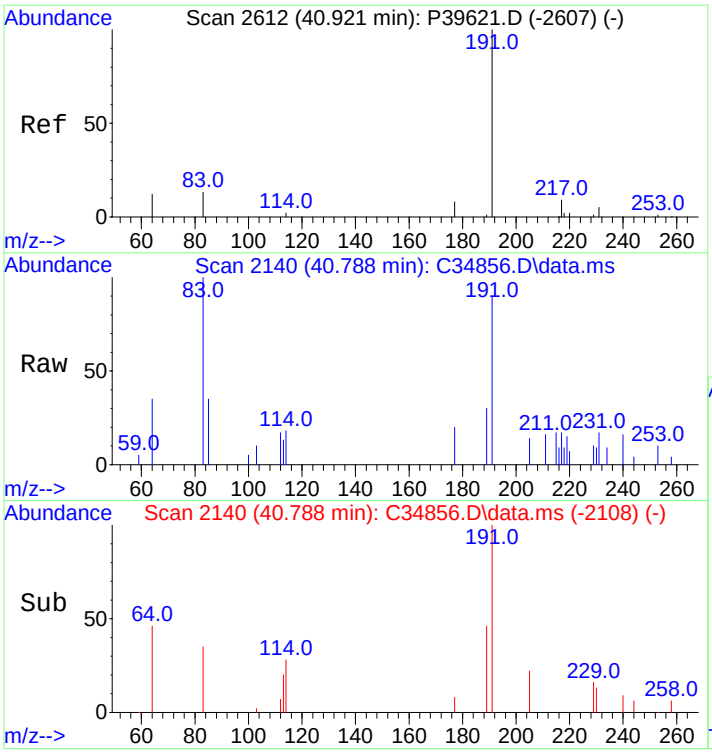


#92
Hopane (T19)
Concen: 569.16 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:191 Resp: 14859

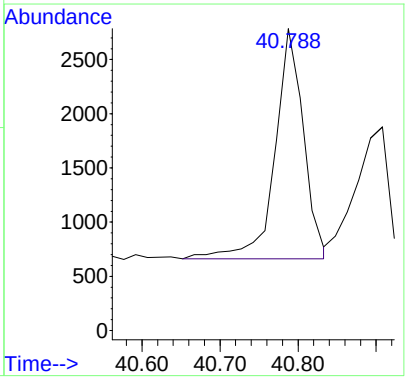
Ion	Ratio	Lower	Upper
191	100		
177	11.5	14.6	21.8#

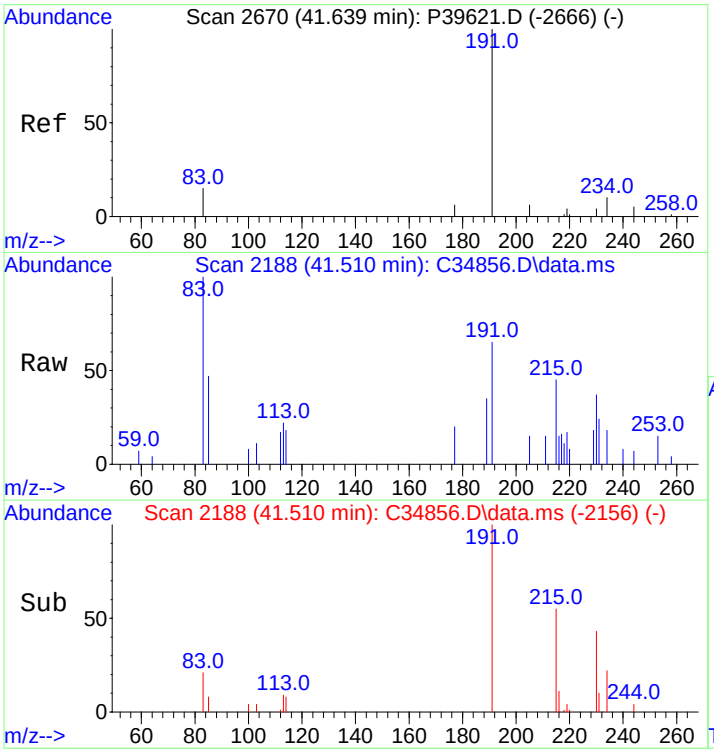




#94
C23 Tricyclic Terpane (T4)
Concen: 206.88 ng/ml
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

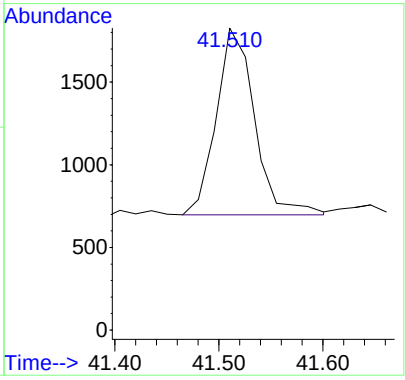
Tgt Ion:191 Resp: 5401

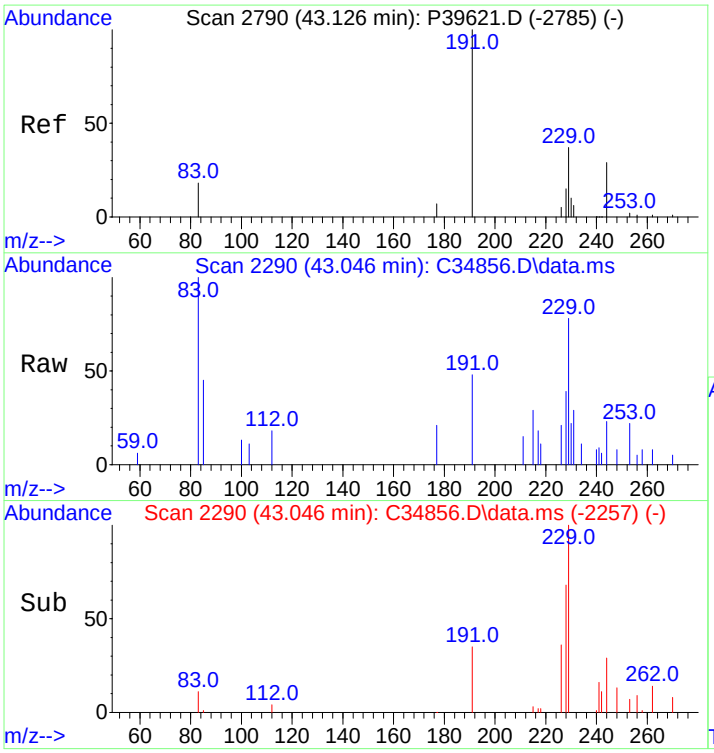




#95
C24 Tricyclic Terpane (T5)
Concen: 110.58 ng/ml
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

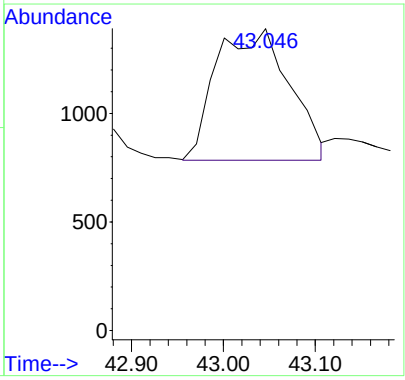
Tgt Ion:191 Resp: 2887

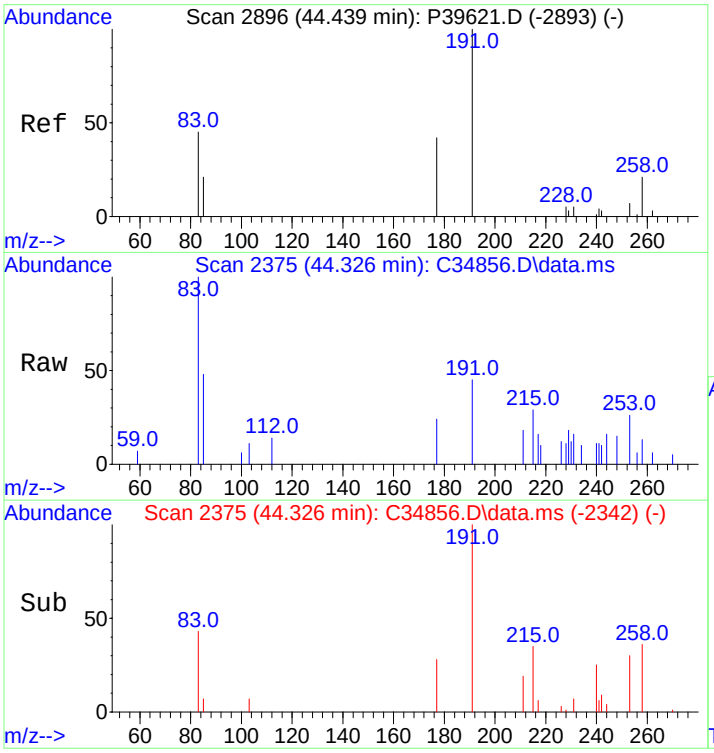




#96
C25 Tricyclic Terpane (T6)
Concen: 127.86 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

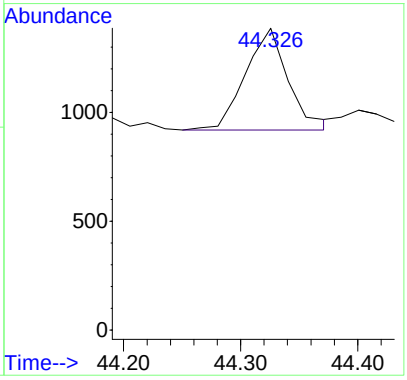
Tgt Ion:191 Resp: 3338

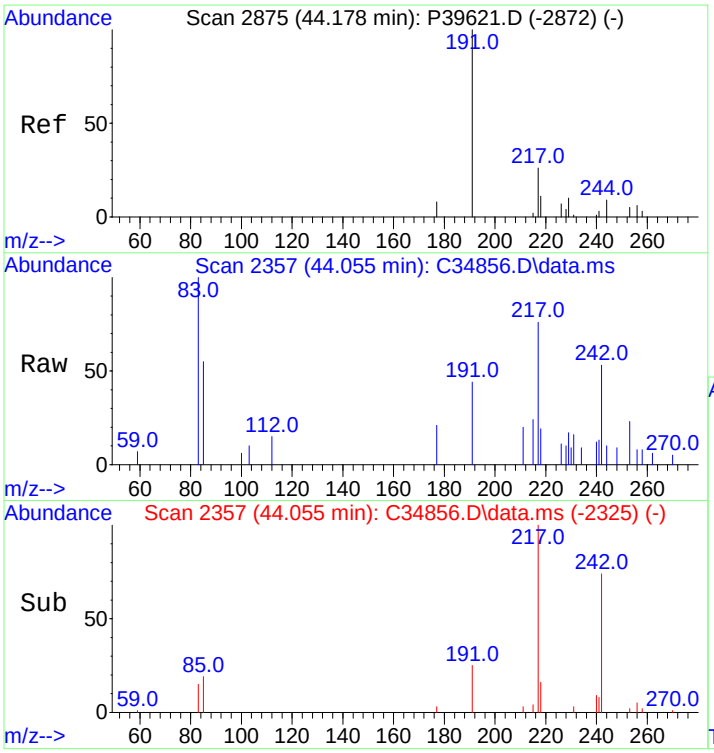




#97
C24 Tetracyclic Terpane (T6a)
Concen: 45.70 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

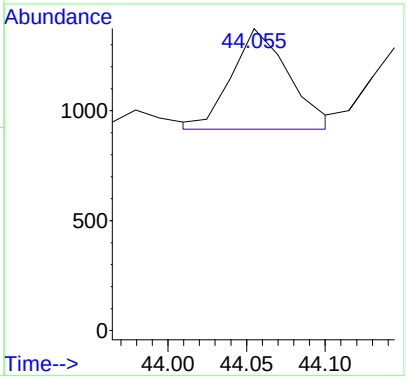
Tgt Ion:191 Resp: 1193

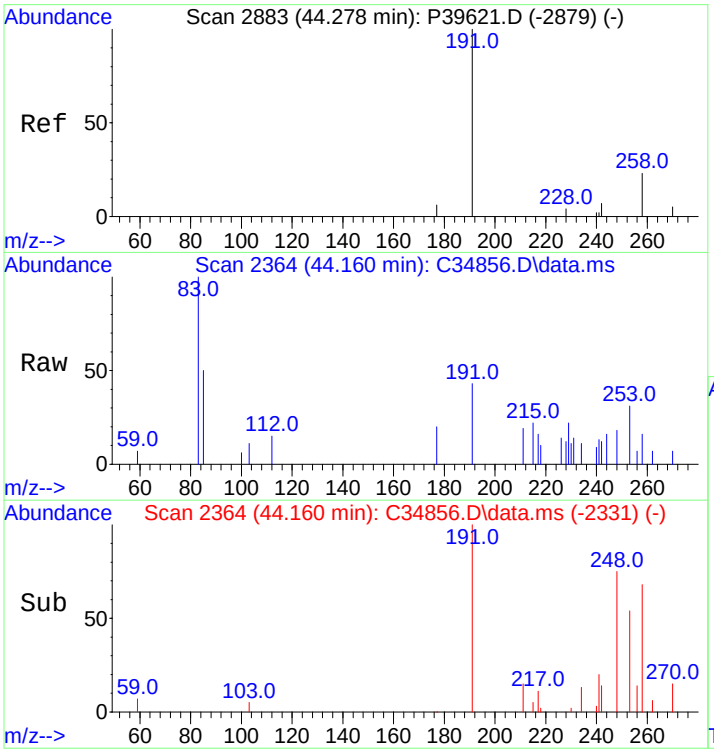




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 44.55 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

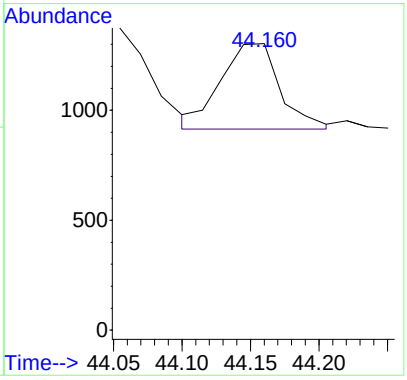
Tgt Ion:191 Resp: 1163

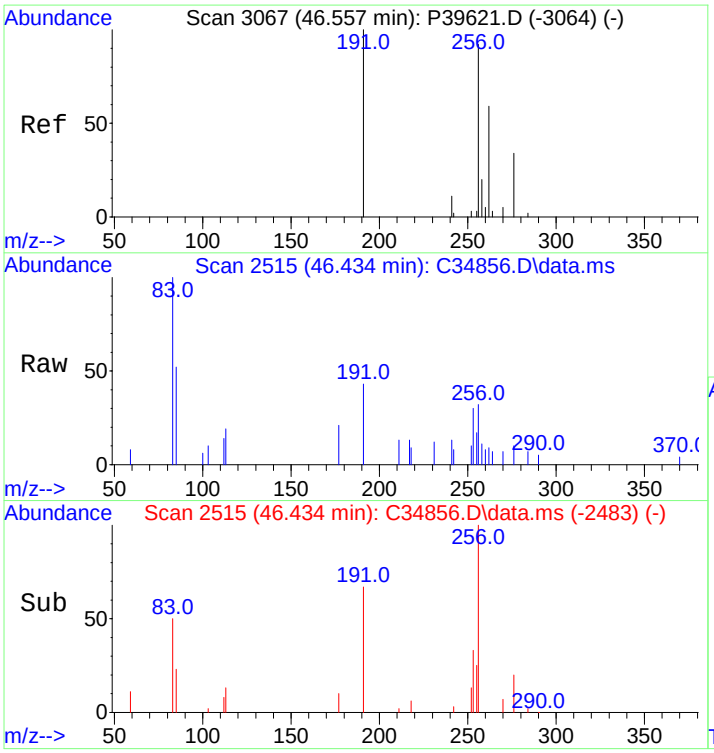




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 44.78 ng/ml m
RT: 44.160 min Scan# 2364
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

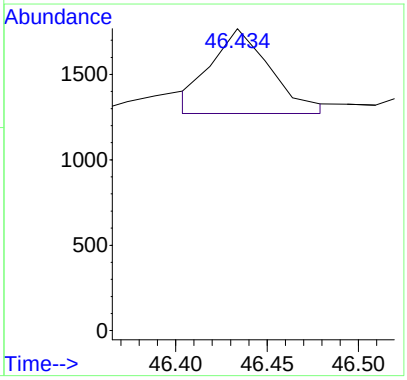
Tgt Ion:191 Resp: 1169

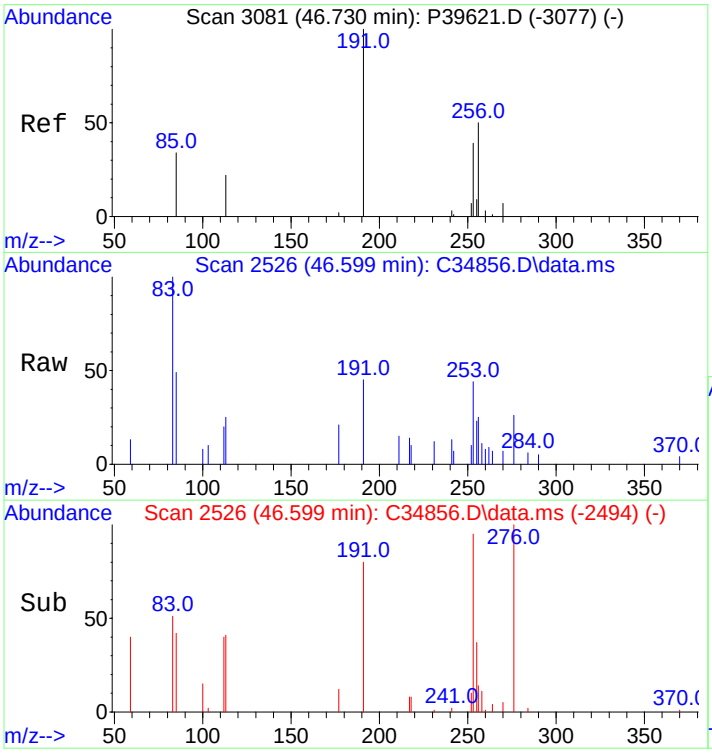




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 42.52 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

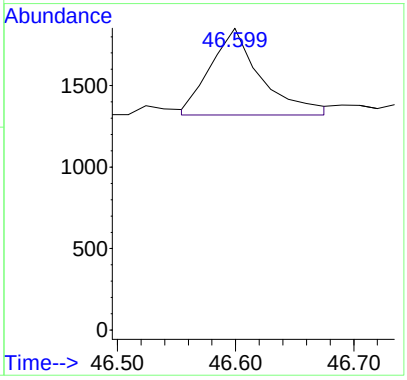
Tgt Ion:191 Resp: 1110

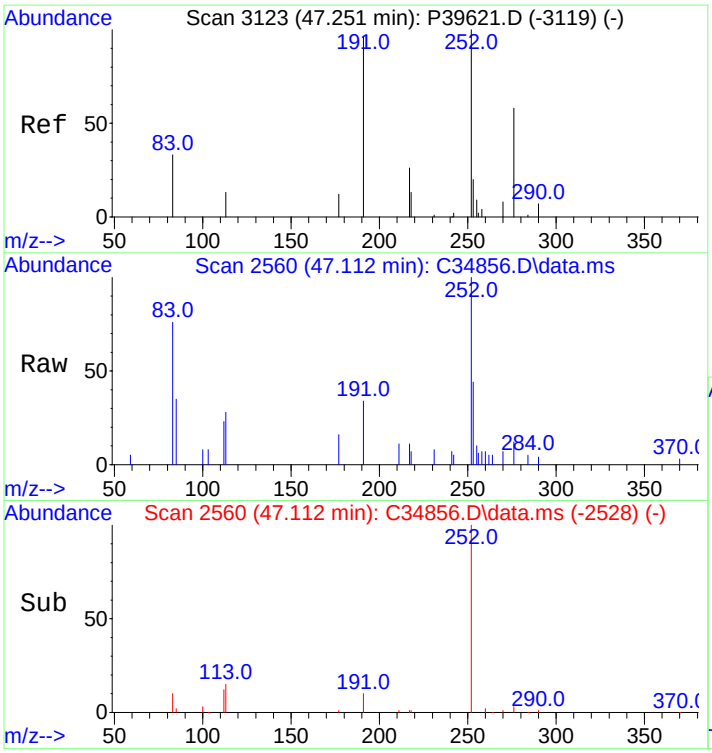




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 60.71 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

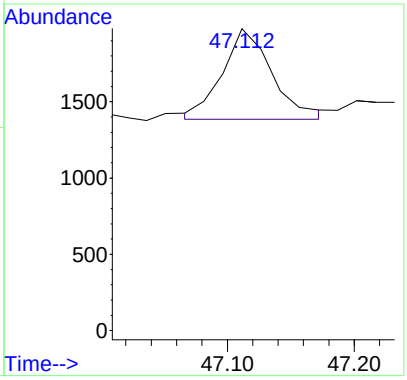
Tgt Ion:191 Resp: 1585

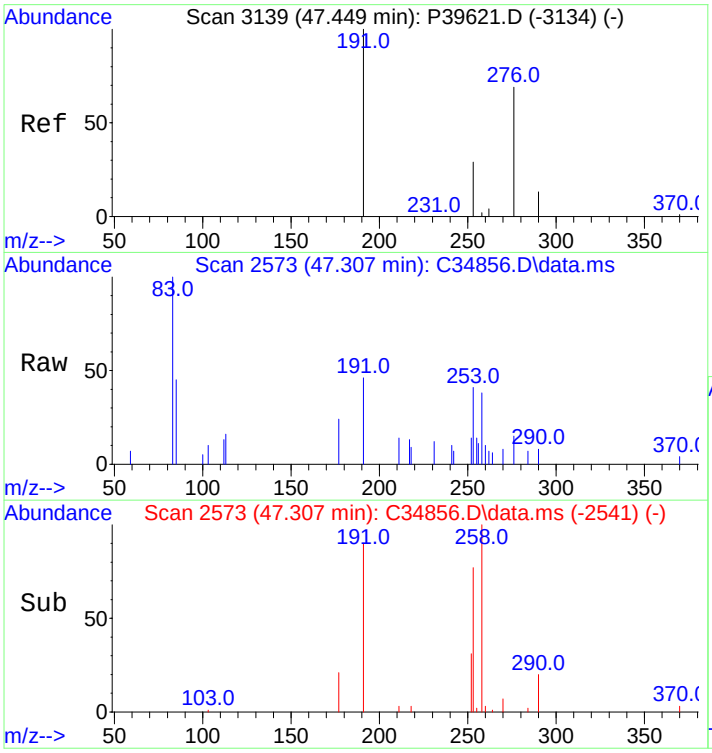




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 62.21 ng/ml m
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

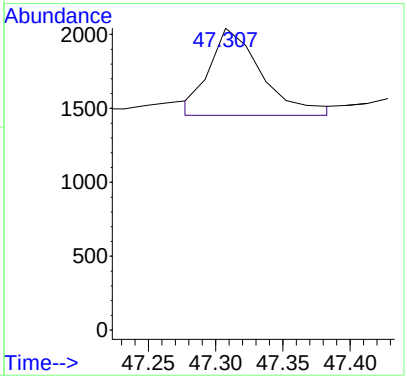
Tgt Ion:191 Resp: 1624

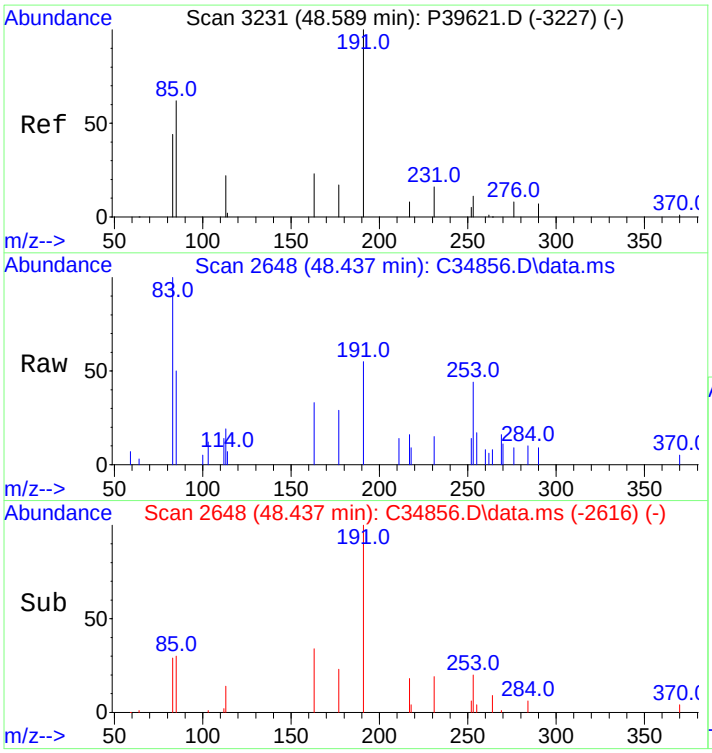




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 60.94 ng/ml m
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

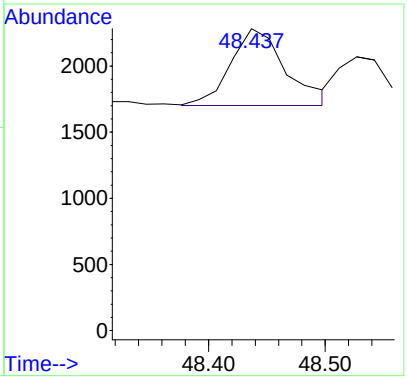
Tgt Ion:191 Resp: 1591

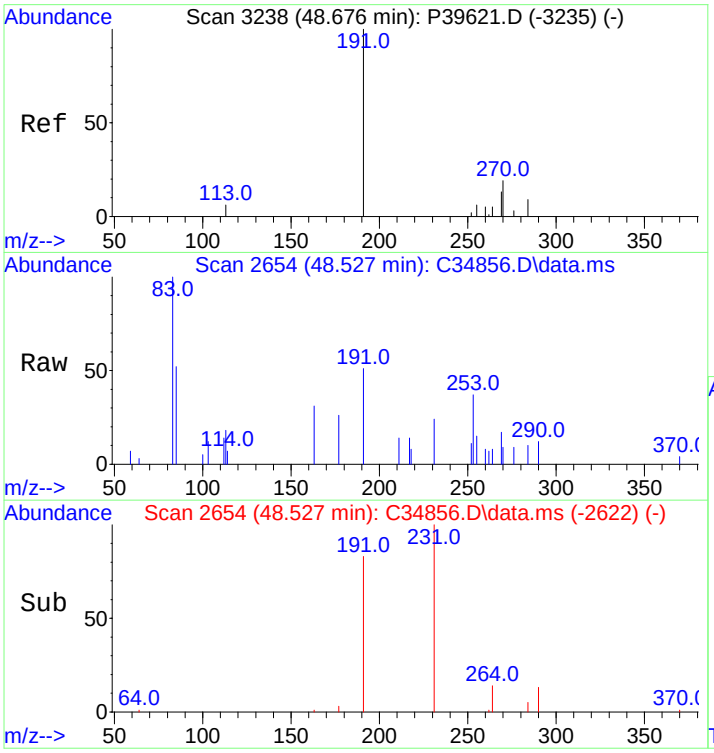




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 73.05 ng/ml m
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

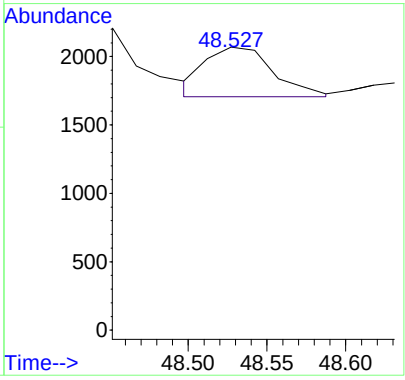
Tgt Ion:191 Resp: 1907

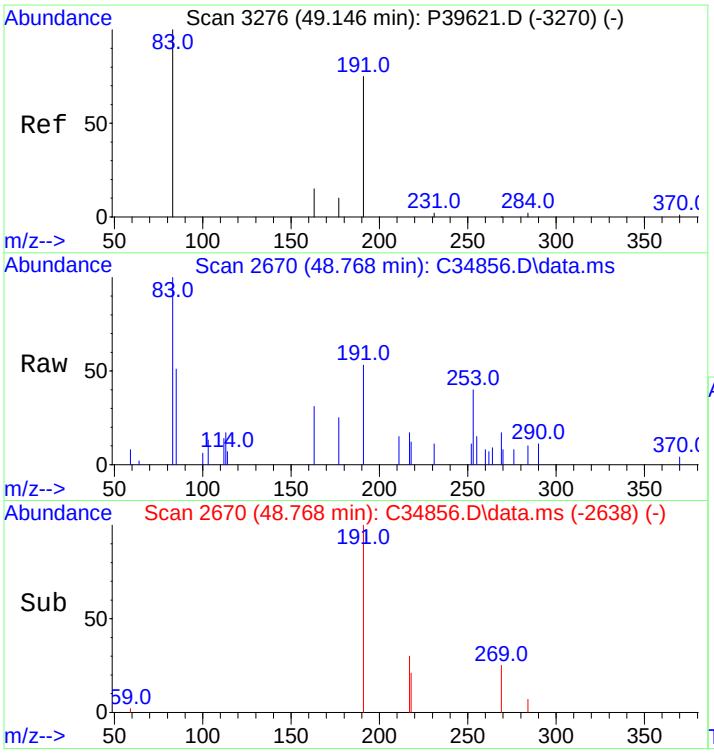




#105
C30 Tricyclic Terpane-22S
Concen: 41.64 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

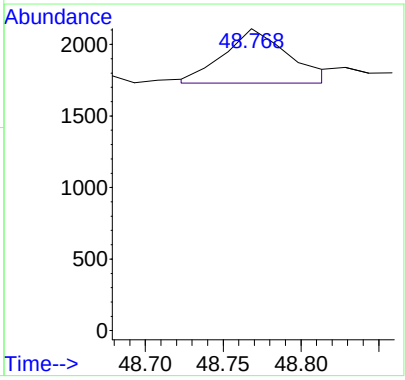
Tgt Ion:191 Resp: 1087

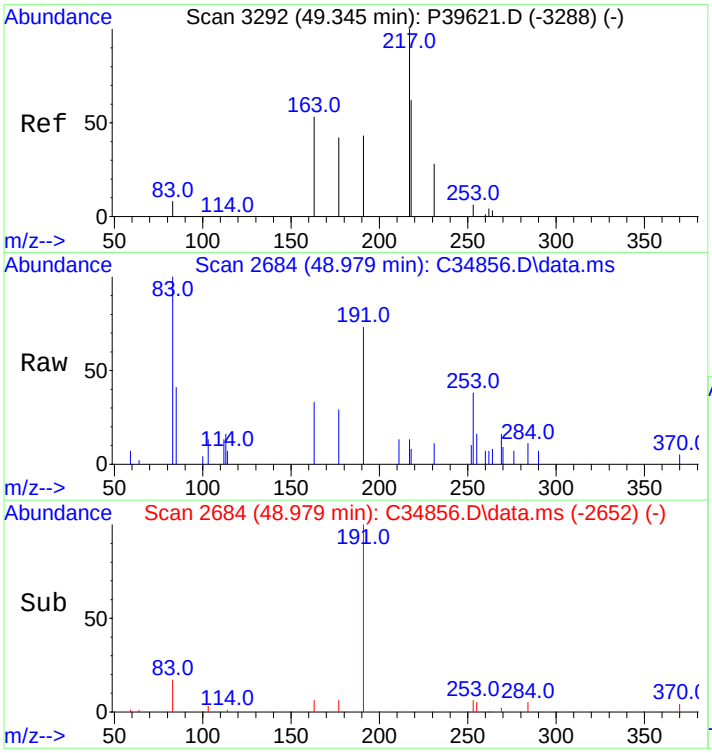




#106
C30 Tricyclic Terpane-22R
Concen: 42.10 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

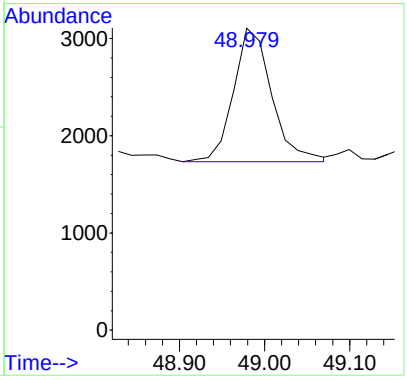
Tgt Ion:191 Resp: 1099

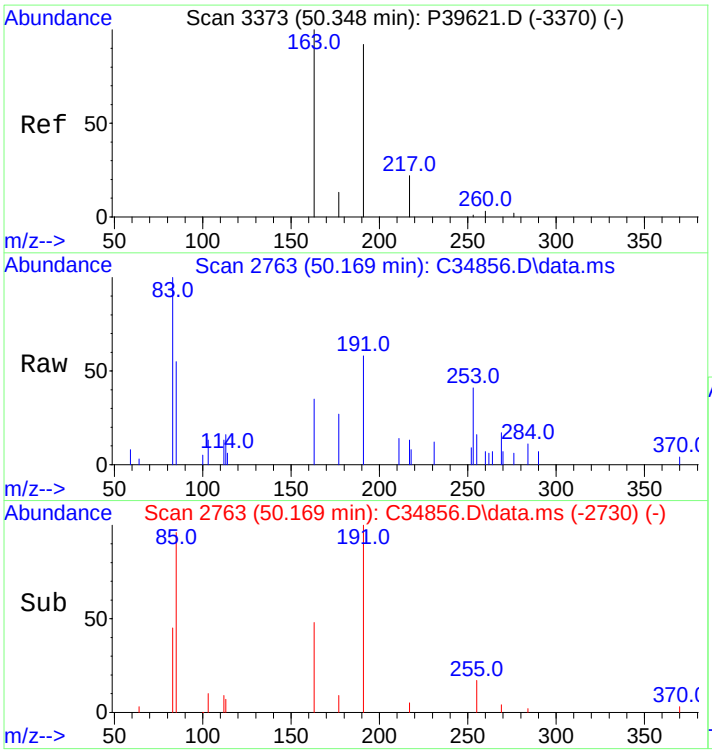




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 164.67 ng/ml
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

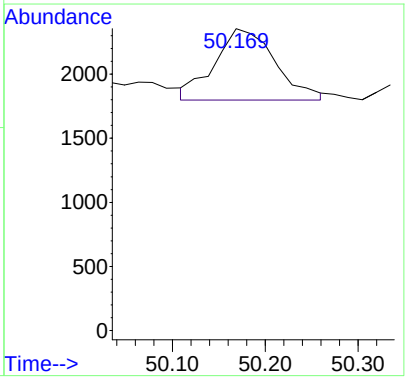
Tgt Ion:191 Resp: 4299

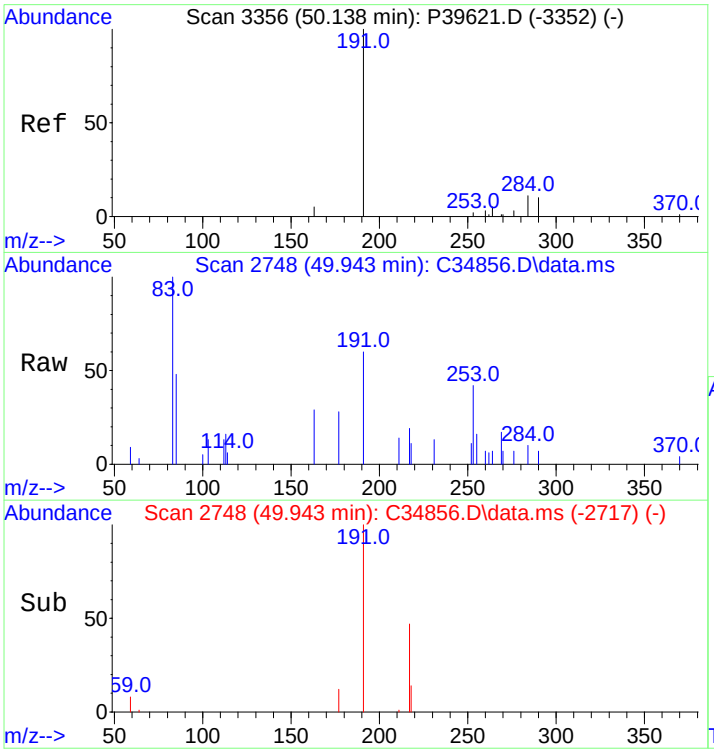




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 96.07 ng/ml m
RT: 50.169 min Scan# 2763
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

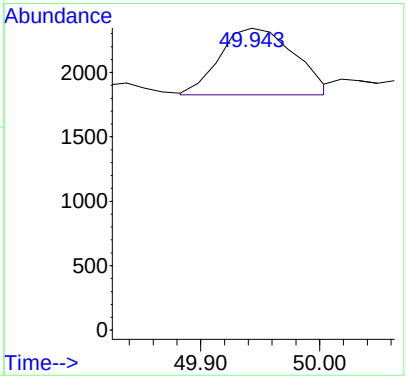
Tgt Ion:191 Resp: 2508

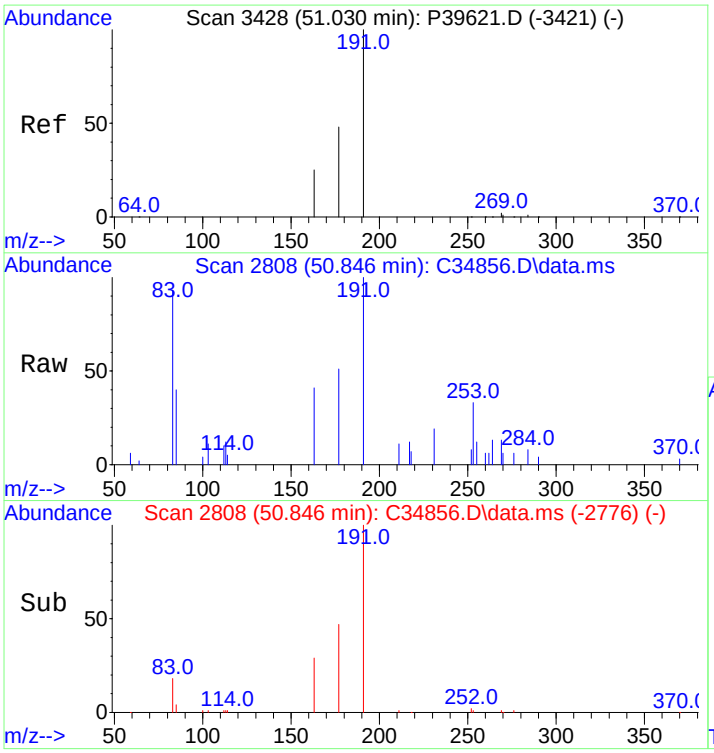




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 86.60 ng/ml m
RT: 49.943 min Scan# 2748
Delta R.T. -0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

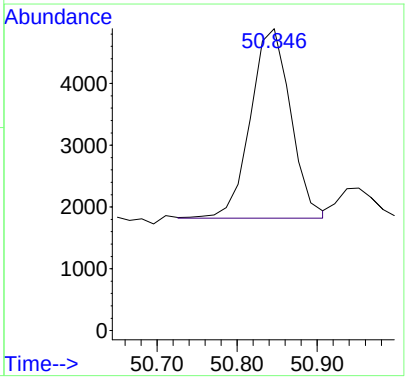
Tgt Ion:191 Resp: 2261

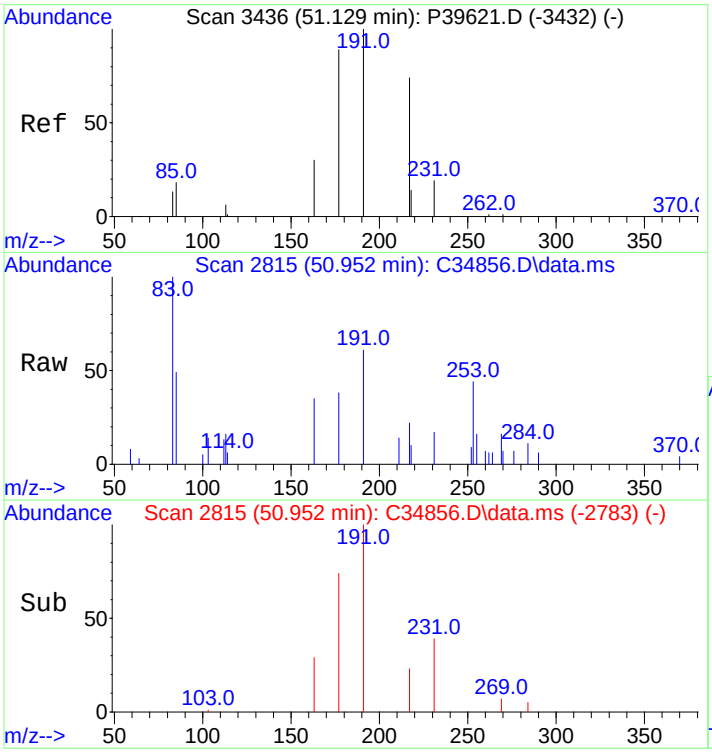




#110
30-Norhopane (T15)
Concen: 408.74 ng/ml m
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

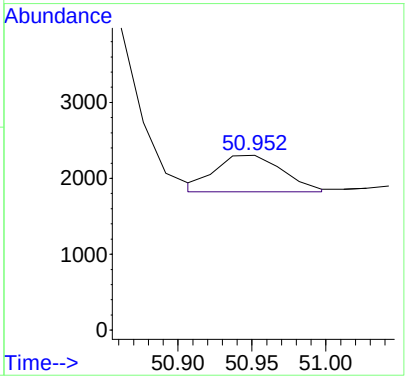
Tgt Ion:191 Resp: 10671

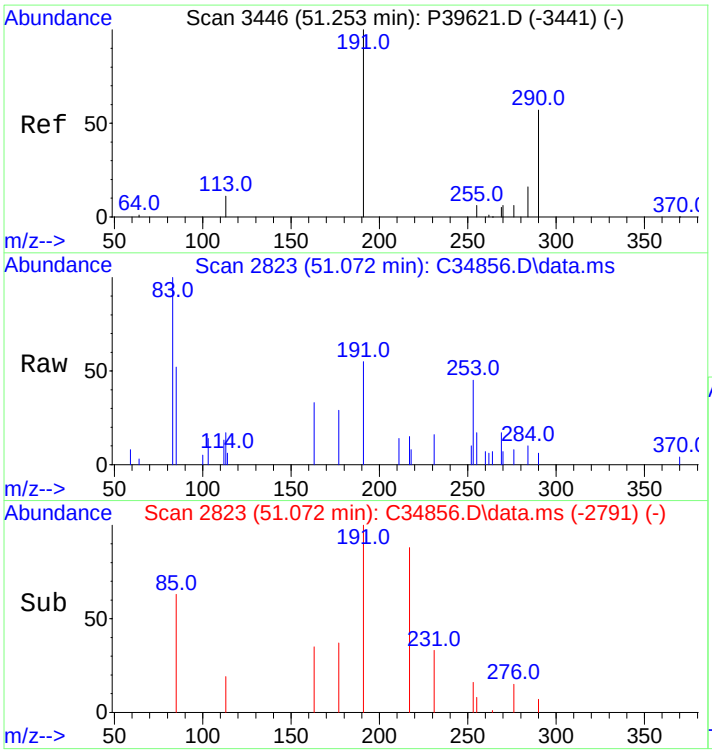




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 58.68 ng/ml m
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

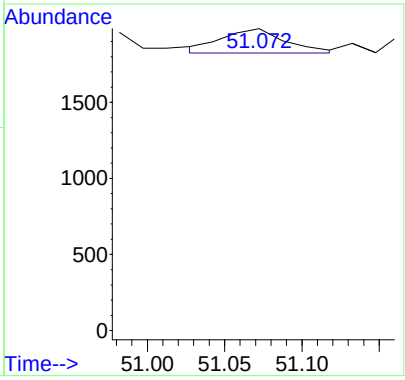
Tgt Ion:191 Resp: 1532

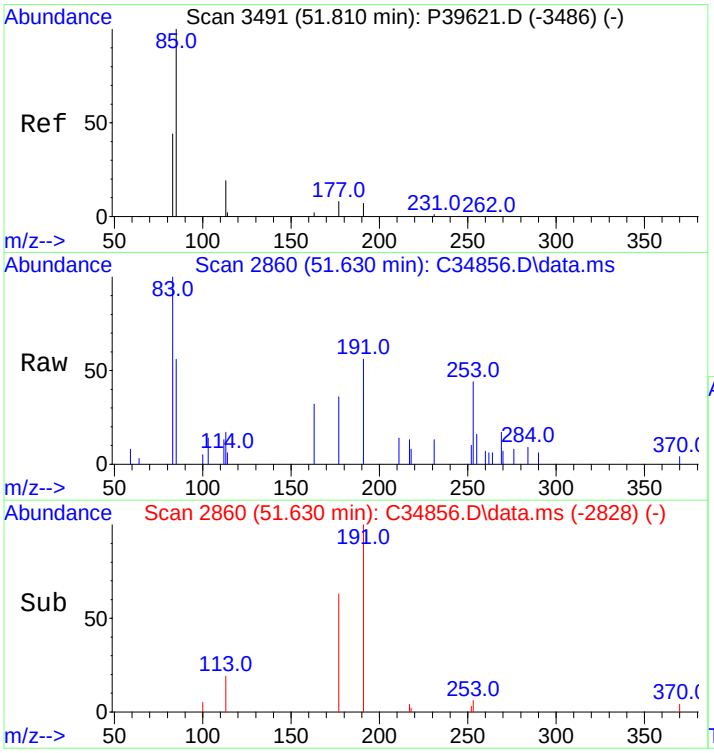




#112
17a(H)-Diahopane (X)
Concen: 17.50 ng/ml m
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

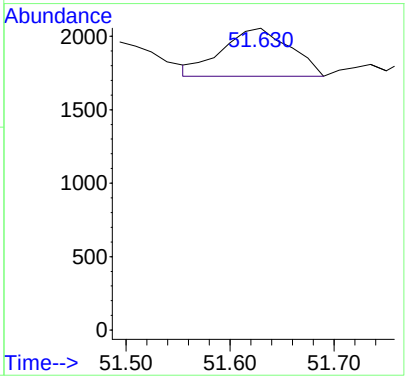
Tgt Ion:191 Resp: 457

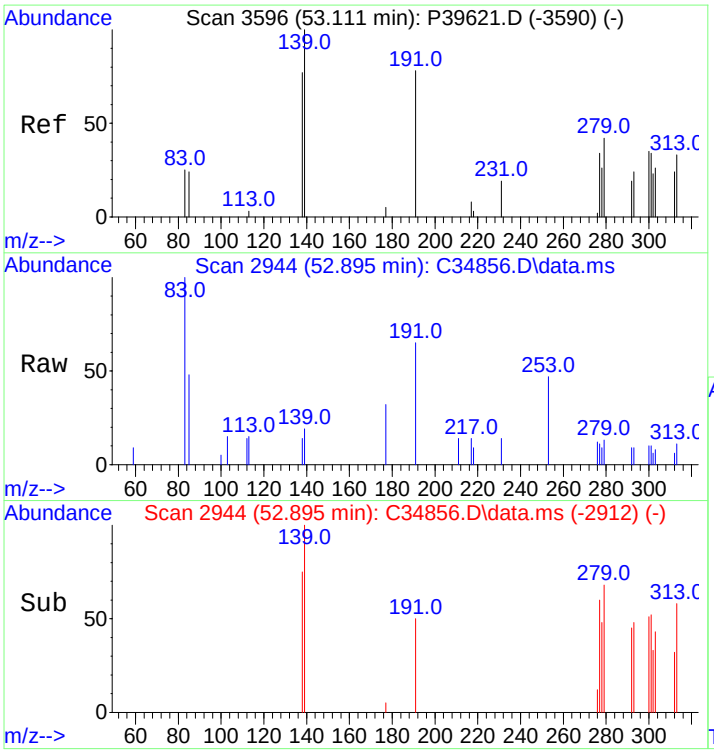




#113
30-Normoretane (T17)
Concen: 56.57 ng/ml
RT: 51.630 min Scan# 2860
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

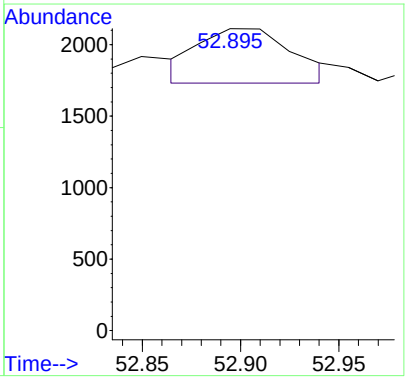
Tgt Ion:191 Resp: 1477

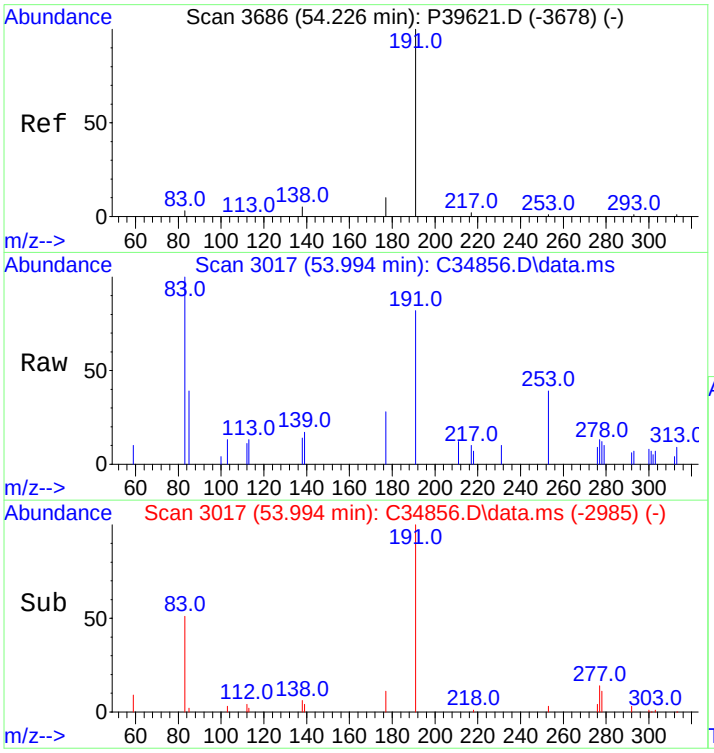




#115
Moretane (T20)
Concen: 48.53 ng/ml m
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

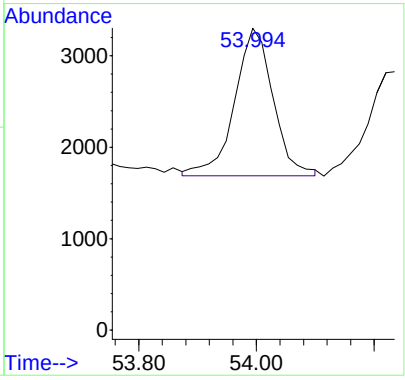
Tgt Ion:191 Resp: 1267

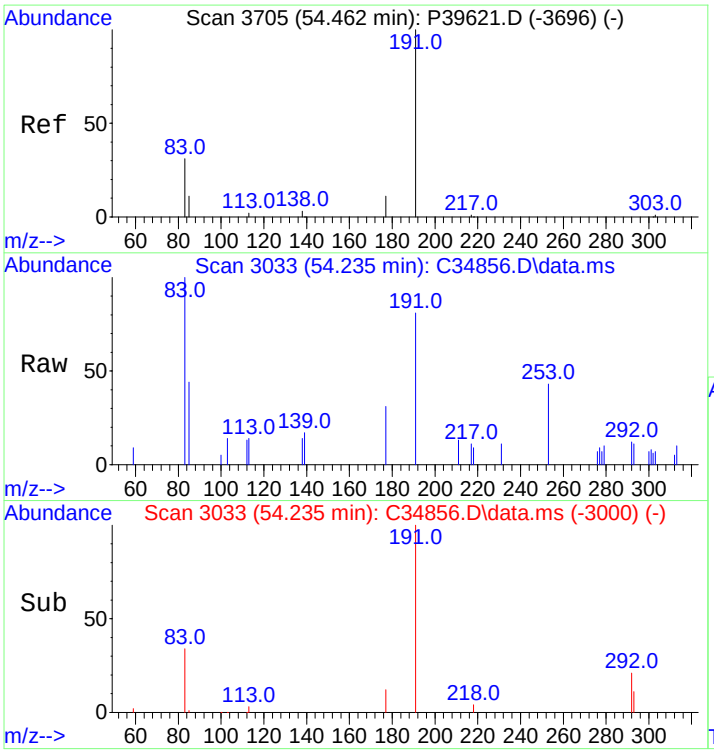




#116
30-Homohopane-22S (T21)
Concen: 281.07 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

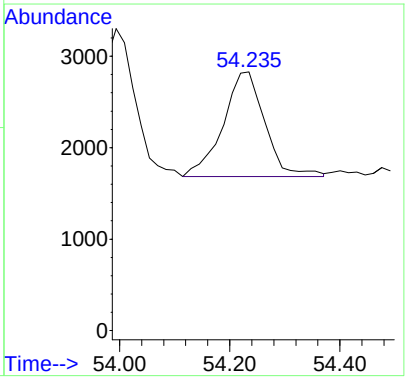
Tgt Ion:191 Resp: 7338

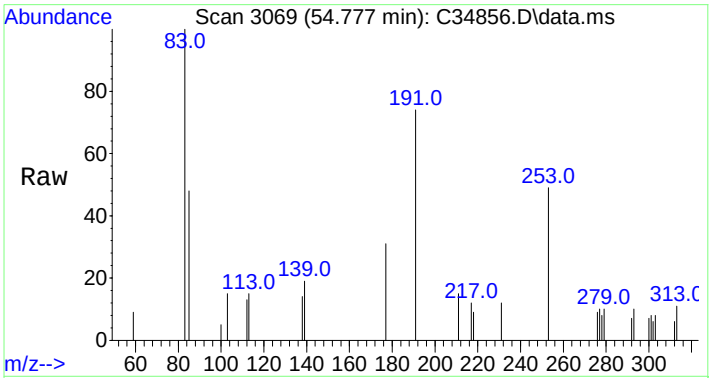




#117
30-Homohopane-22R (T22)
Concen: 230.47 ng/ml
RT: 54.235 min Scan# 3033
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

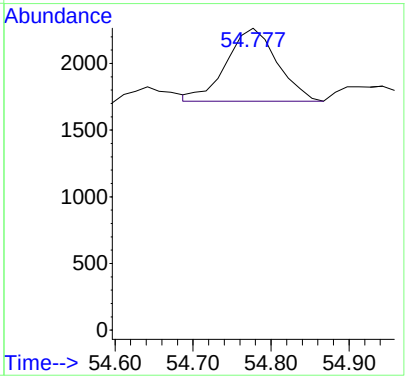
Tgt Ion:191 Resp: 6017

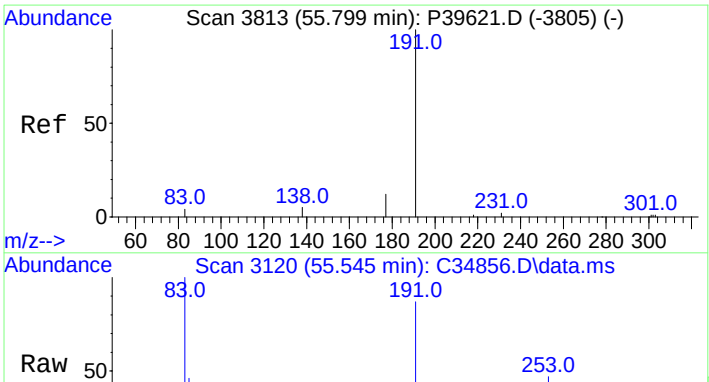




#118
Gammacerane/C32-diahopane
Concen: 94.92 ng/mL
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

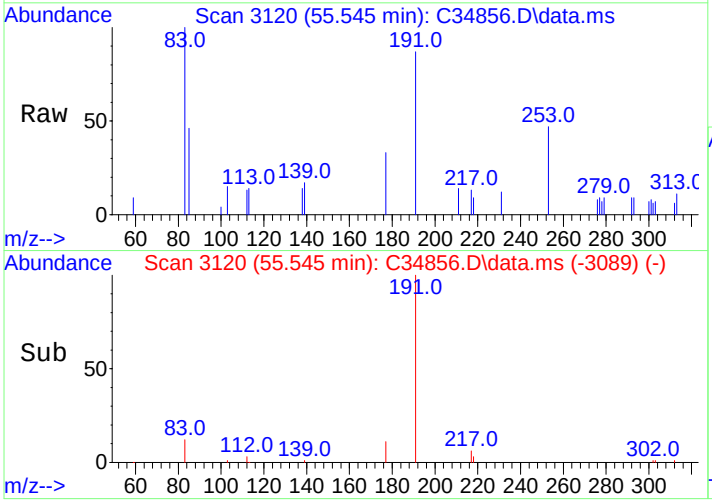
Tgt Ion:191 Resp: 2478

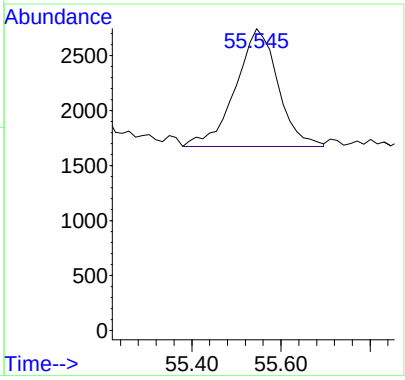


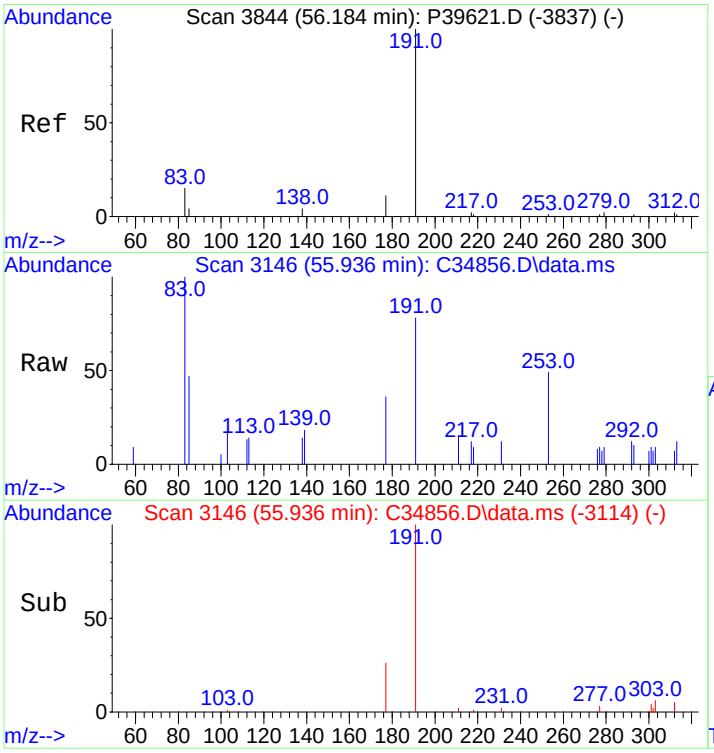


#119
30,31-Bishomohopane-22S (T26)
Concen: 272.99 ng/ml
RT: 55.545 min Scan# 3120
Delta R.T. -0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:191 Resp: 7127

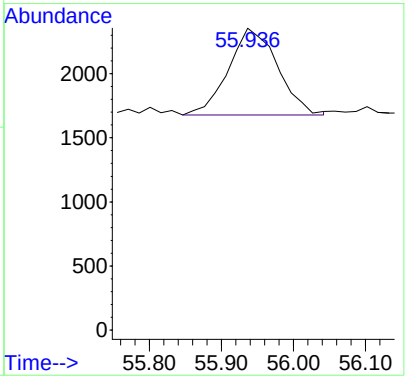


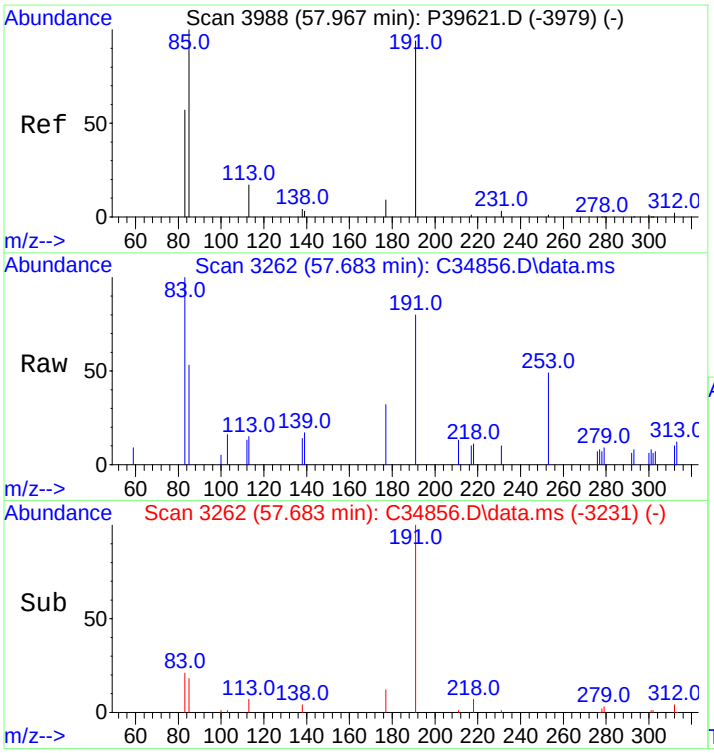




#120
30,31-Bishomohopane-22R (T27)
Concen: 122.42 ng/ml
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

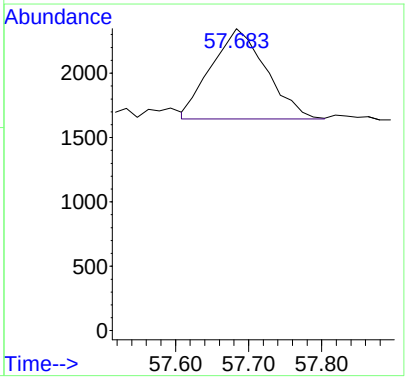
Tgt Ion:191 Resp: 3196

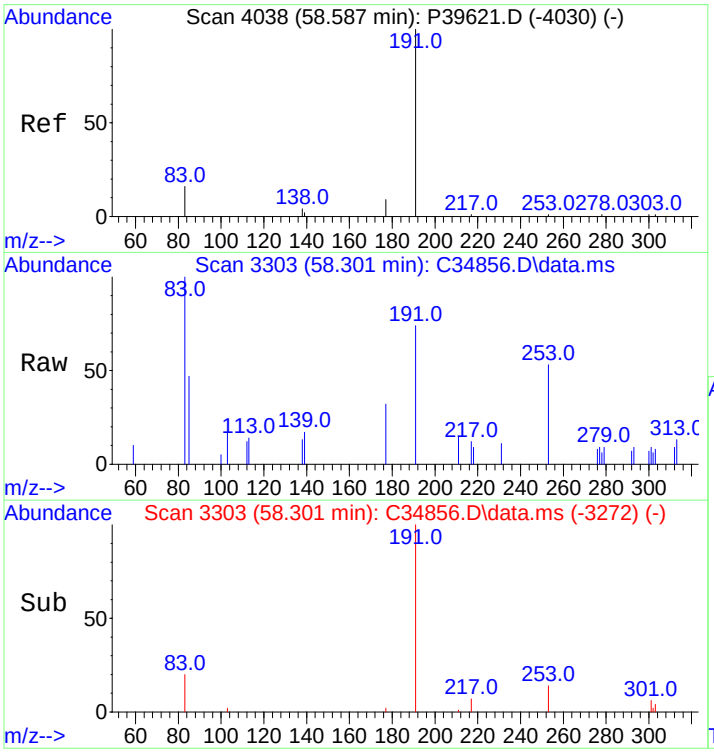




#121
30,31-Trishomohopane-22S (T30)
Concen: 140.19 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

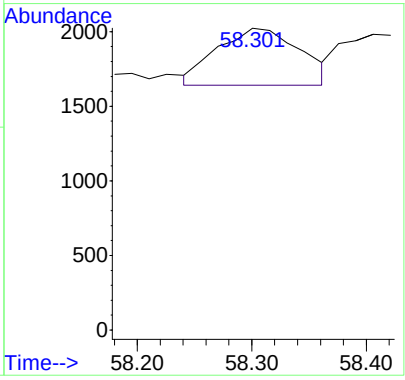
Tgt Ion:191 Resp: 3660

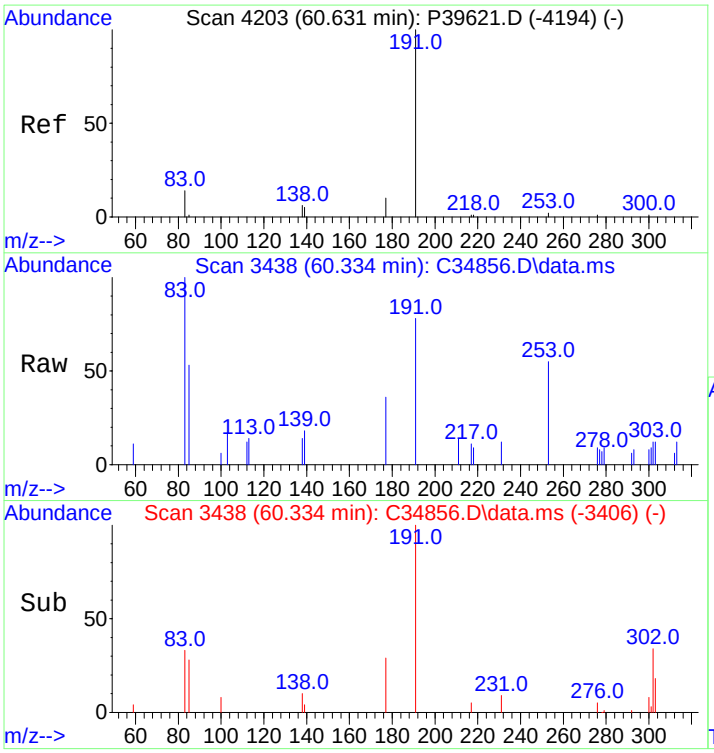




#122
30,31-Trishomohopane-22R (T31)
Concen: 73.50 ng/ml m
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

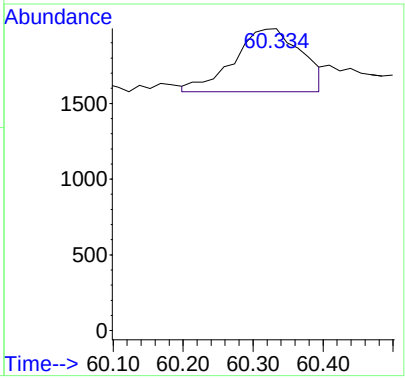
Tgt Ion:191 Resp: 1919

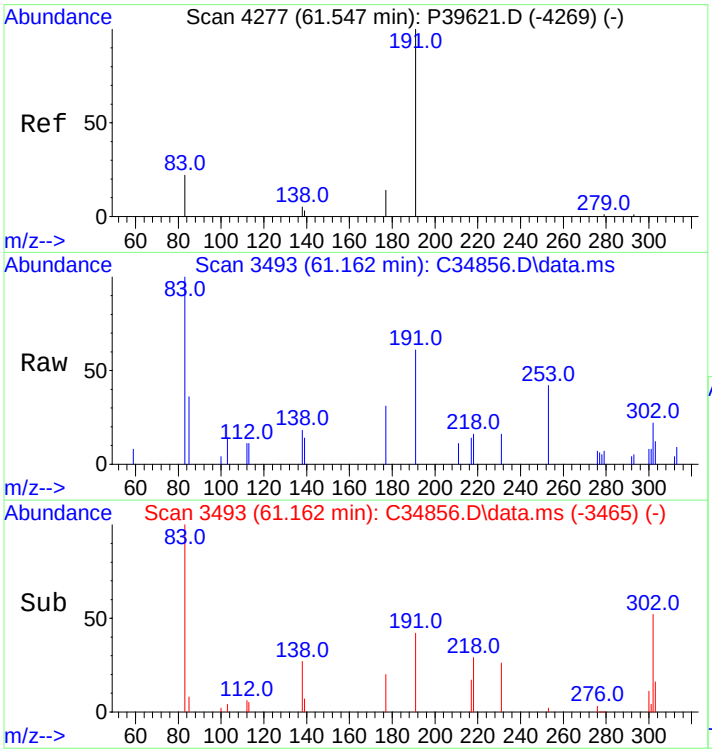




#123
Tetrakishomohopane-22S (T32)
Concen: 107.60 ng/ml m
RT: 60.334 min Scan# 3438
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

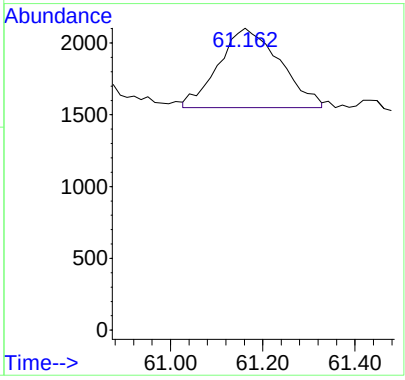
Tgt Ion:191 Resp: 2809

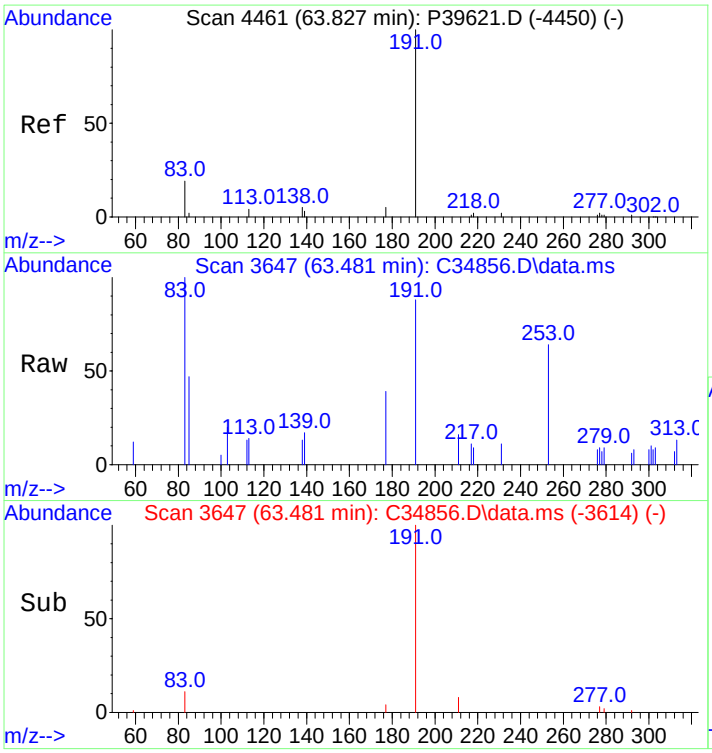




#124
Tetrakishomohopane-22R (T33)
Concen: 196.46 ng/ml m
RT: 61.162 min Scan# 3493
Delta R.T. -0.075 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

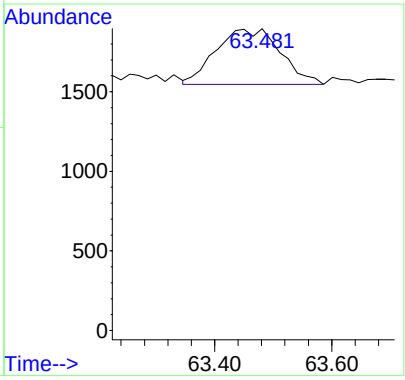
Tgt Ion:191 Resp: 5129

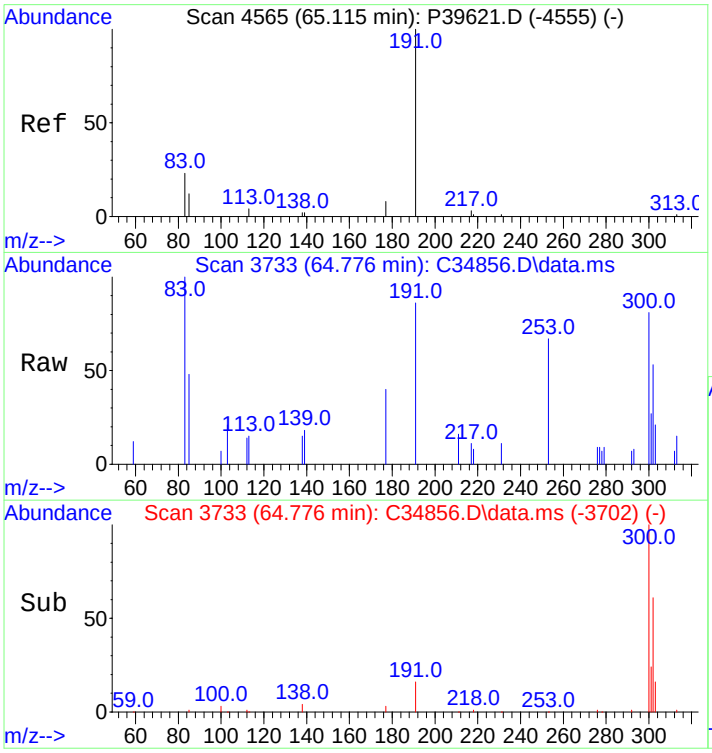




#125
Pentakishomohopane-22S (T34)
Concen: 102.35 ng/ml
RT: 63.481 min Scan# 3647
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

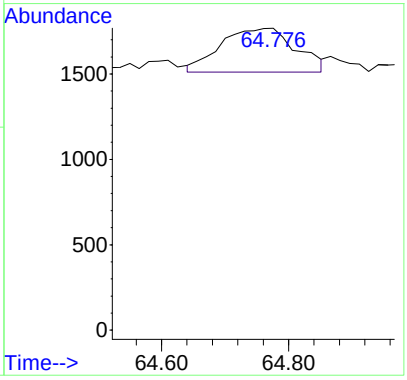
Tgt Ion:191 Resp: 2672

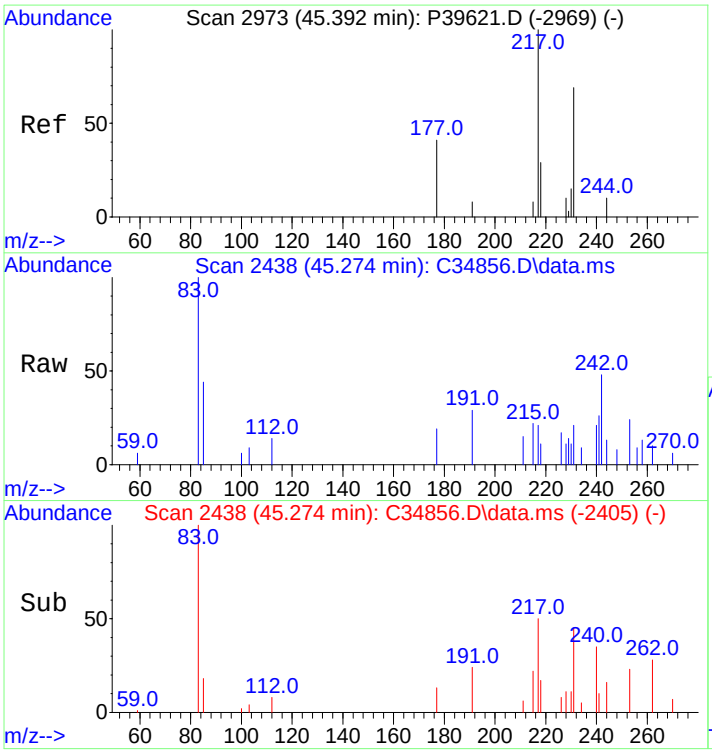




#126
Pentakishomohopane-22R (T35)
Concen: 80.40 ng/ml m
RT: 64.776 min Scan# 3733
Delta R.T. -0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

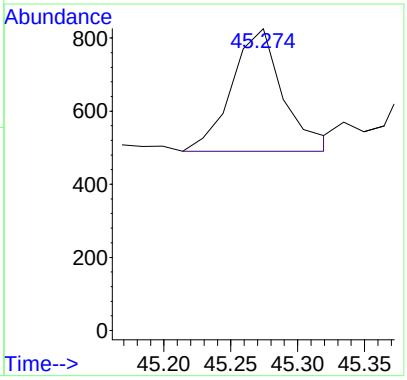
Tgt Ion:191 Resp: 2099

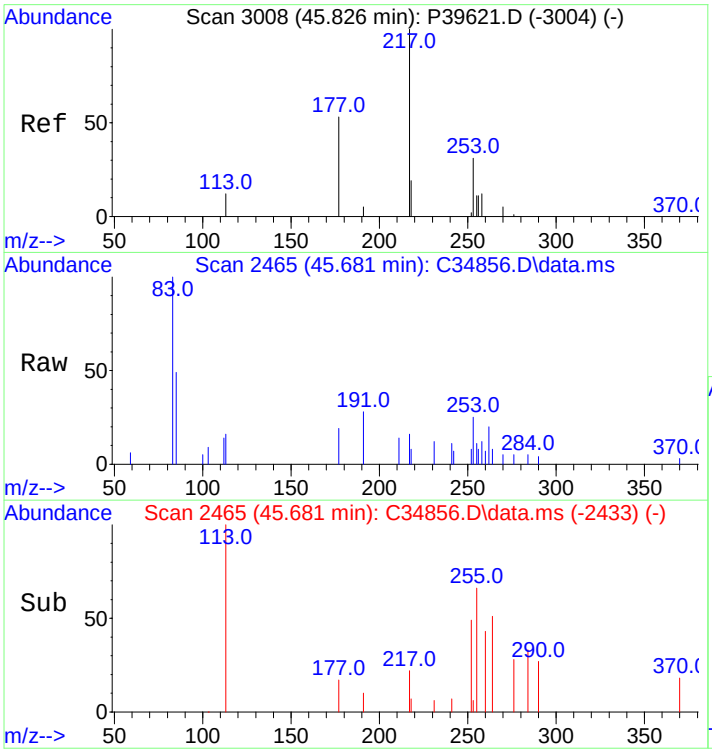




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 72.99 ng/ml
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

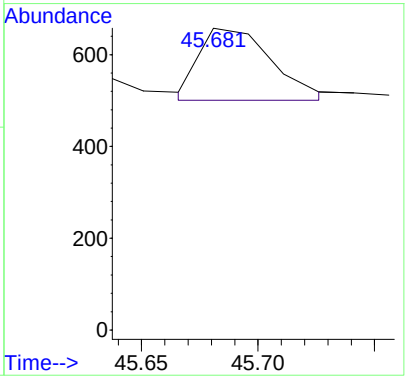
Tgt Ion:217 Resp: 904

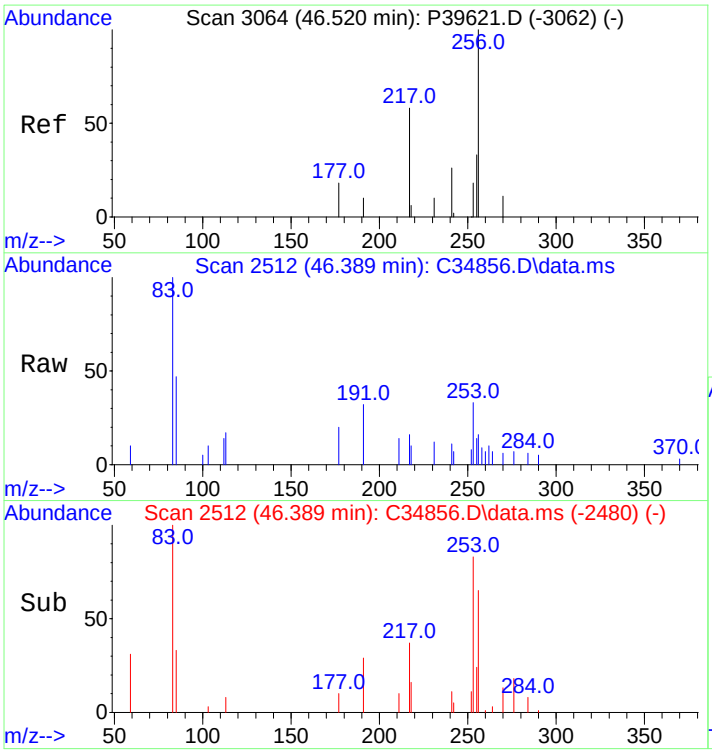




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 27.45 ng/ml m
RT: 45.681 min Scan# 2465
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

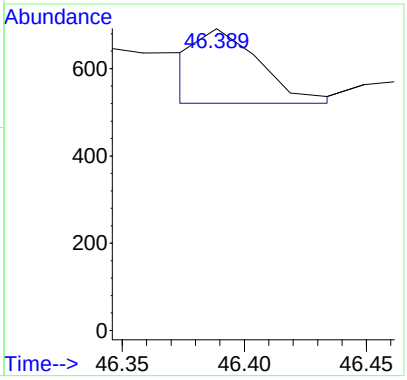
Tgt Ion:217 Resp: 340

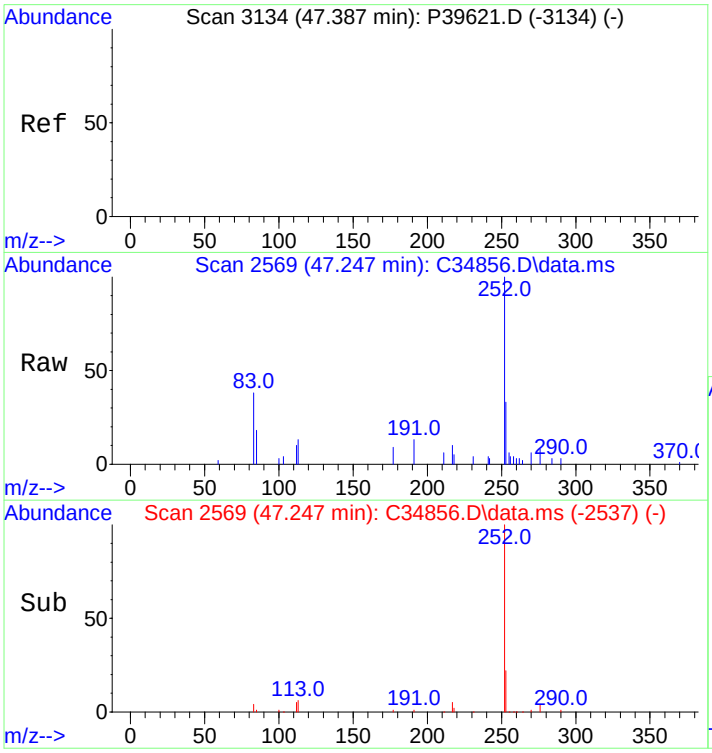




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 23.34 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

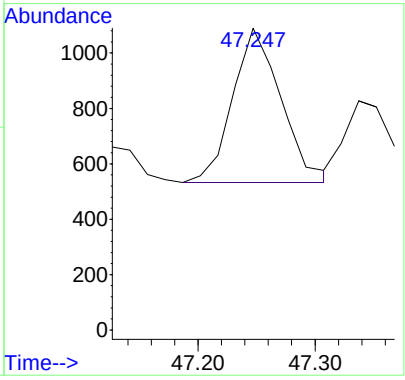
Tgt Ion:217 Resp: 289

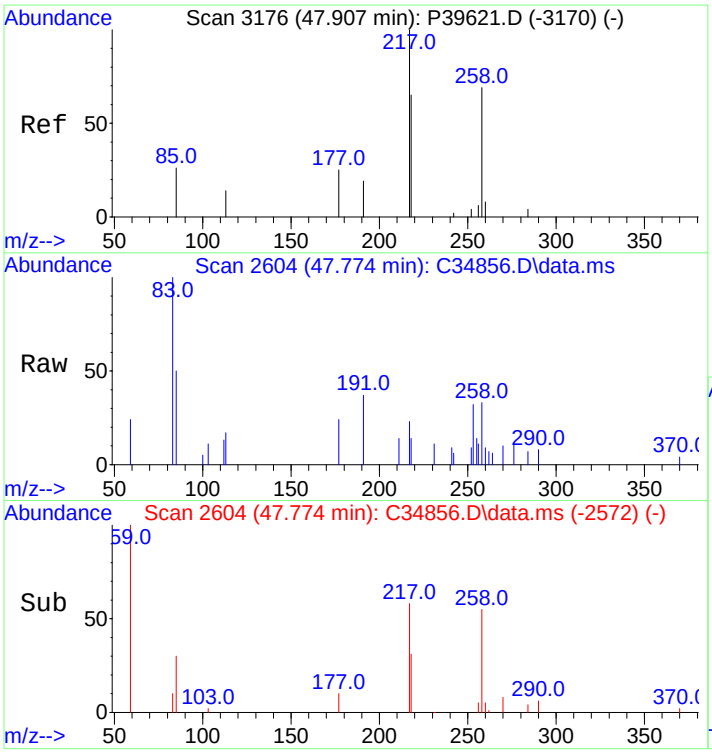




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 129.27 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

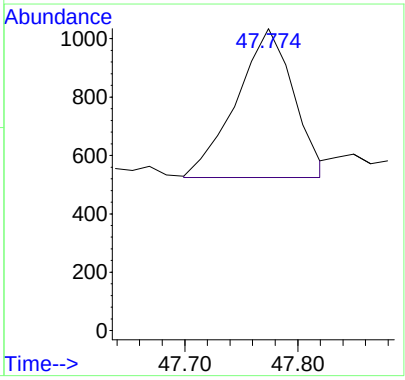
Tgt Ion:217 Resp: 1601

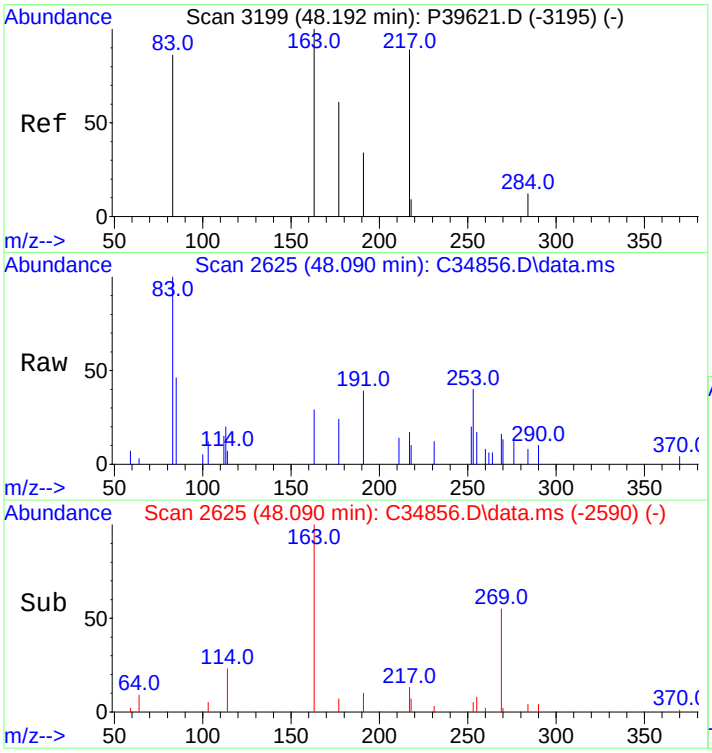




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 144.86 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

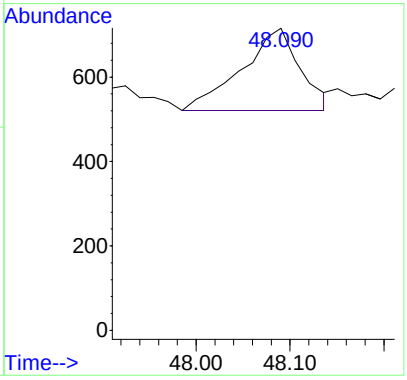
Tgt Ion:217 Resp: 1794

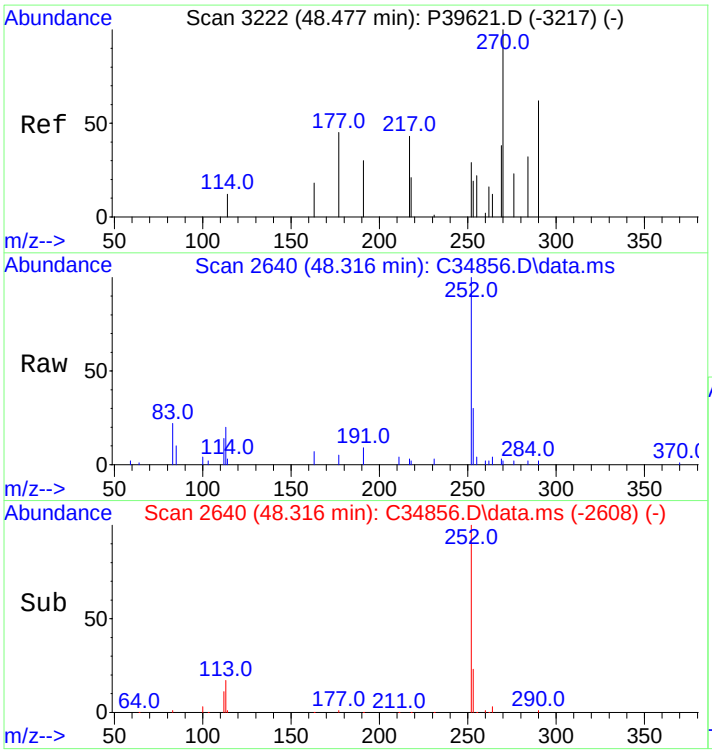




#133
Unknown Sterane (S18)
Concen: 67.99 ng/ml m
RT: 48.090 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

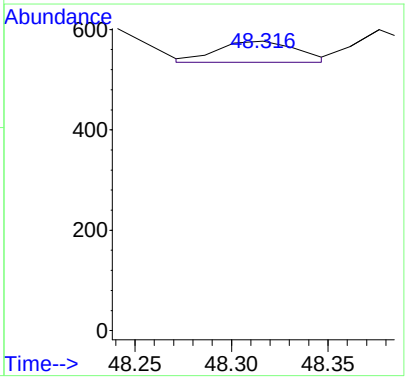
Tgt Ion:217 Resp: 842

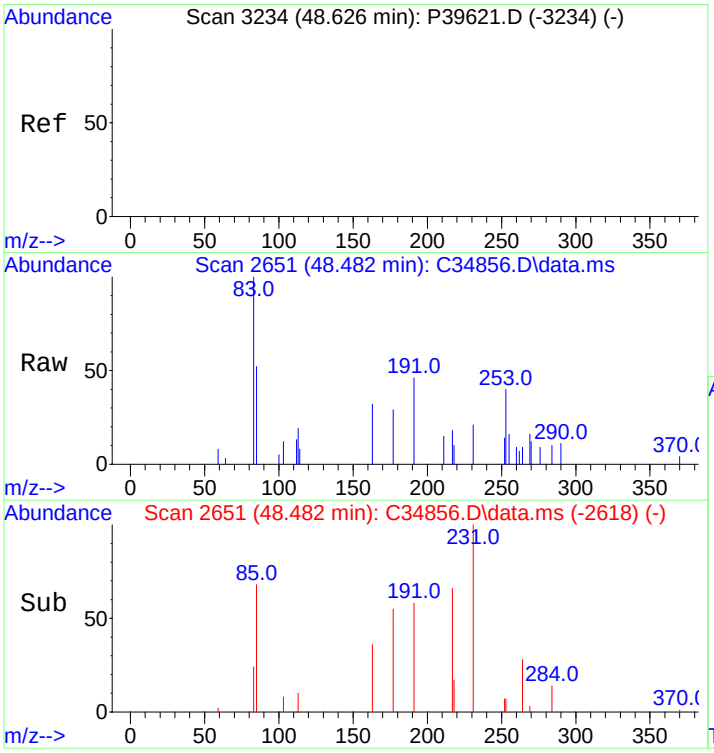




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 9.69 ng/ml m
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

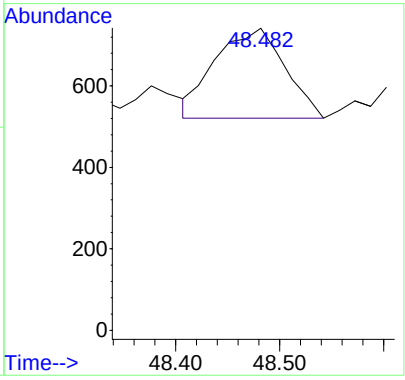
Tgt Ion:217 Resp: 120

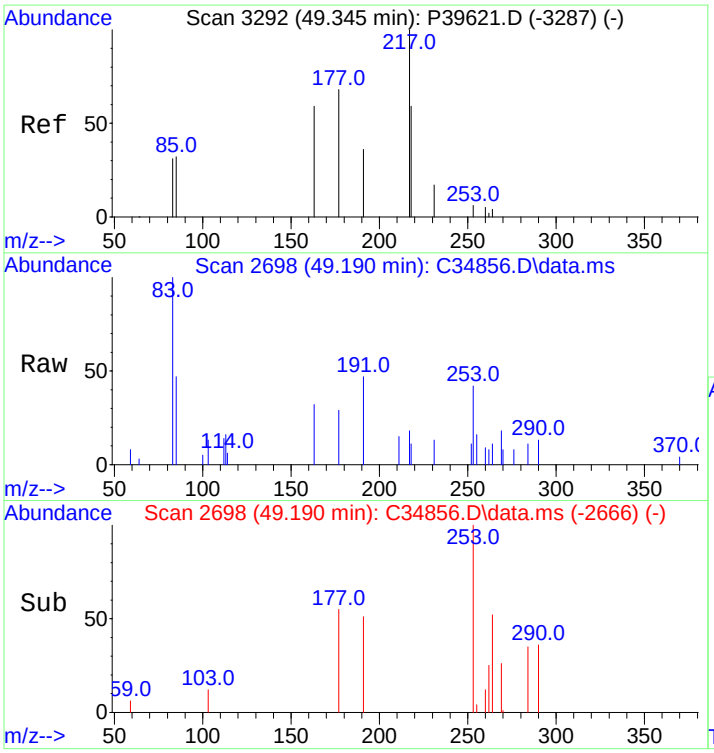




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 82.68 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

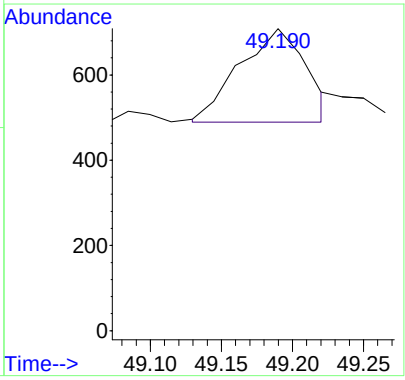
Tgt Ion:217 Resp: 1024

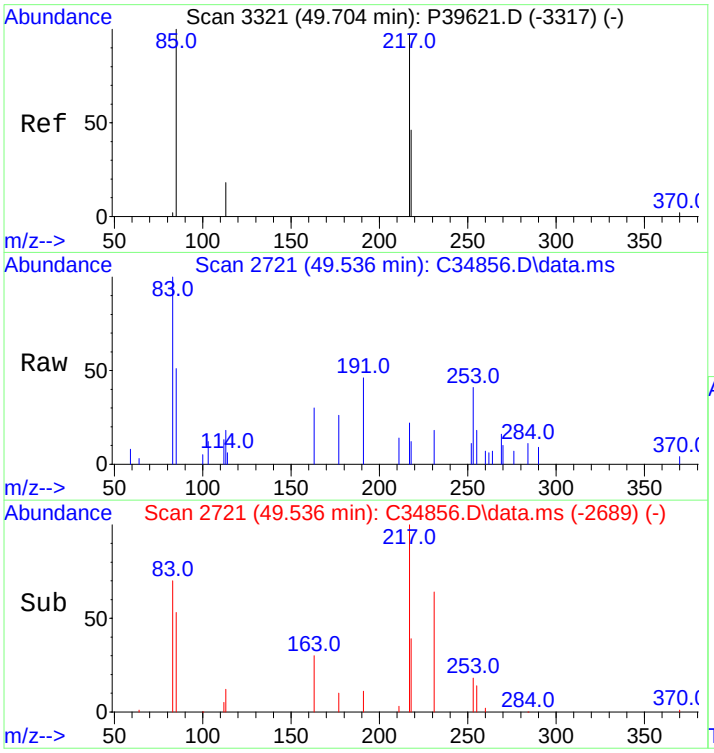




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 57.89 ng/ml m
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

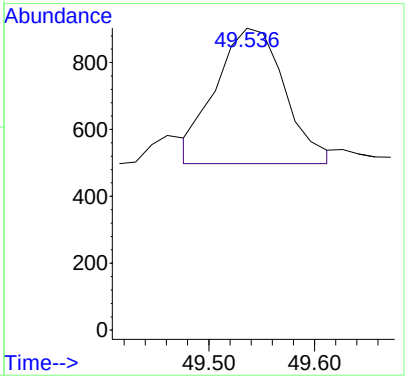
Tgt Ion:217 Resp: 717

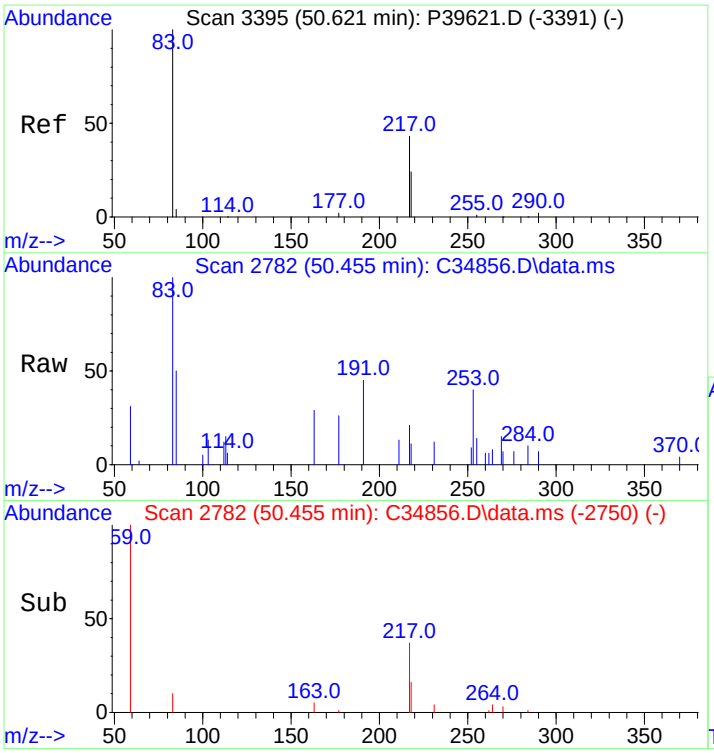




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 147.68 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

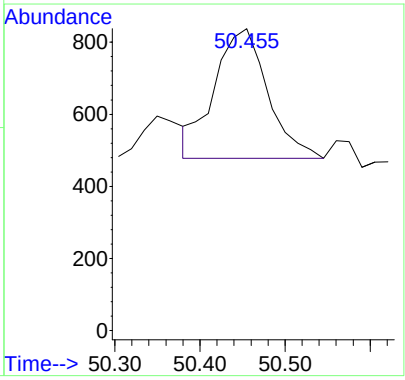
Tgt Ion:217 Resp: 1829

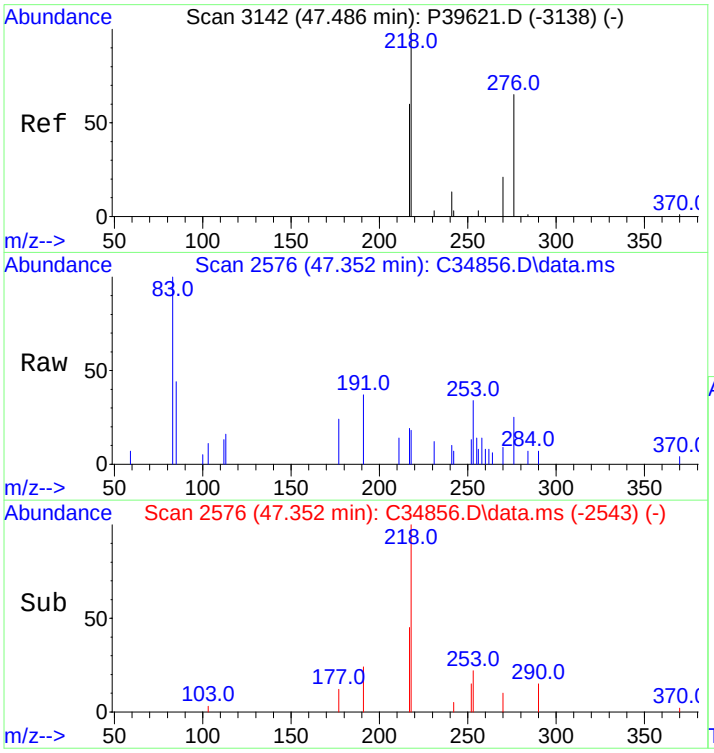




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 126.53 ng/ml
RT: 50.455 min Scan# 2782
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

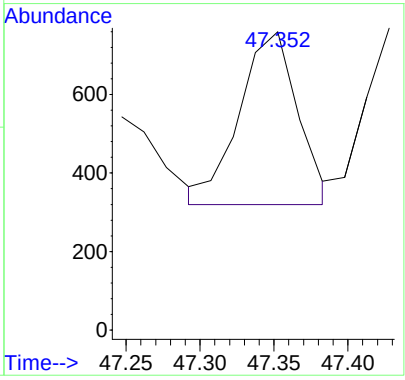
Tgt Ion:217 Resp: 1567

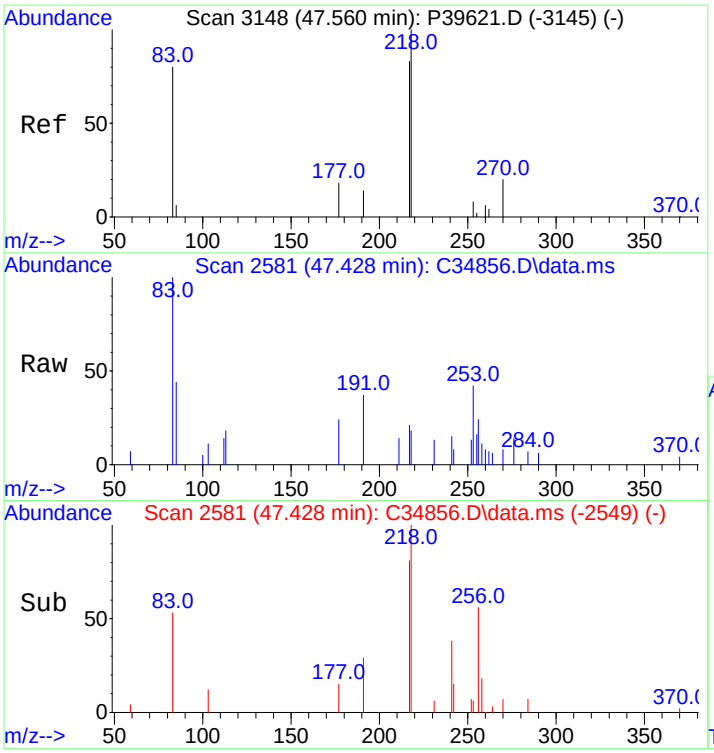




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 97.30 ng/ml m
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

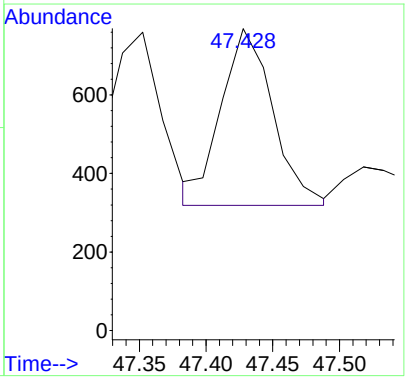
Tgt Ion:218 Resp: 1205

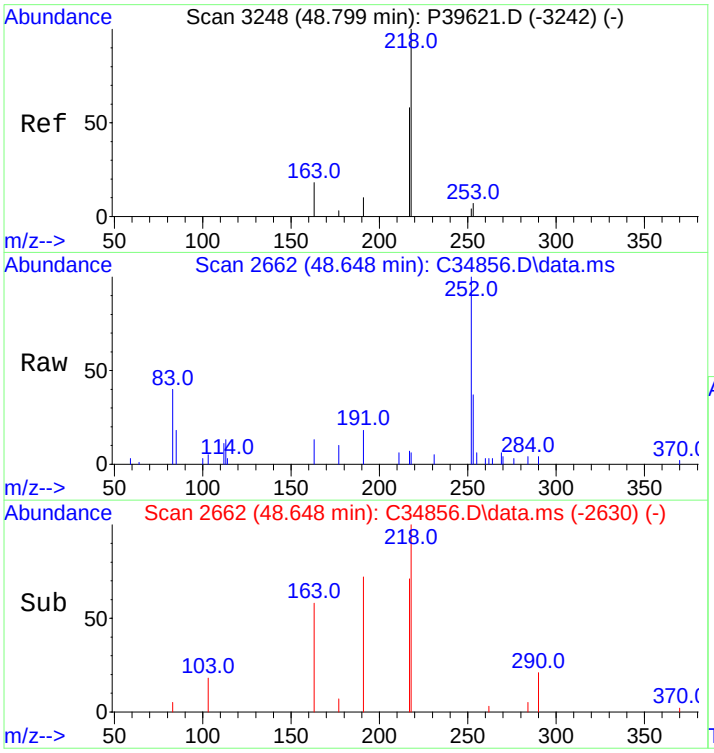




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 97.62 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

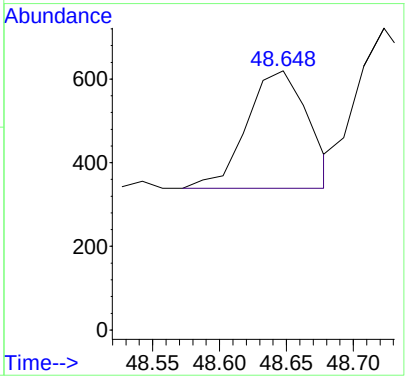
Tgt Ion:218 Resp: 1209

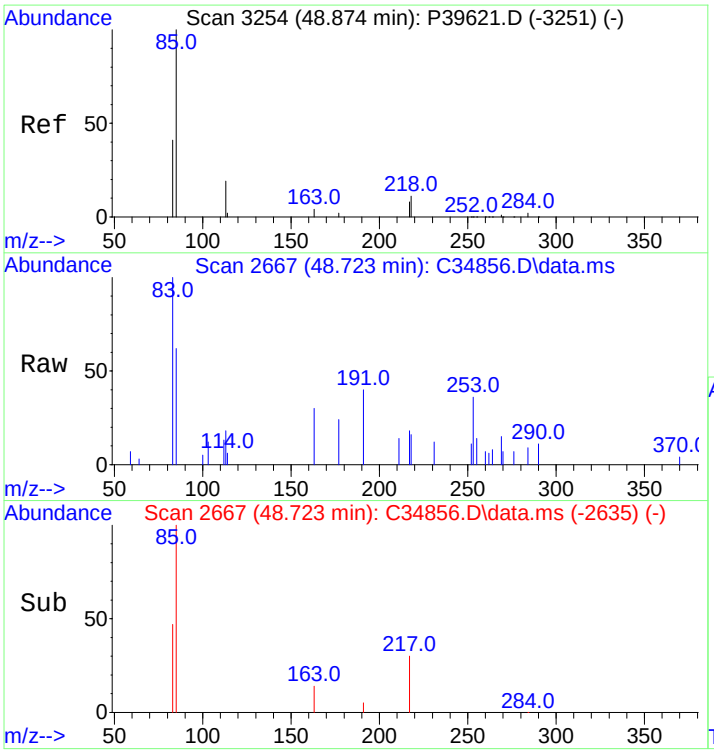




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 72.91 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

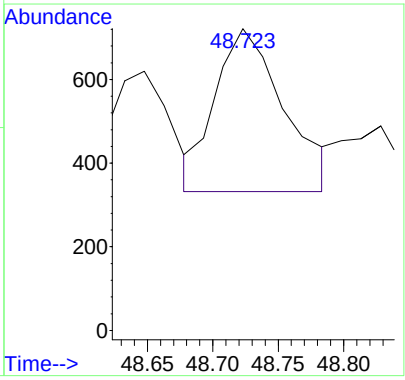
Tgt Ion:218 Resp: 903

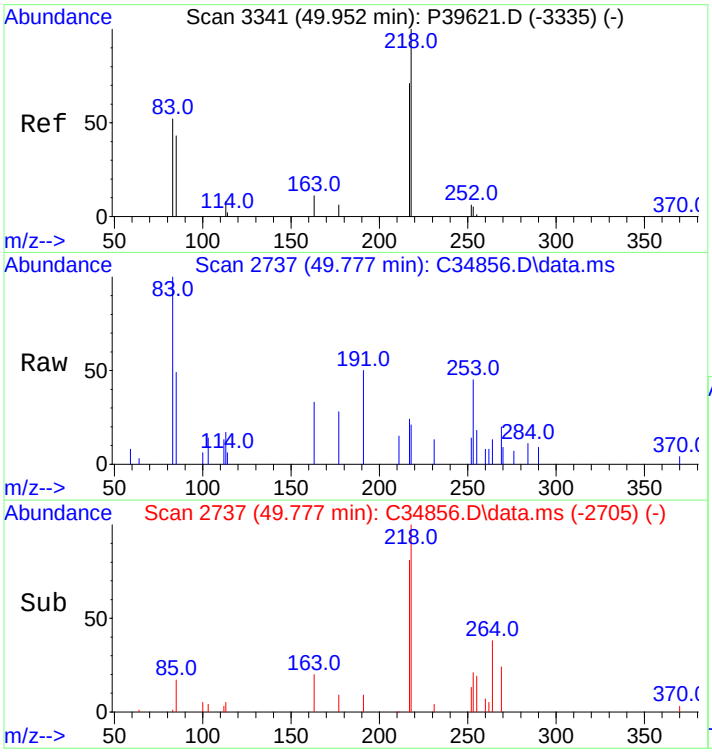




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 115.06 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

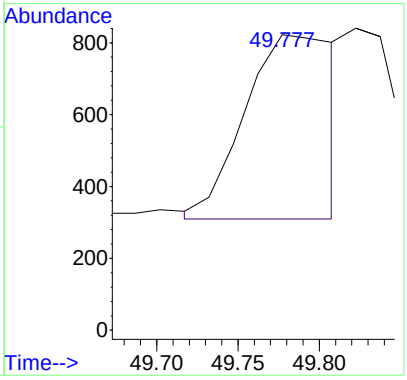
Tgt Ion:218 Resp: 1425

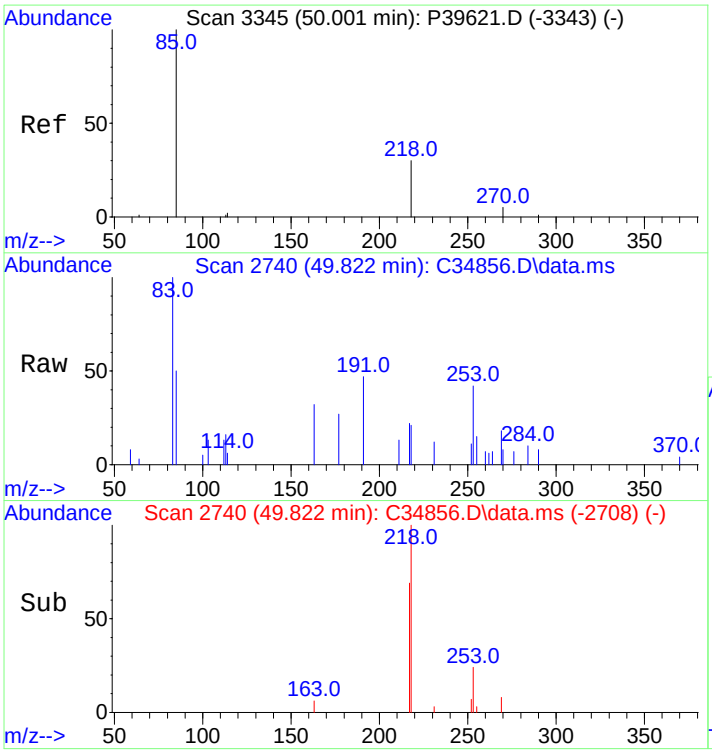




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 158.99 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

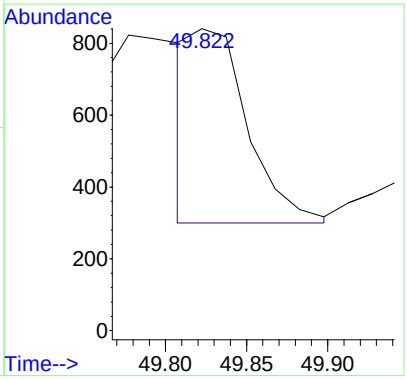
Tgt Ion:218 Resp: 1969

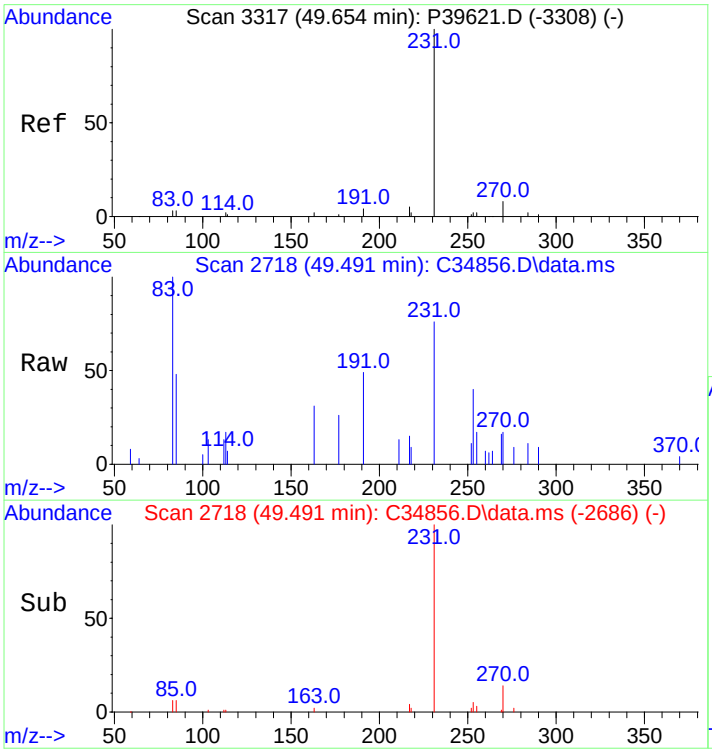




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 104.48 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

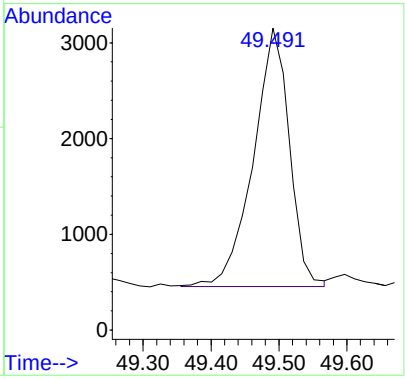
Tgt Ion:218 Resp: 1294

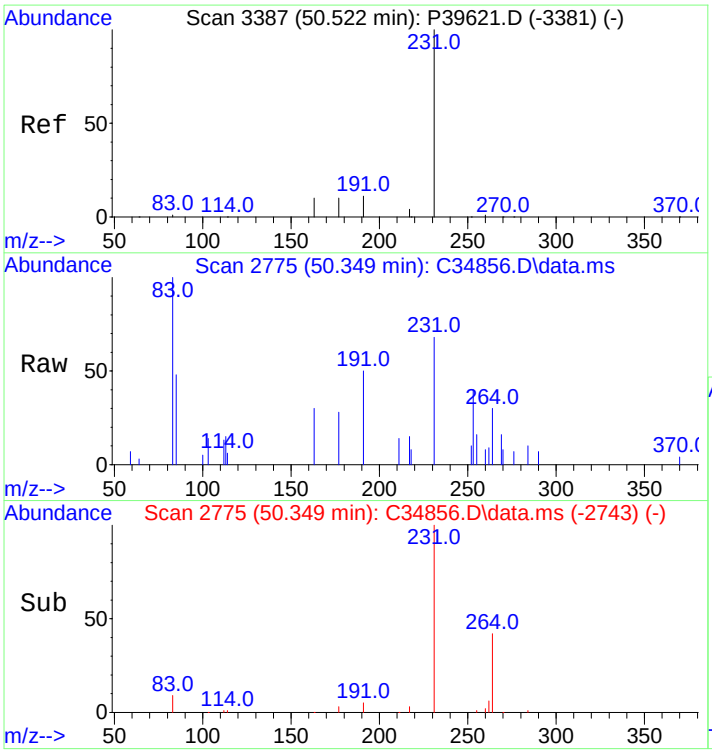




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 804.22 ng/mL m
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

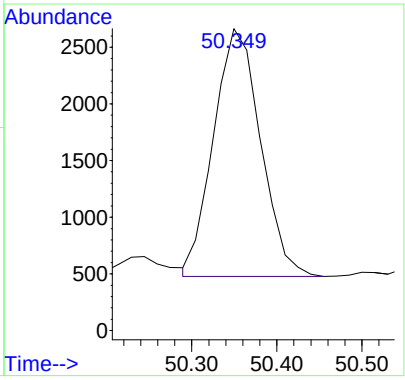
Tgt Ion:231 Resp: 9960

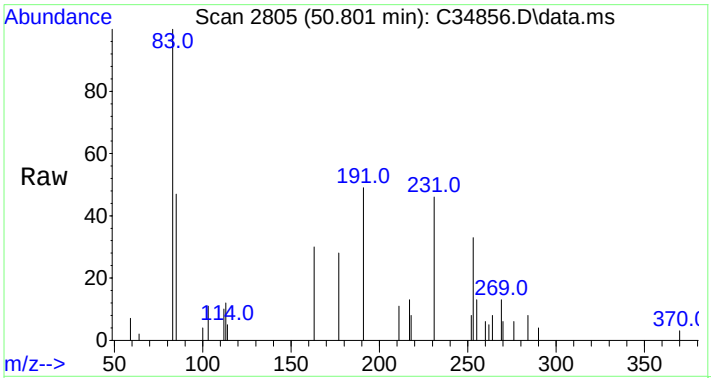




#146
C28,20S-triaromatic steroid
Concen: 677.61 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

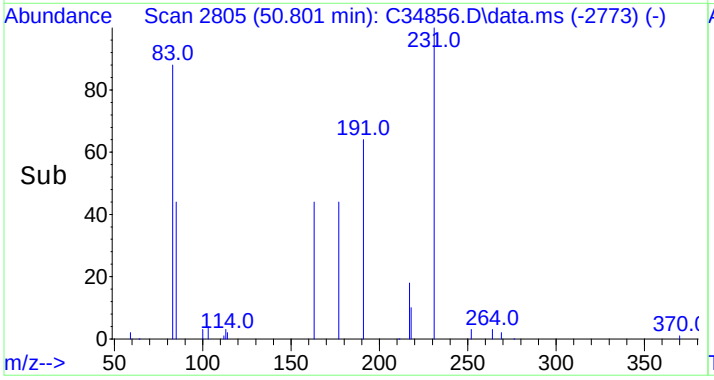
Tgt Ion:231 Resp: 8392

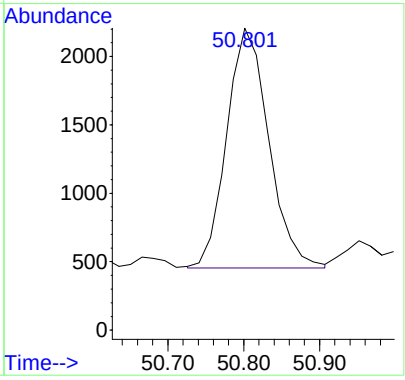


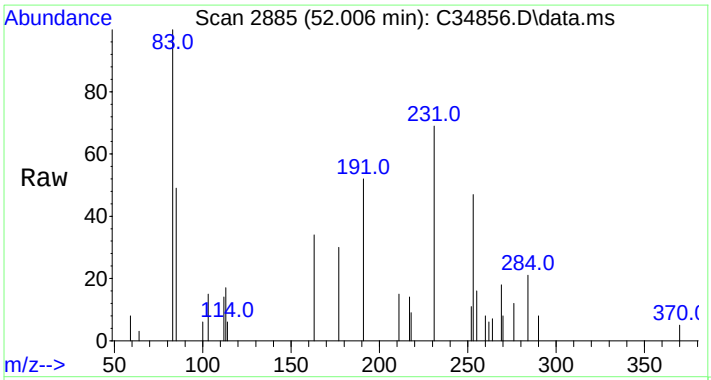


#147
C27,20R-triaromatic steroid
Concen: 543.65 ng/mL m
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:231 Resp: 6733

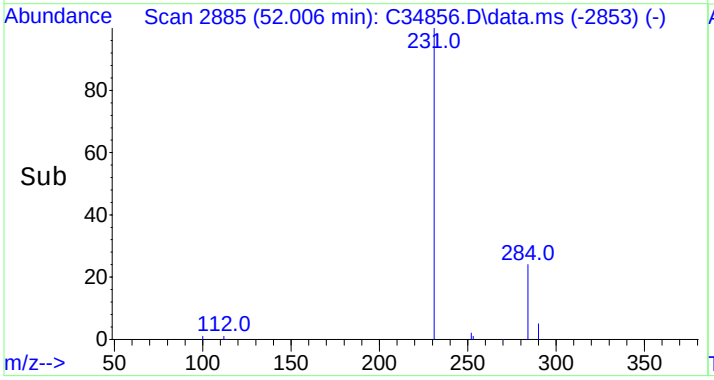


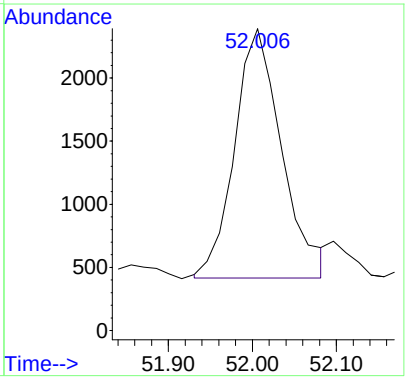




#148
C28,20R-triaromatic steroid
Concen: 622.86 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34856.D
Acq: 5 May 2012 3:42 am

Tgt Ion:231 Resp: 7714





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	22156M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.166	240	40780	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	164858	1714.365	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 171.44%#			
42) Phenanthrene-d10	32.567	188	163901	2156.353	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 215.64%#			
86) Benzo[a]pyrene-d12	48.256	264	167860	1986.194	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 198.62%#			
127) 5B(H)Cholane - Surr	43.769	217	29920	2346.685	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 234.67%#			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	58M3	3.316	ng/mL	
5) C1-Decalins	17.874	152	272M5	15.552	ng/mL	
10) Naphthalene	19.801	128	1069	7.570	ng/mL#	100
11) C1-Naphthalenes	22.511	142	1794M5	12.704	ng/mL	
12) C2-Naphthalenes	25.341	156	4673M5	33.092	ng/mL	
13) C3-Naphthalenes	28.021	170	11534M5	81.680	ng/mL	
14) C4-Naphthalenes	30.444	184	18197M5	128.864	ng/mL	
16) 2-Methylnaphthalene	22.511	142	988M4	11.833	ng/mL	
17) 1-Methylnaphthalene	22.932	142	820M3	10.019	ng/mL	
20) C2-Benzo(b)thiophenes	25.386	162	758M5	5.965	ng/mL	
21) C3-Benzo(b)thiophenes	27.509	176	3308M5	26.033	ng/mL	
22) C4-Benzo(b)thiophenes	29.616	190	4769M5	37.530	ng/mL	
23) Biphenyl	24.393	154	558	5.283	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	833	12.143	ng/mL#	100
25) Dibenzofuran	27.464	168	1114	9.185	ng/mL#	81
26) Acenaphthylene	26.094	152	793	5.657	ng/mL#	100
27) Acenaphthene	26.816	153	1203M3	14.576	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	801M3	14.485	ng/mL	
29) Fluorene	28.849	166	1686M3	18.522	ng/mL	
30) C1-Fluorenes	31.212	180	2468M5	27.113	ng/mL	
31) C2-Fluorenes	33.395	194	10026M5	110.143	ng/mL	
32) C3-Fluorenes	35.909	208	22666M5	249.003	ng/mL	
33) Dibenzothiophene	32.161	184	3846	26.358	ng/mL#	61
34) 4-Methyldibenzothiophe...	33.937	198	5790	39.681	ng/mL#	100
35) 2/3-Methyldibenzothiop...	34.313	198	9260M3	63.462	ng/mL	
36) 1-Methyldibenzothiophe...	34.720	198	3780	25.905	ng/mL#	100
37) OTP	34.374	198	31388M3	215.111	ng/mL	
38) C1-Dibenzothiophenes	34.374	198	51955M5	356.063	ng/mL	
39) C2-Dibenzothiophenes	35.623	212	48839M5	334.708	ng/mL	
40) C3-Dibenzothiophenes	37.430	226	68745M5	471.130	ng/mL	
41) C4-Dibenzothiophenes	39.116	240	52237M5	357.996	ng/mL	
43) Phenanthrene	32.657	178	40172	313.357	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.630	192	5482M3	42.762	ng/mL	
45) 2/4-Methylphenanthrene...	34.750	192	6072	47.364	ng/mL	100
46) 2-Methylanthracene(2MA)	34.901	192	943	7.356	ng/mL#	73
47) 9-Methylphenanthrene(9MP)	35.066	192	7656	59.720	ng/mL	85
48) 1-Methylphenanthrene(1MP)	35.172	192	4714M3	36.771	ng/mL	
49) C1-Phenanthrenes/Anthr...	35.066	192	25584M5	199.565	ng/mL	
50) C2-Phenanthrenes/Anthr...	36.888	206	44914M5	350.346	ng/mL	
52) C3-Phenanthrenes/Anthr...	39.990	220	44366M5	346.072	ng/mL	
53) C4-Phenanthrenes/Anthr...	40.908	234	26676M5	208.083	ng/mL	
55) Anthracene	32.838	178	3594M3	28.701	ng/mL	
56) Carbazole	33.515	167	4689	37.071	ng/mL	94
57) 1-Methylphenanthrene	35.172	192	4671M3	57.495	ng/mL	
58) Fluoranthene	37.430	202	91658M3	719.886	ng/mL	
59) Benzo(b)fluorene	39.944	216	3332M3	45.108	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

	Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
60)	Pyrene	38.318	202		76111	588.061	ng/mL	93
61)	C1-Fluoranthenes/Pyrenes	39.703	216		31653M5	244.563	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	42.564	230		33693M5	260.324	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.633	244		28970M5	223.833	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.928	258		29414M5	227.263	ng/mL	
66)	Naphthobenzothiophene	42.173	234		11903M3	85.424	ng/ml	
67)	Naphthobenzothiophene-...	42.173	234		11774M3	84.498	ng/mL	
68)	Naphthobenzothiophene-...	42.504	234		2601M3	18.667	ng/mL	
69)	Naphthobenzothiophene-...	42.805	234		3868M3	27.759	ng/mL	
70)	C1-Naphthobenzothiophenes	44.250	248		32046M5	229.984	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262		48689M5	349.425	ng/ml	
72)	C3-Naphthobenzothiophenes	47.172	276		44292M5	317.869	ng/ml	
73)	C4-Naphthobenzothiophenes	48.241	290		35467M5	254.535	ng/mL	
75)	Benz[a]anthracene	43.091	228		24845M3	191.950	ng/mL	
77)	Chrysene/Triphenylene	43.257	228		39086	299.107	ng/mL	100
78)	C1-Chrysenes	44.732	242		19292M5	147.633	ng/mL	
79)	C2-Chrysenes	46.810	256		22327M5	170.858	ng/mL	
80)	C3-Chrysenes	49.506	270		30678M5	234.765	ng/mL	
81)	C4-Chrysenes	49.506	284		23728M4	181.580	ng/mL	
82)	Benzo[b]fluoranthene	47.142	252		41847	294.235	ng/mL	98
83)	Benzo[j]+[k]fluoranthene	47.217	252		27910	180.246	ng/mL	100
84)	Benzo[a]fluoranthene	47.533	252		4577	29.559	ng/mL#	1
85)	Benzo[e]pyrene	48.151	252		27635	196.444	ng/mL	97
87)	Benzo[a]pyrene	48.331	252		29740	219.577	ng/mL	96
88)	Perylene	48.648	252		11588	80.055	ng/mL	97
89)	Indeno[1,2,3-cd]pyrene	53.151	276		29585M3	187.701	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.196	278		7839M3	52.282	ng/mL	
91)	Benzo[g,h,i]perylene	54.461	276		35057	210.522	ng/mL	99
92)	Hopane (T19)	52.202	191		14859M3	552.854	ng/mL	
94)	C23 Tricyclic Terpane ...	40.788	191		5325M3	198.125	ng/ml	
95)	C24 Tricyclic Terpane ...	41.510	191		2962M3	110.206	ng/ml	
96)	C25 Tricyclic Terpane ...	43.046	191		3406M3	126.726	ng/ml	
97)	C24 Tetracyclic Terpan...	44.326	191		1244	46.285	ng/ml	100
98)	C26 Tricyclic Terpane-...	44.055	191		1054M3	39.216	ng/ml	
99)	C26 Tricyclic Terpane-...	44.145	191		1114M3	41.448	ng/ml	
100)	C28 Tricyclic Terpane-...	46.434	191		1098M3	40.853	ng/ml	
101)	C28 Tricyclic Terpane-...	46.599	191		1341M3	49.894	ng/ml	
102)	C29 Tricyclic Terpane-...	47.112	191		1476	54.917	ng/ml	100
103)	C29 Tricyclic Terpane-...	47.307	191		1429	53.168	ng/ml	100
104)	18a-22,29,30-Trisnorne...	48.437	191		2095	77.948	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.527	191		1308M3	48.666	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.768	191		1230M3	45.764	ng/mL	
107)	17a(H)-22,29,30-Trisno...	48.979	191		4130M3	153.663	ng/ml	
108)	17a/b,21b/a 28,30-Bisn...	50.184	191		2339M3	87.026	ng/ml	
109)	17a(H),21b(H)-25-Norho...	49.958	191		1681	62.544	ng/ml	100
110)	30-Norhopane (T15)	50.846	191		10437	388.326	ng/ml	100
111)	18a(H)-30-Norneohopane...	50.952	191		1656	61.614	ng/ml	100
112)	17a(H)-Diahopane (X)	51.072	191		581	21.617	ng/ml	100
113)	30-Normoretane (T17)	51.615	191		1170M3	43.532	ng/ml	
115)	Moretane (T20)	52.895	191		1745	64.926	ng/ml	100
116)	30-Homohopane-22S (T21)	53.994	191		6311M3	234.811	ng/ml	
117)	30-Homohopane-22R (T22)	54.220	191		5460M3	203.148	ng/ml	
118)	Gammacerane/C32-diahopane	54.777	191		2468M4	91.826	ng/mL	
119)	30,31-Bishomohopane-22...	55.560	191		6099M3	226.923	ng/ml	
120)	30,31-Bishomohopane-22...	55.936	191		3544	131.860	ng/ml	100
121)	30,31-Trishomohopane-2...	57.683	191		3362M3	125.089	ng/ml	
122)	30,31-Trishomohopane-2...	58.301	191		1907	70.953	ng/ml	100
123)	Tetrakishomohopane-22S...	60.318	191		2255M3	83.901	ng/ml	
124)	Tetrakishomohopane-22R...	61.192	191	G	3884	144.511	ng/ml	100
125)	Pentakishomohopane-22S...	63.451	191		3102	115.415	ng/ml	100
126)	Pentakishomohopane-22R...	64.761	191		1786M3	66.451	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : Gulf_NEW_POIB_Default - All compounds listed

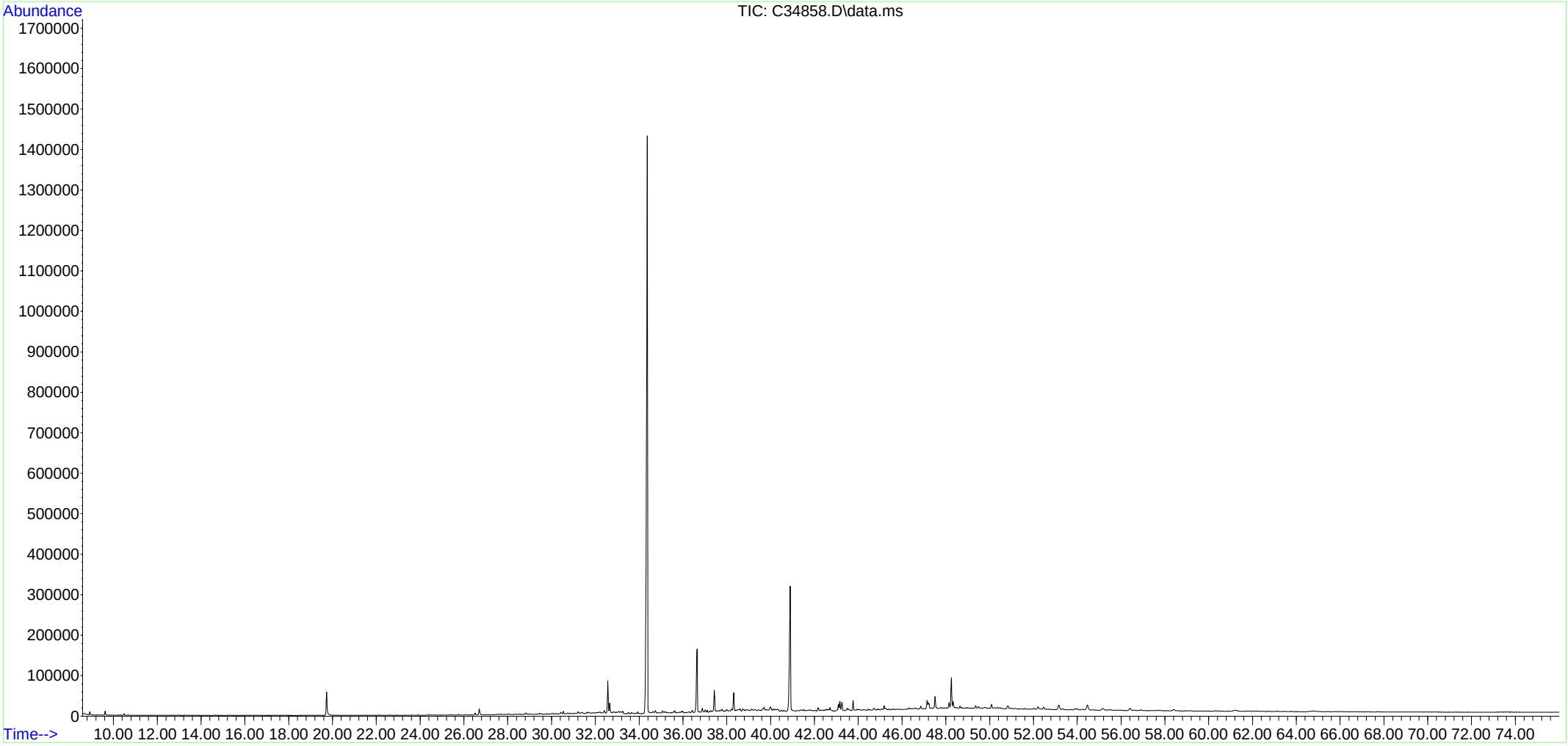
Compound	R.T.	QIon		Response	Conc	Units	Dev(Min)
128) 13b(H),17a(H)-20S-Diac...	45.274	217		920M3	72.157	ng/ml	
129) 13b(H),17a(H)-20R-Diac...	45.696	217		379	29.726	ng/ml	100
130) 13b,17a-20S-Methyldiac...	46.389	217		549M3	43.059	ng/ml	
131) 14a,17a-20S-Chol/13b,1...	47.247	217		1863	146.119	ng/ml	100
132) 14a,17a-20R-Chol/13b,1...	47.774	217		1824M3	143.060	ng/ml	
133) Unknown Sterane (S18)	48.090	217	G	1112M3	87.216	ng/ml	
134) 13a,17b-20S-Ethyldiach...	48.316	217		127	9.961	ng/ml	100
135) 14a,17a-20S-Methylchol...	48.482	217		814	63.844	ng/ml	100
136) 14a,17a-20R-Methylchol...	49.190	217		704	55.216	ng/ml	100
137) 14a(H),17a(H)-20S-Ethy...	49.536	217		1786M3	140.080	ng/ml	
138) 14a(H),17a(H)-20R-Ethy...	50.440	217		1636M3	128.315	ng/ml	
139) 14b(H),17b(H)-20R-Chol...	47.337	218		981M3	76.942	ng/ml	
140) 14b(H),17b(H)-20S-Chol...	47.428	218		1036M3	81.256	ng/ml	
141) 14b,17b-20R-Methylchol...	48.648	218		1070	83.922	ng/ml	100
142) 14b,17b-20S-Methylchol...	48.723	218		1532M3	120.158	ng/ml	
143) 14b(H),17b(H)-20R-Ethy...	49.777	218		2142M3	168.001	ng/ml	
144) 14b(H),17b(H)-20S-Ethy...	49.822	218		1272M3	99.765	ng/ml	
145) C26,20R- +C27,20S- tri...	49.491	231		10106	792.634	ng/mL	100
146) C28,20S-triaromatic st...	50.349	231		8467	664.084	ng/mL	100
147) C27,20R-triaromatic st...	50.801	231		6889	540.318	ng/mL	100
148) C28,20R-triaromatic st...	52.006	231		7590M3	595.299	ng/mL	

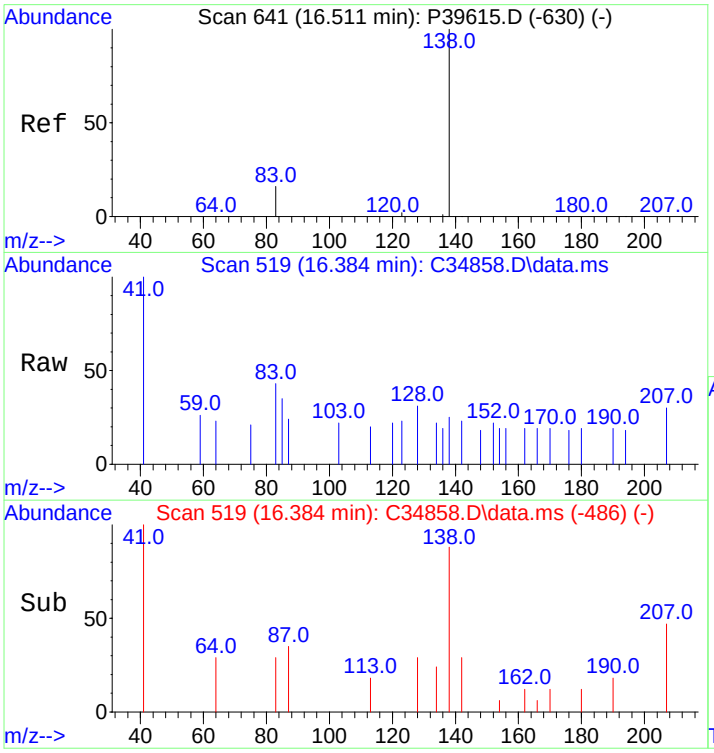
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Gulf_NEW_POIB_Default - All compounds listediewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34858.D
Acq On : 5 May 2012 5:17 am
Operator : AC
Sample : 1204035-07D
Misc : 1X
ALS Vial : 42 Sample Multiplier: 1

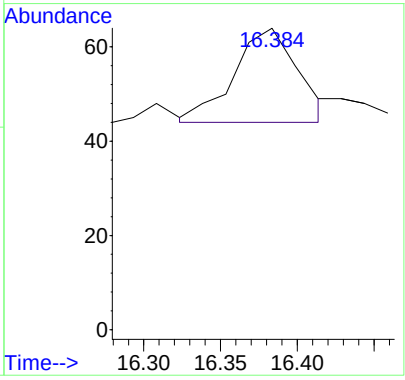
Quant Time: May 06 15:19:50 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

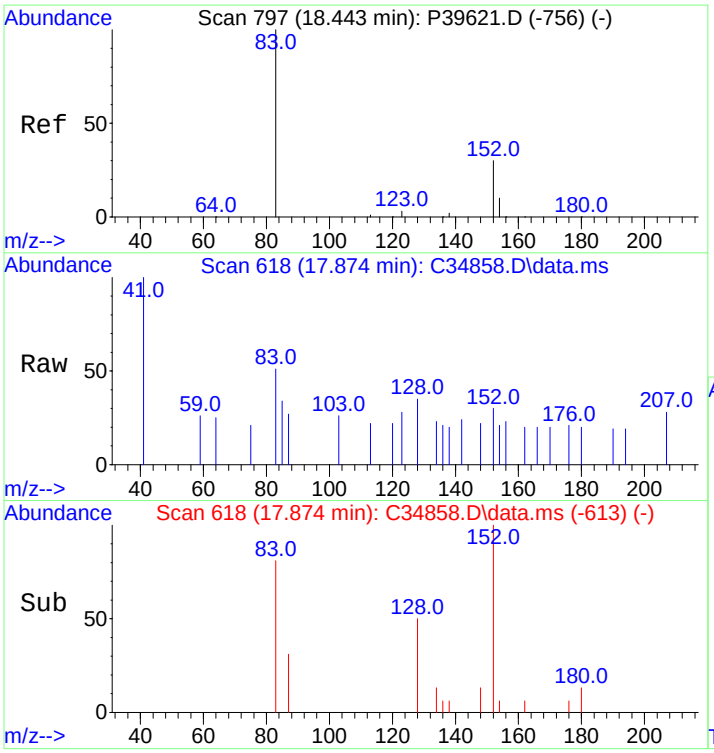




#3
trans-Decalin
Concen: 3.32 ng/mL m
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

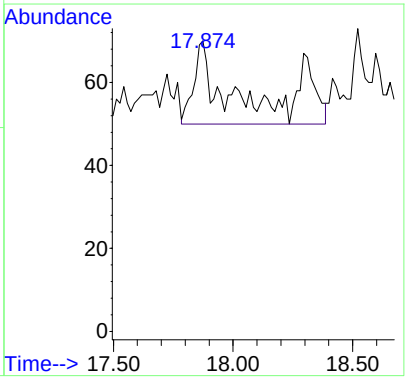
Tgt Ion:138 Resp: 58

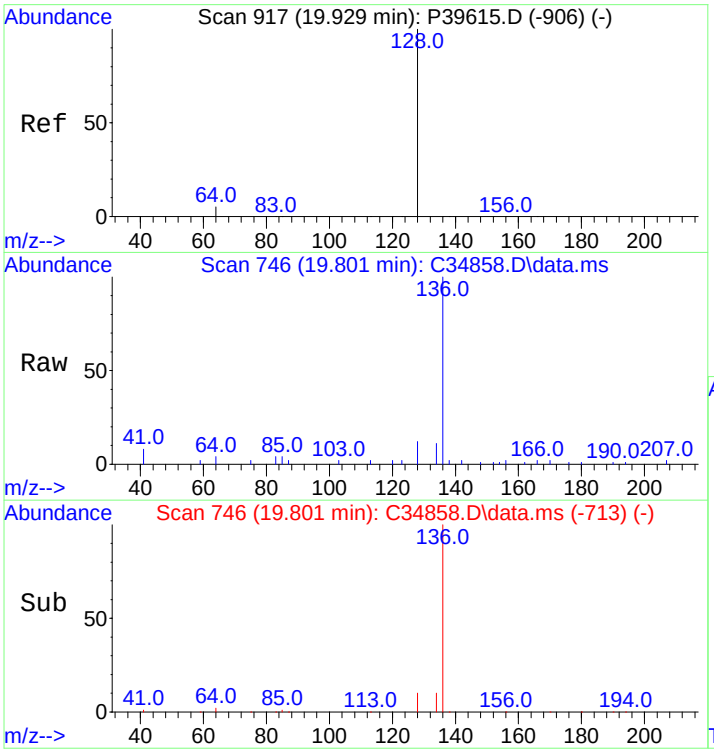




#5
C1-Decalins
Concen: 15.55 ng/mL m
RT: 17.874 min Scan# 618
Delta R.T. -0.474 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:152 Resp: 272

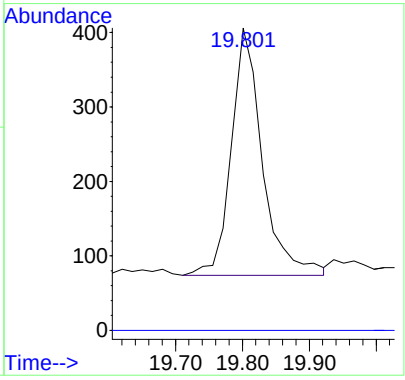


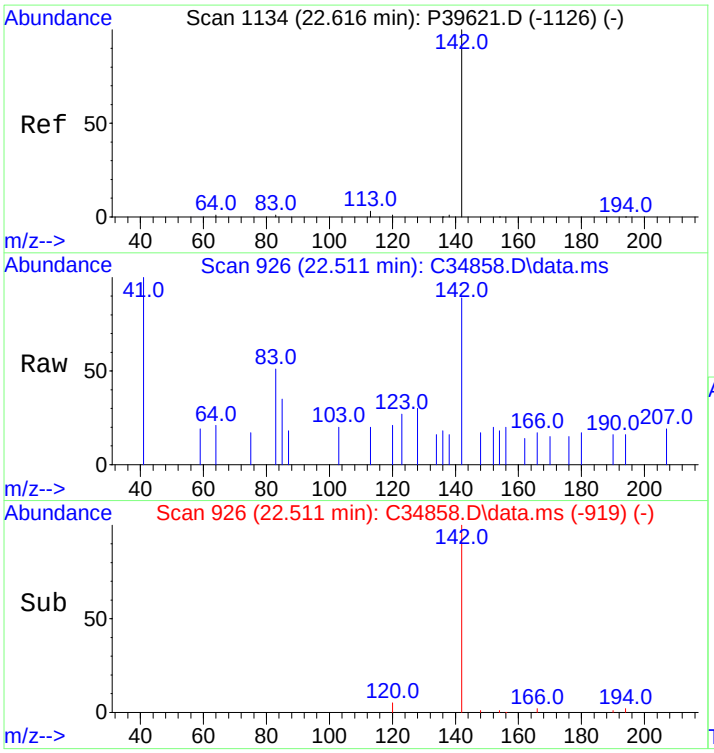


#10
Naphthalene
Concen: 7.57 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:128 Resp: 1069

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

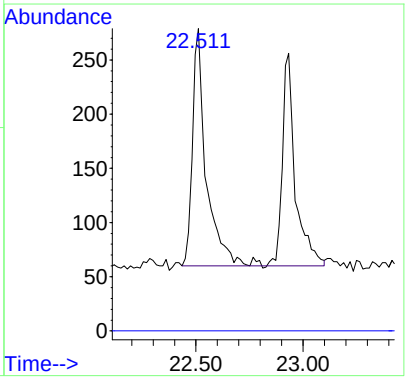


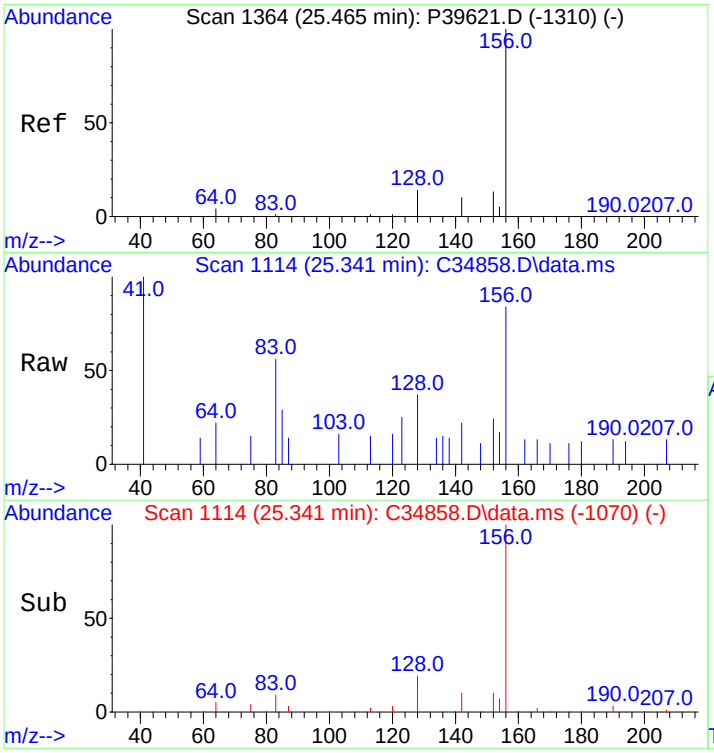


#11
C1-Naphthalenes
Concen: 12.70 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. -0.004 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:142 Resp: 1794

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

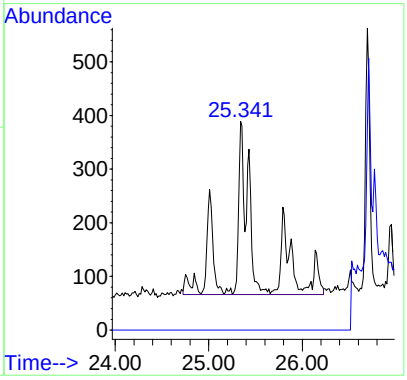


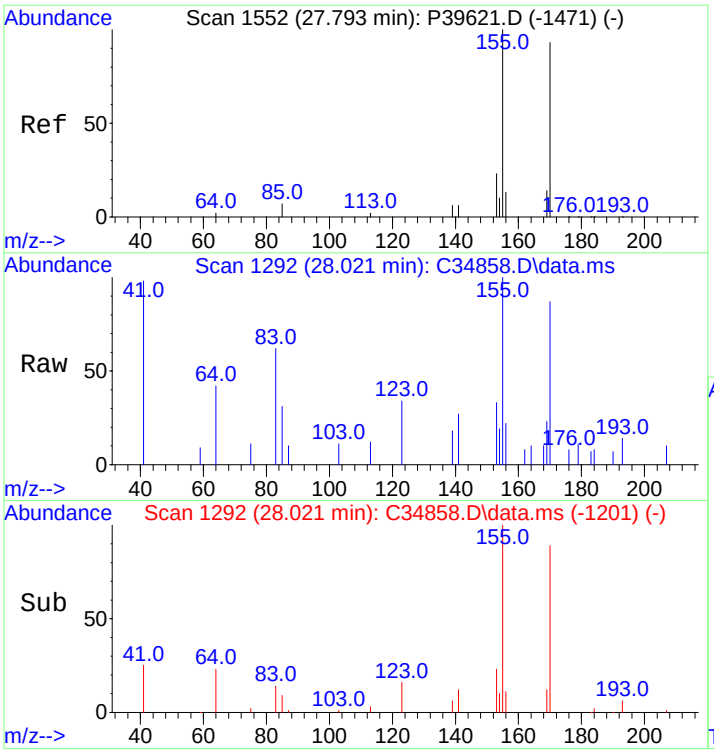


#12
C2-Naphthalenes
Concen: 33.09 ng/mL m
RT: 25.341 min Scan# 1114
Delta R.T. -0.006 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:156 Resp: 4673

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

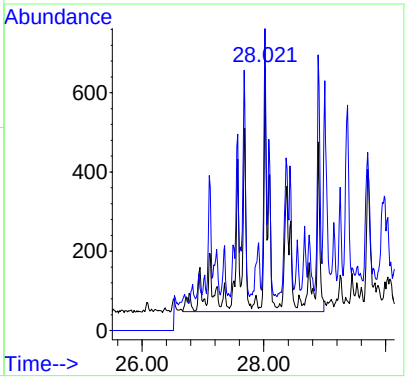


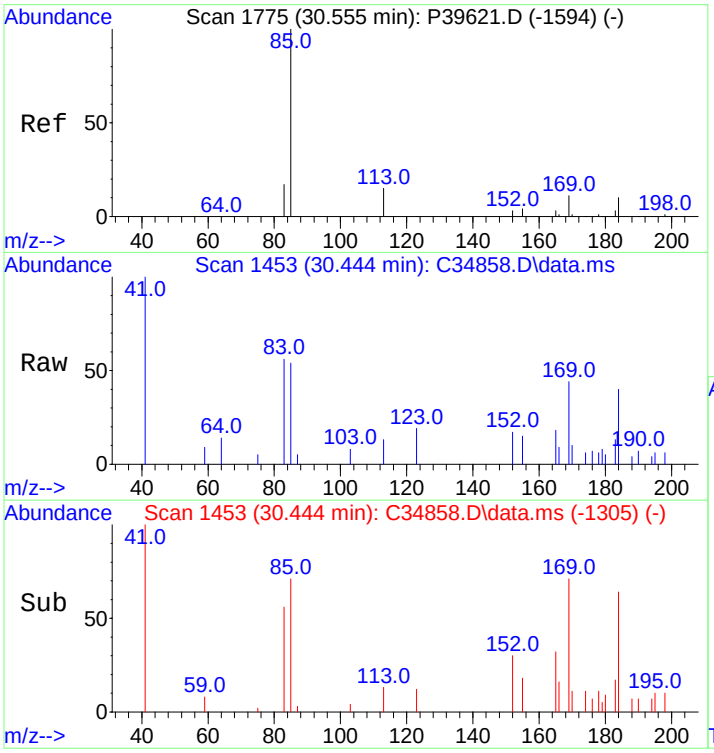


#13
C3-Naphthalenes
Concen: 81.68 ng/mL m
RT: 28.021 min Scan# 1292
Delta R.T. 0.351 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:170 Resp: 11534

Ion	Ratio	Lower	Upper
170	100		
155	14.7	81.8	122.6#

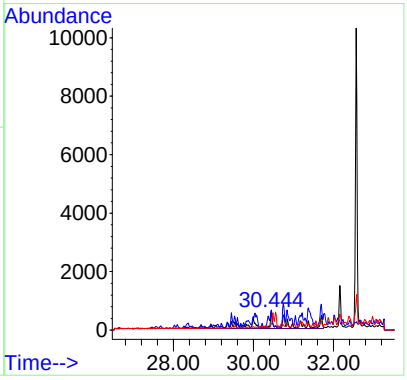


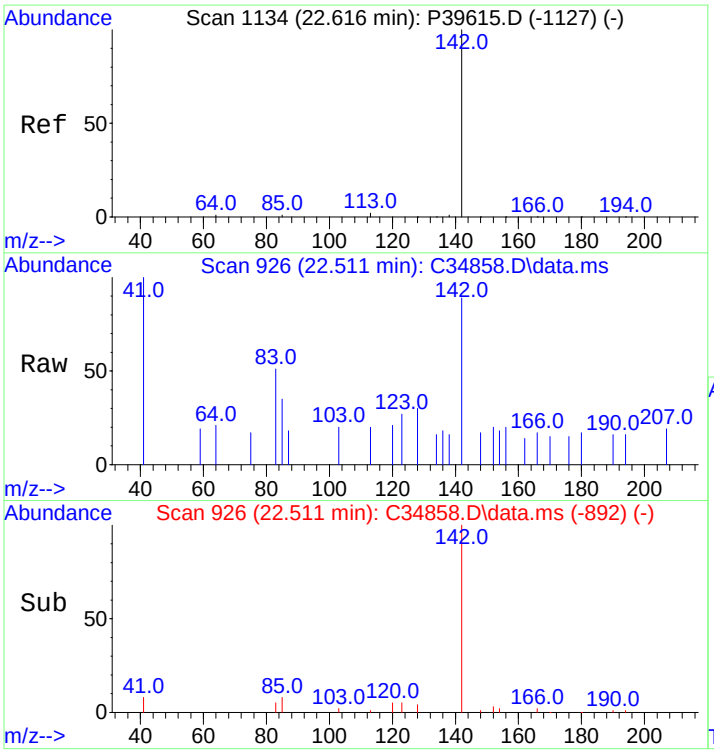


#14
C4-Naphthalenes
Concen: 128.86 ng/mL m
RT: 30.444 min Scan# 1453
Delta R.T. 0.032 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:184 Resp: 18197

Ion	Ratio	Lower	Upper
184	100		
169	10.3	77.4	116.0#
183	0.0	14.8	22.2#

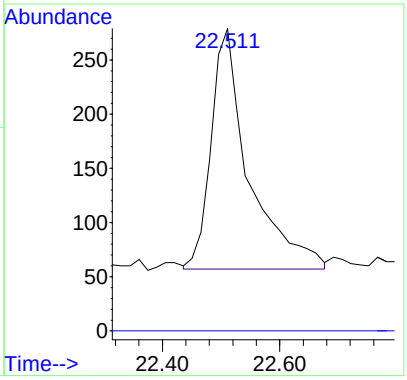


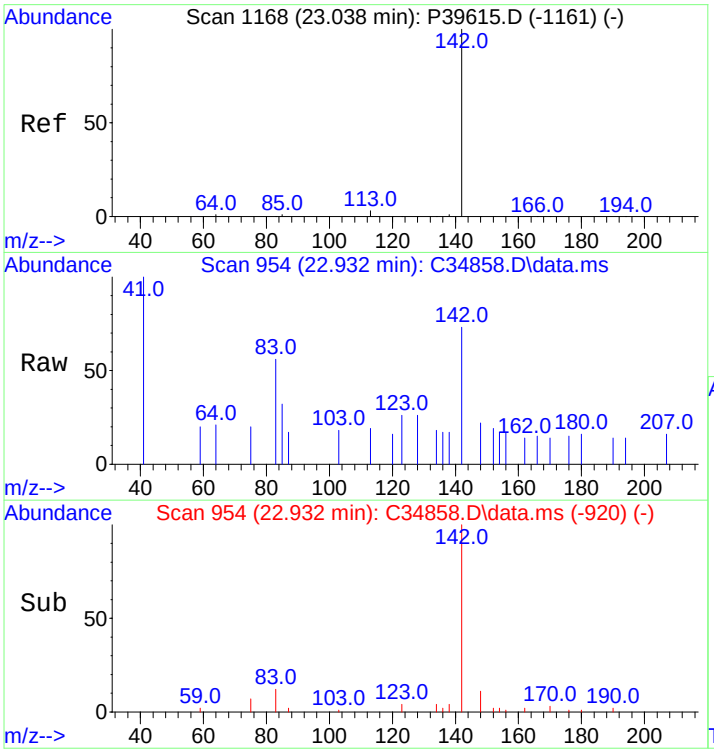


#16
2-Methylnaphthalene
Concen: 11.83 ng/mL m
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:142 Resp: 988

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

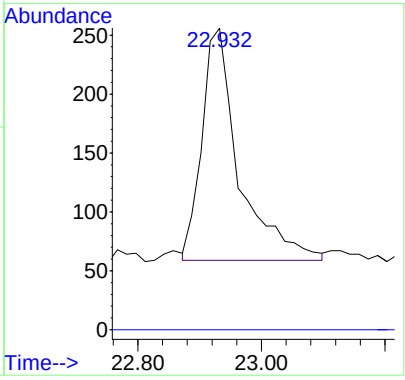


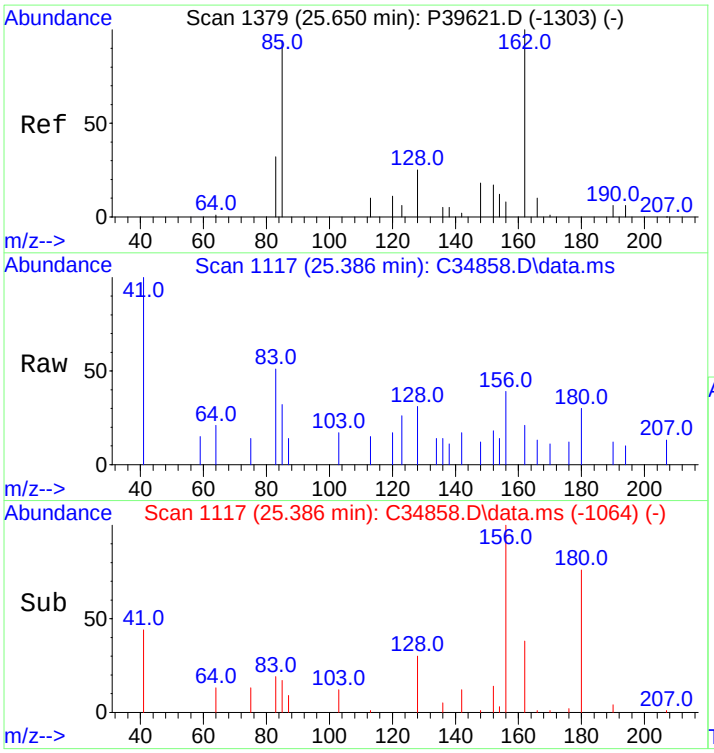


#17
1-Methylnaphthalene
Concen: 10.02 ng/mL m
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:142 Resp: 820

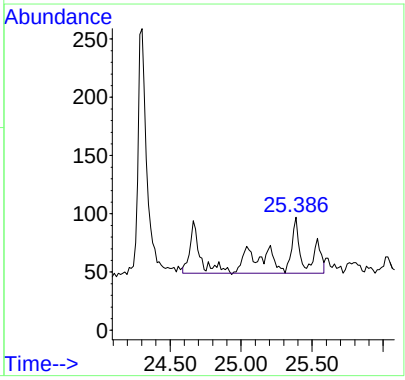
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

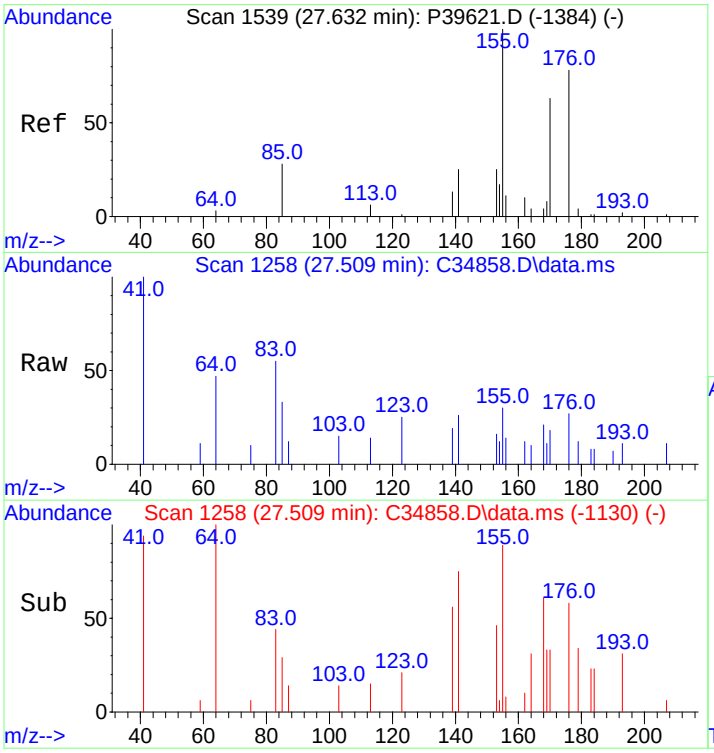




#20
C2-Benzo(b)thiophenes
Concen: 5.97 ng/mL m
RT: 25.386 min Scan# 1117
Delta R.T. -0.156 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

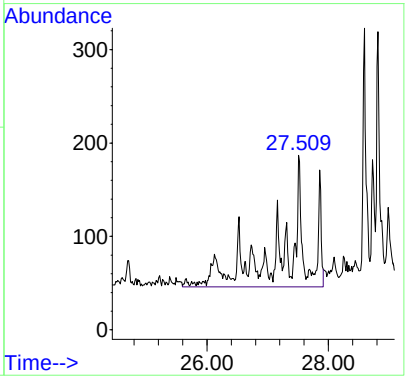
Tgt Ion:162 Resp: 758

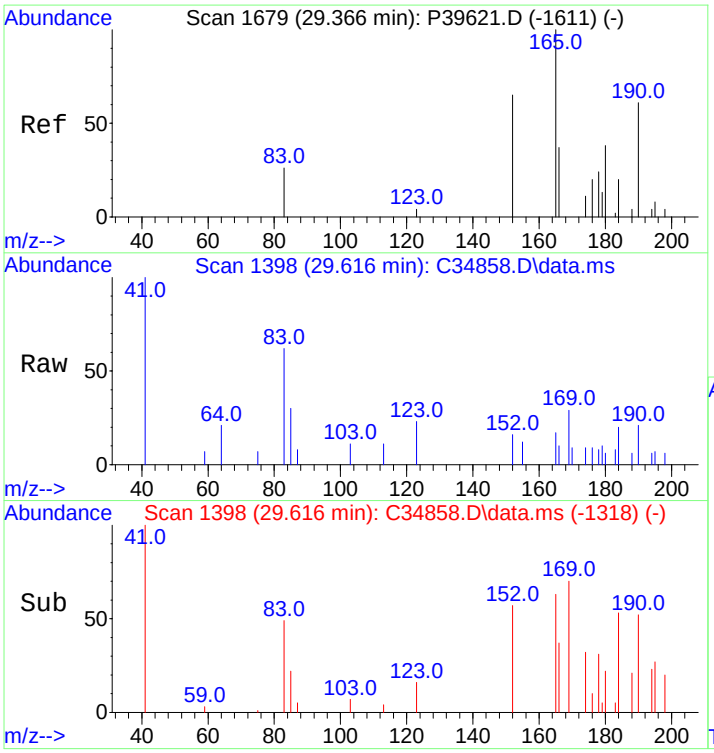




#21
C3-Benzo(b)thiophenes
Concen: 26.03 ng/mL m
RT: 27.509 min Scan# 1258
Delta R.T. 0.003 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

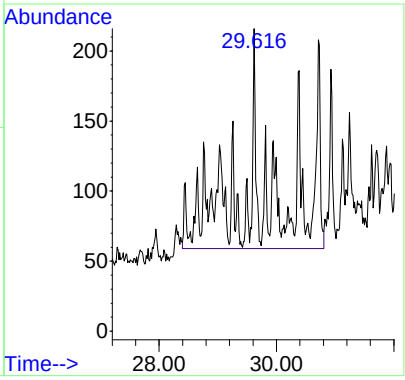
Tgt Ion:176 Resp: 3308

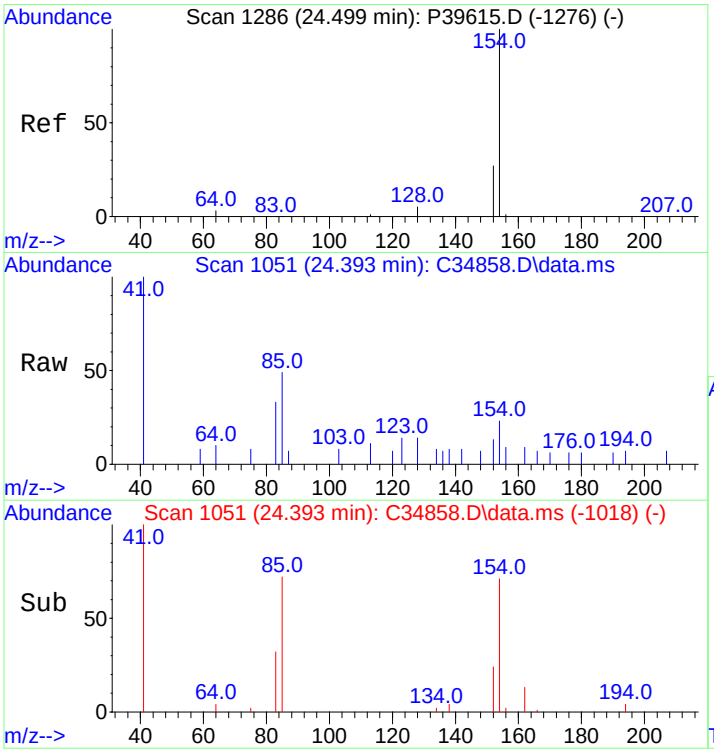




#22
C4-Benzo(b)thiophenes
Concen: 37.53 ng/mL m
RT: 29.616 min Scan# 1398
Delta R.T. 0.388 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:190 Resp: 4769

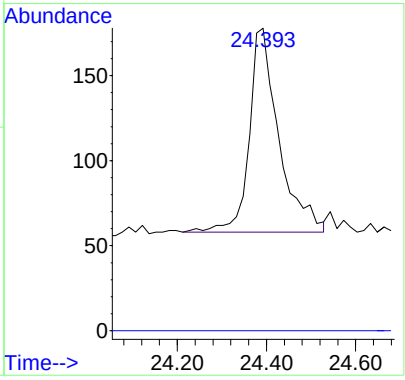


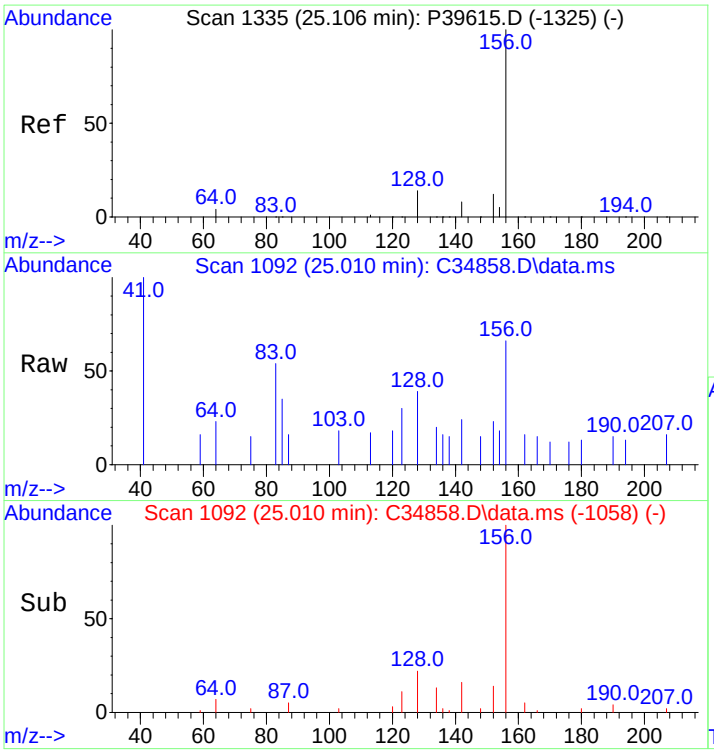


#23
Biphenyl
Concen: 5.28 ng/mL
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:154 Resp: 558

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

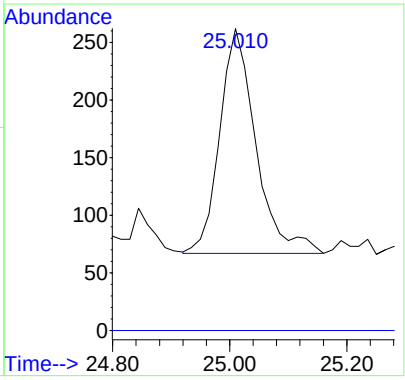


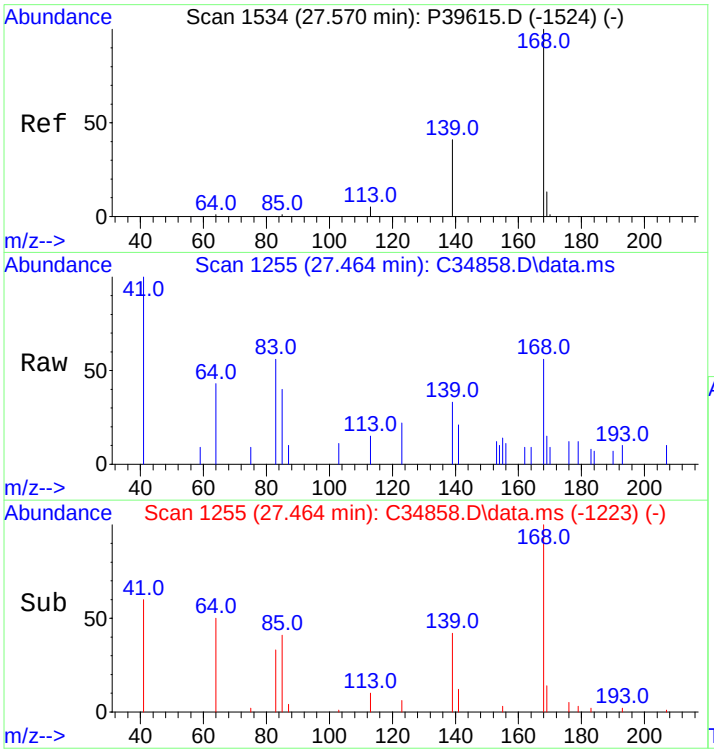


#24
2,6-Dimethylnaphthalene
Concen: 12.14 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:156 Resp: 833

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

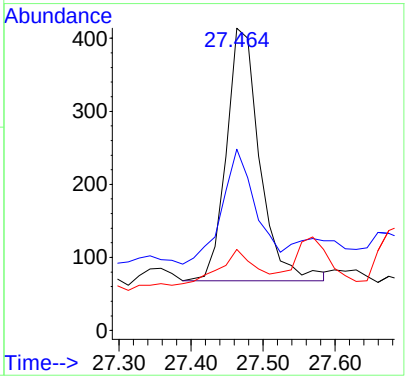


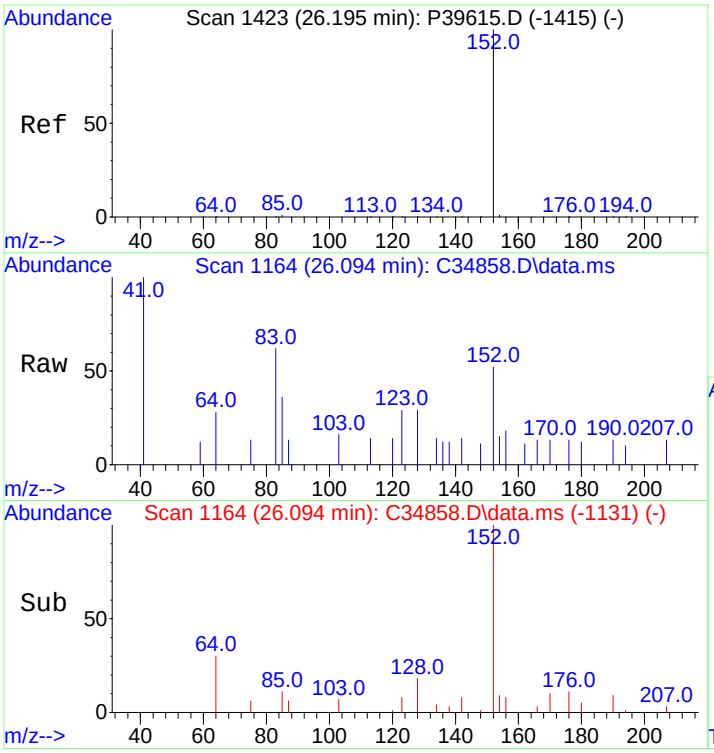


#25
Dibenzofuran
Concen: 9.19 ng/mL
RT: 27.464 min Scan# 1255
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:168 Resp: 1114

Ion	Ratio	Lower	Upper
168	100		
139	45.4	28.4	42.6#
169	22.7	10.8	16.2#

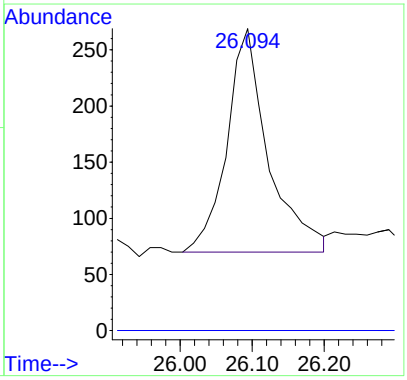


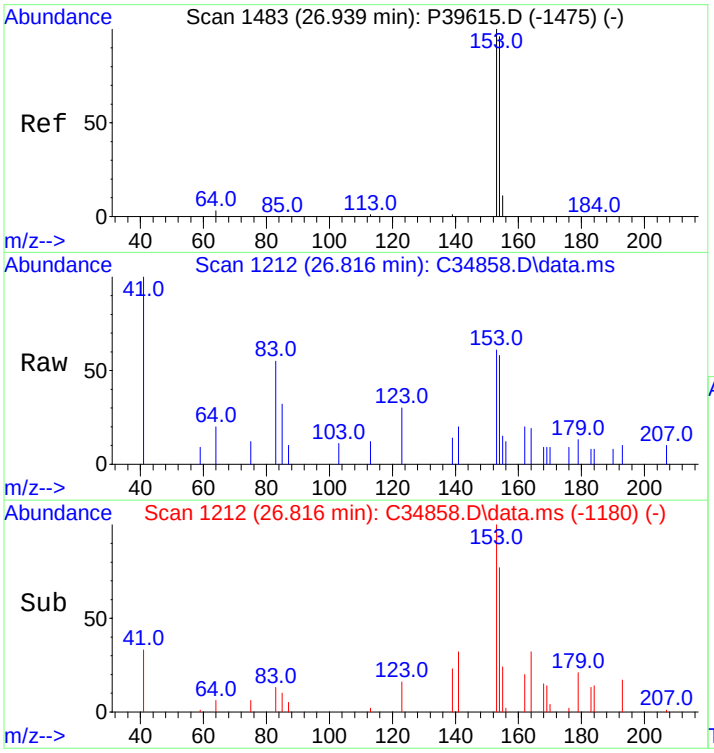


#26
Acenaphthylene
Concen: 5.66 ng/mL
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:152 Resp: 793

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

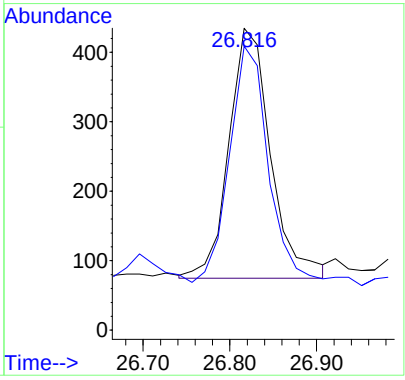


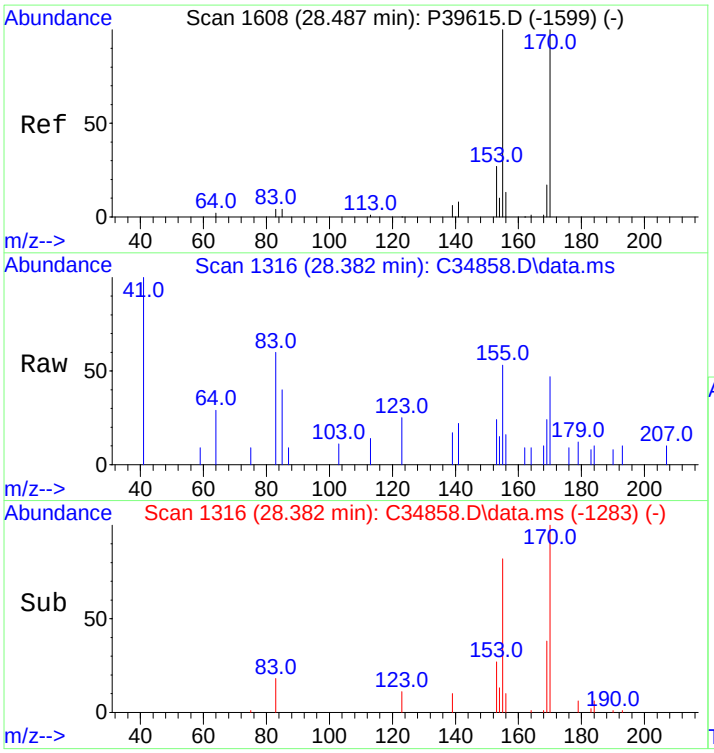


#27
Acenaphthene
Concen: 14.58 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:153 Resp: 1203

Ion	Ratio	Lower	Upper
153	100		
154	93.0	73.6	110.4

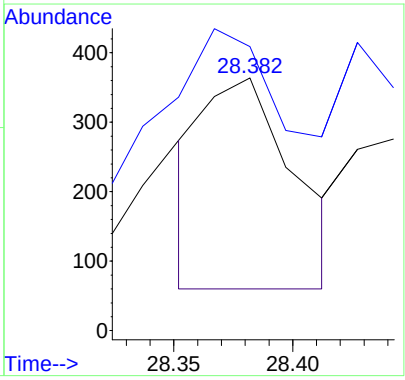


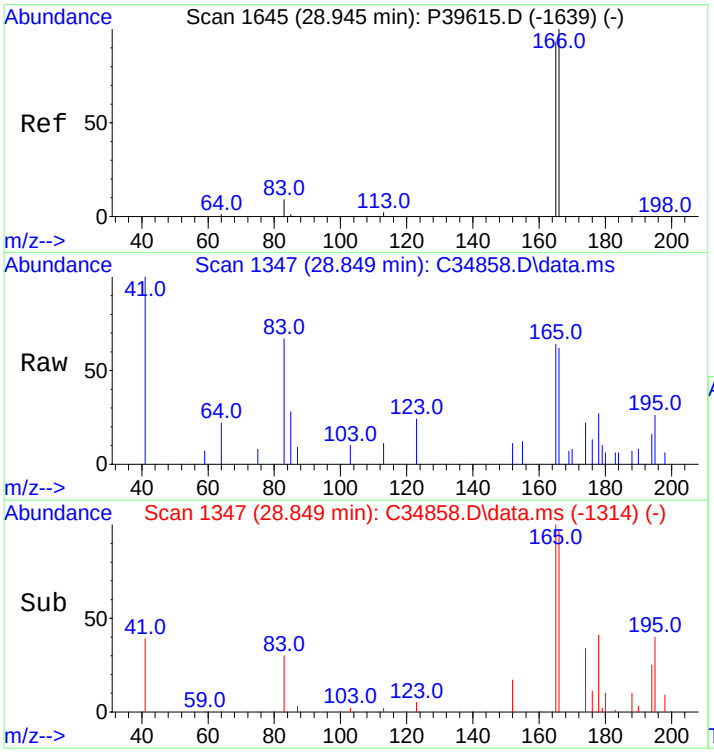


#28
2,3,5-Trimethylnaphthalene
Concen: 14.49 ng/mL m
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:170 Resp: 801

Ion	Ratio	Lower	Upper
170	100		
155	193.8	87.3	130.9#

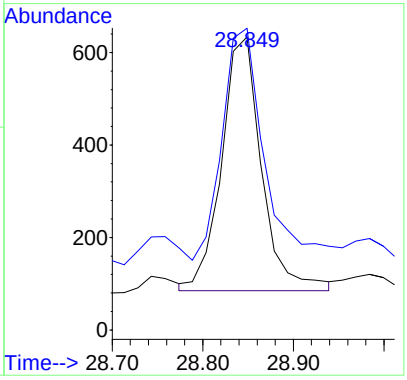


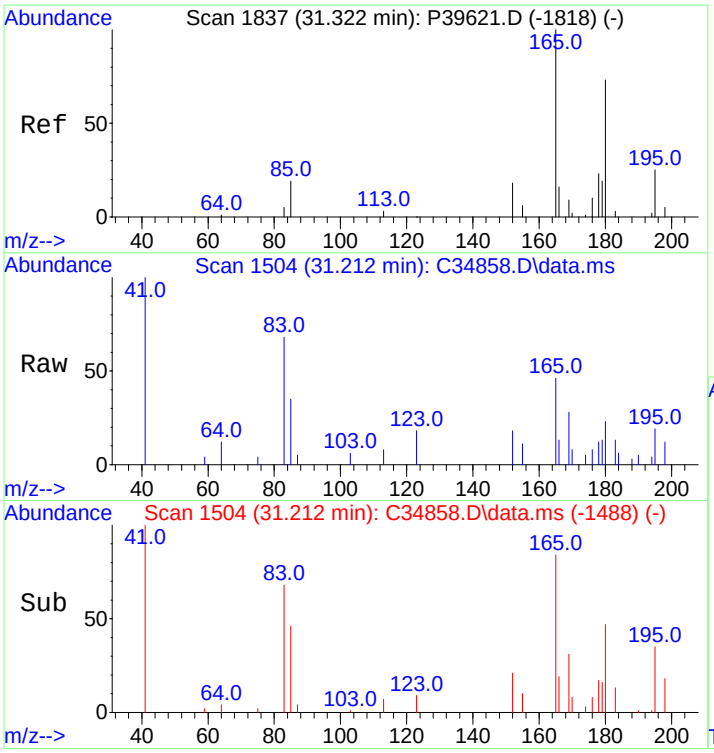


#29
Fluorene
Concen: 18.52 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:166 Resp: 1686

Ion	Ratio	Lower	Upper
166	100		
165	116.0	77.3	115.9#

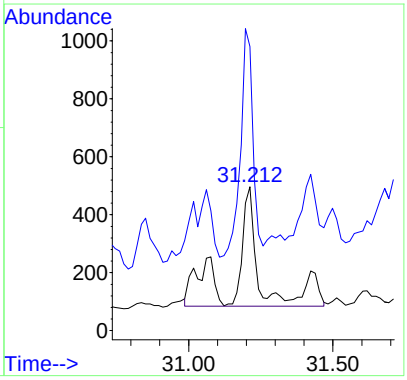


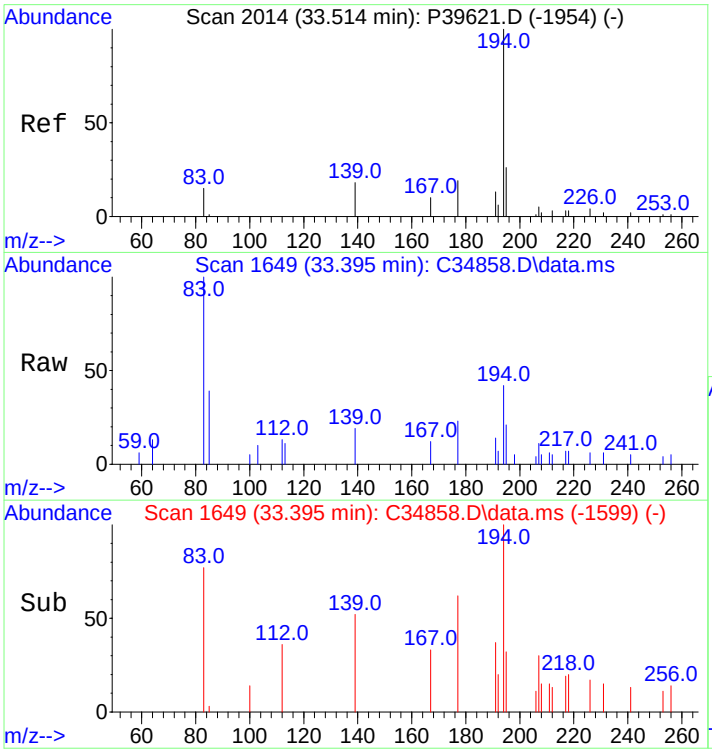


#30
C1-Fluorenes
Concen: 27.11 ng/mL m
RT: 31.212 min Scan# 1504
Delta R.T. 0.035 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:180 Resp: 2468

Ion	Ratio	Lower	Upper
180	100		
165	22.5	111.4	167.2#

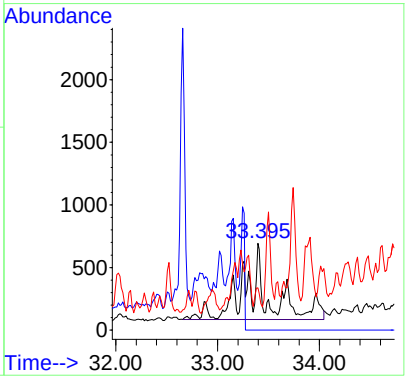


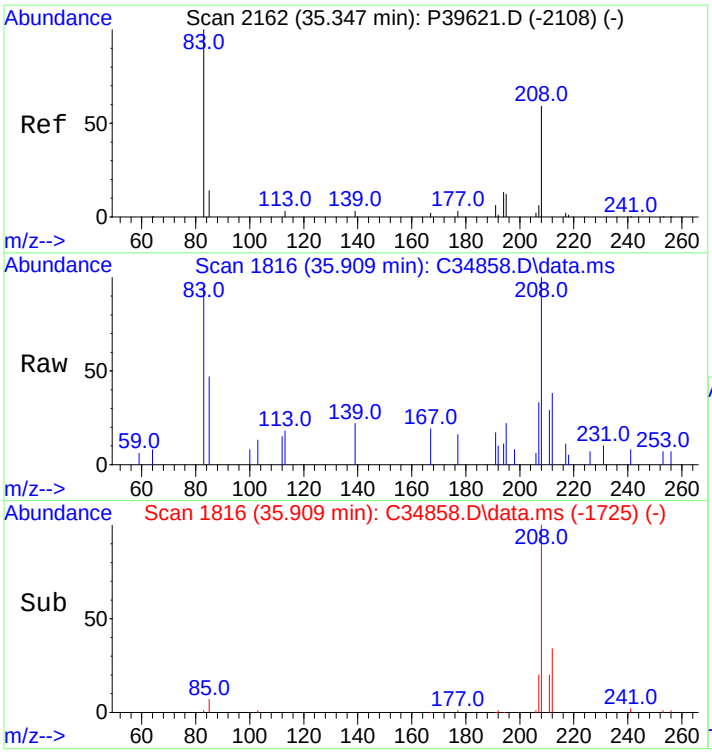


#31
C2-Fluorenes
Concen: 110.14 ng/mL m
RT: 33.395 min Scan# 1649
Delta R.T. 0.045 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:194 Resp: 10026

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.6	27.3	40.9#

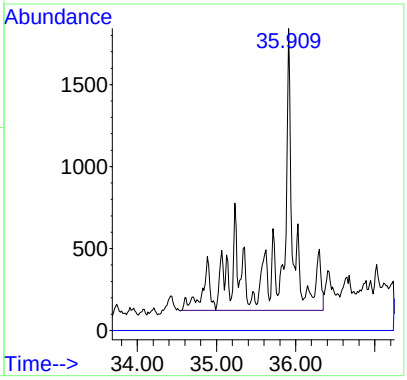


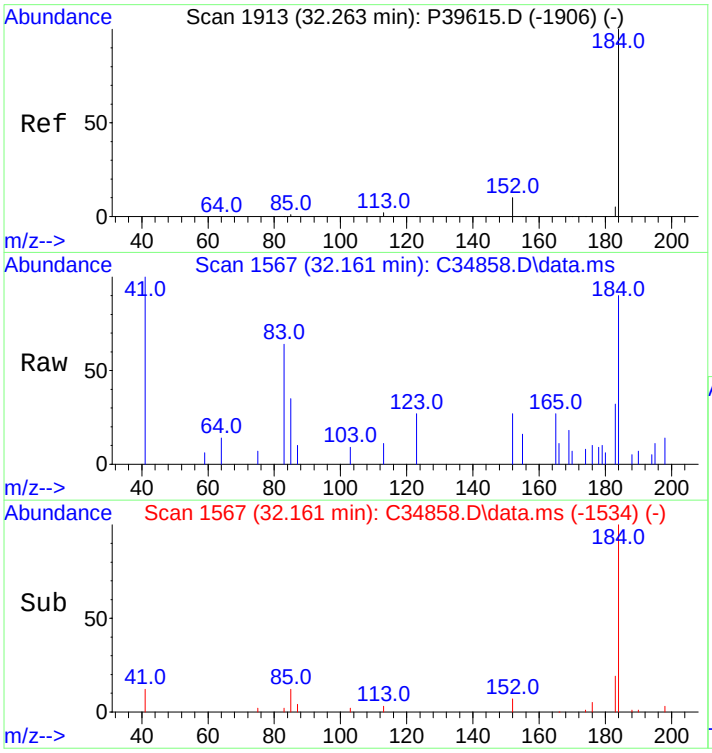


#32
C3-Fluorenes
Concen: 249.00 ng/mL m
RT: 35.909 min Scan# 1816
Delta R.T. 0.731 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:208 Resp: 22666

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

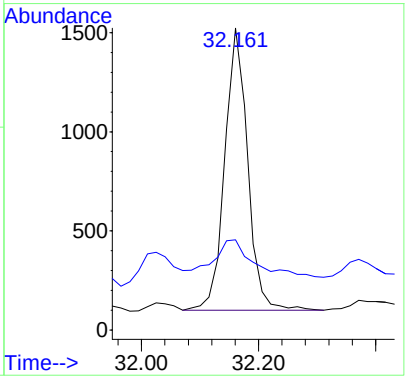


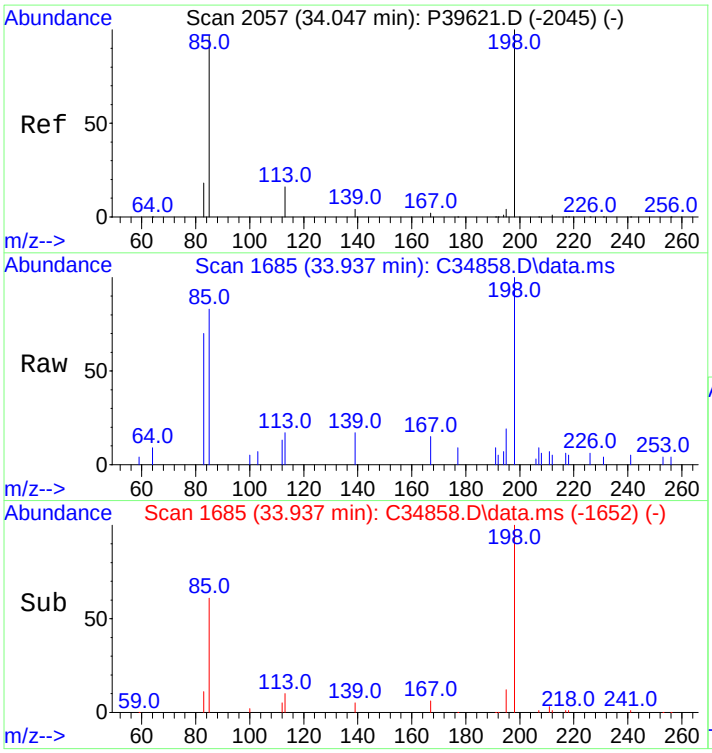


#33
Dibenzothiophene
Concen: 26.36 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:184 Resp: 3846

Ion	Ratio	Lower	Upper
184	100		
152	23.7	7.5	11.3#

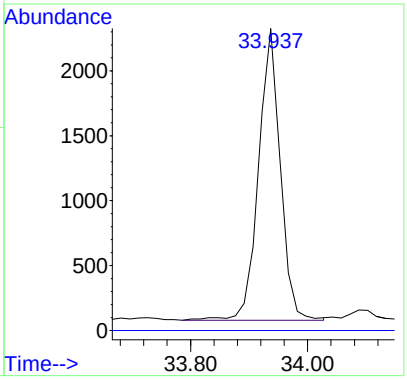


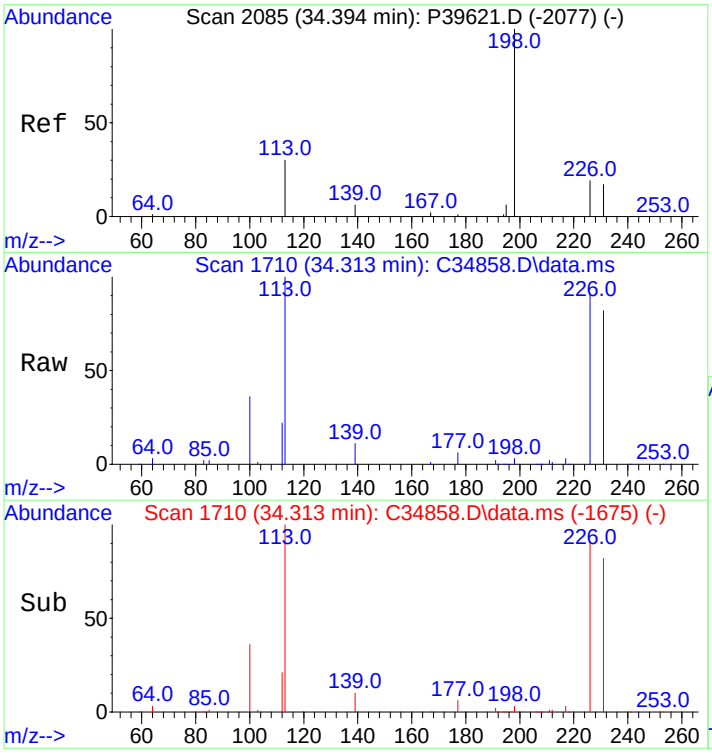


#34
4-Methyldibenzothiophene(4MDT)
Concen: 39.68 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:198 Resp: 5790

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

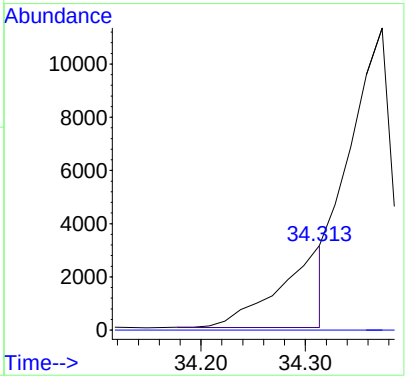


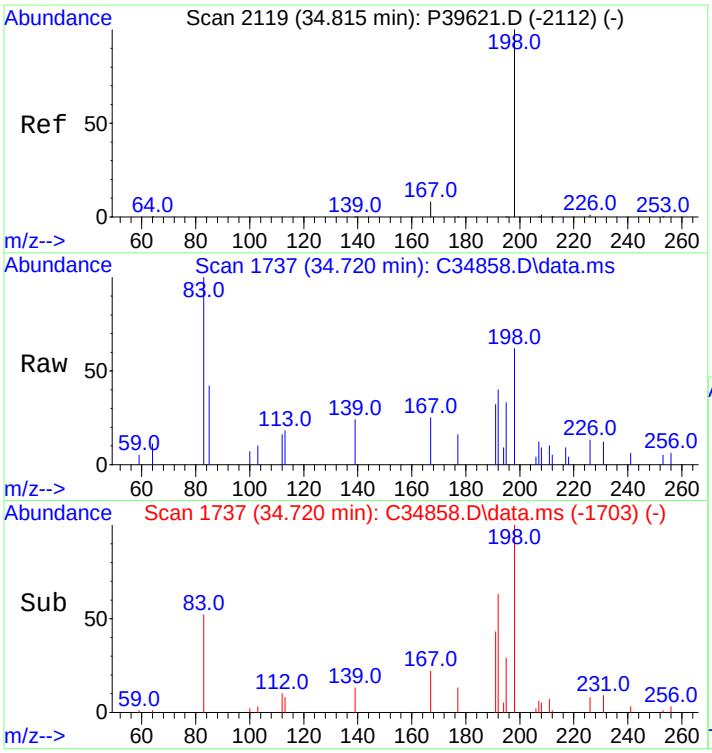


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 63.46 ng/mL m
RT: 34.313 min Scan# 1710
Delta R.T. 0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:198 Resp: 9260

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

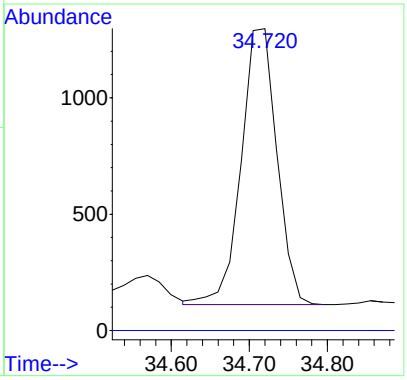


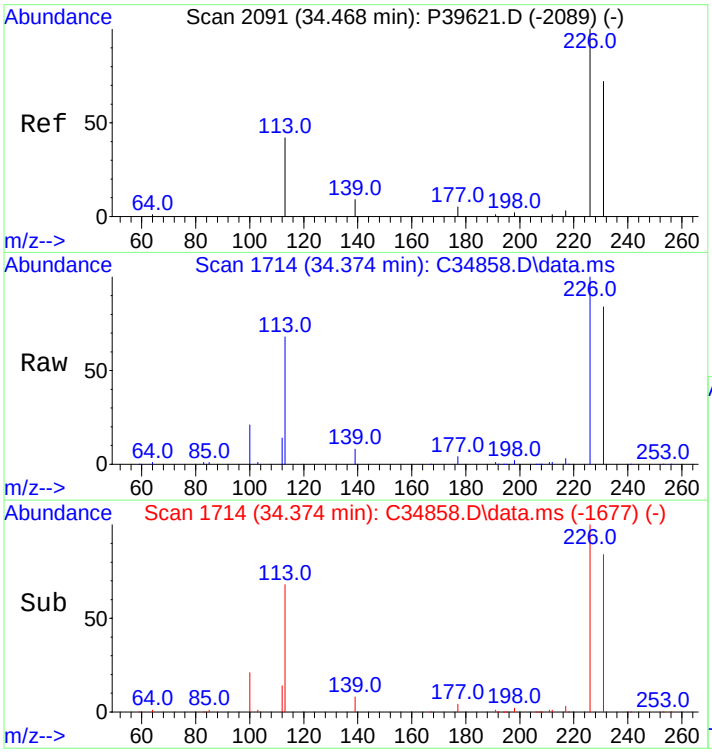


#36
1-Methyldibenzothiophene(1MDT)
Concen: 25.91 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:198 Resp: 3780

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

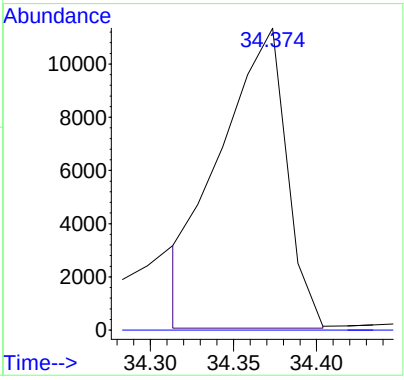


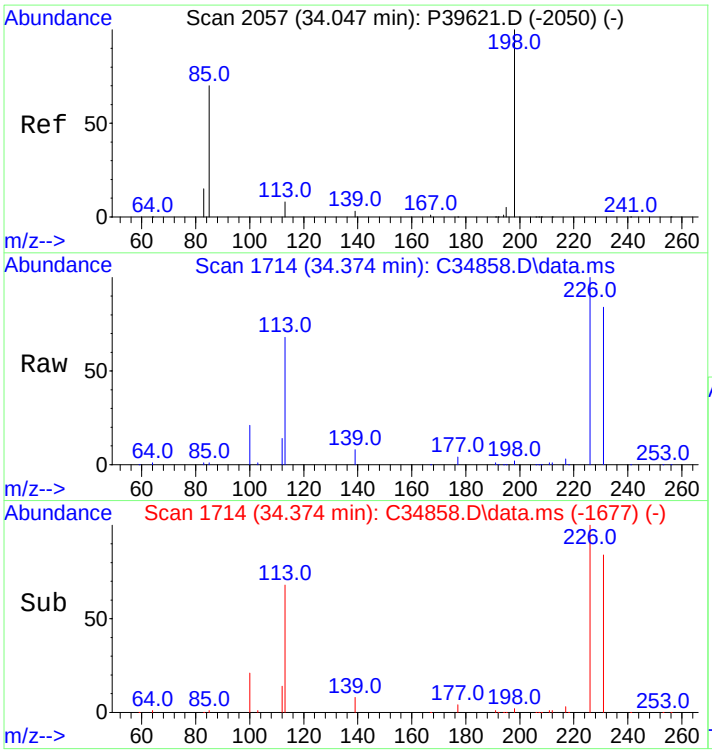


#37
OTP
Concen: 215.11 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.060 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:198 Resp: 31388

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

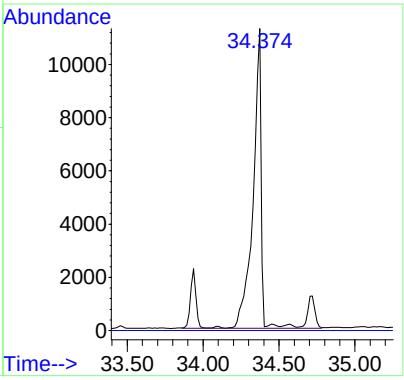


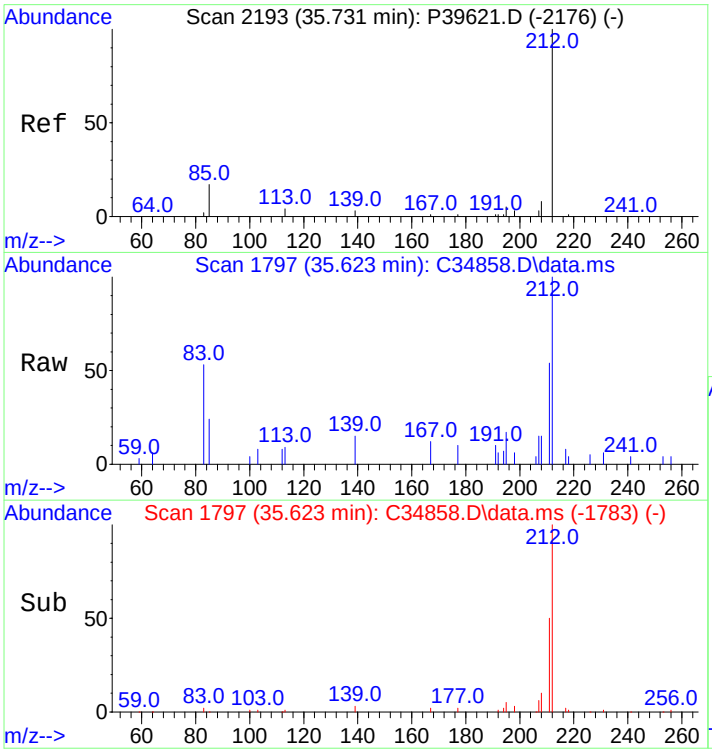


#38
C1-Dibenzothiophenes
Concen: 356.06 ng/mL m
RT: 34.374 min Scan# 1714
Delta R.T. 0.499 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:198 Resp: 51955

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

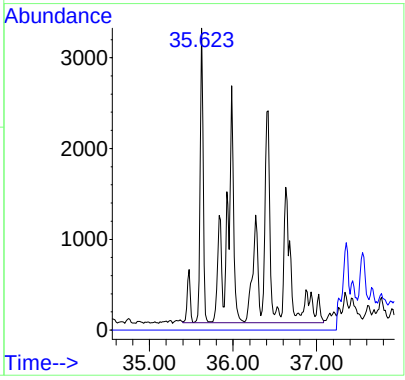


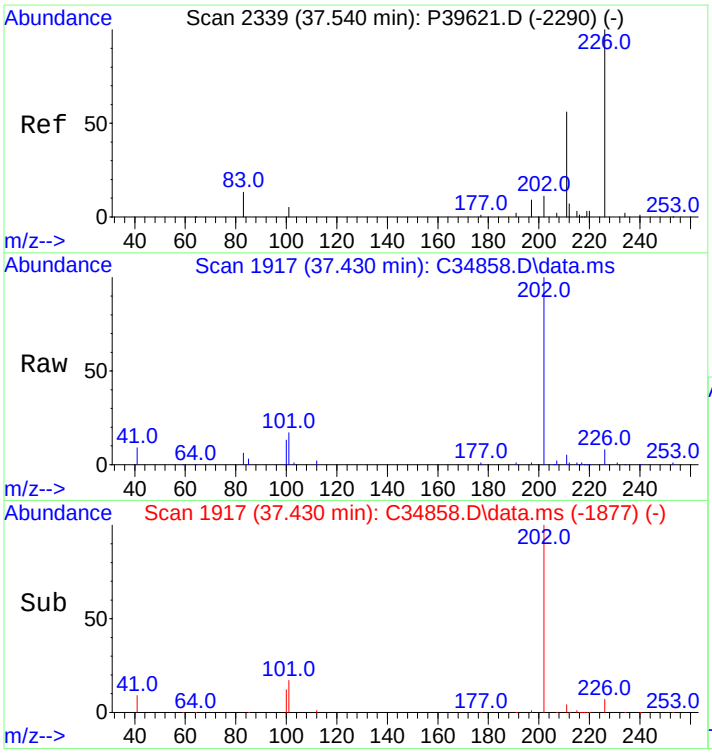


#39
C2-Dibenzothiophenes
Concen: 334.71 ng/mL m
RT: 35.623 min Scan# 1797
Delta R.T. -0.290 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:212 Resp: 48839

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

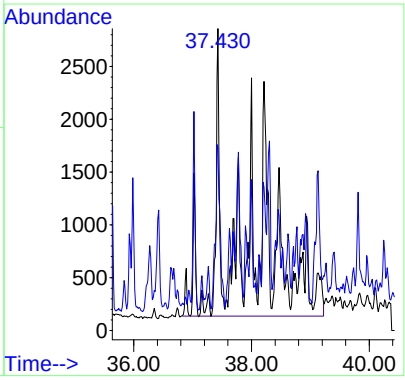


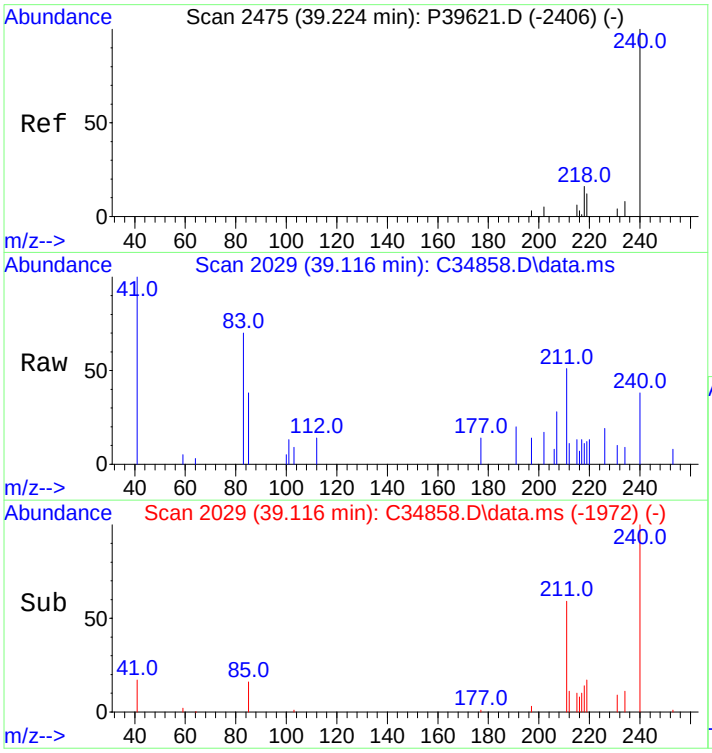


#40
C3-Dibenzothiophenes
Concen: 471.13 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.078 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:226 Resp: 68745

Ion	Ratio	Lower	Upper
226	100		
211	12.1	45.0	67.6#

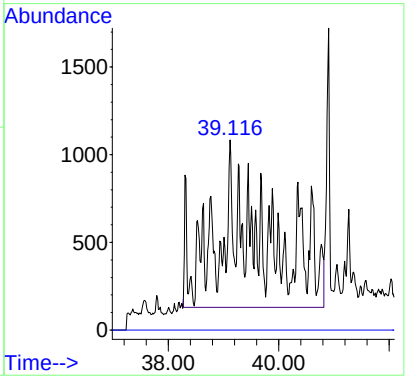


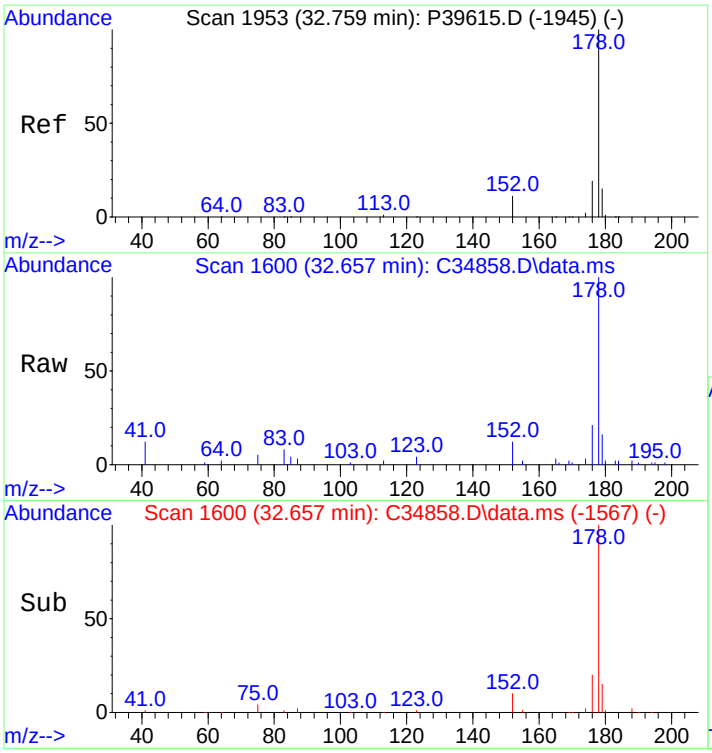


#41
C4-Dibenzothiophenes
Concen: 358.00 ng/mL m
RT: 39.116 min Scan# 2029
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:240 Resp: 52237

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

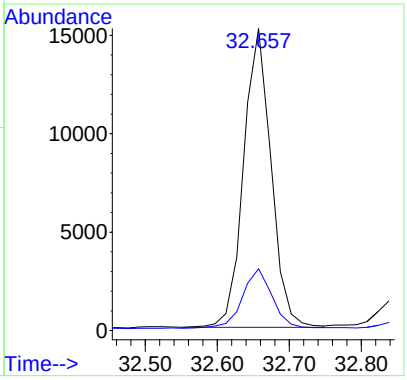


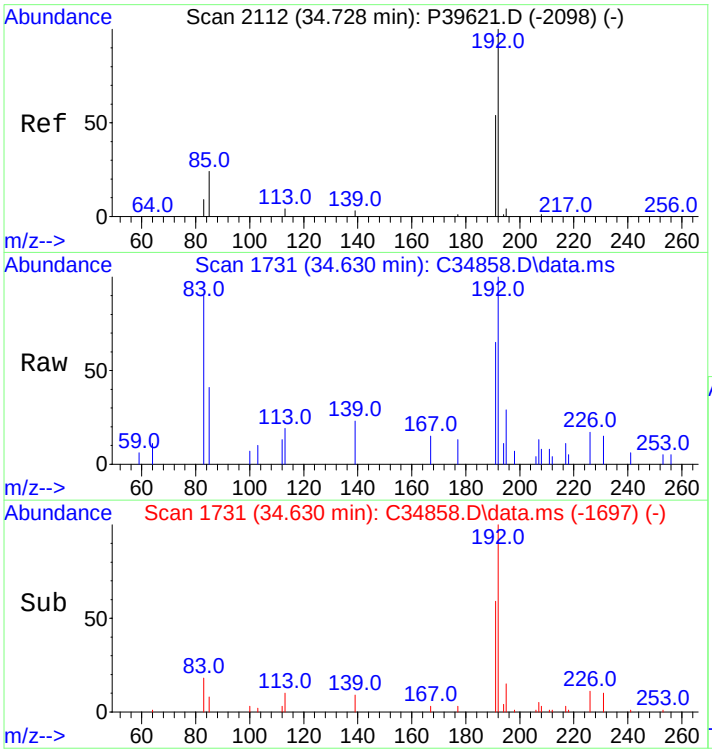


#43
Phenanthrene
Concen: 313.36 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:178 Resp: 40172

Ion	Ratio	Lower	Upper
178	100		
176	22.2	16.1	24.1

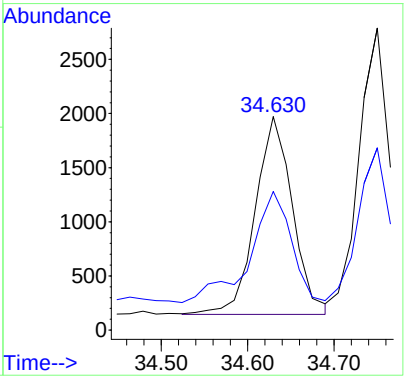


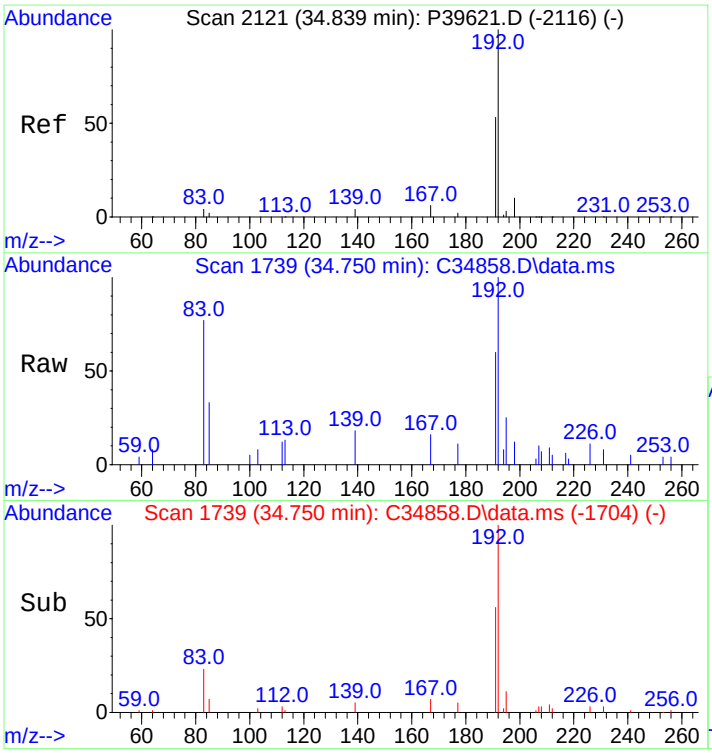


#44
3-Methylphenanthrene(3MP)
Concen: 42.76 ng/mL m
RT: 34.630 min Scan# 1731
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 5482

Ion	Ratio	Lower	Upper
192	100		
191	70.2	46.9	70.3

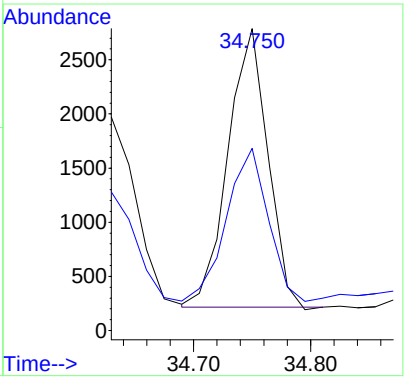


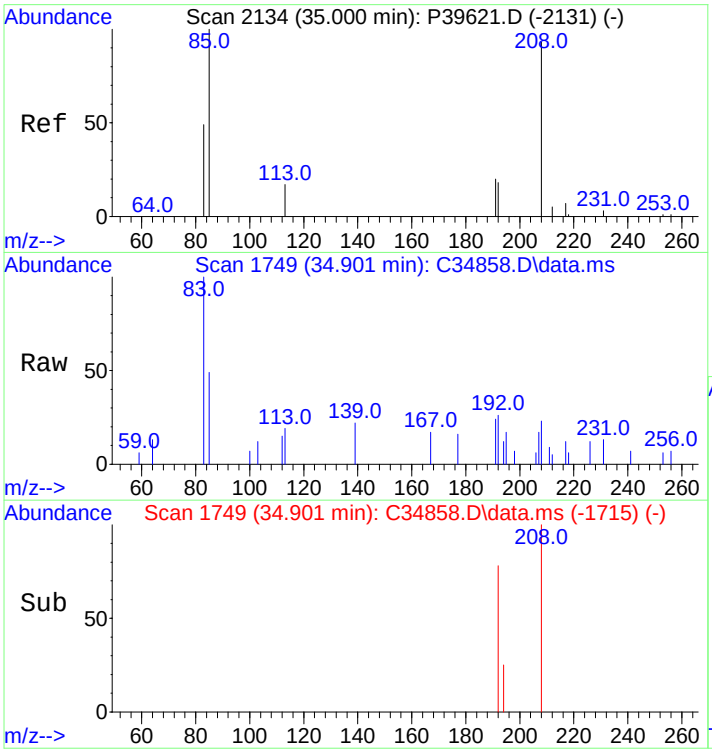


#45
2/4-Methylphenanthrene(2MP)
Concen: 47.36 ng/mL
RT: 34.750 min Scan# 1739
Delta R.T. 0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 6072

Ion	Ratio	Lower	Upper
192	100		
191	57.6	46.1	69.1

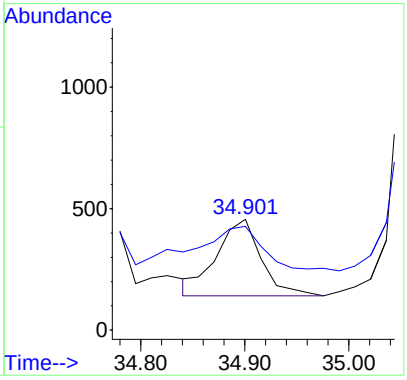


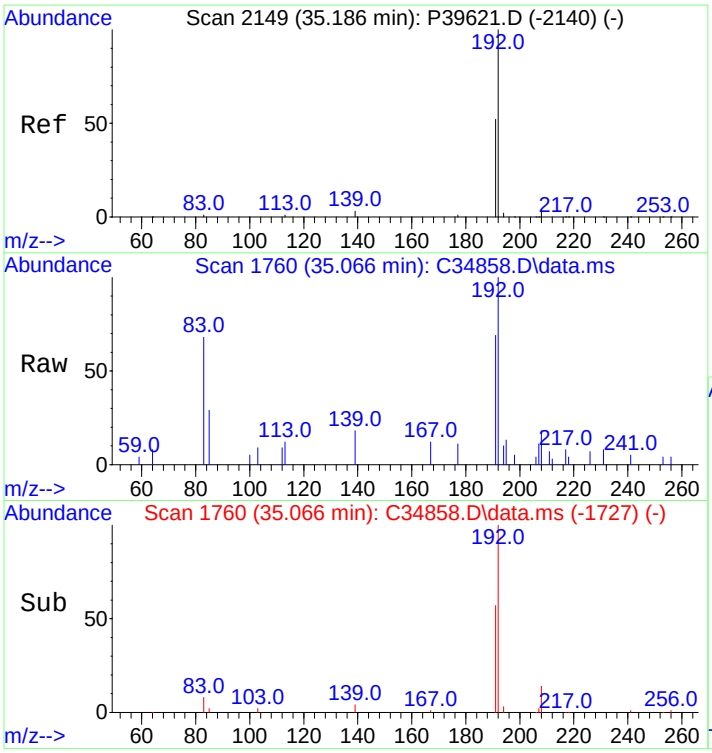


#46
2-Methylanthracene(2MA)
Concen: 7.36 ng/mL
RT: 34.901 min Scan# 1749
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 943

Ion	Ratio	Lower	Upper
192	100		
191	87.2	93.4	140.0#

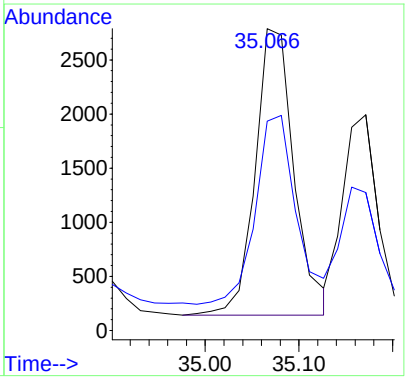


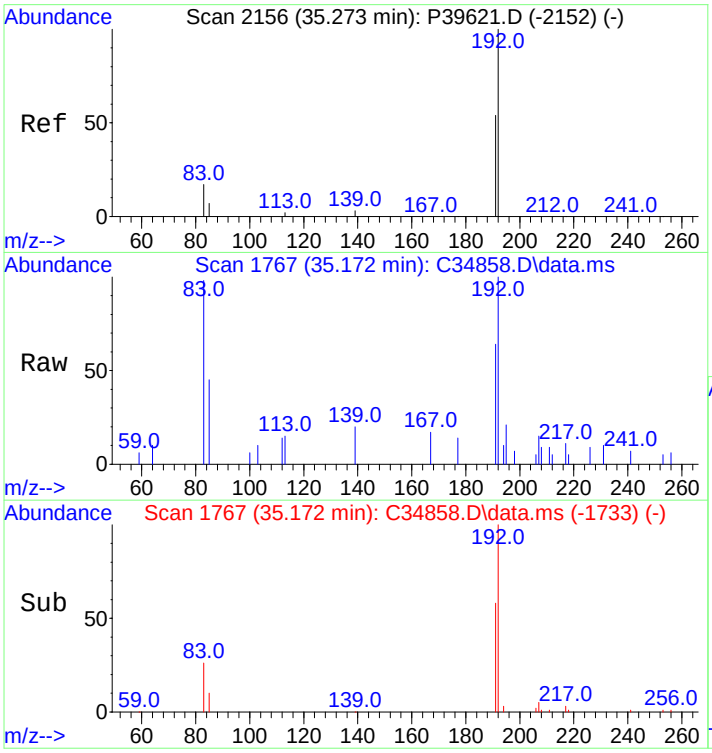


#47
9-Methylphenanthrene(9MP)
Concen: 59.72 ng/mL
RT: 35.066 min Scan# 1760
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 7656

Ion	Ratio	Lower	Upper
192	100		
191	68.5	45.9	68.9

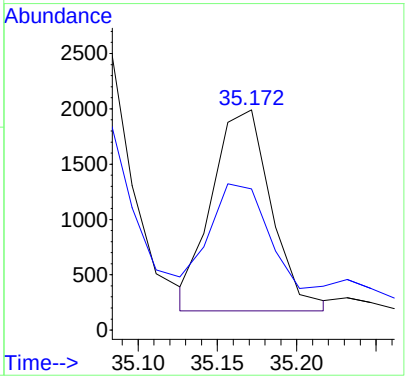


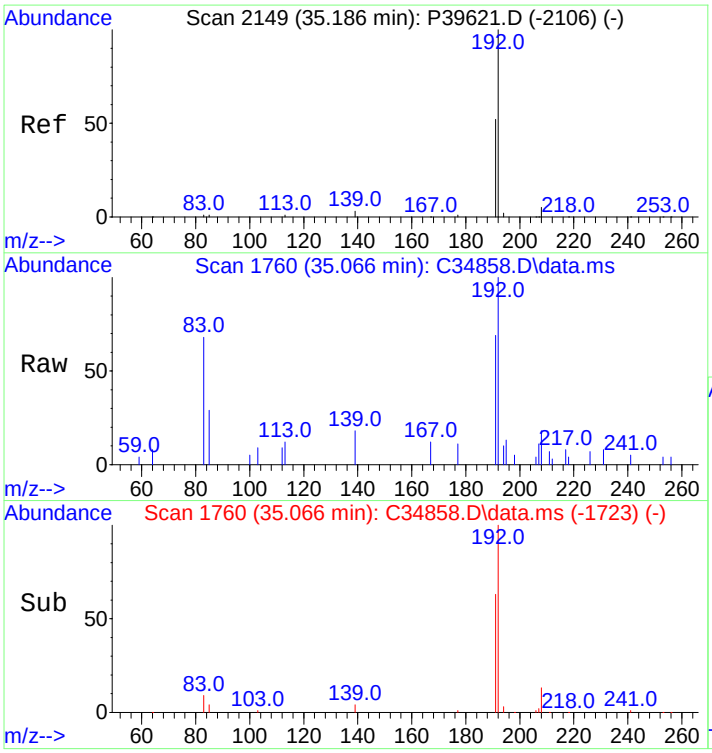


#48
1-Methylphenanthrene(1MP)
Concen: 36.77 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 4714

Ion	Ratio	Lower	Upper
192	100		
191	60.3	49.0	73.4

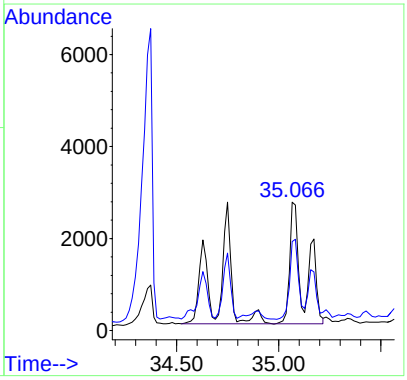


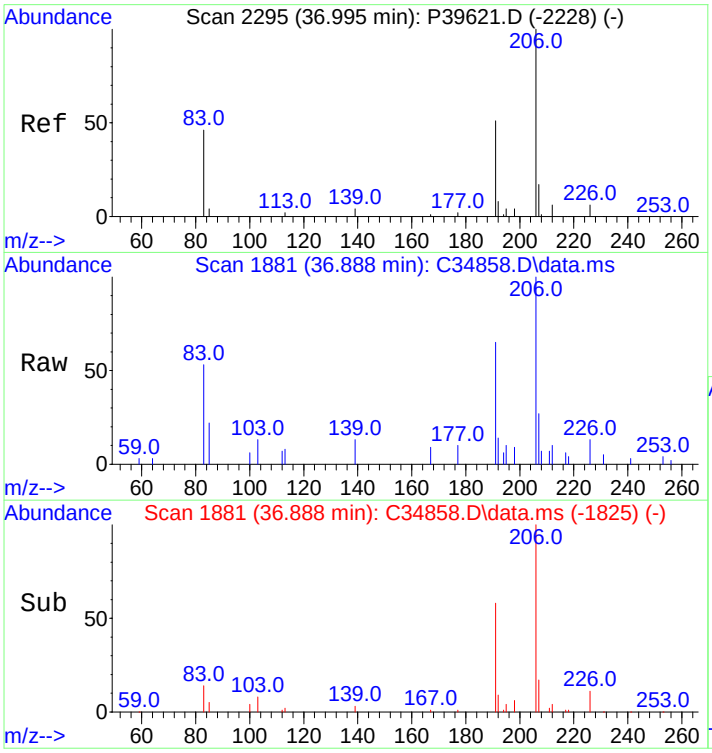


#49
C1-Phenanthrenes/Anthracenes
Concen: 199.56 ng/mL m
RT: 35.066 min Scan# 1760
Delta R.T. 0.052 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 25584

Ion	Ratio	Lower	Upper
192	100		
191	13.7	44.2	66.2#

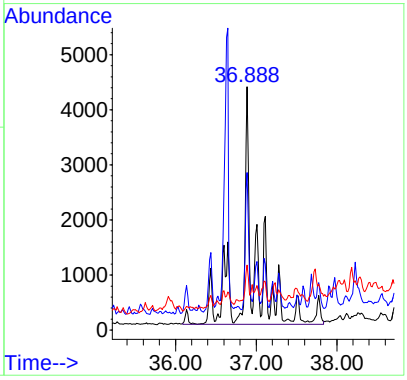


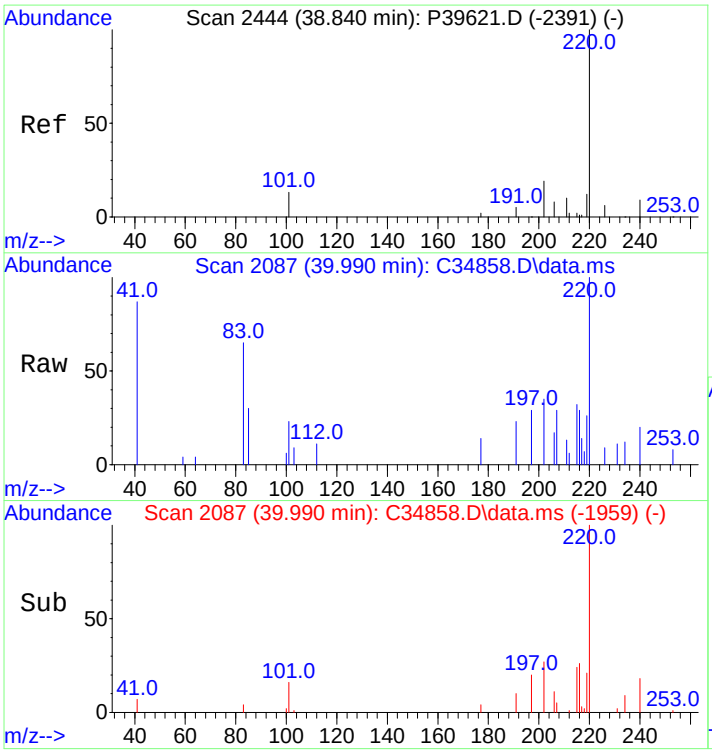


#50
C2-Phenanthrenes/Anthracenes
Concen: 350.35 ng/mL m
RT: 36.888 min Scan# 1881
Delta R.T. 0.076 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:206 Resp: 44914

Ion	Ratio	Lower	Upper
206	100		
191	16.4	44.0	66.0#
207	4.3	15.1	22.7#

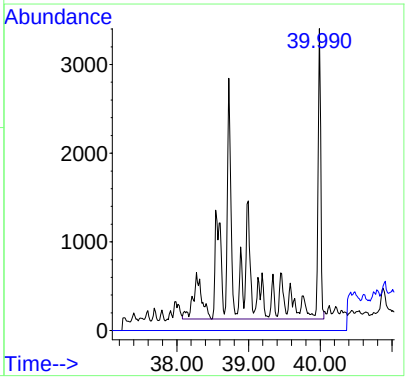


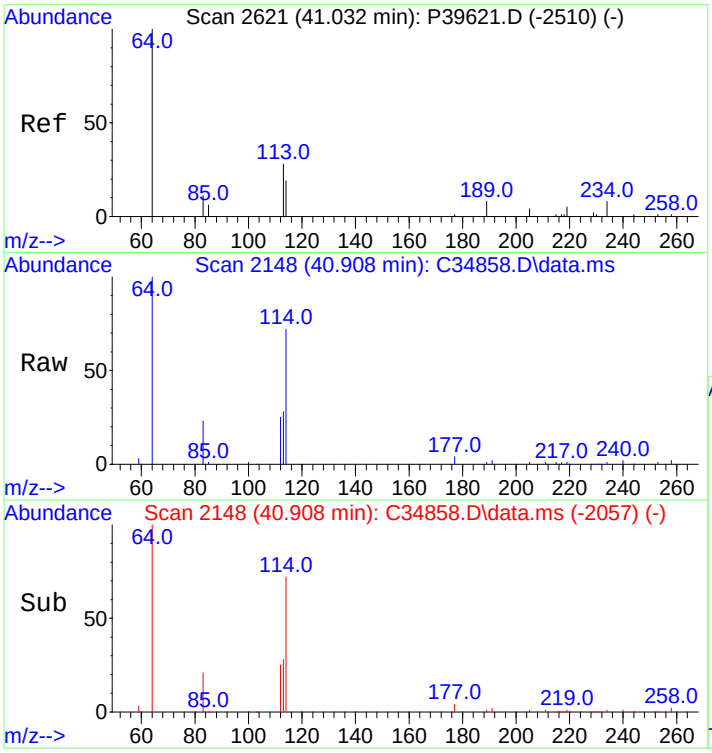


#52
C3-Phenanthrenes/Anthracenes
Concen: 346.07 ng/mL m
RT: 39.990 min Scan# 2087
Delta R.T. 1.349 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:220 Resp: 44366

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

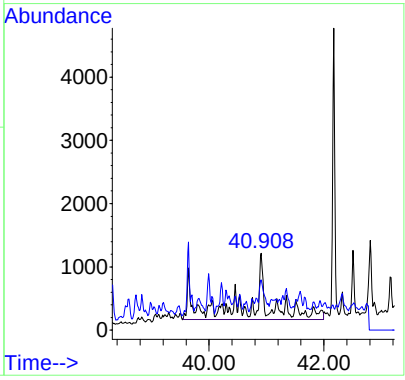


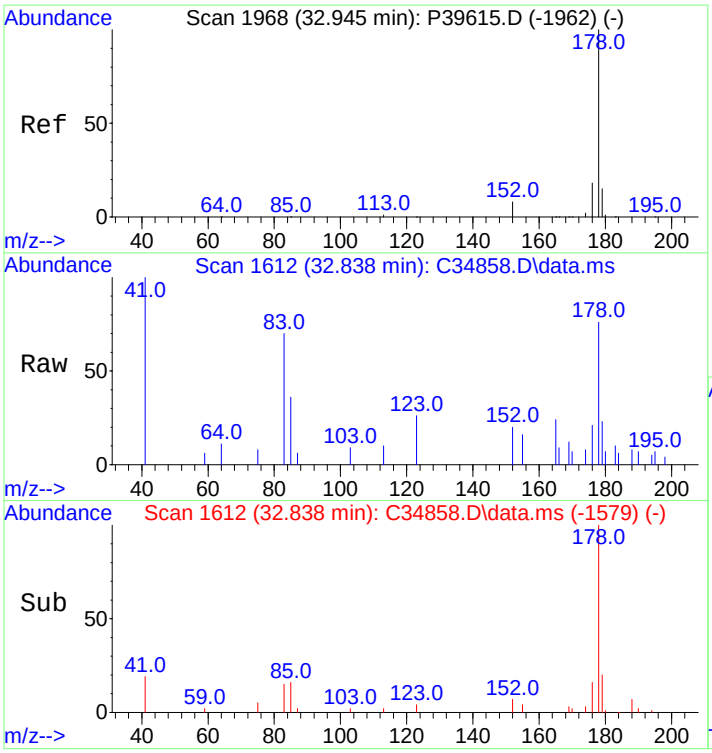


#53
C4-Phenanthrenes/Anthracenes
Concen: 208.08 ng/mL m
RT: 40.908 min Scan# 2148
Delta R.T. 0.109 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:234 Resp: 26676

Ion	Ratio	Lower	Upper
234	100		
219	8.0	46.9	70.3#

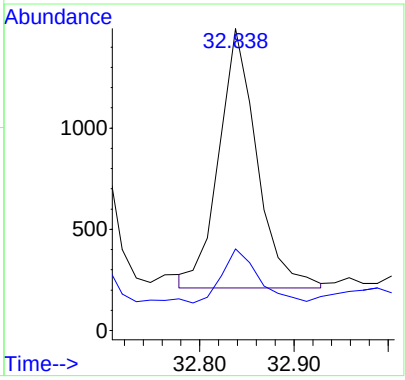


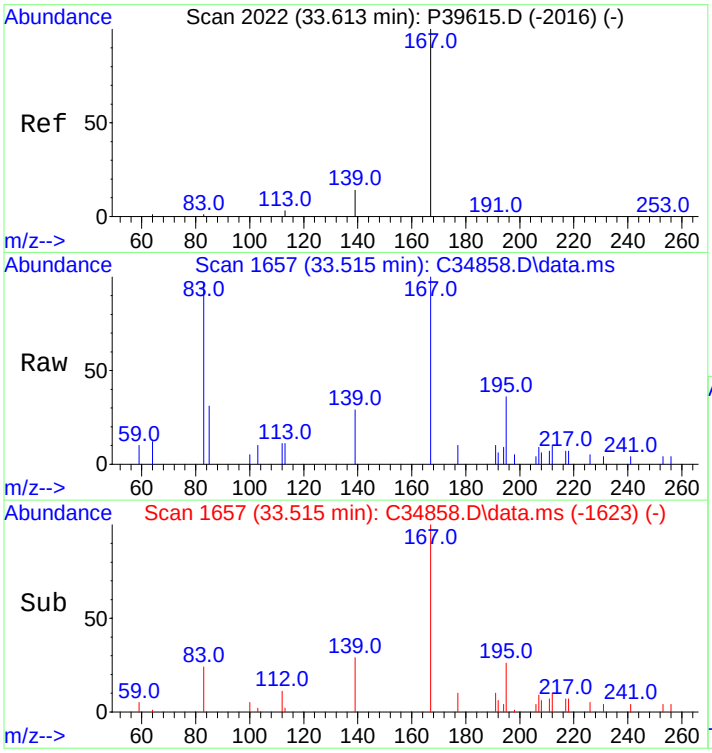


#55
Anthracene
Concen: 28.70 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:178 Resp: 3594

Ion	Ratio	Lower	Upper
178	100		
176	20.1	15.5	23.3

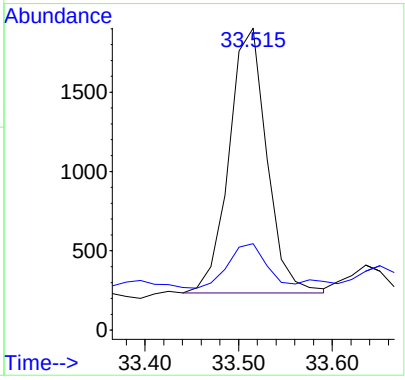


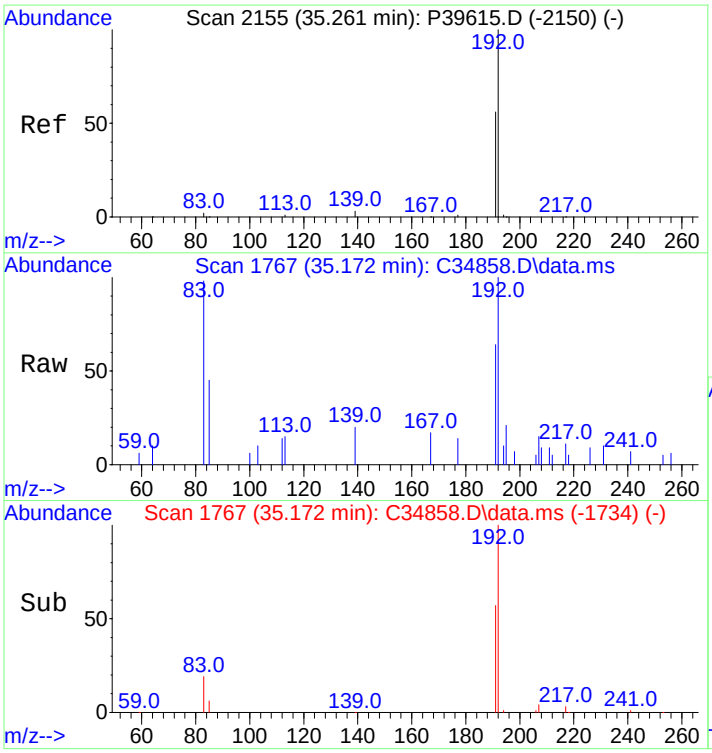


#56
Carbazole
Concen: 37.07 ng/mL
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:167 Resp: 4689

Ion	Ratio	Lower	Upper
167	100		
139	17.2	11.8	17.8

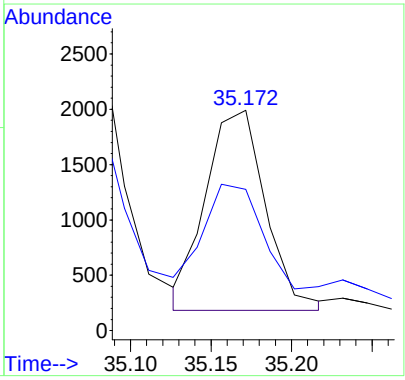


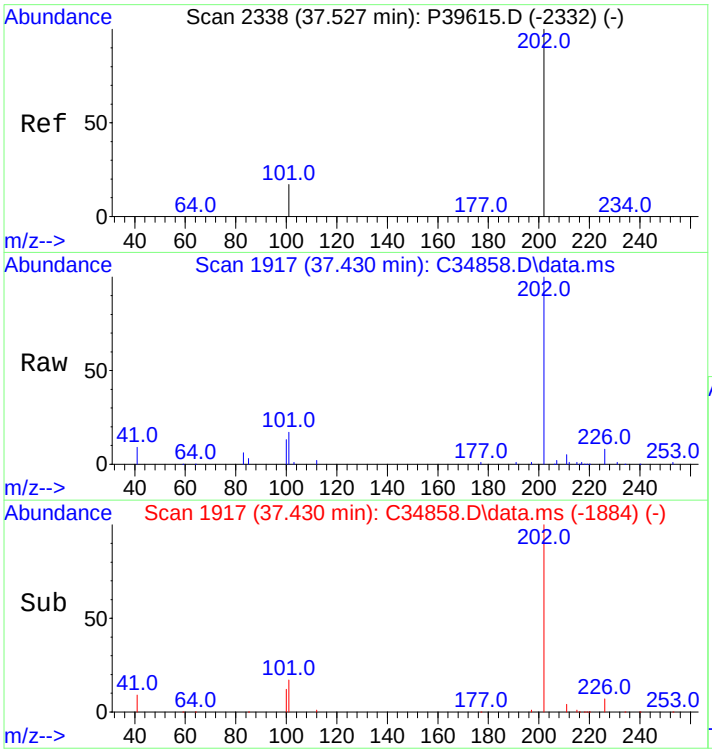


#57
1-Methylphenanthrene
Concen: 57.49 ng/mL m
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:192 Resp: 4671

Ion	Ratio	Lower	Upper
192	100		
191	60.9	45.9	68.9

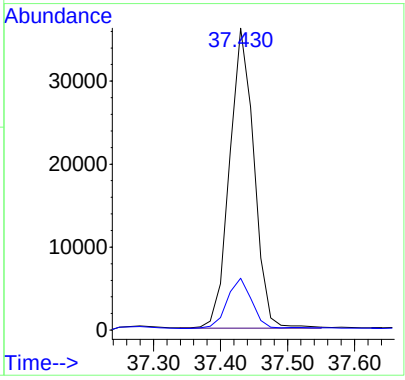


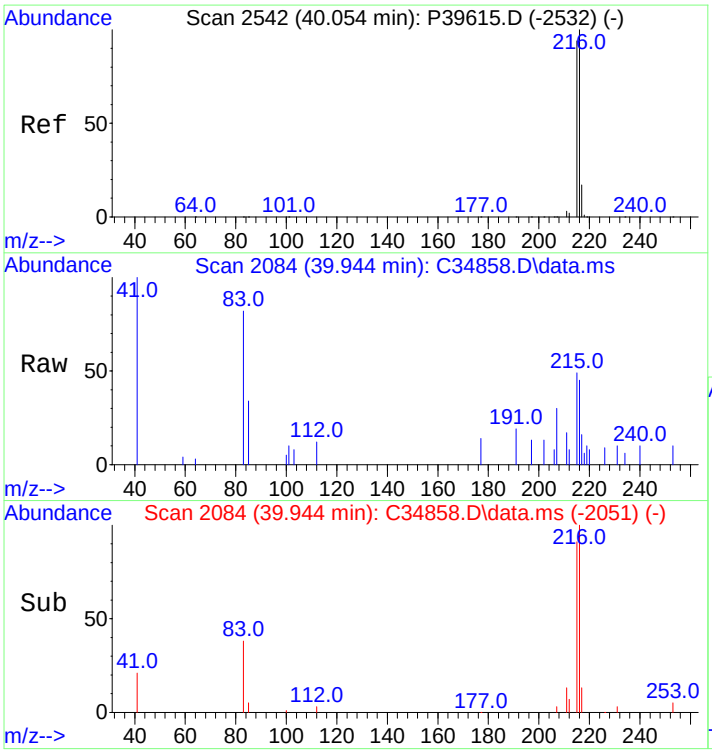


#58
Fluoranthene
Concen: 719.89 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:202 Resp: 91658

Ion	Ratio	Lower	Upper
202	100		
101	18.6	12.9	19.3

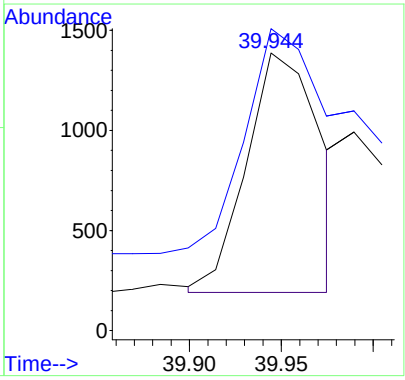


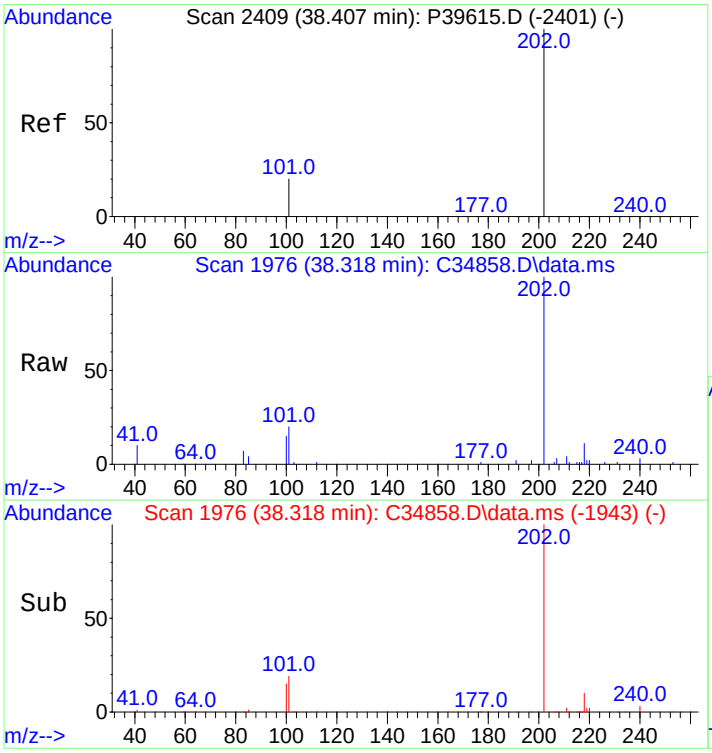


#59
Benzo(b)fluorene
Concen: 45.11 ng/mL m
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:216 Resp: 3332

Ion	Ratio	Lower	Upper
216	100		
215	139.6	76.3	114.5#

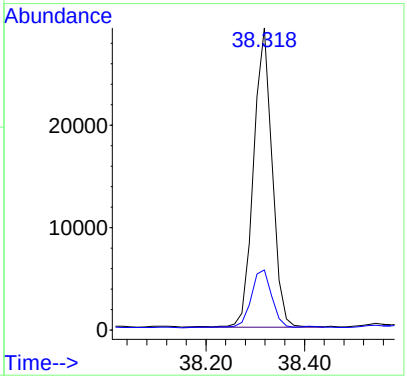


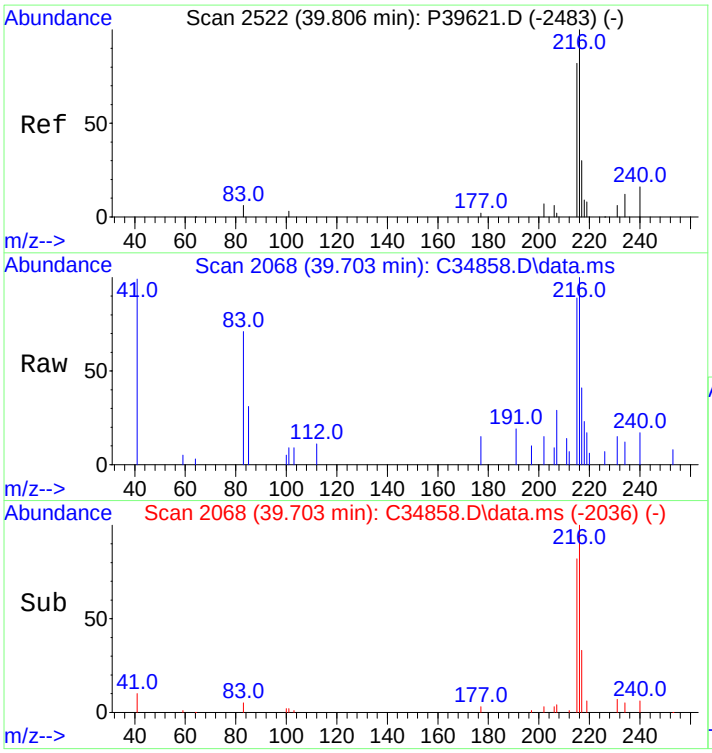


#60
Pyrene
Concen: 588.06 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:202 Resp: 76111

Ion	Ratio	Lower	Upper
202	100		
101	21.9	15.0	22.4

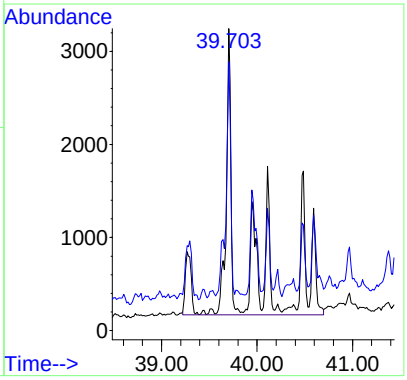


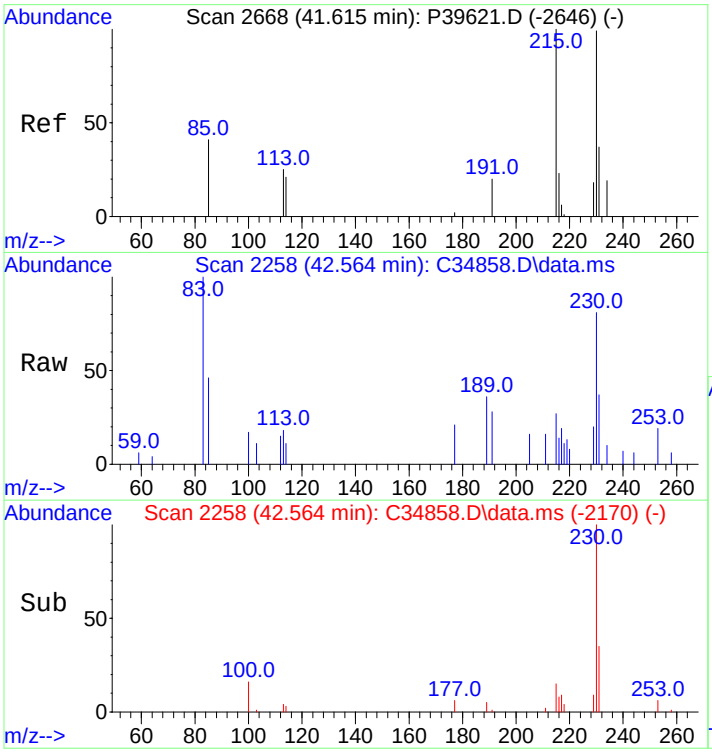


#61
C1-Fluoranthenes/Pyrenes
Concen: 244.56 ng/mL m
RT: 39.703 min Scan# 2068
Delta R.T. 0.088 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:216 Resp: 31653

Ion	Ratio	Lower	Upper
216	100		
215	27.6	71.8	107.6#

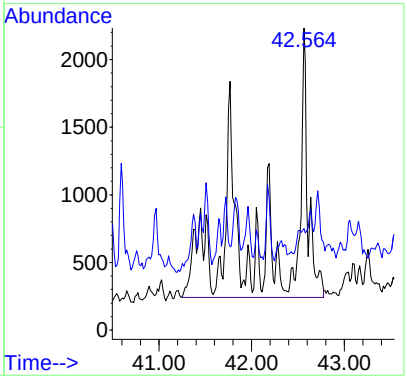


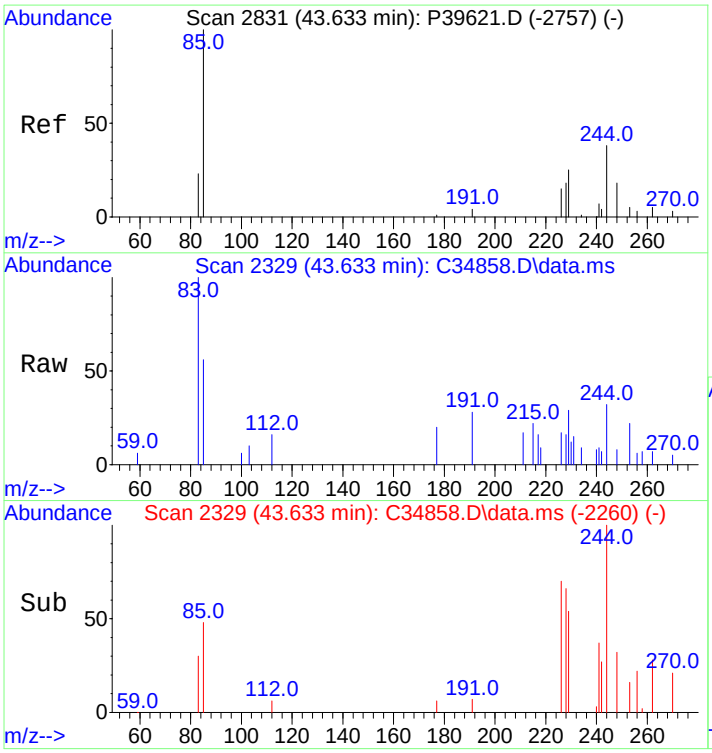


#62
C2-Fluoranthenes/Pyrenes
Concen: 260.32 ng/mL m
RT: 42.564 min Scan# 2258
Delta R.T. 1.165 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:230 Resp: 33693

Ion	Ratio	Lower	Upper
230	100		
215	3.1	99.0	148.4#

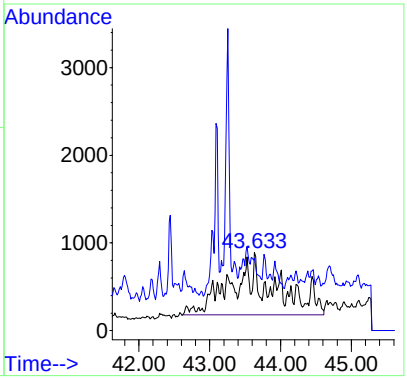


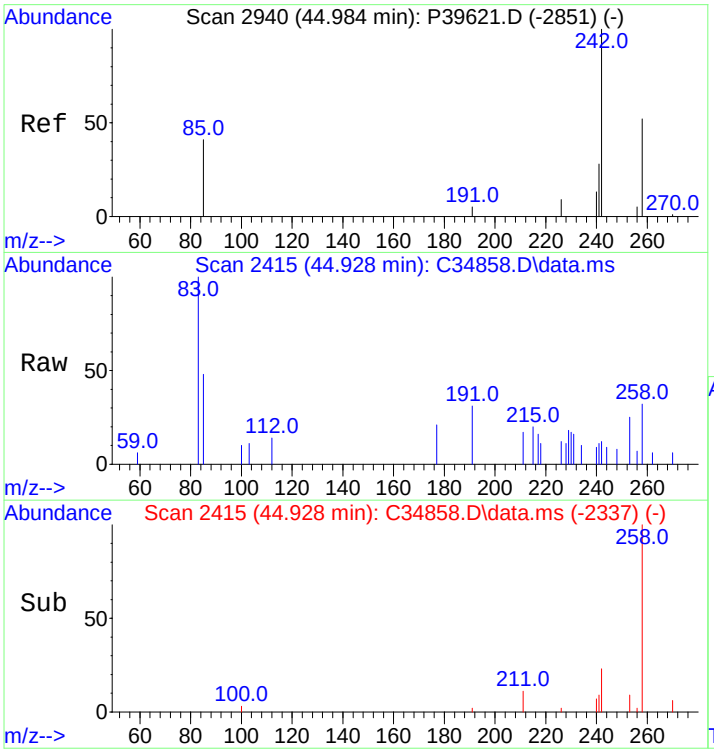


#63
C3-Fluoranthenes/Pyrenes
Concen: 223.83 ng/mL m
RT: 43.633 min Scan# 2329
Delta R.T. 0.226 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:244 Resp: 28970

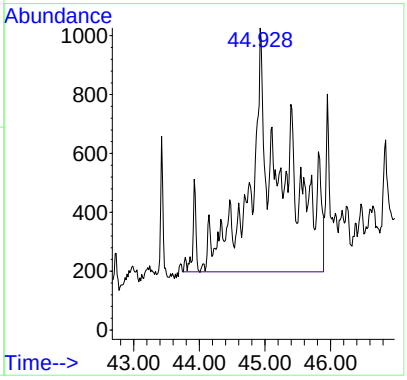
Ion	Ratio	Lower	Upper
244	100		
229	7.0	73.3	109.9#

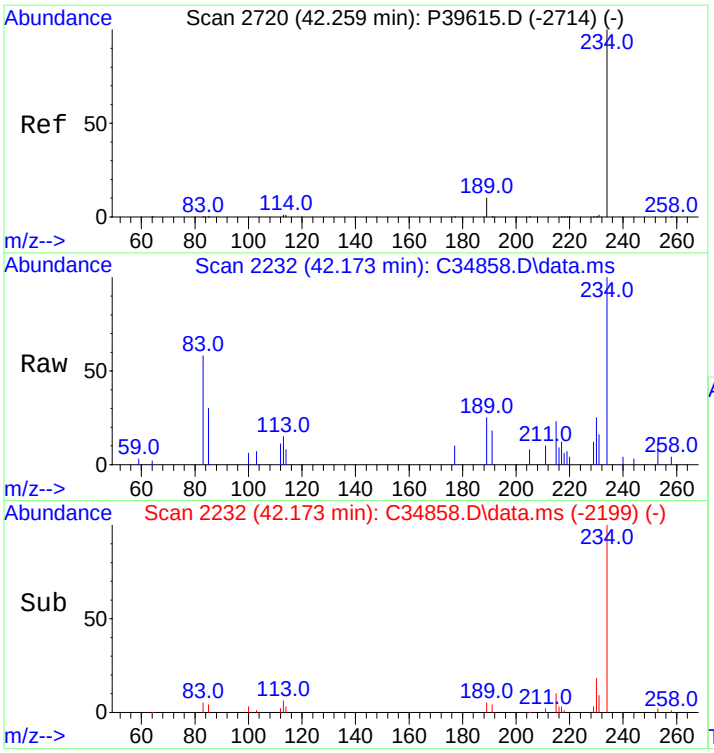




#64
C4-Fluoranthenes/Pyrenes
Concen: 227.26 ng/mL m
RT: 44.928 min Scan# 2415
Delta R.T. 0.172 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:258 Resp: 29414

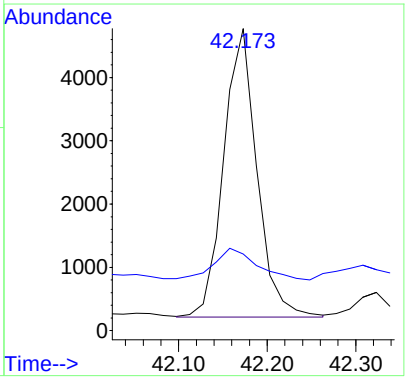


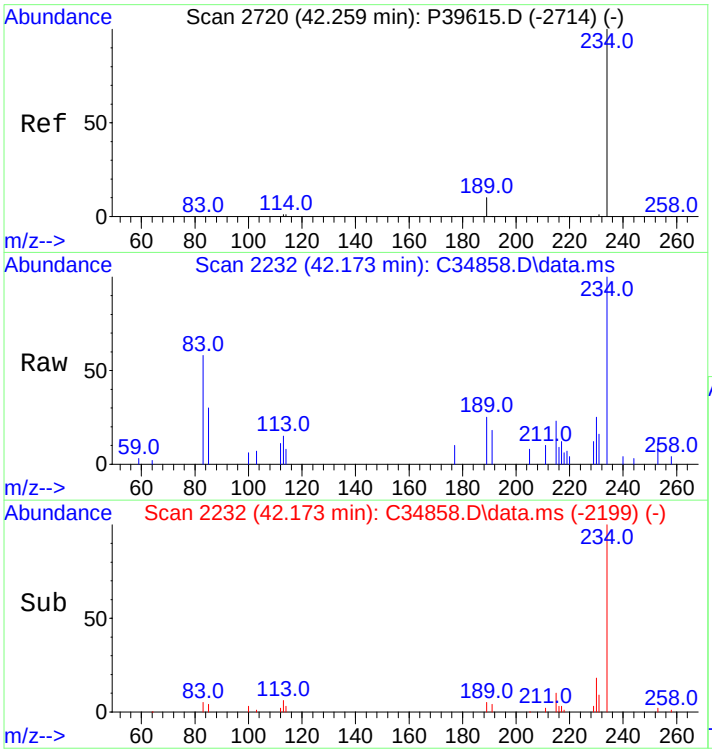


#66
Naphthobenzothiophene
Concen: 85.42 ng/ml m
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:234 Resp: 11903

Ion	Ratio	Lower	Upper
234	100		
189	1.7	20.5	30.7#

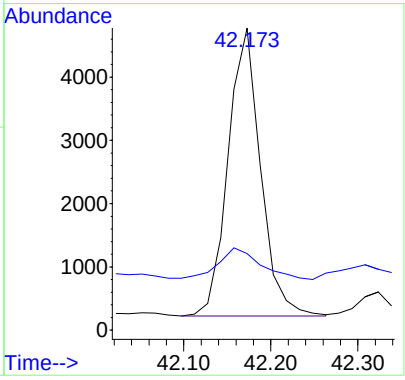


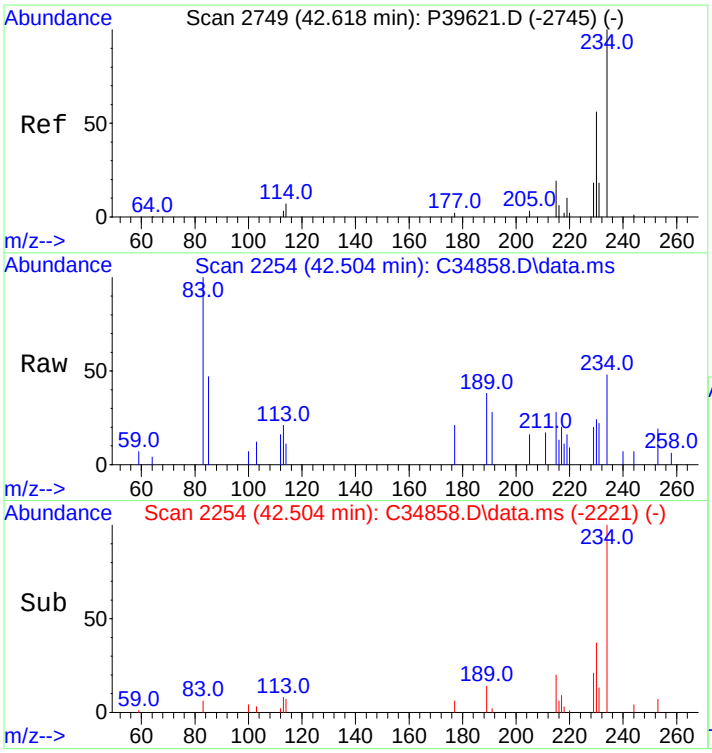


#67
Naphthobenzothiophene-2,1-D
Concen: 84.50 ng/mL m
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:234 Resp: 11774

Ion	Ratio	Lower	Upper
234	100		
189	1.7	20.5	30.7#

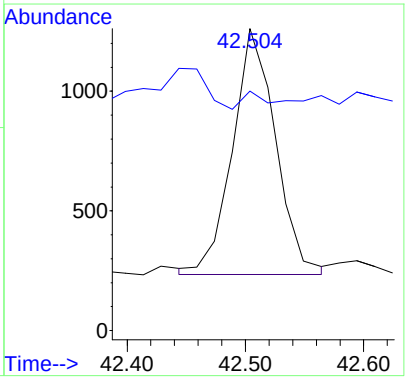


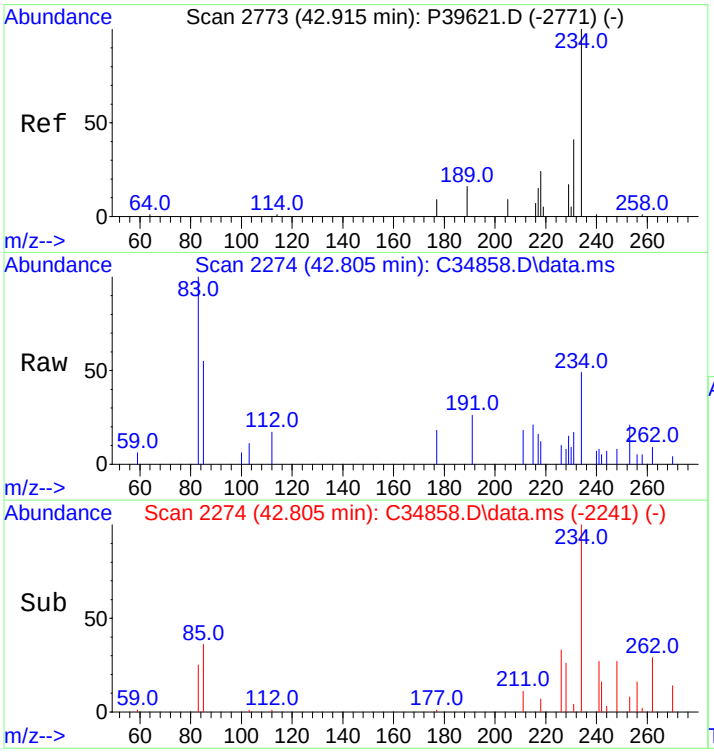


#68
Naphthobenzothiophene-1,2-D
Concen: 18.67 ng/mL m
RT: 42.504 min Scan# 2254
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:234 Resp: 2601

Ion	Ratio	Lower	Upper
234	100		
189	0.0	58.7	88.1#

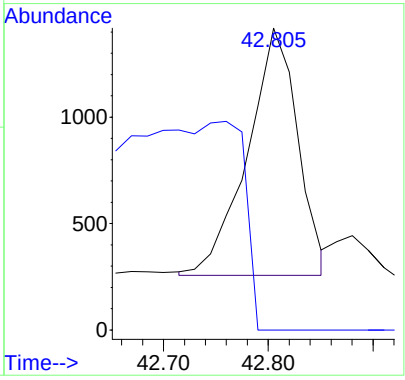


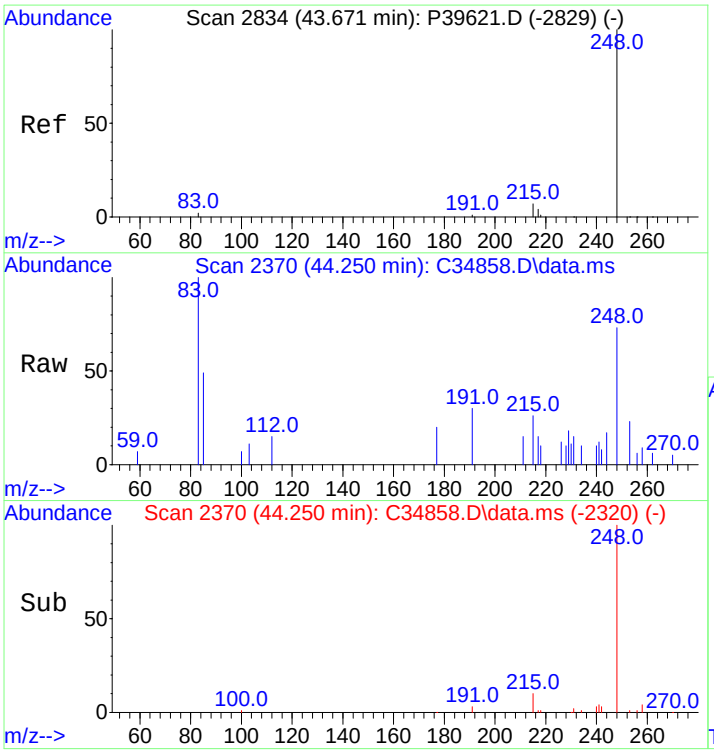


#69
Naphthobenzothiophene-2,3-D
Concen: 27.76 ng/mL m
RT: 42.805 min Scan# 2274
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:234 Resp: 3868

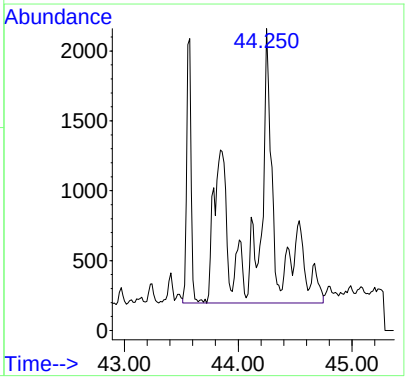
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

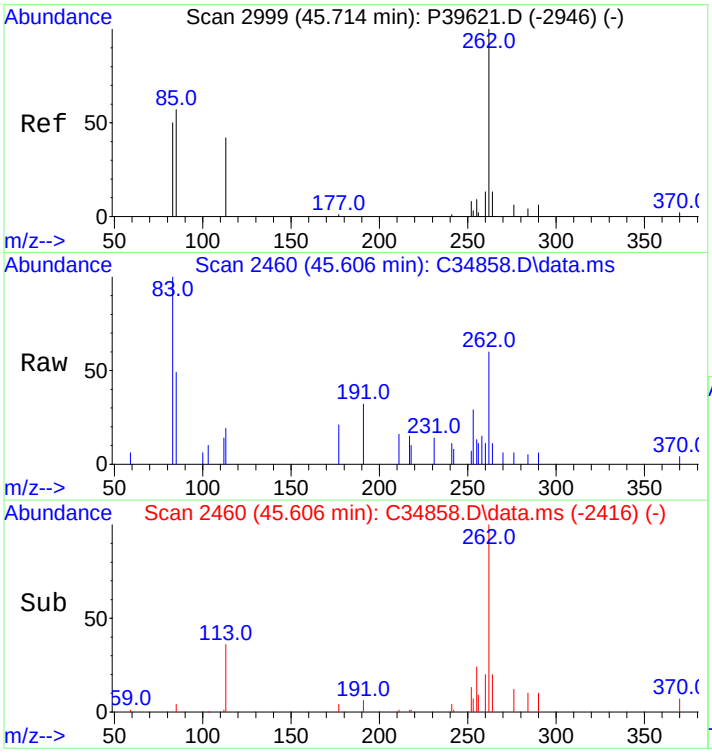




#70
C1-Naphthobenzothiophenes
Concen: 229.98 ng/ml m
RT: 44.250 min Scan# 2370
Delta R.T. 0.124 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

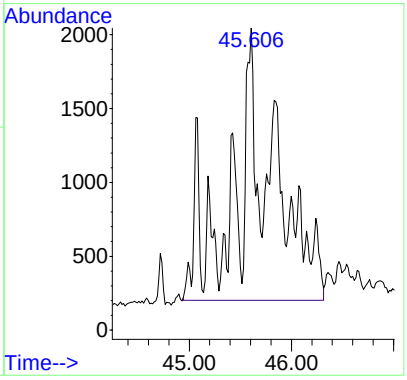
Tgt Ion:248 Resp: 32046

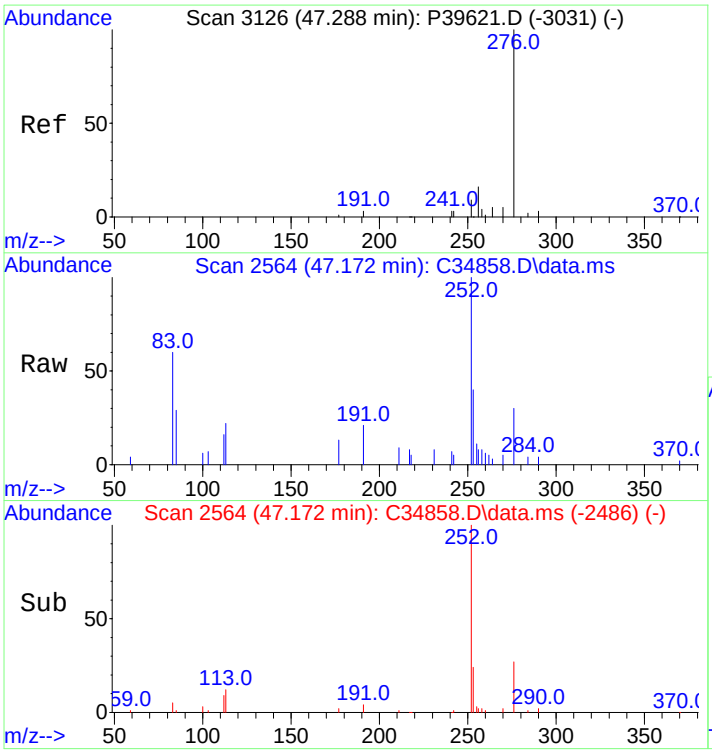




#71
C2-Naphthobenzothiophenes
Concen: 349.43 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.175 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

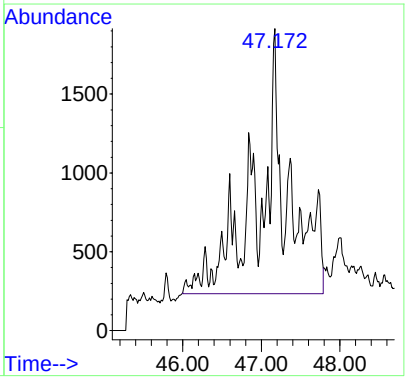
Tgt Ion:262 Resp: 48689

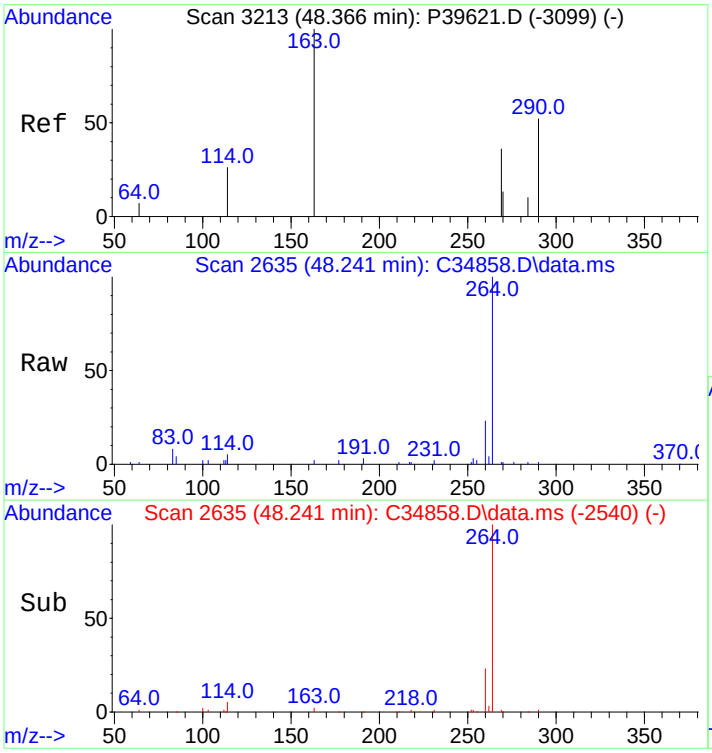




#72
C3-Naphthobenzothiophenes
Concen: 317.87 ng/ml m
RT: 47.172 min Scan# 2564
Delta R.T. 0.137 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

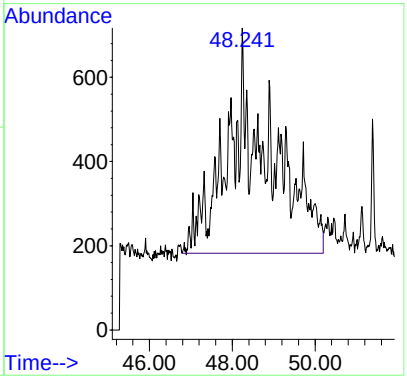
Tgt Ion:276 Resp: 44292

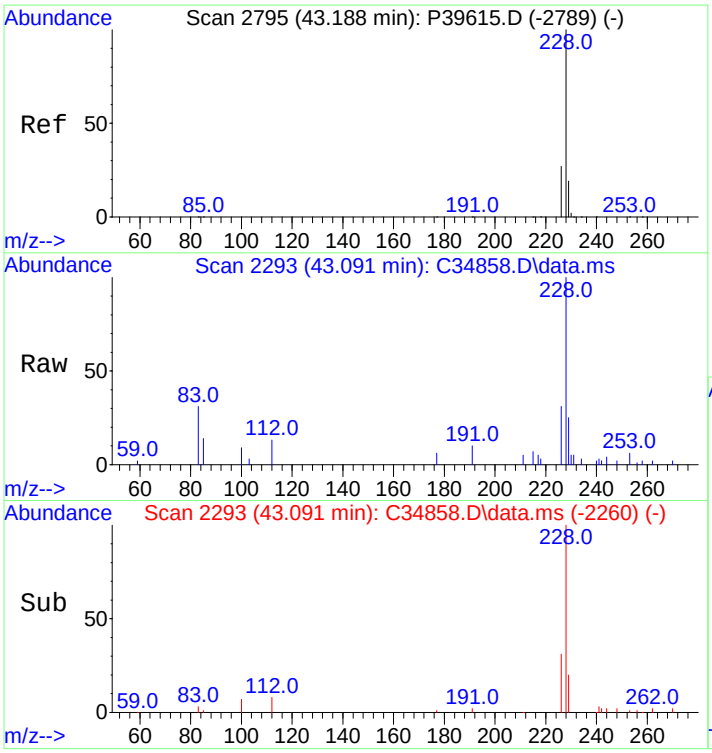




#73
C4-Naphthobenzothiophenes
Concen: 254.54 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.141 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:290 Resp: 35467

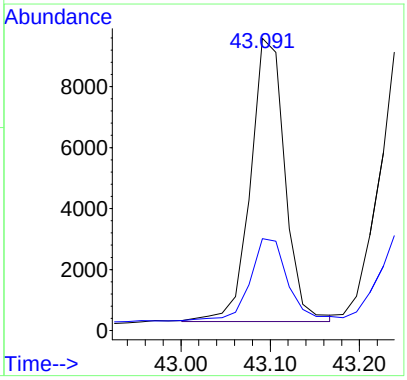


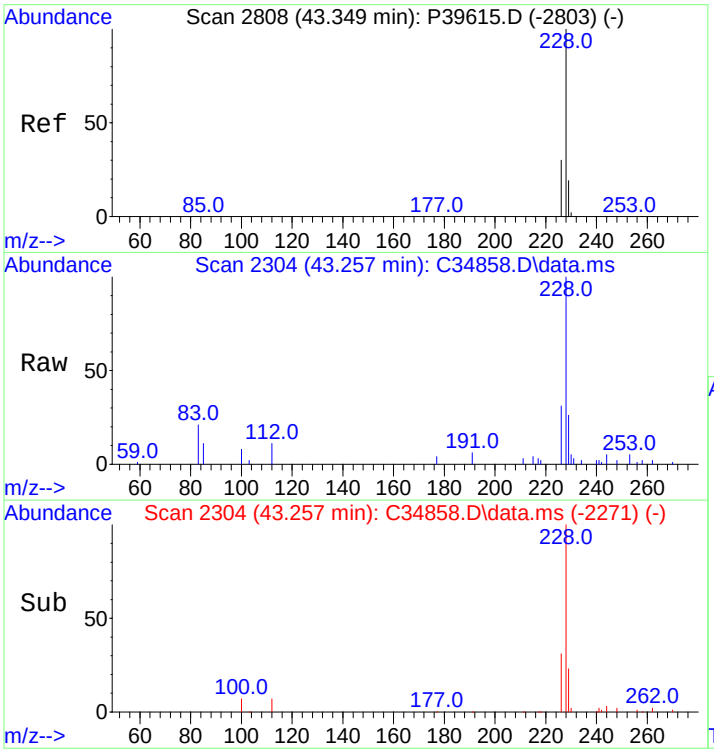


#75
Benz[a]anthracene
Concen: 191.95 ng/mL m
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:228 Resp: 24845

Ion	Ratio	Lower	Upper
228	100		
226	32.1	21.4	32.0#

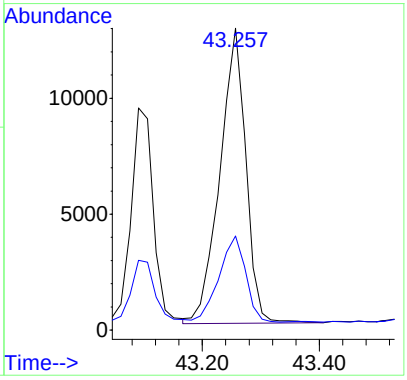


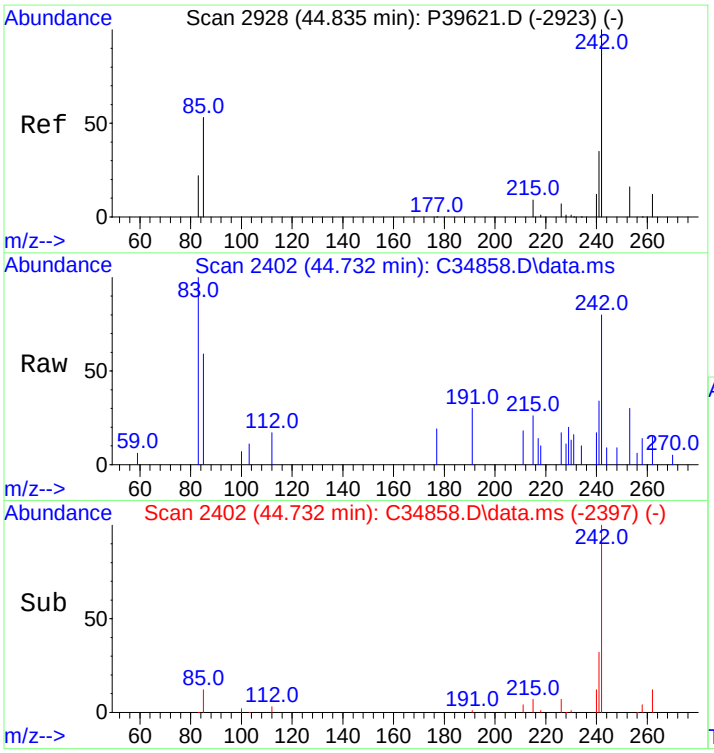


#77
Chrysene/Triphenylene
Concen: 299.11 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:228 Resp: 39086

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.7	35.5

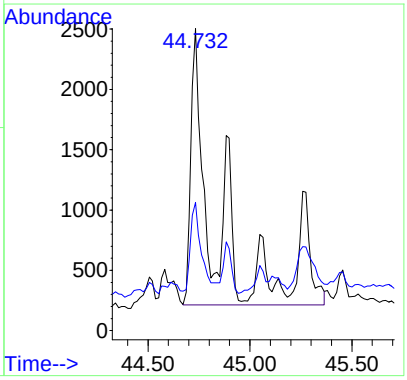


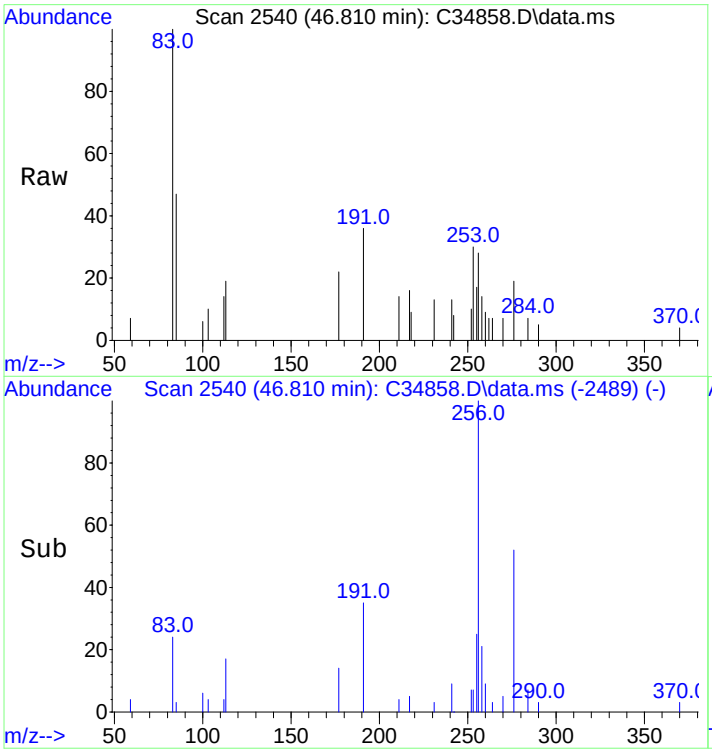


#78
C1-Chrysenes
Concen: 147.63 ng/mL m
RT: 44.732 min Scan# 2402
Delta R.T. 0.018 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:242 Resp: 19292

Ion	Ratio	Lower	Upper
242	100		
241	4.2	31.4	47.2#

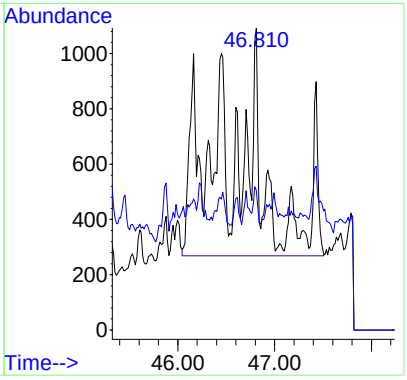


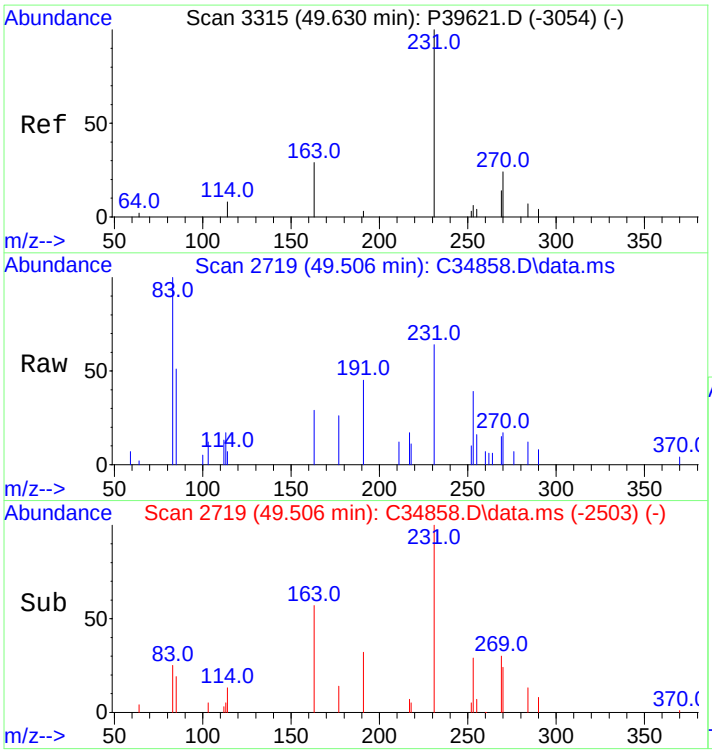


#79
C2-Chrysenes
Concen: 170.86 ng/mL m
RT: 46.810 min Scan# 2540
Delta R.T. 0.021 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:256 Resp: 22327

Ion	Ratio	Lower	Upper
256	100		
241	1.8	21.2	31.8#

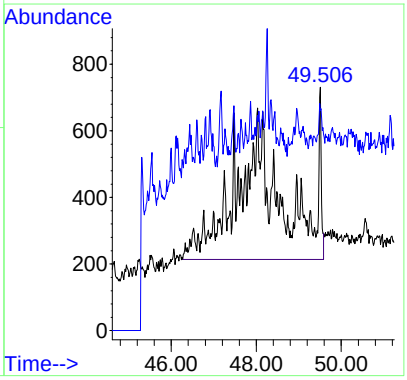


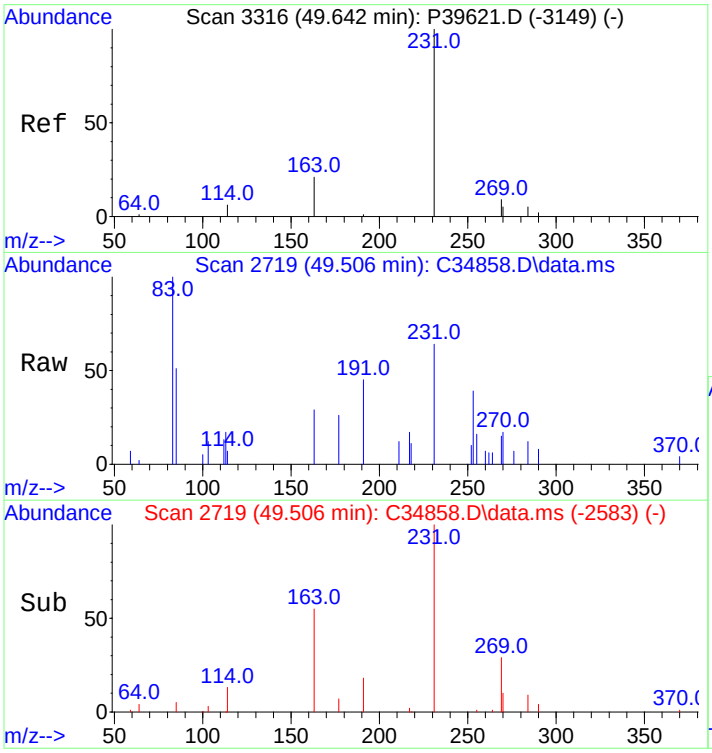


#80
C3-Chrysenes
Concen: 234.76 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. 0.011 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:270 Resp: 30678

Ion	Ratio	Lower	Upper
270	100		
255	1.6	33.8	50.8#

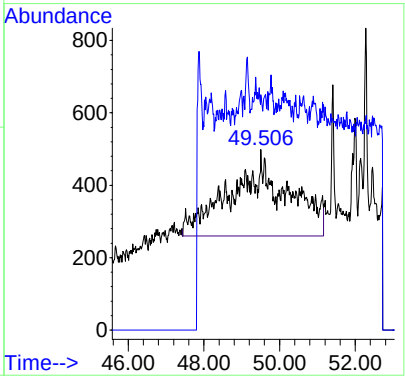


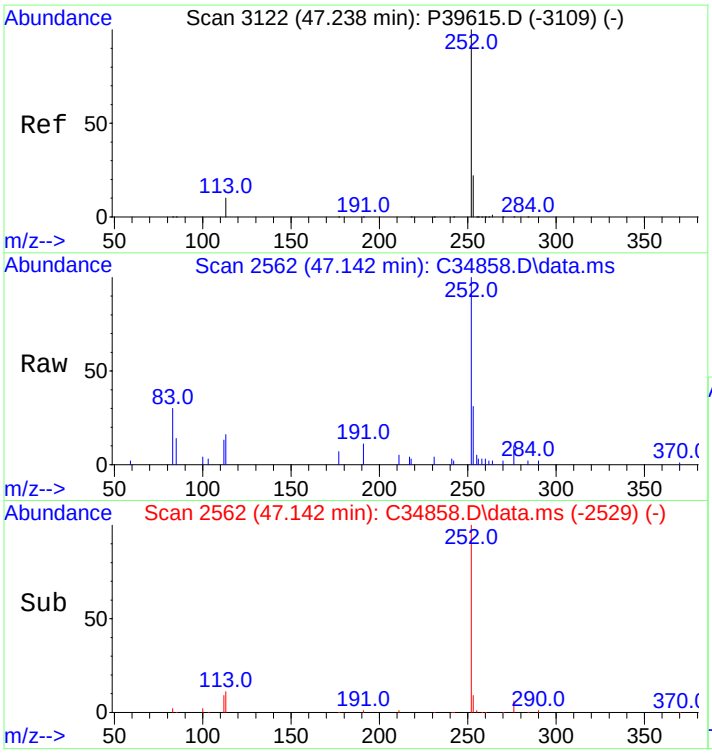


#81
C4-Chrysenes
Concen: 181.58 ng/mL m
RT: 49.506 min Scan# 2719
Delta R.T. -0.094 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:284 Resp: 23728

Ion	Ratio	Lower	Upper
284	100		
269	0.0	62.3	93.5#

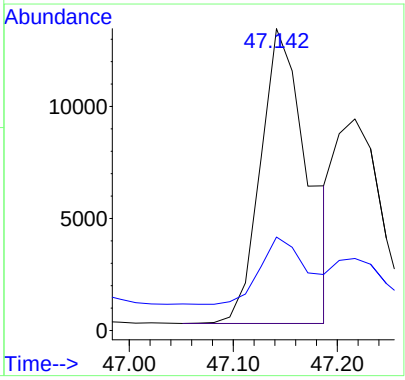


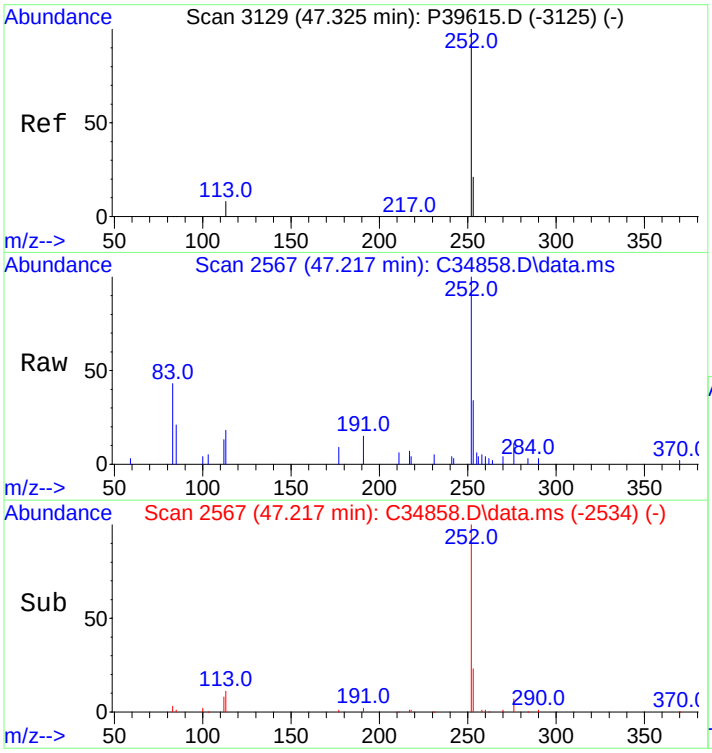


#82
Benzo[b]fluoranthene
Concen: 294.23 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 41847

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.0	28.4

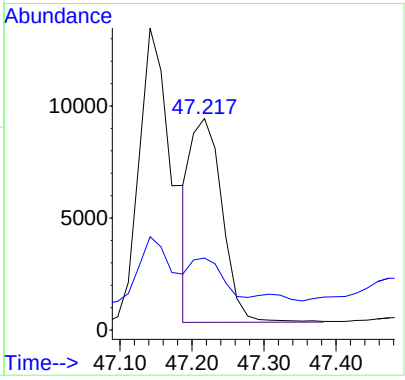


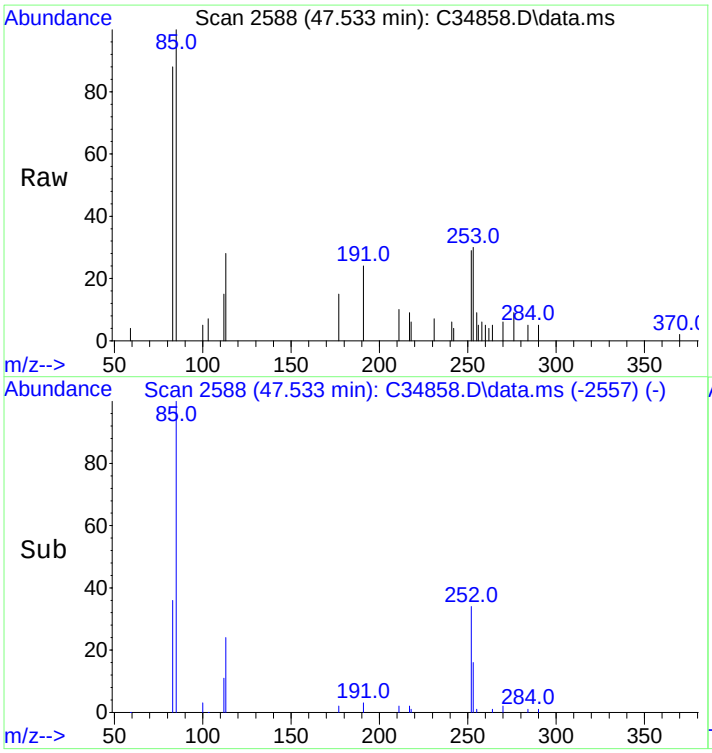


#83
Benzo[j]+[k]fluoranthene
Concen: 180.25 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 27910

Ion	Ratio	Lower	Upper
252	100		
253	23.9	19.0	28.4

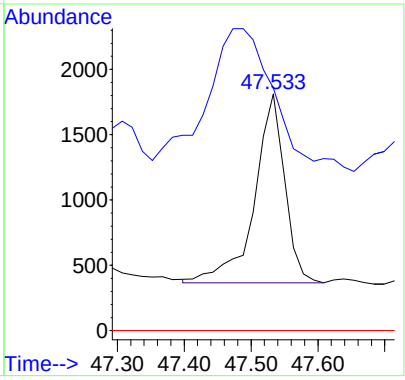


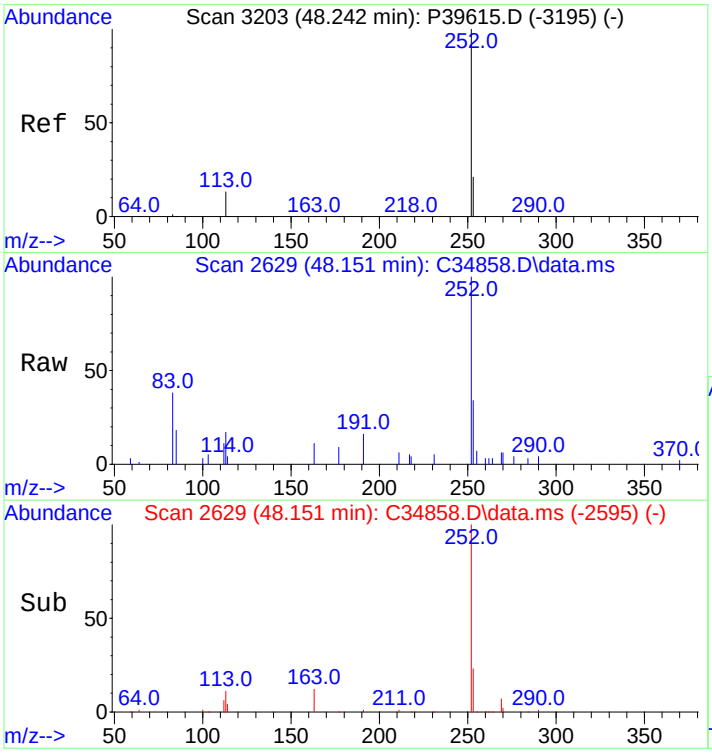


#84
Benzo[a]fluoranthene
Concen: 29.56 ng/mL
RT: 47.533 min Scan# 2588
Delta R.T. -0.036 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 4577

Ion	Ratio	Lower	Upper
252	100		
253	0.0	146.1	219.1#
125	0.0	0.0	0.0

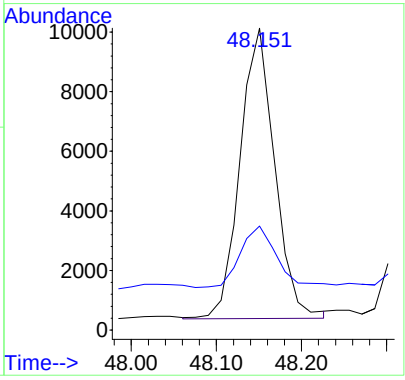


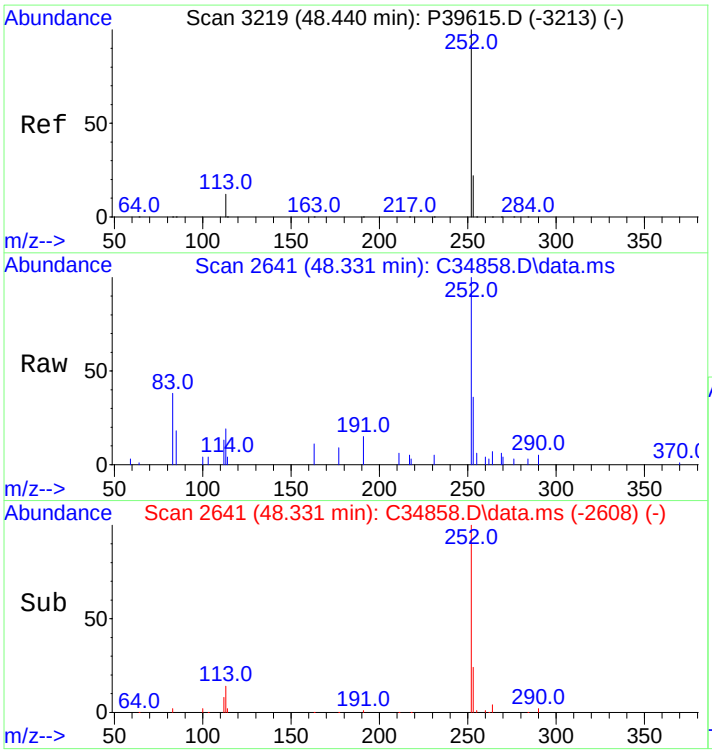


#85
Benzo[e]pyrene
Concen: 196.44 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 27635

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.2	28.8

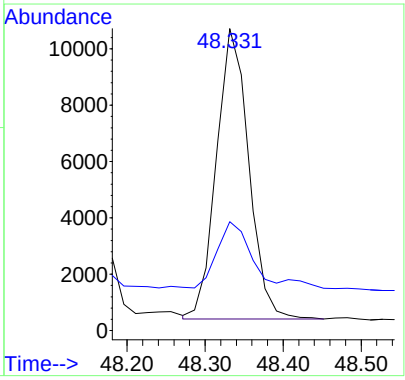


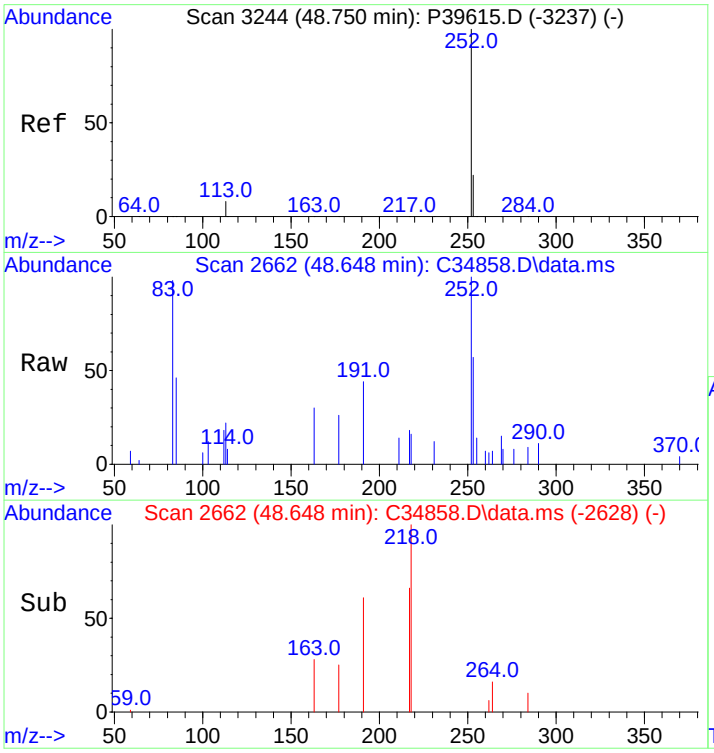


#87
Benzo[a]pyrene
Concen: 219.58 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 29740

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.5	29.3

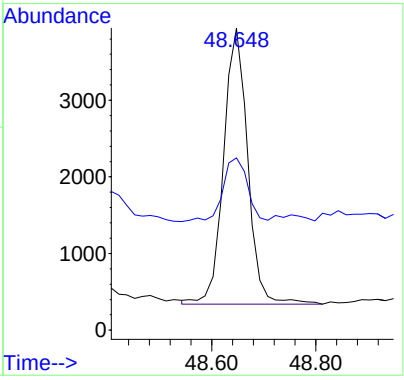


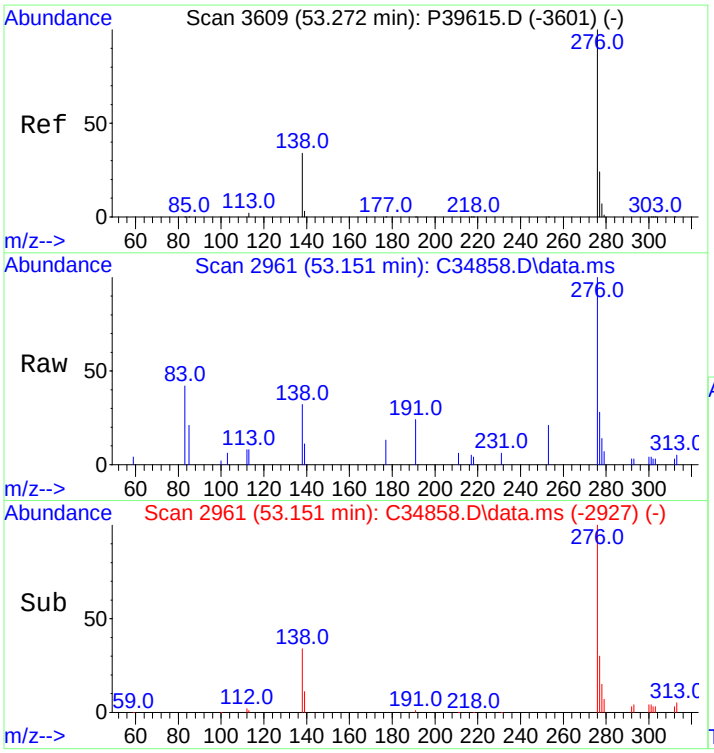


#88
Perylene
Concen: 80.06 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:252 Resp: 11588

Ion	Ratio	Lower	Upper
252	100		
253	23.2	19.6	29.4

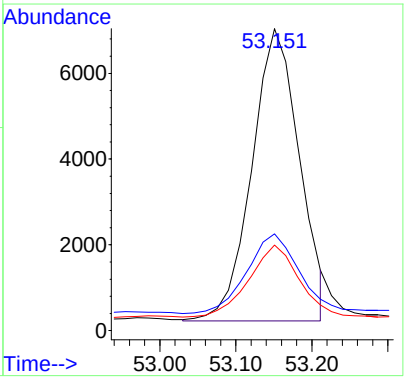


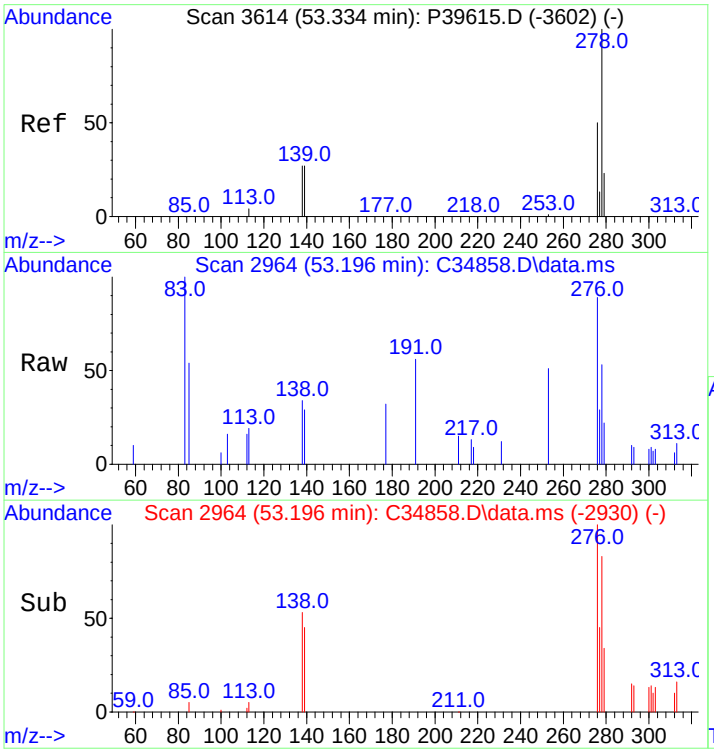


#89
Indeno[1,2,3-cd]pyrene
Concen: 187.70 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:276 Resp: 29585

Ion	Ratio	Lower	Upper
276	100		
138	32.1	23.3	34.9
277	26.1	19.0	28.4

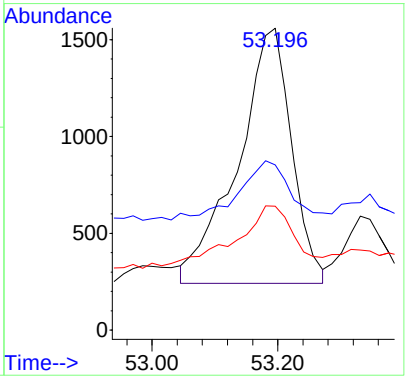


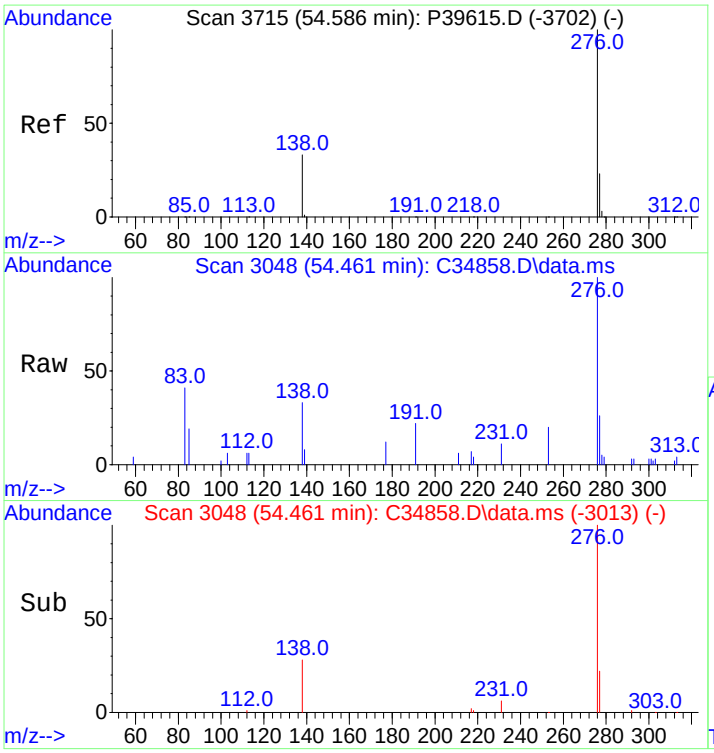


#90
Dibenz[ah]+[ac]anthracene
Concen: 52.28 ng/mL m
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:278 Resp: 7839

Ion	Ratio	Lower	Upper
278	100		
139	14.0	19.1	28.7#
279	13.6	19.2	28.8#

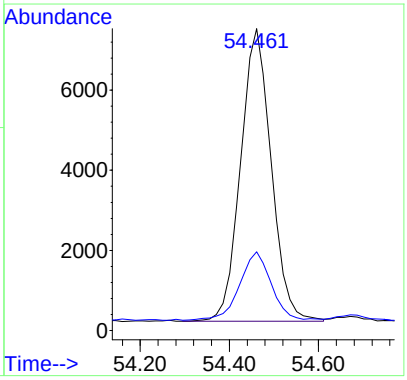


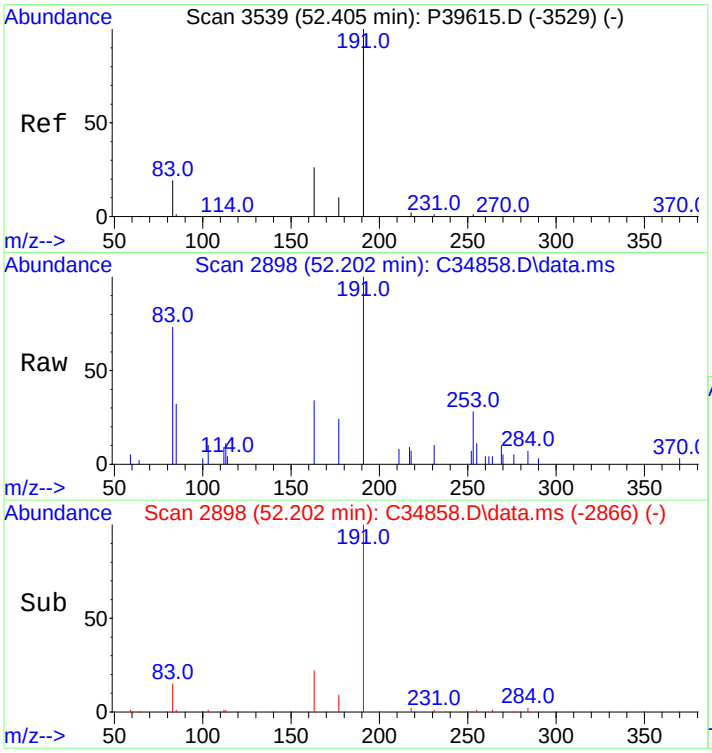


#91
Benzo[g,h,i]perylene
Concen: 210.52 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:276 Resp: 35057

Ion	Ratio	Lower	Upper
276	100		
277	24.1	18.9	28.3

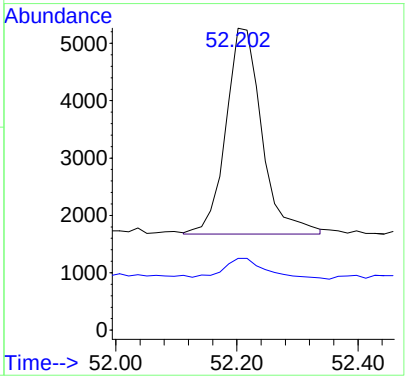


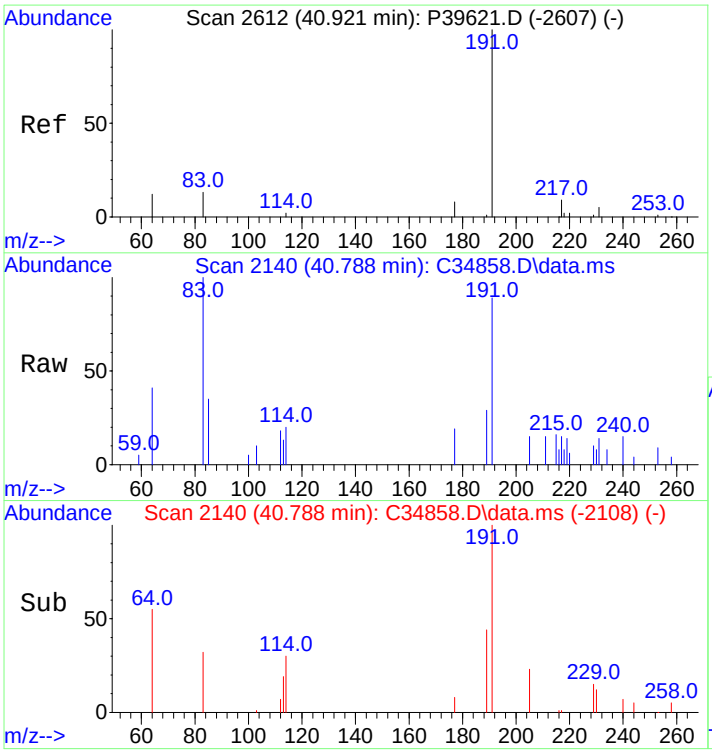


#92
Hopane (T19)
Concen: 552.85 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:191 Resp: 14859

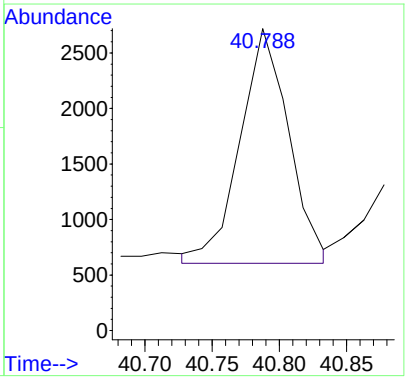
Ion	Ratio	Lower	Upper
191	100		
177	12.2	14.6	21.8#

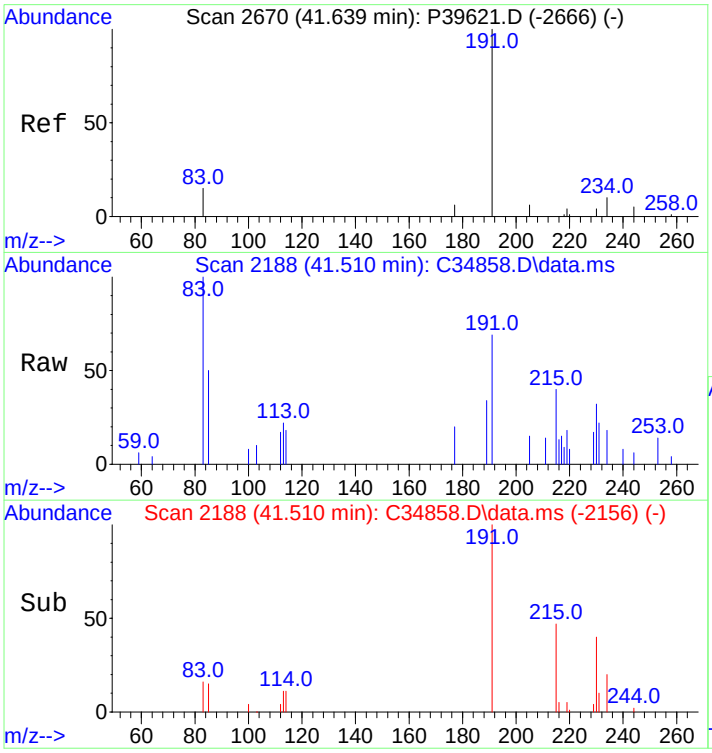




#94
C23 Tricyclic Terpane (T4)
Concen: 198.13 ng/ml m
RT: 40.788 min Scan# 2140
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

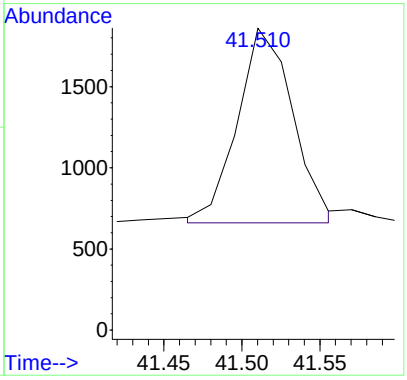
Tgt Ion:191 Resp: 5325

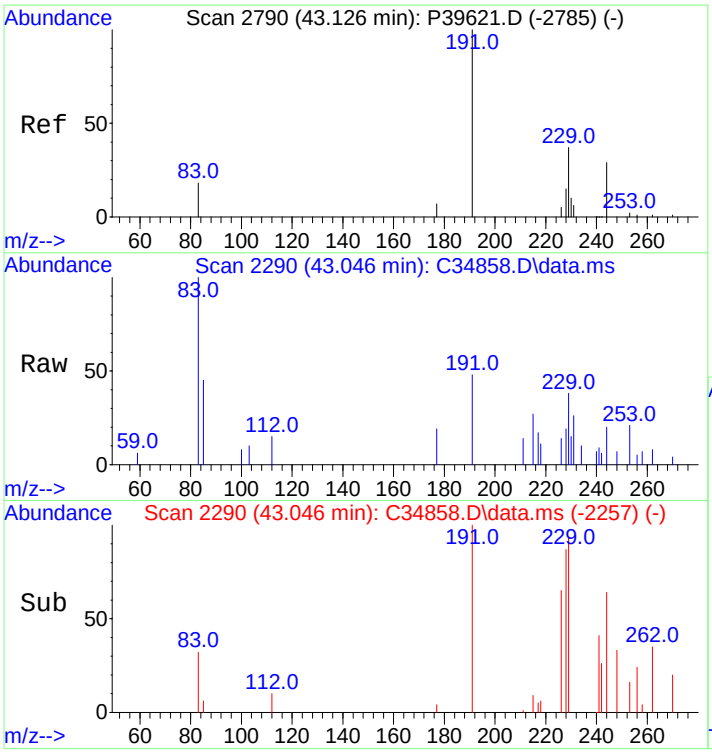




#95
C24 Tricyclic Terpane (T5)
Concen: 110.21 ng/ml m
RT: 41.510 min Scan# 2188
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

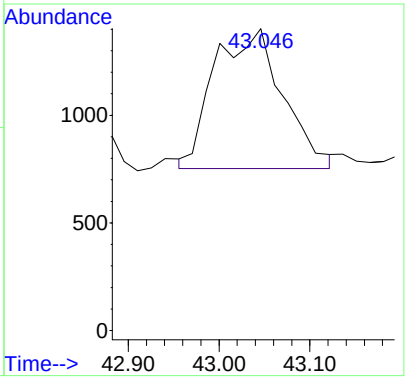
Tgt Ion:191 Resp: 2962

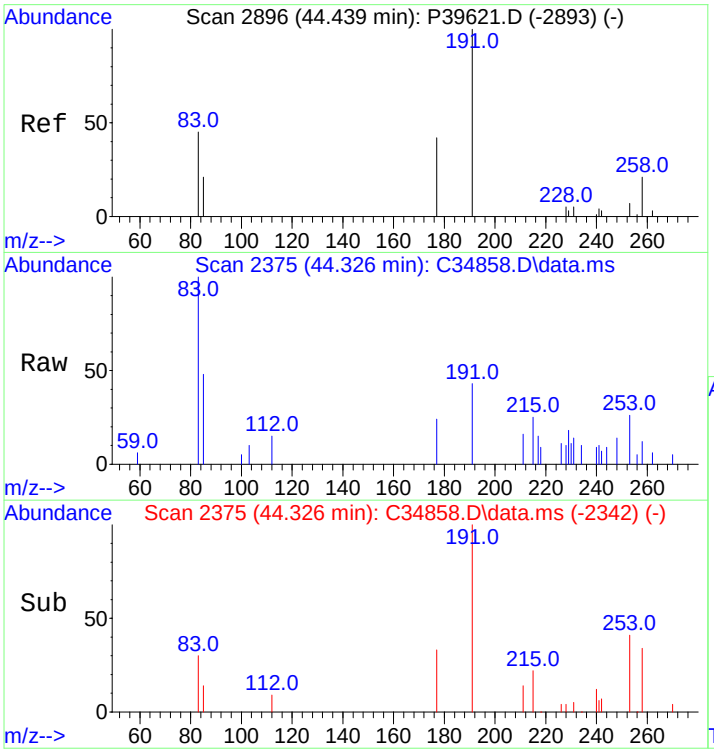




#96
C25 Tricyclic Terpane (T6)
Concen: 126.73 ng/ml m
RT: 43.046 min Scan# 2290
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

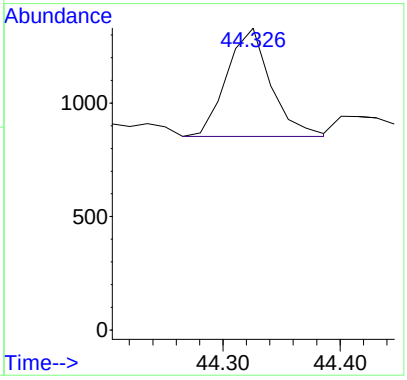
Tgt Ion:191 Resp: 3406

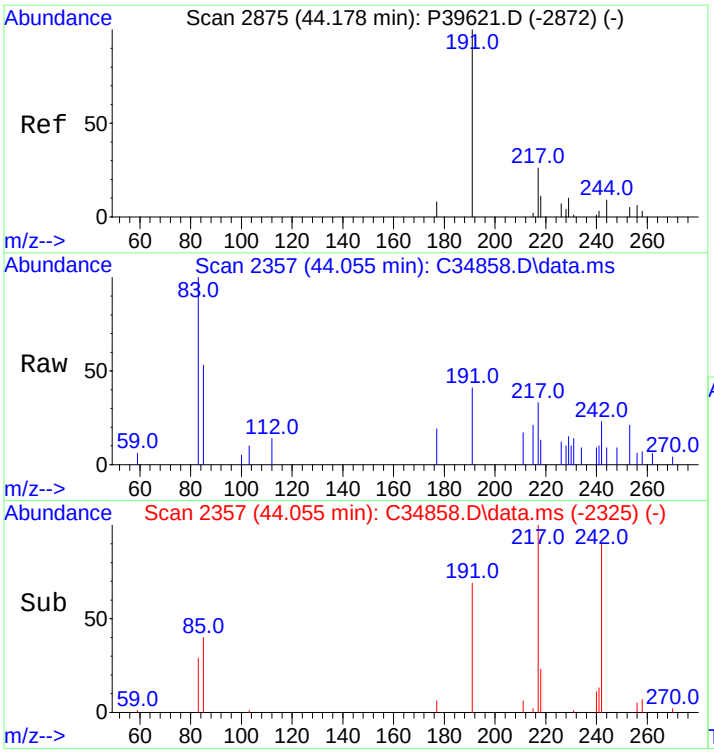




#97
C24 Tetracyclic Terpane (T6a)
Concen: 46.29 ng/ml
RT: 44.326 min Scan# 2375
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

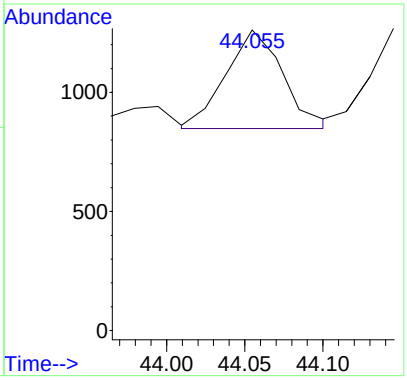
Tgt Ion:191 Resp: 1244

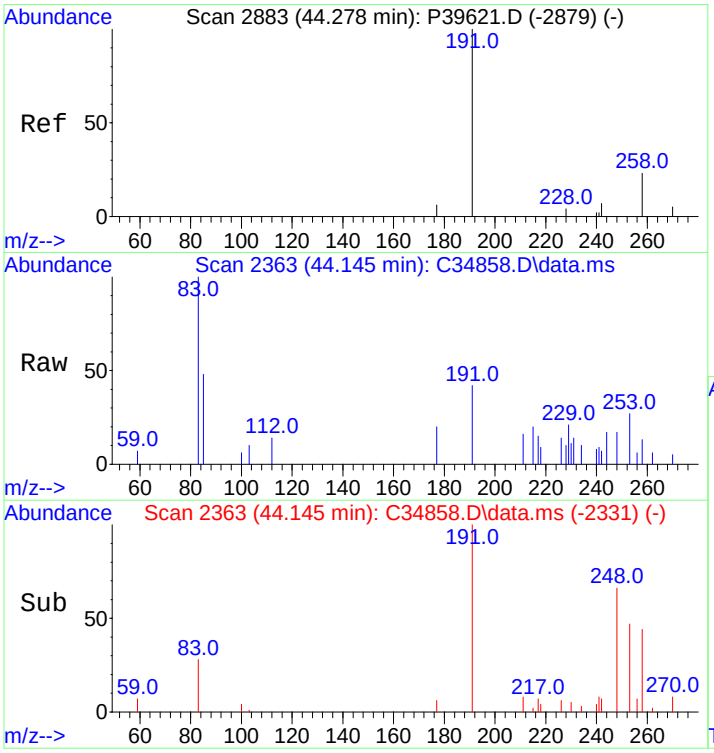




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 39.22 ng/ml m
RT: 44.055 min Scan# 2357
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

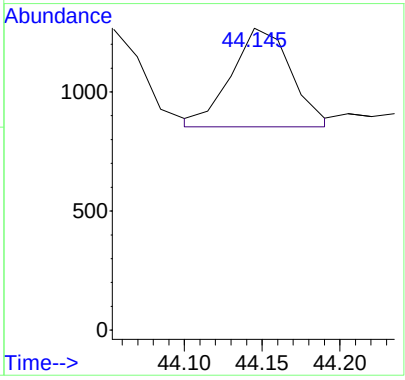
Tgt Ion:191 Resp: 1054

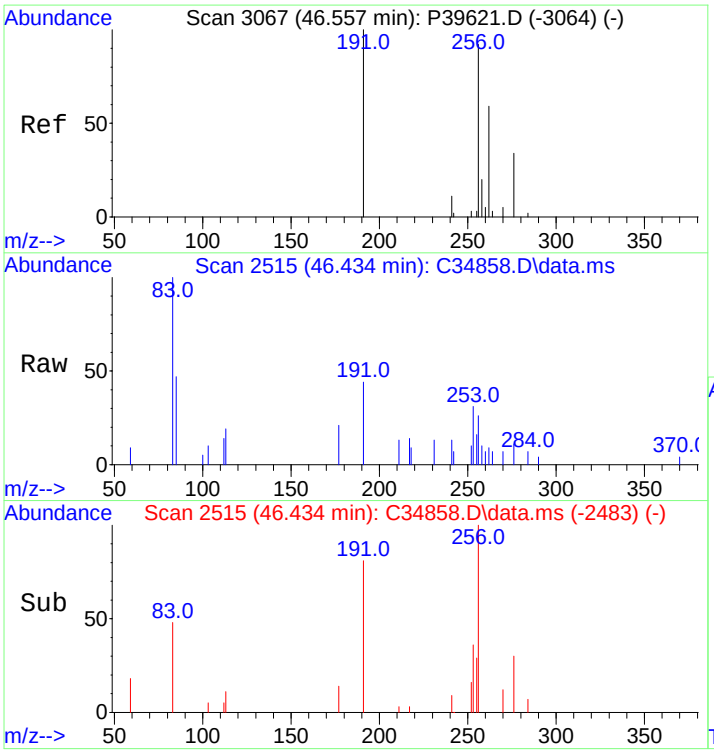




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 41.45 ng/ml m
RT: 44.145 min Scan# 2363
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

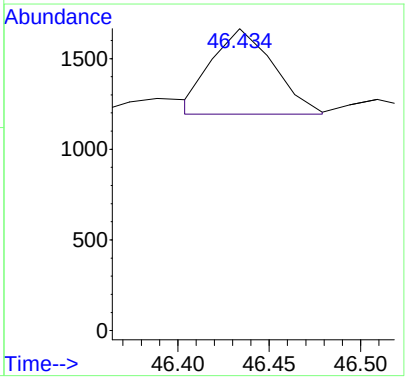
Tgt Ion:191 Resp: 1114

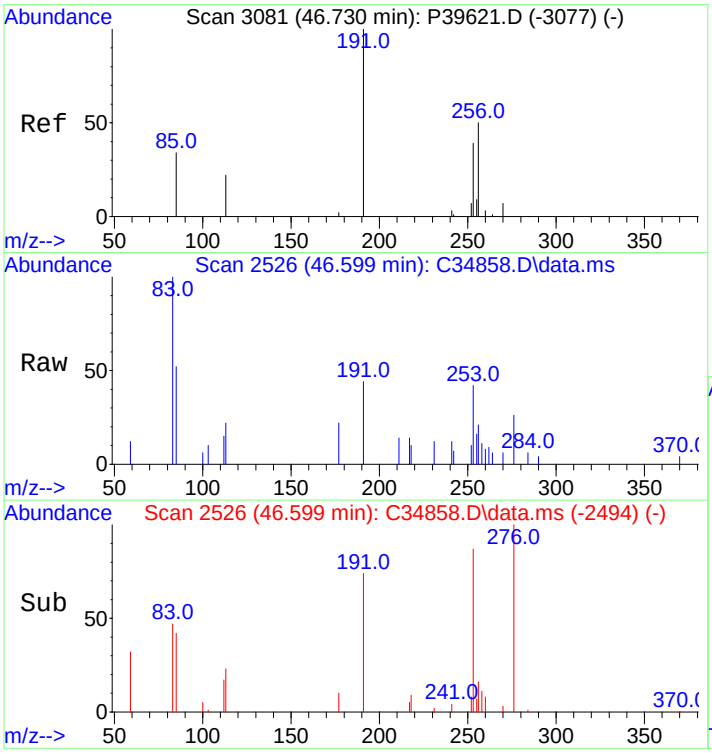




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 40.85 ng/ml m
RT: 46.434 min Scan# 2515
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

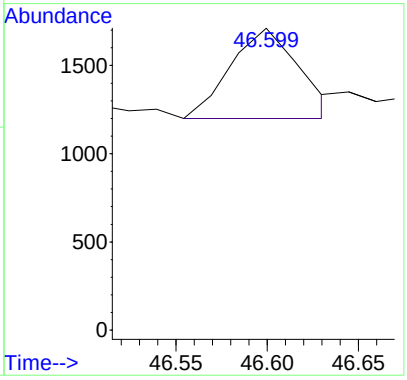
Tgt Ion:191 Resp: 1098

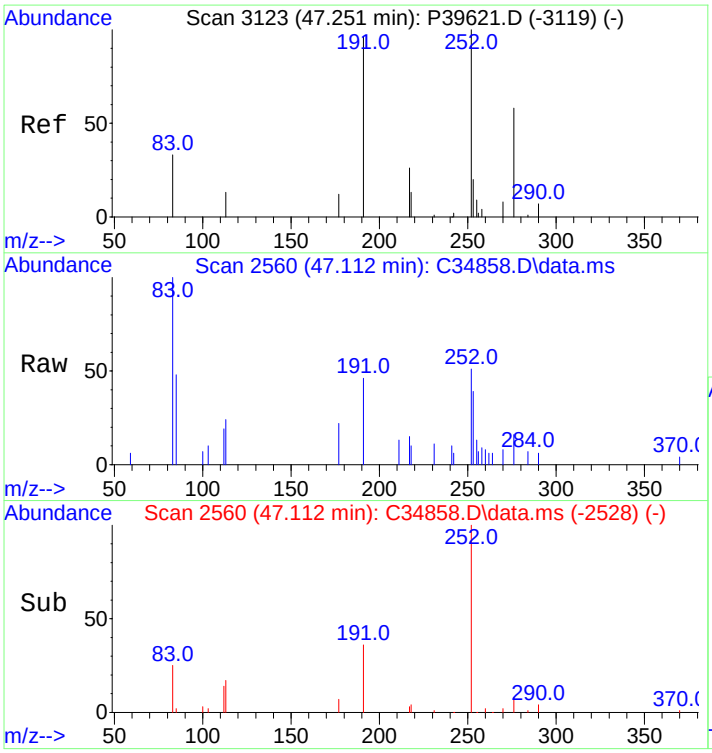




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 49.89 ng/ml m
RT: 46.599 min Scan# 2526
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

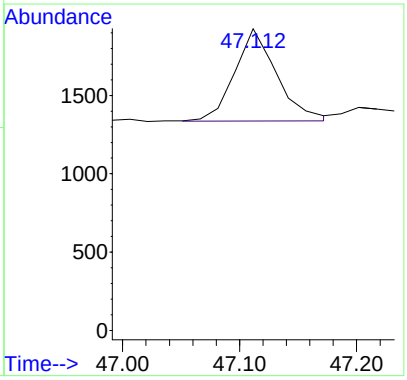
Tgt Ion:191 Resp: 1341

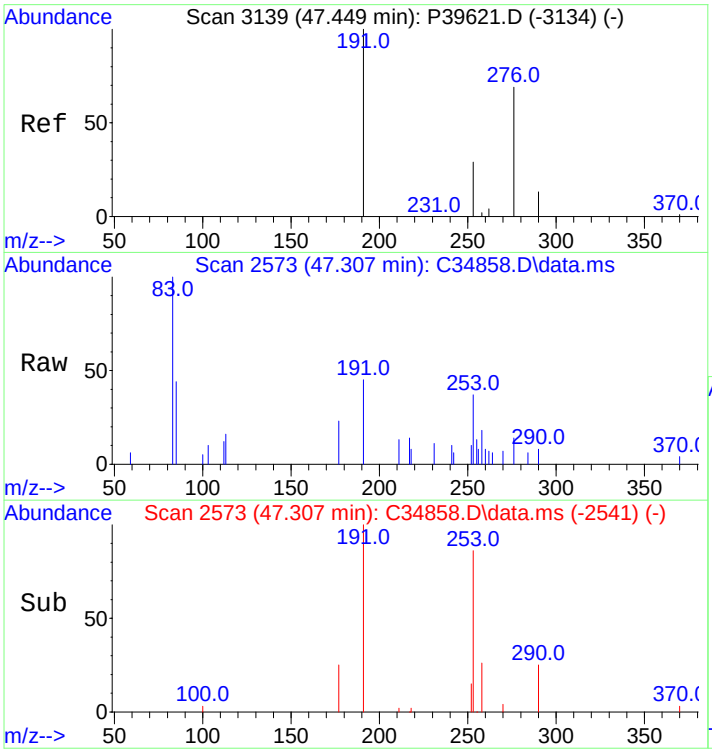




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 54.92 ng/ml
RT: 47.112 min Scan# 2560
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

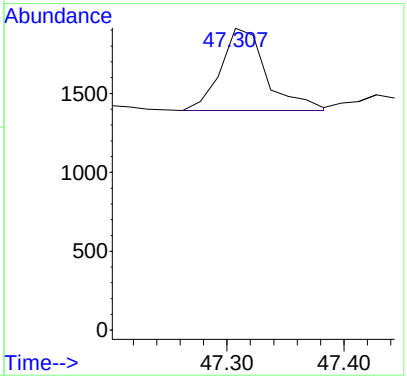
Tgt Ion:191 Resp: 1476

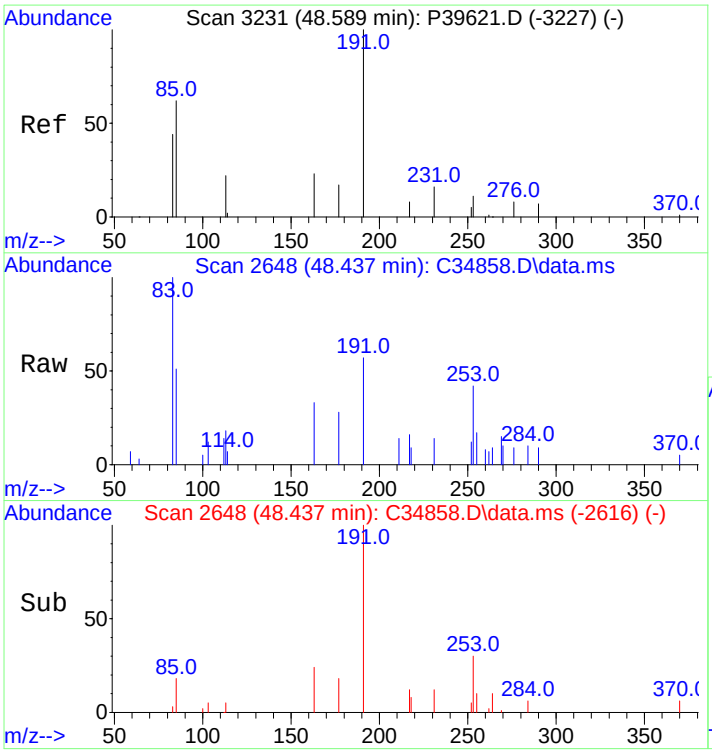




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 53.17 ng/ml
RT: 47.307 min Scan# 2573
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

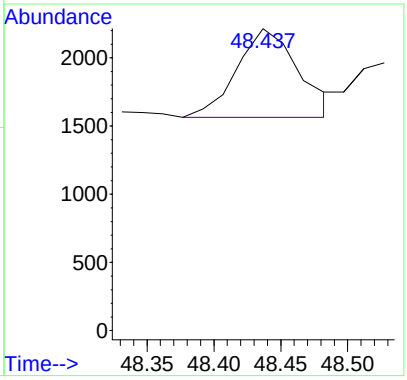
Tgt Ion:191 Resp: 1429

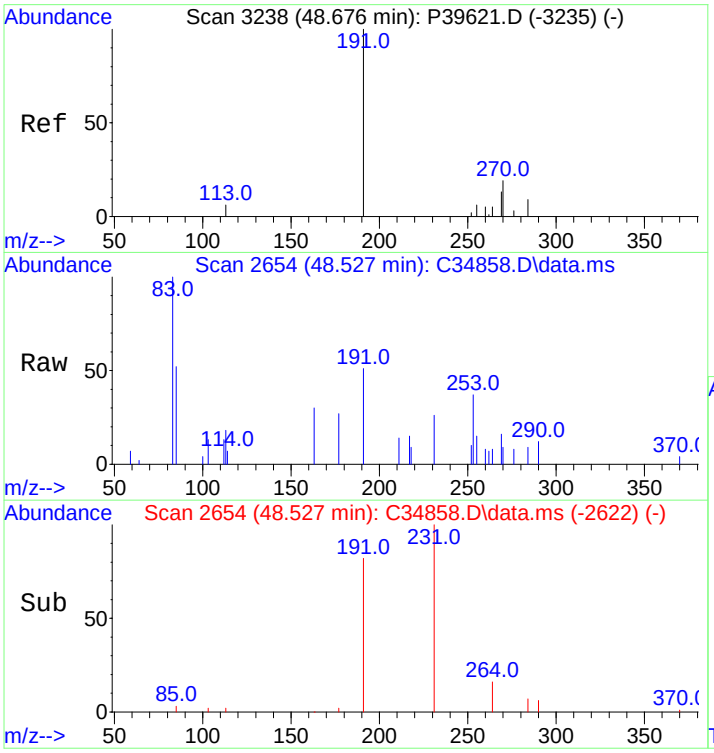




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 77.95 ng/ml
RT: 48.437 min Scan# 2648
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

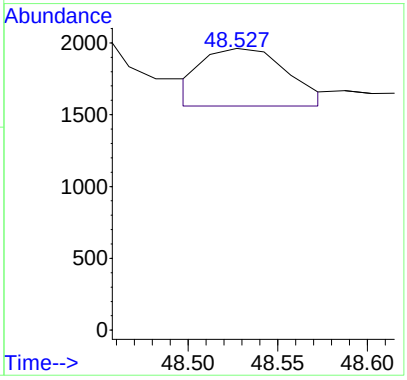
Tgt Ion:191 Resp: 2095

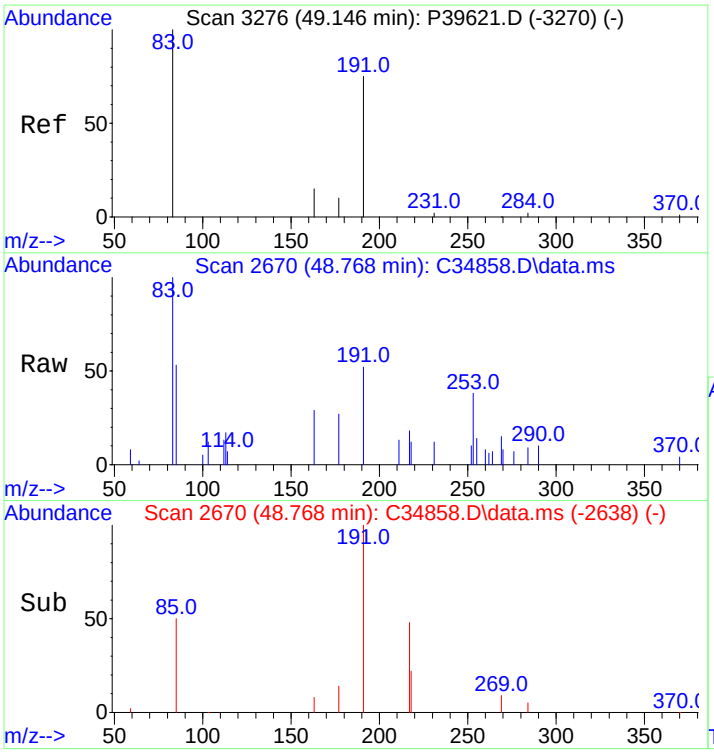




#105
C30 Tricyclic Terpane-22S
Concen: 48.67 ng/mL m
RT: 48.527 min Scan# 2654
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

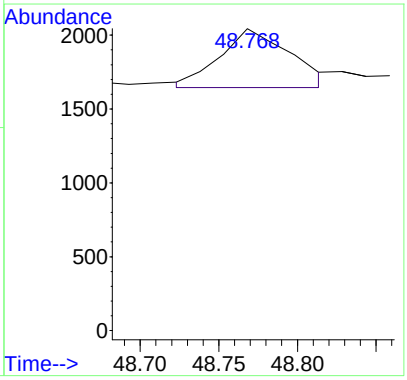
Tgt Ion:191 Resp: 1308

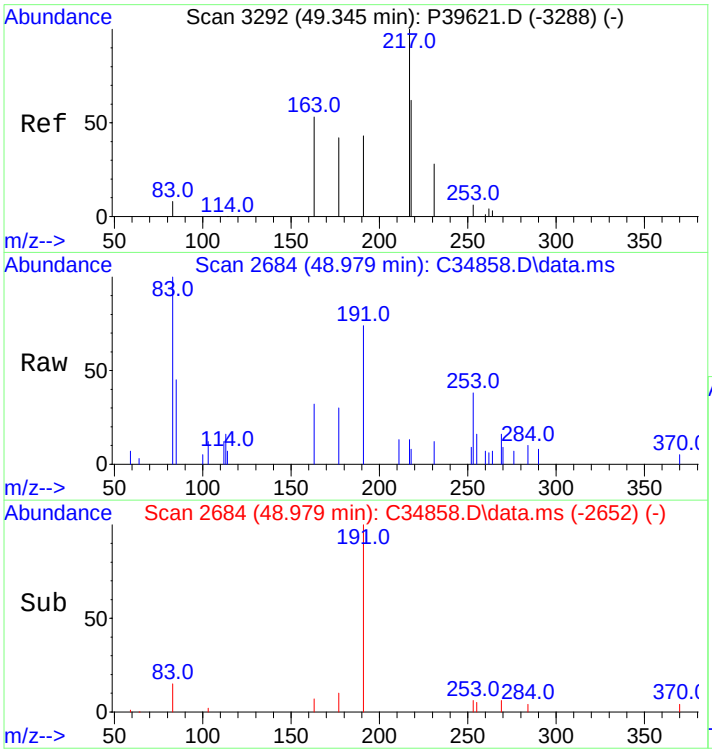




#106
C30 Tricyclic Terpane-22R
Concen: 45.76 ng/mL m
RT: 48.768 min Scan# 2670
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

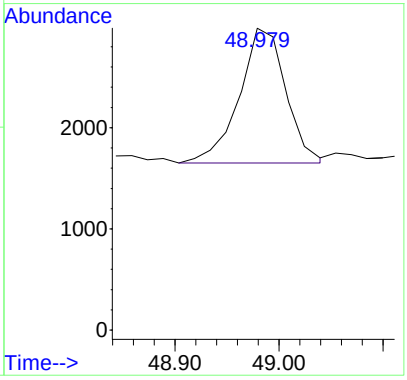
Tgt Ion:191 Resp: 1230

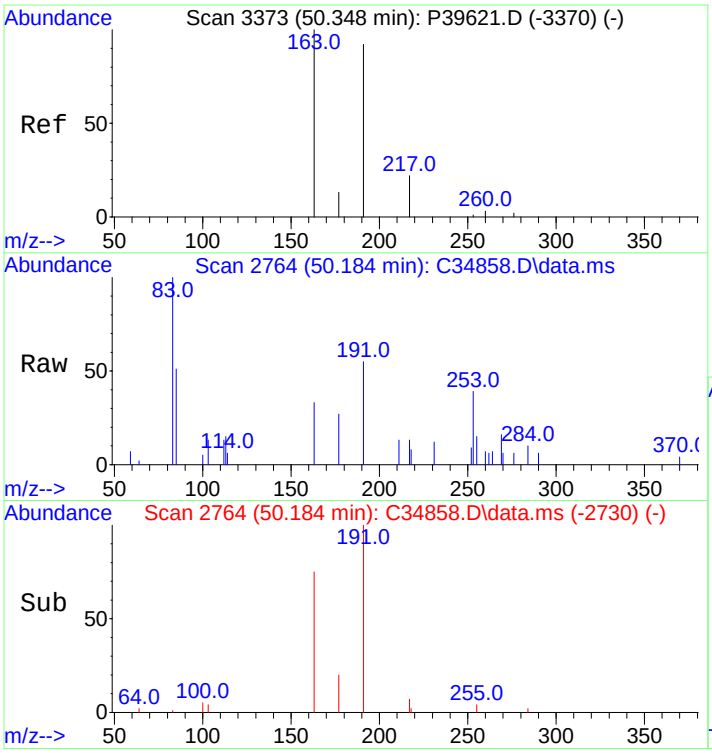




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 153.66 ng/ml m
RT: 48.979 min Scan# 2684
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

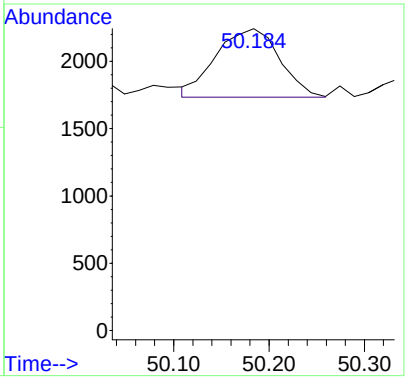
Tgt Ion:191 Resp: 4130

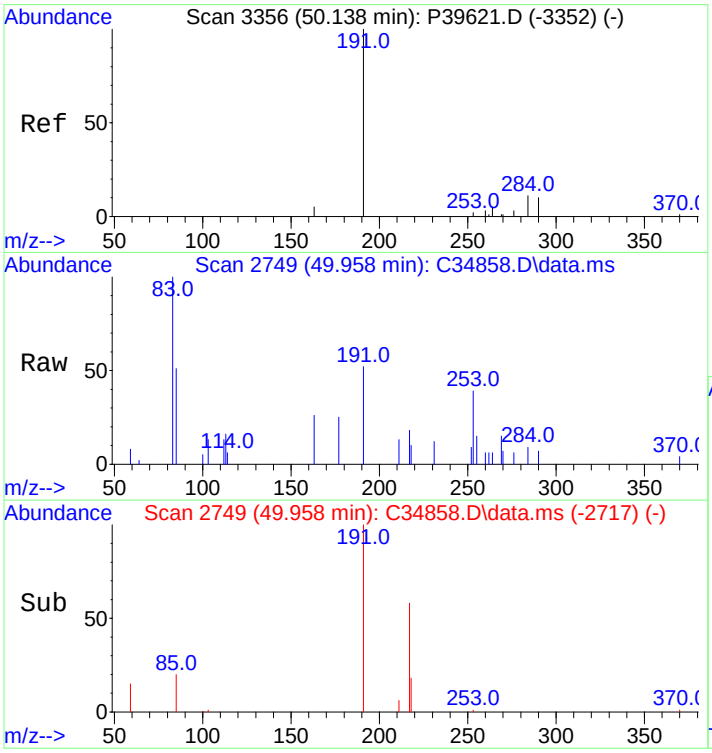




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 87.03 ng/ml m
RT: 50.184 min Scan# 2764
Delta R.T. 0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

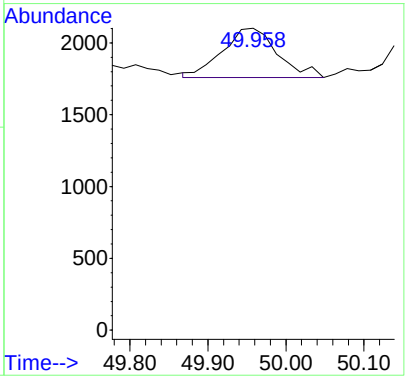
Tgt Ion:191 Resp: 2339

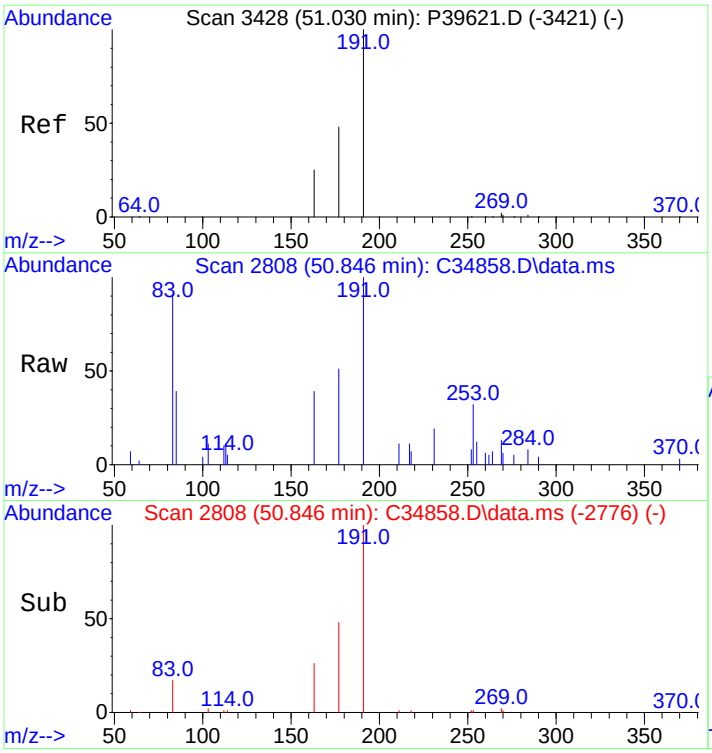




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 62.54 ng/ml
RT: 49.958 min Scan# 2749
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

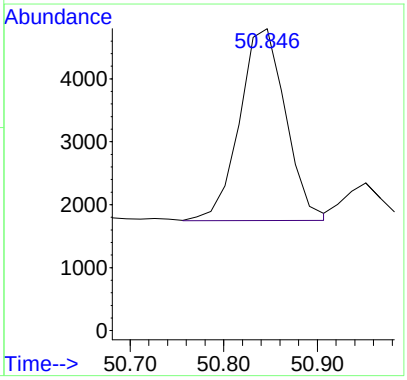
Tgt Ion:191 Resp: 1681

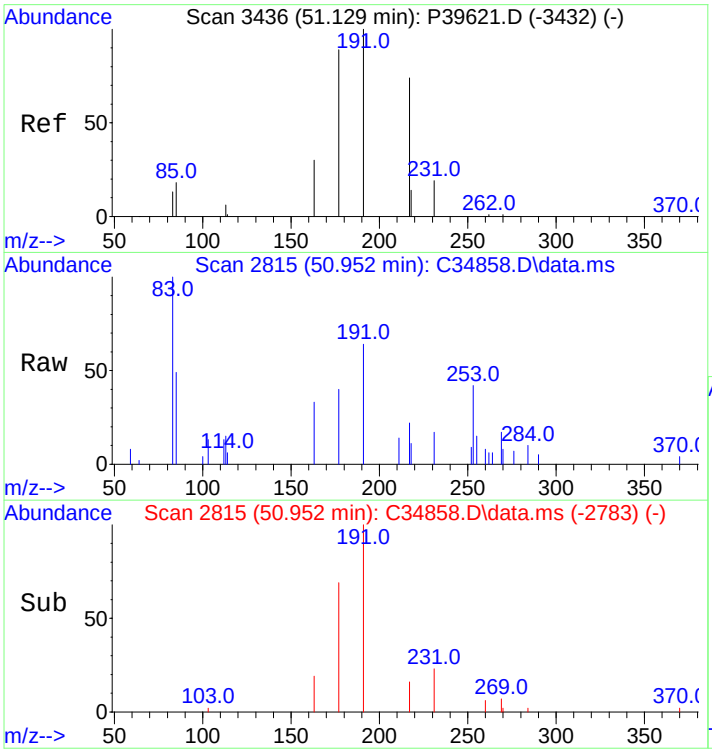




#110
30-Norhopane (T15)
Concen: 388.33 ng/ml
RT: 50.846 min Scan# 2808
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

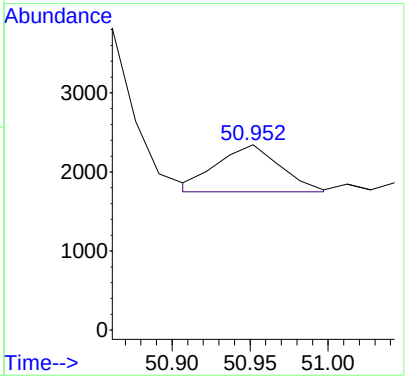
Tgt Ion:191 Resp: 10437

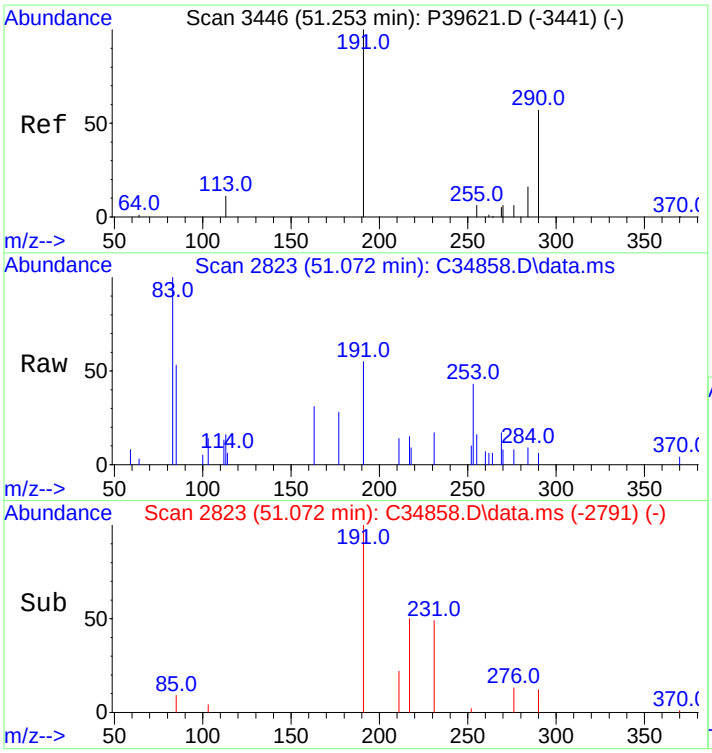




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 61.61 ng/ml
RT: 50.952 min Scan# 2815
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

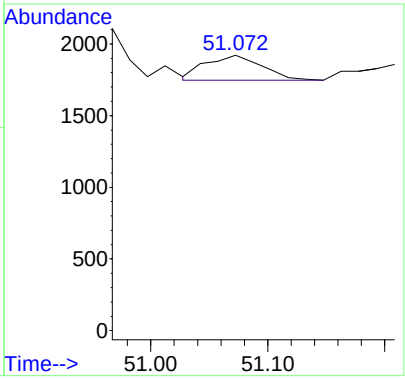
Tgt Ion:191 Resp: 1656

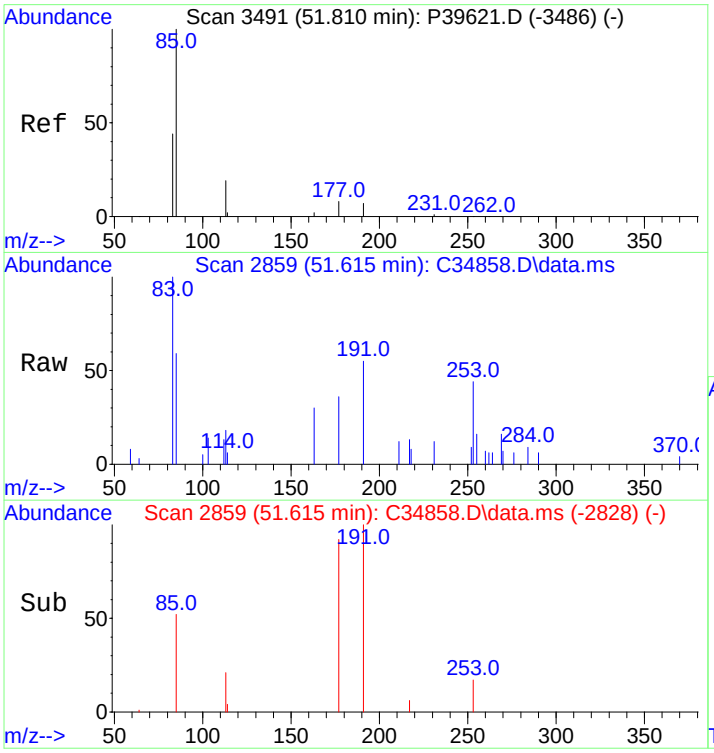




#112
17a(H)-Diahopane (X)
Concen: 21.62 ng/ml
RT: 51.072 min Scan# 2823
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

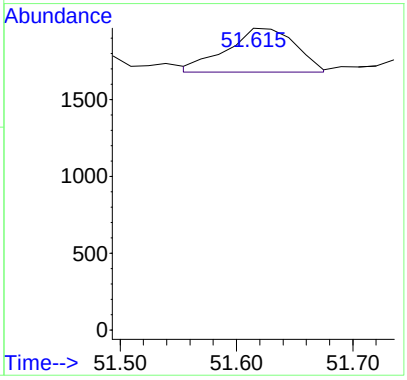
Tgt Ion:191 Resp: 581

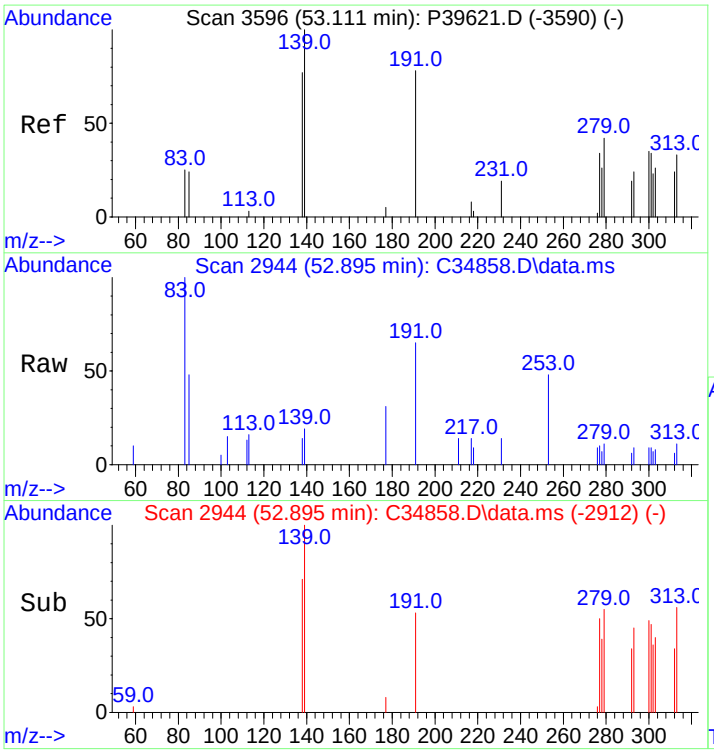




#113
30-Normoretane (T17)
Concen: 43.53 ng/ml m
RT: 51.615 min Scan# 2859
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

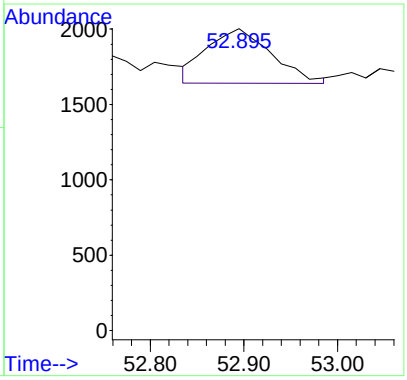
Tgt Ion:191 Resp: 1170

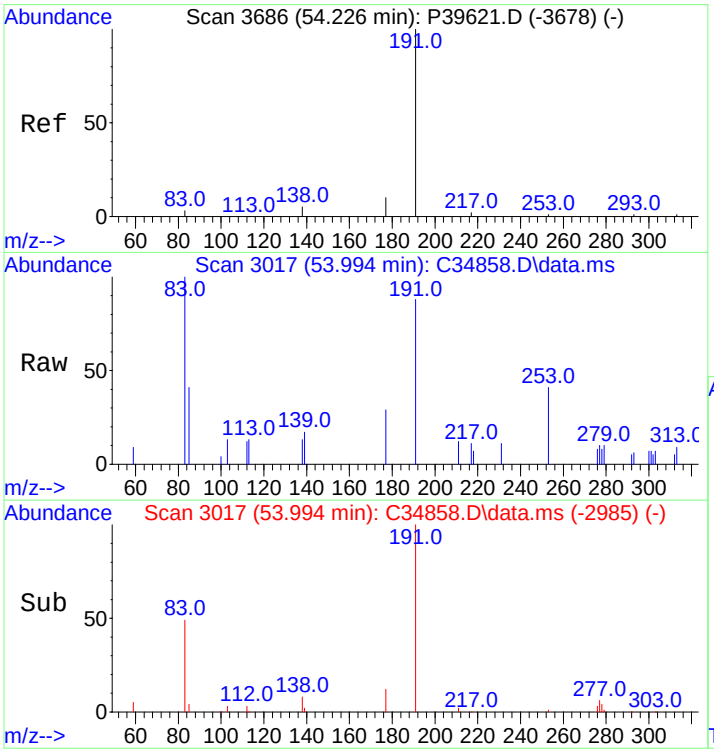




#115
Moretane (T20)
Concen: 64.93 ng/ml
RT: 52.895 min Scan# 2944
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

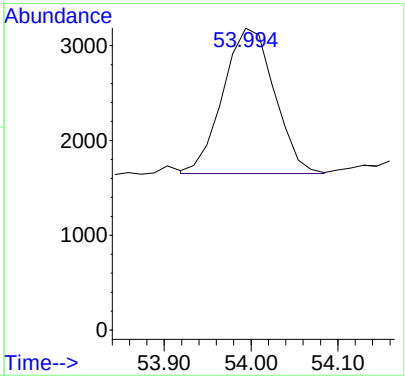
Tgt Ion:191 Resp: 1745

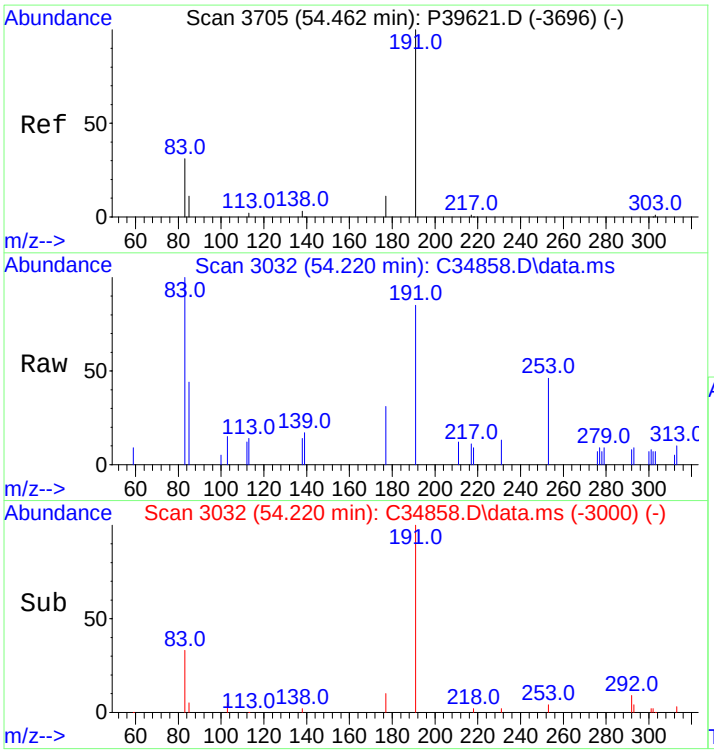




#116
30-Homohopane-22S (T21)
Concen: 234.81 ng/ml m
RT: 53.994 min Scan# 3017
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

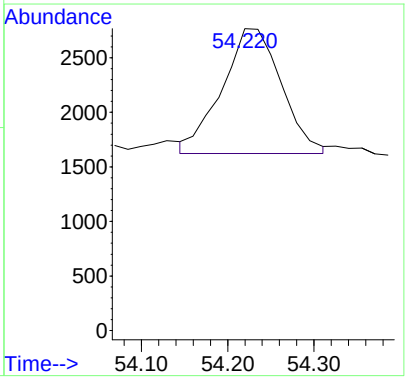
Tgt Ion:191 Resp: 6311

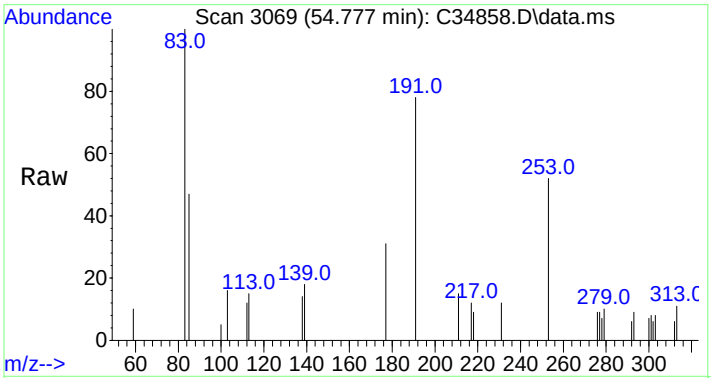




#117
30-Homohopane-22R (T22)
Concen: 203.15 ng/ml m
RT: 54.220 min Scan# 3032
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

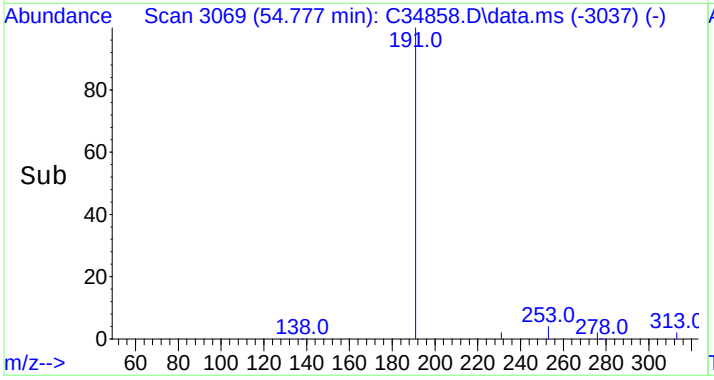
Tgt Ion:191 Resp: 5460

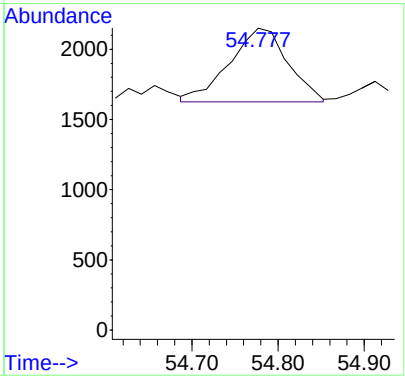


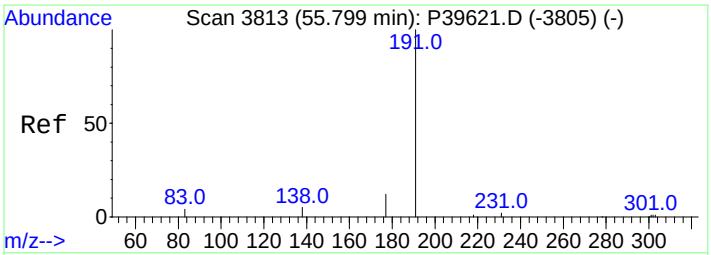


#118
Gammacerane/C32-diahopane
Concen: 91.83 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:191 Resp: 2468

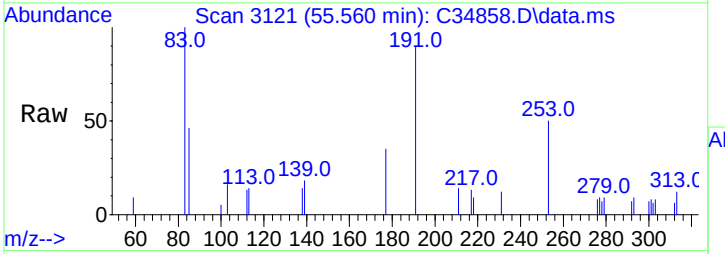


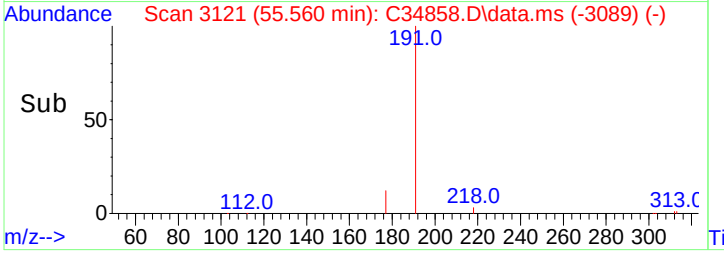


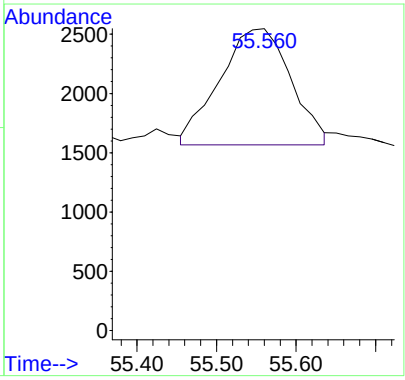


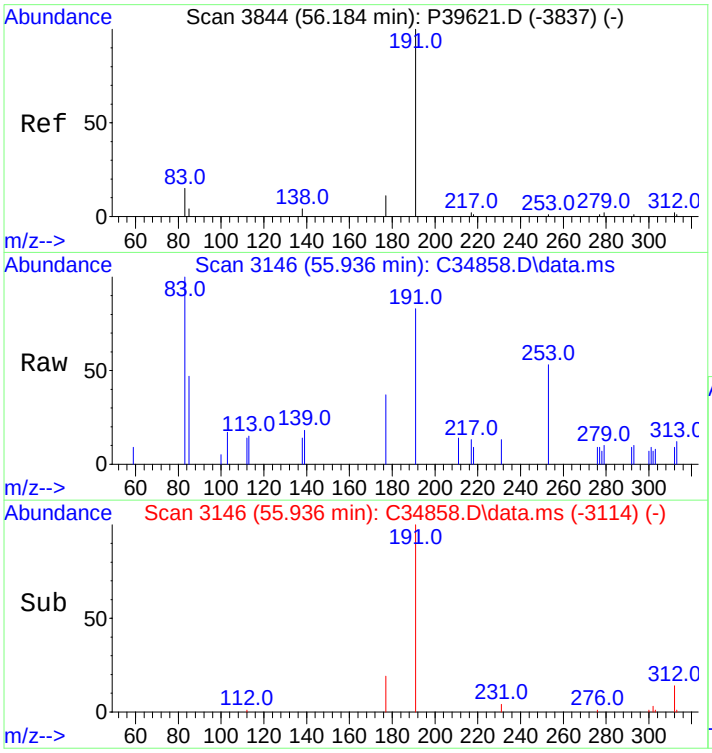
#119
30,31-Bishomohopane-22S (T26)
Concen: 226.92 ng/ml m
RT: 55.560 min Scan# 3121
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:191 Resp: 6099



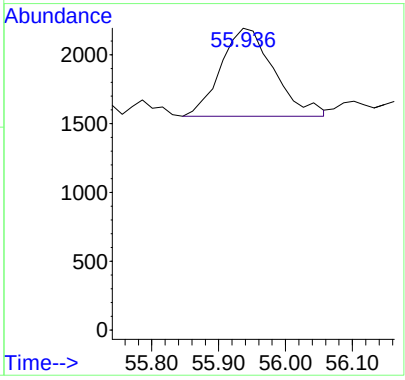


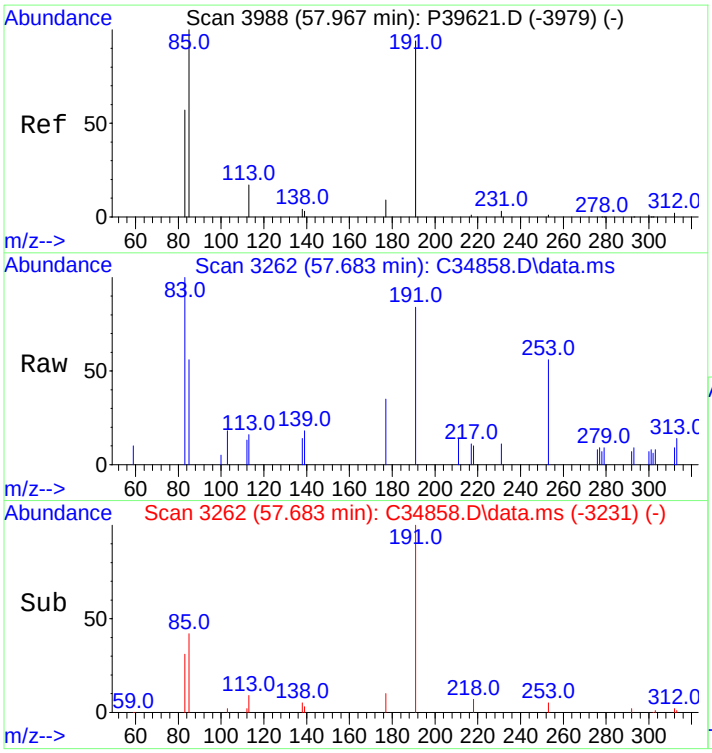




#120
30,31-Bishomohopane-22R (T27)
Concen: 131.86 ng/ml
RT: 55.936 min Scan# 3146
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

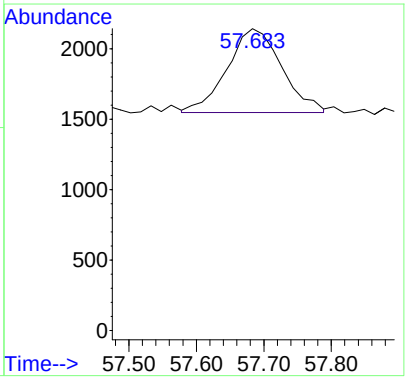
Tgt Ion:191 Resp: 3544

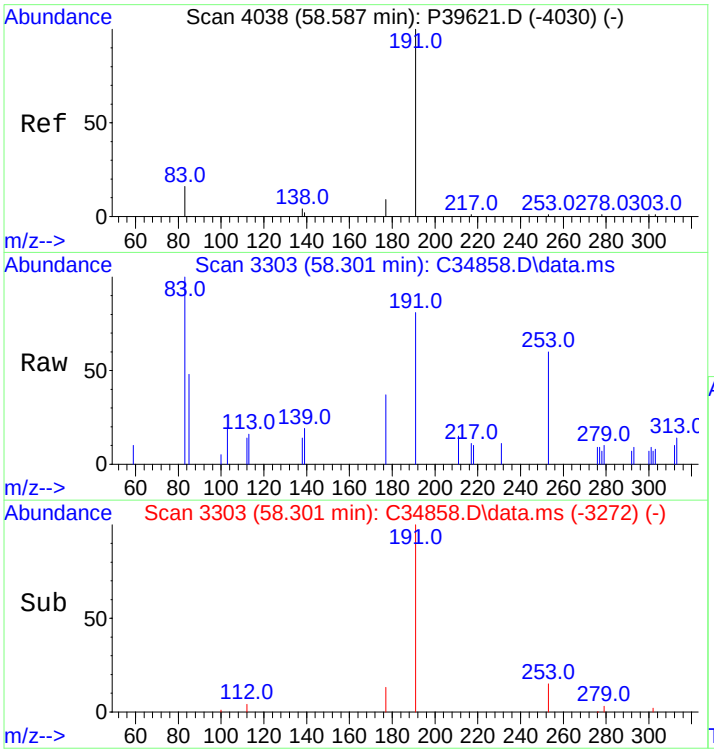




#121
30,31-Trishomohopane-22S (T30)
Concen: 125.09 ng/ml m
RT: 57.683 min Scan# 3262
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

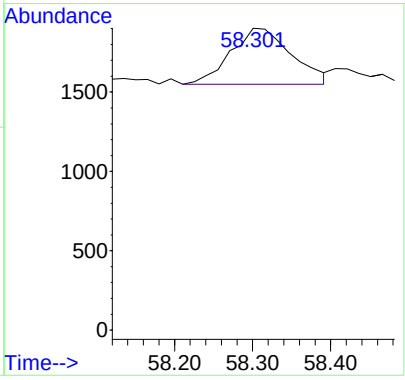
Tgt Ion:191 Resp: 3362

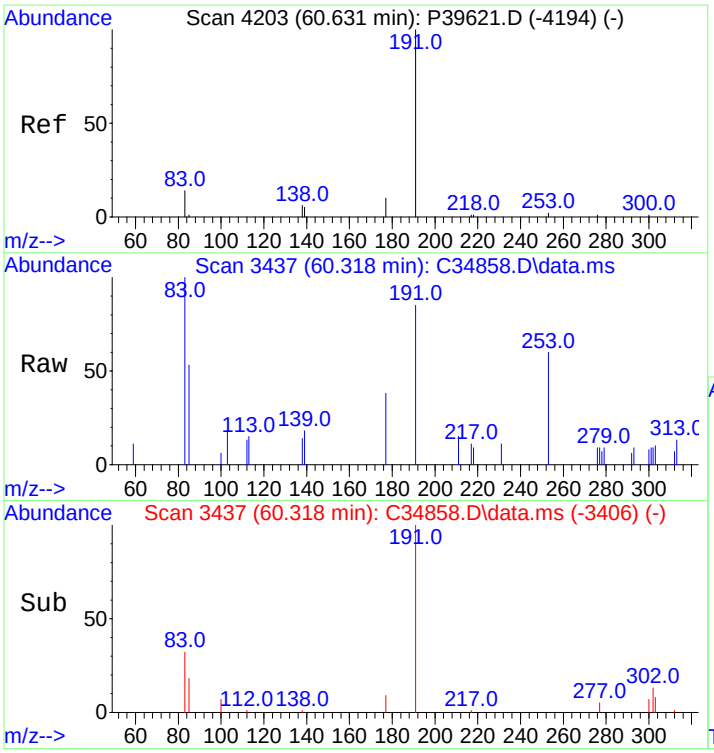




#122
30,31-Trishomohopane-22R (T31)
Concen: 70.95 ng/ml
RT: 58.301 min Scan# 3303
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

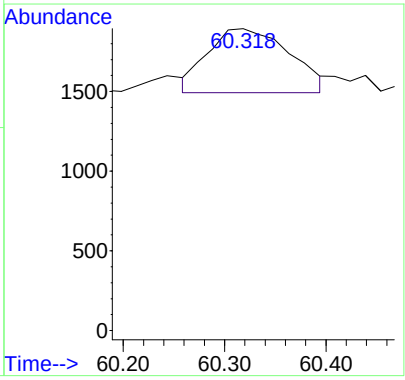
Tgt Ion:191 Resp: 1907

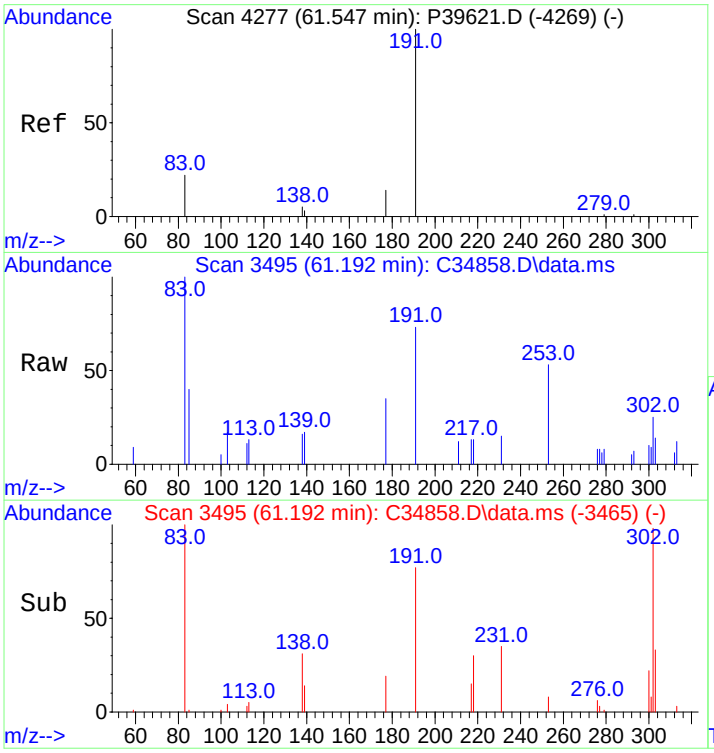




#123
Tetrakishomohopane-22S (T32)
Concen: 83.90 ng/ml m
RT: 60.318 min Scan# 3437
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

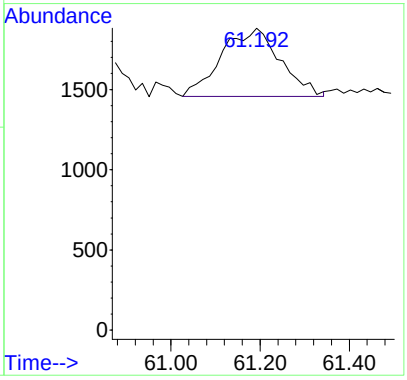
Tgt Ion:191 Resp: 2255

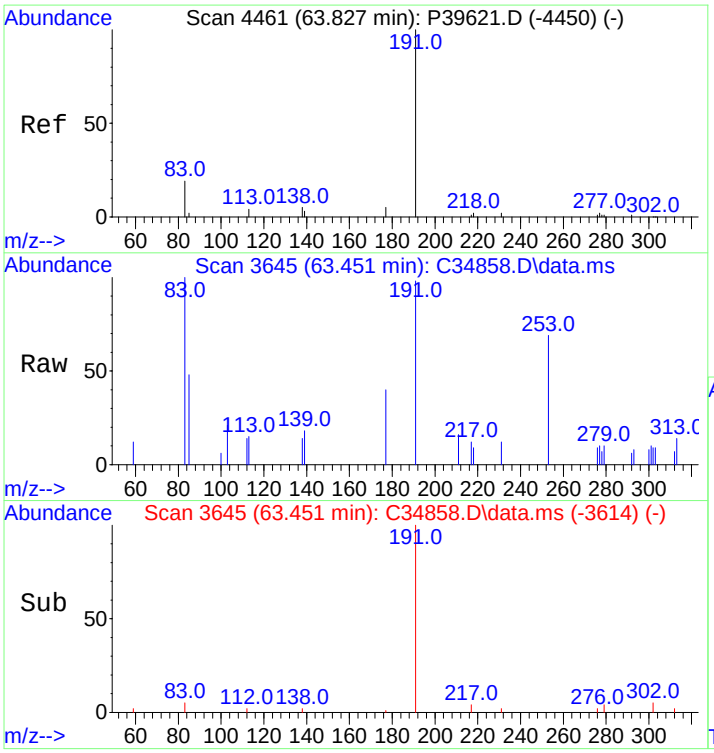




#124
Tetrakishomohopane-22R (T33)
Concen: 144.51 ng/ml
RT: 61.192 min Scan# 3495
Delta R.T. -0.045 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

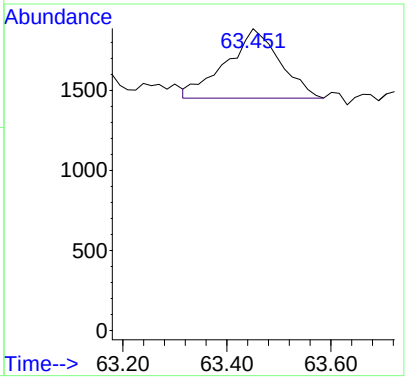
Tgt Ion:191 Resp: 3884

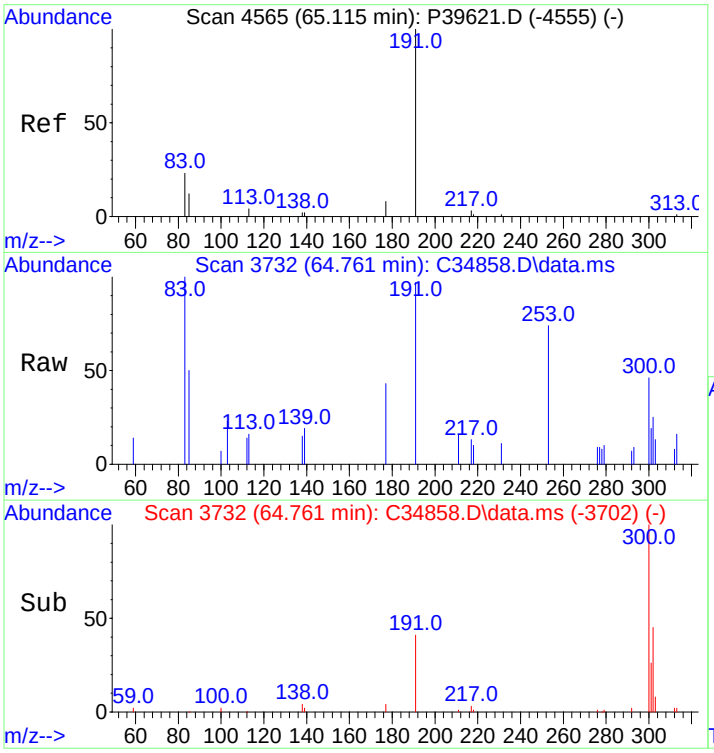




#125
Pentakishomohopane-22S (T34)
Concen: 115.42 ng/ml
RT: 63.451 min Scan# 3645
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

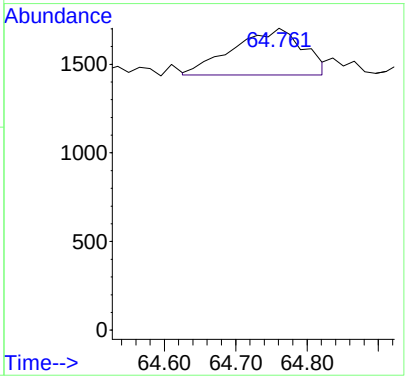
Tgt Ion:191 Resp: 3102

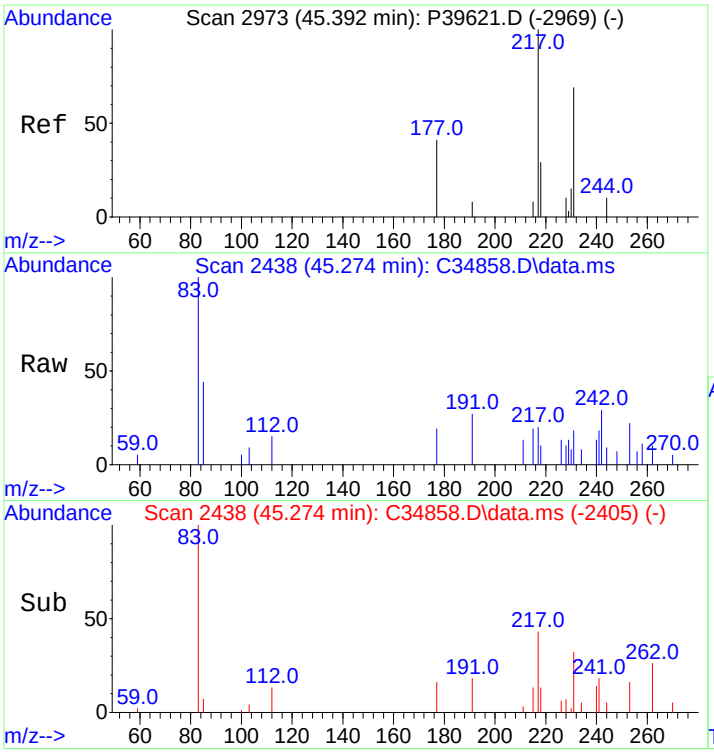




#126
Pentakishomohopane-22R (T35)
Concen: 66.45 ng/ml m
RT: 64.761 min Scan# 3732
Delta R.T. -0.045 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

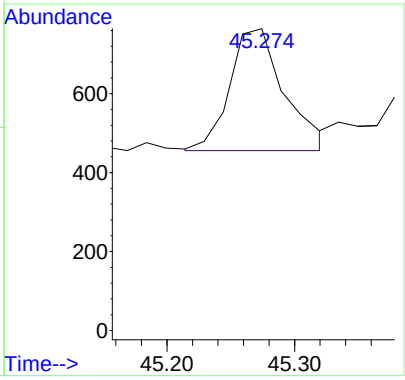
Tgt Ion:191 Resp: 1786

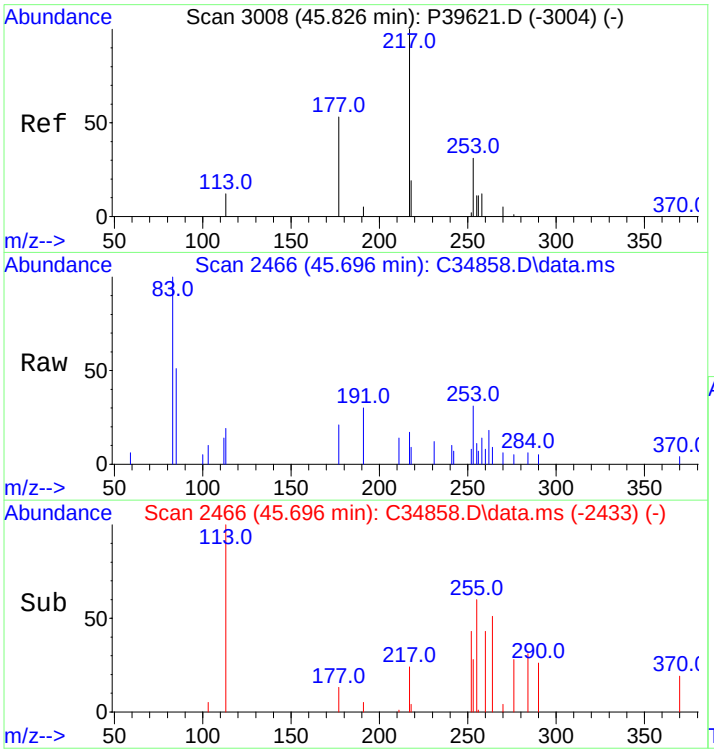




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 72.16 ng/ml m
RT: 45.274 min Scan# 2438
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

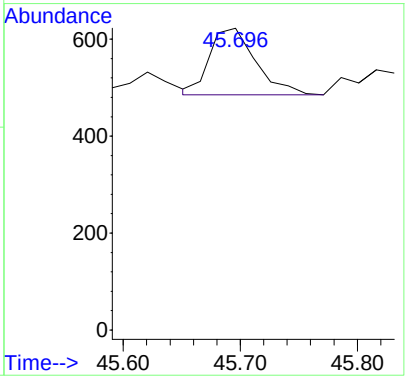
Tgt Ion:217 Resp: 920

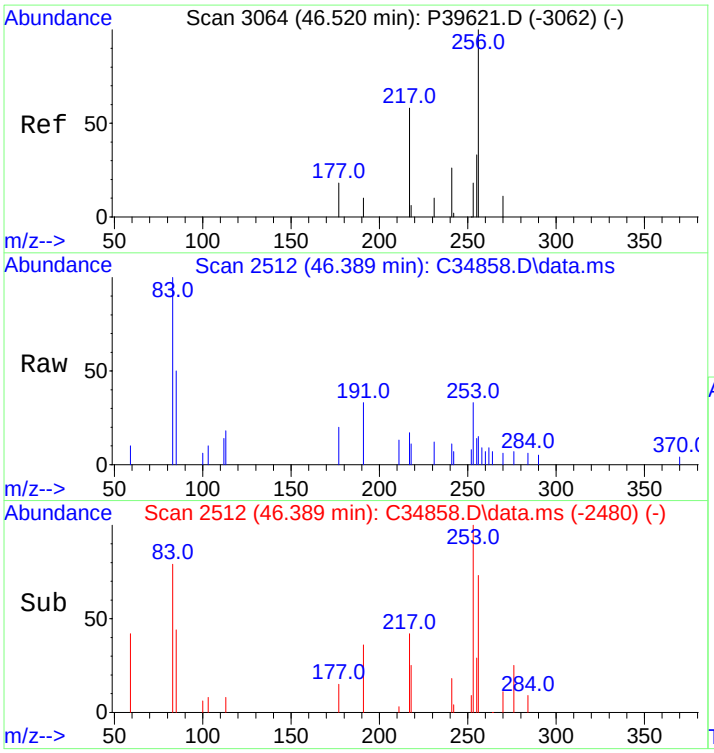




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 29.73 ng/ml
RT: 45.696 min Scan# 2466
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

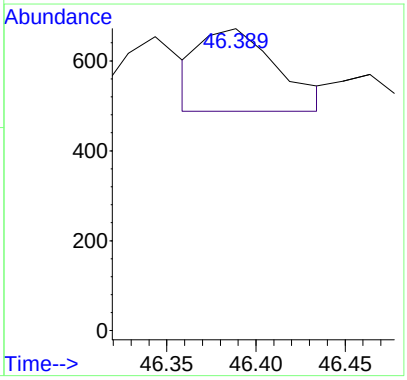
Tgt Ion:217 Resp: 379

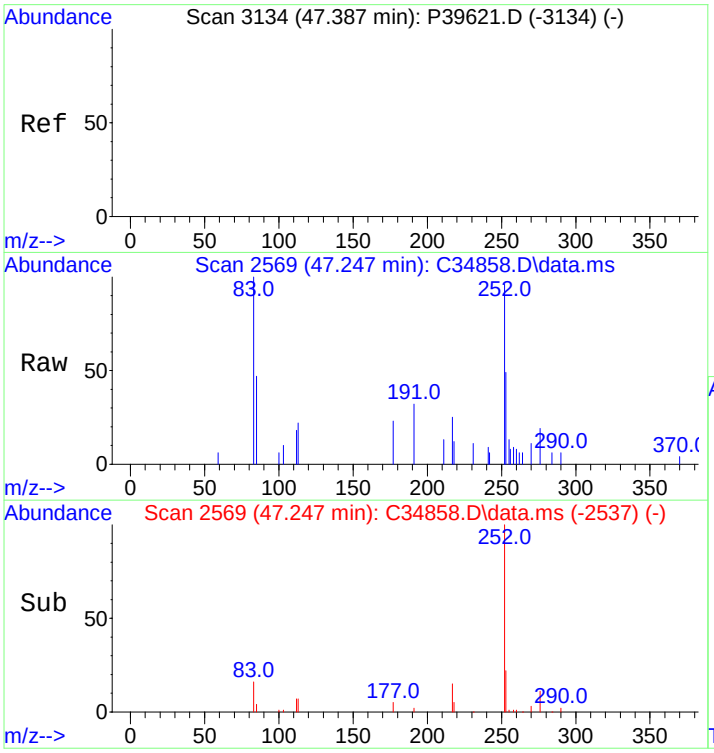




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 43.06 ng/ml m
RT: 46.389 min Scan# 2512
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

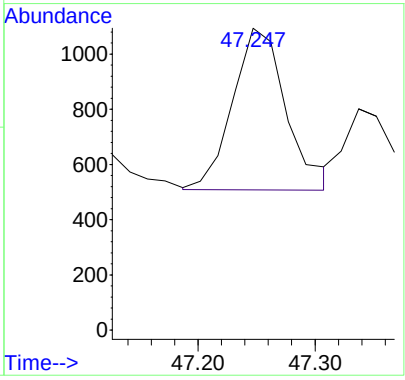
Tgt Ion:217 Resp: 549

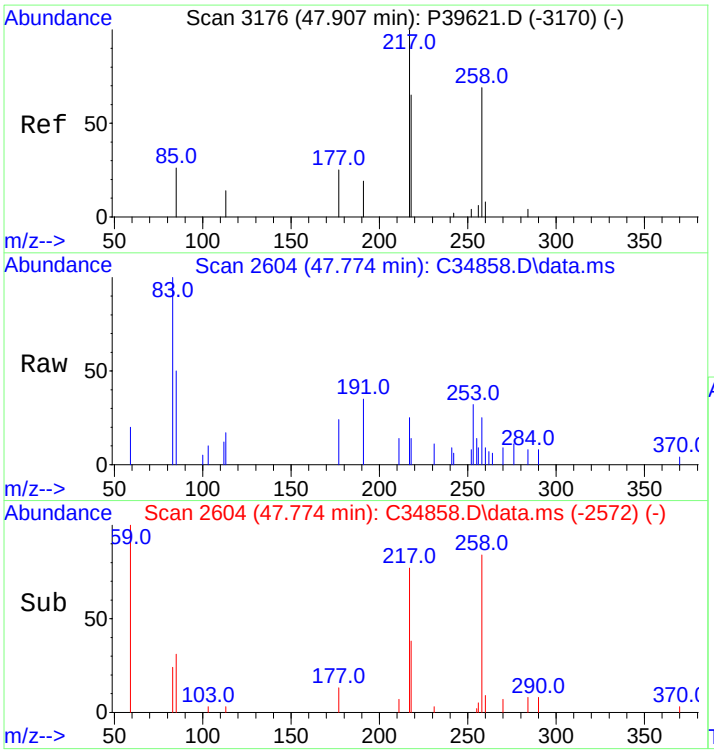




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 146.12 ng/ml
RT: 47.247 min Scan# 2569
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

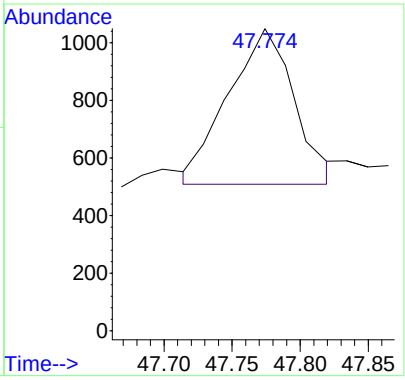
Tgt Ion:217 Resp: 1863

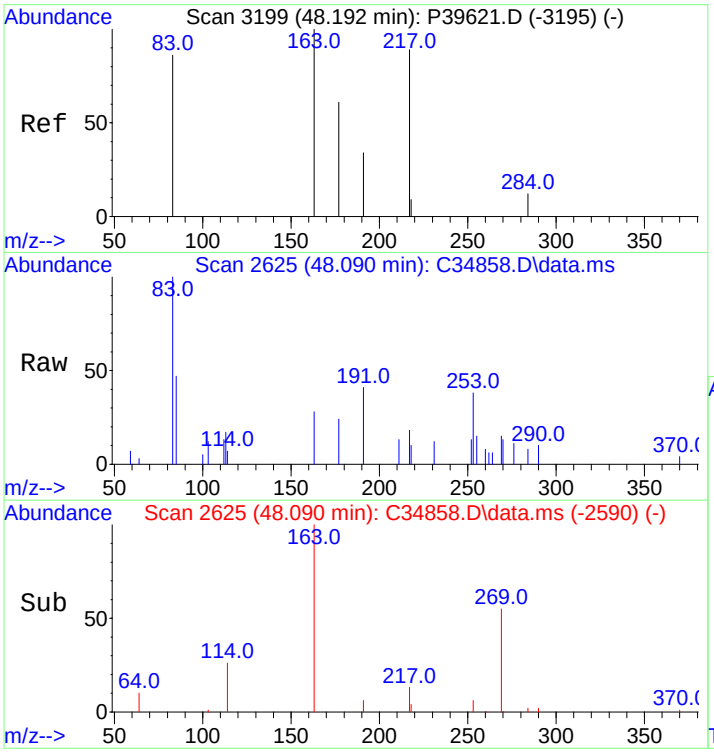




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 143.06 ng/ml m
RT: 47.774 min Scan# 2604
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

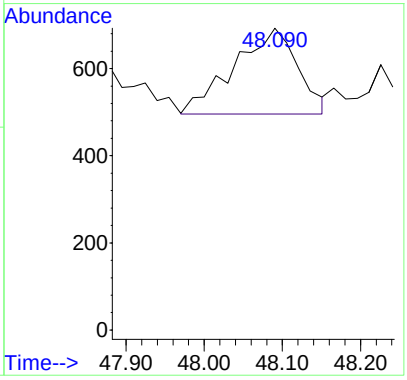
Tgt Ion:217 Resp: 1824

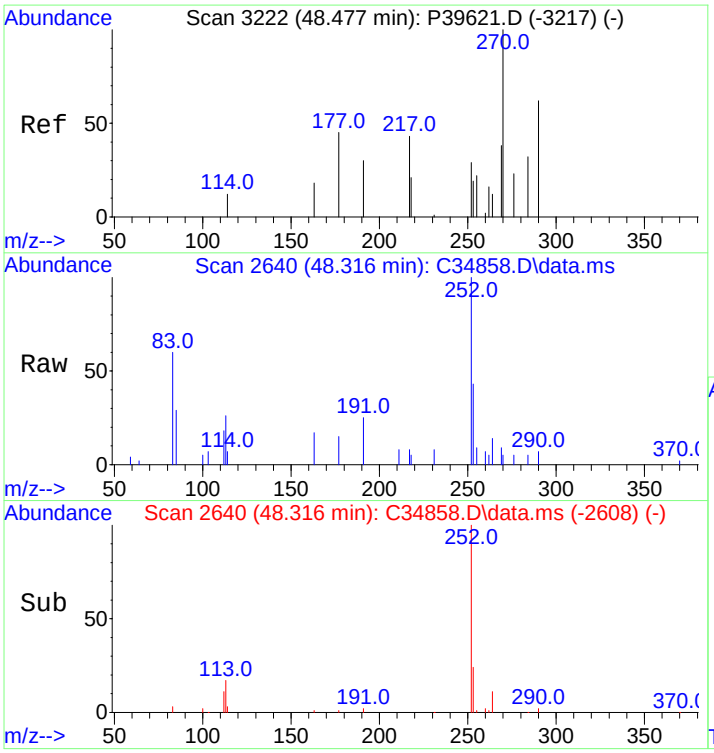




#133
Unknown Sterane (S18)
Concen: 87.22 ng/ml m
RT: 48.090 min Scan# 2625
Delta R.T. 0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

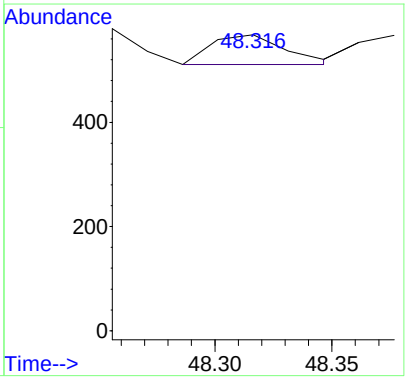
Tgt Ion:217 Resp: 1112

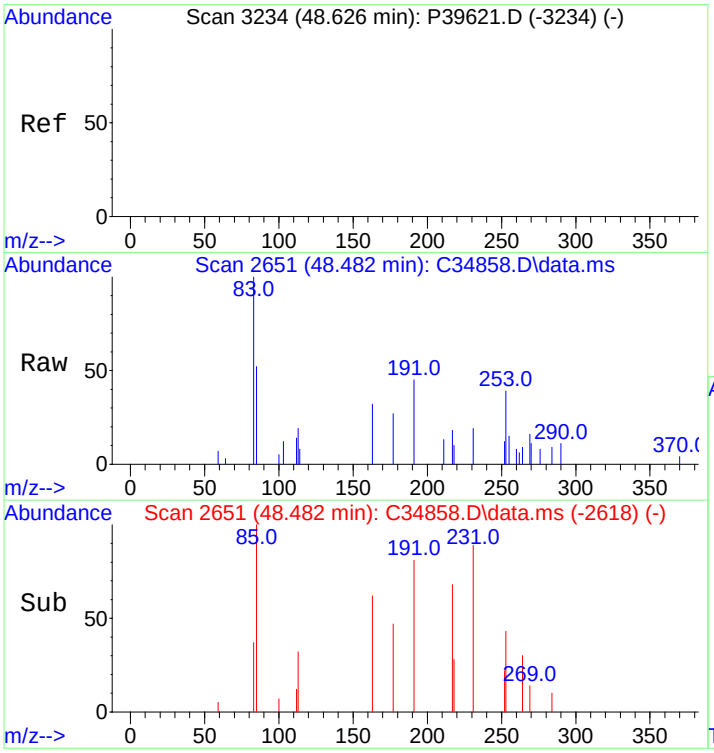




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 9.96 ng/ml
RT: 48.316 min Scan# 2640
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

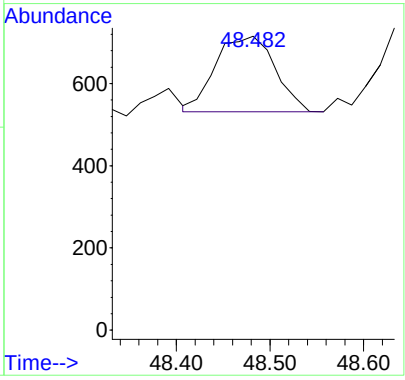
Tgt Ion:217 Resp: 127

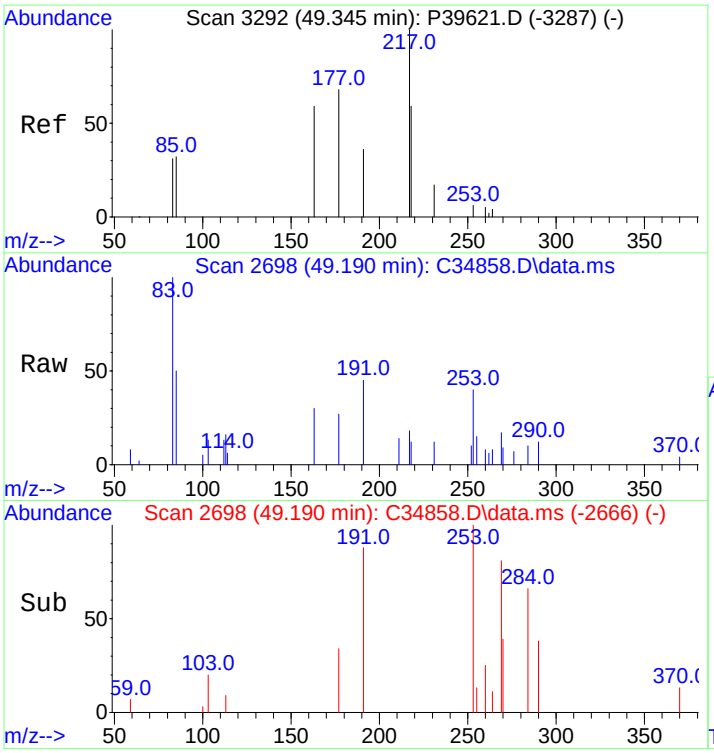




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 63.84 ng/ml
RT: 48.482 min Scan# 2651
Delta R.T. 0.000 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

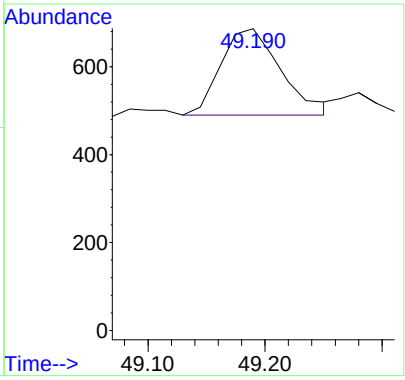
Tgt Ion:217 Resp: 814

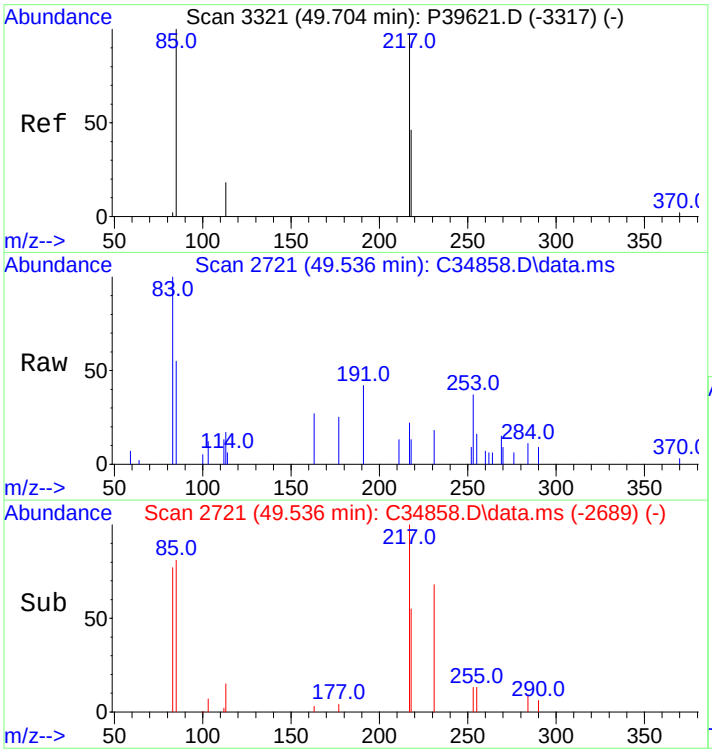




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 55.22 ng/ml
RT: 49.190 min Scan# 2698
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

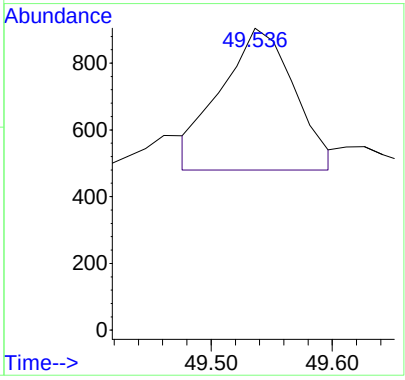
Tgt Ion:217 Resp: 704

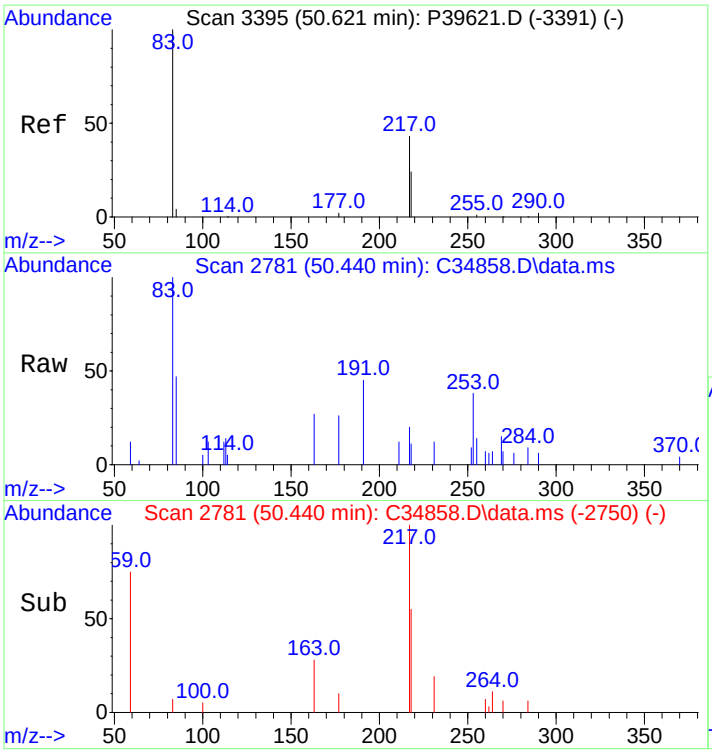




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 140.08 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

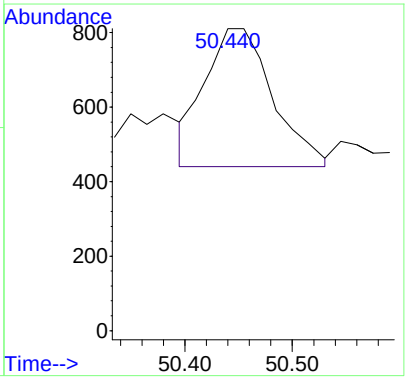
Tgt Ion:217 Resp: 1786

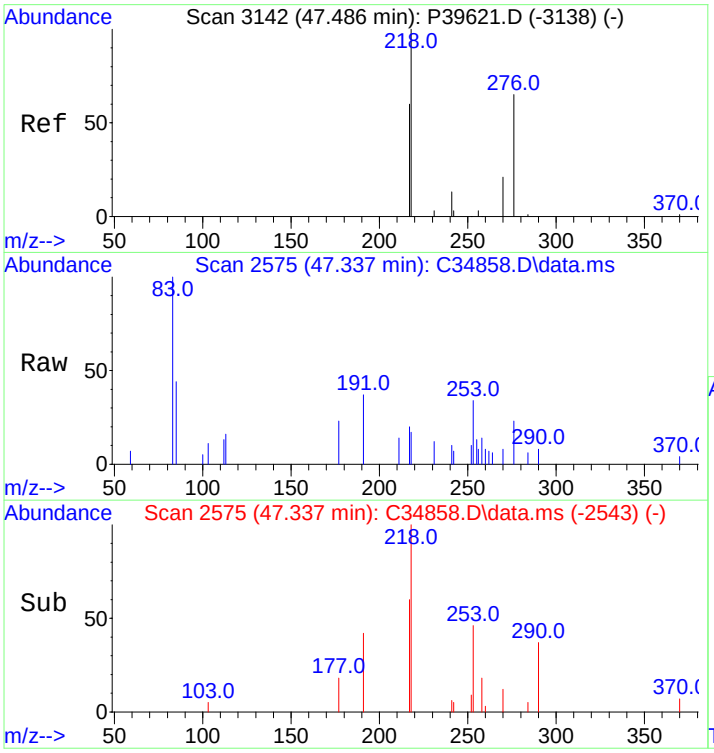




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 128.31 ng/ml m
RT: 50.440 min Scan# 2781
Delta R.T. -0.030 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

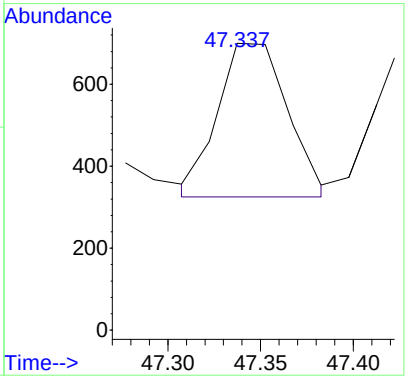
Tgt Ion:217 Resp: 1636

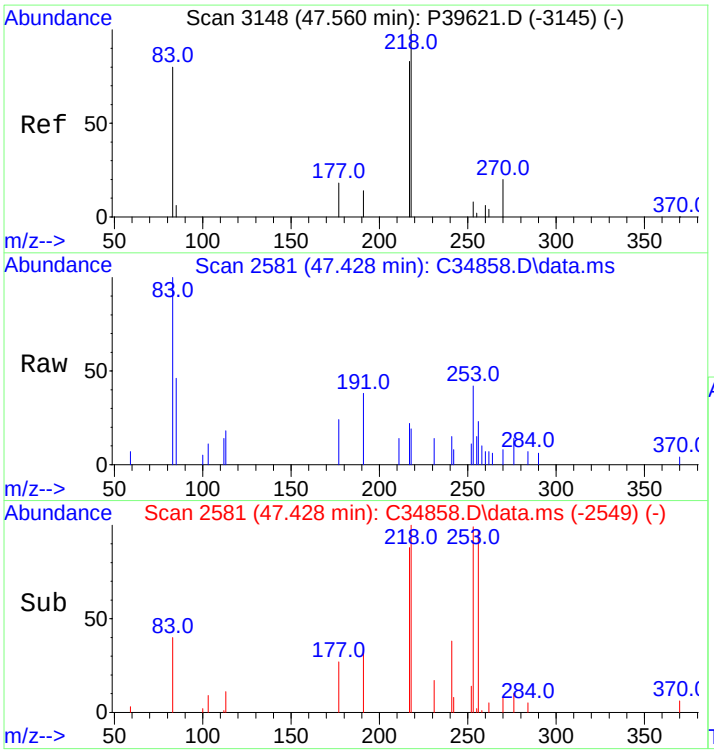




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 76.94 ng/ml m
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

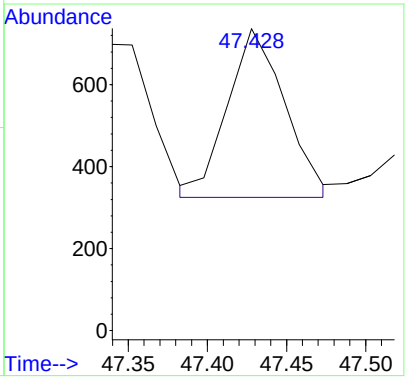
Tgt Ion:218 Resp: 981

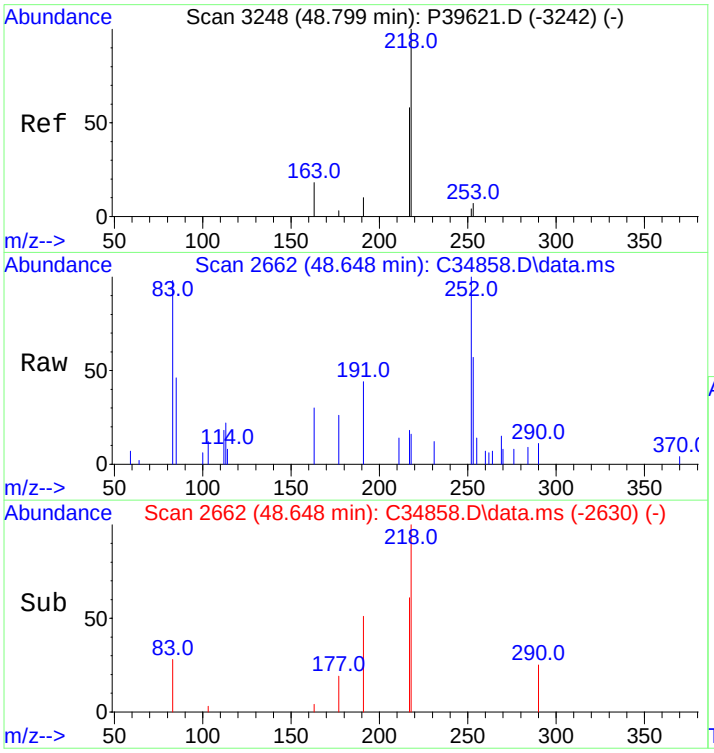




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 81.26 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

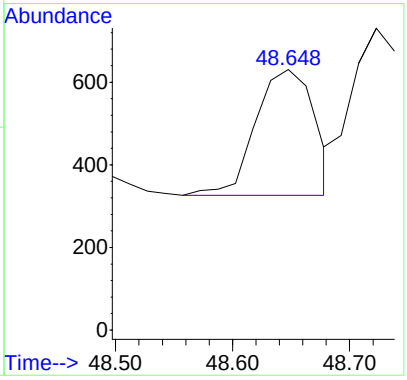
Tgt Ion:218 Resp: 1036

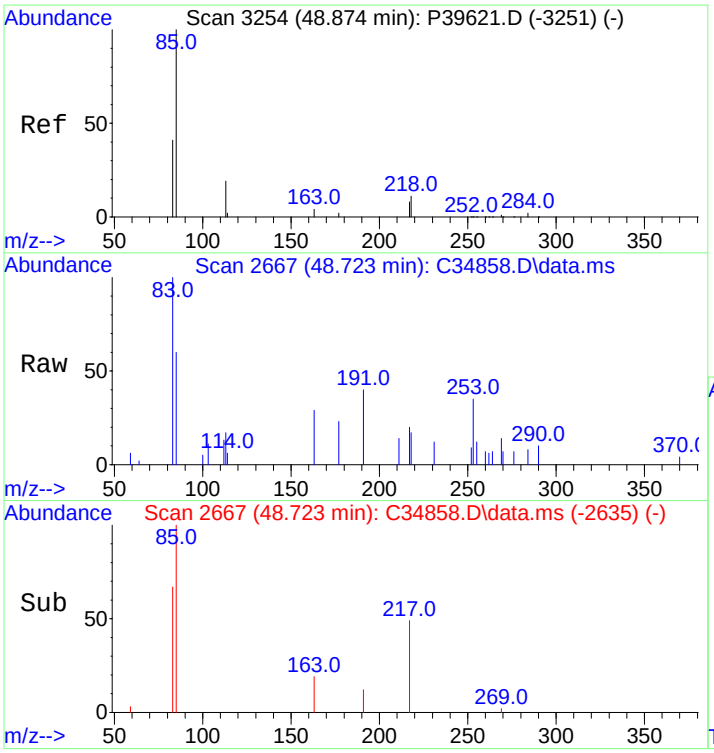




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 83.92 ng/ml
RT: 48.648 min Scan# 2662
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

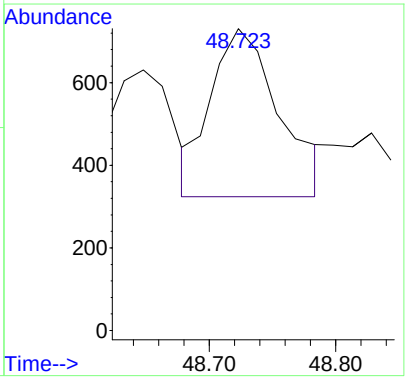
Tgt Ion:218 Resp: 1070

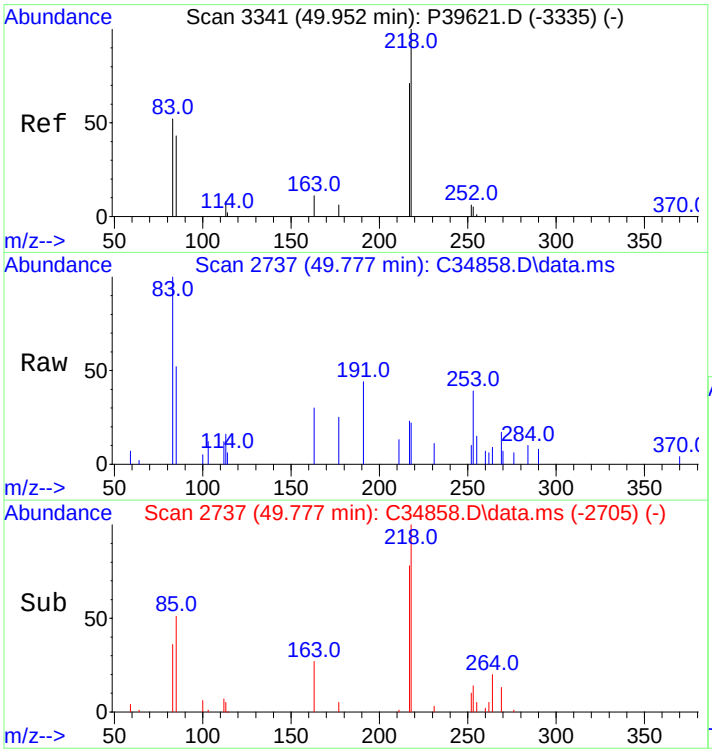




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 120.16 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

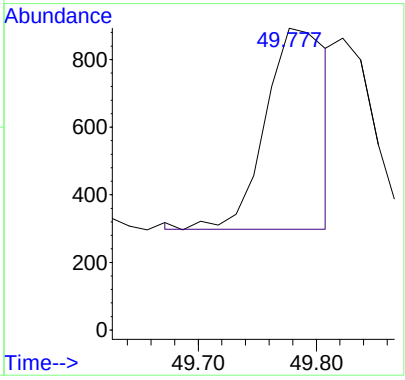
Tgt Ion:218 Resp: 1532

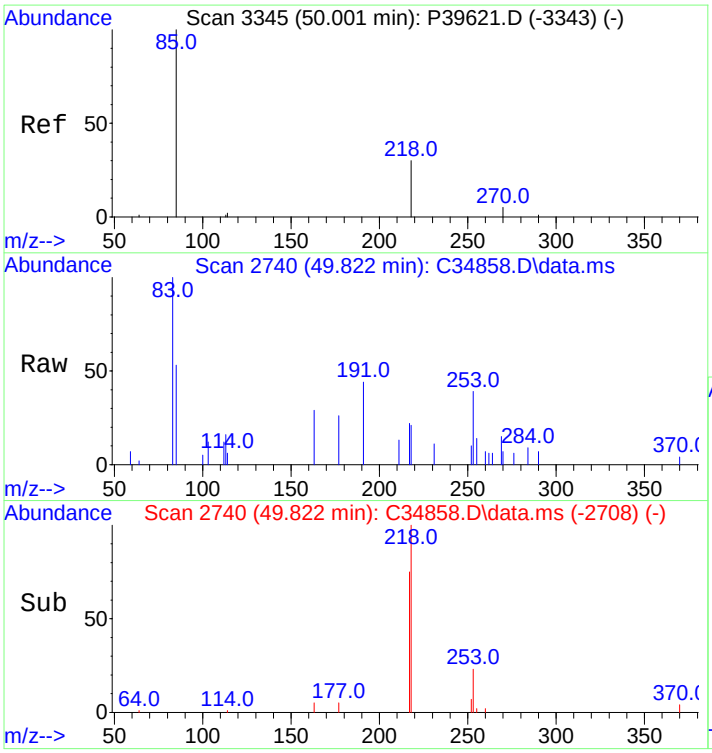




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 168.00 ng/ml m
RT: 49.777 min Scan# 2737
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

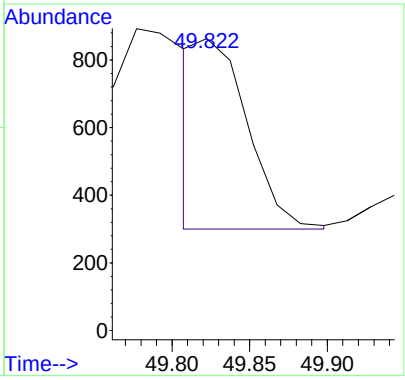
Tgt Ion:218 Resp: 2142

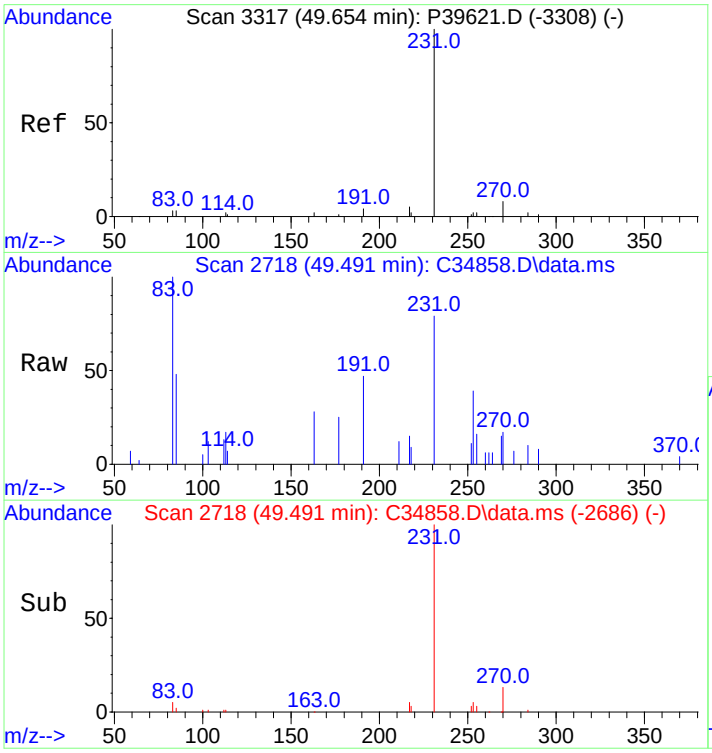




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 99.77 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

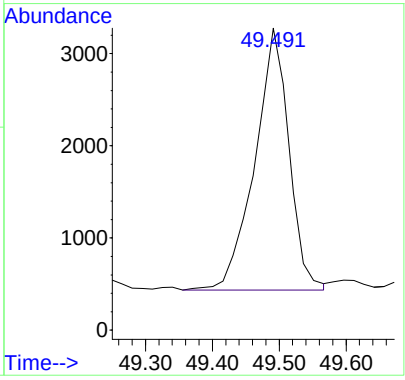
Tgt Ion:218 Resp: 1272

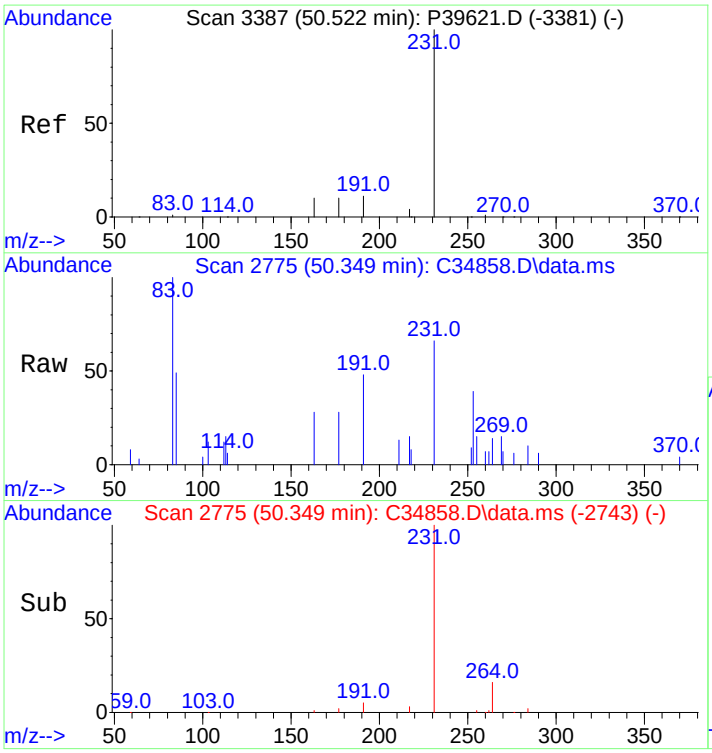




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 792.63 ng/mL
RT: 49.491 min Scan# 2718
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

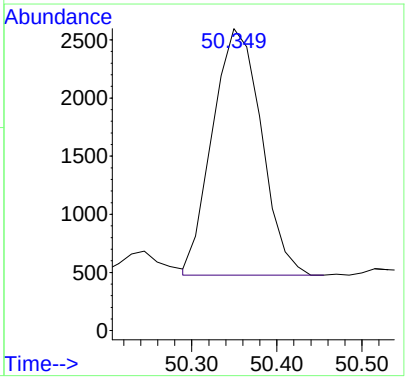
Tgt Ion:231 Resp: 10106

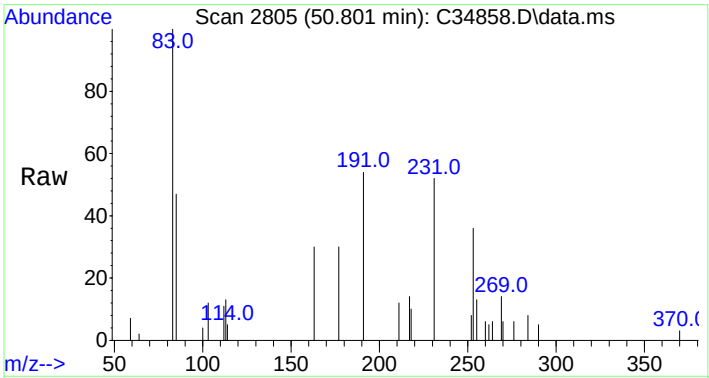




#146
C28,20S-triaromatic steroid
Concen: 664.08 ng/mL
RT: 50.349 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

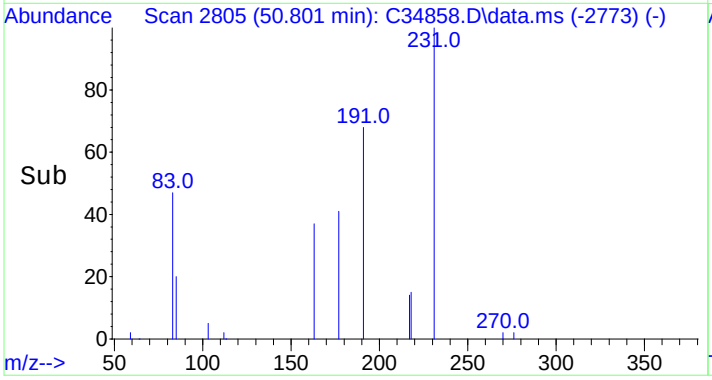
Tgt Ion:231 Resp: 8467

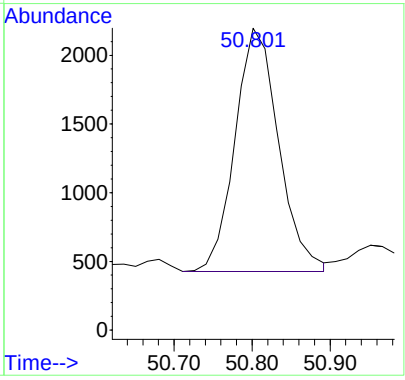


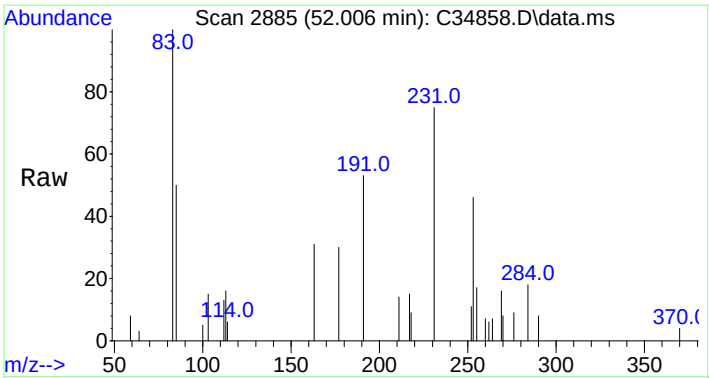


#147
C27,20R-triaromatic steroid
Concen: 540.32 ng/mL
RT: 50.801 min Scan# 2805
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:231 Resp: 6889

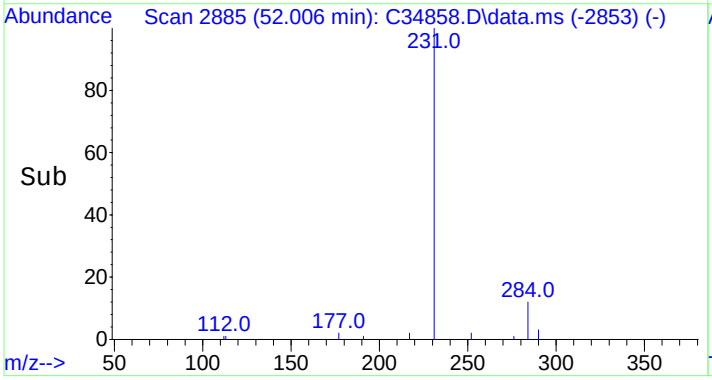


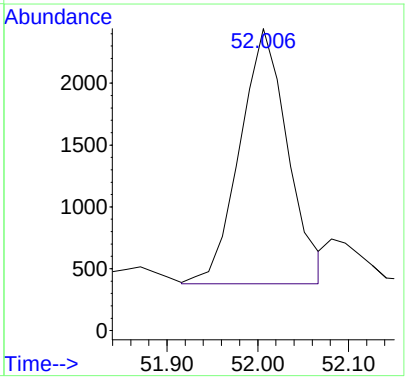




#148
C28,20R-triaromatic steroid
Concen: 595.30 ng/mL m
RT: 52.006 min Scan# 2885
Delta R.T. -0.015 min
Lab File: C34858.D
Acq: 5 May 2012 5:17 am

Tgt Ion:231 Resp: 7590

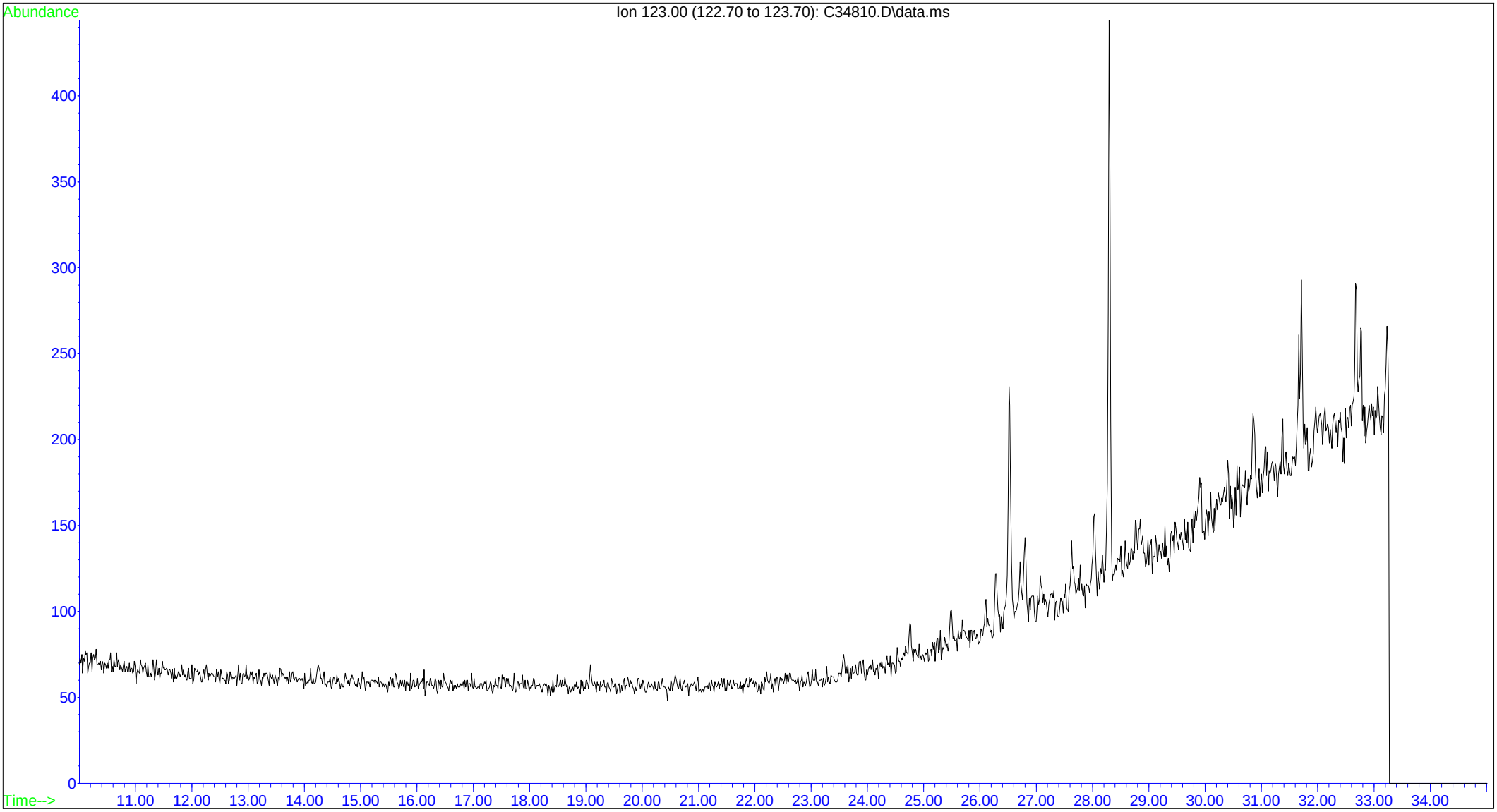




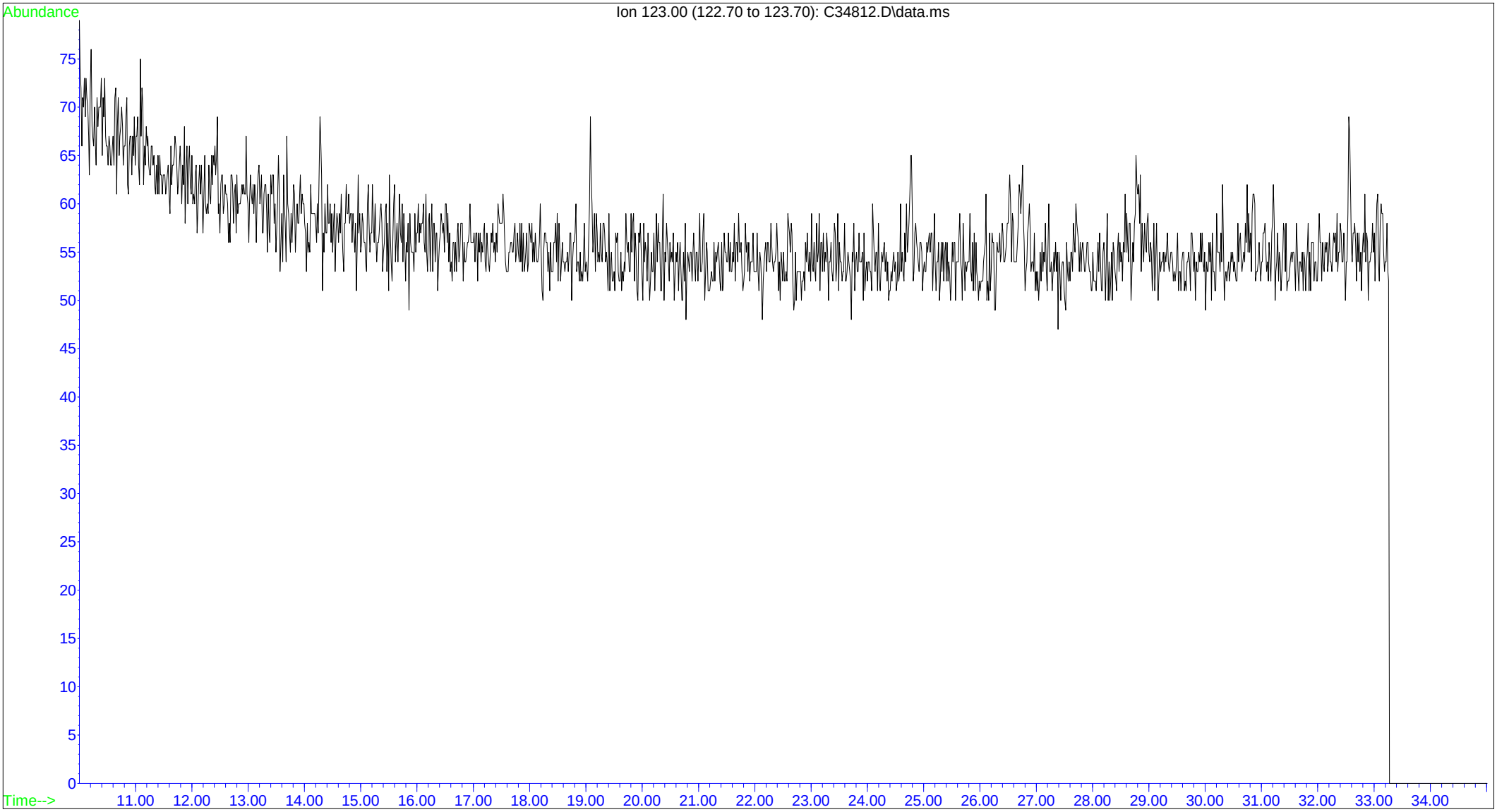
EIP

Ion 123

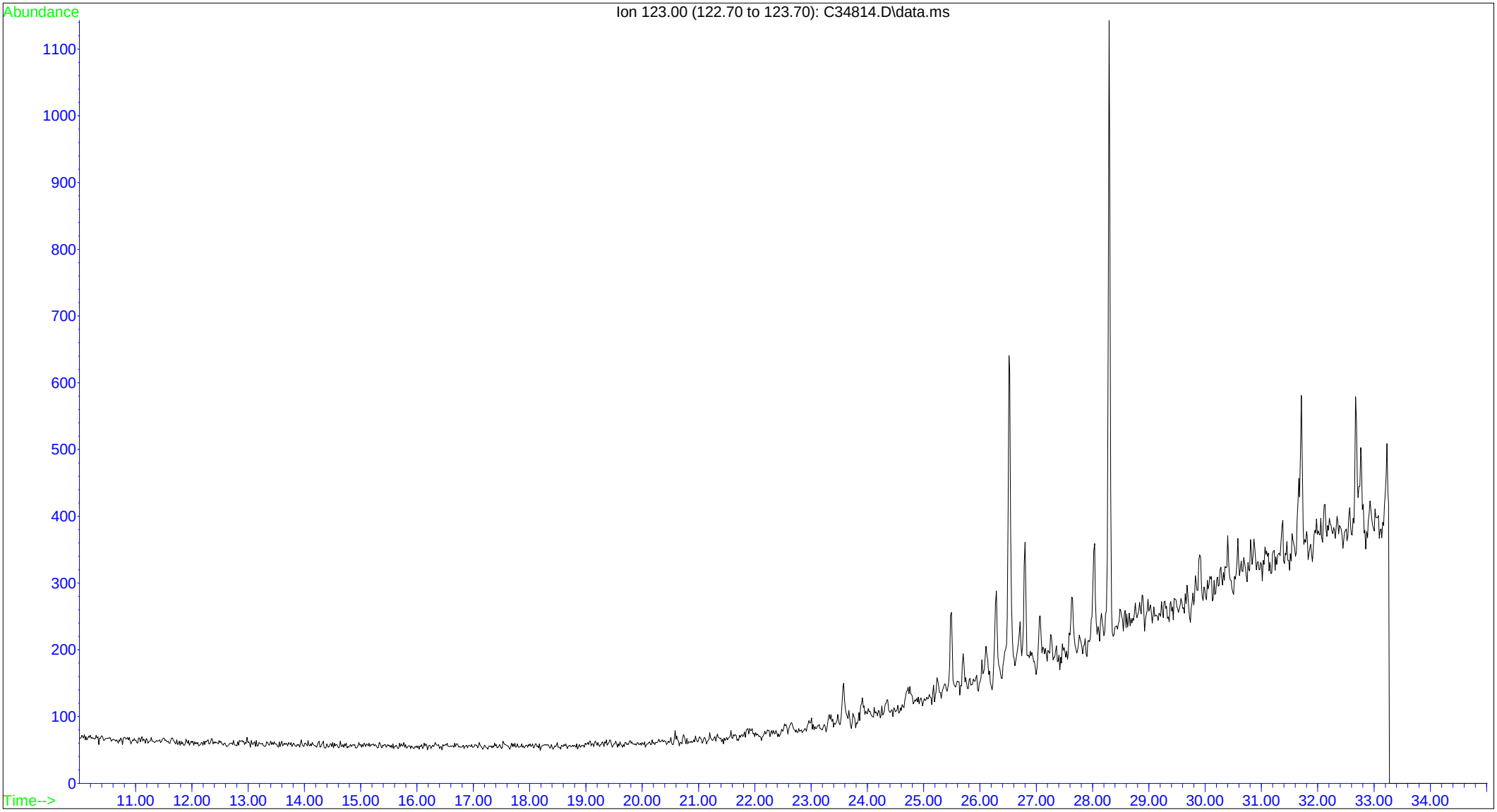
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34810.D
Operator : AC
Acquired : 3 May 2012 1:30 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-01
Misc Info : 1X
ALS Vial : 18



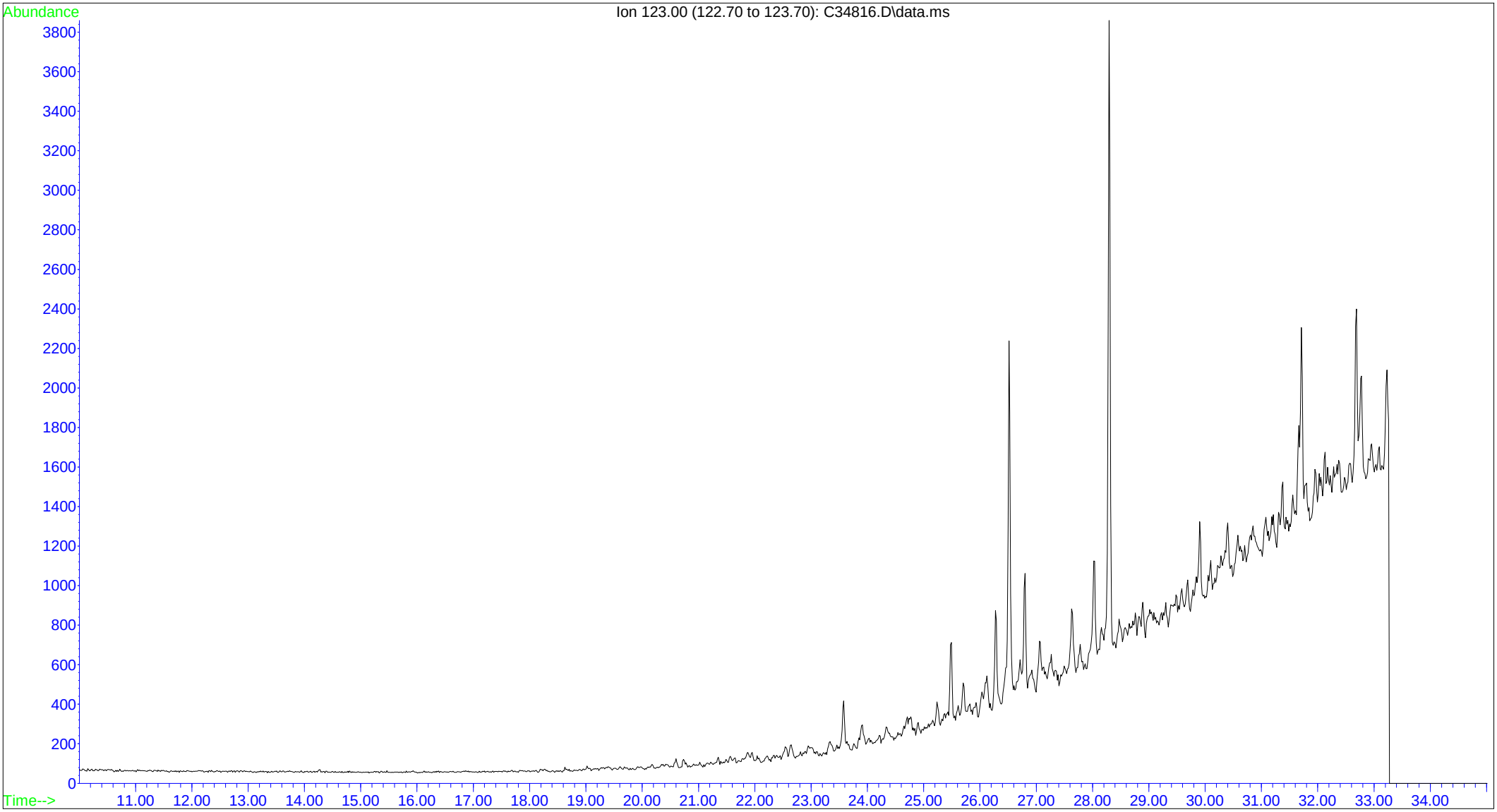
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34812.D
Operator : AC
Acquired : 3 May 2012   2:59 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-02
Misc Info : 1X
ALS Vial : 19



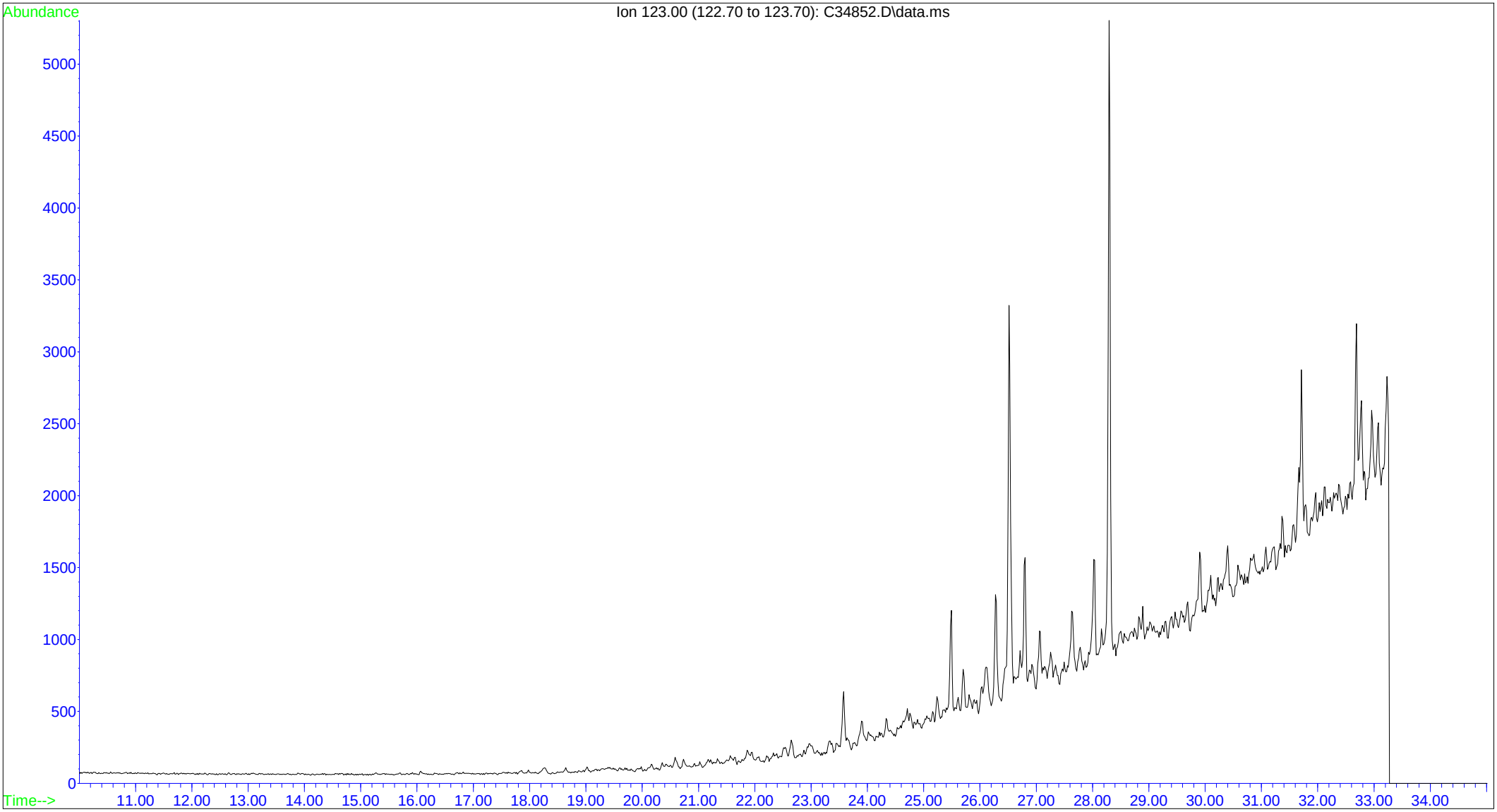
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34814.D
Operator : AC
Acquired : 3 May 2012   4:28 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-03
Misc Info : 1X
ALS Vial : 20



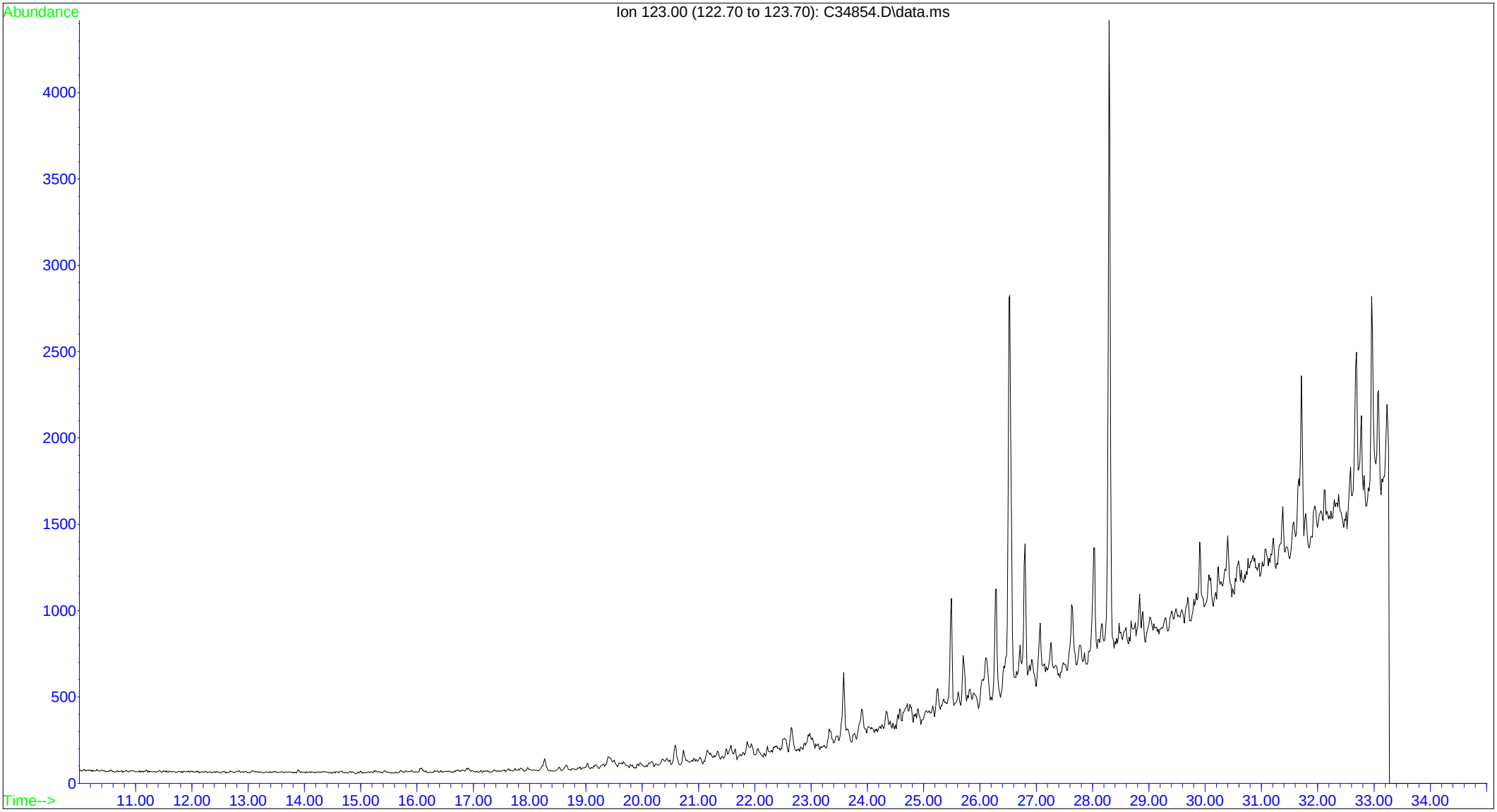
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34816.D
Operator : AC
Acquired : 3 May 2012 5:58 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-04
Misc Info : 1X
ALS Vial : 21



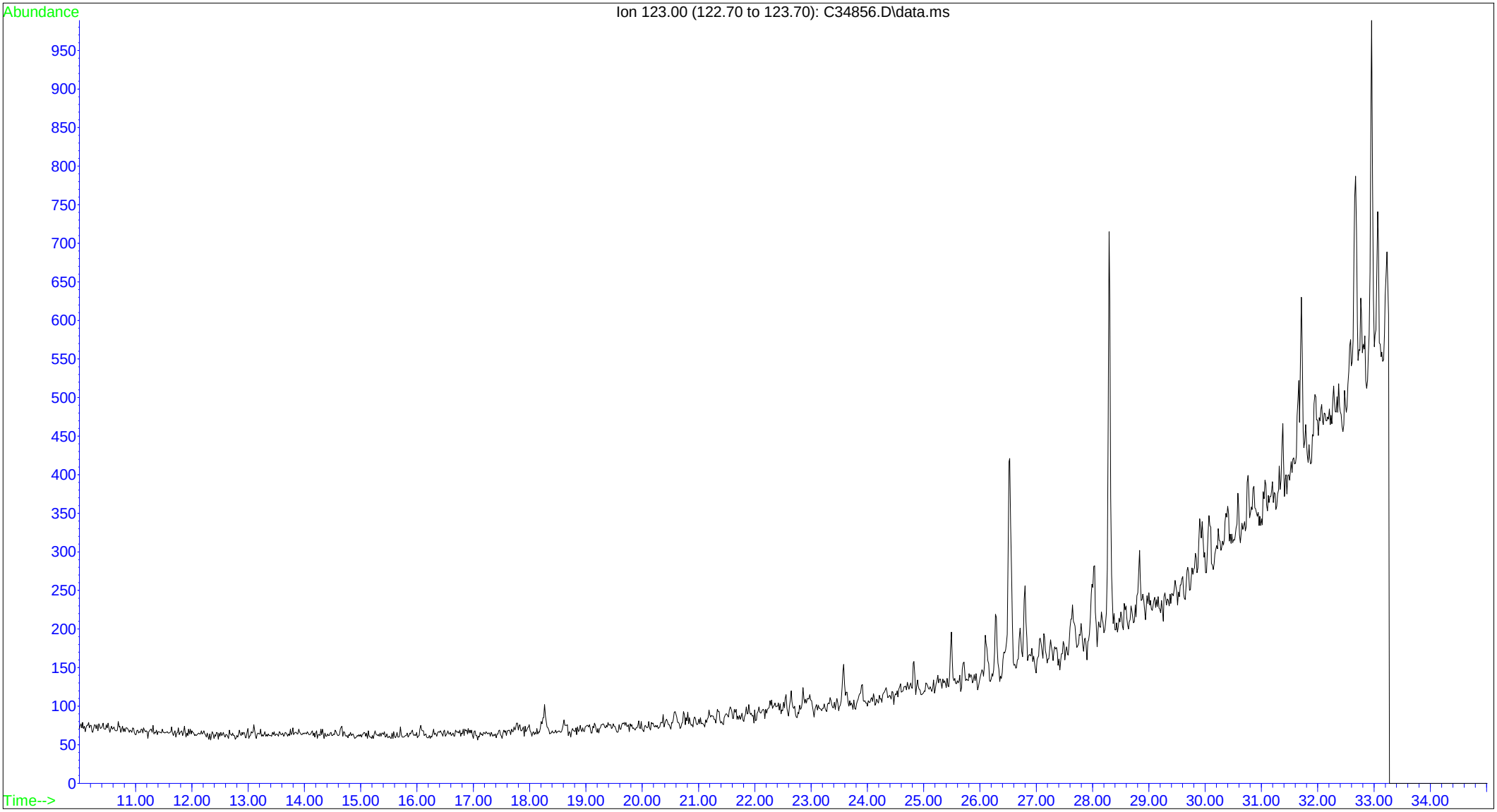
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34852.D
Operator : AC
Acquired : 5 May 2012 12:32 am using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-05
Misc Info : 1X
ALS Vial : 39



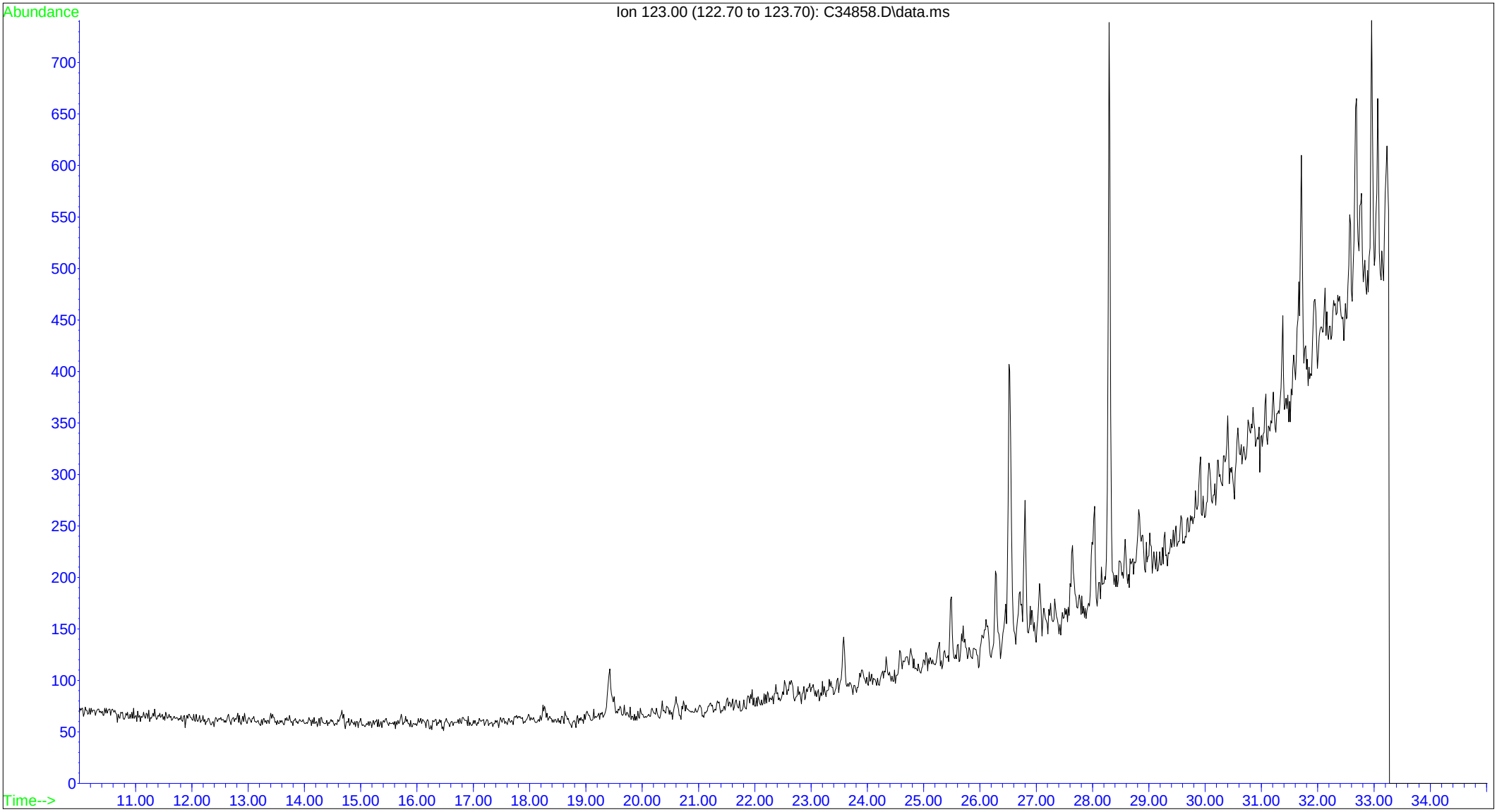
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34854.D
Operator : AC
Acquired : 5 May 2012 2:06 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-06
Misc Info : 1X
ALS Vial : 40



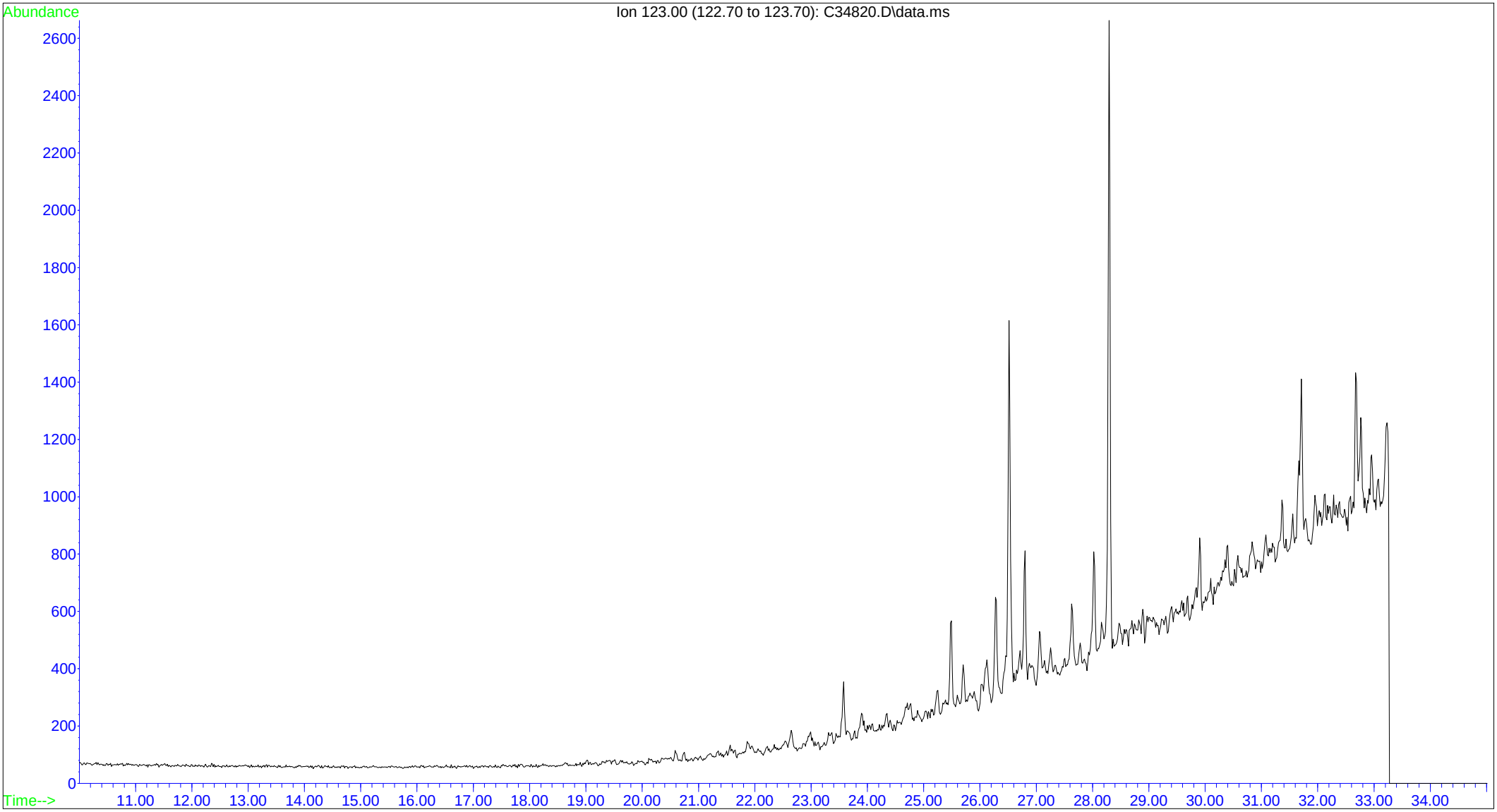
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34856.D
Operator : AC
Acquired : 5 May 2012 3:42 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-07
Misc Info : 1X
ALS Vial : 41



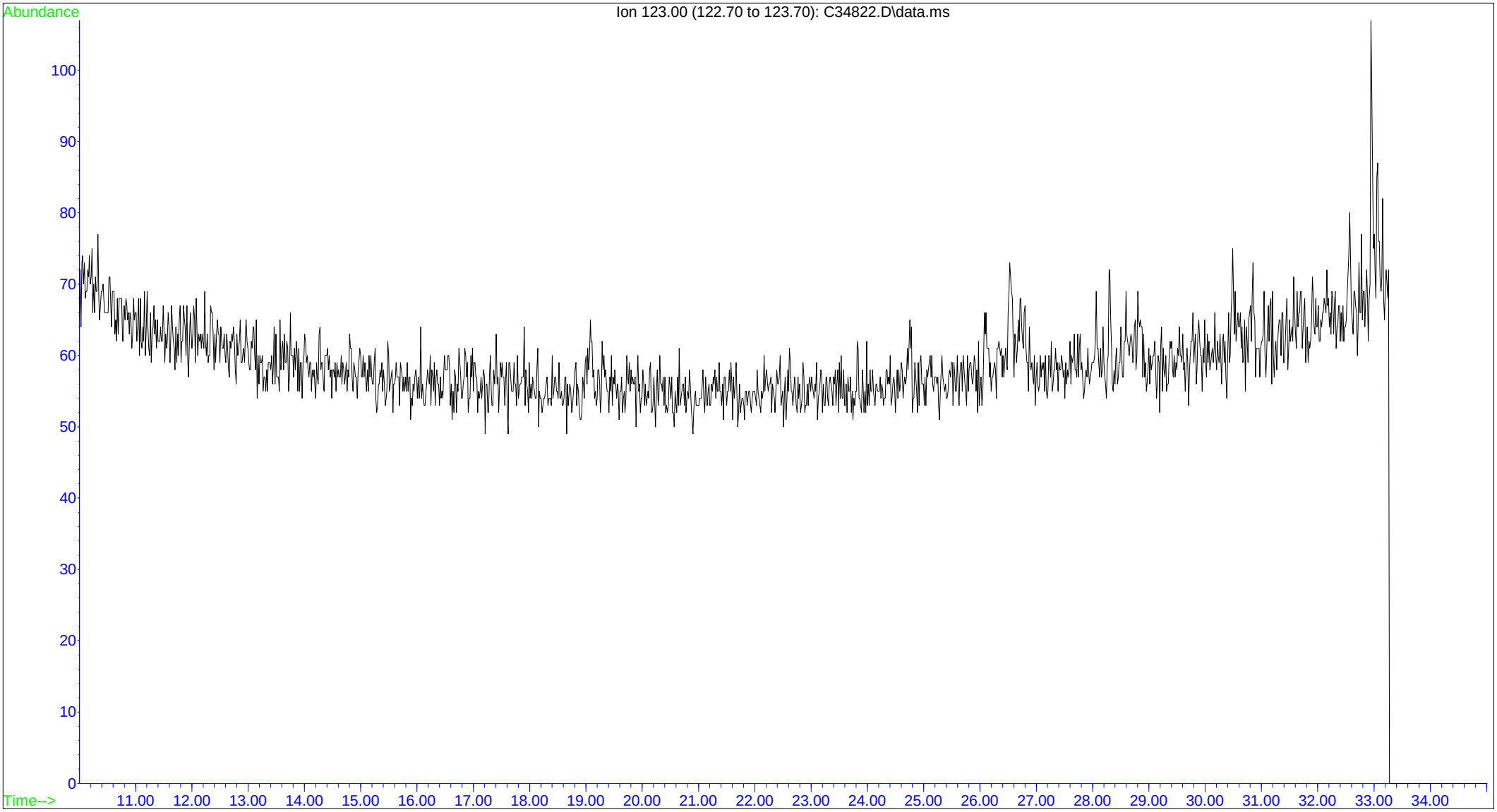
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34858.D
Operator : AC
Acquired : 5 May 2012 5:17 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-07D
Misc Info : 1X
ALS Vial : 42



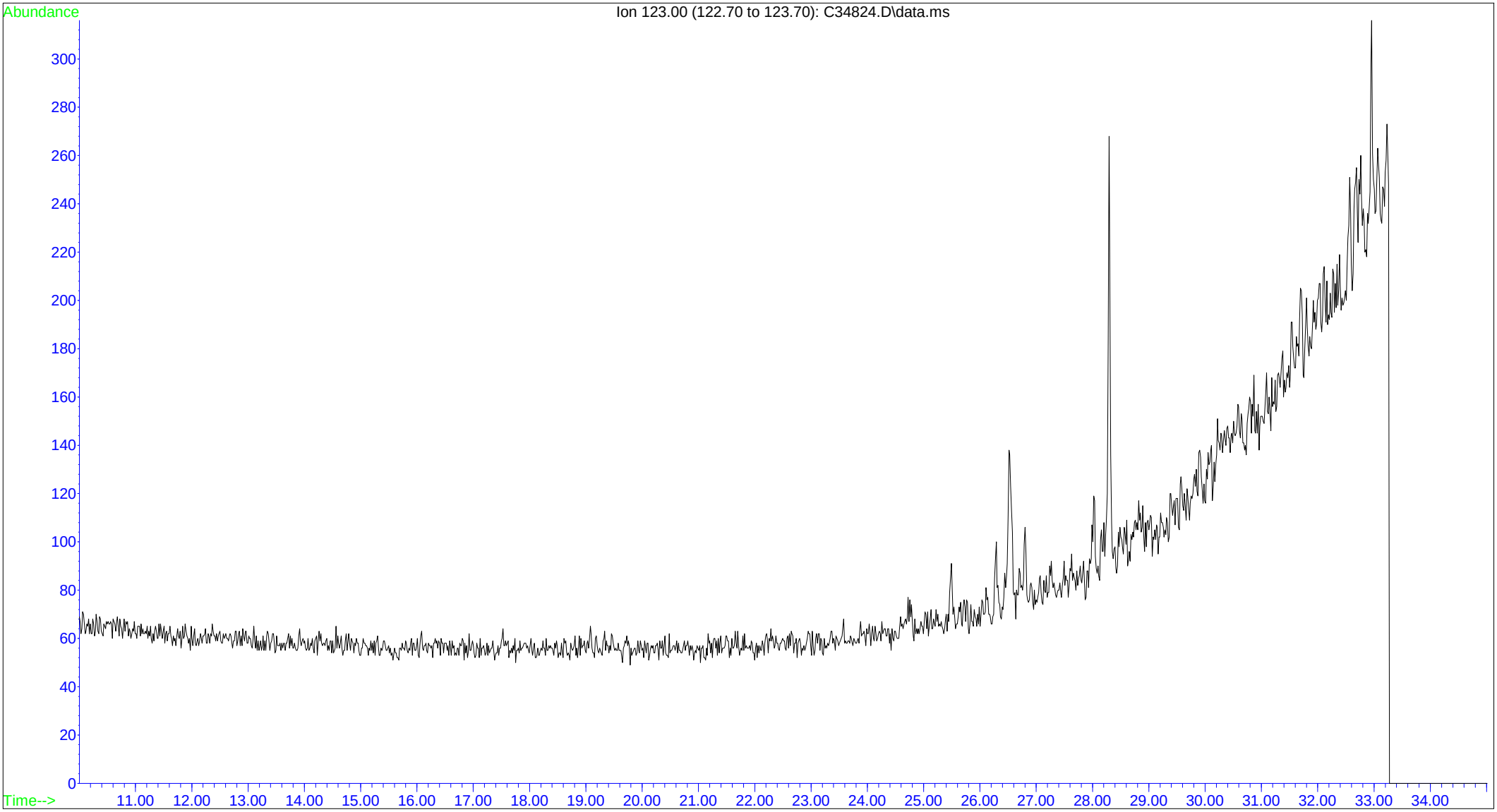
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34820.D
Operator : AC
Acquired : 3 May 2012   8:59 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-08
Misc Info : 1X
ALS Vial : 23



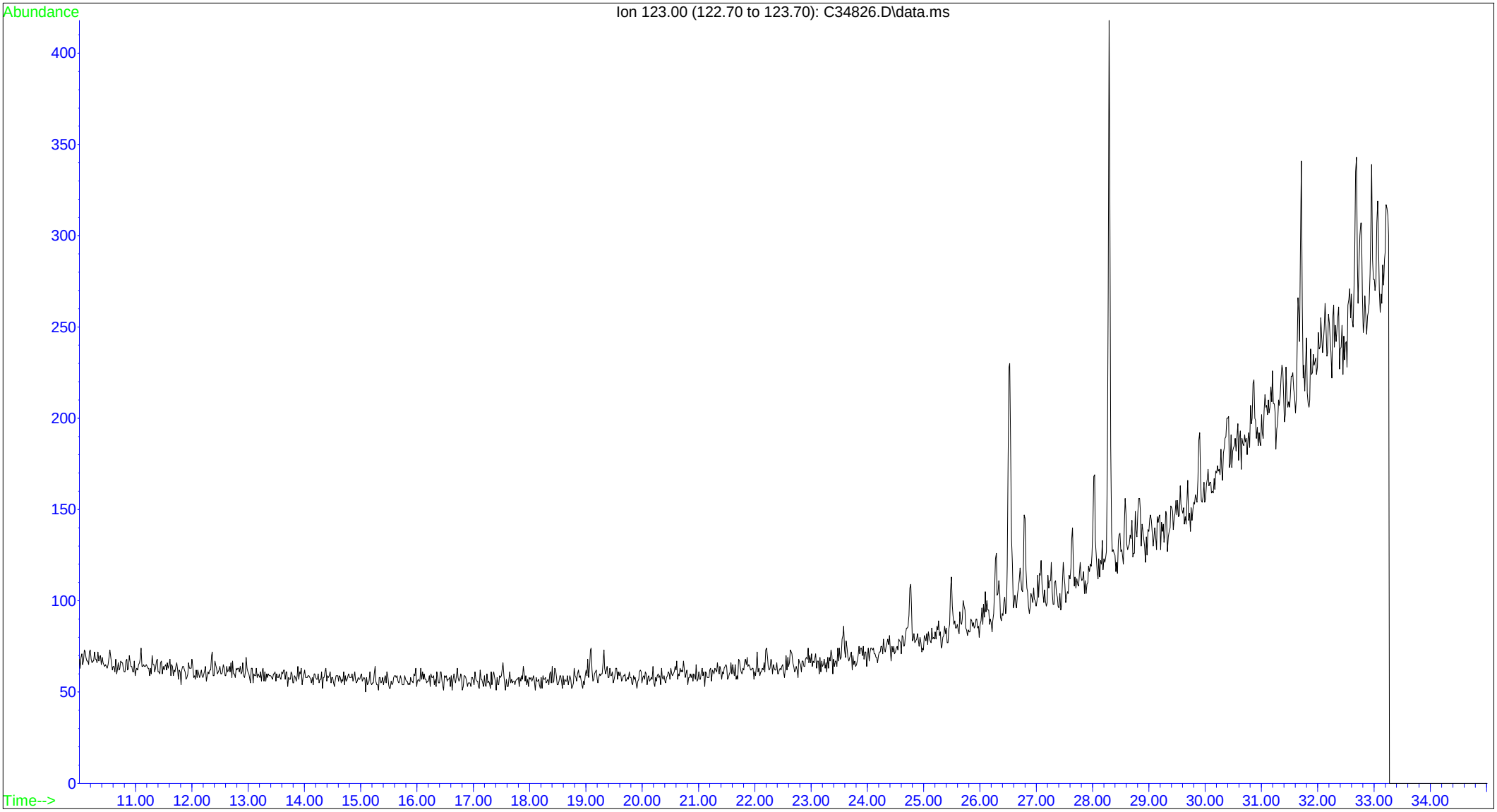
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34822.D
Operator : AC
Acquired : 3 May 2012 10:29 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-09
Misc Info : 1X
ALS Vial : 24



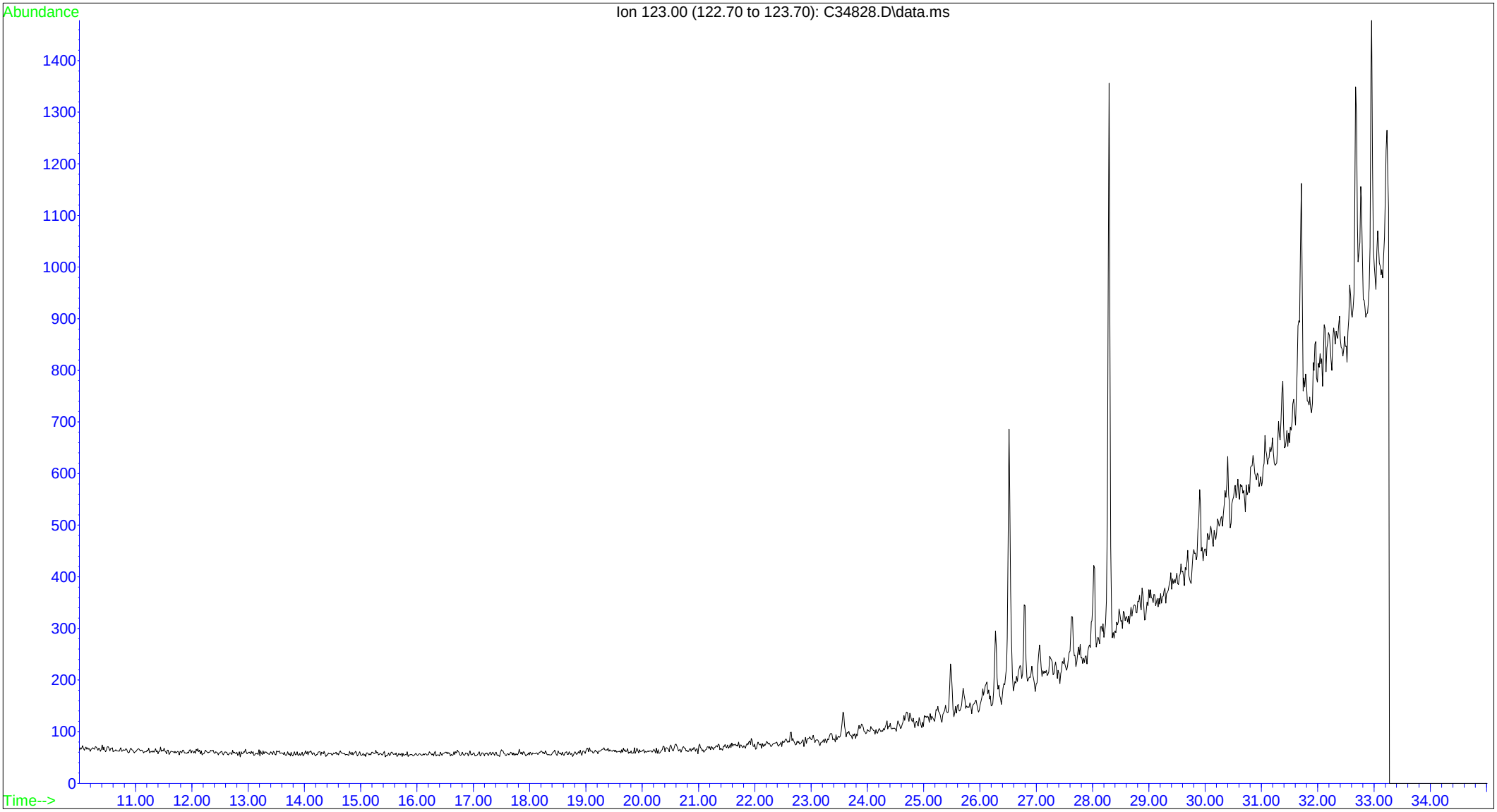
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34824.D
Operator : AC
Acquired : 4 May 2012 12:00 am using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : 1204035-10
Misc Info : 1X
ALS Vial : 25



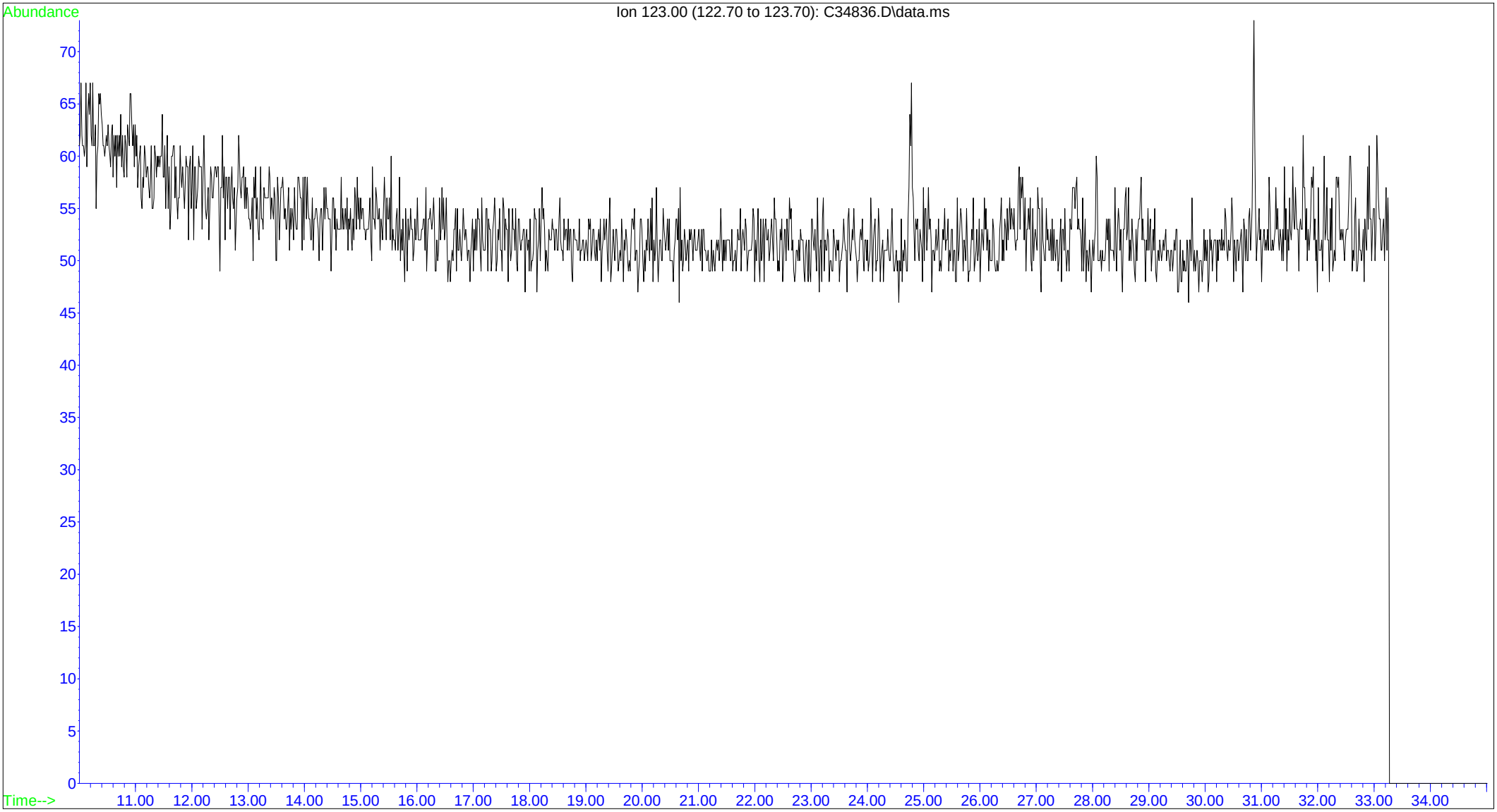
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34826.D
Operator : AC
Acquired : 4 May 2012 1:31 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-11
Misc Info : 1X
ALS Vial : 26



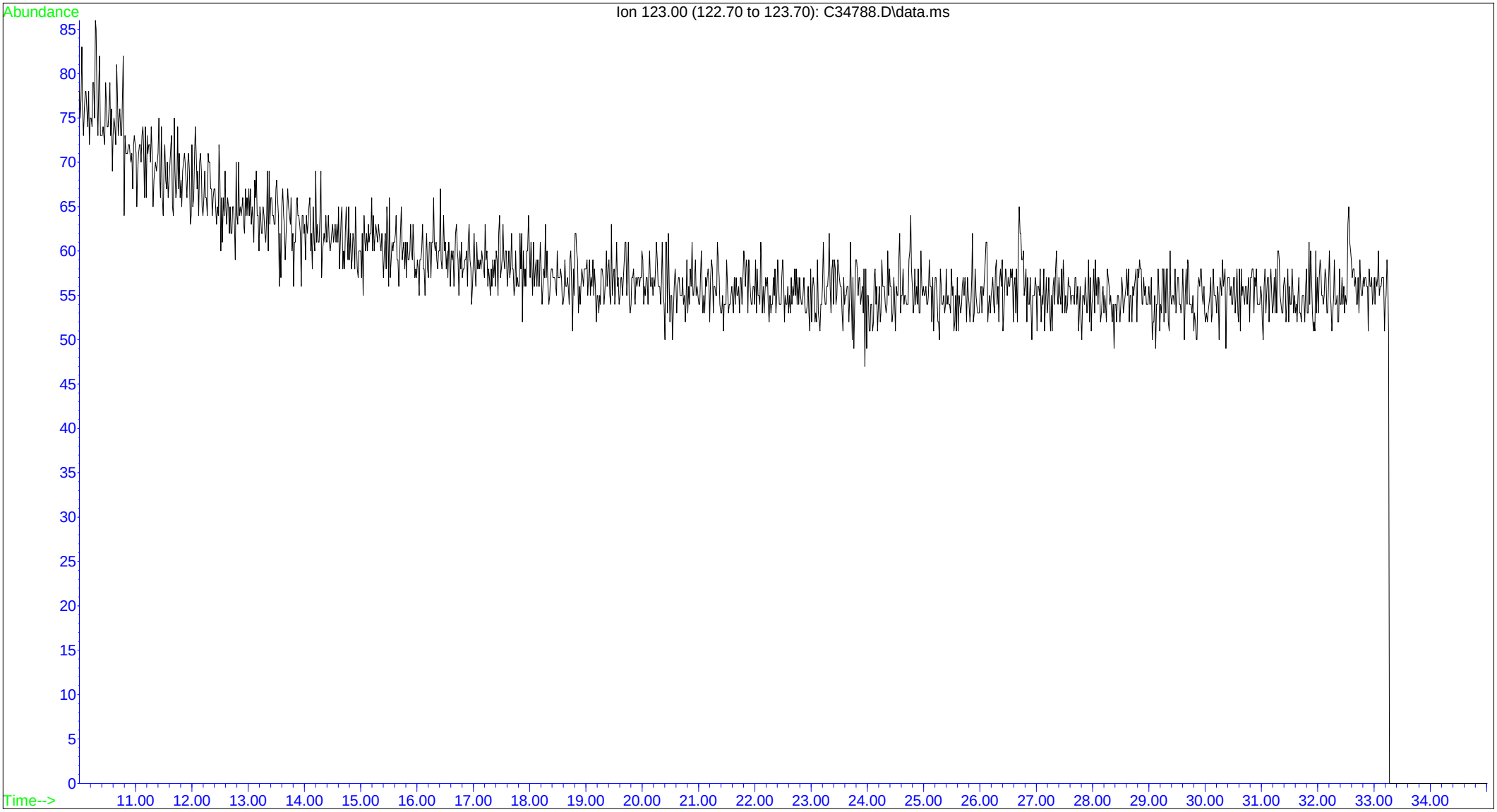
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34828.D
Operator : AC
Acquired : 4 May 2012 3:02 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : 1204035-12
Misc Info : 1X
ALS Vial : 27



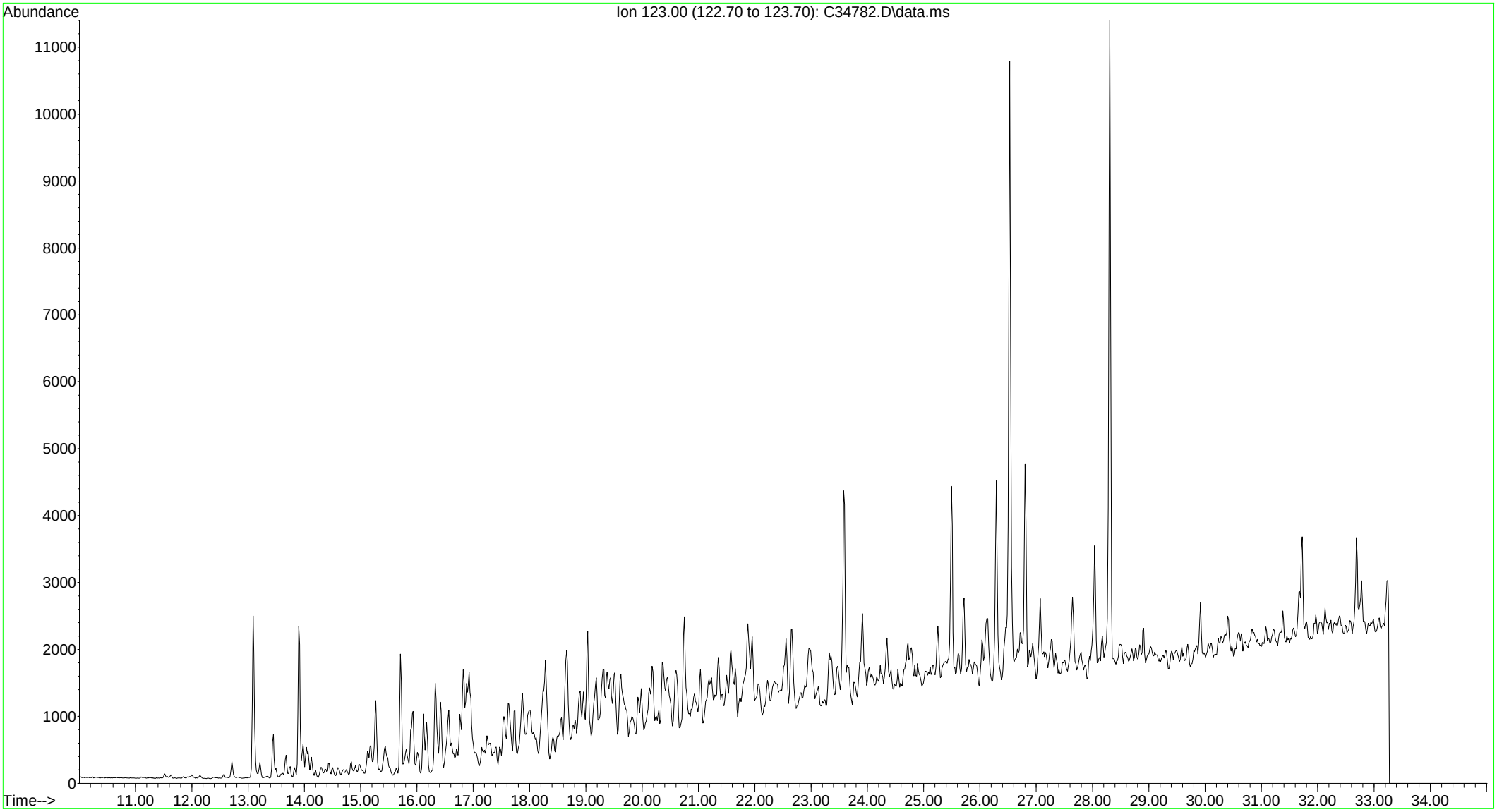
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34836.D
Operator : AC
Acquired : 4 May 2012 9:05 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : SS043012B07
Misc Info : 1X ETR1204031_35
ALS Vial : 31



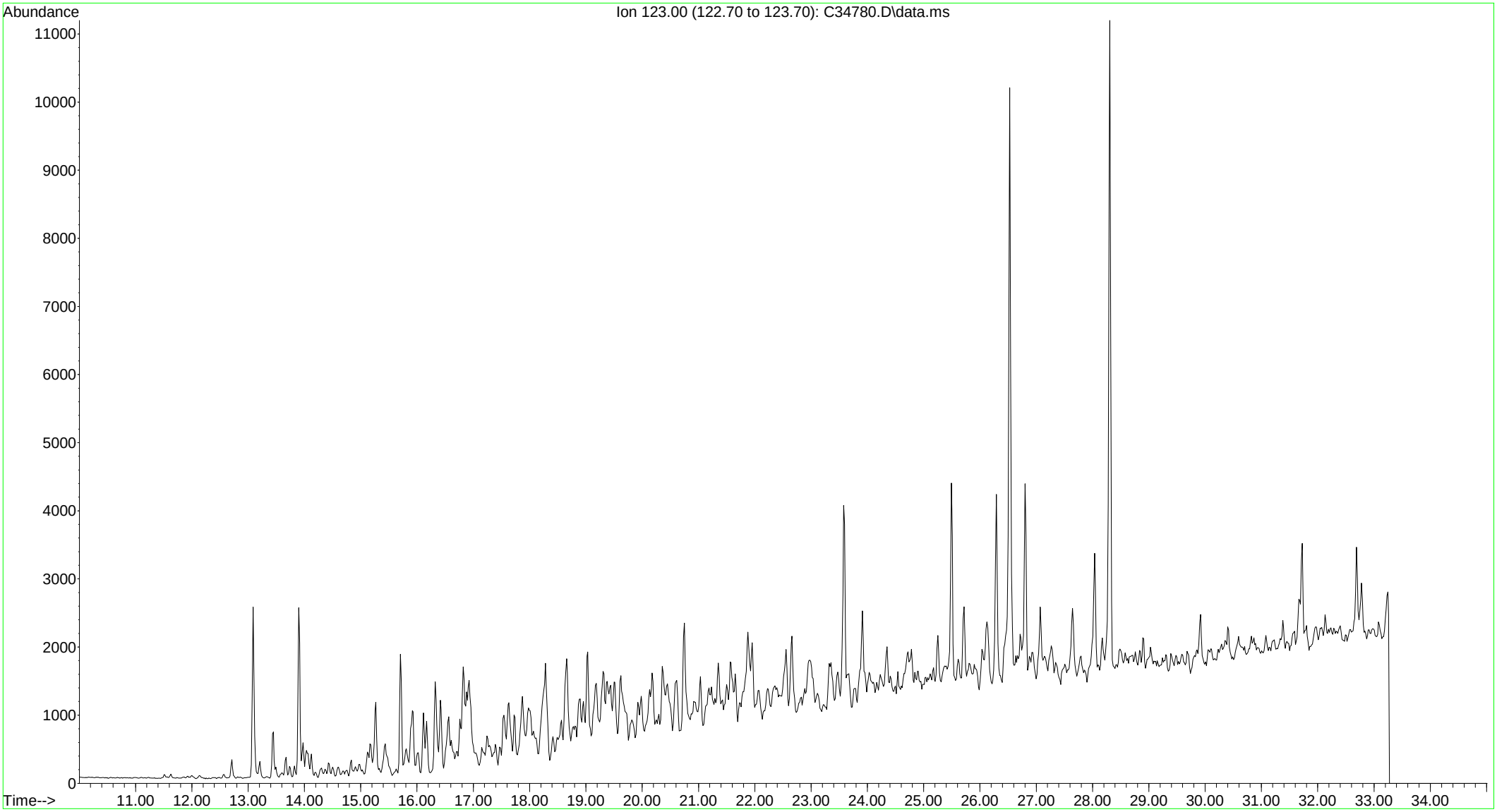
File   :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34788.D
Operator : AC
Acquired : 2 May 2012   8:53 pm using AcqMethod FRNC3A.M
Instrument :   PAH 3
Sample   : SO050112B01
Misc Info : 1X ETR1204031
ALS Vial : 7



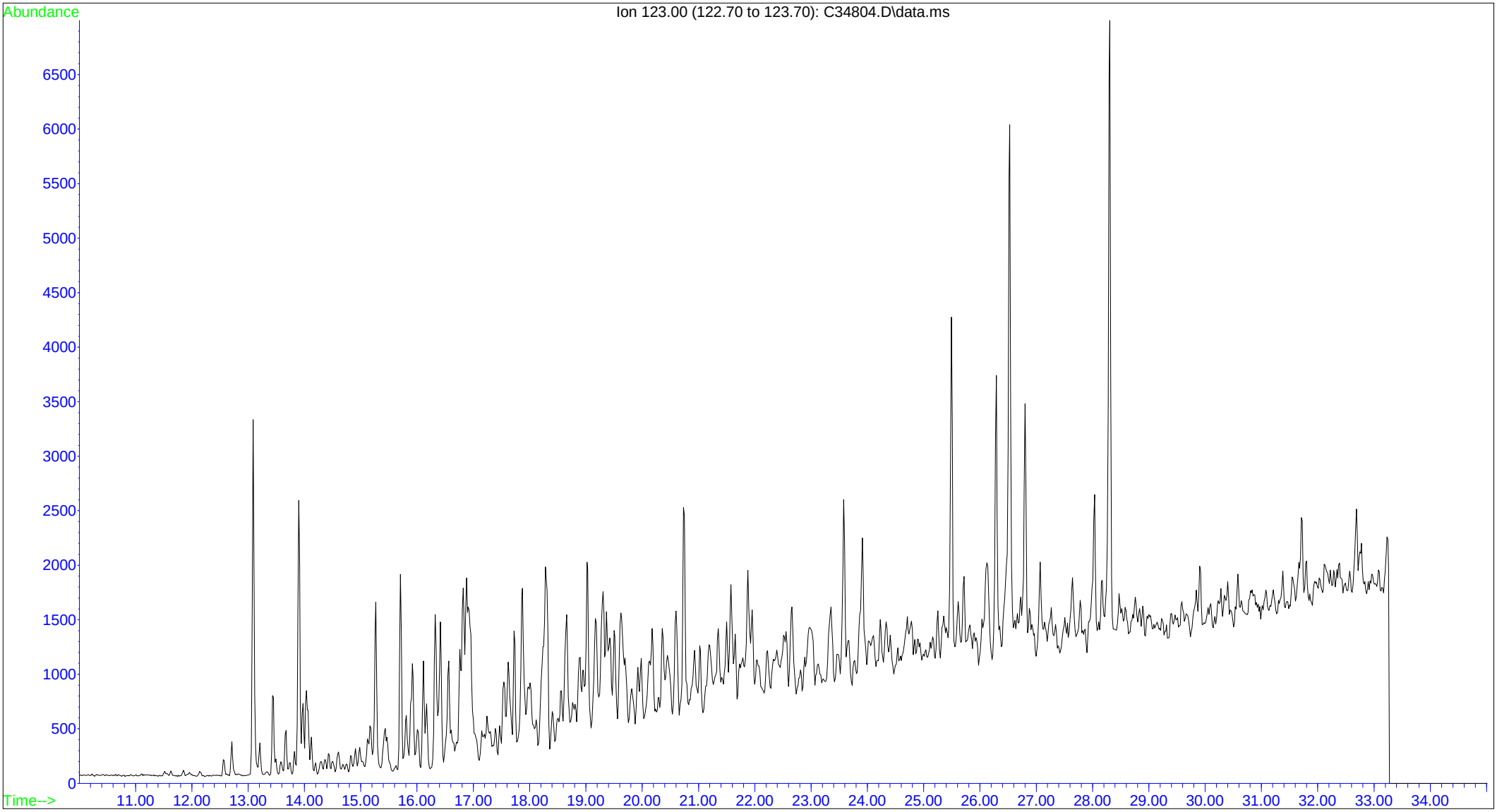
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34782.D
Operator : AC
Acquired : 2 May 2012 4:01 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : SO050512CL01
Misc Info : WHAP12
ALS Vial : 4



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34780.D
Operator : AC
Acquired : 2 May 2012 2:31 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : SO050512WCS02
Misc Info : WHAP10
ALS Vial : 3



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\C34804.D
Operator : AC
Acquired : 3 May 2012 8:58 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample : so050512ANS02
Misc Info : 1X ANS WHAO85 5.210MG/ML
ALS Vial : 15



PAH Ical – PAH3032612.M
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	14.195	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.42%#		
42) Phenanthrene-d10	32.793	188	547	9.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.90%#		
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.09%#		
127) 5B(H)Cholane - Surr	43.995	217	84M4	10.806	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.08%#		
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	6.464	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.681	ng/mL	
10) Naphthalene	20.042	128	1021M4	18.113	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	15.327	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	15.482	ng/mL	
18) Benzothiophene	20.268	134	928M4	20.074	ng/mL	
23) Biphenyl	24.618	154	768	14.461	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	12.837	ng/mL	
25) Dibenzofuran	27.705	168	860M4	13.938	ng/mL	
26) Acenaphthylene	26.320	152	979M4	15.394	ng/mL	
27) Acenaphthene	27.057	153	596M4	14.760	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	396	11.213	ng/mL	93
29) Fluorene	29.075	166	632M4	12.577	ng/mL	
33) Dibenzothiophene	32.386	184	1010	13.309	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	11.436	ng/mL	
54) Retene	39.869	234	171M4	7.712	ng/mL	
55) Anthracene	33.064	178	829	11.221	ng/mL	97
56) Carbazole	33.726	167	817M4	12.040	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.115	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.176	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	7.556	ng/mL	
60) Pyrene	38.529	202	858	9.073	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.128	ng/ml	
67) Naphthobenzothiophene-2,1	42.368	234	910	9.209	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	10.573	ng/mL	
76) Chrysene	43.468	228	726M4	11.052	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	11.052	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	11.013	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	11.707	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	11.556	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	11.694	ng/mL	
88) Perylene	48.858	252	835M4	11.775	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	11.728	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	11.668	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	12.946	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	14.214	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	171M4	13.890	ng/mL	

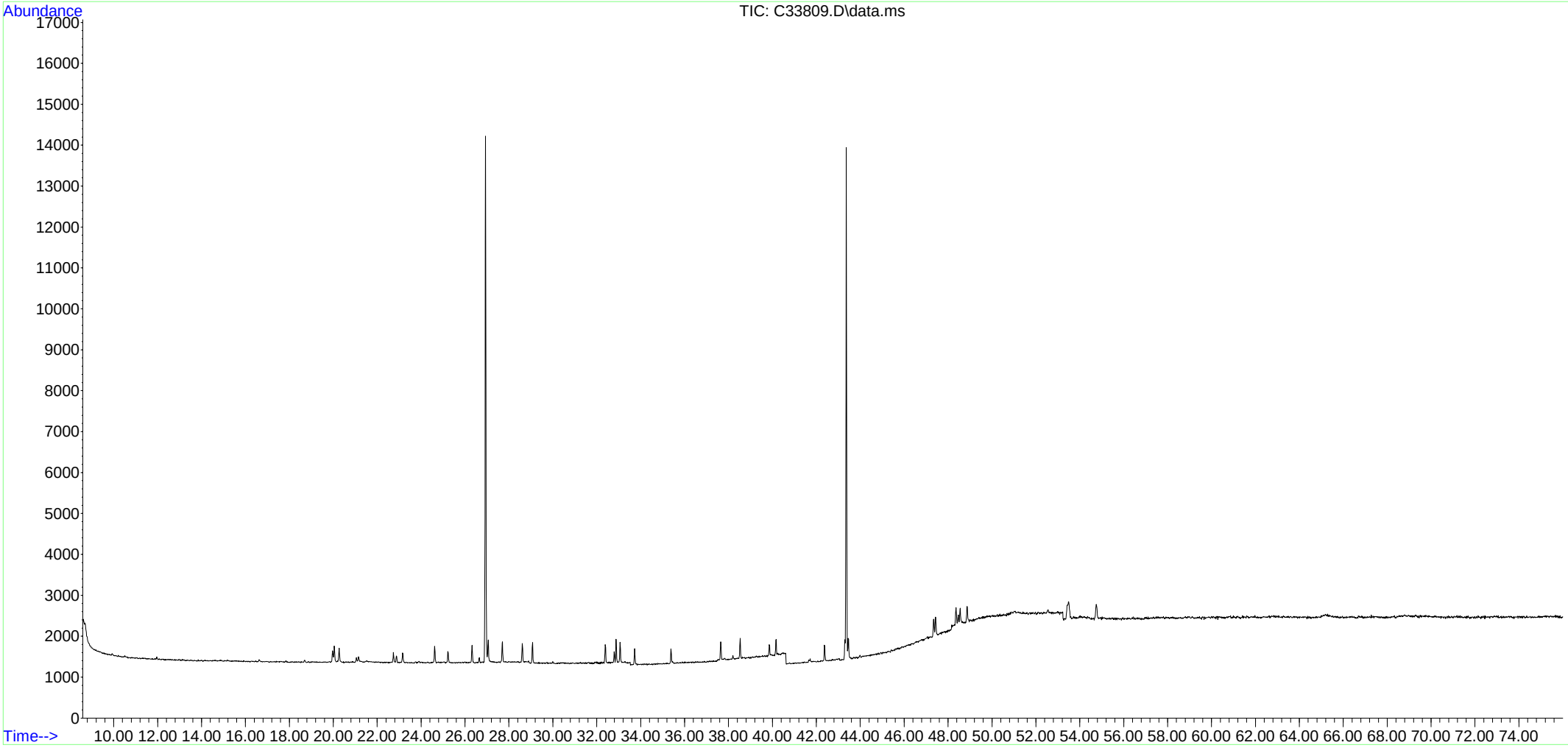
(#) = qualifier out of range (m) = manual integration (+) = signals summed

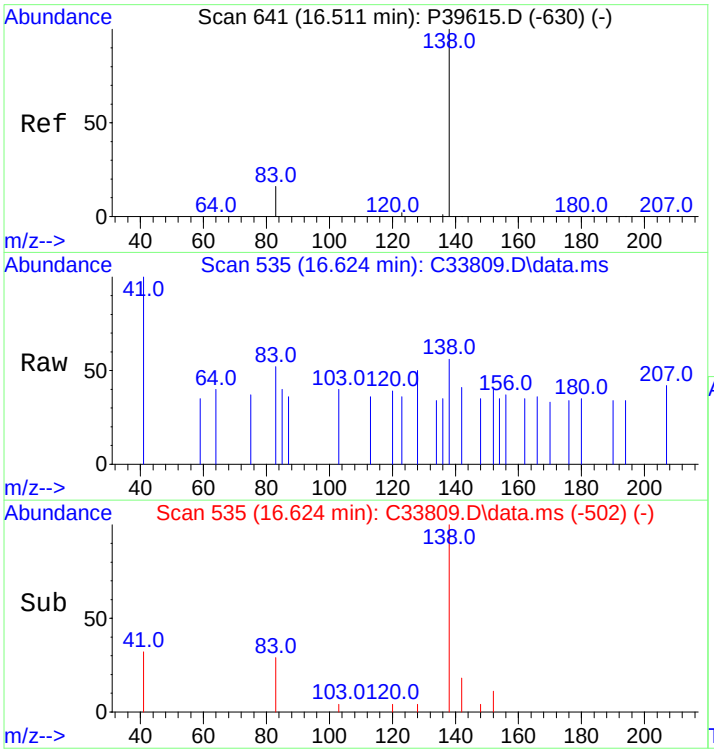
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

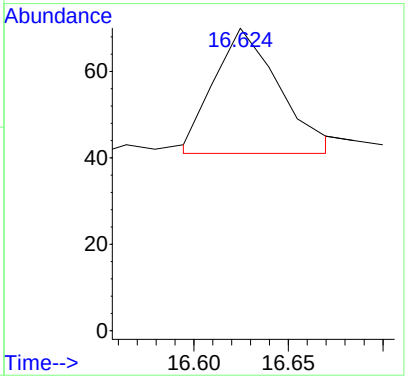
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

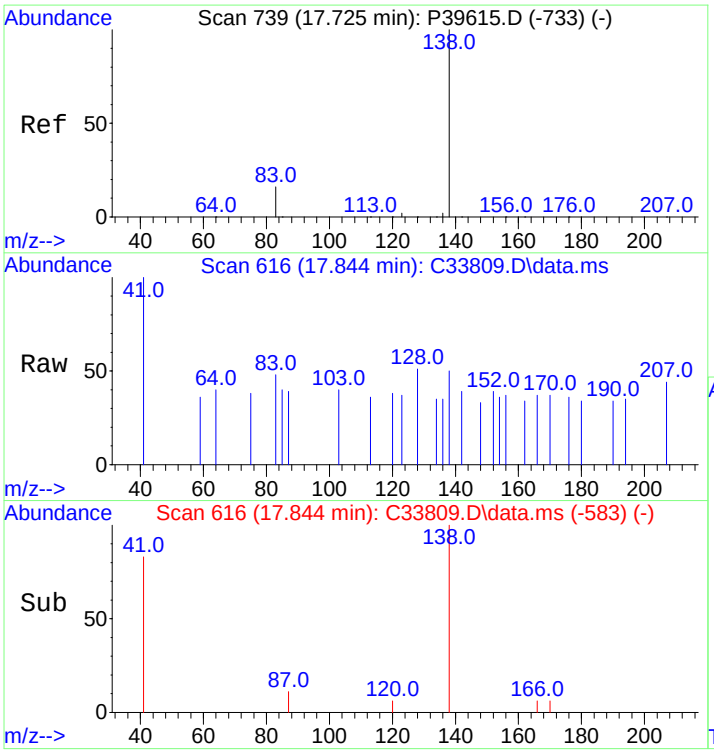




#3
trans-Decalin
Concen: 6.46 ng/mL m
RT: 16.624 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

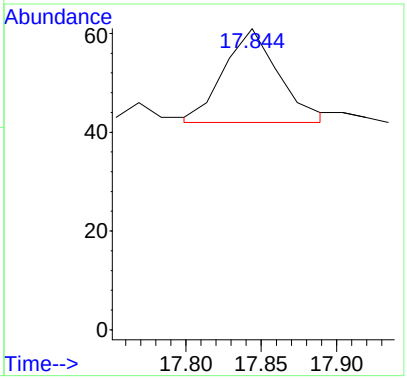
Tgt Ion:138 Resp: 70

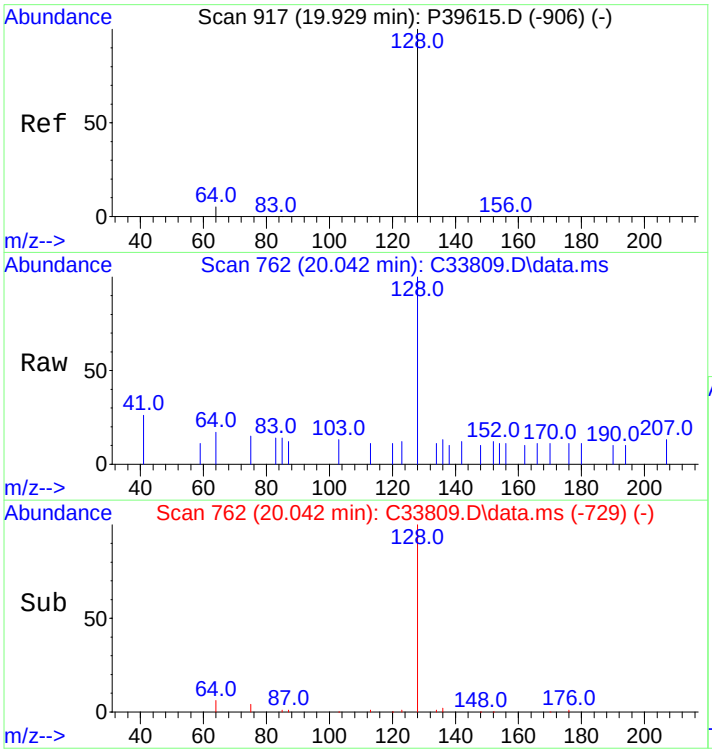




#4
cis-Decalin
Concen: 5.68 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:138 Resp: 48

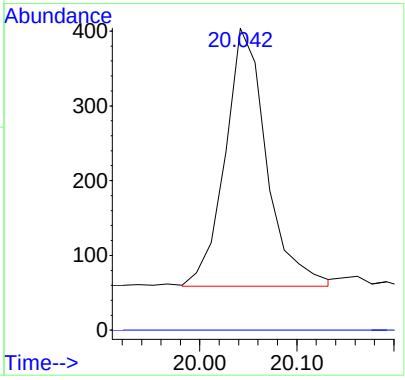


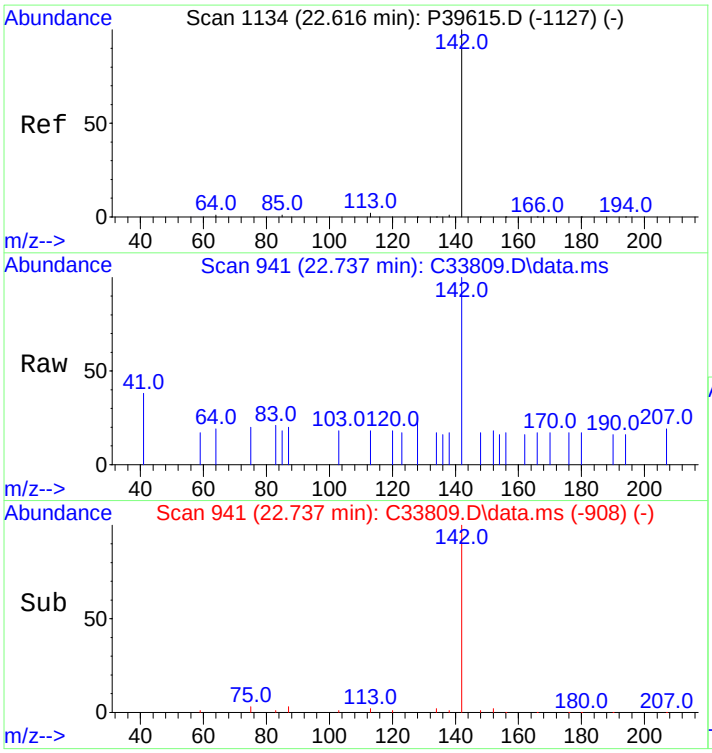


#10
Naphthalene
Concen: 18.11 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:128 Resp: 1021

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

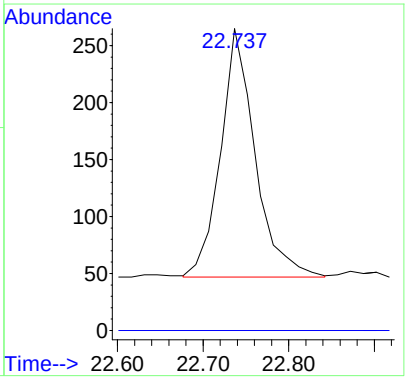


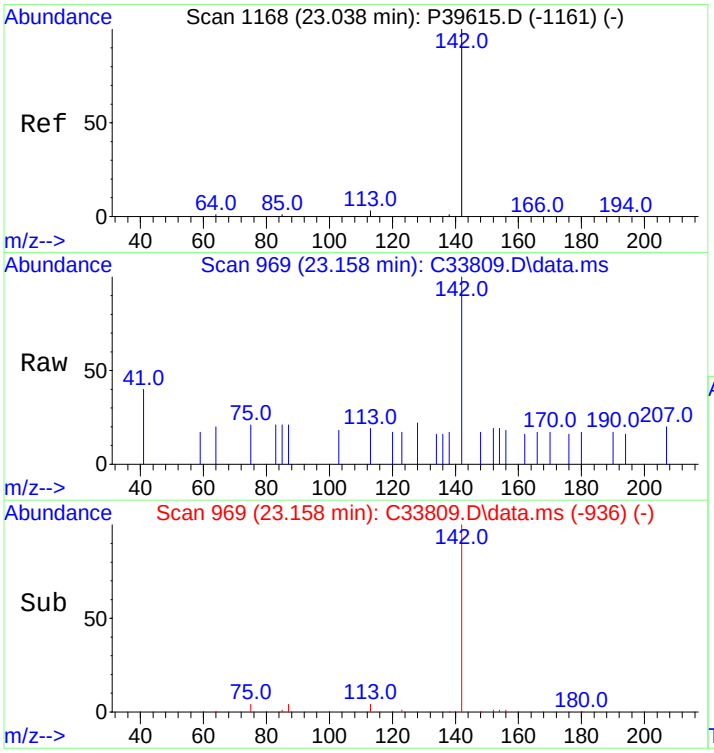


#16
2-Methylnaphthalene
Concen: 15.33 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 610

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

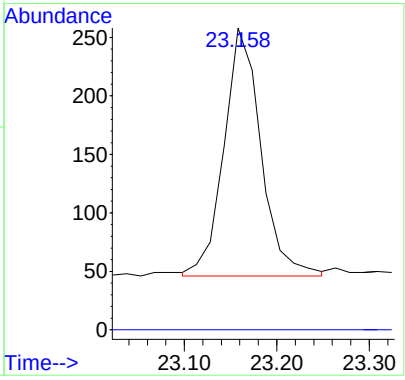


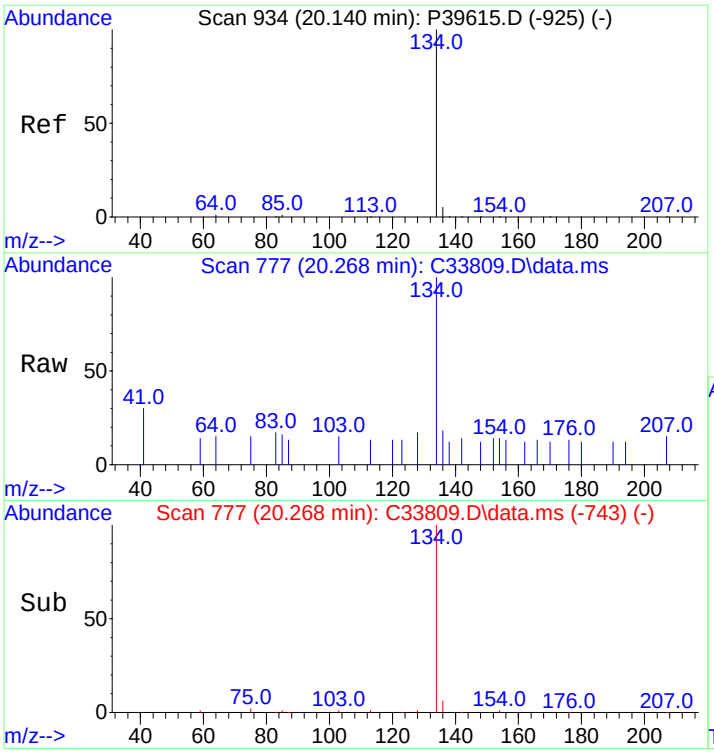


#17
1-Methylnaphthalene
Concen: 15.48 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 591

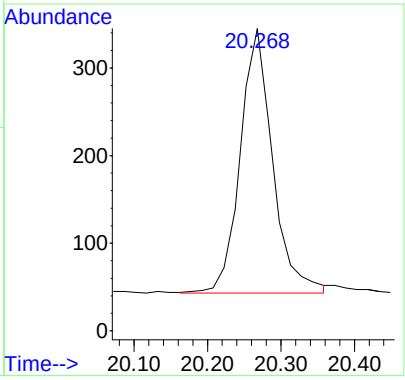
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

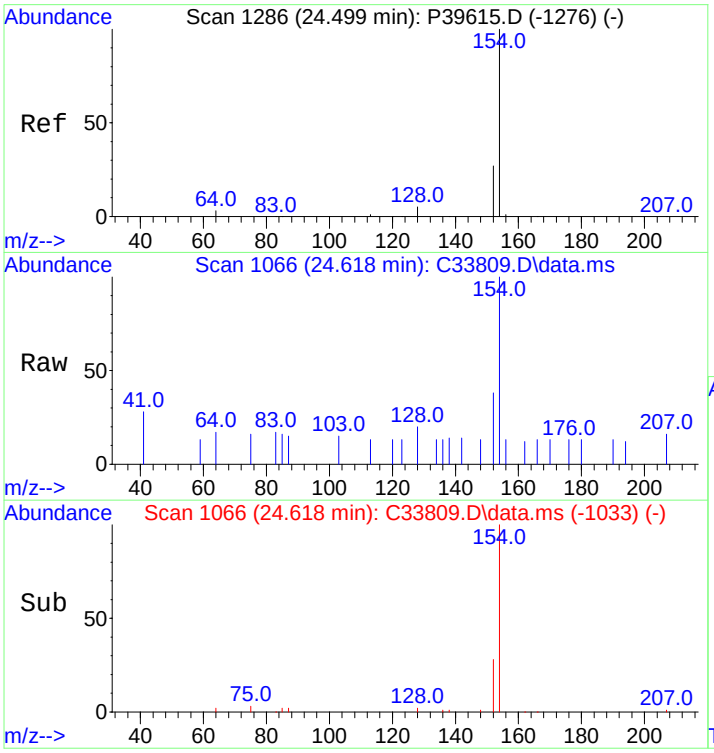




#18
Benzothiophene
Concen: 20.07 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:134 Resp: 928

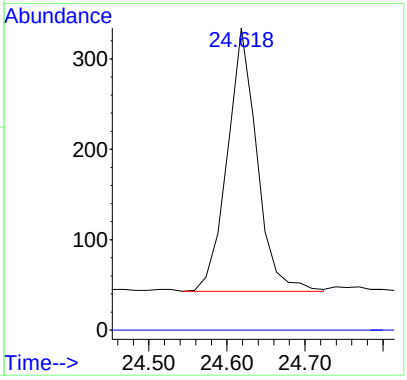


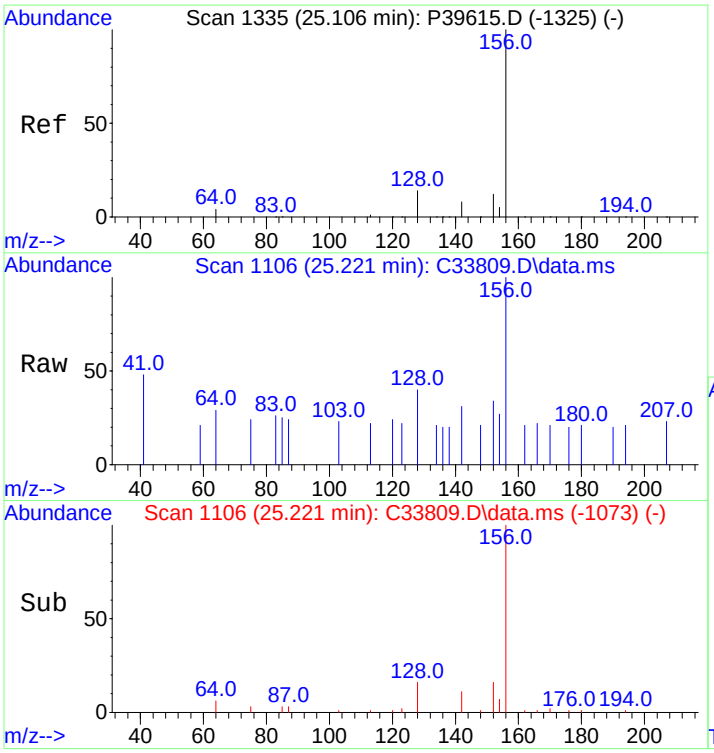


#23
Biphenyl
Concen: 14.46 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:154 Resp: 768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

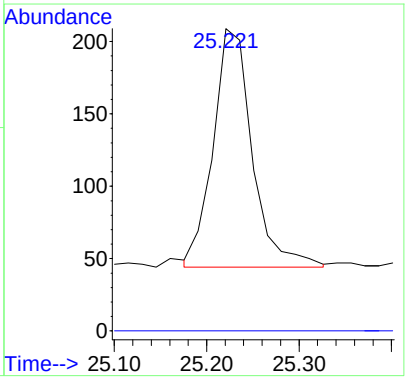


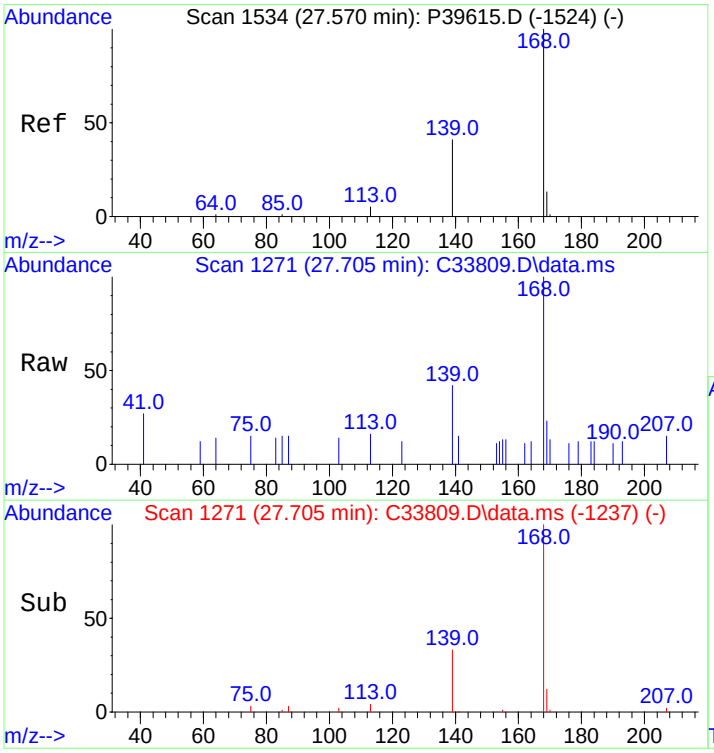


#24
2,6-Dimethylnaphthalene
Concen: 12.84 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:156 Resp: 486

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

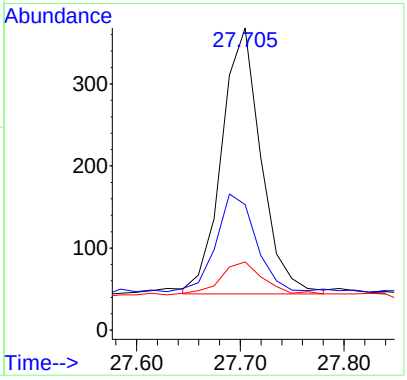


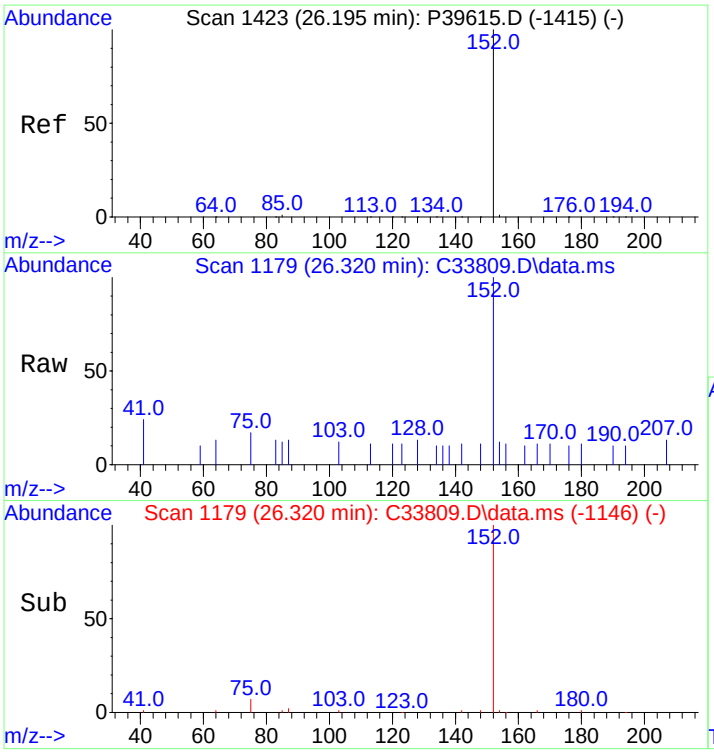


#25
Dibenzofuran
Concen: 13.94 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:168 Resp: 860

Ion	Ratio	Lower	Upper
168	100		
139	36.9	32.9	49.3
169	14.1	10.6	16.0

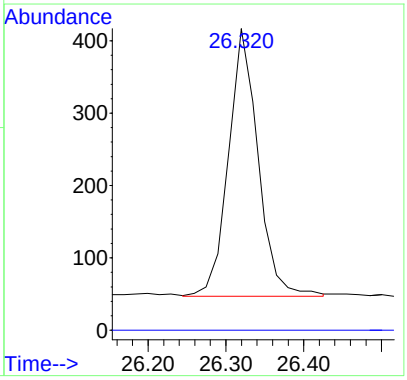


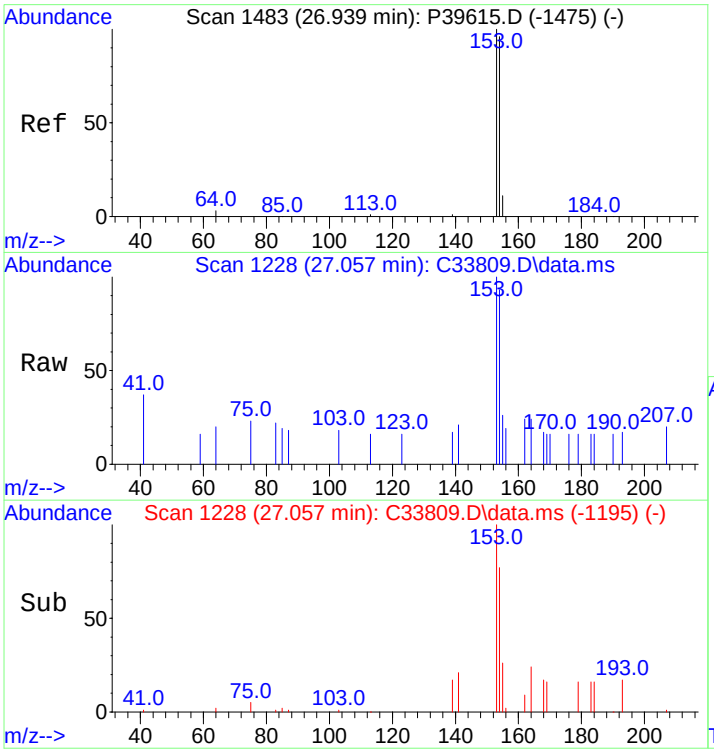


#26
Acenaphthylene
Concen: 15.39 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:152 Resp: 979

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

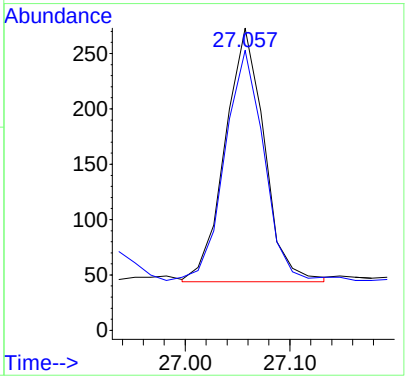


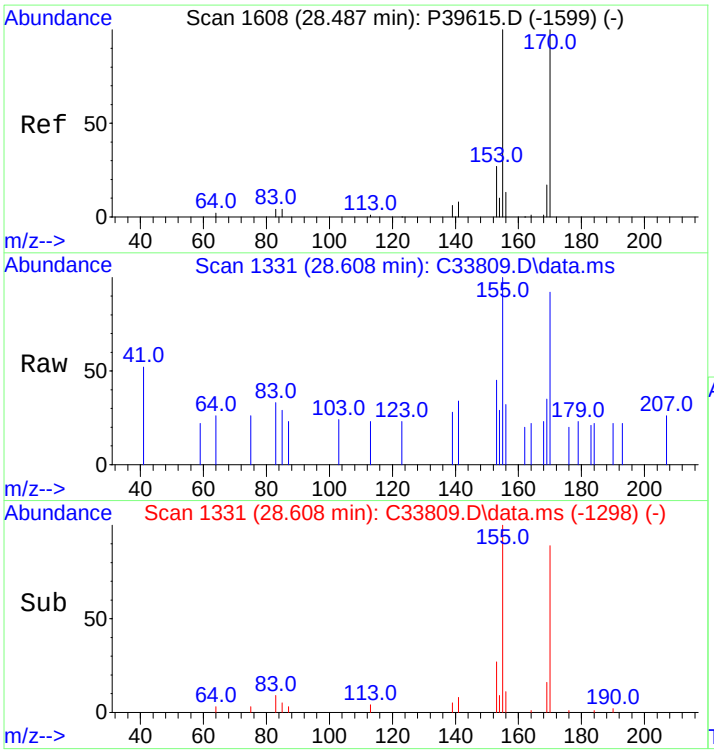


#27
Acenaphthene
Concen: 14.76 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:153 Resp: 596

Ion	Ratio	Lower	Upper
153	100		
154	90.8	75.0	112.6

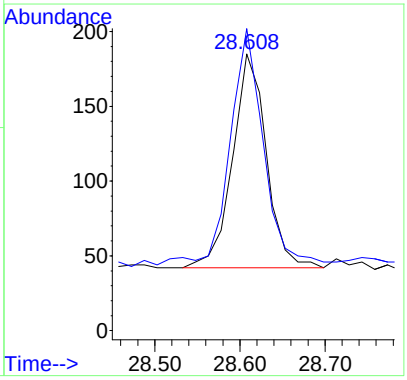


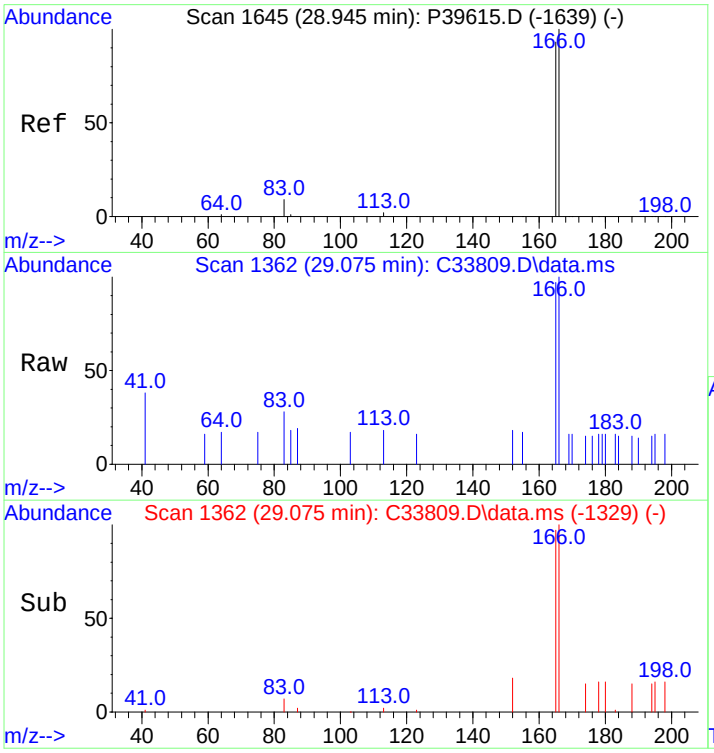


#28
2,3,5-Trimethylnaphthalene
Concen: 11.21 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:170 Resp: 396

Ion	Ratio	Lower	Upper
170	100		
155	113.1	84.7	127.1

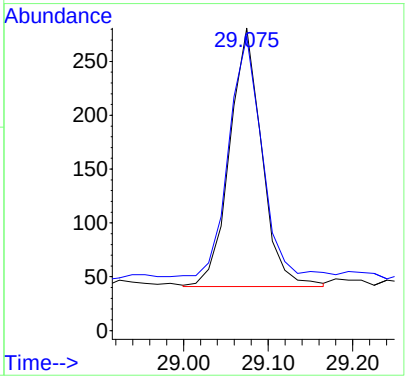


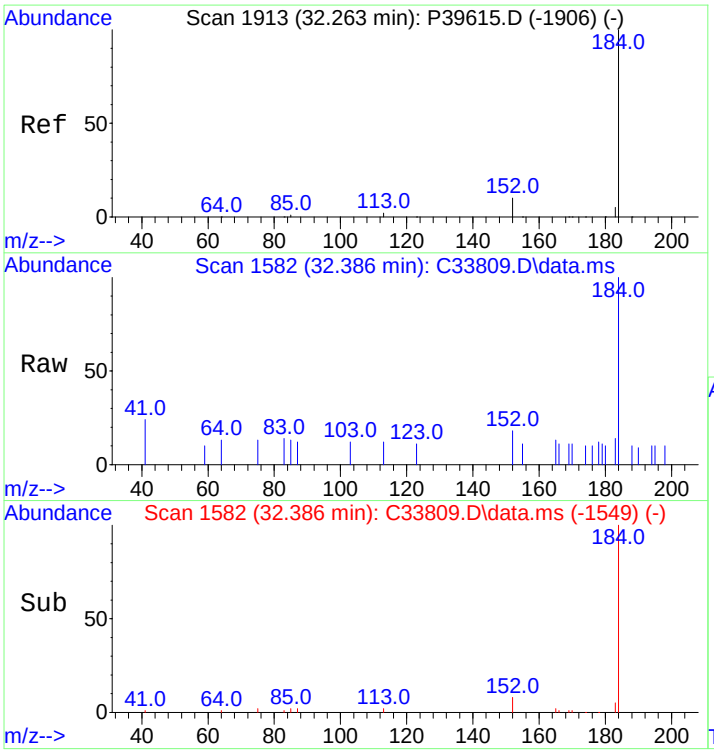


#29
Fluorene
Concen: 12.58 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:166 Resp: 632

Ion	Ratio	Lower	Upper
166	100		
165	115.5	75.3	112.9#

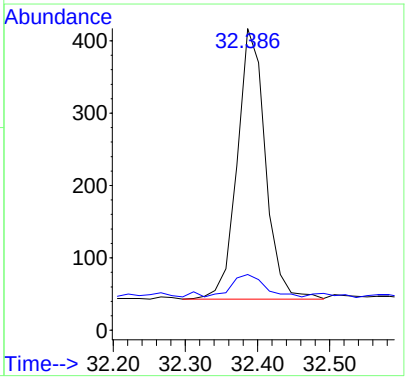


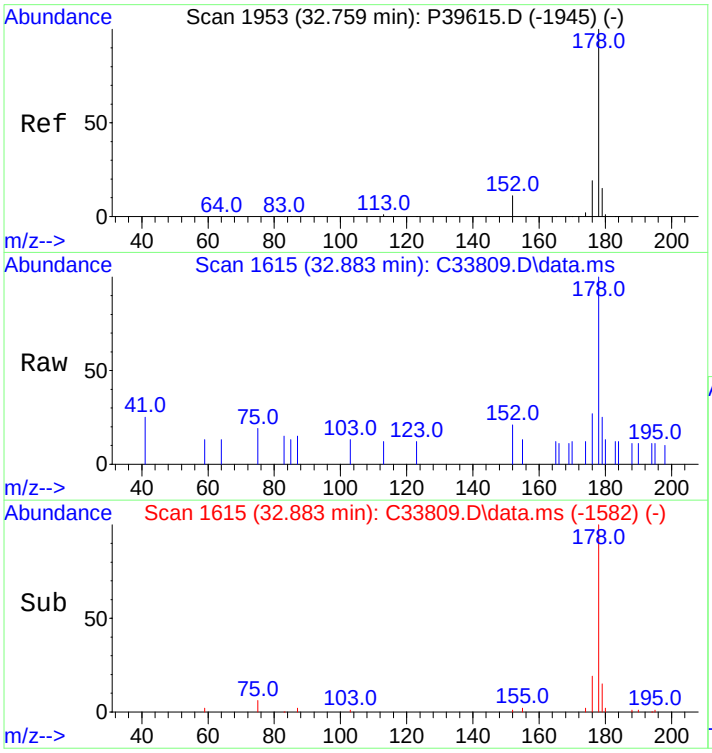


#33
Dibenzothiophene
Concen: 13.31 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:184 Resp: 1010

Ion	Ratio	Lower	Upper
184	100		
152	0.0	6.7	10.1#

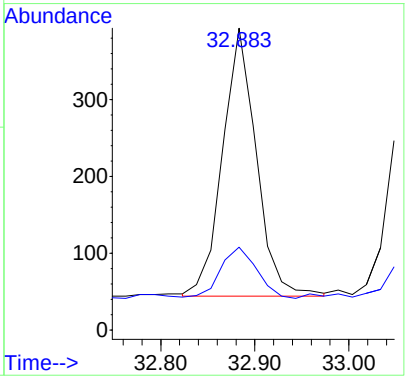


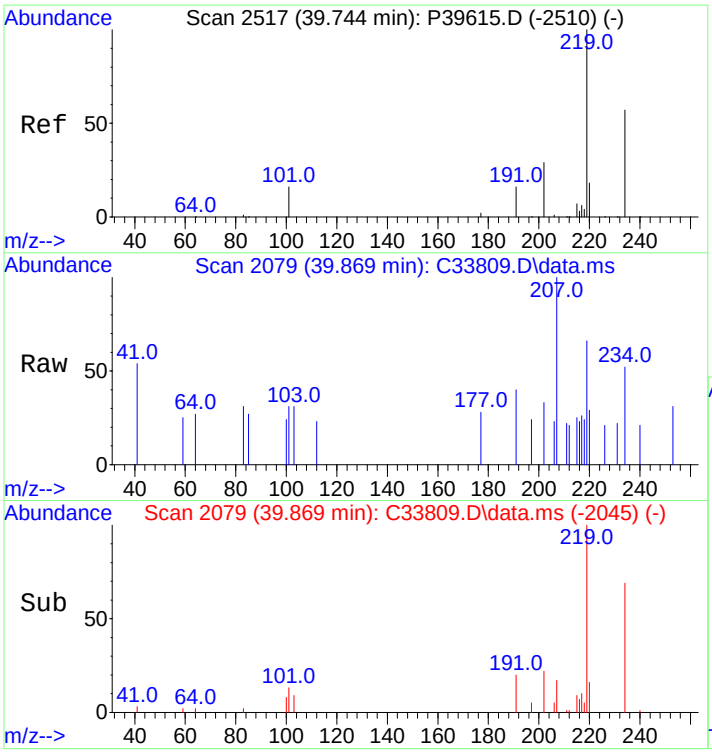


#43
Phenanthrene
Concen: 11.44 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 872

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

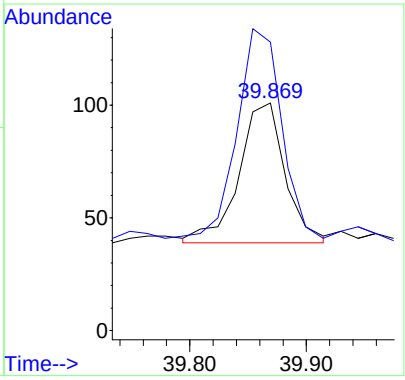


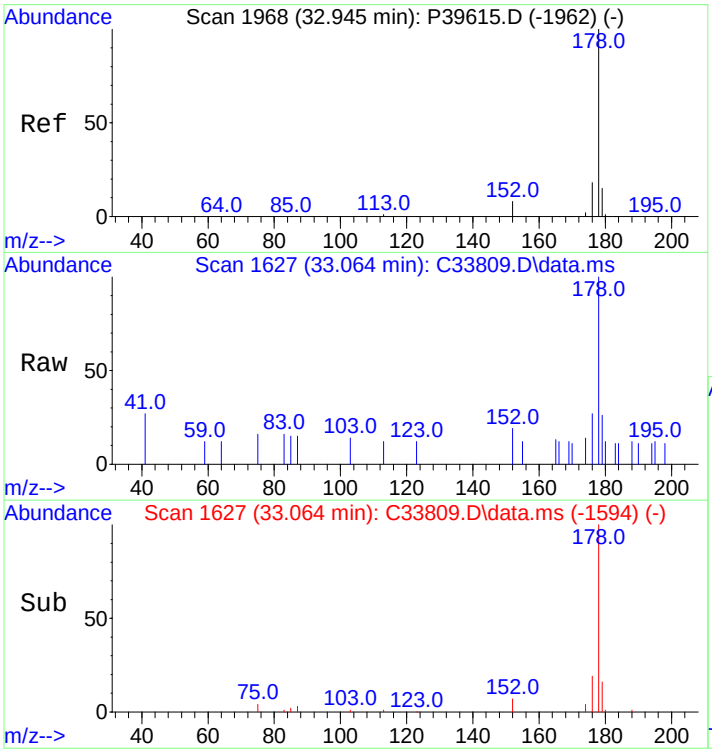


#54
Retene
Concen: 7.71 ng/mL m
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 171

Ion	Ratio	Lower	Upper
234	100		
219	142.7	136.6	204.8

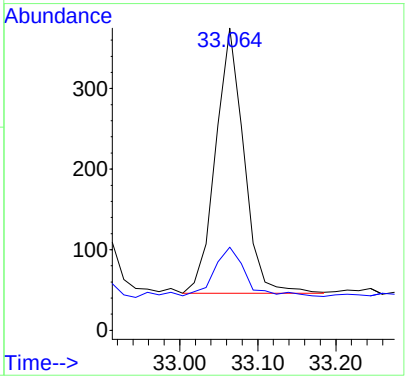


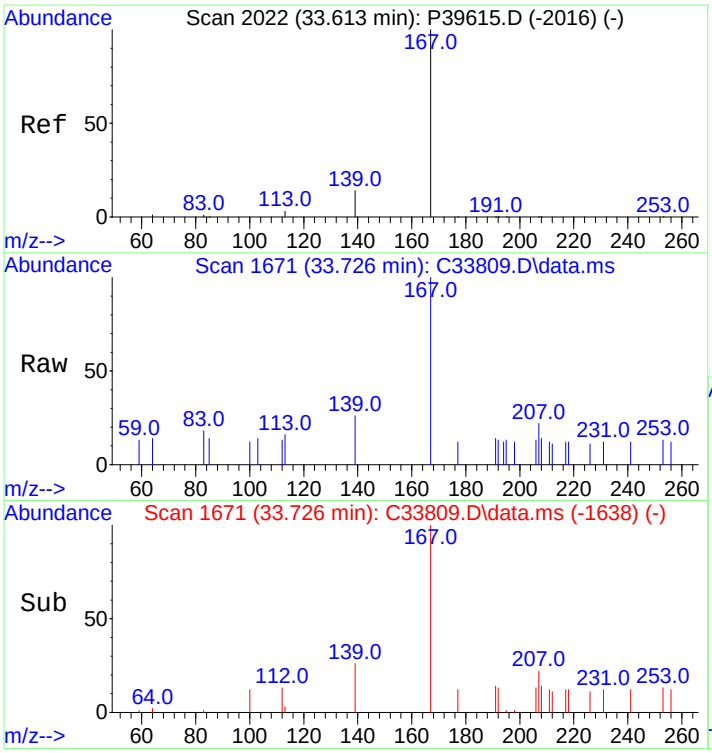


#55
Anthracene
Concen: 11.22 ng/mL
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 829

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.4	23.0

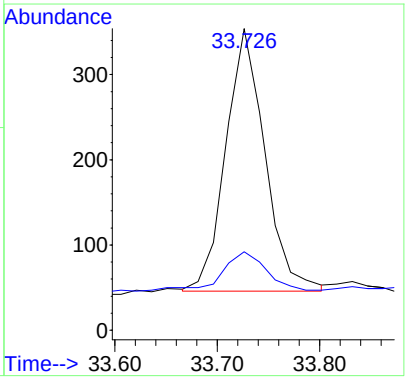


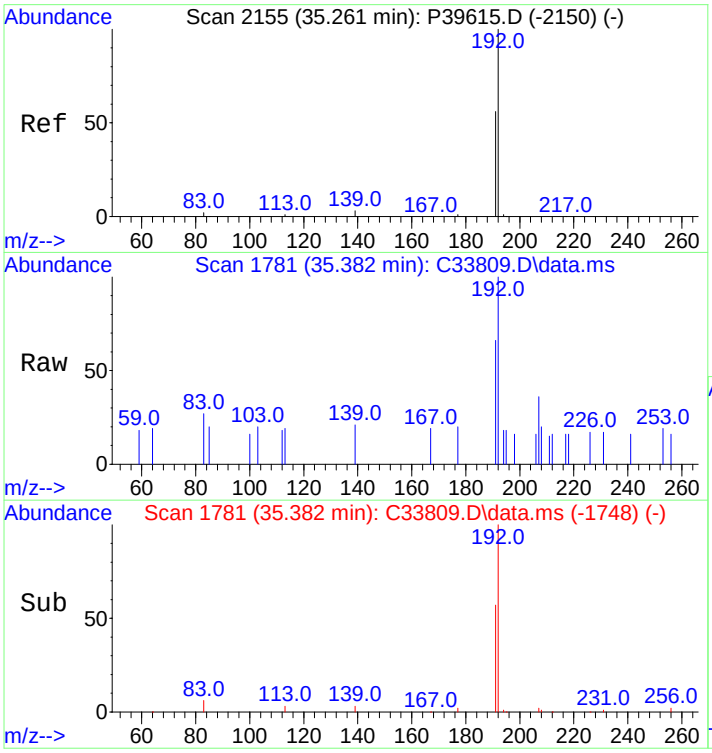


#56
Carbazole
Concen: 12.04 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:167 Resp: 817

Ion	Ratio	Lower	Upper
167	100		
139	23.3	11.6	17.4#

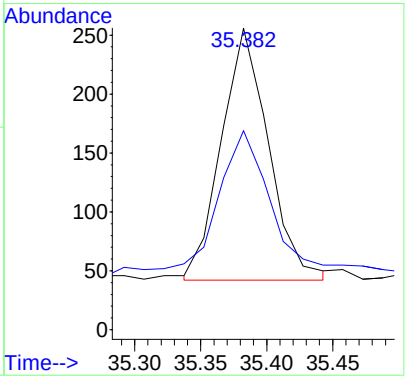


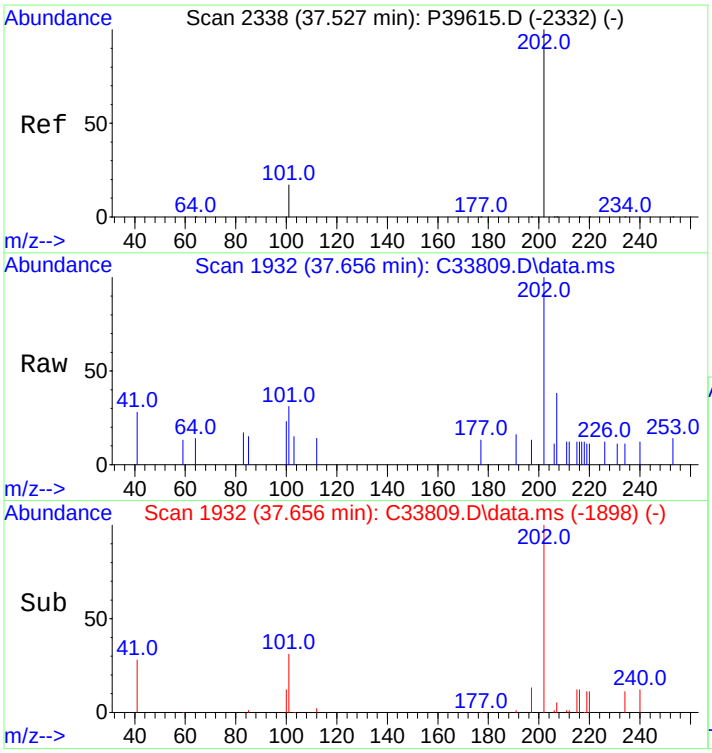


#57
1-Methylphenanthrene
Concen: 9.12 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:192 Resp: 532

Ion	Ratio	Lower	Upper
192	100		
191	66.0	45.3	67.9

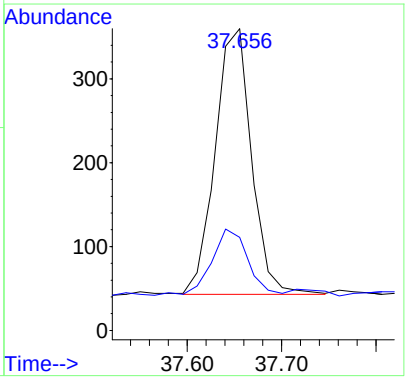


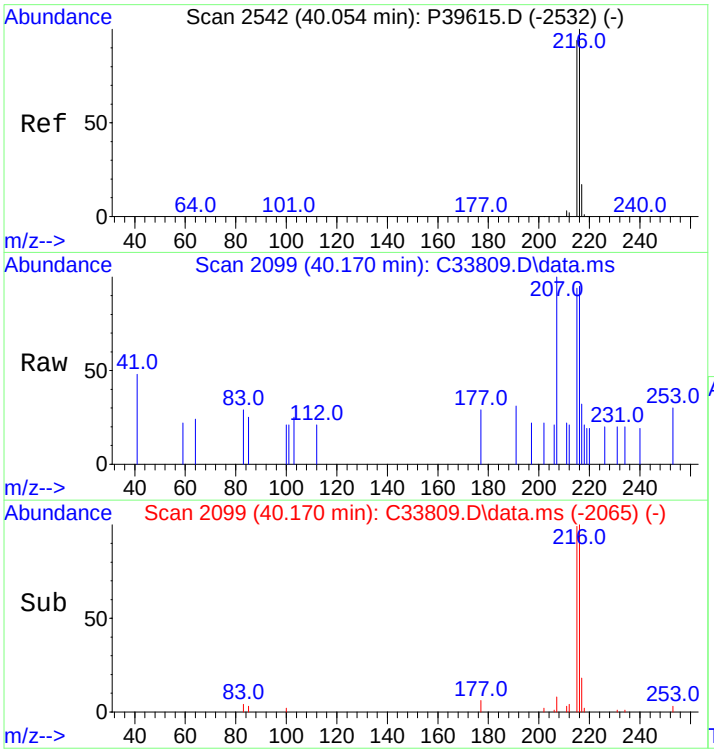


#58
Fluoranthene
Concen: 9.18 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 846

Ion	Ratio	Lower	Upper
202	100		
101	30.4	19.1	28.7#

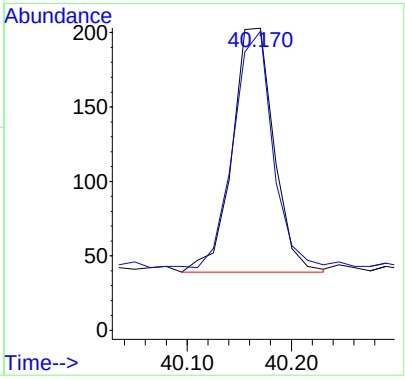


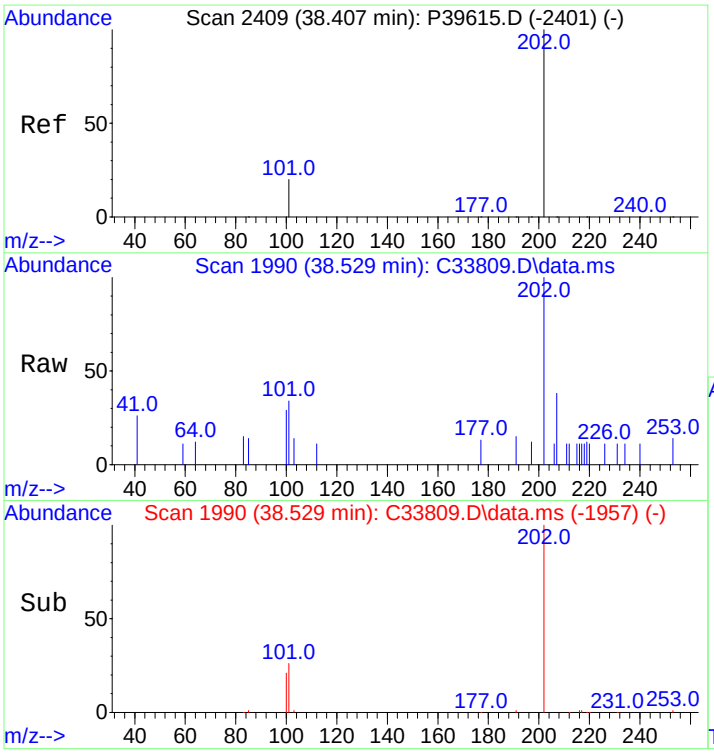


#59
Benzo(b)fluorene
Concen: 7.56 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:216 Resp: 455

Ion	Ratio	Lower	Upper
216	100		
215	89.9	77.4	116.2

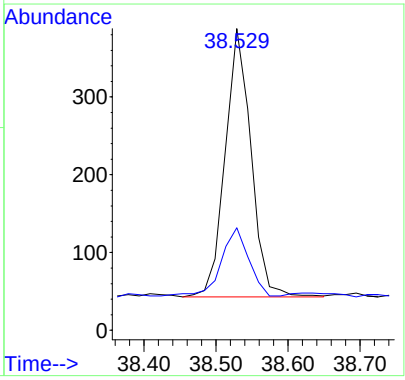


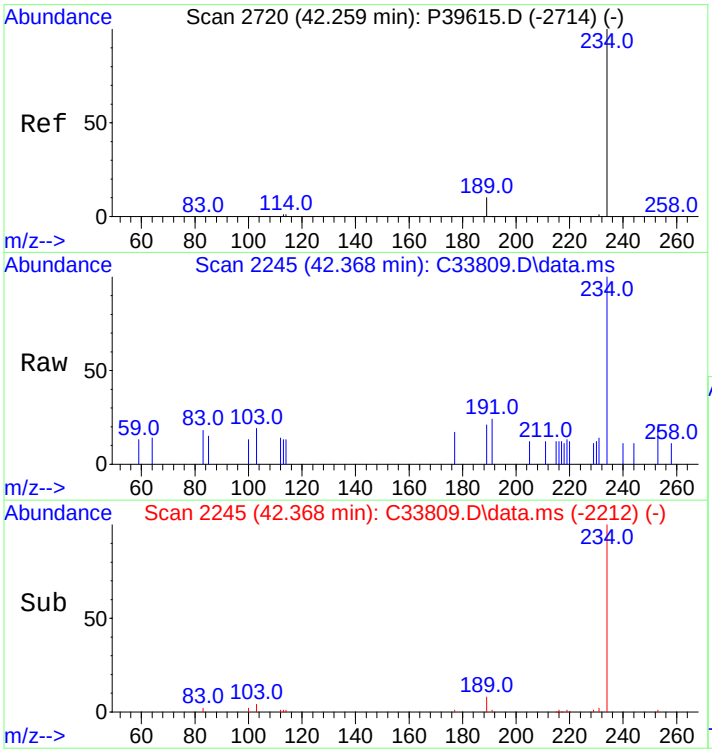


#60
Pyrene
Concen: 9.07 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 858

Ion	Ratio	Lower	Upper
202	100		
101	26.9	20.4	30.6

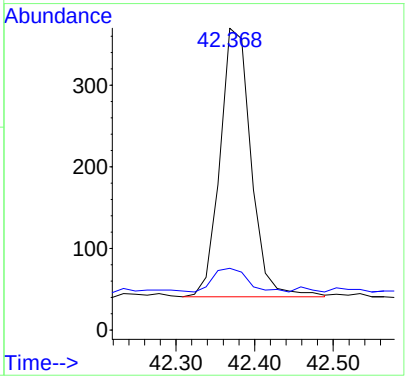


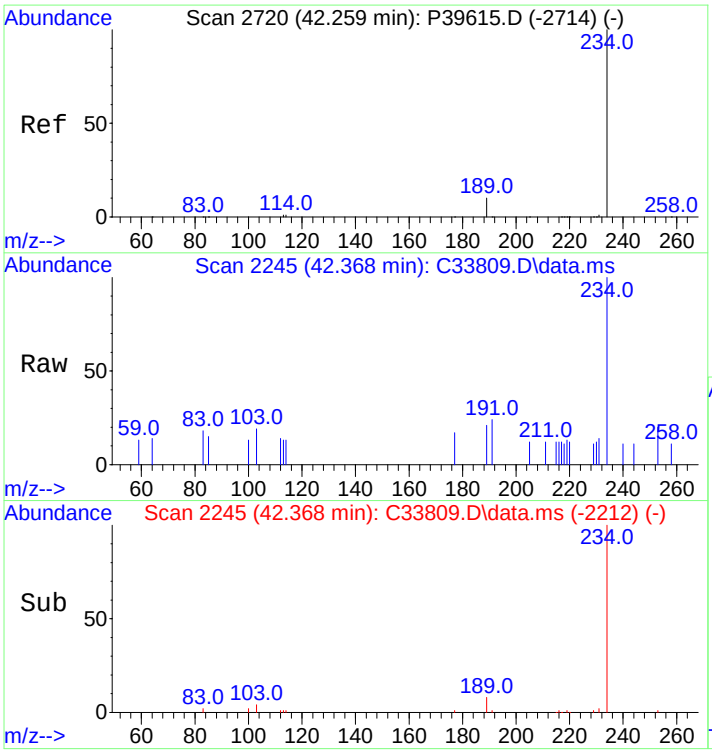


#66
Naphthobenzothiophene
Concen: 9.13 ng/ml m
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 902

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

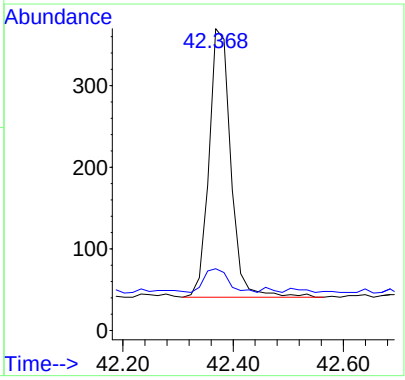


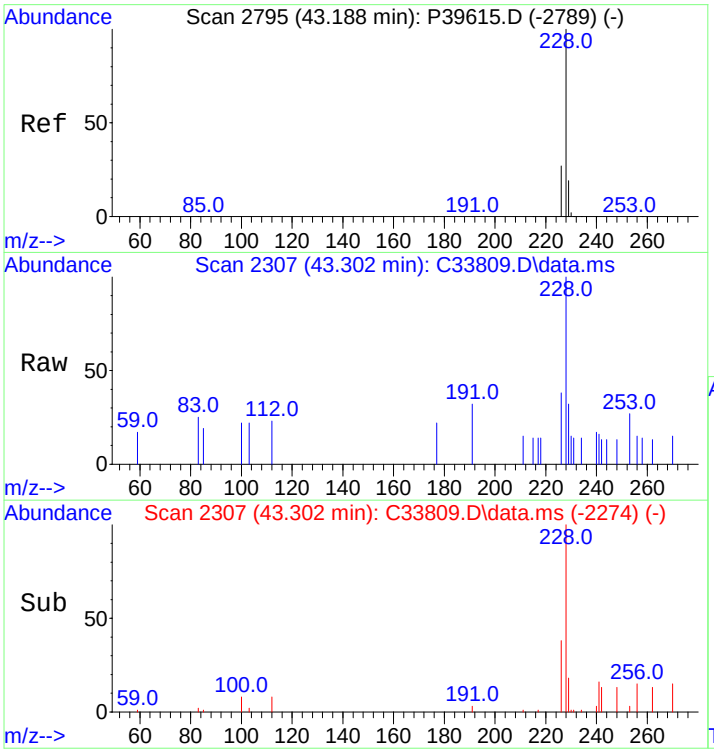


#67
Naphthobenzothiophene-2,1-D
Concen: 9.21 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 910

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

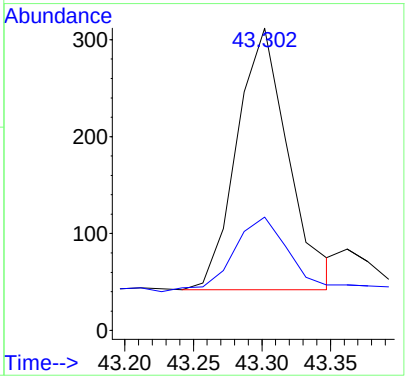


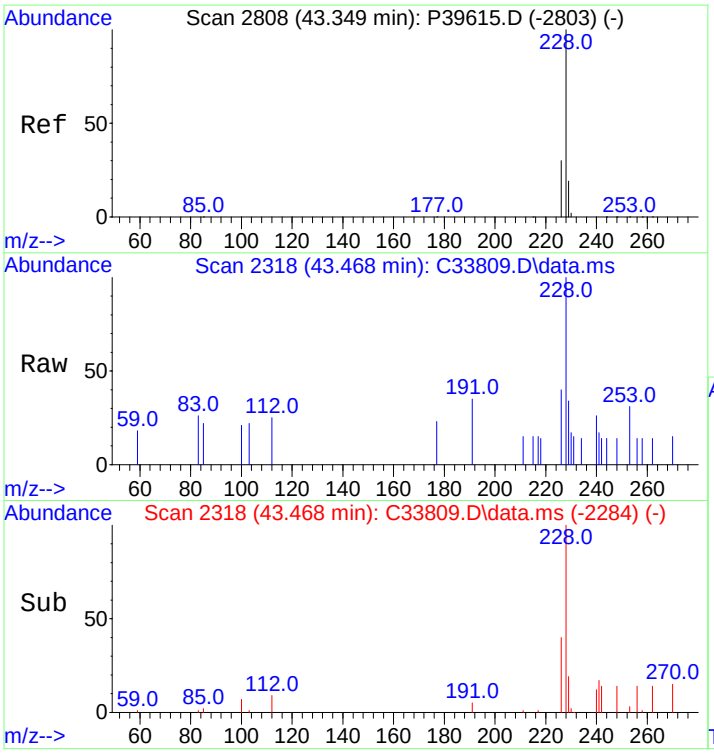


#75
Benz[a]anthracene
Concen: 10.57 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 705

Ion	Ratio	Lower	Upper
228	100		
226	31.2	21.8	32.8

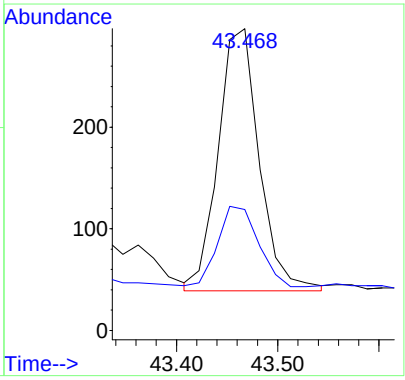


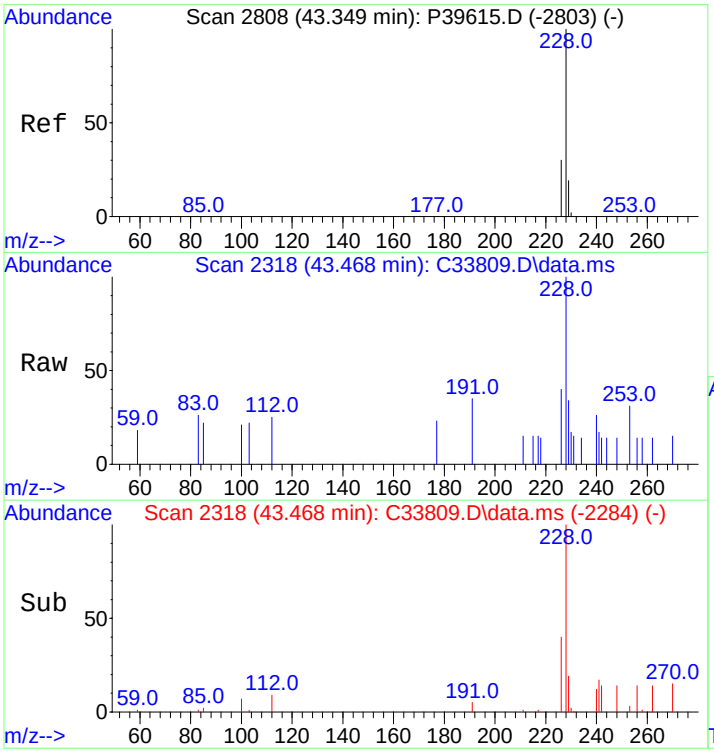


#76
Chrysene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

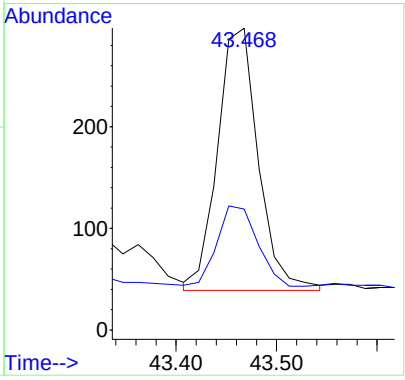


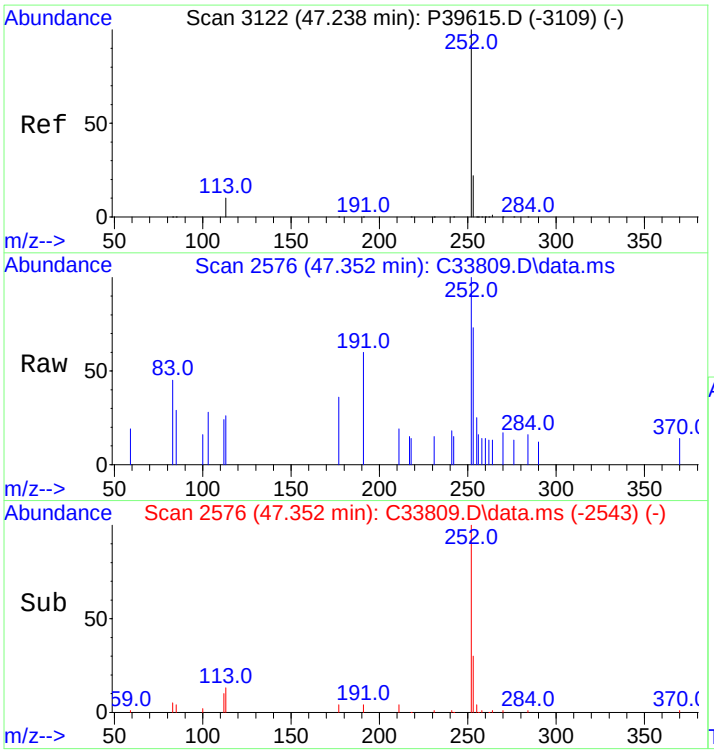


#77
Chrysene/Triphenylene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

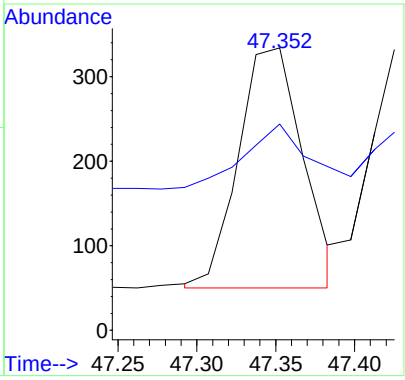


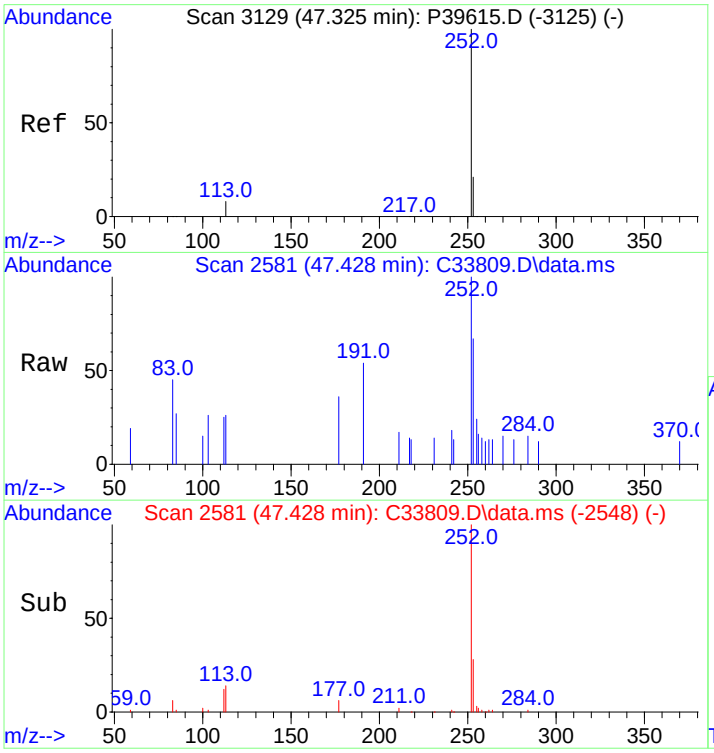


#82
Benzo[b]fluoranthene
Concen: 11.01 ng/mL m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 808

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.5	27.7

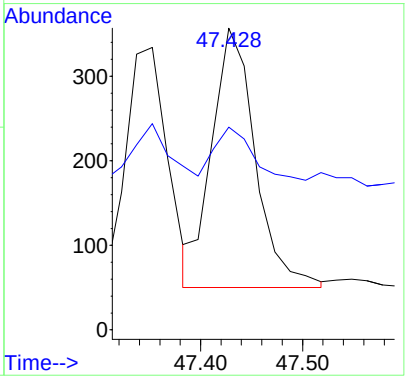


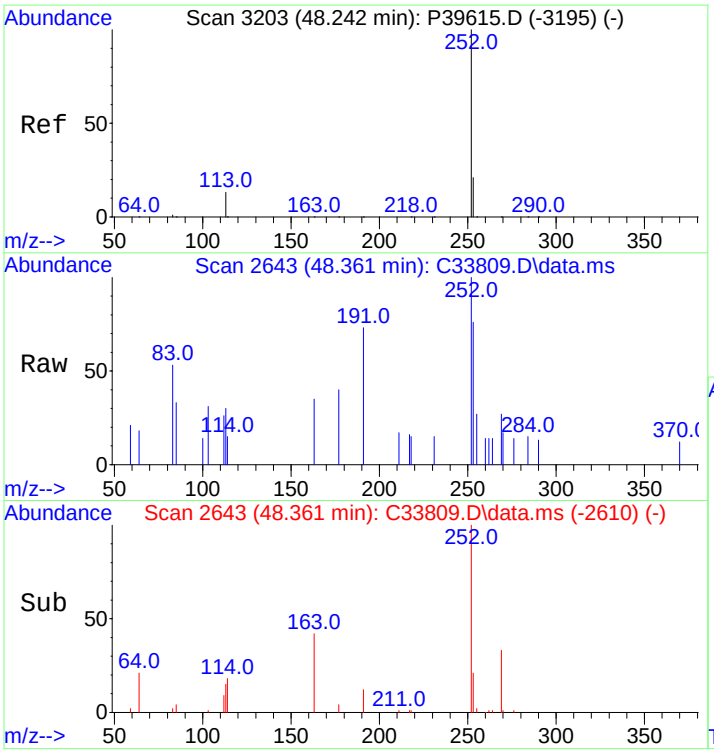


#83
Benzo[j]+[k]fluoranthene
Concen: 11.71 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 908

Ion	Ratio	Lower	Upper
252	100		
253	19.3	18.2	27.4

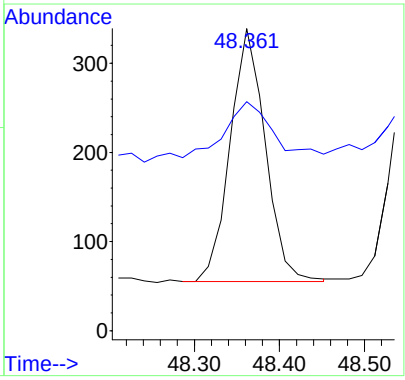


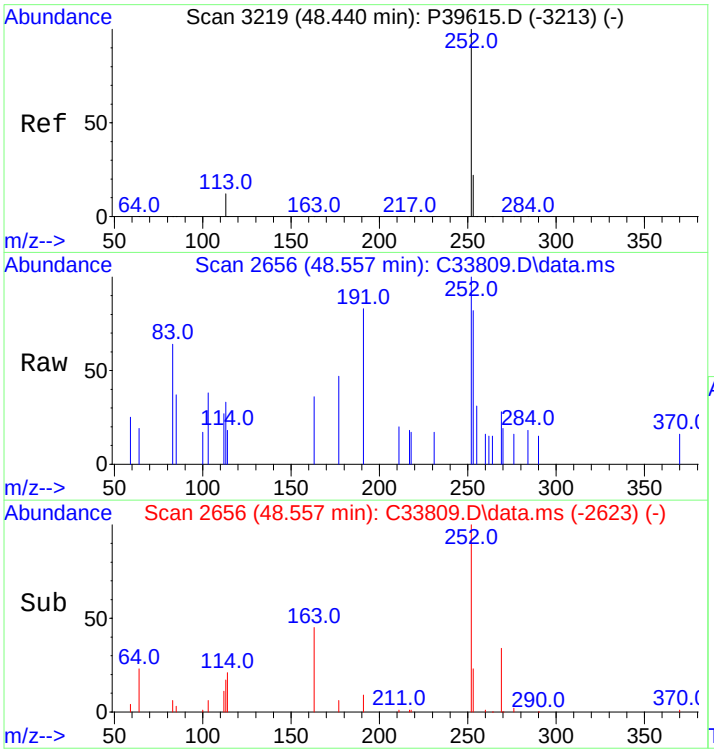


#85
Benzo[e]pyrene
Concen: 11.56 ng/mL
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 816

Ion	Ratio	Lower	Upper
252	100		
253	37.7	18.5	27.7#

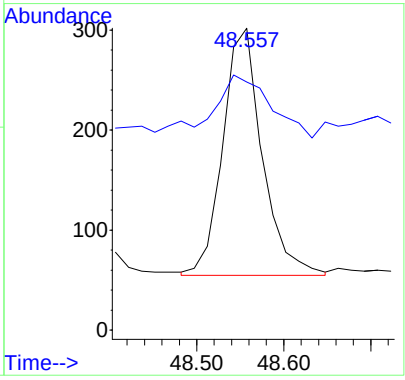


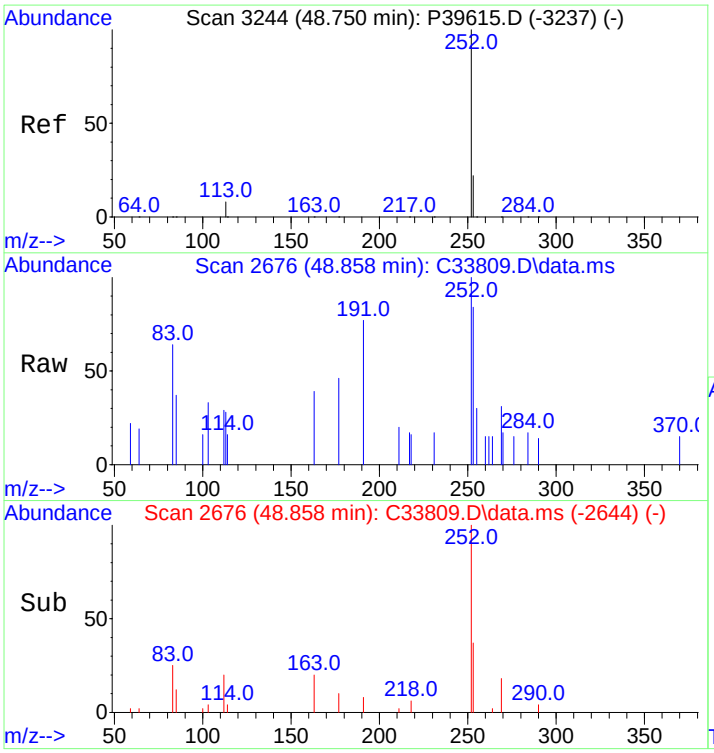


#87
Benzo[a]pyrene
Concen: 11.69 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 776

Ion	Ratio	Lower	Upper
252	100		
253	38.1	18.7	28.1#

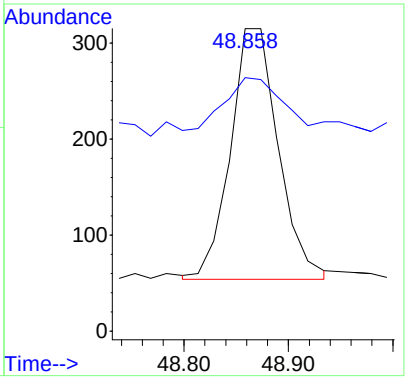


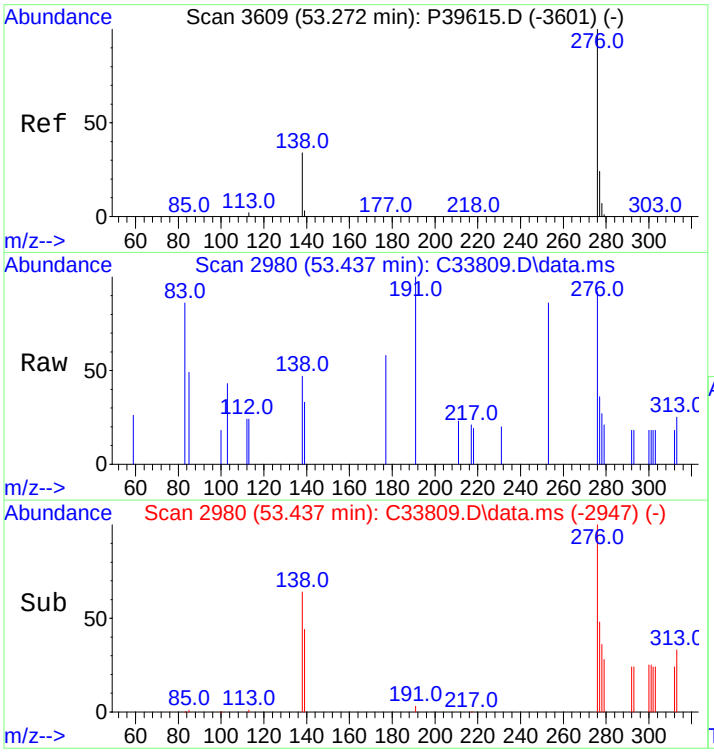


#88
Perylene
Concen: 11.77 ng/mL m
RT: 48.858 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 835

Ion	Ratio	Lower	Upper
252	100		
253	37.5	18.6	27.8#

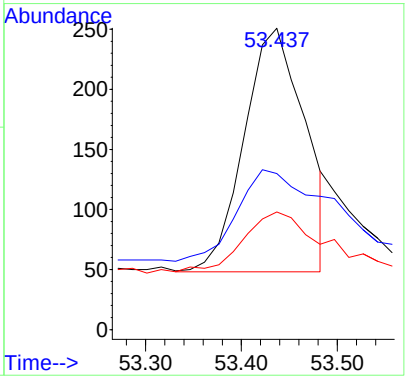


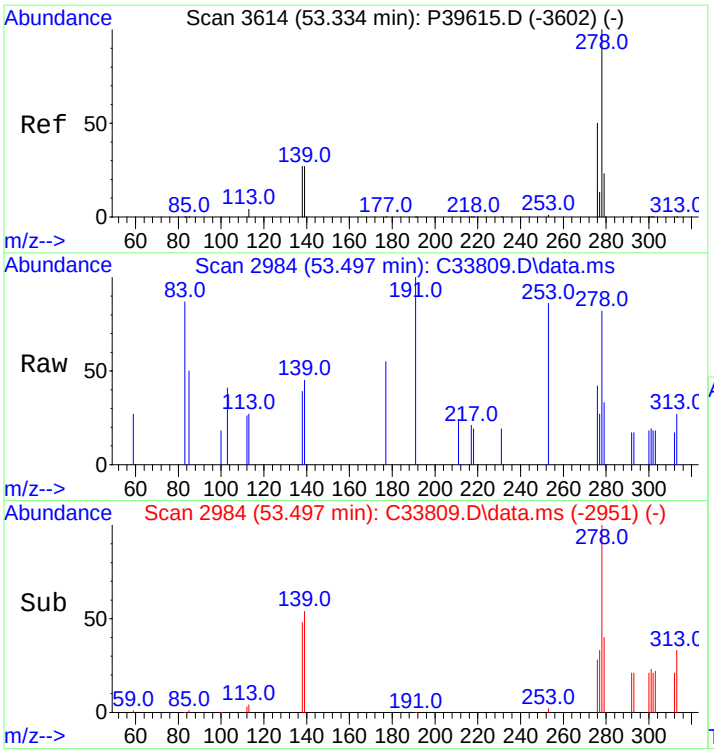


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.73 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 896

Ion	Ratio	Lower	Upper
276	100		
138	93.4	30.3	45.5#
277	48.5	19.2	28.8#

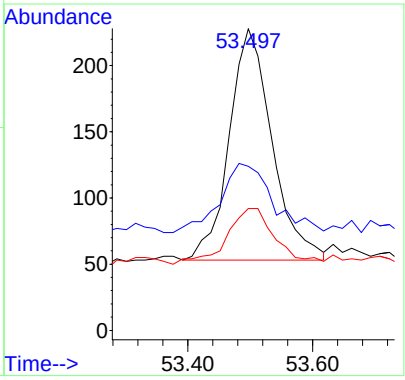


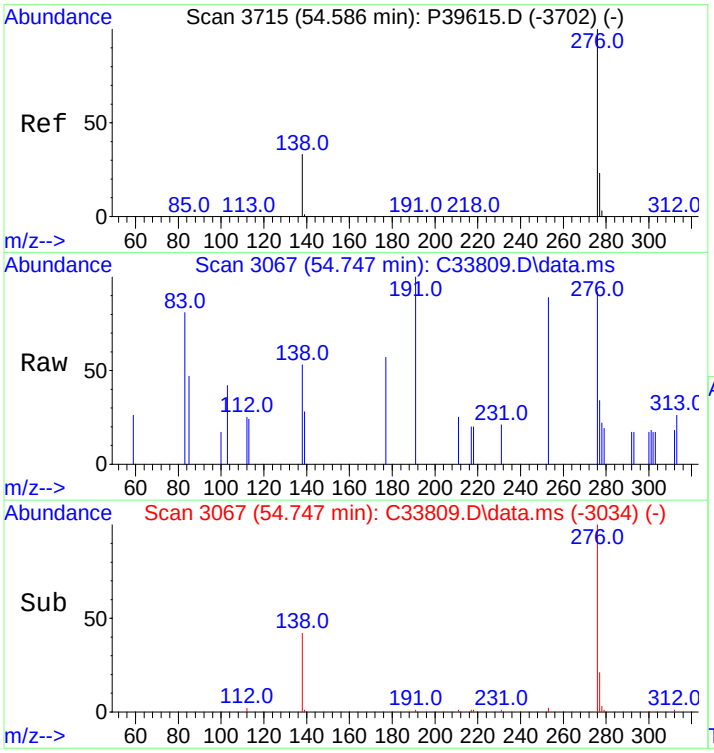


#90
Dibenz[ah]+[ac]anthracene
Concen: 11.67 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:278 Resp: 838

Ion	Ratio	Lower	Upper
278	100		
139	32.5	25.4	38.2
279	37.1	19.0	28.4#

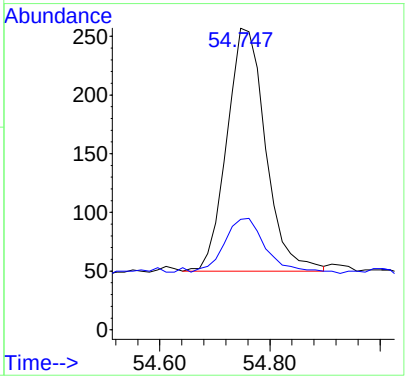


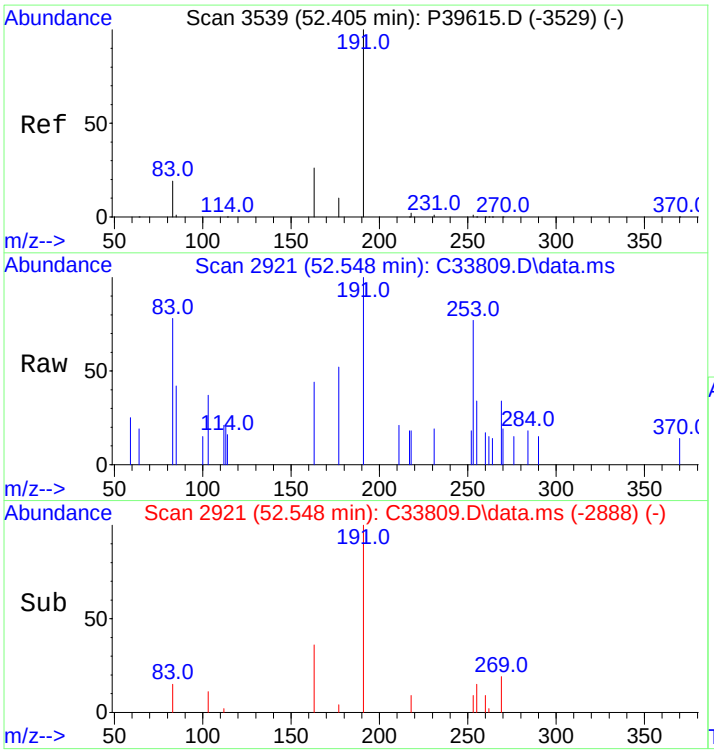


#91
Benzo[g,h,i]perylene
Concen: 12.95 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 1009

Ion	Ratio	Lower	Upper
276	100		
277	25.5	18.9	28.3

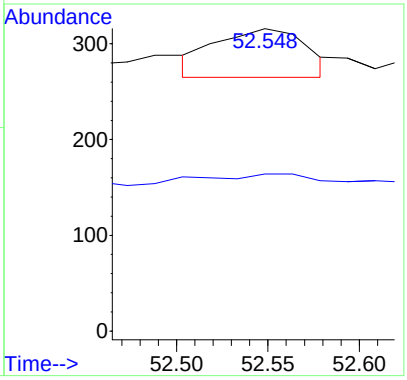


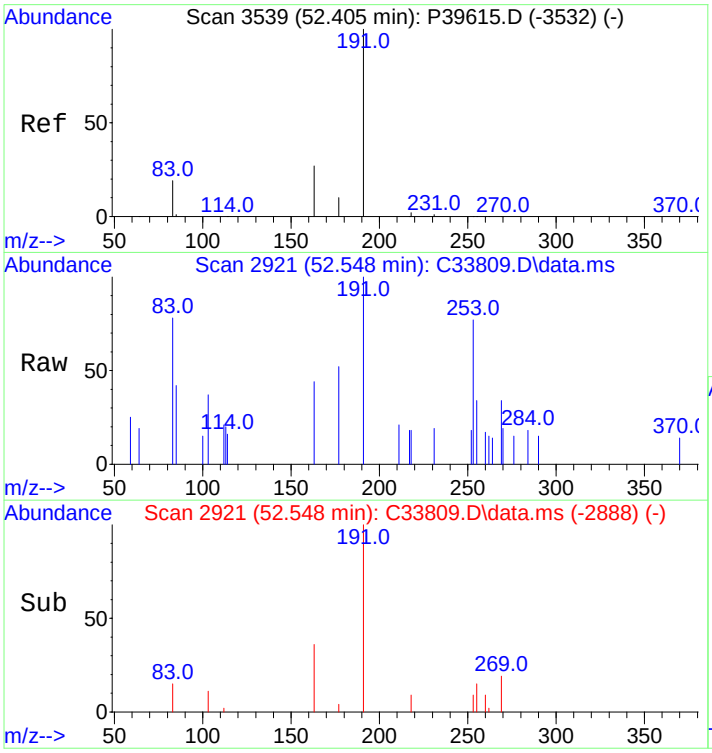


#92
Hopane (T19)
Concen: 14.21 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 175

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

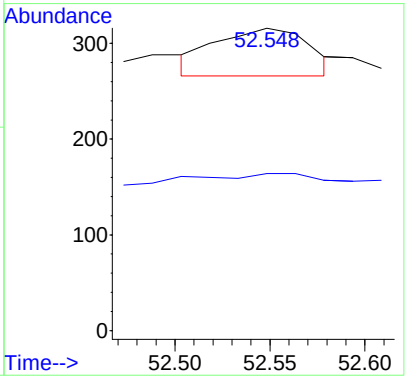




#93
17a(H),21B(H)-hopane - C30H52
Concen: 13.89 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 171

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	34.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	3.46%#		
42) Phenanthrene-d10	32.793	188	1224	20.786	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.08%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	23.682	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.37%#		
127) 5B(H)Cholane - Surr	43.995	217	161	21.276	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	15.117	ng/mL	
4) cis-Decalin	17.844	138	115M4	14.013	ng/mL	
10) Naphthalene	20.042	128	2630	48.035	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	38.180	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	40.050	ng/mL	
18) Benzothiophene	20.268	134	2336M4	52.022	ng/mL	
23) Biphenyl	24.619	154	1896M4	36.754	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	32.359	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	34.355	ng/mL	
26) Acenaphthylene	26.320	152	2402	38.885	ng/mL#	100
27) Acenaphthene	27.057	153	1380	35.184	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.608	170	909M4	26.498	ng/mL	
29) Fluorene	29.075	166	1499M4	30.710	ng/mL	
33) Dibenzothiophene	32.386	184	2440	33.102	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	27.679	ng/mL	
54) Retene	39.869	234	367	17.041	ng/mL	94
55) Anthracene	33.064	178	1981M4	27.606	ng/mL	
56) Carbazole	33.726	167	2025M4	30.723	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.437	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	22.734	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	19.217	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.122	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.555	ng/ml	100
67) Naphthobenzothiophene-2,1	42.384	234	2165	22.555	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	25.297	ng/mL	
76) Chrysene	43.468	228	1712M4	26.771	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	26.911	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	25.399	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	26.567	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	26.754	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	26.903	ng/mL	
88) Perylene	48.874	252	1855M4	26.870	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	26.595	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	28.233	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	29.549	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	34.877	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	418M4	34.877	ng/mL	

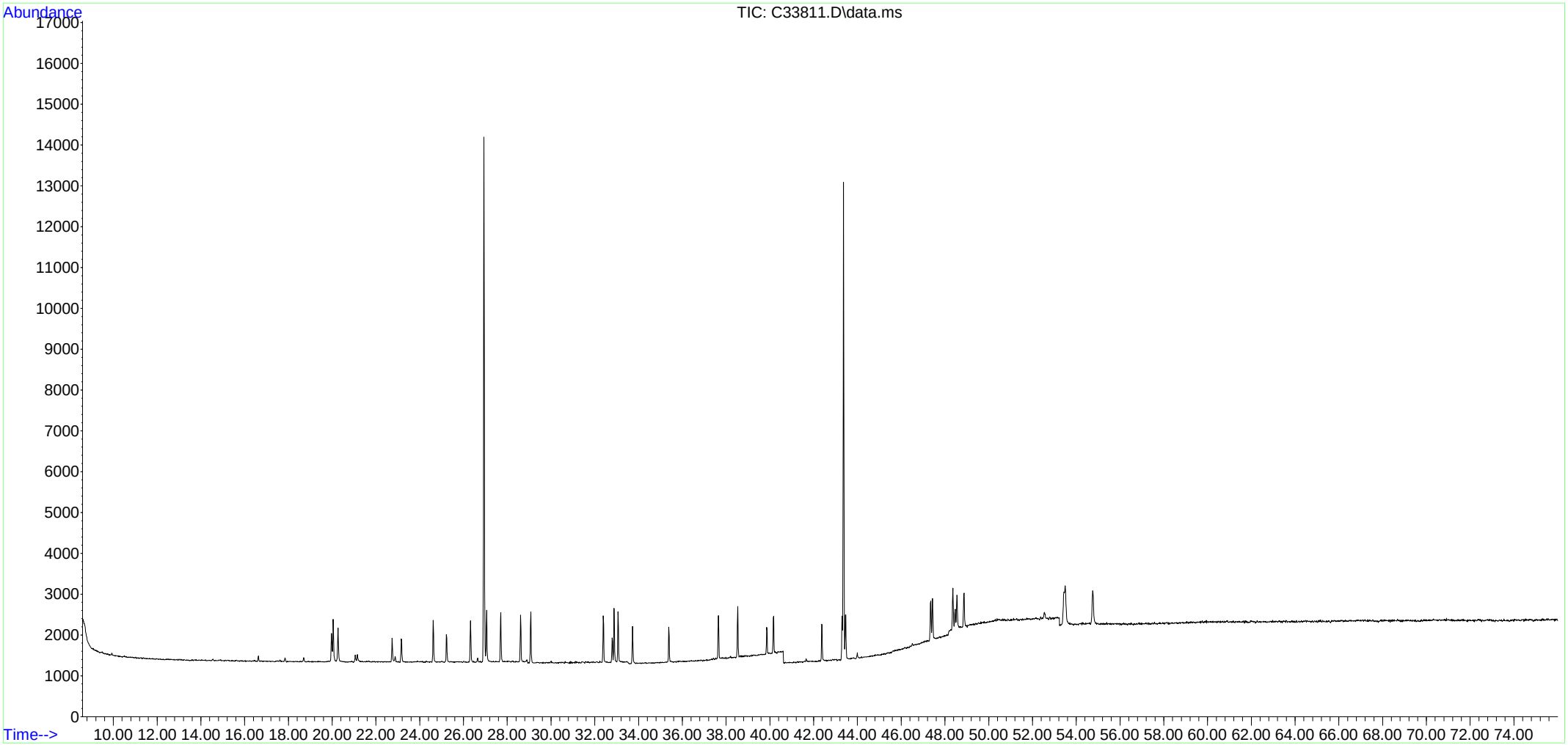
(#) = qualifier out of range (m) = manual integration (+) = signals summed

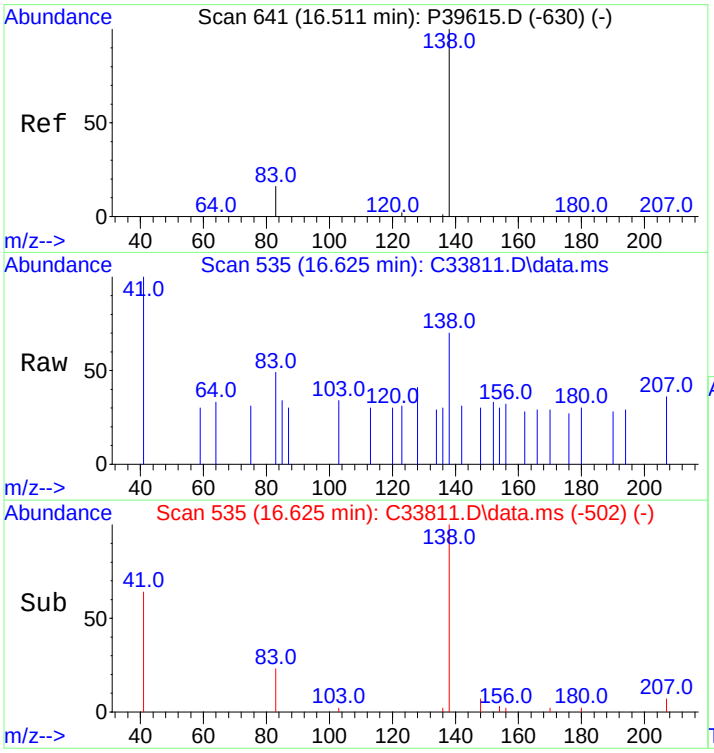
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

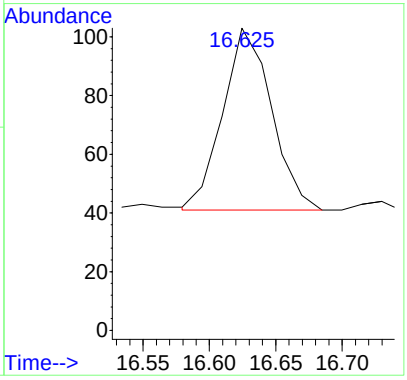
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

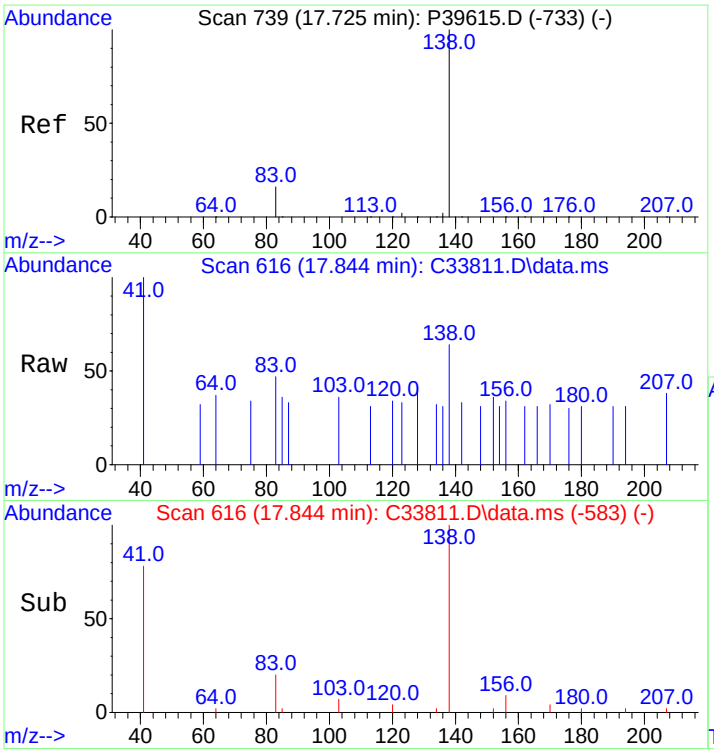




#3
trans-Decalin
Concen: 15.12 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

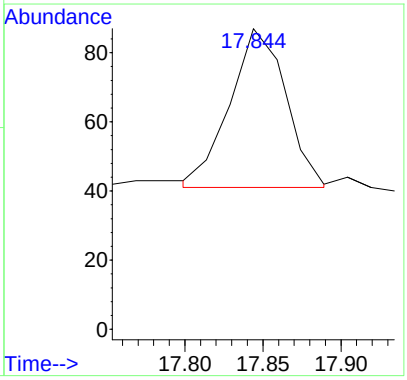
Tgt Ion:138 Resp: 159

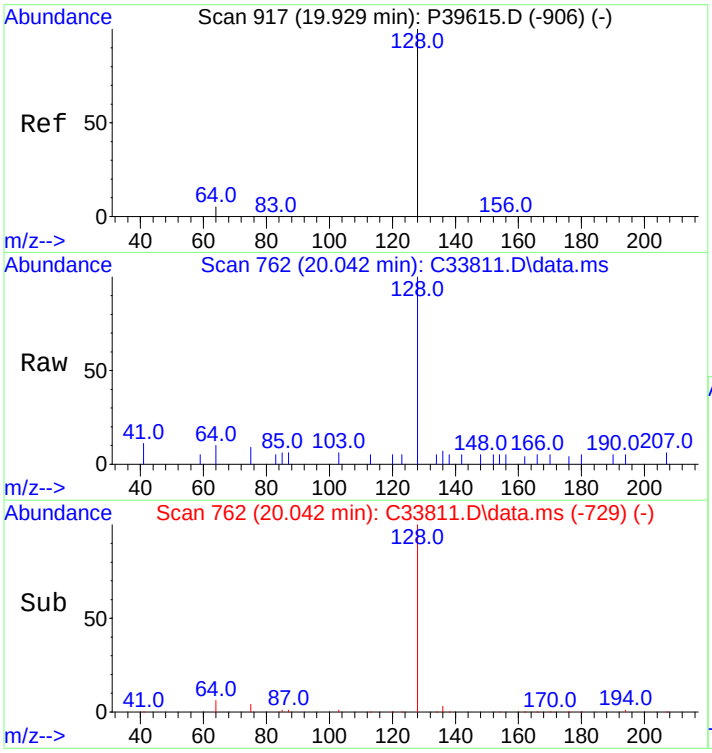




#4
cis-Decalin
Concen: 14.01 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:138 Resp: 115

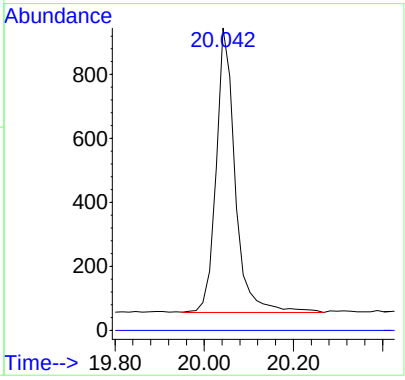


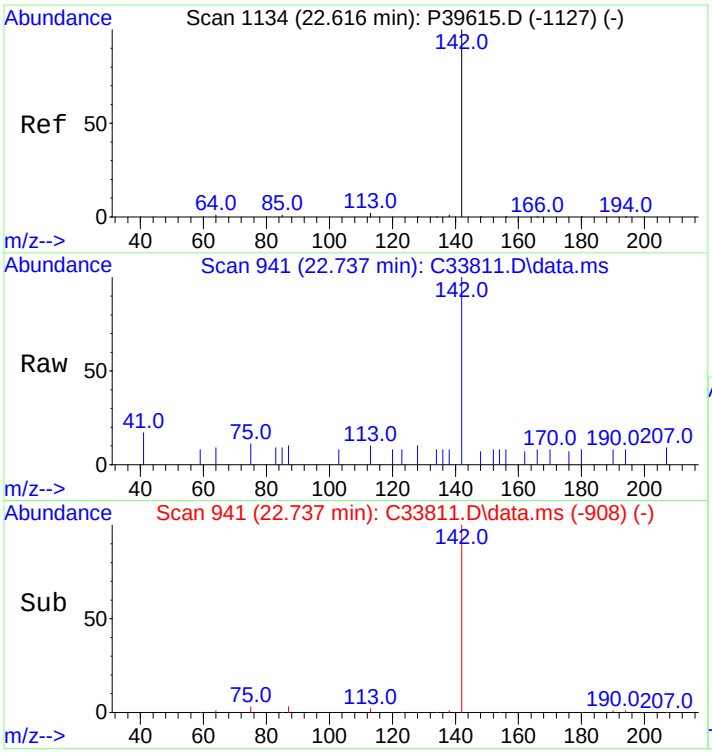


#10
Naphthalene
Concen: 48.03 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:128 Resp: 2630

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

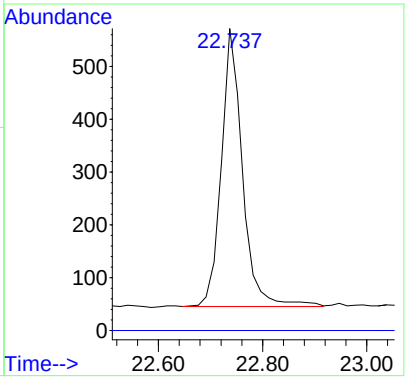


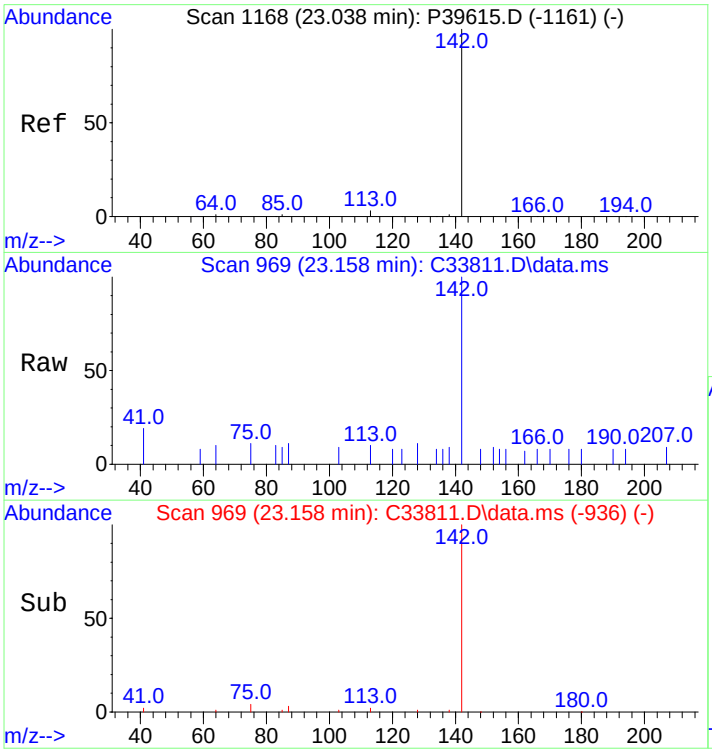


#16
2-Methylnaphthalene
Concen: 38.18 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1476

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

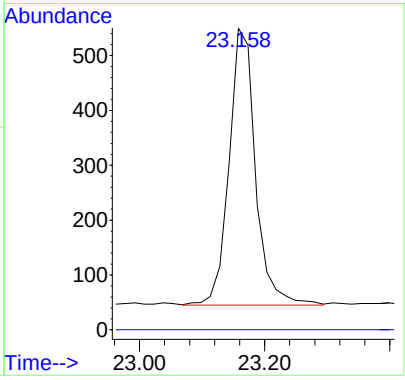


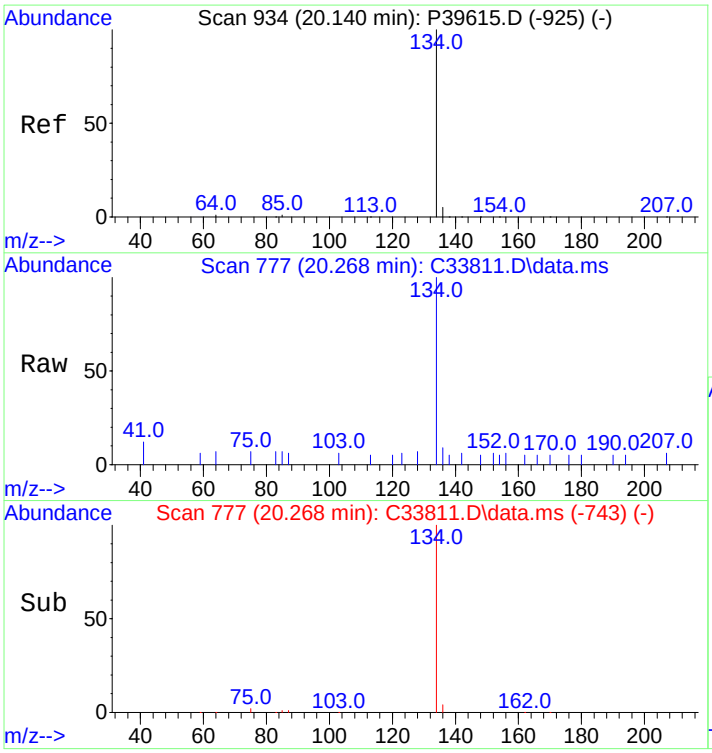


#17
1-Methylnaphthalene
Concen: 40.05 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1485

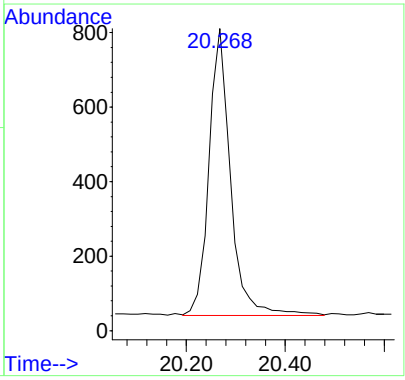
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

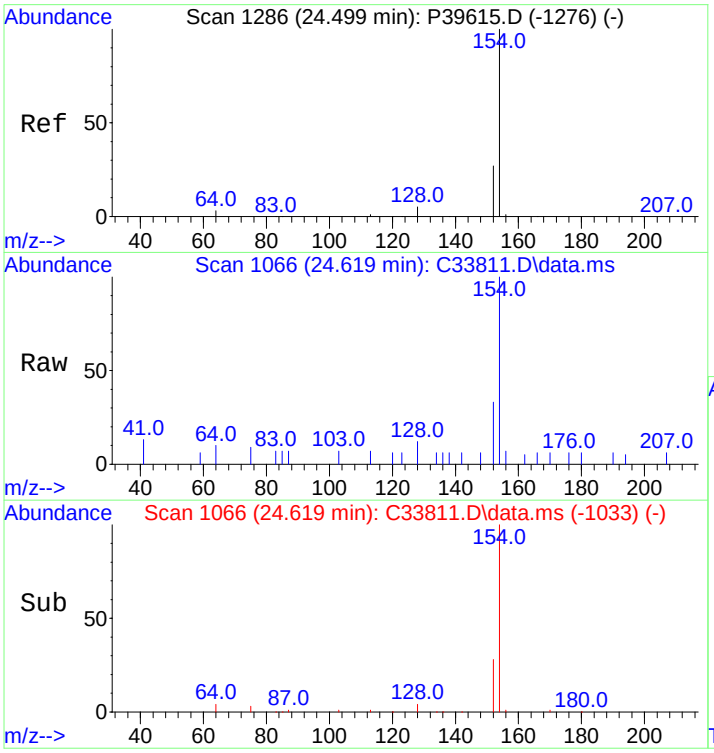




#18
Benzothiophene
Concen: 52.02 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:134 Resp: 2336

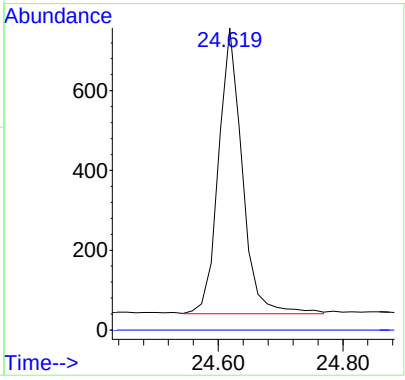


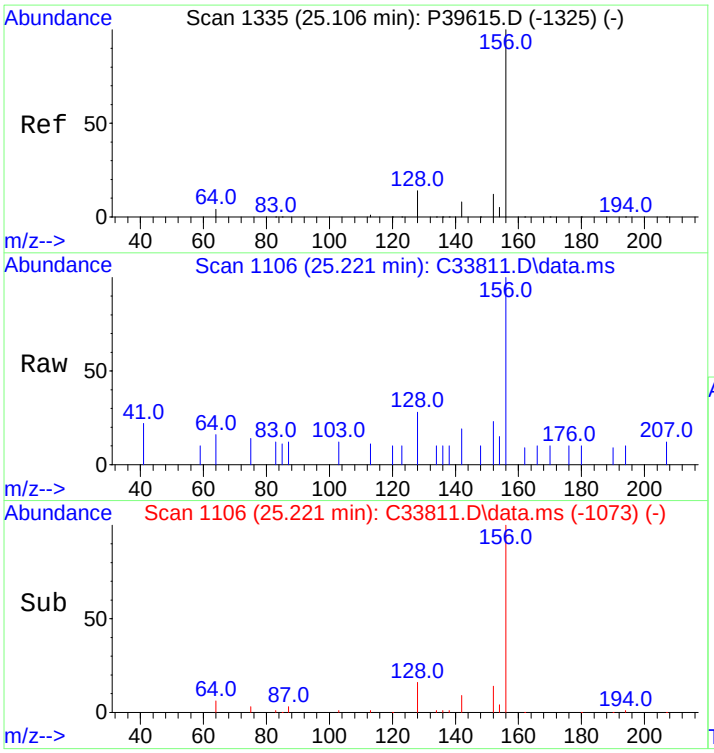


#23
Biphenyl
Concen: 36.75 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:154 Resp: 1896

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

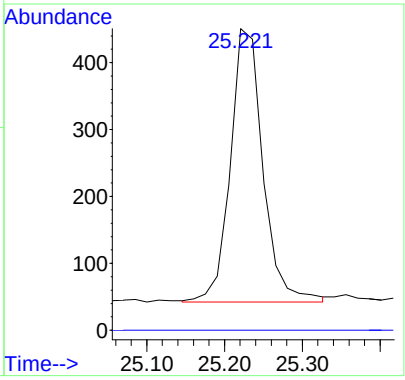


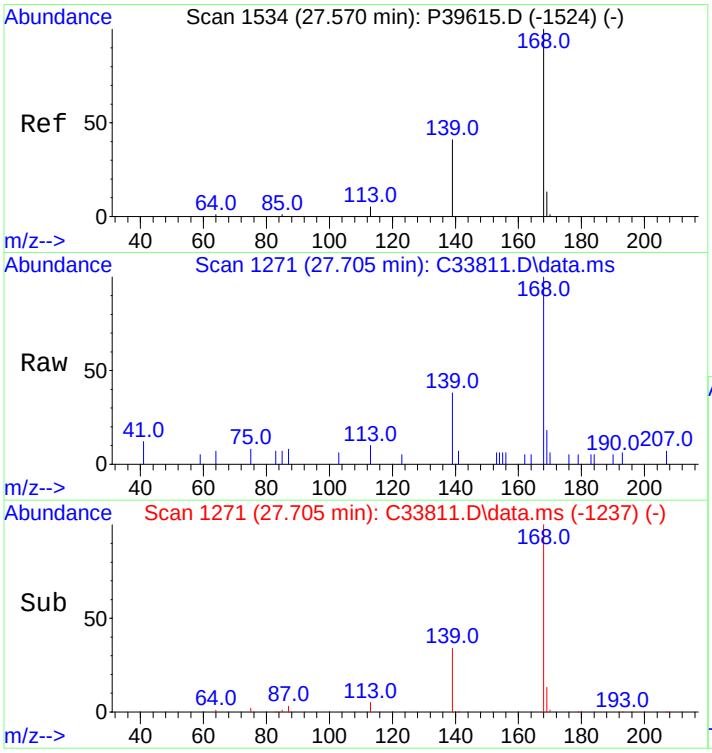


#24
2,6-Dimethylnaphthalene
Concen: 32.36 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:156 Resp: 1190

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

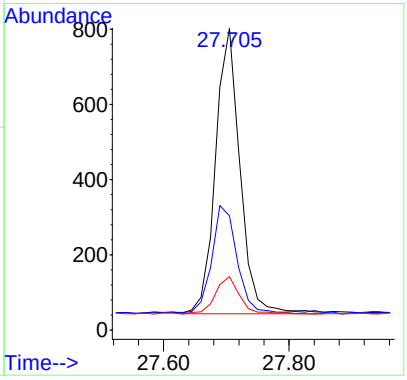


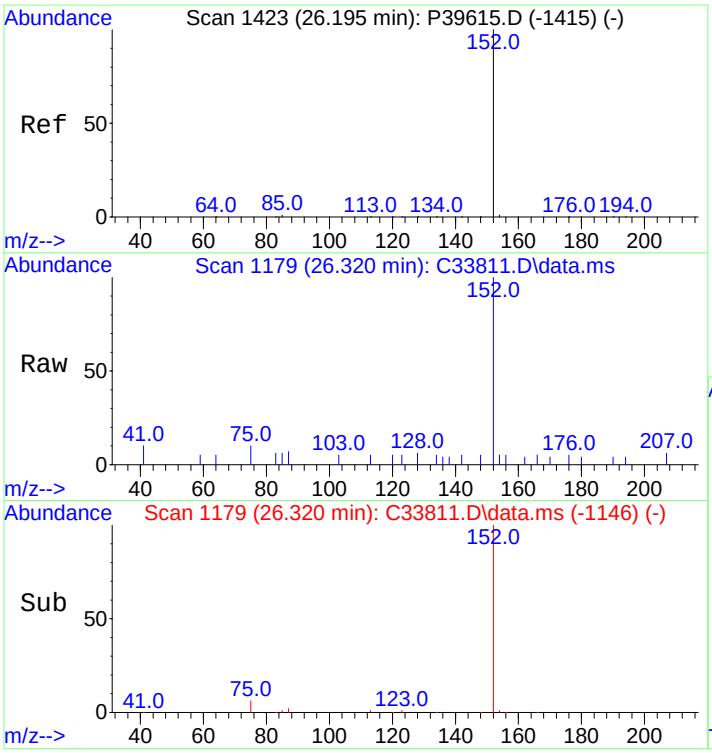


#25
Dibenzofuran
Concen: 34.35 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:168 Resp: 2059

Ion	Ratio	Lower	Upper
168	100		
139	39.0	32.9	49.3
169	13.3	10.6	16.0

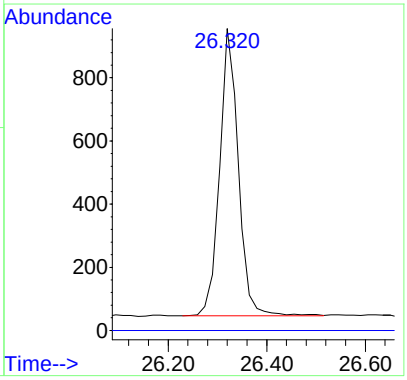


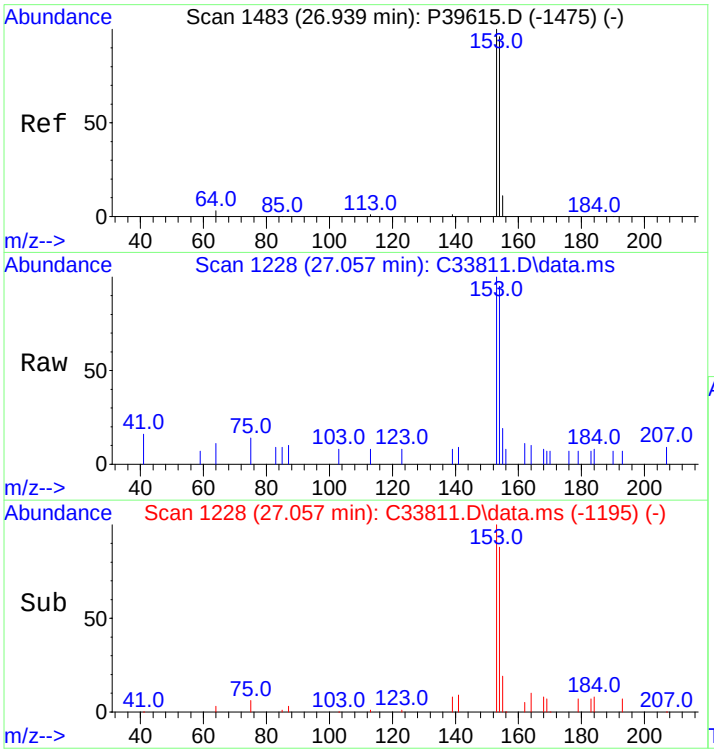


#26
Acenaphthylene
Concen: 38.89 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:152 Resp: 2402

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

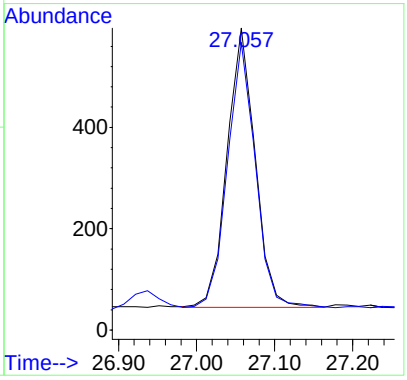


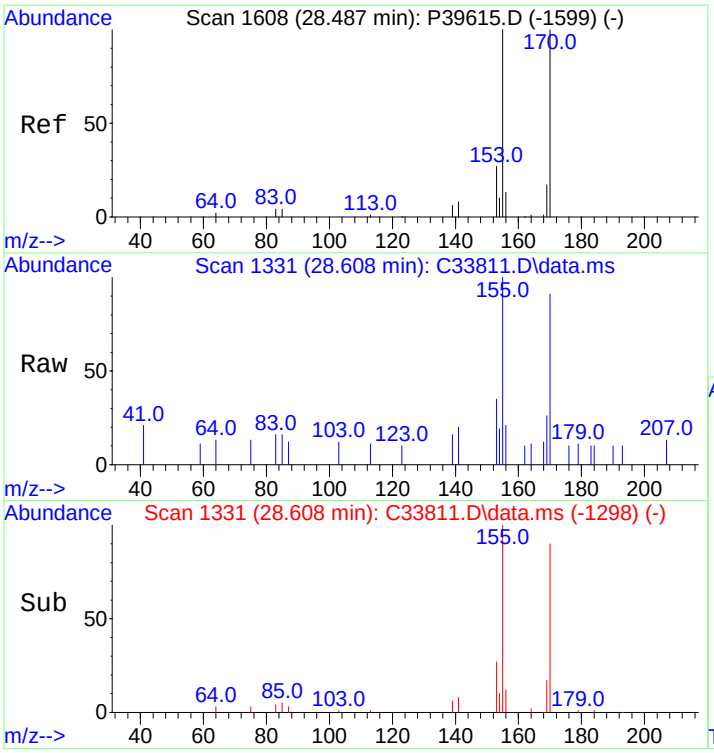


#27
Acenaphthene
Concen: 35.18 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:153 Resp: 1380

Ion	Ratio	Lower	Upper
153	100		
154	95.4	75.0	112.6

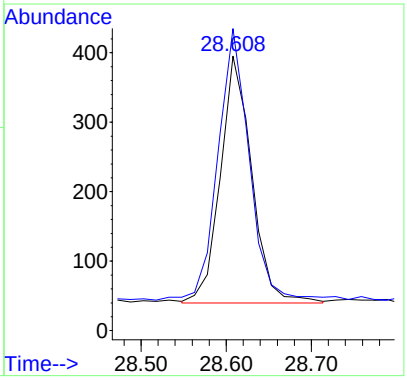


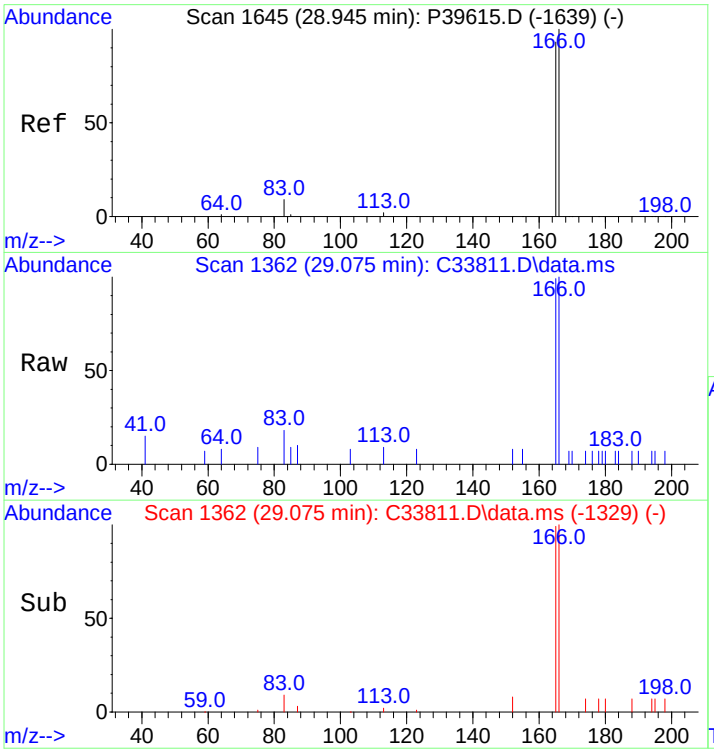


#28
2,3,5-Trimethylnaphthalene
Concen: 26.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:170 Resp: 909

Ion	Ratio	Lower	Upper
170	100		
155	110.5	84.7	127.1

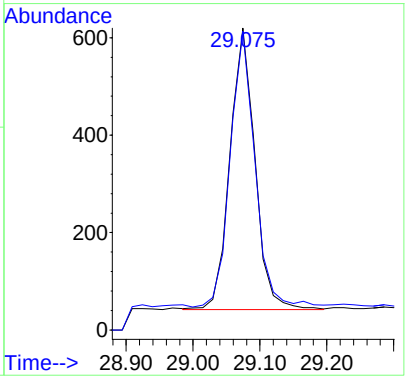


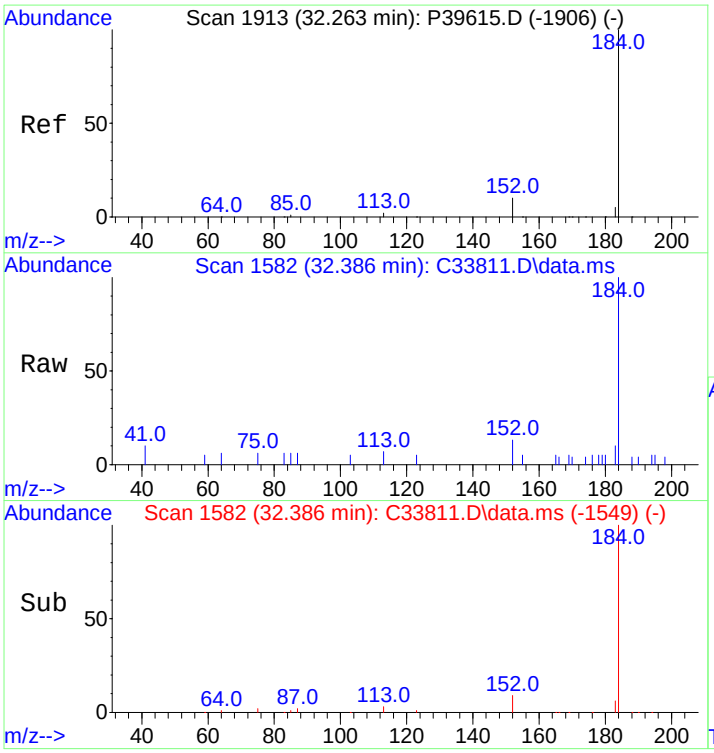


#29
Fluorene
Concen: 30.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:166 Resp: 1499

Ion	Ratio	Lower	Upper
166	100		
165	108.0	75.3	112.9

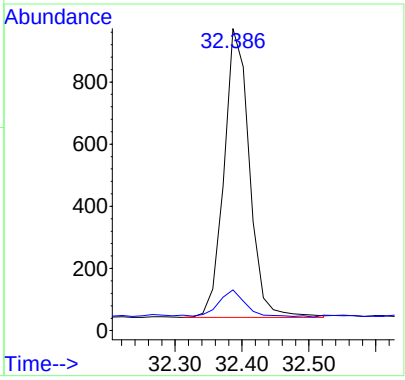


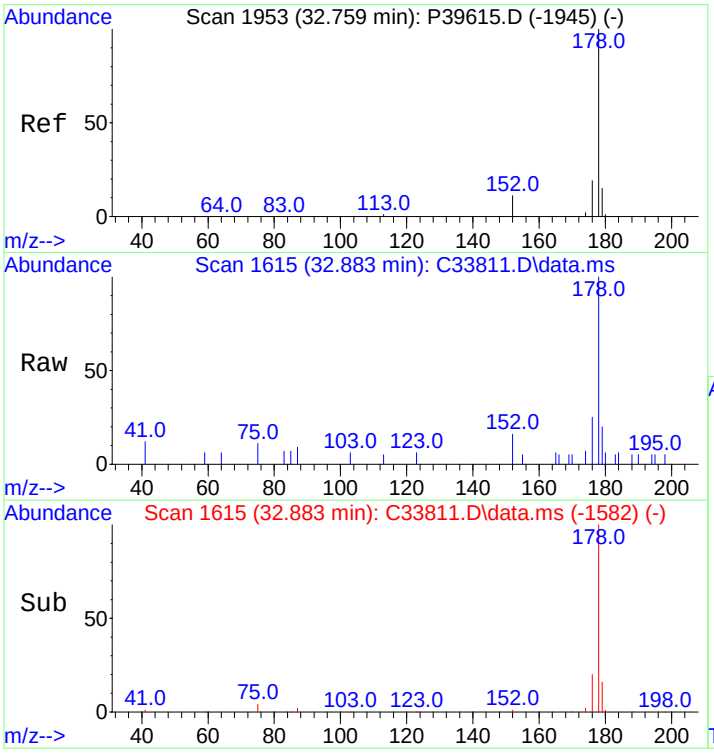


#33
Dibenzothiophene
Concen: 33.10 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:184 Resp: 2440

Ion	Ratio	Lower	Upper
184	100		
152	9.2	6.7	10.1

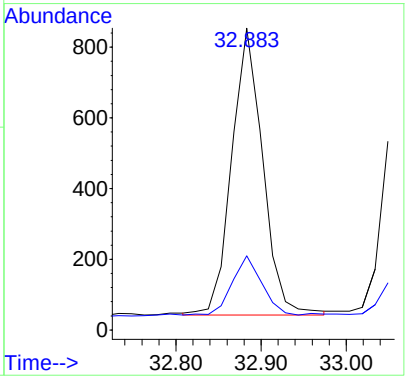


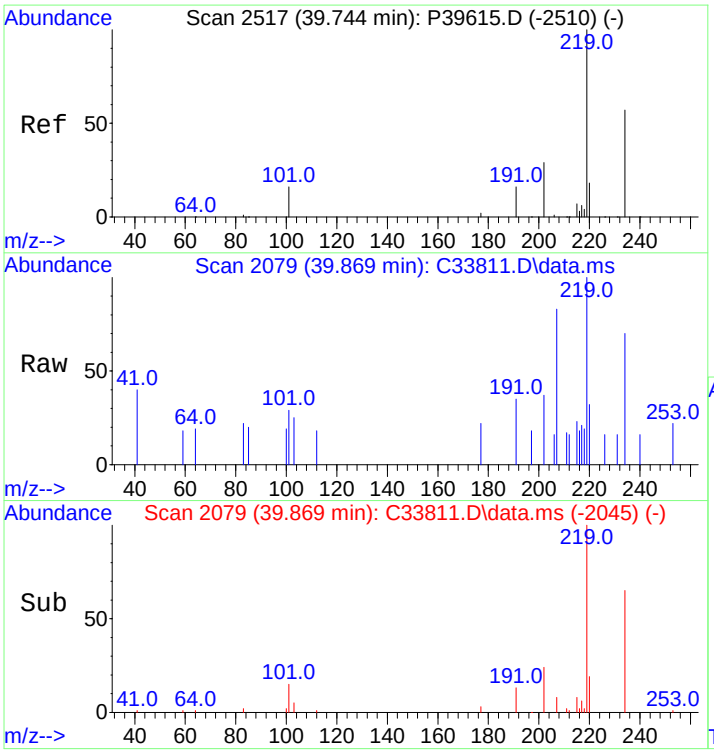


#43
Phenanthrene
Concen: 27.68 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 2050

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.9	23.9

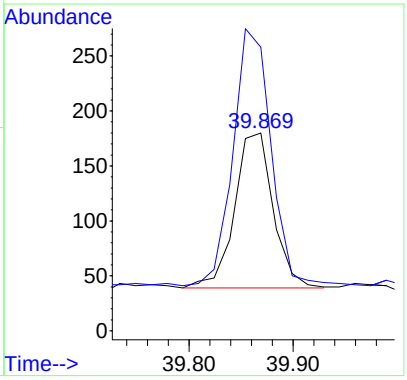


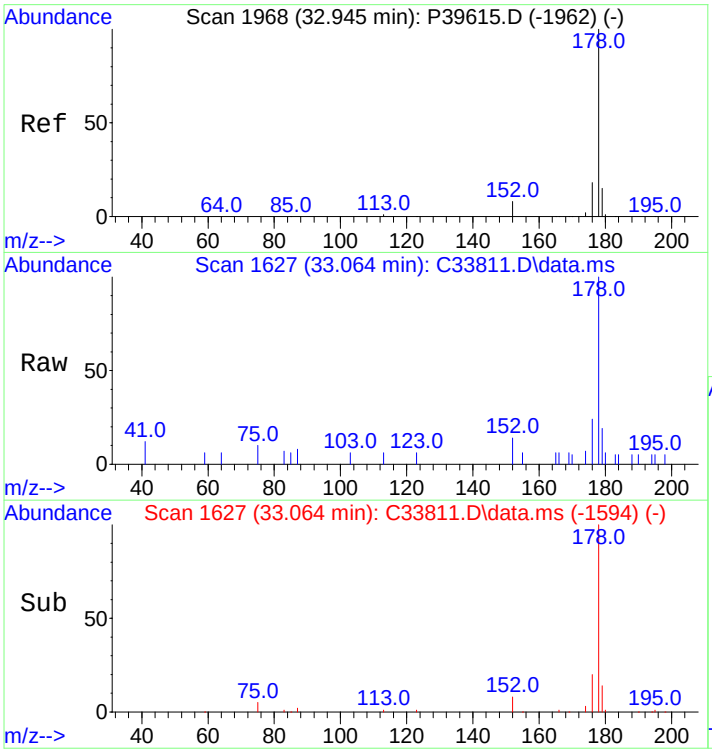


#54
Retene
Concen: 17.04 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 367

Ion	Ratio	Lower	Upper
234	100		
219	162.4	136.6	204.8

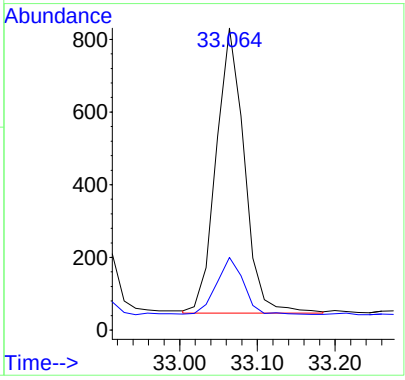


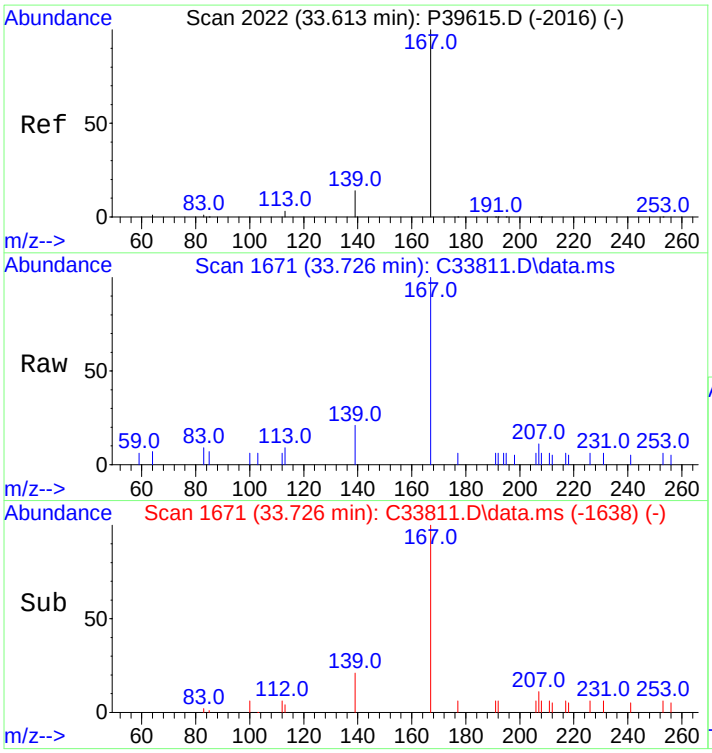


#55
Anthracene
Concen: 27.61 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 1981

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.4	23.0

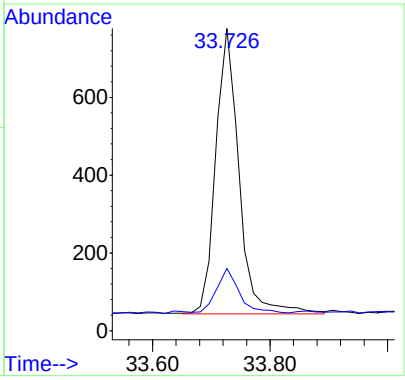


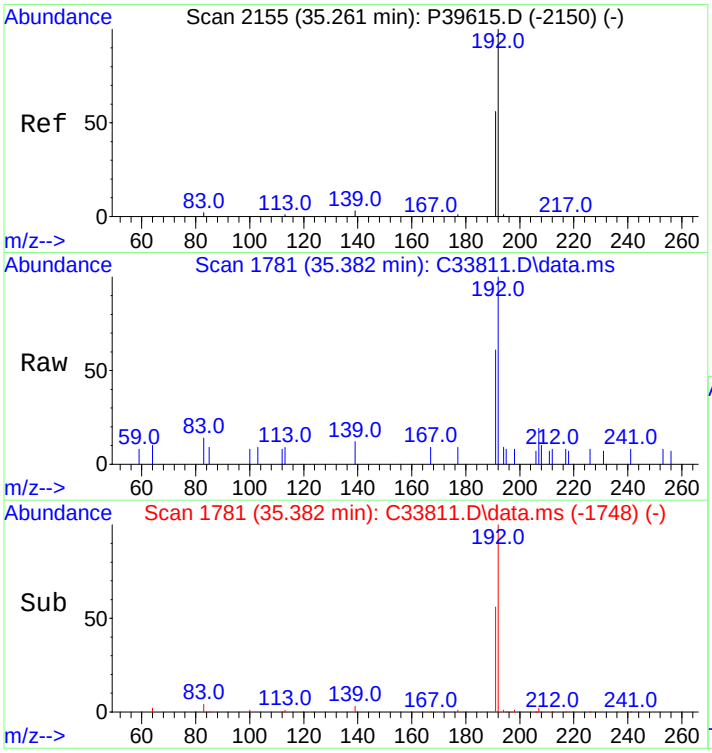


#56
Carbazole
Concen: 30.72 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:167 Resp: 2025

Ion	Ratio	Lower	Upper
167	100		
139	20.3	11.6	17.4#

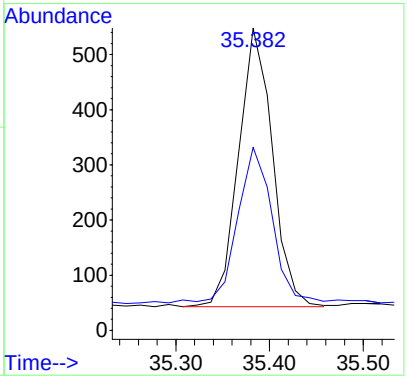


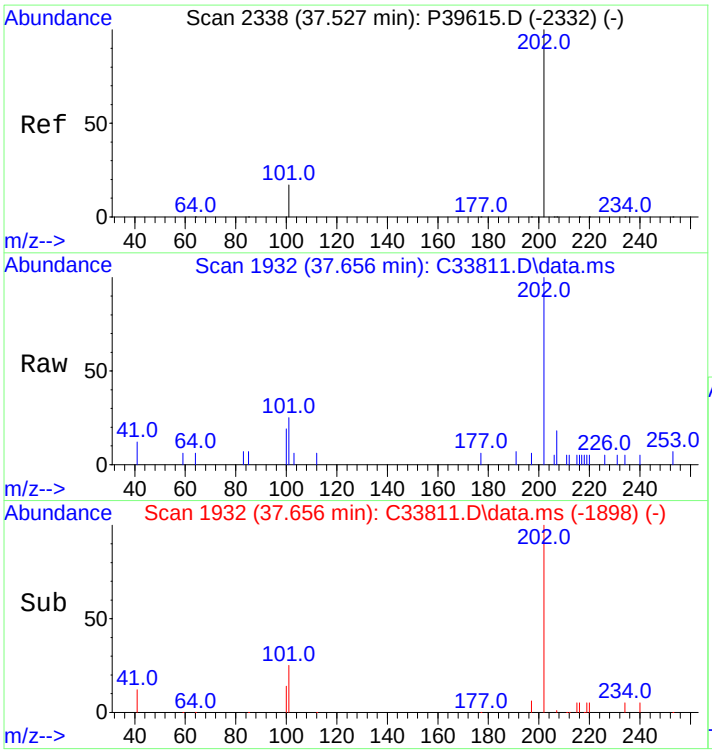


#57
1-Methylphenanthrene
Concen: 22.44 ng/mL
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:192 Resp: 1272

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.3	67.9

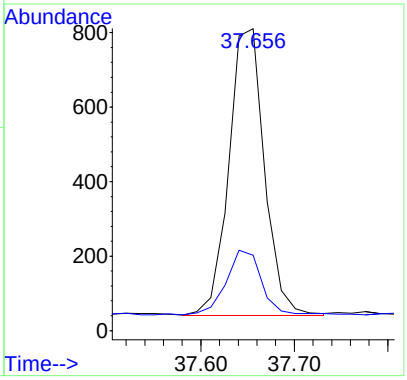


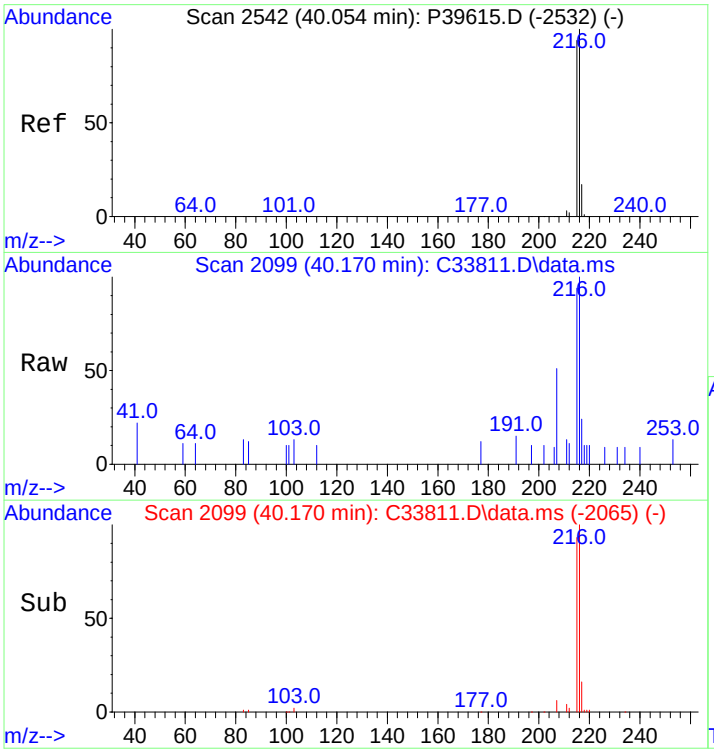


#58
Fluoranthene
Concen: 22.73 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2036

Ion	Ratio	Lower	Upper
202	100		
101	30.1	19.1	28.7#

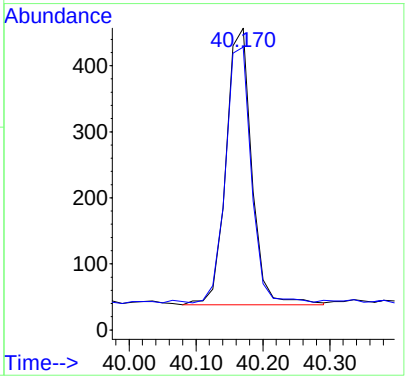


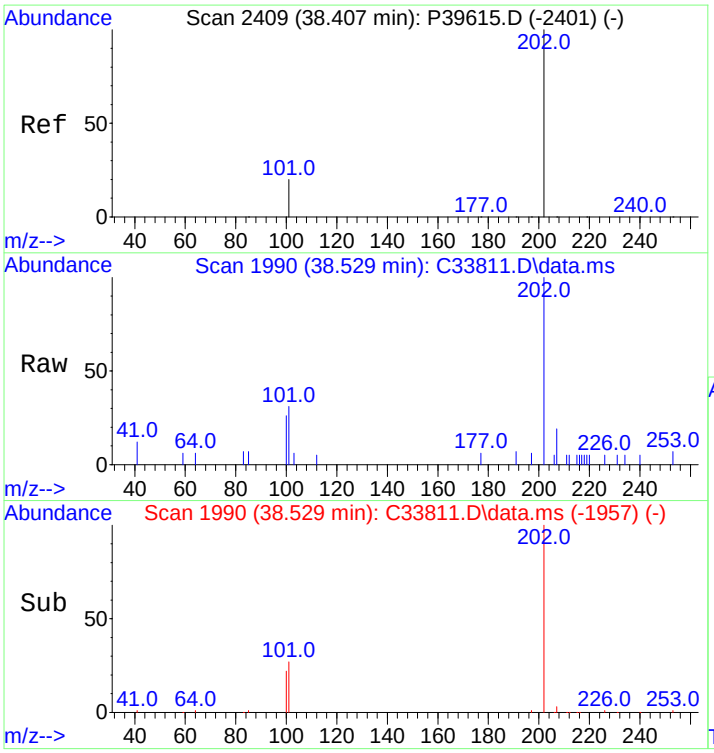


#59
Benzo(b)fluorene
Concen: 19.22 ng/mL
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:216 Resp: 1124

Ion	Ratio	Lower	Upper
216	100		
215	92.1	77.4	116.2

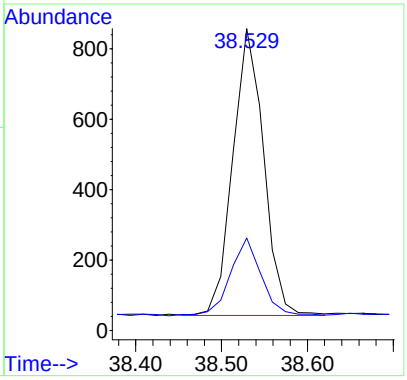


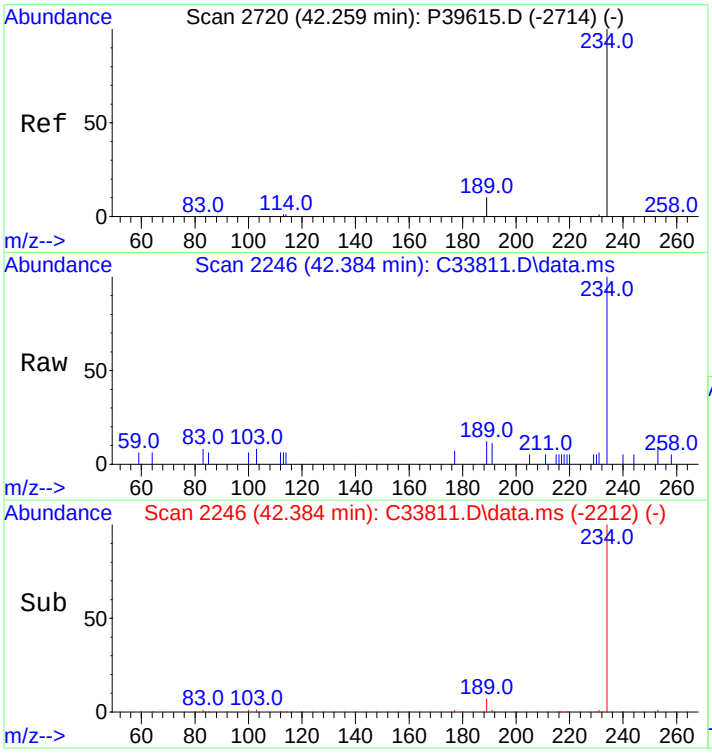


#60
Pyrene
Concen: 22.12 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2032

Ion	Ratio	Lower	Upper
202	100		
101	27.4	20.4	30.6

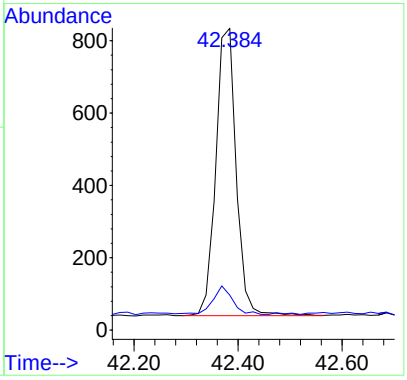


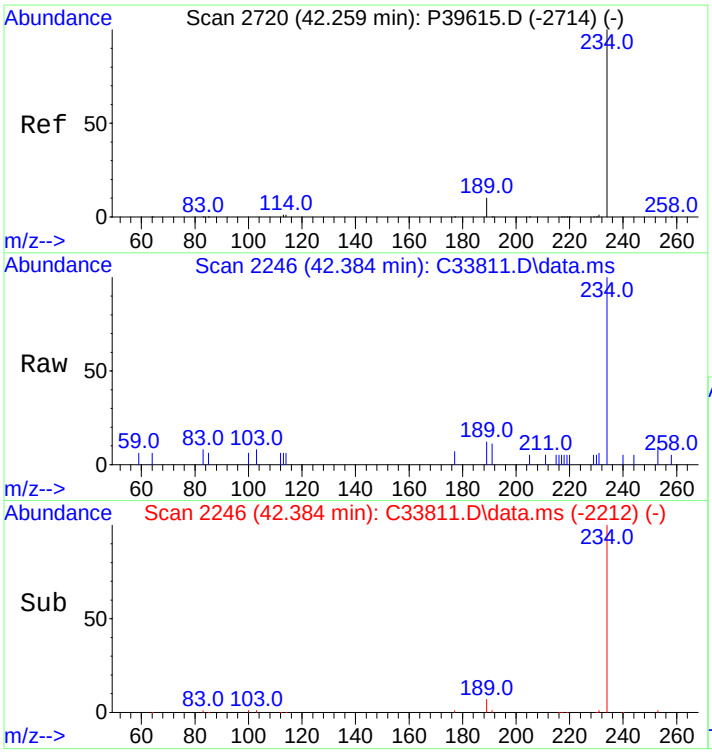


#66
Naphthobenzothiophene
Concen: 22.56 ng/ml
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

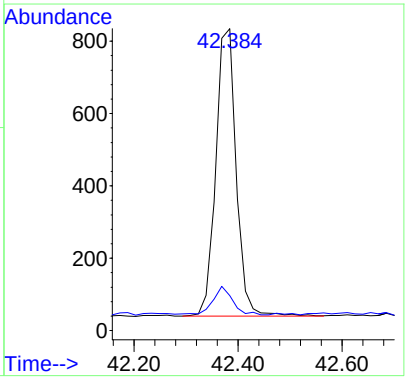


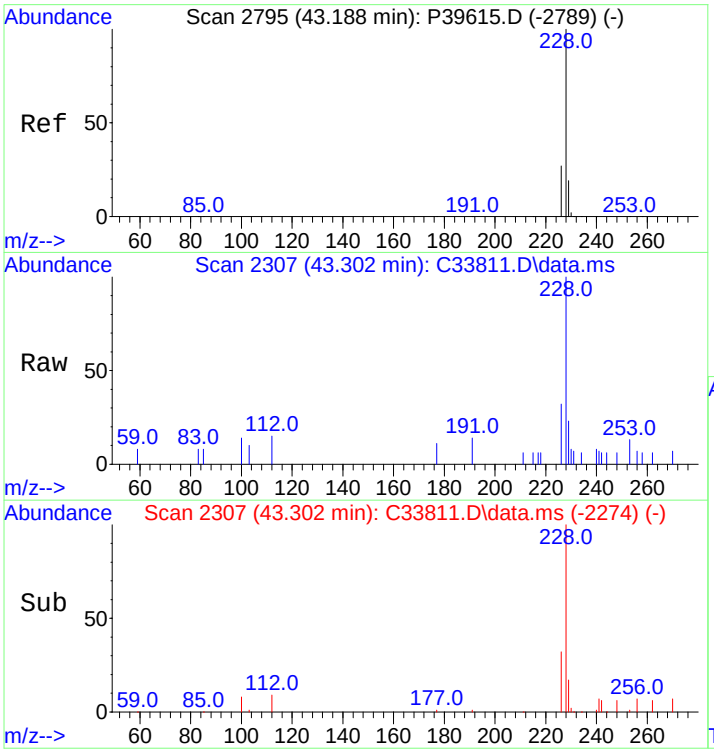


#67
Naphthobenzothiophene-2,1-D
Concen: 22.56 ng/mL
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

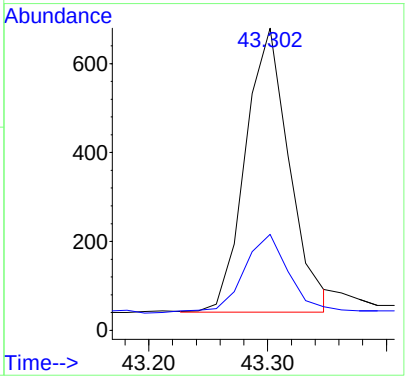


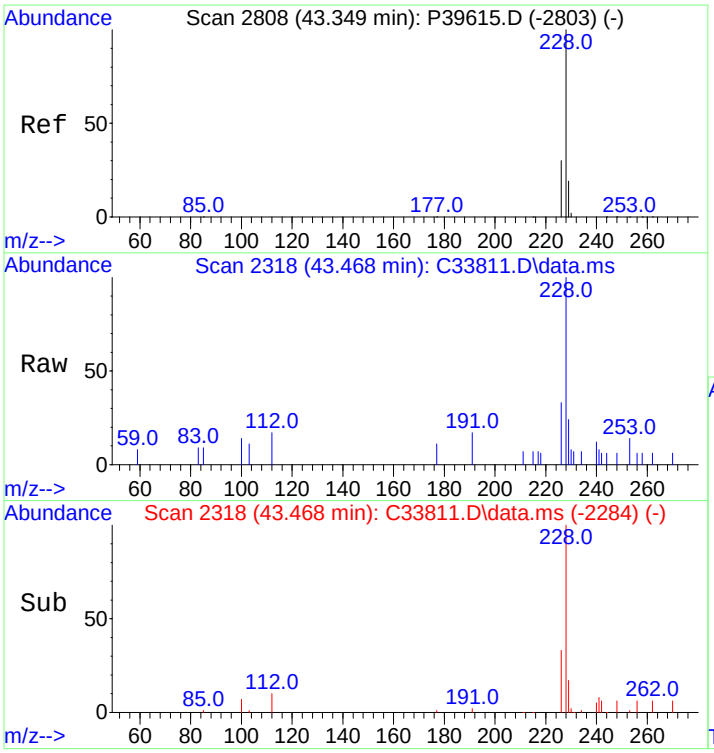


#75
Benz[a]anthracene
Concen: 25.30 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1642

Ion	Ratio	Lower	Upper
228	100		
226	38.9	21.8	32.8#

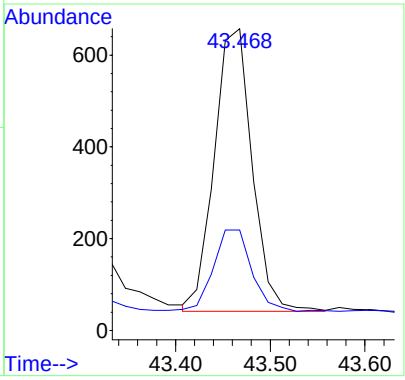


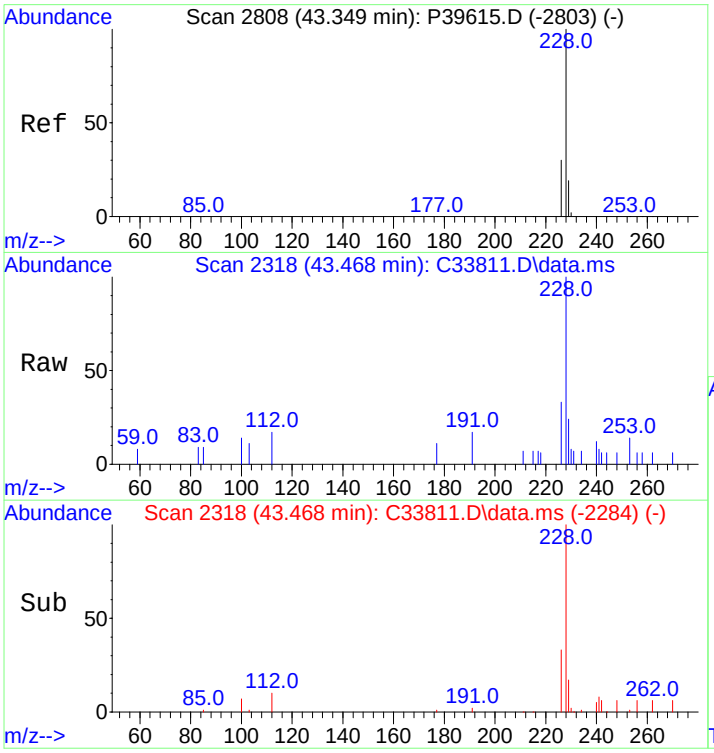


#76
Chrysene
Concen: 26.77 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1712

Ion	Ratio	Lower	Upper
228	100		
226	33.6	24.2	36.4

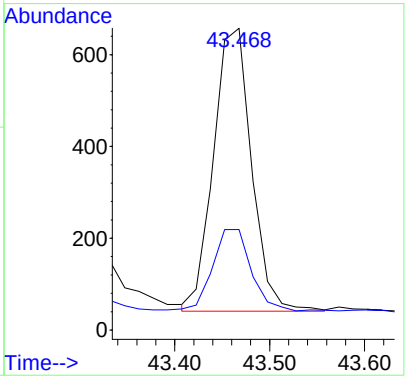


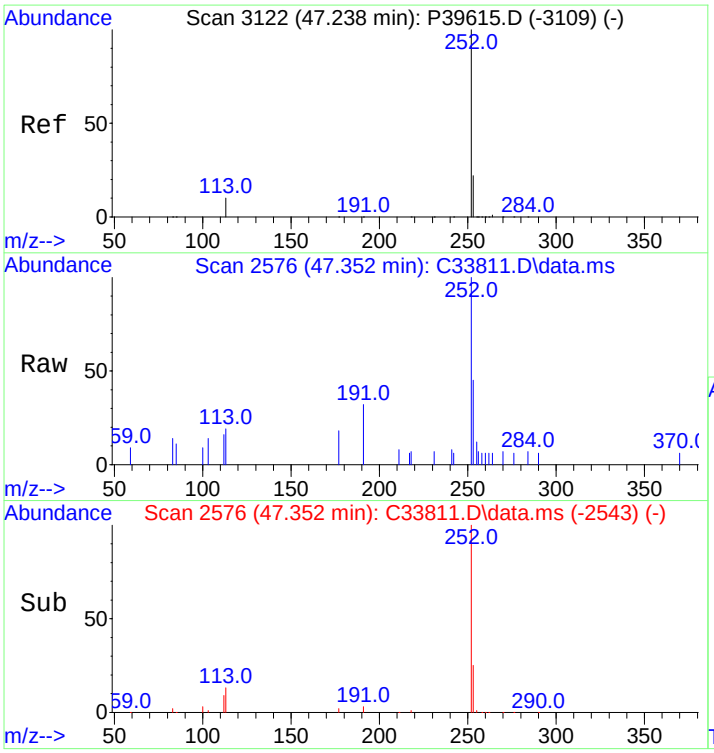


#77
Chrysene/Triphenylene
Concen: 26.91 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1721

Ion	Ratio	Lower	Upper
228	100		
226	33.5	24.2	36.4

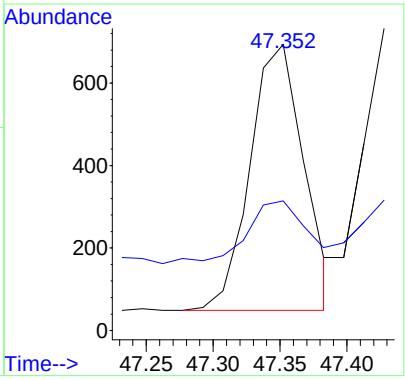


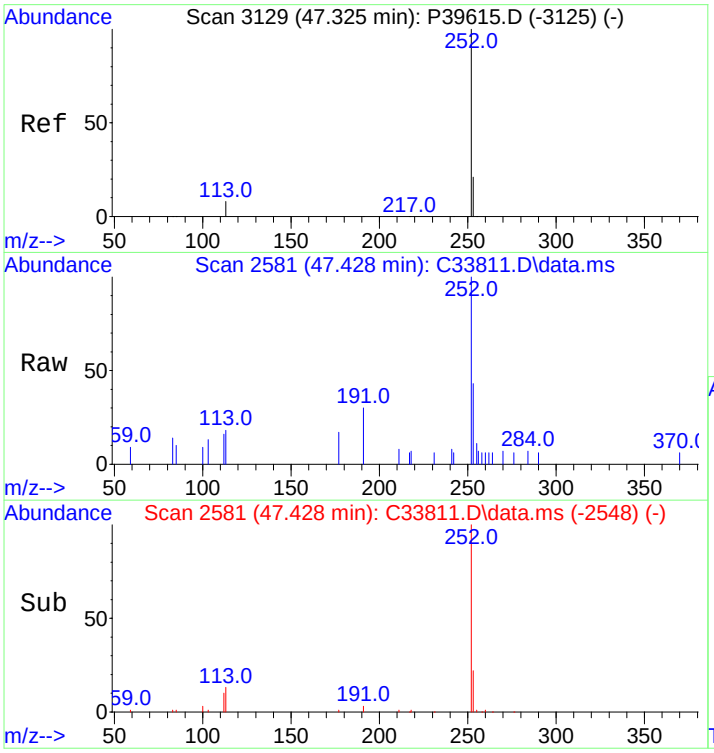


#82
Benzo[b]fluoranthene
Concen: 25.40 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1814

Ion	Ratio	Lower	Upper
252	100		
253	26.0	18.5	27.7

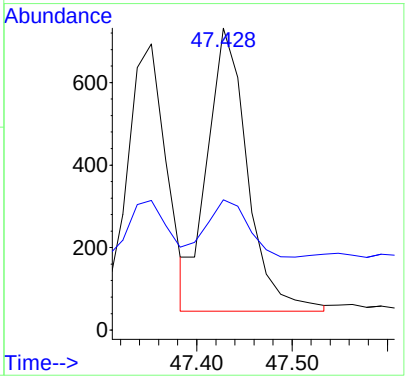


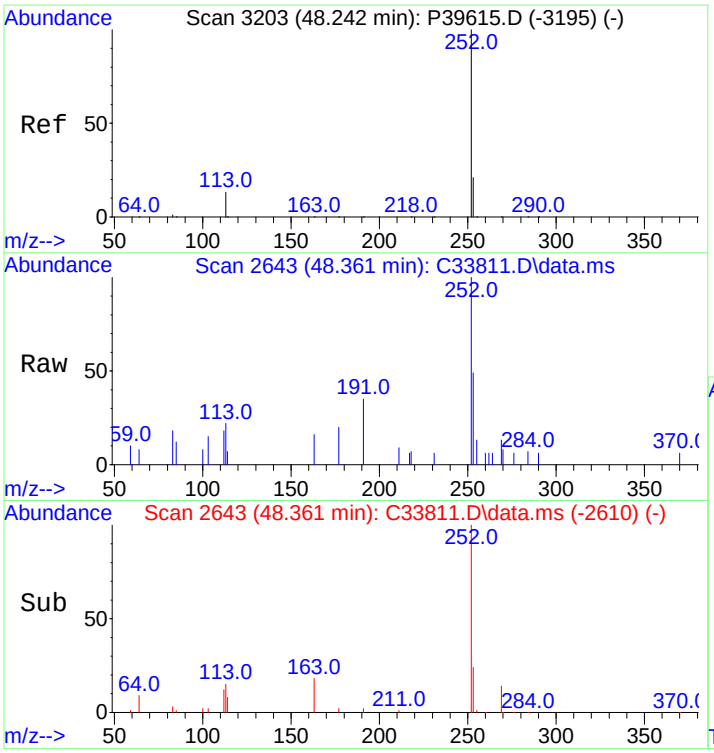


#83
Benzo[j]+[k]fluoranthene
Concen: 26.57 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 2006

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.2	27.4

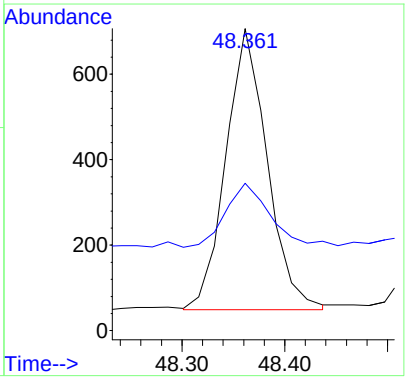


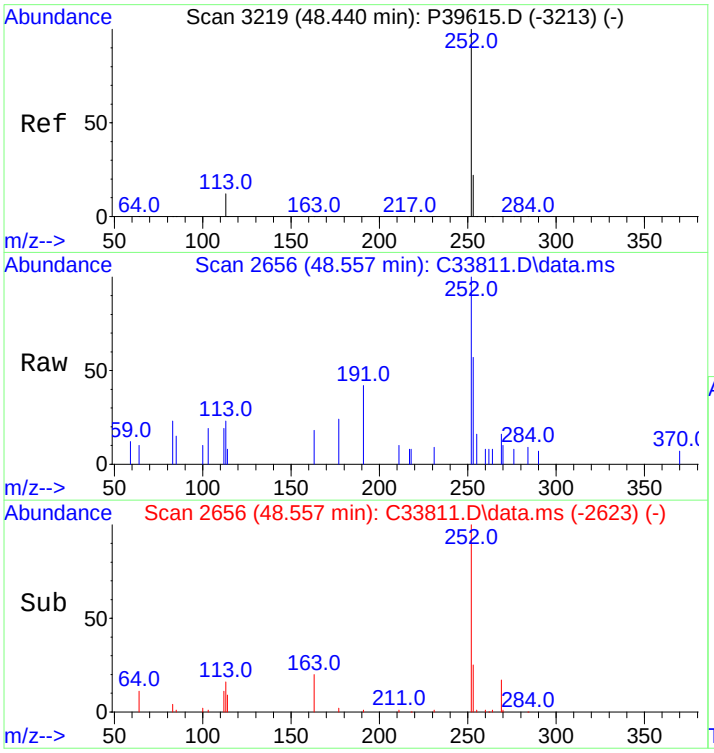


#85
Benzo[e]pyrene
Concen: 26.75 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1839

Ion	Ratio	Lower	Upper
252	100		
253	23.4	18.5	27.7

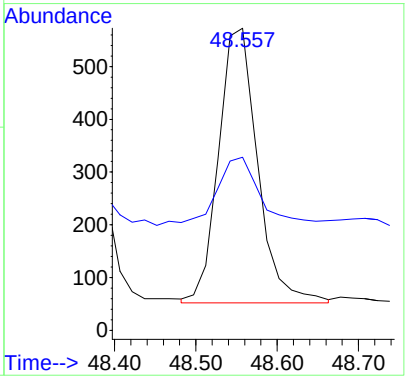


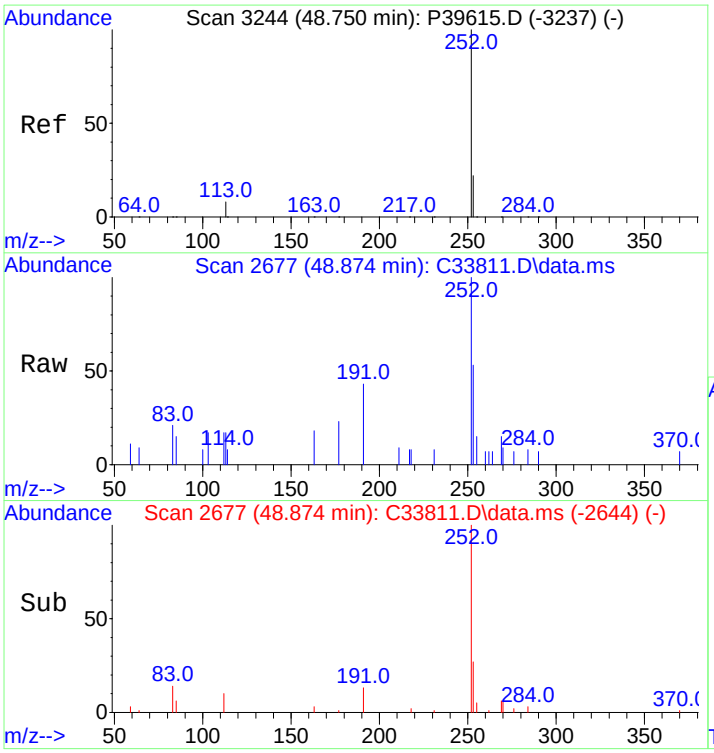


#87
Benzo[a]pyrene
Concen: 26.90 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1738

Ion	Ratio	Lower	Upper
252	100		
253	24.8	18.7	28.1

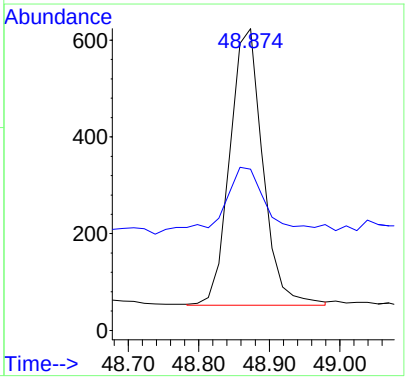


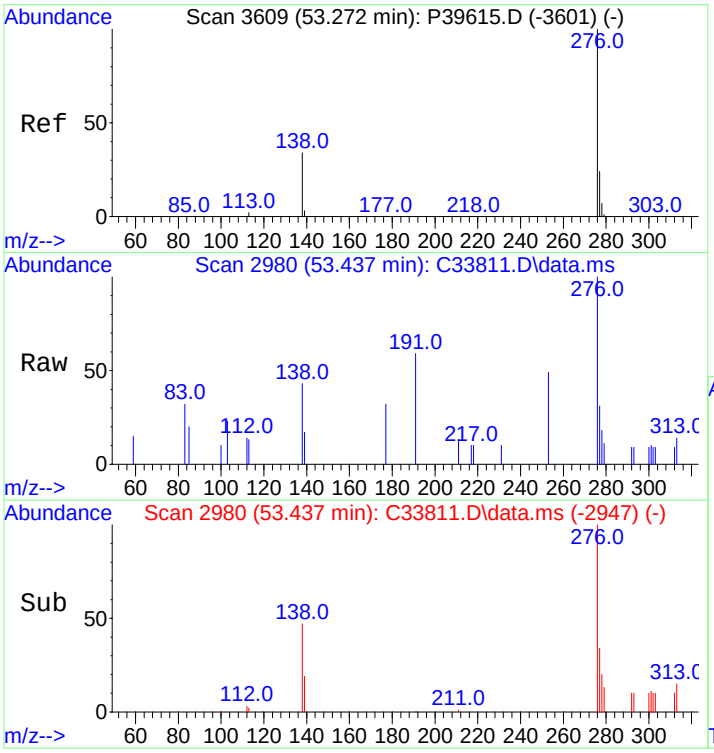


#88
Perylene
Concen: 26.87 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1855

Ion	Ratio	Lower	Upper
252	100		
253	32.9	18.6	27.8#

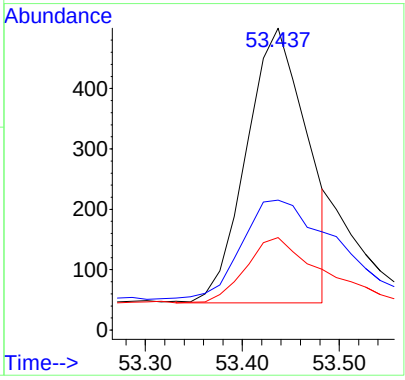


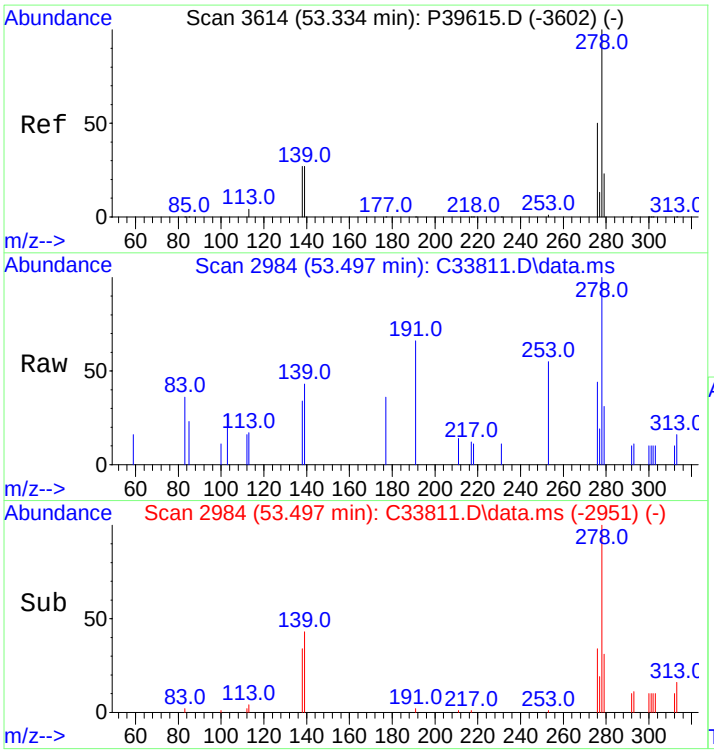


#89
Indeno[1,2,3-cd]pyrene
Concen: 26.59 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 1978

Ion	Ratio	Lower	Upper
276	100		
138	72.9	30.3	45.5#
277	43.5	19.2	28.8#

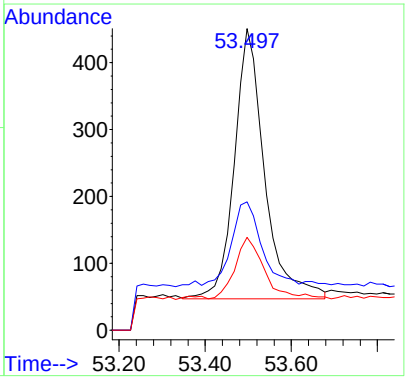


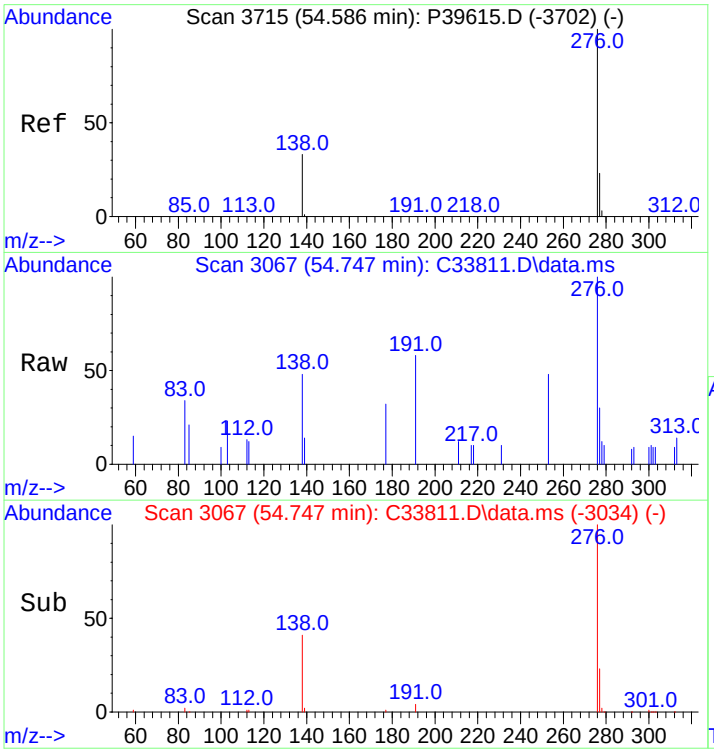


#90
Dibenz[ah]+[ac]anthracene
Concen: 28.23 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:278 Resp: 1974

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	22.0	19.0	28.4

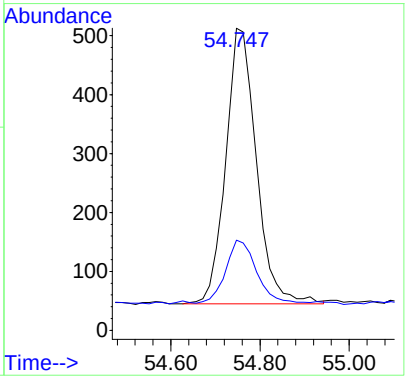


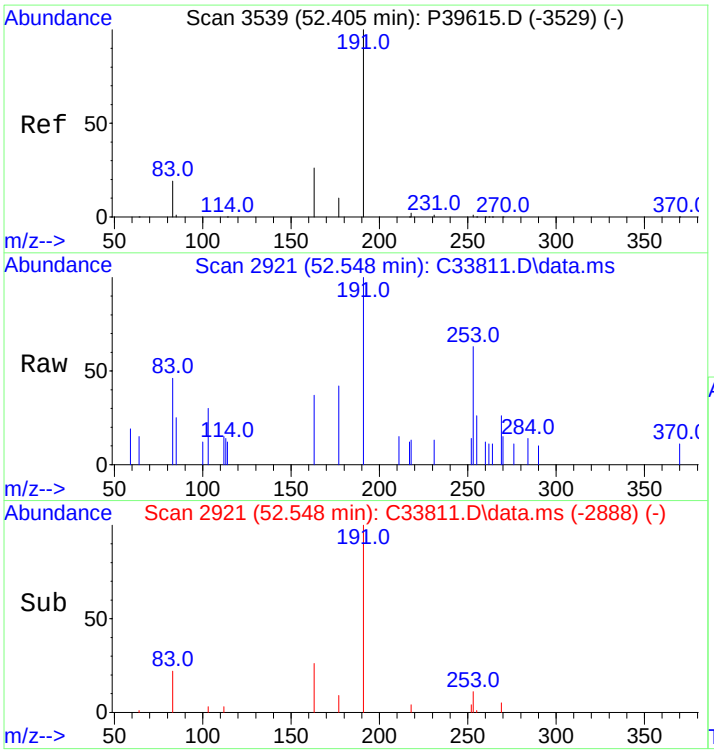


#91
Benzo[g,h,i]perylene
Concen: 29.55 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 2242

Ion	Ratio	Lower	Upper
276	100		
277	22.8	18.9	28.3

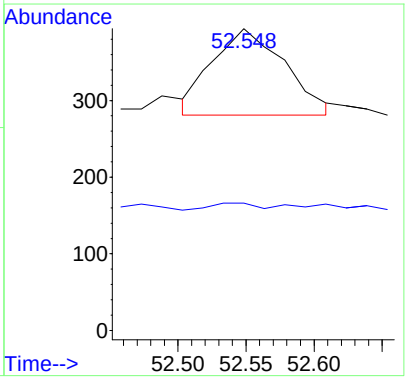


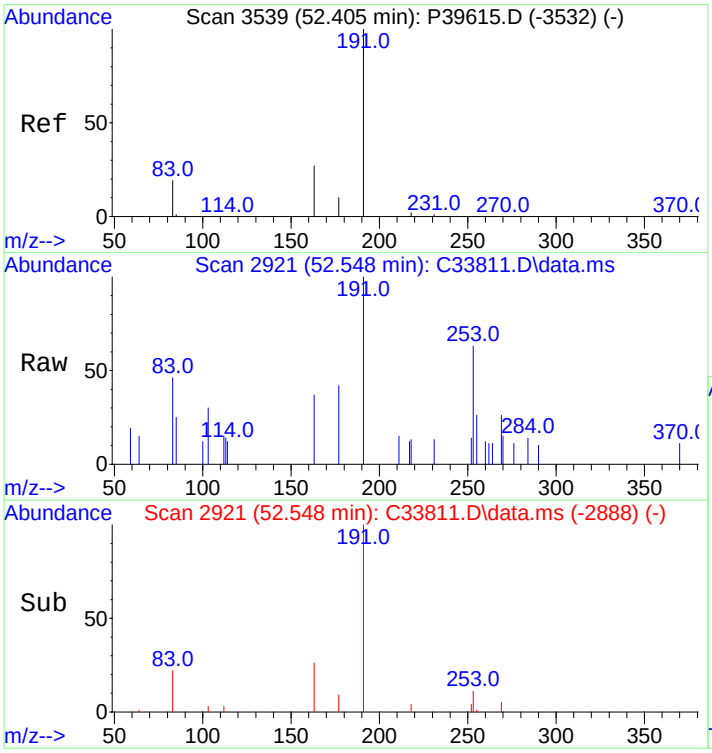


#92
Hopane (T19)
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

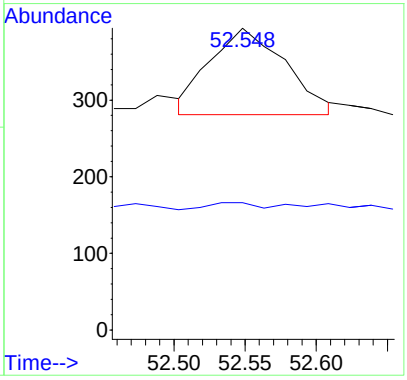




#93
17a(H),21B(H)-hopane - C30H52
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15537M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	7319M4	141.187	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 14.12%#			
42) Phenanthrene-d10	32.793	188	5062	84.198	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.42%#			
86) Benzo[a]pyrene-d12	48.467	264	4202	93.161	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.32%#			
127) 5B(H)Cholane - Surr	43.995	217	631M4	81.342	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.13%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	620M4	57.735	ng/mL	
4) cis-Decalin	17.844	138	504M4	60.153	ng/mL	
10) Naphthalene	20.042	128	10404	186.118	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	152.196	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	154.295	ng/mL#	100
18) Benzothiophene	20.268	134	9155	199.694	ng/mL	100
23) Biphenyl	24.619	154	7515M4	142.687	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	126.219	ng/mL	
25) Dibenzofuran	27.705	168	8558	139.860	ng/mL	97
26) Acenaphthylene	26.320	152	9725	154.202	ng/mL#	100
27) Acenaphthene	27.057	153	5791	144.616	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.608	170	3646	104.103	ng/mL	95
29) Fluorene	29.075	166	6206M4	124.533	ng/mL	
33) Dibenzothiophene	32.387	184	10032	133.305	ng/mL	99
43) Phenanthrene	32.883	178	8659M4	114.513	ng/mL	
54) Retene	39.854	234	1461	66.445	ng/mL	100
55) Anthracene	33.064	178	8493M4	115.924	ng/mL	
56) Carbazole	33.726	167	8375M4	124.456	ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	94.334	ng/mL	
58) Fluoranthene	37.641	202	8404M4	91.914	ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	75.841	ng/mL	100
60) Pyrene	38.529	202	8523M4	90.883	ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.002	ng/ml	
67) Naphthobenzothiophene-2,1	42.369	234	8849M4	90.298	ng/mL	
75) Benz[a]anthracene	43.302	228	6862	103.126	ng/mL	100
76) Chrysene	43.453	228	7256M4	110.681	ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	111.032	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	98.558	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	105.654	ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	104.988	ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	104.793	ng/mL	
88) Perylene	48.859	252	7398M4	104.535	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	102.985	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	107.318	ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	112.266	ng/mL	99
92) Hopane (T19)	52.548	191	1398	113.786	ng/mL	99
93) 17a(H),21B(H)-hopane - C3	52.548	191	1398	113.786	ng/mL	99

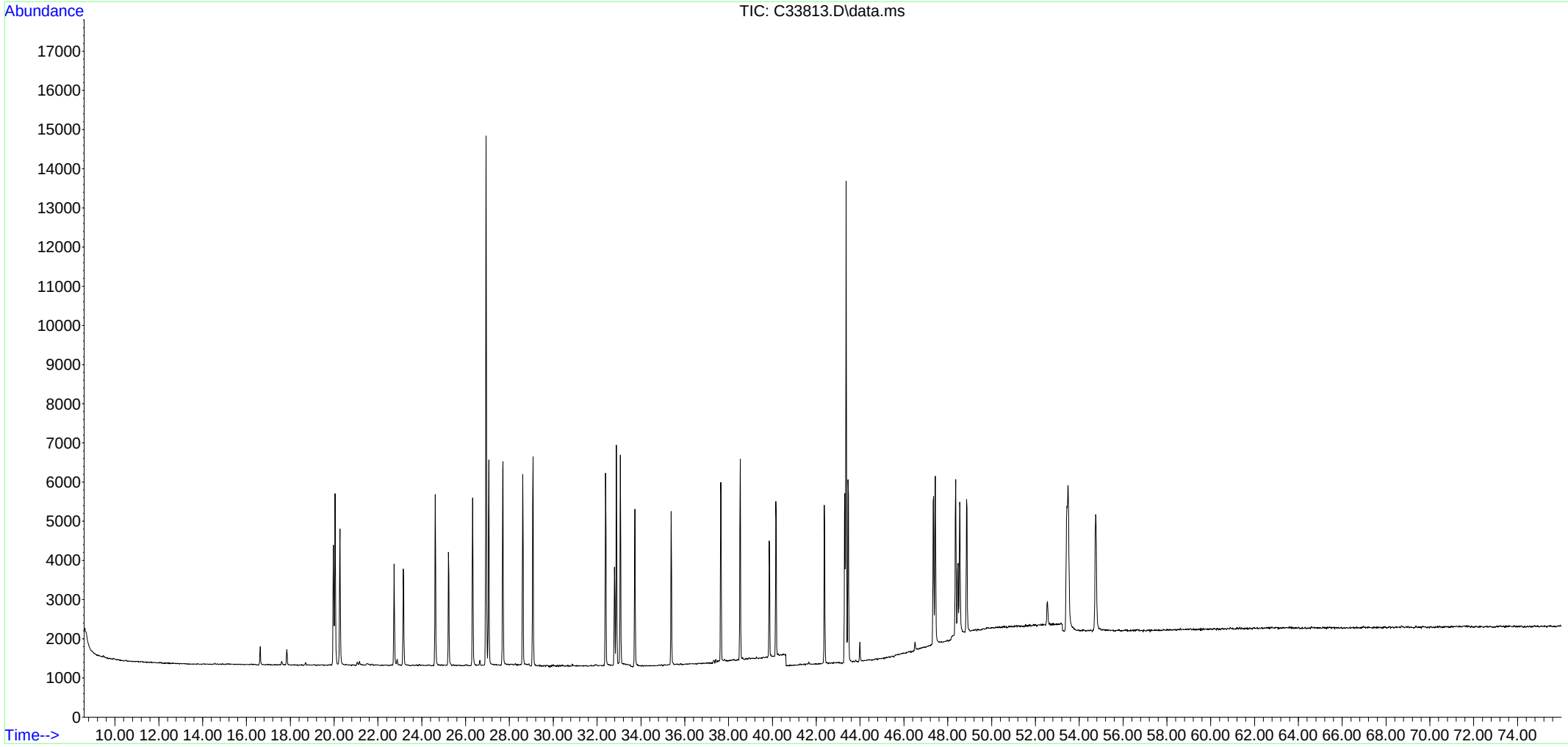
(#) = qualifier out of range (m) = manual integration (+) = signals summed

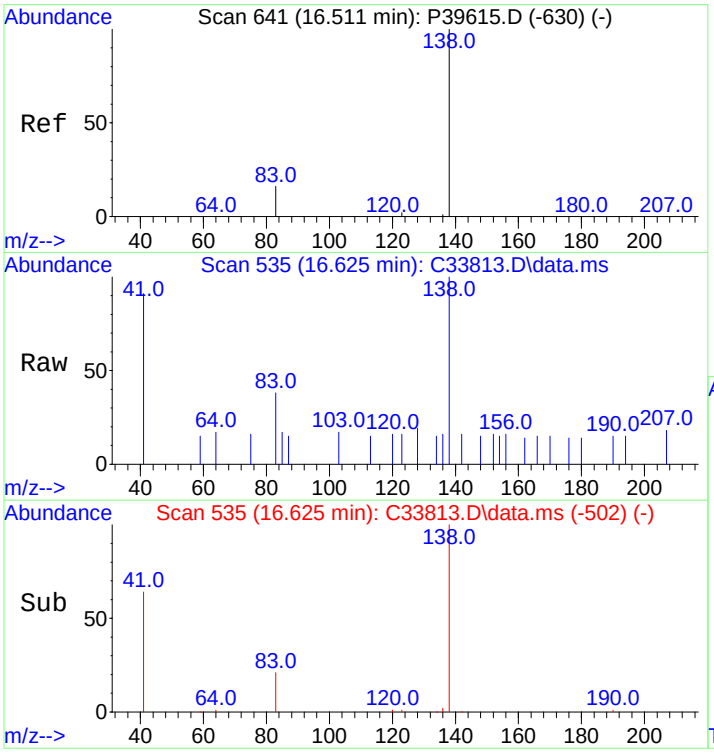
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

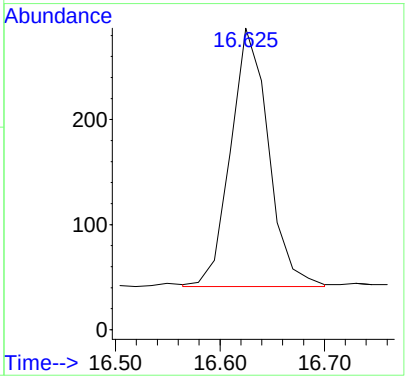
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

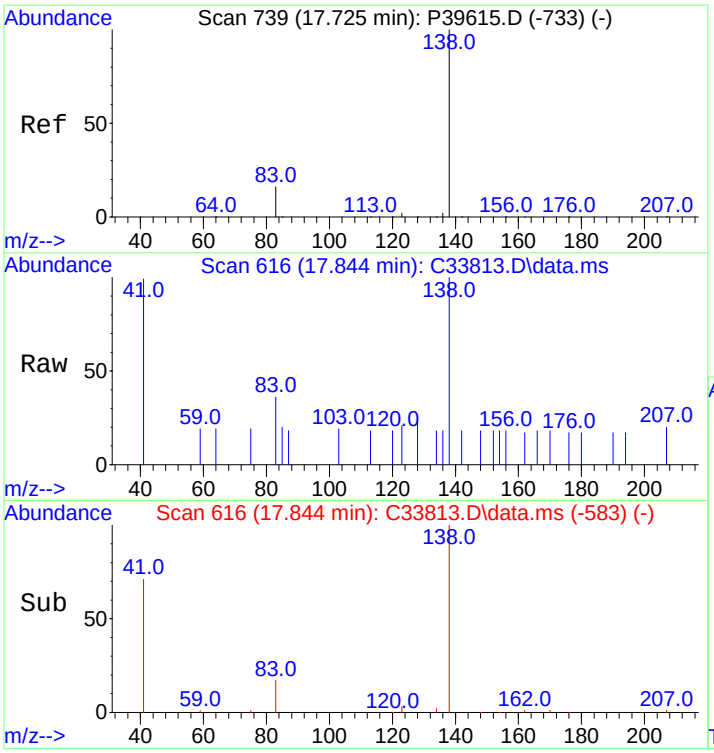




#3
trans-Decalin
Concen: 57.73 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

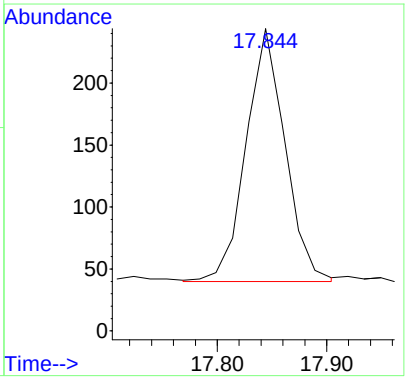
Tgt Ion:138 Resp: 620

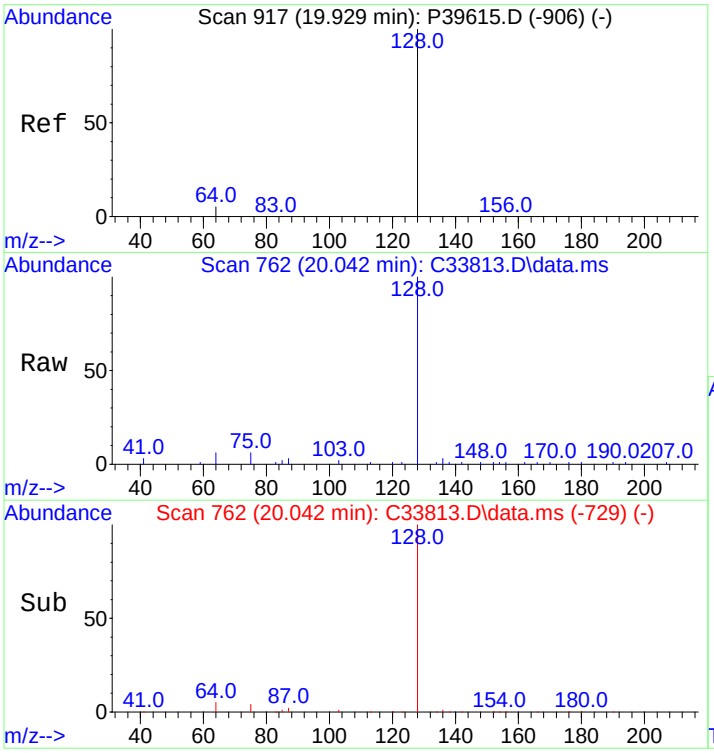




#4
cis-Decalin
Concen: 60.15 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:138 Resp: 504

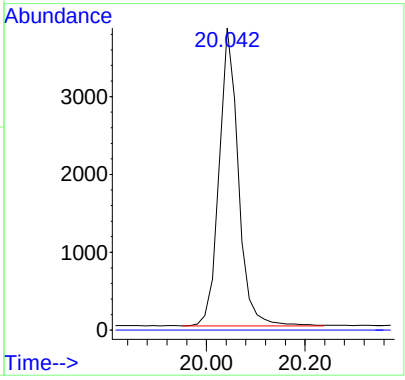


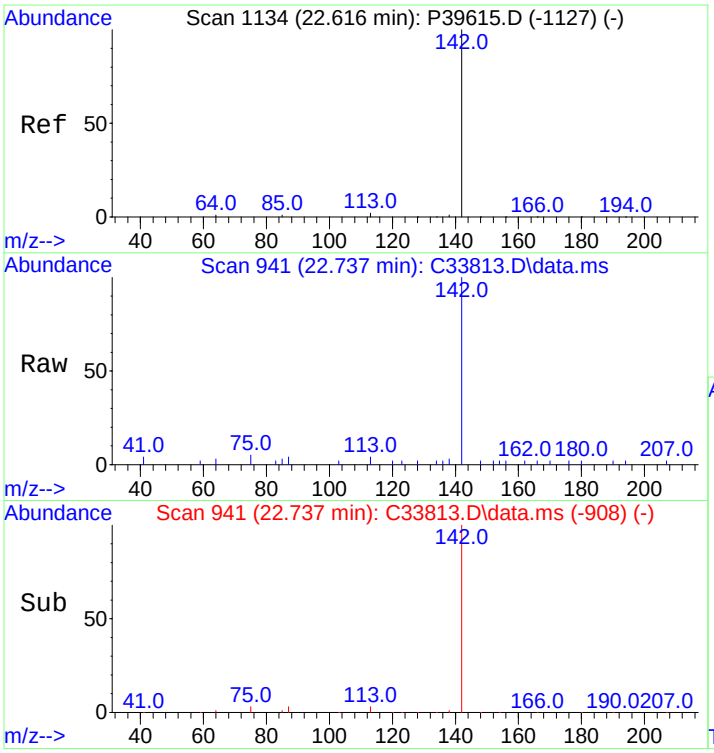


#10
Naphthalene
Concen: 186.12 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:128 Resp: 10404

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

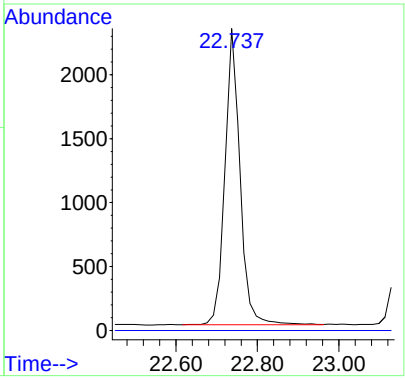


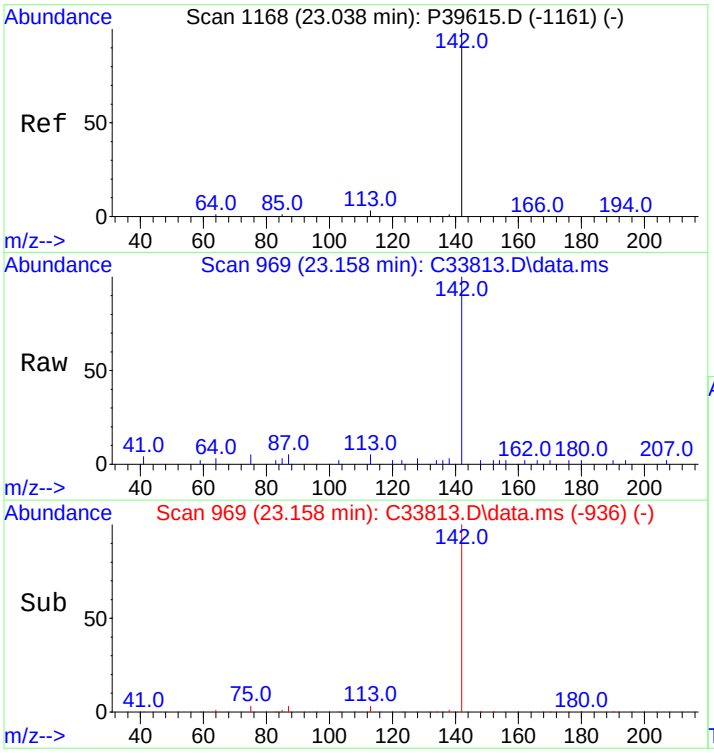


#16
2-Methylnaphthalene
Concen: 152.20 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 6007

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

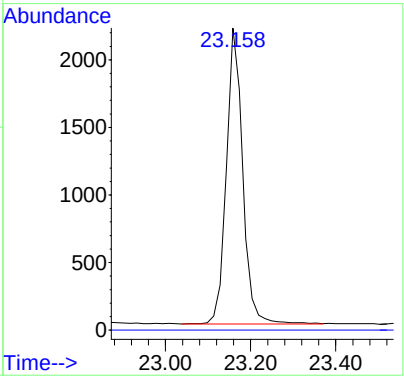


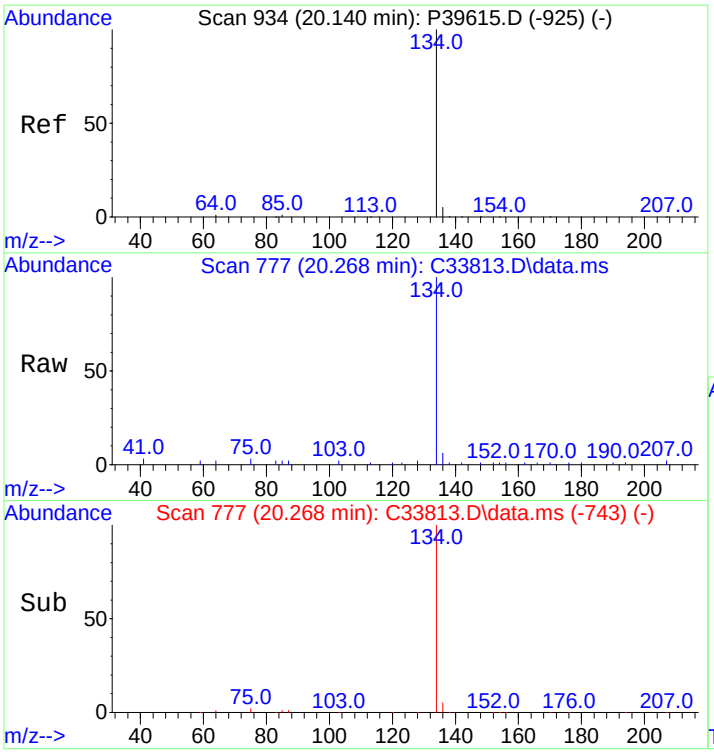


#17
1-Methylnaphthalene
Concen: 154.29 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 5841

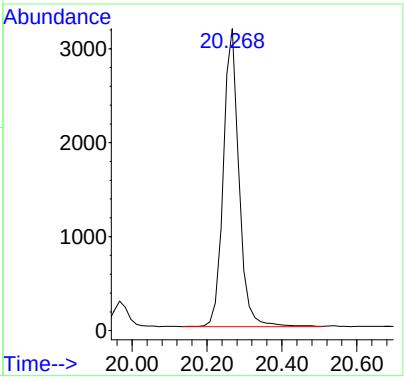
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

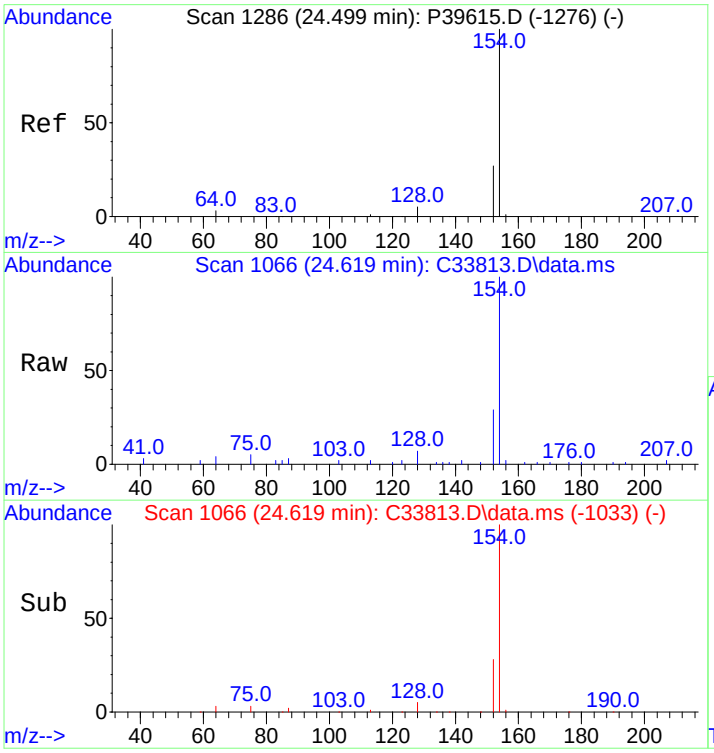




#18
Benzothiophene
Concen: 199.69 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:134 Resp: 9155

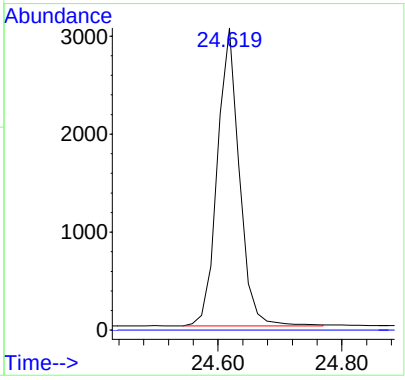


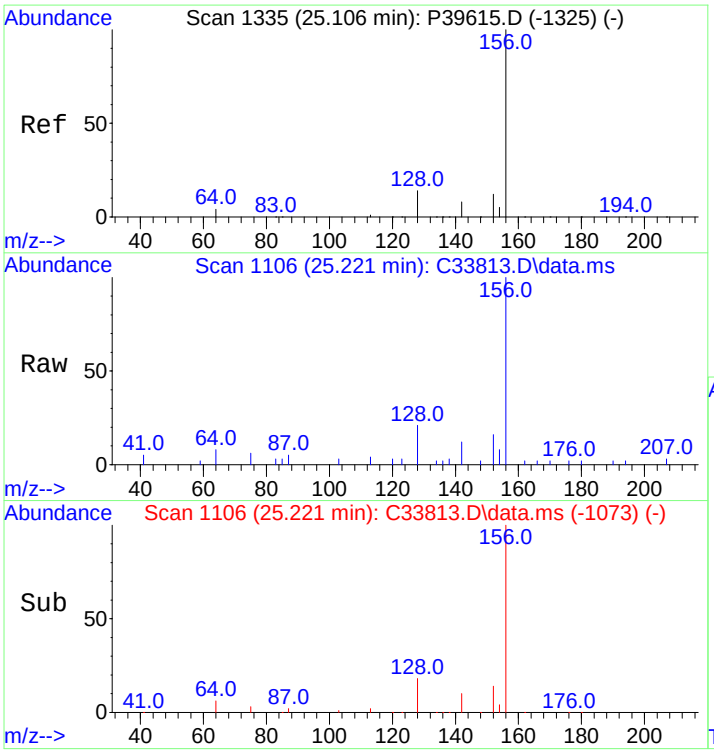


#23
Biphenyl
Concen: 142.69 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:154 Resp: 7515

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

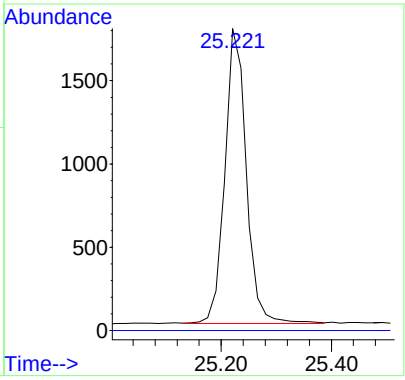


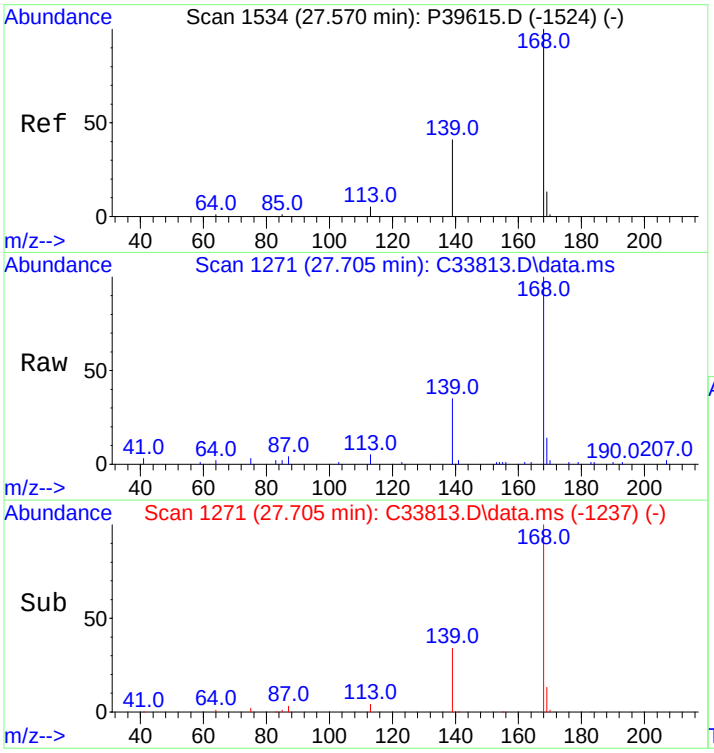


#24
2,6-Dimethylnaphthalene
Concen: 126.22 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:156 Resp: 4739

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

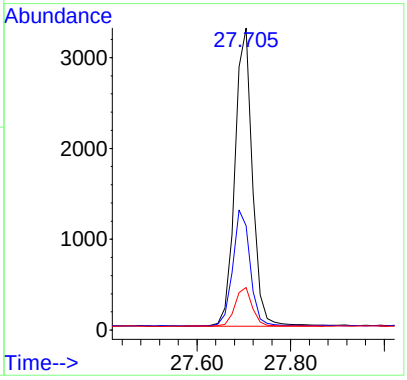


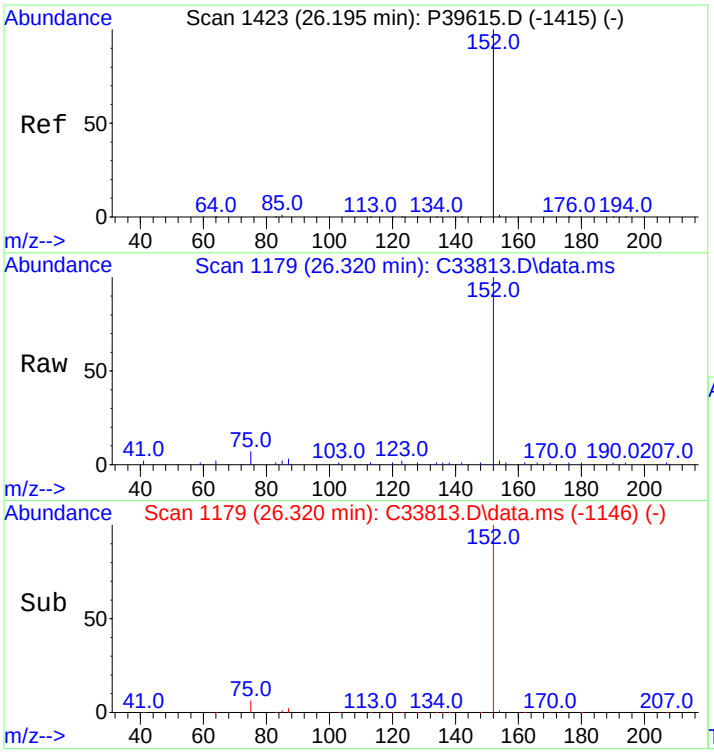


#25
Dibenzofuran
Concen: 139.86 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:168 Resp: 8558

Ion	Ratio	Lower	Upper
168	100		
139	38.6	32.9	49.3
169	12.9	10.6	16.0

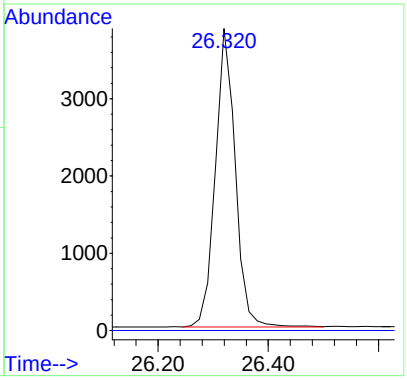


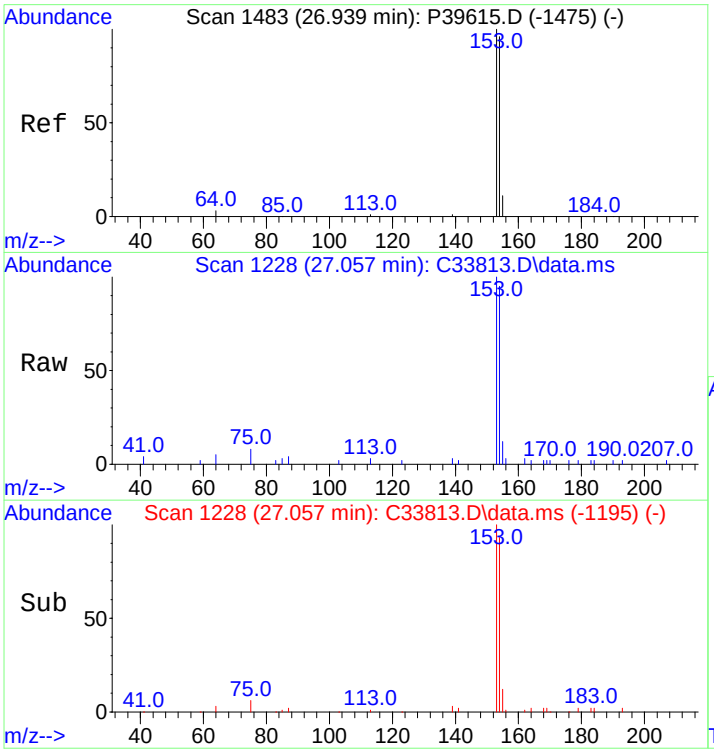


#26
Acenaphthylene
Concen: 154.20 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:152 Resp: 9725

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

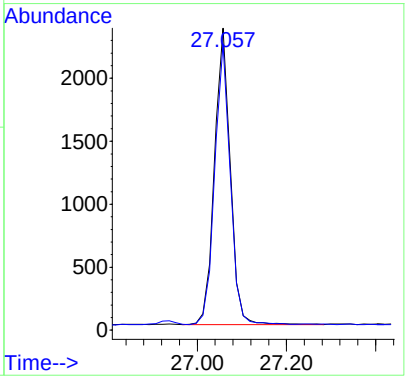


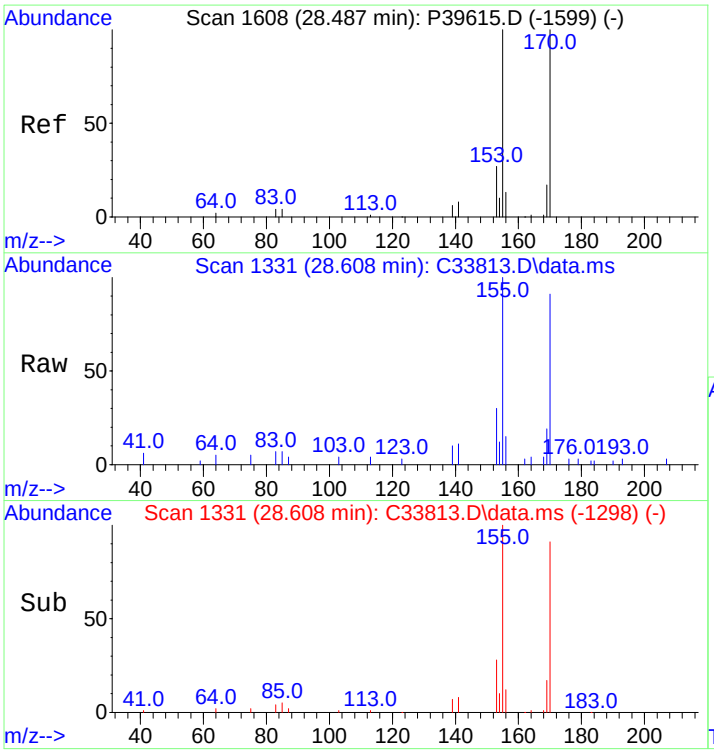


#27
Acenaphthene
Concen: 144.62 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:153 Resp: 5791

Ion	Ratio	Lower	Upper
153	100		
154	93.4	75.0	112.6

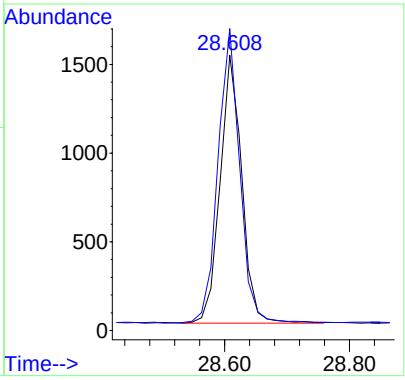


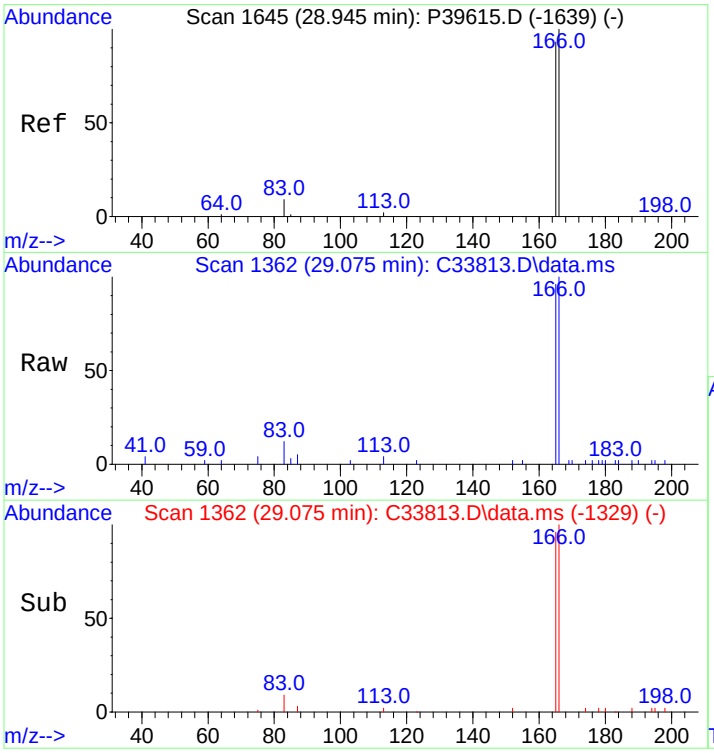


#28
2,3,5-Trimethylnaphthalene
Concen: 104.10 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:170 Resp: 3646

Ion	Ratio	Lower	Upper
170	100		
155	111.0	84.7	127.1

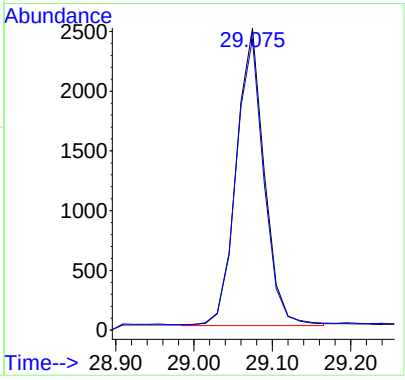


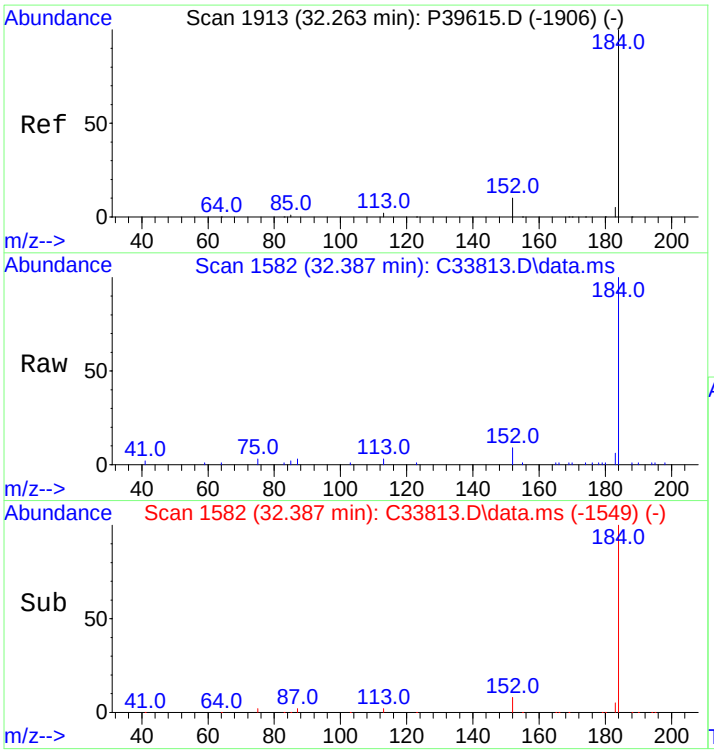


#29
Fluorene
Concen: 124.53 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:166 Resp: 6206

Ion	Ratio	Lower	Upper
166	100		
165	102.0	75.3	112.9

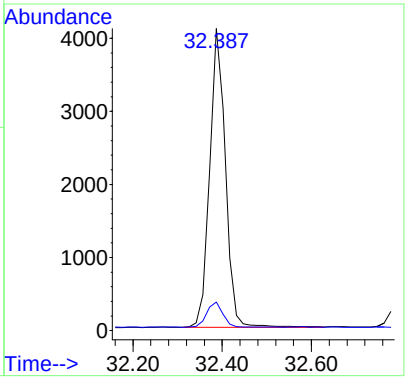


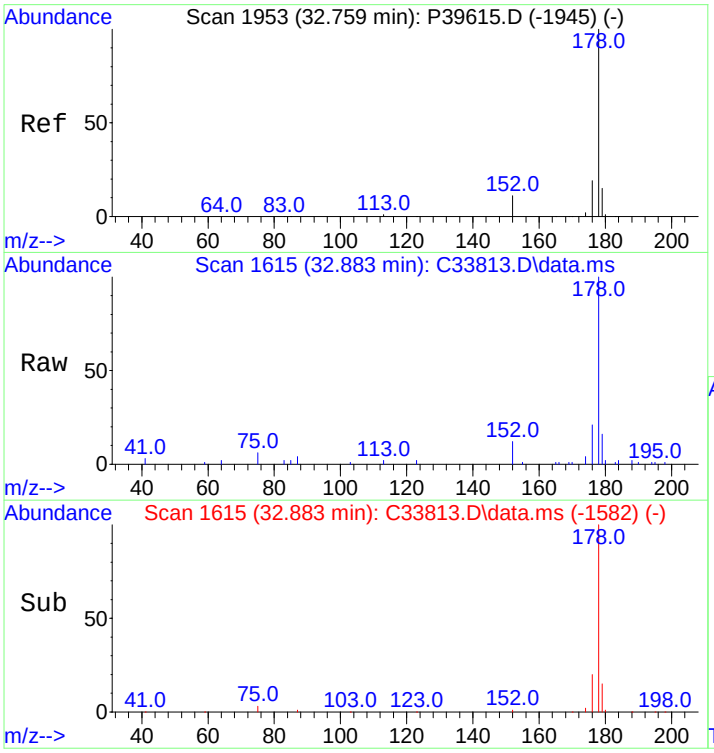


#33
Dibenzothiophene
Concen: 133.30 ng/mL
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:184 Resp: 10032

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

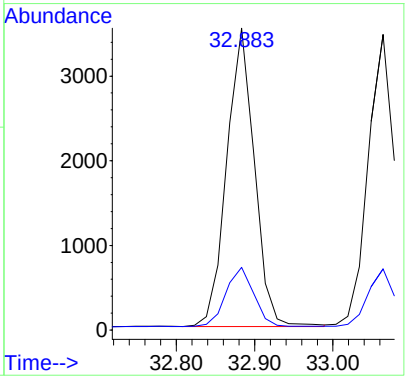


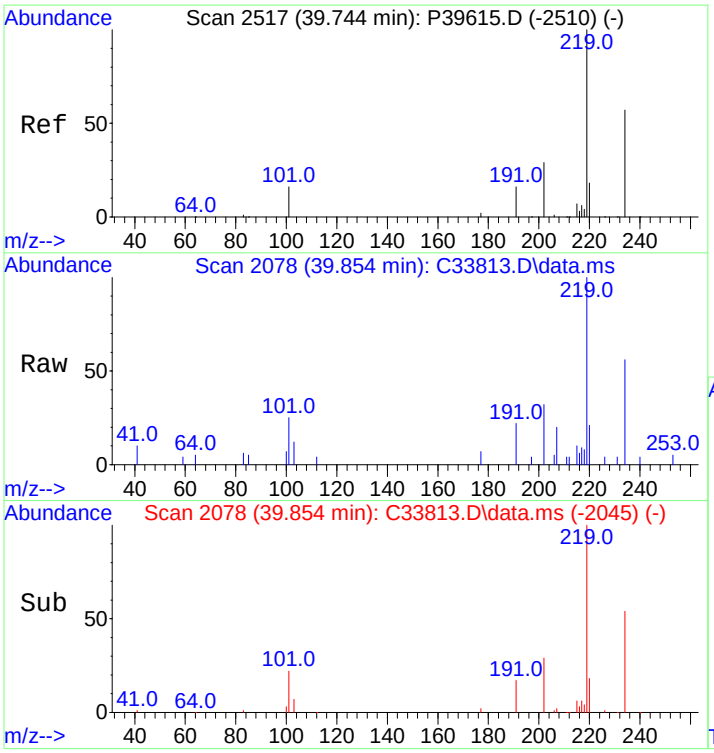


#43
Phenanthrene
Concen: 114.51 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8659

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

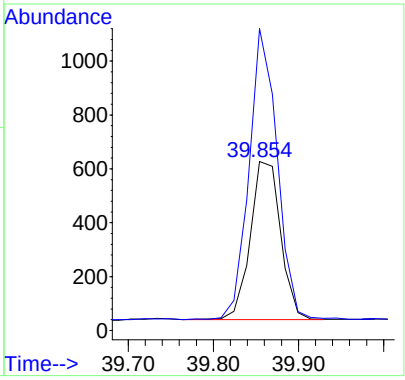


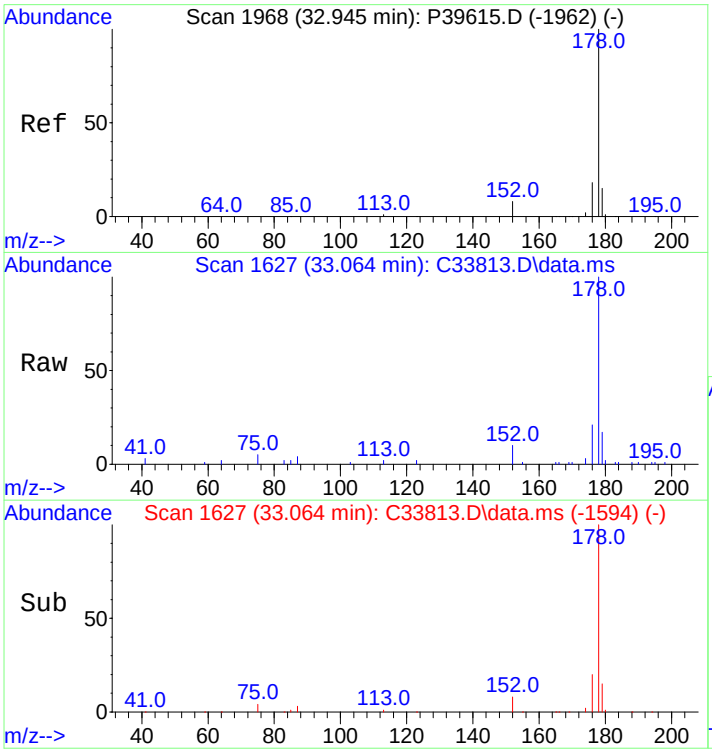


#54
Retene
Concen: 66.45 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 1461

Ion	Ratio	Lower	Upper
234	100		
219	170.7	136.6	204.8

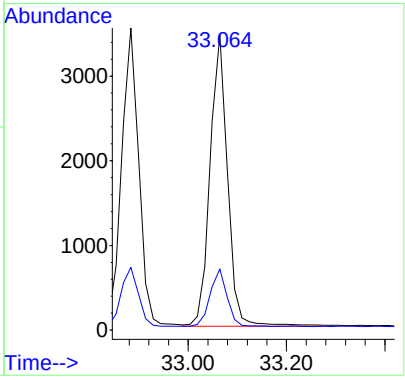


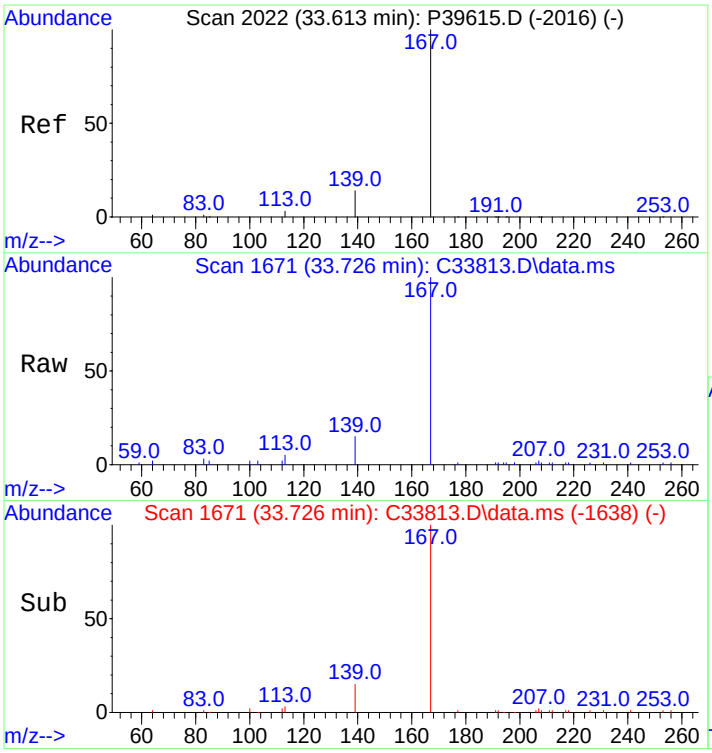


#55
Anthracene
Concen: 115.92 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8493

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

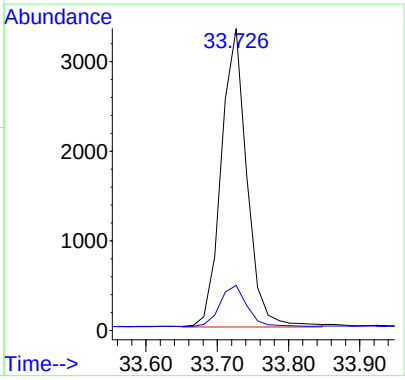


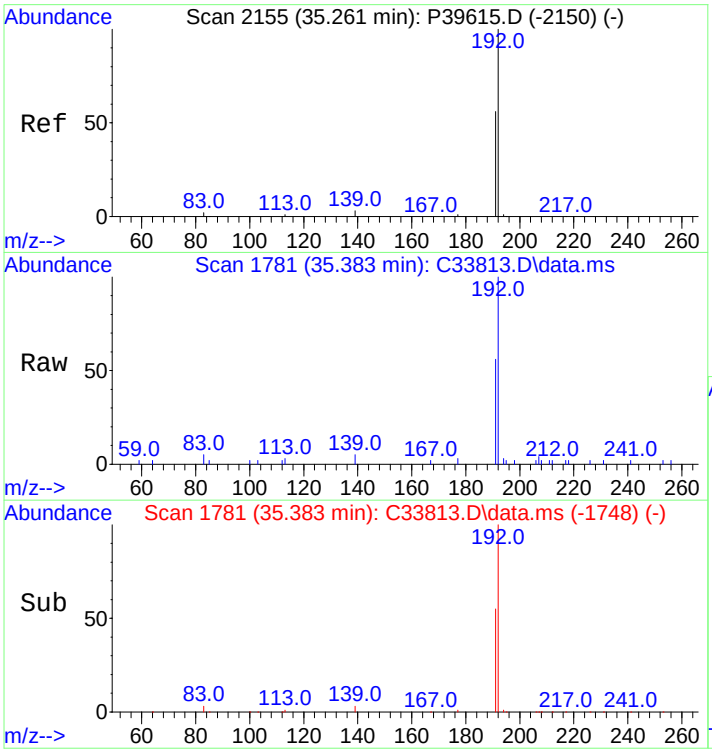


#56
Carbazole
Concen: 124.46 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:167 Resp: 8375

Ion	Ratio	Lower	Upper
167	100		
139	16.0	11.6	17.4

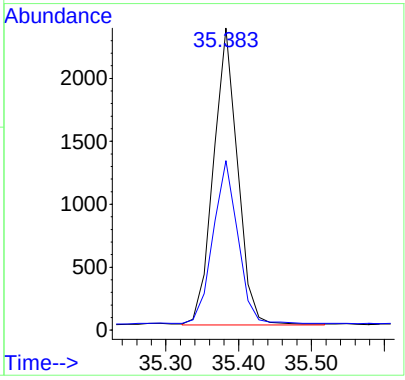


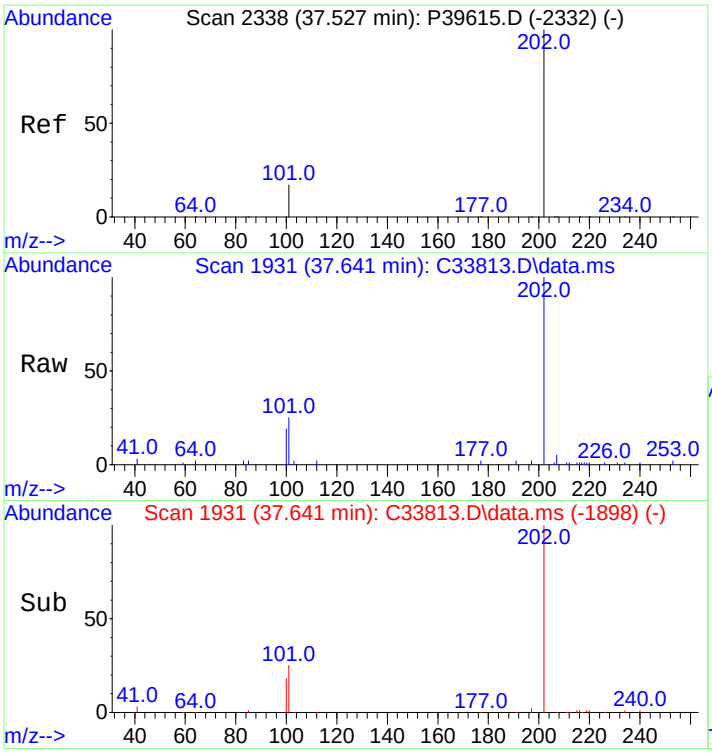


#57
1-Methylphenanthrene
Concen: 94.33 ng/mL m
RT: 35.383 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:192 Resp: 5460

Ion	Ratio	Lower	Upper
192	100		
191	56.4	45.3	67.9

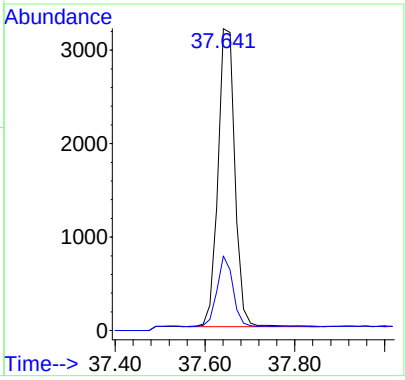


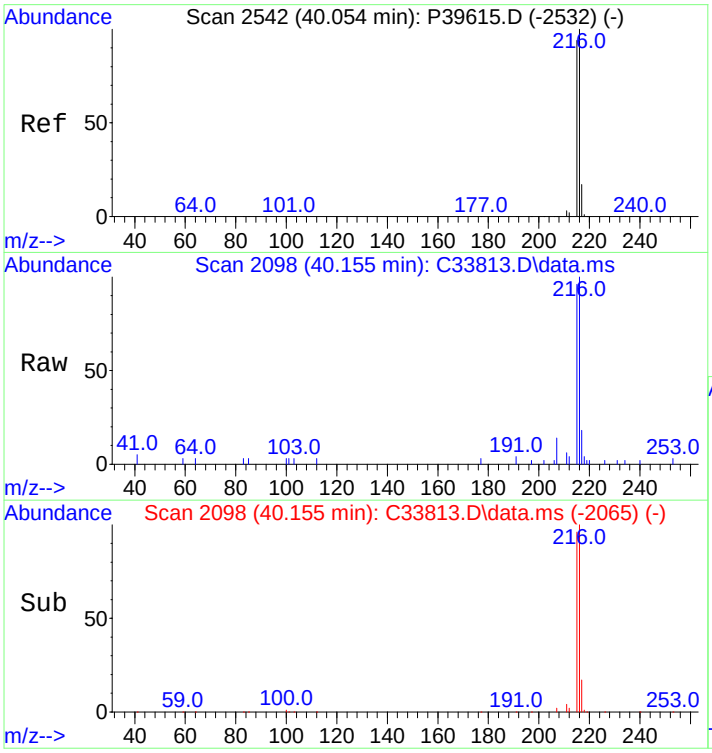


#58
Fluoranthene
Concen: 91.91 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8404

Ion	Ratio	Lower	Upper
202	100		
101	24.0	19.1	28.7

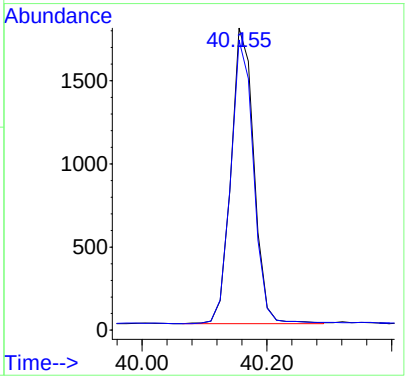


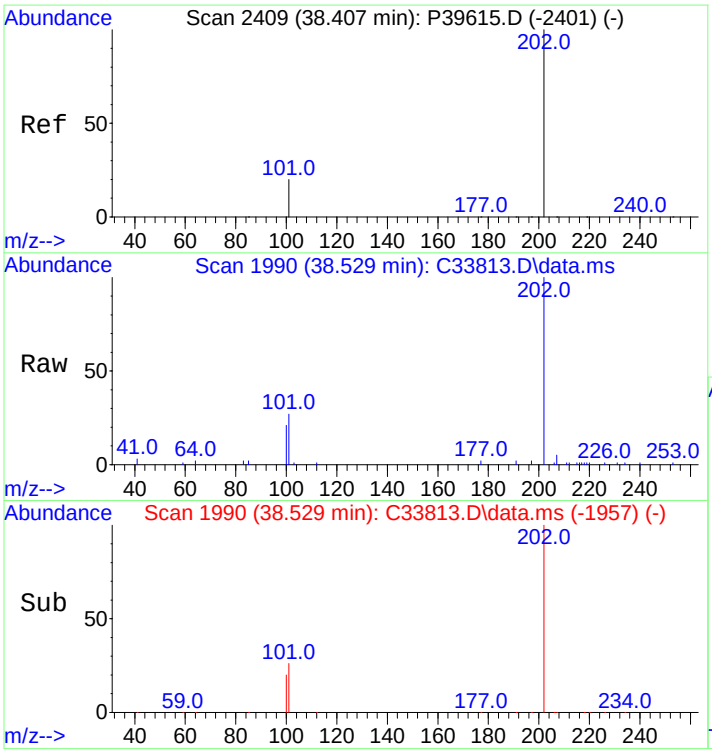


#59
Benzo(b)fluorene
Concen: 75.84 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:216 Resp: 4529

Ion	Ratio	Lower	Upper
216	100		
215	96.4	77.4	116.2

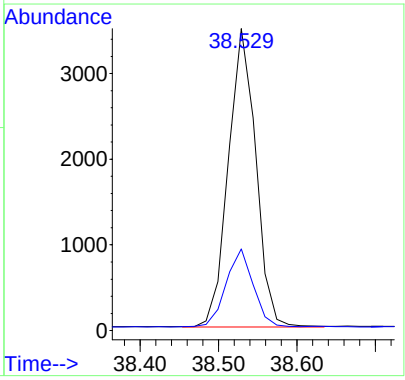


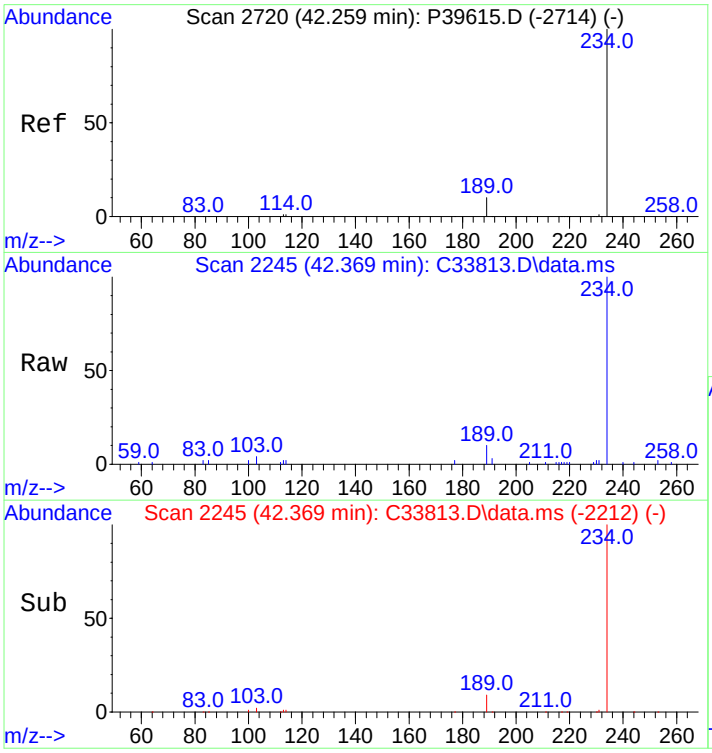


#60
Pyrene
Concen: 90.88 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8523

Ion	Ratio	Lower	Upper
202	100		
101	26.0	20.4	30.6

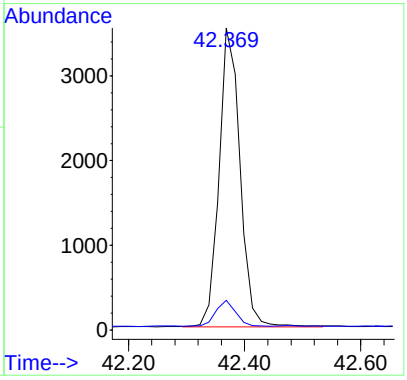


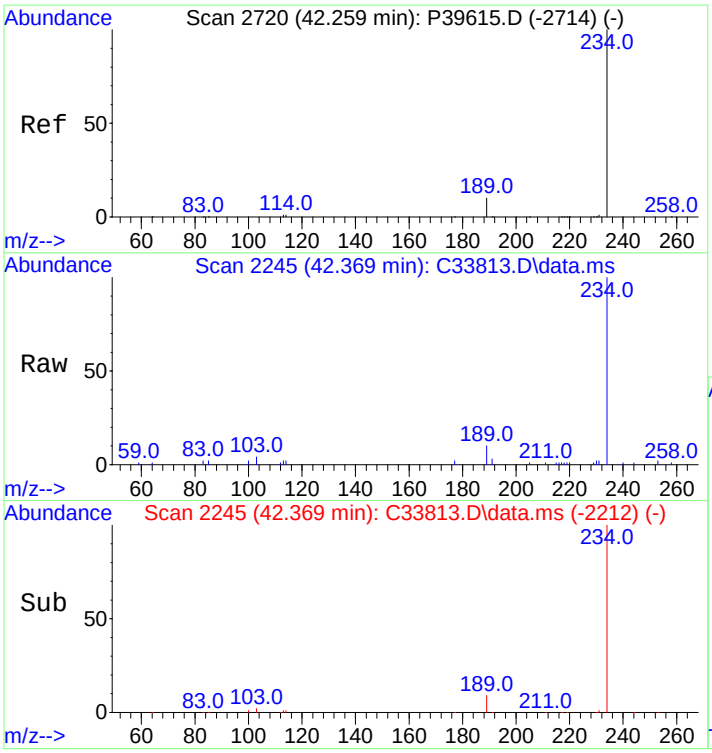


#66
Naphthobenzothiophene
Concen: 90.00 ng/ml m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8820

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

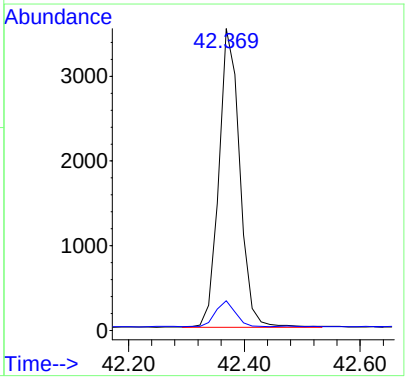


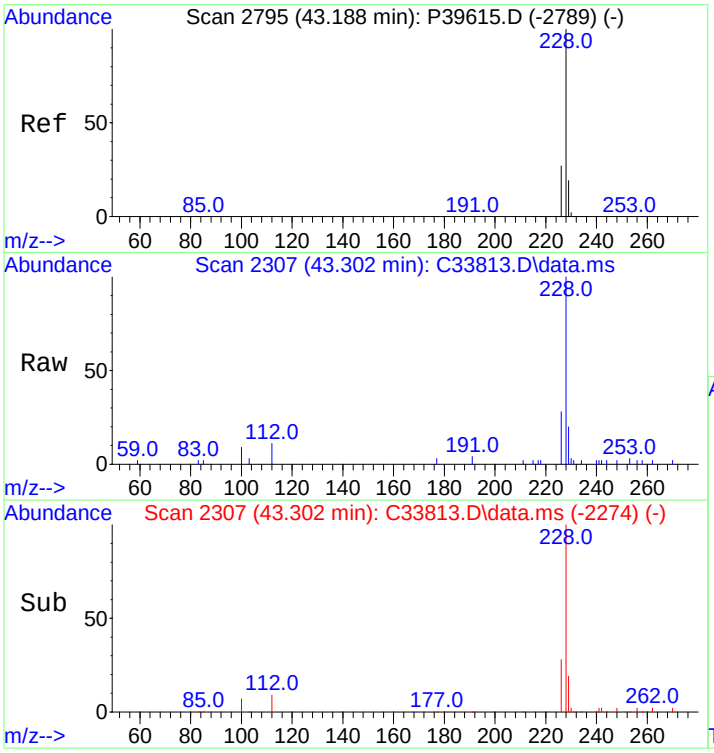


#67
Naphthobenzothiophene-2,1-D
Concen: 90.30 ng/mL m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8849

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

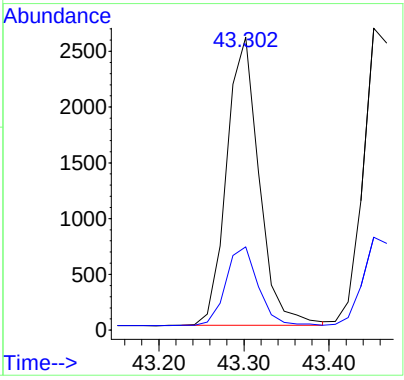


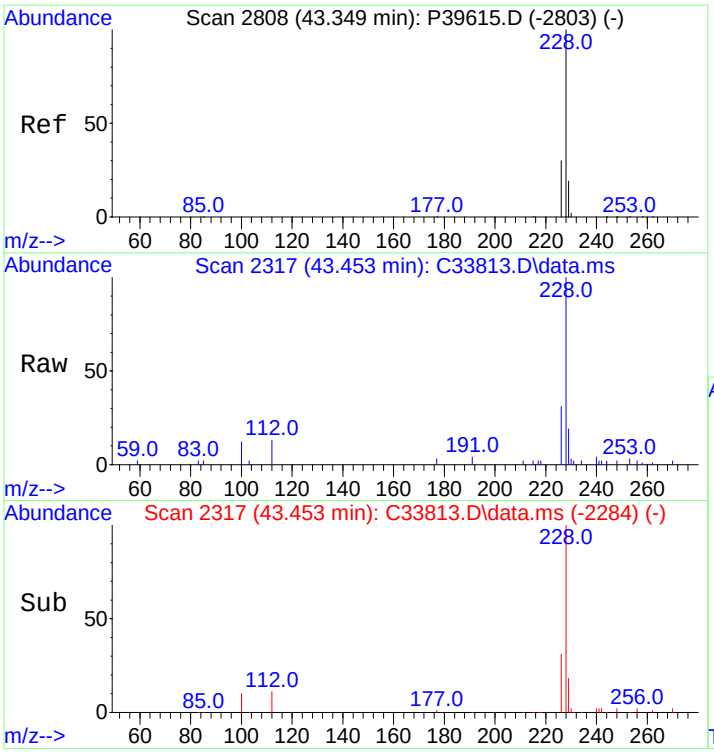


#75
Benz[a]anthracene
Concen: 103.13 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 6862

Ion	Ratio	Lower	Upper
228	100		
226	27.4	21.8	32.8

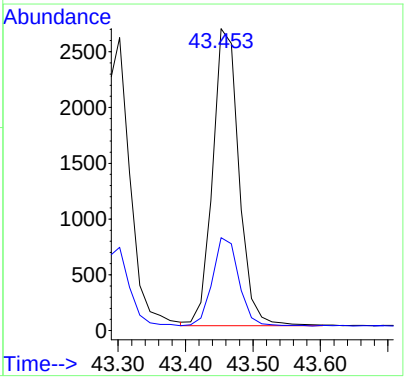


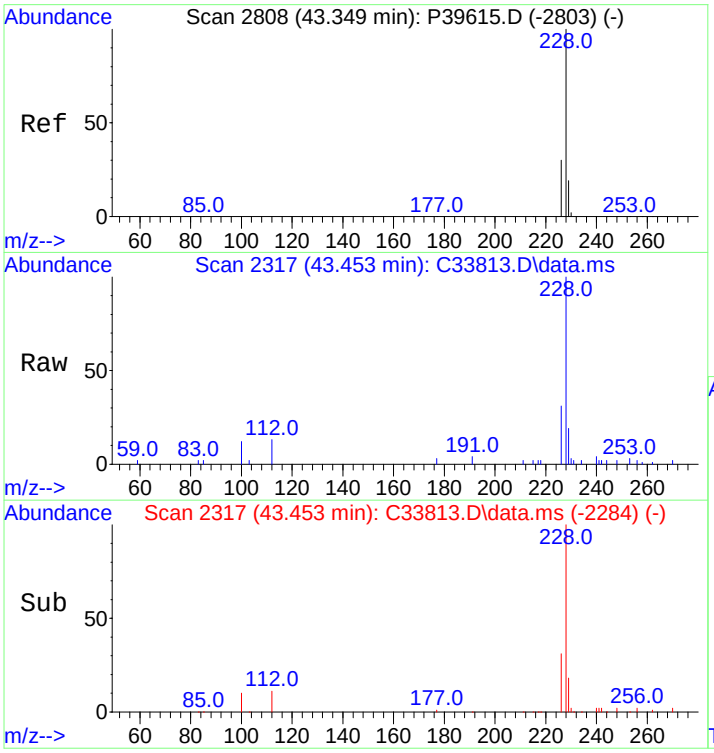


#76
Chrysene
Concen: 110.68 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7256

Ion	Ratio	Lower	Upper
228	100		
226	30.0	24.2	36.4

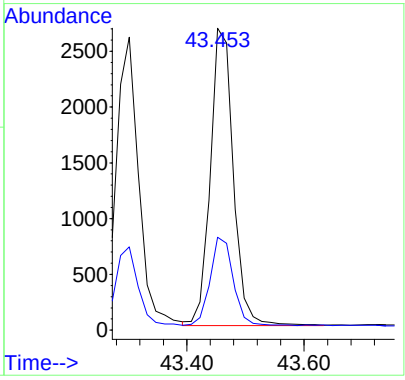


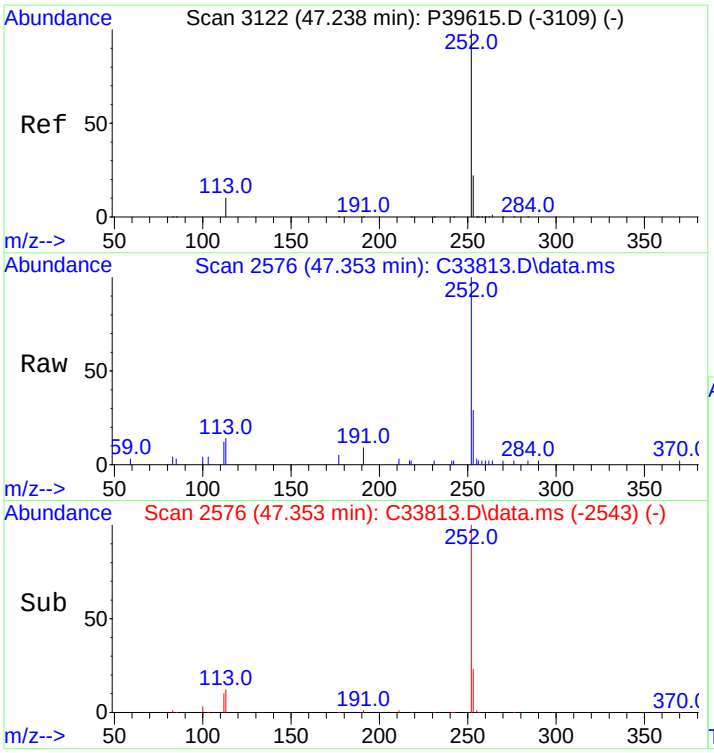


#77
Chrysene/Triphenylene
Concen: 111.03 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7279

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

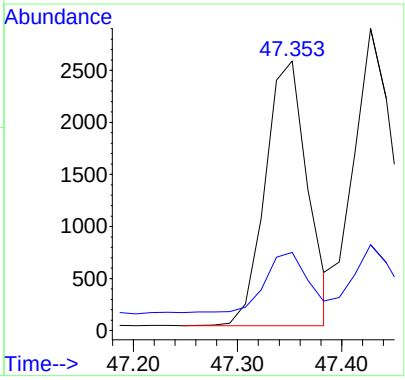


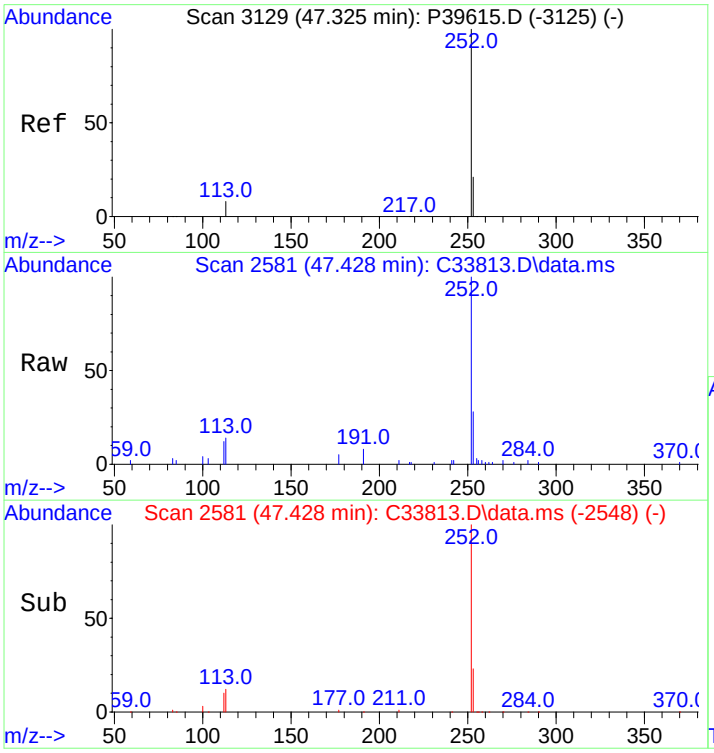


#82
Benzo[b]fluoranthene
Concen: 98.56 ng/mL
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7216

Ion	Ratio	Lower	Upper
252	100		
253	24.7	18.5	27.7

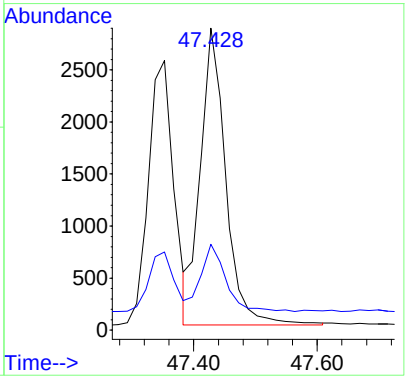


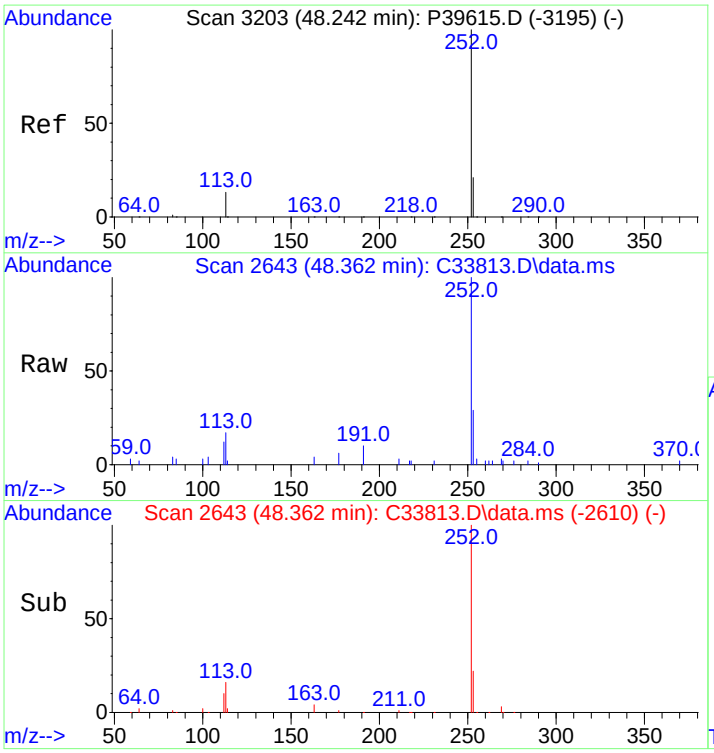


#83
Benzo[j]+[k]fluoranthene
Concen: 105.65 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 8178

Ion	Ratio	Lower	Upper
252	100		
253	22.8	18.2	27.4

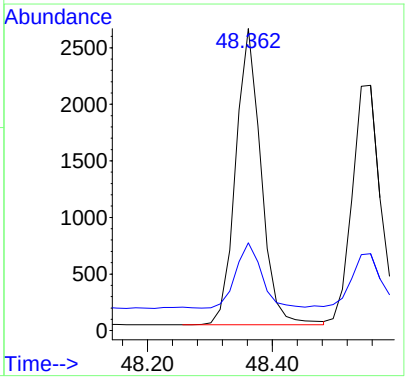


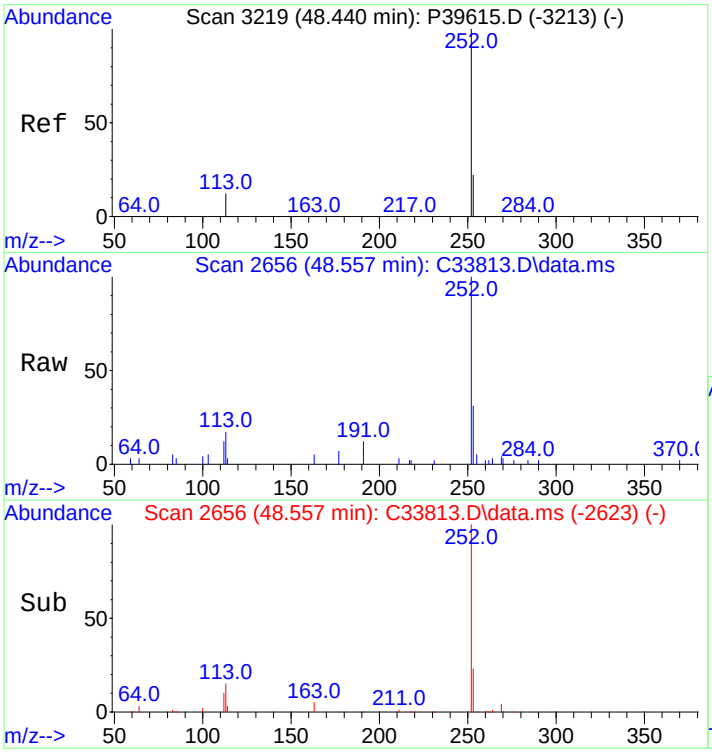


#85
Benzo[e]pyrene
Concen: 104.99 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	22.6	18.5	27.7

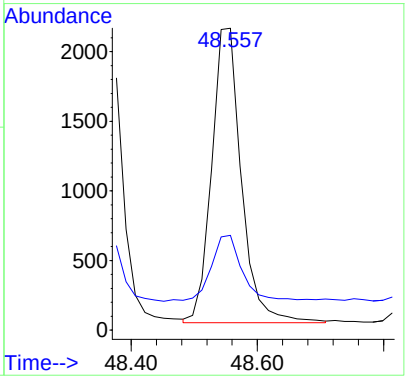


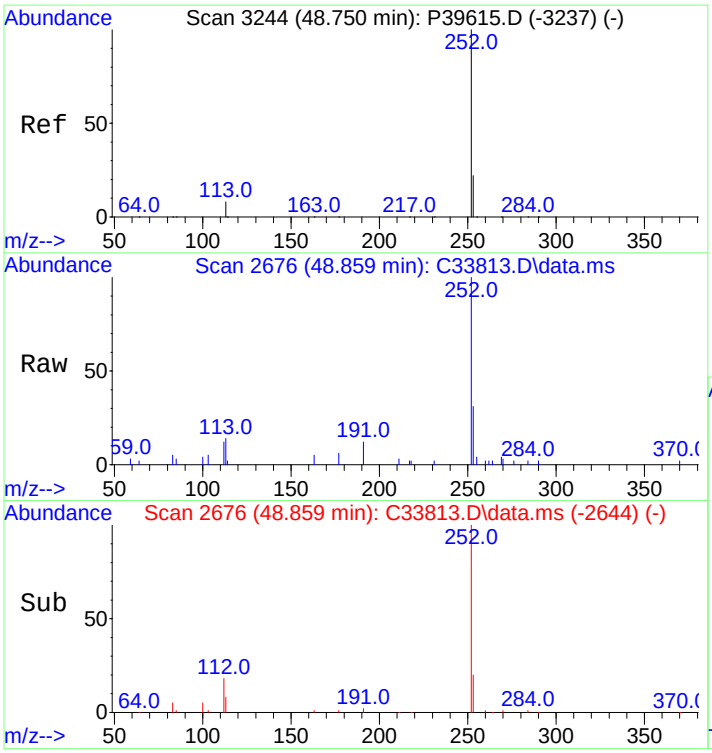


#87
Benzo[a]pyrene
Concen: 104.79 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 6940

Ion	Ratio	Lower	Upper
252	100		
253	24.5	18.7	28.1

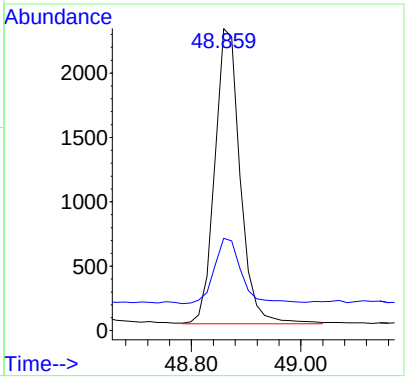


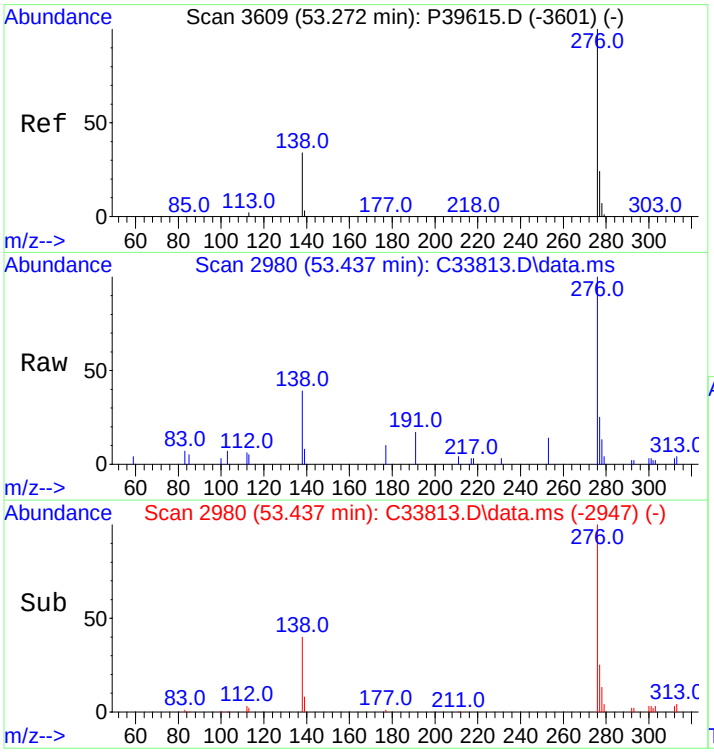


#88
Perylene
Concen: 104.54 ng/mL m
RT: 48.859 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	23.7	18.6	27.8

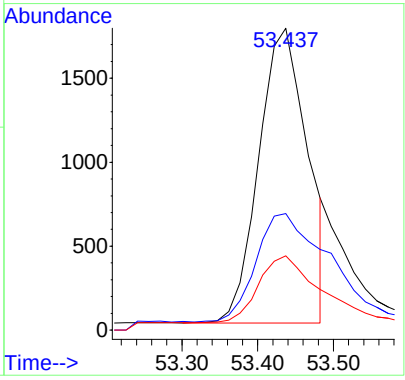


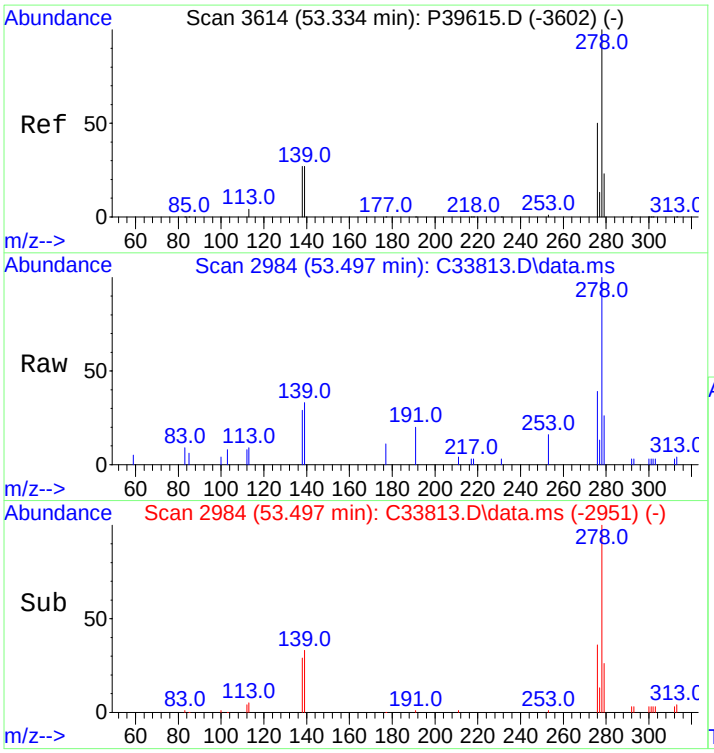


#89
Indeno[1,2,3-cd]pyrene
Concen: 102.99 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 7852

Ion	Ratio	Lower	Upper
276	100		
138	65.2	30.3	45.5#
277	48.7	19.2	28.8#

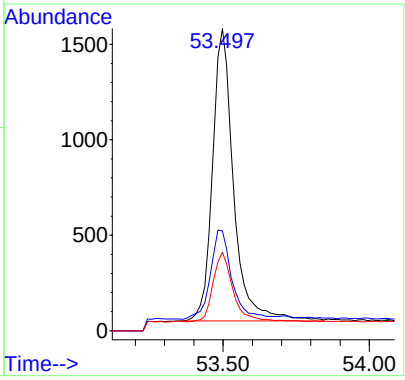


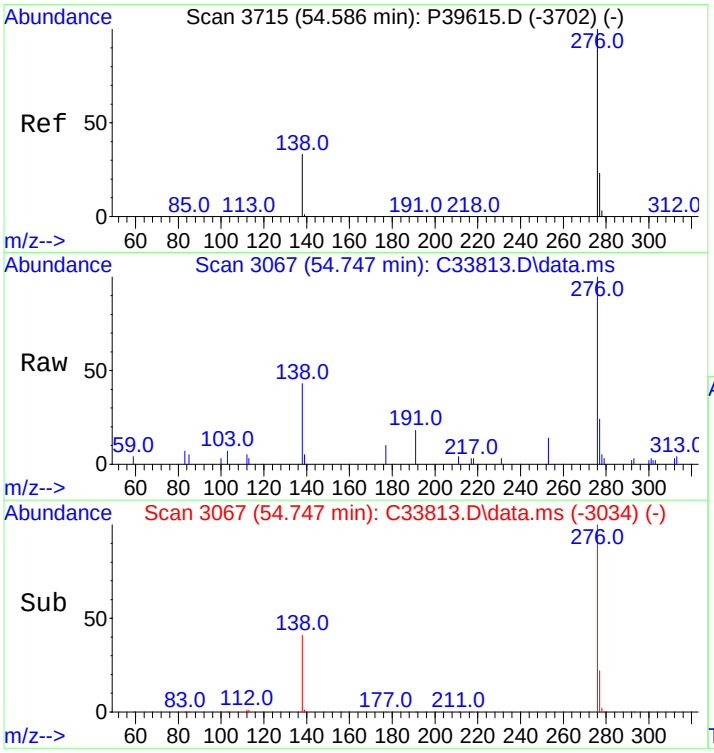


#90
Dibenz[ah]+[ac]anthracene
Concen: 107.32 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:278 Resp: 7692

Ion	Ratio	Lower	Upper
278	100		
139	35.6	25.4	38.2
279	22.1	19.0	28.4

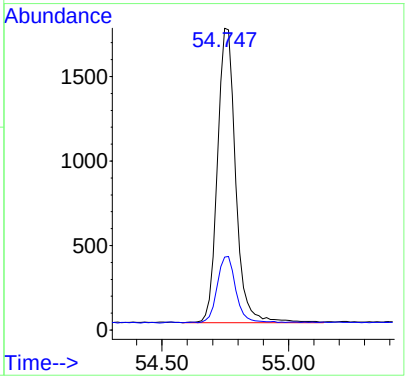


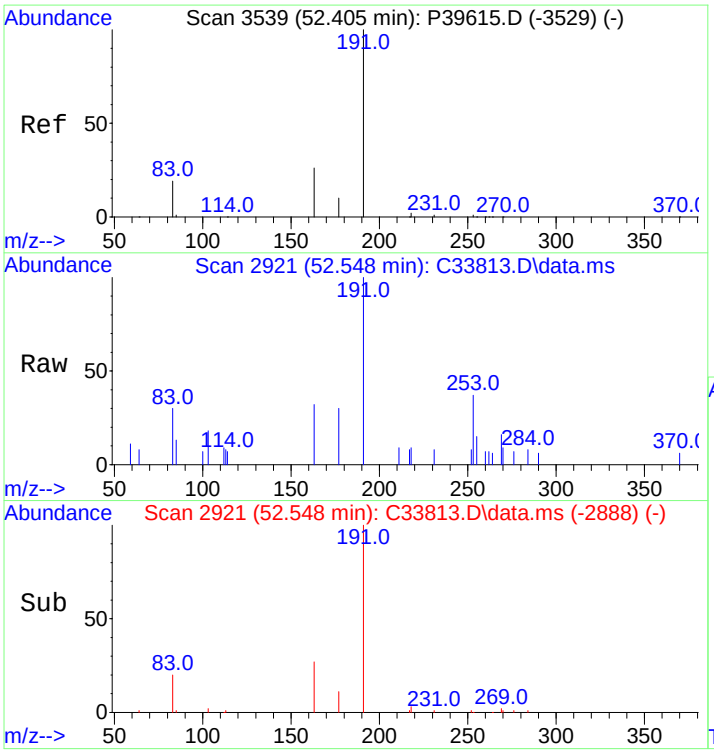


#91
Benzo[g,h,i]perylene
Concen: 112.27 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 8732

Ion	Ratio	Lower	Upper
276	100		
277	23.0	18.9	28.3

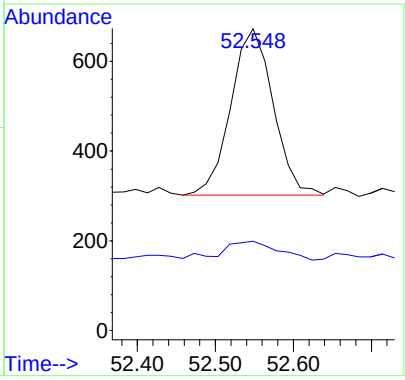


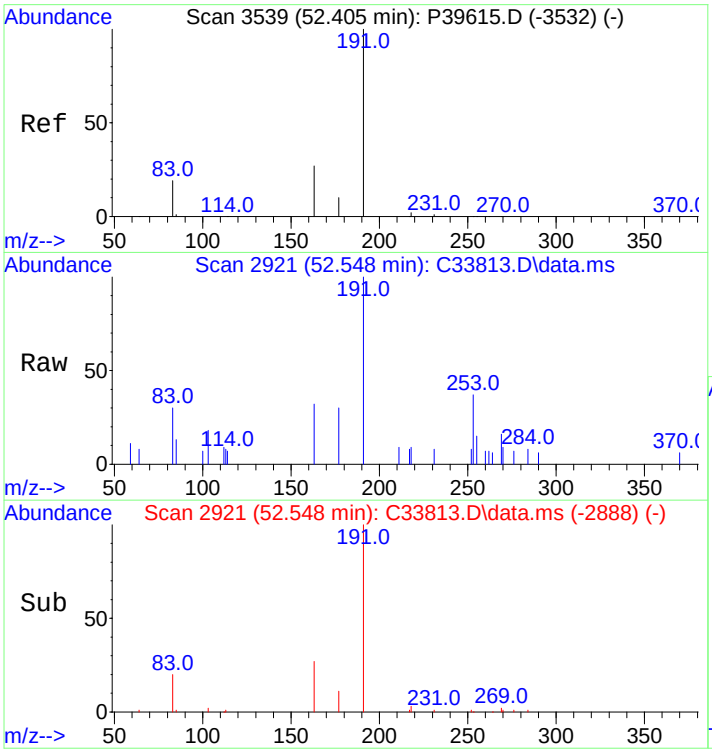


#92
Hopane (T19)
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3

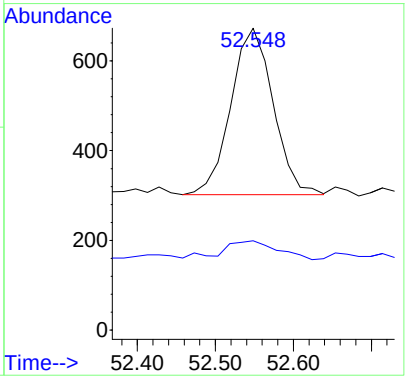




#93
17a(H),21B(H)-hopane - C30H52
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	690.288	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.03%			
42) Phenanthrene-d10	32.793	188	30011	444.688	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.47%#			
86) Benzo[a]pyrene-d12	48.467	264	26218	483.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.40%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	430.078	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.01%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	301.956	ng/mL	
4) cis-Decalin	17.844	138	2748	292.174	ng/mL	100
10) Naphthalene	20.042	128	60651M4	966.547	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	800.461	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	809.738	ng/mL	
18) Benzothiophene	20.253	134	54196	1053.098	ng/mL	100
23) Biphenyl	24.619	154	44061	745.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	670.105	ng/mL	
25) Dibenzofuran	27.690	168	50514	735.407	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	813.474	ng/mL	
27) Acenaphthene	27.057	153	34314	763.360	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	22365M4	568.869	ng/mL	
29) Fluorene	29.075	166	37446M3	669.384	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	719.639	ng/mL	
43) Phenanthrene	32.883	178	53364	628.681	ng/mL	100
54) Retene	39.854	234	9623M4	389.871	ng/mL	
55) Anthracene	33.064	178	52019M4	632.516	ng/mL	
56) Carbazole	33.726	167	51702M4	684.436	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	514.047	ng/mL	
58) Fluoranthene	37.641	202	52587M3	512.355	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	443.755	ng/mL	98
60) Pyrene	38.529	202	53499	508.197	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	506.802	ng/ml	98
67) Naphthobenzothiophene-2,1	42.369	234	55752	506.802	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	553.548	ng/mL	
76) Chrysene	43.453	228	45764M4	581.223	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	581.909	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	529.436	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	564.954	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	542.397	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	549.348	ng/mL	
88) Perylene	48.874	252	46371	545.553	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	532.487	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	556.838	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	561.014	ng/mL	99
92) Hopane (T19)	52.548	191	7873	533.536	ng/mL#	89
93) 17a(H),21B(H)-hopane - C3	52.548	191	7873	533.536	ng/mL#	89

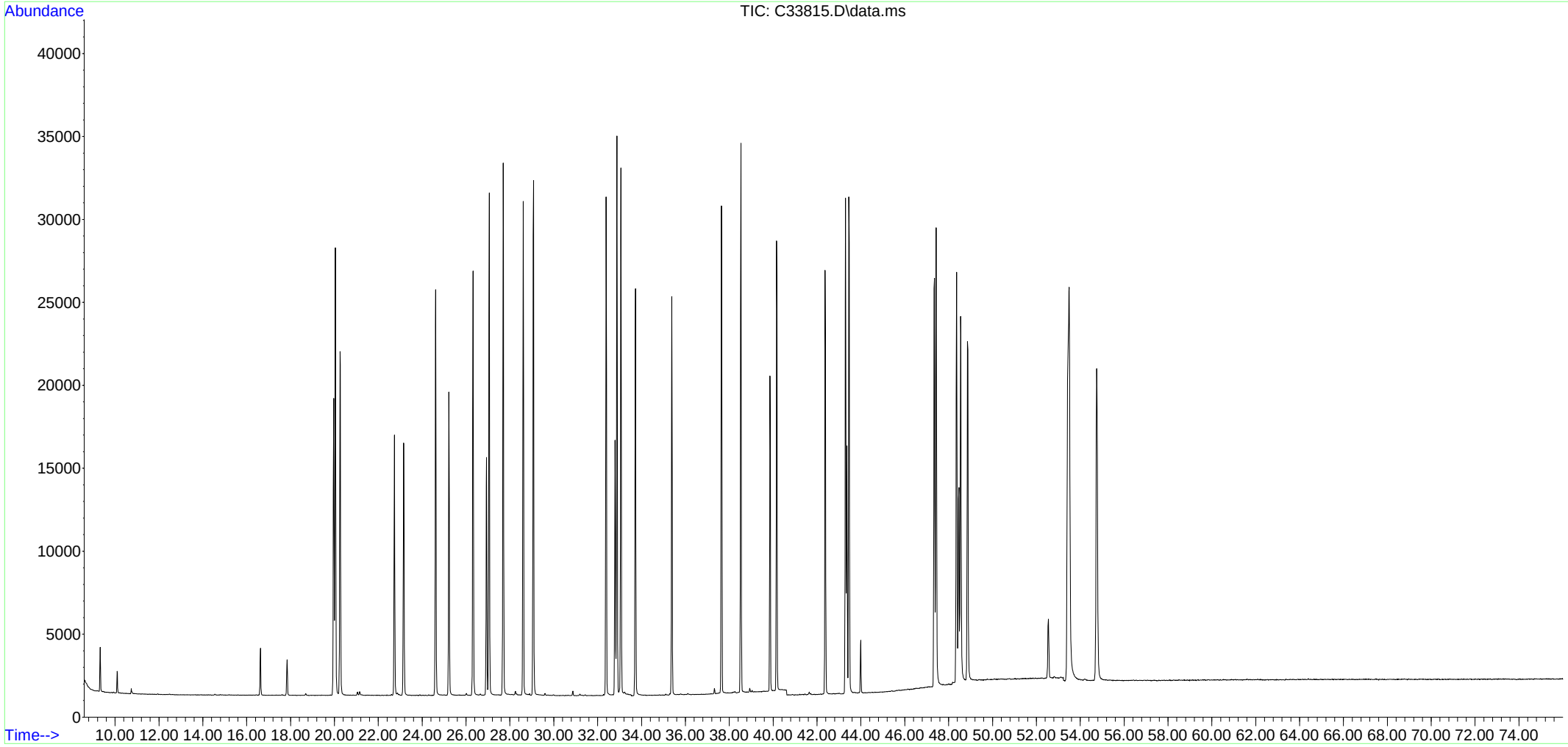
(#) = qualifier out of range (m) = manual integration (+) = signals summed

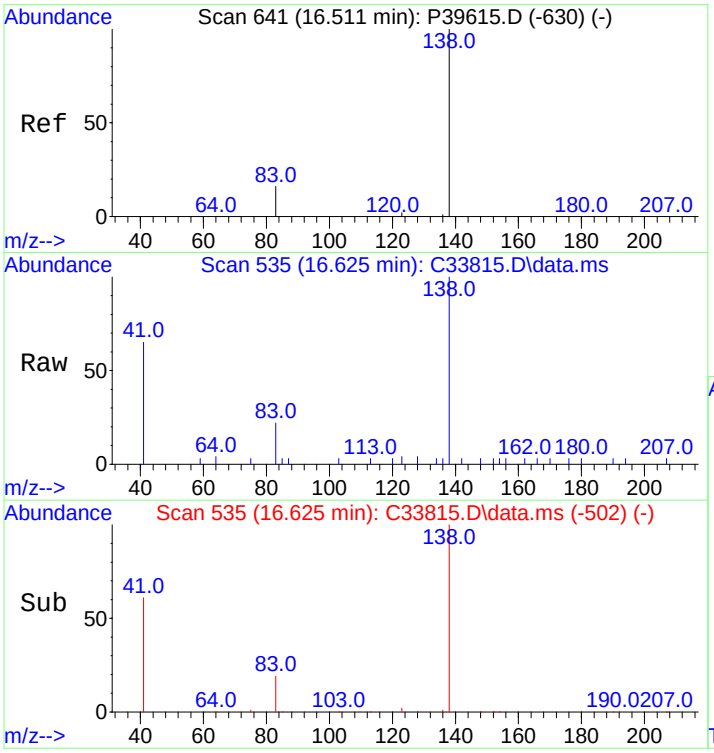
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

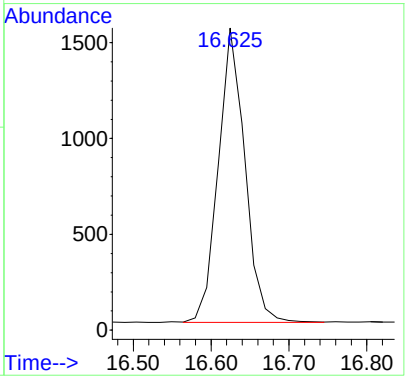
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

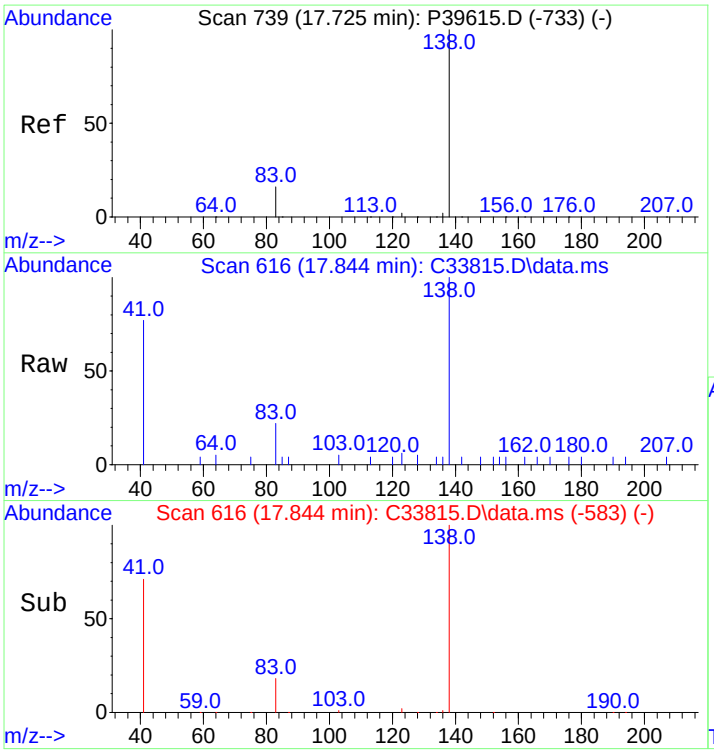




#3
trans-Decalin
Concen: 301.96 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

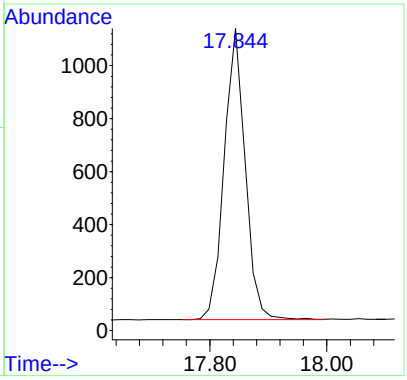
Tgt Ion:138 Resp: 3640

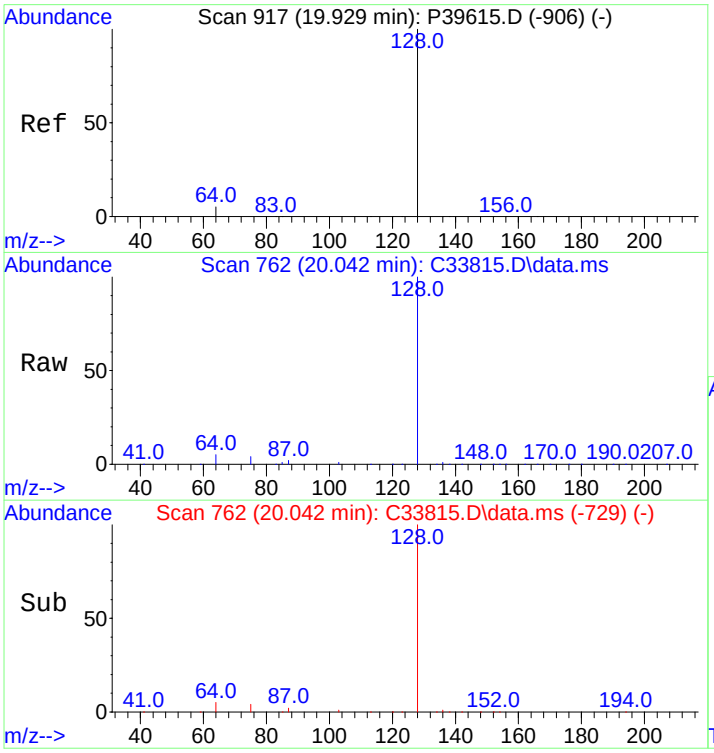




#4
cis-Decalin
Concen: 292.17 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:138 Resp: 2748

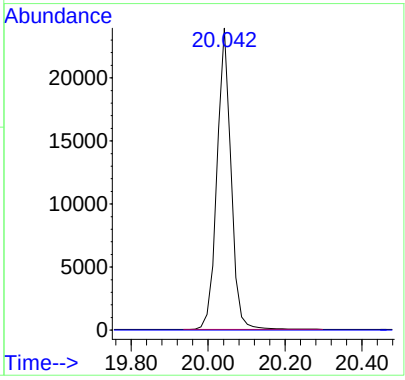


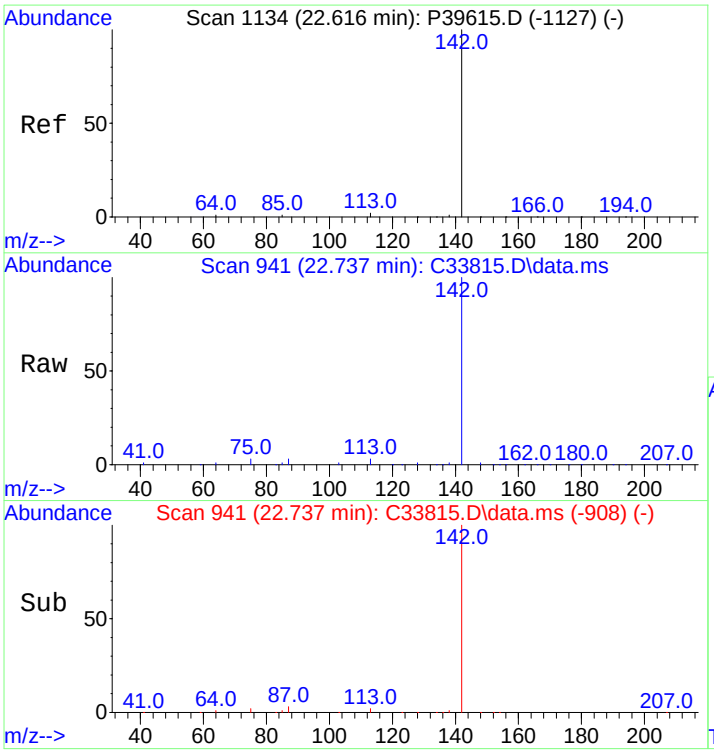


#10
Naphthalene
Concen: 966.55 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:128 Resp: 60651

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

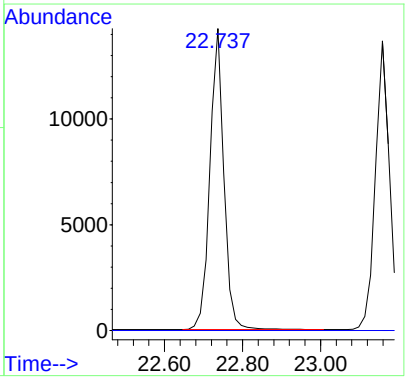


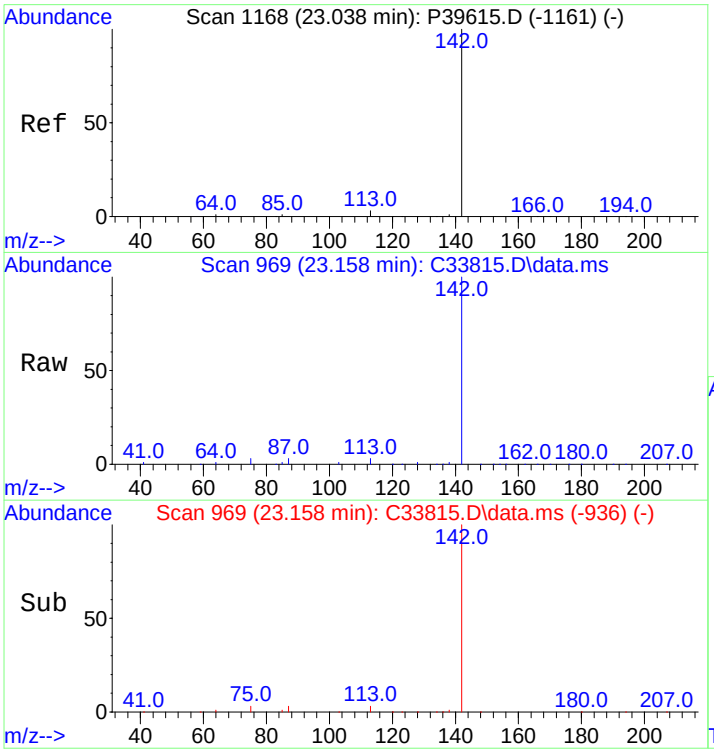


#16
2-Methylnaphthalene
Concen: 800.46 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 35465

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

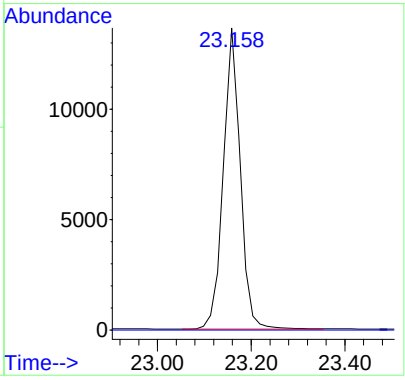


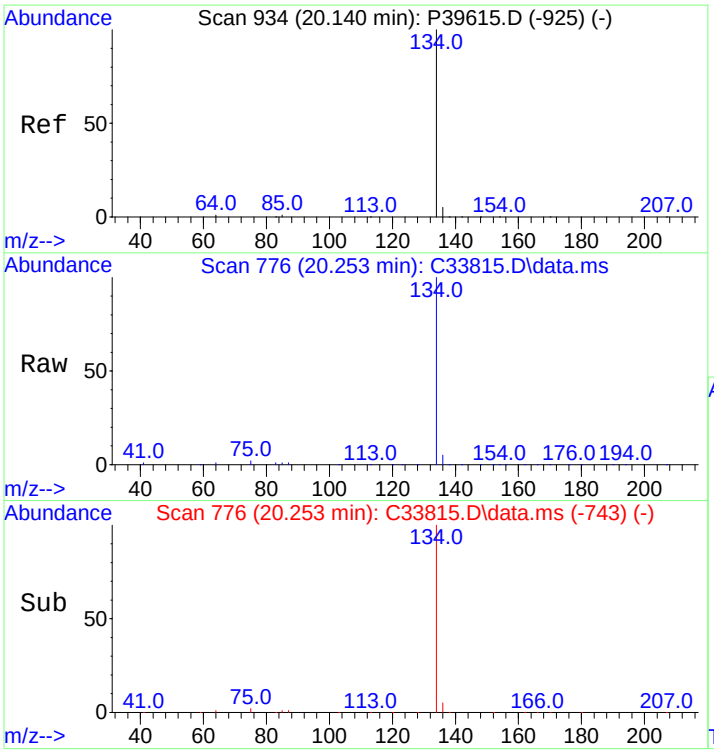


#17
1-Methylnaphthalene
Concen: 809.74 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 34410

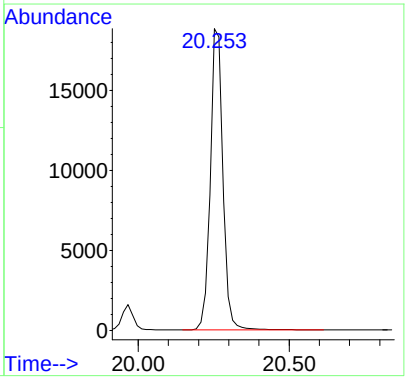
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

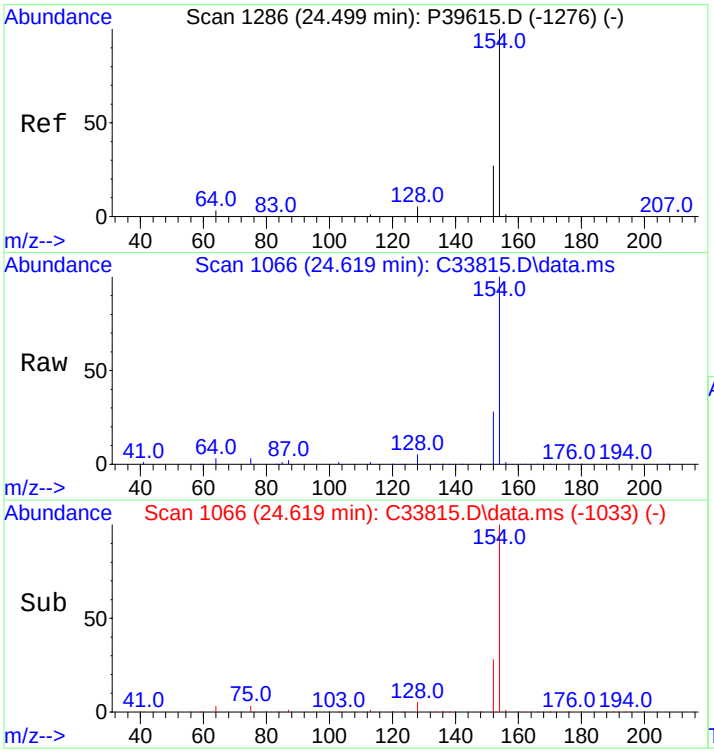




#18
Benzothiophene
Concen: 1053.10 ng/mL
RT: 20.253 min Scan# 776
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:134 Resp: 54196

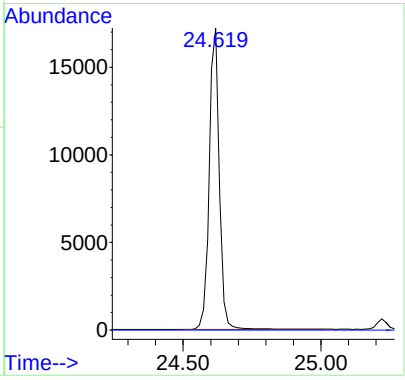


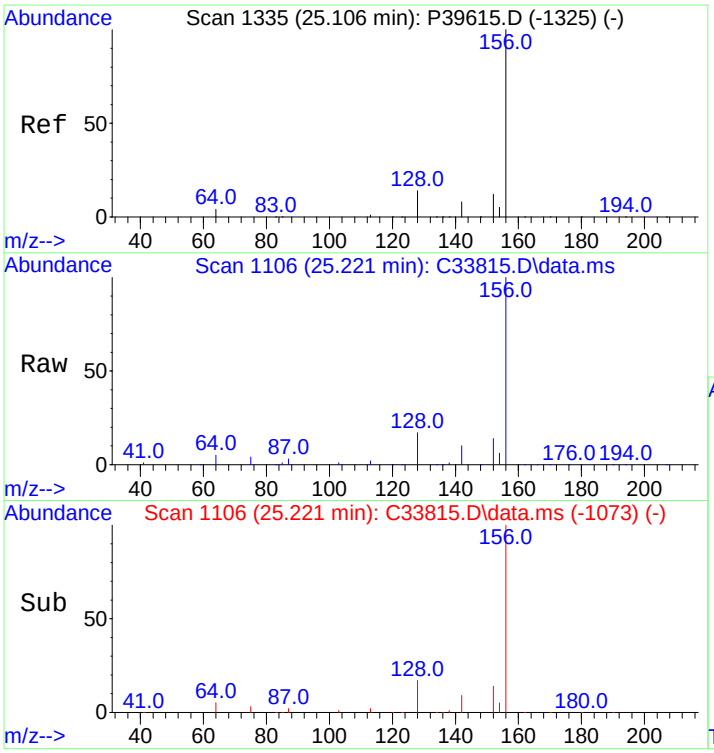


#23
Biphenyl
Concen: 745.26 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:154 Resp: 44061

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

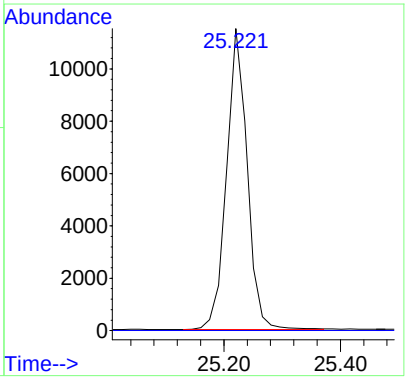


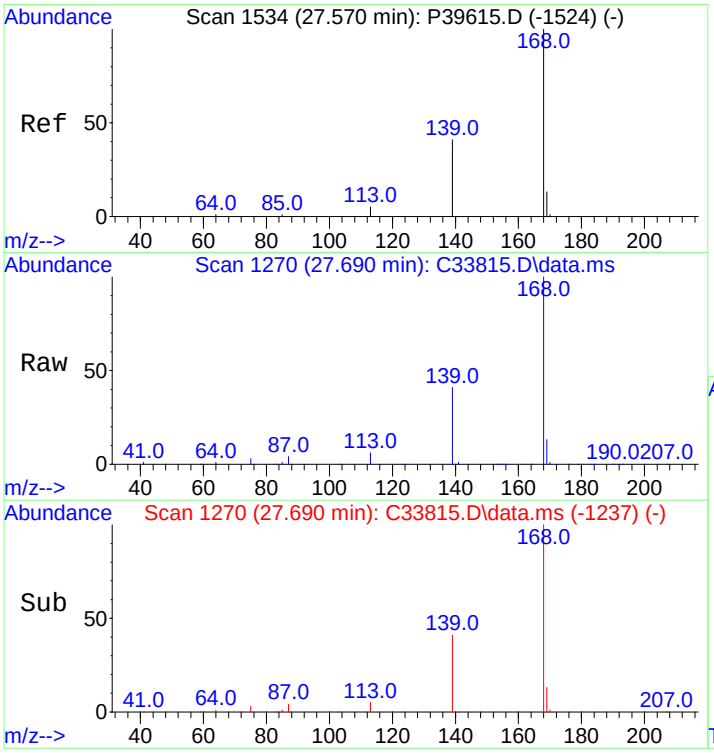


#24
2,6-Dimethylnaphthalene
Concen: 670.11 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:156 Resp: 28243

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

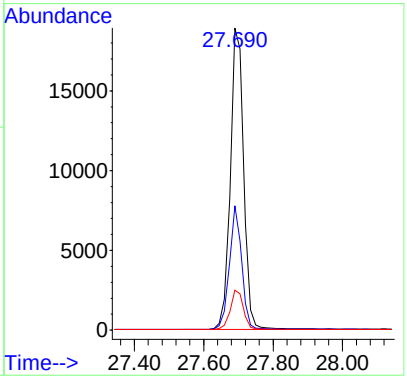


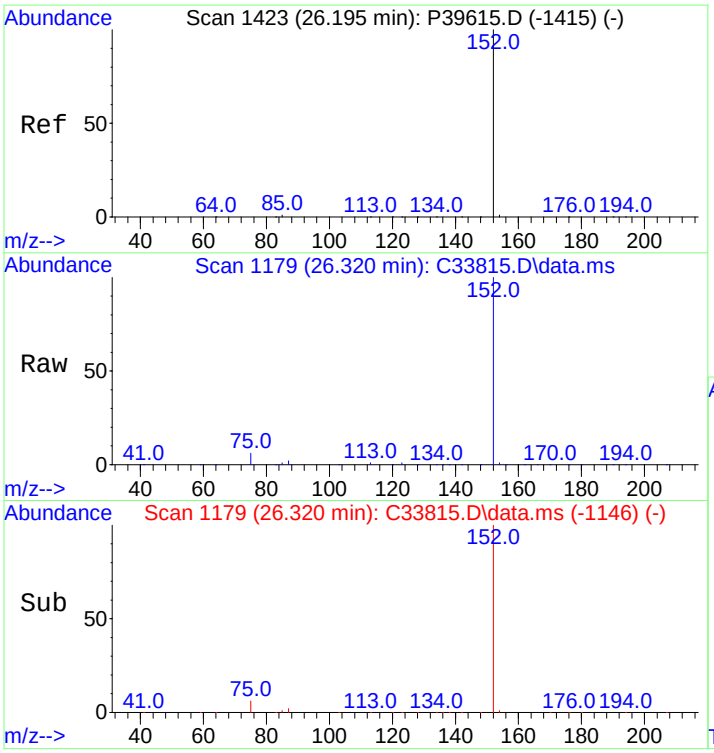


#25
Dibenzofuran
Concen: 735.41 ng/mL
RT: 27.690 min Scan# 1270
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:168 Resp: 50514

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	12.8	10.6	16.0

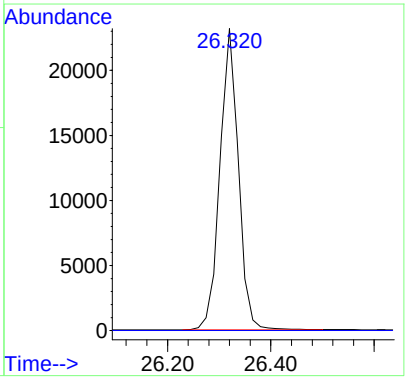


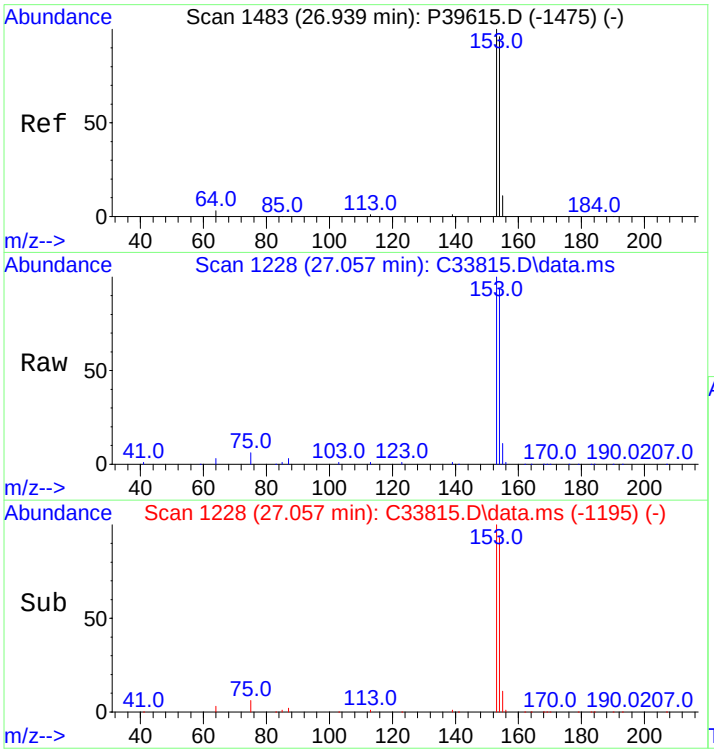


#26
Acenaphthylene
Concen: 813.47 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:152 Resp: 57590

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

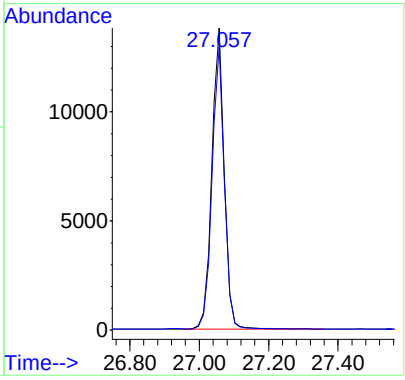


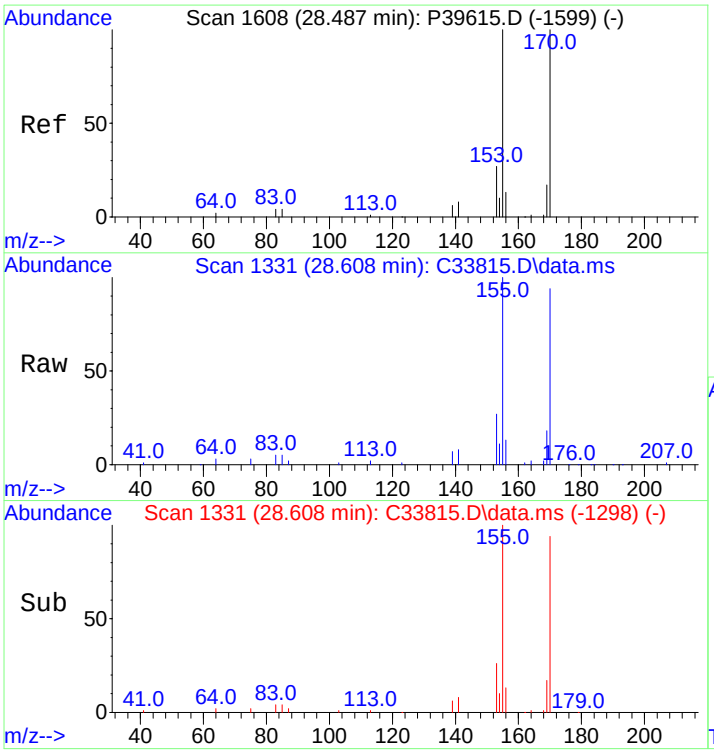


#27
Acenaphthene
Concen: 763.36 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:153 Resp: 34314

Ion	Ratio	Lower	Upper
153	100		
154	92.8	75.0	112.6

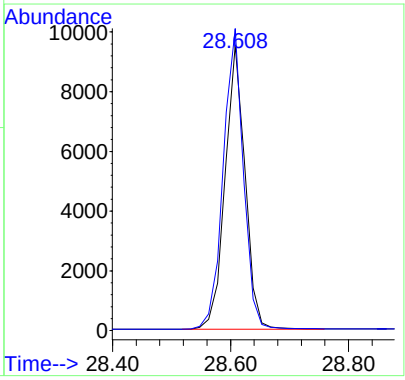


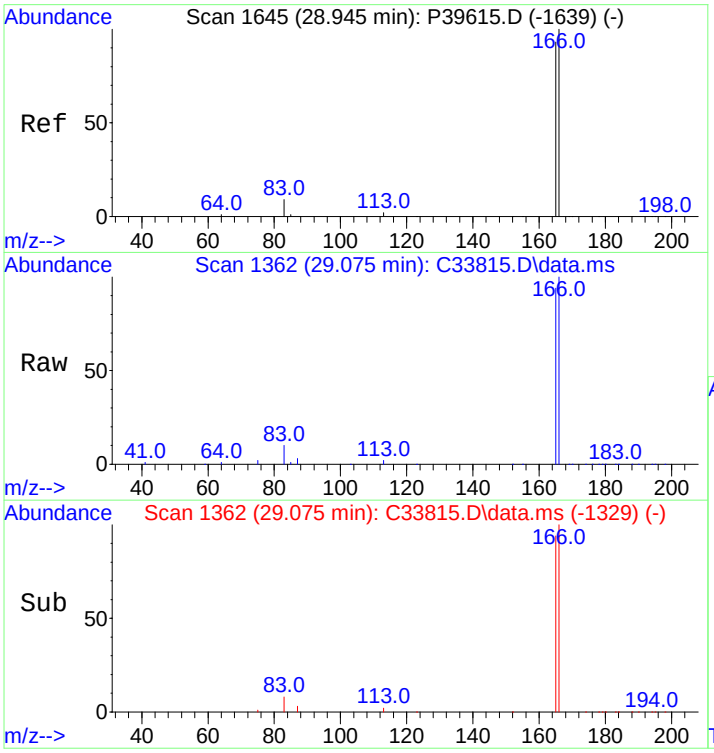


#28
2,3,5-Trimethylnaphthalene
Concen: 568.87 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:170 Resp: 22365

Ion	Ratio	Lower	Upper
170	100		
155	107.2	84.7	127.1

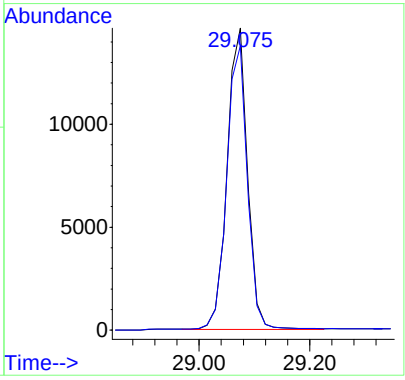


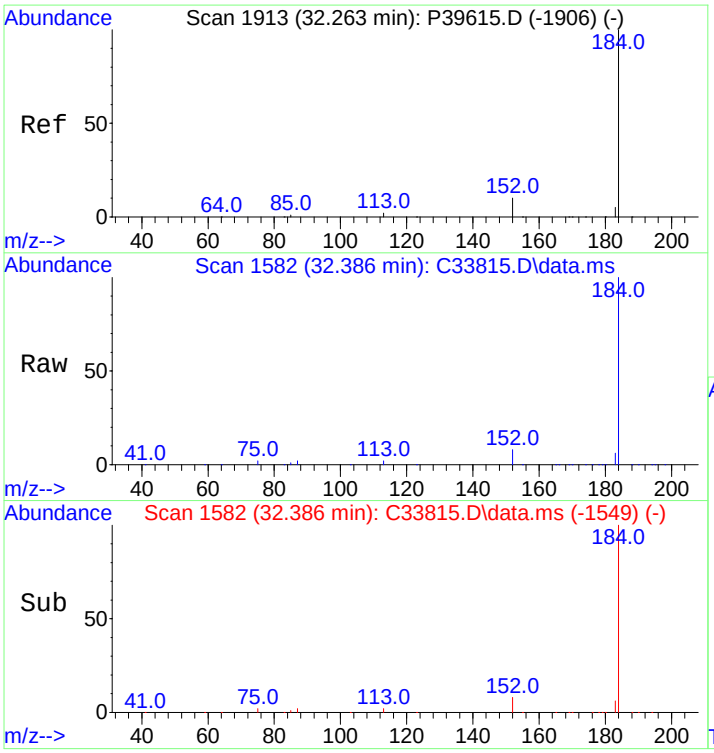


#29
Fluorene
Concen: 669.38 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:166 Resp: 37446

Ion	Ratio	Lower	Upper
166	100		
165	95.8	75.3	112.9

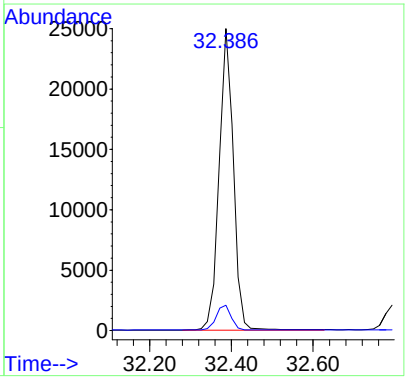


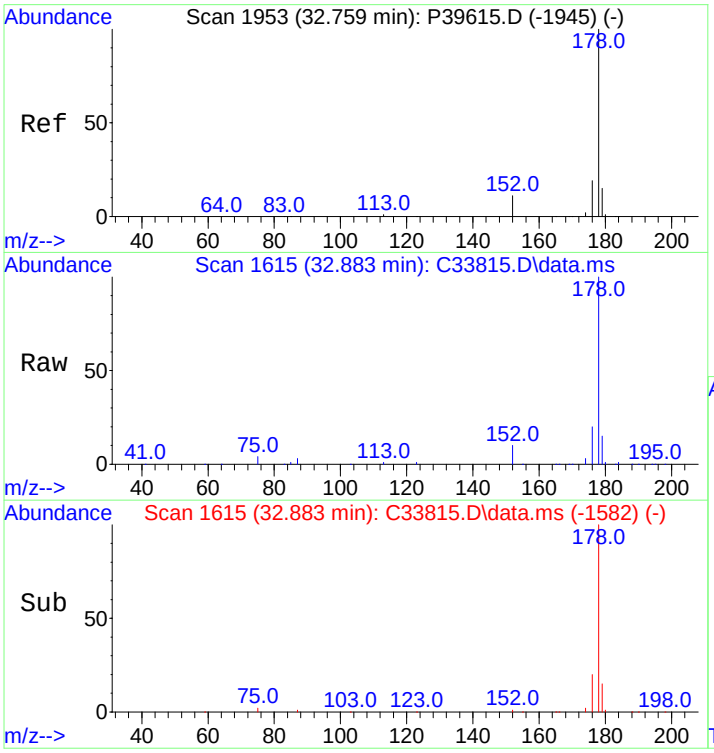


#33
Dibenzothiophene
Concen: 719.64 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:184 Resp: 60794

Ion	Ratio	Lower	Upper
184	100		
152	8.6	6.7	10.1

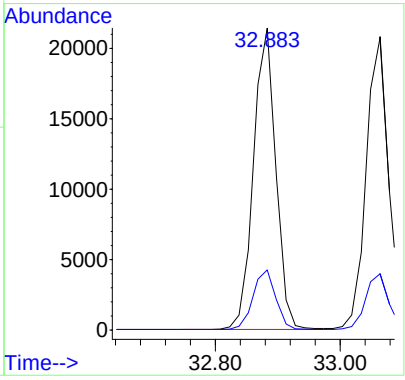


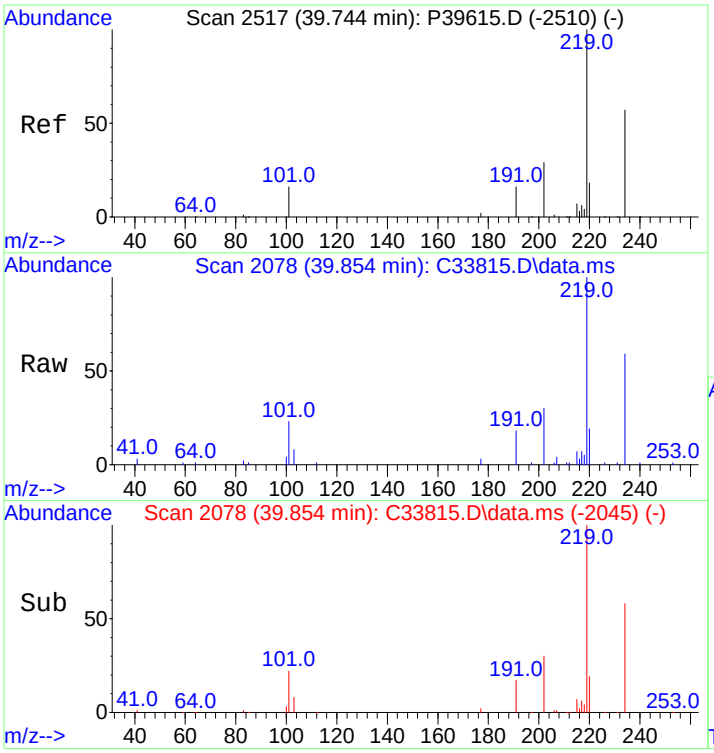


#43
Phenanthrene
Concen: 628.68 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 53364

Ion	Ratio	Lower	Upper
178	100		
176	20.1	15.9	23.9

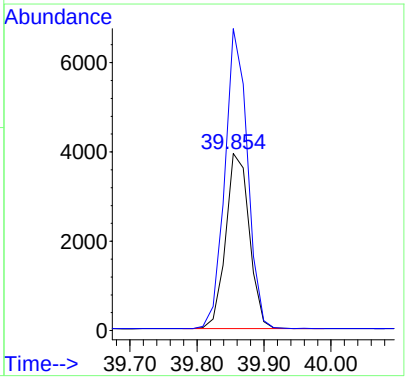


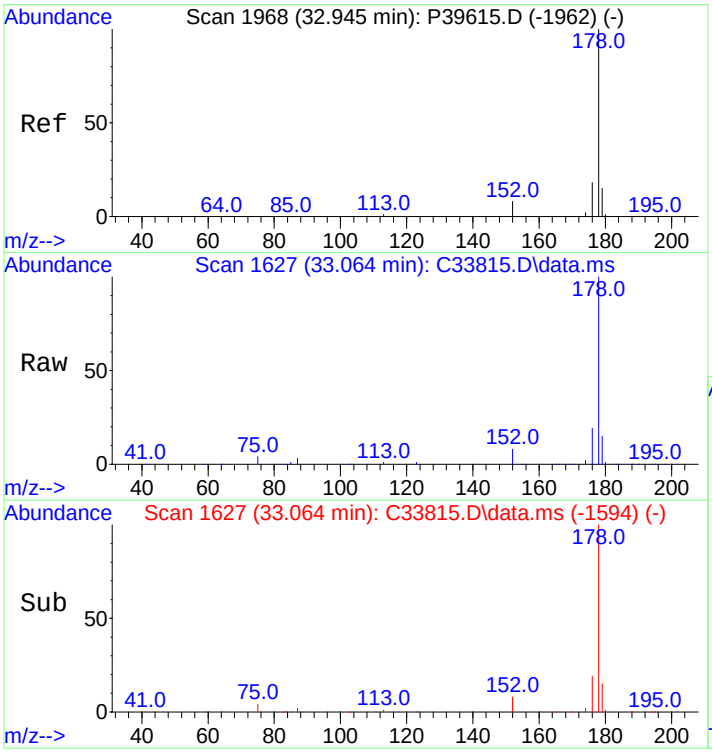


#54
Retene
Concen: 389.87 ng/mL m
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 9623

Ion	Ratio	Lower	Upper
234	100		
219	163.4	136.6	204.8

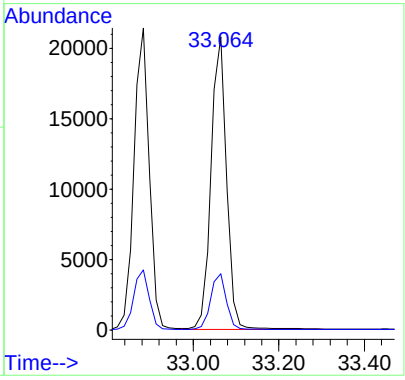


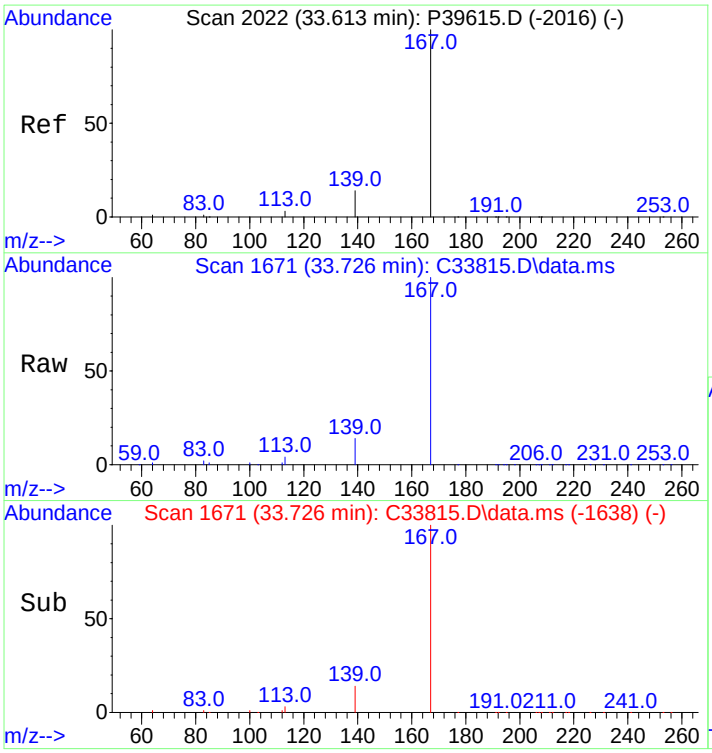


#55
Anthracene
Concen: 632.52 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 52019

Ion	Ratio	Lower	Upper
178	100		
176	19.3	15.4	23.0

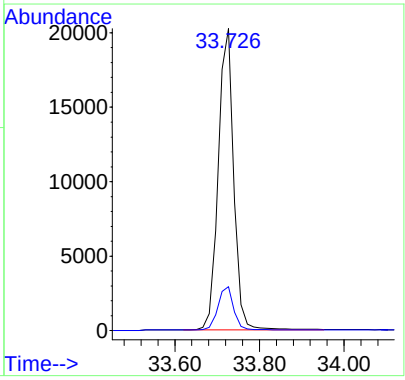


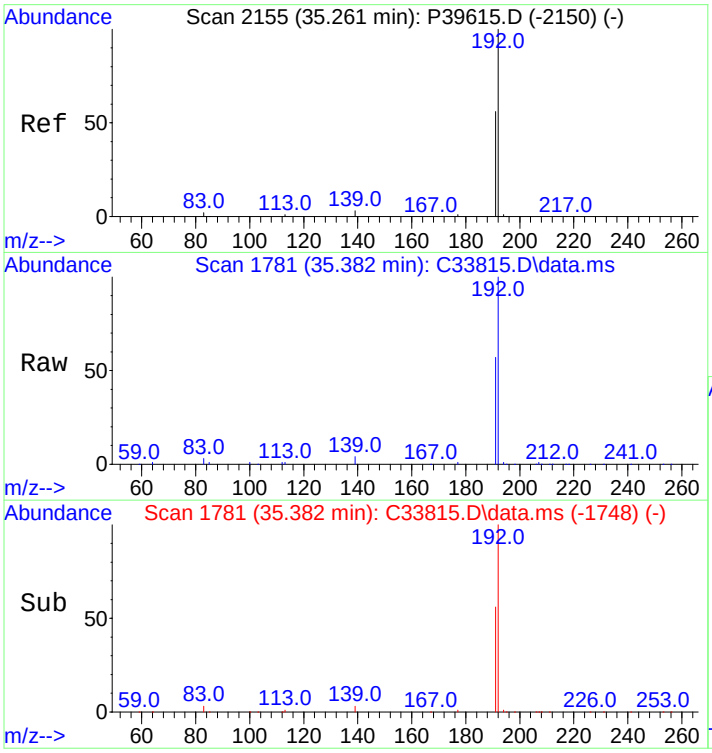


#56
Carbazole
Concen: 684.44 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:167 Resp: 51702

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.6	17.4

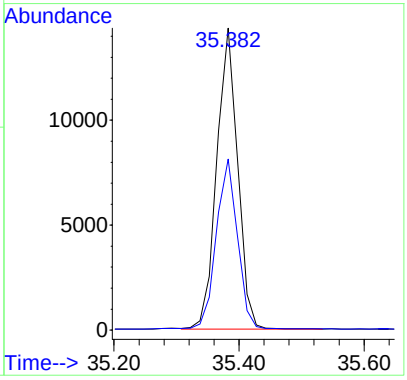


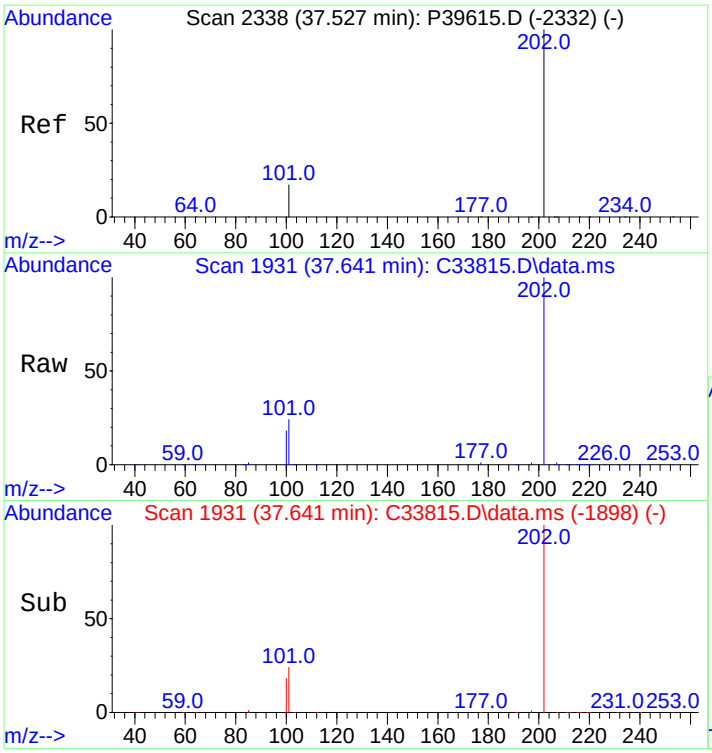


#57
1-Methylphenanthrene
Concen: 514.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:192 Resp: 33399

Ion	Ratio	Lower	Upper
192	100		
191	57.2	45.3	67.9

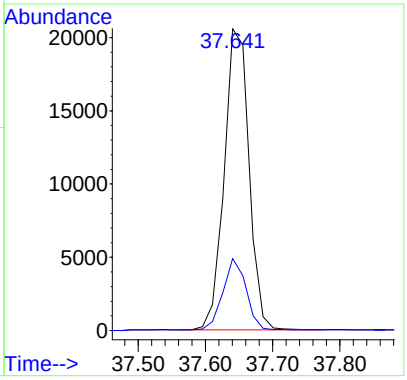


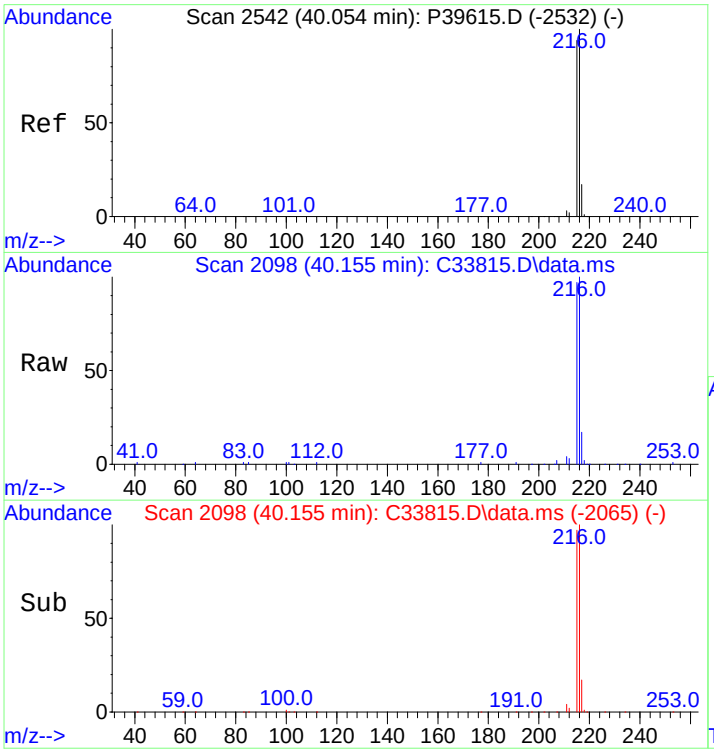


#58
Fluoranthene
Concen: 512.35 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 52587

Ion	Ratio	Lower	Upper
202	100		
101	22.7	19.1	28.7

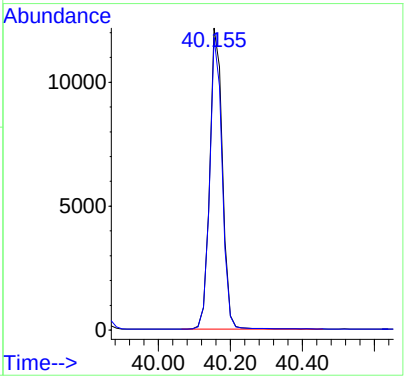


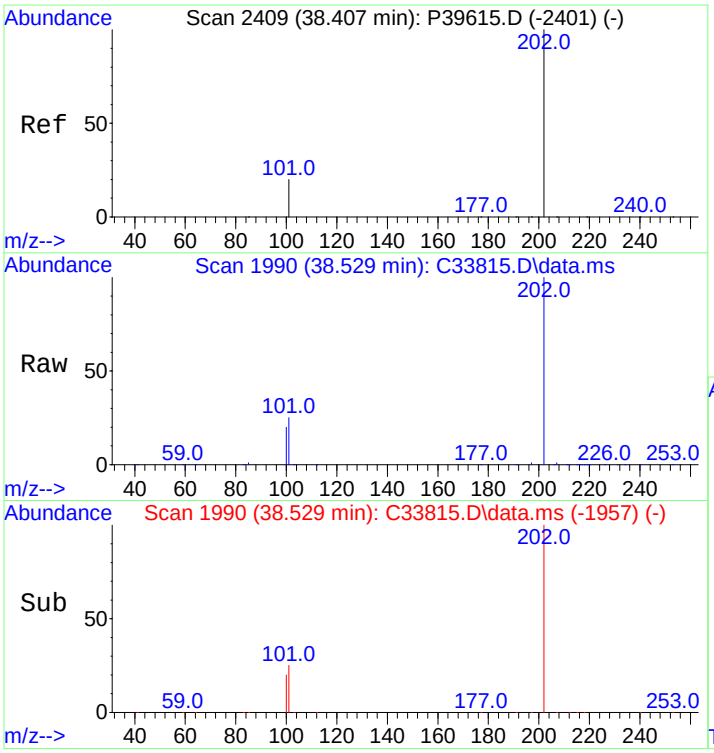


#59
Benzo(b)fluorene
Concen: 443.75 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:216 Resp: 29747

Ion	Ratio	Lower	Upper
216	100		
215	95.1	77.4	116.2

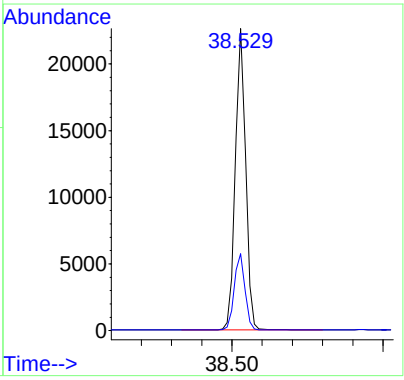


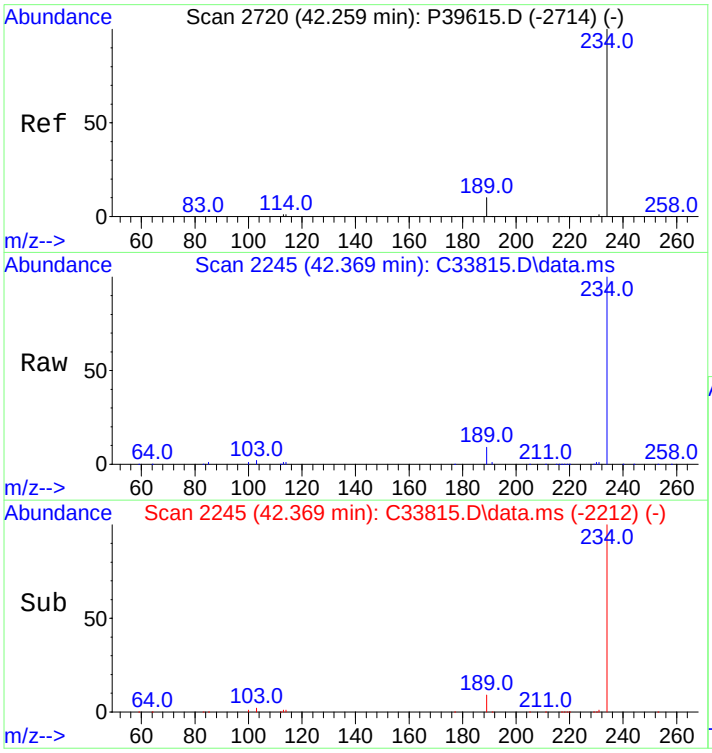


#60
Pyrene
Concen: 508.20 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 53499

Ion	Ratio	Lower	Upper
202	100		
101	26.2	20.4	30.6

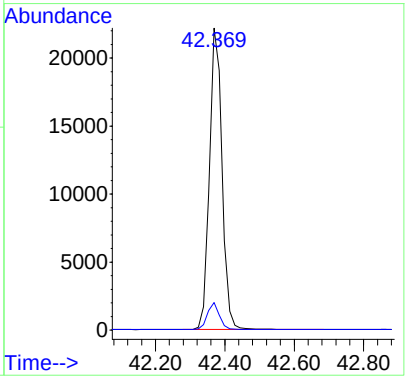


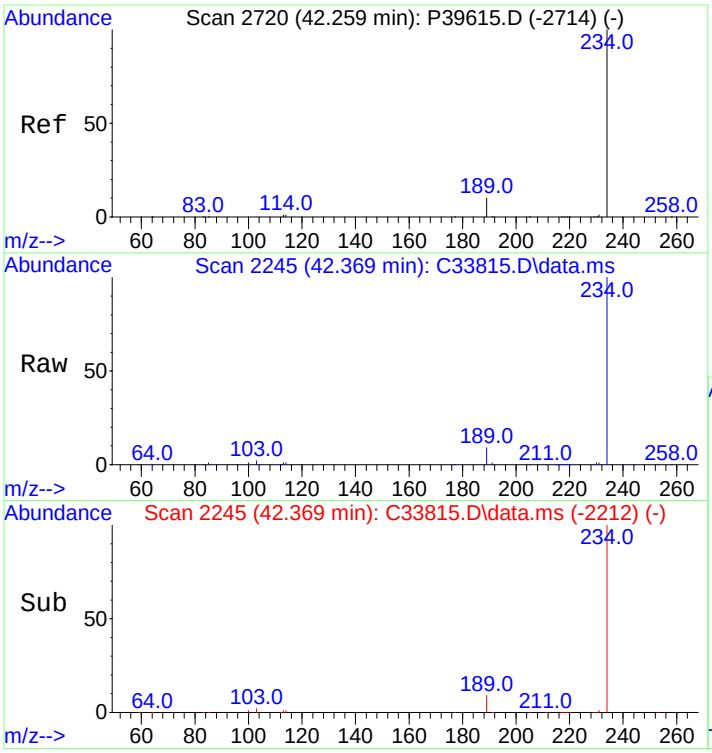


#66
Naphthobenzothiophene
Concen: 506.80 ng/ml
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

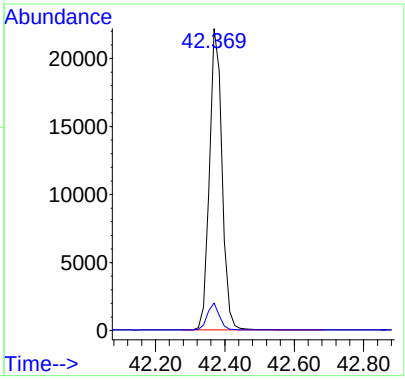


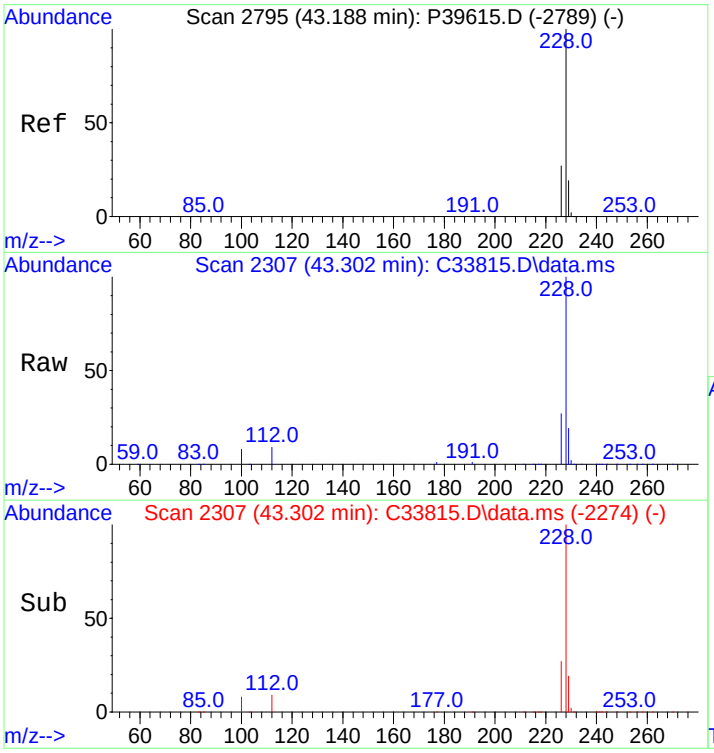


#67
Naphthobenzothiophene-2,1-D
Concen: 506.80 ng/mL
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

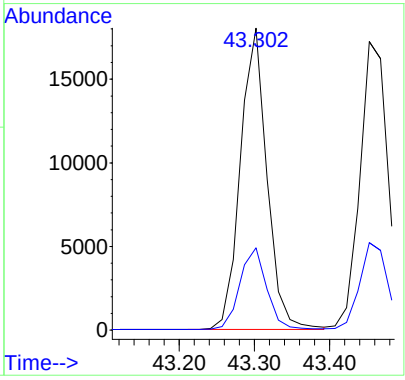


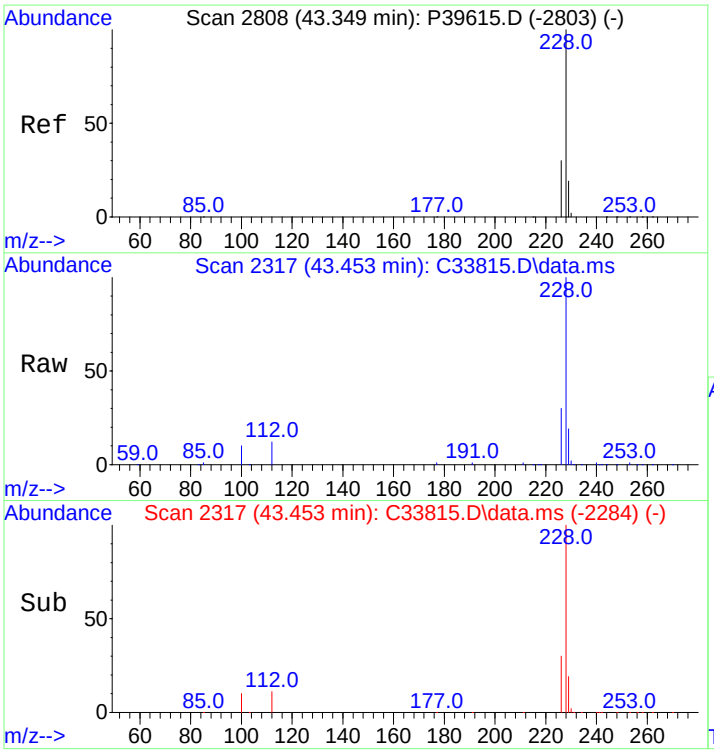


#75
Benz[a]anthracene
Concen: 553.55 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 44238

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.8	32.8

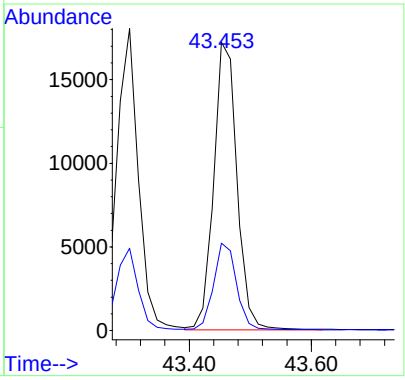


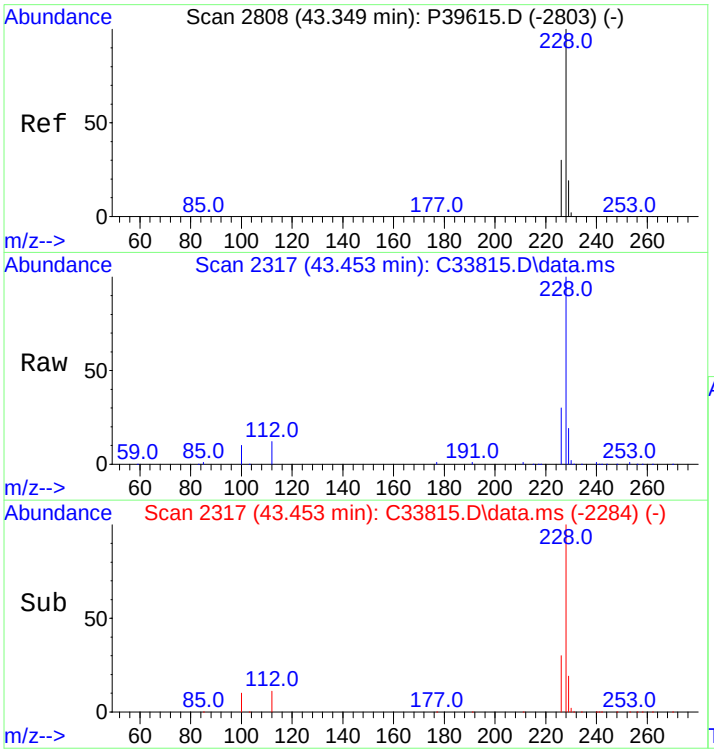


#76
Chrysene
Concen: 581.22 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45764

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

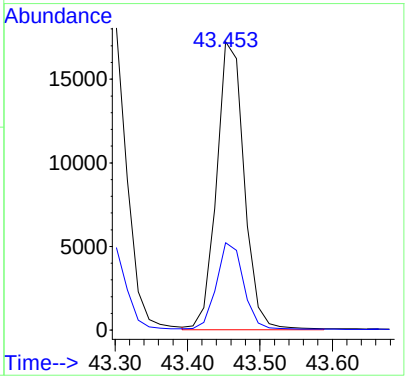


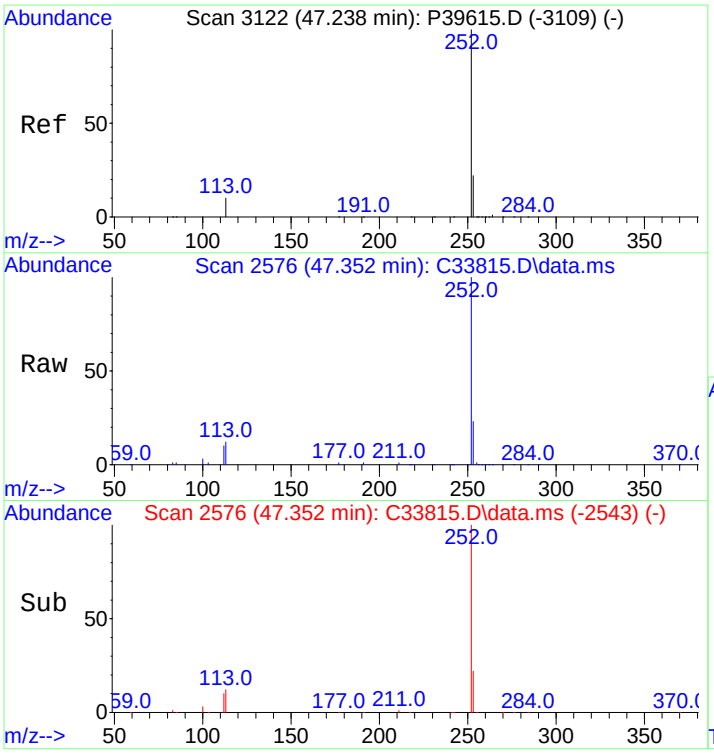


#77
Chrysene/Triphenylene
Concen: 581.91 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45818

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

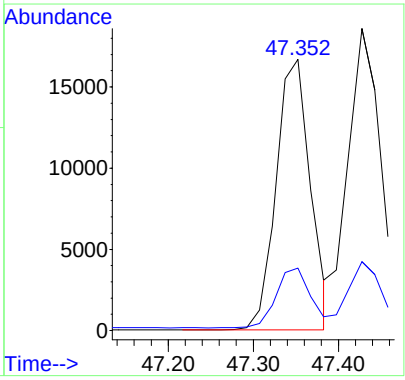


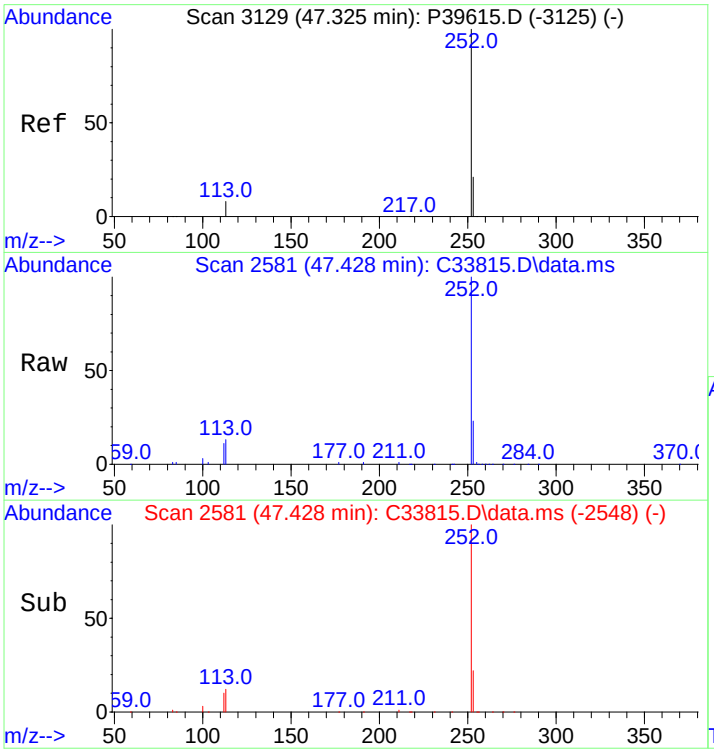


#82
Benzo[b]fluoranthene
Concen: 529.44 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46556

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

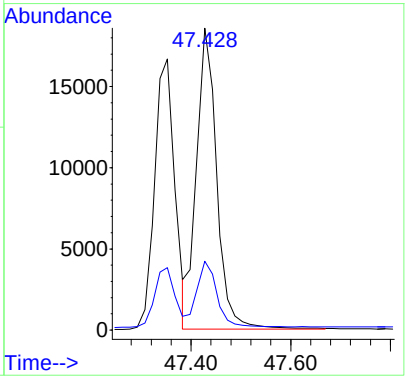


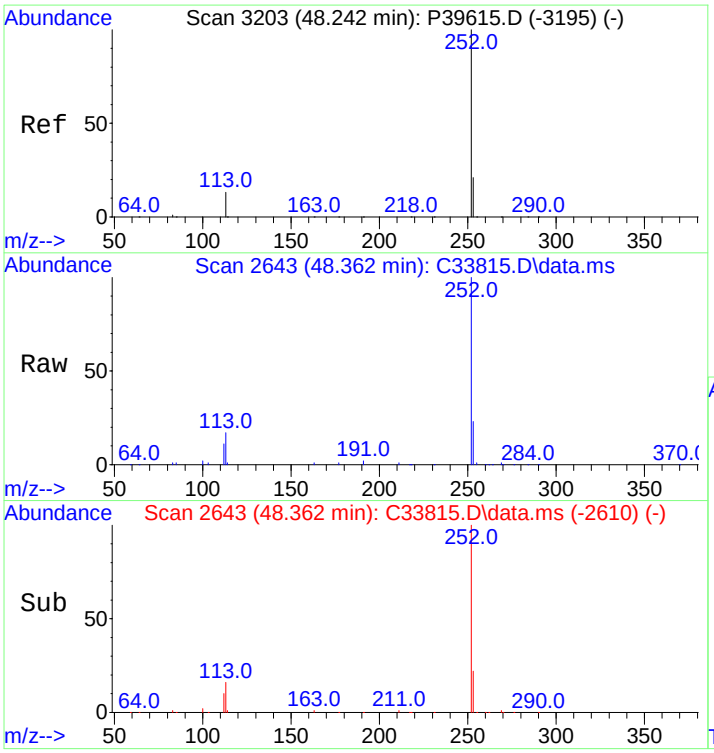


#83
Benzo[j]+[k]fluoranthene
Concen: 564.95 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 52521

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.2	27.4

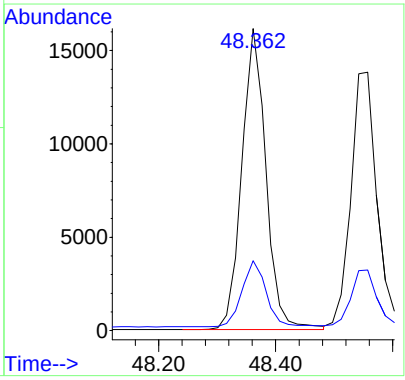


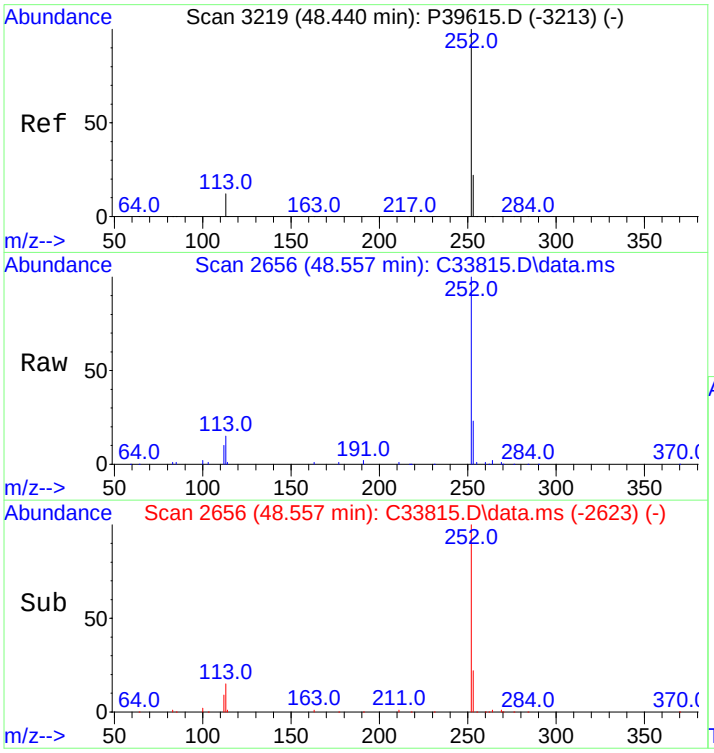


#85
Benzo[e]pyrene
Concen: 542.40 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 45904

Ion	Ratio	Lower	Upper
252	100		
253	22.4	18.5	27.7

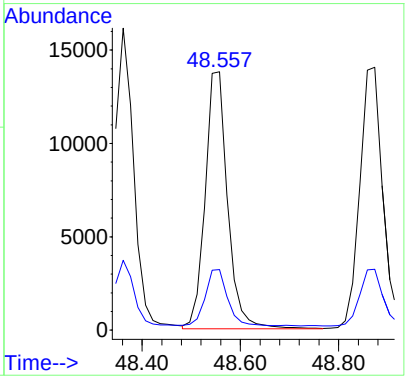


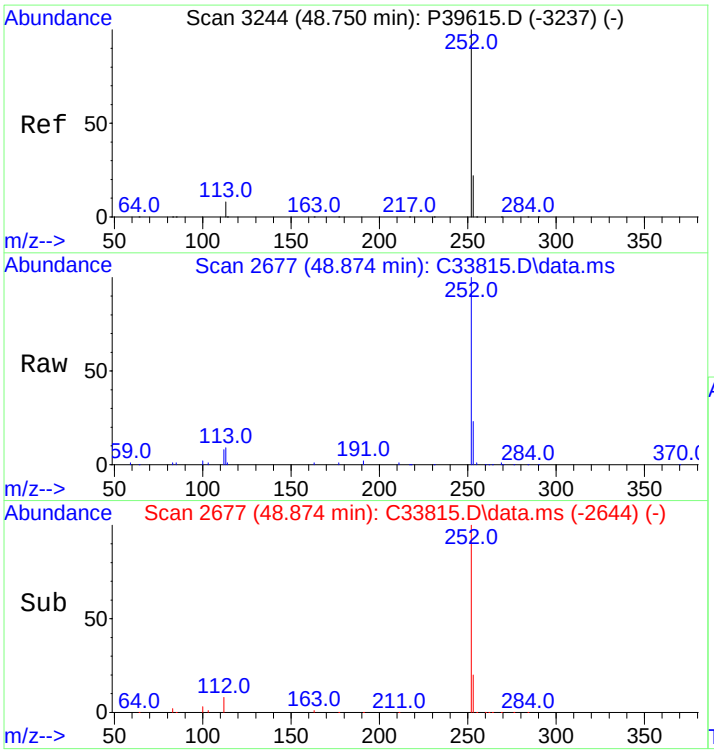


#87
Benzo[a]pyrene
Concen: 549.35 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 43695

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

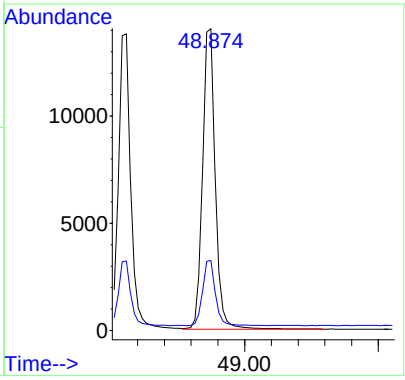


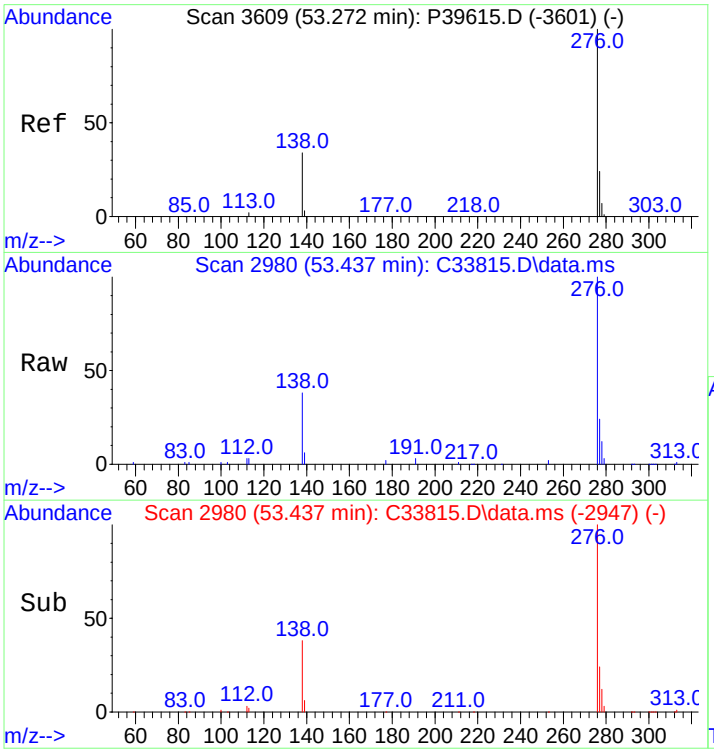


#88
Perylene
Concen: 545.55 ng/mL
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46371

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

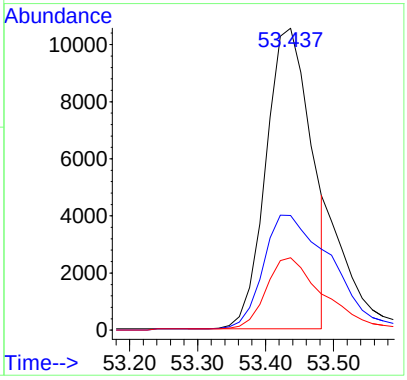


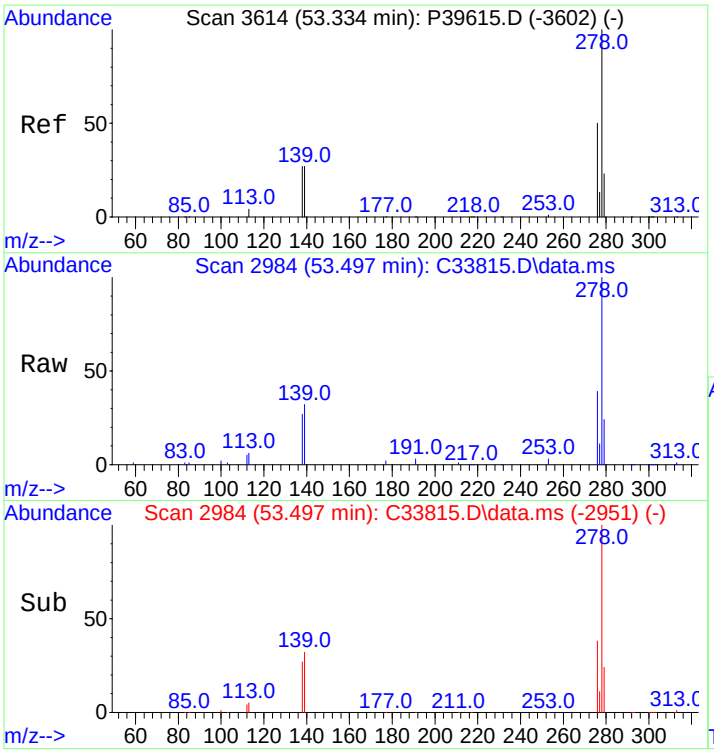


#89
Indeno[1,2,3-cd]pyrene
Concen: 532.49 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 48761

Ion	Ratio	Lower	Upper
276	100		
138	61.5	30.3	45.5#
277	31.4	19.2	28.8#

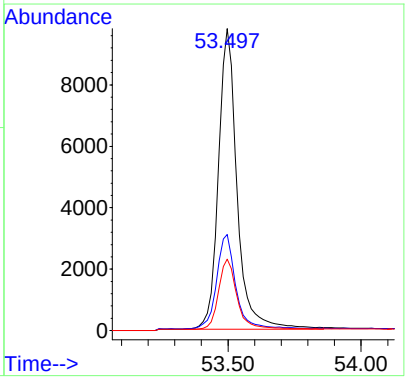


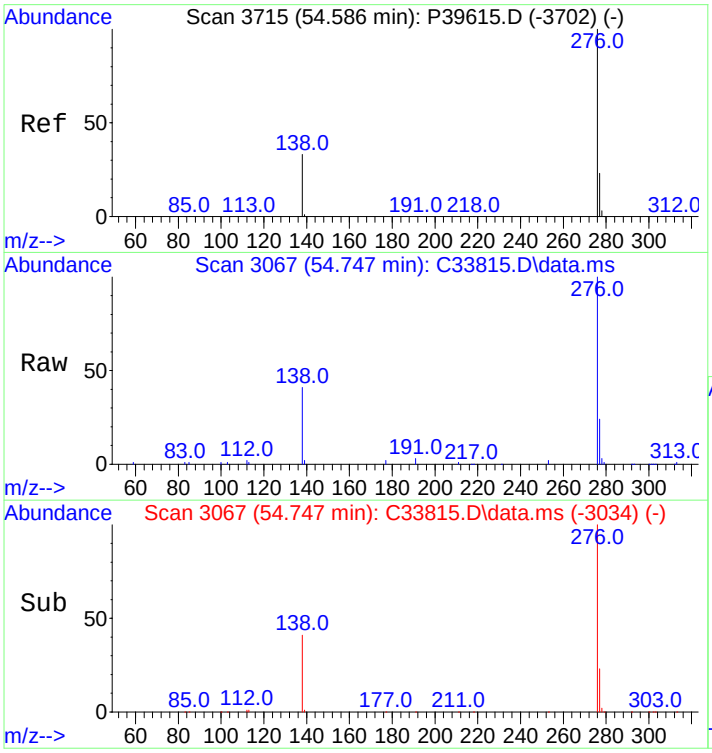


#90
Dibenz[ah]+[ac]anthracene
Concen: 556.84 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:278 Resp: 47935

Ion	Ratio	Lower	Upper
278	100		
139	33.4	25.4	38.2
279	24.0	19.0	28.4

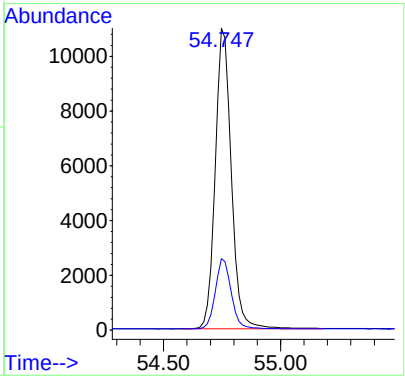


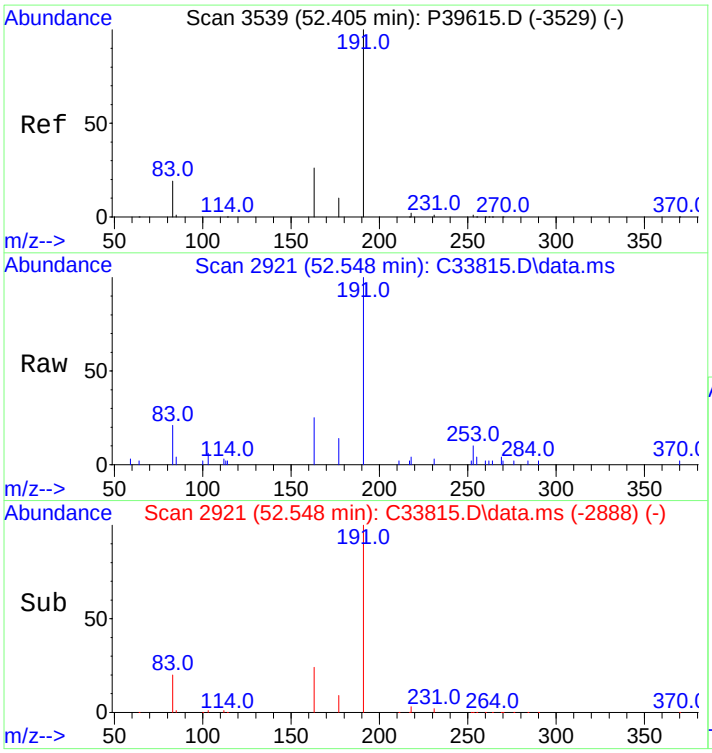


#91
Benzo[g,h,i]perylene
Concen: 561.01 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 52408

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

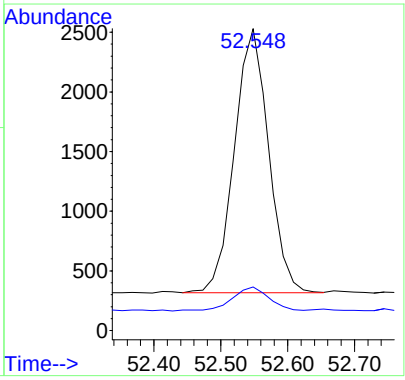


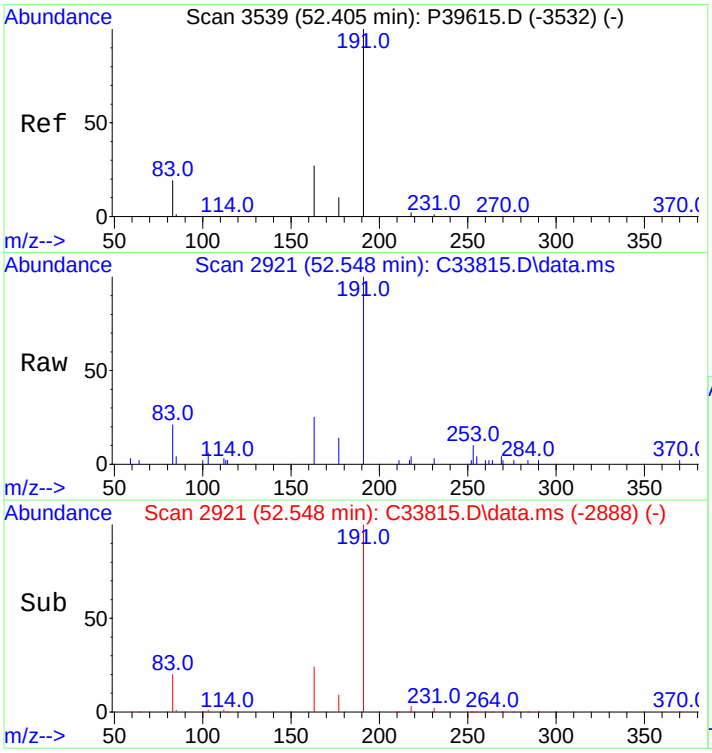


#92
Hopane (T19)
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#

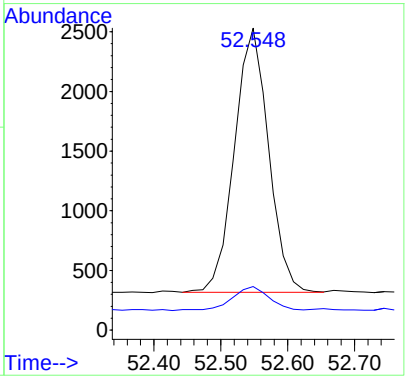




#93
17a(H),21B(H)-hopane - C30H52
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	22551M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	478162	6355.066	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 635.51%#			
42) Phenanthrene-d10	32.793	188	412777	4730.380	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 473.04%#			
86) Benzo[a]pyrene-d12	48.482	264	443076	5545.446	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 554.54%#			
127) 5B(H)Cholane - Surr	43.995	217	64588M4	4700.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 470.02%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	43356	2781.614	ng/mL	100
4) cis-Decalin	17.844	138	33472	2752.401	ng/mL	100
10) Naphthalene	20.042	128	717522M4	8843.529	ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	7511.855	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	7671.541	ng/mL#	100
18) Benzothiophene	20.268	134	651957	9797.743	ng/mL	100
23) Biphenyl	24.619	154	543936	7115.490	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	6667.718	ng/mL#	100
25) Dibenzofuran	27.705	168	643601	7246.670	ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	8216.990	ng/mL	
27) Acenaphthene	27.057	153	436514M4	7510.380	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	298218	5866.548	ng/mL	98
29) Fluorene	29.075	166	496059M4	6858.178	ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	7268.637	ng/mL	
43) Phenanthrene	32.883	178	705493M4	6428.067	ng/mL	
54) Retene	39.869	234	149798	4693.772	ng/mL	94
55) Anthracene	33.064	178	710151M4	6678.295	ng/mL	
56) Carbazole	33.726	167	724874M3	7421.536	ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5549.758	ng/mL	
58) Fluoranthene	37.656	202	730627M3	5505.463	ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5131.170	ng/mL	
60) Pyrene	38.544	202	747539M4	5491.938	ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5776.683	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	821825M4	5777.801	ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5809.075	ng/mL	99
76) Chrysene	43.468	228	665554M4	5731.133	ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5730.238	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5709.986	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5808.435	ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5757.223	ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5991.154	ng/mL	
88) Perylene	48.889	252	752672	6003.913	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	6210.458	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	6184.645	ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838517	6085.922	ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	5641.802	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	122720M3	5638.678	ng/mL	

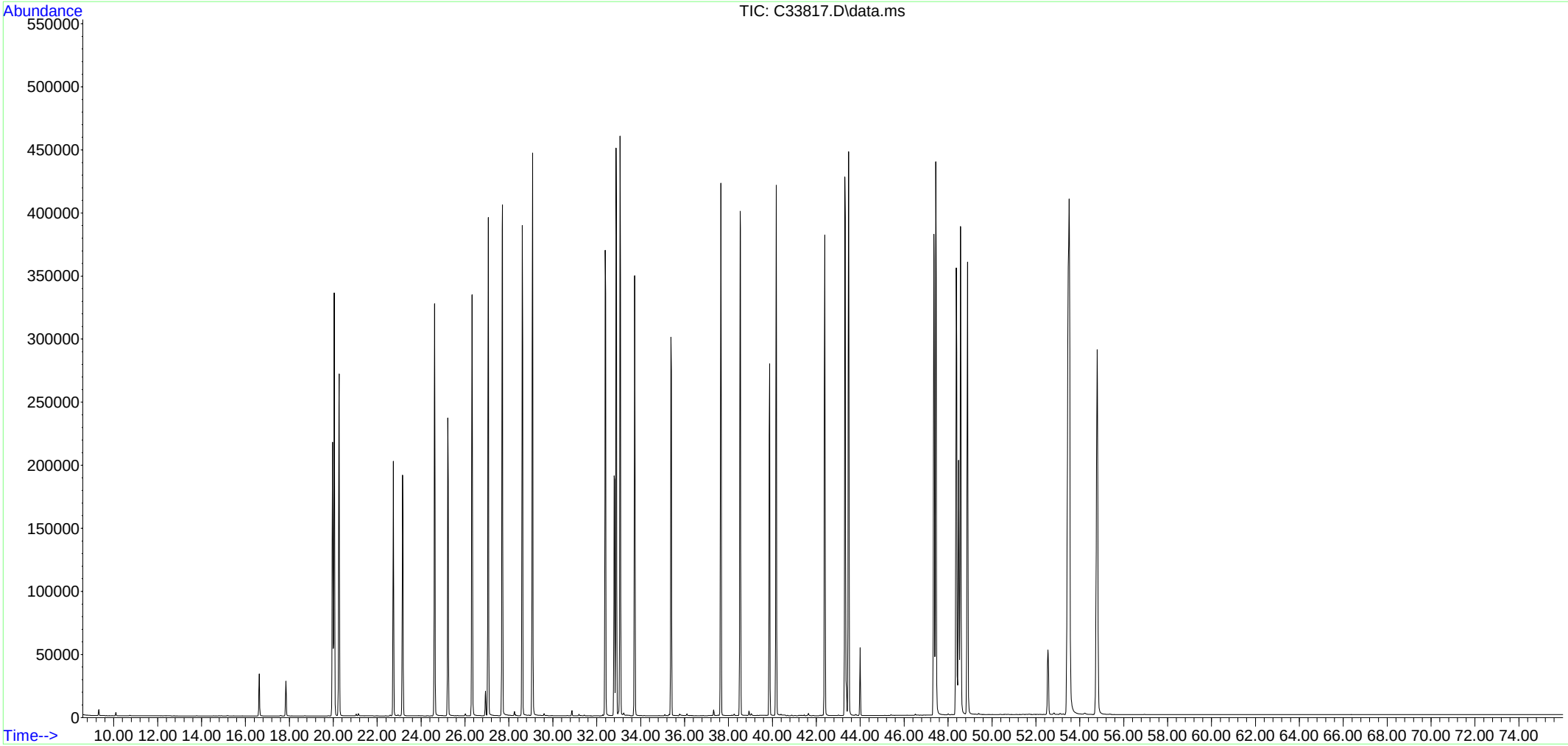
(#) = qualifier out of range (m) = manual integration (+) = signals summed

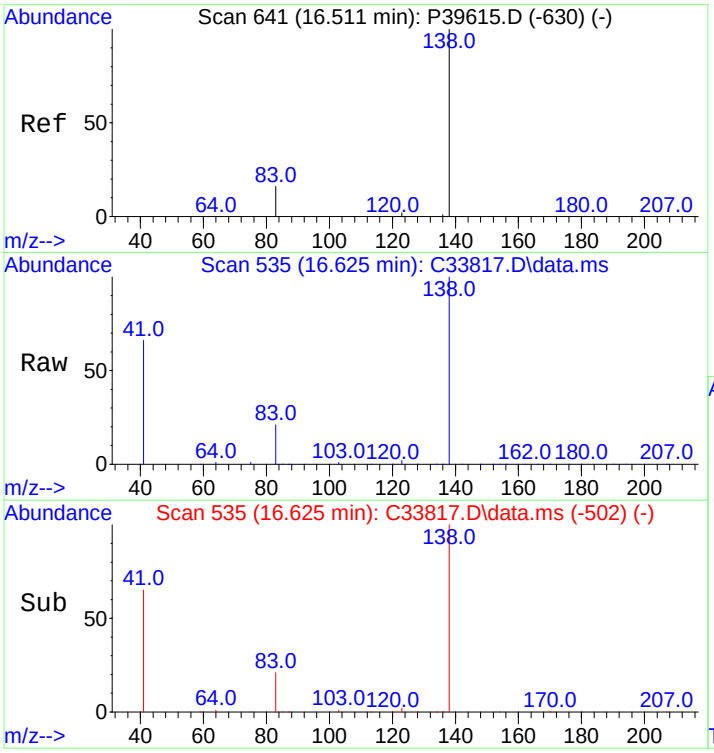
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

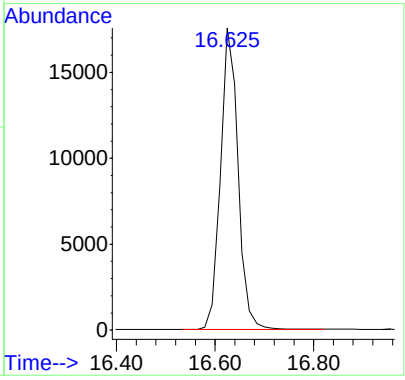
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

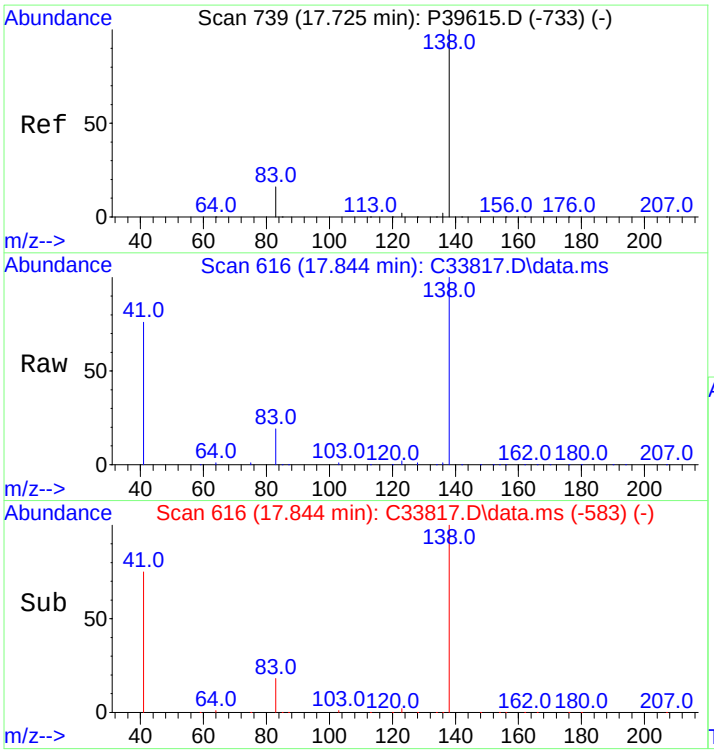




#3
trans-Decalin
Concen: 2781.61 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

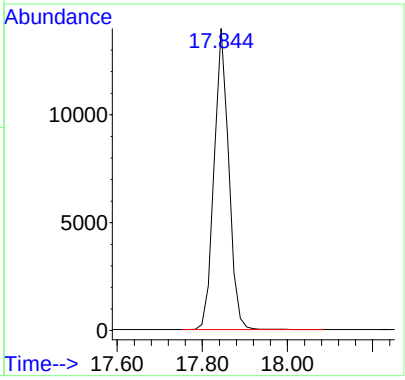
Tgt Ion:138 Resp: 43356

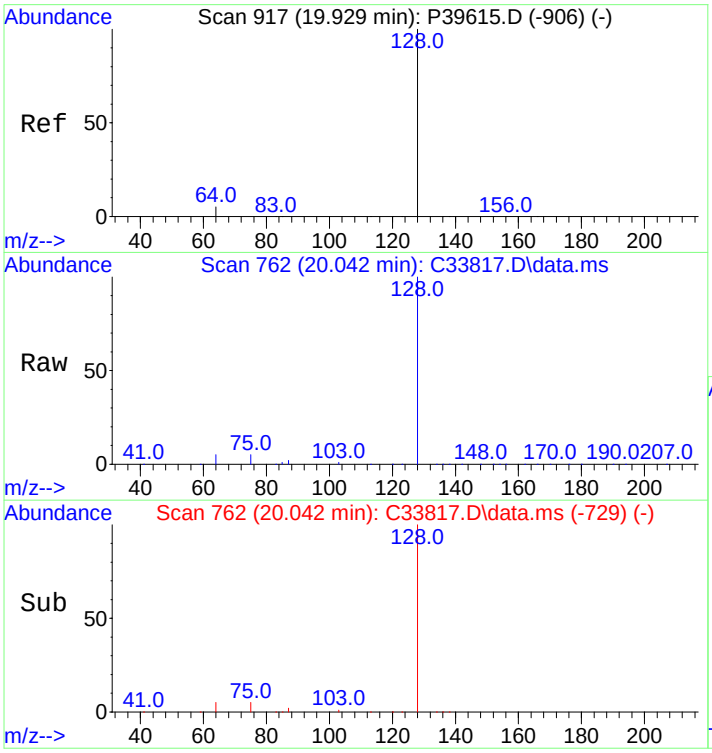




#4
cis-Decalin
Concen: 2752.40 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:138 Resp: 33472

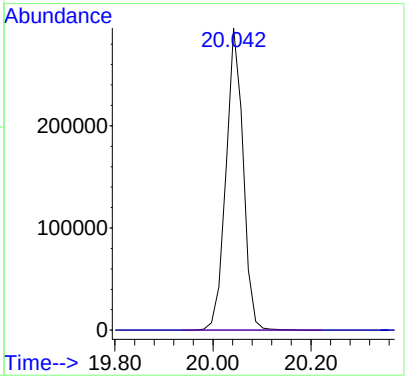


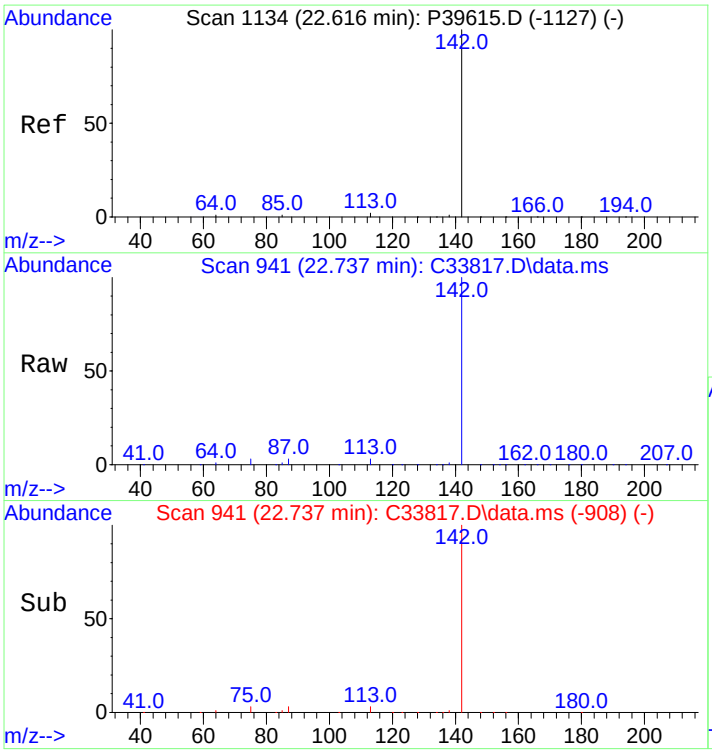


#10
Naphthalene
Concen: 8843.53 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:128 Resp: 717522

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

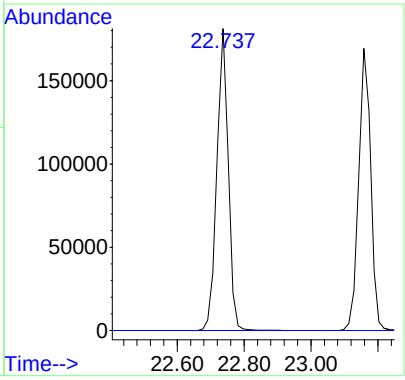


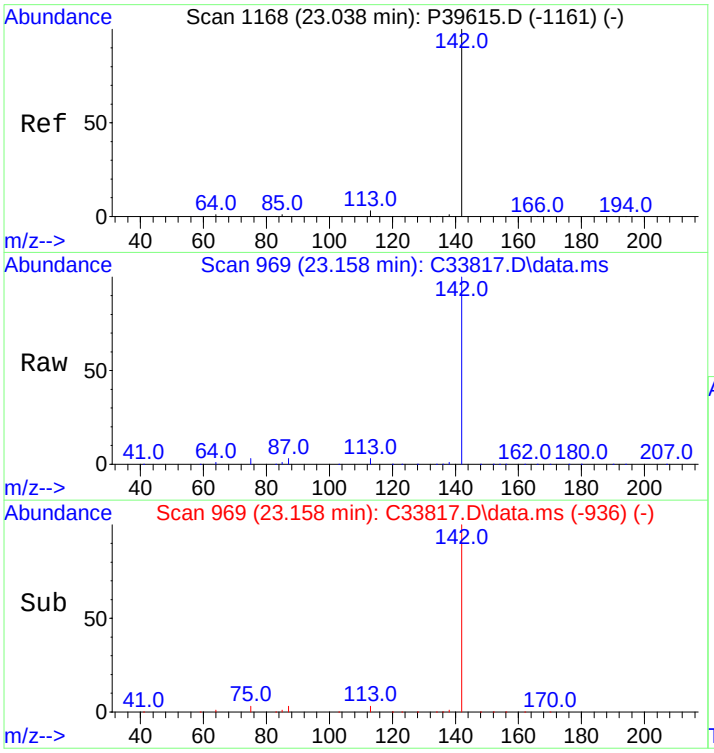


#16
2-Methylnaphthalene
Concen: 7511.86 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 430330

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

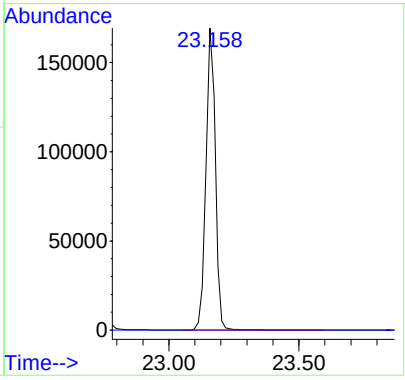


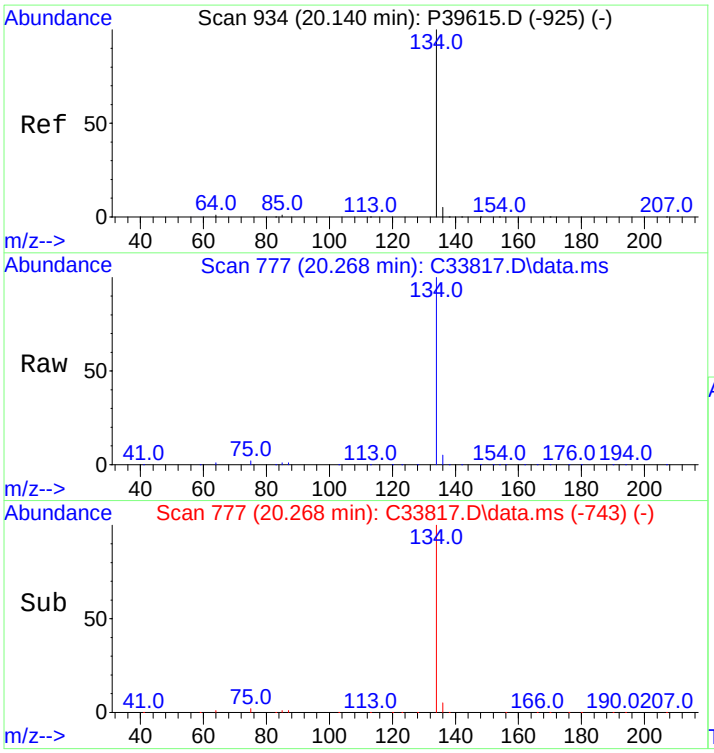


#17
1-Methylnaphthalene
Concen: 7671.54 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 421519

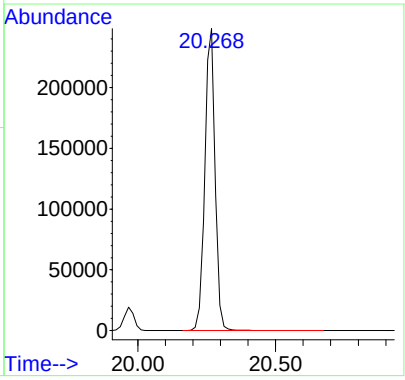
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

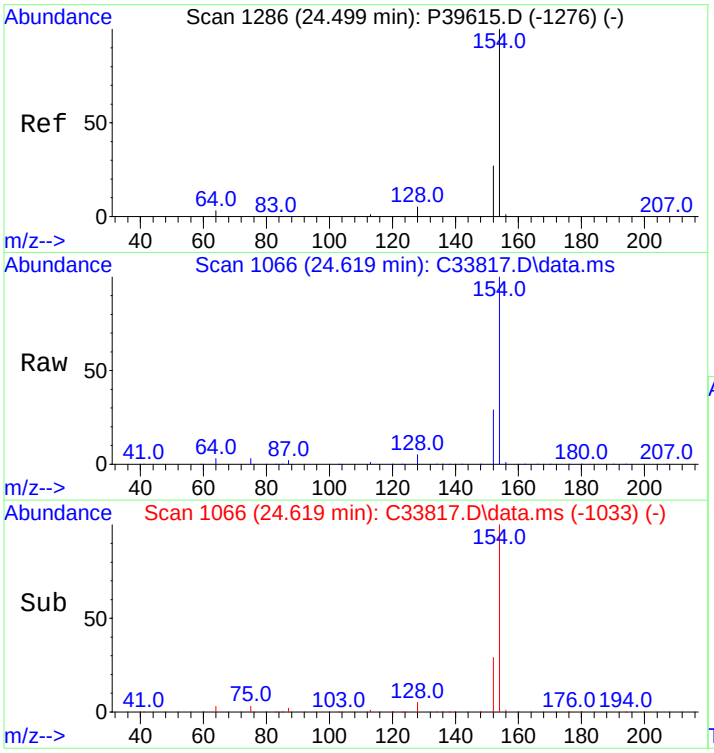




#18
Benzothiophene
Concen: 9797.74 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:134 Resp: 651957

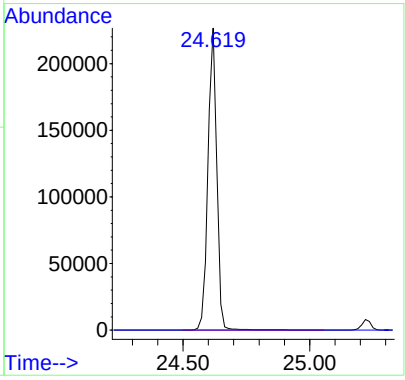


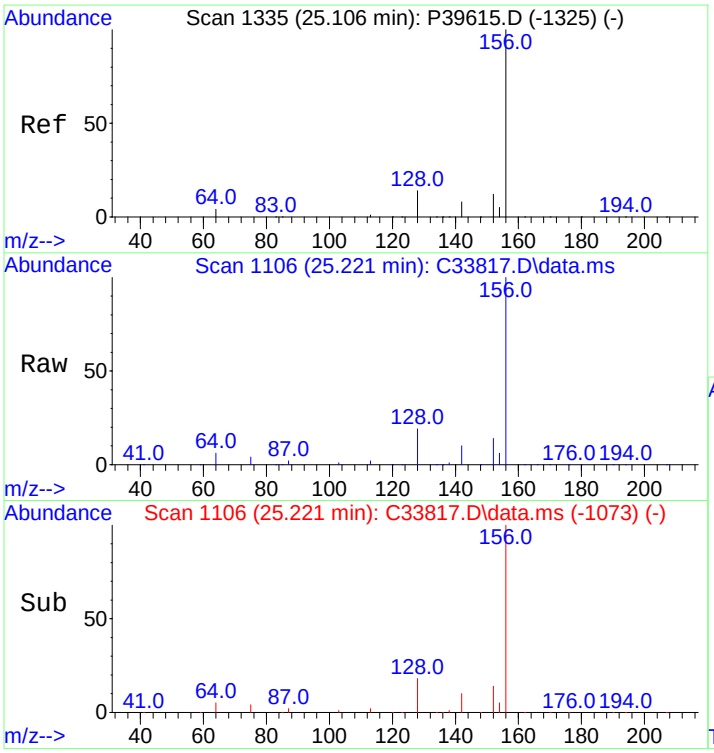


#23
Biphenyl
Concen: 7115.49 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:154 Resp: 543936

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

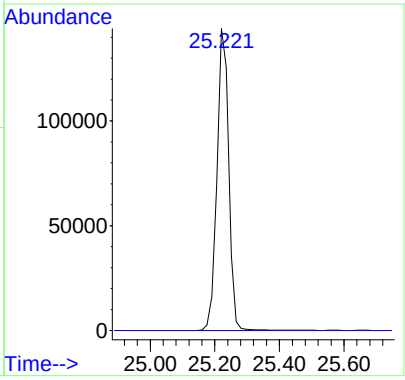


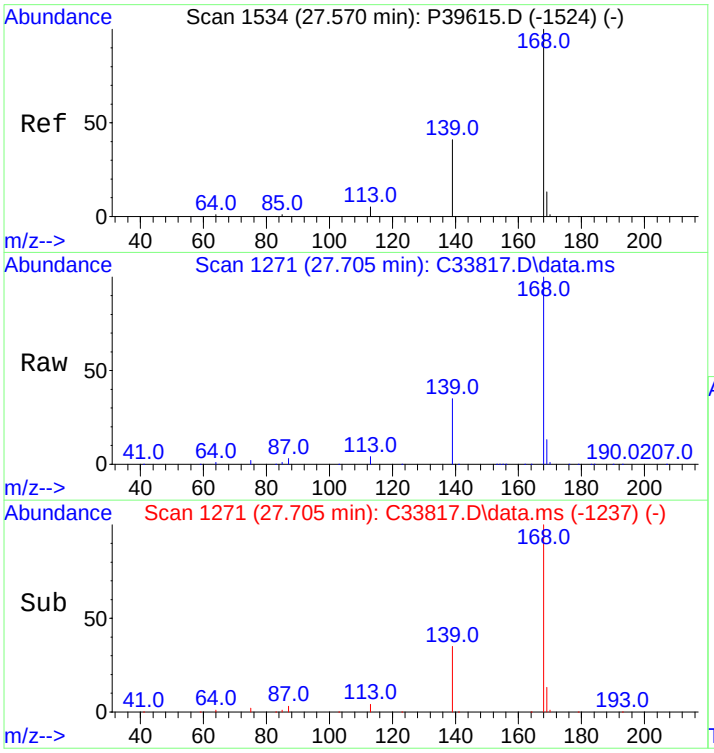


#24
2,6-Dimethylnaphthalene
Concen: 6667.72 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:156 Resp: 363362

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

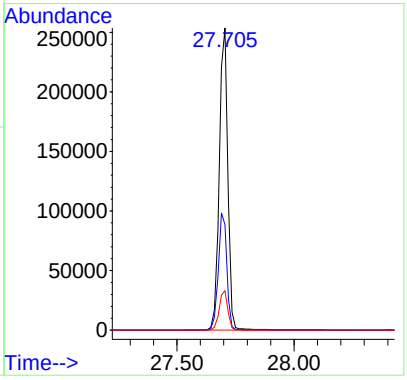


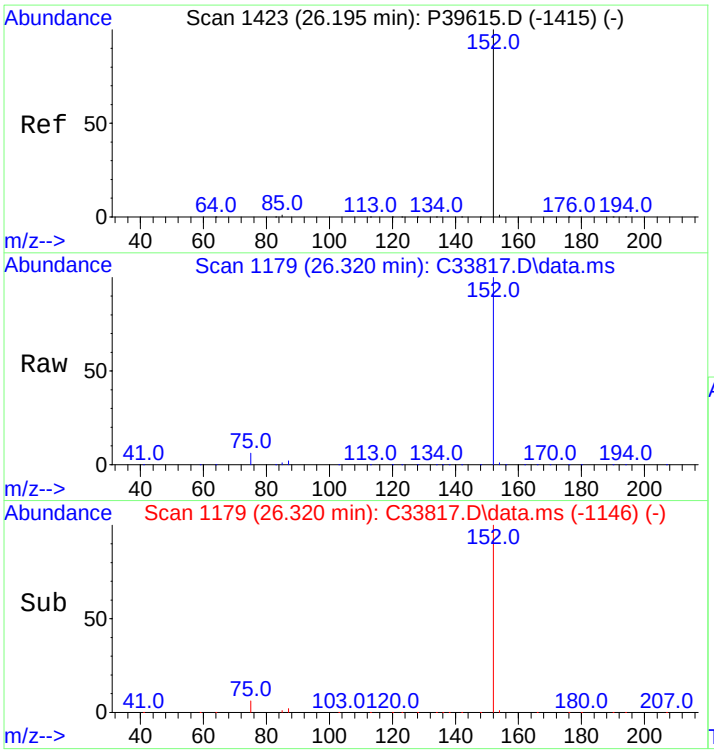


#25
Dibenzofuran
Concen: 7246.67 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:168 Resp: 643601

Ion	Ratio	Lower	Upper
168	100		
139	38.8	32.9	49.3
169	13.1	10.6	16.0

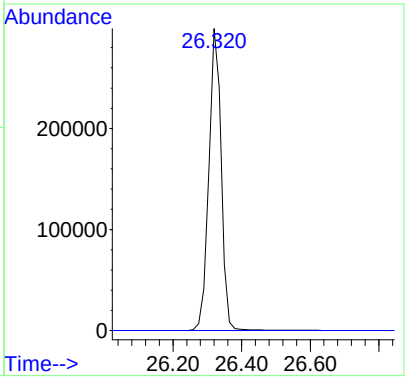


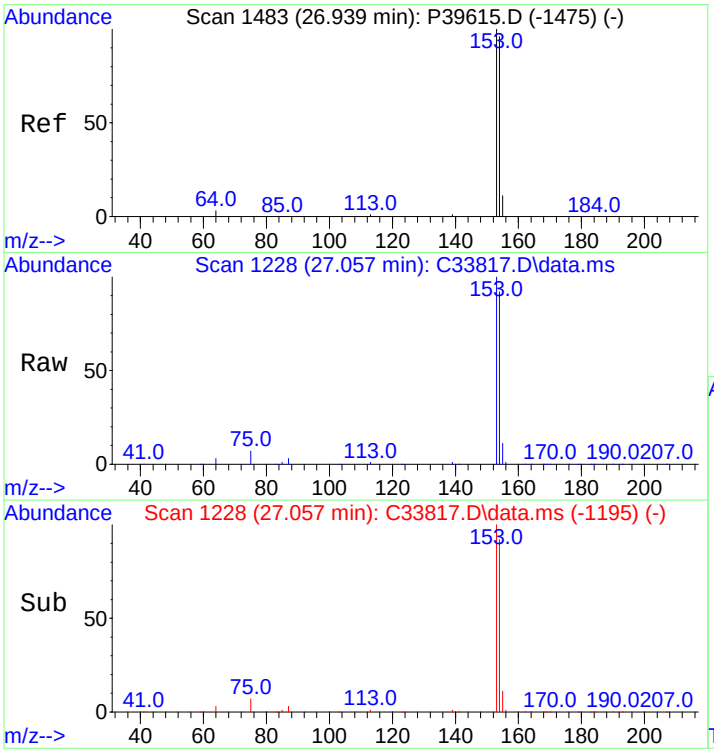


#26
Acenaphthylene
Concen: 8216.99 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:152 Resp: 752161

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

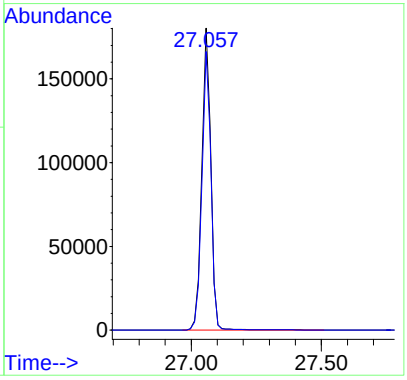


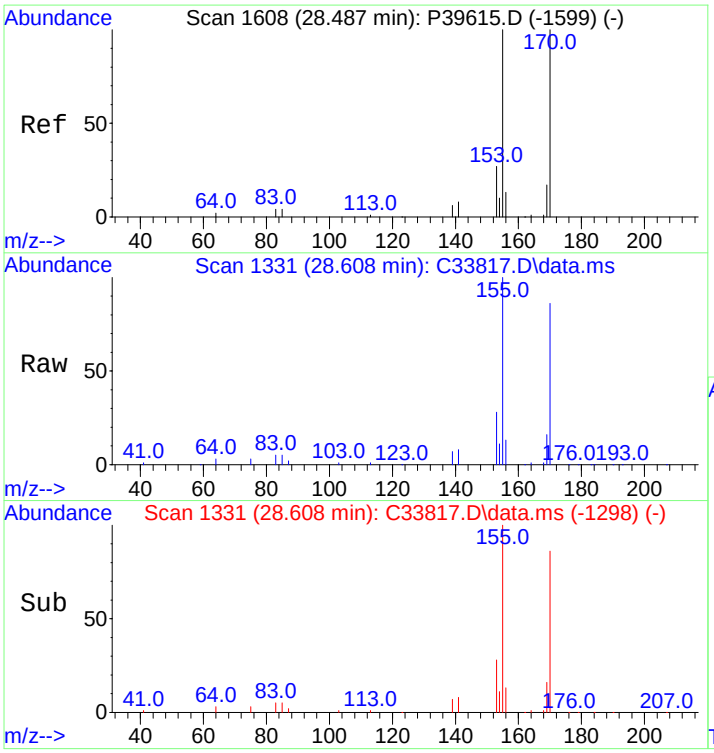


#27
Acenaphthene
Concen: 7510.38 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:153 Resp: 436514

Ion	Ratio	Lower	Upper
153	100		
154	92.5	75.0	112.6

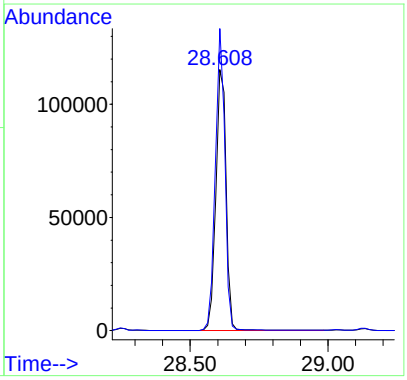


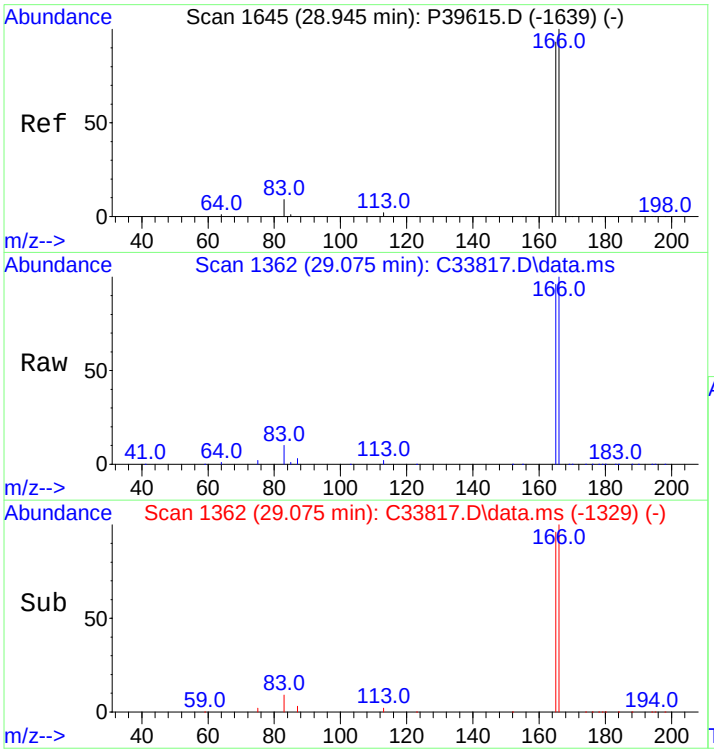


#28
2,3,5-Trimethylnaphthalene
Concen: 5866.55 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:170 Resp: 298218

Ion	Ratio	Lower	Upper
170	100		
155	107.7	84.7	127.1

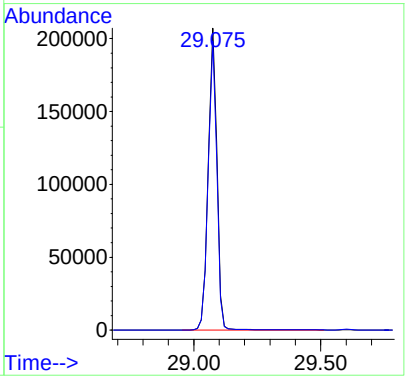


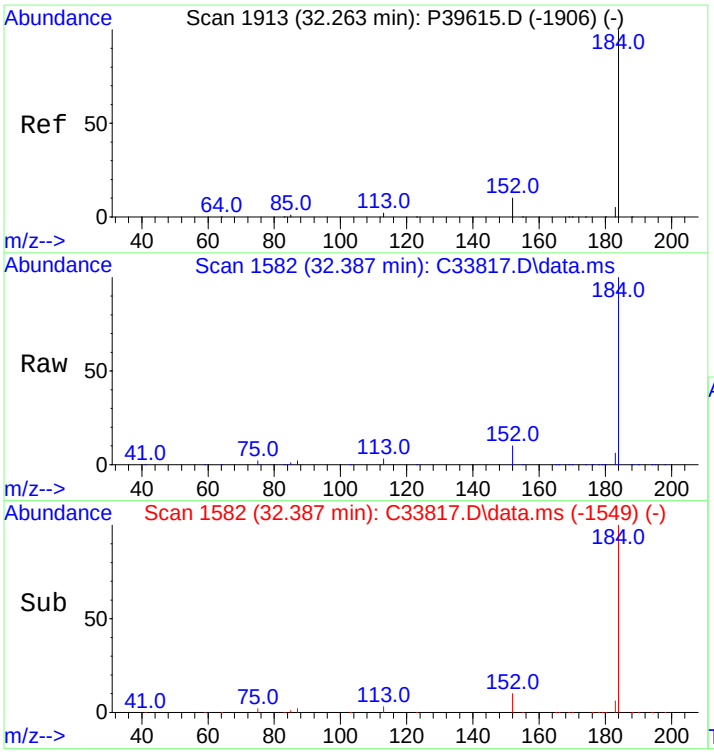


#29
Fluorene
Concen: 6858.18 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:166 Resp: 496059

Ion	Ratio	Lower	Upper
166	100		
165	95.5	75.3	112.9

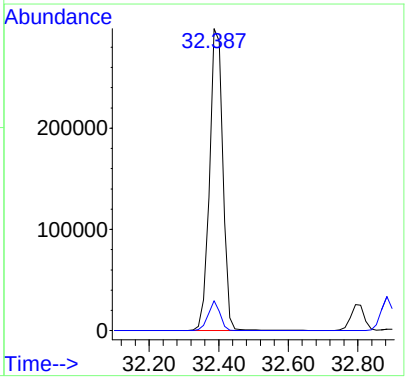


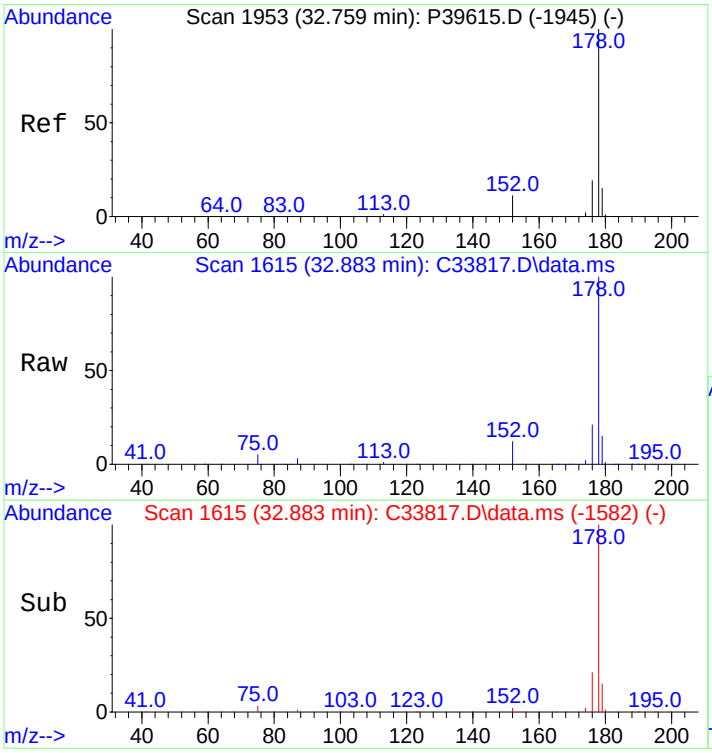


#33
Dibenzothiophene
Concen: 7268.64 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:184 Resp: 793951

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

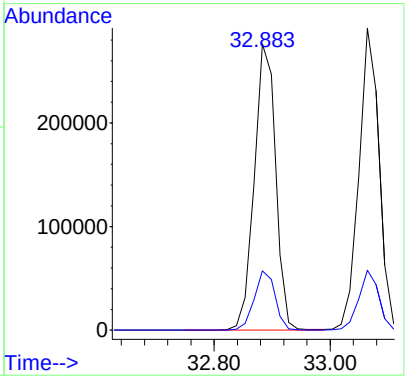


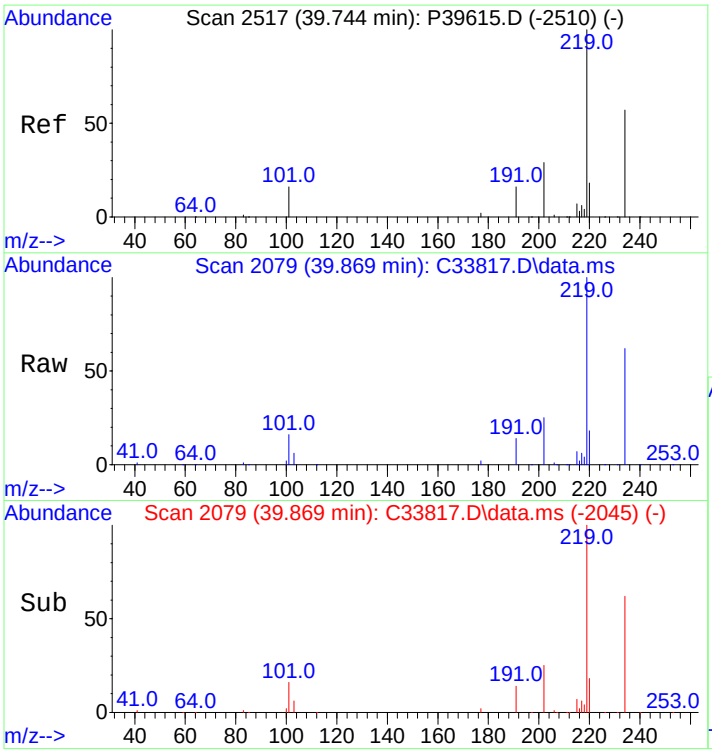


#43
Phenanthrene
Concen: 6428.07 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 705493

Ion	Ratio	Lower	Upper
178	100		
176	20.2	15.9	23.9

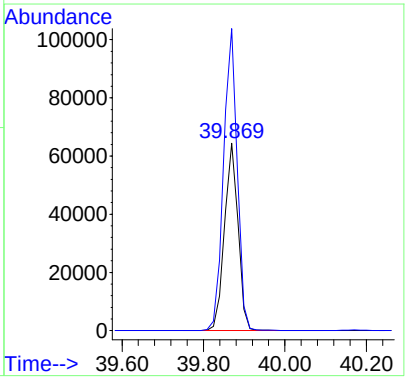


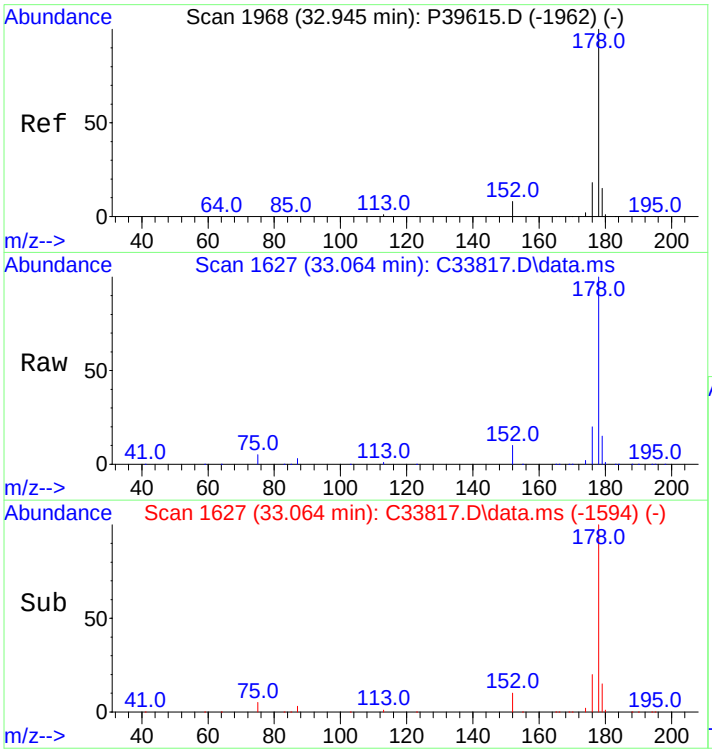


#54
Retene
Concen: 4693.77 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 149798

Ion	Ratio	Lower	Upper
234	100		
219	162.3	136.6	204.8

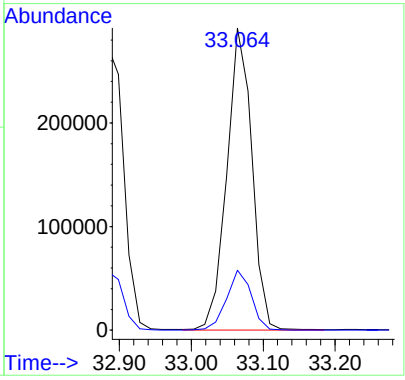


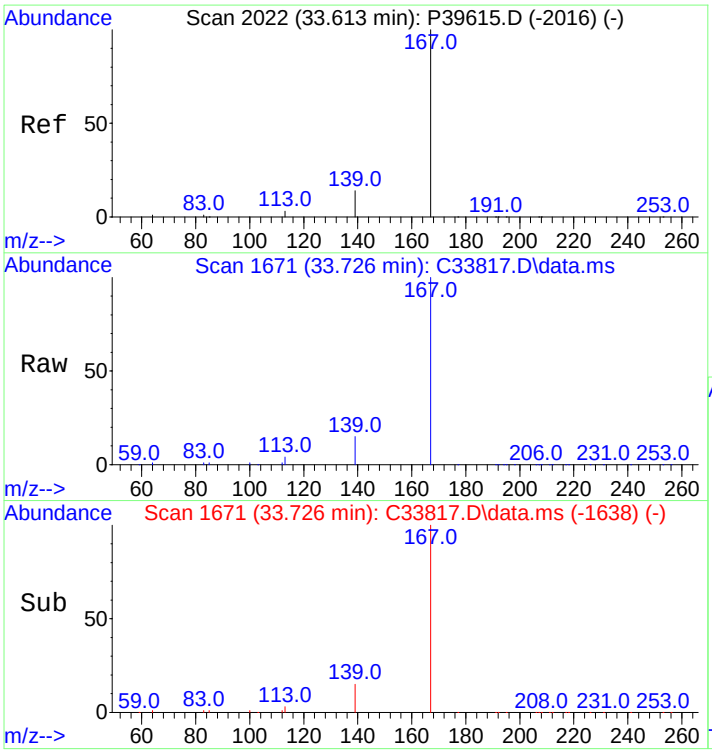


#55
Anthracene
Concen: 6678.30 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 710151

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.4	23.0

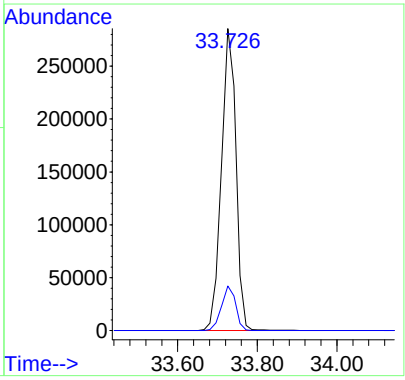


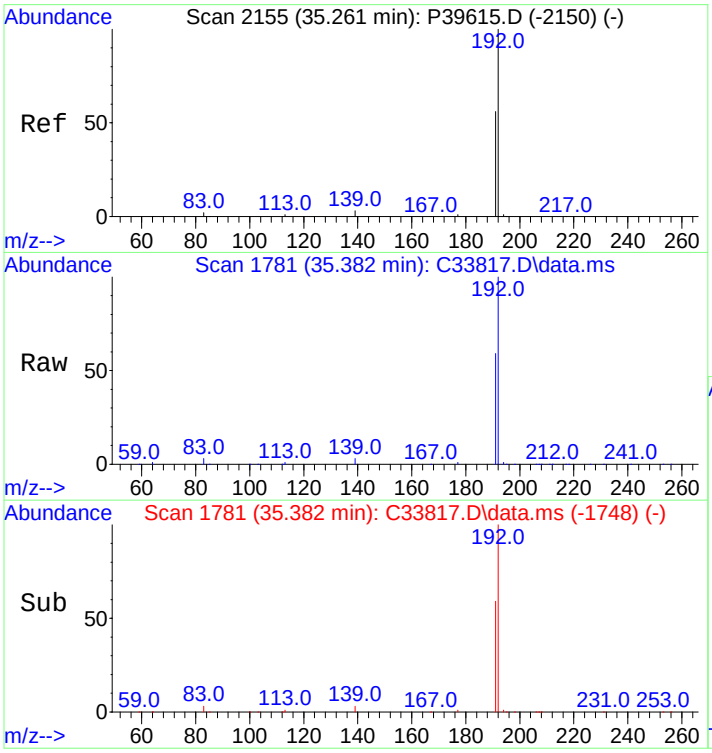


#56
Carbazole
Concen: 7421.54 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:167 Resp: 724874

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

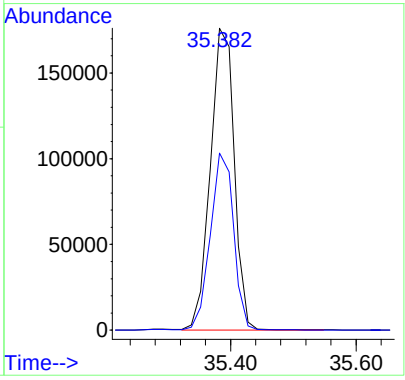


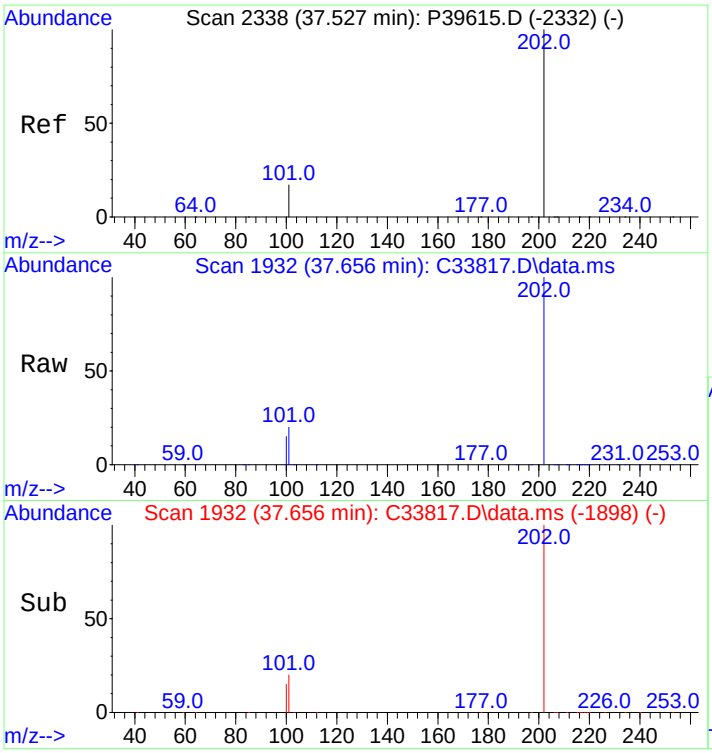


#57
1-Methylphenanthrene
Concen: 5549.76 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:192 Resp: 466229

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

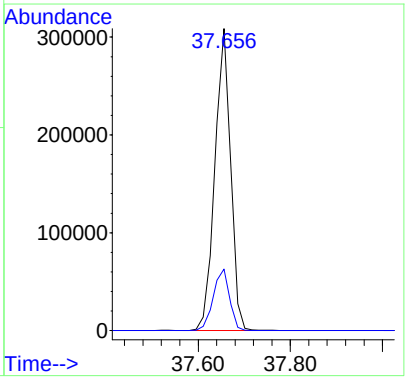


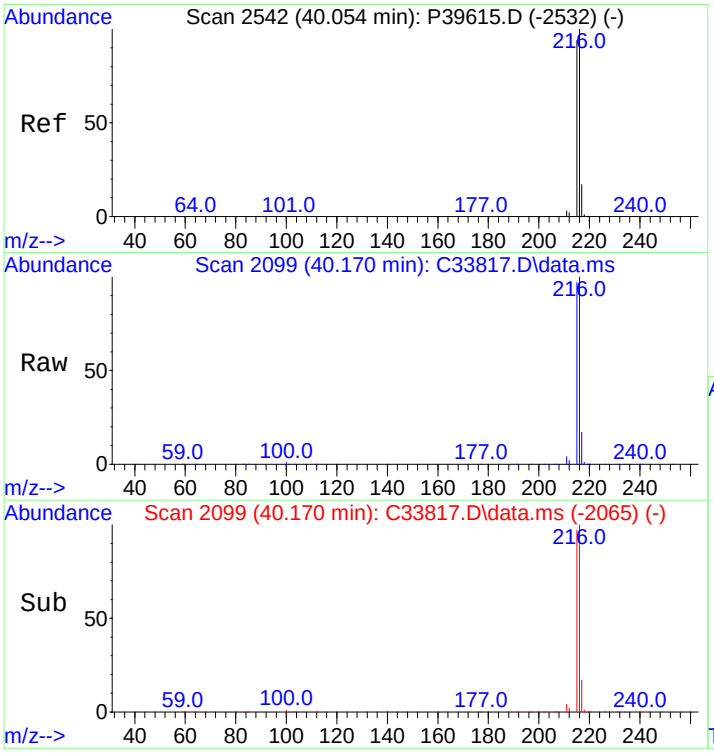


#58
Fluoranthene
Concen: 5505.46 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 730627

Ion	Ratio	Lower	Upper
202	100		
101	21.1	19.1	28.7

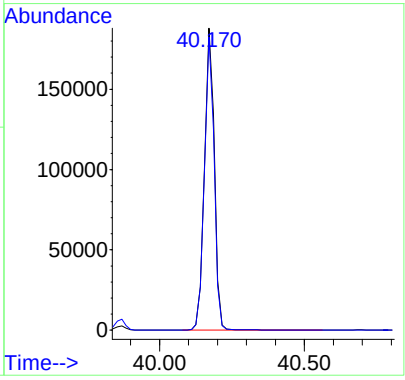


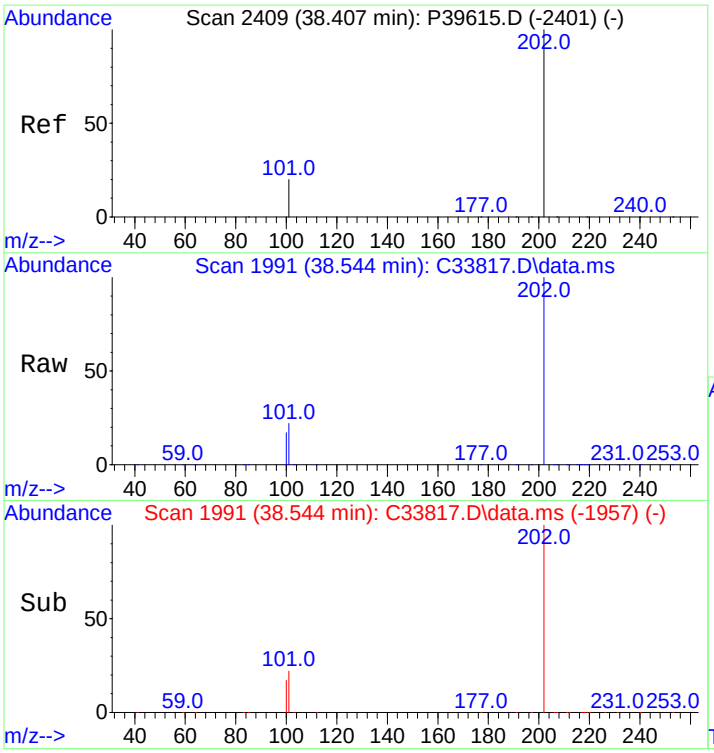


#59
Benzo(b)fluorene
Concen: 5131.17 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:216 Resp: 444745

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

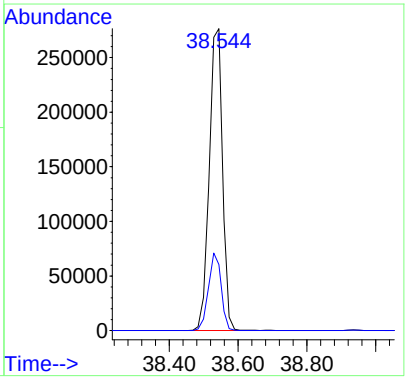


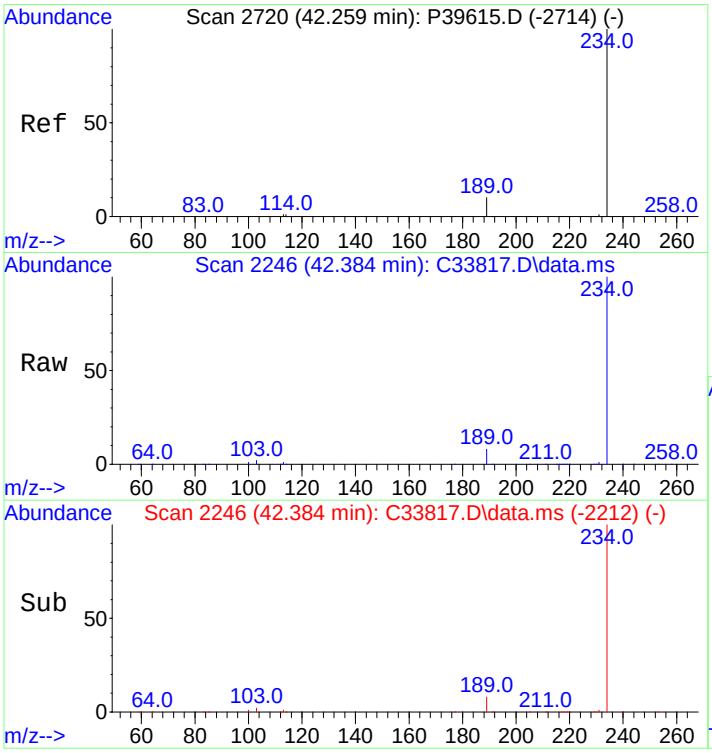


#60
Pyrene
Concen: 5491.94 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 747539

Ion	Ratio	Lower	Upper
202	100		
101	24.6	20.4	30.6

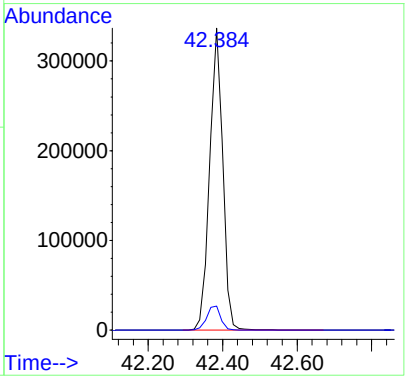


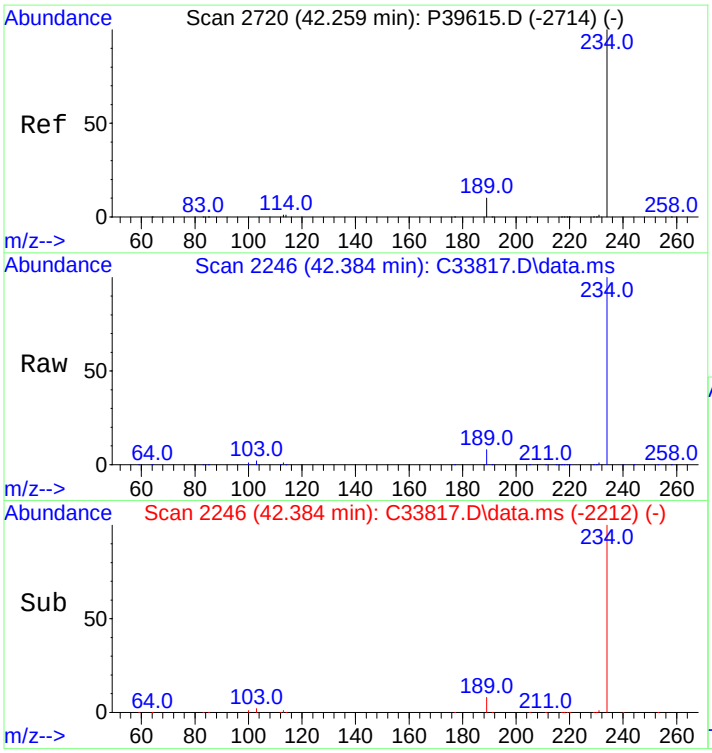


#66
Naphthobenzothiophene
Concen: 5776.68 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821666

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

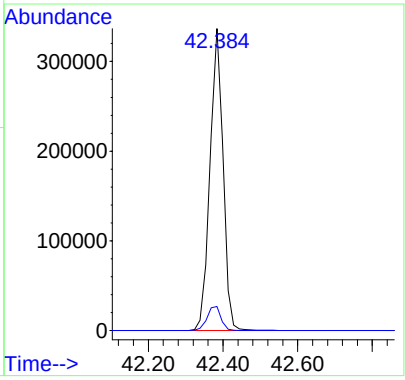


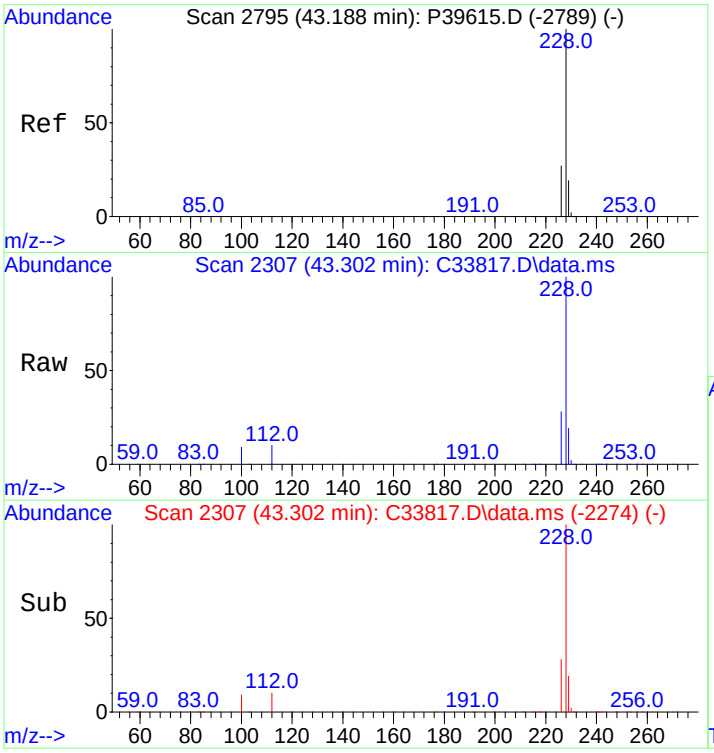


#67
Naphthobenzothiophene-2,1-D
Concen: 5777.80 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821825

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

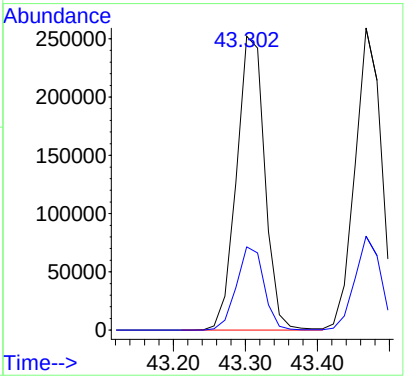


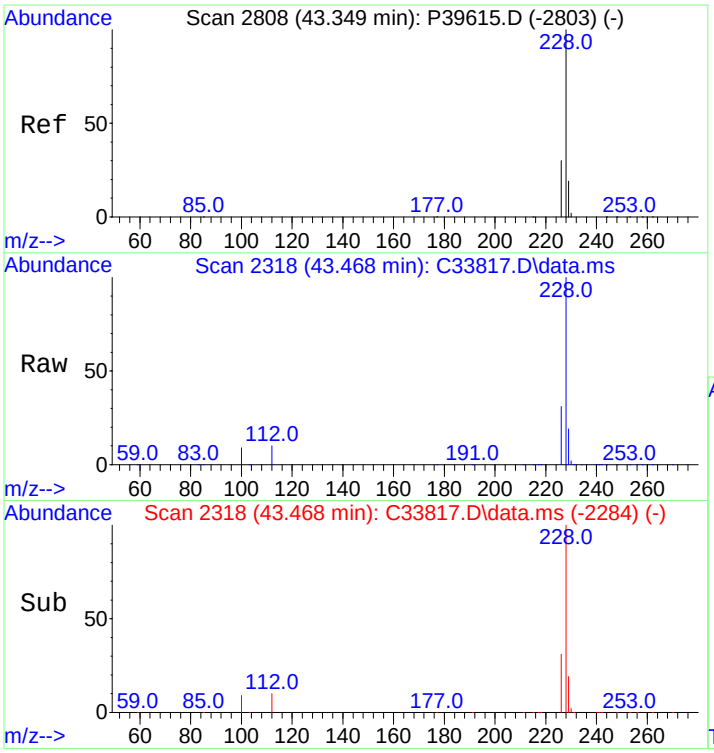


#75
Benz[a]anthracene
Concen: 5809.08 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 684713

Ion	Ratio	Lower	Upper
228	100		
226	27.7	21.8	32.8

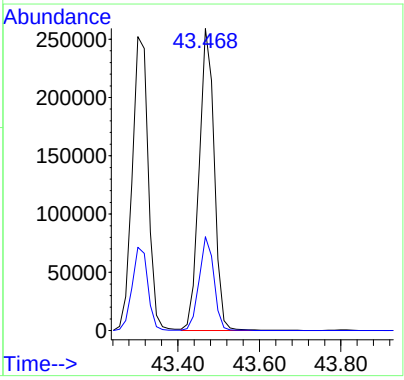


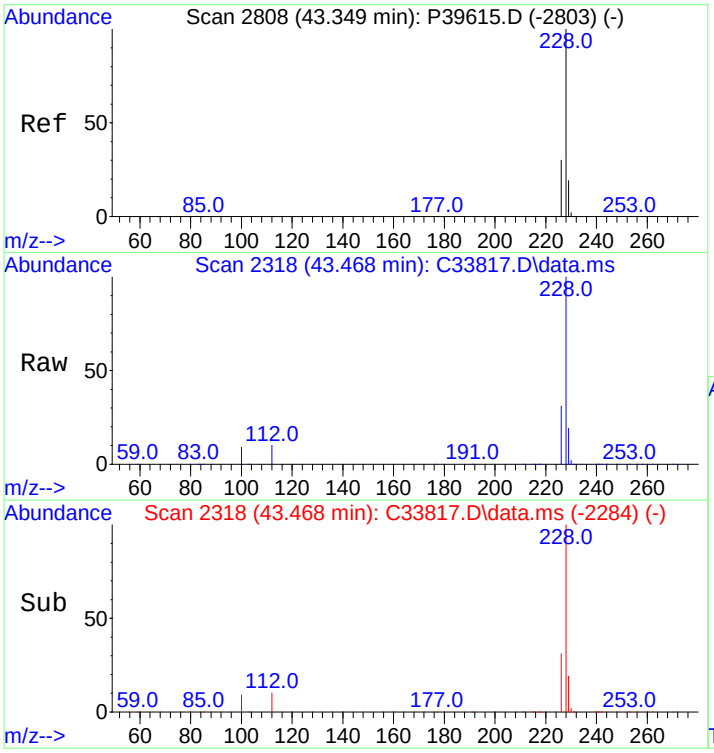


#76
Chrysene
Concen: 5731.13 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665554

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

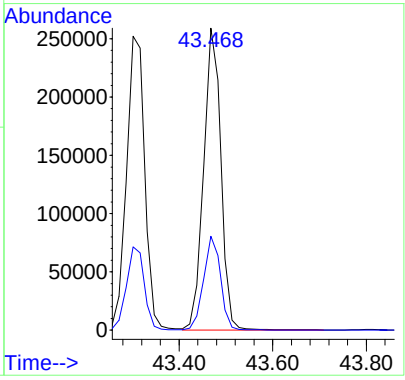


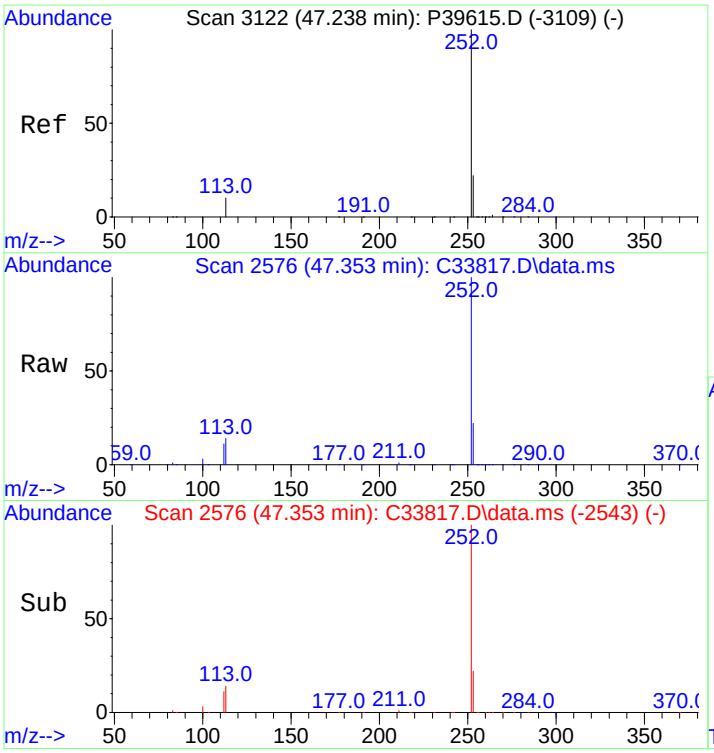


#77
Chrysene/Triphenylene
Concen: 5730.24 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665450

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

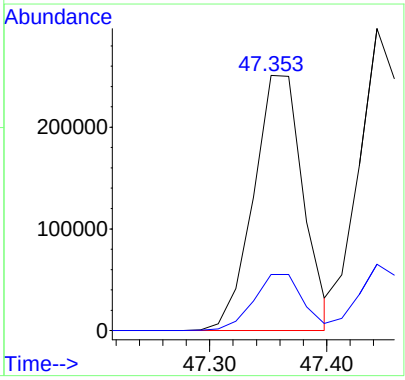


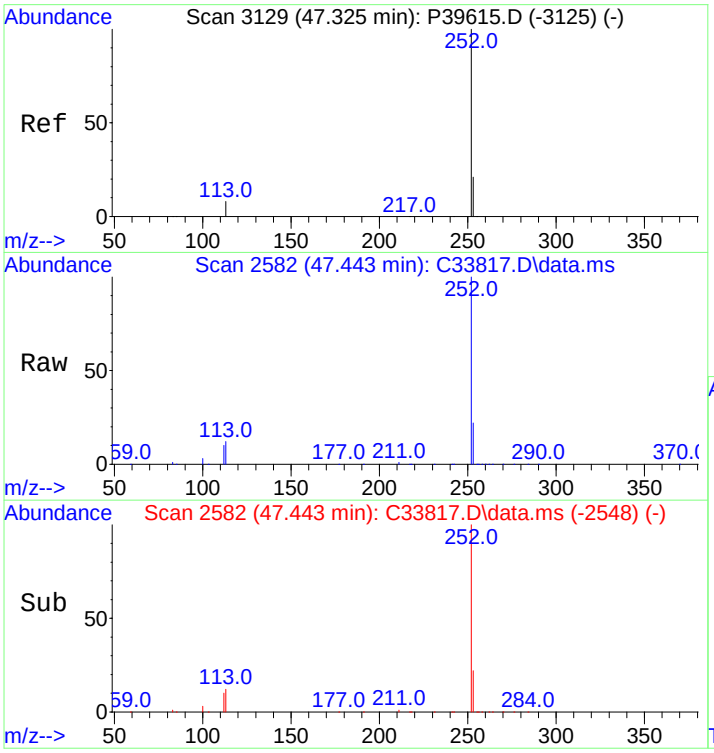


#82
Benzo[b]fluoranthene
Concen: 5709.99 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 740558

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

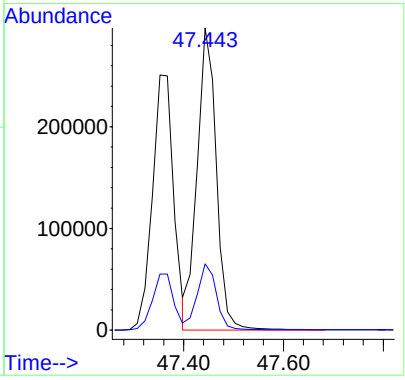


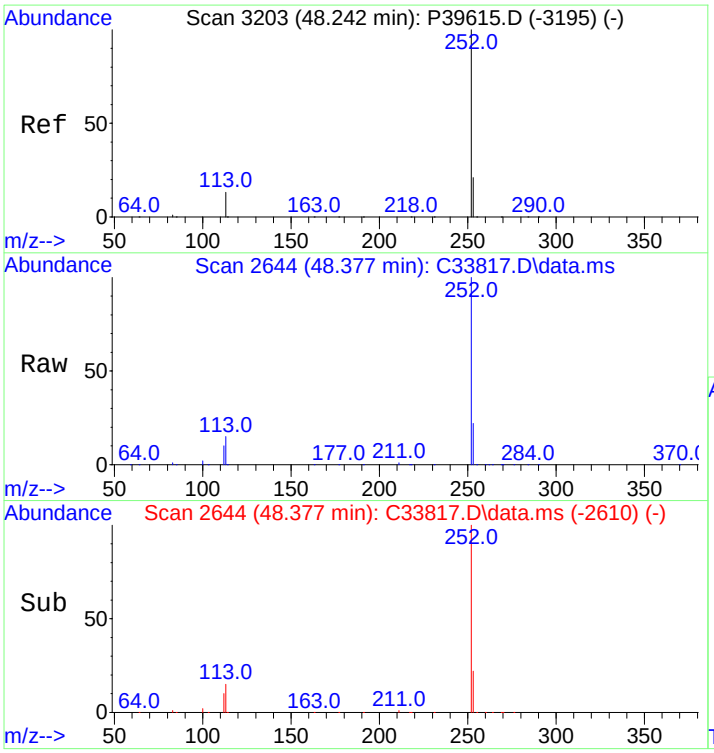


#83
Benzo[j]+[k]fluoranthene
Concen: 5808.43 ng/mL m
RT: 47.443 min Scan# 2582
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 796417

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.2	27.4

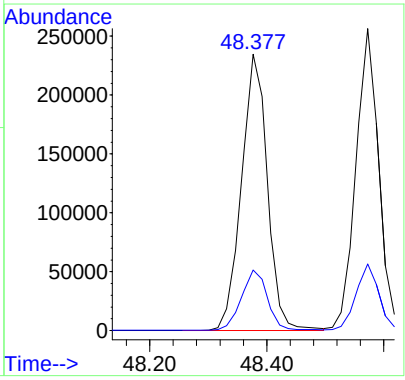


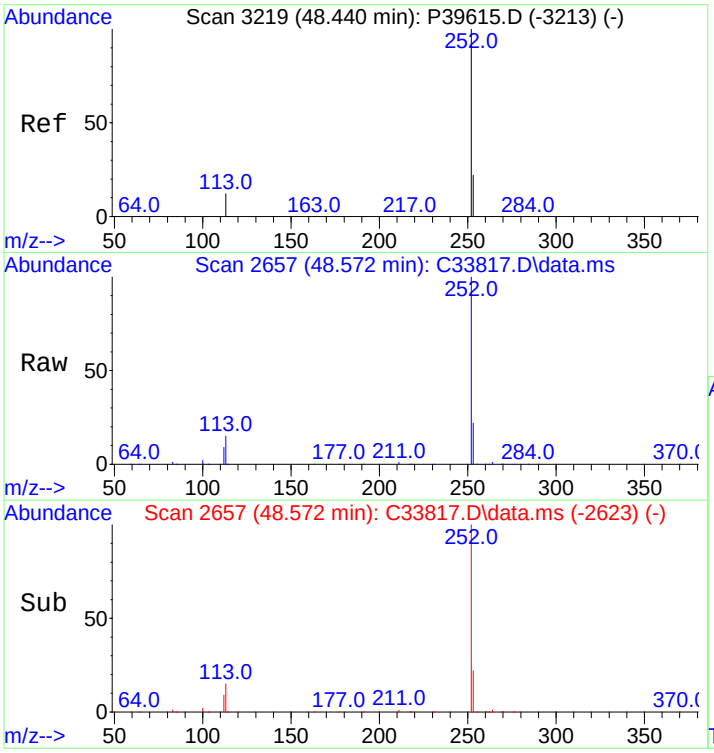


#85
Benzo[e]pyrene
Concen: 5757.22 ng/mL
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 718635

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

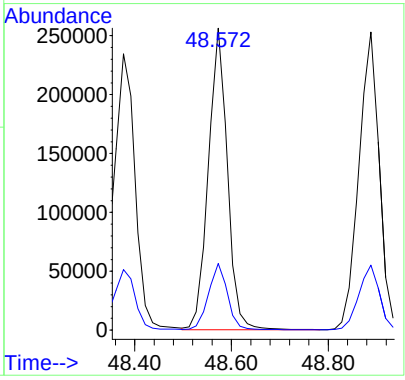


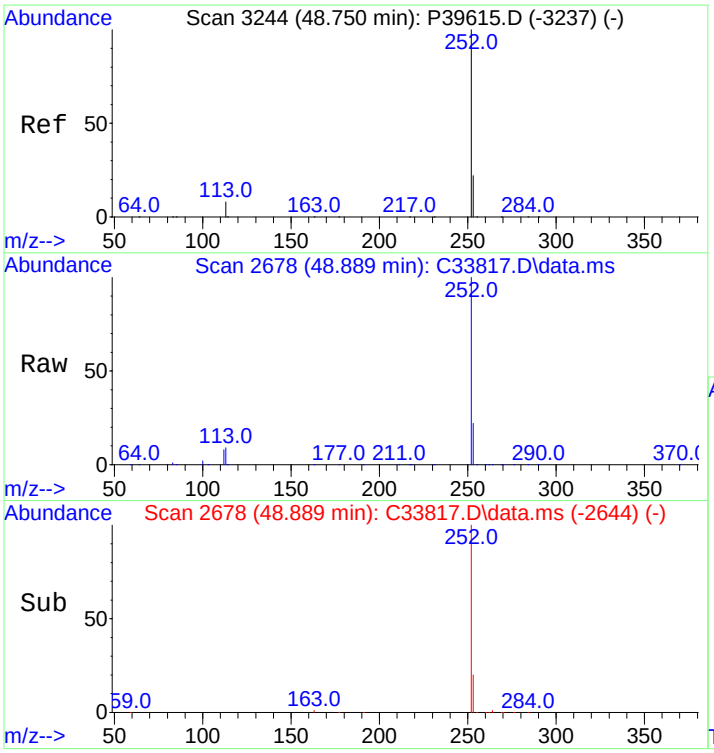


#87
Benzo[a]pyrene
Concen: 5991.15 ng/mL m
RT: 48.572 min Scan# 2657
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 702840

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.7	28.1

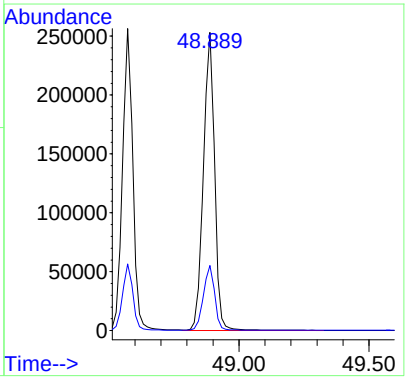


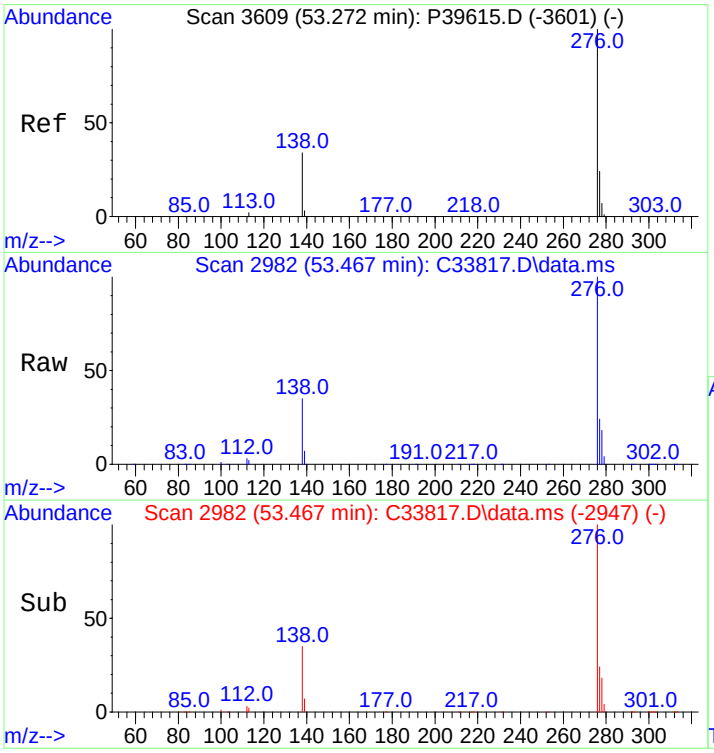


#88
Perylene
Concen: 6003.91 ng/mL
RT: 48.889 min Scan# 2678
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 752672

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.6	27.8

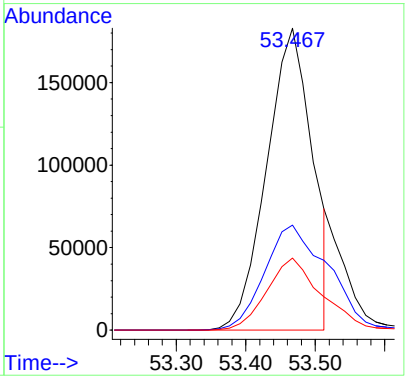


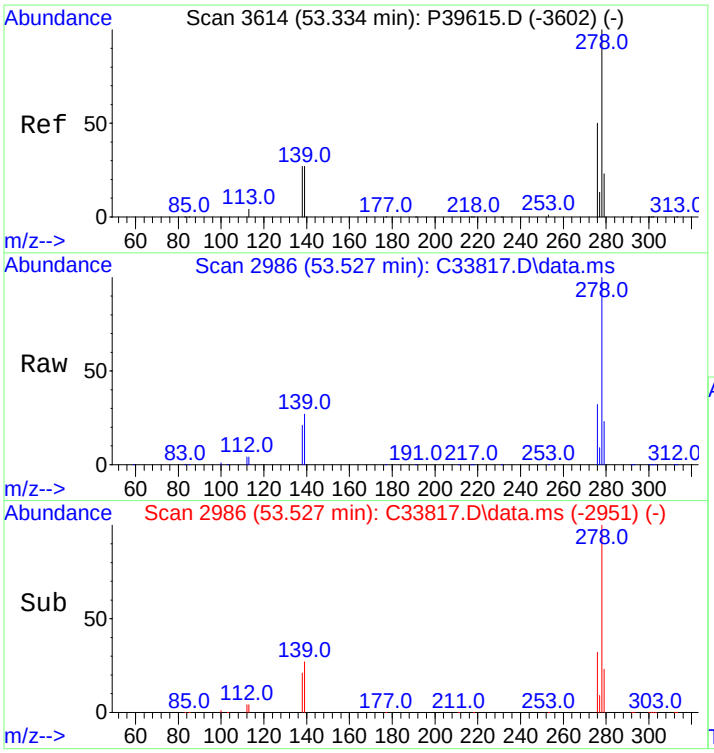


#89
Indeno[1,2,3-cd]pyrene
Concen: 6210.46 ng/mL m
RT: 53.467 min Scan# 2982
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838781

Ion	Ratio	Lower	Upper
276	100		
138	48.9	30.3	45.5#
277	28.9	19.2	28.8#

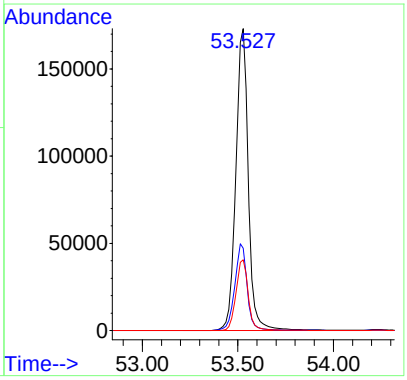


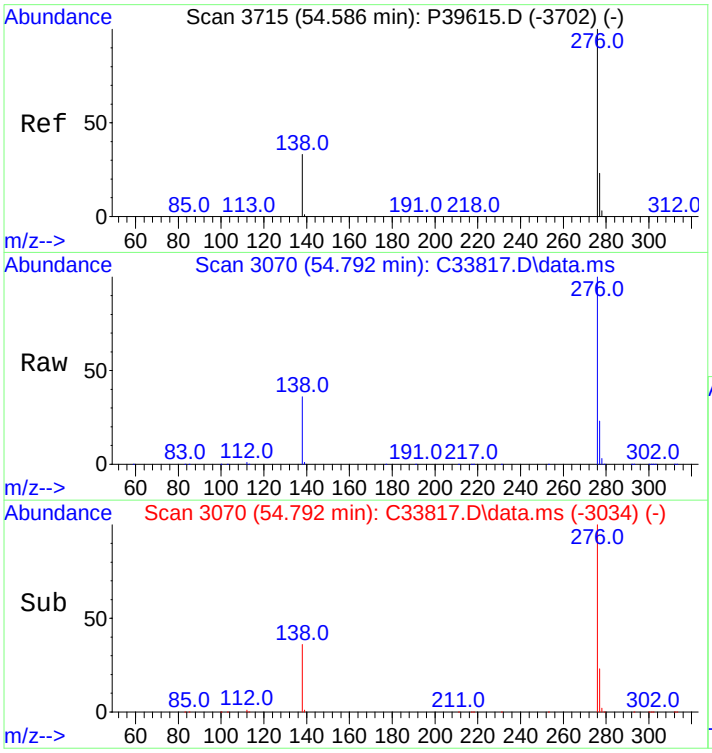


#90
Dibenz[ah]+[ac]anthracene
Concen: 6184.65 ng/mL
RT: 53.527 min Scan# 2986
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:278 Resp: 785236

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	23.2	19.0	28.4

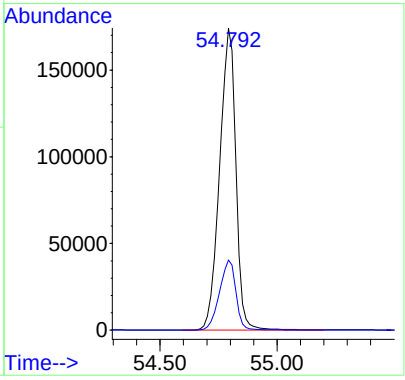


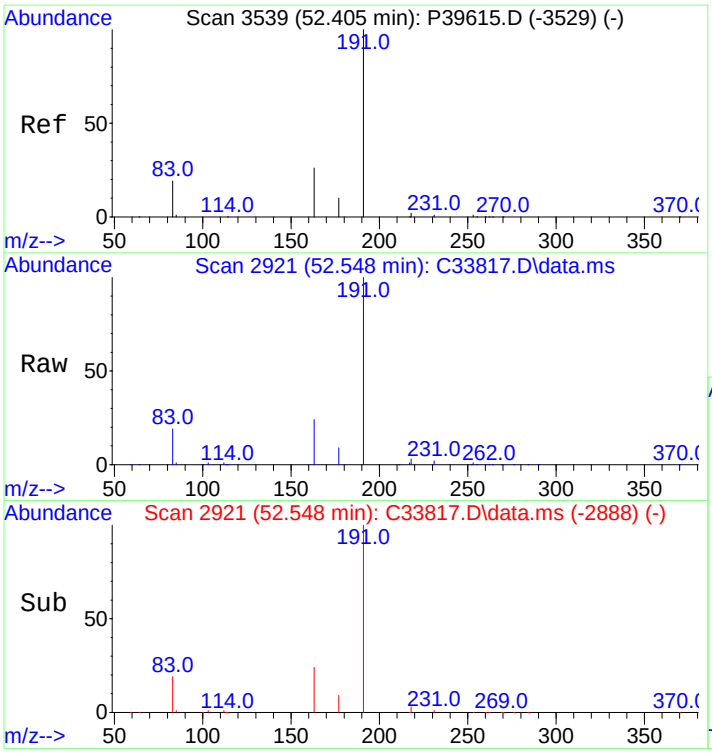


#91
Benzo[g,h,i]perylene
Concen: 6085.92 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.045 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838517

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

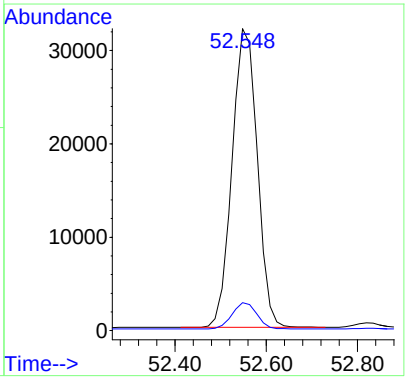


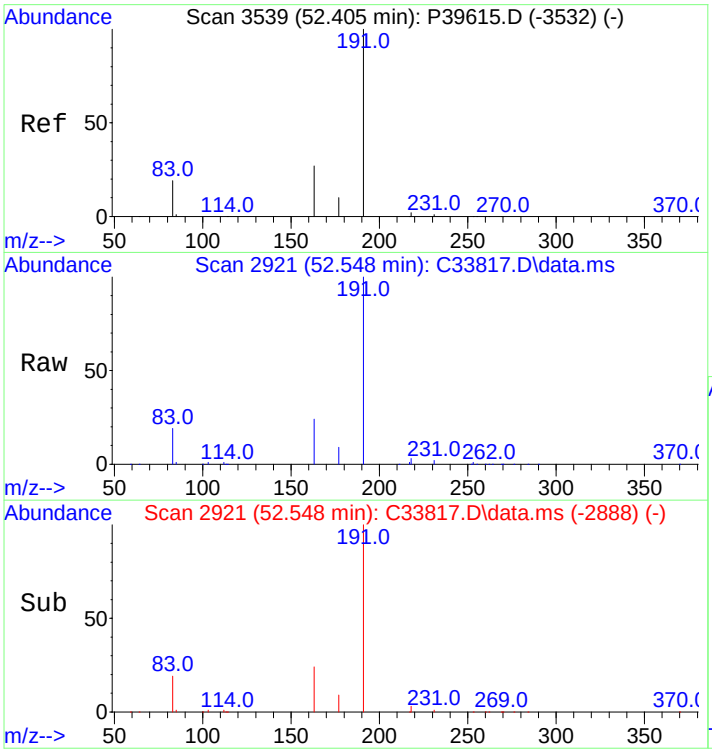


#92
Hopane (T19)
Concen: 5641.80 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122788

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

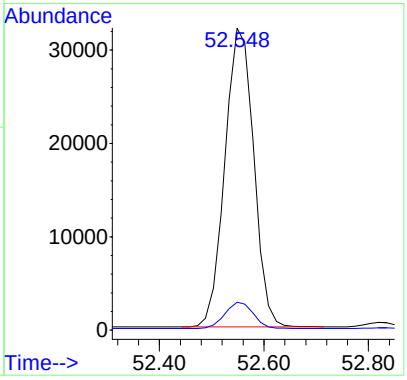




#93
17a(H),21B(H)-hopane - C30H52
Concen: 5638.68 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122720

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	20041M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	791075	11830.663 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1183.07%#		
42) Phenanthrene-d10	32.808	188	710873M4	9166.827 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 916.68%#		
86) Benzo[a]pyrene-d12	48.497	264	755272	11037.321 ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1103.73%#		
127) 5B(H)Cholane - Surr	43.995	217	107458	9130.770 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 913.08%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	72570	5239.034 ng/mL	100
4) cis-Decalin	17.844	138	55394	5125.536 ng/mL	100
10) Naphthalene	20.042	128	1183724	16416.753 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	14063.659 ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	14348.981 ng/mL	
18) Benzothiophene	20.268	134	1064574	18002.356 ng/mL	100
23) Biphenyl	24.619	154	906757M4	13347.329 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	12641.215 ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	13573.702 ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	15531.963 ng/mL	
27) Acenaphthene	27.057	153	736224	14253.453 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	512344	11341.143 ng/mL	99
29) Fluorene	29.075	166	837178M3	13023.858 ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	13623.641 ng/mL	
43) Phenanthrene	32.898	178	1195572	12257.724 ng/mL	99
54) Retene	39.869	234	251265	8859.198 ng/mL	93
55) Anthracene	33.079	178	1181250M4	12499.803 ng/mL	
56) Carbazole	33.741	167	1210095m	13941.104 ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10369.547 ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10135.785 ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	9595.000 ng/mL	99
60) Pyrene	38.544	202	1228730M4	10157.684 ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10732.503 ng/ml	
67) Naphthobenzothiophene-2,1	42.399	234	1356294M4	10729.599 ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	11118.569 ng/mL	99
76) Chrysene	43.483	228	1085655M4	10915.688 ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	10910.460 ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	11418.659 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	10878.013 ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	11182.087 ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	11788.129 ng/mL	
88) Perylene	48.904	252	1266913	11799.877 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	12176.588 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	12064.466 ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1404966	11906.453 ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	10720.577 ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.563	191	199673M3	10712.315 ng/mL	

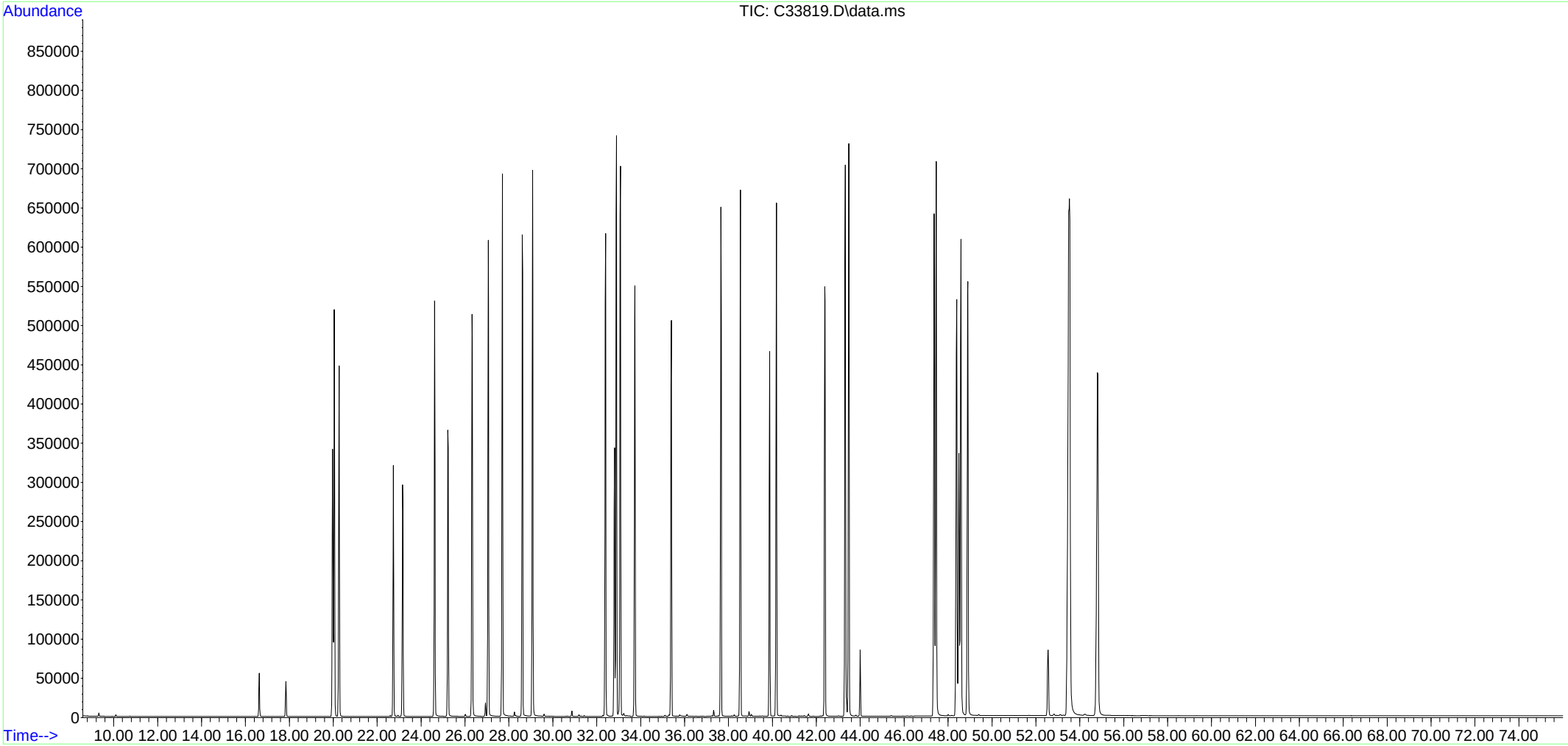
(#) = qualifier out of range (m) = manual integration (+) = signals summed

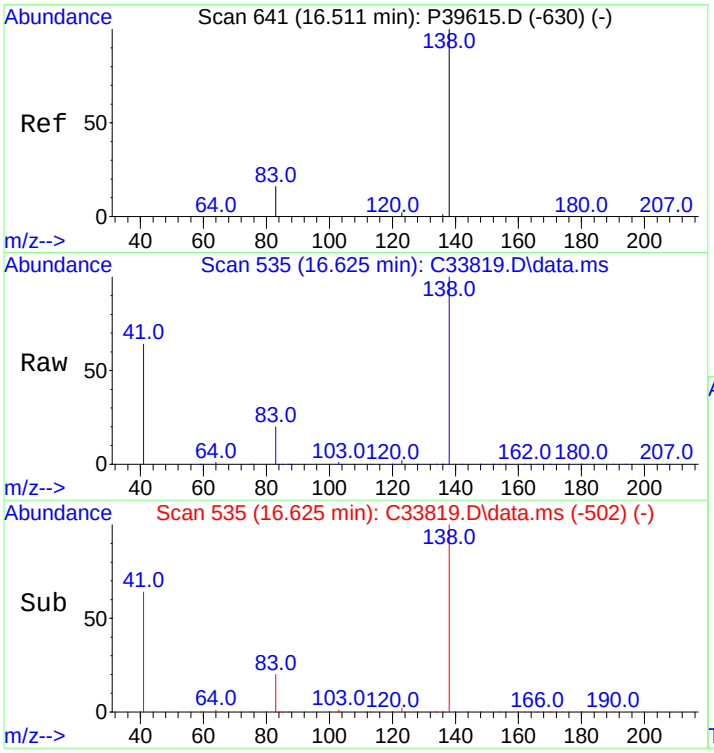
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

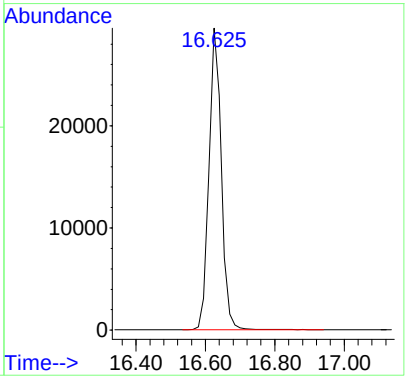
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

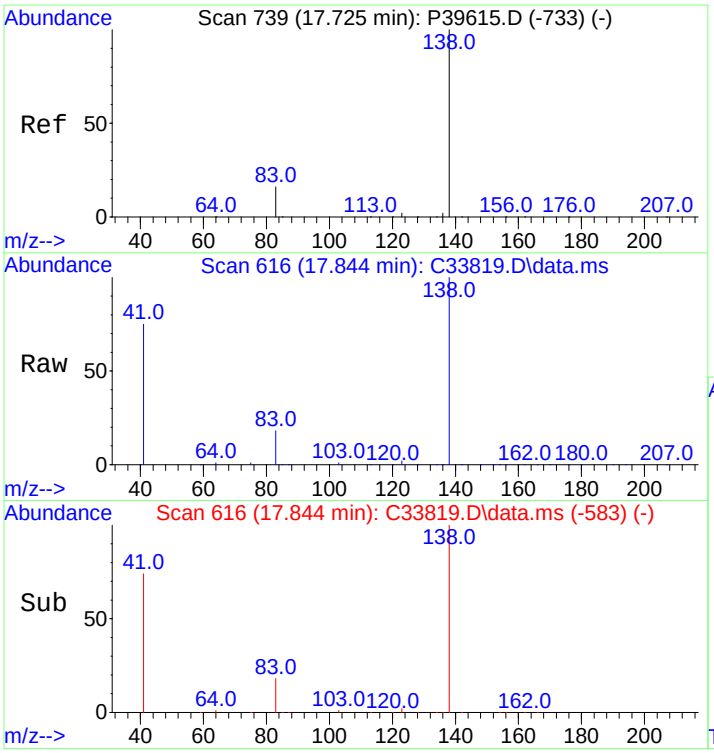




#3
trans-Decalin
Concen: 5239.03 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

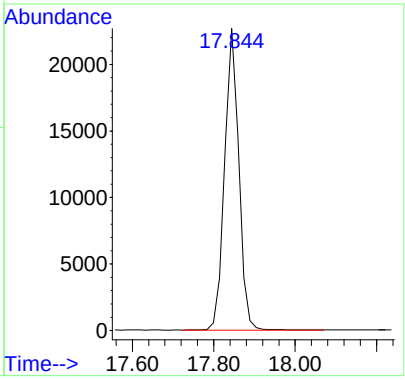
Tgt Ion:138 Resp: 72570

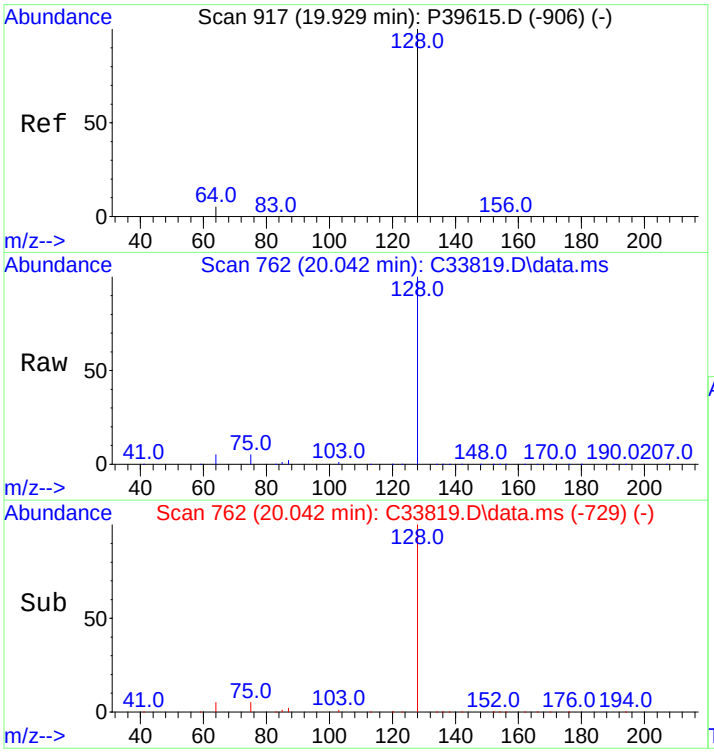




#4
cis-Decalin
Concen: 5125.54 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:138 Resp: 55394

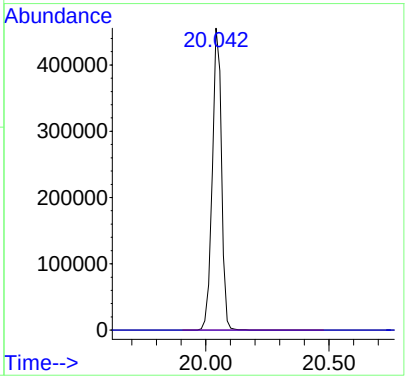


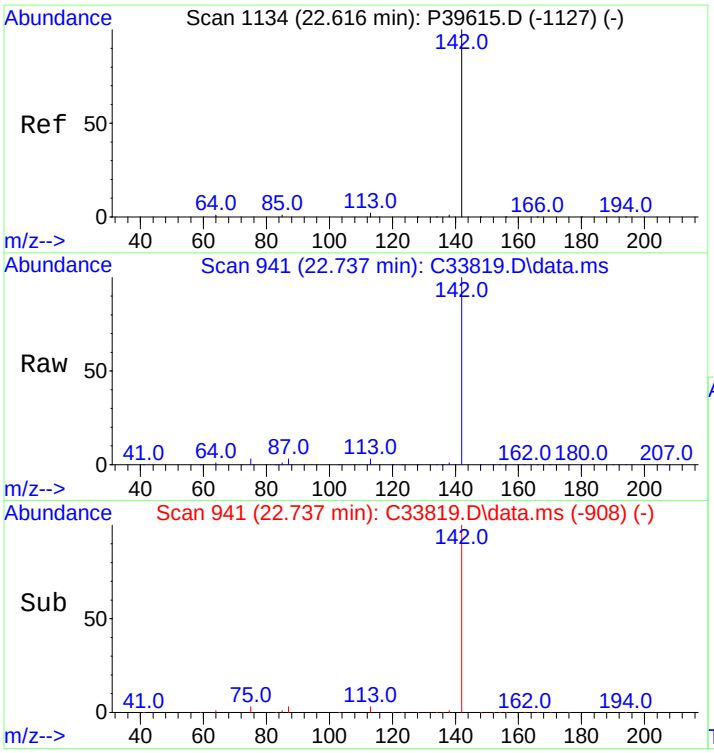


#10
Naphthalene
Concen: 16416.75 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:128 Resp: 1183724

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

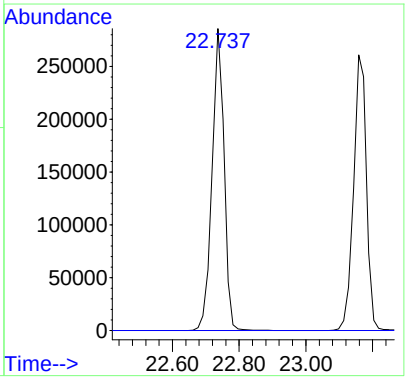


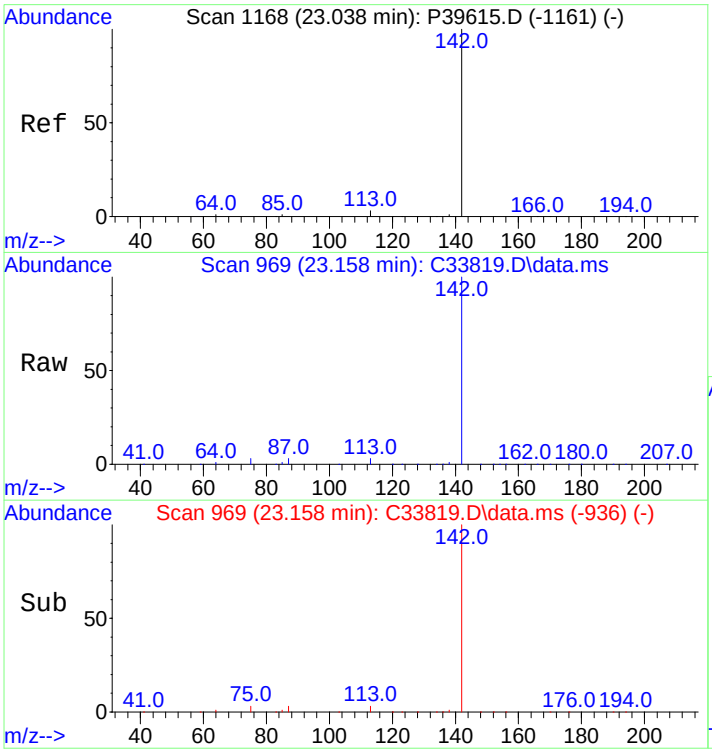


#16
2-Methylnaphthalene
Concen: 14063.66 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 715989

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

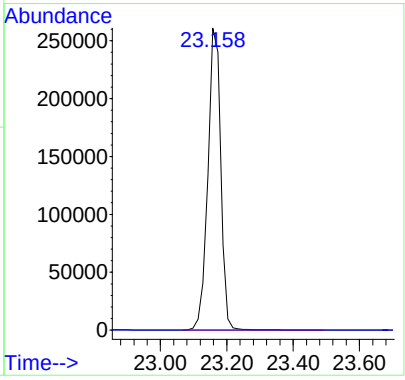


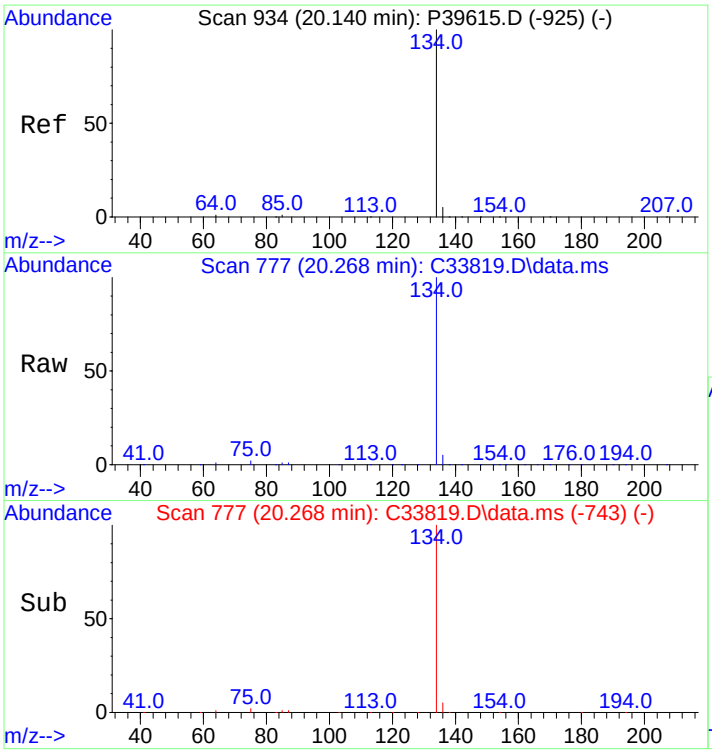


#17
1-Methylnaphthalene
Concen: 14348.98 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 700663

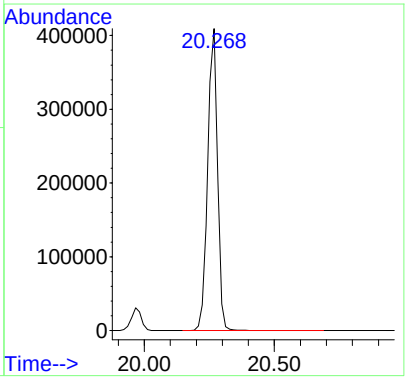
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

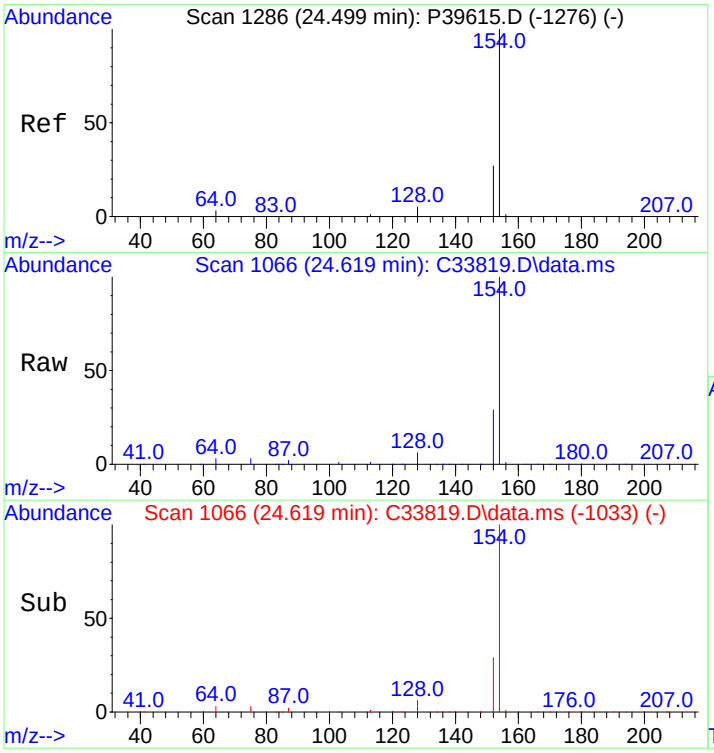




#18
Benzothiophene
Concen: 18002.36 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:134 Resp: 1064574

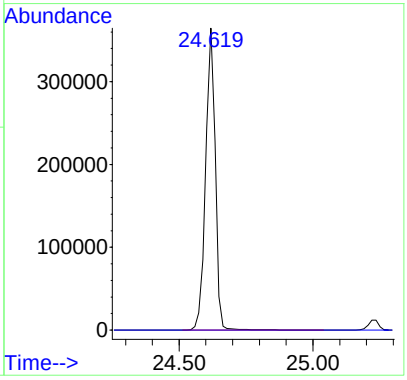


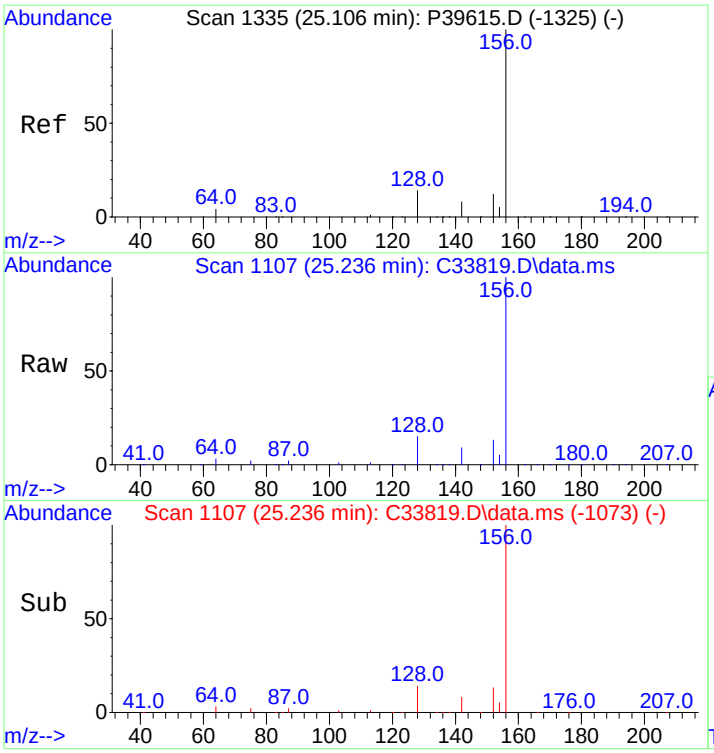


#23
Biphenyl
Concen: 13347.33 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:154 Resp: 906757

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

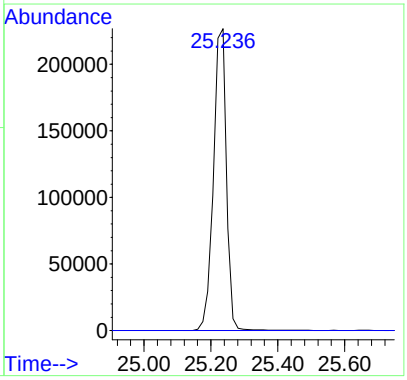


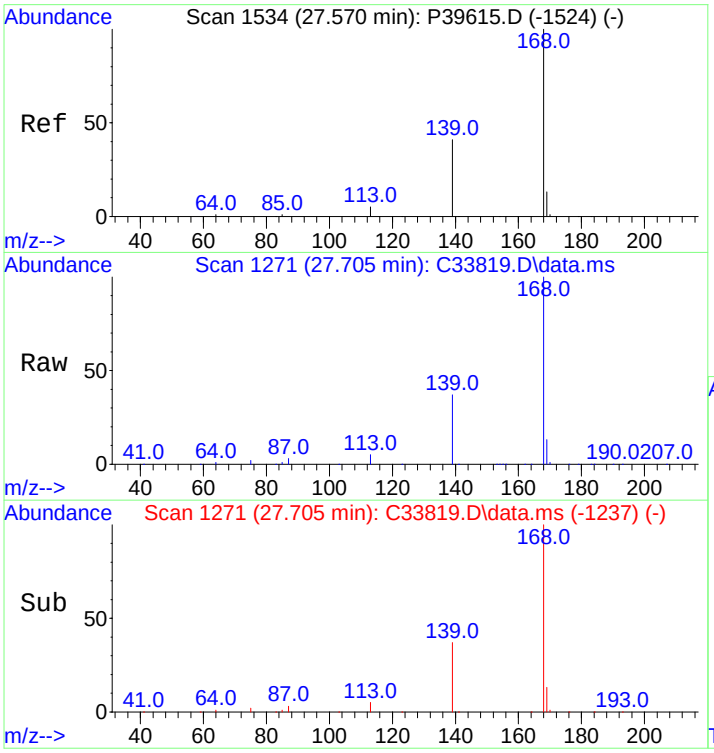


#24
2,6-Dimethylnaphthalene
Concen: 12641.22 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:156 Resp: 612216

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

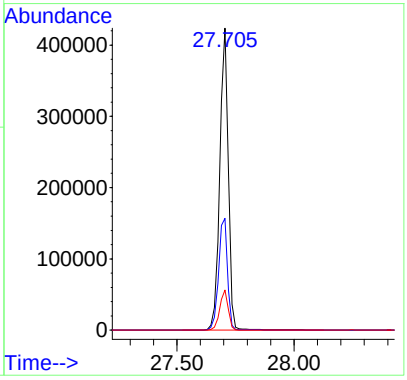


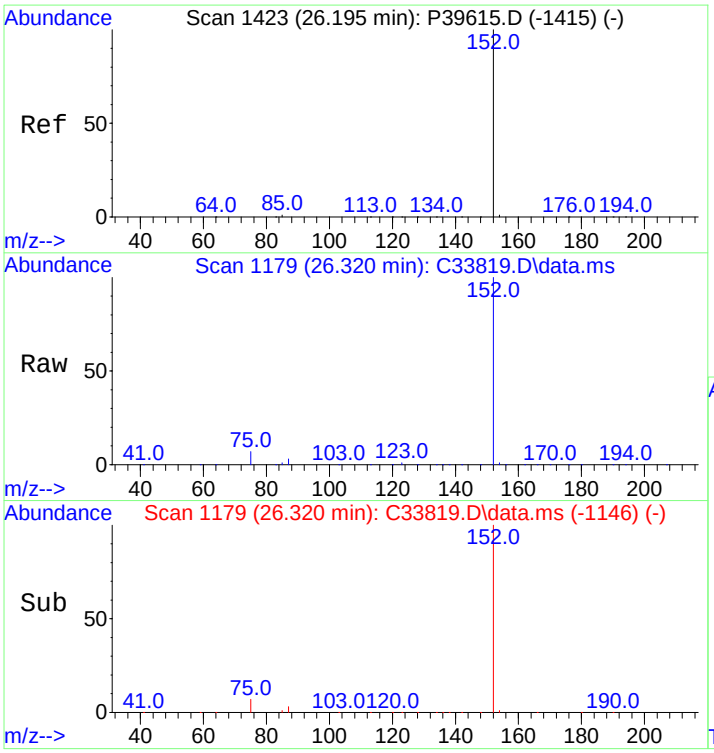


#25
Dibenzofuran
Concen: 13573.70 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:168 Resp: 1071347

Ion	Ratio	Lower	Upper
168	100		
139	38.9	32.9	49.3
169	13.2	10.6	16.0

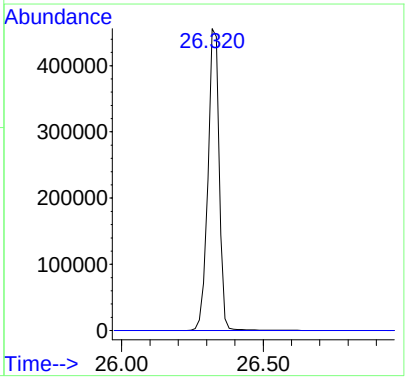


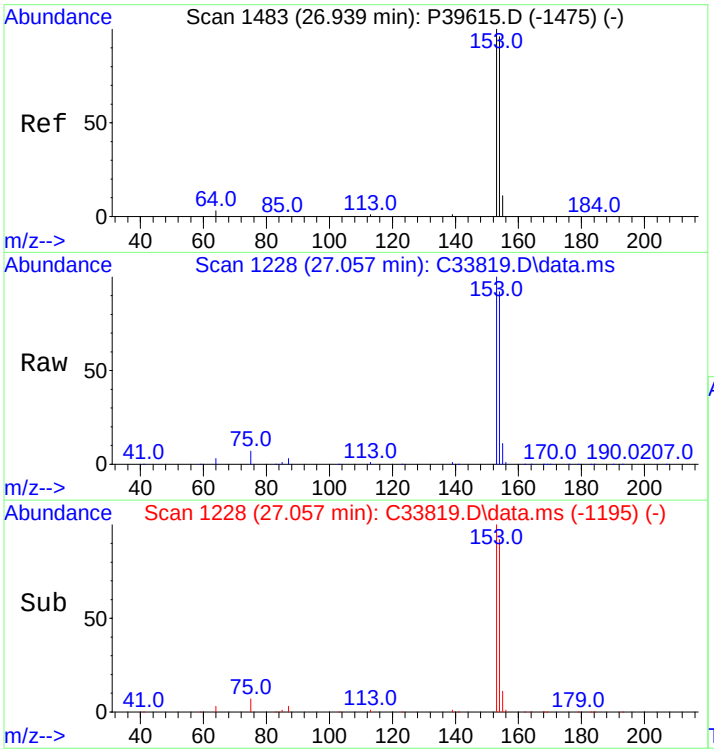


#26
Acenaphthylene
Concen: 15531.96 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:152 Resp: 1263508

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

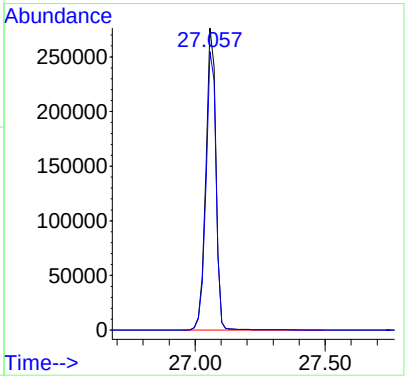


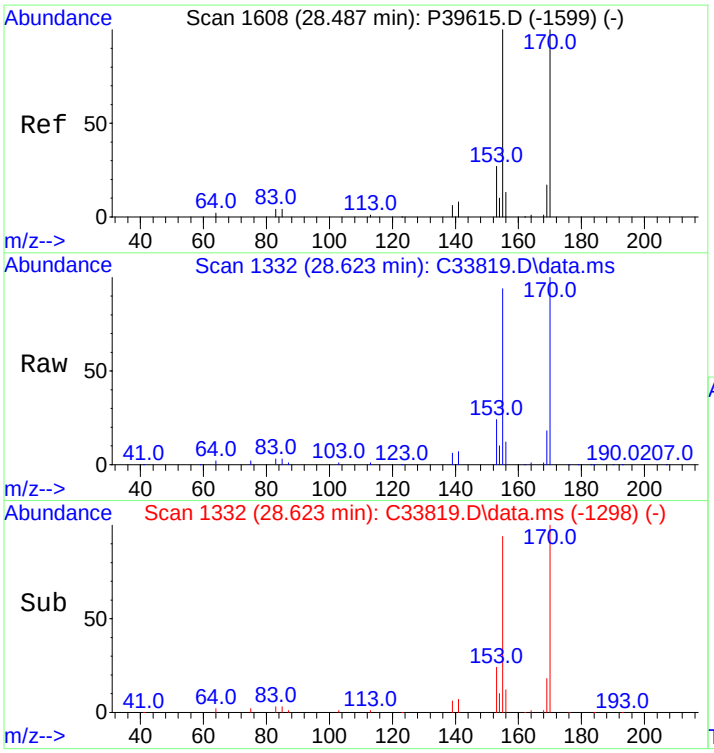


#27
Acenaphthene
Concen: 14253.45 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:153 Resp: 736224

Ion	Ratio	Lower	Upper
153	100		
154	93.0	75.0	112.6

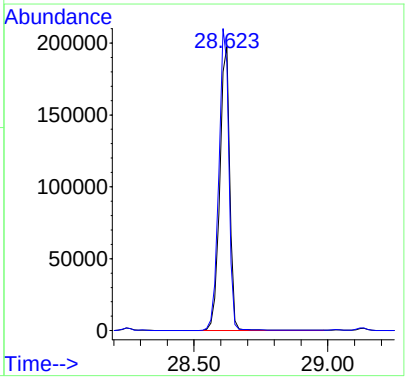


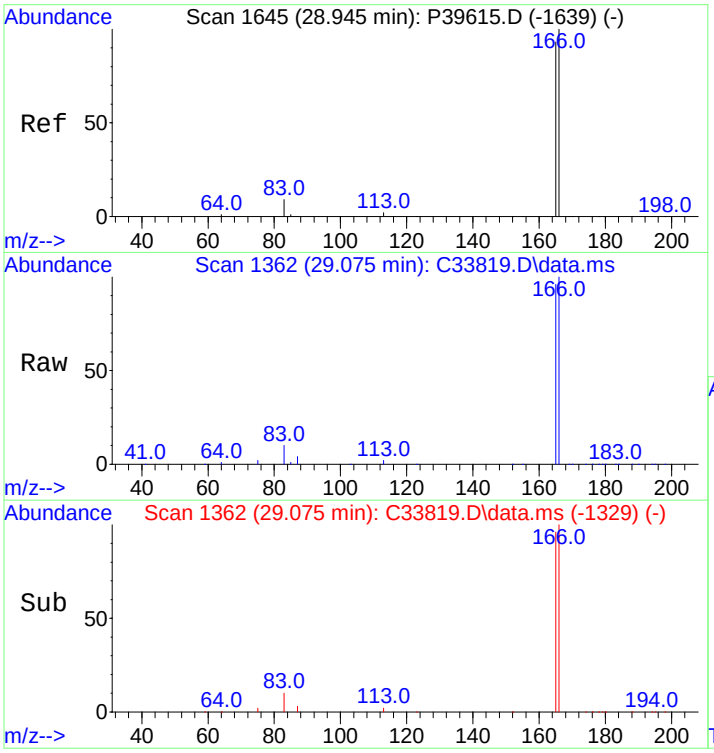


#28
2,3,5-Trimethylnaphthalene
Concen: 11341.14 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:170 Resp: 512344

Ion	Ratio	Lower	Upper
170	100		
155	106.6	84.7	127.1

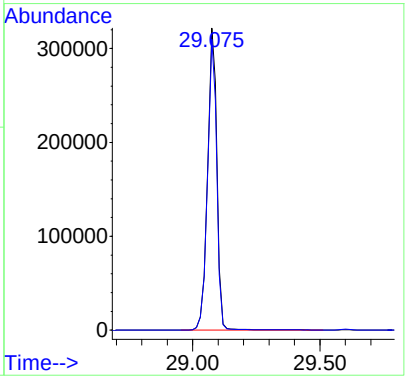


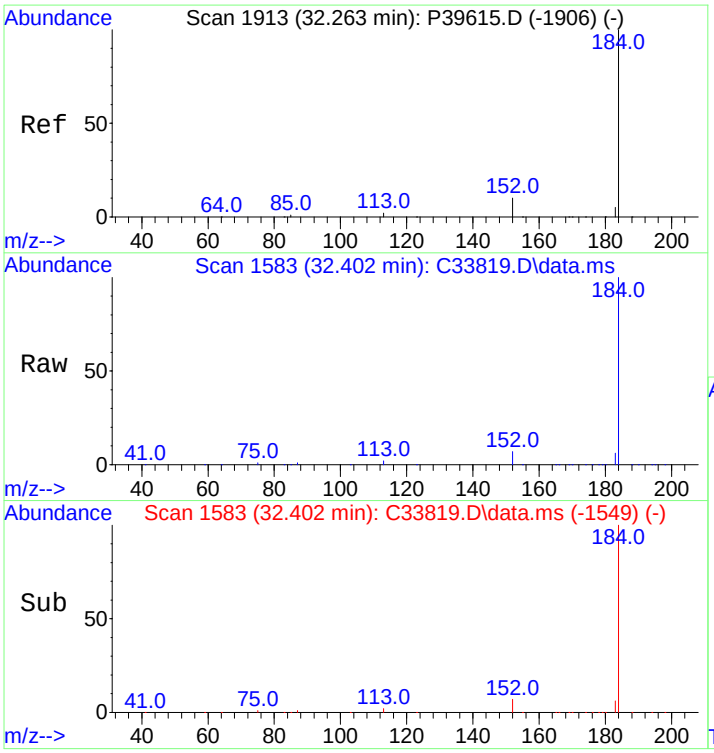


#29
Fluorene
Concen: 13023.86 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:166 Resp: 837178

Ion	Ratio	Lower	Upper
166	100		
165	95.4	75.3	112.9

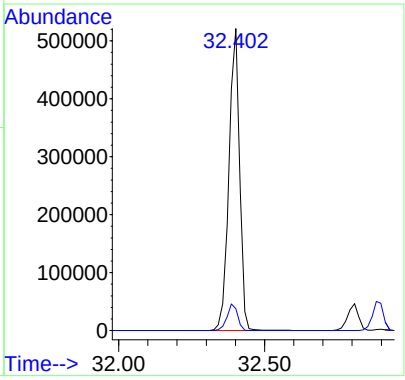


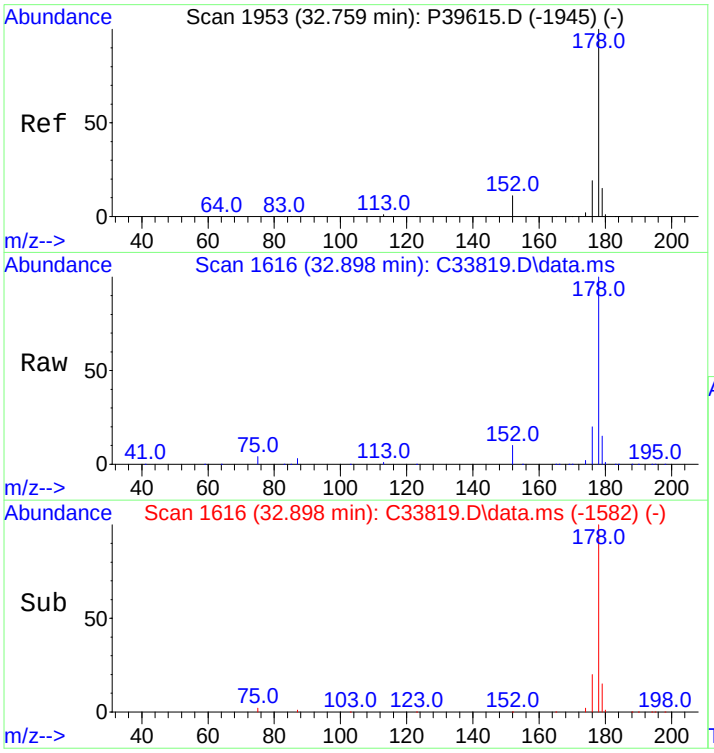


#33
Dibenzothiophene
Concen: 13623.64 ng/mL m
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:184 Resp: 1322475

Ion	Ratio	Lower	Upper
184	100		
152	8.8	6.7	10.1

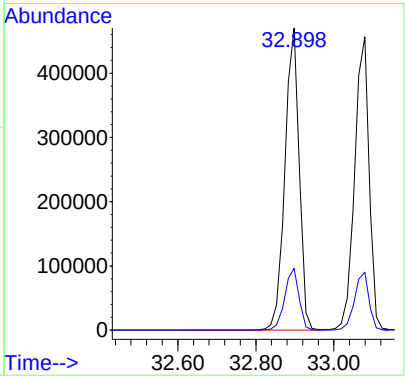


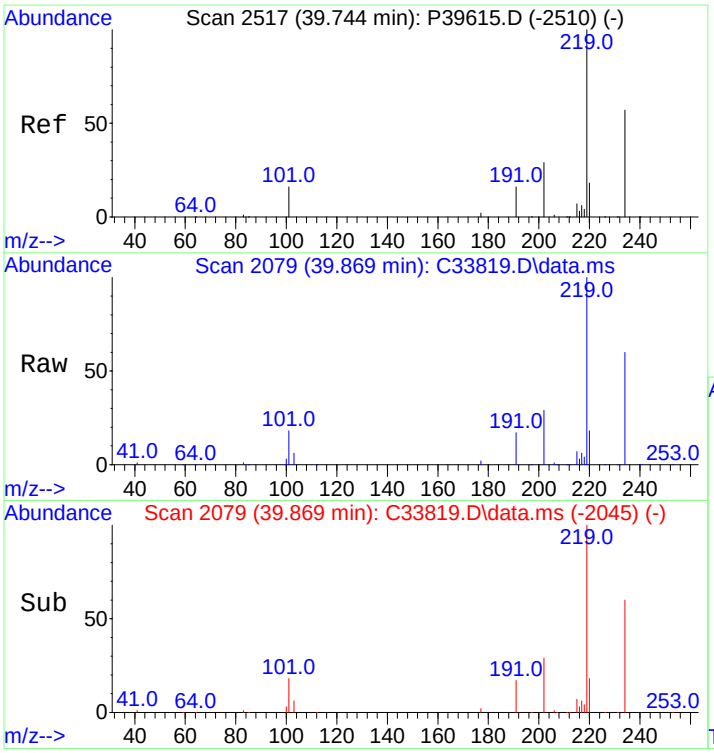


#43
Phenanthrene
Concen: 12257.72 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1195572

Ion	Ratio	Lower	Upper
178	100		
176	20.3	15.9	23.9

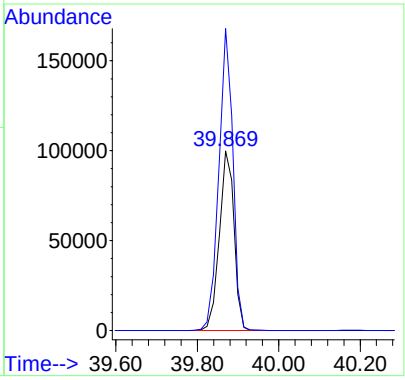


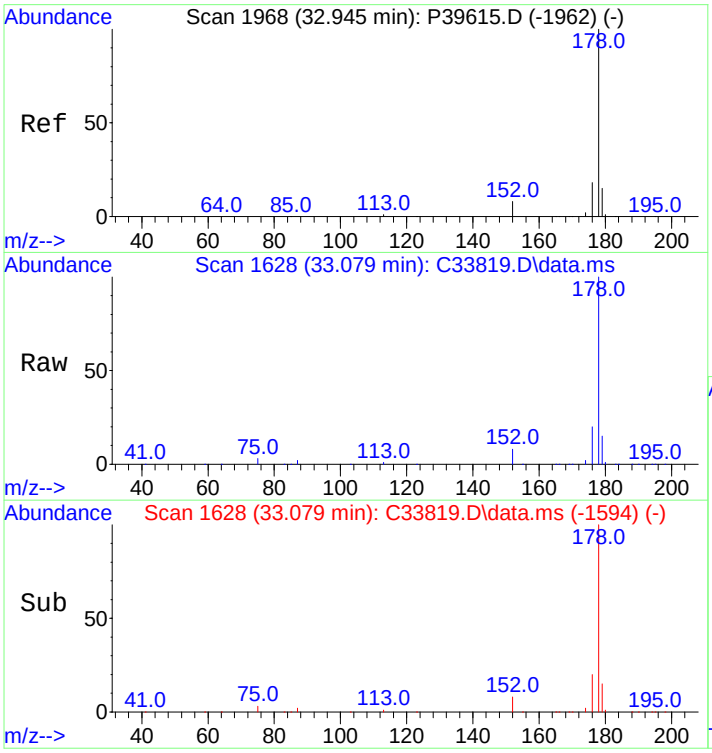


#54
Retene
Concen: 8859.20 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 251265

Ion	Ratio	Lower	Upper
234	100		
219	160.8	136.6	204.8

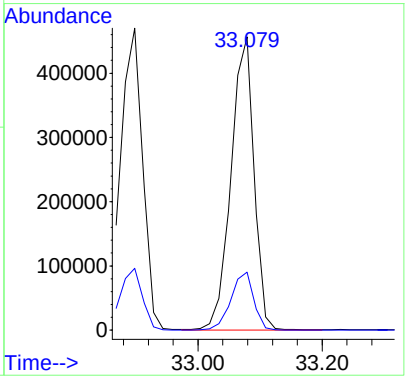


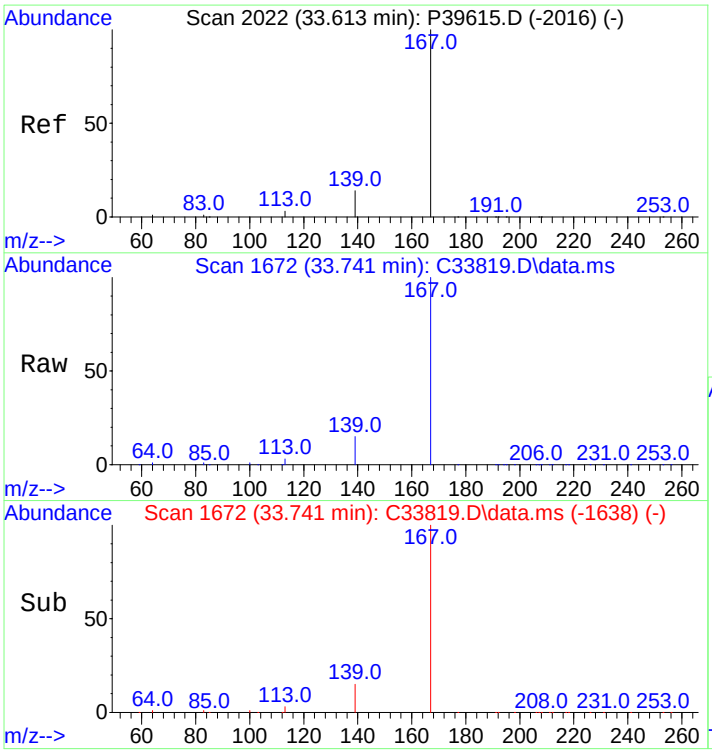


#55
Anthracene
Concen: 12499.80 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1181250

Ion	Ratio	Lower	Upper
178	100		
176	19.5	15.4	23.0

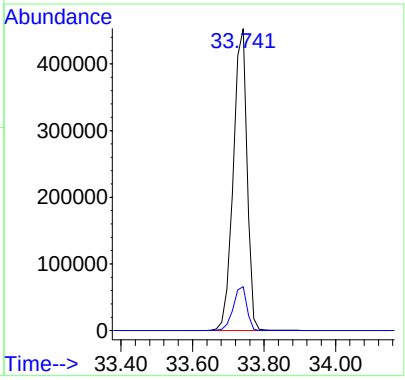


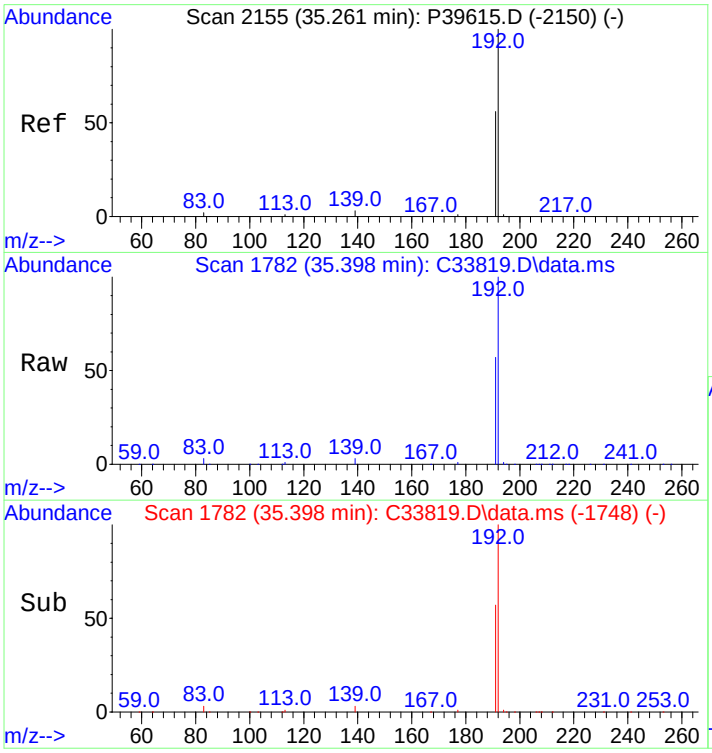


#56
Carbazole
Concen: 13941.10 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:167 Resp: 1210095

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

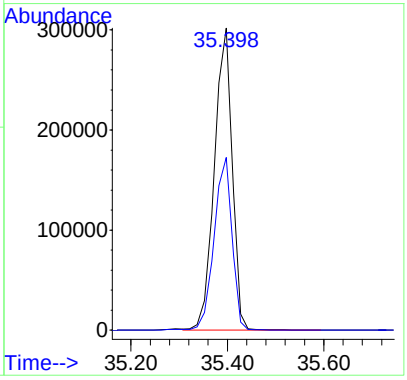


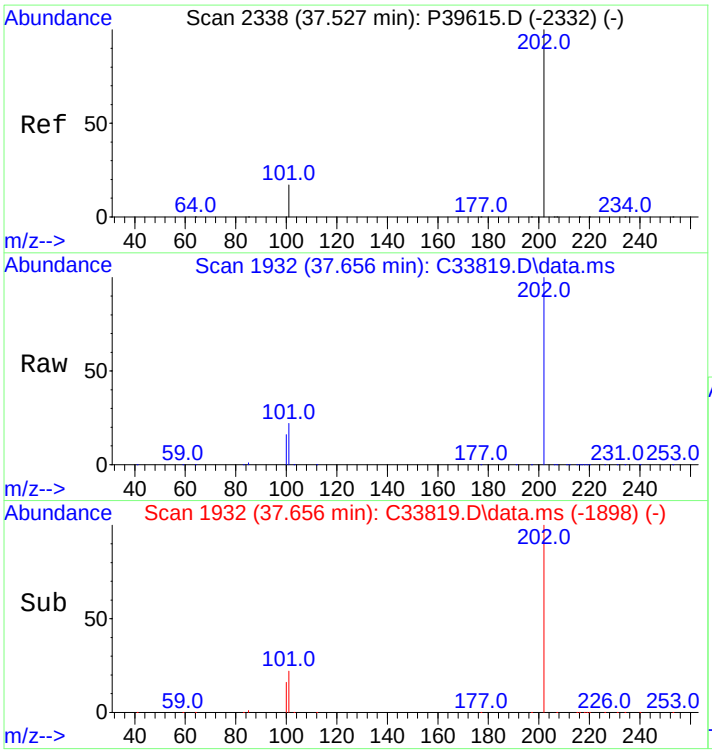


#57
1-Methylphenanthrene
Concen: 10369.55 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:192 Resp: 774174

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.3	67.9

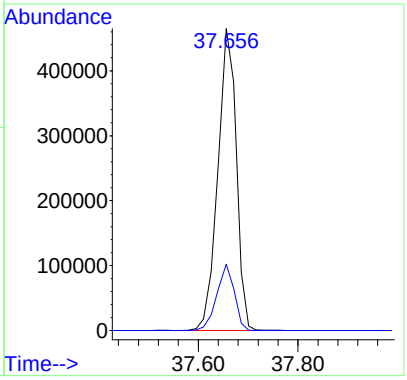


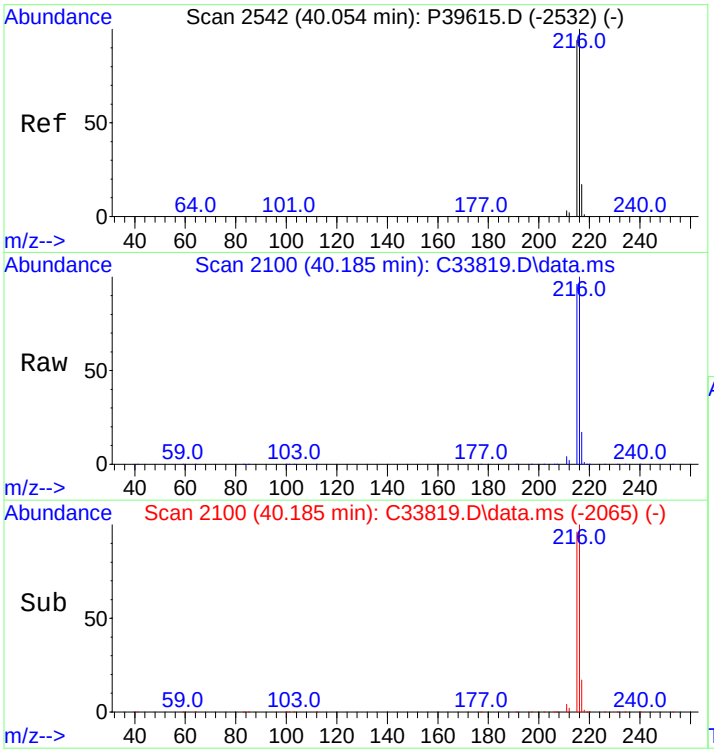


#58
Fluoranthene
Concen: 10135.79 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1195399

Ion	Ratio	Lower	Upper
202	100		
101	20.8	19.1	28.7

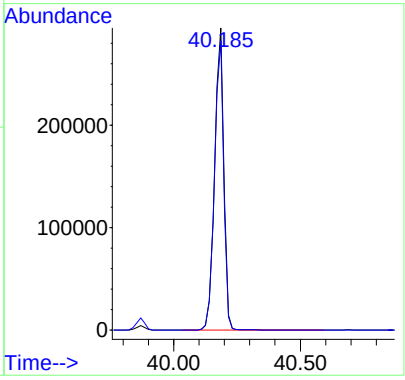


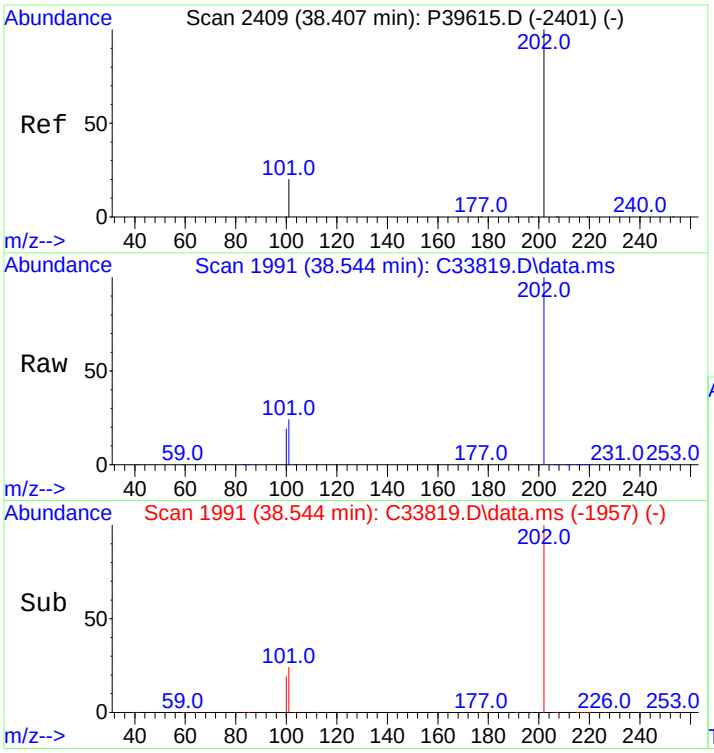


#59
Benzo(b)fluorene
Concen: 9595.00 ng/mL
RT: 40.185 min Scan# 2100
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:216 Resp: 739083

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

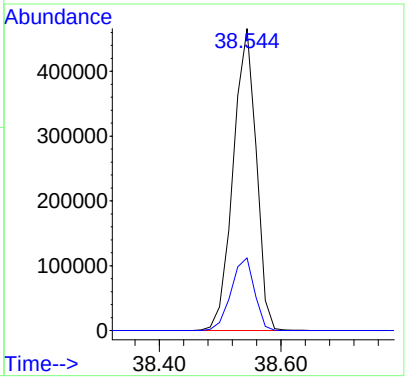


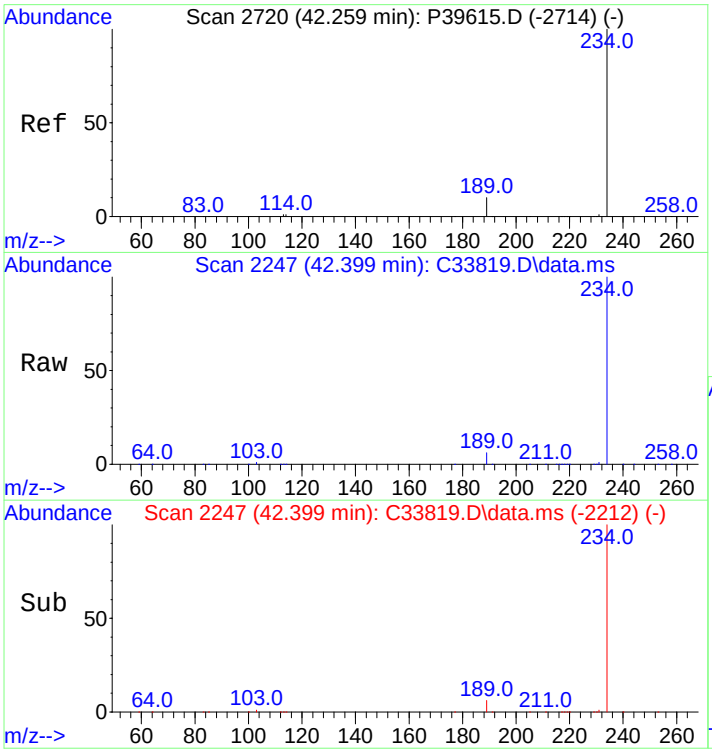


#60
Pyrene
Concen: 10157.68 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1228730

Ion	Ratio	Lower	Upper
202	100		
101	24.4	20.4	30.6

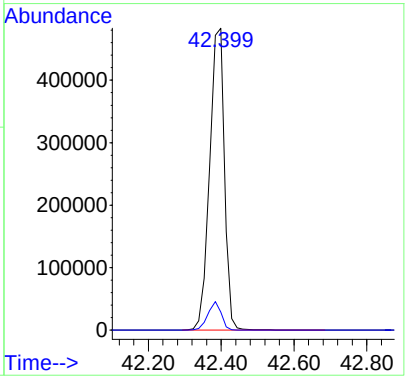


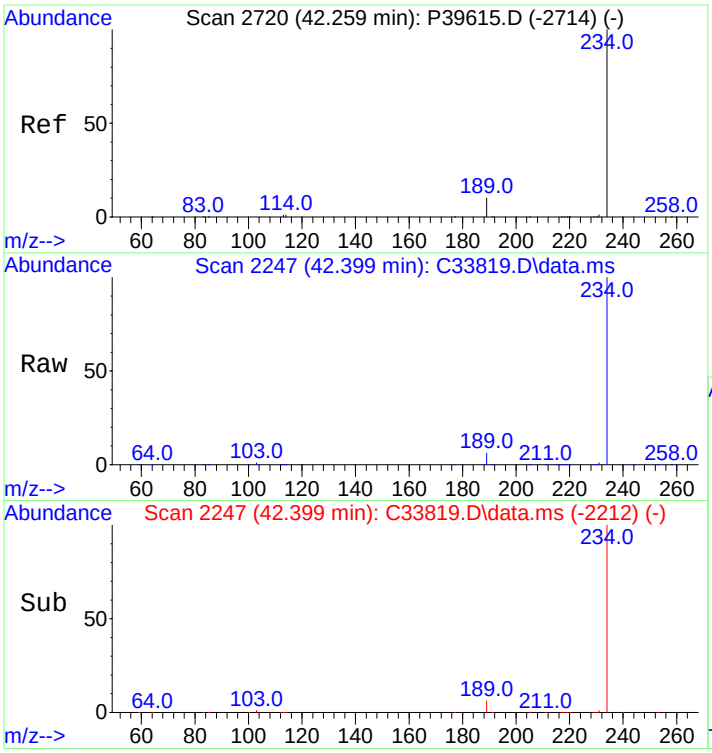


#66
Naphthobenzothiophene
Concen: 10732.50 ng/ml m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356661

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

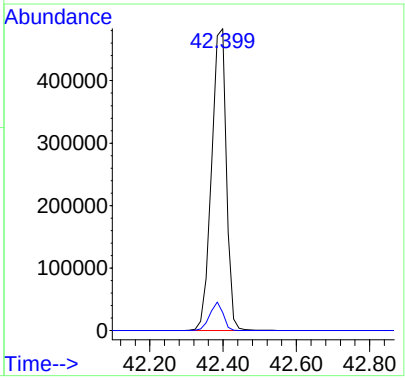


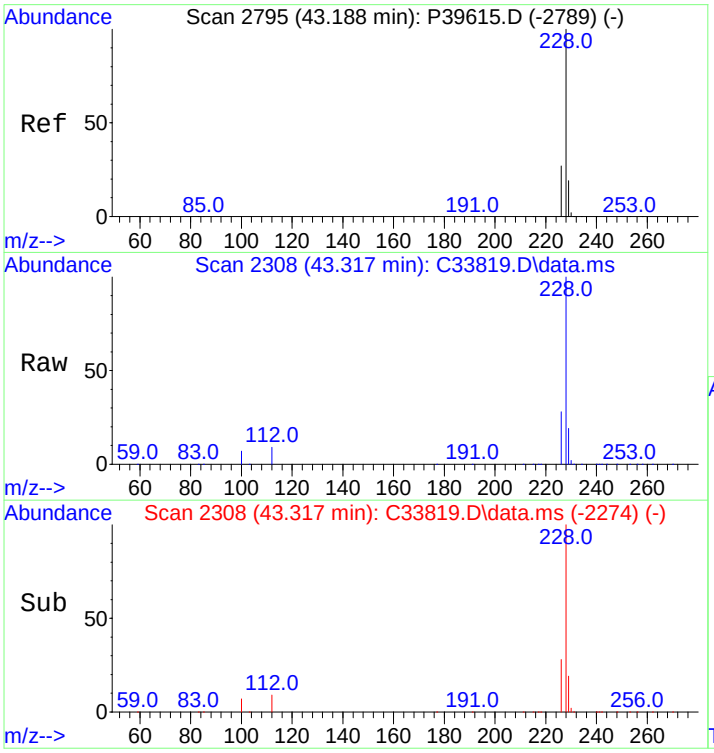


#67
Naphthobenzothiophene-2,1-D
Concen: 10729.60 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356294

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

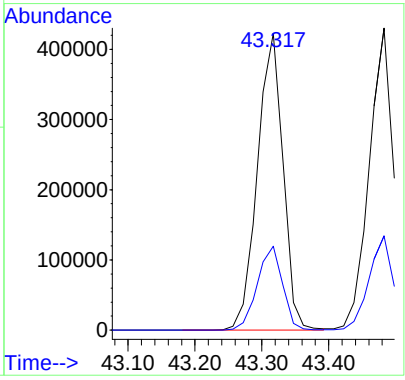


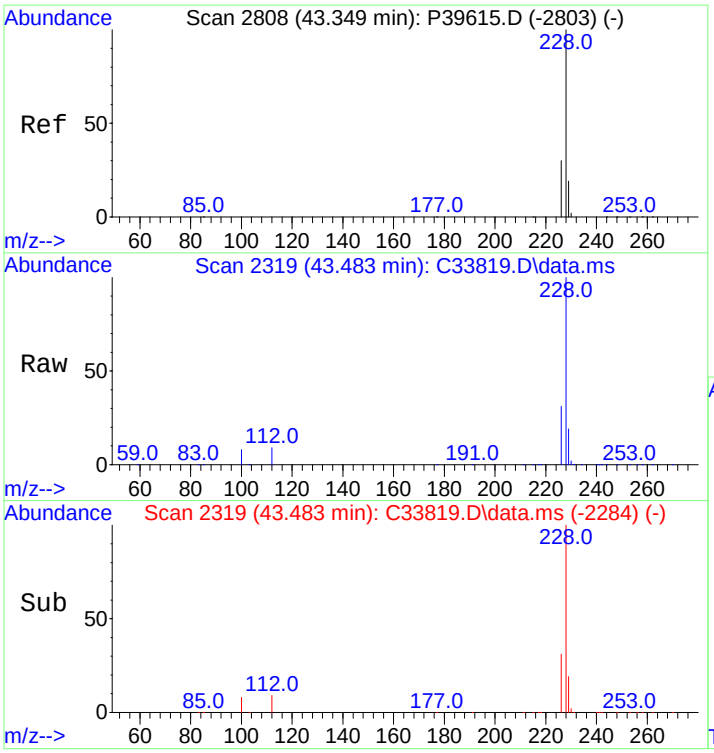


#75
Benz[a]anthracene
Concen: 11118.57 ng/mL
RT: 43.317 min Scan# 2308
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1122402

Ion	Ratio	Lower	Upper
228	100		
226	28.0	21.8	32.8

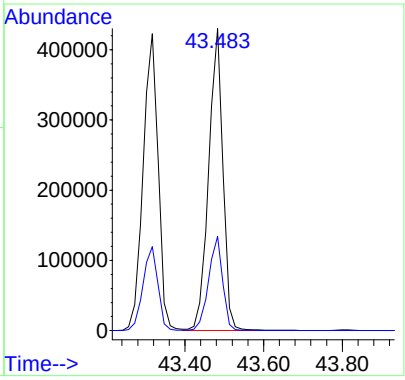


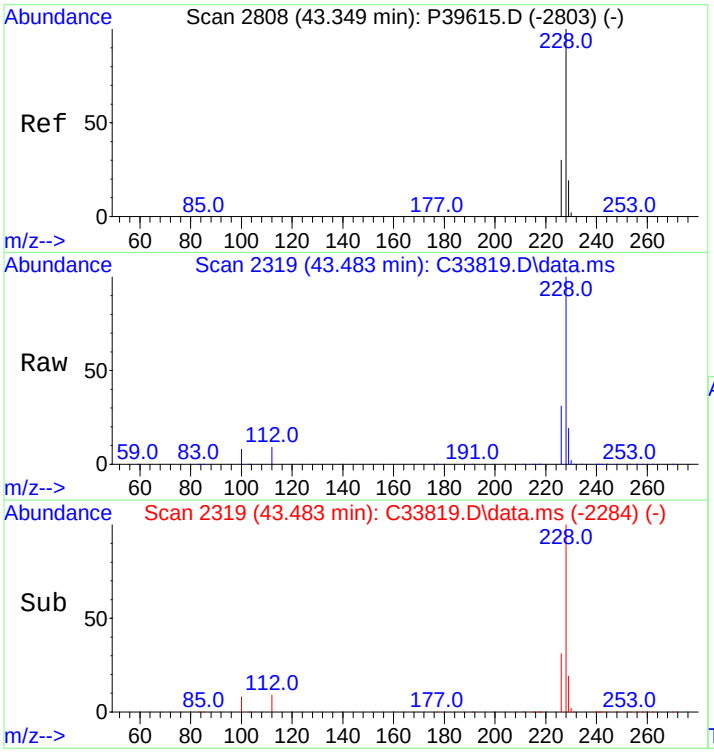


#76
Chrysene
Concen: 10915.69 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085655

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

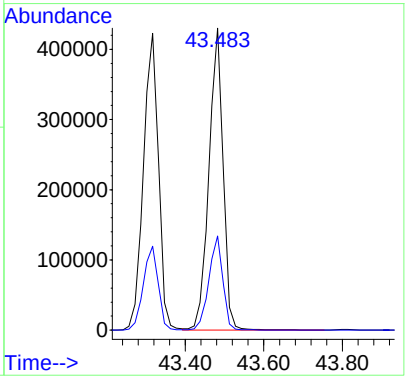


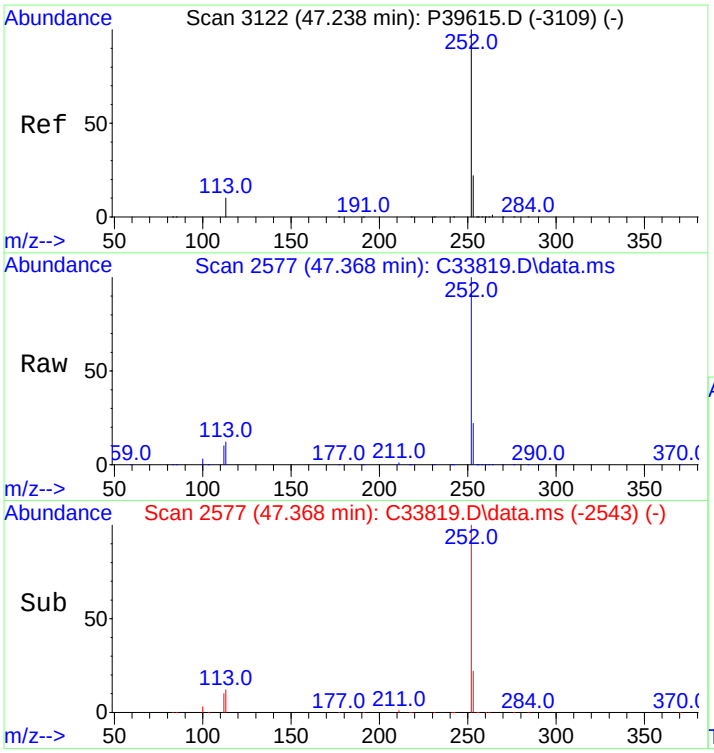


#77
Chrysene/Triphenylene
Concen: 10910.46 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085135

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

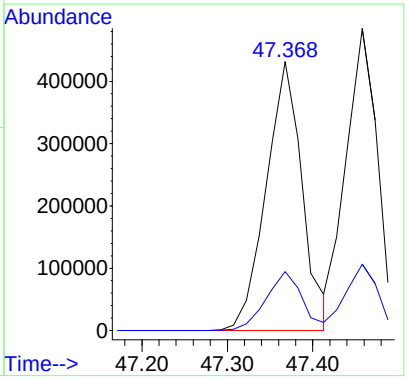


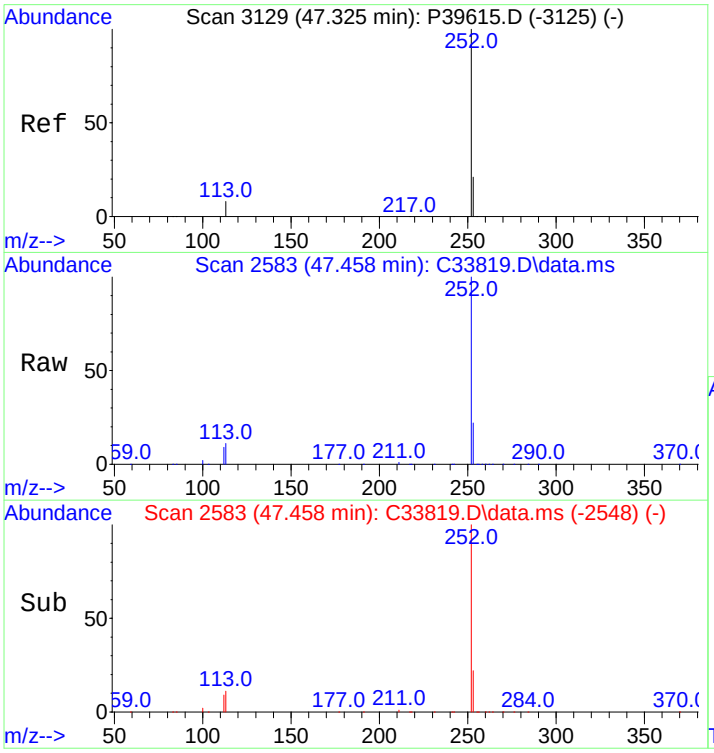


#82
Benzo[b]fluoranthene
Concen: 11418.66 ng/mL m
RT: 47.368 min Scan# 2577
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1268344

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

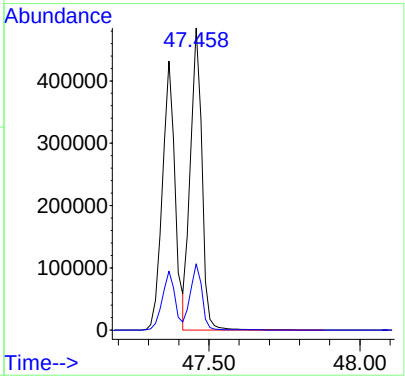


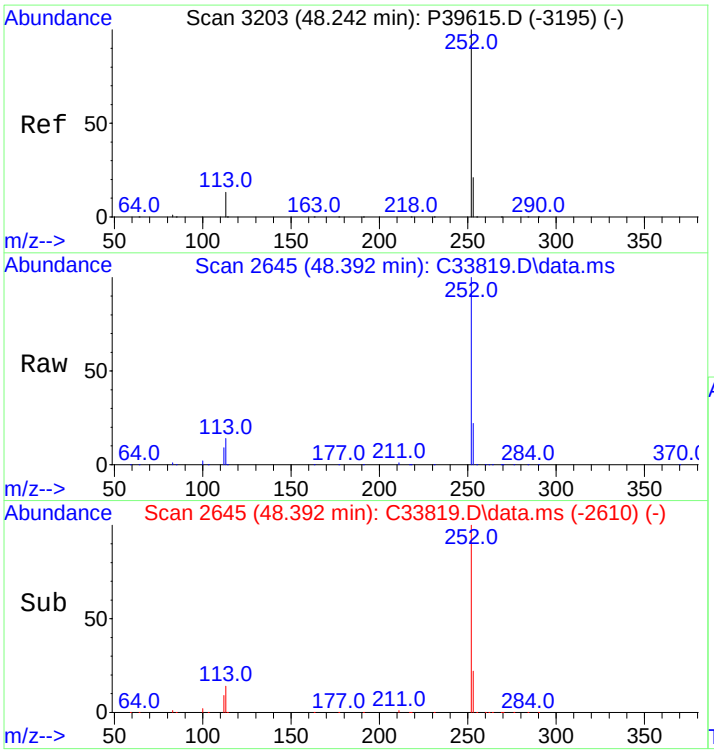


#83
Benzo[j]+[k]fluoranthene
Concen: 10878.01 ng/mL
RT: 47.458 min Scan# 2583
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1277406

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.2	27.4

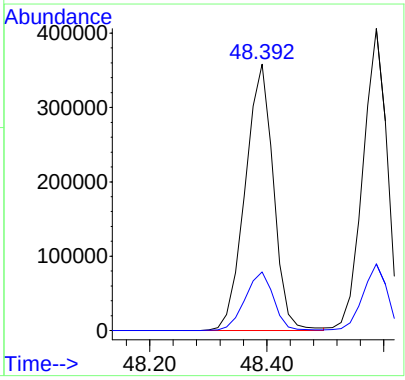


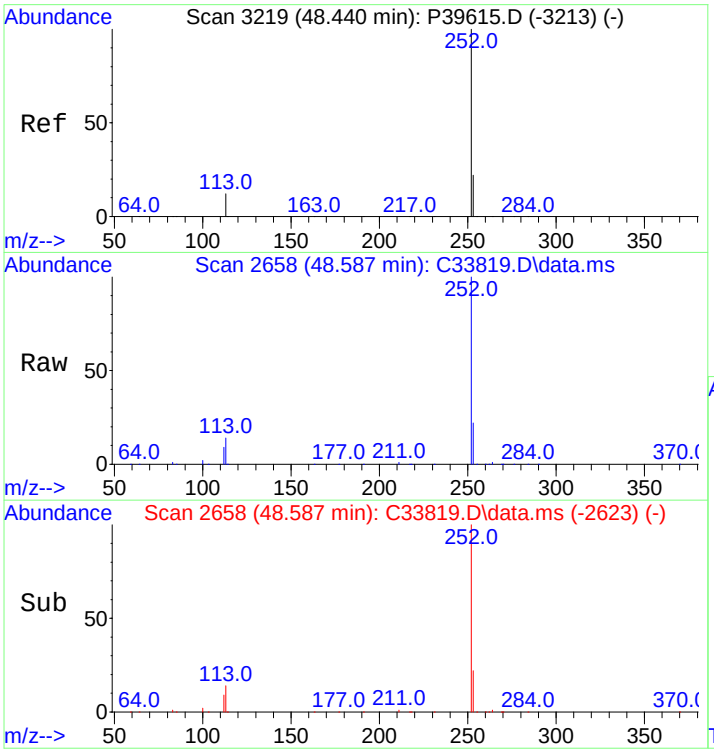


#85
Benzo[e]pyrene
Concen: 11182.09 ng/mL
RT: 48.392 min Scan# 2645
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1195408

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

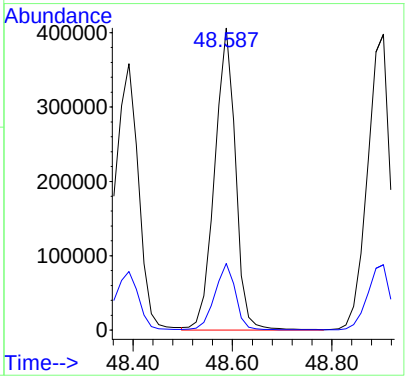


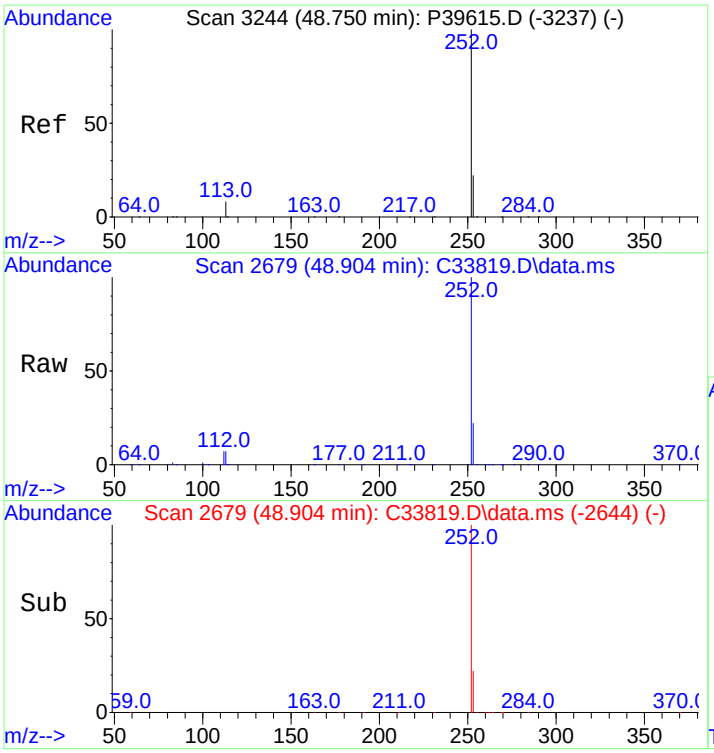


#87
Benzo[a]pyrene
Concen: 11788.13 ng/mL m
RT: 48.587 min Scan# 2658
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1184374

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

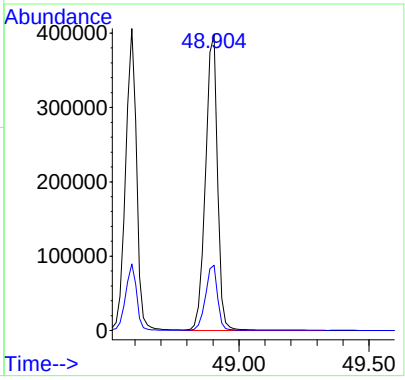


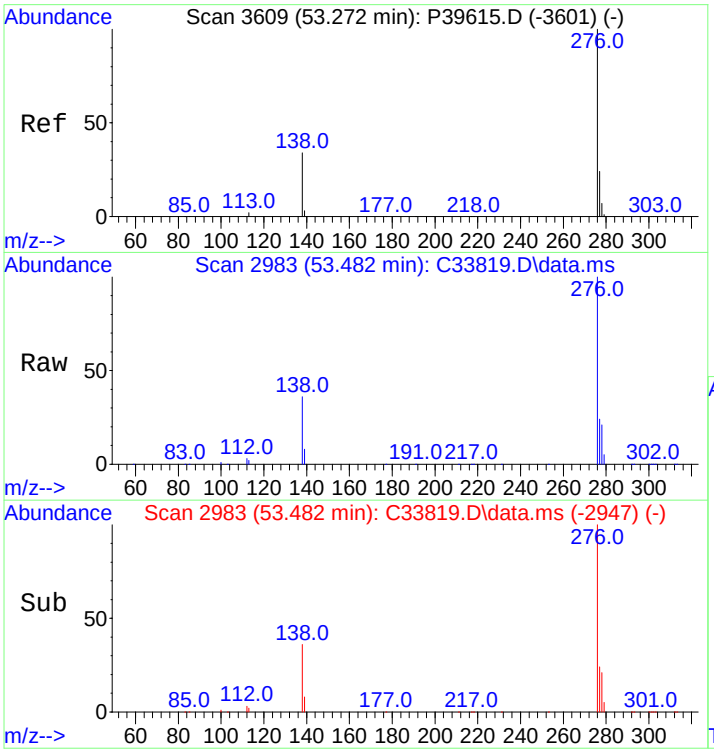


#88
Perylene
Concen: 11799.88 ng/mL
RT: 48.904 min Scan# 2679
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1266913

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.6	27.8

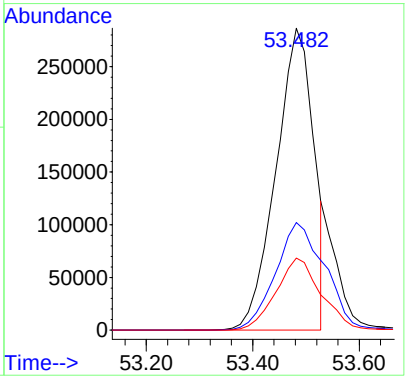


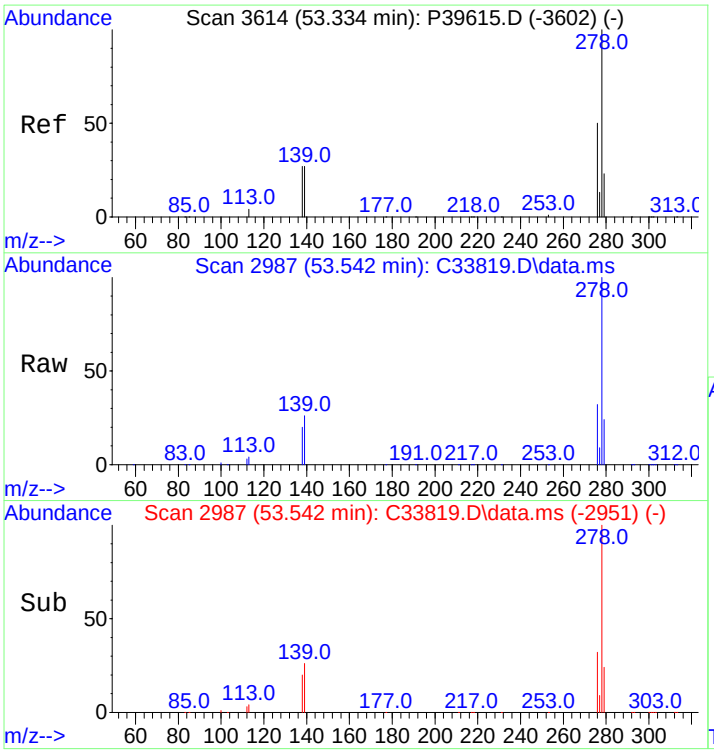


#89
Indeno[1,2,3-cd]pyrene
Concen: 12176.59 ng/mL m
RT: 53.482 min Scan# 2983
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1408473

Ion	Ratio	Lower	Upper
276	100		
138	47.0	30.3	45.5#
277	28.8	19.2	28.8#

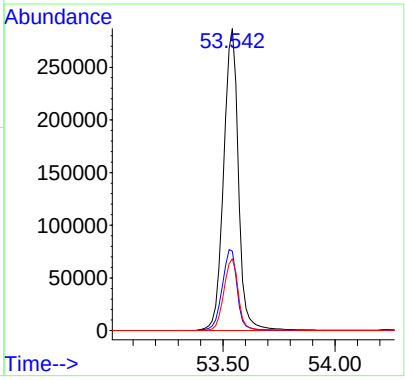


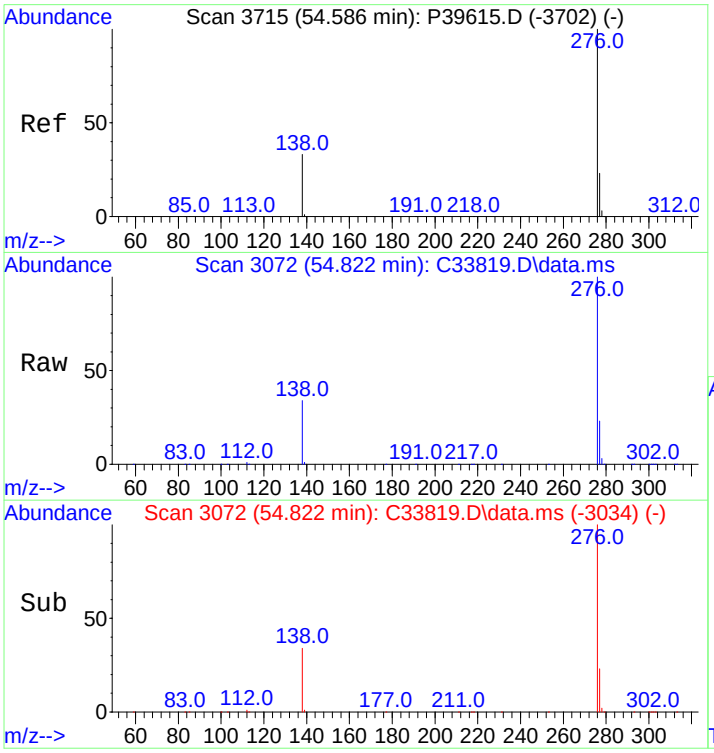


#90
Dibenz[ah]+[ac]anthracene
Concen: 12064.47 ng/mL m
RT: 53.542 min Scan# 2987
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:278 Resp: 1311872

Ion	Ratio	Lower	Upper
278	100		
139	27.5	25.4	38.2
279	23.5	19.0	28.4

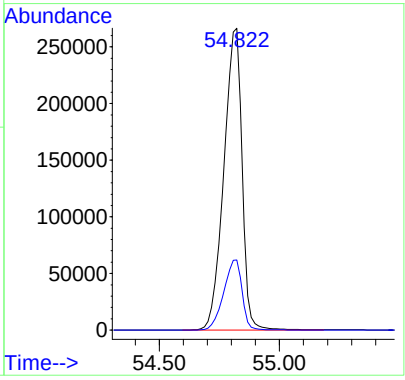


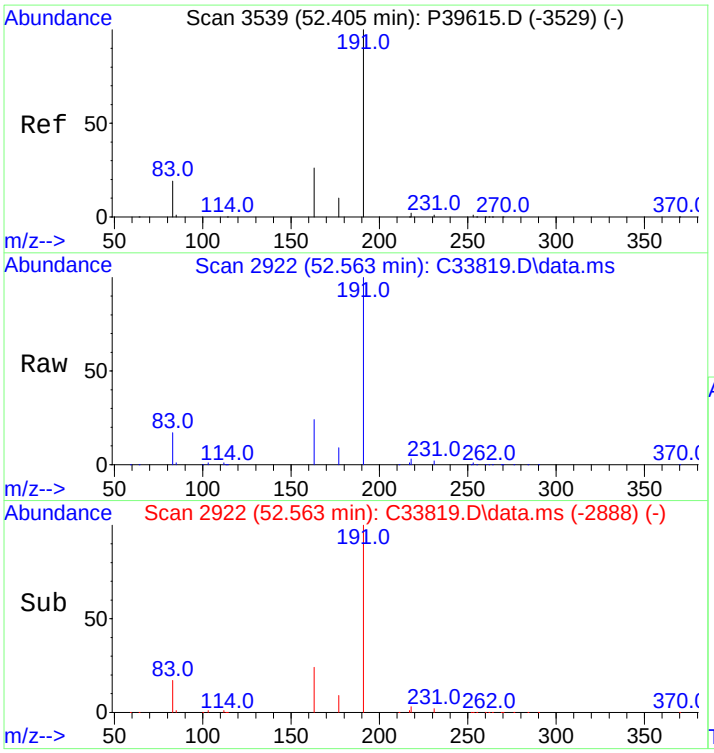


#91
Benzo[g,h,i]perylene
Concen: 11906.45 ng/mL
RT: 54.822 min Scan# 3072
Delta R.T. 0.075 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1404966

Ion	Ratio	Lower	Upper
276	100		
277	23.5	18.9	28.3

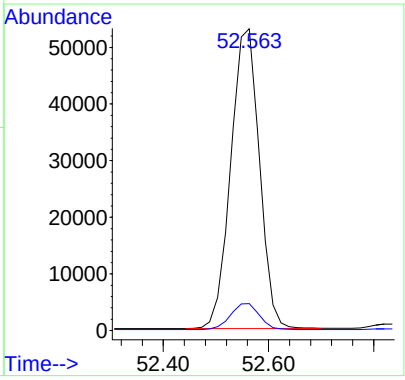


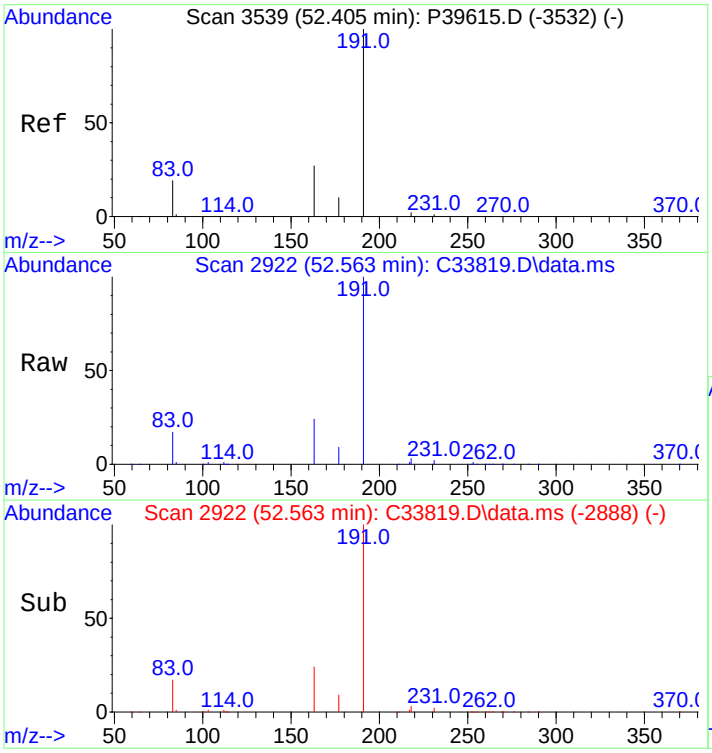


#92
Hopane (T19)
Concen: 10720.58 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199827

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

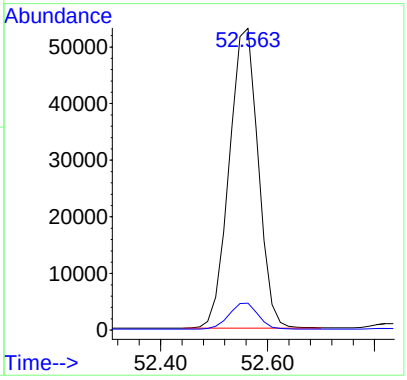




#93
17a(H),21B(H)-hopane - C30H52
Concen: 10712.31 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199673

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	18516M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.982	136	1302520	21083.759	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2108.38%#			
42) Phenanthrene-d10	32.808	188	1258411	17563.931	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1756.39%#			
86) Benzo[a]pyrene-d12	48.512	264	1393115	21325.190	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2132.52%#			
127) 5B(H)Cholane - Surr	44.010	217	195942M4	17439.814	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1743.98%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	124104M4	9697.328	ng/mL	
4) cis-Decalin	17.844	138	96625M4	9676.944	ng/mL	
10) Naphthalene	20.057	128	1949049	29257.134	ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	25854.831	ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	26609.552	ng/mL#	100
18) Benzothiophene	20.268	134	1808135	33094.557	ng/mL	100
23) Biphenyl	24.619	154	1572275M4	25049.794	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	23810.418	ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	25710.272	ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	29003.190	ng/mL	
27) Acenaphthene	27.072	153	1273128	26678.070	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	904177	21663.113	ng/mL	100
29) Fluorene	29.090	166	1451673M4	24443.469	ng/mL	
33) Dibenzothiophene	32.402	184	2285641	25485.077	ng/mL	99
43) Phenanthrene	32.898	178	2086430	23153.152	ng/mL	98
54) Retene	39.884	234	451319	17223.374	ng/mL	92
55) Anthracene	33.079	178	2014742M4	23075.600	ng/mL	
56) Carbazole	33.741	167	2088328M4	26040.459	ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19255.650	ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19002.422	ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	18321.441	ng/mL	
60) Pyrene	38.559	202	2108058M4	18862.228	ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20448.484	ng/ml	98
67) Naphthobenzothiophene-2,1	42.399	234	2387636M4	20444.194	ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	20217.341	ng/mL	
76) Chrysene	43.498	228	1888024M4	19884.398	ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	19887.463	ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	20722.621	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	20712.666	ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	21181.566	ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	22157.852	ng/mL	
88) Perylene	48.919	252	2271920	22165.085	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	23421.956	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	22616.127	ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516558	22339.282	ng/mL	100

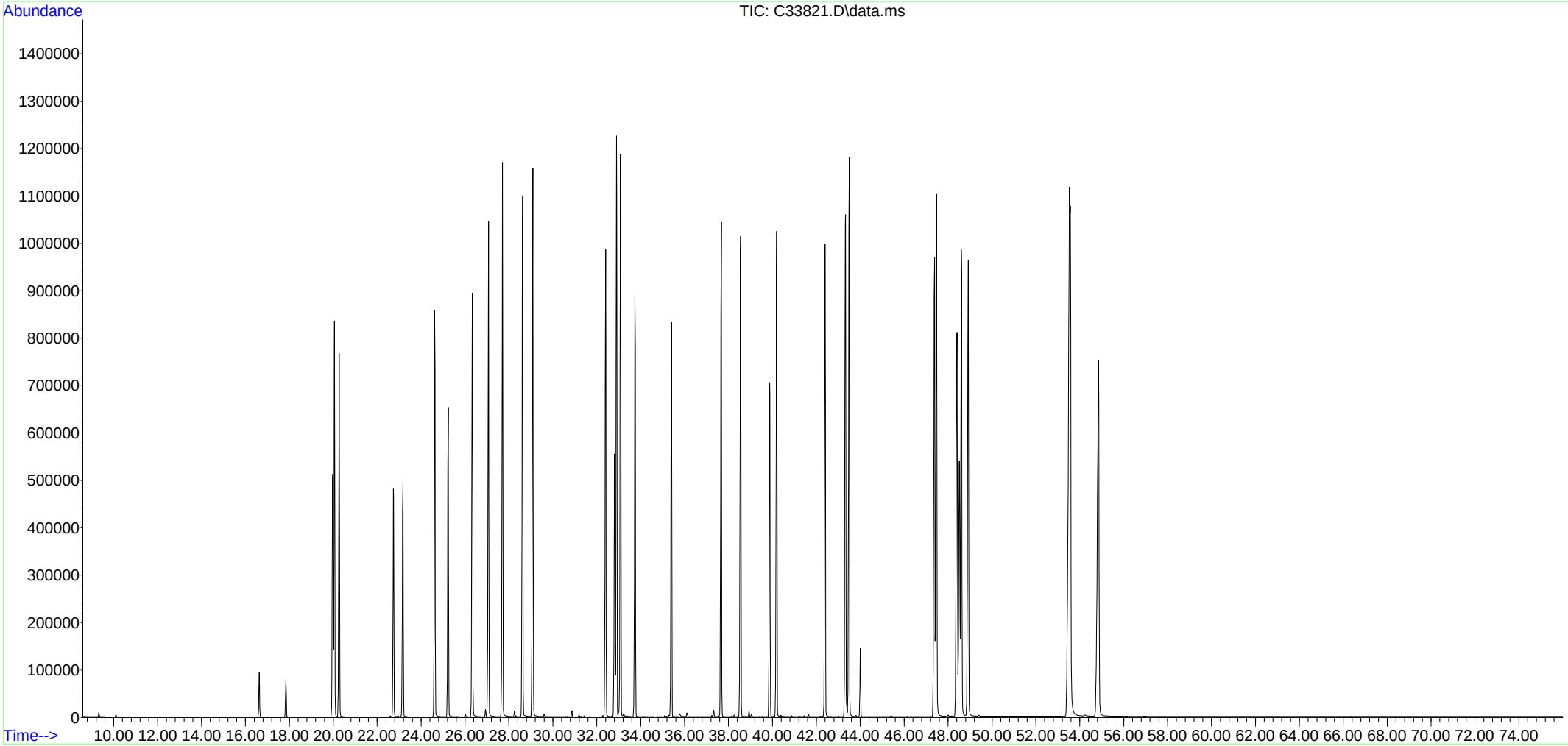
(#) = qualifier out of range (m) = manual integration (+) = signals summed

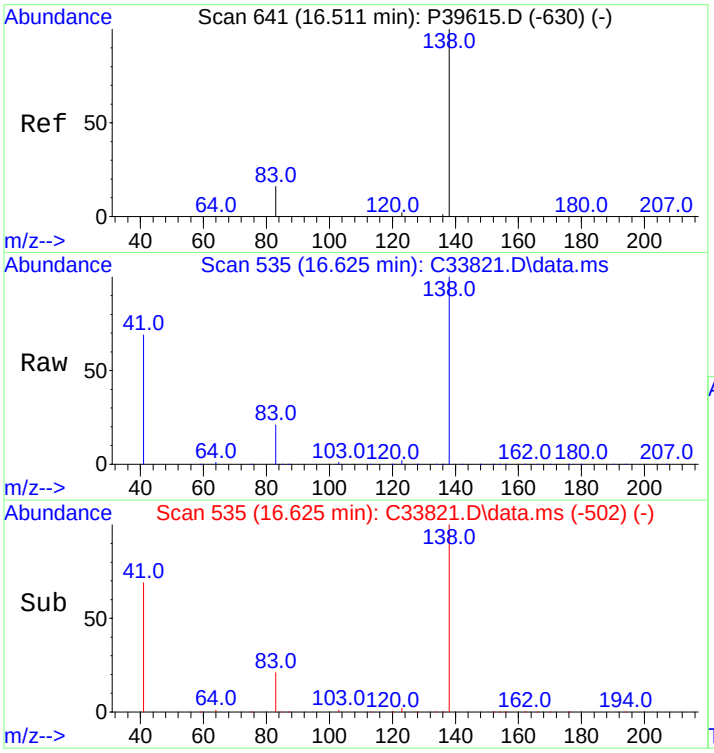
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

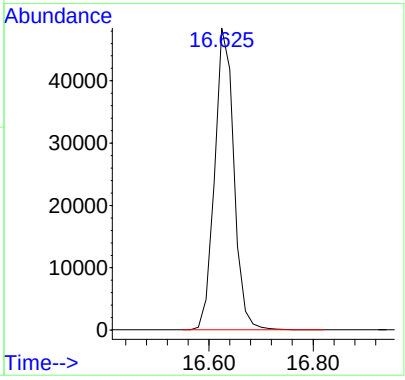
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

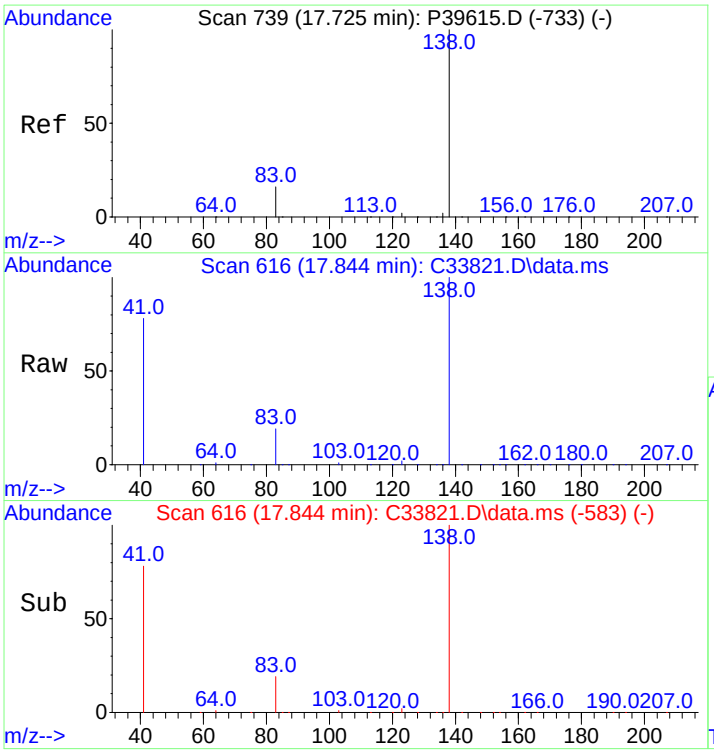




#3
trans-Decalin
Concen: 9697.33 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

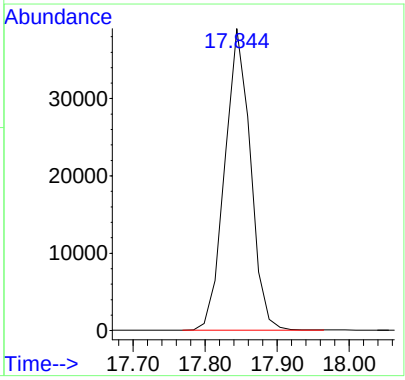
Tgt Ion:138 Resp: 124104

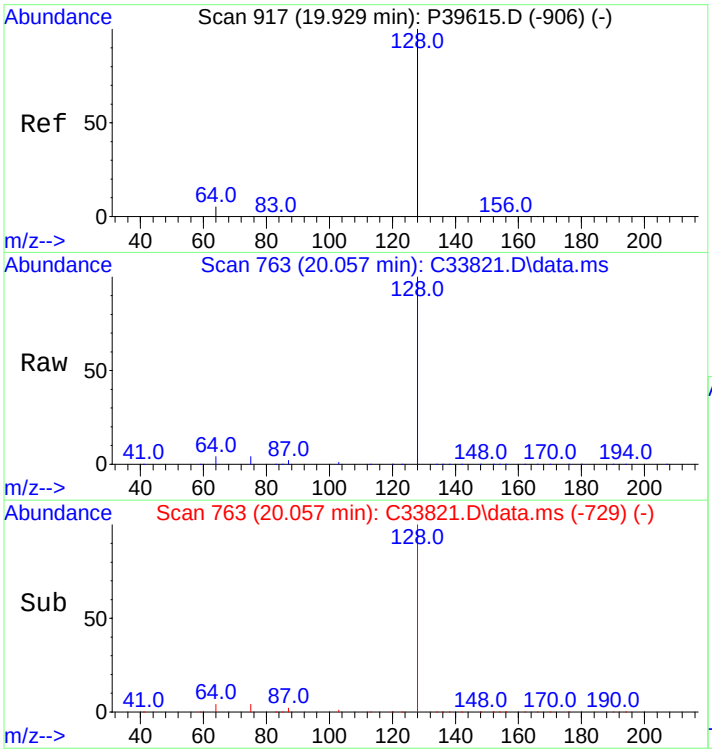




#4
cis-Decalin
Concen: 9676.94 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:138 Resp: 96625

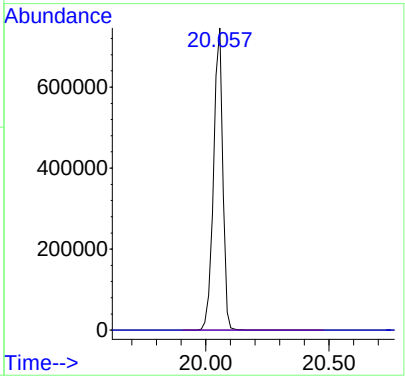


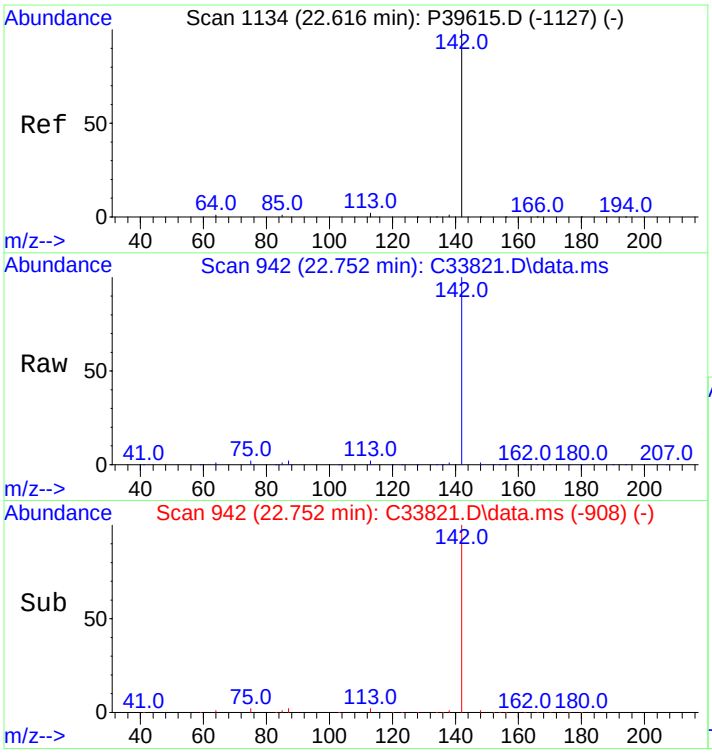


#10
Naphthalene
Concen: 29257.13 ng/mL
RT: 20.057 min Scan# 763
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:128 Resp: 1949049

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

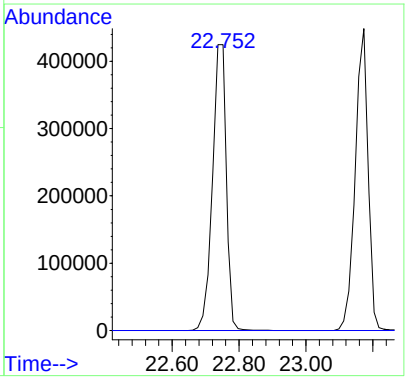


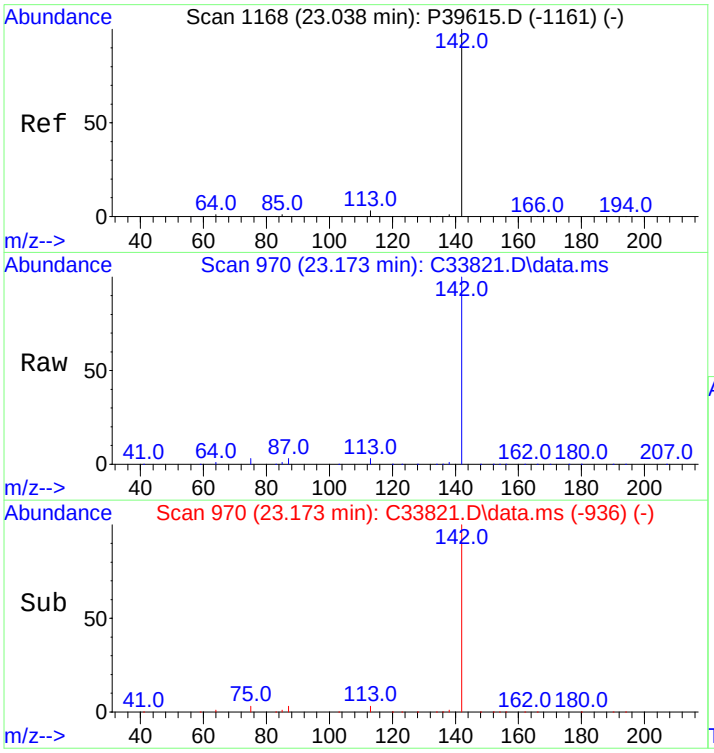


#16
2-Methylnaphthalene
Concen: 25854.83 ng/mL m
RT: 22.752 min Scan# 942
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1216123

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

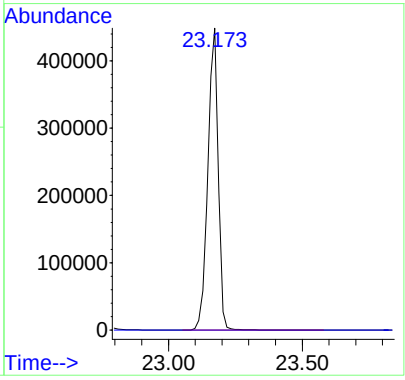


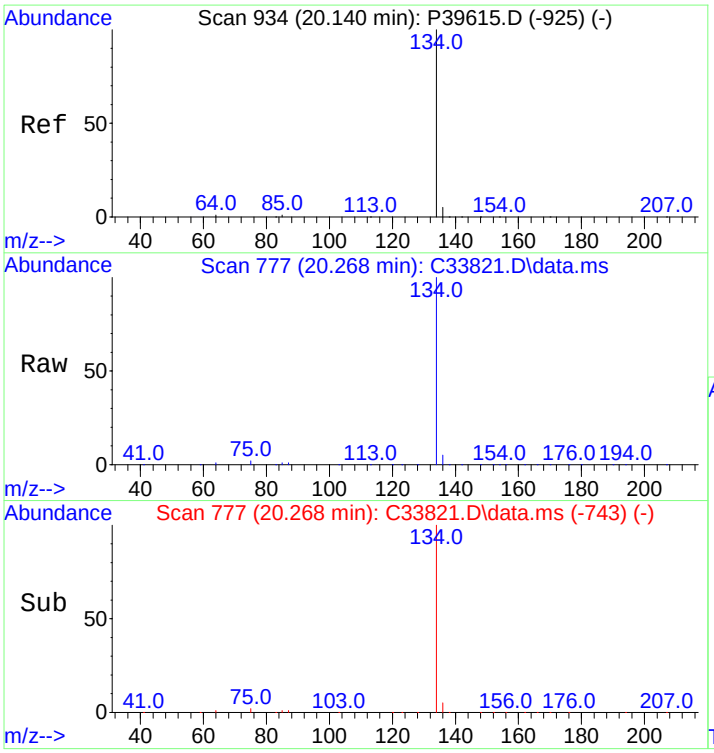


#17
1-Methylnaphthalene
Concen: 26609.55 ng/mL
RT: 23.173 min Scan# 970
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1200476

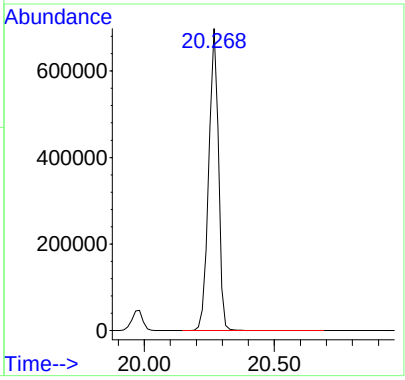
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

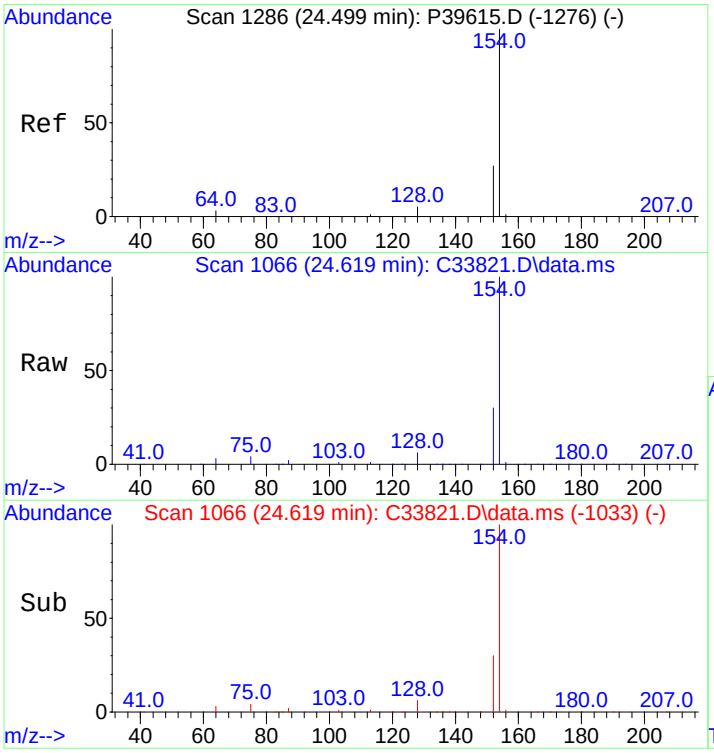




#18
Benzothiophene
Concen: 33094.56 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:134 Resp: 1808135

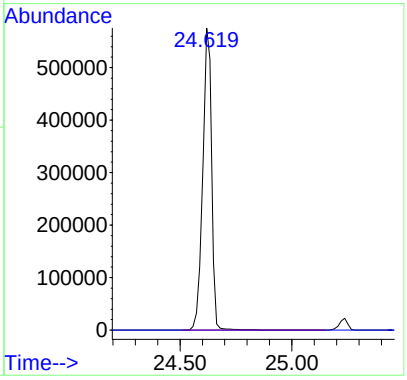


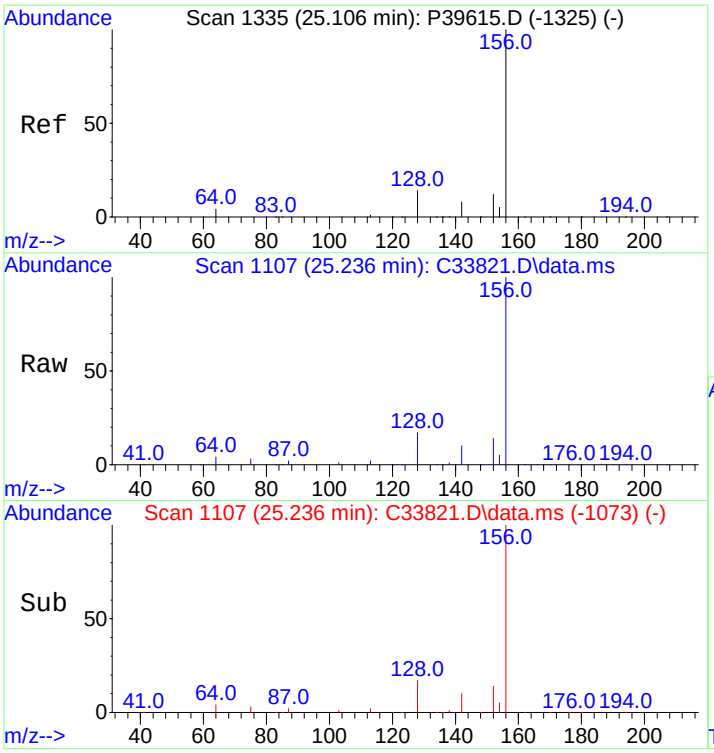


#23
Biphenyl
Concen: 25049.79 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:154 Resp: 1572275

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

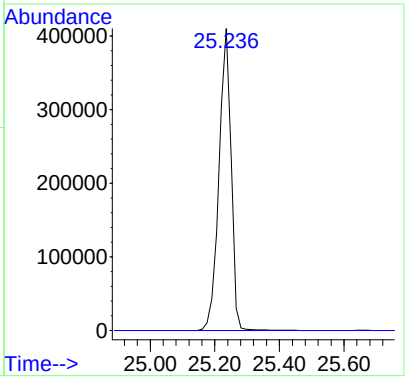


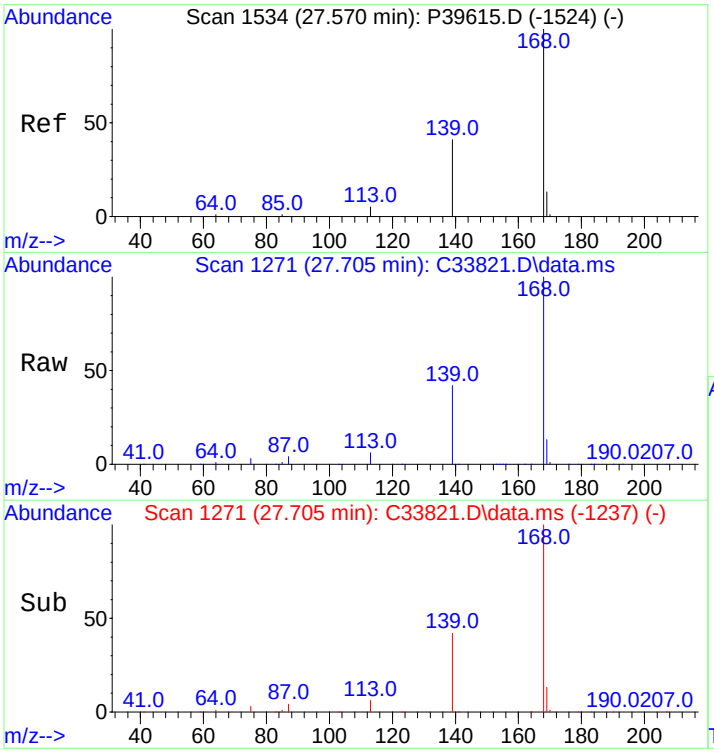


#24
2,6-Dimethylnaphthalene
Concen: 23810.42 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:156 Resp: 1065395

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

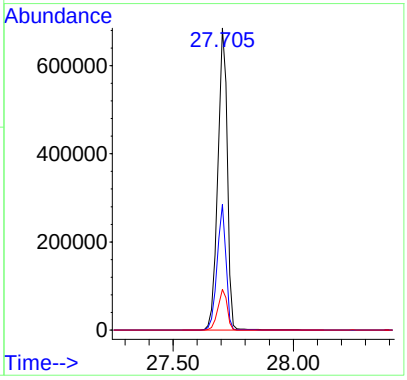


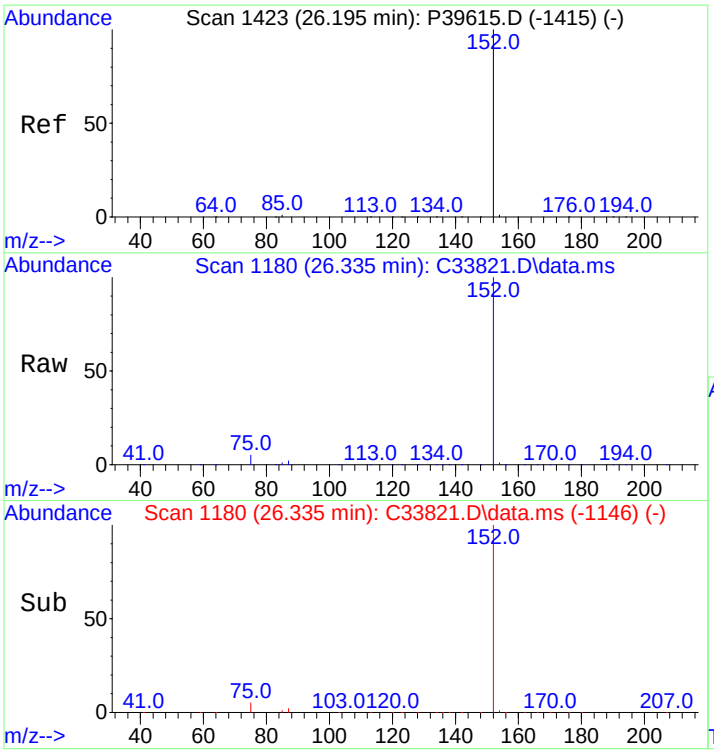


#25
Dibenzofuran
Concen: 25710.27 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:168 Resp: 1874849

Ion	Ratio	Lower	Upper
168	100		
139	39.3	32.9	49.3
169	13.3	10.6	16.0

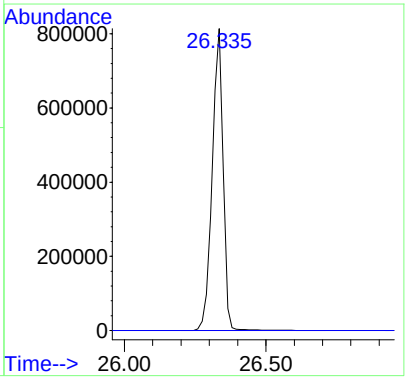


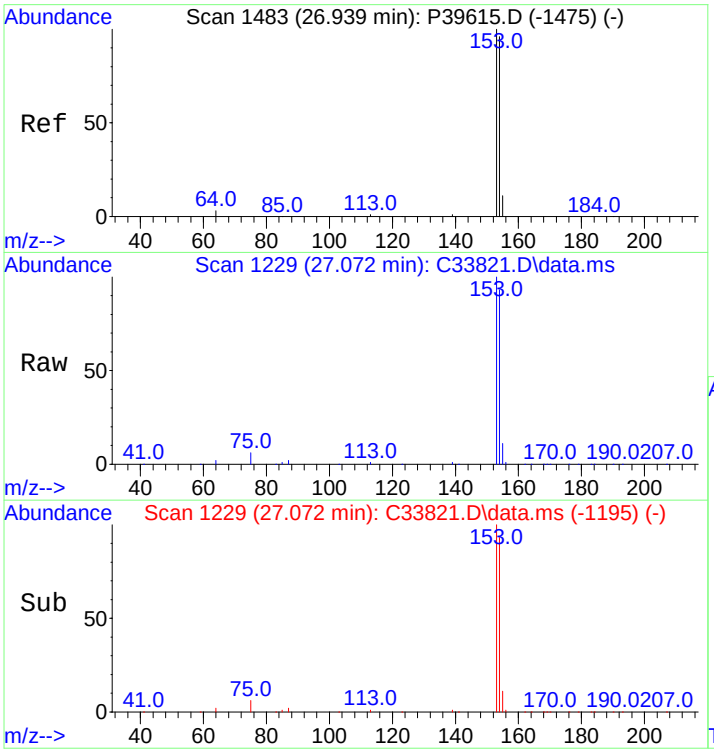


#26
Acenaphthylene
Concen: 29003.19 ng/mL m
RT: 26.335 min Scan# 1180
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:152 Resp: 2179843

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

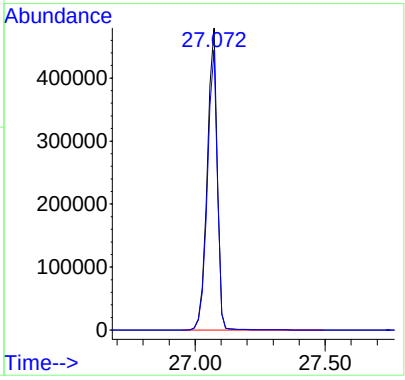


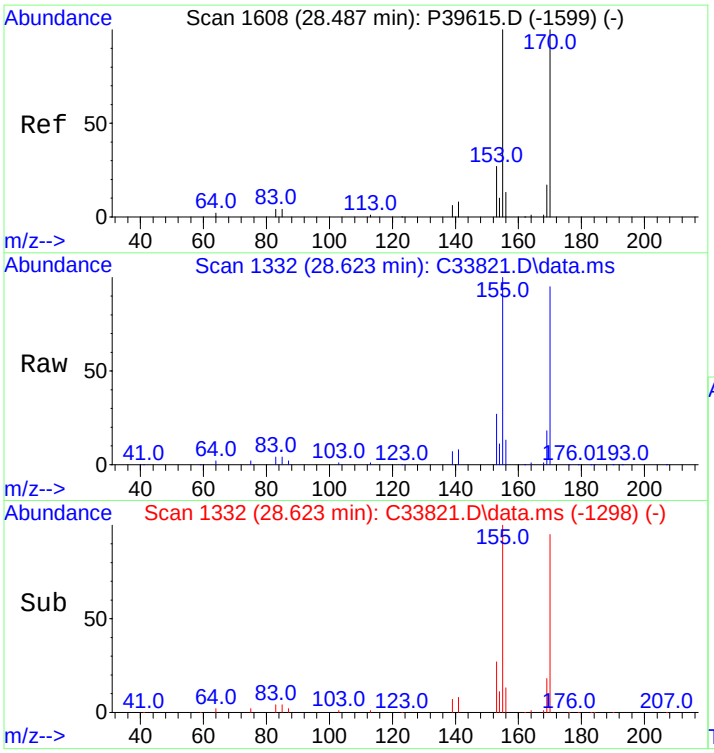


#27
Acenaphthene
Concen: 26678.07 ng/mL
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:153 Resp: 1273128

Ion	Ratio	Lower	Upper
153	100		
154	92.9	75.0	112.6

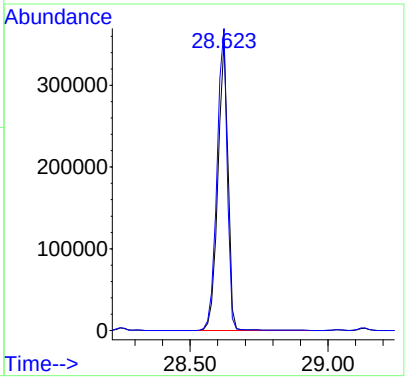


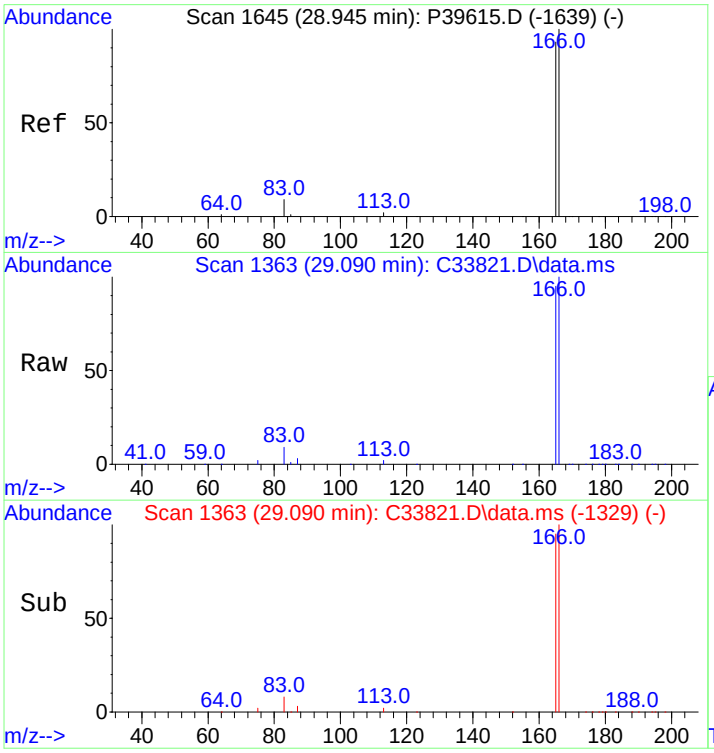


#28
2,3,5-Trimethylnaphthalene
Concen: 21663.11 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:170 Resp: 904177

Ion	Ratio	Lower	Upper
170	100		
155	105.9	84.7	127.1

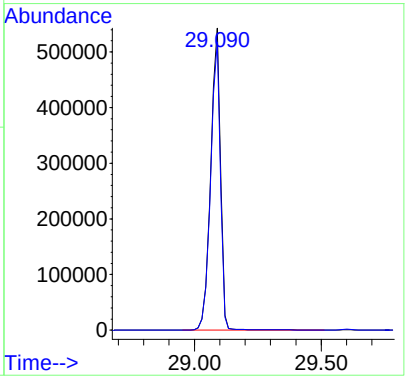


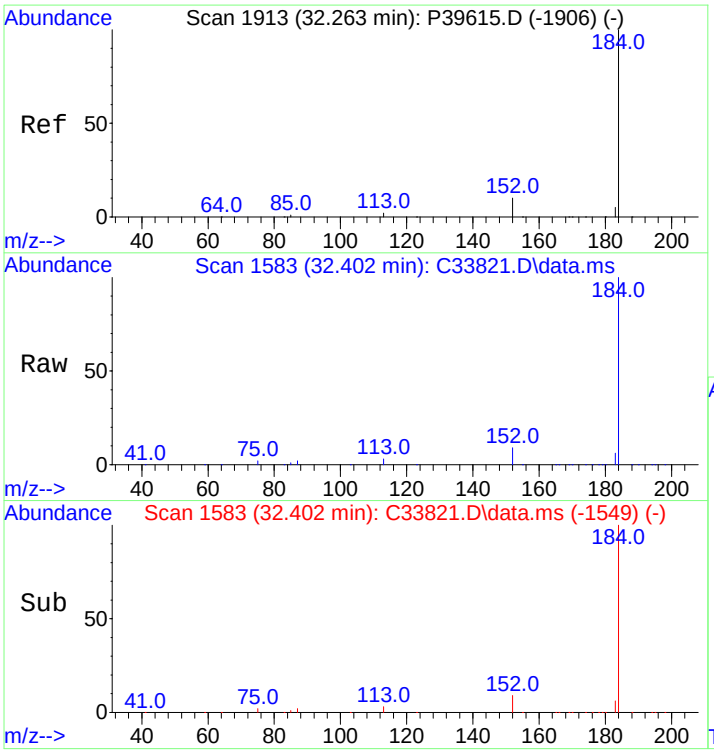


#29
Fluorene
Concen: 24443.47 ng/mL m
RT: 29.090 min Scan# 1363
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:166 Resp: 1451673

Ion	Ratio	Lower	Upper
166	100		
165	95.3	75.3	112.9

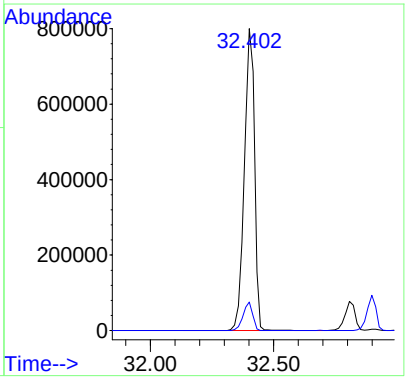


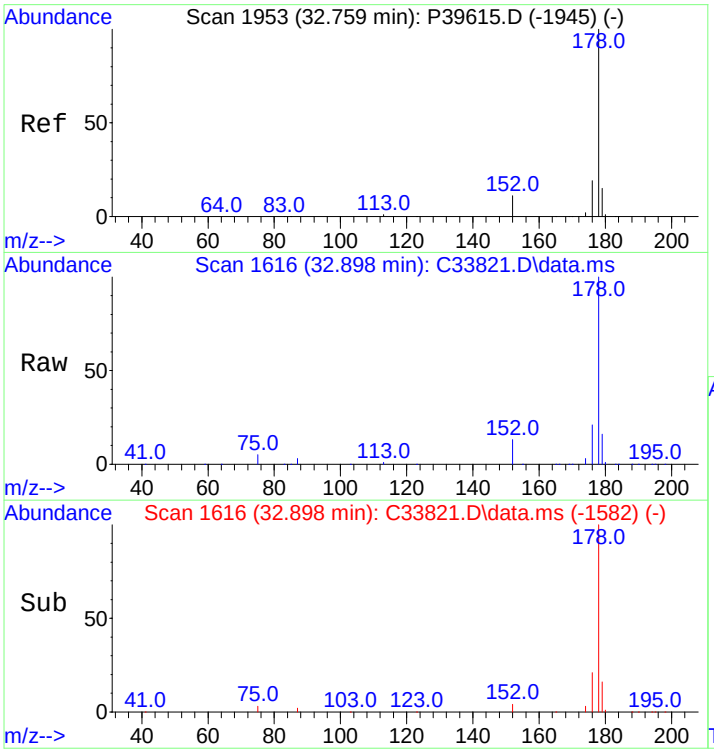


#33
Dibenzothiophene
Concen: 25485.08 ng/mL
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:184 Resp: 2285641

Ion	Ratio	Lower	Upper
184	100		
152	8.9	6.7	10.1

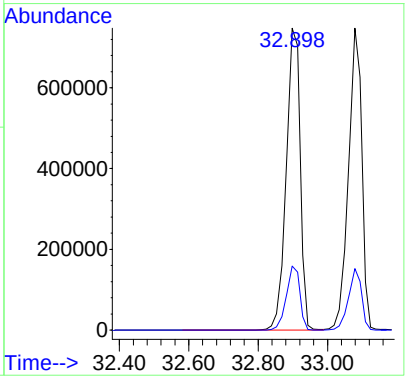


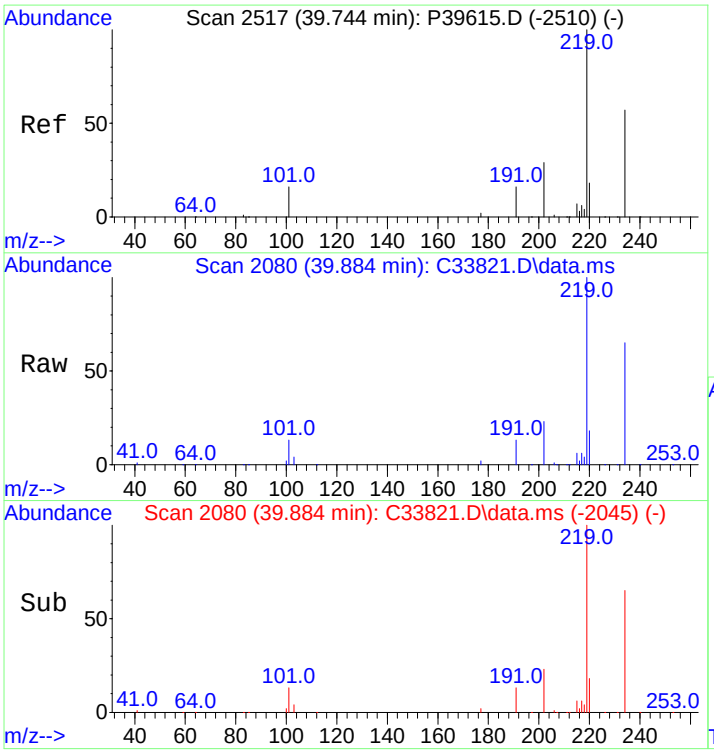


#43
Phenanthrene
Concen: 23153.15 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2086430

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

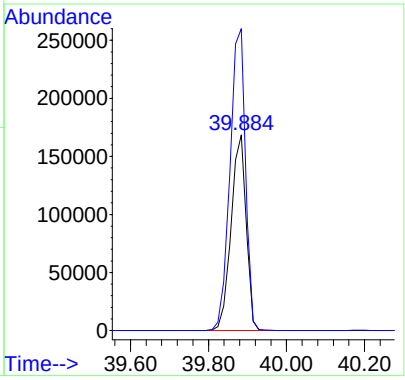


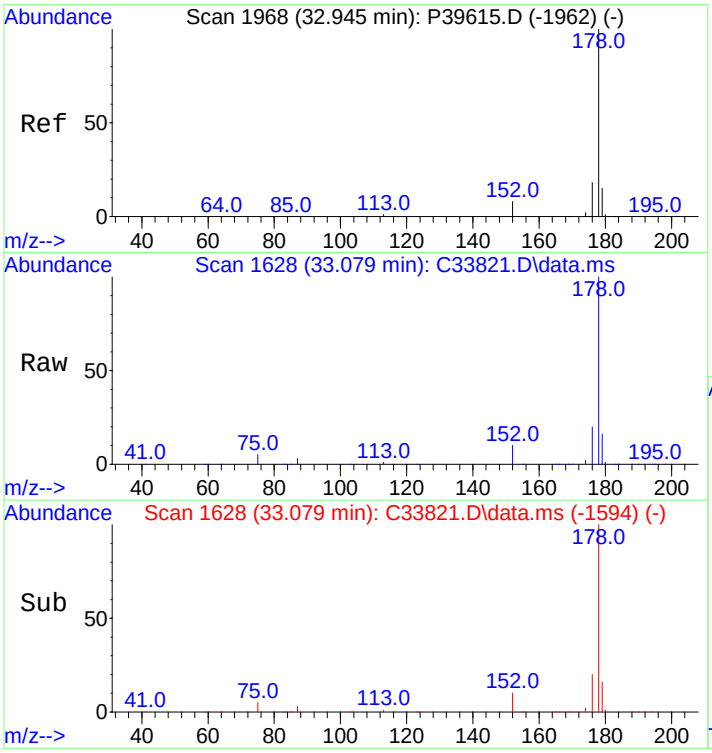


#54
Retene
Concen: 17223.37 ng/mL
RT: 39.884 min Scan# 2080
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 451319

Ion	Ratio	Lower	Upper
234	100		
219	159.0	136.6	204.8

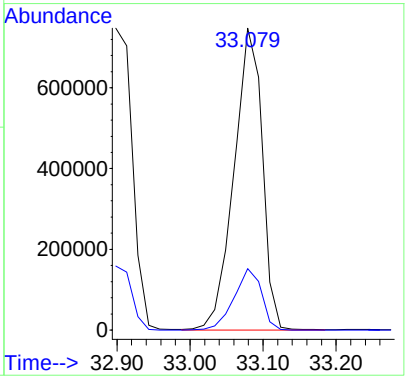


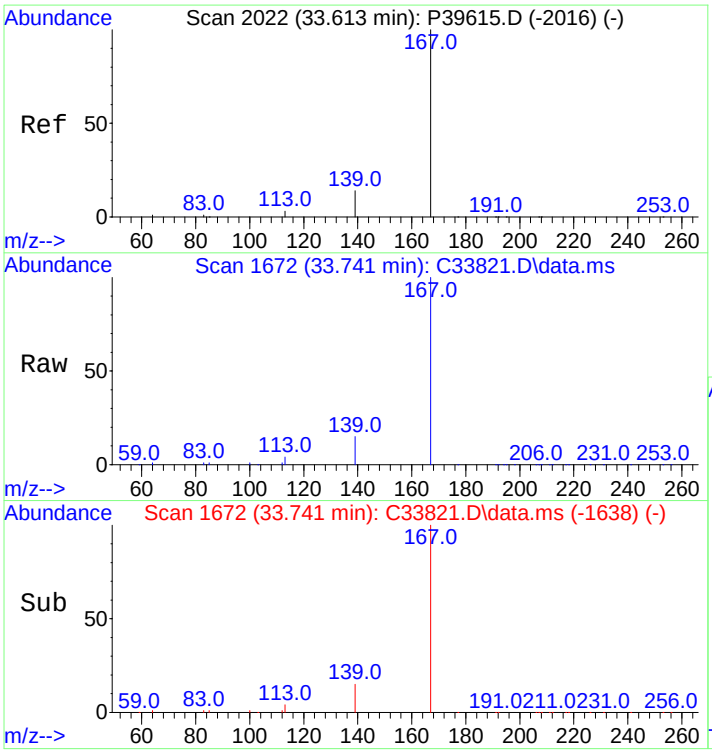


#55
Anthracene
Concen: 23075.60 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2014742

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.4	23.0

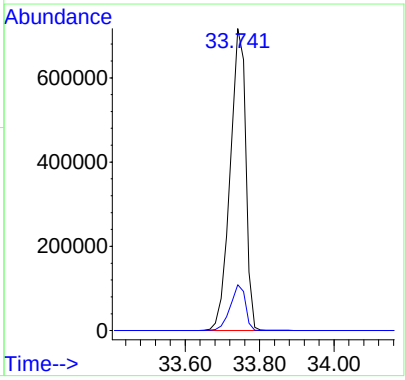


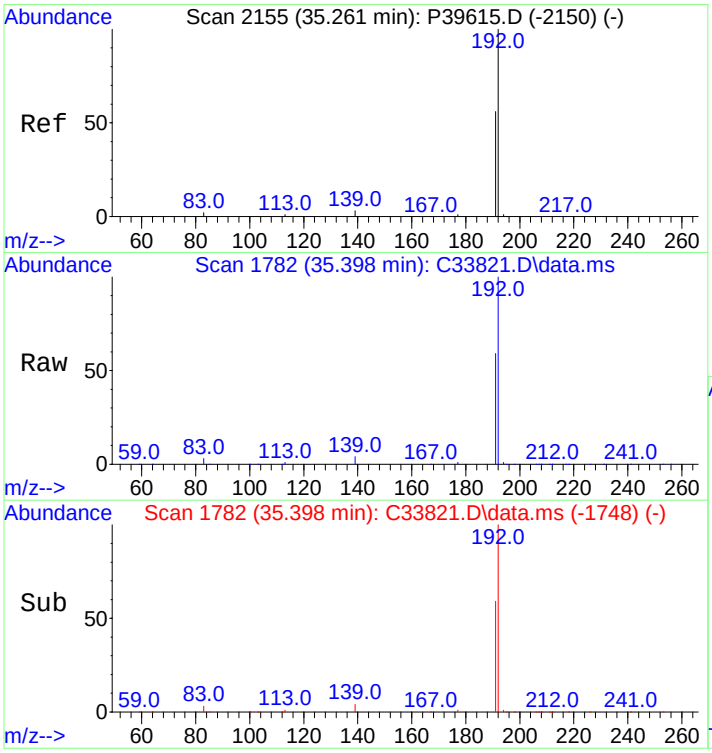


#56
Carbazole
Concen: 26040.46 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:167 Resp: 2088328

Ion	Ratio	Lower	Upper
167	100		
139	14.7	11.6	17.4

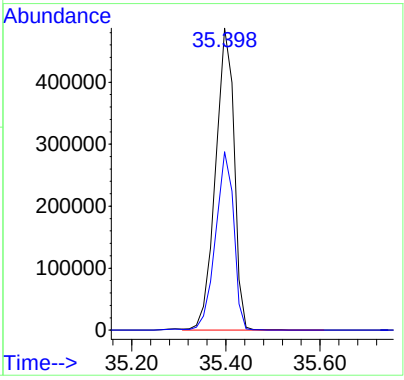


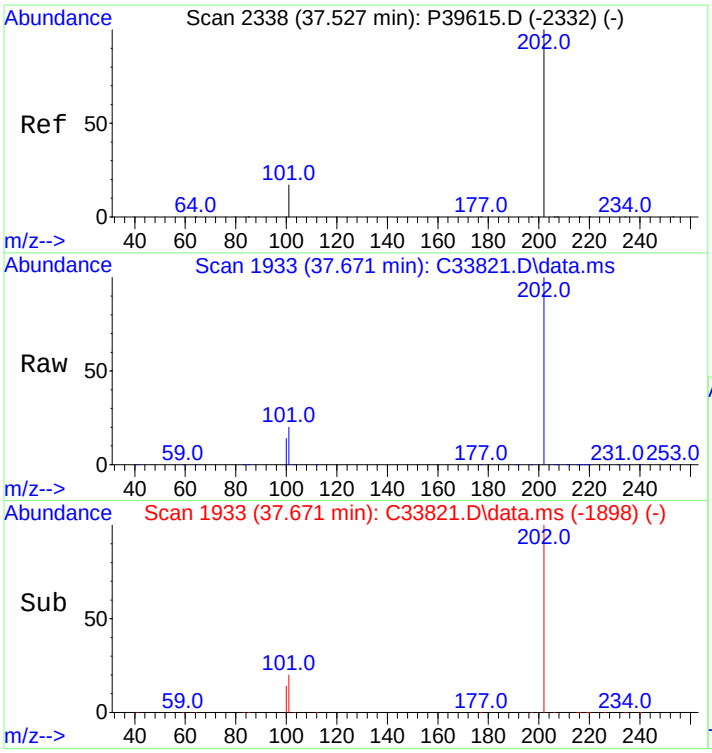


#57
1-Methylphenanthrene
Concen: 19255.65 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:192 Resp: 1328204

Ion	Ratio	Lower	Upper
192	100		
191	57.9	45.3	67.9

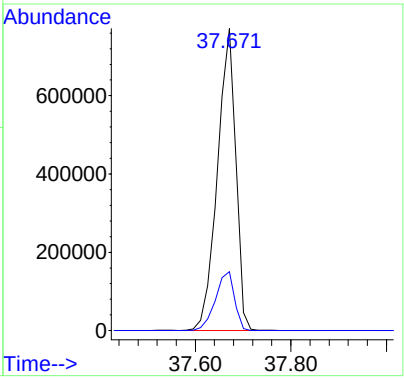


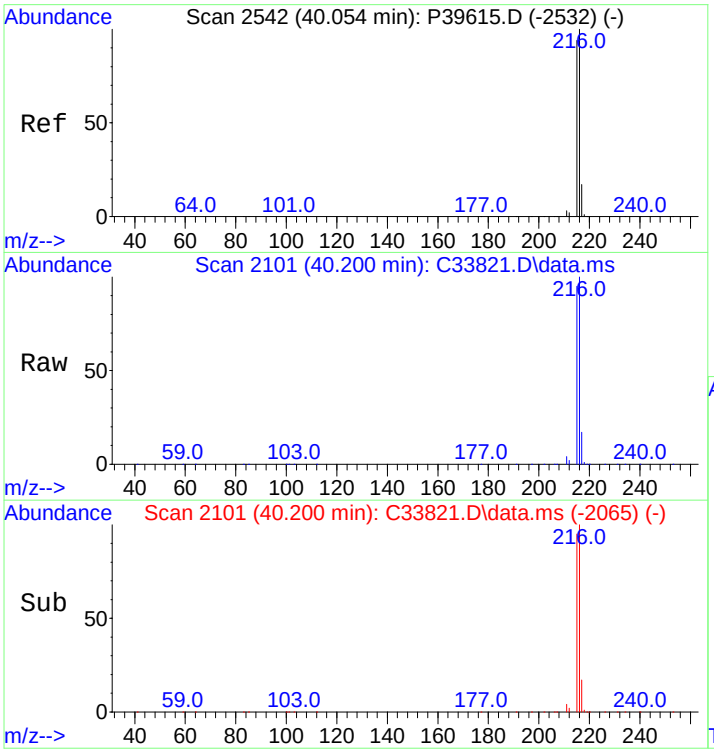


#58
Fluoranthene
Concen: 19002.42 ng/mL m
RT: 37.671 min Scan# 1933
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2070581

Ion	Ratio	Lower	Upper
202	100		
101	20.2	19.1	28.7

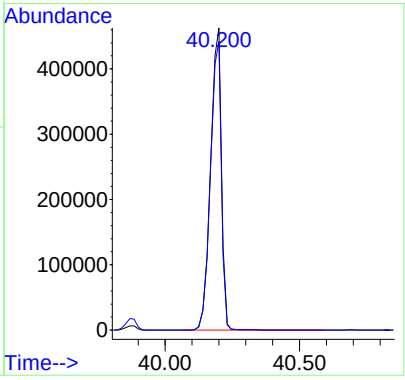


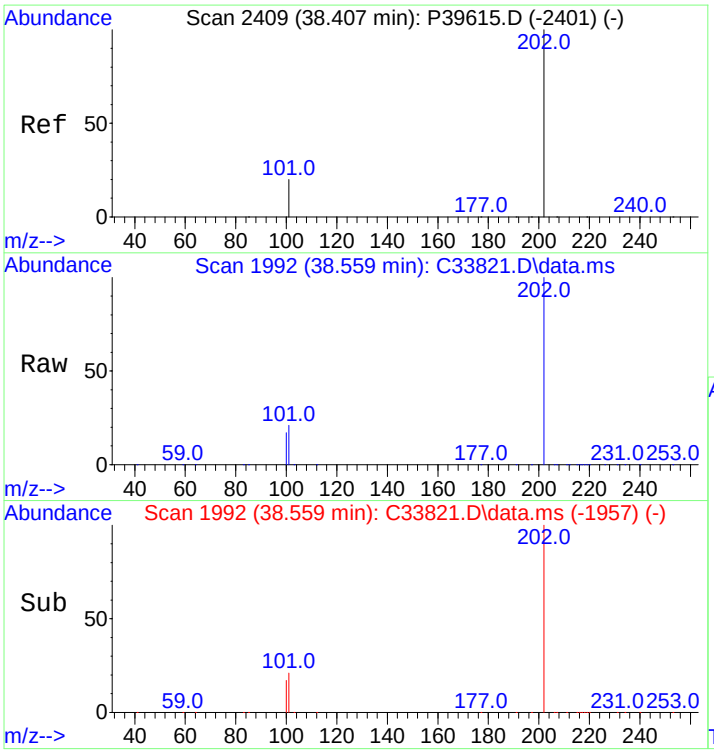


#59
Benzo(b)fluorene
Concen: 18321.44 ng/mL m
RT: 40.200 min Scan# 2101
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:216 Resp: 1303874

Ion	Ratio	Lower	Upper
216	100		
215	95.9	77.4	116.2

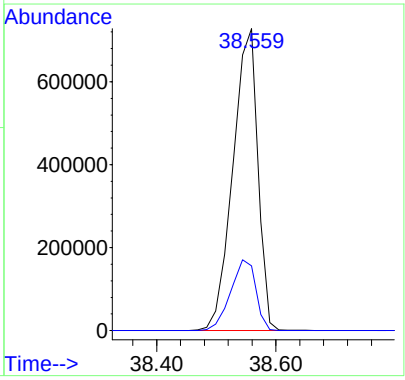


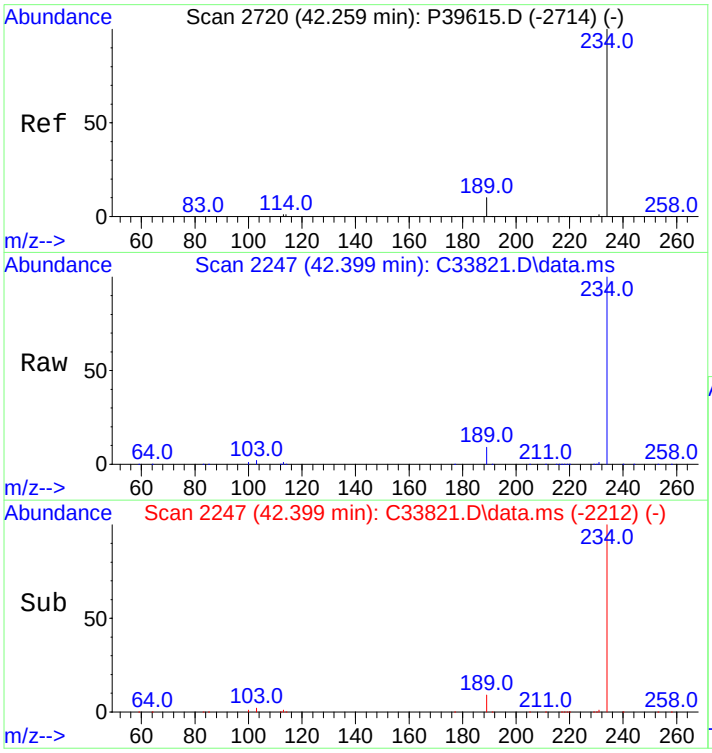


#60
Pyrene
Concen: 18862.23 ng/mL m
RT: 38.559 min Scan# 1992
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2108058

Ion	Ratio	Lower	Upper
202	100		
101	23.7	20.4	30.6

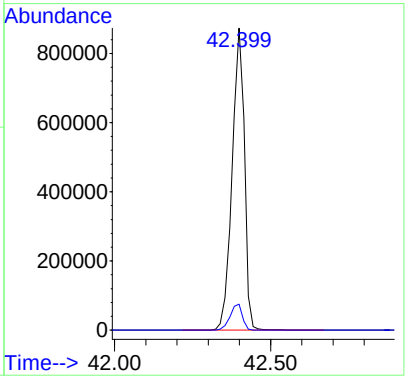


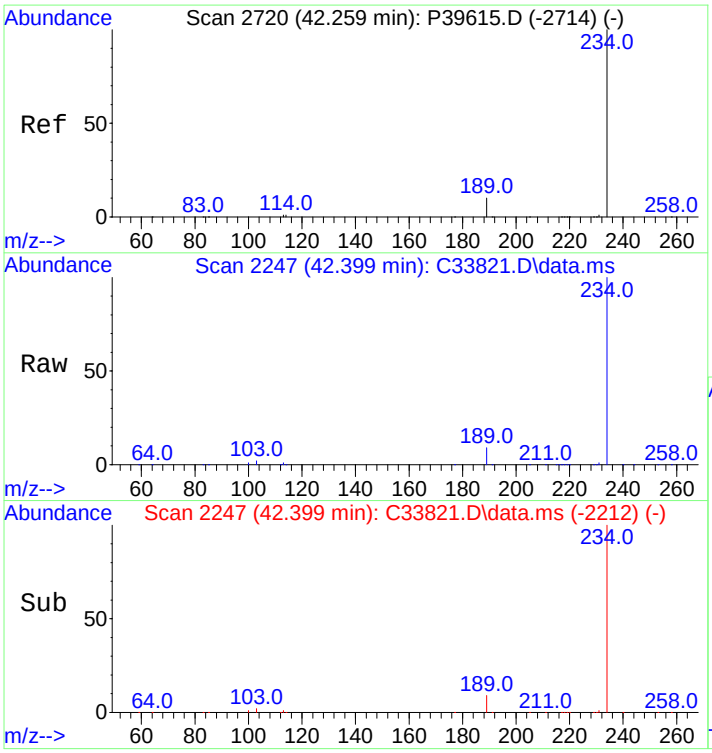


#66
Naphthobenzothiophene
Concen: 20448.48 ng/ml
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2388137

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

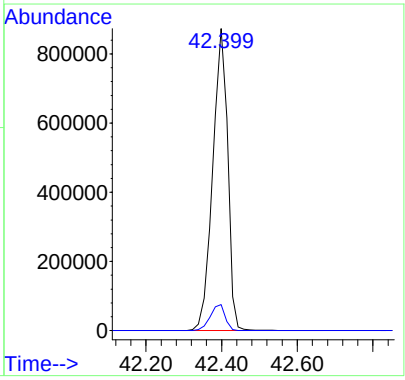


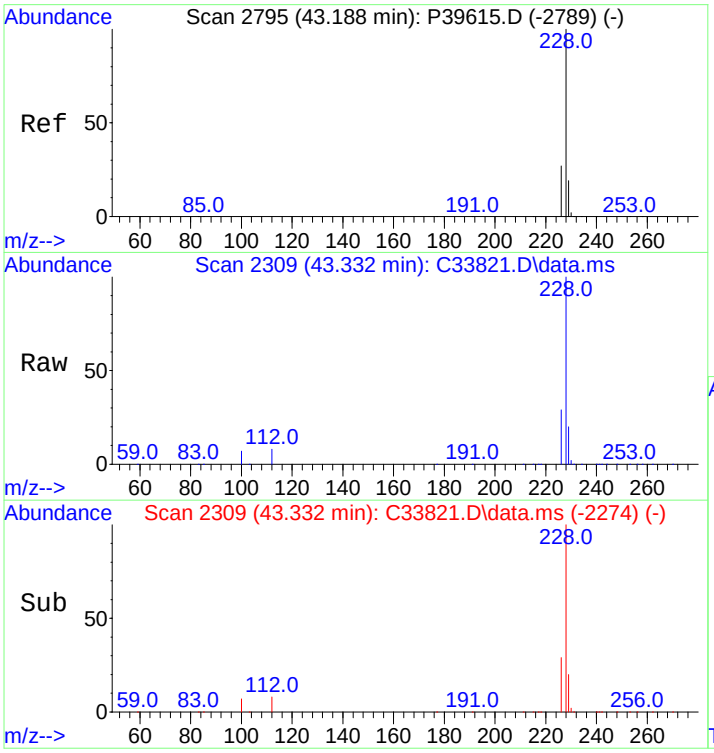


#67
Naphthobenzothiophene-2,1-D
Concen: 20444.19 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2387636

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

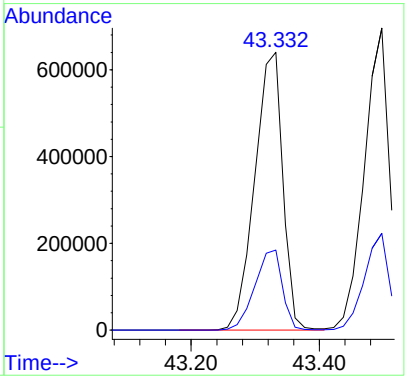


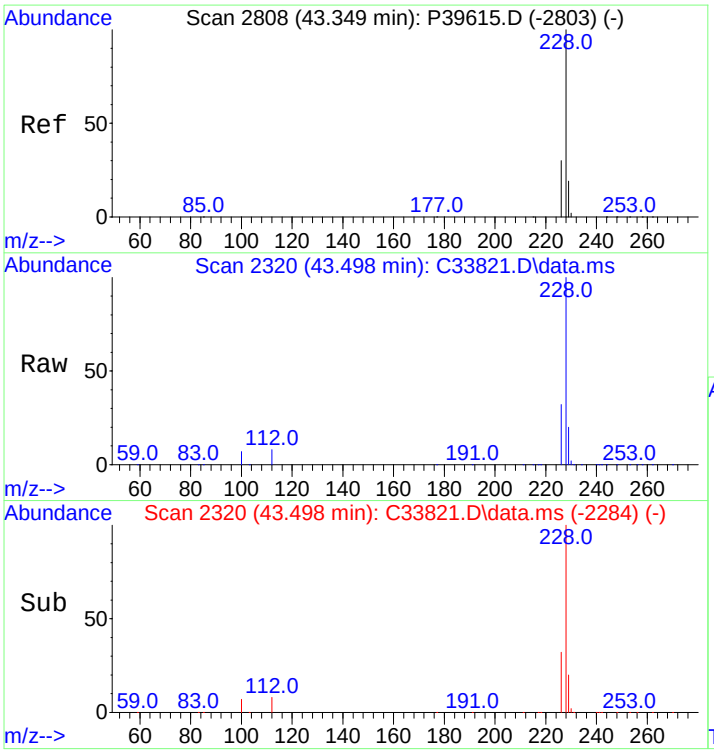


#75
Benz[a]anthracene
Concen: 20217.34 ng/mL m
RT: 43.332 min Scan# 2309
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1948399

Ion	Ratio	Lower	Upper
228	100		
226	28.4	21.8	32.8

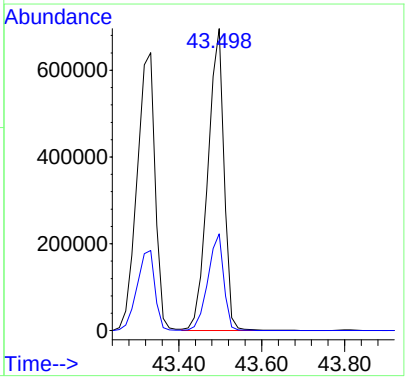


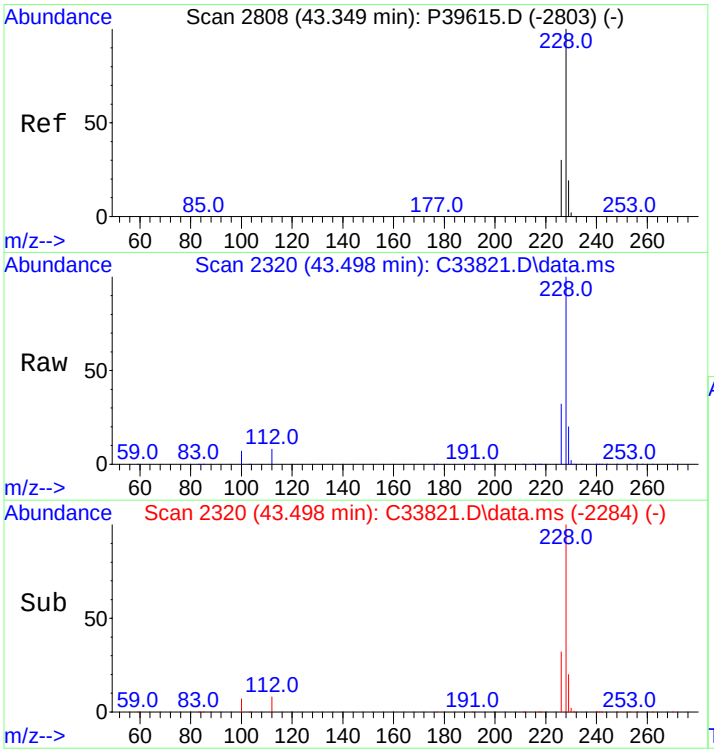


#76
Chrysene
Concen: 19884.40 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888024

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

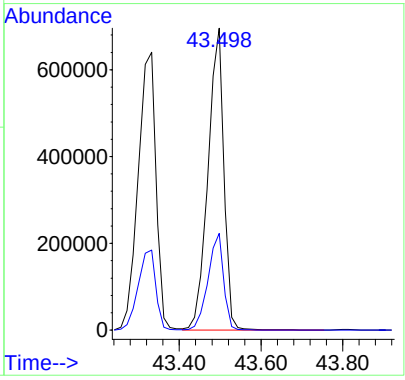


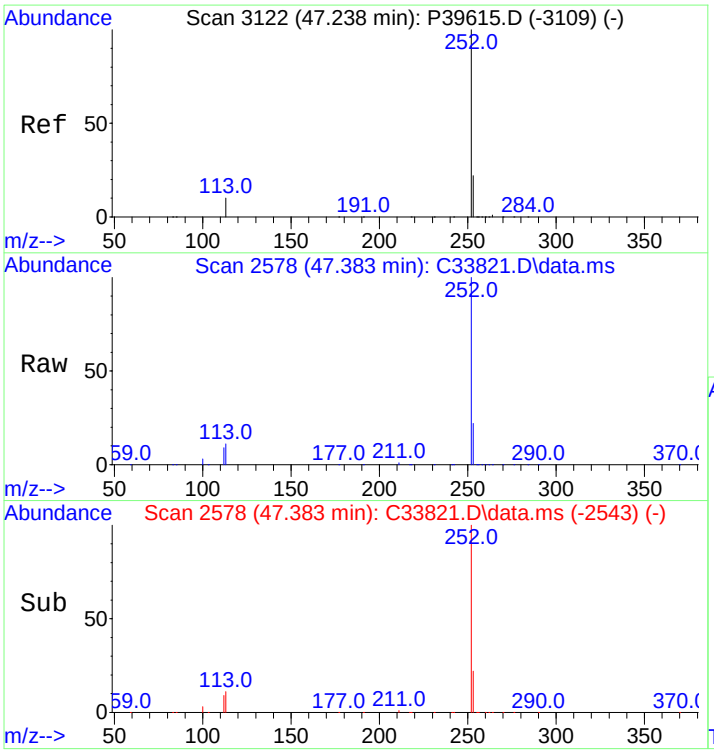


#77
Chrysene/Triphenylene
Concen: 19887.46 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888315

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

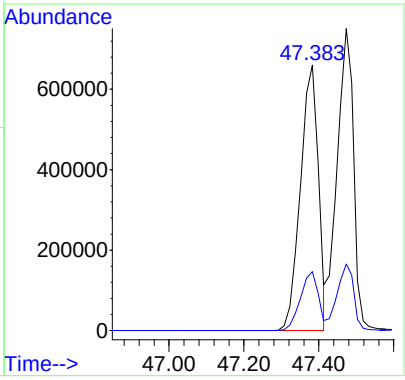


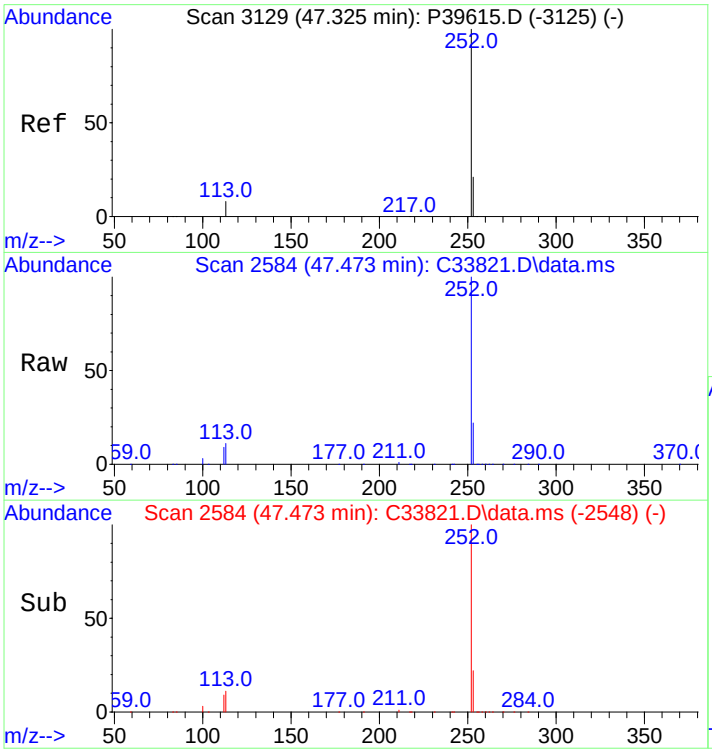


#82
Benzo[b]fluoranthene
Concen: 20722.62 ng/mL
RT: 47.383 min Scan# 2578
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2197460

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

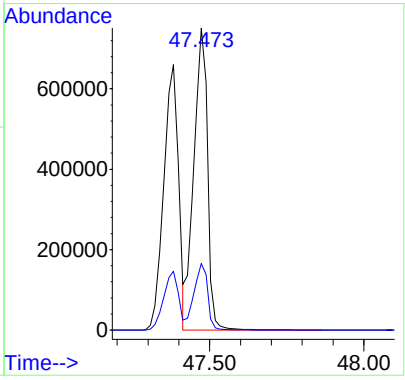


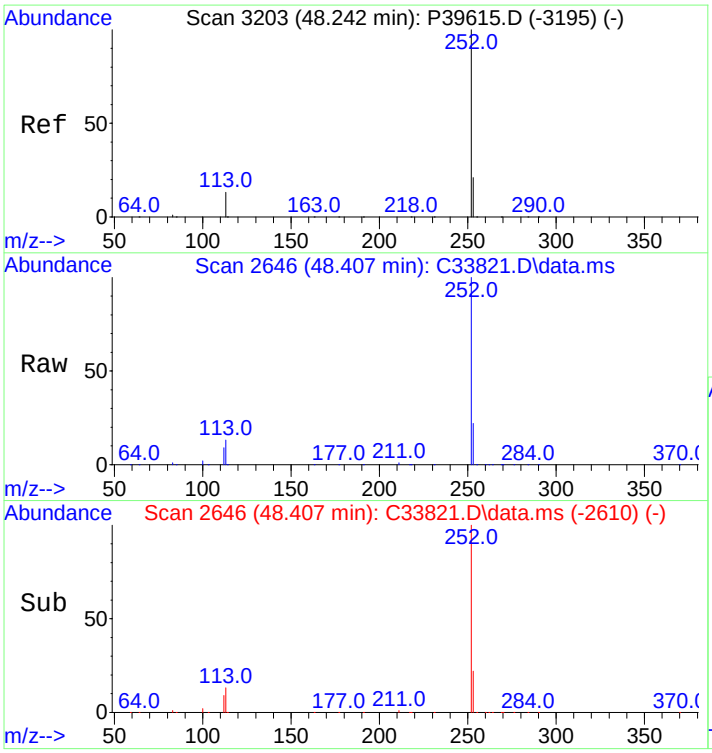


#83
Benzo[j]+[k]fluoranthene
Concen: 20712.67 ng/mL m
RT: 47.473 min Scan# 2584
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2322040

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.2	27.4

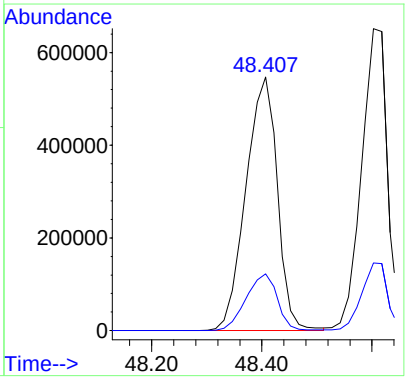


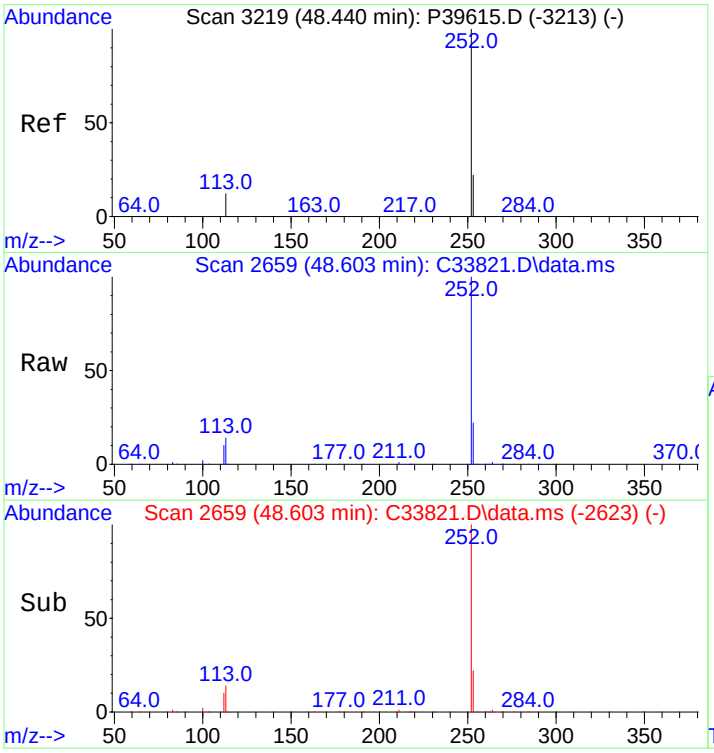


#85
Benzo[e]pyrene
Concen: 21181.57 ng/mL
RT: 48.407 min Scan# 2646
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2161751

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.5	27.7

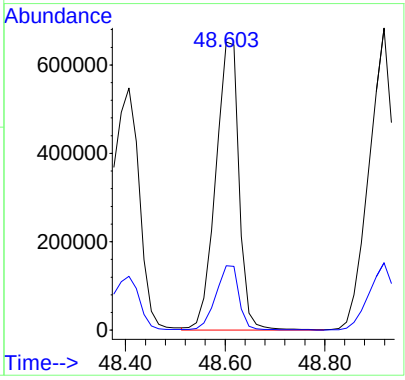


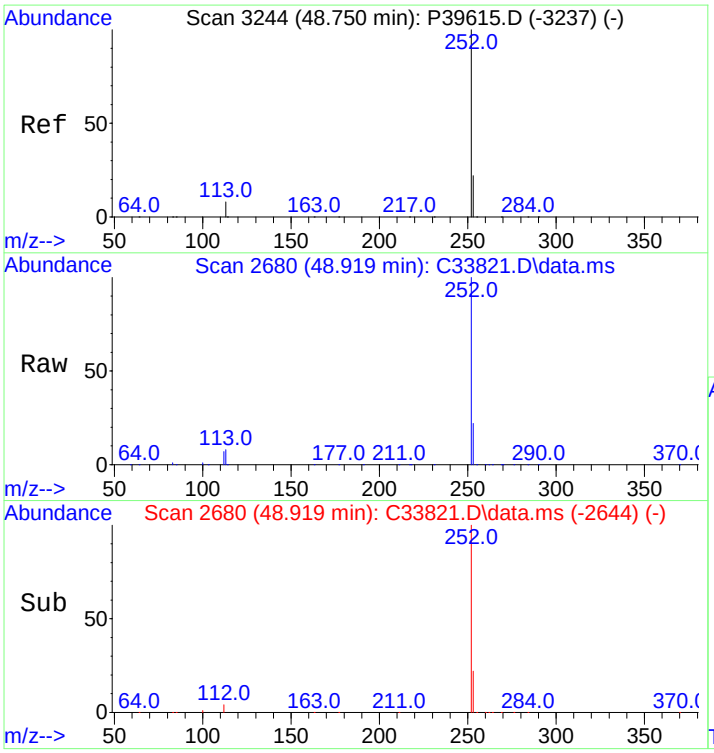


#87
Benzo[a]pyrene
Concen: 22157.85 ng/mL m
RT: 48.603 min Scan# 2659
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2125328

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.7	28.1

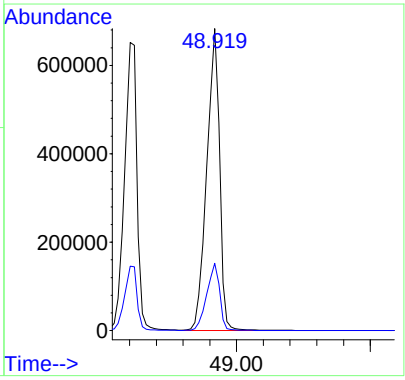


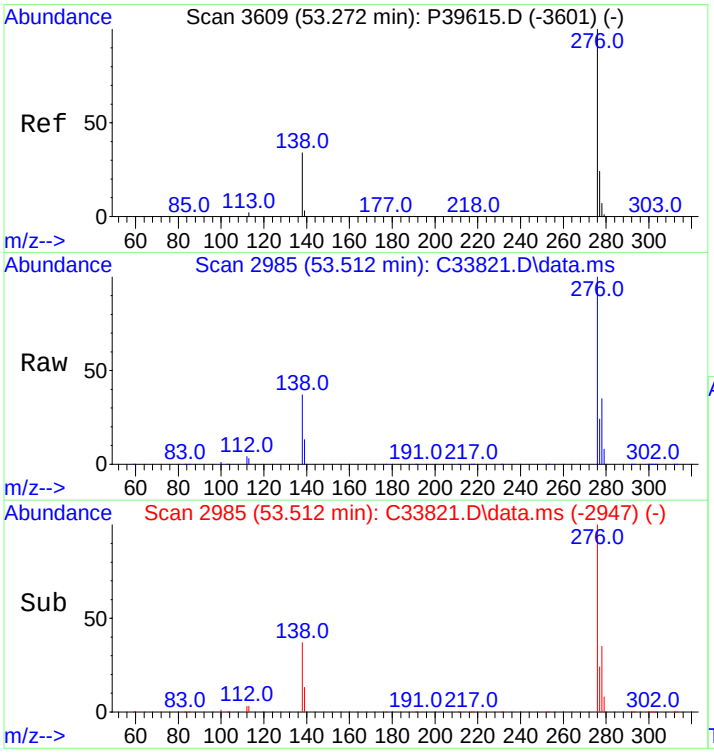


#88
Perylene
Concen: 22165.08 ng/mL
RT: 48.919 min Scan# 2680
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2271920

Ion	Ratio	Lower	Upper
252	100		
253	22.3	18.6	27.8

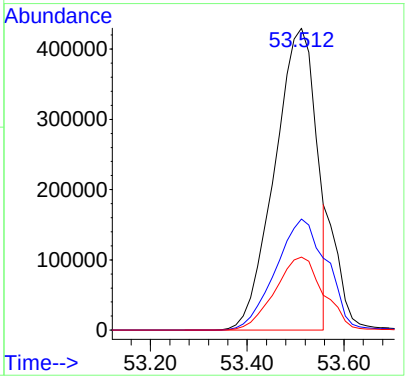


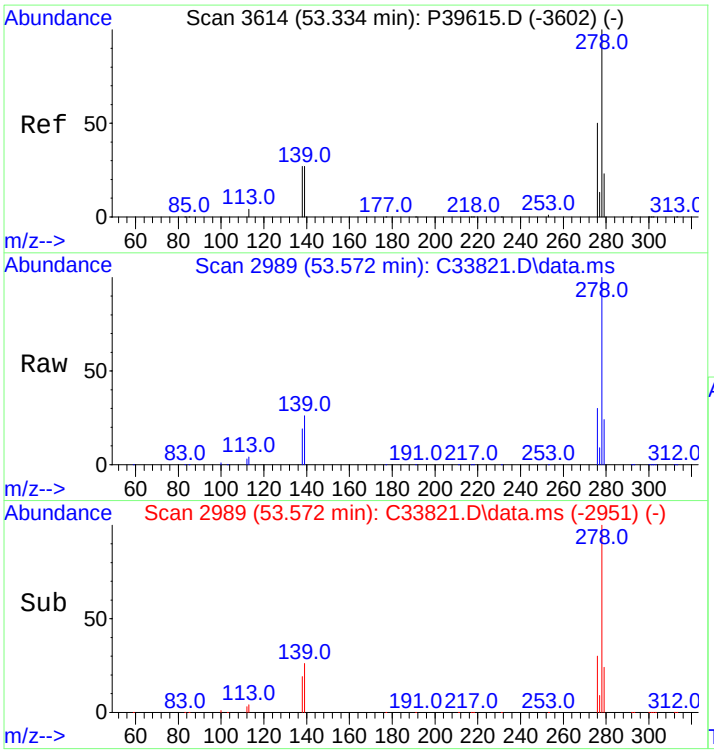


#89
Indeno[1,2,3-cd]pyrene
Concen: 23421.96 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2586428

Ion	Ratio	Lower	Upper
276	100		
138	45.4	30.3	45.5
277	28.2	19.2	28.8

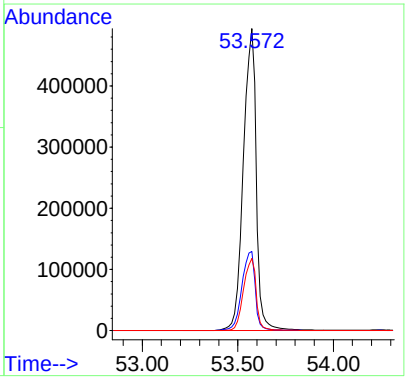


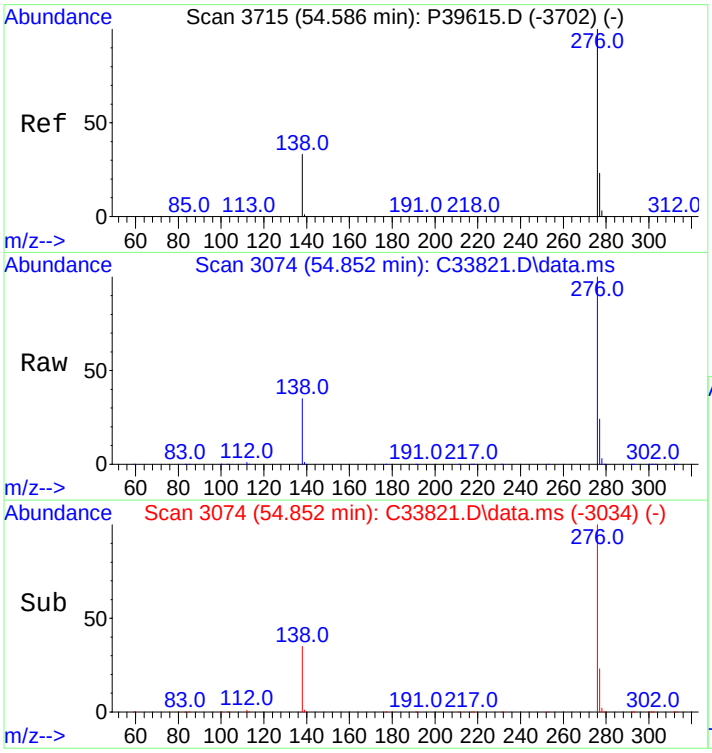


#90
Dibenz[ah]+[ac]anthracene
Concen: 22616.13 ng/mL
RT: 53.572 min Scan# 2989
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:278 Resp: 2347772

Ion	Ratio	Lower	Upper
278	100		
139	27.2	25.4	38.2
279	23.5	19.0	28.4

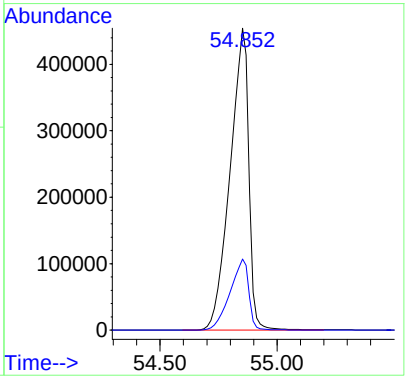




#91
Benzo[g,h,i]perylene
Concen: 22339.28 ng/mL
RT: 54.852 min Scan# 3074
Delta R.T. 0.105 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2516558

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	16662M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	69136M4	956.009	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%			
42) Phenanthrene-d10	32.793	188	60729M4	1062.426	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%			
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%			
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337	ng/mL	
4) cis-Decalin	17.844	138	1522	153.534	ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211	ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213	ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392	ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858	ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688	ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971	ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710	ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463	ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700	ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711	ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600	ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545	ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112	ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565	ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934	ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823	ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618	ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060	ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553	ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471	ng/mL	
29) Fluorene	29.075	166	25536M4	373.033	ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256	ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195	ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727	ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049	ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158	ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297	ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297	ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393	ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276	ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068	ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.946	192	46400M4	481.280	ng/mL	
46) 2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.292	192	64818	672.319	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56) Carbazole	33.726	167	2583M3	27.154	ng/mL	
57) 1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58) Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59) Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60) Pyrene	38.529	202	6787M4	69.730	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66) Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68) Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69) Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70) C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71) C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72) C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73) C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75) Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76) Chrysene	43.438	228	16140M3	173.194	ng/mL	
77) Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78) C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79) C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79) C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80) C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81) C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85) Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87) Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88) Perylene	48.874	252	1440M4	13.950	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91) Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92) Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93) 17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94) C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95) C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96) C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97) C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98) C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99) C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100) C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101) C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102) C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/mL	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

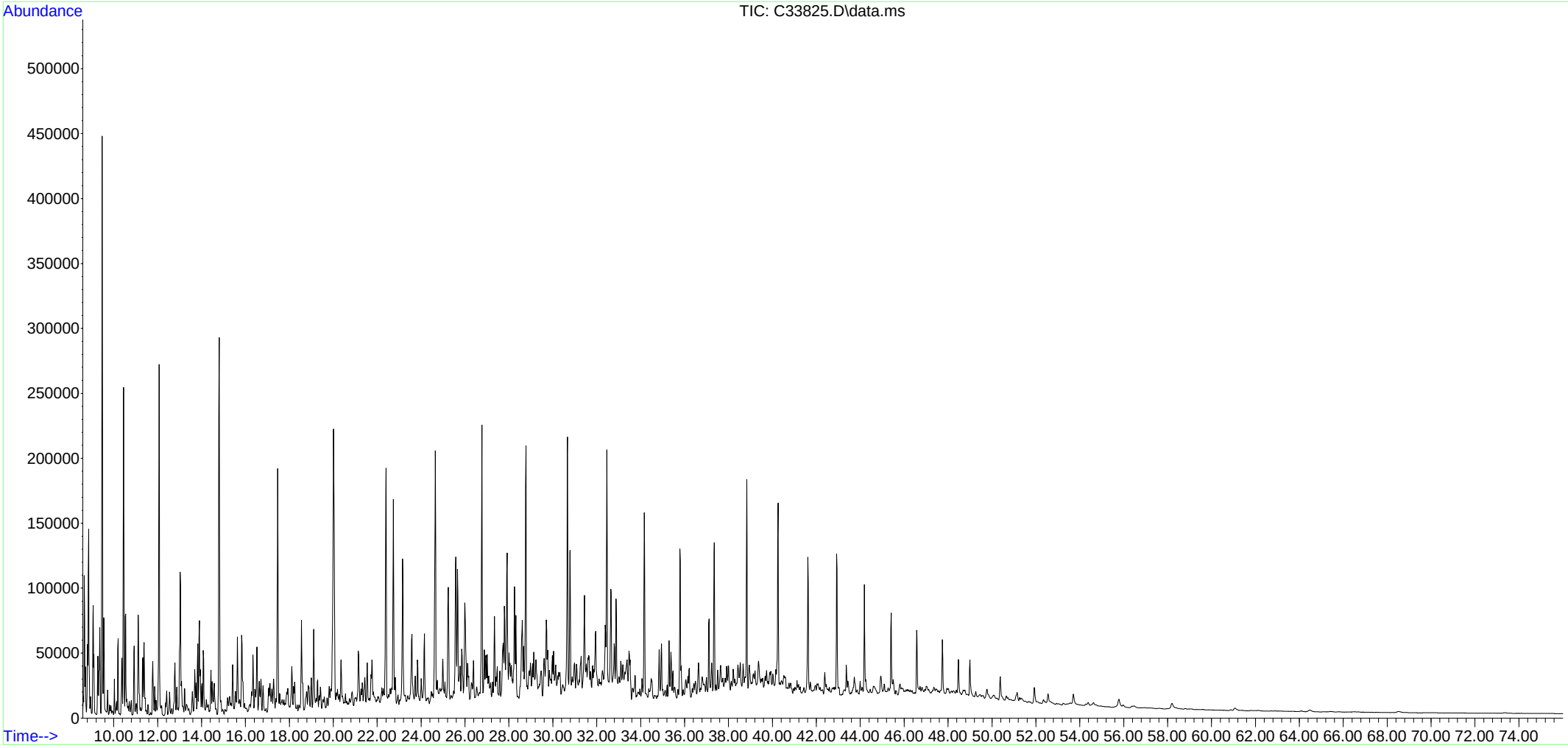
(#) = qualifier out of range (m) = manual integration (+) = signals summed

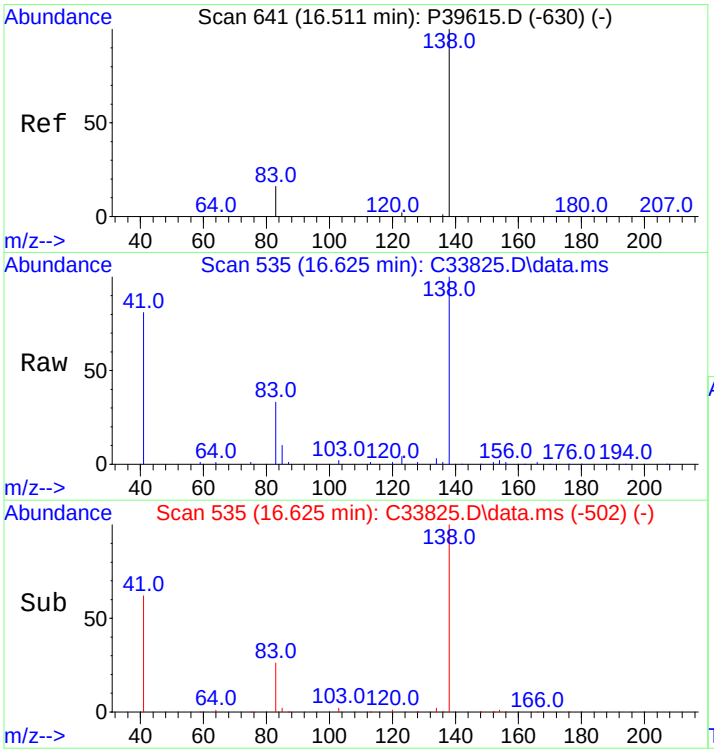
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

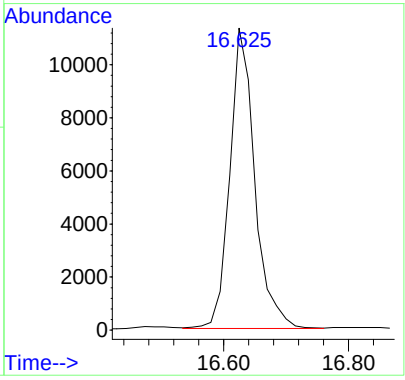
Sub List : Default - All compounds listed

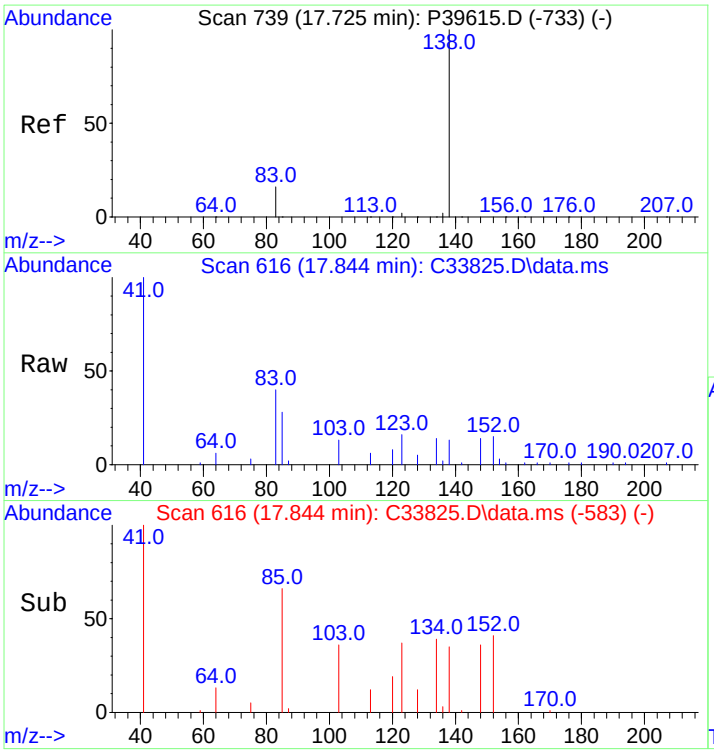




#3
trans-Decalin
Concen: 2394.34 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

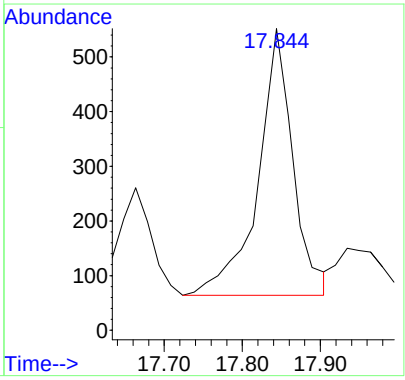
Tgt Ion:138 Resp: 31493

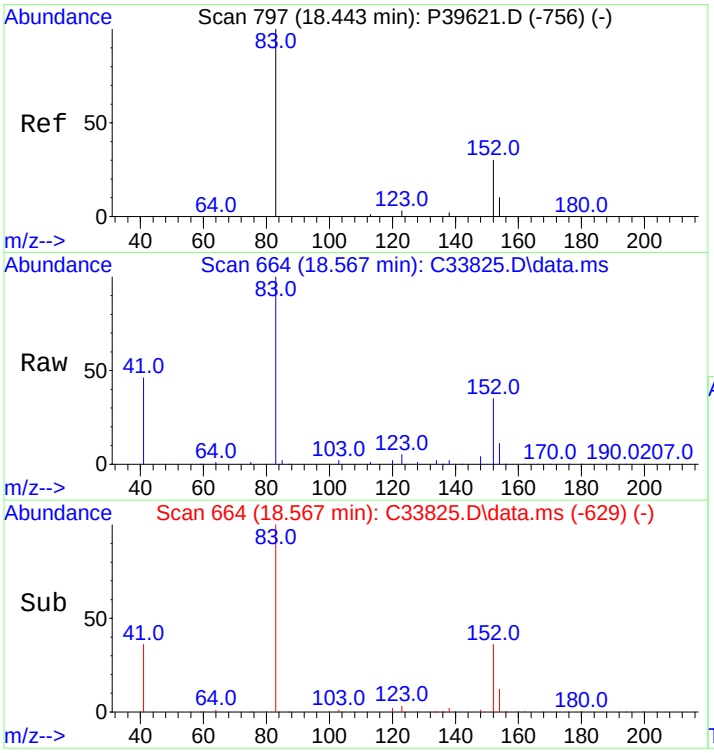




#4
cis-Decalin
Concen: 153.53 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

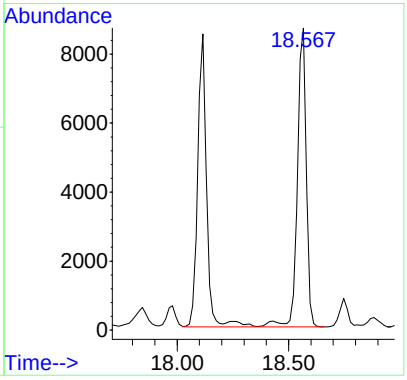
Tgt Ion:138 Resp: 1522

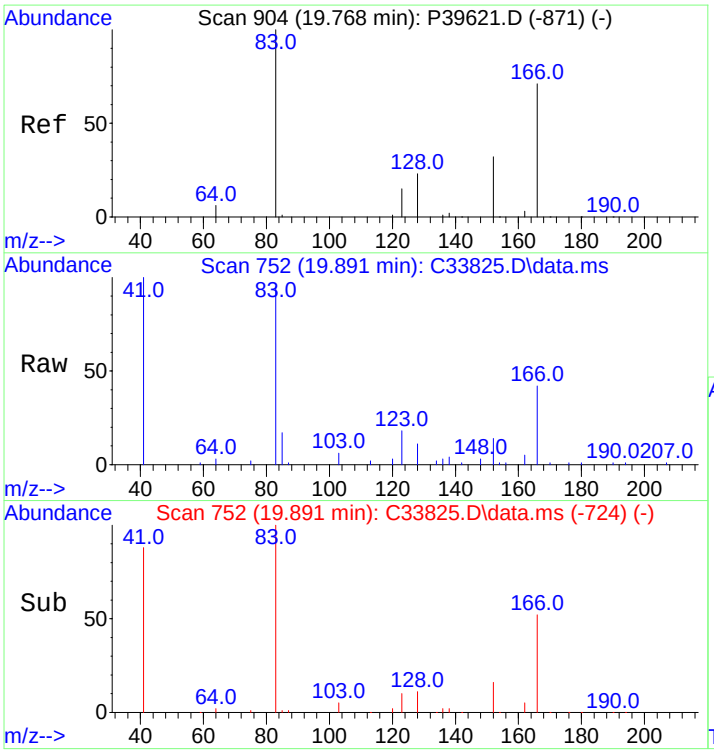




#5
C1-Decalins
Concen: 3613.21 ng/mL m
RT: 18.567 min Scan# 664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

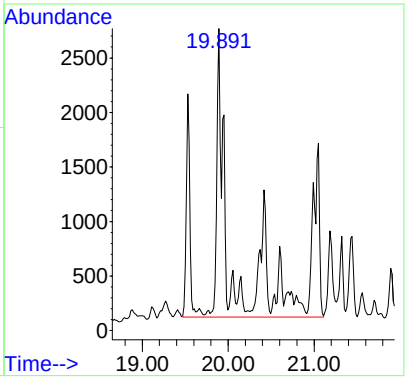
Tgt Ion:152 Resp: 47525

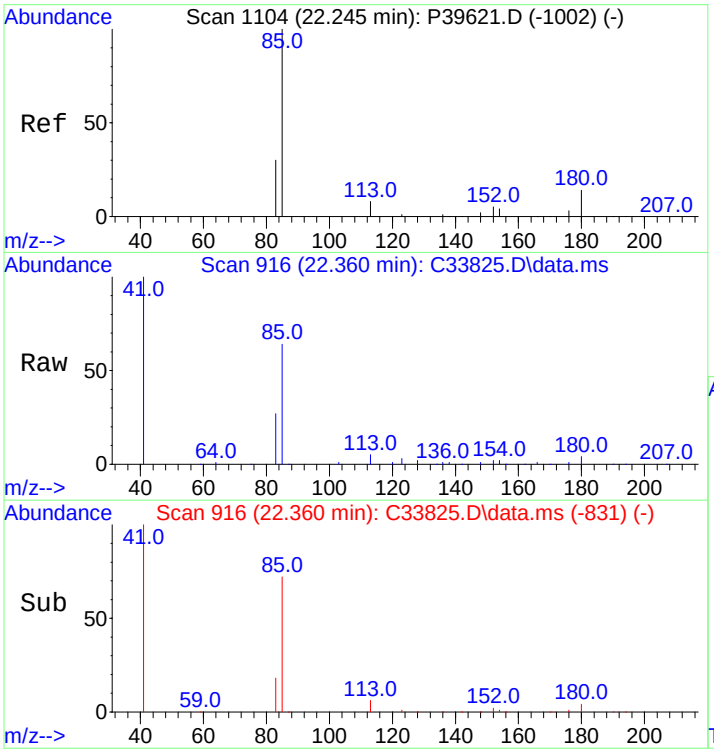




#6
C2-Decalins
Concen: 3012.21 ng/mL m
RT: 19.891 min Scan# 752
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

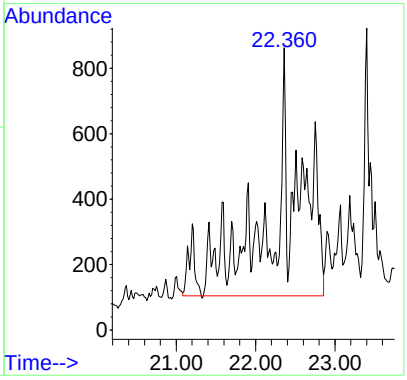
Tgt Ion:166 Resp: 39620

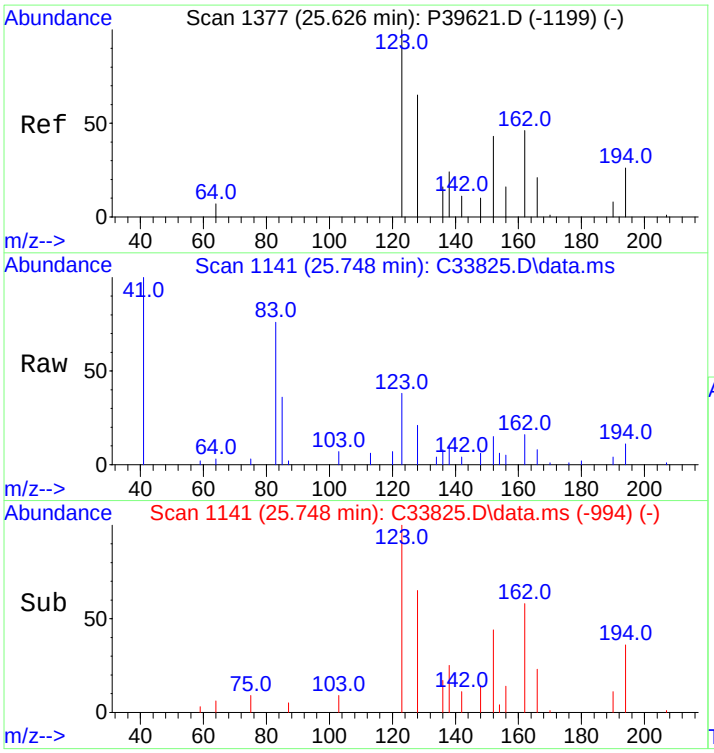




#7
C3-Decalins
Concen: 1488.39 ng/mL m
RT: 22.360 min Scan# 916
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

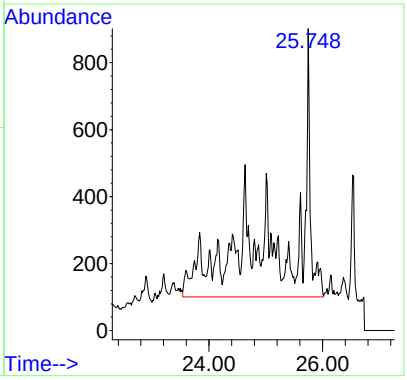
Tgt Ion:180 Resp: 19577

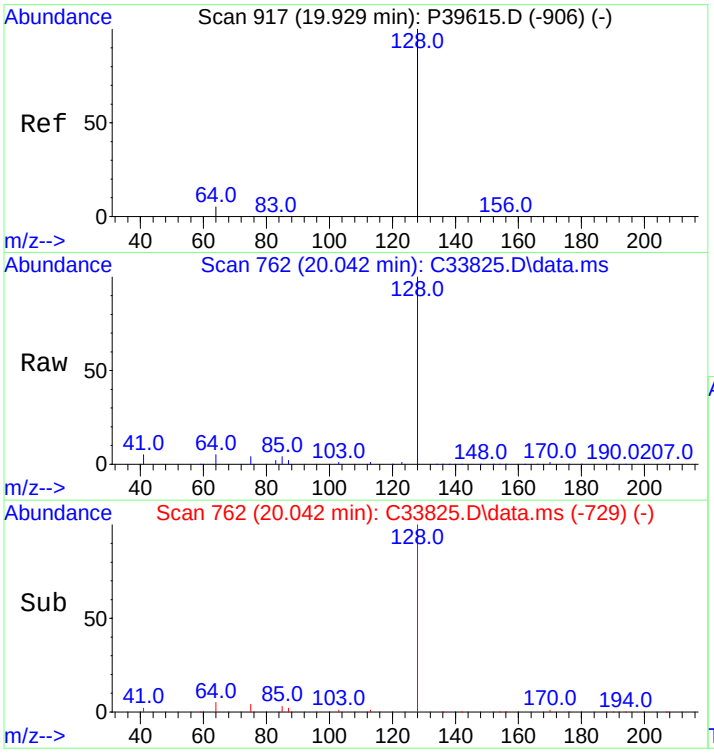




#8
C4-Decalins
Concen: 1448.86 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 19057

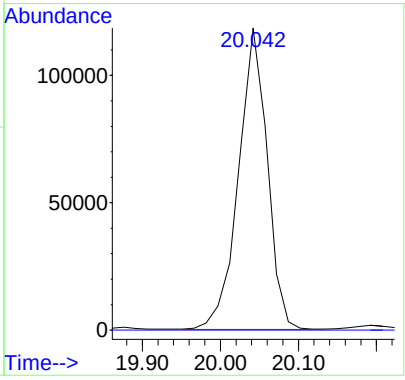


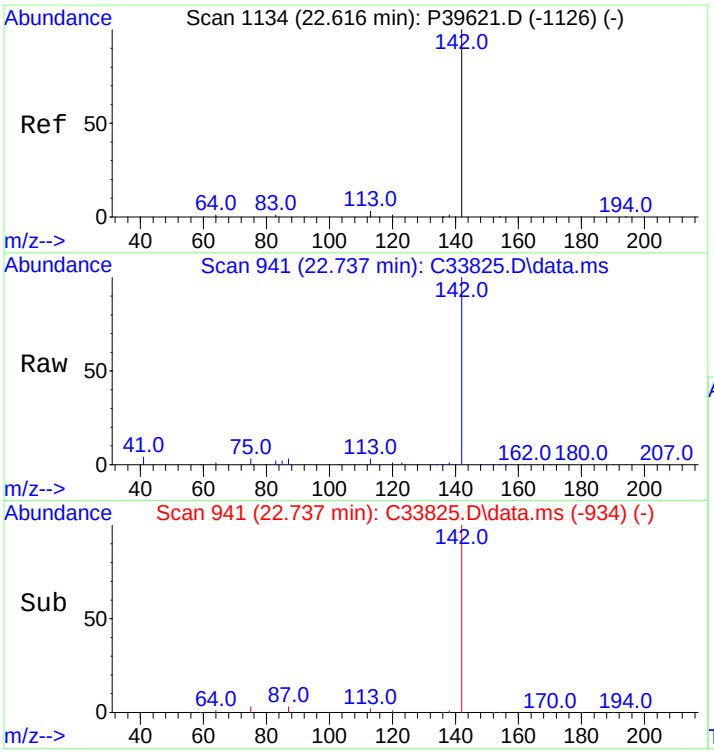


#10
Naphthalene
Concen: 2862.69 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:128 Resp: 304002

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

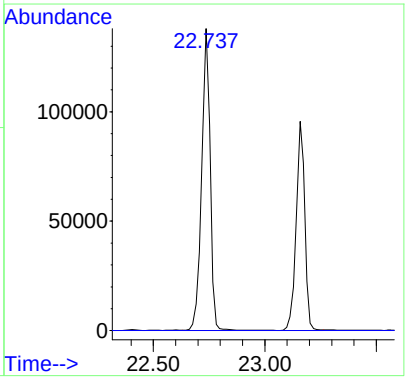


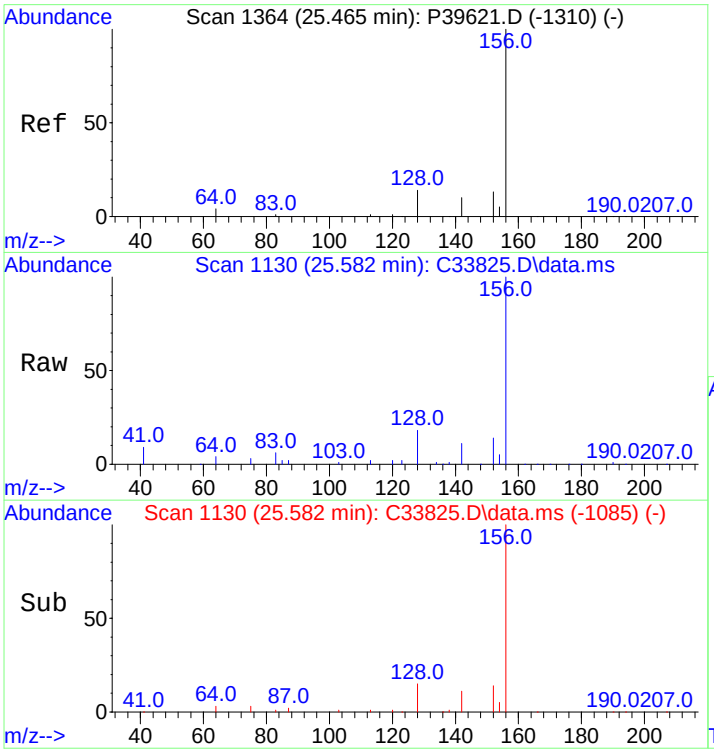


#11
C1-Naphthalenes
Concen: 5842.97 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 620492

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

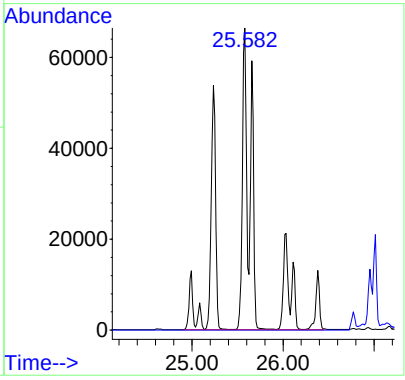


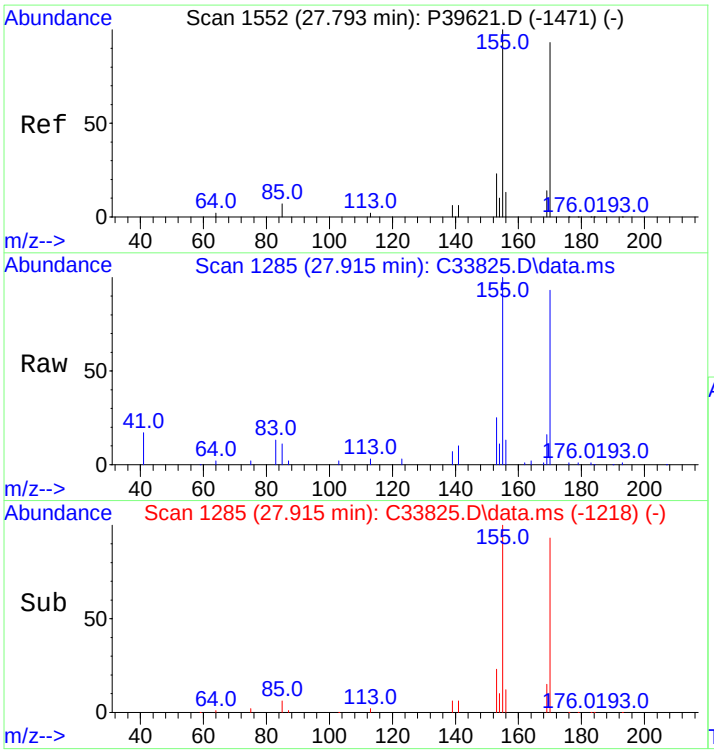


#12
C2-Naphthalenes
Concen: 6915.71 ng/mL m
RT: 25.582 min Scan# 1130
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 734411

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

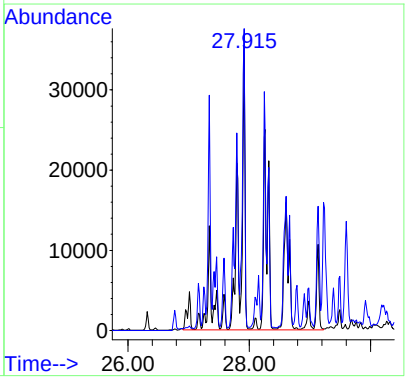


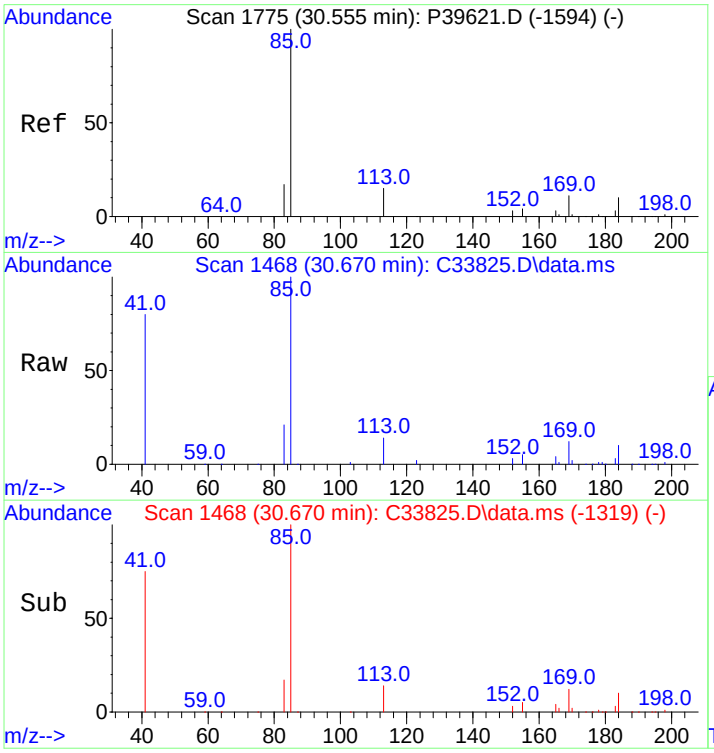


#13
C3-Naphthalenes
Concen: 4763.46 ng/mL m
RT: 27.915 min Scan# 1285
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 505854

Ion	Ratio	Lower	Upper
170	100		
155	21.0	86.3	129.5#

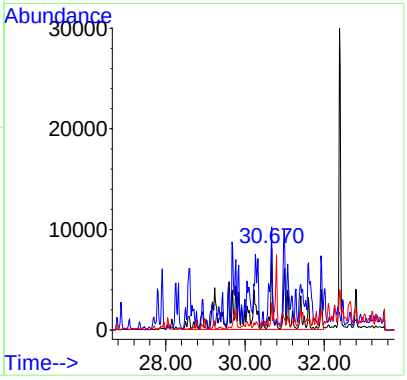


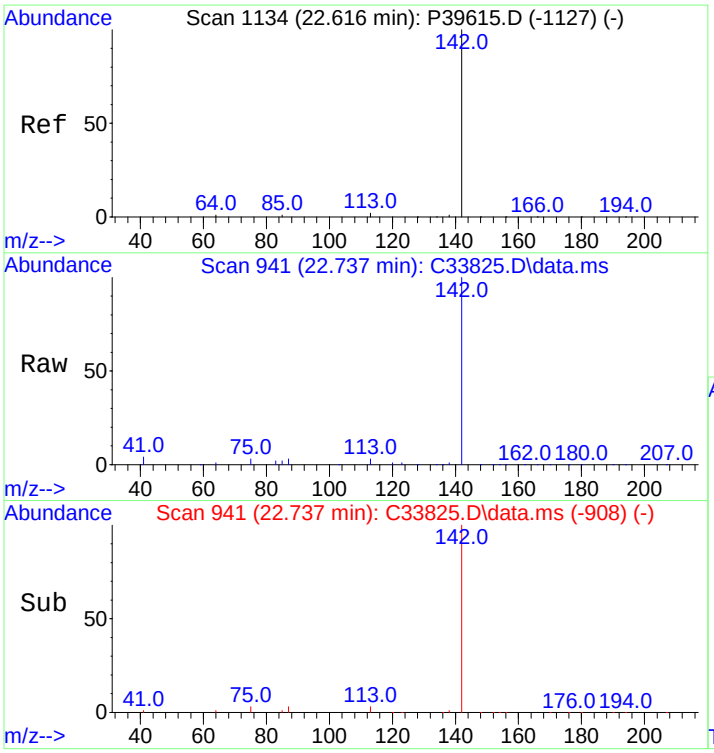


#14
C4-Naphthalenes
Concen: 2429.70 ng/mL m
RT: 30.670 min Scan# 1468
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 258021

Ion	Ratio	Lower	Upper
184	100		
169	17.4	100.6	150.8#
183	2.2	26.6	40.0#

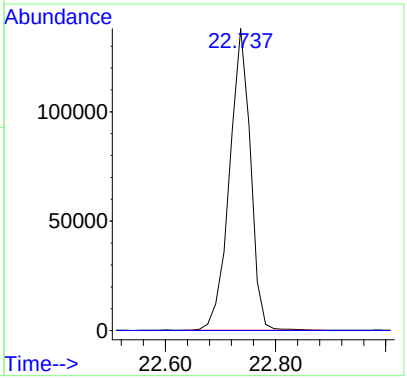


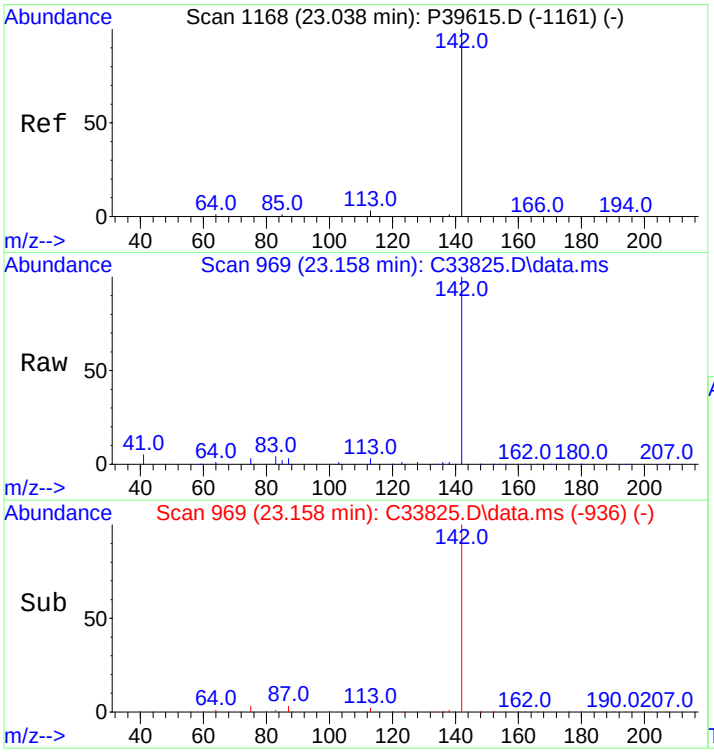


#16
2-Methylnaphthalene
Concen: 5786.71 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 363350

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

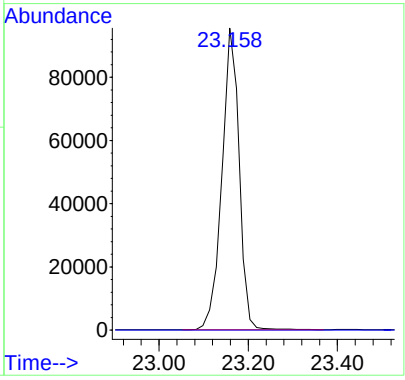


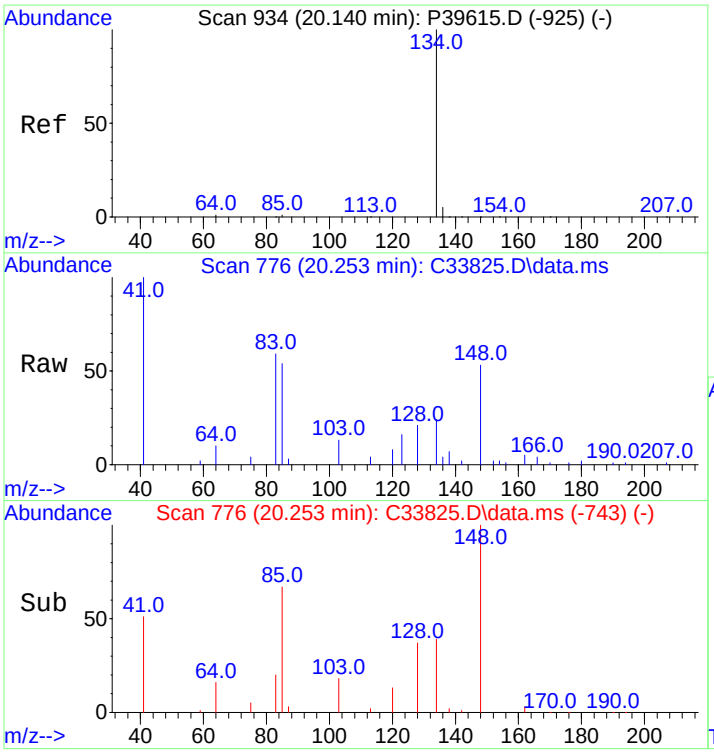


#17
1-Methylnaphthalene
Concen: 4156.60 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 255827

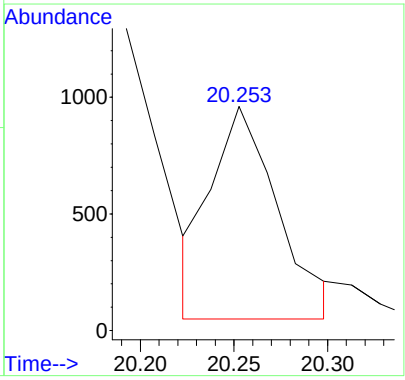
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

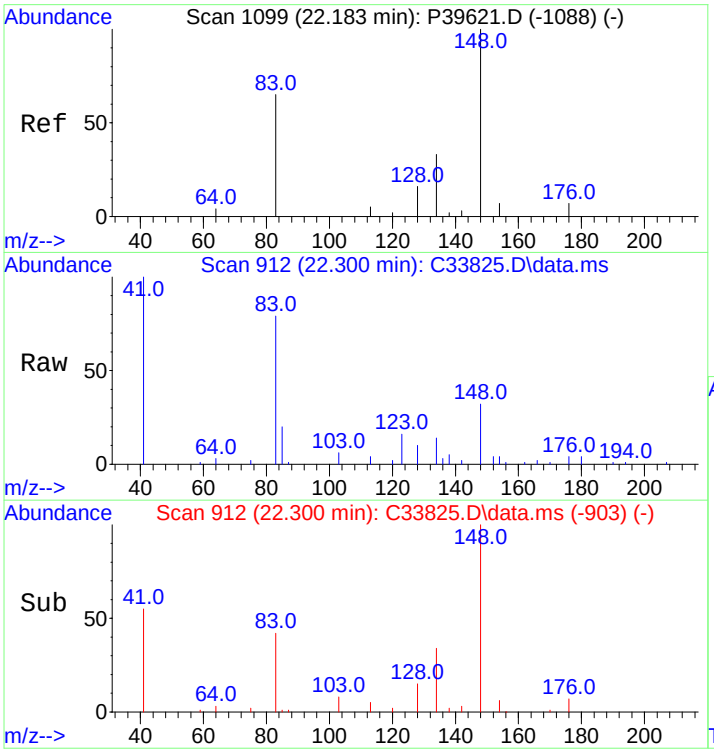




#18
Benzothiophene
Concen: 23.54 ng/mL m
RT: 20.253 min Scan# 776
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

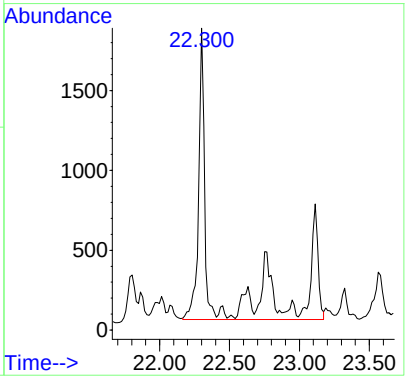
Tgt Ion:134 Resp: 2250

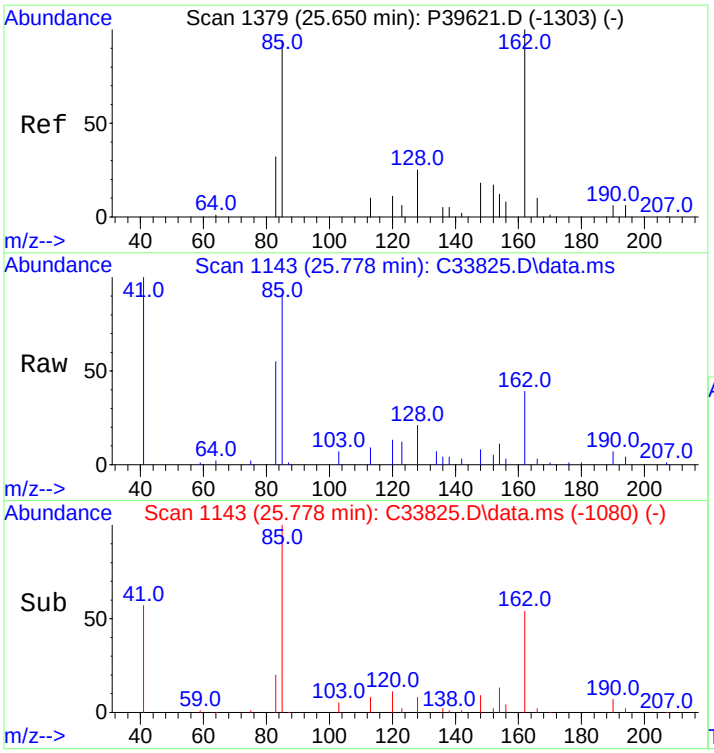




#19
C1-Benzo(b)thiophenes
Concen: 118.11 ng/mL m
RT: 22.300 min Scan# 912
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

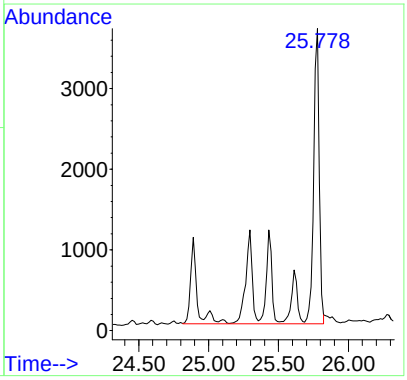
Tgt Ion:148 Resp: 11287

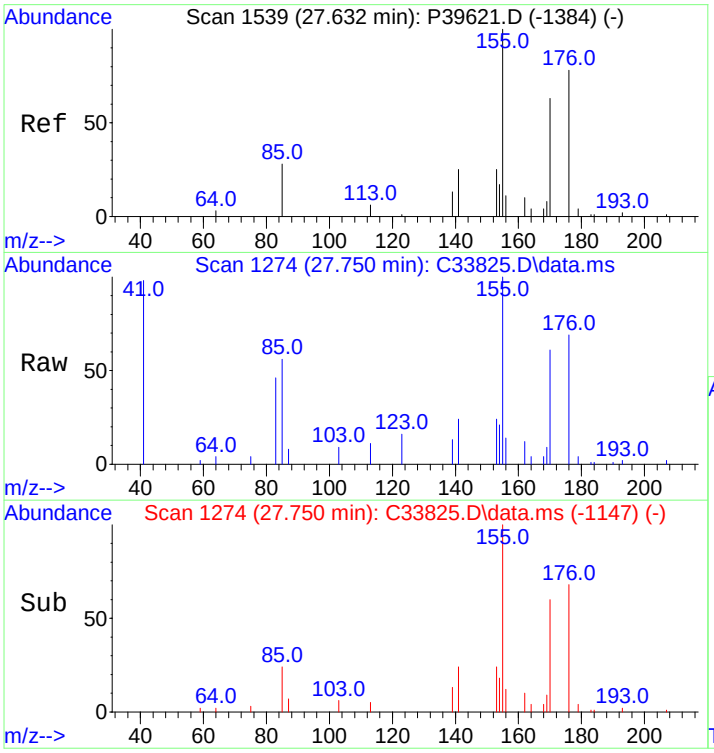




#20
C2-Benzo(b)thiophenes
Concen: 235.56 ng/mL m
RT: 25.778 min Scan# 1143
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

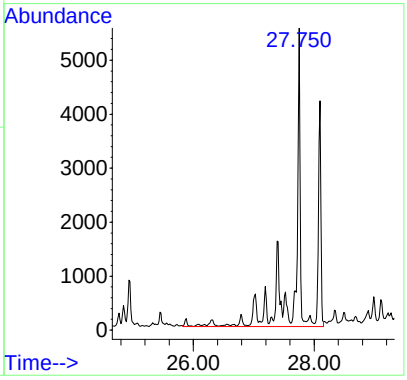
Tgt Ion:162 Resp: 22511

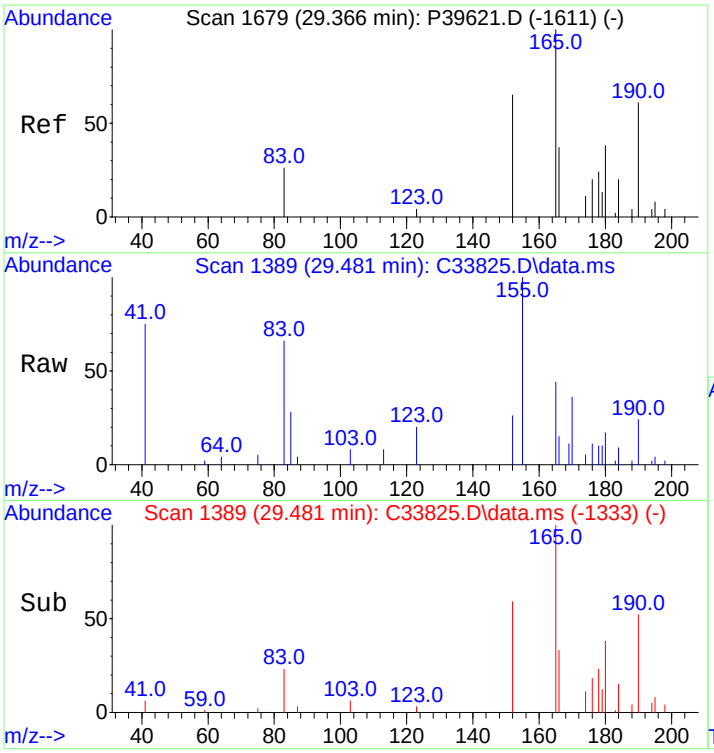




#21
C3-Benzo(b)thiophenes
Concen: 464.93 ng/mL m
RT: 27.750 min Scan# 1274
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

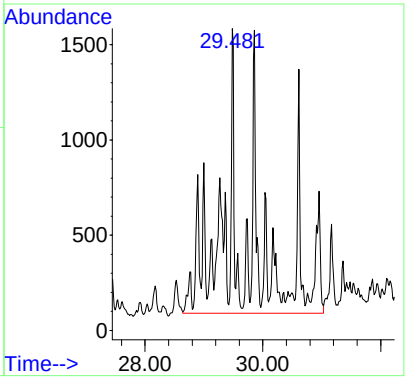
Tgt Ion:176 Resp: 44430

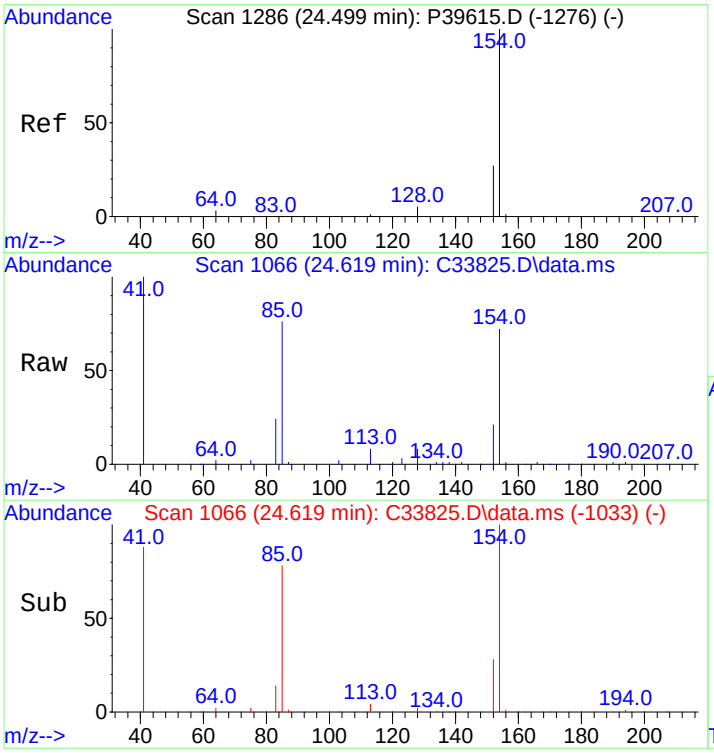




#22
C4-Benzo(b)thiophenes
Concen: 394.82 ng/mL m
RT: 29.481 min Scan# 1389
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:190 Resp: 37730

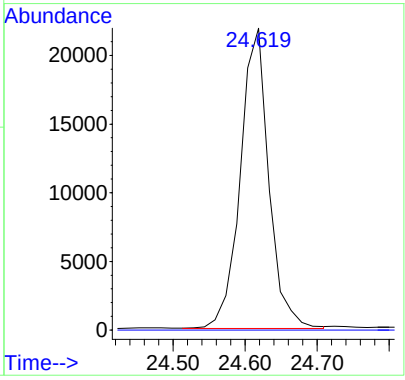


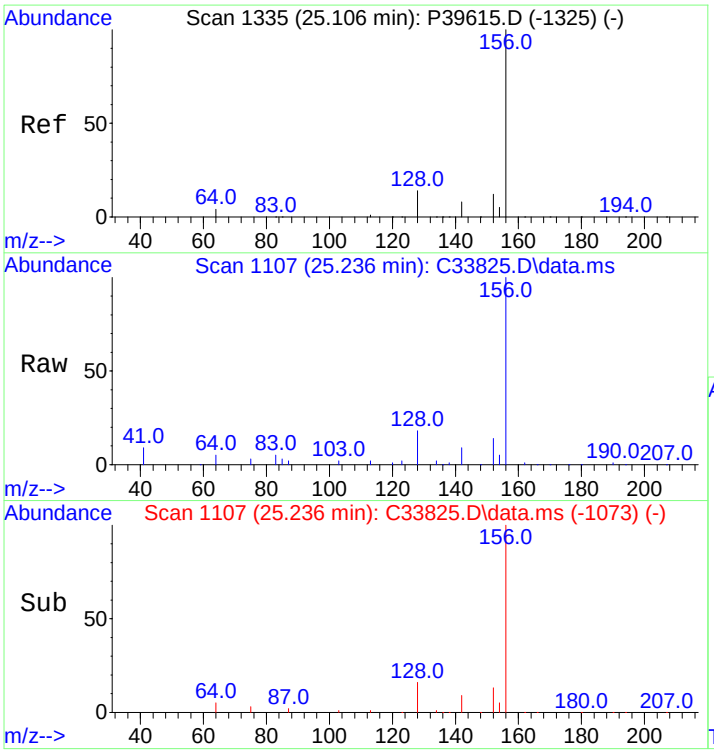


#23
Biphenyl
Concen: 754.29 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:154 Resp: 59912

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

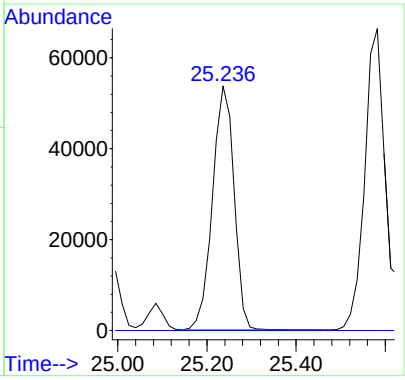


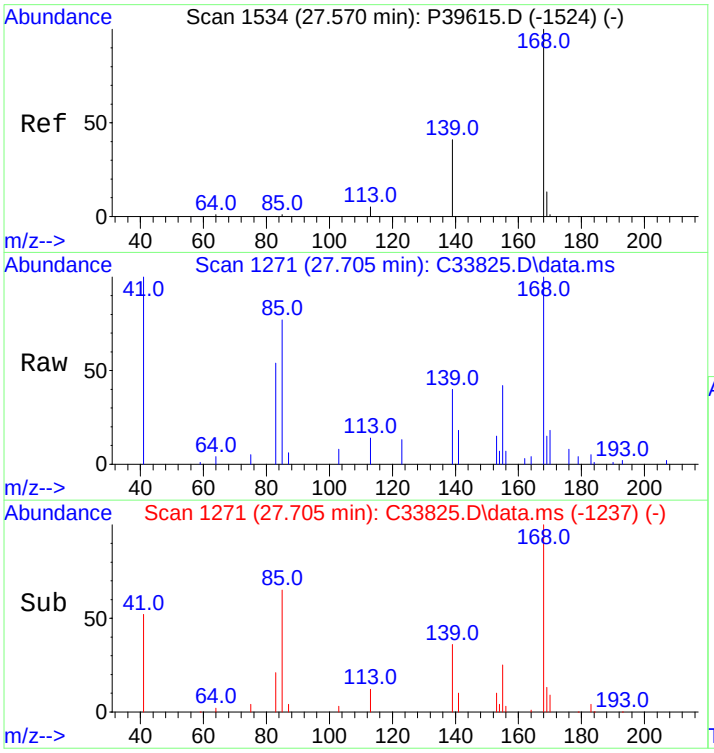


#24
2,6-Dimethylnaphthalene
Concen: 3504.62 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 180797

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

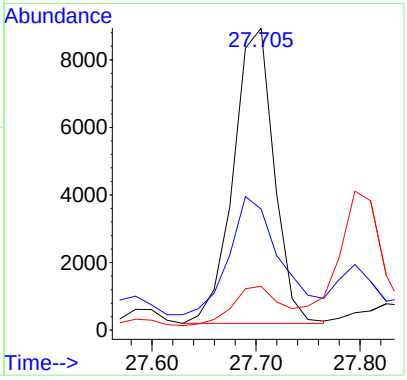


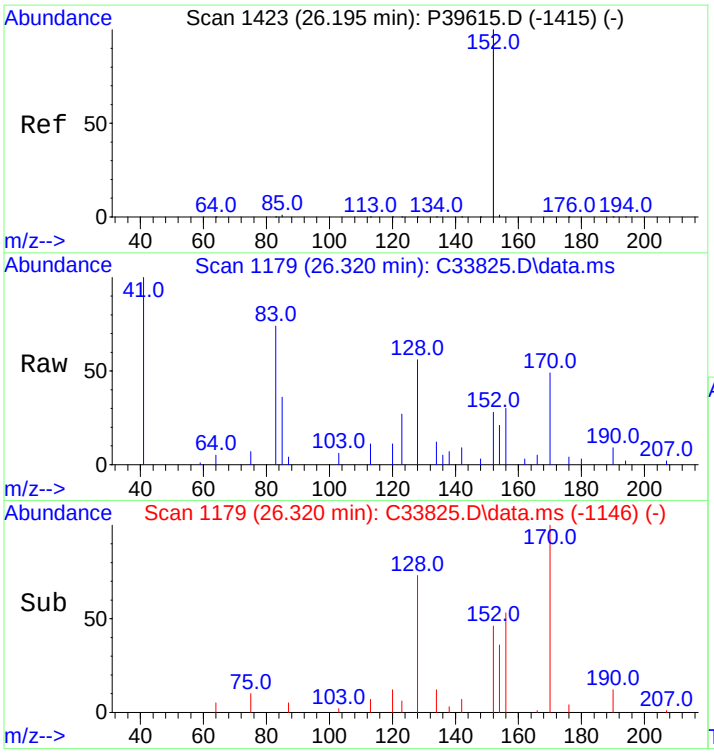


#25
Dibenzofuran
Concen: 261.06 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:168 Resp: 23811

Ion	Ratio	Lower	Upper
168	100		
139	50.0	32.9	49.3#
169	15.9	10.6	16.0

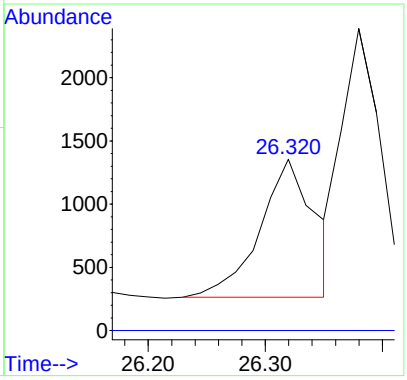


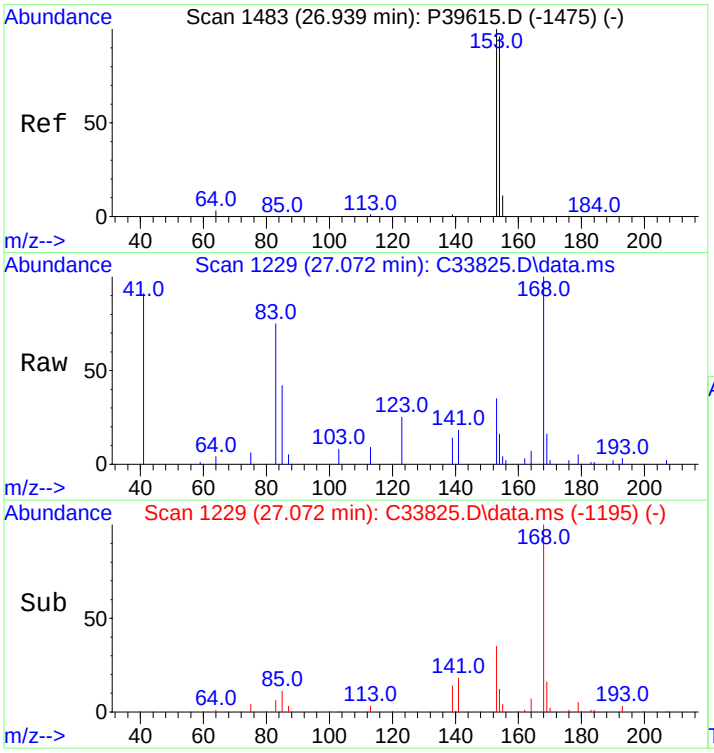


#26
Acenaphthylene
Concen: 33.55 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:152 Resp: 3537

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

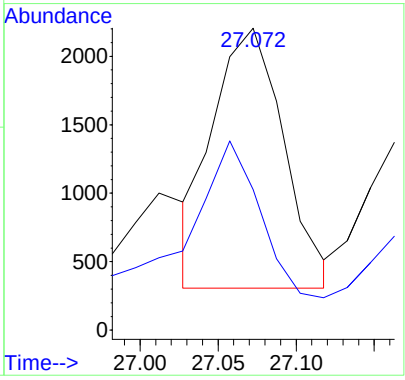


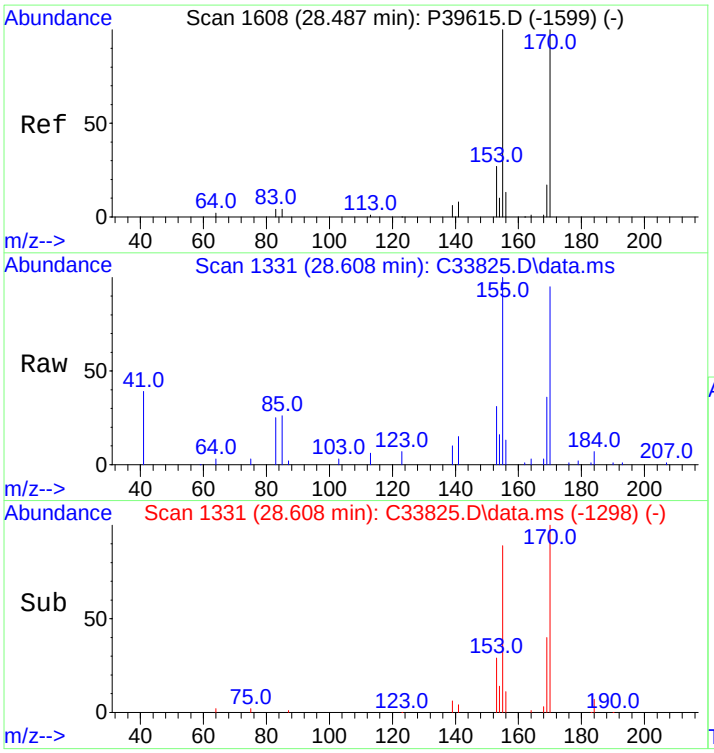


#27
Acenaphthene
Concen: 96.63 ng/mL m
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:153 Resp: 5998

Ion	Ratio	Lower	Upper
153	100		
154	68.4	75.0	112.6#

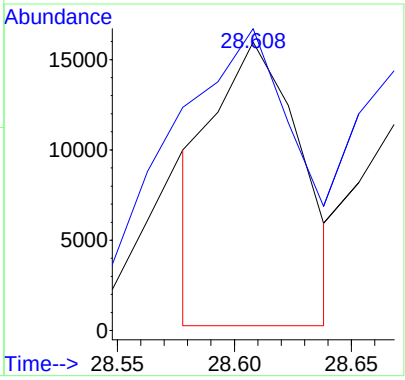


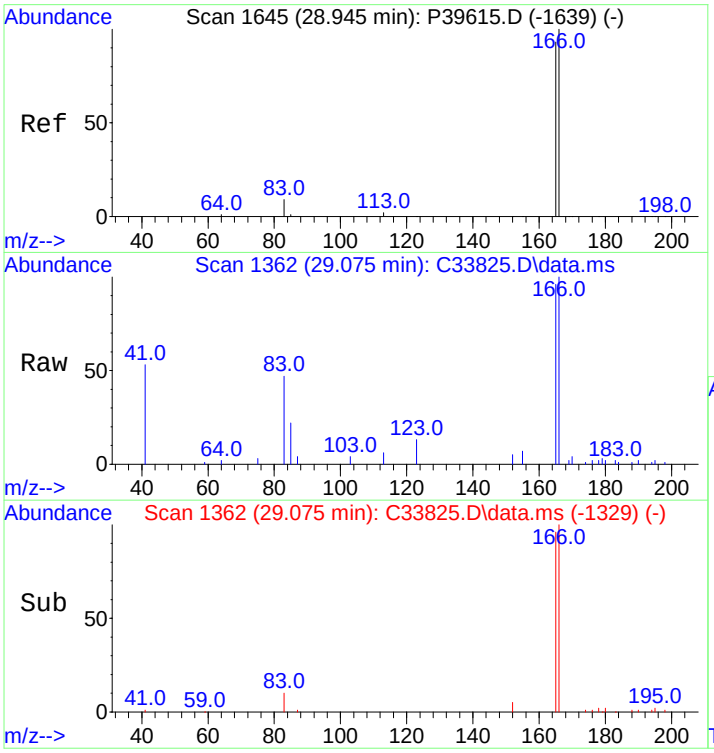


#28
2,3,5-Trimethylnaphthalene
Concen: 985.47 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 40982

Ion	Ratio	Lower	Upper
170	100		
155	160.1	84.7	127.1#

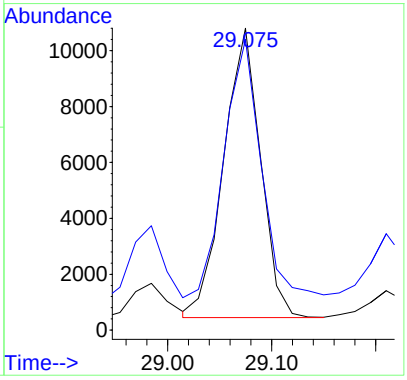


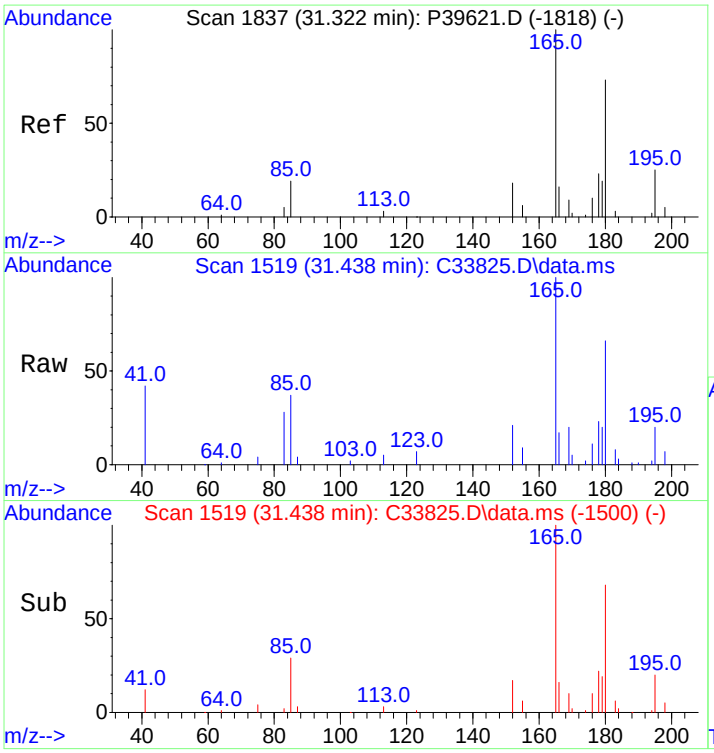


#29
Fluorene
Concen: 373.03 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:166 Resp: 25536

Ion	Ratio	Lower	Upper
166	100		
165	118.5	75.3	112.9#

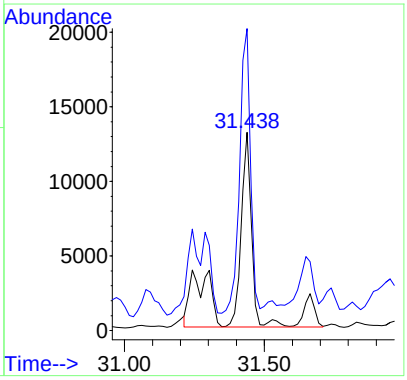


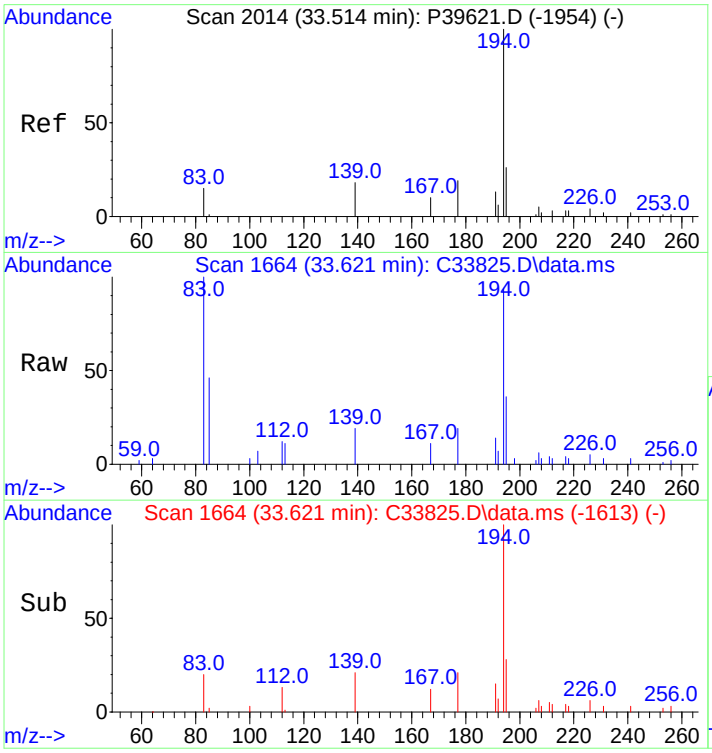


#30
C1-Fluorenes
Concen: 836.26 ng/mL m
RT: 31.438 min Scan# 1519
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:180 Resp: 57246

Ion	Ratio	Lower	Upper
180	100		
165	90.8	121.9	182.9#

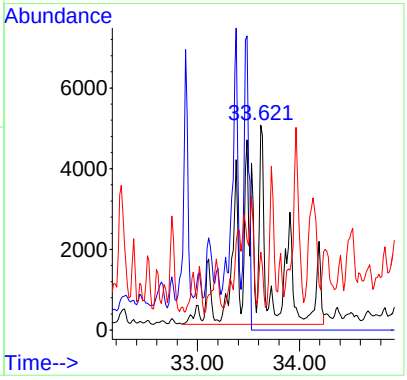


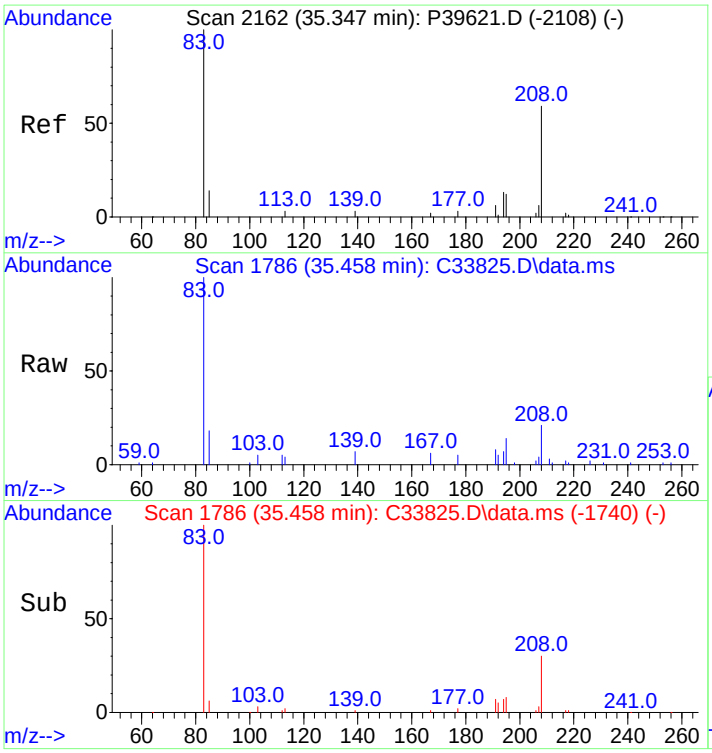


#31
C2-Fluorenes
Concen: 1188.19 ng/mL m
RT: 33.621 min Scan# 1664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 81338

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.2	30.5	45.7#

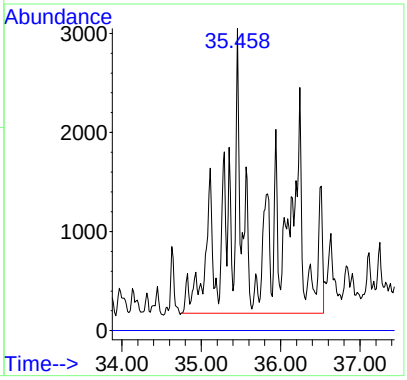


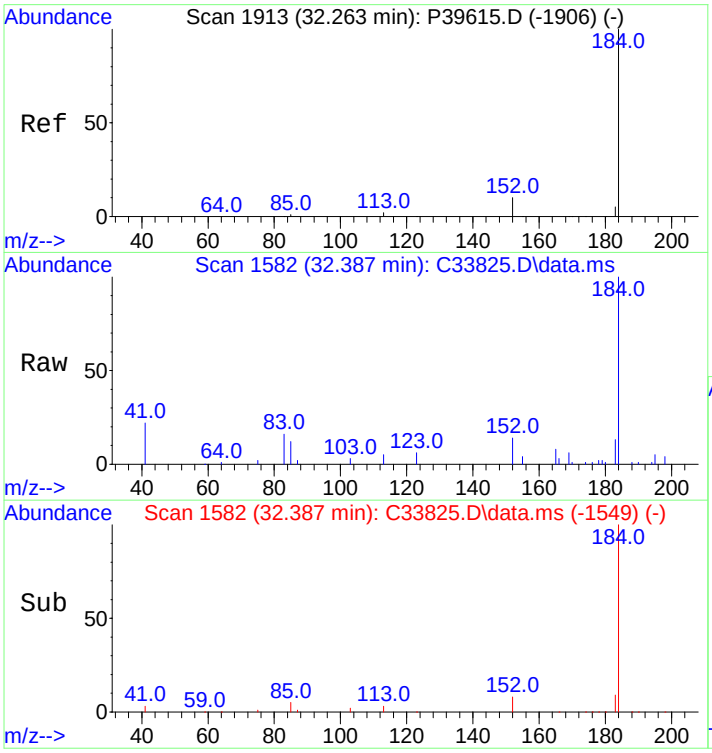


#32
C3-Fluorenes
Concen: 1053.73 ng/mL m
RT: 35.458 min Scan# 1786
Delta R.T. -0.063 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:208 Resp: 72133

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

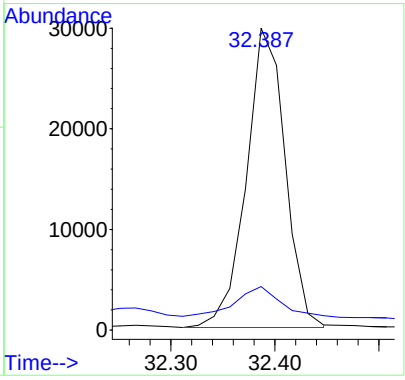


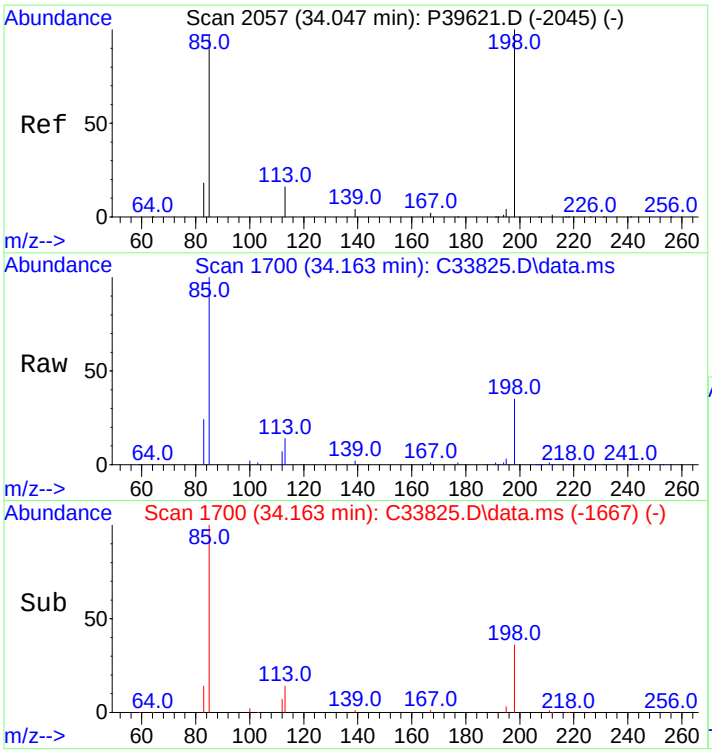


#33
Dibenzothiophene
Concen: 705.05 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 77367

Ion	Ratio	Lower	Upper
184	100		
152	16.4	6.7	10.1#

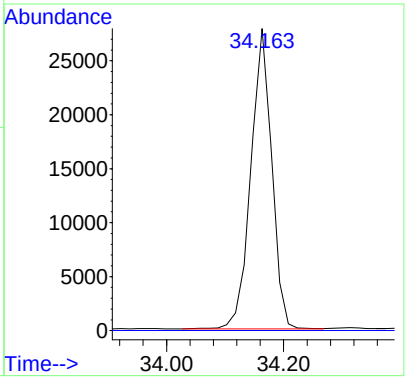


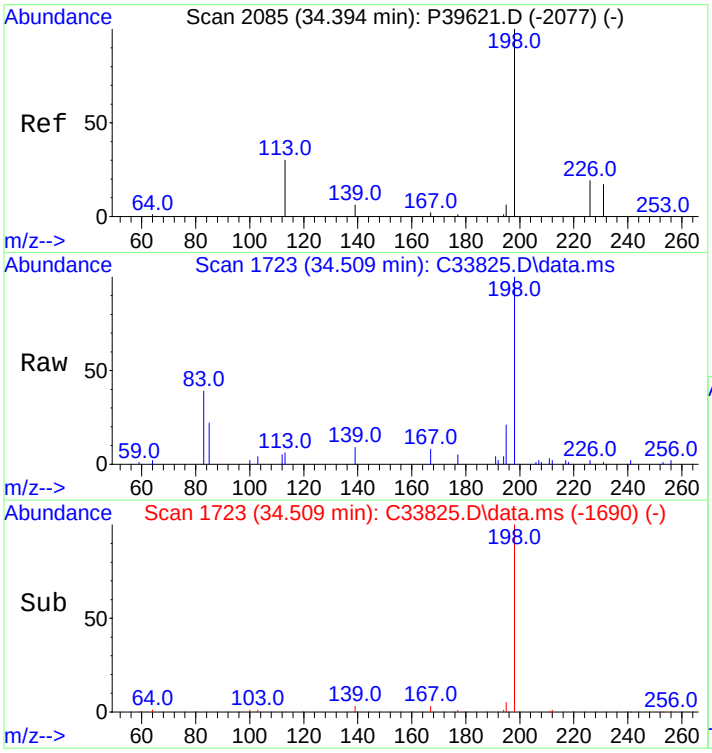


#34
4-Methyldibenzothiophene(4MDT)
Concen: 628.37 ng/mL
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 68953

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

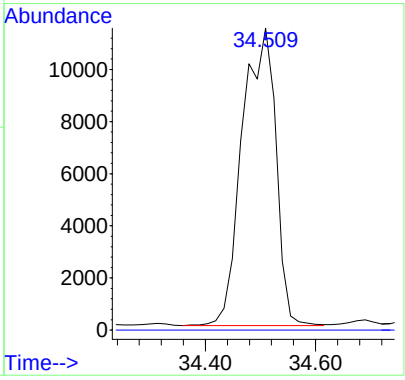


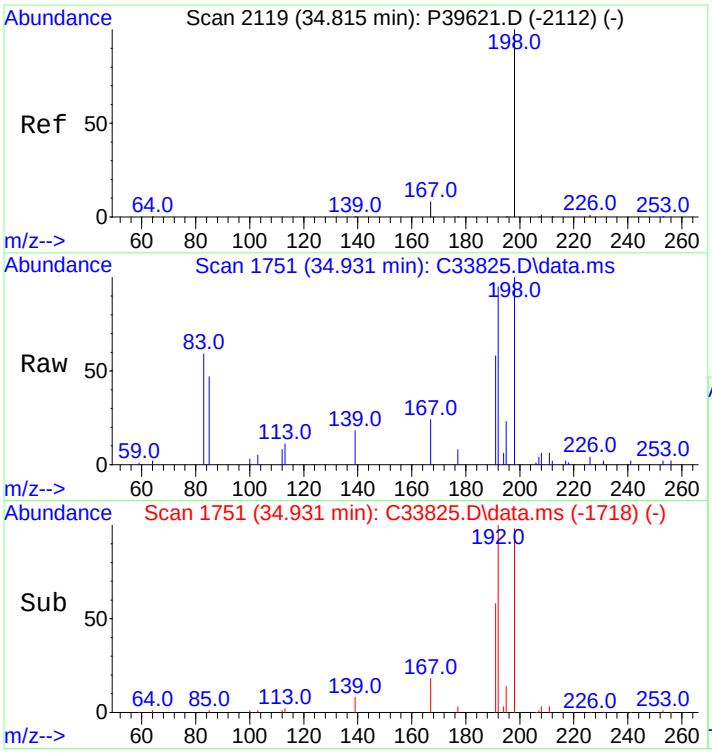


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 439.78 ng/mL
RT: 34.509 min Scan# 1723
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 48258

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

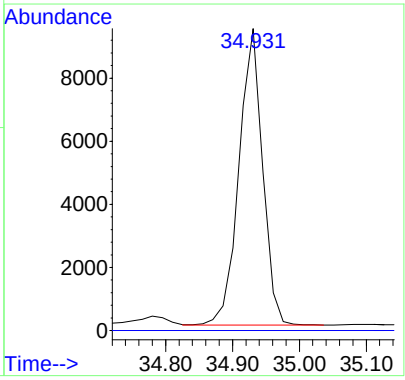


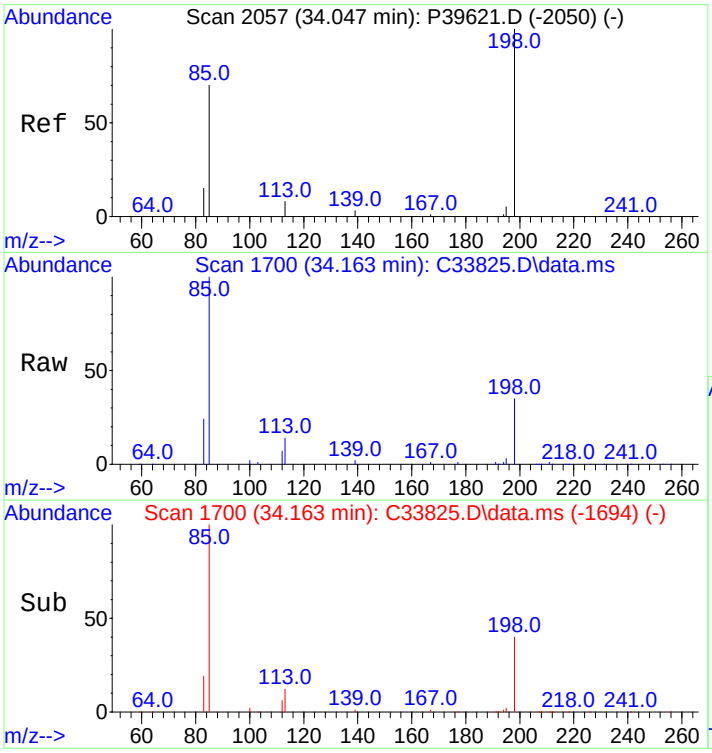


#36
1-Methyldibenzothiophene(1MDT)
Concen: 211.16 ng/mL
RT: 34.931 min Scan# 1751
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 23171

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

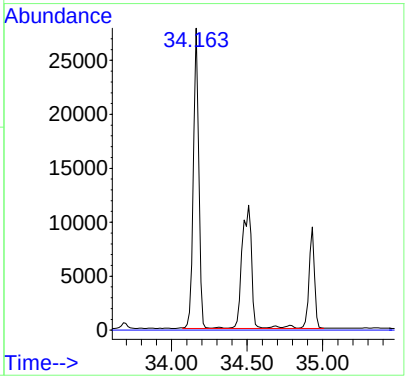


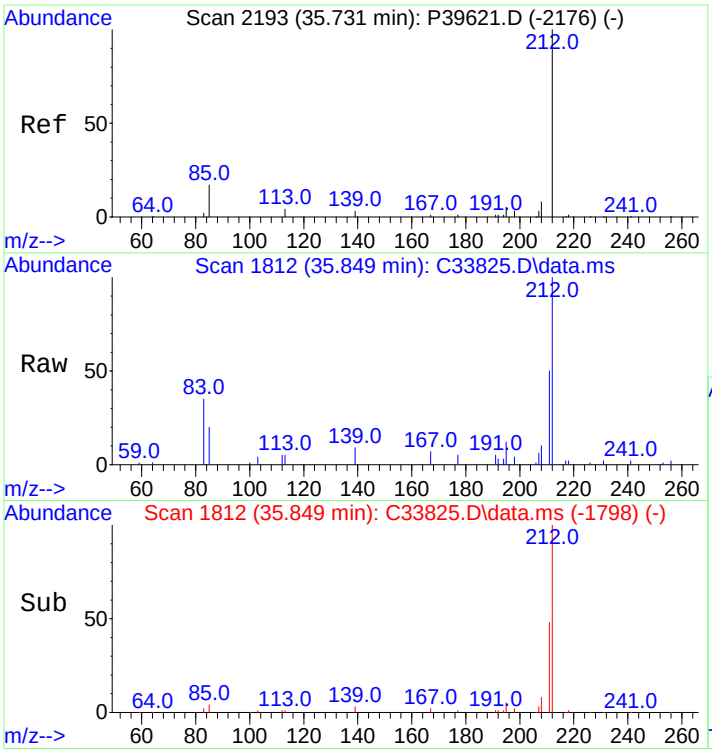


#38
C1-Dibenzothiophenes
Concen: 1308.30 ng/mL m
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 143563

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

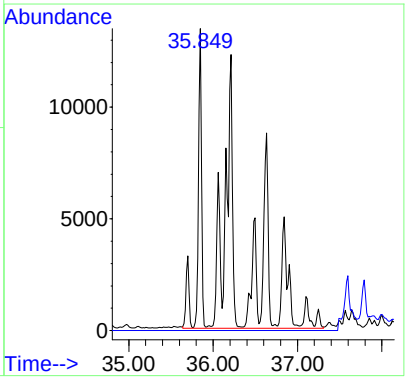


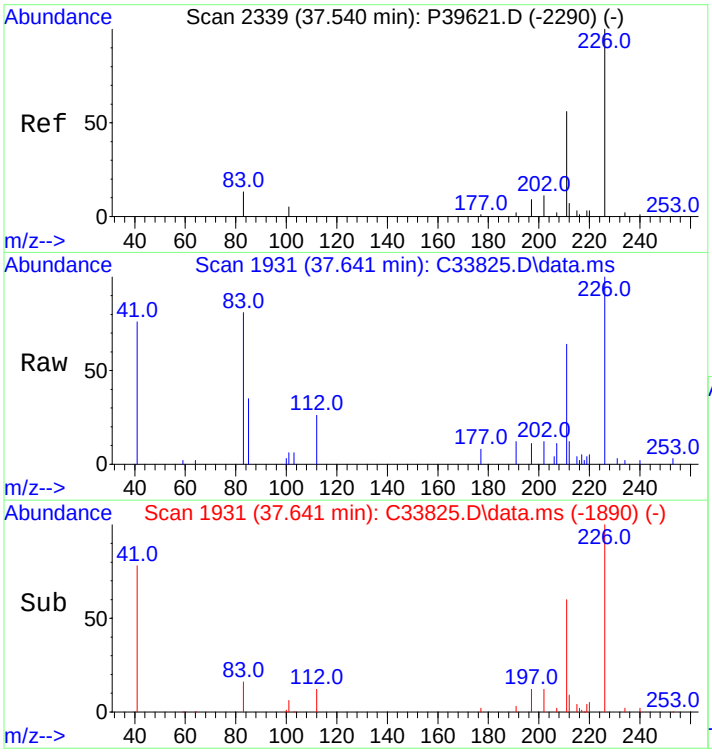


#39
C2-Dibenzothiophenes
Concen: 1763.39 ng/mL m
RT: 35.849 min Scan# 1812
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:212 Resp: 193502

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

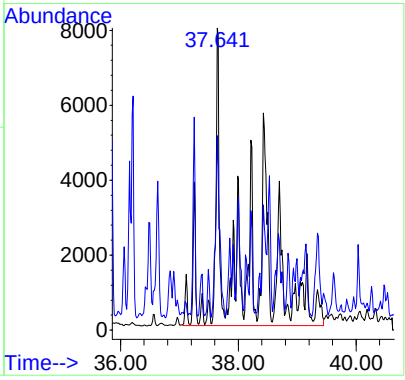


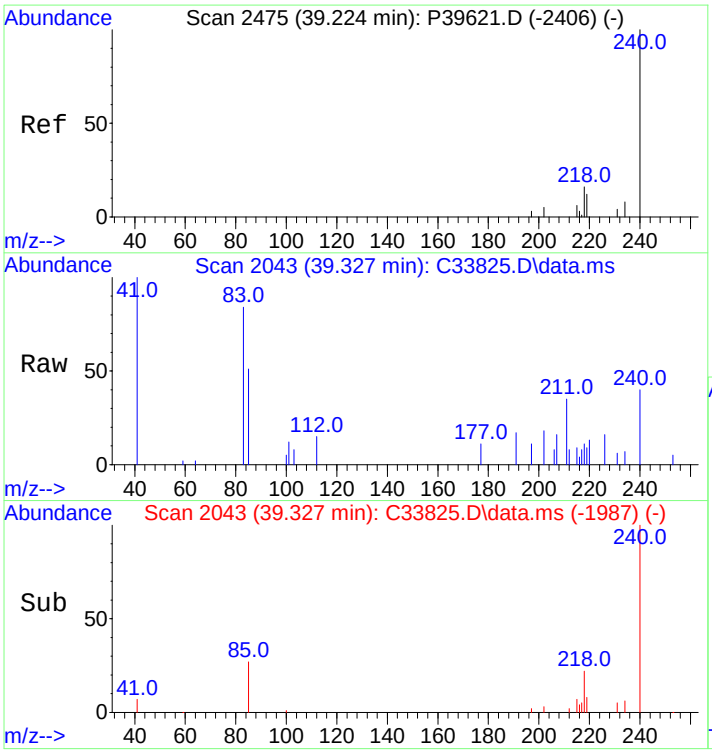


#40
C3-Dibenzothiophenes
Concen: 1550.28 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:226 Resp: 170116

Ion	Ratio	Lower	Upper
226	100		
211	13.4	51.4	77.2#

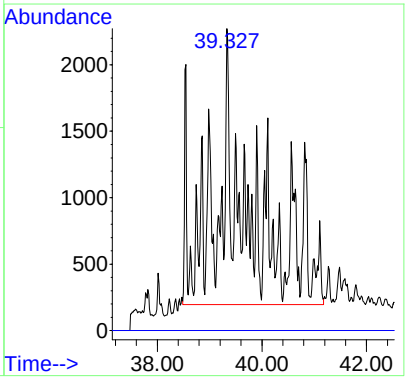


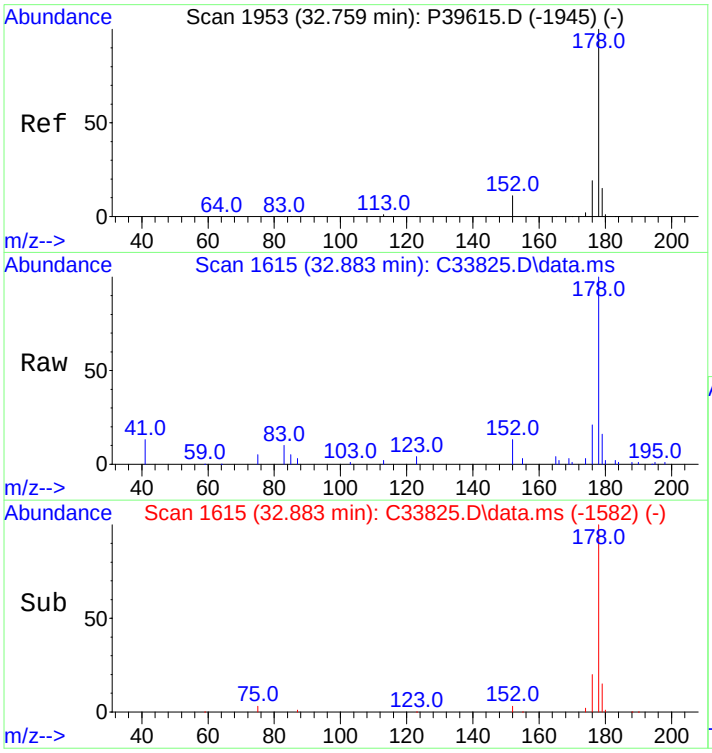


#41
C4-Dibenzothiophenes
Concen: 810.07 ng/mL m
RT: 39.327 min Scan# 2043
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:240 Resp: 88891

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

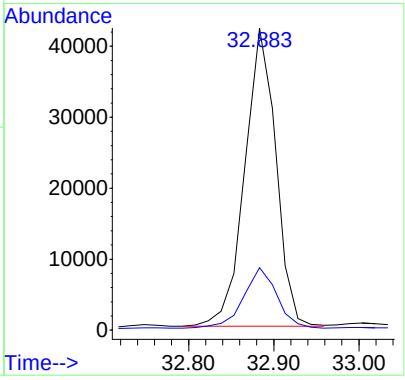


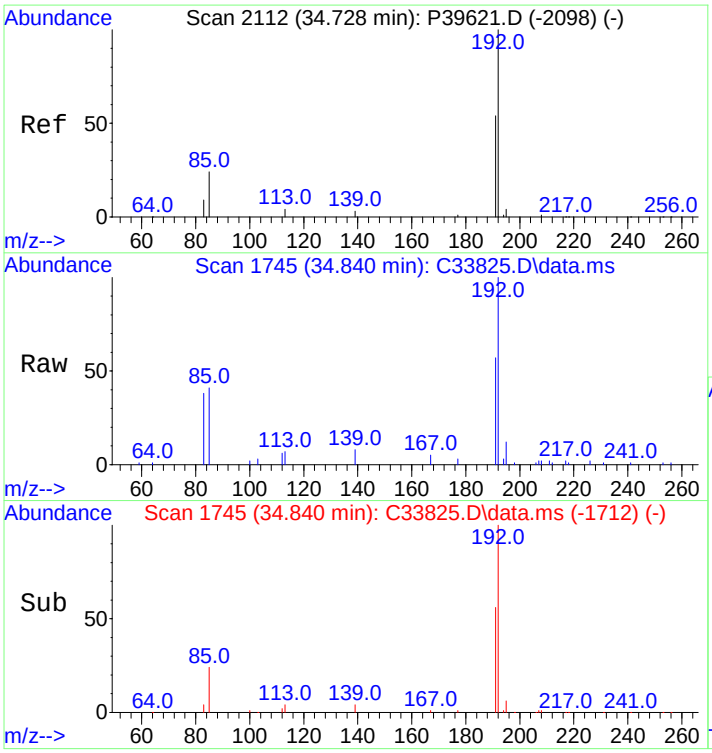


#43
Phenanthrene
Concen: 1111.34 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:178 Resp: 107144

Ion	Ratio	Lower	Upper
178	100		
176	21.7	15.9	23.9

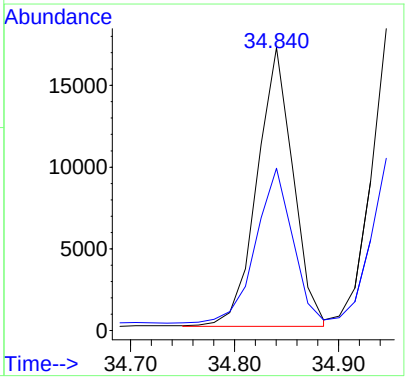


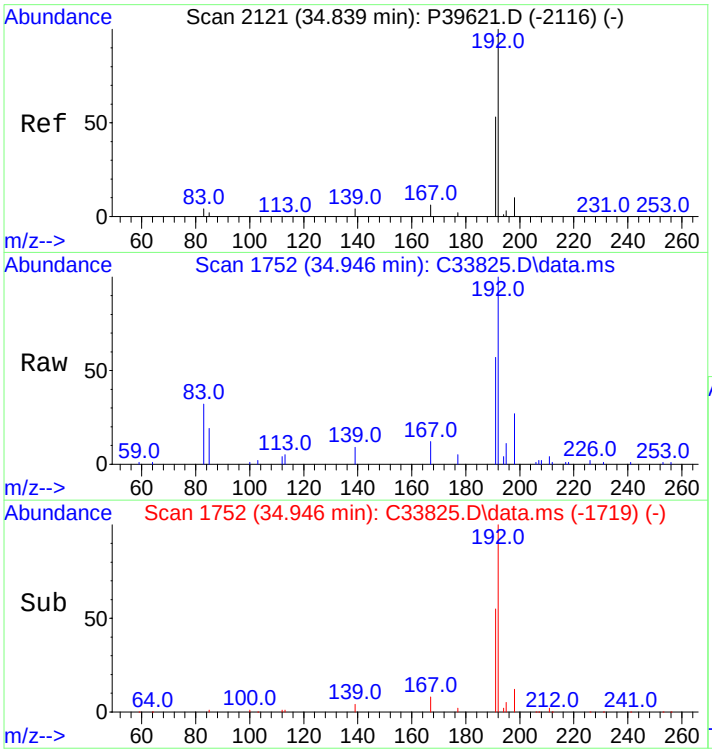


#44
3-Methylphenanthrene(3MP)
Concen: 427.55 ng/mL m
RT: 34.840 min Scan# 1745
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 41220

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.9	68.9

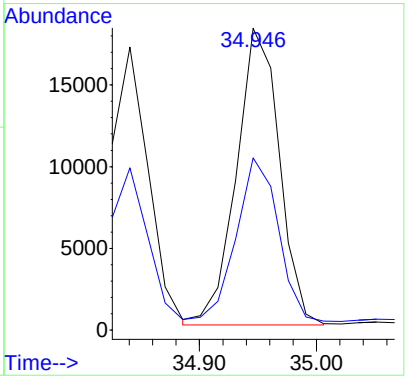


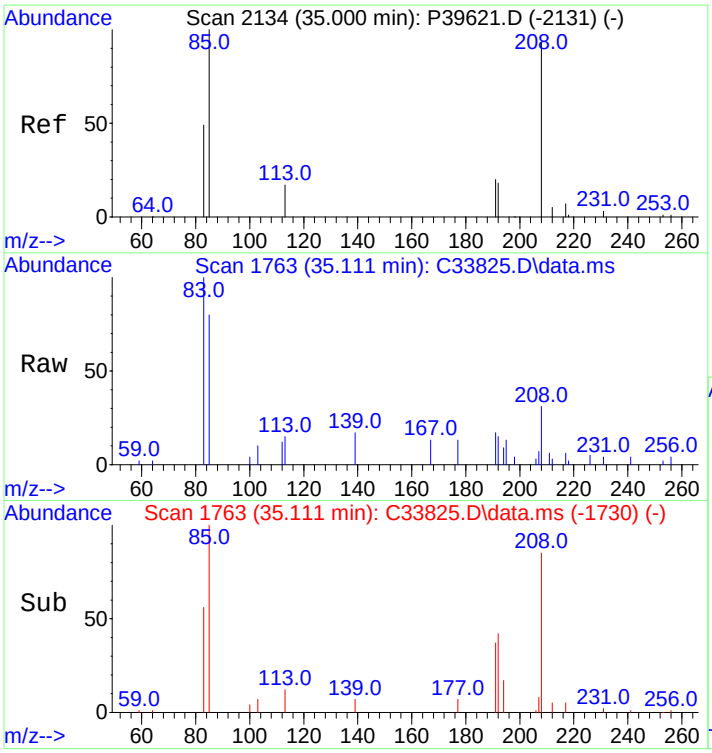


#45
2/4-Methylphenanthrene(2MP)
Concen: 481.28 ng/mL m
RT: 34.946 min Scan# 1752
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46400

Ion	Ratio	Lower	Upper
192	100		
191	53.5	45.6	68.4

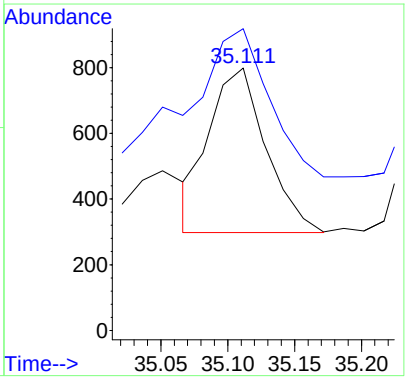


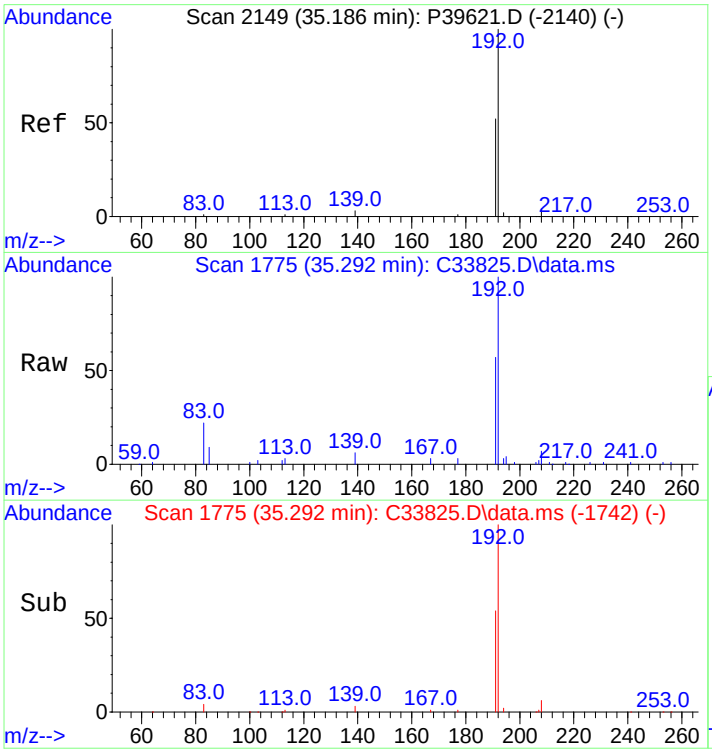


#46
2-Methylanthracene(2MA)
Concen: 15.41 ng/mL m
RT: 35.111 min Scan# 1763
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 1486

Ion	Ratio	Lower	Upper
192	100		
191	129.0	92.0	138.0

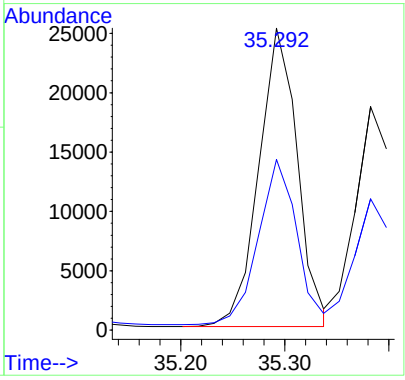


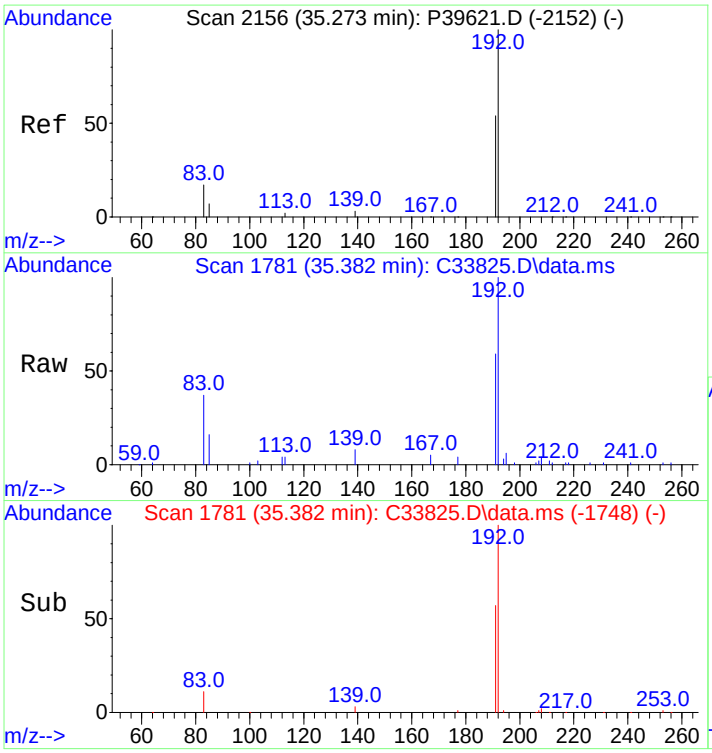


#47
9-Methylphenanthrene(9MP)
Concen: 672.32 ng/mL
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 64818

Ion	Ratio	Lower	Upper
192	100		
191	55.3	45.3	67.9

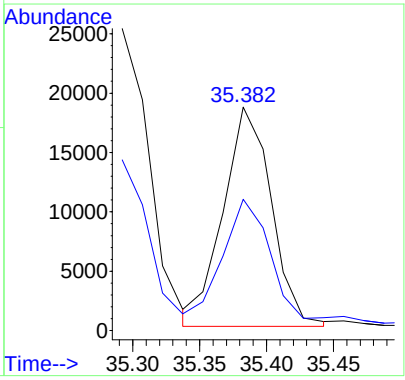


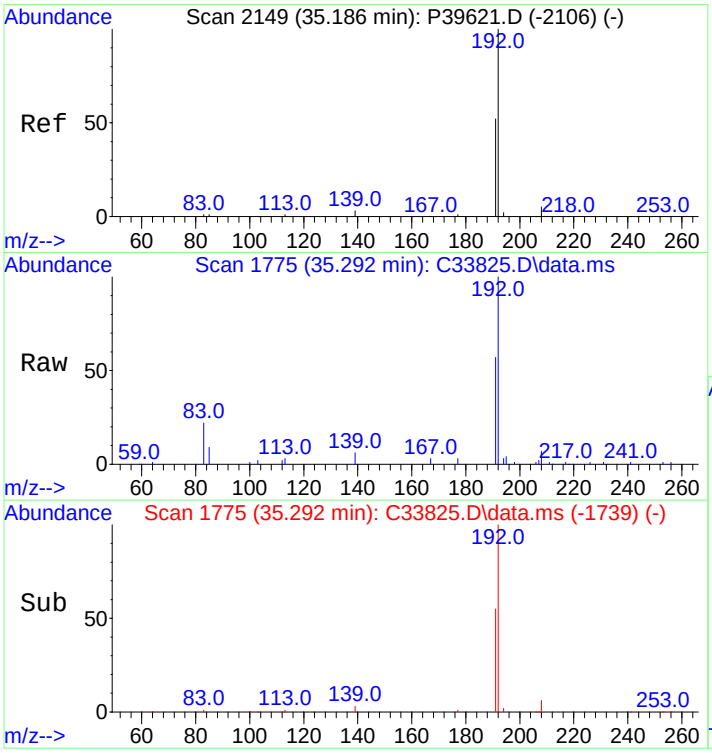


#48
1-Methylphenanthrene(1MP)
Concen: 482.98 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46564

Ion	Ratio	Lower	Upper
192	100		
191	57.1	47.0	70.6

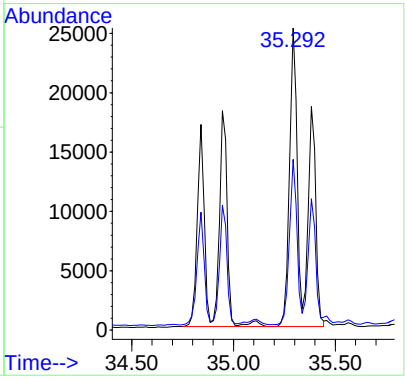


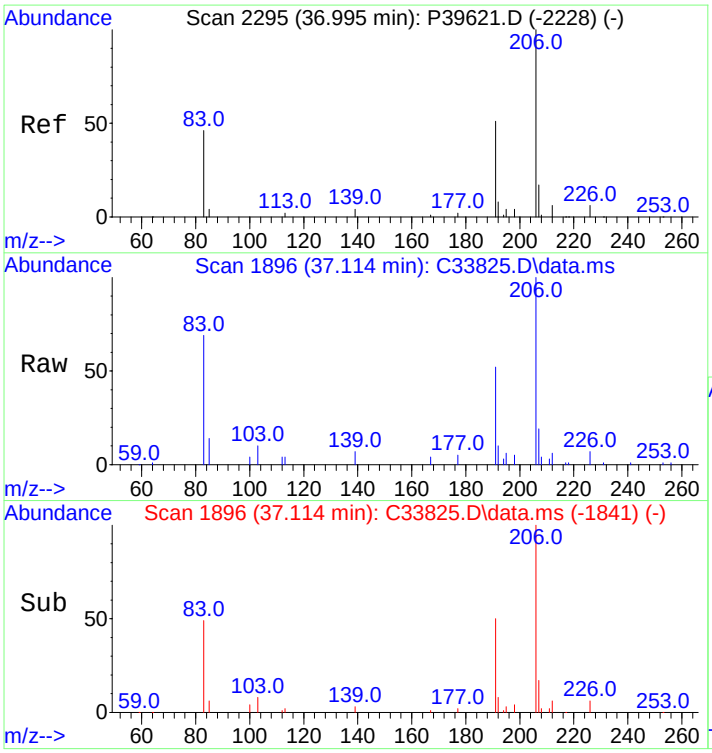


#49
C1-Phenanthrenes/Anthracenes
Concen: 2088.83 ng/mL m
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 201383

Ion	Ratio	Lower	Upper
192	100		
191	17.8	45.3	67.9#

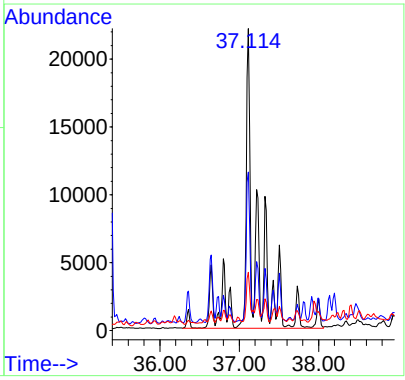


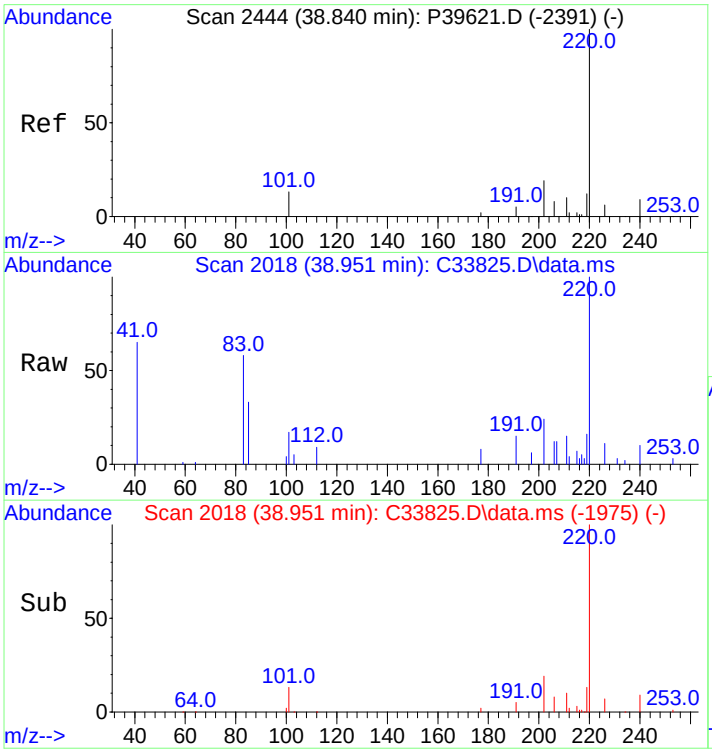


#50
C2-Phenanthrenes/Anthracenes
Concen: 2138.48 ng/mL m
RT: 37.114 min Scan# 1896
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:206 Resp: 206170

Ion	Ratio	Lower	Upper
206	100		
191	17.0	42.0	63.0#
207	5.7	15.4	23.2#

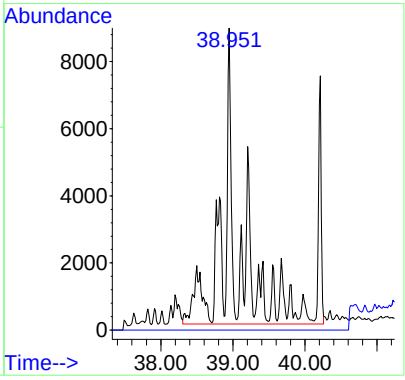


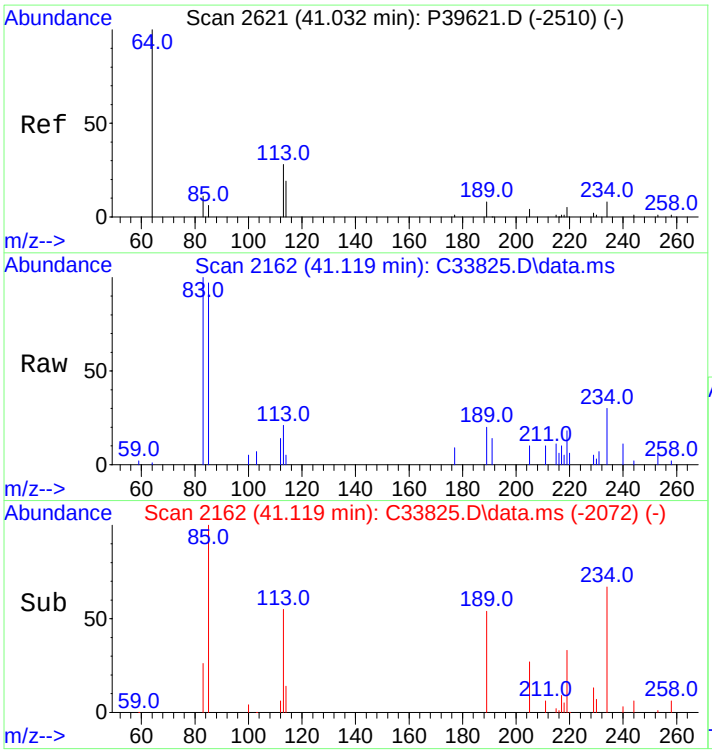


#52
C3-Phenanthrenes/Anthracenes
Concen: 1482.94 ng/mL m
RT: 38.951 min Scan# 2018
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:220 Resp: 142970

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

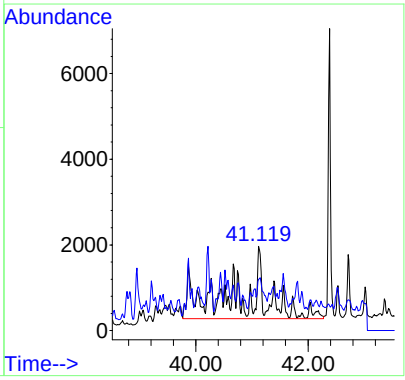


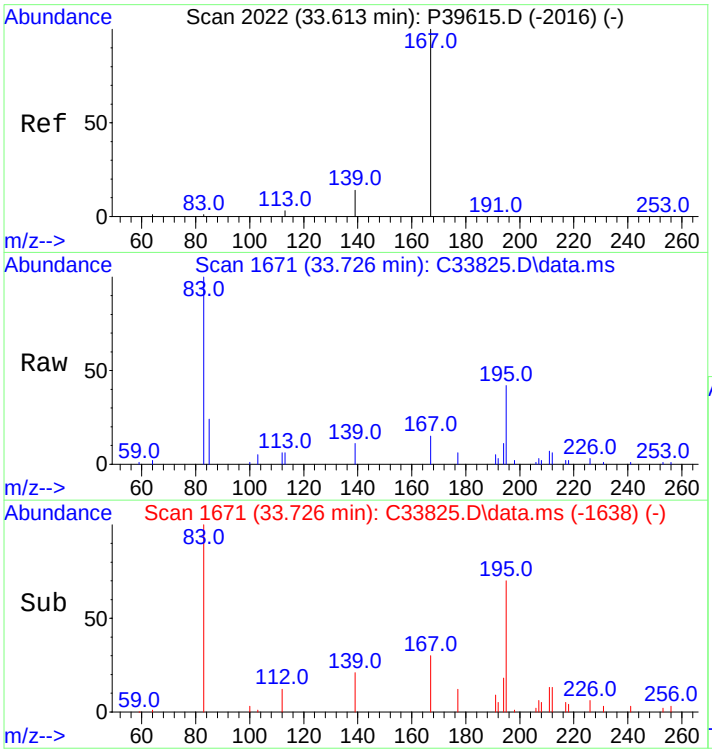


#53
C4-Phenanthrenes/Anthracenes
Concen: 588.72 ng/mL m
RT: 41.119 min Scan# 2162
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 56758

Ion	Ratio	Lower	Upper
234	100		
219	3.4	48.6	73.0#

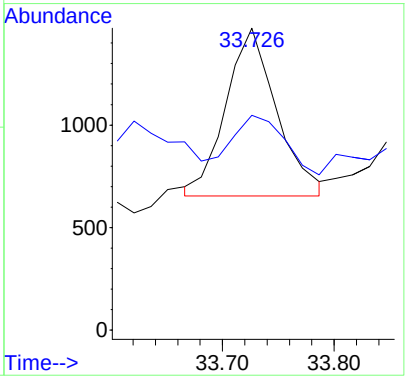


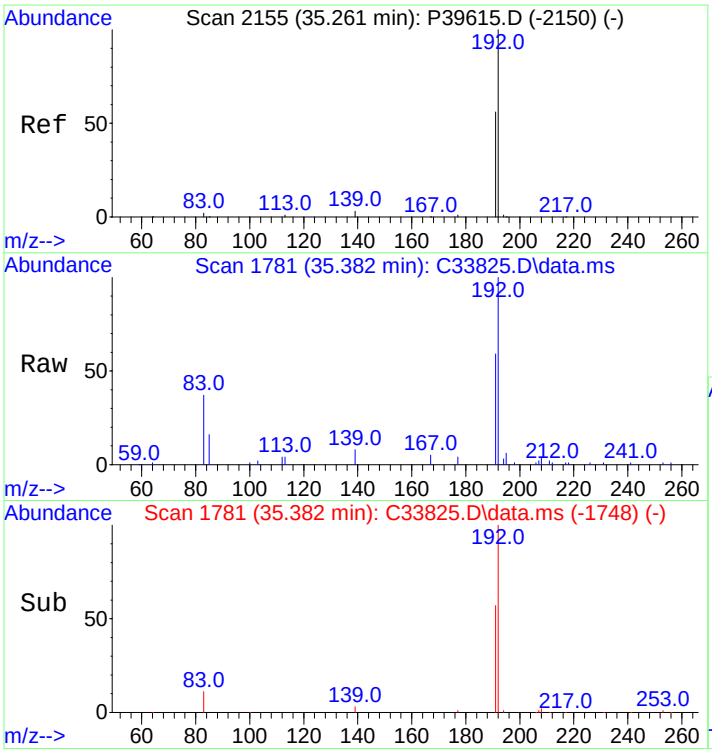


#56
Carbazole
Concen: 27.15 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:167 Resp: 2583

Ion	Ratio	Lower	Upper
167	100		
139	87.4	11.6	17.4#

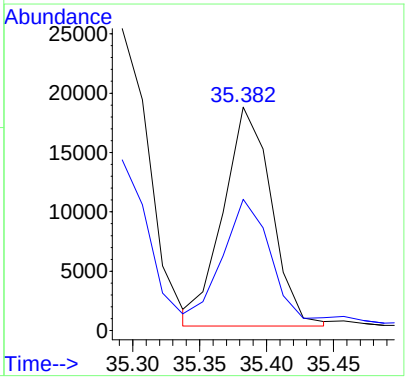


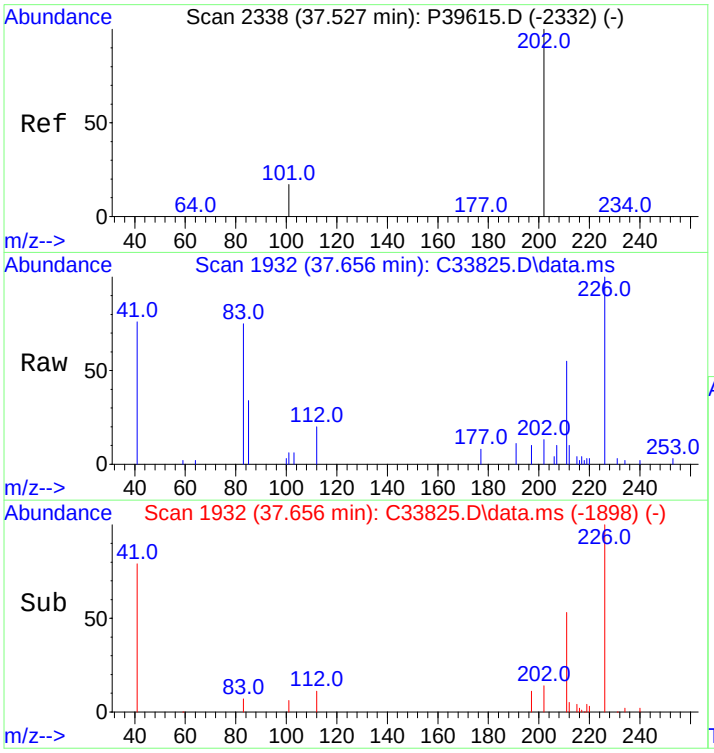


#57
1-Methylphenanthrene
Concen: 759.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46375

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

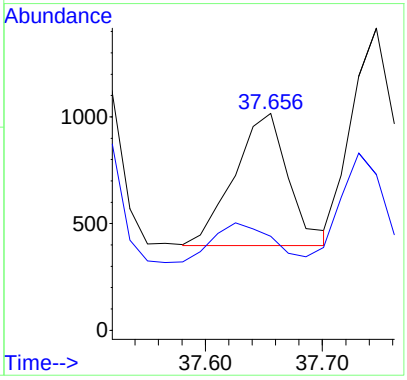


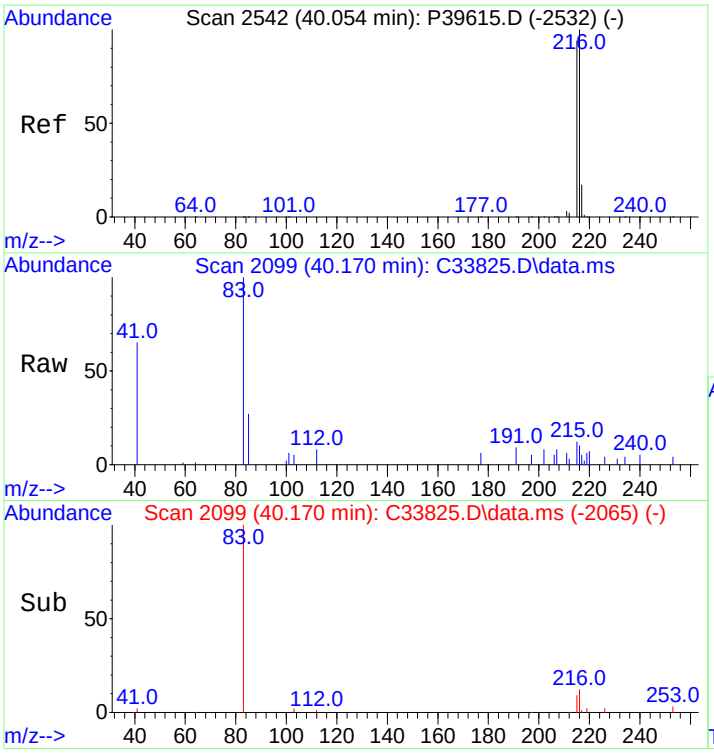


#58
Fluoranthene
Concen: 20.90 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 2001

Ion	Ratio	Lower	Upper
202	100		
101	0.0	19.1	28.7#

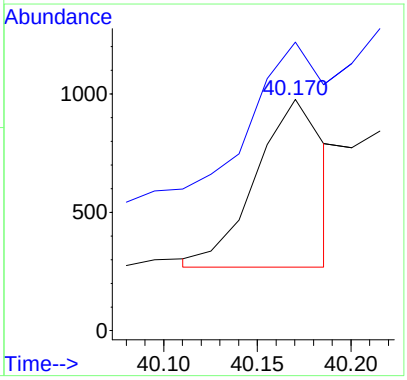


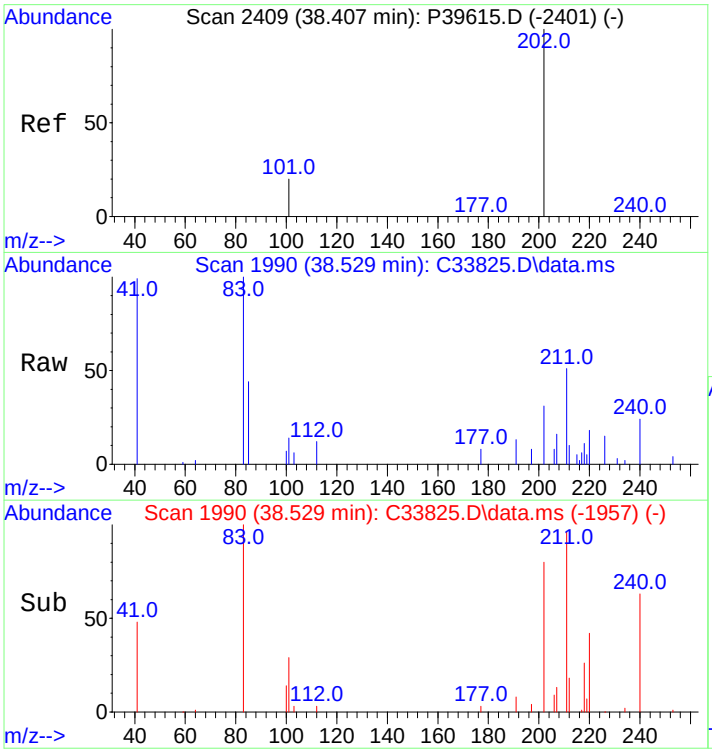


#59
Benzo(b)fluorene
Concen: 32.80 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 1822

Ion	Ratio	Lower	Upper
216	100		
215	16.2	77.4	116.2#

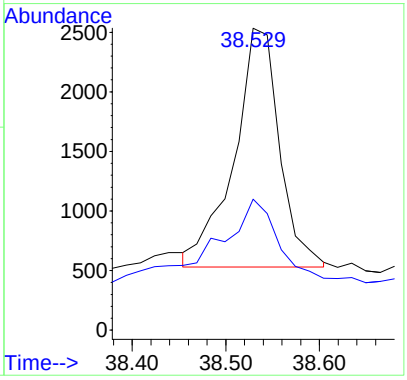


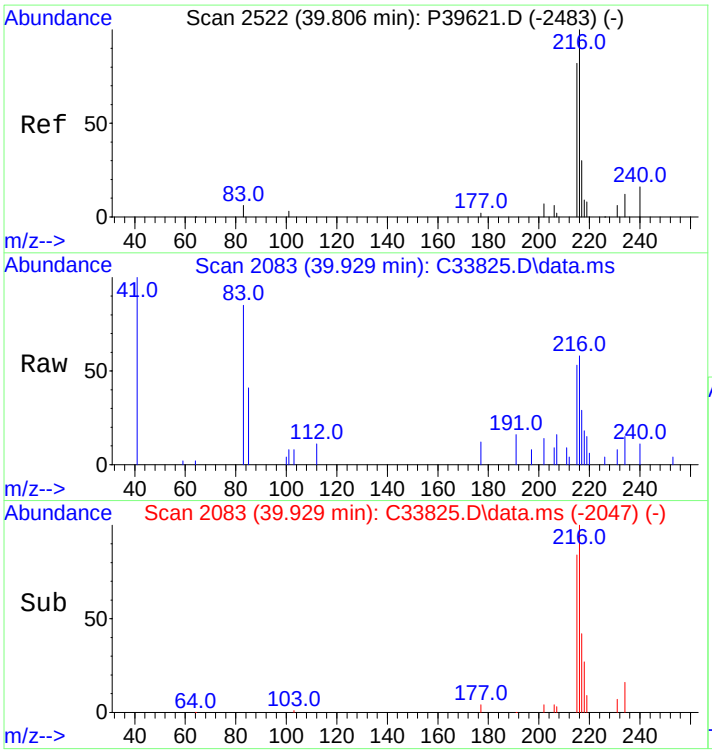


#60
Pyrene
Concen: 69.73 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 6787

Ion	Ratio	Lower	Upper
202	100		
101	64.2	20.4	30.6#

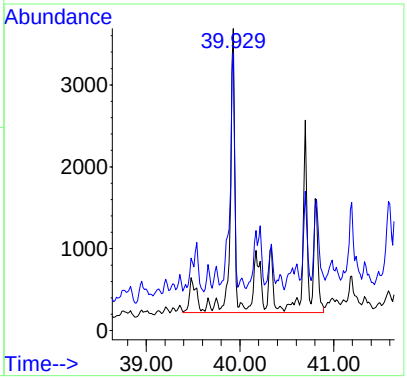


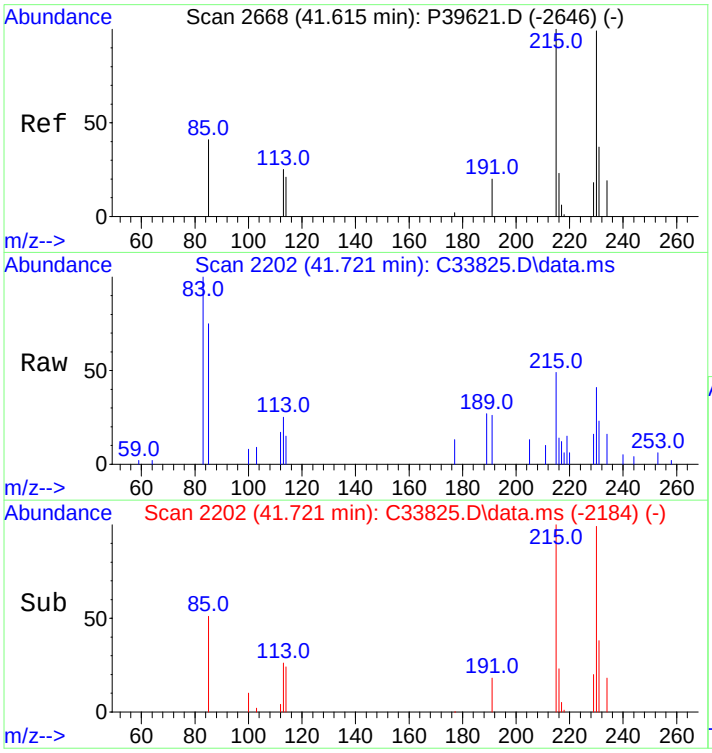


#61
C1-Fluoranthenes/Pyrenes
Concen: 330.13 ng/mL m
RT: 39.929 min Scan# 2083
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 32133

Ion	Ratio	Lower	Upper
216	100		
215	28.8	73.5	110.3#

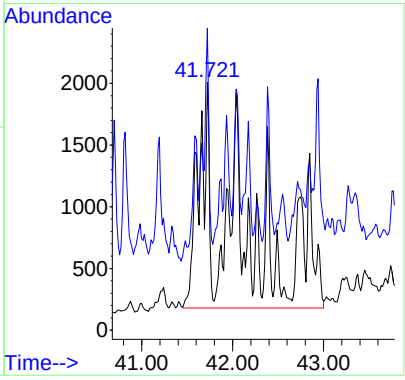


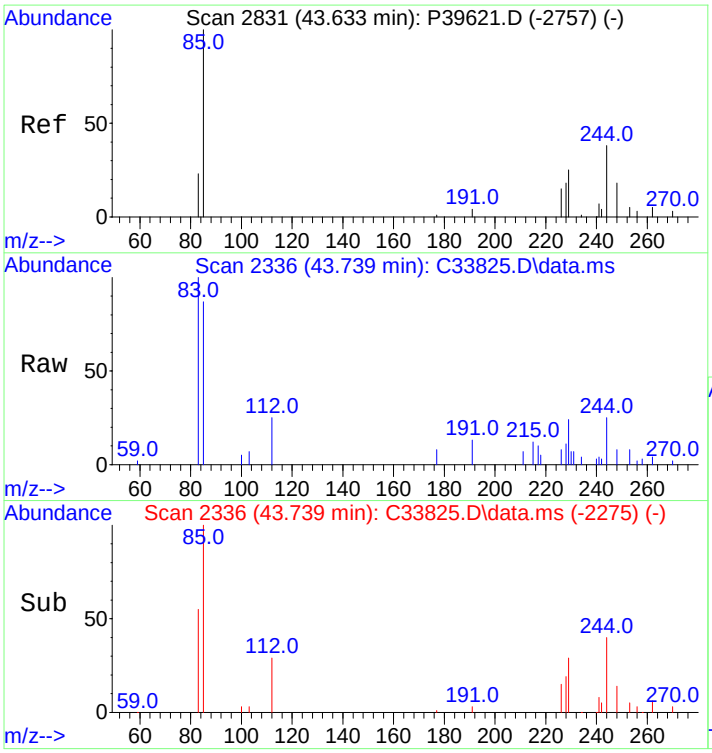


#62
C2-Fluoranthenes/Pyrenes
Concen: 517.02 ng/mL m
RT: 41.721 min Scan# 2202
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:230 Resp: 50323

Ion	Ratio	Lower	Upper
230	100		
215	3.3	97.5	146.3#

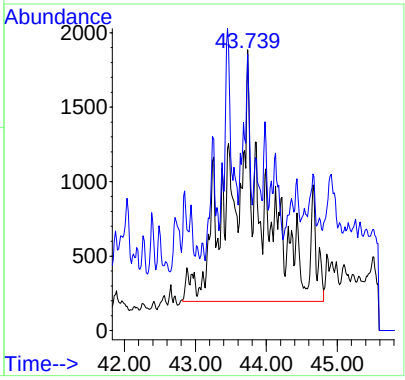


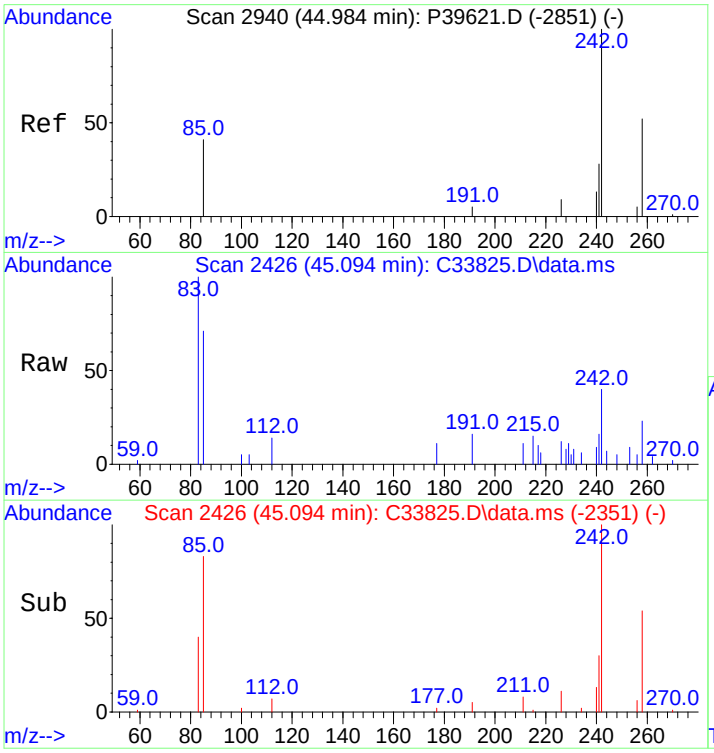


#63
C3-Fluoranthenes/Pyrenes
Concen: 579.51 ng/mL m
RT: 43.739 min Scan# 2336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:244 Resp: 56406

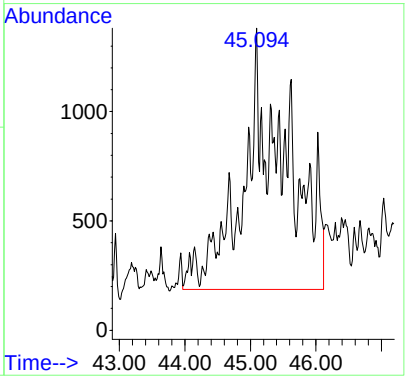
Ion	Ratio	Lower	Upper
244	100		
229	13.5	78.7	118.1#

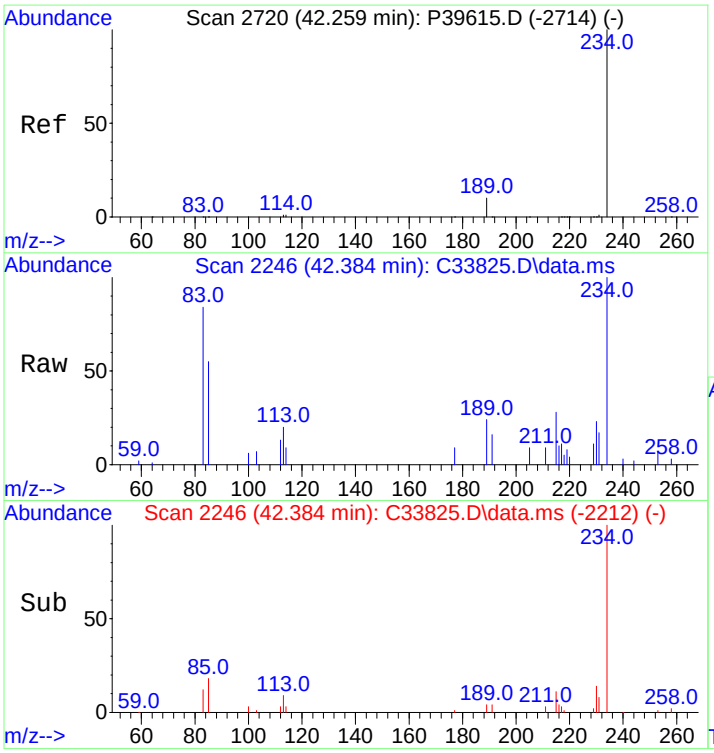




#64
C4-Fluoranthenes/Pyrenes
Concen: 542.26 ng/mL m
RT: 45.094 min Scan# 2426
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:258 Resp: 52780

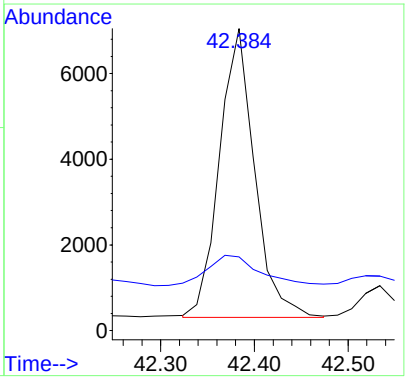


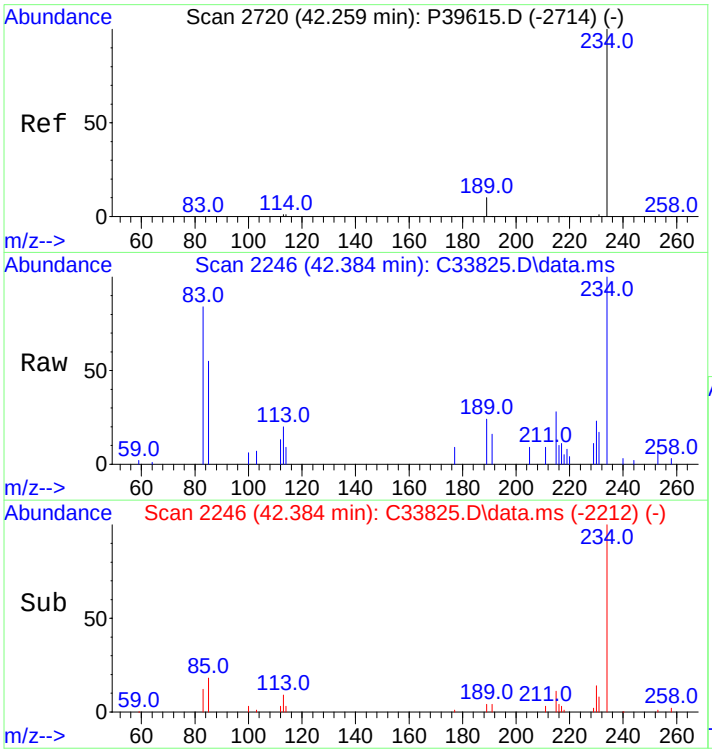


#66
Naphthobenzothiophene
Concen: 168.19 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17624

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

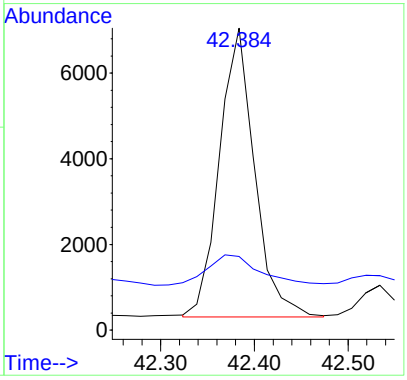


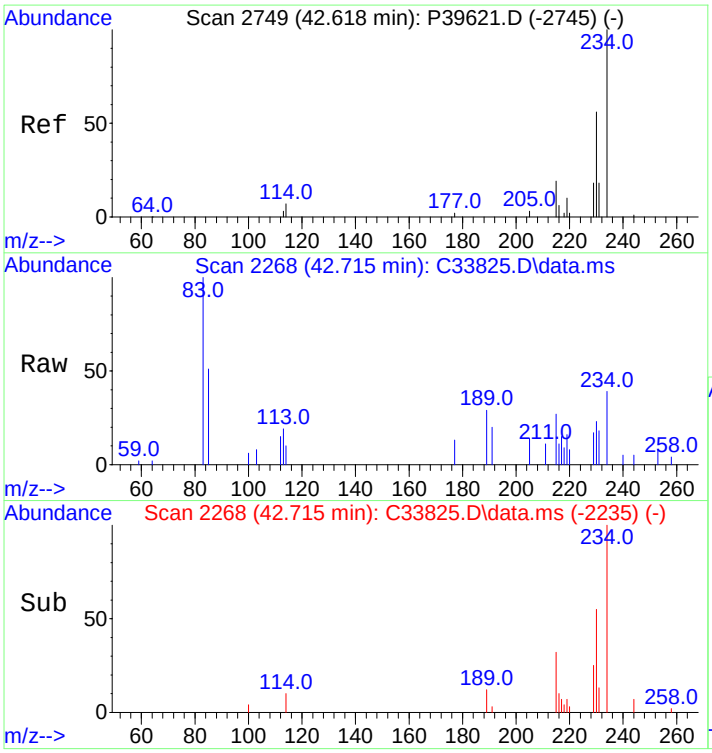


#67
Naphthobenzothiophene-2,1-D
Concen: 168.27 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17633

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

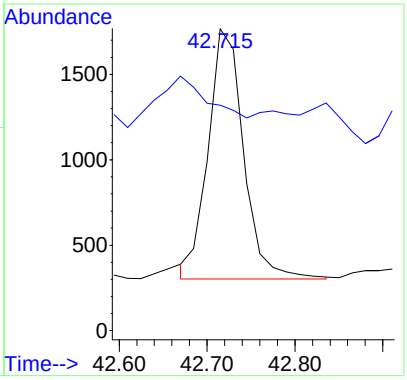


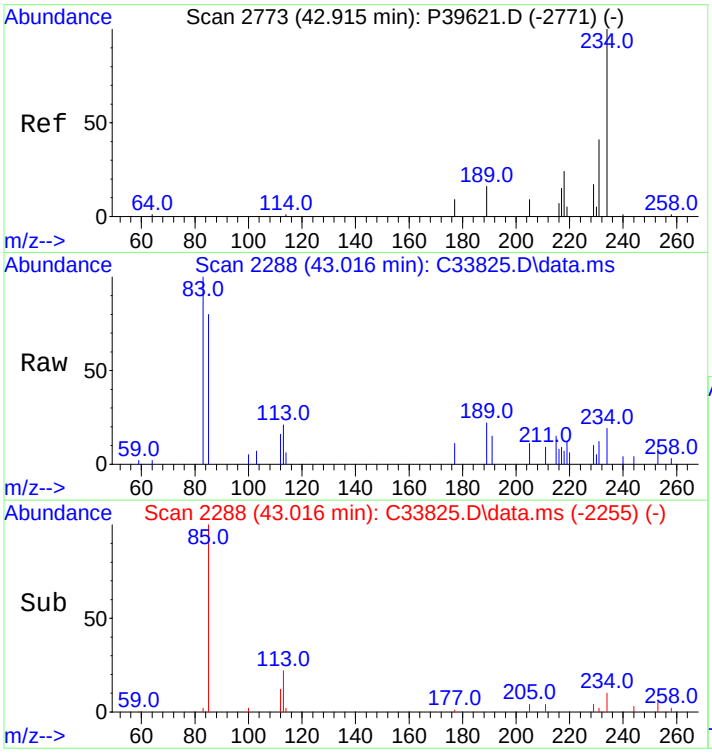


#68
Naphthobenzothiophene-1,2-D
Concen: 39.11 ng/mL m
RT: 42.715 min Scan# 2268
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 4098

Ion	Ratio	Lower	Upper
234	100		
189	0.0	59.7	89.5#

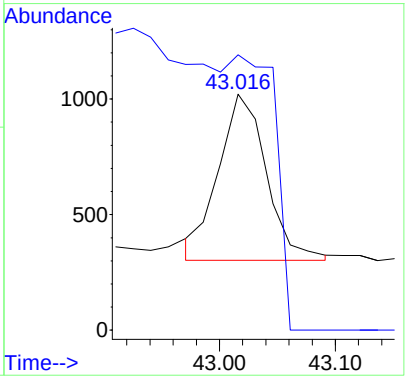


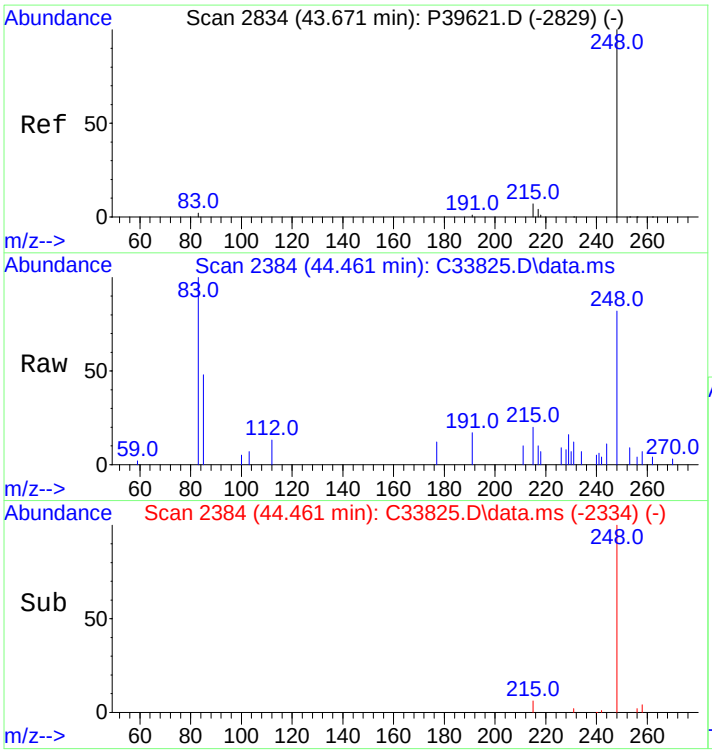


#69
Naphthobenzothiophene-2,3-D
Concen: 19.66 ng/mL m
RT: 43.016 min Scan# 2288
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 2060

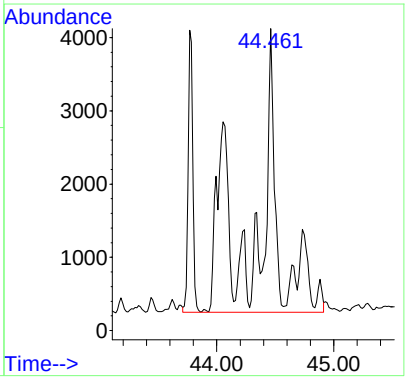
Ion	Ratio	Lower	Upper
234	100		
189	0.0	93.4	140.0#

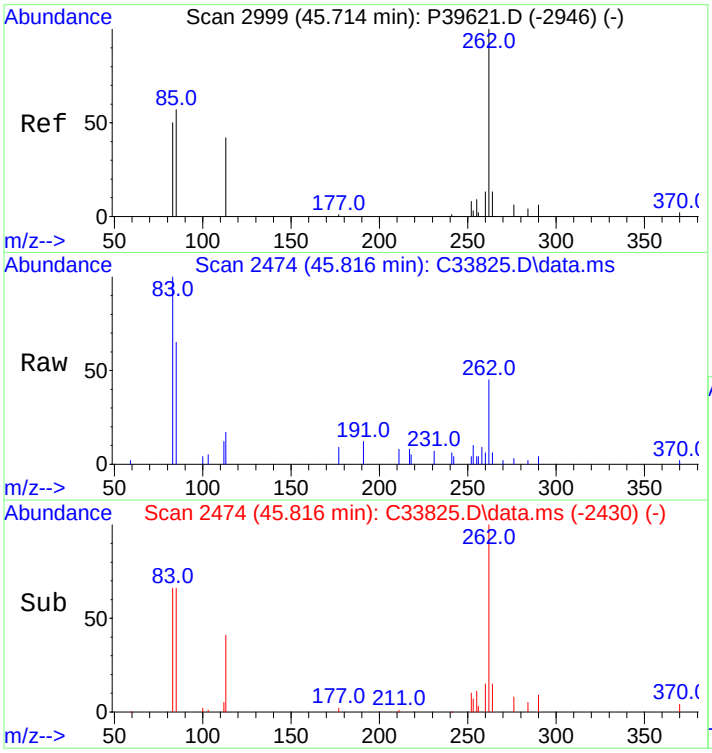




#70
C1-Naphthobenzothiophenes
Concen: 588.79 ng/ml m
RT: 44.461 min Scan# 2384
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

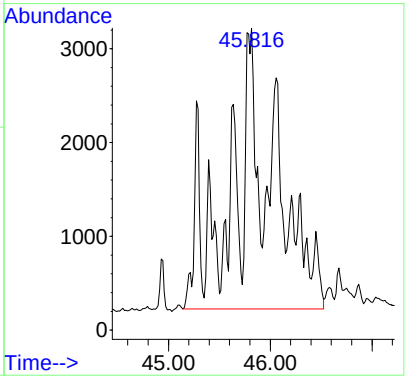
Tgt Ion:248 Resp: 61698

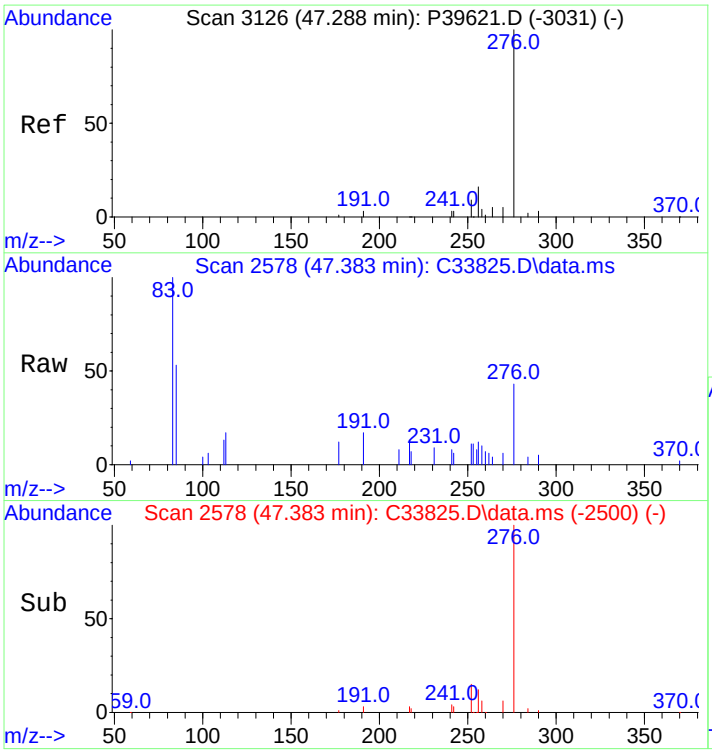




#71
C2-Naphthobenzothiophenes
Concen: 806.80 ng/ml m
RT: 45.816 min Scan# 2474
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

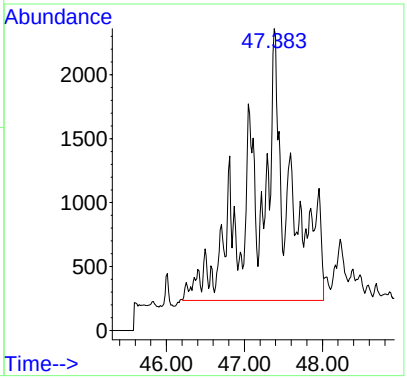
Tgt Ion:262 Resp: 84543

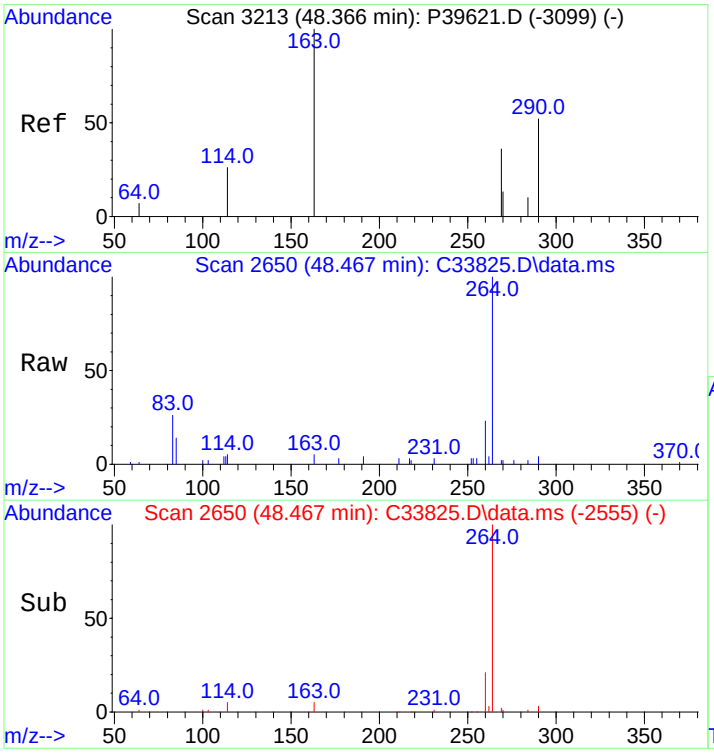




#72
C3-Naphthobenzothiophenes
Concen: 616.63 ng/ml m
RT: 47.383 min Scan# 2578
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

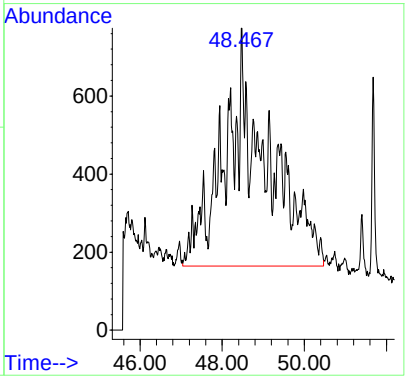
Tgt Ion:276 Resp: 64616

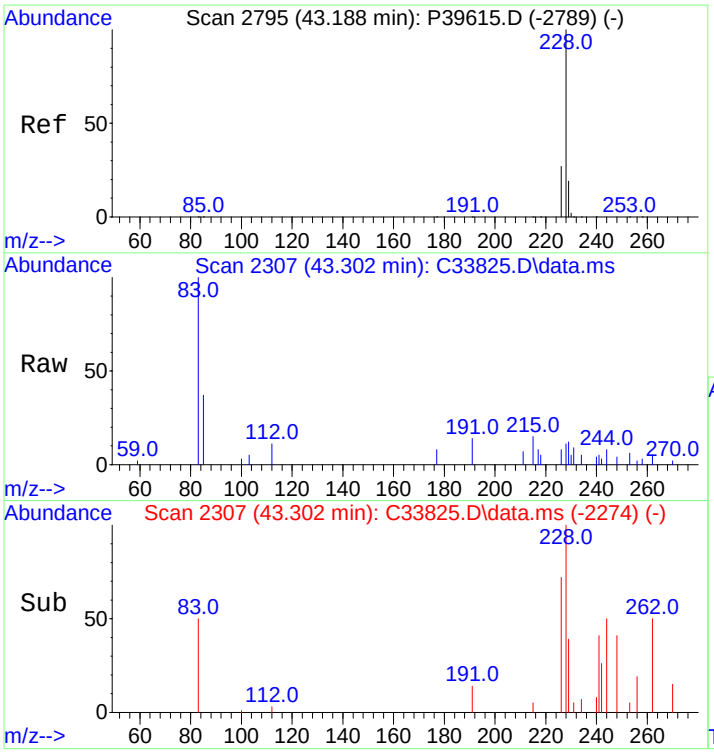




#73
C4-Naphthobenzothiophenes
Concen: 402.19 ng/mL m
RT: 48.467 min Scan# 2650
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:290 Resp: 42145

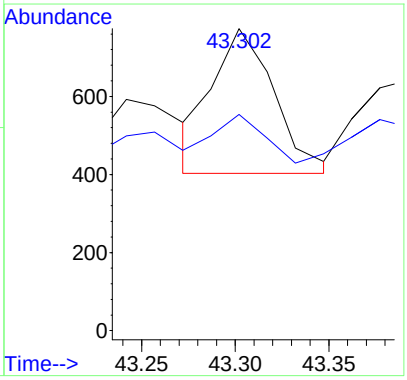


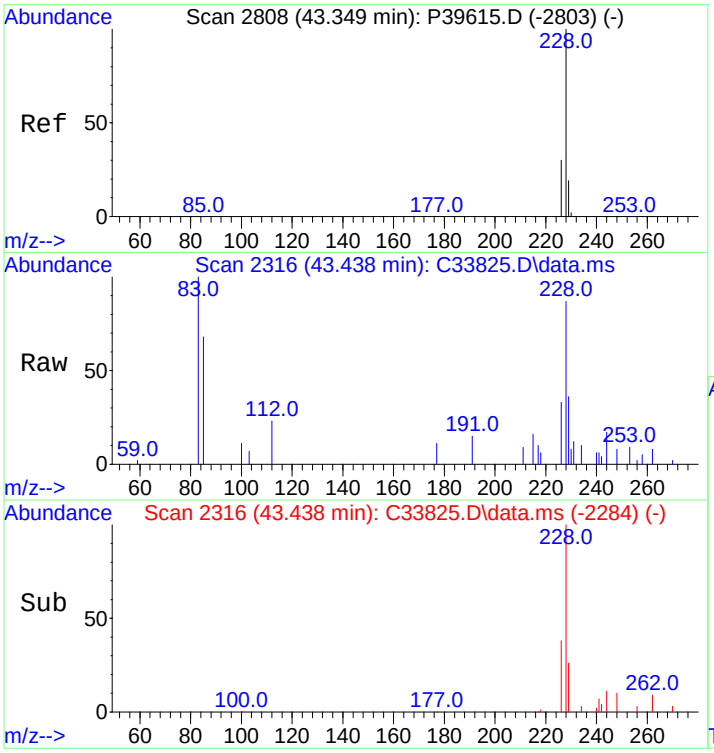


#75
Benz[a]anthracene
Concen: 9.22 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 851

Ion	Ratio	Lower	Upper
228	100		
226	665.2	21.8	32.8#

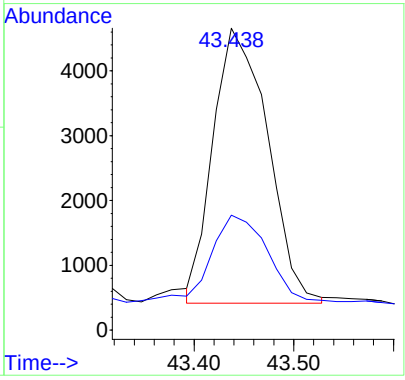


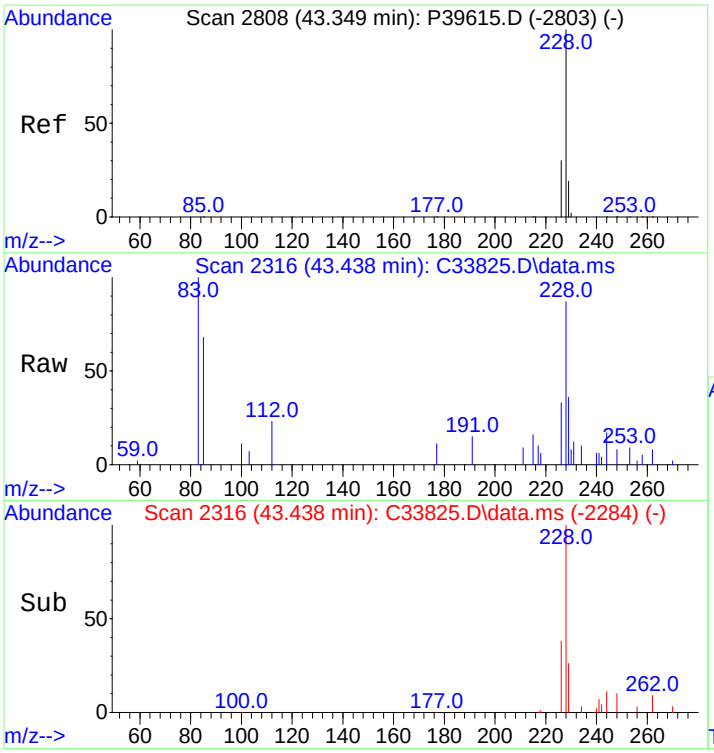


#76
Chrysene
Concen: 173.19 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16140

Ion	Ratio	Lower	Upper
228	100		
226	35.1	24.2	36.4

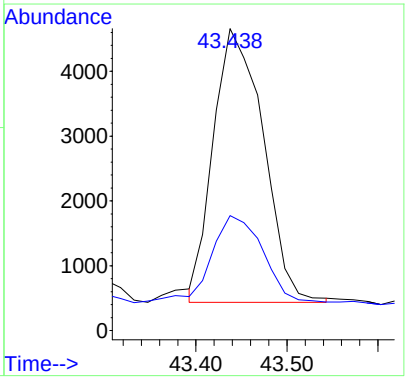


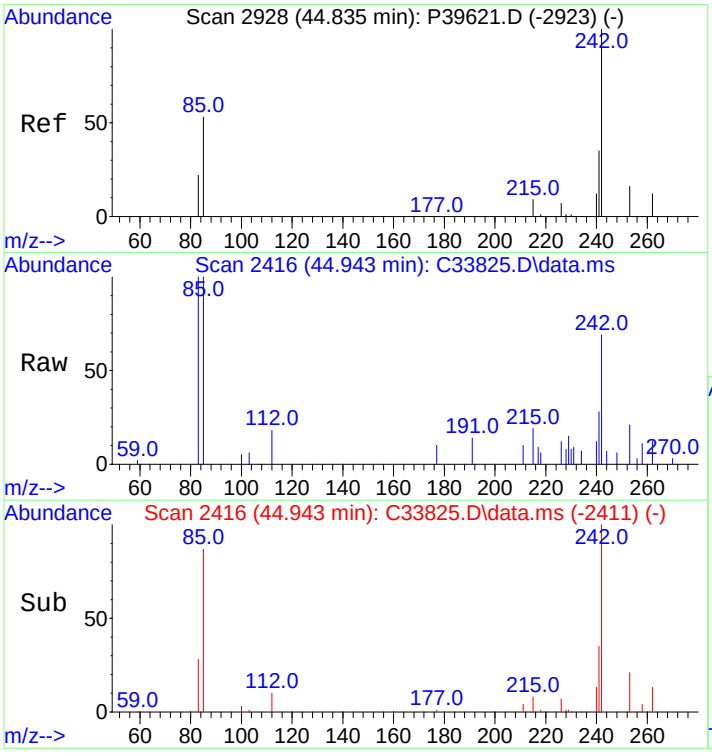


#77
Chrysene/Triphenylene
Concen: 172.36 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16062

Ion	Ratio	Lower	Upper
228	100		
226	35.2	24.2	36.4

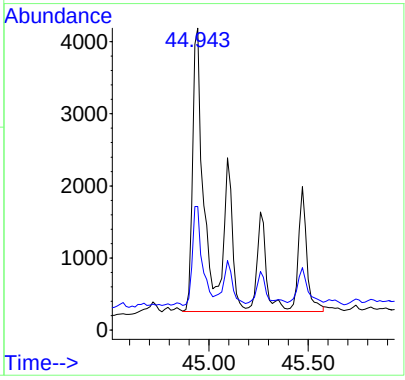


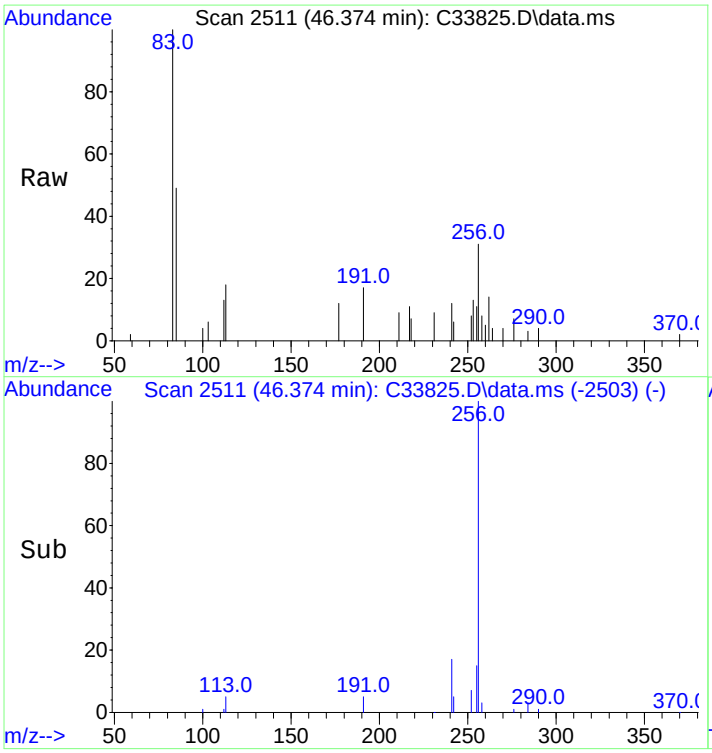


#78
C1-Chrysenes
Concen: 319.06 ng/mL m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:242 Resp: 29733

Ion	Ratio	Lower	Upper
242	100		
241	13.2	32.7	49.1#

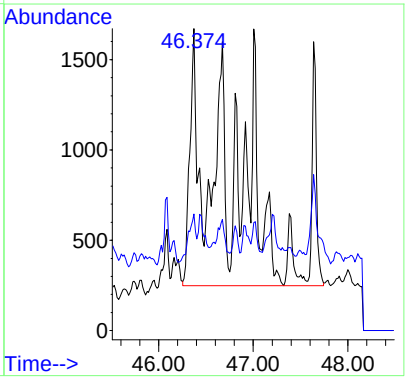


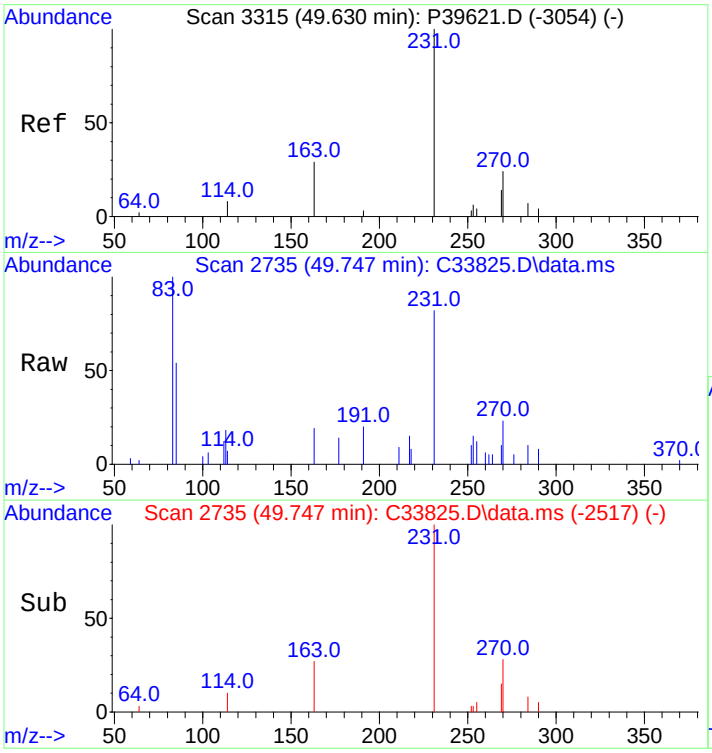


#79
C2-Chrysenes
Concen: 416.87 ng/mL m
RT: 46.374 min Scan# 2511
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:256 Resp: 38848

Ion	Ratio	Lower	Upper
256	100		
241	2.5	30.9	46.3#

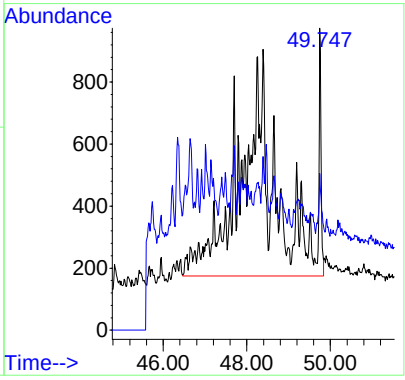


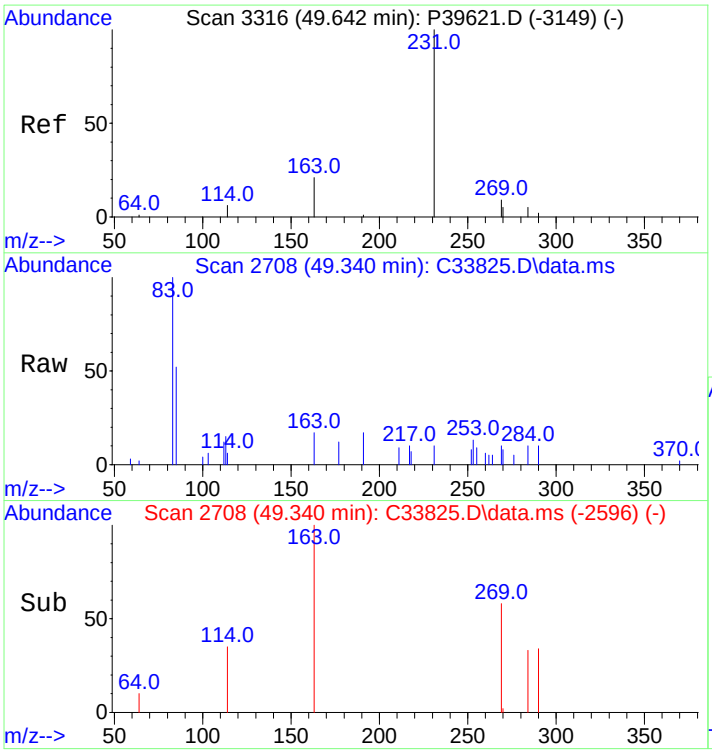


#80
C3-Chrysenes
Concen: 446.16 ng/mL m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:270 Resp: 41578

Ion	Ratio	Lower	Upper
270	100		
255	1.5	41.4	62.2#

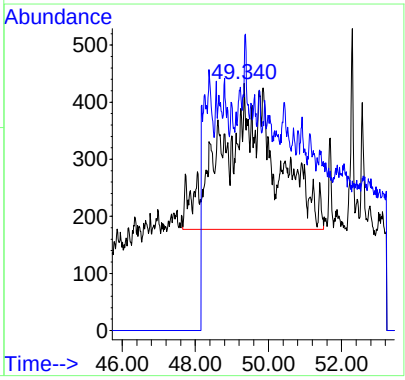


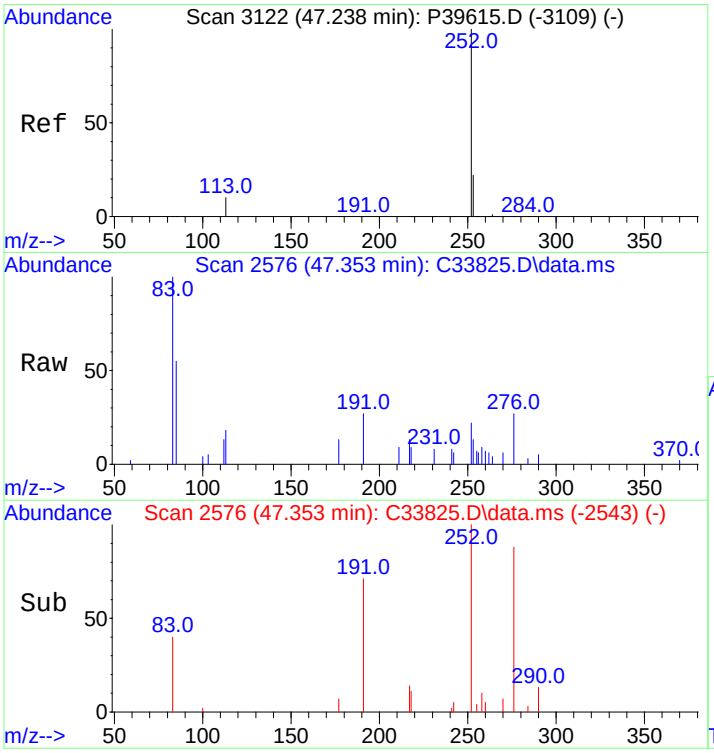


#81
C4-Chrysenes
Concen: 277.95 ng/mL m
RT: 49.340 min Scan# 2708
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:284 Resp: 25902

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

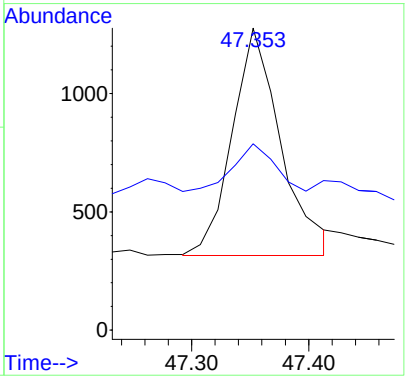


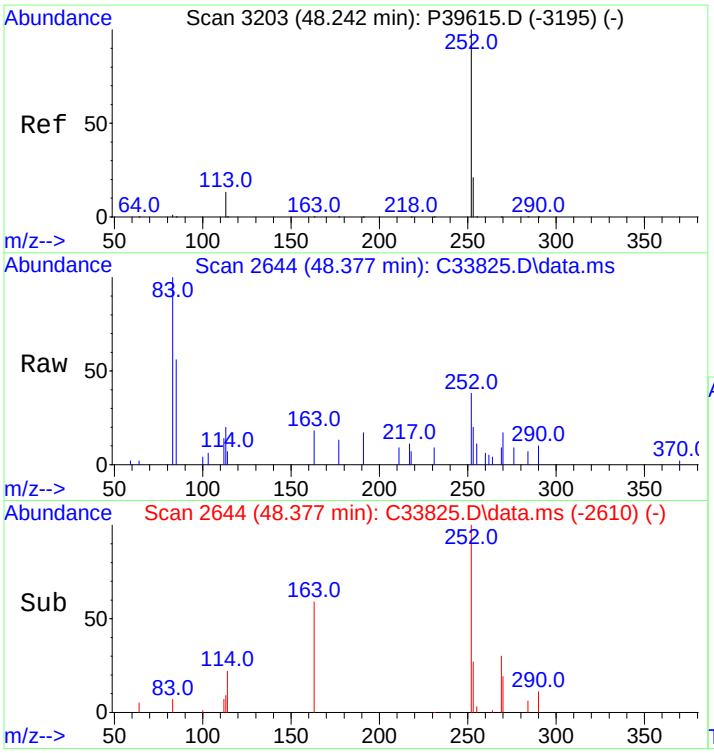


#82
Benzo[b]fluoranthene
Concen: 27.35 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 2774

Ion	Ratio	Lower	Upper
252	100		
253	17.7	18.5	27.7#

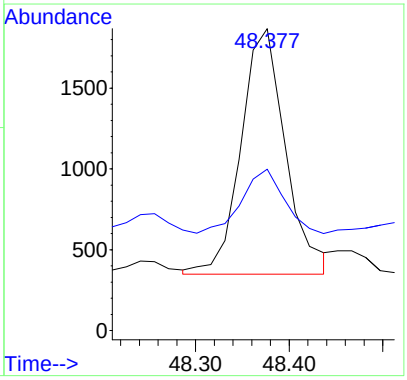


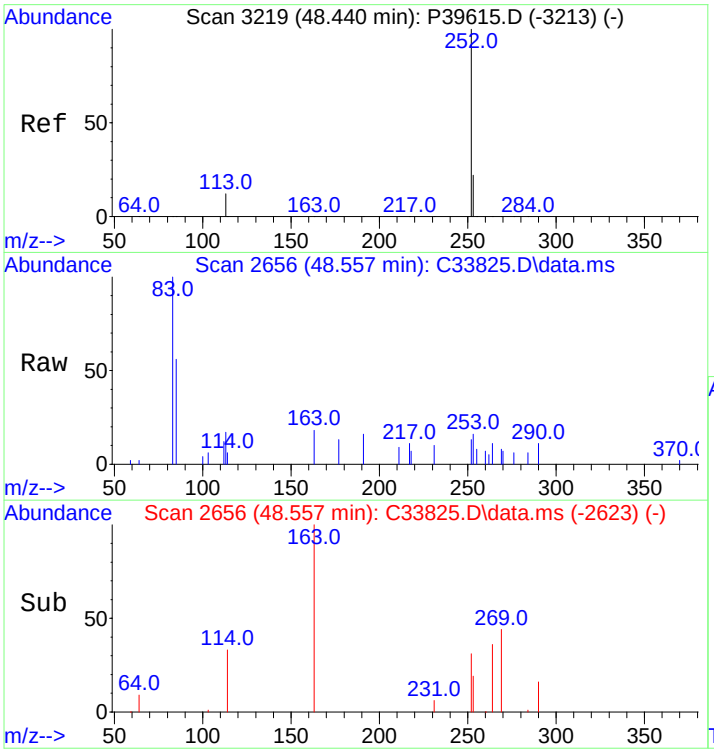


#85
Benzo[e]pyrene
Concen: 50.07 ng/mL m
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 5023

Ion	Ratio	Lower	Upper
252	100		
253	27.1	18.5	27.7

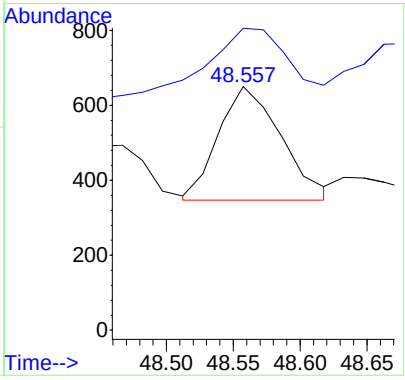


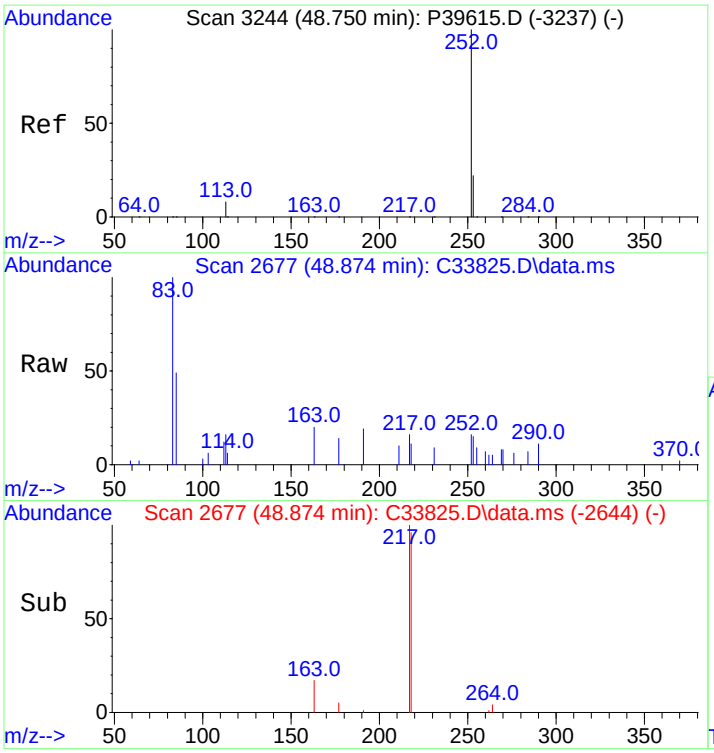


#87
Benzo[a]pyrene
Concen: 10.24 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 989

Ion	Ratio	Lower	Upper
252	100		
253	135.0	18.7	28.1#

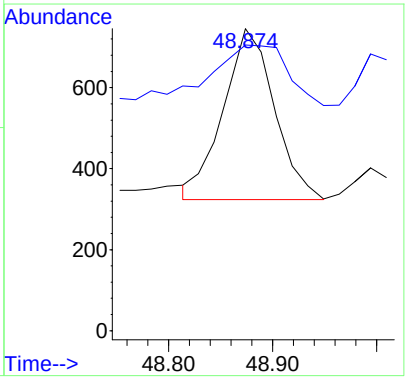


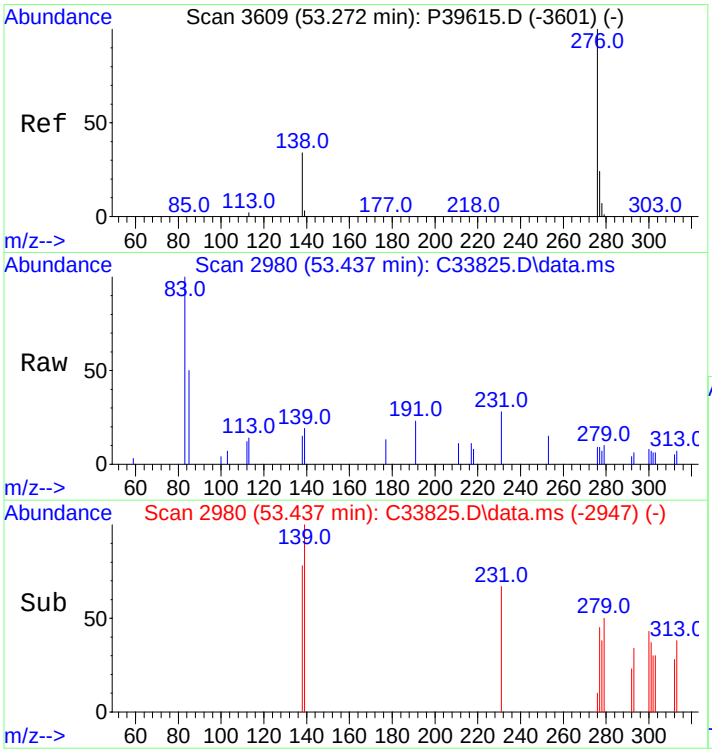


#88
Perylene
Concen: 13.95 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 1440

Ion	Ratio	Lower	Upper
252	100		
253	55.6	18.6	27.8#

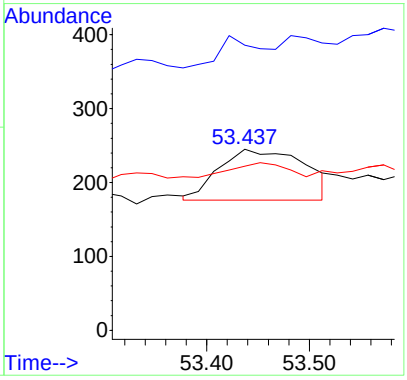


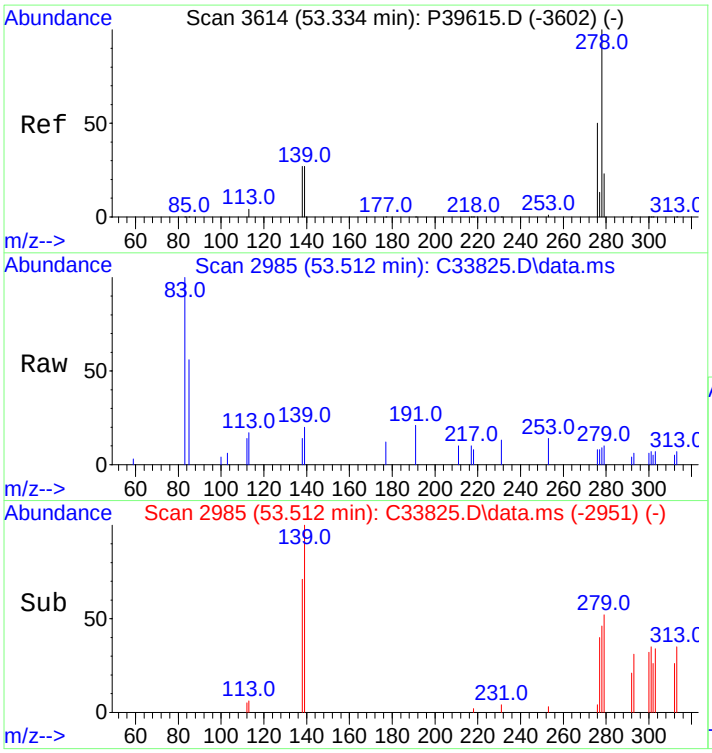


#89
Indeno[1,2,3-cd]pyrene
Concen: 3.57 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 401

Ion	Ratio	Lower	Upper
276	100		
138	0.0	30.3	45.5#
277	0.0	19.2	28.8#

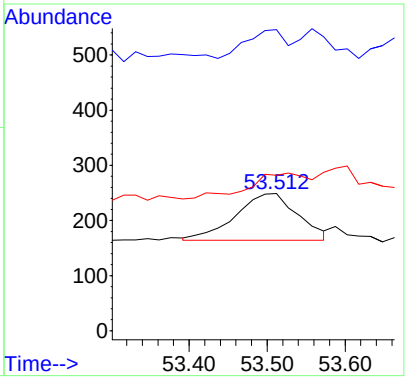


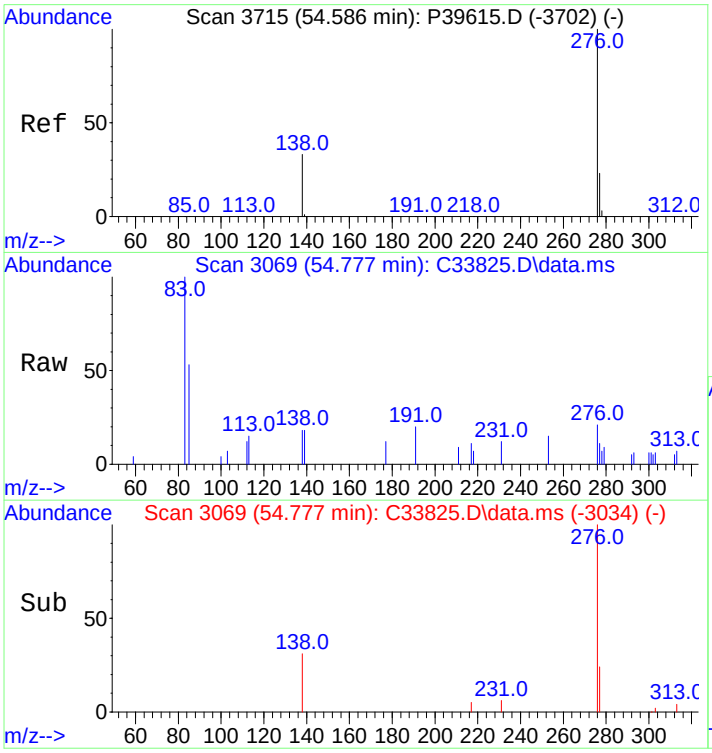


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.42 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:278 Resp: 473

Ion	Ratio	Lower	Upper
278	100		
139	0.0	25.4	38.2#
279	0.0	19.0	28.4#

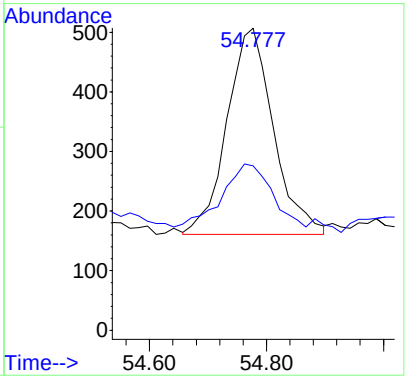


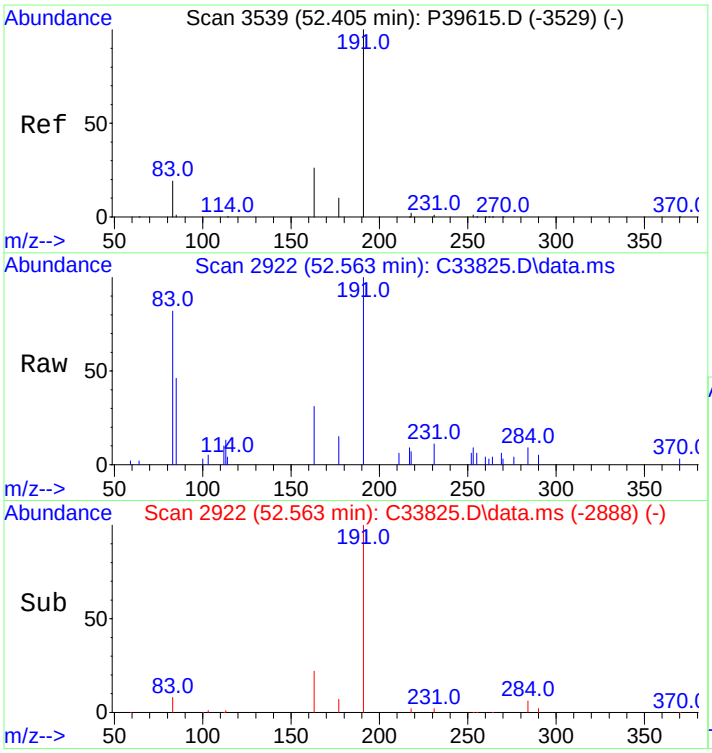


#91
Benzo[g,h,i]perylene
Concen: 16.06 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. 0.030 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 1907

Ion	Ratio	Lower	Upper
276	100		
277	32.1	18.9	28.3#

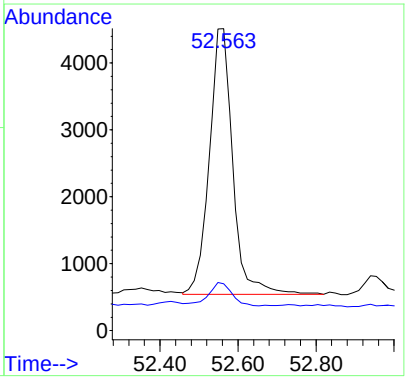


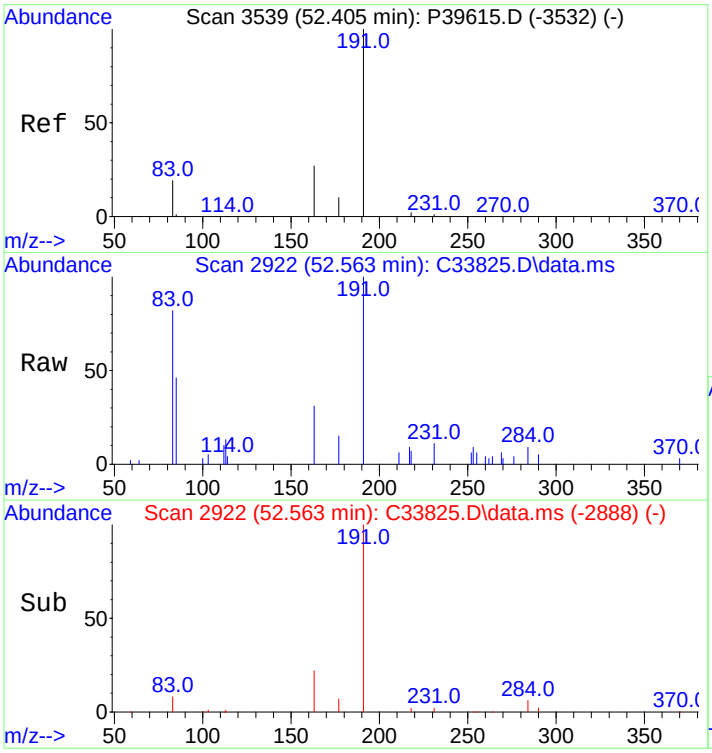


#92
Hopane (T19)
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

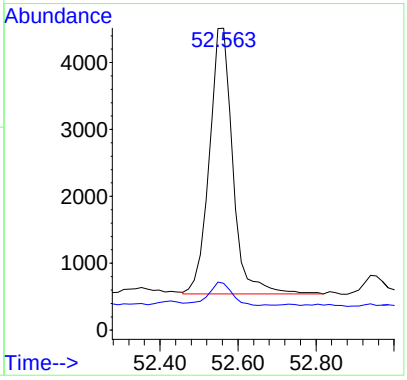


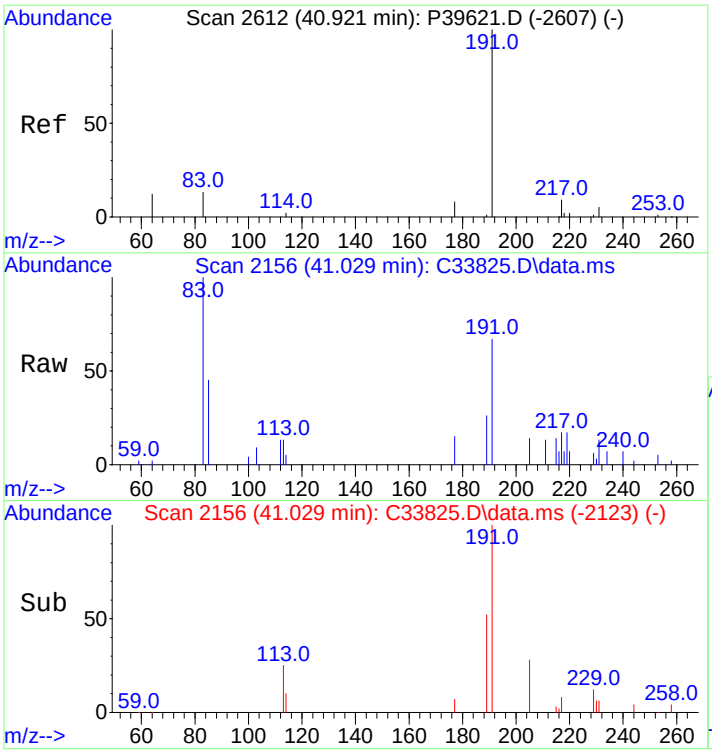


#93
17a(H),21B(H)-hopane - C30H52
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

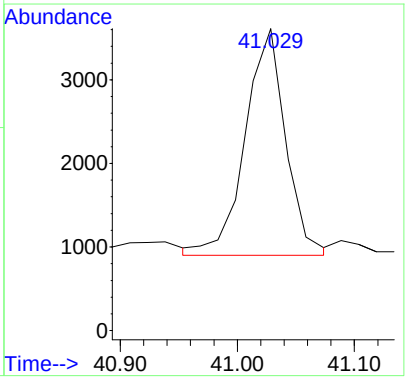
Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

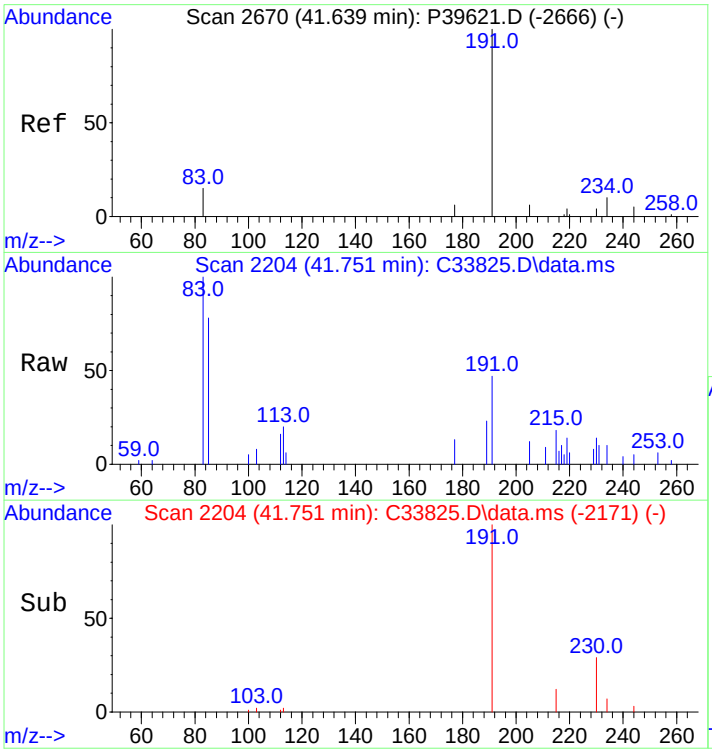




#94
C23 Tricyclic Terpane (T4)
Concen: 339.23 ng/ml m
RT: 41.029 min Scan# 2156
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

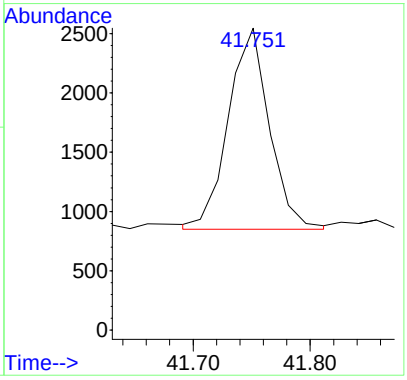
Tgt Ion:191 Resp: 6502

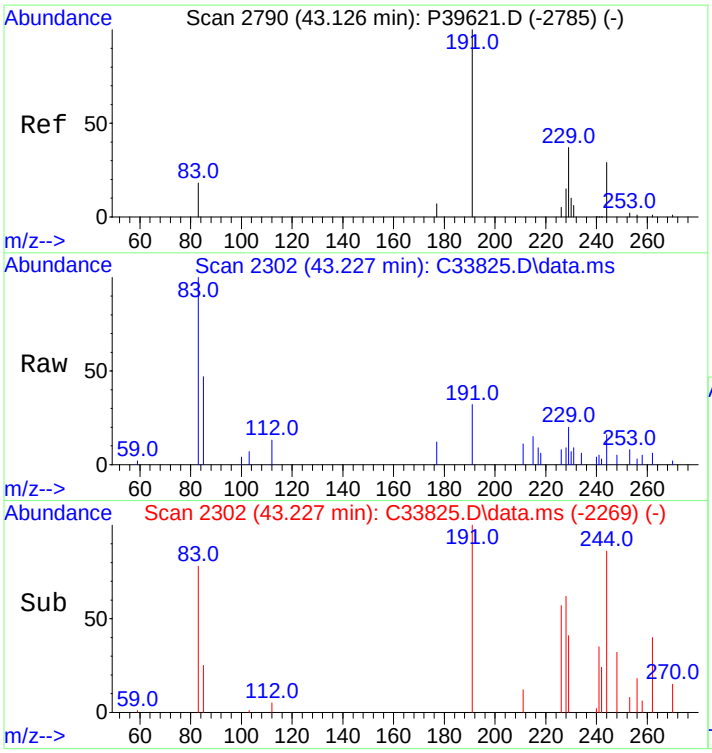




#95
C24 Tricyclic Terpane (T5)
Concen: 215.94 ng/ml m
RT: 41.751 min Scan# 2204
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

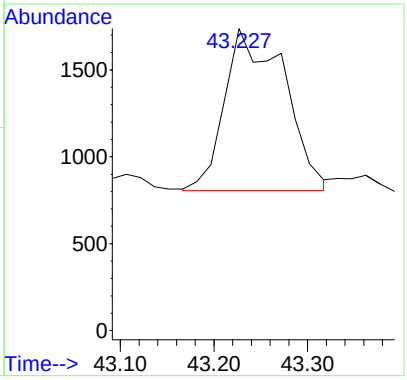
Tgt Ion:191 Resp: 4139

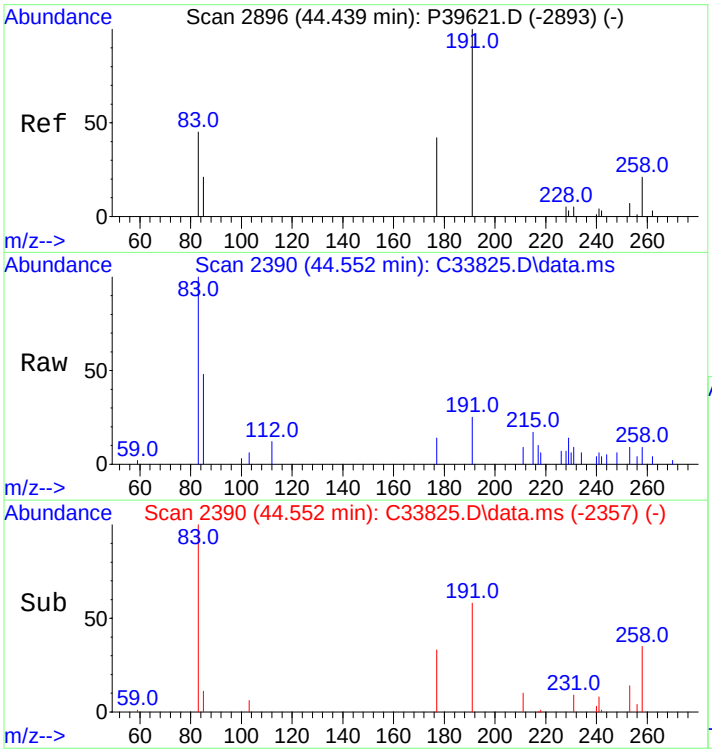




#96
C25 Tricyclic Terpane (T6)
Concen: 215.42 ng/ml m
RT: 43.227 min Scan# 2302
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

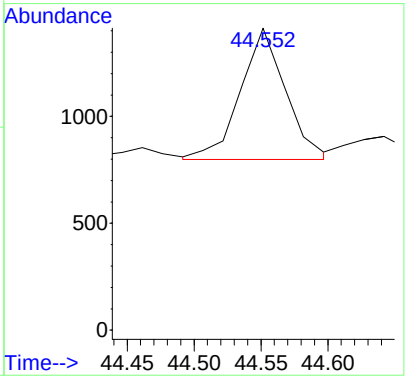
Tgt Ion:191 Resp: 4129

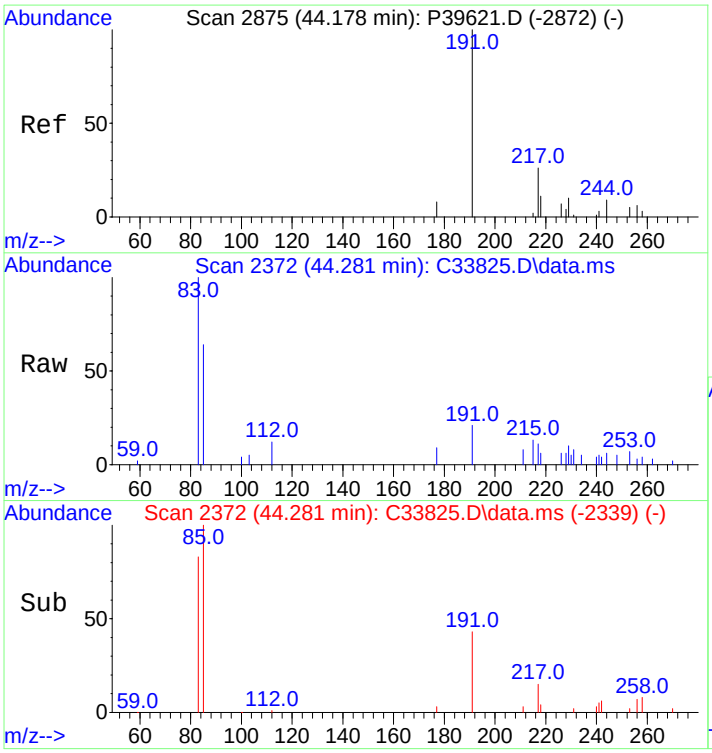




#97
C24 Tetracyclic Terpane (T6a)
Concen: 75.65 ng/ml m
RT: 44.552 min Scan# 2390
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

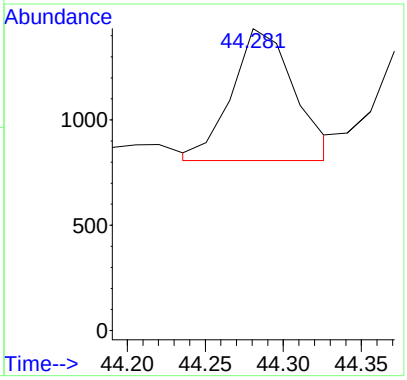
Tgt Ion:191 Resp: 1450

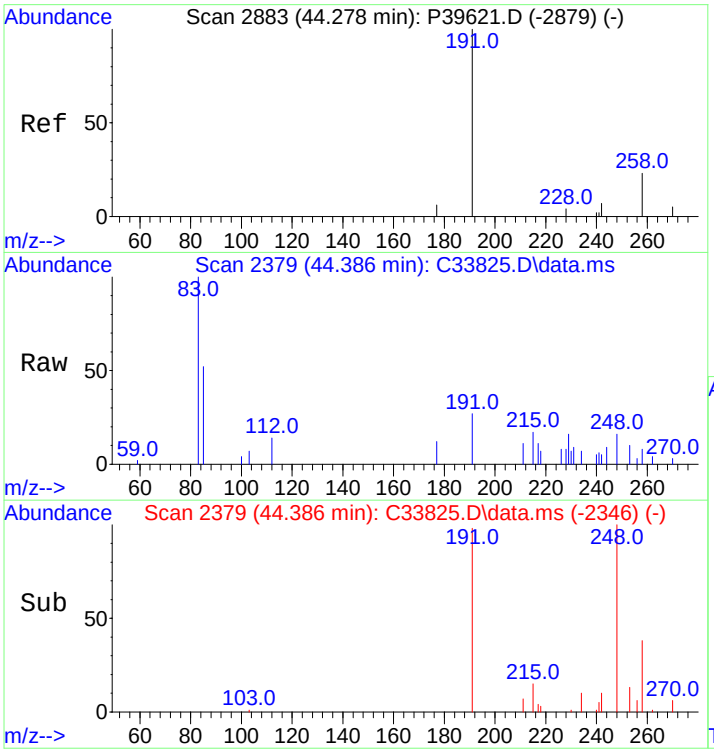




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.30 ng/ml m
RT: 44.281 min Scan# 2372
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

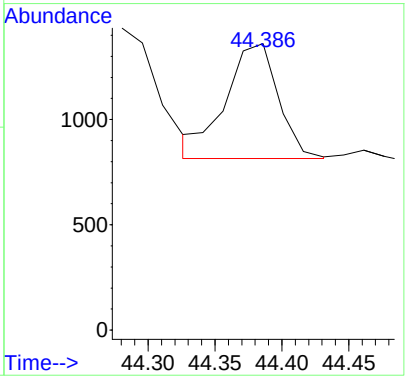
Tgt Ion:191 Resp: 1750

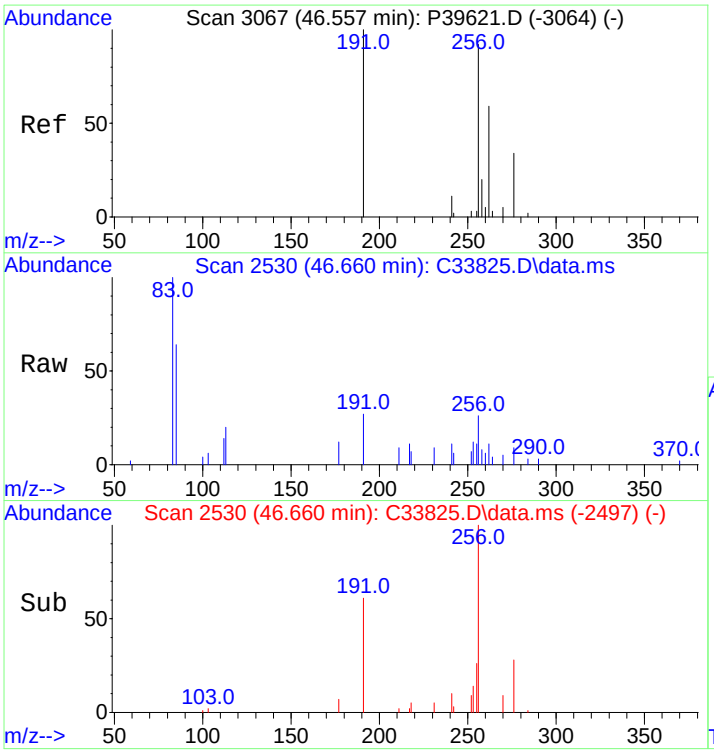




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 78.10 ng/ml m
RT: 44.386 min Scan# 2379
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

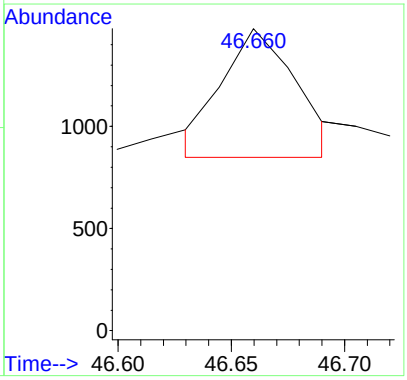
Tgt Ion:191 Resp: 1497

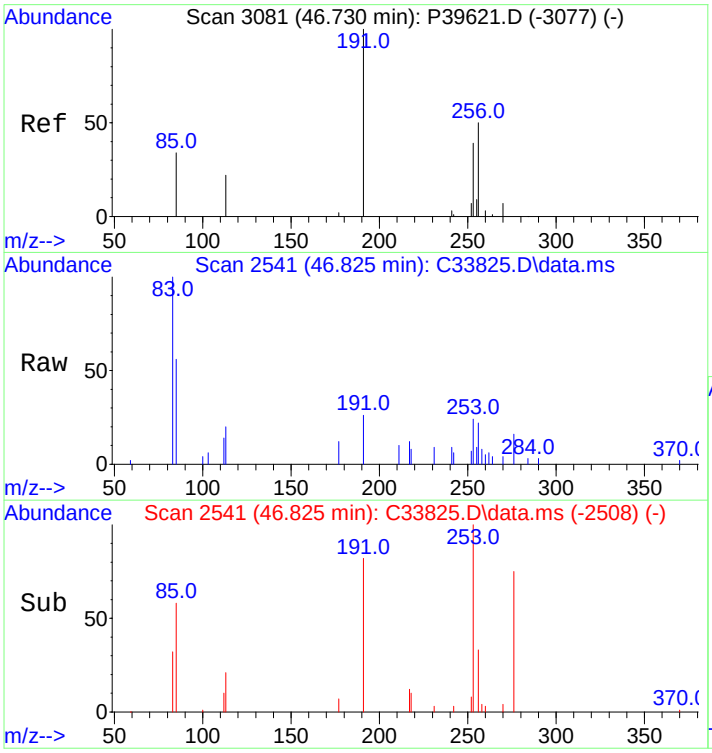




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 74.87 ng/ml m
RT: 46.660 min Scan# 2530
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

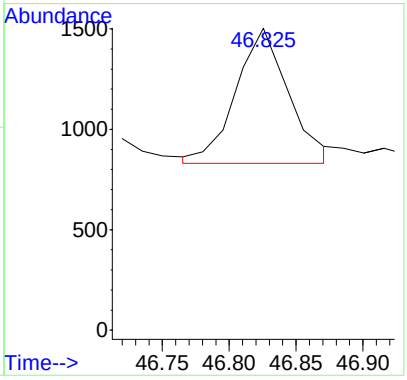
Tgt Ion:191 Resp: 1435

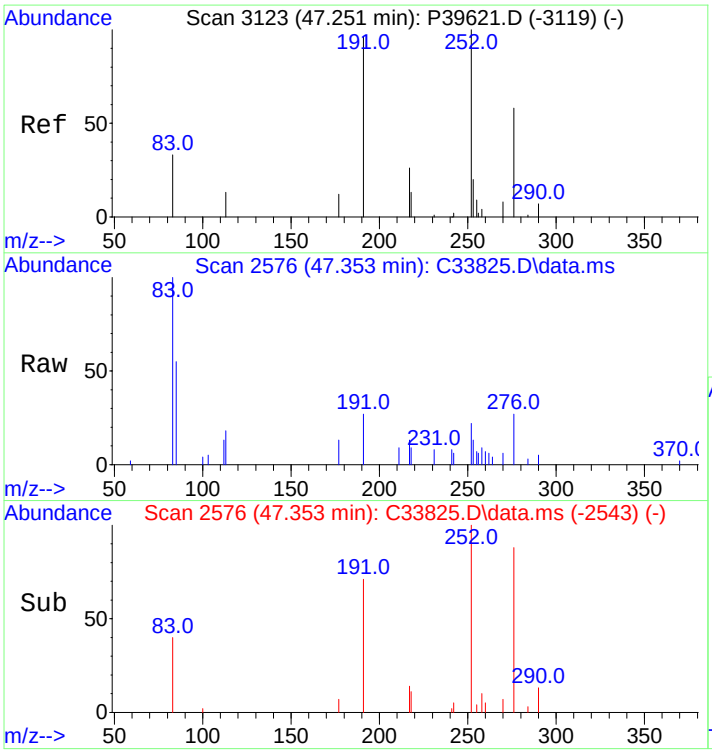




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 96.36 ng/ml m
RT: 46.825 min Scan# 2541
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

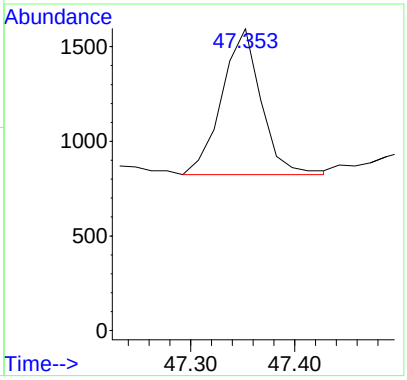
Tgt Ion:191 Resp: 1847

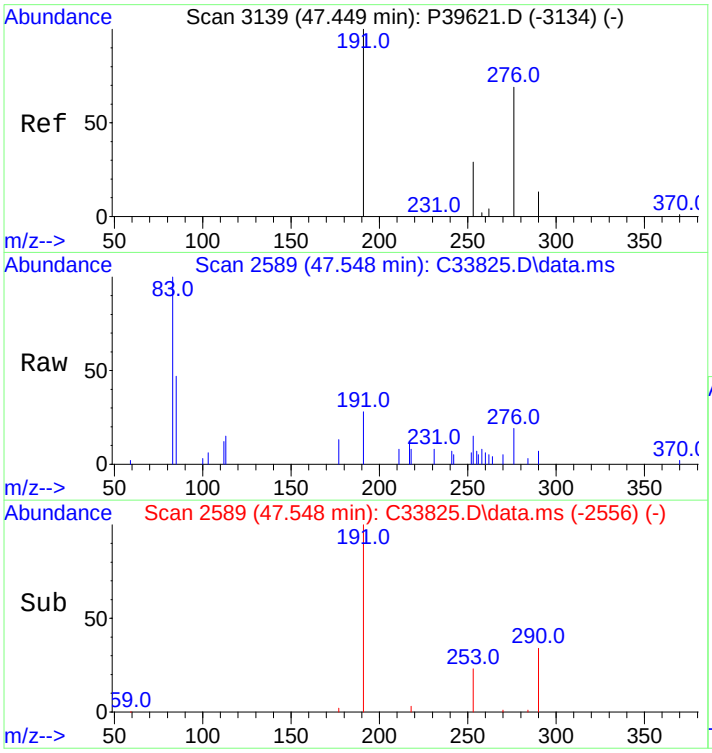




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 106.33 ng/ml
RT: 47.353 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

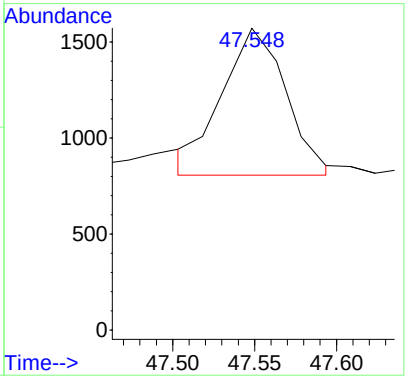
Tgt Ion:191 Resp: 2038

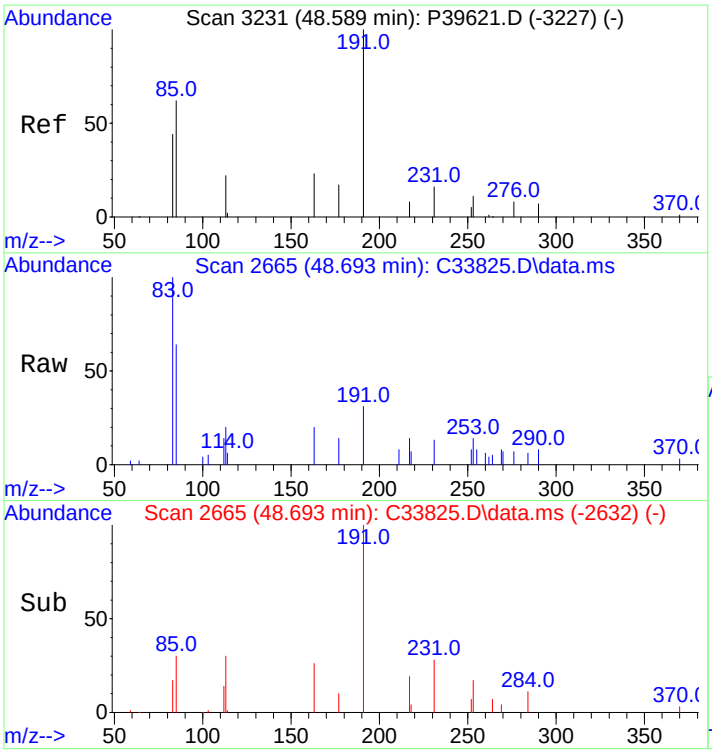




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 108.41 ng/ml m
RT: 47.548 min Scan# 2589
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

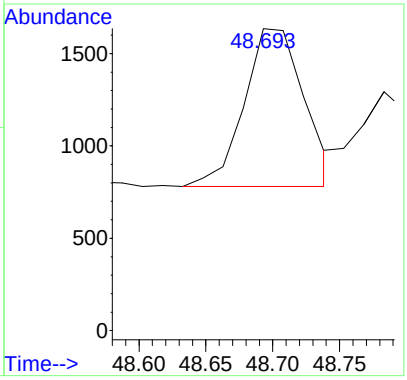
Tgt Ion:191 Resp: 2078

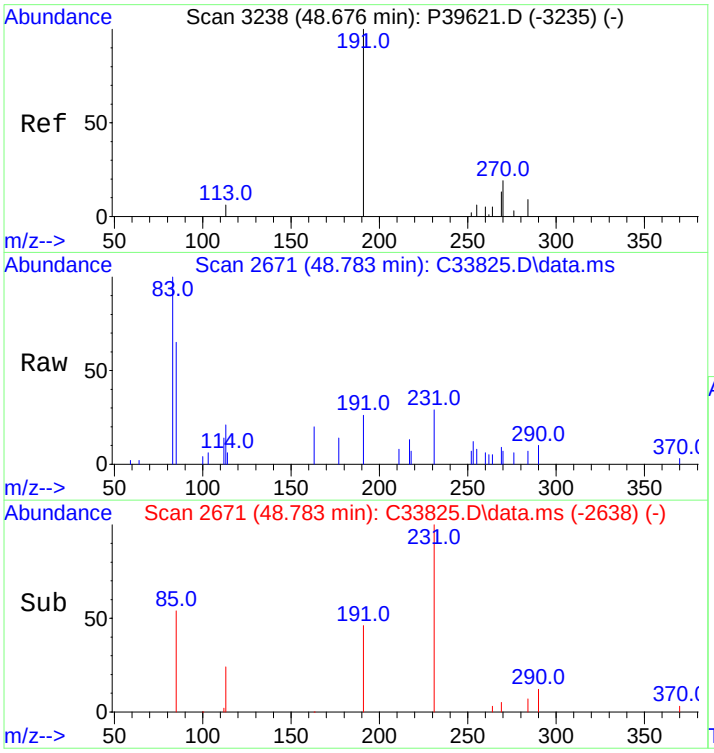




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 139.41 ng/ml
RT: 48.693 min Scan# 2665
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

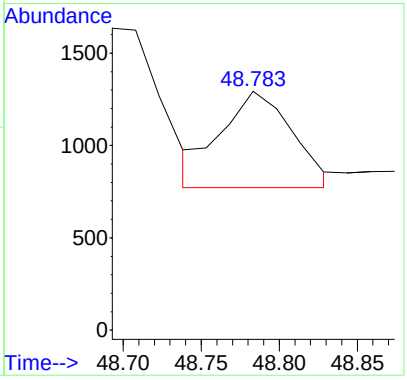
Tgt Ion:191 Resp: 2672

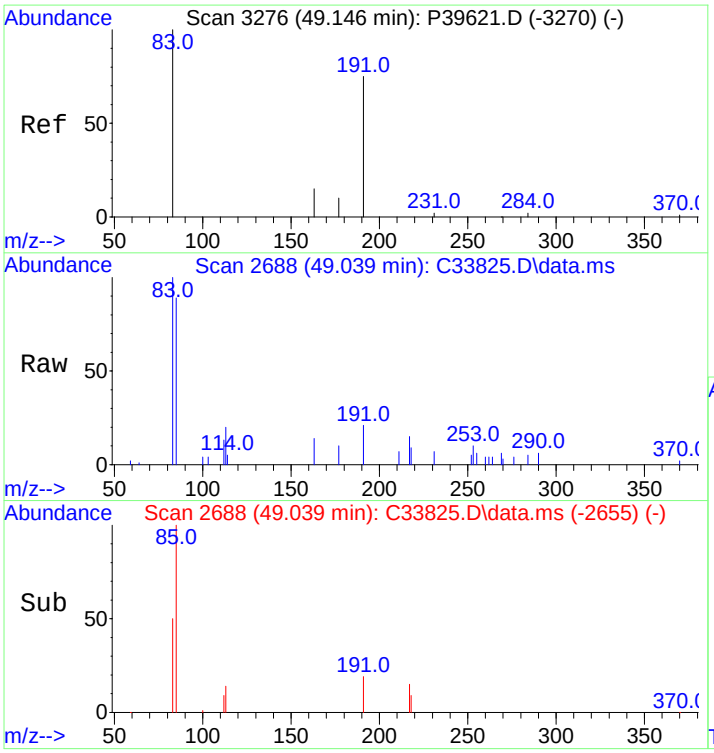




#105
C30 Tricyclic Terpane-22S
Concen: 86.55 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

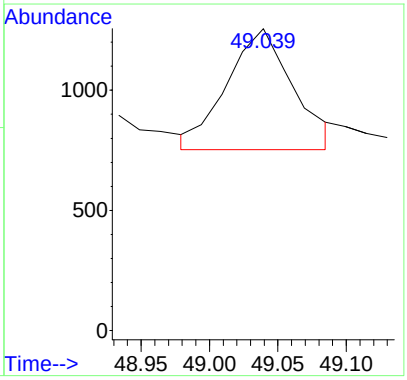
Tgt Ion:191 Resp: 1659

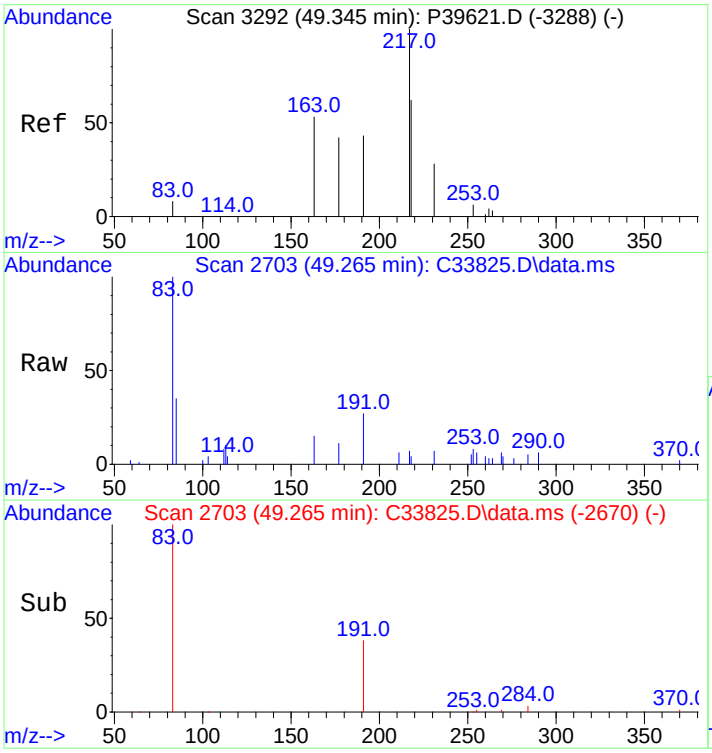




#106
C30 Tricyclic Terpane-22R
Concen: 88.02 ng/mL m
RT: 49.039 min Scan# 2688
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

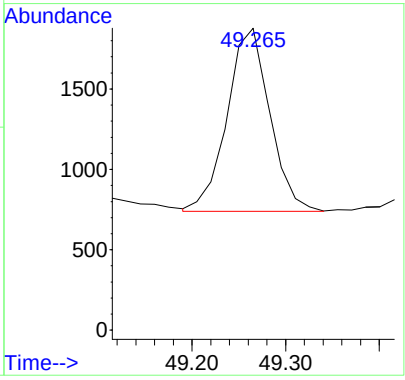
Tgt Ion:191 Resp: 1687

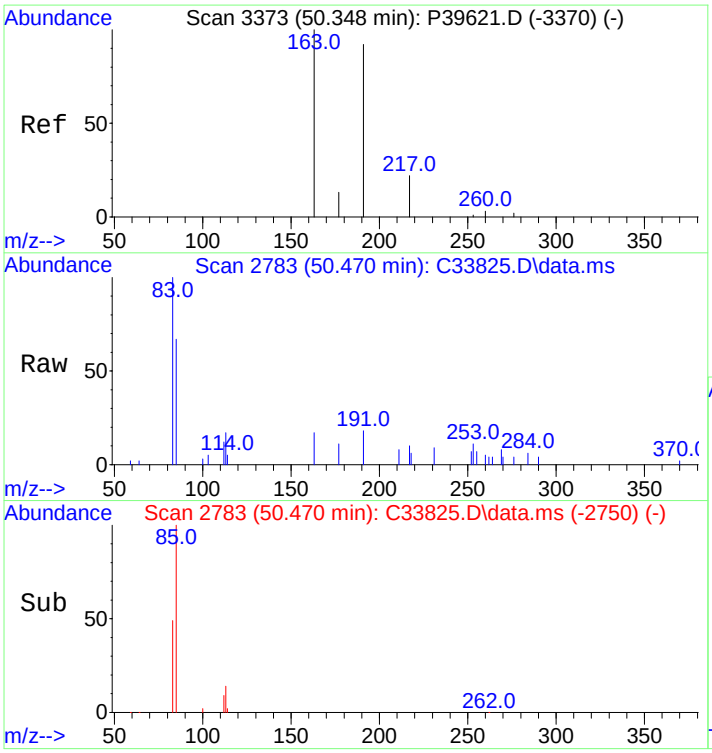




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 188.24 ng/ml m
RT: 49.265 min Scan# 2703
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

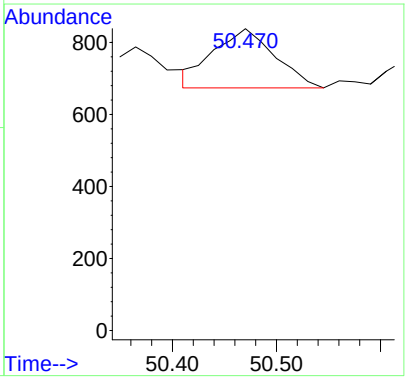
Tgt Ion:191 Resp: 3608

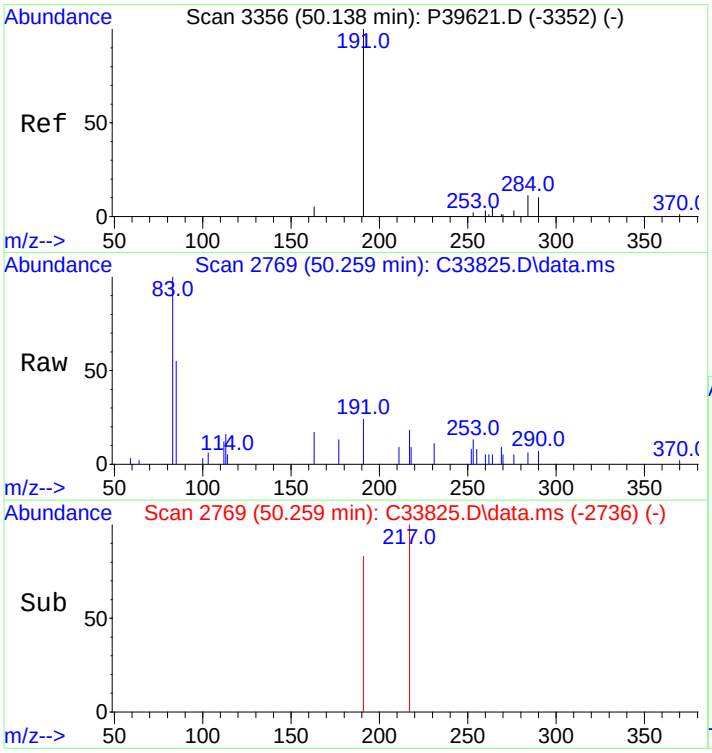




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 35.27 ng/ml
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

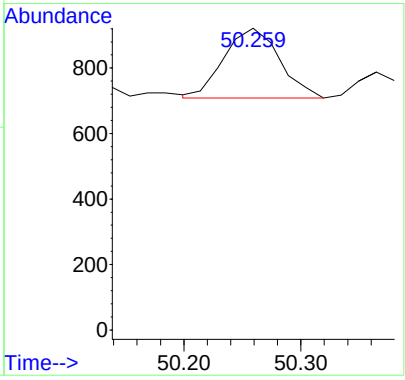
Tgt Ion:191 Resp: 676

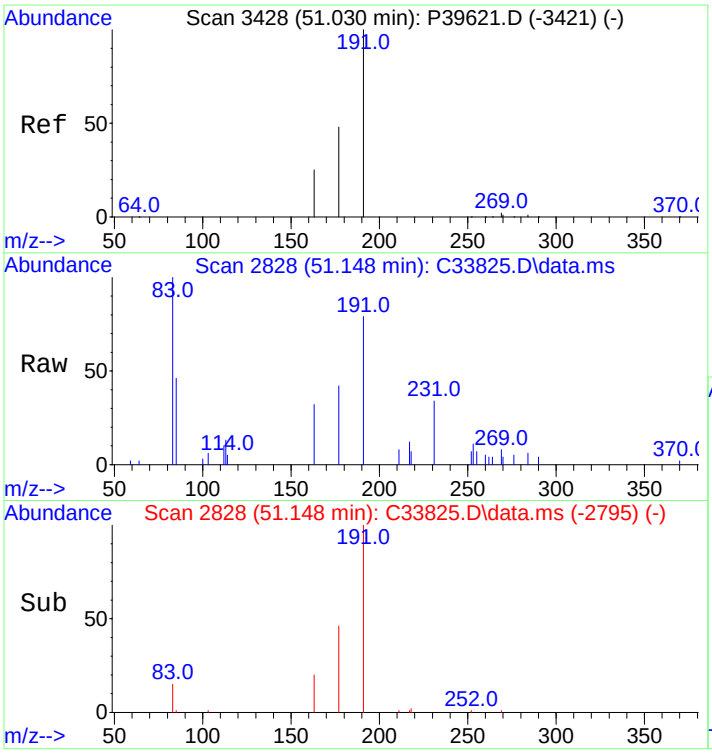




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 36.83 ng/ml
RT: 50.259 min Scan# 2769
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

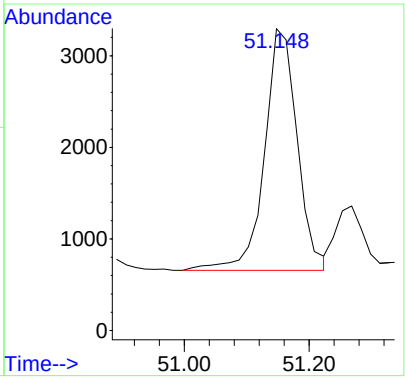
Tgt Ion:191 Resp: 706

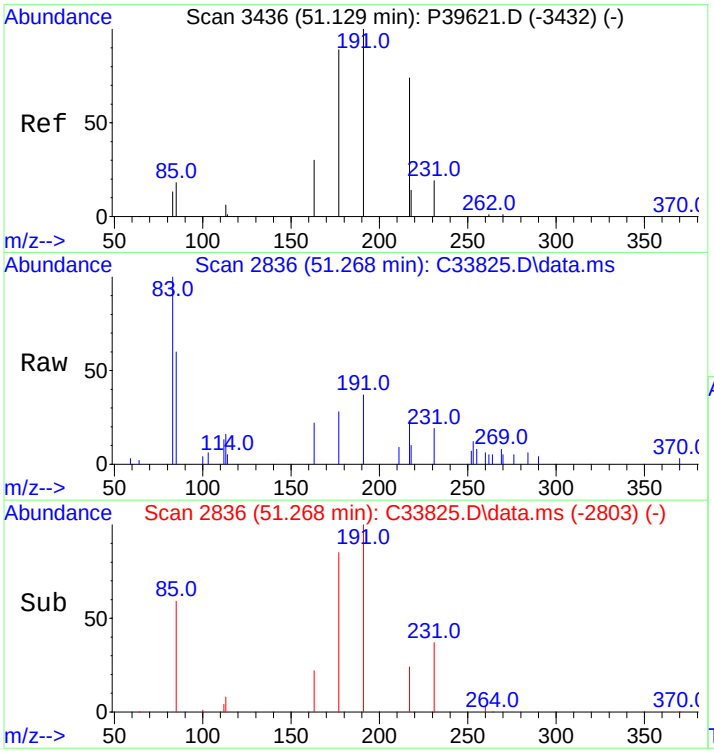




#110
30-Norhopane (T15)
Concen: 501.48 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

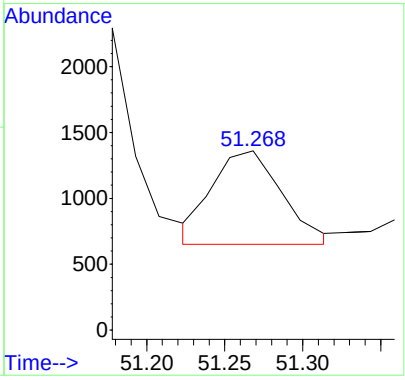
Tgt Ion:191 Resp: 9612

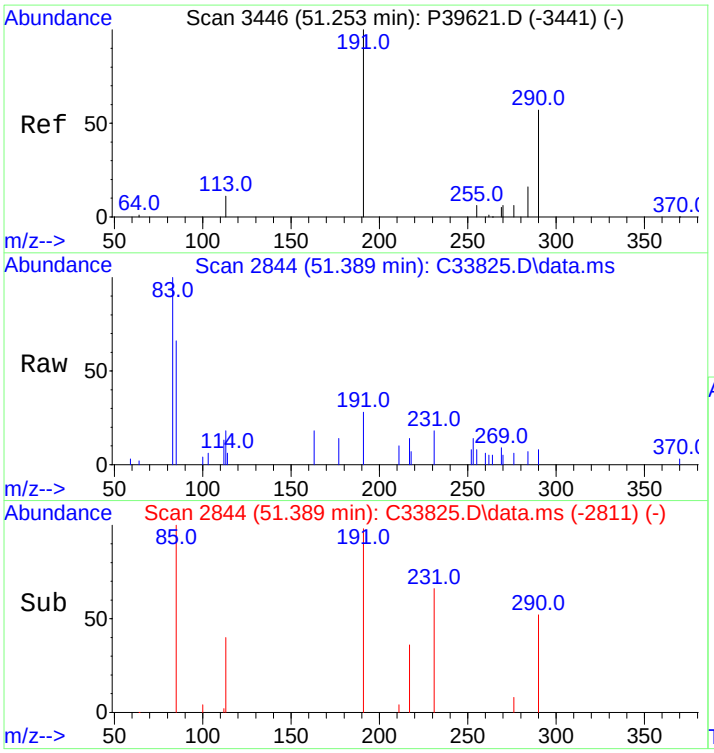




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 115.61 ng/ml m
RT: 51.268 min Scan# 2836
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

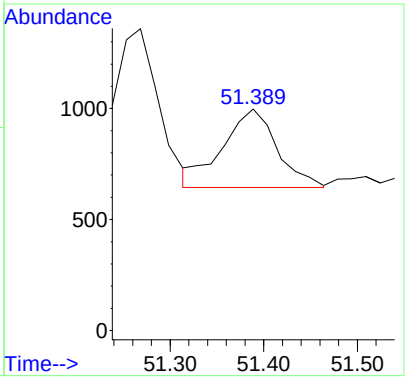
Tgt Ion:191 Resp: 2216

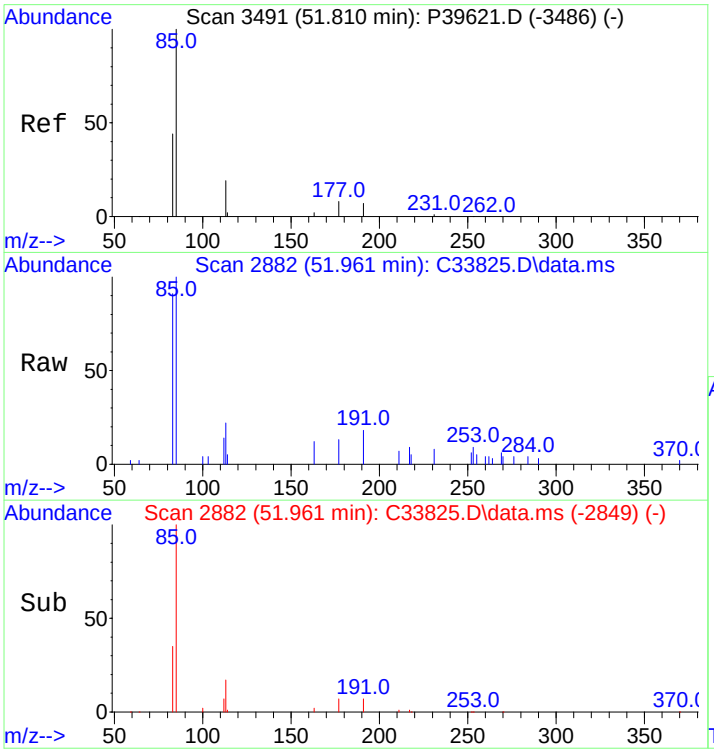




#112
17a(H)-Diahopane (X)
Concen: 74.09 ng/ml m
RT: 51.389 min Scan# 2844
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

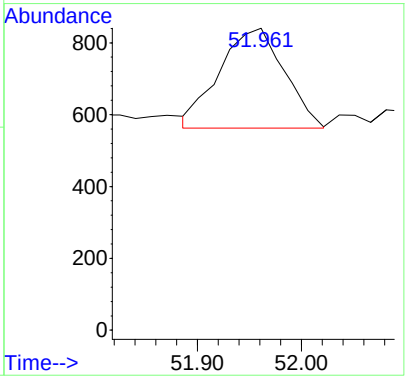
Tgt Ion:191 Resp: 1420

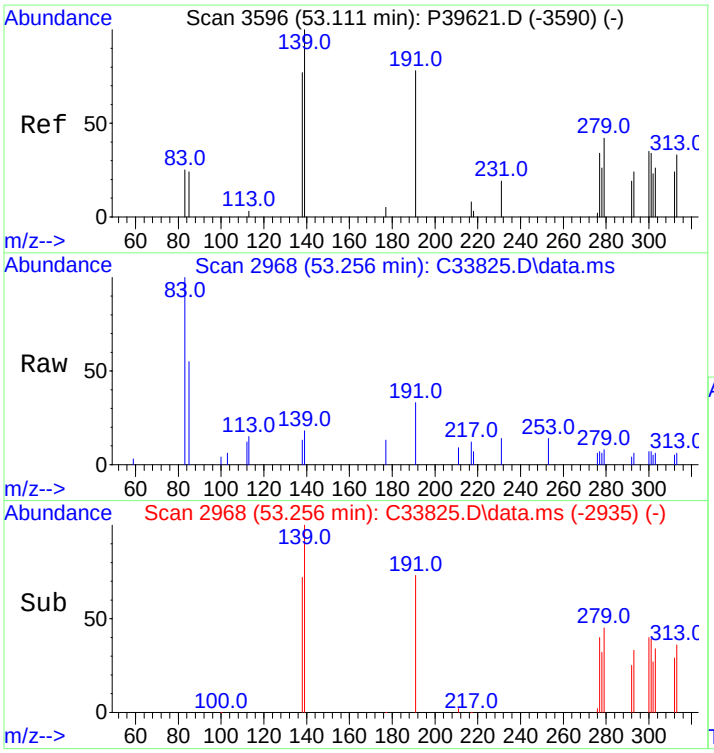




#113
30-Normoretane (T17)
Concen: 62.76 ng/ml m
RT: 51.961 min Scan# 2882
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

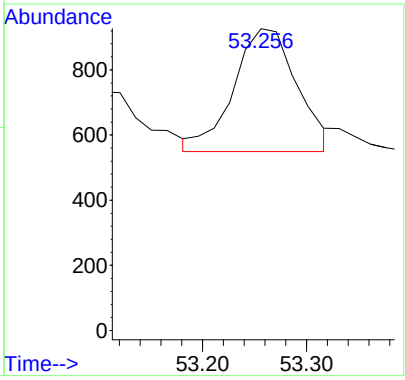
Tgt Ion:191 Resp: 1203

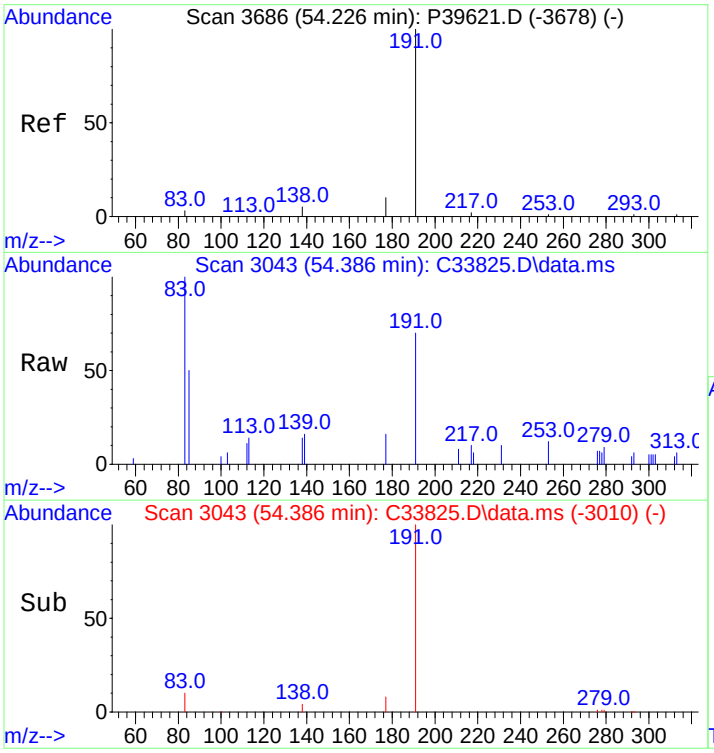




#115
Moretane (T20)
Concen: 83.79 ng/ml m
RT: 53.256 min Scan# 2968
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

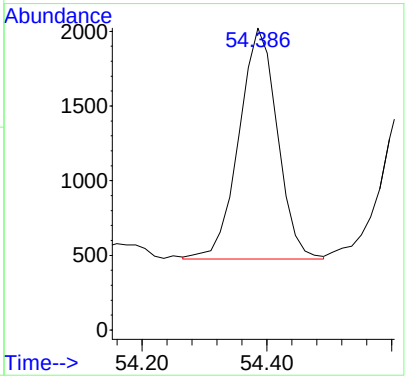
Tgt Ion:191 Resp: 1606

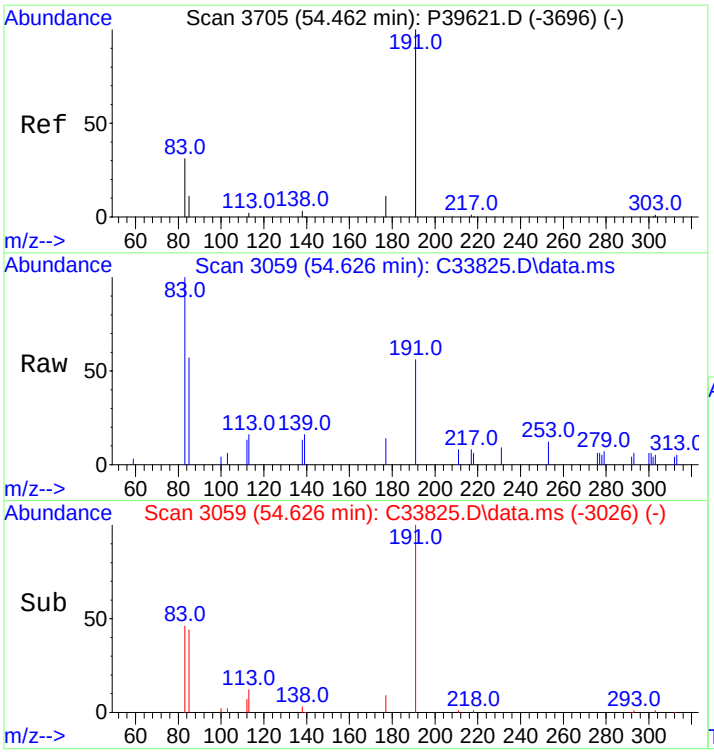




#116
30-Homohopane-22S (T21)
Concen: 346.27 ng/ml m
RT: 54.386 min Scan# 3043
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

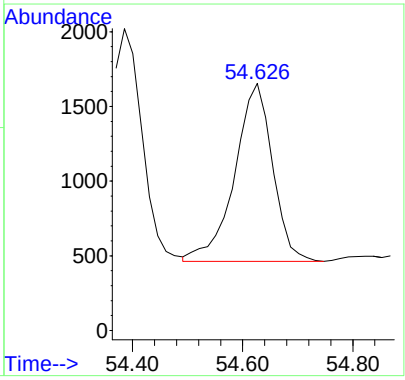
Tgt Ion:191 Resp: 6637

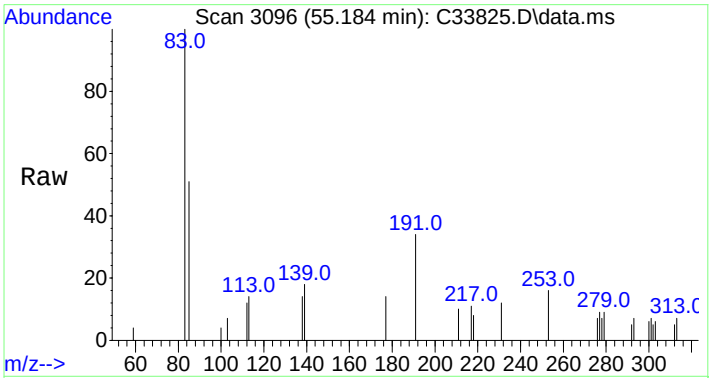




#117
30-Homohopane-22R (T22)
Concen: 296.34 ng/ml
RT: 54.626 min Scan# 3059
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

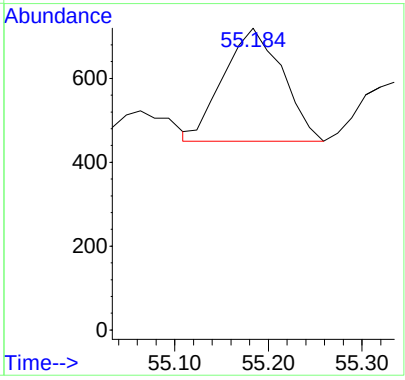
Tgt Ion:191 Resp: 5680

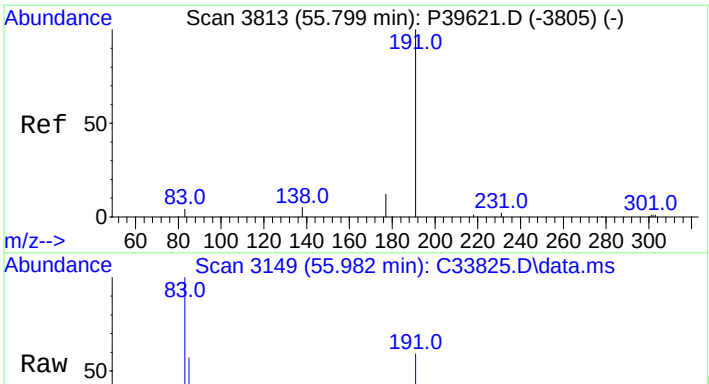




#118
Gammacerane/C32-diahopane
Concen: 61.62 ng/mL
RT: 55.184 min Scan# 3096
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

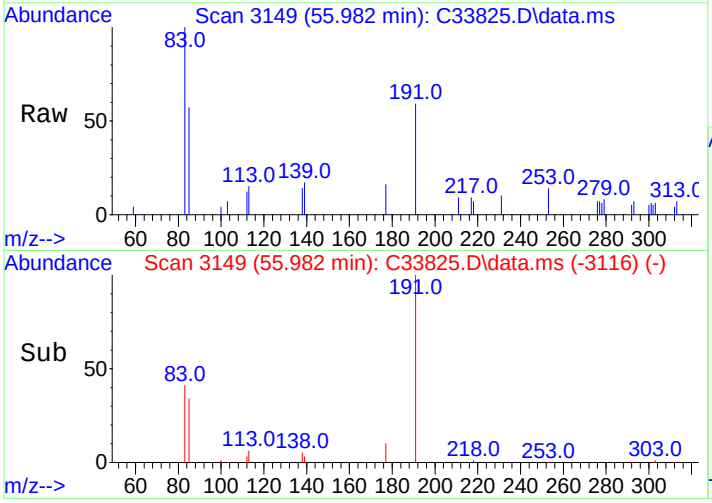
Tgt Ion:191 Resp: 1181

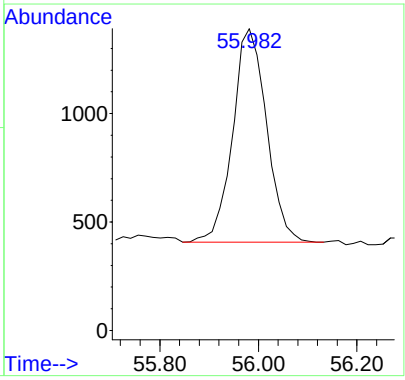


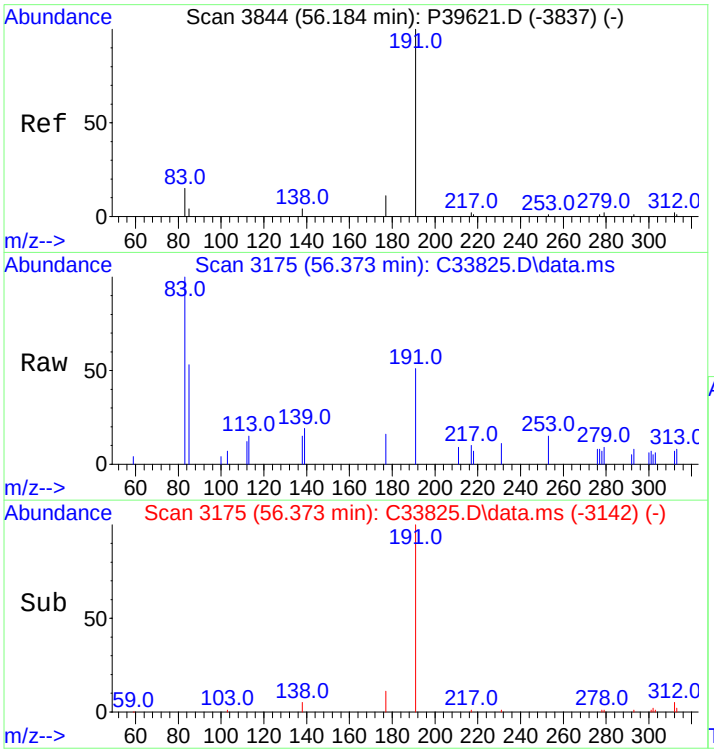


#119
30,31-Bishomohopane-22S (T26)
Concen: 244.90 ng/ml
RT: 55.982 min Scan# 3149
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 4694

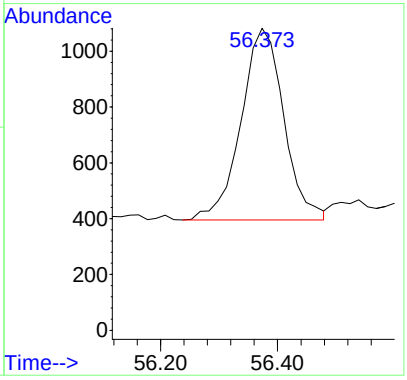


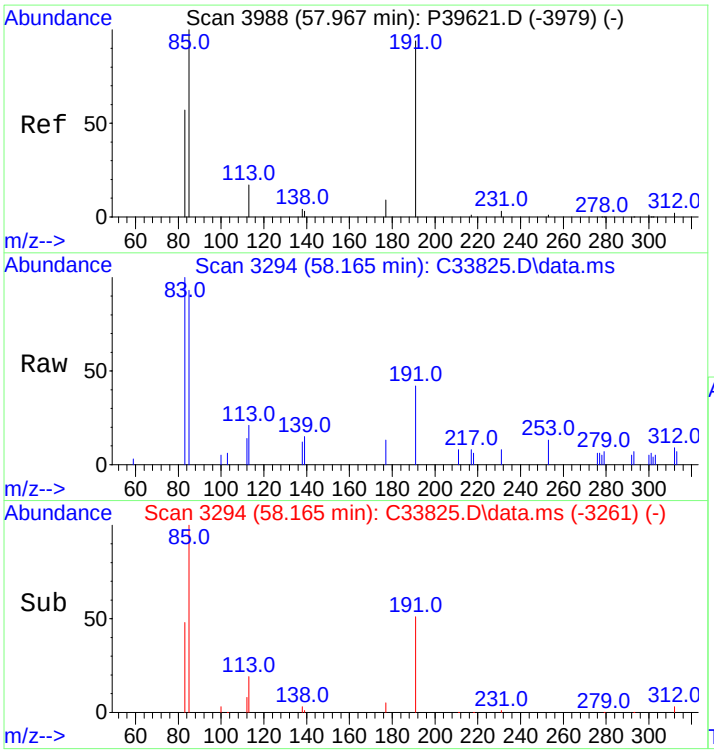




#120
30,31-Bishomohopane-22R (T27)
Concen: 182.14 ng/ml
RT: 56.373 min Scan# 3175
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

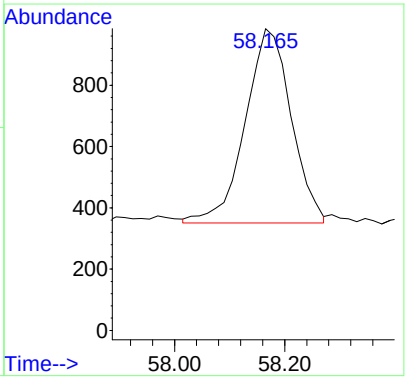
Tgt Ion:191 Resp: 3491

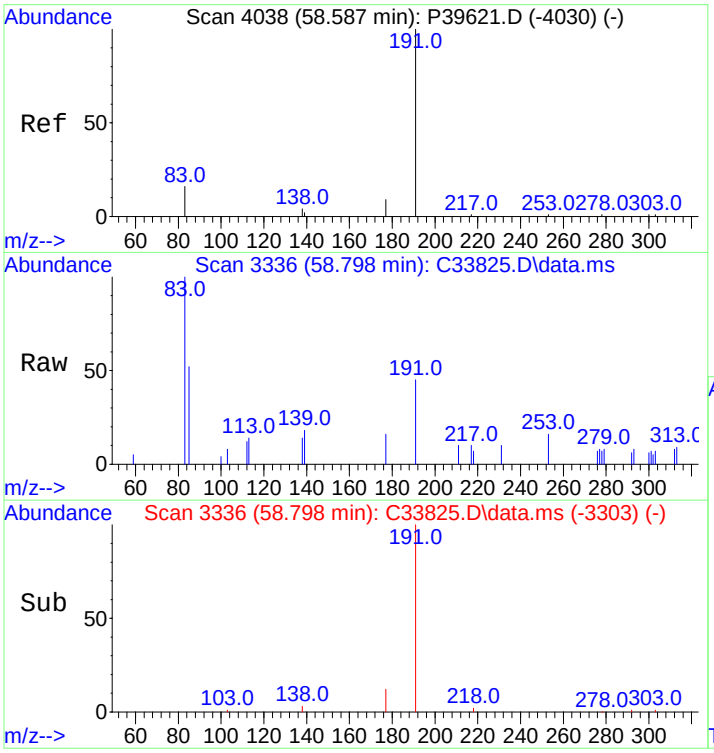




#121
30,31-Trishomohopane-22S (T30)
Concen: 191.21 ng/ml m
RT: 58.165 min Scan# 3294
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

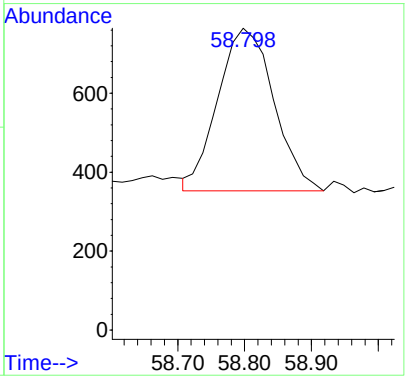
Tgt Ion:191 Resp: 3665

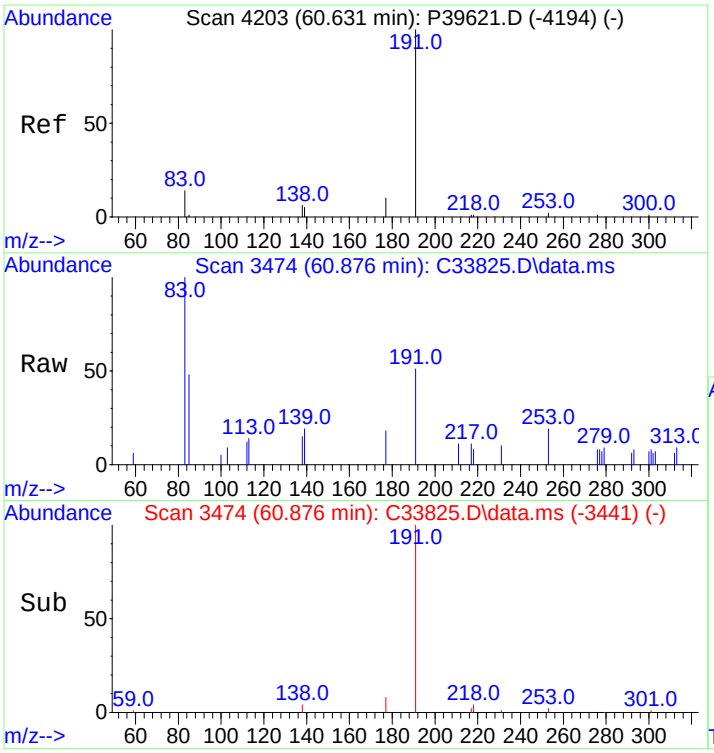




#122
30,31-Trishomohopane-22R (T31)
Concen: 124.85 ng/ml
RT: 58.798 min Scan# 3336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

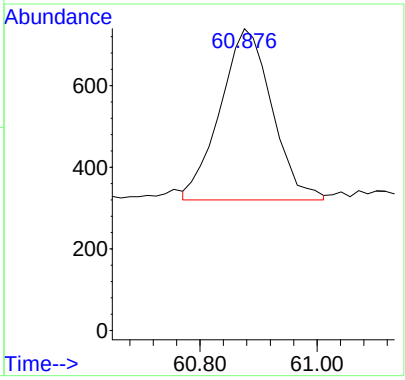
Tgt Ion:191 Resp: 2393

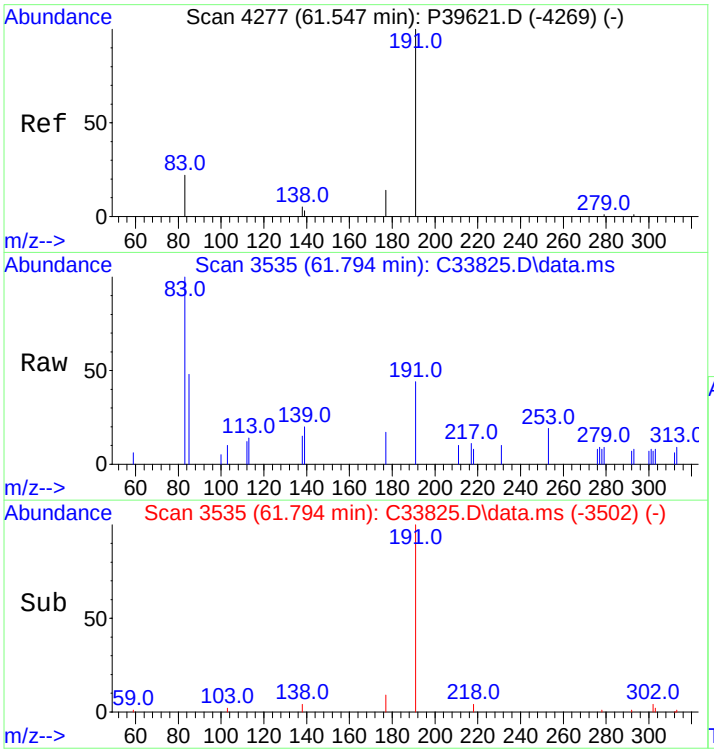




#123
Tetrakishomohopane-22S (T32)
Concen: 134.08 ng/ml m
RT: 60.876 min Scan# 3474
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

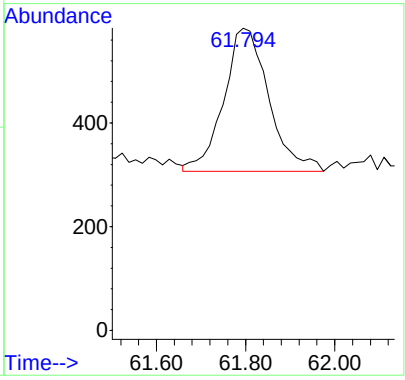
Tgt Ion:191 Resp: 2570

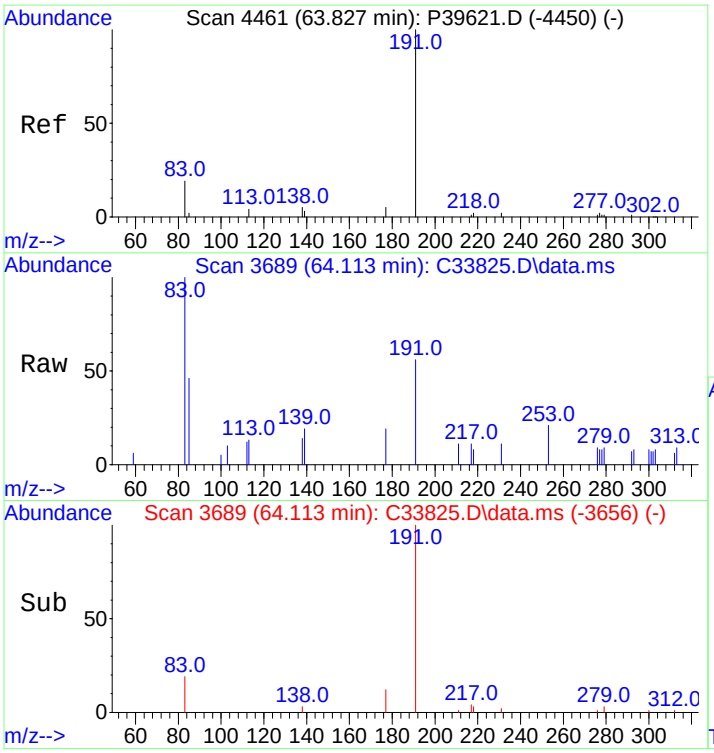




#124
Tetrakishomohopane-22R (T33)
Concen: 101.06 ng/ml
RT: 61.794 min Scan# 3535
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

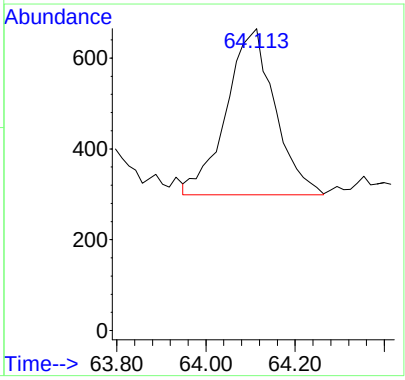
Tgt Ion:191 Resp: 1937

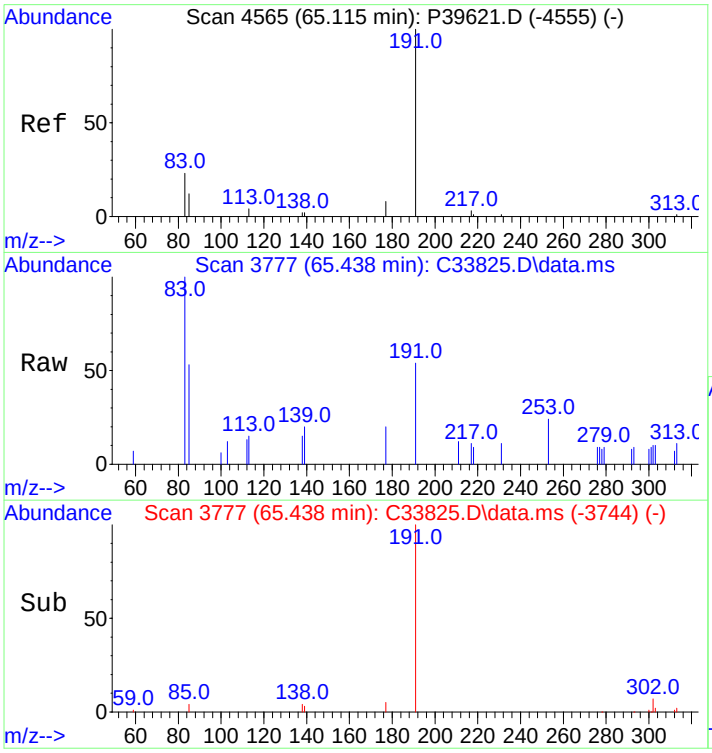




#125
Pentakishomohopane-22S (T34)
Concen: 144.31 ng/ml m
RT: 64.113 min Scan# 3689
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

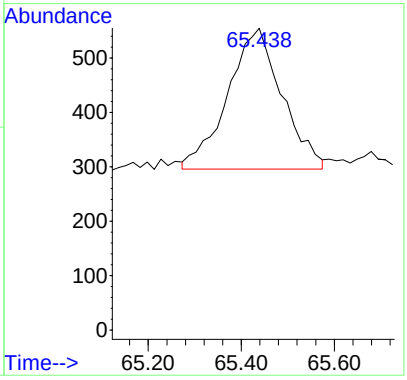
Tgt Ion:191 Resp: 2766

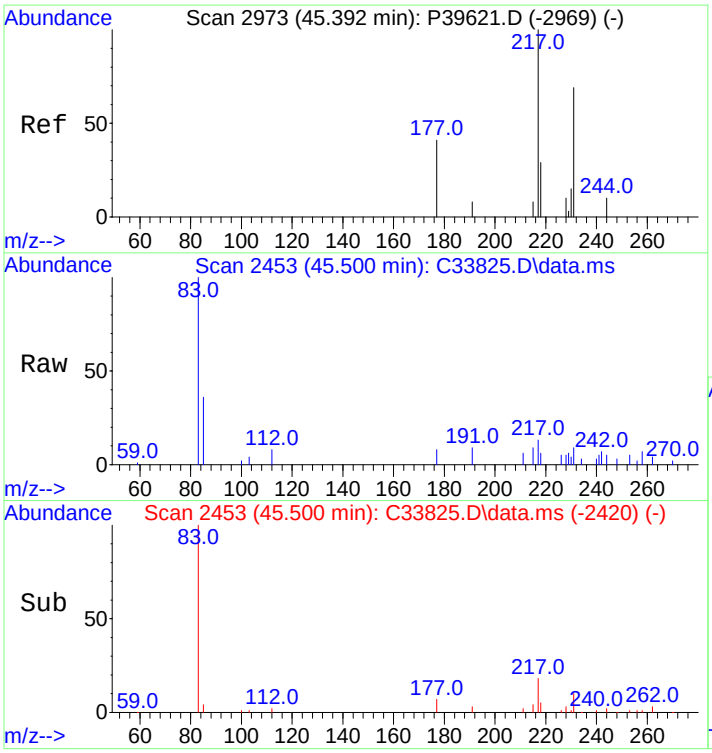




#126
Pentakishomohopane-22R (T35)
Concen: 109.25 ng/ml m
RT: 65.438 min Scan# 3777
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

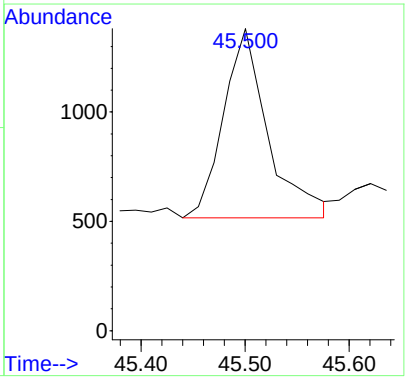
Tgt Ion:191 Resp: 2094

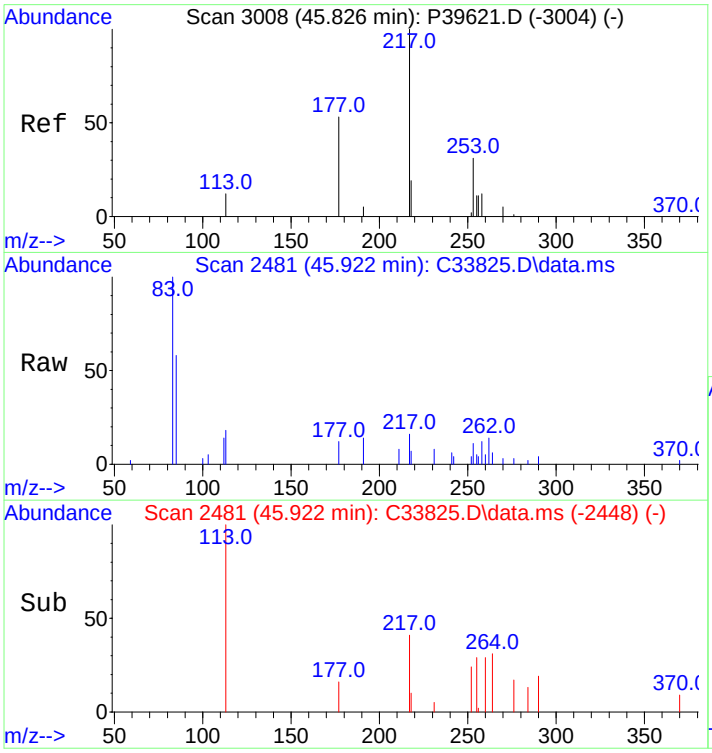




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 283.31 ng/ml
RT: 45.500 min Scan# 2453
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

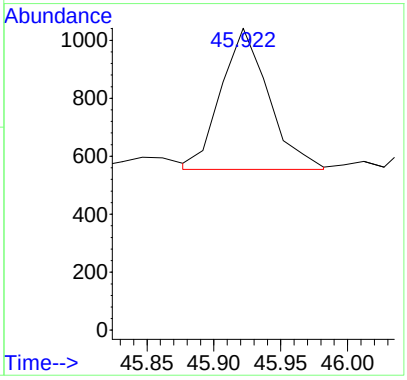
Tgt Ion:217 Resp: 2576

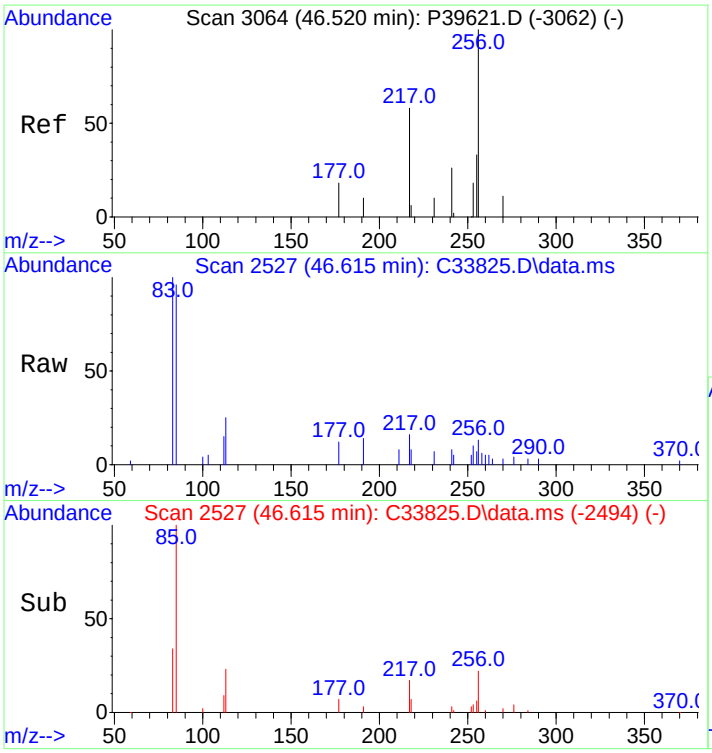




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 131.54 ng/ml m
RT: 45.922 min Scan# 2481
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

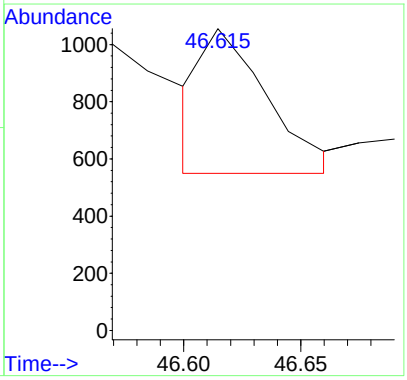
Tgt Ion:217 Resp: 1196

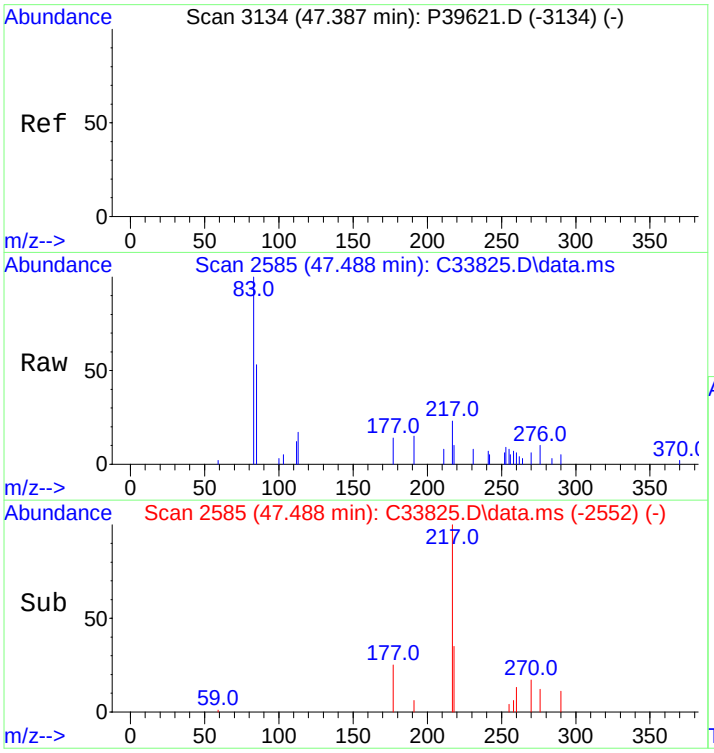




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 107.78 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

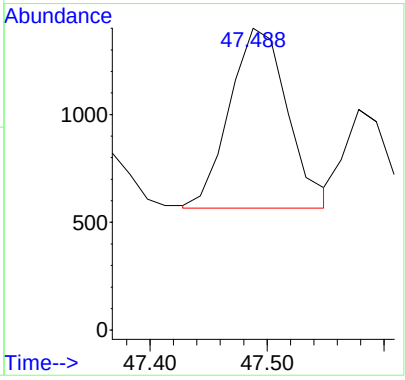
Tgt Ion:217 Resp: 980

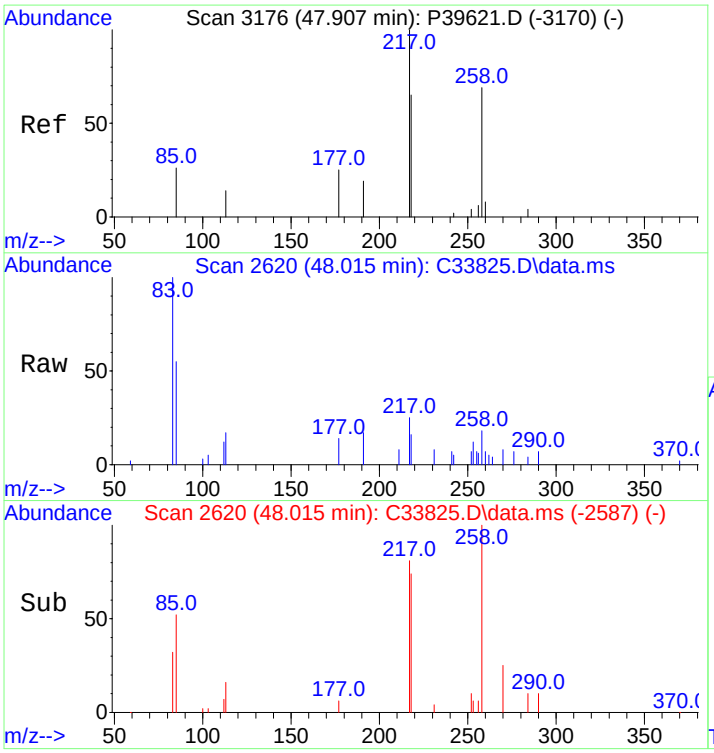




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 317.51 ng/ml m
RT: 47.488 min Scan# 2585
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

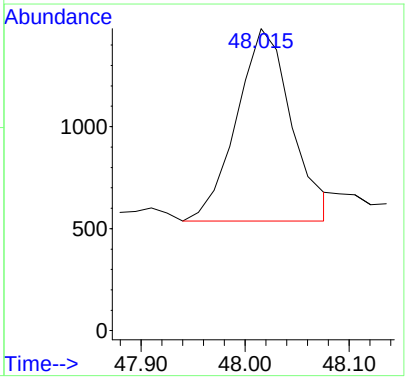
Tgt Ion:217 Resp: 2887

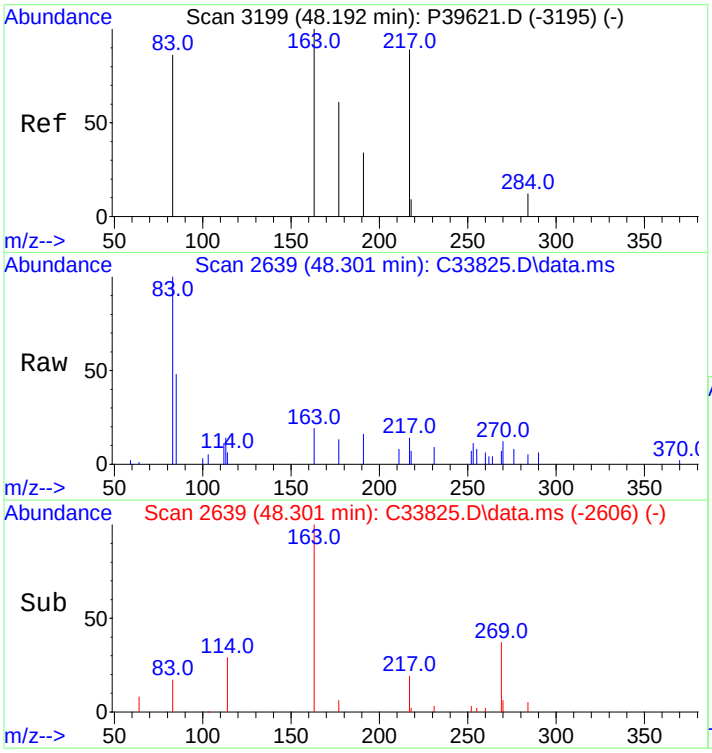




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 381.96 ng/ml m
RT: 48.015 min Scan# 2620
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

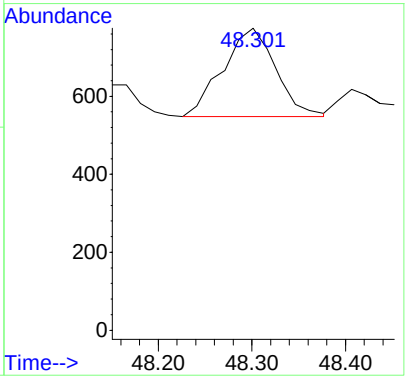
Tgt Ion:217 Resp: 3473

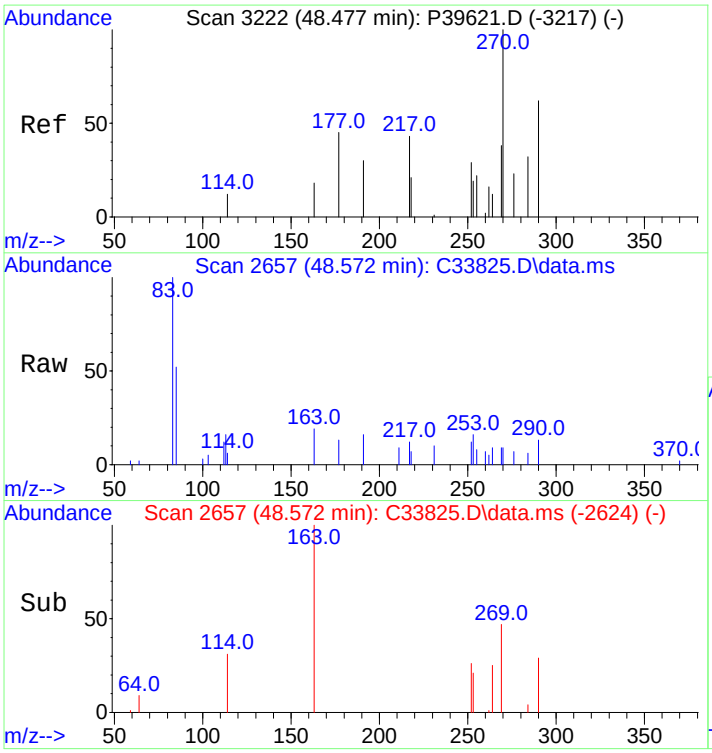




#133
Unknown Sterane (S18)
Concen: 98.10 ng/ml
RT: 48.301 min Scan# 2639
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

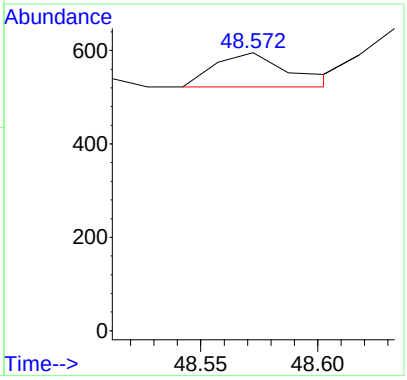
Tgt Ion:217 Resp: 892

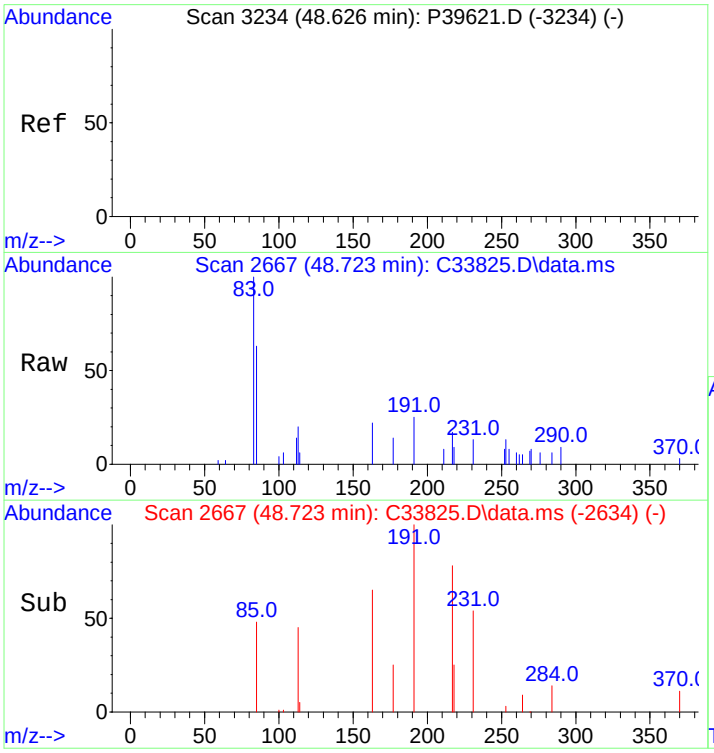




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.15 ng/ml
RT: 48.572 min Scan# 2657
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

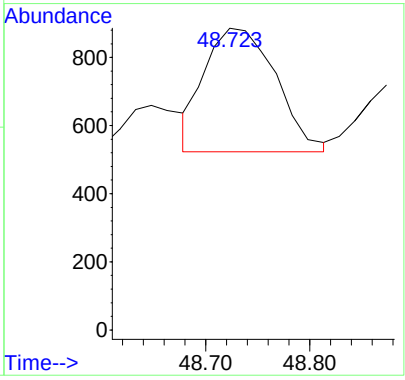
Tgt Ion:217 Resp: 165

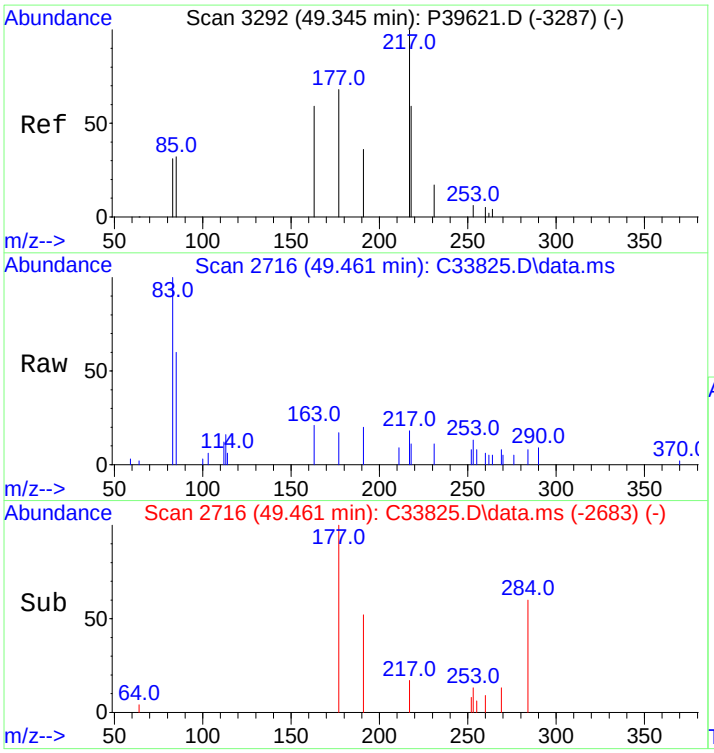




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 189.94 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

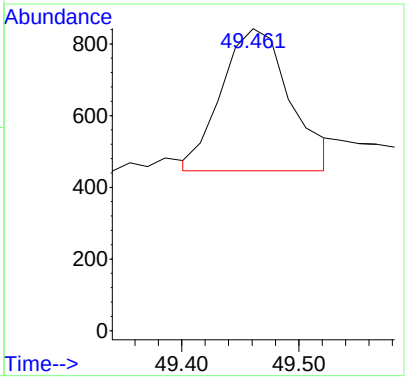
Tgt Ion:217 Resp: 1727

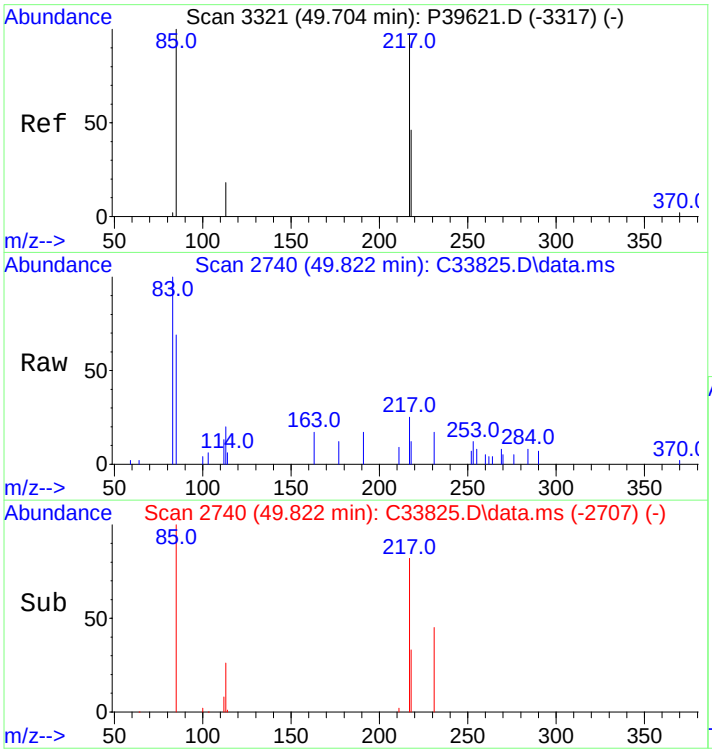




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 178.28 ng/ml m
RT: 49.461 min Scan# 2716
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

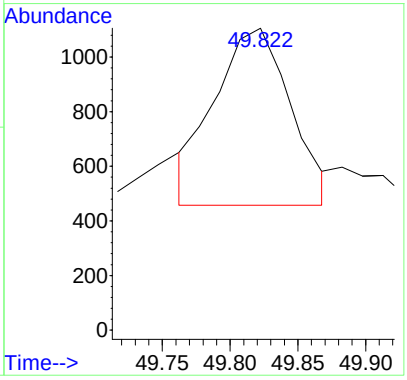
Tgt Ion:217 Resp: 1621

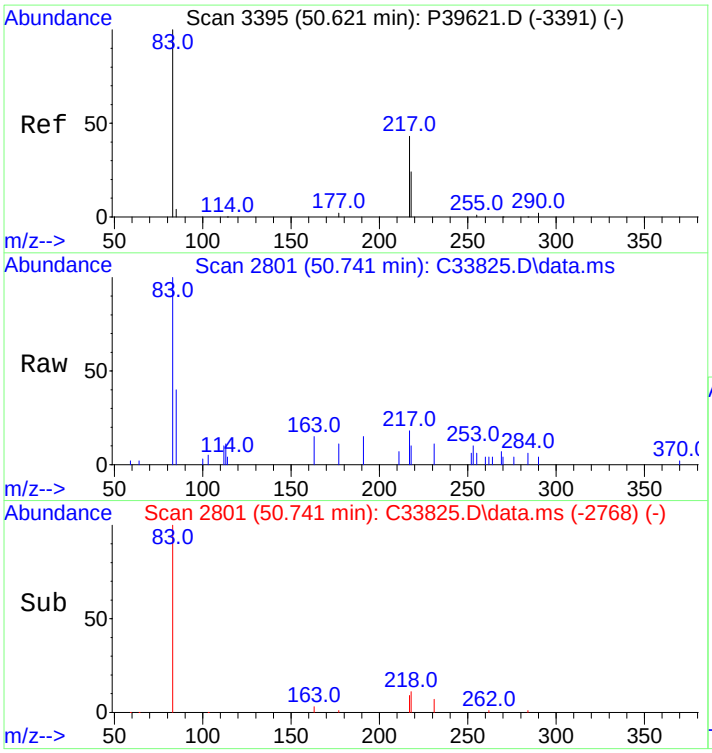




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 278.91 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

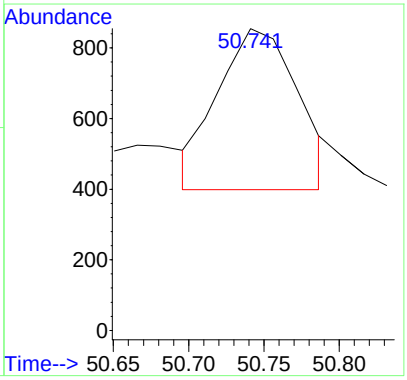
Tgt Ion:217 Resp: 2536

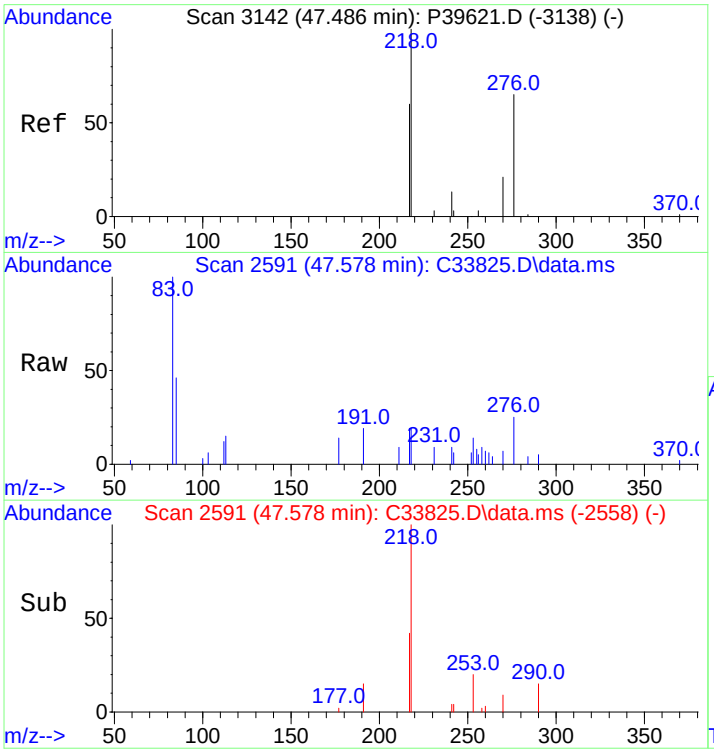




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 185.32 ng/ml m
RT: 50.741 min Scan# 2801
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

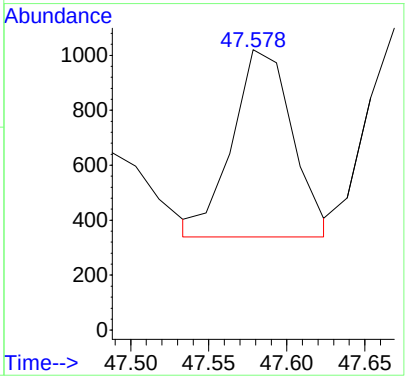
Tgt Ion:217 Resp: 1685

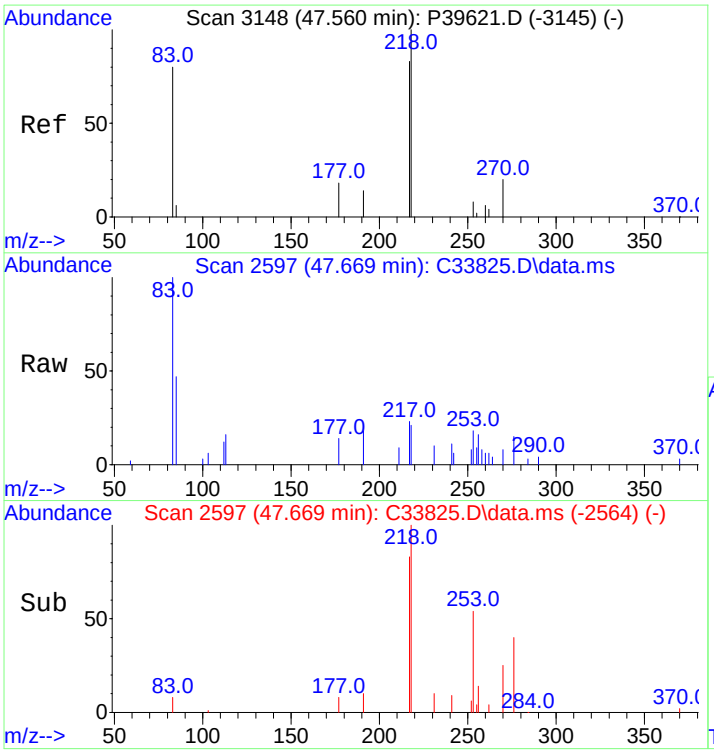




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 201.70 ng/ml m
RT: 47.578 min Scan# 2591
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

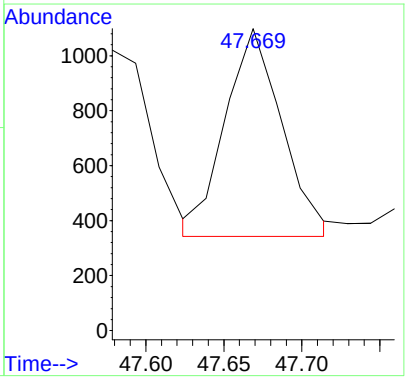
Tgt Ion:218 Resp: 1834

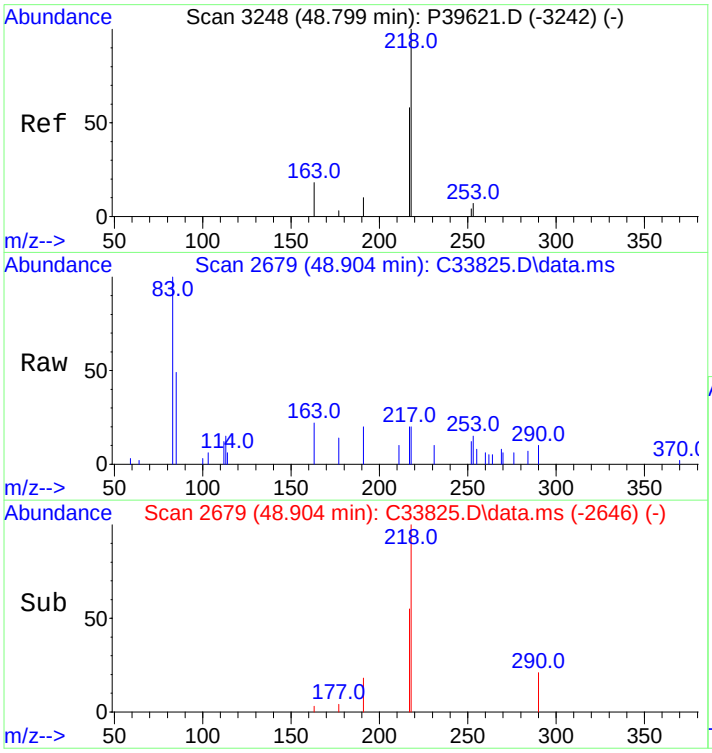




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 209.84 ng/ml m
RT: 47.669 min Scan# 2597
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

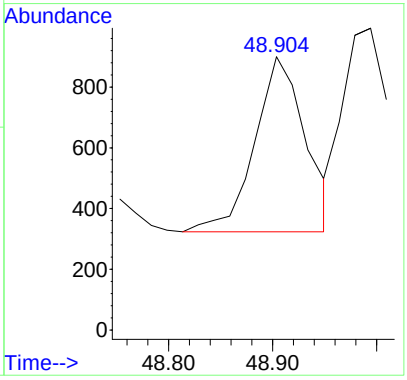
Tgt Ion:218 Resp: 1908

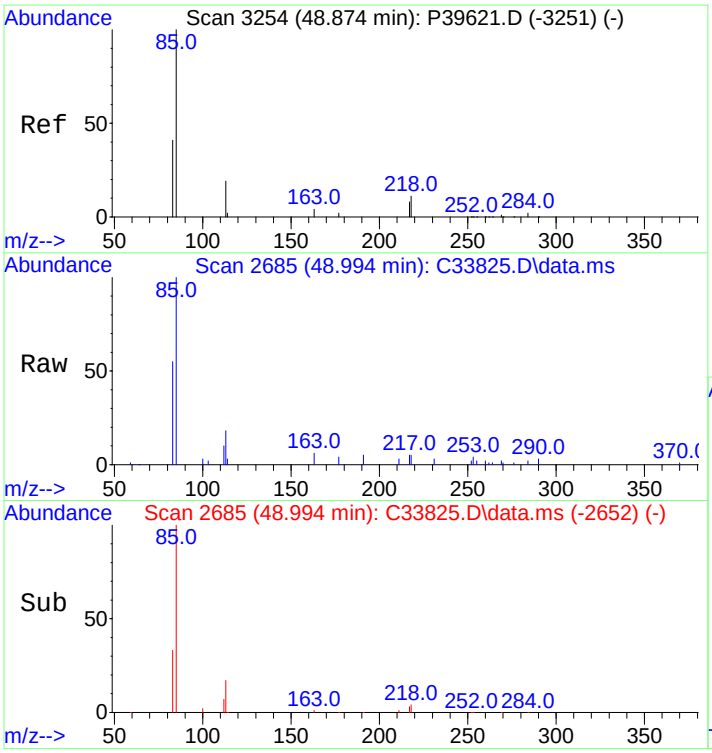




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 215.23 ng/ml
RT: 48.904 min Scan# 2679
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

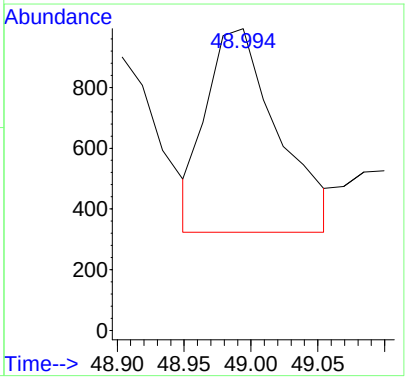
Tgt Ion:218 Resp: 1957

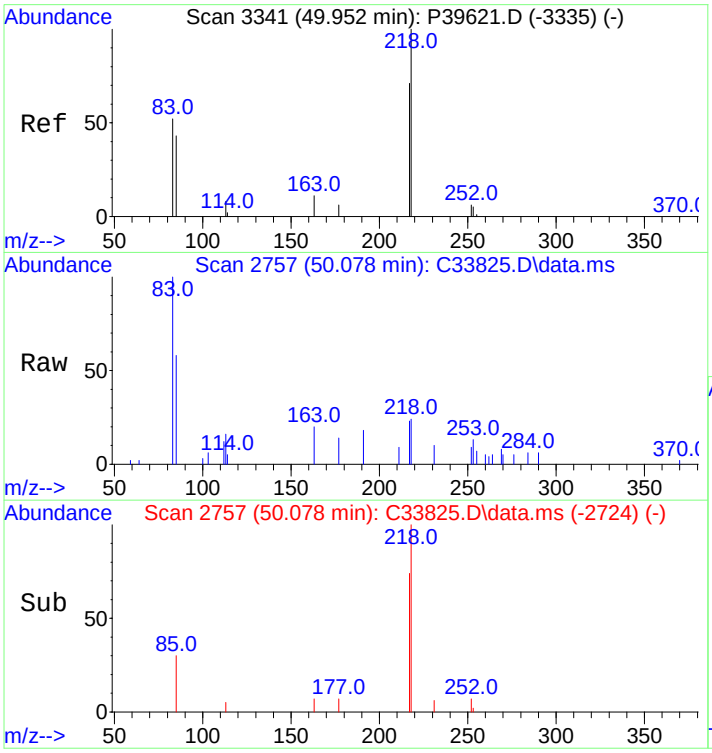




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 274.40 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

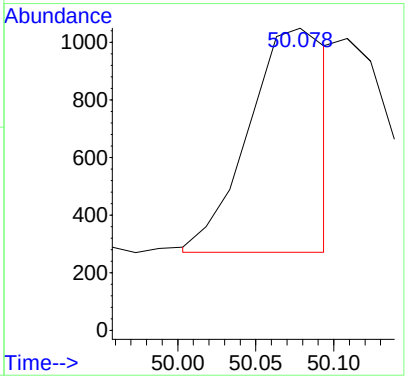
Tgt Ion:218 Resp: 2495

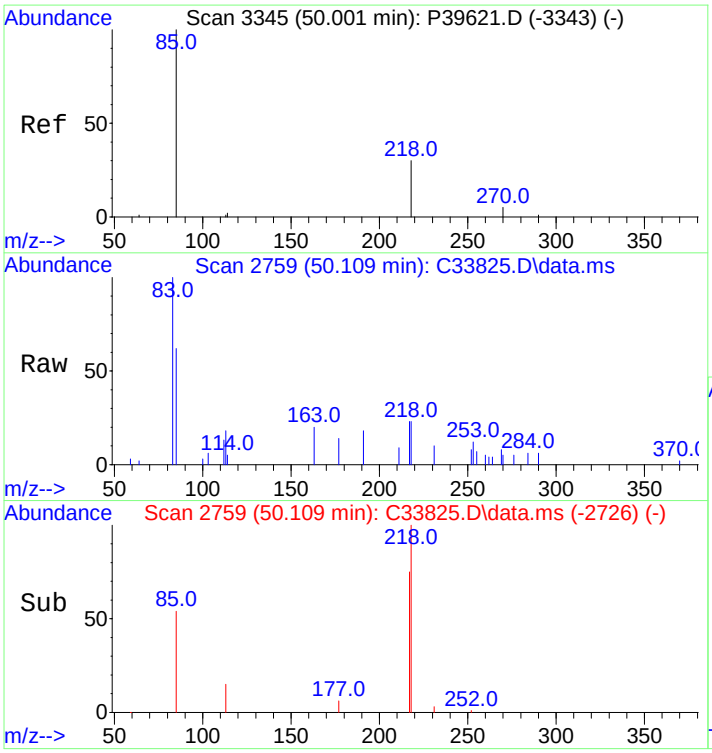




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 301.24 ng/ml m
RT: 50.078 min Scan# 2757
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

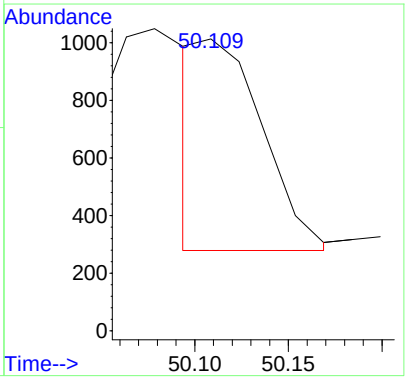
Tgt Ion:218 Resp: 2739

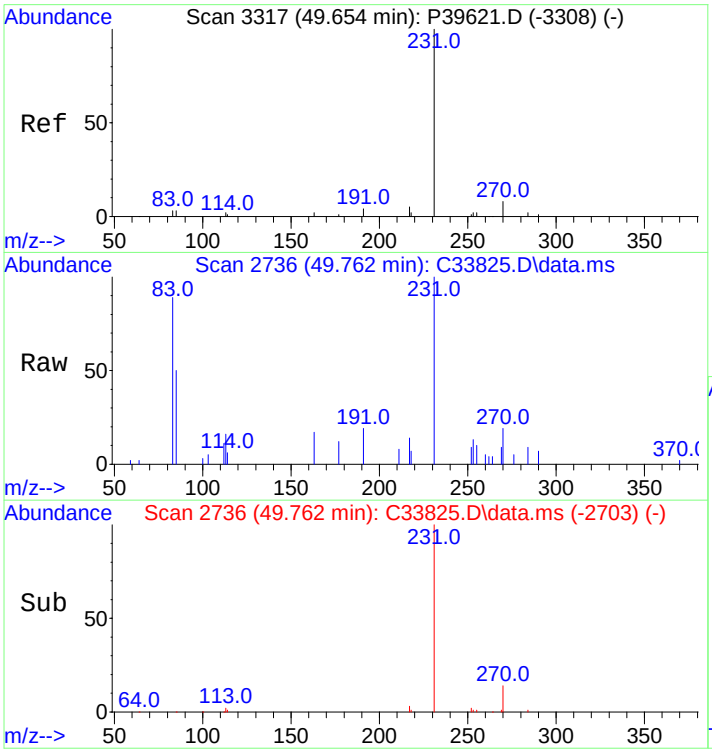




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 191.04 ng/ml m
RT: 50.109 min Scan# 2759
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

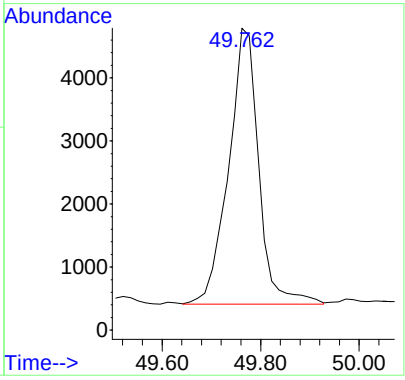
Tgt Ion:218 Resp: 1737

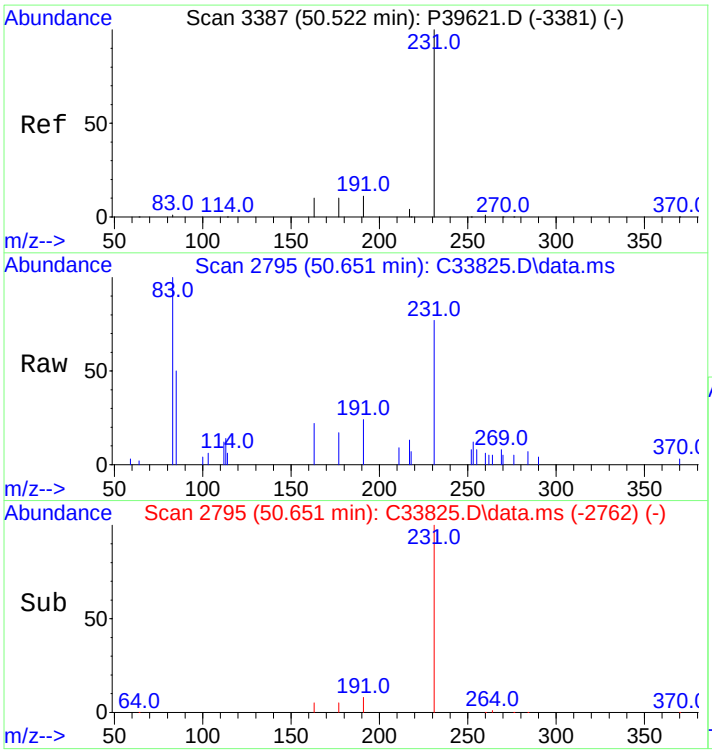




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2040.03 ng/mL m
RT: 49.762 min Scan# 2736
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

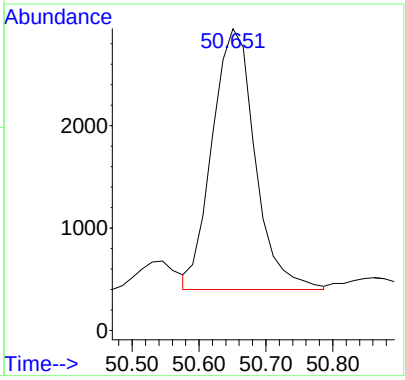
Tgt Ion:231 Resp: 18549

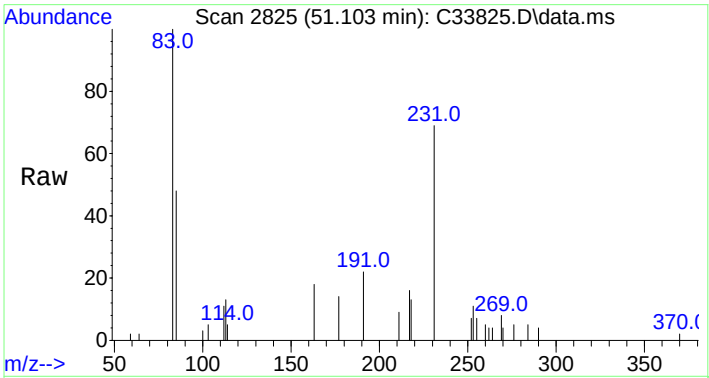




#146
C28,20S-triaromatic steroid
Concen: 1249.38 ng/mL m
RT: 50.651 min Scan# 2795
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

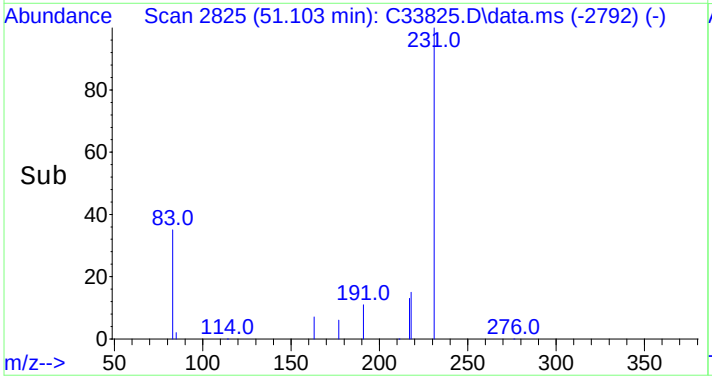
Tgt Ion:231 Resp: 11360

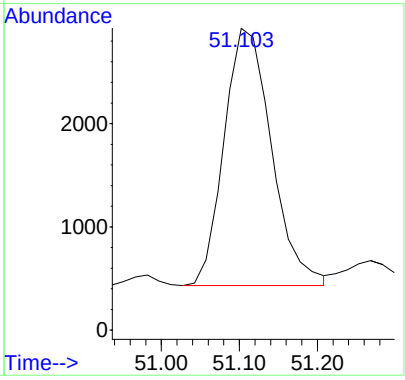


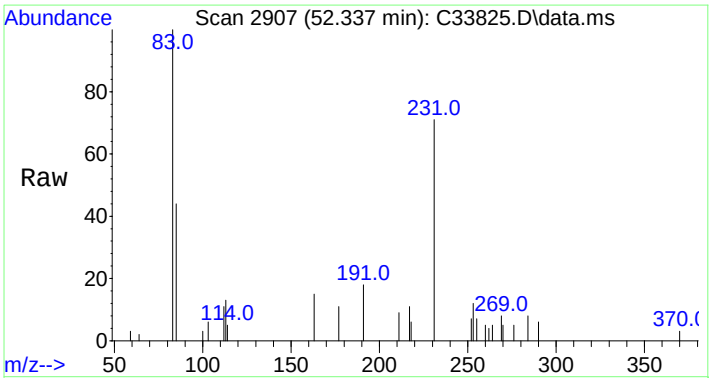


#147
C27,20R-triaromatic steroid
Concen: 1160.19 ng/mL
RT: 51.103 min Scan# 2825
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 10549

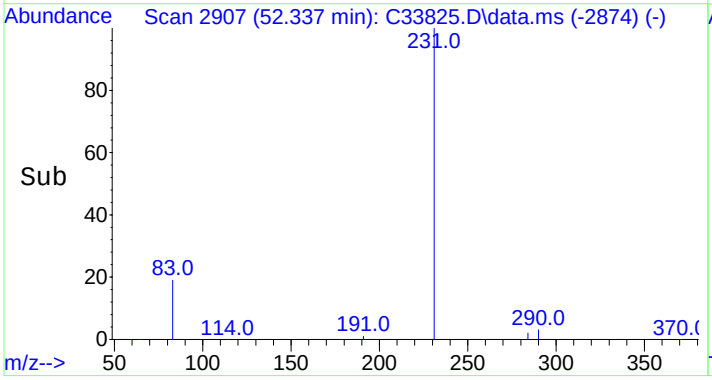


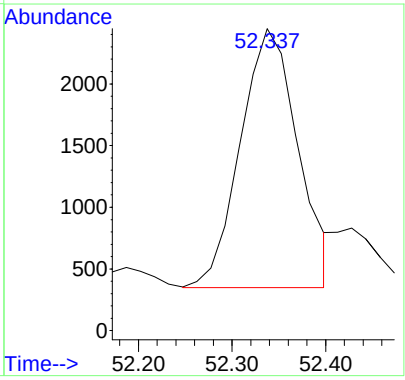




#148
C28,20R-triaromatic steroid
Concen: 988.29 ng/mL m
RT: 52.337 min Scan# 2907
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 8986





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15052M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	35074	536.878	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.793	188	26097M4	505.389	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%			
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	3130	263.420	ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319	ng/mL	100
10) Naphthalene	20.042	128	52309	545.264	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838	ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994	ng/mL	
23) Biphenyl	24.618	154	38768	540.294	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656	ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769	ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489	ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	19817M4	527.499	ng/mL	
29) Fluorene	29.075	166	32696M4	528.715	ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598	ng/mL	
43) Phenanthrene	32.883	178	46516	534.091	ng/mL	100
54) Retene	39.854	234	8385	493.546	ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942	ng/mL	
56) Carbazole	33.726	167	45283M4	526.968	ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804	ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176	ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672	ng/mL	
60) Pyrene	38.529	202	46681M4	530.900	ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975	ng/ml	97
67) Naphthobenzothiophene-2,1	42.368	234	49317	520.975	ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145	ng/mL	
76) Chrysene	43.452	228	40148M4	549.904	ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398	ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841	ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397	ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093	ng/mL	
88) Perylene	48.858	252	42809	529.339	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620	ng/mL	99

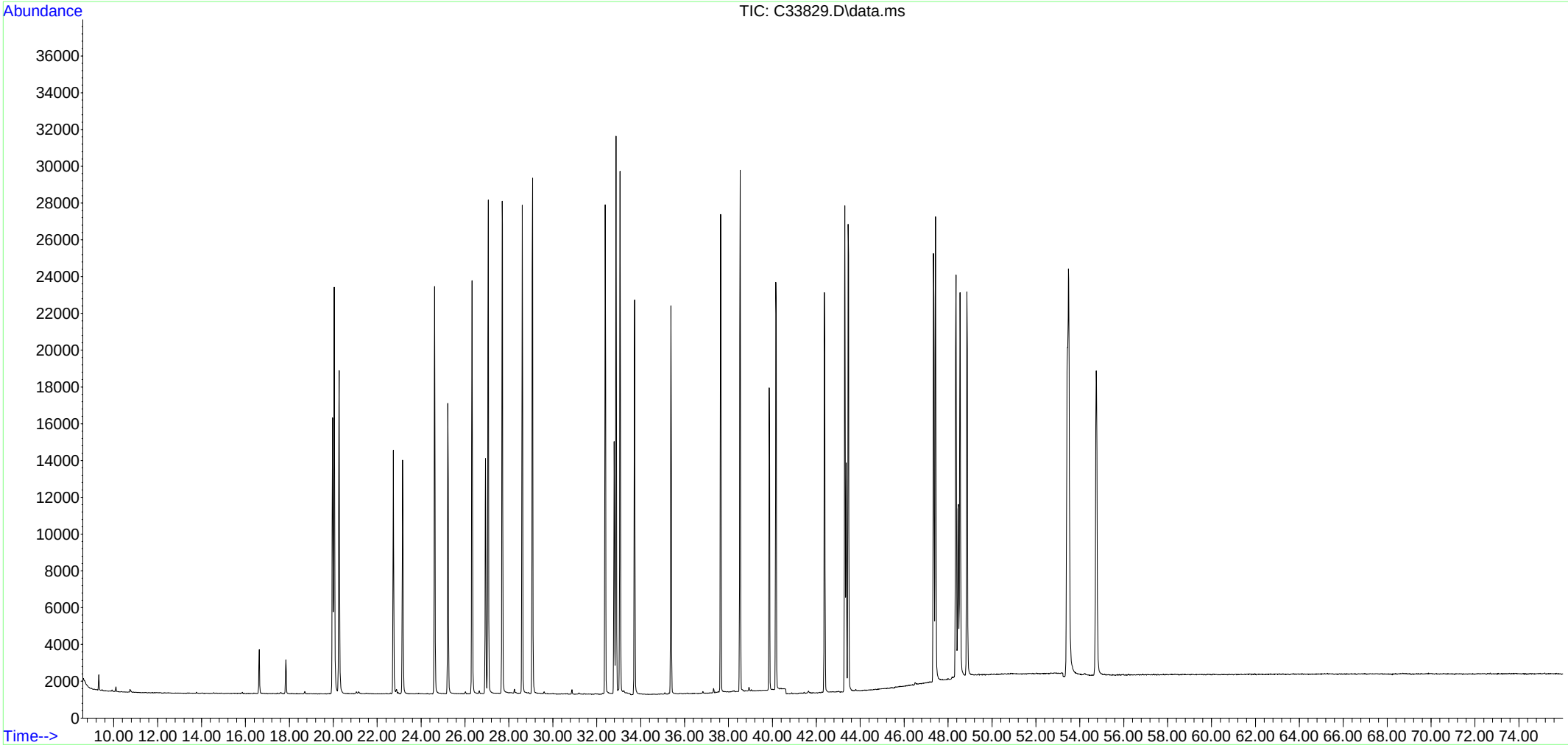
(#) = qualifier out of range (m) = manual integration (+) = signals summed

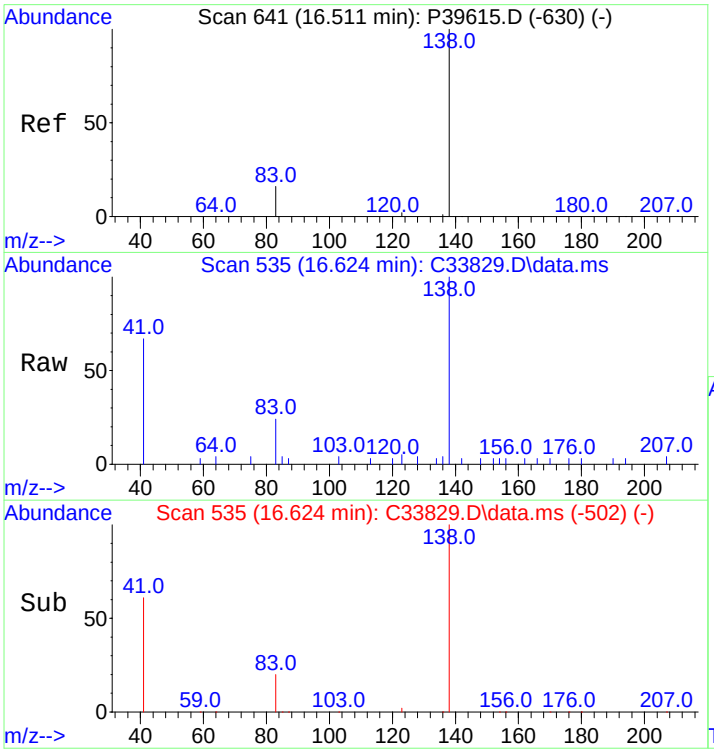
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

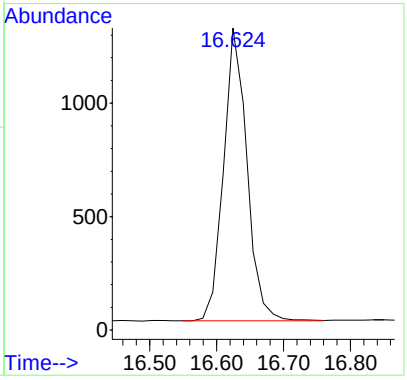
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

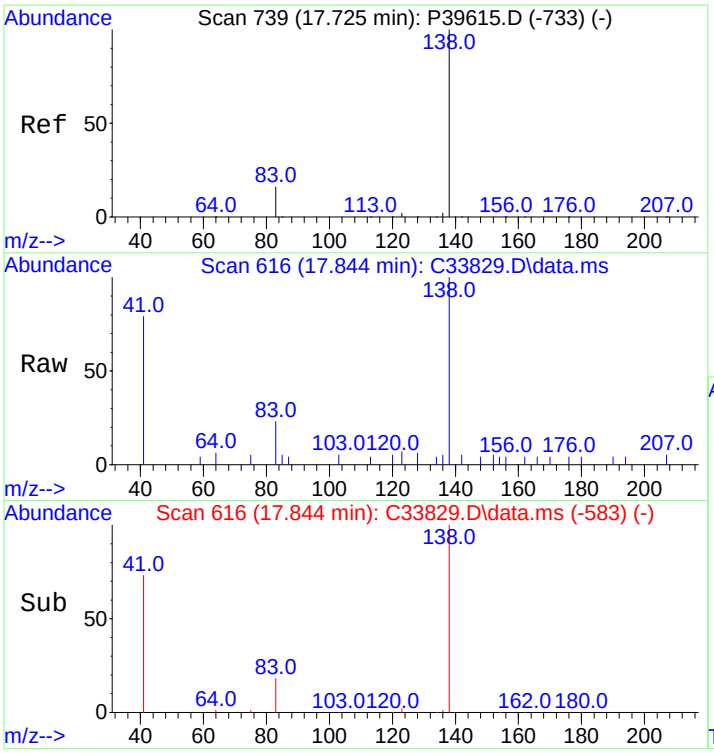




#3
trans-Decalin
Concen: 263.42 ng/mL
RT: 16.624 min Scan# 535
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

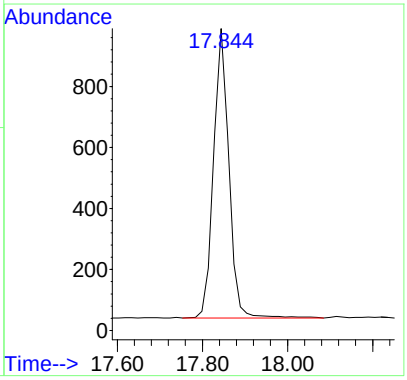
Tgt Ion:138 Resp: 3130

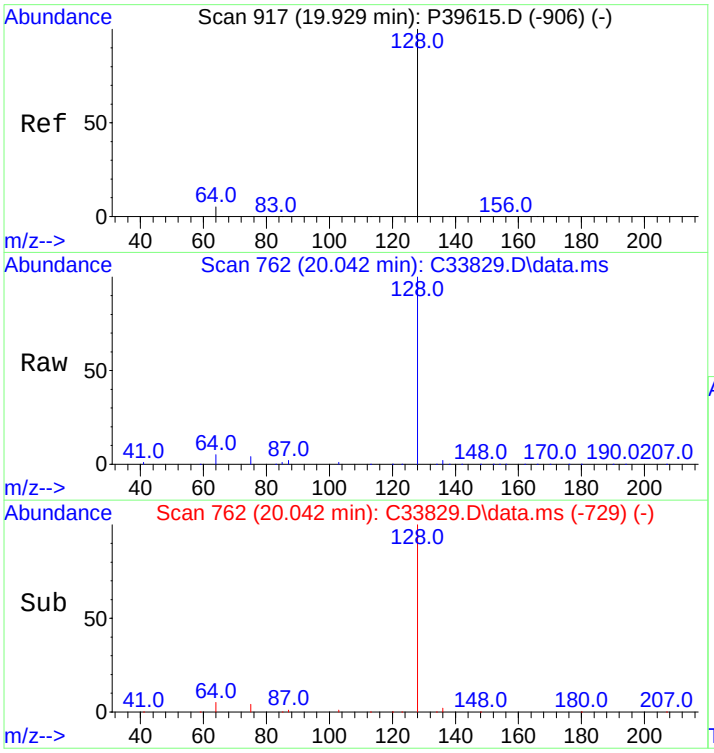




#4
cis-Decalin
Concen: 265.32 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:138 Resp: 2376

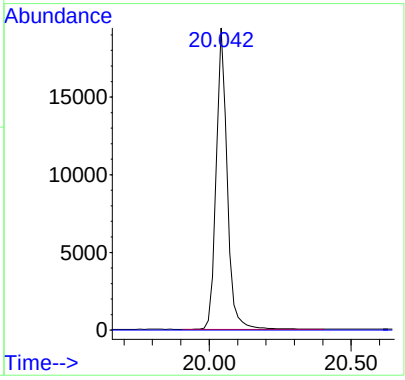


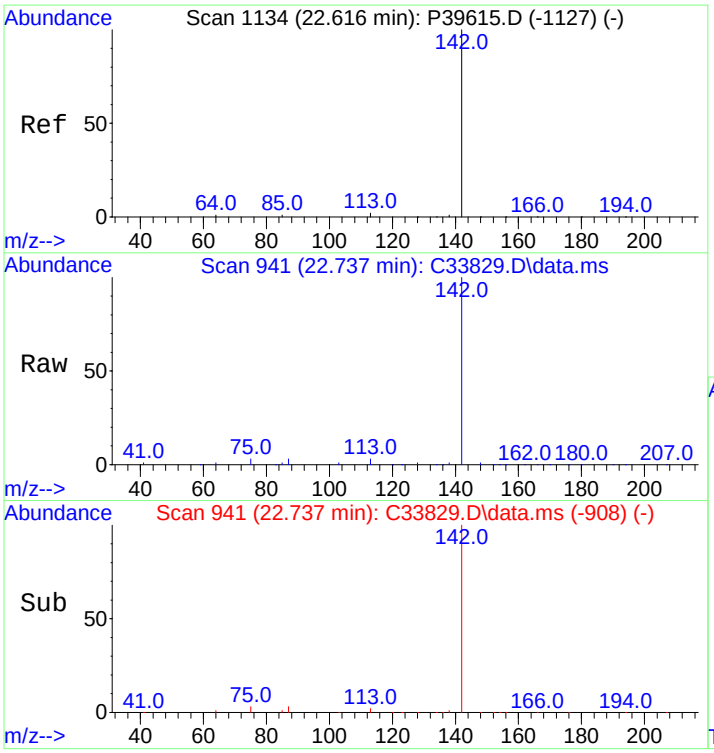


#10
Naphthalene
Concen: 545.26 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:128 Resp: 52309

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

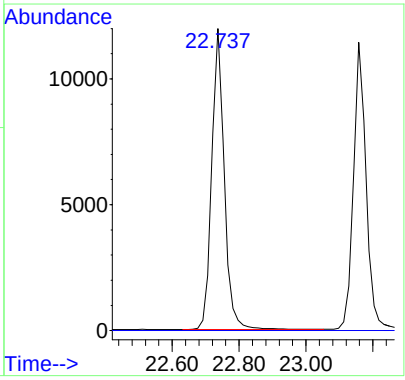


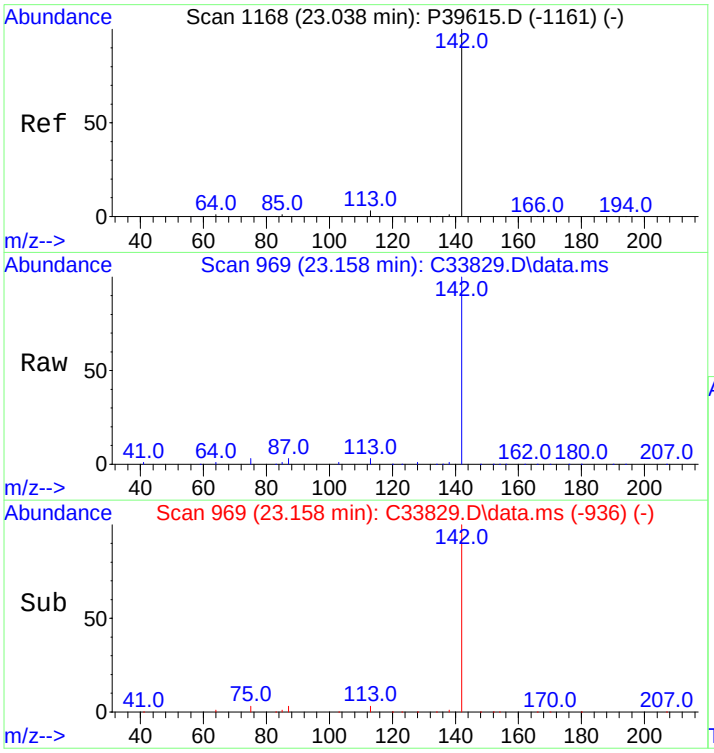


#16
2-Methylnaphthalene
Concen: 545.32 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30932

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

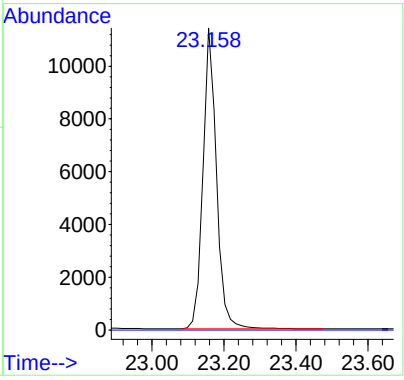


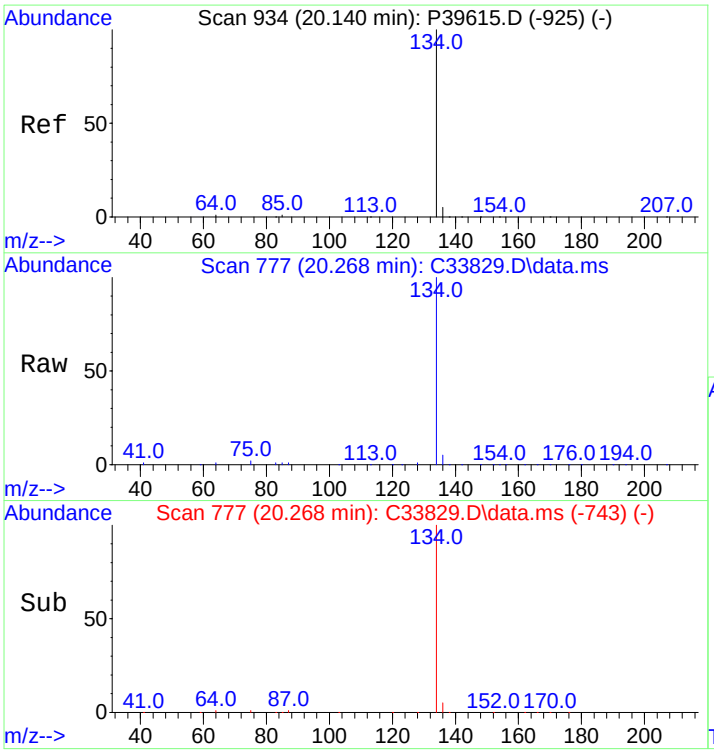


#17
1-Methylnaphthalene
Concen: 539.84 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30015

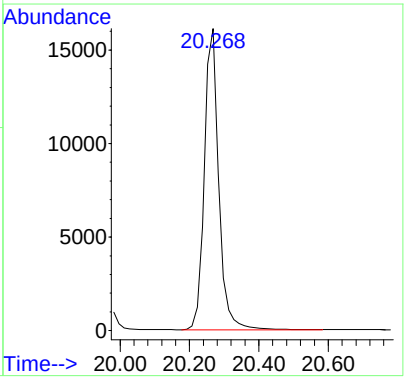
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

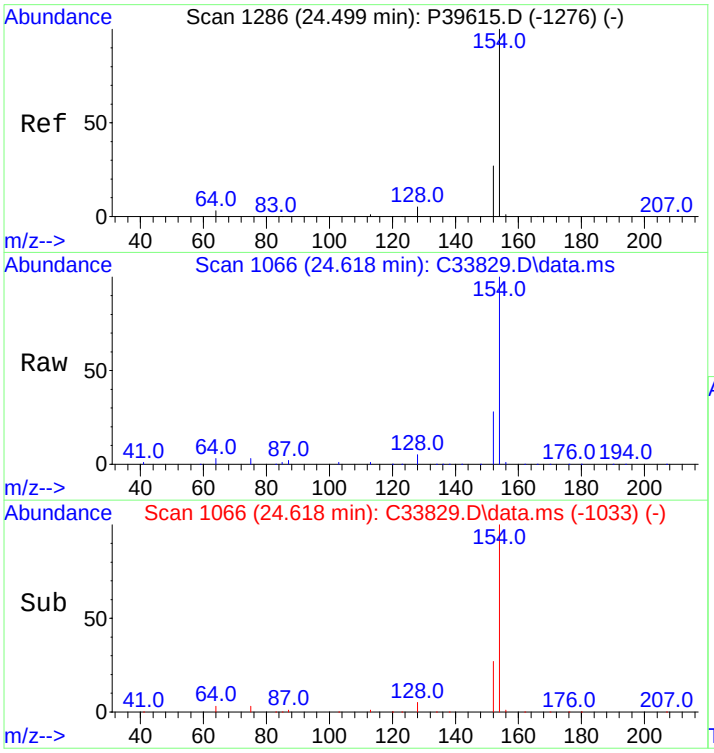




#18
Benzothiophene
Concen: 534.99 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:134 Resp: 46185

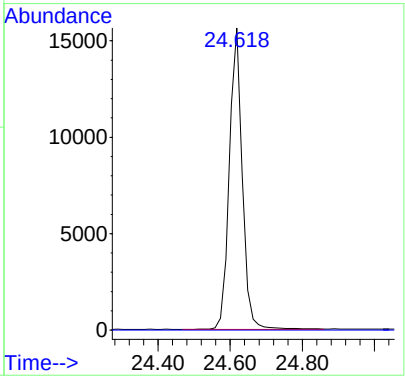


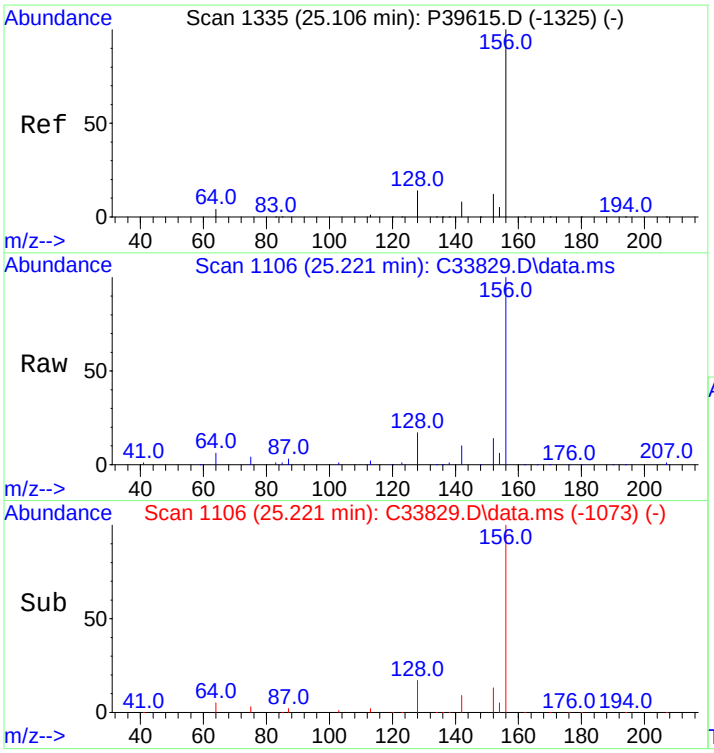


#23
Biphenyl
Concen: 540.29 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:154 Resp: 38768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

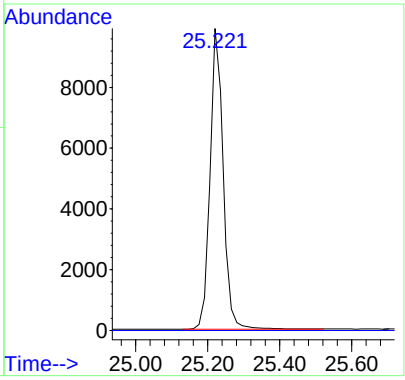


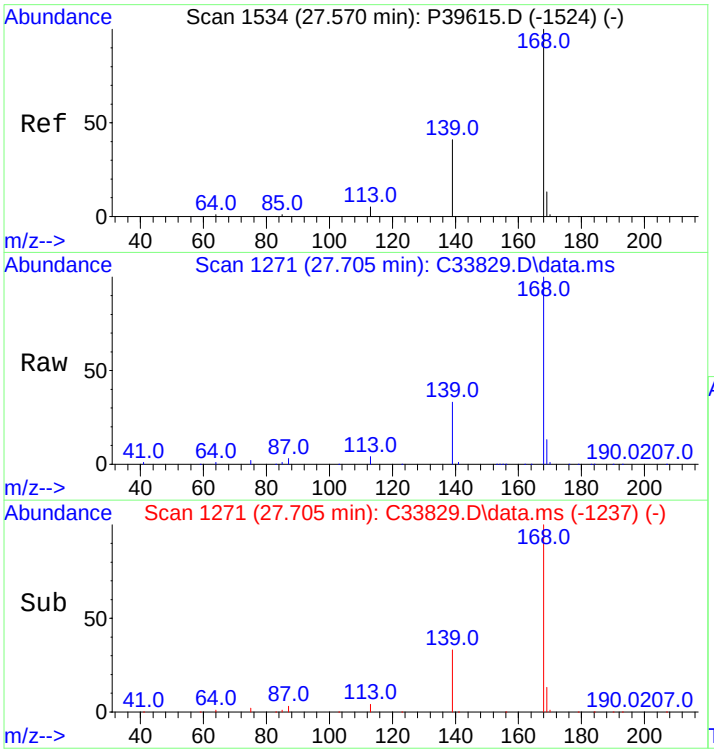


#24
2,6-Dimethylnaphthalene
Concen: 536.66 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:156 Resp: 25010

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

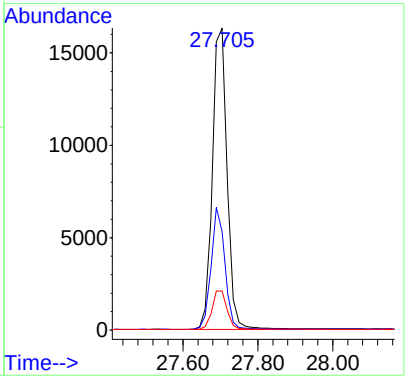


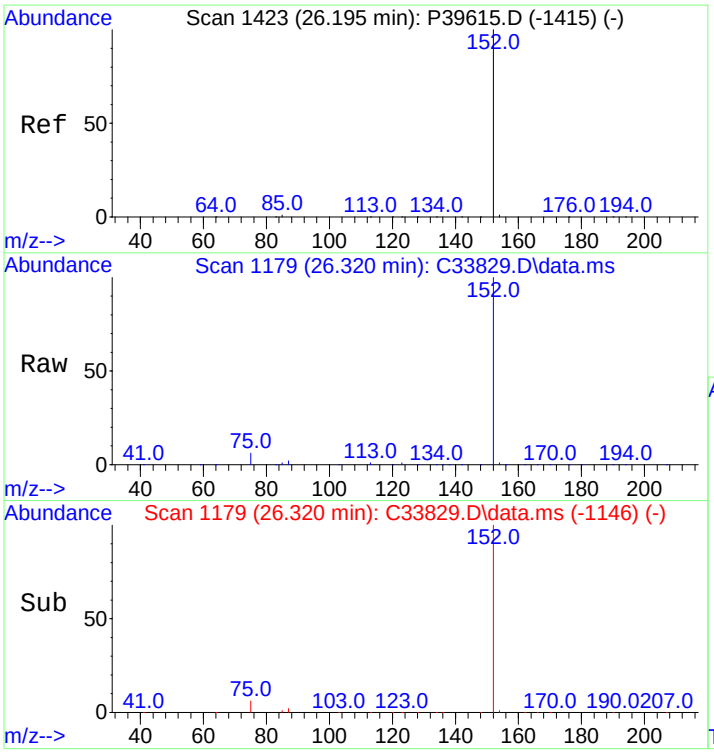


#25
Dibenzofuran
Concen: 540.77 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:168 Resp: 44557

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	13.0	10.6	16.0

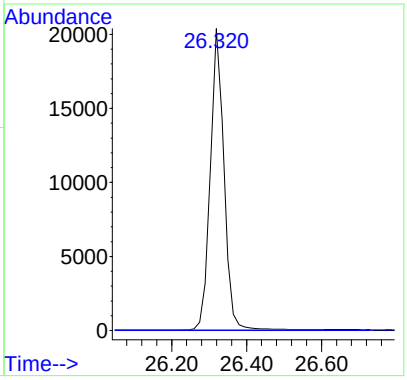


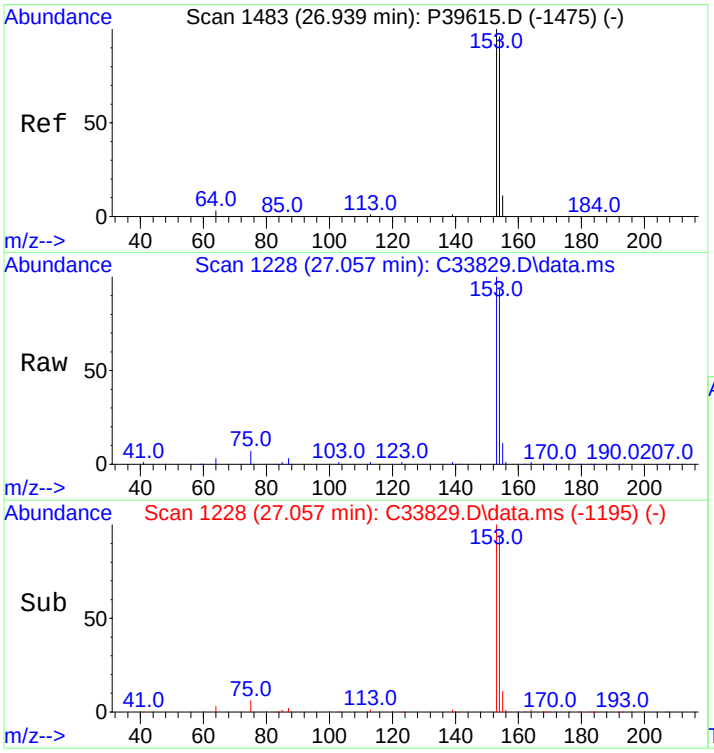


#26
Acenaphthylene
Concen: 540.49 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:152 Resp: 51471

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

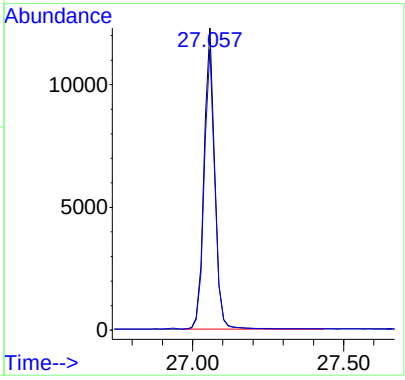


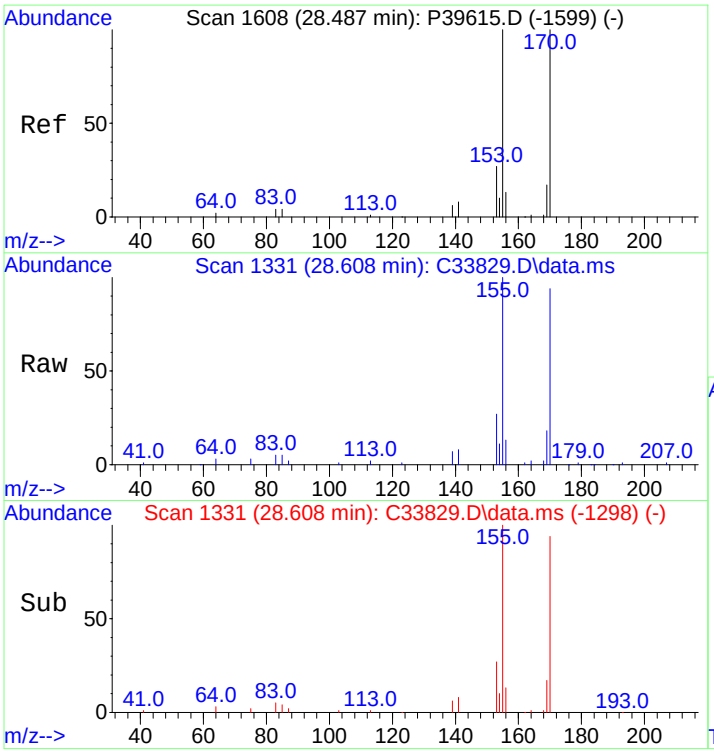


#27
Acenaphthene
Concen: 542.22 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:153 Resp: 30403

Ion	Ratio	Lower	Upper
153	100		
154	92.4	75.0	112.6

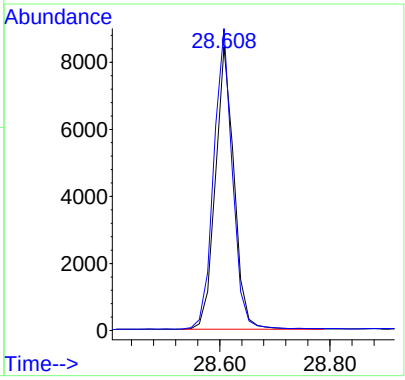


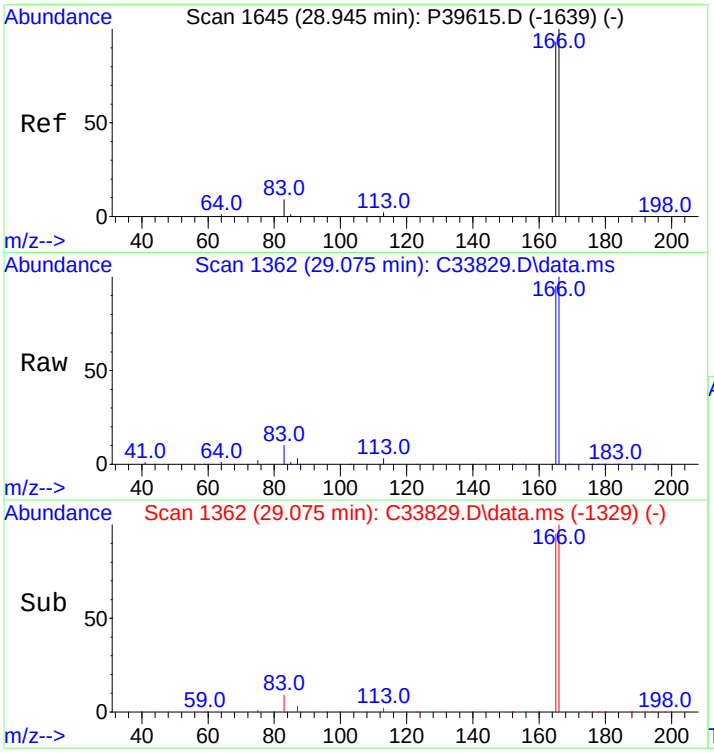


#28
2,3,5-Trimethylnaphthalene
Concen: 527.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:170 Resp: 19817

Ion	Ratio	Lower	Upper
170	100		
155	106.7	84.7	127.1

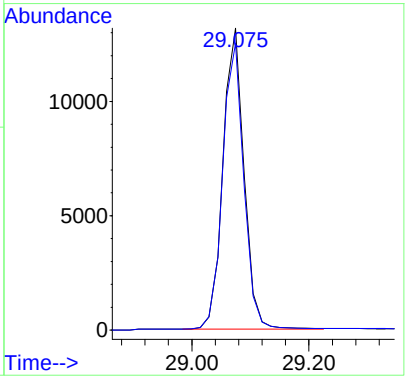


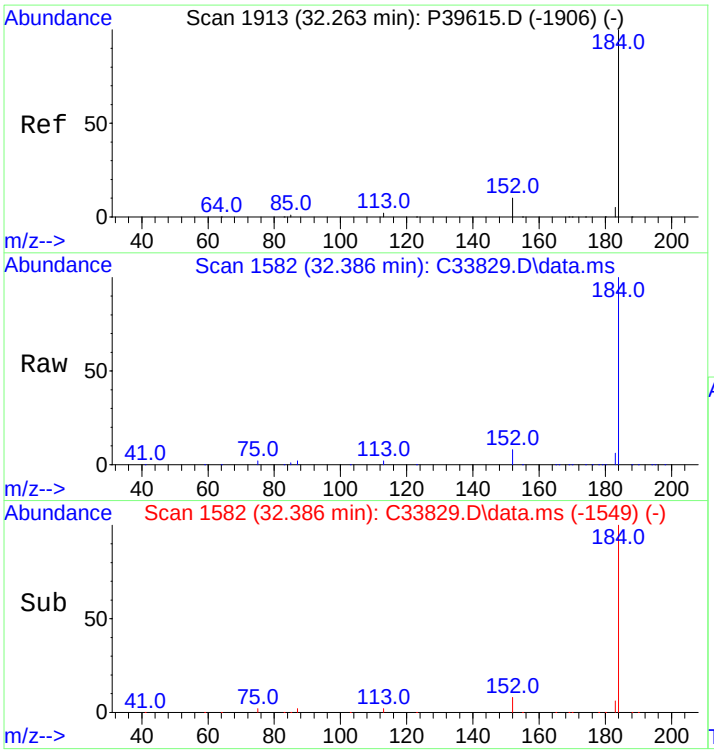


#29
Fluorene
Concen: 528.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:166 Resp: 32696

Ion	Ratio	Lower	Upper
166	100		
165	96.7	75.3	112.9

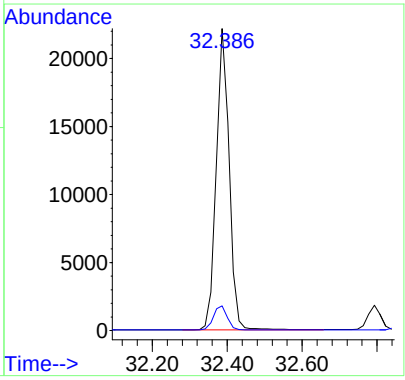


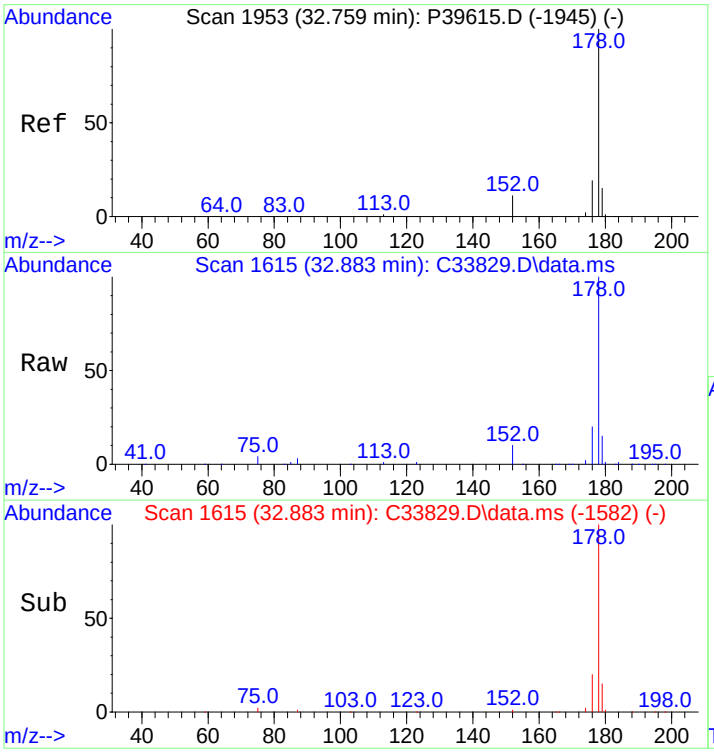


#33
Dibenzothiophene
Concen: 538.60 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:184 Resp: 53391

Ion	Ratio	Lower	Upper
184	100		
152	8.4	6.7	10.1

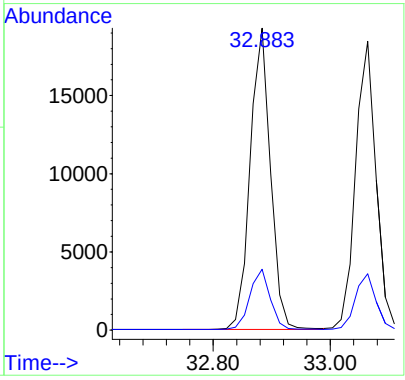


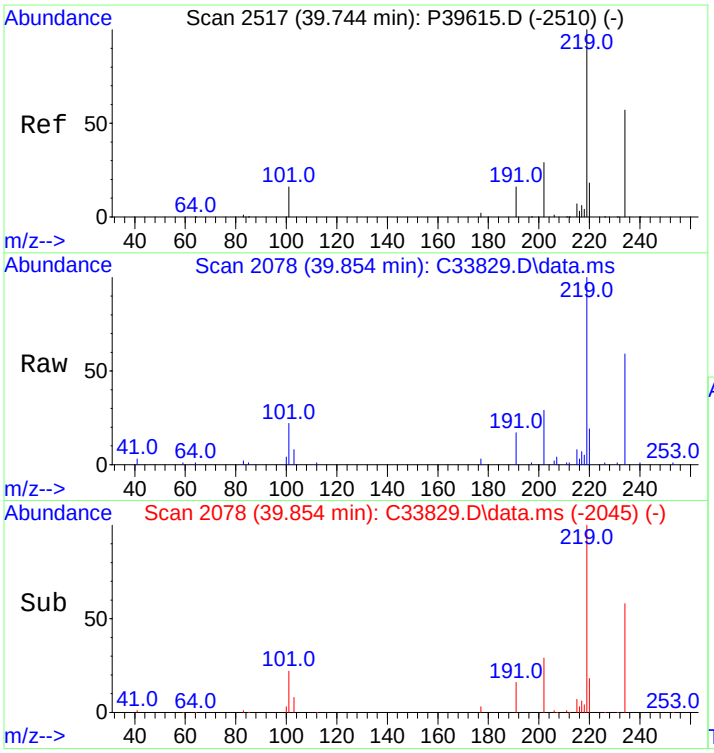


#43
Phenanthrene
Concen: 534.09 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 46516

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

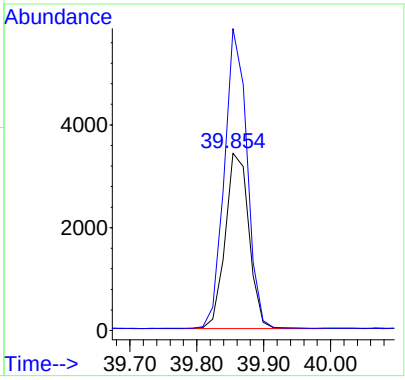


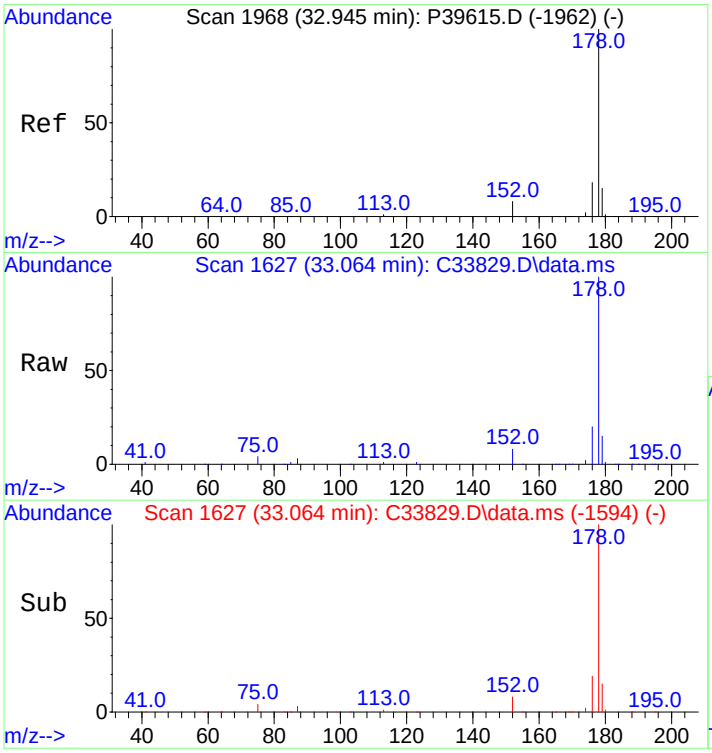


#54
Retene
Concen: 493.55 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 8385

Ion	Ratio	Lower	Upper
234	100		
219	163.6	136.6	204.8

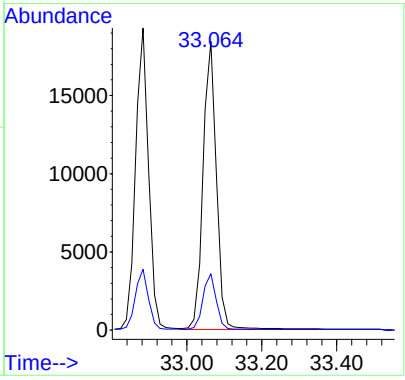


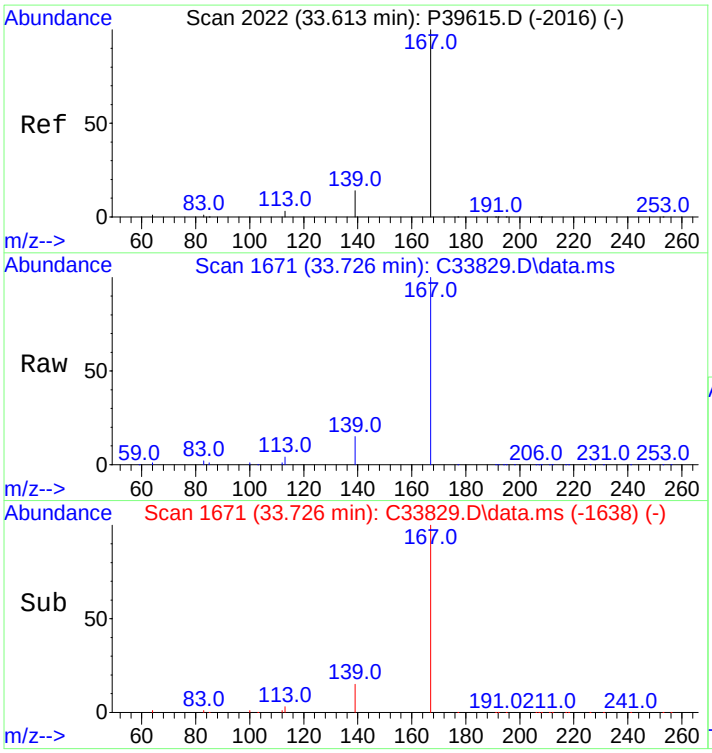


#55
Anthracene
Concen: 533.94 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 45423

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

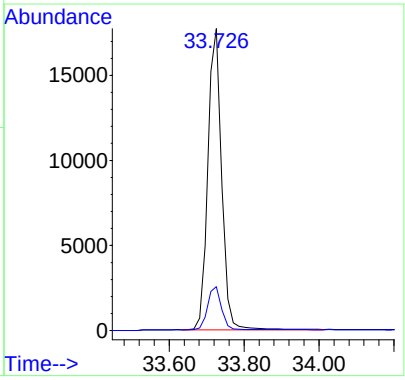


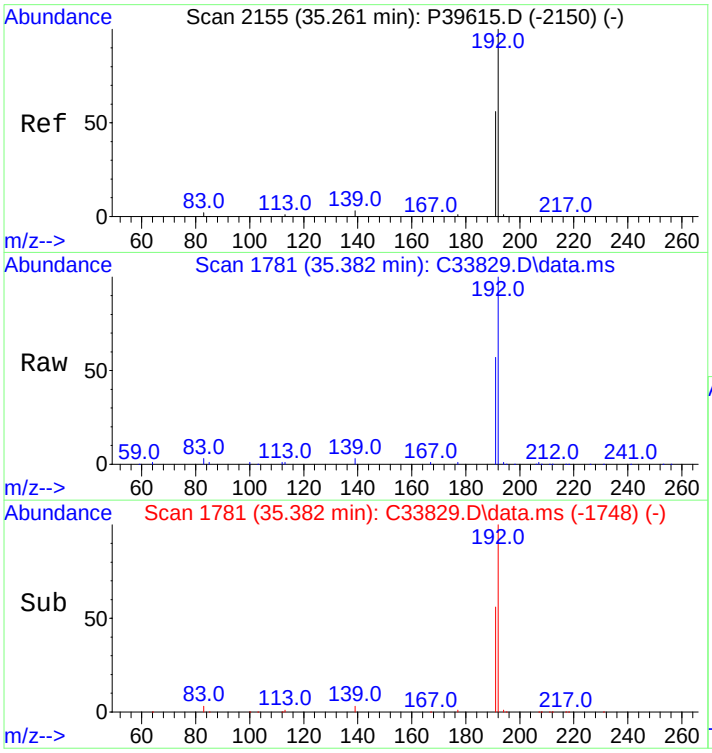


#56
Carbazole
Concen: 526.97 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:167 Resp: 45283

Ion	Ratio	Lower	Upper
167	100		
139	15.0	11.6	17.4

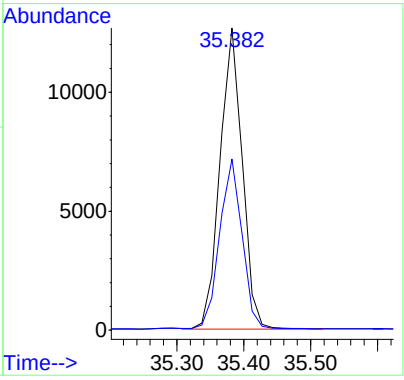


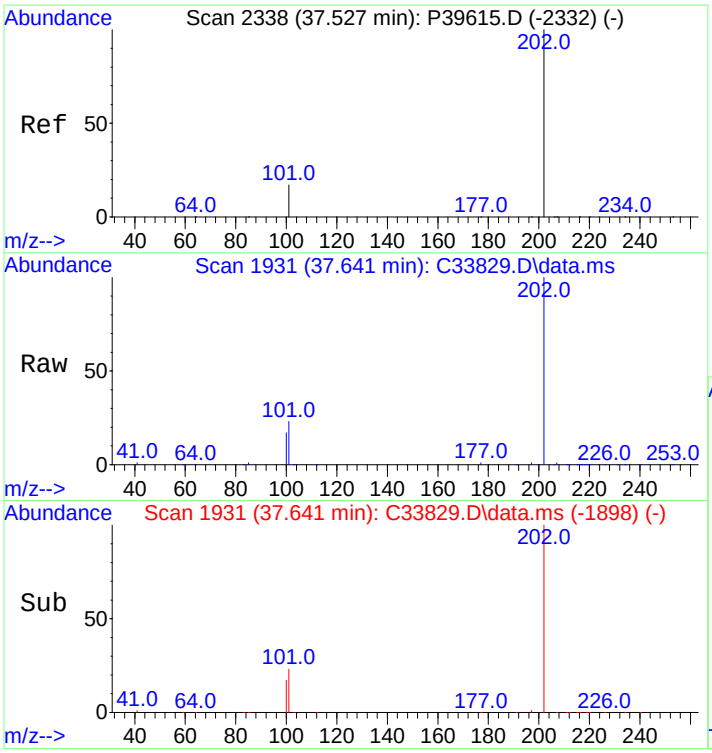


#57
1-Methylphenanthrene
Concen: 532.80 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:192 Resp: 29407

Ion	Ratio	Lower	Upper
192	100		
191	57.0	45.3	67.9

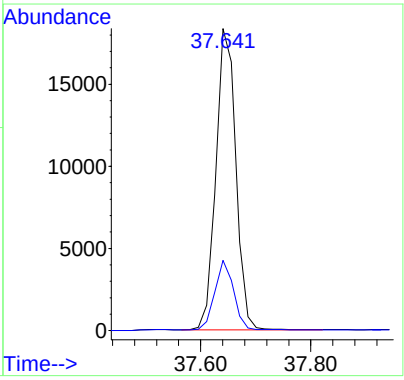


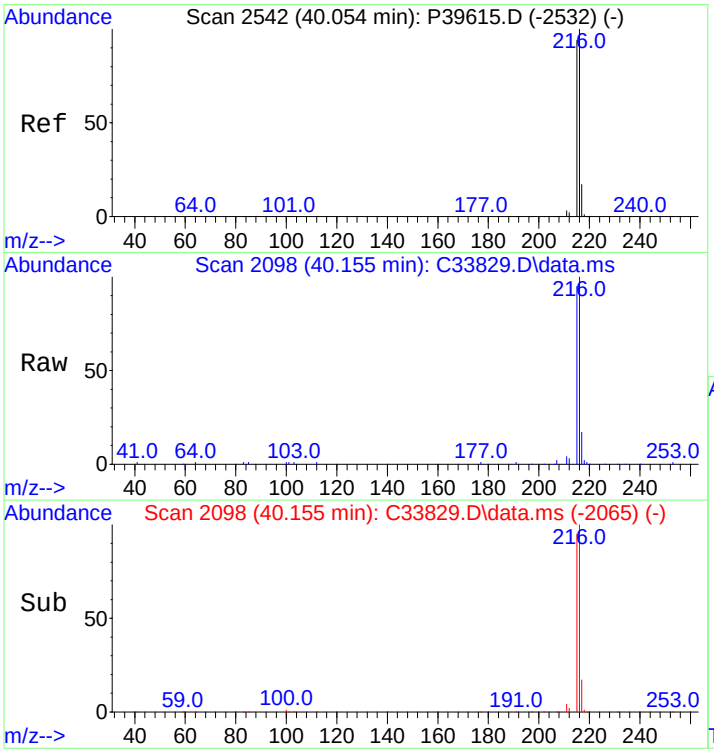


#58
Fluoranthene
Concen: 533.18 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46119

Ion	Ratio	Lower	Upper
202	100		
101	22.2	19.1	28.7

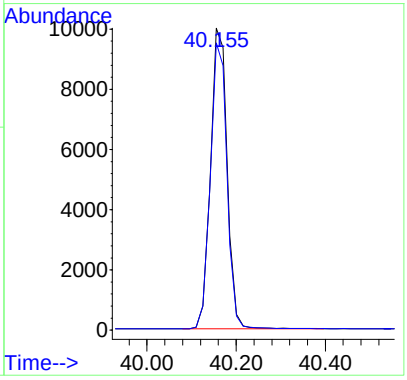


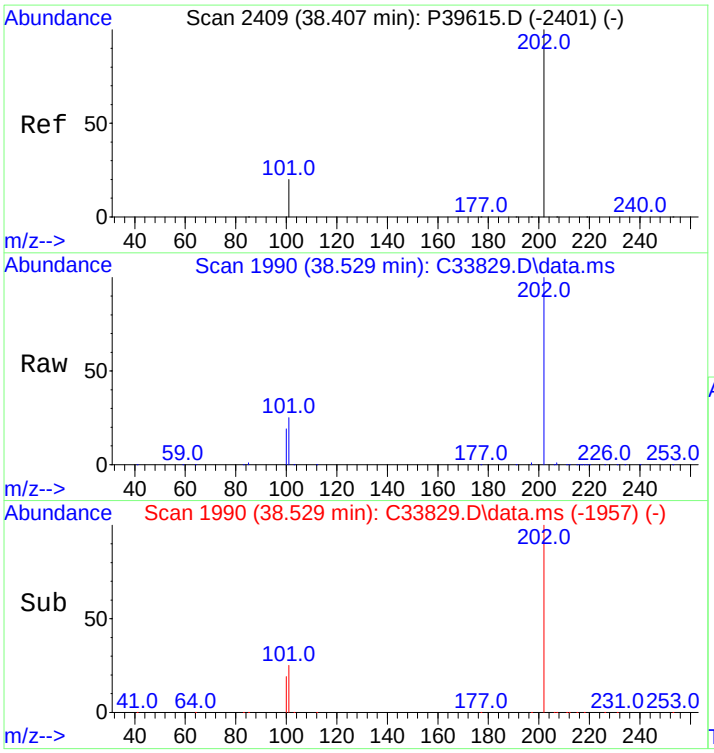


#59
Benzo(b)fluorene
Concen: 515.67 ng/mL m
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:216 Resp: 25878

Ion	Ratio	Lower	Upper
216	100		
215	95.0	77.4	116.2

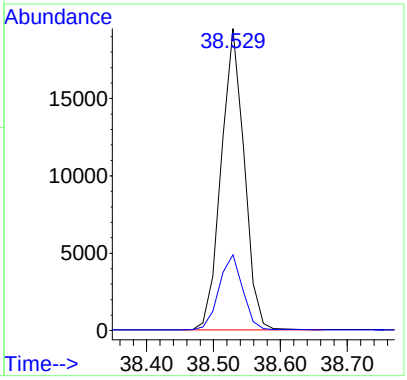


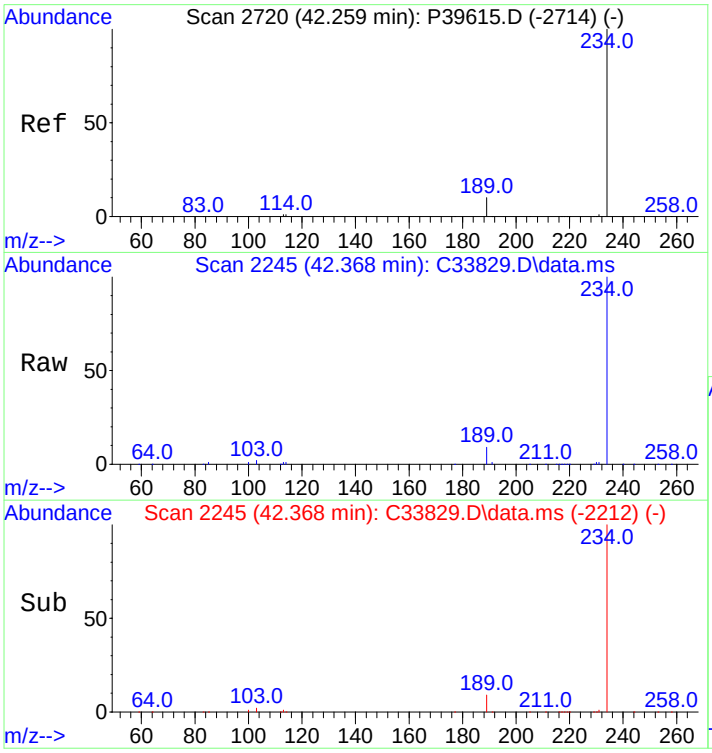


#60
Pyrene
Concen: 530.90 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46681

Ion	Ratio	Lower	Upper
202	100		
101	25.6	20.4	30.6

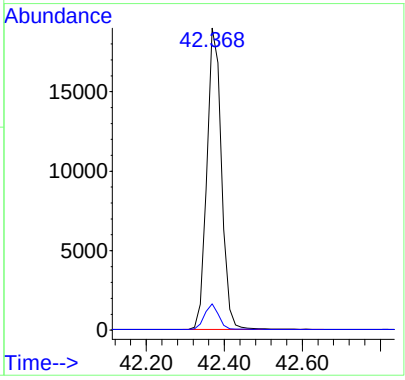


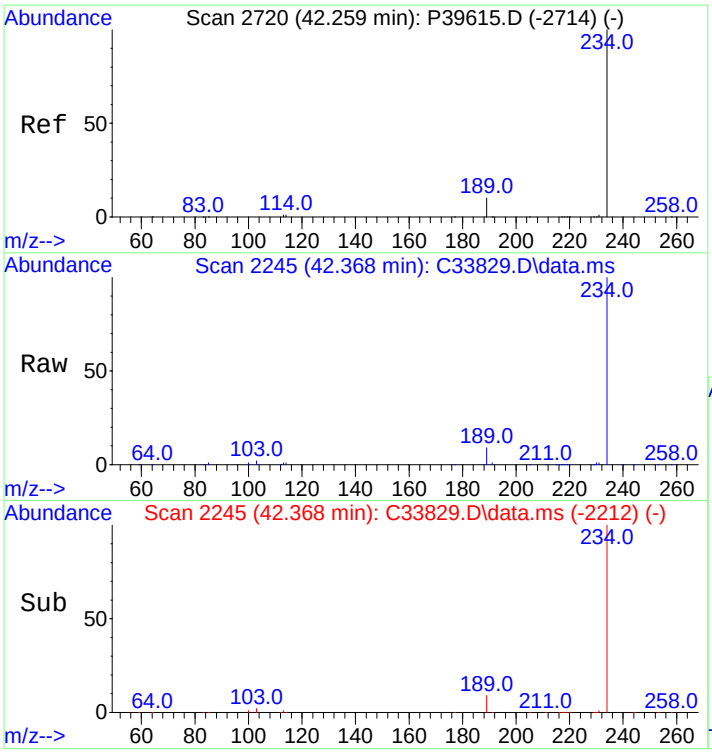


#66
Naphthobenzothiophene
Concen: 520.98 ng/ml
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

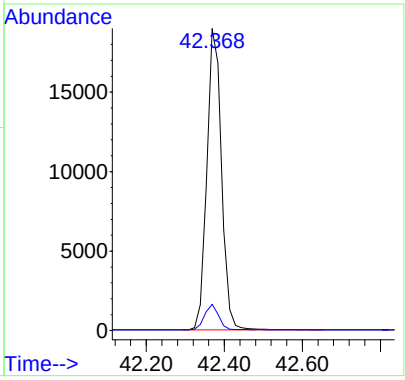


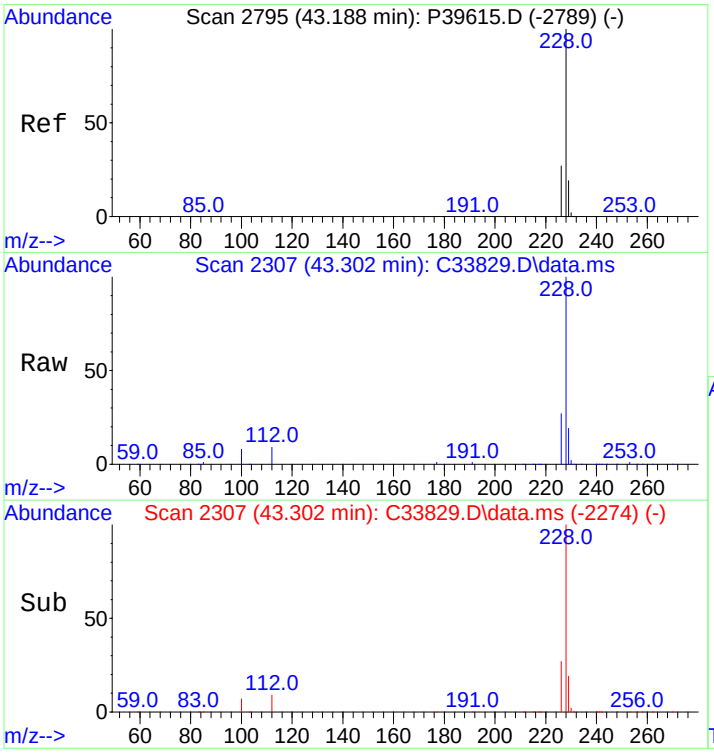


#67
Naphthobenzothiophene-2,1-D
Concen: 520.98 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

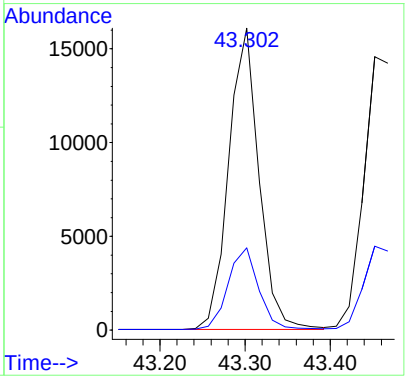


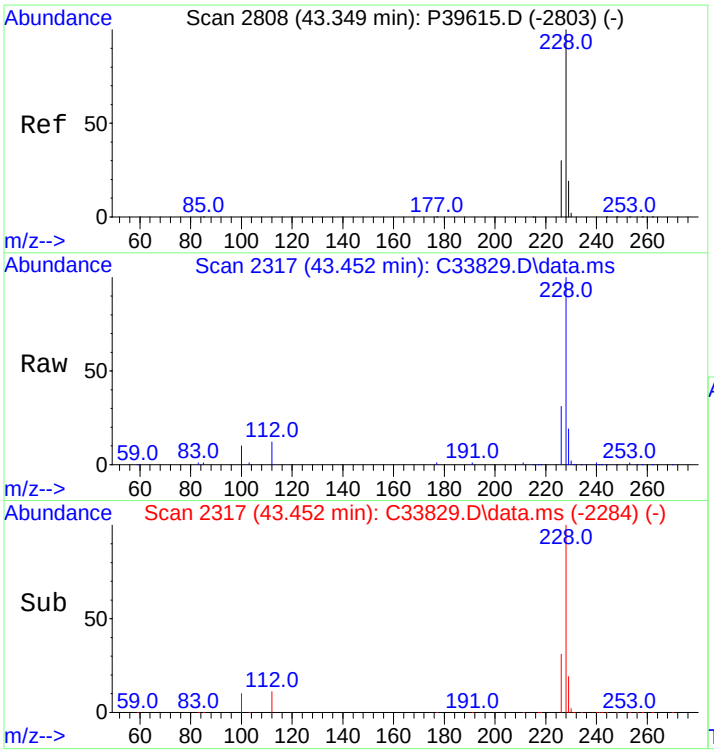


#75
Benz[a]anthracene
Concen: 549.15 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 39712

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.8	32.8

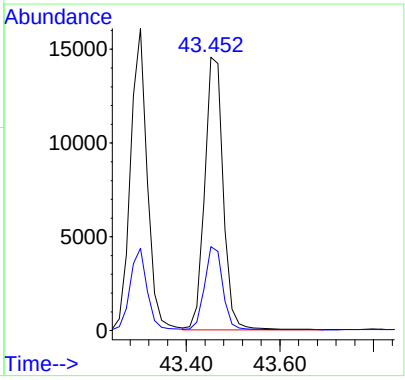


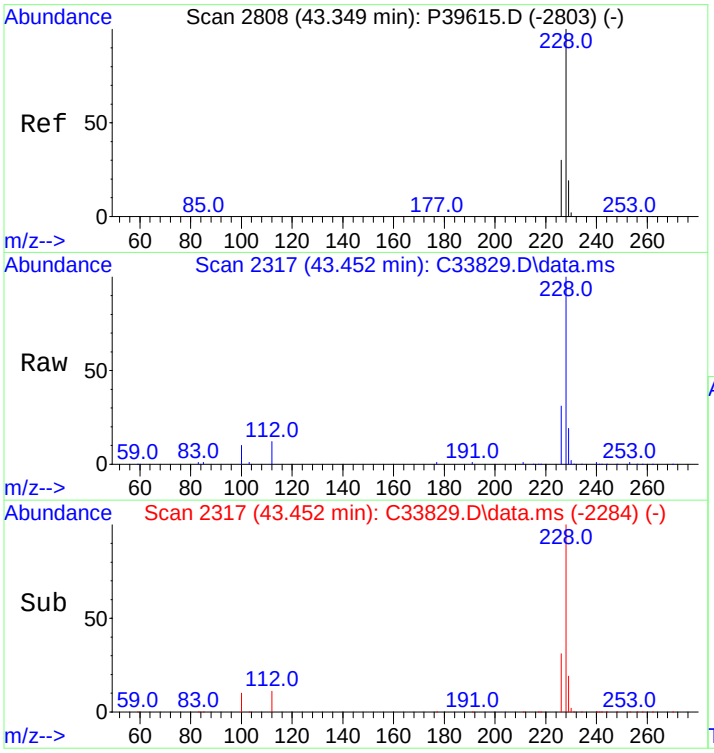


#76
Chrysene
Concen: 549.90 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40148

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

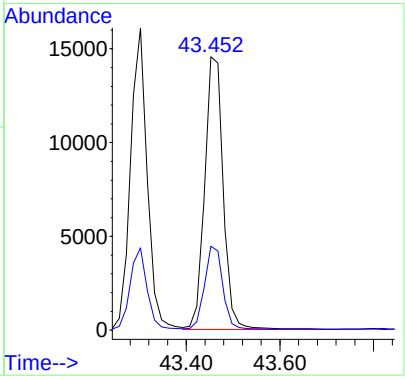


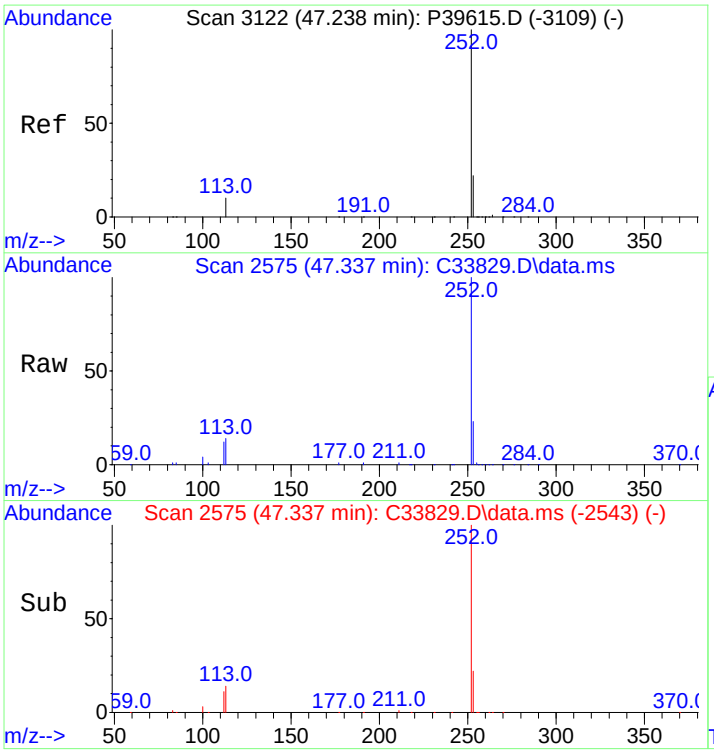


#77
Chrysene/Triphenylene
Concen: 549.40 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40111

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

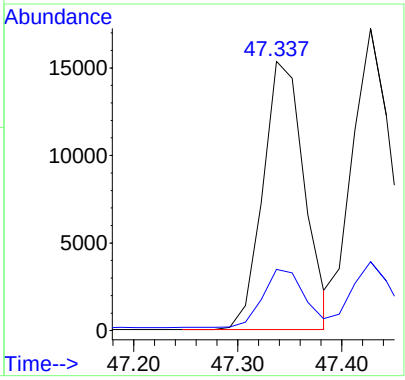


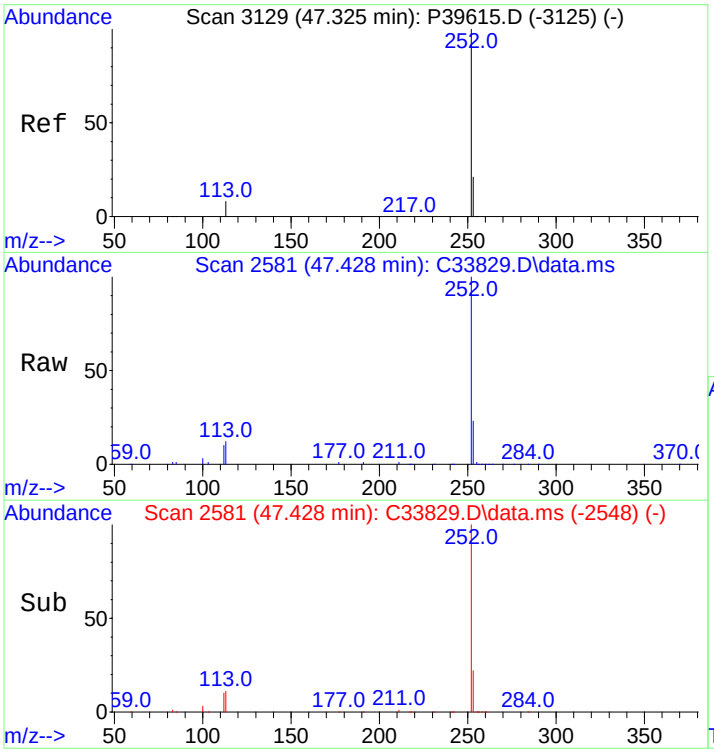


#82
Benzo[b]fluoranthene
Concen: 536.45 ng/mL
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42627

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

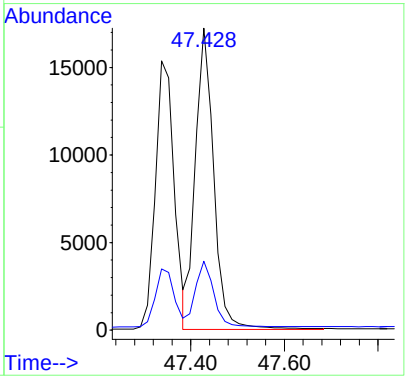


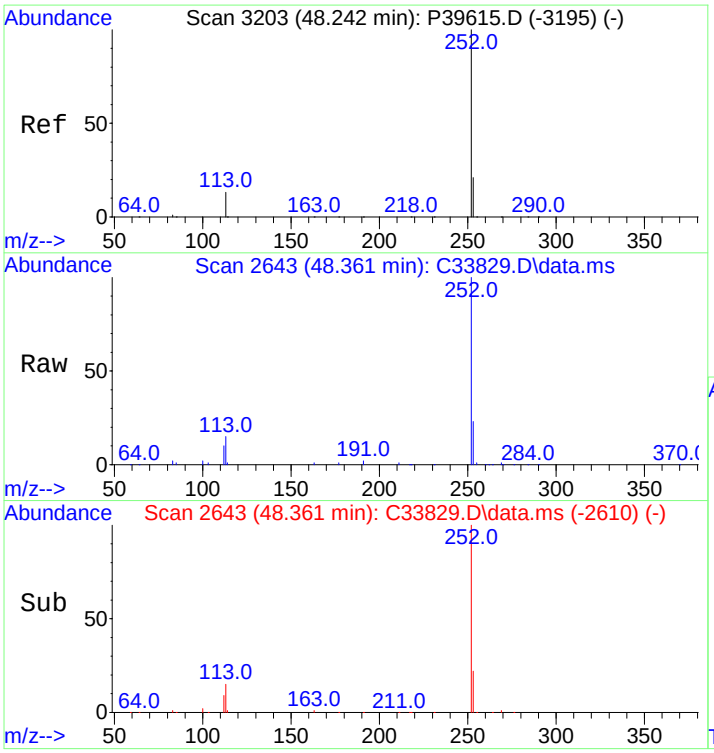


#83
Benzo[j]+[k]fluoranthene
Concen: 545.84 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 47222

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.2	27.4

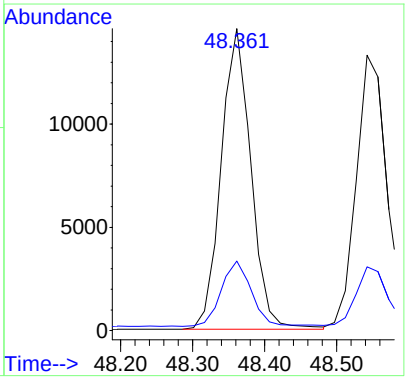


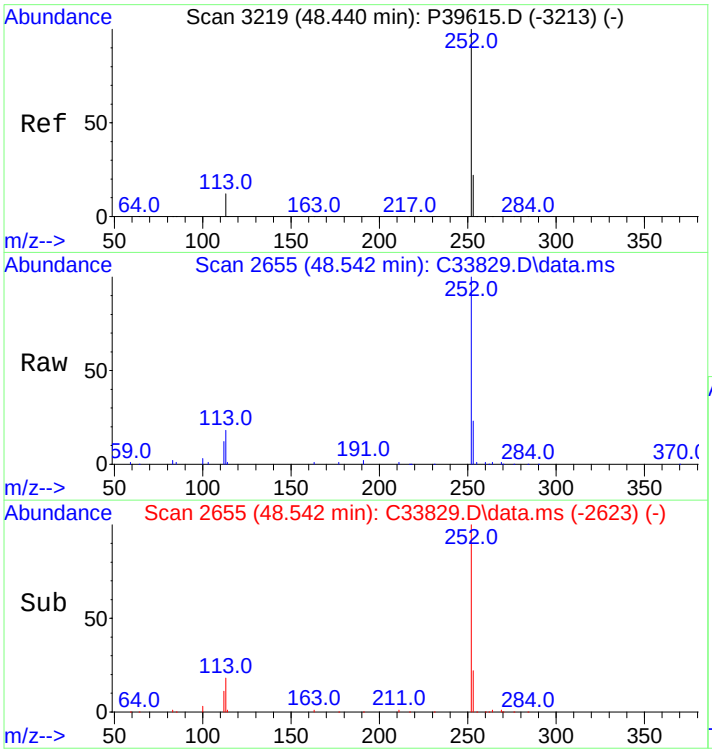


#85
Benzo[e]pyrene
Concen: 531.40 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 41766

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

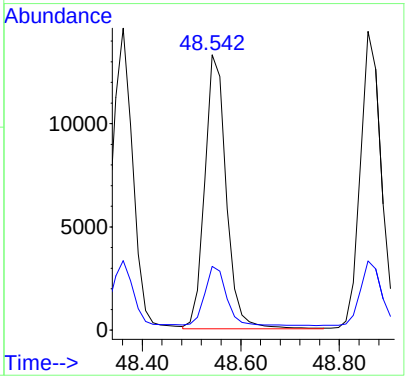


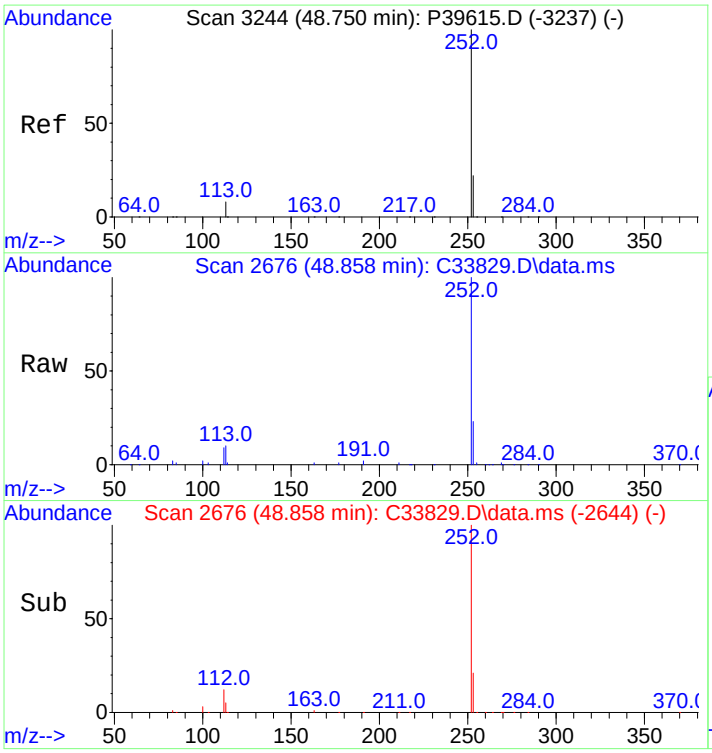


#87
Benzo[a]pyrene
Concen: 531.09 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 40189

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.7	28.1

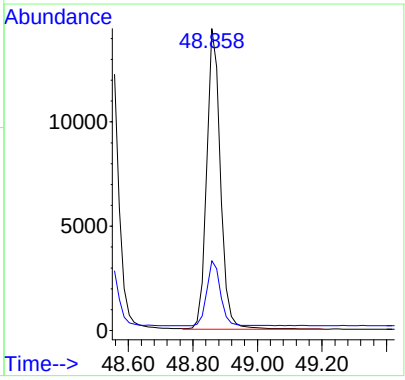


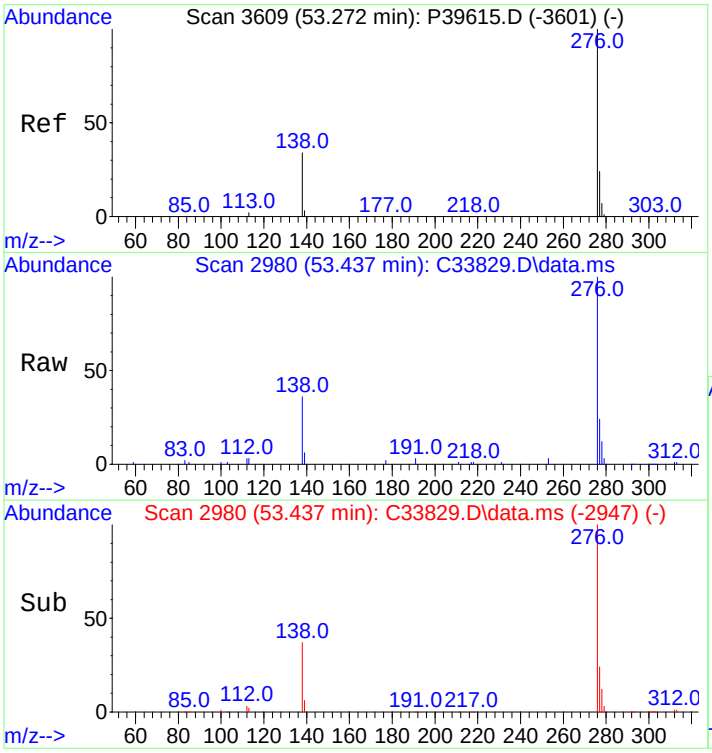


#88
Perylene
Concen: 529.34 ng/mL
RT: 48.858 min Scan# 2676
Delta R.T. -0.016 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42809

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

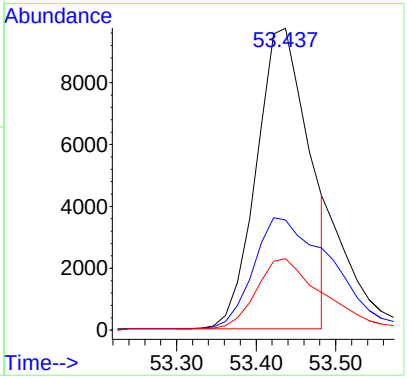


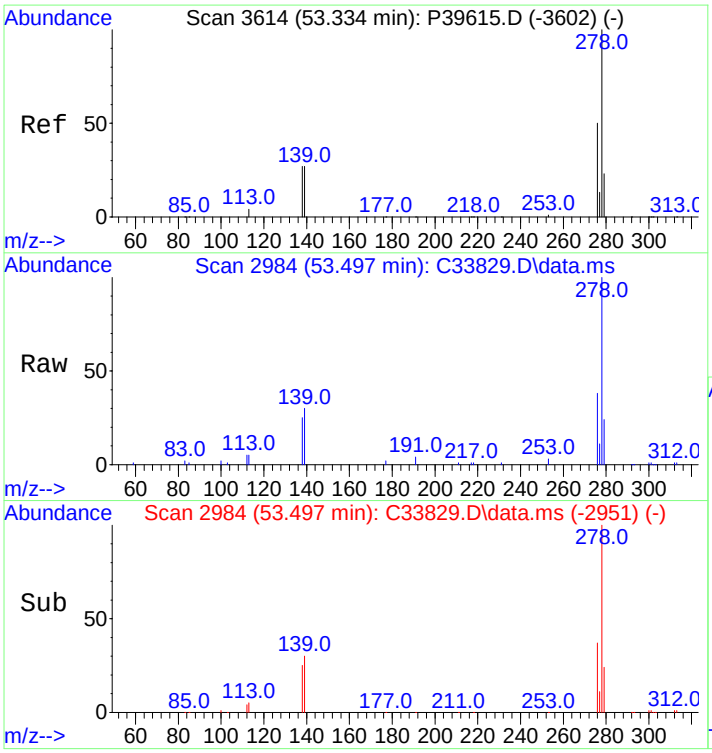


#89
Indeno[1,2,3-cd]pyrene
Concen: 505.20 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 44489

Ion	Ratio	Lower	Upper
276	100		
138	57.7	30.3	45.5#
277	31.4	19.2	28.8#

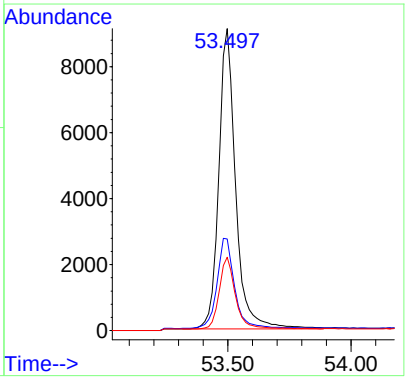


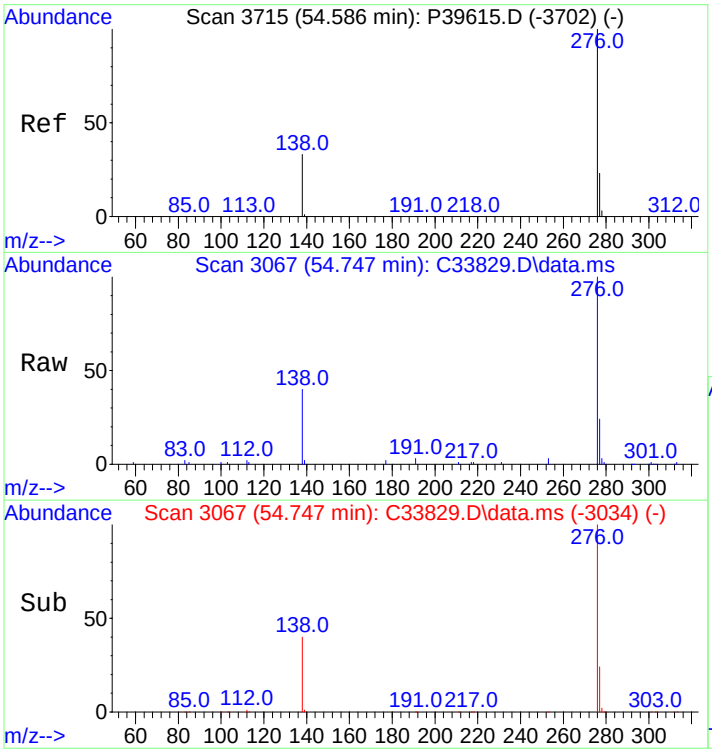


#90
Dibenz[ah]+[ac]anthracene
Concen: 520.25 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:278 Resp: 43582

Ion	Ratio	Lower	Upper
278	100		
139	33.2	25.4	38.2
279	24.2	19.0	28.4

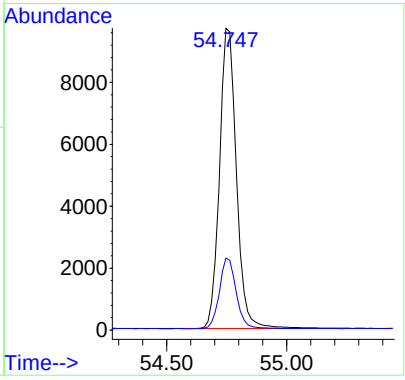




#91
Benzo[g,h,i]perylene
Concen: 510.62 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 47507

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3



PAH Ccal – 1204035
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	26089M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	44781	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	54950	485.283	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.53%#			
42) Phenanthrene-d10	32.567	188	44160	493.402	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.34%#			
86) Benzo[a]pyrene-d12	48.241	264	45536	490.662	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.07%#			
127) 5B(H)Cholane - Surr	43.769	217	7026	501.828	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.18%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	5103	247.780	ng/mL	100
4) cis-Decalin	17.603	138	3914	252.162	ng/mL	100
10) Naphthalene	19.801	128	76478	459.943	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	46542	473.392	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	44193	458.580	ng/mL#	100
18) Benzothiophene	20.027	134	68125	455.294	ng/mL	100
23) Biphenyl	24.393	154	59181	475.856	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	39215	485.480	ng/mL#	100
25) Dibenzofuran	27.479	168	67874	475.265	ng/mL	96
26) Acenaphthylene	26.094	152	76063M3	460.823	ng/mL	
27) Acenaphthene	26.831	153	45976	473.069	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.382	170	32171	494.066	ng/mL	99
29) Fluorene	28.849	166	51461M3	480.111	ng/mL	
33) Dibenzothiophene	32.160	184	81656	475.249	ng/mL	99
43) Phenanthrene	32.657	178	72281	478.822	ng/mL	99
54) Retene	39.643	234	16137	548.005	ng/mL	97
55) Anthracene	32.838	178	71626M3	485.764	ng/mL	
56) Carbazole	33.500	167	70445M3	472.973	ng/mL	
57) 1-Methylphenanthrene	35.172	192	49260	514.930	ng/mL	99
58) Fluoranthene	37.430	202	76253M3	508.609	ng/mL	
59) Benzo(b)fluorene	39.944	216	46182	530.948	ng/mL	100
60) Pyrene	38.318	202	77613	509.265	ng/mL	98
66) Naphthobenzothiophene	42.158	234	84831	517.025	ng/ml#	66
67) Naphthobenzothiophene-...	42.158	234	84831	517.025	ng/mL#	66
75) Benz[a]anthracene	43.091	228	71364	502.089	ng/mL	100
76) Chrysene	43.257	228	69630	485.239	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	69630	485.239	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	84065	538.267	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	81920	481.779	ng/mL	96
85) Benzo[e]pyrene	48.136	252	76555	495.571	ng/mL	96
87) Benzo[a]pyrene	48.331	252	73411	493.583	ng/mL	95
88) Perylene	48.633	252	78871	496.195	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.136	276	95448M3	551.461	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	90499	549.649	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97641	533.960	ng/mL	100
92) Hopane (T19)	52.217	191	12792	433.424	ng/mL#	84
93) 17a(H),21B(H)-hopane -...	52.217	191	12792	433.424	ng/mL#	84

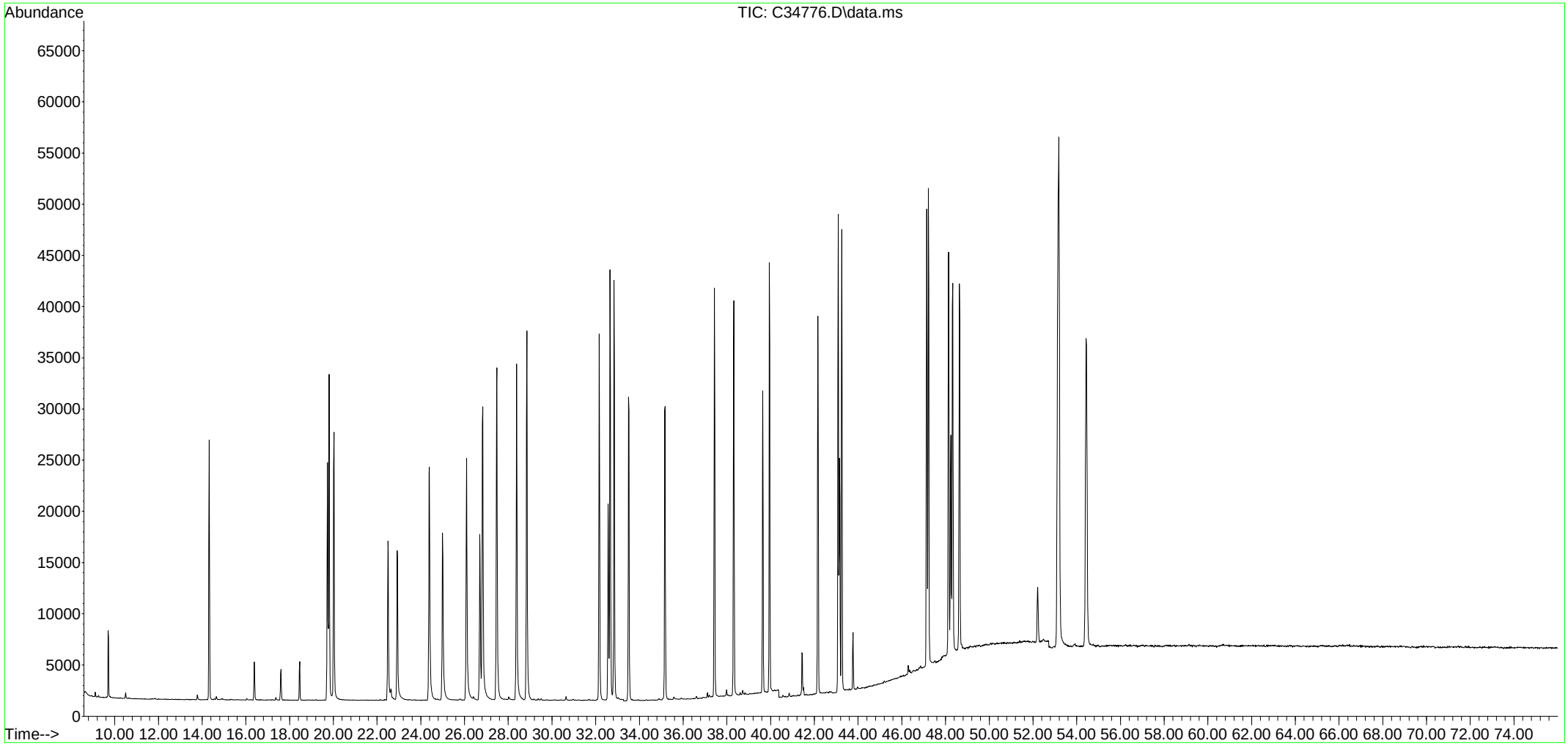
(#) = qualifier out of range (m) = manual integration (+) = signals summed

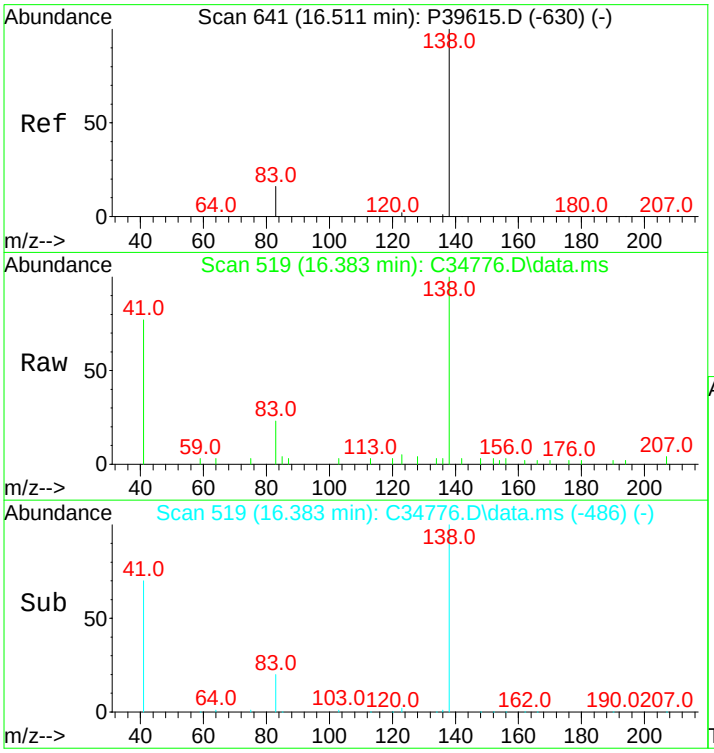
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34776.D
Acq On : 2 May 2012 11:19 am
Operator : AC
Sample : C305021201
Misc : 1X ETR1204031_35
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 05 12:44:30 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

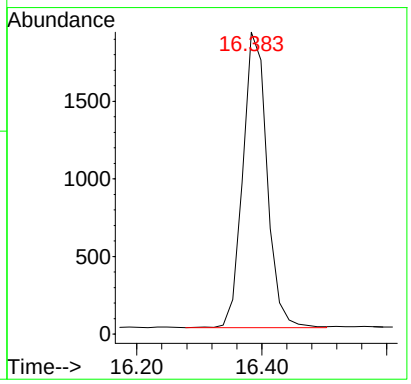
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

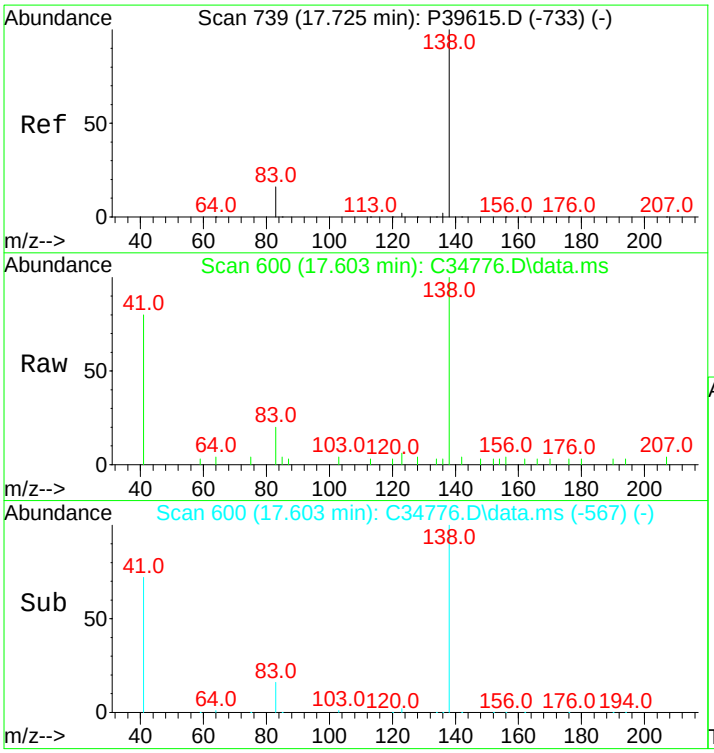




#3
trans-Decalin
Concen: 247.78 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

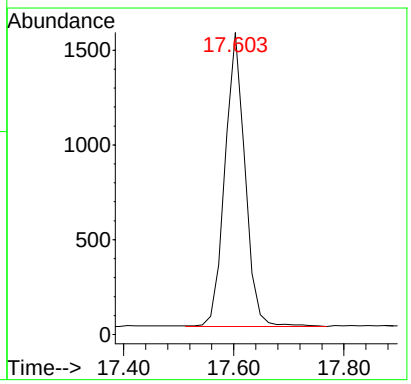
Tgt Ion:138 Resp: 5103

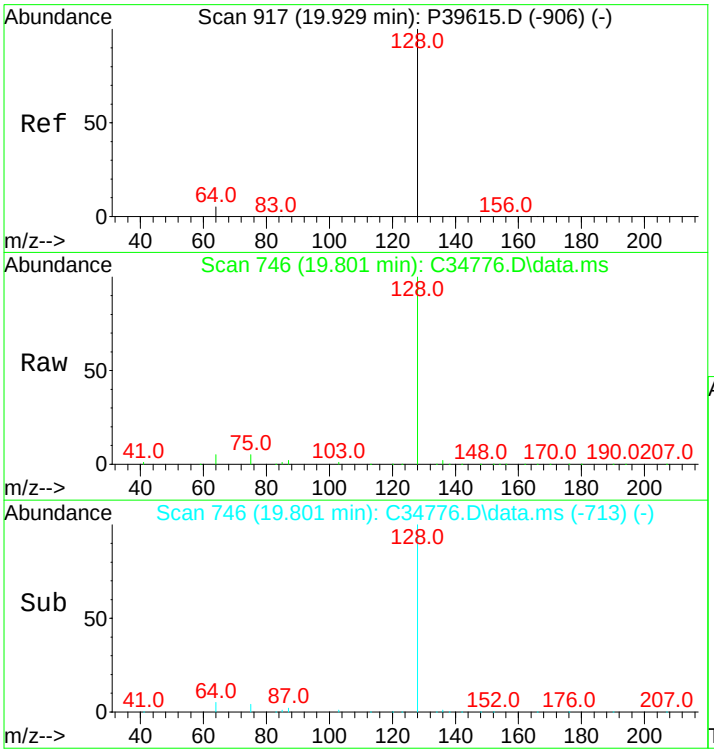




#4
cis-Decalin
Concen: 252.16 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:138 Resp: 3914

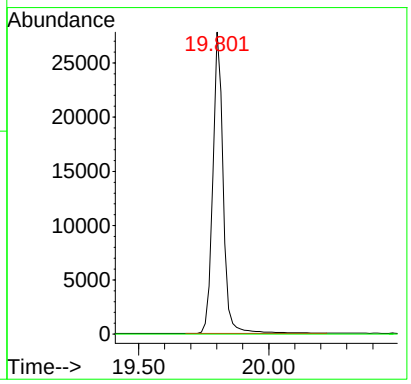


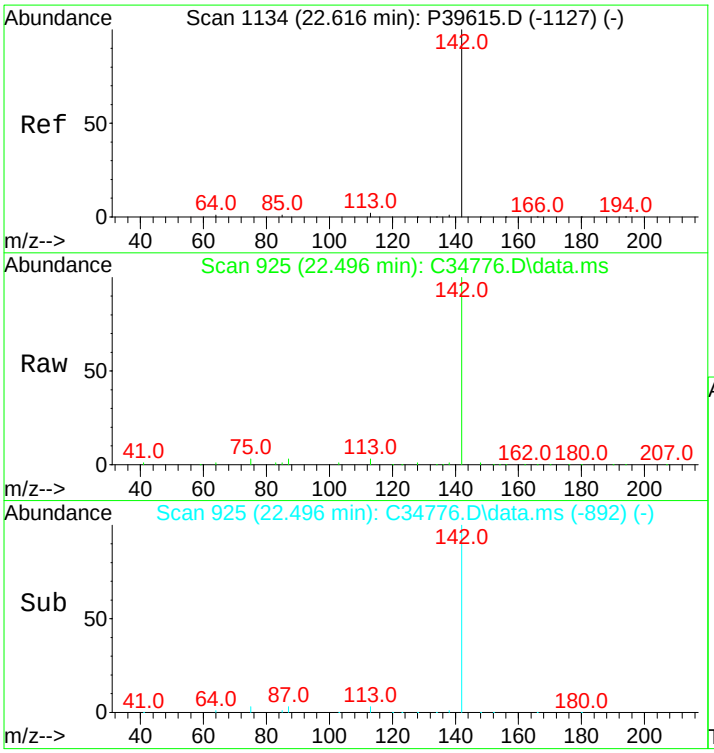


#10
Naphthalene
Concen: 459.94 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:128 Resp: 76478

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

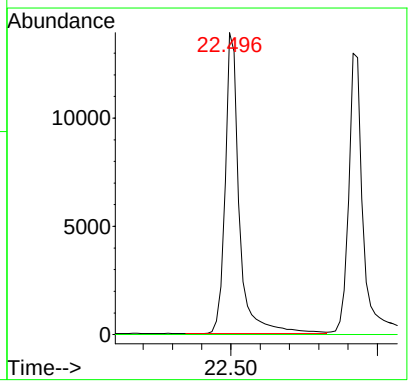


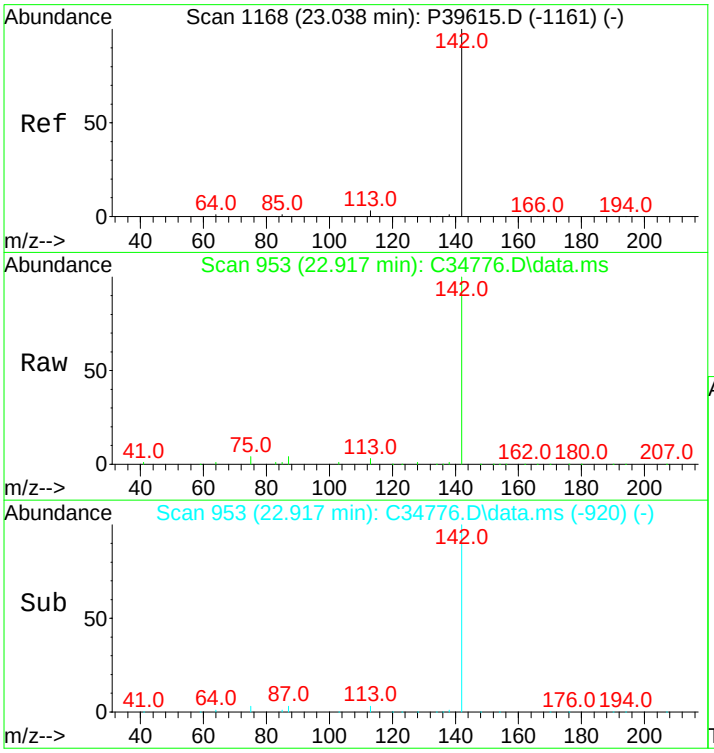


#16
2-Methylnaphthalene
Concen: 473.39 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:142 Resp: 46542

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

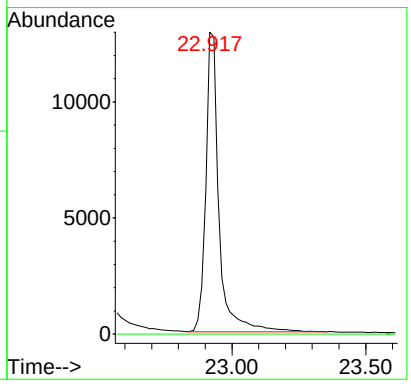


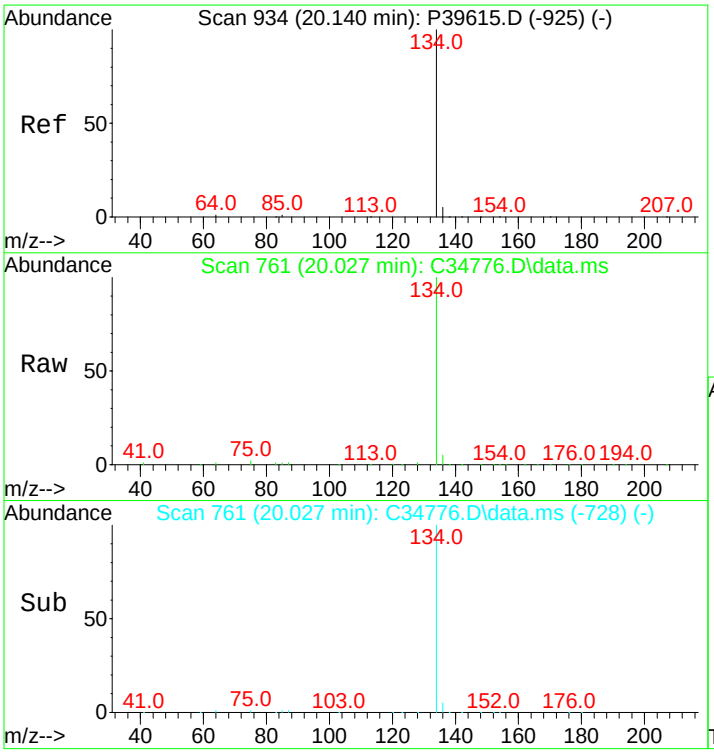


#17
1-Methylnaphthalene
Concen: 458.58 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:142 Resp: 44193

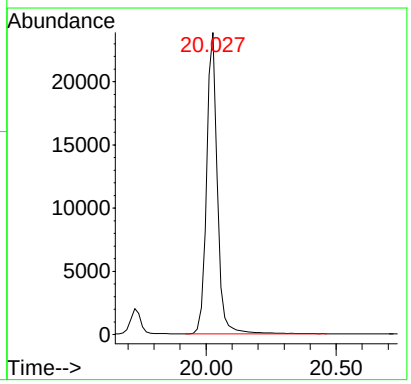
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

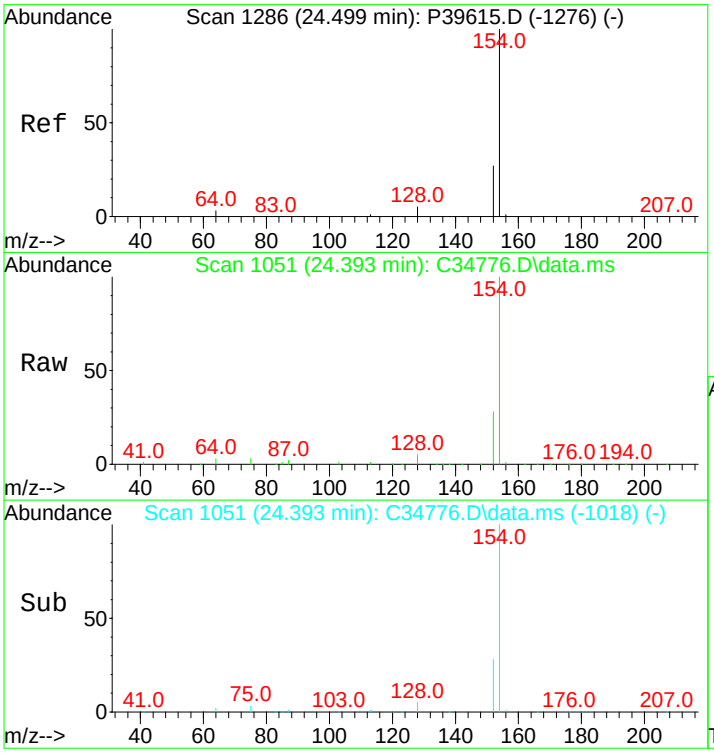




#18
Benzothiophene
Concen: 455.29 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:134 Resp: 68125

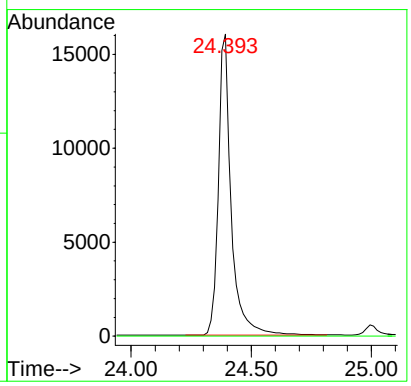


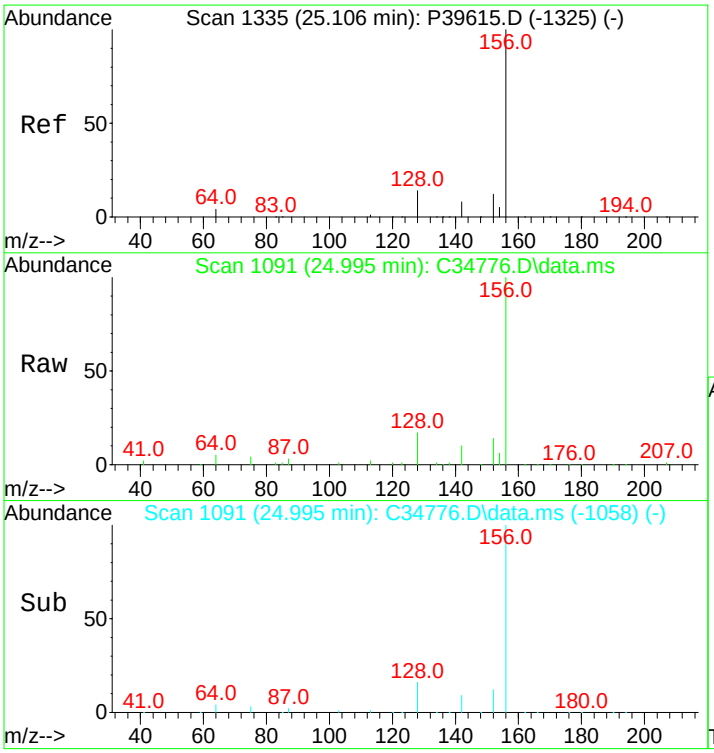


#23
Biphenyl
Concen: 475.86 ng/mL
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:154 Resp: 59181

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

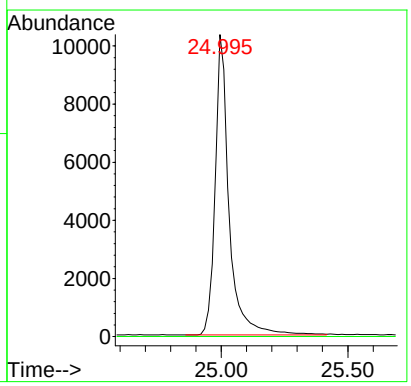


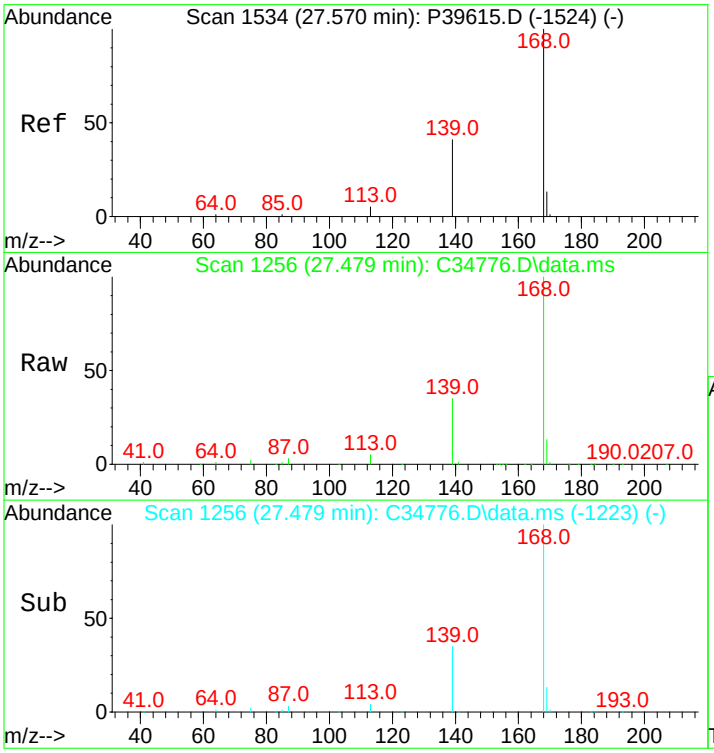


#24
2,6-Dimethylnaphthalene
Concen: 485.48 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:156 Resp: 39215

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

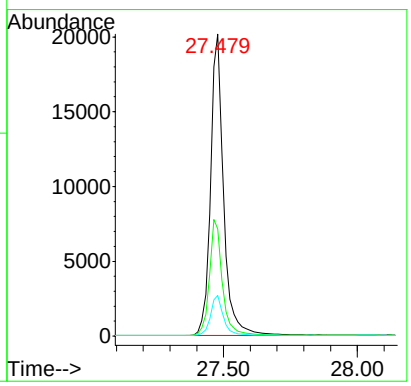


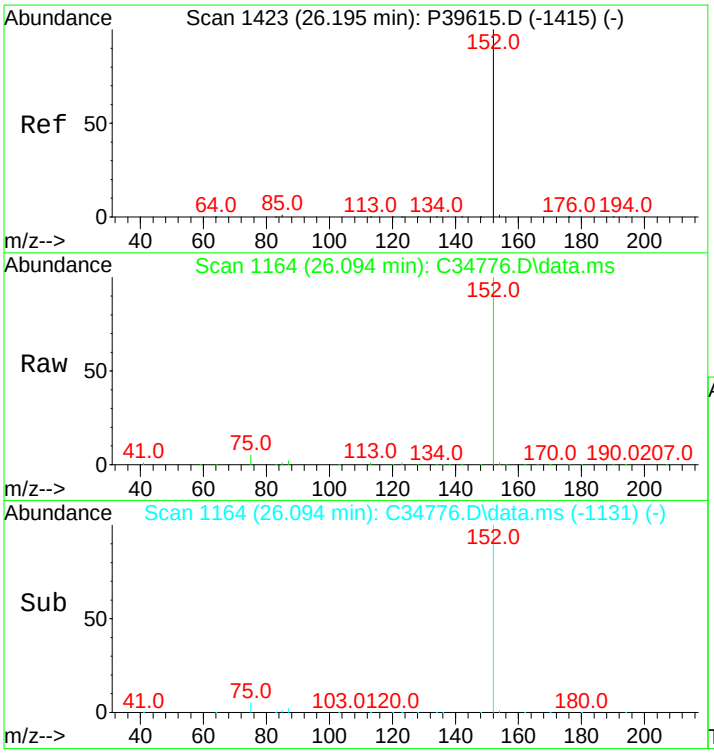


#25
Dibenzofuran
Concen: 475.27 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:168 Resp: 67874

Ion	Ratio	Lower	Upper
168	100		
139	38.3	28.4	42.6
169	13.3	10.8	16.2

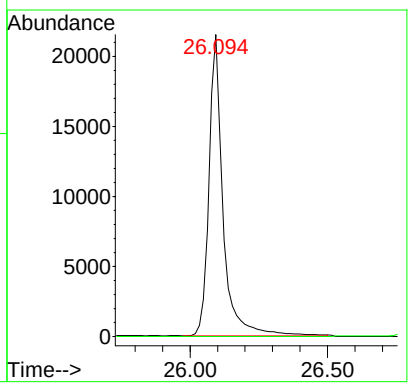


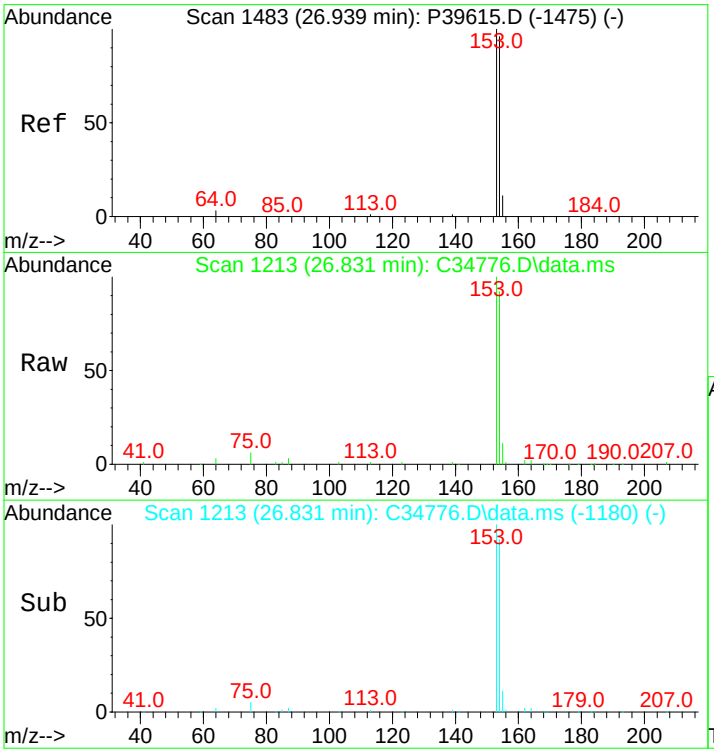


#26
Acenaphthylene
Concen: 460.82 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:152 Resp: 76063

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

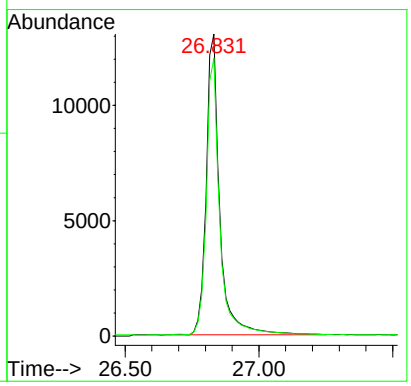


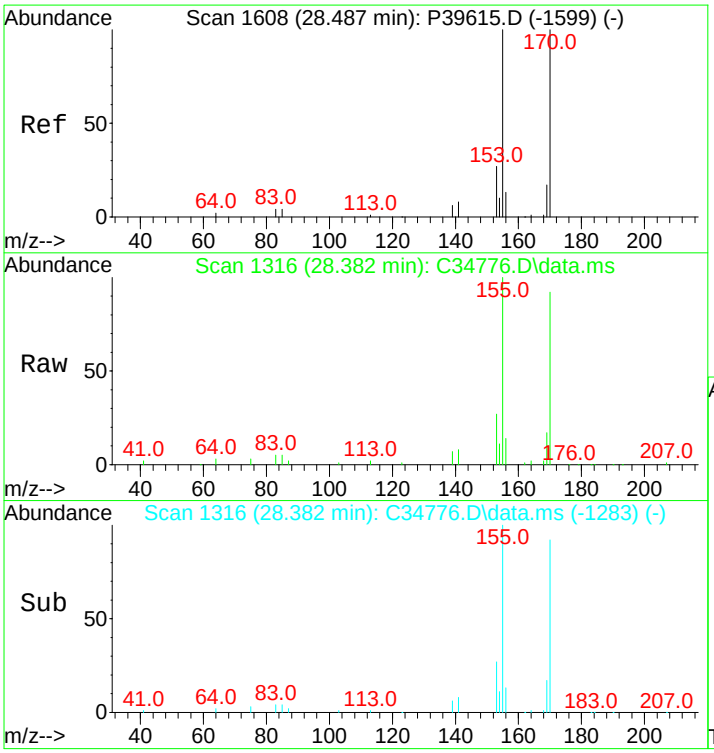


#27
Acenaphthene
Concen: 473.07 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:153 Resp: 45976

Ion	Ratio	Lower	Upper
153	100		
154	90.9	73.6	110.4

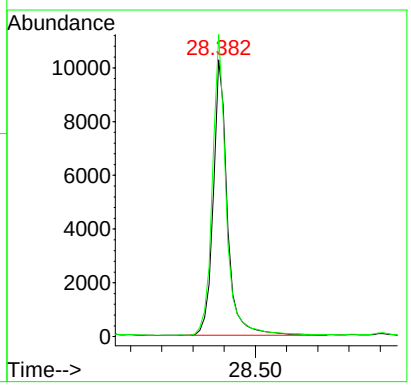


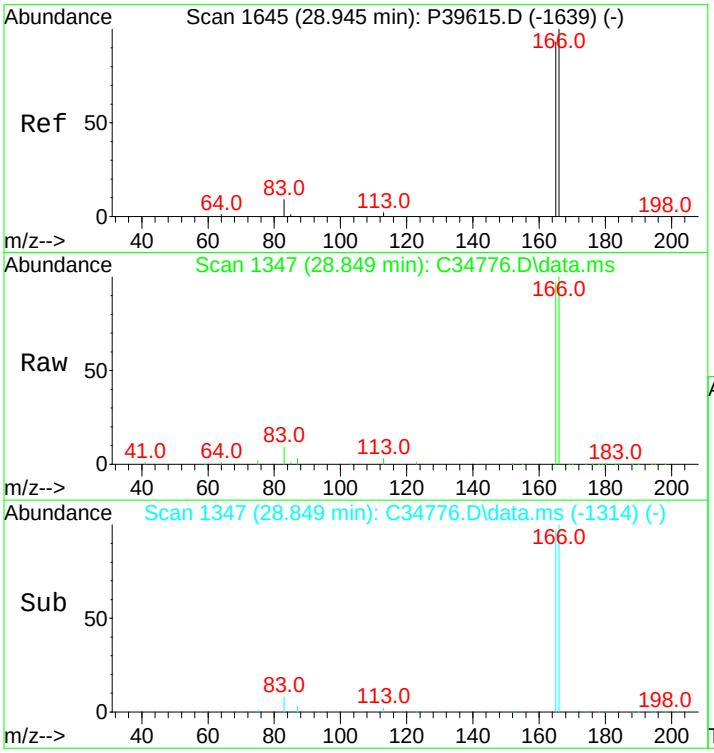


#28
2,3,5-Trimethylnaphthalene
Concen: 494.07 ng/mL
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:170 Resp: 32171

Ion	Ratio	Lower	Upper
170	100		
155	107.7	87.3	130.9

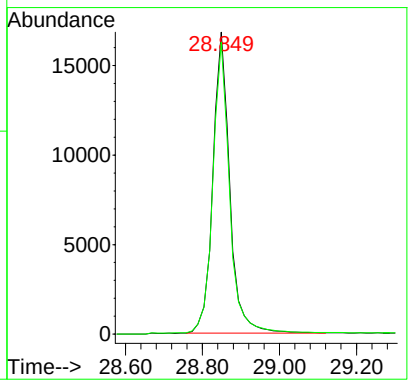


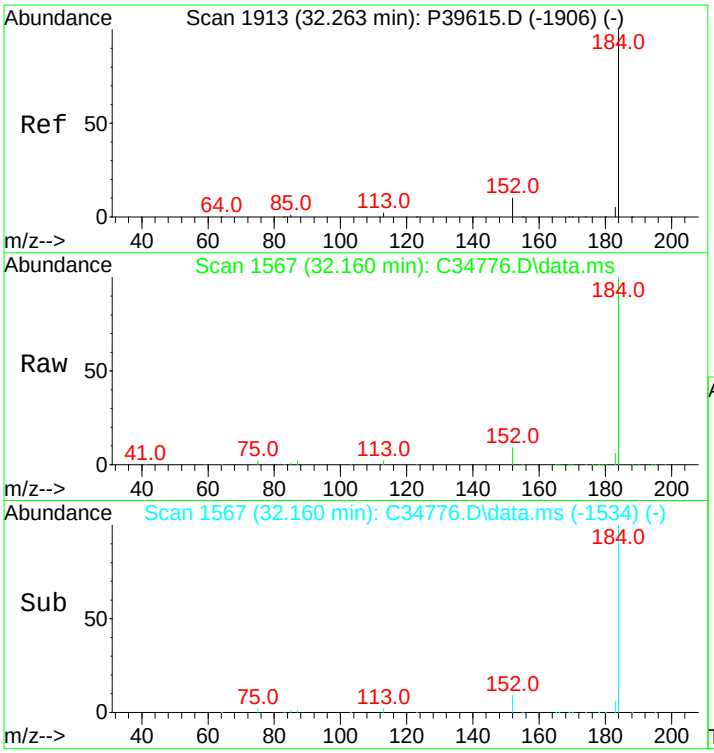


#29
Fluorene
Concen: 480.11 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:166 Resp: 51461

Ion	Ratio	Lower	Upper
166	100		
165	97.4	77.3	115.9

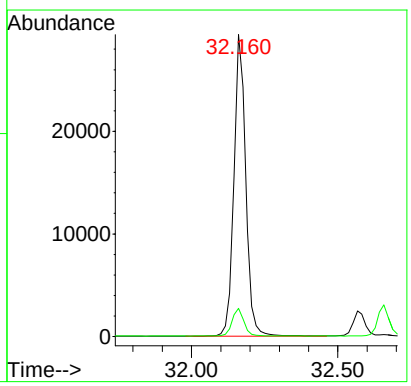


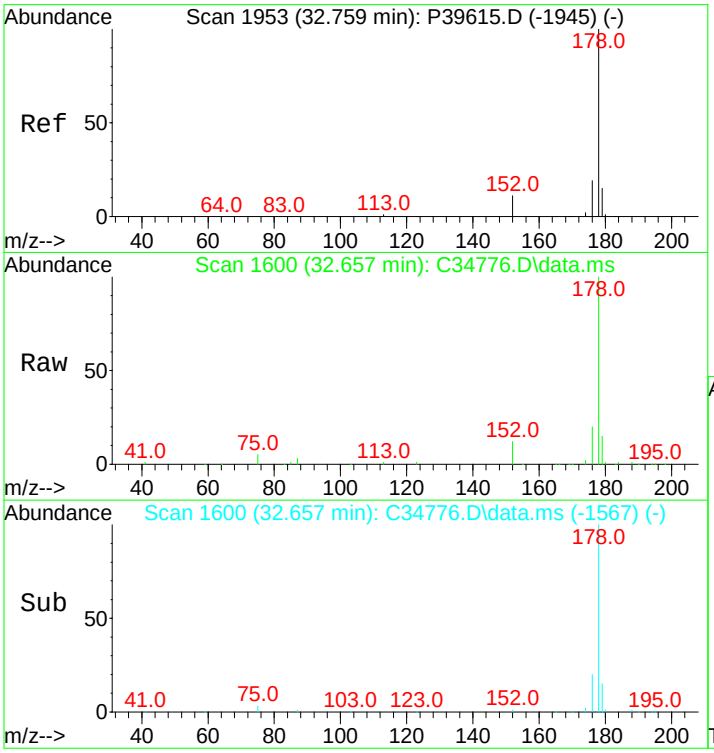


#33
Dibenzothiophene
Concen: 475.25 ng/mL
RT: 32.160 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:184 Resp: 81656

Ion	Ratio	Lower	Upper
184	100		
152	9.2	7.5	11.3

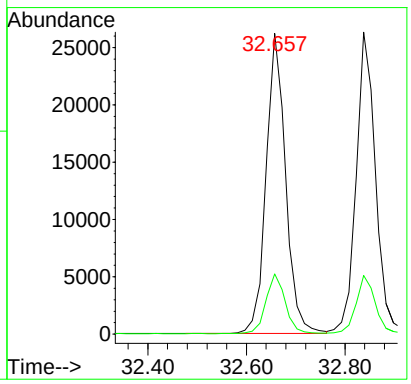


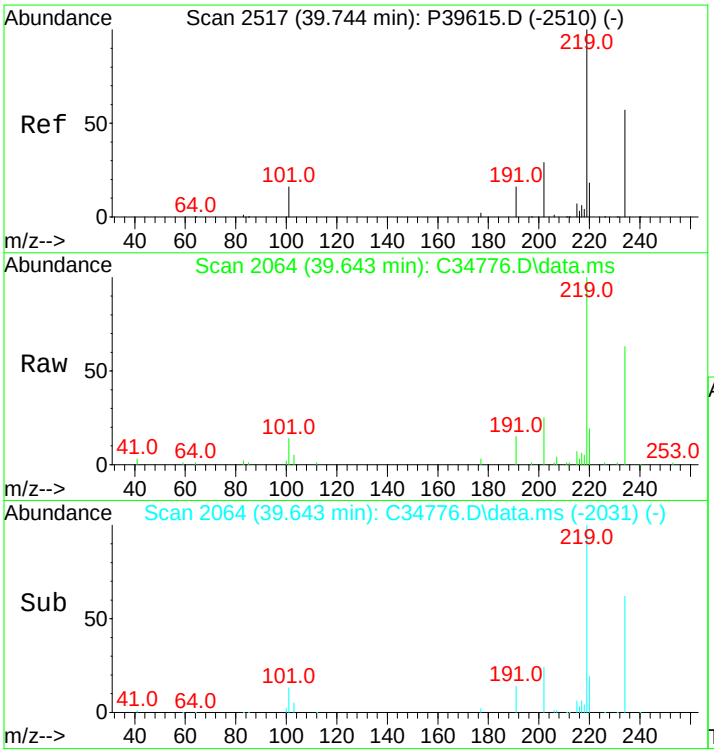


#43
Phenanthrene
Concen: 478.82 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:178 Resp: 72281

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

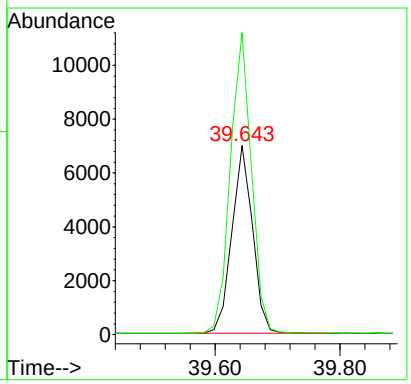


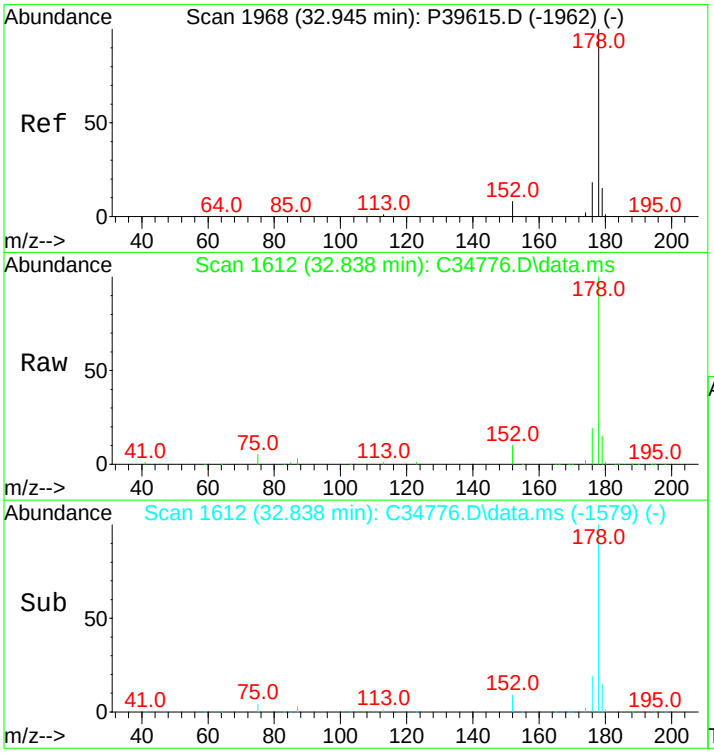


#54
Retene
Concen: 548.00 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 16137

Ion	Ratio	Lower	Upper
234	100		
219	163.3	127.8	191.8

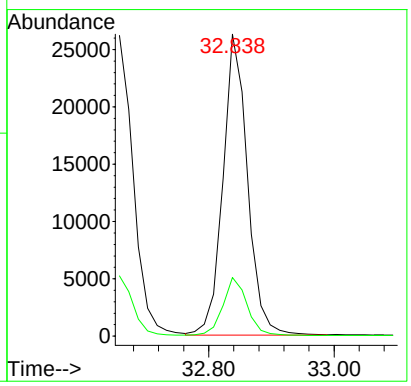


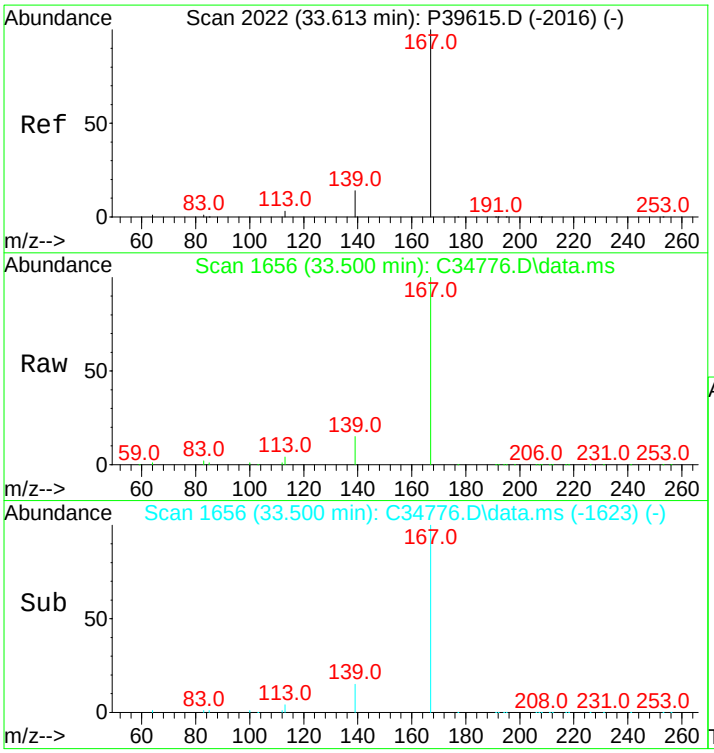


#55
Anthracene
Concen: 485.76 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:178 Resp: 71626

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.5	23.3

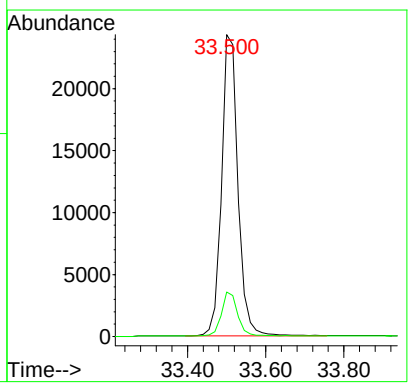


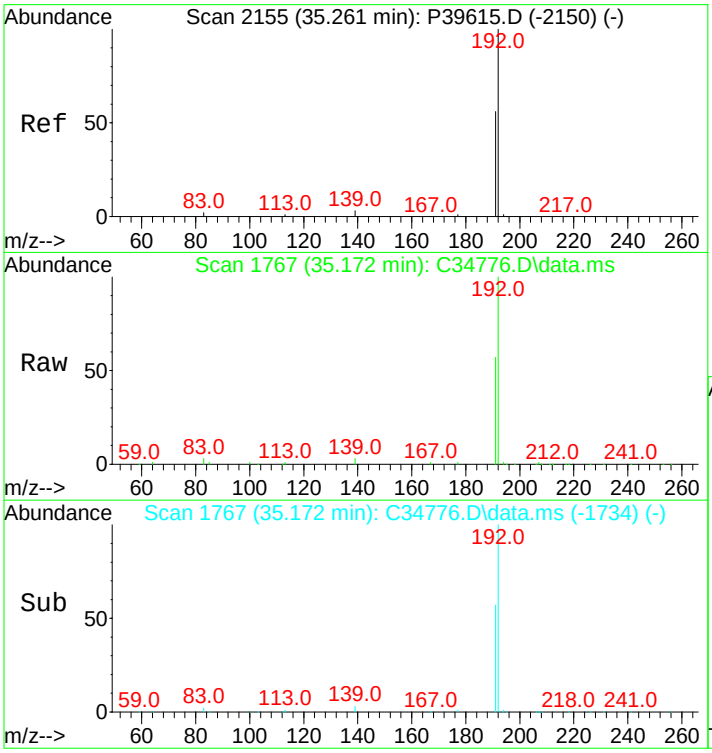


#56
Carbazole
Concen: 472.97 ng/mL m
RT: 33.500 min Scan# 1656
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:167 Resp: 70445

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.8	17.8

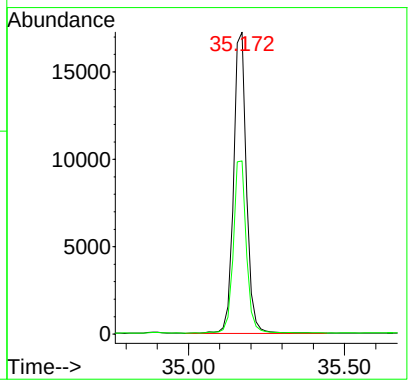


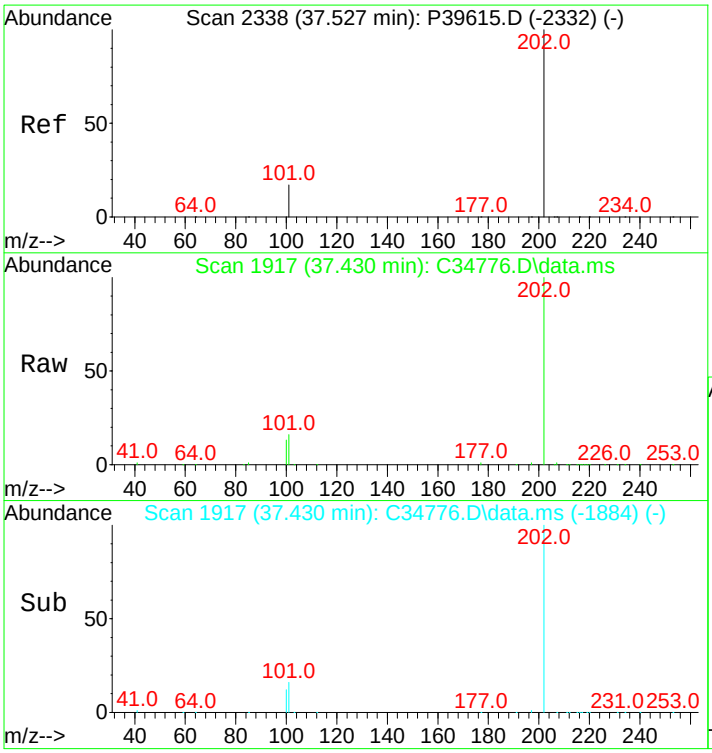


#57
1-Methylphenanthrene
Concen: 514.93 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:192 Resp: 49260

Ion	Ratio	Lower	Upper
192	100		
191	58.0	45.9	68.9

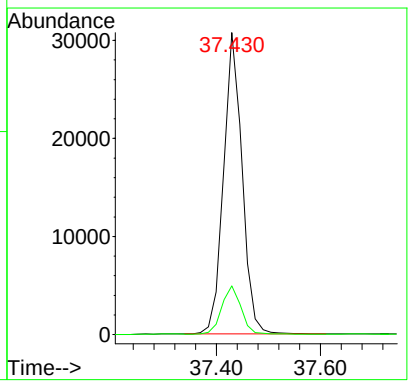


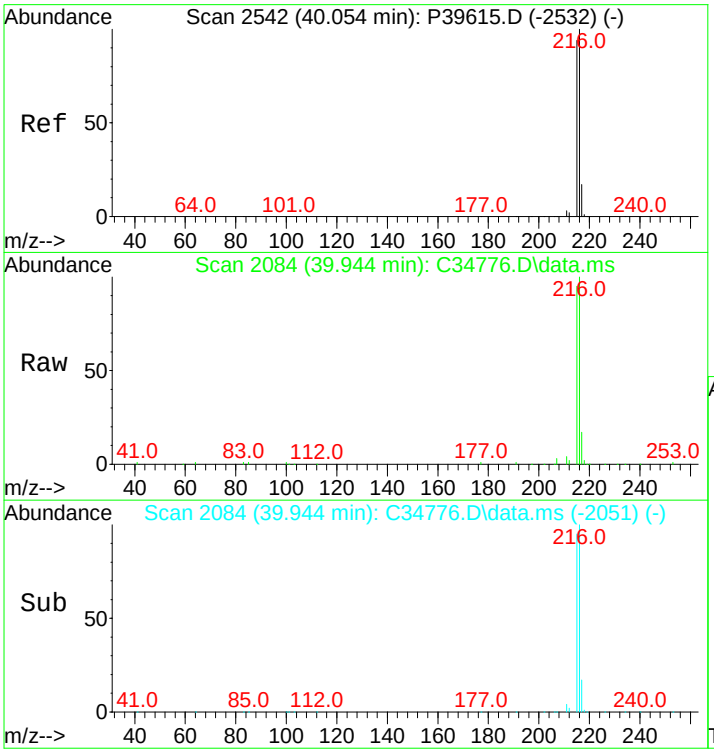


#58
Fluoranthene
Concen: 508.61 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:202 Resp: 76253

Ion	Ratio	Lower	Upper
202	100		
101	16.8	12.9	19.3

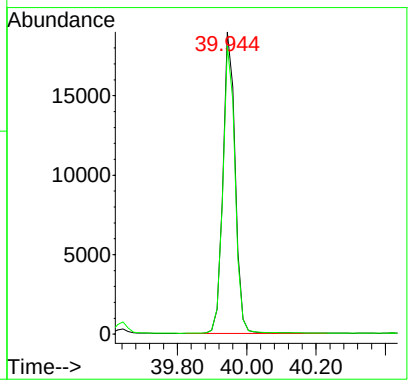


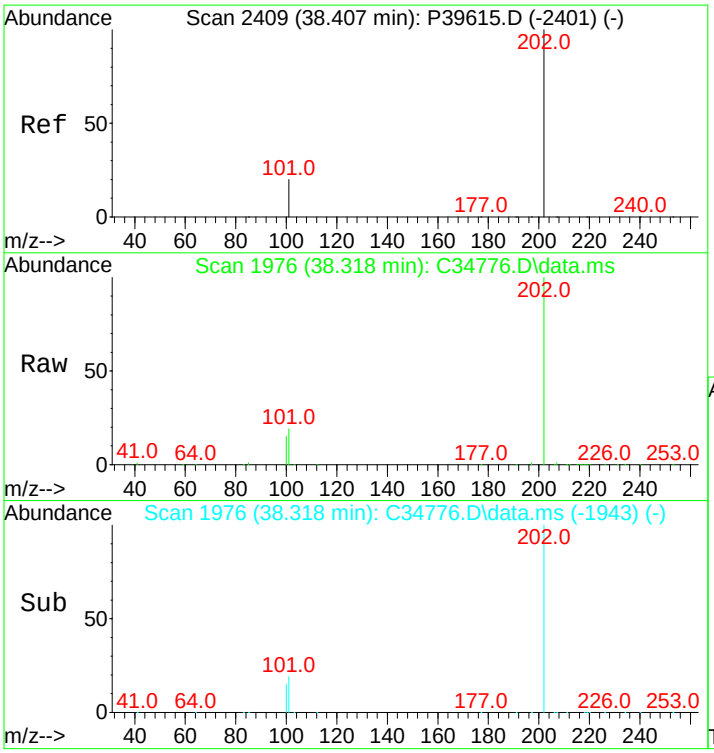


#59
Benzo(b)fluorene
Concen: 530.95 ng/mL
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:216 Resp: 46182

Ion	Ratio	Lower	Upper
216	100		
215	95.6	76.3	114.5

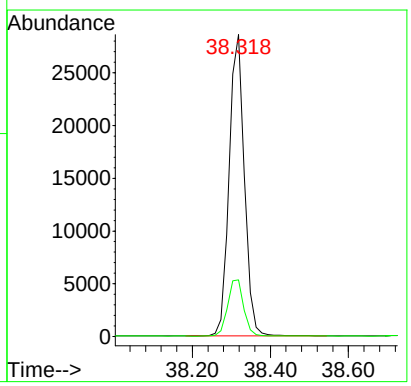


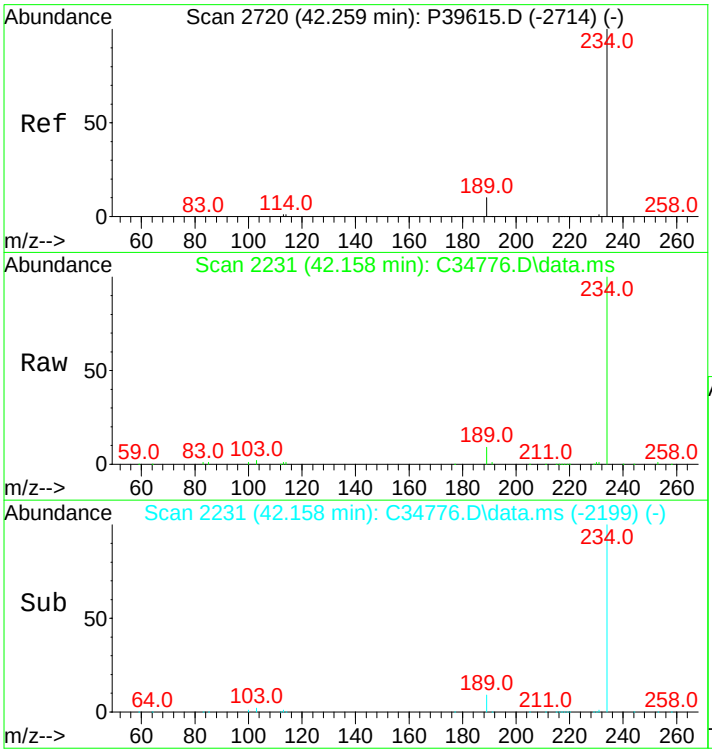


#60
Pyrene
Concen: 509.26 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:202 Resp: 77613

Ion	Ratio	Lower	Upper
202	100		
101	19.7	15.0	22.4

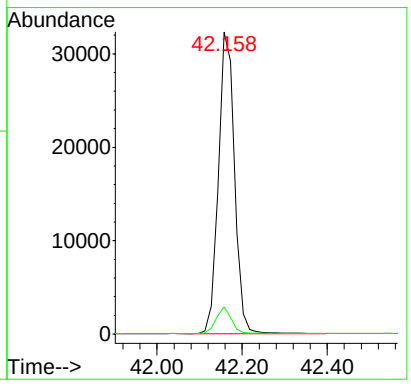


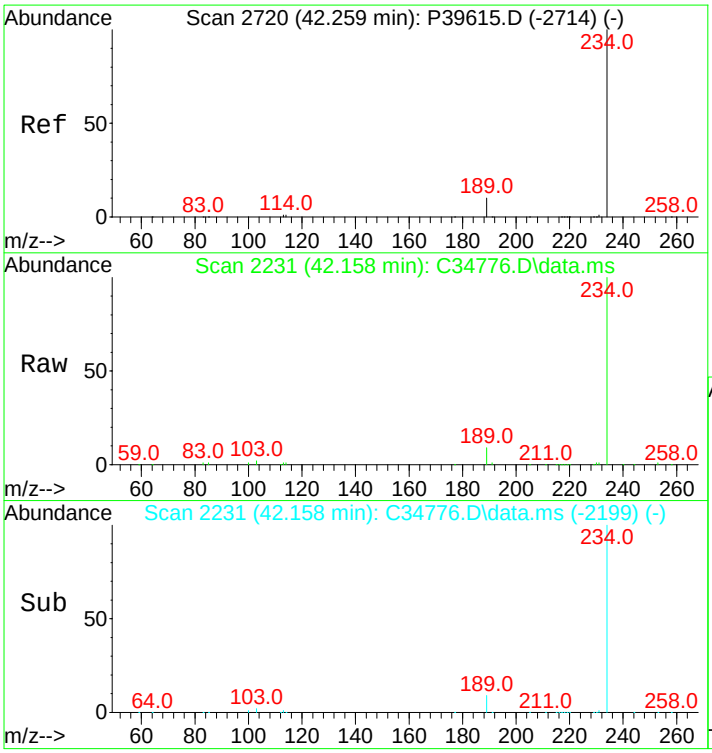


#66
Naphthobenzothiophene
Concen: 517.03 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 84831

Ion	Ratio	Lower	Upper
234	100		
189	8.2	20.5	30.7#

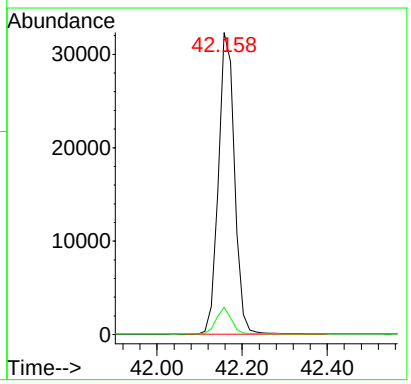


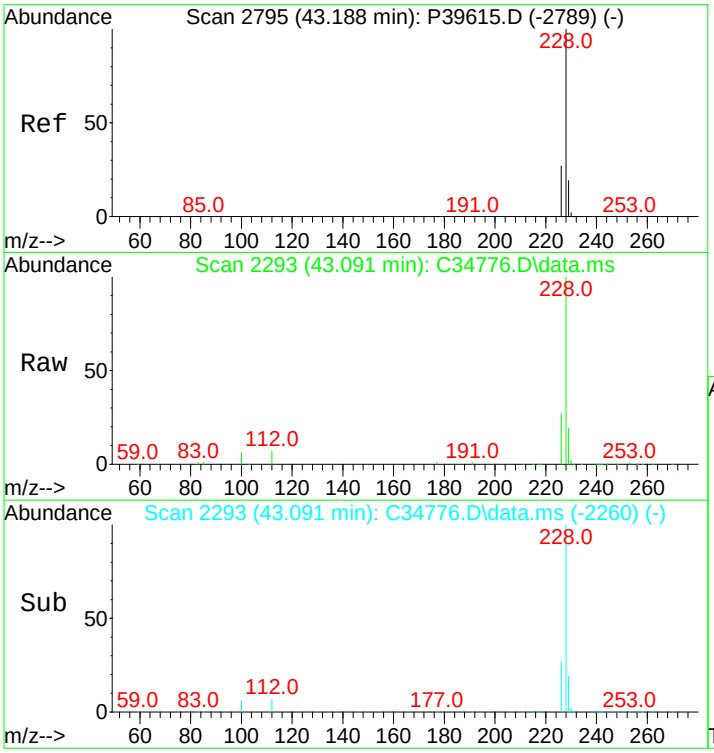


#67
Naphthobenzothiophene-2,1-D
Concen: 517.03 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:234 Resp: 84831

Ion	Ratio	Lower	Upper
234	100		
189	8.2	20.5	30.7#

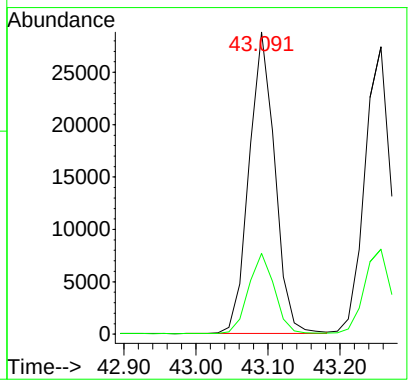


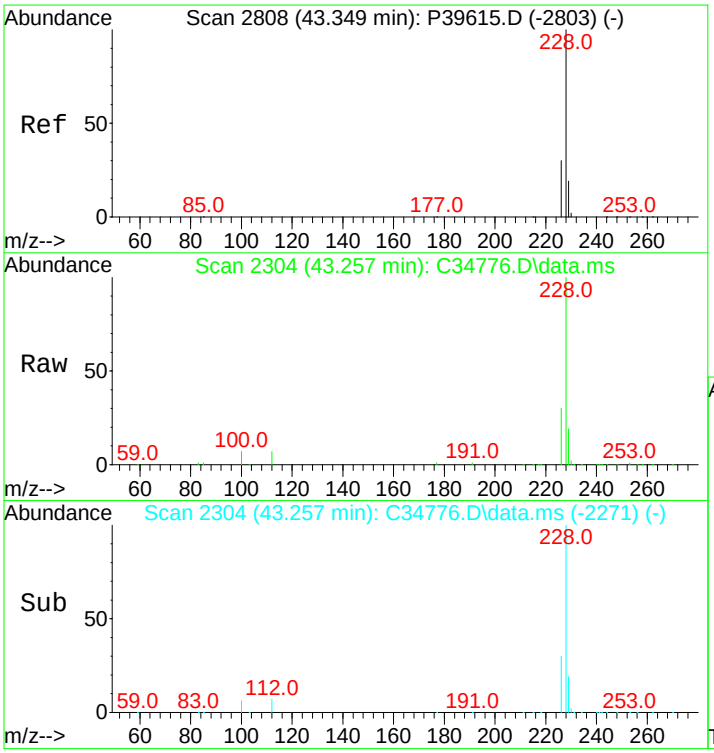


#75
Benz[a]anthracene
Concen: 502.09 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 71364

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

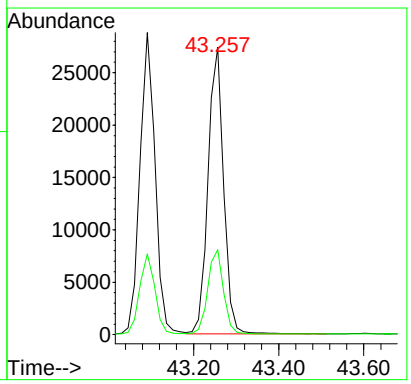


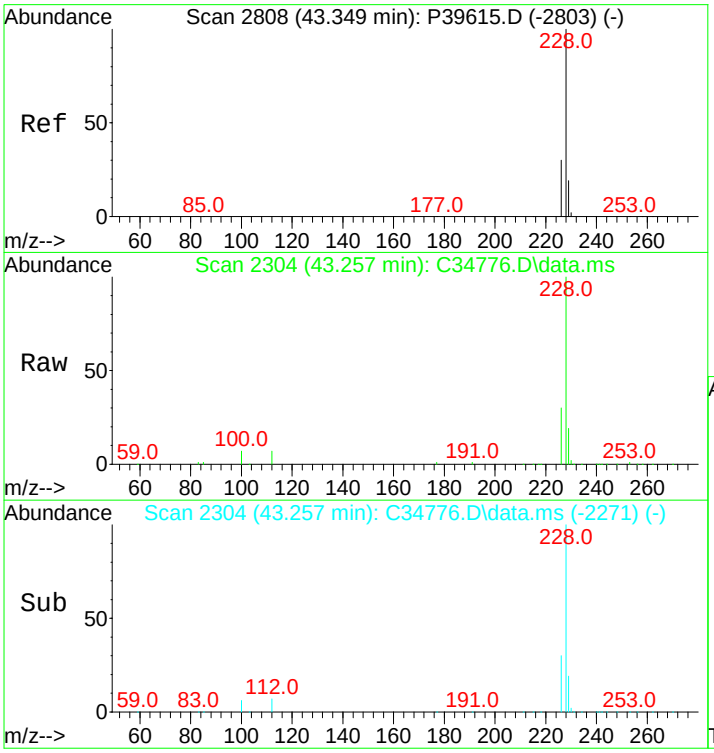


#76
Chrysene
Concen: 485.24 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 69630

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

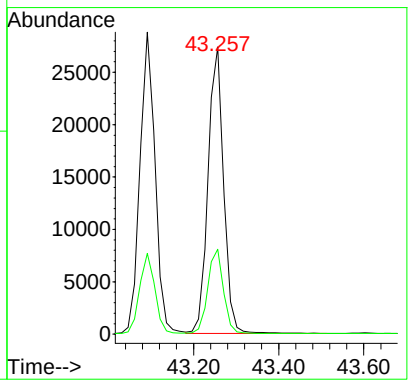


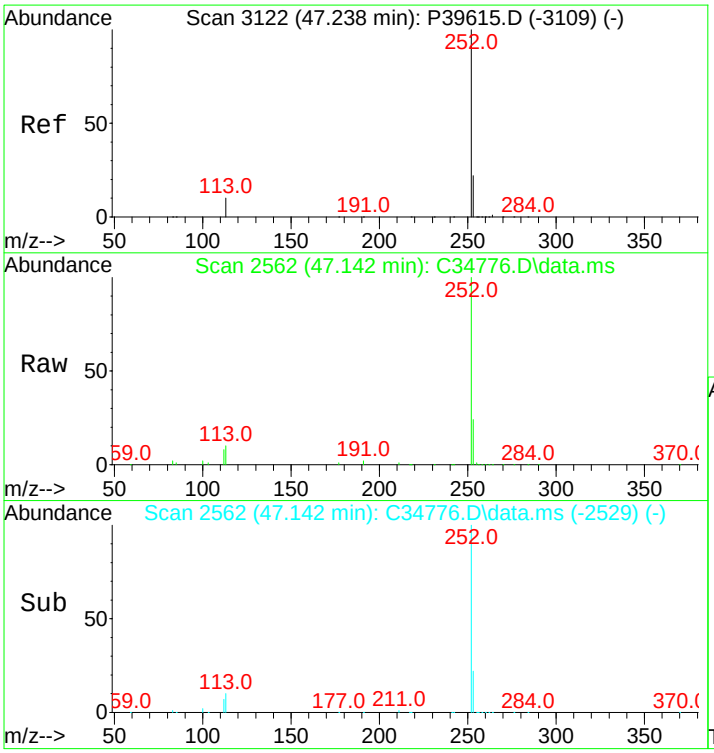


#77
Chrysene/Triphenylene
Concen: 485.24 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:228 Resp: 69630

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

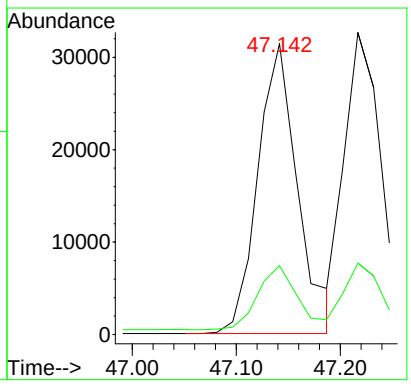


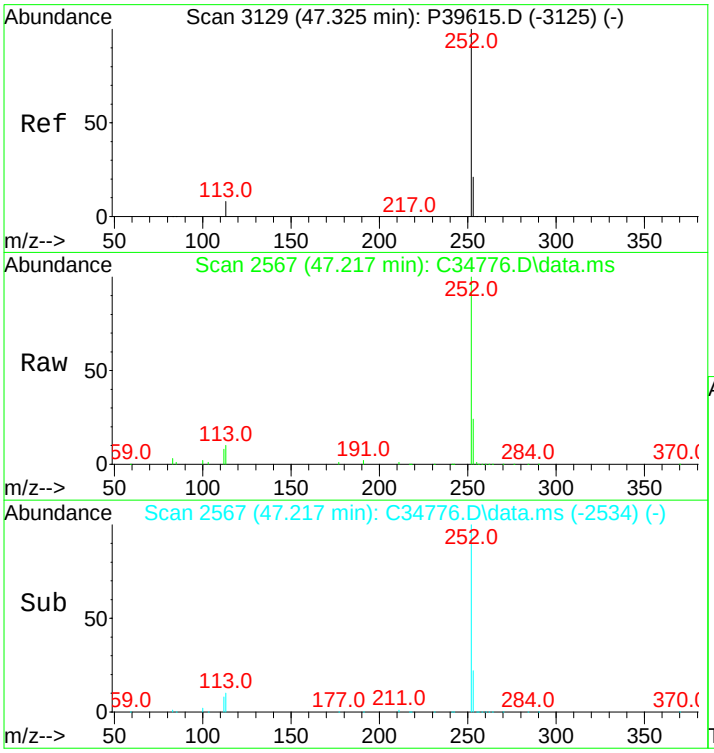


#82
Benzo[b]fluoranthene
Concen: 538.27 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 84065

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.0	28.4

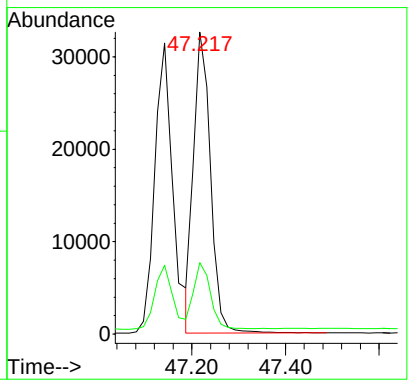


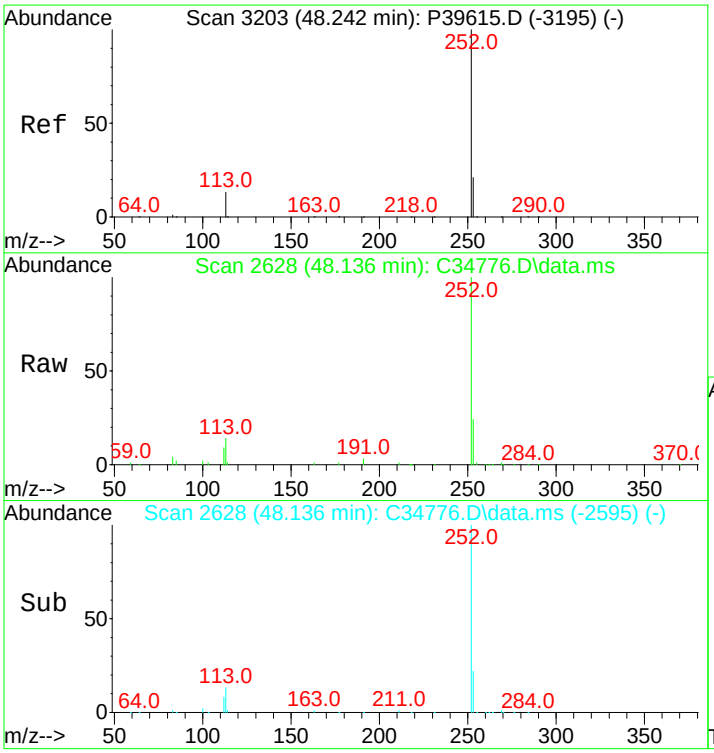


#83
Benzo[j]+[k]fluoranthene
Concen: 481.78 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 81920

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

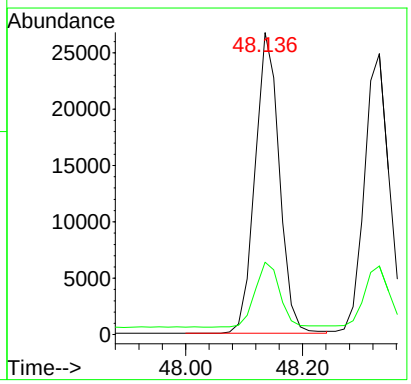


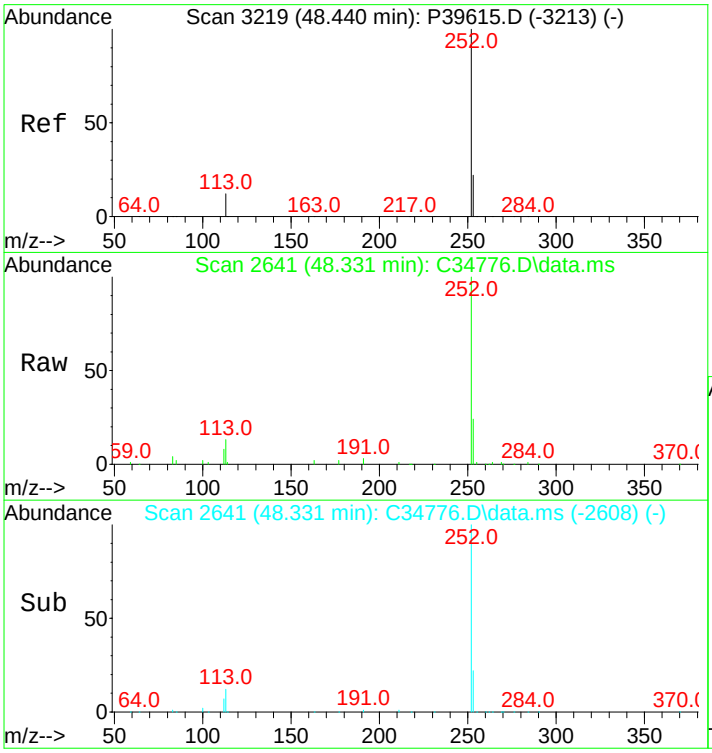


#85
Benzo[e]pyrene
Concen: 495.57 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 76555

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.2	28.8

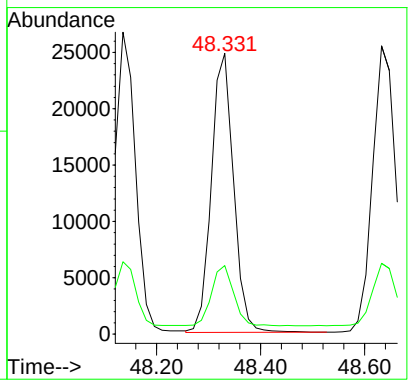


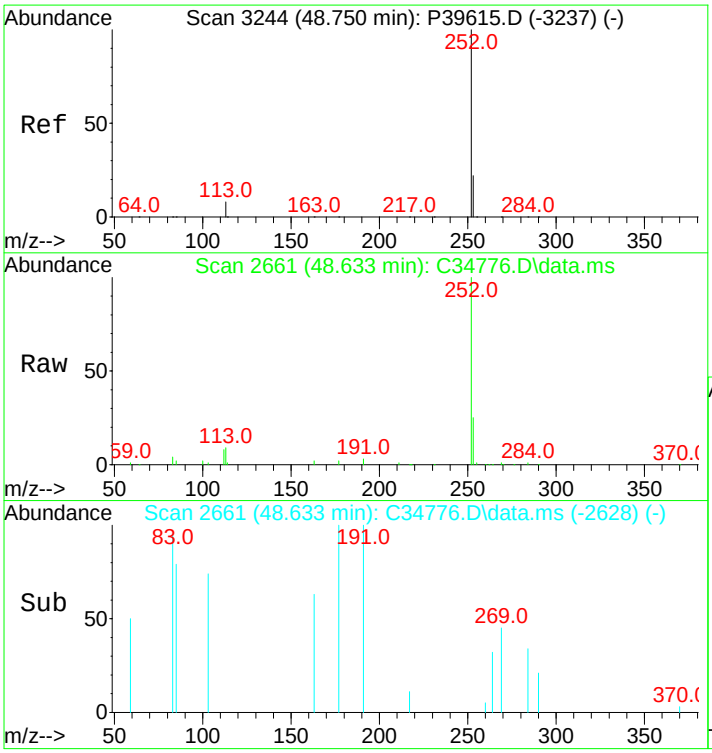


#87
Benzo[a]pyrene
Concen: 493.58 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 73411

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.5	29.3

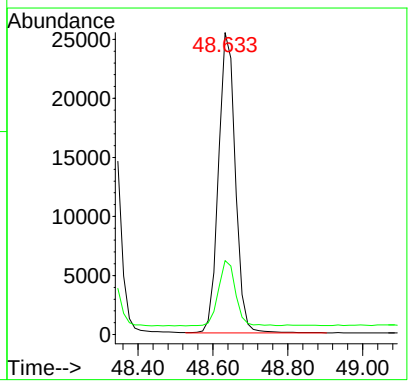


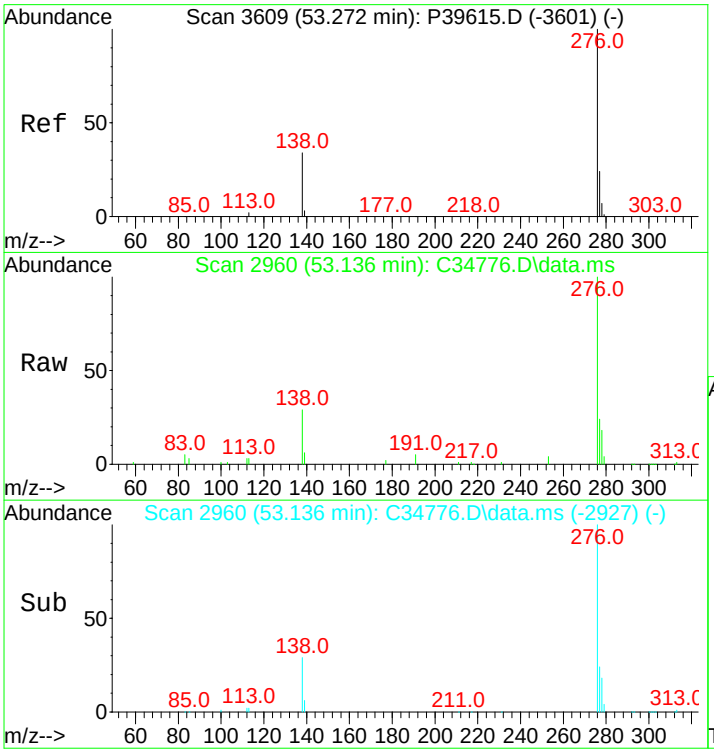


#88
Perylene
Concen: 496.19 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:252 Resp: 78871

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.6	29.4

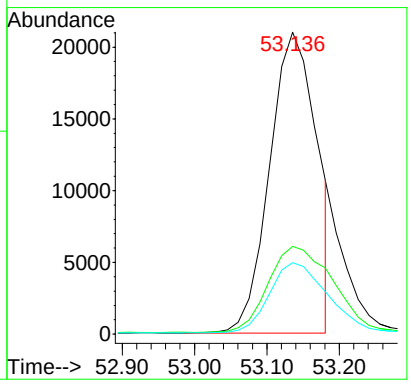


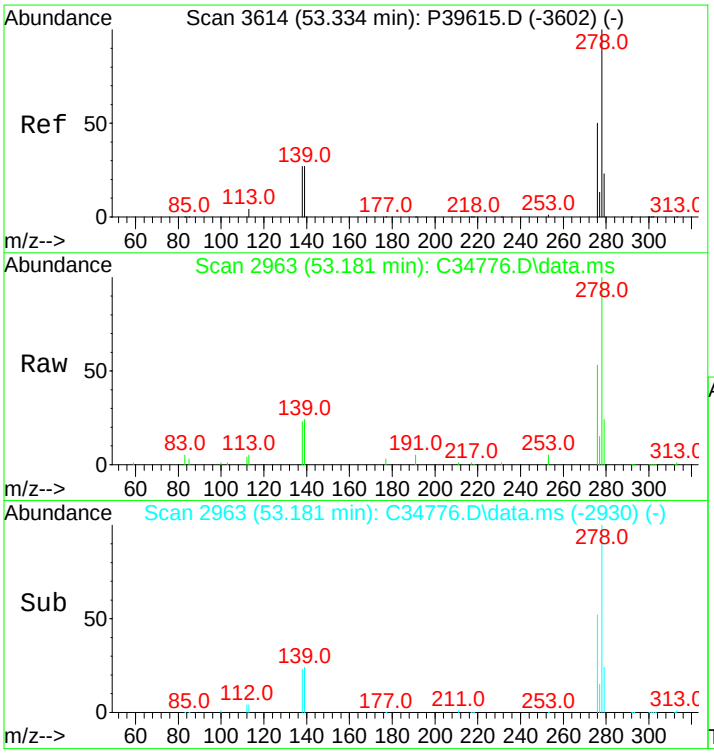


#89
Indeno[1,2,3-cd]pyrene
Concen: 551.46 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:276 Resp: 95448

Ion	Ratio	Lower	Upper
276	100		
138	39.4	23.3	34.9#
277	29.0	19.0	28.4#

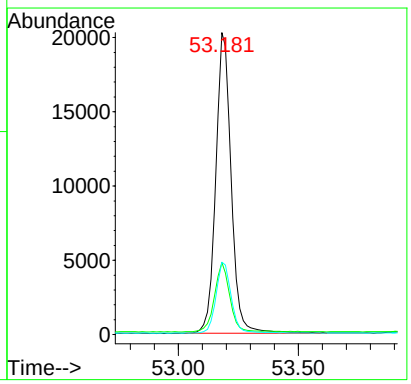


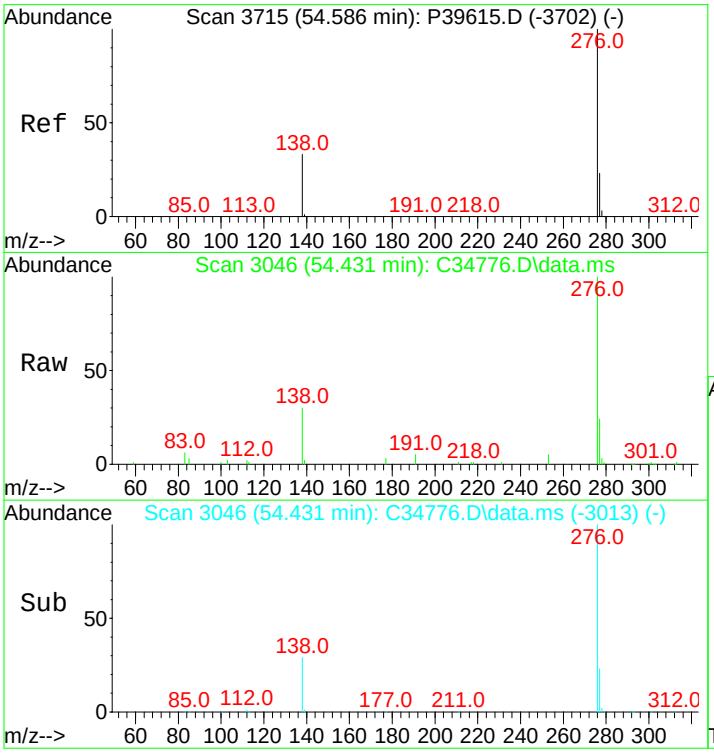


#90
Dibenz[ah]+[ac]anthracene
Concen: 549.65 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:278 Resp: 90499

Ion	Ratio	Lower	Upper
278	100		
139	22.3	19.1	28.7
279	22.9	19.2	28.8

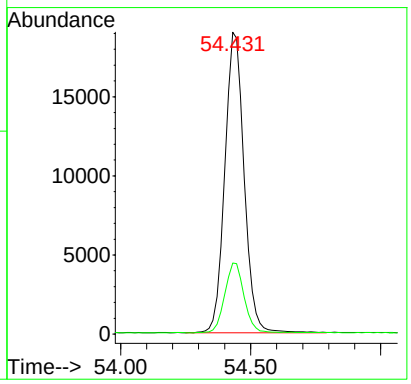


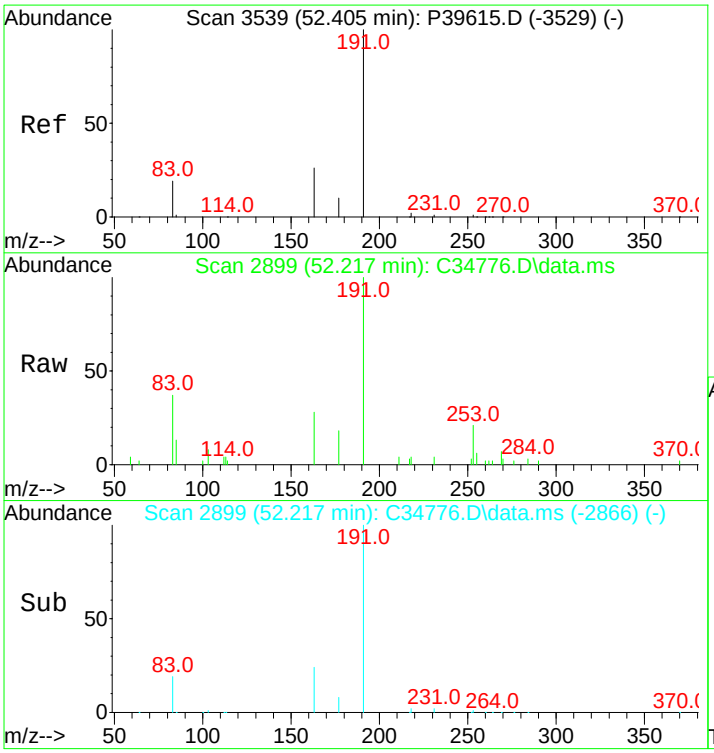


#91
Benzo[g,h,i]perylene
Concen: 533.96 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:276 Resp: 97641

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

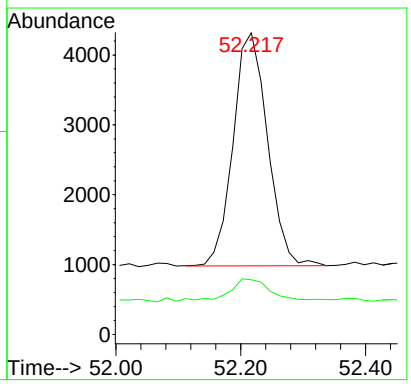


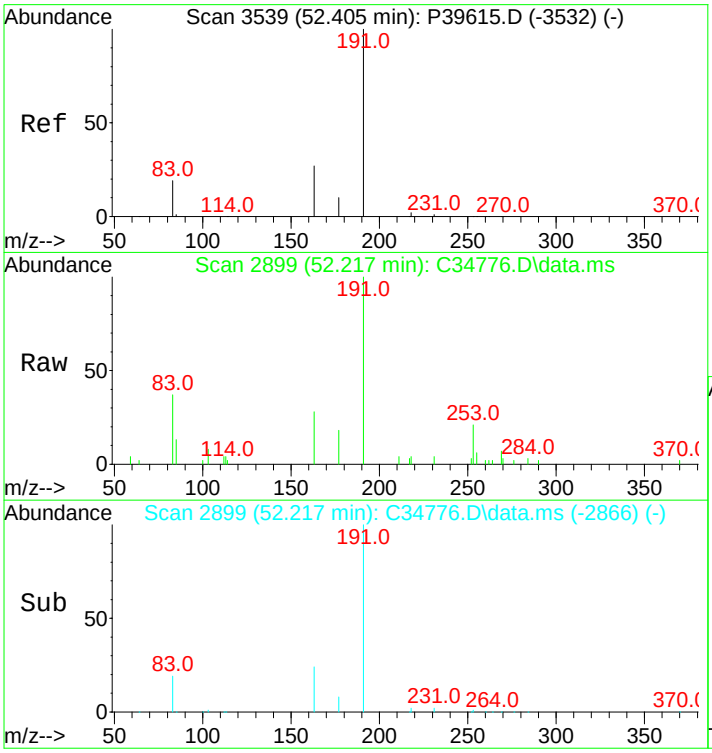


#92
Hopane (T19)
Concen: 433.42 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:191 Resp: 12792

Ion	Ratio	Lower	Upper
191	100		
177	11.3	14.6	21.8#

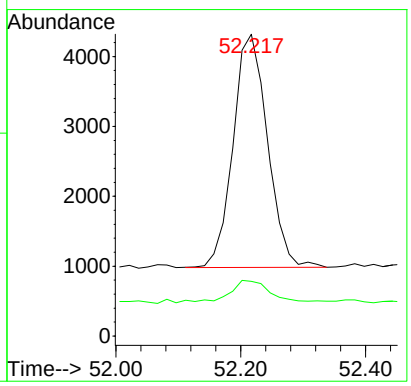




#93
17a(H),21B(H)-hopane - C30H52
Concen: 433.42 ng/mL
RT: 52.217 min Scan# 2899
Delta R.T. 0.000 min
Lab File: C34776.D
Acq: 2 May 2012 11:19 am

Tgt Ion:191 Resp: 12792

Ion	Ratio	Lower	Upper
191	100		
177	11.3	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.696	164	27233M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.151	240	46077	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	57040	482.579	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.26%#			
42) Phenanthrene-d10	32.567	188	45708	489.245	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.92%#			
86) Benzo[a]pyrene-d12	48.241	264	46524	487.208	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.72%#			
127) 5B(H)Cholane - Surr	43.754	217	7298	506.594	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.66%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	5383	250.396	ng/mL	100
4) cis-Decalin	17.603	138	3968	244.902	ng/mL	100
10) Naphthalene	19.801	128	79919	460.447	ng/mL#	100
16) 2-Methylnaphthalene	22.496	142	47971	467.430	ng/mL#	100
17) 1-Methylnaphthalene	22.917	142	45592	453.223	ng/mL#	100
18) Benzothiophene	20.027	134	71300	456.496	ng/mL	100
23) Biphenyl	24.393	154	60633	467.051	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.995	156	40652	482.129	ng/mL#	100
25) Dibenzofuran	27.479	168	70414	472.339	ng/mL	95
26) Acenaphthylene	26.094	152	79043M3	458.761	ng/mL	
27) Acenaphthene	26.816	153	47495M3	468.169	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.382	170	33282	489.657	ng/mL	100
29) Fluorene	28.849	166	53325M3	476.603	ng/mL	
33) Dibenzothiophene	32.161	184	83671	466.520	ng/mL	100
43) Phenanthrene	32.657	178	73704	467.738	ng/mL	99
54) Retene	39.643	234	17133	557.387	ng/mL	99
55) Anthracene	32.838	178	73311M3	476.306	ng/mL	
56) Carbazole	33.515	167	71324M3	458.758	ng/mL	
57) 1-Methylphenanthrene	35.157	192	50285	503.563	ng/mL	100
58) Fluoranthene	37.430	202	78861M3	503.908	ng/mL	
59) Benzo(b)fluorene	39.944	216	48097	529.736	ng/mL	100
60) Pyrene	38.318	202	80569	506.453	ng/mL	98
66) Naphthobenzothiophene	42.158	234	88451	516.442	ng/ml#	65
67) Naphthobenzothiophene-...	42.158	234	88451	516.442	ng/mL#	65
75) Benz[a]anthracene	43.091	228	73981	505.861	ng/mL	100
76) Chrysene	43.257	228	72194	488.956	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	72194	488.956	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	82351	512.461	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	87208	498.453	ng/mL	96
85) Benzo[e]pyrene	48.136	252	77842	489.729	ng/mL	97
87) Benzo[a]pyrene	48.331	252	73582	480.818	ng/mL	95
88) Perylene	48.633	252	80208	490.413	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.136	276	95412M3	535.748	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.181	278	91742	541.526	ng/mL	97
91) Benzo[g,h,i]perylene	54.431	276	97529	518.346	ng/mL	100
92) Hopane (T19)	52.202	191	13412M3	441.649	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	13345M3	439.443	ng/mL	

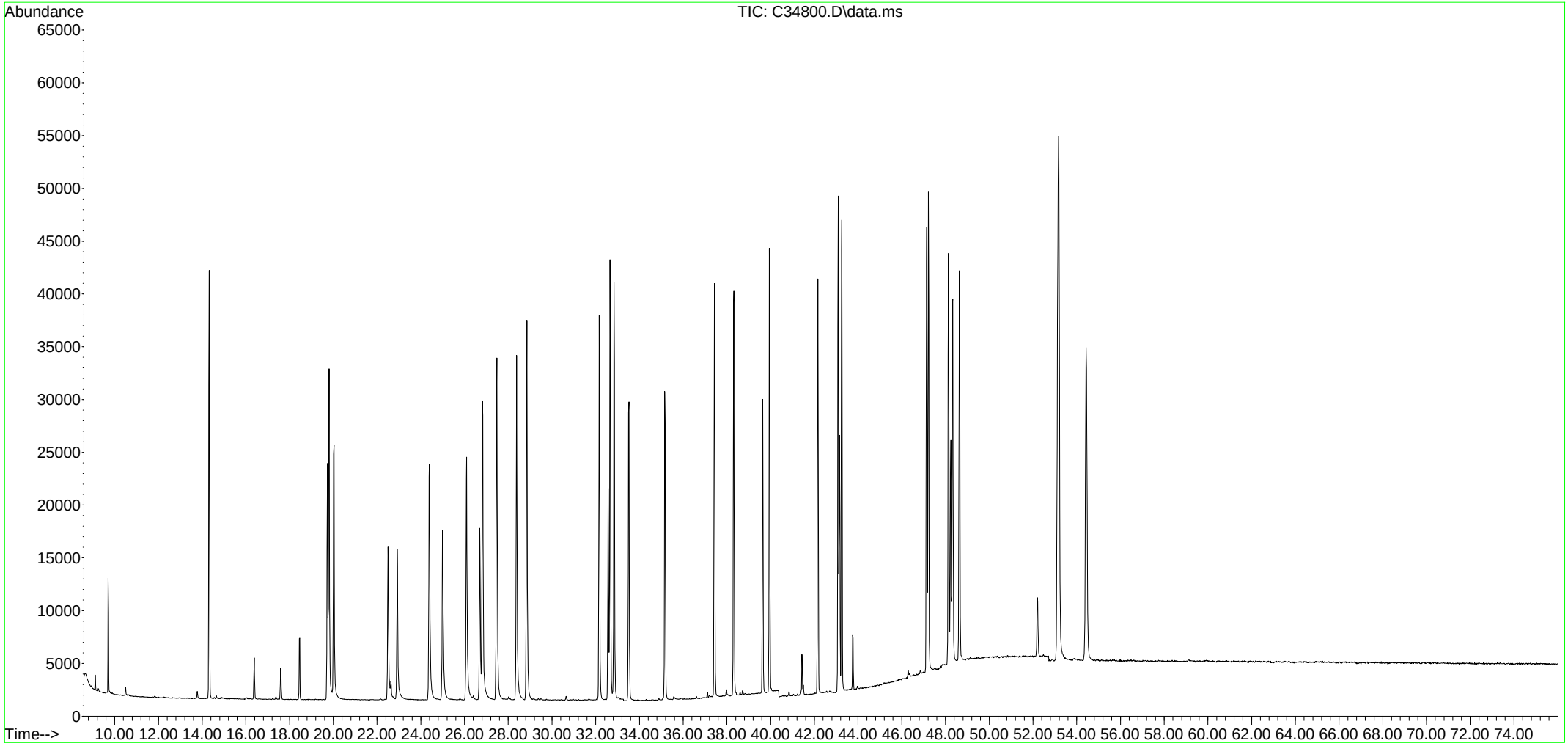
(#) = qualifier out of range (m) = manual integration (+) = signals summed

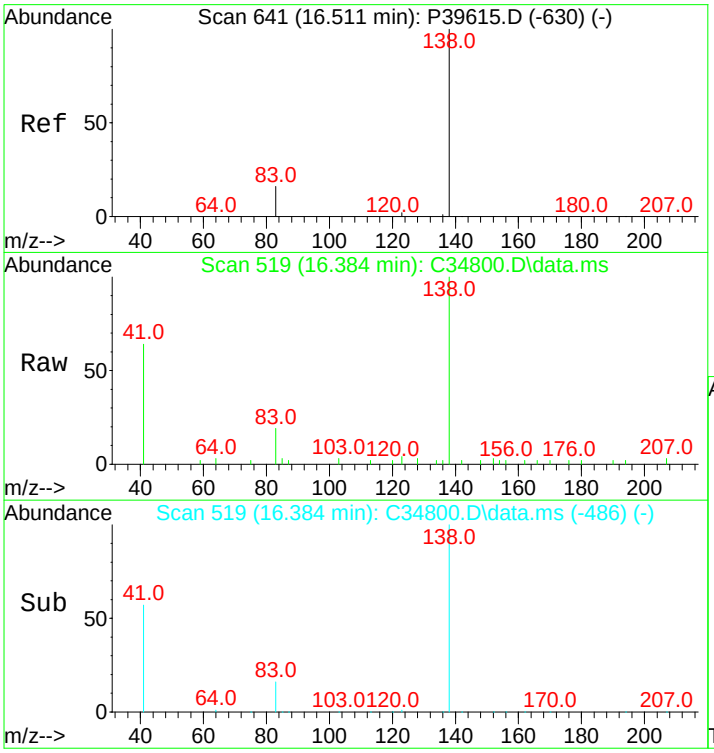
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34800.D
Acq On : 3 May 2012 5:57 am
Operator : AC
Sample : C305021202
Misc : CC WHAP056 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 05 12:45:20 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

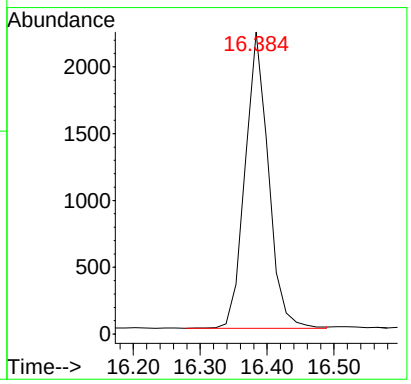
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

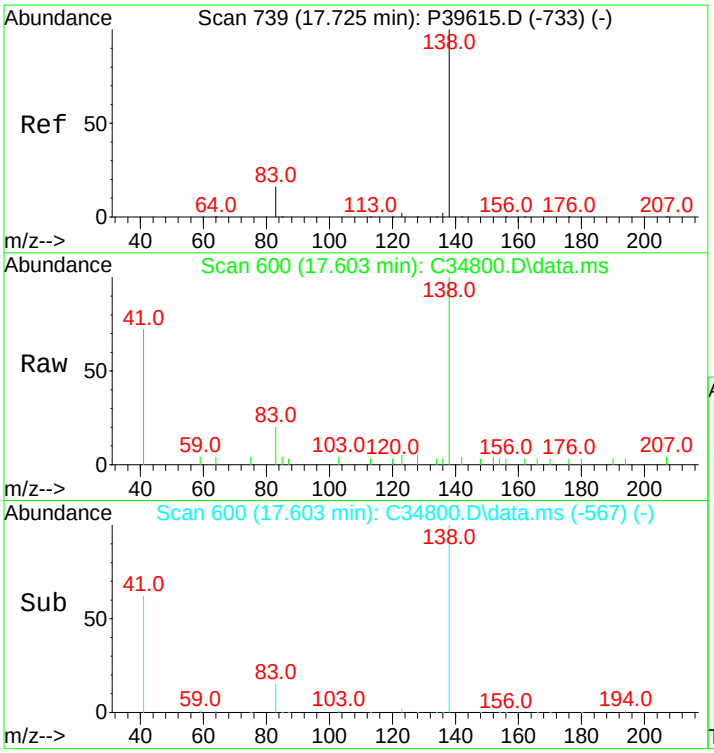




#3
trans-Decalin
Concen: 250.40 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

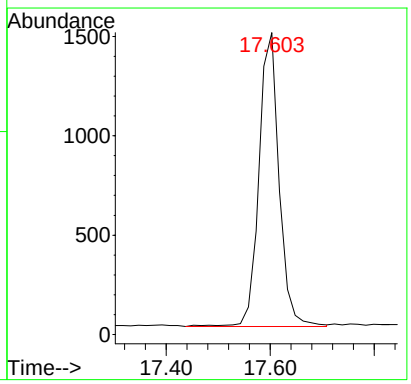
Tgt Ion:138 Resp: 5383

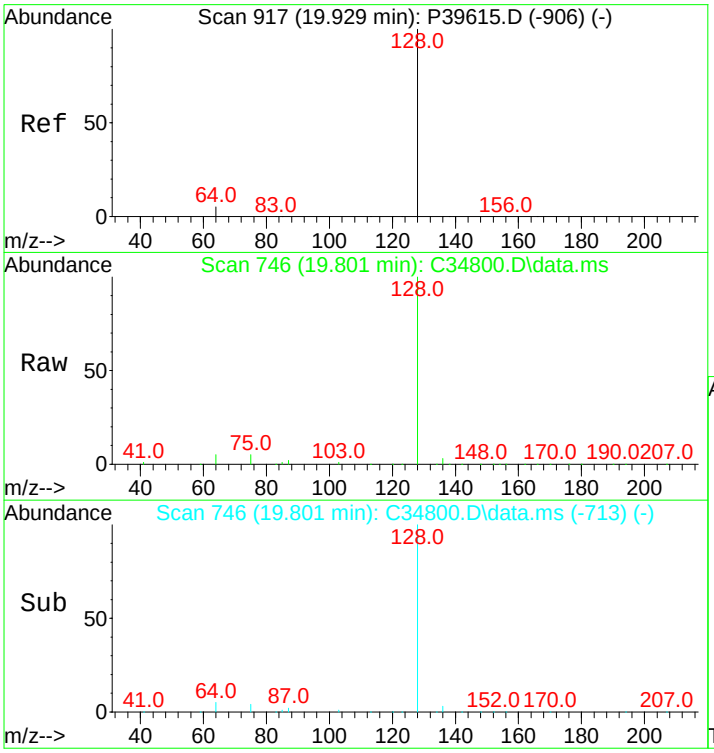




#4
cis-Decalin
Concen: 244.90 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:138 Resp: 3968

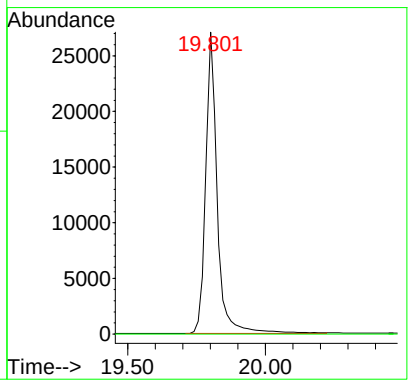


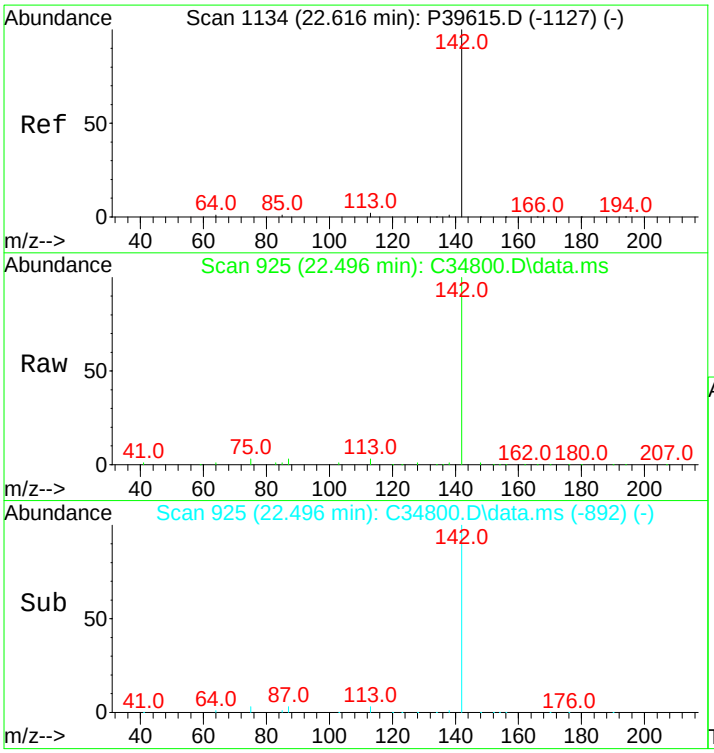


#10
Naphthalene
Concen: 460.45 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:128 Resp: 79919

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

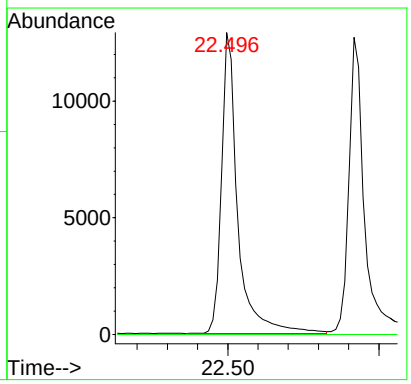


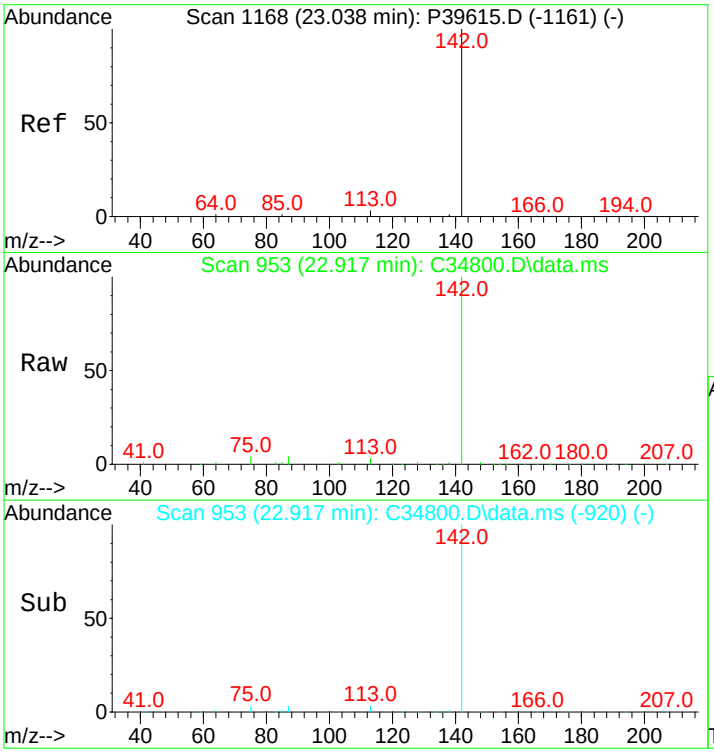


#16
2-Methylnaphthalene
Concen: 467.43 ng/mL
RT: 22.496 min Scan# 925
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:142 Resp: 47971

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

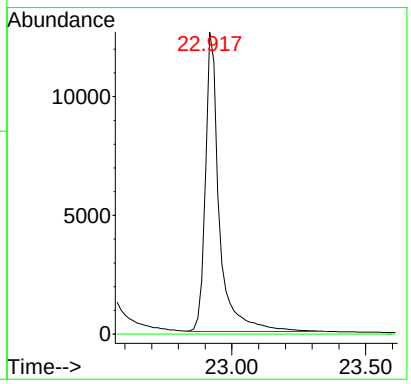


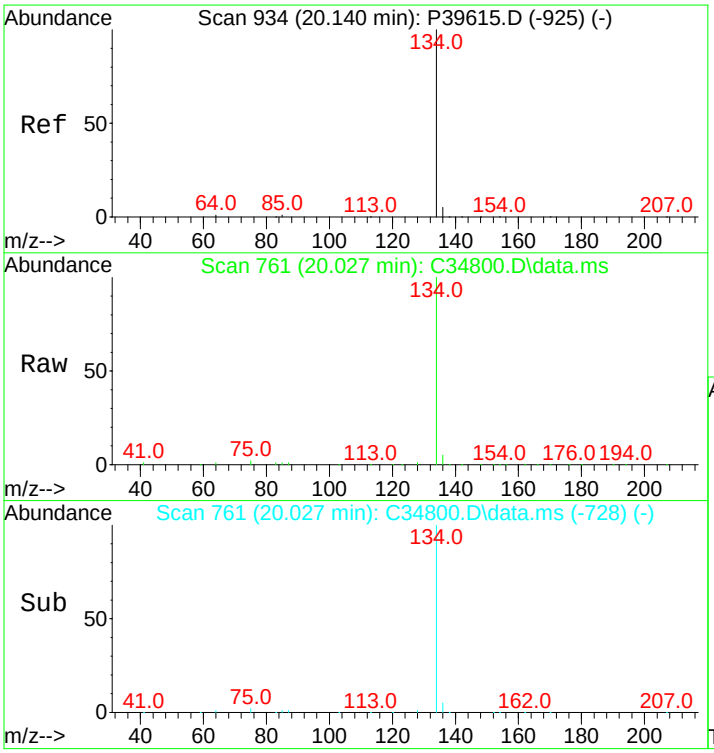


#17
1-Methylnaphthalene
Concen: 453.22 ng/mL
RT: 22.917 min Scan# 953
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:142 Resp: 45592

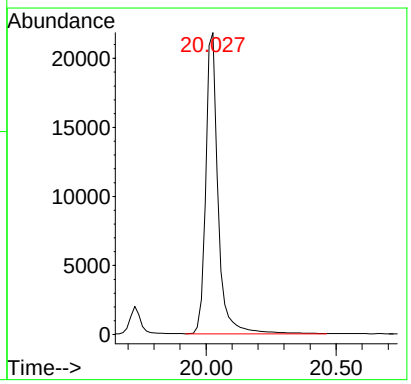
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

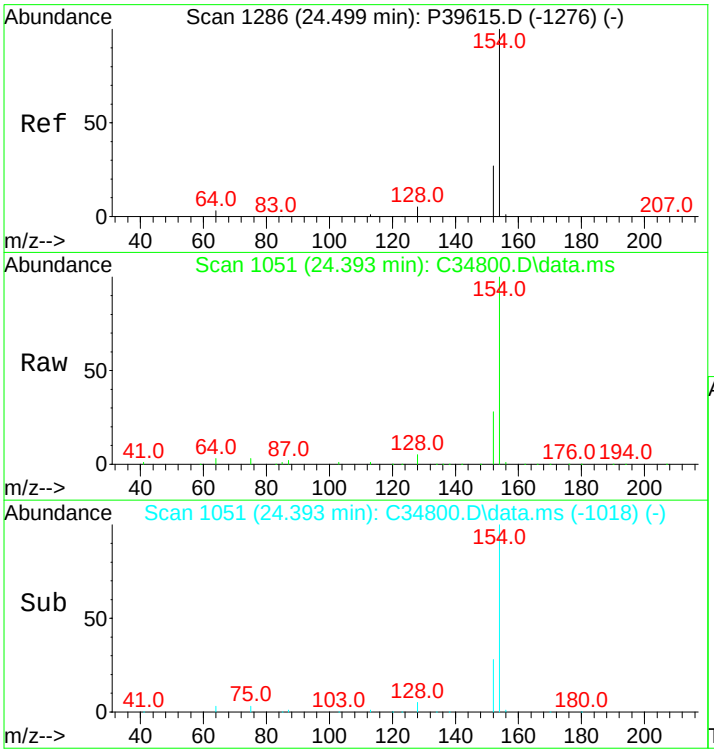




#18
Benzothiophene
Concen: 456.50 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:134 Resp: 71300

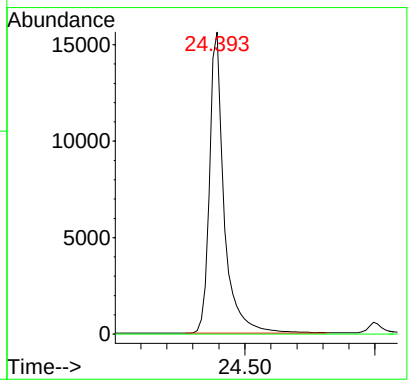


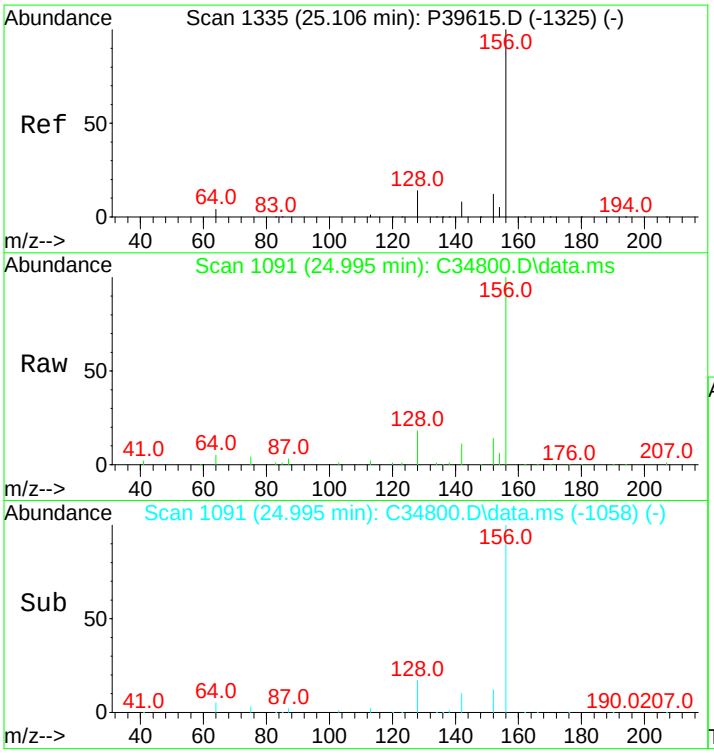


#23
Biphenyl
Concen: 467.05 ng/mL
RT: 24.393 min Scan# 1051
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:154 Resp: 60633

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

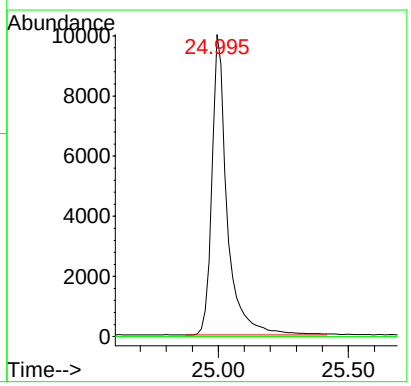


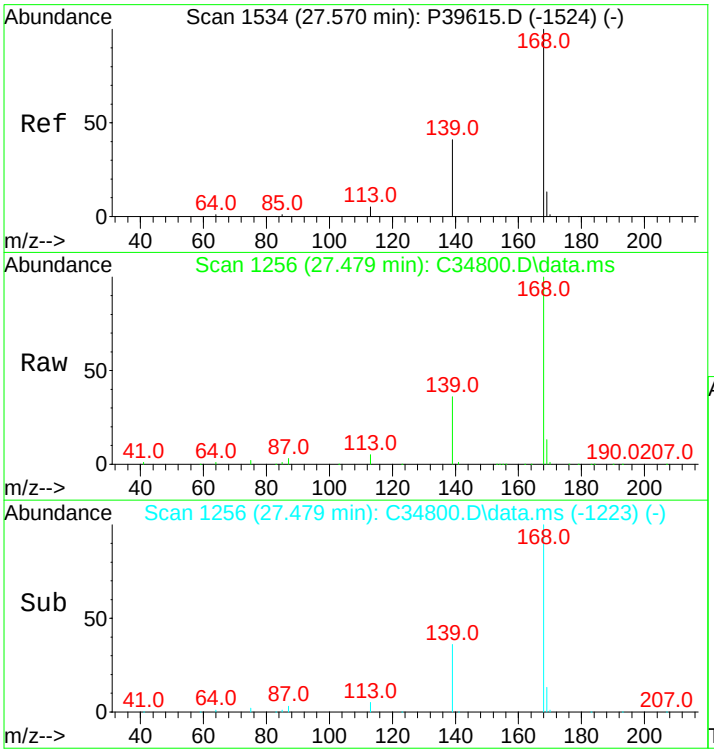


#24
2,6-Dimethylnaphthalene
Concen: 482.13 ng/mL
RT: 24.995 min Scan# 1091
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:156 Resp: 40652

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

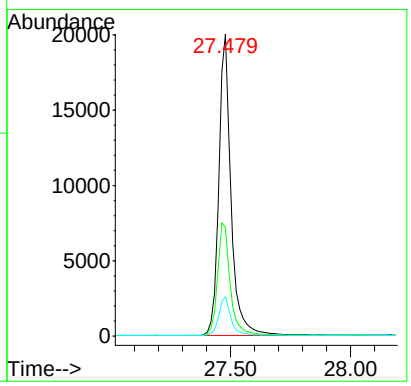


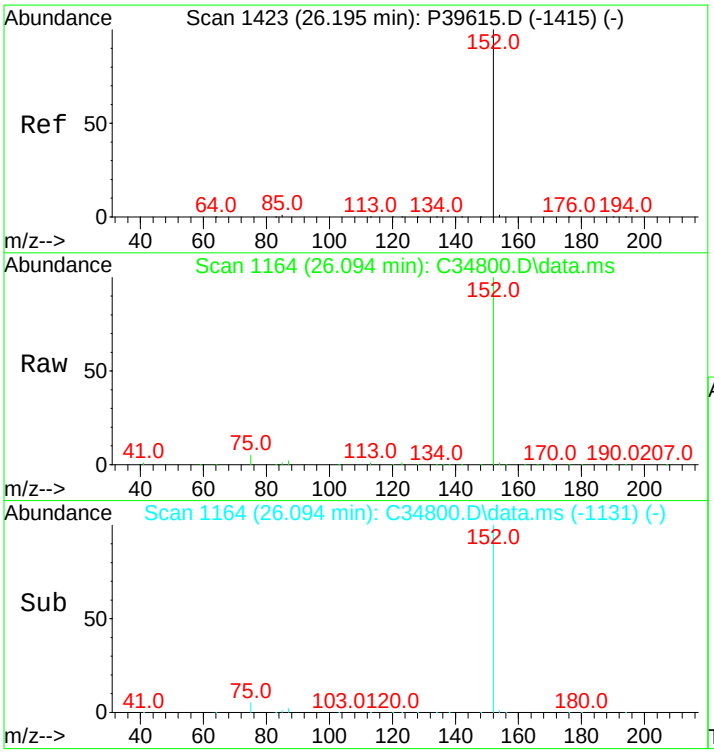


#25
Dibenzofuran
Concen: 472.34 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:168 Resp: 70414

Ion	Ratio	Lower	Upper
168	100		
139	38.9	28.4	42.6
169	13.0	10.8	16.2

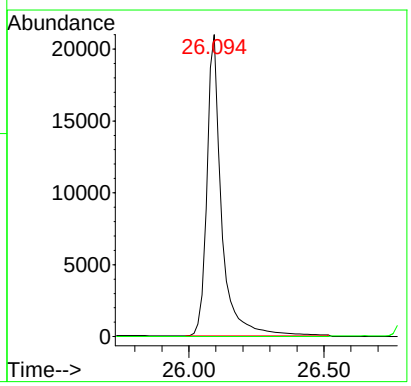


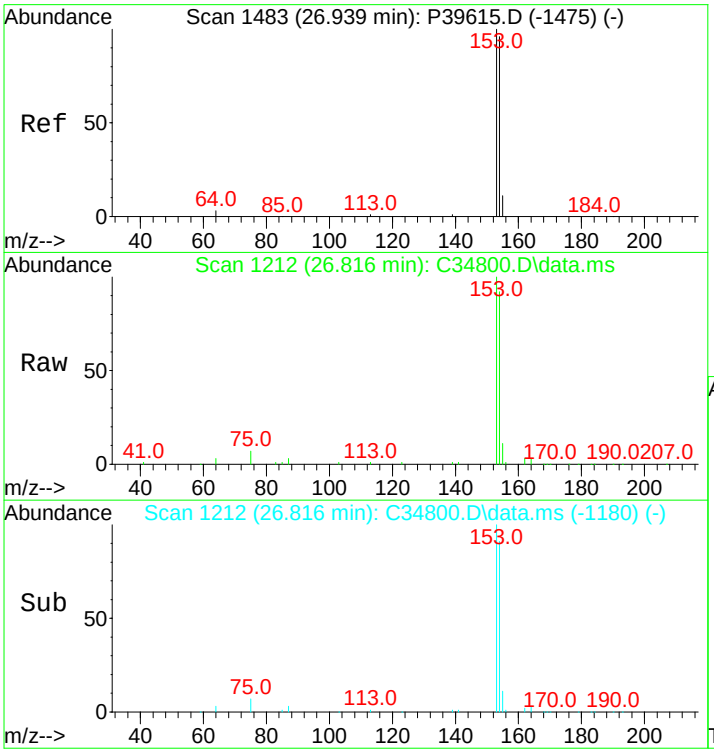


#26
Acenaphthylene
Concen: 458.76 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:152 Resp: 79043

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

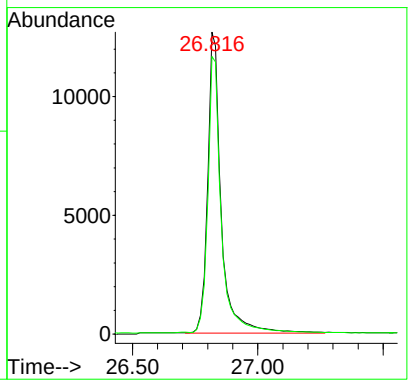


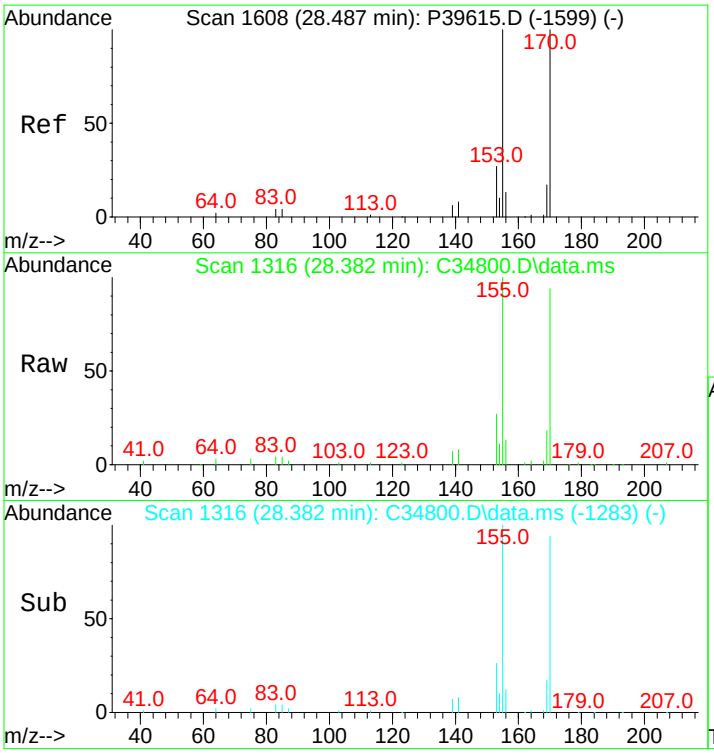


#27
Acenaphthene
Concen: 468.17 ng/mL m
RT: 26.816 min Scan# 1212
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:153 Resp: 47495

Ion	Ratio	Lower	Upper
153	100		
154	91.2	73.6	110.4

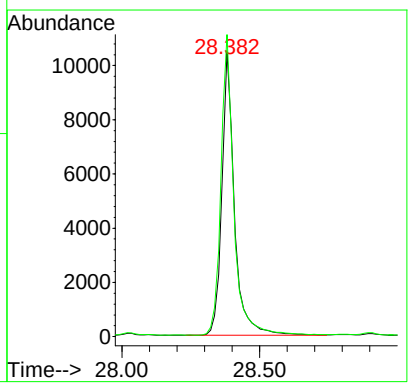


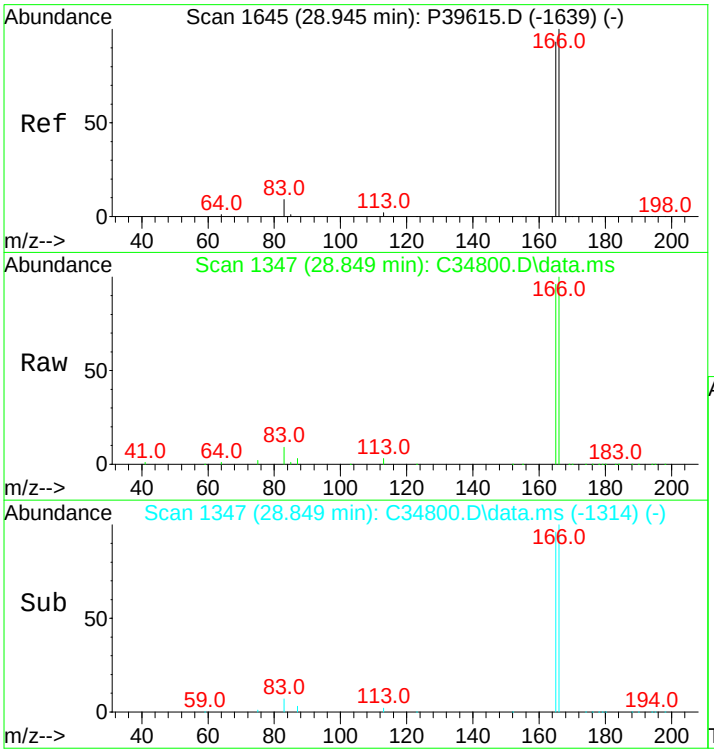


#28
2,3,5-Trimethylnaphthalene
Concen: 489.66 ng/mL
RT: 28.382 min Scan# 1316
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:170 Resp: 33282

Ion	Ratio	Lower	Upper
170	100		
155	108.6	87.3	130.9

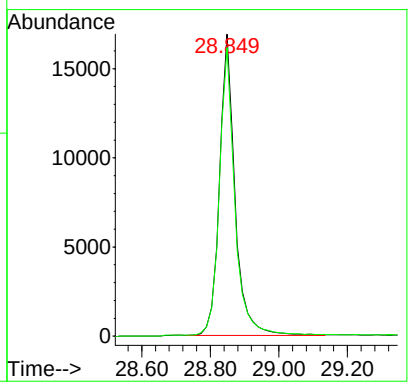


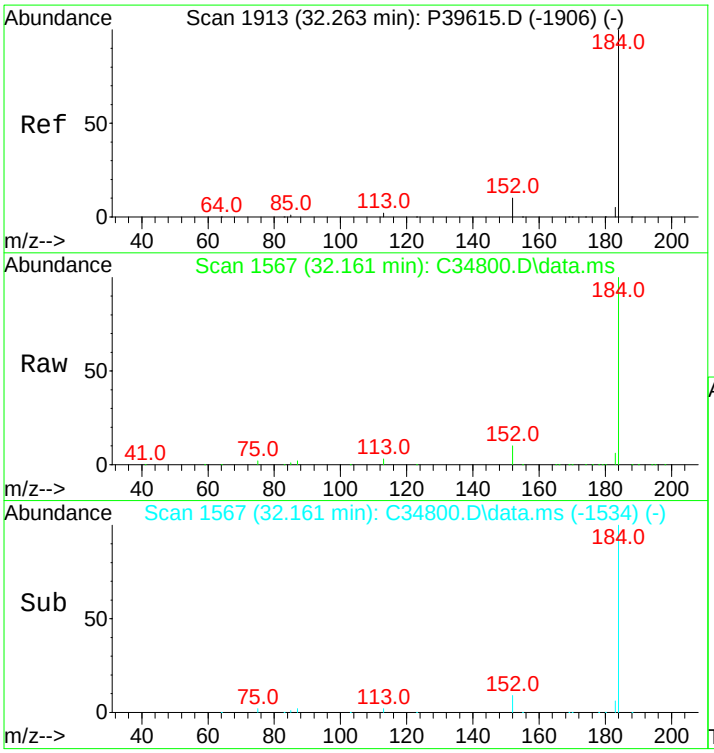


#29
Fluorene
Concen: 476.60 ng/mL m
RT: 28.849 min Scan# 1347
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:166 Resp: 53325

Ion	Ratio	Lower	Upper
166	100		
165	96.9	77.3	115.9

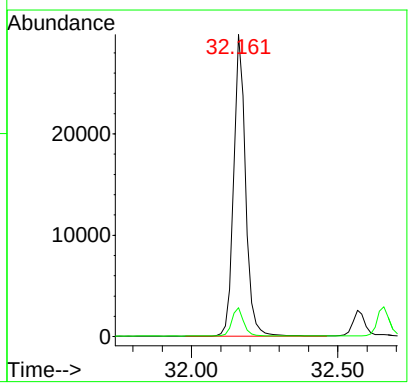


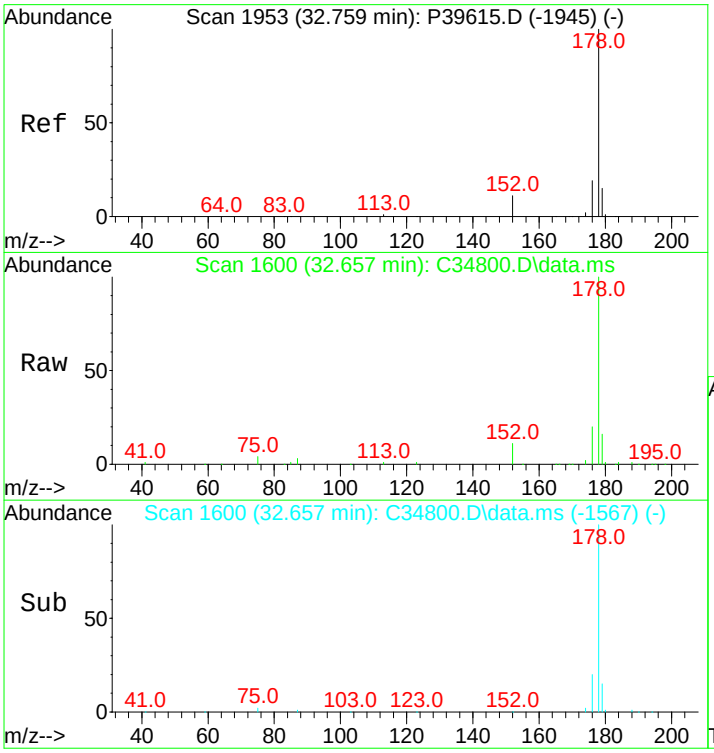


#33
Dibenzothiophene
Concen: 466.52 ng/mL
RT: 32.161 min Scan# 1567
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:184 Resp: 83671

Ion	Ratio	Lower	Upper
184	100		
152	9.3	7.5	11.3

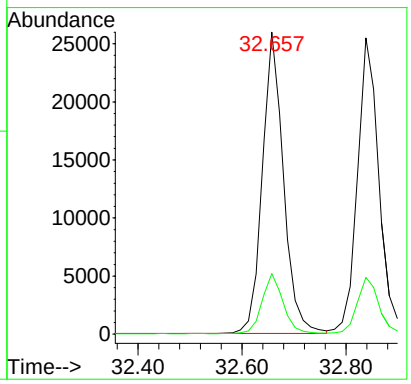


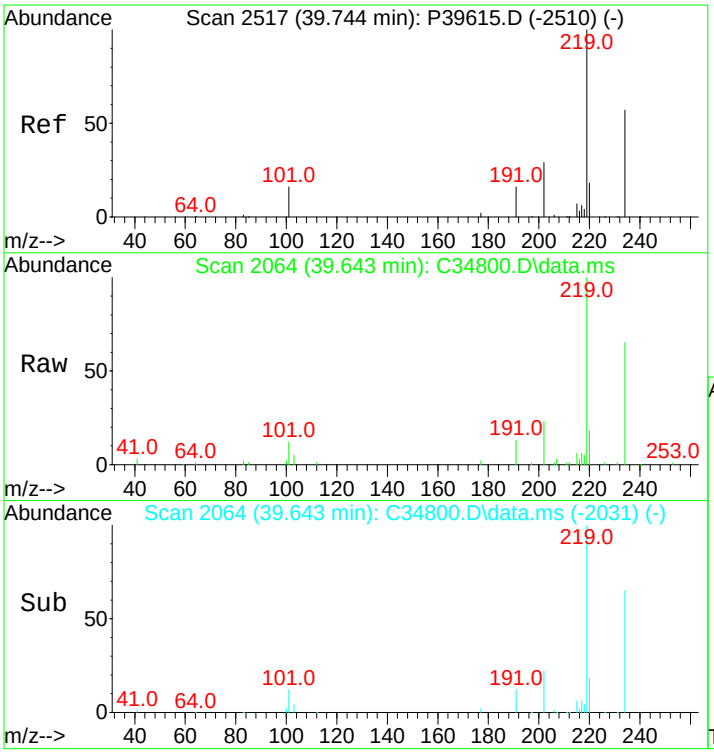


#43
Phenanthrene
Concen: 467.74 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:178 Resp: 73704

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

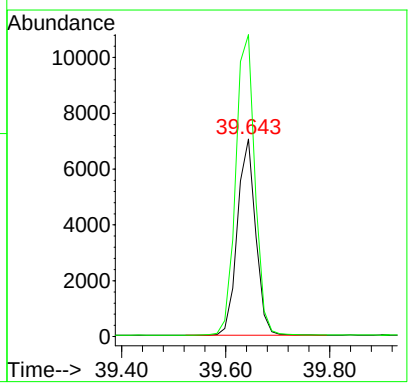


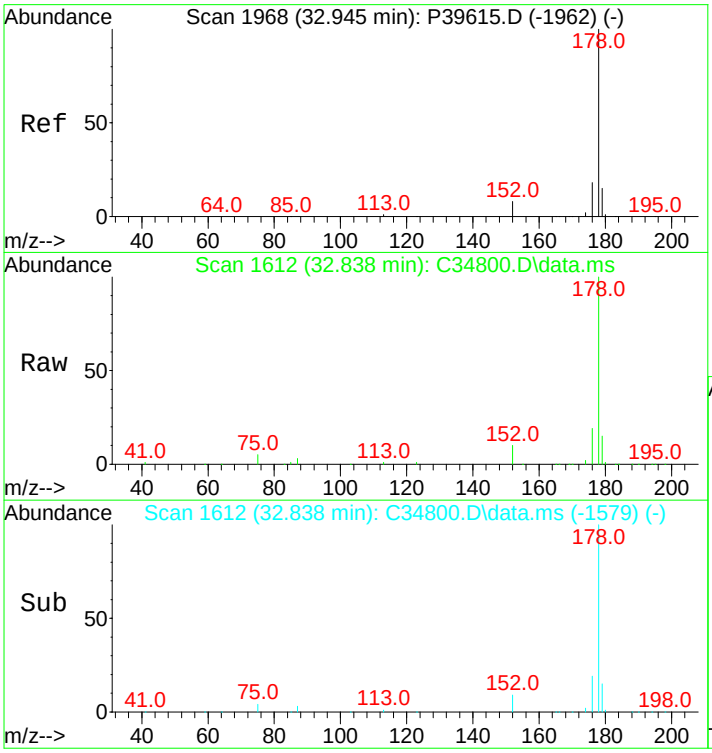


#54
Retene
Concen: 557.39 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 17133

Ion	Ratio	Lower	Upper
234	100		
219	160.9	127.8	191.8

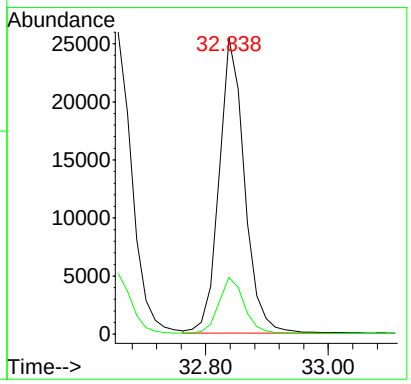


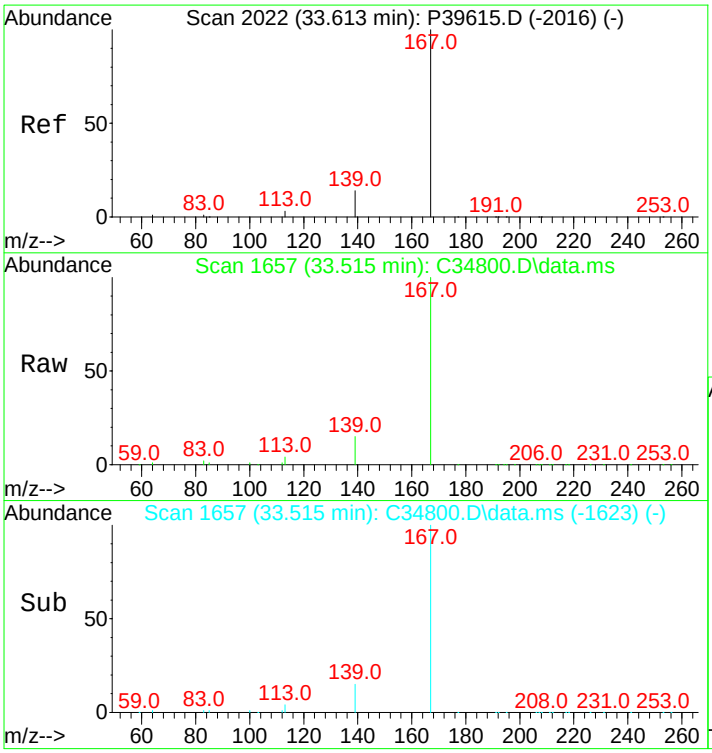


#55
Anthracene
Concen: 476.31 ng/mL m
RT: 32.838 min Scan# 1612
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:178 Resp: 73311

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

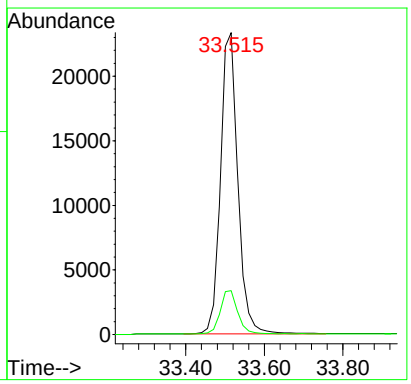


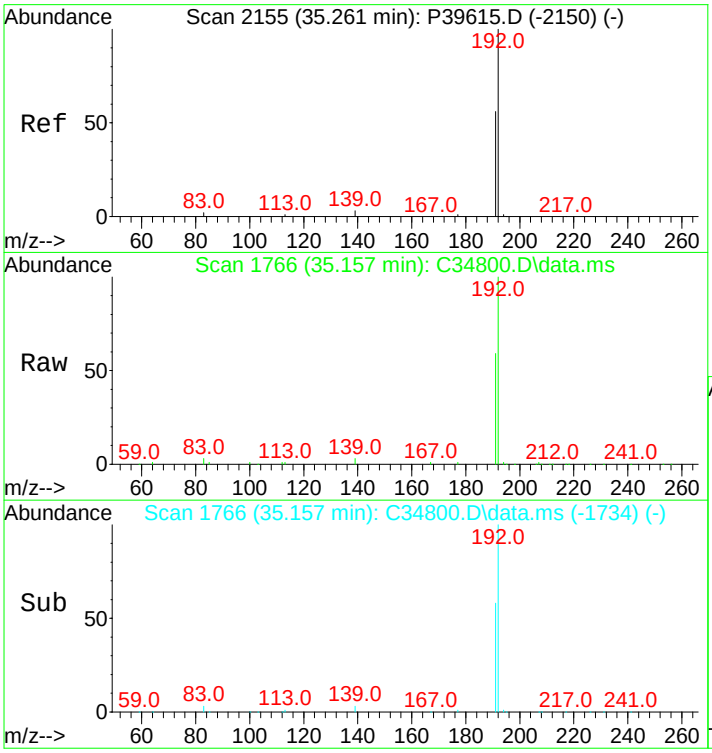


#56
Carbazole
Concen: 458.76 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:167 Resp: 71324

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.8	17.8

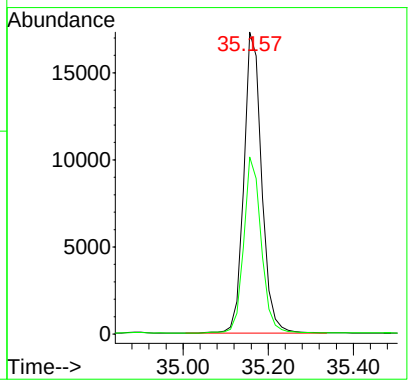


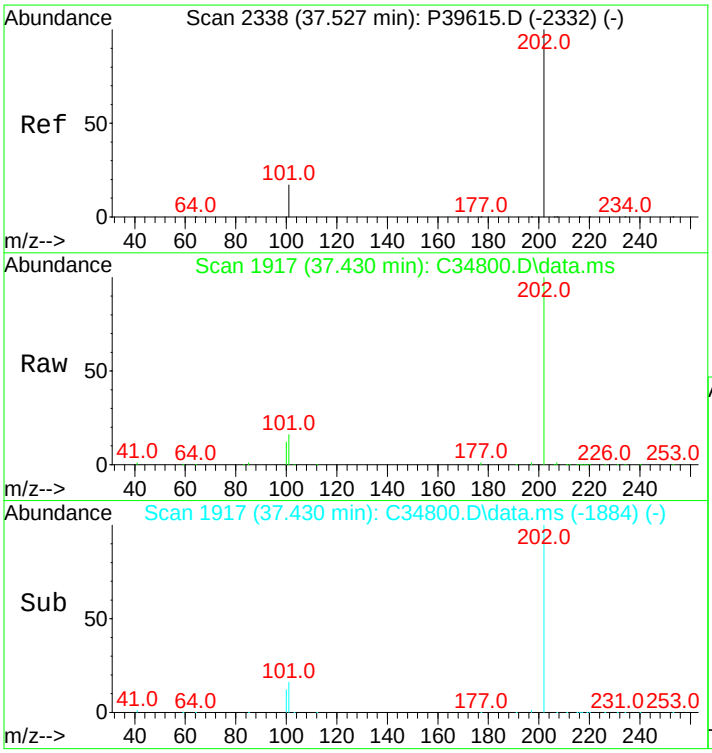


#57
1-Methylphenanthrene
Concen: 503.56 ng/mL
RT: 35.157 min Scan# 1766
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:192 Resp: 50285

Ion	Ratio	Lower	Upper
192	100		
191	57.7	45.9	68.9

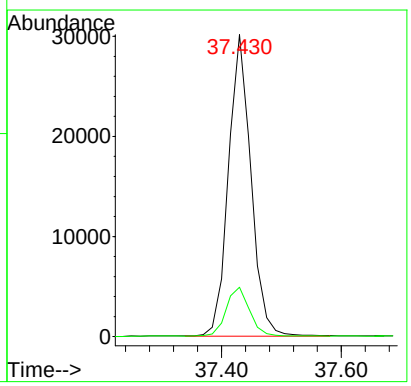


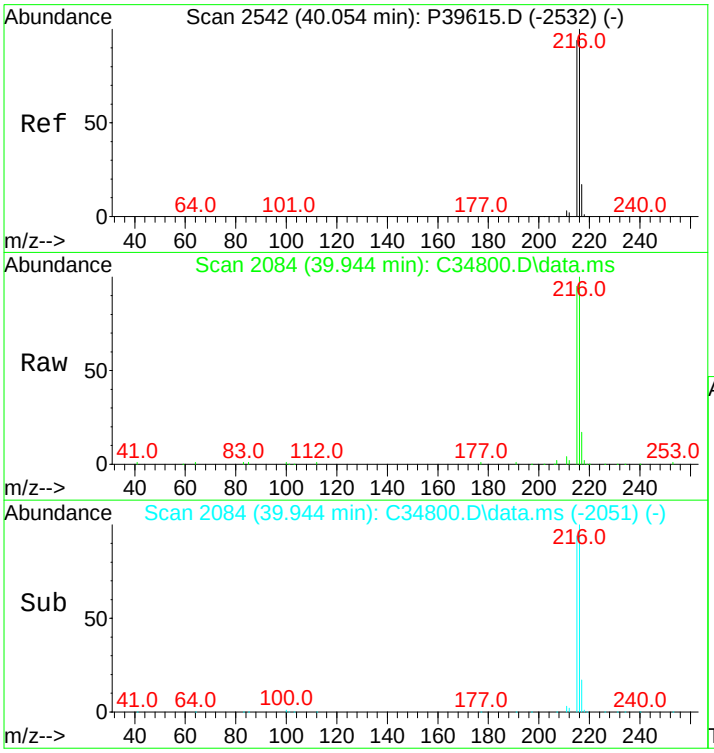


#58
Fluoranthene
Concen: 503.91 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:202 Resp: 78861

Ion	Ratio	Lower	Upper
202	100		
101	17.0	12.9	19.3

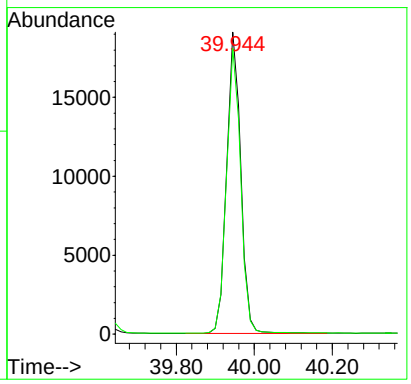


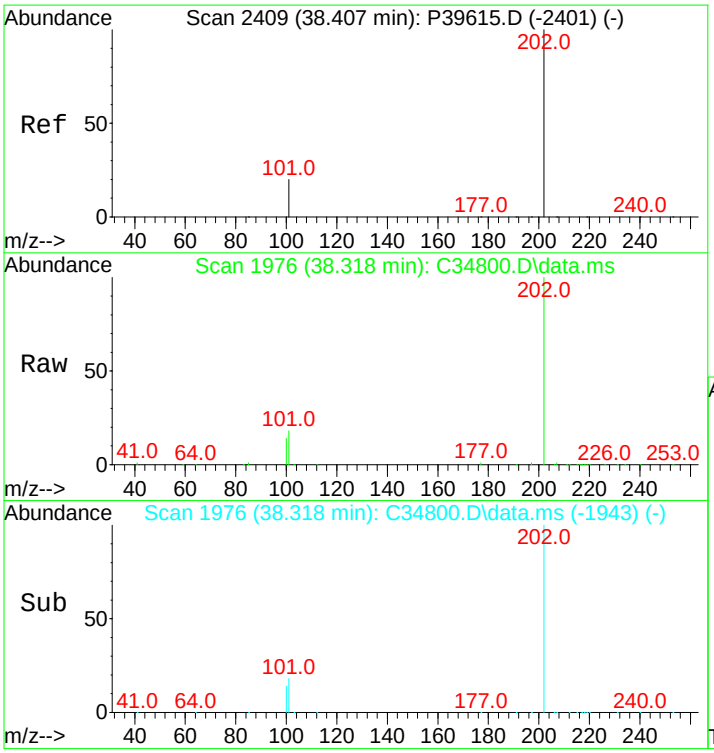


#59
Benzo(b)fluorene
Concen: 529.74 ng/mL
RT: 39.944 min Scan# 2084
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:216 Resp: 48097

Ion	Ratio	Lower	Upper
216	100		
215	95.0	76.3	114.5

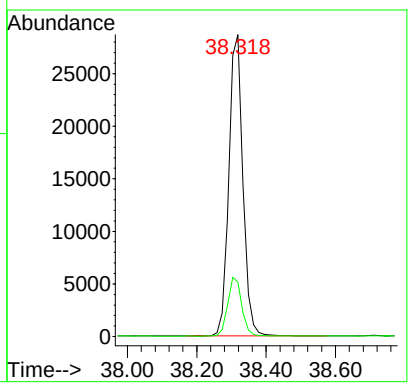


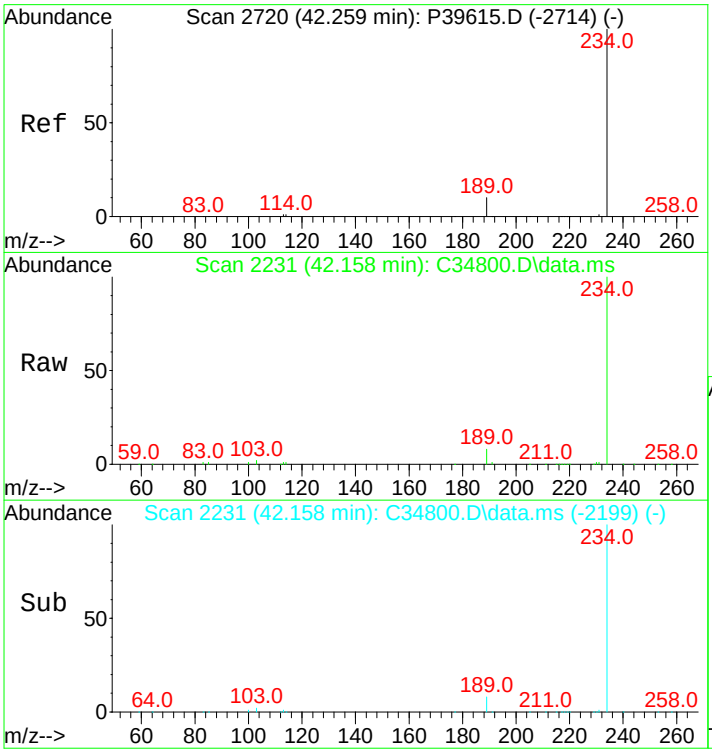


#60
Pyrene
Concen: 506.45 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:202 Resp: 80569

Ion	Ratio	Lower	Upper
202	100		
101	19.6	15.0	22.4

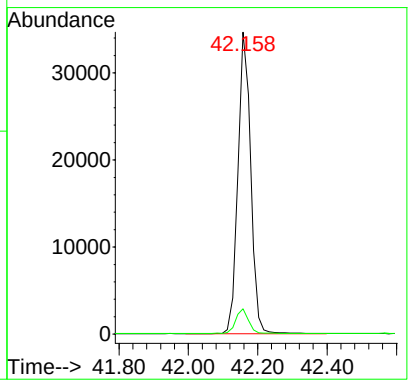


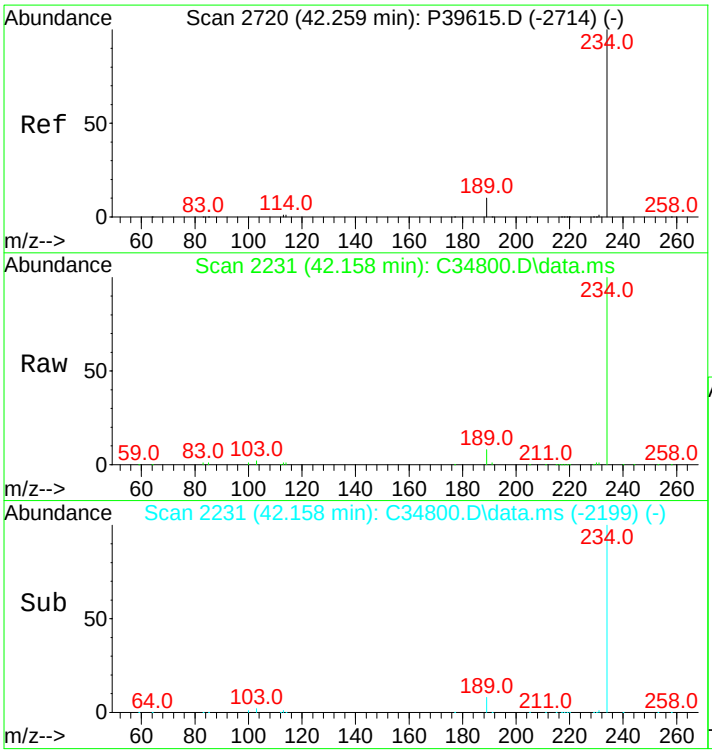


#66
Naphthobenzothiophene
Concen: 516.44 ng/ml
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 88451

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

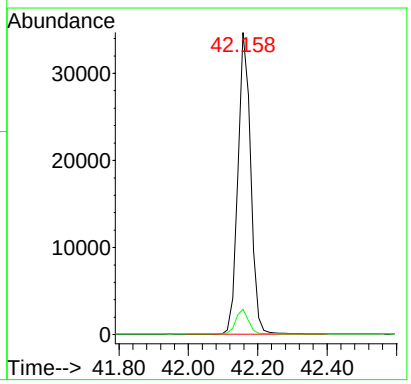


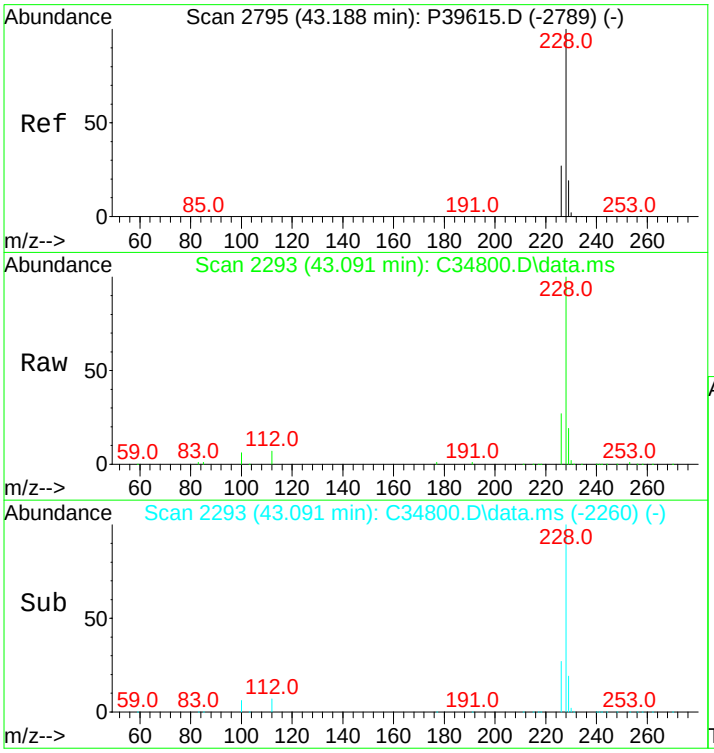


#67
Naphthobenzothiophene-2,1-D
Concen: 516.44 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:234 Resp: 88451

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

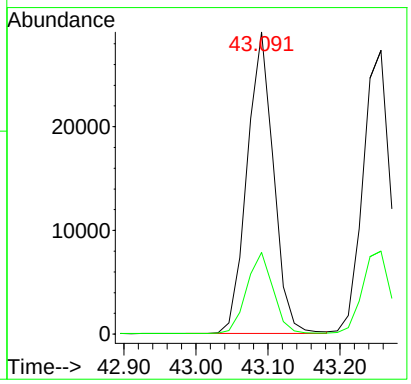


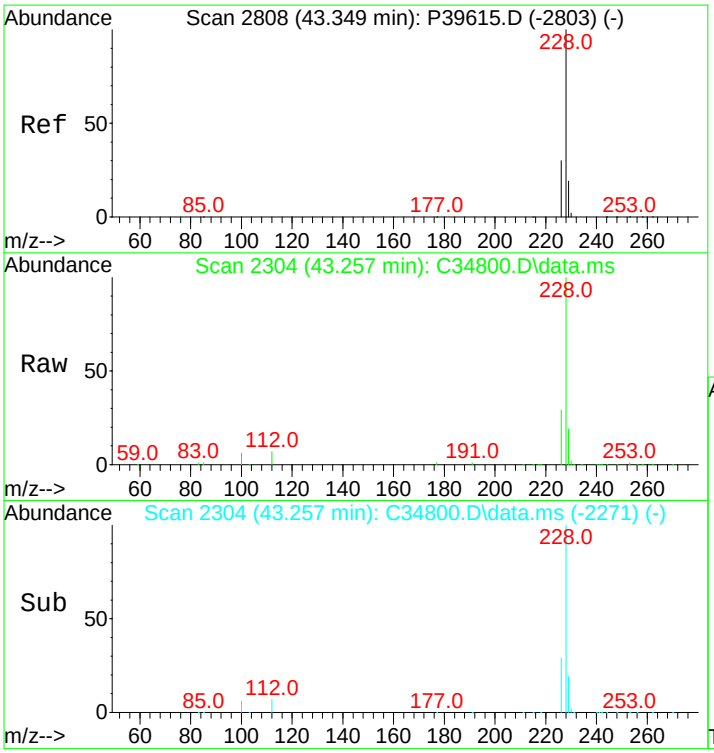


#75
Benz[a]anthracene
Concen: 505.86 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 73981

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.4	32.0

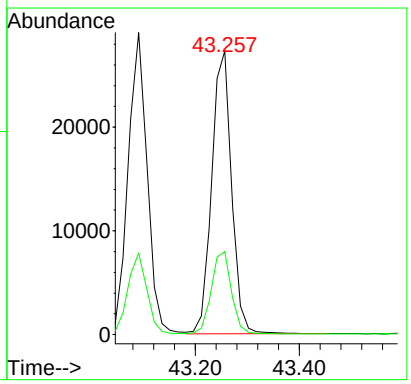


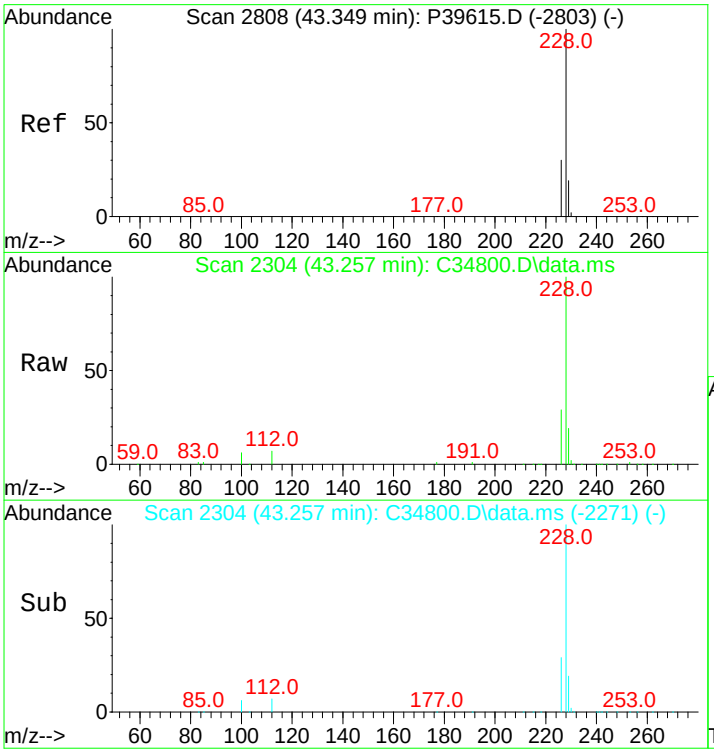


#76
Chrysene
Concen: 488.96 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 72194

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

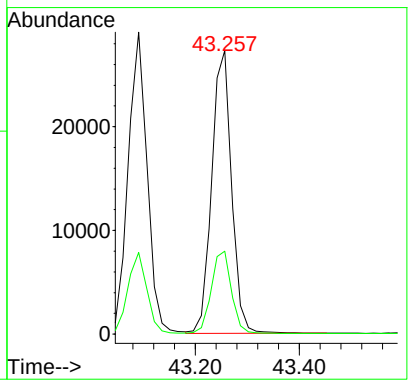


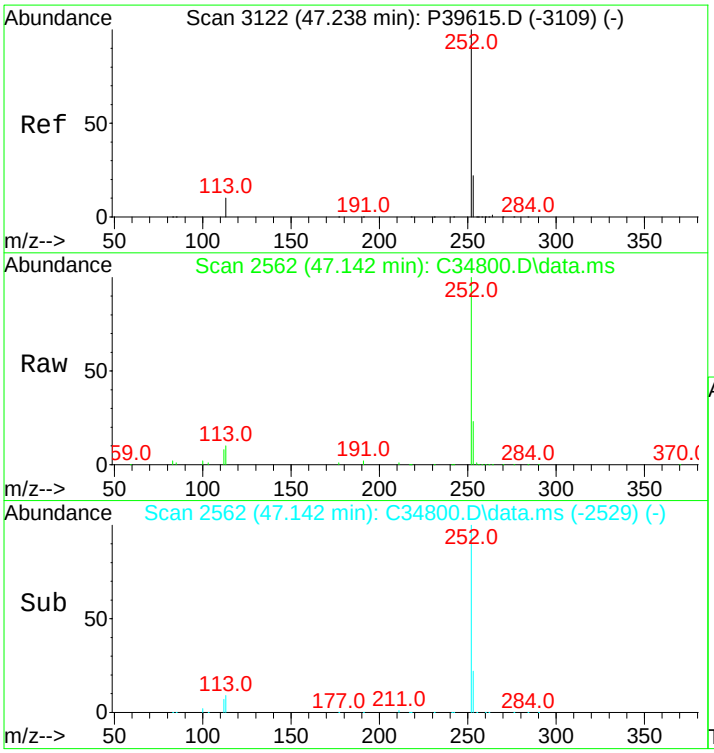


#77
Chrysene/Triphenylene
Concen: 488.96 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:228 Resp: 72194

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.7	35.5

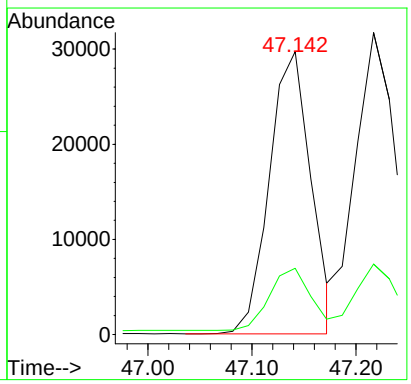


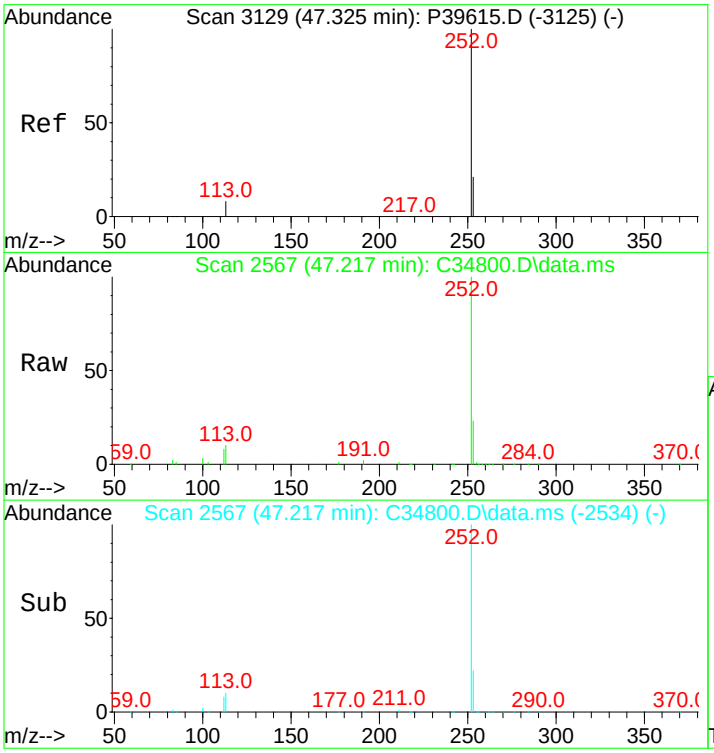


#82
Benzo[b]fluoranthene
Concen: 512.46 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 82351

Ion	Ratio	Lower	Upper
252	100		
253	22.1	19.0	28.4

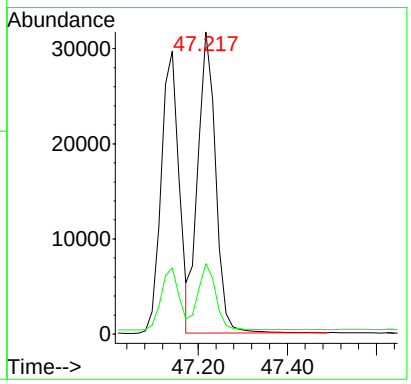


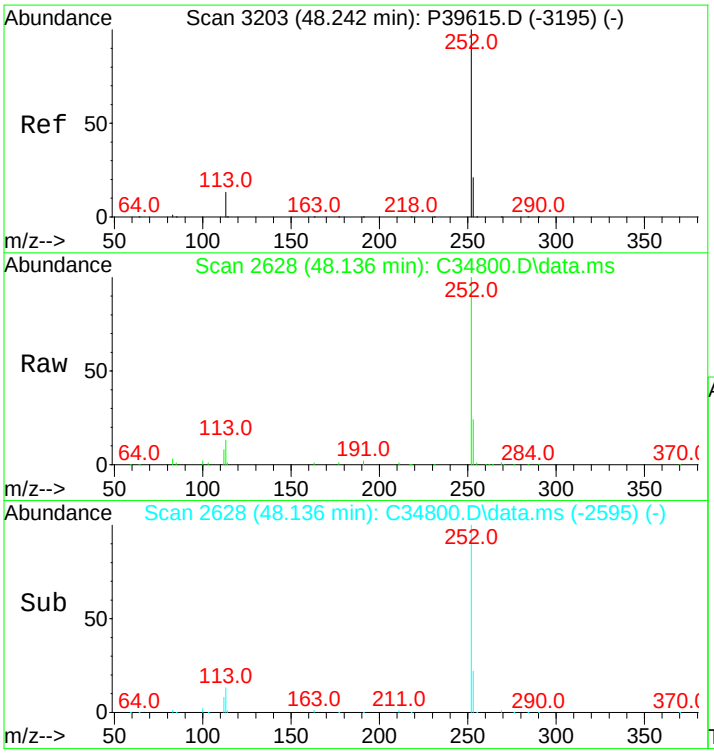


#83
Benzo[j]+[k]fluoranthene
Concen: 498.45 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 87208

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.0	28.4

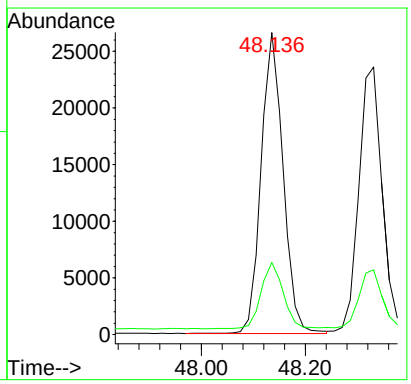


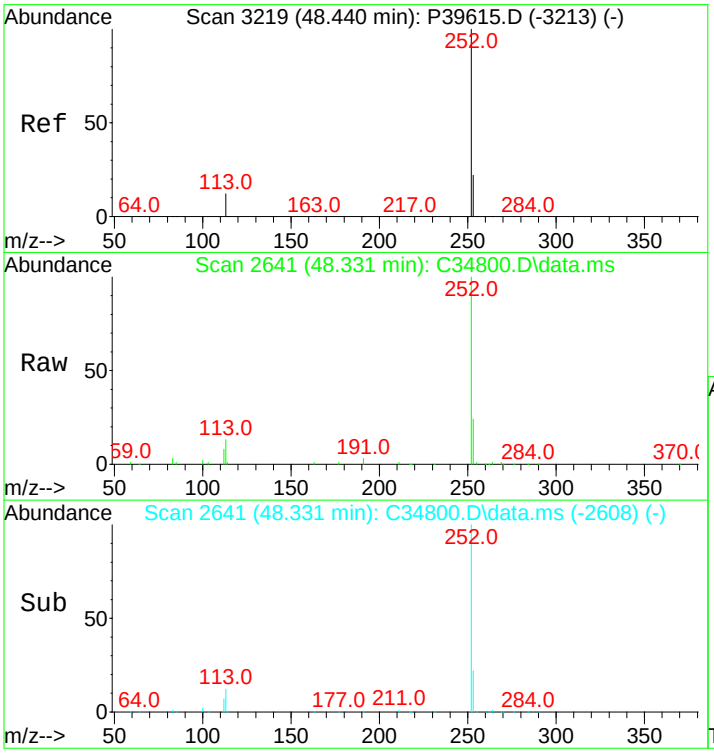


#85
Benzo[e]pyrene
Concen: 489.73 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 77842

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.2	28.8

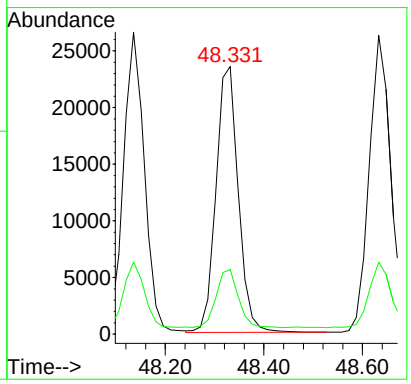


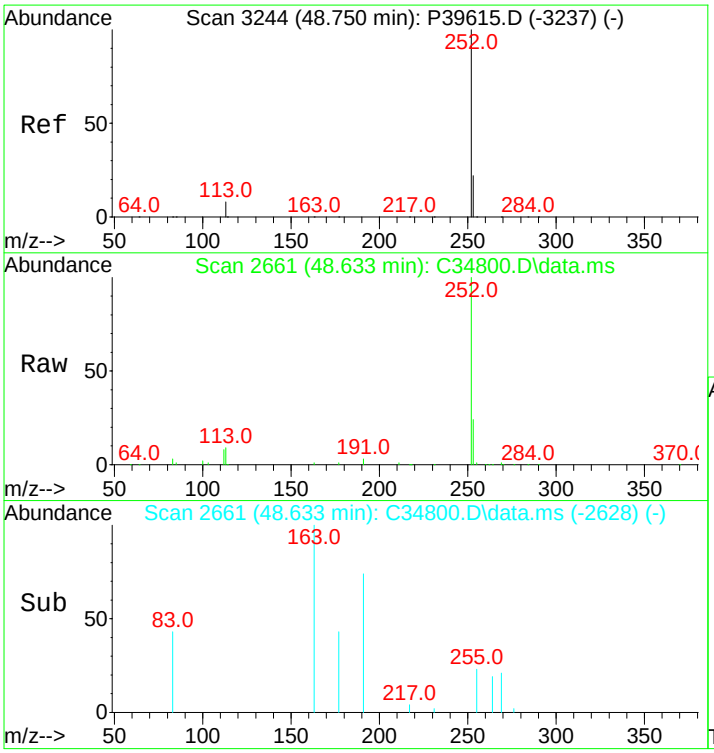


#87
Benzo[a]pyrene
Concen: 480.82 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 73582

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.5	29.3

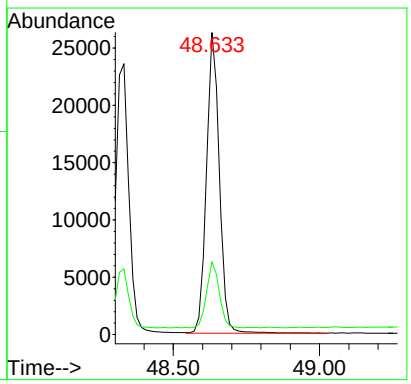


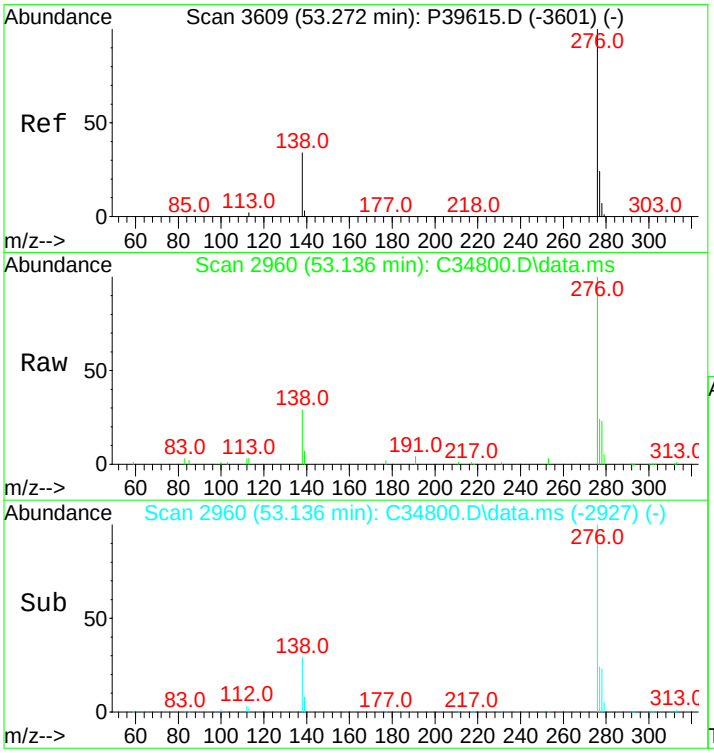


#88
Perylene
Concen: 490.41 ng/mL
RT: 48.633 min Scan# 2661
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:252 Resp: 80208

Ion	Ratio	Lower	Upper
252	100		
253	21.8	19.6	29.4

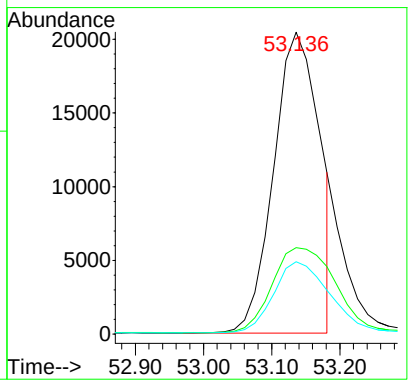


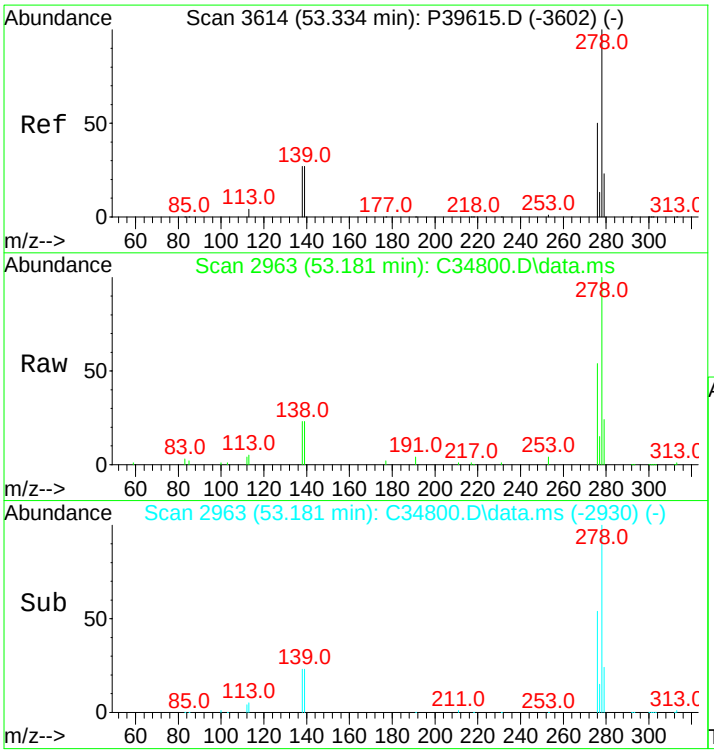


#89
Indeno[1,2,3-cd]pyrene
Concen: 535.75 ng/mL m
RT: 53.136 min Scan# 2960
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:276 Resp: 95412

Ion	Ratio	Lower	Upper
276	100		
138	39.7	23.3	34.9#
277	29.5	19.0	28.4#

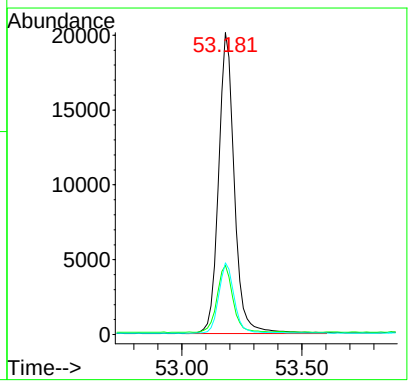


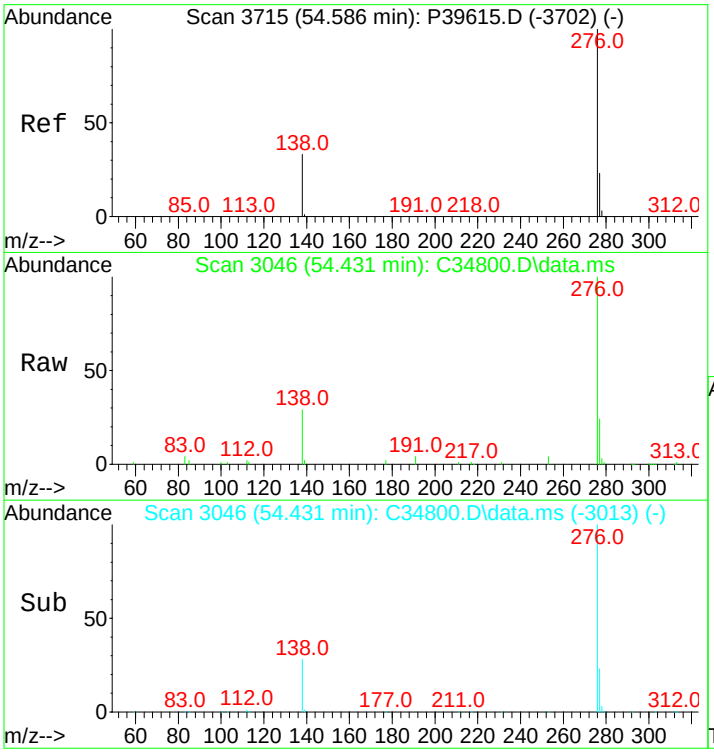


#90
Dibenz[ah]+[ac]anthracene
Concen: 541.53 ng/mL
RT: 53.181 min Scan# 2963
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:278 Resp: 91742

Ion	Ratio	Lower	Upper
278	100		
139	22.3	19.1	28.7
279	23.0	19.2	28.8

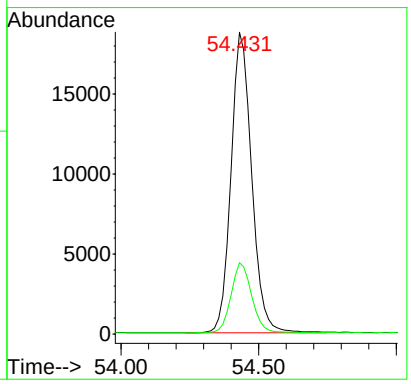


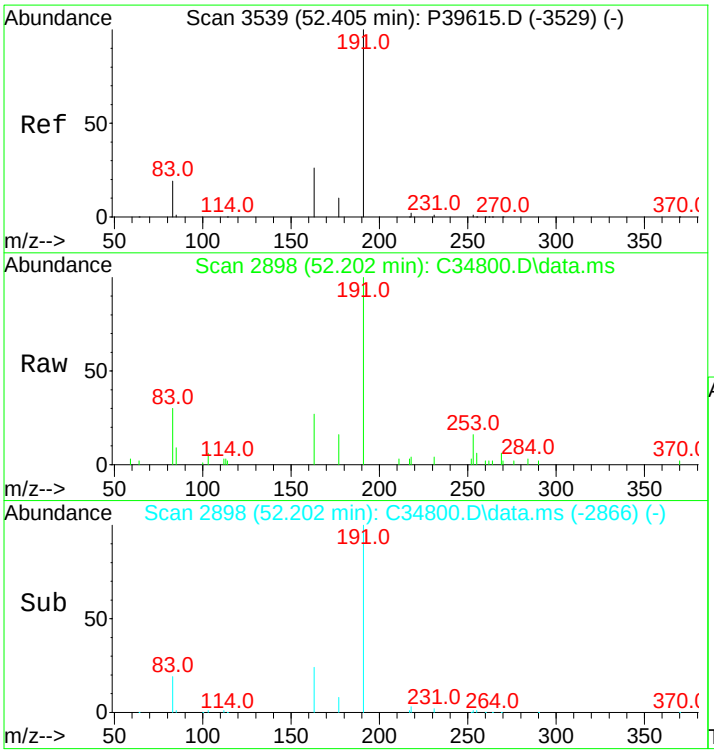


#91
Benzo[g,h,i]perylene
Concen: 518.35 ng/mL
RT: 54.431 min Scan# 3046
Delta R.T. 0.000 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:276 Resp: 97529

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

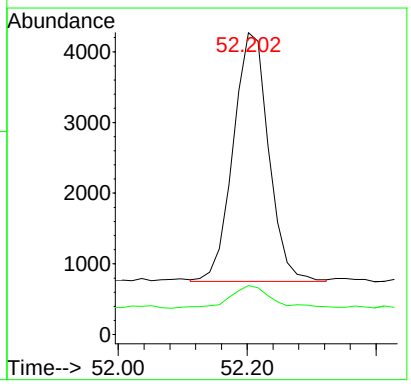


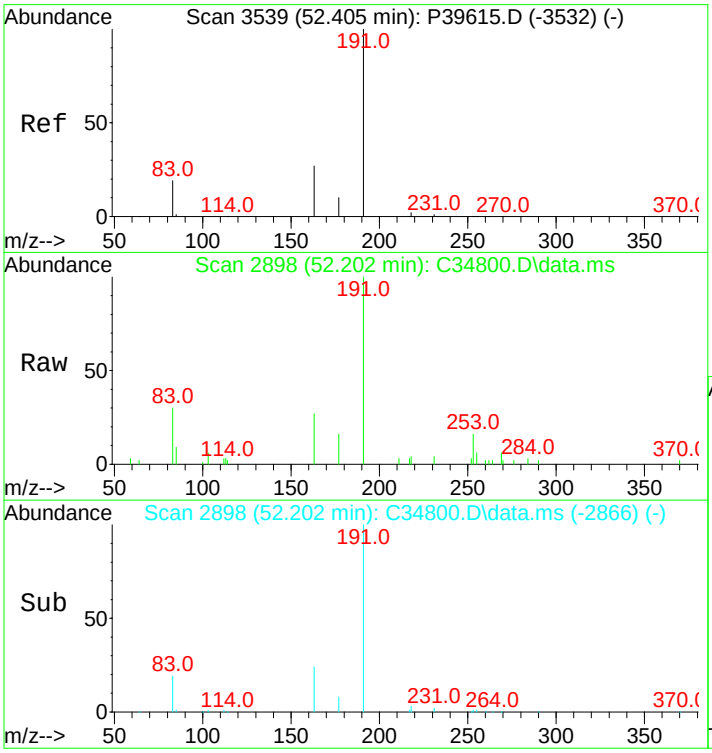


#92
Hopane (T19)
Concen: 441.65 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:191 Resp: 13412

Ion	Ratio	Lower	Upper
191	100		
177	11.1	14.6	21.8#

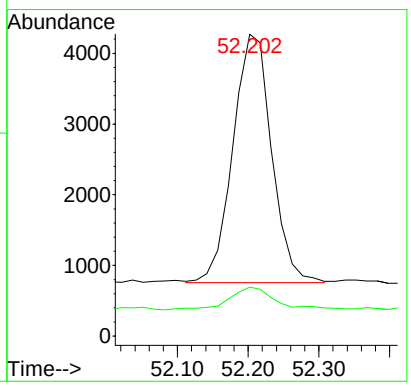




#93
17a(H),21B(H)-hopane - C30H52
Concen: 439.44 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34800.D
Acq: 3 May 2012 5:57 am

Tgt Ion:191 Resp: 13345

Ion	Ratio	Lower	Upper
191	100		
177	11.1	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	17064M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.151	240	28462	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	35622	480.975	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.10%#			
42) Phenanthrene-d10	32.582	188	28572	488.078	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.81%#			
86) Benzo[a]pyrene-d12	48.241	264	28904	490.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.00%#			
127) 5B(H)Cholane - Surr	43.753	217	4543	510.526	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.05%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3389	251.587	ng/mL	100
4) cis-Decalin	17.603	138	2521	248.318	ng/mL	100
10) Naphthalene	19.801	128	50529	464.606	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	30183	469.370	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	28220	447.708	ng/mL#	100
18) Benzothiophene	20.027	134	45080	460.623	ng/mL	100
23) Biphenyl	24.392	154	38574	474.204	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	25575	484.074	ng/mL#	100
25) Dibenzofuran	27.479	168	44306	474.320	ng/mL	95
26) Acenaphthylene	26.094	152	49769M3	460.995	ng/mL	
27) Acenaphthene	26.831	153	29794	468.704	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	20924	491.294	ng/mL	100
29) Fluorene	28.864	166	33621M3	479.569	ng/mL	
33) Dibenzothiophene	32.176	184	52643	468.436	ng/mL	100
43) Phenanthrene	32.657	178	46915	475.158	ng/mL	99
54) Retene	39.643	234	10413	540.647	ng/mL	97
55) Anthracene	32.853	178	46687M3	484.091	ng/mL	
56) Carbazole	33.515	167	44751M3	459.373	ng/mL	
57) 1-Methylphenanthrene	35.171	192	31302	500.268	ng/mL	99
58) Fluoranthene	37.430	202	49134M3	501.056	ng/mL	
59) Benzo(b)fluorene	39.959	216	29894	525.461	ng/mL	100
60) Pyrene	38.318	202	49499	496.572	ng/mL	97
66) Naphthobenzothiophene	42.173	234	55072	513.174	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	55072	513.174	ng/mL#	66
75) Benz[a]anthracene	43.091	228	45979	508.967	ng/mL	99
76) Chrysene	43.257	228	45092	494.410	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	45092	494.410	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	53247	536.422	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.217	252	51506	476.589	ng/mL	97
85) Benzo[e]pyrene	48.136	252	48554	494.522	ng/mL	96
87) Benzo[a]pyrene	48.331	252	46418	491.037	ng/mL	95
88) Perylene	48.648	252	50072	495.631	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	53.151	276	60603M3	550.897	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	56659	541.426	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	61054	525.314	ng/mL	100
92) Hopane (T19)	52.202	191	8372	446.305	ng/mL#	81
93) 17a(H),21B(H)-hopane -...	52.202	191	8372	446.305	ng/mL#	81

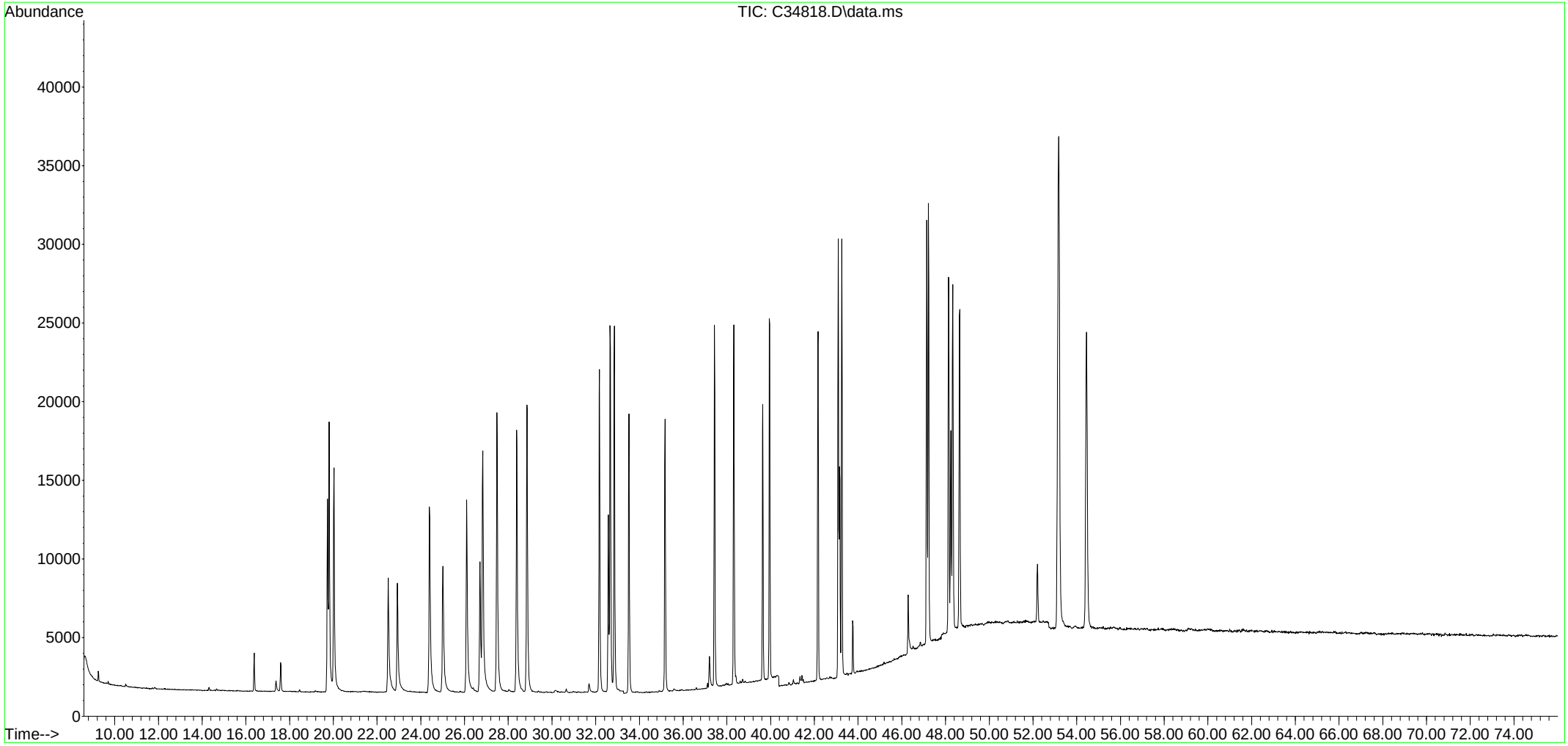
(#) = qualifier out of range (m) = manual integration (+) = signals summed

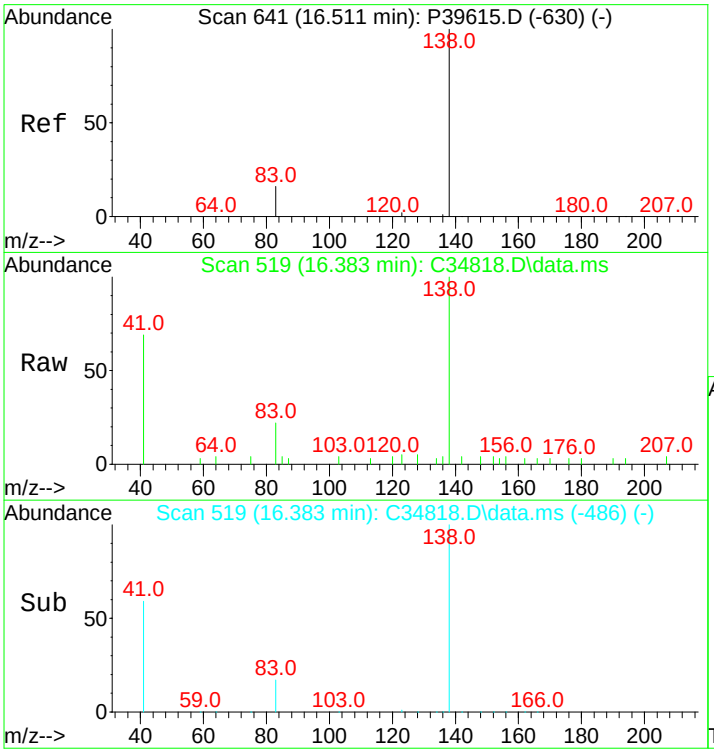
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\mAY12\MAY02\
Data File : C34818.D
Acq On : 3 May 2012 7:29 pm
Operator : AC
Sample : C305031203
Misc : CC WHAP06 500NG/ML
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 05 12:46:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

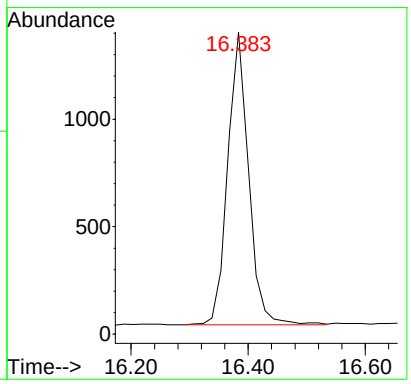
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

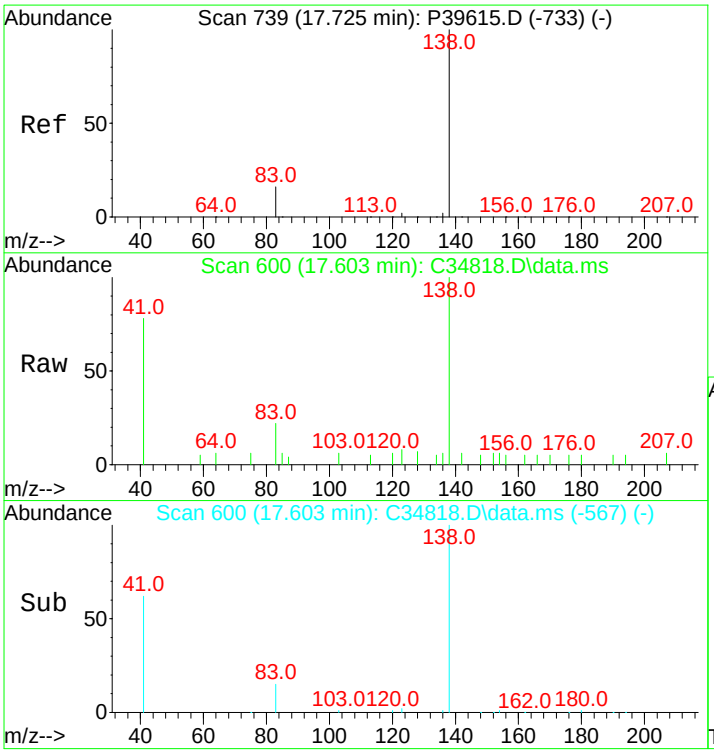




#3
trans-Decalin
Concen: 251.59 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

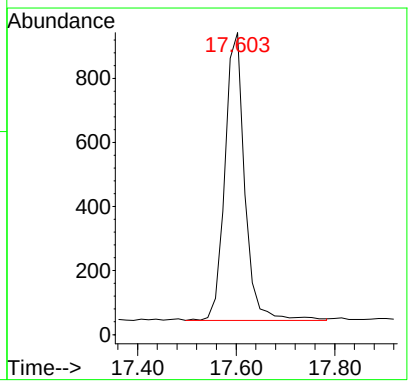
Tgt Ion:138 Resp: 3389

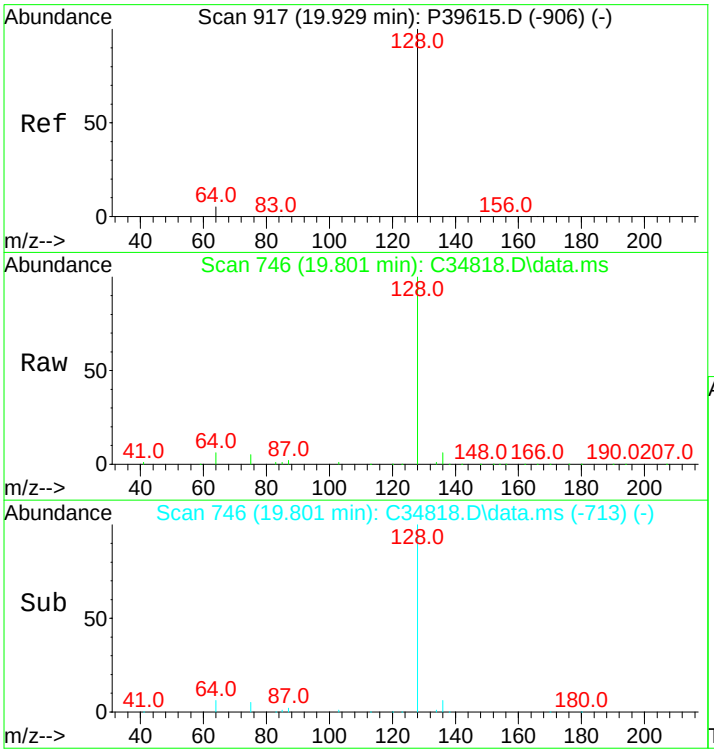




#4
cis-Decalin
Concen: 248.32 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:138 Resp: 2521

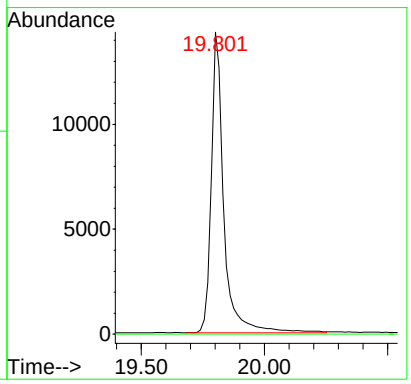


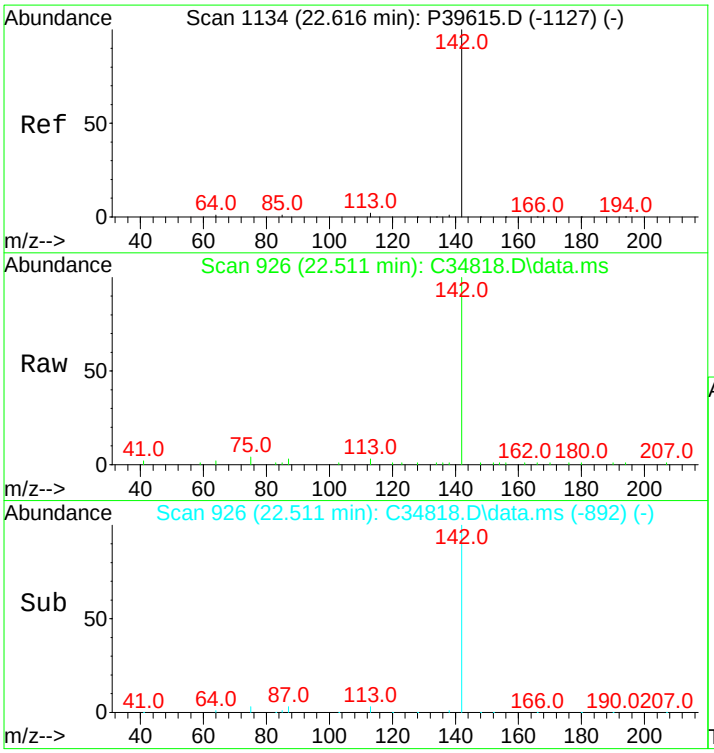


#10
Naphthalene
Concen: 464.61 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:128 Resp: 50529

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

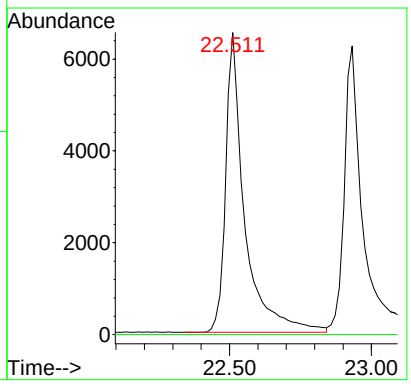


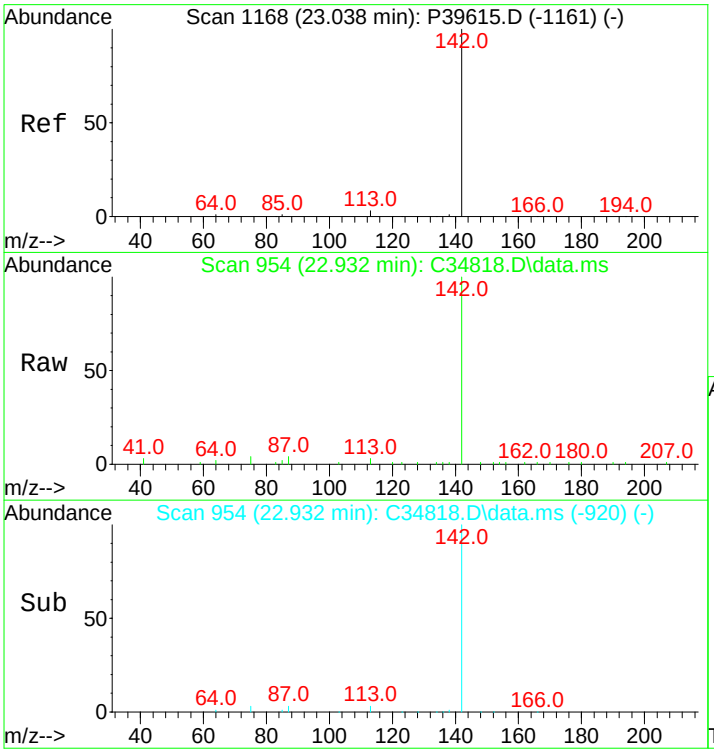


#16
2-Methylnaphthalene
Concen: 469.37 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:142 Resp: 30183

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

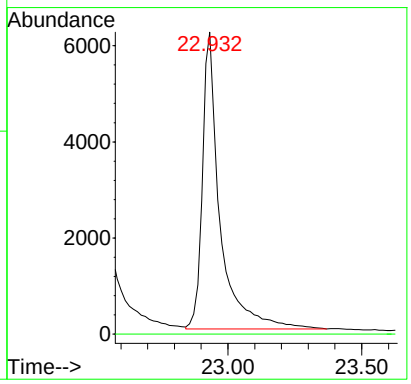


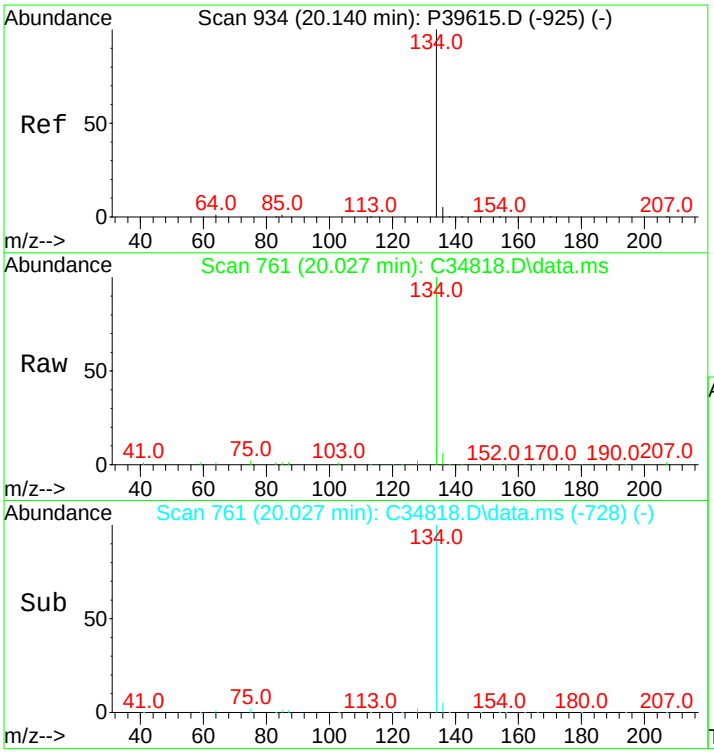


#17
1-Methylnaphthalene
Concen: 447.71 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:142 Resp: 28220

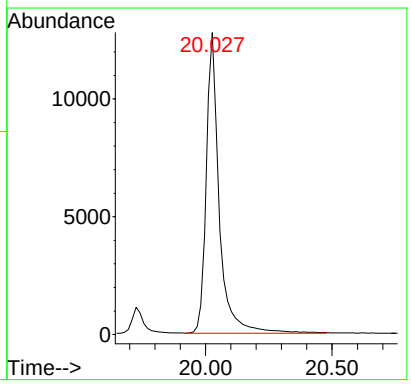
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

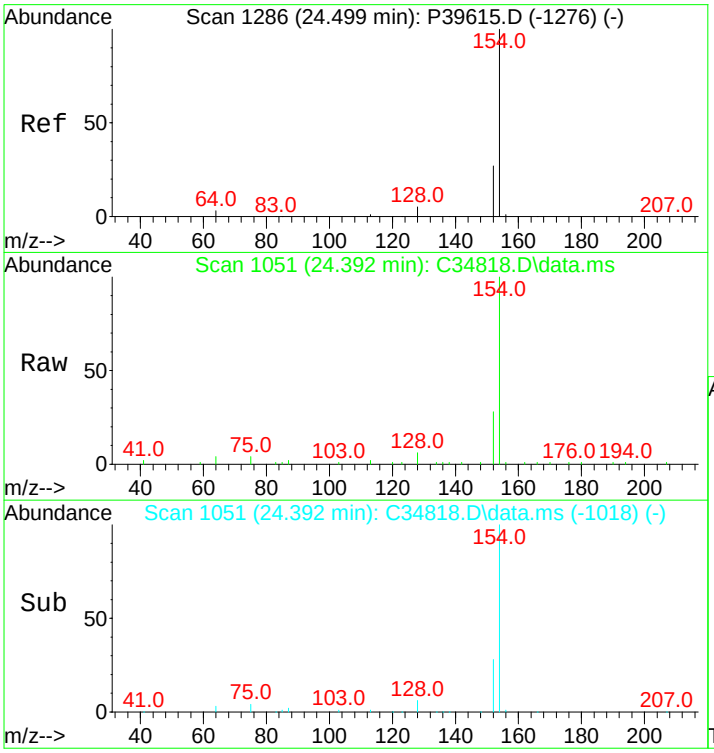




#18
Benzothiophene
Concen: 460.62 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:134 Resp: 45080

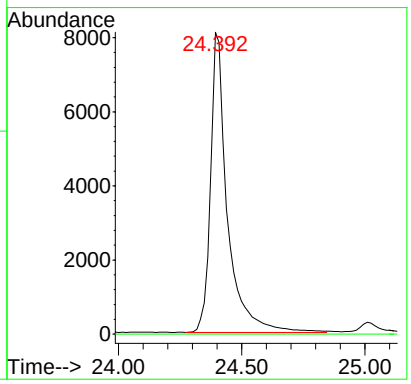


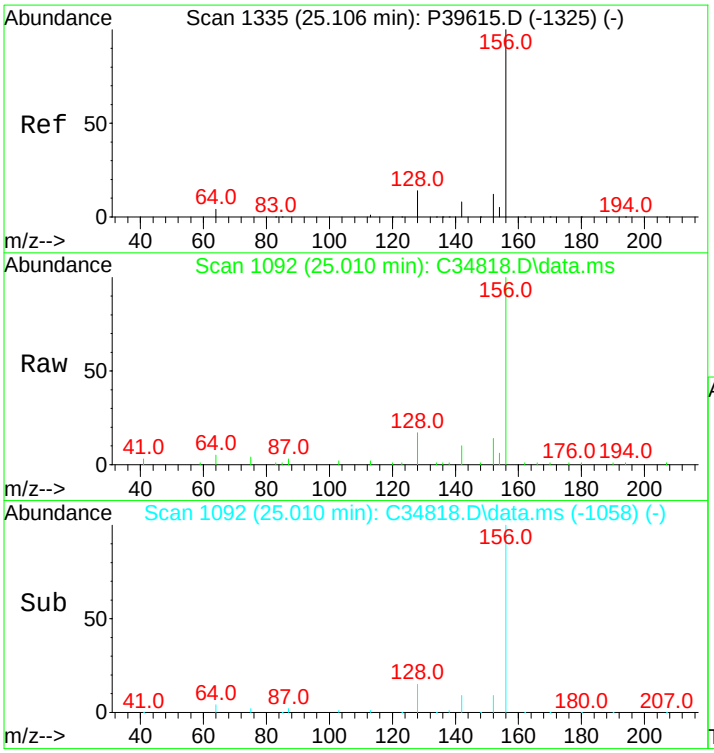


#23
Biphenyl
Concen: 474.20 ng/mL
RT: 24.392 min Scan# 1051
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:154 Resp: 38574

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

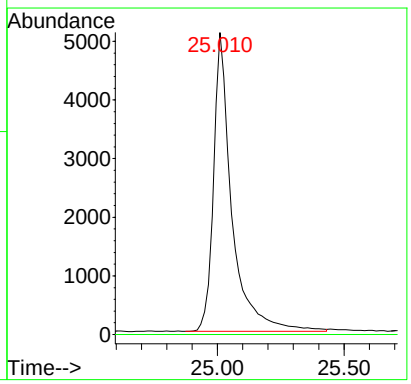


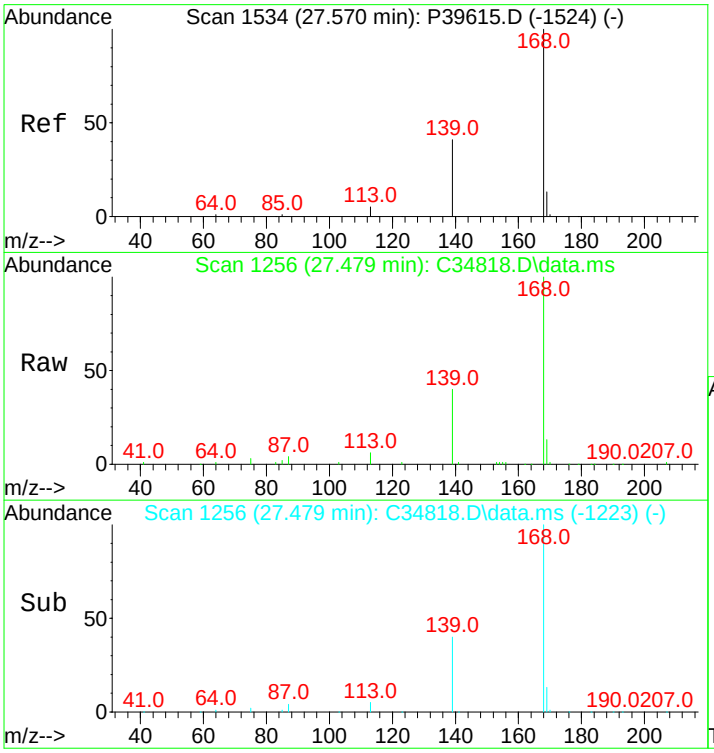


#24
2,6-Dimethylnaphthalene
Concen: 484.07 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:156 Resp: 25575

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

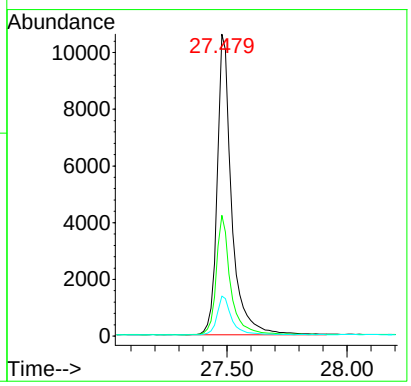


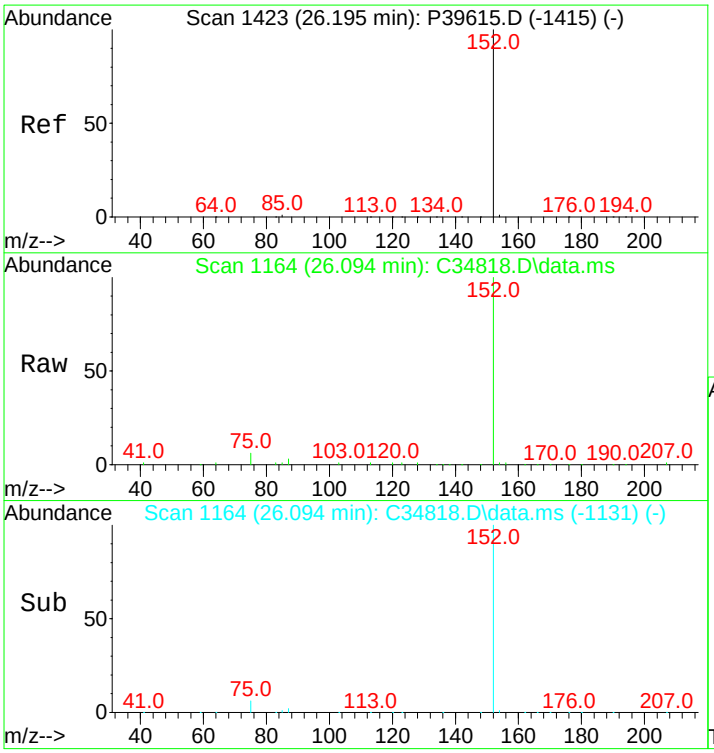


#25
Dibenzofuran
Concen: 474.32 ng/mL
RT: 27.479 min Scan# 1256
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:168 Resp: 44306

Ion	Ratio	Lower	Upper
168	100		
139	39.3	28.4	42.6
169	12.9	10.8	16.2

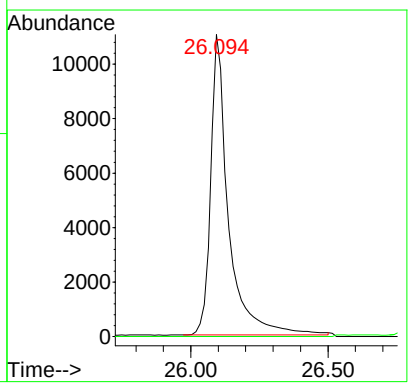


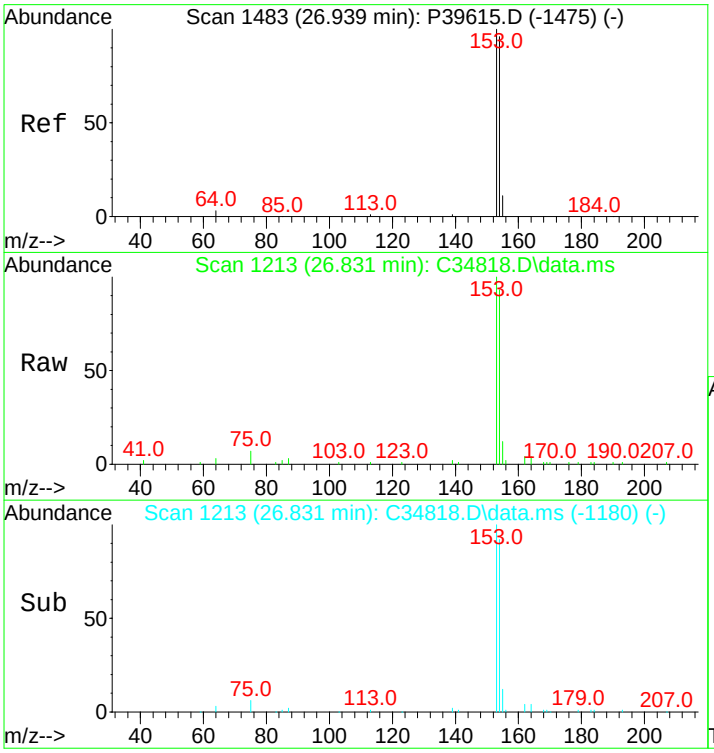


#26
Acenaphthylene
Concen: 461.00 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:152 Resp: 49769

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

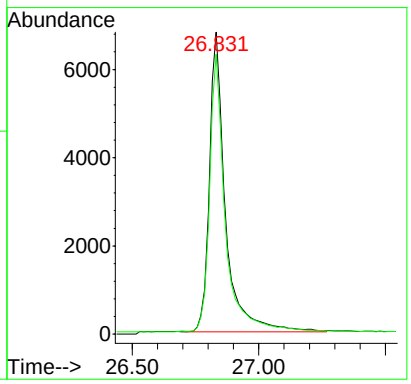


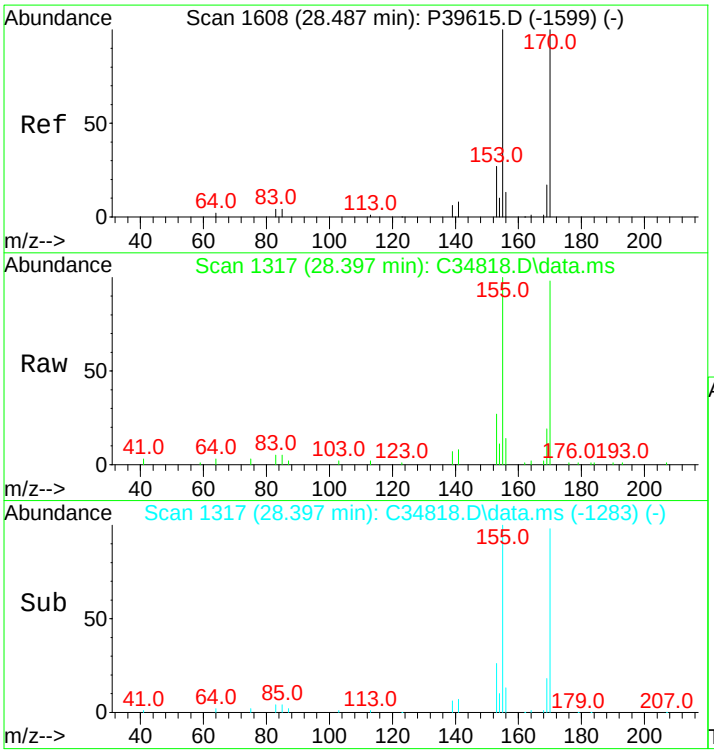


#27
Acenaphthene
Concen: 468.70 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:153 Resp: 29794

Ion	Ratio	Lower	Upper
153	100		
154	91.9	73.6	110.4

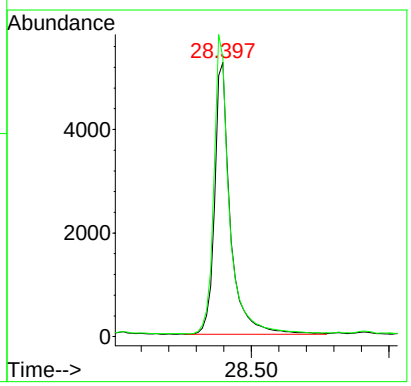


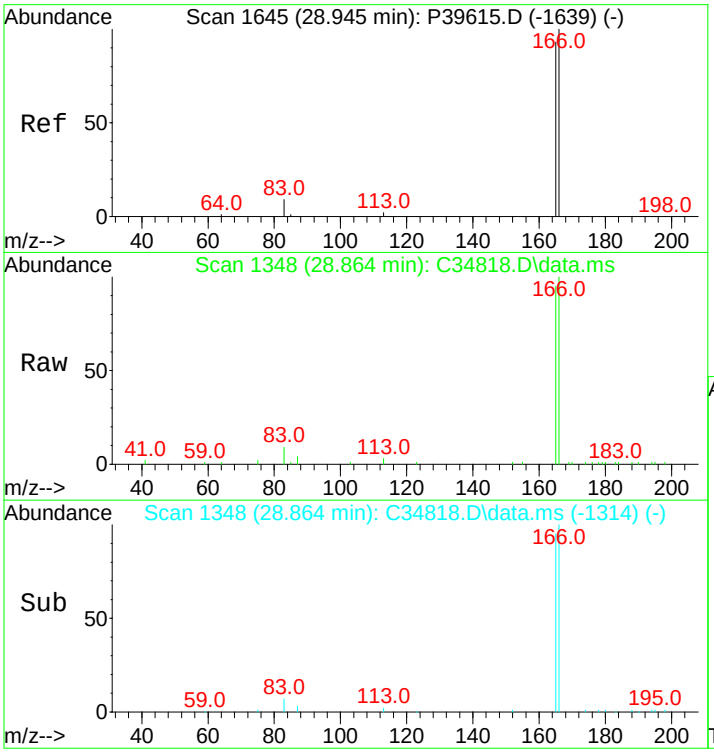


#28
2,3,5-Trimethylnaphthalene
Concen: 491.29 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:170 Resp: 20924

Ion	Ratio	Lower	Upper
170	100		
155	108.9	87.3	130.9

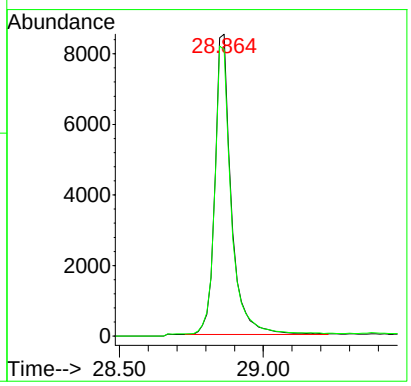


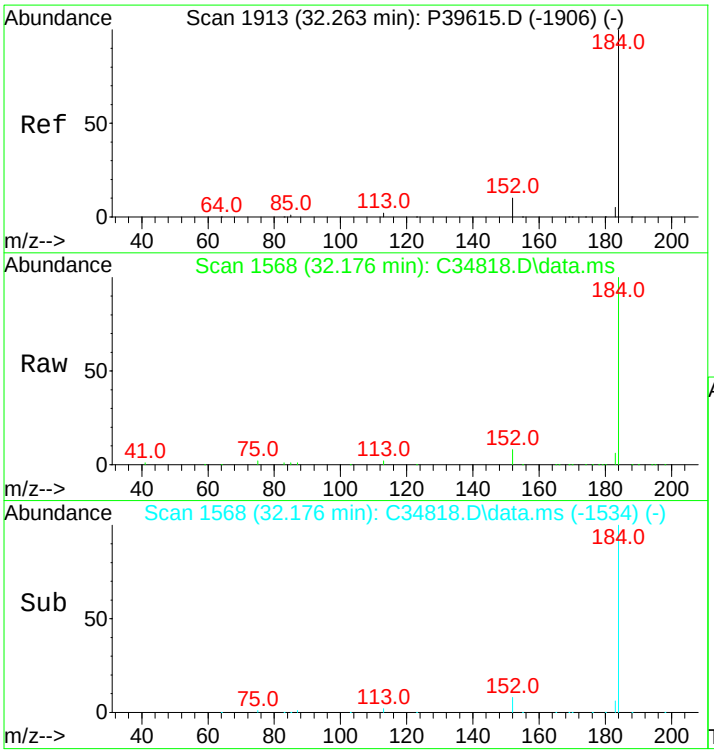


#29
Fluorene
Concen: 479.57 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:166 Resp: 33621

Ion	Ratio	Lower	Upper
166	100		
165	103.8	77.3	115.9

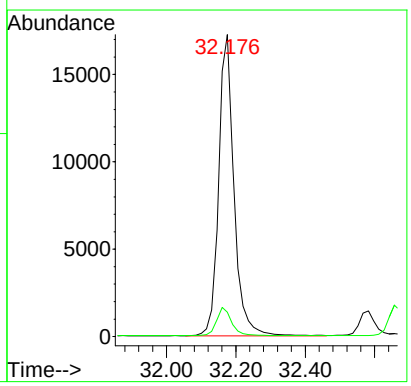


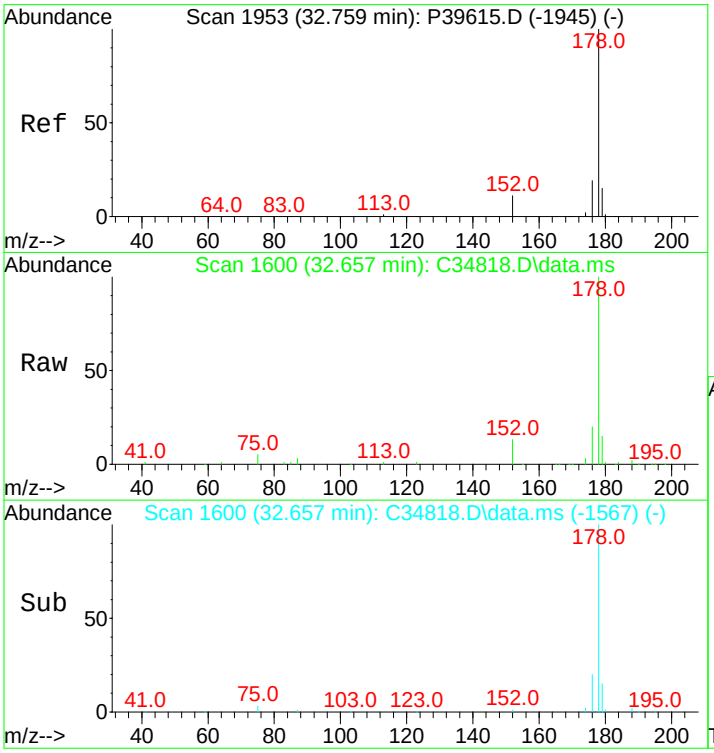


#33
Dibenzothiophene
Concen: 468.44 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:184 Resp: 52643

Ion	Ratio	Lower	Upper
184	100		
152	9.3	7.5	11.3

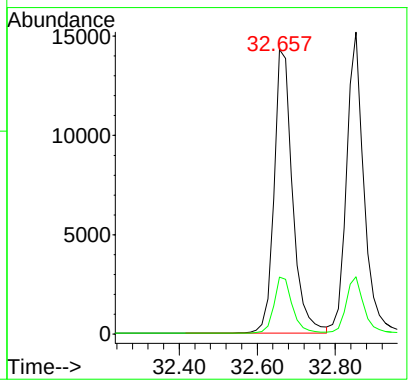


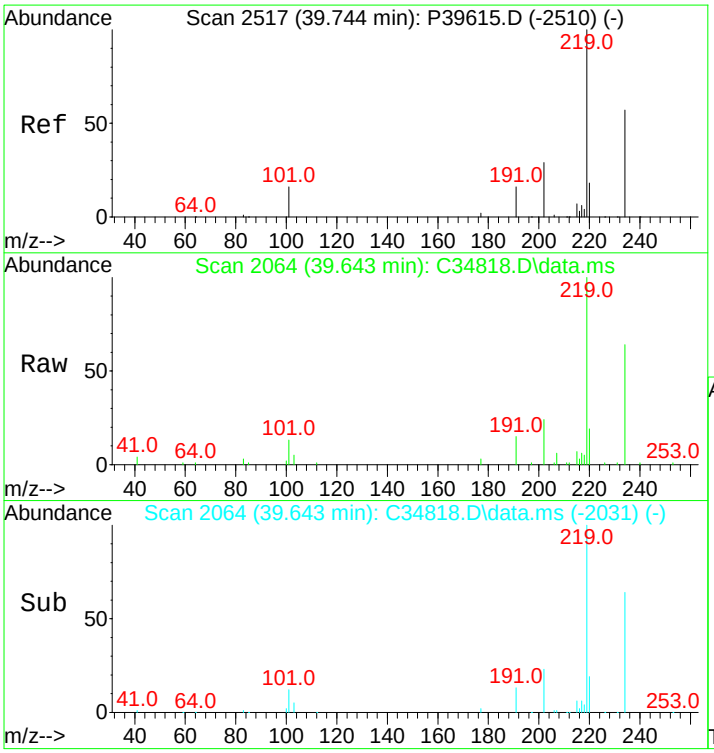


#43
Phenanthrene
Concen: 475.16 ng/mL
RT: 32.657 min Scan# 1600
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:178 Resp: 46915

Ion	Ratio	Lower	Upper
178	100		
176	19.8	16.1	24.1

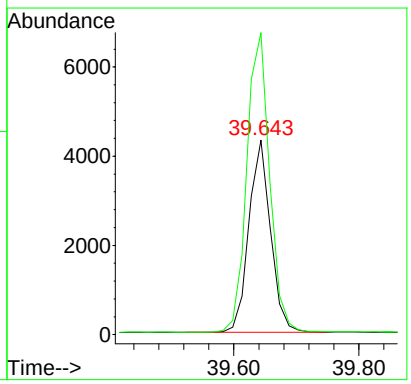


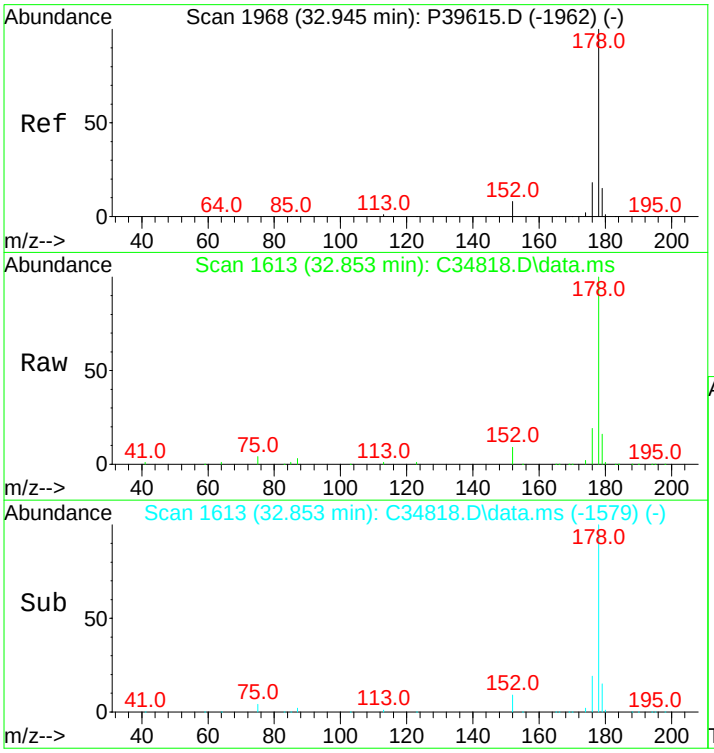


#54
Retene
Concen: 540.65 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 10413

Ion	Ratio	Lower	Upper
234	100		
219	164.0	127.8	191.8

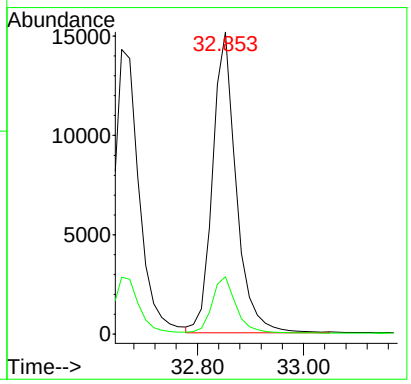


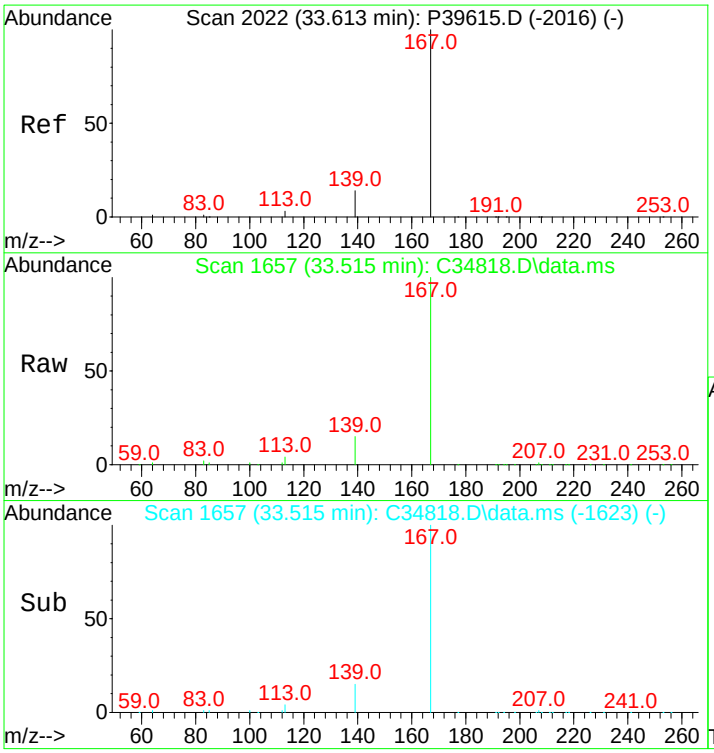


#55
Anthracene
Concen: 484.09 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:178 Resp: 46687

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

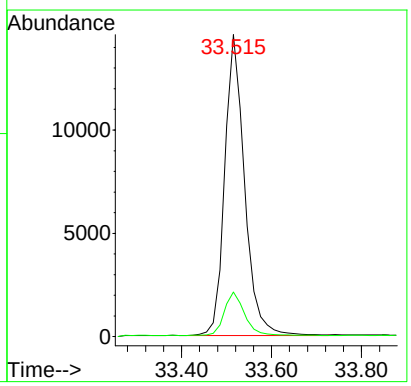


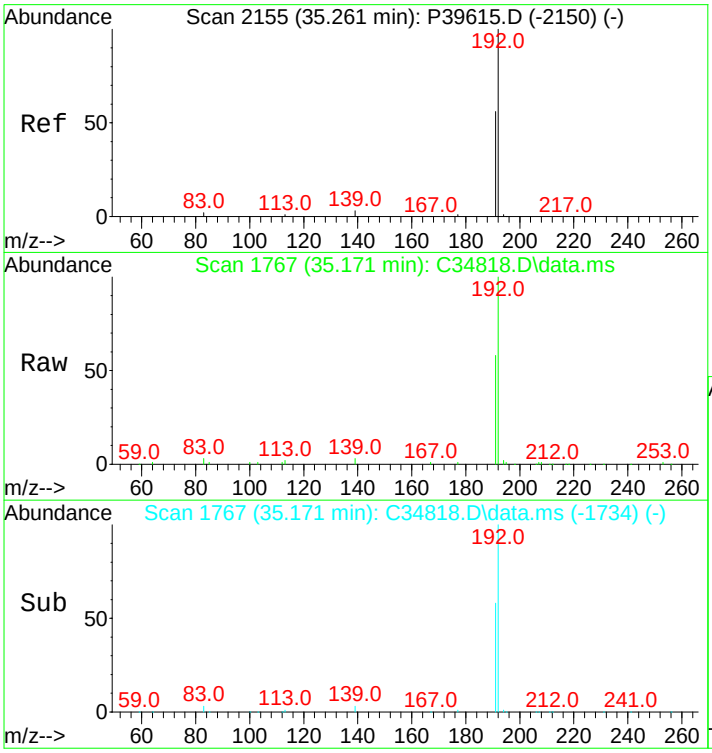


#56
Carbazole
Concen: 459.37 ng/mL m
RT: 33.515 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:167 Resp: 44751

Ion	Ratio	Lower	Upper
167	100		
139	15.2	11.8	17.8

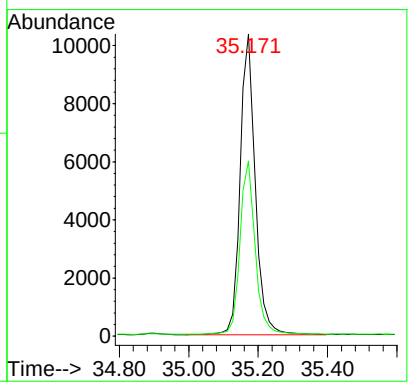


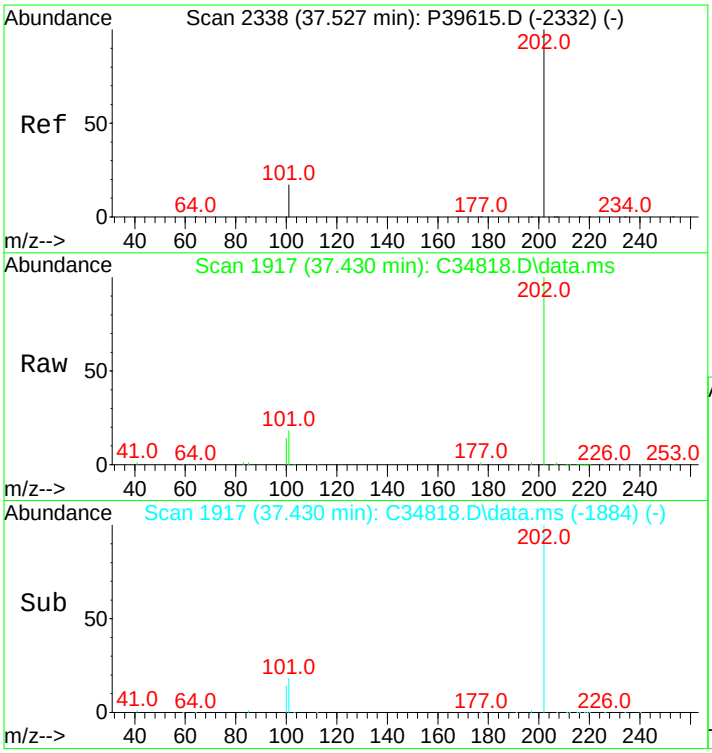


#57
1-Methylphenanthrene
Concen: 500.27 ng/mL
RT: 35.171 min Scan# 1767
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:192 Resp: 31302

Ion	Ratio	Lower	Upper
192	100		
191	57.8	45.9	68.9

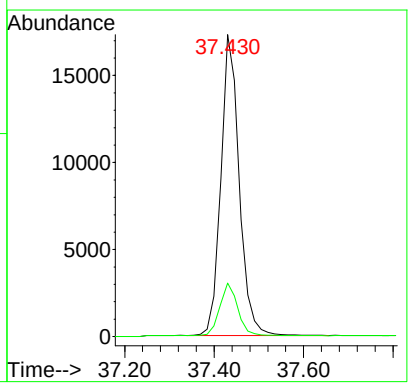


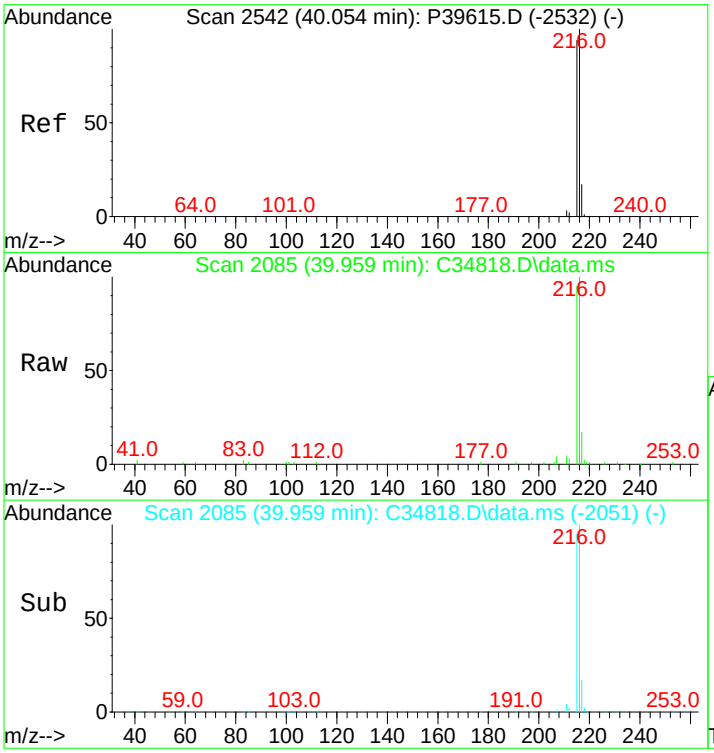


#58
Fluoranthene
Concen: 501.06 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:202 Resp: 49134

Ion	Ratio	Lower	Upper
202	100		
101	17.7	12.9	19.3

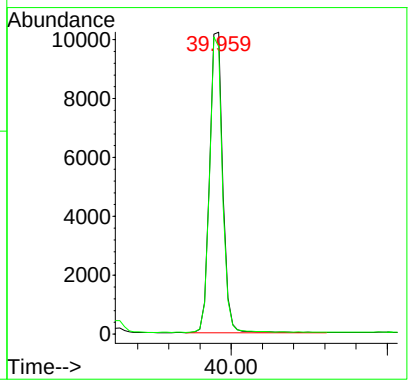


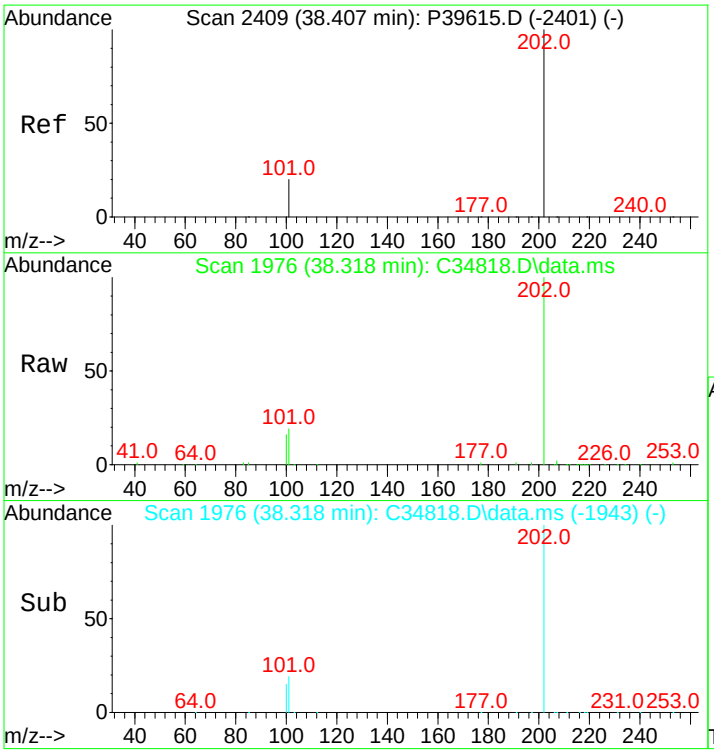


#59
Benzo(b)fluorene
Concen: 525.46 ng/mL
RT: 39.959 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:216 Resp: 29894

Ion	Ratio	Lower	Upper
216	100		
215	95.4	76.3	114.5

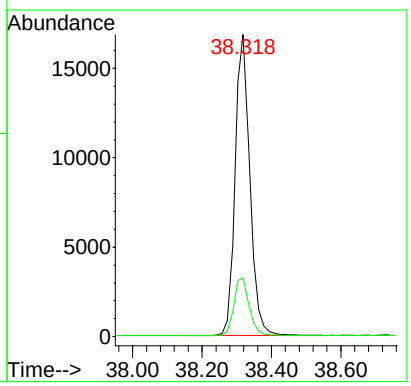


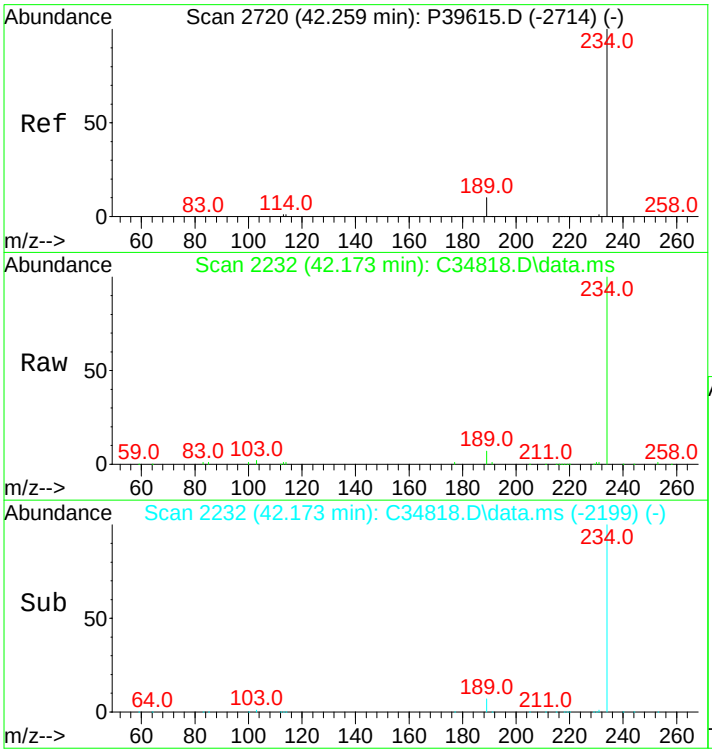


#60
Pyrene
Concen: 496.57 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:202 Resp: 49499

Ion	Ratio	Lower	Upper
202	100		
101	20.1	15.0	22.4

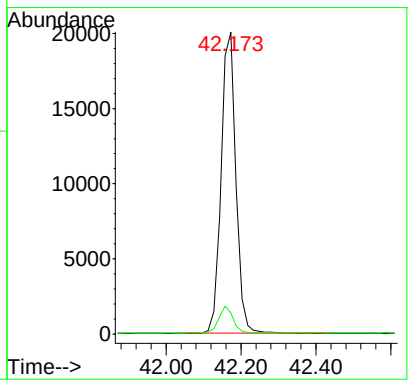


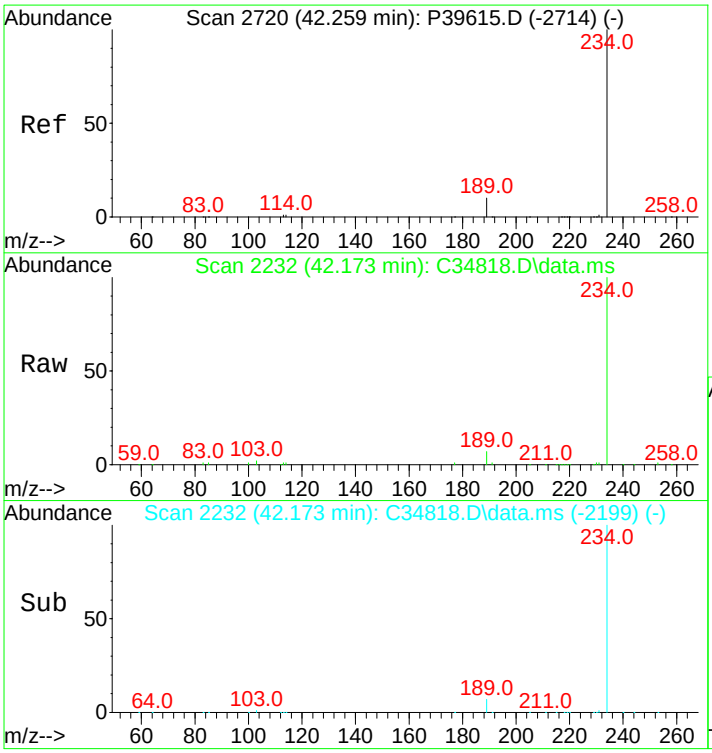


#66
Naphthobenzothiophene
Concen: 513.17 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 55072

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

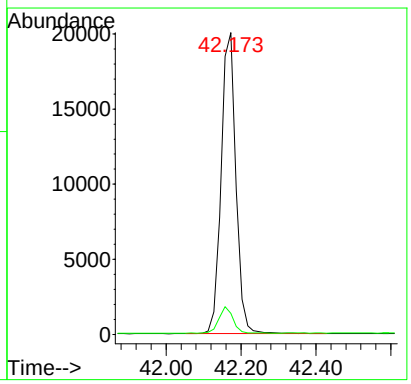


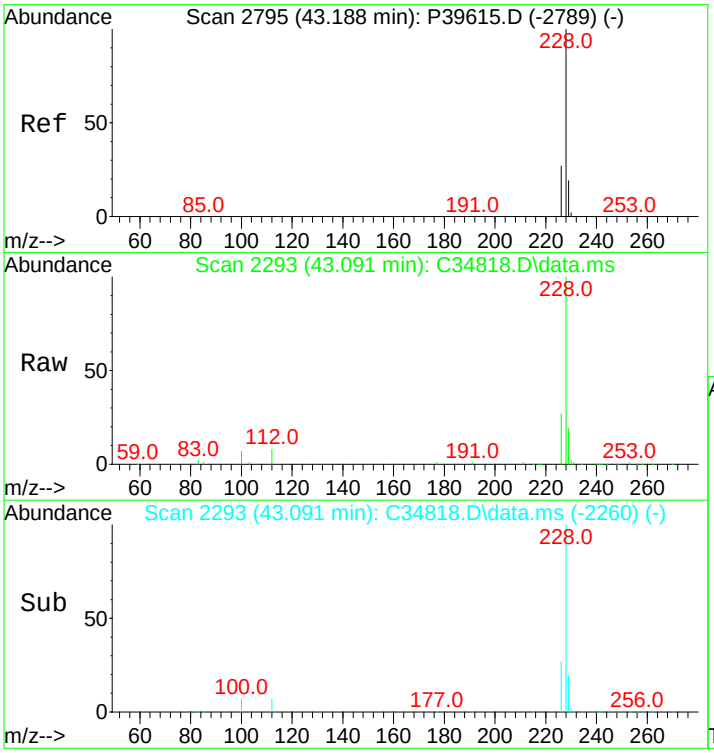


#67
Naphthobenzothiophene-2,1-D
Concen: 513.17 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:234 Resp: 55072

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

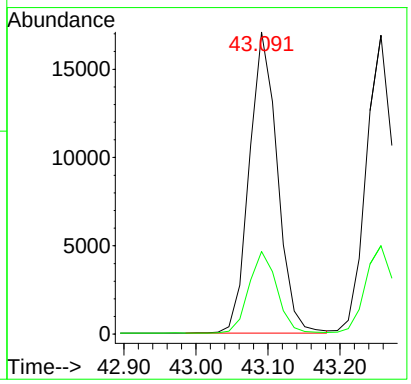


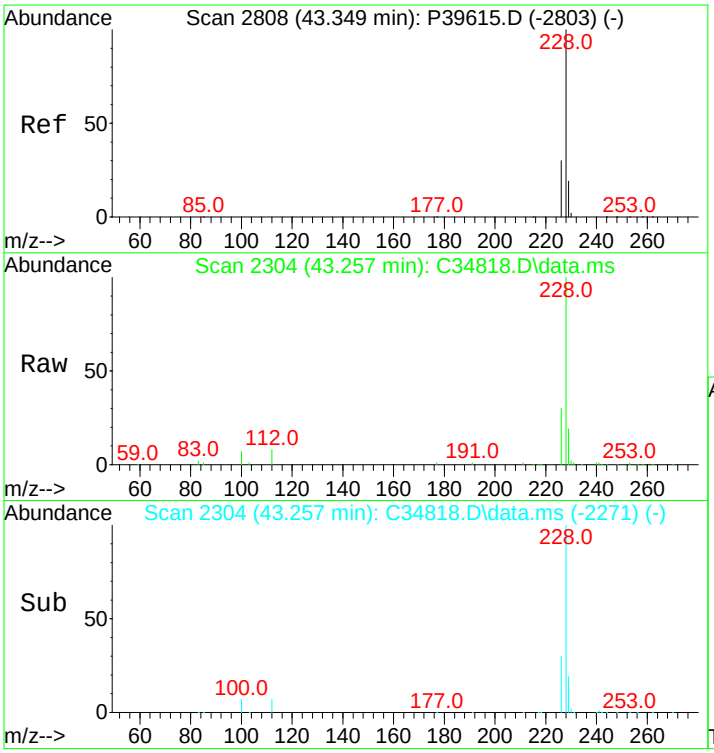


#75
Benz[a]anthracene
Concen: 508.97 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45979

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

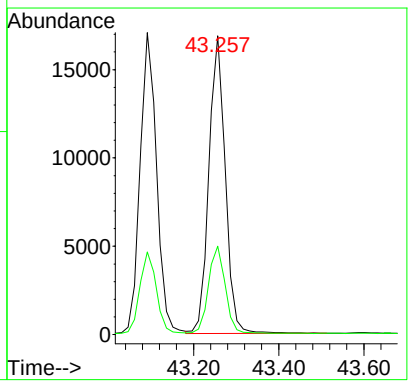


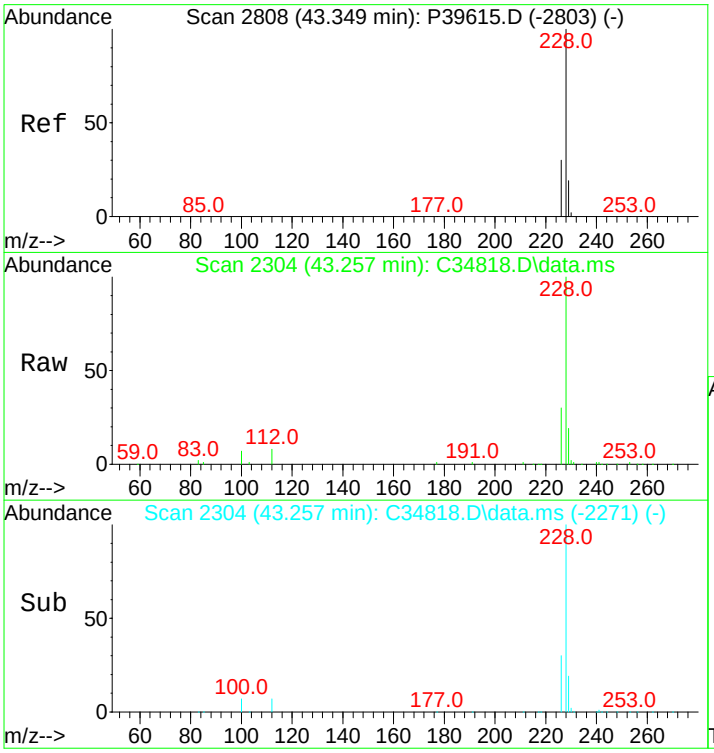


#76
Chrysene
Concen: 494.41 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45092

Ion	Ratio	Lower	Upper
228	100		
226	30.0	23.7	35.5

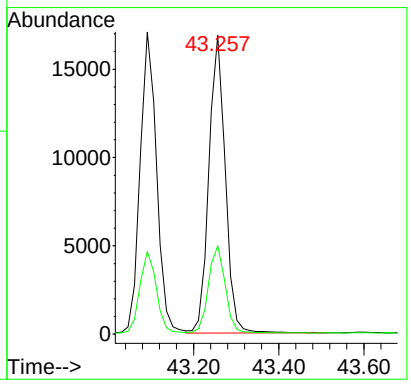


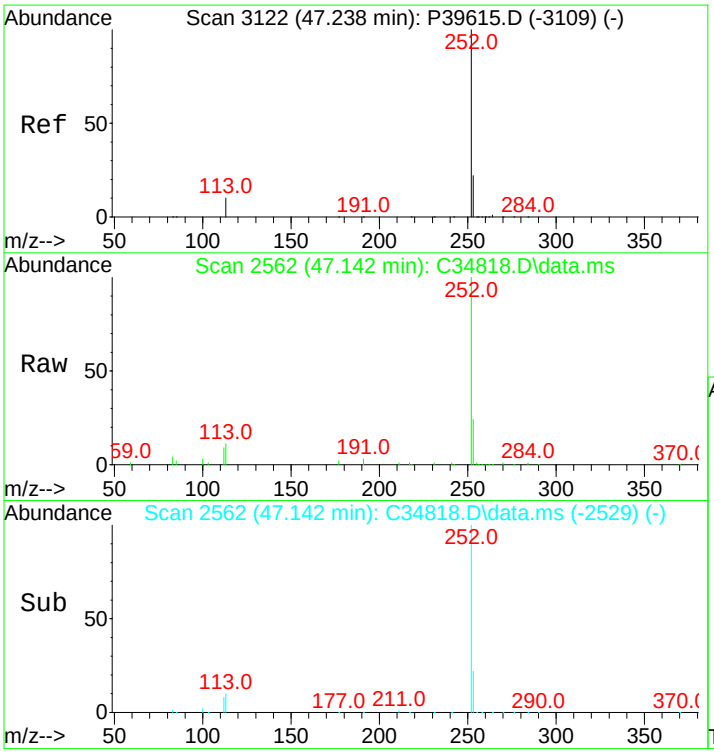


#77
Chrysene/Triphenylene
Concen: 494.41 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:228 Resp: 45092

Ion	Ratio	Lower	Upper
228	100		
226	30.0	23.7	35.5

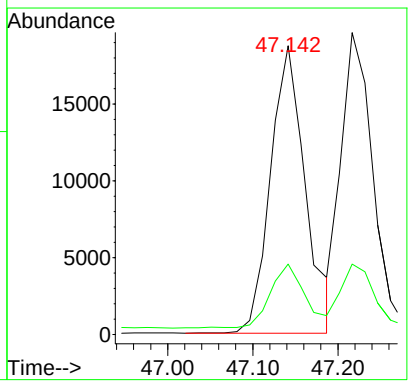


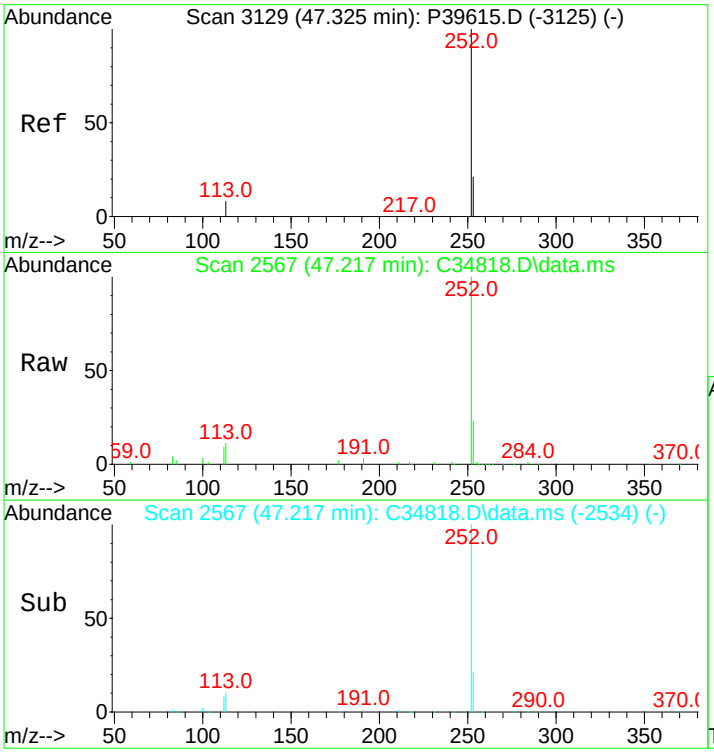


#82
Benzo[b]fluoranthene
Concen: 536.42 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 53247

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.0	28.4

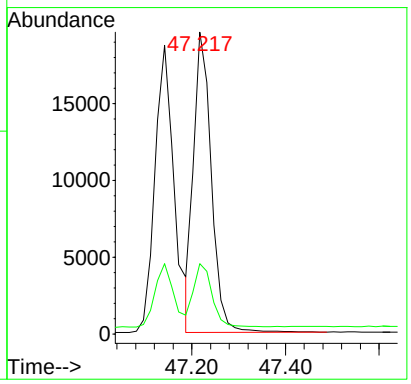


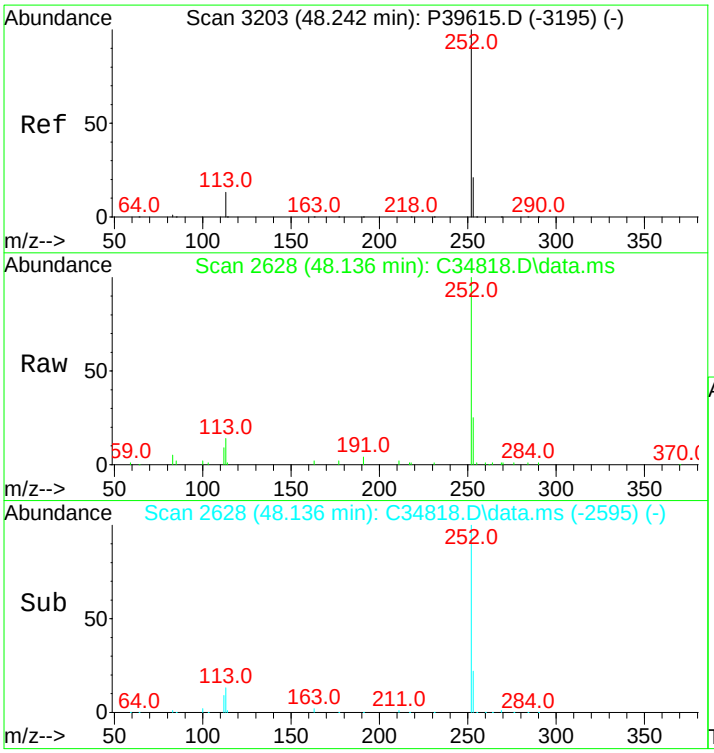


#83
Benzo[j]+[k]fluoranthene
Concen: 476.59 ng/mL
RT: 47.217 min Scan# 2567
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 51506

Ion	Ratio	Lower	Upper
252	100		
253	22.0	19.0	28.4

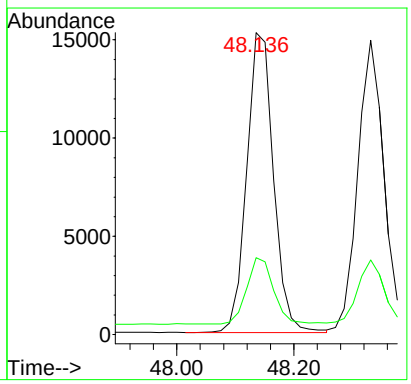


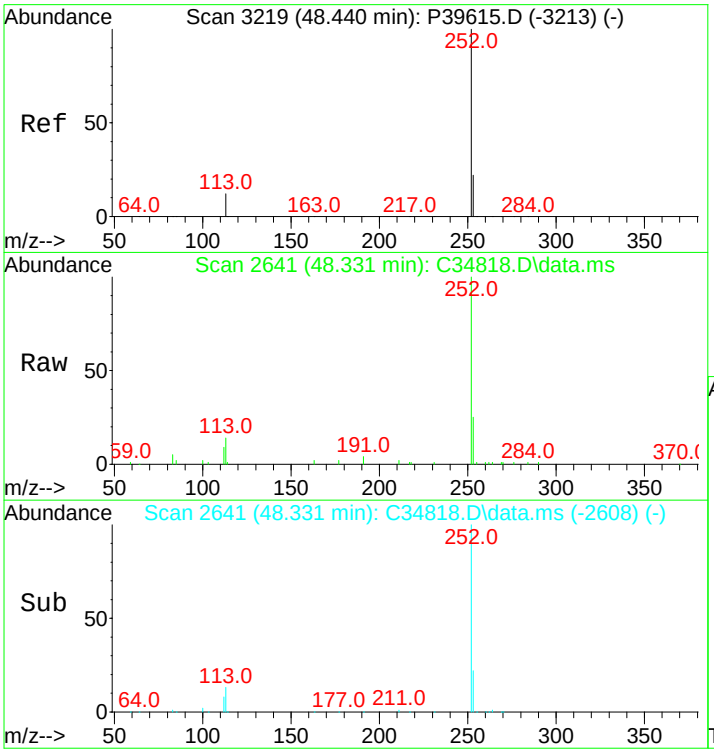


#85
Benzo[e]pyrene
Concen: 494.52 ng/mL
RT: 48.136 min Scan# 2628
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 48554

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.2	28.8

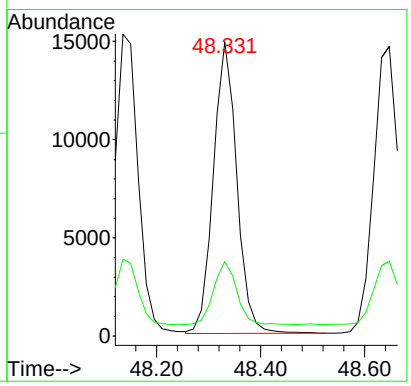


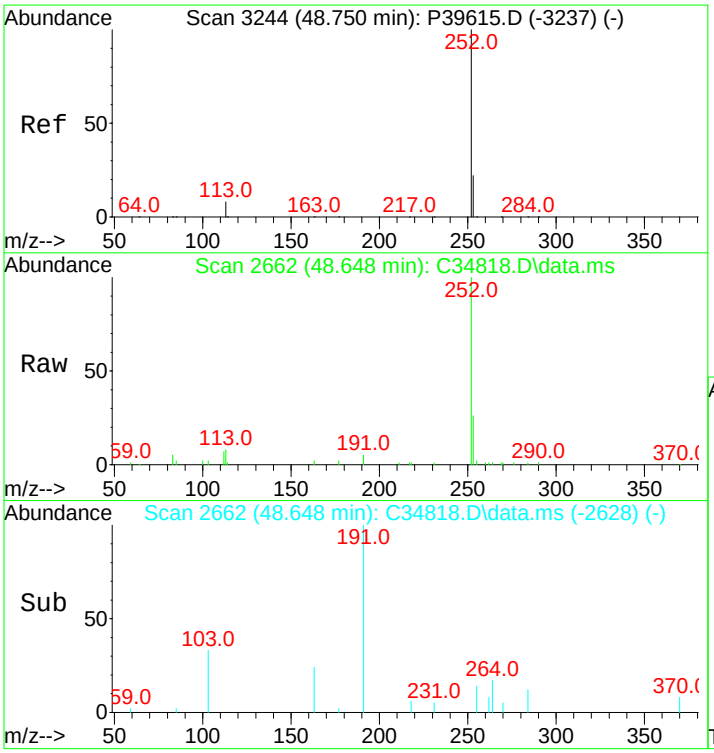


#87
Benzo[a]pyrene
Concen: 491.04 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. -0.000 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 46418

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.5	29.3

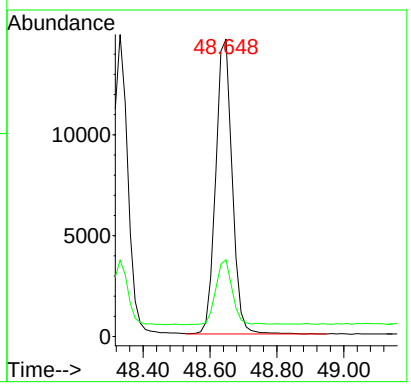


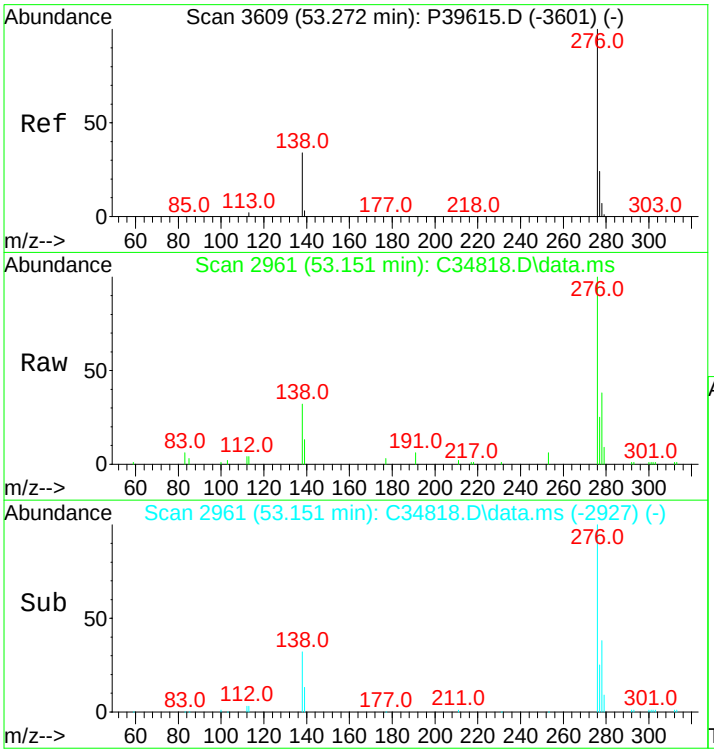


#88
Perylene
Concen: 495.63 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:252 Resp: 50072

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.6	29.4

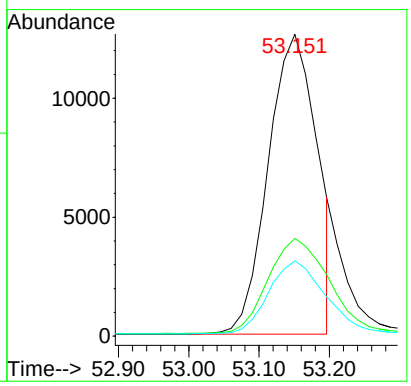


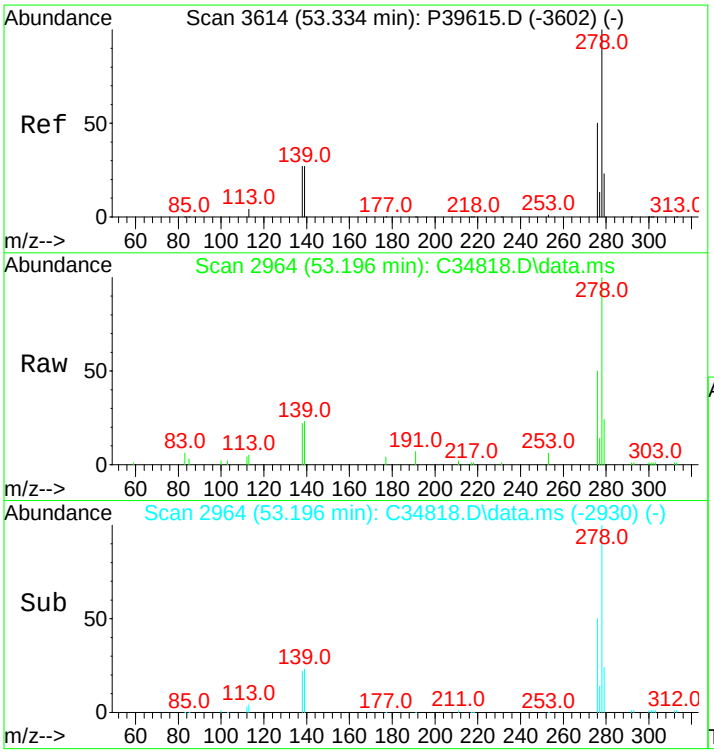


#89
Indeno[1,2,3-cd]pyrene
Concen: 550.90 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:276 Resp: 60603

Ion	Ratio	Lower	Upper
276	100		
138	39.9	23.3	34.9#
277	28.4	19.0	28.4

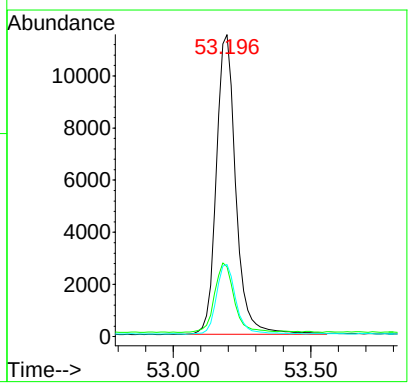


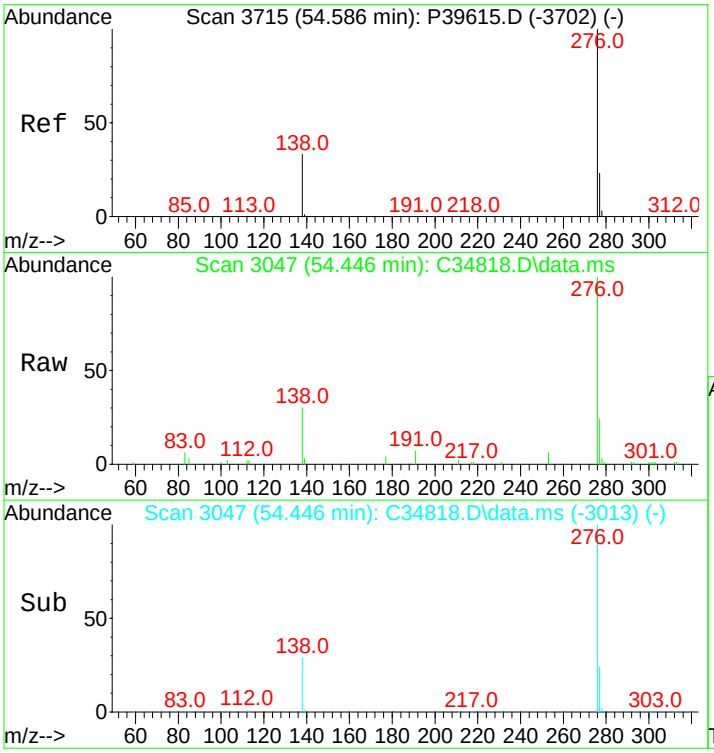


#90
Dibenz[ah]+[ac]anthracene
Concen: 541.43 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:278 Resp: 56659

Ion	Ratio	Lower	Upper
278	100		
139	22.8	19.1	28.7
279	22.9	19.2	28.8

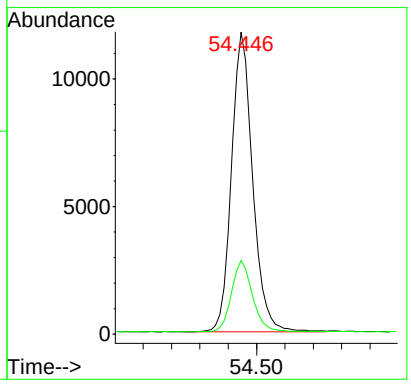


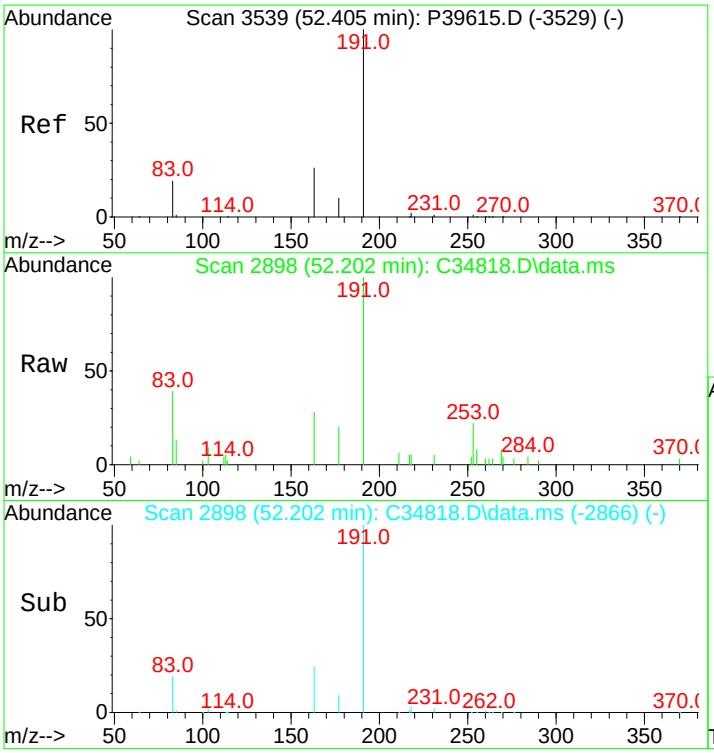


#91
Benzo[g,h,i]perylene
Concen: 525.31 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:276 Resp: 61054

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

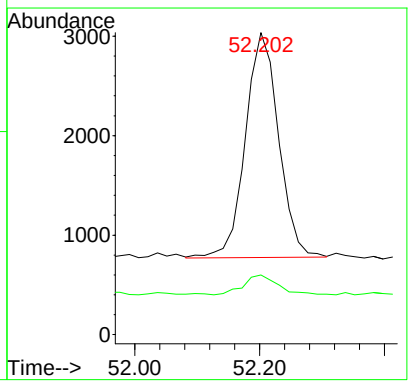


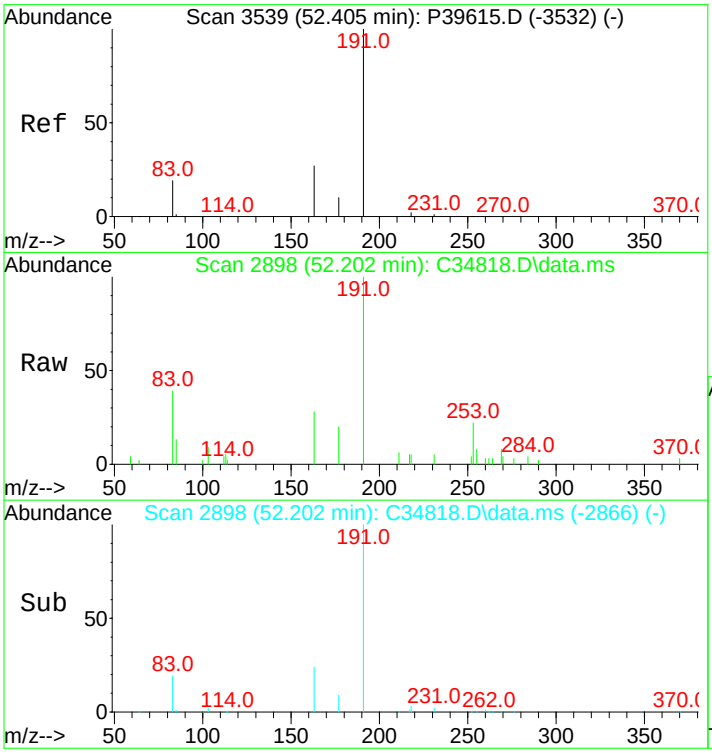


#92
Hopane (T19)
Concen: 446.30 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:191 Resp: 8372

Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#

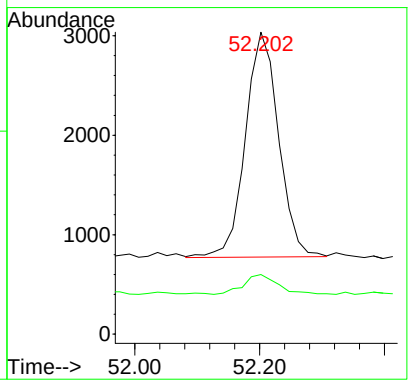




#93
17a(H),21B(H)-hopane - C30H52
Concen: 446.30 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34818.D
Acq: 3 May 2012 7:29 pm

Tgt Ion:191 Resp: 8372

Ion	Ratio	Lower	Upper
191	100		
177	9.8	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

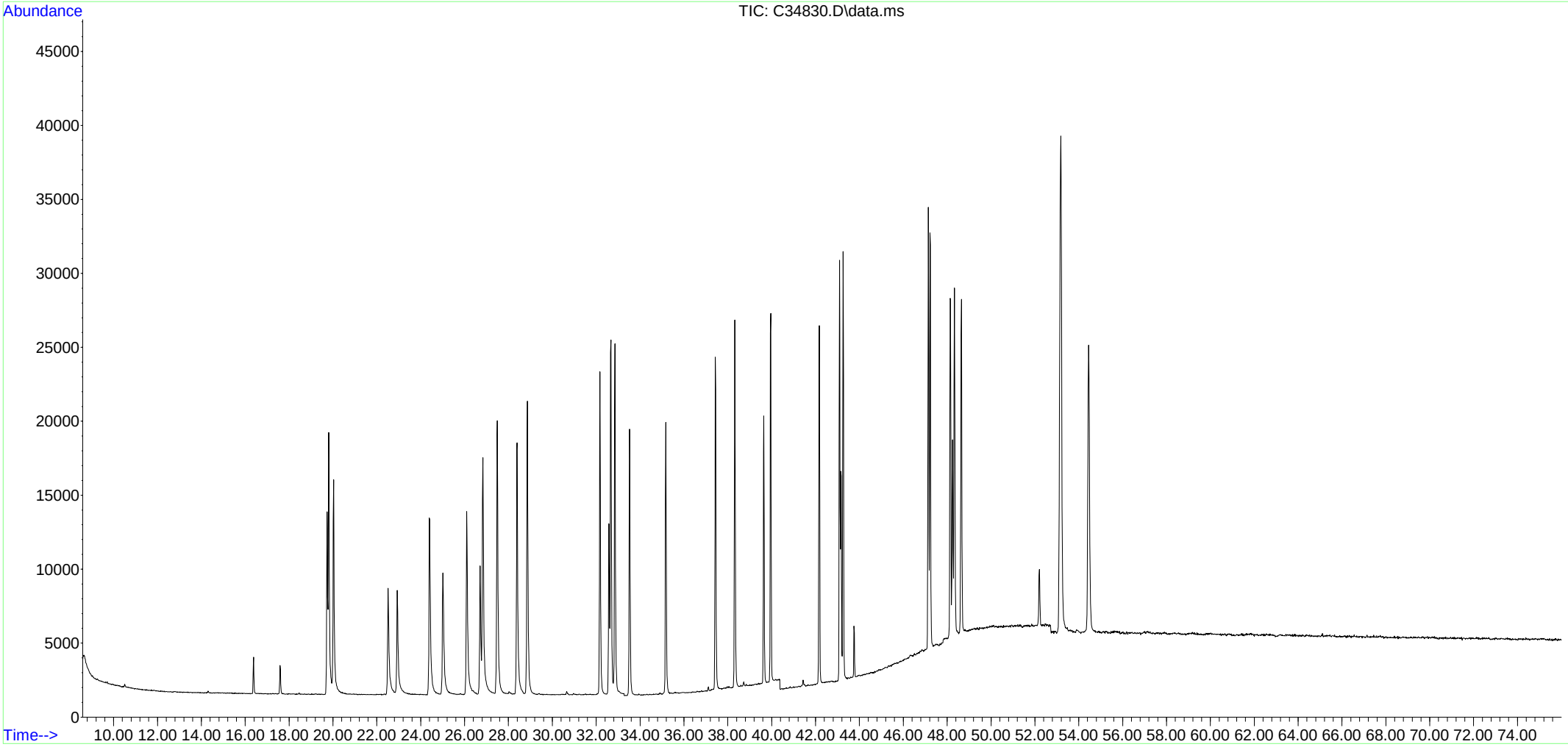
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	18143M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	30421	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	38272	486.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.60%#			
42) Phenanthrene-d10	32.582	188	30371	487.955	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.80%#			
86) Benzo[a]pyrene-d12	48.241	264	30629	485.826	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.58%#			
127) 5B(H)Cholane - Surr	43.754	217	4785	503.094	ng/ml	-0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.31%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3531	246.540	ng/mL	100
4) cis-Decalin	17.603	138	2582	239.201	ng/mL	100
10) Naphthalene	19.801	128	54811	474.005	ng/mL#	100
16) 2-Methylnaphthalene	22.511	142	32279	472.112	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	29853	445.449	ng/mL#	100
18) Benzothiophene	20.027	134	48823	469.200	ng/mL	100
23) Biphenyl	24.408	154	41726	482.446	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.010	156	27223	484.622	ng/mL#	100
25) Dibenzofuran	27.494	168	47796	481.252	ng/mL	95
26) Acenaphthylene	26.094	152	53097M3	462.572	ng/mL	
27) Acenaphthene	26.832	153	32079	474.637	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	22550	497.984	ng/mL	99
29) Fluorene	28.864	166	36416M3	488.545	ng/mL	
33) Dibenzothiophene	32.176	184	56663	474.222	ng/mL	99
43) Phenanthrene	32.673	178	50334	479.468	ng/mL	99
54) Retene	39.643	234	11209	547.364	ng/mL	98
55) Anthracene	32.853	178	50554M3	493.013	ng/mL	
56) Carbazole	33.516	167	48707M3	470.247	ng/mL	
57) 1-Methylphenanthrene	35.172	192	34101	512.589	ng/mL	100
58) Fluoranthene	37.430	202	52554M3	504.059	ng/mL	
59) Benzo(b)fluorene	39.960	216	31953	528.250	ng/mL	100
60) Pyrene	38.318	202	53285	502.762	ng/mL	96
66) Naphthobenzothiophene	42.173	234	58908	516.273	ng/ml#	65
67) Naphthobenzothiophene-...	42.173	234	58908	516.273	ng/mL#	65
75) Benz[a]anthracene	43.091	228	48995	507.427	ng/mL	99
76) Chrysene	43.257	228	47818	490.536	ng/mL	99
77) Chrysene/Triphenylene	43.257	228	47818	490.536	ng/mL	99
82) Benzo[b]fluoranthene	47.142	252	56173	529.457	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	56325	487.618	ng/mL	97
85) Benzo[e]pyrene	48.151	252	51642	492.102	ng/mL	96
87) Benzo[a]pyrene	48.332	252	49448	489.405	ng/mL	95
88) Perylene	48.648	252	53413	494.655	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	53.151	276	68006M3	578.383	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	60995	545.326	ng/mL	98
91) Benzo[g,h,i]perylene	54.446	276	65614	528.194	ng/mL	99
92) Hopane (T19)	52.202	191	9428	470.234	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	52.202	191	9428	470.234	ng/mL#	79

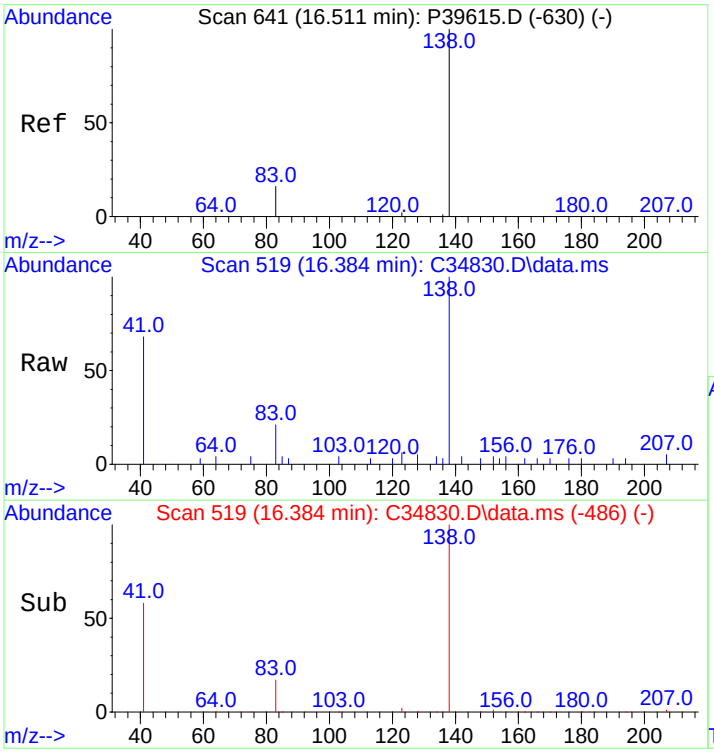
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34830.D
Acq On : 4 May 2012 4:34 am
Operator : AC
Sample : C305031204
Misc : CC WHAP06 500NG/ML
ALS Vial : 28 Sample Multiplier: 1

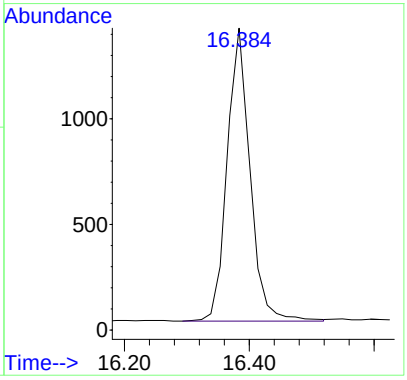
Quant Time: May 05 12:46:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

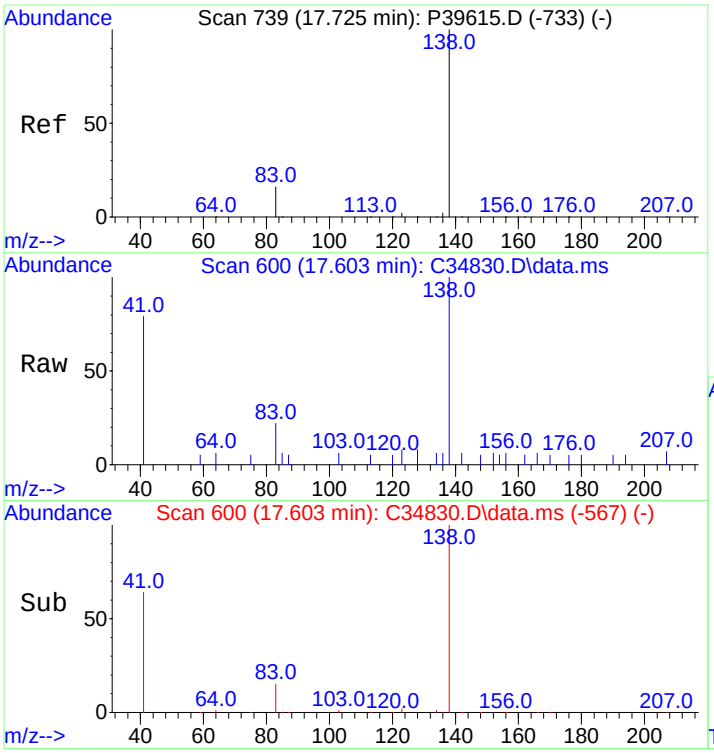




#3
trans-Decalin
Concen: 246.54 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

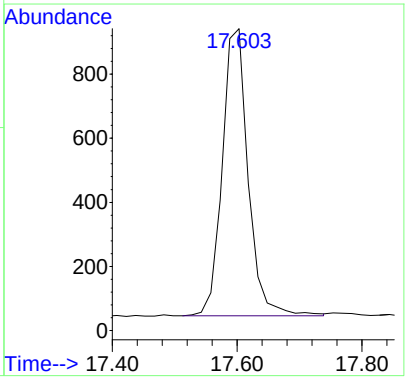
Tgt Ion:138 Resp: 3531

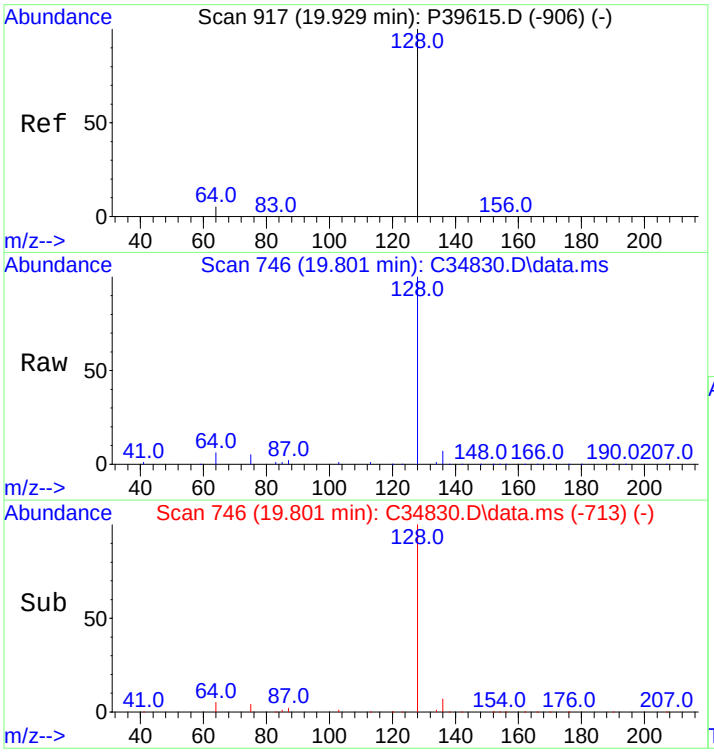




#4
cis-Decalin
Concen: 239.20 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:138 Resp: 2582

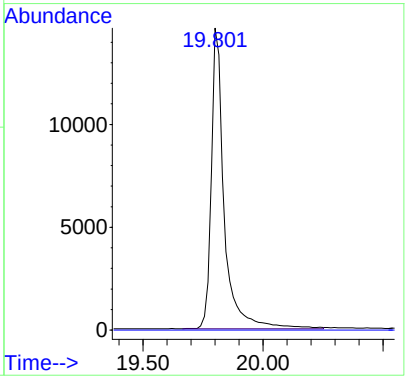


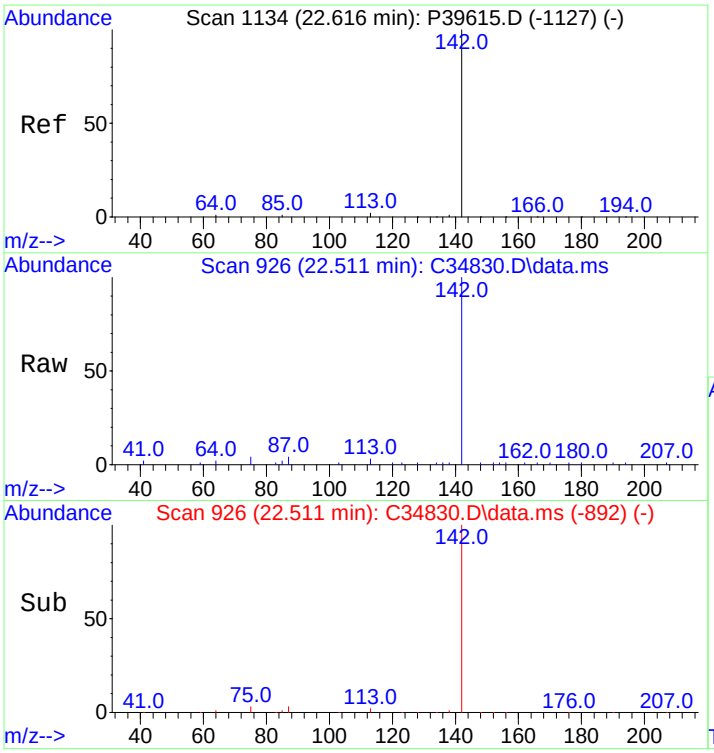


#10
Naphthalene
Concen: 474.01 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:128 Resp: 54811

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

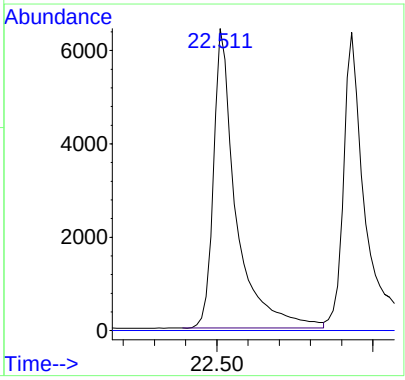


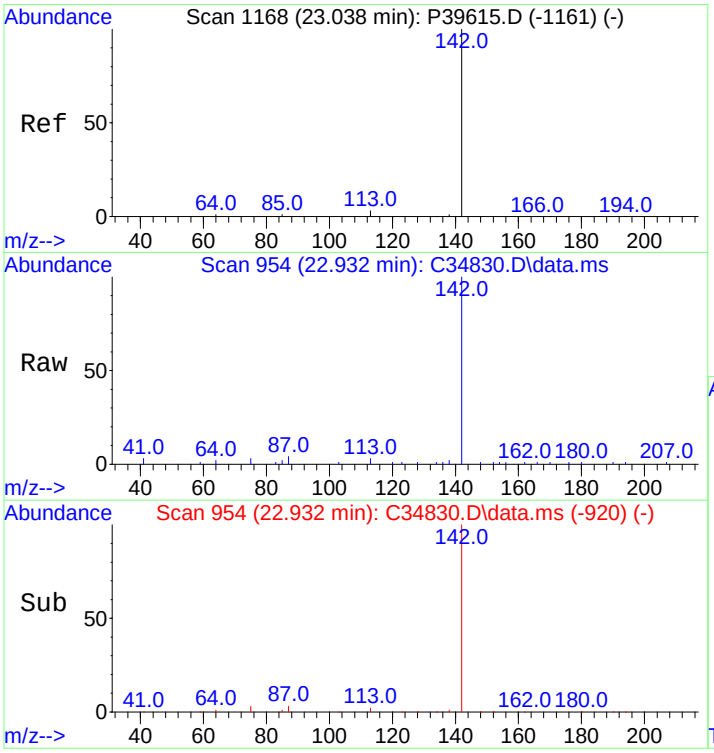


#16
2-Methylnaphthalene
Concen: 472.11 ng/mL
RT: 22.511 min Scan# 926
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:142 Resp: 32279

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

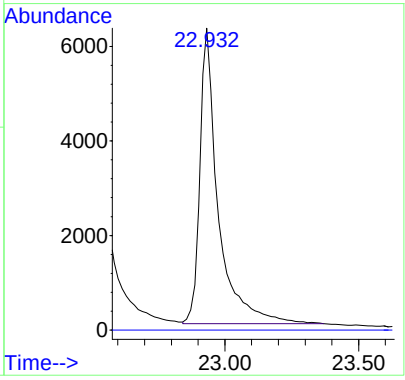


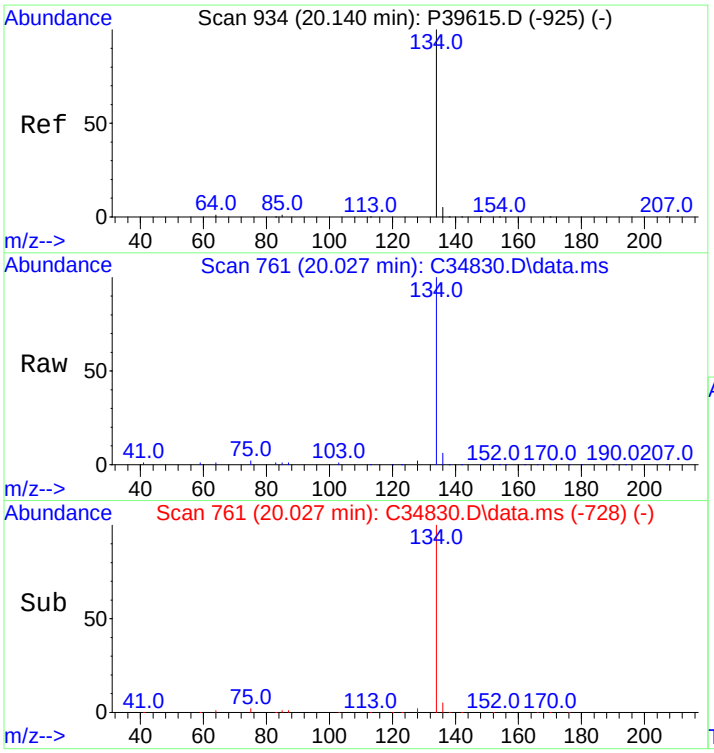


#17
1-Methylnaphthalene
Concen: 445.45 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:142 Resp: 29853

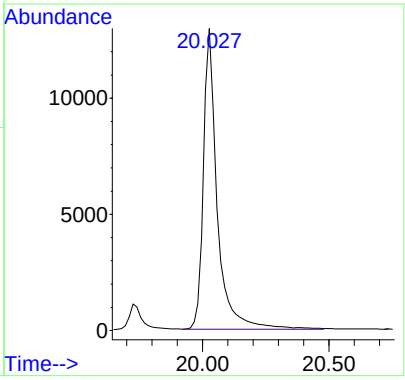
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

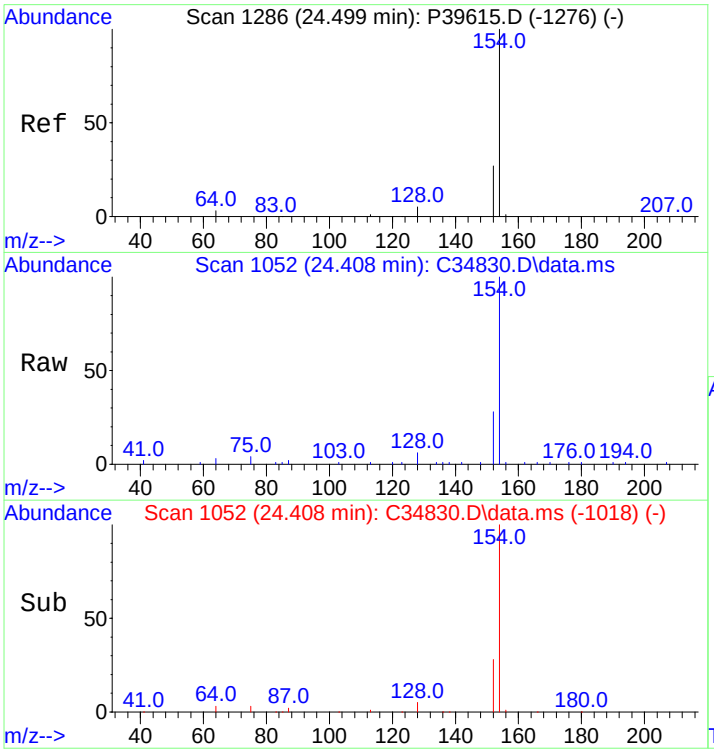




#18
Benzothiophene
Concen: 469.20 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:134 Resp: 48823

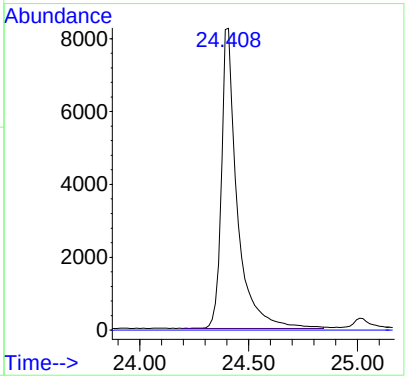


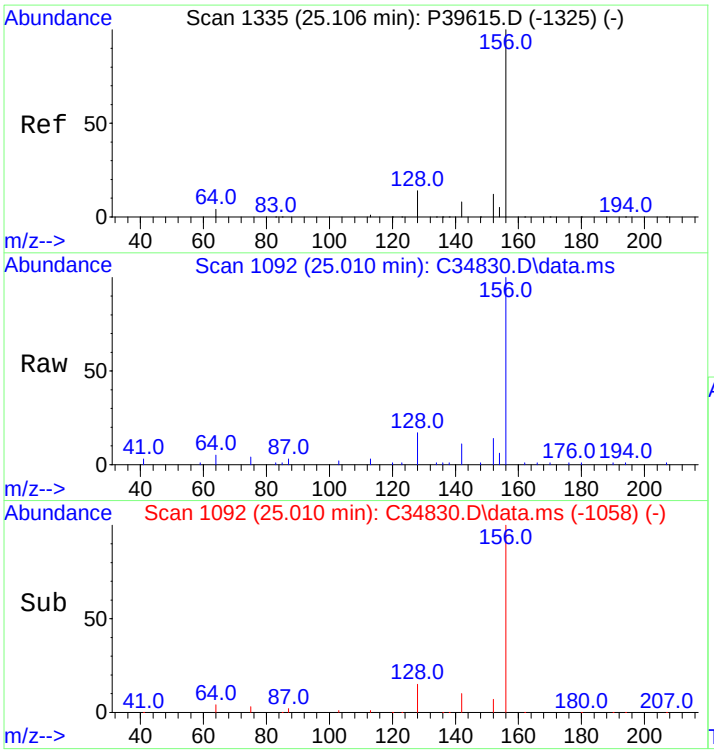


#23
Biphenyl
Concen: 482.45 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:154 Resp: 41726

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

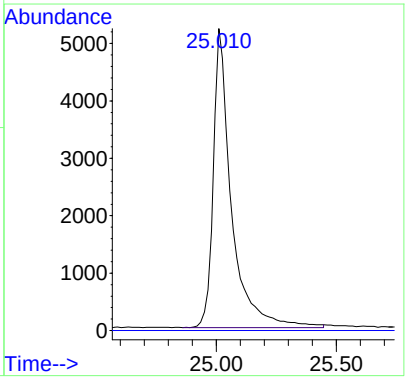


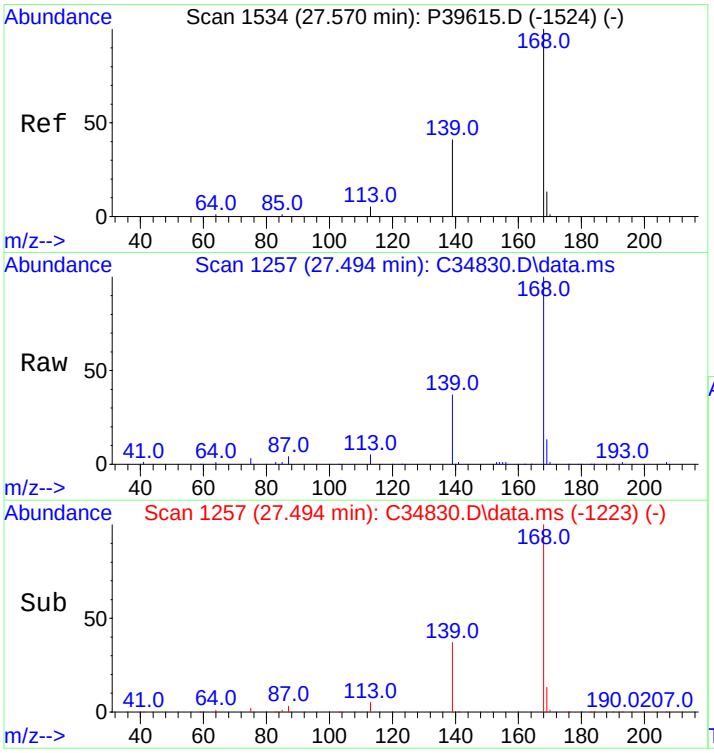


#24
2,6-Dimethylnaphthalene
Concen: 484.62 ng/mL
RT: 25.010 min Scan# 1092
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:156 Resp: 27223

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

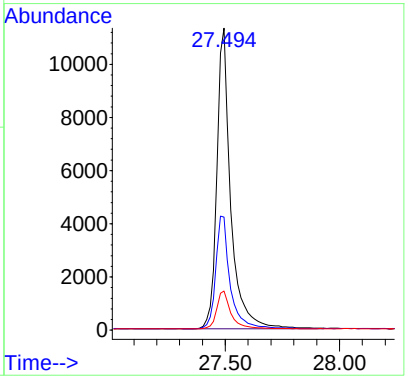


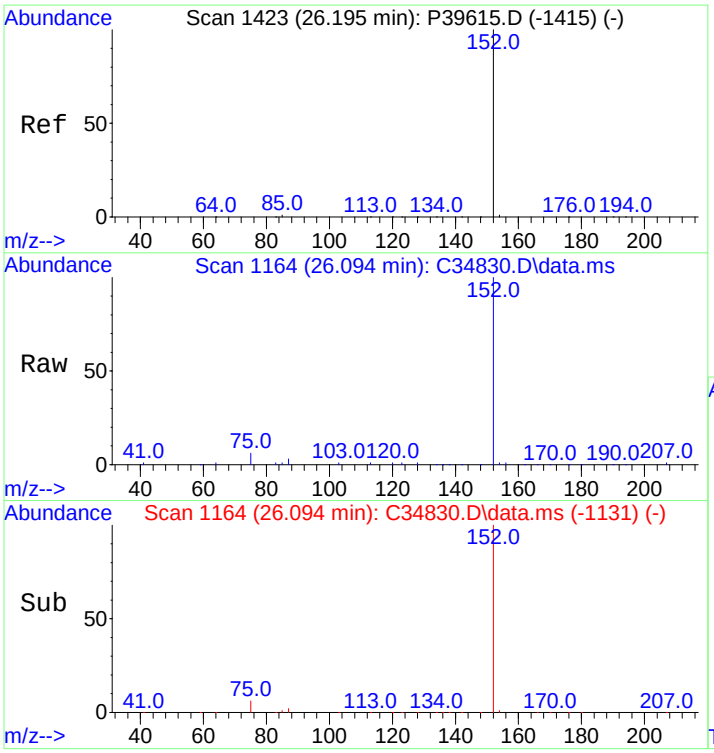


#25
Dibenzofuran
Concen: 481.25 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:168 Resp: 47796

Ion	Ratio	Lower	Upper
168	100		
139	39.0	28.4	42.6
169	13.2	10.8	16.2

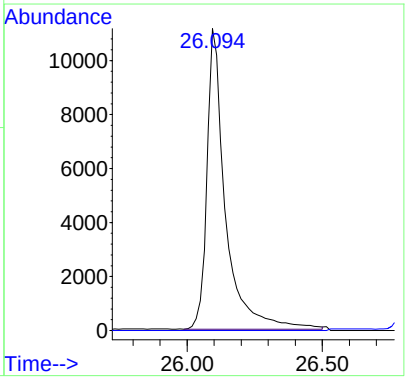


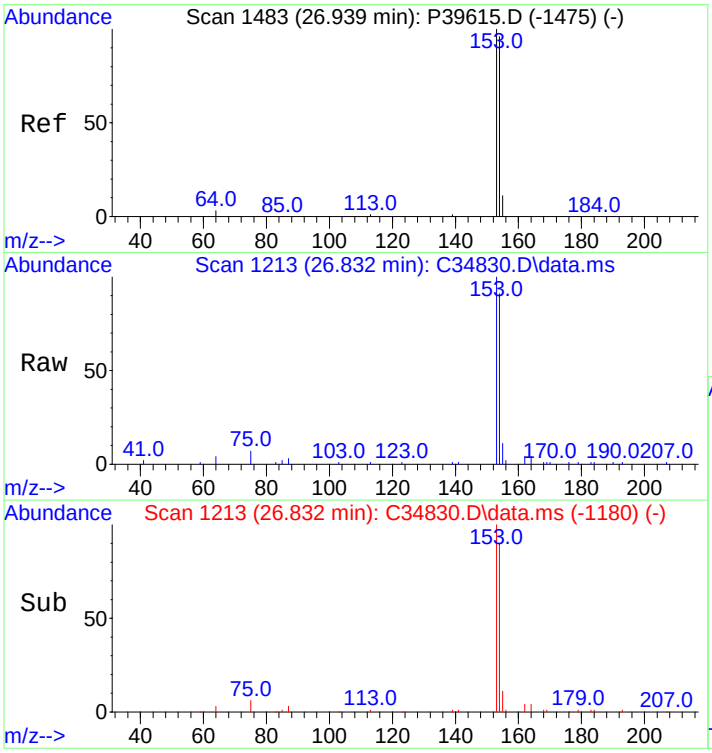


#26
Acenaphthylene
Concen: 462.57 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:152 Resp: 53097

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

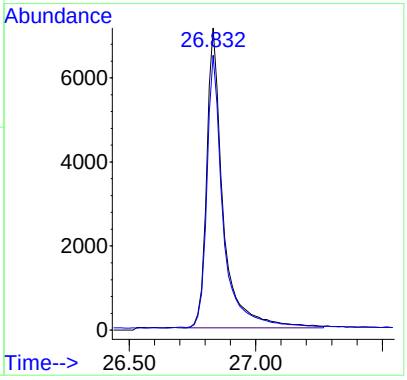


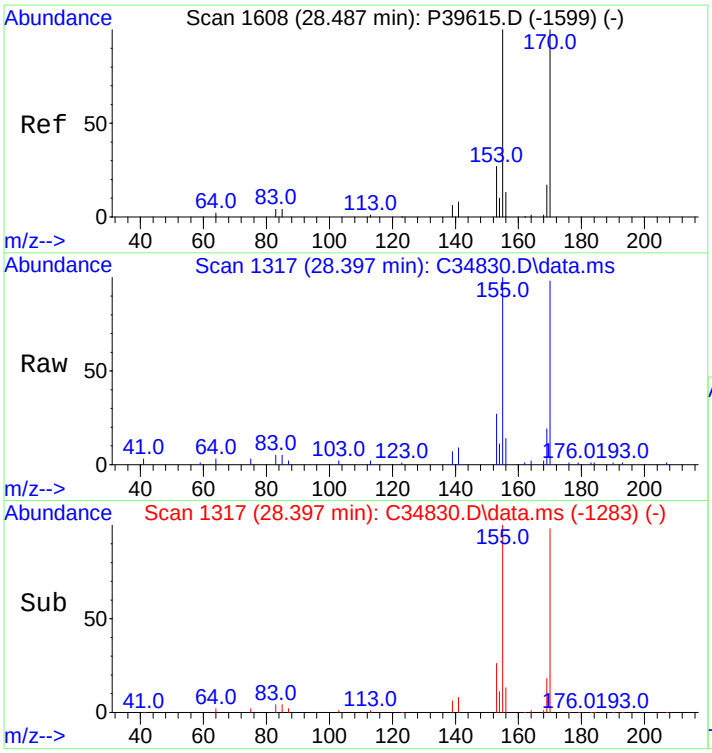


#27
Acenaphthene
Concen: 474.64 ng/mL
RT: 26.832 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:153 Resp: 32079

Ion	Ratio	Lower	Upper
153	100		
154	91.9	73.6	110.4

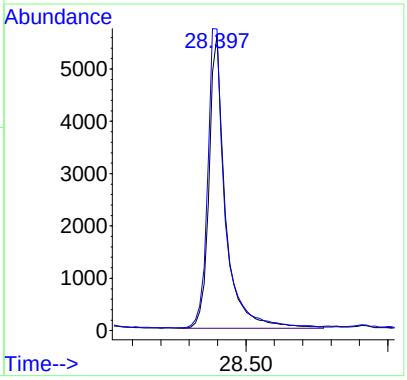


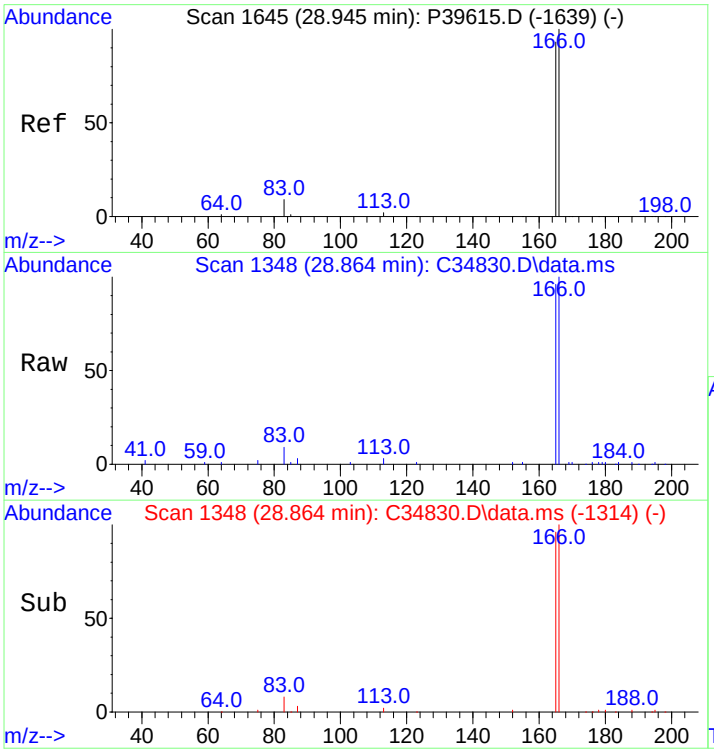


#28
2,3,5-Trimethylnaphthalene
Concen: 497.98 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:170 Resp: 22550

Ion	Ratio	Lower	Upper
170	100		
155	107.9	87.3	130.9

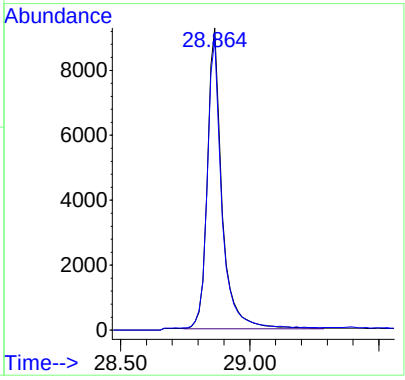


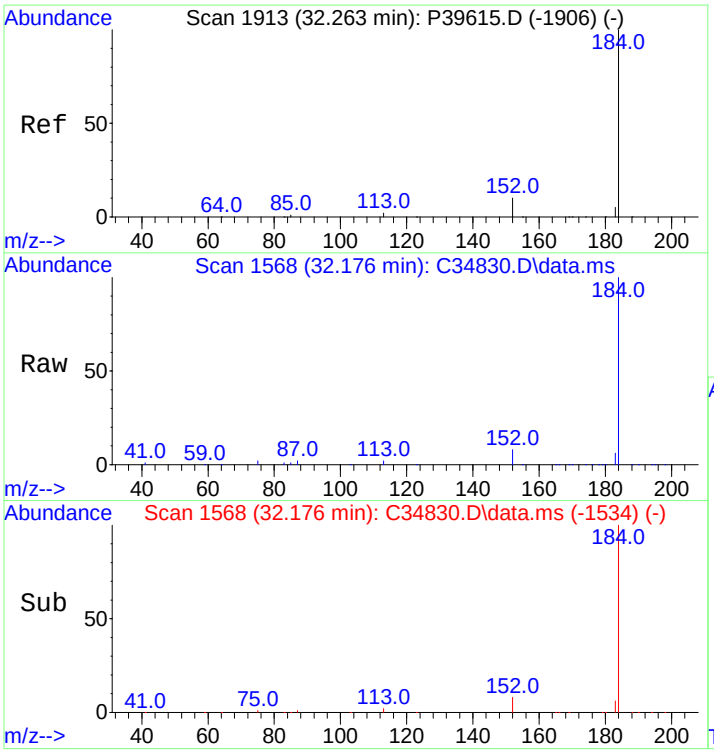


#29
Fluorene
Concen: 488.54 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:166 Resp: 36416

Ion	Ratio	Lower	Upper
166	100		
165	101.8	77.3	115.9

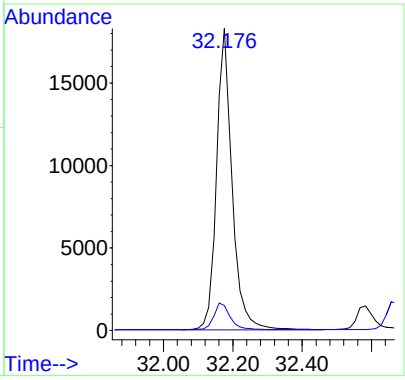


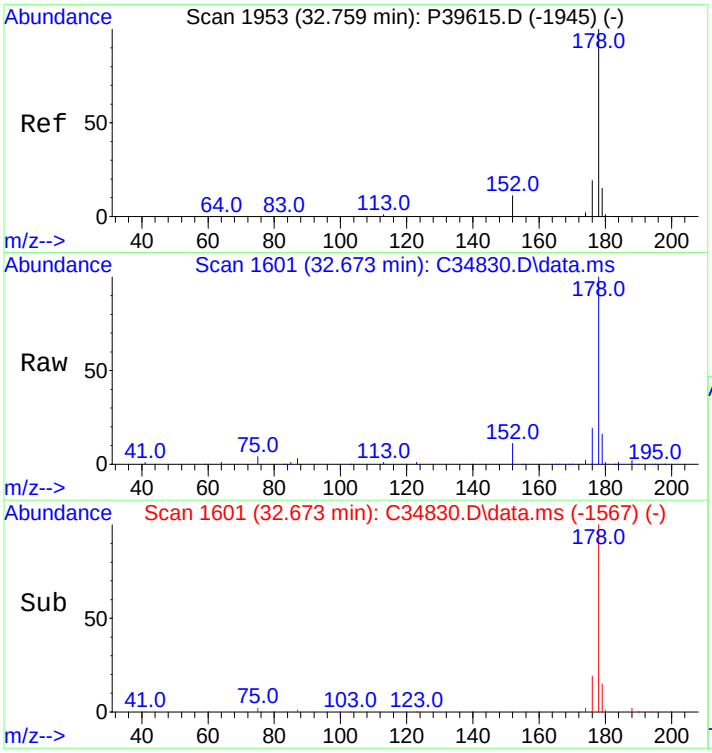


#33
Dibenzothiophene
Concen: 474.22 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:184 Resp: 56663

Ion	Ratio	Lower	Upper
184	100		
152	9.2	7.5	11.3

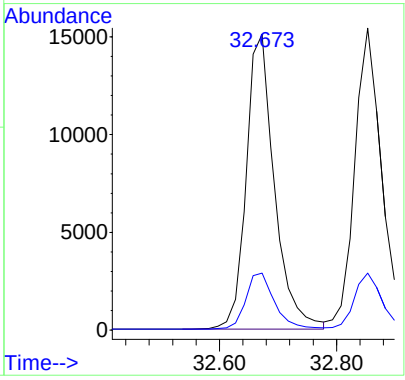


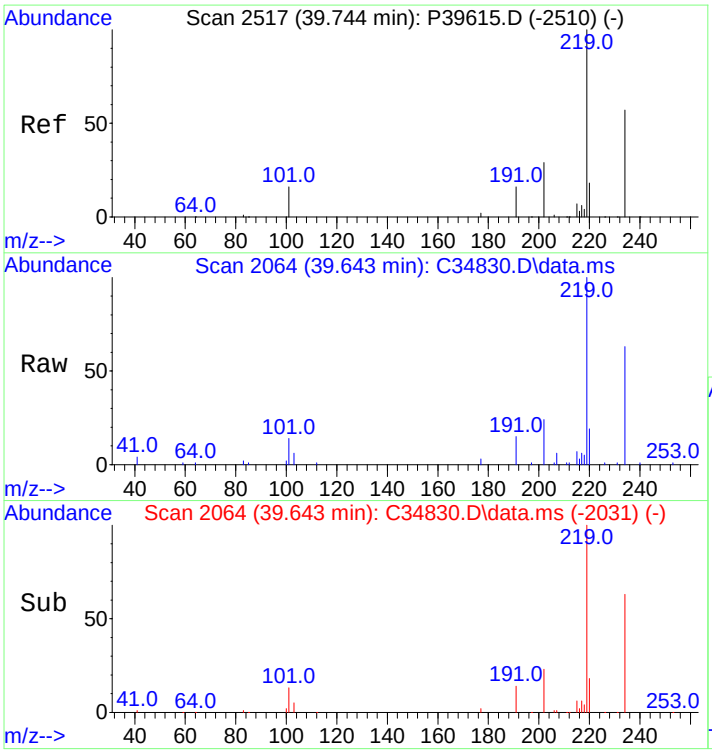


#43
Phenanthrene
Concen: 479.47 ng/mL
RT: 32.673 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:178 Resp: 50334

Ion	Ratio	Lower	Upper
178	100		
176	19.5	16.1	24.1

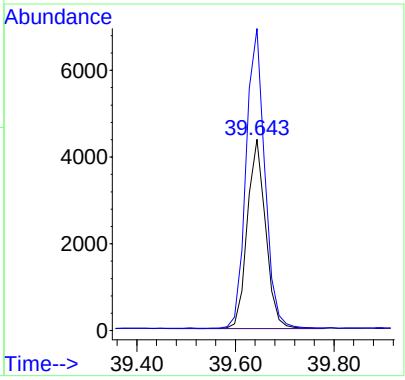


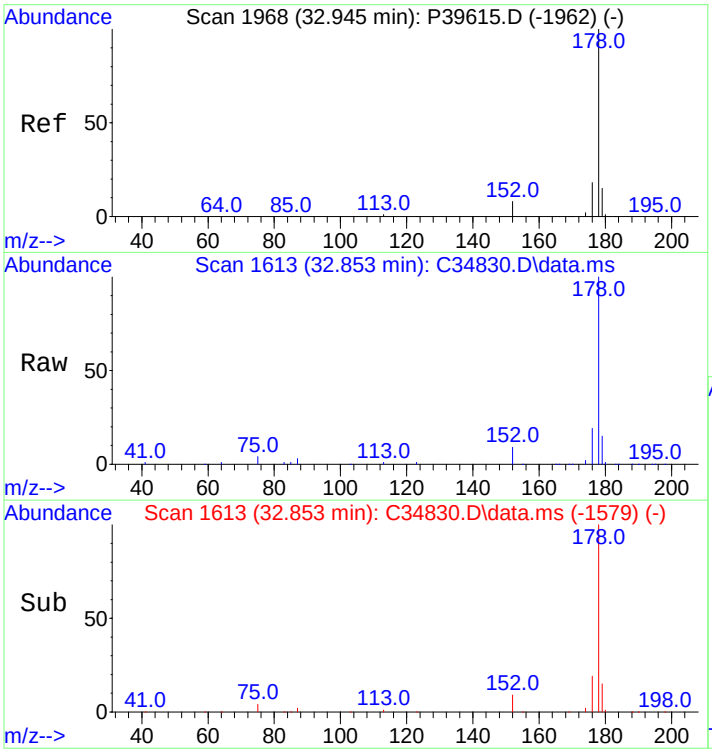


#54
Retene
Concen: 547.36 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 11209

Ion	Ratio	Lower	Upper
234	100		
219	161.9	127.8	191.8

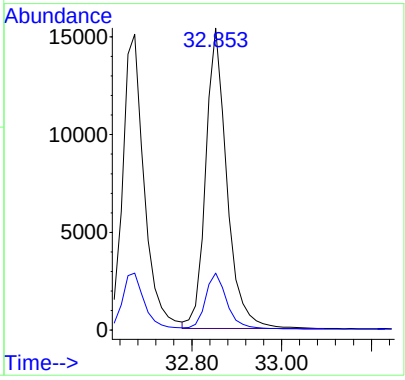


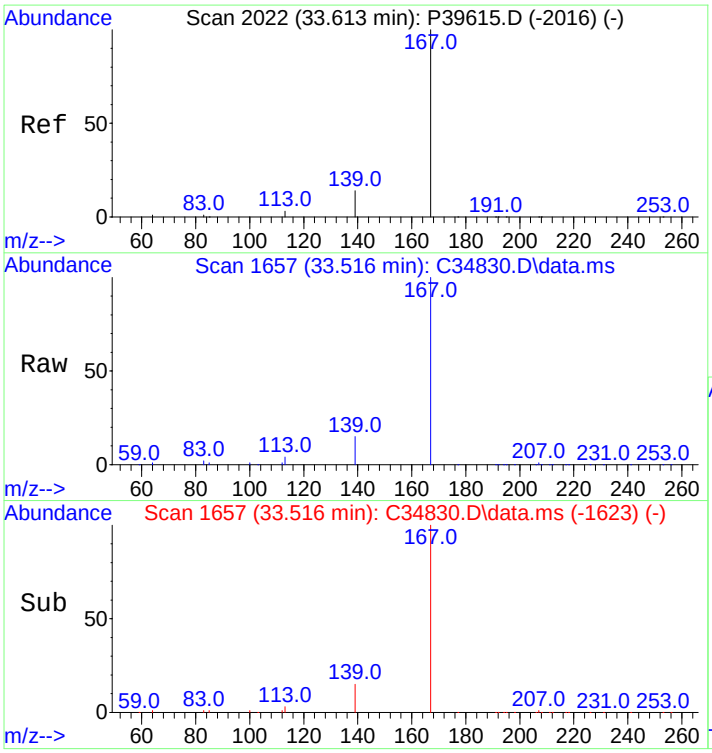


#55
Anthracene
Concen: 493.01 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:178 Resp: 50554

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.5	23.3

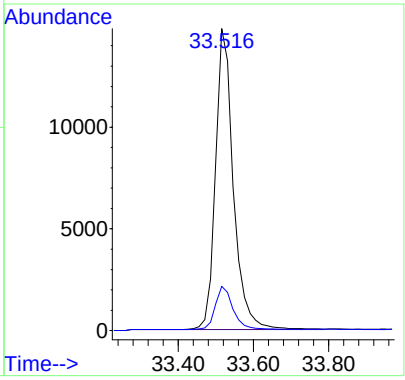


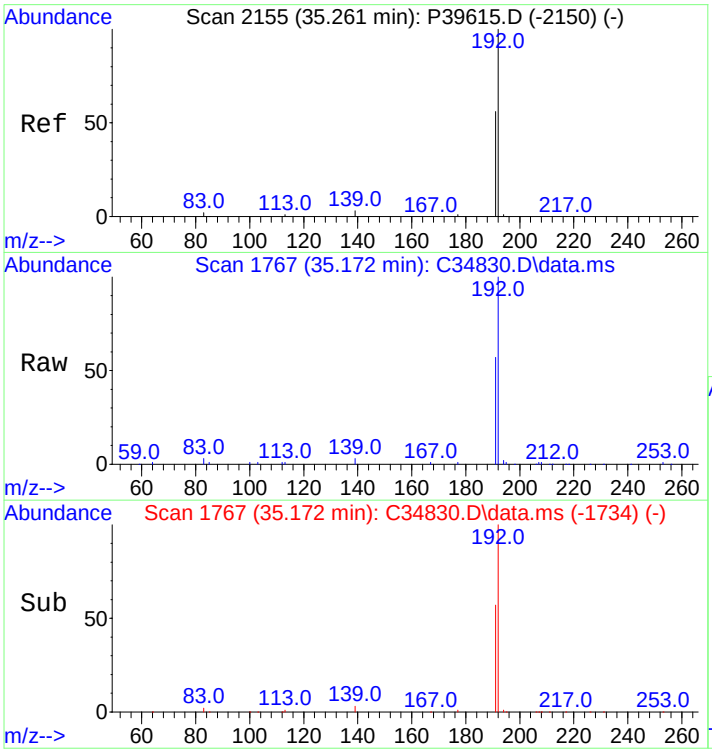


#56
Carbazole
Concen: 470.25 ng/mL m
RT: 33.516 min Scan# 1657
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:167 Resp: 48707

Ion	Ratio	Lower	Upper
167	100		
139	14.2	11.8	17.8

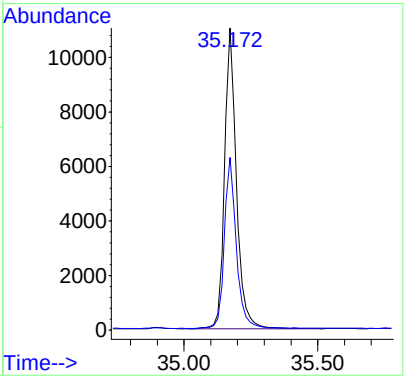


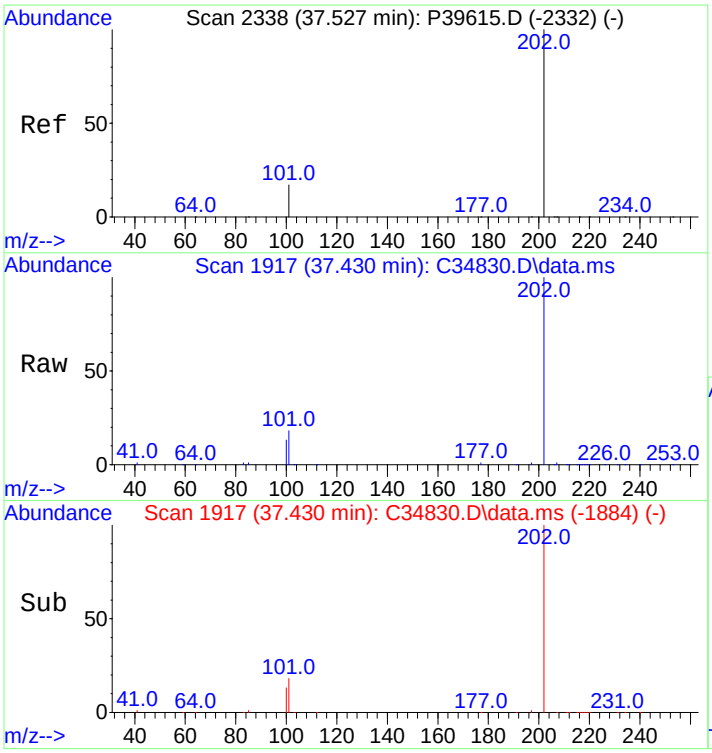


#57
1-Methylphenanthrene
Concen: 512.59 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:192 Resp: 34101

Ion	Ratio	Lower	Upper
192	100		
191	57.3	45.9	68.9

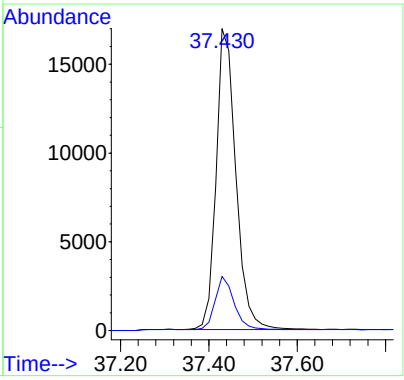


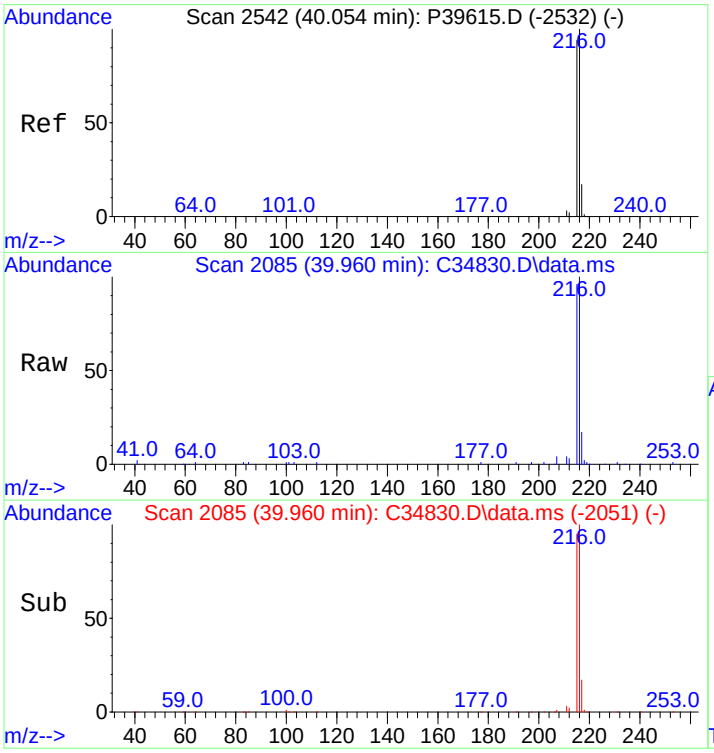


#58
Fluoranthene
Concen: 504.06 ng/mL m
RT: 37.430 min Scan# 1917
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:202 Resp: 52554

Ion	Ratio	Lower	Upper
202	100		
101	17.5	12.9	19.3

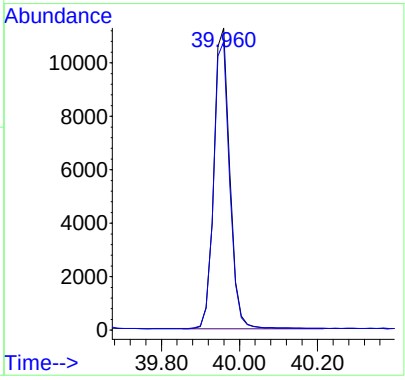


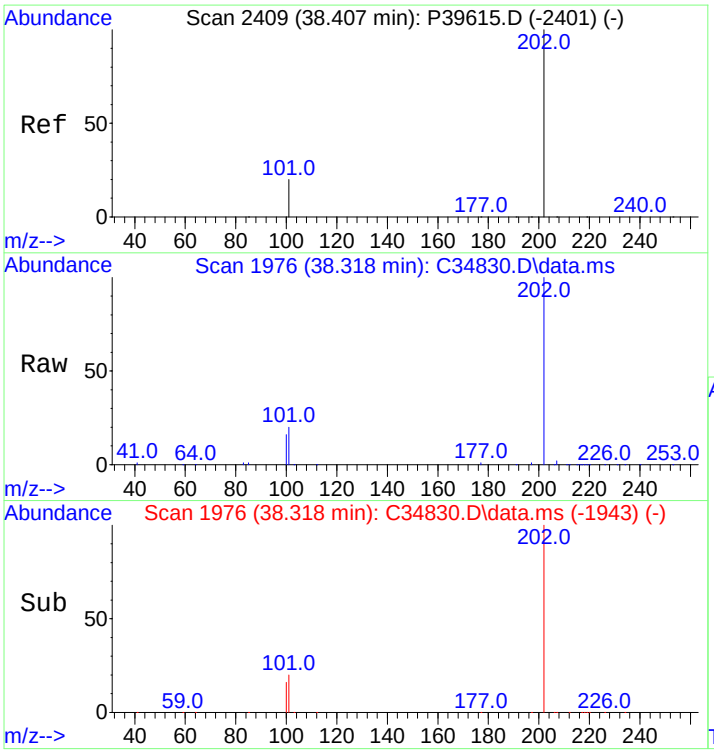


#59
Benzo(b)fluorene
Concen: 528.25 ng/mL
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:216 Resp: 31953

Ion	Ratio	Lower	Upper
216	100		
215	95.6	76.3	114.5

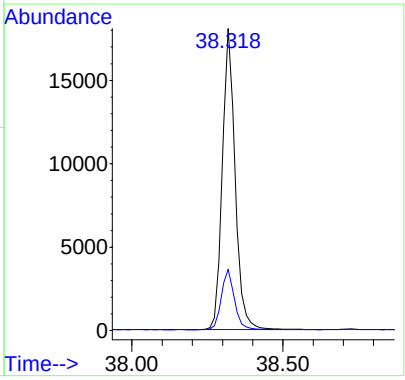


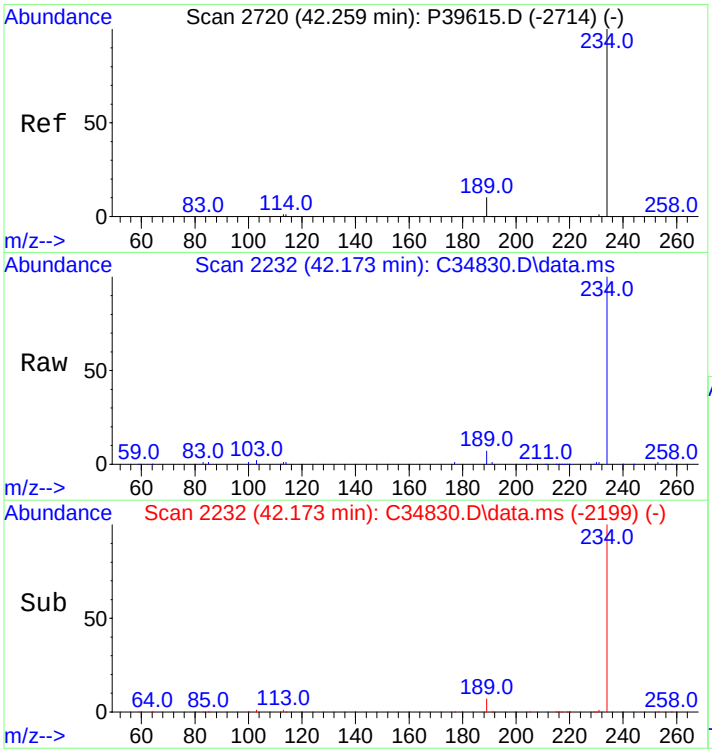


#60
Pyrene
Concen: 502.76 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:202 Resp: 53285

Ion	Ratio	Lower	Upper
202	100		
101	20.3	15.0	22.4

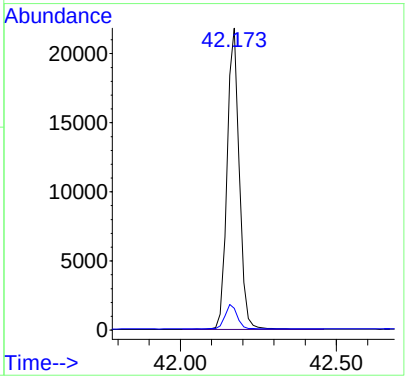


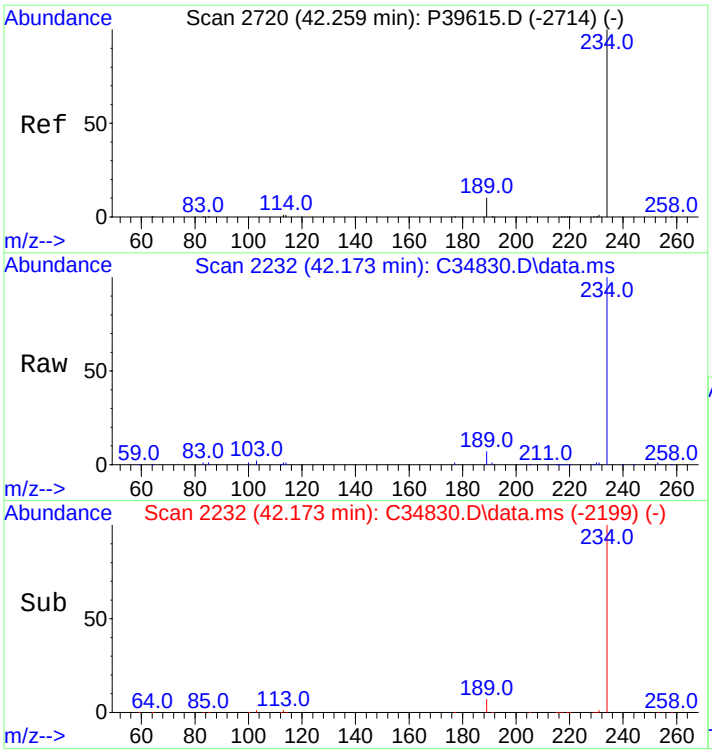


#66
Naphthobenzothiophene
Concen: 516.27 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 58908

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

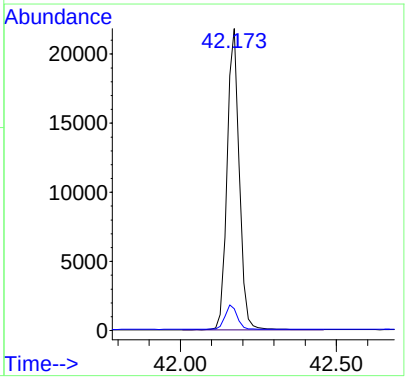


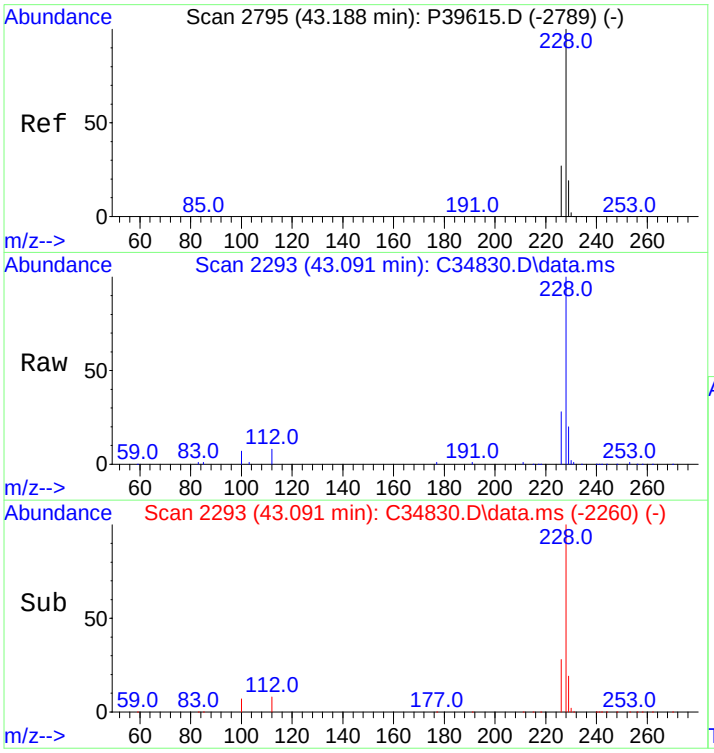


#67
Naphthobenzothiophene-2,1-D
Concen: 516.27 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:234 Resp: 58908

Ion	Ratio	Lower	Upper
234	100		
189	8.1	20.5	30.7#

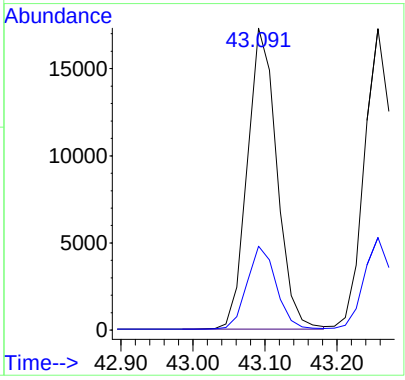


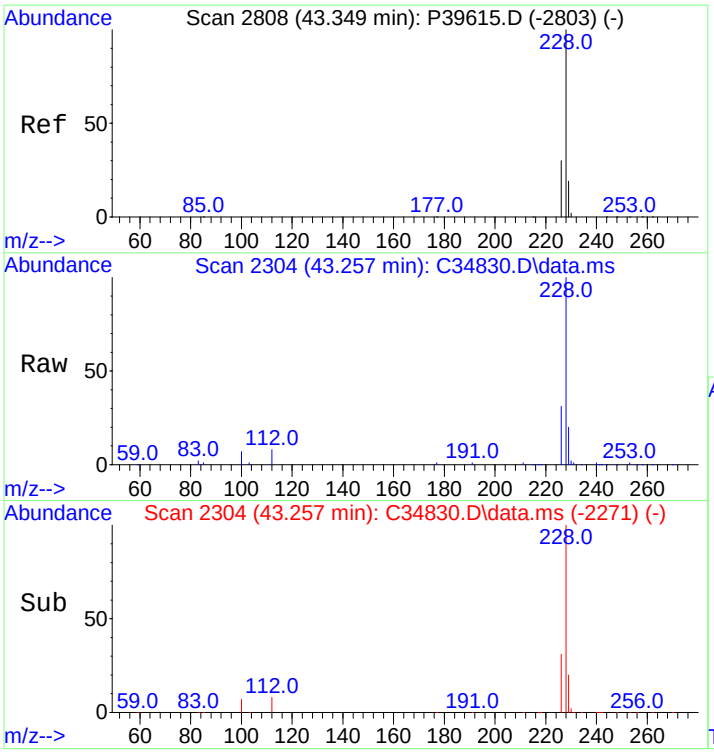


#75
Benz[a]anthracene
Concen: 507.43 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 48995

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.4	32.0

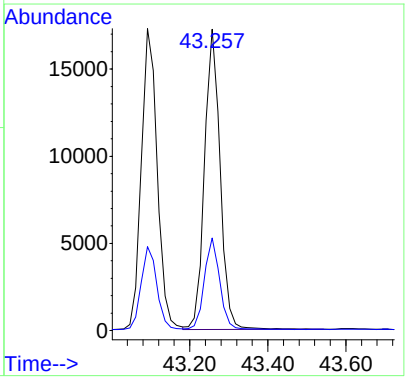


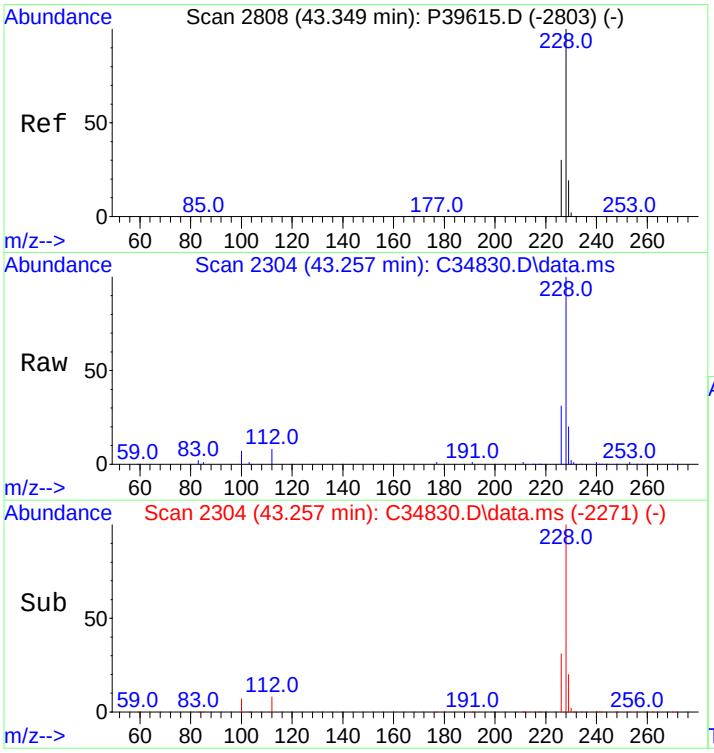


#76
Chrysene
Concen: 490.54 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 47818

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

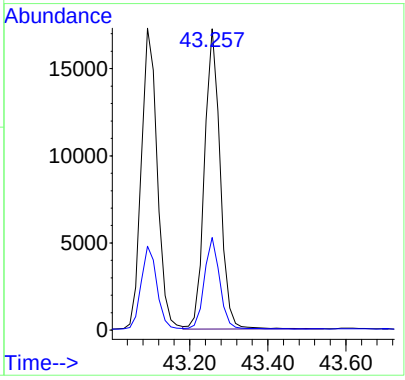


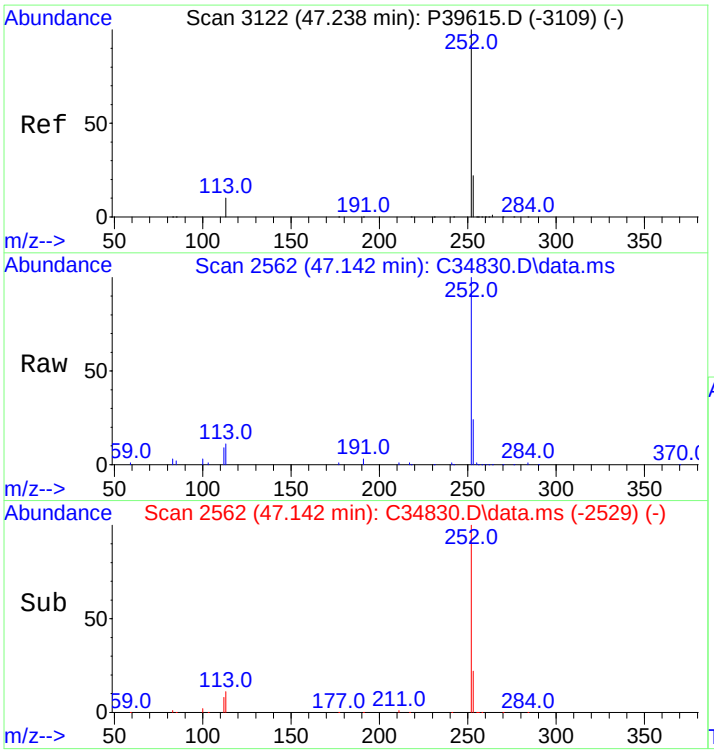


#77
Chrysene/Triphenylene
Concen: 490.54 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:228 Resp: 47818

Ion	Ratio	Lower	Upper
228	100		
226	29.9	23.7	35.5

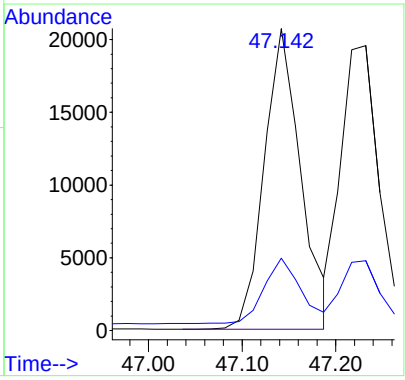


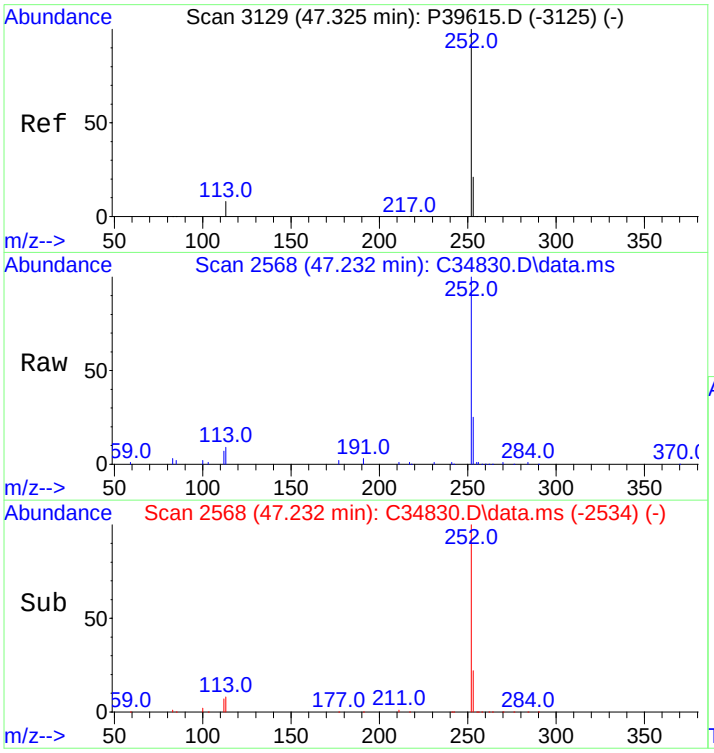


#82
Benzo[b]fluoranthene
Concen: 529.46 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 56173

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

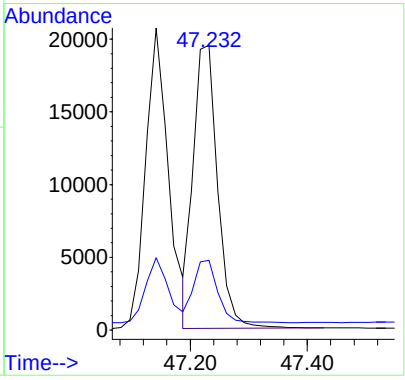


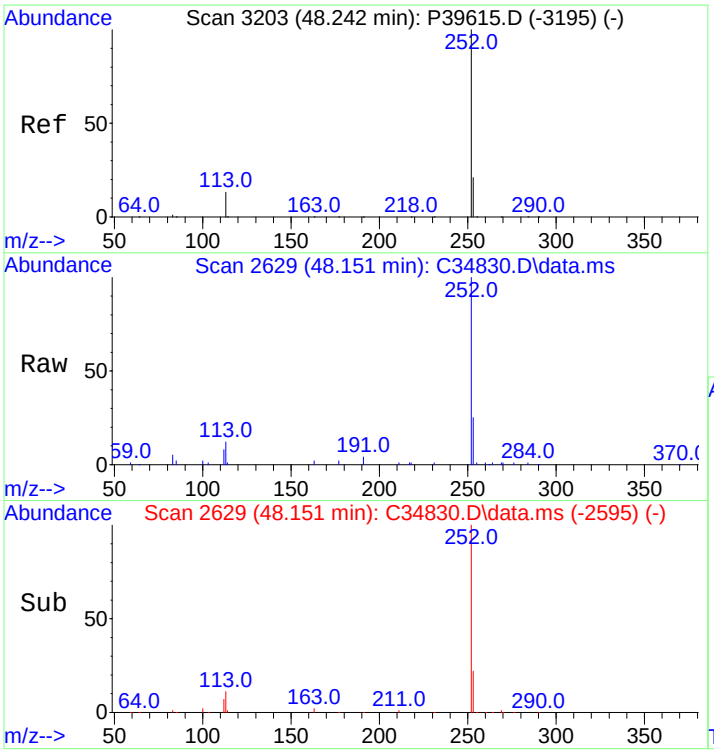


#83
Benzo[j]+[k]fluoranthene
Concen: 487.62 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 56325

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.0	28.4

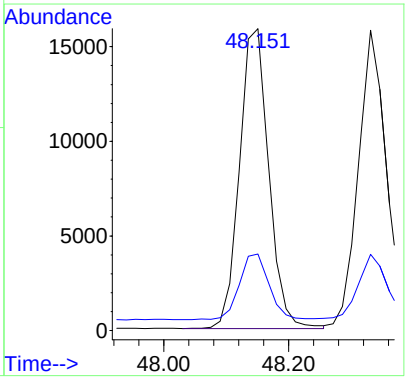


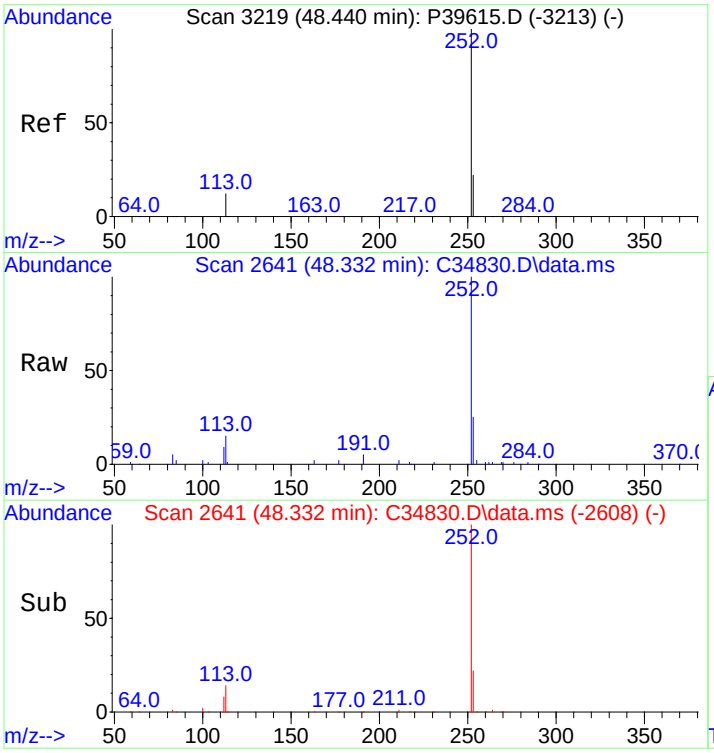


#85
Benzo[e]pyrene
Concen: 492.10 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 51642

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.2	28.8

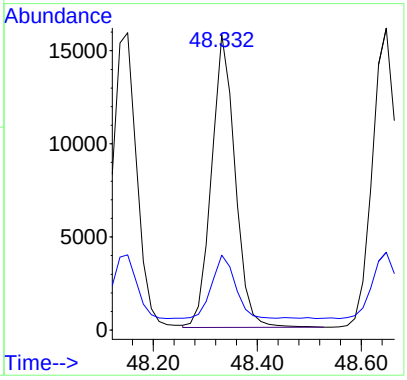


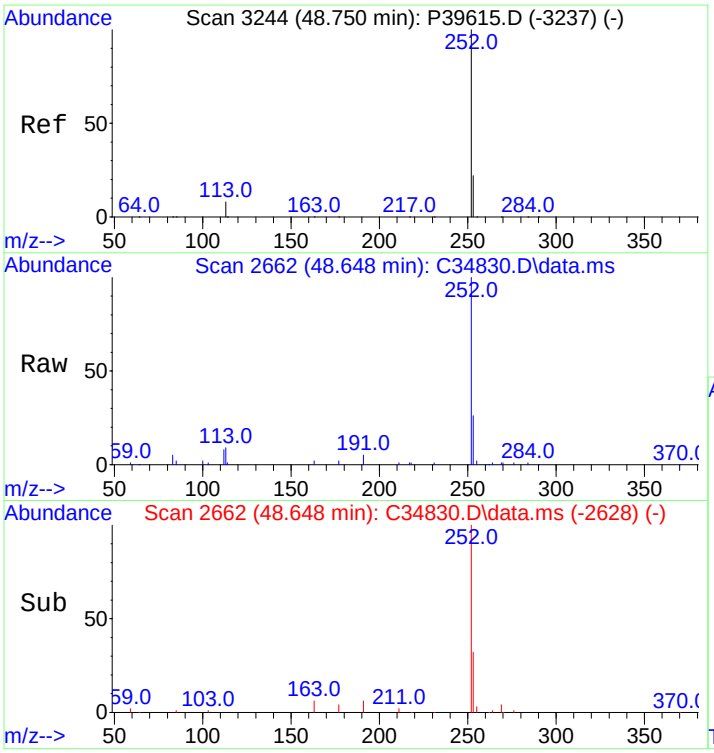


#87
Benzo[a]pyrene
Concen: 489.40 ng/mL
RT: 48.332 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 49448

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.5	29.3

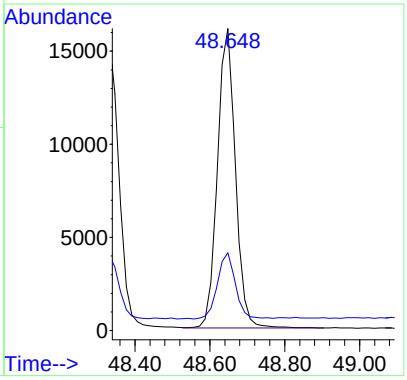


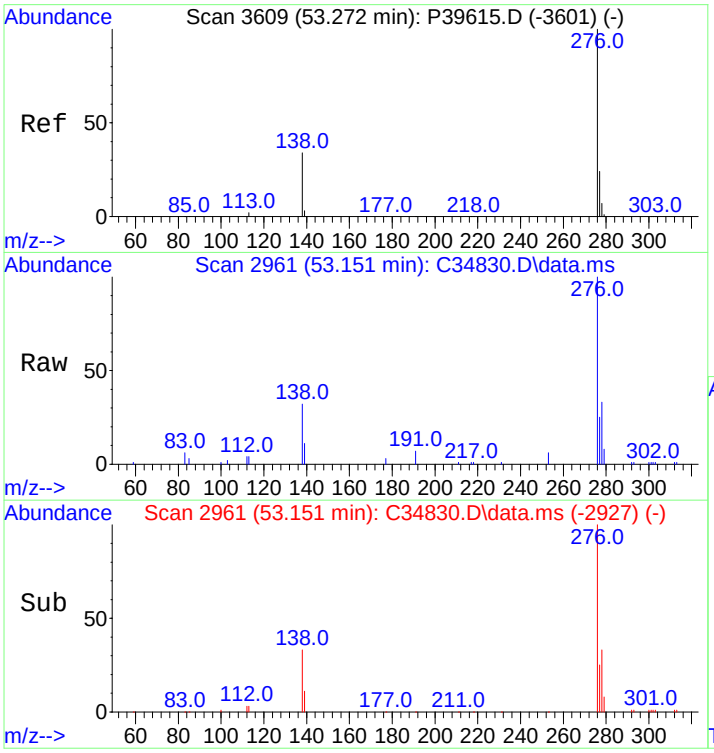


#88
Perylene
Concen: 494.65 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:252 Resp: 53413

Ion	Ratio	Lower	Upper
252	100		
253	21.7	19.6	29.4

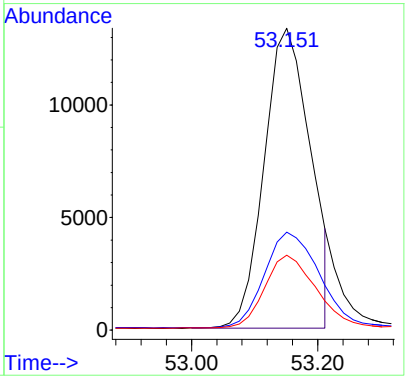


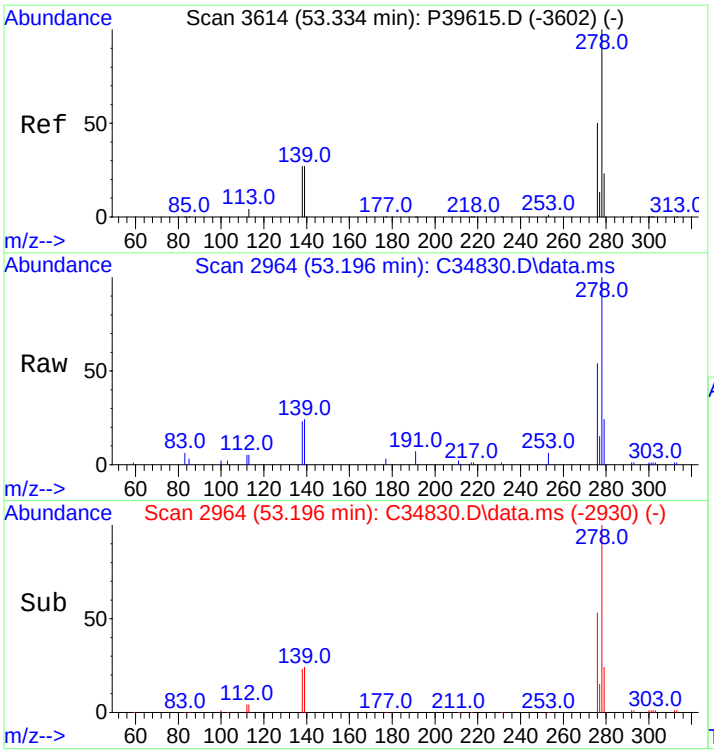


#89
Indeno[1,2,3-cd]pyrene
Concen: 578.38 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:276 Resp: 68006

Ion	Ratio	Lower	Upper
276	100		
138	38.3	23.3	34.9#
277	27.2	19.0	28.4

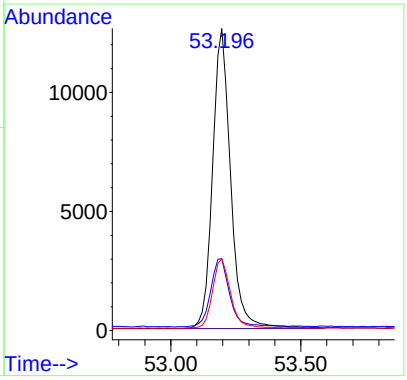


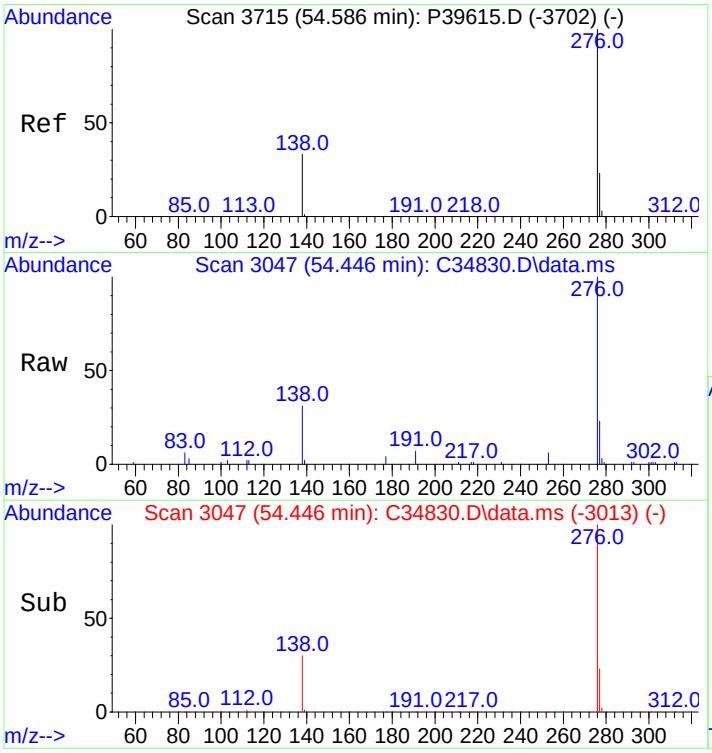


#90
Dibenz[ah]+[ac]anthracene
Concen: 545.33 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:278 Resp: 60995

Ion	Ratio	Lower	Upper
278	100		
139	23.3	19.1	28.7
279	22.6	19.2	28.8

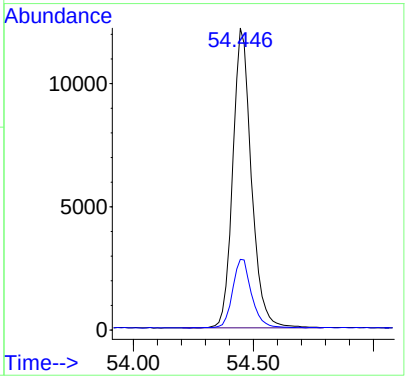


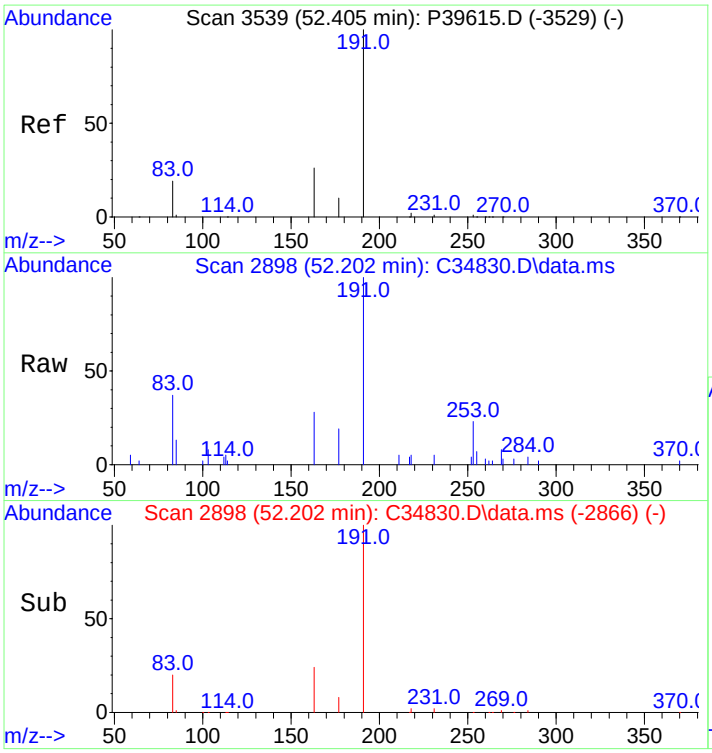


#91
Benzo[g,h,i]perylene
Concen: 528.19 ng/mL
RT: 54.446 min Scan# 3047
Delta R.T. 0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:276 Resp: 65614

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

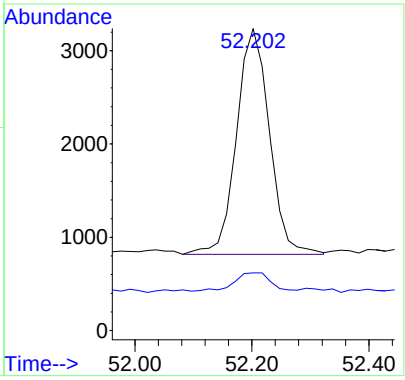


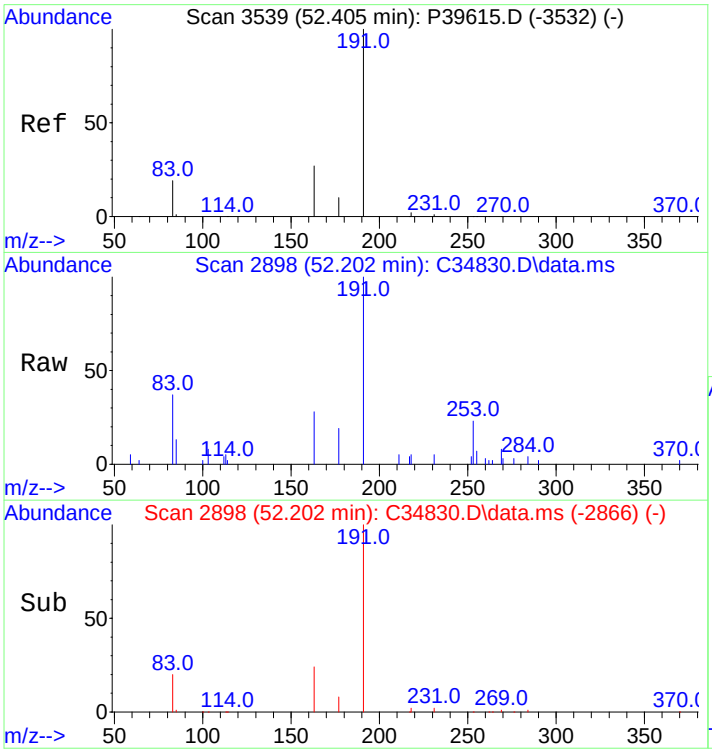


#92
Hopane (T19)
Concen: 470.23 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:191 Resp: 9428

Ion	Ratio	Lower	Upper
191	100		
177	8.7	14.6	21.8#

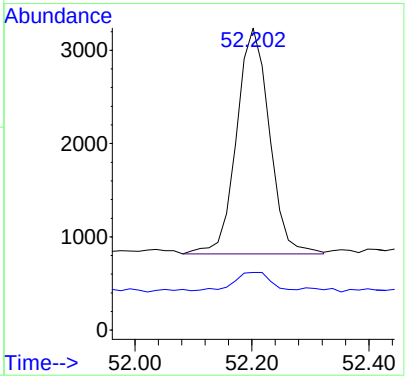




#93
17a(H),21B(H)-hopane - C30H52
Concen: 470.23 ng/mL
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34830.D
Acq: 4 May 2012 4:34 am

Tgt Ion:191 Resp: 9428

Ion	Ratio	Lower	Upper
191	100		
177	8.7	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

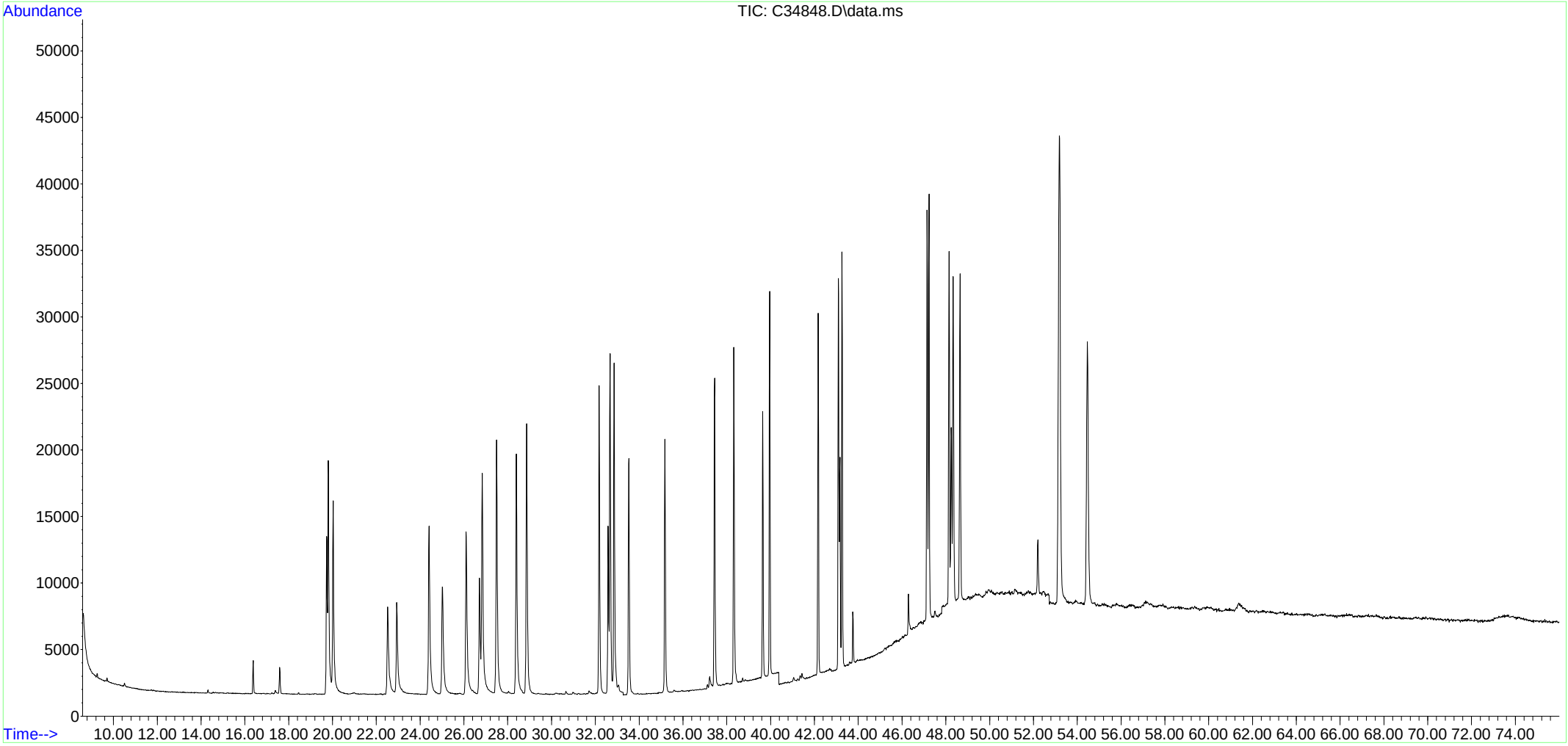
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19577M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.166	240	32966	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.726	136	39969	470.394	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.04%#			
42) Phenanthrene-d10	32.582	188	32661	486.310	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.63%#			
86) Benzo[a]pyrene-d12	48.241	264	32926	481.942	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.19%#			
127) 5B(H)Cholane - Surr	43.754	217	5350	519.072	ng/ml	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.91%			
Target Compounds						Qvalue
3) trans-Decalin	16.383	138	3691	238.834	ng/mL	100
4) cis-Decalin	17.588	138	2790	239.538	ng/mL	100
10) Naphthalene	19.801	128	56993	456.773	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	34171	463.175	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30905	427.368	ng/mL#	100
18) Benzothiophene	20.027	134	50255	447.585	ng/mL	100
23) Biphenyl	24.408	154	43838	469.738	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	29336	483.984	ng/mL#	100
25) Dibenzofuran	27.494	168	50655	472.679	ng/mL	96
26) Acenaphthylene	26.094	152	56854M3	459.022	ng/mL	
27) Acenaphthene	26.831	153	34135	468.063	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.397	170	24109	493.413	ng/mL	98
29) Fluorene	28.864	166	39011M3	485.023	ng/mL	
33) Dibenzothiophene	32.176	184	60338	467.989	ng/mL	99
43) Phenanthrene	32.672	178	53382	471.255	ng/mL	99
54) Retene	39.643	234	12093	547.276	ng/mL	96
55) Anthracene	32.853	178	54646M3	493.883	ng/mL	
56) Carbazole	33.530	167	52377	468.638	ng/mL	98
57) 1-Methylphenanthrene	35.172	192	36714	511.443	ng/mL	99
58) Fluoranthene	37.445	202	56447M3	501.741	ng/mL	
59) Benzo(b)fluorene	39.959	216	34633	530.617	ng/mL	100
60) Pyrene	38.318	202	57171	499.915	ng/mL	97
66) Naphthobenzothiophene	42.173	234	63845	518.556	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	63845	518.556	ng/mL#	66
75) Benz[a]anthracene	43.091	228	53368	510.047	ng/mL	99
76) Chrysene	43.257	228	52173	493.893	ng/mL	100
77) Chrysene/Triphenylene	43.257	228	52173	493.893	ng/mL	100
82) Benzo[b]fluoranthene	47.142	252	60436	525.661	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.232	252	60657	484.581	ng/mL	96
85) Benzo[e]pyrene	48.151	252	55949	491.985	ng/mL	97
87) Benzo[a]pyrene	48.331	252	53157	485.498	ng/mL	95
88) Perylene	48.648	252	57365	490.241	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.151	276	74711M3	586.354	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.196	278	65528	540.625	ng/mL	98
91) Benzo[g,h,i]perylene	54.461	276	70039	520.288	ng/mL	100
92) Hopane (T19)	52.202	191	9866M3	454.091	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	9747M3	448.614	ng/mL	

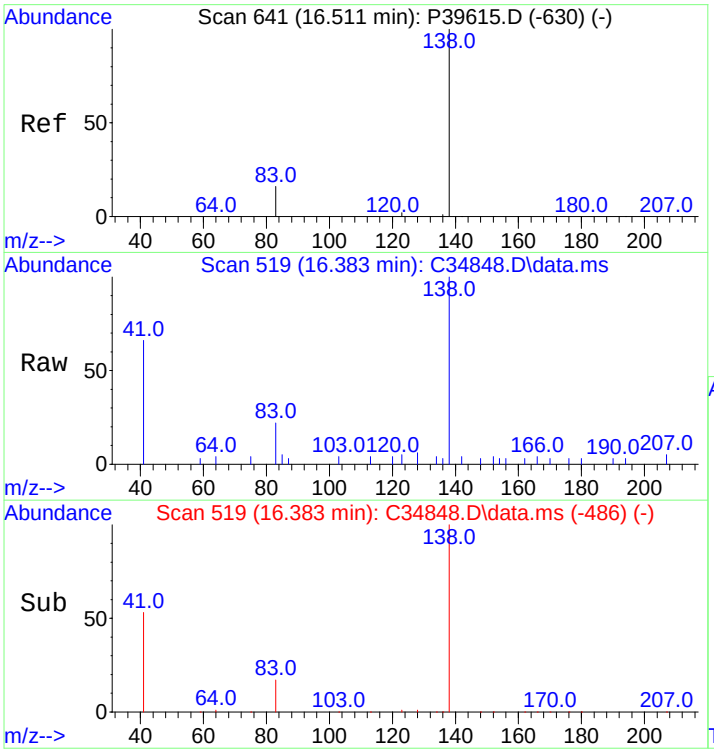
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34848.D
Acq On : 4 May 2012 9:17 pm
Operator : AC
Sample : C305031205
Misc : CC WHAP06 500NG/ML
ALS Vial : 37 Sample Multiplier: 1

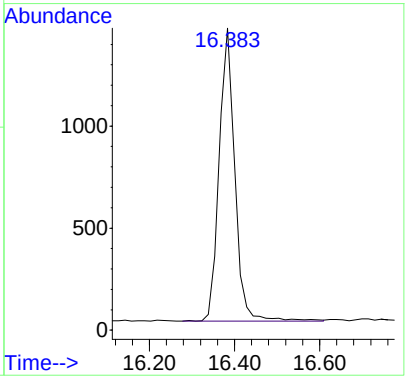
Quant Time: May 06 14:16:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

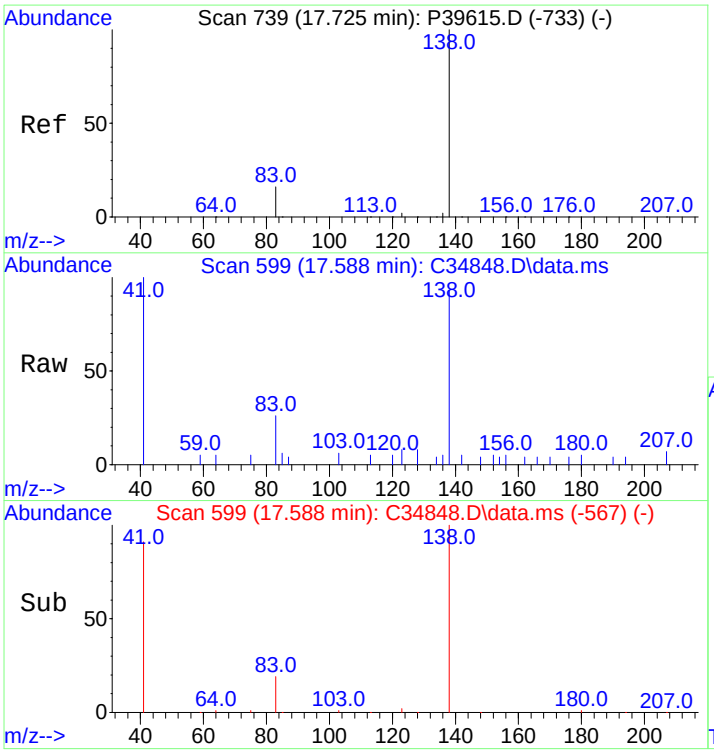




#3
trans-Decalin
Concen: 238.83 ng/mL
RT: 16.383 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

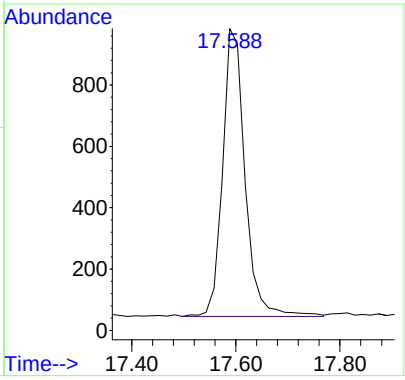
Tgt Ion:138 Resp: 3691

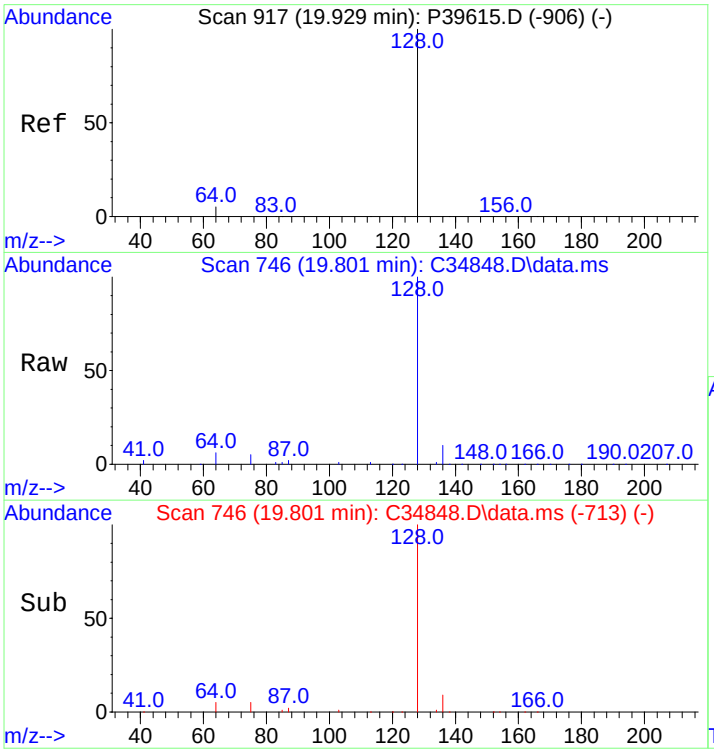




#4
cis-Decalin
Concen: 239.54 ng/mL
RT: 17.588 min Scan# 599
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:138 Resp: 2790

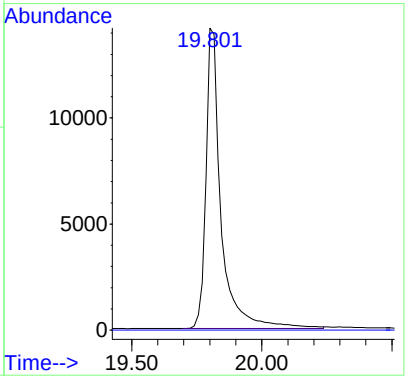


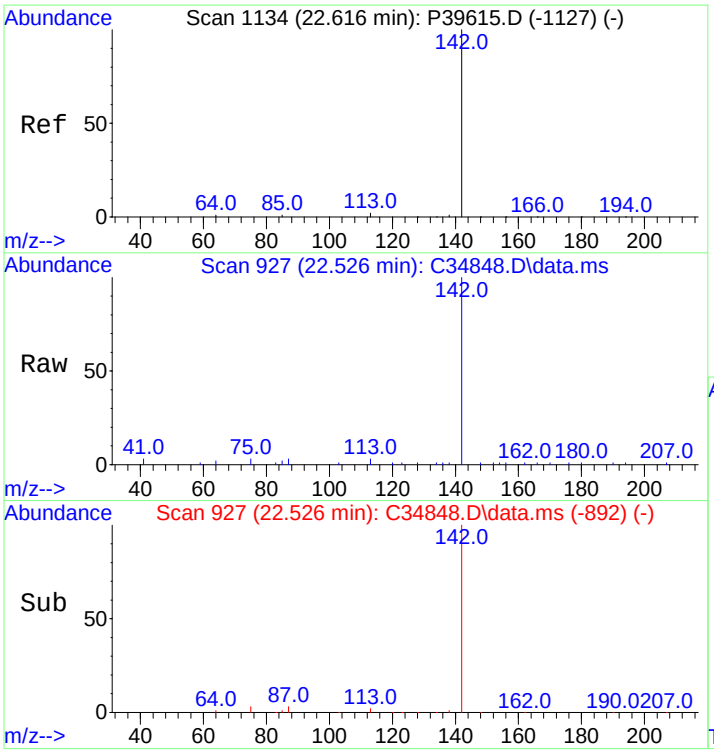


#10
Naphthalene
Concen: 456.77 ng/mL
RT: 19.801 min Scan# 746
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:128 Resp: 56993

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

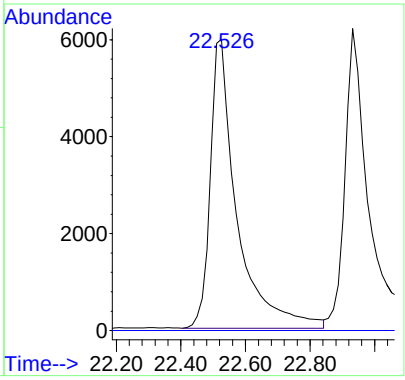


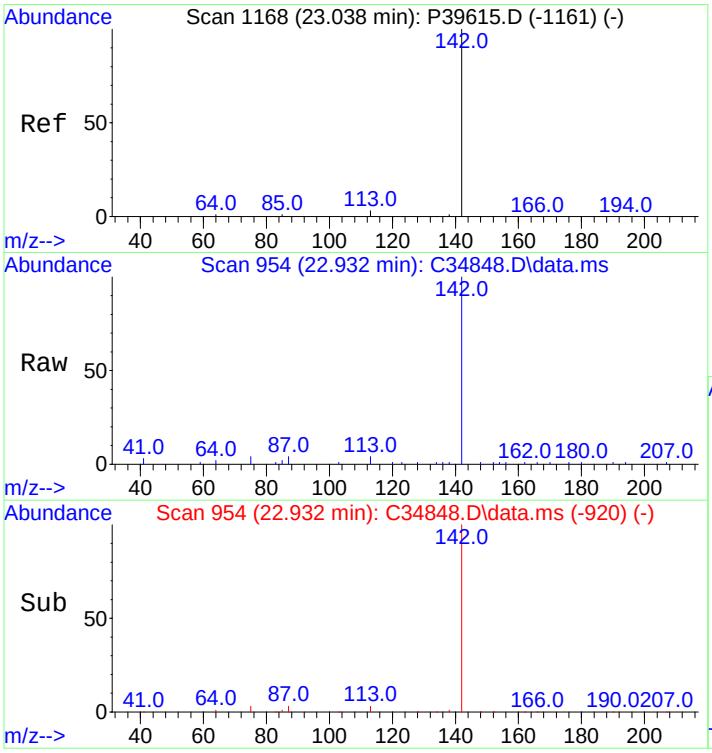


#16
2-Methylnaphthalene
Concen: 463.18 ng/mL
RT: 22.526 min Scan# 927
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:142 Resp: 34171

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

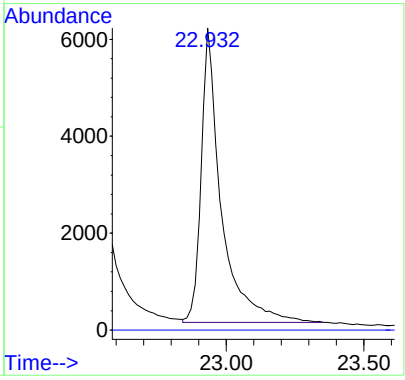


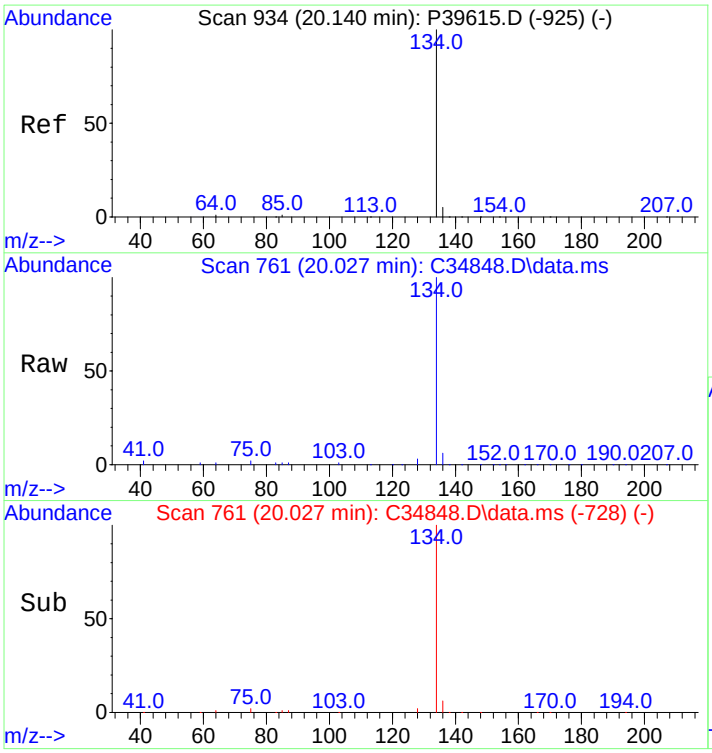


#17
1-Methylnaphthalene
Concen: 427.37 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:142 Resp: 30905

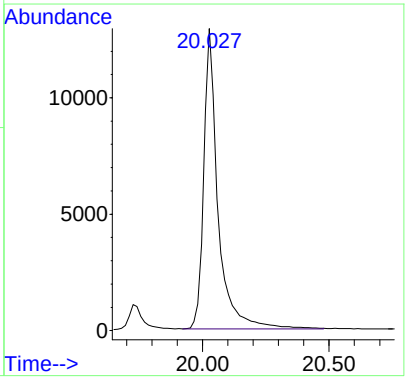
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

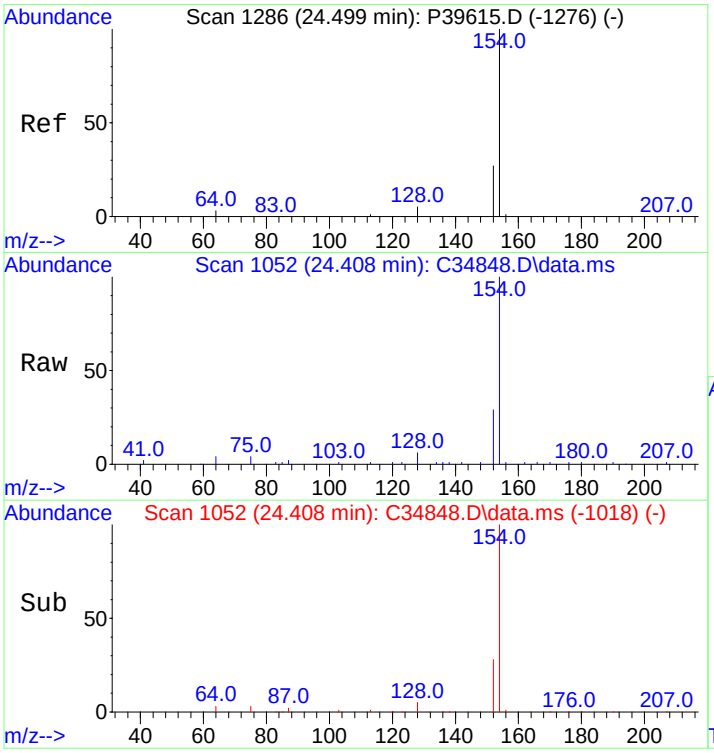




#18
Benzothiophene
Concen: 447.59 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:134 Resp: 50255

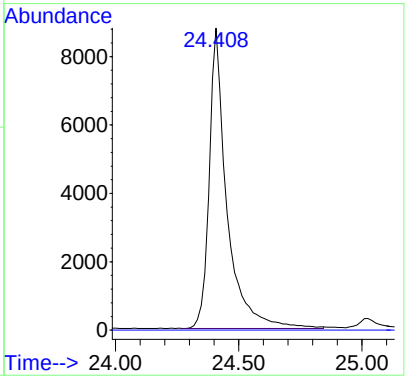


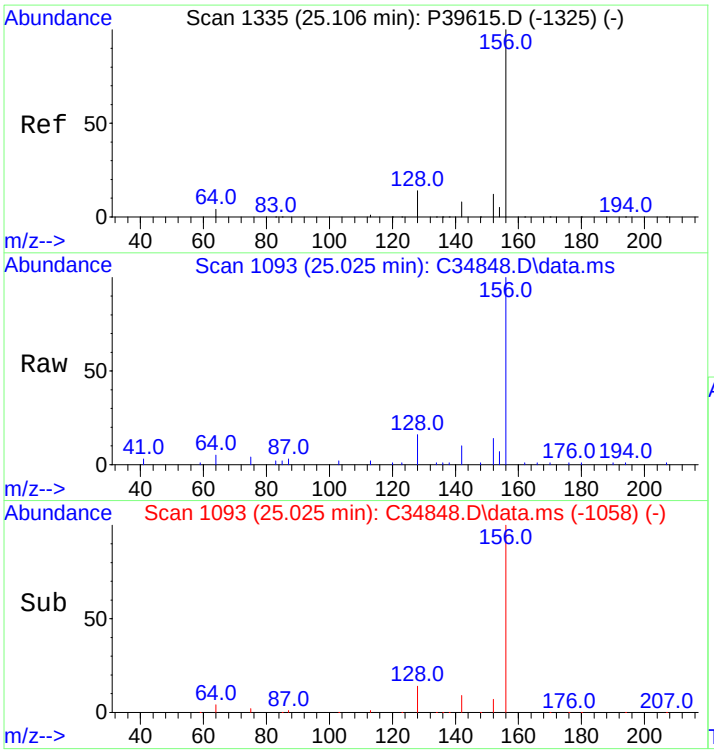


#23
Biphenyl
Concen: 469.74 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:154 Resp: 43838

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

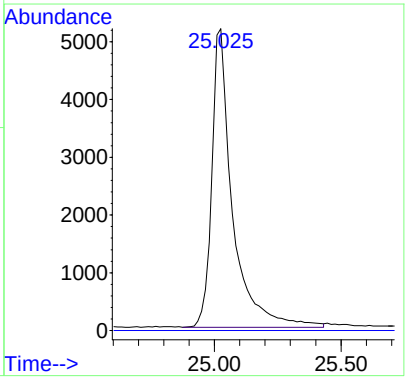


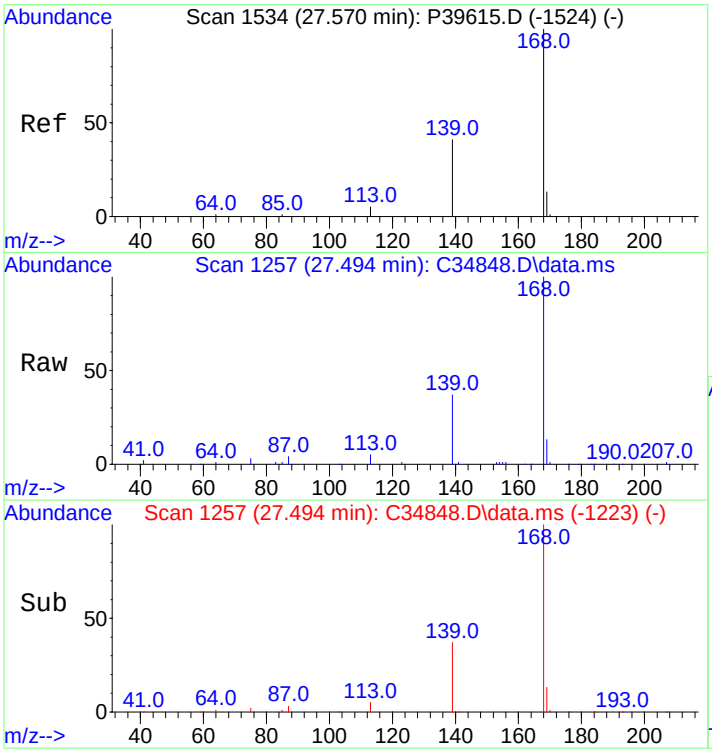


#24
2,6-Dimethylnaphthalene
Concen: 483.98 ng/mL
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:156 Resp: 29336

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

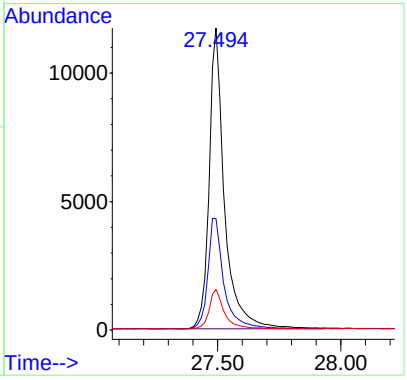


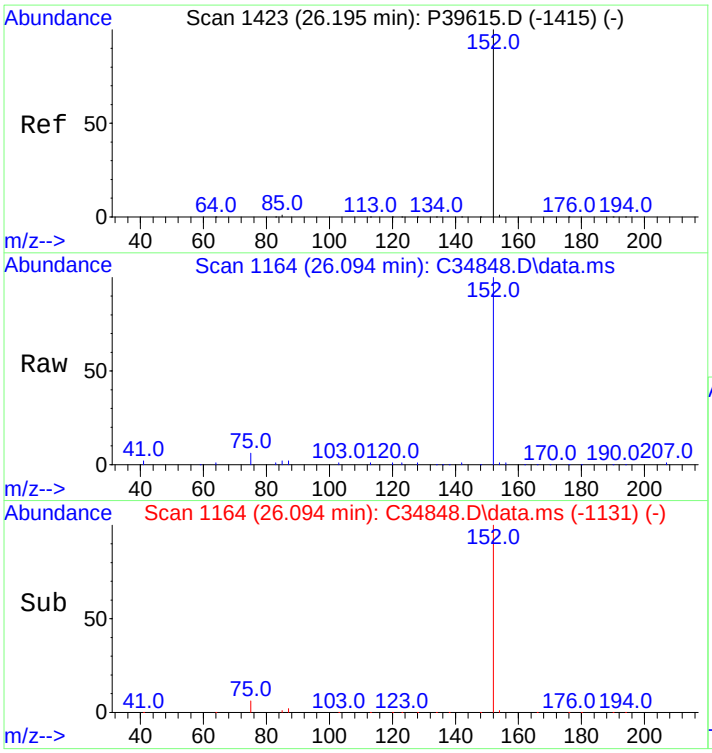


#25
Dibenzofuran
Concen: 472.68 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:168 Resp: 50655

Ion	Ratio	Lower	Upper
168	100		
139	38.3	28.4	42.6
169	13.1	10.8	16.2

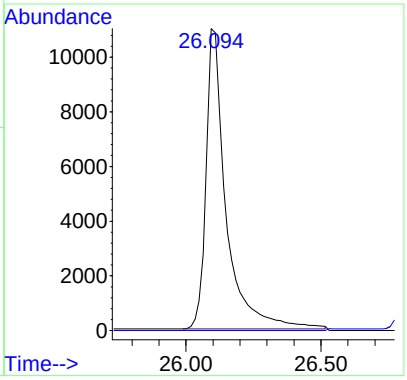


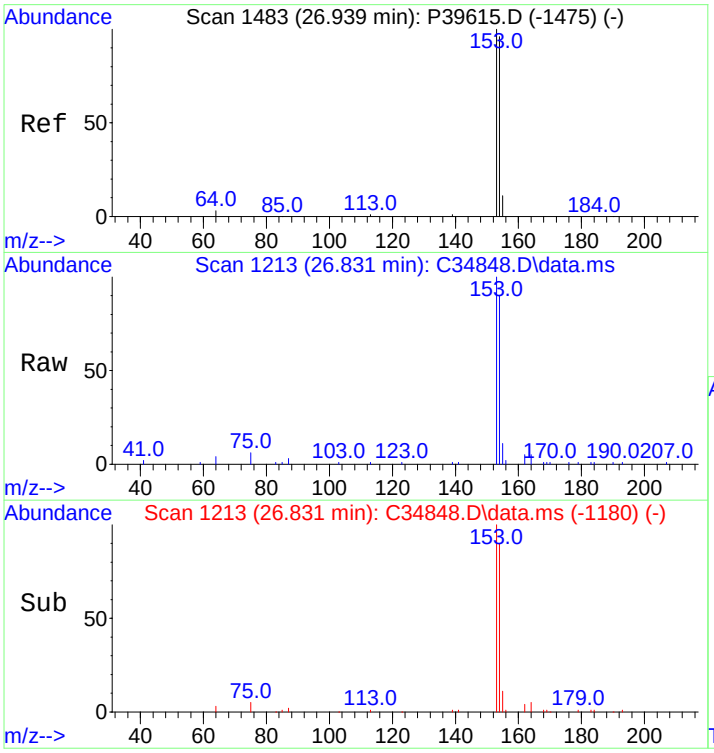


#26
Acenaphthylene
Concen: 459.02 ng/mL m
RT: 26.094 min Scan# 1164
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:152 Resp: 56854

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

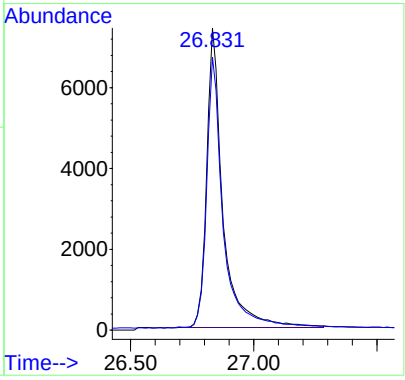


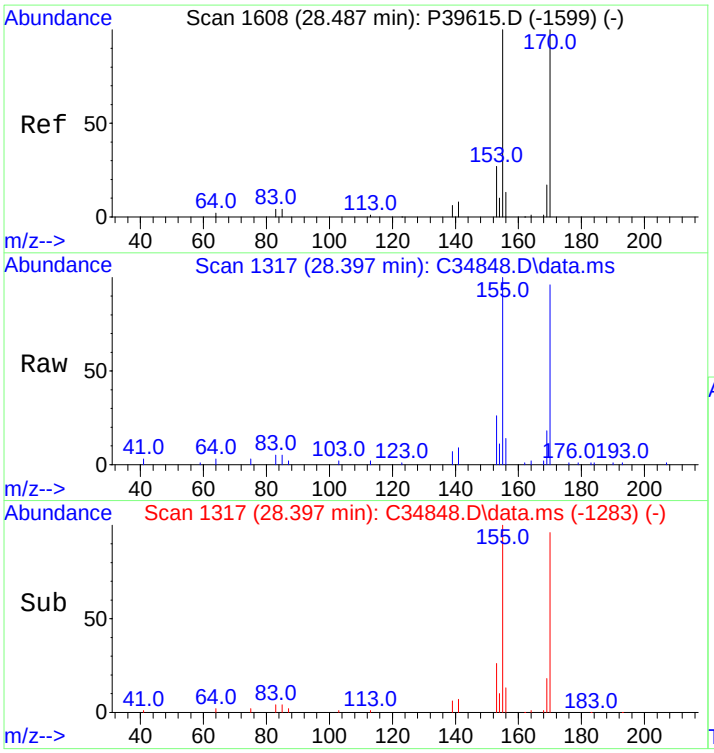


#27
Acenaphthene
Concen: 468.06 ng/mL
RT: 26.831 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:153 Resp: 34135

Ion	Ratio	Lower	Upper
153	100		
154	92.2	73.6	110.4

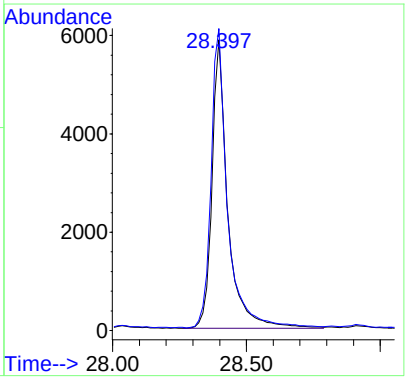


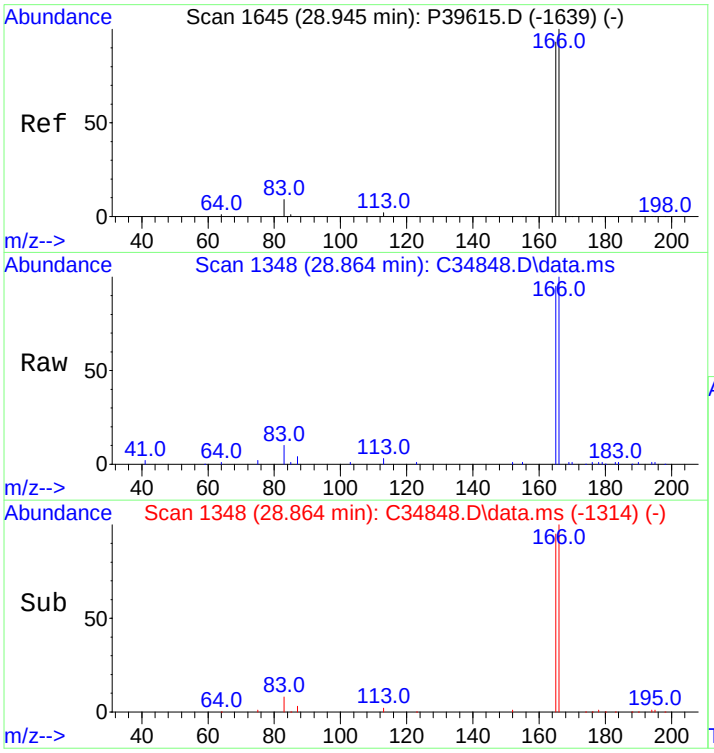


#28
2,3,5-Trimethylnaphthalene
Concen: 493.41 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:170 Resp: 24109

Ion	Ratio	Lower	Upper
170	100		
155	107.2	87.3	130.9

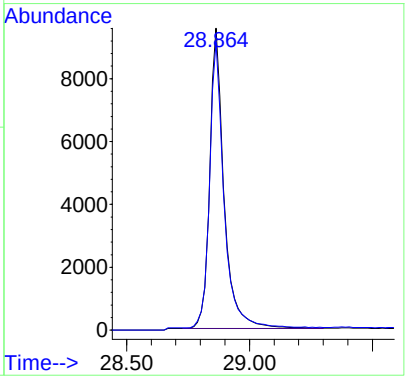


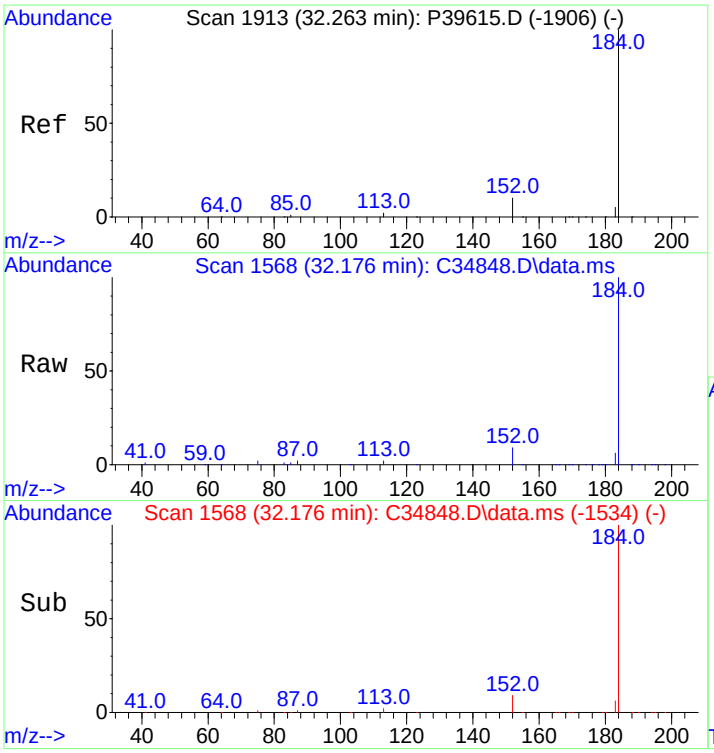


#29
Fluorene
Concen: 485.02 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:166 Resp: 39011

Ion	Ratio	Lower	Upper
166	100		
165	102.1	77.3	115.9

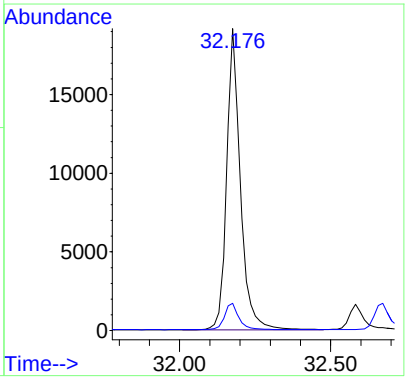


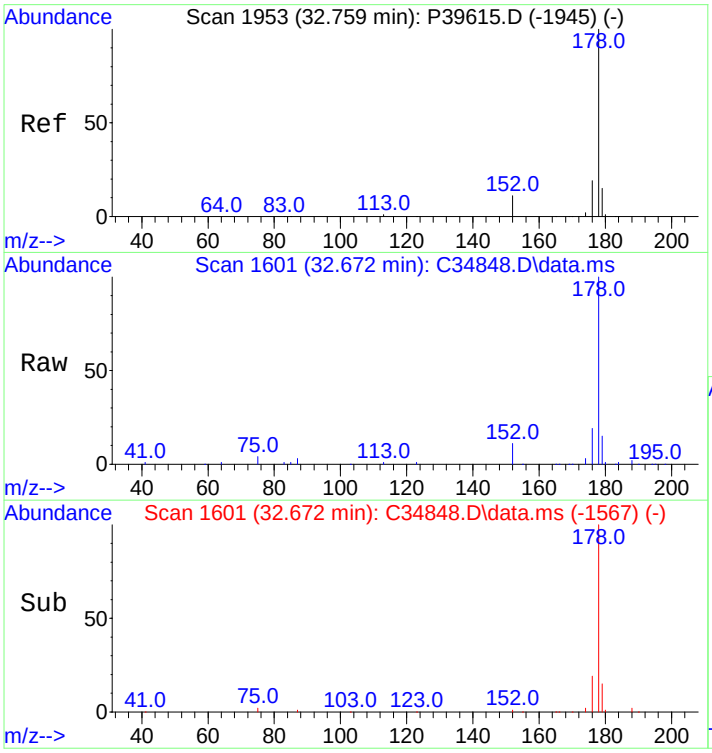


#33
Dibenzothiophene
Concen: 467.99 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:184 Resp: 60338

Ion	Ratio	Lower	Upper
184	100		
152	9.1	7.5	11.3

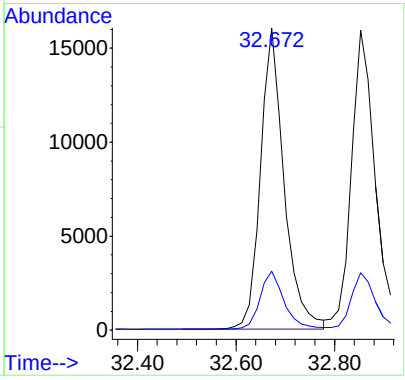


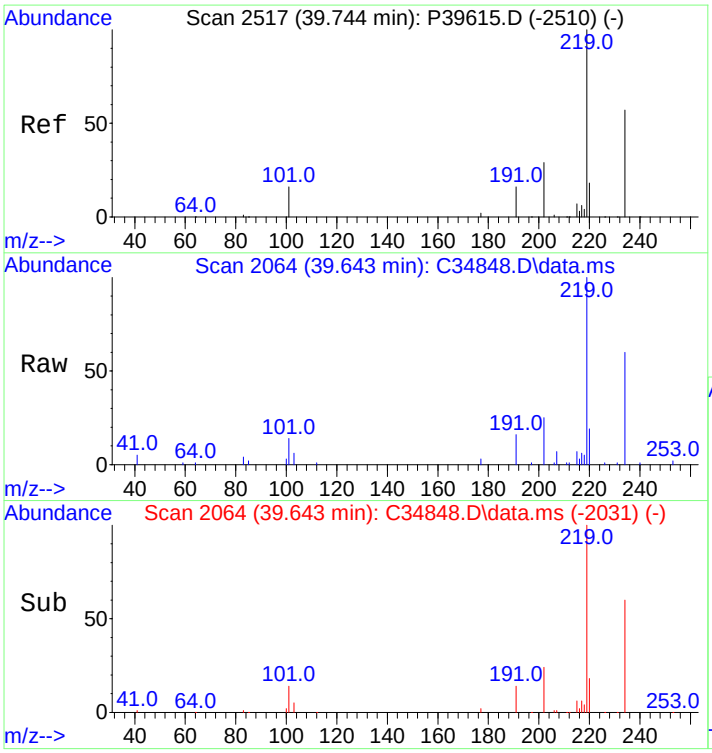


#43
Phenanthrene
Concen: 471.25 ng/mL
RT: 32.672 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:178 Resp: 53382

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

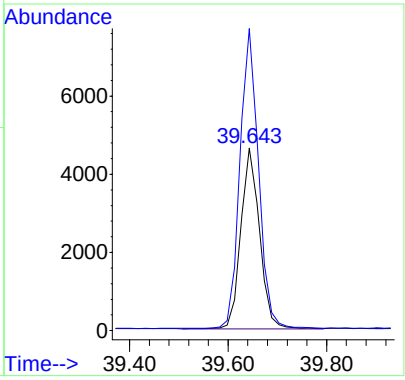


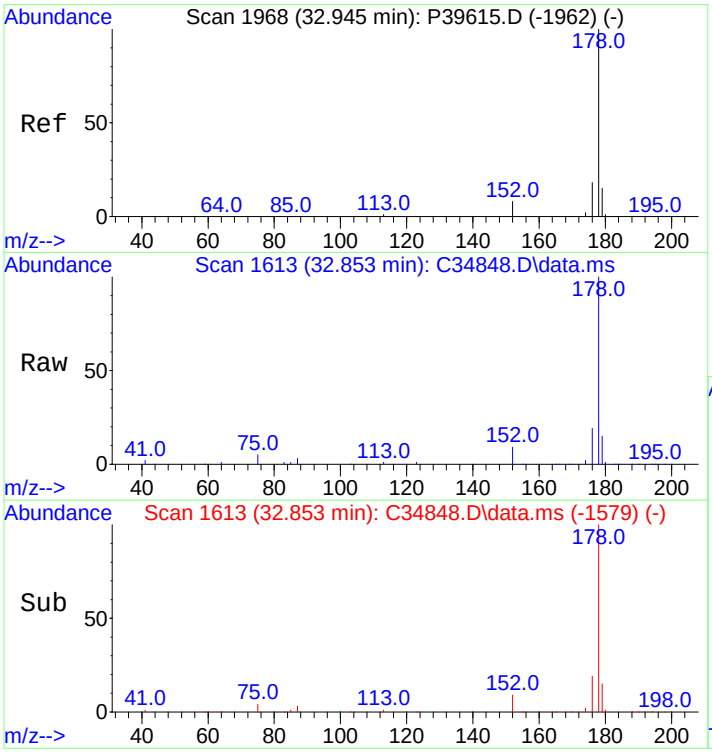


#54
Retene
Concen: 547.28 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 12093

Ion	Ratio	Lower	Upper
234	100		
219	165.6	127.8	191.8

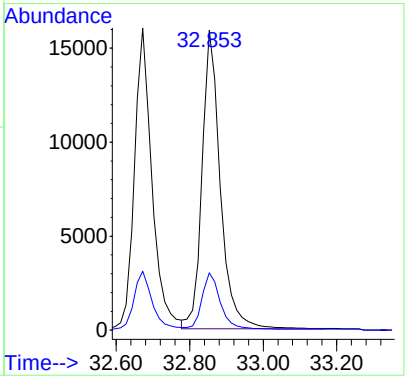


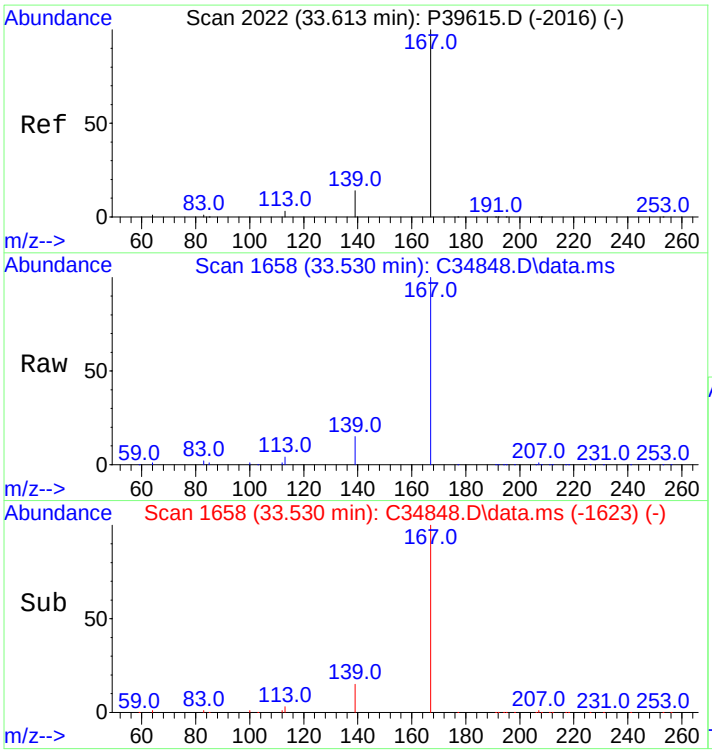


#55
Anthracene
Concen: 493.88 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:178 Resp: 54646

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.5	23.3

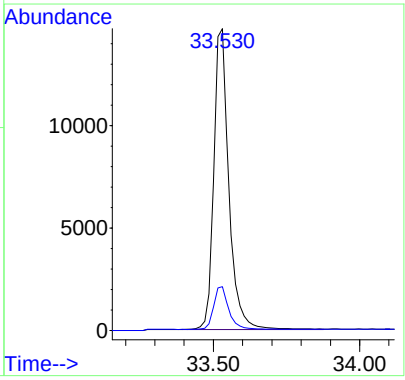


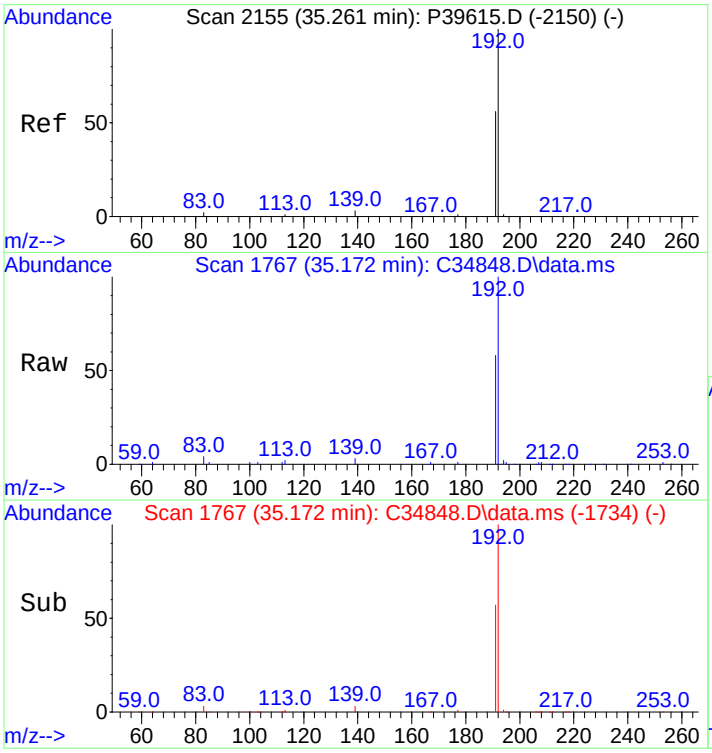


#56
Carbazole
Concen: 468.64 ng/mL
RT: 33.530 min Scan# 1658
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:167 Resp: 52377

Ion	Ratio	Lower	Upper
167	100		
139	14.1	11.8	17.8

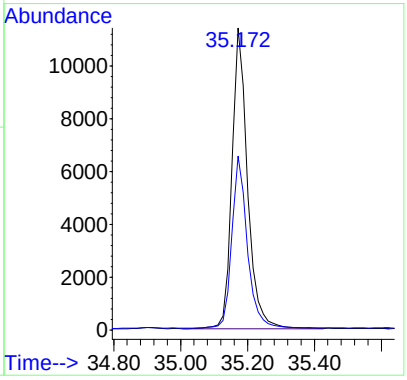


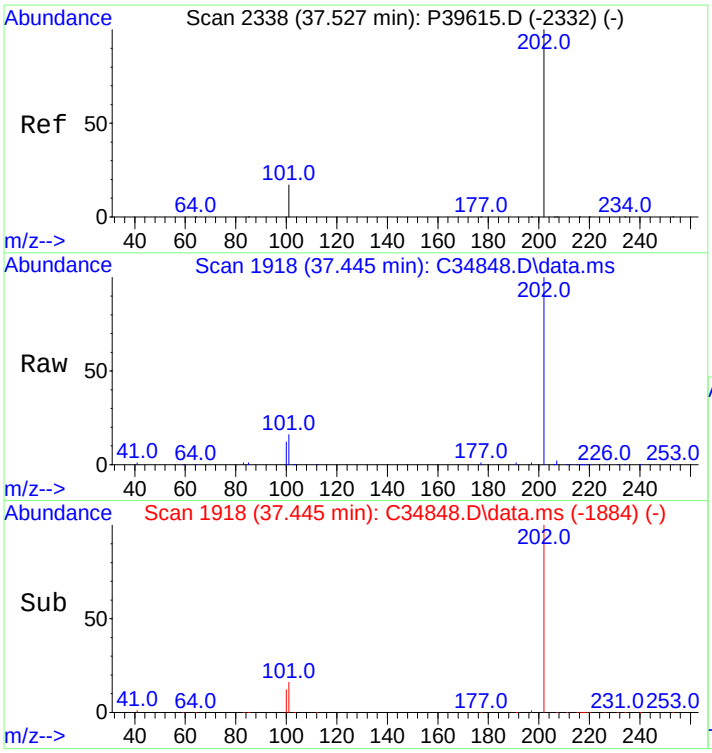


#57
1-Methylphenanthrene
Concen: 511.44 ng/mL
RT: 35.172 min Scan# 1767
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:192 Resp: 36714

Ion	Ratio	Lower	Upper
192	100		
191	56.8	45.9	68.9

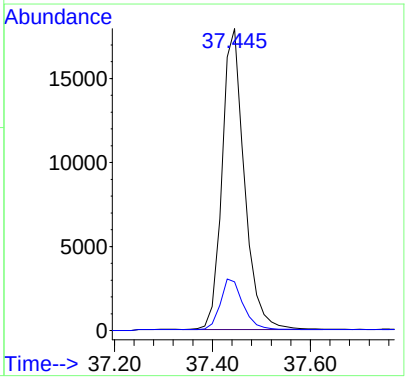


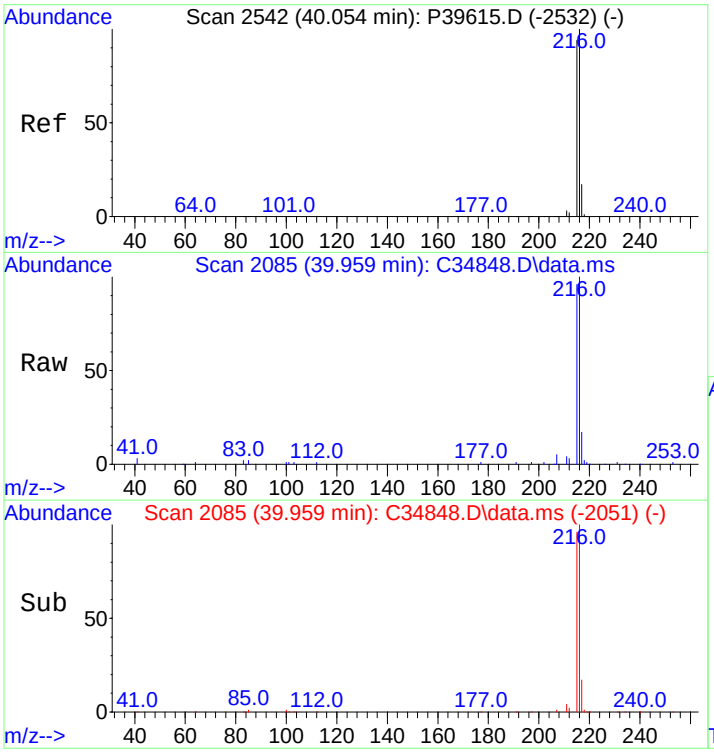


#58
Fluoranthene
Concen: 501.74 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:202 Resp: 56447

Ion	Ratio	Lower	Upper
202	100		
101	17.7	12.9	19.3

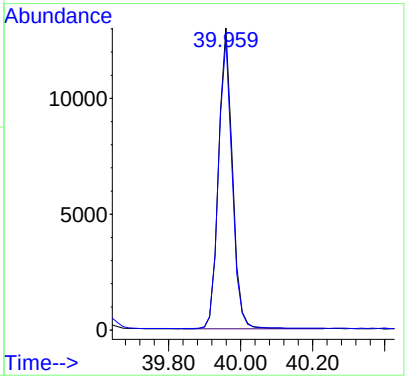


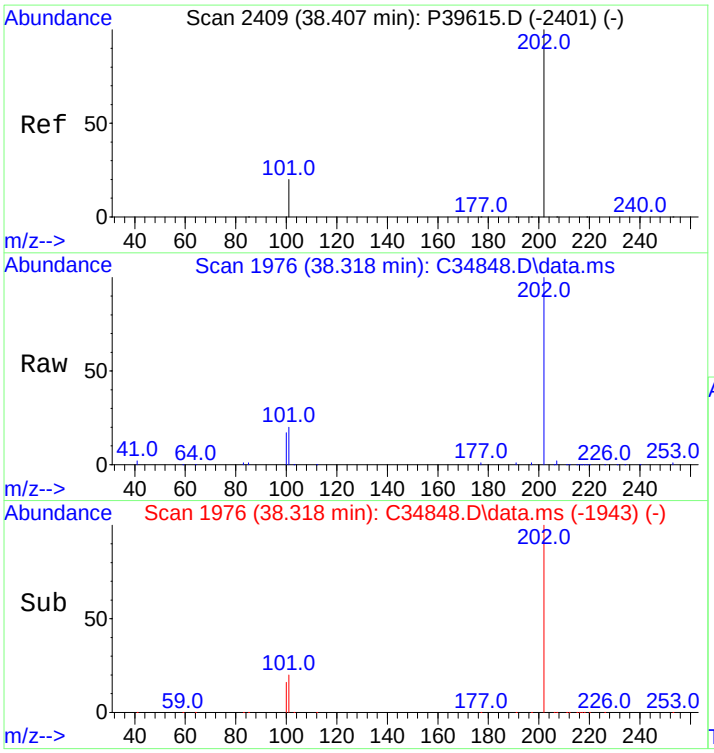


#59
Benzo(b)fluorene
Concen: 530.62 ng/mL
RT: 39.959 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:216 Resp: 34633

Ion	Ratio	Lower	Upper
216	100		
215	95.7	76.3	114.5

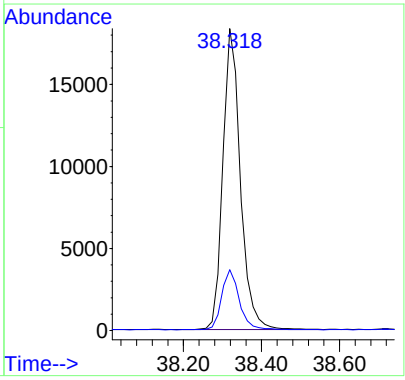


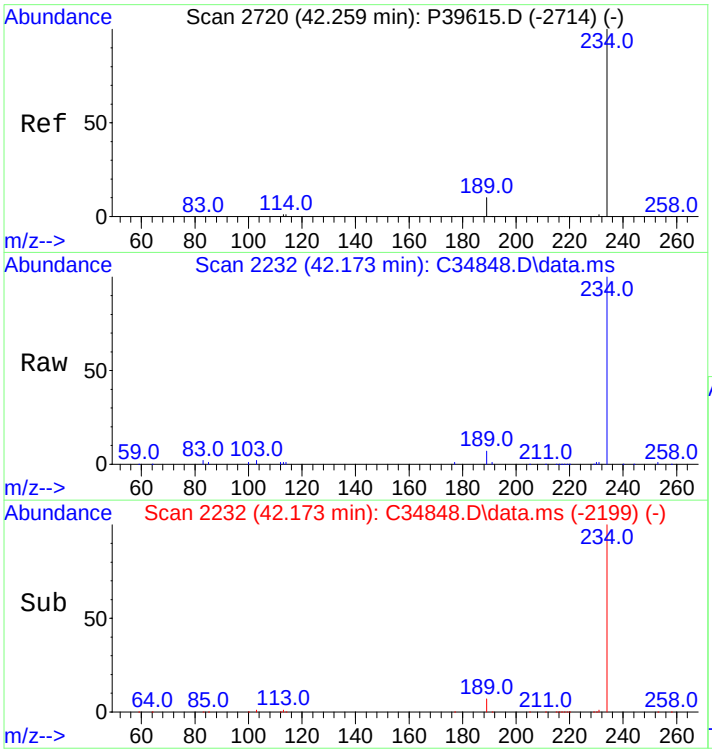


#60
Pyrene
Concen: 499.91 ng/mL
RT: 38.318 min Scan# 1976
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:202 Resp: 57171

Ion	Ratio	Lower	Upper
202	100		
101	20.1	15.0	22.4

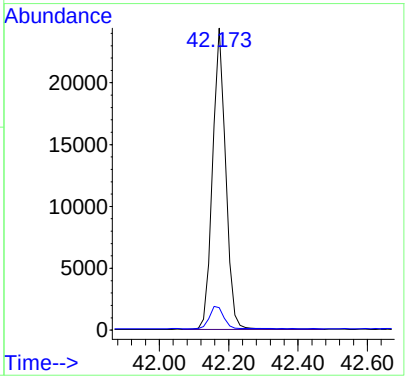


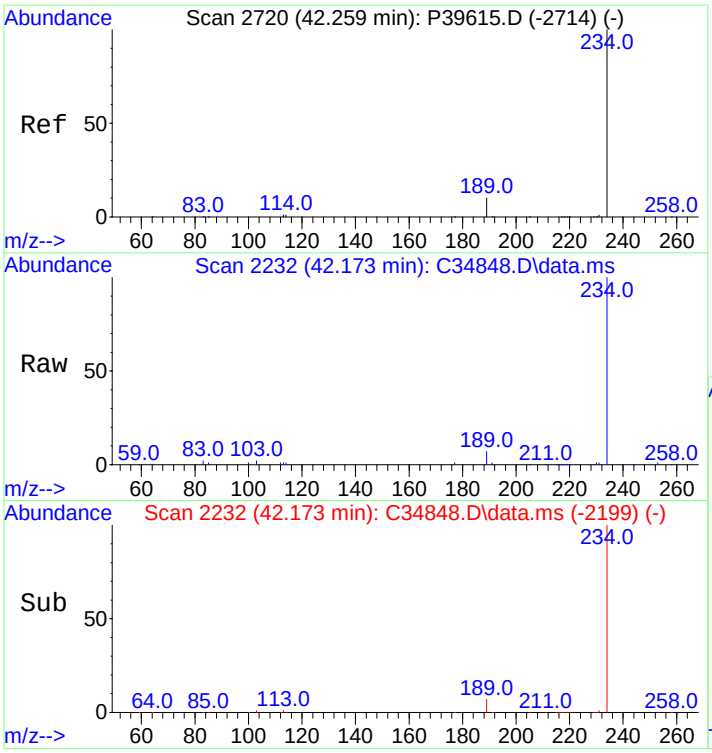


#66
Naphthobenzothiophene
Concen: 518.56 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 63845

Ion	Ratio	Lower	Upper
234	100		
189	8.3	20.5	30.7#

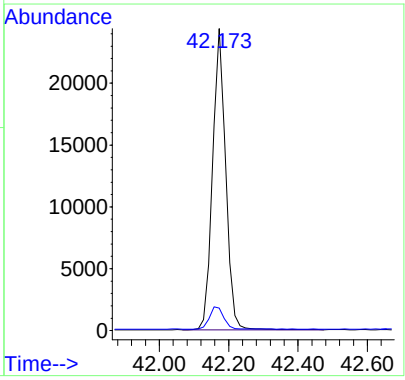


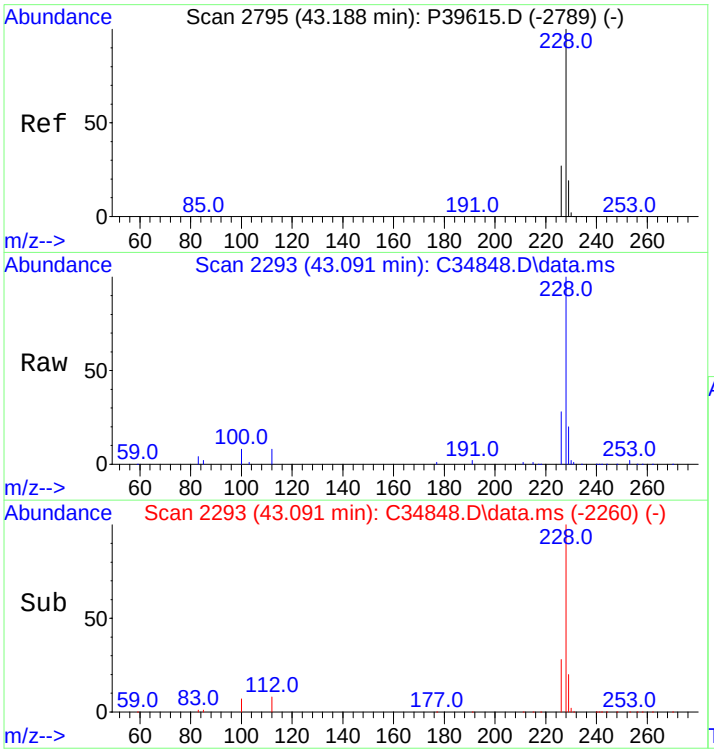


#67
Naphthobenzothiophene-2,1-D
Concen: 518.56 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. -0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:234 Resp: 63845

Ion	Ratio	Lower	Upper
234	100		
189	8.3	20.5	30.7#

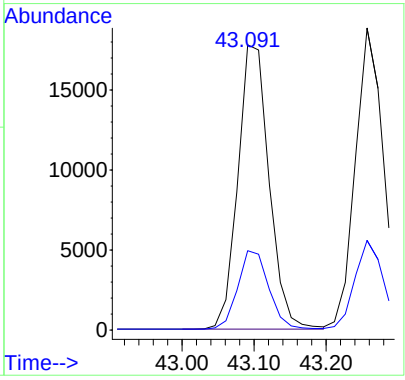


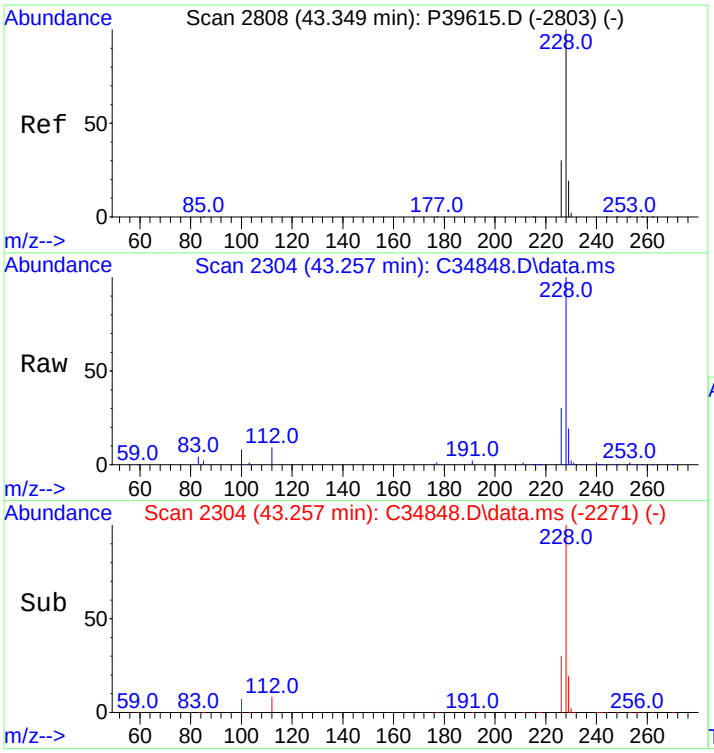


#75
Benz[a]anthracene
Concen: 510.05 ng/mL
RT: 43.091 min Scan# 2293
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 53368

Ion	Ratio	Lower	Upper
228	100		
226	27.4	21.4	32.0

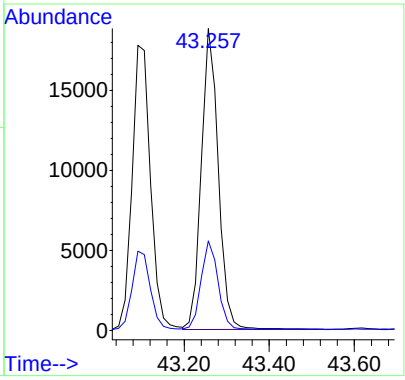


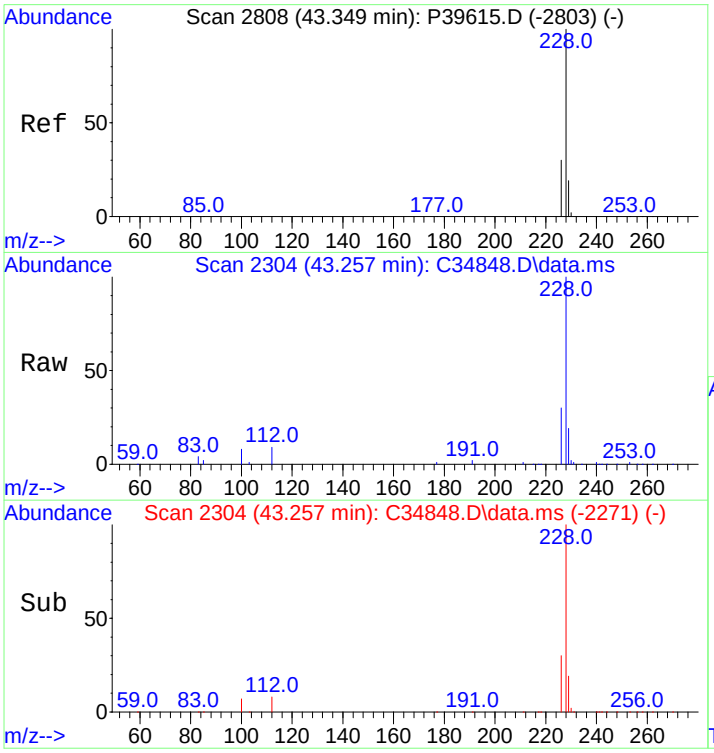


#76
Chrysene
Concen: 493.89 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 52173

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

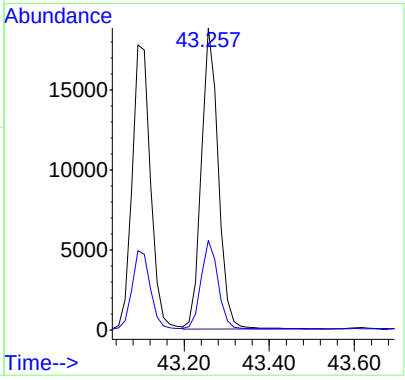


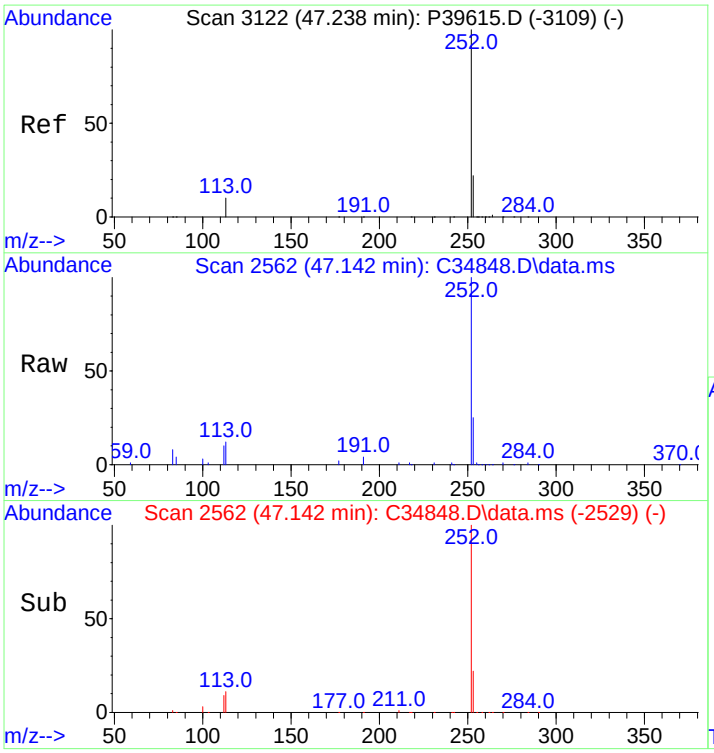


#77
Chrysene/Triphenylene
Concen: 493.89 ng/mL
RT: 43.257 min Scan# 2304
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:228 Resp: 52173

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.7	35.5

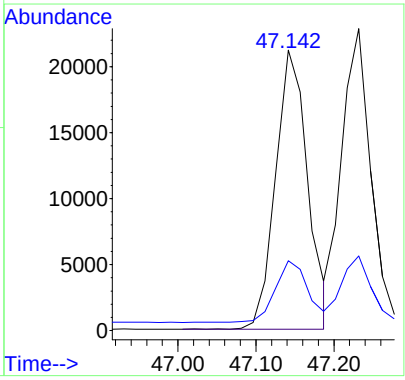


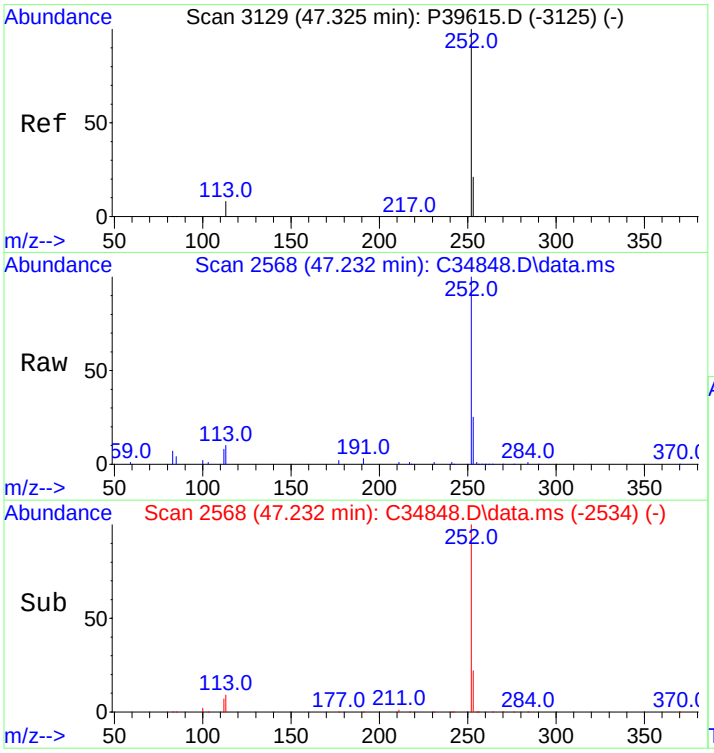


#82
Benzo[b]fluoranthene
Concen: 525.66 ng/mL
RT: 47.142 min Scan# 2562
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 60436

Ion	Ratio	Lower	Upper
252	100		
253	22.2	19.0	28.4

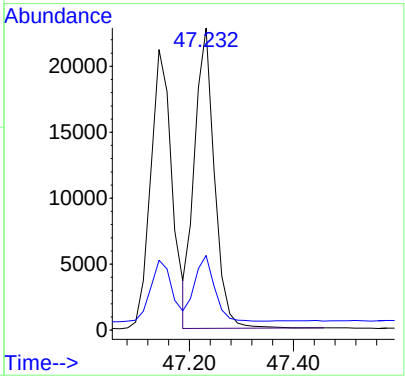


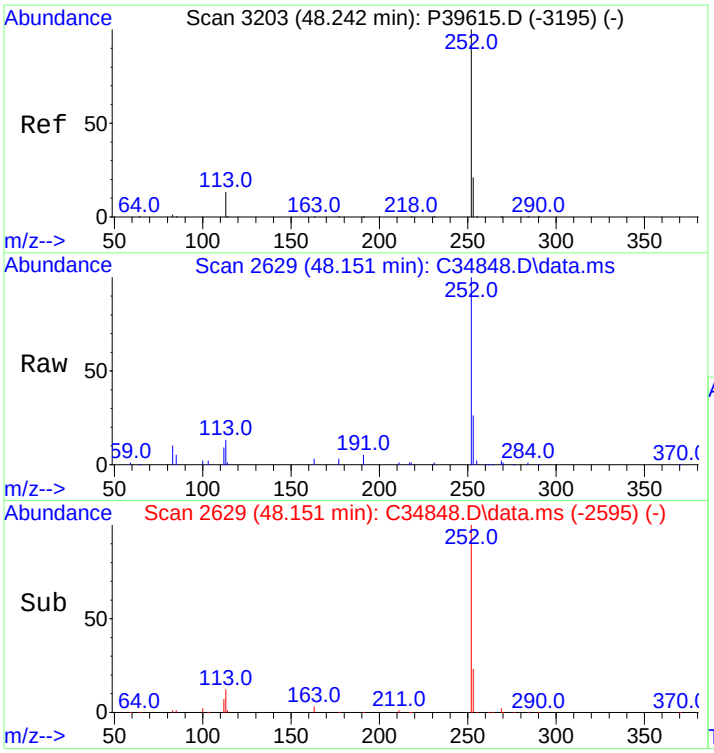


#83
Benzo[j]+[k]fluoranthene
Concen: 484.58 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 60657

Ion	Ratio	Lower	Upper
252	100		
253	21.6	19.0	28.4

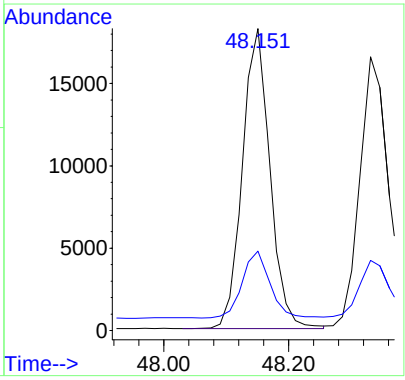


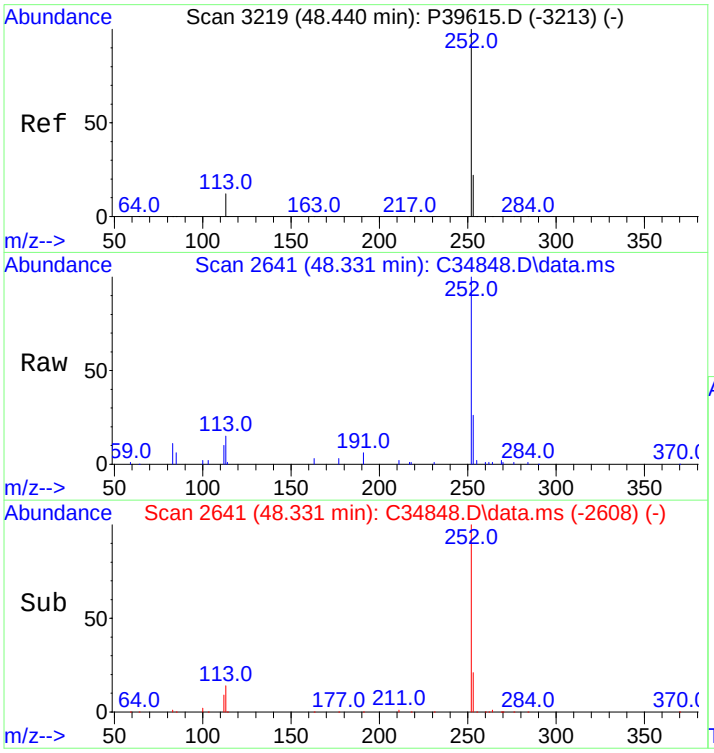


#85
Benzo[e]pyrene
Concen: 491.99 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 55949

Ion	Ratio	Lower	Upper
252	100		
253	22.4	19.2	28.8

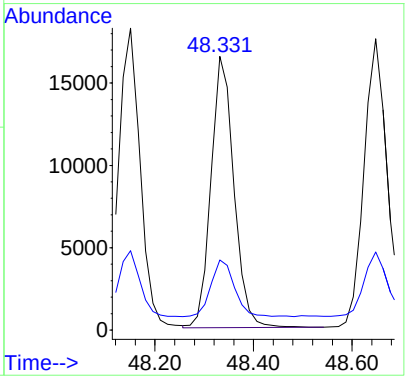


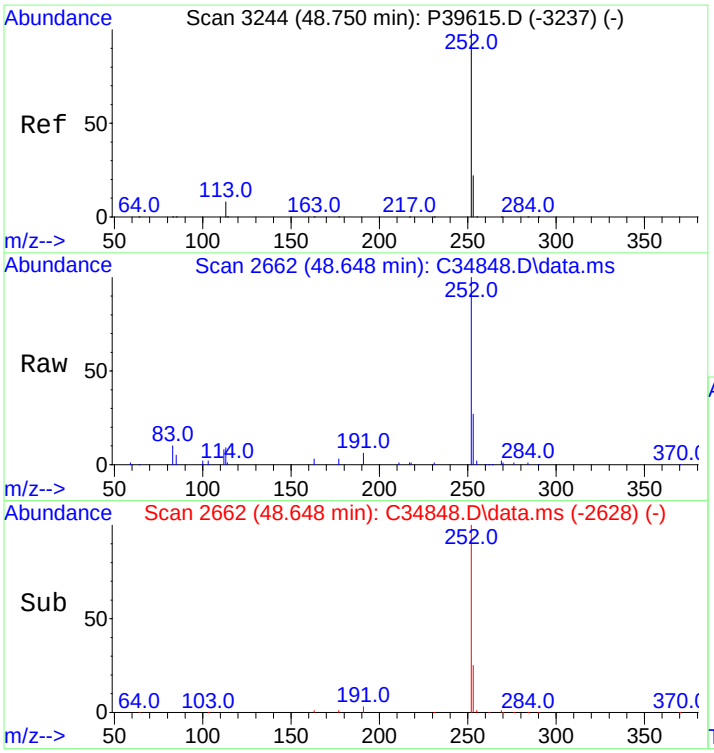


#87
Benzo[a]pyrene
Concen: 485.50 ng/mL
RT: 48.331 min Scan# 2641
Delta R.T. 0.000 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 53157

Ion	Ratio	Lower	Upper
252	100		
253	21.9	19.5	29.3

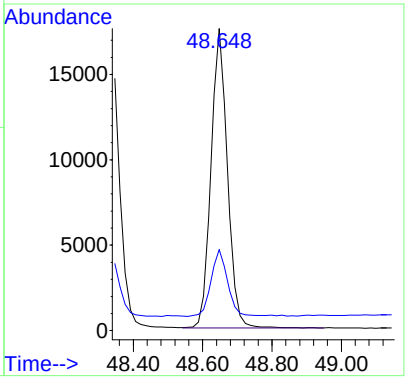


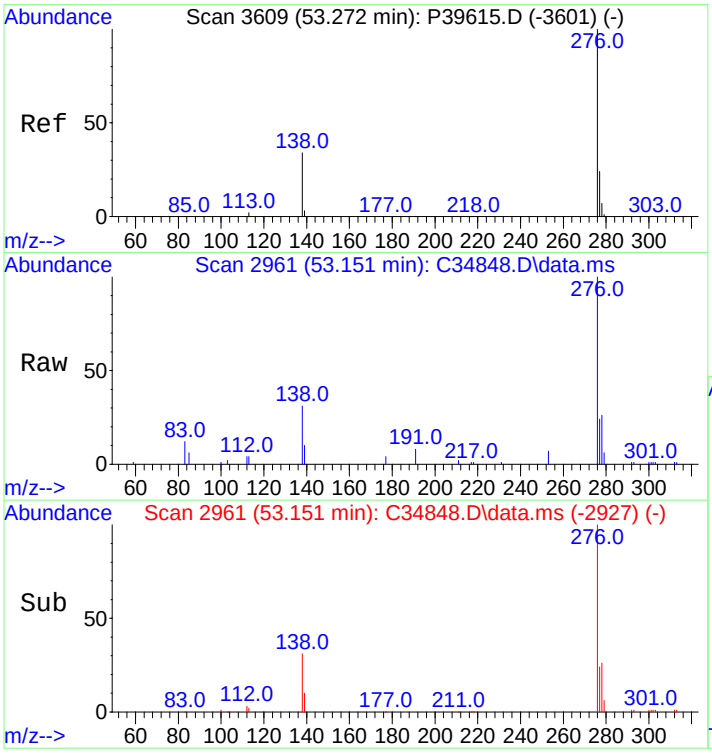


#88
Perylene
Concen: 490.24 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:252 Resp: 57365

Ion	Ratio	Lower	Upper
252	100		
253	22.8	19.6	29.4

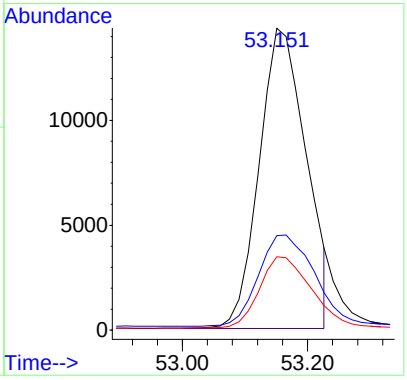


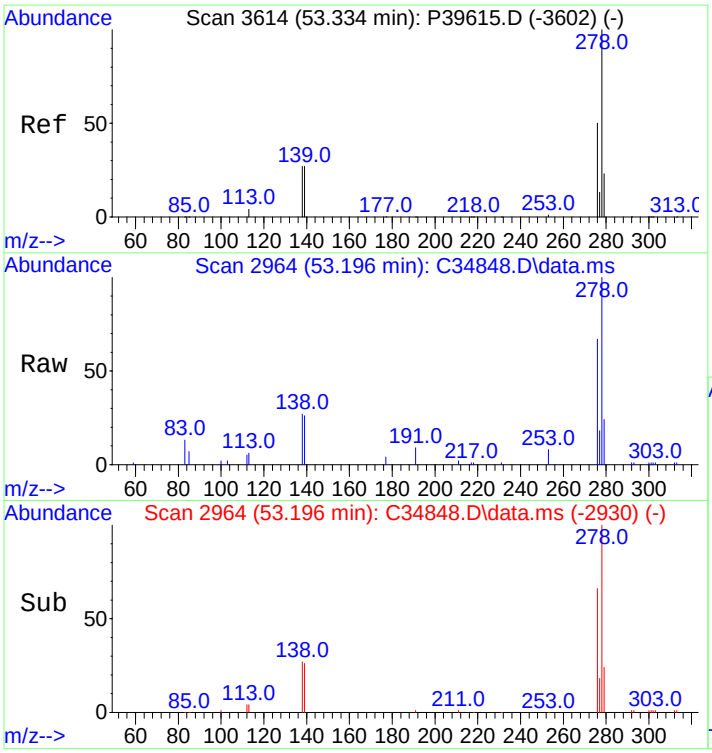


#89
Indeno[1,2,3-cd]pyrene
Concen: 586.35 ng/mL m
RT: 53.151 min Scan# 2961
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:276 Resp: 74711

Ion	Ratio	Lower	Upper
276	100		
138	37.1	23.3	34.9#
277	26.7	19.0	28.4

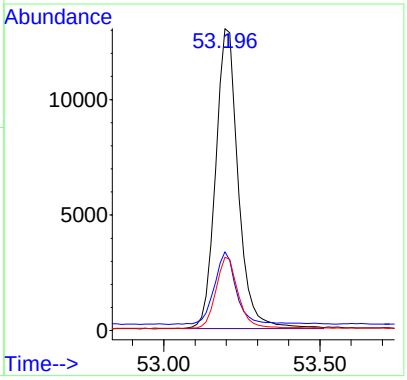


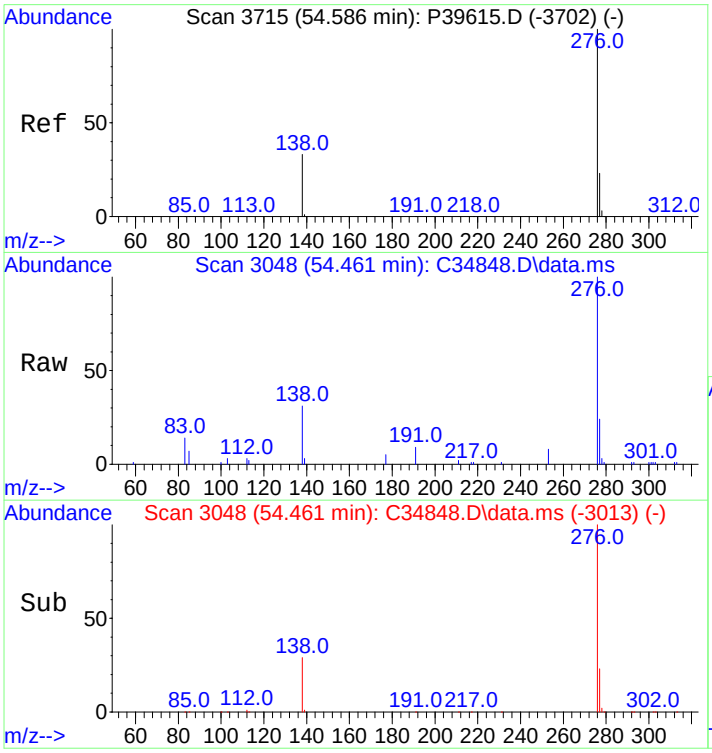


#90
Dibenz[ah]+[ac]anthracene
Concen: 540.63 ng/mL
RT: 53.196 min Scan# 2964
Delta R.T. 0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:278 Resp: 65528

Ion	Ratio	Lower	Upper
278	100		
139	22.5	19.1	28.7
279	23.2	19.2	28.8

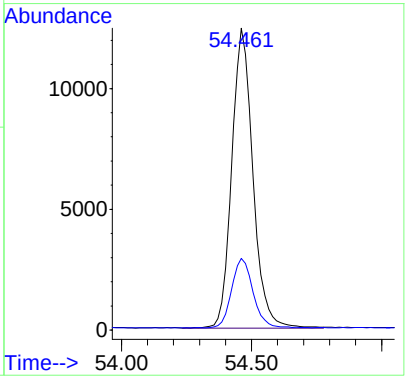


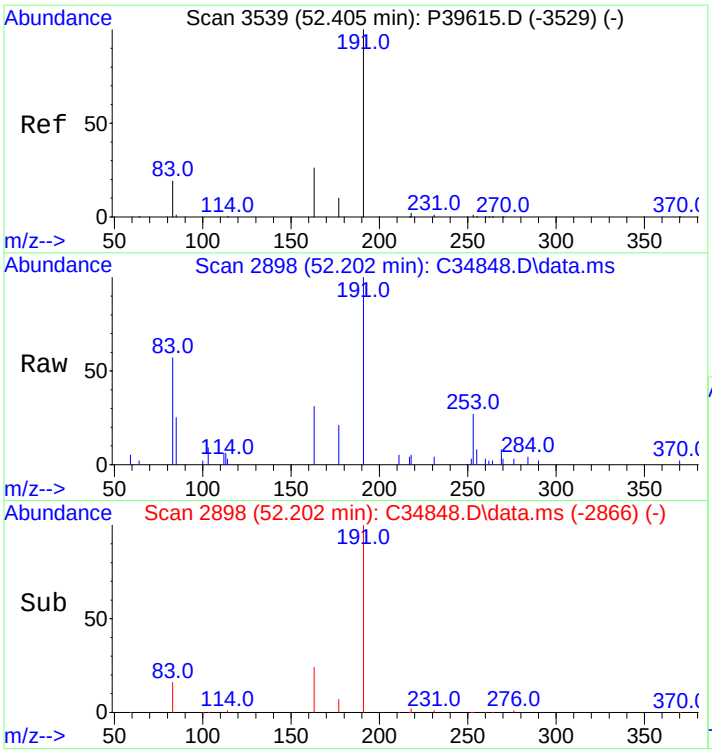


#91
Benzo[g,h,i]perylene
Concen: 520.29 ng/mL
RT: 54.461 min Scan# 3048
Delta R.T. 0.030 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:276 Resp: 70039

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3

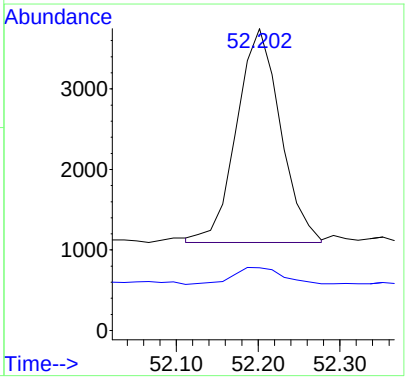


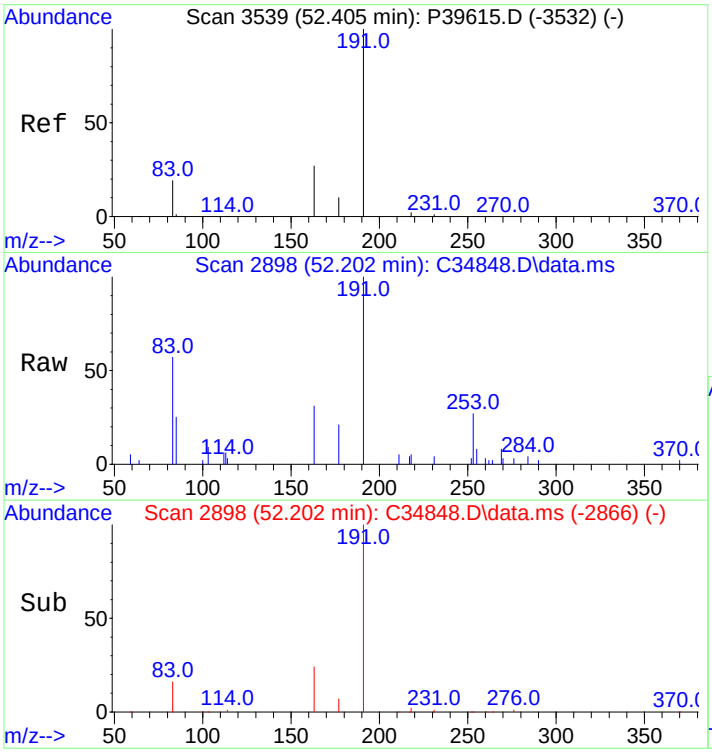


#92
Hopane (T19)
Concen: 454.09 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:191 Resp: 9866

Ion	Ratio	Lower	Upper
191	100		
177	9.0	14.6	21.8#

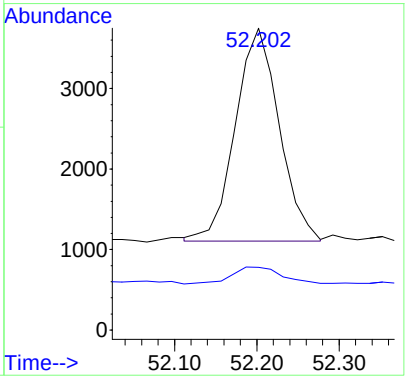




#93
17a(H),21B(H)-hopane - C30H52
Concen: 448.61 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34848.D
Acq: 4 May 2012 9:17 pm

Tgt Ion:191 Resp: 9747

Ion	Ratio	Lower	Upper
191	100		
177	9.1	14.6	21.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

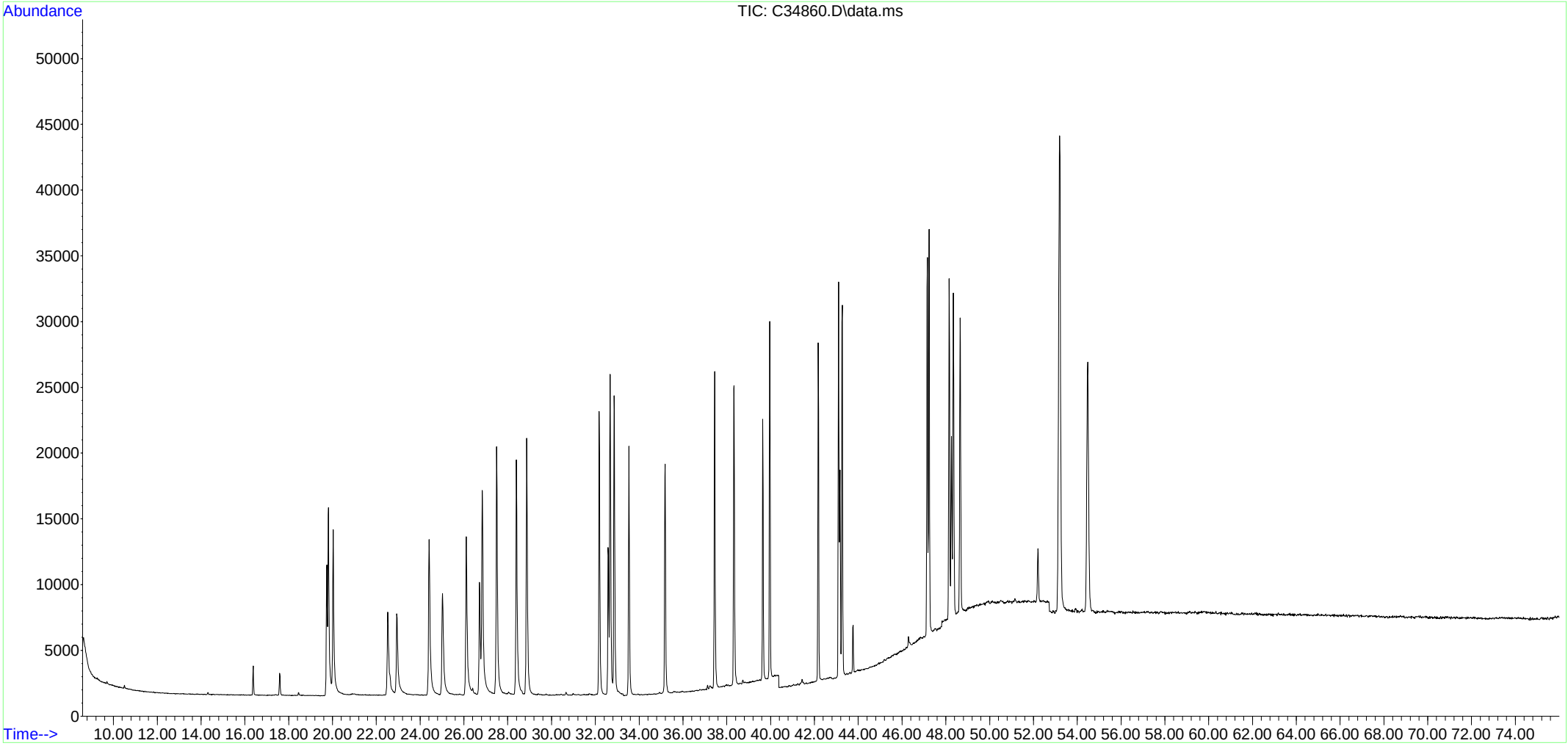
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.711	164	19115M3	500.000	ng/mL	0.02
74) Chrysene-d12	43.167	240	32005	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.741	136	35010	421.990	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.20%#			
42) Phenanthrene-d10	32.582	188	32069	489.036	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.90%#			
86) Benzo[a]pyrene-d12	48.256	264	32752	493.789	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.38%#			
127) 5B(H)Cholane - Surr	43.769	217	5413	540.954	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.10%			
Target Compounds						Qvalue
3) trans-Decalin	16.384	138	3236	214.453	ng/mL	100
4) cis-Decalin	17.603	138	2440	214.552	ng/mL	100
10) Naphthalene	19.816	128	49694	407.901	ng/mL#	100
16) 2-Methylnaphthalene	22.526	142	33291	462.154	ng/mL#	100
17) 1-Methylnaphthalene	22.932	142	30000	424.880	ng/mL#	100
18) Benzothiophene	20.027	134	44915	409.694	ng/mL	100
23) Biphenyl	24.408	154	43469	477.042	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.025	156	28733	485.493	ng/mL#	100
25) Dibenzofuran	27.494	168	49706	475.034	ng/mL	96
26) Acenaphthylene	26.109	152	55313M3	457.374	ng/mL	
27) Acenaphthene	26.832	153	32796	460.571	ng/mL	98
28) 2,3,5-Trimethylnaphtha...	28.397	170	23728	497.353	ng/mL	98
29) Fluorene	28.864	166	37891M3	482.484	ng/mL	
33) Dibenzothiophene	32.176	184	59025	468.870	ng/mL	98
43) Phenanthrene	32.673	178	52422	473.965	ng/mL	99
54) Retene	39.643	234	11800	546.923	ng/mL	97
55) Anthracene	32.853	178	53211M3	492.537	ng/mL	
56) Carbazole	33.531	167	51280M3	469.913	ng/mL	
57) 1-Methylphenanthrene	35.187	192	35663	508.809	ng/mL	100
58) Fluoranthene	37.445	202	55068M3	501.314	ng/mL	
59) Benzo(b)fluorene	39.960	216	33772	529.931	ng/mL	99
60) Pyrene	38.333	202	55892	500.543	ng/mL	97
66) Naphthobenzothiophene	42.173	234	61419	510.908	ng/ml#	66
67) Naphthobenzothiophene-...	42.173	234	61419	510.908	ng/mL#	66
75) Benz[a]anthracene	43.106	228	51712	509.060	ng/mL	99
76) Chrysene	43.272	228	50443	491.854	ng/mL	100
77) Chrysene/Triphenylene	43.272	228	50443	491.854	ng/mL	100
82) Benzo[b]fluoranthene	47.157	252	57388	514.138	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.232	252	61409	505.320	ng/mL	97
85) Benzo[e]pyrene	48.151	252	54730	495.717	ng/mL	98
87) Benzo[a]pyrene	48.347	252	52337	492.362	ng/mL	97
88) Perylene	48.648	252	55992	492.875	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.166	276	72966M3	589.854	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.211	278	65703	558.345	ng/mL	98
91) Benzo[g,h,i]perylene	54.476	276	70256	537.571	ng/mL	99
92) Hopane (T19)	52.202	191	9829M3	465.971	ng/mL	
93) 17a(H),21B(H)-hopane -...	52.202	191	9936M3	471.044	ng/mL	

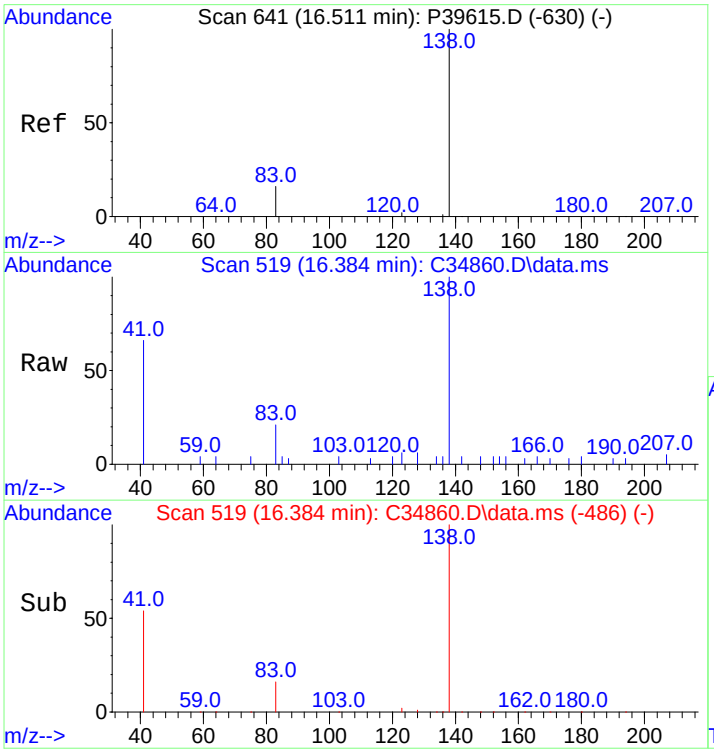
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY02\
Data File : C34860.D
Acq On : 5 May 2012 6:54 am
Operator : AC
Sample : C305031206
Misc : CC WHAP06 500NG/ML
ALS Vial : 43 Sample Multiplier: 1

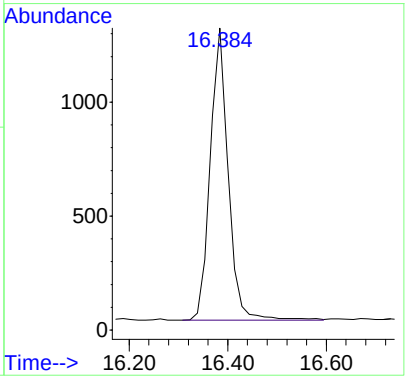
Quant Time: May 06 14:31:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu May 03 06:34:02 2012
Response via : Initial Calibration

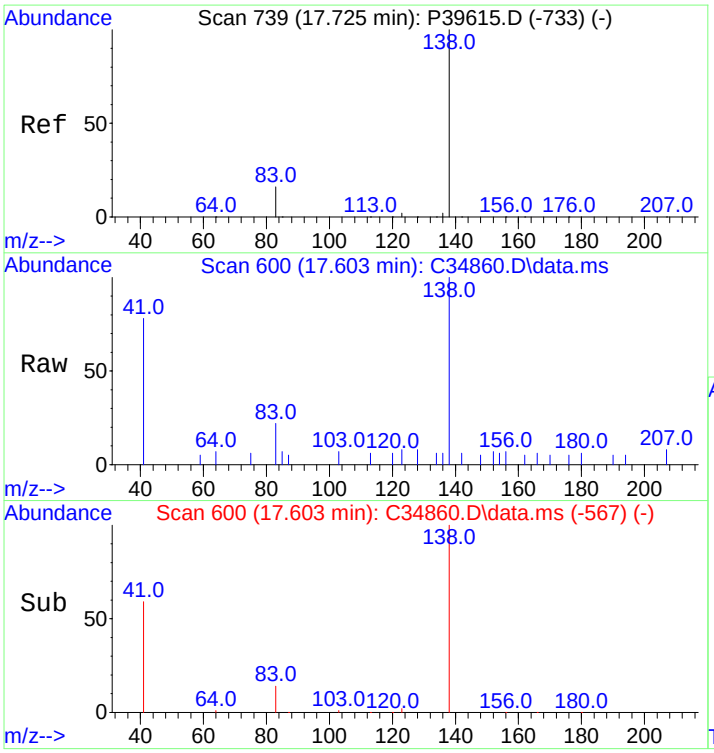




#3
trans-Decalin
Concen: 214.45 ng/mL
RT: 16.384 min Scan# 519
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

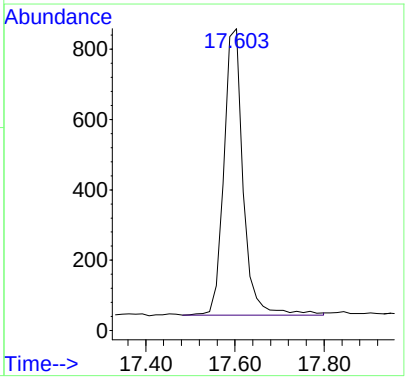
Tgt Ion:138 Resp: 3236

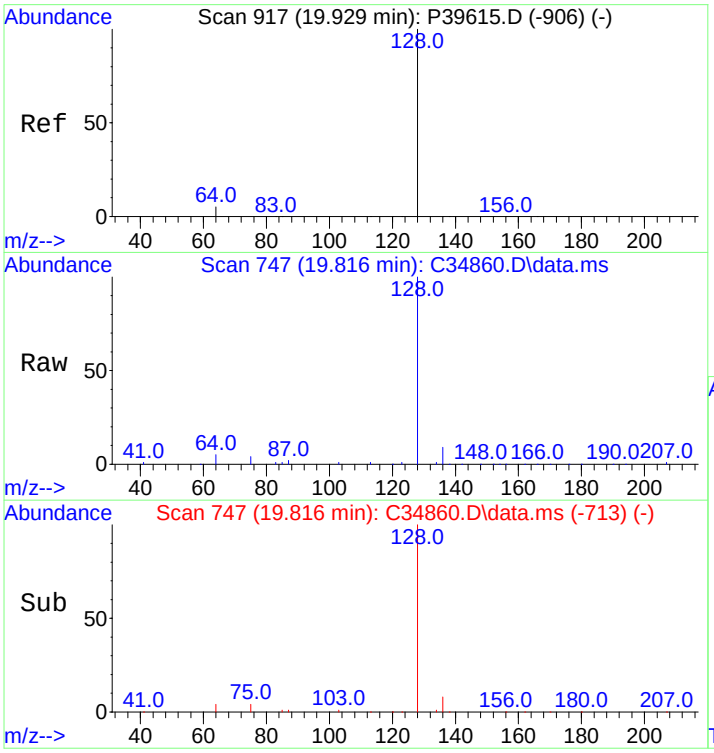




#4
cis-Decalin
Concen: 214.55 ng/mL
RT: 17.603 min Scan# 600
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:138 Resp: 2440

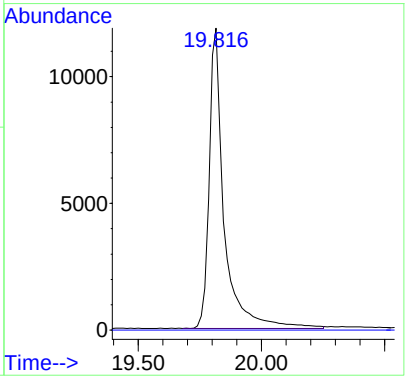


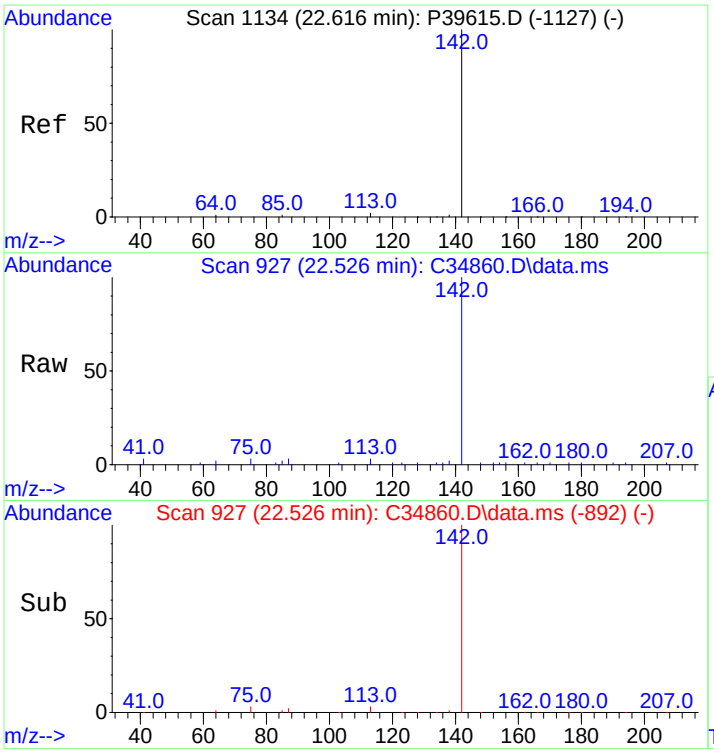


#10
Naphthalene
Concen: 407.90 ng/mL
RT: 19.816 min Scan# 747
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:128 Resp: 49694

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

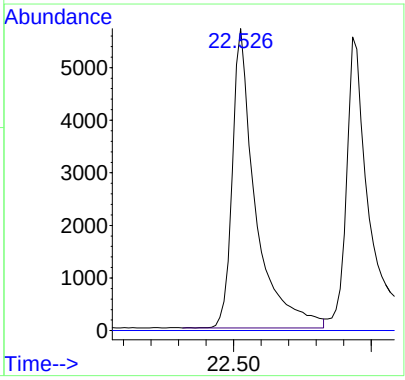


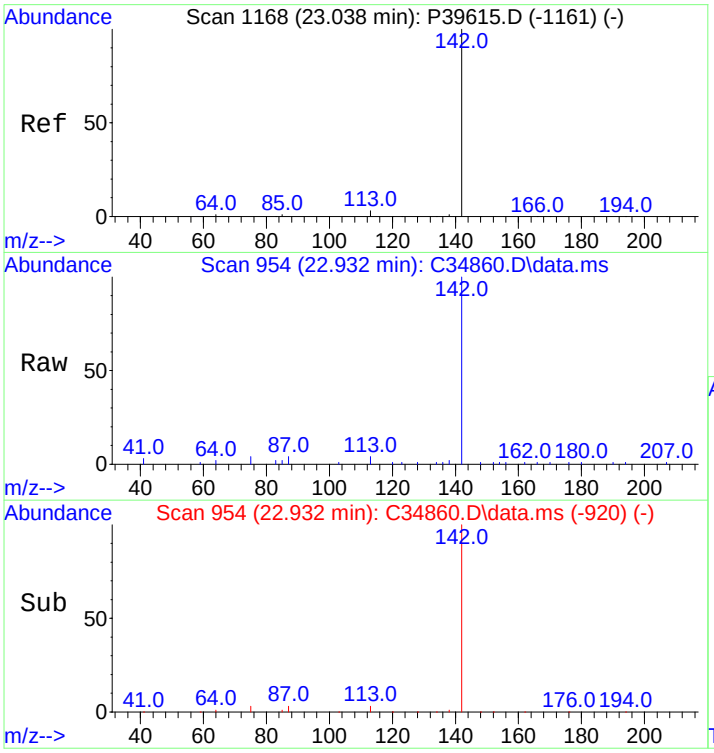


#16
2-Methylnaphthalene
Concen: 462.15 ng/mL
RT: 22.526 min Scan# 927
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:142 Resp: 33291

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

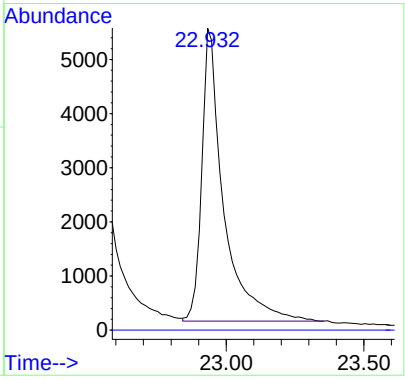


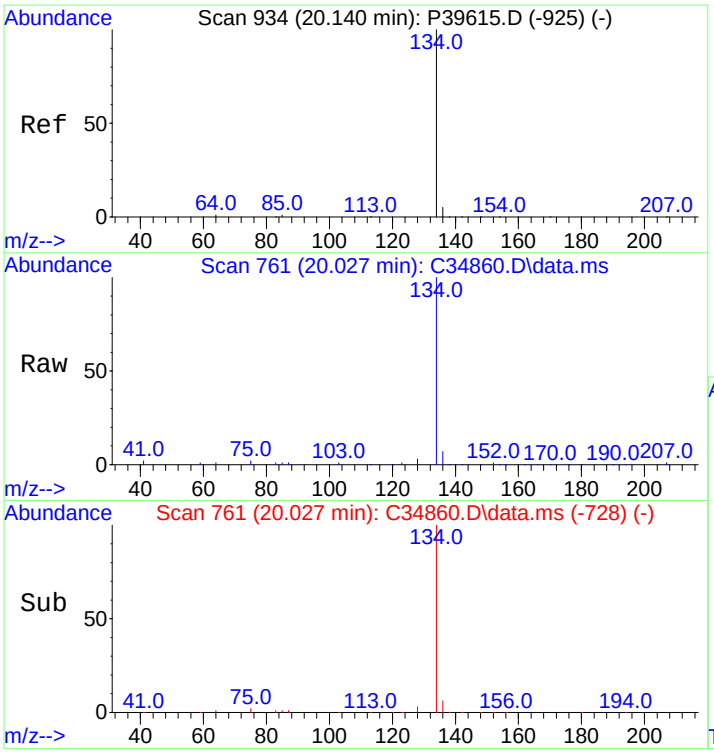


#17
1-Methylnaphthalene
Concen: 424.88 ng/mL
RT: 22.932 min Scan# 954
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:142 Resp: 30000

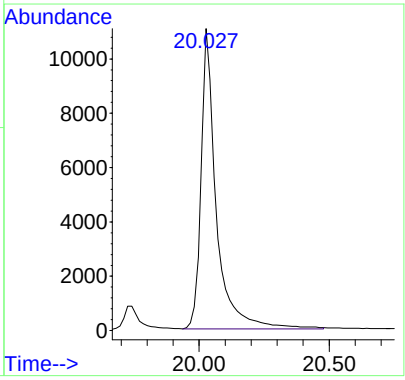
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

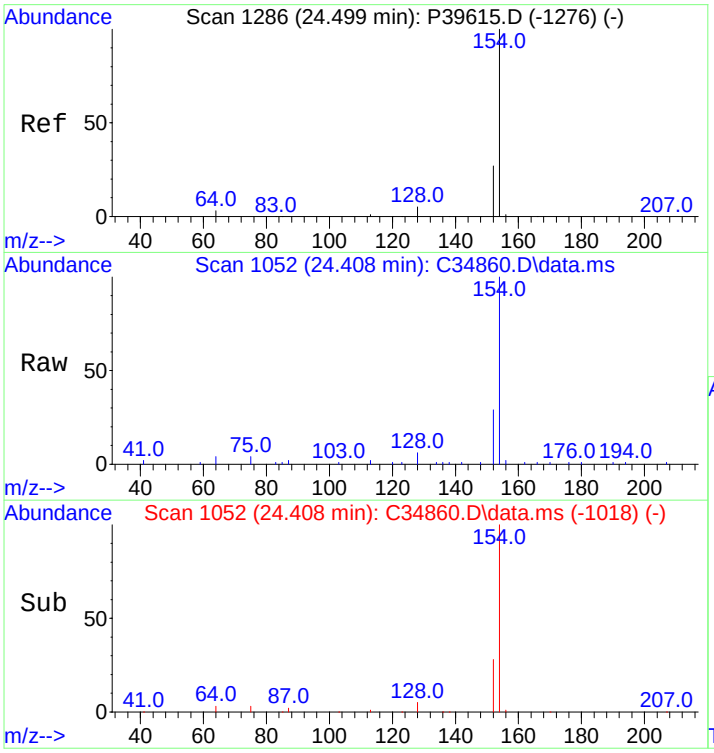




#18
Benzothiophene
Concen: 409.69 ng/mL
RT: 20.027 min Scan# 761
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:134 Resp: 44915

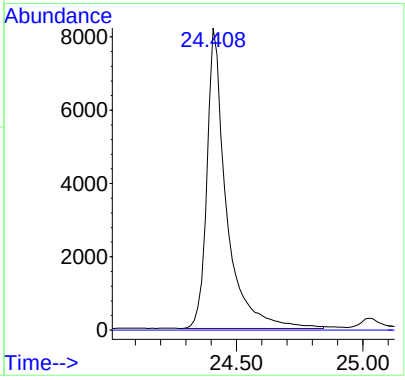


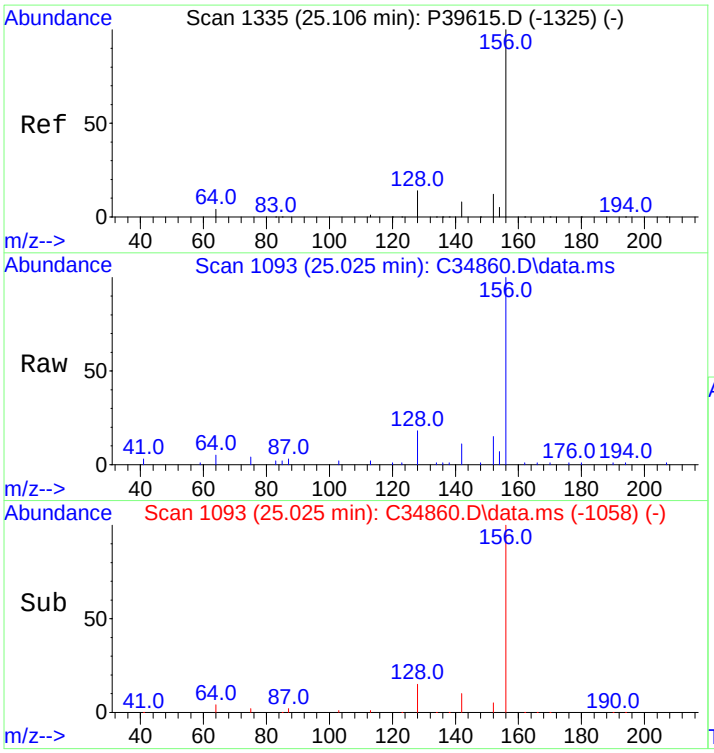


#23
Biphenyl
Concen: 477.04 ng/mL
RT: 24.408 min Scan# 1052
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:154 Resp: 43469

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

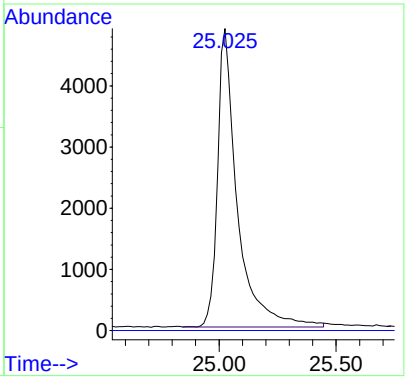


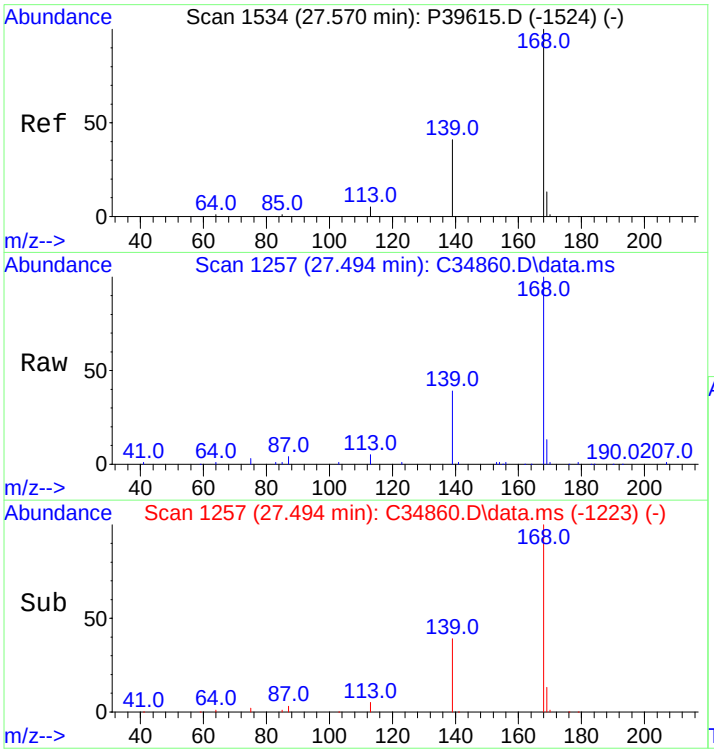


#24
2,6-Dimethylnaphthalene
Concen: 485.49 ng/mL
RT: 25.025 min Scan# 1093
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:156 Resp: 28733

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

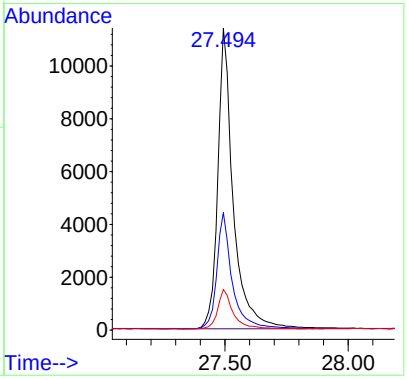


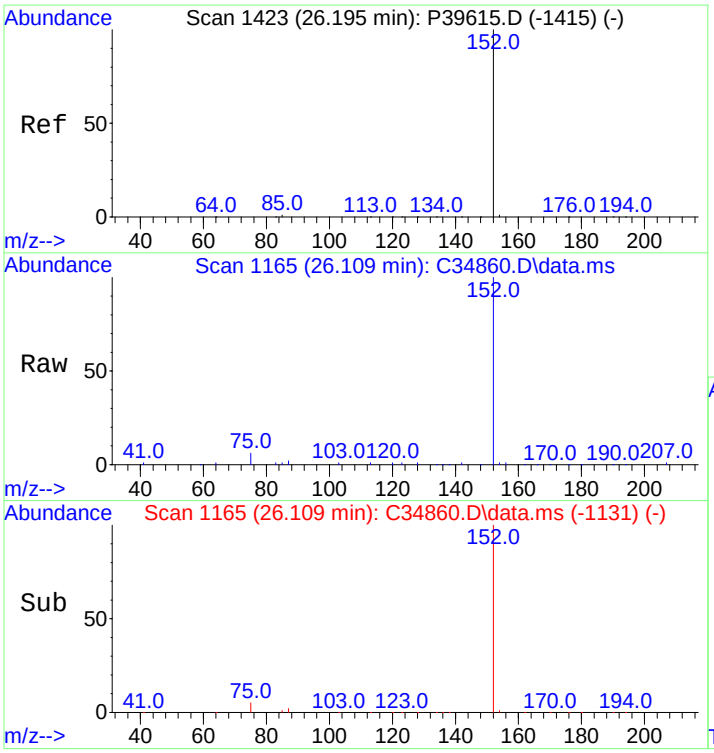


#25
Dibenzofuran
Concen: 475.03 ng/mL
RT: 27.494 min Scan# 1257
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:168 Resp: 49706

Ion	Ratio	Lower	Upper
168	100		
139	38.6	28.4	42.6
169	13.0	10.8	16.2

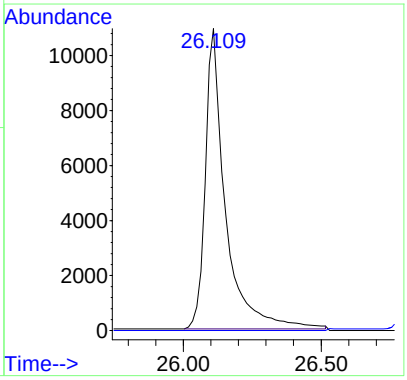


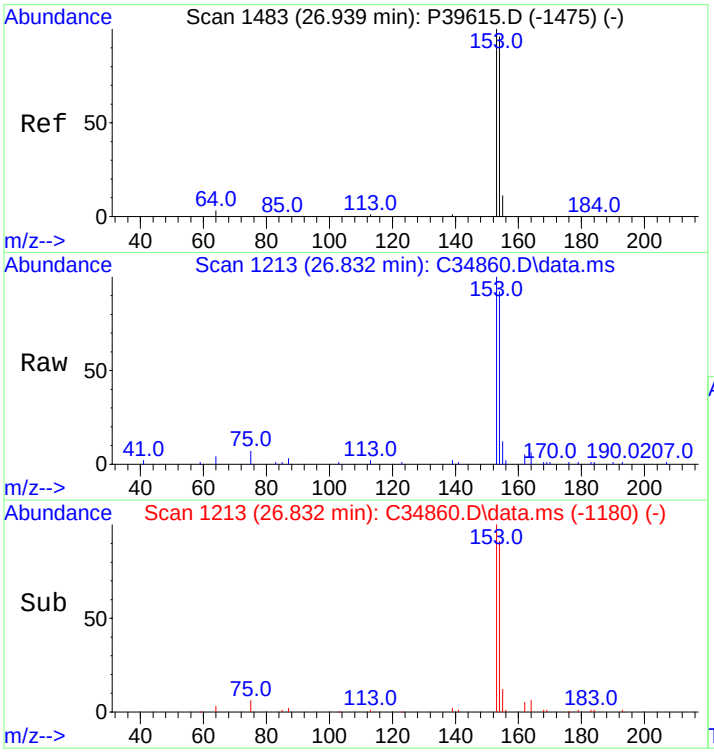


#26
Acenaphthylene
Concen: 457.37 ng/mL m
RT: 26.109 min Scan# 1165
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:152 Resp: 55313

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

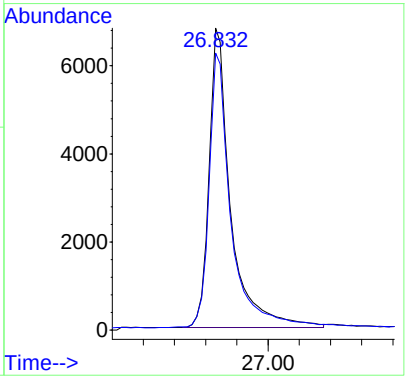


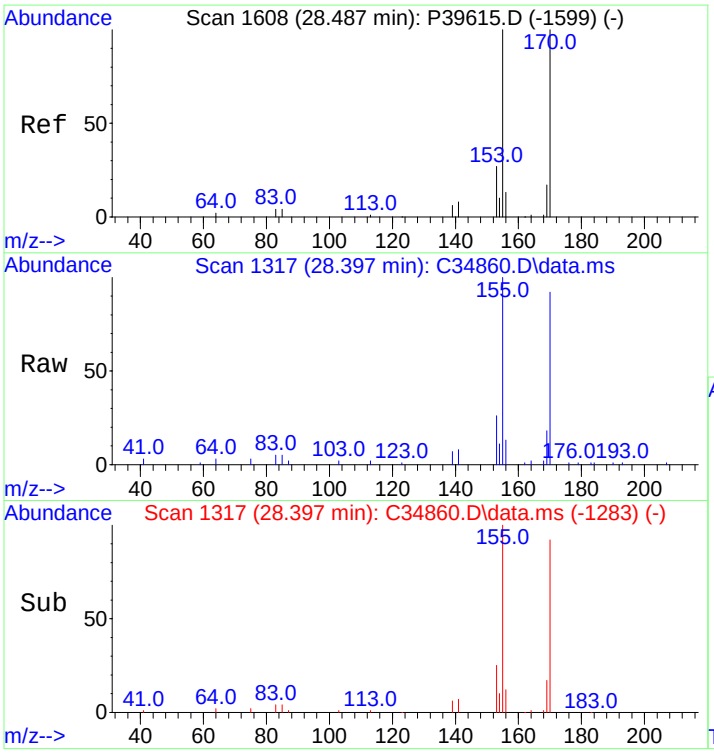


#27
Acenaphthene
Concen: 460.57 ng/mL
RT: 26.832 min Scan# 1213
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:153 Resp: 32796

Ion	Ratio	Lower	Upper
153	100		
154	94.0	73.6	110.4

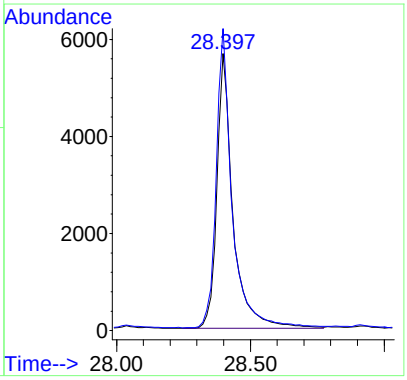


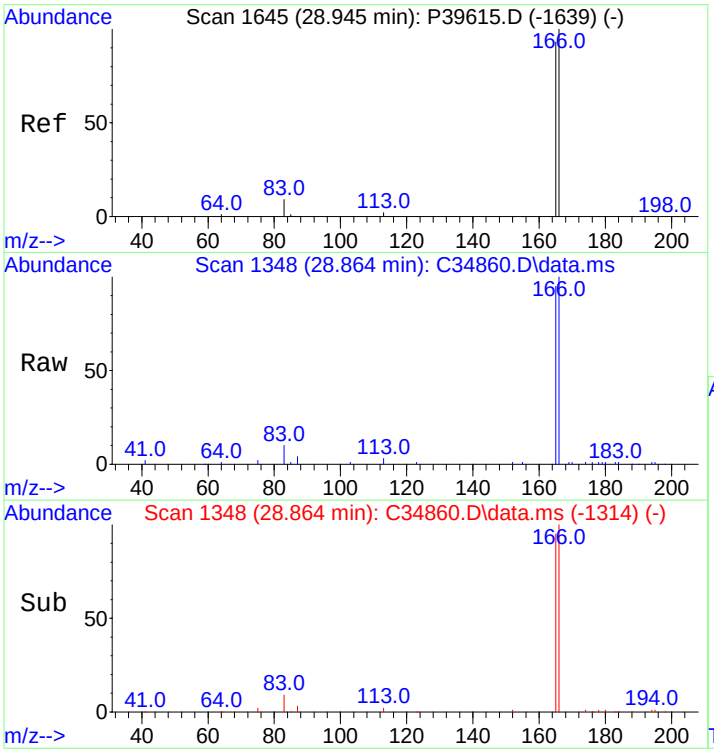


#28
2,3,5-Trimethylnaphthalene
Concen: 497.35 ng/mL
RT: 28.397 min Scan# 1317
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:170 Resp: 23728

Ion	Ratio	Lower	Upper
170	100		
155	107.5	87.3	130.9

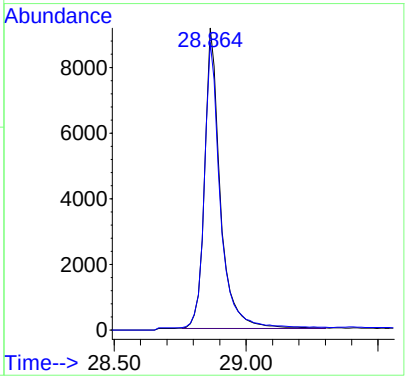


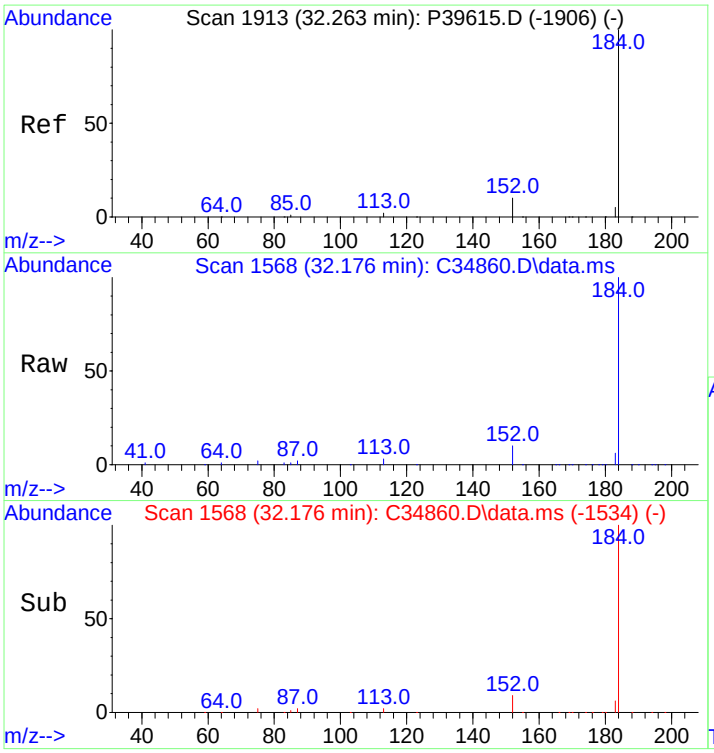


#29
Fluorene
Concen: 482.48 ng/mL m
RT: 28.864 min Scan# 1348
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:166 Resp: 37891

Ion	Ratio	Lower	Upper
166	100		
165	98.7	77.3	115.9

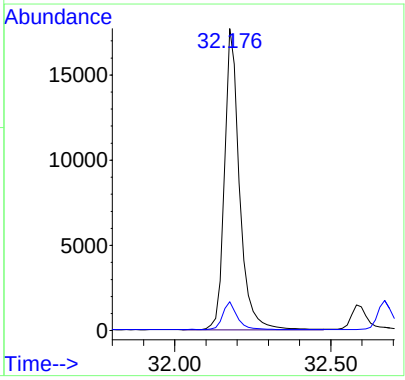


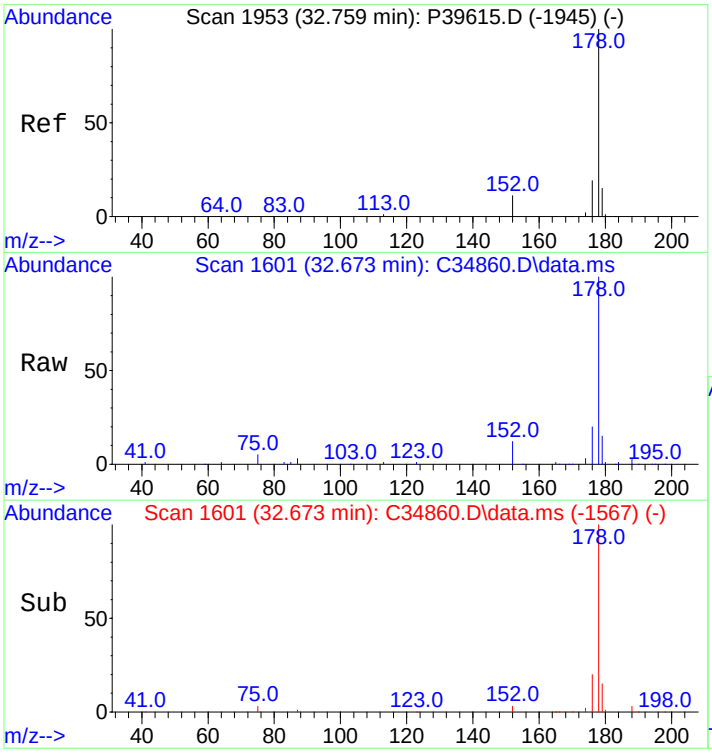


#33
Dibenzothiophene
Concen: 468.87 ng/mL
RT: 32.176 min Scan# 1568
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:184 Resp: 59025

Ion	Ratio	Lower	Upper
184	100		
152	8.8	7.5	11.3

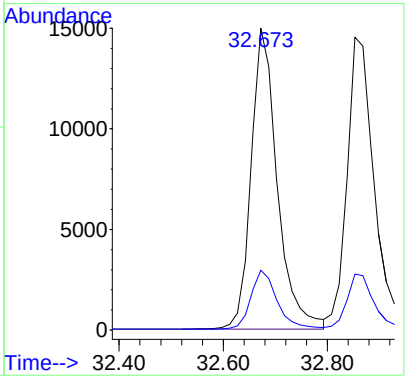


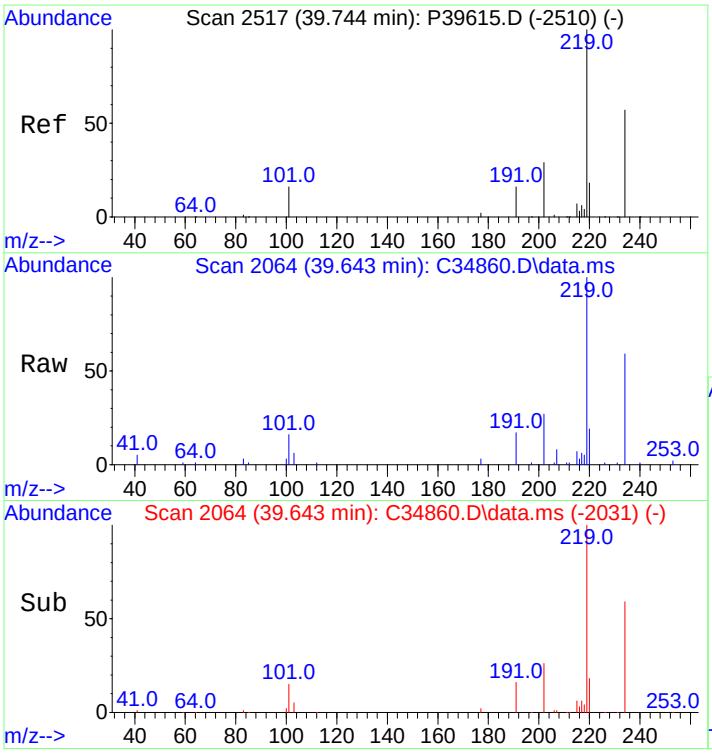


#43
Phenanthrene
Concen: 473.97 ng/mL
RT: 32.673 min Scan# 1601
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:178 Resp: 52422

Ion	Ratio	Lower	Upper
178	100		
176	19.7	16.1	24.1

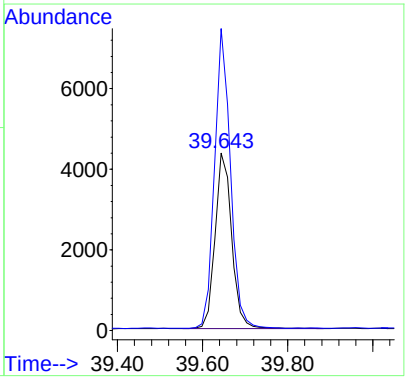


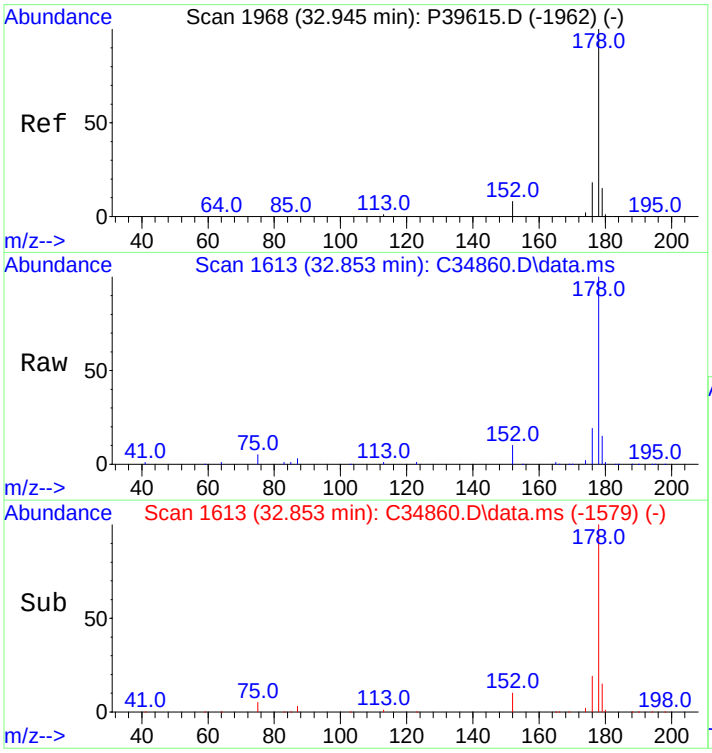


#54
Retene
Concen: 546.92 ng/mL
RT: 39.643 min Scan# 2064
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 11800

Ion	Ratio	Lower	Upper
234	100		
219	163.6	127.8	191.8

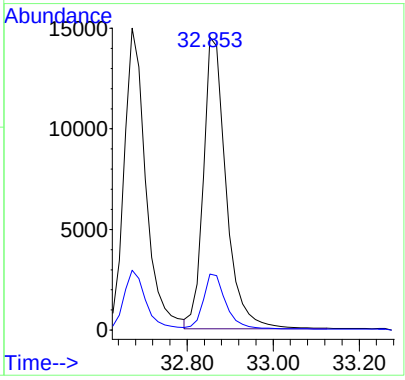


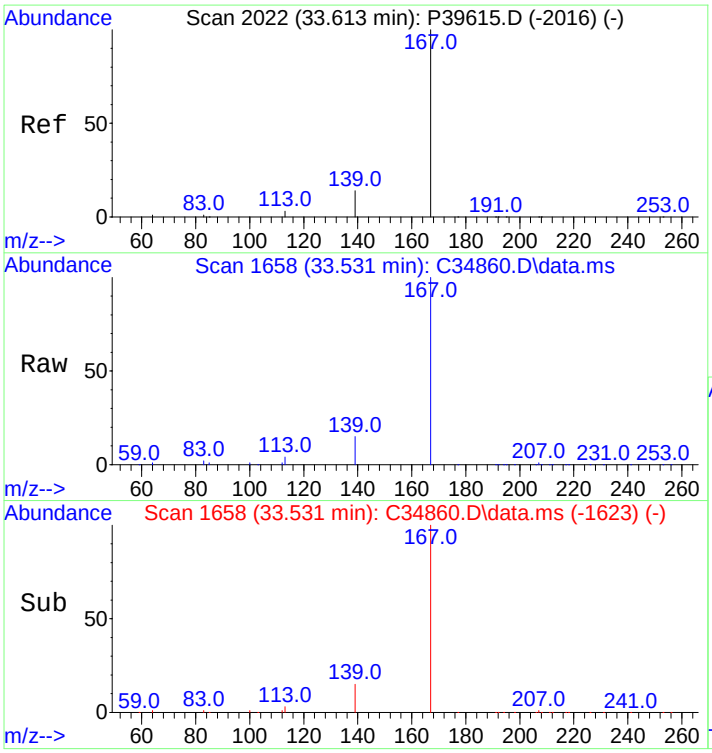


#55
Anthracene
Concen: 492.54 ng/mL m
RT: 32.853 min Scan# 1613
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:178 Resp: 53211

Ion	Ratio	Lower	Upper
178	100		
176	18.8	15.5	23.3

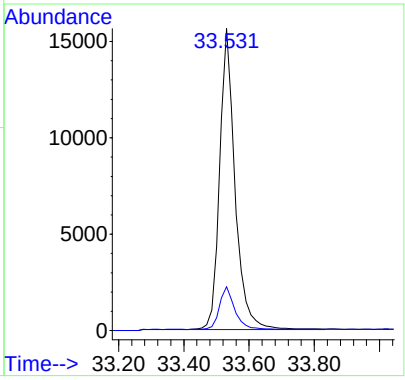


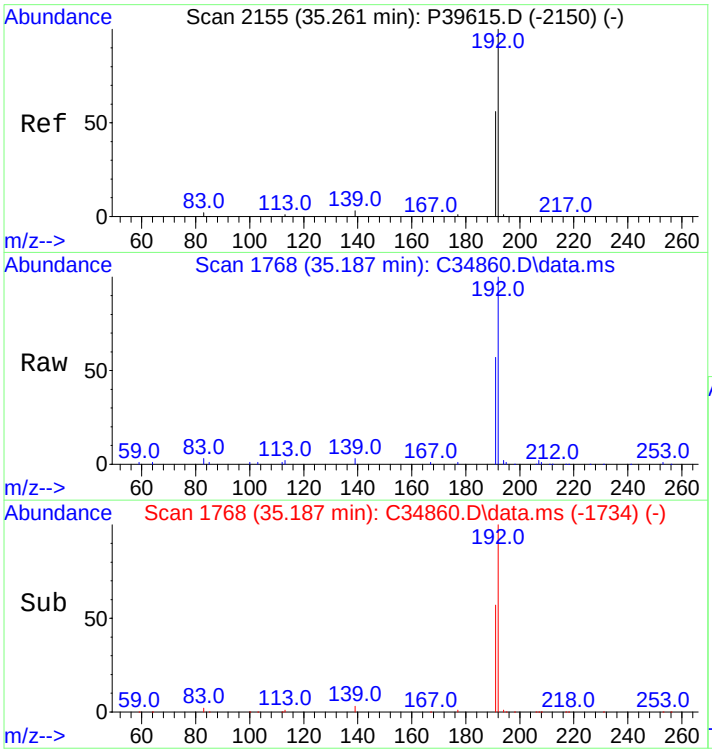


#56
Carbazole
Concen: 469.91 ng/mL m
RT: 33.531 min Scan# 1658
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:167 Resp: 51280

Ion	Ratio	Lower	Upper
167	100		
139	13.9	11.8	17.8

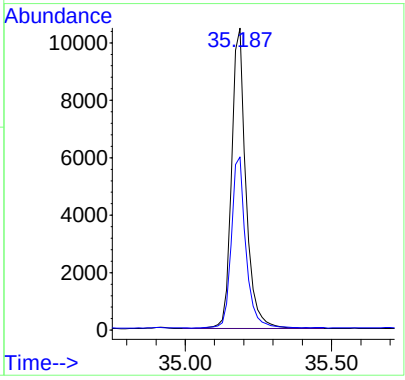


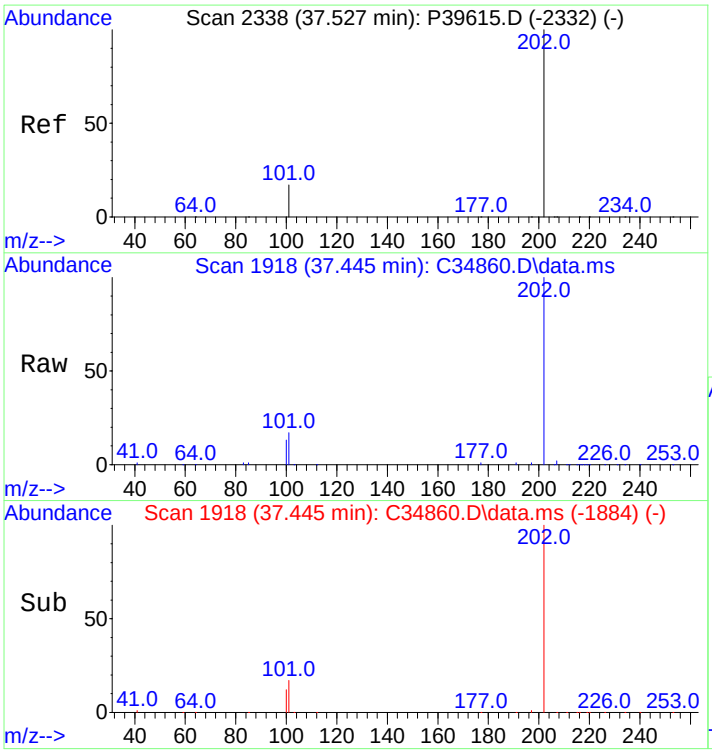


#57
1-Methylphenanthrene
Concen: 508.81 ng/mL
RT: 35.187 min Scan# 1768
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:192 Resp: 35663

Ion	Ratio	Lower	Upper
192	100		
191	57.6	45.9	68.9

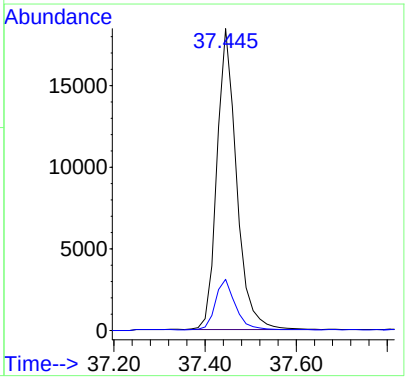


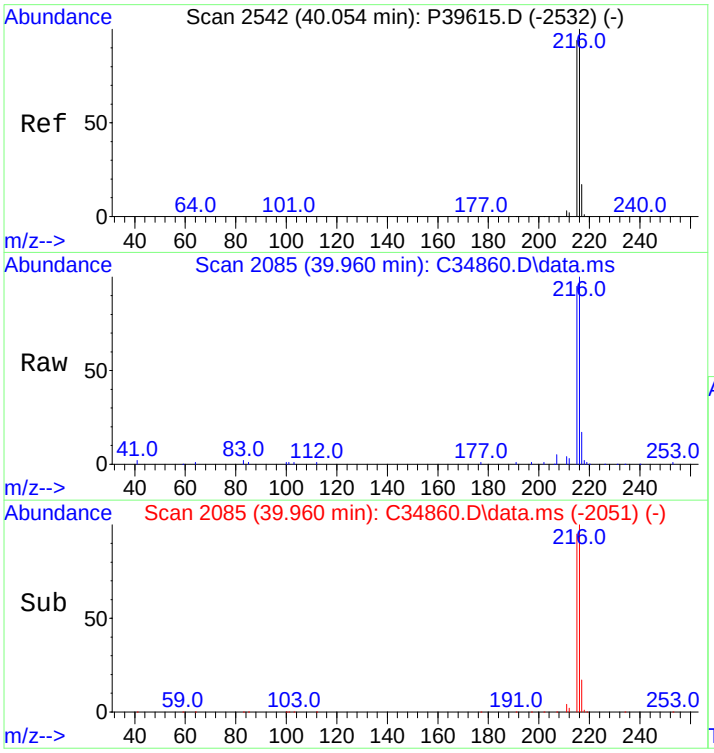


#58
Fluoranthene
Concen: 501.31 ng/mL m
RT: 37.445 min Scan# 1918
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:202 Resp: 55068

Ion	Ratio	Lower	Upper
202	100		
101	17.6	12.9	19.3

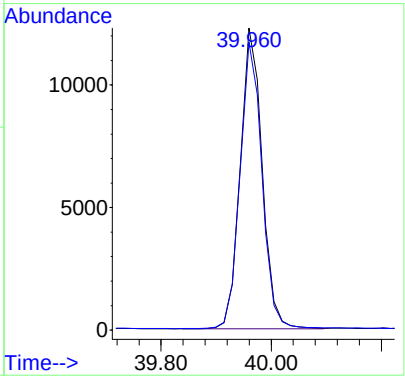


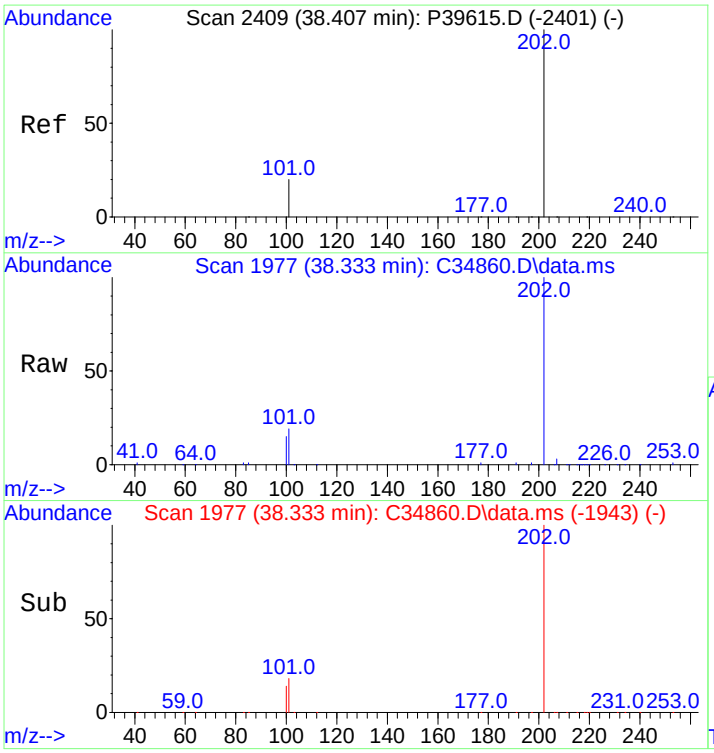


#59
Benzo(b)fluorene
Concen: 529.93 ng/mL
RT: 39.960 min Scan# 2085
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:216 Resp: 33772

Ion	Ratio	Lower	Upper
216	100		
215	95.9	76.3	114.5

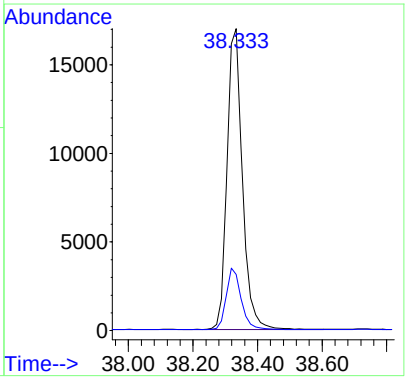


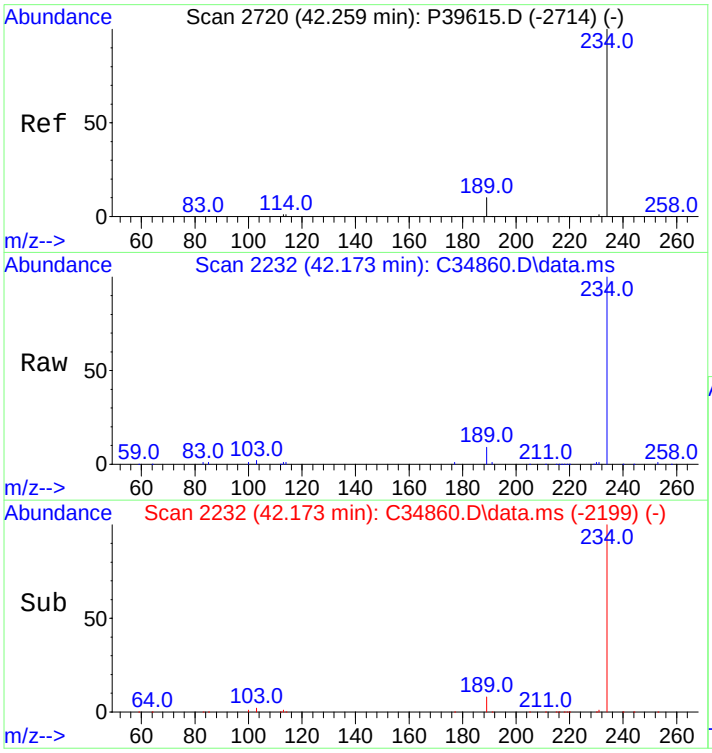


#60
Pyrene
Concen: 500.54 ng/mL
RT: 38.333 min Scan# 1977
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:202 Resp: 55892

Ion	Ratio	Lower	Upper
202	100		
101	20.0	15.0	22.4

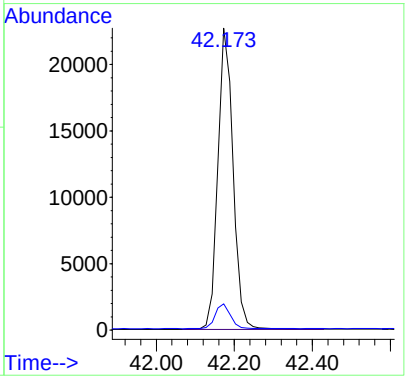


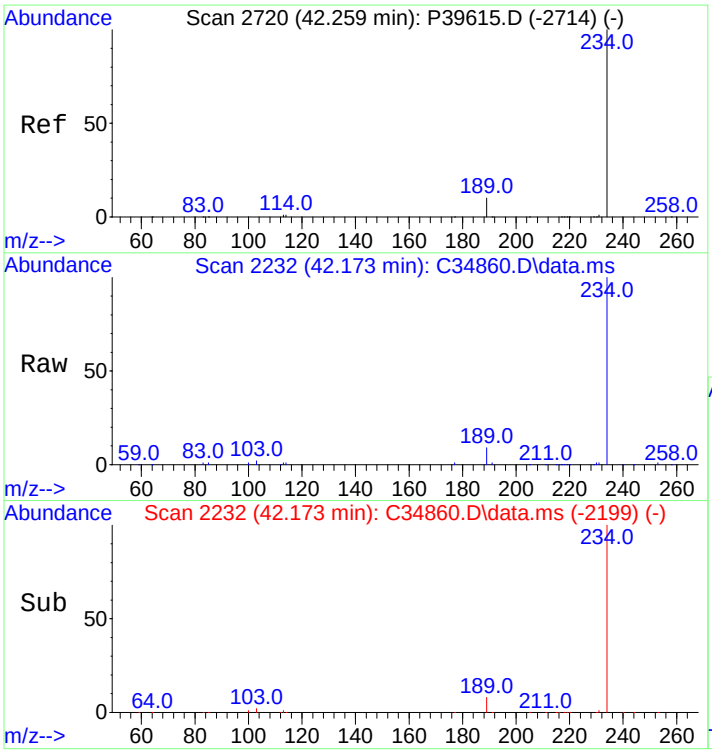


#66
Naphthobenzothiophene
Concen: 510.91 ng/ml
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 61419

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

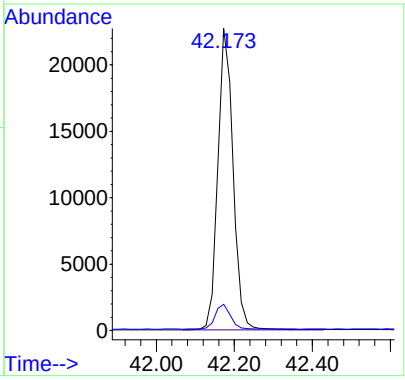


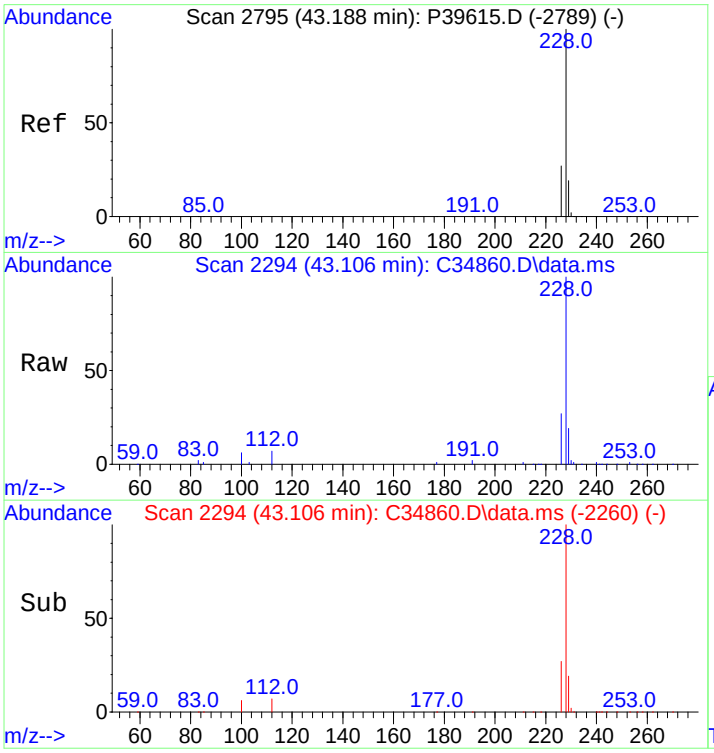


#67
Naphthobenzothiophene-2,1-D
Concen: 510.91 ng/mL
RT: 42.173 min Scan# 2232
Delta R.T. 0.000 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:234 Resp: 61419

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.5	30.7#

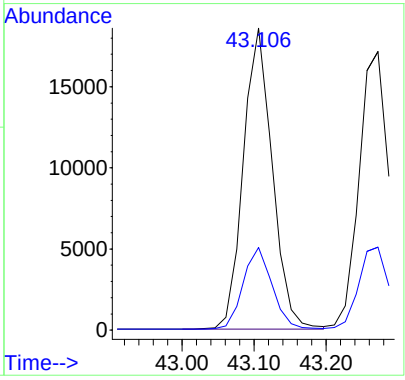


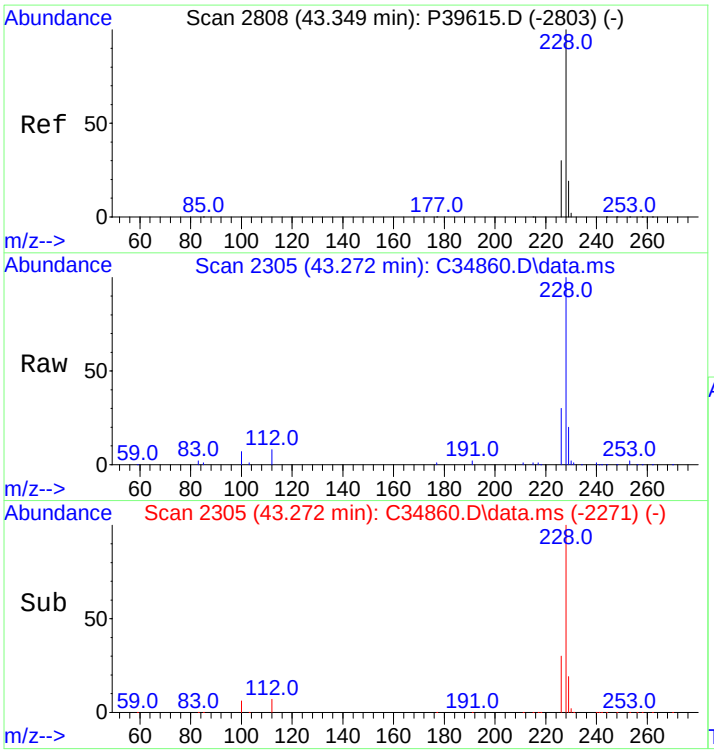


#75
Benz[a]anthracene
Concen: 509.06 ng/mL
RT: 43.106 min Scan# 2294
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 51712

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.4	32.0

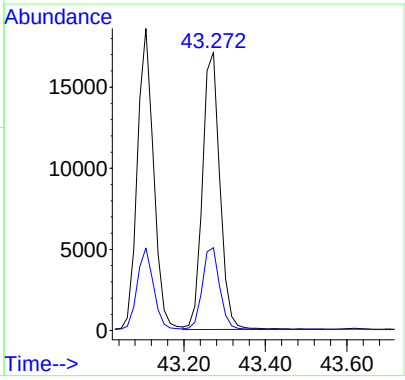


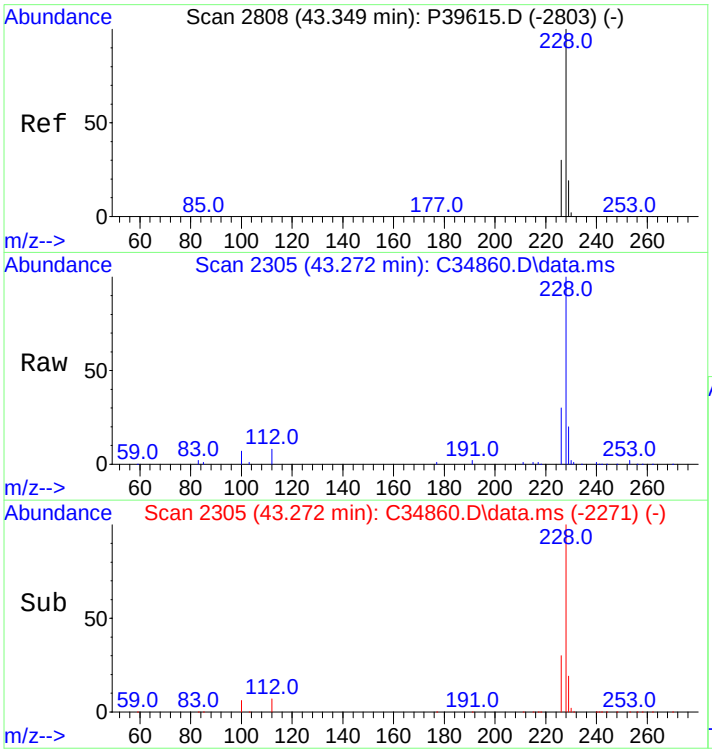


#76
Chrysene
Concen: 491.85 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 50443

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

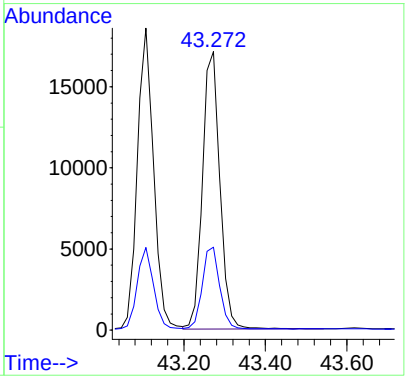


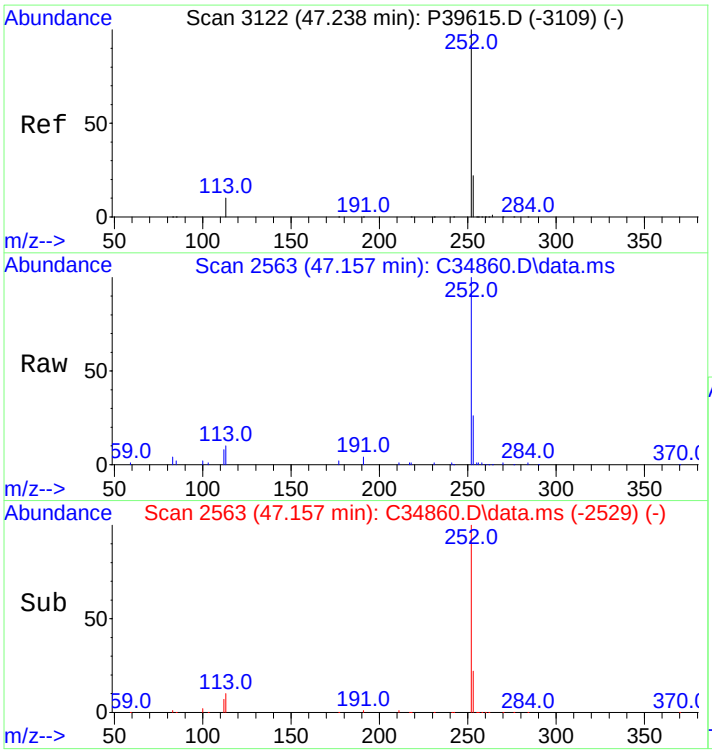


#77
Chrysene/Triphenylene
Concen: 491.85 ng/mL
RT: 43.272 min Scan# 2305
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:228 Resp: 50443

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.7	35.5

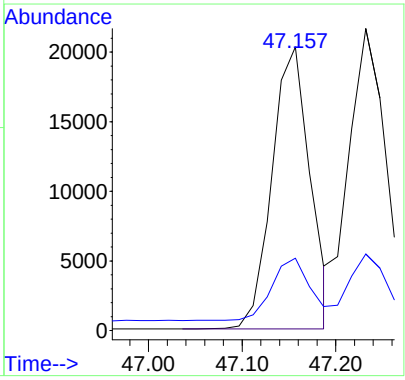


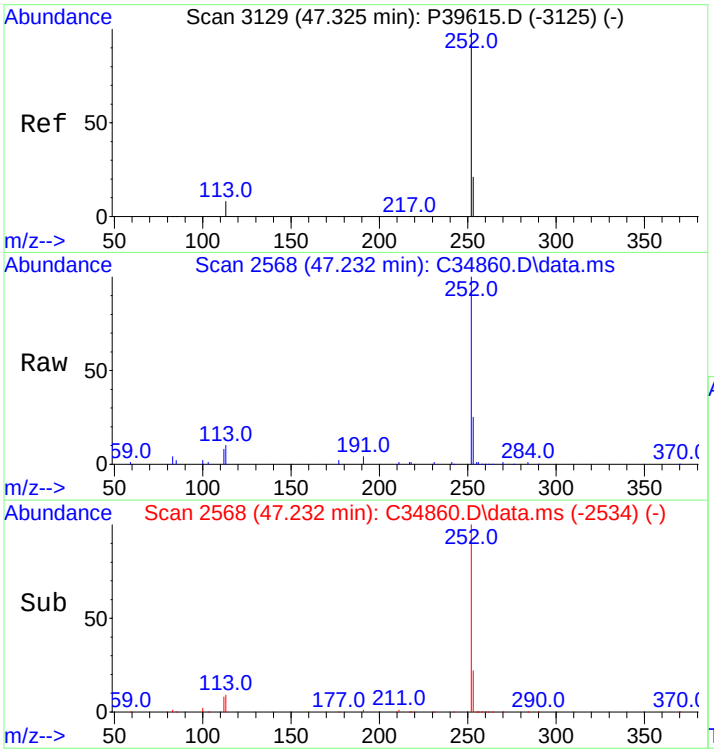


#82
Benzo[b]fluoranthene
Concen: 514.14 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 57388

Ion	Ratio	Lower	Upper
252	100		
253	22.5	19.0	28.4

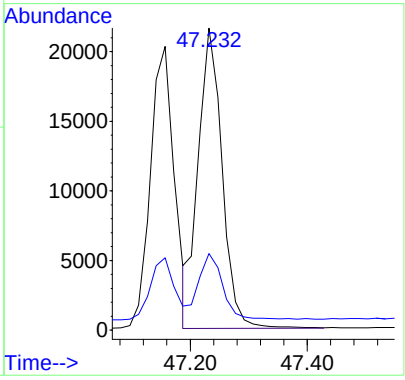


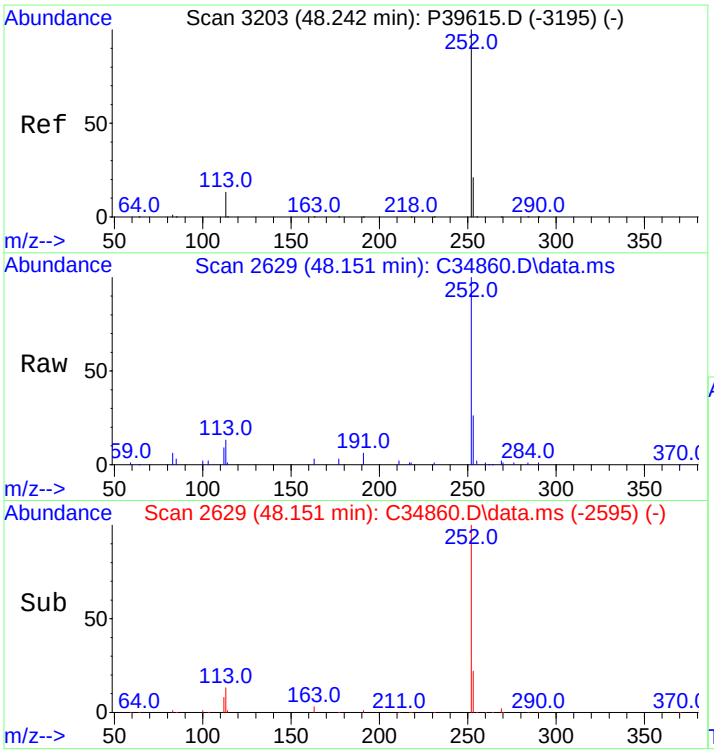


#83
Benzo[j]+[k]fluoranthene
Concen: 505.32 ng/mL
RT: 47.232 min Scan# 2568
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 61409

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.0	28.4

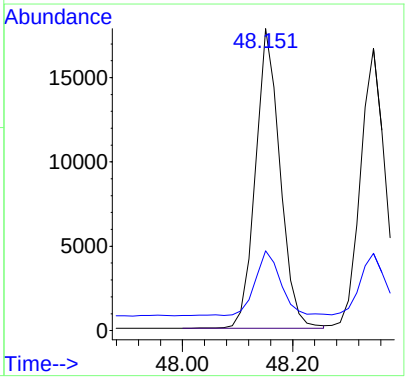


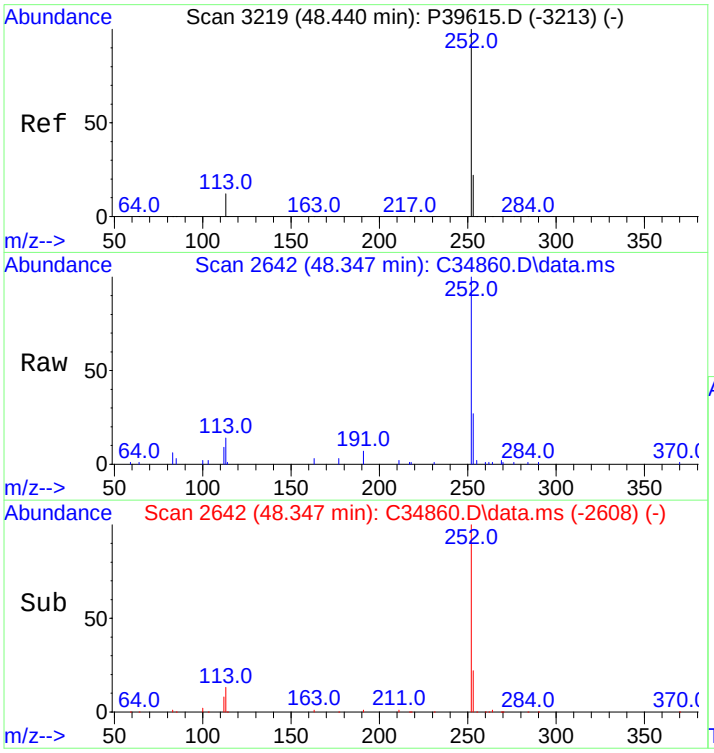


#85
Benzo[e]pyrene
Concen: 495.72 ng/mL
RT: 48.151 min Scan# 2629
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 54730

Ion	Ratio	Lower	Upper
252	100		
253	23.2	19.2	28.8

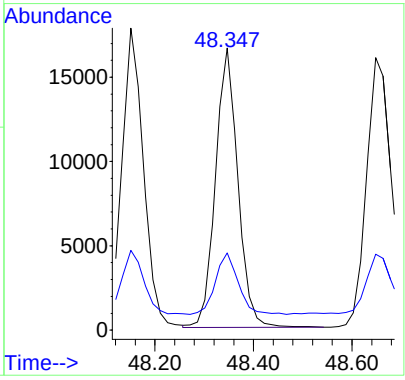


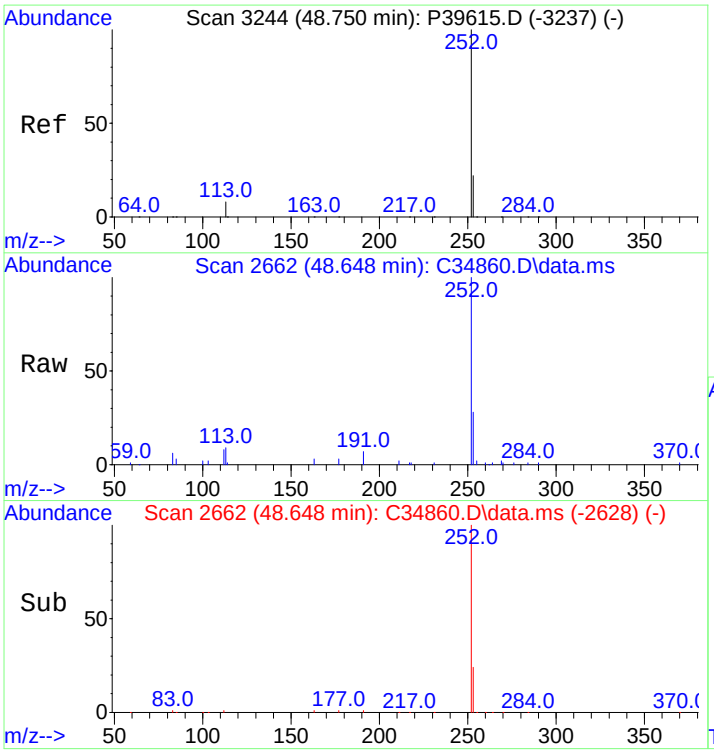


#87
Benzo[a]pyrene
Concen: 492.36 ng/mL
RT: 48.347 min Scan# 2642
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 52337

Ion	Ratio	Lower	Upper
252	100		
253	22.7	19.5	29.3

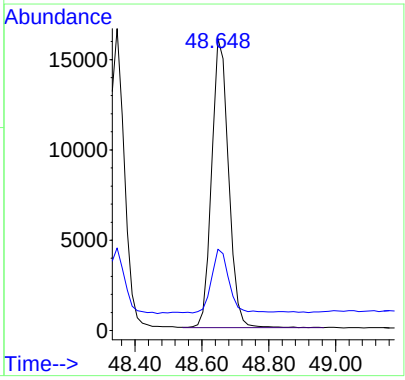


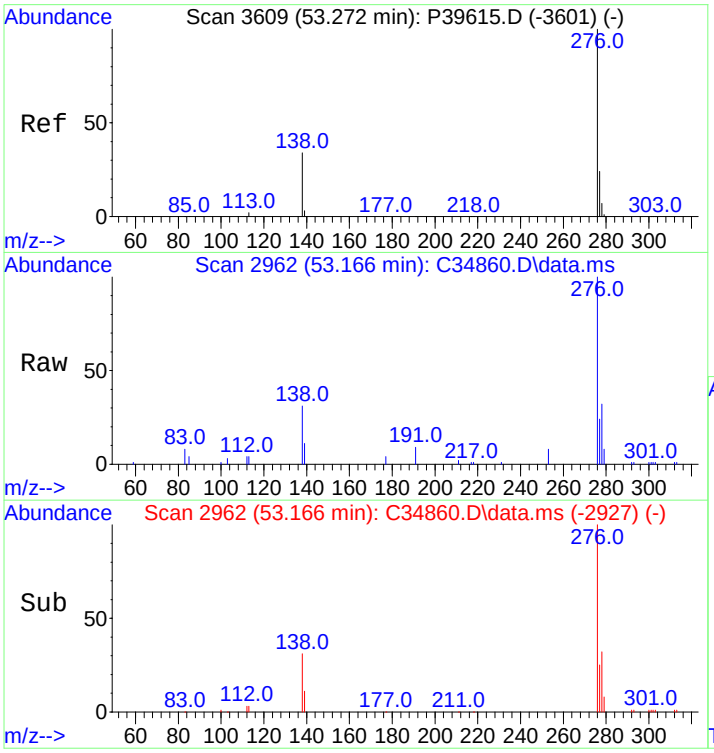


#88
Perylene
Concen: 492.88 ng/mL
RT: 48.648 min Scan# 2662
Delta R.T. 0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:252 Resp: 55992

Ion	Ratio	Lower	Upper
252	100		
253	22.3	19.6	29.4

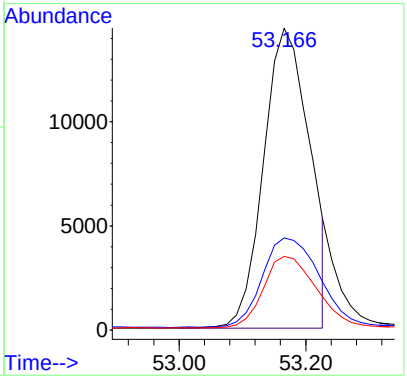


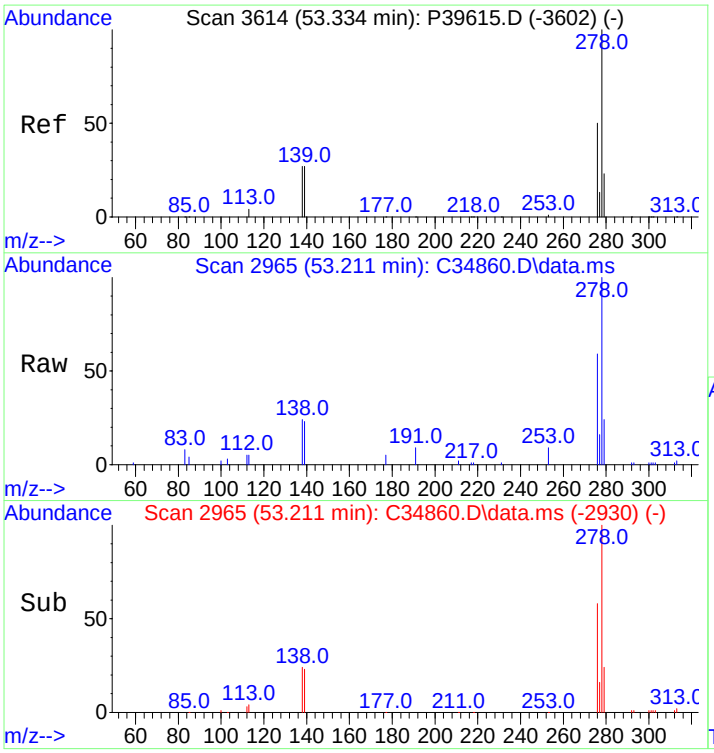


#89
Indeno[1,2,3-cd]pyrene
Concen: 589.85 ng/mL m
RT: 53.166 min Scan# 2962
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:276 Resp: 72966

Ion	Ratio	Lower	Upper
276	100		
138	37.4	23.3	34.9#
277	27.7	19.0	28.4

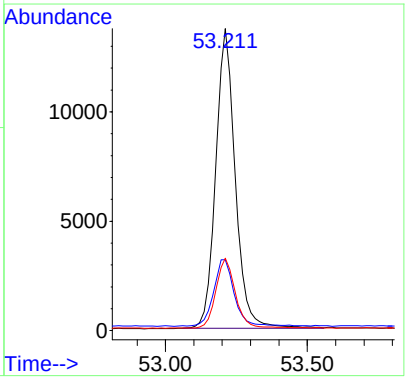


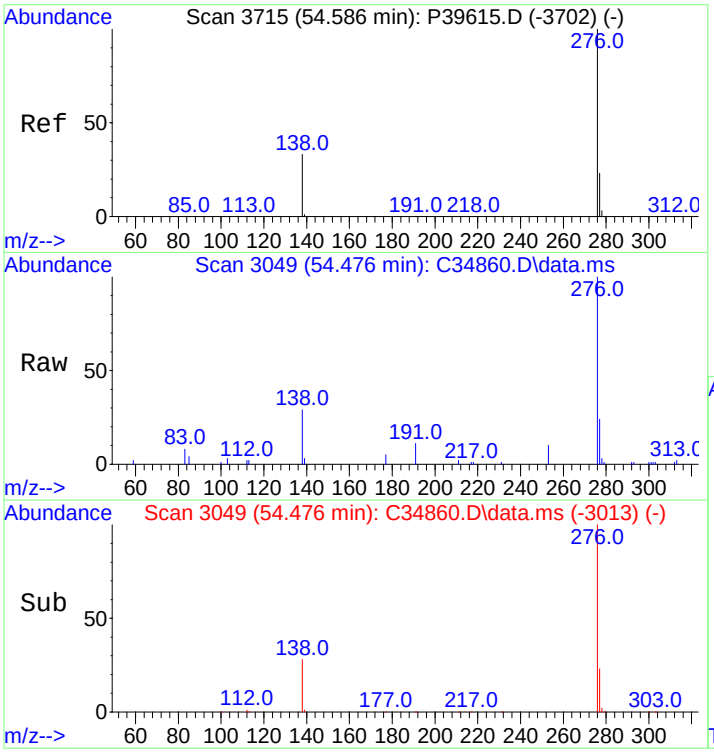


#90
Dibenz[ah]+[ac]anthracene
Concen: 558.35 ng/mL
RT: 53.211 min Scan# 2965
Delta R.T. 0.030 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:278 Resp: 65703

Ion	Ratio	Lower	Upper
278	100		
139	23.2	19.1	28.7
279	22.9	19.2	28.8

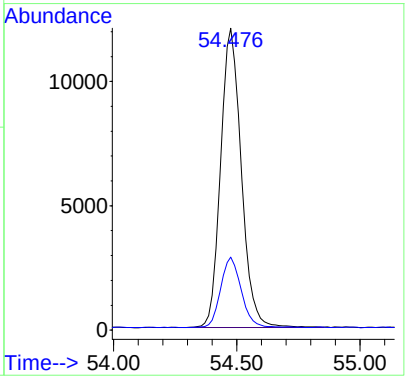


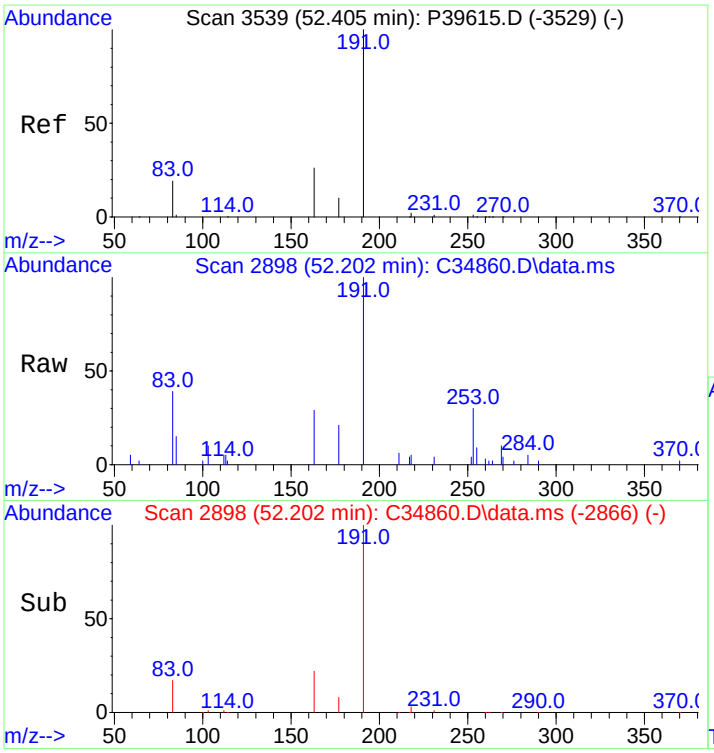


#91
Benzo[g,h,i]perylene
Concen: 537.57 ng/mL
RT: 54.476 min Scan# 3049
Delta R.T. 0.045 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:276 Resp: 70256

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

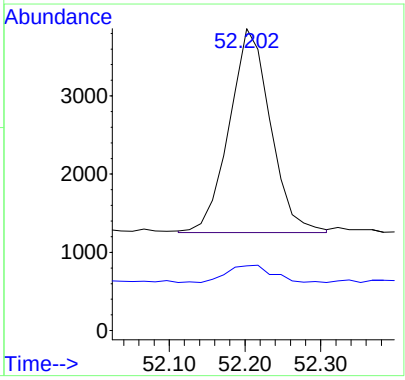


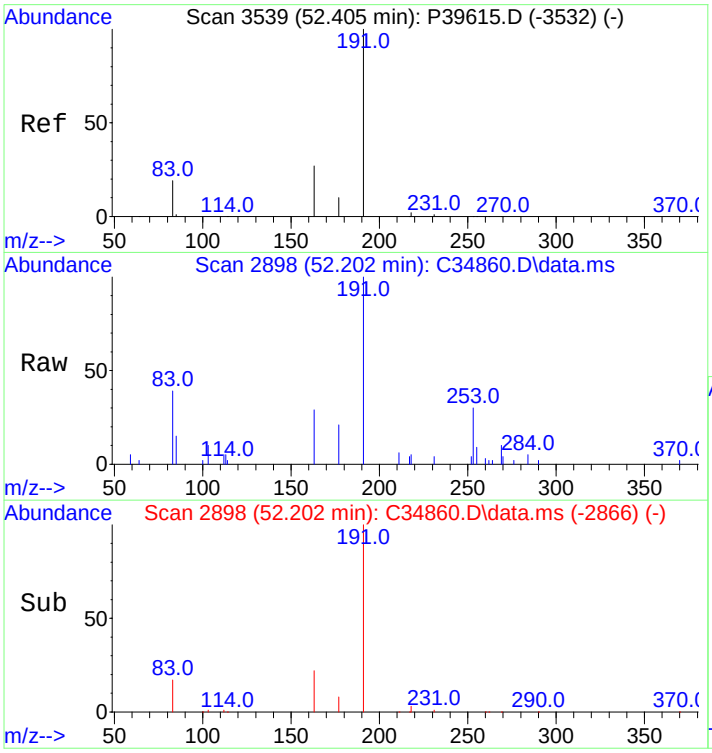


#92
Hopane (T19)
Concen: 465.97 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:191 Resp: 9829

Ion	Ratio	Lower	Upper
191	100		
177	9.3	14.6	21.8#

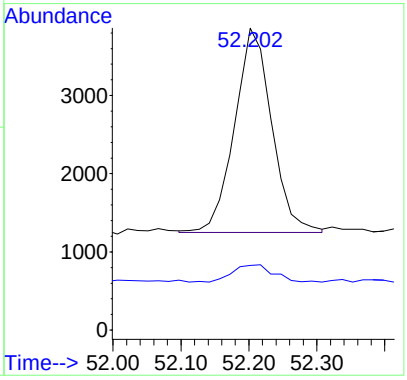




#93
17a(H),21B(H)-hopane - C30H52
Concen: 471.04 ng/mL m
RT: 52.202 min Scan# 2898
Delta R.T. -0.015 min
Lab File: C34860.D
Acq: 5 May 2012 6:54 am

Tgt Ion:191 Resp: 9936

Ion	Ratio	Lower	Upper
191	100		
177	9.2	14.6	21.8#



ANALYTICAL REPORT

Prepared for:
AECOM
250 Apollo Drive
Chelmsford, MA 01824

Project:	Enbridge Line 6B MP 608
ETR:	1205027
Report Date:	May 30, 2012

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

Sample ID Cross Reference

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**

Lab Sample ID	Client Sample ID
1205027-01	SWKR3975C001S052212HX
1205027-02	SWKR3975C002S052212HX
1205027-03	SWKR3990L001S052212HX
1205027-04	SWKR4010L001S052212HX
1205027-05	SEKR3975C001S052212D005
1205027-06	SEKR3975C002S052212D005
1205027-07	SEKR4010L001S052212D003
1205027-08	SEKR3990L001S052212D005

Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

CASE NARRATIVE
Alpha Analytical

ETR: 1205027
Project: Enbridge Line 6B MP 608

All analyses were performed according to the Alpha Analytical quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Analytical certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Sample Receipt

Samples (1205027-01 through -08) were received in good condition, between 2° and 6°C, and without discrepancies. Samples were released for analysis on 5-23-2012. Per the customer's request, all samples were analyzed for PAH/BIO and SHC.

Sample Preparation and Extraction

Samples were extracted on 5-23-2012 (prep batch 1205027). The extraction and preparation procedure was performed according to the Alpha Analytical SOP (stated below) but with the following deviations:

1. The pre-RIS archive of sample 1205027-04 was copper cleaned and submitted for PAH analysis due to sulfur interference in the original extract. Only the re-cleaned analysis is reported for PAH.

2. The extraction for samples 1205027-05 through -08 was performed on a smaller sample size than the method specified representative sample due to the limited sample volumes provided.

The observations noted on the *Forensic Preparation Checklist* should neither have any adverse affect on the analysis nor should they impact data quality for samples in this ETR.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - Sheen

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP O-008, Issue No. 7, 07/07/2011).* Sheen samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to an appropriate volume based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011).* Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific reporting limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. The method blank SO052312B08 contained Unknown Sterane (S18) detected above the sample specific reporting limit (RL) which is "B" qualified on the Quantitation Report. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The continuing calibration verification (CCV), C305241208, had the percent deviation for Retene above the 25%D acceptance criteria at 27.7%D. This value was below 35%D and represents less than 10% of all compounds, therefore the calibration is deemed acceptable and no corrective action was taken.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

4. Samples are reported, using an initial amount of one, as ng (per sample).

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - Sheen

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP 2246, Rev. 4, 04/11/2012)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific reporting limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (Cl8) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The method blank SO052312B08 contained low-level target compounds detected at less than the sample specific reporting limit (RL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The continuing calibration verification (CCV), C605241204R, had the percent deviations for ortho-terphenyl (15.2%) and d50-Tetracosane (15.3%) above the 15%D acceptance criteria. Since, these values are below 20%D and represent less than 10% of all compounds the calibration is deemed acceptable and no corrective action was taken.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

4. Samples are reported, using an initial amount of one, as µg (per sample).

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - Sediments

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP O-008, Issue No. 7, 07/07/2011)*. Sediment samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011)*. Solvent extracts are dried over sodium sulfate and concentrated to a 4mL volume. An aliquot of the extract based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011)* is processed through an alumina column (*Alumina Column Cleanup of Organic Extracts, SOP OP-009, Issue No. 3, 07/14/2011)*, concentrated to a 900uL volume and spiked with internal standard for instrument analysis. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same

conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The results for standard reference material 1941b have been surrogate corrected as follows: Naphthalene for the recovery of Naphthalene-d8; Fluorene through Chysene/Triphenylene for the recovery of Phenanthrene-d10; Benzo[b]fluoranthene through Benzo[g,h,i]perylene for the recovery of Benzo[a]pyrene-d12.

1. The method blank SS052312B03 contained low-level target compounds. The single component compounds were detected at less than 5x the sample specific method detection limit (MDL), the multi-component compounds were below the detection limit. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

3. The relative percent difference (RPD) between sample 1205027-06 and its duplicate 1205027-06D exceeded the limit (30%) for 13a,17b-20S-Ethyldiacholestane (34%) with reported concentrations that are greater than the QL in either the native or duplicate extract. The RPDs for the LCS/LCSD and MS/MSD met the criteria for all monitored analytes showing that precision of the method was established. No corrective action was taken.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - Sediments

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (C18)- Phenanthrene-d10 and n-Pentacosane (C25)- Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The method blank SS052312B03 contained low-level target compounds. The single component compounds were detected at less than 5x the sample specific method detection limit (MDL), the multi-component compounds were detected at less than 10x the MDL of the associated single component compound. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The matrix spike and matrix spike duplicate for sample (1205027-05) recovered low and outside the acceptance criteria (50-125%) for n-Nonane (41% each), n-Decane (41% each) and n-Dodecane (49% each). The integrations and calculations were reviewed and found to be accurate. The LCS/LCSD recoveries passed acceptance criteria demonstrating accuracy of the method. No further corrective action taken.

3. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Analytical makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Analytical. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: Normand Laurianno Jr. Title: **Technical Representative** Date: 05/30/2012

Normand Laurianno Jr.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids By GC/MS-SIM

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO052312B08	82	88	83	90
LCS	SO052312LCS03	60	91	84	72
LCSD	SO052312LCSD03	67	91	85	79
SWKR3975C001S052212HX	1205027-01	70	90	85	97
SWKR3975C002S052212HX	1205027-02	67	88	88	98
SWKR3990L001S052212HX	1205027-03	57	77	80	95
SWKR4010L001S052212HX	1205027-04	63	85	81	90

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SS052312B03	67	73	67	82
SRM 1941b	SS052312C41BN01	47	60	51	60
LCS	SS052312LCS01	76	81	74	81
LCSD	SS052312LCSD01	74	78	70	77
SEKR3975C001S052212D005	1205027-05	50	74	70	78
SEKR3975C001S052212D005	1205027-05 M	54	76	72	82
SEKR3975C001S052212D005	1205027-05 S	53	74	72	81
SEKR3975C002S052212D005	1205027-06	55	75	73	77
SEKR3975C002S052212D005	1205027-06 D	53	73	71	72
SEKR4010L001S052212D003	1205027-07	64	72	74	81
SEKR3990L001S052212D005	1205027-08	54	76	75	83

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/23/12	100	AC

Lab ID: SO052312B08 SO052312LCS03 SO052312LCSD03

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	10.0	U	851	85	857	86	1	30	50-125
Acenaphthylene	10.0	U	843	84	859	86	2	30	50-125
Acenaphthene	10.0	U	875	87	889	89	2	30	50-125
Fluorene	10.0	U	906	91	915	92	1	30	50-125
Anthracene	10.0	U	897	90	911	91	2	30	50-125
Phenanthrene	10.0	U	935	93	944	94	1	30	50-125
Fluoranthene	10.0	U	1040	105	1060	106	2	30	50-125
Pyrene	10.0	U	1100	110	1100	110	0	30	50-125
Benz[a]anthracene	10.0	U	930	93	949	95	2	30	50-125
Chrysene/Triphenylene	10.0	U	908	91	922	92	2	30	50-125
Benzo[b]fluoranthene	10.0	U	956	96	987	99	3	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	10.0	U	935	94	969	97	4	30	50-125
Benzo[a]pyrene	10.0	U	960	96	990	99	3	30	50-125
Indeno[1,2,3-cd]pyrene	10.0	U	965	96	976	98	1	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	10.0	U	957	96	962	96	1	30	50-125
Benzo[g,h,i]perylene	10.0	U	906	91	922	92	2	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	60	67	40-120
Phenanthrene-d10	91	91	40-120
Benzo[a]pyrene-d12	84	85	40-120
5B(H)Cholane	72	79	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:08

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/23/12	100	AC

Lab ID: SS052312B03 SS052312LCS01 SS052312LCSD01

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	0.347		78.2	78	78.3	78	0	30	50-125
Acenaphthylene	0.0682	U	73.7	74	73.8	74	0	30	50-125
Acenaphthene	0.0806	U	77.6	78	78.1	78	1	30	50-125
Fluorene	0.0956	U	80.9	81	81.5	81	1	30	50-125
Anthracene	0.140	U	78.6	79	78.0	78	1	30	50-125
Phenanthrene	0.172		83.3	83	83.3	83	0	30	50-125
Fluoranthene	0.147	U	92.9	93	91.3	91	2	30	50-125
Pyrene	0.149	U	96.5	97	94.4	94	2	30	50-125
Benz[a]anthracene	0.195	U	81.2	81	79.6	80	2	30	50-125
Chrysene/Triphenylene	0.156	U	81.3	81	79.9	80	2	30	50-125
Benzo[b]fluoranthene	0.252	U	85.0	85	81.2	81	5	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	0.178	U	85.2	85	83.0	83	3	30	50-125
Benzo[a]pyrene	0.206	U	84.0	84	81.1	81	3	30	50-125
Indeno[1,2,3-cd]pyrene	0.426	U	84.7	85	80.3	80	5	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	0.412	U	82.6	83	78.4	78	5	30	50-125
Benzo[g,h,i]perylene	0.260	U	78.4	78	75.4	75	4	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	76	74	40-120
Phenanthrene-d10	81	78	40-120
Benzo[a]pyrene-d12	74	70	40-120
5B(H)Cholane	81	77	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:08

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	22.6	AC

Lab ID:		1205027-05	1205027-05		1205027-05				
		Sample	Matrix Spike		Matrix Spike Dup.			RPD	% Recovery
Parameter		**Conc.**	**Conc.**	**% Recovery**	**Conc.**	**% Recovery**	**% RPD**	**Limit**	**Limits**
Naphthalene		24.7	272	56	268	55	1	30	50-125
Acenaphthylene		22.7	309	65	302	63	2	30	50-125
Acenaphthene		15.2	318	68	312	67	2	30	50-125
Fluorene		28.3	353	73	345	71	2	30	50-125
Anthracene		48.2	383	75	373	73	3	30	50-125
Phenanthrene		181	536	80	522	77	3	30	50-125
Fluoranthene		1110	1470	81	1440	75	2	30	50-125
Pyrene		956	1340	87	1330	84	1	30	50-125
Benz[a]anthracene		269	613	78	617	78	1	30	50-125
Chrysene/Triphenylene		464	799	75	794	74	1	30	50-125
Benzo[b]fluoranthene		569	957	87	1070	112	11	30	50-125
Benzo[j]fluoranthene/ Benzo[k]fluoranthene		532	779	56	774	54	1	30	50-125
Benzo[a]pyrene		442	819	85	817	84	0	30	50-125
Indeno[1,2,3-cd]pyrene		415	789	84	786	83	0	30	50-125
Dibenz[ah]anthracene/ Dibenz[ac]anthracene		107	442	76	447	77	1	30	50-125
Benzo[g,h,i]perylene		407	760	79	752	78	1	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	54	53	40-120
Phenanthrene-d10	76	74	40-120
Benzo[a]pyrene-d12	72	72	40-120
5B(H)Cholane	82	81	50-130

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:08

Standard Reference Material 1941b
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SRM 1941b**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312C41BN01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	97.6	5.00	2	1	AC

Parameter	True Conc.	Conc.	Low Limit	High Limit
Naphthalene	848	807	527	1226
Fluorene	85.0	46.0	42.0	140
Anthracene	184	154	116	263
Phenanthrene	406	406	253	585
Fluoranthene	651	740	421	911
Pyrene	581	594	379	806
Benz[a]anthracene	335	267	217	468
Chrysene/Triphenylene	399	370	254	566
Benzo[b]fluoranthene	453	519	302	616
Benzo[e]pyrene	325	367	210	455
Benzo[a]pyrene	358	294	239	488
Perylene	397	324	246	575
Indeno[1,2,3-cd]pyrene	341	302	199	517
Dibenz[ah]anthracene/Dibenz[ac]anthracene	89.7	82.6	52.2	136
Benzo[g,h,i]perylene	307	261	183	458

Reference material has been surrogate corrected.

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	47	40-120
Phenanthrene-d10	60	40-120
Benzo[a]pyrene-d12	51	40-120
5B(H)Cholane	60	50-130

N/A - Not Applicable

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	446	88	65-135
C1-Decalins	761.1	647	85	65-135
C2-Decalins	641.9	551	86	65-135
C3-Decalins	338.2	267	79	65-135
C4-Decalins	300.9	272	91	65-135
Benzothiophene	5.3	3.88	73	65-135
C1-Benzo(b)thiophenes	29.8	21.2	71	65-135
C2-Benzo(b)thiophenes	50.1	41.8	83	65-135
C3-Benzo(b)thiophenes	103.3	84.8	82	65-135
C4-Benzo(b)thiophenes	84.9	76.2	90	65-135
Naphthalene	577.6	470	81	65-135
C1-Naphthalenes	1242	981	79	65-135
C2-Naphthalenes	1472	1200	81	65-135
C3-Naphthalenes	1053.4	872	83	65-135
C4-Naphthalenes	552.7	463	84	65-135
Biphenyl	152.5	126	82	65-135
Dibenzofuran	53.5	47.6	89	65-135
Acenaphthylene	7.1	5.28	74	65-135
Acenaphthene	18.7	16.5	88	65-135
Fluorene	79.4	70.4	89	65-135
C1-Fluorenes	175.1	160	91	65-135
C2-Fluorenes	256.5	228	89	65-135
C3-Fluorenes	238.7	222	93	65-135
Phenanthrene	222	208	94	65-135
C1-Phenanthrenes/Anthracenes	440.5	407	92	65-135
C2-Phenanthrenes/Anthracenes	464.9	434	93	65-135
C3-Phenanthrenes/Anthracenes	307.7	294	95	65-135
C4-Phenanthrenes/Anthracenes	122.9	121	98	65-135
Dibenzothiophene	146.1	129	88	65-135
C1-Dibenzothiophenes	299	256	86	65-135
C2-Dibenzothiophenes	392.9	352	90	65-135
C3-Dibenzothiophenes	350.5	316	90	65-135
C4-Dibenzothiophenes	189.2	168	89	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.63	113	65-135
Pyrene	13.3	15.0	113	65-135
C1-Fluoranthenes/Pyrenes	66.1	67.7	102	65-135
C2-Fluoranthenes/Pyrenes	100.9	110	109	65-135
C3-Fluoranthenes/Pyrenes	120.8	128	106	65-135
C4-Fluoranthenes/Pyrenes	105.6	108	102	65-135
Naphthobenzothiophenes	45.1	47.0	104	65-135
C1-Naphthobenzothiophenes	124.1	123	99	65-135
C2-Naphthobenzothiophenes	168.9	172	102	65-135
C3-Naphthobenzothiophenes	136.1	135	99	65-135
C4-Naphthobenzothiophenes	93.9	88.8	95	65-135
Benz[a]anthracene	2.00	2.34	117	65-135
Chrysene/Triphenylene	37.4	34.9	93	65-135
C1-Chrysenes	63.9	59.9	94	65-135
C2-Chrysenes	86.6	77.8	90	65-135
C3-Chrysenes	99.6	92.6	93	65-135
C4-Chrysenes	62.2	65.3	105	65-135
Benzo[b]fluoranthene	5.3	5.33	101	65-135
Benzo[e]pyrene	9.6	9.20	96	65-135
Benzo[a]pyrene	2.00	1.57	79	65-135
Perylene	2.7	2.62	97	65-135
Benzo[g,h,i]perylene	3.1	3.02	97	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:56

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	8.31	128	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	126	88	65-135
2/3-Methyldibenzothiophene	103.1	86.6	84	65-135
1-Methyldibenzothiophene	46.8	40.8	87	65-135
3-Methylphenanthrene	91.8	85.3	93	65-135
2-Methylphenanthrene	99.6	93.3	94	65-135
2-Methylanthracene	3.1	2.98	96	65-135
9/4-Methylphenanthrene	145.9	130	89	65-135
1-Methylphenanthrene	97.6	94.1	96	65-135
2-Methylnaphthalene	1162.6	977	84	65-135
1-Methylnaphthalene	831.9	696	84	65-135
2,6-Dimethylnaphthalene	696.1	607	87	65-135
2,3,5-Trimethylnaphthalene	162.2	172	106	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	62.6	93	65-135
C24 Tricyclic Terpane	42.3	41.6	98	65-135
C25 Tricyclic Terpane	40.9	43.3	106	65-135
C24 Tetracyclic Terpane	14.3	15.5	109	65-135
C26 Tricyclic Terpane-22S	17.0	18.8	111	65-135
C26 Tricyclic Terpane-22R	15.0	18.1	121	65-135
C28 Tricyclic Terpane-22S	16.3	16.4	101	65-135
C28 Tricyclic Terpane-22R	17.7	18.8	106	65-135
C29 Tricyclic Terpane-22S	20.7	21.2	103	65-135
C29 Tricyclic Terpane-22R	21.1	19.8	94	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	30.8	101	65-135
C30 Tricyclic Terpane-22S	15.8	19.3	122	65-135
C30 Tricyclic Terpane-22R	15.8	18.6	118	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	37.1	101	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	9.56	133	65-135
17a(H),21b(H)-25-Norhopane	8.6	8.90	103	65-135
30-Norhopane	97.5	92.3	95	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.7	93	65-135
17a(H)-Diahopane	14.3	14.2	100	65-135
30-Normoretane	11.5	12.4	108	65-135
Hopane	171.1	162	94	65-135
Moretane	16.6	18.4	111	65-135
30-Homohopane-22S	73.8	71.4	97	65-135
30-Homohopane-22R	63.4	60.9	96	65-135
30,31-Bishomohopane-22S	52.5	51.4	98	65-135
30,31-Bishomohopane-22R	38.4	36.4	95	65-135
30,31-Trishomohopane-22S	41.1	40.7	99	65-135
30,31-Trishomohopane-22R	27.4	27.1	99	65-135
Tetrakishomohopane-22S	30.0	25.5	85	65-135
Tetrakishomohopane-22R	20.7	20.5	99	65-135
Pentakishomohopane-22S	30.2	24.6	82	65-135
Pentakishomohopane-22R	23.2	21.6	93	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	60.3	122	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	28.0	111	65-135
13b,17a-20S-Methyldiacholestane	23.3	23.0	99	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	64.6	101	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	79.6	105	65-135
Unknown Sterane (S18)	20.7	21.1	102	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.38	80	65-135
14a,17a-20S-Methylcholestane	36.7	43.3	118	65-135
14a,17a-20R-Methylcholestane	33.0	35.3	107	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	50.5	97	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	45.8	115	65-135
14b(H),17b(H)-20R-Cholestane	40.1	38.9	97	65-135
14b(H),17b(H)-20S-Cholestane	40.7	39.5	97	65-135
14b,17b-20R-Methylcholestane	44.8	47.8	107	65-135
14b,17b-20S-Methylcholestane	54.0	51.7	96	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	58.9	100	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	35.9	88	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	388	128	65-135
C28,20S-triaromatic steroid	191.8	237	123	65-135
C27,20R-triaromatic steroid	186.4	241	129	65-135
C28,20R-triaromatic steroid	158.3	207	131	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:56

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	489	96	65-135
C1-Decalins	761.1	694	91	65-135
C2-Decalins	641.9	578	90	65-135
C3-Decalins	338.2	286	84	65-135
C4-Decalins	300.9	278	92	65-135
Benzothiophene	5.3	4.52	85	65-135
C1-Benzo(b)thiophenes	29.8	22.7	76	65-135
C2-Benzo(b)thiophenes	50.1	45.2	90	65-135
C3-Benzo(b)thiophenes	103.3	89.2	86	65-135
C4-Benzo(b)thiophenes	84.9	75.8	89	65-135
Naphthalene	577.6	550	95	65-135
C1-Naphthalenes	1242	1120	90	65-135
C2-Naphthalenes	1472	1330	90	65-135
C3-Naphthalenes	1053.4	914	87	65-135
C4-Naphthalenes	552.7	466	84	65-135
Biphenyl	152.5	145	95	65-135
Dibenzofuran	53.5	50.1	94	65-135
Acenaphthylene	7.1	6.44	91	65-135
Acenaphthene	18.7	18.6	99	65-135
Fluorene	79.4	71.6	90	65-135
C1-Fluorenes	175.1	160	92	65-135
C2-Fluorenes	256.5	228	89	65-135
C3-Fluorenes	238.7	202	85	65-135
Phenanthrene	222	213	96	65-135
C1-Phenanthrenes/Anthracenes	440.5	401	91	65-135
C2-Phenanthrenes/Anthracenes	464.9	411	88	65-135
C3-Phenanthrenes/Anthracenes	307.7	285	93	65-135
C4-Phenanthrenes/Anthracenes	122.9	113	92	65-135
Dibenzothiophene	146.1	135	93	65-135
C1-Dibenzothiophenes	299	251	84	65-135
C2-Dibenzothiophenes	392.9	338	86	65-135
C3-Dibenzothiophenes	350.5	298	85	65-135
C4-Dibenzothiophenes	189.2	156	82	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	4.01	98	65-135
Pyrene	13.3	13.4	101	65-135
C1-Fluoranthenes/Pyrenes	66.1	63.4	96	65-135
C2-Fluoranthenes/Pyrenes	100.9	99.2	98	65-135
C3-Fluoranthenes/Pyrenes	120.8	111	92	65-135
C4-Fluoranthenes/Pyrenes	105.6	104	99	65-135
Naphthobenzothiophenes	45.1	43.6	97	65-135
C1-Naphthobenzothiophenes	124.1	113	91	65-135
C2-Naphthobenzothiophenes	168.9	155	92	65-135
C3-Naphthobenzothiophenes	136.1	118	87	65-135
C4-Naphthobenzothiophenes	93.9	77.2	82	65-135
Benz[a]anthracene	2.00	1.77	88	65-135
Chrysene/Triphenylene	37.4	33.1	88	65-135
C1-Chrysenes	63.9	61.2	96	65-135
C2-Chrysenes	86.6	80.0	92	65-135
C3-Chrysenes	99.6	85.6	86	65-135
C4-Chrysenes	62.2	53.4	86	65-135
Benzo[b]fluoranthene	5.3	5.25	99	65-135
Benzo[e]pyrene	9.6	9.61	100	65-135
Benzo[a]pyrene	2.00	1.96	98	65-135
Perylene	2.7	2.68	99	65-135
Benzo[g,h,i]perylene	3.1	3.08	99	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	5.21	80	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/29/12 17:15

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	121	84	65-135
2/3-Methyldibenzothiophene	103.1	84.4	82	65-135
1-Methyldibenzothiophene	46.8	40.5	87	65-135
3-Methylphenanthrene	91.8	82.1	89	65-135
2-Methylphenanthrene	99.6	92.4	93	65-135
2-Methylanthracene	3.1	2.96	95	65-135
9/4-Methylphenanthrene	145.9	129	88	65-135
1-Methylphenanthrene	97.6	92.7	95	65-135
2-Methylnaphthalene	1162.6	1110	96	65-135
1-Methylnaphthalene	831.9	798	96	65-135
2,6-Dimethylnaphthalene	696.1	673	97	65-135
2,3,5-Trimethylnaphthalene	162.2	189	117	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	65.1	97	65-135
C24 Tricyclic Terpane	42.3	41.4	98	65-135
C25 Tricyclic Terpane	40.9	41.4	101	65-135
C24 Tetracyclic Terpane	14.3	14.5	102	65-135
C26 Tricyclic Terpane-22S	17.0	17.5	103	65-135
C26 Tricyclic Terpane-22R	15.0	15.0	100	65-135
C28 Tricyclic Terpane-22S	16.3	14.4	88	65-135
C28 Tricyclic Terpane-22R	17.7	18.5	104	65-135
C29 Tricyclic Terpane-22S	20.7	20.4	99	65-135
C29 Tricyclic Terpane-22R	21.1	20.8	99	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	26.8	87	65-135
C30 Tricyclic Terpane-22S	15.8	16.6	105	65-135
C30 Tricyclic Terpane-22R	15.8	16.9	107	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	36.1	98	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	6.77	94	65-135
17a(H),21b(H)-25-Norhopane	8.6	7.07	82	65-135
30-Norhopane	97.5	96.2	99	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	22.2	91	65-135
17a(H)-Diahopane	14.3	14.2	99	65-135
30-Normoretane	11.5	12.0	105	65-135
Hopane	171.1	166	97	65-135
Moretane	16.6	16.1	97	65-135
30-Homohopane-22S	73.8	66.5	90	65-135
30-Homohopane-22R	63.4	56.9	90	65-135
30,31-Bishomohopane-22S	52.5	47.0	90	65-135
30,31-Bishomohopane-22R	38.4	35.0	91	65-135
30,31-Trishomohopane-22S	41.1	36.7	89	65-135
30,31-Trishomohopane-22R	27.4	24.0	87	65-135
Tetrakishomohopane-22S	30.0	25.7	86	65-135
Tetrakishomohopane-22R	20.7	19.4	94	65-135
Pentakishomohopane-22S	30.2	27.7	92	65-135
Pentakishomohopane-22R	23.2	21.0	90	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	54.4	111	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	25.2	100	65-135
13b,17a-20S-Methyldiacholestane	23.3	20.7	89	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	60.9	95	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	73.3	97	65-135
Unknown Sterane (S18)	20.7	18.8	91	65-135
13a,17b-20S-Ethyldiacholestane	4.2	3.48	83	65-135
14a,17a-20S-Methylcholestane	36.7	36.5	99	65-135
14a,17a-20R-Methylcholestane	33.0	34.2	104	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	53.5	103	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	35.6	90	65-135
14b(H),17b(H)-20R-Cholestane	40.1	38.7	97	65-135
14b(H),17b(H)-20S-Cholestane	40.7	40.3	99	65-135
14b,17b-20R-Methylcholestane	44.8	41.3	92	65-135
14b,17b-20S-Methylcholestane	54.0	52.7	98	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	57.8	98	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	36.7	90	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	392	129	65-135
C28,20S-triaromatic steroid	191.8	240	125	65-135
C27,20R-triaromatic steroid	186.4	223	119	65-135
C28,20R-triaromatic steroid	158.3	190	120	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
cis/trans-Decalin	**5.84** J	**5.74** J	2	30
C1-Decalins	1.22 U	1.23 U	N/A	30
C2-Decalins	1.22 U	1.23 U	N/A	30
C3-Decalins	1.22 U	1.23 U	N/A	30
C4-Decalins	1.22 U	1.23 U	N/A	30
Benzothiophene	**1.11** J	**0.915** J	19	30
C1-Benzo(b)thiophenes	0.990 U	0.994 U	N/A	30
C2-Benzo(b)thiophenes	0.990 U	0.994 U	N/A	30
C3-Benzo(b)thiophenes	0.990 U	0.994 U	N/A	30
C4-Benzo(b)thiophenes	0.990 U	0.994 U	N/A	30
Naphthalene	**27.7**	**26.2**	6	30
C1-Naphthalenes	**28.9**	**28.5**	1	30
C2-Naphthalenes	**46.6**	**46.7**	0	30
C3-Naphthalenes	**34.8**	**32.6**	6	30
C4-Naphthalenes	**26.0**	**26.8**	3	30
Biphenyl	**7.46** J	**6.76** J	10	30
Dibenzofuran	**17.1**	**17.0**	0	30
Acenaphthylene	**23.3**	**21.4**	9	30
Acenaphthene	**11.6**	**13.0**	11	30
Fluorene	**20.9**	**19.6**	6	30
C1-Fluorenes	**15.7**	**13.5**	15	30
C2-Fluorenes	**32.7**	**31.5**	4	30
C3-Fluorenes	**88.1**	**75.6**	15	30
Anthracene	**43.0**	**43.8**	2	30
Phenanthrene	**172**	**172**	0	30
C1-Phenanthrenes/Anthracenes	**105**	**108**	2	30
C2-Phenanthrenes/Anthracenes	**140**	**139**	1	30
C3-Phenanthrenes/Anthracenes	**108**	**100**	8	30
C4-Phenanthrenes/Anthracenes	**86.4**	**77.9**	10	30
Retene	0.697 U	0.700 U	N/A	30
Dibenzothiophene	**13.4**	**13.8**	3	30
C1-Dibenzothiophenes	**14.8**	**15.0**	1	30
C2-Dibenzothiophenes	**36.7**	**35.6**	3	30
C3-Dibenzothiophenes	**64.1**	**58.7**	9	30
C4-Dibenzothiophenes	**59.7**	**61.4**	3	30

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Benzo(b)fluorene	101	96.8	5	30
Fluoranthene	874	843	4	30
Pyrene	753	736	2	30
C1-Fluoranthenes/Pyrenes	364	357	2	30
C2-Fluoranthenes/Pyrenes	245	237	3	30
C3-Fluoranthenes/Pyrenes	140	143	2	30
C4-Fluoranthenes/Pyrenes	147	150	2	30
Naphthobenzothiophenes	129	128	1	30
C1-Naphthobenzothiophenes	99.8	96.8	3	30
C2-Naphthobenzothiophenes	133	122	9	30
C3-Naphthobenzothiophenes	121	122	1	30
C4-Naphthobenzothiophenes	103	112	8	30
Benz[a]anthracene	247	240	3	30
Chrysene/Triphenylene	408	398	3	30
C1-Chrysenes	165	164	1	30
C2-Chrysenes	132	124	6	30
C3-Chrysenes	208	196	6	30
C4-Chrysenes	130	129	1	30
Benzo[b]fluoranthene	528	503	5	30
Benzo[j]fluoranthene/Benzo[k]fluoranthene	455	442	3	30
Benzo[a]fluoranthene	68.7	63.8	7	30
Benzo[e]pyrene	384	366	5	30
Benzo[a]pyrene	437	420	4	30
Perylene	300	290	3	30
Indeno[1,2,3-cd]pyrene	410	393	4	30
Dibenz[ah]anthracene/Dibenz[ac]anthracene	106	103	3	30
Benzo[g,h,i]perylene	388	373	4	30

N/A - Not Applicable

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	55	53	40-120
Phenanthrene-d10	75	73	40-120
Benzo[a]pyrene-d12	73	71	40-120

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/29/12 17:08

Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Carbazole	**19.6**	**19.3**	2	30

N/A - Not Applicable

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	55	53	40-120
Phenanthrene-d10	75	73	40-120
Benzo[a]pyrene-d12	73	71	40-120

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
4-Methyldibenzothiophene	**5.78** J	**5.50** J	5	30
2/3-Methyldibenzothiophene	**3.50** J	**3.41** J	3	30
1-Methyldibenzothiophene	**2.09** J	**2.17** J	4	30
3-Methylphenanthrene	**25.0**	**26.0**	4	30
2-Methylphenanthrene	**25.1**	**24.4**	3	30
2-Methylanthracene	**9.93**	**9.94**	0	30
9/4-Methylphenanthrene	**26.8**	**25.8**	4	30
1-Methylphenanthrene	**17.5**	**17.3**	1	30
2-Methylnaphthalene	**29.6**	**29.5**	0	30
1-Methylnaphthalene	**16.8**	**17.0**	1	30
2,6-Dimethylnaphthalene	**32.7**	**35.8**	9	30
2,3,5-Trimethylnaphthalene	**5.98** J	**5.45** J	9	30

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	55	53	40-120
Phenanthrene-d10	75	73	40-120
Benzo[a]pyrene-d12	73	71	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
C23 Tricyclic Terpane	124	122	1	30
C24 Tricyclic Terpane	84.7	77.6	9	30
C25 Tricyclic Terpane	75.5	77.1	2	30
C24 Tetracyclic Terpane	107	97.1	10	30
C26 Tricyclic Terpane-22S	45.4	51.1	12	30
C26 Tricyclic Terpane-22R	47.9	44.4	7	30
C28 Tricyclic Terpane-22S	56.5	67.9	18	30
C28 Tricyclic Terpane-22R	77.5	80.0	3	30
C29 Tricyclic Terpane-22S	74.9	66.2	12	30
C29 Tricyclic Terpane-22R	61.7	67.3	9	30
18a-22,29,30-Trisnorneohopane-TS	267	267	0	30
C30 Tricyclic Terpane-22S	82.3	65.8	22	30
C30 Tricyclic Terpane-22R	59.9	60.8	2	30
17a(H)-22,29,30-Trisnorhopane-TM	277	269	3	30
17a/b,21b/a 28,30-Bisnorhopane	74.1	73.7	1	30
17a(H),21b(H)-25-Norhopane	99.2	103	4	30
30-Norhopane	881	871	1	30
18a(H)-30-Norneohopane-C29Ts	255	284	11	30
17a(H)-Diahopane	69.1	78.7	13	30
30-Normoretane	140	141	1	30
18a(H)&18b(H)-Oleananes	113	110	3	30
Hopane	1160	1180	1	30
Moretane	271	229	17	30
30-Homohopane-22S	423	408	4	30
30-Homohopane-22R	375	361	4	30
T22a-Gammacerane/C32-diahopane	118	119	0	30
30,31-Bishomohopane-22S	1570 G	1580 G	1	30
30,31-Bishomohopane-22R	219	213	3	30
30,31-Trishomohopane-22S	263	248	6	30
30,31-Trishomohopane-22R	108	103	5	30
Tetrakishomohopane-22S	422 G	369 G	13	30
Tetrakishomohopane-22R	358 G	328 G	9	30
Pentakishomohopane-22S	124	105	17	30
Pentakishomohopane-22R	79.9	88.7	10	30
13b(H),17a(H)-20S-Diacholestane	182	184	1	30

N/A - Not Applicable
G - Matrix Interference

Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
13b(H),17a(H)-20R-Diacholestane	**116**	**115**	1	30
13b,17a-20S-Methyldiacholestane	**116**	**94.3**	21	30
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**354**	**352**	1	30
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**278**	**266**	4	30
Unknown Sterane (S18)	**72.4**	**73.4**	1	30
13a,17b-20S-Ethyldiacholestane	**12.5**	**8.81**	34[a]	30
14a,17a-20S-Methylcholestane	**154**	**150**	2	30
14a,17a-20R-Methylcholestane	**150**	**134**	12	30
14a(H),17a(H)-20S-Ethylcholestane	**188**	**176**	7	30
14a(H),17a(H)-20R-Ethylcholestane	**195**	**175**	11	30
14b(H),17b(H)-20R-Cholestane	**171**	**167**	2	30
14b(H),17b(H)-20S-Cholestane	**165**	**166**	0	30
14b,17b-20R-Methylcholestane	**149**	**156**	5	30
14b,17b-20S-Methylcholestane	**221**	**220**	1	30
14b(H),17b(H)-20R-Ethylcholestane	**360**	**339**	6	30
14b(H),17b(H)-20S-Ethylcholestane	**207**	**204**	2	30
C26,20R- +C27,20S- triaromatic steroid	**310**	**289**	7	30
C28,20S-triaromatic steroid	**343**	**335**	2	30
C27,20R-triaromatic steroid	**220**	**200**	9	30
C28,20R-triaromatic steroid	**245**	**237**	3	30

Surrogate	% Recovery		Acceptance Range (%)
5B(H)Cholane	77	72	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/29/12 17:09

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Date Analyzed: **05/24/12 23:22**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO052312LCS03	05/25/12 00:55
LCSD	SO052312LCSD03	05/25/12 02:27
SWKR3975C001S052212HX	1205027-01	05/25/12 05:31
SWKR3975C002S052212HX	1205027-02	05/25/12 07:03
SWKR3990L001S052212HX	1205027-03	05/25/12 08:36
SWKR4010L001S052212HX	1205027-04	05/28/12 05:13

N/A - Not Applicable

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Date Analyzed: **05/25/12 16:21**

Client ID	Lab ID	Date/Time Analyzed
SRM 1941b	SS052312C41BN01	05/25/12 17:54
LCS	SS052312LCS01	05/25/12 19:24
LCSD	SS052312LCSD01	05/25/12 20:57
SEKR3975C001S052212D005	1205027-05	05/25/12 22:30
SEKR3975C001S052212D005	1205027-05 M	05/26/12 00:05
SEKR3975C001S052212D005	1205027-05 S	05/26/12 01:42
SEKR3975C002S052212D005	1205027-06	05/26/12 03:19
SEKR3975C002S052212D005	1205027-06 D	05/26/12 04:55
SEKR4010L001S052212D003	1205027-07	05/26/12 06:32
SEKR3990L001S052212D005	1205027-08	05/26/12 08:09

N/A - Not Applicable

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **C305241201**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		24364	42.79	14097	26.37
Upper Limit:		48728	43.29	28194	26.86
Lower Limit:		12182	42.29	7048	25.86
Client ID	**Lab ID**				
Blank	SO052312B08	25641	42.81	12883	26.37
LCS	SO052312LCS03	25430	42.79	12508	26.37
LCSD	SO052312LCSD03	26814	42.79	13463	26.37
CCV	C305241202	22584	42.79	13090	26.37

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **C305241202**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	**RT**	**Area**	**RT**
Standard:		22584	42.79	13090	26.37
Upper Limit:		45168	43.29	26180	26.86
Lower Limit:		11292	42.29	6545	25.86
Client ID	**Lab ID**				
SWKR3975C001S052212HX	1205027-01	27050	42.79	12701	26.37
SWKR3975C002S052212HX	1205027-02	27252	42.79	13339	26.37
SWKR3990L001S052212HX	1205027-03	29413	42.79	14576	26.37
CCV	C305241203	23234	42.79	13224	26.37

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **C305241203**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		23234	42.79	13224	26.37
Upper Limit:		46468	43.29	26448	26.86
Lower Limit:		11617	42.29	6612	25.86
Client ID	**Lab ID**				
Blank	SS052312B03	22130	42.79	11852	26.37
SRM 1941b	SS052312C41BN01	27899	42.79	12980	26.37
LCS	SS052312LCS01	25992	42.79	13168	26.37
LCSD	SS052312LCSD01	25261	42.79	12787	26.37
SEKR3975C001S052212D005	1205027-05	35280	42.81	14922	26.37
SEKR3975C001S052212D005	1205027-05 M	33020	42.81	14827	26.37
SEKR3975C001S052212D005	1205027-05 S	35935	42.81	16365	26.37
SEKR3975C002S052212D005	1205027-06	35262	42.81	15719	26.37
SEKR3975C002S052212D005	1205027-06 D	37955	42.81	16811	26.37
SEKR4010L001S052212D003	1205027-07	33075	42.81	16580	26.37
SEKR3990L001S052212D005	1205027-08	37326	42.81	16795	26.37
CCV	C305241204	27494	42.81	15226	26.37

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **C305241208**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		34859	42.81	18294	26.37
Upper Limit:		69718	43.31	36588	26.86
Lower Limit:		17430	42.31	9147	25.86
Client ID	**Lab ID**				
SWKR4010L001S052212HX	1205027-04	24311	42.81	11662	26.37
CCV	C305241209	33009	42.81	17987	26.37

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-01**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	**13.6**	
C1-Decalins	10.0	U	C4-Dibenzothiophenes	10.0	U
C2-Decalins	10.0	U	Benzo(b)fluorene	**2.15**	J
C3-Decalins	10.0	U	Fluoranthene	**30.3**	
C4-Decalins	10.0	U	Pyrene	**18.8**	
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	**13.2**	
C1-Benzo(b)thiophenes	**4.60**	J	C2-Fluoranthenes/Pyrenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U	C3-Fluoranthenes/Pyrenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U	C4-Fluoranthenes/Pyrenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U	Naphthobenzothiophenes	**6.05**	J
Naphthalene	**24.5**		C1-Naphthobenzothiophenes	**12.2**	
C1-Naphthalenes	**39.2**		C2-Naphthobenzothiophenes	**12.1**	
C2-Naphthalenes	**48.1**		C3-Naphthobenzothiophenes	10.0	U
C3-Naphthalenes	**41.2**		C4-Naphthobenzothiophenes	10.0	U
C4-Naphthalenes	**32.4**		Benz[a]anthracene	**3.82**	J
Biphenyl	**7.63**	J	Chrysene/Triphenylene	**6.66**	J
Dibenzofuran	**41.2**		C1-Chrysenes	**5.14**	J
Acenaphthylene	**1.33**	J	C2-Chrysenes	10.0	U
Acenaphthene	**10.6**		C3-Chrysenes	10.0	U
Fluorene	**20.4**		C4-Chrysenes	10.0	U
C1-Fluorenes	**17.2**		Benzo[b]fluoranthene	**7.63**	J
C2-Fluorenes	**28.1**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**6.54**	J
C3-Fluorenes	10.0	U	Benzo[a]fluoranthene	10.0	U
Anthracene	**4.90**	J	Benzo[e]pyrene	**6.12**	J
Phenanthrene	**97.4**		Benzo[a]pyrene	**5.73**	J
C1-Phenanthrenes/Anthracenes	**30.0**		Perylene	**5.82**	J
C2-Phenanthrenes/Anthracenes	**17.1**		Indeno[1,2,3-cd]pyrene	**6.15**	J
C3-Phenanthrenes/Anthracenes	**12.7**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	10.0	U
C4-Phenanthrenes/Anthracenes	10.0	U	Benzo[g,h,i]perylene	**8.44**	J
Retene	10.0	U			
Dibenzothiophene	**6.54**	J			
C1-Dibenzothiophenes	**11.8**				
C2-Dibenzothiophenes	**12.2**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	70	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-01**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**1.21** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	70	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-01**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**3.66**	J
2/3-Methyldibenzothiophene	**3.80**	J
1-Methyldibenzothiophene	**1.42**	J
3-Methylphenanthrene	**7.29**	J
2-Methylphenanthrene	**9.96**	J
2-Methylanthracene	10.0	U
9/4-Methylphenanthrene	**4.71**	J
1-Methylphenanthrene	**4.54**	J
2-Methylnaphthalene	**47.7**	
1-Methylnaphthalene	**17.4**	
2,6-Dimethylnaphthalene	**30.6**	
2,3,5-Trimethylnaphthalene	**6.81**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	70	40-120
Phenanthrene-d10	90	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-01**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**16.8**	
C24 Tricyclic Terpane	**14.4**	
C25 Tricyclic Terpane	10.0	U
C24 Tetracyclic Terpane	10.0	U
C26 Tricyclic Terpane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U
C28 Tricyclic Terpane-22R	10.0	U
C29 Tricyclic Terpane-22S	10.0	U
C29 Tricyclic Terpane-22R	10.0	U
18a-22,29,30-Trisnorneohopane-TS	**23.4**	
C30 Tricyclic Terpane-22S	10.0	U
C30 Tricyclic Terpane-22R	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	**26.6**	
17a/b,21b/a 28,30-Bisnorhopane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U
30-Norhopane	**59.0**	
18a(H)-30-Norneohopane-C29Ts	10.0	U
17a(H)-Diahopane	10.0	U
30-Normoretane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U
Hopane	**78.0**	
Moretane	10.0	U
30-Homohopane-22S	10.0	U
30-Homohopane-22R	10.0	U
T22a-Gammacerane/C32-diahopane	10.0	U
30,31-Bishomohopane-22S	**56.2**	G
30,31-Bishomohopane-22R	10.0	U

Parameter	Result	
30,31-Trishomohopane-22S	10.0	U
30,31-Trishomohopane-22R	10.0	U
Tetrakishomohopane-22S	10.0	U
Tetrakishomohopane-22R	10.0	U
Pentakishomohopane-22S	10.0	U
Pentakishomohopane-22R	10.0	U
13b(H),17a(H)-20S-Diacholestane	**16.7**	
13b(H),17a(H)-20R-Diacholestane	**9.46**	J
13b,17a-20S-Methyldiacholestane	10.0	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**21.4**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**17.4**	
Unknown Sterane (S18)	**20.3**	GB
13a,17b-20S-Ethyldiacholestane	10.0	U
14a,17a-20S-Methylcholestane	**20.5**	
14a,17a-20R-Methylcholestane	10.0	U
14a(H),17a(H)-20S-Ethylcholestane	**12.2**	
14a(H),17a(H)-20R-Ethylcholestane	**19.3**	
14b(H),17b(H)-20R-Cholestane	**12.3**	
14b(H),17b(H)-20S-Cholestane	**10.8**	
14b,17b-20R-Methylcholestane	**12.1**	
14b,17b-20S-Methylcholestane	**15.8**	
14b(H),17b(H)-20R-Ethylcholestane	**24.8**	
14b(H),17b(H)-20S-Ethylcholestane	**19.8**	
C26,20R- +C27,20S- triaromatic steroid	**43.3**	
C28,20S-triaromatic steroid	**34.4**	
C27,20R-triaromatic steroid	**25.4**	
C28,20R-triaromatic steroid	**26.6**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	97	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12701M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27050	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	38430	697.135	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.71%			
42) Phenanthrene-d10	32.221	188	39356	903.239	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.32%			
86) Benzo[a]pyrene-d12	47.835	264	47781	852.334	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.23%			
127) 5B(H)Cholane - Surr	43.422	217	8215	971.361	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.14%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	1984	24.509	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3171M5	39.173	ng/mL	
12) C2-Naphthalenes	24.664	156	3896M5	48.129	ng/mL	
13) C3-Naphthalenes	27.750	170	3339M5	41.248	ng/mL	
14) C4-Naphthalenes	30.113	184	2622M4	32.391	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2284	47.719	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	814	17.350	ng/mL#	100
19) C1-Benzo(b)thiophenes	22.345	148	335M5	4.599	ng/mL	
23) Biphenyl	24.061	154	462M3	7.631	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1203M3	30.592	ng/mL	
25) Dibenzofuran	27.133	168	2863	41.179	ng/mL	99
26) Acenaphthylene	25.748	152	107M3	1.332	ng/mL	
27) Acenaphthene	26.485	153	501M3	10.589	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	216M3	6.814	ng/mL	
29) Fluorene	28.503	166	1066M3	20.429	ng/mL	
30) C1-Fluorenes	30.866	180	897M5	17.190	ng/mL	
31) C2-Fluorenes	33.034	194	1467M5	28.113	ng/mL	
33) Dibenzothiophene	31.814	184	547M3	6.539	ng/mL	
34) 4-Methyldibenzothiophene(	33.591	198	306	3.658	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.952	198	318M3	3.802	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	119M3	1.423	ng/mL	
37) OTP	34.012	198	9867M3	117.961	ng/mL	
38) C1-Dibenzothiophenes	34.012	198	10852M5	129.737	ng/mL	
38) C1-Dibenzothiophenes BS	34.012	198	985m	11.776	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	1016M5	12.146	ng/mL	
40) C3-Dibenzothiophenes	38.108	226	1135M5	13.569	ng/mL	
43) Phenanthrene	32.311	178	7158	97.400	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	536M3	7.293	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	732M3	9.960	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	346M3	4.708	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	334M3	4.545	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	2201M5	29.949	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	3187M5	43.366	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1257m	17.104	ng/mL	
51) 5AA IS BKGD	36.301	206	1930	26.262	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.379	220	937M5	12.750	ng/mL	
55) Anthracene	32.492	178	352M3	4.904	ng/mL	
56) Carbazole	33.154	167	88M3	1.214	ng/mL	
57) 1-Methylphenanthrene	34.810	192	341M3	7.322	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
58) Fluoranthene	37.084	202	2212M3	30.306	ng/mL	
59) Benzo(b)fluorene	39.598	216	91M3	2.149	ng/mL	
60) Pyrene	37.957	202	1394	18.788	ng/mL#	53
61) C1-Fluoranthenes/Pyrenes	39.357	216	979M5	13.195	ng/mL	
66) Naphthobenzothiophene	41.811	234	137M3	1.715	ng/ml	
67) Naphthobenzothiophene-2,1	41.811	234	141M3	1.765	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	342M3	4.282	ng/mL	
70) C1-Naphthobenzothiophenes	43.468	248	971M5	12.156	ng/ml	
71) C2-Naphthobenzothiophenes	45.259	262	964M5	12.069	ng/ml	
75) Benz[a]anthracene	42.730	228	328M3	3.820	ng/mL	
77) Chrysene/Triphenylene	42.880	228	577M3	6.657	ng/mL	
78) C1-Chrysenes	44.371	242	446M5	5.145	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	720	7.632	ng/mL#	5
83) Benzo[j]+[k]fluoranthene	46.856	252	672M3	6.543	ng/mL	
85) Benzo[e]pyrene	47.744	252	571M3	6.119	ng/mL	
87) Benzo[a]pyrene	47.925	252	515M3	5.732	ng/mL	
88) Perylene	48.226	252	559M3	5.822	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.564	276	643M3	6.150	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	932	8.438	ng/mL	100
92) Hopane (T19)	51.690	191	1391M3	78.024	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	299M3	16.771	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	257M3	14.416	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.045	191	417M3	23.390	ng/ml	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	474	26.588	ng/ml	100
110) 30-Norhopane (T15)	50.380	191	1052M3	59.009	ng/ml	
119) 30,31-Bishomohopane-22S (	54.852	191G	1001M3	56.148	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.928	217	141M3	16.672	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	80M3	9.459	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	181	21.402	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	147M3	17.382	ng/ml	
133) Unknown Sterane (S18)	47.699	217G	172M3	20.338	ng/ml	
135) 14a,17a-20S-Methylcholest	48.091	217	173M3	20.456	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	103M3	12.179	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.003	217	163M3	19.274	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	46.991	218	104M3	12.297	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	91M3	10.760	ng/ml	
141) 14b,17b-20R-Methylcholest	48.256	218	102M3	12.061	ng/ml	
142) 14b,17b-20S-Methylcholest	48.332	218	134M3	15.844	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	210M3	24.831	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.401	218	167M3	19.746	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	366	43.277	ng/mL	100
146) C28,20S-triaromatic stero	49.913	231	291M3	34.409	ng/mL	
147) C27,20R-triaromatic stero	50.350	231	215M3	25.422	ng/mL	
148) C28,20R-triaromatic stero	51.509	231	225M3	26.605	ng/mL	

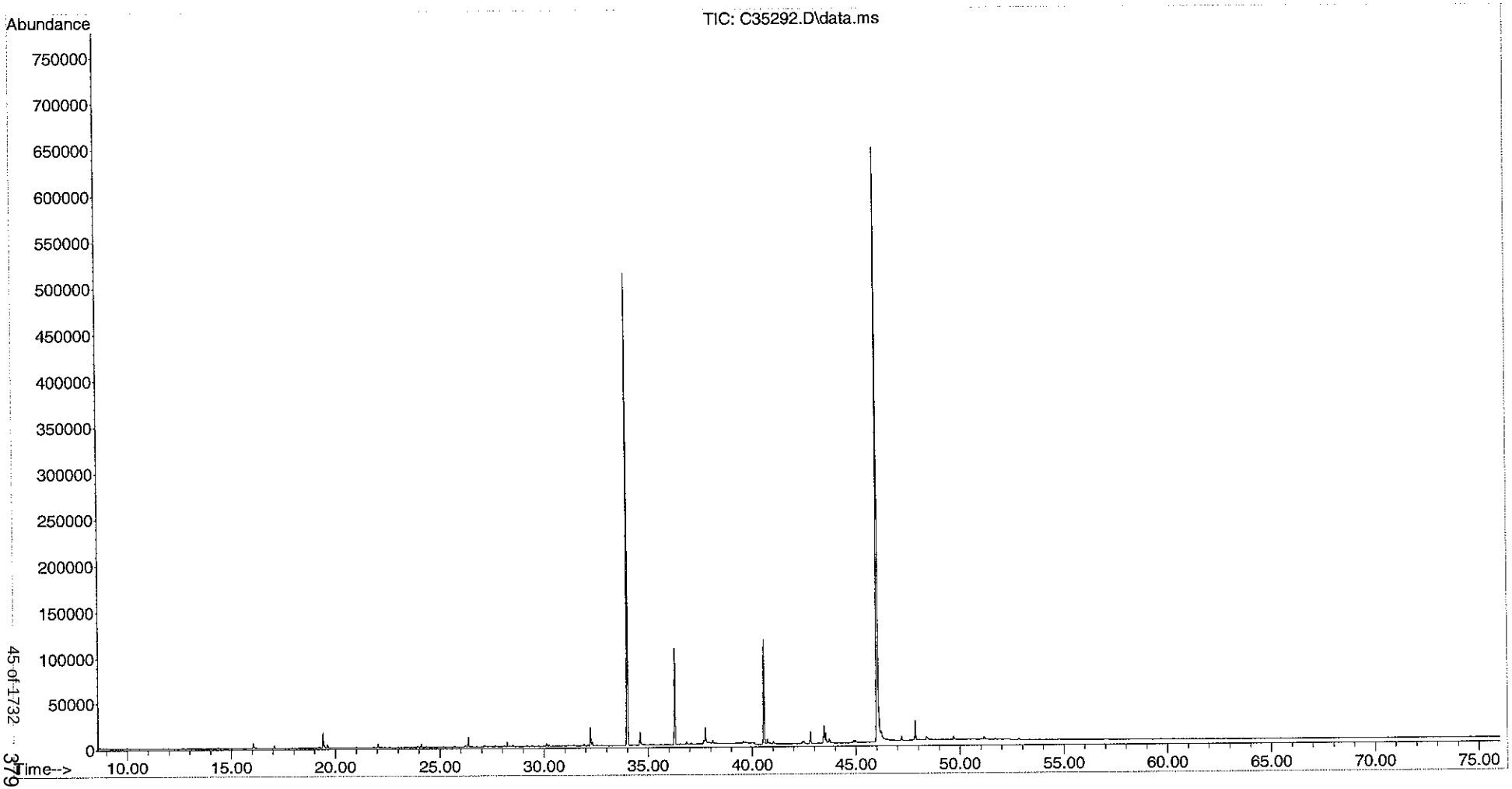
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C002S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-02**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	**4.46**	J
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	**5.80**	J
C2-Benzo(b)thiophenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U
Naphthalene	**23.4**	
C1-Naphthalenes	**34.0**	
C2-Naphthalenes	**46.0**	
C3-Naphthalenes	**33.6**	
C4-Naphthalenes	**29.2**	
Biphenyl	**7.80**	J
Dibenzofuran	**34.8**	
Acenaphthylene	**2.03**	J
Acenaphthene	**9.58**	J
Fluorene	**16.9**	
C1-Fluorenes	**11.3**	
C2-Fluorenes	**23.4**	
C3-Fluorenes	10.0	U
Anthracene	**5.32**	J
Phenanthrene	**85.1**	
C1-Phenanthrenes/Anthracenes	**27.7**	
C2-Phenanthrenes/Anthracenes	**35.1**	
C3-Phenanthrenes/Anthracenes	**38.8**	
C4-Phenanthrenes/Anthracenes	**32.1**	
Retene	10.0	U
Dibenzothiophene	**6.43**	J
C1-Dibenzothiophenes	**7.96**	J
C2-Dibenzothiophenes	**31.1**	

Parameter	Result	
C3-Dibenzothiophenes	**57.4**	
C4-Dibenzothiophenes	**47.5**	
Benzo(b)fluorene	**3.08**	J
Fluoranthene	**42.3**	
Pyrene	**28.1**	
C1-Fluoranthenes/Pyrenes	**23.6**	
C2-Fluoranthenes/Pyrenes	**26.3**	
C3-Fluoranthenes/Pyrenes	**30.2**	
C4-Fluoranthenes/Pyrenes	10.0	U
Naphthobenzothiophenes	**13.9**	
C1-Naphthobenzothiophenes	**28.6**	
C2-Naphthobenzothiophenes	**46.8**	
C3-Naphthobenzothiophenes	**84.9**	G
C4-Naphthobenzothiophenes	**42.4**	
Benz[a]anthracene	**6.75**	J
Chrysene/Triphenylene	**13.6**	
C1-Chrysenes	**13.0**	
C2-Chrysenes	**29.0**	
C3-Chrysenes	10.0	U
C4-Chrysenes	10.0	U
Benzo[b]fluoranthene	**14.1**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**10.7**	
Benzo[a]fluoranthene	10.0	U
Benzo[e]pyrene	**11.8**	
Benzo[a]pyrene	**9.37**	J
Perylene	**7.89**	J
Indeno[1,2,3-cd]pyrene	**9.20**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.08**	J
Benzo[g,h,i]perylene	**13.6**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C002S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-02**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	I	1	AC

Parameter	Result
Carbazole	**2.38** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C002S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-02**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**3.39**	J
2/3-Methyldibenzothiophene	10.0	U
1-Methyldibenzothiophene	**1.33**	J
3-Methylphenanthrene	**6.76**	J
2-Methylphenanthrene	**9.24**	J
2-Methylanthracene	10.0	U
9/4-Methylphenanthrene	**5.12**	J
1-Methylphenanthrene	**3.86**	J
2-Methylnaphthalene	**41.0**	
1-Methylnaphthalene	**15.4**	
2,6-Dimethylnaphthalene	**32.4**	
2,3,5-Trimethylnaphthalene	**3.88**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C002S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-02**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**49.9**	
C24 Tricyclic Terpane	**30.3**	
C25 Tricyclic Terpane	**39.5**	
C24 Tetracyclic Terpane	**28.3**	
C26 Tricyclic Terpane-22S	**12.5**	
C26 Tricyclic Terpane-22R	**11.9**	
C28 Tricyclic Terpane-22S	**21.4**	
C28 Tricyclic Terpane-22R	**16.6**	
C29 Tricyclic Terpane-22S	**20.6**	
C29 Tricyclic Terpane-22R	**19.3**	
18a-22,29,30-Trisnorneohopane-TS	**47.2**	
C30 Tricyclic Terpane-22S	10.0	U
C30 Tricyclic Terpane-22R	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	**40.0**	
17a/b,21b/a 28,30-Bisnorhopane	**35.0**	
17a(H),21b(H)-25-Norhopane	10.0	U
30-Norhopane	**127**	
18a(H)-30-Norneohopane-C29Ts	**39.0**	
17a(H)-Diahopane	10.0	U
30-Normoretane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U
Hopane	**165**	
Moretane	10.0	U
30-Homohopane-22S	**67.9**	
30-Homohopane-22R	**59.1**	
T22a-Gammacerane/C32-diahopane	**22.9**	
30,31-Bishomohopane-22S	**95.9**	G
30,31-Bishomohopane-22R	**55.7**	

Parameter	Result	
30,31-Trishomohopane-22S	10.0	U
30,31-Trishomohopane-22R	10.0	U
Tetrakishomohopane-22S	10.0	U
Tetrakishomohopane-22R	10.0	U
Pentakishomohopane-22S	10.0	U
Pentakishomohopane-22R	10.0	U
13b(H),17a(H)-20S-Diacholestane	**34.4**	
13b(H),17a(H)-20R-Diacholestane	**18.2**	
13b,17a-20S-Methyldiacholestane	10.0	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**51.2**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**47.1**	
Unknown Sterane (S18)	**30.5**	GB
13a,17b-20S-Ethyldiacholestane	10.0	U
14a,17a-20S-Methylcholestane	**25.2**	
14a,17a-20R-Methylcholestane	**18.9**	
14a(H),17a(H)-20S-Ethylcholestane	**34.0**	
14a(H),17a(H)-20R-Ethylcholestane	**31.9**	
14b(H),17b(H)-20R-Cholestane	**25.9**	
14b(H),17b(H)-20S-Cholestane	**21.7**	
14b,17b-20R-Methylcholestane	**23.5**	
14b,17b-20S-Methylcholestane	**40.4**	
14b(H),17b(H)-20R-Ethylcholestane	**47.8**	
14b(H),17b(H)-20S-Ethylcholestane	**30.2**	
C26,20R- +C27,20S- triaromatic steroid	**153**	
C28,20S-triaromatic steroid	**122**	
C27,20R-triaromatic steroid	**85.8**	
C28,20R-triaromatic steroid	**96.2**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	98	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

MK for 8/25/29/12

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13339M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27252	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	38577	666.331	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 66.63%			
42) Phenanthrene-d10	32.221	188	40388	882.589	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.26%			
86) Benzo[a]pyrene-d12	47.835	264	49448	875.532	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 87.55%			
127) 5B(H)Cholane - Surr	43.422	217	8349	979.888	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.99%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	47M2	4.463	ng/mL	
10) Naphthalene	19.485	128	1992	23.431	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2893M5	34.029	ng/mL	
12) C2-Naphthalenes	24.679	156	3913M5	46.027	ng/mL	
13) C3-Naphthalenes	27.343	170	2856M5	33.594	ng/mL	
14) C4-Naphthalenes	30.113	184	2481M5	29.183	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2062M3	41.020	ng/mL	
17) 1-Methylnaphthalene	22.586	142	759M3	15.404	ng/mL	
19) C1-Benzo(b)thiophenes	22.345	148	444M5	5.804	ng/mL	
23) Biphenyl	24.062	154	496M3	7.800	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	1339	32.422	ng/mL#	100
25) Dibenzofuran	27.133	168	2542	34.813	ng/mL	91
26) Acenaphthylene	25.748	152	171	2.026	ng/mL#	100
27) Acenaphthene	26.485	153	476M3	9.579	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	129M3	3.875	ng/mL	
29) Fluorene	28.503	166	924M3	16.860	ng/mL	
30) C1-Fluorenes	30.866	180	618M5	11.277	ng/mL	
31) C2-Fluorenes	33.034	194	1284M5	23.429	ng/mL	
33) Dibenzothiophene	31.814	184	565	6.432	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	298M3	3.392	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	117M3	1.332	ng/mL	
37) OTP	34.012	198	10314	117.407	ng/mL#	100
38) C1-Dibenzothiophenes	34.012	198	11013M5	125.364	ng/mL	
38) C1-Dibenzothiophenes BS	34.012	198	699m	7.957	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	2734M5	31.122	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	5046M5	57.440	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	4172M5	47.491	ng/mL	
43) Phenanthrene	32.311	178	6564	85.046	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.268	192	522M3	6.763	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	713M3	9.238	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	395	5.118	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.810	192	298M3	3.861	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	2136M5	27.675	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	4723M5	61.193	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	2709m	35.099	ng/mL	
51) 5AA IS BKGD	36.301	206	2014	26.094	ng/mL	100
52) C3-Phenanthrenes/Anthrace	39.643	220	2997M5	38.830	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.547	234	2479M5	32.119	ng/mL	
55) Anthracene	32.492	178	401M3	5.319	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.169	167	181M3	2.377	ng/mL	
57) 1-Methylphenanthrene	34.810	192	293M3	5.990	ng/mL	
58) Fluoranthene	37.069	202	3240M3	42.267	ng/mL	
59) Benzo(b)fluorene	39.598	216	137M3	3.081	ng/mL	
60) Pyrene	37.957	202	2192	28.131	ng/mL#	64
61) C1-Fluoranthenes/Pyrenes	39.357	216	1836M5	23.562	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.827	230	2052M5	26.334	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.182	244	2354M5	30.210	ng/mL	
66) Naphthobenzothiophene	41.812	234	518	6.175	ng/ml#	49
67) Naphthobenzothiophene-2,1	41.812	234	518	6.175	ng/mL#	49
68) Naphthobenzothiophene-1,2	42.143	234	128M3	1.526	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	521M3	6.211	ng/mL	
70) C1-Naphthobenzothiophenes	43.889	248	2401M5	28.621	ng/ml	
71) C2-Naphthobenzothiophenes	45.244	262	3927M5	46.811	ng/ml	
72) C3-Naphthobenzothiophenes	46.027	276G	7119M5	84.861	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	3557M5	42.401	ng/mL	
75) Benz[a]anthracene	42.730	228	584M3	6.752	ng/mL	
77) Chrysene/Triphenylene	42.896	228	1185M3	13.570	ng/mL	
78) C1-Chrysenes	44.371	242	1135M5	12.997	ng/mL	
79) C2-Chrysenes	46.027	256	2534M5	29.018	ng/mL	
79) C2-Chrysenes BS	46.027	256	2534m	29.018	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	1344M3	14.141	ng/mL	
83) Benzo[j]+[k]fluoranthene	46.856	252	1108M3	10.708	ng/mL	
85) Benzo[e]pyrene	47.744	252	1112	11.829	ng/mL#	72
87) Benzo[a]pyrene	47.925	252	848M3	9.369	ng/mL	
88) Perylene	48.226	252	763M3	7.888	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.564	276	969M3	9.200	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.594	278	208M3	2.076	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	1516	13.623	ng/mL#	84
92) Hopane (T19)	51.690	191	2970M3	165.358	ng/mL	
94) C23 Tricyclic Terpane (T4	40.441	191	897M3	49.942	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	545M3	30.344	ng/ml	
96) C25 Tricyclic Terpane (T6	42.730	191	709M3	39.474	ng/ml	
97) C24 Tetracyclic Terpane (	43.965	191	509M3	28.339	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	224M3	12.471	ng/ml	
99) C26 Tricyclic Terpane-22R	43.814	191	213M3	11.859	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	385M3	21.435	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	298M3	16.592	ng/ml	
102) C29 Tricyclic Terpane-22S	46.780	191	370M3	20.600	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	346M3	19.264	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.045	191	848	47.213	ng/ml	100
107) 17a(H)-22,29,30-Trisnorho	48.573	191	719M3	40.031	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.717	191	629M3	35.020	ng/ml	
110) 30-Norhopane (T15)	50.365	191	2275	126.663	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.470	191	700M3	38.973	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	1220M3	67.925	ng/ml	
117) 30-Homohopane-22R (T22)	53.633	191	1062M3	59.128	ng/ml	
118) Gammacerane/C32-diahopane	54.160	191	412M3	22.939	ng/mL	
119) 30,31-Bishomohopane-22S (	54.898	191G	1723M3	95.930	ng/ml	
120) 30,31-Bishomohopane-22R (	55.289	191	1000M3	55.676	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.928	217	293M3	34.388	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.350	217	155M3	18.192	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.901	217	436	51.172	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.413	217	401M3	47.064	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
133) Unknown Sterane (S18)	47.714	217G	260	30.515	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.091	217	215	25.234	ng/ml	100
136) 14a,17a-20R-Methylcholest	48.798	217	161M3	18.896	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	290M3	34.036	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.003	217	272M3	31.924	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	221M3	25.938	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	185M3	21.713	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	200M3	23.473	ng/ml	
142) 14b,17b-20S-Methylcholest	48.332	218	344M3	40.374	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.356	218	407M3	47.768	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.401	218	257M3	30.163	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	1303M3	152.928	ng/mL	
146) C28,20S-triaromatic stero	49.913	231	1040M3	122.061	ng/mL	
147) C27,20R-triaromatic stero	50.350	231	731M3	85.794	ng/mL	
148) C28,20R-triaromatic stero	51.509	231	820M3	96.240	ng/mL	

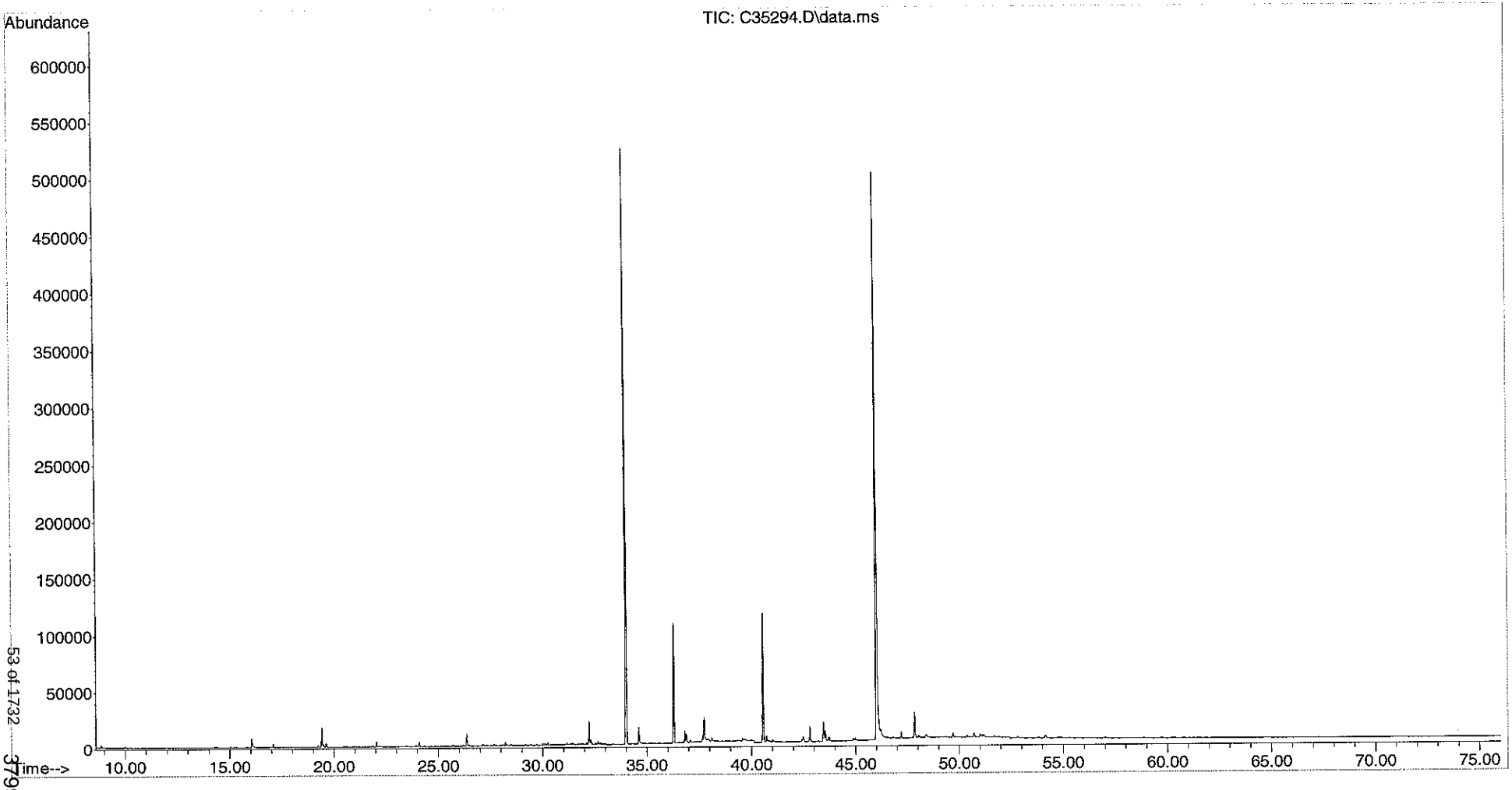
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3990L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	**3.65**	J
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	**5.19**	J
C2-Benzo(b)thiophenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U
Naphthalene	**23.5**	
C1-Naphthalenes	**38.4**	
C2-Naphthalenes	**51.5**	
C3-Naphthalenes	**34.8**	
C4-Naphthalenes	**25.8**	
Biphenyl	**7.71**	J
Dibenzofuran	**34.5**	
Acenaphthylene	**2.69**	J
Acenaphthene	**10.2**	
Fluorene	**16.6**	
C1-Fluorenes	**10.2**	
C2-Fluorenes	**17.6**	
C3-Fluorenes	10.0	U
Anthracene	**5.03**	J
Phenanthrene	**74.5**	
C1-Phenanthrenes/Anthracenes	**24.0**	
C2-Phenanthrenes/Anthracenes	**17.9**	
C3-Phenanthrenes/Anthracenes	**22.3**	
C4-Phenanthrenes/Anthracenes	10.0	U
Retene	10.0	U
Dibenzothiophene	**5.85**	J
C1-Dibenzothiophenes	**7.04**	J
C2-Dibenzothiophenes	**12.4**	

Parameter	Result	
C3-Dibenzothiophenes	**14.5**	
C4-Dibenzothiophenes	10.0	U
Benzo(b)fluorene	**3.25**	J
Fluoranthene	**30.6**	
Pyrene	**25.3**	
C1-Fluoranthenes/Pyrenes	**18.8**	
C2-Fluoranthenes/Pyrenes	10.0	U
C3-Fluoranthenes/Pyrenes	10.0	U
C4-Fluoranthenes/Pyrenes	10.0	U
Naphthobenzothiophenes	**10.6**	
C1-Naphthobenzothiophenes	**12.6**	
C2-Naphthobenzothiophenes	**16.5**	
C3-Naphthobenzothiophenes	10.0	U
C4-Naphthobenzothiophenes	10.0	U
Benz[a]anthracene	**8.62**	J
Chrysene/Triphenylene	**13.9**	
C1-Chrysenes	**9.87**	J
C2-Chrysenes	10.0	U
C3-Chrysenes	10.0	U
C4-Chrysenes	10.0	U
Benzo[b]fluoranthene	**14.5**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**11.8**	
Benzo[a]fluoranthene	**3.47**	J
Benzo[e]pyrene	**12.1**	
Benzo[a]pyrene	**13.5**	
Perylene	**7.38**	J
Indeno[1,2,3-cd]pyrene	**11.4**	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**2.83**	J
Benzo[g,h,i]perylene	**13.9**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	57	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3990L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**1.56** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	57	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3990L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**2.76**	J
2/3-Methyldibenzothiophene	**1.12**	J
1-Methyldibenzothiophene	**0.948**	J
3-Methylphenanthrene	**5.60**	J
2-Methylphenanthrene	**8.05**	J
2-Methylanthracene	**0.854**	J
9/4-Methylphenanthrene	**3.91**	J
1-Methylphenanthrene	**3.42**	J
2-Methylnaphthalene	**46.5**	
1-Methylnaphthalene	**18.2**	
2,6-Dimethylnaphthalene	**35.4**	
2,3,5-Trimethylnaphthalene	**5.28**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	57	40-120
Phenanthrene-d10	77	40-120
Benzo[a]pyrene-d12	80	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3990L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**17.3**	
C24 Tricyclic Terpane	**11.9**	
C25 Tricyclic Terpane	10.0	U
C24 Tetracyclic Terpane	**16.8**	
C26 Tricyclic Terpane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U
C28 Tricyclic Terpane-22S	**11.9**	
C28 Tricyclic Terpane-22R	**11.0**	
C29 Tricyclic Terpane-22S	**14.2**	
C29 Tricyclic Terpane-22R	10.0	U
18a-22,29,30-Trisnorneohopane-TS	**37.0**	
C30 Tricyclic Terpane-22S	10.0	U
C30 Tricyclic Terpane-22R	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	**31.7**	
17a/b,21b/a 28,30-Bisnorhopane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U
30-Norhopane	**98.5**	
18a(H)-30-Norneohopane-C29Ts	**34.3**	
17a(H)-Diahopane	10.0	U
30-Normoretane	10.0	U
18a(H)&18b(H)-Oleananes	**31.3**	
Hopane	**156**	
Moretane	10.0	U
30-Homohopane-22S	**61.1**	
30-Homohopane-22R	**42.4**	
T22a-Gammacerane/C32-diahopane	10.0	U
30,31-Bishomohopane-22S	**111**	G
30,31-Bishomohopane-22R	10.0	U

Parameter	Result	
30,31-Trishomohopane-22S	10.0	U
30,31-Trishomohopane-22R	10.0	U
Tetrakishomohopane-22S	10.0	U
Tetrakishomohopane-22R	10.0	U
Pentakishomohopane-22S	10.0	U
Pentakishomohopane-22R	10.0	U
13b(H),17a(H)-20S-Diacholestane	**30.6**	
13b(H),17a(H)-20R-Diacholestane	**22.1**	
13b,17a-20S-Methyldiacholestane	10.0	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**47.1**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**54.6**	
Unknown Sterane (S18)	**28.5**	GB
13a,17b-20S-Ethyldiacholestane	10.0	U
14a,17a-20S-Methylcholestane	**24.6**	
14a,17a-20R-Methylcholestane	**28.6**	
14a(H),17a(H)-20S-Ethylcholestane	**32.0**	
14a(H),17a(H)-20R-Ethylcholestane	**42.5**	
14b(H),17b(H)-20R-Cholestane	**26.6**	
14b(H),17b(H)-20S-Cholestane	**21.5**	
14b,17b-20R-Methylcholestane	**31.6**	
14b,17b-20S-Methylcholestane	**35.3**	
14b(H),17b(H)-20R-Ethylcholestane	**49.7**	
14b(H),17b(H)-20S-Ethylcholestane	**36.1**	
C26,20R- +C27,20S- triaromatic steroid	**43.8**	
C28,20S-triaromatic steroid	**37.2**	
C27,20R-triaromatic steroid	**26.2**	
C28,20R-triaromatic steroid	**26.2**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

MA for 5/25/29/12

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14576M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	29413	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	36140	571.261	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 57.13%			
42) Phenanthrene-d10	32.221	188	38560	771.131	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 77.11%			
86) Benzo[a]pyrene-d12	47.850	264	48788	800.379	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.04%			
127) 5B(H)Cholane - Surr	43.423	217	8702	946.281	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	42M3	3.650	ng/mL	
10) Naphthalene	19.485	128	2182	23.488	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3572M5	38.450	ng/mL	
12) C2-Naphthalenes	24.664	156	4783M5	51.486	ng/mL	
13) C3-Naphthalenes	27.343	170	3233M5	34.801	ng/mL	
14) C4-Naphthalenes	30.113	184	2394M5	25.770	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2555	46.514	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	981	18.220	ng/mL#	100
19) C1-Benzo(b)thiophenes	21.758	148	434M5	5.192	ng/mL	
23) Biphenyl	24.047	154	536M3	7.714	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1598	35.409	ng/mL#	100
25) Dibenzofuran	27.133	168	2750	34.465	ng/mL	93
26) Acenaphthylene	25.748	152	248M3	2.689	ng/mL	
27) Acenaphthene	26.485	153	556M3	10.240	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	192M3	5.278	ng/mL	
29) Fluorene	28.503	166	994M3	16.599	ng/mL	
30) C1-Fluorenes	30.866	180	610M5	10.186	ng/mL	
31) C2-Fluorenes	33.049	194	1055M5	17.617	ng/mL	
33) Dibenzothiophene	31.815	184	562	5.854	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	265	2.761	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.922	198	108M3	1.125	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	91M3	0.948	ng/mL	
37) OTP	34.013	198	9508M3	99.047	ng/mL	
38) C1-Dibenzothiophenes	34.013	198	10184M5	106.089	ng/mL	
38) C1-Dibenzothiophenes BS	34.013	198	676m	7.042	ng/mL	
39) C2-Dibenzothiophenes	35.639	212	1193M5	12.428	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	1393M5	14.511	ng/mL	
43) Phenanthrene	32.311	178	6281	74.473	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.268	192	472M3	5.596	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	679M4	8.051	ng/mL	
46) 2-Methylanthracene(2MA)	34.539	192	72M3	0.854	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	330	3.913	ng/mL	93
48) 1-Methylphenanthrene(1MP)	34.810	192	288	3.415	ng/mL	94
49) C1-Phenanthrenes/Anthrace	34.389	192	2025M5	24.010	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	3503M5	41.534	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1509m	17.892	ng/mL	
51) 5AA IS BKGD	36.301	206	1994	23.643	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.379	220	1881M5	22.303	ng/mL	
55) Anthracene	32.492	178	414M3	5.025	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.154	167	130M3	1.562	ng/mL	
57) 1-Methylphenanthrene	34.810	192	288	5.388	ng/mL	93
58) Fluoranthene	37.084	202	2564M3	30.610	ng/mL	
59) Benzo(b)fluorene	39.598	216	158M3	3.251	ng/mL	
60) Pyrene	37.957	202	2157	25.333	ng/mL#	68
61) C1-Fluoranthenes/Pyrenes	39.357	216	1598M5	18.767	ng/mL	
66) Naphthobenzothiophene	41.812	234	303	3.305	ng/ml#	49
67) Naphthobenzothiophene-2,1	41.812	234	303	3.305	ng/mL#	49
68) Naphthobenzothiophene-1,2	42.143	234	78M3	0.851	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	594	6.480	ng/mL#	1
70) C1-Naphthobenzothiophenes	43.468	248	1159M5	12.643	ng/ml	
71) C2-Naphthobenzothiophenes	45.606	262	1515M5	16.527	ng/ml	
75) Benz[a]anthracene	42.730	228	805M3	8.623	ng/mL	
77) Chrysene/Triphenylene	42.896	228	1314M3	13.941	ng/mL	
78) C1-Chrysenes	44.371	242	930M5	9.867	ng/mL	
82) Benzo[b]fluoranthene	46.781	252	1491	14.535	ng/mL#	70
83) Benzo[j]+[k]fluoranthene	46.841	252	1316M3	11.783	ng/mL	
84) Benzo[a]fluoranthene	47.157	252	388	3.474	ng/mL#	63
85) Benzo[e]pyrene	47.744	252	1232	12.142	ng/mL#	33
87) Benzo[a]pyrene	47.925	252	1320M3	13.512	ng/mL	
88) Perylene	48.226	252	771M3	7.385	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.564	276	1297M3	11.409	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	306M3	2.830	ng/mL	
91) Benzo[g,h,i]perylene	53.814	276	1674M3	13.938	ng/mL	
92) Hopane (T19)	51.690	191	3016M3	155.582	ng/mL	
94) C23 Tricyclic Terpane (T4	40.457	191	336	17.333	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.179	191	231	11.916	ng/ml	100
97) C24 Tetracyclic Terpane (	43.965	191	326	16.817	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.103	191	230M3	11.865	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	213M3	10.988	ng/ml	
102) C29 Tricyclic Terpane-22S	46.781	191	276M3	14.238	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.046	191	717	36.987	ng/ml	100
107) 17a(H)-22,29,30-Trisnorho	48.573	191	614	31.674	ng/ml	100
110) 30-Norhopane (T15)	50.380	191	1909M3	98.477	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	665M3	34.304	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.509	191	606M3	31.261	ng/ml	
116) 30-Homohopane-22S (T21)	53.407	191	1184M3	61.077	ng/ml	
117) 30-Homohopane-22R (T22)	53.633	191	822M3	42.403	ng/ml	
119) 30,31-Bishomohopane-22S (	54.868	191G	2149M3	110.857	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.928	217	281M3	30.557	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	203M3	22.075	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.901	217	433	47.086	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.413	217	502	54.589	ng/ml	100
133) Unknown Sterane (S18)	47.714	217G	262	28.491	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	226	24.576	ng/ml	100
136) 14a,17a-20R-Methylcholest	48.784	217	263M3	28.599	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	294M3	31.970	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.003	217	391M3	42.518	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	46.991	218	245M3	26.642	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	198M3	21.531	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	291	31.644	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.332	218	325M3	35.341	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	457M3	49.696	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	332M3	36.103	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
145) C26,20R- +C27,20S- triaro	49.085	231	403M3	43.823	ng/mL	
146) C28,20S-triaromatic stero	49.913	231	342M3	37.190	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	241M3	26.207	ng/mL	
148) C28,20R-triaromatic stero	51.509	231	241M3	26.207	ng/mL	

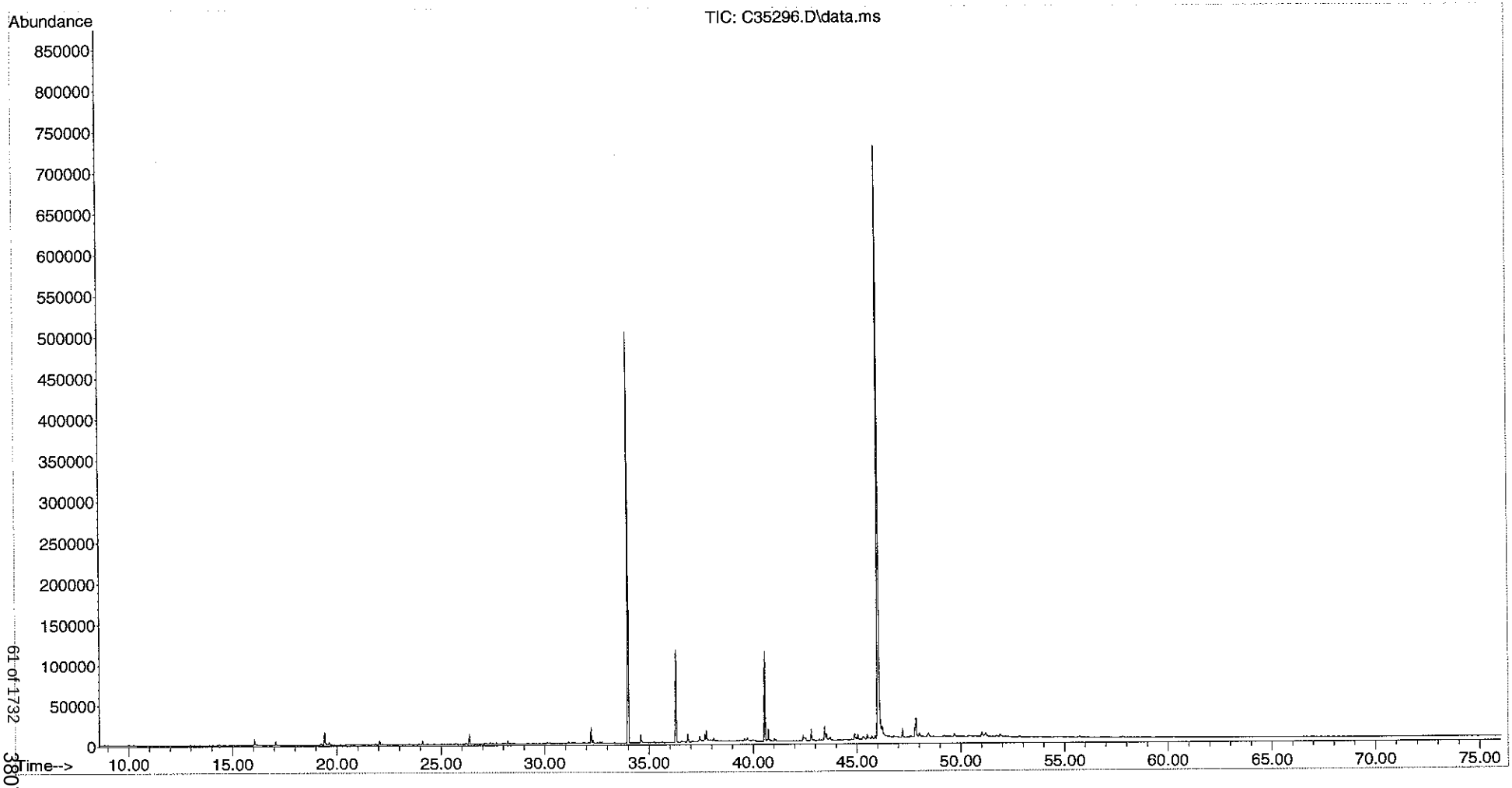
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



61 of 1732
3807

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR4010L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-04**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/28/12	100	1.00	1	1	AC

Parameter	Result	
cis/trans-Decalin	**5.87**	J
C1-Decalins	10.0	U
C2-Decalins	10.0	U
C3-Decalins	10.0	U
C4-Decalins	10.0	U
Benzothiophene	10.0	U
C1-Benzo(b)thiophenes	**7.83**	J
C2-Benzo(b)thiophenes	**7.52**	J
C3-Benzo(b)thiophenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U
Naphthalene	**23.3**	
C1-Naphthalenes	**38.3**	
C2-Naphthalenes	**55.7**	
C3-Naphthalenes	**39.1**	
C4-Naphthalenes	**27.1**	
Biphenyl	**9.17**	J
Dibenzofuran	**38.4**	
Acenaphthylene	**3.16**	J
Acenaphthene	**12.1**	
Fluorene	**19.6**	
C1-Fluorenes	**11.2**	
C2-Fluorenes	**19.1**	
C3-Fluorenes	10.0	U
Anthracene	**7.31**	J
Phenanthrene	**77.1**	
C1-Phenanthrenes/Anthracenes	**20.5**	
C2-Phenanthrenes/Anthracenes	**15.4**	
C3-Phenanthrenes/Anthracenes	10.0	U
C4-Phenanthrenes/Anthracenes	10.0	U
Retene	10.0	U
Dibenzothiophene	**5.95**	J
C1-Dibenzothiophenes	**7.15**	J
C2-Dibenzothiophenes	**11.0**	

Parameter	Result	
C3-Dibenzothiophenes	10.0	U
C4-Dibenzothiophenes	10.0	U
Benzo(b)fluorene	**2.32**	J
Fluoranthene	**31.0**	
Pyrene	**24.8**	
C1-Fluoranthenes/Pyrenes	**26.3**	
C2-Fluoranthenes/Pyrenes	10.0	U
C3-Fluoranthenes/Pyrenes	10.0	U
C4-Fluoranthenes/Pyrenes	10.0	U
Naphthobenzothiophenes	**10.2**	
C1-Naphthobenzothiophenes	**10.4**	
C2-Naphthobenzothiophenes	10.0	U
C3-Naphthobenzothiophenes	10.0	U
C4-Naphthobenzothiophenes	10.0	U
Benz[a]anthracene	**41.9**	
Chrysene/Triphenylene	**22.4**	
C1-Chrysenes	**12.9**	
C2-Chrysenes	10.0	U
C3-Chrysenes	10.0	U
C4-Chrysenes	10.0	U
Benzo[b]fluoranthene	**23.3**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**15.2**	
Benzo[a]fluoranthene	10.0	U
Benzo[e]pyrene	**15.2**	
Benzo[a]pyrene	**8.92**	J
Perylene	**5.25**	J
Indeno[1,2,3-cd]pyrene	**10.6**	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**4.54**	J
Benzo[g,h,i]perylene	**12.6**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	63	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR4010L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-04**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/28/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	**2.01** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	63	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR4010L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-04**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/28/12	100	1.00	1	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**2.53**	J
2/3-Methyldibenzothiophene	**0.885**	J
I-Methyldibenzothiophene	**0.924**	J
3-Methylphenanthrene	**5.32**	J
2-Methylphenanthrene	**5.88**	J
2-Methylanthracene	**1.25**	J
9/4-Methylphenanthrene	**3.94**	J
1-Methylphenanthrene	**2.88**	J
2-Methylnaphthalene	**45.1**	
1-Methylnaphthalene	**18.3**	
2,6-Dimethylnaphthalene	**34.2**	
2,3,5-Trimethylnaphthalene	**5.91**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	63	40-120
Phenanthrene-d10	85	40-120
Benzo[a]pyrene-d12	81	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR4010L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-04**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/28/12	100	1.00	1	1	AC

Parameter	Result	
C23 Tricyclic Terpane	10.0	U
C24 Tricyclic Terpane	10.0	U
C25 Tricyclic Terpane	10.0	U
C24 Tetracyclic Terpane	10.0	U
C26 Tricyclic Terpane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U
C28 Tricyclic Terpane-22R	10.0	U
C29 Tricyclic Terpane-22S	10.0	U
C29 Tricyclic Terpane-22R	10.0	U
18a-22,29,30-Trisnorneohopane-TS	10.0	U
C30 Tricyclic Terpane-22S	10.0	U
C30 Tricyclic Terpane-22R	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	10.0	U
17a/b,21b/a 28,30-Bisnorhopane	10.0	U
17a(H),21b(H)-25-Norhopane	**420**	G
30-Norhopane	**87.8**	
18a(H)-30-Norneohopane-C29Ts	**31.7**	
17a(H)-Diahopane	10.0	U
30-Normoretane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U
Hopane	**95.8**	
Moretane	10.0	U
30-Homohopane-22S	**56.6**	
30-Homohopane-22R	**85.9**	
T22a-Gammacerane/C32-diahopane	10.0	U
30,31-Bishomohopane-22S	10.0	U
30,31-Bishomohopane-22R	10.0	U

Parameter	Result	
30,31-Trishomohopane-22S	**99.0**	
30,31-Trishomohopane-22R	10.0	U
Tetrakishomohopane-22S	10.0	U
Tetrakishomohopane-22R	10.0	U
Pentakishomohopane-22S	10.0	U
Pentakishomohopane-22R	10.0	U
13b(H),17a(H)-20S-Diacholestane	**8.29**	J
13b(H),17a(H)-20R-Diacholestane	10.0	U
13b,17a-20S-Methyldiacholestane	10.0	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**17.5**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	10.0	U
Unknown Sterane (S18)	**23.2**	GB
13a,17b-20S-Ethyldiacholestane	10.0	U
14a,17a-20S-Methylcholestane	10.0	U
14a,17a-20R-Methylcholestane	10.0	U
14a(H),17a(H)-20S-Ethylcholestane	10.0	U
14a(H),17a(H)-20R-Ethylcholestane	10.0	U
14b(H),17b(H)-20R-Cholestane	10.0	U
14b(H),17b(H)-20S-Cholestane	10.0	U
14b,17b-20R-Methylcholestane	10.0	U
14b,17b-20S-Methylcholestane	10.0	U
14b(H),17b(H)-20R-Ethylcholestane	**30.8**	
14b(H),17b(H)-20S-Ethylcholestane	**25.1**	
C26,20R- +C27,20S- triaromatic steroid	**17.2**	
C28,20S-triaromatic steroid	**31.7**	
C27,20R-triaromatic steroid	10.0	U
C28,20R-triaromatic steroid	10.0	U

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	90	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

MK fresh 5/28/12

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	11662	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	24311	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	32084	633.870	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 63.39%			
42) Phenanthrene-d10	32.221	188	34066	851.486	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.15%			
86) Benzo[a]pyrene-d12	47.850	264	40647	806.766	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.68%			
127) 5B(H)Cholane - Surr	43.422	217	6842	900.162	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.02%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	54M2	5.866	ng/mL	
10) Naphthalene	19.485	128	1733	23.316	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2849M5	38.330	ng/mL	
12) C2-Naphthalenes	24.679	156	4140M5	55.700	ng/mL	
13) C3-Naphthalenes	27.750	170	2908M5	39.124	ng/mL	
14) C4-Naphthalenes	30.113	184	2016M5	27.123	ng/mL	
16) 2-Methylnaphthalene	22.180	142	1984M3	45.144	ng/mL	
17) 1-Methylnaphthalene	22.601	142	787	18.269	ng/mL#	100
19) C1-Benzo(b)thiophenes	21.758	148	524M5	7.834	ng/mL	
20) C2-Benzo(b)thiophenes	25.175	162	503M5	7.520	ng/mL	
23) Biphenyl	24.061	154	510M3	9.174	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	1235M3	34.203	ng/mL	
25) Dibenzofuran	27.133	168	2451	38.394	ng/mL	89
26) Acenaphthylene	25.763	152	233M3	3.158	ng/mL	
27) Acenaphthene	26.485	153	524M3	12.062	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	172M3	5.909	ng/mL	
29) Fluorene	28.502	166	940M3	19.619	ng/mL	
30) C1-Fluorenes	30.866	180	535M5	11.166	ng/mL	
31) C2-Fluorenes	33.199	194	913M5	19.055	ng/mL	
33) Dibenzothiophene	31.814	184	457	5.950	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	194	2.526	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.922	198	68M3	0.885	ng/mL	
36) 1-Methyldibenzothiophene(	34.344	198	71M3	0.924	ng/mL	
37) OTP	33.997	198	8187M3	106.596	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	8736M5	113.745	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	549m	7.148	ng/mL	
39) C2-Dibenzothiophenes	35.638	212	848M5	11.041	ng/mL	
43) Phenanthrene	32.311	178	5202	77.091	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.268	192	359	5.320	ng/mL	99
45) 2-Methylphenanthrene(2MP)	34.389	192	397	5.883	ng/mL	90
46) 2-Methylanthracene(2MA)	34.539	192	84M3	1.245	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	266	3.942	ng/mL	93
48) 1-Methylphenanthrene(1MP)	34.810	192	194M3	2.875	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	1381M5	20.466	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.286	206	2630M5	38.975	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.286	206	1042m	15.442	ng/mL	
51) 5AA IS BKGD	36.286	206	1588	23.533	ng/mL	100
55) Anthracene	32.492	178	482	7.313	ng/mL	96
56) Carbazole	33.169	167	134M3	2.013	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
57) 1-Methylphenanthrene	34.810	192	200M3	4.677	ng/mL	
58) Fluoranthene	37.084	202	2079	31.022	ng/mL#	73
59) Benzo(b)fluorene	39.598	216	90M3	2.315	ng/mL	
60) Pyrene	37.957	202	1692	24.837	ng/mL#	73
61) C1-Fluoranthenes/Pyrenes	40.125	216	1792M5	26.305	ng/mL	
66) Naphthobenzothiophene	41.811	234	305M3	4.159	ng/ml	
67) Naphthobenzothiophene-2,1	41.811	234	312M3	4.254	ng/mL	
68) Naphthobenzothiophene-1,2	42.158	234	125	1.704	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.459	234	309M3	4.213	ng/mL	
70) C1-Naphthobenzothiophenes	43.543	248	765M5	10.430	ng/ml	
75) Benz[a]anthracene	42.730	228	3230M3	41.860	ng/mL	
77) Chrysene/Triphenylene	42.895	228	1749M3	22.451	ng/mL	
78) C1-Chrysenes	44.386	242	1008M5	12.939	ng/mL	
82) Benzo[b]fluoranthene	46.795	252	1977M3	23.317	ng/mL	
83) Benzo[j]+[k]fluoranthene	46.856	252	1399	15.155	ng/mL#	49
85) Benzo[e]pyrene	47.759	252	1279M3	15.251	ng/mL	
87) Benzo[a]pyrene	47.940	252	720M3	8.917	ng/mL	
88) Perylene	48.241	252	453	5.250	ng/mL#	48
89) Indeno[1,2,3-cd]pyrene	52.594	276	998M3	10.621	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	406M3	4.542	ng/mL	
91) Benzo[g,h,i]perylene	53.843	276	1256M3	12.652	ng/mL	
92) Hopane (T19)	51.690	191	1535M3	95.802	ng/mL	
109) 17a(H),21b(H)-25-Norhopan	49.521	191G	6732	420.155	ng/ml	100
110) 30-Norhopane (T15)	50.380	191	1407	87.813	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.470	191	508M3	31.705	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	906M3	56.545	ng/ml	
117) 30-Homohopane-22R (T22)	53.633	191	1377M3	85.941	ng/ml	
121) 30,31-Trishomohopane-22S	56.991	191	1586M3	98.985	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	63M3	8.289	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.901	217	133	17.498	ng/ml	100
133) Unknown Sterane (S18)	47.729	217G	176M3	23.155	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	234M3	30.786	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.401	218	191M3	25.129	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	131	17.235	ng/mL	100
146) C28,20S-triaromatic stero	49.898	231	241	31.707	ng/mL	100

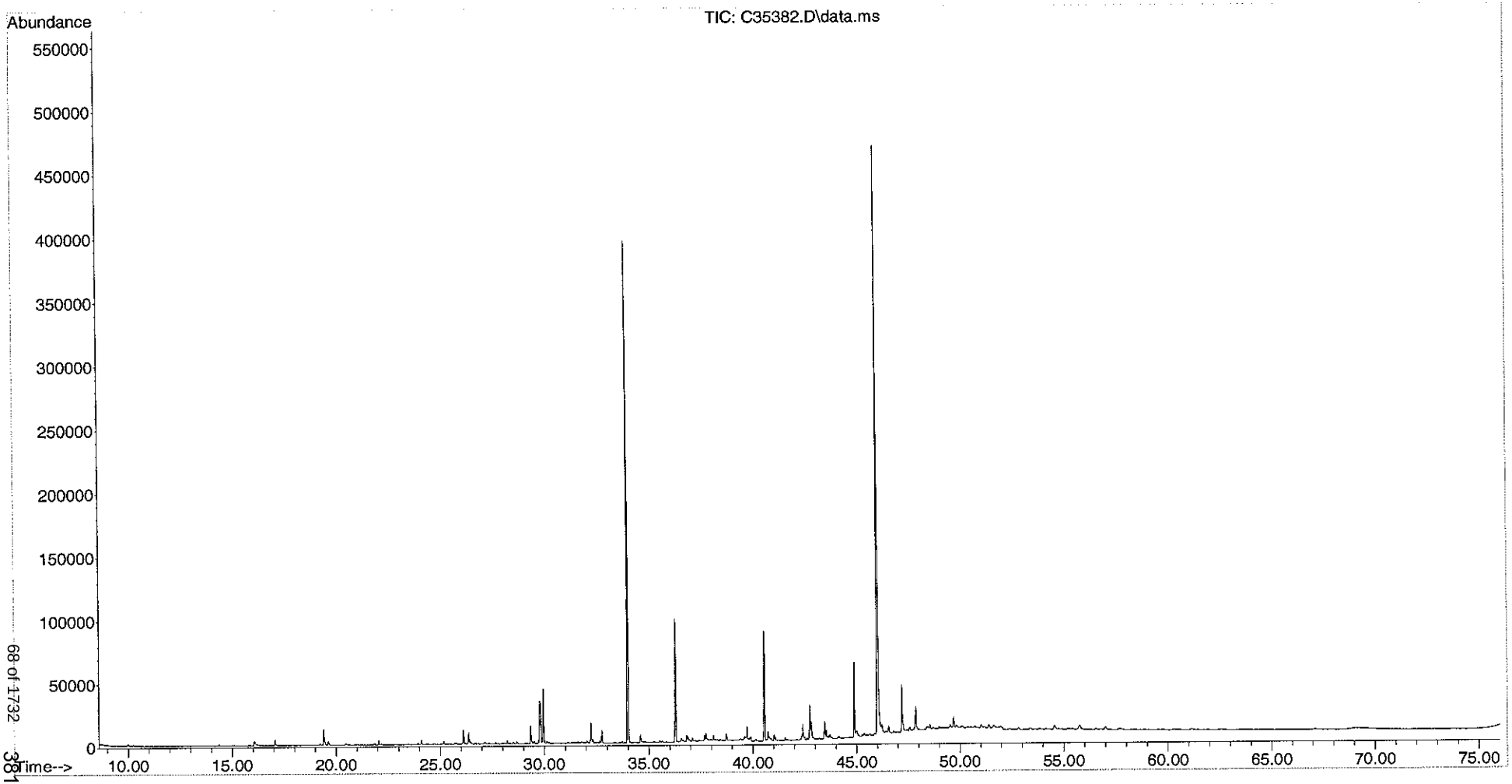
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.93	2	1	AC

Parameter	Result		Parameter	Result
cis/trans-Decalin	**5.07**	J	C3-Dibenzothiophenes	**98.9**
C1-Decalins	1.27	U	C4-Dibenzothiophenes	**93.4**
C2-Decalins	1.27	U	Benzo(b)fluorene	**128**
C3-Decalins	1.27	U	Fluoranthene	**1110**
C4-Decalins	1.27	U	Pyrene	**956**
Benzothiophene	**1.15**	J	C1-Fluoranthenes/Pyrenes	**457**
C1-Benzo(b)thiophenes	1.03	U	C2-Fluoranthenes/Pyrenes	**302**
C2-Benzo(b)thiophenes	1.03	U	C3-Fluoranthenes/Pyrenes	**190**
C3-Benzo(b)thiophenes	1.03	U	C4-Fluoranthenes/Pyrenes	**183**
C4-Benzo(b)thiophenes	1.03	U	Naphthobenzothiophenes	**152**
Naphthalene	**24.7**		C1-Naphthobenzothiophenes	**137**
C1-Naphthalenes	**25.6**		C2-Naphthobenzothiophenes	**187**
C2-Naphthalenes	**38.2**		C3-Naphthobenzothiophenes	**183**
C3-Naphthalenes	**33.3**		C4-Naphthobenzothiophenes	**146**
C4-Naphthalenes	**27.3**		Benz[a]anthracene	**269**
Biphenyl	**7.51**	J	Chrysene/Triphenylene	**464**
Dibenzofuran	**18.0**		C1-Chrysenes	**190**
Acenaphthylene	**22.7**		C2-Chrysenes	**153**
Acenaphthene	**15.2**		C3-Chrysenes	**204**
Fluorene	**28.3**		C4-Chrysenes	**143**
C1-Fluorenes	**19.0**		Benzo[b]fluoranthene	**569**
C2-Fluorenes	**38.2**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**532**
C3-Fluorenes	**86.7**		Benzo[a]fluoranthene	**61.6**
Anthracene	**48.2**		Benzo[e]pyrene	**415**
Phenanthrene	**181**		Benzo[a]pyrene	**442**
C1-Phenanthrenes/Anthracenes	**121**		Perylene	**502**
C2-Phenanthrenes/Anthracenes	**169**		Indeno[1,2,3-cd]pyrene	**415**
C3-Phenanthrenes/Anthracenes	**166**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**107**
C4-Phenanthrenes/Anthracenes	**133**		Benzo[g,h,i]perylene	**407**
Retene	0.728	U		
Dibenzothiophene	**17.2**			
C1-Dibenzothiophenes	**20.7**			
C2-Dibenzothiophenes	**54.4**			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	50	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.93	2	1	AC

Parameter	Result
Carbazole	**23.5**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	50	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.93	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**7.53** J
2/3-Methyldibenzothiophene	**5.00** J
1-Methyldibenzothiophene	**2.78** J
3-Methylphenanthrene	**29.9**
2-Methylphenanthrene	**26.0**
2-Methylanthracene	**10.2**
9/4-Methylphenanthrene	**28.5**
1-Methylphenanthrene	**20.7**
2-Methylnaphthalene	**27.0**
I-Methylnaphthalene	**15.4**
2,6-Dimethylnaphthalene	**26.0**
2,3,5-Trimethylnaphthalene	**6.51** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	50	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.93	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	138	
C24 Tricyclic Terpane	88.8	
C25 Tricyclic Terpane	75.9	
C24 Tetracyclic Terpane	110	
C26 Tricyclic Terpane-22S	47.8	
C26 Tricyclic Terpane-22R	46.9	
C28 Tricyclic Terpane-22S	70.6	
C28 Tricyclic Terpane-22R	83.2	
C29 Tricyclic Terpane-22S	70.4	
C29 Tricyclic Terpane-22R	69.4	
18a-22,29,30-Trisnorneohopane-TS	280	
C30 Tricyclic Terpane-22S	80.0	
C30 Tricyclic Terpane-22R	79.8	
17a(H)-22,29,30-Trisnorhopane-TM	275	
17a/b,21b/a 28,30-Bisnorhopane	53.8	
17a(H),21b(H)-25-Norhopane	96.7	
30-Norhopane	900	
18a(H)-30-Norneohopane-C29Ts	290	
17a(H)-Diahopane	73.2	
30-Normoretane	196	
18a(H)&18b(H)-Oleananes	102	
Hopane	1250	
Moretane	265	
30-Homohopane-22S	384	
30-Homohopane-22R	370	
T22a-Gammacerane/C32-diahopane	106	
30,31-Bishomohopane-22S	2210	G
30,31-Bishomohopane-22R	225	

Parameter	Result	
30,31-Trishomohopane-22S	309	
30,31-Trishomohopane-22R	115	
Tetrakishomohopane-22S	580	G
Tetrakishomohopane-22R	648	G
Pentakishomohopane-22S	117	
Pentakishomohopane-22R	90.5	
13b(H),17a(H)-20S-Diacholestane	174	
13b(H),17a(H)-20R-Diacholestane	116	
13b,17a-20S-Methyldiacholestane	123	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	336	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	332	
Unknown Sterane (S18)	76.2	
13a,17b-20S-Ethyldiacholestane	10.3	
14a,17a-20S-Methylcholestane	145	
14a,17a-20R-Methylcholestane	120	
14a(H),17a(H)-20S-Ethylcholestane	206	
14a(H),17a(H)-20R-Ethylcholestane	192	
14b(H),17b(H)-20R-Cholestane	171	
14b(H),17b(H)-20S-Cholestane	170	
14b,17b-20R-Methylcholestane	147	
14b,17b-20S-Methylcholestane	218	
14b(H),17b(H)-20R-Ethylcholestane	330	
14b(H),17b(H)-20S-Ethylcholestane	200	
C26,20R- +C27,20S- triaromatic steroid	349	
C28,20S-triaromatic steroid	371	
C27,20R-triaromatic steroid	242	
C28,20R-triaromatic steroid	273	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	78	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14922	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35280	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	16223	250.489	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.05%#			
42) Phenanthrene-d10	32.221	188	19046	372.054	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.21%#			
86) Benzo[a]pyrene-d12	47.850	264	25482	348.519	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 34.85%#			
127) 5B(H)Cholane - Surr	43.422	217	4300	389.835	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.98%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	67M2	5.688	ng/mL	
10) Naphthalene	19.485	128	2638	27.738	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2728M5	28.684	ng/mL	
12) C2-Naphthalenes	24.664	156	4070M5	42.795	ng/mL	
13) C3-Naphthalenes	28.563	170	3550M5	37.327	ng/mL	
14) C4-Naphthalenes	31.363	184	2908M5	30.577	ng/mL	
16) 2-Methylnaphthalene	22.180	142	1706	30.338	ng/mL#	100
17) 1-Methylnaphthalene	22.586	142	952	17.271	ng/mL#	100
18) Benzothiophene	19.696	134	110M3	1.285	ng/mL	
23) Biphenyl	24.061	154	599	8.421	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	1350	29.220	ng/mL#	100
25) Dibenzofuran	27.133	168	1652	20.224	ng/mL	96
26) Acenaphthylene	25.748	152	2405	25.475	ng/mL#	100
27) Acenaphthene	26.485	153	950	17.090	ng/mL	97
28) 2,3,5-Trimethylnaphthalen	28.051	170	272M3	7.303	ng/mL	
29) Fluorene	28.502	166	1947	31.759	ng/mL	92
30) C1-Fluorenes	30.866	180	1310M5	21.368	ng/mL	
31) C2-Fluorenes	33.064	194	2626M5	42.834	ng/mL	
32) C3-Fluorenes	35.548	208	5961M5	97.233	ng/mL	
33) Dibenzothiophene	31.814	184	1890	19.232	ng/mL#	79
34) 4-Methyldibenzothiophene(	33.591	198	830	8.446	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.907	198	551M3	5.607	ng/mL	
36) 1-Methyldibenzothiophene(	34.344	198	307	3.124	ng/mL#	100
37) OTP	33.997	198	4708M3	47.907	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	6985M5	71.077	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2277m	23.170	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	5999M5	61.044	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	10906M5	110.976	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	10291M5	104.718	ng/mL	
43) Phenanthrene	32.311	178	17489	202.556	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2892	33.495	ng/mL	97
45) 2-Methylphenanthrene(2MP)	34.374	192	2520	29.186	ng/mL	97
46) 2-Methylanthracene(2MA)	34.539	192	987M3	11.431	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2757M3	31.931	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	2006M3	23.233	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11718M5	135.717	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	16378M5	189.689	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	16378m	189.689	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	16050M5	185.890	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) C4-Phenanthrenes/Anthrace	41.224	234	12880M5	149.175	ng/mL	
55) Anthracene	32.492	178	4564M3	54.117	ng/mL	
56) Carbazole	33.169	167	2249	26.400	ng/mL	94
57) 1-Methylphenanthrene	34.810	192	2028M3	37.064	ng/mL	
58) Fluoranthene	37.084	202	106531M3	1242.320	ng/mL	
59) Benzo(b)fluorene	39.598	216	7137M3	143.458	ng/mL	
60) Pyrene	37.957	202	93460	1072.174	ng/mL	96
61) C1-Fluoranthenes/Pyrenes	39.357	216	44696M5	512.753	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	29522M5	338.677	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	18526M5	212.530	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	17935M5	205.750	ng/mL	
66) Naphthobenzothiophene	41.811	234	10780	114.870	ng/ml#	72
67) Naphthobenzothiophene-2,1	41.811	234	10780	114.870	ng/mL#	72
68) Naphthobenzothiophene-1,2	42.143	234	2490	26.533	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.444	234	2726M3	29.048	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	14390M5	153.337	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	19687M5	209.781	ng/ml	
72) C3-Naphthobenzothiophenes	46.826	276	19253M5	205.157	ng/ml	
73) C4-Naphthobenzothiophenes	47.850	290	15352M5	163.588	ng/mL	
75) Benz[a]anthracene	42.730	228	33750M3	301.398	ng/mL	
77) Chrysene/Triphenylene	42.895	228	58812M3	520.224	ng/mL	
78) C1-Chrysenes	44.371	242	24053M5	212.762	ng/mL	
79) C2-Chrysenes	46.088	256	19397M5	171.577	ng/mL	
79) C2-Chrysenes BS	46.088	256	19397m	171.577	ng/mL	
80) C3-Chrysenes	47.624	270	25812M5	228.321	ng/mL	
81) C4-Chrysenes	48.076	284	18155M5	160.591	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	78548	638.386	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	79982M3	597.057	ng/mL	
84) Benzo[a]fluoranthene	47.157	252	9259M3	69.117	ng/mL	
85) Benzo[e]pyrene	47.759	252	56704	465.920	ng/mL	94
87) Benzo[a]pyrene	47.940	252	58089	495.745	ng/mL	92
88) Perylene	48.241	252	70556	563.422	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	63427M3	465.144	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	15518M3	119.631	ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	65784	456.628	ng/mL	100
92) Hopane (T19)	51.705	191	32490M3	1397.298	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	3591M3	154.438	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2316M3	99.604	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	1979M3	85.111	ng/ml	
97) C24 Tetracyclic Terpane (	43.964	191	2881M3	123.903	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	1248	53.673	ng/ml	100
99) C26 Tricyclic Terpane-22R	43.814	191	1222	52.555	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.103	191	1842M3	79.219	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2170	93.325	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.795	191	1837	79.004	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1809M3	77.800	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.061	191	7316	314.639	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2085M3	89.670	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2081M3	89.498	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7164	308.102	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	1402	60.296	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.551	191	2521M3	108.421	ng/ml	
110) 30-Norhopane (T15)	50.395	191	23483	1009.934	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.485	191	7573M3	325.692	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
112) 17a(H)-Diahopane (X)	50.621	191	1909M3	82.100	ng/ml	
113) 30-Normoretane (T17)	51.133	191	5102	219.422	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.524	191	2653M3	114.098	ng/ml	
115) Moretane (T20)	52.368	191	6900M3	296.748	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	10022	431.016	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	9648	414.932	ng/ml	100
118) Gammacerane/C32-diahopane	54.190	191	2763M3	118.828	ng/mL	
119) 30,31-Bishomohopane-22S (	54.883	191G	57737	2483.096	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	5859	251.978	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	8069M3	347.024	ng/ml	
122) 30,31-Trishomohopane-22R	57.548	191	3009	129.408	ng/ml	100
123) Tetrakishomohopane-22S (T	59.536	191G	15140	651.126	ng/ml	100
124) Tetrakishomohopane-22R (T	60.288	191G	16900	726.818	ng/ml	100
125) Pentakishomohopane-22S (T	62.487	191	3059M3	131.558	ng/ml	
126) Pentakishomohopane-22R (T	63.737	191	2359M3	101.454	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2152	195.099	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1435M3	130.096	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.058	217	1515M3	137.349	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4161	377.233	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4114M3	372.972	ng/ml	
133) Unknown Sterane (S18)	47.699	217	943	85.492	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.955	217	128	11.604	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	1799M3	163.096	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1480M3	134.176	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2548M3	231.000	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2369M3	214.772	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2112M3	191.472	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2106M3	190.928	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1815	164.546	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	2694M3	244.236	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.386	218	4077M3	369.618	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2471M3	224.019	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4316M3	391.285	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4595M3	416.579	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	2992M3	271.252	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	3380M3	306.428	ng/mL	

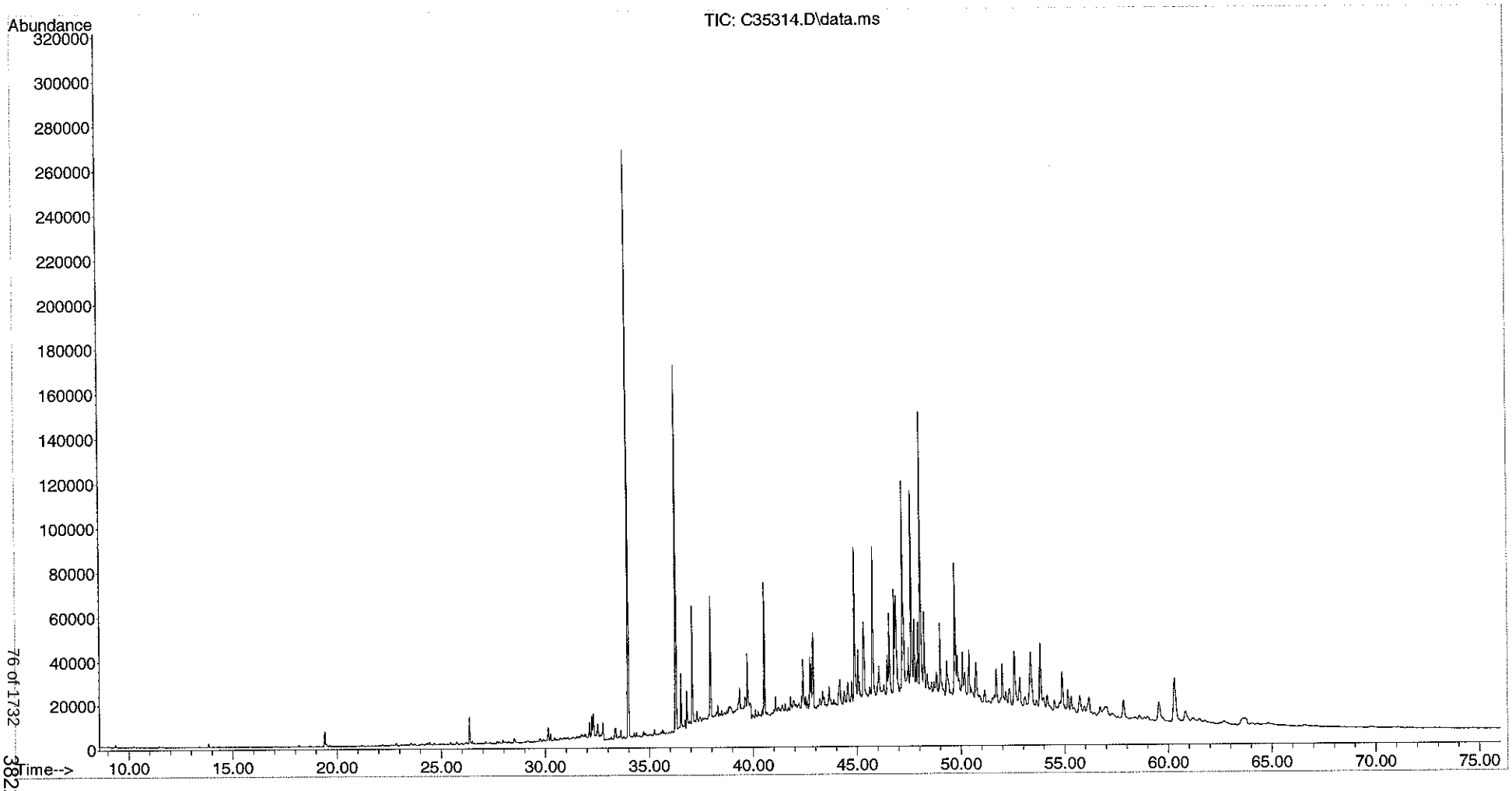
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	10.00	2	1	AC

Parameter	Result		Parameter	Result
cis/trans-Decalin	**5.84**	J	C3-Dibenzothiophenes	**64.1**
C1-Decalins	1.22	U	C4-Dibenzothiophenes	**59.7**
C2-Decalins	1.22	U	Benzo(b)fluorene	**101**
C3-Decalins	1.22	U	Fluoranthene	**874**
C4-Decalins	1.22	U	Pyrene	**753**
Benzothiophene	**1.11**	J	C1-Fluoranthenes/Pyrenes	**364**
C1-Benzo(b)thiophenes	0.990	U	C2-Fluoranthenes/Pyrenes	**245**
C2-Benzo(b)thiophenes	0.990	U	C3-Fluoranthenes/Pyrenes	**140**
C3-Benzo(b)thiophenes	0.990	U	C4-Fluoranthenes/Pyrenes	**147**
C4-Benzo(b)thiophenes	0.990	U	Naphthobenzothiophenes	**129**
Naphthalene	**27.7**		C1-Naphthobenzothiophenes	**99.8**
C1-Naphthalenes	**28.9**		C2-Naphthobenzothiophenes	**133**
C2-Naphthalenes	**46.6**		C3-Naphthobenzothiophenes	**121**
C3-Naphthalenes	**34.8**		C4-Naphthobenzothiophenes	**103**
C4-Naphthalenes	**26.0**		Benz[a]anthracene	**247**
Biphenyl	**7.46**	J	Chrysene/Triphenylene	**408**
Dibenzofuran	**17.1**		C1-Chrysenes	**165**
Acenaphthylene	**23.3**		C2-Chrysenes	**132**
Acenaphthene	**11.6**		C3-Chrysenes	**208**
Fluorene	**20.9**		C4-Chrysenes	**130**
C1-Fluorenes	**15.7**		Benzo[b]fluoranthene	**528**
C2-Fluorenes	**32.7**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**455**
C3-Fluorenes	**88.1**		Benzo[a]fluoranthene	**68.7**
Anthracene	**43.0**		Benzo[e]pyrene	**384**
Phenanthrene	**172**		Benzo[a]pyrene	**437**
C1-Phenanthrenes/Anthracenes	**105**		Perylene	**300**
C2-Phenanthrenes/Anthracenes	**140**		Indeno[1,2,3-cd]pyrene	**410**
C3-Phenanthrenes/Anthracenes	**108**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**106**
C4-Phenanthrenes/Anthracenes	**86.4**		Benzo[g,h,i]perylene	**388**
Retene	0.697	U		
Dibenzothiophene	**13.4**			
C1-Dibenzothiophenes	**14.8**			
C2-Dibenzothiophenes	**36.7**			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	55	40-120
Phenanthrene-d10	75	40-120
Benzo[a]pyrene-d12	73	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	10.00	2	1	AC

Parameter	Result
Carbazole	**19.6**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	55	40-120
Phenanthrene-d10	75	40-120
Benzo[a]pyrene-d12	73	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	10.00	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**5.78**	J
2/3-Methyldibenzothiophene	**3.50**	J
1-Methyldibenzothiophene	**2.09**	J
3-Methylphenanthrene	**25.0**	
2-Methylphenanthrene	**25.1**	
2-Methylanthracene	**9.93**	
9/4-Methylphenanthrene	**26.8**	
1-Methylphenanthrene	**17.5**	
2-Methylnaphthalene	**29.6**	
1-Methylnaphthalene	**16.8**	
2,6-Dimethylnaphthalene	**32.7**	
2,3,5-Trimethylnaphthalene	**5.98**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	55	40-120
Phenanthrene-d10	75	40-120
Benzo[a]pyrene-d12	73	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	10.00	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**124**	
C24 Tricyclic Terpane	**84.7**	
C25 Tricyclic Terpane	**75.5**	
C24 Tetracyclic Terpane	**107**	
C26 Tricyclic Terpane-22S	**45.4**	
C26 Tricyclic Terpane-22R	**47.9**	
C28 Tricyclic Terpane-22S	**56.5**	
C28 Tricyclic Terpane-22R	**77.5**	
C29 Tricyclic Terpane-22S	**74.9**	
C29 Tricyclic Terpane-22R	**61.7**	
18a-22,29,30-Trisnorneohopane-TS	**267**	
C30 Tricyclic Terpane-22S	**82.3**	
C30 Tricyclic Terpane-22R	**59.9**	
17a(H)-22,29,30-Trisnorhopane-TM	**277**	
17a/b,21b/a 28,30-Bisnorhopane	**74.1**	
17a(H),21b(H)-25-Norhopane	**99.2**	
30-Norhopane	**881**	
18a(H)-30-Norneohopane-C29Ts	**255**	
17a(H)-Diahopane	**69.1**	
30-Normoretane	**140**	
18a(H)&18b(H)-Oleananes	**113**	
Hopane	**1160**	
Moretane	**271**	
30-Homohopane-22S	**423**	
30-Homohopane-22R	**375**	
T22a-Gammacerane/C32-diahopane	**118**	
30,31-Bishomohopane-22S	**1570**	G
30,31-Bishomohopane-22R	**219**	

Parameter	Result	
30,31-Trishomohopane-22S	**263**	
30,31-Trishomohopane-22R	**108**	
Tetrakishomohopane-22S	**422**	G
Tetrakishomohopane-22R	**358**	G
Pentakishomohopane-22S	**124**	
Pentakishomohopane-22R	**79.9**	
13b(H),17a(H)-20S-Diacholestane	**182**	
13b(H),17a(H)-20R-Diacholestane	**116**	
13b,17a-20S-Methyldiacholestane	**116**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**354**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**278**	
Unknown Sterane (S18)	**72.4**	
13a,17b-20S-Ethyldiacholestane	**12.5**	
14a,17a-20S-Methylcholestane	**154**	
14a,17a-20R-Methylcholestane	**150**	
14a(H),17a(H)-20S-Ethylcholestane	**188**	
14a(H),17a(H)-20R-Ethylcholestane	**195**	
14b(H),17b(H)-20R-Cholestane	**171**	
14b(H),17b(H)-20S-Cholestane	**165**	
14b,17b-20R-Methylcholestane	**149**	
14b,17b-20S-Methylcholestane	**221**	
14b(H),17b(H)-20R-Ethylcholestane	**360**	
14b(H),17b(H)-20S-Ethylcholestane	**207**	
C26,20R- +C27,20S- triaromatic steroid	**310**	
C28,20S-triaromatic steroid	**343**	
C27,20R-triaromatic steroid	**220**	
C28,20R-triaromatic steroid	**245**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	77	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15719	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35262	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	18894	276.939	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.69%#			
42) Phenanthrene-d10	32.221	188	20224	375.035	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.50%#			
86) Benzo[a]pyrene-d12	47.850	264	26784	366.514	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.65%#			
127) 5B(H)Cholane - Surr	43.422	217	4270	387.312	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.73%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	85M3	6.850	ng/mL	
10) Naphthalene	19.485	128	3257	32.510	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3397M5	33.907	ng/mL	
12) C2-Naphthalenes	24.664	156	5473M5	54.629	ng/mL	
13) C3-Naphthalenes	28.563	170	4084M5	40.765	ng/mL	
14) C4-Naphthalenes	31.363	184	3057M5	30.514	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2054	34.674	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1144	19.702	ng/mL#	100
18) Benzothiophene	19.711	134	117M3	1.298	ng/mL	
23) Biphenyl	24.061	154	655	8.741	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	1865	38.320	ng/mL#	100
25) Dibenzofuran	27.133	168	1720	19.989	ng/mL	97
26) Acenaphthylene	25.748	152	2721	27.360	ng/mL#	100
27) Acenaphthene	26.485	153	798	13.628	ng/mL	93
28) 2,3,5-Trimethylnaphthalen	28.036	170	275M3	7.009	ng/mL	
29) Fluorene	28.503	166	1582M3	24.496	ng/mL	
30) C1-Fluorenes	30.866	180	1185M5	18.349	ng/mL	
31) C2-Fluorenes	33.049	194	2478M5	38.371	ng/mL	
32) C3-Fluorenes	35.548	208	6665M5	103.204	ng/mL	
33) Dibenzothiophene	31.814	184	1627	15.716	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	701M3	6.771	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	425M3	4.105	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	254	2.454	ng/mL#	100
37) OTP	33.997	198	4979M3	48.096	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	6781M5	65.503	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	1802m	17.407	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	4456M5	43.044	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	7780M5	75.153	ng/mL	
41) C4-Dibenzothiophenes	40.547	240	7242M5	69.956	ng/mL	
43) Phenanthrene	32.311	178	18301	201.213	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2667	29.323	ng/mL	93
45) 2-Methylphenanthrene(2MP)	34.374	192	2672	29.378	ng/mL	95
46) 2-Methylanthracene(2MA)	34.539	192	1059M3	11.643	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2857M3	31.412	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1862M3	20.472	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11239M5	123.569	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	14964M5	164.524	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	14964m	164.524	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	11569M5	127.197	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) C4-Phenanthrenes/Anthrace	40.562	234	9213M5	101.294	ng/mL	
55) Anthracene	32.492	178	4475M3	50.371	ng/mL	
56) Carbazole	33.169	167	2066	23.022	ng/mL#	87
57) 1-Methylphenanthrene	34.810	192	1857M3	32.218	ng/mL	
58) Fluoranthene	37.084	202	92523M3	1024.258	ng/mL	
59) Benzo(b)fluorene	39.598	216	6222M3	118.725	ng/mL	
60) Pyrene	37.957	202	81075	882.934	ng/mL	98
61) C1-Fluoranthenes/Pyrenes	39.357	216	39132M5	426.161	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	26324M5	286.677	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	15071M5	164.128	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	15805M5	172.122	ng/mL	
66) Naphthobenzothiophene	41.812	234	9705	98.171	ng/ml#	76
67) Naphthobenzothiophene-2,1	41.812	234	9705	98.171	ng/mL#	76
68) Naphthobenzothiophene-1,2	42.143	234	2198	22.234	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.444	234	3089M3	31.247	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	11563M5	116.966	ng/ml	
71) C2-Naphthobenzothiophenes	44.717	262	15435M5	156.134	ng/ml	
72) C3-Naphthobenzothiophenes	46.811	276	14000M5	141.618	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	11983M5	121.215	ng/mL	
75) Benz[a]anthracene	42.730	228	32456M3	289.990	ng/mL	
77) Chrysene/Triphenylene	42.896	228	54040M3	478.257	ng/mL	
78) C1-Chrysenes	44.371	242	21893M5	193.754	ng/mL	
79) C2-Chrysenes	45.756	256	17415M5	154.124	ng/mL	
79) C2-Chrysenes BS	45.756	256	17415m	154.124	ng/mL	
80) C3-Chrysenes	48.076	270	27544M5	243.766	ng/mL	
81) C4-Chrysenes	48.076	284	17229M5	152.478	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	76092	618.741	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	71397M3	533.243	ng/mL	
84) Benzo[a]fluoranthene	47.157	252	10782	80.528	ng/mL#	7
85) Benzo[e]pyrene	47.759	252	54743	450.036	ng/mL	93
87) Benzo[a]pyrene	47.940	252	60034	512.606	ng/mL	92
88) Perylene	48.241	252	43961	351.228	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.579	276	65466M3	480.342	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	16100	124.181	ng/mL	95
91) Benzo[g,h,i]perylene	53.829	276	65458	454.597	ng/mL	99
92) Hopane (T19)	51.705	191	31684M3	1363.330	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	3369	144.965	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.179	191	2307M3	99.268	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	2057M3	88.511	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2910	125.214	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.724	191	1236	53.184	ng/ml	100
99) C26 Tricyclic Terpane-22R	43.814	191	1305	56.153	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.103	191	1540M3	66.265	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2111M3	90.834	ng/ml	
102) C29 Tricyclic Terpane-22S	46.796	191	2040	87.779	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1681M3	72.332	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.061	191	7270M3	312.821	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	2242M3	96.471	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1631M3	70.180	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7555M3	325.084	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.732	191	2018M3	86.832	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.552	191	2703M3	116.307	ng/ml	
110) 30-Norhopane (T15)	50.395	191	24005	1032.910	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.485	191	6945M4	298.836	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
112) 17a(H)-Diahopane (X)	50.606	191	1881M3	80.937	ng/ml	
113) 30-Normoretane (T17)	51.133	191	3809M3	163.897	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.525	191	3067	131.970	ng/ml	100
115) Moretane (T20)	52.353	191	7382M3	317.640	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11531M3	496.167	ng/ml	
117) 30-Homohopane-22R (T22)	53.648	191	10211	439.369	ng/ml	100
118) Gammacerane/C32-diahopane	54.160	191	3219	138.510	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.883	191G	42725M3	1838.413	ng/ml	
120) 30,31-Bishomohopane-22R (	55.304	191	5963	256.582	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7167M3	308.389	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	2939M3	126.462	ng/ml	
123) Tetrakishomohopane-22S (T	59.521	191G	11482	494.059	ng/ml	100
124) Tetrakishomohopane-22R (T	60.273	191G	9757	419.834	ng/ml	100
125) Pentakishomohopane-22S (T	62.502	191	3371M3	145.051	ng/ml	
126) Pentakishomohopane-22R (T	63.767	191	2176	93.631	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2350	213.158	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1502	136.240	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.058	217	1504	136.421	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4574	414.887	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	3599M3	326.449	ng/ml	
133) Unknown Sterane (S18)	47.699	217	936M3	84.900	ng/ml	
134) 13a,17b-20S-Ethyldiachole	47.940	217	161M3	14.604	ng/ml	
135) 14a,17a-20S-Methylcholest	48.106	217	1984M3	179.960	ng/ml	
136) 14a,17a-20R-Methylcholest	48.799	217	1936M3	175.606	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2425M3	219.961	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2516M3	228.215	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2208M3	200.278	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2134M3	193.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1921M3	174.245	ng/ml	
142) 14b,17b-20S-Methylcholest	48.347	218	2857M3	259.146	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4649M3	421.690	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2680M3	243.091	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4003M4	363.094	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4433M3	402.097	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	2840	257.604	ng/mL	100
148) C28,20R-triaromatic stero	51.509	231	3161M3	286.720	ng/mL	

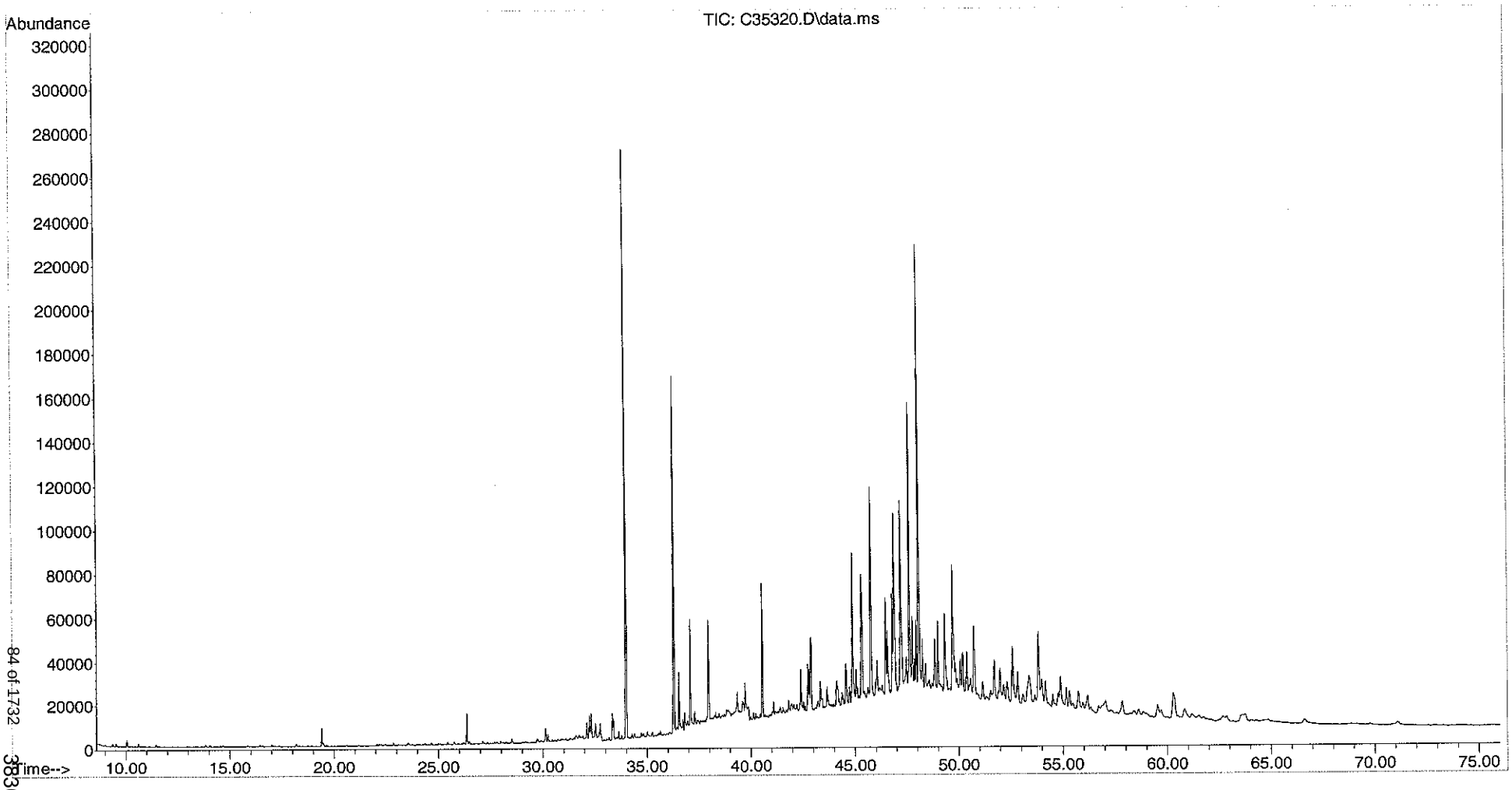
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR4010L001S052212D003**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-07**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	63.0	9.94	2	1	AC

Parameter	Result	
cis/trans-Decalin	**1.20**	J
C1-Decalins	0.456	U
C2-Decalins	0.456	U
C3-Decalins	0.456	U
C4-Decalins	0.456	U
Benzothiophene	**0.460**	J
C1-Benzo(b)thiophenes	0.370	U
C2-Benzo(b)thiophenes	0.370	U
C3-Benzo(b)thiophenes	0.370	U
C4-Benzo(b)thiophenes	0.370	U
Naphthalene	**5.46**	
C1-Naphthalenes	**3.52**	
C2-Naphthalenes	**4.88**	
C3-Naphthalenes	**3.88**	
C4-Naphthalenes	**4.04**	
Biphenyl	**2.26**	J
Dibenzofuran	**1.52**	JB
Acenaphthylene	**1.33**	J
Acenaphthene	**1.07**	J
Fluorene	**1.86**	J
C1-Fluorenes	**1.64**	J
C2-Fluorenes	0.153	U
C3-Fluorenes	0.153	U
Anthracene	**1.29**	J
Phenanthrene	**6.30**	
C1-Phenanthrenes/Anthracenes	**5.72**	
C2-Phenanthrenes/Anthracenes	**5.77**	
C3-Phenanthrenes/Anthracenes	**6.15**	
C4-Phenanthrenes/Anthracenes	**5.79**	
Retene	**3.75**	
Dibenzothiophene	**0.696**	J
C1-Dibenzothiophenes	**1.33**	J
C2-Dibenzothiophenes	**3.08**	J
C3-Dibenzothiophenes	**5.18**	
C4-Dibenzothiophenes	0.139	U
Benzo(b)fluorene	**2.12**	J
Fluoranthene	**18.6**	
Pyrene	**16.5**	
C1-Fluoranthenes/Pyrenes	**11.6**	
C2-Fluoranthenes/Pyrenes	**10.6**	
C3-Fluoranthenes/Pyrenes	**8.40**	
C4-Fluoranthenes/Pyrenes	**8.57**	
Naphthobenzothiophenes	**2.92**	J
C1-Naphthobenzothiophenes	**3.71**	
C2-Naphthobenzothiophenes	**5.64**	
C3-Naphthobenzothiophenes	**8.09**	
C4-Naphthobenzothiophenes	0.155	U
Benz[a]anthracene	**6.14**	
Chrysene/Triphenylene	**8.82**	
C1-Chrysenes	**6.29**	
C2-Chrysenes	**6.79**	
C3-Chrysenes	0.249	U
C4-Chrysenes	0.249	U
Benzo[b]fluoranthene	**9.06**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**7.46**	
Benzo[a]fluoranthene	**1.59**	J
Benzo[e]pyrene	**7.19**	
Benzo[a]pyrene	**6.95**	
Perylene	**66.6**	
Indeno[1,2,3-cd]pyrene	**6.00**	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.41**	J
Benzo[g,h,i]perylene	**6.48**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	64	40-120
Phenanthrene-d10	72	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR4010L001S052212D003**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-07**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	63.0	9.94	2	1	AC

Parameter	Result
Carbazole	1.09 J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	64	40-120
Phenanthrene-d10	72	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR4010L001S052212D003**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-07**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	63.0	9.94	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**0.333**	J
2/3-Methyldibenzothiophene	0.139	U
1-Methyldibenzothiophene	**0.216**	J
3-Methylphenanthrene	**1.12**	J
2-Methylphenanthrene	**1.19**	J
2-Methylanthracene	**0.419**	J
9/4-Methylphenanthrene	**1.43**	J
1-Methylphenanthrene	**1.05**	J
2-Methylnaphthalene	**3.08**	J
1-Methylnaphthalene	**2.35**	J
2,6-Dimethylnaphthalene	**2.03**	J
2,3,5-Trimethylnaphthalene	**0.687**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	64	40-120
Phenanthrene-d10	72	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR4010L001S052212D003**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-07**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	63.0	9.94	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	2.55	U	30,31-Trishomohopane-22S	2.55	U
C24 Tricyclic Terpane	2.55	U	30,31-Trishomohopane-22R	2.55	U
C25 Tricyclic Terpane	**3.85**		Tetrakishomohopane-22S	**42.4**	
C24 Tetracyclic Terpane	2.55	U	Tetrakishomohopane-22R	**233**	
C26 Tricyclic Terpane-22S	2.55	U	Pentakishomohopane-22S	2.55	U
C26 Tricyclic Terpane-22R	2.55	U	Pentakishomohopane-22R	2.55	U
C28 Tricyclic Terpane-22S	2.55	U	13b(H),17a(H)-20S-Diacholestane	2.55	U
C28 Tricyclic Terpane-22R	**67.0**		13b(H),17a(H)-20R-Diacholestane	2.55	U
C29 Tricyclic Terpane-22S	2.55	U	13b,17a-20S-Methyldiacholestane	2.55	U
C29 Tricyclic Terpane-22R	2.55	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**3.61**	
18a-22,29,30-Trisnorneohopane-TS	**6.80**		14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**6.27**	
C30 Tricyclic Terpane-22S	2.55	U	Unknown Sterane (S18)	2.55	U
C30 Tricyclic Terpane-22R	2.55	U	13a,17b-20S-Ethyldiacholestane	2.55	U
17a(H)-22,29,30-Trisnorhopane-TM	**7.23**		14a,17a-20S-Methylcholestane	2.55	U
17a/b,21b/a 28,30-Bisnorhopane	2.55	U	14a,17a-20R-Methylcholestane	2.55	U
17a(H),21b(H)-25-Norhopane	**55.4**		14a(H),17a(H)-20S-Ethylcholestane	2.55	U
30-Norhopane	**14.1**		14a(H),17a(H)-20R-Ethylcholestane	2.55	U
18a(H)-30-Norneohopane-C29Ts	2.55	U	14b(H),17b(H)-20R-Cholestane	2.55	U
17a(H)-Diahopane	2.55	U	14b(H),17b(H)-20S-Cholestane	2.55	U
30-Normoretane	**7.02**		14b,17b-20R-Methylcholestane	2.55	U
18a(H)&18b(H)-Oleananes	2.55	U	14b,17b-20S-Methylcholestane	2.55	U
Hopane	**15.9**		14b(H),17b(H)-20R-Ethylcholestane	**4.69**	
Moretane	**17.4**		14b(H),17b(H)-20S-Ethylcholestane	**1.54**	J
30-Homohopane-22S	2.55	U	C26,20R- +C27,20S- triaromatic steroid	**6.82**	
30-Homohopane-22R	2.55	U	C28,20S-triaromatic steroid	**8.89**	
T22a-Gammacerane/C32-diahopane	2.55	U	C27,20R-triaromatic steroid	2.55	U
30,31-Bishomohopane-22S	**122**		C28,20R-triaromatic steroid	**7.44**	
30,31-Bishomohopane-22R	**19.6**				

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	81	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

5/29/12

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16580	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33075	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	22929	318.629	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 31.86%#			
42) Phenanthrene-d10	32.221	188	20584	361.889	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.19%#			
86) Benzo[a]pyrene-d12	47.850	264	25320	369.390	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.94%#			
127) 5B(H)Cholane - Surr	43.422	217	4191	405.283	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.53%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	49M2	3.744	ng/mL	
10) Naphthalene	19.485	128	1808	17.110	ng/mL#	100
11) C1-Naphthalenes	22.179	142	1166M5	11.034	ng/mL	
12) C2-Naphthalenes	25.010	156	1617m	15.302	ng/mL	
13) C3-Naphthalenes	27.343	170	1284m	12.151	ng/mL	
14) C4-Naphthalenes	30.143	184	1339m	12.671	ng/mL	
16) 2-Methylnaphthalene	22.179	142	602m	9.635	ng/mL	
17) 1-Methylnaphthalene	22.586	142	450m	7.348	ng/mL	
18) Benzothiophene	19.695	134	137m	1.441	ng/mL	
23) Biphenyl	24.061	154	560	7.085	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.679	156	327m	6.370	ng/mL	
25) Dibenzofuran	27.132	168	431	4.749	ng/mL#	77
26) Acenaphthylene	25.747	152	436	4.156	ng/mL#	100
27) Acenaphthene	26.485	153	207	3.351	ng/mL	97
28) 2,3,5-Trimethylnaphthalen	28.036	170	89m	2.151	ng/mL	
29) Fluorene	28.502	166	396	5.813	ng/mL	90
30) C1-Fluorenes	30.866	180	349m	5.123	ng/mL	
33) Dibenzothiophene	31.814	184	238	2.180	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	114m	1.044	ng/mL	
36) 1-Methyldibenzothiophene(	34.358	198	74m	0.678	ng/mL	
37) OTP	33.997	198	5044	46.194	ng/mL#	100
38) C1-Dibenzothiophenes	33.997	198	5499m	50.361	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	455m	4.167	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	1053m	9.644	ng/mL	
40) C3-Dibenzothiophenes	36.933	226	1772m	16.228	ng/mL	
43) Phenanthrene	32.311	178	1892	19.722	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.268	192	338	3.523	ng/mL	100
45) 2-Methylphenanthrene(2MP)	34.374	192	357	3.721	ng/mL	97
46) 2-Methylanthracene(2MA)	34.539	192	126m	1.313	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	430m	4.482	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	316	3.294	ng/mL	93
49) C1-Phenanthrenes/Anthrace	34.720	192	1719m	17.918	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	4057m	42.289	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1734m	18.075	ng/mL	
51) 5AA IS BKGD	36.301	206	2323	24.214	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.378	220	1849m	19.273	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.224	234	1740m	18.137	ng/mL	
54) Retene	39.297	234	220	11.756	ng/mL	86
55) Anthracene	32.492	178	379m	4.045	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
56) Carbazole	33.169	167	323	3.412 ng/mL#	64
57) 1-Methylphenanthrene	34.810	192	316	5.198 ng/mL	94
58) Fluoranthene	37.084	202	5563	58.386 ng/mL	98
59) Benzo(b)fluorene	39.598	216	367m	6.639 ng/mL	
60) Pyrene	37.957	202	4994	51.562 ng/mL	98
61) C1-Fluoranthenes/Pyrenes	39.357	216	3510m	36.240 ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	3200m	33.039 ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.272	244	2548m	26.308 ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.747	258	2601m	26.855 ng/mL	
66) Naphthobenzothiophene	41.811	234	603	5.783 ng/ml#	87
67) Naphthobenzothiophene-2,1	41.811	234	603	5.783 ng/mL#	87
68) Naphthobenzothiophene-1,2	42.143	234	149m	1.429 ng/mL	
69) Naphthobenzothiophene-2,3	42.444	234	202m	1.937 ng/mL	
70) C1-Naphthobenzothiophenes	43.196	248	1212m	11.623 ng/ml	
71) C2-Naphthobenzothiophenes	45.244	262	1843m	17.675 ng/ml	
72) C3-Naphthobenzothiophenes	46.795	276	2642m	25.337 ng/ml	
75) Benz[a]anthracene	42.730	228	2018m	19.223 ng/mL	
77) Chrysene/Triphenylene	42.895	228	2930m	27.645 ng/mL	
78) C1-Chrysenes	44.371	242	2088m	19.701 ng/mL	
79) C2-Chrysenes	47.051	256	2253m	21.258 ng/mL	
79) C2-Chrysenes BS	47.051	256	2253m	21.258 ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3275m	28.391 ng/mL	
83) Benzo[j]+[k]fluoranthene	46.841	252	2937m	23.386 ng/mL	
84) Benzo[a]fluoranthene	47.157	252	625m	4.977 ng/mL	
85) Benzo[e]pyrene	47.744	252	2571	22.533 ng/mL#	88
87) Benzo[a]pyrene	47.925	252	2392m	21.775 ng/mL	
88) Perylene	48.226	252	24510	208.772 ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.578	276	2404m	18.805 ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	537m	4.416 ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	2742	20.302 ng/mL	92
92) Hopane (T19)	51.705	191	1085m	49.773 ng/mL	
96) C25 Tricyclic Terpane (T6	42.715	191	263m	12.065 ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	4573	209.782 ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.045	191	464	21.286 ng/ml	100
107) 17a(H)-22,29,30-Trisnorho	48.588	191	494m	22.662 ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.536	191	3783m	173.542 ng/ml	
110) 30-Norhopane (T15)	50.380	191	962m	44.131 ng/ml	
113) 30-Normoretane (T17)	51.133	191	479m	21.974 ng/ml	
115) Moretane (T20)	52.322	191	1190m	54.590 ng/ml	
119) 30,31-Bishomohopane-22S (	54.867	191	8301	380.801 ng/ml	100
120) 30,31-Bishomohopane-22R (	55.364	191	1340m	61.471 ng/ml	
123) Tetrakishomohopane-22S (T	59.535	191	2895m	132.806 ng/ml	
124) Tetrakishomohopane-22R (T	60.273	191	15930	730.775 ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.901	217	117m	11.314 ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.383	217	203m	19.631 ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	152m	14.699 ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.401	218	50m	4.835 ng/ml	
145) C26,20R- +C27,20S- triaro	49.069	231	221m	21.371 ng/mL	
146) C28,20S-triaromatic stero	49.913	231	288m	27.851 ng/mL	
148) C28,20R-triaromatic stero	51.509	231	241m	23.305 ng/mL	

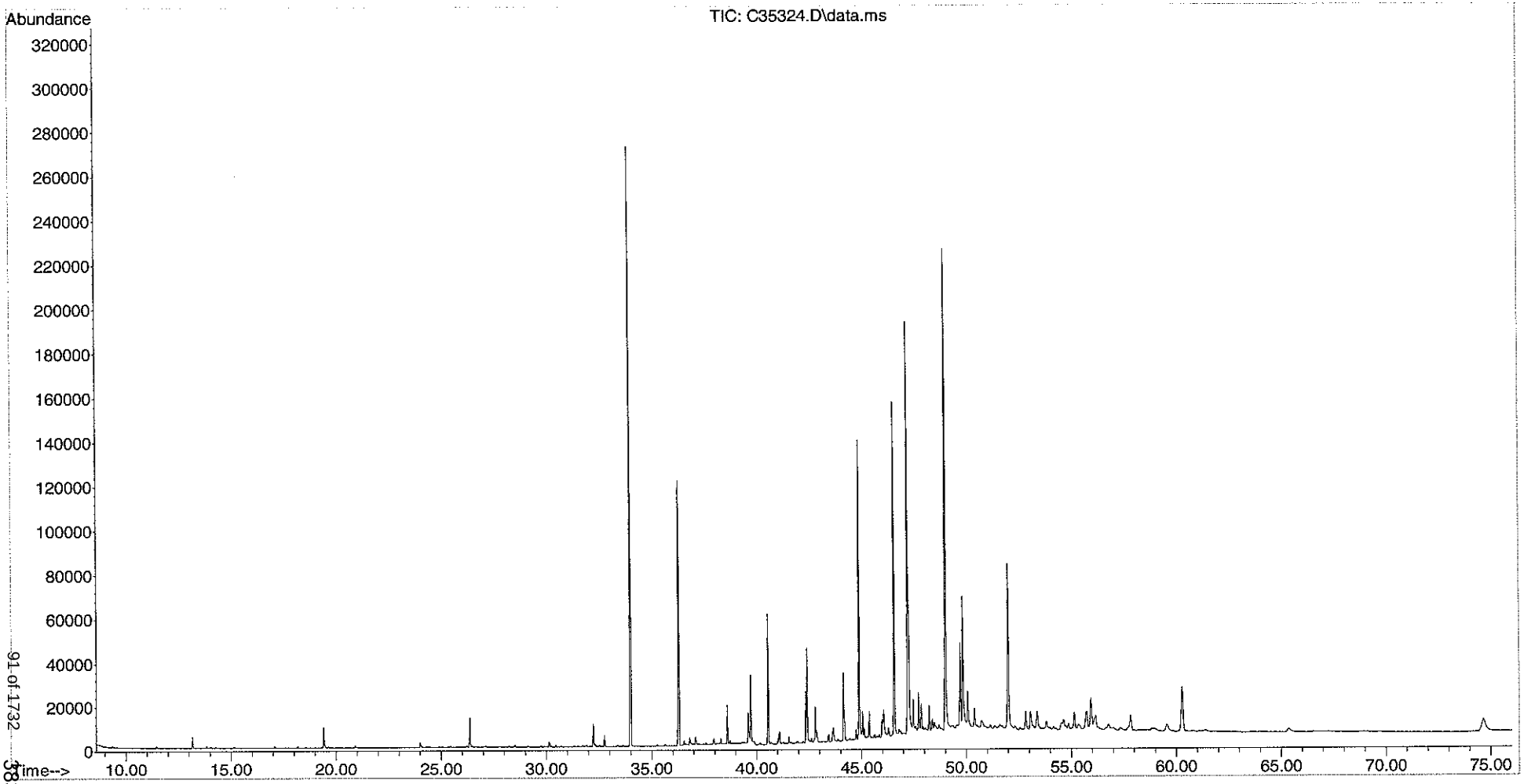
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3990L001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-08**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	36.6	10.06	2	1	AC

Parameter	Result	
cis/trans-Decalin	**8.39**	
C1-Decalins	**11.0**	
C2-Decalins	0.776	U
C3-Decalins	0.776	U
C4-Decalins	0.776	U
Benzothiophene	**1.06**	J
C1-Benzo(b)thiophenes	**3.36**	J
C2-Benzo(b)thiophenes	**6.59**	
C3-Benzo(b)thiophenes	**6.17**	
C4-Benzo(b)thiophenes	0.629	U
Naphthalene	**42.8**	
C1-Naphthalenes	**57.5**	
C2-Naphthalenes	**81.6**	
C3-Naphthalenes	**68.3**	
C4-Naphthalenes	**42.2**	
Biphenyl	**10.4**	
Dibenzofuran	**60.0**	
Acenaphthylene	**21.7**	
Acenaphthene	**77.2**	
Fluorene	**101**	
C1-Fluorenes	**33.7**	
C2-Fluorenes	**53.2**	
C3-Fluorenes	**141**	
Anthracene	**188**	
Phenanthrene	**1080**	
C1-Phenanthrenes/Anthracenes	**402**	
C2-Phenanthrenes/Anthracenes	**234**	
C3-Phenanthrenes/Anthracenes	**118**	
C4-Phenanthrenes/Anthracenes	**64.1**	
Retene	**30.1**	
Dibenzothiophene	**50.6**	
C1-Dibenzothiophenes	**38.8**	
C2-Dibenzothiophenes	**43.8**	

Parameter	Result
C3-Dibenzothiophenes	**47.1**
C4-Dibenzothiophenes	**41.2**
Benzo(b)fluorene	**121**
Fluoranthene	**1900**
Pyrene	**1470**
C1-Fluoranthenes/Pyrenes	**608**
C2-Fluoranthenes/Pyrenes	**560**
C3-Fluoranthenes/Pyrenes	**220**
C4-Fluoranthenes/Pyrenes	**181**
Naphthobenzothiophenes	**204**
C1-Naphthobenzothiophenes	**110**
C2-Naphthobenzothiophenes	**89.5**
C3-Naphthobenzothiophenes	**77.1**
C4-Naphthobenzothiophenes	**63.9**
Benz[a]anthracene	**557**
Chrysene/Triphenylene	**725**
C1-Chrysenes	**263**
C2-Chrysenes	**151**
C3-Chrysenes	**160**
C4-Chrysenes	**103**
Benzo[b]fluoranthene	**704**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**539**
Benzo[a]fluoranthene	**106**
Benzo[e]pyrene	**465**
Benzo[a]pyrene	**599**
Perylene	**238**
Indeno[1,2,3-cd]pyrene	**436**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**135**
Benzo[g,h,i]perylene	**397**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	75	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3990L001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-08**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	36.6	10.06	2	1	AC

Parameter	Result
Carbazole	**121**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	75	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3990L001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-08**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	36.6	10.06	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**12.0**
2/3-Methyldibenzothiophene	**14.2**
1-Methyldibenzothiophene	**4.86** J
3-Methylphenanthrene	**98.4**
2-Methylphenanthrene	**123**
2-Methylanthracene	**34.1**
9/4-Methylphenanthrene	**76.3**
1-Methylphenanthrene	**64.0**
2-Methylnaphthalene	**54.9**
1-Methylnaphthalene	**44.0**
2,6-Dimethylnaphthalene	**37.2**
2,3,5-Trimethylnaphthalene	**15.5**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	75	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3990L001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-08**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	36.6	10.06	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	67.3	
C24 Tricyclic Terpane	54.6	
C25 Tricyclic Terpane	45.1	
C24 Tetracyclic Terpane	48.6	
C26 Tricyclic Terpane-22S	31.5	
C26 Tricyclic Terpane-22R	31.1	
C28 Tricyclic Terpane-22S	29.0	
C28 Tricyclic Terpane-22R	50.0	
C29 Tricyclic Terpane-22S	37.1	
C29 Tricyclic Terpane-22R	29.7	
18a-22,29,30-Trisnorneohopane-TS	132	
C30 Tricyclic Terpane-22S	42.2	
C30 Tricyclic Terpane-22R	27.9	
17a(H)-22,29,30-Trisnorhopane-TM	126	
17a/b,21b/a 28,30-Bisnorhopane	44.2	
17a(H),21b(H)-25-Norhopane	71.9	
30-Norhopane	389	
18a(H)-30-Norneohopane-C29Ts	134	
17a(H)-Diahopane	37.8	
30-Normoretane	66.2	
18a(H)&18b(H)-Oleananes	49.1	
Hopane	495	
Moretane	282	G
30-Homohopane-22S	180	
30-Homohopane-22R	153	
T22a-Gammacerane/C32-diahopane	52.0	
30,31-Bishomohopane-22S	1060	G
30,31-Bishomohopane-22R	113	

Parameter	Result	
30,31-Trishomohopane-22S	122	
30,31-Trishomohopane-22R	54.5	
Tetrakishomohopane-22S	494	G
Tetrakishomohopane-22R	612	G
Pentakishomohopane-22S	45.7	
Pentakishomohopane-22R	45.8	
13b(H),17a(H)-20S-Diacholestane	81.4	
13b(H),17a(H)-20R-Diacholestane	59.0	
13b,17a-20S-Methyldiacholestane	52.3	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	188	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	189	
Unknown Sterane (S18)	37.7	
13a,17b-20S-Ethyldiacholestane	3.25	J
14a,17a-20S-Methylcholestane	70.5	
14a,17a-20R-Methylcholestane	71.0	
14a(H),17a(H)-20S-Ethylcholestane	95.7	
14a(H),17a(H)-20R-Ethylcholestane	109	
14b(H),17b(H)-20R-Cholestane	75.9	
14b(H),17b(H)-20S-Cholestane	79.2	
14b,17b-20R-Methylcholestane	88.6	
14b,17b-20S-Methylcholestane	120	
14b(H),17b(H)-20R-Ethylcholestane	168	
14b(H),17b(H)-20S-Ethylcholestane	96.1	
C26,20R- +C27,20S- triaromatic steroid	149	
C28,20S-triaromatic steroid	162	
C27,20R-triaromatic steroid	108	
C28,20R-triaromatic steroid	124	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	83	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

mg for 5/29/12

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16795	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	37326	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	19819	271.886	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.19%#			
42) Phenanthrene-d10	32.221	188	21994	381.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.17%#			
86) Benzo[a]pyrene-d12	47.850	264	28894	373.524	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.35%#			
127) 5B(H)Cholane - Surr	43.422	217	4841	414.824	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.48%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	205M3	15.462	ng/mL	
5) C1-Decalins	17.558	152	269M5	20.289	ng/mL	
10) Naphthalene	19.485	128	8442	78.866	ng/mL#	100
11) C1-Naphthalenes	22.180	142	11343M5	105.967	ng/mL	
12) C2-Naphthalenes	25.010	156	16090M5	150.314	ng/mL	
13) C3-Naphthalenes	28.563	170	13476M5	125.894	ng/mL	
14) C4-Naphthalenes	31.363	184	8331M5	77.829	ng/mL	
16) 2-Methylnaphthalene	22.180	142	6400	101.119	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	5030	81.079	ng/mL#	100
18) Benzothiophene	19.711	134	189M3	1.962	ng/mL	
19) C1-Benzo(b)thiophenes	22.345	148	597M5	6.198	ng/mL	
20) C2-Benzo(b)thiophenes	24.393	162	1170M5	12.146	ng/mL	
21) C3-Benzo(b)thiophenes	26.831	176	1096M5	11.378	ng/mL	
23) Biphenyl	24.046	154	1537	19.198	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	3564	68.538	ng/mL#	100
25) Dibenzofuran	27.132	168	10168	110.598	ng/mL	98
26) Acenaphthylene	25.747	152	4251	40.006	ng/mL#	100
27) Acenaphthene	26.485	153	8897	142.205	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	1196M3	28.532	ng/mL	
29) Fluorene	28.502	166	12859	186.358	ng/mL	100
30) C1-Fluorenes	30.730	180	4288M5	62.144	ng/mL	
31) C2-Fluorenes	33.651	194	6768M5	98.085	ng/mL	
32) C3-Fluorenes	35.563	208	17875M5	259.052	ng/mL	
33) Dibenzothiophene	31.814	184	10317	93.275	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	2447	22.123	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.907	198	2899M3	26.210	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	990	8.950	ng/mL#	100
37) OTP	33.997	198	5252M3	47.483	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	13161M5	118.987	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	7909m	71.504	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	8939M5	80.816	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	9599M5	86.783	ng/mL	
41) C4-Dibenzothiophenes	40.562	240	8391M5	75.862	ng/mL	
43) Phenanthrene	32.311	178	192751	1983.462	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	17621	181.325	ng/mL	97
45) 2-Methylphenanthrene(2MP)	34.389	192	22049	226.890	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	6107	62.843	ng/mL#	40
47) 9/4-Methylphenanthrene(9M	34.720	192	13660M3	140.565	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	11471M3	118.040	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
49) C1-Phenanthrenes/Anthrace	34.389	192	72024M5	741.147	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	41962M5	431.801	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	41962m	431.801	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	21057M5	216.682	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.297	234	11482M5	118.153	ng/mL	
54) Retene	39.297	234	1053M3	55.548	ng/mL	
55) Anthracene	32.492	178	32886M3	346.452	ng/mL	
56) Carbazole	33.169	167	21393	223.118	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	11531M3	187.240	ng/mL	
58) Fluoranthene	37.084	202	337449	3496.333	ng/mL	96
59) Benzo(b)fluorene	39.598	216	12505M3	223.327	ng/mL	
60) Pyrene	37.957	202	266199	2713.269	ng/mL	97
61) C1-Fluoranthenes/Pyrenes	39.357	216	109861M5	1119.773	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.405	230	101160M5	1031.087	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.904	244	39842M5	406.095	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.582	258	32708M5	333.381	ng/mL	
66) Naphthobenzothiophene	41.811	234	27656	261.833	ng/ml#	70
67) Naphthobenzothiophene-2,1	41.811	234	27656	261.833	ng/mL#	70
68) Naphthobenzothiophene-1,2	42.158	234	6006	56.862	ng/mL#	21
69) Naphthobenzothiophene-2,3	42.444	234	6062M3	57.392	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	21513M5	203.674	ng/ml	
71) C2-Naphthobenzothiophenes	44.717	262	17427M5	164.990	ng/ml	
72) C3-Naphthobenzothiophenes	46.825	276	15002M5	142.031	ng/ml	
73) C4-Naphthobenzothiophenes	47.880	290	12447M5	117.842	ng/mL	
75) Benz[a]anthracene	42.745	228	121662	1026.926	ng/mL	93
77) Chrysene/Triphenylene	42.895	228	159787	1335.929	ng/mL	99
78) C1-Chrysenes	44.386	242	57943M5	484.443	ng/mL	
79) C2-Chrysenes	46.088	256	33259M5	278.068	ng/mL	
79) C2-Chrysenes BS	46.088	256	33259m	278.068	ng/mL	
80) C3-Chrysenes	46.886	270	35347M5	295.525	ng/mL	
81) C4-Chrysenes	48.060	284	22620M5	189.119	ng/mL	
82) Benzo[b]fluoranthene	46.795	252	168927	1297.670	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	140850	993.796	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	27640	195.020	ng/mL#	1
85) Benzo[e]pyrene	47.759	252	110317M3	856.755	ng/mL	
87) Benzo[a]pyrene	47.940	252	136870	1104.053	ng/mL	90
88) Perylene	48.241	252	58030	437.996	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.594	276	115924M3	803.533	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	34141M3	248.771	ng/mL	
91) Benzo[g,h,i]perylene	53.843	276	111550	731.861	ng/mL	99
92) Hopane (T19)	51.705	191	22444M3	912.340	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	3052M3	124.063	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2476M3	100.648	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2047M3	83.210	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2201M3	89.470	ng/ml	
98) C26 Tricyclic Terpane-22S	43.723	191	1427M3	58.007	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	1412M3	57.397	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	1317M3	53.536	ng/ml	
101) C28 Tricyclic Terpane-22R	46.283	191	2267M3	92.153	ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	1681M3	68.332	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	1346	54.714	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	5978	243.003	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	1914M3	77.803	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1266M3	51.462	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107) 17a(H)-22,29,30-Trisnorho	48.588	191	5713	232.231	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.717	191	2003M3	81.421	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.536	191	3261	132.558	ng/ml	100
110) 30-Norhopane (T15)	50.395	191	17621	716.287	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.500	191	6052M3	246.011	ng/ml	
112) 17a(H)-Diahopane (X)	50.621	191	1712M3	69.592	ng/ml	
113) 30-Normoretane (T17)	51.148	191	3000M3	121.949	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.524	191	2228	90.567	ng/ml	100
115) Moretane (T20)	52.307	191G	12770M3	519.096	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	8146M3	331.132	ng/ml	
117) 30-Homohopane-22R (T22)	53.663	191	6955	282.718	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	2358	95.852	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.882	191G	48071M3	1954.067	ng/ml	
120) 30,31-Bishomohopane-22R (	55.319	191	5110M3	207.720	ng/ml	
121) 30,31-Trishomohopane-22S	56.991	191	5531M3	224.833	ng/ml	
122) 30,31-Trishomohopane-22R	57.578	191	2471	100.445	ng/ml	100
123) Tetrakishomohopane-22S (T	59.551	191G	22382	909.820	ng/ml	100
124) Tetrakishomohopane-22R (T	60.319	191G	27731	1127.254	ng/ml	100
125) Pentakishomohopane-22S (T	62.502	191	2070M3	84.145	ng/ml	
126) Pentakishomohopane-22R (T	63.737	191	2077M3	84.429	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	1751	150.043	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1269M3	108.740	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.057	217	1124M3	96.315	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4048	346.872	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4058M3	347.729	ng/ml	
133) Unknown Sterane (S18)	47.699	217	810	69.409	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.940	217	70M3	5.998	ng/ml	
135) 14a,17a-20S-Methylcholest	48.106	217	1517M3	129.991	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1526M3	130.763	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2058M3	176.350	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2340M3	200.514	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	1632M3	139.846	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.097	218	1704M3	146.015	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1905M3	163.239	ng/ml	
142) 14b,17b-20S-Methylcholest	48.347	218	2575M3	220.651	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	3619M3	310.111	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.401	218	2066M3	177.035	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	3213M3	275.321	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	3473M3	297.601	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	2312M3	198.115	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	2661M3	228.020	ng/mL	

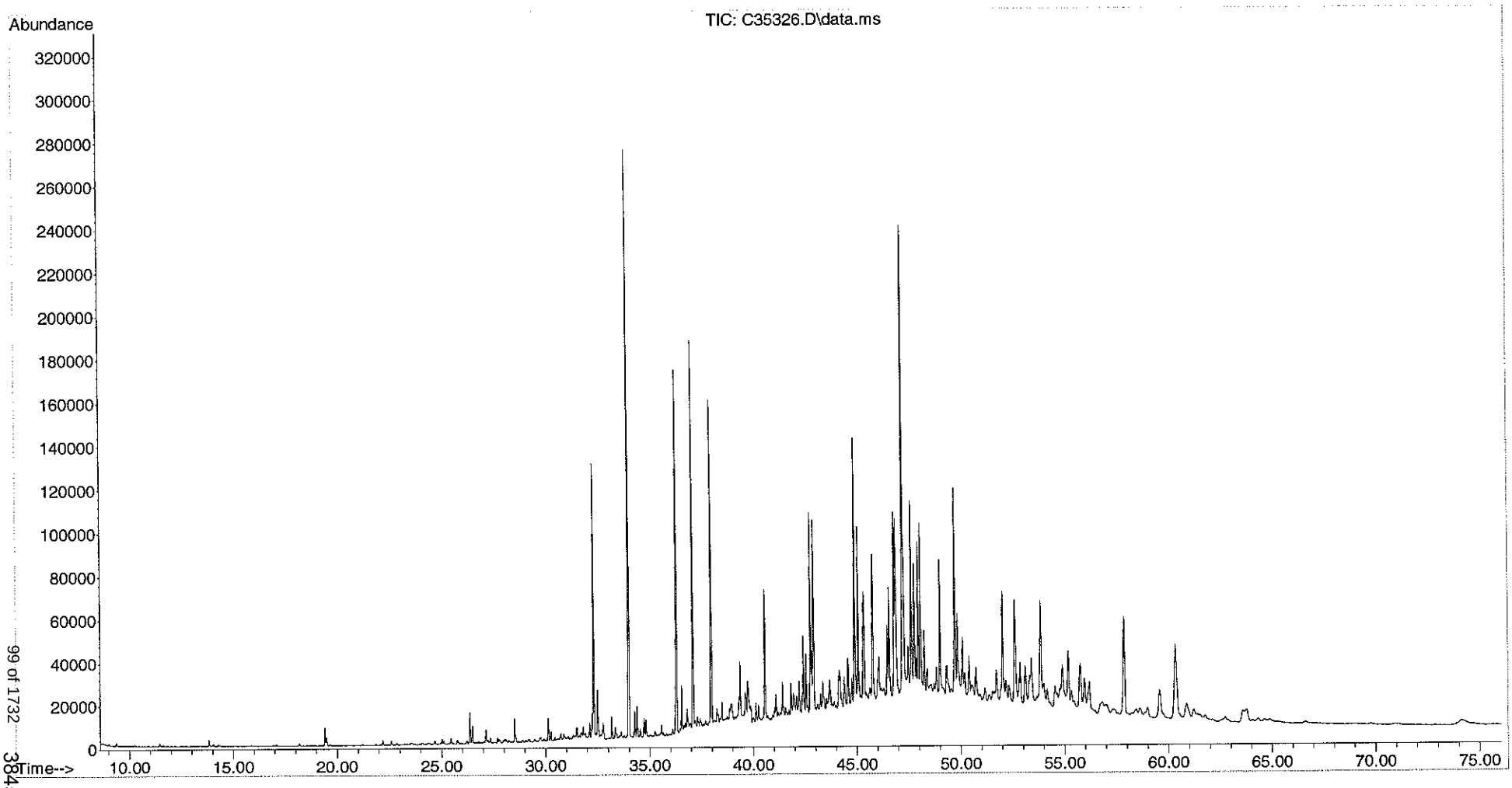
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612NEW.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:43:52 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
1)	i	Acenaphthene-d10	ISTD								
2)	t	2-butoxyethanol	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
3)	A1	trans-Decalin	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
4)	t	cis-Decalin	0.306	0.302	0.324	0.315	0.297	0.276	0.261	0.297	7.41
5)	A2	C1-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
6)	A2	C2-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
7)	A2	C3-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
8)	A2	C4-Decalins	0.447	0.418	0.399	0.417	0.385	0.362	0.335	0.395	9.54
9)	s	Naphthalene-d8	2.368	2.312	2.355	2.303	2.120	1.974	1.759	2.170	10.67
10)	A1	Naphthalene	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
11)	A2	C1-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
12)	A2	C2-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
13)	A2	C3-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
14)	A2	C4-Naphthalenes	3.258	3.456	3.348	3.477	3.182	2.953	2.632	3.187	9.51
15)	t	Glycol Ether I...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
16)	t	2-Methylnaphth...	1.947	1.940	1.933	2.033	1.908	1.786	1.642	1.884	6.87
17)	t	1-Methylnaphth...	1.886	1.952	1.880	1.973	1.869	1.748	1.621	1.847	6.66
18)	A1	Benzothiophene	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
19)	A2	C1-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
20)	A2	C2-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
21)	A2	C3-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
22)	A2	C4-Benzo(b)thi...	2.962	3.070	2.946	3.107	2.891	2.656	2.441	2.868	8.31
23)	t	Biphenyl	2.451	2.492	2.418	2.526	2.412	2.262	2.123	2.384	5.97
24)	t	2,6-Dimethylna...	1.551	1.564	1.525	1.619	1.611	1.527	1.438	1.548	3.94
25)	t	Dibenzofuran	2.745	2.706	2.754	2.896	2.854	2.673	2.531	2.737	4.39
26)	t	Acenaphthylene	3.124	3.157	3.130	3.302	3.335	3.152	2.943	3.163	4.08
27)	t	Acenaphthene	1.902	1.814	1.864	1.967	1.936	1.837	1.719	1.863	4.47
28)	t	2,3,5-Trimethy...	1.264	1.195	1.173	1.282	1.322	1.278	1.221	1.248	4.27
29)	A1	Fluorene	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
30)	A2	C1-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
31)	A2	C2-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
32)	A2	C3-Fluorenes	2.017	1.970	1.997	2.147	2.200	2.089	1.960	2.054	4.51
33)	A1	Dibenzothiophene	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
34)	A2	4-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
35)	A2	2/3-Methyldibe...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
36)	A2	1-Methyldibenz...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
37)	A2	OTP	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
38)	A2	C1-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
39)	A2	C2-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
40)	A2	C3-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77
41)	A2	C4-Dibenzothio...	3.223	3.207	3.228	3.486	3.521	3.299	3.086	3.293	4.77

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612NEW.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:43:52 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
42)	s	Phenanthrene-d10	1.746	1.609	1.629	1.721	1.830	1.774	1.699	1.715	4.56
43)	A1	Phenanthrene	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
44)	A2	3-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
45)	A2	2-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
46)	A2	2-Methylanthra...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
47)	A2	9/4-Methylphen...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
48)	A2	1-Methylphenan...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
49)	A2	C1-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
50)	A2	C2-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
51)	A2	5AA IS BKGD	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
52)	A2	C3-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
53)	A2	C4-Phenanthren...	2.783	2.694	2.787	3.060	3.128	2.983	2.817	2.893	5.64
54)	t	Retene	0.546	0.482	0.470	0.552	0.664	0.627	0.609	0.564	12.94
55)	t	Anthracene	2.646	2.603	2.733	2.983	3.149	2.947	2.720	2.826	7.16
56)	t	Carbazole	2.607	2.661	2.695	2.964	3.214	3.019	2.820	2.854	7.75
57)	t	1-Methylphenan...	1.698	1.672	1.757	1.915	2.067	1.931	1.793	1.833	7.81
58)	A1	Fluoranthene	2.700	2.676	2.705	3.015	3.240	2.982	2.796	2.873	7.38
59)	t	Benzo(b)fluorene	1.452	1.477	1.457	1.706	1.972	1.844	1.760	1.667	12.51
60)	A1	Pyrene	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
61)	A2	C1-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
62)	A2	C2-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
63)	A2	C3-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
64)	A2	C4-Fluoranthen...	2.738	2.671	2.743	3.067	3.315	3.066	2.846	2.921	8.04
65)	t	Bis-(2-ethylhe...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
66)	A1	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
67)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
68)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
69)	A2	Naphthobenzoth...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
70)	A2	C1-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
71)	A2	C2-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
72)	A2	C3-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
73)	A2	C4-Naphthobenz...	2.879	2.845	2.838	3.197	3.644	3.385	3.224	3.145	9.80
74)	i	Chrysene-d12	ISTD								
75)	t	Benz[a]anthracene	1.568	1.500	1.529	1.642	1.723	1.649	1.499	1.587	5.41
76)	A1	Chrysene	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
77)	A2	Chrysene/Triph...	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
78)	A2	C1-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
79)	A2	C2-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
80)	A2	C3-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
81)	A2	C4-Chrysenes	1.614	1.564	1.617	1.698	1.674	1.595	1.452	1.602	5.01
82)	t	Benzo[b]fluora...	1.797	1.658	1.608	1.728	1.863	1.863	1.690	1.744	5.75

10 of 1732
30447

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612NEW.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:43:52 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
83)	A1	Benzo[j]+[k]fl...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
84)	A2	Benzo[a]fluora...	2.019	1.833	1.822	1.949	2.004	1.876	1.786	1.899	4.87
85)	t	Benzo[e]pyrene	1.815	1.680	1.649	1.703	1.808	1.756	1.663	1.725	3.96
86)	s	Benzo[a]pyrene...	1.096	0.952	0.936	0.973	1.115	1.109	1.072	1.036	7.62
87)	t	Benzo[a]pyrene	1.726	1.588	1.546	1.621	1.768	1.740	1.635	1.661	5.07
88)	t	Perylene	1.857	1.695	1.649	1.721	1.894	1.861	1.748	1.775	5.36
89)	t	Indeno[1,2,3-c...	1.993	1.807	1.750	1.809	2.110	2.069	1.990	1.933	7.36
90)	t	Dibenz[ah]+[ac...	1.864	1.804	1.714	1.779	1.976	1.927	1.806	1.838	4.89
91)	t	Benzo[g,h,i]pe...	2.244	2.049	1.946	1.945	2.110	2.064	1.936	2.042	5.50
92)	A1	Hopane (T19)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
93)	A2	17a(H),21B(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
94)	A2	C23 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
95)	A2	C24 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
96)	A2	C25 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
97)	A2	C24 Tetracycli...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
98)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
99)	A2	C26 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
100)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
101)	A2	C28 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
102)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
103)	A2	C29 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
104)	A2	18a-22,29,30-T...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
105)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
106)	A2	C30 Tricyclic ...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
107)	A2	17a(H)-22,29,3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
108)	A2	17a/b,21b/a 28...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
109)	A2	17a(H),21b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
110)	A2	30-Norhopane (...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
111)	A2	18a(H)-30-Norn...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
112)	A2	17a(H)-Diahopa...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
113)	A2	30-Normoretane...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
114)	A2	18a(H)&18b(H)-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
115)	A2	Moretane (T20)	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
116)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
117)	A2	30-Homohopane-...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
118)	A2	Gammacerane/C3...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
119)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
120)	A2	30,31-Bishomoh...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
121)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
122)	A2	30,31-Trishomo...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
123)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
124)	A2	Tetrakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40

10-CV-1242
9848

Response Factor Report PAH 3

Method Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Method File : PAH3032612NEW.M
Title : Decalins & Alkylated PAH's
Last Update : Tue Mar 27 15:43:52 2012
Response Via : Initial Calibration

Calibration Files
10 =C33809.D 25 =C33811.D 100 =C33813.D 500 =C33815.D 5000=C33817.D 1e4 =C33819.D 2e4 =C33821.D

	Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
125)	A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
126)	A2 Pentakishomoho...	0.389	0.382	0.312	0.292	0.309	0.294		0.330	13.40
127)	SA1 5B(H)Cholane -...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
128)	A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
129)	A2 13b(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
130)	A2 13b,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
131)	A2 14a,17a-20S-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
132)	A2 14a,17a-20R-Ch...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
133)	A2 Unknown Steran...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
134)	A2 13a,17b-20S-Et...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
135)	A2 14a,17a-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
136)	A2 14a,17a-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
137)	A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
138)	A2 14a(H),17a(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
139)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
140)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
141)	A2 14b,17b-20R-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
142)	A2 14b,17b-20S-Me...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
143)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
144)	A2 14b(H),17b(H)-...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
145)	A2 C26,20R- +C27,...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
146)	A2 C28,20S-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
147)	A2 C27,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74
148)	A2 C28,20R-triaro...	0.187	0.147	0.141	0.149	0.162	0.158	0.151	0.156	9.74

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 07 11:21:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

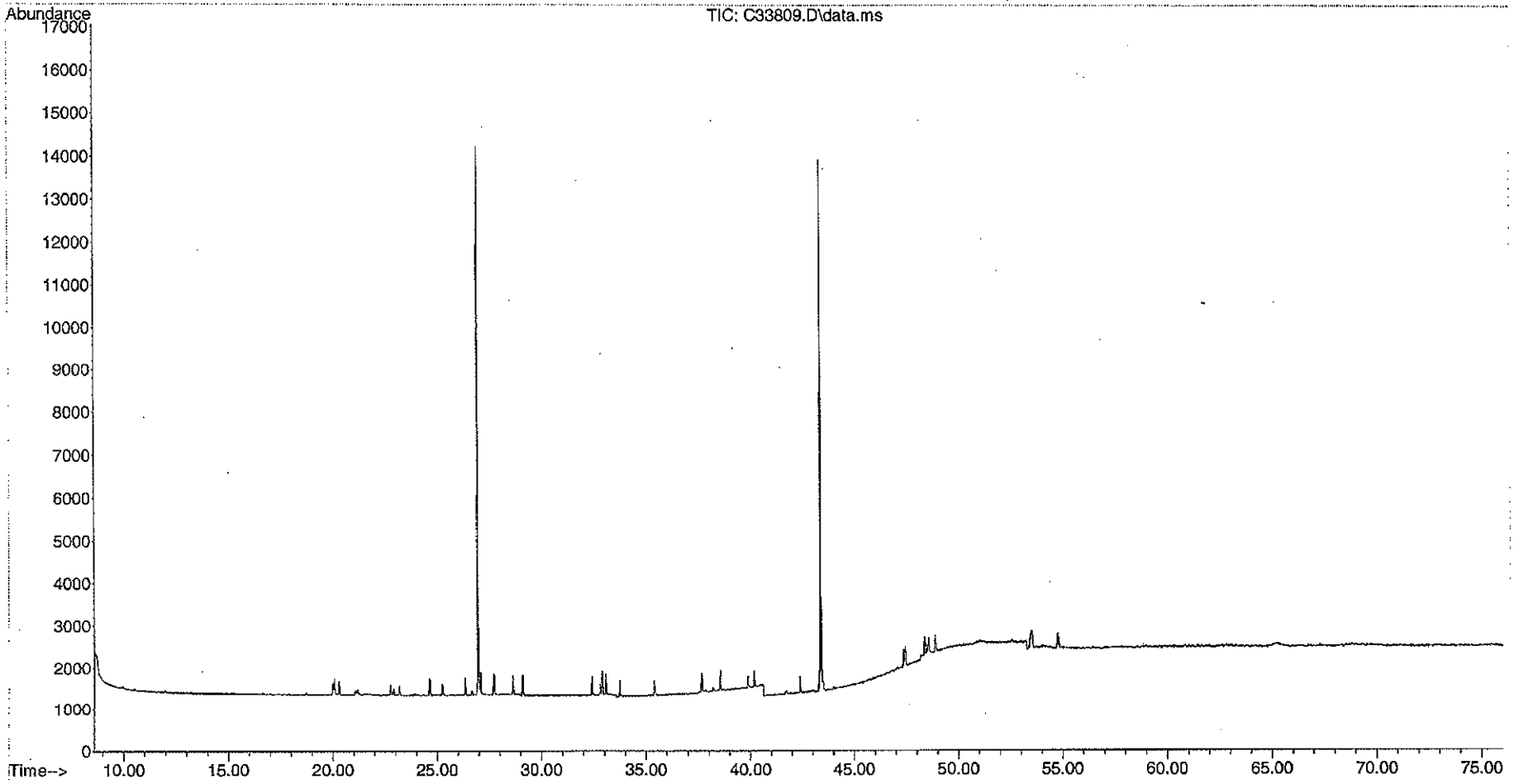
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	10.912	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.09%#		
42) Phenanthrene-d10	32.793	188	547	10.177	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.02%#		
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.580	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.06%#		
127) 5B(H)Cholane - Surr	43.995	217	84M4	11.949	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.19%#		
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	5.660	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.150	ng/mL	
10) Naphthalene	20.042	128	1021M4	10.225	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	10.332	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	10.212	ng/mL	
18) Benzothiophene	20.268	134	928M4	10.328	ng/mL	
23) Biphenyl	24.618	154	768	10.283	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	10.019	ng/mL	
25) Dibenzofuran	27.705	168	860M4	10.028	ng/mL	
26) Acenaphthylene	26.320	152	979M4	9.877	ng/mL	
27) Acenaphthene	27.057	153	596M4	10.212	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	396	10.127	ng/mL	93
29) Fluorene	29.075	166	632M4	9.819	ng/mL	
33) Dibenzothiophene	32.386	184	1010	9.789	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	9.619	ng/mL	
54) Retene	39.869	234	171M4	9.670	ng/mL	
55) Anthracene	33.064	178	829	9.362	ng/mL	97
56) Carbazole	33.726	167	817M4	9.134	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.261	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.397	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	8.711	ng/mL	
60) Pyrene	38.529	202	858	9.375	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.155	ng/ml	
67) Naphthobenzothiophene-2,1	42.368	234	910	9.236	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	9.879	ng/mL	
76) Chrysene	43.468	228	726M4	10.077	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	10.077	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	10.304	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	10.636	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	10.521	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	10.392	ng/mL	
88) Perylene	48.858	252	835M4	10.463	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	10.310	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	10.137	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	10.990	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	11.810	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	171M4	11.540	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 07 11:21:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



105 of 1732 3951

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 07 11:09:02 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

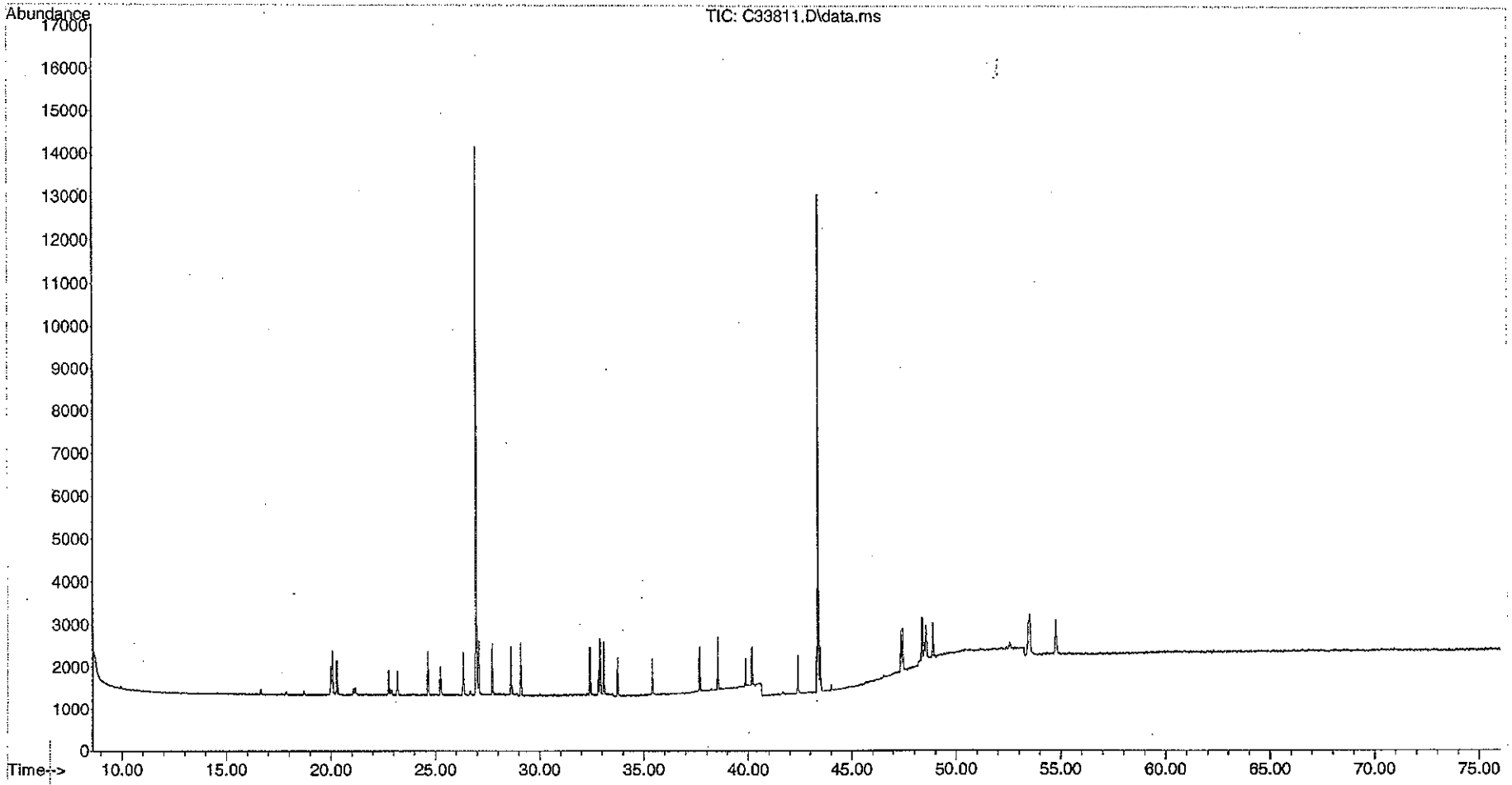
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	26.631	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.66%#		
42) Phenanthrene-d10	32.793	188	1224	23.445	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.34%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	22.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.30%#		
127) 5B(H)Cholane - Surr	43.995	217	161	23.527	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.35%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	13.235	ng/mL	
4) cis-Decalin	17.844	138	115M4	12.702	ng/mL	
10) Naphthalene	20.042	128	2630	27.116	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	25.737	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	26.417	ng/mL	
18) Benzothiophene	20.268	134	2336M4	26.764	ng/mL	
23) Biphenyl	24.619	154	1896M4	26.136	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	25.256	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	24.717	ng/mL	
26) Acenaphthylene	26.320	152	2402	24.948	ng/mL#	100
27) Acenaphthene	27.057	153	1380	24.343	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.608	170	909M4	23.932	ng/mL	
29) Fluorene	29.075	166	1499M4	23.975	ng/mL	
33) Dibenzothiophene	32.386	184	2440	24.346	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	23.281	ng/mL	
54) Retene	39.869	234	367	21.366	ng/mL	94
55) Anthracene	33.064	178	1981M4	23.032	ng/mL	
56) Carbazole	33.726	167	2025M4	23.308	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.795	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	23.281	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	22.154	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.858	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.621	ng/ml	100
67) Naphthobenzothiophene-2,1	42.384	234	2165	22.621	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	23.635	ng/mL	
76) Chrysene	43.468	228	1712M4	24.409	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	24.537	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	23.763	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	24.137	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	24.356	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	23.908	ng/mL	
88) Perylene	48.874	252	1855M4	23.876	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	23.381	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	24.529	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	25.084	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	28.976	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	418M4	28.976	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 07 11:09:02 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 07 11:10:00 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

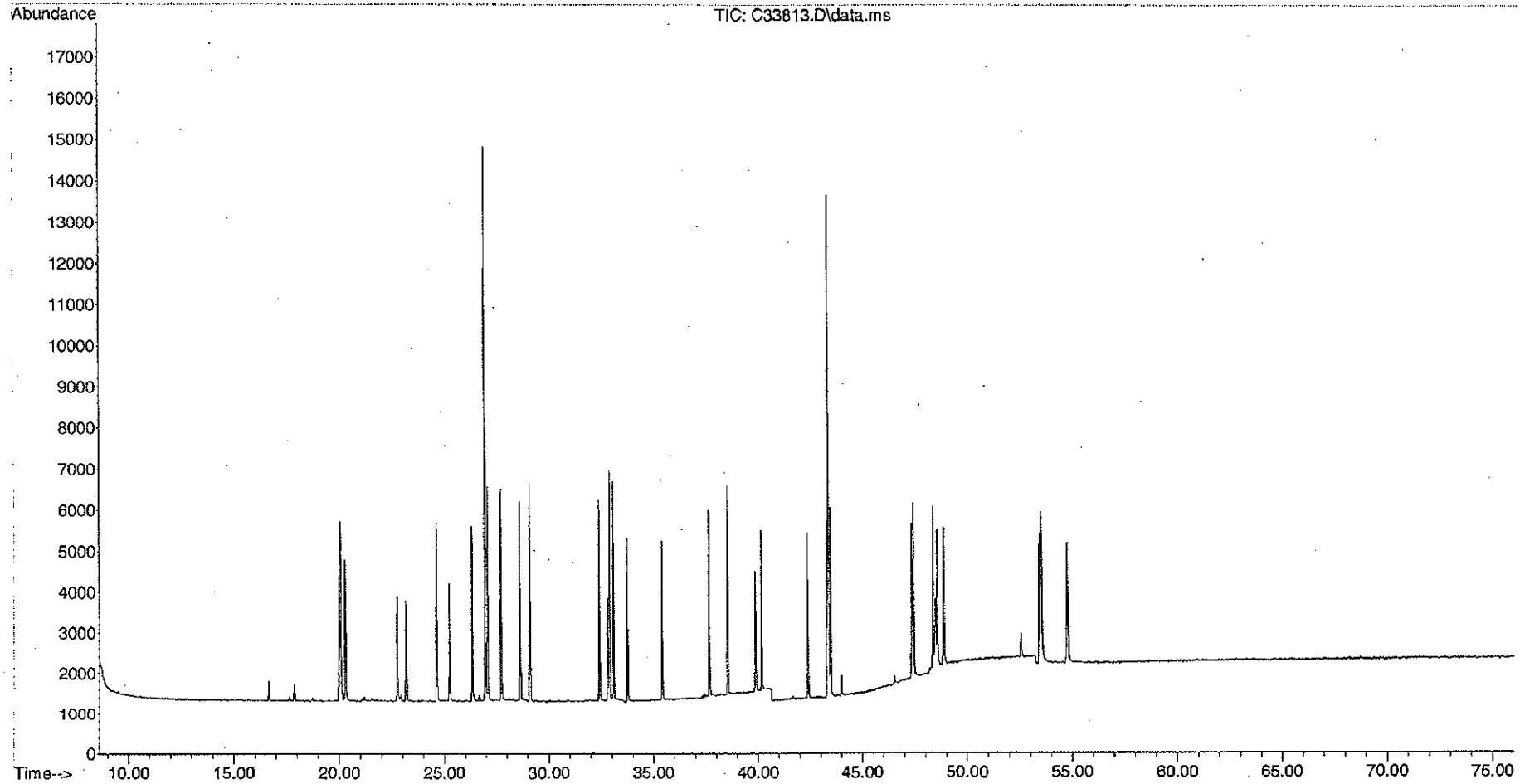
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	15537M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000 ng/mL	0.00
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	7319M4	108.535 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 10.85%#		
42) Phenanthrene-d10	32.793	188	5062	94.970 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.50%#		
86) Benzo[a]pyrene-d12	48.467	264	4202	90.364 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.04%#		
127) 5B(H)Cholane - Surr	43.995	217	631M4	89.947 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.99%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	620M4	50.550 ng/mL	
4) cis-Decalin	17.844	138	504M4	54.523 ng/mL	
10) Naphthalene	20.042	128	10404	105.065 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	102.595 ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	101.775 ng/mL#	100
18) Benzothiophene	20.268	134	9155	102.739 ng/mL	100
23) Biphenyl	24.619	154	7515M4	101.464 ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	98.514 ng/mL	
25) Dibenzofuran	27.705	168	8558	100.622 ng/mL	97
26) Acenaphthylene	26.320	152	9725	98.933 ng/mL#	100
27) Acenaphthene	27.057	153	5791	100.055 ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.608	170	3646	94.021 ng/mL	95
29) Fluorene	29.075	166	6206M4	97.222 ng/mL	
33) Dibenzothiophene	32.387	184	10032	98.042 ng/mL	99
43) Phenanthrene	32.883	178	8659M4	96.318 ng/mL	
54) Retene	39.854	234	1461	83.311 ng/mL	100
55) Anthracene	33.064	178	8493M4	96.718 ng/mL	
56) Carbazole	33.726	167	8375M4	94.419 ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	95.838 ng/mL	
58) Fluoranthene	37.641	202	8404M4	94.125 ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	87.432 ng/mL	100
60) Pyrene	38.529	202	8523M4	93.906 ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.264 ng/ml	
67) Naphthobenzothiophene-2,1	42.369	234	8849M4	90.561 ng/mL	
75) Benz[a]anthracene	43.302	228	6862	96.352 ng/mL	100
76) Chrysene	43.453	228	7256M4	100.917 ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	101.237 ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	92.212 ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	95.988 ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	95.578 ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	93.125 ng/mL	
88) Perylene	48.859	252	7398M4	92.888 ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	90.539 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	93.237 ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	95.302 ng/mL	99
92) Hopane (T19)	52.548	191	1398	94.535 ng/mL	99
93) 17a(H),21B(H)-hopane - C3	52.548	191	1398	94.535 ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 07 11:10:00 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



109 of 1732 3855

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 07 11:11:09 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

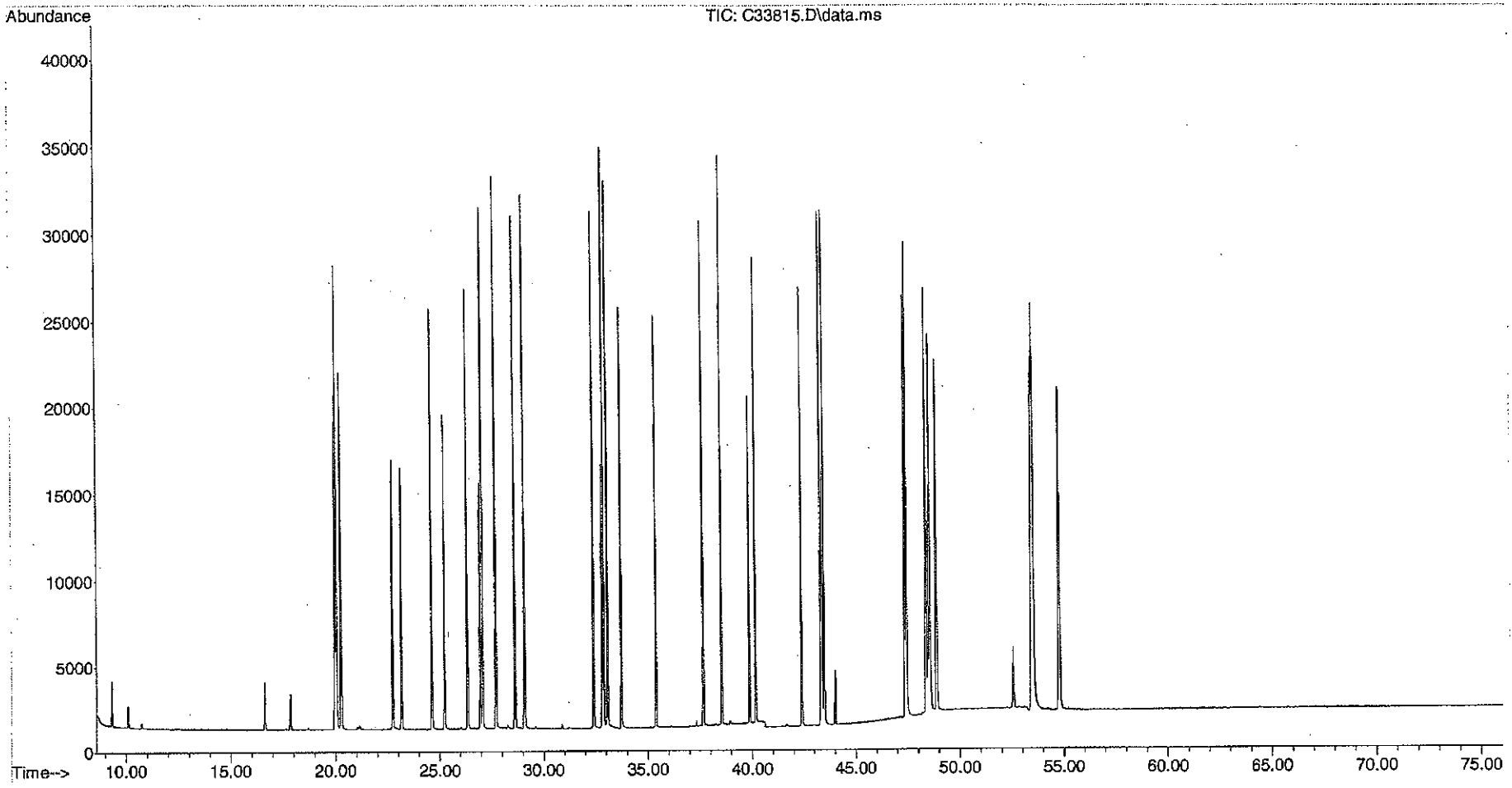
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	530.645	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.06%			
42) Phenanthrene-d10	32.793	188	30011	501.578	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.16%			
86) Benzo[a]pyrene-d12	48.467	264	26218	469.438	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.94%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	475.573	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.56%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	264.380	ng/mL	
4) cis-Decalin	17.844	138	2748	264.827	ng/mL	100
10) Naphthalene	20.042	128	60651M4	545.621	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	539.588	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	534.112	ng/mL	
18) Benzothiophene	20.253	134	54196	541.799	ng/mL	100
23) Biphenyl	24.619	154	44061	529.949	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	523.017	ng/mL	
25) Dibenzofuran	27.690	168	50514	529.091	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	521.908	ng/mL	
27) Acenaphthene	27.057	153	34314	528.141	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	22365M4	513.778	ng/mL	
29) Fluorene	29.075	166	37446M3	522.583	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	529.274	ng/mL	
43) Phenanthrene	32.883	178	53364	528.791	ng/mL	100
54) Retene	39.854	234	9623M4	488.830	ng/mL	
55) Anthracene	33.064	178	52019M4	527.719	ng/mL	
56) Carbazole	33.726	167	51702M4	519.254	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	522.244	ng/mL	
58) Fluoranthene	37.641	202	52587M3	524.676	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	511.574	ng/mL	98
60) Pyrene	38.529	202	53499	525.098	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	508.281	ng/ml	98
67) Naphthobenzothiophene-2,1	42.369	234	55752	508.281	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	517.188	ng/mL	
76) Chrysene	43.453	228	45764M4	529.950	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	530.575	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	495.347	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	513.266	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	493.780	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	488.182	ng/mL	
88) Perylene	48.874	252	46371	484.767	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	468.136	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	483.777	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	476.239	ng/mL	99
92) Hopane (T19)	52.548	191	7873	443.267	ng/mL#	89
93) 17a(H),21B(H)-hopane - C3	52.548	191	7873	443.267	ng/mL#	89

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 07 11:11:09 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



111 of 1732 3857

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 07 11:12:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

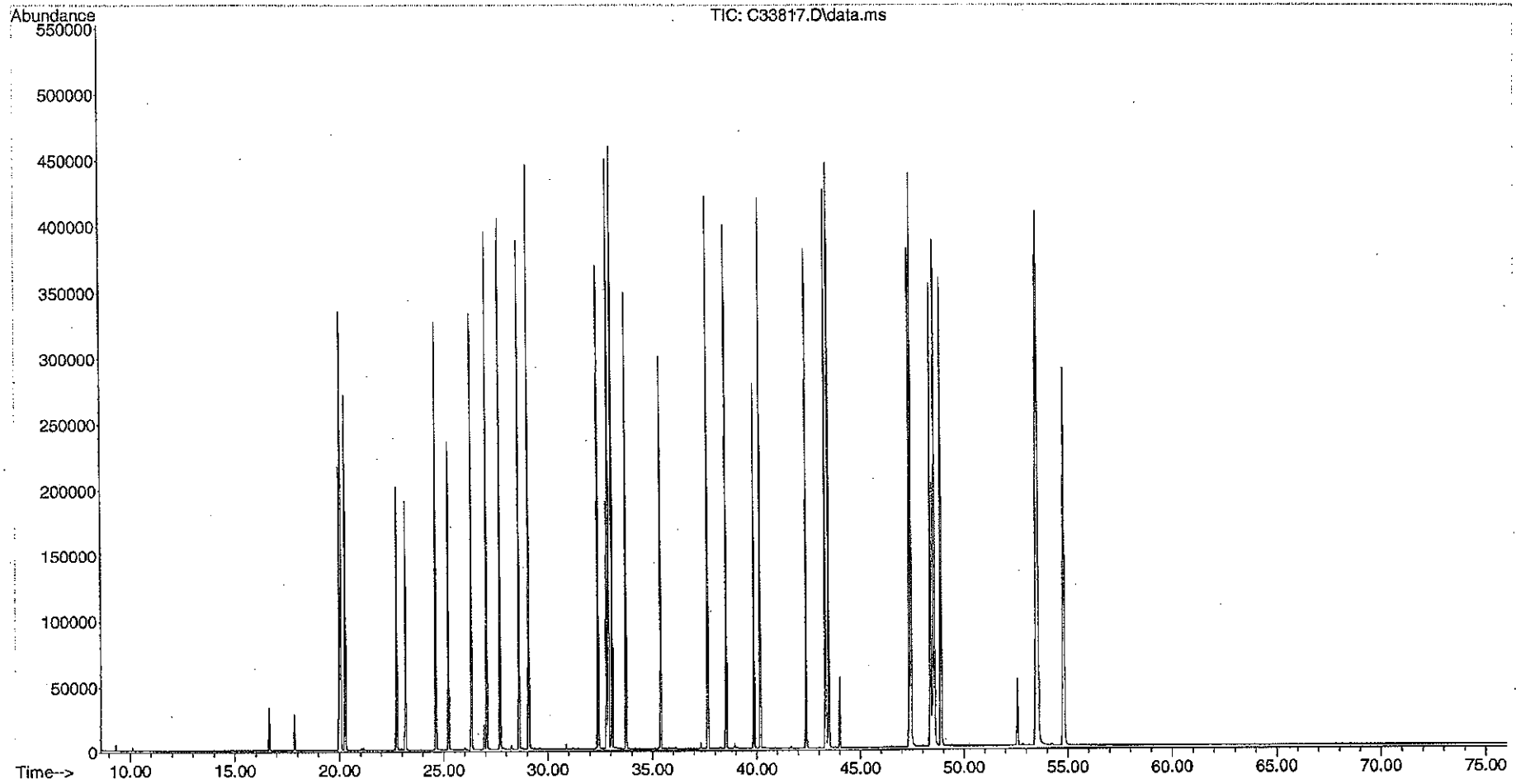
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	22551M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	478162	4885.331 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 488.53%#		
42) Phenanthrene-d10	32.793	188	412777	5335.552 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 533.56%#		
86) Benzo[a]pyrene-d12	48.482	264	443076	5378.927 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 537.89%#		
127) 5B(H)Cholane - Surr	43.995	217	64588M4	5197.421 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 519.74%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	43356	2435.464 ng/mL	100
4) cis-Decalin	17.844	138	33472	2494.781 ng/mL	100
10) Naphthalene	20.042	128	717522M4	4992.225 ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	5063.718 ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	5060.231 ng/mL#	100
18) Benzothiophene	20.268	134	651957	5040.757 ng/mL	100
23) Biphenyl	24.619	154	543936	5059.796 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	5204.156 ng/mL#	100
25) Dibenzofuran	27.705	168	643601	5213.636 ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	5271.853 ng/mL	
27) Acenaphthene	27.057	153	436514M4	5196.162 ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	298218	5298.412 ng/mL	98
29) Fluorene	29.075	166	496059M4	5354.128 ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	5345.875 ng/mL	
43) Phenanthrene	32.883	178	705493M4	5406.723 ng/mL	
54) Retene	39.869	234	149798	5885.169 ng/mL	94
55) Anthracene	33.064	178	710151M4	5571.819 ng/mL	
56) Carbazole	33.726	167	724874M3	5630.412 ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5638.255 ng/mL	
58) Fluoranthene	37.656	202	730627M3	5637.863 ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5915.373 ng/mL	
60) Pyrene	38.544	202	747539M4	5674.589 ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5793.541 ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	821825M4	5794.662 ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5427.499 ng/mL	99
76) Chrysene	43.468	228	665554M4	5225.553 ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5224.736 ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5342.336 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5277.013 ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5241.189 ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5324.088 ng/mL	
88) Perylene	48.889	252	752672	5334.948 ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	5459.916 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	5373.179 ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838595	5166.760 ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	4687.264 ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	122720M3	4684.668 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 07 11:12:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



113 of 1732 3859

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 07 11:13:35 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

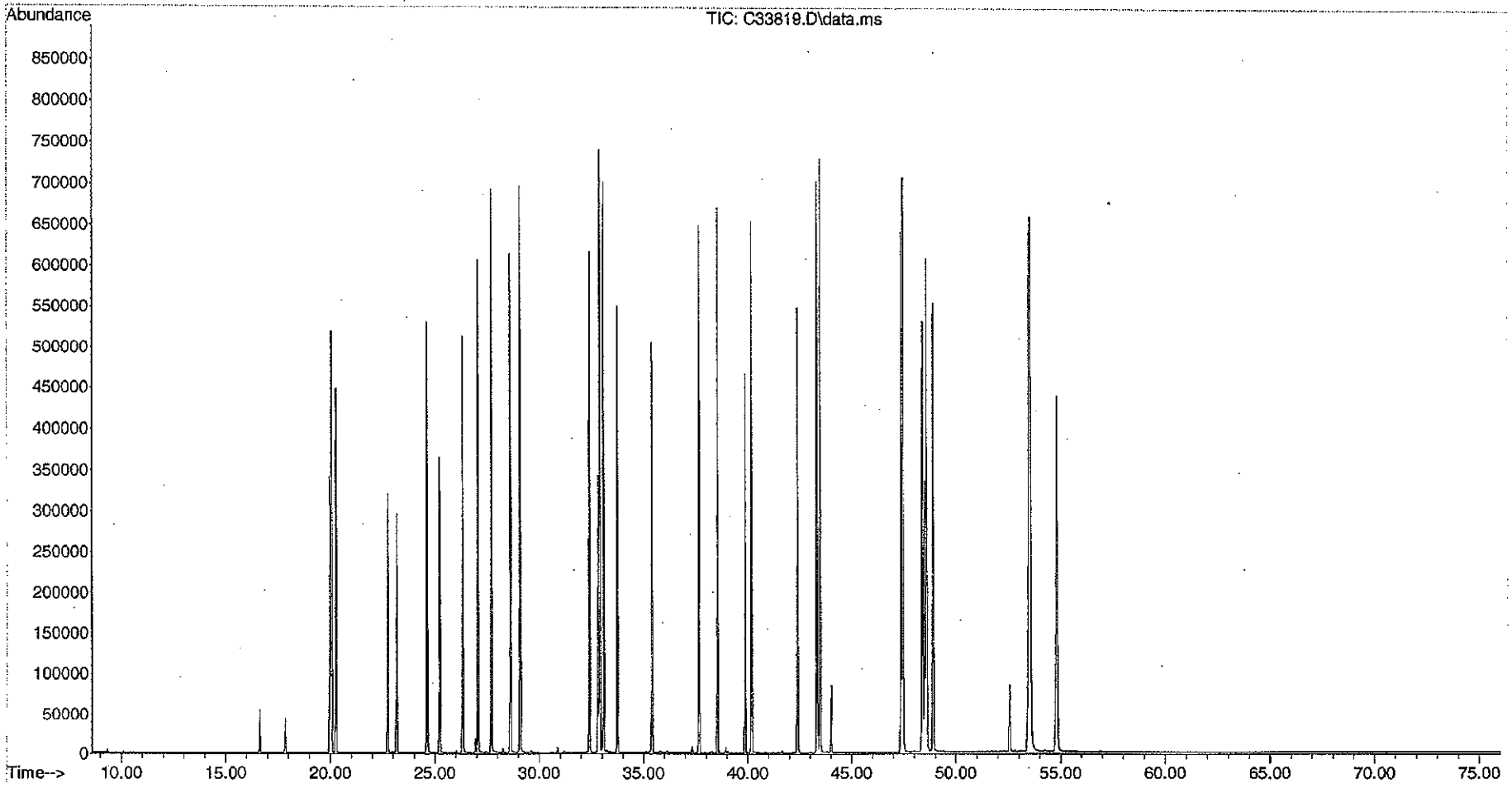
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	20041M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	791075	9094.587 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 909.46%#		
42) Phenanthrene-d10	32.808	188	710873M4	10339.565 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1033.96%#		
86) Benzo[a]pyrene-d12	48.497	264	755272	10705.892 ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1070.59%#		
127) 5B(H)Cholane - Surr	43.995	217	107458	10096.640 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1009.66%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	72570	4587.077 ng/mL	100
4) cis-Decalin	17.844	138	55394	4645.794 ng/mL	100
10) Naphthalene	20.042	128	1183724	9267.354 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	9480.270 ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	9464.741 ng/mL	
18) Benzothiophene	20.268	134	1064574	9261.878 ng/mL	100
23) Biphenyl	24.619	154	906757M4	9491.231 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	9866.472 ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	9765.638 ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	9964.990 ng/mL	
27) Acenaphthene	27.057	153	736224	9861.452 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	512344	10242.829 ng/mL	99
29) Fluorene	29.075	166	837178M3	10167.628 ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	10019.798 ng/mL	
43) Phenanthrene	32.898	178	1195572	10310.116 ng/mL	99
54) Retene	39.869	234	251265	11107.885 ng/mL	93
55) Anthracene	33.079	178	1181250M4	10428.805 ng/mL	
56) Carbazole	33.741	167	1210095m	10576.539 ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10534.901 ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10379.540 ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	11061.416 ng/mL	99
60) Pyrene	38.544	202	1228730M4	10495.508 ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10763.822 ng/ml	
67) Naphthobenzothiophene-2,1	42.399	234	1356294M4	10760.910 ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	10388.233 ng/mL	99
76) Chrysene	43.483	228	1085655M4	9952.744 ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	9947.977 ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	10683.443 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	9882.769 ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	10179.810 ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	10475.618 ng/mL	
88) Perylene	48.904	252	1266913	10485.117 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	10705.031 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	10481.529 ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1405300	10109.674 ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	8906.759 ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.563	191	199673M3	8899.895 ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 07 11:13:35 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 07 11:14:44 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

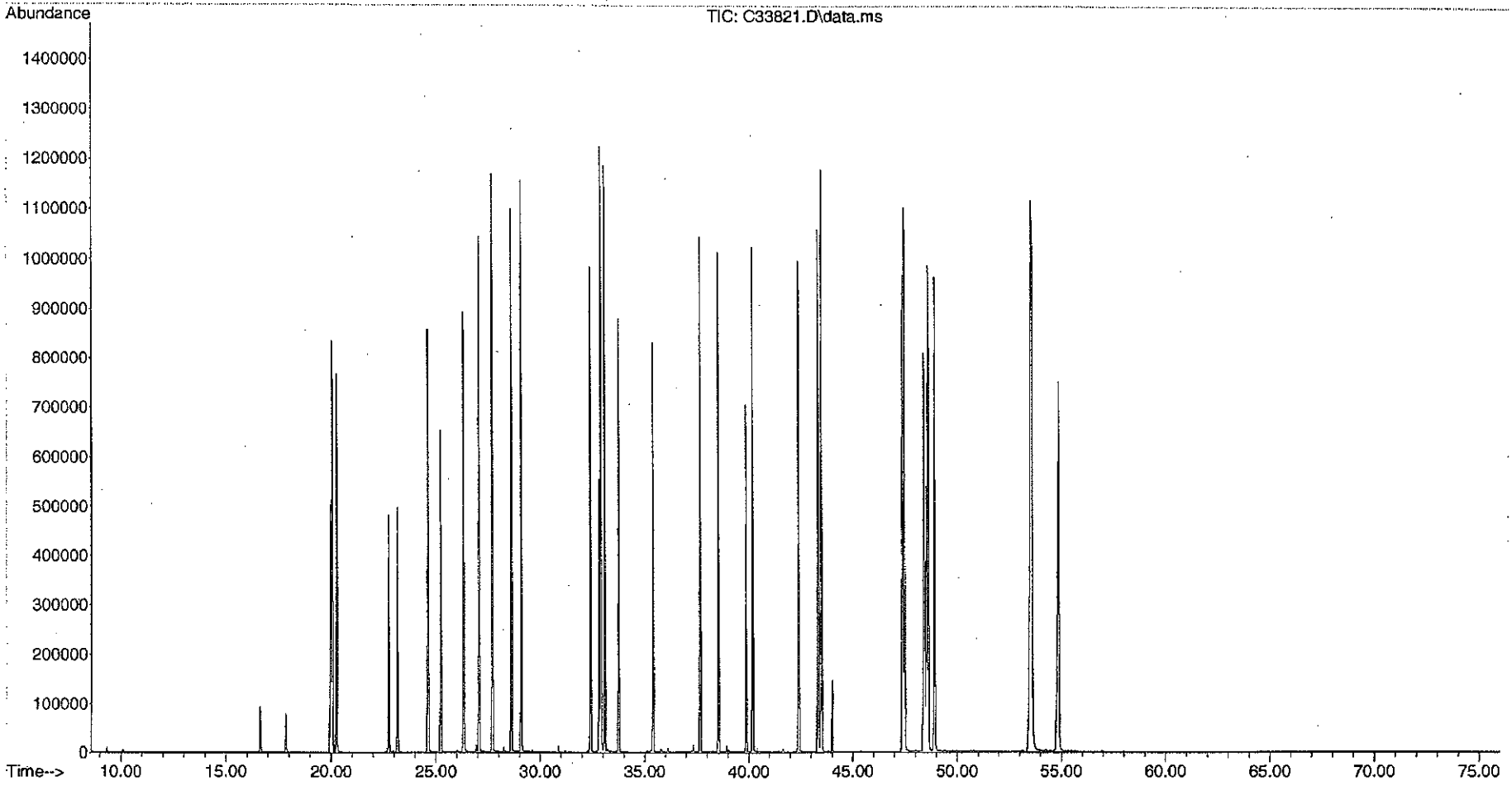
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	18516M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.982	136	1302520	16207.721	ng/mL	0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1620.77%#		
42) Phenanthrene-d10	32.808	188	1258411	19810.936	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1981.09%#		
86) Benzo[a]pyrene-d12	48.512	264	1393115	20684.837	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 2068.48%#		
127) 5B(H)Cholane - Surr	44.010	217	195942M4	19284.631	ng/ml	0.01
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1928.46%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	124104M4	8490.572	ng/mL	
4) cis-Decalin	17.844	138	96625M4	8771.199	ng/mL	
10) Naphthalene	20.057	128	1949049	16515.826	ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	17428.662	ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	17551.946	ng/mL#	100
18) Benzothiophene	20.268	134	1808135	17026.534	ng/mL	100
23) Biphenyl	24.619	154	1572275M4	17812.806	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	18584.037	ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	18497.327	ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	18607.855	ng/mL	
27) Acenaphthene	27.072	153	1273128	18457.598	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	904177	19565.184	ng/mL	100
29) Fluorene	29.090	166	1451673M4	19082.833	ng/mL	
33) Dibenzothiophene	32.402	184	2285641	18743.544	ng/mL	99
43) Phenanthrene	32.898	178	2086430	19474.389	ng/mL	98
54) Retene	39.884	234	451319	21595.100	ng/mL	92
55) Anthracene	33.079	178	2014742M4	19252.377	ng/mL	
56) Carbazole	33.741	167	2088328M4	19755.818	ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19562.704	ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19459.409	ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	21121.529	ng/mL	
60) Pyrene	38.559	202	2108058M4	19489.549	ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20508.156	ng/ml	98
67) Naphthobenzothiophene-2,1	42.399	234	2387636M4	20503.853	ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	18889.341	ng/mL	
76) Chrysene	43.498	228	1888024M4	18130.266	ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	18133.060	ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	19388.349	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	18817.637	ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	19283.011	ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	19690.758	ng/mL	
88) Perylene	48.919	252	2271920	19695.418	ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	20591.381	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	19648.743	ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516869	18965.940	ng/mL	100
92) Hopane (T19)	0.000		0	N.D.		
93) 17a(H),21B(H)-hopane - C3	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 07 11:14:44 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : AC
Sample : Q303261201
Misc : WHAN53@500ng/ml
ALS Vial : 15 Sample Multiplier: 1

MAK for SR 3/29/12

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : ~~25%~~ 20% 5/28/12 Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	86	0.00
3	A1	trans-Decalin	0.395	0.416	-5.3	86	0.00
4	t	cis-Decalin	0.297	0.316	-6.4	86	0.00
9	s	Naphthalene-d8	2.170	2.330	-7.4	87	0.00
10	A1	Naphthalene	3.187	3.475	-9.0	86	0.00
16	t	2-Methylnaphthalene	1.884	2.055	-9.1	87	0.00
17	t	1-Methylnaphthalene	1.847	1.994	-8.0	87	0.00
18	A1	Benzothiophene	2.868	3.068	-7.0	85	0.01
23	t	Biphenyl	2.384	2.576	-8.1	88	0.00
24	t	2,6-Dimethylnaphthalene	1.548	1.662	-7.4	89	0.00
25	t	Dibenzofuran	2.737	2.960	-8.1	88	0.01
26	t	Acenaphthylene	3.163	3.420	-8.1	89	0.00
27	t	Acenaphthene	1.863	2.020	-8.4	89	0.00
28	t	2,3,5-Trimethylnaphthalene	1.248	1.317	-5.5	89	0.00
29	A1	Fluorene	2.054	2.172	-5.7	87	0.00
33	A1	Dibenzothiophene	3.293	3.547	-7.7	88	0.00
42	s	Phenanthrene-d10	1.715	1.734	-1.1	87	0.00
43	A1	Phenanthrene	2.893	3.090	-6.8	87	0.00
54	t	Retene	0.564	0.557	1.2	87	0.00
55	t	Anthracene	2.826	3.018	-6.8	87	0.00
56	t	Carbazole	2.854	3.008	-5.4	88	0.00
57	t	1-Methylphenanthrene	1.833	1.954	-6.6	88	0.00
58	A1	Fluoranthene	2.873	3.064	-6.6	88	0.00
59	t	Benzo(b)fluorene	1.667	1.719	-3.1	87	0.00
60	A1	Pyrene	2.921	3.101	-6.2	87	0.00
66	A1	Naphthobenzothiophene	3.145	3.276	-4.2	88	0.00
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.276	-4.2	88	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	85	0.00
75	t	Benz[a]anthracene	1.587	1.743	-9.8	90	0.00
76	A1	Chrysene	1.602	1.762	-10.0	88	0.00
77	A2	Chrysene/Triphenylene	1.602	1.760	-9.9	88	0.00
82	t	Benzo[b]fluoranthene	1.744	1.871	-7.3	92	-0.01
83	A1	Benzo[j]+[k]fluoranthene	1.899	2.073	-9.2	90	0.00
85	t	Benzo[e]pyrene	1.725	1.833	-6.3	91	0.00
86	s	Benzo[a]pyrene-d12	1.036	0.895	13.6	78	0.00
87	t	Benzo[a]pyrene	1.661	1.764	-6.2	92	-0.01
88	t	Perylene	1.775	1.879	-5.9	92	-0.02
89	t	Indeno[1,2,3-cd]pyrene	1.933	1.953	-1.0	91	0.00
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.913	-4.1	91	0.00
91	t	Benzo[g,h,i]perylene	2.042	2.085	-2.1	91	0.00
92	A1	Hopane (T19)	0.330	0.000#	100.0#	0#	-52.55#
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.000#	100.0#	0#	-52.55#
127	SA1	5B(H)Cholane - Surr	0.156	0.000#	100.0#	0#	-43.99#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.96	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 07 11:17:42 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	15052M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000 ng/mL	0.00
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	35074	536.878 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%		
42) Phenanthrene-d10	32.793	188	26097M4	505.389 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%		
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#		
127) 5B(H)Cholane - Surr	0.000	217	0	0.000 ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#		
Target Compounds					Qvalue
3) trans-Decalin	16.624	138	3130	263.420 ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319 ng/mL	100
10) Naphthalene	20.042	128	52309	545.264 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315 ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838 ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994 ng/mL	
23) Biphenyl	24.618	154	38768	540.294 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656 ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769 ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489 ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	19817M4	527.499 ng/mL	
29) Fluorene	29.075	166	32696M4	528.715 ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598 ng/mL	
43) Phenanthrene	32.883	178	46516	534.091 ng/mL	100
54) Retene	39.854	234	8385	493.546 ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942 ng/mL	
56) Carbazole	33.726	167	45283M4	526.968 ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804 ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176 ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672 ng/mL	
60) Pyrene	38.529	202	46681M4	530.900 ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975 ng/ml	97
67) Naphthobenzothiophene-2,1	42.368	234	49317	520.975 ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145 ng/mL	
76) Chrysene	43.452	228	40148M4	549.904 ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398 ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453 ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841 ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397 ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093 ng/mL	
88) Perylene	48.858	252	42809	529.339 ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251 ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620 ng/mL	99
92) Hopane (T19)	0.000		0	N.D. d	
93) 17a(H),21B(H)-hopane - C3	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 07 11:17:42 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

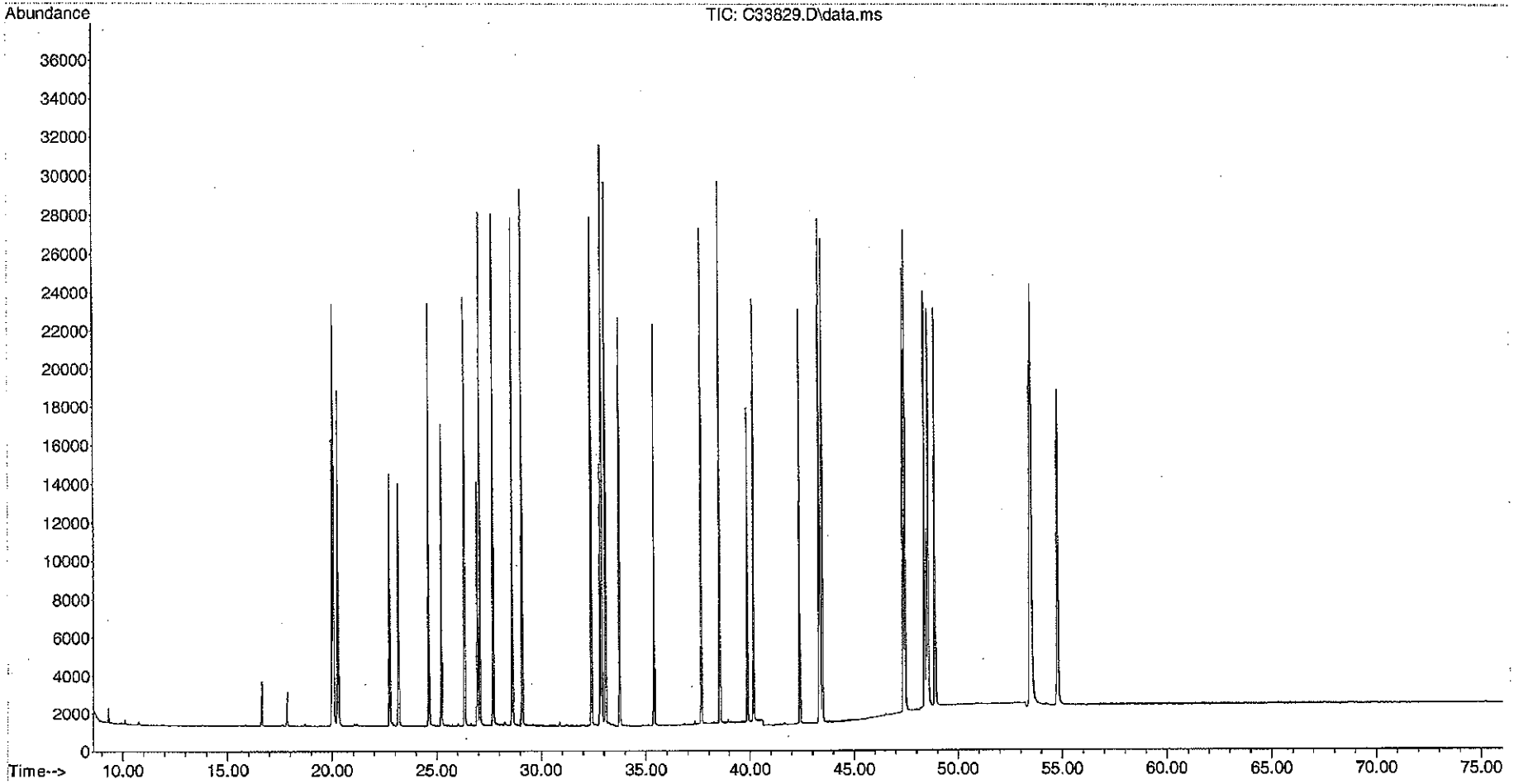
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 07 11:17:42 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	81	-0.15
3	A1	trans-Decalin	0.395	0.427	-8.1	83	-0.28
4	t	cis-Decalin	0.297	0.320	-7.7	82	-0.28
9	s	Naphthalene-d8	2.170	2.290	-5.5	80	-0.24
10	A1	Naphthalene	3.187	3.006	5.7	70	-0.24
16	t	2-Methylnaphthalene	1.884	1.861	1.2	74	-0.20
17	t	1-Methylnaphthalene	1.847	1.765	4.4	72	-0.19
18	A1	Benzothiophene	2.868	2.667	7.0	69	-0.24
23	t	Biphenyl	2.384	2.375	0.4	76	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.560	-0.8	78	-0.16
25	t	Dibenzofuran	2.737	2.697	1.5	75	-0.12
26	t	Acenaphthylene	3.163	3.007	4.9	74	-0.16
27	t	Acenaphthene	1.863	1.799	3.4	74	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.282	-2.7	81	-0.11
29	A1	Fluorene	2.054	2.045	0.4	77	-0.12
33	A1	Dibenzothiophene	3.293	3.203	2.7	74	-0.06
42	s	Phenanthrene-d10	1.715	1.883	-9.8	88	-0.06
43	A1	Phenanthrene	2.893	2.929	-1.2	77	-0.06
54	t	Retene	0.564	0.638	-13.1	93	0.07
55	t	Anthracene	2.826	2.902	-2.7	79	-0.05
56	t	Carbazole	2.854	2.694	5.6	73	-0.04
57	t	1-Methylphenanthrene	1.833	1.947	-6.2	82	-0.02
58	A1	Fluoranthene	2.873	3.026	-5.3	81	0.02
59	t	Benzo(b)fluorene	1.667	1.791	-7.4	85	0.07
60	A1	Pyrene	2.921	3.040	-4.1	80	0.03
66	A1	Naphthobenzothiophene	3.145	3.290	-4.6	83	0.11
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.290	-4.6	83	0.11
74	i	Chrysene-d12	1.000	1.000	0.0	90	-0.18
75	t	Benz[a]anthracene	1.587	1.587	0.0	87	-0.18
76	A1	Chrysene	1.602	1.620	-1.1	86	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.620	-1.1	86	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.733	0.6	91	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.940	-2.2	90	-0.14
85	t	Benzo[e]pyrene	1.725	1.719	0.3	91	-0.18
86	s	Benzo[a]pyrene-d12	1.036	1.090	-5.2	101	-0.20
87	t	Benzo[a]pyrene	1.661	1.630	1.9	91	-0.19
88	t	Perylene	1.775	1.762	0.7	93	-0.21
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.076	-7.4	104	-0.39
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.014	-9.6	102	-0.41
91	t	Benzo[g,h,i]perylene	2.042	2.222	-8.8	103	-0.45
92	A1	Hopane (T19)	0.330	0.312	5.5	96	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.312	5.5	96	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.172	-10.3	104	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.08	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14097M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	24364	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	32287	527.698	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.77%			
42) Phenanthrene-d10	32.221	188	26547	548.932	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.89%			
86) Benzo[a]pyrene-d12	47.834	264	26568	526.177	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.62%			
127) 5B(H)Cholane - Surr	43.422	217	4184	549.267	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.93%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	3009	270.392	ng/mL	100
4) cis-Decalin	17.287	138	2255	268.866	ng/mL	100
10) Naphthalene	19.485	128	42382	471.715	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	26234	493.823	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	24877	477.739	ng/mL#	100
18) Benzothiophene	19.695	134	37592	464.955	ng/mL	100
23) Biphenyl	24.061	154	33483	498.252	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.663	156	21994	503.911	ng/mL#	100
25) Dibenzofuran	27.132	168	38025	492.757	ng/mL	98
26) Acenaphthylene	25.747	152	42396	475.353	ng/mL#	100
27) Acenaphthene	26.485	153	25358M4	482.879	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	18077	513.780	ng/mL	88
29) Fluorene	28.502	166	28829M3	497.765	ng/mL	
33) Dibenzothiophene	31.814	184	45147	486.287	ng/mL	100
43) Phenanthrene	32.311	178	41286	506.155	ng/mL	100
54) Retene	39.297	234	8987	564.816	ng/mL	98
55) Anthracene	32.492	178	40904M3	513.394	ng/mL	
56) Carbazole	33.154	167	37979M3	471.911	ng/mL	
57) 1-Methylphenanthrene	34.810	192	27446	530.962	ng/mL	100
58) Fluoranthene	37.069	202	42652M3	526.499	ng/mL	
59) Benzo(b)fluorene	39.598	216	25249	537.223	ng/mL	99
60) Pyrene	37.957	202	42855	520.405	ng/mL	98
66) Naphthobenzothiophene	41.811	234	46382	523.163	ng/ml#	66
67) Naphthobenzothiophene-2,1	41.811	234	46382	523.163	ng/mL#	66
75) Benz[a]anthracene	42.730	228	38664	499.981	ng/mL	99
76) Chrysene	42.895	228	39459	505.418	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	39459	505.418	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	42216	496.827	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	47265	510.908	ng/mL	94
85) Benzo[e]pyrene	47.744	252	41880	498.292	ng/mL	91
87) Benzo[a]pyrene	47.925	252	39702M4	490.633	ng/mL	
88) Perylene	48.226	252	42939	496.515	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	52.563	276	50575M2	537.068	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	49067M3	547.742	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	54143	544.207	ng/mL	100
92) Hopane (T19)	51.690	191	7591	472.736	ng/mL#	78
93) 17a(H),21B(H)-hopane - C3	51.690	191	7591	472.736	ng/mL#	78

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

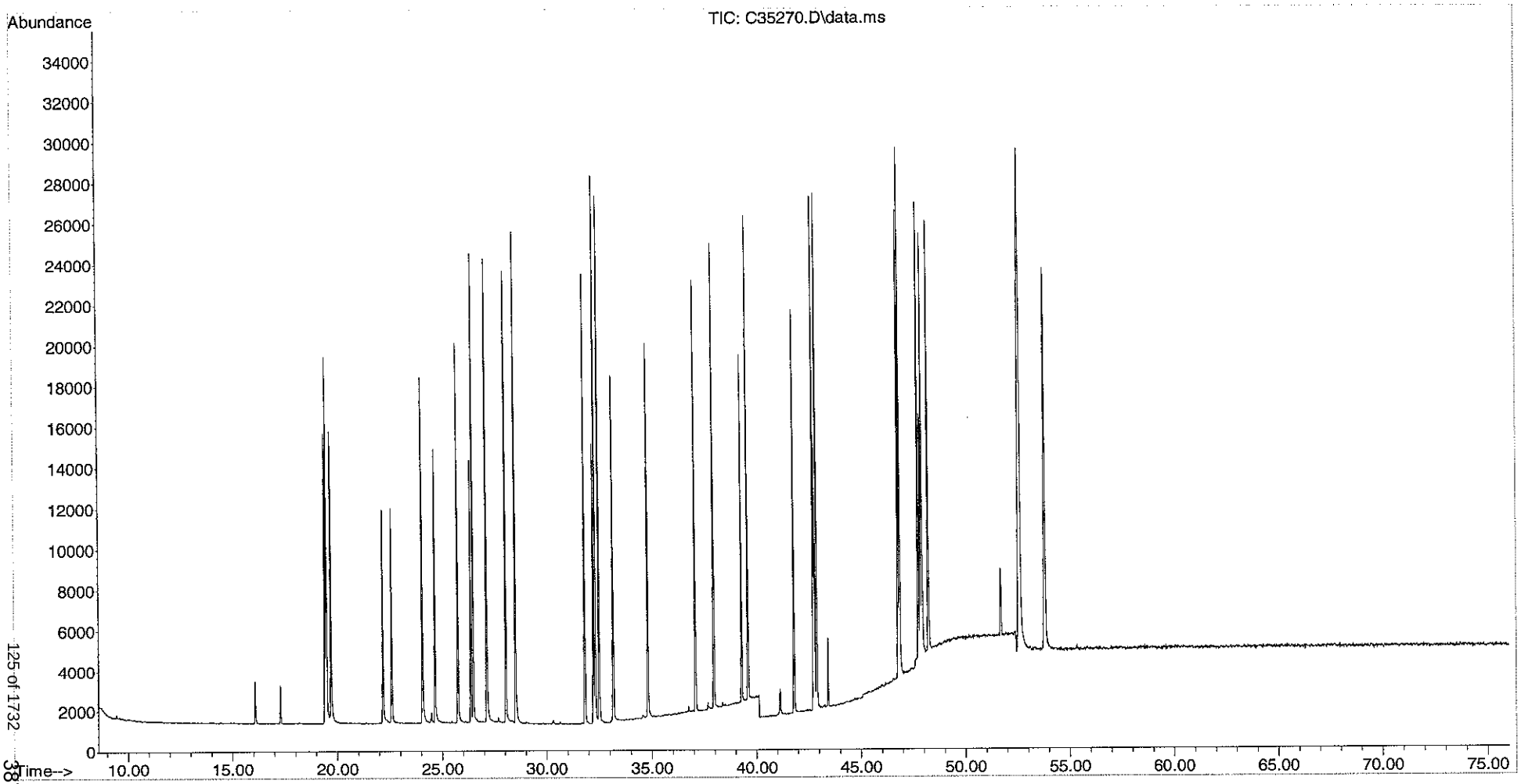
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	75	-0.15
3	A1	trans-Decalin	0.395	0.423	-7.1	76	-0.28
4	t	cis-Decalin	0.297	0.315	-6.1	75	-0.28
9	s	Naphthalene-d8	2.170	2.330	-7.4	76	-0.24
10	A1	Naphthalene	3.187	3.101	2.7	67	-0.24
16	t	2-Methylnaphthalene	1.884	1.865	1.0	69	-0.20
17	t	1-Methylnaphthalene	1.847	1.780	3.6	68	-0.19
18	A1	Benzothiophene	2.868	2.716	5.3	66	-0.24
23	t	Biphenyl	2.384	2.401	-0.7	71	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.604	-3.6	74	-0.16
25	t	Dibenzofuran	2.737	2.751	-0.5	71	-0.12
26	t	Acenaphthylene	3.163	3.045	3.7	69	-0.16
27	t	Acenaphthene	1.863	1.852	0.6	71	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.313	-5.2	77	-0.12
29	A1	Fluorene	2.054	2.047	0.3	72	-0.12
33	A1	Dibenzothiophene	3.293	3.299	-0.2	71	-0.06
42	s	Phenanthrene-d10	1.715	1.881	-9.7	82	-0.06
43	A1	Phenanthrene	2.893	2.965	-2.5	73	-0.06
54	t	Retene	0.564	0.635	-12.6	86	0.07
55	t	Anthracene	2.826	2.941	-4.1	74	-0.05
56	t	Carbazole	2.854	2.750	3.6	70	-0.04
57	t	1-Methylphenanthrene	1.833	1.969	-7.4	77	-0.02
58	A1	Fluoranthene	2.873	3.054	-6.3	76	0.02
59	t	Benzo(b)fluorene	1.667	1.801	-8.0	79	0.07
60	A1	Pyrene	2.921	3.095	-6.0	76	0.03
66	A1	Naphthobenzothiophene	3.145	3.349	-6.5	79	0.09
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.349	-6.5	79	0.09
74	i	Chrysene-d12	1.000	1.000	0.0	84	-0.18
75	t	Benz[a]anthracene	1.587	1.618	-2.0	83	-0.18
76	A1	Chrysene	1.602	1.628	-1.6	80	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.628	-1.6	80	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.753	-0.5	85	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.943	-2.3	84	-0.14
85	t	Benzo[e]pyrene	1.725	1.722	0.2	85	-0.18
86	s	Benzo[a]pyrene-d12	1.036	1.085	-4.7	93	-0.20
87	t	Benzo[a]pyrene	1.661	1.641	1.2	85	-0.19
88	t	Perylene	1.775	1.770	0.3	86	-0.21
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.022	-4.6	94	-0.39
90	t	Dibenz[ah]+[ac]anthracene	1.838	1.993	-8.4	94	-0.41
91	t	Benzo[g,h,i]perylene	2.042	2.161	-5.8	93	-0.45
92	A1	Hopane (T19)	0.330	0.319	3.3	92	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.321	2.7	92	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.164	-5.1	93	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.03	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

5/29/12

Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13090M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	22584	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	30502	536.875	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.221	188	24623	548.316	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.83%			
86) Benzo[a]pyrene-d12	47.835	264	24497	523.400	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.34%			
127) 5B(H)Cholane - Surr	43.423	217	3714	525.995	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.60%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	2766	267.677	ng/mL	100
4) cis-Decalin	17.287	138	2059	264.383	ng/mL	100
10) Naphthalene	19.485	128	40597	486.608	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	24407	494.776	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	23298	481.835	ng/mL#	100
18) Benzothiophene	19.696	134	35552	473.551	ng/mL	100
23) Biphenyl	24.062	154	31429	503.665	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	21002	518.200	ng/mL#	100
25) Dibenzofuran	27.133	168	36006	502.487	ng/mL	97
26) Acenaphthylene	25.748	152	39856	481.252	ng/mL#	100
27) Acenaphthene	26.485	153	24237M4	497.038	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	17186	526.033	ng/mL	89
29) Fluorene	28.503	166	26800M3	498.329	ng/mL	
33) Dibenzothiophene	31.814	184	43182	500.903	ng/mL	100
43) Phenanthrene	32.311	178	38812	512.429	ng/mL	99
54) Retene	39.297	234	8318	562.987	ng/mL	97
55) Anthracene	32.492	178	38495M3	520.327	ng/mL	
56) Carbazole	33.154	167	35991M3	481.612	ng/mL	
57) 1-Methylphenanthrene	34.810	192	25773	536.953	ng/mL	99
58) Fluoranthene	37.069	202	39980M3	531.481	ng/mL	
59) Benzo(b)fluorene	39.598	216	23579	540.285	ng/mL	99
60) Pyrene	37.957	202	40517	529.864	ng/mL	98
66) Naphthobenzothiophene	41.796	234	43833	532.447	ng/ml#	66
67) Naphthobenzothiophene-2,1	41.796	234	43833	532.447	ng/mL#	66
75) Benz[a]anthracene	42.730	228	36536	509.701	ng/mL	99
76) Chrysene	42.896	228	36768	508.069	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	36768	508.069	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	39601	502.784	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	43874	511.633	ng/mL	91
85) Benzo[e]pyrene	47.744	252	38897	499.276	ng/mL	95
87) Benzo[a]pyrene	47.925	252	37070	494.214	ng/mL	92
88) Perylene	48.226	252	39982	498.761	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.564	276	45659M3	523.079	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	45002M3	541.959	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	48813	529.304	ng/mL	99
92) Hopane (T19)	51.690	191	7204M3	483.995	ng/mL	
93) 17a(H),21B(H)-hopane - C3	51.690	191	7241M3	486.481	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

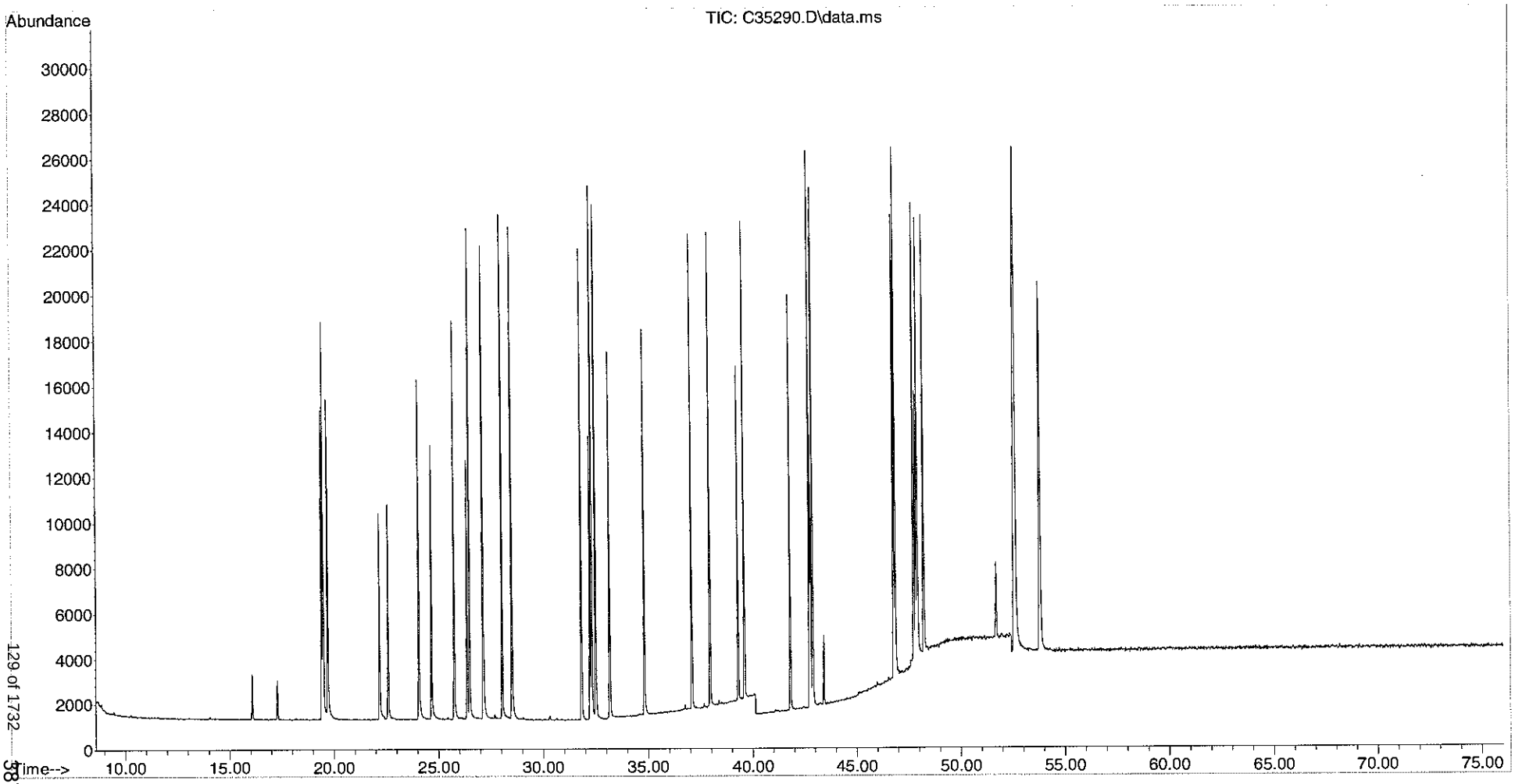
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	76	-0.15
3	A1	trans-Decalin	0.395	0.419	-6.1	76	-0.28
4	t	cis-Decalin	0.297	0.315	-6.1	76	-0.28
9	s	Naphthalene-d8	2.170	2.315	-6.7	76	-0.24
10	A1	Naphthalene	3.187	3.061	4.0	67	-0.24
16	t	2-Methylnaphthalene	1.884	1.892	-0.4	71	-0.20
17	t	1-Methylnaphthalene	1.847	1.805	2.3	69	-0.19
18	A1	Benzothiophene	2.868	2.731	4.8	67	-0.24
23	t	Biphenyl	2.384	2.422	-1.6	73	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.589	-2.6	74	-0.16
25	t	Dibenzofuran	2.737	2.771	-1.2	73	-0.12
26	t	Acenaphthylene	3.163	3.075	2.8	71	-0.16
27	t	Acenaphthene	1.863	1.862	0.1	72	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.343	-7.6	79	-0.12
29	A1	Fluorene	2.054	2.090	-1.8	74	-0.12
33	A1	Dibenzothiophene	3.293	3.291	0.1	72	-0.06
42	s	Phenanthrene-d10	1.715	1.880	-9.6	83	-0.06
43	A1	Phenanthrene	2.893	2.974	-2.8	74	-0.06
54	t	Retene	0.564	0.656	-16.3	90	0.07
55	t	Anthracene	2.826	2.960	-4.7	75	-0.05
56	t	Carbazole	2.854	2.779	2.6	71	-0.03
57	t	1-Methylphenanthrene	1.833	2.004	-9.3	79	-0.02
58	A1	Fluoranthene	2.873	3.074	-7.0	77	0.02
59	t	Benzo(b)fluorene	1.667	1.860	-11.6	83	0.07
60	A1	Pyrene	2.921	3.155	-8.0	78	0.03
66	A1	Naphthobenzothiophene	3.145	3.465	-10.2	82	0.11
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.465	-10.2	82	0.11
74	i	Chrysene-d12	1.000	1.000	0.0	86	-0.18
75	t	Benz[a]anthracene	1.587	1.634	-3.0	86	-0.18
76	A1	Chrysene	1.602	1.634	-2.0	83	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.656	-3.4	84	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.796	-3.0	90	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.967	-3.6	87	-0.14
85	t	Benzo[e]pyrene	1.725	1.752	-1.6	89	-0.18
86	s	Benzo[a]pyrene-d12	1.036	1.100	-6.2	98	-0.20
87	t	Benzo[a]pyrene	1.661	1.680	-1.1	89	-0.19
88	t	Perylene	1.775	1.805	-1.7	90	-0.21
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.054	-6.3	98	-0.39
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.029	-10.4	98	-0.41
91	t	Benzo[g,h,i]perylene	2.042	2.183	-6.9	97	-0.44
92	A1	Hopane (T19)	0.330	0.315	4.5	93	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.315	4.5	93	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.168	-7.7	97	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.04	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

MK Forsks 5/28/12

Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13224M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	23234	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	30611	533.334	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.33%			
42) Phenanthrene-d10	32.221	188	24863	548.050	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.80%			
86) Benzo[a]pyrene-d12	47.835	264	25569	531.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.10%			
127) 5B(H)Cholane - Surr	43.422	217	3896	536.334	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	2772	265.539	ng/mL	100
4) cis-Decalin	17.287	138	2081	264.500	ng/mL	100
10) Naphthalene	19.485	128	40479	480.277	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	25019	502.043	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	23871	488.682	ng/mL#	100
18) Benzothiophene	19.696	134	36117	476.202	ng/mL	100
23) Biphenyl	24.061	154	32030	508.095	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	21019	513.364	ng/mL#	100
25) Dibenzofuran	27.133	168	36644	506.209	ng/mL	97
26) Acenaphthylene	25.748	152	40661	485.997	ng/mL#	100
27) Acenaphthene	26.485	153	24619	499.756	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	17759	538.063	ng/mL	90
29) Fluorene	28.503	166	27637M3	508.685	ng/mL	
33) Dibenzothiophene	31.814	184	43519	499.697	ng/mL	100
43) Phenanthrene	32.311	178	39333	514.045	ng/mL	100
54) Retene	39.297	234	8680	581.535	ng/mL	97
55) Anthracene	32.492	178	39141M3	523.698	ng/mL	
56) Carbazole	33.169	167	36755M3	486.852	ng/mL	
57) 1-Methylphenanthrene	34.810	192	26499	546.485	ng/mL	99
58) Fluoranthene	37.069	202	40649M3	534.899	ng/mL	
59) Benzo(b)fluorene	39.598	216	24600	557.968	ng/mL	99
60) Pyrene	37.957	202	41727	540.158	ng/mL	98
66) Naphthobenzothiophene	41.811	234	45820	550.943	ng/ml#	66
67) Naphthobenzothiophene-2,1	41.811	234	45820	550.943	ng/mL#	66
75) Benz[a]anthracene	42.730	228	37961M3	514.765	ng/mL	
76) Chrysene	42.896	228	37955M3	509.798	ng/mL	
77) Chrysene/Triphenylene	42.896	228	38467	516.675	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	41739	515.104	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	45708	518.108	ng/mL	92
85) Benzo[e]pyrene	47.744	252	40703	507.842	ng/mL	93
87) Benzo[a]pyrene	47.925	252	39022M4	505.683	ng/mL	
88) Perylene	48.226	252	41931	508.440	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.564	276	47729M3	531.496	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	47147M3	551.907	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	50719	534.585	ng/mL	100
92) Hopane (T19)	51.690	191	7320	478.030	ng/mL#	80
93) 17a(H),21B(H)-hopane - C3	51.690	191	7320	478.030	ng/mL#	80

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

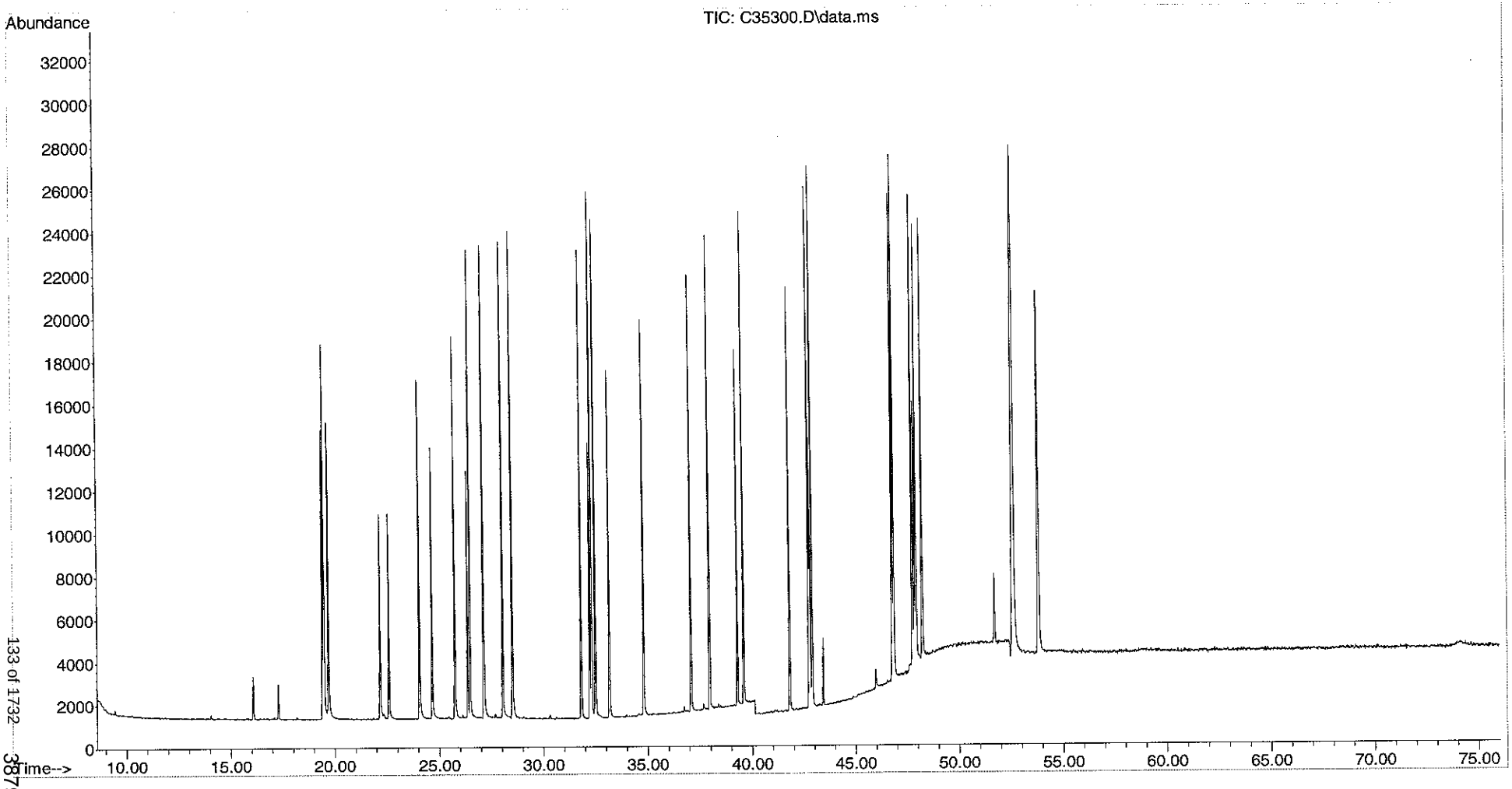
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : AC
Sample : C305241204
Misc : CC WHAP59 500NG/ML
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 29 09:48:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	87	-0.15
3	A1	trans-Decalin	0.395	0.420	-6.3	88	-0.28
4	t	cis-Decalin	0.297	0.322	-8.4	89	-0.28
9	s	Naphthalene-d8	2.170	2.267	-4.5	86	-0.24
10	A1	Naphthalene	3.187	2.984	6.4	75	-0.24
16	t	2-Methylnaphthalene	1.884	1.843	2.2	79	-0.20
17	t	1-Methylnaphthalene	1.847	1.774	4.0	79	-0.19
18	A1	Benzothiophene	2.868	2.630	8.3	74	-0.24
23	t	Biphenyl	2.384	2.341	1.8	81	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.583	-2.3	85	-0.16
25	t	Dibenzofuran	2.737	2.732	0.2	82	-0.12
26	t	Acenaphthylene	3.163	3.021	4.5	80	-0.16
27	t	Acenaphthene	1.863	1.826	2.0	81	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.315	-5.4	90	-0.11
29	A1	Fluorene	2.054	2.053	0.0	83	-0.12
33	A1	Dibenzothiophene	3.293	3.223	2.1	81	-0.06
42	s	Phenanthrene-d10	1.715	1.865	-8.7	95	-0.06
43	A1	Phenanthrene	2.893	2.880	0.4	82	-0.06
54	t	Retene	0.564	0.682	-20.9	108	0.07
55	t	Anthracene	2.826	2.935	-3.9	86	-0.05
56	t	Carbazole	2.854	2.753	3.5	81	-0.03
57	t	1-Methylphenanthrene	1.833	1.991	-8.6	91	-0.02
58	A1	Fluoranthene	2.873	3.130	-8.9	91	0.03
59	t	Benzo(b)fluorene	1.667	1.915	-14.9	98	0.07
60	A1	Pyrene	2.921	3.135	-7.3	89	0.03
66	A1	Naphthobenzothiophene	3.145	3.503	-11.4	96	0.11
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.503	-11.4	96	0.11
74	i	Chrysene-d12	1.000	1.000	0.0	102	-0.17
75	t	Benz[a]anthracene	1.587	1.650	-4.0	103	-0.18
76	A1	Chrysene	1.602	1.626	-1.5	98	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.626	-1.5	98	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.916	-9.9	113	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.973	-3.9	103	-0.14
85	t	Benzo[e]pyrene	1.725	1.809	-4.9	108	-0.18
86	s	Benzo[a]pyrene-d12	1.036	1.167	-12.6	122	-0.18
87	t	Benzo[a]pyrene	1.661	1.750	-5.4	110	-0.19
88	t	Perylene	1.775	1.873	-5.5	111	-0.21
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.261	-17.0	128	-0.39
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.188	-19.0	125	-0.39
91	t	Benzo[g,h,i]perylene	2.042	2.296	-12.4	120	-0.44
92	A1	Hopane (T19)	0.330	0.331	-0.3	116	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.331	-0.3	116	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.175	-12.2	120	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.13	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : AC
Sample : C305241204
Misc : CC WHAP59 500NG/ML
ALS Vial : 31 Sample Multiplier: 1

MS 5/28/12

Quant Time: May 29 09:48:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15226	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	27494	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	34520	522.360	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.24%			
42) Phenanthrene-d10	32.221	188	28403	543.761	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.38%			
86) Benzo[a]pyrene-d12	47.850	264	32098	563.329	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.33%			
127) 5B(H)Cholane - Surr	43.423	217	4820	560.725	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.07%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	3198	266.067	ng/mL	100
4) cis-Decalin	17.287	138	2454	270.898	ng/mL	100
10) Naphthalene	19.485	128	45441	468.260	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	28055	488.943	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	27012	480.275	ng/mL#	100
18) Benzothiophene	19.696	134	40042	458.535	ng/mL	100
23) Biphenyl	24.062	154	35651	491.176	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	24096	511.135	ng/mL#	100
25) Dibenzofuran	27.133	168	41599	499.099	ng/mL	98
26) Acenaphthylene	25.748	152	46003M3	477.550	ng/mL	
27) Acenaphthene	26.485	153	27806	490.233	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.051	170	20018	526.760	ng/mL	89
29) Fluorene	28.503	166	31263	499.765	ng/mL	99
33) Dibenzothiophene	31.814	184	49067	489.322	ng/mL	99
43) Phenanthrene	32.311	178	43852	497.749	ng/mL	99
54) Retene	39.297	234	10390	604.573	ng/mL	99
55) Anthracene	32.492	178	44684M3	519.252	ng/mL	
56) Carbazole	33.169	167	41920	482.257	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	30309	542.872	ng/mL	99
58) Fluoranthene	37.084	202	47653	544.614	ng/mL	96
59) Benzo(b)fluorene	39.598	216	29160	574.432	ng/mL	99
60) Pyrene	37.957	202	47731	536.638	ng/mL	99
66) Naphthobenzothiophene	41.812	234	53333	556.961	ng/ml#	66
67) Naphthobenzothiophene-2,1	41.812	234	53333	556.961	ng/mL#	66
75) Benz[a]anthracene	42.730	228	45355	519.736	ng/mL	100
76) Chrysene	42.896	228	44701	507.379	ng/mL	99
77) Chrysene/Triphenylene	42.896	228	44701	507.379	ng/mL	99
82) Benzo[b]fluoranthene	46.781	252	52687	549.468	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	54241	519.567	ng/mL	92
85) Benzo[e]pyrene	47.744	252	49728	524.311	ng/mL	95
87) Benzo[a]pyrene	47.925	252	48104	526.789	ng/mL	92
88) Perylene	48.226	252	51508	527.795	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.564	276	62172M3	585.058	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	60149	595.012	ng/mL	96
91) Benzo[g,h,i]perylene	53.814	276	63115	562.167	ng/mL	100
92) Hopane (T19)	51.690	191	9109	502.690	ng/mL#	79
93) 17a(H),21B(H)-hopane - C3	51.690	191	9109	502.690	ng/mL#	79

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : AC
Sample : C305241204
Misc : CC WHAP59 500NG/ML
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 29 09:48:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

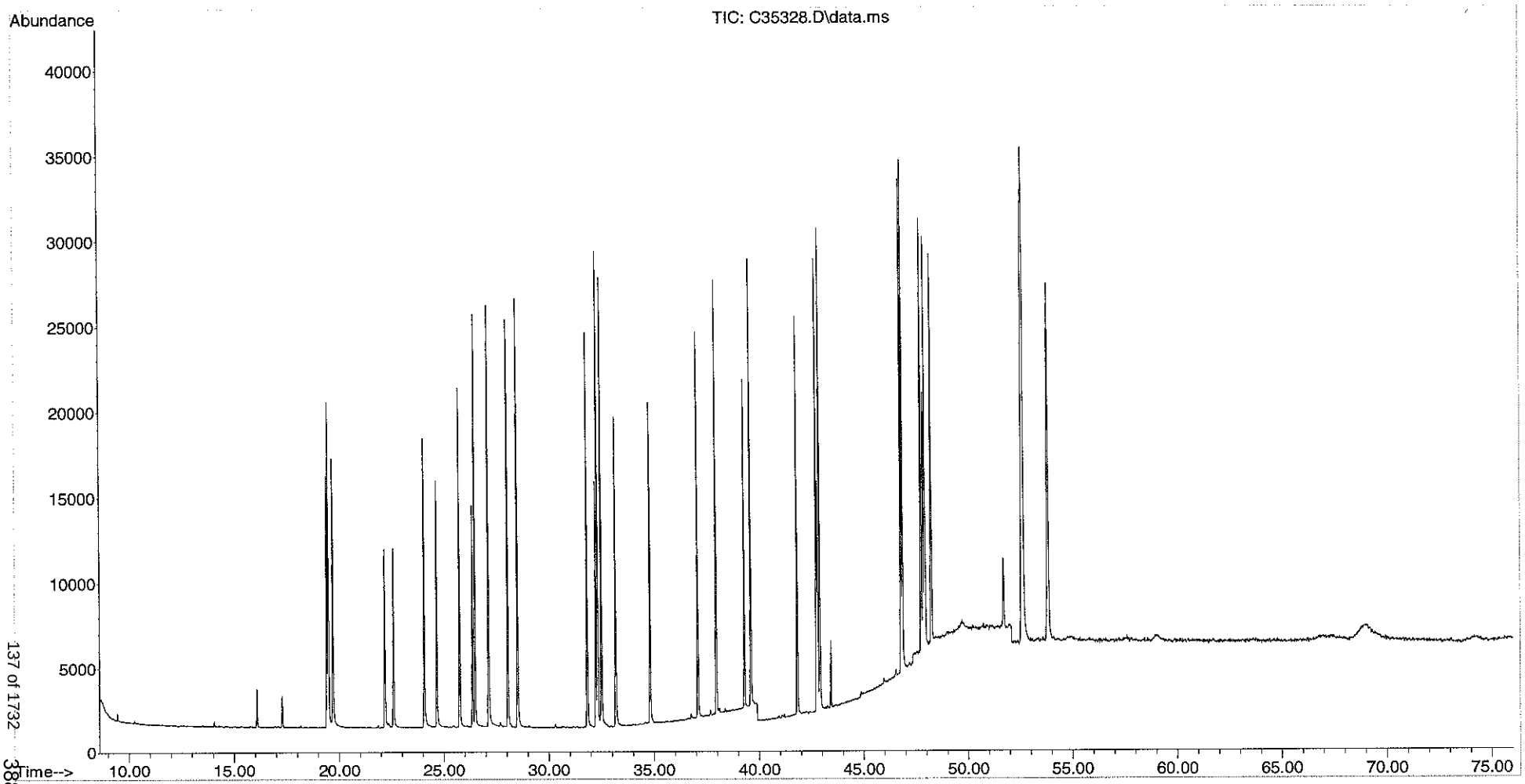
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : AC
Sample : C305241204
Misc : CC WHAP59 500NG/ML
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 29 09:48:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	105	-0.15
3	A1	trans-Decalin	0.395	0.416	-5.3	105	-0.30
4	t	cis-Decalin	0.297	0.303	-2.0	101	-0.28
9	s	Naphthalene-d8	2.170	2.162	0.4	98	-0.24
10	A1	Naphthalene	3.187	2.893	9.2	87	-0.24
16	t	2-Methylnaphthalene	1.884	1.783	5.4	92	-0.20
17	t	1-Methylnaphthalene	1.847	1.734	6.1	92	-0.19
18	A1	Benzothiophene	2.868	2.513	12.4	85	-0.24
23	t	Biphenyl	2.384	2.291	3.9	95	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.525	1.5	99	-0.16
25	t	Dibenzofuran	2.737	2.648	3.3	96	-0.12
26	t	Acenaphthylene	3.163	2.994	5.3	95	-0.16
27	t	Acenaphthene	1.863	1.797	3.5	96	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.293	-3.6	106	-0.11
29	A1	Fluorene	2.054	2.052	0.1	100	-0.12
33	A1	Dibenzothiophene	3.293	3.197	2.9	96	-0.06
42	s	Phenanthrene-d10	1.715	1.848	-7.8	113	-0.06
43	A1	Phenanthrene	2.893	2.854	1.3	98	-0.06
54	t	Retene	0.564	0.720	-27.7#	137	0.07
55	t	Anthracene	2.826	2.957	-4.6	104	-0.05
56	t	Carbazole	2.854	2.761	3.3	98	-0.03
57	t	1-Methylphenanthrene	1.833	2.014	-9.9	110	-0.02
58	A1	Fluoranthene	2.873	3.157	-9.9	110	0.03
59	t	Benzo(b)fluorene	1.667	1.978	-18.7	122	0.07
60	A1	Pyrene	2.921	3.186	-9.1	109	0.03
66	A1	Naphthobenzothiophene	3.145	3.645	-15.9	120	0.11
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.645	-15.9	120	0.11
74	i	Chrysene-d12	1.000	1.000	0.0	129	-0.17
75	t	Benz[a]anthracene	1.587	1.624	-2.3	128	-0.17
76	A1	Chrysene	1.602	1.594	0.5	121	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.594	0.5	121	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.868	-7.1	140	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.979	-4.2	131	-0.13
85	t	Benzo[e]pyrene	1.725	1.795	-4.1	136	-0.17
86	s	Benzo[a]pyrene-d12	1.036	1.156	-11.6	154	-0.18
87	t	Benzo[a]pyrene	1.661	1.716	-3.3	137	-0.18
88	t	Perylene	1.775	1.869	-5.3	141	-0.19
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.310	-19.5	165	-0.38
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.153	-17.1	157	-0.38
91	t	Benzo[g,h,i]perylene	2.042	2.265	-10.9	151	-0.42
92	A1	Hopane (T19)	0.330	0.333	-0.9	148	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.333	-0.9	148	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.183	-17.3	159	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.12	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	18294	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	34859	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	39560	498.233	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.82%#			
42) Phenanthrene-d10	32.221	188	33812	538.756	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.88%			
86) Benzo[a]pyrene-d12	47.850	264	40289	557.691	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 55.77%			
127) 5B(H)Cholane - Surr	43.422	217	6374	584.841	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 58.48%			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	3804	263.409	ng/mL	100
4) cis-Decalin	17.287	138	2769	254.408	ng/mL	100
10) Naphthalene	19.485	128	52929	453.952	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	32623	473.205	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31726	469.489	ng/mL#	100
18) Benzothiophene	19.695	134	45971	438.145	ng/mL	100
23) Biphenyl	24.061	154	41909	480.562	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	27896	492.504	ng/mL#	100
25) Dibenzofuran	27.132	168	48441	483.720	ng/mL	97
26) Acenaphthylene	25.747	152	54765M3	473.165	ng/mL	
27) Acenaphthene	26.485	153	32879	482.459	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.051	170	23651	517.987	ng/mL	89
29) Fluorene	28.502	166	37532	499.361	ng/mL	99
33) Dibenzothiophene	31.814	184	58492	485.488	ng/mL	99
43) Phenanthrene	32.311	178	52203	493.167	ng/mL	99
54) Retene	39.297	234	13168	637.720	ng/mL	96
55) Anthracene	32.492	178	54097M3	523.211	ng/mL	
56) Carbazole	33.169	167	50506	483.591	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	36841	549.204	ng/mL	100
58) Fluoranthene	37.084	202	57763	549.447	ng/mL	95
59) Benzo(b)fluorene	39.598	216	36188	593.325	ng/mL	98
60) Pyrene	37.957	202	58289	545.437	ng/mL	99
66) Naphthobenzothiophene	41.811	234	66688	579.634	ng/ml#	65
67) Naphthobenzothiophene-2,1	41.811	234	66688	579.634	ng/mL#	65
75) Benz[a]anthracene	42.745	228	56613	511.678	ng/mL	99
76) Chrysene	42.895	228	55577	497.546	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	55577	497.546	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	65121	535.652	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.871	252	68992	521.238	ng/mL	91
85) Benzo[e]pyrene	47.759	252	62569	520.320	ng/mL	94
87) Benzo[a]pyrene	47.940	252	59813	516.623	ng/mL	91
88) Perylene	48.241	252	65154	526.569	ng/mL	93
89) Indeno[1,2,3-cd]pyrene	52.579	276	80522M3	597.642	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	75047	585.536	ng/mL	97
91) Benzo[g,h,i]perylene	53.828	276	78950	554.635	ng/mL	99
92) Hopane (T19)	51.690	191	11617	505.646	ng/mL#	74
93) 17a(H),21B(H)-hopane - C3	51.690	191	11617	505.646	ng/mL#	74

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

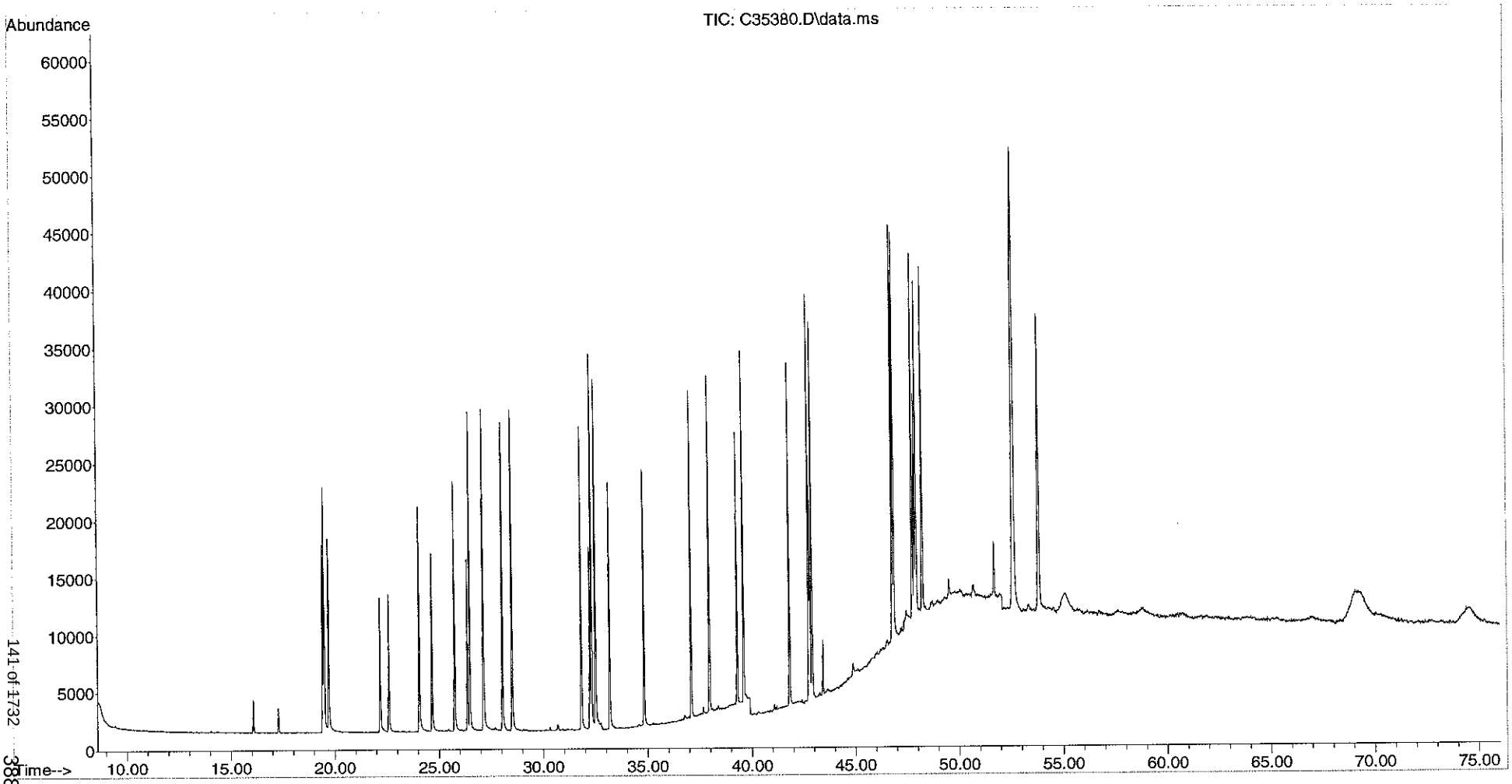
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

5/29/12

Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	103	-0.15
3	A1	trans-Decalin	0.395	0.409	-3.5	101	-0.30
4	t	cis-Decalin	0.297	0.296	0.3	97	-0.28
9	s	Naphthalene-d8	2.170	2.205	-1.6	99	-0.24
10	A1	Naphthalene	3.187	2.913	8.6	86	-0.24
16	t	2-Methylnaphthalene	1.884	1.801	4.4	91	-0.20
17	t	1-Methylnaphthalene	1.847	1.746	5.5	91	-0.19
18	A1	Benzothiophene	2.868	2.579	10.1	86	-0.24
23	t	Biphenyl	2.384	2.306	3.3	94	-0.17
24	t	2,6-Dimethylnaphthalene	1.548	1.539	0.6	98	-0.16
25	t	Dibenzofuran	2.737	2.697	1.5	96	-0.12
26	t	Acenaphthylene	3.163	2.941	7.0	92	-0.16
27	t	Acenaphthene	1.863	1.815	2.6	95	-0.15
28	t	2,3,5-Trimethylnaphthalene	1.248	1.284	-2.9	103	-0.11
29	A1	Fluorene	2.054	2.028	1.3	97	-0.12
33	A1	Dibenzothiophene	3.293	3.218	2.3	95	-0.06
42	s	Phenanthrene-d10	1.715	1.869	-9.0	112	-0.06
43	A1	Phenanthrene	2.893	2.867	0.9	97	-0.06
54	t	Retene	0.564	0.696	-23.4	130	0.07
55	t	Anthracene	2.826	2.968	-5.0	103	-0.05
56	t	Carbazole	2.854	2.746	3.8	96	-0.03
57	t	1-Methylphenanthrene	1.833	1.981	-8.1	107	-0.02
58	A1	Fluoranthene	2.873	3.102	-8.0	106	0.03
59	t	Benzo(b)fluorene	1.667	1.931	-15.8	117	0.07
60	A1	Pyrene	2.921	3.198	-9.5	108	0.03
66	A1	Naphthobenzothiophene	3.145	3.537	-12.5	114	0.11
67	A2	Naphthobenzothiophene-2,1-D	3.145	3.537	-12.5	114	0.11
74	i	Chrysene-d12	1.000	1.000	0.0	122	-0.17
75	t	Benz[a]anthracene	1.587	1.624	-2.3	121	-0.17
76	A1	Chrysene	1.602	1.606	-0.2	116	-0.17
77	A2	Chrysene/Triphenylene	1.602	1.606	-0.2	116	-0.17
82	t	Benzo[b]fluoranthene	1.744	1.847	-5.9	131	-0.14
83	A1	Benzo[j]+[k]fluoranthene	1.899	1.969	-3.7	124	-0.13
85	t	Benzo[e]pyrene	1.725	1.761	-2.1	127	-0.17
86	s	Benzo[a]pyrene-d12	1.036	1.147	-10.7	144	-0.18
87	t	Benzo[a]pyrene	1.661	1.708	-2.8	129	-0.18
88	t	Perylene	1.775	1.821	-2.6	130	-0.19
89	t	Indeno[1,2,3-cd]pyrene	1.933	2.249	-16.3	152	-0.38
90	t	Dibenz[ah]+[ac]anthracene	1.838	2.104	-14.5	145	-0.38
91	t	Benzo[g,h,i]perylene	2.042	2.246	-10.0	141	-0.42
92	A1	Hopane (T19)	0.330	0.329	0.3	138	-0.38
93	A2	17a(H),21B(H)-hopane - C30H	0.330	0.329	0.3	138	-0.38
127	SA1	5B(H)Cholane - Surr	0.156	0.176	-12.8	145	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.11	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

5/29/12

Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17987	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33009	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	39669	508.133	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.81%			
42) Phenanthrene-d10	32.221	188	33622	544.872	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.49%			
86) Benzo[a]pyrene-d12	47.850	264	37845	553.220	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 55.32%			
127) 5B(H)Cholane - Surr	43.423	217	5811	563.066	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.31%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	3682	259.312	ng/mL	100
4) cis-Decalin	17.287	138	2661	248.658	ng/mL	100
10) Naphthalene	19.485	128	52404	457.120	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	32398	477.962	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31408	472.716	ng/mL#	100
18) Benzothiophene	19.696	134	46381	449.598	ng/mL	100
23) Biphenyl	24.062	154	41481	483.773	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	27676	496.960	ng/mL#	100
25) Dibenzofuran	27.133	168	48513	492.708	ng/mL	97
26) Acenaphthylene	25.748	152	52900M3	464.853	ng/mL	
27) Acenaphthene	26.485	153	32644	487.186	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.051	170	23104	514.643	ng/mL	89
29) Fluorene	28.503	166	36479	493.634	ng/mL	98
33) Dibenzothiophene	31.814	184	57876	488.574	ng/mL	100
43) Phenanthrene	32.311	178	51568	495.483	ng/mL	99
54) Retene	39.297	234	12516	616.489	ng/mL	99
55) Anthracene	32.492	178	53390M3	525.186	ng/mL	
56) Carbazole	33.169	167	49397	481.045	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	35635	540.293	ng/mL	99
58) Fluoranthene	37.084	202	55794	539.776	ng/mL	97
59) Benzo(b)fluorene	39.598	216	34740	579.306	ng/mL	99
60) Pyrene	37.957	202	57525	547.475	ng/mL	100
66) Naphthobenzothiophene	41.812	234	63619	562.397	ng/ml#	65
67) Naphthobenzothiophene-2,1	41.812	234	63619	562.397	ng/mL#	65
75) Benz[a]anthracene	42.745	228	53603	511.626	ng/mL	100
76) Chrysene	42.896	228	53006	501.125	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	53006	501.125	ng/mL	100
82) Benzo[b]fluoranthene	46.781	252	60967	529.589	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.871	252	64990	518.521	ng/mL	93
85) Benzo[e]pyrene	47.759	252	58144	510.621	ng/mL	94
87) Benzo[a]pyrene	47.940	252	56392	514.373	ng/mL	91
88) Perylene	48.241	252	60105	512.988	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.579	276	74252M3	581.993	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	69445	572.195	ng/mL	97
91) Benzo[g,h,i]perylene	53.829	276	74148	550.095	ng/mL	99
92) Hopane (T19)	51.690	191	10858	499.097	ng/mL#	76
93) 17a(H),21B(H)-hopane - C3	51.690	191	10858	499.097	ng/mL#	76

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

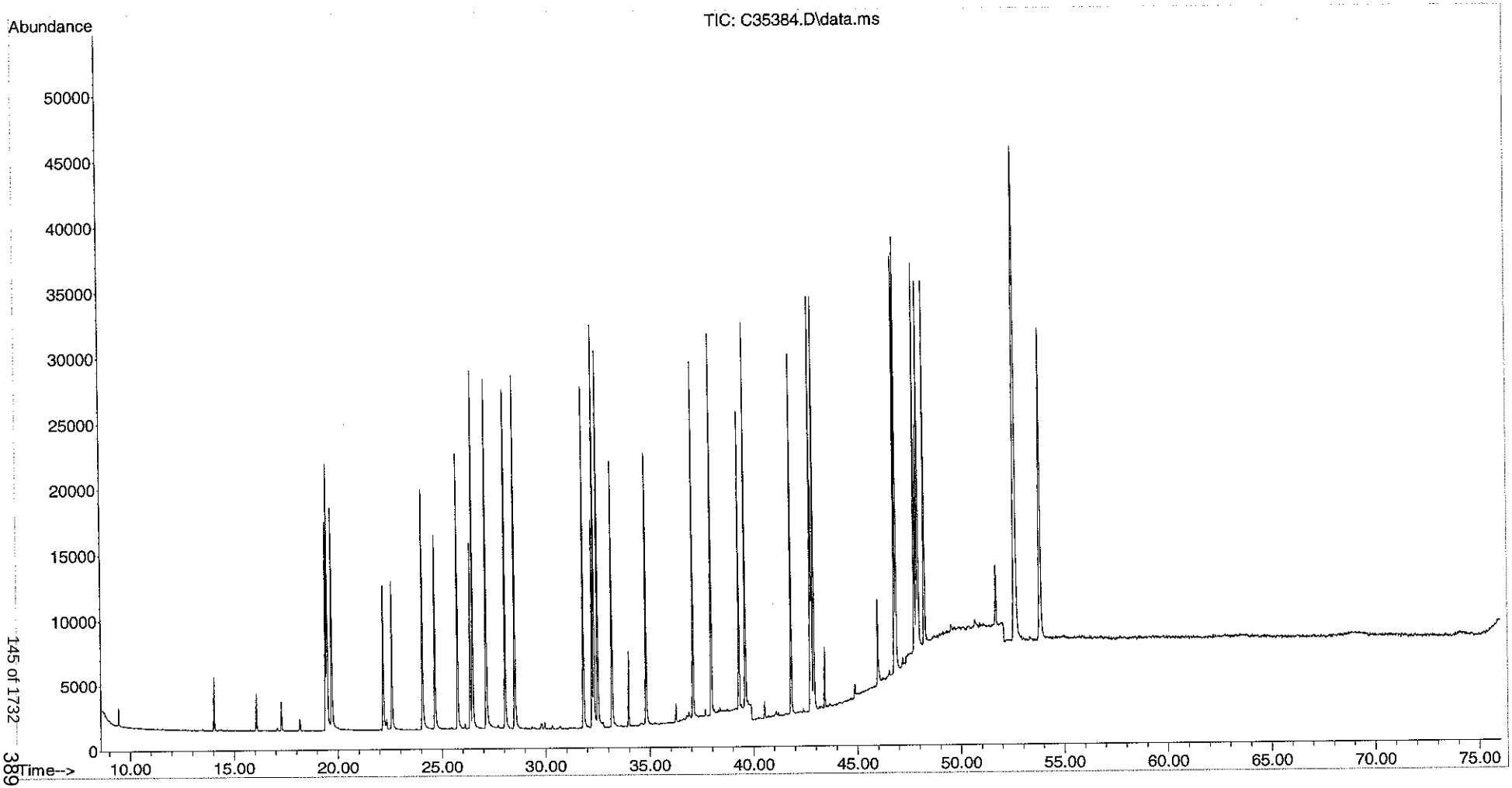
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

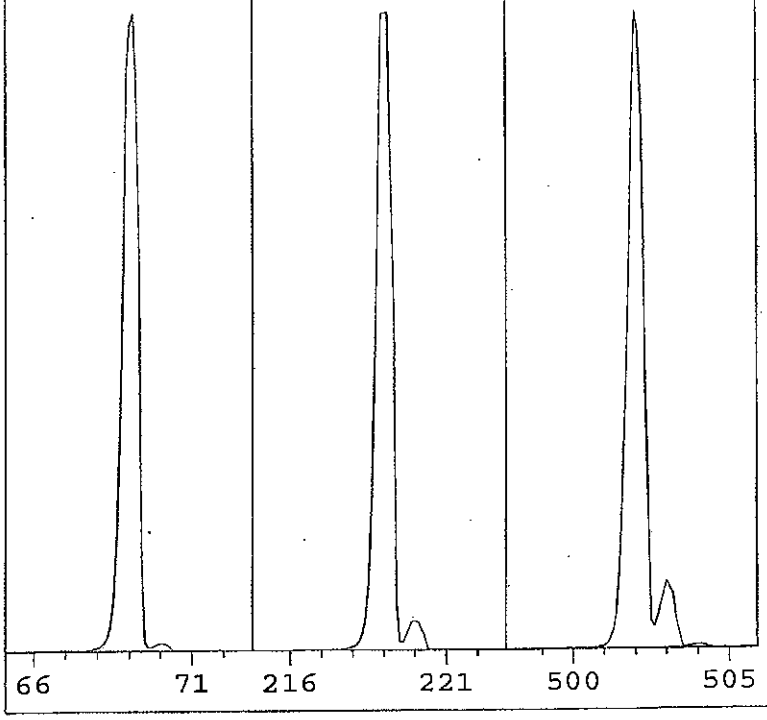
Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Sat Mar 24 14:44:30 2012 Instrument: PAH 3
C:\MSDCHEM\1\5973N\PFTBA.U

Mass	69.10	Mass	219.10	Mass	502.00
Ab	426142	Ab	236222	Ab	40080
Pw50	0.56	Pw50	0.59	Pw50	0.55



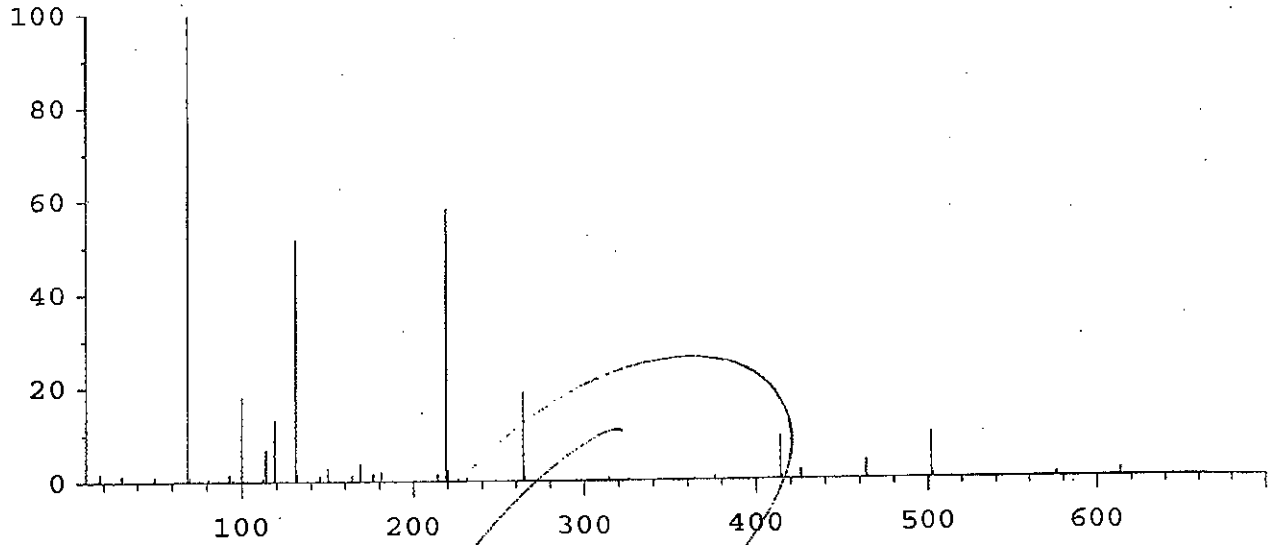
Ion Pol	POS	MassGain	58
		MassOffs	-11
Emission	34.6	AmuGain	2453
ElEnrgy	69.9	AmuOffs	133
Filament	1	Wid219	-0.076
		DC Pol	POS
Repeller	29.79		
IonFcus	90.2	HEDEnab	ON
EntLens	0.0	EMVolts	1341
EntOffs	VAR		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	57
MS Quad	150		

3/24/12

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
142 peaks Base: 69.00 Abundance: 380032



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	380032	100.00	70.00	4298	1.13
219.00	222080	58.44	220.00	9804	4.41
502.00	37096	9.76	503.00	3764	10.15

TARGET MASS:	50	69	131	219	414	502
DYNAMIC ENT OFFSET:	16.8	19.6	19.3	18.6	22.3	24.1
TARGET ABUND(%):	1.0	100.0	50.0	51.0	8.0	8.0
ACTUAL TUNE ABUND(%):	1.1	100.0	51.7	58.4	9.4	9.8

[targets]
base=69
masses=5
mass1=50
mass2=131
mass3=219
mass4=414
mass5=502
target1=1
target2=45
target3=55
target4=2.5
target5=2
[ATUNE.cnorm]
masses=5
69=491264
50=5435
131=284160
219=405504
414=50072
502=49456
[TARGET.cnorm]
masses=5
69=418432
50=4610
131=219840
219=233216
414=36584
502=43248
[PFTBA.cnorm]
masses=5
69=380032 ✓
50=4053
131=196544
219=222080 = 58.4%
414=35608
502=37096 = 9.76%

✓ MAA 5/30/12

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	10.0	U
C1-Decalins	10.0	U	C4-Dibenzothiophenes	10.0	U
C2-Decalins	10.0	U	Benzo(b)fluorene	10.0	U
C3-Decalins	10.0	U	Fluoranthene	10.0	U
C4-Decalins	10.0	U	Pyrene	10.0	U
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	10.0	U
C1-Benzo(b)thiophenes	10.0	U	C2-Fluoranthenes/Pyrenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U	C3-Fluoranthenes/Pyrenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U	C4-Fluoranthenes/Pyrenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U	Naphthobenzothiophenes	10.0	U
Naphthalene	10.0	U	C1-Naphthobenzothiophenes	10.0	U
C1-Naphthalenes	10.0	U	C2-Naphthobenzothiophenes	10.0	U
C2-Naphthalenes	10.0	U	C3-Naphthobenzothiophenes	10.0	U
C3-Naphthalenes	10.0	U	C4-Naphthobenzothiophenes	10.0	U
C4-Naphthalenes	10.0	U	Benz[a]anthracene	10.0	U
Biphenyl	10.0	U	Chrysene/Triphenylene	10.0	U
Dibenzofuran	**1.01**	J	C1-Chrysenes	10.0	U
Acenaphthylene	10.0	U	C2-Chrysenes	10.0	U
Acenaphthene	10.0	U	C3-Chrysenes	10.0	U
Fluorene	10.0	U	C4-Chrysenes	10.0	U
C1-Fluorenes	10.0	U	Benzo[b]fluoranthene	10.0	U
C2-Fluorenes	10.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	10.0	U
C3-Fluorenes	10.0	U	Benzo[a]fluoranthene	10.0	U
Anthracene	10.0	U	Benzo[e]pyrene	10.0	U
Phenanthrene	10.0	U	Benzo[a]pyrene	10.0	U
C1-Phenanthrenes/Anthracenes	10.0	U	Perylene	10.0	U
C2-Phenanthrenes/Anthracenes	10.0	U	Indeno[1,2,3-cd]pyrene	10.0	U
C3-Phenanthrenes/Anthracenes	10.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	10.0	U
C4-Phenanthrenes/Anthracenes	10.0	U	Benzo[g,h,i]perylene	10.0	U
Retene	10.0	U			
Dibenzothiophene	10.0	U			
C1-Dibenzothiophenes	10.0	U			
C2-Dibenzothiophenes	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	10.0 U
2/3-Methyldibenzothiophene	10.0 U
1-Methyldibenzothiophene	10.0 U
3-Methylphenanthrene	10.0 U
2-Methylphenanthrene	10.0 U
2-Methylanthracene	10.0 U
9/4-Methylphenanthrene	10.0 U
1-Methylphenanthrene	10.0 U
2-Methylnaphthalene	10.0 U
1-Methylnaphthalene	10.0 U
2,6-Dimethylnaphthalene	10.0 U
2,3,5-Trimethylnaphthalene	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	82	40-120
Phenanthrene-d10	88	40-120
Benzo[a]pyrene-d12	83	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22S	10.0	U
C24 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22R	10.0	U
C25 Tricyclic Terpane	10.0	U	Tetrakishomohopane-22S	10.0	U
C24 Tetracyclic Terpane	10.0	U	Tetrakishomohopane-22R	10.0	U
C26 Tricyclic Terpane-22S	10.0	U	Pentakishomohopane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U	Pentakishomohopane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U	13b(H),17a(H)-20S-Diacholestane	10.0	U
C28 Tricyclic Terpane-22R	10.0	U	13b(H),17a(H)-20R-Diacholestane	10.0	U
C29 Tricyclic Terpane-22S	10.0	U	13b,17a-20S-Methyldiacholestane	10.0	U
C29 Tricyclic Terpane-22R	10.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	10.0	U
18a-22,29,30-Trisnorneohopane-TS	10.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	10.0	U
C30 Tricyclic Terpane-22S	10.0	U	Unknown Sterane (S18)	**15.3**	G
C30 Tricyclic Terpane-22R	10.0	U	13a,17b-20S-Ethyldiacholestane	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	10.0	U	14a,17a-20S-Methylcholestane	10.0	U
17a/b,21b/a 28,30-Bisnorhopane	10.0	U	14a,17a-20R-Methylcholestane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U	14a(H),17a(H)-20S-Ethylcholestane	10.0	U
30-Norhopane	10.0	U	14a(H),17a(H)-20R-Ethylcholestane	10.0	U
18a(H)-30-Norneohopane-C29Ts	10.0	U	14b(H),17b(H)-20R-Cholestane	10.0	U
17a(H)-Diahopane	10.0	U	14b(H),17b(H)-20S-Cholestane	10.0	U
30-Normoretane	10.0	U	14b,17b-20R-Methylcholestane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U	14b,17b-20S-Methylcholestane	10.0	U
Hopane	10.0	U	14b(H),17b(H)-20R-Ethylcholestane	10.0	U
Moretane	10.0	U	14b(H),17b(H)-20S-Ethylcholestane	10.0	U
30-Homohopane-22S	10.0	U	C26,20R- +C27,20S- triaromatic steroid	10.0	U
30-Homohopane-22R	10.0	U	C28,20S-triaromatic steroid	10.0	U
T22a-Gammacerane/C32-diahopane	10.0	U	C27,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22S	10.0	U	C28,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22R	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	90	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35284.D
Acq On : 24 May 2012 11:22 pm
Operator : AC
Sample : SO052312B08
Misc : 1X ETR1205027
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 09:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 07:49:11 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12883M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	25641	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	45823	819.504	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	81.95%		
42) Phenanthrene-d10	32.221	188	38963	881.587	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	88.16%		
86) Benzo[a]pyrene-d12	47.835	264	44127	830.407	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	83.04%		
127) 5B(H)Cholane - Surr	43.422	217	7255	904.988	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	90.50%		
Target Compounds						Qvalue
25) Dibenzofuran	27.133	168	71M2	1.007	ng/mL	
133) Unknown Sterane (S18)	47.714	217G	123M3	15.343	ng/ml	

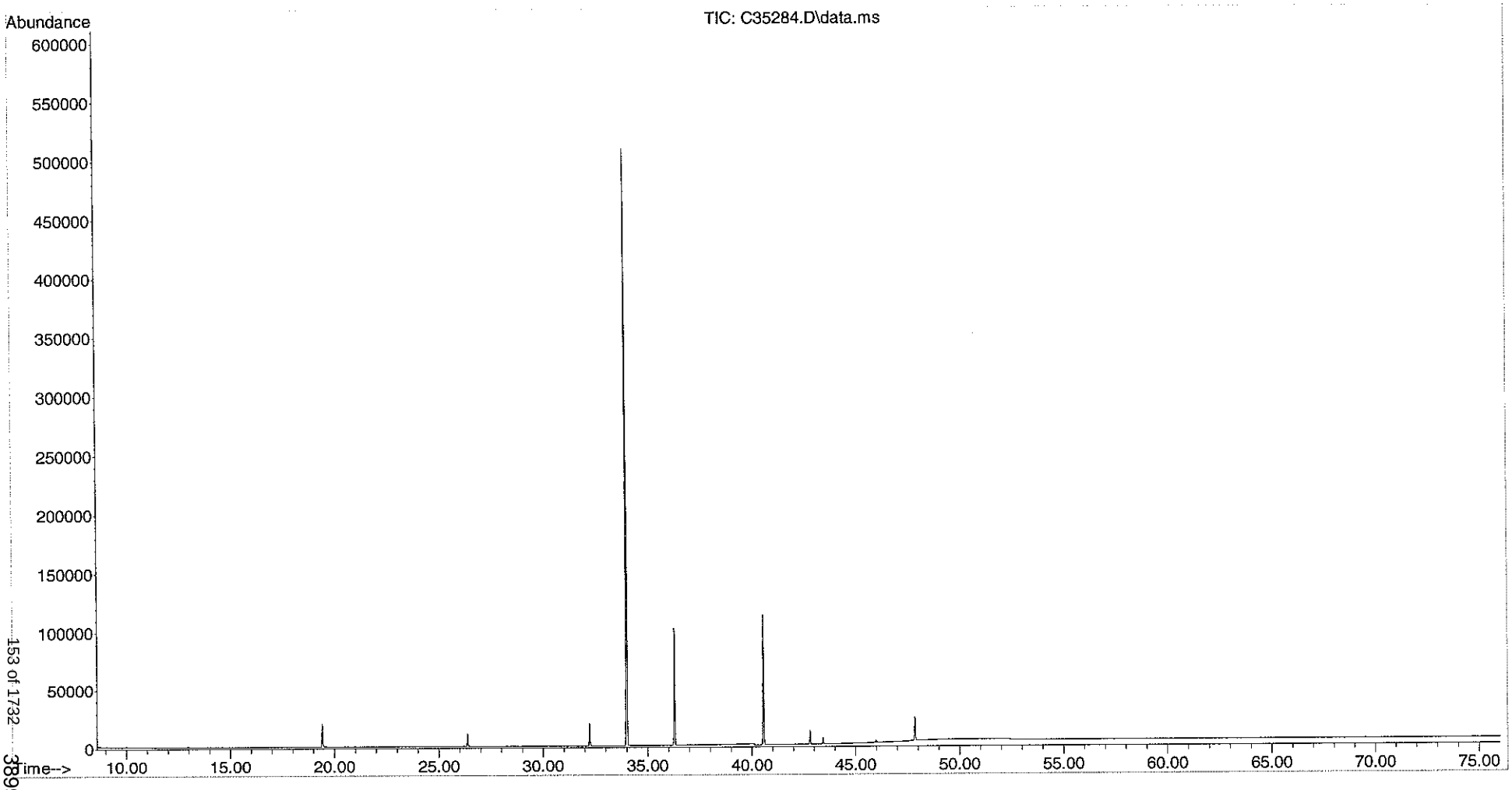
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35284.D
Acq On : 24 May 2012 11:22 pm
Operator : AC
Sample : SO052312B08
Misc : 1X ETR1205027
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 09:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 07:49:11 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



153 of 1732
3899

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.286	U	C3-Dibenzothiophenes	0.0870	U
C1-Decalins	0.286	U	C4-Dibenzothiophenes	0.0870	U
C2-Decalins	0.286	U	Benzo(b)fluorene	0.180	U
C3-Decalins	0.286	U	Fluoranthene	0.147	U
C4-Decalins	0.286	U	Pyrene	0.149	U
Benzothiophene	0.232	U	C1-Fluoranthenes/Pyrenes	0.149	U
C1-Benzo(b)thiophenes	0.232	U	C2-Fluoranthenes/Pyrenes	0.149	U
C2-Benzo(b)thiophenes	0.232	U	C3-Fluoranthenes/Pyrenes	0.149	U
C3-Benzo(b)thiophenes	0.232	U	C4-Fluoranthenes/Pyrenes	0.149	U
C4-Benzo(b)thiophenes	0.232	U	Naphthobenzothiophenes	0.0968	U
Naphthalene	**0.347**	J	C1-Naphthobenzothiophenes	0.0968	U
C1-Naphthalenes	0.195	U	C2-Naphthobenzothiophenes	0.0968	U
C2-Naphthalenes	0.195	U	C3-Naphthobenzothiophenes	0.0968	U
C3-Naphthalenes	0.195	U	C4-Naphthobenzothiophenes	0.0968	U
C4-Naphthalenes	0.195	U	Benz[a]anthracene	0.195	U
Biphenyl	0.0906	U	Chrysene/Triphenylene	0.156	U
Dibenzofuran	**0.281**	J	C1-Chrysenes	0.156	U
Acenaphthylene	0.0682	U	C2-Chrysenes	0.156	U
Acenaphthene	0.0806	U	C3-Chrysenes	0.156	U
Fluorene	0.0956	U	C4-Chrysenes	0.156	U
C1-Fluorenes	0.0956	U	Benzo[b]fluoranthene	0.252	U
C2-Fluorenes	0.0956	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	0.178	U
C3-Fluorenes	0.0956	U	Benzo[a]fluoranthene	0.178	U
Anthracene	0.140	U	Benzo[e]pyrene	0.161	U
Phenanthrene	**0.172**	J	Benzo[a]pyrene	0.206	U
C1-Phenanthrenes/Anthracenes	0.169	U	Perylene	0.326	U
C2-Phenanthrenes/Anthracenes	0.169	U	Indeno[1,2,3-cd]pyrene	0.426	U
C3-Phenanthrenes/Anthracenes	0.169	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	0.412	U
C4-Phenanthrenes/Anthracenes	0.169	U	Benzo[g,h,i]perylene	0.260	U
Retene	0.163	U			
Dibenzothiophene	0.0870	U			
C1-Dibenzothiophenes	0.0870	U			
C2-Dibenzothiophenes	0.0870	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	67	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
Carbazole	0.188 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	67	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.0870 U
2/3-Methyldibenzothiophene	0.0870 U
1-Methyldibenzothiophene	0.0870 U
3-Methylphenanthrene	0.169 U
2-Methylphenanthrene	0.169 U
2-Methylanthracene	0.169 U
9/4-Methylphenanthrene	0.169 U
1-Methylphenanthrene	0.169 U
2-Methylnaphthalene	0.129 U
1-Methylnaphthalene	0.130 U
2,6-Dimethylnaphthalene	0.137 U
2,3,5-Trimethylnaphthalene	0.108 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	67	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	1.60	U
C24 Tricyclic Terpane	1.60	U
C25 Tricyclic Terpane	1.60	U
C24 Tetracyclic Terpane	1.60	U
C26 Tricyclic Terpane-22S	1.60	U
C26 Tricyclic Terpane-22R	1.60	U
C28 Tricyclic Terpane-22S	1.60	U
C28 Tricyclic Terpane-22R	1.60	U
C29 Tricyclic Terpane-22S	1.60	U
C29 Tricyclic Terpane-22R	1.60	U
18a-22,29,30-Trisnorneohopane-TS	1.60	U
C30 Tricyclic Terpane-22S	1.60	U
C30 Tricyclic Terpane-22R	1.60	U
17a(H)-22,29,30-Trisnorhopane-TM	1.60	U
17a/b,21b/a 28,30-Bisnorhopane	1.60	U
17a(H),21b(H)-25-Norhopane	1.60	U
30-Norhopane	1.60	U
18a(H)-30-Norneohopane-C29Ts	1.60	U
17a(H)-Diahopane	1.60	U
30-Normoretane	1.60	U
18a(H)&18b(H)-Oleananes	1.60	U
Hopane	1.60	U
Moretane	1.60	U
30-Homohopane-22S	1.60	U
30-Homohopane-22R	1.60	U
T22a-Gammacerane/C32-diahopane	1.60	U
30,31-Bishomohopane-22S	1.60	U
30,31-Bishomohopane-22R	1.60	U

Parameter	Result	
30,31-Trishomohopane-22S	1.60	U
30,31-Trishomohopane-22R	1.60	U
Tetrakishomohopane-22S	1.60	U
Tetrakishomohopane-22R	1.60	U
Pentakishomohopane-22S	1.60	U
Pentakishomohopane-22R	1.60	U
13b(H),17a(H)-20S-Diacholestane	1.60	U
13b(H),17a(H)-20R-Diacholestane	1.60	U
13b,17a-20S-Methyldiacholestane	1.60	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	1.60	U
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	1.60	U
Unknown Sterane (S18)	1.60	U
13a,17b-20S-Ethyldiacholestane	1.60	U
14a,17a-20S-Methylcholestane	1.60	U
14a,17a-20R-Methylcholestane	1.60	U
14a(H),17a(H)-20S-Ethylcholestane	1.60	U
14a(H),17a(H)-20R-Ethylcholestane	1.60	U
14b(H),17b(H)-20R-Cholestane	1.60	U
14b(H),17b(H)-20S-Cholestane	1.60	U
14b,17b-20R-Methylcholestane	1.60	U
14b,17b-20S-Methylcholestane	1.60	U
14b(H),17b(H)-20R-Ethylcholestane	1.60	U
14b(H),17b(H)-20S-Ethylcholestane	1.60	U
C26,20R- +C27,20S- triaromatic steroid	1.60	U
C28,20S-triaromatic steroid	1.60	U
C27,20R-triaromatic steroid	1.60	U
C28,20R-triaromatic steroid	1.60	U

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	82	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35306.D
Acq On : 25 May 2012 4:21 pm
Operator : AC
Sample : SS052312B03
Misc : 1X ETR1205027
ALS Vial : 20 Sample Multiplier: 1

MHL 5/30
SLR 5/30/12

Quant Time: May 29 09:47:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	11852	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	22130	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	17308M3	336.465	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 33.65%#			
42) Phenanthrene-d10	32.221	188	14798	363.949	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.39%#			
86) Benzo[a]pyrene-d12	47.835	264	15412M3	336.046	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 33.60%#			
127) 5B(H)Cholane - Surr	43.422	217	2824	408.154	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.82%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	131M3	1.734	ng/mL	
25) Dibenzofuran	27.133	168	91M2	1.403	ng/mL	
43) Phenanthrene	32.311	178	59M2	0.860	ng/mL	

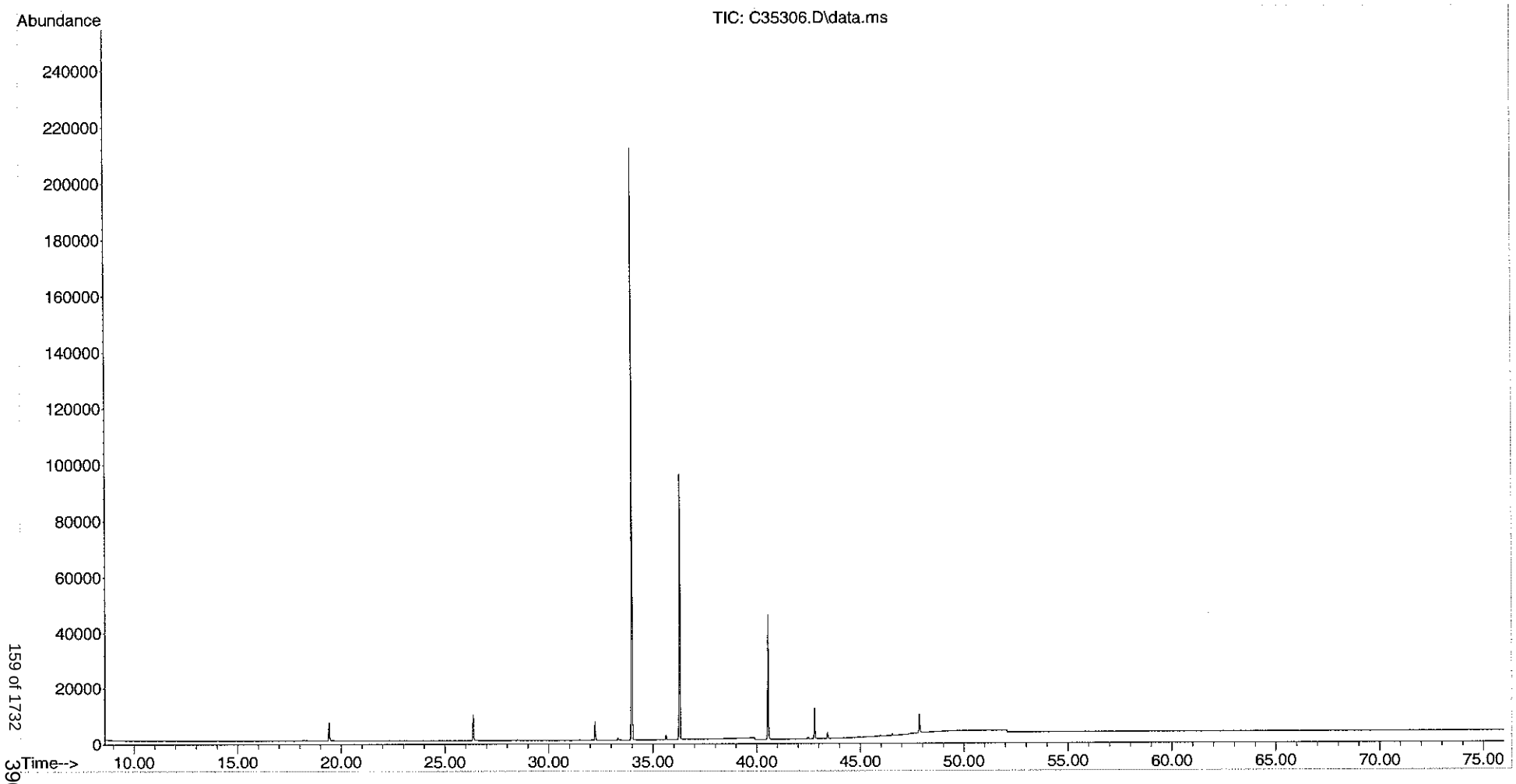
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35306.D
Acq On : 25 May 2012 4:21 pm
Operator : AC
Sample : SS052312B03
Misc : 1X ETR1205027
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 29 09:47:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



159 of 1732

390

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCS03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	10.0	U
C1-Decalins	10.0	U	C4-Dibenzothiophenes	10.0	U
C2-Decalins	10.0	U	Benzo(b)fluorene	10.0	U
C3-Decalins	10.0	U	Fluoranthene	**1040**	S
C4-Decalins	10.0	U	Pyrene	**1100**	S
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	10.0	U
C1-Benzo(b)thiophenes	10.0	U	C2-Fluoranthenes/Pyrenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U	C3-Fluoranthenes/Pyrenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U	C4-Fluoranthenes/Pyrenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U	Naphthobenzothiophenes	10.0	U
Naphthalene	**851**	S	C1-Naphthobenzothiophenes	10.0	U
C1-Naphthalenes	10.0	U	C2-Naphthobenzothiophenes	10.0	U
C2-Naphthalenes	10.0	U	C3-Naphthobenzothiophenes	10.0	U
C3-Naphthalenes	10.0	U	C4-Naphthobenzothiophenes	10.0	U
C4-Naphthalenes	10.0	U	Benz[a]anthracene	**930**	S
Biphenyl	10.0	U	Chrysene/Triphenylene	**908**	S
Dibenzofuran	10.0	U	C1-Chrysenes	10.0	U
Acenaphthylene	**843**	S	C2-Chrysenes	10.0	U
Acenaphthene	**875**	S	C3-Chrysenes	10.0	U
Fluorene	**906**	S	C4-Chrysenes	10.0	U
C1-Fluorenes	10.0	U	Benzo[b]fluoranthene	**956**	S
C2-Fluorenes	10.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**935**	S
C3-Fluorenes	10.0	U	Benzo[a]fluoranthene	10.0	U
Anthracene	**897**	S	Benzo[e]pyrene	10.0	U
Phenanthrene	**935**	S	Benzo[a]pyrene	**960**	S
C1-Phenanthrenes/Anthracenes	10.0	U	Perylene	10.0	U
C2-Phenanthrenes/Anthracenes	10.0	U	Indeno[1,2,3-cd]pyrene	**965**	S
C3-Phenanthrenes/Anthracenes	10.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**957**	S
C4-Phenanthrenes/Anthracenes	10.0	U	Benzo[g,h,i]perylene	**906**	S
Retene	10.0	U			
Dibenzothiophene	10.0	U			
C1-Dibenzothiophenes	10.0	U			
C2-Dibenzothiophenes	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	60	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCS03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	60	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCS03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	10.0 U
2/3-Methyldibenzothiophene	10.0 U
1-Methyldibenzothiophene	10.0 U
3-Methylphenanthrene	10.0 U
2-Methylphenanthrene	10.0 U
2-Methylanthracene	10.0 U
9/4-Methylphenanthrene	10.0 U
1-Methylphenanthrene	10.0 U
2-Methylnaphthalene	**874**
1-Methylnaphthalene	10.0 U
2,6-Dimethylnaphthalene	10.0 U
2,3,5-Trimethylnaphthalene	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	60	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	84	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCS03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22S	10.0	U
C24 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22R	10.0	U
C25 Tricyclic Terpane	10.0	U	Tetrakishomohopane-22S	10.0	U
C24 Tetracyclic Terpane	10.0	U	Tetrakishomohopane-22R	10.0	U
C26 Tricyclic Terpane-22S	10.0	U	Pentakishomohopane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U	Pentakishomohopane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U	13b(H),17a(H)-20S-Diacholestane	10.0	U
C28 Tricyclic Terpane-22R	10.0	U	13b(H),17a(H)-20R-Diacholestane	10.0	U
C29 Tricyclic Terpane-22S	10.0	U	13b,17a-20S-Methyldiacholestane	10.0	U
C29 Tricyclic Terpane-22R	10.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	10.0	U
18a-22,29,30-Trisnorneohopane-TS	10.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	10.0	U
C30 Tricyclic Terpane-22S	10.0	U	Unknown Sterane (S18)	10.0	U
C30 Tricyclic Terpane-22R	10.0	U	13a,17b-20S-Ethyldiacholestane	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	10.0	U	14a,17a-20S-Methylcholestane	10.0	U
17a/b,21b/a 28,30-Bisnorhopane	10.0	U	14a,17a-20R-Methylcholestane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U	14a(H),17a(H)-20S-Ethylcholestane	10.0	U
30-Norhopane	10.0	U	14a(H),17a(H)-20R-Ethylcholestane	10.0	U
18a(H)-30-Norneohopane-C29Ts	10.0	U	14b(H),17b(H)-20R-Cholestane	10.0	U
17a(H)-Diahopane	10.0	U	14b(H),17b(H)-20S-Cholestane	10.0	U
30-Normoretane	10.0	U	14b,17b-20R-Methylcholestane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U	14b,17b-20S-Methylcholestane	10.0	U
Hopane	10.0	U	14b(H),17b(H)-20R-Ethylcholestane	10.0	U
Moretane	10.0	U	14b(H),17b(H)-20S-Ethylcholestane	10.0	U
30-Homohopane-22S	10.0	U	C26,20R- +C27,20S- triaromatic steroid	10.0	U
30-Homohopane-22R	10.0	U	C28,20S-triaromatic steroid	10.0	U
T22a-Gammacerane/C32-diahopane	10.0	U	C27,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22S	10.0	U	C28,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22R	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	72	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35286.D
Acq On : 25 May 2012 12:55 am
Operator : AC
Sample : SO052312LCS03
Misc : 1X ETR1205027
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 11:31:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12508M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25430	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	32623	600.926	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 60.09%			
42) Phenanthrene-d10	32.221	188	39073	910.581	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.06%			
86) Benzo[a]pyrene-d12	47.835	264	44356	841.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 84.16%			
127) 5B(H)Cholane - Surr	43.422	217	5749	723.080	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 72.31%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	67798	850.460	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	41187	873.788	ng/mL#	100
26) Acenaphthylene	25.748	152	66746	843.443	ng/mL#	100
27) Acenaphthene	26.485	153	40751M3	874.582	ng/mL	
29) Fluorene	28.503	166	46579M3	906.408	ng/mL	
43) Phenanthrene	32.311	178	67630	934.456	ng/mL	100
55) Anthracene	32.492	178	63407M3	896.936	ng/mL	
58) Fluoranthene	37.084	202	75132M3	1045.254	ng/mL	
60) Pyrene	37.957	202	80553	1102.453	ng/mL	99
75) Benz[a]anthracene	42.730	228	75069M4	930.058	ng/mL	
77) Chrysene/Triphenylene	42.896	228	74008	908.209	ng/mL	99
82) Benzo[b]fluoranthene	46.780	252	84780	955.924	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	90299	935.166	ng/mL	92
87) Benzo[a]pyrene	47.925	252	81112	960.355	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.564	276	94842M3	964.931	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	89481M3	957.018	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	94105	906.226	ng/mL	99

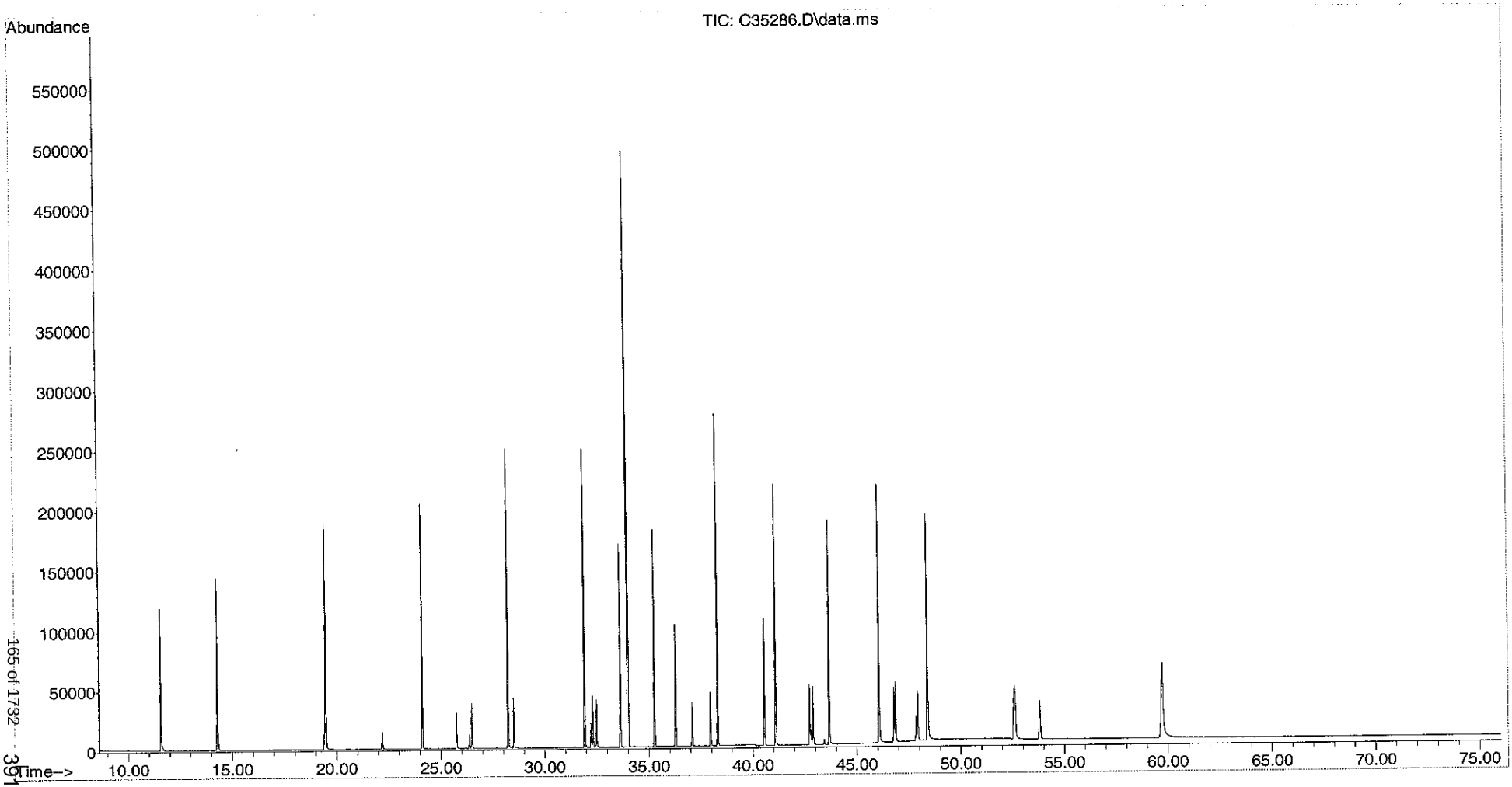
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35286.D
Acq On : 25 May 2012 12:55 am
Operator : AC
Sample : SO052312LCS03
Misc : 1X ETR1205027
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 11:31:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCSD03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	10.0	U	C3-Dibenzothiophenes	10.0	U
C1-Decalins	10.0	U	C4-Dibenzothiophenes	10.0	U
C2-Decalins	10.0	U	Benzo(b)fluorene	10.0	U
C3-Decalins	10.0	U	Fluoranthene	**1060**	S
C4-Decalins	10.0	U	Pyrene	**1100**	S
Benzothiophene	10.0	U	C1-Fluoranthenes/Pyrenes	10.0	U
C1-Benzo(b)thiophenes	10.0	U	C2-Fluoranthenes/Pyrenes	10.0	U
C2-Benzo(b)thiophenes	10.0	U	C3-Fluoranthenes/Pyrenes	10.0	U
C3-Benzo(b)thiophenes	10.0	U	C4-Fluoranthenes/Pyrenes	10.0	U
C4-Benzo(b)thiophenes	10.0	U	Naphthobenzothiophenes	10.0	U
Naphthalene	**857**	S	C1-Naphthobenzothiophenes	10.0	U
C1-Naphthalenes	10.0	U	C2-Naphthobenzothiophenes	10.0	U
C2-Naphthalenes	10.0	U	C3-Naphthobenzothiophenes	10.0	U
C3-Naphthalenes	10.0	U	C4-Naphthobenzothiophenes	10.0	U
C4-Naphthalenes	10.0	U	Benz[a]anthracene	**949**	S
Biphenyl	10.0	U	Chrysene/Triphenylene	**922**	S
Dibenzofuran	10.0	U	C1-Chrysenes	10.0	U
Acenaphthylene	**859**	S	C2-Chrysenes	10.0	U
Acenaphthene	**889**	S	C3-Chrysenes	10.0	U
Fluorene	**915**	S	C4-Chrysenes	10.0	U
C1-Fluorenes	10.0	U	Benzo[b]fluoranthene	**987**	S
C2-Fluorenes	10.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**969**	S
C3-Fluorenes	10.0	U	Benzo[a]fluoranthene	10.0	U
Anthracene	**911**	S	Benzo[e]pyrene	10.0	U
Phenanthrene	**944**	S	Benzo[a]pyrene	**990**	S
C1-Phenanthrenes/Anthracenes	10.0	U	Perylene	10.0	U
C2-Phenanthrenes/Anthracenes	10.0	U	Indeno[1,2,3-cd]pyrene	**976**	S
C3-Phenanthrenes/Anthracenes	10.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**962**	S
C4-Phenanthrenes/Anthracenes	10.0	U	Benzo[g,h,i]perylene	**922**	S
Retene	10.0	U			
Dibenzothiophene	10.0	U			
C1-Dibenzothiophenes	10.0	U			
C2-Dibenzothiophenes	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCSD03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
Carbazole	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCSD03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result
4-Methyldibenzothiophene	10.0 U
2/3-Methyldibenzothiophene	10.0 U
1-Methyldibenzothiophene	10.0 U
3-Methylphenanthrene	10.0 U
2-Methylphenanthrene	10.0 U
2-Methylanthracene	10.0 U
9/4-Methylphenanthrene	10.0 U
1-Methylphenanthrene	10.0 U
2-Methylnaphthalene	**871**
1-Methylnaphthalene	10.0 U
2,6-Dimethylnaphthalene	10.0 U
2,3,5-Trimethylnaphthalene	10.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	67	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Coutrol Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCSD03**
Associated Blank: **SO052312B08**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	1.00	1	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22S	10.0	U
C24 Tricyclic Terpane	10.0	U	30,31-Trishomohopane-22R	10.0	U
C25 Tricyclic Terpane	10.0	U	Tetrakishomohopane-22S	10.0	U
C24 Tetracyclic Terpane	10.0	U	Tetrakishomohopane-22R	10.0	U
C26 Tricyclic Terpane-22S	10.0	U	Pentakishomohopane-22S	10.0	U
C26 Tricyclic Terpane-22R	10.0	U	Pentakishomohopane-22R	10.0	U
C28 Tricyclic Terpane-22S	10.0	U	13b(H),17a(H)-20S-Diacholestane	10.0	U
C28 Tricyclic Terpane-22R	10.0	U	13b(H),17a(H)-20R-Diacholestane	10.0	U
C29 Tricyclic Terpane-22S	10.0	U	13b,17a-20S-Methyldiacholestane	10.0	U
C29 Tricyclic Terpane-22R	10.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	10.0	U
18a-22,29,30-Trisnorneohopane-TS	10.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	10.0	U
C30 Tricyclic Terpane-22S	10.0	U	Unknown Sterane (S18)	10.0	U
C30 Tricyclic Terpane-22R	10.0	U	13a,17b-20S-Ethyldiacholestane	10.0	U
17a(H)-22,29,30-Trisnorhopane-TM	10.0	U	14a,17a-20S-Methylcholestane	10.0	U
17a/b,21b/a 28,30-Bisnorhopane	10.0	U	14a,17a-20R-Methylcholestane	10.0	U
17a(H),21b(H)-25-Norhopane	10.0	U	14a(H),17a(H)-20S-Ethylcholestane	10.0	U
30-Norhopane	10.0	U	14a(H),17a(H)-20R-Ethylcholestane	10.0	U
18a(H)-30-Norneohopane-C29Ts	10.0	U	14b(H),17b(H)-20R-Cholestane	10.0	U
17a(H)-Diahopane	10.0	U	14b(H),17b(H)-20S-Cholestane	10.0	U
30-Normoretane	10.0	U	14b,17b-20R-Methylcholestane	10.0	U
18a(H)&18b(H)-Oleananes	10.0	U	14b,17b-20S-Methylcholestane	10.0	U
Hopane	10.0	U	14b(H),17b(H)-20R-Ethylcholestane	10.0	U
Moretane	10.0	U	14b(H),17b(H)-20S-Ethylcholestane	10.0	U
30-Homohopane-22S	10.0	U	C26,20R- +C27,20S- triaromatic steroid	10.0	U
30-Homohopane-22R	10.0	U	C28,20S-triaromatic steroid	10.0	U
T22a-Gammacerane/C32-diahopane	10.0	U	C27,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22S	10.0	U	C28,20R-triaromatic steroid	10.0	U
30,31-Bishomohopane-22R	10.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	79	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35288.D
Acq On : 25 May 2012 2:27 am
Operator : AC
Sample : SO052312LCSD03
Misc : 1X ETR1205027
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 11:32:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13463M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	26814	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	38889	665.533	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 66.55%			
42) Phenanthrene-d10	32.221	188	41941	908.085	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.81%			
86) Benzo[a]pyrene-d12	47.834	264	47223	849.794	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 84.98%			
127) 5B(H)Cholane - Surr	43.422	217	6608	788.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 78.82%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	73517	856.783	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	44185	870.897	ng/mL#	100
26) Acenaphthylene	25.747	152	73139	858.668	ng/mL#	100
27) Acenaphthene	26.485	153	44566M4	888.612	ng/mL	
29) Fluorene	28.502	166	50612M3	915.025	ng/mL	
43) Phenanthrene	32.311	178	73495	943.459	ng/mL	100
55) Anthracene	32.492	178	69309M3	910.877	ng/mL	
58) Fluoranthene	37.084	202	82396M3	1064.998	ng/mL	
60) Pyrene	37.957	202	86744	1102.971	ng/mL	98
75) Benz[a]anthracene	42.730	228	80764M4	948.968	ng/mL	
77) Chrysene/Triphenylene	42.895	228	79228	922.084	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	92277	986.753	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	98679	969.204	ng/mL	92
87) Benzo[a]pyrene	47.925	252	88187	990.230	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.563	276	101111M3	975.615	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	94832M3	961.897	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	100979	922.231	ng/mL	99

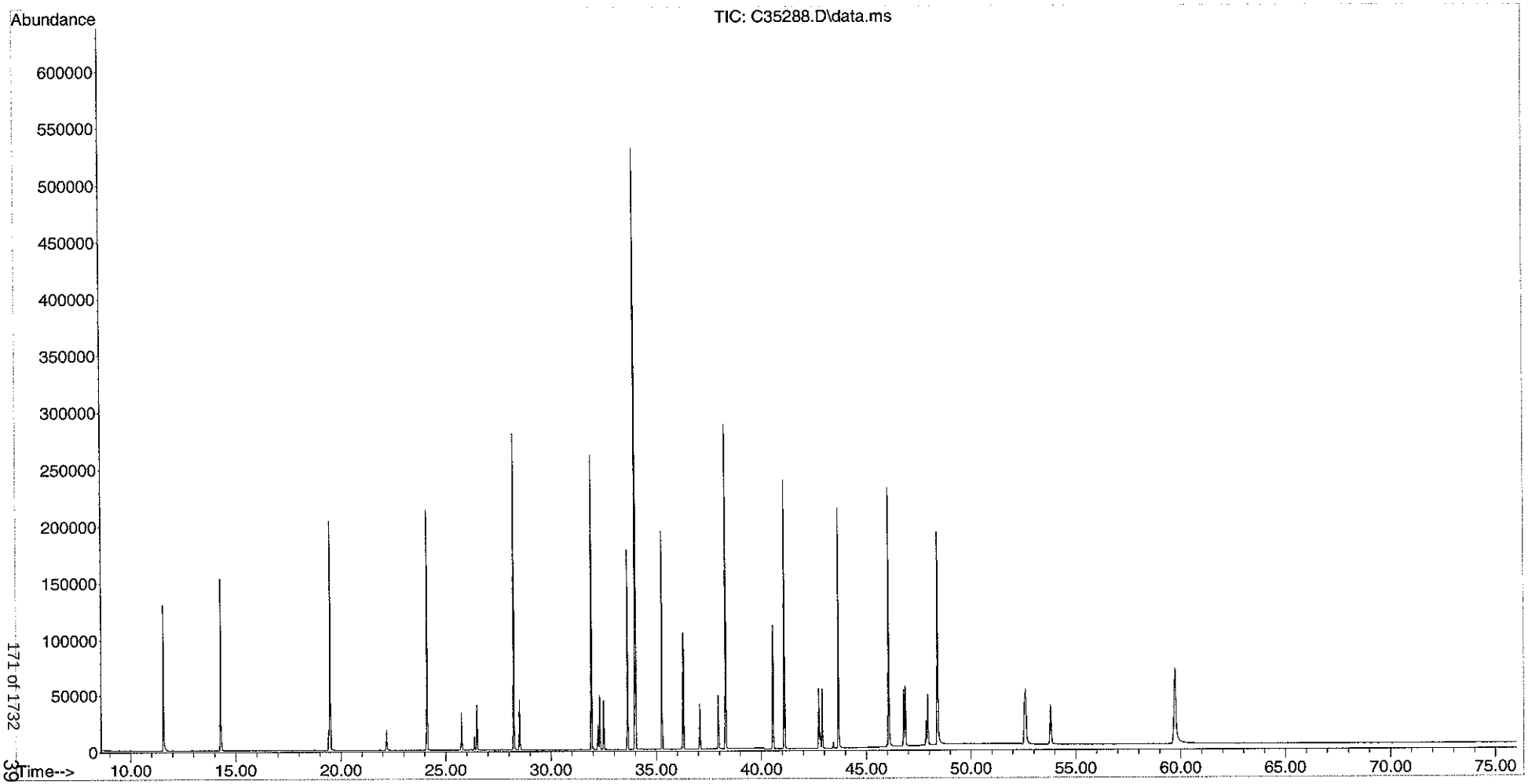
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35288.D
Acq On : 25 May 2012 2:27 am
Operator : AC
Sample : SO052312LCSD03
Misc : 1X ETR1205027
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 11:32:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCS01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.286	U	C3-Dibenzothiophenes	0.0870	U
C1-Decalins	0.286	U	C4-Dibenzothiophenes	0.0870	U
C2-Decalins	0.286	U	Benzo(b)fluorene	0.180	U
C3-Decalins	0.286	U	Fluoranthene	**92.9**	S
C4-Decalins	0.286	U	Pyrene	**96.5**	S
Benzothiophene	0.232	U	C1-Fluoranthenes/Pyrenes	0.149	U
C1-Benzo(b)thiophenes	0.232	U	C2-Fluoranthenes/Pyrenes	0.149	U
C2-Benzo(b)thiophenes	0.232	U	C3-Fluoranthenes/Pyrenes	0.149	U
C3-Benzo(b)thiophenes	0.232	U	C4-Fluoranthenes/Pyrenes	0.149	U
C4-Benzo(b)thiophenes	0.232	U	Naphthobenzothiophenes	0.0968	U
Naphthalene	**78.2**	S	C1-Naphthobenzothiophenes	0.0968	U
C1-Naphthalenes	0.195	U	C2-Naphthobenzothiophenes	0.0968	U
C2-Naphthalenes	0.195	U	C3-Naphthobenzothiophenes	0.0968	U
C3-Naphthalenes	0.195	U	C4-Naphthobenzothiophenes	0.0968	U
C4-Naphthalenes	0.195	U	Benz[a]anthracene	**81.2**	S
Biphenyl	0.0906	U	Chrysene/Triphenylene	**81.3**	S
Dibenzofuran	0.0850	U	C1-Chrysenes	0.156	U
Acenaphthylene	**73.7**	S	C2-Chrysenes	0.156	U
Acenaphthene	**77.6**	S	C3-Chrysenes	0.156	U
Fluorene	**80.9**	S	C4-Chrysenes	0.156	U
C1-Fluorenes	0.0956	U	Benzo[b]fluoranthene	**85.0**	S
C2-Fluorenes	0.0956	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**85.2**	S
C3-Fluorenes	0.0956	U	Benzo[a]fluoranthene	0.178	U
Anthracene	**78.6**	S	Benzo[e]pyrene	0.161	U
Phenanthrene	**83.3**	S	Benzo[a]pyrene	**84.0**	S
C1-Phenanthrenes/Anthracenes	0.169	U	Perylene	0.326	U
C2-Phenanthrenes/Anthracenes	0.169	U	Indeno[1,2,3-cd]pyrene	**84.7**	S
C3-Phenanthrenes/Anthracenes	0.169	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**82.6**	S
C4-Phenanthrenes/Anthracenes	0.169	U	Benzo[g,h,i]perylene	**78.4**	S
Retene	0.163	U			
Dibenzothiophene	0.0870	U			
C1-Dibenzothiophenes	0.0870	U			
C2-Dibenzothiophenes	0.0870	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	81	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCS01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
Carbazole	0.188 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	81	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCS01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.0870 U
2/3-Methyldibenzothiophene	0.0870 U
1-Methyldibenzothiophene	0.0870 U
3-Methylphenanthrene	0.169 U
2-Methylphenanthrene	0.169 U
2-Methylanthracene	0.169 U
9/4-Methylphenanthrene	0.169 U
1-Methylphenanthrene	0.169 U
2-Methylnaphthalene	76.9
1-Methylnaphthalene	0.130 U
2,6-Dimethylnaphthalene	0.137 U
2,3,5-Trimethylnaphthalene	0.108 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	76	40-120
Phenanthrene-d10	81	40-120
Benzo[a]pyrene-d12	74	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCS01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	1.60	U	30,31-Trishomohopane-22S	1.60	U
C24 Tricyclic Terpane	1.60	U	30,31-Trishomohopane-22R	1.60	U
C25 Tricyclic Terpane	1.60	U	Tetrakishomohopane-22S	1.60	U
C24 Tetracyclic Terpane	1.60	U	Tetrakishomohopane-22R	1.60	U
C26 Tricyclic Terpane-22S	1.60	U	Pentakishomohopane-22S	1.60	U
C26 Tricyclic Terpane-22R	1.60	U	Pentakishomohopane-22R	1.60	U
C28 Tricyclic Terpane-22S	1.60	U	13b(H),17a(H)-20S-Diacholestane	1.60	U
C28 Tricyclic Terpane-22R	1.60	U	13b(H),17a(H)-20R-Diacholestane	1.60	U
C29 Tricyclic Terpane-22S	1.60	U	13b,17a-20S-Methyldiacholestane	1.60	U
C29 Tricyclic Terpane-22R	1.60	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	1.60	U
18a-22,29,30-Trisnorneohopane-TS	1.60	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	1.60	U
C30 Tricyclic Terpane-22S	1.60	U	Unknown Sterane (S18)	1.60	U
C30 Tricyclic Terpane-22R	1.60	U	13a,17b-20S-Ethyldiacholestane	1.60	U
17a(H)-22,29,30-Trisnorhopane-TM	1.60	U	14a,17a-20S-Methylcholestane	1.60	U
17a/b,21b/a 28,30-Bisnorhopane	1.60	U	14a,17a-20R-Methylcholestane	1.60	U
17a(H),21b(H)-25-Norhopane	1.60	U	14a(H),17a(H)-20S-Ethylcholestane	1.60	U
30-Norhopane	1.60	U	14a(H),17a(H)-20R-Ethylcholestane	1.60	U
18a(H)-30-Norneohopane-C29Ts	1.60	U	14b(H),17b(H)-20R-Cholestane	1.60	U
17a(H)-Diahopane	1.60	U	14b(H),17b(H)-20S-Cholestane	1.60	U
30-Normoretane	1.60	U	14b,17b-20R-Methylcholestane	1.60	U
18a(H)&18b(H)-Oleananes	1.60	U	14b,17b-20S-Methylcholestane	1.60	U
Hopane	1.60	U	14b(H),17b(H)-20R-Ethylcholestane	1.60	U
Moretane	1.60	U	14b(H),17b(H)-20S-Ethylcholestane	1.60	U
30-Homohopane-22S	1.60	U	C26,20R- +C27,20S- triaromatic steroid	1.60	U
30-Homohopane-22R	1.60	U	C28,20S-triaromatic steroid	1.60	U
T22a-Gammacerane/C32-diahopane	1.60	U	C27,20R-triaromatic steroid	1.60	U
30,31-Bishomohopane-22S	1.60	U	C28,20R-triaromatic steroid	1.60	U
30,31-Bishomohopane-22R	1.60	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	81	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35310.D
Acq On : 25 May 2012 7:24 pm
Operator : AC
Sample : SS052312LCS01
Misc : 1X ETR1205027
ALS Vial : 22 Sample Multiplier: 1

MHL for SLR 5/30/12

Quant Time: May 29 11:48:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13168M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25992	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	21747	380.508	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.05%#			
42) Phenanthrene-d10	32.221	188	18259	404.191	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.42%#			
86) Benzo[a]pyrene-d12	47.835	264	19876	368.987	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.90%#			
127) 5B(H)Cholane - Surr	43.422	217	3277	403.253	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.33%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	32812	390.965	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	19069	384.275	ng/mL#	100
26) Acenaphthylene	25.748	152	30709M3	368.607	ng/mL	
27) Acenaphthene	26.485	153	19043	388.209	ng/mL	99
29) Fluorene	28.503	166	21876	404.361	ng/mL	100
43) Phenanthrene	32.311	178	31744	416.629	ng/mL	100
55) Anthracene	32.492	178	29262M3	393.184	ng/mL	
58) Fluoranthene	37.069	202	35162	464.663	ng/mL	97
60) Pyrene	37.957	202	37124	482.616	ng/mL	97
75) Benz[a]anthracene	42.730	228	33480	405.827	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	33852	406.441	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	38532	425.068	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	42022	425.784	ng/mL	91
87) Benzo[a]pyrene	47.925	252	36268	420.124	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	52.564	276	42528M3	423.328	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	39444M3	412.740	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	41589	391.840	ng/mL	99

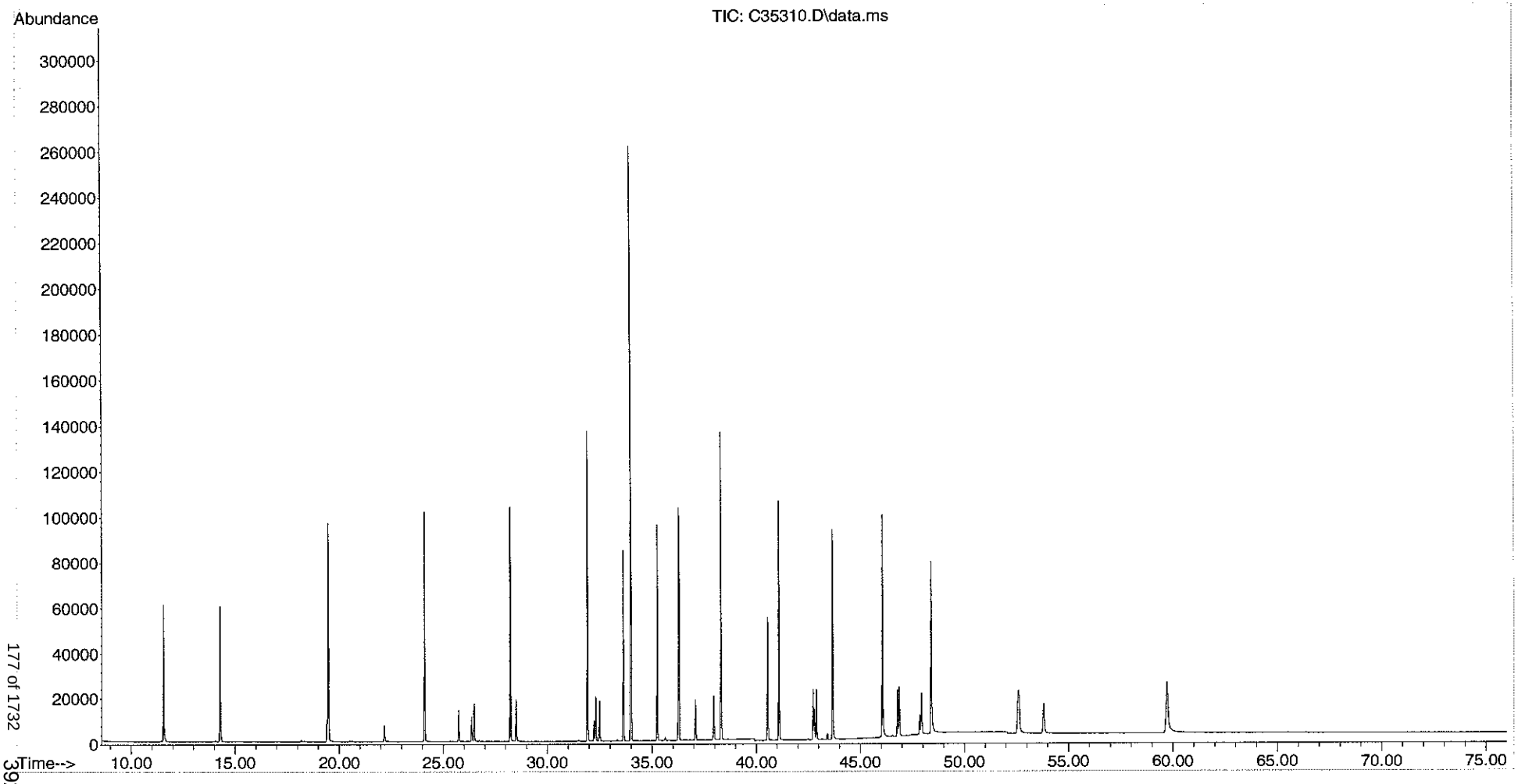
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35310.D
Acq On : 25 May 2012 7:24 pm
Operator : AC
Sample : SS052312LCS01
Misc : 1X ETR1205027
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 29 11:48:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCSD01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	0.286	U	C3-Dibenzothiophenes	0.0870	U
C1-Decalins	0.286	U	C4-Dibenzothiophenes	0.0870	U
C2-Decalins	0.286	U	Benzo(b)fluorene	0.180	U
C3-Decalins	0.286	U	Fluoranthene	**91.3**	S
C4-Decalins	0.286	U	Pyrene	**94.4**	S
Benzothiophene	0.232	U	C1-Fluoranthenes/Pyrenes	0.149	U
C1-Benzo(b)thiophenes	0.232	U	C2-Fluoranthenes/Pyrenes	0.149	U
C2-Benzo(b)thiophenes	0.232	U	C3-Fluoranthenes/Pyrenes	0.149	U
C3-Benzo(b)thiophenes	0.232	U	C4-Fluoranthenes/Pyrenes	0.149	U
C4-Benzo(b)thiophenes	0.232	U	Naphthobenzothiophenes	0.0968	U
Naphthalene	**78.3**	S	C1-Naphthobenzothiophenes	0.0968	U
C1-Naphthalenes	0.195	U	C2-Naphthobenzothiophenes	0.0968	U
C2-Naphthalenes	0.195	U	C3-Naphthobenzothiophenes	0.0968	U
C3-Naphthalenes	0.195	U	C4-Naphthobenzothiophenes	0.0968	U
C4-Naphthalenes	0.195	U	Benz[a]anthracene	**79.6**	S
Biphenyl	0.0906	U	Chrysene/Triphenylene	**79.9**	S
Dibenzofuran	0.0850	U	C1-Chrysenes	0.156	U
Acenaphthylene	**73.8**	S	C2-Chrysenes	0.156	U
Acenaphthene	**78.1**	S	C3-Chrysenes	0.156	U
Fluorene	**81.5**	S	C4-Chrysenes	0.156	U
C1-Fluorenes	0.0956	U	Benzo[b]fluoranthene	**81.2**	S
C2-Fluorenes	0.0956	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**83.0**	S
C3-Fluorenes	0.0956	U	Benzo[a]fluoranthene	0.178	U
Anthracene	**78.0**	S	Benzo[e]pyrene	0.161	U
Phenanthrene	**83.3**	S	Benzo[a]pyrene	**81.1**	S
C1-Phenanthrenes/Anthracenes	0.169	U	Perylene	0.326	U
C2-Phenanthrenes/Anthracenes	0.169	U	Indeno[1,2,3-cd]pyrene	**80.3**	S
C3-Phenanthrenes/Anthracenes	0.169	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**78.4**	S
C4-Phenanthrenes/Anthracenes	0.169	U	Benzo[g,h,i]perylene	**75.4**	S
Retene	0.163	U			
Dibenzothiophene	0.0870	U			
C1-Dibenzothiophenes	0.0870	U			
C2-Dibenzothiophenes	0.0870	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	78	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCSD01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
Carbazole	0.188 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	78	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCSD01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	0.0870 U
2/3-Methyldibenzothiophene	0.0870 U
1-Methyldibenzothiophene	0.0870 U
3-Methylphenanthrene	0.169 U
2-Methylphenanthrene	0.169 U
2-Methylanthracene	0.169 U
9/4-Methylphenanthrene	0.169 U
1-Methylphenanthrene	0.169 U
2-Methylnaphthalene	**76.5**
1-Methylnaphthalene	0.130 U
2,6-Dimethylnaphthalene	0.137 U
2,3,5-Trimethylnaphthalene	0.108 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	78	40-120
Benzo[a]pyrene-d12	70	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCSD01**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	1.60	U
C24 Tricyclic Terpane	1.60	U
C25 Tricyclic Terpane	1.60	U
C24 Tetracyclic Terpane	1.60	U
C26 Tricyclic Terpane-22S	1.60	U
C26 Tricyclic Terpane-22R	1.60	U
C28 Tricyclic Terpane-22S	1.60	U
C28 Tricyclic Terpane-22R	1.60	U
C29 Tricyclic Terpane-22S	1.60	U
C29 Tricyclic Terpane-22R	1.60	U
18a-22,29,30-Trisnorneohopane-TS	1.60	U
C30 Tricyclic Terpane-22S	1.60	U
C30 Tricyclic Terpane-22R	1.60	U
17a(H)-22,29,30-Trisnorhopane-TM	1.60	U
17a/b,21b/a 28,30-Bisnorhopane	1.60	U
17a(H),21b(H)-25-Norhopane	1.60	U
30-Norhopane	1.60	U
18a(H)-30-Norneohopane-C29Ts	1.60	U
17a(H)-Diahopane	1.60	U
30-Normoretane	1.60	U
18a(H)&18b(H)-Oleananes	1.60	U
Hopane	1.60	U
Moretane	1.60	U
30-Homohopane-22S	1.60	U
30-Homohopane-22R	1.60	U
T22a-Gammacerane/C32-diahopane	1.60	U
30,31-Bishomohopane-22S	1.60	U
30,31-Bishomohopane-22R	1.60	U

Parameter	Result	
30,31-Trishomohopane-22S	1.60	U
30,31-Trishomohopane-22R	1.60	U
Tetrakishomohopane-22S	1.60	U
Tetrakishomohopane-22R	1.60	U
Pentakishomohopane-22S	1.60	U
Pentakishomohopane-22R	1.60	U
13b(H),17a(H)-20S-Diacholestane	1.60	U
13b(H),17a(H)-20R-Diacholestane	1.60	U
13b,17a-20S-Methyldiacholestane	1.60	U
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	1.60	U
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	1.60	U
Unknown Sterane (S18)	1.60	U
13a,17b-20S-Ethyldiacholestane	1.60	U
14a,17a-20S-Methylcholestane	1.60	U
14a,17a-20R-Methylcholestane	1.60	U
14a(H),17a(H)-20S-Ethylcholestane	1.60	U
14a(H),17a(H)-20R-Ethylcholestane	1.60	U
14b(H),17b(H)-20R-Cholestane	1.60	U
14b(H),17b(H)-20S-Cholestane	1.60	U
14b,17b-20R-Methylcholestane	1.60	U
14b,17b-20S-Methylcholestane	1.60	U
14b(H),17b(H)-20R-Ethylcholestane	1.60	U
14b(H),17b(H)-20S-Ethylcholestane	1.60	U
C26,20R- +C27,20S- triaromatic steroid	1.60	U
C28,20S-triaromatic steroid	1.60	U
C27,20R-triaromatic steroid	1.60	U
C28,20R-triaromatic steroid	1.60	U

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	77	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35312.D
Acq On : 25 May 2012 8:57 pm
Operator : AC
Sample : SS052312LCSD01
Misc : 1X ETR1205027
ALS Vial : 23 Sample Multiplier: 1

MAL 6/6 SLR 5/30/12

Quant Time: May 29 09:48:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12787	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25261	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	20504	369.449	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.94%#			
42) Phenanthrene-d10	32.221	188	17107	389.973	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.00%#			
86) Benzo[a]pyrene-d12	47.835	264	18305	349.656	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 34.97%#			
127) 5B(H)Cholane - Surr	43.422	217	3033	384.027	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	31893	391.337	ng/mL#	100
16) 2-Methylnaphthalene	22.164	142	18431	382.485	ng/mL#	100
26) Acenaphthylene	25.747	152	29857M3	369.059	ng/mL	
27) Acenaphthene	26.485	153	18604	390.560	ng/mL	100
29) Fluorene	28.502	166	21404	407.425	ng/mL	100
43) Phenanthrene	32.311	178	30815	416.486	ng/mL	100
55) Anthracene	32.492	178	28200M3	390.205	ng/mL	
58) Fluoranthene	37.069	202	33550	456.571	ng/mL	98
60) Pyrene	37.957	202	35262	472.068	ng/mL	97
75) Benz[a]anthracene	42.730	228	31929	398.227	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	32325	399.339	ng/mL	99
82) Benzo[b]fluoranthene	46.780	252	35757	405.870	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	39795	414.887	ng/mL	91
87) Benzo[a]pyrene	47.925	252	34038	405.701	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	52.563	276	39203M3	401.523	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	36413M3	392.050	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	38881	376.927	ng/mL	99

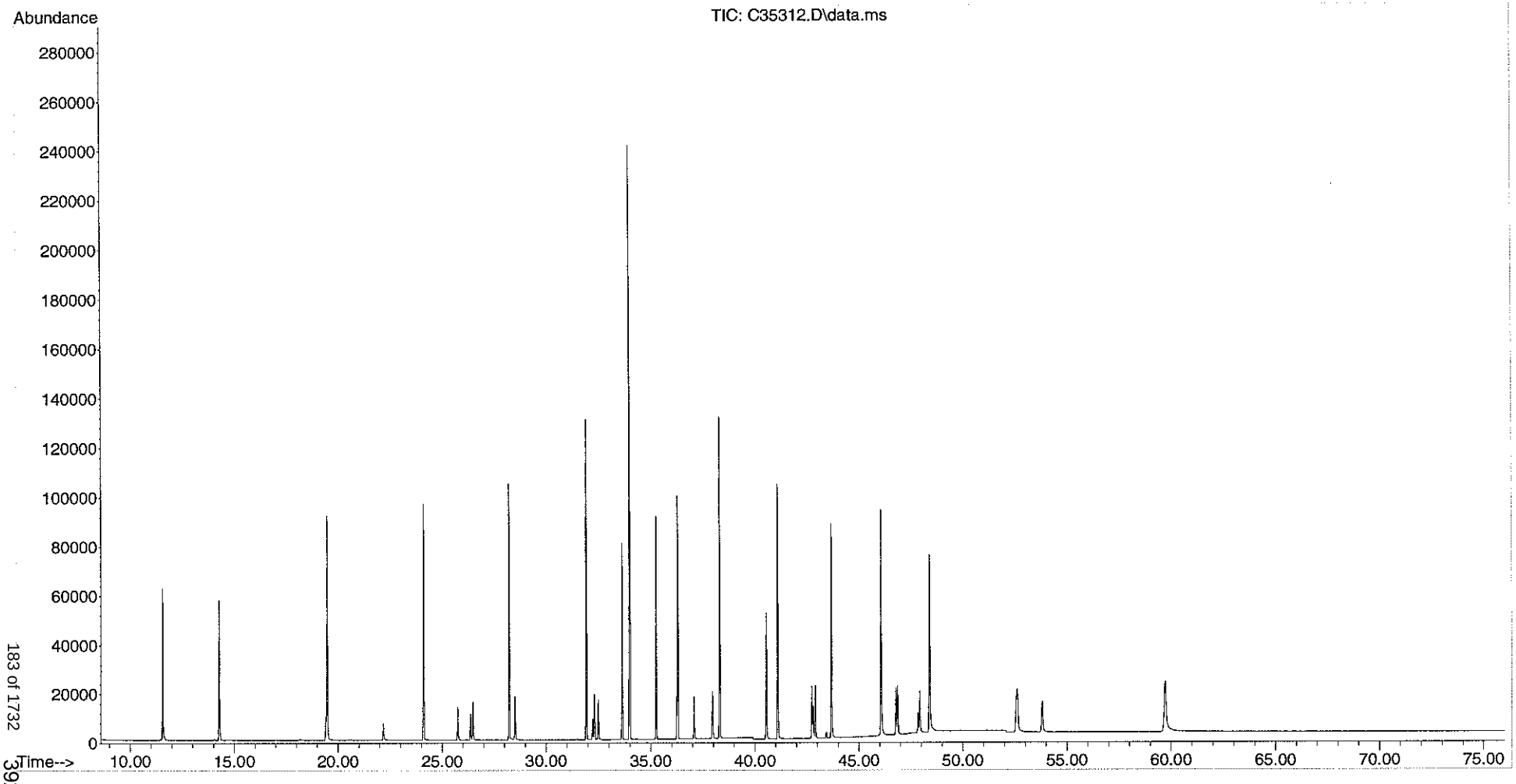
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35312.D
Acq On : 25 May 2012 8:57 pm
Operator : AC
Sample : SS052312LCSD01
Misc : 1X ETR1205027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 29 09:48:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



183 of 1732

3926

Form I
Matrix Spike
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 M**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.97	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**8.12**	J	C3-Dibenzothiophenes	**104**	
C1-Decalins	1.27	U	C4-Dibenzothiophenes	**95.4**	
C2-Decalins	1.27	U	Benzo(b)fluorene	**124**	
C3-Decalins	1.27	U	Fluoranthene	**1470**	S
C4-Decalins	1.27	U	Pyrene	**1340**	S
Benzothiophene	**1.51**	J	C1-Fluoranthenes/Pyrenes	**430**	
C1-Benzo(b)thiophenes	1.03	U	C2-Fluoranthenes/Pyrenes	**310**	
C2-Benzo(b)thiophenes	1.03	U	C3-Fluoranthenes/Pyrenes	**182**	
C3-Benzo(b)thiophenes	1.03	U	C4-Fluoranthenes/Pyrenes	**183**	
C4-Benzo(b)thiophenes	1.03	U	Naphthobenzothiophenes	**153**	
Naphthalene	**272**	S	C1-Naphthobenzothiophenes	**131**	
C1-Naphthalenes	**188**		C2-Naphthobenzothiophenes	**165**	
C2-Naphthalenes	**43.6**		C3-Naphthobenzothiophenes	**171**	
C3-Naphthalenes	**36.1**		C4-Naphthobenzothiophenes	**139**	
C4-Naphthalenes	**31.8**		Benz[a]anthracene	**613**	S
Biphenyl	**8.07**	J	Chrysene/Triphenylene	**799**	S
Dibenzofuran	**18.8**		C1-Chrysenes	**204**	
Acenaphthylene	**309**	S	C2-Chrysenes	**160**	
Acenaphthene	**318**	S	C3-Chrysenes	**211**	
Fluorene	**353**	S	C4-Chrysenes	**166**	
C1-Fluorenes	**16.9**		Benzo[b]fluoranthene	**957**	S
C2-Fluorenes	**37.9**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**779**	S
C3-Fluorenes	**113**		Benzo[a]fluoranthene	**69.8**	
Anthracene	**383**	S	Benzo[e]pyrene	**430**	
Phenanthrene	**536**	S	Benzo[a]pyrene	**819**	S
C1-Phenanthrenes/Anthracenes	**120**		Perylene	**492**	
C2-Phenanthrenes/Anthracenes	**170**		Indeno[1,2,3-cd]pyrene	**789**	S
C3-Phenanthrenes/Anthracenes	**152**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**442**	S
C4-Phenanthrenes/Anthracenes	**146**		Benzo[g,h,i]perylene	**760**	S
Retene	0.726	U			
Dibenzothiophene	**18.3**				
C1-Dibenzothiophenes	**23.5**				
C2-Dibenzothiophenes	**55.0**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Matrix Spike
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 M**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.97	2	1	AC

Parameter	Result
Carbazole	**25.8**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable

Form I
Matrix Spike
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 M**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.97	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**7.52** J
2/3-Methyldibenzothiophene	**5.43** J
1-Methyldibenzothiophene	**2.64** J
3-Methylphenanthrene	**28.4**
2-Methylphenanthrene	**26.6**
2-Methylanthracene	**10.6**
9/4-Methylphenanthrene	**30.7**
1-Methylphenanthrene	**19.2**
2-Methylnaphthalene	**294**
1-Methylnaphthalene	**21.7**
2,6-Dimethylnaphthalene	**25.2**
2,3,5-Trimethylnaphthalene	**7.78** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	54	40-120
Phenanthrene-d10	76	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Matrix Spike
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 M**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.97	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	139	
C24 Tricyclic Terpane	96.9	
C25 Tricyclic Terpane	82.4	
C24 Tetracyclic Terpane	109	
C26 Tricyclic Terpane-22S	57.4	
C26 Tricyclic Terpane-22R	55.0	
C28 Tricyclic Terpane-22S	68.2	
C28 Tricyclic Terpane-22R	86.3	
C29 Tricyclic Terpane-22S	75.9	
C29 Tricyclic Terpane-22R	80.6	
18a-22,29,30-Trisnorneohopane-TS	273	
C30 Tricyclic Terpane-22S	68.1	
C30 Tricyclic Terpane-22R	72.9	
17a(H)-22,29,30-Trisnorhopane-TM	307	
17a/b,21b/a 28,30-Bisnorhopane	63.0	
17a(H),21b(H)-25-Norhopane	116	
30-Norhopane	924	
18a(H)-30-Norneohopane-C29Ts	299	
17a(H)-Diahopane	89.0	
30-Normoretane	209	
18a(H)&18b(H)-Oleananes	106	
Hopane	1280	
Moretane	299	
30-Homohopane-22S	430	
30-Homohopane-22R	384	
T22a-Gammacerane/C32-diahopane	108	
30,31-Bishomohopane-22S	2190	G
30,31-Bishomohopane-22R	246	

Parameter	Result	
30,31-Trishomohopane-22S	325	
30,31-Trishomohopane-22R	112	
Tetrakishomohopane-22S	604	G
Tetrakishomohopane-22R	729	G
Pentakishomohopane-22S	103	
Pentakishomohopane-22R	78.2	
13b(H),17a(H)-20S-Diacholestane	183	
13b(H),17a(H)-20R-Diacholestane	123	
13b,17a-20S-Methyldiacholestane	140	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	352	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	360	
Unknown Sterane (S18)	74.8	
13a,17b-20S-Ethyldiacholestane	10.9	
14a,17a-20S-Methylcholestane	156	
14a,17a-20R-Methylcholestane	136	
14a(H),17a(H)-20S-Ethylcholestane	199	
14a(H),17a(H)-20R-Ethylcholestane	212	
14b(H),17b(H)-20R-Cholestane	188	
14b(H),17b(H)-20S-Cholestane	184	
14b,17b-20R-Methylcholestane	174	
14b,17b-20S-Methylcholestane	261	
14b(H),17b(H)-20R-Ethylcholestane	364	
14b(H),17b(H)-20S-Ethylcholestane	200	
C26,20R- +C27,20S- triaromatic steroid	371	
C28,20S-triaromatic steroid	409	
C27,20R-triaromatic steroid	254	
C28,20R-triaromatic steroid	282	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	82	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

5/28/29/12

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14827	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33020	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	17512	272.124	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.21%#			
42) Phenanthrene-d10	32.221	188	19235	378.154	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.82%#			
86) Benzo[a]pyrene-d12	47.850	264	24709	361.077	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.11%#			
127) 5B(H)Cholane - Surr	43.422	217	4211	407.895	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.79%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	107M3	9.142	ng/mL	
10) Naphthalene	19.485	128	28961	306.468	ng/mL#	100
11) C1-Naphthalenes	22.165	142	20026M5	211.917	ng/mL	
12) C2-Naphthalenes	24.664	156	4645M5	49.154	ng/mL	
13) C3-Naphthalenes	28.563	170	3840M5	40.635	ng/mL	
14) C4-Naphthalenes	31.363	184	3381M5	35.778	ng/mL	
16) 2-Methylnaphthalene	22.165	142	18487	330.862	ng/mL#	100
17) 1-Methylnaphthalene	22.586	142	1336	24.393	ng/mL#	100
18) Benzothiophene	19.696	134	145	1.705	ng/mL	100
23) Biphenyl	24.061	154	642M3	9.083	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1305	28.427	ng/mL#	100
25) Dibenzofuran	27.133	168	1717	21.155	ng/mL	98
26) Acenaphthylene	25.748	152	32686	348.439	ng/mL#	100
27) Acenaphthene	26.485	153	19752	357.609	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	324M3	8.755	ng/mL	
29) Fluorene	28.503	166	24205M3	397.350	ng/mL	
30) C1-Fluorenes	30.866	180	1162M5	19.075	ng/mL	
31) C2-Fluorenes	33.064	194	2601M5	42.698	ng/mL	
32) C3-Fluorenes	35.548	208	7737M5	127.011	ng/mL	
33) Dibenzothiophene	31.814	184	2015	20.635	ng/mL	95
34) 4-Methyldibenzothiophene(	33.591	198	827m	8.469	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	597M3	6.114	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	290	2.970	ng/mL#	100
37) OTP	33.997	198	4755M3	48.695	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	7339M5	75.158	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2584m	26.462	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	6052M5	61.978	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	11409M5	116.838	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	10488M5	107.406	ng/mL	
43) Phenanthrene	32.311	178	51832	604.160	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2742	31.961	ng/mL	96
45) 2-Methylphenanthrene(2MP)	34.374	192	2573	29.991	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1027M3	11.971	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2963M3	34.537	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1858M3	21.657	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11628M5	135.537	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	16400M5	191.160	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	16400m	191.160	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	14639M5	170.634	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) C4-Phenanthrenes/Anthrace	41.224	234	14077M5	164.083	ng/mL	
55) Anthracene	32.492	178	36116M3	430.981	ng/mL	
56) Carbazole	33.169	167	2457	29.027	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	1880M3	34.579	ng/mL	
58) Fluoranthene	37.084	202	140855M3	1653.117	ng/mL	
59) Benzo(b)fluorene	39.598	216	6923M3	140.048	ng/mL	
60) Pyrene	37.957	202	131072	1513.293	ng/mL	97
61) C1-Fluoranthenes/Pyrenes	39.357	216	41985M5	484.738	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	30282M5	349.621	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	17764M5	205.094	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	17843M5	206.007	ng/mL	
66) Naphthobenzothiophene	41.811	234	10262	110.051	ng/ml#	75
67) Naphthobenzothiophene-2,1	41.811	234	10262	110.051	ng/mL#	75
68) Naphthobenzothiophene-1,2	42.158	234	2463	26.413	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.444	234	3352M3	35.947	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	13790M5	147.885	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	17324M5	185.784	ng/ml	
72) C3-Naphthobenzothiophenes	46.826	276	17932M5	192.305	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	14616M5	156.744	ng/mL	
75) Benz[a]anthracene	42.730	228	72349	690.321	ng/mL	94
77) Chrysene/Triphenylene	42.895	228	95187	899.609	ng/mL	100
78) C1-Chrysenes	44.371	242	24318M5	229.829	ng/mL	
79) C2-Chrysenes	46.088	256	19036M5	179.909	ng/mL	
79) C2-Chrysenes BS	46.088	256	19036m	179.909	ng/mL	
80) C3-Chrysenes	47.624	270	25174M5	237.919	ng/mL	
81) C4-Chrysenes	48.061	284	19760M5	186.751	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	124087	1077.521	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	109953	876.965	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	9857	78.618	ng/mL#	8
85) Benzo[e]pyrene	47.759	252	55162	484.271	ng/mL	92
87) Benzo[a]pyrene	47.940	252	101154	922.357	ng/mL	91
88) Perylene	48.241	252	64872	553.489	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	113384M3	888.416	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	60414	497.618	ng/mL	99
91) Benzo[g,h,i]perylene	53.828	276	115334	855.363	ng/mL	100
92) Hopane (T19)	51.705	191	31363	1441.147	ng/mL#	70
94) C23 Tricyclic Terpane (T4	40.456	191	3402M3	156.324	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2374	109.087	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.700	191	2019M3	92.774	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2674M3	122.872	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	1407M3	64.652	ng/ml	
99) C26 Tricyclic Terpane-22R	43.814	191	1348M3	61.941	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1672M3	76.829	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2114	97.139	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.780	191	1860	85.468	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1975	90.752	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.045	191	6692M3	307.501	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	1668M3	76.646	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1787M3	82.114	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7524M3	345.732	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.717	191	1545M3	70.994	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.552	191	2837M3	130.362	ng/ml	
110) 30-Norhopane (T15)	50.380	191	22640M3	1040.321	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	7321M3	336.404	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
112)	17a(H)-Diahopane (X)	50.606	191	2181M3	100.218	ng/ml	
113)	30-Normoretane (T17)	51.148	191	5121	235.313	ng/ml	100
114)	18a(H)&18b(H)-Oleananes (	51.524	191	2601	119.517	ng/ml	100
115)	Moretane (T20)	52.353	191	7332M3	336.909	ng/ml	
116)	30-Homohopane-22S (T21)	53.422	191	10543	484.457	ng/ml	100
117)	30-Homohopane-22R (T22)	53.648	191	9417	432.716	ng/ml	100
118)	Gammacerane/C32-diahopane	54.175	191	2647M3	121.631	ng/mL	
119)	30,31-Bishomohopane-22S (	54.883	191G	53570M3	2461.571	ng/ml	
120)	30,31-Bishomohopane-22R (	55.289	191	6017	276.484	ng/ml	100
121)	30,31-Trishomohopane-22S	56.961	191	7974M3	366.410	ng/ml	
122)	30,31-Trishomohopane-22R	57.548	191	2732M3	125.537	ng/ml	
123)	Tetrakishomohopane-22S (T	59.521	191G	14800	680.068	ng/ml	100
124)	Tetrakishomohopane-22R (T	60.288	191G	17868	821.045	ng/ml	100
125)	Pentakishomohopane-22S (T	62.517	191	2537M3	116.577	ng/ml	
126)	Pentakishomohopane-22R (T	63.737	191	1916M3	88.041	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	2127	206.030	ng/ml	100
129)	13b(H),17a(H)-20R-Diachol	45.365	217	1432	138.710	ng/ml	100
130)	13b,17a-20S-Methyldiachol	46.058	217	1623M3	157.211	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	4086	395.787	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	4182M3	405.086	ng/ml	
133)	Unknown Sterane (S18)	47.699	217	870	84.272	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	47.940	217	127	12.302	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.106	217	1813M3	175.615	ng/ml	
136)	14a,17a-20R-Methylcholest	48.799	217	1577M3	152.755	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	2314M3	224.144	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2459M3	238.189	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	2184M3	211.551	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.082	218	2133M3	206.611	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	2025	196.150	ng/ml	100
142)	14b,17b-20S-Methylcholest	48.347	218	3032M3	293.692	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	4236M3	410.317	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	2320M3	224.725	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.100	231	4317M3	418.163	ng/mL	
146)	C28,20S-triaromatic stero	49.913	231	4758	460.880	ng/mL	100
147)	C27,20R-triaromatic stero	50.365	231	2959M3	286.621	ng/mL	
148)	C28,20R-triaromatic stero	51.524	231	3283M3	318.005	ng/mL	

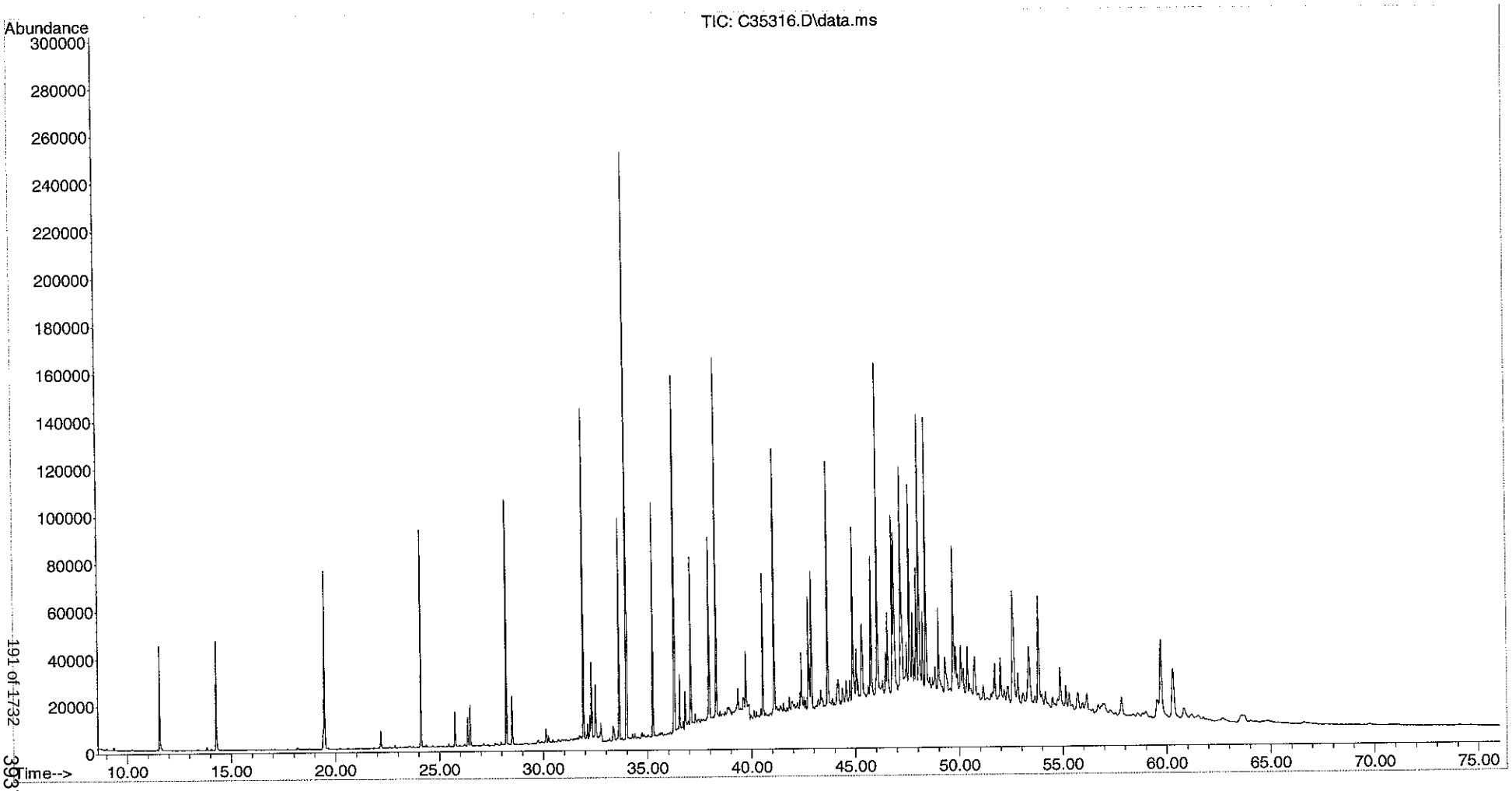
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Matrix Spike Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 S**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.95	2	1	AC

Parameter	Result	
cis/trans-Decalin	**5.24**	J
C1-Decalins	1.27	U
C2-Decalins	1.27	U
C3-Decalins	1.27	U
C4-Decalins	1.27	U
Benzothiophene	**1.57**	J
C1-Benzo(b)thiophenes	1.03	U
C2-Benzo(b)thiophenes	1.03	U
C3-Benzo(b)thiophenes	1.03	U
C4-Benzo(b)thiophenes	1.03	U
Naphthalene	**268**	S
C1-Naphthalenes	**185**	
C2-Naphthalenes	**45.0**	
C3-Naphthalenes	**35.8**	
C4-Naphthalenes	**30.3**	
Biphenyl	**6.88**	J
Dibenzofuran	**19.4**	
Acenaphthylene	**302**	S
Acenaphthene	**312**	S
Fluorene	**345**	S
C1-Fluorenes	**16.7**	
C2-Fluorenes	**36.9**	
C3-Fluorenes	**91.9**	
Anthracene	**373**	S
Phenanthrene	**522**	S
C1-Phenanthrenes/Anthracenes	**117**	
C2-Phenanthrenes/Anthracenes	**165**	
C3-Phenanthrenes/Anthracenes	**141**	
C4-Phenanthrenes/Anthracenes	**122**	
Retene	0.727	U
Dibenzothiophene	**17.8**	
C1-Dibenzothiophenes	**21.3**	
C2-Dibenzothiophenes	**51.2**	

Parameter	Result	
C3-Dibenzothiophenes	**96.4**	
C4-Dibenzothiophenes	**99.9**	
Benzo(b)fluorene	**122**	
Fluoranthene	**1440**	S
Pyrene	**1330**	S
C1-Fluoranthenes/Pyrenes	**431**	
C2-Fluoranthenes/Pyrenes	**279**	
C3-Fluoranthenes/Pyrenes	**174**	
C4-Fluoranthenes/Pyrenes	**179**	
Naphthobenzothiophenes	**152**	
C1-Naphthobenzothiophenes	**126**	
C2-Naphthobenzothiophenes	**174**	
C3-Naphthobenzothiophenes	**172**	
C4-Naphthobenzothiophenes	**134**	
Benz[a]anthracene	**617**	S
Chrysene/Triphenylene	**794**	S
C1-Chrysenes	**194**	
C2-Chrysenes	**160**	
C3-Chrysenes	**228**	
C4-Chrysenes	**149**	
Benzo[b]fluoranthene	**1070**	S
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**774**	S
Benzo[a]fluoranthene	**72.9**	
Benzo[e]pyrene	**423**	
Benzo[a]pyrene	**817**	S
Perylene	**504**	
Indeno[1,2,3-cd]pyrene	**786**	S
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**447**	S
Benzo[g,h,i]perylene	**752**	S

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Matrix Spike Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 S**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.95	2	1	AC

Parameter	Result
Carbazole	**22.8**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable

Form I
Matrix Spike Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 S**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.95	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**7.58** J
2/3-Methyldibenzothiophene	**4.08** J
1-Methyldibenzothiophene	**2.75** J
3-Methylphenanthrene	**28.5**
2-Methylphenanthrene	**26.8**
2-Methylanthracene	**11.1**
9/4-Methylphenanthrene	**29.0**
1-Methylphenanthrene	**19.0**
2-Methylnaphthalene	**289**
1-Methylnaphthalene	**21.1**
2,6-Dimethylnaphthalene	**30.0**
2,3,5-Trimethylnaphthalene	**5.64** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	74	40-120
Benzo[a]pyrene-d12	72	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Matrix Spike Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 S**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	22.6	9.95	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	137	
C24 Tricyclic Terpane	90.6	
C25 Tricyclic Terpane	81.0	
C24 Tetracyclic Terpane	112	
C26 Tricyclic Terpane-22S	49.4	
C26 Tricyclic Terpane-22R	52.8	
C28 Tricyclic Terpane-22S	58.3	
C28 Tricyclic Terpane-22R	82.5	
C29 Tricyclic Terpane-22S	72.9	
C29 Tricyclic Terpane-22R	69.7	
18a-22,29,30-Trisnorneohopane-TS	294	
C30 Tricyclic Terpane-22S	77.1	
C30 Tricyclic Terpane-22R	89.2	
17a(H)-22,29,30-Trisnorhopane-TM	292	
17a/b,21b/a 28,30-Bisnorhopane	65.1	
17a(H),21b(H)-25-Norhopane	131	
30-Norhopane	885	
18a(H)-30-Norneohopane-C29Ts	298	
17a(H)-Diahopane	72.1	
30-Normoretane	191	
18a(H)&18b(H)-Oleananes	111	
Hopane	1230	
Moretane	262	
30-Homohopane-22S	373	
30-Homohopane-22R	392	
T22a-Gammacerane/C32-diahopane	117	
30,31-Bishomohopane-22S	2190	G
30,31-Bishomohopane-22R	242	

Parameter	Result	
30,31-Trishomohopane-22S	298	
30,31-Trishomohopane-22R	98.5	
Tetrakishomohopane-22S	446	G
Tetrakishomohopane-22R	574	G
Pentakishomohopane-22S	105	
Pentakishomohopane-22R	80.5	
13b(H),17a(H)-20S-Diacholestane	182	
13b(H),17a(H)-20R-Diacholestane	110	
13b,17a-20S-Methyldiacholestane	130	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	354	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	319	
Unknown Sterane (S18)	75.1	
13a,17b-20S-Ethyldiacholestane	26.4	
14a,17a-20S-Methylcholestane	165	
14a,17a-20R-Methylcholestane	136	
14a(H),17a(H)-20S-Ethylcholestane	187	
14a(H),17a(H)-20R-Ethylcholestane	203	
14b(H),17b(H)-20R-Cholestane	170	
14b(H),17b(H)-20S-Cholestane	171	
14b,17b-20R-Methylcholestane	154	
14b,17b-20S-Methylcholestane	225	
14b(H),17b(H)-20R-Ethylcholestane	348	
14b(H),17b(H)-20S-Ethylcholestane	200	
C26,20R- +C27,20S- triaromatic steroid	364	
C28,20S-triaromatic steroid	371	
C27,20R-triaromatic steroid	242	
C28,20R-triaromatic steroid	264	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	81	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

for SK 5/29/12

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16365	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35935	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	18981	267.232	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 26.72%#			
42) Phenanthrene-d10	32.221	188	20888	372.058	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.21%#			
86) Benzo[a]pyrene-d12	47.850	264	26946	361.825	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.18%#			
127) 5B(H)Cholane - Surr	43.422	217	4537	403.823	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.38%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	76M2	5.883	ng/mL	
10) Naphthalene	19.485	128	31457	301.596	ng/mL#	100
11) C1-Naphthalenes	22.180	142	21662M5	207.686	ng/mL	
12) C2-Naphthalenes	24.664	156	5274M5	50.565	ng/mL	
13) C3-Naphthalenes	28.563	170	4197M5	40.239	ng/mL	
14) C4-Naphthalenes	31.363	184	3549M5	34.026	ng/mL	
16) 2-Methylnaphthalene	22.180	142	20025	324.706	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1433	23.706	ng/mL#	100
18) Benzothiophene	19.711	134	166M3	1.769	ng/mL	
23) Biphenyl	24.061	154	603M3	7.730	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1710	33.749	ng/mL#	100
25) Dibenzofuran	27.133	168	1957	21.846	ng/mL	93
26) Acenaphthylene	25.748	152	35197M3	339.944	ng/mL	
27) Acenaphthene	26.485	153	21370	350.541	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	259M3	6.341	ng/mL	
29) Fluorene	28.503	166	26046M3	387.388	ng/mL	
30) C1-Fluorenes	30.866	180	1261M5	18.755	ng/mL	
31) C2-Fluorenes	33.064	194	2786M5	41.437	ng/mL	
32) C3-Fluorenes	35.563	208	6941M5	103.235	ng/mL	
33) Dibenzothiophene	31.814	184	2151	19.958	ng/mL	95
34) 4-Methyldibenzothiophene(	33.591	198	918M3	8.518	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	494	4.584	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	333	3.090	ng/mL#	100
37) OTP	33.997	198	5074	47.079	ng/mL#	100
38) C1-Dibenzothiophenes	33.997	198	7653M5	71.008	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2579m	23.929	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	6199M5	57.517	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	11670M5	108.279	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	12098M5	112.251	ng/mL	
43) Phenanthrene	32.311	178	55502	586.138	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	3032	32.020	ng/mL	98
45) 2-Methylphenanthrene(2MP)	34.374	192	2847	30.066	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	1180M3	12.462	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	3090M3	32.632	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	2024M3	21.375	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	12482M5	131.818	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	17597M5	185.836	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	17597m	185.836	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	15035M5	158.780	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
53) C4-Phenanthrenes/Anthrace	41.224	234	13027M5	137.574	ng/mL	
55) Anthracene	32.492	178	38740M3	418.847	ng/mL	
56) Carbazole	33.169	167	2389	25.571	ng/mL	98
57) 1-Methylphenanthrene	34.810	192	2041M3	34.012	ng/mL	
58) Fluoranthene	37.084	202	152554M3	1622.154	ng/mL	
59) Benzo(b)fluorene	39.598	216	7473M3	136.967	ng/mL	
60) Pyrene	37.957	202	142696	1492.664	ng/mL	98
61) C1-Fluoranthenes/Pyrenes	39.357	216	46311M5	484.434	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.405	230	29936M5	313.144	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	18699M5	195.600	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	19241M5	201.270	ng/mL	
66) Naphthobenzothiophene	41.811	234	11247	109.279	ng/ml#	71
67) Naphthobenzothiophene-2,1	41.811	234	11247	109.279	ng/mL#	71
68) Naphthobenzothiophene-1,2	42.143	234	2586M3	25.126	ng/mL	
69) Naphthobenzothiophene-2,3	42.444	234	3799M3	36.912	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	14598M5	141.838	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	20143M5	195.714	ng/ml	
72) C3-Naphthobenzothiophenes	46.826	276	19932M5	193.664	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	15490M5	150.505	ng/mL	
75) Benz[a]anthracene	42.745	228	79060M3	693.162	ng/mL	
77) Chrysene/Triphenylene	42.896	228	102746M3	892.279	ng/mL	
78) C1-Chrysenes	44.371	242	25096M4	217.942	ng/mL	
79) C2-Chrysenes	46.088	256	20691M5	179.687	ng/mL	
79) C2-Chrysenes BS	46.088	256	20691m	179.687	ng/mL	
80) C3-Chrysenes	48.061	270	29466M5	255.892	ng/mL	
81) C4-Chrysenes	48.076	284	19305M5	167.651	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	150084	1197.549	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	118681	869.792	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	11174	81.892	ng/mL#	8
85) Benzo[e]pyrene	47.759	252	58944	475.497	ng/mL	93
87) Benzo[a]pyrene	47.940	252	109534	917.750	ng/mL	92
88) Perylene	48.241	252	72191	565.971	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	122613M3	882.796	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	66378	502.391	ng/mL	97
91) Benzo[g,h,i]perylene	53.828	276	124058	845.430	ng/mL	100
92) Hopane (T19)	51.705	191	32774	1383.820	ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	3647M3	153.988	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2411M3	101.800	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2156M3	91.033	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2970M3	125.403	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	1315M3	55.523	ng/ml	
99) C26 Tricyclic Terpane-22R	43.814	191	1405M3	59.323	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1551M3	65.488	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2197M3	92.764	ng/ml	
102) C29 Tricyclic Terpane-22S	46.780	191	1940M3	81.913	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	1856	78.366	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.061	191	7828	330.522	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2053M3	86.684	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2374M3	100.238	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7771	328.116	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.732	191	1733	73.173	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.552	191	3480M3	146.936	ng/ml	
110) 30-Norhopane (T15)	50.395	191	23549M3	994.312	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	7939M3	335.209	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
112) 17a(H)-Diahopane (X)	50.606	191	1919M3	81.026	ng/ml	
113) 30-Normoretane (T17)	51.133	191	5077	214.367	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.540	191	2959M3	124.938	ng/ml	
115) Moretane (T20)	52.368	191	6981M3	294.760	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	9918	418.769	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	10438	440.725	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	3112	131.398	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.883	191G	58341	2463.338	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	6438	271.832	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7938M3	335.167	ng/ml	
122) 30,31-Trishomohopane-22R	57.548	191	2622	110.709	ng/ml	100
123) Tetrakishomohopane-22S (T	59.521	191G	11864	500.935	ng/ml	100
124) Tetrakishomohopane-22R (T	60.289	191G	15266M3	644.578	ng/ml	
125) Pentakishomohopane-22S (T	62.502	191	2783M3	117.507	ng/ml	
126) Pentakishomohopane-22R (T	63.722	191	2143M3	90.484	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2299M3	204.626	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1386	123.363	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.058	217	1641M3	146.060	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4467	397.593	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4031M3	358.786	ng/ml	
133) Unknown Sterane (S18)	47.699	217	948M4	84.378	ng/ml	
134) 13a,17b-20S-Ethyldiachole	47.955	217	333	29.639	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	2082M3	185.312	ng/ml	
136) 14a,17a-20R-Methylcholest	48.799	217	1716M3	152.736	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2360M3	210.056	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2566M3	228.391	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2152M3	191.542	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.097	218	2164M3	192.611	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1946M3	173.207	ng/ml	
142) 14b,17b-20S-Methylcholest	48.347	218	2842M3	252.957	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4397M3	391.363	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2529M3	225.098	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	4597M3	409.164	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4679M3	416.462	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	3061M3	272.450	ng/mL	
148) C28,20R-triaromatic stero	51.509	231	3332M3	296.570	ng/mL	

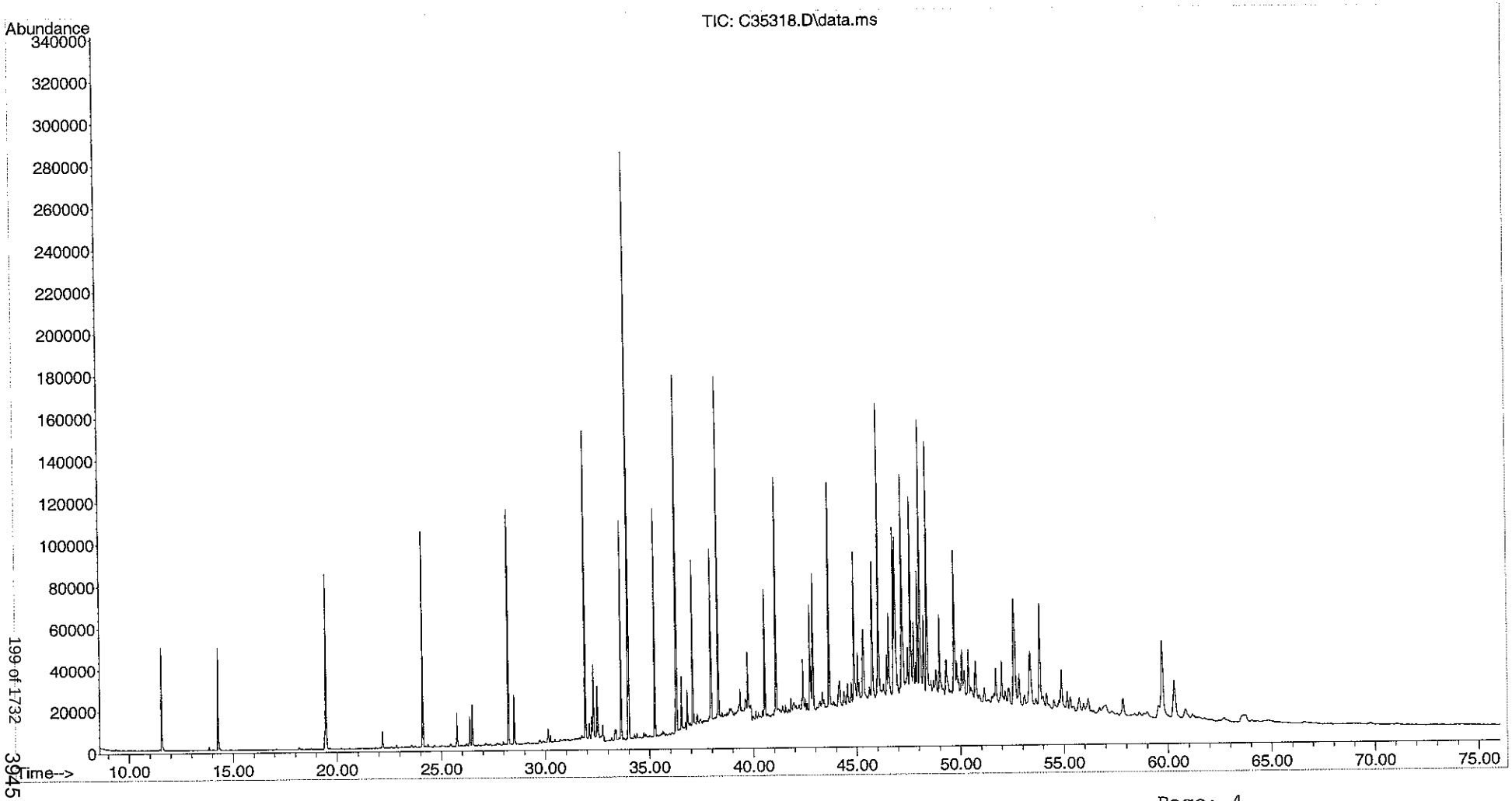
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06 D**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	9.96	2	1	AC

Parameter	Result	
cis/trans-Decalin	**5.74**	J
C1-Decalins	1.23	U
C2-Decalins	1.23	U
C3-Decalins	1.23	U
C4-Decalins	1.23	U
Benzothiophene	**0.915**	J
C1-Benzo(b)thiophenes	0.994	U
C2-Benzo(b)thiophenes	0.994	U
C3-Benzo(b)thiophenes	0.994	U
C4-Benzo(b)thiophenes	0.994	U
Naphthalene	**26.2**	
C1-Naphthalenes	**28.5**	
C2-Naphthalenes	**46.7**	
C3-Naphthalenes	**32.6**	
C4-Naphthalenes	**26.8**	
Biphenyl	**6.76**	J
Dibenzofuran	**17.0**	
Acenaphthylene	**21.4**	
Acenaphthene	**13.0**	
Fluorene	**19.6**	
C1-Fluorenes	**13.5**	
C2-Fluorenes	**31.5**	
C3-Fluorenes	**75.6**	
Anthracene	**43.8**	
Phenanthrene	**172**	
C1-Phenanthrenes/Anthracenes	**108**	
C2-Phenanthrenes/Anthracenes	**139**	
C3-Phenanthrenes/Anthracenes	**100**	
C4-Phenanthrenes/Anthracenes	**77.9**	
Retene	0.700	U
Dibenzothiophene	**13.8**	
C1-Dibenzothiophenes	**15.0**	
C2-Dibenzothiophenes	**35.6**	

Parameter	Result
C3-Dibenzothiophenes	**58.7**
C4-Dibenzothiophenes	**61.4**
Benzo(b)fluorene	**96.8**
Fluoranthene	**843**
Pyrene	**736**
C1-Fluoranthenes/Pyrenes	**357**
C2-Fluoranthenes/Pyrenes	**237**
C3-Fluoranthenes/Pyrenes	**143**
C4-Fluoranthenes/Pyrenes	**150**
Naphthobenzothiophenes	**128**
C1-Naphthobenzothiophenes	**96.8**
C2-Naphthobenzothiophenes	**122**
C3-Naphthobenzothiophenes	**122**
C4-Naphthobenzothiophenes	**112**
Benz[a]anthracene	**240**
Chrysene/Triphenylene	**398**
C1-Chrysenes	**164**
C2-Chrysenes	**124**
C3-Chrysenes	**196**
C4-Chrysenes	**129**
Benzo[b]fluoranthene	**503**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**442**
Benzo[a]fluoranthene	**63.8**
Benzo[e]pyrene	**366**
Benzo[a]pyrene	**420**
Perylene	**290**
Indeno[1,2,3-cd]pyrene	**393**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**103**
Benzo[g,h,i]perylene	**373**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	71	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Duplicate
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06 D**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	9.96	2	1	AC

Parameter	Result
Carbazole	19.3

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	71	40-120

N/A - Not Applicable

Form I
Duplicate
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06 D**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	9.96	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	**5.50** J
2/3-Methyldibenzothiophene	**3.41** J
1-Methyldibenzothiophene	**2.17** J
3-Methylphenanthrene	**26.0**
2-Methylphenanthrene	**24.4**
2-Methylanthracene	**9.94**
9/4-Methylphenanthrene	**25.8**
1-Methylphenanthrene	**17.3**
2-Methylnaphthalene	**29.5**
1-Methylnaphthalene	**17.0**
2,6-Dimethylnaphthalene	**35.8**
2,3,5-Trimethylnaphthalene	**5.45** J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	53	40-120
Phenanthrene-d10	73	40-120
Benzo[a]pyrene-d12	71	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Duplicate
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06 D**
Associated Blank: **SS052312B03**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	9.96	2	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**122**	
C24 Tricyclic Terpane	**77.6**	
C25 Tricyclic Terpane	**77.1**	
C24 Tetracyclic Terpane	**97.1**	
C26 Tricyclic Terpane-22S	**51.1**	
C26 Tricyclic Terpane-22R	**44.4**	
C28 Tricyclic Terpane-22S	**67.9**	
C28 Tricyclic Terpane-22R	**80.0**	
C29 Tricyclic Terpane-22S	**66.2**	
C29 Tricyclic Terpane-22R	**67.3**	
18a-22,29,30-Trisnorneohopane-TS	**267**	
C30 Tricyclic Terpane-22S	**65.8**	
C30 Tricyclic Terpane-22R	**60.8**	
17a(H)-22,29,30-Trisnorhopane-TM	**269**	
17a/b,21b/a 28,30-Bisnorhopane	**73.7**	
17a(H),21b(H)-25-Norhopane	**103**	
30-Norhopane	**871**	
18a(H)-30-Norneohopane-C29Ts	**284**	
17a(H)-Diahopane	**78.7**	
30-Normoretane	**141**	
18a(H)&18b(H)-Oleananes	**110**	
Hopane	**1180**	
Moretane	**229**	
30-Homohopane-22S	**408**	
30-Homohopane-22R	**361**	
T22a-Gammacerane/C32-diahopane	**119**	
30,31-Bishomohopane-22S	**1580**	G
30,31-Bishomohopane-22R	**213**	

Parameter	Result	
30,31-Trishomohopane-22S	**248**	
30,31-Trishomohopane-22R	**103**	
Tetrakishomohopane-22S	**369**	G
Tetrakishomohopane-22R	**328**	G
Pentakishomohopane-22S	**105**	
Pentakishomohopane-22R	**88.7**	
13b(H),17a(H)-20S-Diacholestane	**184**	
13b(H),17a(H)-20R-Diacholestane	**115**	
13b,17a-20S-Methyldiacholestane	**94.3**	
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**352**	
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**266**	
Unknown Sterane (S18)	**73.4**	
13a,17b-20S-Ethyldiacholestane	**8.81**	
14a,17a-20S-Methylcholestane	**150**	
14a,17a-20R-Methylcholestane	**134**	
14a(H),17a(H)-20S-Ethylcholestane	**176**	
14a(H),17a(H)-20R-Ethylcholestane	**175**	
14b(H),17b(H)-20R-Cholestane	**167**	
14b(H),17b(H)-20S-Cholestane	**166**	
14b,17b-20R-Methylcholestane	**156**	
14b,17b-20S-Methylcholestane	**220**	
14b(H),17b(H)-20R-Ethylcholestane	**339**	
14b(H),17b(H)-20S-Ethylcholestane	**204**	
C26,20R- +C27,20S- triaromatic steroid	**289**	
C28,20S-triaromatic steroid	**335**	
C27,20R-triaromatic steroid	**200**	
C28,20R-triaromatic steroid	**237**	

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	72	50-130

N/A - Not Applicable
G - Matrix Interference

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

5/29/12

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16811	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	37955	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	19355	265.268	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 26.53%#			
42) Phenanthrene-d10	32.221	188	20974	363.678	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.37%#			
86) Benzo[a]pyrene-d12	47.850	264	27994	355.892	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 35.59%#			
127) 5B(H)Cholane - Surr	43.422	217	4284	361.011	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.10%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	89M3	6.706	ng/mL	
10) Naphthalene	19.485	128	3278	30.594	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3569M5	33.310	ng/mL	
12) C2-Naphthalenes	24.679	156	5846M5	54.562	ng/mL	
13) C3-Naphthalenes	28.563	170	4084M5	38.117	ng/mL	
14) C4-Naphthalenes	31.363	184	3356M5	31.322	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2180	34.411	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1234	19.872	ng/mL#	100
18) Benzothiophene	19.696	134	103M3	1.068	ng/mL	
23) Biphenyl	24.061	154	632M3	7.886	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	2176	41.806	ng/mL#	100
25) Dibenzofuran	27.132	168	1827	19.853	ng/mL	97
26) Acenaphthylene	25.747	152	2660	25.010	ng/mL#	100
27) Acenaphthene	26.485	153	953	15.218	ng/mL	91
28) 2,3,5-Trimethylnaphthalen	28.036	170	267M3	6.363	ng/mL	
29) Fluorene	28.502	166	1580	22.876	ng/mL	97
30) C1-Fluorenes	30.866	180	1091M5	15.796	ng/mL	
31) C2-Fluorenes	33.064	194	2536M5	36.718	ng/mL	
32) C3-Fluorenes	35.563	208	6096M5	88.262	ng/mL	
33) Dibenzothiophene	31.814	184	1778	16.059	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	711M3	6.422	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	441M3	3.983	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	281	2.538	ng/mL#	100
37) OTP	33.997	198	5158M3	46.588	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	7092M5	64.057	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	1934m	17.468	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	4598M5	41.530	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	7583M5	68.492	ng/mL	
41) C4-Dibenzothiophenes	40.562	240	7932M5	71.644	ng/mL	
43) Phenanthrene	32.311	178	19537	200.850	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2957	30.399	ng/mL	99
45) 2-Methylphenanthrene(2MP)	34.374	192	2772	28.498	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1129M3	11.607	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2932M3	30.142	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1963M3	20.181	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	12257M5	126.008	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	15783M5	162.257	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	15783m	162.257	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	11395M5	117.146	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
53) C4-Phenanthrenes/Anthrace	40.577	234	8849M5	90.972 ng/mL	
55) Anthracene	32.492	178	4858M3	51.130 ng/mL	
56) Carbazole	33.169	167	2165	22.558 ng/mL#	91
57) 1-Methylphenanthrene	34.810	192	1981M3	32.137 ng/mL	
58) Fluoranthene	37.084	202	95107M3	984.472 ng/mL	
59) Benzo(b)fluorene	39.598	216	6330M3	112.940 ng/mL	
60) Pyrene	37.957	202	84362	859.053 ng/mL	98
61) C1-Fluoranthenes/Pyrenes	39.357	216	40889M5	416.370 ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	27138M5	276.344 ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	16429M5	167.295 ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	17250M5	175.656 ng/mL	
66) Naphthobenzothiophene	41.811	234	10166	96.155 ng/ml#	71
67) Naphthobenzothiophene-2,1	41.811	234	10166	96.155 ng/mL#	71
68) Naphthobenzothiophene-1,2	42.143	234	2278M3	21.546 ng/mL	
69) Naphthobenzothiophene-2,3	42.444	234	3331M3	31.506 ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	11946M5	112.991 ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	15009M5	141.962 ng/ml	
72) C3-Naphthobenzothiophenes	46.810	276	15063M5	142.473 ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	13775M5	130.290 ng/mL	
75) Benz[a]anthracene	42.730	228	33785M3	280.447 ng/mL	
77) Chrysene/Triphenylene	42.895	228	56444M3	464.090 ng/mL	
78) C1-Chrysenes	44.371	242	23206M5	190.803 ng/mL	
79) C2-Chrysenes	45.756	256	17650M5	145.121 ng/mL	
79) C2-Chrysenes BS	45.756	256	17650m	145.121 ng/mL	
80) C3-Chrysenes	48.076	270	27877M5	229.208 ng/mL	
81) C4-Chrysenes	48.076	284	18277M5	150.276 ng/mL	
82) Benzo[b]fluoranthene	46.780	252	77757	587.418 ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	74438M3	516.509 ng/mL	
84) Benzo[a]fluoranthene	47.157	252	10731	74.460 ng/mL#	8
85) Benzo[e]pyrene	47.759	252	55988	427.614 ng/mL	92
87) Benzo[a]pyrene	47.940	252	61723	489.634 ng/mL	92
88) Perylene	48.241	252	45649	338.837 ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	67327M3	458.946 ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	16817M3	120.508 ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	67461	435.265 ng/mL	99
92) Hopane (T19)	51.705	191	34328	1372.295 ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	3565M3	142.514 ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2265M3	90.546 ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2251M3	89.986 ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2835M3	113.332 ng/ml	
98) C26 Tricyclic Terpane-22S	43.723	191	1492	59.644 ng/ml	100
99) C26 Tricyclic Terpane-22R	43.814	191	1298M3	51.889 ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1983M3	79.272 ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2335M3	93.344 ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	1932	77.234 ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1964	78.513 ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	7790	311.413 ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	1921M3	76.794 ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1775M3	70.957 ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7857	314.091 ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	2152M3	86.028 ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.551	191	3018M3	120.647 ng/ml	
110) 30-Norhopane (T15)	50.395	191	25445	1017.188 ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.485	191	8282M3	331.081 ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
112) 17a(H)-Diahopane (X)	50.606	191	2299	91.905	ng/ml	100
113) 30-Normoretane (T17)	51.148	191	4121	164.741	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.524	191	3199	127.883	ng/ml	100
115) Moretane (T20)	52.368	191	6686M3	267.279	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11901M3	475.754	ng/ml	
117) 30-Homohopane-22R (T22)	53.648	191	10539	421.307	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	3464M3	138.477	ng/mL	
119) 30,31-Bishomohopane-22S (	54.882	191G	46131M3	1844.131	ng/ml	
120) 30,31-Bishomohopane-22R (	55.304	191	6214	248.411	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7242M3	289.506	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	2995M3	119.728	ng/ml	
123) Tetrakishomohopane-22S (T	59.520	191G	10767	430.421	ng/ml	100
124) Tetrakishomohopane-22R (T	60.288	191G	9581M3	383.010	ng/ml	
125) Pentakishomohopane-22S (T	62.487	191	3055M3	122.127	ng/ml	
126) Pentakishomohopane-22R (T	63.722	191	2590M3	103.538	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2542	214.214	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1589M3	133.905	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.057	217	1306	110.056	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4876M3	410.899	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	3690M3	310.955	ng/ml	
133) Unknown Sterane (S18)	47.699	217	1017M3	85.702	ng/ml	
134) 13a,17b-20S-Ethyldiachole	47.955	217	122	10.281	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	2079M3	175.197	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1849M3	155.815	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2434M3	205.112	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2422M3	204.101	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2314M3	195.000	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2298M3	193.652	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	2161	182.107	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	3046M3	256.686	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4690M3	395.225	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2823M3	237.893	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4003M3	337.332	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4643	391.264	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	2776M3	233.933	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	3288M3	277.079	ng/mL	

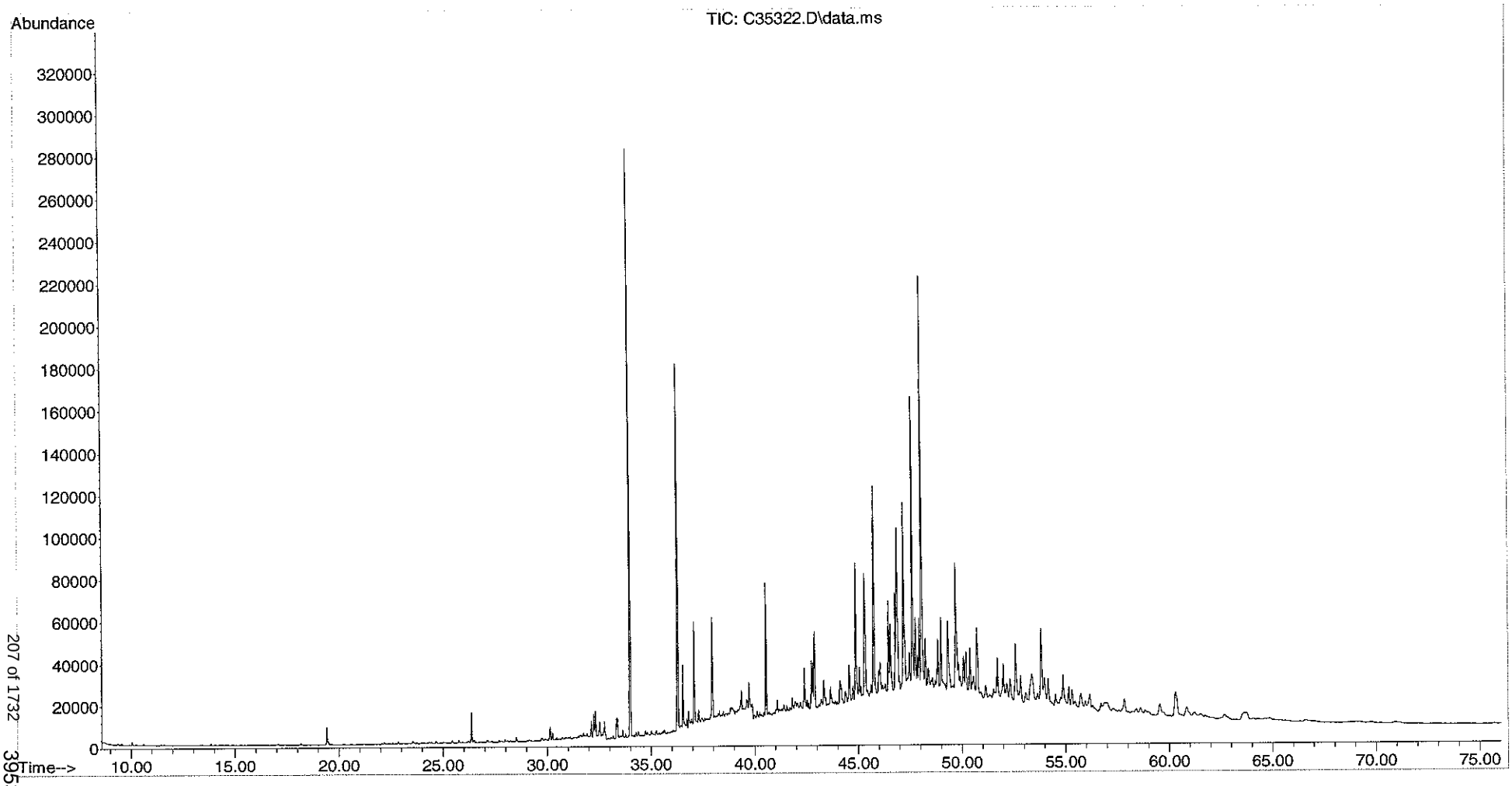
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



207 of 1732

3953

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35308.D
Acq On : 25 May 2012 5:54 pm
Operator : AC
Sample : SS052312C41BN01
Misc : 1X ETR1205027
ALS Vial : 21 Sample Multiplier: 1

Mail for SLP 5/30/12

Quant Time: May 29 09:47:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : SRM_1941b_Default - SRM 1941b Organics in Marine Sediment

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12980	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27899	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	13200	234.306	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 23.43%#			
42) Phenanthrene-d10	32.221	188	13279	298.209	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 29.82%#			
86) Benzo[a]pyrene-d12	47.850	264	14715	254.503	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.45%#			
127) 5B(H)Cholane - Surr	43.423	217	2638	302.431	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 30.24%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	76530	925.085	ng/mL#	100
29) Fluorene	28.503	166	3590M3	67.320	ng/mL	
43) Phenanthrene	32.311	178	44607	593.930	ng/mL	100
55) Anthracene	32.492	178	16552M3	225.625	ng/mL	
58) Fluoranthene	37.069	202	80849	1083.888	ng/mL	98
60) Pyrene	37.957	202	65907	869.207	ng/mL	96
75) Benz[a]anthracene	42.730	228	34651M3	391.312	ng/mL	
77) Chrysene/Triphenylene	42.896	228	48418	541.591	ng/mL	98
82) Benzo[b]fluoranthene	46.781	252	62823	645.664	ng/mL	94
85) Benzo[e]pyrene	47.744	252	43928	456.435	ng/mL	92
87) Benzo[a]pyrene	47.925	252	33959	366.488	ng/mL	92
88) Perylene	48.226	252	39934	403.258	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.564	276	40515M3	375.724	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	10550	102.849	ng/mL	95
91) Benzo[g,h,i]perylene	53.813	276	36958	324.407	ng/mL	98

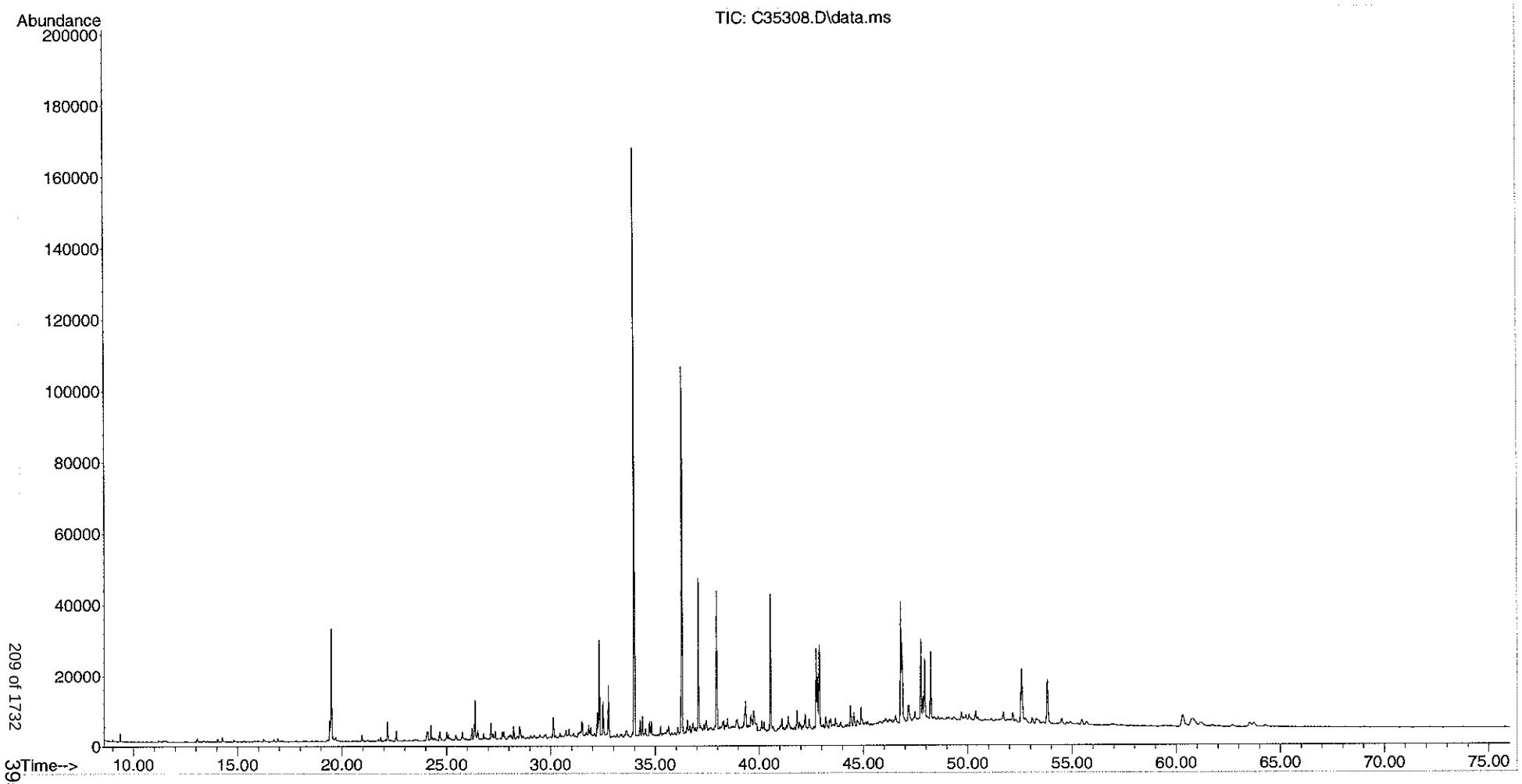
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35308.D
Acq On : 25 May 2012 5:54 pm
Operator : AC
Sample : SS052312C41BN01
Misc : 1X ETR1205027
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 29 09:47:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : SRM_1941b_Default - SRM 1941b Organics in Marine Sediment



Form I
Cold Lake Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05422	10	1	AC

Parameter	Result	
cis/trans-Decalin	130	
C1-Decalins	245	
C2-Decalins	352	
C3-Decalins	247	
C4-Decalins	216	
Benzothiophene	6.95	
C1-Benzo(b)thiophenes	34.7	
C2-Benzo(b)thiophenes	68.0	
C3-Benzo(b)thiophenes	114	
C4-Benzo(b)thiophenes	118	
Naphthalene	52.4	
C1-Naphthalenes	143	
C2-Naphthalenes	297	
C3-Naphthalenes	360	
C4-Naphthalenes	275	
Biphenyl	14.5	
Dibenzofuran	7.10	
Acenaphthylene	2.16	
Acenaphthene	13.1	
Fluorene	23.6	
C1-Fluorenes	69.4	
C2-Fluorenes	142	
C3-Fluorenes	174	
Anthracene	1.84	U
Phenanthrene	72.6	
C1-Phenanthrenes/Anthracenes	196	
C2-Phenanthrenes/Anthracenes	270	
C3-Phenanthrenes/Anthracenes	246	
C4-Phenanthrenes/Anthracenes	117	
Retene	1.84	U
Dibenzothiophene	58.5	
C1-Dibenzothiophenes	191	
C2-Dibenzothiophenes	338	
C3-Dibenzothiophenes	364	
C4-Dibenzothiophenes	253	
Benzo(b)fluorene	1.84	U
Fluoranthene	5.56	
Pyrene	17.5	
C1-Fluoranthenes/Pyrenes	64.2	
C2-Fluoranthenes/Pyrenes	91.7	
C3-Fluoranthenes/Pyrenes	108	
C4-Fluoranthenes/Pyrenes	106	
Naphthobenzothiophenes	40.8	
C1-Naphthobenzothiophenes	134	
C2-Naphthobenzothiophenes	198	
C3-Naphthobenzothiophenes	179	
C4-Naphthobenzothiophenes	128	
Benz[a]anthracene	4.07	
Chrysene/Triphenylene	18.1	
C1-Chrysenes	48.8	
C2-Chrysenes	71.4	
C3-Chrysenes	91.2	
C4-Chrysenes	61.6	
Benzo[b]fluoranthene	5.07	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.51	J
Benzo[a]fluoranthene	1.84	U
Benzo[e]pyrene	7.90	
Benzo[a]pyrene	4.15	
Perylene	8.70	
Indeno[1,2,3-cd]pyrene	2.27	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	1.24	J
Benzo[g,h,i]perylene	5.46	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	84	40-120
Phenanthrene-d10	101	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Cold Lake Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05422	10	1	AC

Parameter	Result
Carbazole	**5.24**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	84	40-120
Phenanthrene-d10	101	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05422	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**73.6**
2/3-Methyldibenzothiophene	**58.9**
1-Methyldibenzothiophene	**41.9**
3-Methylphenanthrene	**39.0**
2-Methylphenanthrene	**44.8**
2-Methylanthracene	**4.14**
9/4-Methylphenanthrene	**66.1**
1-Methylphenanthrene	**39.8**
2-Methylnaphthalene	**145**
1-Methylnaphthalene	**99.2**
2,6-Dimethylnaphthalene	**150**
2,3,5-Trimethylnaphthalene	**66.2**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	84	40-120
Phenanthrene-d10	101	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05422	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	105
C24 Tricyclic Terpane	57.6
C25 Tricyclic Terpane	54.7
C24 Tetracyclic Terpane	18.8
C26 Tricyclic Terpane-22S	19.9
C26 Tricyclic Terpane-22R	18.3
C28 Tricyclic Terpane-22S	24.0
C28 Tricyclic Terpane-22R	25.7
C29 Tricyclic Terpane-22S	28.5
C29 Tricyclic Terpane-22R	25.9
18a-22,29,30-Trisnorneohopane-TS	28.3
C30 Tricyclic Terpane-22S	22.1
C30 Tricyclic Terpane-22R	21.4
17a(H)-22,29,30-Trisnorhopane-TM	71.2
17a/b,21b/a 28,30-Bisnorhopane	48.0
17a(H),21b(H)-25-Norhopane	13.9
30-Norhopane	187
18a(H)-30-Norneohopane-C29Ts	24.0
17a(H)-Diahopane	7.55
30-Normoretane	21.2
18a(H)&18b(H)-Oleananes	1.84 U
Hopane	270
Moretane	22.3
30-Homohopane-22S	118
30-Homohopane-22R	94.4
T22a-Gammacerane/C32-diahopane	41.4
30,31-Bishomohopane-22S	74.7
30,31-Bishomohopane-22R	57.0

Parameter	Result
30,31-Trishomohopane-22S	55.5
30,31-Trishomohopane-22R	39.6
Tetrakishomohopane-22S	37.3
Tetrakishomohopane-22R	27.3
Pentakishomohopane-22S	46.8
Pentakishomohopane-22R	31.3
13b(H),17a(H)-20S-Diacholestane	37.3
13b(H),17a(H)-20R-Diacholestane	20.1
13b,17a-20S-Methyldiacholestane	12.8
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	59.3
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	85.0
Unknown Sterane (S18)	17.5
13a,17b-20S-Ethyldiacholestane	7.02
14a,17a-20S-Methylcholestane	30.8
14a,17a-20R-Methylcholestane	25.6
14a(H),17a(H)-20S-Ethylcholestane	65.8
14a(H),17a(H)-20R-Ethylcholestane	46.2
14b(H),17b(H)-20R-Cholestane	44.1
14b(H),17b(H)-20S-Cholestane	46.1
14b,17b-20R-Methylcholestane	40.1
14b,17b-20S-Methylcholestane	43.9
14b(H),17b(H)-20R-Ethylcholestane	68.7
14b(H),17b(H)-20S-Ethylcholestane	42.6
C26,20R- +C27,20S- triaromatic steroid	352
C28,20S-triaromatic steroid	291
C27,20R-triaromatic steroid	227
C28,20R-triaromatic steroid	261

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	108	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

MK Gutowski 8/29/12

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17616M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35118	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	64017	837.284	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.73%			
42) Phenanthrene-d10	32.221	188	60792	1005.932	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.59%			
86) Benzo[a]pyrene-d12	47.850	264	61993	851.794	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.18%			
127) 5B(H)Cholane - Surr	43.437	217	11905	1084.277	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 108.43%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	8869	637.772	ng/mL	100
4) cis-Decalin	17.287	138	718	68.507	ng/mL	100
5) C1-Decalins	17.558	152	18447M5	1326.529	ng/mL	
6) C2-Decalins	18.973	166	26521M5	1907.133	ng/mL	
7) C3-Decalins	21.803	180	18626M5	1339.401	ng/mL	
8) C4-Decalins	25.175	194	16317M5	1173.360	ng/mL	
10) Naphthalene	19.485	128	31892	284.053	ng/mL#	100
11) C1-Naphthalenes	22.180	142	87190M5	776.576	ng/mL	
12) C2-Naphthalenes	25.010	156	181073M5	1612.765	ng/mL	
13) C3-Naphthalenes	27.690	170	219459M5	1954.658	ng/mL	
14) C4-Naphthalenes	30.113	184	167472M5	1491.625	ng/mL	
16) 2-Methylnaphthalene	22.180	142	52259	787.204	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	34996	537.811	ng/mL#	100
18) Benzothiophene	19.696	134	3808M3	37.691	ng/mL	
19) C1-Benzo(b)thiophenes	22.556	148	18988M5	187.938	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	37261M5	368.799	ng/mL	
21) C3-Benzo(b)thiophenes	27.178	176	62729M5	620.874	ng/mL	
22) C4-Benzo(b)thiophenes	28.924	190	64582M5	639.215	ng/mL	
23) Biphenyl	24.061	154	6587M3	78.439	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	44487	815.647	ng/mL#	100
25) Dibenzofuran	27.133	168	3710	38.473	ng/mL#	48
26) Acenaphthylene	25.763	152	1304M3	11.700	ng/mL	
27) Acenaphthene	26.485	153	4649M3	70.844	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	15788M3	359.085	ng/mL	
29) Fluorene	28.503	166	9269M3	128.070	ng/mL	
30) C1-Fluorenes	30.866	180	27231M5	376.251	ng/mL	
31) C2-Fluorenes	33.064	194	55642M5	768.806	ng/mL	
32) C3-Fluorenes	34.901	208	68382M5	944.834	ng/mL	
33) Dibenzothiophene	31.814	184	36773	316.966	ng/mL#	68
34) 4-Methyldibenzothiophene(	33.591	198	46314	399.205	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	37046	319.319	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	26352	227.142	ng/mL#	100
37) OTP	34.012	198	11212	96.642	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	131100M5	1130.020	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	119888m	1033.378	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	212640M5	1832.857	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	228656M5	1970.907	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	159093M5	1371.307	ng/mL	
43) Phenanthrene	32.311	178	40118	393.586	ng/mL#	75

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 3-Methylphenanthrene(3MP)	34.283	192	21529	211.215	ng/mL	89
45) 2-Methylphenanthrene(2MP)	34.389	192	24783	243.139	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	2286M3	22.427	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	36512	358.208	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.825	192	21973M3	215.570	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.735	192	108582M5	1065.265	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	149030M5	1462.088	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	149030m	1462.088	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.643	220	135714M5	1331.449	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	64729M5	635.037	ng/mL	
56) Carbazole	33.169	167	2855M3	28.388	ng/mL	
57) 1-Methylphenanthrene	34.825	192	21566M3	333.867	ng/mL	
58) Fluoranthene	37.084	202	3052M3	30.148	ng/mL	
60) Pyrene	37.972	202	9756M3	94.805	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.357	216	35841M5	348.289	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.826	230	51175M5	497.298	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.182	244	60220M5	585.194	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.063	258	59170M5	574.990	ng/mL	
66) Naphthobenzothiophene	41.811	234	16926	152.778	ng/ml	94
67) Naphthobenzothiophene-2,1	41.811	234	16926	152.778	ng/mL	94
68) Naphthobenzothiophene-1,2	42.158	234	4509M3	40.699	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	3067M3	27.684	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	80467M5	726.315	ng/ml	
71) C2-Naphthobenzothiophenes	45.259	262	119061M5	1074.674	ng/ml	
72) C3-Naphthobenzothiophenes	46.810	276	107464M5	969.997	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	77191M5	696.745	ng/mL	
75) Benz[a]anthracene	42.745	228	2458M3	22.052	ng/mL	
77) Chrysene/Triphenylene	42.895	228	11034M3	98.052	ng/mL	
78) C1-Chrysenes	44.386	242	29796M5	264.778	ng/mL	
79) C2-Chrysenes	46.449	256	43584M5	387.303	ng/mL	
79) C2-Chrysenes BS	46.449	256	43584m	387.303	ng/mL	
80) C3-Chrysenes	49.069	270	55663M5	494.641	ng/mL	
81) C4-Chrysenes	49.100	284	37577M5	333.922	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3367M3	27.491	ng/mL	
83) Benzo[j]+[k]fluoranthene	46.856	252	1092M3	8.189	ng/mL	
85) Benzo[e]pyrene	47.759	252	5187	42.817	ng/mL	90
87) Benzo[a]pyrene	47.940	252	2623M3	22.489	ng/mL	
88) Perylene	48.241	252	5883	47.195	ng/mL#	83
89) Indeno[1,2,3-cd]pyrene	52.579	276	1673M3	12.326	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	865M3	6.699	ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	4247M3	29.616	ng/mL	
92) Hopane (T19)	51.705	191	33881	1463.842	ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	13215M3	570.959	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	7224M3	312.116	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	6865M3	296.605	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2354M3	101.706	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	2492M3	107.668	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	2294M3	99.113	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	3013M3	130.178	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	3223	139.251	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.795	191	3576M3	154.503	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	3252	140.504	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	3552M3	153.466	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	2776M3	119.938	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
106) C30 Tricyclic Terpane-22R	48.407	191	2682M3	115.877	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	8937	386.127	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	6020M3	260.097	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.566	191	1750M3	75.609	ng/ml	
110) 30-Norhopane (T15)	50.395	191	23509M3	1015.716	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	3009M3	130.005	ng/ml	
112) 17a(H)-Diahopane (X)	50.621	191	948	40.959	ng/ml	100
113) 30-Normoretane (T17)	51.148	191	2657	114.797	ng/ml	100
115) Moretane (T20)	52.383	191	2803M3	121.105	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	14812	639.958	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	11849	511.941	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	5194	224.409	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.928	191	9370	404.835	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	7148M3	308.832	ng/ml	
121) 30,31-Trishomohopane-22S	56.961	191	6963M3	300.839	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	4974M3	214.904	ng/ml	
123) Tetrakishomohopane-22S (T	59.490	191	4684M3	202.374	ng/ml	
124) Tetrakishomohopane-22R (T	60.364	191	3431	148.238	ng/ml	100
125) Pentakishomohopane-22S (T	62.502	191	5876	253.875	ng/ml	100
126) Pentakishomohopane-22R (T	63.752	191	3928M3	169.711	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2223M3	202.465	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1198	109.111	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.057	217	764M3	69.583	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	3530	321.503	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	5059	460.761	ng/ml	100
133) Unknown Sterane (S18)	47.699	217	1040	94.721	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.955	217	418	38.070	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.121	217	1832M3	166.854	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1523M3	138.711	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.145	217	3919M3	356.932	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2753M3	250.736	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2624	238.987	ng/ml	100
140) 14b(H),17b(H)-20S-Cholest	47.097	218	2744M3	249.916	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	2386	217.311	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	2614M3	238.076	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4092M3	372.689	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2536M3	230.972	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	20943	1907.434	ng/mL	100
146) C28,20S-triaromatic stero	49.928	231	17297	1575.366	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	13498	1229.363	ng/mL	100
148) C28,20R-triaromatic stero	51.524	231	15555M3	1416.709	ng/mL	

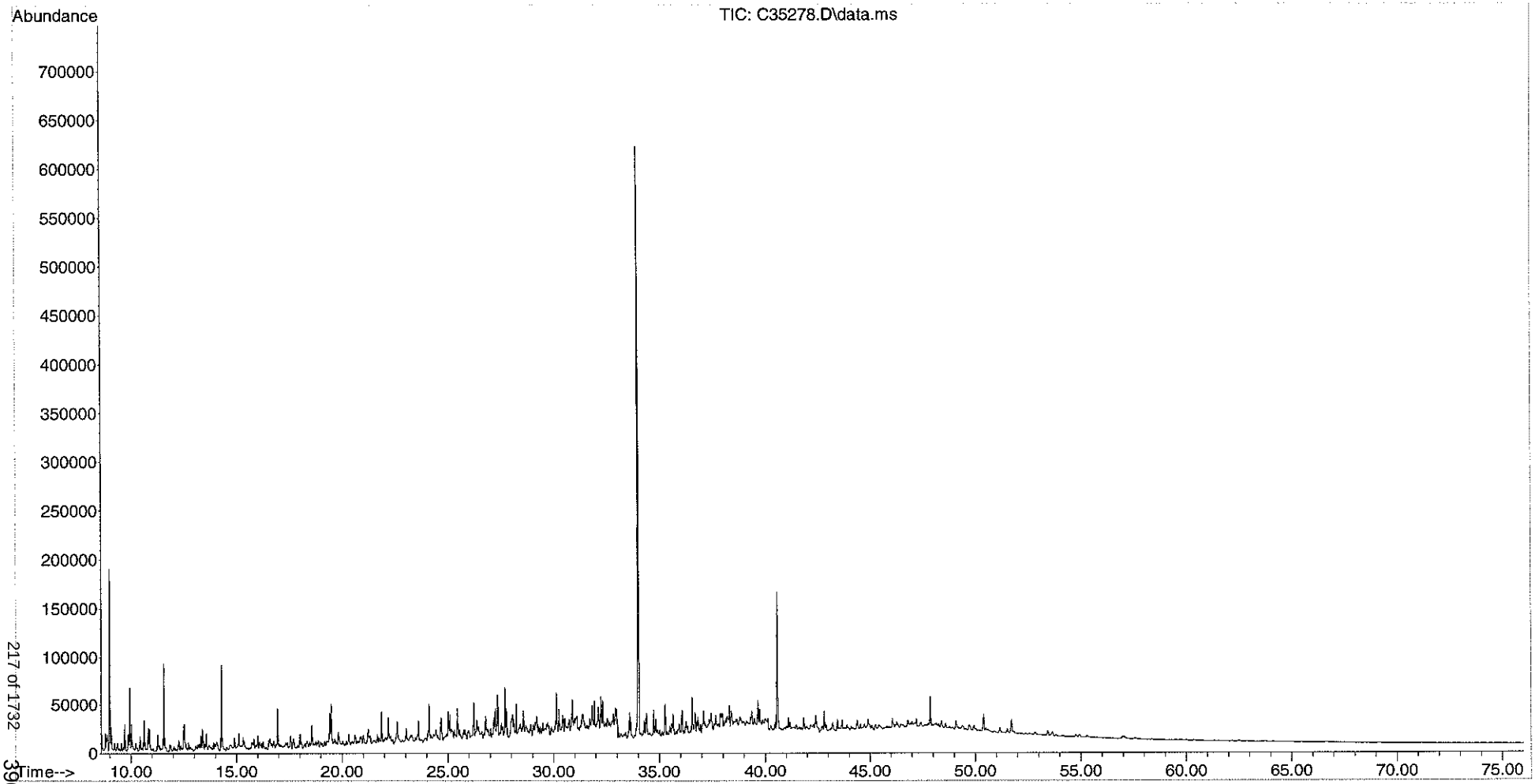
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Western Canadian Select
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05019	10	1	AC

Parameter	Result	
cis/trans-Decalin	**169**	
C1-Decalins	**300**	
C2-Decalins	**401**	
C3-Decalins	**269**	
C4-Decalins	**283**	
Benzothiophene	**5.16**	
C1-Benzo(b)thiophenes	**28.2**	
C2-Benzo(b)thiophenes	**49.5**	
C3-Benzo(b)thiophenes	**98.0**	
C4-Benzo(b)thiophenes	**109**	
Naphthalene	**60.7**	
C1-Naphthalenes	**165**	
C2-Naphthalenes	**399**	
C3-Naphthalenes	**441**	
C4-Naphthalenes	**328**	
Biphenyl	**15.9**	
Dibenzofuran	**7.89**	
Acenaphthylene	**3.13**	
Acenaphthene	**13.8**	
Fluorene	**28.4**	
C1-Fluorenes	**81.7**	
C2-Fluorenes	**169**	
C3-Fluorenes	**196**	
Anthracene	1.99	U
Phenanthrene	**84.7**	
C1-Phenanthrenes/Anthracenes	**220**	
C2-Phenanthrenes/Anthracenes	**302**	
C3-Phenanthrenes/Anthracenes	**262**	
C4-Phenanthrenes/Anthracenes	**138**	
Retene	1.99	U
Dibenzothiophene	**56.9**	
C1-Dibenzothiophenes	**182**	
C2-Dibenzothiophenes	**328**	

Parameter	Result	
C3-Dibenzothiophenes	**349**	
C4-Dibenzothiophenes	**246**	
Benzo(b)fluorene	1.99	U
Fluoranthene	**7.53**	
Pyrene	**24.3**	
C1-Fluoranthenes/Pyrenes	**81.7**	
C2-Fluoranthenes/Pyrenes	**115**	
C3-Fluoranthenes/Pyrenes	**125**	
C4-Fluoranthenes/Pyrenes	**125**	
Naphthobenzothiophenes	**38.8**	
C1-Naphthobenzothiophenes	**135**	
C2-Naphthobenzothiophenes	**206**	
C3-Naphthobenzothiophenes	**176**	
C4-Naphthobenzothiophenes	**139**	
Benz[a]anthracene	**3.25**	
Chrysene/Triphenylene	**18.9**	
C1-Chrysenes	**55.4**	
C2-Chrysenes	**82.4**	
C3-Chrysenes	**102**	
C4-Chrysenes	**67.3**	
Benzo[b]fluoranthene	**6.51**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.32**	
Benzo[a]fluoranthene	1.99	U
Benzo[e]pyrene	**9.59**	
Benzo[a]pyrene	**5.18**	
Perylene	**9.50**	
Indeno[1,2,3-cd]pyrene	**2.71**	
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.37**	J
Benzo[g,h,i]perylene	**7.58**	

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	108	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Western Canadian Select
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05019	10	1	AC

Parameter	Result
Carbazole	**6.44**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	108	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05019	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**72.2**
2/3-Methyldibenzothiophene	**56.7**
1-Methyldibenzothiophene	**39.2**
3-Methylphenanthrene	**44.5**
2-Methylphenanthrene	**50.6**
2-Methylanthracene	**3.48**
9/4-Methylphenanthrene	**71.0**
1-Methylphenanthrene	**44.4**
2-Methylnaphthalene	**173**
1-Methylnaphthalene	**111**
2,6-Dimethylnaphthalene	**206**
2,3,5-Trimethylnaphthalene	**85.2**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	108	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.05019	10	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**107**	
C24 Tricyclic Terpane	**58.7**	
C25 Tricyclic Terpane	**56.9**	
C24 Tetracyclic Terpane	**20.0**	
C26 Tricyclic Terpane-22S	**22.6**	
C26 Tricyclic Terpane-22R	**19.6**	
C28 Tricyclic Terpane-22S	**24.9**	
C28 Tricyclic Terpane-22R	**25.5**	
C29 Tricyclic Terpane-22S	**30.8**	
C29 Tricyclic Terpane-22R	**28.9**	
18a-22,29,30-Trisnorneohopane-TS	**34.5**	
C30 Tricyclic Terpane-22S	**29.0**	
C30 Tricyclic Terpane-22R	**22.6**	
17a(H)-22,29,30-Trisnorhopane-TM	**75.0**	
17a/b,21b/a 28,30-Bisnorhopane	**45.3**	
17a(H),21b(H)-25-Norhopane	**14.4**	
30-Norhopane	**188**	
18a(H)-30-Norneohopane-C29Ts	**32.1**	
17a(H)-Diahopane	**12.7**	
30-Normoretane	**19.9**	
18a(H)&18b(H)-Oleananes	1.99	U
Hopane	**264**	
Moretane	**20.0**	
30-Homohopane-22S	**114**	
30-Homohopane-22R	**95.6**	
T22a-Gammacerane/C32-diahopane	**40.7**	
30,31-Bishomohopane-22S	**74.3**	
30,31-Bishomohopane-22R	**56.1**	

Parameter	Result
30,31-Trishomohopane-22S	**57.0**
30,31-Trishomohopane-22R	**37.6**
Tetrakishomohopane-22S	**36.9**
Tetrakishomohopane-22R	**33.9**
Pentakishomohopane-22S	**45.3**
Pentakishomohopane-22R	**34.1**
13b(H),17a(H)-20S-Diacholestane	**39.7**
13b(H),17a(H)-20R-Diacholestane	**16.7**
13b,17a-20S-Methyldiacholestane	**16.9**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**68.2**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**73.8**
Unknown Sterane (S18)	**16.0**
13a,17b-20S-Ethyldiacholestane	**9.12**
14a,17a-20S-Methylcholestane	**35.4**
14a,17a-20R-Methylcholestane	**26.6**
14a(H),17a(H)-20S-Ethylcholestane	**62.4**
14a(H),17a(H)-20R-Ethylcholestane	**51.5**
14b(H),17b(H)-20R-Cholestane	**40.6**
14b(H),17b(H)-20S-Cholestane	**45.8**
14b,17b-20R-Methylcholestane	**37.1**
14b,17b-20S-Methylcholestane	**48.6**
14b(H),17b(H)-20R-Ethylcholestane	**71.6**
14b(H),17b(H)-20S-Ethylcholestane	**43.1**
C26,20R- +C27,20S- triaromatic steroid	**367**
C28,20S-triaromatic steroid	**305**
C27,20R-triaromatic steroid	**238**
C28,20R-triaromatic steroid	**272**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	113	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

MC for 5/12 5/29/12

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15230M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	31226	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	60170	910.259	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.03%			
42) Phenanthrene-d10	32.221	188	56388	1079.236	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 107.92%			
86) Benzo[a]pyrene-d12	47.850	264	55194	852.898	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.29%			
127) 5B(H)Cholane - Surr	43.438	217	11041M3	1130.922	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 113.09%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	9086	755.738	ng/mL	100
4) cis-Decalin	17.287	138	828	91.379	ng/mL	100
5) C1-Decalins	17.558	152	18119M5	1507.067	ng/mL	
6) C2-Decalins	18.973	166	24183M5	2011.447	ng/mL	
7) C3-Decalins	21.803	180	16218M5	1348.950	ng/mL	
8) C4-Decalins	25.176	194	17090M5	1421.479	ng/mL	
10) Naphthalene	19.485	128	29573	304.663	ng/mL#	100
11) C1-Naphthalenes	22.180	142	80551M5	829.843	ng/mL	
12) C2-Naphthalenes	25.010	156	194234M5	2001.014	ng/mL	
13) C3-Naphthalenes	27.690	170	214847M5	2213.370	ng/mL	
14) C4-Naphthalenes	30.113	184	159729M5	1645.541	ng/mL	
16) 2-Methylnaphthalene	22.180	142	49916	869.708	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31314	556.618	ng/mL#	100
18) Benzothiophene	19.711	134	2264M3	25.919	ng/mL	
19) C1-Benzo(b)thiophenes	21.743	148	12357M5	141.467	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	21717M5	248.624	ng/mL	
21) C3-Benzo(b)thiophenes	27.524	176	42944M5	491.638	ng/mL	
22) C4-Benzo(b)thiophenes	29.285	190	47787M5	547.082	ng/mL	
23) Biphenyl	24.062	154	5787M3	79.708	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	48813	1035.171	ng/mL#	100
25) Dibenzofuran	27.133	168	3301	39.595	ng/mL#	45
26) Acenaphthylene	25.763	152	1513	15.702	ng/mL#	100
27) Acenaphthene	26.485	153	3930M3	69.270	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	16260M3	427.758	ng/mL	
29) Fluorene	28.503	166	8921M3	142.572	ng/mL	
30) C1-Fluorenes	30.866	180	25667M5	410.201	ng/mL	
31) C2-Fluorenes	33.064	194	53043M5	847.714	ng/mL	
32) C3-Fluorenes	34.901	208	61428M5	981.720	ng/mL	
33) Dibenzothiophene	31.814	184	28650	285.638	ng/mL#	61
34) 4-Methyldibenzothiophene(	33.591	198	36326	362.167	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	28555	284.691	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	19727	196.676	ng/mL#	100
37) OTP	34.012	198	10159	101.284	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	101610M5	1013.042	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	91451m	911.758	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	165240M5	1647.427	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	175764M5	1752.350	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	123980M5	1236.069	ng/mL	
43) Phenanthrene	32.311	178	37454M3	425.016	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 3-Methylphenanthrene(3MP)	34.283	192	19683M3	223.356	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	22362	253.757	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1541M3	17.487	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	31403	356.351	ng/mL	100
48) 1-Methylphenanthrene(1MP)	34.825	192	19649M3	222.971	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.735	192	97337M5	1104.550	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	133760M5	1517.866	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	133760m	1517.866	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.643	220	115687M5	1312.780	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	61011M5	692.334	ng/mL	
56) Carbazole	33.169	167	2810M3	32.318	ng/mL	
57) 1-Methylphenanthrene	34.825	192	20002M3	358.166	ng/mL	
58) Fluoranthene	37.084	202	3306M3	37.774	ng/mL	
60) Pyrene	37.957	202	10866M3	122.134	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.357	216	36490M5	410.148	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.164	230	51537M5	579.276	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.182	244	55866M5	627.934	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.537	258	55758M5	626.720	ng/mL	
66) Naphthobenzothiophene	41.812	234	13143	137.217	ng/ml#	87
67) Naphthobenzothiophene-2,1	41.812	234	13143	137.217	ng/mL#	87
68) Naphthobenzothiophene-1,2	42.158	234	3276M3	34.203	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	2225M3	23.230	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	64767M5	676.189	ng/ml	
71) C2-Naphthobenzothiophenes	45.259	262	99012M5	1033.719	ng/ml	
72) C3-Naphthobenzothiophenes	46.811	276	84465M5	881.843	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	66736M5	696.747	ng/mL	
75) Benz[a]anthracene	42.745	228	1618M3	16.325	ng/mL	
77) Chrysene/Triphenylene	42.896	228	9510M3	95.042	ng/mL	
78) C1-Chrysenes	44.371	242	27844M5	278.271	ng/mL	
79) C2-Chrysenes	46.449	256	41388M5	413.629	ng/mL	
79) C2-Chrysenes BS	46.449	256	41388m	413.629	ng/mL	
80) C3-Chrysenes	47.789	270	51413M5	513.819	ng/mL	
81) C4-Chrysenes	49.175	284	33779M5	337.585	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3556	32.653	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	1378M3	11.622	ng/mL	
85) Benzo[e]pyrene	47.759	252	5182	48.107	ng/mL	96
87) Benzo[a]pyrene	47.940	252	2698M3	26.015	ng/mL	
88) Perylene	48.241	252	5287	47.700	ng/mL#	75
89) Indeno[1,2,3-cd]pyrene	52.579	276	1642M3	13.605	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	789M3	6.872	ng/mL	
91) Benzo[g,h,i]perylene	53.829	276	4854	38.067	ng/mL#	81
92) Hopane (T19)	51.705	191	27296M3	1326.327	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	11006M3	534.787	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	6061M3	294.507	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	5876M3	285.518	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2064M3	100.291	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	2334M3	113.410	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	2028M3	98.542	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	2575M3	125.121	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2630M3	127.793	ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	3183	154.664	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	2982M3	144.897	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.061	191	3560	172.982	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2991M3	145.334	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
106) C30 Tricyclic Terpane-22R	48.407	191	2340M3	113.702	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7751M3	376.625	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	4678M3	227.306	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.567	191	1482	72.011	ng/ml	100
110) 30-Norhopane (T15)	50.395	191	19394M3	942.364	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	3312M3	160.932	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	1309M3	63.605	ng/ml	
113) 30-Normoretane (T17)	51.133	191	2054M3	99.805	ng/ml	
115) Moretane (T20)	52.368	191	2068M3	100.485	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11827	574.680	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	9873	479.734	ng/ml	100
118) Gammacerane/C32-diahopane	54.160	191	4202	204.177	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.928	191	7679	373.127	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	5794	281.533	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	5888M3	286.101	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	3881M3	188.580	ng/ml	
123) Tetrakishomohopane-22S (T	59.505	191	3814	185.324	ng/ml	100
124) Tetrakishomohopane-22R (T	60.364	191	3497	169.921	ng/ml	100
125) Pentakishomohopane-22S (T	62.502	191	4675M3	227.161	ng/ml	
126) Pentakishomohopane-22R (T	63.722	191	3523M3	171.184	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	1947M3	199.430	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	817	83.685	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.058	217	826M3	84.607	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	3342	342.319	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	3615M3	370.282	ng/ml	
133) Unknown Sterane (S18)	47.684	217	786	80.509	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.940	217	447	45.786	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	1732M3	177.407	ng/ml	
136) 14a,17a-20R-Methylcholest	48.799	217	1303M3	133.465	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.145	217	3059M3	313.331	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2522M3	258.327	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	1988M3	203.629	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.097	218	2245M3	229.954	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1819	186.319	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	2382M3	243.987	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	3507M3	359.219	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2111M3	216.228	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	17997	1843.420	ng/mL	100
146) C28,20S-triaromatic stero	49.928	231	14951	1531.420	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	11640	1192.277	ng/mL	100
148) C28,20R-triaromatic stero	51.524	231	13353M3	1367.738	ng/mL	

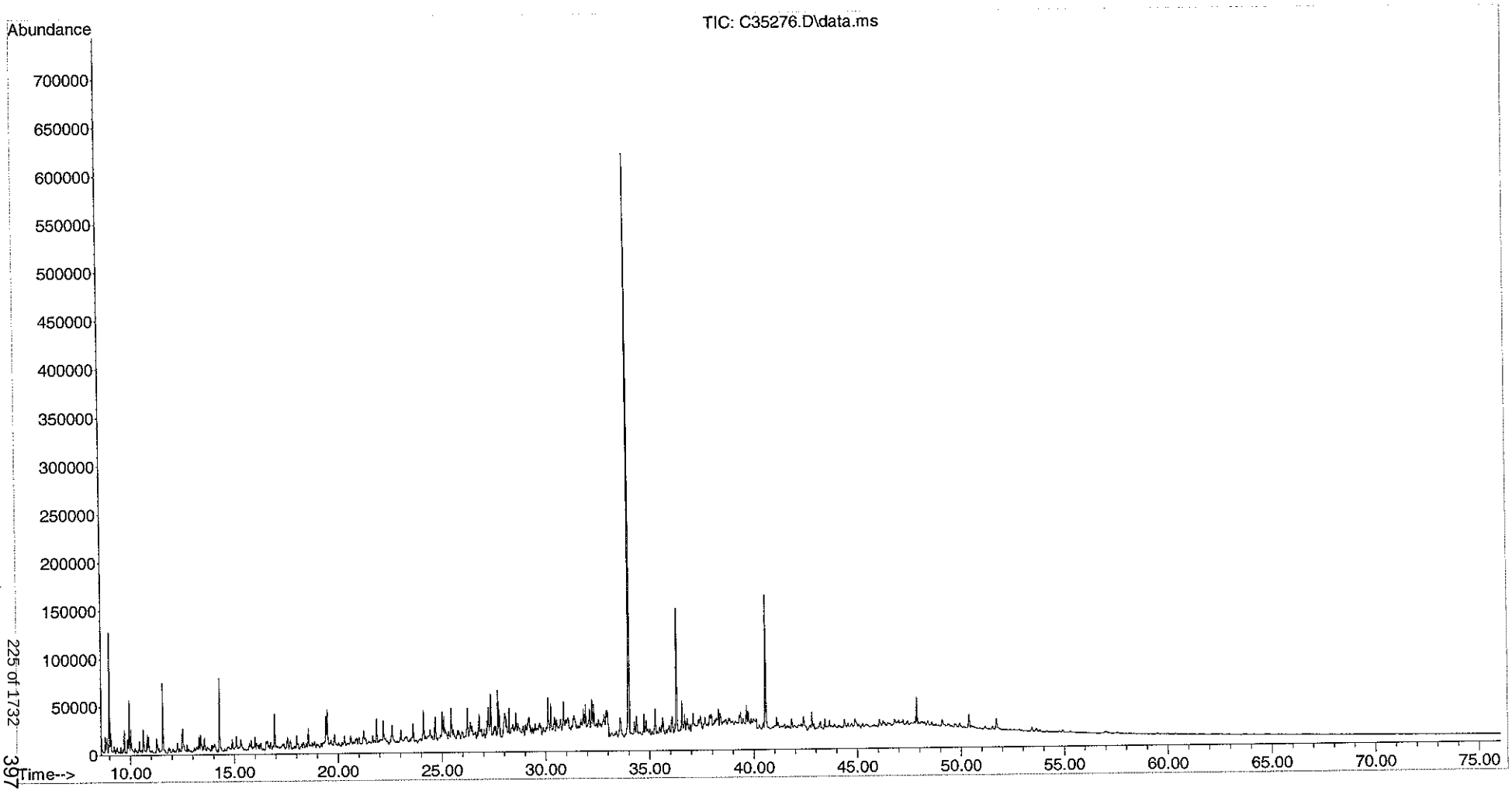
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.0521	10	1	AC

Parameter	Result	
cis/trans-Decalin	**446**	
C1-Decalins	**647**	
C2-Decalins	**551**	
C3-Decalins	**267**	
C4-Decalins	**272**	
Benzothiophene	**3.88**	
C1-Benzo(b)thiophenes	**21.2**	
C2-Benzo(b)thiophenes	**41.8**	
C3-Benzo(b)thiophenes	**84.8**	
C4-Benzo(b)thiophenes	**76.2**	
Naphthalene	**470**	
C1-Naphthalenes	**981**	
C2-Naphthalenes	**1200**	
C3-Naphthalenes	**872**	
C4-Naphthalenes	**463**	
Biphenyl	**126**	
Dibenzofuran	**47.6**	
Acenaphthylene	**5.28**	
Acenaphthene	**16.5**	
Fluorene	**70.4**	
C1-Fluorenes	**160**	
C2-Fluorenes	**228**	
C3-Fluorenes	**222**	
Anthracene	1.92	U
Phenanthrene	**208**	
C1-Phenanthrenes/Anthracenes	**407**	
C2-Phenanthrenes/Anthracenes	**434**	
C3-Phenanthrenes/Anthracenes	**294**	
C4-Phenanthrenes/Anthracenes	**121**	
Retene	1.92	U
Dibenzothiophene	**129**	
C1-Dibenzothiophenes	**256**	
C2-Dibenzothiophenes	**352**	

Parameter	Result	
C3-Dibenzothiophenes	**316**	
C4-Dibenzothiophenes	**168**	
Benzo(b)fluorene	**7.87**	
Fluoranthene	**4.63**	
Pyrene	**15.0**	
C1-Fluoranthenes/Pyrenes	**67.7**	
C2-Fluoranthenes/Pyrenes	**110**	
C3-Fluoranthenes/Pyrenes	**128**	
C4-Fluoranthenes/Pyrenes	**108**	
Naphthobenzothiophenes	**47.0**	
C1-Naphthobenzothiophenes	**123**	
C2-Naphthobenzothiophenes	**172**	
C3-Naphthobenzothiophenes	**135**	
C4-Naphthobenzothiophenes	**88.8**	
Benz[a]anthracene	**2.34**	
Chrysene/Triphenylene	**34.9**	
C1-Chrysenes	**59.9**	
C2-Chrysenes	**77.8**	
C3-Chrysenes	**92.6**	
C4-Chrysenes	**65.3**	
Benzo[b]fluoranthene	**5.33**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.92	U
Benzo[a]fluoranthene	1.92	U
Benzo[e]pyrene	**9.20**	
Benzo[a]pyrene	**1.57**	J
Perylene	**2.62**	
Indeno[1,2,3-cd]pyrene	**0.697**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.00**	J
Benzo[g,h,i]perylene	**3.02**	

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	**8.31**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**126**
2/3-Methyldibenzothiophene	**86.6**
1-Methyldibenzothiophene	**40.8**
3-Methylphenanthrene	**85.3**
2-Methylphenanthrene	**93.3**
2-Methylanthracene	**2.98**
9/4-Methylphenanthrene	**130**
1-Methylphenanthrene	**94.1**
2-Methylnaphthalene	**977**
1-Methylnaphthalene	**696**
2,6-Dimethylnaphthalene	**607**
2,3,5-Trimethylnaphthalene	**172**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.0521	10	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**62.6**	
C24 Tricyclic Terpane	**41.6**	
C25 Tricyclic Terpane	**43.3**	
C24 Tetracyclic Terpane	**15.5**	
C26 Tricyclic Terpane-22S	**18.8**	
C26 Tricyclic Terpane-22R	**18.1**	
C28 Tricyclic Terpane-22S	**16.4**	
C28 Tricyclic Terpane-22R	**18.8**	
C29 Tricyclic Terpane-22S	**21.2**	
C29 Tricyclic Terpane-22R	**19.8**	
18a-22,29,30-Trisnorneohopane-TS	**30.8**	
C30 Tricyclic Terpane-22S	**19.3**	
C30 Tricyclic Terpane-22R	**18.6**	
17a(H)-22,29,30-Trisnorhopane-TM	**37.1**	
17a/b,21b/a 28,30-Bisnorhopane	**9.56**	
17a(H),21b(H)-25-Norhopane	**8.90**	
30-Norhopane	**92.3**	
18a(H)-30-Norneohopane-C29Ts	**22.7**	
17a(H)-Diahopane	**14.2**	
30-Normoretane	**12.4**	
18a(H)&18b(H)-Oleananes	1.92	U
Hopane	**162**	
Moretane	**18.4**	
30-Homohopane-22S	**71.4**	
30-Homohopane-22R	**60.9**	
T22a-Gammacerane/C32-diahopane	**13.5**	
30,31-Bishomohopane-22S	**51.4**	
30,31-Bishomohopane-22R	**36.4**	

Parameter	Result
30,31-Trishomohopane-22S	**40.7**
30,31-Trishomohopane-22R	**27.1**
Tetrakishomohopane-22S	**25.5**
Tetrakishomohopane-22R	**20.5**
Pentakishomohopane-22S	**24.6**
Pentakishomohopane-22R	**21.6**
13b(H),17a(H)-20S-Diacholestane	**60.3**
13b(H),17a(H)-20R-Diacholestane	**28.0**
13b,17a-20S-Methyldiacholestane	**23.0**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**64.6**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**79.6**
Unknown Sterane (S18)	**21.1**
13a,17b-20S-Ethyldiacholestane	**3.38**
14a,17a-20S-Methylcholestane	**43.3**
14a,17a-20R-Methylcholestane	**35.3**
14a(H),17a(H)-20S-Ethylcholestane	**50.5**
14a(H),17a(H)-20R-Ethylcholestane	**45.8**
14b(H),17b(H)-20R-Cholestane	**38.9**
14b(H),17b(H)-20S-Cholestane	**39.5**
14b,17b-20R-Methylcholestane	**47.8**
14b,17b-20S-Methylcholestane	**51.7**
14b(H),17b(H)-20R-Ethylcholestane	**58.9**
14b(H),17b(H)-20S-Ethylcholestane	**35.9**
C26,20R- +C27,20S- triaromatic steroid	**388**
C28,20S-triaromatic steroid	**237**
C27,20R-triaromatic steroid	**241**
C28,20R-triaromatic steroid	**207**

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHA085
ALS Vial : 4 Sample Multiplier: 1

Ok for sdz 5/29/12

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17778M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	34343	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	64304	833.374	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.34%			
42) Phenanthrene-d10	32.221	188	62125	1018.622	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.86%			
86) Benzo[a]pyrene-d12	47.850	264	69940	982.673	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 98.27%			
127) 5B(H)Cholane - Surr	43.437	217	12523M3	1166.301	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 116.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	30581	2179.050	ng/mL	100
4) cis-Decalin	17.287	138	1532	144.841	ng/mL	100
5) C1-Decalins	18.009	152	47336M5	3372.927	ng/mL	
6) C2-Decalins	19.334	166	40288M5	2870.722	ng/mL	
7) C3-Decalins	21.803	180	19534M5	1391.895	ng/mL	
8) C4-Decalins	25.175	194	19927M5	1419.899	ng/mL	
10) Naphthalene	19.485	128	277266	2447.025	ng/mL#	100
11) C1-Naphthalenes	22.180	142	579227M5	5111.997	ng/mL	
12) C2-Naphthalenes	25.010	156	705488M5	6226.320	ng/mL	
13) C3-Naphthalenes	27.358	170	514977M5	4544.956	ng/mL	
14) C4-Naphthalenes	30.113	184	273406M5	2412.958	ng/mL	
16) 2-Methylnaphthalene	22.180	142	341054	5090.659	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	238132	3626.217	ng/mL#	100
18) Benzothiophene	19.711	134	2064M3	20.243	ng/mL	
19) C1-Benzo(b)thiophenes	21.743	148	11250M5	110.335	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	22181M5	217.541	ng/mL	
21) C3-Benzo(b)thiophenes	27.193	176	45056M5	441.888	ng/mL	
22) C4-Benzo(b)thiophenes	28.924	190	40500M5	397.205	ng/mL	
23) Biphenyl	24.061	154	55493M3	654.796	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	174086	3162.697	ng/mL#	100
25) Dibenzofuran	27.133	168	24151	248.166	ng/mL#	80
26) Acenaphthylene	25.763	152	3097	27.534	ng/mL#	100
27) Acenaphthene	26.515	153	5700M3	86.068	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	39818M3	897.375	ng/mL	
29) Fluorene	28.502	166	26788M3	366.757	ng/mL	
30) C1-Fluorenes	30.866	180	60868M5	833.350	ng/mL	
31) C2-Fluorenes	33.064	194	86741M5	1187.580	ng/mL	
32) C3-Fluorenes	34.901	208	84344M5	1154.762	ng/mL	
33) Dibenzothiophene	31.814	184	78843	673.397	ng/mL#	87
34) 4-Methyldibenzothiophene(	33.591	198	76781	655.785	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	52834	451.254	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	24905	212.713	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	156133M5	1333.530	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	156133m	1333.530	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	214653M5	1833.348	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	192665M5	1645.549	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	102706M5	877.210	ng/mL	
43) Phenanthrene	32.311	178	111347	1082.437	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.268	192	45708	444.341	ng/mL	97

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHA085
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2-Methylphenanthrene(2MP)	34.389	192	50005	486.114	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	1595M3	15.505	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	69504	675.669	ng/mL	97
48) 1-Methylphenanthrene(1MP)	34.810	192	50451M3	490.449	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.720	192	218245M5	2121.625	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	232666M5	2261.816	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	232666m	2261.816	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.394	220	157296M5	1529.121	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	64708M5	629.046	ng/mL	
56) Carbazole	33.169	167	4394M3	43.293	ng/mL	
57) 1-Methylphenanthrene	34.810	192	50407M3	773.249	ng/mL	
58) Fluoranthene	37.084	202	2466M3	24.138	ng/mL	
59) Benzo(b)fluorene	39.598	216	2431M3	41.015	ng/mL	
60) Pyrene	37.972	202	8113M3	78.120	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.357	216	36626M5	352.674	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.164	230	59669M5	574.556	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.181	244	69462M5	668.853	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.536	258	58479M5	563.097	ng/mL	
66) Naphthobenzothiophene	41.811	234	20428	182.708	ng/ml#	80
67) Naphthobenzothiophene-2,1	41.811	234	20428	182.708	ng/mL#	80
68) Naphthobenzothiophene-1,2	42.158	234	4459M3	39.881	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	2479M3	22.172	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	71567M5	640.095	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	100267M5	896.788	ng/ml	
72) C3-Naphthobenzothiophenes	46.825	276	78737M5	704.223	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	51743M5	462.789	ng/mL	
75) Benz[a]anthracene	42.745	228	1330M3	12.201	ng/mL	
77) Chrysene/Triphenylene	42.865	228	20032M3	182.028	ng/mL	
78) C1-Chrysenes	44.371	242	34321M5	311.871	ng/mL	
79) C2-Chrysenes	47.066	256	44577M5	405.066	ng/mL	
79) C2-Chrysenes BS	47.066	256	44577m	405.066	ng/mL	
80) C3-Chrysenes	49.069	270	53106M5	482.568	ng/mL	
81) C4-Chrysenes	49.100	284	37425M5	340.077	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3325M3	27.761	ng/mL	
85) Benzo[e]pyrene	47.759	252	5681	47.953	ng/mL	97
87) Benzo[a]pyrene	47.940	252	933M3	8.180	ng/mL	
88) Perylene	48.241	252	1667M3	13.675	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.579	276	482M3	3.631	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	659M3	5.219	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	2208M3	15.745	ng/mL	
92) Hopane (T19)	51.705	191	19041M3	841.239	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	7376M3	325.875	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	4905M3	216.705	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	5101M3	225.364	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	1832M3	80.938	ng/ml	
98) C26 Tricyclic Terpane-22S	43.739	191	2216M3	97.904	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	2138M3	94.458	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	1934M3	85.445	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2216	97.904	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.795	191	2503	110.584	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	2340	103.382	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	3632	160.463	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2276M3	100.555	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2192M3	96.843	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHAO85
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107) 17a(H)-22,29,30-Trisnorho	48.588	191	4379M3	193.466	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	1128M3	49.835	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.566	191	1049M3	46.345	ng/ml	
110) 30-Norhopane (T15)	50.395	191	10889M3	481.080	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	2681	118.448	ng/ml	100
112) 17a(H)-Diahopane (X)	50.621	191	1680	74.223	ng/ml	100
113) 30-Normoretane (T17)	51.133	191	1466M3	64.768	ng/ml	
115) Moretane (T20)	52.368	191	2166M3	95.695	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	8421	372.043	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	7180	317.215	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	1591	70.291	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.928	191	6065	267.954	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.289	191	4288M3	189.446	ng/ml	
121) 30,31-Trishomohopane-22S	56.976	191	4797	211.933	ng/ml	100
122) 30,31-Trishomohopane-22R	57.563	191	3199	141.333	ng/ml	100
123) Tetrakishomohopane-22S (T	59.490	191	3005M3	132.762	ng/ml	
124) Tetrakishomohopane-22R (T	60.364	191	2419M3	106.872	ng/ml	
125) Pentakishomohopane-22S (T	62.502	191	2906M3	128.388	ng/ml	
126) Pentakishomohopane-22R (T	63.737	191	2542M3	112.307	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	3371M3	313.950	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1569M3	146.125	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.057	217	1285M3	119.676	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	3613	336.488	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4451	414.534	ng/ml	100
133) Unknown Sterane (S18)	47.699	217	1179	109.803	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.940	217	189	17.602	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.091	217	2420M3	225.381	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1976M3	184.030	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.145	217	2827M3	263.286	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2562M3	238.606	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2176	202.657	ng/ml	100
140) 14b(H),17b(H)-20S-Cholest	47.097	218	2209	205.730	ng/ml	100
141) 14b,17b-20R-Methylcholest	48.271	218	2672	248.851	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	2890M3	269.154	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.386	218	3297M3	307.059	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2007M3	186.917	ng/ml	
145) C26,20R- +C27,20S- triaro	49.085	231	21707M3	2021.632	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	13241	1233.170	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	13476	1255.056	ng/mL	100
148) C28,20R-triaromatic stero	51.524	231	11568M3	1077.359	ng/mL	

AMM 5/30/12

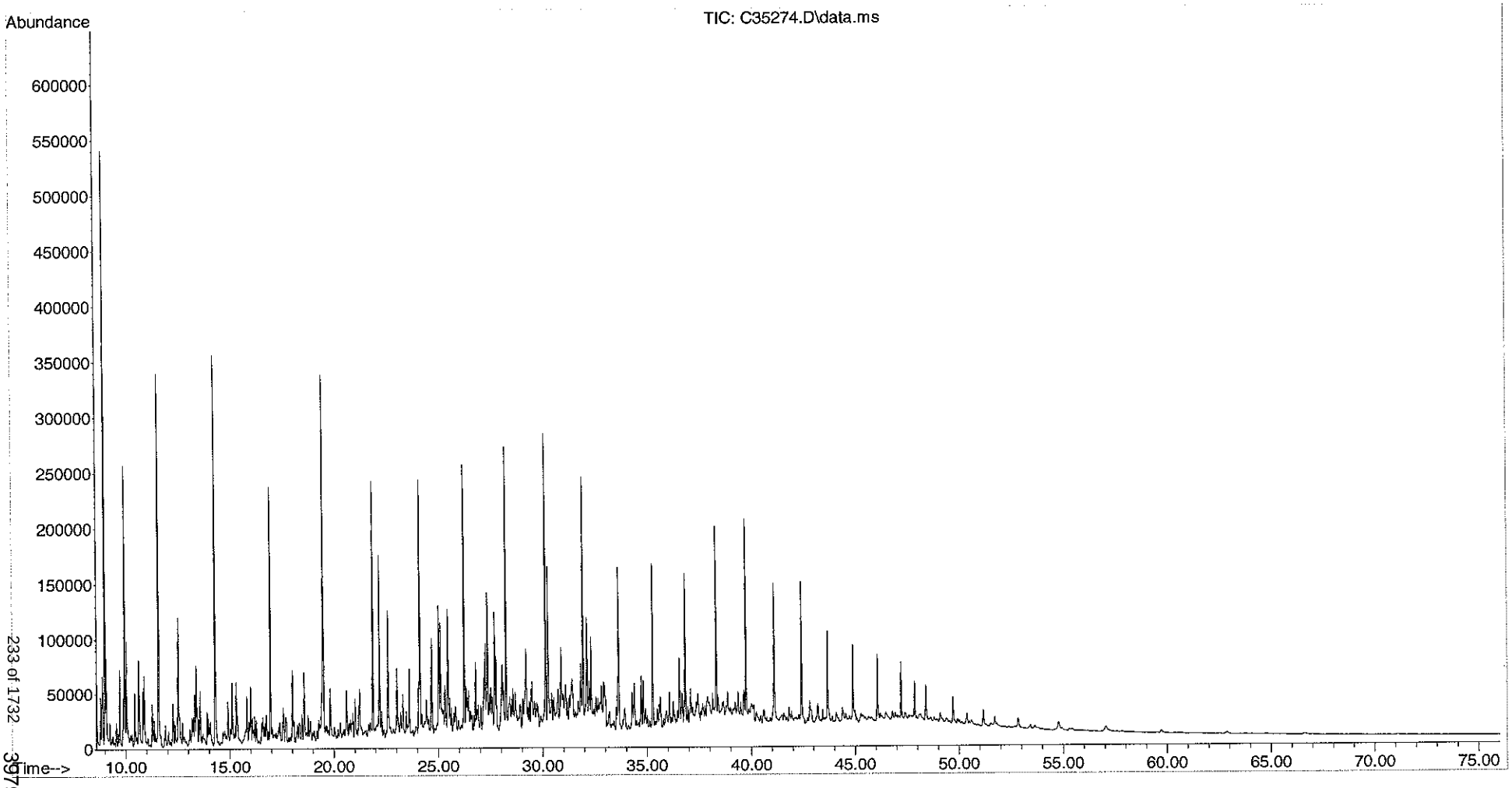
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHA085
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result	
cis/trans-Decalin	**489**	
C1-Decalins	**694**	
C2-Decalins	**578**	
C3-Decalins	**286**	
C4-Decalins	**278**	
Benzothiophene	**4.52**	
C1-Benzo(b)thiophenes	**22.7**	
C2-Benzo(b)thiophenes	**45.2**	
C3-Benzo(b)thiophenes	**89.2**	
C4-Benzo(b)thiophenes	**75.8**	
Naphthalene	**550**	
C1-Naphthalenes	**1120**	
C2-Naphthalenes	**1330**	
C3-Naphthalenes	**914**	
C4-Naphthalenes	**466**	
Biphenyl	**145**	
Dibenzofuran	**50.1**	
Acenaphthylene	**6.44**	
Acenaphthene	**18.6**	
Fluorene	**71.6**	
C1-Fluorenes	**160**	
C2-Fluorenes	**228**	
C3-Fluorenes	**202**	
Anthracene	1.92	U
Phenanthrene	**213**	
C1-Phenanthrenes/Anthracenes	**401**	
C2-Phenanthrenes/Anthracenes	**411**	
C3-Phenanthrenes/Anthracenes	**285**	
C4-Phenanthrenes/Anthracenes	**113**	
Retene	1.92	U
Dibenzothiophene	**135**	
C1-Dibenzothiophenes	**251**	
C2-Dibenzothiophenes	**338**	

Parameter	Result	
C3-Dibenzothiophenes	**298**	
C4-Dibenzothiophenes	**156**	
Benzo(b)fluorene	**6.30**	
Fluoranthene	**4.01**	
Pyrene	**13.4**	
C1-Fluoranthenes/Pyrenes	**63.4**	
C2-Fluoranthenes/Pyrenes	**99.2**	
C3-Fluoranthenes/Pyrenes	**111**	
C4-Fluoranthenes/Pyrenes	**104**	
Naphthobenzothiophenes	**43.6**	
C1-Naphthobenzothiophenes	**113**	
C2-Naphthobenzothiophenes	**155**	
C3-Naphthobenzothiophenes	**118**	
C4-Naphthobenzothiophenes	**77.2**	
Benz[a]anthracene	**1.77**	J
Chrysene/Triphenylene	**33.1**	
C1-Chrysenes	**61.2**	
C2-Chrysenes	**80.0**	
C3-Chrysenes	**85.6**	
C4-Chrysenes	**53.4**	
Benzo[b]fluoranthene	**5.25**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.92	U
Benzo[a]fluoranthene	1.92	U
Benzo[e]pyrene	**9.61**	
Benzo[a]pyrene	**1.96**	
Perylene	**2.68**	
Indeno[1,2,3-cd]pyrene	**0.685**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**0.849**	J
Benzo[g,h,i]perylene	**3.08**	

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	**5.21**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**121**
2/3-Methyldibenzothiophene	**84.4**
1-Methyldibenzothiophene	**40.5**
3-Methylphenanthrene	**82.1**
2-Methylphenanthrene	**92.4**
2-Methylanthracene	**2.96**
9/4-Methylphenanthrene	**129**
1-Methylphenanthrene	**92.7**
2-Methylnaphthalene	**1110**
1-Methylnaphthalene	**798**
2,6-Dimethylnaphthalene	**673**
2,3,5-Trimethylnaphthalene	**189**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **ST032912ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/27/12	100	0.0521	10	1	AC

Parameter	Result	
C23 Tricyclic Terpane	**65.1**	
C24 Tricyclic Terpane	**41.4**	
C25 Tricyclic Terpane	**41.4**	
C24 Tetracyclic Terpane	**14.5**	
C26 Tricyclic Terpane-22S	**17.5**	
C26 Tricyclic Terpane-22R	**15.0**	
C28 Tricyclic Terpane-22S	**14.4**	
C28 Tricyclic Terpane-22R	**18.5**	
C29 Tricyclic Terpane-22S	**20.4**	
C29 Tricyclic Terpane-22R	**20.8**	
18a-22,29,30-Trisnorneohopane-TS	**26.8**	
C30 Tricyclic Terpane-22S	**16.6**	
C30 Tricyclic Terpane-22R	**16.9**	
17a(H)-22,29,30-Trisnorhopane-TM	**36.1**	
17a/b,21b/a 28,30-Bisnorhopane	**6.77**	
17a(H),21b(H)-25-Norhopane	**7.07**	
30-Norhopane	**96.2**	
18a(H)-30-Norneohopane-C29Ts	**22.2**	
17a(H)-Diahopane	**14.2**	
30-Normoretane	**12.0**	
18a(H)&18b(H)-Oleananes	1.92	U
Hopane	**166**	
Moretane	**16.1**	
30-Homohopane-22S	**66.5**	
30-Homohopane-22R	**56.9**	
T22a-Gammacerane/C32-diahopane	**11.8**	
30,31-Bishomohopane-22S	**47.0**	
30,31-Bishomohopane-22R	**35.0**	

Parameter	Result
30,31-Trishomohopane-22S	**36.7**
30,31-Trishomohopane-22R	**24.0**
Tetrakishomohopane-22S	**25.7**
Tetrakishomohopane-22R	**19.4**
Pentakishomohopane-22S	**27.7**
Pentakishomohopane-22R	**21.0**
13b(H),17a(H)-20S-Diacholestane	**54.4**
13b(H),17a(H)-20R-Diacholestane	**25.2**
13b,17a-20S-Methyldiacholestane	**20.7**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**60.9**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**73.3**
Unknown Sterane (S18)	**18.8**
13a,17b-20S-Ethyldiacholestane	**3.48**
14a,17a-20S-Methylcholestane	**36.5**
14a,17a-20R-Methylcholestane	**34.2**
14a(H),17a(H)-20S-Ethylcholestane	**53.5**
14a(H),17a(H)-20R-Ethylcholestane	**35.6**
14b(H),17b(H)-20R-Cholestane	**38.7**
14b(H),17b(H)-20S-Cholestane	**40.3**
14b,17b-20R-Methylcholestane	**41.3**
14b,17b-20S-Methylcholestane	**52.7**
14b(H),17b(H)-20R-Ethylcholestane	**57.8**
14b(H),17b(H)-20S-Ethylcholestane	**36.7**
C26,20R- +C27,20S- triaromatic steroid	**392**
C28,20S-triaromatic steroid	**240**
C27,20R-triaromatic steroid	**223**
C28,20R-triaromatic steroid	**190**

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\ICALS\ICAL3032612NEW\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85
ALS Vial : 13 Sample Multiplier: 1

MAL & SR 5/17/12

Quant Time: May 17 13:02:04 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	16662M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	69136M4	956.009	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%			
42) Phenanthrene-d10	32.793	188	60729M4	1062.426	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%			
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%			
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337	ng/mL	
4) cis-Decalin	17.844	138	1522	153.534	ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211	ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213	ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392	ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858	ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688	ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971	ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710	ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463	ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700	ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711	ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600	ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545	ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112	ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565	ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934	ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823	ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618	ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060	ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553	ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471	ng/mL	
29) Fluorene	29.075	166	25536M4	373.033	ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256	ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195	ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727	ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049	ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158	ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297	ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297	ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393	ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276	ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068	ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\ICALS\ICAL3032612NEW\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 17 13:02:04 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551	ng/mL	
45)	2-Methylphenanthrene(2MP)	34.946	192	46400M4	481.280	ng/mL	
46)	2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47)	9/4-Methylphenanthrene(9M	35.292	192	64818	672.319	ng/mL	98
48)	1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49)	C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50)	C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50)	C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	
52)	C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53)	C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56)	Carbazole	33.726	167	2583M3	27.154	ng/mL	
57)	1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58)	Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59)	Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60)	Pyrene	38.529	202	6787M4	69.730	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66)	Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67)	Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68)	Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69)	Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70)	C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71)	C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72)	C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73)	C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75)	Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76)	Chrysene	43.438	228	16140M3	173.194	ng/mL	
77)	Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78)	C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79)	C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79)	C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80)	C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81)	C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82)	Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85)	Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87)	Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88)	Perylene	48.874	252	1440M4	13.950	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91)	Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92)	Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93)	17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94)	C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96)	C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97)	C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98)	C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\ICALS\ICAL3032612NEW\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHAO85
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 17 13:02:04 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/mL	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

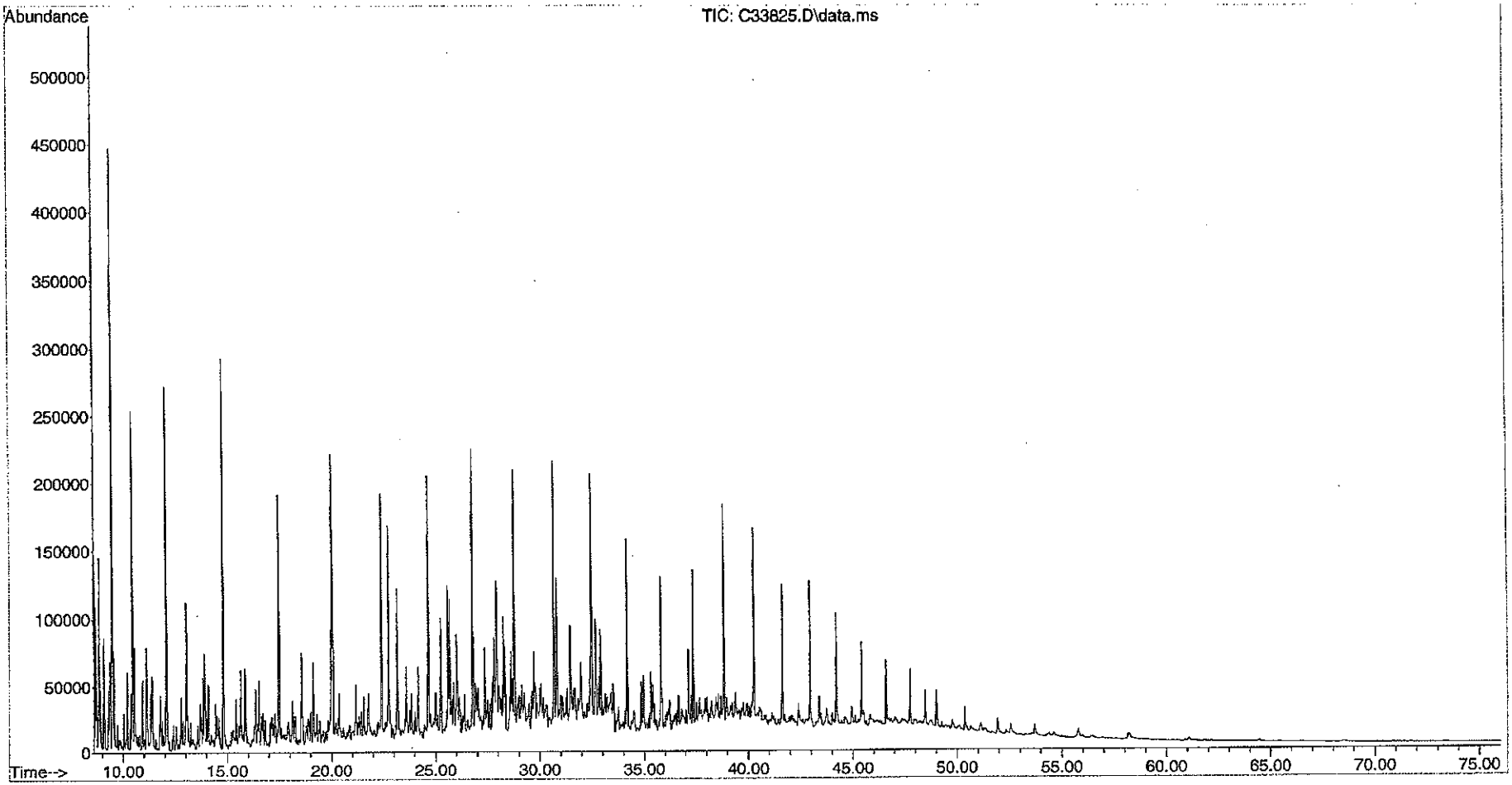
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\ICALS\ICAL3032612NEW\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : AC
Sample : ST032912ANS02
Misc : WHA085
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 17 13:02:04 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:54:56 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed



Alpha Woods Hole Lab
Batch Weight Report
05/25/2012

Lab ID	QC Type	PS052512 - Pan Weight	PS052512 - Wet Weight	PS052512 - Dry Weight	PS052512 - Dry Weight #2	PS052512 - Dry Weight #3	Percent Solid	RPD
1205027-05	D	1.31	5.48	2.25	2.25		22.54	0.22%
1205027-05	SAM	1.31	5.56	2.27	2.27		22.59	
1205027-06	SAM	1.3	8.04	2.88	2.88		23.44	
1205027-07	SAM	1.29	8.43	5.79	5.79		63.03	
1205027-08	SAM	1.31	7.67	3.64	3.64		36.64	
PSS052512B01	B	1.31	1.31	1.31	1.31		100.00	

Initial: 5/25/2012 12:16:08 PM KJB
Weight #1: 5/29/2012 8:33:52 AM KJB
Weight #2: 5/29/2012 10:03:04 AM KJB

Alpha Woods Hole Lab
Batch Prep Report
05/23/2012 1205027SHEEN - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1205027-01	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-02	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-03	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-04	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312B08	B	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312LCS03	LCS	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312LCSD03	LCSD	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027SHEEN - OP NEWFIE Analyst: CTK Witness: AMK

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1205027-01	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-02	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-03	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-04	SAM	WHAP46	100	µl	WHAP57	100	µl			
SO052312B08	B	WHAP46	100	µl	WHAP57	100	µl			
SO052312LCS03	LCS	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl
SO052312LCSD03	LCSD	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP57	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L08E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027SHEEN - OP SHC Analyst: CTK Witness: AMK

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1205027-01	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-02	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-03	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-04	SAM	WHAP46	100	µl				WHAP48	50	µl
SO052312B08	B	WHAP46	100	µl				WHAP48	50	µl
SO052312LCS03	LCS	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
SO052312LCSD03	LCSD	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP48	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L05E10
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

ETR 1205027SHEEN

Analyst DB

Date 05/23/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.256	51.20	N/A	N/A	N/A	100%
	1		4000	50	0.012	0.96	2000	0.48	2.00	
	2		4000	50	0.014	1.12	2000	0.56	2.00	
	3		4000	50	0.010	0.80	2000	0.40	2.00	
	4		4000	50	0.010	0.80	2000	0.40	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: DB

Date: 5/23/2012

ETR 1205027SHEEN

Analyst

Date 05/23/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	5.23-12		N/A	N/A	N/A	0%
	1		4000	50	~~.006~~ .012					
	2		4000	50	.014					
	3		4000	50	.010					
	4		4000	50	.010					

Note:
Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: [illegible]
Date: 5-23-12

247 of 1732 3993

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027SHEEN - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-01	SAM	split	DB	5/23/2012							4	2	2			True
1205027-02	SAM	split	DB	5/23/2012							4	2	2			True
1205027-03	SAM	split	DB	5/23/2012							4	2	2			True
1205027-04	SAM	split	DB	5/23/2012							4	2	2			True
SO052312B08	B	split	DB	5/23/2012							4	2	2			True
SO052312LCS03	LCS	split	DB	5/23/2012							4	2	2			True
SO052312LCSD03	LCSD	split	DB	5/23/2012							4	2	2			True

Forensic Preparation Checklist

Batch ID: 120527SHEEN Client: AECOM Project: Enbridge

Test(s) Spiked for:
Choose from the following:
F1B, POIB, POIH, POIHX, POITAS, TPH+A

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	5/23/12	CTK
1st Extraction:	↓	↓
2nd Extraction:		
3rd Extraction:	↓	↓

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	5/23/12 CTK
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		
	Date/Initials:	ID & Amount:
RIS Spike Analyst:	5-23-12 BJ	WHAPH8
RIS Spike Witness:	5/23/12 CTK	50ml

Prep Process Notes

REAGENT	LOT #
DCM	411E21
SODIUM SULFATE	K21617
SILICA GEL	
ALUMINA	

REAGENT	LOT #
COPPER	
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	BJ	Date:	5-23-12
BATCH REVIEWED Analyst:	CTK	Date:	5/23/12

Alpha Woods Hole Lab
Batch Prep Report
05/23/2012 1205027sediment - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1205027-05	M	Shaker	PW	5/23/2012	5/24/2012		9.97	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-05	S	Shaker	PW	5/23/2012	5/24/2012		9.95	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-05	SAM	Shaker	PW	5/23/2012	5/24/2012		9.93	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-06	D	Shaker	PW	5/23/2012	5/24/2012		9.96	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-06	SAM	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-07	SAM	Shaker	PW	5/23/2012	5/24/2012		9.94	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-08	SAM	Shaker	PW	5/23/2012	5/24/2012		10.06	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312B03	B	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312C41BN01	C41BN	Shaker	PW	5/23/2012	5/24/2012		5	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312LCS01	LCS	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312LCSD01	LCSD	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012

Alpha Woods Hole Lab
Batch Prep Report

05/23/2012 1205027sediment - OP NEWFIE

Lab ID	Notes
1205027-05	1st Prep
1205027-05	1st Prep
1205027-05	1st Prep
1205027-06	1st Prep
1205027-06	1st Prep
1205027-07	1st Prep
1205027-08	1st Prep
SS052312B03	1st Prep
SS052312C41BN01	1st Prep
SS052312LCS01	1st Prep
SS052312LCSD01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027sediment - OP NEWFIE Analyst: PW Witness: KJD

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1205027-05	M	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl
1205027-05	S	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl
1205027-05	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-06	D	WHAP46	100	µl	WHAP57	100	µl			
1205027-06	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-07	SAM	WHAP46	100	µl	WHAP57	100	µl			
1205027-08	SAM	WHAP46	100	µl	WHAP57	100	µl			
SS052312B03	B	WHAP46	100	µl	WHAP57	100	µl			
SS052312C41BN01	C41BN	WHAP46	100	µl	WHAP57	100	µl			
SS052312LCS01	LCS	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl
SS052312LCSD01	LCSD	WHAP46	100	µl	WHAP57	100	µl	WHAP53	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP57	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L08E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027sediment - OP SHC Analyst: PW Witness: KJD

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1205027-05	M	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
1205027-05	S	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
1205027-05	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-06	D	WHAP46	100	µl				WHAP48	50	µl
1205027-06	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-07	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-08	SAM	WHAP46	100	µl				WHAP48	50	µl
SS052312B03	B	WHAP46	100	µl				WHAP48	50	µl
SS052312C41BN01	C41BN	WHAP46	100	µl				WHAP48	50	µl
SS052312LCS01	LCS	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
SS052312LCSD01	LCSD	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP48	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L05E10
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

Alpha Woods Hole Lab
Batch Weight Report
05/23/2012

Lab ID	QC Type	1205027sediment - Sample
1205027-05	SAM	9.93
1205027-05M	OP NEWFIE	9.97
1205027-05M	OP SHC	9.97
1205027-05S	OP NEWFIE	9.95
1205027-05S	OP SHC	9.95
1205027-06	D	9.96
1205027-06	SAM	10
1205027-07	SAM	9.94
1205027-08	SAM	10.06
SS052312B03	B	10
SS052312C41BN01	C41BN	5
SS052312LCS01LCS	OP NEWFIE	10
SS052312LCS01LCS	OP SHC	10
SS052312LCSD01LCSD	OP NEWFIE	10
SS052312LCSD01LCSD	OP SHC	10

ETR 1205027Sediment

Analyst CSL

Date 05/24/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☑ Pre-Silica
- ☐ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.247	49.40	N/A	N/A	N/A	96%
1205027	5	MS	4000	50	0.145	11.60	2000	5.80	2.00	
	5	MSD	4000	50	0.142	11.36	2000	5.68	2.00	
	5		4000	50	0.138	11.04	2000	5.52	2.00	
	6	D	4000	50	0.123	9.84	2000	4.92	2.00	7%
	6		4000	50	0.115	9.20	2000	4.60	2.00	
	7		4000	50	0.086	6.88	2000	3.44	2.00	
	8		4000	50	0.108	8.64	2000	4.32	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BLS

Date: 5/29/12

ETR 1205027Sediment

Analyst CSL

Date 05/24/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☑ Pre-Silica
- ☐ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	.247		N/A	N/A	N/A	0%
1205027	5	MS	4000	50	.145					
	5	MSD	4000	50	CSL ~~.142~~	.142				
	5		4000	50	.138					
	6	D	4000	50	.123					#VALUE!
	6		4000	50	.115					
	7		4000	50	.086					
	8		4000	50	.108					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BLS

Date: 5/29/12

256 of 1732

4002

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	3660B	CSL	5/24/2012											0.1	True
1205027-05	S	3660B	CSL	5/24/2012											0.1	True
1205027-05	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-06	D	3660B	CSL	5/24/2012											0.1	True
1205027-06	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-07	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-08	SAM	3660B	CSL	5/24/2012											0.1	True
SS052312B03	B	3660B	CSL	5/24/2012											0.1	True
SS052312C41BN01	C41BN	3660B	CSL	5/24/2012											0.1	True
SS052312LCS01	LCS	3660B	CSL	5/24/2012											0.1	True
SS052312LCSD01	LCSD	3660B	CSL	5/24/2012											0.1	True
SS052912ANS01	ANS	3660B														
SS052912CL01	CL	3660B														
SS052912WCS01	WCS	3660B														

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-05	S	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-05	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-06	D	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-06	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-07	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-08	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312B03	B	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312C41BN01	C41BN	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312LCS01	LCS	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312LCSD01	LCSD	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052912ANS01	ANS	3630														
SS052912CL01	CL	3630														
SS052912WCS01	WCS	3630														

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-05	S	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-05	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-06	D	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-06	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-07	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-08	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312B03	B	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312C41BN01	C41BN	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312LCS01	LCS	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312LCSD01	LCSD	split	AMK	5/23/2012							0.9	0.45	2			True

Forensic Preparation Checklist

Batch ID: 1205027 Client: AECOM Project: Enbridge

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

Extraction HT:
5/22/2013

	Date:	Initials:
COC/ETR Check:	5/23/12	PW
1st Extraction:	5/23/12	PW
2nd Extraction:	5-23-12	ZZ
3rd Extraction:	5-24-12	CSL

Cleanup Methods:		Date/Initials:
No Cleanup Required		
Alumina Column (3610)		
Silica Column (3630)	✓	5/24/12 PW
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)	✓	5/24/12 CSL
Water pH<2 verified		

Date/Initials:		ID & Amount:
RIS Spike Analyst:	5/24/12 CTK	50 uL WHAP 48
RIS Spike Witness:	5/24/12 AMK	

Prep Process Notes

REAGENT	LOT #
DCM	L11E21
SODIUM SULFATE	K21617
SILICA GEL	BCBF8072V
ALUMINA	

REAGENT	LOT #
COPPER	0WR052412B
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	AMK	Date:	5/24/12
BATCH REVIEWED Analyst:	BLS	Date:	5/29/12

Analysis log File

Total Files Reported in Log : 46
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MARCH12\MARCH26\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C33801.D	ANS303261201		3/26/2012 9:46 am
2	C33803.D	C303261201		3/26/2012 11:16 am
3	C33805.D	MC252		3/26/2012 12:48 pm
4	C33807.D	DCM	DCM	3/26/2012 2:21 pm
5	C33809.D	I303261201	WHAO40@10ng/ml	3/26/2012 3:53 pm
6	C33811.D	I303261202	WHAO41@25ng/ml	3/26/2012 5:27 pm
7	C33813.D	I303261203 PAH30326l2.M/	WHAO42@100ng/ml	3/26/2012 7:01 pm
8	C33815.D	I303261204	WHAP29@500ng/ml	3/26/2012 8:34 pm
9	C33817.D	I303261205 PAH30326l2NEW.M	WHAO88@5000ng/ml	3/26/2012 10:06 pm
10	C33819.D	I303261206	WHAO45@10000ng/ml	3/26/2012 11:37 pm
11	C33821.D	I303261207	WHAO47@20000ng/ml	3/27/2012 1:09 am
12	C33823.D	DCM		3/27/2012 2:40 am
13	C33825.D	ST032912ANS02	WHAO85 5.210 mg/ml	3/27/2012 4:11 am
14	C33827.D	DCM	DCM	3/27/2012 5:42 am
15	C33829.D	Q303261201	WHAN53@500ng/ml	3/27/2012 7:13 am
16	C33831.D	ST032912MC205	WHAP34: 5.178mg/ml	3/27/2012 8:45 am
17	C33833.D	SRM	WHAO79: 5.131mg/ml	3/27/2012 10:17 am
18	C33835.D	COREXIT	WHAN89	3/27/2012 11:51 am
19	C33837.D	C303261201	WHAP29@500ng/ml	3/27/2012 1:25 pm
20	C33839.D	WG525034-1,32	WG525373,WG525034	3/27/2012 2:58 pm
21	C33841.D	WG525034-2,32	WG525373,WG525034	3/27/2012 4:33 pm
22	C33843.D	WG525034-3,32	WG525373,WG525034	3/27/2012 6:06 pm
23	C33845.D	L1204660-01,32	WG525373,WG525034	3/27/2012 7:39 pm
24	C33847.D	L1204660-03,32	WG525373,WG525034	3/27/2012 9:11 pm
25	C33849.D	L1204660-05,32	WG525373,WG525034	3/27/2012 10:43 pm
26	C33851.D	L1204660-07,32	WG525373,WG525034	3/28/2012 12:18 am
27	C33853.D	L1204660-10,32	WG525373,WG525034	3/28/2012 1:50 am
28	C33855.D	C203261202	WG525373,WG525034	3/28/2012 3:21 am
29	C33857.D	SRM	WG525373,WG525034	3/28/2012 4:53 am
30	C33859.D	DCM	WG525373,WG525034	3/28/2012 6:24 am
31	C33861.D	L1204660-12,32	WG525373,WG525034	3/28/2012 7:56 am
32	C33863.D	L1204660-14,32	WG525373,WG525034	3/28/2012 9:27 am
33	C33865.D	L1204660-17,32	WG525373,WG525034	3/28/2012 11:00 am
34	C33867.D	L1204660-19,32	WG525373,WG525034	3/28/2012 12:33 pm
35	C33869.D	L1204660-21,32	WG525373,WG525034	3/28/2012 2:05 pm
36	C33871.D	L1204660-23,32	WG525373,WG525034	3/28/2012 3:38 pm
37	C33873.D	L1204660-25,32	WG525373,WG525034	3/28/2012 5:11 pm
38	C33875.D	L1204660-27,32	WG525373,WG525034	3/28/2012 6:43 pm
39	C33877.D	C203261203	WG525373,WG525034	3/28/2012 8:16 pm
40	C33879.D	SRM	WG525373,WG525034	3/28/2012 9:48 pm
41	C33881.D	DCM	WG525373,WG525034	3/28/2012 11:23 pm
42	C33883.D	WG525034-1,32	WG525373,WG525034	3/29/2012 12:59 am
43	C33885.D	WG525034-2,32	WG525373,WG525034	3/29/2012 2:33 am
44	C33887.D	WG525034-3,32	WG525373,WG525034	3/29/2012 4:06 am
45	C33891.D	L1204660-03,32	WG525373,WG525034	3/29/2012 7:11 am
46	C33893.D	L1204660-05,32	WG525373,WG525034	3/29/2012 8:47 am

MM 3/29/12

Printed: 03/29/12 Page: 1

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 62
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C35268.D	prime	1x	5/24/2012 11:06 am
2	C35270.D	✓C305241201 pass	CC WHAP59 500NG/ML	5/24/2012 12:38 pm
3	C35272.D	DCM	DCM	5/24/2012 2:13 pm
4	C35274.D	✓SS052912ANS01	ANS WHAO85	5/24/2012 3:45 pm
5	C35276.D	✓SS052912WCS01	ANS WHAP10	5/24/2012 5:15 pm
6	C35278.D	✓SS052912CL01	ANS WHAP12	5/24/2012 6:45 pm
7	C35280.D	DCM	DCM	5/24/2012 8:17 pm
8	C35282.D	DCM	DCM	5/24/2012 9:49 pm
9	C35284.D	✓SO052312B08	1X ETR1205027	5/24/2012 11:22 pm
10	C35286.D	✓SO052312LCS03	1X ETR1205027	5/25/2012 12:55 am
11	C35288.D	✓SO052312LCSD03	1X ETR1205027	5/25/2012 2:27 am
12	C35290.D	✓C305241202 pass	CC WHAP59 500NG/ML	5/25/2012 3:59 am
13	C35292.D	✓1205027-01	1X	5/25/2012 5:31 am
14	C35294.D	✓1205027-02	1X	5/25/2012 7:03 am
15	C35296.D	✓1205027-03	1X	5/25/2012 8:36 am
16	C35298.D	1205027-04 – additional Cu clean needed	1X	5/25/2012 10:09 am
17	C35300.D	✓C305241203 pass	CC WHAP59 500NG/ML	5/25/2012 11:46 am
18	C35302.D	DCM	DCM	5/25/2012 1:17 pm
19	C35304.D	DCM	DCM	5/25/2012 2:49 pm
20	C35306.D	✓SS052312B03	1X ETR1205027	5/25/2012 4:21 pm
21	C35308.D	✓SS052312C41BN01	1X ETR1205027	5/25/2012 5:54 pm
22	C35310.D	✓SS052312LCS01	1X ETR1205027	5/25/2012 7:24 pm
23	C35312.D	✓SS052312LCSD01	1X ETR1205027	5/25/2012 8:57 pm
24	C35314.D	✓1205027-05	1X	5/25/2012 10:30 pm
25	C35316.D	✓1205027-05M	1X	5/26/2012 12:05 am
26	C35318.D	✓1205027-05S	1X	5/26/2012 1:42 am
27	C35320.D	✓1205027-06	1X	5/26/2012 3:19 am
28	C35322.D	✓1205027-06D	1X	5/26/2012 4:55 am
29	C35324.D	✓1205027-07	1X	5/26/2012 6:32 am
30	C35326.D	✓1205027-08	1X	5/26/2012 8:09 am
31	C35328.D	✓C305241204 pass	CC WHAP59 500NG/ML	5/26/2012 9:43 am
32	C35330.D	L1208338-14	1X RERUN CONFRIM	5/26/2012 11:18 am
33	C35332.D	WG538198-4	1X RERUN CONFRIM	5/26/2012 12:54 pm
34	C35334.D	WG538198-5	1X RERUN CONFRIM	5/26/2012 2:30 pm
35	C35336.D	L1208338-29 CU CLEAN	1X	5/26/2012 4:06 pm
36	C35338.D	DCM	DCM	5/26/2012 5:43 pm
37	C35340.D	DCM	DCM	5/26/2012 7:20 pm
38	C35342.D	WG537880-1,32	WG,BLK	5/26/2012 8:57 pm
39	C35344.D	WG537880-2,32	WG,LCS	5/26/2012 10:33 pm
40	C35346.D	WG537880-3,32	WG,LCSD	5/27/2012 12:10 am
41	C35348.D	L1208949-17	1X	5/27/2012 1:46 am
42	C35350.D	C305241205	CC WHAP59 500NG/ML	5/27/2012 3:21 am
43	C35352.D	L1208338-03	1X CONFRIM	5/27/2012 4:57 am
44	C35354.D	L1208338-07		5/27/2012 6:32 am
45	C35356.D	C305241206 pass	CC WHAP59 500NG/ML	5/27/2012 8:07 am
46	C35358.D			5/27/2012 9:42 am
47	C35360.D			5/27/2012 11:19 am
48	C35362.D			5/27/2012 12:59 pm
49	C35364.D	WG536064-1,32 pass	WG536064	5/27/2012 2:39 pm
50	C35366.D	DCM		5/27/2012 4:18 pm
51	C35368.D	DCM		5/27/2012 5:57 pm
52	C35370.D	WG538347-1,32	WG536064,WG538347,ICAL6..	5/27/2012 7:38 pm
53	C35372.D	WG538347-2,32	WG536064,WG538347,ICAL6..	5/27/2012 9:15 pm
54	C35374.D	WG538347-3,32	WG536064,WG538347,ICAL6..	5/27/2012 10:51 pm

Analysis log File

Total Files Reported in Log : 62
Log Generated From Directory: O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
55	C35376.D	L1207546-15,32	WG536064,WG538347,ICAL6..	5/28/2012 12:27 am
56	C35378.D	L1207546-16,32	WG536064,WG538347,ICAL6..	5/28/2012 2:03 am
57	C35380.D	✓C305241208 pass	CC WHAP59 500NG/ML	5/28/2012 3:38 am
58	C35382.D	✓1205027-04	CU CLEANED	5/28/2012 5:13 am
59	C35384.D	✓C305241209 pass	CC WHAP59 500NG/ML	5/28/2012 6:46 am
60	C35386.D	C305271204 pass	CC WHAP59 500NG/ML	5/28/2012 10:04 am
61	C35388.D	L1207456-15	1X RECLEAN	5/28/2012 11:37 am
62	C35390.D	C305271205 pass	CC WHAP59 500NG/ML	5/28/2012 1:09 pm

PAH3032612 NEW.M
CCU=WHAP59 @ 500ng/ml
MK 5/29/12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Total Saturated Hydrocarbons By GC/FID

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO052312B08	94	95
LCS	SO052312LCS03	96	97
LCSD	SO052312LCSD03	98	98
SWKR3975C001S052212HX	1205027-01	94	94
SWKR3975C002S052212HX	1205027-02	94	94
SWKR3990L001S052212HX	1205027-03	84	84
SWKR4010L001S052212HX	1205027-04	92	92

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1205027**
Matrix: **Sediment**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SS052312B03	81	81
LCS	SS052312LCS01	87	87
LCSD	SS052312LCSD01	85	85
SEKR3975C001S052212D005	1205027-05	76	75
SEKR3975C001S052212D005	1205027-05 M	77	76
SEKR3975C001S052212D005	1205027-05 S	76	76
SEKR3975C002S052212D005	1205027-06	79	78
SEKR3975C002S052212D005	1205027-06 D	77	75
SEKR4010L001S052212D003	1205027-07	78	78
SEKR3990L001S052212D005	1205027-08	79	79

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/23/12	100	JT

Lab ID:		SO052312B08	SO052312LCS03		SO052312LCSD03				
Parameter	**Blank Conc.**		**LCS Conc.**	**LCS % Recovery**	**LCSD Conc.**	**LCSD % Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	1.00	U	14.7	74	14.7	74	0	30	50-125
n-Decane (C10)	1.00	U	15.7	79	16.1	80	2	30	50-125
n-Dodecane (C12)	1.00	U	17.1	85	17.7	89	4	30	50-125
n-Tetradecane (C14)	1.00	U	17.5	87	18.1	90	3	30	50-125
n-Hexadecane (C16)	1.00	U	20.8	104	19.6	98	6	30	50-125
n-Octadecane (C18)	0.804		21.9	109	22.4	112	2	30	50-125
n-Nonadecane (C19)	1.00	U	19.6	98	20.0	100	2	30	50-125
n-Eicosane (C20)	1.00	U	19.9	100	20.3	102	2	30	50-125
n-Docosane (C22)	1.00	U	20.0	100	20.4	102	2	30	50-125
n-Tetracosane (C24)	1.00	U	20.2	101	20.5	103	2	30	50-125
n-Hexacosane (C26)	0.00700		20.0	100	20.3	102	2	30	50-125
n-Octacosane (C28)	0.278		20.2	101	20.6	103	2	30	50-125
n-Triacontane (C30)	1.00	U	20.1	101	20.4	102	2	30	50-125
n-Hexatriacontane (C36)	0.0330		19.7	99	20.0	100	1	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	96	98	40-125
d50-Tetracosane	97	98	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/30/12 09:13

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/23/12	100	JT

Lab ID:		SS052312B03	SS052312LCS01		SS052312LCSD01				
Parameter		**Blank Conc.**	**LCS Conc.**	**LCS % Recovery**	**LCSD Conc.**	**LCSD % Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)		0.00100	1.21	61	1.25	63	3	30	50-125
n-Decane (C10)		0.000800	1.13	57	1.14	57	1	30	50-125
n-Dodecane (C12)		0.0282 U	1.28	64	1.26	63	1	30	50-125
n-Tetradecane (C14)		0.0208 U	1.29	65	1.26	63	2	30	50-125
n-Hexadecane (C16)		0.0192 U	1.46	73	1.42	71	2	30	50-125
n-Octadecane (C18)		0.0566	1.92	96	1.89	94	2	30	50-125
n-Nonadecane (C19)		0.0162 U	1.72	86	1.69	84	2	30	50-125
n-Eicosane (C20)		0.0111 U	1.75	87	1.72	86	1	30	50-125
n-Docosane (C22)		0.00120	1.77	89	1.76	88	1	30	50-125
n-Tetracosane (C24)		0.00180	1.80	90	1.78	89	1	30	50-125
n-Hexacosane (C26)		0.00320	1.78	89	1.77	88	1	30	50-125
n-Octacosane (C28)		0.0238	1.80	90	1.80	90	0	30	50-125
n-Triacontane (C30)		0.00360	1.79	89	1.78	89	0	30	50-125
n-Hexatriacontane (C36)		0.00220	1.74	87	1.74	87	0	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	87	85	40-125
d50-Tetracosane	87	85	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/30/12 09:13

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **See Below**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	22.6	JT

Lab ID:		1205027-05	1205027-05		1205027-05				
Parameter		**Sample Conc.**	**Matrix Spike Conc.**	**% Recovery**	**Matrix Spike Dup. Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)		0.0125	3.64	41[a]	3.64	41[a]	0	30	50-125
n-Decane (C10)		0.124 U	3.65	41[a]	3.66	41[a]	0	30	50-125
n-Dodecane (C12)		0.126 U	4.36	49[a]	4.38	49[a]	0	30	50-125
n-Tetradecane (C14)		0.0276	5.49	62	5.53	62	1	30	50-125
n-Hexadecane (C16)		0.0250	7.28	82	6.70	75	8	30	50-125
n-Octadecane (C18)		0.366	7.99	86	7.96	85	0	30	50-125
n-Nonadecane (C19)		0.347	7.16	77	6.94	74	3	30	50-125
n-Eicosane (C20)		0.144	7.09	78	7.09	78	0	30	50-125
n-Docosane (C22)		0.260	7.31	79	7.32	79	0	30	50-125
n-Tetracosane (C24)		0.482	7.37	78	7.18	75	3	30	50-125
n-Hexacosane (C26)		0.996	7.94	78	7.86	77	1	30	50-125
n-Octacosane (C28)		1.03	8.32	82	8.28	82	0	30	50-125
n-Triacontane (C30)		1.19	8.01	77	7.94	76	1	30	50-125
n-Hexatriacontane (C36)		0.395	6.76	72	6.66	70	2	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	77	76	40-125
d50-Tetracosane	76	76	40-125

N/A - Not Applicable
[a] - Value outside of QC Limits.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TO052512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	JT

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6600	106	65-135
n-Decane (C10)	5060	5290	104	65-135
n-Undecane (C11)	4640	4830	104	65-135
n-Dodecane (C12)	4121	4250	103	65-135
n-Tridecane (C13)	3859	4110	107	65-135
2,6,10 Trimethyldodecane (1380)	914	931	102	65-135
n-Tetradecane (C14)	3500	3900	112	65-135
2,6,10 Trimethyltridecane (1470)	1316	1440	109	65-135
n-Pentadecane (C15)	3836	3760	98	65-135
n-Hexadecane (C16)	3174	3540	112	65-135
Norpristane (1650)	1030	1110	107	65-135
n-Heptadecane (C17)	2818	3070	109	65-135
Pristane	2093	2250	108	65-135
n-Octadecane (C18)	2460	2780	113	65-135
Phytane	1213	1230	102	65-135
n-Nonadecane (C19)	2354	2350	100	65-135
n-Eicosane (C20)	2305	2440	106	65-135
n-Heneicosane (C21)	2077	2150	104	65-135
n-Docosane (C22)	2010	2060	102	65-135
n-Tricosane (C23)	1735	1800	104	65-135
n-Tetracosane (C24)	1629	1690	104	65-135
n-Pentacosane (C25)	1607	1610	100	65-135
n-Hexacosane (C26)	1333	1420	107	65-135
n-Heptacosane (C27)	1085	1160	107	65-135
n-Octacosane (C28)	770	800	104	65-135
n-Nonacosane (C29)	774	778	100	65-135
n-Triacontane (C30)	595	644	108	65-135
n-Hentriacontane (C31)	534	503	94	65-135
n-Dotriacontane (C32)	501	467	93	65-135
n-Tritriacontane (C33)	322	403	125	65-135
n-Tetratriacontane (C34)	289	350	121	65-135
n-Pentatriacontane (C35)	271	289	107	65-135
n-Hexatriacontane (C36)	166	208	125	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TO052512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	JT

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	165	114	65-135
n-Octatriacontane (C38)	136	142	104	65-135
n-Nonatriacontane (C39)	94.3	105	112	65-135
n-Tetracontane (C40)	86.5	107	124	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	580000	107	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TS032912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	5780	93	65-135
n-Decane (C10)	5060	4660	92	65-135
n-Undecane (C11)	4640	4320	93	65-135
n-Dodecane (C12)	4121	3730	91	65-135
n-Tridecane (C13)	3859	3560	92	65-135
2,6,10 Trimethyldodecane (1380)	914	787	86	65-135
n-Tetradecane (C14)	3500	3300	94	65-135
2,6,10 Trimethyltridecane (1470)	1316	1200	92	65-135
n-Pentadecane (C15)	3836	3340	87	65-135
n-Hexadecane (C16)	3174	2870	91	65-135
Norpristane (1650)	1030	1250	122	65-135
n-Heptadecane (C17)	2818	2690	95	65-135
Pristane	2093	2040	97	65-135
n-Octadecane (C18)	2460	2500	102	65-135
Phytane	1213	1130	93	65-135
n-Nonadecane (C19)	2354	2180	93	65-135
n-Eicosane (C20)	2305	2190	95	65-135
n-Heneicosane (C21)	2077	1920	93	65-135
n-Docosane (C22)	2010	1820	90	65-135
n-Tricosane (C23)	1735	1610	93	65-135
n-Tetracosane (C24)	1629	1520	93	65-135
n-Pentacosane (C25)	1607	1550	97	65-135
n-Hexacosane (C26)	1333	1260	94	65-135
n-Heptacosane (C27)	1085	1010	93	65-135
n-Octacosane (C28)	770	713	93	65-135
n-Nonacosane (C29)	774	696	90	65-135
n-Triacontane (C30)	595	569	96	65-135
n-Hentriacontane (C31)	534	438	82	65-135
n-Dotriacontane (C32)	501	480	96	65-135
n-Tritriacontane (C33)	322	346	107	65-135
n-Tetratriacontane (C34)	289	306	106	65-135
n-Pentatriacontane (C35)	271	224	83	65-135
n-Hexatriacontane (C36)	166	169	102	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TS032912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	142	98	65-135
n-Octatriacontane (C38)	136	110	81	65-135
n-Nonatriacontane (C39)	94.3	81.8	87	65-135
n-Tetracontane (C40)	86.5	91.3	106	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	507000	93	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	JT

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
n-Nonane (C9)	0.00939 JB	0.00771 JB	20	30
n-Decane (C10)	0.0171 J	0.0111 J	42[a]	30
n-Undecane (C11)	0.0930 U	0.0934 U	N/A	30
n-Dodecane (C12)	0.120 U	0.121 U	N/A	30
n-Tridecane (C13)	0.0145 J	0.0128 J	12	30
2,6,10 Trimethyldodecane (1380)	0.0265 J	0.0214 J	21	30
n-Tetradecane (C14)	0.0290 J	0.0266 J	9	30
2,6,10 Trimethyltridecane (1470)	0.118 J	0.101 J	15	30
n-Pentadecane (C15)	0.102 J	0.106 J	5	30
n-Hexadecane (C16)	0.0418 J	0.0377 J	10	30
Norpristane (1650)	0.0674 J	0.0557 J	19	30
n-Heptadecane (C17)	0.468 J	0.463 J	1	30
Pristane	0.311 J	0.304 J	2	30
n-Octadecane (C18)	0.175 CJB	0.177 CJB	1	30
Phytane	0.555 J	0.541 J	3	30
n-Nonadecane (C19)	0.303 J	0.301 J	1	30
n-Eicosane (C20)	0.130 J	0.123 J	6	30
n-Heneicosane (C21)	0.376 J	0.367 J	3	30
n-Docosane (C22)	0.152 J	0.170 J	12	30
n-Tricosane (C23)	0.645 J	0.612 J	5	30
n-Tetracosane (C24)	0.233 J	0.209 J	11	30
n-Pentacosane (C25)	2.38 C	2.32 C	3	30
n-Hexacosane (C26)	1.01	0.894	12	30
n-Heptacosane (C27)	5.23	4.90	7	30
n-Octacosane (C28)	1.61	1.43	12	30
n-Nonacosane (C29)	5.06	4.31	16	30
n-Triacontane (C30)	1.63	1.29	23	30
n-Hentriacontane (C31)	4.51	3.81	17	30
n-Dotriacontane (C32)	0.571 J	0.337 J	52[a]	30
n-Tritriacontane (C33)	3.82	3.55	7	30
n-Tetratriacontane (C34)	2.26	1.68	29	30
n-Pentatriacontane (C35)	0.813 J	0.416 J	65[a]	30
n-Hexatriacontane (C36)	0.657 J	0.273 J	82[a]	30
n-Heptatriacontane (C37)	1.84 G	1.47 G	22	30
n-Octatriacontane (C38)	0.679 J	0.327 J	70[a]	30

N/A - Not Applicable
[a] - Value outside of QC Limits.
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
05/22/12	05/23/12	05/23/12	23.4	JT

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
n-Nonatriacontane (C39)	**0.571** J	**0.218** J	90[a]	30
n-Tetracontane (C40)	**0.601** J	**0.265** J	78[a]	30
Total Petroleum Hydrocarbons (C9-C44)	**1360**	**1330**	2	30

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	79	77	40-125
d50-Tetracosane	78	75	40-125

N/A - Not Applicable
[a] - Value outside of QC Limits.
J - Estimated value, below quantitation limit.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

05/30/12 01:03

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Date Analyzed: **05/24/12 20:17**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO052312LCS03	05/24/12 21:46
LCSD	SO052312LCSD03	05/24/12 23:16
SWKR3975C001S052212HX	1205027-01	05/25/12 02:16
SWKR3975C002S052212HX	1205027-02	05/25/12 03:46
SWKR3990L001S052212HX	1205027-03	05/25/12 05:15
SWKR4010L001S052212HX	1205027-04	05/25/12 06:44

N/A - Not Applicable

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Date Analyzed: **05/25/12 12:40**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS052312LCS01	05/25/12 14:09
LCSD	SS052312LCSD01	05/25/12 15:38
SEKR3975C001S052212D005	1205027-05	05/25/12 18:35
SEKR3975C001S052212D005	1205027-05 M	05/25/12 20:04
SEKR3975C001S052212D005	1205027-05 S	05/25/12 21:32
SEKR3975C002S052212D005	1205027-06	05/25/12 23:00
SEKR3975C002S052212D005	1205027-06 D	05/26/12 00:30
SEKR4010L001S052212D003	1205027-07	05/26/12 02:01
SEKR3990L001S052212D005	1205027-08	05/26/12 03:31

N/A - Not Applicable

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\C693959.D
Time Acquired : 24 May 2012 3:50 pm

C605241202R 49248500

File	Sample	Internal Standard Responses
C693965.D	SO052312B08	55701687
C693967.D	SO052312LCS03	54324678
C693969.D	SO052312LCSD03	58133032
C693973.D	1205027-01	57309148
C693975.D	1205027-02	56907721
C693977.D	1205027-03	59375012
C693979.D	1205027-04	57496846
C693981.D	C605241203R	54652974

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 30 10:38:17 2012 FID6

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\C693981.D
Time Acquired : 25 May 2012 8:13 am

C605241203R 54653000

File	Sample	Internal Standard Responses
C693987.D	SS052312B03	109285443
C693989.D	SS052312LCS01	60881931
C693991.D	SS052312LCSD01	59850346
C693995.D	1205027-05	62361252
C693997.D	1205027-05M	60689932
C693999.D	1205027-05S	63840290
C694001.D	1205027-06	62350721
C694003.D	1205027-06D	62520753
C694005.D	1205027-07	63371498
C694007.D	1205027-08	64486037
C694009.D	C605241204R	53313687

(fails) - fails 24hr time check * - fails criteria

Created: Wed May 30 10:41:00 2012 FID6

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-01**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00600**	J	n-Docosane (C22)	**0.0480**	J
n-Decane (C10)	**0.0160**	J	n-Tricosane (C23)	**0.194**	J
n-Undecane (C11)	**0.0280**	J	n-Tetracosane (C24)	**0.0550**	J
n-Dodecane (C12)	**0.283**	J	n-Pentacosane (C25)	**1.13**	CB
n-Tridecane (C13)	**0.0700**	J	n-Hexacosane (C26)	**0.213**	J
2,6,10 Trimethyldodecane (1380)	**0.0140**	J	n-Heptacosane (C27)	**0.337**	J
n-Tetradecane (C14)	**0.401**	J	n-Octacosane (C28)	**2.04**	GB
2,6,10 Trimethyltridecane (1470)	**0.0450**	J	n-Nonacosane (C29)	**0.537**	J
n-Pentadecane (C15)	**0.288**	J	n-Triacontane (C30)	**1.08**	
n-Hexadecane (C16)	**0.242**	J	n-Hentriacontane (C31)	**0.636**	J
Norpristane (1650)	**0.208**	J	n-Dotriacontane (C32)	**0.602**	J
n-Heptadecane (C17)	**0.219**	J	n-Tritriacontane (C33)	**0.501**	J
Pristane	**0.215**	J	n-Tetratriacontane (C34)	**0.377**	J
n-Octadecane (C18)	**1.04**	CB	n-Pentatriacontane (C35)	**0.277**	J
Phytane	**0.239**	J	n-Hexatriacontane (C36)	**0.178**	JB
n-Nonadecane (C19)	**0.0990**	J	n-Heptatriacontane (C37)	**0.158**	J
n-Eicosane (C20)	**0.0420**	J	n-Octatriacontane (C38)	**0.102**	J
n-Heneicosane (C21)	**0.128**	J	n-Nonatriacontane (C39)	**0.0950**	J
			n-Tetracontane (C40)	**0.0590**	J
Total Petroleum Hydrocarbons (C9-C44)	**220**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	94	40-125
d50-Tetracosane	94	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693973.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 2:16 am
Operator : JT
Sample : 1205027-01
Misc : 1X
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.975	57309148	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.953	55072439	47.043 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 94.09%	
24) s d50-Tetracosane	35.636	44066180	47.148 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 94.30%	
Target Compounds			
2) t n-Octane (C8)	5.455	12386	0.014 ug/mL M4
3) t n-Nonane (C9)	7.630	5854	0.006 ug/mL M4
4) t n-Decane (C10)	10.123	15331	0.016 ug/mL M4
5) t n-Undecane (C11)	12.612	27502	0.028 ug/mL M4
6) t n-Dodecane (C12)	15.070	286540	0.283 ug/mL M4
7) t n-Tridecane (C13)	17.337	71015	0.070 ug/mL M4
8) t 1380	18.992	14612	0.014 ug/mL M4
9) t n-Tetradecane (C14)	19.504	411385	0.401 ug/mL M4
10) t 1470	20.813	45822	0.045 ug/mL M4
11) t n-Pentadecane (C15)	21.568	296009	0.288 ug/mL M4
12) t n-Hexadecane (C16)	23.513	251346	0.242 ug/mL M4
13) t 1650	24.414	214718	0.208 ug/mL M4
14) t n-Heptadecane (C17)	25.357	226416	0.219 ug/mL M4
15) t Pristane	25.454	226628	0.215 ug/mL M4
16) t n-Octadecane (C18)	27.106	1097807C	1.039 ug/mL M4
17) t Phytane	27.279	249292	0.239 ug/mL M4
18) t n-Nonadecane (C19)	28.793	103988	0.099 ug/mL M4
20) t n-Eicosane (C20)	30.394	44531	0.042 ug/mL M4
21) t n-Heneicosane (C21)	31.930	137665	0.128 ug/mL M4
22) t n-Docosane (C22)	33.396	51375	0.048 ug/mL M4
23) t n-Tricosane (C23)	34.806	209009	0.194 ug/mL M4
25) t n-Tetracosane (C24)	36.158	58577	0.055 ug/mL M4
26) t n-Pentacosane (C25)	37.469	1233914C	1.128 ug/mL M4
27) t n-Hexacosane (C26)	38.715	231629	0.213 ug/mL M4
28) t n-Heptacosane (C27)	39.923	360240	0.337 ug/mL M4
29) t n-Octacosane (C28)	41.079	2202145G	2.042 ug/mL M4
30) t n-Nonacosane (C29)	42.220	579383	0.537 ug/mL M4
31) t n-Triacontane (C30)	43.313	1154580	1.075 ug/mL M4
32) t n-Hentriacontane (C31)	44.365	685070	0.636 ug/mL M4
33) t n-Dotriacontane (C32)	45.391	644937	0.602 ug/mL M4
34) t n-Tritriacontane (C33)	46.383	519663	0.501 ug/mL M4
35) t n-tetratriacontane (C34)	47.363	398063	0.377 ug/mL M4
36) t n-Pentatriacontane (C35)	48.437	298552	0.277 ug/mL M4
37) t n-Hexatriacontane (C36)	49.659	195983	0.178 ug/mL M4
38) t n-Heptatriacontane (C37)	51.068	169159	0.158 ug/mL M4
39) t n-Octatriacontane (C38)	52.721	109707	0.102 ug/mL M4
40) t n-Nonatriacontane (C39)	54.654	94712	0.095 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693973.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 2:16 am
Operator : JT
Sample : 1205027-01
Misc : 1X
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

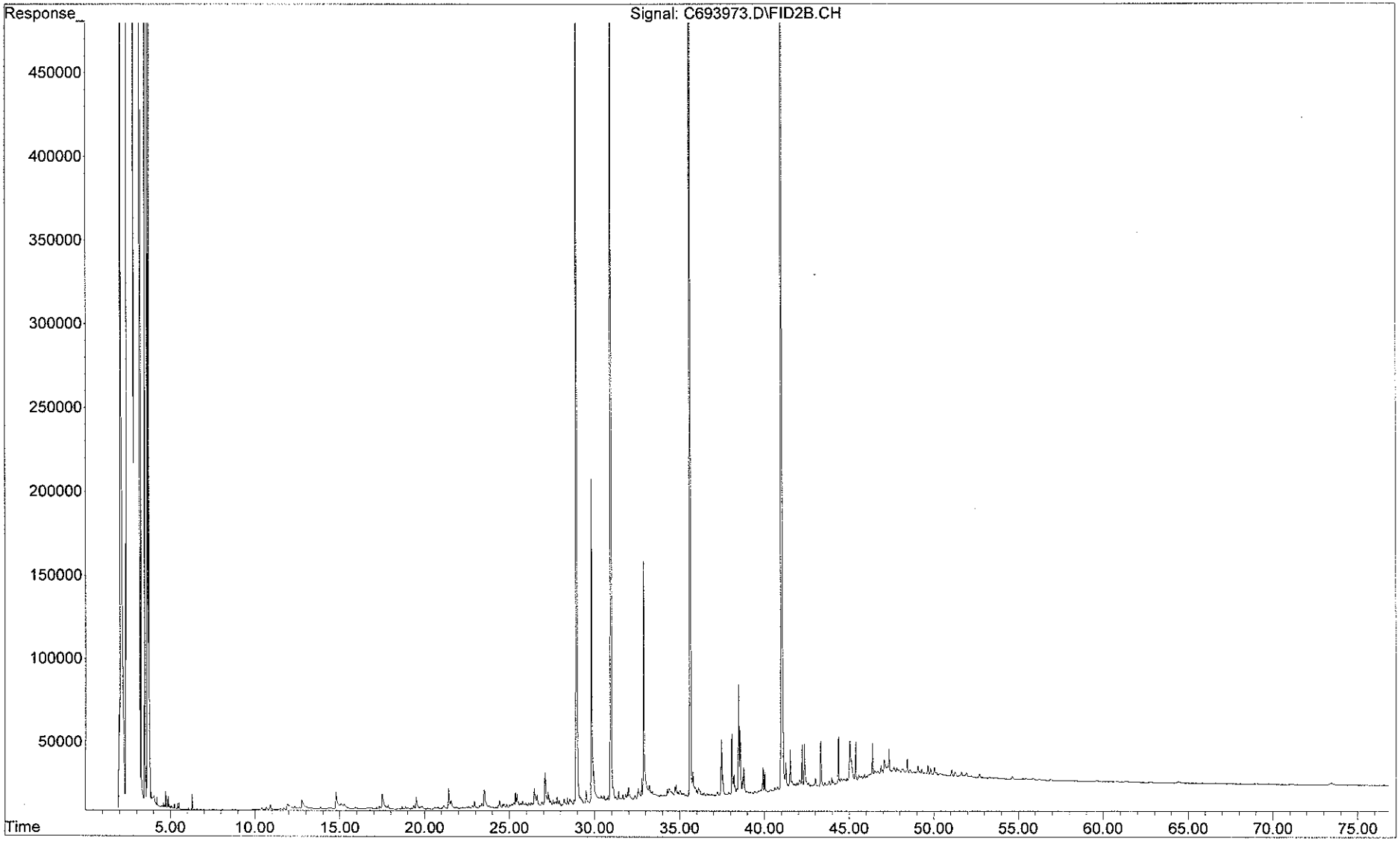
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.905	58956	0.059	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	612847445	583.085	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	114961446	109.378	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693973.D
Operator : JT
Acquired : 25 May 2012 2:16 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-01
Misc Info : 1X
ALS Vial : 61



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3975C002S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-02**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	JT

Parameter	Result	
n-Nonane (C9)	**0.00600**	J
n-Decane (C10)	**0.0170**	J
n-Undecane (C11)	**0.0260**	J
n-Dodecane (C12)	**0.323**	J
n-Tridecane (C13)	**0.0810**	J
2,6,10 Trimethyldodecane (1380)	**0.0190**	J
n-Tetradecane (C14)	**0.438**	J
2,6,10 Trimethyltridecane (1470)	**0.0540**	J
n-Pentadecane (C15)	**0.192**	J
n-Hexadecane (C16)	**0.170**	J
Norpristane (1650)	**0.190**	J
n-Heptadecane (C17)	**0.0980**	J
Pristane	**0.227**	J
n-Octadecane (C18)	**0.944**	CJB
Phytane	**0.221**	J
n-Nonadecane (C19)	**0.0920**	J
n-Eicosane (C20)	**0.0380**	J
n-Heneicosane (C21)	**2.25**	
Total Petroleum Hydrocarbons (C9-C44)	**337**	

Parameter	Result	
n-Docosane (C22)	**0.0520**	J
n-Tricosane (C23)	**0.220**	J
n-Tetracosane (C24)	**0.0440**	J
n-Pentacosane (C25)	**1.27**	CB
n-Hexacosane (C26)	**0.107**	J
n-Heptacosane (C27)	**0.299**	J
n-Octacosane (C28)	**1.26**	GB
n-Nonacosane (C29)	**0.556**	J
n-Triacontane (C30)	**0.809**	J
n-Hentriacontane (C31)	**0.531**	J
n-Dotriacontane (C32)	**0.404**	J
n-Tritriacontane (C33)	**0.409**	J
n-Tetratriacontane (C34)	**0.386**	J
n-Pentatriacontane (C35)	**0.270**	J
n-Hexatriacontane (C36)	**0.155**	JB
n-Heptatriacontane (C37)	**0.144**	J
n-Octatriacontane (C38)	**0.102**	J
n-Nonatriacontane (C39)	**0.0700**	J
n-Tetracontane (C40)	**0.0560**	J

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	94	40-125
d50-Tetracosane	94	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693975.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 3:46 am
Operator : JT
Sample : 1205027-02
Misc : 1X
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:08 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.975	56907721	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.953	54443063	46.834 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	93.67%
24) s	d50-Tetracosane	35.635	43762420	47.153 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	94.31%
	Target Compounds			
2) t	n-Octane (C8)	5.454	10711	0.012 ug/mL M4
3) t	n-Nonane (C9)	7.626	5548	0.006 ug/mL M4
4) t	n-Decane (C10)	10.122	16195	0.017 ug/mL M4
5) t	n-Undecane (C11)	12.610	25959	0.026 ug/mL M4
6) t	n-Dodecane (C12)	15.064	323846	0.323 ug/mL M4
7) t	n-Tridecane (C13)	17.328	81775	0.081 ug/mL M4
8) t	1380	18.989	19267	0.019 ug/mL M4
9) t	n-Tetradecane (C14)	19.500	446359	0.438 ug/mL M4
10) t	1470	20.784	54584	0.054 ug/mL M4
11) t	n-Pentadecane (C15)	21.562	195640	0.192 ug/mL M4
12) t	n-Hexadecane (C16)	23.511	175050	0.170 ug/mL M4
13) t	1650	24.417	195127	0.190 ug/mL M4
14) t	n-Heptadecane (C17)	25.356	100188	0.098 ug/mL M4
15) t	Pristane	25.456	237545	0.227 ug/mL M4
16) t	n-Octadecane (C18)	27.091	990160C	0.944 ug/mL M4
17) t	Phytane	27.276	229257	0.221 ug/mL M4
18) t	n-Nonadecane (C19)	28.822	95851	0.092 ug/mL M4
20) t	n-Eicosane (C20)	30.392	40111	0.038 ug/mL M4
21) t	n-Heneicosane (C21)	31.916	2399252	2.254 ug/mL M4
22) t	n-Docosane (C22)	33.393	55278	0.052 ug/mL M4
23) t	n-Tricosane (C23)	34.804	236037	0.220 ug/mL M4
25) t	n-Tetracosane (C24)	36.159	47181	0.044 ug/mL M4
26) t	n-Pentacosane (C25)	37.470	1384617C	1.275 ug/mL M4
27) t	n-Hexacosane (C26)	38.721	115207	0.107 ug/mL M4
28) t	n-Heptacosane (C27)	39.923	317465	0.299 ug/mL M4
29) t	n-Octacosane (C28)	41.076	1351524G	1.262 ug/mL M4
30) t	n-Nonacosane (C29)	42.220	596040	0.556 ug/mL M4
31) t	n-Triacontane (C30)	43.317	862661	0.809 ug/mL M4
32) t	n-Hentriacontane (C31)	44.367	567866	0.531 ug/mL M4
33) t	n-Dotriacontane (C32)	45.391	430395	0.404 ug/mL M4
34) t	n-Tritriacontane (C33)	46.385	421591	0.409 ug/mL M4
35) t	n-tetratriacontane (C34)	47.364	404857	0.386 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.438	288980	0.270 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.662	168569	0.155 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.071	153372	0.144 ug/mL M4
39) t	n-Octatriacontane (C38)	52.719	108799	0.102 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.654	69693	0.070 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693975.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 3:46 am
Operator : JT
Sample : 1205027-02
Misc : 1X
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:08 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

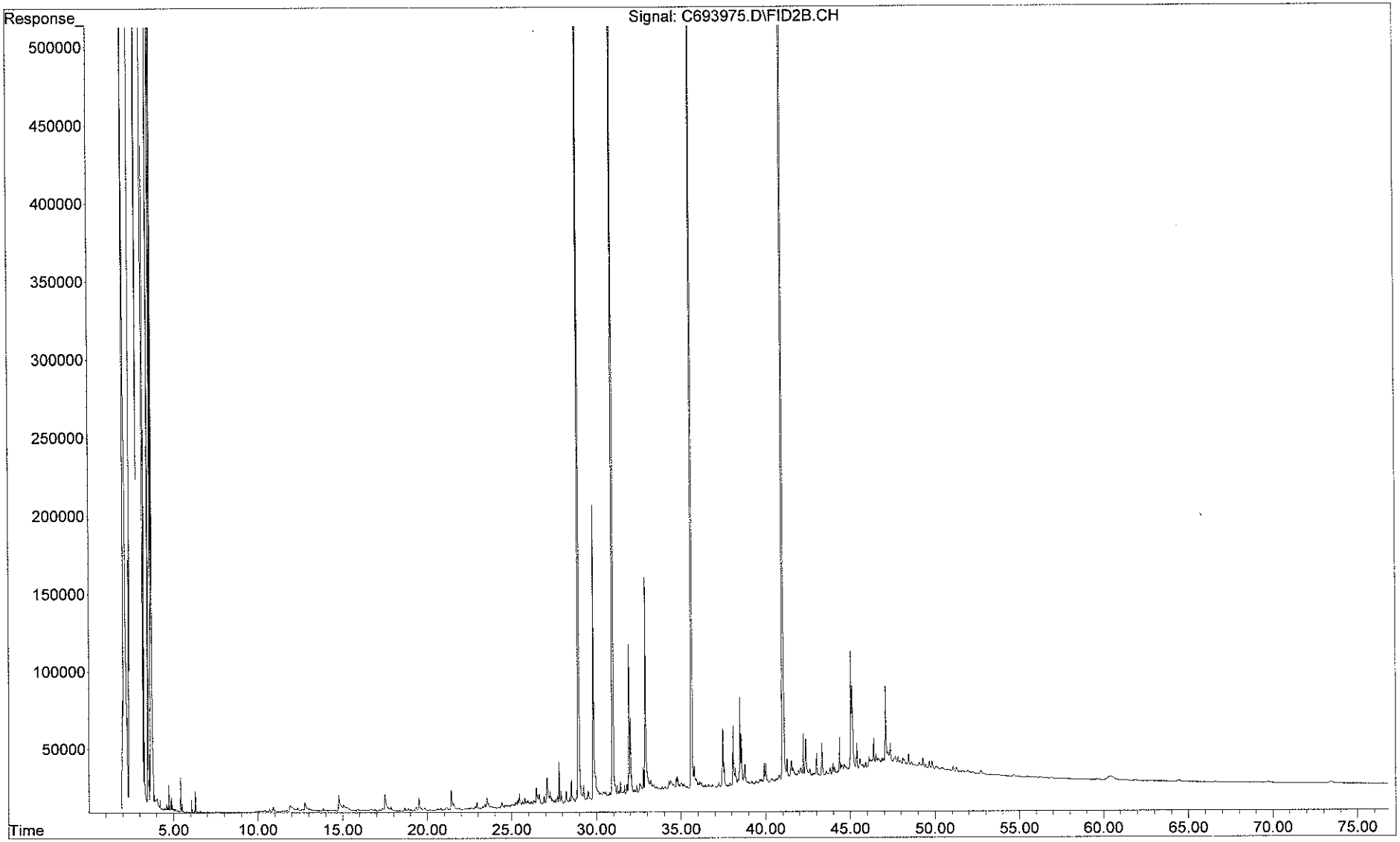
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.928	55913	0.056	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	733295724	702.605	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	111641282	106.969	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693975.D
Operator : JT
Acquired : 25 May 2012 3:46 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-02
Misc Info : 1X
ALS Vial : 62



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3990L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-03**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00900**	J	n-Docosane (C22)	**0.0640**	J
n-Decane (C10)	**0.0100**	J	n-Tricosane (C23)	**0.344**	J
n-Undecane (C11)	**0.0300**	J	n-Tetracosane (C24)	**0.191**	J
n-Dodecane (C12)	**0.295**	J	n-Pentacosane (C25)	**1.90**	CB
n-Tridecane (C13)	**0.0830**	J	n-Hexacosane (C26)	**0.248**	J
2,6,10 Trimethyldodecane (1380)	**0.0220**	J	n-Heptacosane (C27)	**0.890**	J
n-Tetradecane (C14)	**0.469**	J	n-Octacosane (C28)	**1.91**	GB
2,6,10 Trimethyltridecane (1470)	**0.0620**	J	n-Nonacosane (C29)	**0.981**	J
n-Pentadecane (C15)	**0.207**	J	n-Triacontane (C30)	**1.16**	
n-Hexadecane (C16)	**0.182**	J	n-Hentriacontane (C31)	**0.553**	J
Norpristane (1650)	**0.170**	J	n-Dotriacontane (C32)	**0.362**	J
n-Heptadecane (C17)	**0.109**	J	n-Tritriacontane (C33)	**0.475**	J
Pristane	**0.156**	J	n-Tetratriacontane (C34)	**0.389**	J
n-Octadecane (C18)	**0.837**	CJB	n-Pentatriacontane (C35)	**0.201**	J
Phytane	**0.145**	J	n-Hexatriacontane (C36)	**0.114**	JB
n-Nonadecane (C19)	**0.112**	J	n-Heptatriacontane (C37)	**0.158**	J
n-Eicosane (C20)	**0.165**	J	n-Octatriacontane (C38)	**0.207**	J
n-Heneicosane (C21)	**0.107**	J	n-Nonatriacontane (C39)	**0.223**	J
			n-Tetracontane (C40)	**0.101**	J
Total Petroleum Hydrocarbons (C9-C44)	**375**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	84	40-125
d50-Tetracosane	84	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693977.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 5:15 am
Operator : JT
Sample : 1205027-03
Misc : 1X
ALS Vial : 63 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.975	59375012	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	28.952	51130994	42.157 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	84.31%
24) s	d50-Tetracosane	35.635	40884790	42.222 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	84.44%
Target Compounds				
2) t	n-Octane (C8)	5.455	46631	0.050 ug/mL M4
3) t	n-Nonane (C9)	7.630	8408	0.009 ug/mL M4
4) t	n-Decane (C10)	10.087	9700	0.010 ug/mL M4
5) t	n-Undecane (C11)	12.606	31206	0.030 ug/mL M4
6) t	n-Dodecane (C12)	15.038	308933	0.295 ug/mL M4
7) t	n-Tridecane (C13)	17.328	87870	0.083 ug/mL M4
8) t	1380	18.991	23890	0.022 ug/mL M4
9) t	n-Tetradecane (C14)	19.502	499109	0.469 ug/mL M4
10) t	1470	20.799	65544	0.062 ug/mL M4
11) t	n-Pentadecane (C15)	21.568	220484	0.207 ug/mL M4
12) t	n-Hexadecane (C16)	23.510	195729	0.182 ug/mL M4
13) t	1650	24.413	181886	0.170 ug/mL M4
14) t	n-Heptadecane (C17)	25.357	117210	0.109 ug/mL M4
15) t	Pristane	25.457	170418	0.156 ug/mL M4
16) t	n-Octadecane (C18)	27.100	916202C	0.837 ug/mL M4
17) t	Phytane	27.278	156513	0.145 ug/mL M4
18) t	n-Nonadecane (C19)	28.818	122448	0.112 ug/mL M4
20) t	n-Eicosane (C20)	30.398	182226	0.165 ug/mL M4
21) t	n-Heneicosane (C21)	31.931	118825	0.107 ug/mL M4
22) t	n-Docosane (C22)	33.390	70903	0.064 ug/mL M4
23) t	n-Tricosane (C23)	34.807	385037	0.344 ug/mL M4
25) t	n-Tetracosane (C24)	36.160	212534	0.191 ug/mL M4
26) t	n-Pentacosane (C25)	37.464	2156429C	1.903 ug/mL M4
27) t	n-Hexacosane (C26)	38.716	279011	0.248 ug/mL M4
28) t	n-Heptacosane (C27)	39.925	987032	0.890 ug/mL M4
29) t	n-Octacosane (C28)	41.079	2130121G	1.906 ug/mL M4
30) t	n-Nonacosane (C29)	42.220	1097062	0.981 ug/mL M4
31) t	n-Triacontane (C30)	43.329	1286893	1.157 ug/mL M4
32) t	n-Hentriacontane (C31)	44.368	617362	0.553 ug/mL M4
33) t	n-Dotriacontane (C32)	45.392	402287	0.362 ug/mL M4
34) t	n-Tritriacontane (C33)	46.383	511470	0.475 ug/mL M4
35) t	n-tetratriacontane (C34)	47.362	425246	0.389 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.439	224380	0.201 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.660	130302	0.114 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.070	175978	0.158 ug/mL M4
39) t	n-Octatriacontane (C38)	52.723	230983	0.207 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.671	230911	0.223 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693977.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 5:15 am
Operator : JT
Sample : 1205027-03
Misc : 1X
ALS Vial : 63 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

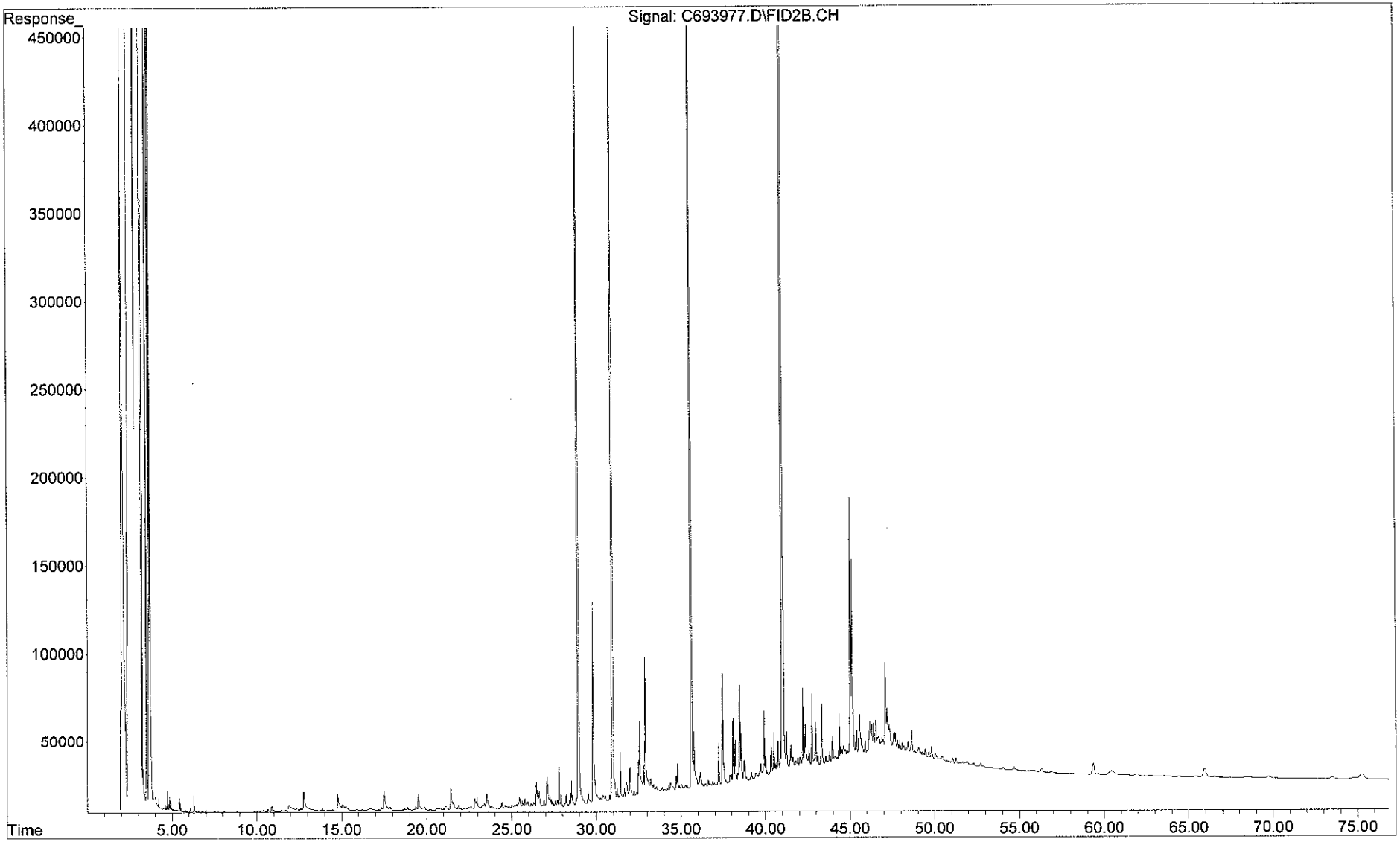
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.930	104399	0.101	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	790071863	725.549	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	154479721	141.864	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693977.D
Operator : JT
Acquired : 25 May 2012 5:15 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-03
Misc Info : 1X
ALS Vial : 63



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR4010L001S052212HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-04**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00900**	J	n-Docosane (C22)	**0.0700**	J
n-Decane (C10)	**0.0240**	J	n-Tricosane (C23)	**0.953**	J
n-Undecane (C11)	**0.0430**	J	n-Tetracosane (C24)	**0.199**	J
n-Dodecane (C12)	**0.112**	J	n-Pentacosane (C25)	**3.57**	CB
n-Tridecane (C13)	**0.117**	J	n-Hexacosane (C26)	**0.602**	J
2,6,10 Trimethyldodecane (1380)	**0.0330**	J	n-Heptacosane (C27)	**10.6**	
n-Tetradecane (C14)	**0.385**	J	n-Octacosane (C28)	**2.60**	GB
2,6,10 Trimethyltridecane (1470)	**0.0510**	J	n-Nonacosane (C29)	**3.78**	
n-Pentadecane (C15)	**0.364**	J	n-Triacontane (C30)	**1.18**	
n-Hexadecane (C16)	**0.209**	J	n-Hentriacontane (C31)	**1.41**	
Norpristane (1650)	**2.71**		n-Dotriacontane (C32)	**0.268**	J
n-Heptadecane (C17)	**0.176**	J	n-Tritriacontane (C33)	**0.522**	J
Pristane	**0.152**	J	n-Tetratriacontane (C34)	**0.130**	J
n-Octadecane (C18)	**1.02**	CB	n-Pentatriacontane (C35)	**0.242**	J
Pbytane	**0.239**	J	n-Hexatriacontane (C36)	**0.259**	JB
n-Nonadecane (C19)	**0.122**	J	n-Heptatriacontane (C37)	**2.32**	G
n-Eicosane (C20)	**0.0640**	J	n-Octatriacontane (C38)	**0.124**	J
n-Heneicosane (C21)	**0.473**	J	n-Nonatriacontane (C39)	**0.109**	J
			n-Tetracontane (C40)	**0.0350**	J
Total Petroleum Hydrocarbons (C9-C44)	**434**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	92	40-125
d50-Tetracosane	92	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693979.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 6:44 am
Operator : JT
Sample : 1205027-04
Misc : 1X
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:11 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.976	57496846	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.954	53891818	45.885 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	91.77%
24) s	d50-Tetracosane	35.637	43161801	46.029 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	92.06%
	Target Compounds			
2) t	n-Octane (C8)	5.453	32946	0.037 ug/mL M4
3) t	n-Nonane (C9)	7.630	8642	0.009 ug/mL M4
4) t	n-Decane (C10)	10.121	23875	0.024 ug/mL M4
5) t	n-Undecane (C11)	12.604	43151	0.043 ug/mL M4
6) t	n-Dodecane (C12)	15.027	113296	0.112 ug/mL M4
7) t	n-Tridecane (C13)	17.322	119778	0.117 ug/mL M4
8) t	1380	18.991	33716	0.033 ug/mL M4
9) t	n-Tetradecane (C14)	19.497	396482	0.385 ug/mL M4
10) t	1470	20.779	52798	0.051 ug/mL M4
11) t	n-Pentadecane (C15)	21.565	374993	0.364 ug/mL M4
12) t	n-Hexadecane (C16)	23.502	217439	0.209 ug/mL M4
13) t	1650	24.387	2811469	2.712 ug/mL M4
14) t	n-Heptadecane (C17)	25.359	182178	0.176 ug/mL M4
15) t	Pristane	25.453	160784	0.152 ug/mL M4
16) t	n-Octadecane (C18)	27.098	1083490C	1.022 ug/mL M4
17) t	Phytane	27.241	249773	0.239 ug/mL M4
18) t	n-Nonadecane (C19)	28.793	128375	0.122 ug/mL M4
20) t	n-Eicosane (C20)	30.399	68475	0.064 ug/mL M4
21) t	n-Heneicosane (C21)	31.932	508991	0.473 ug/mL M4
22) t	n-Docosane (C22)	33.394	75512	0.070 ug/mL M4
23) t	n-Tricosane (C23)	34.807	1032095	0.953 ug/mL M4
25) t	n-Tetracosane (C24)	36.160	214448	0.199 ug/mL M4
26) t	n-Pentacosane (C25)	37.458	3920832C	3.573 ug/mL M4
27) t	n-Hexacosane (C26)	38.710	656963	0.602 ug/mL M4
28) t	n-Heptacosane (C27)	39.929	11421652	10.639 ug/mL M4
29) t	n-Octacosane (C28)	41.074	2810286G	2.597 ug/mL M4
30) t	n-Nonacosane (C29)	42.221	4089379	3.777 ug/mL M4
31) t	n-Triacontane (C30)	43.325	1268681	1.178 ug/mL M4
32) t	n-Hentriacontane (C31)	44.366	1519018	1.406 ug/mL M4
33) t	n-Dotriacontane (C32)	45.397	288392	0.268 ug/mL M4
34) t	n-Tritriacontane (C33)	46.384	543612	0.522 ug/mL M4
35) t	n-tetratriacontane (C34)	47.373	137859	0.130 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.443	261745	0.242 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.625	285148	0.259 ug/mL M4
38) t	n-Heptatriacontane (C37)	50.948f	2501557G	2.324 ug/mL M4
39) t	n-Octatriacontane (C38)	52.721	134251	0.124 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.611	109223	0.109 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693979.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 6:44 am
Operator : JT
Sample : 1205027-04
Misc : 1X
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:52:11 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

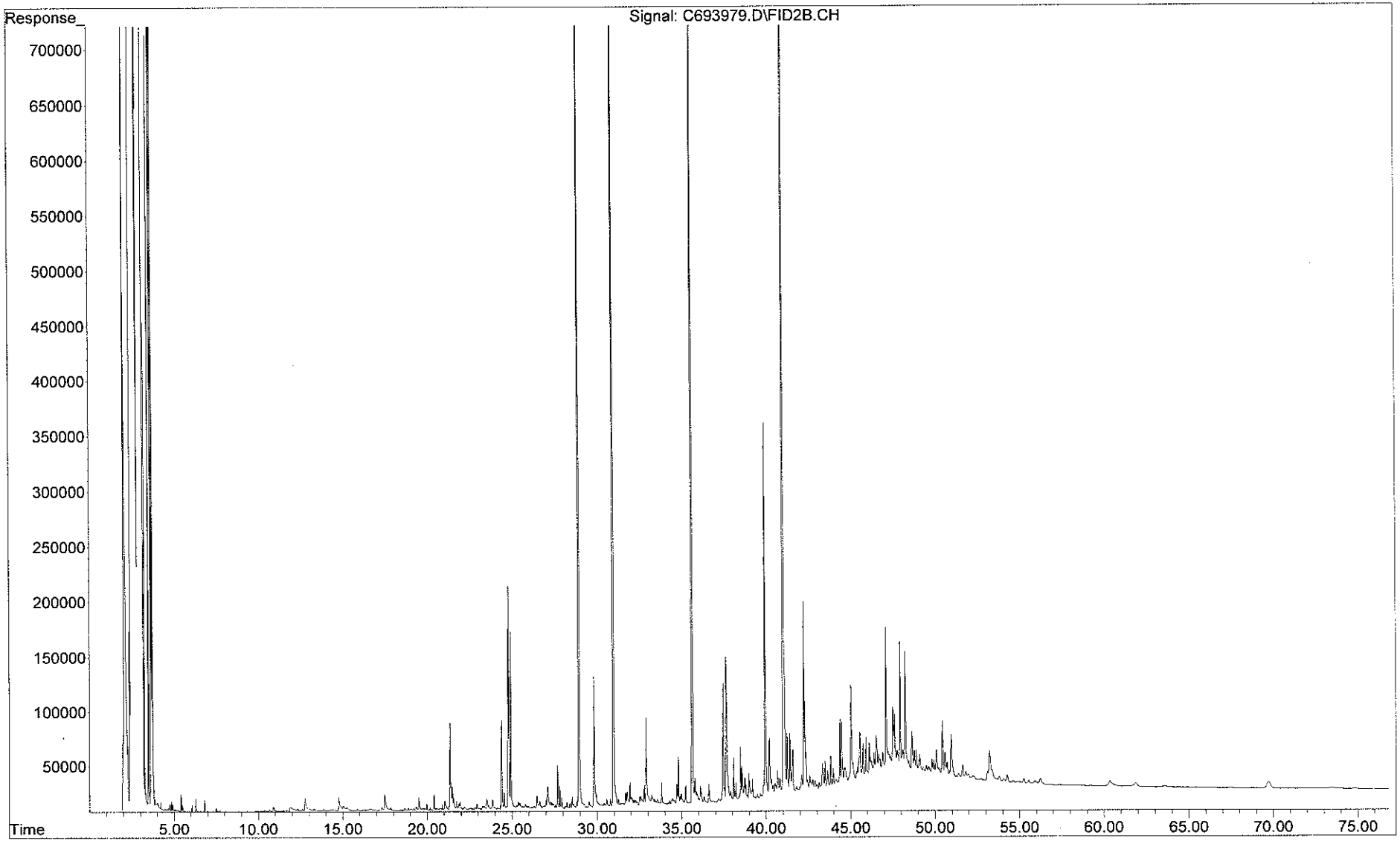
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.919	34685	0.035	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	839533818	796.155	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	209838095	198.996	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693979.D
Operator : JT
Acquired : 25 May 2012 6:44 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-04
Misc Info : 1X
ALS Vial : 64



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.93	2	1	JT

Parameter	Result	
n-Nonane (C9)	**0.0125**	J
n-Decane (C10)	0.124	U
n-Undecane (C11)	0.0972	U
n-Dodecane (C12)	0.126	U
n-Tridecane (C13)	**0.0134**	J
2,6,10 Trimethyldodecane (1380)	**0.0223**	J
n-Tetradecane (C14)	**0.0276**	J
2,6,10 Trimethyltridecane (1470)	**0.115**	J
n-Pentadecane (C15)	0.399	U
n-Hexadecane (C16)	**0.0250**	J
Norpristane (1650)	**0.0820**	J
n-Heptadecane (C17)	**0.472**	J
Pristane	**0.339**	J
n-Octadecane (C18)	**0.366**	CJB
Phytane	**0.540**	J
n-Nonadecane (C19)	**0.347**	J
n-Eicosane (C20)	**0.144**	J
n-Heneicosane (C21)	**0.812**	J
Total Petroleum Hydrocarbons (C9-C44)	**1250**	

Parameter	Result	
n-Docosane (C22)	**0.260**	J
n-Tricosane (C23)	**1.27**	
n-Tetracosane (C24)	**0.482**	J
n-Pentacosane (C25)	**3.80**	C
n-Hexacosane (C26)	**0.996**	
n-Heptacosane (C27)	**7.76**	
n-Octacosane (C28)	**1.03**	
n-Nonacosane (C29)	**6.89**	
n-Triacontane (C30)	**1.19**	
n-Hentriacontane (C31)	**5.29**	
n-Dotriacontane (C32)	**0.370**	J
n-Tritriacontane (C33)	**6.63**	
n-Tetratriacontane (C34)	**1.66**	
n-Pentatriacontane (C35)	**0.704**	J
n-Hexatriacontane (C36)	**0.395**	J
n-Heptatriacontane (C37)	**1.03**	G
n-Octatriacontane (C38)	**0.274**	J
n-Nonatriacontane (C39)	**0.260**	J
n-Tetracontane (C40)	**0.324**	J

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	76	40-125
d50-Tetracosane	75	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693995.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 6:35 pm
Operator : JT
Sample : 1205027-05
Misc : 1X
ALS Vial : 72 Sample Multiplier: 1

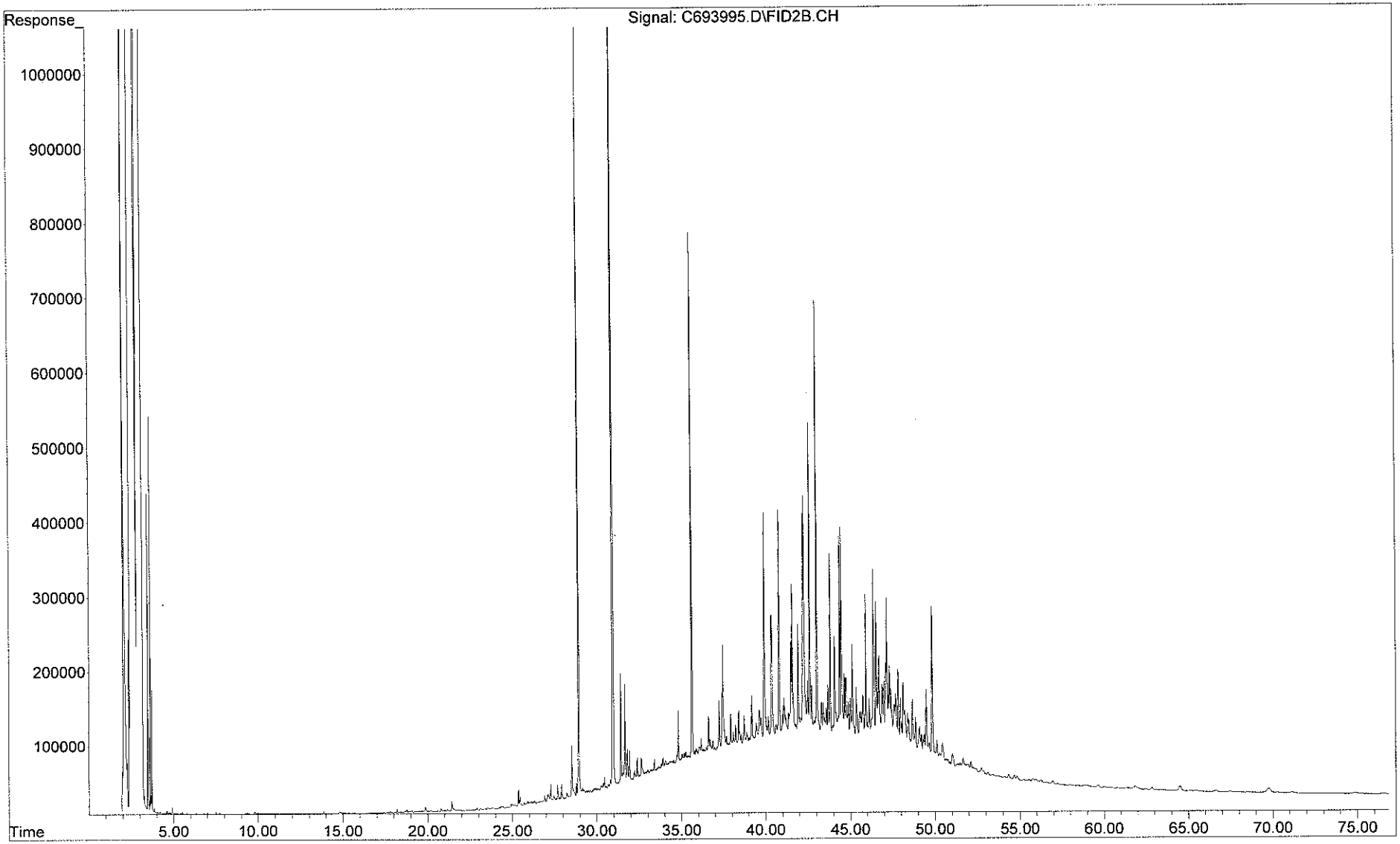
Integration File: SHCINT2.E
Quant Time: May 29 12:34:01 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.975	62361252	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.938	24069628	18.895 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	37.79%#
24) s	d50-Tetracosane	35.625	18964418	18.647 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	37.29%#
	Target Compounds			
2) t	n-Octane (C8)	5.452	9151	0.009 ug/mL M4
3) t	n-Nonane (C9)	7.625	14060	0.014 ug/mL M4
7) t	n-Tridecane (C13)	17.316	17049	0.015 ug/mL M4
8) t	1380	18.980	28430	0.025 ug/mL M4
9) t	n-Tetradecane (C14)	19.501	34896	0.031 ug/mL M4
10) t	1470	20.778	144483	0.129 ug/mL M4
12) t	n-Hexadecane (C16)	23.509	31808	0.028 ug/mL M4
13) t	1650	24.395	103630	0.092 ug/mL M4
14) t	n-Heptadecane (C17)	25.357	594486	0.529 ug/mL M4
15) t	Pristane	25.454	437041	0.380 ug/mL M4
16) t	n-Octadecane (C18)	27.105	471804C	0.410 ug/mL M4
17) t	Phytane	27.278	688269	0.606 ug/mL M4
18) t	n-Nonadecane (C19)	28.791	445350	0.389 ug/mL M4
20) t	n-Eicosane (C20)	30.392	186416	0.161 ug/mL M4
21) t	n-Heneicosane (C21)	31.929	1062200	0.911 ug/mL M4
22) t	n-Docosane (C22)	33.396	340920	0.292 ug/mL M4
23) t	n-Tricosane (C23)	34.806	1670436	1.422 ug/mL M4
25) t	n-Tetracosane (C24)	36.160	631582	0.541 ug/mL M4
26) t	n-Pentacosane (C25)	37.459	5067969C	4.259 ug/mL M4
27) t	n-Hexacosane (C26)	38.721	1322738	1.117 ug/mL M4
28) t	n-Heptacosane (C27)	39.931	10130705	8.700 ug/mL M4
29) t	n-Octacosane (C28)	41.095	1355175	1.155 ug/mL M4
30) t	n-Nonacosane (C29)	42.233	9075301	7.728 ug/mL M4
31) t	n-Triacontane (C30)	43.308	1564630	1.339 ug/mL M4
32) t	n-Hentriacontane (C31)	44.379	6953068	5.932 ug/mL M4
33) t	n-Dotriacontane (C32)	45.400	484122	0.415 ug/mL M4
34) t	n-Tritriacontane (C33)	46.360	8396193	7.432 ug/mL M4
35) t	n-tetratriacontane (C34)	47.398	2133612	1.857 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.448	927152	0.790 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.659	529823	0.443 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.032	1346798G	1.154 ug/mL M4
39) t	n-Octatriacontane (C38)	52.722	358913	0.307 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.651	317380	0.292 ug/mL M4
41) t	n-Tetracontane (C40)	56.938	394494	0.363 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	1966561825	1719.477 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	320180200	279.952 ug/L m

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693995.D
Operator : JT
Acquired : 25 May 2012 6:35 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-05
Misc Info : 1X
ALS Vial : 72



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	23.4	10.00	2	1	JT

Parameter	Result	
n-Nonane (C9)	**0.00939**	JB
n-Decane (C10)	**0.0171**	J
n-Undecane (C11)	0.0930	U
n-Dodecane (C12)	0.120	U
n-Tridecane (C13)	**0.0145**	J
2,6,10 Trimethyldodecane (1380)	**0.0265**	J
n-Tetradecane (C14)	**0.0290**	J
2,6,10 Trimethyltridecane (1470)	**0.118**	J
n-Pentadecane (C15)	**0.102**	J
n-Hexadecane (C16)	**0.0418**	J
Norpristane (1650)	**0.0674**	J
n-Heptadecane (C17)	**0.468**	J
Pristane	**0.311**	J
n-Octadecane (C18)	**0.175**	CJB
Phytane	**0.555**	J
n-Nonadecane (C19)	**0.303**	J
n-Eicosane (C20)	**0.130**	J
n-Heneicosane (C21)	**0.376**	J
Total Petroleum Hydrocarbons (C9-C44)	**1360**	

Parameter	Result	
n-Docosane (C22)	**0.152**	J
n-Tricosane (C23)	**0.645**	J
n-Tetracosane (C24)	**0.233**	J
n-Pentacosane (C25)	**2.38**	C
n-Hexacosane (C26)	**1.01**	
n-Heptacosane (C27)	**5.23**	
n-Octacosane (C28)	**1.61**	
n-Nonacosane (C29)	**5.06**	
n-Triacontane (C30)	**1.63**	
n-Hentriacontane (C31)	**4.51**	
n-Dotriacontane (C32)	**0.571**	J
n-Tritriacontane (C33)	**3.82**	
n-Tetratriacontane (C34)	**2.26**	
n-Pentatriacontane (C35)	**0.813**	J
n-Hexatriacontane (C36)	**0.657**	J
n-Heptatriacontane (C37)	**1.84**	G
n-Octatriacontane (C38)	**0.679**	J
n-Nonatriacontane (C39)	**0.571**	J
n-Tetracontane (C40)	**0.601**	J

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	79	40-125
d50-Tetracosane	78	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694001.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 11:00 pm
Operator : JT
Sample : 1205027-06
Misc : 1X
ALS Vial : 75 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:06 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

6/5/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.976	62350721	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.939	25185983	19.774 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 39.55%#	
24) s d50-Tetracosane	35.627	19723933	19.397 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 38.79%#	
Target Compounds			
2) t n-Octane (C8)	5.447	10041	0.010 ug/mL M4
3) t n-Nonane (C9)	7.623	10999	0.011 ug/mL M4
4) t n-Decane (C10)	10.085	20963	0.020 ug/mL M4
7) t n-Tridecane (C13)	17.317	18908	0.017 ug/mL M4
8) t 1380	18.983	34971	0.031 ug/mL M4
9) t n-Tetradecane (C14)	19.494	37442	0.034 ug/mL M4
10) t 1470	20.777	154232	0.138 ug/mL M4
11) t n-Pentadecane (C15)	21.538	132621	0.119 ug/mL M4
12) t n-Hexadecane (C16)	23.503	55790	0.049 ug/mL M4
13) t 1650	24.405	88720	0.079 ug/mL M4
14) t n-Heptadecane (C17)	25.357	616384	0.548 ug/mL M4
15) t Pristane	25.454	418359	0.364 ug/mL M4
16) t n-Octadecane (C18)	27.107	235382C	0.205 ug/mL M4
17) t Phytane	27.278	738268	0.651 ug/mL M4
18) t n-Nonadecane (C19)	28.792	406802	0.355 ug/mL M4
20) t n-Eicosane (C20)	30.394	176391	0.152 ug/mL M4
21) t n-Heneicosane (C21)	31.927	514253	0.441 ug/mL M4
22) t n-Docosane (C22)	33.395	207920	0.178 ug/mL M4
23) t n-Tricosane (C23)	34.806	887328	0.756 ug/mL M4
25) t n-Tetracosane (C24)	36.161	319004	0.273 ug/mL M4
26) t n-Pentacosane (C25)	37.462	3315521C	2.786 ug/mL M4
27) t n-Hexacosane (C26)	38.716	1396824	1.180 ug/mL M4
28) t n-Heptacosane (C27)	39.930	7140890	6.134 ug/mL M4
29) t n-Octacosane (C28)	41.094	2209759	1.883 ug/mL M4
30) t n-Nonacosane (C29)	42.230	6962451	5.930 ug/mL M4
31) t n-Triacontane (C30)	43.301	2233618	1.912 ug/mL M4
32) t n-Hentriacontane (C31)	44.378	6195911	5.287 ug/mL M4
33) t n-Dotriacontane (C32)	45.399	780644	0.669 ug/mL M4
34) t n-Tritriacontane (C33)	46.395	5052190	4.473 ug/mL M4
35) t n-tetratriacontane (C34)	47.386	3050142	2.655 ug/mL M4
36) t n-Pentatriacontane (C35)	48.447	1117795	0.953 ug/mL M4
37) t n-Hexatriacontane (C36)	49.671	920605	0.770 ug/mL M4
38) t n-Heptatriacontane (C37)	51.074	2521250G	2.160 ug/mL M4
39) t n-Octatriacontane (C38)	52.740	930967	0.796 ug/mL M4
40) t n-Nonatriacontane (C39)	54.657	726902	0.669 ug/mL M4
41) t n-Tetracontane (C40)	56.936	765530	0.704 ug/mL M4
42) h C9-C44 Total Petroleu...	39.421	2182539914	1908.641 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694001.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 11:00 pm
Operator : JT
Sample : 1205027-06
Misc : 1X
ALS Vial : 75 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:06 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

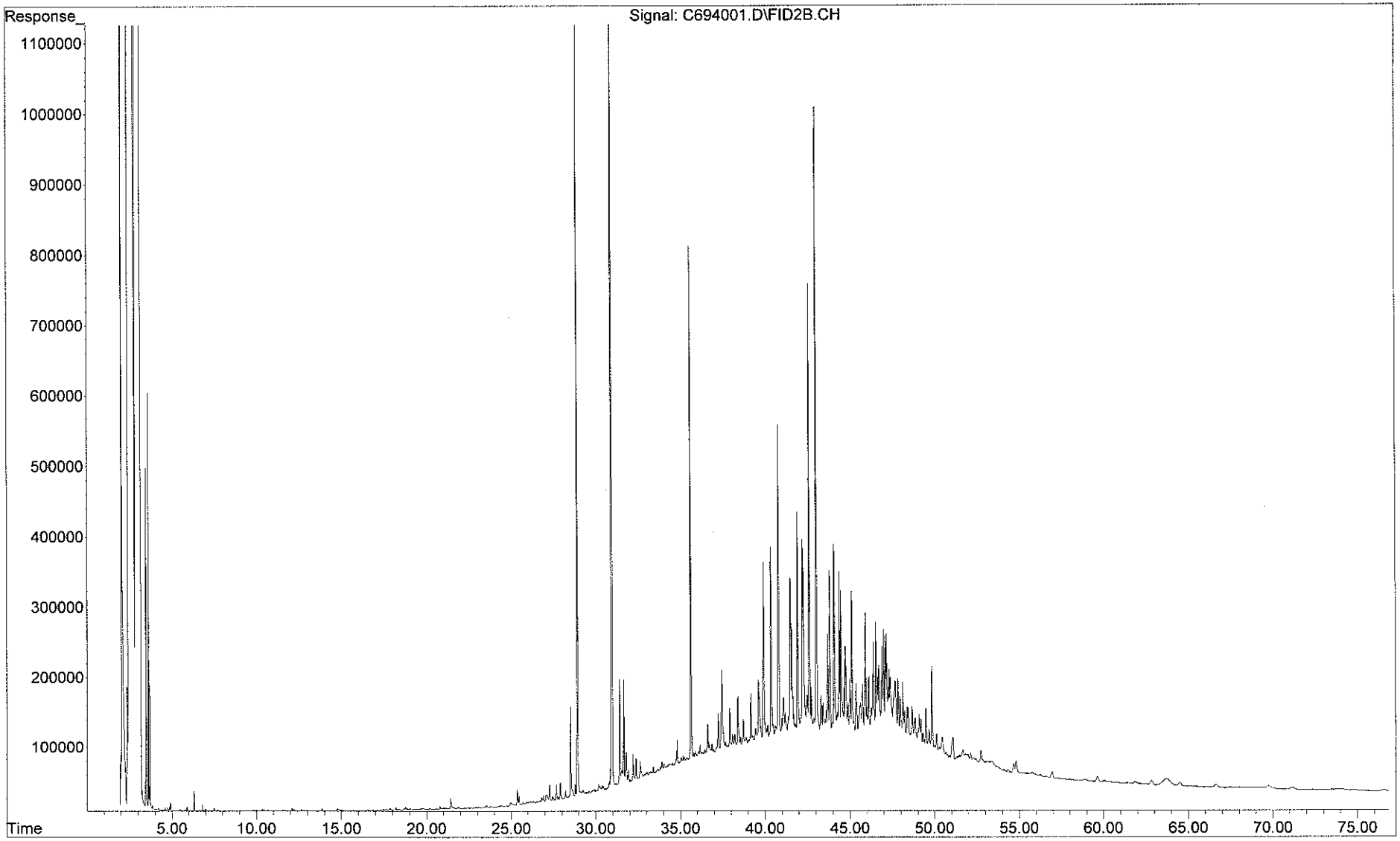
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
45) h	Total Resolved Hydroc...	39.421	371138598	324.562	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694001.D
Operator : JT
Acquired : 25 May 2012 11:00 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-06
Misc Info : 1X
ALS Vial : 75



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR4010L001S052212D003**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-07**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	63.0	9.94	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00223**	JB	n-Docosane (C22)	**0.0498**	J
n-Decane (C10)	0.0444	U	n-Tricosane (C23)	**0.613**	
n-Undecane (C11)	0.0348	U	n-Tetracosane (C24)	**0.168**	J
n-Dodecane (C12)	0.0450	U	n-Pentacosane (C25)	**1.45**	C
n-Tridecane (C13)	0.186	U	n-Hexacosane (C26)	**0.265**	J
2,6,10 Trimethyldodecane (1380)	**0.00575**	J	n-Heptacosane (C27)	**3.74**	
n-Tetradecane (C14)	**0.00479**	J	n-Octacosane (C28)	**0.246**	J
2,6,10 Trimethyltridecane (1470)	**0.0185**	J	n-Nonacosane (C29)	**4.00**	
n-Pentadecane (C15)	**0.0441**	J	n-Triacontane (C30)	**0.179**	J
n-Hexadecane (C16)	**0.0169**	J	n-Hentriacontane (C31)	**1.08**	
Norpristane (1650)	**0.00766**	J	n-Dotriacontane (C32)	**0.0923**	J
n-Heptadecane (C17)	**0.0626**	J	n-Tritriacontane (C33)	**0.527**	
Pristane	**0.0262**	J	n-Tetratriacontane (C34)	**0.122**	J
n-Octadecane (C18)	**0.122**	CJB	n-Pentatriacontane (C35)	**0.238**	J
Phytane	**0.0246**	JB	n-Hexatriacontane (C36)	**0.117**	J
n-Nonadecane (C19)	**0.0290**	J	n-Heptatriacontane (C37)	**0.0364**	JB
n-Eicosane (C20)	**0.0230**	J	n-Octatriacontane (C38)	**0.0568**	J
n-Heneicosane (C21)	**0.0715**	J	n-Nonatriacontane (C39)	**0.0310**	J
			n-Tetracontane (C40)	**0.0160**	J
Total Petroleum Hydrocarbons (C9-C44)	**159**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	78	40-125
d50-Tetracosane	78	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694005.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 2:01 am
Operator : JT
Sample : 1205027-07
Misc : 1X
ALS Vial : 77 Sample Multiplier: 1

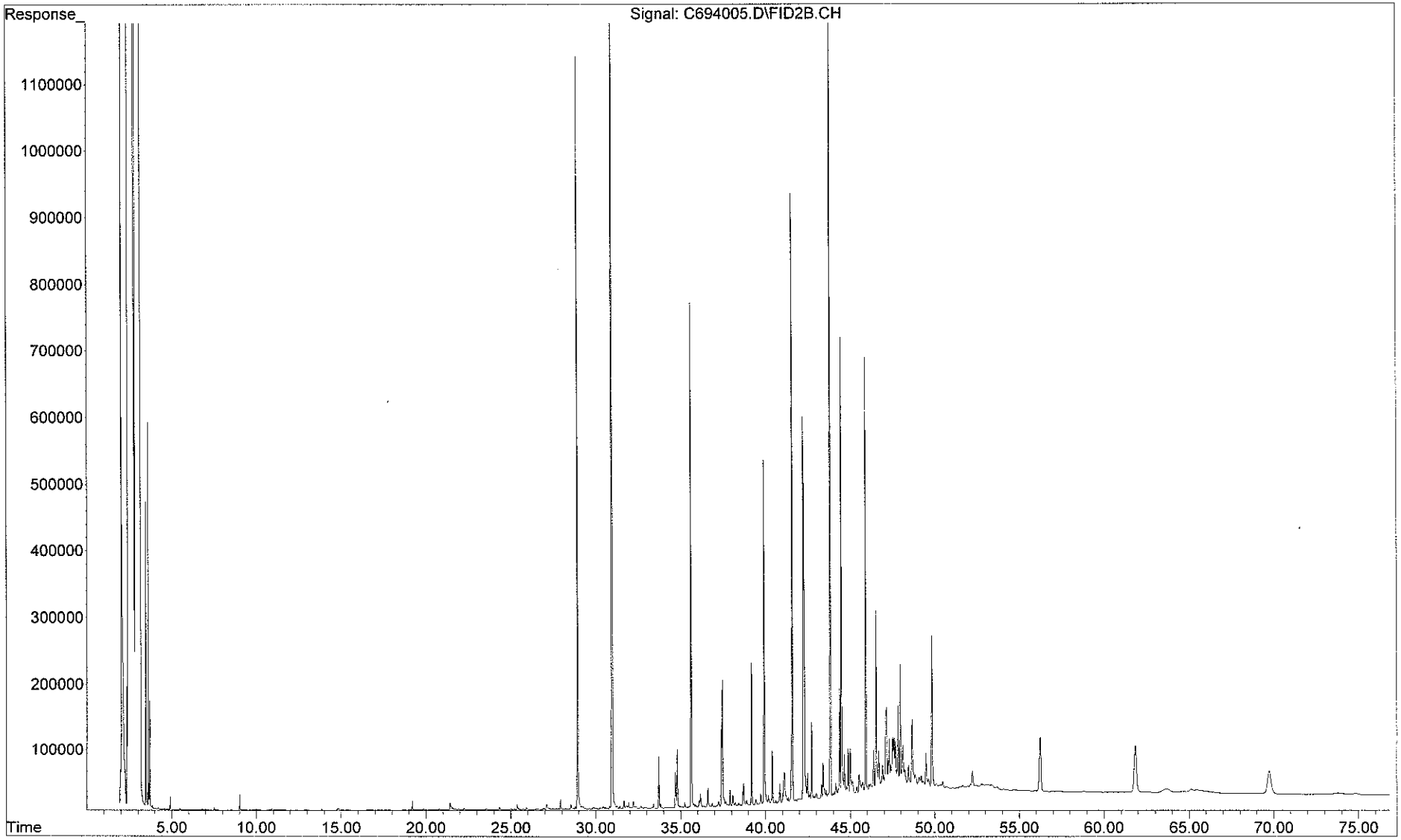
Integration File: SHCINT2.E
Quant Time: May 29 12:34:09 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.976	63371498	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.940	25217765	19.481 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	38.96%#
24) s	d50-Tetracosane	35.624	20169399	19.515 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	39.03%#
	Target Compounds			
2) t	n-Octane (C8)	5.447	12324	0.012 ug/mL M4
3) t	n-Nonane (C9)	7.624	7727	0.007 ug/mL M4
8) t	1380	19.012	20393	0.018 ug/mL M4
9) t	n-Tetradecane (C14)	19.507	16990	0.015 ug/mL M4
10) t	1470	20.782	65716	0.058 ug/mL M4
11) t	n-Pentadecane (C15)	21.565	156218	0.138 ug/mL M4
12) t	n-Hexadecane (C16)	23.548	61031	0.053 ug/mL M4
13) t	1650	24.412	27668	0.024 ug/mL M4
14) t	n-Heptadecane (C17)	25.360	224372	0.196 ug/mL M4
15) t	Pristane	25.453	96117	0.082 ug/mL M4
16) t	n-Octadecane (C18)	27.106	447878C	0.383 ug/mL M4
17) t	Phytane	27.285	88523	0.077 ug/mL M4
18) t	n-Nonadecane (C19)	28.794	105427	0.091 ug/mL M4
20) t	n-Eicosane (C20)	30.404	85303	0.072 ug/mL M4
21) t	n-Heneicosane (C21)	31.931	265416	0.224 ug/mL M4
22) t	n-Docosane (C22)	33.399	185690	0.156 ug/mL M4
23) t	n-Tricosane (C23)	34.806	2291881	1.920 ug/mL M4
25) t	n-Tetracosane (C24)	36.164	624124	0.526 ug/mL M4
26) t	n-Pentacosane (C25)	37.461	5490561C	4.540 ug/mL M4
27) t	n-Hexacosane (C26)	38.713	998716	0.830 ug/mL M4
28) t	n-Heptacosane (C27)	39.927	13882301	11.732 ug/mL M4
29) t	n-Octacosane (C28)	41.096	919425	0.771 ug/mL M4
30) t	n-Nonacosane (C29)	42.232	14973738	12.547 ug/mL M4
31) t	n-Triacontane (C30)	43.309	665535	0.561 ug/mL M4
32) t	n-Hentriacontane (C31)	44.376	4047084	3.398 ug/mL M4
33) t	n-Dotriacontane (C32)	45.392	342773	0.289 ug/mL M4
34) t	n-Tritriacontane (C33)	46.389	1896622	1.652 ug/mL M4
35) t	n-tetratriacontane (C34)	47.398	444742	0.381 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.444	890504	0.747 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.652	443437	0.365 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.043	135436	0.114 ug/mL M4
39) t	n-Octatriacontane (C38)	52.765	211096	0.178 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.650	107480	0.097 ug/mL M4
41) t	n-Tetracontane (C40)	56.922	55402	0.050 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	938623006	807.608 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	291535668	250.843 ug/L m

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694005.D
Operator : JT
Acquired : 26 May 2012 2:01 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-07
Misc Info : 1X
ALS Vial : 77



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3990L001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-08**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	36.6	10.06	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0119**	J	n-Docosane (C22)	**0.129**	J
n-Decane (C10)	**0.0255**	J	n-Tricosane (C23)	**0.411**	J
n-Undecane (C11)	**0.00922**	J	n-Tetracosane (C24)	**0.203**	J
n-Dodecane (C12)	**0.00543**	J	n-Pentacosane (C25)	**3.24**	C
n-Tridecane (C13)	**0.0125**	J	n-Hexacosane (C26)	**0.609**	
2,6,10 Trimethyldodecane (1380)	**0.0255**	J	n-Heptacosane (C27)	**6.71**	
n-Tetradecane (C14)	**0.0402**	J	n-Octacosane (C28)	**0.794**	
2,6,10 Trimethyltridecane (1470)	**0.107**	J	n-Nonacosane (C29)	**9.05**	
n-Pentadecane (C15)	**0.164**	J	n-Triacontane (C30)	**0.915**	
n-Hexadecane (C16)	**0.112**	J	n-Hentriacontane (C31)	**4.43**	
Norpristane (1650)	**0.0222**	J	n-Dotriacontane (C32)	**0.350**	J
n-Heptadecane (C17)	**0.402**	J	n-Tritriacontane (C33)	**2.05**	
Pristane	**0.219**	J	n-Tetratriacontane (C34)	**1.60**	
n-Octadecane (C18)	**1.20**	C	n-Pentatriacontane (C35)	**0.374**	J
Phytane	**0.563**		n-Hexatriacontane (C36)	**0.225**	J
n-Nonadecane (C19)	**0.147**	J	n-Heptatriacontane (C37)	**0.636**	G
n-Eicosane (C20)	**0.233**	J	n-Octatriacontane (C38)	**0.118**	J
n-Heneicosane (C21)	**0.299**	J	n-Nonatriacontane (C39)	**0.126**	J
			n-Tetracontane (C40)	**0.160**	J
Total Petroleum Hydrocarbons (C9-C44)	**822**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	79	40-125
d50-Tetracosane	79	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694007.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 3:31 am
Operator : JT
Sample : 1205027-08
Misc : 1X
ALS Vial : 78 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.979	64486037	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	28.940	25981384	19.724 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	39.45%#
24) s	d50-Tetracosane	35.628	20644285	19.630 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	39.26%#
Target Compounds				
2) t	n-Octane (C8)	5.442	17977	0.018 ug/mL M4
3) t	n-Nonane (C9)	7.624	23438	0.022 ug/mL M4
4) t	n-Decane (C10)	10.086	51986	0.047 ug/mL M4
5) t	n-Undecane (C11)	12.593	18922	0.017 ug/mL M4
6) t	n-Dodecane (C12)	15.020	10908	0.010 ug/mL M4
7) t	n-Tridecane (C13)	17.319	26333	0.023 ug/mL M4
8) t	1380	18.986	54834	0.047 ug/mL M4
9) t	n-Tetradecane (C14)	19.495	85854	0.074 ug/mL M4
10) t	1470	20.777	227368	0.197 ug/mL M4
11) t	n-Pentadecane (C15)	21.526	349545	0.303 ug/mL M4
12) t	n-Hexadecane (C16)	23.494	240824	0.206 ug/mL M4
13) t	1650	24.407	48083	0.041 ug/mL M4
14) t	n-Heptadecane (C17)	25.350	860486	0.740 ug/mL M4
15) t	Pristane	25.453	478328	0.403 ug/mL M4
16) t	n-Octadecane (C18)	27.140	2616905C	2.202 ug/mL M4
17) t	Phytane	27.279	1218029	1.038 ug/mL M4
18) t	n-Nonadecane (C19)	28.792	321078	0.271 ug/mL M4
20) t	n-Eicosane (C20)	30.390	513942	0.429 ug/mL M4
21) t	n-Heneicosane (C21)	31.927	664437	0.551 ug/mL M4
22) t	n-Docosane (C22)	33.397	287472	0.238 ug/mL M4
23) t	n-Tricosane (C23)	34.805	919987	0.758 ug/mL M4
25) t	n-Tetracosane (C24)	36.160	451391	0.374 ug/mL M4
26) t	n-Pentacosane (C25)	37.464	7347908C	5.971 ug/mL M4
27) t	n-Hexacosane (C26)	38.718	1373410	1.122 ug/mL M4
28) t	n-Heptacosane (C27)	39.934	14885742	12.363 ug/mL M4
29) t	n-Octacosane (C28)	41.097	1775800	1.463 ug/mL M4
30) t	n-Nonacosane (C29)	42.241	20257448	16.681 ug/mL M4
31) t	n-Triacontane (C30)	43.308	2037533	1.686 ug/mL M4
32) t	n-Hentriacontane (C31)	44.384	9888916	8.158 ug/mL M4
33) t	n-Dotriacontane (C32)	45.397	778548	0.645 ug/mL M4
34) t	n-Tritriacontane (C33)	46.397	4408033	3.773 ug/mL M4
35) t	n-tetratriacontane (C34)	47.400	3499714	2.945 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.455	836359	0.690 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.660	511483	0.414 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.058	1414334G	1.172 ug/mL M4
39) t	n-Octatriacontane (C38)	52.723	263513	0.218 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.668	260411	0.232 ug/mL M4

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694007.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 3:31 am
Operator : JT
Sample : 1205027-08
Misc : 1X
ALS Vial : 78 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

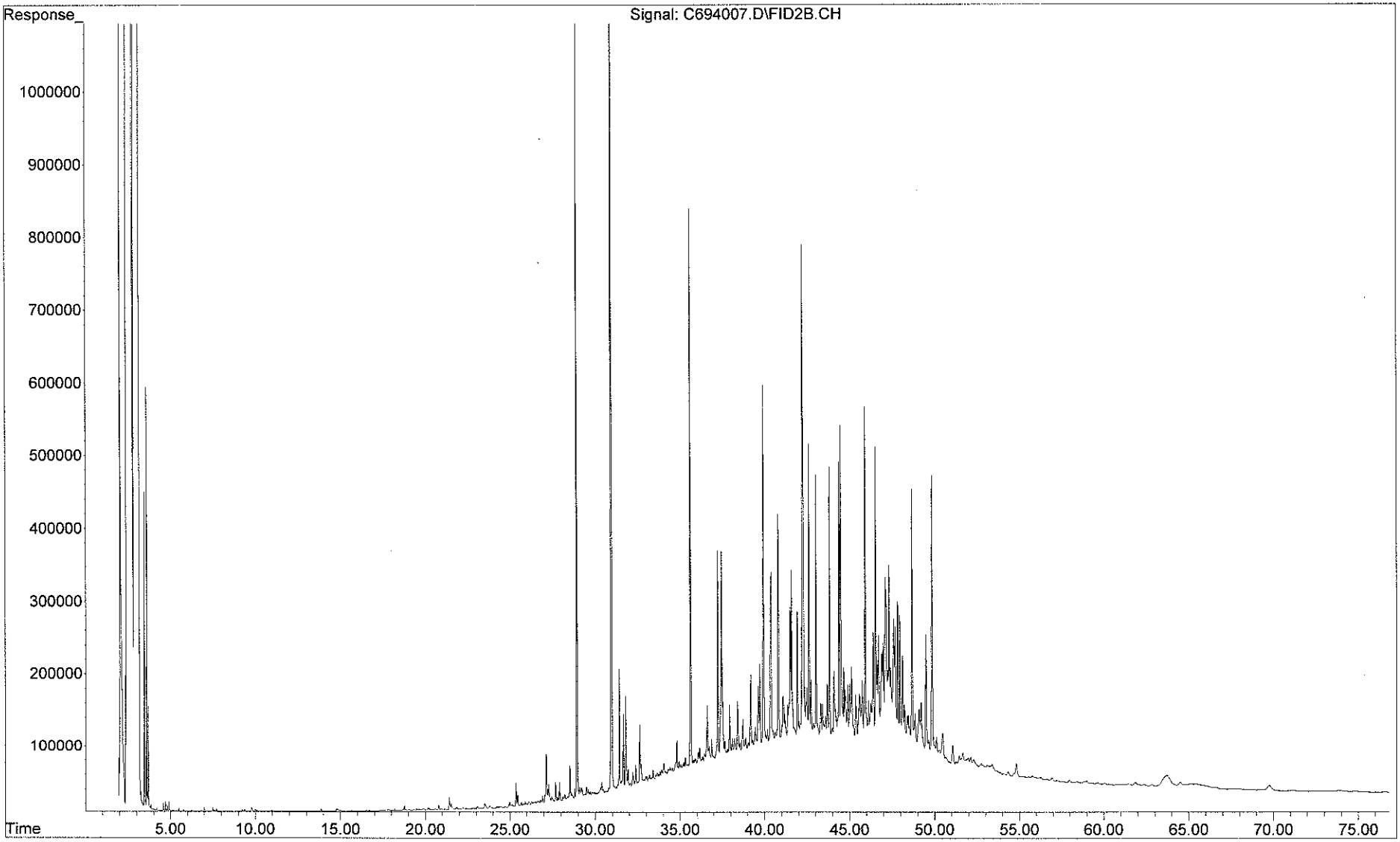
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.927	330300	0.294	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	2150318157	1818.196	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	460840286	389.662	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694007.D
Operator : JT
Acquired : 26 May 2012 3:31 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-08
Misc Info : 1X
ALS Vial : 78



Method Path : O:\FORENSICS\METHODS\FID6\
Method File : HC6032612R.M
Title : FID Forensics
Last Update : Thu Mar 29 11:53:16 2012
Response Via : Initial Calibration

Calibration Files
1 =C692591.D 10 =C692593.D 50 =C692595.D 100 =C692597.D 200 =C692599.D 500 =C692601.D

		Compound	1	10	50	100	200	500	Avg	%RSD
1)	I	5-alpha-androstane	ISTD							
2)	t	n-Octane (C8)	0.804	0.780	0.834	0.767	0.737		0.784	4.72
3)	t	n-Nonane (C9)	0.821	0.808	0.872	0.802	0.770		0.815	4.54
4)	t	n-Decane (C10)	0.864	0.849	0.916	0.850	0.815		0.859	4.26
5)	t	n-Undecane (C11)	0.860	0.857	0.925	0.861	0.827		0.866	4.14
6)	t	n-Dodecane (C12)	0.871	0.874	0.943	0.880	0.843		0.882	4.18
7)	t	n-Tridecane (...	0.877	0.877	0.952	0.884	0.845		0.887	4.45
8)	t	1380	0.883	0.885	0.965	0.894	0.853		0.896	4.65
9)	t	n-Tetradecane...	0.883	0.885	0.965	0.894	0.853		0.896	4.65
10)	t	1470	0.885	0.883	0.961	0.894	0.852		0.895	4.49
11)	t	n-Pentadecane...	0.885	0.883	0.961	0.894	0.852		0.895	4.49
12)	t	n-Hexadecane ...	0.895	0.894	0.974	0.905	0.863		0.906	4.53
13)	t	1650	0.881	0.886	0.982	0.899	0.860		0.902	5.24
14)	t	n-Heptadecane...	0.881	0.886	0.982	0.899	0.860		0.902	5.24
15)	t	Pristane	0.913	0.911	0.994	0.919	0.871		0.921	4.85
16)	t	n-Octadecane ...	0.908	0.910	0.991	0.921	0.878		0.922	4.53
17)	t	Phytane	0.899	0.900	0.978	0.908	0.865		0.910	4.53
18)	t	n-Nonadecane ...	0.908	0.911	0.983	0.916	0.875		0.919	4.30
19)	s	ortho-terphenyl	1.053	1.006	1.132	1.021	0.979	0.938	1.021	6.52
20)	t	n-Eicosane (C20)	0.918	0.921	0.996	0.923	0.884		0.928	4.45
21)	t	n-Heneicosane...	0.952	0.925	0.994	0.922	0.883		0.935	4.37
22)	t	n-Docosane (C22)	0.931	0.933	1.001	0.930	0.889		0.937	4.30
23)	t	n-Tricosane (...	0.949	0.941	0.999	0.931	0.889		0.942	4.17
24)	s	d50-Tetracosane	0.849	0.807	0.892	0.811	0.782	0.752	0.815	6.06
25)	t	n-Tetracosane...	0.937	0.935	0.998	0.927	0.886		0.936	4.28
26)	t	n-Pentacosane...	0.951	0.951	1.017	0.947	0.905		0.954	4.23
27)	t	n-Hexacosane ...	0.949	0.944	1.013	0.940	0.898		0.949	4.35
28)	t	n-Heptacosane...	0.933	0.925	1.009	0.922	0.879		0.934	5.03
29)	t	n-Octacosane ...	0.944	0.936	1.005	0.932	0.888		0.941	4.43
30)	t	n-Nonacosane ...	0.943	0.937	1.003	0.934	0.890		0.942	4.29
31)	t	n-Triacontane...	0.936	0.924	1.023	0.922	0.878		0.937	5.68
32)	t	n-Hentriacont...	0.940	0.933	1.008	0.931	0.887		0.940	4.63
33)	t	n-Dotriaconta...	0.937	0.929	0.997	0.929	0.885		0.935	4.29
34)	t	n-Tritriacont...	0.901	0.887	1.010	0.886	0.845		0.906	6.85
35)	t	n-tetratriaco...	0.911	0.914	0.996	0.915	0.872		0.921	4.90
36)	t	n-Pentatriaco...	0.948	0.932	1.005	0.930	0.887		0.940	4.54
37)	t	n-Hexatriacon...	0.967	0.946	1.028	0.948	0.903		0.958	4.75
38)	t	n-Heptatriaco...	0.937	0.927	1.005	0.927	0.884		0.936	4.65
39)	t	n-Octatriacon...	0.978	0.920	0.996	0.920	0.877		0.938	5.15
40)	t	n-Nonatriacon...	0.875	0.868	0.914	0.870	0.831		0.871	3.40
41)	t	n-Tetracontan...	0.875	0.868	0.914	0.870	0.831		0.871	3.40

Method Path : O:\FORENSICS\METHODS\FID6\
Method File : HC6032612R.M
Title : FID Forensics
Last Update : Thu Mar 29 11:53:16 2012
Response Via : Initial Calibration

Calibration Files
1 =C692591.D 10 =C692593.D 50 =C692595.D 100 =C692597.D 200 =C692599.D 500 =C692601.D

	Compound	1	10	50	100	200	500	Avg	%RSD
42) h	C9-C44 Total ...	0.915	0.908	0.983	0.910	0.868		0.917	4.53
43) h	C9-C40 Total ...	0.915	0.908	0.983	0.910	0.868		0.917	4.53
44) h	C10-C28 DRO	0.915	0.908	0.983	0.910	0.868		0.917	4.53
45) h	Total Resolve...	0.915	0.908	0.983	0.910	0.868		0.917	4.53

(#) = Out of Range

RSF Update Summary Report

Method Path.....: O:\FORENSICS\METHODS\FID6\
Method File.....: HC6032612R.M
Method Title.....: FID Forensics
Last Update.....: Thu Mar 29 11:53:16 2012

Generating Average Response Factor For: C9-C44 Total Petroleum Hydrocarbons

No	Compound	Level	Conc	Response
1	n-Nonane (C9)	1	1.00000	903682.258
2	n-Decane (C10)	1	1.00000	950580.407
3	n-Undecane (C11)	1	1.00000	946724.016
4	n-Dodecane (C12)	1	1.00000	959147.111
5	n-Tridecane (C13)	1	1.00000	964876.346
6	n-Tetradecane (C14)	1	1.00000	971864.933
7	n-Pentadecane (C15)	1	1.00000	974537.363
8	n-Hexadecane (C16)	1	1.00000	985303.238
9	n-Heptadecane (C17)	1	1.00000	969818.228
10	Pristane	1	1.00000	1004433.514
11	n-Octadecane (C18)	1	1.00000	999365.946
12	Phytane	1	1.00000	989810.747
13	n-Nonadecane (C19)	1	1.00000	999010.707
14	n-Eicosane (C20)	1	1.00000	1010314.567
15	n-Heneicosane (C21)	1	1.00000	1048079.520
16	n-Docosane (C22)	1	1.00000	1024351.197
17	n-Tricosane (C23)	1	1.00000	1044109.107
18	n-Tetracosane (C24)	1	1.00000	1031776.825
19	n-Pentacosane (C25)	1	1.00000	1047066.559
20	n-Hexacosane (C26)	1	1.00000	1044732.748
21	n-Heptacosane (C27)	1	1.00000	1026805.565
22	n-Octacosane (C28)	1	1.00000	1039435.730
23	n-Nonacosane (C29)	1	1.00000	1038400.462
24	n-Triacontane (C30)	1	1.00000	1030529.700
25	n-Hentriacontane (C31)	1	1.00000	1035019.769
26	n-Dotriacontane (C32)	1	1.00000	1031264.969
27	n-Tritriacontane (C33)	1	1.00000	991575.234
28	n-tetratriacontane (C34)	1	1.00000	1002400.818
29	n-Pentatriacontane (C35)	1	1.00000	1043191.741
30	n-Hexatriacontane (C36)	1	1.00000	1064353.034
31	n-Heptatriacontane (C37)	1	1.00000	1031256.838
32	n-Octatriacontane (C38)	1	1.00000	1076335.084
33	n-Tetracontane (C40)	1	1.00000	963428.791
Avg RSF For: C9-C44 Total Petroleum			1.00000	1007381.305
1	n-Nonane (C9)	2	10.00000	9369889.936
2	n-Decane (C10)	2	10.00000	9840209.638
3	n-Undecane (C11)	2	10.00000	9939993.263
4	n-Dodecane (C12)	2	10.00000	10133393.892
5	n-Tridecane (C13)	2	10.00000	10166106.453
6	n-Tetradecane (C14)	2	10.00000	10255977.645
7	n-Pentadecane (C15)	2	10.00000	10240518.630
8	n-Hexadecane (C16)	2	10.00000	10365658.176
9	n-Heptadecane (C17)	2	10.00000	10267387.223
10	Pristane	2	10.00000	10566152.800

11	n-Octadecane (C18)	2	10.00000	10555292.400
12	Phytane	2	10.00000	10432822.937
13	n-Nonadecane (C19)	2	10.00000	10561789.955
14	n-Eicosane (C20)	2	10.00000	10680728.519
15	n-Heneicosane (C21)	2	10.00000	10728150.992
16	n-Docosane (C22)	2	10.00000	10816046.221
17	n-Tricosane (C23)	2	10.00000	10907962.380
18	n-Tetracosane (C24)	2	10.00000	10840333.438
19	n-Pentacosane (C25)	2	10.00000	11026217.217
20	n-Hexacosane (C26)	2	10.00000	10950266.215
21	n-Heptacosane (C27)	2	10.00000	10725717.756
22	n-Octacosane (C28)	2	10.00000	10848002.714
23	n-Nonacosane (C29)	2	10.00000	10859886.561
24	n-Triacontane (C30)	2	10.00000	10716696.066
25	n-Hentriacontane (C31)	2	10.00000	10818661.152
26	n-Dotriacontane (C32)	2	10.00000	10769522.120
27	n-Tritriacontane (C33)	2	10.00000	10280379.088
28	n-tetratriacontane (C34)	2	10.00000	10596438.672
29	n-Pentatriacontane (C35)	2	10.00000	10804047.253
30	n-Hexatriacontane (C36)	2	10.00000	10964465.380
31	n-Heptatriacontane (C37)	2	10.00000	10748714.378
32	n-Octatriacontane (C38)	2	10.00000	10662689.803 ✓
33	n-Tetracontane (C40)	2	10.00000	10059123.086
Avg RSF For: C9-C44 Total Petroleum			10.00000	10530280.059 ✓

1	n-Nonane (C9)	3	50.00000	49399267.840
2	n-Decane (C10)	3	50.00000	51884924.332
3	n-Undecane (C11)	3	50.00000	52421139.224
4	n-Dodecane (C12)	3	50.00000	53430734.277
5	n-Tridecane (C13)	3	50.00000	53968639.087
6	n-Tetradecane (C14)	3	50.00000	54709409.366
7	n-Pentadecane (C15)	3	50.00000	54480056.761 ✓
8	n-Hexadecane (C16)	3	50.00000	55212852.947
9	n-Heptadecane (C17)	3	50.00000	55661749.782
10	Pristane	3	50.00000	56304382.988
11	n-Octadecane (C18)	3	50.00000	56140393.489
12	Phytane	3	50.00000	55403392.383
13	n-Nonadecane (C19)	3	50.00000	55719348.775
14	n-Eicosane (C20)	3	50.00000	56461317.745
15	n-Heneicosane (C21)	3	50.00000	56301276.795
16	n-Docosane (C22)	3	50.00000	56703563.879
17	n-Tricosane (C23)	3	50.00000	56595011.500
18	n-Tetracosane (C24)	3	50.00000	56536952.785
19	n-Pentacosane (C25)	3	50.00000	57651232.842
20	n-Hexacosane (C26)	3	50.00000	57428700.088
21	n-Heptacosane (C27)	3	50.00000	57176782.288
22	n-Octacosane (C28)	3	50.00000	56940412.602
23	n-Nonacosane (C29)	3	50.00000	56858154.881
24	n-Triacontane (C30)	3	50.00000	57997938.812 ✓
25	n-Hentriacontane (C31)	3	50.00000	57130005.410
26	n-Dotriacontane (C32)	3	50.00000	56490119.502
27	n-Tritriacontane (C33)	3	50.00000	57252863.864
28	n-tetratriacontane (C34)	3	50.00000	56419090.362
29	n-Pentatriacontane (C35)	3	50.00000	56963974.118
30	n-Hexatriacontane (C36)	3	50.00000	58281519.849
31	n-Heptatriacontane (C37)	3	50.00000	56925676.558
32	n-Octatriacontane (C38)	3	50.00000	56462065.906
33	n-Tetracontane (C40)	3	50.00000	51807128.986
Avg RSF For: C9-C44 Total Petroleum			50.00000	55730911.516 ✓

1	n-Nonane (C9)	4	100.00000	94478759.110
2	n-Decane (C10)	4	100.00000	100133234.367
3	n-Undecane (C11)	4	100.00000	101445780.723
4	n-Dodecane (C12)	4	100.00000	103663249.141
5	n-Tridecane (C13)	4	100.00000	104153108.319
6	n-Tetradecane (C14)	4	100.00000	105285743.622
7	n-Pentadecane (C15)	4	100.00000	105265458.395
8	n-Hexadecane (C16)	4	100.00000	106636433.482
9	n-Heptadecane (C17)	4	100.00000	105904871.903
10	Pristane	4	100.00000	108251514.855
11	n-Octadecane (C18)	4	100.00000	108446331.270
12	Phytane	4	100.00000	106922258.340
13	n-Nonadecane (C19)	4	100.00000	107952126.264
14	n-Eicosane (C20)	4	100.00000	108776586.873
15	n-Heneicosane (C21)	4	100.00000	108675142.949
16	n-Docosane (C22)	4	100.00000	109538090.897
17	n-Tricosane (C23)	4	100.00000	109684405.565
18	n-Tetracosane (C24)	4	100.00000	109164371.864
19	n-Pentacosane (C25)	4	100.00000	111507784.192
20	n-Hexacosane (C26)	4	100.00000	110778509.607
21	n-Heptacosane (C27)	4	100.00000	108570481.608
22	n-Octacosane (C28)	4	100.00000	109808447.134
23	n-Nonacosane (C29)	4	100.00000	110056459.661
24	n-Triacontane (C30)	4	100.00000	108566409.195
25	n-Hentriacontane (C31)	4	100.00000	109626668.923
26	n-Dotriacontane (C32)	4	100.00000	109386649.499
27	n-Tritriacontane (C33)	4	100.00000	104429435.031
28	n-tetratriacontane (C34)	4	100.00000	107767404.724
29	n-Pentatriacontane (C35)	4	100.00000	109613673.579
30	n-Hexatriacontane (C36)	4	100.00000	111653347.790
31	n-Heptatriacontane (C37)	4	100.00000	109232933.285
32	n-Octatriacontane (C38)	4	100.00000	108369307.013
33	n-Tetracontane (C40)	4	100.00000	102447677.935

Avg RSF For: C9-C44 Total Petroleum	100.00000	107157353.246

1	n-Nonane (C9)	5	200.00000	187694053.869
2	n-Decane (C10)	5	200.00000	198579474.702
3	n-Undecane (C11)	5	200.00000	201527223.623
4	n-Dodecane (C12)	5	200.00000	205321694.510
5	n-Tridecane (C13)	5	200.00000	205939540.043
6	n-Tetradecane (C14)	5	200.00000	207931547.668
7	n-Pentadecane (C15)	5	200.00000	207692780.983
8	n-Hexadecane (C16)	5	200.00000	210389272.629
9	n-Heptadecane (C17)	5	200.00000	209537687.784
10	Pristane	5	200.00000	212132180.989
11	n-Octadecane (C18)	5	200.00000	213986084.022
12	Phytane	5	200.00000	210813698.137
13	n-Nonadecane (C19)	5	200.00000	213238330.572
14	n-Eicosane (C20)	5	200.00000	215277079.538
15	n-Heneicosane (C21)	5	200.00000	215133870.550
16	n-Docosane (C22)	5	200.00000	216578249.605
17	n-Tricosane (C23)	5	200.00000	216635803.010
18	n-Tetracosane (C24)	5	200.00000	215806475.363
19	n-Pentacosane (C25)	5	200.00000	220449760.658
20	n-Hexacosane (C26)	5	200.00000	218865968.944
21	n-Heptacosane (C27)	5	200.00000	214276178.388
22	n-Octacosane (C28)	5	200.00000	216473722.389
23	n-Nonacosane (C29)	5	200.00000	216933265.364
24	n-Triacontane (C30)	5	200.00000	214014323.568
25	n-Hentriacontane (C31)	5	200.00000	216143833.473
26	n-Dotriacontane (C32)	5	200.00000	215597410.238
27	n-Tritriacontane (C33)	5	200.00000	205845560.408
28	n-tetratriacontane (C34)	5	200.00000	212452744.582

29	n-Pentatriacontane (C35)	5	200.00000	216117976.096
30	n-Hexatriacontane (C36)	5	200.00000	220104716.274
31	n-Heptatriacontane (C37)	5	200.00000	215356854.222
32	n-Octatriacontane (C38)	5	200.00000	213786445.891
33	n-Tetracontane (C40)	5	200.00000	202410254.310

Avg RSF For: C9-C44 Total Petroleum 200.00000 211607395.830 ✓

Generating Reference Response Factors

No	Compound	No	Refrence Compound
8	1380	9	n-Tetradecane (C14)
10	1470	11	n-Pentadecane (C15)
13	1650	14	n-Heptadecane (C17)
40	n-Nonatriacontane (C39)	41	n-Tetracontane (C40)
43	C9-C40 Total Petroleum Hydrocarbons	42	C9-C44 Total Petroleum Hydrocarbons
44	C10-C28 DRO	42	C9-C44 Total Petroleum Hydrocarbons
45	Total Resolved Hydrocarbons	42	C9-C44 Total Petroleum Hydrocarbons

---

Abacus Response Factor Update Macro Ver. 1.0

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692591.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 1:02 pm
Operator : BAL
Sample : I603261201R
Misc : WHAO93
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:18:03 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

20 3/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.187	55032979	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.139	1159117	1.018 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	2.04%#
24) s d50-Tetracosane	35.811	934465	1.010 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	2.02%#
Target Compounds			
2) t n-Octane (C8)	5.579	884669	1.016 ug/mL M4
3) t n-Nonane (C9)	7.782	903682	1.007 ug/mL M4
4) t n-Decane (C10)	10.263	950580	1.016 ug/mL M4
5) t n-Undecane (C11)	12.770	946724	1.006 ug/mL M4
6) t n-Dodecane (C12)	15.192	959147	0.999 ug/mL M4
7) t n-Tridecane (C13)	17.493	964876	1.000 ug/mL M4
9) t n-Tetradecane (C14)	19.671	971865	0.998 ug/mL M4
11) t n-Pentadecane (C15)	21.731	974537	1.000 ug/mL M4
12) t n-Hexadecane (C16)	23.683	985303	1.002 ug/mL M4
14) t n-Heptadecane (C17)	25.536	969818	0.994 ug/mL M4
15) t Pristane	25.647	1004434	0.998 ug/mL M4
16) t n-Octadecane (C18)	27.299	999366	0.997 ug/mL M4
17) t Phytane	27.462	989811	0.996 ug/mL M4
18) t n-Nonadecane (C19)	28.981	999011	0.997 ug/mL M4
20) t n-Eicosane (C20)	30.584	1010315	1.000 ug/mL M4
21) t n-Heneicosane (C21)	32.118	1048080	1.037 ug/mL M4
22) t n-Docosane (C22)	33.588	1024351	1.007 ug/mL M4
23) t n-Tricosane (C23)	34.998	1044109	1.025 ug/mL M4
25) t n-Tetracosane (C24)	36.354	1031777	1.014 ug/mL M4
26) t n-Pentacosane (C25)	37.656	1047067	1.012 ug/mL M4
27) t n-Hexacosane (C26)	38.912	1044733	1.017 ug/mL M4
28) t n-Heptacosane (C27)	40.122	1026806	1.020 ug/mL M4
29) t n-Octacosane (C28)	41.291	1039436	1.023 ug/mL M4
30) t n-Nonacosane (C29)	42.421	1038400	1.021 ug/mL M4
31) t n-Triacontane (C30)	43.513	1030530	1.026 ug/mL M4
32) t n-Hentriacontane (C31)	44.572	1035020	1.020 ug/mL M4
33) t n-Dotriacontane (C32)	45.596	1031265	1.020 ug/mL M4
34) t n-Tritriacontane (C33)	46.590	991575	1.028 ug/mL M4
35) t n-tetratriacontane (C34)	47.586	1002401	1.007 ug/mL M4
36) t n-Pentatriacontane (C35)	48.694	1043192	1.030 ug/mL M4
37) t n-Hexatriacontane (C36)	49.960	1064353	1.030 ug/mL M4
38) t n-Heptatriacontane (C37)	51.421	1031257	1.020 ug/mL M4
39) t n-Octatriacontane (C38)	53.124	1076335	1.072 ug/mL M4
41) t n-Tetracontane (C40)	57.480	963429	1.012 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692591.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 1:02 pm
Operator : BAL
Sample : I603261201R
Misc : WHAO93
ALS Vial : 61 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:18:03 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

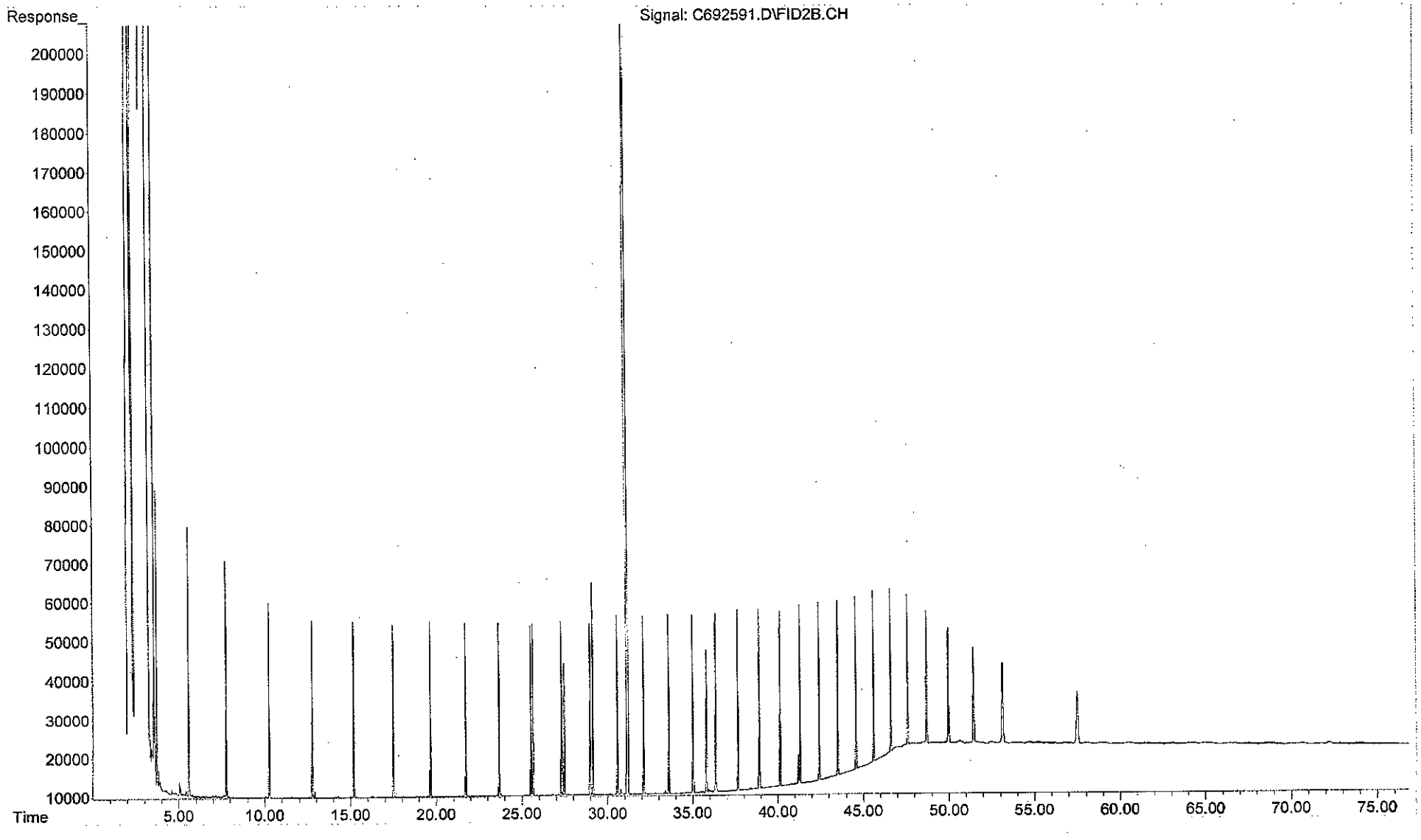
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAR2012\MAR26.SEC\C692591.D
Operator : BAL
Acquired : 27 Mar 2012 1:02 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261201R
Misc Info : WHAO93
ALS Vial : 61



Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692593.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 2:32 pm
Operator : BAL
Sample : I603261202R
Misc : WHAO93
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:22:12 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

20 3/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.191	57973316	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.145	11663280	9.719 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	19.44%#
24) s d50-Tetracosane	35.816	9354048	9.600 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	19.20%#
Target Compounds			
2) t n-Octane (C8)	5.584	9040484	9.860 ug/mL M4
3) t n-Nonane (C9)	7.785	9369890	9.911 ug/mL M4
4) t n-Decane (C10)	10.267	9840210	9.983 ug/mL M4
5) t n-Undecane (C11)	12.774	9939993	10.022 ug/mL M4
6) t n-Dodecane (C12)	15.195	10133394	10.022 ug/mL M4
7) t n-Tridecane (C13)	17.497	10166106	10.005 ug/mL M4
9) t n-Tetradecane (C14)	19.675	10255978	9.997 ug/mL M4
11) t n-Pentadecane (C15)	21.736	10240519	9.972 ug/mL M4
12) t n-Hexadecane (C16)	23.688	10365658	10.004 ug/mL M4
14) t n-Heptadecane (C17)	25.542	10267387	9.992 ug/mL M4
15) t Pristane	25.652	10566153	9.965 ug/mL M4
16) t n-Octadecane (C18)	27.305	10555292	9.999 ug/mL M4
17) t Phytane	27.470	10432823	9.970 ug/mL M4
18) t n-Nonadecane (C19)	28.987	10561790	10.009 ug/mL M4
20) t n-Eicosane (C20)	30.591	10680729	10.039 ug/mL M4
21) t n-Heneicosane (C21)	32.123	10728151	10.081 ug/mL M4
22) t n-Docosane (C22)	33.595	10816046	10.094 ug/mL M4
23) t n-Tricosane (C23)	35.005	10907962	10.163 ug/mL M4
25) t n-Tetracosane (C24)	36.360	10840333	10.114 ug/mL M4
26) t n-Pentacosane (C25)	37.663	11026217	10.113 ug/mL M4
27) t n-Hexacosane (C26)	38.919	10950266	10.123 ug/mL M4
28) t n-Heptacosane (C27)	40.130	10725718	10.116 ug/mL M4
29) t n-Octacosane (C28)	41.298	10848003	10.139 ug/mL M4
30) t n-Nonacosane (C29)	42.428	10859887	10.133 ug/mL M4
31) t n-Triacontane (C30)	43.521	10716696	10.132 ug/mL M4
32) t n-Hentriacontane (C31)	44.578	10818661	10.123 ug/mL M4
33) t n-Dotriacontane (C32)	45.605	10769522	10.116 ug/mL M4
34) t n-Tritriacontane (C33)	46.598	10280379	10.115 ug/mL M4
35) t n-tetratriacontane (C34)	47.594	10596439	10.102 ug/mL M4
36) t n-Pentatriacontane (C35)	48.707	10804047	10.122 ug/mL M4
37) t n-Hexatriacontane (C36)	49.973	10964465	10.069 ug/mL M4
38) t n-Heptatriacontane (C37)	51.438	10748714	10.090 ug/mL M4
39) t n-Octatriacontane (C38)	53.144	10662690	10.078 ug/mL M4
41) t n-Tetracontane (C40)	57.504	10059123	10.026 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692593.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 2:32 pm
Operator : BAL
Sample : I603261202R
Misc : WHAO93
ALS Vial : 62 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:22:12 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

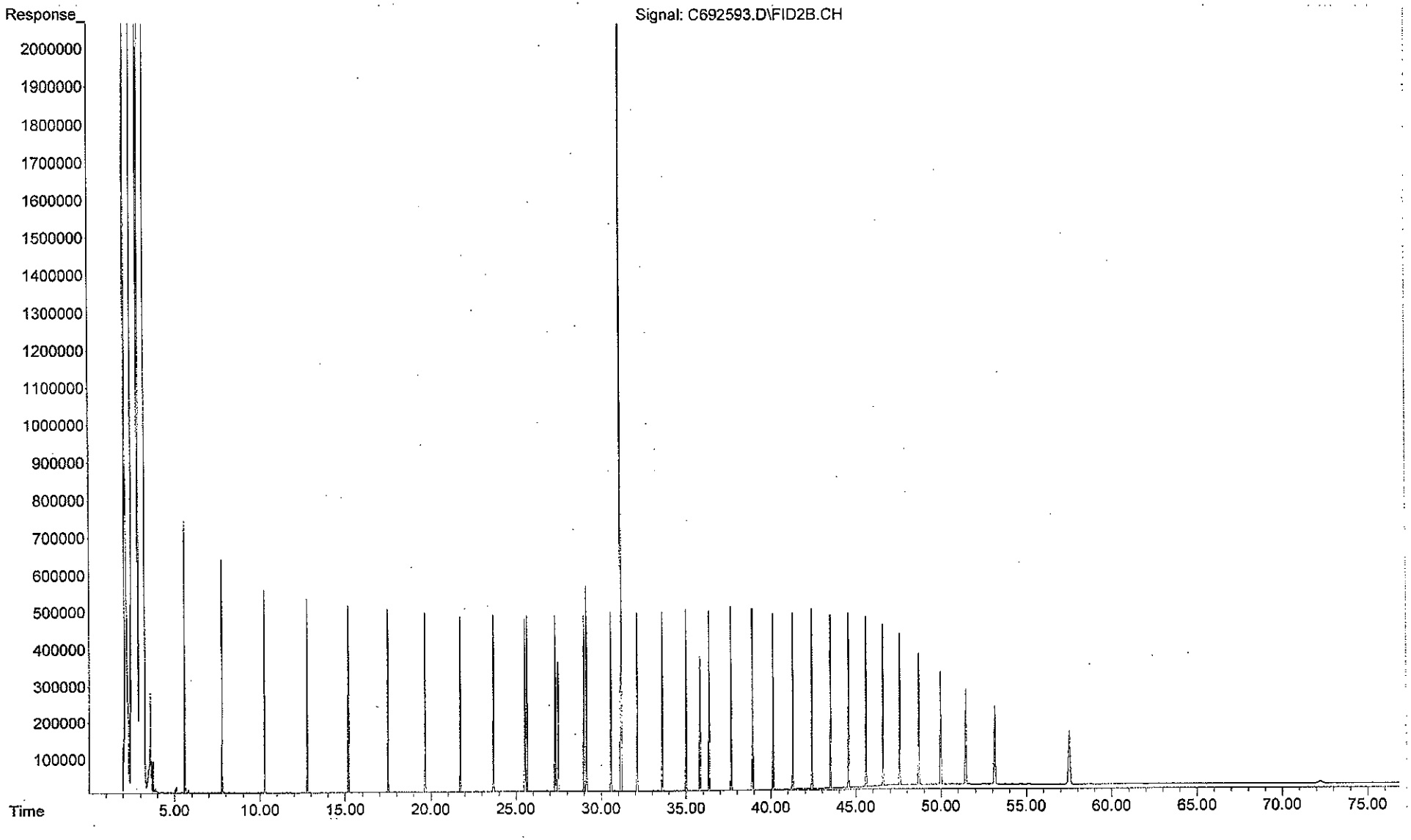
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAR2012\MAR26.SEC\C692593.D
Operator : BAL
Acquired : 27 Mar 2012 2:32 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261202R
Misc Info : WHAO93
ALS Vial : 62



Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692595.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 4:01 pm
Operator : BAL
Sample : I603261203R
Misc : WHAP26
ALS Vial : 63 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:27:02 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

2° VK 3/29/12

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	31.192	56668811	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	29.171	64126462	54.669 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	109.34%
24) s	d50-Tetracosane	35.837	50557338	53.081 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	106.16%
Target Compounds				
2) t	n-Octane (C8)	5.610	47284621	52.757 ug/mL M4
3) t	n-Nonane (C9)	7.806	49399268	53.453 ug/mL M4
4) t	n-Decane (C10)	10.282	51884924	53.850 ug/mL M4
5) t	n-Undecane (C11)	12.787	52421139	54.071 ug/mL M4
6) t	n-Dodecane (C12)	15.209	53430734	54.060 ug/mL M4
7) t	n-Tridecane (C13)	17.511	53968639	54.338 ug/mL M4
9) t	n-Tetradecane (C14)	19.690	54709409	54.554 ug/mL M4
11) t	n-Pentadecane (C15)	21.752	54480057	54.271 ug/mL M4
12) t	n-Hexadecane (C16)	23.705	55212853	54.515 ug/mL M4
14) t	n-Heptadecane (C17)	25.561	55661750	55.415 ug/mL M4
15) t	Pristane	25.673	56304383	54.323 ug/mL M4
16) t	n-Octadecane (C18)	27.326	56140393	54.403 ug/mL M4
17) t	Phytane	27.490	55403392	54.164 ug/mL M4
18) t	n-Nonadecane (C19)	29.008	55719349	54.021 ug/mL M4
20) t	n-Eicosane (C20)	30.611	56461318	54.292 ug/mL M4
21) t	n-Heneicosane (C21)	32.146	56301277	54.123 ug/mL M4
22) t	n-Docosane (C22)	33.616	56703564	54.135 ug/mL M4
23) t	n-Tricosane (C23)	35.028	56595012	53.945 ug/mL M4
25) t	n-Tetracosane (C24)	36.385	56536953	53.966 ug/mL M4
26) t	n-Pentacosane (C25)	37.688	57651233	54.092 ug/mL M4
27) t	n-Hexacosane (C26)	38.944	57428700	54.310 ug/mL M4
28) t	n-Heptacosane (C27)	40.155	57176782	55.166 ug/mL M4
29) t	n-Octacosane (C28)	41.325	56940413	54.445 ug/mL M4
30) t	n-Nonacosane (C29)	42.455	56858155	54.271 ug/mL M4
31) t	n-Triacontane (C30)	43.549	57997939	56.094 ug/mL M4
32) t	n-Hentriacontane (C31)	44.607	57130005	54.685 ug/mL M4
33) t	n-Dotriacontane (C32)	45.632	56490120	54.281 ug/mL M4
34) t	n-Tritriacontane (C33)	46.626	57252864	57.631 ug/mL M4
35) t	n-tetratriacontane (C34)	47.626	56419090	55.027 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.741	56963974	54.597 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.017	58281520	54.753 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.488	56925677	54.667 ug/mL M4
39) t	n-Octatriacontane (C38)	53.205	56462066	54.592 ug/mL M4
41) t	n-Tetracontane (C40)	57.587	51807129	52.826 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692595.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 4:01 pm
Operator : BAL
Sample : I603261203R
Misc : WHAP26
ALS Vial : 63 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:27:02 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

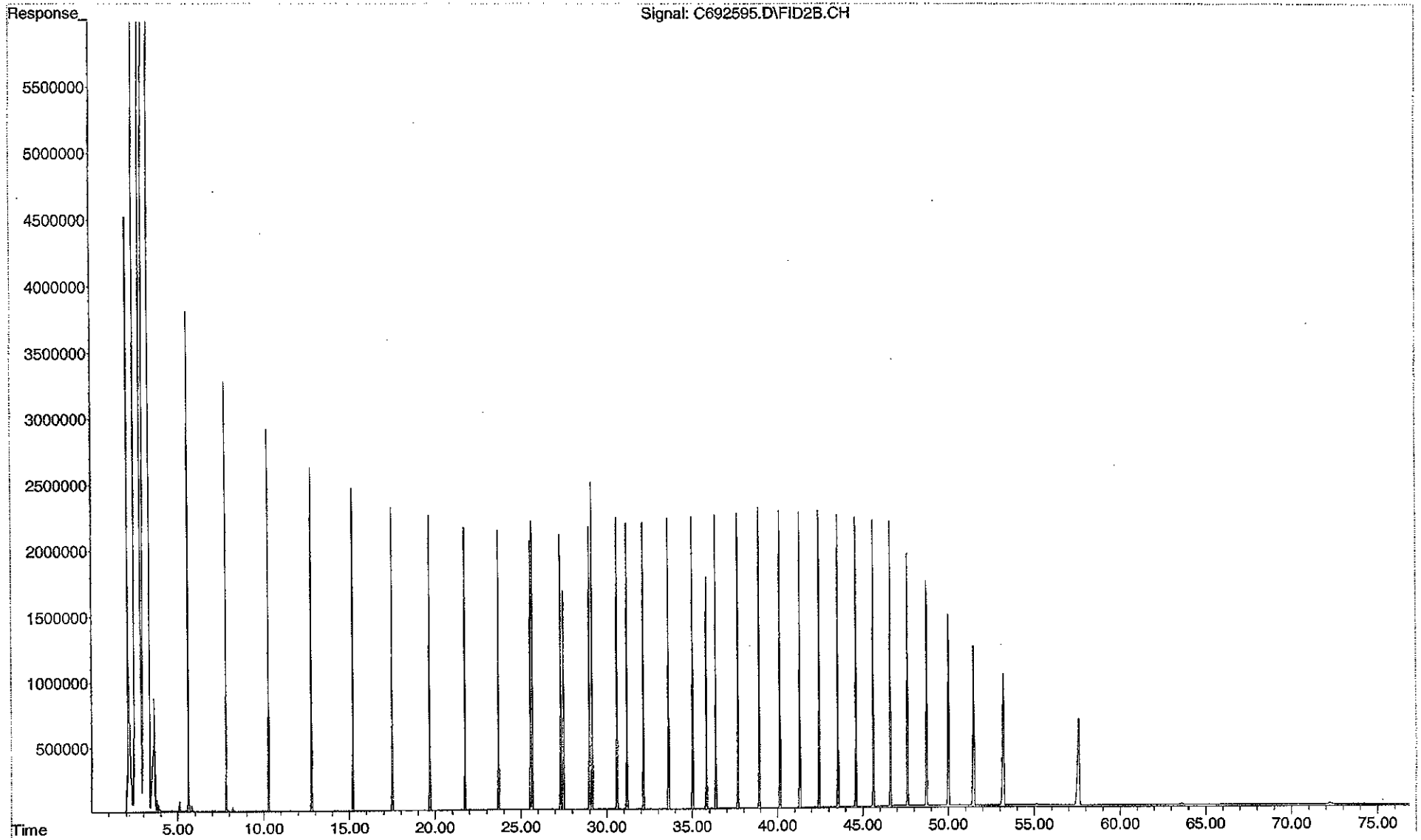
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692595.D
Operator : BAL
Acquired : 27 Mar 2012 4:01 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261203R
Misc Info : WHAP26
ALS Vial : 63



Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692597.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 5:30 pm
Operator : BAL
Sample : I603261204R
Misc : WHAO95
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:40:37 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

3/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.194	58902789	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.188	120236721	98.616 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 197.23%#	
24) s d50-Tetracosane	35.854	95492611	96.457 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 192.91%#	
Target Compounds			
2) t n-Octane (C8)	5.640	90393987	97.030 ug/mL M4
3) t n-Nonane (C9)	7.830	94478759	98.354 ug/mL M4
4) t n-Decane (C10)	10.300	100133234	99.983 ug/mL M4
5) t n-Undecane (C11)	12.803	101445781	100.670 ug/mL M4
6) t n-Dodecane (C12)	15.223	103663249	100.906 ug/mL M4
7) t n-Tridecane (C13)	17.525	104153108	100.888 ug/mL M4
9) t n-Tetradecane (C14)	19.703	105285744	101.004 ug/mL M4
11) t n-Pentadecane (C15)	21.764	105265458	100.884 ug/mL M4
12) t n-Hexadecane (C16)	23.718	106636433	101.295 ug/mL M4
14) t n-Heptadecane (C17)	25.578	105904872	101.437 ug/mL M4
15) t Pristane	25.690	108251515	100.480 ug/mL M4
16) t n-Octadecane (C18)	27.342	108446331	101.105 ug/mL M4
17) t Phytane	27.508	106922258	100.565 ug/mL M4
18) t n-Nonadecane (C19)	29.025	107952126	100.691 ug/mL M4
20) t n-Eicosane (C20)	30.628	108776587	100.631 ug/mL M4
21) t n-Heneicosane (C21)	32.162	108675143	100.508 ug/mL M4
22) t n-Docosane (C22)	33.636	109538091	100.610 ug/mL M4
23) t n-Tricosane (C23)	35.044	109684406	100.582 ug/mL
25) t n-Tetracosane (C24)	36.405	109164372	100.248 ug/mL M4
26) t n-Pentacosane (C25)	37.710	111507784	100.655 ug/mL M4
27) t n-Hexacosane (C26)	38.965	110778510	100.789 ug/mL M4
28) t n-Heptacosane (C27)	40.176	108570482	100.780 ug/mL M4
29) t n-Octacosane (C28)	41.346	109808447	101.014 ug/mL M4
30) t n-Nonacosane (C29)	42.477	110056460	101.065 ug/mL M4
31) t n-Triacontane (C30)	43.570	108566409	101.021 ug/mL M4
32) t n-Hentriacontane (C31)	44.629	109626669	100.954 ug/mL M4
33) t n-Dotriacontane (C32)	45.654	109386649	101.123 ug/mL M4
34) t n-Tritriacontane (C33)	46.647	104429435	101.133 ug/mL M4
35) t n-tetratriacontane (C34)	47.652	107767405	101.122 ug/mL M4
36) t n-Pentatriacontane (C35)	48.772	109613674	101.074 ug/mL M4
37) t n-Hexatriacontane (C36)	50.055	111653348	100.915 ug/mL M4
38) t n-Heptatriacontane (C37)	51.531	109232933	100.921 ug/mL M4
39) t n-Octatriacontane (C38)	53.258	108369307	100.807 ug/mL M4
41) t n-Tetracontane (C40)	57.657	102447678	100.500 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692597.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 5:30 pm
Operator : BAL
Sample : I603261204R
Misc : WHAO95
ALS Vial : 64 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:40:37 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Wed Mar 28 08:44:43 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

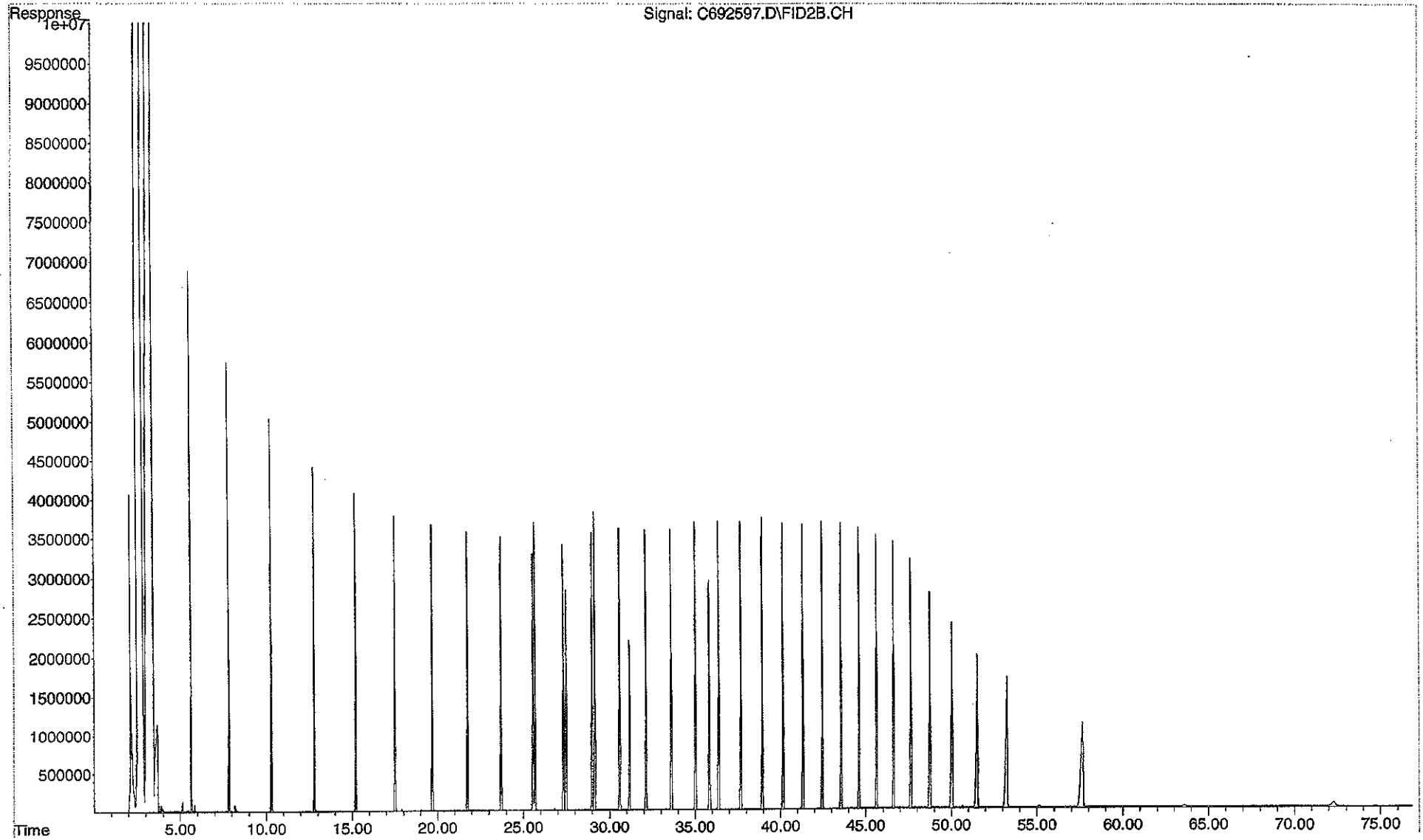
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692597.D
Operator : BAL
Acquired : 27 Mar 2012 5:30 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261204R
Misc Info : WHA095
ALS Vial : 64



Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692599.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 6:59 pm
Operator : BAL
Sample : I603261205R
Misc : WHA096
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:50:12 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 08:02:12 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

3/29/12

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	31.200	60914902	50.000 ug/mL M4
System Monitoring Compounds				
19) s	ortho-terphenyl	29.214	238587159	188.899 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	377.80%#
24) s	d50-Tetracosane	35.880	190485328	188.603 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	377.21%#
Target Compounds				
2) t	n-Octane (C8)	5.706	179483960	187.842 ug/mL M4
3) t	n-Nonane (C9)	7.876	187694054	189.755 ug/mL M4
4) t	n-Decane (C10)	10.330	198579475	190.176 ug/mL M4
5) t	n-Undecane (C11)	12.825	201527224	191.249 ug/mL M4
6) t	n-Dodecane (C12)	15.243	205321695	191.041 ug/mL M4
7) t	n-Tridecane (C13)	17.543	205939540	190.570 ug/mL M4
9) t	n-Tetradecane (C14)	19.721	207931548	190.469 ug/mL M4
11) t	n-Pentadecane (C15)	21.783	207692781	190.689 ug/mL M4
12) t	n-Hexadecane (C16)	23.737	210389273	190.490 ug/mL M4
14) t	n-Heptadecane (C17)	25.603	209537688	190.884 ug/mL M4
15) t	Pristane	25.712	212132181	188.918 ug/mL M4
16) t	n-Octadecane (C18)	27.369	213986084	190.555 ug/mL M4
17) t	Phytane	27.510	210813698	190.171 ug/mL M4
18) t	n-Nonadecane (C19)	29.047	213238331	190.645 ug/mL M4
20) t	n-Eicosane (C20)	30.651	215277080	190.416 ug/mL M4
21) t	n-Heneicosane (C21)	32.187	215133871	188.900 ug/mL M4
22) t	n-Docosane (C22)	33.659	216578250	189.740 ug/mL M4
23) t	n-Tricosane (C23)	35.073	216635803	186.465 ug/mL M4
25) t	n-Tetracosane (C24)	36.433	215806475	189.241 ug/mL M4
26) t	n-Pentacosane (C25)	37.737	220449761	189.612 ug/mL M4
27) t	n-Hexacosane (C26)	38.992	218865969	189.285 ug/mL M4
28) t	n-Heptacosane (C27)	40.205	214276178	188.584 ug/mL M4
29) t	n-Octacosane (C28)	41.376	216473722	188.814 ug/mL M4
30) t	n-Nonacosane (C29)	42.506	216933265	189.152 ug/mL M4
31) t	n-Triacontane (C30)	43.601	214014324	187.846 ug/mL M4
32) t	n-Hentriacontane (C31)	44.659	216143833	188.797 ug/mL M4
33) t	n-Dotriacontane (C32)	45.687	215597410	189.349 ug/mL M4
34) t	n-Tritriacontane (C33)	46.680	205845560	186.984 ug/mL M4
35) t	n-tetratriacontane (C34)	47.686	212452745	189.266 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.816	216117976	188.632 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.106	220104716	189.084 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.593	215356854	189.297 ug/mL M4
39) t	n-Octatriacontane (C38)	53.330	213786446	187.852 ug/mL M4
41) t	n-Tetracontane (C40)	57.759	202410254	190.928 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692599.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 6:59 pm
Operator : BAL
Sample : I603261205R
Misc : WHAO96
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:50:12 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 08:02:12 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

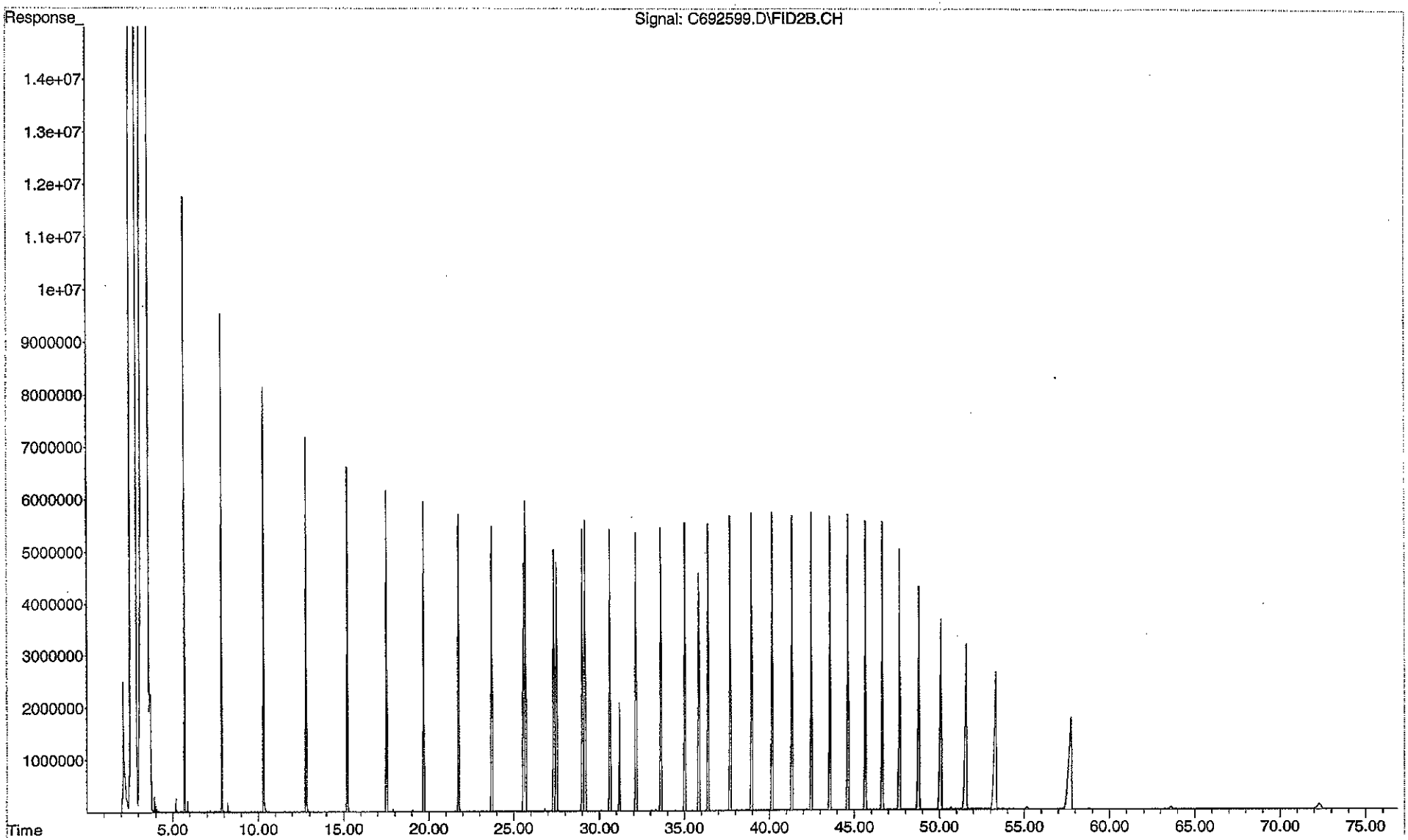
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692599.D
Operator : BAL
Acquired : 27 Mar 2012 6:59 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261205R
Misc Info : WHAO96
ALS Vial : 65



Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692601.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 8:28 pm
Operator : BAL
Sample : I603261206R
Misc : WHAO97
ALS Vial : 66 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 11:52:26 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 08:04:29 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

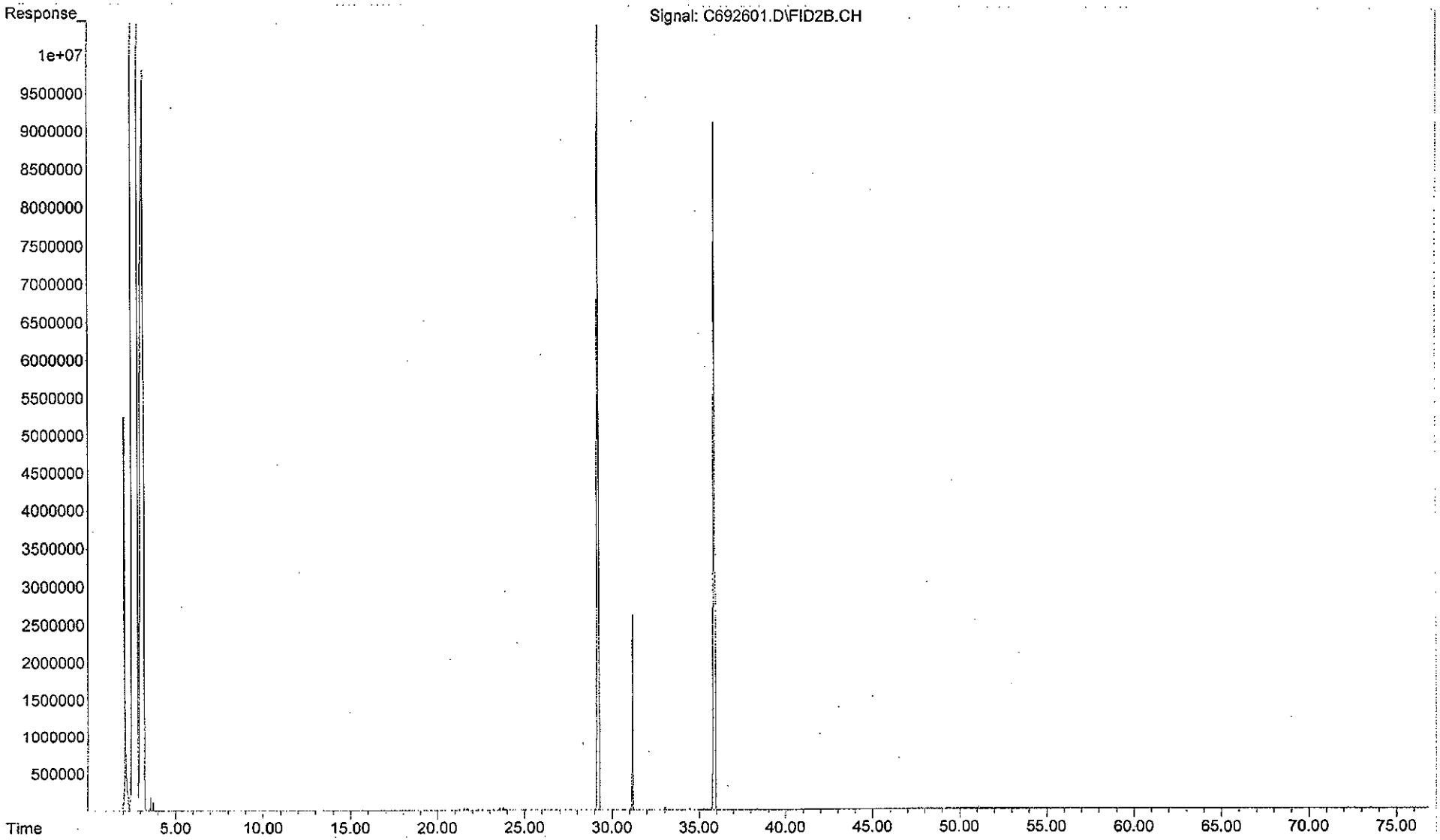
Sub List : CCAL - CCAL

3/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.195	68496292	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.272	642329892	459.070 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 918.14%#	
24) s d50-Tetracosane	35.936	515333133	461.603 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 923.21%#	
Target Compounds			
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAR2012\MAR26.SEC\C692601.D
Operator : BAL
Acquired : 27 Mar 2012 8:28 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : I603261206R
Misc Info : WHA097
ALS Vial : 66



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692605.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 11:25 pm
Operator : BAL
Sample : CQ603261207R
Misc : WHA098
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:35:46 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:30:13 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

2nd 3/29/12

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	122	0.00
2	t	n-Octane (C8)	50.000	41.242	17.5	95	0.00
3	t	n-Nonane (C9)	50.000	41.750	16.5	95	0.00
4	t	n-Decane (C10)	50.000	42.204	15.6	96	0.00
5	t	n-Undecane (C11)	50.000	42.280	15.4	97	0.00
6	t	n-Dodecane (C12)	50.000	42.231	15.5	96	0.00
7	t	n-Tridecane (C13)	50.000	42.149	15.7	96	0.00
9	t	n-Tetradecane (C14)	50.000	42.183	15.6	95	0.00
11	t	n-Pentadecane (C15)	50.000	42.198	15.6	96	0.00
12	t	n-Hexadecane (C16)	50.000	42.224	15.6	96	0.00
14	t	n-Heptadecane (C17)	50.000	42.111	15.8	94	0.00
15	t	Pristane	50.000	42.303	15.4	96	0.00
16	t	n-Octadecane (C18)	50.000	42.309	15.4	96	0.00
17	t	Phytane	50.000	42.302	15.4	96	0.00
18	t	n-Nonadecane (C19)	50.000	42.365	15.3	96	0.00
19	s	ortho-terphenyl	50.000	42.714	14.6	94	0.00
20	t	n-Eicosane (C20)	50.000	42.294	15.4	96	0.00
21	t	n-Heneicosane (C21)	50.000	41.970	16.1	96	0.00
22	t	n-Docosane (C22)	50.000	42.278	15.4	96	0.00
23	t	n-Tricosane (C23)	50.000	42.147	15.7	97	0.00
24	s	d50-Tetracosane	50.000	42.721	14.6	95	0.00
25	t	n-Tetracosane (C24)	50.000	42.174	15.7	97	0.00
26	t	n-Pentacosane (C25)	50.000	42.234	15.5	97	0.00
27	t	n-Hexacosane (C26)	50.000	42.178	15.6	96	0.00
28	t	n-Heptacosane (C27)	50.000	41.992	16.0	95	0.00
29	t	n-Octacosane (C28)	50.000	42.101	15.8	96	0.00
30	t	n-Nonacosane (C29)	50.000	42.147	15.7	96	0.00
31	t	n-Triacontane (C30)	50.000	41.756	16.5	93	0.00
32	t	n-Hentriacontane (C31)	50.000	41.977	16.0	95	0.00
33	t	n-Dotriacontane (C32)	50.000	42.077	15.8	96	0.00
34	t	n-Tritriacontane (C33)	50.000	41.361	17.3	90	0.00
35	t	n-tetratriacontane (C34)	50.000	41.907	16.2	95	0.00
36	t	n-Pentatriacontane (C35)	50.000	41.715	16.6	95	0.00
37	t	n-Hexatriacontane (C36)	50.000	41.625	16.8	95	0.00
38	t	n-Heptatriacontane (C37)	50.000	41.665	16.7	95	0.00
39	t	n-Octatriacontane (C38)	50.000	41.236	17.5	95	0.00
41	t	n-Tetracontane (C40)	50.000	41.963	16.1	98	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response) Ratio Range Limits

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692605.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 11:25 pm
Operator : BAL
Sample : CQ603261207R
Misc : WHAO98
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:35:46 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:30:13 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)
n-Hexatriacontane (C36) to n-Eicosane (C20)			1.02	0.85 - 1.15

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692605.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 11:25 pm
Operator : BAL
Sample : CQ603261207R
Misc : WHAO98
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:35:46 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:30:13 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

2° 3/29/12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.194	69073331	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.167	60268616	42.714 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	85.43%
24) s	d50-Tetracosane	35.834	48125544	42.721 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	85.44%
	Target Compounds			
2) t	n-Octane (C8)	5.610	44688342	41.242 ug/mL M4
3) t	n-Nonane (C9)	7.805	46985332	41.750 ug/mL M4
4) t	n-Decane (C10)	10.281	50057598	42.204 ug/mL M4
5) t	n-Undecane (C11)	12.787	50590347	42.280 ug/mL M4
6) t	n-Dodecane (C12)	15.208	51466325	42.231 ug/mL M4
7) t	n-Tridecane (C13)	17.510	51649133	42.149 ug/mL M4
9) t	n-Tetradecane (C14)	19.688	52214707	42.183 ug/mL M4
11) t	n-Pentadecane (C15)	21.750	52184840	42.198 ug/mL M4
12) t	n-Hexadecane (C16)	23.702	52873162	42.224 ug/mL M4
14) t	n-Heptadecane (C17)	25.558	52447980	42.111 ug/mL M4
15) t	Pristane	25.670	53846077	42.303 ug/mL M4
16) t	n-Octadecane (C18)	27.323	53863197	42.309 ug/mL M4
17) t	Phytane	27.488	53174511	42.302 ug/mL M4
18) t	n-Nonadecane (C19)	29.006	53766160	42.365 ug/mL M4
20) t	n-Eicosane (C20)	30.609	54248077	42.294 ug/mL M4
21) t	n-Heneicosane (C21)	32.142	54227640	41.970 ug/mL M4
22) t	n-Docosane (C22)	33.614	54700900	42.278 ug/mL M4
23) t	n-Tricosane (C23)	35.026	54826796	42.147 ug/mL M4
25) t	n-Tetracosane (C24)	36.383	54561018	42.174 ug/mL M4
26) t	n-Pentacosane (C25)	37.685	55671884	42.234 ug/mL M4
27) t	n-Hexacosane (C26)	38.943	55302891	42.178 ug/mL M4
28) t	n-Heptacosane (C27)	40.152	54157365	41.992 ug/mL M4
29) t	n-Octacosane (C28)	41.322	54733102	42.101 ug/mL M4
30) t	n-Nonacosane (C29)	42.451	54824169	42.147 ug/mL M4
31) t	n-Triacontane (C30)	43.544	54038011	41.756 ug/mL M4
32) t	n-Hentriacontane (C31)	44.604	54501740	41.977 ug/mL M4
33) t	n-Dotriacontane (C32)	45.628	54361768	42.077 ug/mL M4
34) t	n-Tritriacontane (C33)	46.622	51757456	41.361 ug/mL M4
35) t	n-tetratriacontane (C34)	47.621	53342610	41.907 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.735	54196641	41.715 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.012	55113625	41.625 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.481	53870582	41.665 ug/mL M4
39) t	n-Octatriacontane (C38)	53.193	53448004	41.236 ug/mL M4
41) t	n-Tetracontane (C40)	57.581	50521042	41.963 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692605.D
Signal(s) : FID2B.CH
Acq On : 27 Mar 2012 11:25 pm
Operator : BAL
Sample : CQ603261207R
Misc : WHAO98
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:35:46 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:30:13 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

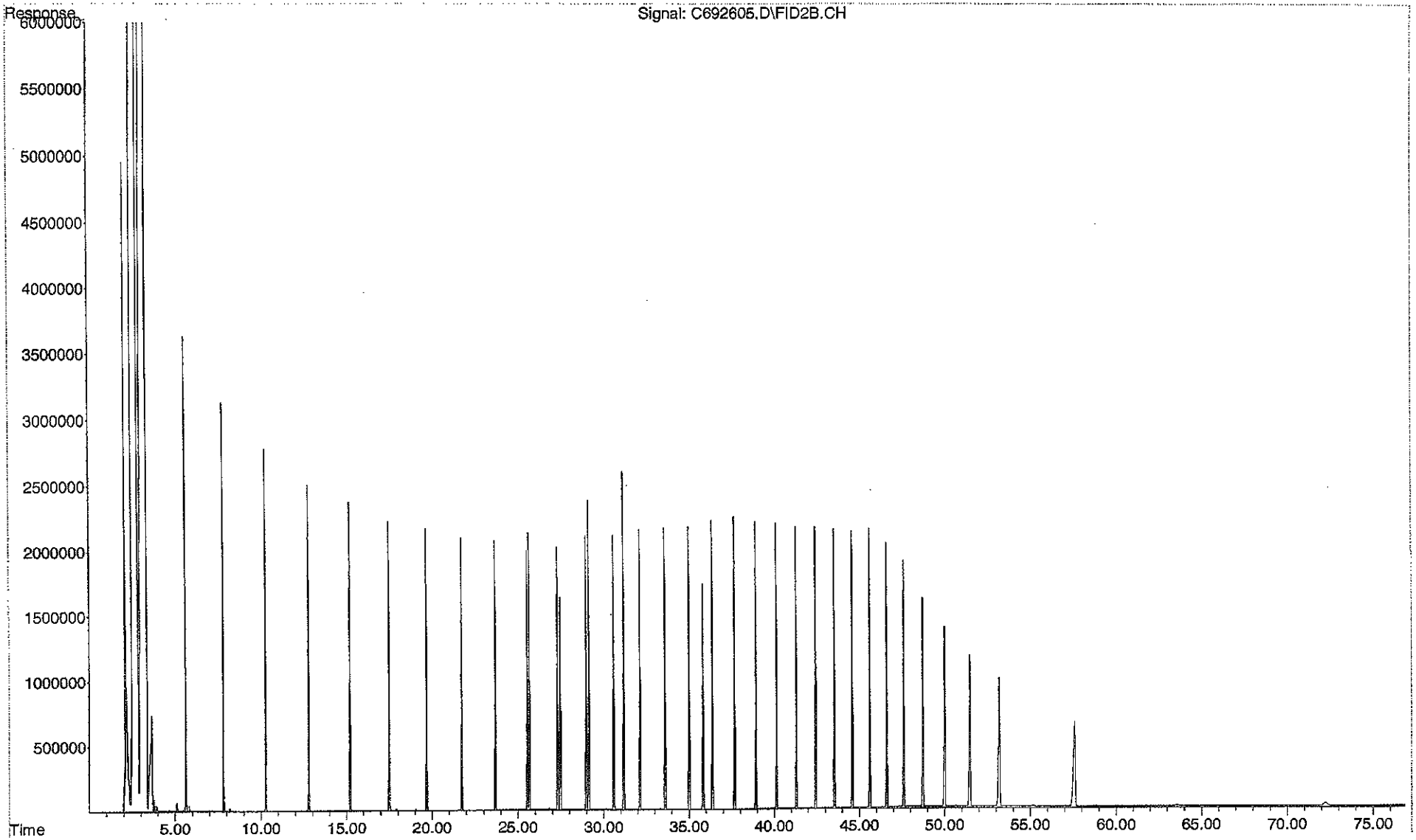
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692605.D
Operator : BAL
Acquired : 27 Mar 2012 11:25 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : CQ603261207R
Misc Info : WHAO98
ALS Vial : 68



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692607.D
Signal(s) : FID2B.CH
Acq On : 28 Mar 2012 12:54 am
Operator : BAL
Sample : TS032912ANS01
Misc : 1X, WHAM98
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:54:05 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:46:58 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.204	77359100	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.176	71206376	45.060 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	90.12%
24) s d50-Tetracosane	35.846	59191924	46.917 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	93.83%
Target Compounds			
2) t n-Octane (C8)	5.584	94551835	77.913 ug/mL M4
3) t n-Nonane (C9)	7.797	73139222	58.029 ug/mL M4
4) t n-Decane (C10)	10.280	62158599	46.793 ug/mL M4
5) t n-Undecane (C11)	12.789	58096318	43.353 ug/mL M4
6) t n-Dodecane (C12)	15.211	51121985	37.455 ug/mL M4
7) t n-Tridecane (C13)	17.514	49095562	35.774 ug/mL M4
8) t 1380	19.186	10944980	7.895 ug/mL M4
9) t n-Tetradecane (C14)	19.692	45921236	33.125 ug/mL M4
10) t 1470	20.974	16747305	12.092 ug/mL M4
11) t n-Pentadecane (C15)	21.752	46413143	33.511 ug/mL M4
12) t n-Hexadecane (C16)	23.704	40441736	28.837 ug/mL M4
13) t 1650	24.608	17528217	12.566 ug/mL M4
14) t n-Heptadecane (C17)	25.560	37646346	26.989 ug/mL M4
15) t Pristane	25.654	29111608	20.421 ug/mL M4
16) t n-Octadecane (C18)	27.323	35841466	25.138 ug/mL M4
17) t Phytane	27.479	15968994	11.343 ug/mL M4
18) t n-Nonadecane (C19)	29.005	31102224	21.882 ug/mL M4
20) t n-Eicosane (C20)	30.608	31536457	21.954 ug/mL M4
21) t n-Heneicosane (C21)	32.141	27925538	19.298 ug/mL M4
22) t n-Docosane (C22)	33.610	26392518	18.214 ug/mL M4
23) t n-Tricosane (C23)	35.020	23503630	16.133 ug/mL M4
25) t n-Tetracosane (C24)	36.375	22044495	15.215 ug/mL M4
26) t n-Pentacosane (C25)	37.677	22999926	15.580 ug/mL M4
27) t n-Hexacosane (C26)	38.932	18561949	12.640 ug/mL M4
28) t n-Heptacosane (C27)	40.142	14651813	10.144 ug/mL M4
29) t n-Octacosane (C28)	41.309	10414428	7.153 ug/mL M4
30) t n-Nonacosane (C29)	42.437	10178041	6.987 ug/mL M4
31) t n-Triacontane (C30)	43.527	8272546	5.708 ug/mL M4
32) t n-Hentriacontane (C31)	44.588	6394776	4.398 ug/mL M4
33) t n-Dotriacontane (C32)	45.606	6977010	4.822 ug/mL M4
34) t n-Tritriacontane (C33)	46.606	4867823	3.473 ug/mL M4
35) t n-tetratriacontane (C34)	47.598	4370656	3.066 ug/mL M4
36) t n-Pentatriacontane (C35)	48.713	3265020	2.244 ug/mL M4
37) t n-Hexatriacontane (C36)	49.972	2517932	1.698 ug/mL M4
38) t n-Heptatriacontane (C37)	51.443	2067005	1.427 ug/mL M4
39) t n-Octatriacontane (C38)	53.146	1602458	1.104 ug/mL M4
40) t n-Nonatriacontane (C39)	55.139	1107648	0.821 ug/mL M4

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692607.D
Signal(s) : FID2B.CH
Acq On : 28 Mar 2012 12:54 am
Operator : BAL
Sample : TS032912ANS01
Misc : 1X, WHAM98
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:54:05 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:46:58 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

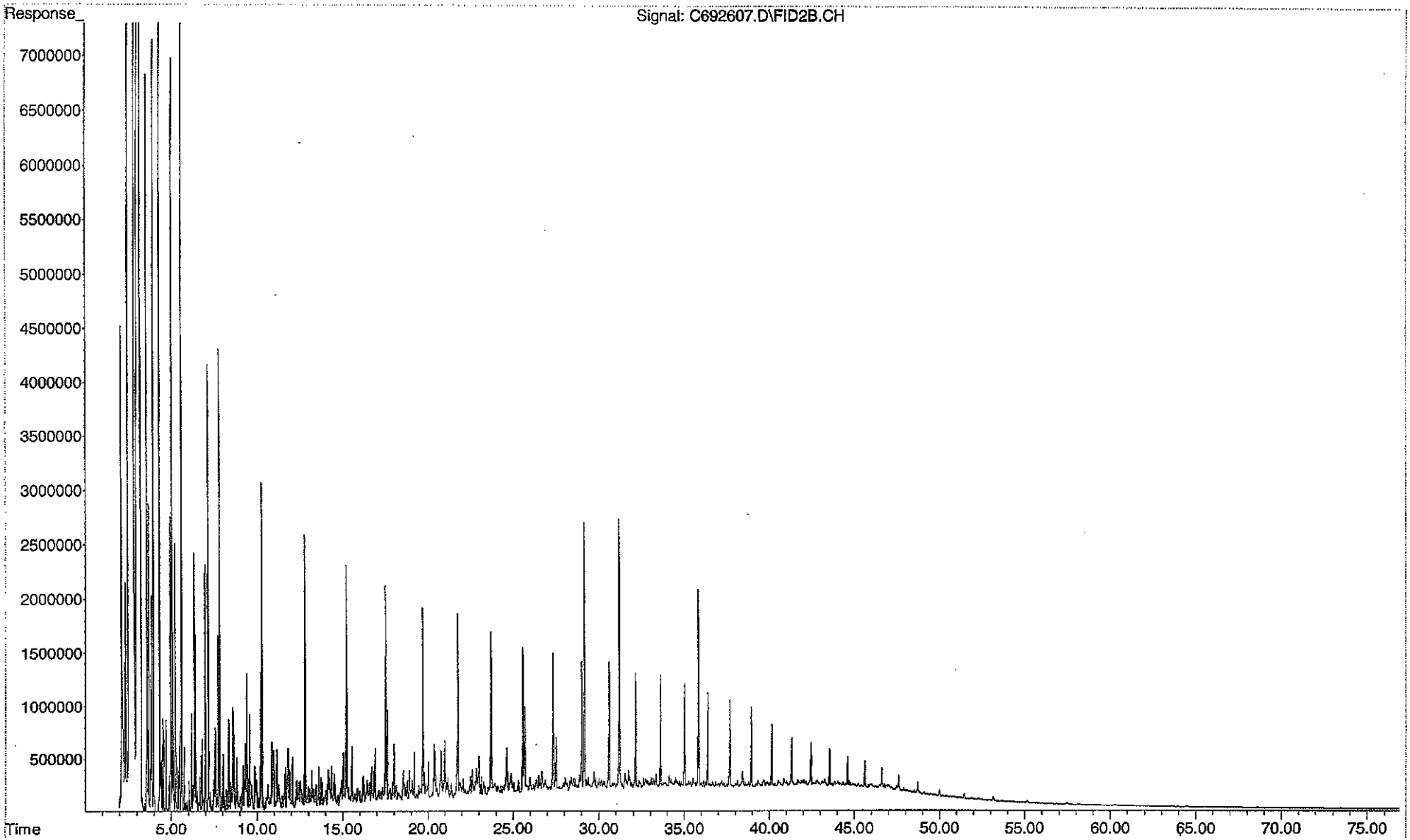
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	57.493	1234555	0.916	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.706	7453638095	5253.642	ug/mL	M4
45) h	Total Resolved Hydroc...	40.039	2391863619	1685.887	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692607.D
Operator : BAL
Acquired : 28 Mar 2012 12:54 am using AcqMethod FID6A.M
Instrument : FID6
Sample : TS032912ANS01
Misc Info : 1X, WHAM98
ALS Vial : 69



Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693953.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 10:50 am
Operator : JT
Sample : C605241201R
Misc : WHAP65
ALS Vial : 51 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 25 13:16:06 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 09:57:34 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	93	0.00
2	t	n-Octane (C8)	50.000	52.957	-5.9	93	0.00
3	t	n-Nonane (C9)	50.000	52.160	-4.3	91	0.00
4	t	n-Decane (C10)	50.000	52.709	-5.4	92	0.00
5	t	n-Undecane (C11)	50.000	53.122	-6.2	92	0.00
6	t	n-Dodecane (C12)	50.000	53.432	-6.9	93	0.00
7	t	n-Tridecane (C13)	50.000	53.428	-6.9	93	0.00
9	t	n-Tetradecane (C14)	50.000	53.477	-7.0	92	0.00
11	t	n-Pentadecane (C15)	50.000	53.513	-7.0	93	0.00
12	t	n-Hexadecane (C16)	50.000	54.228	-8.5	94	0.00
14	t	n-Heptadecane (C17)	50.000	53.210	-6.4	91	0.00
15	t	Pristane	50.000	54.871	-9.7	95	0.00
16	t	n-Octadecane (C18)	50.000	53.719	-7.4	93	0.00
17	t	Phytane	50.000	54.479	-9.0	94	0.00
18	t	n-Nonadecane (C19)	50.000	53.863	-7.7	94	0.00
19	s	ortho-terphenyl	50.000	56.390	-12.8	95	0.00
20	t	n-Eicosane (C20)	50.000	54.034	-8.1	94	0.00
21	t	n-Heneicosane (C21)	50.000	53.675	-7.3	94	0.00
22	t	n-Docosane (C22)	50.000	54.024	-8.0	94	0.00
23	t	n-Tricosane (C23)	50.000	53.689	-7.4	94	0.00
24	s	d50-Tetracosane	50.000	56.704	-13.4	96	0.00
25	t	n-Tetracosane (C24)	50.000	56.897	-13.8	99	0.00
26	t	n-Pentacosane (C25)	50.000	53.832	-7.7	94	0.00
27	t	n-Hexacosane (C26)	50.000	53.719	-7.4	94	0.00
28	t	n-Heptacosane (C27)	50.000	53.491	-7.0	92	0.00
29	t	n-Octacosane (C28)	50.000	53.579	-7.2	93	0.00
30	t	n-Nonacosane (C29)	50.000	53.604	-7.2	94	0.00
31	t	n-Triacontane (C30)	50.000	53.135	-6.3	90	0.00
32	t	n-Hentriacontane (C31)	50.000	53.434	-6.9	93	0.00
33	t	n-Dotriacontane (C32)	50.000	53.541	-7.1	93	0.00
34	t	n-Tritriacontane (C33)	50.000	52.754	-5.5	88	0.00
35	t	n-tetratriacontane (C34)	50.000	53.507	-7.0	92	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.335	-6.7	93	0.00
37	t	n-Hexatriacontane (C36)	50.000	53.378	-6.8	92	0.00
38	t	n-Heptatriacontane (C37)	50.000	53.579	-7.2	93	0.00
39	t	n-Octatriacontane (C38)	50.000	53.227	-6.5	93	0.00
41	t	n-Tetracontane (C40)	50.000	54.533	-9.1	97	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.02	0.85 - 1.15

HC6032612R.M Tue May 29 13:02:01 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693953.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 10:50 am
Operator : JT
Sample : C605241201R
Misc : WHAP65
ALS Vial : 51 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 25 13:16:06 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 09:57:34 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

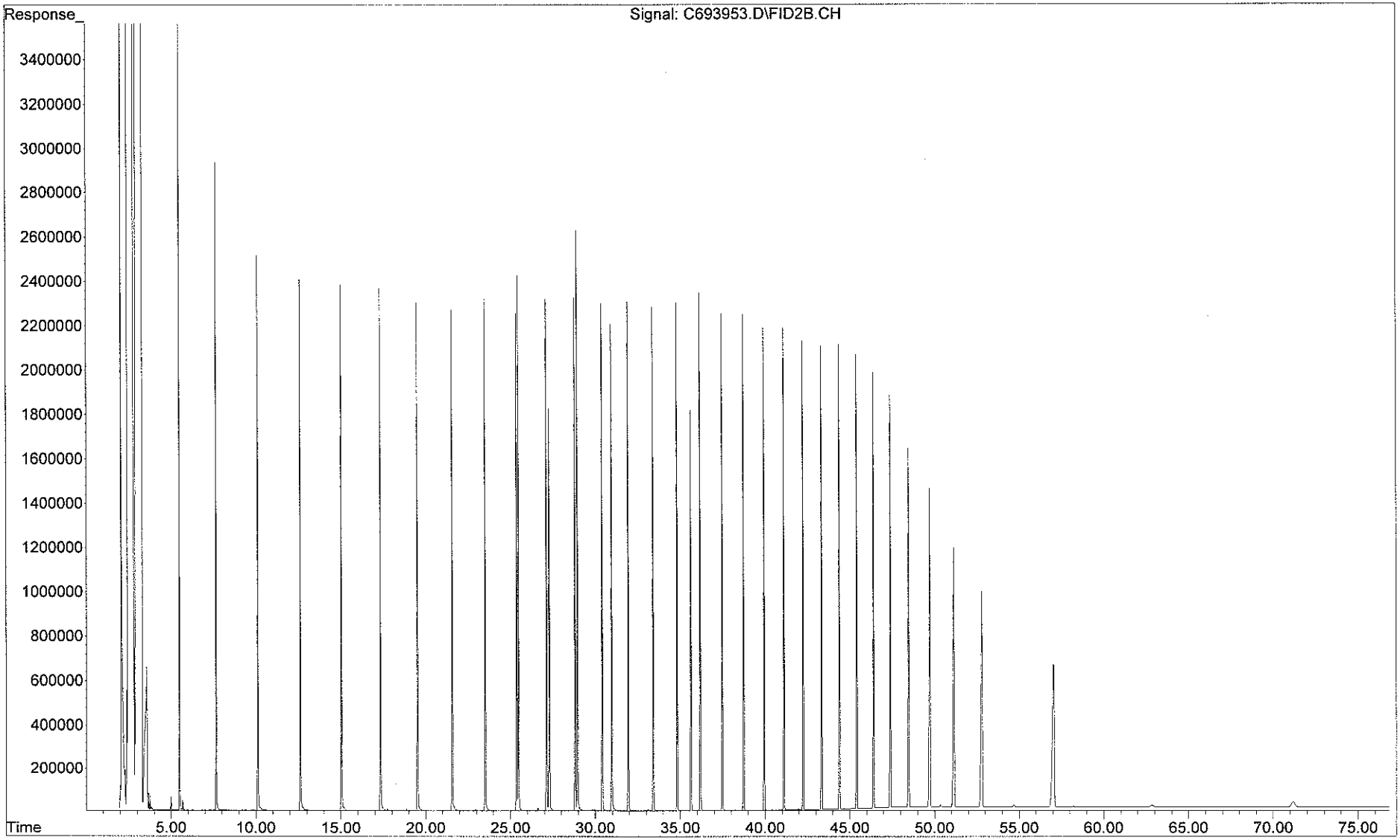
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.980	52676079	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.964	60677298	56.390 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	112.78%
24) s	d50-Tetracosane	35.643	48713497	56.704 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.41%
	Target Compounds			
2) t	n-Octane (C8)	5.484	43760535	52.957 ug/mL M4
3) t	n-Nonane (C9)	7.648	44765771	52.160 ug/mL M4
4) t	n-Decane (C10)	10.111	47677056	52.709 ug/mL M4
5) t	n-Undecane (C11)	12.610	48473399	53.122 ug/mL M4
6) t	n-Dodecane (C12)	15.030	49659406	53.432 ug/mL M4
7) t	n-Tridecane (C13)	17.330	49927645	53.428 ug/mL M4
9) t	n-Tetradecane (C14)	19.508	50480007	53.477 ug/mL M4
11) t	n-Pentadecane (C15)	21.568	50468167	53.513 ug/mL M4
12) t	n-Hexadecane (C16)	23.520	51785146	54.228 ug/mL M4
14) t	n-Heptadecane (C17)	25.374	50539955	53.210 ug/mL M4
15) t	Pristane	25.487	53263748	54.871 ug/mL M4
16) t	n-Octadecane (C18)	27.138	52154431	53.719 ug/mL M4
17) t	Phytane	27.304	52224017	54.479 ug/mL M4
18) t	n-Nonadecane (C19)	28.819	52130582	53.863 ug/mL M4
20) t	n-Eicosane (C20)	30.422	52853611	54.034 ug/mL M4
21) t	n-Heneicosane (C21)	31.955	52888802	53.675 ug/mL M4
22) t	n-Docosane (C22)	33.425	53305084	54.024 ug/mL M4
23) t	n-Tricosane (C23)	34.835	53261919	53.689 ug/mL M4
25) t	n-Tetracosane (C24)	36.190	56134015	56.897 ug/mL M4
26) t	n-Pentacosane (C25)	37.492	54114893	53.832 ug/mL M4
27) t	n-Hexacosane (C26)	38.746	53714367	53.719 ug/mL M4
28) t	n-Heptacosane (C27)	39.955	52611724	53.491 ug/mL M4
29) t	n-Octacosane (C28)	41.124	53120305	53.579 ug/mL M4
30) t	n-Nonacosane (C29)	42.253	53174741	53.604 ug/mL M4
31) t	n-Triacontane (C30)	43.345	52439873	53.135 ug/mL M4
32) t	n-Hentriacontane (C31)	44.402	52907751	53.434 ug/mL M4
33) t	n-Dotriacontane (C32)	45.427	52751585	53.541 ug/mL M4
34) t	n-Tritriacontane (C33)	46.419	50342875	52.754 ug/mL M4
35) t	n-tetratriacontane (C34)	47.402	51939599	53.507 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.485	52843814	53.335 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.719	53897972	53.378 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.142	52829123	53.579 ug/mL M4
39) t	n-Octatriacontane (C38)	52.800	52612463	53.227 ug/mL M4
41) t	n-Tetracontane (C40)	57.028	50068133	54.533 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693953.D
Operator : JT
Acquired : 24 May 2012 10:50 am using AcqMethod FID6A.M
Instrument : FID6
Sample : C605241201R
Misc Info : WHAP65
ALS Vial : 51



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693959.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 3:50 pm
Operator : JT
Sample : C605241202R
Misc : WHAP65
ALS Vial : 54 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 25 13:40:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 09:57:34 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	87	0.00
2	t	n-Octane (C8)	50.000	55.221	-10.4	90	0.00
3	t	n-Nonane (C9)	50.000	53.589	-7.2	87	0.00
4	t	n-Decane (C10)	50.000	52.956	-5.9	86	0.00
5	t	n-Undecane (C11)	50.000	53.252	-6.5	87	0.00
6	t	n-Dodecane (C12)	50.000	53.559	-7.1	87	0.00
7	t	n-Tridecane (C13)	50.000	53.515	-7.0	87	0.00
9	t	n-Tetradecane (C14)	50.000	53.571	-7.1	86	0.00
11	t	n-Pentadecane (C15)	50.000	53.616	-7.2	87	0.00
12	t	n-Hexadecane (C16)	50.000	54.349	-8.7	88	0.00
14	t	n-Heptadecane (C17)	50.000	53.300	-6.6	85	0.00
15	t	Pristane	50.000	55.064	-10.1	89	0.00
16	t	n-Octadecane (C18)	50.000	53.878	-7.8	87	0.00
17	t	Phytane	50.000	54.965	-9.9	89	0.00
18	t	n-Nonadecane (C19)	50.000	53.986	-8.0	88	0.00
19	s	ortho-terphenyl	50.000	56.522	-13.0	89	0.00
20	t	n-Eicosane (C20)	50.000	54.152	-8.3	88	0.00
21	t	n-Heneicosane (C21)	50.000	53.824	-7.6	88	0.00
22	t	n-Docosane (C22)	50.000	54.173	-8.3	88	0.00
23	t	n-Tricosane (C23)	50.000	53.898	-7.8	88	0.00
24	s	d50-Tetracosane	50.000	56.918	-13.8	90	0.00
25	t	n-Tetracosane (C24)	50.000	53.970	-7.9	88	0.00
26	t	n-Pentacosane (C25)	50.000	54.140	-8.3	88	0.00
27	t	n-Hexacosane (C26)	50.000	54.034	-8.1	88	0.00
28	t	n-Heptacosane (C27)	50.000	53.799	-7.6	87	0.00
29	t	n-Octacosane (C28)	50.000	54.004	-8.0	88	0.00
30	t	n-Nonacosane (C29)	50.000	54.045	-8.1	88	0.00
31	t	n-Triacontane (C30)	50.000	53.645	-7.3	85	0.00
32	t	n-Hentriacontane (C31)	50.000	53.978	-8.0	87	0.00
33	t	n-Dotriacontane (C32)	50.000	54.181	-8.4	88	0.00
34	t	n-Tritriacontane (C33)	50.000	53.485	-7.0	83	0.00
35	t	n-tetratriacontane (C34)	50.000	54.365	-8.7	87	0.00
36	t	n-Pentatriacontane (C35)	50.000	54.326	-8.7	88	0.00
37	t	n-Hexatriacontane (C36)	50.000	54.459	-8.9	88	0.00
38	t	n-Heptatriacontane (C37)	50.000	54.687	-9.4	89	0.00
39	t	n-Octatriacontane (C38)	50.000	54.371	-8.7	89	0.00
41	t	n-Tetracontane (C40)	50.000	55.593	-11.2	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.04	0.85 - 1.15

HC6032612R.M Tue May 29 13:02:28 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693959.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 3:50 pm
Operator : JT
Sample : C605241202R
Misc : WHAP65
ALS Vial : 54 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 25 13:40:10 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 09:57:34 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

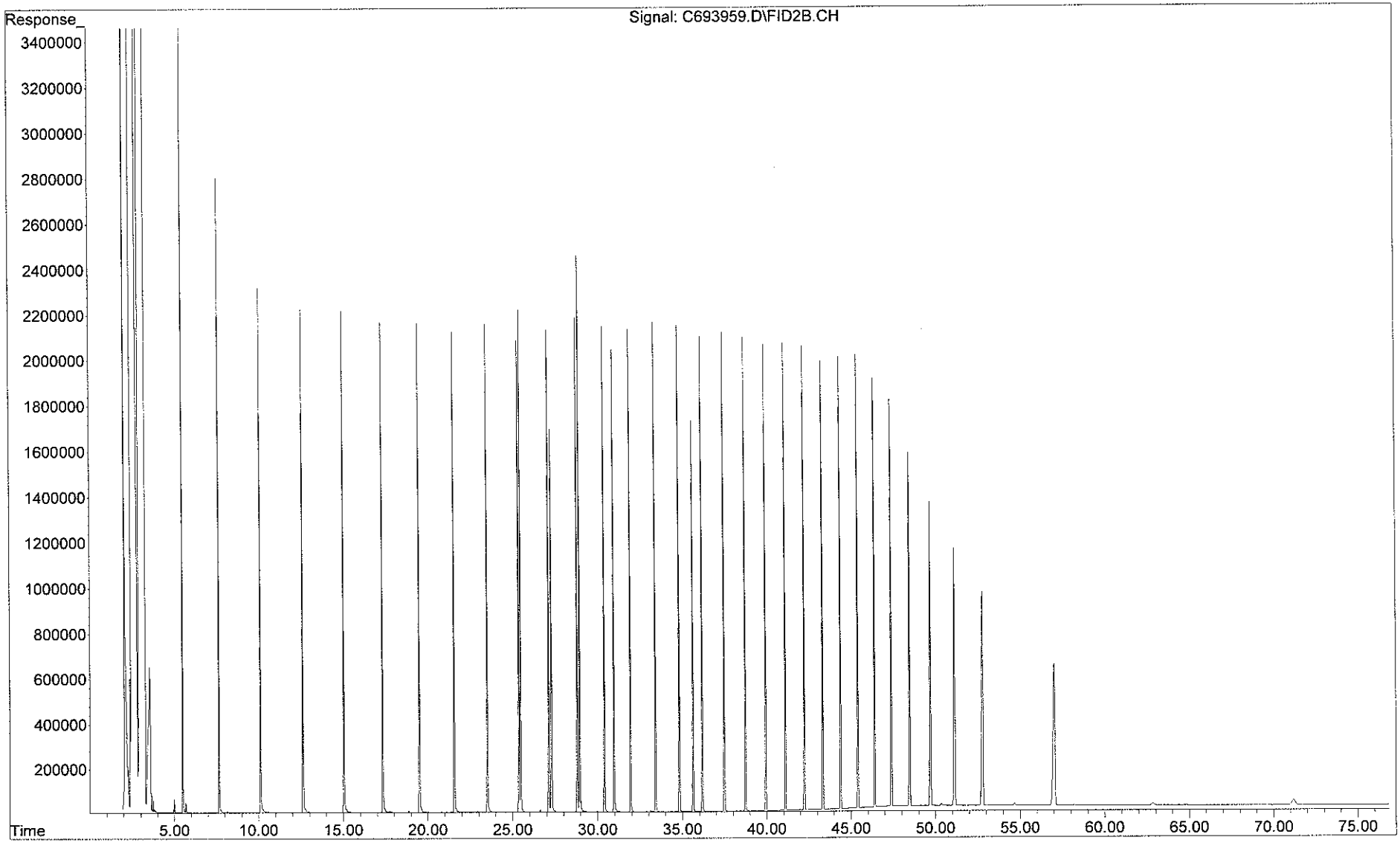
Sub List : CCAL - CCAL

61,29.1K

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.978	49248463	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.961	56862331	56.522 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.04%
24) s	d50-Tetracosane	35.641	45715832	56.918 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.84%
	Target Compounds			
2) t	n-Octane (C8)	5.485	42661838	55.221 ug/mL M4
3) t	n-Nonane (C9)	7.651	42999106	53.589 ug/mL M4
4) t	n-Decane (C10)	10.112	44783545	52.956 ug/mL M4
5) t	n-Undecane (C11)	12.610	45430424	53.252 ug/mL M4
6) t	n-Dodecane (C12)	15.030	46538352	53.559 ug/mL M4
7) t	n-Tridecane (C13)	17.330	46754976	53.515 ug/mL M4
9) t	n-Tetradecane (C14)	19.507	47278380	53.571 ug/mL M4
11) t	n-Pentadecane (C15)	21.567	47275326	53.616 ug/mL M4
12) t	n-Hexadecane (C16)	23.519	48522939	54.349 ug/mL M4
14) t	n-Heptadecane (C17)	25.373	47331242	53.300 ug/mL M4
15) t	Pristane	25.485	49972659	55.064 ug/mL M4
16) t	n-Octadecane (C18)	27.136	48905103	53.878 ug/mL M4
17) t	Phytane	27.301	49261433	54.965 ug/mL M4
18) t	n-Nonadecane (C19)	28.818	48849870	53.986 ug/mL M4
20) t	n-Eicosane (C20)	30.420	49522706	54.152 ug/mL M4
21) t	n-Heneicosane (C21)	31.952	49584129	53.824 ug/mL M4
22) t	n-Docosane (C22)	33.422	49973784	54.173 ug/mL M4
23) t	n-Tricosane (C23)	34.832	49989745	53.898 ug/mL M4
25) t	n-Tetracosane (C24)	36.186	49781838	53.970 ug/mL M4
26) t	n-Pentacosane (C25)	37.488	50882977	54.140 ug/mL M4
27) t	n-Hexacosane (C26)	38.742	50513869	54.034 ug/mL M4
28) t	n-Heptacosane (C27)	39.953	49470779	53.799 ug/mL M4
29) t	n-Octacosane (C28)	41.120	50057735	54.004 ug/mL M4
30) t	n-Nonacosane (C29)	42.250	50122752	54.045 ug/mL M4
31) t	n-Triacontane (C30)	43.342	49498047	53.645 ug/mL M4
32) t	n-Hentriacontane (C31)	44.400	49968564	53.978 ug/mL M4
33) t	n-Dotriacontane (C32)	45.425	49908771	54.181 ug/mL M4
34) t	n-Tritriacontane (C33)	46.416	47719365	53.485 ug/mL M4
35) t	n-tetratriacontane (C34)	47.399	49338467	54.365 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.483	50323158	54.326 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.715	51410984	54.459 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.135	50412876	54.687 ug/mL M4
39) t	n-Octatriacontane (C38)	52.795	50245851	54.371 ug/mL M4
41) t	n-Tetracontane (C40)	57.018	47720348	55.593 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693959.D
Operator : JT
Acquired : 24 May 2012 3:50 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : C605241202R
Misc Info : WHAP65
ALS Vial : 54



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693981.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 8:13 am
Operator : JT
Sample : C605241203R
Misc : WHAP65
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 07:56:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	96	0.00
2	t	n-Octane (C8)	50.000	51.625	-3.3	94	0.00
3	t	n-Nonane (C9)	50.000	50.914	-1.8	92	0.00
4	t	n-Decane (C10)	50.000	52.343	-4.7	95	0.00
5	t	n-Undecane (C11)	50.000	53.029	-6.1	96	0.00
6	t	n-Dodecane (C12)	50.000	53.446	-6.9	96	0.00
7	t	n-Tridecane (C13)	50.000	53.529	-7.1	96	0.00
9	t	n-Tetradecane (C14)	50.000	53.584	-7.2	96	0.00
11	t	n-Pentadecane (C15)	50.000	53.566	-7.1	96	0.00
12	t	n-Hexadecane (C16)	50.000	54.303	-8.6	97	0.00
14	t	n-Heptadecane (C17)	50.000	53.126	-6.3	94	0.00
15	t	Pristane	50.000	55.013	-10.0	98	0.00
16	t	n-Octadecane (C18)	50.000	53.659	-7.3	96	0.00
17	t	Phytane	50.000	54.696	-9.4	98	0.00
18	t	n-Nonadecane (C19)	50.000	53.796	-7.6	97	0.00
19	s	ortho-terphenyl	50.000	56.663	-13.3	99	0.00
20	t	n-Eicosane (C20)	50.000	54.242	-8.5	97	0.00
21	t	n-Heneicosane (C21)	50.000	53.710	-7.4	98	0.00
22	t	n-Docosane (C22)	50.000	54.040	-8.1	98	0.00
23	t	n-Tricosane (C23)	50.000	53.716	-7.4	98	0.00
24	s	d50-Tetracosane	50.000	56.695	-13.4	100	0.00
25	t	n-Tetracosane (C24)	50.000	53.750	-7.5	97	0.00
26	t	n-Pentacosane (C25)	50.000	53.908	-7.8	98	0.00
27	t	n-Hexacosane (C26)	50.000	53.744	-7.5	97	0.00
28	t	n-Heptacosane (C27)	50.000	53.523	-7.0	96	0.00
29	t	n-Octacosane (C28)	50.000	53.671	-7.3	97	0.00
30	t	n-Nonacosane (C29)	50.000	53.650	-7.3	97	0.00
31	t	n-Triacontane (C30)	50.000	53.220	-6.4	94	0.00
32	t	n-Hentriacontane (C31)	50.000	53.481	-7.0	96	0.00
33	t	n-Dotriacontane (C32)	50.000	53.594	-7.2	97	0.00
34	t	n-Tritriacontane (C33)	50.000	52.896	-5.8	91	0.00
35	t	n-tetratriacontane (C34)	50.000	54.666	-9.3	98	0.00
36	t	n-Pentatriacontane (C35)	50.000	53.601	-7.2	97	0.00
37	t	n-Hexatriacontane (C36)	50.000	53.664	-7.3	96	0.00
38	t	n-Heptatriacontane (C37)	50.000	53.935	-7.9	97	0.00
39	t	n-Octatriacontane (C38)	50.000	53.622	-7.2	97	0.00
41	t	n-Tetracontane (C40)	50.000	54.870	-9.7	101	-0.01

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693981.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 8:13 am
Operator : JT
Sample : C605241203R
Misc : WHAP65
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 07:56:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)
n-Hexatriacontane (C36) to n-Eicosane (C20)			1.02	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693981.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 8:13 am
Operator : JT
Sample : C605241203R
Misc : WHAP65
ALS Vial : 65 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 07:56:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

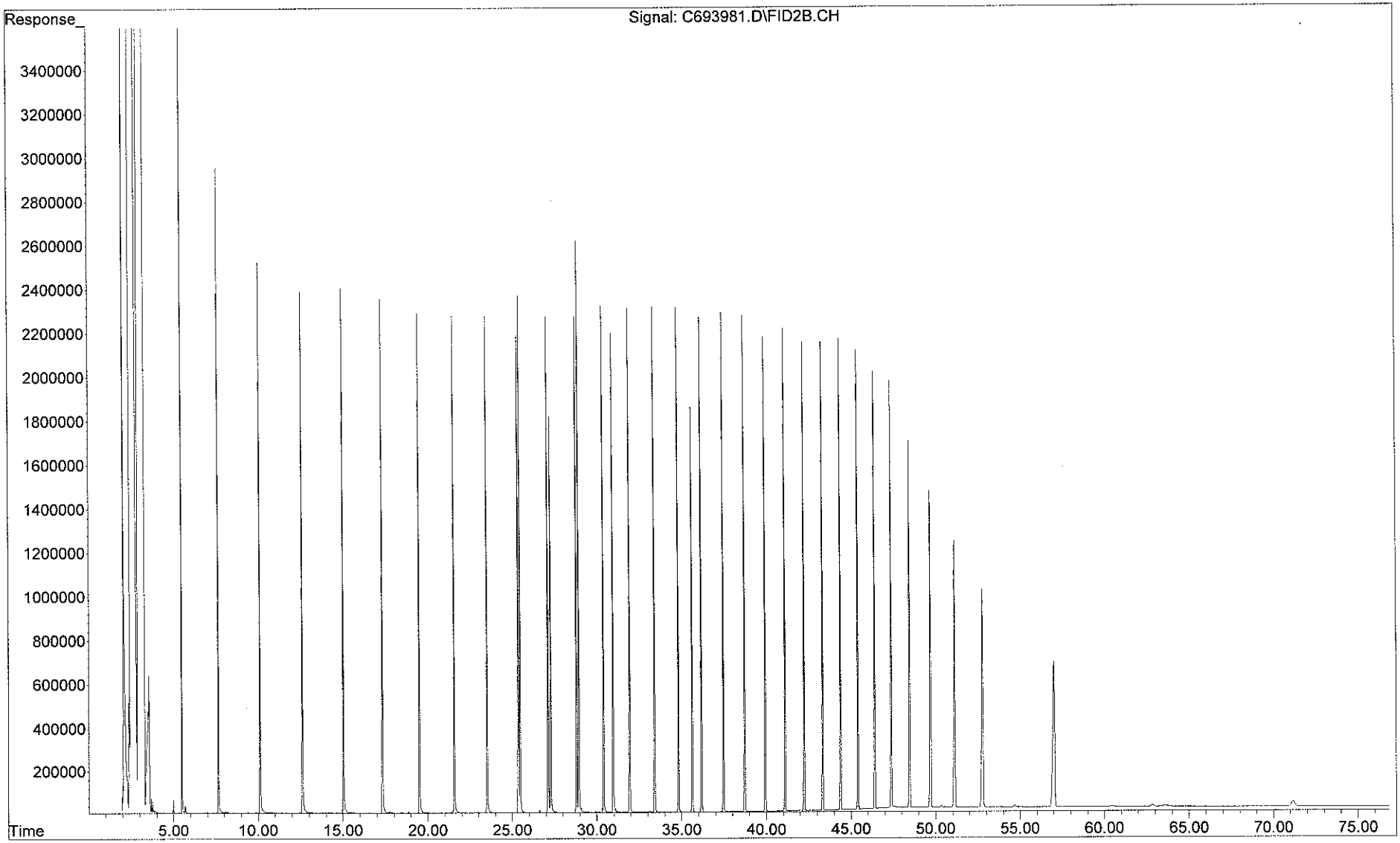
Sub List : CCAL - CCAL

6.5.12-T

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.977	54652974	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.960	63259893	56.663 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.33%
24) s	d50-Tetracosane	35.640	50533369	56.695 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.39%
	Target Compounds			
2) t	n-Octane (C8)	5.487	44260786	51.625 ug/mL M4
3) t	n-Nonane (C9)	7.650	45336015	50.914 ug/mL M4
4) t	n-Decane (C10)	10.112	49122613	52.343 ug/mL M4
5) t	n-Undecane (C11)	12.610	50204844	53.029 ug/mL M4
6) t	n-Dodecane (C12)	15.029	51536374	53.446 ug/mL M4
7) t	n-Tridecane (C13)	17.330	51899274	53.529 ug/mL M4
9) t	n-Tetradecane (C14)	19.506	52479216	53.584 ug/mL M4
11) t	n-Pentadecane (C15)	21.566	52414111	53.566 ug/mL M4
12) t	n-Hexadecane (C16)	23.517	53802448	54.303 ug/mL M4
14) t	n-Heptadecane (C17)	25.372	52353858	53.126 ug/mL M4
15) t	Pristane	25.483	55405544	55.013 ug/mL M4
16) t	n-Octadecane (C18)	27.135	54051935	53.659 ug/mL M4
17) t	Phytane	27.300	54399978	54.696 ug/mL M4
18) t	n-Nonadecane (C19)	28.815	54019582	53.796 ug/mL M4
20) t	n-Eicosane (C20)	30.417	55047981	54.242 ug/mL M4
21) t	n-Heneicosane (C21)	31.952	54909480	53.710 ug/mL M4
22) t	n-Docosane (C22)	33.421	55321906	54.040 ug/mL M4
23) t	n-Tricosane (C23)	34.830	55288636	53.716 ug/mL M4
25) t	n-Tetracosane (C24)	36.186	55019500	53.750 ug/mL M4
26) t	n-Pentacosane (C25)	37.488	56224766	53.908 ug/mL M4
27) t	n-Hexacosane (C26)	38.742	55756084	53.744 ug/mL M4
28) t	n-Heptacosane (C27)	39.951	54618095	53.523 ug/mL M4
29) t	n-Octacosane (C28)	41.120	55207881	53.671 ug/mL M4
30) t	n-Nonacosane (C29)	42.250	55217539	53.650 ug/mL M4
31) t	n-Triacontane (C30)	43.341	54494777	53.220 ug/mL M4
32) t	n-Hentriacontane (C31)	44.399	54941283	53.481 ug/mL M4
33) t	n-Dotriacontane (C32)	45.423	54785618	53.594 ug/mL M4
34) t	n-Tritriacontane (C33)	46.414	52373270	52.896 ug/mL M4
35) t	n-tetratriacontane (C34)	47.398	55056064	54.666 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.480	55100167	53.601 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.712	56220751	53.664 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.135	55176590	53.935 ug/mL M4
39) t	n-Octatriacontane (C38)	52.793	54991394	53.622 ug/mL M4
41) t	n-Tetracontane (C40)	57.016	52268314	54.870 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693981.D
Operator : JT
Acquired : 25 May 2012 8:13 am using AcqMethod FID6A.M
Instrument : FID6
Sample : C605241203R
Misc Info : WHAP65
ALS Vial : 65



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694009.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 5:01 am
Operator : JT
Sample : C605241204R
Misc : WHAP65
ALS Vial : 79 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:28:13 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	94	0.00
2	t	n-Octane (C8)	50.000	51.016	-2.0	90	0.00
3	t	n-Nonane (C9)	50.000	51.091	-2.2	90	0.00
4	t	n-Decane (C10)	50.000	51.624	-3.2	91	0.00
5	t	n-Undecane (C11)	50.000	52.861	-5.7	93	0.00
6	t	n-Dodecane (C12)	50.000	53.623	-7.2	94	0.00
7	t	n-Tridecane (C13)	50.000	53.797	-7.6	94	0.00
9	t	n-Tetradecane (C14)	50.000	54.004	-8.0	94	0.00
11	t	n-Pentadecane (C15)	50.000	54.228	-8.5	95	0.00
12	t	n-Hexadecane (C16)	50.000	54.449	-8.9	95	0.00
14	t	n-Heptadecane (C17)	50.000	54.218	-8.4	94	0.00
15	t	Pristane	50.000	55.363	-10.7	97	0.00
16	t	n-Octadecane (C18)	50.000	54.585	-9.2	96	0.00
17	t	Phytane	50.000	55.718	-11.4	98	0.00
18	t	n-Nonadecane (C19)	50.000	54.815	-9.6	96	0.00
19	s	ortho-terphenyl	50.000	57.575	-15.2#	98	0.00 ✓
20	t	n-Eicosane (C20)	50.000	54.807	-9.6	96	0.00
21	t	n-Heneicosane (C21)	50.000	54.597	-9.2	97	0.00
22	t	n-Docosane (C22)	50.000	54.909	-9.8	97	0.00
23	t	n-Tricosane (C23)	50.000	54.558	-9.1	97	0.00
24	s	d50-Tetracosane	50.000	57.644	-15.3#	99	0.00 ✓
25	t	n-Tetracosane (C24)	50.000	54.710	-9.4	97	0.00
26	t	n-Pentacosane (C25)	50.000	54.801	-9.6	97	0.00
27	t	n-Hexacosane (C26)	50.000	54.680	-9.4	96	0.00
28	t	n-Heptacosane (C27)	50.000	54.479	-9.0	95	0.00
29	t	n-Octacosane (C28)	50.000	54.803	-9.6	97	0.00
30	t	n-Nonacosane (C29)	50.000	54.533	-9.1	96	0.00
31	t	n-Triacontane (C30)	50.000	54.197	-8.4	93	0.00
32	t	n-Hentriacontane (C31)	50.000	54.679	-9.4	96	0.00
33	t	n-Dotriacontane (C32)	50.000	54.776	-9.6	97	0.00
34	t	n-Tritriacontane (C33)	50.000	54.042	-8.1	91	0.00
35	t	n-tetratriacontane (C34)	50.000	56.041	-12.1	98	0.00
36	t	n-Pentatriacontane (C35)	50.000	54.819	-9.6	97	0.00
37	t	n-Hexatriacontane (C36)	50.000	55.081	-10.2	97	0.00
38	t	n-Heptatriacontane (C37)	50.000	55.170	-10.3	97	0.00
39	t	n-Octatriacontane (C38)	50.000	54.915	-9.8	97	0.00
41	t	n-Tetracontane (C40)	50.000	55.918	-11.8	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.04	0.85 - 1.15

HC6032612R.M Tue May 29 13:03:09 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694009.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 5:01 am
Operator : JT
Sample : C605241204R
Misc : WHAP65
ALS Vial : 79 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 11:28:13 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

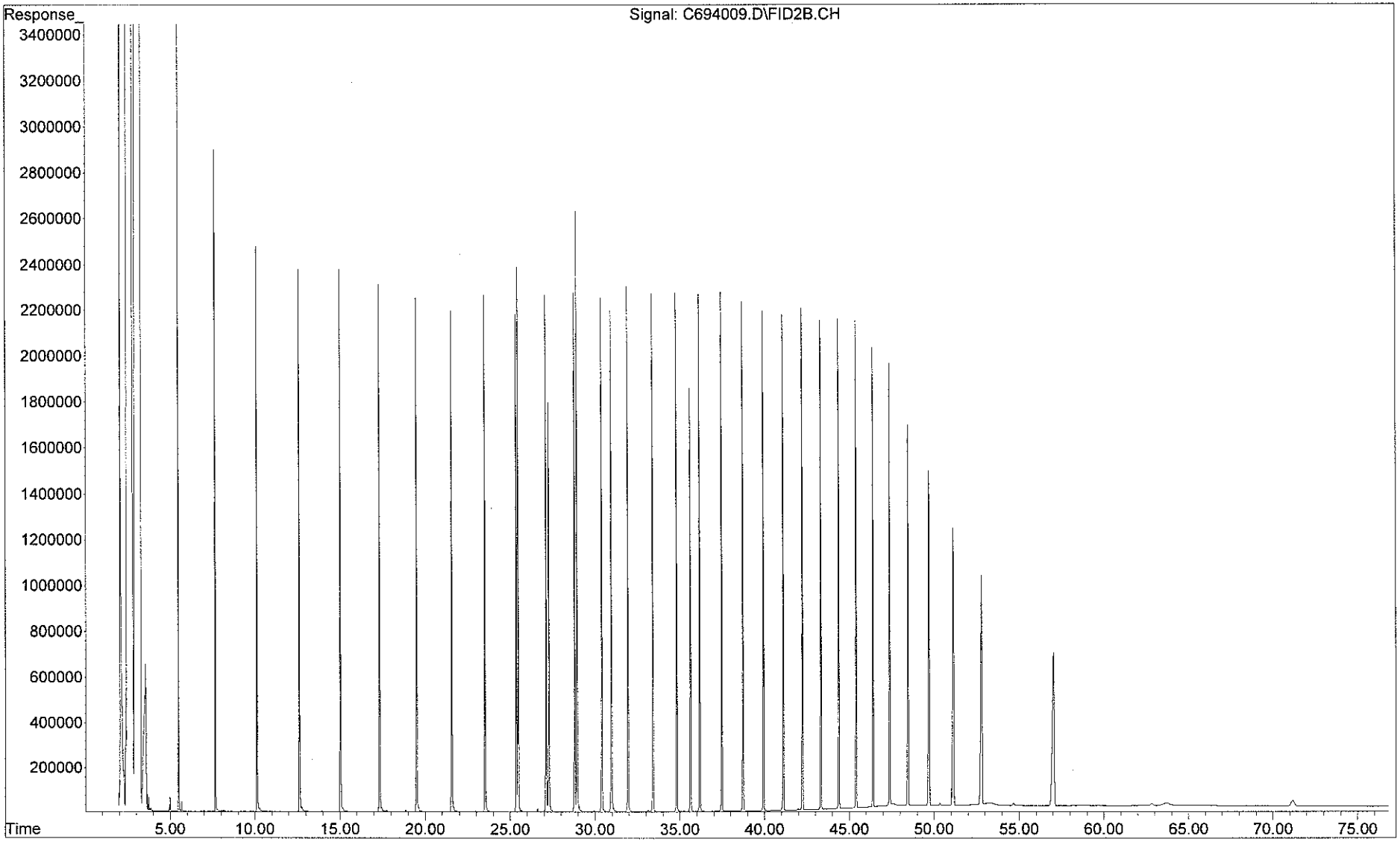
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.977	53313687	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.959	62702716	57.575 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	115.15%
24) s	d50-Tetracosane	35.641	50120184	57.644 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	115.29%
	Target Compounds			
2) t	n-Octane (C8)	5.478	42666682	51.016 ug/mL M4
3) t	n-Nonane (C9)	7.647	44378952	51.091 ug/mL M4
4) t	n-Decane (C10)	10.112	47260806	51.624 ug/mL M4
5) t	n-Undecane (C11)	12.609	48819287	52.861 ug/mL M4
6) t	n-Dodecane (C12)	15.028	50439421	53.623 ug/mL M4
7) t	n-Tridecane (C13)	17.328	50881288	53.797 ug/mL M4
9) t	n-Tetradecane (C14)	19.505	51595066	54.004 ug/mL M4
11) t	n-Pentadecane (C15)	21.564	51761110	54.228 ug/mL M4
12) t	n-Hexadecane (C16)	23.517	52625447	54.449 ug/mL M4
14) t	n-Heptadecane (C17)	25.371	52120701	54.218 ug/mL M4
15) t	Pristane	25.483	54391376	55.363 ug/mL M4
16) t	n-Octadecane (C18)	27.134	53636562	54.585 ug/mL M4
17) t	Phytane	27.299	54058323	55.718 ug/mL M4
18) t	n-Nonadecane (C19)	28.816	53693725	54.815 ug/mL M4
20) t	n-Eicosane (C20)	30.418	54258495	54.807 ug/mL M4
21) t	n-Heneicosane (C21)	31.951	54447900	54.597 ug/mL M4
22) t	n-Docosane (C22)	33.422	54833598	54.909 ug/mL M4
23) t	n-Tricosane (C23)	34.831	54779470	54.558 ug/mL M4
25) t	n-Tetracosane (C24)	36.187	54629879	54.710 ug/mL M4
26) t	n-Pentacosane (C25)	37.489	55755644	54.801 ug/mL M4
27) t	n-Hexacosane (C26)	38.743	55337522	54.680 ug/mL M4
28) t	n-Heptacosane (C27)	39.952	54231739	54.479 ug/mL M4
29) t	n-Octacosane (C28)	41.120	54990537	54.803 ug/mL M4
30) t	n-Nonacosane (C29)	42.251	54751075	54.533 ug/mL M4
31) t	n-Triacontane (C30)	43.341	54136020	54.197 ug/mL M4
32) t	n-Hentriacontane (C31)	44.400	54795336	54.679 ug/mL M4
33) t	n-Dotriacontane (C32)	45.425	54621698	54.776 ug/mL M4
34) t	n-Tritriacontane (C33)	46.418	52197153	54.042 ug/mL M4
35) t	n-tetratriacontane (C34)	47.401	55057693	56.041 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.483	54970787	54.819 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.718	56291341	55.081 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.141	55056719	55.170 ug/mL M4
39) t	n-Octatriacontane (C38)	52.799	54937294	54.915 ug/mL M4
41) t	n-Tetracontane (C40)	57.023	51961890	55.918 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694009.D
Operator : JT
Acquired : 26 May 2012 5:01 am using AcqMethod FID6A.M
Instrument : FID6
Sample : C605241204R
Misc Info : WHAP65
ALS Vial : 79



Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694021.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 2:01 pm
Operator : JT
Sample : C605241205R
Misc : WHAP65
ALS Vial : 85 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 08:21:15 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	96	0.00
2	t	n-Octane (C8)	50.000	49.539	0.9	89	-0.01
3	t	n-Nonane (C9)	50.000	48.973	2.1	88	0.00
4	t	n-Decane (C10)	50.000	48.687	2.6	87	0.00
5	t	n-Undecane (C11)	50.000	50.731	-1.5	91	0.00
6	t	n-Dodecane (C12)	50.000	51.957	-3.9	93	0.00
7	t	n-Tridecane (C13)	50.000	52.299	-4.6	93	0.00
9	t	n-Tetradecane (C14)	50.000	52.647	-5.3	93	0.00
11	t	n-Pentadecane (C15)	50.000	53.018	-6.0	94	0.00
12	t	n-Hexadecane (C16)	50.000	54.046	-8.1	96	0.00
14	t	n-Heptadecane (C17)	50.000	52.994	-6.0	93	0.00
15	t	Pristane	50.000	54.320	-8.6	96	0.00
16	t	n-Octadecane (C18)	50.000	53.707	-7.4	96	0.00
17	t	Phytane	50.000	54.643	-9.3	97	0.00
18	t	n-Nonadecane (C19)	50.000	54.061	-8.1	97	0.00
19	s	ortho-terphenyl	50.000	56.671	-13.3	98	0.00
20	t	n-Eicosane (C20)	50.000	54.258	-8.5	97	0.00
21	t	n-Heneicosane (C21)	50.000	53.841	-7.7	97	0.00
22	t	n-Docosane (C22)	50.000	54.185	-8.4	97	0.00
23	t	n-Tricosane (C23)	50.000	53.876	-7.8	97	0.00
24	s	d50-Tetracosane	50.000	56.865	-13.7	99	0.00
25	t	n-Tetracosane (C24)	50.000	53.922	-7.8	97	0.00
26	t	n-Pentacosane (C25)	50.000	54.061	-8.1	97	0.00
27	t	n-Hexacosane (C26)	50.000	53.915	-7.8	97	0.00
28	t	n-Heptacosane (C27)	50.000	53.688	-7.4	95	0.00
29	t	n-Octacosane (C28)	50.000	53.941	-7.9	97	0.00
30	t	n-Nonacosane (C29)	50.000	53.811	-7.6	97	0.00
31	t	n-Triacontane (C30)	50.000	53.421	-6.8	94	0.00
32	t	n-Hentriacontane (C31)	50.000	53.838	-7.7	96	0.00
33	t	n-Dotriacontane (C32)	50.000	54.001	-8.0	97	0.00
34	t	n-Tritriacontane (C33)	50.000	53.369	-6.7	92	0.00
35	t	n-tetratriacontane (C34)	50.000	54.174	-8.3	96	0.00
36	t	n-Pentatriacontane (C35)	50.000	54.095	-8.2	97	0.00
37	t	n-Hexatriacontane (C36)	50.000	54.010	-8.0	96	0.00
38	t	n-Heptatriacontane (C37)	50.000	54.065	-8.1	96	0.00
39	t	n-Octatriacontane (C38)	50.000	53.662	-7.3	97	0.01
41	t	n-Tetracontane (C40)	50.000	54.507	-9.0	99	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.03	0.85 - 1.15

HC6032612R.M Tue May 29 13:03:26 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694021.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 2:01 pm
Operator : JT
Sample : C605241205R
Misc : WHAP65
ALS Vial : 85 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 08:21:15 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

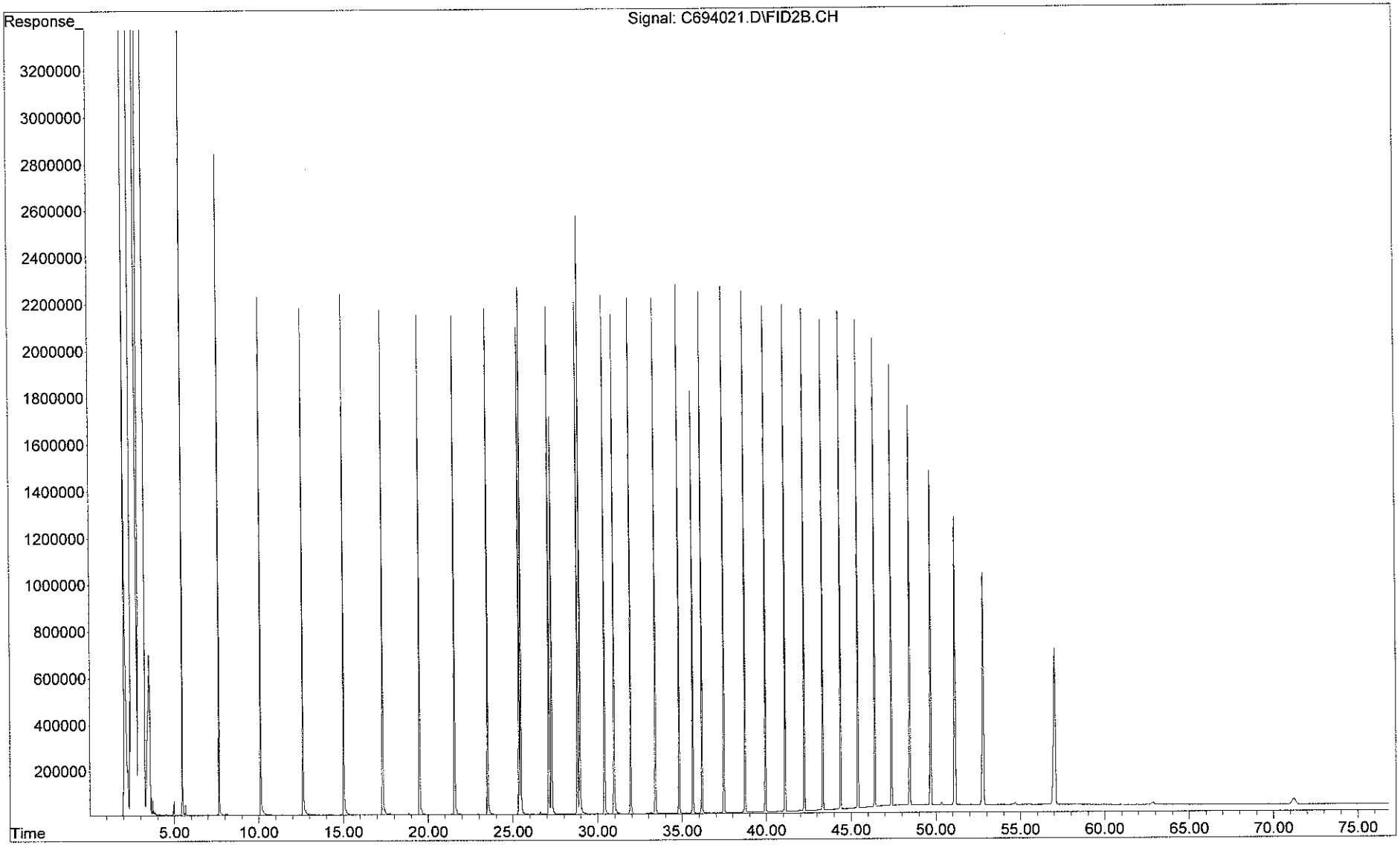
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.980	54182699	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.962	62724186	56.671 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.34%
24) s	d50-Tetracosane	35.644	50248831	56.865 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	113.73%
	Target Compounds			
2) t	n-Octane (C8)	5.471	42107188	49.539 ug/mL M4
3) t	n-Nonane (C9)	7.644	43232462	48.973 ug/mL M4
4) t	n-Decane (C10)	10.107	45298217	48.687 ug/mL M4
5) t	n-Undecane (C11)	12.607	47615823	50.731 ug/mL M4
6) t	n-Dodecane (C12)	15.027	49669042	51.957 ug/mL M4
7) t	n-Tridecane (C13)	17.328	50270874	52.299 ug/mL M4
9) t	n-Tetradecane (C14)	19.506	51118347	52.647 ug/mL M4
11) t	n-Pentadecane (C15)	21.565	51431104	53.018 ug/mL M4
12) t	n-Hexadecane (C16)	23.518	53087493	54.046 ug/mL M4
14) t	n-Heptadecane (C17)	25.373	51774542	52.994 ug/mL M4
15) t	Pristane	25.483	54236254	54.320 ug/mL M4
16) t	n-Octadecane (C18)	27.137	53633892	53.707 ug/mL M4
17) t	Phytane	27.301	53879942	54.643 ug/mL M4
18) t	n-Nonadecane (C19)	28.818	53818248	54.061 ug/mL M4
20) t	n-Eicosane (C20)	30.420	54590497	54.258 ug/mL M4
21) t	n-Heneicosane (C21)	31.954	54568991	53.841 ug/mL M4
22) t	n-Docosane (C22)	33.424	54992673	54.185 ug/mL M4
23) t	n-Tricosane (C23)	34.836	54976373	53.876 ug/mL M4
25) t	n-Tetracosane (C24)	36.190	54720285	53.922 ug/mL M4
26) t	n-Pentacosane (C25)	37.493	55898724	54.061 ug/mL M4
27) t	n-Hexacosane (C26)	38.749	55452908	53.915 ug/mL M4
28) t	n-Heptacosane (C27)	39.958	54315211	53.688 ug/mL M4
29) t	n-Octacosane (C28)	41.126	55007943	53.941 ug/mL M4
30) t	n-Nonacosane (C29)	42.256	54906823	53.811 ug/mL M4
31) t	n-Triacontane (C30)	43.348	54229958	53.421 ug/mL M4
32) t	n-Hentriacontane (C31)	44.406	54832625	53.838 ug/mL M4
33) t	n-Dotriacontane (C32)	45.431	54725937	54.001 ug/mL M4
34) t	n-Tritriacontane (C33)	46.425	52386975	53.369 ug/mL M4
35) t	n-tetratriacontane (C34)	47.407	54090727	54.174 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.492	55128906	54.095 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.728	56095509	54.010 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.151	54833334	54.065 ug/mL M4
39) t	n-Octatriacontane (C38)	52.812	54559715	53.662 ug/mL M4
41) t	n-Tetracontane (C40)	57.047	51476172	54.507 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694021.D
Operator : JT
Acquired : 26 May 2012 2:01 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : C605241205R
Misc Info : WHAP65
ALS Vial : 85



Instrument Blank Association

NMC 5/30/18

ETR: 1205027

Project: Enbridge Line 6B MP 608

	Associated Instrument Blank	
Sample ID	**Laboratory ID**	**File ID**
1205027-01	IB605241201R	C693963
1205027-02	IB605241201R	C693963
1205027-03	IB605241201R	C693963
1205027-04	IB605241201R	C693963
1205027-05	IB605241203R	C693985
1205027-05M	IB605241203R	C693985
1205027-05S	IB605241203R	C693985
1205027-06	IB605241203R	C693985
1205027-06D	IB605241203R	C693985
1205027-07	IB605241203R	C693985
1205027-08	IB605241203R	C693985
SO052312B08	IB605241201R	C693963
SO052312LCS03	IB605241201R	C693963
SO052312LCSD03	IB605241201R	C693963
SS052312B03	IB605241203R	C693985
SS052312LCS01	IB605241203R	C693985
SS052312LCSD01	IB605241203R	C693985
TO052512ANS02	IB605241201R	C693963
TO052512WCS01	IB605241203R	C693985
TO052512CL01	IB605241203R	C693985
TS032912ANS01	IB603261203R	C692615

Data Path : O:\Forensics\Data\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692615.D
Signal(s) : FID2B.CH
Acq On : 28 Mar 2012 6:49 am
Operator : BAL
Sample : IB603261203R
Misc : DCM
ALS Vial : 73 Sample Multiplier: 1

DmP 3/29/12

Integration File: SHCINT2.E
Quant Time: Mar 29 09:12:42 2012
Quant Method : O:\Forensics\Methods\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:13:31 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

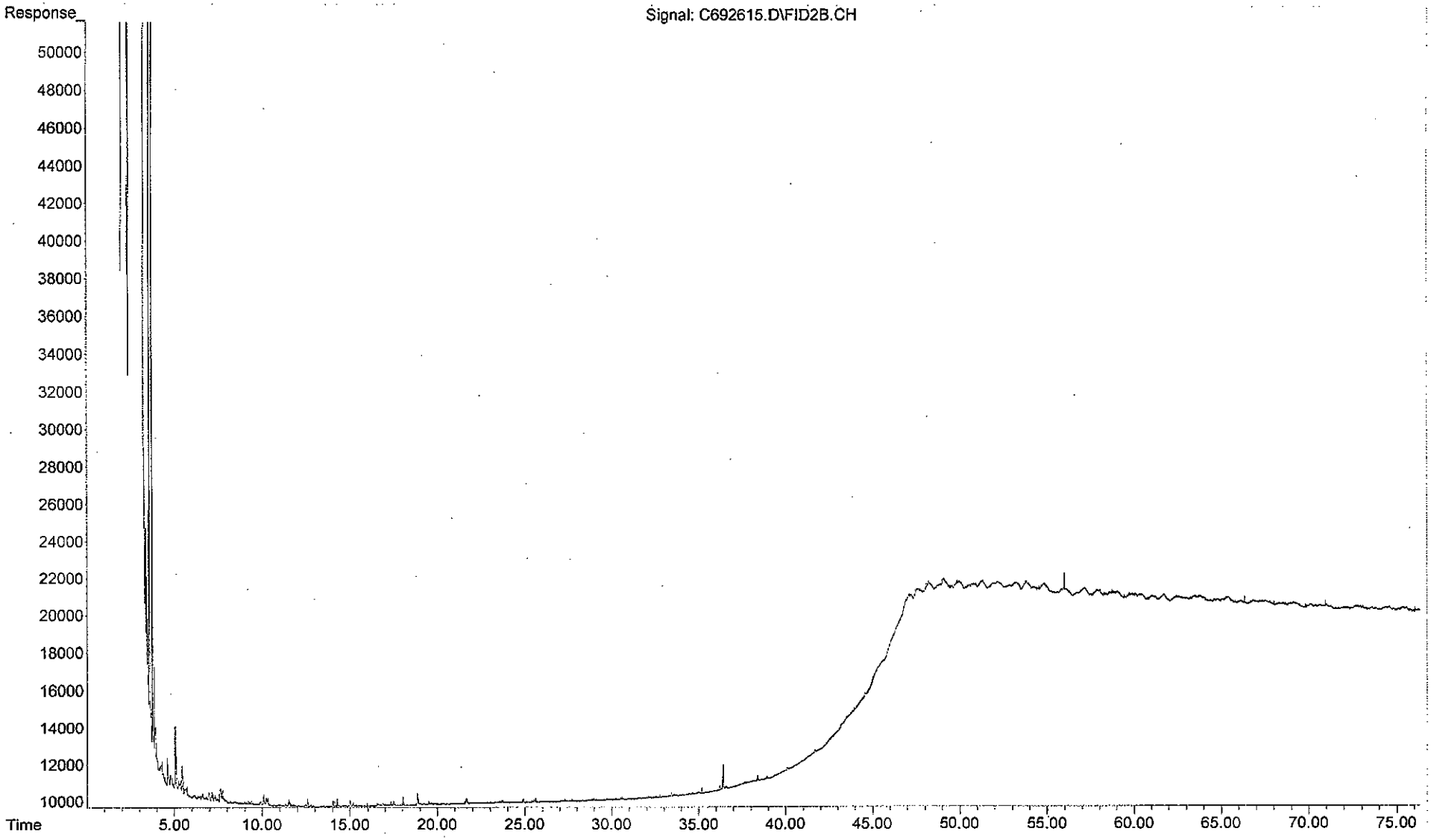
Sub List : TPH - TPH

2nd 3/29/12

	Compound	R.T.	Response	Conc	Units	
Internal Standards						
1) I	5-alpha-androstane	31.191	330	50.000	ug/mL	M4
System Monitoring Compounds						
Target Compounds						
42) h	C9-C44 Total Petroleu...	39.706	231457603	38210148.379	ug/mL	M5
SemiQuant Compounds - Not Calibrated on this Instrument						

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAR2012\MAR26.SEC\C692615.D
Operator : BAL
Acquired : 28 Mar 2012 6:49 am using AcqMethod FID6A.M
Instrument : FID6
Sample : IB603261203R
Misc Info : DCM
ALS Vial : 73



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693963.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 6:48 pm
Operator : JT
Sample : IB605241201R
Misc : DCM
ALS Vial : 56 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 25 15:35:44 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

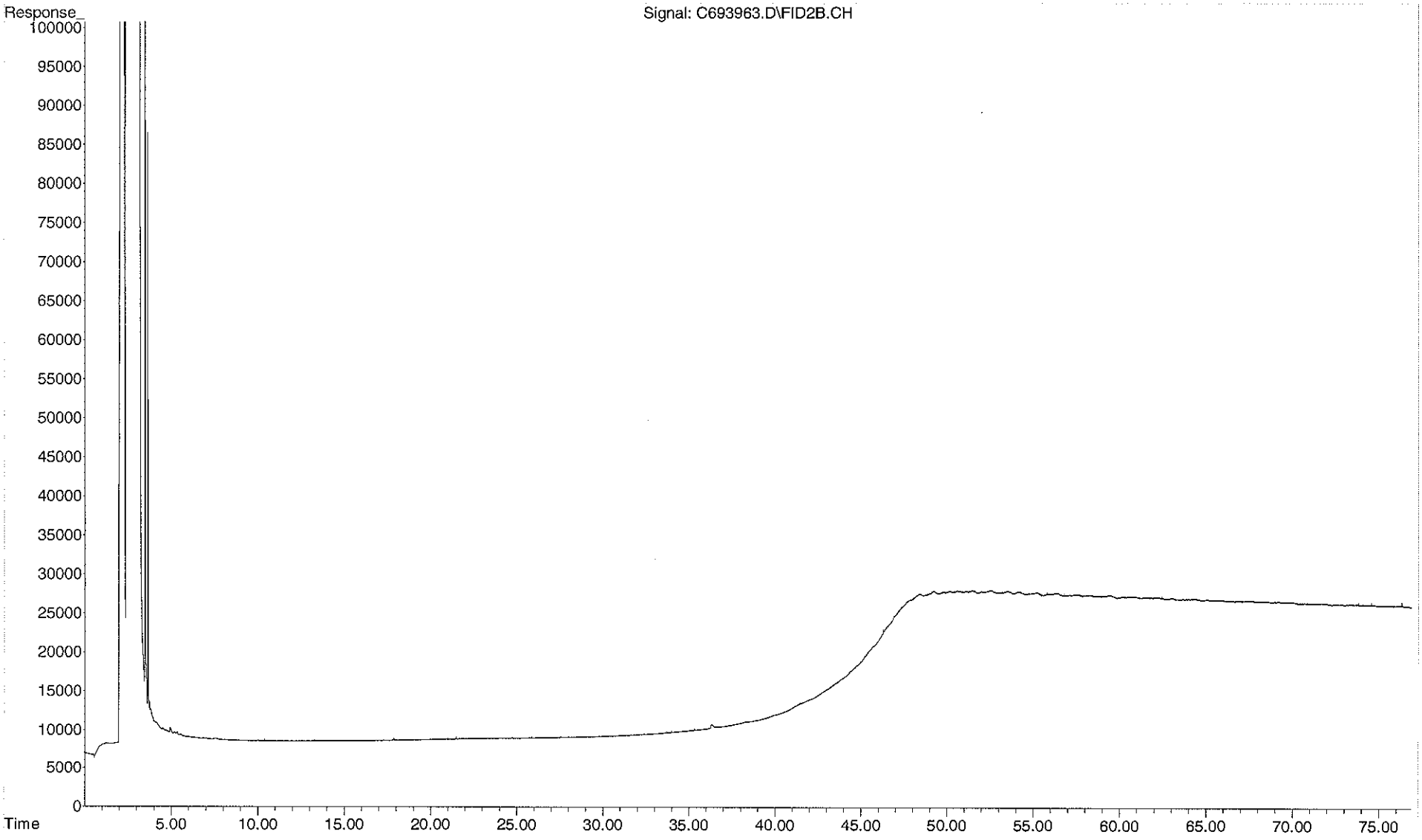
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.970	283	50.000 ug/mL M4
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	39.421	381497743	73423050.070 ug/mL M5
45) h	Total Resolved Hydroc...	39.421	994588	191418.378 ug/L m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693963.D
Operator : JT
Acquired : 24 May 2012 6:48 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : IB605241201R
Misc Info : DCM
ALS Vial : 56



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693985.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 11:11 am
Operator : JT
Sample : IB605241203R
Misc : DCM
ALS Vial : 67 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:33:02 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

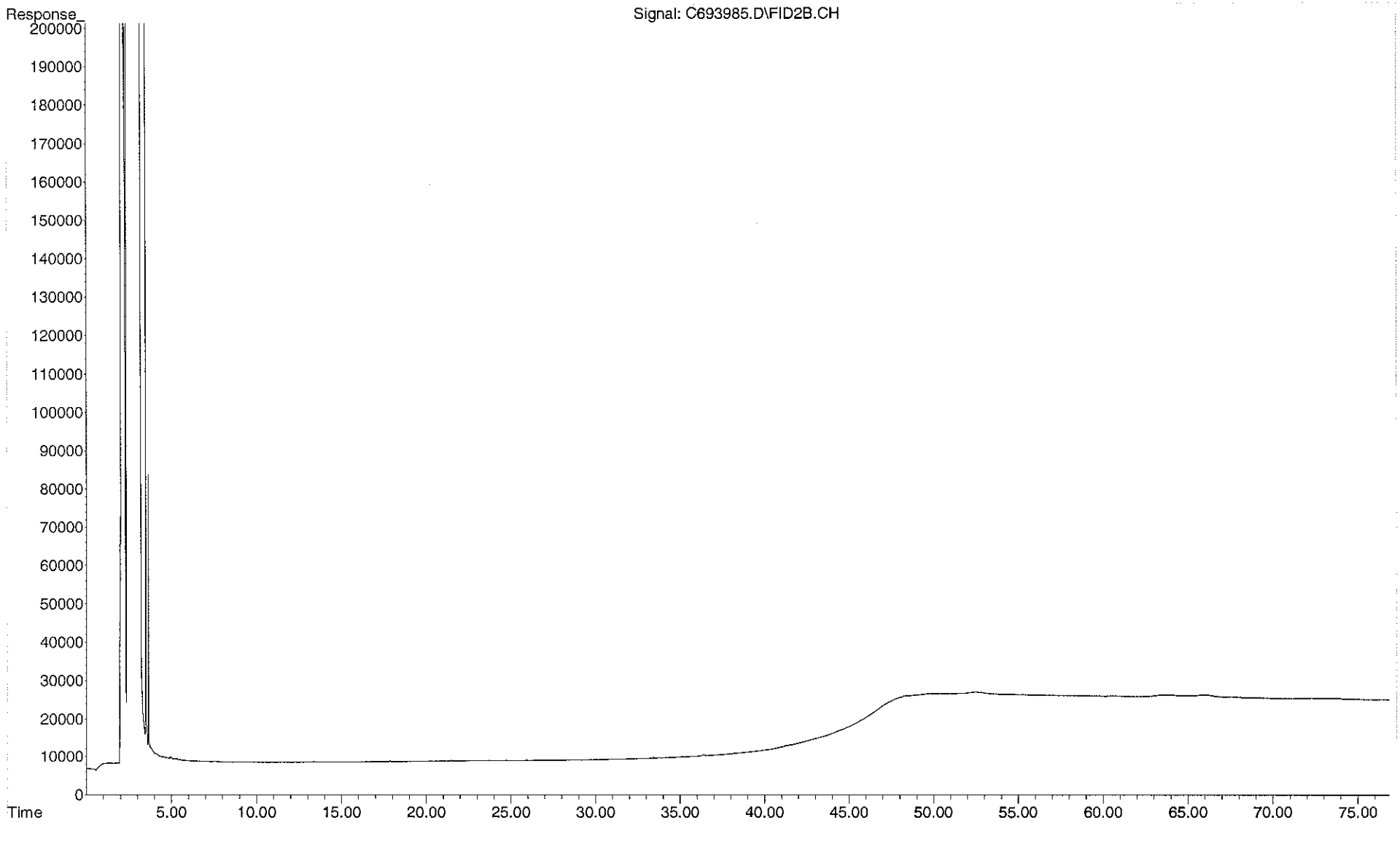
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5-alpha-androstane	30.958	493	50.000 ug/mL M4
System Monitoring Compounds				
Target Compounds				
42) h	C9-C44 Total Petroleu...	39.421	358493681	39634266.176 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	627891	69418.184 ug/L m
SemiQuant Compounds - Not Calibrated on this Instrument				

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693985.D
Operator : JT
Acquired : 25 May 2012 11:11 am using AcqMethod FID6A.M
Instrument : FID6
Sample : IB605241203R
Misc Info : DCM
ALS Vial : 67



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312B08**
Associated Blank: **N/A**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	1.00	U	n-Docosane (C22)	1.00	U
n-Decane (C10)	1.00	U	n-Tricosane (C23)	1.00	U
n-Undecane (C11)	1.00	U	n-Tetracosane (C24)	1.00	U
n-Dodecane (C12)	1.00	U	n-Pentacosane (C25)	**0.552**	CJ
n-Tridecane (C13)	1.00	U	n-Hexacosane (C26)	**0.00700**	J
2,6,10 Trimethyldodecane (1380)	1.00	U	n-Heptacosane (C27)	**0.00700**	J
n-Tetradecane (C14)	1.00	U	n-Octacosane (C28)	**0.278**	GJ
2,6,10 Trimethyltridecane (1470)	1.00	U	n-Nonacosane (C29)	1.00	U
n-Pentadecane (C15)	1.00	U	n-Triacontane (C30)	1.00	U
n-Hexadecane (C16)	1.00	U	n-Hentriacontane (C31)	**0.0370**	J
Norpristane (1650)	1.00	U	n-Dotriacontane (C32)	1.00	U
n-Heptadecane (C17)	1.00	U	n-Tritriacontane (C33)	1.00	U
Pristane	1.00	U	n-Tetratriacontane (C34)	1.00	U
n-Octadecane (C18)	**0.804**	CJ	n-Pentatriacontane (C35)	1.00	U
Phytane	1.00	U	n-Hexatriacontane (C36)	**0.0330**	J
n-Nonadecane (C19)	1.00	U	n-Heptatriacontane (C37)	1.00	U
n-Eicosane (C20)	1.00	U	n-Octatriacontane (C38)	1.00	U
n-Heneicosane (C21)	1.00	U	n-Nonatriacontane (C39)	1.00	U
			n-Tetracontane (C40)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	200	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	94	40-125
d50-Tetracosane	95	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\
Data File : C693965.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 8:17 pm
Operator : JT
Sample : SO052312B08
Misc : 1X
ALS Vial : 57 Sample Multiplier: 1

JH for GP 5/29/12

Integration File: SHCINT2.E
Quant Time: May 29 11:52:03 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

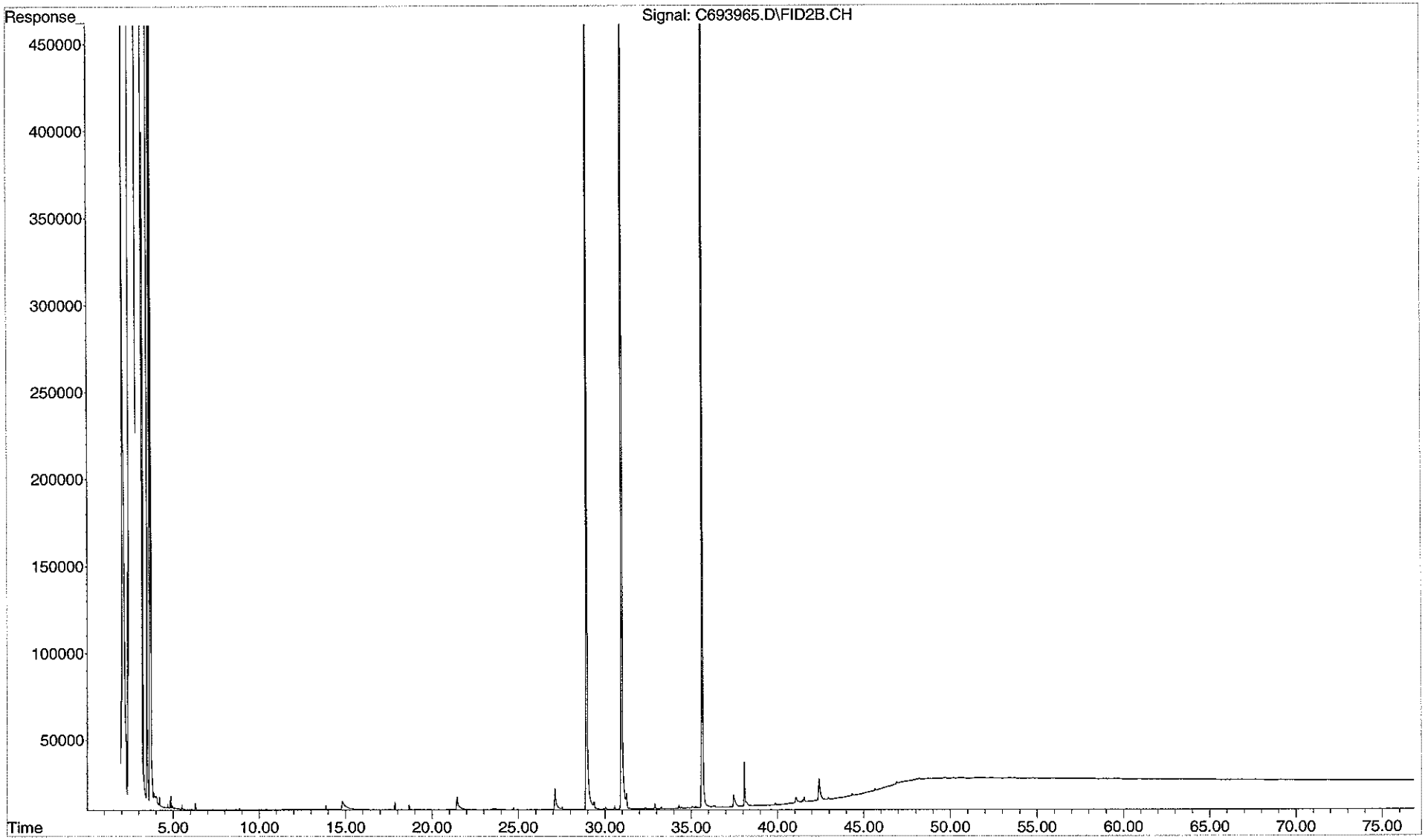
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.976	55701687	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.954	53490767	47.011 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	94.02%
24) s	d50-Tetracosane	35.635	42935257	47.263 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	94.53%
	Target Compounds			
16) t	n-Octadecane (C18)	27.106	825556C	0.804 ug/mL M4
26) t	n-Pentacosane (C25)	37.454	586943C	0.552 ug/mL M4
27) t	n-Hexacosane (C26)	38.762	7918	0.007 ug/mL M4
28) t	n-Heptacosane (C27)	39.967	7120	0.007 ug/mL M4
29) t	n-Octacosane (C28)	41.076	291773G	0.278 ug/mL M4
32) t	n-Hentriacontane (C31)	44.343	38468	0.037 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.690	35475	0.033 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	382978141	374.895 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	7281395	7.128 ug/L m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\C693965.D
Operator : JT
Acquired : 24 May 2012 8:17 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SO052312B08
Misc Info : 1X
ALS Vial : 57



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312B03**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	JT

Parameter	Result	
n-Nonane (C9)	**0.00100**	J
n-Decane (C10)	**0.000800**	J
n-Undecane (C11)	0.0218	U
n-Dodecane (C12)	0.0282	U
n-Tridecane (C13)	0.117	U
2,6,10 Trimethyldodecane (1380)	0.0208	U
n-Tetradecane (C14)	0.0208	U
2,6,10 Trimethyltridecane (1470)	0.0894	U
n-Pentadecane (C15)	0.0894	U
n-Hexadecane (C16)	0.0192	U
Norpristane (1650)	0.0242	U
n-Heptadecane (C17)	0.0242	U
Pristane	0.0322	U
n-Octadecane (C18)	**0.0566**	CJ
Phytane	**0.0206**	J
n-Nonadecane (C19)	0.0162	U
n-Eicosane (C20)	0.0111	U
n-Heneicosane (C21)	0.0134	U
Total Petroleum Hydrocarbons (C9-C44)	40.0	U

Parameter	Result	
n-Docosane (C22)	**0.00120**	J
n-Tricosane (C23)	**0.00400**	J
n-Tetracosane (C24)	**0.00180**	J
n-Pentacosane (C25)	**0.0770**	CJ
n-Hexacosane (C26)	**0.00320**	J
n-Heptacosane (C27)	**0.00320**	J
n-Octacosane (C28)	**0.0238**	J
n-Nonacosane (C29)	**0.00480**	J
n-Triacontane (C30)	**0.00360**	J
n-Hentriacontane (C31)	**0.00500**	J
n-Dotriacontane (C32)	**0.00260**	J
n-Tritriacontane (C33)	**0.00260**	J
n-Tetratriacontane (C34)	**0.00180**	J
n-Pentatriacontane (C35)	**0.00420**	J
n-Hexatriacontane (C36)	**0.00220**	J
n-Heptatriacontane (C37)	**0.00480**	J
n-Octatriacontane (C38)	0.0308	U
n-Nonatriacontane (C39)	**0.00200**	J
n-Tetracontane (C40)	0.0366	U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	81	40-125
d50-Tetracosane	81	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693987.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 12:40 pm
Operator : JT
Sample : SS052312B03
Misc : 1X
ALS Vial : 68 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:33:57 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

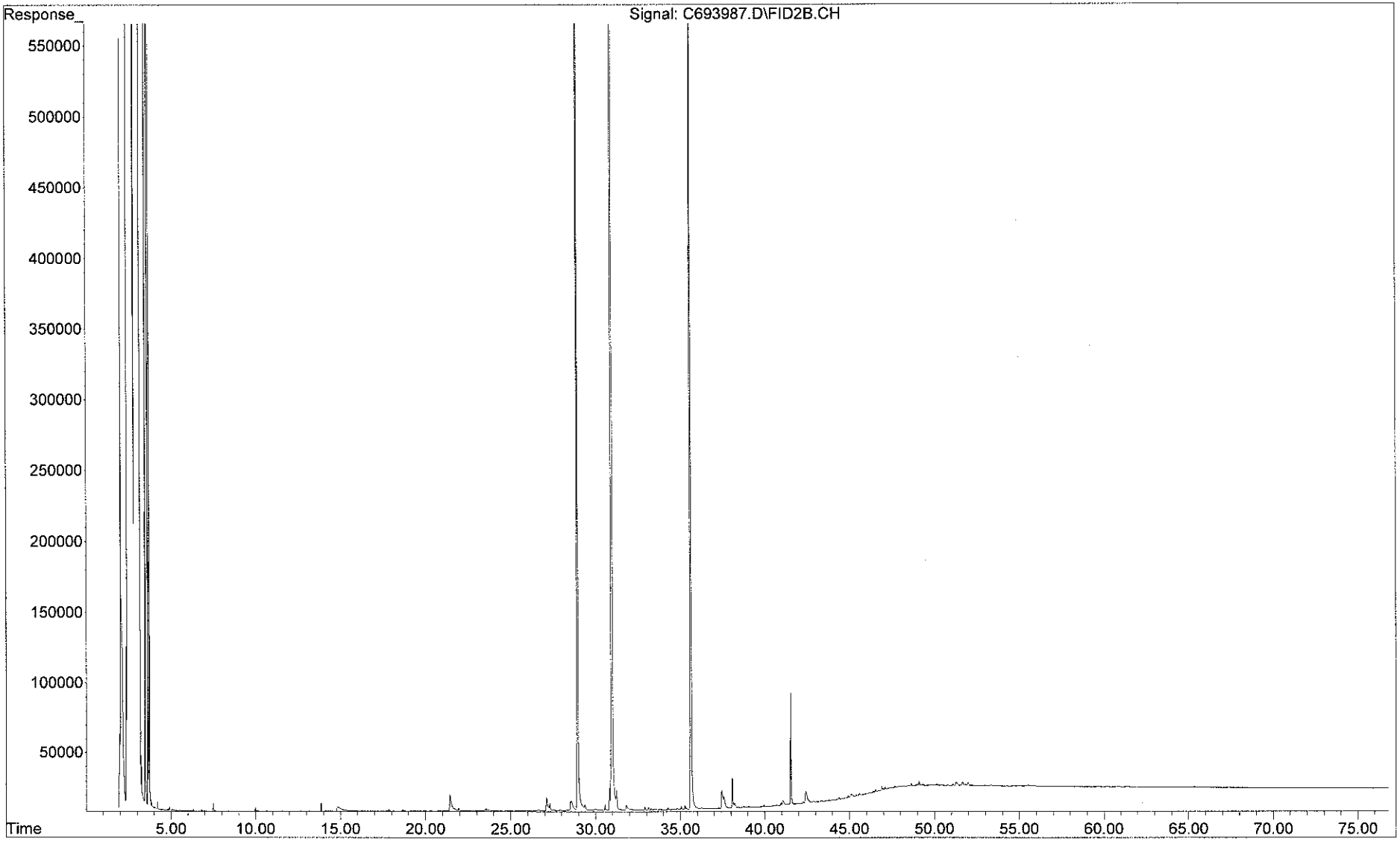
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	30.995	109285443	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	28.949	45379785	20.328 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	40.66%#
24) s d50-Tetracosane	35.633	36143436	20.279 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	40.56%#
Target Compounds			
3) t n-Nonane (C9)	7.626	9600	0.005 ug/mL M4
4) t n-Decane (C10)	10.082	6728	0.004 ug/mL M4
16) t n-Octadecane (C18)	27.107	569414C	0.283 ug/mL M4
17) t Phytane	27.296	204393	0.103 ug/mL M4
22) t n-Docosane (C22)	33.439	13127	0.006 ug/mL M4
23) t n-Tricosane (C23)	34.814	40491	0.020 ug/mL M4
25) t n-Tetracosane (C24)	36.210	17993	0.009 ug/mL M4
26) t n-Pentacosane (C25)	37.458	803471C	0.385 ug/mL M4
27) t n-Hexacosane (C26)	38.760	33349	0.016 ug/mL M4
28) t n-Heptacosane (C27)	39.949	33551	0.016 ug/mL M4
29) t n-Octacosane (C28)	41.077	245402	0.119 ug/mL M4
30) t n-Nonacosane (C29)	42.253	50069	0.024 ug/mL M4
31) t n-Triacontane (C30)	43.345	36971	0.018 ug/mL M4
32) t n-Hentriacontane (C31)	44.393	51140	0.025 ug/mL M4
33) t n-Dotriacontane (C32)	45.412	26703	0.013 ug/mL M4
34) t n-Tritriacontane (C33)	46.401	25911	0.013 ug/mL M4
35) t n-tetratriacontane (C34)	47.386	18314	0.009 ug/mL M4
36) t n-Pentatriacontane (C35)	48.457	42827	0.021 ug/mL M4
37) t n-Hexatriacontane (C36)	49.694	23791	0.011 ug/mL M4
38) t n-Heptatriacontane (C37)	51.074	50060	0.024 ug/mL M4
40) t n-Nonatriacontane (C39)	54.680	18359	0.010 ug/mL M4
42) h C9-C44 Total Petroleu...	39.421	380093590	189.641 ug/mL M4
45) h Total Resolved Hydroc...	39.421	14407308	7.188 ug/L m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693987.D
Operator : JT
Acquired : 25 May 2012 12:40 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SS052312B03
Misc Info : 1X
ALS Vial : 68



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCS03**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**14.7**	S	n-Docosane (C22)	**20.0**	S
n-Decane (C10)	**15.7**	S	n-Tricosane (C23)	1.00	U
n-Undecane (C11)	1.00	U	n-Tetracosane (C24)	**20.2**	S
n-Dodecane (C12)	**17.1**	S	n-Pentacosane (C25)	1.00	U
n-Tridecane (C13)	1.00	U	n-Hexacosane (C26)	**20.0**	S
2,6,10 Trimethyldodecane (1380)	1.00	U	n-Heptacosane (C27)	1.00	U
n-Tetradecane (C14)	**17.5**	S	n-Octacosane (C28)	**20.2**	S
2,6,10 Trimethyltridecane (1470)	1.00	U	n-Nonacosane (C29)	1.00	U
n-Pentadecane (C15)	1.00	U	n-Triacontane (C30)	**20.1**	S
n-Hexadecane (C16)	**20.8**	S	n-Hentriacontane (C31)	1.00	U
Norpristane (1650)	1.00	U	n-Dotriacontane (C32)	1.00	U
n-Heptadecane (C17)	1.00	U	n-Tritriacontane (C33)	1.00	U
Pristane	1.00	U	n-Tetratriacontane (C34)	1.00	U
n-Octadecane (C18)	**21.9**	S	n-Pentatriacontane (C35)	1.00	U
Phytane	1.00	U	n-Hexatriacontane (C36)	**19.7**	S
n-Nonadecane (C19)	**19.6**	S	n-Heptatriacontane (C37)	1.00	U
n-Eicosane (C20)	**19.9**	S	n-Octatriacontane (C38)	1.00	U
n-Heneicosane (C21)	1.00	U	n-Nonatriacontane (C39)	1.00	U
			n-Tetracontane (C40)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**286**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	96	40-125
d50-Tetracosane	97	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\
Data File : C693967.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 9:46 pm
Operator : JT
Sample : SO052312LCS03
Misc : 1X
ALS Vial : 58 Sample Multiplier: 1

dll for GP 5/29/12

Integration File: SHCINT2.E
Quant Time: May 29 11:52:04 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

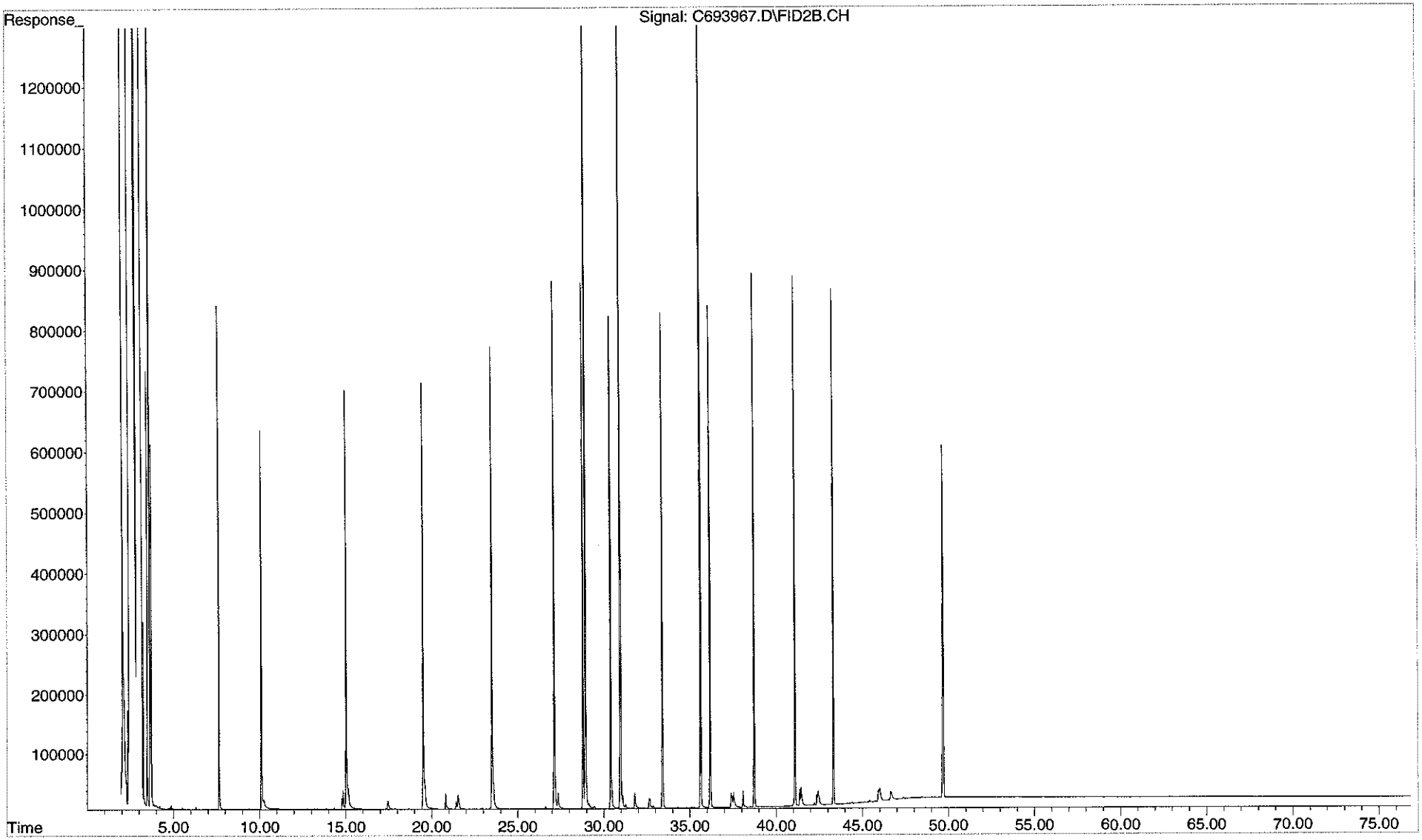
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.977	54324678	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.955	53354191	48.079 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	96.16%
24) s	d50-Tetracosane	35.636	42777341	48.283 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	96.57%
	Target Compounds			
3) t	n-Nonane (C9)	7.627	13030754	14.722 ug/mL M4
4) t	n-Decane (C10)	10.097	14683696	15.741 ug/mL M4
6) t	n-Dodecane (C12)	15.017	16381050	17.091 ug/mL M4
9) t	n-Tetradecane (C14)	19.494	17012742	17.476 ug/mL M4
12) t	n-Hexadecane (C16)	23.505	20461576	20.777 ug/mL M4
16) t	n-Octadecane (C18)	27.119	21911374	21.884 ug/mL M4
18) t	n-Nonadecane (C19)	28.801	19561890	19.599 ug/mL M4
20) t	n-Eicosane (C20)	30.403	20106105	19.931 ug/mL M4
22) t	n-Docosane (C22)	33.405	20349476	19.998 ug/mL M4
25) t	n-Tetracosane (C24)	36.167	20508134	20.156 ug/mL M4
27) t	n-Hexacosane (C26)	38.725	20609096	19.985 ug/mL M4
29) t	n-Octacosane (C28)	41.103	20634215	20.181 ug/mL M4
31) t	n-Triacontane (C30)	43.323	20477028	20.119 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.683	20517039	19.702 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	666389817	668.859 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	292343774	293.427 ug/L m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\C693967.D
Operator : JT
Acquired : 24 May 2012 9:46 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SO052312LCS03
Misc Info : 1X
ALS Vial : 58



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SO052312LCSD03**
Associated Blank: **SO052312B08**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/24/12	100	1.00	1	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**14.7**	S	n-Docosane (C22)	**20.4**	S
n-Decane (C10)	**16.1**	S	n-Tricosane (C23)	1.00	U
n-Undecane (C11)	1.00	U	n-Tetracosane (C24)	**20.5**	S
n-Dodecane (C12)	**17.7**	S	n-Pentacosane (C25)	1.00	U
n-Tridecane (C13)	1.00	U	n-Hexacosane (C26)	**20.3**	S
2,6,10 Trinethyldodecane (1380)	1.00	U	n-Heptacosane (C27)	1.00	U
n-Tetradecane (C14)	**18.1**	S	n-Octacosane (C28)	**20.6**	S
2,6,10 Trimethyltridecane (1470)	1.00	U	n-Nonacosane (C29)	1.00	U
n-Pentadecane (C15)	1.00	U	n-Triacontane (C30)	**20.4**	S
n-Hexadecane (C16)	**19.6**	S	n-Hentriacontane (C31)	1.00	U
Norpristane (1650)	1.00	U	n-Dotriacontane (C32)	1.00	U
n-Heptadecane (C17)	1.00	U	n-Tritriacontane (C33)	1.00	U
Pristane	1.00	U	n-Tetratriacontane (C34)	1.00	U
n-Octadecane (C18)	**22.4**	S	n-Pentatriacontane (C35)	1.00	U
Phytane	1.00	U	n-Hexatriacontane (C36)	**20.0**	S
n-Nonadecane (C19)	**20.0**	S	n-Heptatriacontane (C37)	1.00	U
n-Eicosane (C20)	**20.3**	S	n-Octatriacontane (C38)	1.00	U
n-Heneicosane (C21)	1.00	U	n-Nonatriacontane (C39)	1.00	U
			n-Tetracontane (C40)	1.00	U
Total Petroleum Hydrocarbons (C9-C44)	**287**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	98	40-125
d50-Tetracosane	98	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\
Data File : C693969.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 11:16 pm
Operator : JT
Sample : SO052312LCSD03
Misc : 1X
ALS Vial : 59 Sample Multiplier: 1

SH for GP 5/29/12

Integration File: SHCINT2.E
Quant Time: May 29 11:52:06 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

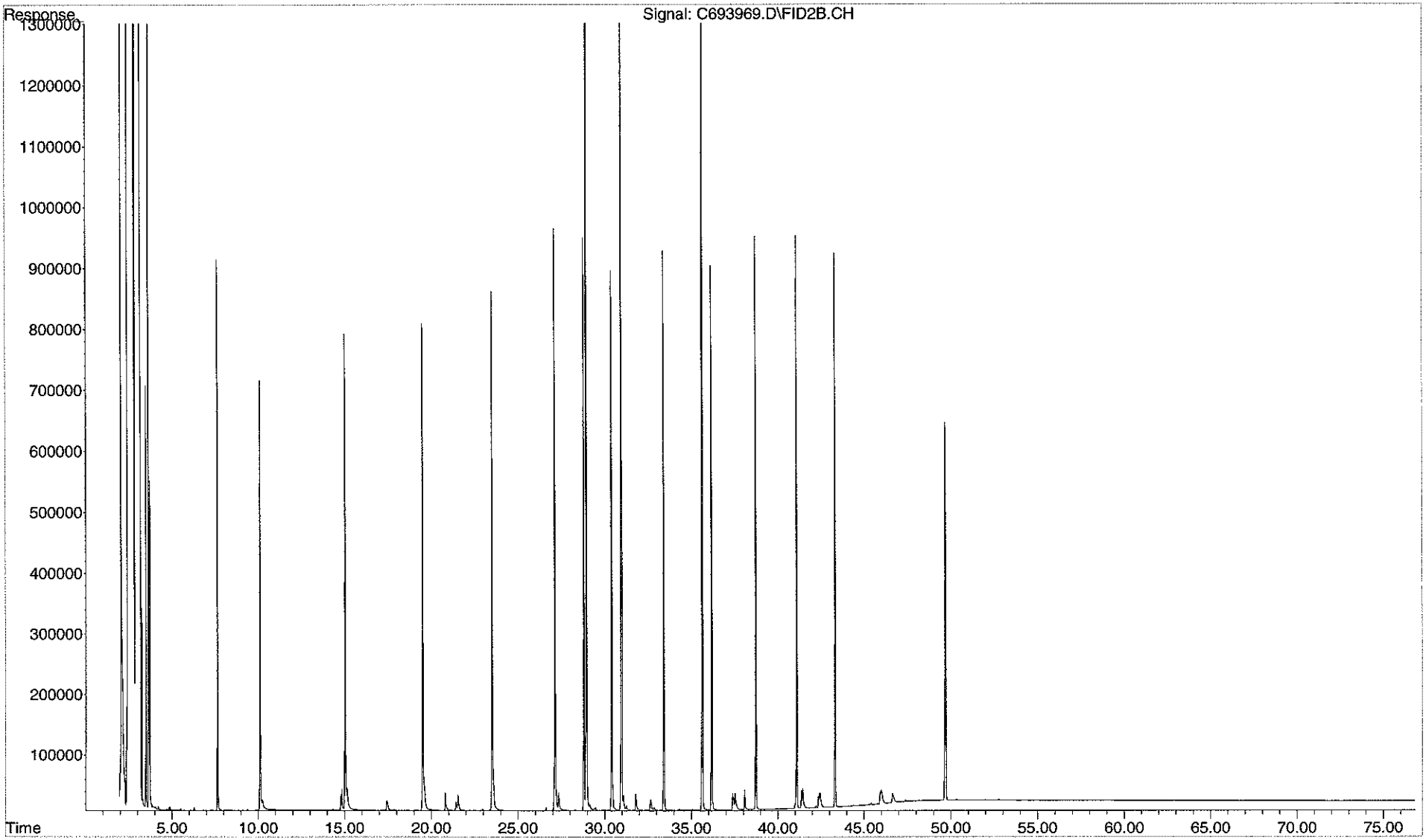
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.976	58133032	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.956	58121397	48.944 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	97.89%
24) s	d50-Tetracosane	35.636	46329322	48.867 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	97.73%
	Target Compounds			
3) t	n-Nonane (C9)	7.629	13936817	14.715 ug/mL M4
4) t	n-Decane (C10)	10.098	16040303	16.069 ug/mL M4
6) t	n-Dodecane (C12)	15.019	18161318	17.707 ug/mL M4
9) t	n-Tetradecane (C14)	19.494	18834285	18.079 ug/mL M4
12) t	n-Hexadecane (C16)	23.505	20661574	19.605 ug/mL M4
16) t	n-Octadecane (C18)	27.120	23950086	22.353 ug/mL M4
18) t	n-Nonadecane (C19)	28.801	21359316	19.998 ug/mL M4
20) t	n-Eicosane (C20)	30.403	21955557	20.339 ug/mL M4
22) t	n-Docosane (C22)	33.406	22180243	20.369 ug/mL M4
25) t	n-Tetracosane (C24)	36.168	22328142	20.507 ug/mL M4
27) t	n-Hexacosane (C26)	38.723	22427371	20.324 ug/mL M4
29) t	n-Octacosane (C28)	41.101	22505941	20.570 ug/mL M4
31) t	n-Triacontane (C30)	43.320	22250411	20.429 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.680	22251306	19.968 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	687026178	644.398 ug/mL M4
45) h	Total Resolved Hydroc...	39.421	317315437	297.627 ug/L m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAY2012\MAY24.SEC\SREV\C693969.D
Operator : JT
Acquired : 24 May 2012 11:16 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SO052312LCSD03
Misc Info : 1X
ALS Vial : 59



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCS01**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.21**	S	n-Docosane (C22)	**1.77**	S
n-Decane (C10)	**1.13**	S	n-Tricosane (C23)	0.0119	U
n-Undecane (C11)	0.0218	U	n-Tetracosane (C24)	**1.80**	S
n-Dodecane (C12)	**1.28**	S	n-Pentacosane (C25)	0.117	U
n-Tridecane (C13)	0.117	U	n-Hexacosane (C26)	**1.78**	S
2,6,10 Trimethyldodecane (1380)	0.0208	U	n-Heptacosane (C27)	0.0157	U
n-Tetradecane (C14)	**1.29**	S	n-Octacosane (C28)	**1.80**	S
2,6,10 Trimethyltridecane (1470)	0.0894	U	n-Nonacosane (C29)	0.0188	U
n-Pentadecane (C15)	0.0894	U	n-Triacontane (C30)	**1.79**	S
n-Hexadecane (C16)	**1.46**	S	n-Hentriacontane (C31)	0.0214	U
Norpristane (1650)	0.0242	U	n-Dotriacontane (C32)	0.0222	U
n-Heptadecane (C17)	0.0242	U	n-Tritriacontane (C33)	0.0220	U
Pristane	0.0322	U	n-Tetratriacontane (C34)	0.0268	U
n-Octadecane (C18)	**1.92**	S	n-Pentatriacontane (C35)	0.0252	U
Phytane	0.0168	U	n-Hexatriacontane (C36)	**1.74**	S
n-Nonadecane (C19)	**1.72**	S	n-Heptatriacontane (C37)	0.0340	U
n-Eicosane (C20)	**1.75**	S	n-Octatriacontane (C38)	0.0308	U
n-Heneicosane (C21)	0.0134	U	n-Nonatriacontane (C39)	0.0366	U
			n-Tetracontane (C40)	0.0366	U
Total Petroleum Hydrocarbons (C9-C44)	40.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	40-125
d50-Tetracosane	87	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693989.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 2:09 pm
Operator : JT
Sample : SS052312LCS01
Misc : 1X
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:33:58 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

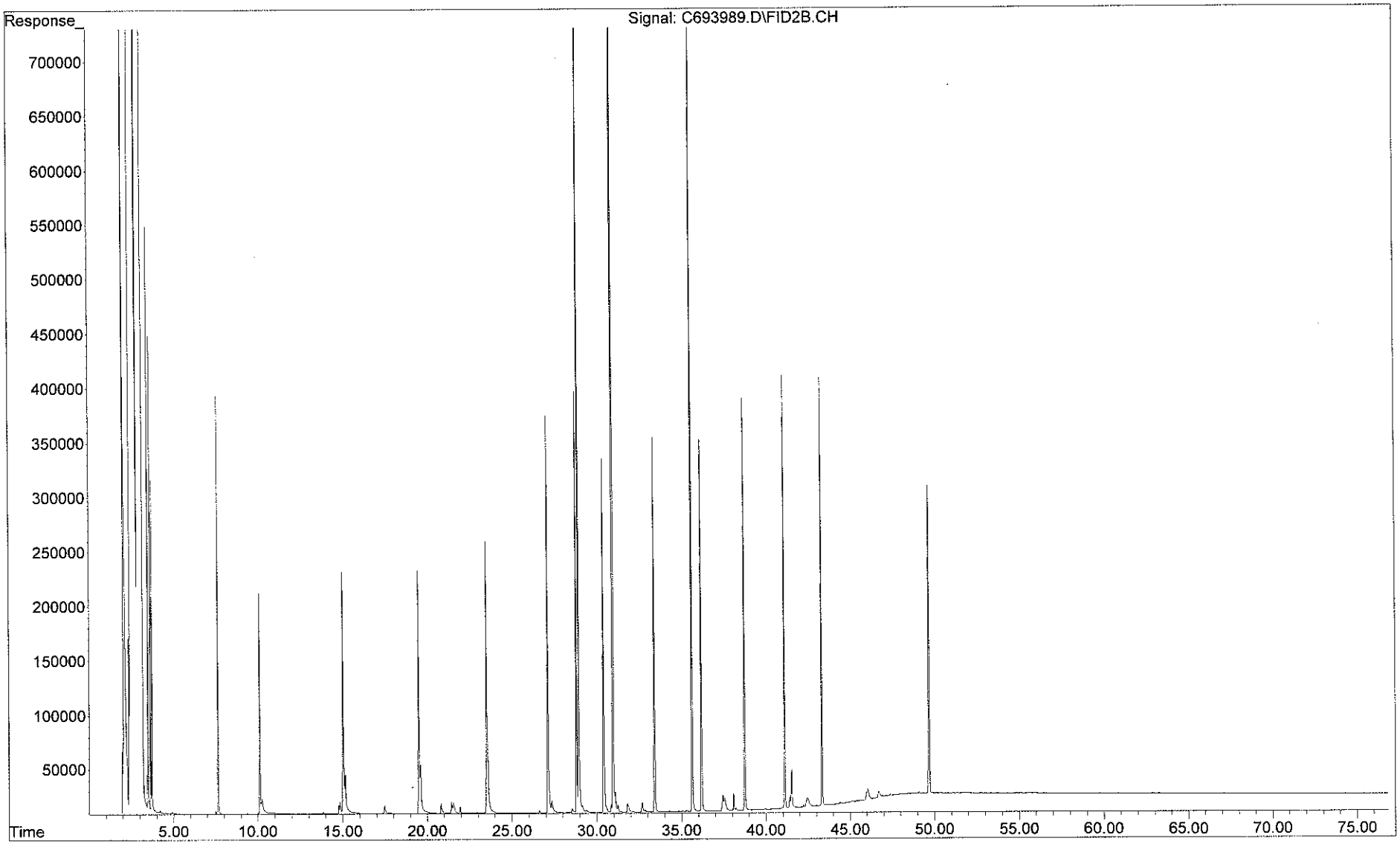
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
Internal Standards						
1) I	5-alpha-androstane	30.976	60881931	50.000	ug/mL	M4
System Monitoring Compounds						
19) s	ortho-terphenyl	28.940	27112929	21.801	ug/mL	M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	43.60%#		
24) s	d50-Tetracosane	35.627	21718987	21.874	ug/mL	M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	43.75%#		
Target Compounds						
3) t	n-Nonane (C9)	7.625	6016073	6.065	ug/mL	M4
4) t	n-Decane (C10)	10.094	5928187	5.671	ug/mL	M4
6) t	n-Dodecane (C12)	15.016	6863136	6.389	ug/mL	M4
9) t	n-Tetradecane (C14)	19.494	7040235	6.453	ug/mL	M4
12) t	n-Hexadecane (C16)	23.503	8039866	7.284	ug/mL	M4
16) t	n-Octadecane (C18)	27.116	10788771	9.615	ug/mL	M4
18) t	n-Nonadecane (C19)	28.795	9607193	8.589	ug/mL	M4
20) t	n-Eicosane (C20)	30.400	9888923	8.747	ug/mL	M4
22) t	n-Docosane (C22)	33.401	10106776	8.863	ug/mL	M4
25) t	n-Tetracosane (C24)	36.166	10258739	8.997	ug/mL	M4
27) t	n-Hexacosane (C26)	38.719	10302971	8.915	ug/mL	M4
29) t	n-Octacosane (C28)	41.097	10306585	8.995	ug/mL	M4
31) t	n-Triacontane (C30)	43.319	10192531	8.936	ug/mL	M4
37) t	n-Hexatriacontane (C36)	49.675	10132099	8.682	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	507983683	454.951	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	145201417	130.043	ug/L	m
SemiQuant Compounds - Not Calibrated on this Instrument						

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693989.D
Operator : JT
Acquired : 25 May 2012 2:09 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SS052312LCS01
Misc Info : 1X
ALS Vial : 69



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **SS052312LCSD01**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/23/12	05/25/12	100	10.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1.25**	S	n-Docosane (C22)	**1.76**	S
n-Decane (C10)	**1.14**	S	n-Tricosane (C23)	0.0119	U
n-Undecane (C11)	0.0218	U	n-Tetracosane (C24)	**1.78**	S
n-Dodecane (C12)	**1.26**	S	n-Pentacosane (C25)	0.117	U
n-Tridecane (C13)	0.117	U	n-Hexacosane (C26)	**1.77**	S
2,6,10 Trimethyldodecane (1380)	0.0208	U	n-Heptacosane (C27)	0.0157	U
n-Tetradecane (C14)	**1.26**	S	n-Octacosane (C28)	**1.80**	S
2,6,10 Trimethyltridecane (1470)	0.0894	U	n-Nonacosane (C29)	0.0188	U
n-Pentadecane (C15)	0.0894	U	n-Triacontane (C30)	**1.78**	S
n-Hexadecane (C16)	**1.42**	S	n-Hentriacontane (C31)	0.0214	U
Norpristane (1650)	0.0242	U	n-Dotriacontane (C32)	0.0222	U
n-Heptadecane (C17)	0.0242	U	n-Tritriacontane (C33)	0.0220	U
Pristane	0.0322	U	n-Tetratriacontane (C34)	0.0268	U
n-Octadecane (C18)	**1.89**	S	n-Pentatriacontane (C35)	0.0252	U
Phytane	0.0168	U	n-Hexatriacontane (C36)	**1.74**	S
n-Nonadecane (C19)	**1.69**	S	n-Heptatriacontane (C37)	0.0340	U
n-Eicosane (C20)	**1.72**	S	n-Octatriacontane (C38)	0.0308	U
n-Heneicosane (C21)	0.0134	U	n-Nonatriacontane (C39)	0.0366	U
			n-Tetracontane (C40)	0.0366	U
Total Petroleum Hydrocarbons (C9-C44)	40.0	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	40-125
d50-Tetracosane	85	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693991.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 3:38 pm
Operator : JT
Sample : SS052312LCSD01
Misc : 1X
ALS Vial : 70 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:00 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

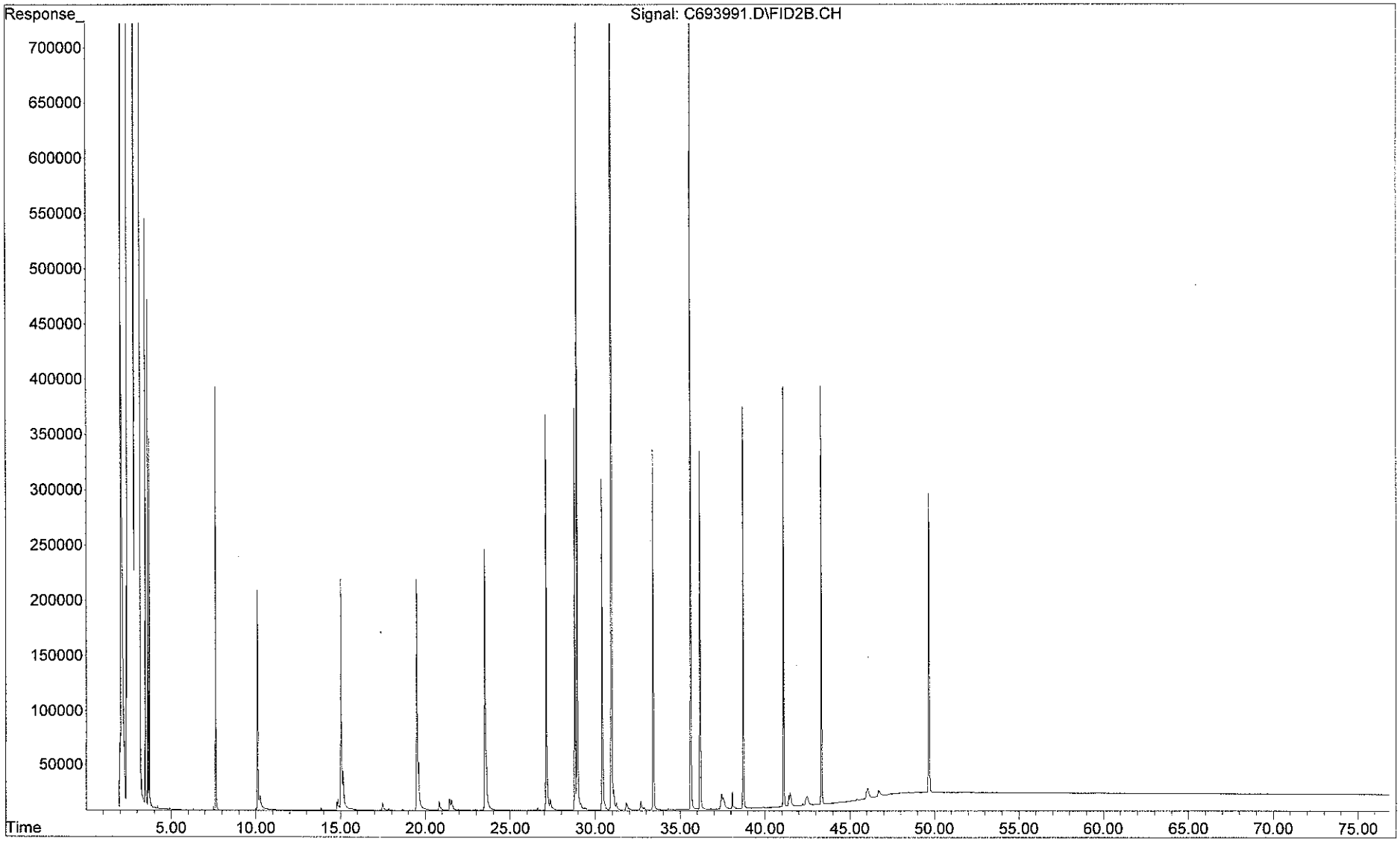
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
Internal Standards						
1) I	5-alpha-androstane	30.976	59850346	50.000	ug/mL	M4
System Monitoring Compounds						
19) s	ortho-terphenyl	28.941	25996799	21.264	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	42.53%#		
24) s	d50-Tetracosane	35.627	20847344	21.358	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	42.72%#		
Target Compounds						
3) t	n-Nonane (C9)	7.624	6113678	6.270	ug/mL	M4
4) t	n-Decane (C10)	10.094	5881929	5.723	ug/mL	M4
6) t	n-Dodecane (C12)	15.017	6654047	6.301	ug/mL	M4
9) t	n-Tetradecane (C14)	19.496	6758353	6.301	ug/mL	M4
12) t	n-Hexadecane (C16)	23.506	7710551	7.106	ug/mL	M4
16) t	n-Octadecane (C18)	27.118	10422503	9.448	ug/mL	M4
18) t	n-Nonadecane (C19)	28.796	9268757	8.429	ug/mL	M4
20) t	n-Eicosane (C20)	30.403	9583975	8.624	ug/mL	M4
22) t	n-Docosane (C22)	33.405	9874377	8.808	ug/mL	M4
25) t	n-Tetracosane (C24)	36.166	9955813	8.881	ug/mL	M4
27) t	n-Hexacosane (C26)	38.724	10036103	8.834	ug/mL	M4
29) t	n-Octacosane (C28)	41.100	10116269	8.981	ug/mL	M4
31) t	n-Triacontane (C30)	43.320	9987796	8.907	ug/mL	M4
37) t	n-Hexatriacontane (C36)	49.679	9952193	8.675	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	494707924	450.698	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	140870342	128.338	ug/L	m
SemiQuant Compounds - Not Calibrated on this Instrument						

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693991.D
Operator : JT
Acquired : 25 May 2012 3:38 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : SS052312LCSD01
Misc Info : 1X
ALS Vial : 70



Form I
Matrix Spike
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 M**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.97	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**3.64**	S	n-Docosane (C22)	**7.31**	S
n-Decane (C10)	**3.65**	S	n-Tricosane (C23)	**1.29**	
n-Undecane (C11)	**0.0178**	J	n-Tetracosane (C24)	**7.37**	S
n-Dodecane (C12)	**4.36**	S	n-Pentacosane (C25)	**2.88**	C
n-Tridecane (C13)	**0.0497**	J	n-Hexacosane (C26)	**7.94**	S
2,6,10 Trimethyldodecane (1380)	**0.0213**	J	n-Heptacosane (C27)	**8.15**	
n-Tetradecane (C14)	**5.49**	S	n-Octacosane (C28)	**8.32**	S
2,6,10 Trimethyltridecane (1470)	**0.454**	J	n-Nonacosane (C29)	**7.16**	
n-Pentadecane (C15)	**0.512**	J	n-Triacontane (C30)	**8.01**	S
n-Hexadecane (C16)	**7.28**	S	n-Hentriacontane (C31)	**5.23**	
Norpristane (1650)	**0.0906**	J	n-Dotriacontane (C32)	**0.476**	J
n-Heptadecane (C17)	**0.513**	J	n-Tritriacontane (C33)	**6.69**	
Pristane	**0.319**	J	n-Tetratriacontane (C34)	**1.99**	
n-Octadecane (C18)	**7.99**	S	n-Pentatriacontane (C35)	**0.715**	J
Phytane	**0.619**	J	n-Hexatriacontane (C36)	**6.76**	S
n-Nonadecane (C19)	**7.16**	S	n-Heptatriacontane (C37)	**1.06**	G
n-Eicosane (C20)	**7.09**	S	n-Octatriacontane (C38)	**0.344**	J
n-Heneicosane (C21)	**0.849**	J	n-Nonatriacontane (C39)	**0.250**	J
			n-Tetracontane (C40)	**0.250**	J
Total Petroleum Hydrocarbons (C9-C44)	**1440**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	76	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
S - Spike compound.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693997.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 8:04 pm
Operator : JT
Sample : 1205027-05M
Misc : 1X
ALS Vial : 73 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:03 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

6/29/12

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.975	60689932	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.939	23775895	19.178 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	38.36%#
24) s	d50-Tetracosane	35.626	18902645	19.098 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	38.20%#
	Target Compounds			
2) t	n-Octane (C8)	5.451	9169	0.010 ug/mL M4
3) t	n-Nonane (C9)	7.621	4058963	4.105 ug/mL M4
4) t	n-Decane (C10)	10.091	4288856	4.115 ug/mL M4
5) t	n-Undecane (C11)	12.632	20613	0.020 ug/mL M4
6) t	n-Dodecane (C12)	15.012	5259971	4.912 ug/mL M4
7) t	n-Tridecane (C13)	17.318	60566	0.056 ug/mL M4
8) t	1380	18.987	26114	0.024 ug/mL M4
9) t	n-Tetradecane (C14)	19.489	6725040	6.184 ug/mL M4
10) t	1470	20.799	555423	0.511 ug/mL M4
11) t	n-Pentadecane (C15)	21.525	627385	0.577 ug/mL M4
12) t	n-Hexadecane (C16)	23.499	9013005	8.192 ug/mL M4
13) t	1650	24.406	111592	0.102 ug/mL M4
14) t	n-Heptadecane (C17)	25.357	632825	0.578 ug/mL M4
15) t	Pristane	25.456	401969	0.359 ug/mL M4
16) t	n-Octadecane (C18)	27.113	10069708	9.002 ug/mL M4
17) t	Phytane	27.279	770001	0.697 ug/mL M4
18) t	n-Nonadecane (C19)	28.793	8990626	8.063 ug/mL M4
20) t	n-Eicosane (C20)	30.397	9001775	7.988 ug/mL M4
21) t	n-Heneicosane (C21)	31.927	1085528	0.956 ug/mL M4
22) t	n-Docosane (C22)	33.400	9361343	8.235 ug/mL M4
23) t	n-Tricosane (C23)	34.806	1655573	1.448 ug/mL M4
25) t	n-Tetracosane (C24)	36.165	9431011	8.297 ug/mL M4
26) t	n-Pentacosane (C25)	37.461	3753218C	3.241 ug/mL M4
27) t	n-Hexacosane (C26)	38.722	10305266	8.945 ug/mL M4
28) t	n-Heptacosane (C27)	39.931	10399250	9.177 ug/mL M4
29) t	n-Octacosane (C28)	41.102	10707897	9.374 ug/mL M4
30) t	n-Nonacosane (C29)	42.233	9222132	8.069 ug/mL M4
31) t	n-Triacontane (C30)	43.324	10251476	9.016 ug/mL M4
32) t	n-Hentriacontane (C31)	44.381	6713715	5.885 ug/mL M4
33) t	n-Dotriacontane (C32)	45.400	608425	0.536 ug/mL M4
34) t	n-Tritriacontane (C33)	46.362	8285261	7.536 ug/mL M4
35) t	n-tetratriacontane (C34)	47.397	2512231	2.246 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.445	919449	0.805 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.681	8856103	7.613 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.015	1356255G	1.194 ug/mL M4
39) t	n-Octatriacontane (C38)	52.721	440451	0.387 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.659	297841	0.282 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693997.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 8:04 pm
Operator : JT
Sample : 1205027-05M
Misc : 1X
ALS Vial : 73 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:03 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

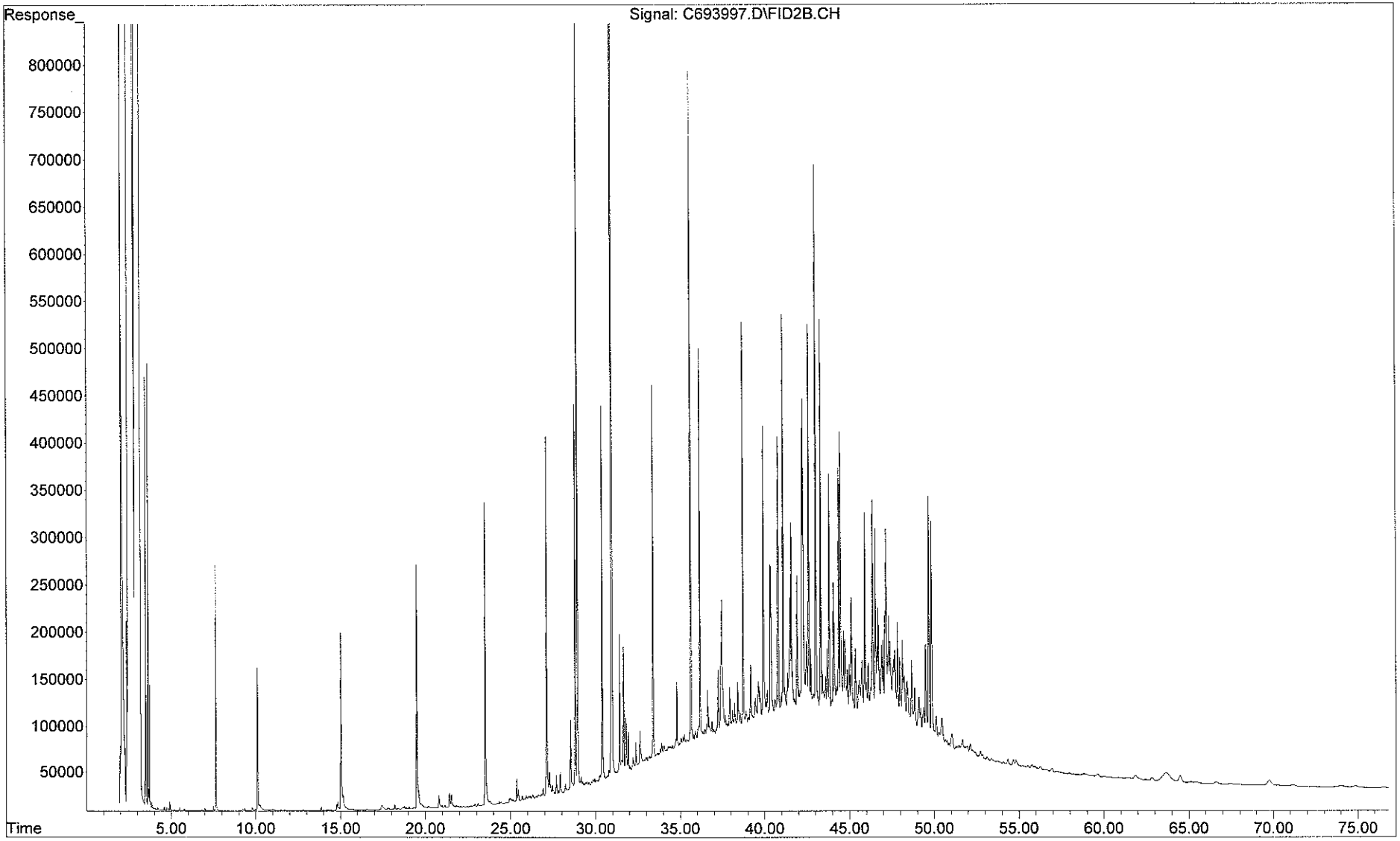
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.942	297812	0.282	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	2167703887	1947.542	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	439056268	394.464	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693997.D
Operator : JT
Acquired : 25 May 2012 8:04 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-05M
Misc Info : 1X
ALS Vial : 73



Form I
Matrix Spike Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C001S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-05 S**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/25/12	22.6	9.95	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**3.64**	S	n-Docosane (C22)	**7.32**	S
n-Decane (C10)	**3.66**	S	n-Tricosane (C23)	**1.33**	
n-Undecane (C11)	**0.0142**	J	n-Tetracosane (C24)	**7.18**	S
n-Dodecane (C12)	**4.38**	S	n-Pentacosane (C25)	**2.74**	C
n-Tridecane (C13)	**0.0329**	J	n-Hexacosane (C26)	**7.86**	S
2,6,10 Trimethyldodecane (1380)	**0.0196**	J	n-Heptacosane (C27)	**7.15**	
n-Tetradecane (C14)	**5.53**	S	n-Octacosane (C28)	**8.28**	S
2,6,10 Trimethyltridecane (1470)	**0.459**	J	n-Nonacosane (C29)	**7.56**	
n-Pentadecane (C15)	**0.512**	J	n-Triacontane (C30)	**7.94**	S
n-Hexadecane (C16)	**6.70**	S	n-Hentriacontane (C31)	**5.28**	
Norpristane (1650)	**0.0890**	J	n-Dotriacontane (C32)	**0.481**	J
n-Heptadecane (C17)	**0.521**	J	n-Tritriacontane (C33)	**6.74**	
Pristane	**0.335**	J	n-Tetratriacontane (C34)	**1.71**	
n-Octadecane (C18)	**7.96**	S	n-Pentatriacontane (C35)	**0.642**	J
Phytane	**0.642**	J	n-Hexatriacontane (C36)	**6.66**	S
n-Nonadecane (C19)	**6.94**	S	n-Heptatriacontane (C37)	**1.02**	G
n-Eicosane (C20)	**7.09**	S	n-Octatriacontane (C38)	**0.317**	J
n-Heneicosane (C21)	**0.872**	J	n-Nonatriacontane (C39)	**0.275**	J
			n-Tetracontane (C40)	**0.239**	J
Total Petroleum Hydrocarbons (C9-C44)	**1440**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	76	40-125
d50-Tetracosane	76	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
S - Spike compound.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693999.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 9:32 pm
Operator : JT
Sample : 1205027-05S
Misc : 1X
ALS Vial : 74 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:45:12 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.980	63840290	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.941	24803560	19.020 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	38.04%#
24) s	d50-Tetracosane	35.629	19697576	18.919 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	37.84%#
	Target Compounds			
2) t	n-Octane (C8)	5.452	8699	0.009 ug/mL M4
3) t	n-Nonane (C9)	7.624	4251453	4.087 ug/mL M4
4) t	n-Decane (C10)	10.094	4506338	4.111 ug/mL M4
5) t	n-Undecane (C11)	12.609	17998	0.016 ug/mL M4
6) t	n-Dodecane (C12)	15.013	5544306	4.922 ug/mL M4
7) t	n-Tridecane (C13)	17.320	42185	0.037 ug/mL M4
8) t	1380	18.984	25001	0.022 ug/mL M4
9) t	n-Tetradecane (C14)	19.489	7105545	6.211 ug/mL M4
10) t	1470	20.798	589493	0.516 ug/mL M4
11) t	n-Pentadecane (C15)	21.527	657745	0.575 ug/mL M4
12) t	n-Hexadecane (C16)	23.501	8717726	7.533 ug/mL M4
13) t	1650	24.411	115164	0.100 ug/mL M4
14) t	n-Heptadecane (C17)	25.357	673692	0.585 ug/mL M4
15) t	Pristane	25.457	442075	0.376 ug/mL M4
16) t	n-Octadecane (C18)	27.115	10529923	8.949 ug/mL M4
17) t	Phytane	27.281	839205	0.722 ug/mL M4
18) t	n-Nonadecane (C19)	28.796	9149508	7.800 ug/mL M4
20) t	n-Eicosane (C20)	30.399	9451005	7.972 ug/mL M4
21) t	n-Heneicosane (C21)	31.930	1169895	0.980 ug/mL M4
22) t	n-Docosane (C22)	33.403	9830788	8.221 ug/mL M4
23) t	n-Tricosane (C23)	34.808	1802728	1.499 ug/mL M4
25) t	n-Tetracosane (C24)	36.168	9652325	8.073 ug/mL M4
26) t	n-Pentacosane (C25)	37.464	3749196C	3.077 ug/mL M4
27) t	n-Hexacosane (C26)	38.725	10703702	8.833 ug/mL M4
28) t	n-Heptacosane (C27)	39.932	9574791	8.032 ug/mL M4
29) t	n-Octacosane (C28)	41.105	11187433	9.311 ug/mL M4
30) t	n-Nonacosane (C29)	42.236	10219521	8.501 ug/mL M4
31) t	n-Triacontane (C30)	43.329	10673413	8.924 ug/mL M4
32) t	n-Hentriacontane (C31)	44.383	7115708	5.930 ug/mL M4
33) t	n-Dotriacontane (C32)	45.401	646428	0.541 ug/mL M4
34) t	n-Tritriacontane (C33)	46.367	8764174	7.578 ug/mL M4
35) t	n-tetratriacontane (C34)	47.401	2258175	1.920 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.450	866967	0.722 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.686	9152808	7.479 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.041	1371918G	1.148 ug/mL M4
39) t	n-Octatriacontane (C38)	52.742	426222	0.356 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.664	343444	0.309 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693999.D
Signal(s) : FID2B.CH
Acq On : 25 May 2012 9:32 pm
Operator : JT
Sample : 1205027-05S
Misc : 1X
ALS Vial : 74 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:45:12 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

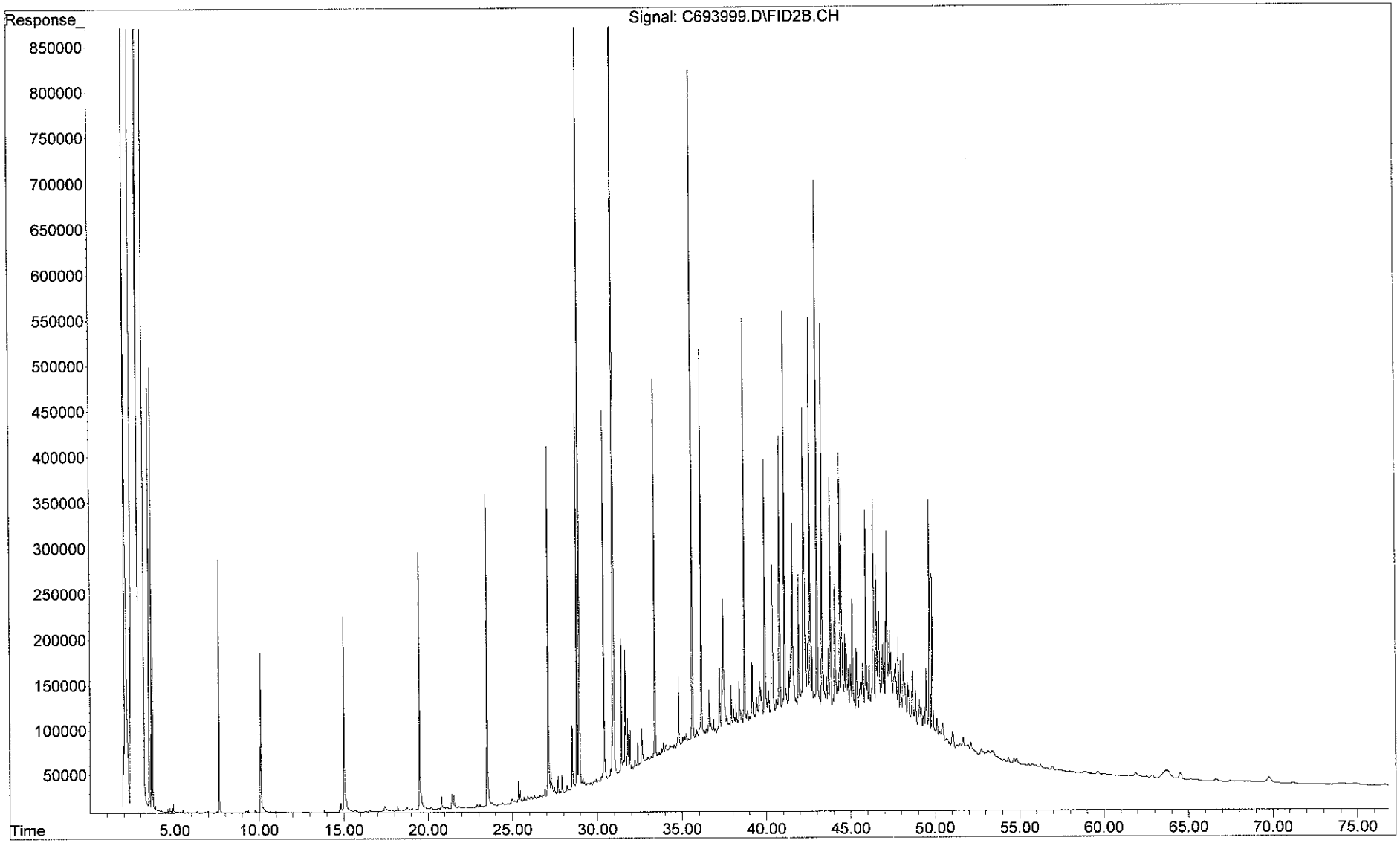
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.947	299137	0.269	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.421	2250934534	1922.523	ug/mL	M4
45) h	Total Resolved Hydroc...	39.421	446153492	381.060	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693999.D
Operator : JT
Acquired : 25 May 2012 9:32 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-05S
Misc Info : 1X
ALS Vial : 74



Form I
Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SEKR3975C002S052212D005**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **1205027-06 D**
Associated Blank: **SS052312B03**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/22/12	05/23/12	05/23/12	05/26/12	23.4	9.96	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.00771**	JB	n-Docosane (C22)	**0.170**	J
n-Decane (C10)	**0.0111**	J	n-Tricosane (C23)	**0.612**	J
n-Undecane (C11)	0.0934	U	n-Tetracosane (C24)	**0.209**	J
n-Dodecane (C12)	0.121	U	n-Pentacosane (C25)	**2.32**	C
n-Tridecane (C13)	**0.0128**	J	n-Hexacosane (C26)	**0.894**	
2,6,10 Trimethyldodecane (1380)	**0.0214**	J	n-Heptacosane (C27)	**4.90**	
n-Tetradecane (C14)	**0.0266**	J	n-Octacosane (C28)	**1.43**	
2,6,10 Trimethyltridecane (1470)	**0.101**	J	n-Nonacosane (C29)	**4.31**	
n-Pentadecane (C15)	**0.106**	J	n-Triacontane (C30)	**1.29**	
n-Hexadecane (C16)	**0.0377**	J	n-Hentriacontane (C31)	**3.81**	
Norpristane (1650)	**0.0557**	J	n-Dotriacontane (C32)	**0.337**	J
n-Heptadecane (C17)	**0.463**	J	n-Tritriacontane (C33)	**3.55**	
Pristane	**0.304**	J	n-Tetratriacontane (C34)	**1.68**	
n-Octadecane (C18)	**0.177**	CJB	n-Pentatriacontane (C35)	**0.416**	J
Phytane	**0.541**	J	n-Hexatriacontane (C36)	**0.273**	J
n-Nonadecane (C19)	**0.301**	J	n-Heptatriacontane (C37)	**1.47**	G
n-Eicosane (C20)	**0.123**	J	n-Octatriacontane (C38)	**0.327**	J
n-Heneicosane (C21)	**0.367**	J	n-Nonatriacontane (C39)	**0.218**	J
			n-Tetracontane (C40)	**0.265**	J
Total Petroleum Hydrocarbons (C9-C44)	**1330**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	77	40-125
d50-Tetracosane	75	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694003.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 12:30 am
Operator : JT
Sample : 1205027-06D
Misc : 1X
ALS Vial : 76 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.978	62520753	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.940	24462483	19.154 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	38.31%#
24) s	d50-Tetracosane	35.627	19075403	18.708 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	37.42%#
	Target Compounds			
2) t	n-Octane (C8)	5.446	9876	0.010 ug/mL M4
3) t	n-Nonane (C9)	7.625	9134	0.009 ug/mL M4
4) t	n-Decane (C10)	10.088	14422	0.013 ug/mL M4
7) t	n-Tridecane (C13)	17.319	16735	0.015 ug/mL M4
8) t	1380	18.983	28153	0.025 ug/mL M4
9) t	n-Tetradecane (C14)	19.497	35185	0.031 ug/mL M4
10) t	1470	20.778	132067	0.118 ug/mL M4
11) t	n-Pentadecane (C15)	21.531	138659	0.124 ug/mL M4
12) t	n-Hexadecane (C16)	23.503	49600	0.044 ug/mL M4
13) t	1650	24.400	73728	0.065 ug/mL M4
14) t	n-Heptadecane (C17)	25.357	609641	0.541 ug/mL M4
15) t	Pristane	25.454	409195	0.355 ug/mL M4
16) t	n-Octadecane (C18)	27.110	238074C	0.207 ug/mL M4
17) t	Phytane	27.279	718388	0.631 ug/mL M4
18) t	n-Nonadecane (C19)	28.792	403231	0.351 ug/mL M4
20) t	n-Eicosane (C20)	30.392	165634	0.143 ug/mL M4
21) t	n-Heneicosane (C21)	31.928	500604	0.428 ug/mL M4
22) t	n-Docosane (C22)	33.392	232573	0.199 ug/mL M4
23) t	n-Tricosane (C23)	34.806	840822	0.714 ug/mL M4
25) t	n-Tetracosane (C24)	36.163	285199	0.244 ug/mL M4
26) t	n-Pentacosane (C25)	37.460	3228240C	2.706 ug/mL M4
27) t	n-Hexacosane (C26)	38.715	1238275	1.043 ug/mL M4
28) t	n-Heptacosane (C27)	39.930	6672155	5.716 ug/mL M4
29) t	n-Octacosane (C28)	41.088	1964153	1.669 ug/mL M4
30) t	n-Nonacosane (C29)	42.230	5923737	5.031 ug/mL M4
31) t	n-Triacontane (C30)	43.285	1764426	1.506 ug/mL M4
32) t	n-Hentriacontane (C31)	44.377	5220984	4.443 ug/mL M4
33) t	n-Dotriacontane (C32)	45.396	459190	0.393 ug/mL M4
34) t	n-Tritriacontane (C33)	46.392	4693309	4.144 ug/mL M4
35) t	n-tetratriacontane (C34)	47.392	2263567	1.965 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.444	571311	0.486 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.658	381735	0.319 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.039	2010538G	1.718 ug/mL M4
39) t	n-Octatriacontane (C38)	52.737	448351	0.382 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.664	276910	0.254 ug/mL M4
41) t	n-Tetracontane (C40)	56.935	336605	0.309 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	2144310916	1870.110 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694003.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 12:30 am
Operator : JT
Sample : 1205027-06D
Misc : 1X
ALS Vial : 76 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:07 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

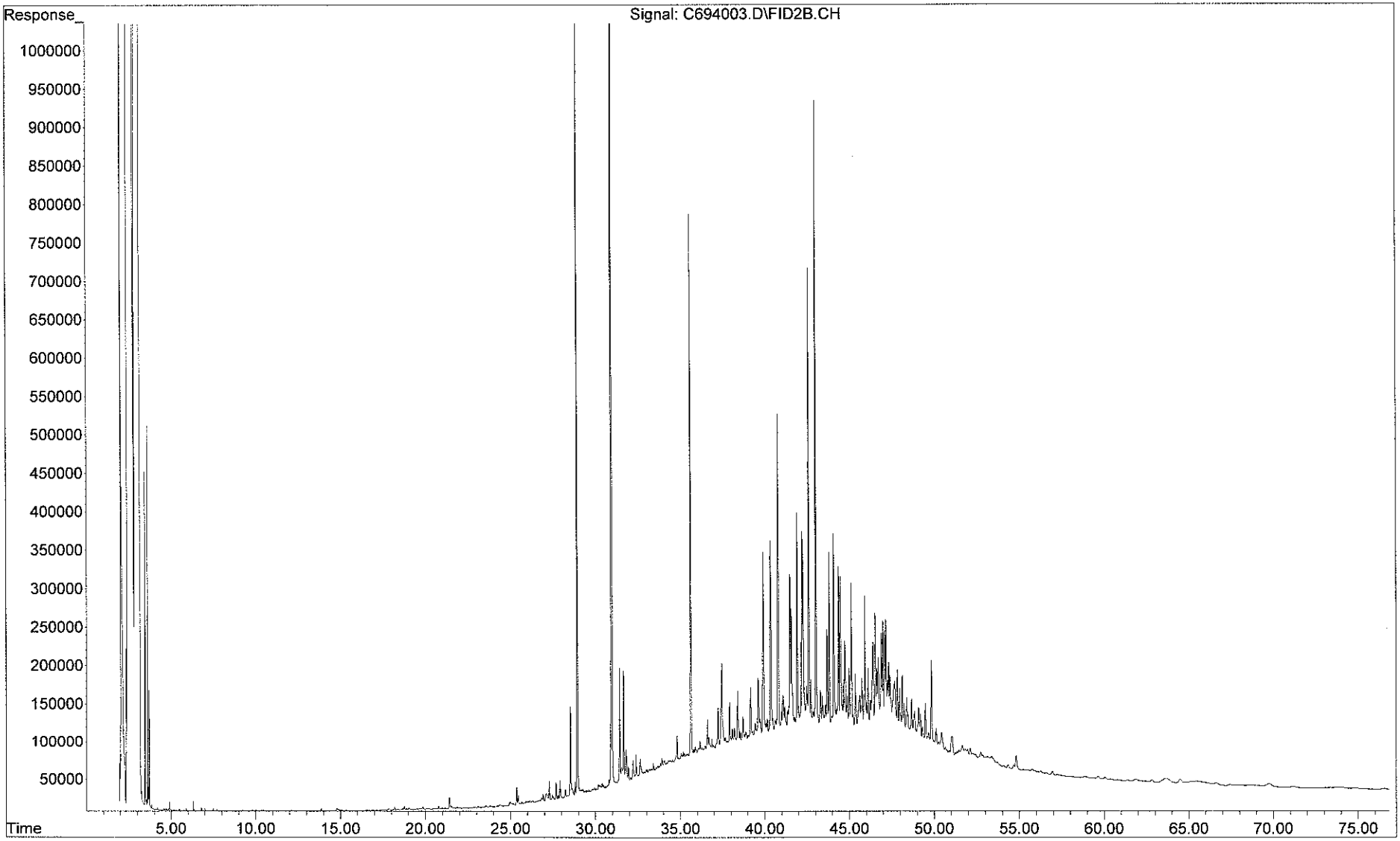
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
45) h	Total Resolved Hydroc...	39.421	340152534	296.656	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694003.D
Operator : JT
Acquired : 26 May 2012 12:30 am using AcqMethod FID6A.M
Instrument : FID6
Sample : 1205027-06D
Misc Info : 1X
ALS Vial : 76



Form I
Cold Lake Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TO052512CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/26/12	100	0.10018	10	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1670**		n-Docosane (C22)	**212**	
n-Decane (C10)	**961**		n-Tricosane (C23)	**170**	
n-Undecane (C11)	**778**		n-Tetracosane (C24)	**197**	
n-Dodecane (C12)	**604**		n-Pentacosane (C25)	**288**	
n-Tridecane (C13)	**628**		n-Hexacosane (C26)	**166**	
2,6,10 Trimethyldodecane (1380)	**312**		n-Heptacosane (C27)	**161**	
n-Tetradecane (C14)	**690**		n-Octacosane (C28)	**116**	
2,6,10 Trimethyltridecane (1470)	**502**		n-Nonacosane (C29)	**140**	
n-Pentadecane (C15)	**587**		n-Triacontane (C30)	**152**	
n-Hexadecane (C16)	**498**		n-Hentriacontane (C31)	**91.7**	J
Norpristane (1650)	**276**		n-Dotriacontane (C32)	**119**	
n-Heptadecane (C17)	**374**		n-Tritriacontane (C33)	**219**	
Pristane	**483**		n-Tetratriacontane (C34)	**162**	
n-Octadecane (C18)	**381**		n-Pentatriacontane (C35)	**82.4**	J
Phytane	**321**		n-Hexatriacontane (C36)	**91.0**	J
n-Nonadecane (C19)	**268**		n-Heptatriacontane (C37)	**50.7**	J
n-Eicosane (C20)	**354**		n-Octatriacontane (C38)	**52.5**	J
n-Heneicosane (C21)	**216**		n-Nonatriacontane (C39)	**39.7**	J
			n-Tetracontane (C40)	**57.2**	J
Total Petroleum Hydrocarbons (C9-C44)	**459000**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	101	40-125
d50-Tetracosane	93	40-125

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694017.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 11:01 am
Operator : JT
Sample : TO052512CL01
Misc : WHAP16
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:13 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.991	65324863	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.967	67392481	50.503 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	101.01%
24) s	d50-Tetracosane	35.650	49606849	46.563 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	93.13%
	Target Compounds			
2) t	n-Octane (C8)	5.440	27861633	27.188 ug/mL M4
3) t	n-Nonane (C9)	7.625	17823638	16.747 ug/mL M4
4) t	n-Decane (C10)	10.097	10798403	9.627 ug/mL M4
5) t	n-Undecane (C11)	12.597	8818972	7.793 ug/mL M4
6) t	n-Dodecane (C12)	15.016	6978490	6.055 ug/mL M4
7) t	n-Tridecane (C13)	17.317	7287290	6.288 ug/mL M4
8) t	1380	18.994	3663215	3.129 ug/mL M4
9) t	n-Tetradecane (C14)	19.493	8086909	6.908 ug/mL M4
10) t	1470	20.780	5884235	5.031 ug/mL M4
11) t	n-Pentadecane (C15)	21.552	6874401	5.878 ug/mL M4
12) t	n-Hexadecane (C16)	23.504	5907316	4.988 ug/mL M4
13) t	1650	24.416	3252384	2.761 ug/mL M4
14) t	n-Heptadecane (C17)	25.358	4416923	3.750 ug/mL M4
15) t	Pristane	25.454	5824711	4.839 ug/mL M4
16) t	n-Octadecane (C18)	27.123	4600029	3.821 ug/mL M4
17) t	Phytane	27.281	3823728	3.216 ug/mL M4
18) t	n-Nonadecane (C19)	28.803	3220198	2.683 ug/mL M4
20) t	n-Eicosane (C20)	30.406	4299521	3.544 ug/mL M4
21) t	n-Heneicosane (C21)	31.937	2644439	2.164 ug/mL M4
22) t	n-Docosane (C22)	33.406	2593433	2.119 ug/mL M4
23) t	n-Tricosane (C23)	34.817	2090008	1.699 ug/mL M4
25) t	n-Tetracosane (C24)	36.172	2412809	1.972 ug/mL M4
26) t	n-Pentacosane (C25)	37.473	3597756	2.886 ug/mL M4
27) t	n-Hexacosane (C26)	38.727	2057890	1.660 ug/mL M4
28) t	n-Heptacosane (C27)	39.938	1971893	1.617 ug/mL M4
29) t	n-Octacosane (C28)	41.104	1422171	1.157 ug/mL M4
30) t	n-Nonacosane (C29)	42.235	1728205	1.405 ug/mL M4
31) t	n-Triacontane (C30)	43.328	1860630	1.520 ug/mL M4
32) t	n-Hentriacontane (C31)	44.387	1127931	0.919 ug/mL M4
33) t	n-Dotriacontane (C32)	45.410	1456063	1.192 ug/mL M4
34) t	n-Tritriacontane (C33)	46.406	2591501	2.190 ug/mL M4
35) t	n-tetratriacontane (C34)	47.387	1958205	1.627 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.462	1013921	0.825 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.704	1141831	0.912 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.110	620806	0.508 ug/mL M4
39) t	n-Octatriacontane (C38)	52.768	645333	0.526 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.682	452743	0.398 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694017.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 11:01 am
Operator : JT
Sample : TO052512CL01
Misc : WHAP16
ALS Vial : 83 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:13 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

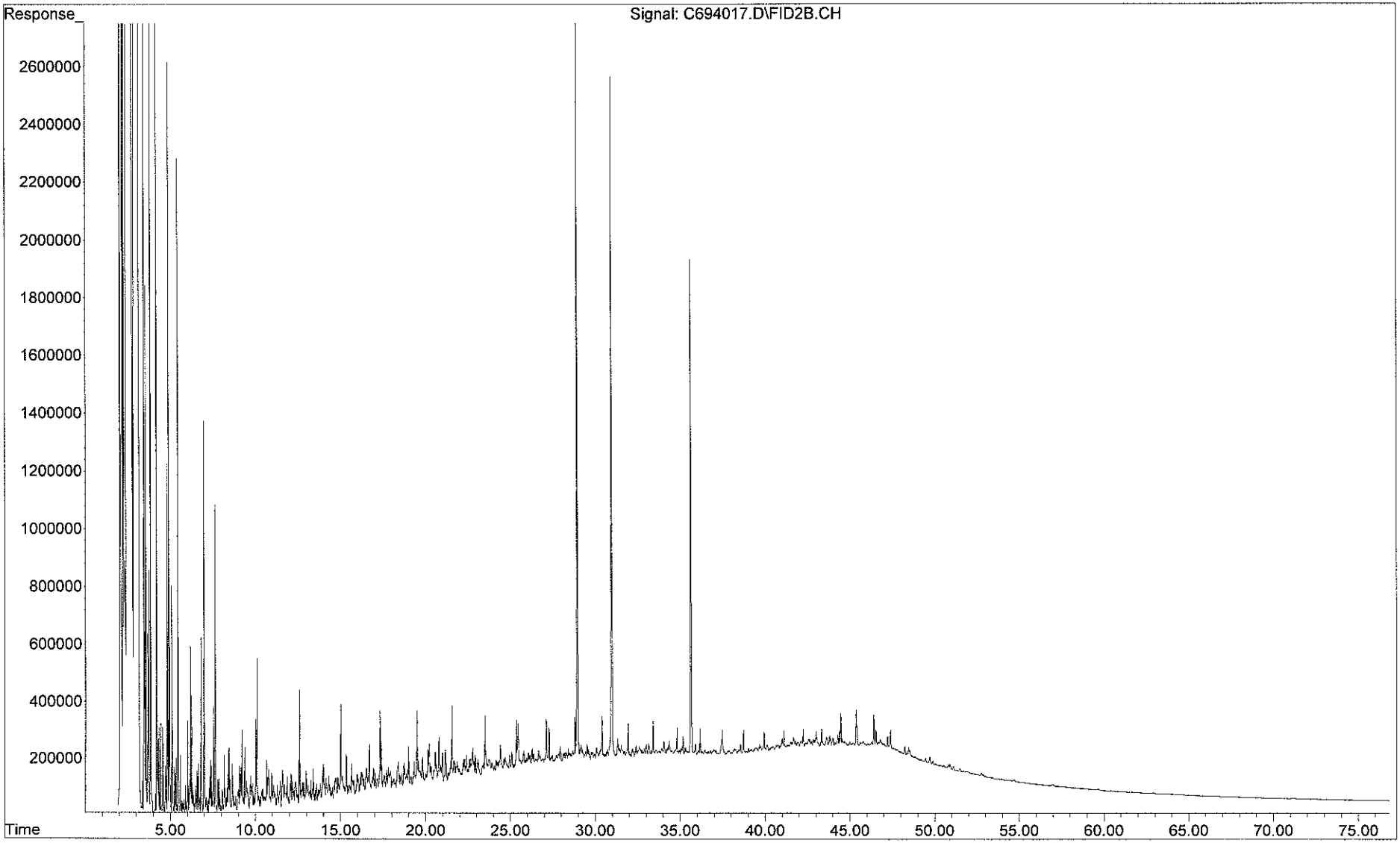
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
41)	t	n-Tetracontane (C40)	56.986	652341	0.573	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	39.421	5869013774	4898.806	ug/mL	M4
45)	h	Total Resolved Hydroc...	39.421	651708011	543.974	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694017.D
Operator : JT
Acquired : 26 May 2012 11:01 am using AcqMethod FID6A.M
Instrument : FID6
Sample : TO052512CL01
Misc Info : WHAP16
ALS Vial : 83



Form I
Western Canadian Select
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TO052512WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/26/12	100	0.10119	10	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1440**		n-Docosane (C22)	**220**	
n-Decane (C10)	**1030**		n-Tricosane (C23)	**163**	
n-Undecane (C11)	**878**		n-Tetracosane (C24)	**209**	
n-Dodecane (C12)	**682**		n-Pentacosane (C25)	**255**	
n-Tridecane (C13)	**605**		n-Hexacosane (C26)	**171**	
2,6,10 Trimethyldodecane (1380)	**340**		n-Heptacosane (C27)	**162**	
n-Tetradecane (C14)	**711**		n-Octacosane (C28)	**118**	
2,6,10 Trimethyltridecane (1470)	**604**		n-Nonacosane (C29)	**131**	
n-Pentadecane (C15)	**652**		n-Triacontane (C30)	**135**	
n-Hexadecane (C16)	**542**		n-Hentriacontane (C31)	**72.6**	J
Norpristane (1650)	**343**		n-Dotriacontane (C32)	**349**	
n-Heptadecane (C17)	**388**		n-Tritriacontane (C33)	**196**	
Pristane	**775**		n-Tetratriacontane (C34)	**169**	
n-Octadecane (C18)	**396**		n-Pentatriacontane (C35)	**58.1**	J
Phytane	**355**		n-Hexatriacontane (C36)	**74.6**	J
n-Nonadecane (C19)	**273**		n-Heptatriacontane (C37)	**46.1**	J
n-Eicosane (C20)	**360**		n-Octatriacontane (C38)	**22.2**	J
n-Heneicosane (C21)	**218**		n-Nonatriacontane (C39)	98.8	U
			n-Tetracontane (C40)	98.8	U
Total Petroleum Hydrocarbons (C9-C44)	**478000**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	101	40-125
d50-Tetracosane	98	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694015.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 9:32 am
Operator : JT
Sample : TO052512WCS01
Misc : WHAP15
ALS Vial : 82 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:12 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.986	64793439	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.963	66805015	50.474 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	100.95%
24) s	d50-Tetracosane	35.649	52001799	49.211 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	98.42%
	Target Compounds			
2) t	n-Octane (C8)	5.438	20880901	20.543 ug/mL M4
3) t	n-Nonane (C9)	7.620	15339630	14.531 ug/mL M4
4) t	n-Decane (C10)	10.092	11637825	10.460 ug/mL M4
5) t	n-Undecane (C11)	12.594	9978181	8.890 ug/mL M4
6) t	n-Dodecane (C12)	15.014	7885582	6.898 ug/mL M4
7) t	n-Tridecane (C13)	17.314	7039601	6.124 ug/mL M4
8) t	1380	18.991	3990282	3.437 ug/mL M4
9) t	n-Tetradecane (C14)	19.491	8350659	7.192 ug/mL M4
10) t	1470	20.779	7088681	6.111 ug/mL M4
11) t	n-Pentadecane (C15)	21.550	7655359	6.599 ug/mL M4
12) t	n-Hexadecane (C16)	23.502	6437688	5.481 ug/mL M4
13) t	1650	24.414	4058769	3.474 ug/mL M4
14) t	n-Heptadecane (C17)	25.356	4588221	3.927 ug/mL M4
15) t	Pristane	25.455	9364726	7.843 ug/mL M4
16) t	n-Octadecane (C18)	27.120	4787280	4.009 ug/mL M4
17) t	Phytane	27.277	4236318	3.593 ug/mL M4
18) t	n-Nonadecane (C19)	28.800	3287047	2.761 ug/mL M4
20) t	n-Eicosane (C20)	30.403	4377430	3.638 ug/mL M4
21) t	n-Heneicosane (C21)	31.935	2679186	2.211 ug/mL M4
22) t	n-Docosane (C22)	33.404	2696621	2.222 ug/mL M4
23) t	n-Tricosane (C23)	34.817	2010328	1.647 ug/mL M4
25) t	n-Tetracosane (C24)	36.172	2570172	2.118 ug/mL M4
26) t	n-Pentacosane (C25)	37.471	3185085	2.576 ug/mL M4
27) t	n-Hexacosane (C26)	38.727	2128704	1.731 ug/mL M4
28) t	n-Heptacosane (C27)	39.937	1976964	1.634 ug/mL M4
29) t	n-Octacosane (C28)	41.105	1457741	1.195 ug/mL M4
30) t	n-Nonacosane (C29)	42.234	1620620	1.328 ug/mL M4
31) t	n-Triacontane (C30)	43.324	1655692	1.364 ug/mL M4
32) t	n-Hentriacontane (C31)	44.384	895104	0.735 ug/mL M4
33) t	n-Dotriacontane (C32)	45.366	4282531	3.534 ug/mL M4
34) t	n-Tritriacontane (C33)	46.405	2332921	1.987 ug/mL M4
35) t	n-tetratriacontane (C34)	47.389	2039787	1.708 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.458	716624	0.588 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.703	937487	0.755 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.103	565164	0.466 ug/mL M4
39) t	n-Octatriacontane (C38)	52.747	273494	0.225 ug/mL M4
42) h	C9-C44 Total Petroleu...	39.421	6107647142	5139.803 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C694015.D
Signal(s) : FID2B.CH
Acq On : 26 May 2012 9:32 am
Operator : JT
Sample : TO052512WCS01
Misc : WHAP15
ALS Vial : 82 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:34:12 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Fri May 25 14:08:36 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

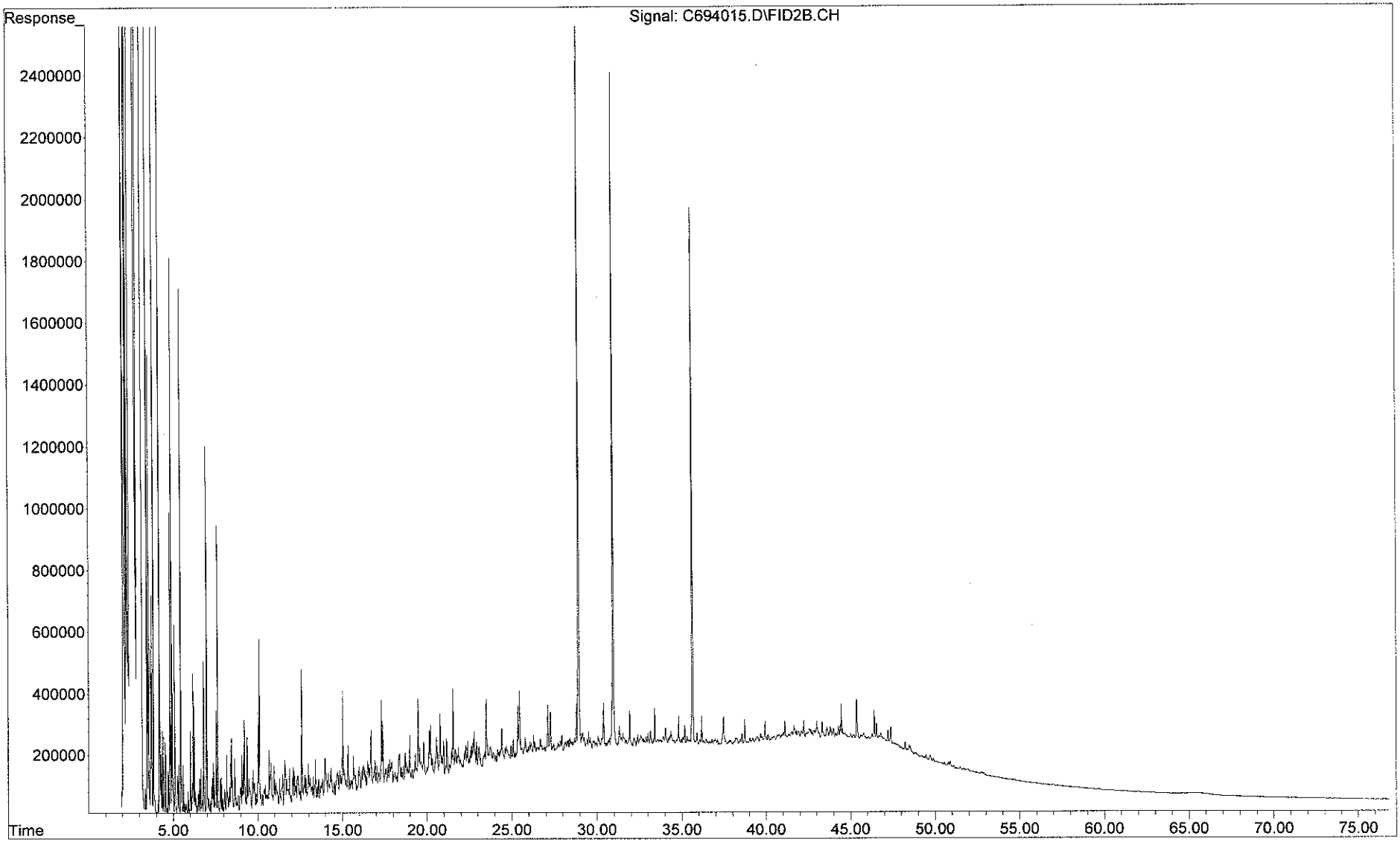
Sub List : SHC - SHC

Compound	R.T.	Response	Conc	Units	
45) h Total Resolved Hydroc...	39.421	737287644	620.454	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C694015.D
Operator : JT
Acquired : 26 May 2012 9:32 am using AcqMethod FID6A.M
Instrument : FID6
Sample : TO052512WCS01
Misc Info : WHAP15
ALS Vial : 82



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TO052512ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/24/12	100	0.10058	10	1	JT

Parameter	Result
n-Nonane (C9)	**6600**
n-Decane (C10)	**5290**
n-Undecane (C11)	**4830**
n-Dodecane (C12)	**4250**
n-Tridecane (C13)	**4110**
2,6,10 Trimethyldodecane (1380)	**931**
n-Tetradecane (C14)	**3900**
2,6,10 Trimethyltridecane (1470)	**1440**
n-Pentadecane (C15)	**3760**
n-Hexadecane (C16)	**3540**
Norpristane (1650)	**1110**
n-Heptadecane (C17)	**3070**
Pristane	**2250**
n-Octadecane (C18)	**2780**
Phytane	**1230**
n-Nonadecane (C19)	**2350**
n-Eicosane (C20)	**2440**
n-Heneicosane (C21)	**2150**
Total Petroleum Hydrocarbons (C9-C44)	**580000**

Parameter	Result
n-Docosane (C22)	**2060**
n-Tricosane (C23)	**1800**
n-Tetracosane (C24)	**1690**
n-Pentacosane (C25)	**1610**
n-Hexacosane (C26)	**1420**
n-Heptacosane (C27)	**1160**
n-Octacosane (C28)	**800**
n-Nonacosane (C29)	**778**
n-Triacontane (C30)	**644**
n-Hentriacontane (C31)	**503**
n-Dotriacontane (C32)	**467**
n-Tritriacontane (C33)	**403**
n-Tetratriacontane (C34)	**350**
n-Pentatriacontane (C35)	**289**
n-Hexatriacontane (C36)	**208**
n-Heptatriacontane (C37)	**165**
n-Octatriacontane (C38)	**142**
n-Nonatriacontane (C39)	**105**
n-Tetracontane (C40)	**107**

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693955.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 12:19 pm
Operator : JT
Sample : TO052512ANS02
Misc : WHAP13
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:21:11 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu May 24 12:37:50 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	30.990	61437448	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	28.968	61675949	49.144 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	98.29%
24) s	d50-Tetracosane	35.652	52377865	52.275 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	104.55%
	Target Compounds			
2) t	n-Octane (C8)	5.463	89395757	92.755 ug/mL M4
3) t	n-Nonane (C9)	7.642	66463418	66.398 ug/mL M4
4) t	n-Decane (C10)	10.111	56099080	53.176 ug/mL M4
5) t	n-Undecane (C11)	12.613	51687507	48.566 ug/mL M4
6) t	n-Dodecane (C12)	15.031	46309512	42.722 ug/mL M4
7) t	n-Tridecane (C13)	17.332	45071480	41.353 ug/mL M4
8) t	1380	18.999	10308901	9.363 ug/mL M4
9) t	n-Tetradecane (C14)	19.509	43233344	39.268 ug/mL M4
10) t	1470	20.787	15923463	14.476 ug/mL M4
11) t	n-Pentadecane (C15)	21.568	41608266	37.827 ug/mL M4
12) t	n-Hexadecane (C16)	23.518	39657576	35.606 ug/mL M4
13) t	1650	24.421	12319251	11.121 ug/mL M4
14) t	n-Heptadecane (C17)	25.372	34241197	30.909 ug/mL M4
15) t	Pristane	25.470	25626549	22.635 ug/mL M4
16) t	n-Octadecane (C18)	27.134	31645790	27.947 ug/mL M4
17) t	Phytane	27.288	13878209	12.413 ug/mL M4
18) t	n-Nonadecane (C19)	28.814	26667316	23.624 ug/mL M4
20) t	n-Eicosane (C20)	30.416	27960685	24.509 ug/mL M4
21) t	n-Heneicosane (C21)	31.947	24873429	21.644 ug/mL M4
22) t	n-Docosane (C22)	33.416	23837999	20.714 ug/mL M4
23) t	n-Tricosane (C23)	34.825	20986199	18.138 ug/mL M4
25) t	n-Tetracosane (C24)	36.179	19520053	16.964 ug/mL M4
26) t	n-Pentacosane (C25)	37.480	19012787	16.216 ug/mL M4
27) t	n-Hexacosane (C26)	38.732	16684339	14.306 ug/mL M4
28) t	n-Heptacosane (C27)	39.943	13389333	11.672 ug/mL M4
29) t	n-Octacosane (C28)	41.109	9308150	8.050 ug/mL M4
30) t	n-Nonacosane (C29)	42.236	9050966	7.823 ug/mL M4
31) t	n-Triacontane (C30)	43.327	7452378	6.474 ug/mL M4
32) t	n-Hentriacontane (C31)	44.384	5837532	5.055 ug/mL M4
33) t	n-Dotriacontane (C32)	45.406	5397991	4.697 ug/mL M4
34) t	n-Tritriacontane (C33)	46.400	4510606	4.053 ug/mL M4
35) t	n-tetratriacontane (C34)	47.379	3986170	3.521 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.456	3354693	2.903 ug/mL M4
37) t	n-Hexatriacontane (C36)	49.685	2464272	2.092 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.098	1911105	1.662 ug/mL M4
39) t	n-Octatriacontane (C38)	52.744	1641038	1.423 ug/mL M4
40) t	n-Nonatriacontane (C39)	54.677	1132791	1.058 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\
Data File : C693955.D
Signal(s) : FID2B.CH
Acq On : 24 May 2012 12:19 pm
Operator : JT
Sample : TO052512ANS02
Misc : WHAP13
ALS Vial : 52 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: May 29 12:21:11 2012
Quant Method : O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu May 24 12:37:50 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

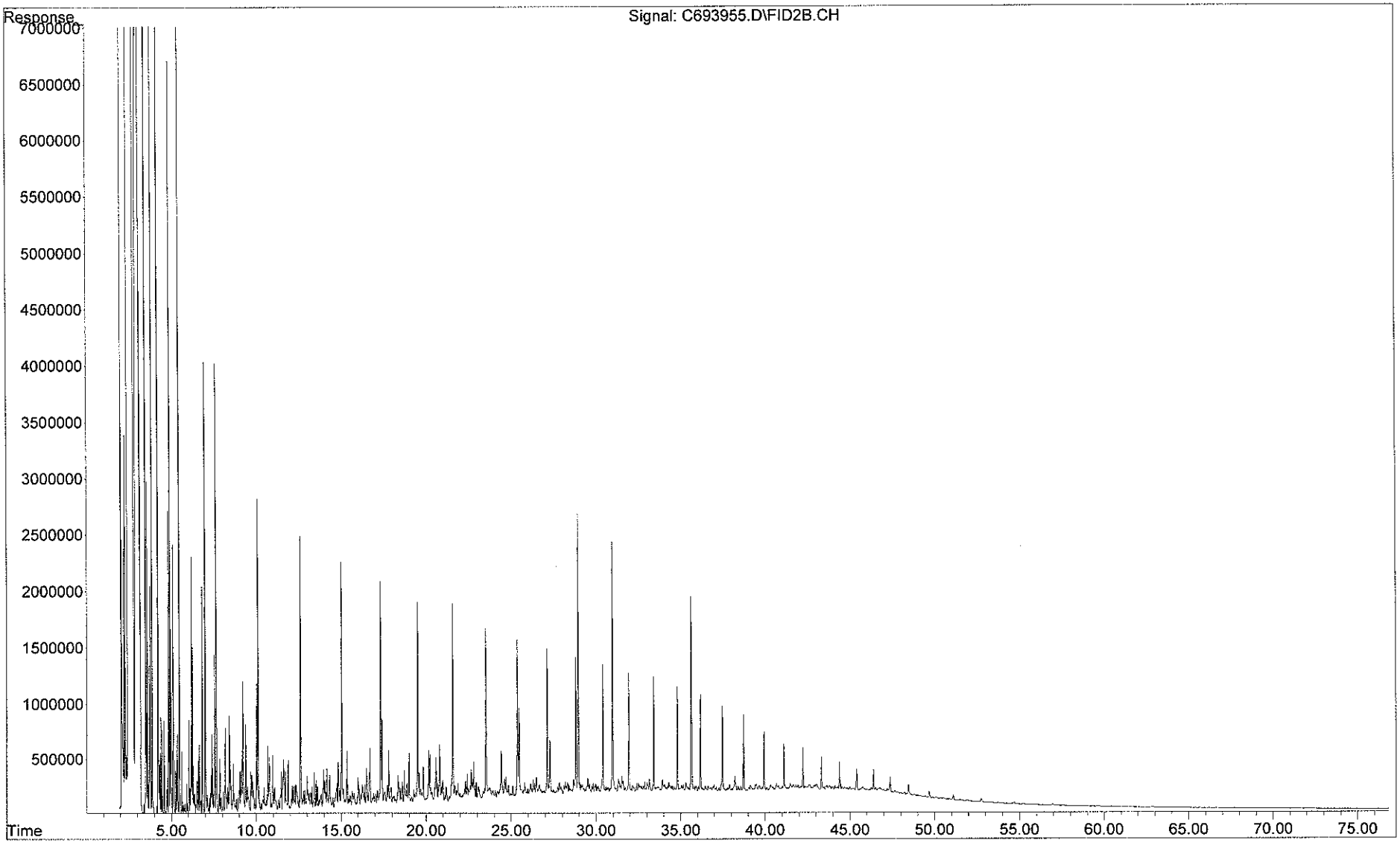
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	56.953	1155309	1.079	ug/mL	M4
42) h	C9-C44 Total Petroleu...	40.047	6960447395	6177.426	ug/mL	M5
45) h	Total Resolved Hydroc...	40.047	11001223736	9763.632	ug/L	M4

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\C693955.D
Operator : JT
Acquired : 24 May 2012 12:19 pm using AcqMethod FID6A.M
Instrument : FID6
Sample : TO052512ANS02
Misc Info : WHAP13
ALS Vial : 52



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1205027**
Lab ID: **TS032912ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/28/12	100	0.10036	10	1	BAL

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**5780**		n-Docosane (C22)	**1820**	
n-Decane (C10)	**4660**		n-Tricosane (C23)	**1610**	
n-Undecane (C11)	**4320**		n-Tetracosane (C24)	**1520**	
n-Dodecane (C12)	**3730**		n-Pentacosane (C25)	**1550**	
n-Tridecane (C13)	**3560**		n-Hexacosane (C26)	**1260**	
2,6,10 Trimethyldodecane (1380)	**787**		n-Heptacosane (C27)	**1010**	
n-Tetradecane (C14)	**3300**		n-Octacosane (C28)	**713**	
2,6,10 Trimethyltridecane (1470)	**1200**		n-Nonacosane (C29)	**696**	
n-Pentadecane (C15)	**3340**		n-Triacontane (C30)	**569**	
n-Hexadecane (C16)	**2870**		n-Hentriacontane (C31)	**438**	
Norpristane (1650)	**1250**		n-Dotriacontane (C32)	**480**	
n-Heptadecane (C17)	**2690**		n-Tritriacontane (C33)	**346**	
Pristane	**2040**		n-Tetratriacontane (C34)	**306**	
n-Octadecane (C18)	**2500**		n-Pentatriacontane (C35)	**224**	
Phytane	**1130**		n-Hexatriacontane (C36)	**169**	
n-Nonadecane (C19)	**2180**		n-Heptatriacontane (C37)	**142**	
n-Eicosane (C20)	**2190**		n-Octatriacontane (C38)	**110**	
n-Heneicosane (C21)	**1920**		n-Nonatriacontane (C39)	**81.8**	J
			n-Tetracontane (C40)	**91.3**	J
Total Petroleum Hydrocarbons (C9-C44)	**507000**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692607.D
Signal(s) : FID2B.CH
Acq On : 28 Mar 2012 12:54 am
Operator : BAL
Sample : TS032912ANS01
Misc : 1X, WHAM98
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:54:05 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:46:58 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

2° 3/29/12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.204	77359100	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.176	71206376	45.060 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 90.12%	
24) s d50-Tetracosane	35.846	59191924	46.917 ug/mL M4
Spiked Amount 50.000 Range 50 - 130		Recovery = 93.83%	
Target Compounds			
2) t n-Octane (C8)	5.584	94551835	77.913 ug/mL M4
3) t n-Nonane (C9)	7.797	73139222	58.029 ug/mL M4
4) t n-Decane (C10)	10.280	62158599	46.793 ug/mL M4
5) t n-Undecane (C11)	12.789	58096318	43.353 ug/mL M4
6) t n-Dodecane (C12)	15.211	51121985	37.455 ug/mL M4
7) t n-Tridecane (C13)	17.514	49095562	35.774 ug/mL M4
8) t 1380	19.186	10944980	7.895 ug/mL M4
9) t n-Tetradecane (C14)	19.692	45921236	33.125 ug/mL M4
10) t 1470	20.974	16747305	12.092 ug/mL M4
11) t n-Pentadecane (C15)	21.752	46413143	33.511 ug/mL M4
12) t n-Hexadecane (C16)	23.704	40441736	28.837 ug/mL M4
13) t 1650	24.608	17528217	12.566 ug/mL M4
14) t n-Heptadecane (C17)	25.560	37646346	26.989 ug/mL M4
15) t Pristane	25.654	29111608	20.421 ug/mL M4
16) t n-Octadecane (C18)	27.323	35841466	25.138 ug/mL M4
17) t Phytane	27.479	15968994	11.343 ug/mL M4
18) t n-Nonadecane (C19)	29.005	31102224	21.882 ug/mL M4
20) t n-Eicosane (C20)	30.608	31536457	21.954 ug/mL M4
21) t n-Heneicosane (C21)	32.141	27925538	19.298 ug/mL M4
22) t n-Docosane (C22)	33.610	26392518	18.214 ug/mL M4
23) t n-Tricosane (C23)	35.020	23503630	16.133 ug/mL M4
25) t n-Tetracosane (C24)	36.375	22044495	15.215 ug/mL M4
26) t n-Pentacosane (C25)	37.677	22999926	15.580 ug/mL M4
27) t n-Hexacosane (C26)	38.932	18561949	12.640 ug/mL M4
28) t n-Heptacosane (C27)	40.142	14651813	10.144 ug/mL M4
29) t n-Octacosane (C28)	41.309	10414428	7.153 ug/mL M4
30) t n-Nonacosane (C29)	42.437	10178041	6.987 ug/mL M4
31) t n-Triacontane (C30)	43.527	8272546	5.708 ug/mL M4
32) t n-Hentriacontane (C31)	44.588	6394776	4.398 ug/mL M4
33) t n-Dotriacontane (C32)	45.606	6977010	4.822 ug/mL M4
34) t n-Tritriacontane (C33)	46.606	4867823	3.473 ug/mL M4
35) t n-tetratriacontane (C34)	47.598	4370656	3.066 ug/mL M4
36) t n-Pentatriacontane (C35)	48.713	3265020	2.244 ug/mL M4
37) t n-Hexatriacontane (C36)	49.972	2517932	1.698 ug/mL M4
38) t n-Heptatriacontane (C37)	51.443	2067005	1.427 ug/mL M4
39) t n-Octatriacontane (C38)	53.146	1602458	1.104 ug/mL M4
40) t n-Nonatriacontane (C39)	55.139	1107648	0.821 ug/mL M4

Data Path : O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\
Data File : C692607.D
Signal(s) : FID2B.CH
Acq On : 28 Mar 2012 12:54 am
Operator : BAL
Sample : TS032912ANS01
Misc : 1X, WHAM98
ALS Vial : 69 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Mar 29 12:54:05 2012
Quant Method : O:\FORENSICS\METHODS\FID6\HC6032612R.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 12:46:58 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

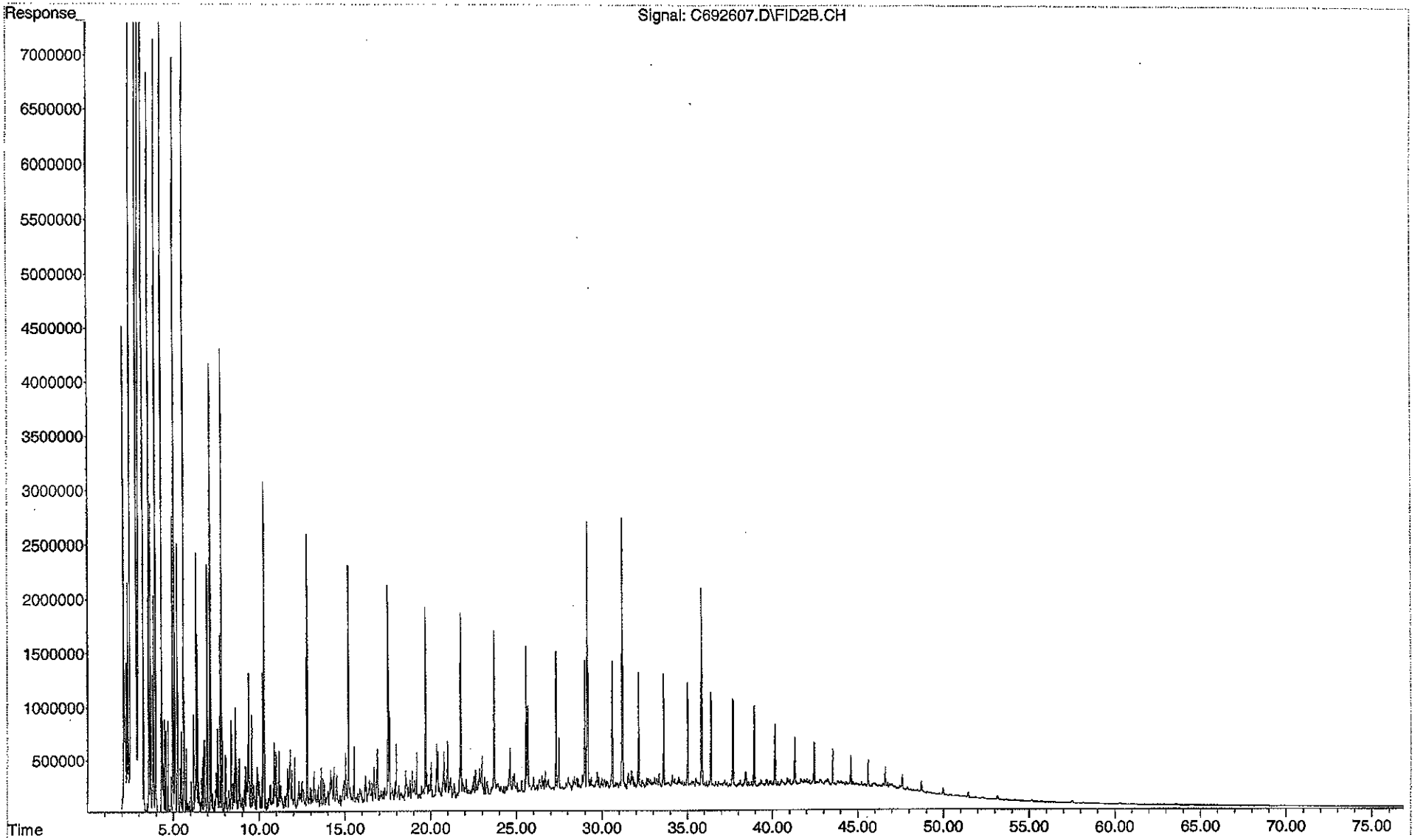
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	57.493	1234555	0.916	ug/mL	M4
42) h	C9-C44 Total Petroleu...	39.706	7453638095	5253.642	ug/mL	M4
45) h	Total Resolved Hydroc...	40.039	2391863619	1685.887	ug/L	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\C692607.D
Operator : BAL
Acquired : 28 Mar 2012 12:54 am using AcqMethod FID6A.M
Instrument : FID6
Sample : TS032912ANS01
Misc Info : 1X, WHAM98
ALS Vial : 69



Alpha Woods Hole Lab
Batch Weight Report
05/25/2012

Lab ID	QC Type	PS052512 - Pan Weight	PS052512 - Wet Weight	PS052512 - Dry Weight	PS052512 - Dry Weight #2	PS052512 - Dry Weight #3	Percent Solid	RPD
1205027-05	D	1.31	5.48	2.25	2.25		22.54	0.22%
1205027-05	SAM	1.31	5.56	2.27	2.27		22.59	
1205027-06	SAM	1.3	8.04	2.88	2.88		23.44	
1205027-07	SAM	1.29	8.43	5.79	5.79		63.03	
1205027-08	SAM	1.31	7.67	3.64	3.64		36.64	
PSS052512B01	B	1.31	1.31	1.31	1.31		100.00	

Initial: 5/25/2012 12:16:08 PM KJB
Weight #1: 5/29/2012 8:33:52 AM KJB
Weight #2: 5/29/2012 10:03:04 AM KJB

Alpha Woods Hole Lab
Batch Prep Report

05/23/2012 1205027SHEEN - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1205027-01	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-02	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-03	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
1205027-04	SAM	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312B08	B	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312LCS03	LCS	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012
SO052312LCSD03	LCSD	Shaker	CTK	5/23/2012	5/23/2012		1	2	0.5	1	False	CTK	5/23/2012	KD Flask	0.1	DB	5/23/2012

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027SHEEN - OP SHC Analyst: CTK Witness: AMK

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1205027-01	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-02	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-03	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-04	SAM	WHAP46	100	µl				WHAP48	50	µl
SO052312B08	B	WHAP46	100	µl				WHAP48	50	µl
SO052312LCS03	LCS	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
SO052312LCSD03	LCSD	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP48	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L05E10
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	LO8E04

ETR 1205027SHEEN

Analyst DB

Date 05/23/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.256	51.20	N/A	N/A	N/A	100%
	1		4000	50	0.012	0.96	2000	0.48	2.00	
	2		4000	50	0.014	1.12	2000	0.56	2.00	
	3		4000	50	0.010	0.80	2000	0.40	2.00	
	4		4000	50	0.010	0.80	2000	0.40	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: DB

Date: 5/23/2012

ETR 1205027SHEEN

Analyst

Date 05/23/2012

Alpha Analytical

- [ ] Pre-Alumina
- [ ] Post-Alumina
- [ ] Pre-Silica
- [x] Oily Material Prep.
- [ ] Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	RB 5-23-12		N/A	N/A	N/A	0%
	1		4000	50	~~.009~~ .012					
	2		4000	50	.014					
	3		4000	50	.010					
	4		4000	50	.010					

Note:
Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)
Gravimetric Standard = 5 mg/mL
LCS Acceptance Criteria: 95% - 105%

Verified by: RB
Date: 5-23-12

Alpha Woods Hole Lab
Batch Clean Up Report

05/23/2012 1205027SHEEN - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-01	SAM	split	DB	5/23/2012							4	2	2			True
1205027-02	SAM	split	DB	5/23/2012							4	2	2			True
1205027-03	SAM	split	DB	5/23/2012							4	2	2			True
1205027-04	SAM	split	DB	5/23/2012							4	2	2			True
SO052312B08	B	split	DB	5/23/2012							4	2	2			True
SO052312LCS03	LCS	split	DB	5/23/2012							4	2	2			True
SO052312LCSD03	LCSD	split	DB	5/23/2012							4	2	2			True

Forensic Preparation Checklist

Batch ID: 120S027SHEEN Client: AECOM Project: Enbridge

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • (Sheen) Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

Extraction HT:
N/A

	Date:	Initials:
COC/ETR Check:	5/23/12	CTK
1st Extraction:	↓	↓
2nd Extraction:		
3rd Extraction:	↓	↓

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	5/23/12 CTK
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		
	Date/Initials:	**ID & Amount:**
RIS Spike Analyst:	5-23-12 ZB	1HAP48
RIS Spike Witness:	5/23/12 TCT	50 mL

Prep Process Notes

REAGENT	LOT #
DCM	411E21
SODIUM SULFATE	K21617
SILICA GEL	
ALUMINA	

REAGENT	LOT #
COPPER	
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	ZB	Date:	5-23-12
BATCH REVIEWED Analyst:	CTK	Date:	5/23/12

Alpha Woods Hole Lab
Batch Prep Report

05/23/2012 1205027sediment - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1205027-05	M	Shaker	PW	5/23/2012	5/24/2012		9.97	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-05	S	Shaker	PW	5/23/2012	5/24/2012		9.95	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-05	SAM	Shaker	PW	5/23/2012	5/24/2012		9.93	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-06	D	Shaker	PW	5/23/2012	5/24/2012		9.96	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-06	SAM	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-07	SAM	Shaker	PW	5/23/2012	5/24/2012		9.94	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
1205027-08	SAM	Shaker	PW	5/23/2012	5/24/2012		10.06	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312B03	B	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312C41BN01	C41BN	Shaker	PW	5/23/2012	5/24/2012		5	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312LCS01	LCS	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012
SS052312LCSD01	LCSD	Shaker	PW	5/23/2012	5/24/2012		10	4	0.5	2	False	BLS	5/24/2012	KD Flask	0.1	AMK	5/24/2012

Alpha Woods Hole Lab
Batch Prep Report

05/23/2012 1205027sediment - OP SHC

Lab ID	Notes
1205027-05	1st Prep
1205027-05	1st Prep
1205027-05	1st Prep
1205027-06	1st Prep
1205027-06	1st Prep
1205027-07	1st Prep
1205027-08	1st Prep
SS052312B03	1st Prep
SS052312C41BN01	1st Prep
SS052312LCS01	1st Prep
SS052312LCSD01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

05/23/2012 1205027sediment - OP SHC Analyst: PW Witness: KJD

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1205027-05	M	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
1205027-05	S	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
1205027-05	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-06	D	WHAP46	100	µl				WHAP48	50	µl
1205027-06	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-07	SAM	WHAP46	100	µl				WHAP48	50	µl
1205027-08	SAM	WHAP46	100	µl				WHAP48	50	µl
SS052312B03	B	WHAP46	100	µl				WHAP48	50	µl
SS052312C41BN01	C41BN	WHAP46	100	µl				WHAP48	50	µl
SS052312LCS01	LCS	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl
SS052312LCSD01	LCSD	WHAP46	100	µl	WHAP53	100	µl	WHAP48	50	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP48	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L05E10
WHAP53	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	L05E15
WHAP46	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	L08E04

Alpha Woods Hole Lab
Batch Weight Report
05/23/2012

Lab ID	QC Type	1205027sediment - Sample
1205027-05	SAM	9.93
1205027-05M	OP NEWFIE	9.97
1205027-05M	OP SHC	9.97
1205027-05S	OP NEWFIE	9.95
1205027-05S	OP SHC	9.95
1205027-06	D	9.96
1205027-06	SAM	10
1205027-07	SAM	9.94
1205027-08	SAM	10.06
SS052312B03	B	10
SS052312C41BN01	C41BN	5
SS052312LCS01LCS	OP NEWFIE	10
SS052312LCS01LCS	OP SHC	10
SS052312LCSD01LCSD	OP NEWFIE	10
SS052312LCSD01LCSD	OP SHC	10

ETR 1205027Sediment

Analyst CSL

Date 05/24/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☑ Pre-Silica
- ☐ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.247	49.40	N/A	N/A	N/A	96%
1205027	5	MS	4000	50	0.145	11.60	2000	5.80	2.00	
	5	MSD	4000	50	0.142	11.36	2000	5.68	2.00	
	5		4000	50	0.138	11.04	2000	5.52	2.00	
	6	D	4000	50	0.123	9.84	2000	4.92	2.00	7%
	6		4000	50	0.115	9.20	2000	4.60	2.00	
	7		4000	50	0.086	6.88	2000	3.44	2.00	
	8		4000	50	0.108	8.64	2000	4.32	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BLS

Date: 5/29/12

ETR 1205027Sediment

Analyst CSL

Date 05/24/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☑ Pre-Silica
- ☐ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	.247		N/A	N/A	N/A	0%
1205027	5	MS	4000	50	.145					
	5	MSD	4000	50	CSL 5/24/12 ~~.142~~	.142				
	5		4000	50	.138					
	6	D	4000	50	.123					#VALUE!
	6		4000	50	.115					
	7		4000	50	.086					
	8		4000	50	.108					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BLS

Date: 5/29/12

426 of 1732 4172

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	3660B	CSL	5/24/2012											0.1	True
1205027-05	S	3660B	CSL	5/24/2012											0.1	True
1205027-05	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-06	D	3660B	CSL	5/24/2012											0.1	True
1205027-06	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-07	SAM	3660B	CSL	5/24/2012											0.1	True
1205027-08	SAM	3660B	CSL	5/24/2012											0.1	True
SS052312B03	B	3660B	CSL	5/24/2012											0.1	True
SS052312C41BN01	C41BN	3660B	CSL	5/24/2012											0.1	True
SS052312LCS01	LCS	3660B	CSL	5/24/2012											0.1	True
SS052312LCSD01	LCSD	3660B	CSL	5/24/2012											0.1	True

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-05	S	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-05	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-06	D	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-06	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-07	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
1205027-08	SAM	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312B03	B	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312C41BN01	C41BN	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312LCS01	LCS	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True
SS052312LCSD01	LCSD	3630	PW	5/24/2012				PW	5/24/2012		4	2	2		0.1	True

Alpha Woods Hole Lab
Batch Clean Up Report
05/23/2012 1205027sediment - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Pre Vol (ml)	Frac Amt (ml)	Frac Split	Frac Fact	Tran Vol (ml)	Active
1205027-05	M	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-05	S	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-05	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-06	D	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-06	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-07	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
1205027-08	SAM	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312B03	B	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312C41BN01	C41BN	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312LCS01	LCS	split	AMK	5/23/2012							0.9	0.45	2			True
SS052312LCSD01	LCSD	split	AMK	5/23/2012							0.9	0.45	2			True

Forensic Preparation Checklist

Batch ID: 1205027 Client: AECOM Project: Enbridge

Test(s) Spiked for:
Choose from the following:
F1B, (POIB), POIH, POIHX, POITAS, (TPH+A)

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • (Sediment) • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

Extraction HT:
5/22/2013

	Date:	Initials:
COC/ETR Check:	5/23/12	PW
1st Extraction:	5/23/12	PW
2nd Extraction:	5-23-12	~~TT~~
3rd Extraction:	5-24-12	CSL

Cleanup Methods:	Date/Initials:
No Cleanup Required	
Alumina Column (3610)	
Silica Column (3630) ✓	5/24/12 PW
Fractionation Column (3630F1)	
GPC (3640)	
Copper (3660B) ✓	5/24/12 CSL
Water pH<2 verified	

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	5/24/12 CTK	50 uL WHAP 48
RIS Spike Witness:	5/24/12 AMK	

Prep Process Notes

REAGENT	LOT #
DCM	111E21
SODIUM SULFATE	K21617
SILICA GEL	BCBF8072V
ALUMINA	

REAGENT	LOT #
COPPER	0WR052412B
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	AMK	Date:	5/24/12
BATCH REVIEWED Analyst:	BLS	Date:	5/29/12

Analysis log File

3/26/12

Total Files Reported in Log : 29
Log Generated From Directory: O:\FORENSICS\DATA\FID6\2012\MAR2012\MAR26.SEC\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C692563.D	DCM	NEW COLUMN	3/26/2012 4:18 pm
2	C692565.D	C603261201R	WHAP26	3/26/2012 5:46 pm
3	C692567.D	DCM	DCM	3/26/2012 7:15 pm
4	C692569.D	IB603261201R	DCM	3/26/2012 8:44 pm
5	C692571.D	ANS	WHAM98	3/26/2012 10:13 pm
6	C692573.D		WHAM98	3/26/2012 11:41 pm
7	C692575.D		WHAM98	3/27/2012 1:10 am
8	C692577.D	ANS	WHAM98	3/27/2012 2:39 am
9	C692579.D	ANS	WHAM98	3/27/2012 4:08 am
10	C692581.D	DCM	DCM	3/27/2012 5:37 am
11	C692583.D	DCM	DCM	3/27/2012 7:06 am
12	C692585.D	C603261202R	WHAP26	3/27/2012 8:35 am
13	C692587.D	DCM	DCM	3/27/2012 10:04 am
14	C692589.D	IB603261202R	DCM	3/27/2012 11:33 am
15	C692591.D	I603261201R	WHAO93	3/27/2012 1:02 pm
16	C692593.D	I603261202R	WHAO93	3/27/2012 2:32 pm
17	C692595.D	I603261203R	WHAP26	3/27/2012 4:01 pm
18	C692597.D	I603261204R	WHAO95	3/27/2012 5:30 pm
19	C692599.D	I603261205R	WHAO96	3/27/2012 6:59 pm
20	C692601.D	I603261206R	WHAO97	3/27/2012 8:28 pm
21	C692603.D	DCM	DCM	3/27/2012 9:56 pm
22	C692605.D	CQ603261207R - ICV ✓PASS	WHAO98	3/27/2012 11:25 pm
23	C692607.D	TS032912ANS01 - ANS ✓ PASS	1X, WHAM98	3/28/2012 12:54 am
24	C692609.D	TS032912MC202 - MC252 ✓ PASS	1X, WHAP35	3/28/2012 2:22 am
25	C692611.D	C603261203R	WHAP26	3/28/2012 3:51 am
26	C692613.D	DCM	DCM	3/28/2012 5:20 am
27	C692615.D	IB603261203R - IB for MC252 + ANS	DCM	3/28/2012 6:49 am
28	C692617.D	DCM	DCM	3/28/2012 8:18 am
29	C692619.D	DCM	DCM	3/28/2012 9:47 am

data files for method HC6032612R.M

processing method: HC6032612R.M

Printed: 03/29/12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 41
Log Generated From Directory: O:\Forensics\Data\FID6\2012\MAY2012\MAY24.SEC\

5/29/12

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	C693953.D	✓✓C605241201R	WHAP65	5/24/2012 10:50 am
2	C693955.D	✓TO052512ANS02	WHAP13	5/24/2012 12:19 pm
3	C693957.D	DCM	DCM	5/24/2012 2:21 pm
4	C693959.D	✓✓C605241202R	WHAP65	5/24/2012 3:50 pm
5	C693961.D	DCM AM 5/29/12	DCM	5/24/2012 5:19 pm
6	C693963.D	✓IB605241201R	DCM	5/24/2012 6:48 pm
7	C693965.D	✓~~SS052312B08~~ SO052312B08	1X	5/24/2012 8:17 pm
8	C693967.D	✓~~SS052312LCS03~~ SO052312LCS03	1X	5/24/2012 9:46 pm
9	C693969.D	✓~~SS052312LCSD03~~ SO052312LCSD03	1X	5/24/2012 11:16 pm
10	C693971.D	IB605241202R	DCM	5/25/2012 12:46 am
11	C693973.D	✓1205027-01	1X	5/25/2012 2:16 am
12	C693975.D	✓1205027-02	1X	5/25/2012 3:46 am
13	C693977.D	✓1205027-03	1X	5/25/2012 5:15 am
14	C693979.D	✓1205027-04	1X	5/25/2012 6:44 am
15	C693981.D	✓✓C605241203R	WHAP65	5/25/2012 8:13 am
16	C693983.D	DCM	DCM	5/25/2012 9:42 am
17	C693985.D	✓IB605241203R	DCM	5/25/2012 11:11 am
18	C693987.D	✓SS052312B03	1X	5/25/2012 12:40 pm
19	C693989.D	✓SS052312LCS01	1X	5/25/2012 2:09 pm
20	C693991.D	✓SS052312LCSD01	1X	5/25/2012 3:38 pm
21	C693993.D	IB605241204R	DCM	5/25/2012 5:07 pm
22	C693995.D	✓1205027-05	1X	5/25/2012 6:35 pm
23	C693997.D	✓1205027-05M	1X	5/25/2012 8:04 pm
24	C693999.D	✓1205027-05S	1X	5/25/2012 9:32 pm
25	C694001.D	✓1205027-06	1X	5/25/2012 11:00 pm
26	C694003.D	✓1205027-06D	1X	5/26/2012 12:30 am
27	C694005.D	✓1205027-07	1X	5/26/2012 2:01 am
28	C694007.D	✓1205027-08	1X	5/26/2012 3:31 am
29	C694009.D	✓✓C605241204R	WHAP65	5/26/2012 5:01 am
30	C694011.D	DCM	DCM	5/26/2012 6:32 am
31	C694013.D	IB605241205R	DCM	5/26/2012 8:02 am
32	C694015.D	✓TO052512WCS01	WHAP15	5/26/2012 9:32 am
33	C694017.D	✓TO052512CL01	WHAP16	5/26/2012 11:01 am
34	C694019.D	DCM	DCM	5/26/2012 12:31 pm
35	C694021.D	✓✓C605241205R	WHAP65	5/26/2012 2:01 pm
36	C694023.D	DCM	DCM	5/26/2012 3:31 pm
37	C694025.D	IB605241206R	DCM	5/26/2012 5:02 pm
38	C694027.D			5/27/2012 12:02 pm
39	C694029.D			5/27/2012 1:33 pm
40	C694031.D			5/27/2012 3:04 pm
41	C694033.D			5/27/2012 4:35 pm

HCG032612R.m

Printed: 05/29/12

CC✓ = WHAP65 50 ng/ml

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Chain of Custody Records

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA TECHNICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: 1205027

Client Information

Client: ENBRIDGE
Address: 16001 PRATT AVE
MARSHALL MI 49068
Phone: 616 970 9700
Fax:
Email: John.bohrmann@enbridge.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: ENBRIDGE FINGERPRINT ID
Project Location: MARSHALL, MI
Project #: 60246209
Project Manager: DAVE BAREHAM
ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (1 WEEK) (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: TASK #1.00

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE
MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: GC/MS-SIM	GC-FID	ALKYL-PAH's	BIOMARKERS	SAMPLE HANDLING	TOTAL # BOTTLES
1205027-01	SWKR3975C0001S052212HX	5-22-12	0955	Sheen	JMS	X	X	X	X	ML-120519-E-11	
-02	SWKR3975C0002S052212HX	5-22-12	1035	Sheen	JMS	X	X	X	X	ML-120519-E-15	
-03	SWKR3990L0001S052212HX	5-22-12	1335	Sheen	JMS	X	X	X	X	39.90S-A-04	
-04	SWKR4010L0001S052212HX	5-22-12	1430	Sheen	JMS	X	X	X	X	40.10T-03	
-05	SEKR3975C0001S052212D005	5-22-12	1657	sed	JMS	X	X	X	X	ML-120519-E-11	
-06	SEKR3975C0002S052212D005	5-22-12	1745	sed	JMS	X	X	X	X	ML-120519-E-15	
-07	SEKR4010L0001S052212D003	5-22-12	1817	sed	JMS	X	X	X	X	40.10T-03	
-08	SEKR3990L0001S052212D005	5-22-12	1839	sed	JMS	X	X	X	X	39.90S-A-04	

Filtration ☐ Done ☐ Not needed ☐ Lab to do
Preservation ☐ Lab to do (Please specify below)

Container Type
Preservative NONE

Relinquished By:	Date/Time	Received By:	Date/Time
	5-22-12 1918		5/22/12 1918
FEDEX	5/22/12 1918	FEDEX	
FEDEX	5/23/12 0945		5/23/12 0945

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 101-09 (rev. 27-SEP-10)

41800

Sample Delivery Group Form

Laboratory Job No: 1205027 **Client:** AECOM
Receipt Date/Time: 5/23/12 0945 **SDG Reviewer:** MC

Samples Delivered By:
[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other _____
Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached

Chain of Custody: [X] Present [ ] Absent: _____
Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:
Is Ice/Blue Ice present? [X] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a)_____ (b)_____ (c)_____ (d)_____ (e)_____
IR Gun: (a) 3.4° (b)_____ (c)_____ (d)_____ (e)_____
IR Gun SN (circle one): 090512810 100311463
Was Temp: [X] 2-6 Celsius
[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No
[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact
[ ] Broken/Leaking Sample IDs: _____
Sample IDs: _____

All Containers Accounted For? [X] Yes
[ ] No: _____
Extra Samples Received? [X] No
[ ] Yes: _____
Do Sample Labels and COC agree? [X] Yes
[ ] No: _____
_____
Are Samples in Appropriate Containers? [X] Yes
[ ] No: _____
Are samples rec'd within holding time? [X] Yes
[ ] No: _____
* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [X] N/A [ ] <2 [ ] >12 and/or [ ] _____
Are samples properly preserved? [ ] Yes [ ] No If No then.....
Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = _____>>
Other Issues: _____
Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [X] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ] _____
Aqueous: vials contain head space? [ ] No [ ] Yes : _____
Soils: MeOH covering soil? [ ] Yes [ ] No : _____
Reagent H_2O Preserved vials Frozen @ date/time: _____
Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [X] N/A

If Yes: Call Tracker #_____



FedEx Express **NEW Package US Airbill**

FedEx Tracking Number 8762 5964 8314

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date 5.22.12 Sender's FedEx Account Number 2138-5929-3

Sender's Name APRIL MODERT Phone 517 2274710

Company SUPERIOR ENVIRONMENTAL CORP

Address 1680 Marquette Street Dept/Floor/Suite/Room

City Bay City State MI ZIP 48706-4178

2 Your Internal Billing Reference BC3279 TASK 1.00

3 To

Recipient's Name SUE O'NEIL Phone 508 644 4117

Company ALPHA WOODS HOLE LABS

Address 320 FORBES BLVD Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City MANSFIELD State MA ZIP 02048

01 ☐ HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

31 ☐ HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

8762 5964 8314

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs. *For packages over 150 lbs., use the new FedEx Express Freight US Airbill.*

Next Business Day

06 ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

49 ☐ NEW FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☐ FedEx Tube 01 ☒ Other

6 Special Handling and Delivery Signature Options

03 ☐ **SATURDAY DELIVERY**

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No 04 ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. 06 ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

1 ☒ Sender — Acct. No. in Section 1 will be billed. 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

Total Packages 1 Total Weight 20 lbs. Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

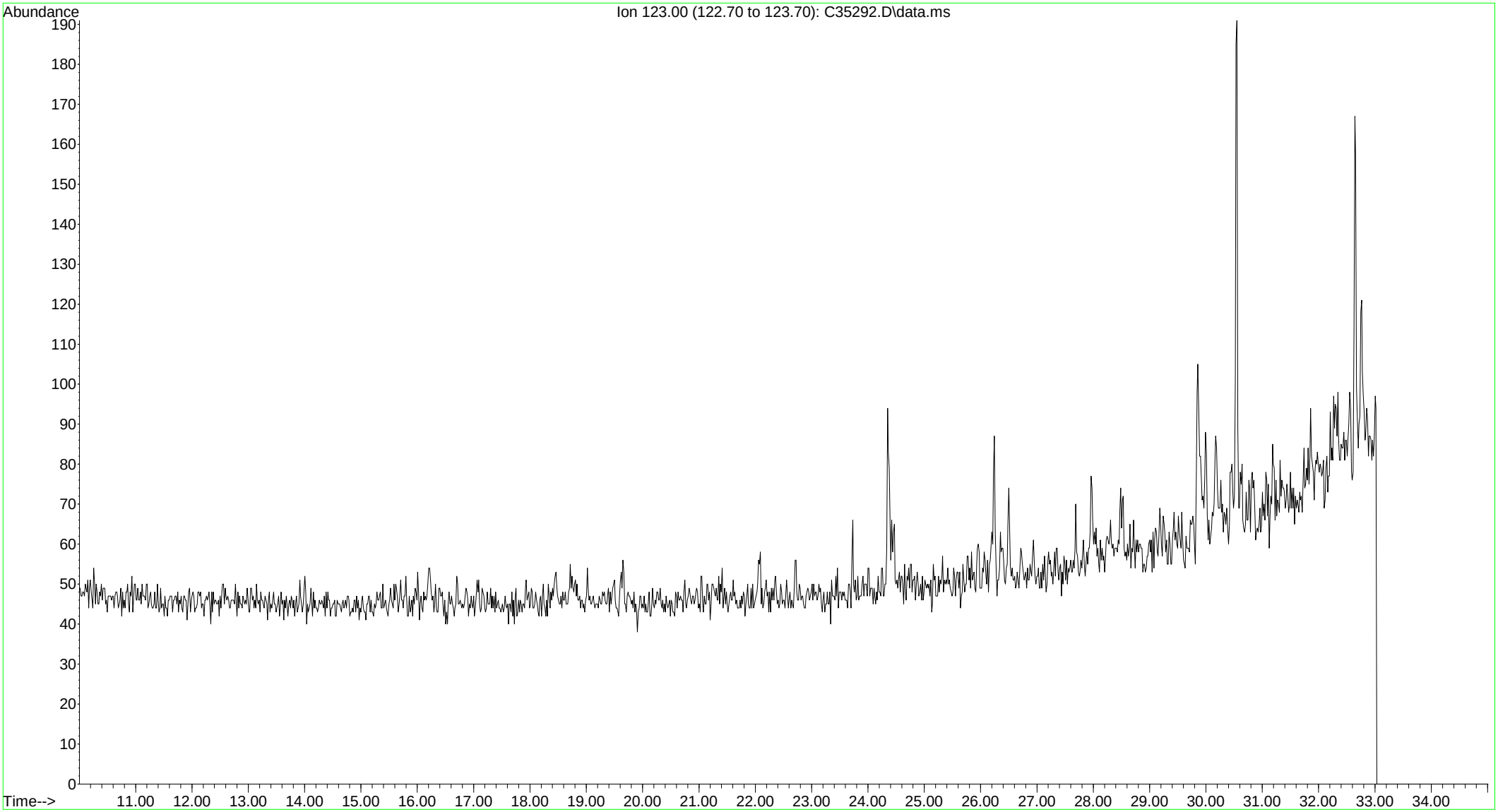
612

Rev. Date 11/10 • Part #163136 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRY

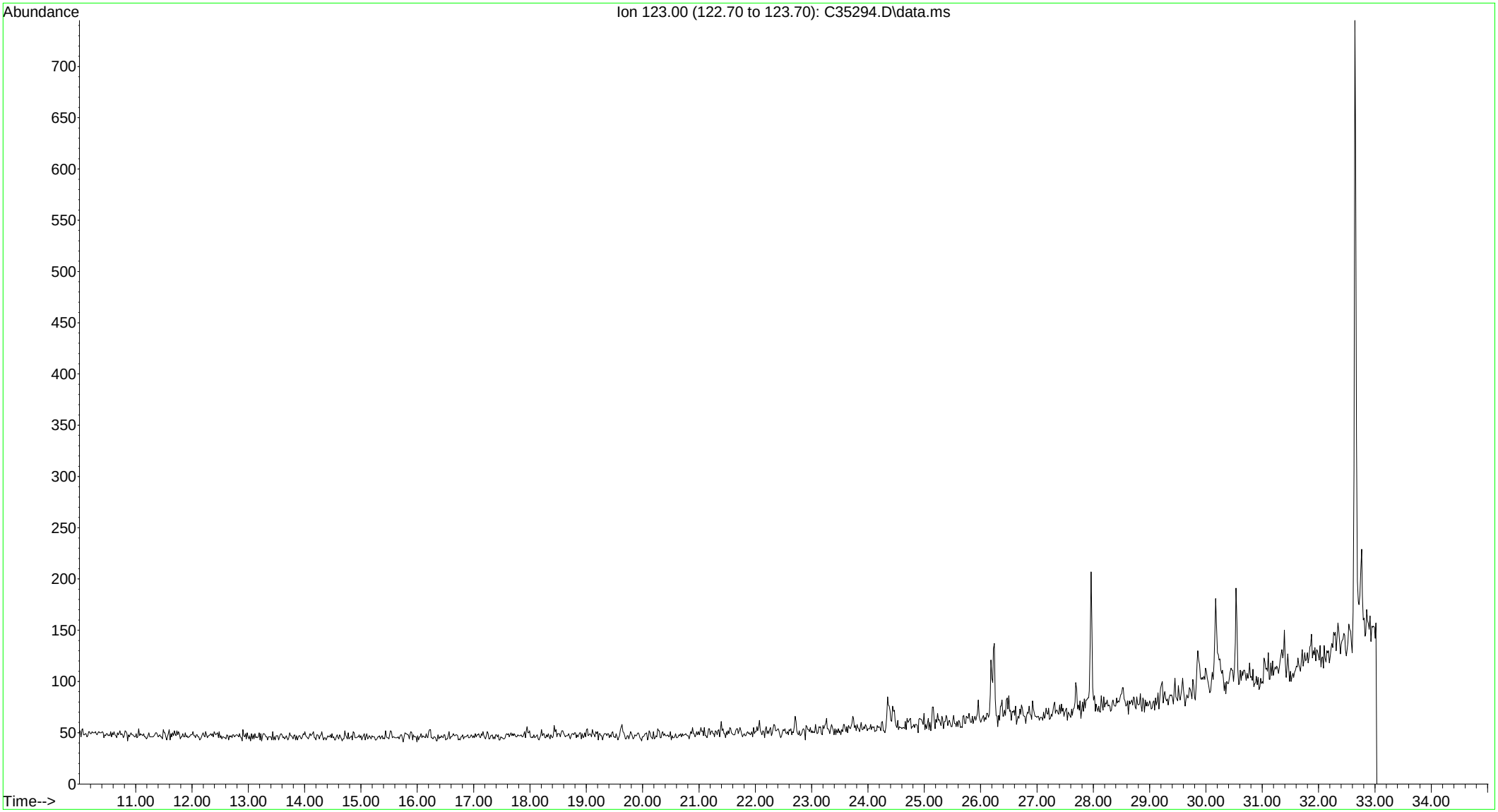
EIP

Ion 123

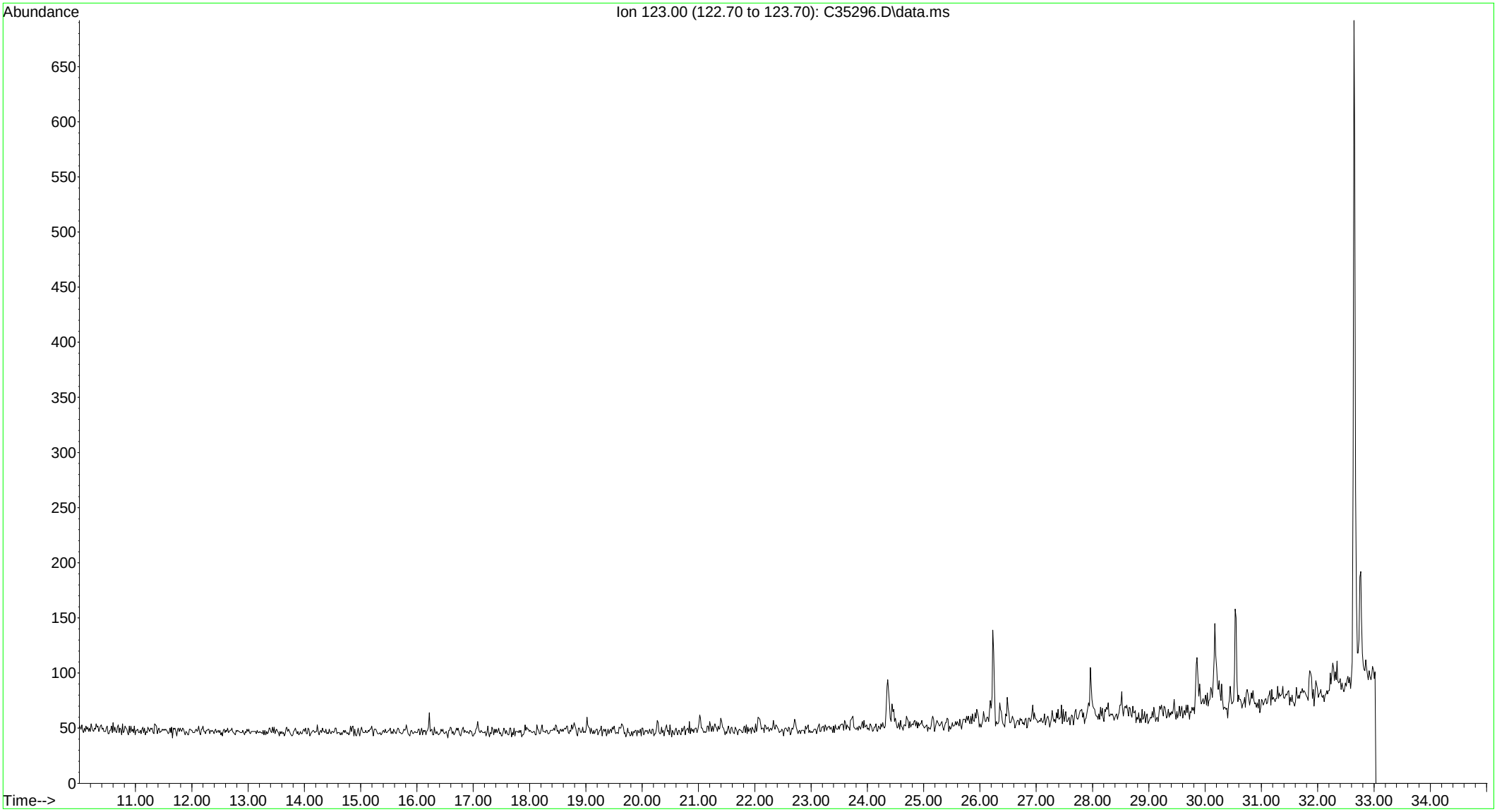
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35292.D
Operator : AC
Acquired : 25 May 2012 5:31 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-01
Misc Info : 1X
Vial Number: 13



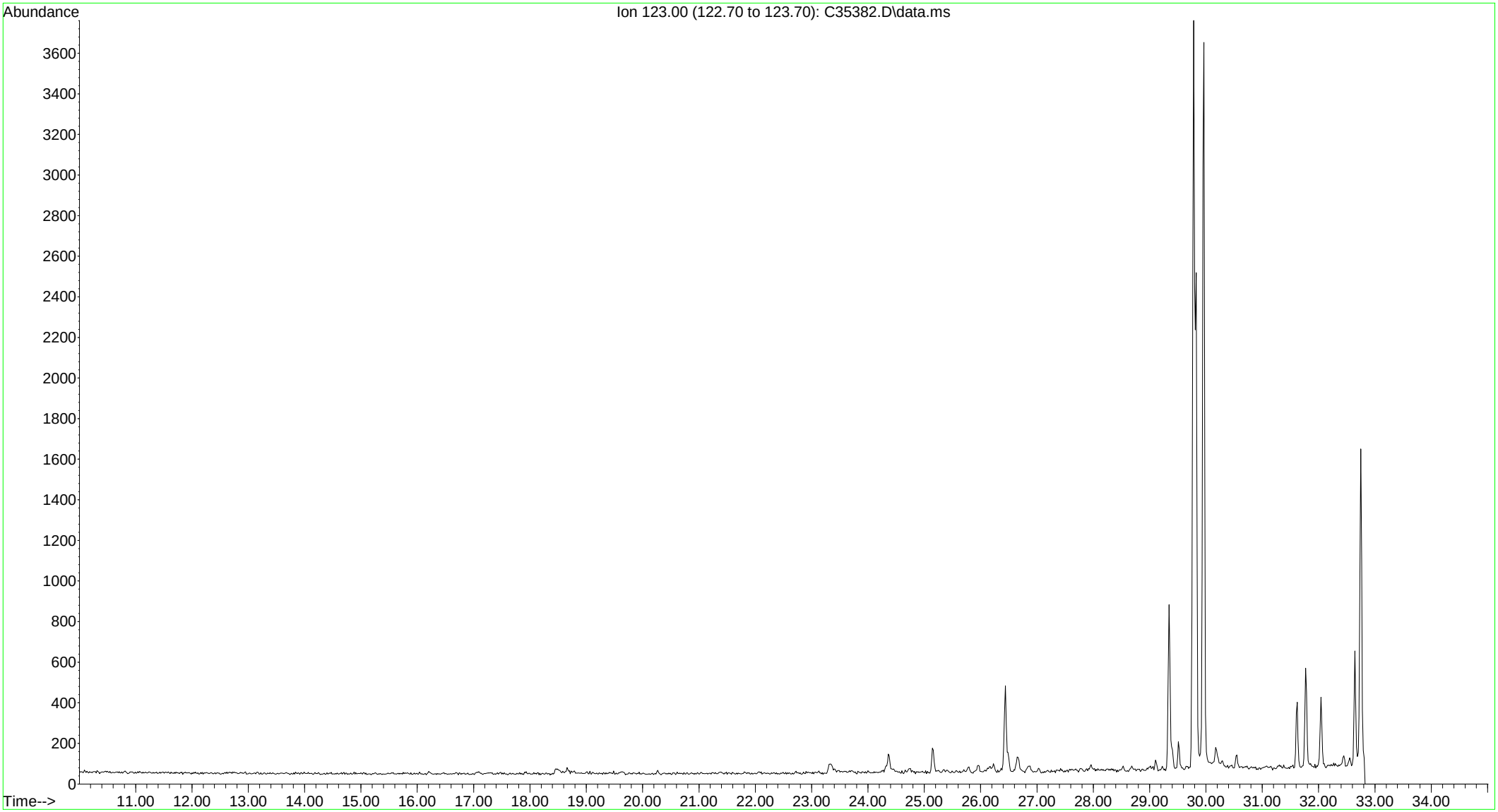
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35294.D
Operator : AC
Acquired : 25 May 2012 7:03 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-02
Misc Info : 1X
Vial Number: 14



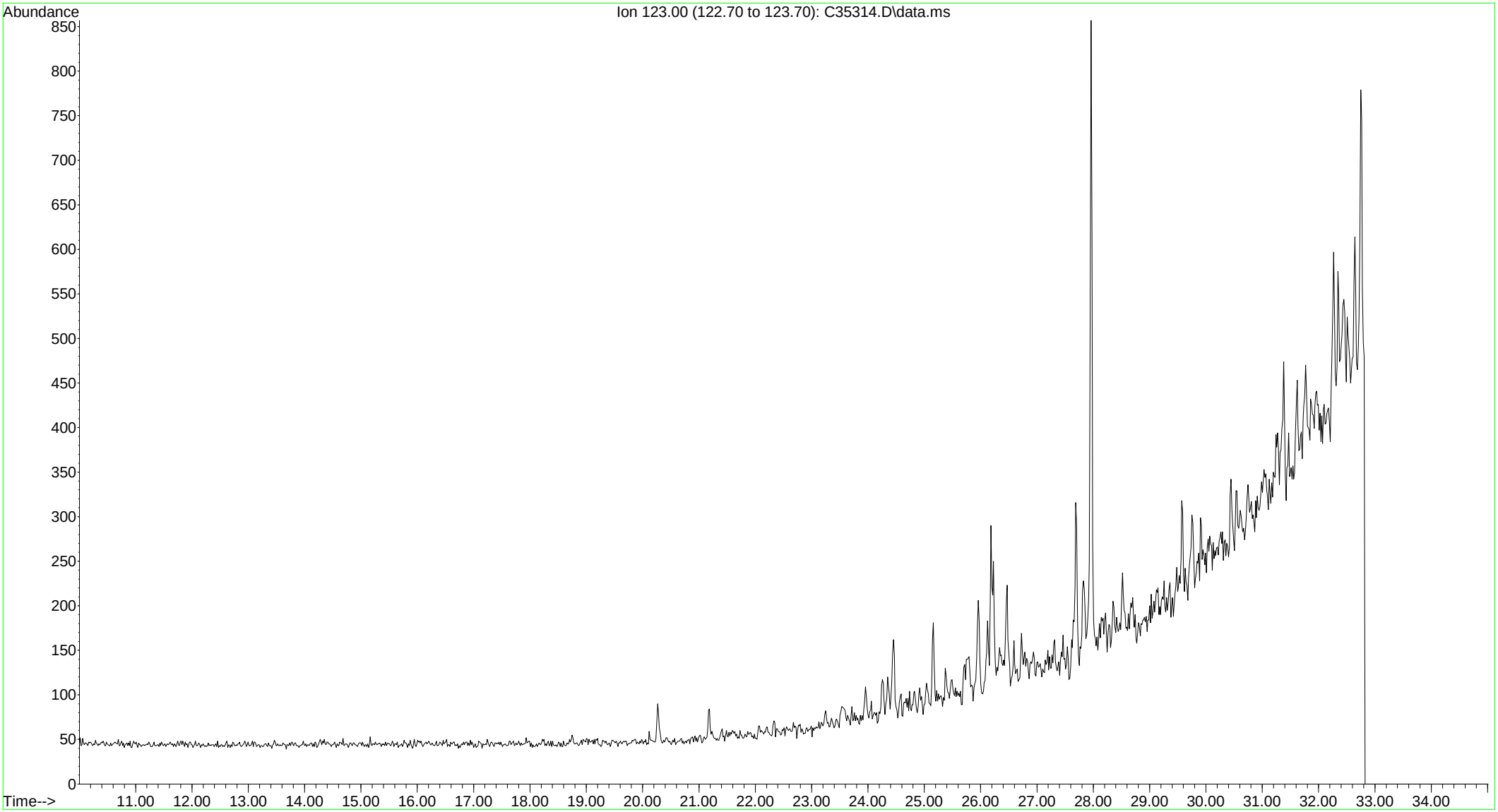
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35296.D
Operator : AC
Acquired : 25 May 2012 8:36 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-03
Misc Info : 1X
Vial Number: 15



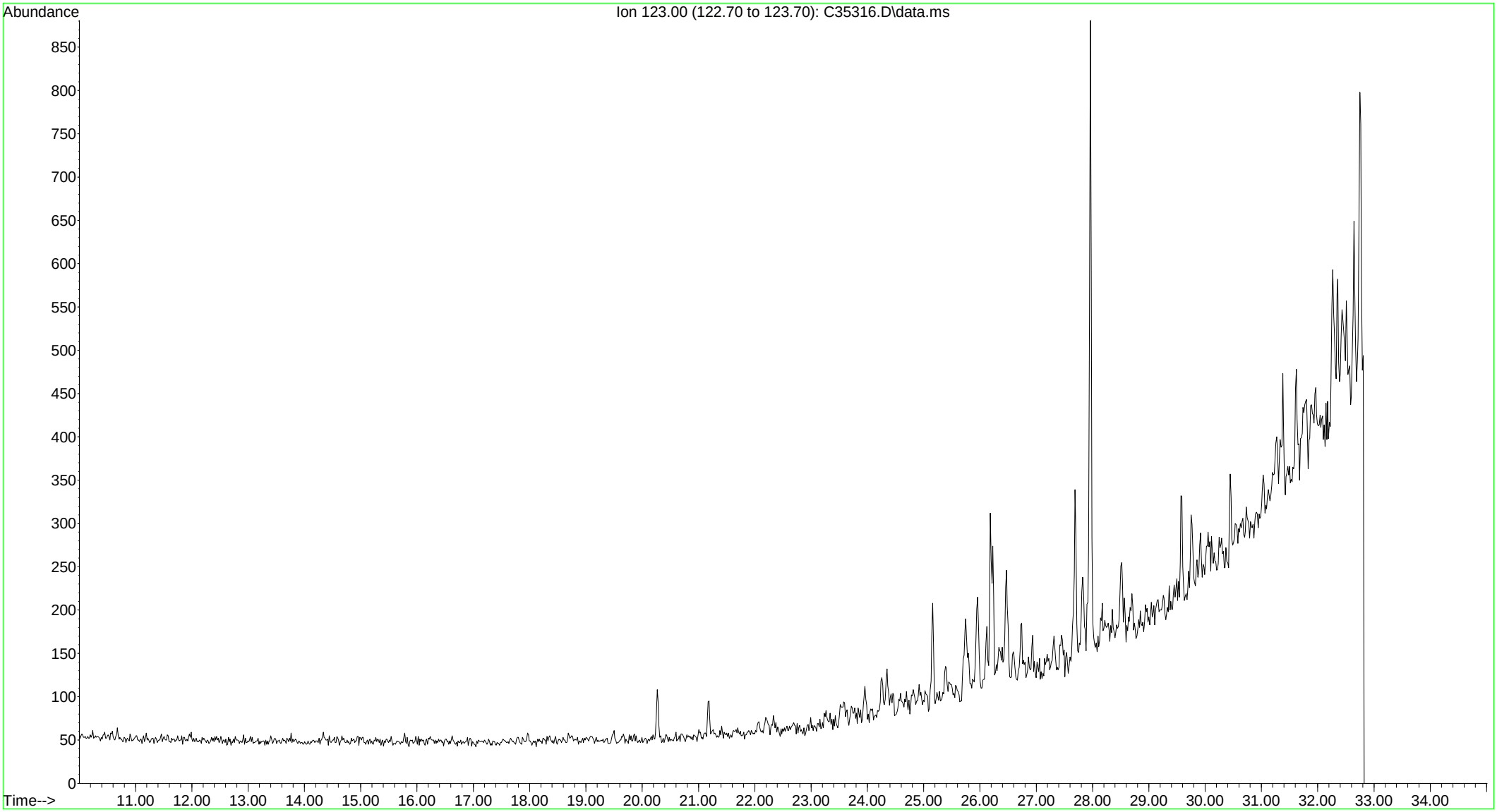
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35382.D
Operator : AC
Acquired : 28 May 2012 5:13 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-04
Misc Info : CU CLEANED
Vial Number: 11



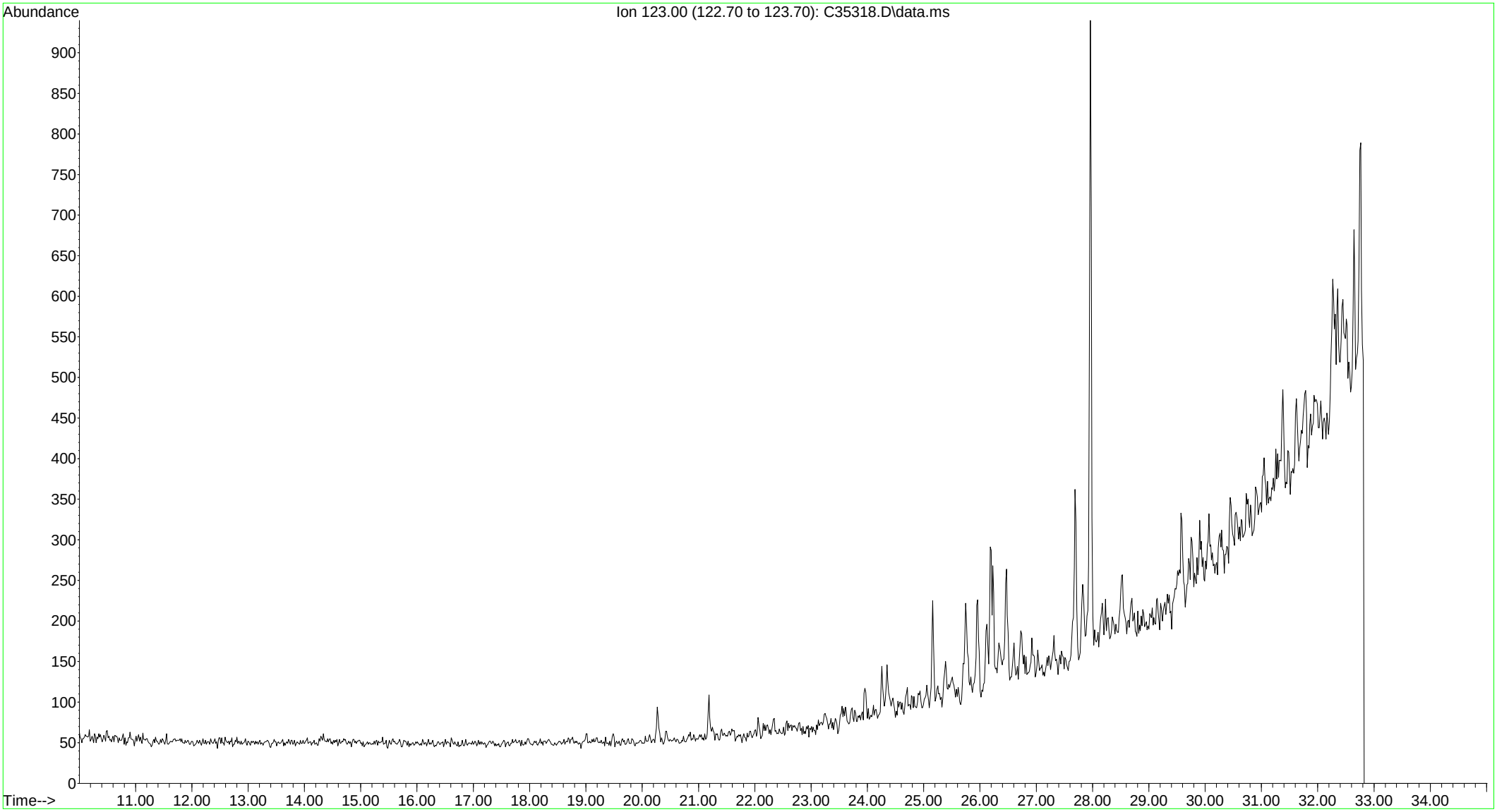
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35314.D
Operator : AC
Acquired : 25 May 2012 10:30 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-05
Misc Info : 1X
Vial Number: 24



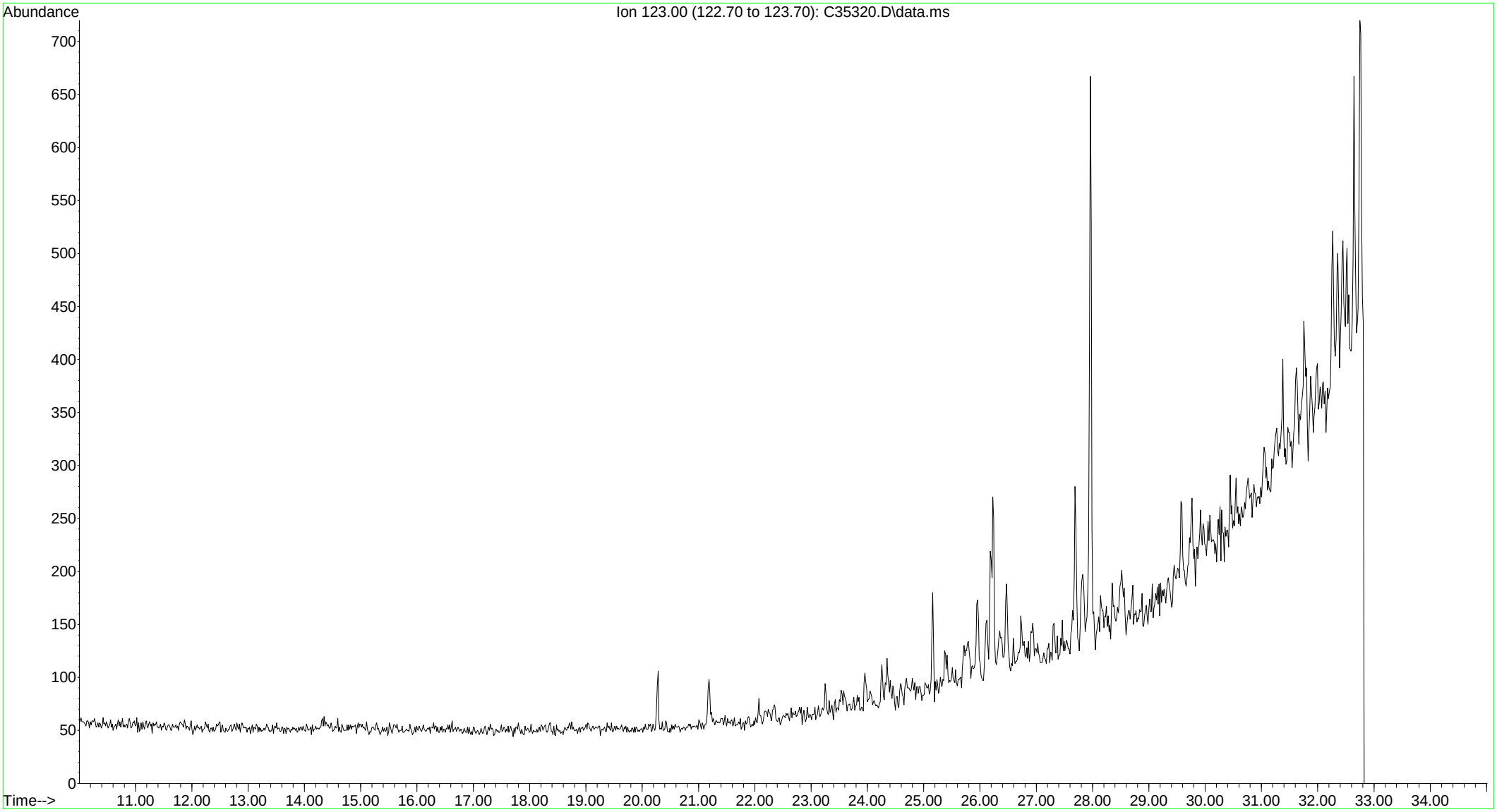
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35316.D
Operator : AC
Acquired : 26 May 2012 12:05 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-05M
Misc Info : 1X
Vial Number: 25



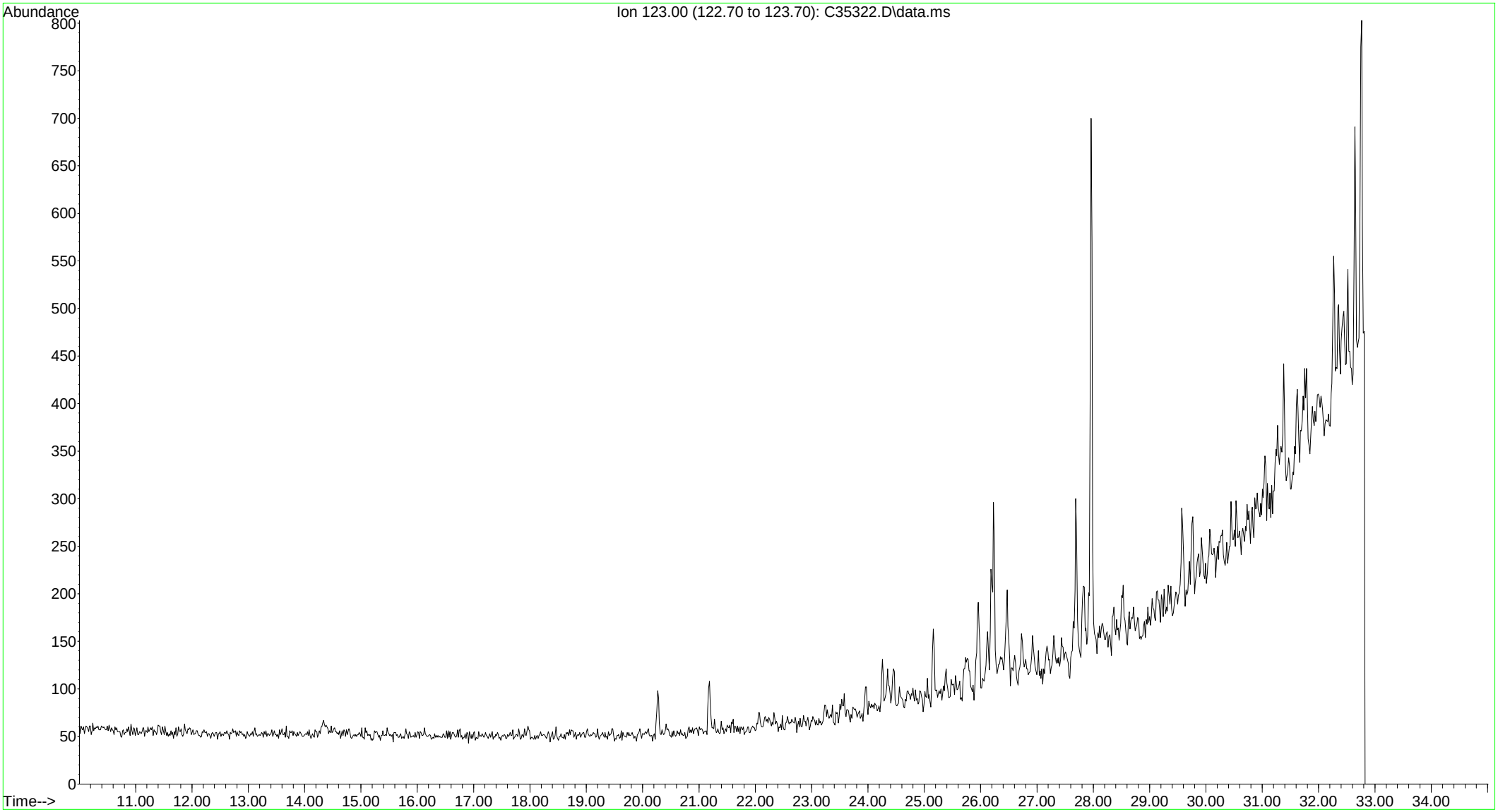
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35318.D
Operator : AC
Acquired : 26 May 2012 1:42 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-05S
Misc Info : 1X
Vial Number: 26



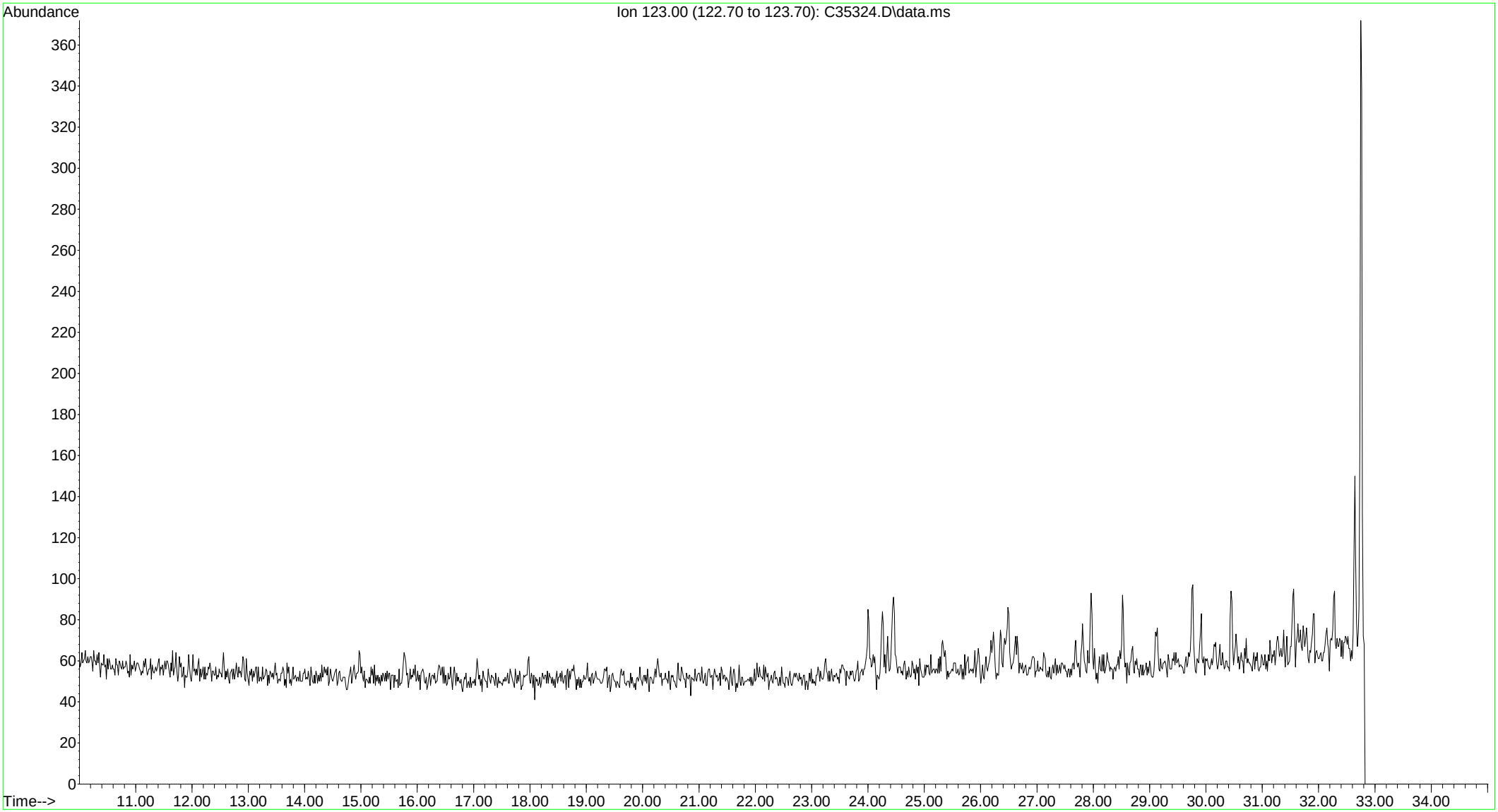
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35320.D
Operator : AC
Acquired : 26 May 2012 3:19 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-06
Misc Info : 1X
Vial Number: 27



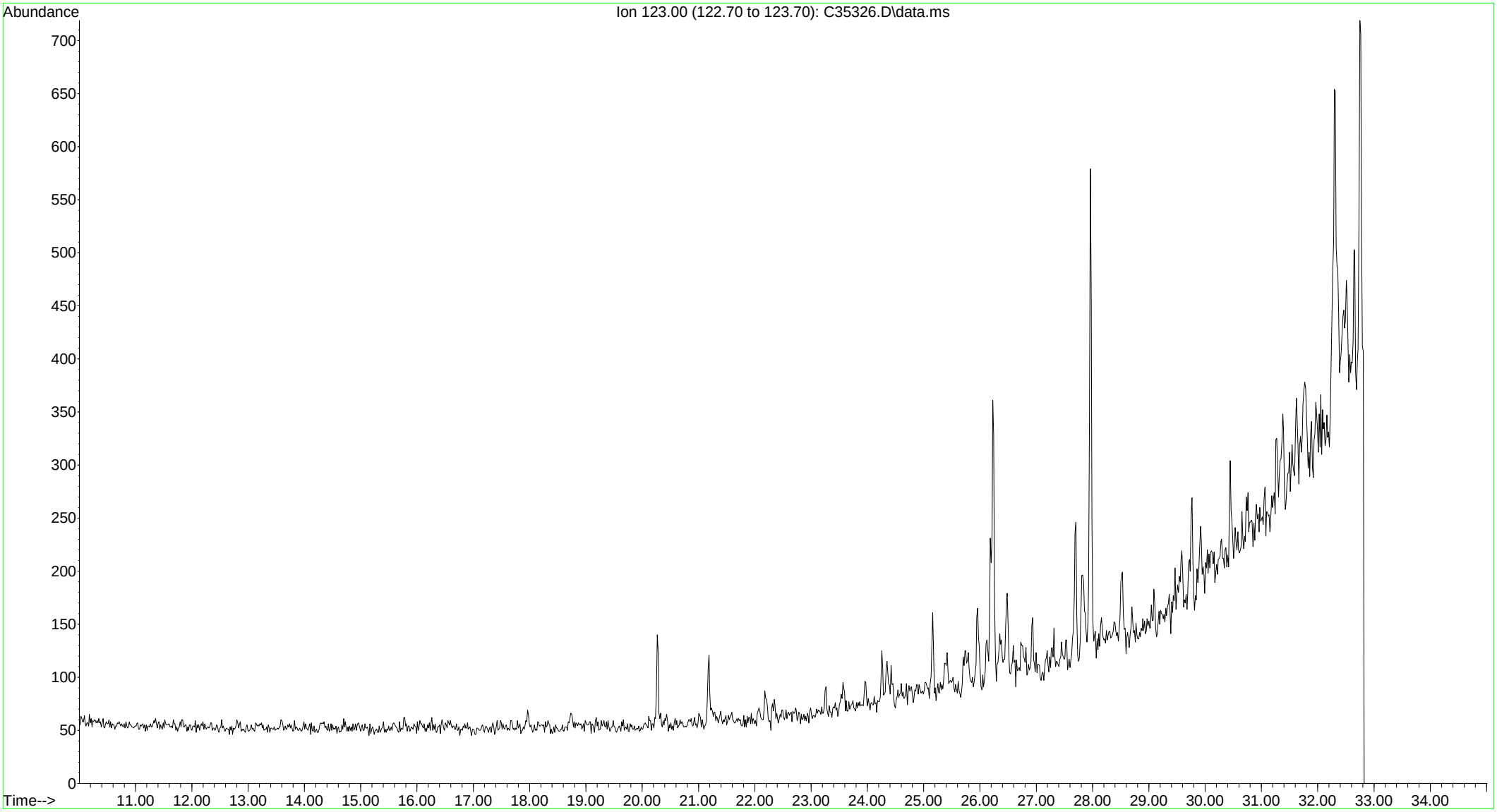
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35322.D
Operator : AC
Acquired : 26 May 2012 4:55 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-06D
Misc Info : 1X
Vial Number: 28



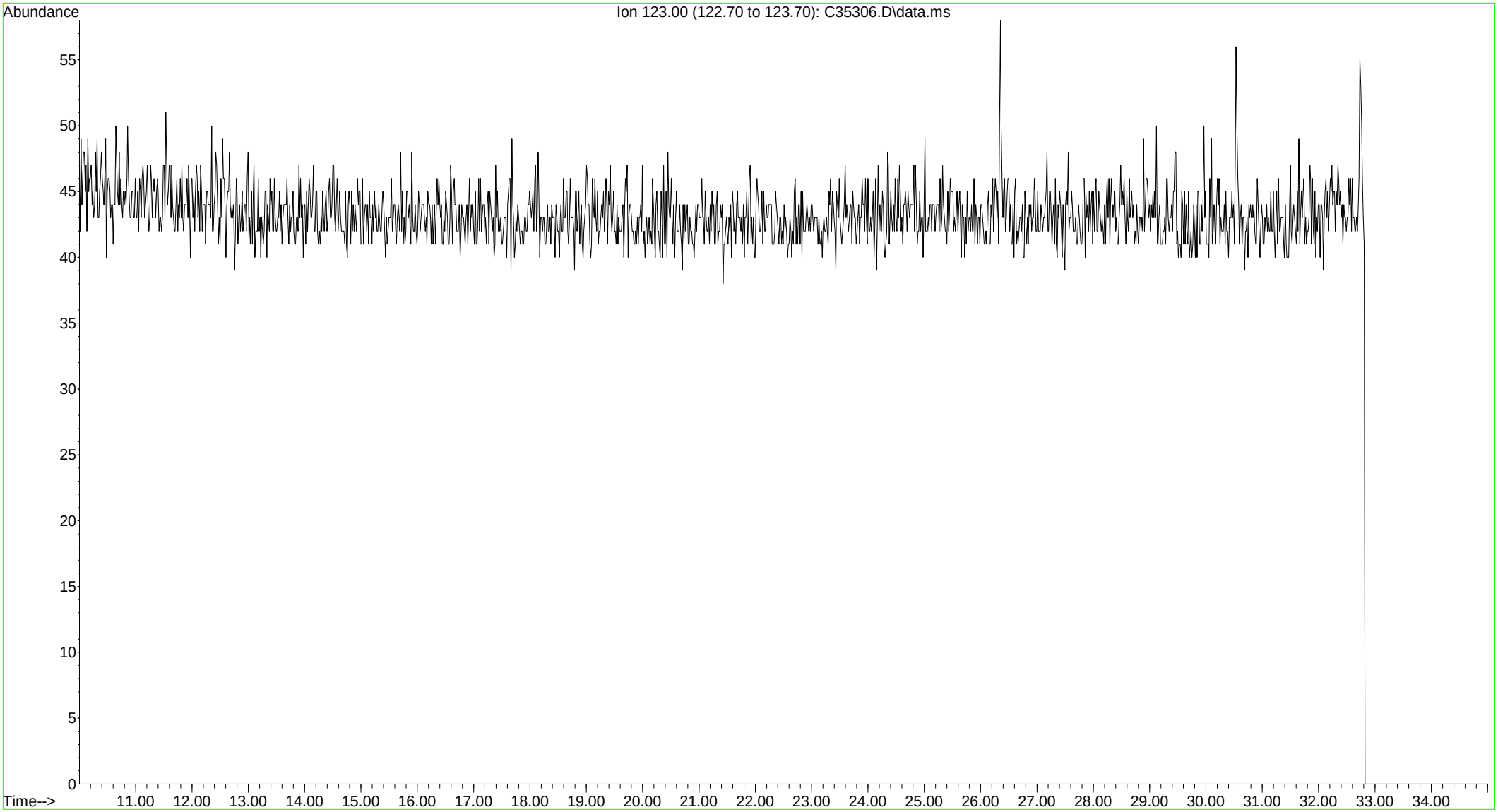
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35324.D
Operator : AC
Acquired : 26 May 2012 6:32 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-07
Misc Info : 1X
Vial Number: 29



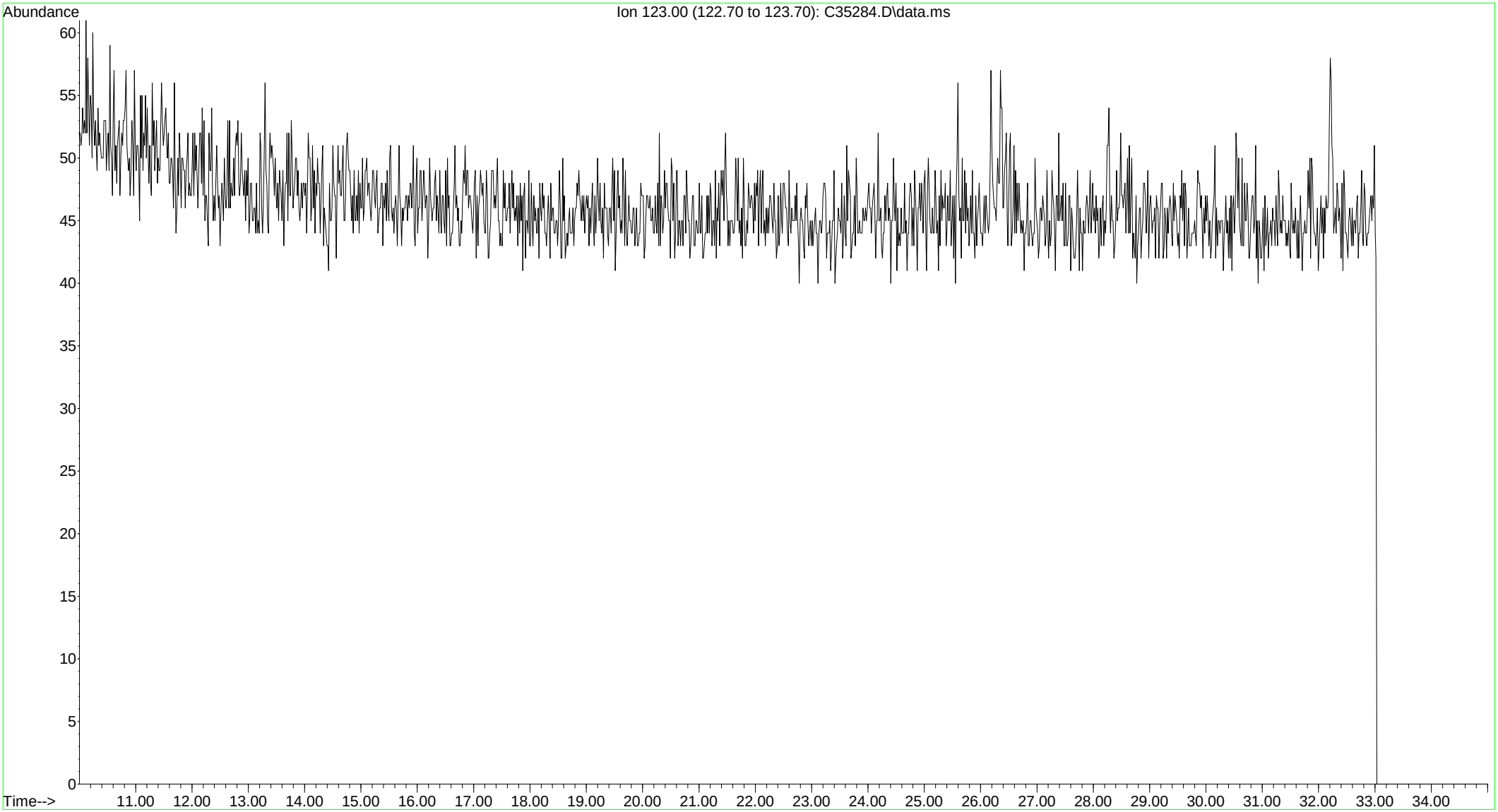
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35326.D
Operator : AC
Acquired : 26 May 2012 8:09 am using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: 1205027-08
Misc Info : 1X
Vial Number: 30



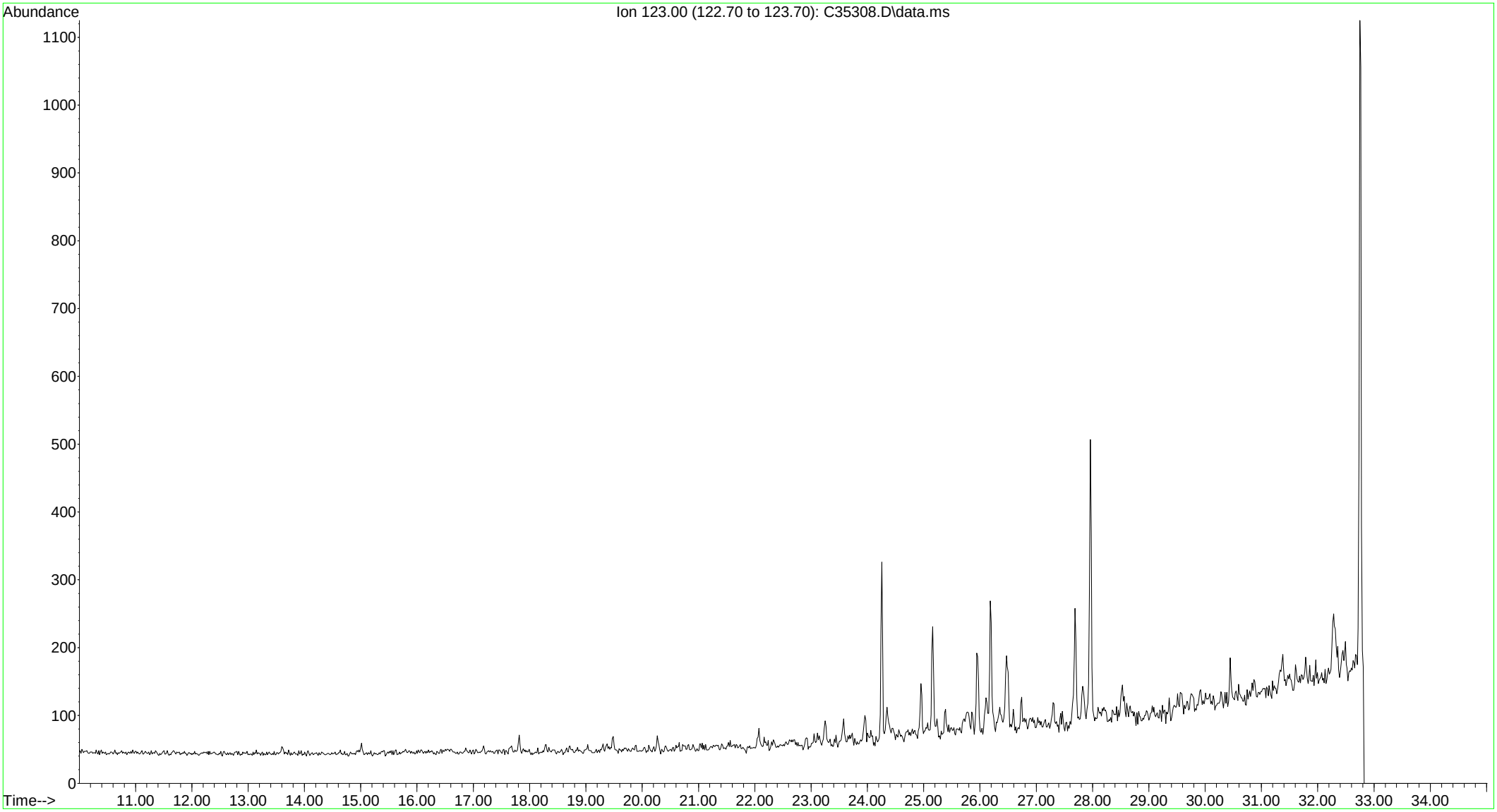
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35306.D
Operator : AC
Acquired : 25 May 2012 4:21 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SS052312B03
Misc Info : 1X ETR1205027
Vial Number: 20



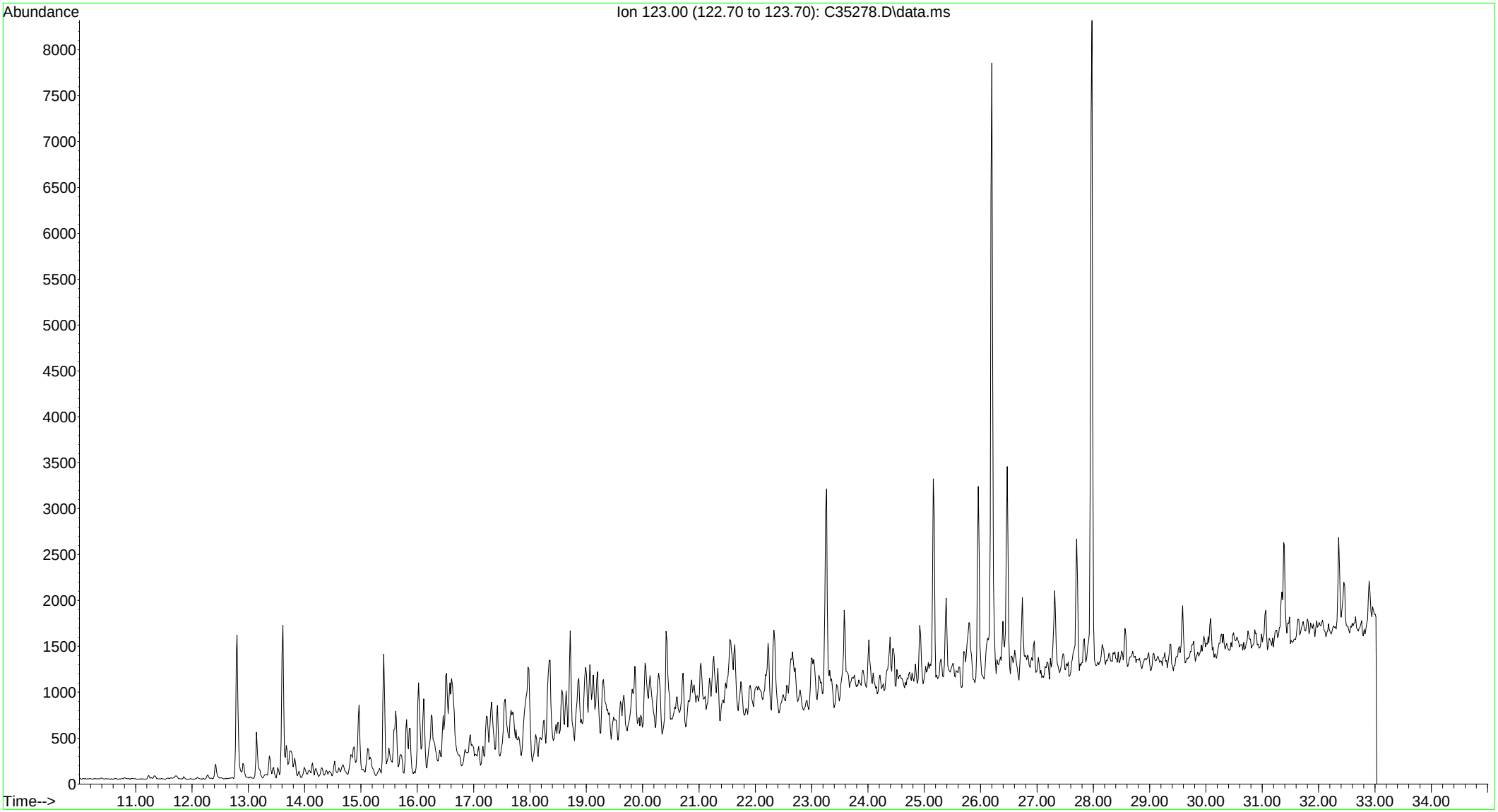
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35284.D
Operator : AC
Acquired : 24 May 2012 11:22 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SO052312B08
Misc Info : 1X ETR1205027
Vial Number: 9



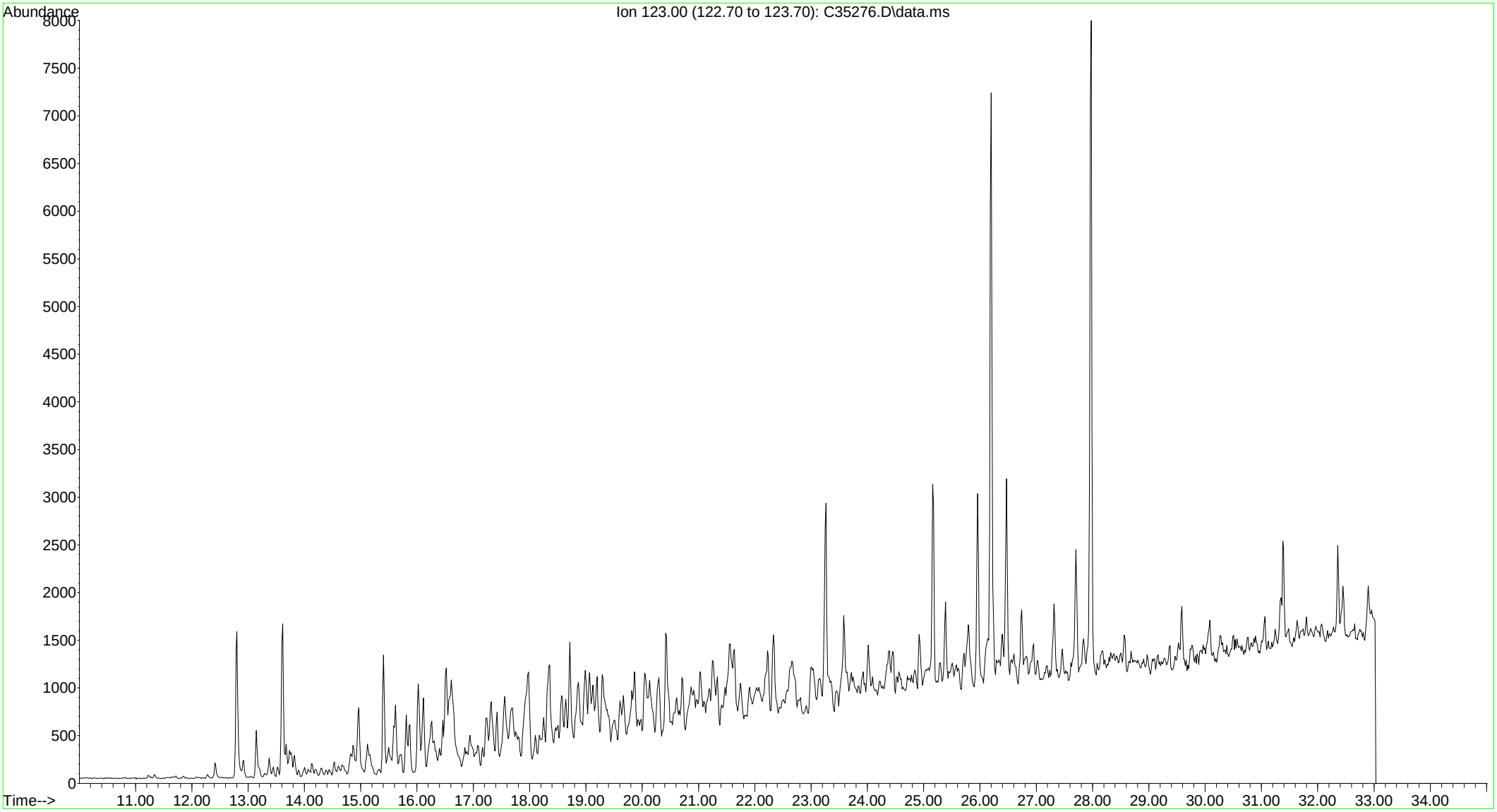
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35308.D
Operator : AC
Acquired : 25 May 2012 5:54 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SS052312C41BN01
Misc Info : 1X ETR1205027
Vial Number: 21



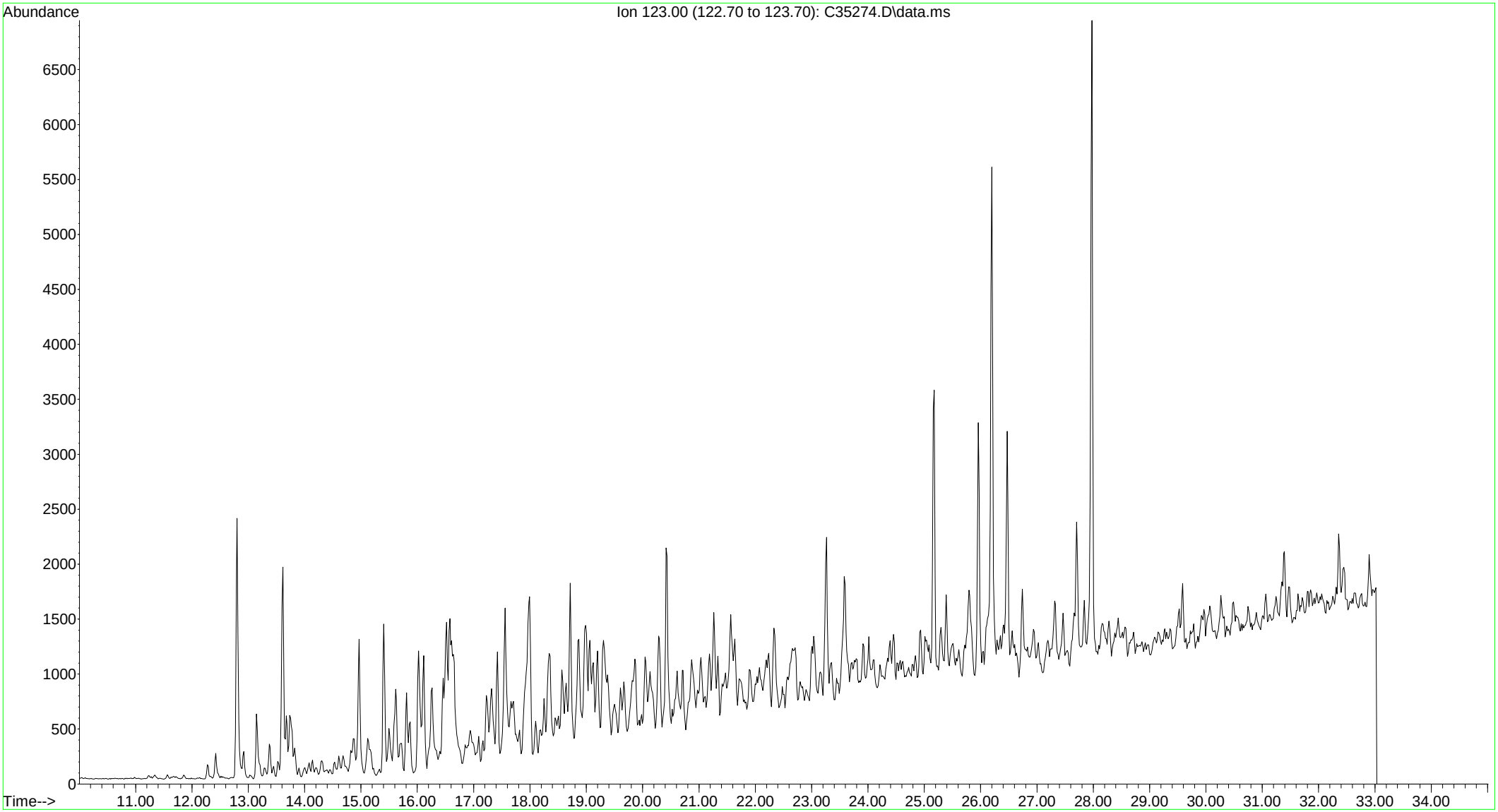
File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35278.D
Operator : AC
Acquired : 24 May 2012 6:45 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SS052912CL01
Misc Info : WHAP12
Vial Number: 6



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35276.D
Operator : AC
Acquired : 24 May 2012 5:15 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SS052912WCS01
Misc Info : WHAP10
Vial Number: 5



File :O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\C35274.D
Operator : AC
Acquired : 24 May 2012 3:45 pm using AcqMethod FRNC3A.M
Instrument : PAH 3
Sample Name: SS052912ANS01
Misc Info : ANS WHAO85
Vial Number: 4



1205027
EIP’s

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHAO85
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17778M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	34343	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	64304	833.374	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.34%			
42) Phenanthrene-d10	32.221	188	62125	1018.622	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.86%			
86) Benzo[a]pyrene-d12	47.850	264	69940	982.673	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 98.27%			
127) 5B(H)Cholane - Surr	43.437	217	12523M3	1166.301	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 116.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	30581	2179.050	ng/mL	100
4) cis-Decalin	17.287	138	1532	144.841	ng/mL	100
5) C1-Decalins	18.009	152	47336M5	3372.927	ng/mL	
6) C2-Decalins	19.334	166	40288M5	2870.722	ng/mL	
7) C3-Decalins	21.803	180	19534M5	1391.895	ng/mL	
8) C4-Decalins	25.175	194	19927M5	1419.899	ng/mL	
10) Naphthalene	19.485	128	277266	2447.025	ng/mL#	100
11) C1-Naphthalenes	22.180	142	579227M5	5111.997	ng/mL	
12) C2-Naphthalenes	25.010	156	705488M5	6226.320	ng/mL	
13) C3-Naphthalenes	27.358	170	514977M5	4544.956	ng/mL	
14) C4-Naphthalenes	30.113	184	273406M5	2412.958	ng/mL	
16) 2-Methylnaphthalene	22.180	142	341054	5090.659	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	238132	3626.217	ng/mL#	100
18) Benzothiophene	19.711	134	2064M3	20.243	ng/mL	
19) C1-Benzo(b)thiophenes	21.743	148	11250M5	110.335	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	22181M5	217.541	ng/mL	
21) C3-Benzo(b)thiophenes	27.193	176	45056M5	441.888	ng/mL	
22) C4-Benzo(b)thiophenes	28.924	190	40500M5	397.205	ng/mL	
23) Biphenyl	24.061	154	55493M3	654.796	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	174086	3162.697	ng/mL#	100
25) Dibenzofuran	27.133	168	24151	248.166	ng/mL#	80
26) Acenaphthylene	25.763	152	3097	27.534	ng/mL#	100
27) Acenaphthene	26.515	153	5700M3	86.068	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	39818M3	897.375	ng/mL	
29) Fluorene	28.502	166	26788M3	366.757	ng/mL	
30) C1-Fluorenes	30.866	180	60868M5	833.350	ng/mL	
31) C2-Fluorenes	33.064	194	86741M5	1187.580	ng/mL	
32) C3-Fluorenes	34.901	208	84344M5	1154.762	ng/mL	
33) Dibenzothiophene	31.814	184	78843	673.397	ng/mL#	87
34) 4-Methyldibenzothiophene(	33.591	198	76781	655.785	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	52834	451.254	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	24905	212.713	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	156133M5	1333.530	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	156133m	1333.530	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	214653M5	1833.348	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	192665M5	1645.549	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	102706M5	877.210	ng/mL	
43) Phenanthrene	32.311	178	111347	1082.437	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.268	192	45708	444.341	ng/mL	97
45) 2-Methylphenanthrene(2MP)	34.389	192	50005	486.114	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	1595M3	15.505	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	69504	675.669	ng/mL	97
48) 1-Methylphenanthrene(1MP)	34.810	192	50451M3	490.449	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.720	192	218245M5	2121.625	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	232666M5	2261.816	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	232666m	2261.816	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHAO85
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	C3-Phenanthrenes/Anthrace	38.394	220	157296M5	1529.121	ng/mL	
53)	C4-Phenanthrenes/Anthrace	40.562	234	64708M5	629.046	ng/mL	
56)	Carbazole	33.169	167	4394M3	43.293	ng/mL	
57)	1-Methylphenanthrene	34.810	192	50407M3	773.249	ng/mL	
58)	Fluoranthene	37.084	202	2466M3	24.138	ng/mL	
59)	Benzo(b)fluorene	39.598	216	2431M3	41.015	ng/mL	
60)	Pyrene	37.972	202	8113M3	78.120	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.357	216	36626M5	352.674	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.164	230	59669M5	574.556	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.181	244	69462M5	668.853	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.536	258	58479M5	563.097	ng/mL	
66)	Naphthobenzothiophene	41.811	234	20428	182.708	ng/ml#	80
67)	Naphthobenzothiophene-2,1	41.811	234	20428	182.708	ng/mL#	80
68)	Naphthobenzothiophene-1,2	42.158	234	4459M3	39.881	ng/mL	
69)	Naphthobenzothiophene-2,3	42.459	234	2479M3	22.172	ng/mL	
70)	C1-Naphthobenzothiophenes	43.212	248	71567M5	640.095	ng/ml	
71)	C2-Naphthobenzothiophenes	45.214	262	100267M5	896.788	ng/ml	
72)	C3-Naphthobenzothiophenes	46.825	276	78737M5	704.223	ng/ml	
73)	C4-Naphthobenzothiophenes	47.865	290	51743M5	462.789	ng/mL	
75)	Benz[a]anthracene	42.745	228	1330M3	12.201	ng/mL	
77)	Chrysene/Triphenylene	42.865	228	20032M3	182.028	ng/mL	
78)	C1-Chrysenes	44.371	242	34321M5	311.871	ng/mL	
79)	C2-Chrysenes	47.066	256	44577M5	405.066	ng/mL	
79)	C2-Chrysenes BS	47.066	256	44577m	405.066	ng/mL	
80)	C3-Chrysenes	49.069	270	53106M5	482.568	ng/mL	
81)	C4-Chrysenes	49.100	284	37425M5	340.077	ng/mL	
82)	Benzo[b]fluoranthene	46.780	252	3325M3	27.761	ng/mL	
85)	Benzo[e]pyrene	47.759	252	5681	47.953	ng/mL	97
87)	Benzo[a]pyrene	47.940	252	933M3	8.180	ng/mL	
88)	Perylene	48.241	252	1667M3	13.675	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	52.579	276	482M3	3.631	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.609	278	659M3	5.219	ng/mL	
91)	Benzo[g,h,i]perylene	53.813	276	2208M3	15.745	ng/mL	
92)	Hopane (T19)	51.705	191	19041M3	841.239	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.456	191	7376M3	325.875	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.179	191	4905M3	216.705	ng/ml	
96)	C25 Tricyclic Terpane (T6	42.670	191	5101M3	225.364	ng/ml	
97)	C24 Tetracyclic Terpane (	43.979	191	1832M3	80.938	ng/ml	
98)	C26 Tricyclic Terpane-22S	43.739	191	2216M3	97.904	ng/ml	
99)	C26 Tricyclic Terpane-22R	43.829	191	2138M3	94.458	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.118	191	1934M3	85.445	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.268	191	2216	97.904	ng/ml	100
102)	C29 Tricyclic Terpane-22S	46.795	191	2503	110.584	ng/ml	100
103)	C29 Tricyclic Terpane-22R	46.976	191	2340	103.382	ng/ml	100
104)	18a-22,29,30-Trisnorneoho	48.060	191	3632	160.463	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.166	191	2276M3	100.555	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.407	191	2192M3	96.843	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.588	191	4379M3	193.466	ng/ml	
108)	17a/b,21b/a 28,30-Bisnorh	49.747	191	1128M3	49.835	ng/ml	
109)	17a(H),21b(H)-25-Norhopan	49.566	191	1049M3	46.345	ng/ml	
110)	30-Norhopane (T15)	50.395	191	10889M3	481.080	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.485	191	2681	118.448	ng/ml	100
112)	17a(H)-Diahopane (X)	50.621	191	1680	74.223	ng/ml	100
113)	30-Normoretane (T17)	51.133	191	1466M3	64.768	ng/ml	
115)	Moretane (T20)	52.368	191	2166M3	95.695	ng/ml	
116)	30-Homohopane-22S (T21)	53.422	191	8421	372.043	ng/ml	100
117)	30-Homohopane-22R (T22)	53.648	191	7180	317.215	ng/ml	100
118)	Gammacerane/C32-diahopane	54.175	191	1591	70.291	ng/mL	100
119)	30,31-Bishomohopane-22S (	54.928	191	6065	267.954	ng/ml	100
120)	30,31-Bishomohopane-22R (	55.289	191	4288M3	189.446	ng/ml	
121)	30,31-Trishomohopane-22S	56.976	191	4797	211.933	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHAO85
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
122)	30,31-Trishomohopane-22R	57.563	191	3199	141.333	ng/ml	100
123)	Tetrakishomohopane-22S (T	59.490	191	3005M3	132.762	ng/ml	
124)	Tetrakishomohopane-22R (T	60.364	191	2419M3	106.872	ng/ml	
125)	Pentakishomohopane-22S (T	62.502	191	2906M3	128.388	ng/ml	
126)	Pentakishomohopane-22R (T	63.737	191	2542M3	112.307	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	3371M3	313.950	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	1569M3	146.125	ng/ml	
130)	13b,17a-20S-Methyldiachol	46.057	217	1285M3	119.676	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	3613	336.488	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	4451	414.534	ng/ml	100
133)	Unknown Sterane (S18)	47.699	217	1179	109.803	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	47.940	217	189	17.602	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.091	217	2420M3	225.381	ng/ml	
136)	14a,17a-20R-Methylcholest	48.798	217	1976M3	184.030	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.145	217	2827M3	263.286	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2562M3	238.606	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	2176	202.657	ng/ml	100
140)	14b(H),17b(H)-20S-Cholest	47.097	218	2209	205.730	ng/ml	100
141)	14b,17b-20R-Methylcholest	48.271	218	2672	248.851	ng/ml	100
142)	14b,17b-20S-Methylcholest	48.347	218	2890M3	269.154	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.386	218	3297M3	307.059	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	2007M3	186.917	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	21707M3	2021.632	ng/mL	
146)	C28,20S-triaromatic stero	49.928	231	13241	1233.170	ng/mL	100
147)	C27,20R-triaromatic stero	50.365	231	13476	1255.056	ng/mL	100
148)	C28,20R-triaromatic stero	51.524	231	11568M3	1077.359	ng/mL	

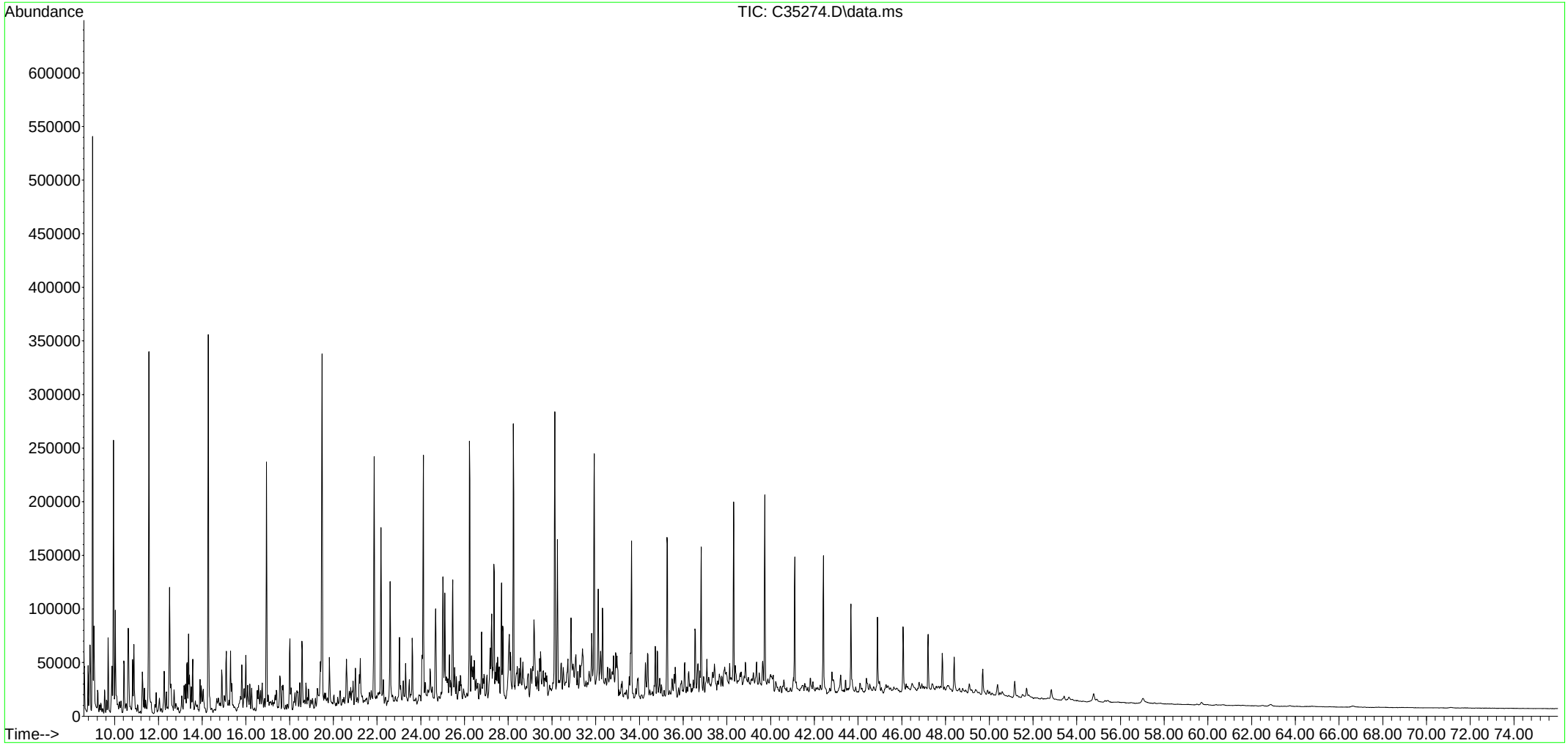
(#) = qualifier out of range (m) = manual integration (+) = signals summed

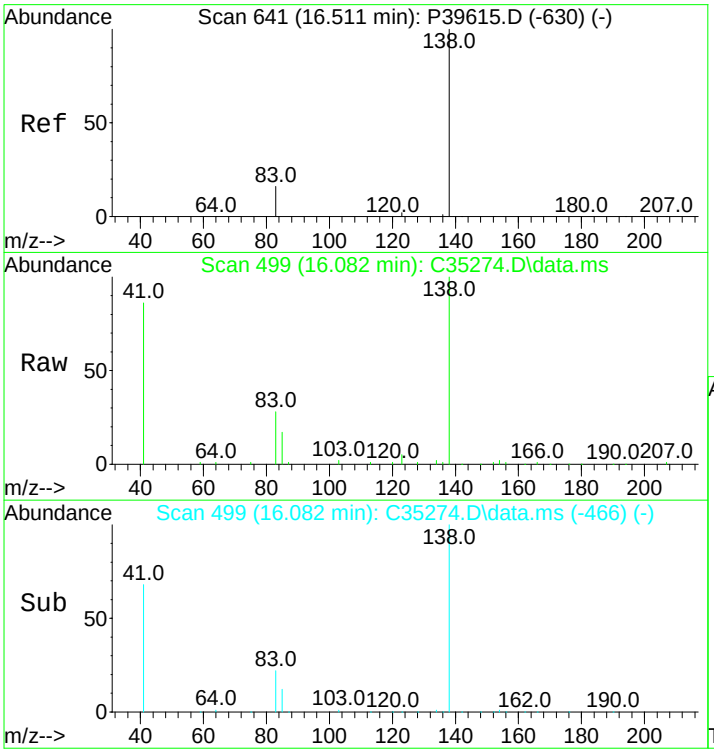
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35274.D
Acq On : 24 May 2012 3:45 pm
Operator : AC
Sample : SS052912ANS01
Misc : ANS WHAO85
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 12:38:47 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

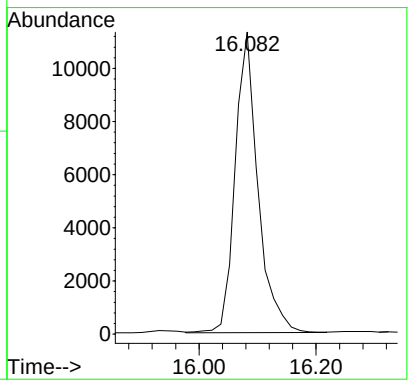
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

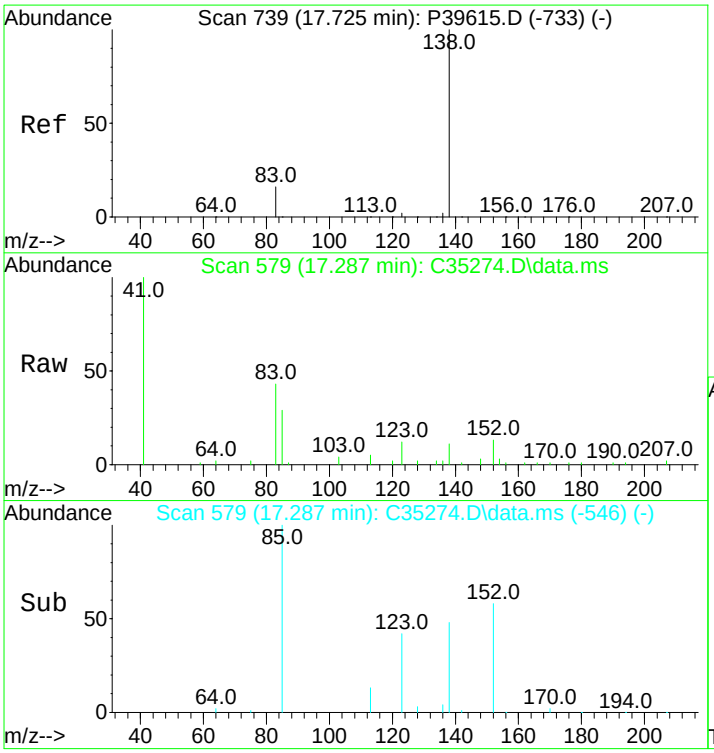




#3
trans-Decalin
Concen: 2179.05 ng/mL
RT: 16.082 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

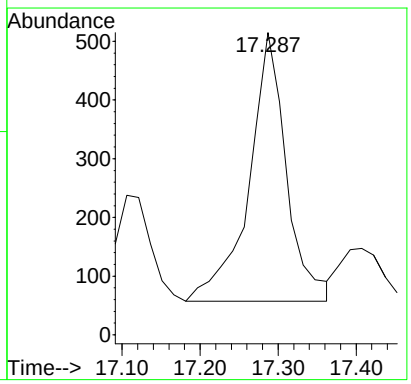
Tgt Ion:138 Resp: 30581

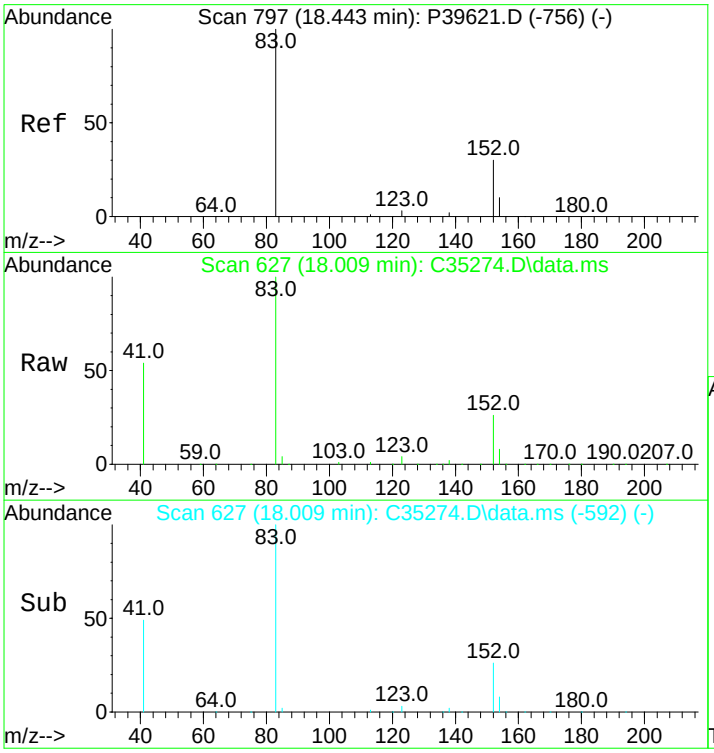




#4
cis-Decalin
Concen: 144.84 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

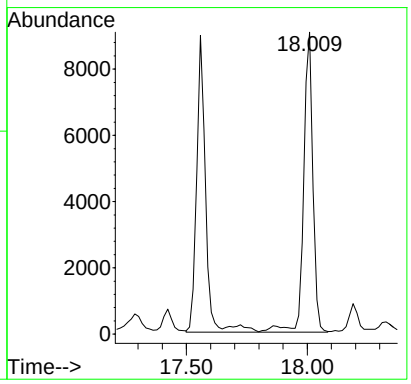
Tgt Ion:138 Resp: 1532

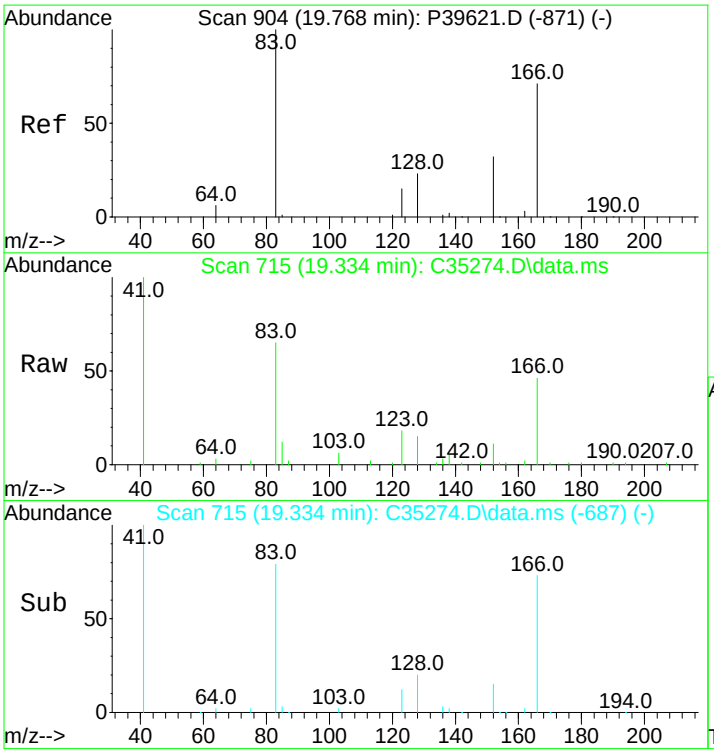




#5
C1-Decalins
Concen: 3372.93 ng/mL m
RT: 18.009 min Scan# 627
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

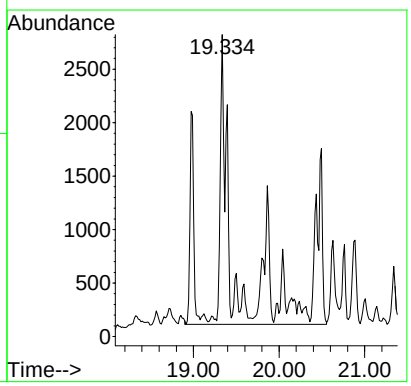
Tgt Ion:152 Resp: 47336

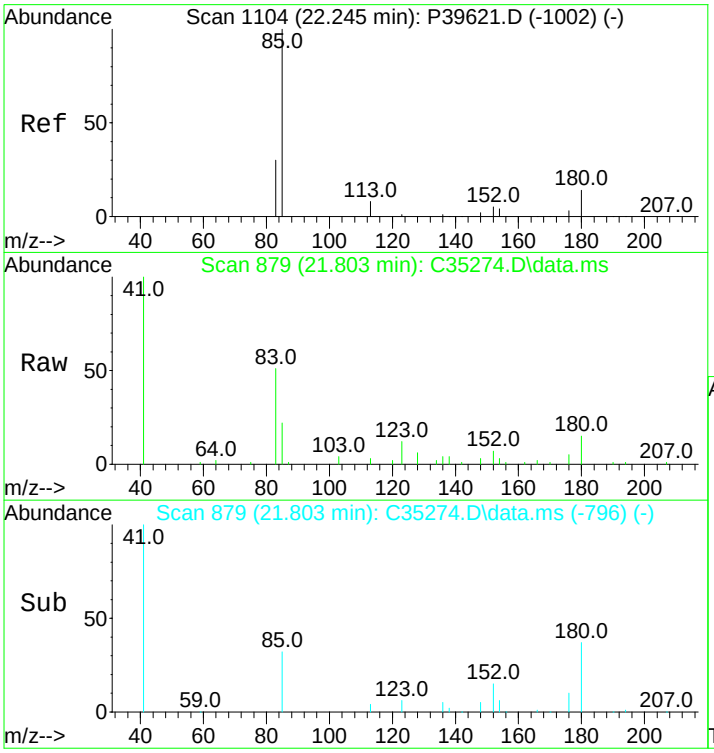




#6
C2-Decalins
Concen: 2870.72 ng/mL m
RT: 19.334 min Scan# 715
Delta R.T. -0.104 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

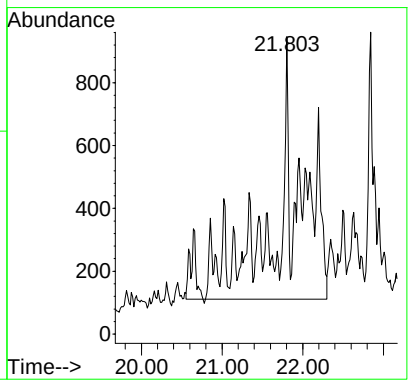
Tgt Ion:166 Resp: 40288

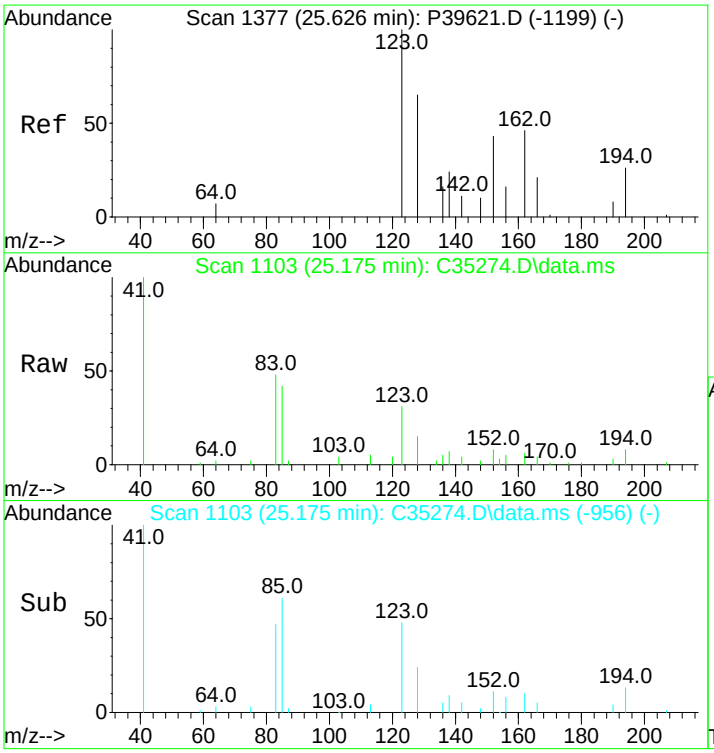




#7
C3-Decalins
Concen: 1391.90 ng/mL m
RT: 21.803 min Scan# 879
Delta R.T. -0.063 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

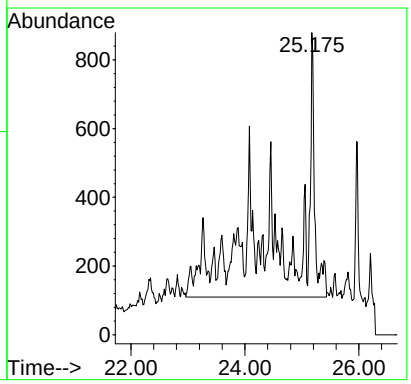
Tgt Ion:180 Resp: 19534

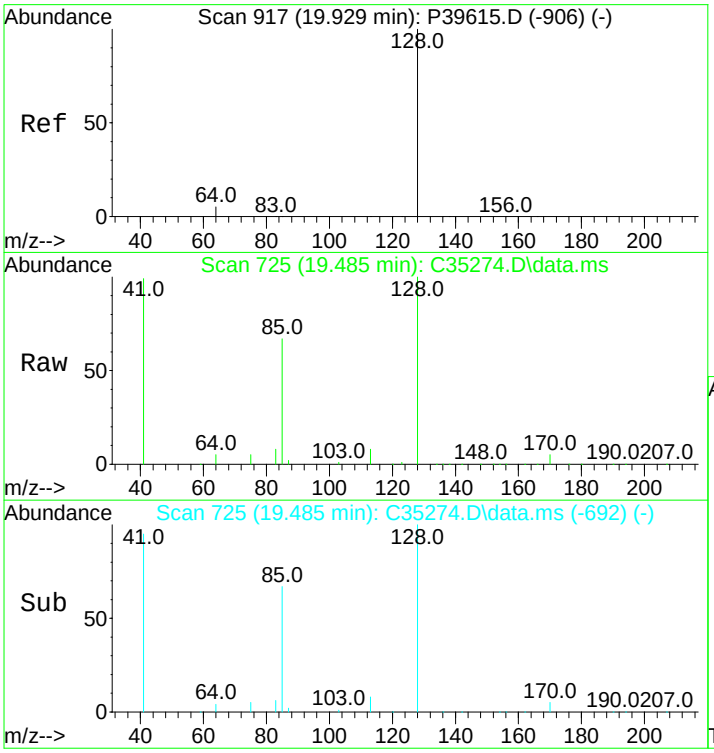




#8
C4-Decalins
Concen: 1419.90 ng/mL m
RT: 25.175 min Scan# 1103
Delta R.T. -0.021 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:194 Resp: 19927

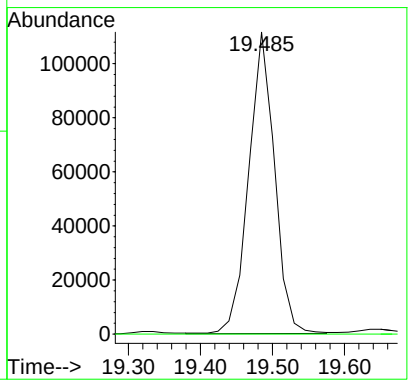


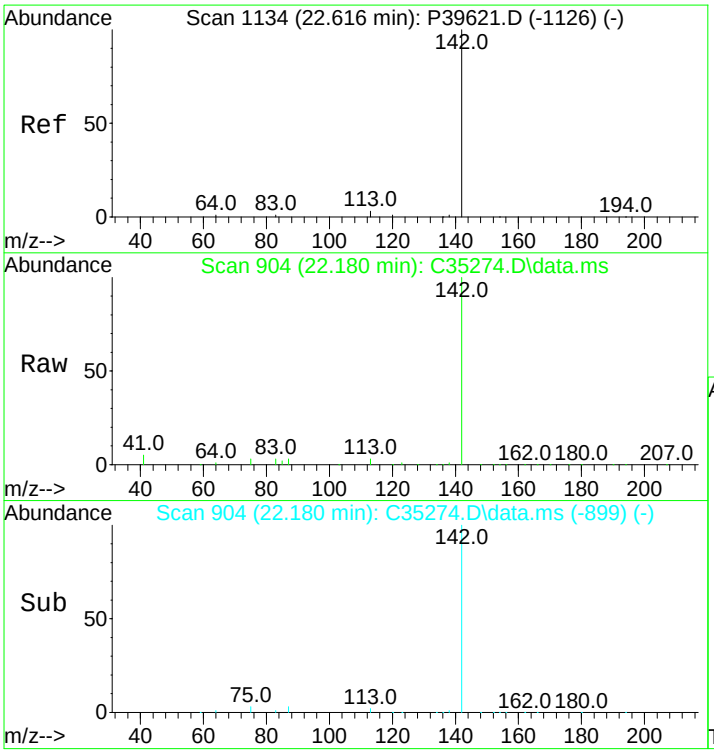


#10
Naphthalene
Concen: 2447.03 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:128 Resp: 277266

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

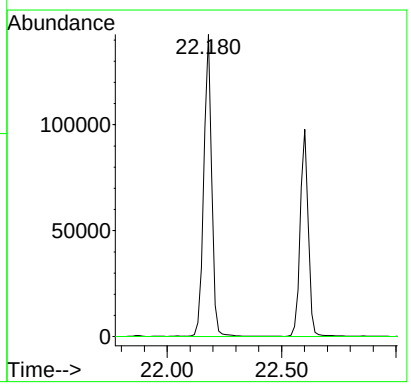


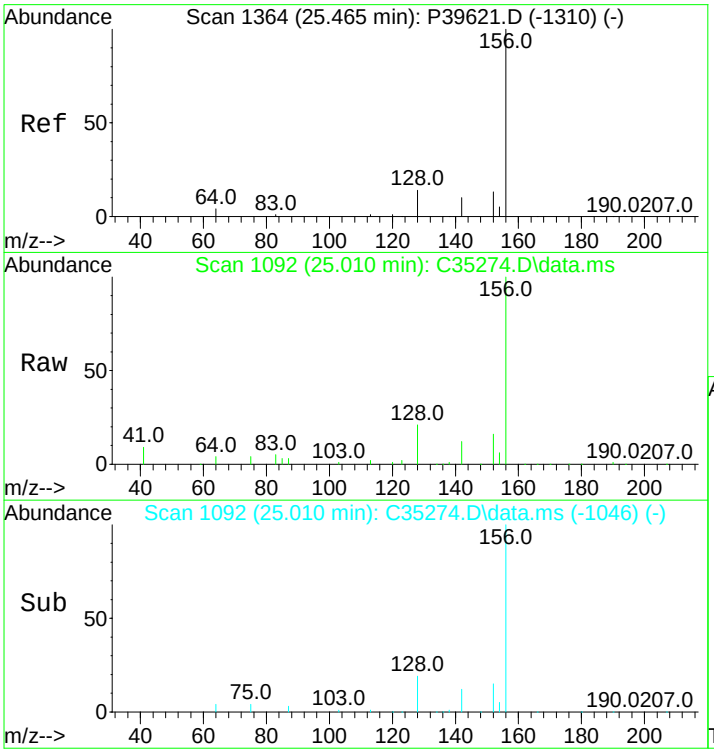


#11
C1-Naphthalenes
Concen: 5112.00 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:142 Resp: 579227

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

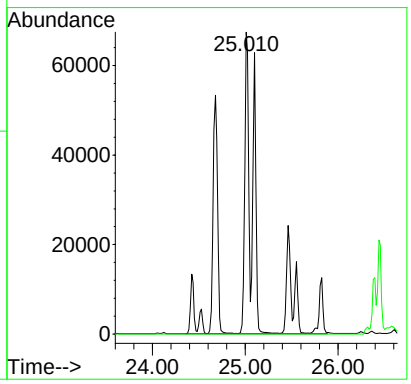


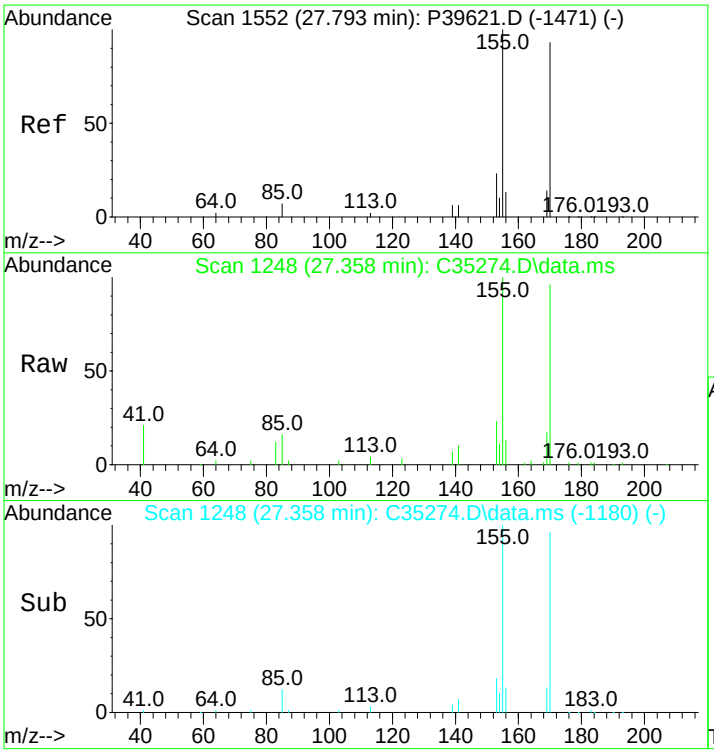


#12
C2-Naphthalenes
Concen: 6226.32 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.023 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:156 Resp: 705488

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

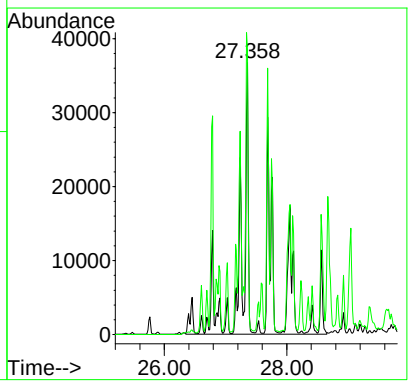


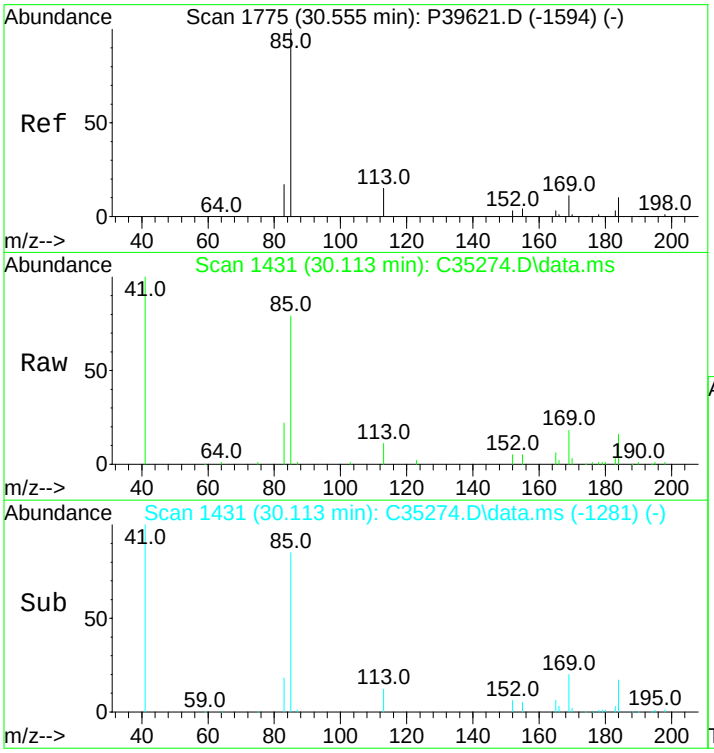


#13
C3-Naphthalenes
Concen: 4544.96 ng/mL m
RT: 27.358 min Scan# 1248
Delta R.T. 0.031 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:170 Resp: 514977

Ion	Ratio	Lower	Upper
170	100		
155	21.3	86.3	129.5#

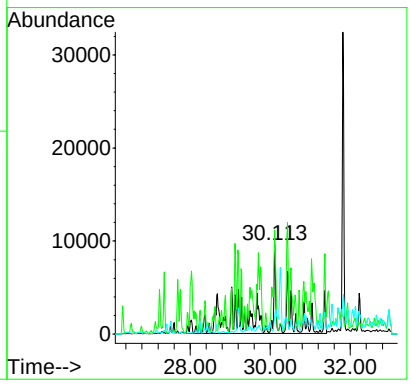


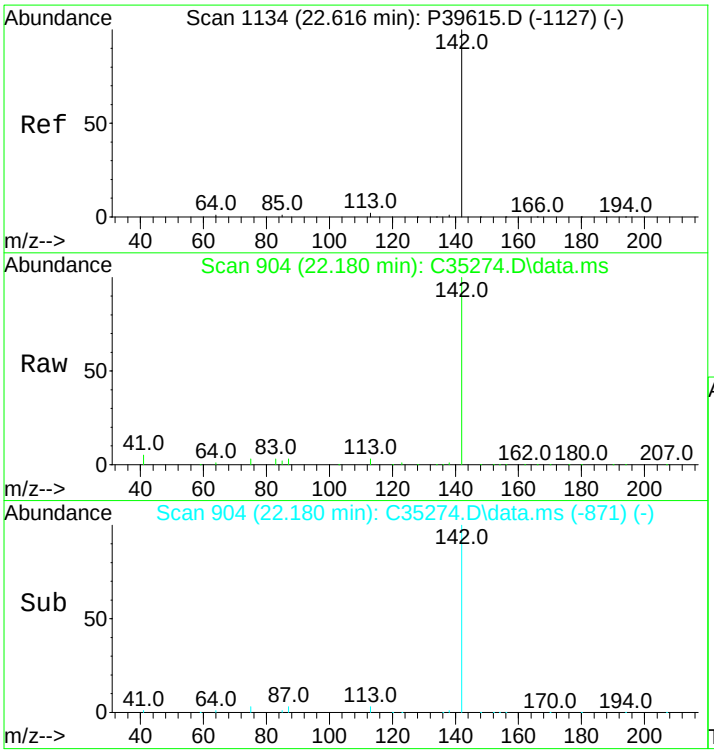


#14
C4-Naphthalenes
Concen: 2412.96 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:184 Resp: 273406

Ion	Ratio	Lower	Upper
184	100		
169	5.9	100.6	150.8#
183	0.0	26.6	40.0#

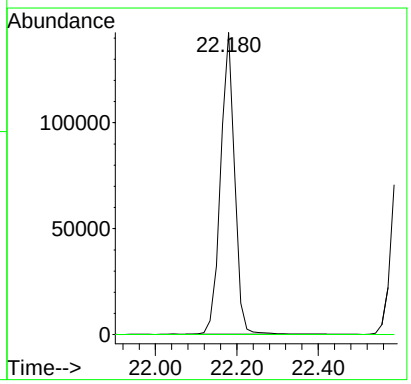


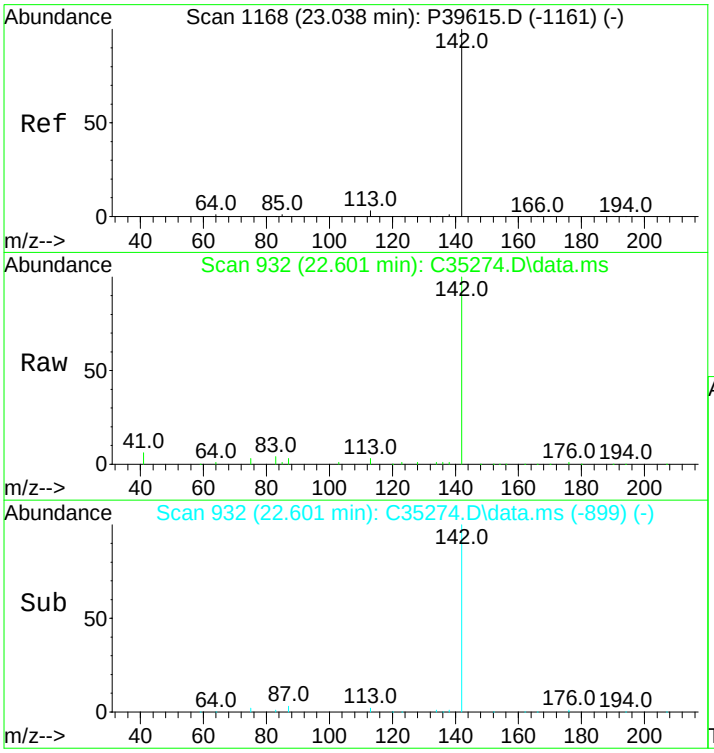


#16
2-Methylnaphthalene
Concen: 5090.66 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:142 Resp: 341054

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

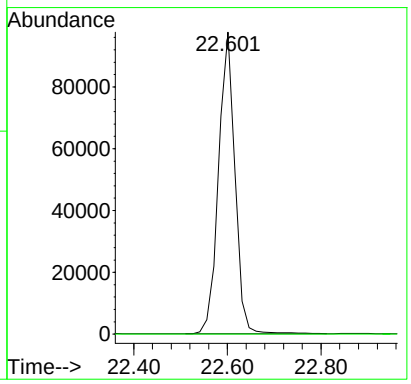


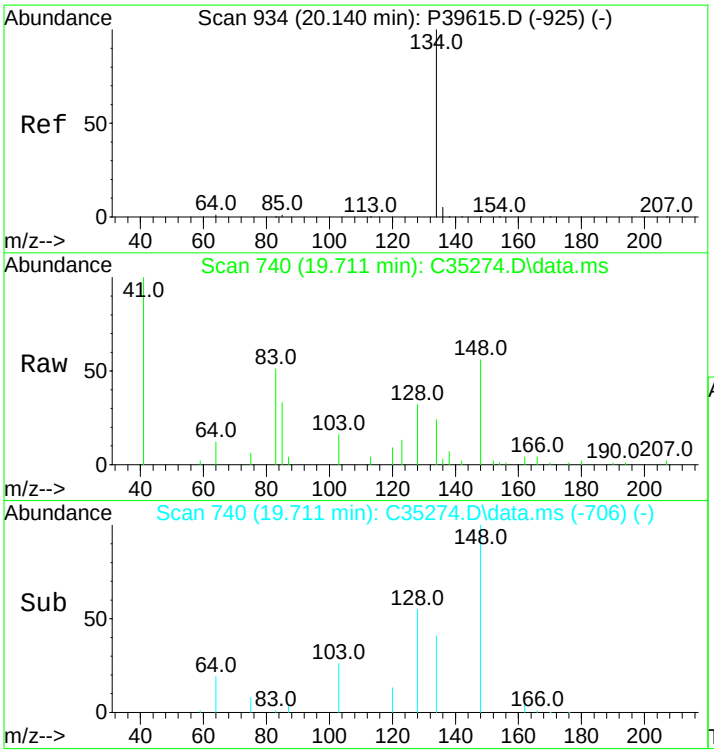


#17
1-Methylnaphthalene
Concen: 3626.22 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:142 Resp: 238132

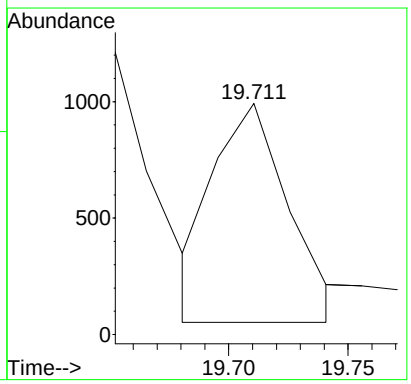
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

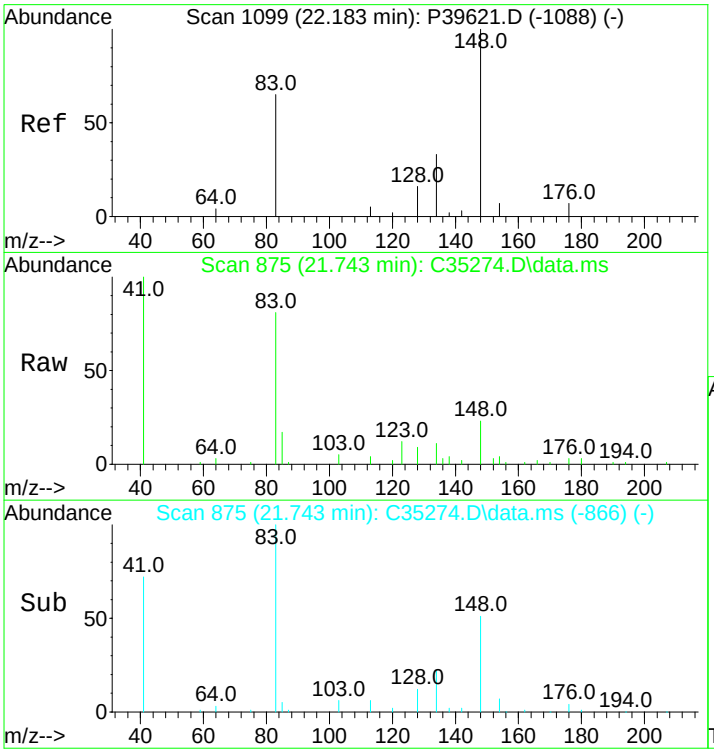




#18
Benzothiophene
Concen: 20.24 ng/mL m
RT: 19.711 min Scan# 740
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

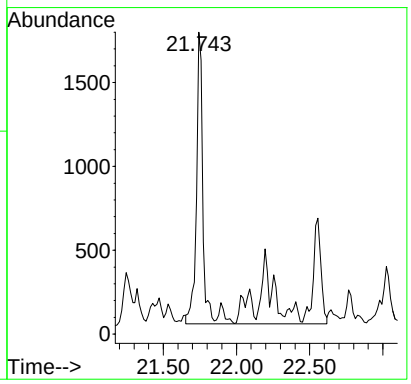
Tgt Ion:134 Resp: 2064

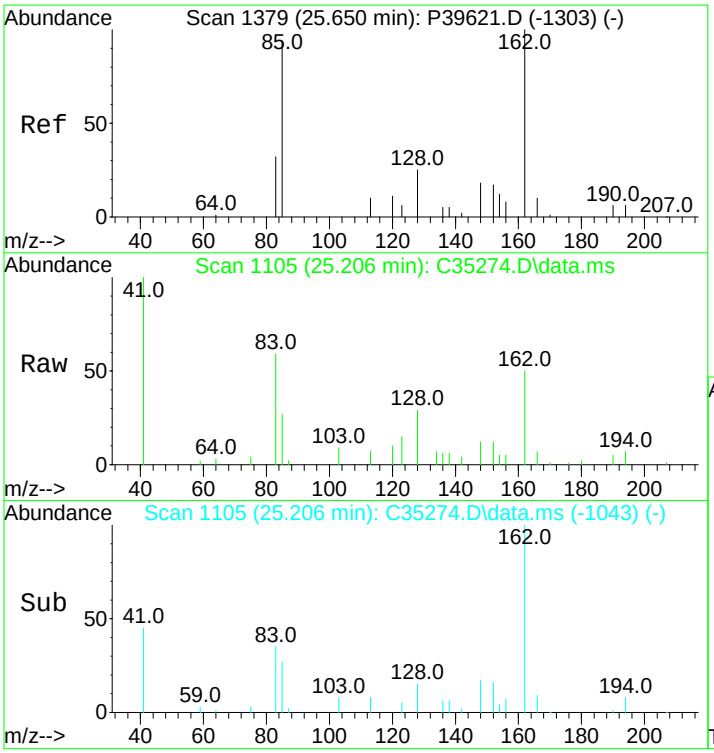




#19
C1-Benzo(b)thiophenes
Concen: 110.33 ng/mL m
RT: 21.743 min Scan# 875
Delta R.T. -0.063 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

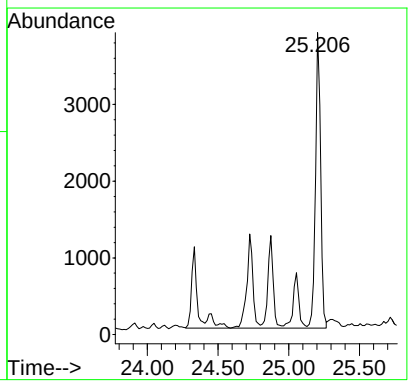
Tgt Ion:148 Resp: 11250

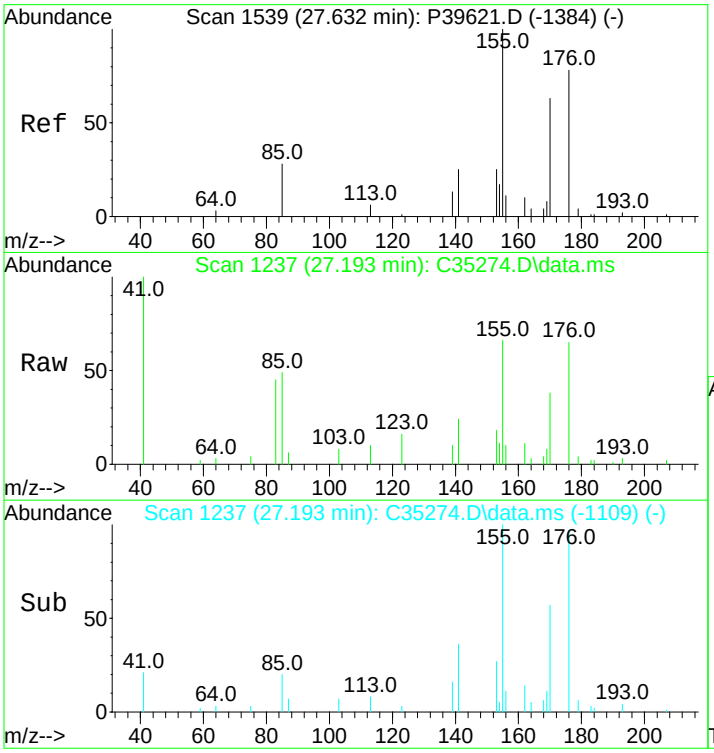




#20
C2-Benzo(b)thiophenes
Concen: 217.54 ng/mL m
RT: 25.206 min Scan# 1105
Delta R.T. -0.020 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

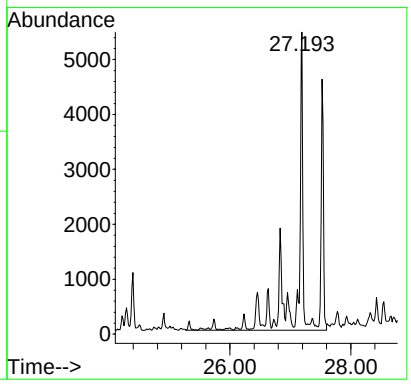
Tgt Ion:162 Resp: 22181

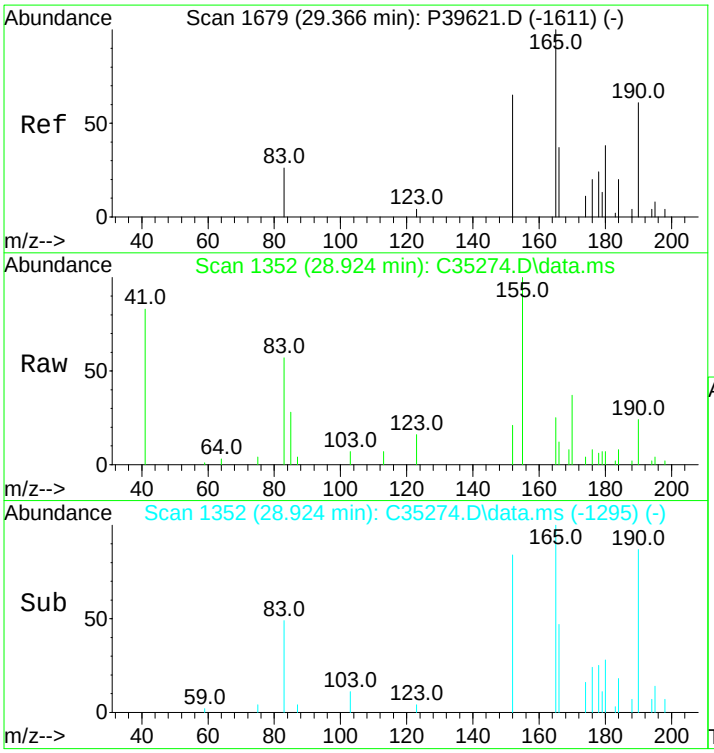




#21
C3-Benzo(b)thiophenes
Concen: 441.89 ng/mL m
RT: 27.193 min Scan# 1237
Delta R.T. 0.028 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

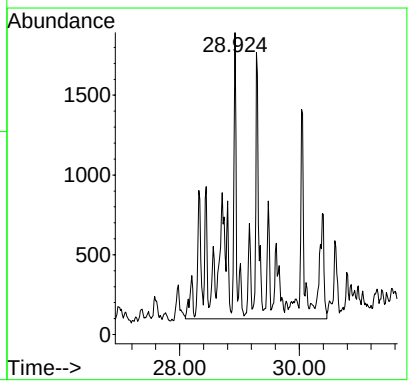
Tgt Ion:176 Resp: 45056

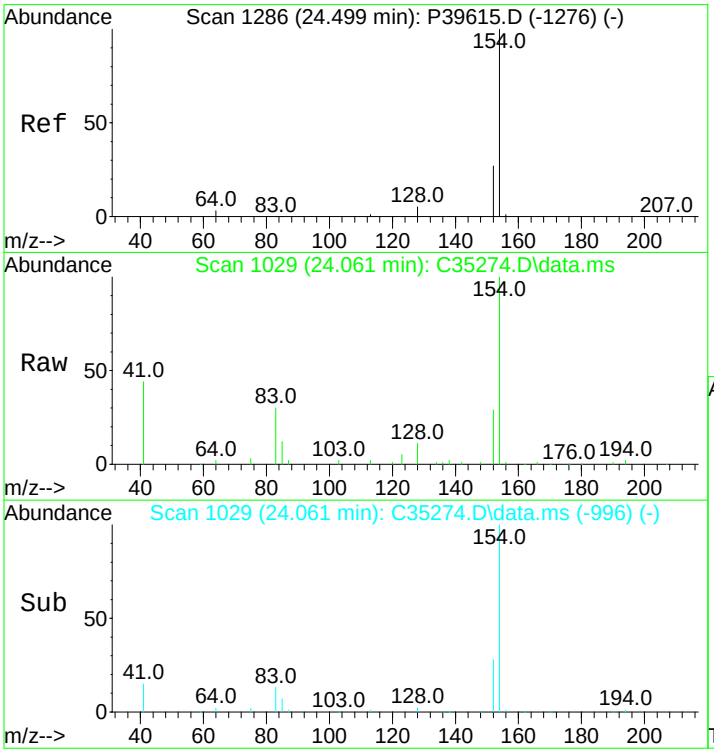




#22
C4-Benzo(b)thiophenes
Concen: 397.20 ng/mL m
RT: 28.924 min Scan# 1352
Delta R.T. 0.057 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:190 Resp: 40500

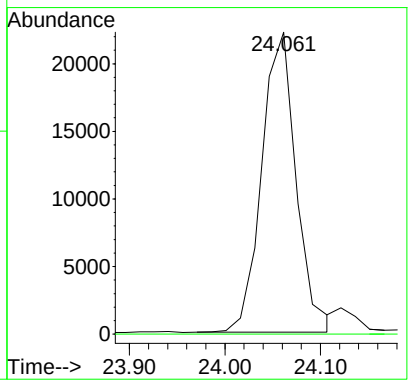


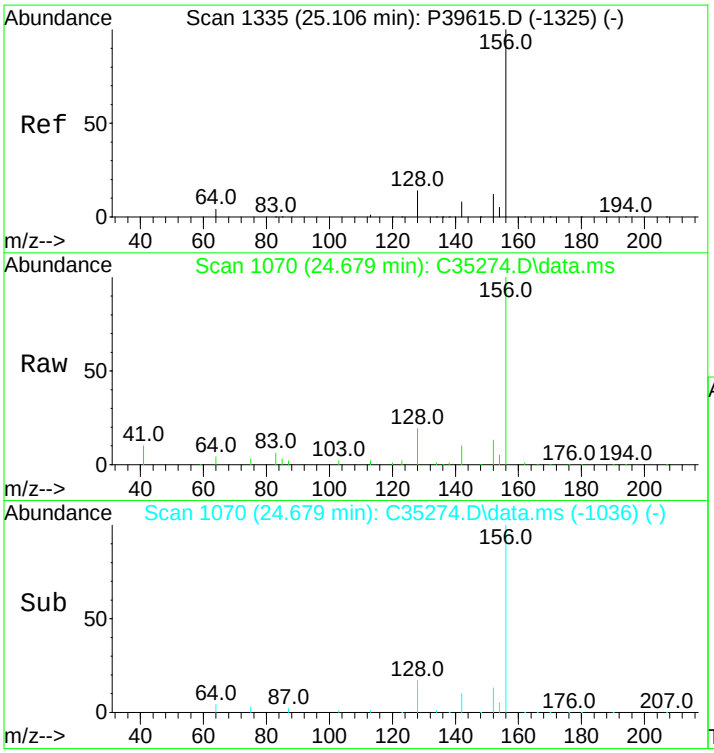


#23
Biphenyl
Concen: 654.80 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:154 Resp: 55493

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

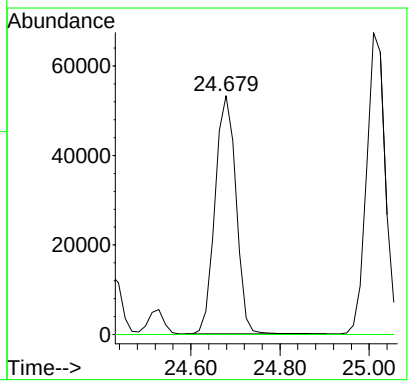


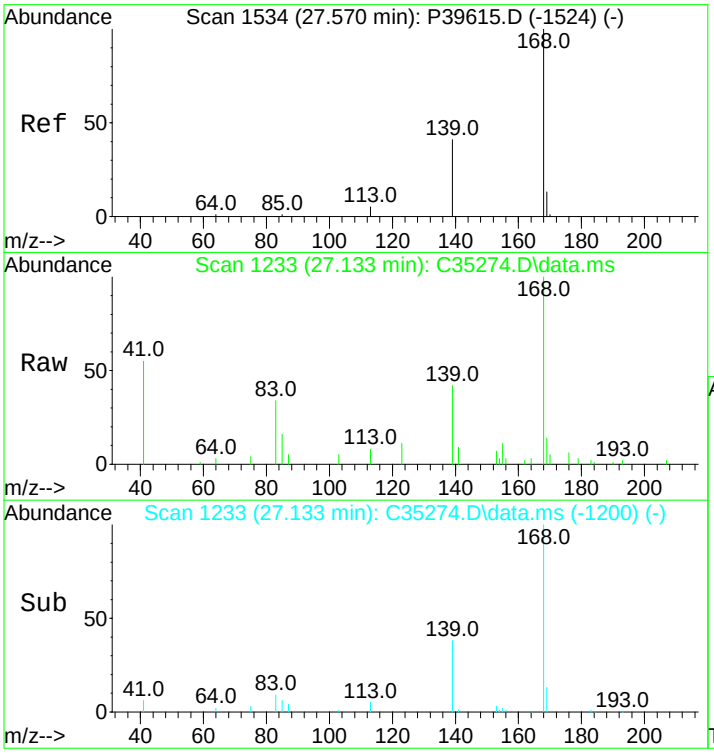


#24
2,6-Dimethylnaphthalene
Concen: 3162.70 ng/mL
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:156 Resp: 174086

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

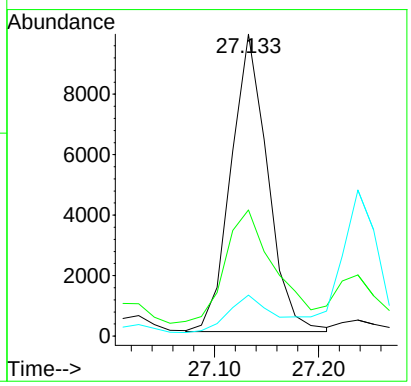


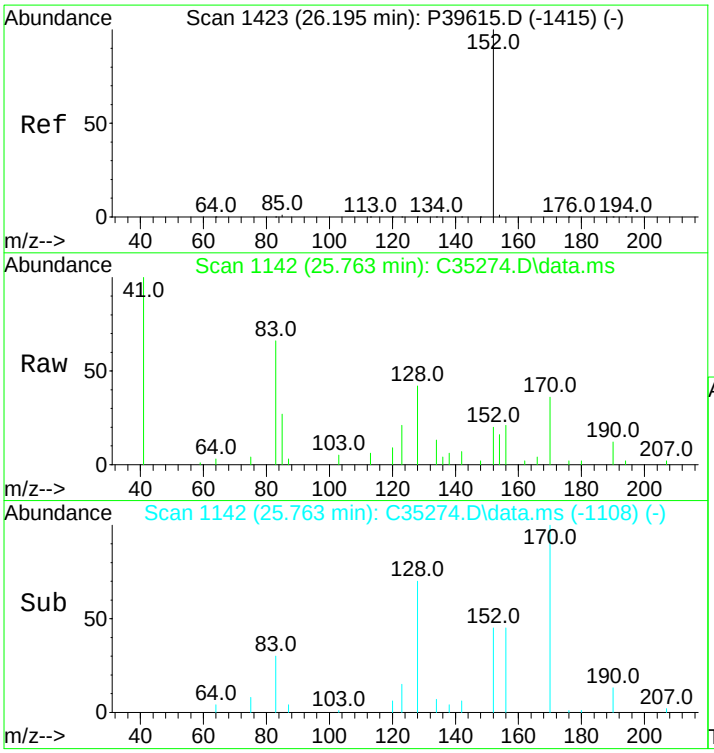


#25
Dibenzofuran
Concen: 248.17 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:168 Resp: 24151

Ion	Ratio	Lower	Upper
168	100		
139	50.9	29.9	44.9#
169	17.9	10.3	15.5#

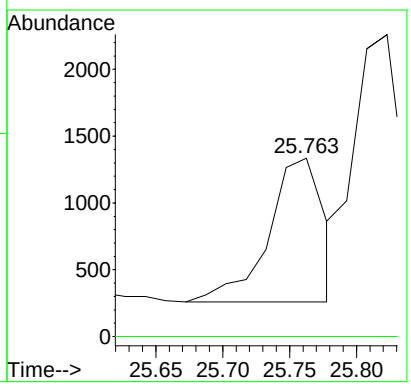


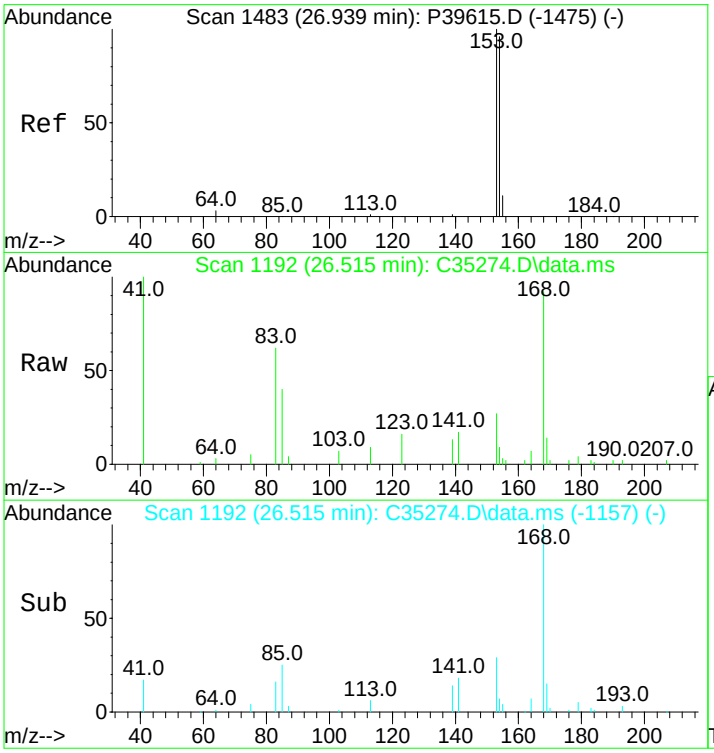


#26
Acenaphthylene
Concen: 27.53 ng/mL
RT: 25.763 min Scan# 1142
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:152 Resp: 3097

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

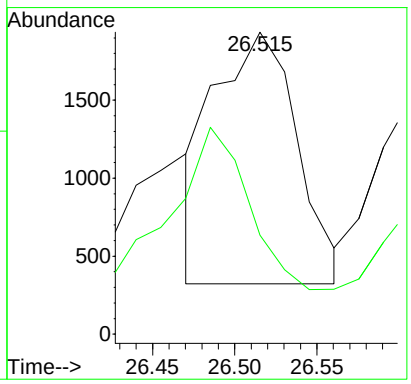


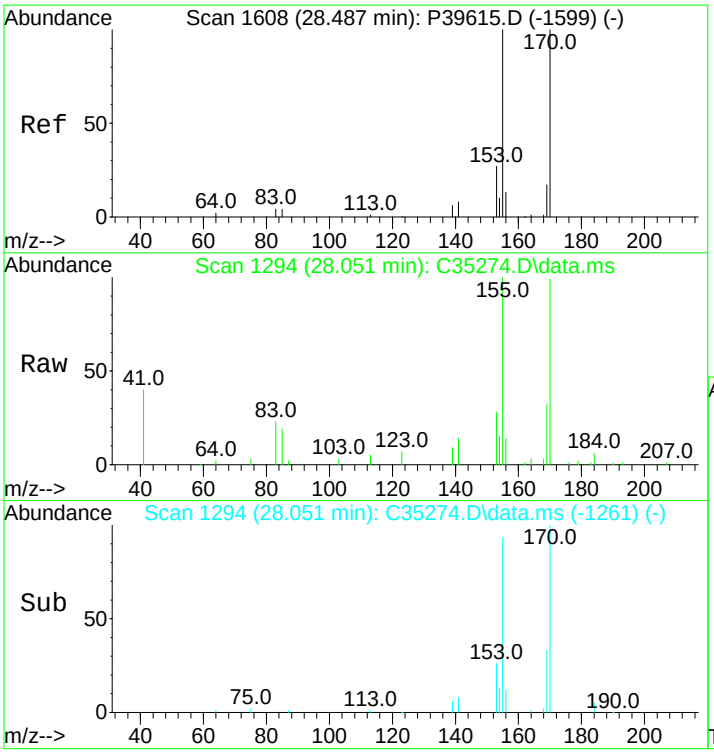


#27
Acenaphthene
Concen: 86.07 ng/mL m
RT: 26.515 min Scan# 1192
Delta R.T. 0.030 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:153 Resp: 5700

Ion	Ratio	Lower	Upper
153	100		
154	0.0	73.3	109.9#

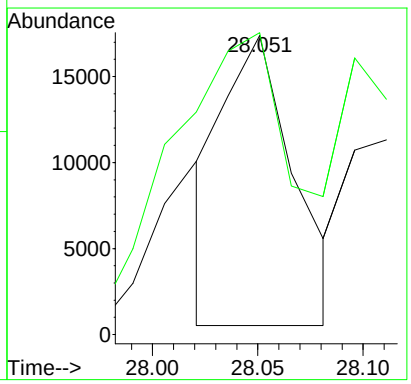


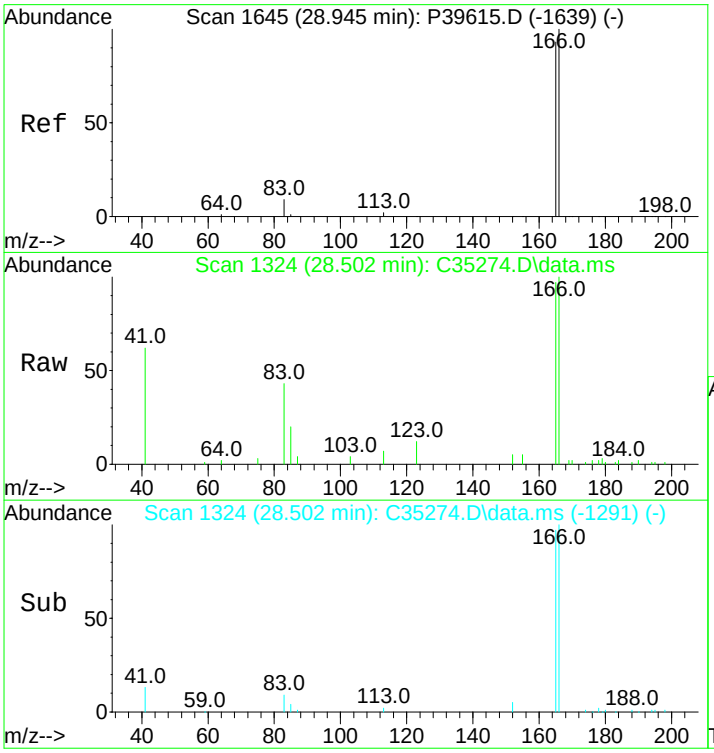


#28
2,3,5-Trimethylnaphthalene
Concen: 897.38 ng/mL m
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:170 Resp: 39818

Ion	Ratio	Lower	Upper
170	100		
155	136.5	78.4	117.6#

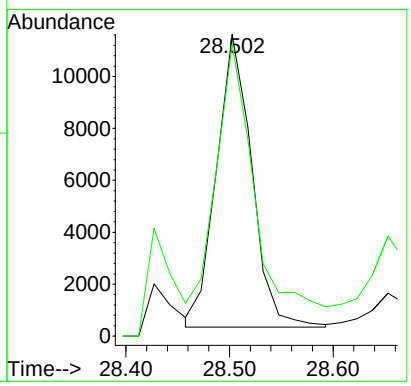


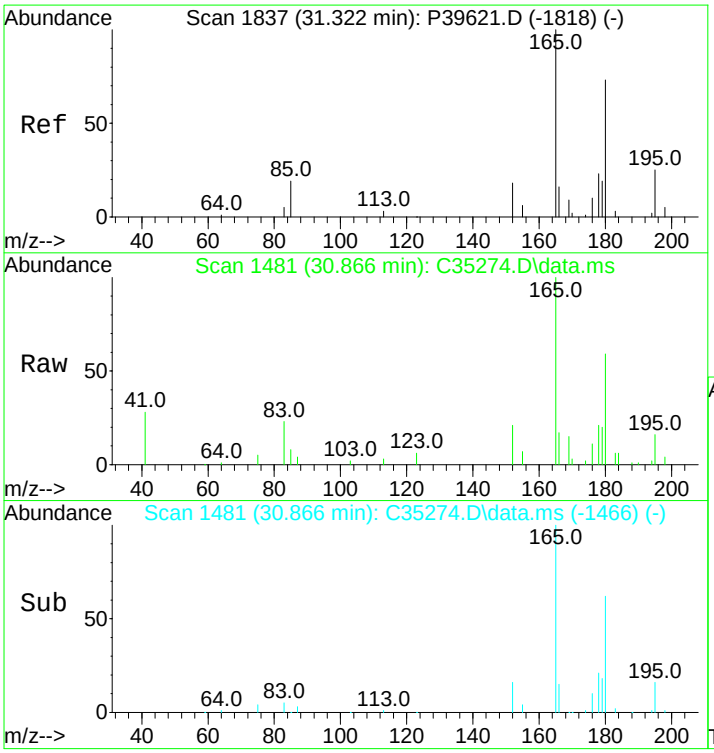


#29
Fluorene
Concen: 366.76 ng/mL m
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:166 Resp: 26788

Ion	Ratio	Lower	Upper
166	100		
165	113.9	77.1	115.7

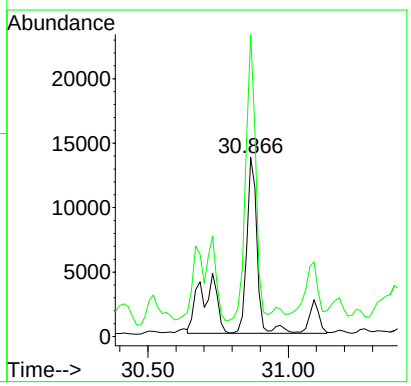


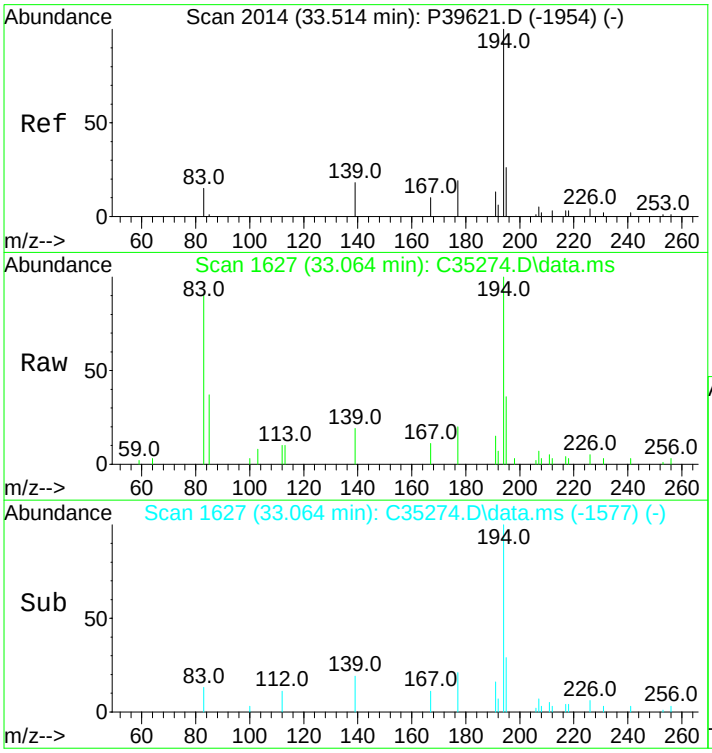


#30
C1-Fluorenes
Concen: 833.35 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:180 Resp: 60868

Ion	Ratio	Lower	Upper
180	100		
165	22.4	121.9	182.9#

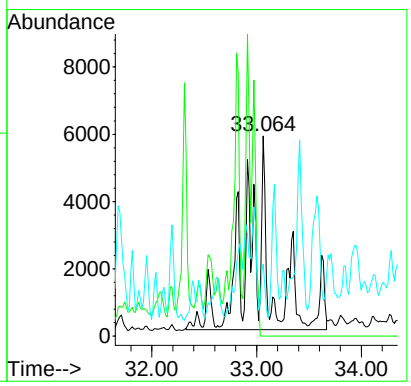


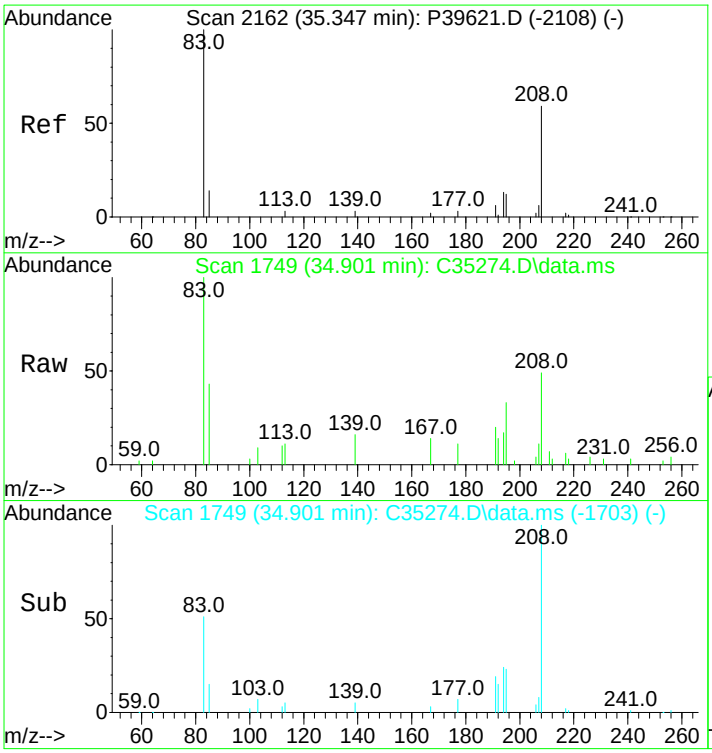


#31
C2-Fluorenes
Concen: 1187.58 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:194 Resp: 86741

Ion	Ratio	Lower	Upper
194	100		
179	26.2	0.0	0.0#
195	9.1	30.5	45.7#

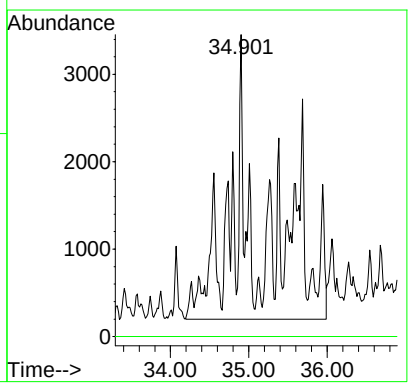


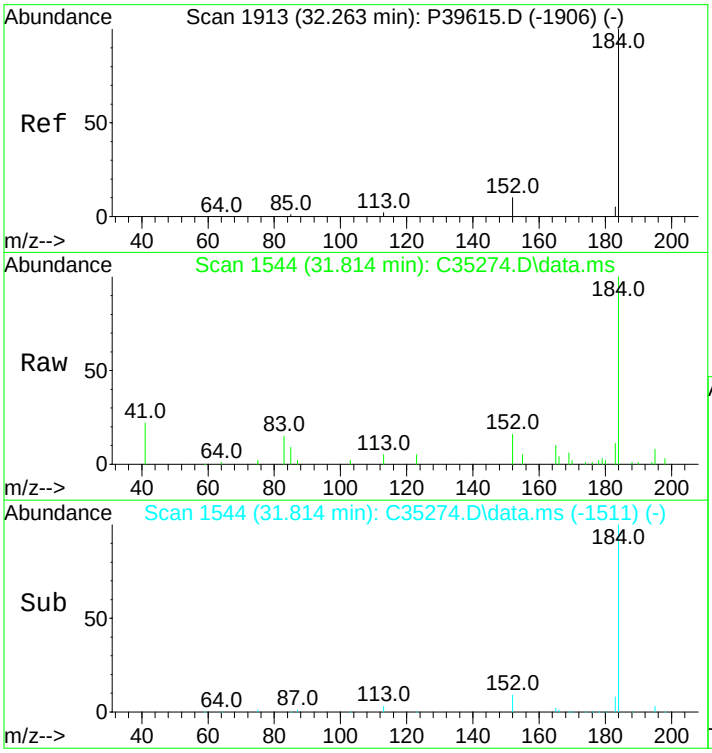


#32
C3-Fluorenes
Concen: 1154.76 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.157 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:208 Resp: 84344

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

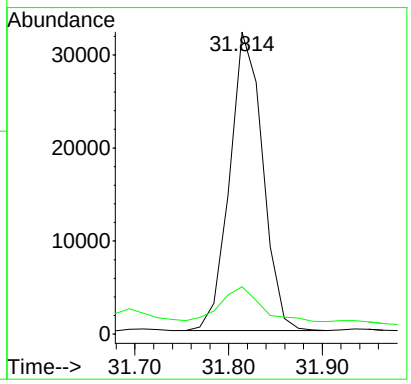


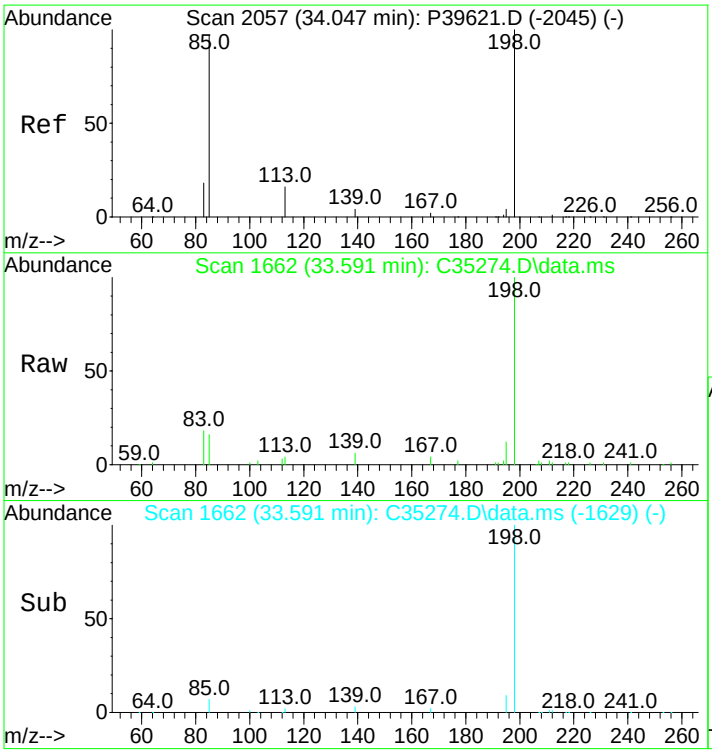


#33
Dibenzothiophene
Concen: 673.40 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:184 Resp: 78843

Ion	Ratio	Lower	Upper
184	100		
152	14.3	7.5	11.3#

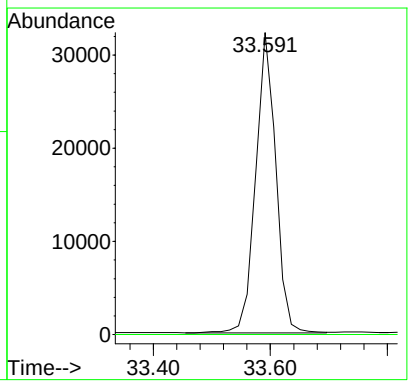


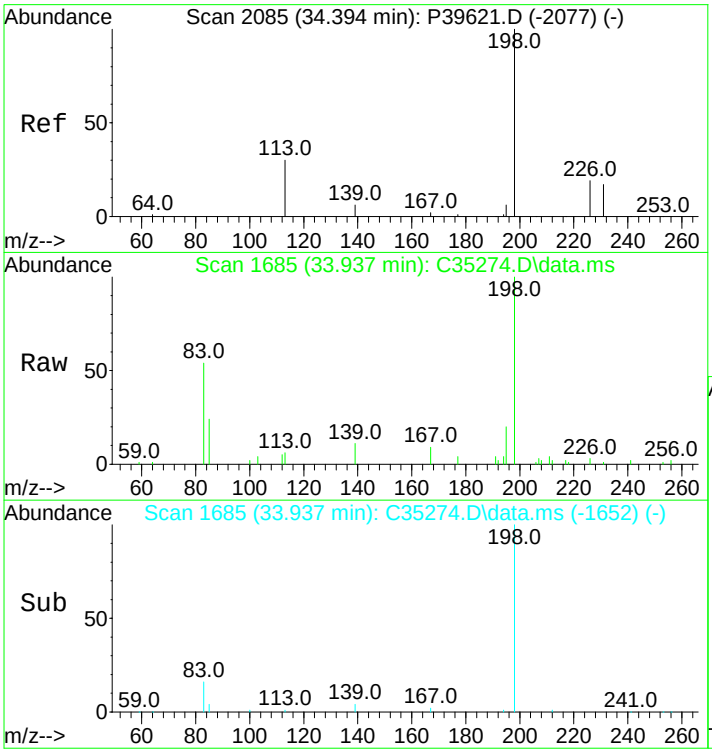


#34
4-Methyldibenzothiophene(4MDT)
Concen: 655.79 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:198 Resp: 76781

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

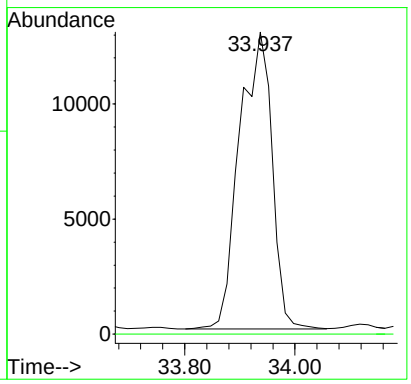


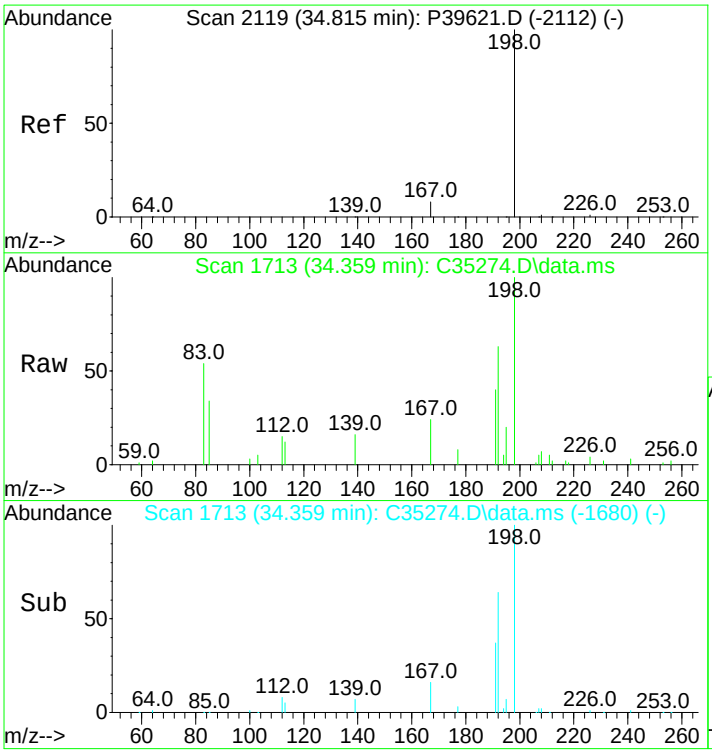


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 451.25 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:198 Resp: 52834

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

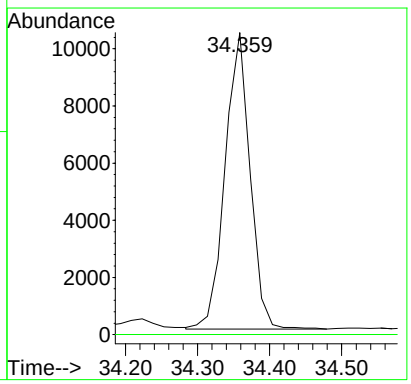


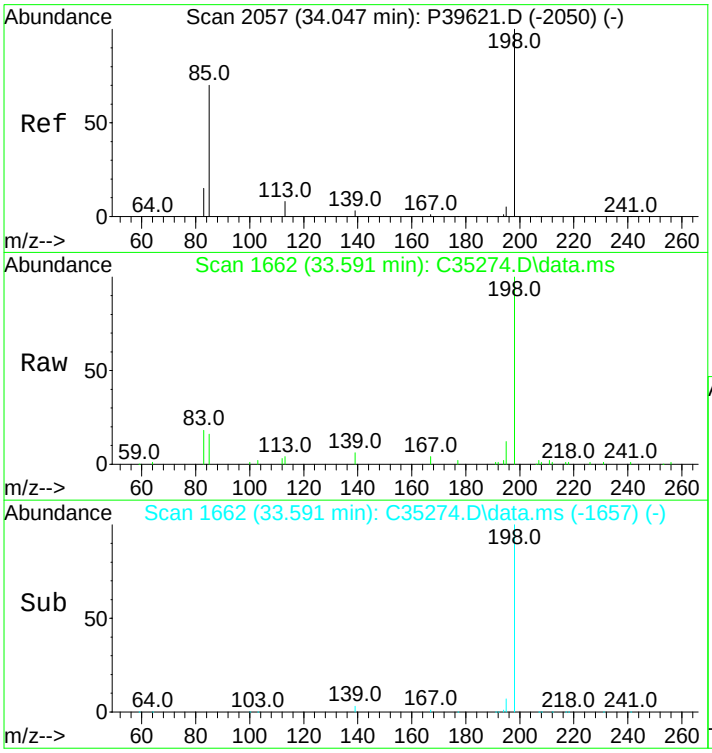


#36
1-Methyldibenzothiophene(1MDT)
Concen: 212.71 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:198 Resp: 24905

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

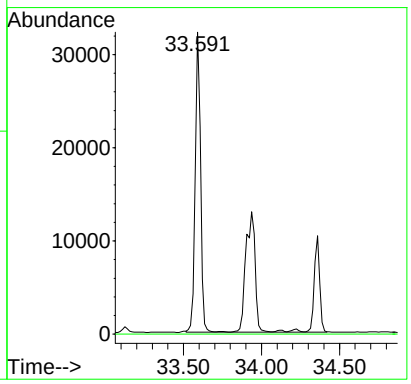


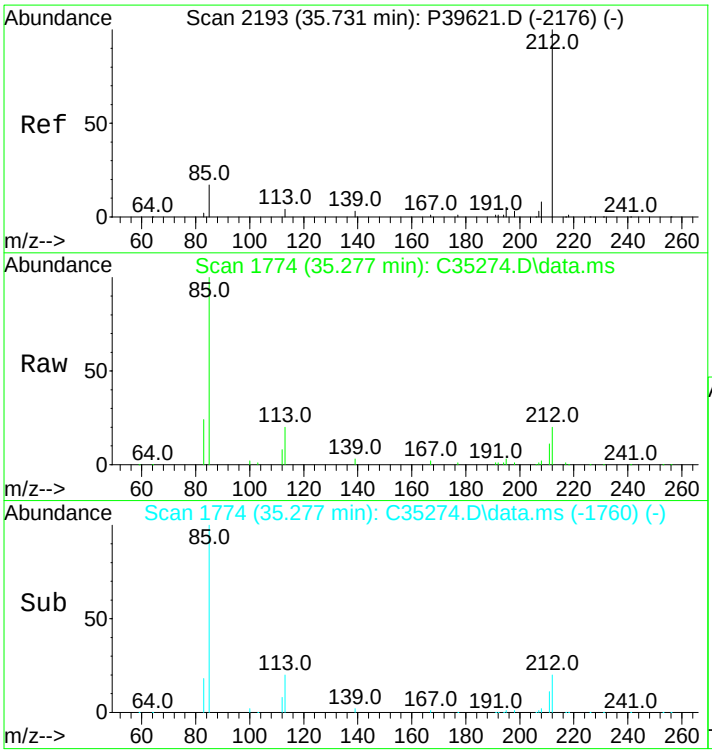


#38
C1-Dibenzothiophenes
Concen: 1333.53 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. -0.359 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:198 Resp: 156133

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

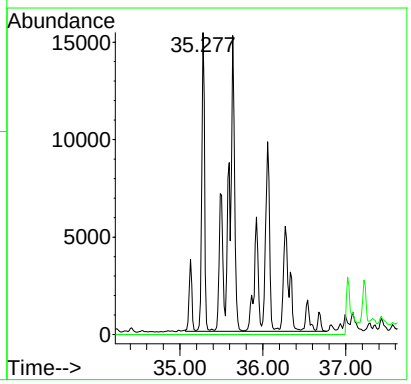


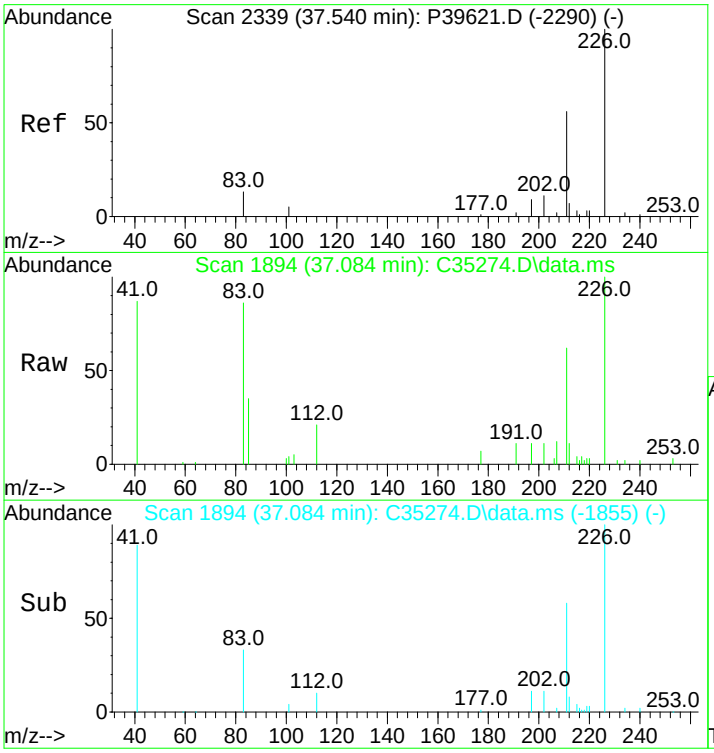


#39
C2-Dibenzothiophenes
Concen: 1833.35 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:212 Resp: 214653

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

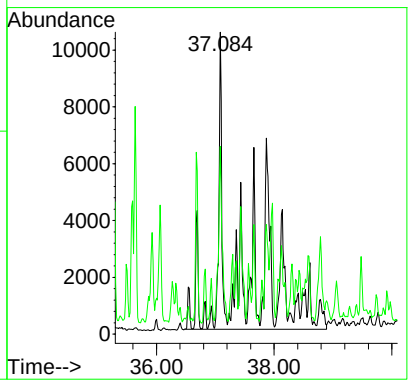


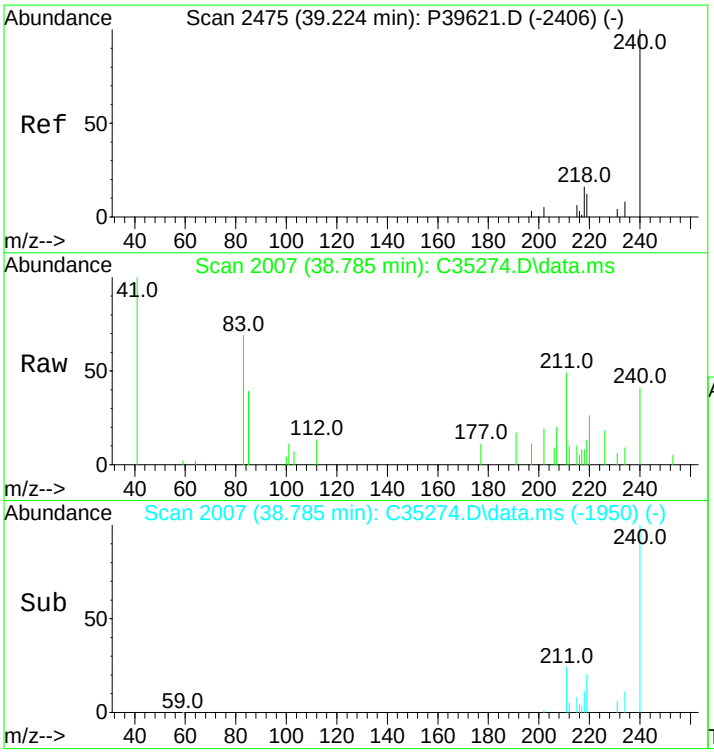


#40
C3-Dibenzothiophenes
Concen: 1645.55 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:226 Resp: 192665

Ion	Ratio	Lower	Upper
226	100		
211	2.1	51.4	77.2#

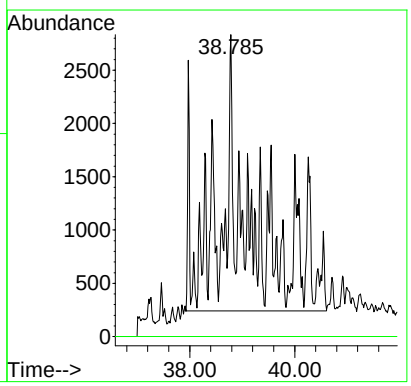


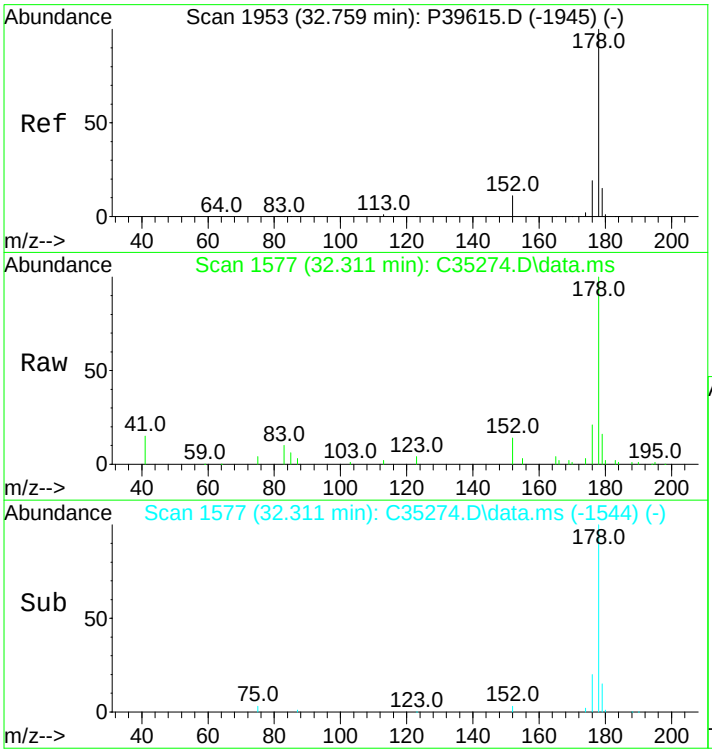


#41
C4-Dibenzothiophenes
Concen: 877.21 ng/mL m
RT: 38.785 min Scan# 2007
Delta R.T. 0.153 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:240 Resp: 102706

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

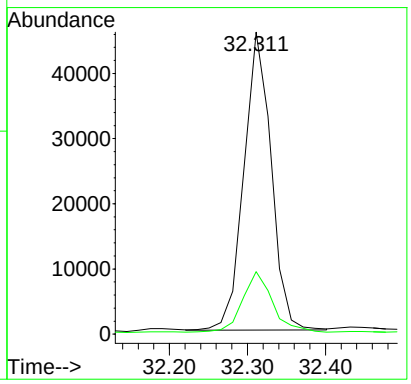


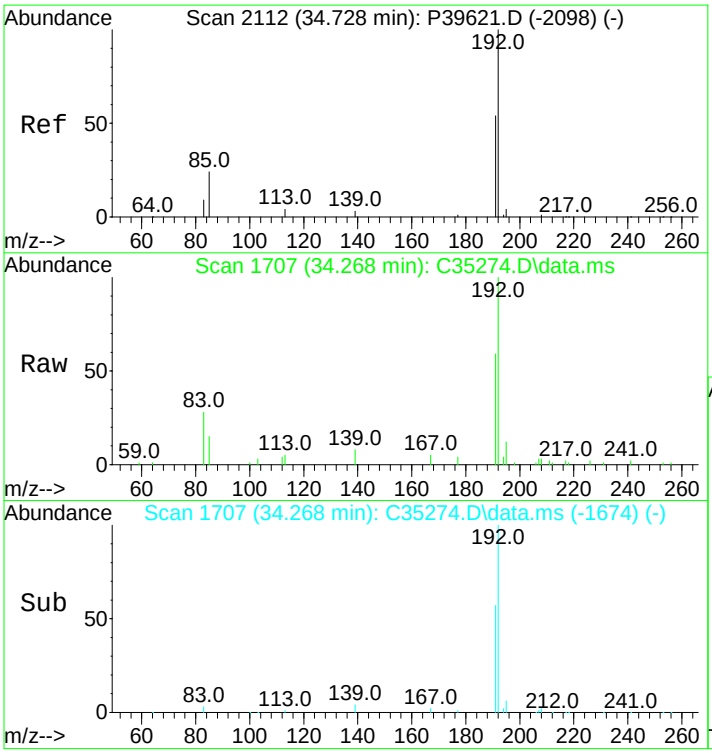


#43
Phenanthrene
Concen: 1082.44 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:178 Resp: 111347

Ion	Ratio	Lower	Upper
178	100		
176	21.9	15.8	23.6

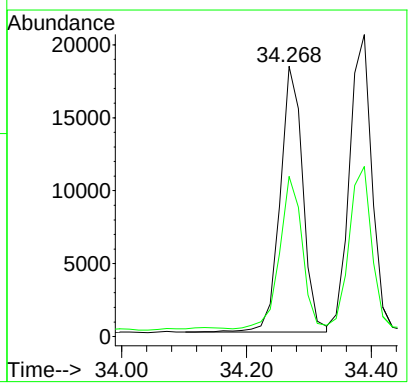


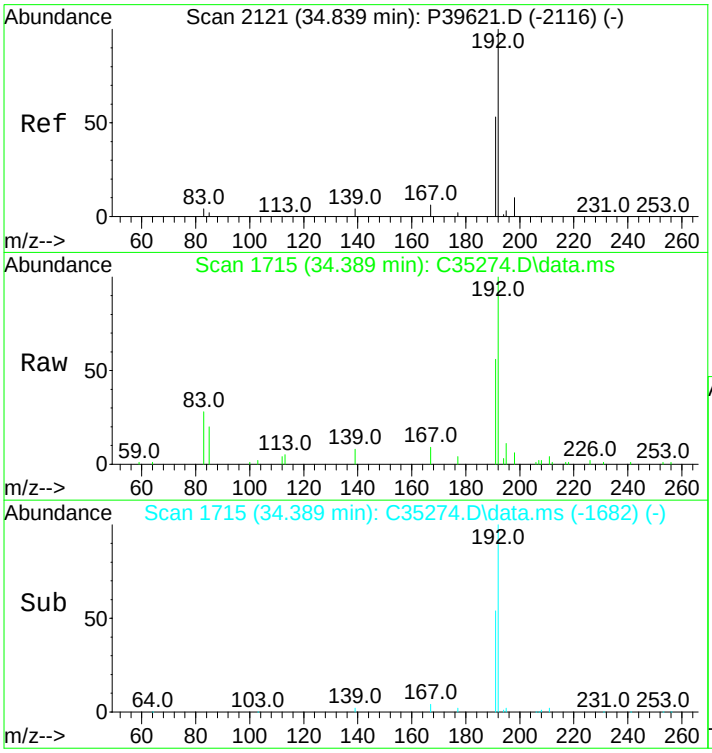


#44
3-Methylphenanthrene(3MP)
Concen: 444.34 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 45708

Ion	Ratio	Lower	Upper
192	100		
191	57.3	47.4	71.0

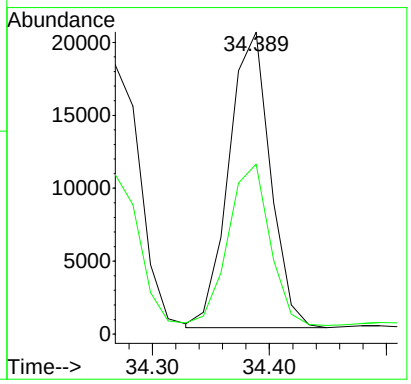


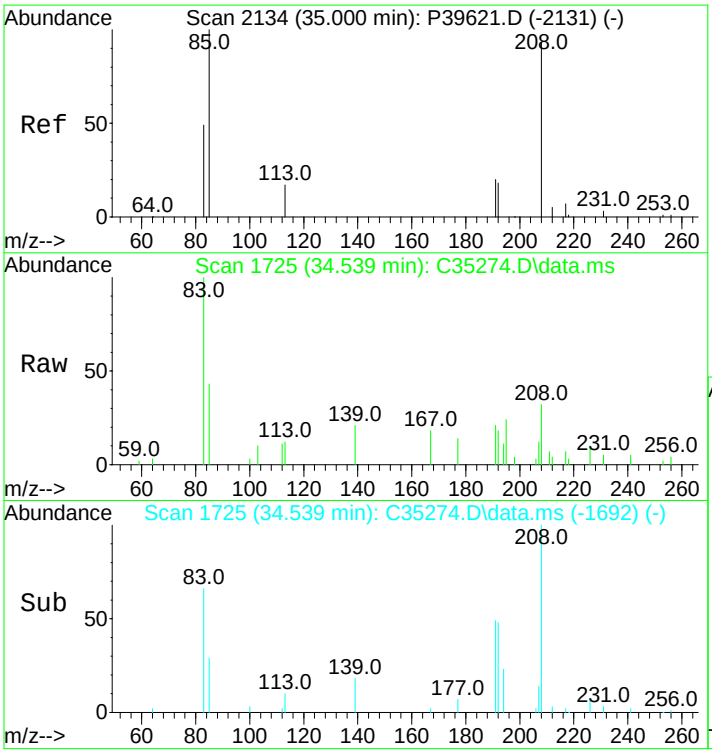


#45
2-Methylphenanthrene(2MP)
Concen: 486.11 ng/mL
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 50005

Ion	Ratio	Lower	Upper
192	100		
191	54.8	45.0	67.6

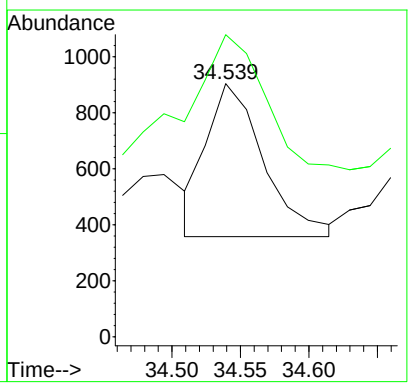


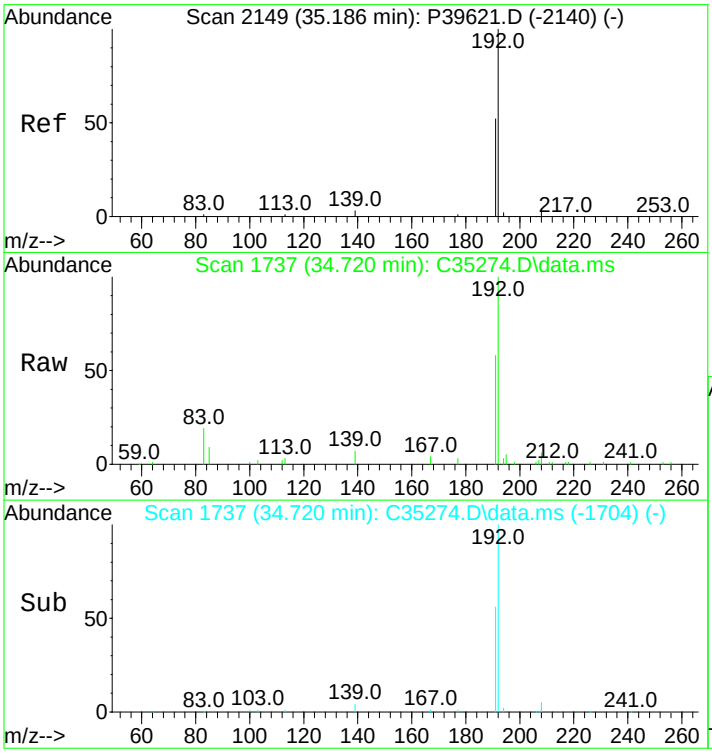


#46
2-Methylanthracene(2MA)
Concen: 15.51 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 1595

Ion	Ratio	Lower	Upper
192	100		
191	121.7	95.5	143.3

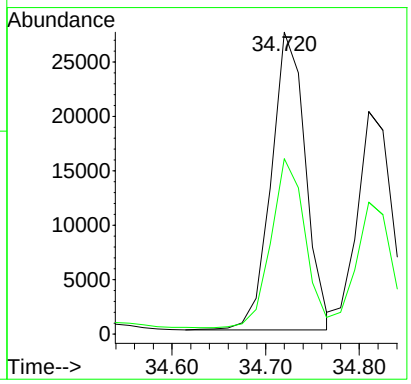


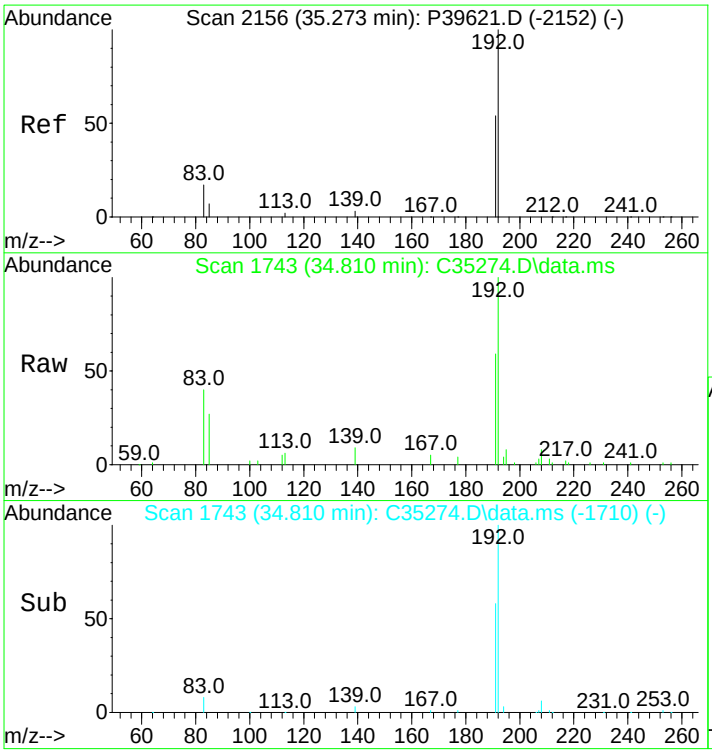


#47
9/4-Methylphenanthrene(9MP)
Concen: 675.67 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 69504

Ion	Ratio	Lower	Upper
192	100		
191	56.2	46.5	69.7

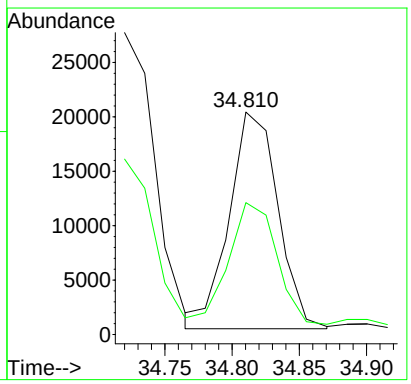


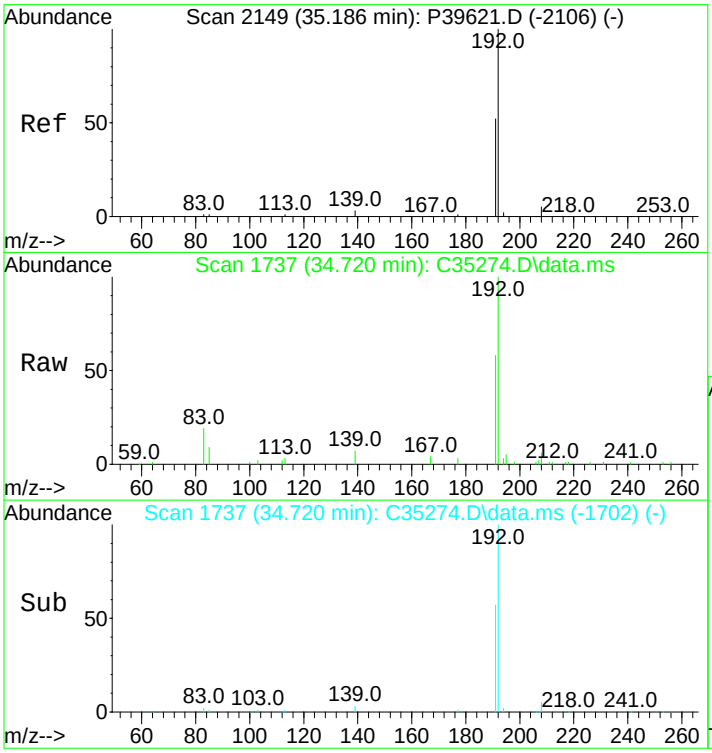


#48
1-Methylphenanthrene(1MP)
Concen: 490.45 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 50451

Ion	Ratio	Lower	Upper
192	100		
191	56.6	47.4	71.2

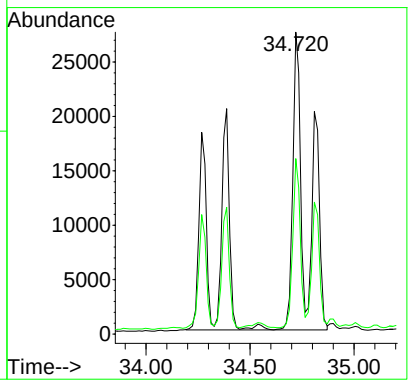


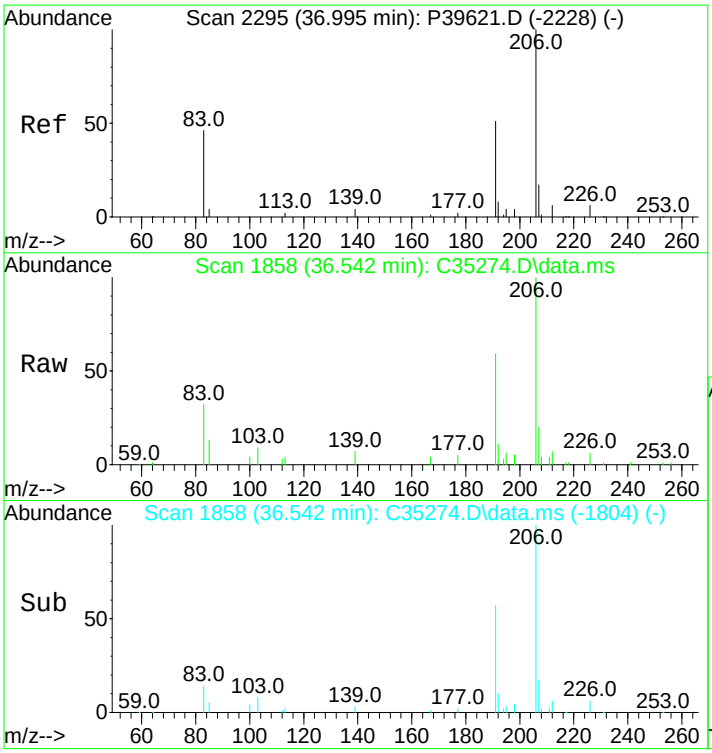


#49
C1-Phenanthrenes/Anthracenes
Concen: 2121.62 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.140 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 218245

Ion	Ratio	Lower	Upper
192	100		
191	17.9	45.3	67.9#

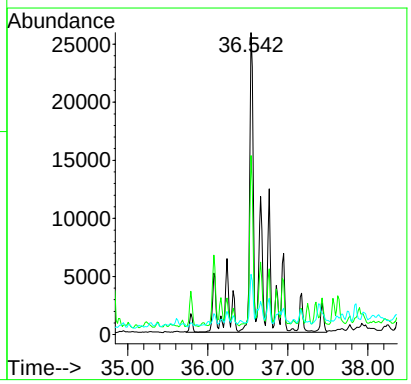


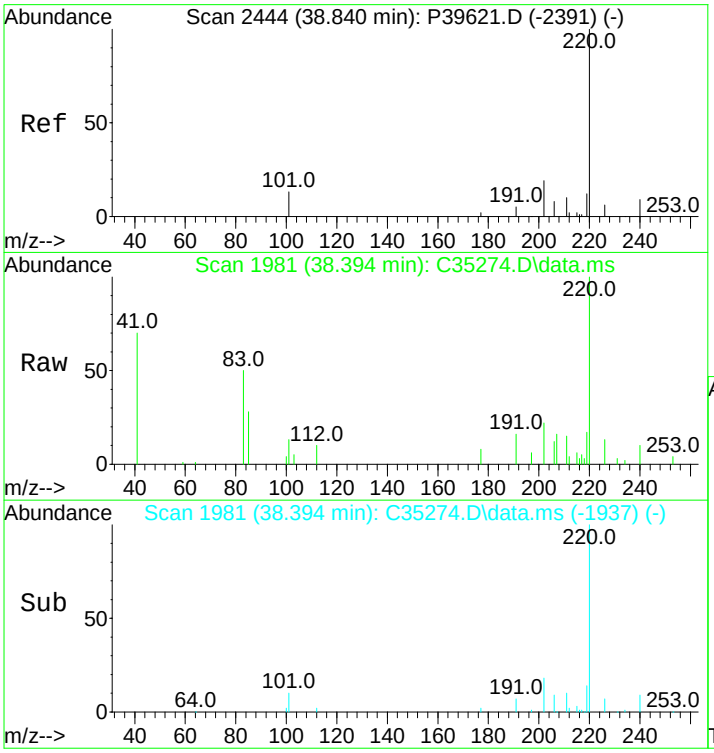


#50
C2-Phenanthrenes/Anthracenes
Concen: 2261.82 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:206 Resp: 232666

Ion	Ratio	Lower	Upper
206	100		
191	1.6	42.0	63.0#
207	0.6	15.4	23.2#

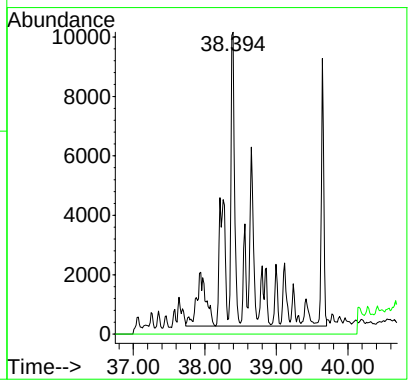


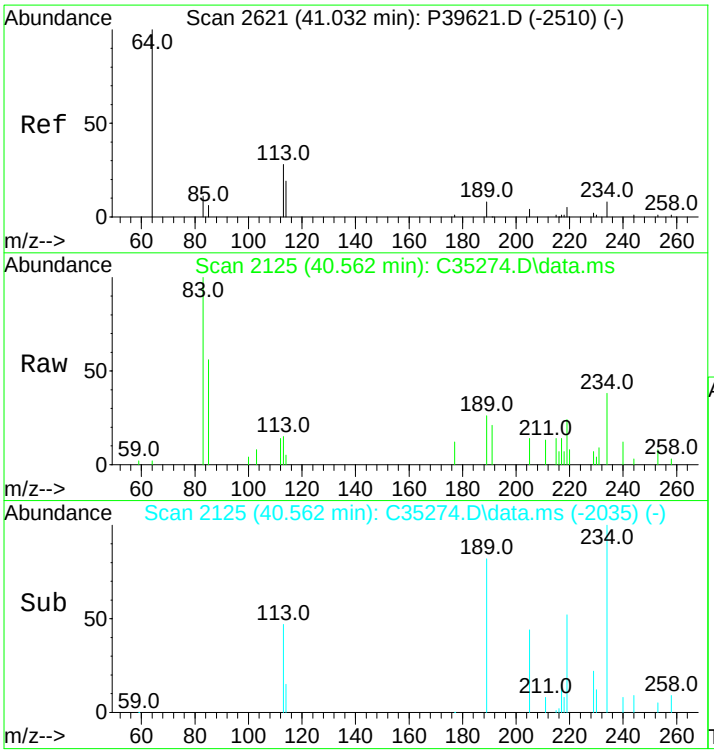


#52
C3-Phenanthrenes/Anthracenes
Concen: 1529.12 ng/mL m
RT: 38.394 min Scan# 1981
Delta R.T. 0.231 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:220 Resp: 157296

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

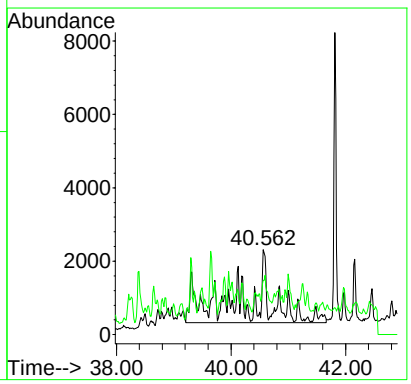


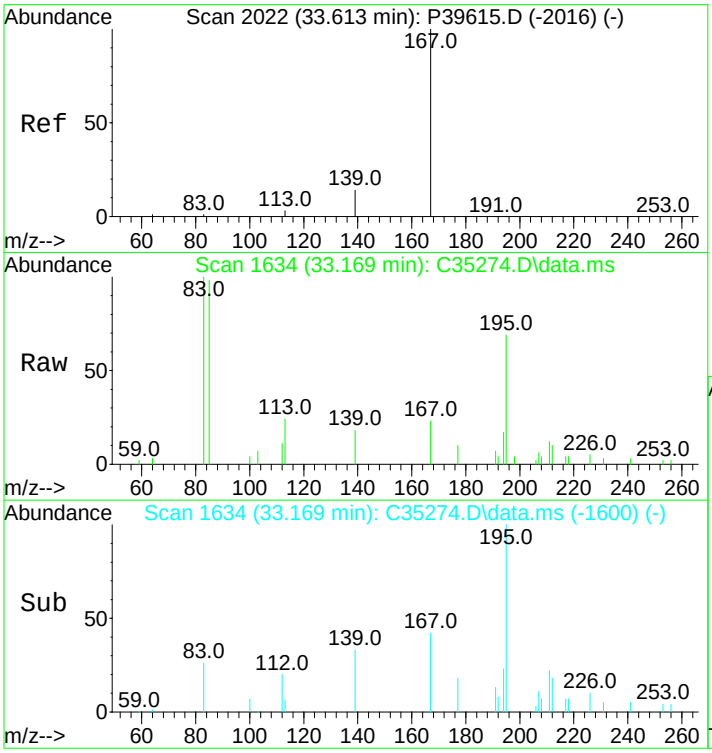


#53
C4-Phenanthrenes/Anthracenes
Concen: 629.05 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 0.267 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:234 Resp: 64708

Ion	Ratio	Lower	Upper
234	100		
219	3.2	48.6	73.0#

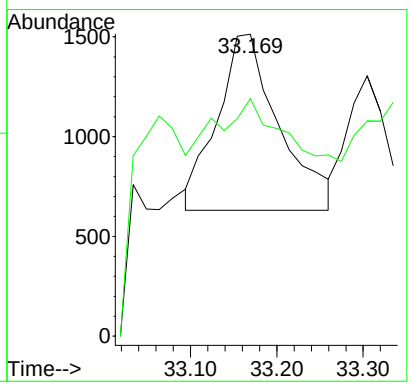


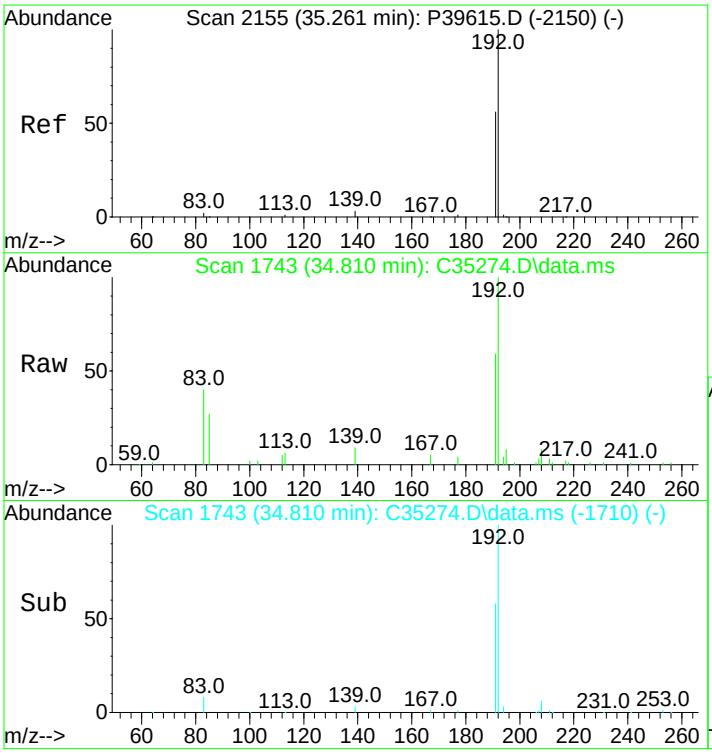


#56
Carbazole
Concen: 43.29 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:167 Resp: 4394

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

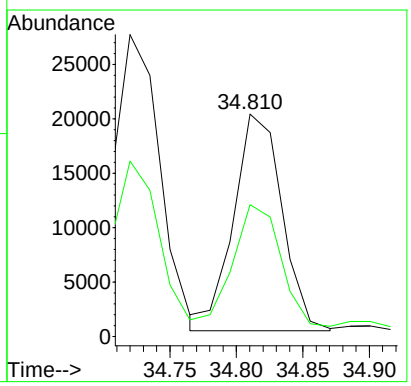


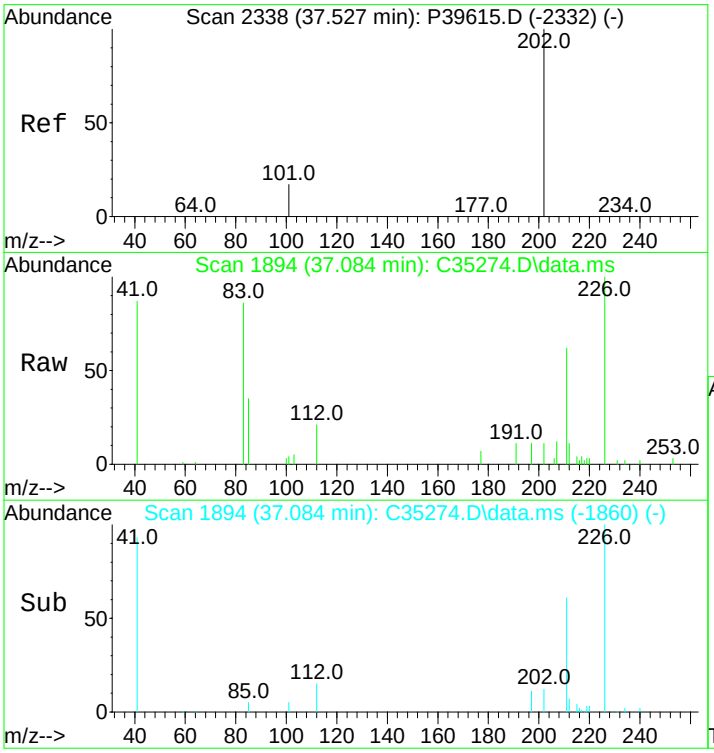


#57
1-Methylphenanthrene
Concen: 773.25 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:192 Resp: 50407

Ion	Ratio	Lower	Upper
192	100		
191	56.6	46.8	70.2

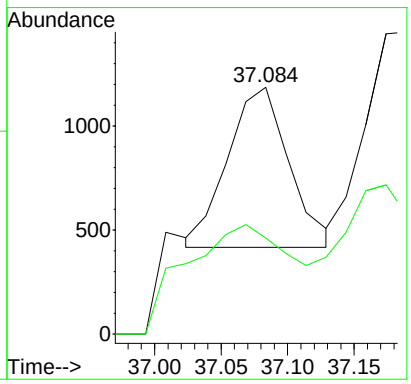


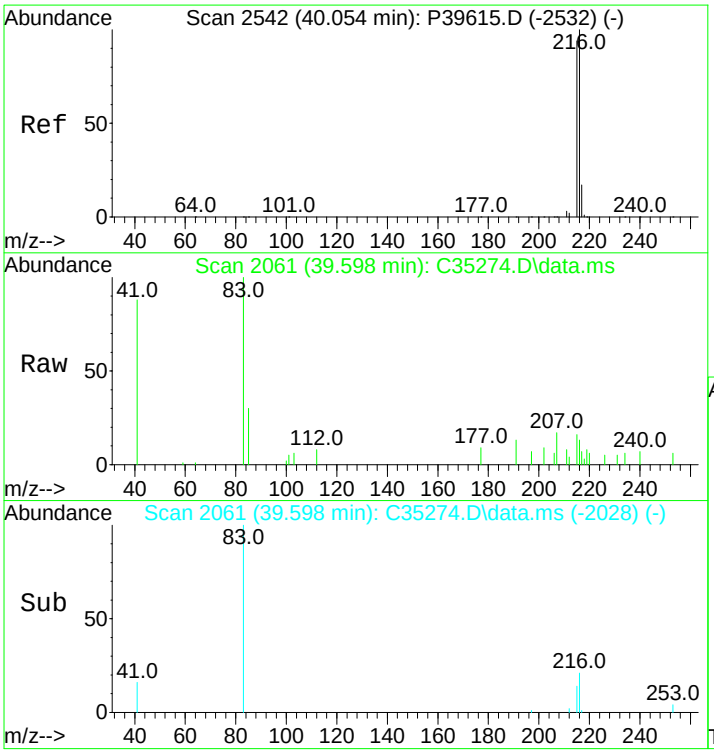


#58
Fluoranthene
Concen: 24.14 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:202 Resp: 2466

Ion	Ratio	Lower	Upper
202	100		
101	117.8	13.2	19.8#

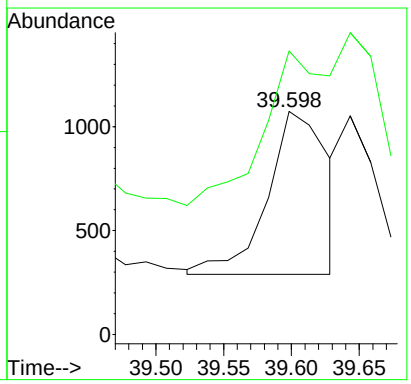


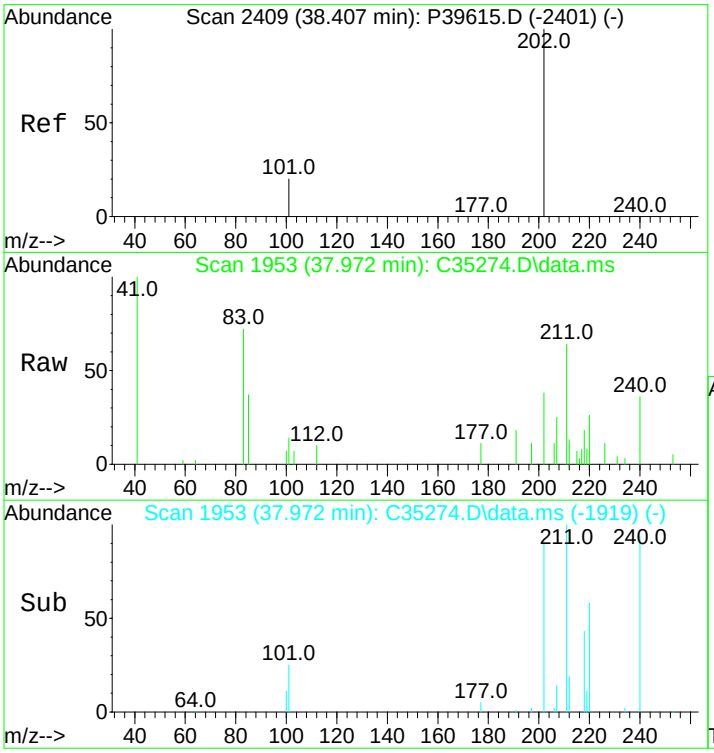


#59
Benzo(b)fluorene
Concen: 41.01 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:216 Resp: 2431

Ion	Ratio	Lower	Upper
216	100		
215	459.1	76.0	114.0#

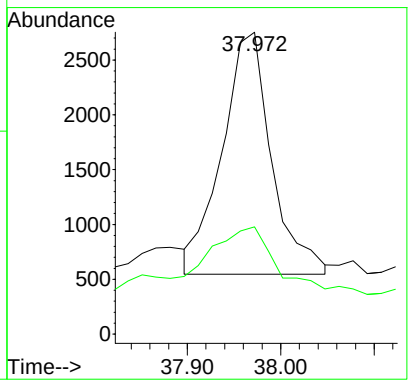


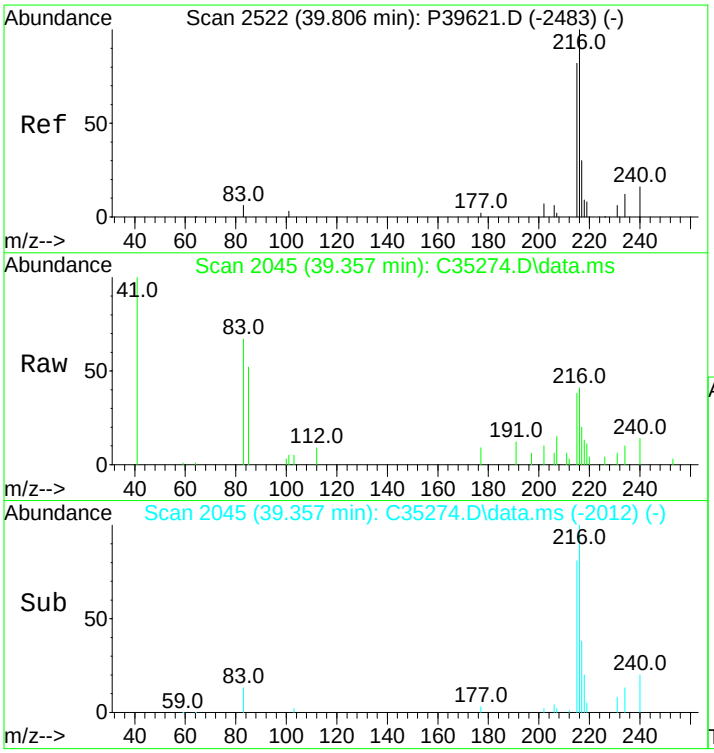


#60
Pyrene
Concen: 78.12 ng/mL m
RT: 37.972 min Scan# 1953
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:202 Resp: 8113

Ion	Ratio	Lower	Upper
202	100		
101	39.2	13.5	20.3#

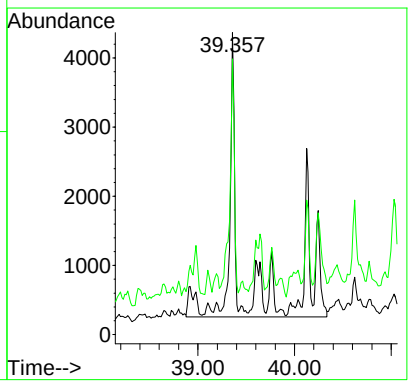


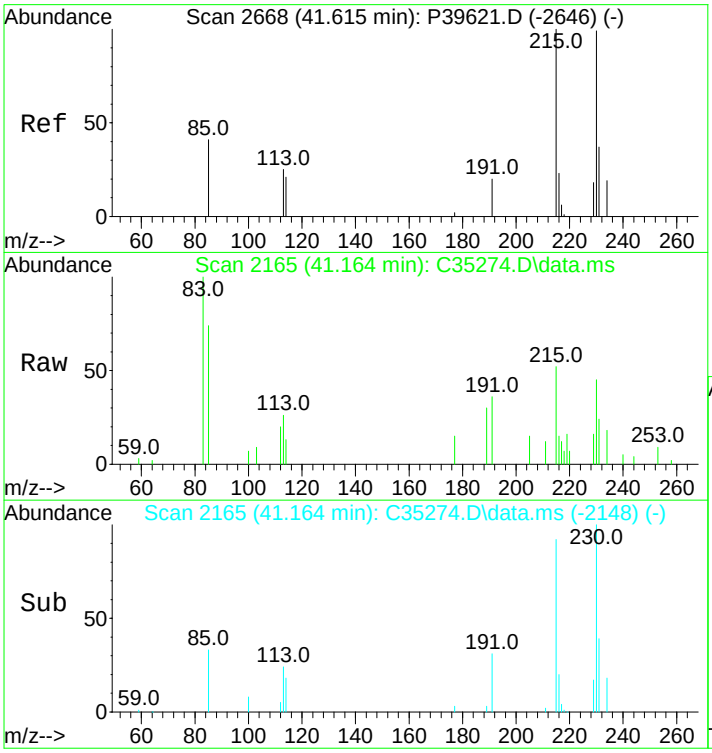


#61
C1-Fluoranthenes/Pyrenes
Concen: 352.67 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:216 Resp: 36626

Ion	Ratio	Lower	Upper
216	100		
215	30.5	77.7	116.5#

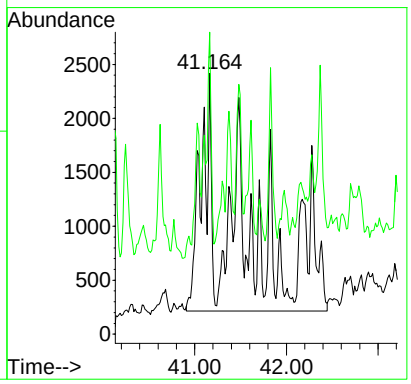


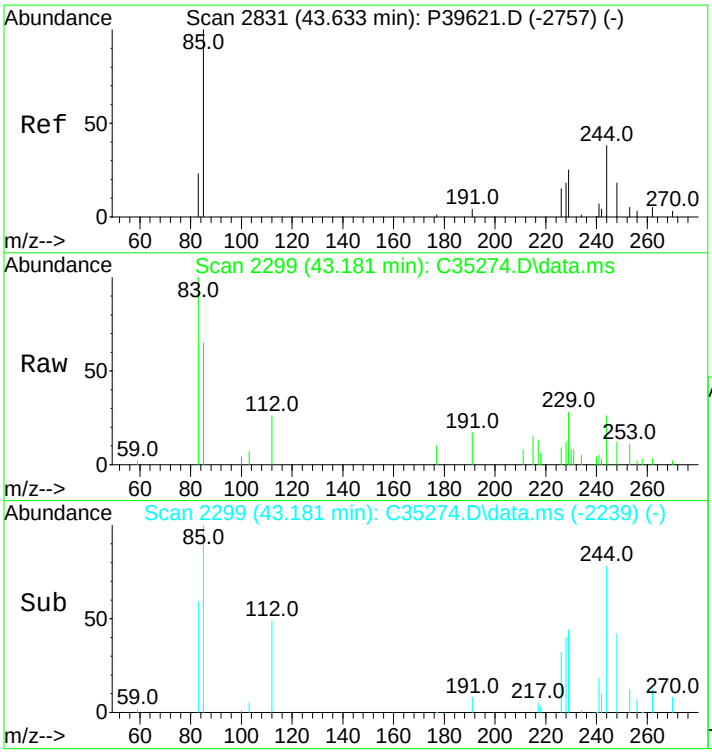


#62
C2-Fluoranthenes/Pyrenes
Concen: 574.56 ng/mL m
RT: 41.164 min Scan# 2165
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:230 Resp: 59669

Ion	Ratio	Lower	Upper
230	100		
215	3.4	92.7	139.1#

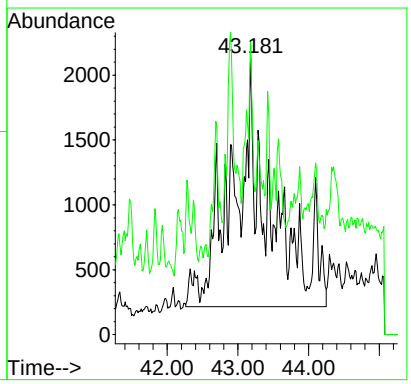


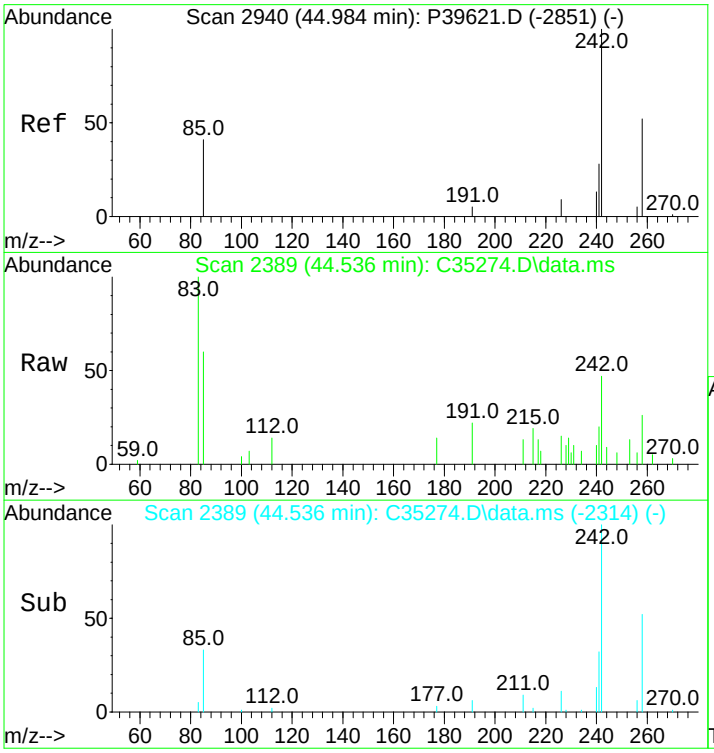


#63
C3-Fluoranthenes/Pyrenes
Concen: 668.85 ng/mL m
RT: 43.181 min Scan# 2299
Delta R.T. 0.312 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:244 Resp: 69462

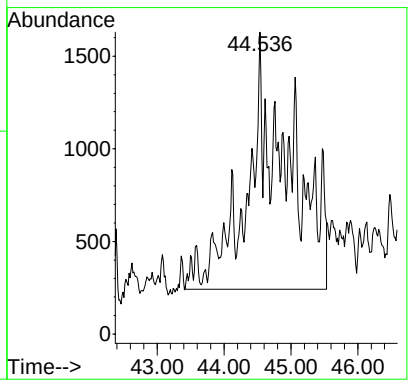
Ion	Ratio	Lower	Upper
244	100		
229	11.6	78.7	118.1#

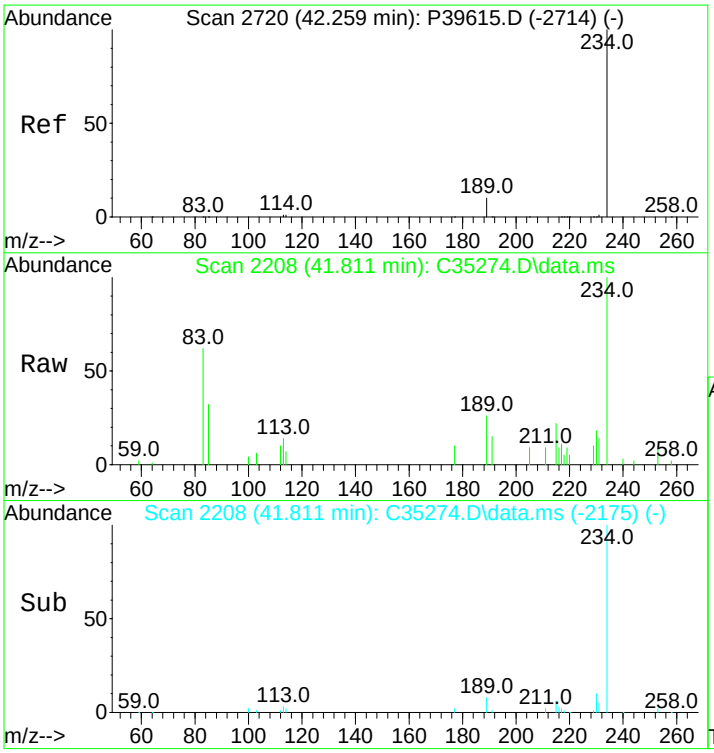




#64
C4-Fluoranthenes/Pyrenes
Concen: 563.10 ng/mL m
RT: 44.536 min Scan# 2389
Delta R.T. 0.335 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:258 Resp: 58479

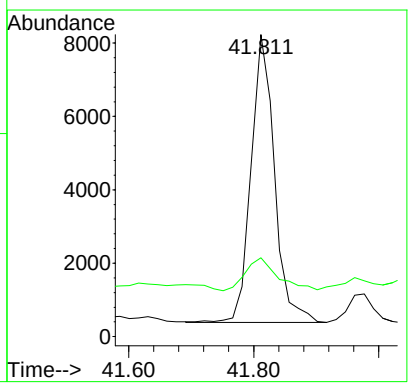


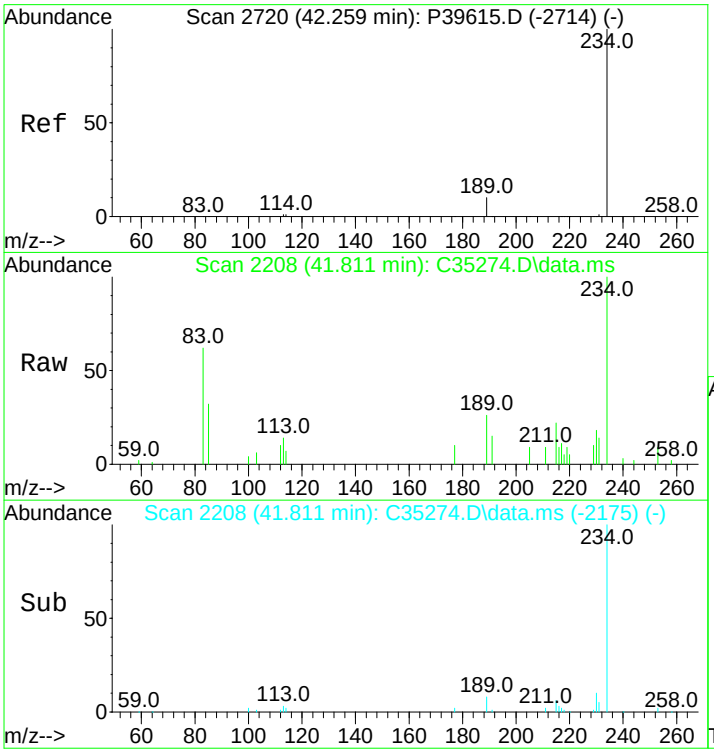


#66
Naphthobenzothiophene
Concen: 182.71 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:234 Resp: 20428

Ion	Ratio	Lower	Upper
234	100		
189	15.7	20.9	31.3#

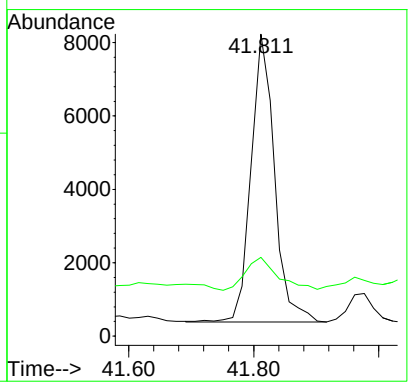


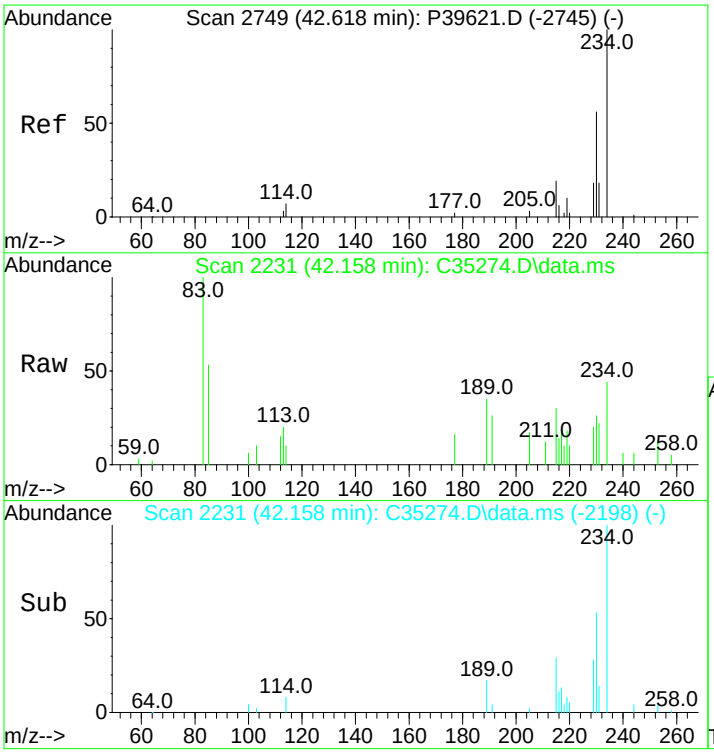


#67
Naphthobenzothiophene-2,1-D
Concen: 182.71 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:234 Resp: 20428

Ion	Ratio	Lower	Upper
234	100		
189	15.7	20.9	31.3#

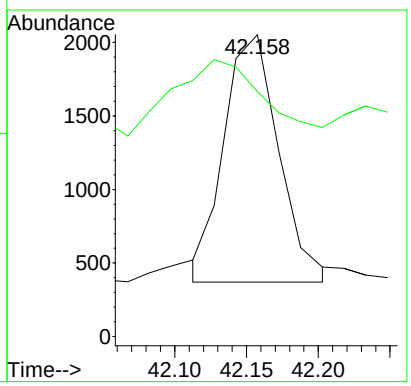


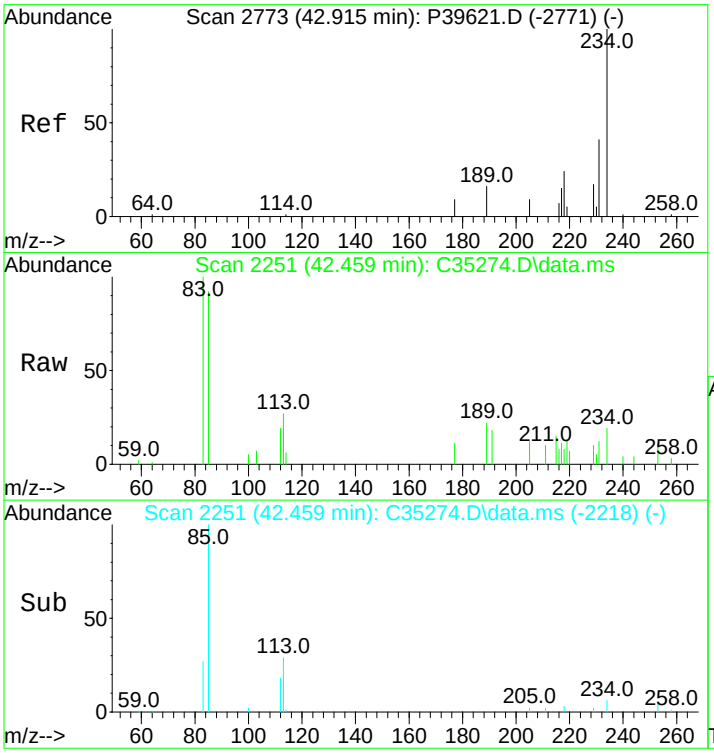


#68
Naphthobenzothiophene-1,2-D
Concen: 39.88 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:234 Resp: 4459

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

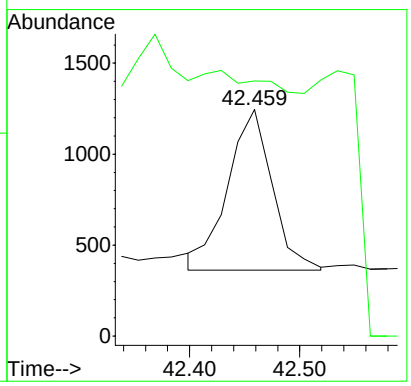


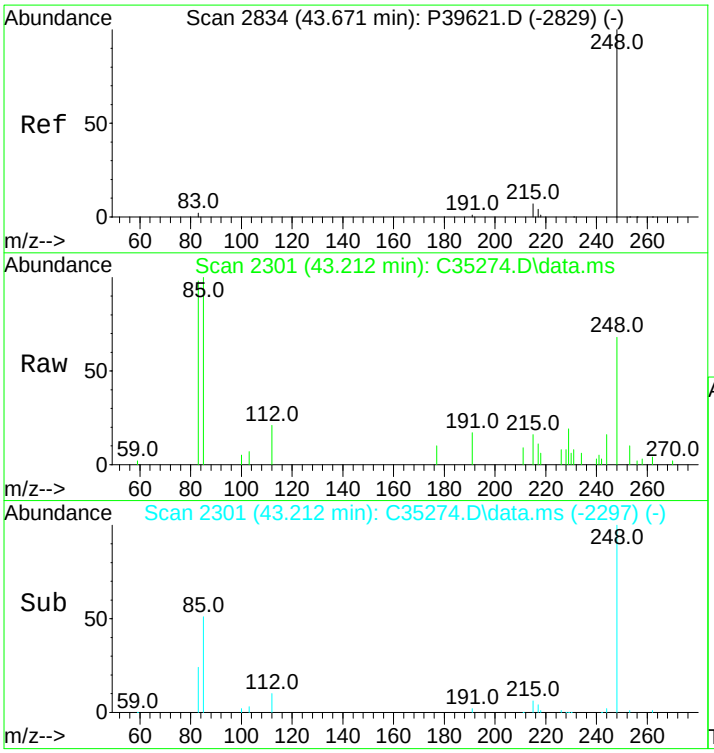


#69
Naphthobenzothiophene-2,3-D
Concen: 22.17 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:234 Resp: 2479

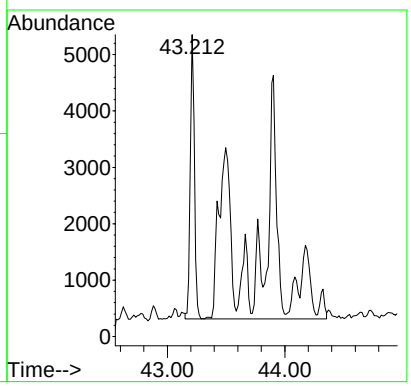
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

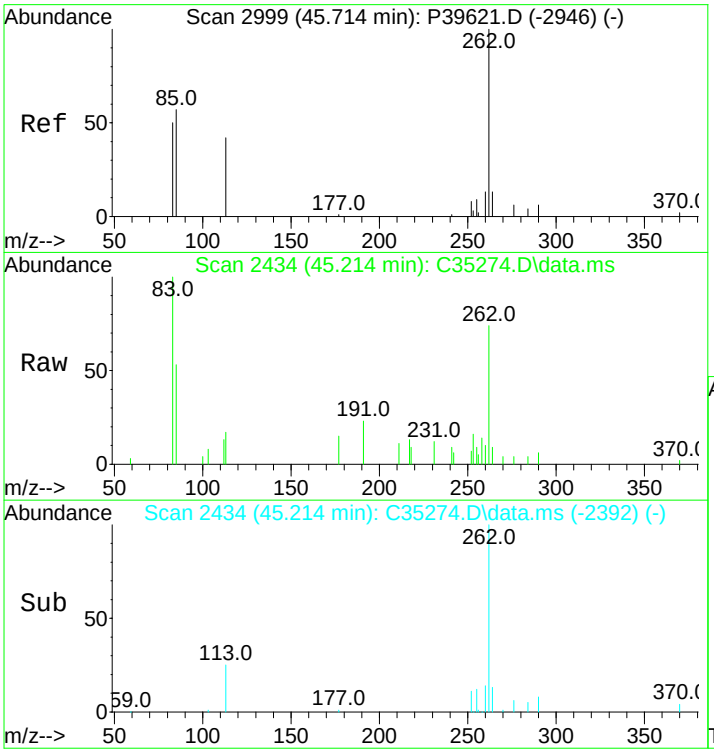




#70
C1-Naphthobenzothiophenes
Concen: 640.10 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

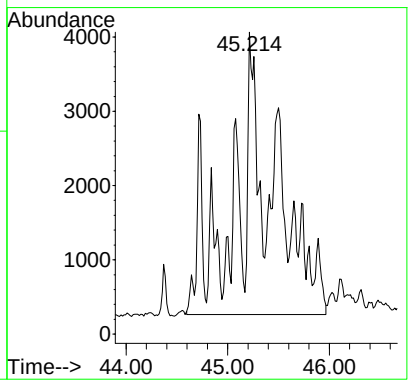
Tgt Ion:248 Resp: 71567

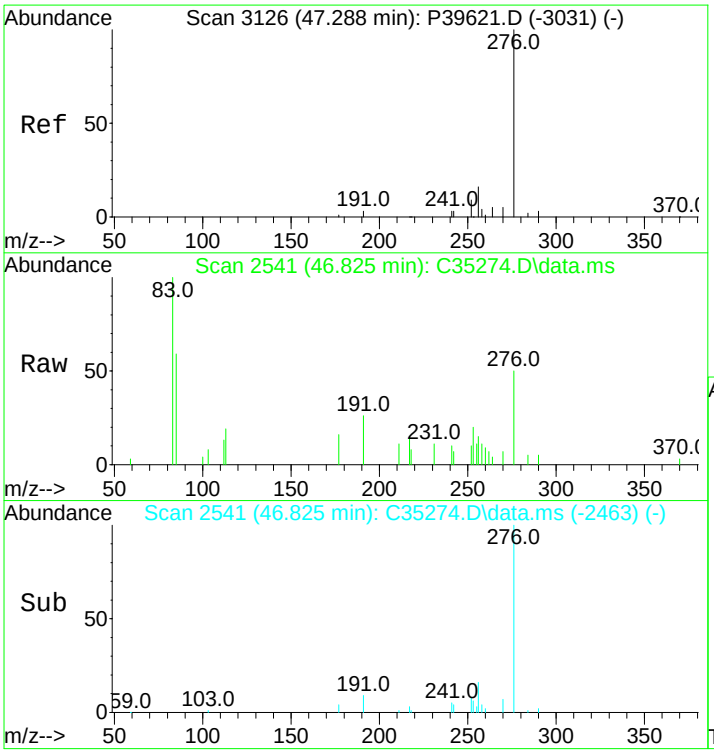




#71
C2-Naphthobenzothiophenes
Concen: 896.79 ng/ml m
RT: 45.214 min Scan# 2434
Delta R.T. 0.346 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

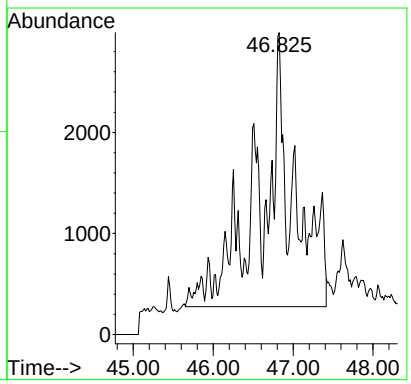
Tgt Ion:262 Resp: 100267

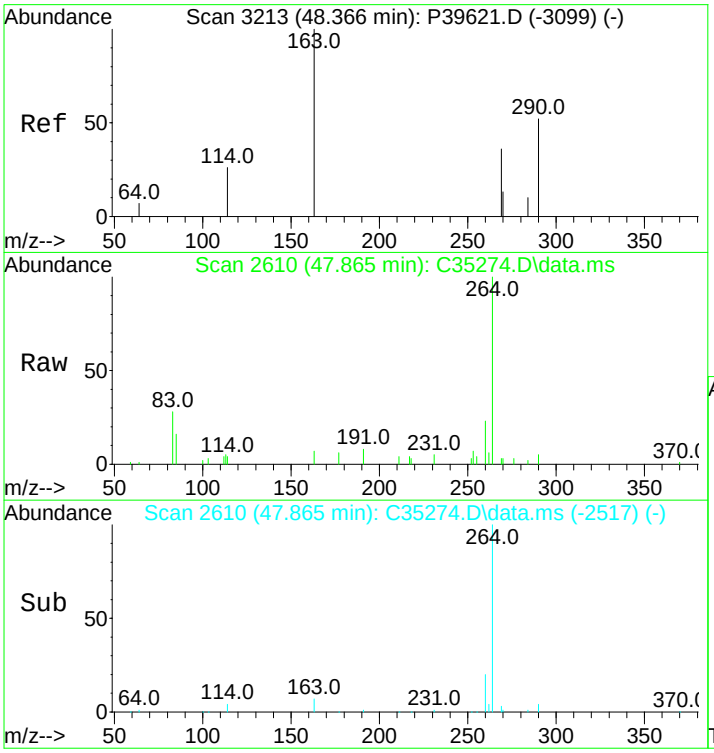




#72
C3-Naphthobenzothiophenes
Concen: 704.22 ng/ml m
RT: 46.825 min Scan# 2541
Delta R.T. 0.373 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

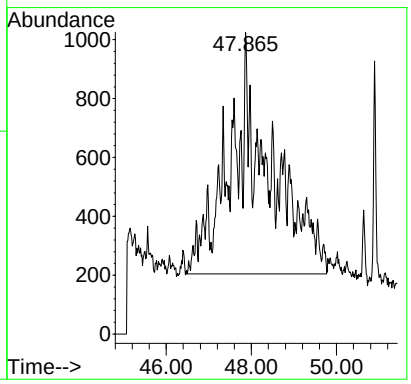
Tgt Ion:276 Resp: 78737

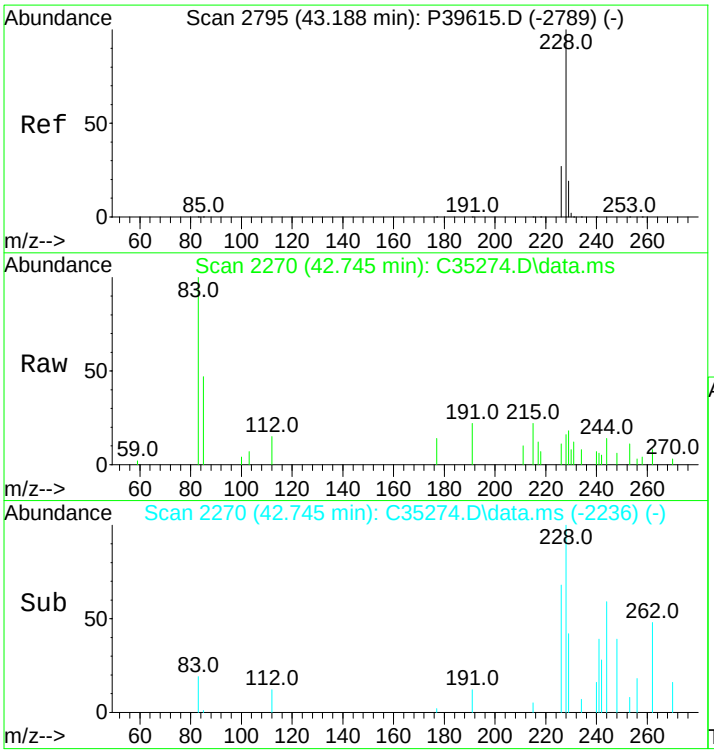




#73
C4-Naphthobenzothiophenes
Concen: 462.79 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:290 Resp: 51743

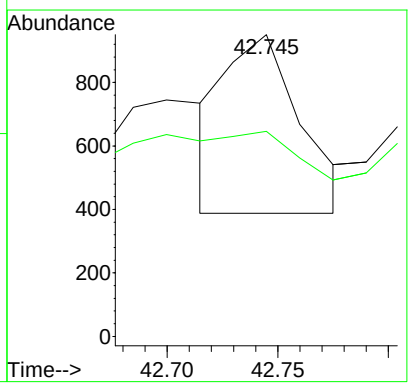


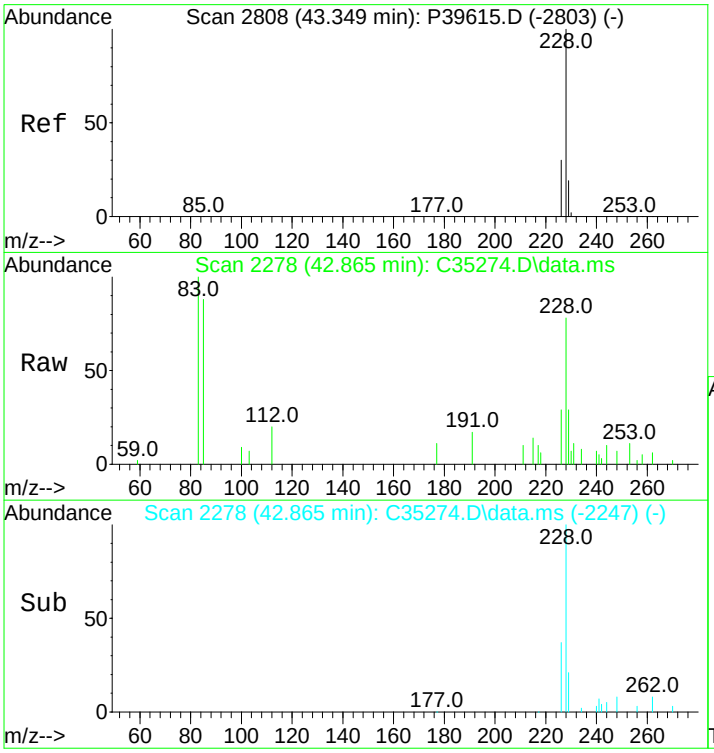


#75
Benz[a]anthracene
Concen: 12.20 ng/mL m
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:228 Resp: 1330

Ion	Ratio	Lower	Upper
228	100		
226	231.4	21.5	32.3#

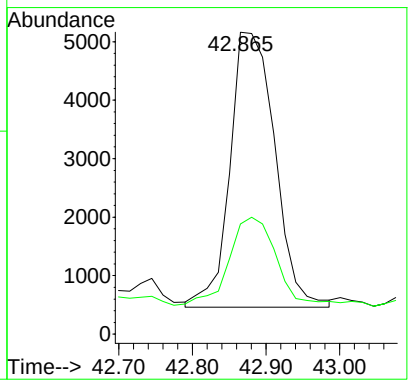


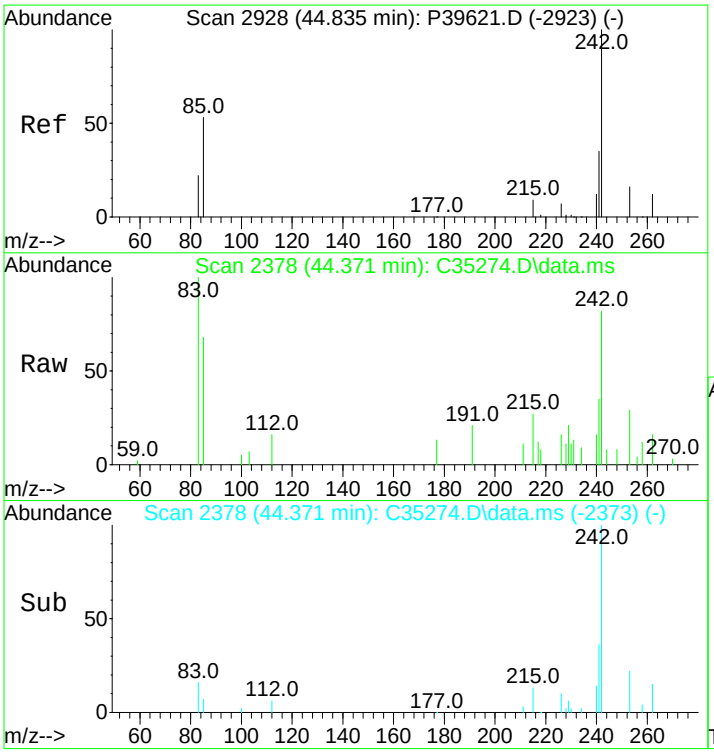


#77
Chrysene/Triphenylene
Concen: 182.03 ng/mL m
RT: 42.865 min Scan# 2278
Delta R.T. -0.030 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:228 Resp: 20032

Ion	Ratio	Lower	Upper
228	100		
226	44.1	23.5	35.3#

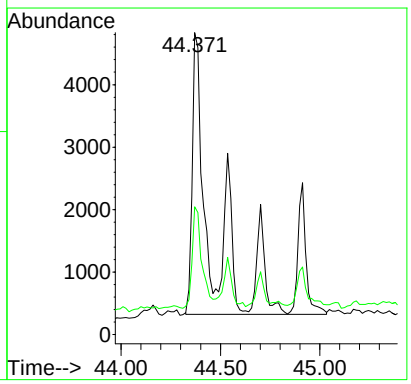


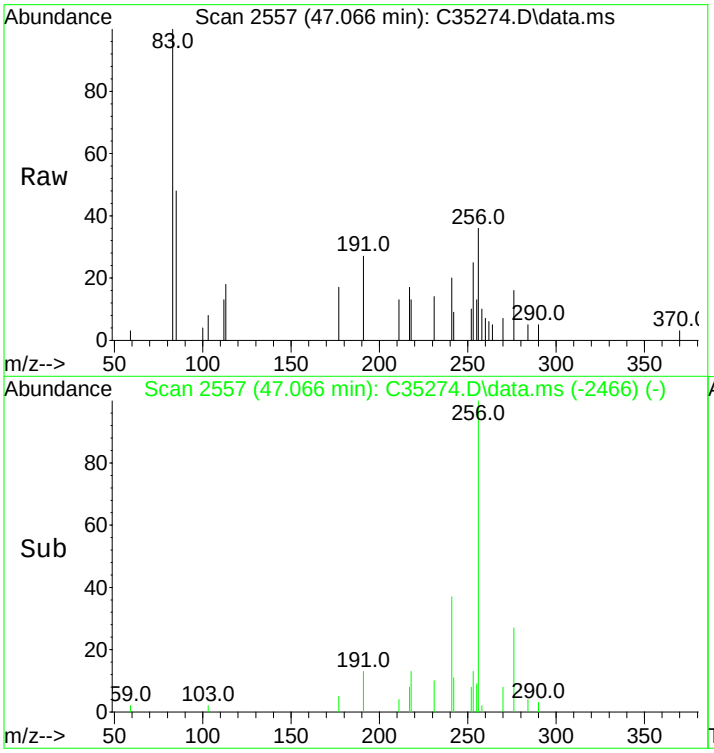


#78
C1-Chrysenes
Concen: 311.87 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:242 Resp: 34321

Ion	Ratio	Lower	Upper
242	100		
241	12.9	32.7	49.1#

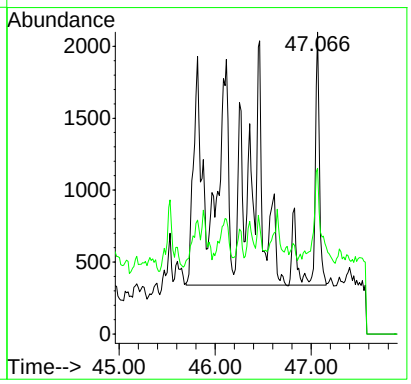


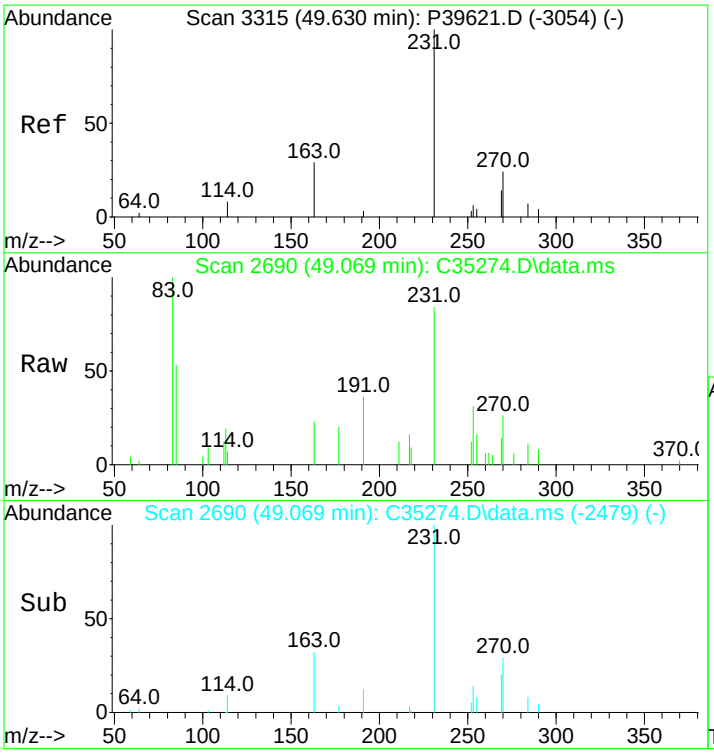


#79
C2-Chrysenes
Concen: 405.07 ng/mL m
RT: 47.066 min Scan# 2557
Delta R.T. 0.669 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:256 Resp: 44577

Ion	Ratio	Lower	Upper
256	100		
241	4.2	30.9	46.3#

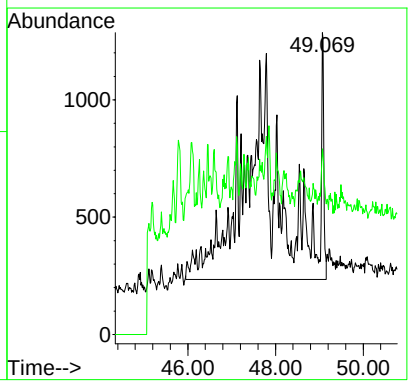


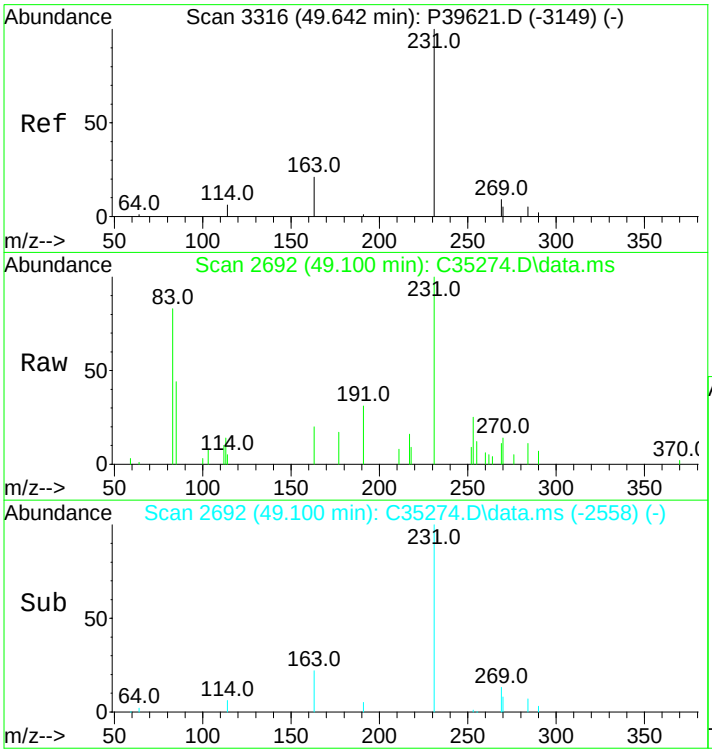


#80
C3-Chrysenes
Concen: 482.57 ng/mL m
RT: 49.069 min Scan# 2690
Delta R.T. -0.012 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:270 Resp: 53106

Ion	Ratio	Lower	Upper
270	100		
255	0.7	41.4	62.2#

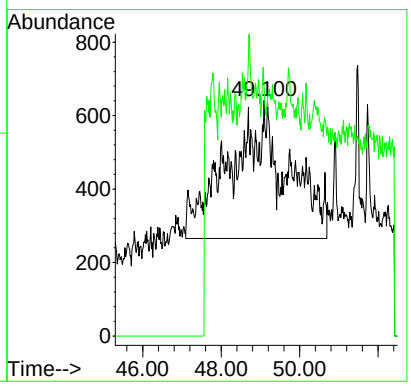


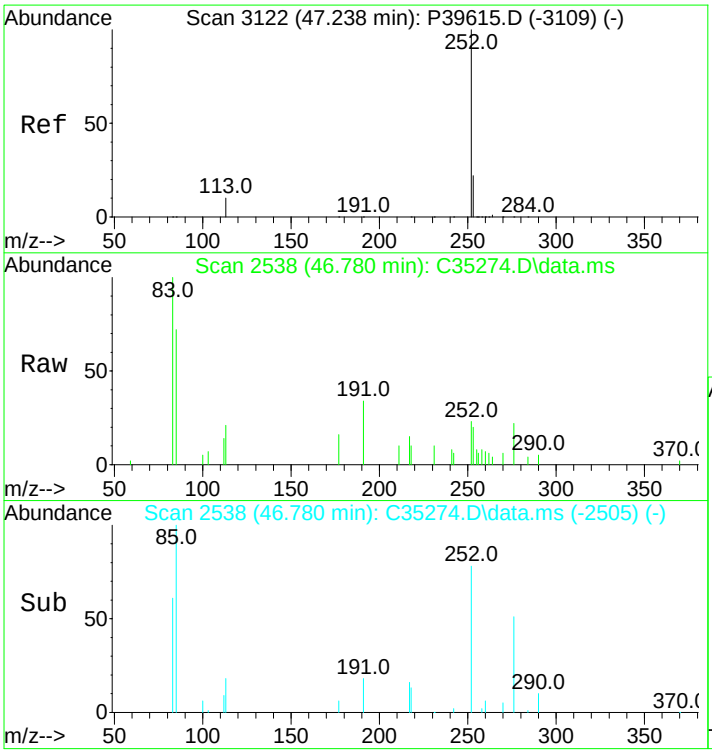


#81
C4-Chrysenes
Concen: 340.08 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. -0.085 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:284 Resp: 37425

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

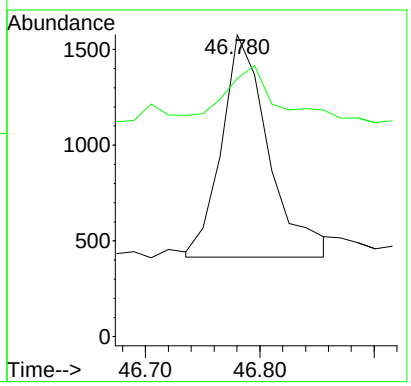


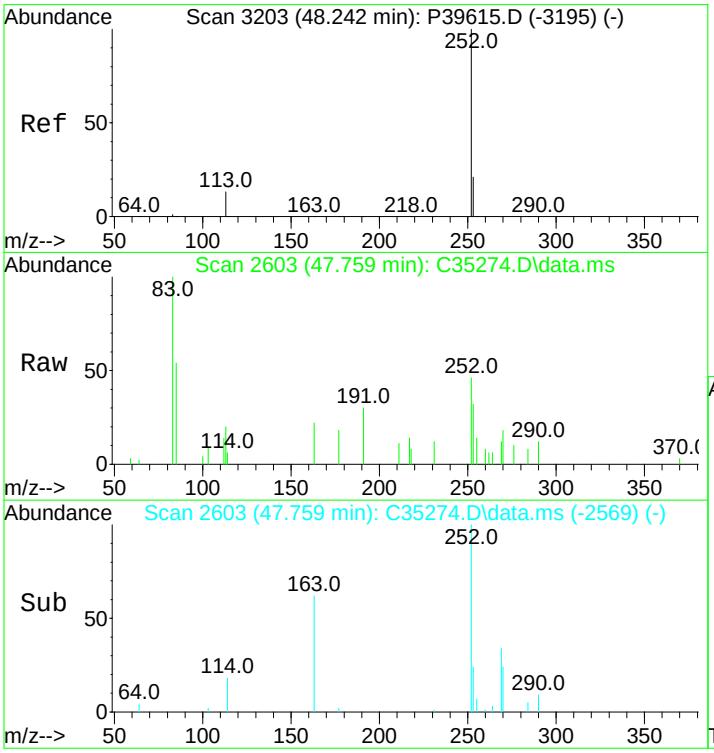


#82
Benzo[b]fluoranthene
Concen: 27.76 ng/mL m
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:252 Resp: 3325

Ion	Ratio	Lower	Upper
252	100		
253	28.8	20.4	30.6

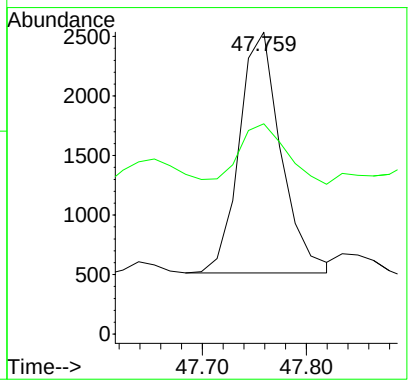


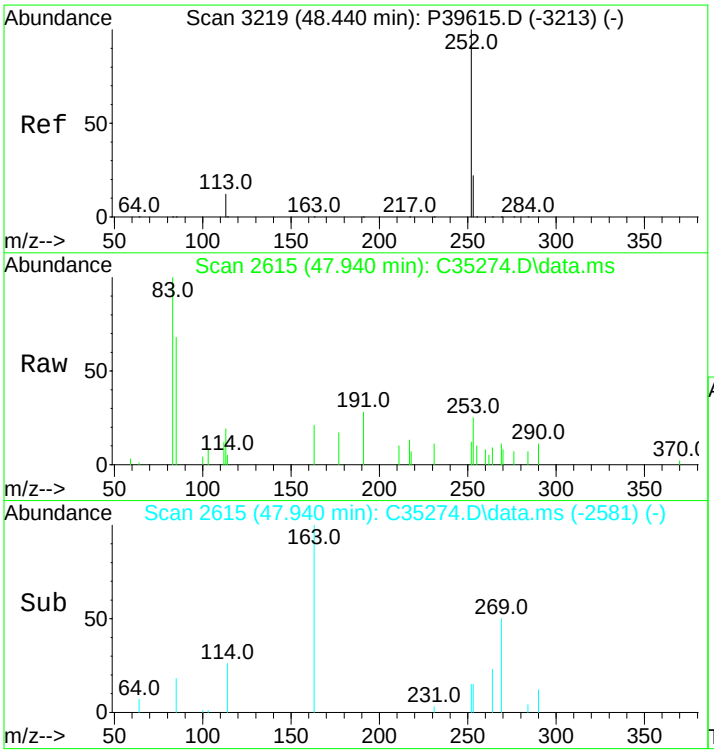


#85
Benzo[e]pyrene
Concen: 47.95 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:252 Resp: 5681

Ion	Ratio	Lower	Upper
252	100		
253	28.0	21.0	31.6

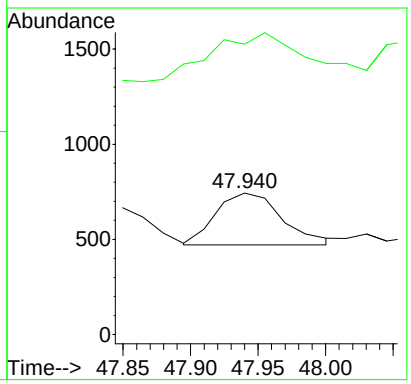


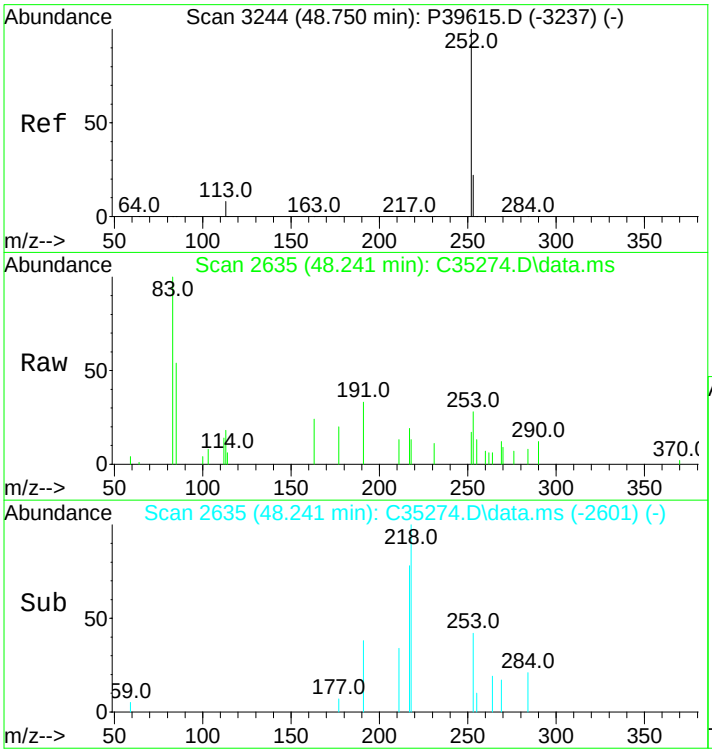


#87
Benzo[a]pyrene
Concen: 8.18 ng/mL m
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:252 Resp: 933

Ion	Ratio	Lower	Upper
252	100		
253	173.0	21.4	32.0#

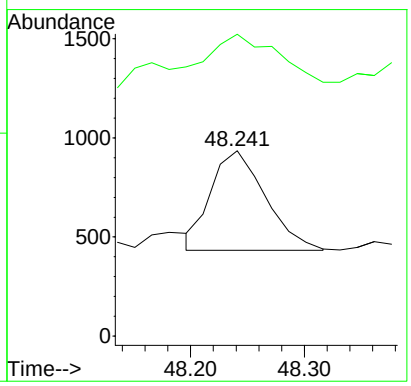


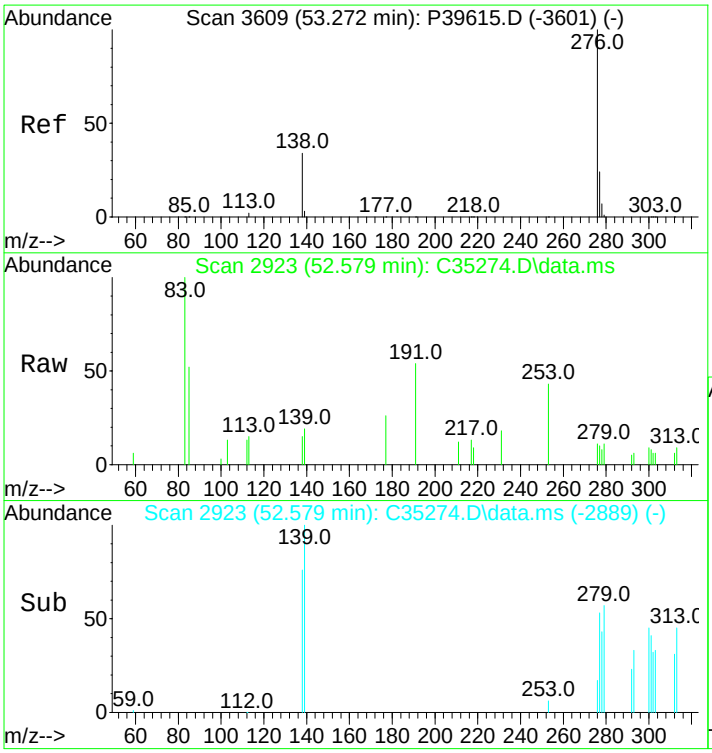


#88
Perylene
Concen: 13.67 ng/mL m
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:252 Resp: 1667

Ion	Ratio	Lower	Upper
252	100		
253	61.0	21.8	32.6#

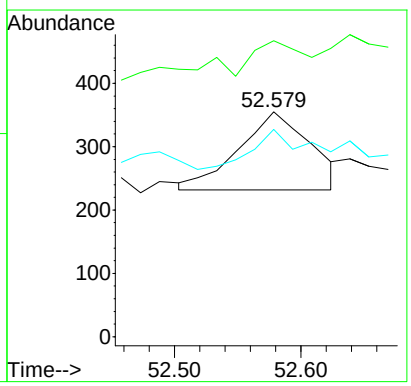


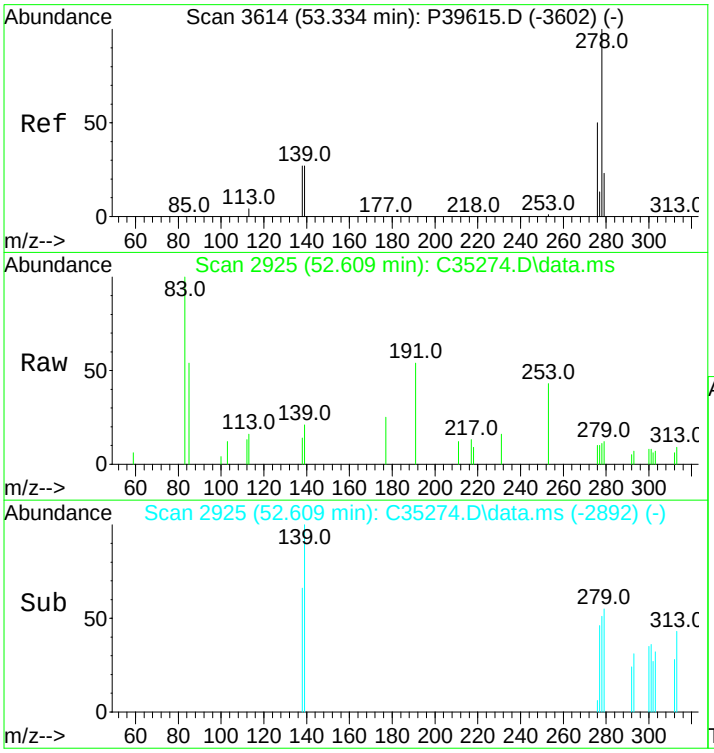


#89
Indeno[1,2,3-cd]pyrene
Concen: 3.63 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:276 Resp: 482

Ion	Ratio	Lower	Upper
276	100		
138	1045.2	19.1	28.7#
277	0.0	19.5	29.3#

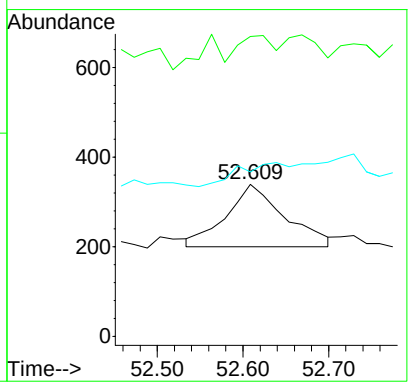


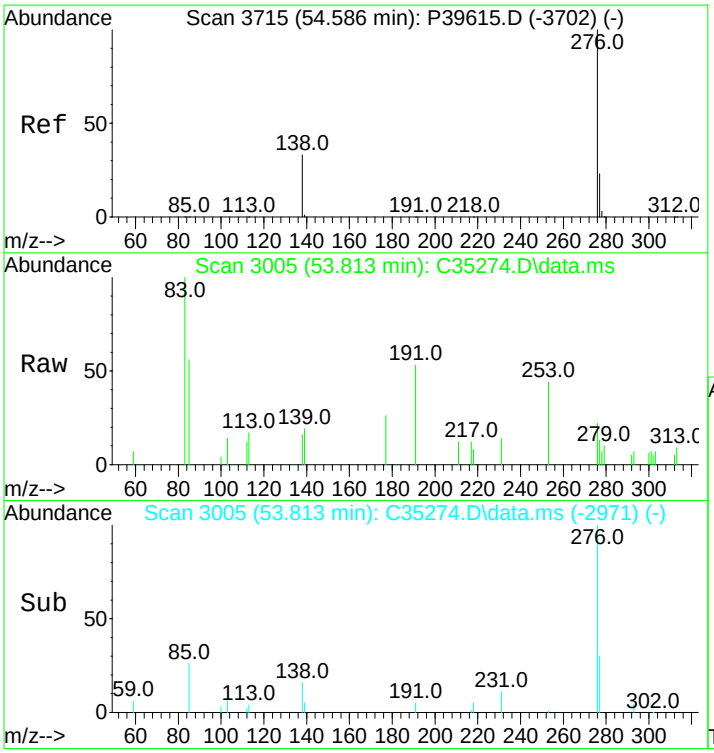


#90
Dibenz[ah]+[ac]anthracene
Concen: 5.22 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:278 Resp: 659

Ion	Ratio	Lower	Upper
278	100		
139	0.0	16.6	25.0#
279	0.0	20.0	30.0#

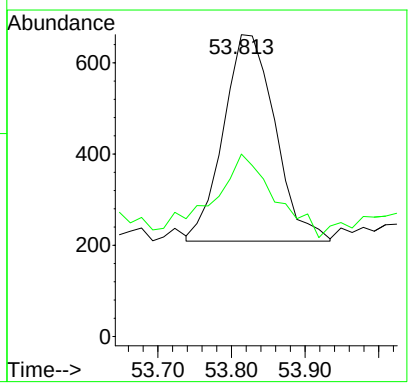


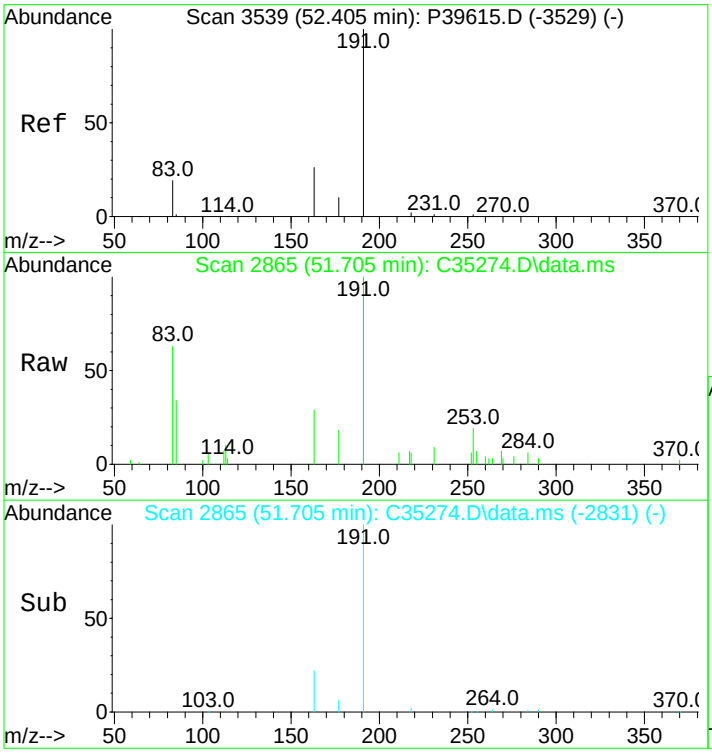


#91
Benzo[g,h,i]perylene
Concen: 15.74 ng/mL m
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:276 Resp: 2208

Ion	Ratio	Lower	Upper
276	100		
277	48.6	18.8	28.2#

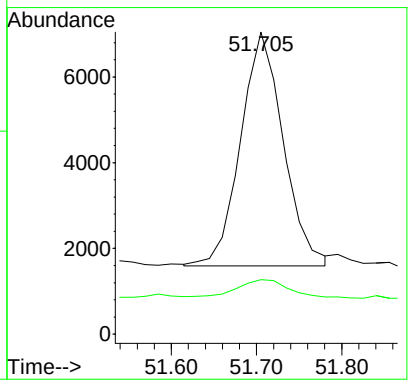


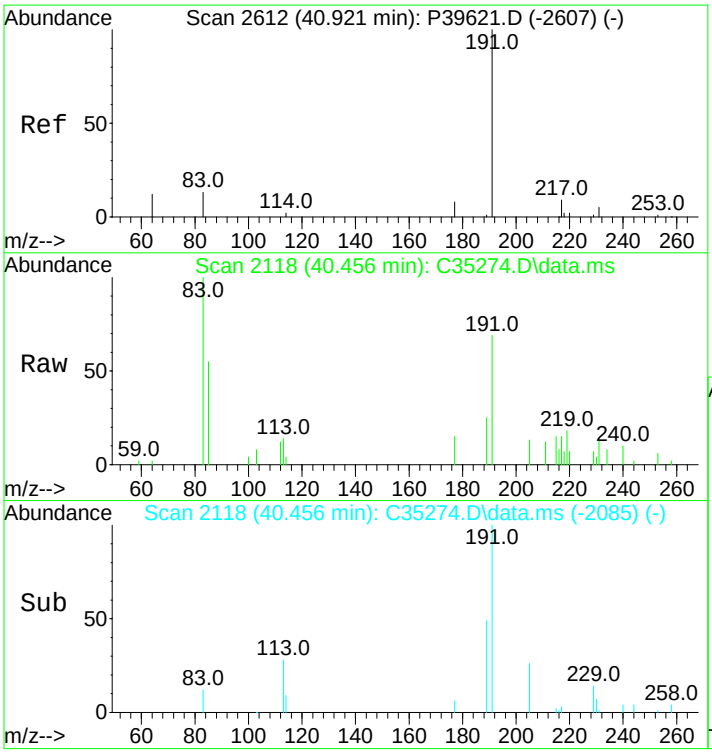


#92
Hopane (T19)
Concen: 841.24 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:191 Resp: 19041

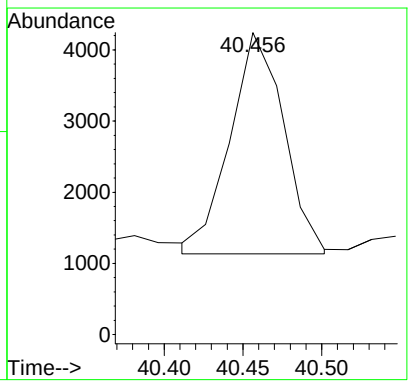
Ion	Ratio	Lower	Upper
191	100		
177	10.1	17.2	25.8#

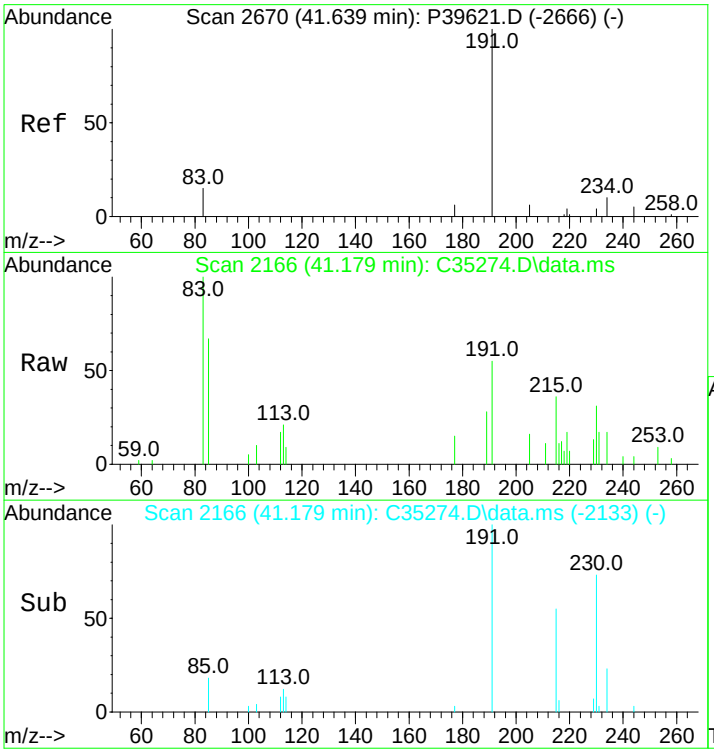




#94
C23 Tricyclic Terpane (T4)
Concen: 325.87 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

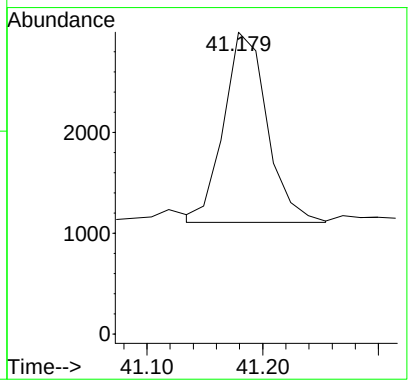
Tgt Ion:191 Resp: 7376

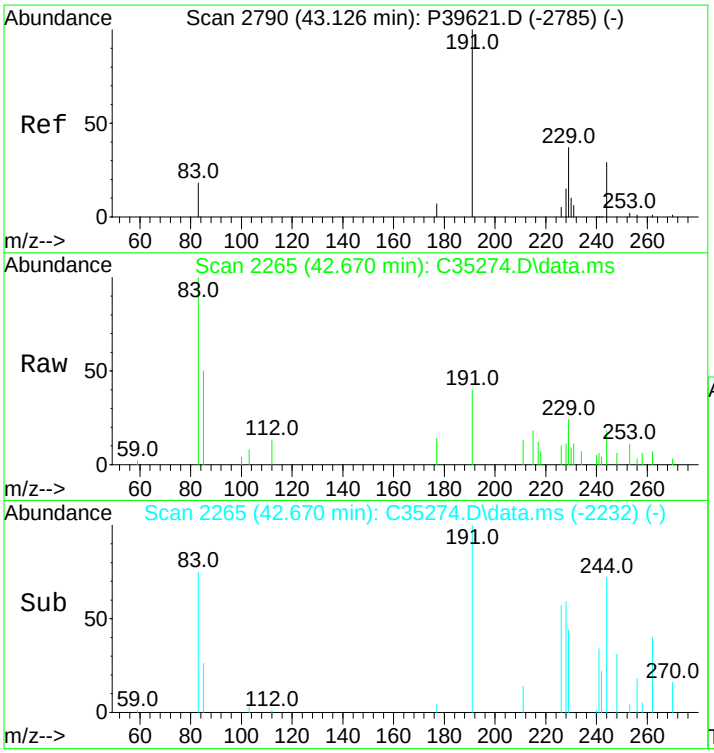




#95
C24 Tricyclic Terpane (T5)
Concen: 216.70 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

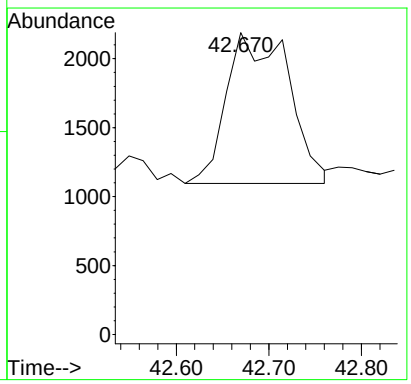
Tgt Ion:191 Resp: 4905

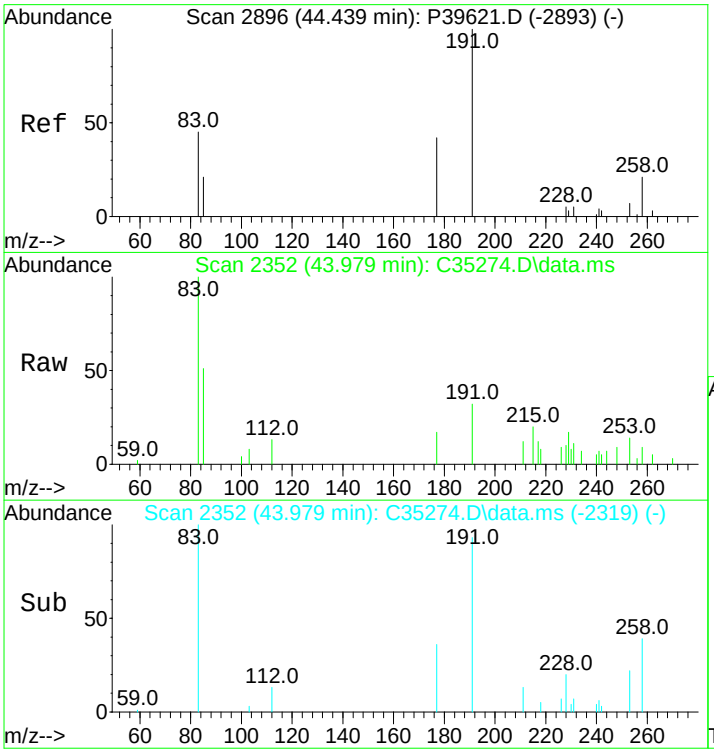




#96
C25 Tricyclic Terpane (T6)
Concen: 225.36 ng/ml m
RT: 42.670 min Scan# 2265
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

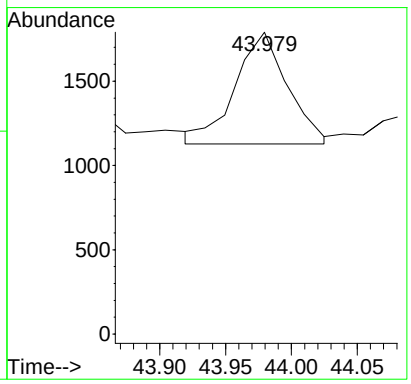
Tgt Ion:191 Resp: 5101

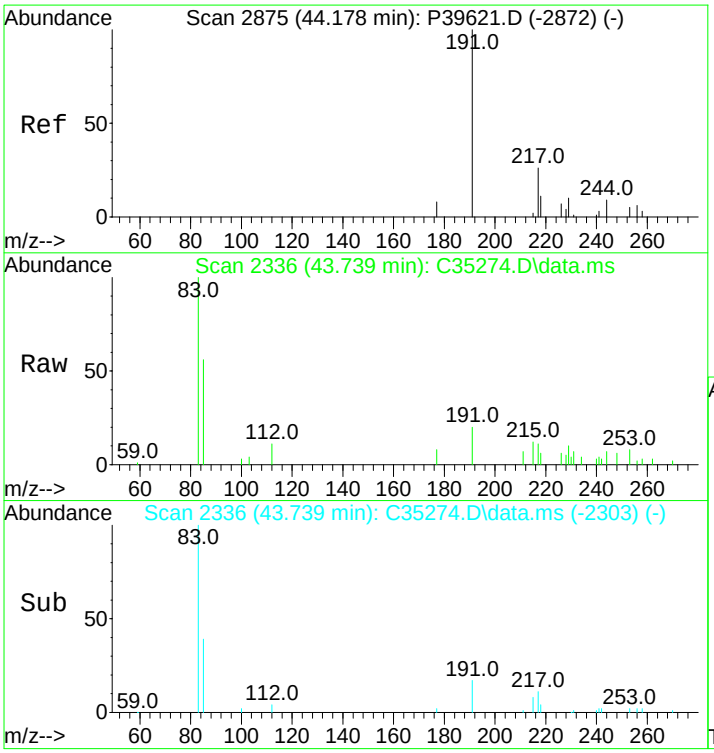




#97
C24 Tetracyclic Terpane (T6a)
Concen: 80.94 ng/ml m
RT: 43.979 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

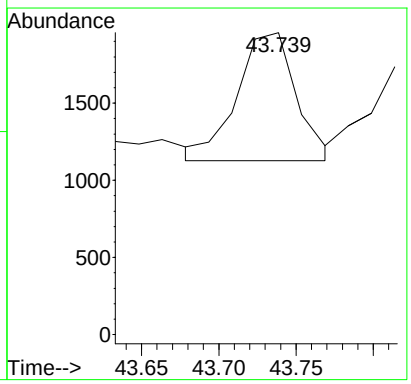
Tgt Ion:191 Resp: 1832

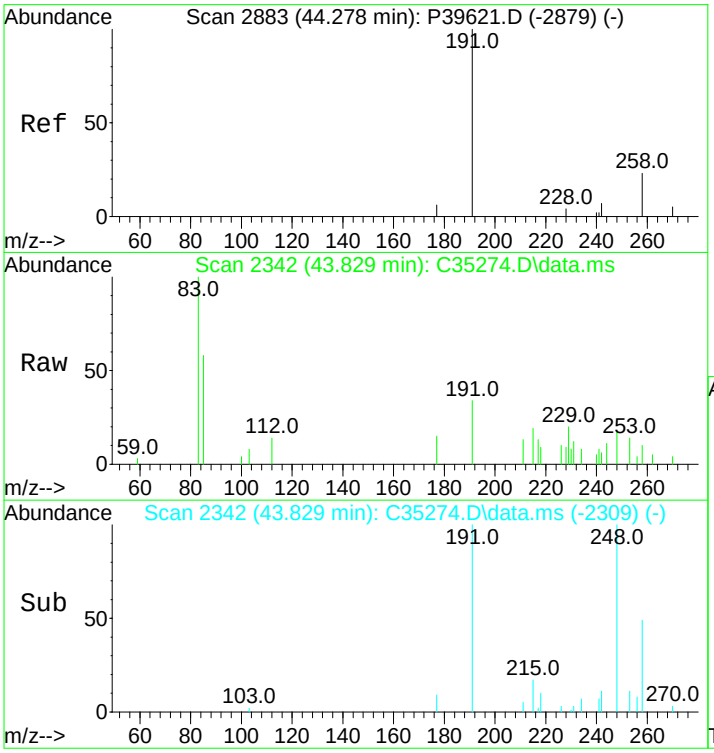




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 97.90 ng/ml m
RT: 43.739 min Scan# 2336
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

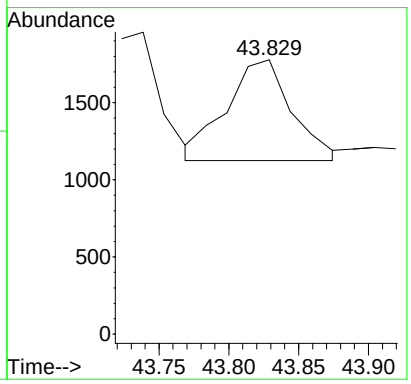
Tgt Ion:191 Resp: 2216

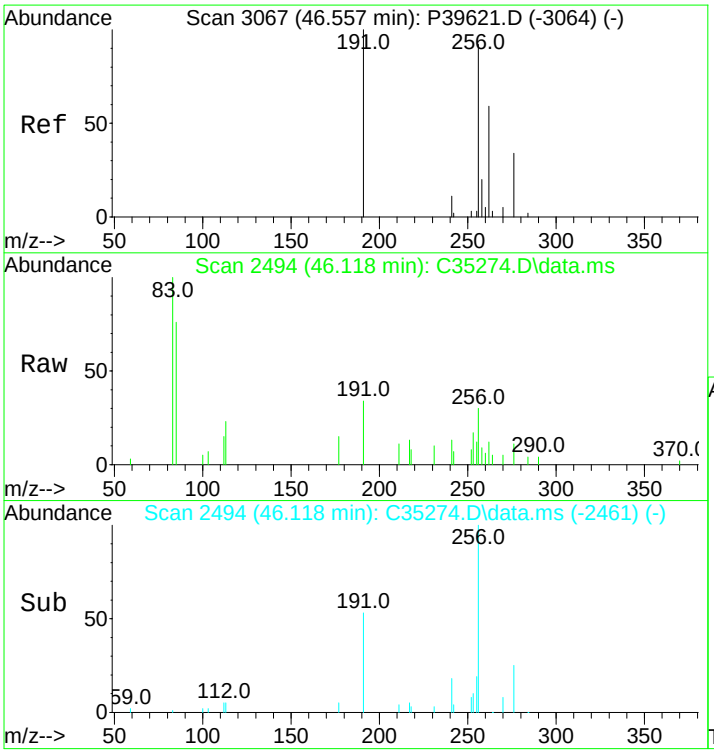




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 94.46 ng/ml m
RT: 43.829 min Scan# 2342
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

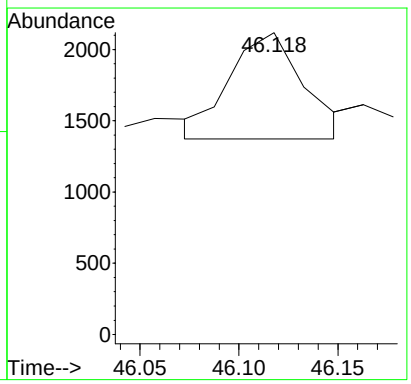
Tgt Ion:191 Resp: 2138

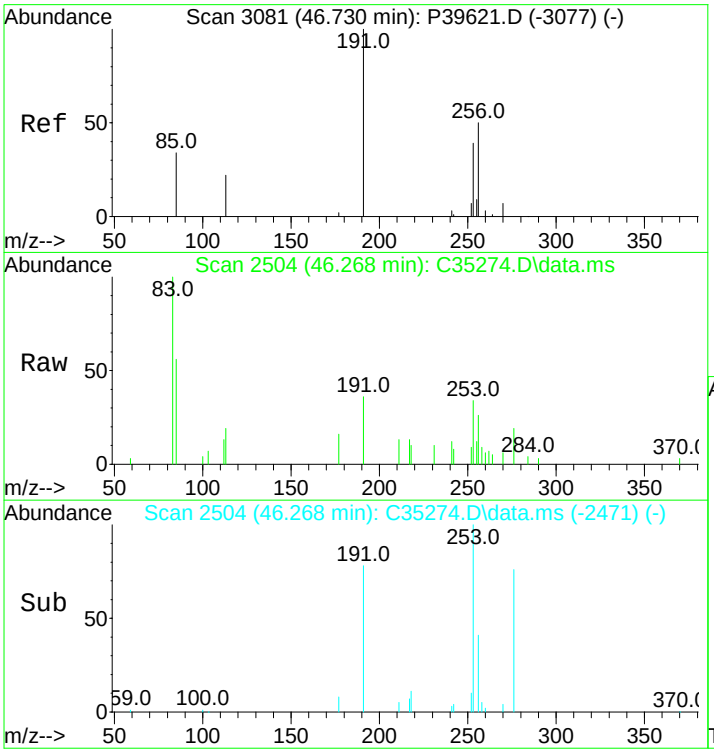




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 85.44 ng/ml m
RT: 46.118 min Scan# 2494
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

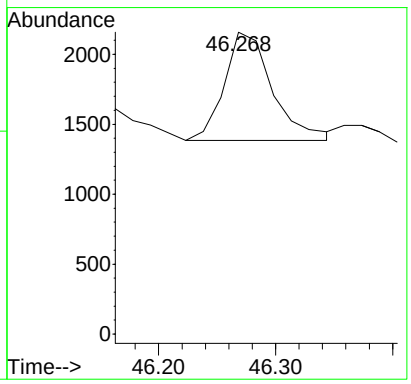
Tgt Ion:191 Resp: 1934

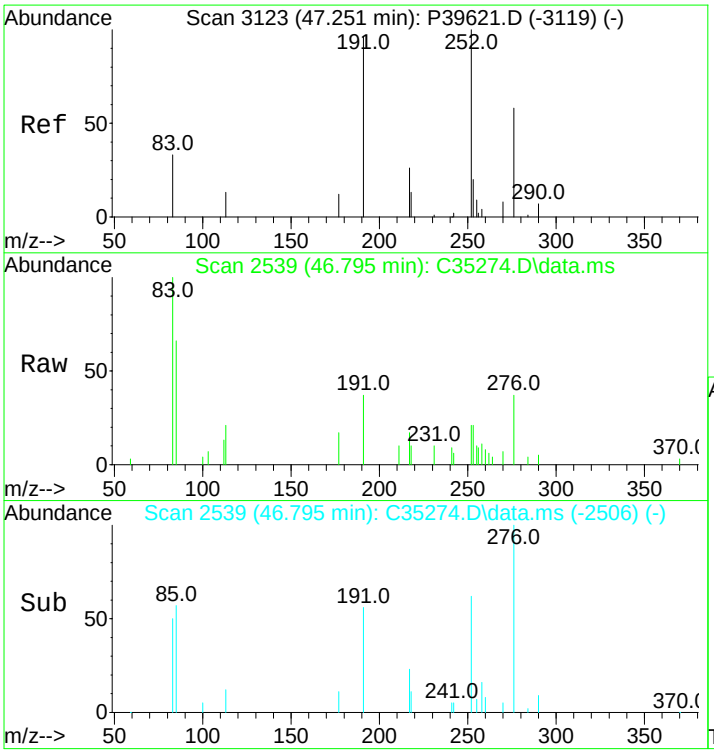




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 97.90 ng/ml
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

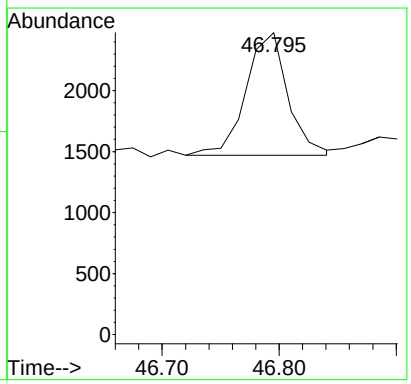
Tgt Ion:191 Resp: 2216

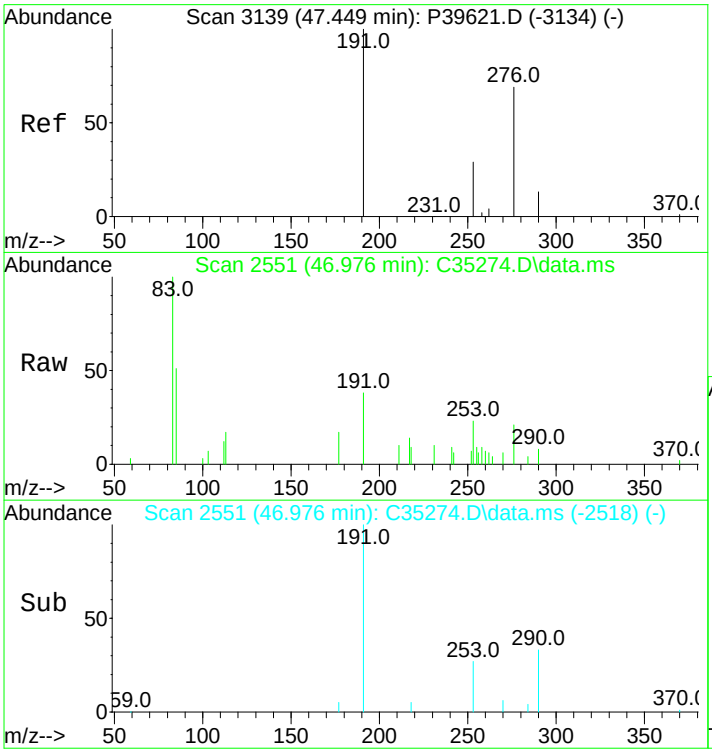




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 110.58 ng/ml
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

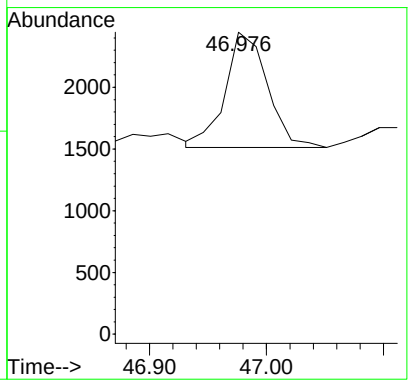
Tgt Ion:191 Resp: 2503

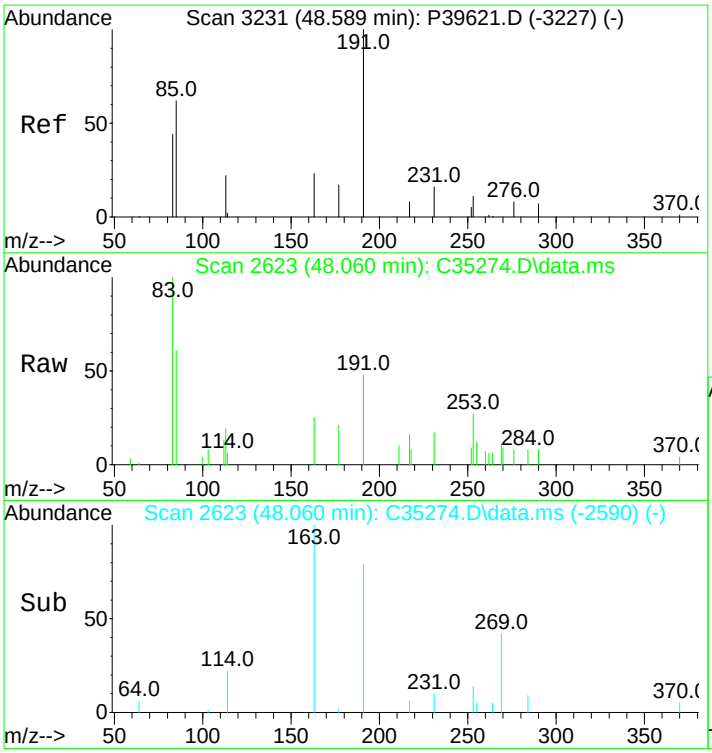




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 103.38 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

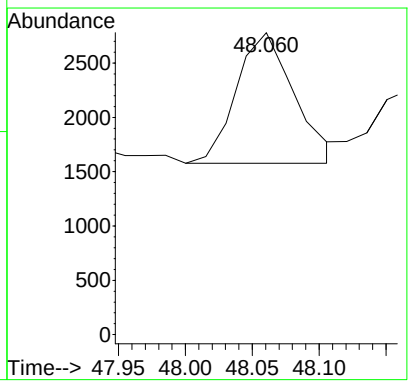
Tgt Ion:191 Resp: 2340

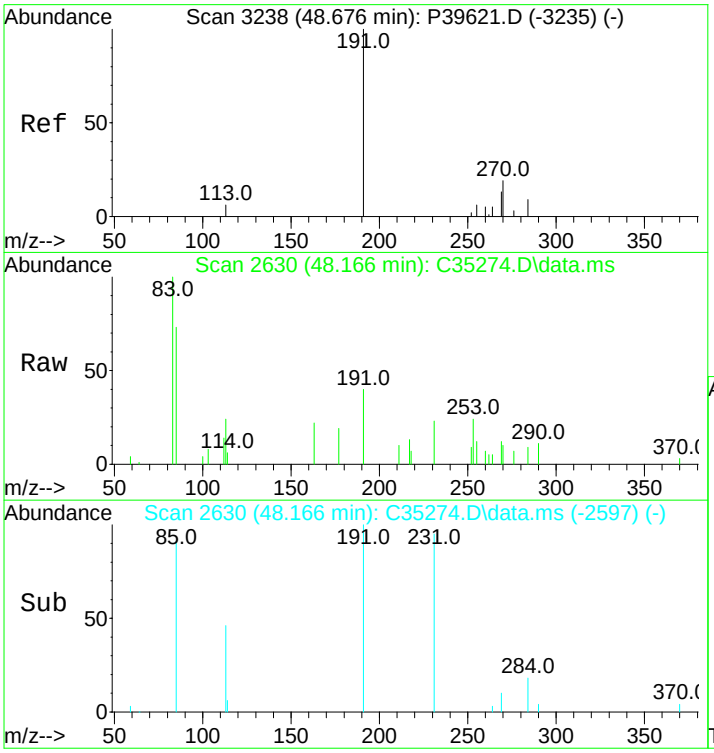




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 160.46 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

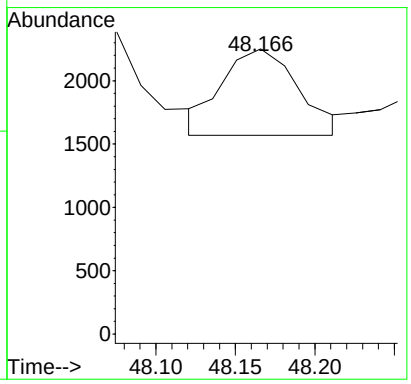
Tgt Ion:191 Resp: 3632

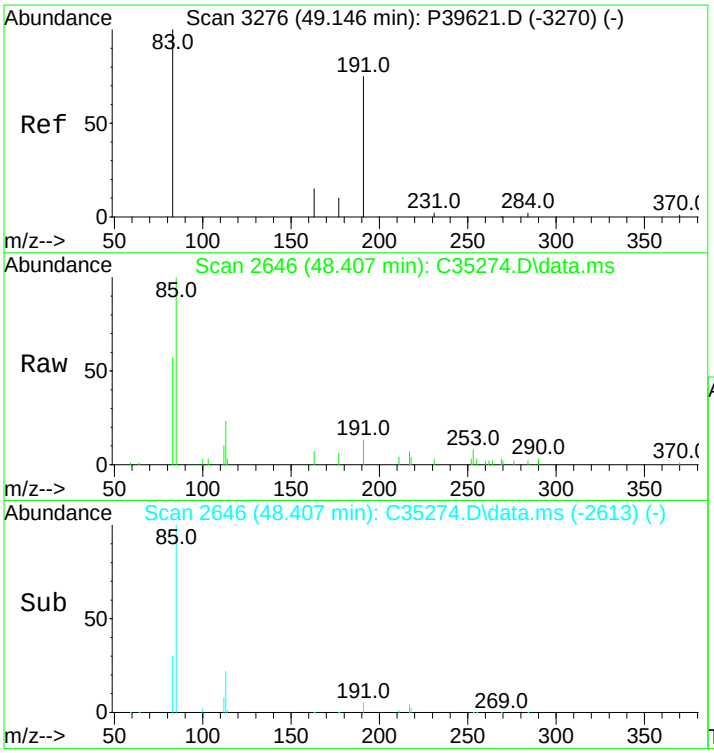




#105
C30 Tricyclic Terpane-22S
Concen: 100.55 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

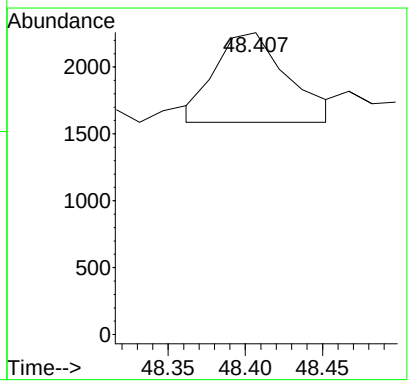
Tgt Ion:191 Resp: 2276

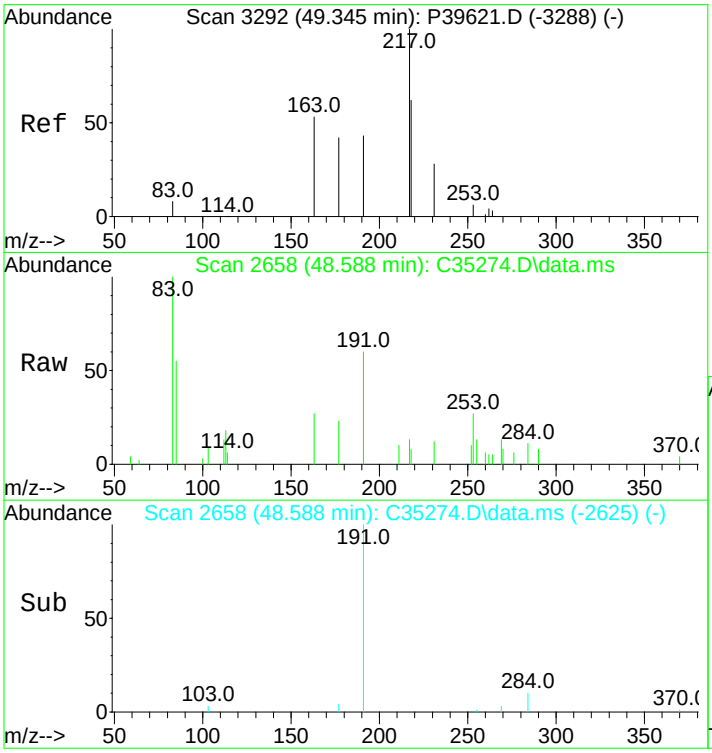




#106
C30 Tricyclic Terpane-22R
Concen: 96.84 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

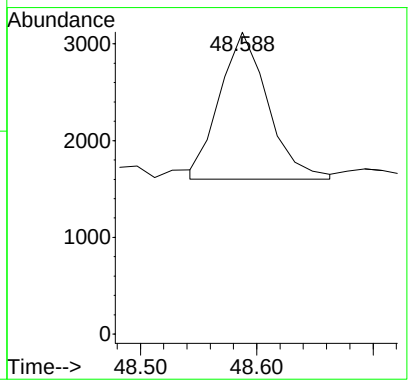
Tgt Ion:191 Resp: 2192

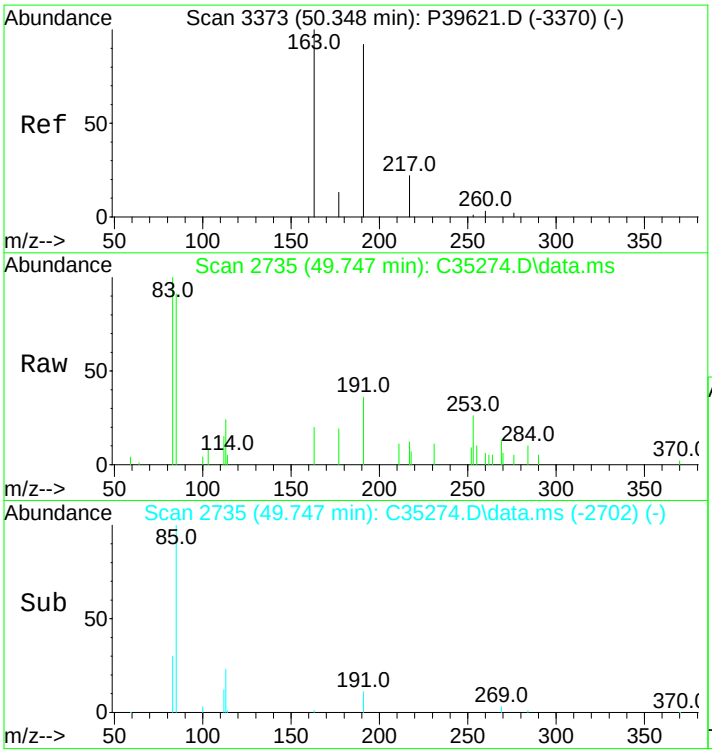




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 193.47 ng/ml m
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

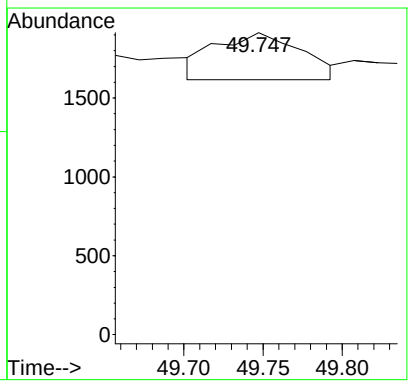
Tgt Ion:191 Resp: 4379

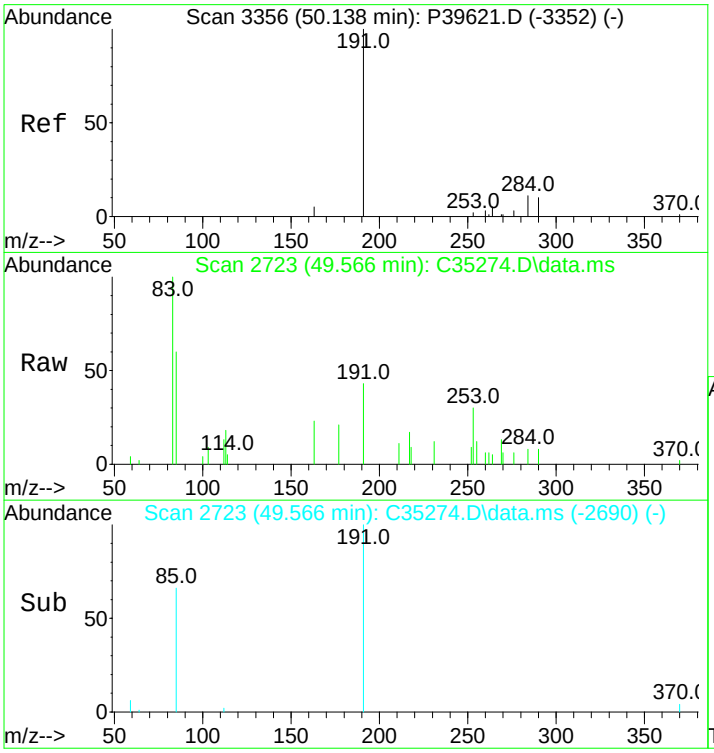




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 49.84 ng/ml m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

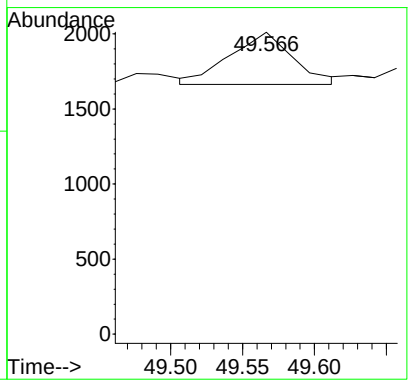
Tgt Ion:191 Resp: 1128

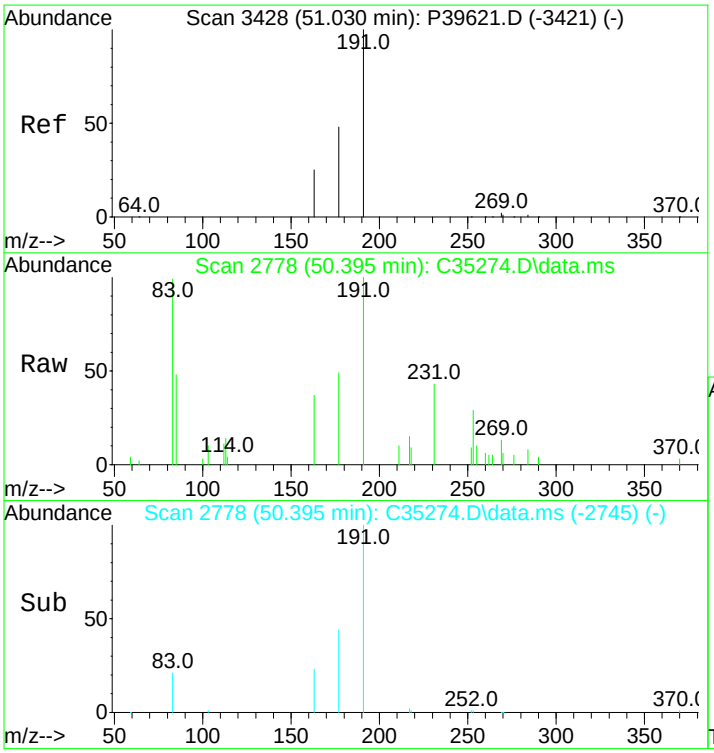




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 46.35 ng/ml m
RT: 49.566 min Scan# 2723
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

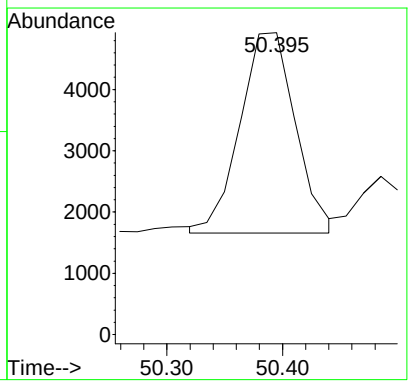
Tgt Ion:191 Resp: 1049

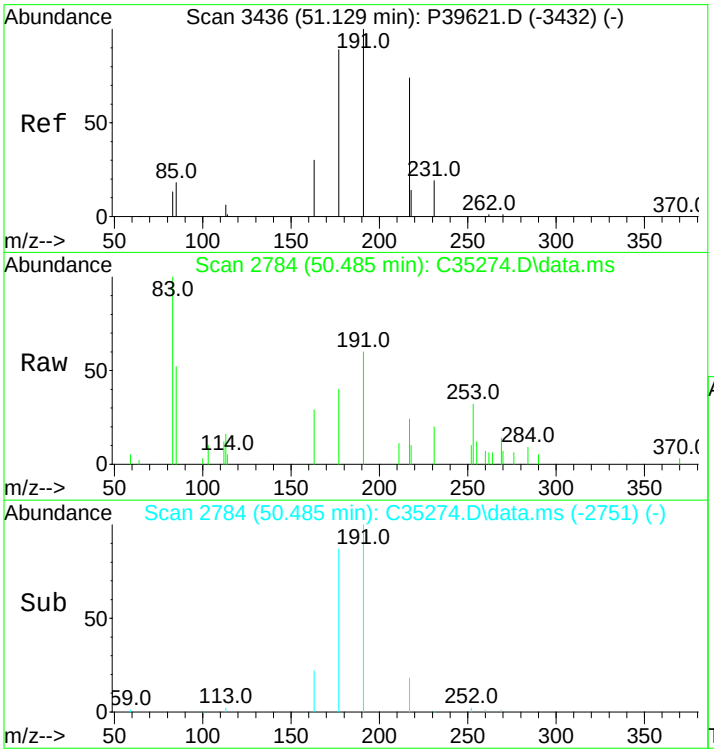




#110
30-Norhopane (T15)
Concen: 481.08 ng/ml m
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

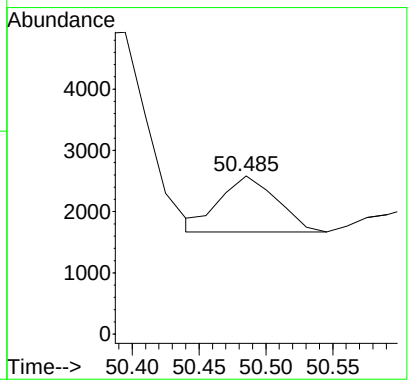
Tgt Ion:191 Resp: 10889

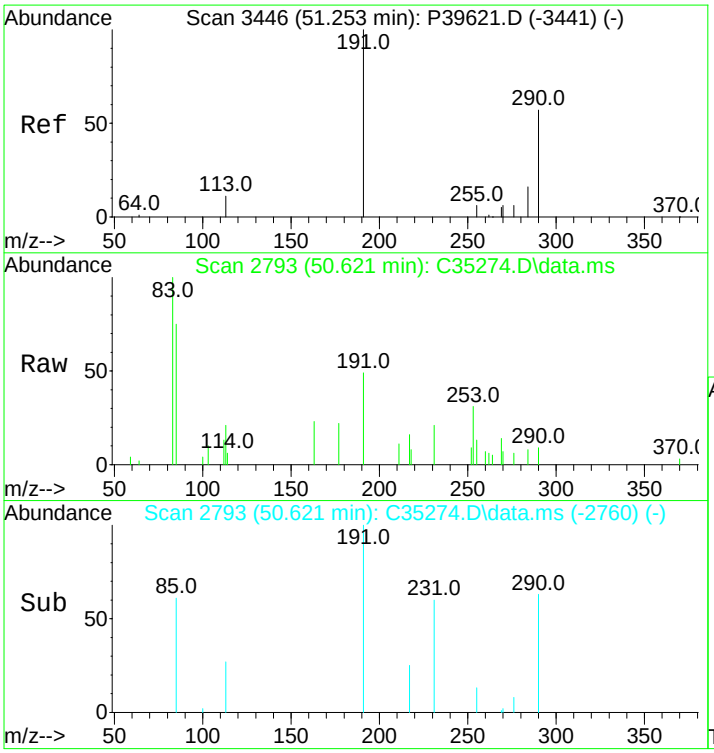




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 118.45 ng/ml
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

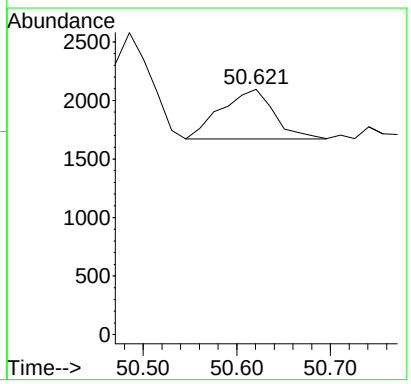
Tgt Ion:191 Resp: 2681

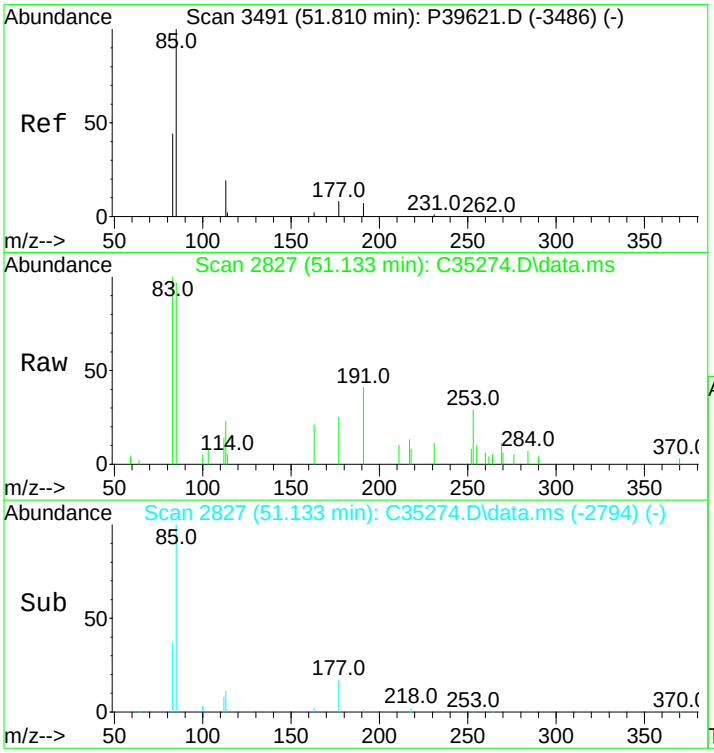




#112
17a(H)-Diahopane (X)
Concen: 74.22 ng/ml
RT: 50.621 min Scan# 2793
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

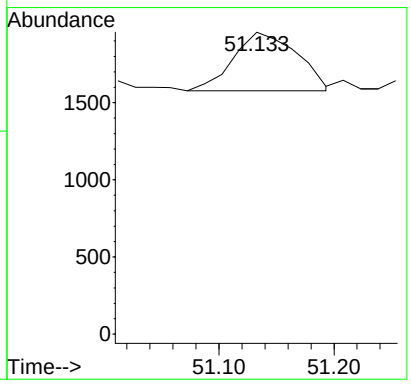
Tgt Ion:191 Resp: 1680

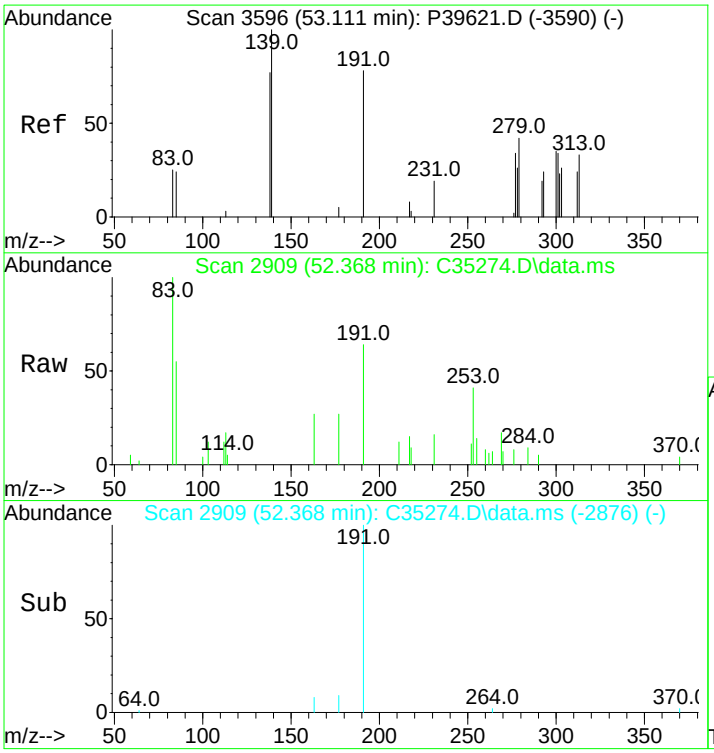




#113
30-Normoretane (T17)
Concen: 64.77 ng/ml m
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

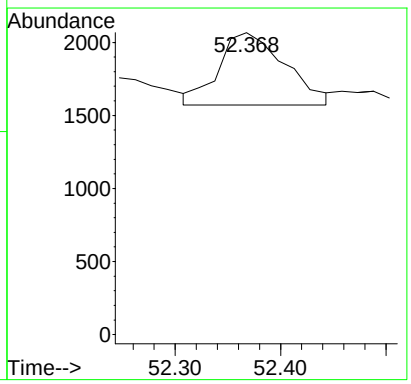
Tgt Ion:191 Resp: 1466

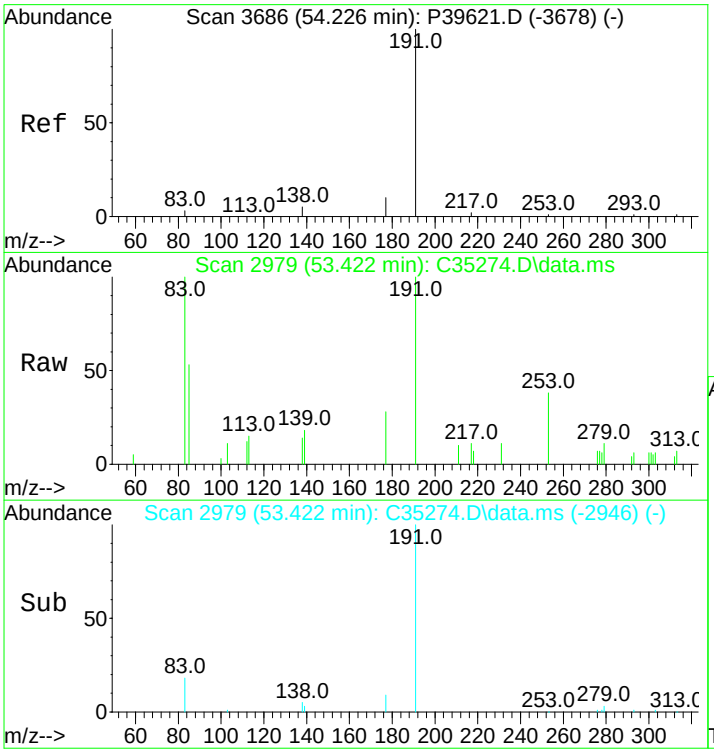




#115
Moretane (T20)
Concen: 95.69 ng/ml m
RT: 52.368 min Scan# 2909
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

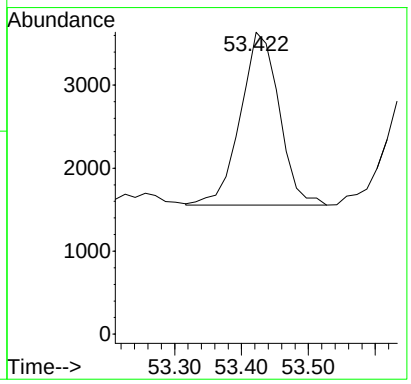
Tgt Ion:191 Resp: 2166

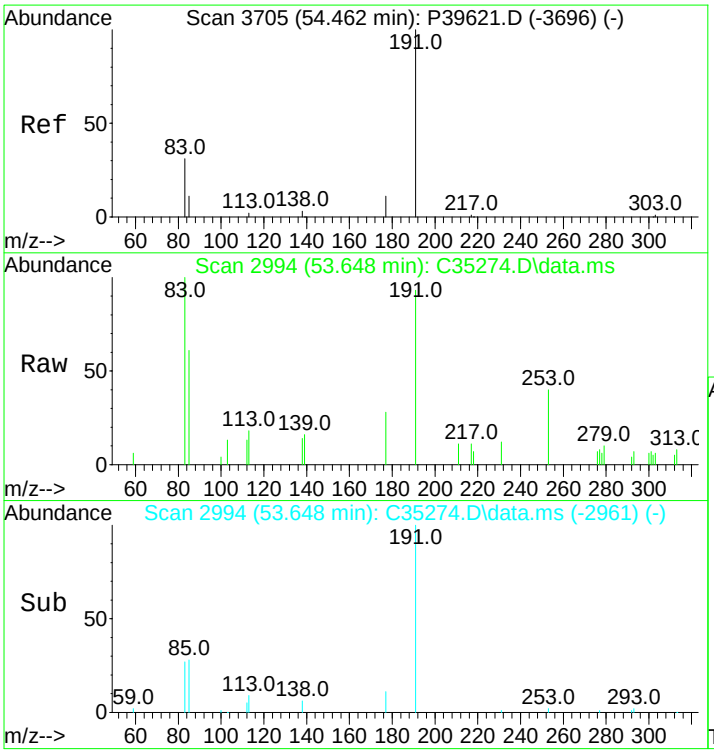




#116
30-Homohopane-22S (T21)
Concen: 372.04 ng/ml
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

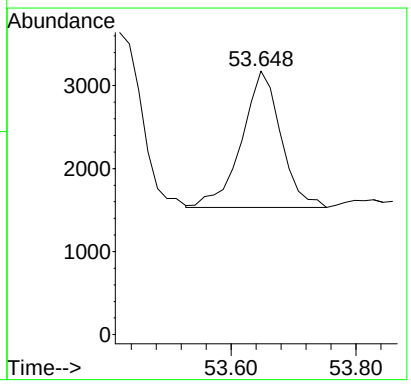
Tgt Ion:191 Resp: 8421

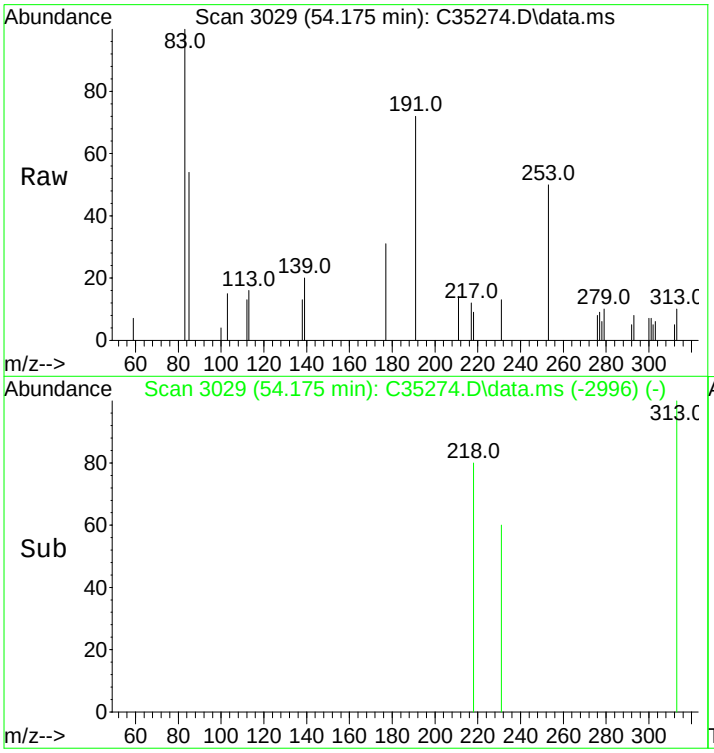




#117
30-Homohopane-22R (T22)
Concen: 317.22 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

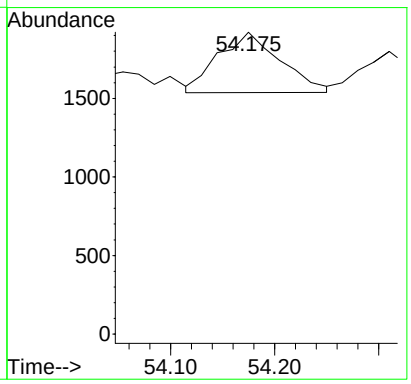
Tgt Ion:191 Resp: 7180

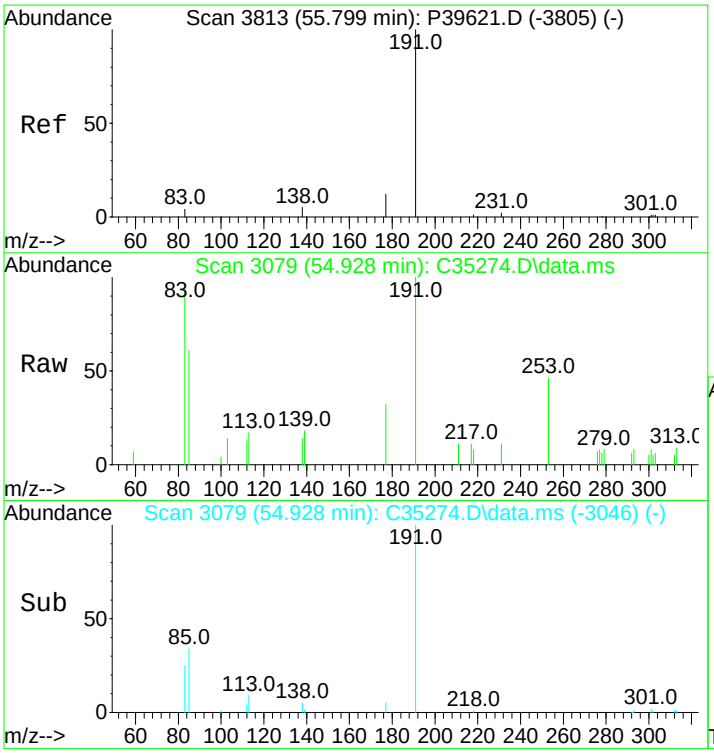




#118
Gammacerane/C32-diahopane
Concen: 70.29 ng/mL
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

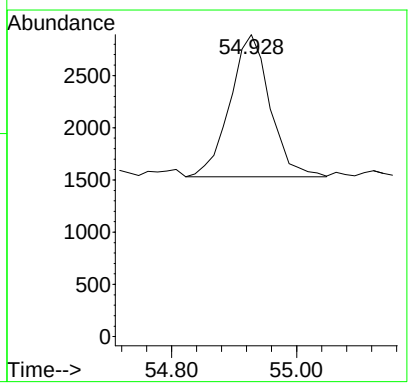
Tgt Ion:191 Resp: 1591

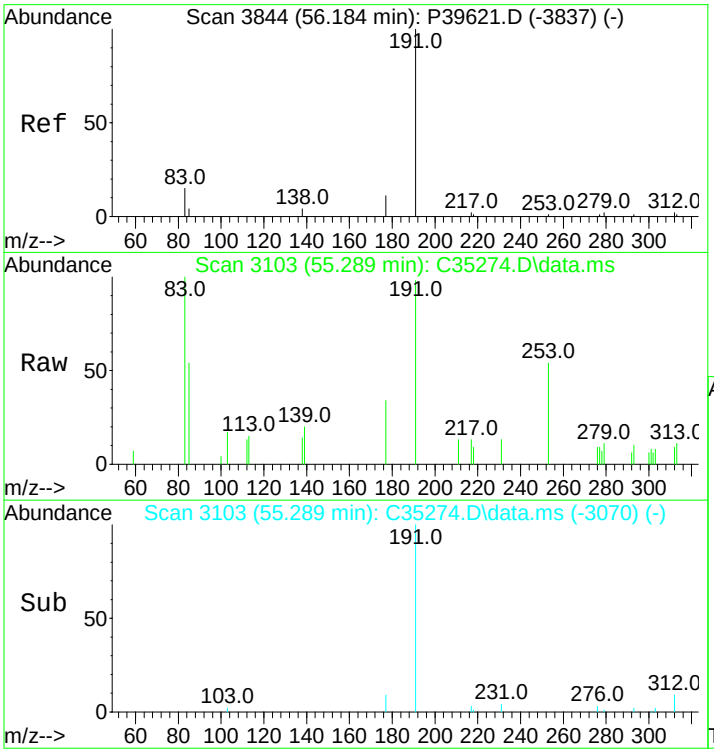




#119
30,31-Bishomohopane-22S (T26)
Concen: 267.95 ng/ml
RT: 54.928 min Scan# 3079
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

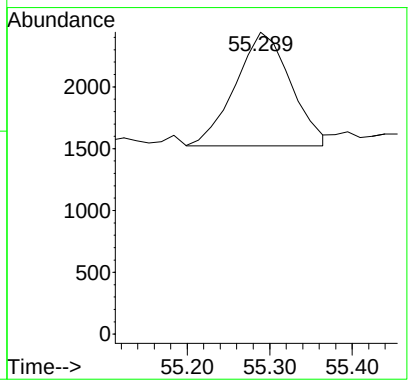
Tgt Ion:191 Resp: 6065

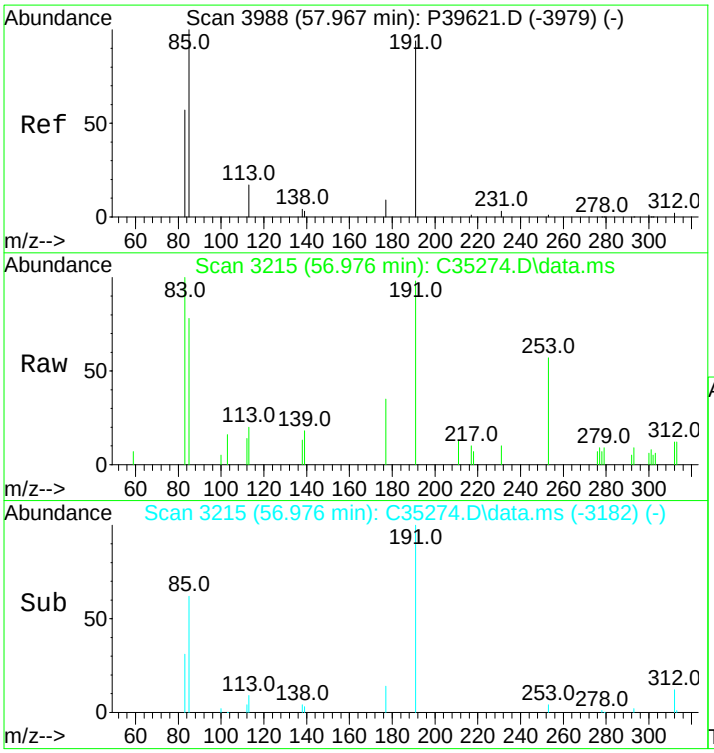




#120
30,31-Bishomohopane-22R (T27)
Concen: 189.45 ng/ml m
RT: 55.289 min Scan# 3103
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

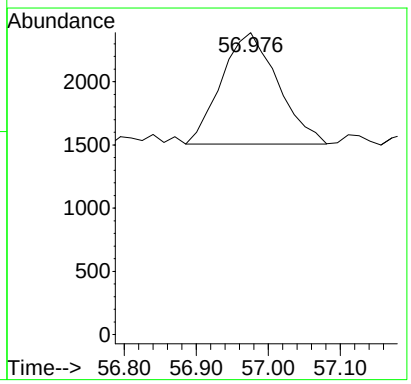
Tgt Ion:191 Resp: 4288

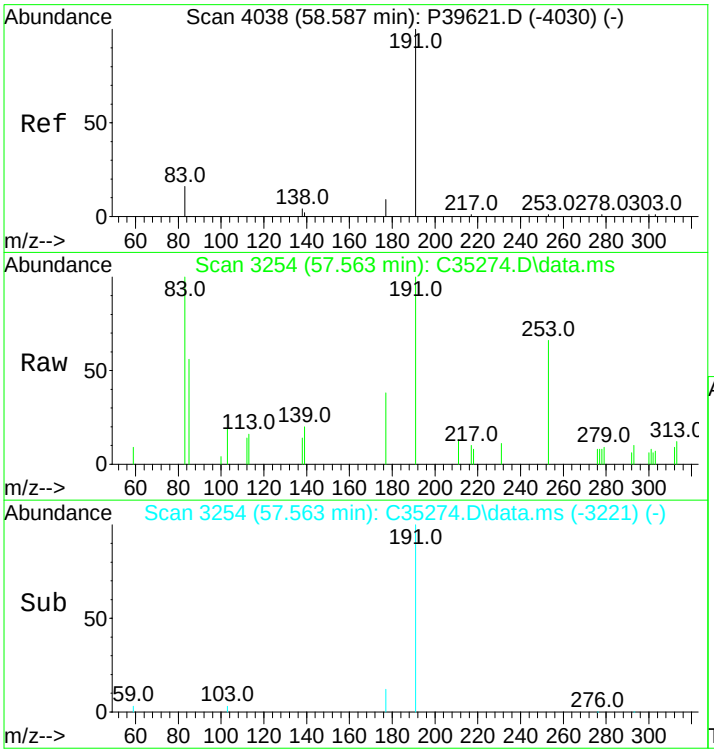




#121
30,31-Trishomohopane-22S (T30)
Concen: 211.93 ng/ml
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

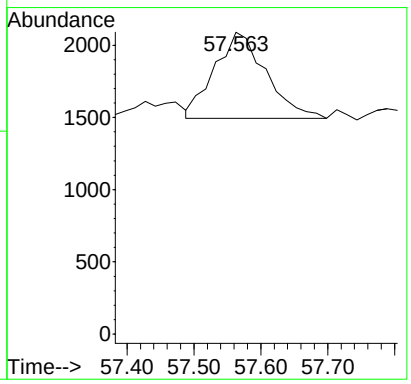
Tgt Ion:191 Resp: 4797

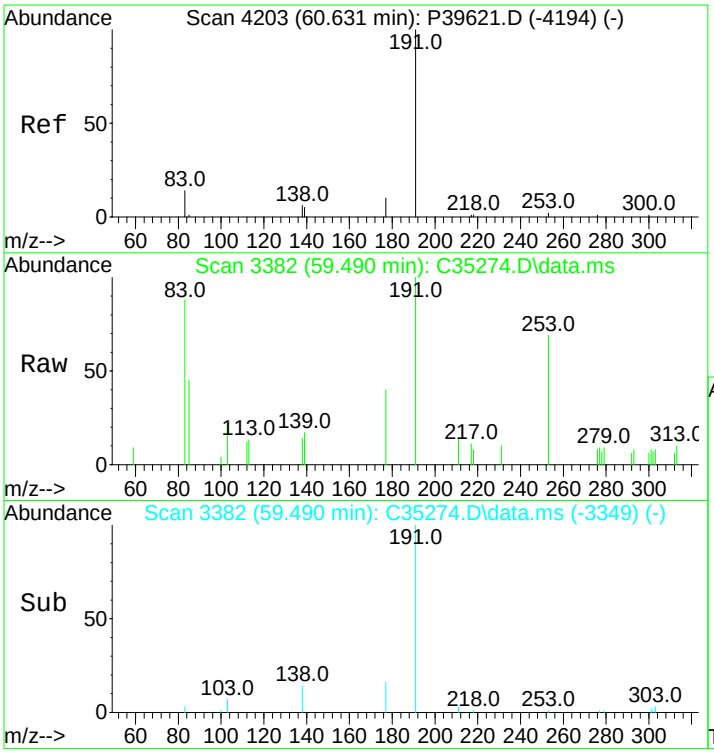




#122
30,31-Trishomohopane-22R (T31)
Concen: 141.33 ng/ml
RT: 57.563 min Scan# 3254
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

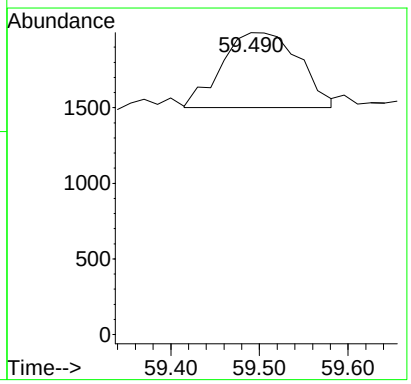
Tgt Ion:191 Resp: 3199

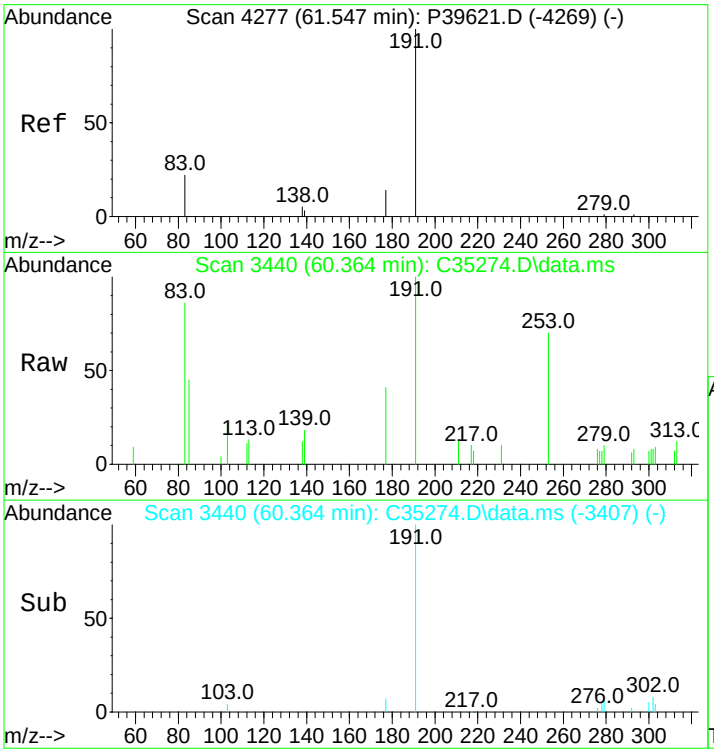




#123
Tetrakishomohopane-22S (T32)
Concen: 132.76 ng/ml m
RT: 59.490 min Scan# 3382
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

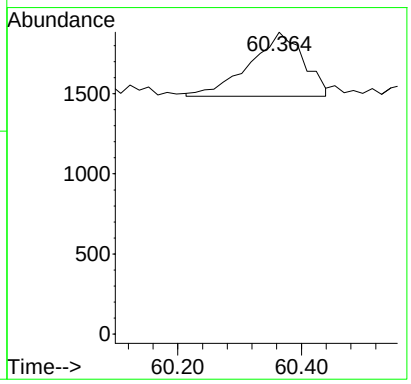
Tgt Ion:191 Resp: 3005

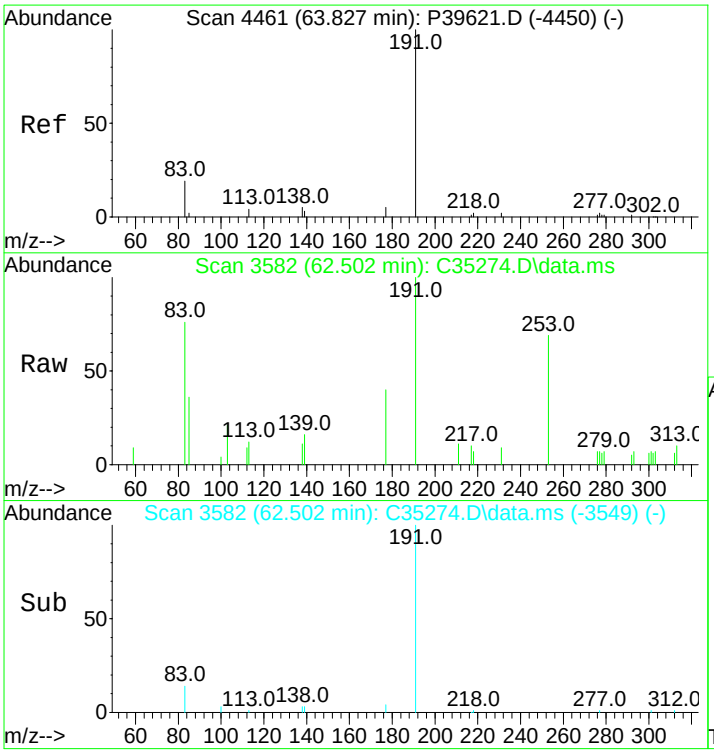




#124
Tetrakishomohopane-22R (T33)
Concen: 106.87 ng/ml m
RT: 60.364 min Scan# 3440
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

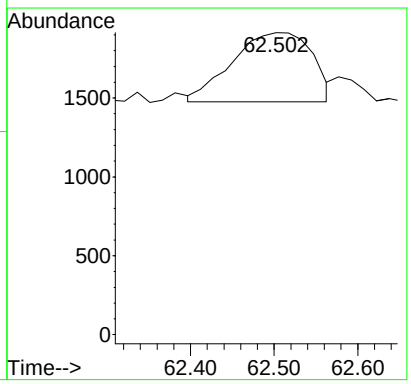
Tgt Ion:191 Resp: 2419

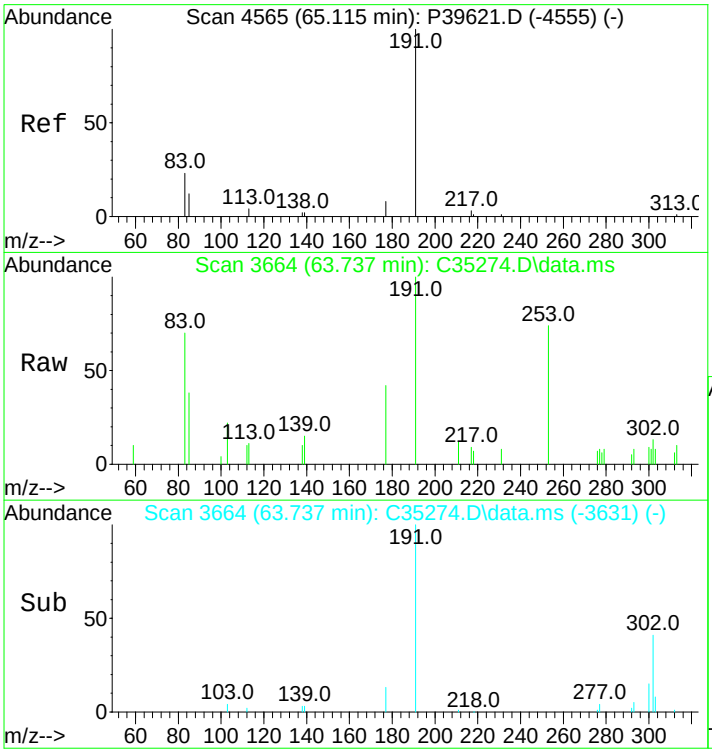




#125
Pentakishomohopane-22S (T34)
Concen: 128.39 ng/ml m
RT: 62.502 min Scan# 3582
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

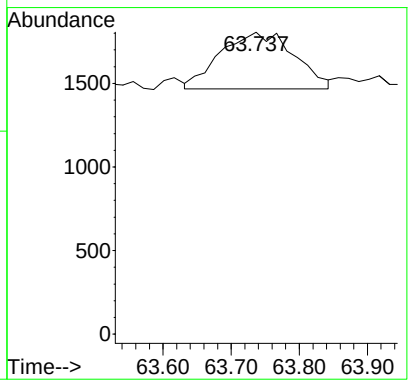
Tgt Ion:191 Resp: 2906

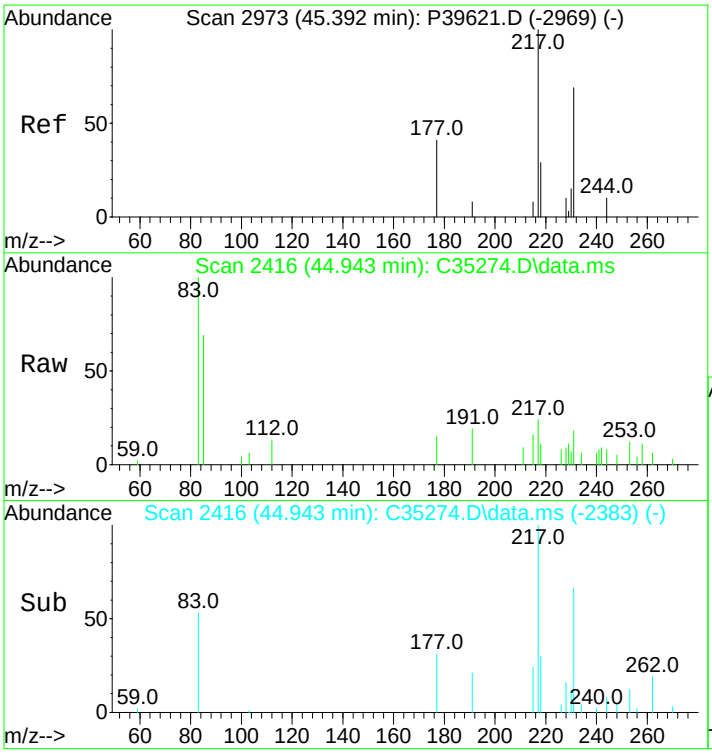




#126
Pentakishomohopane-22R (T35)
Concen: 112.31 ng/ml m
RT: 63.737 min Scan# 3664
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

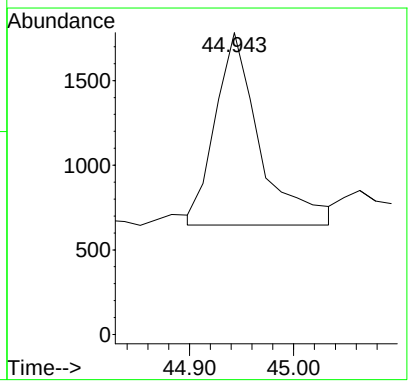
Tgt Ion:191 Resp: 2542

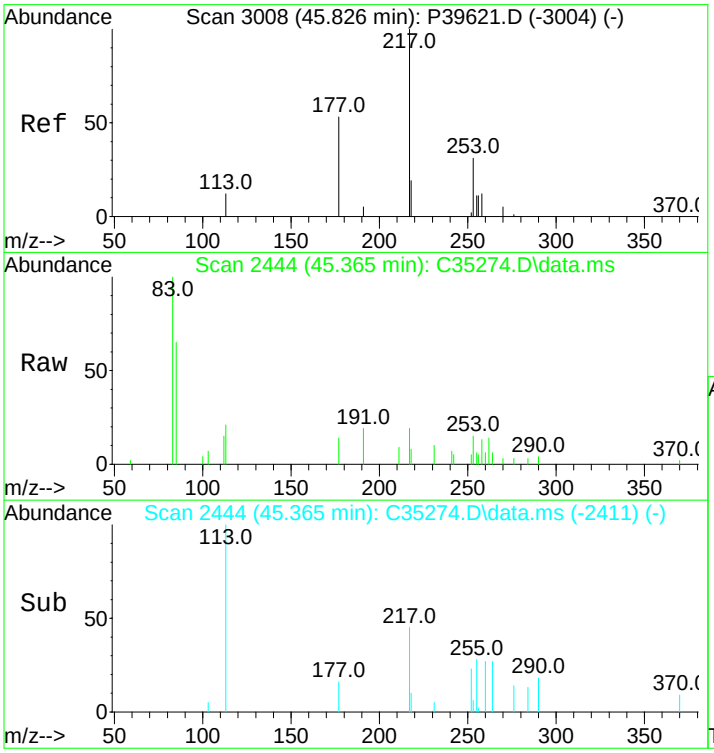




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 313.95 ng/ml m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

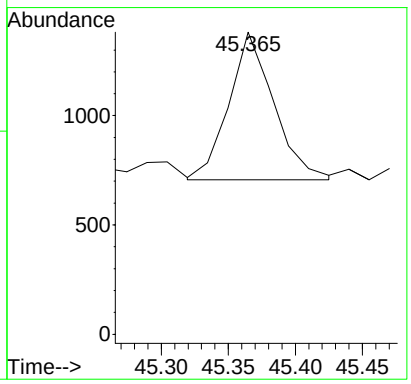
Tgt Ion:217 Resp: 3371

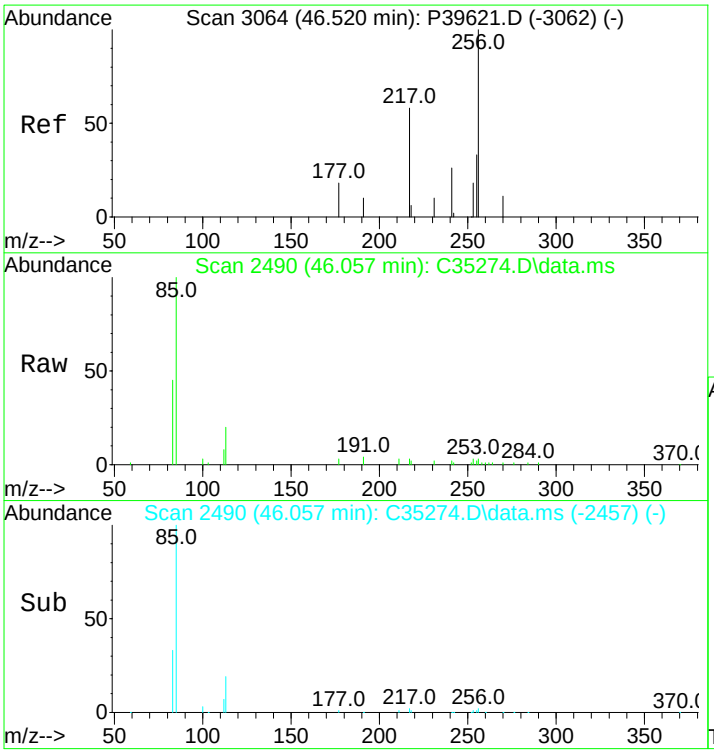




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 146.13 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

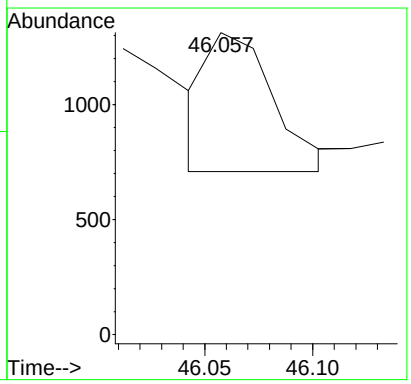
Tgt Ion:217 Resp: 1569

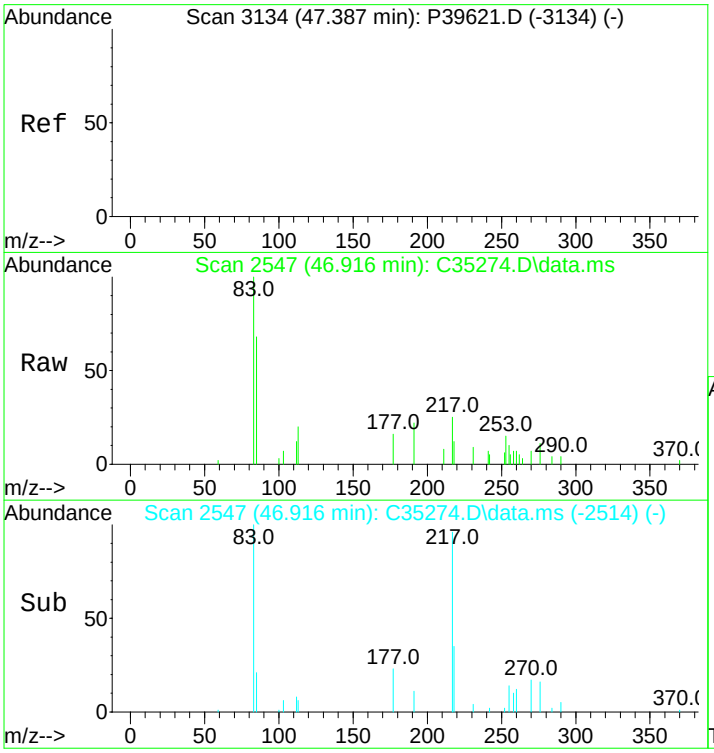




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 119.68 ng/ml m
RT: 46.057 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

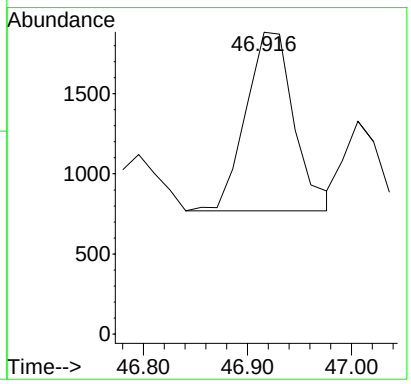
Tgt Ion:217 Resp: 1285

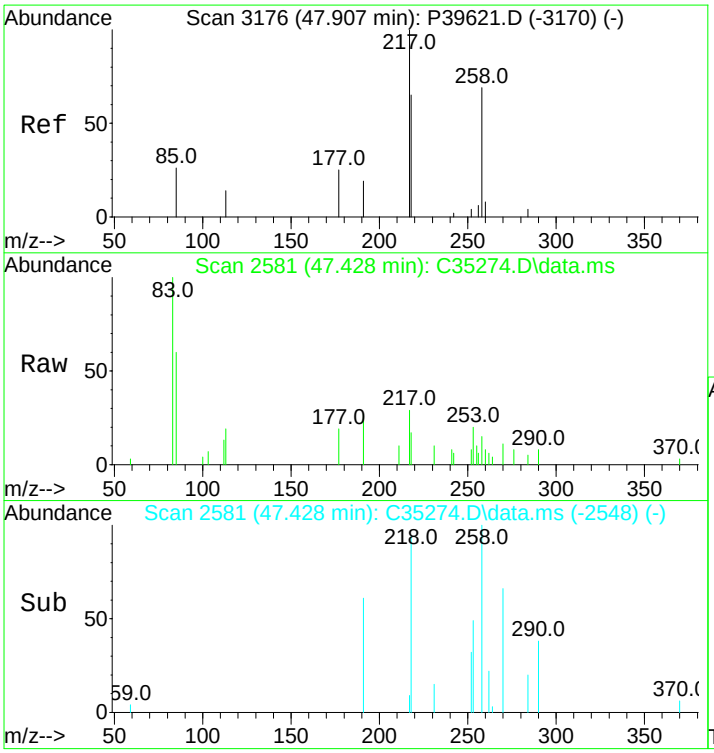




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 336.49 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

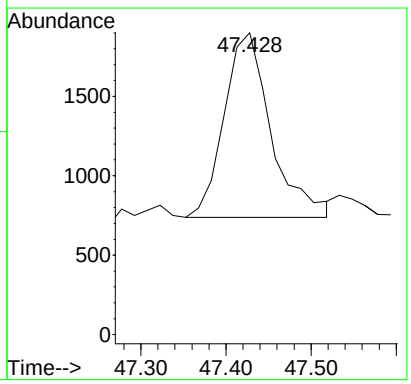
Tgt Ion:217 Resp: 3613

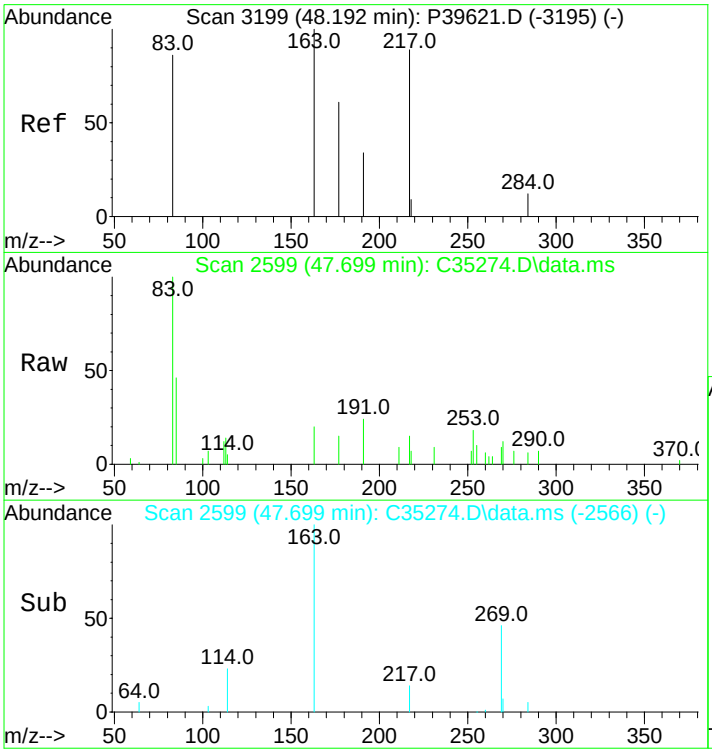




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 414.53 ng/ml
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

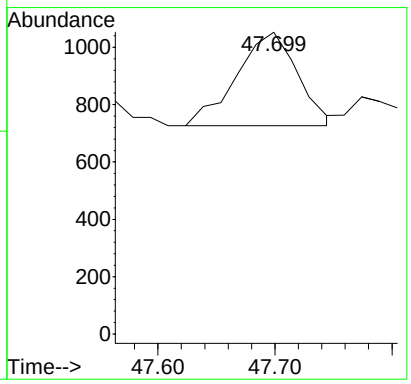
Tgt Ion:217 Resp: 4451

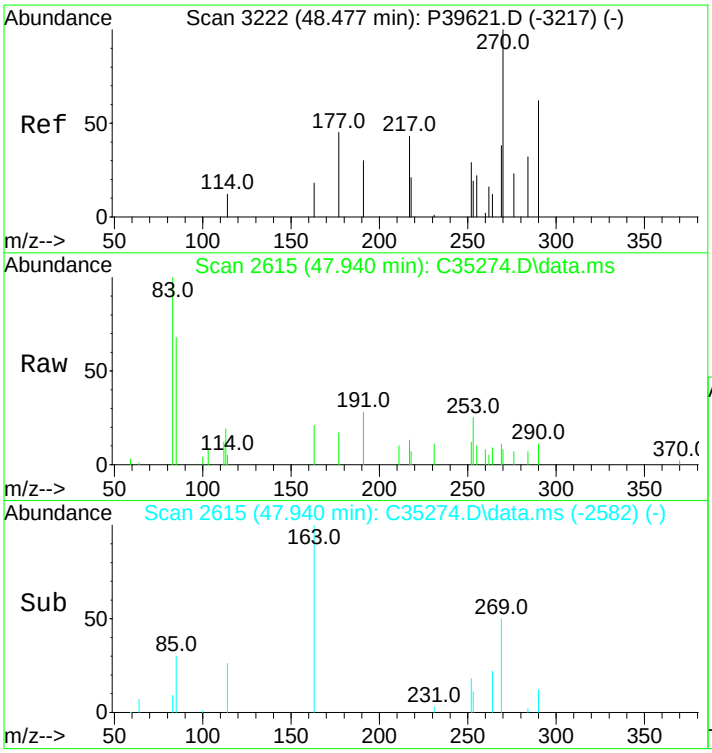




#133
Unknown Sterane (S18)
Concen: 109.80 ng/ml
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

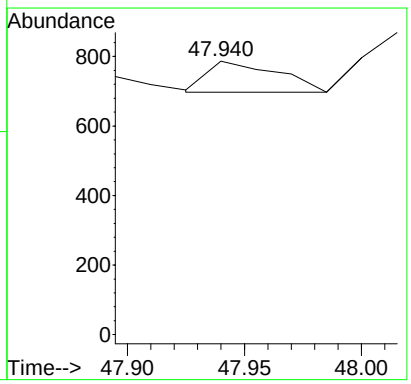
Tgt Ion:217 Resp: 1179

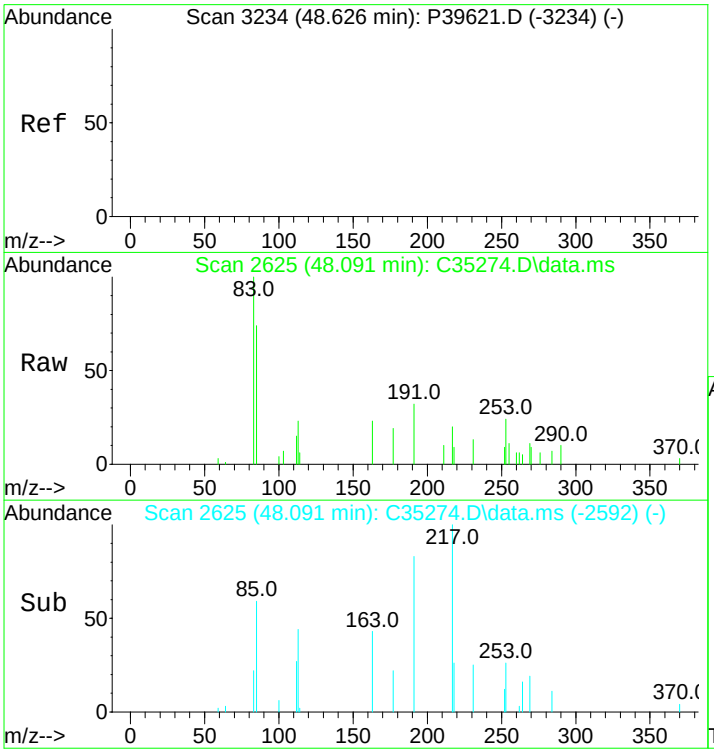




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 17.60 ng/ml
RT: 47.940 min Scan# 2615
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

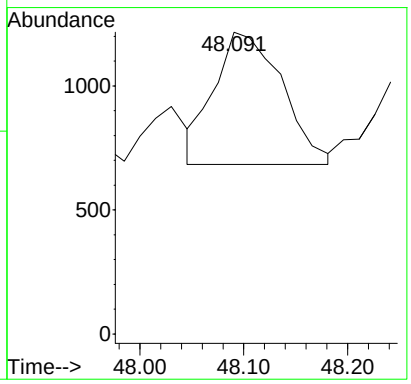
Tgt Ion:217 Resp: 189

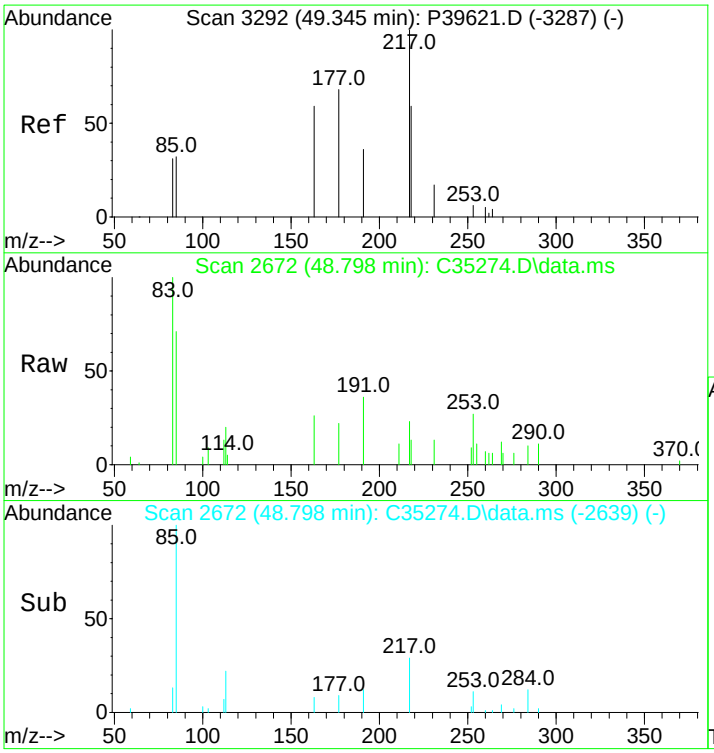




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 225.38 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

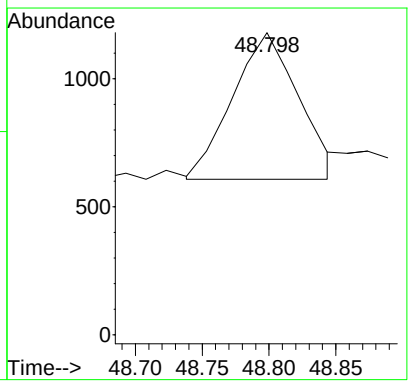
Tgt Ion:217 Resp: 2420

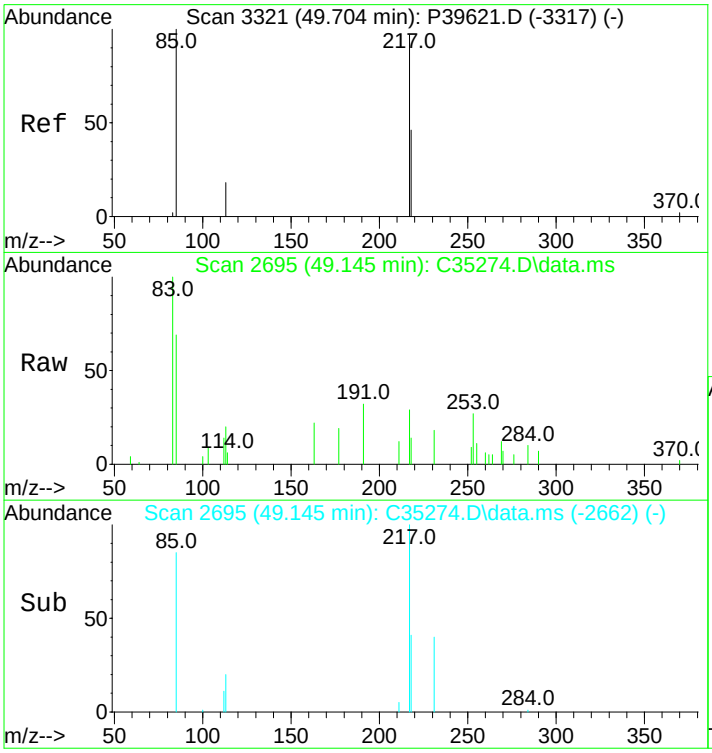




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 184.03 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

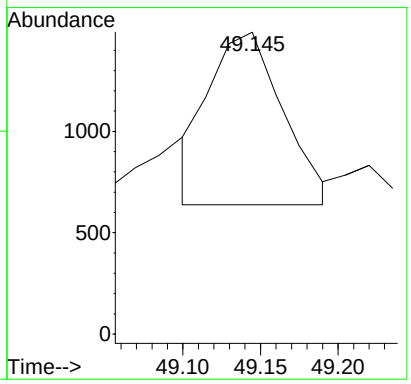
Tgt Ion:217 Resp: 1976

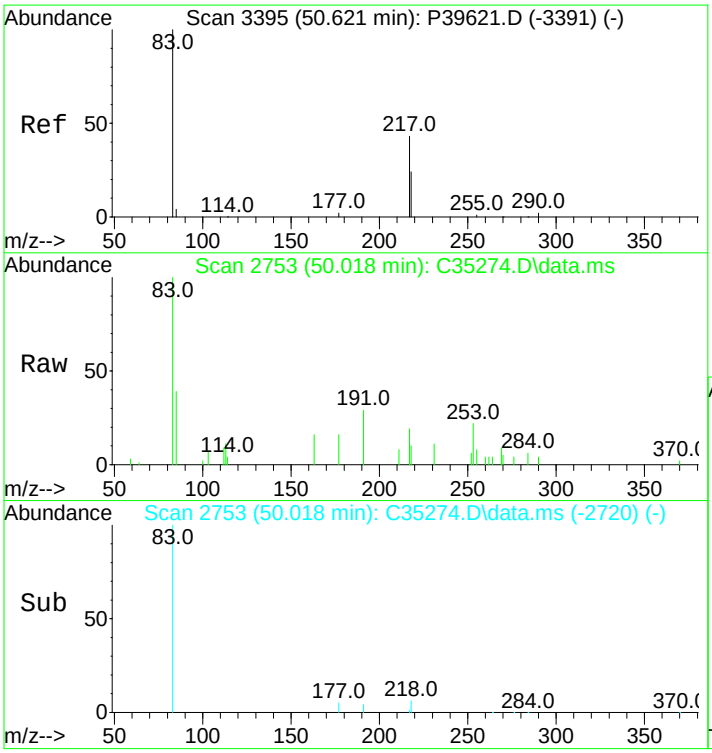




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 263.29 ng/ml m
RT: 49.145 min Scan# 2695
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

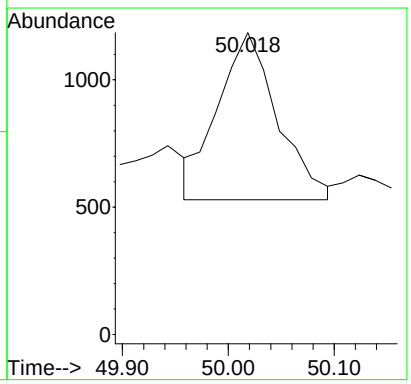
Tgt Ion:217 Resp: 2827

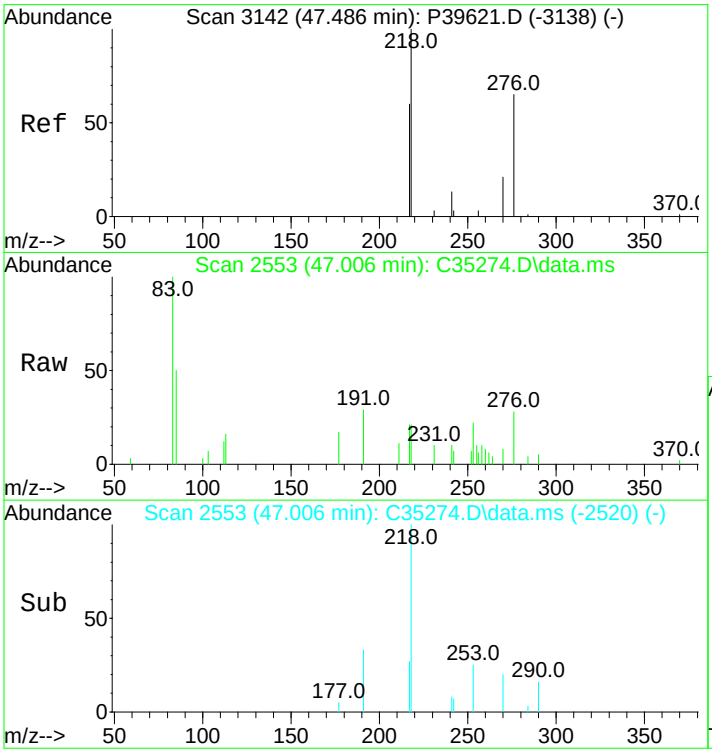




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 238.61 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

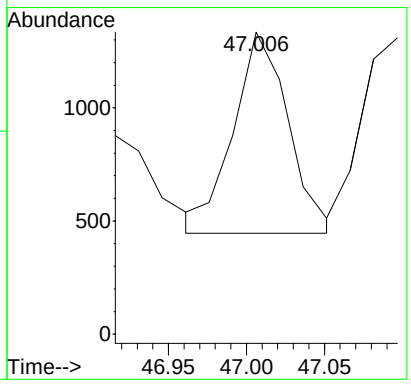
Tgt Ion:217 Resp: 2562

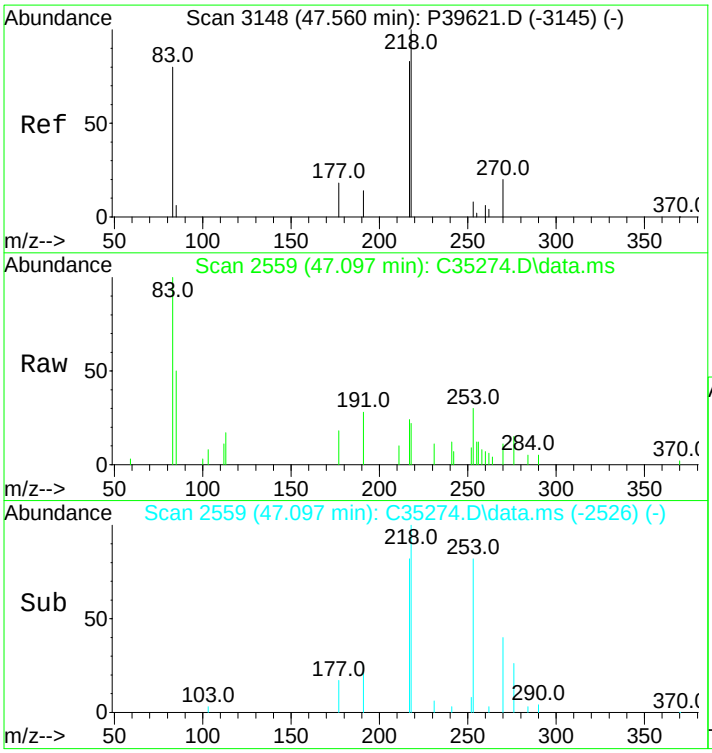




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 202.66 ng/ml
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

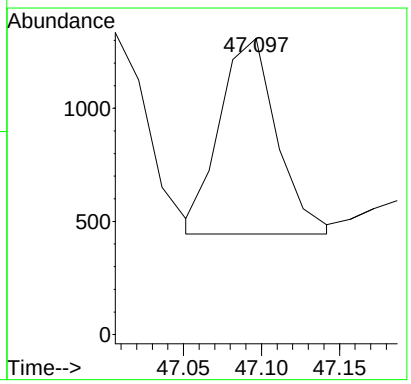
Tgt Ion:218 Resp: 2176

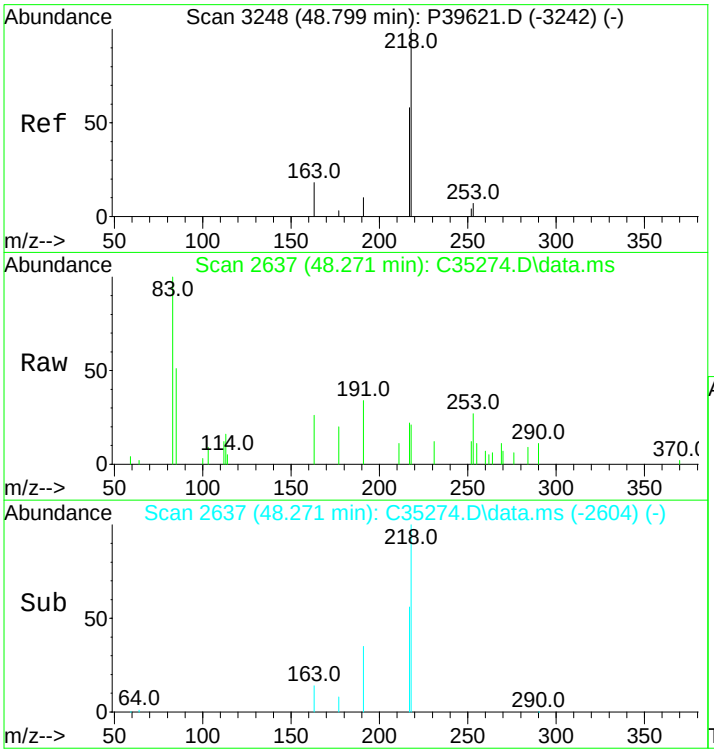




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 205.73 ng/ml
RT: 47.097 min Scan# 2559
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

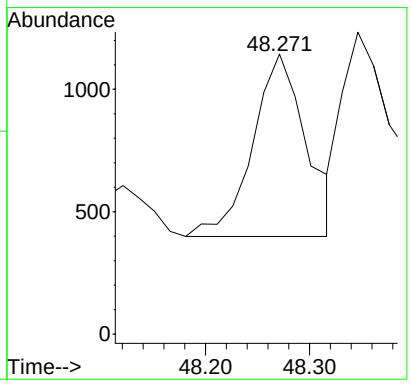
Tgt Ion:218 Resp: 2209

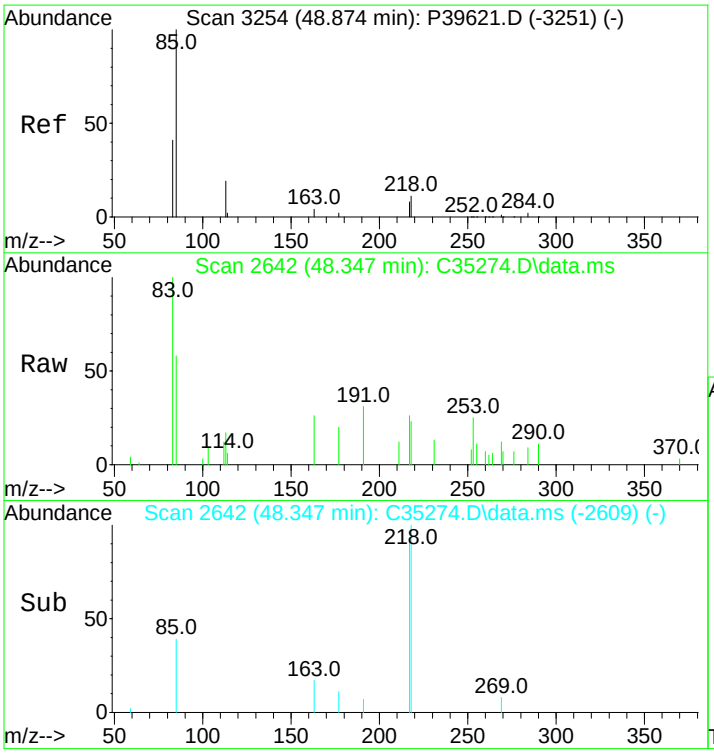




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 248.85 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

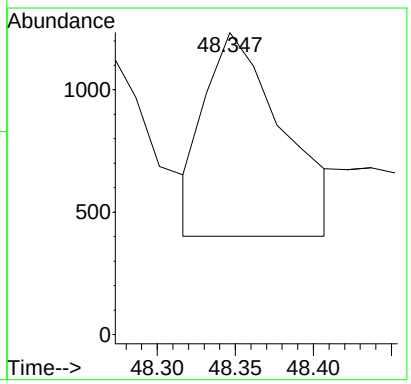
Tgt Ion:218 Resp: 2672

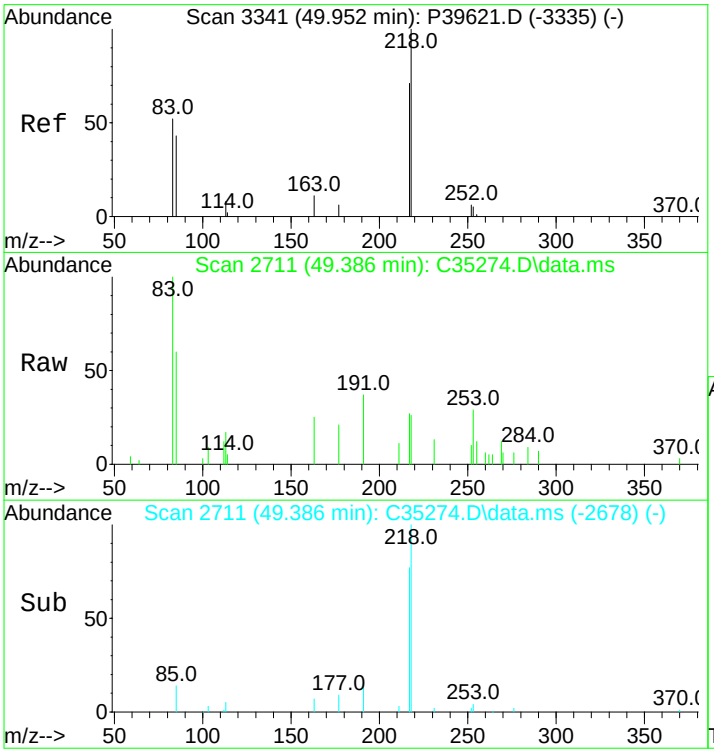




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 269.15 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

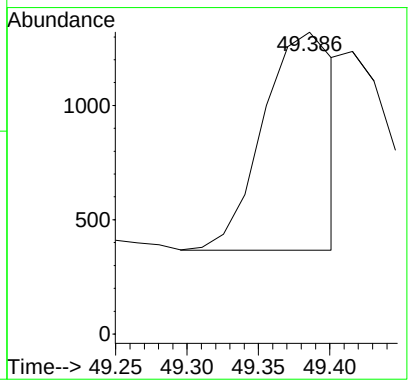
Tgt Ion:218 Resp: 2890

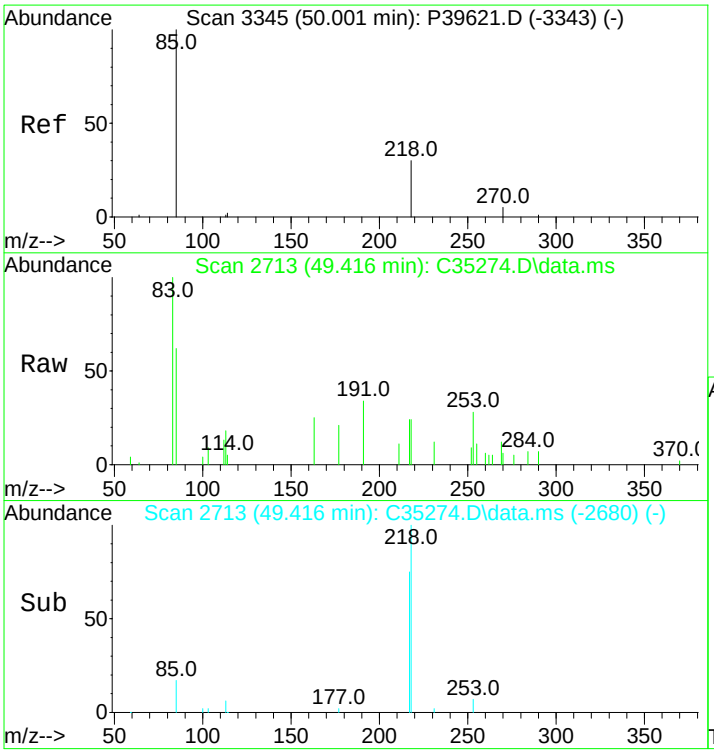




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 307.06 ng/ml m
RT: 49.386 min Scan# 2711
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

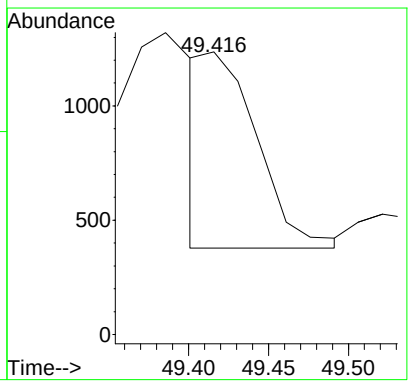
Tgt Ion:218 Resp: 3297

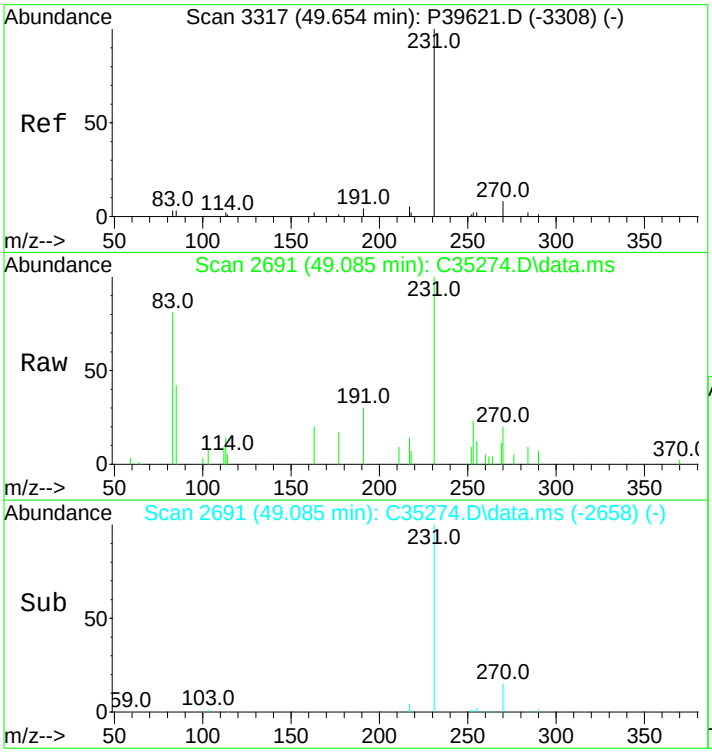




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 186.92 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

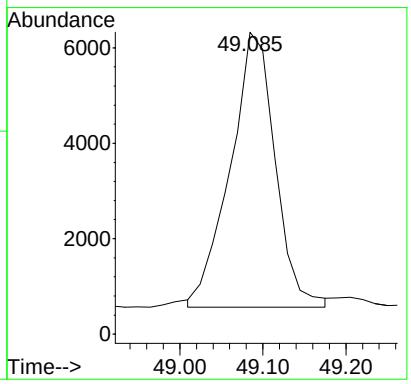
Tgt Ion:218 Resp: 2007

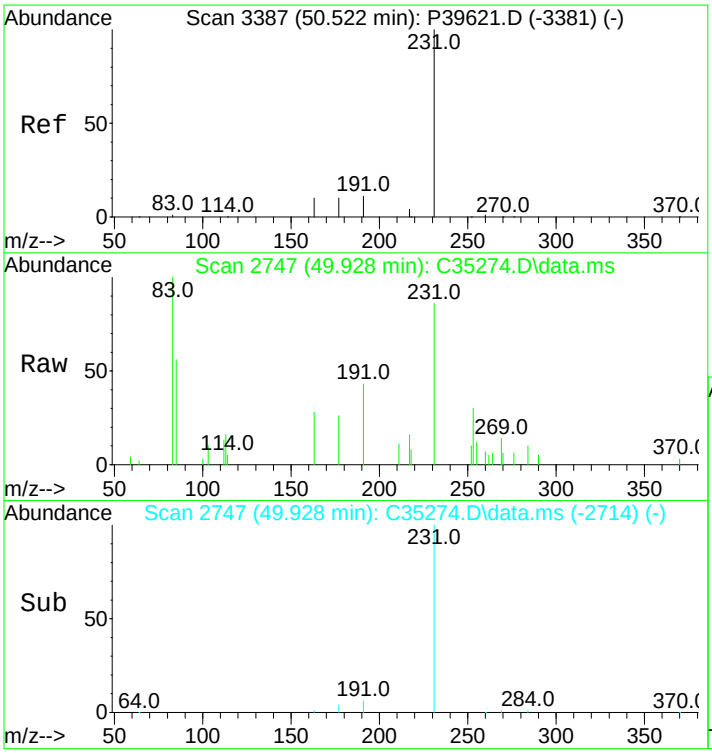




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2021.63 ng/mL m
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

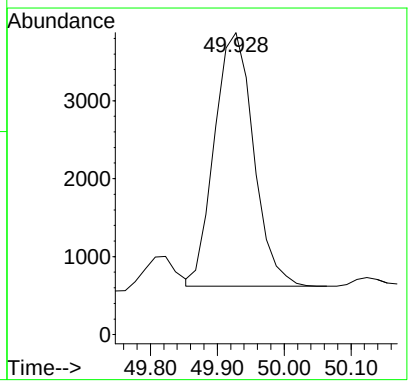
Tgt Ion:231 Resp: 21707

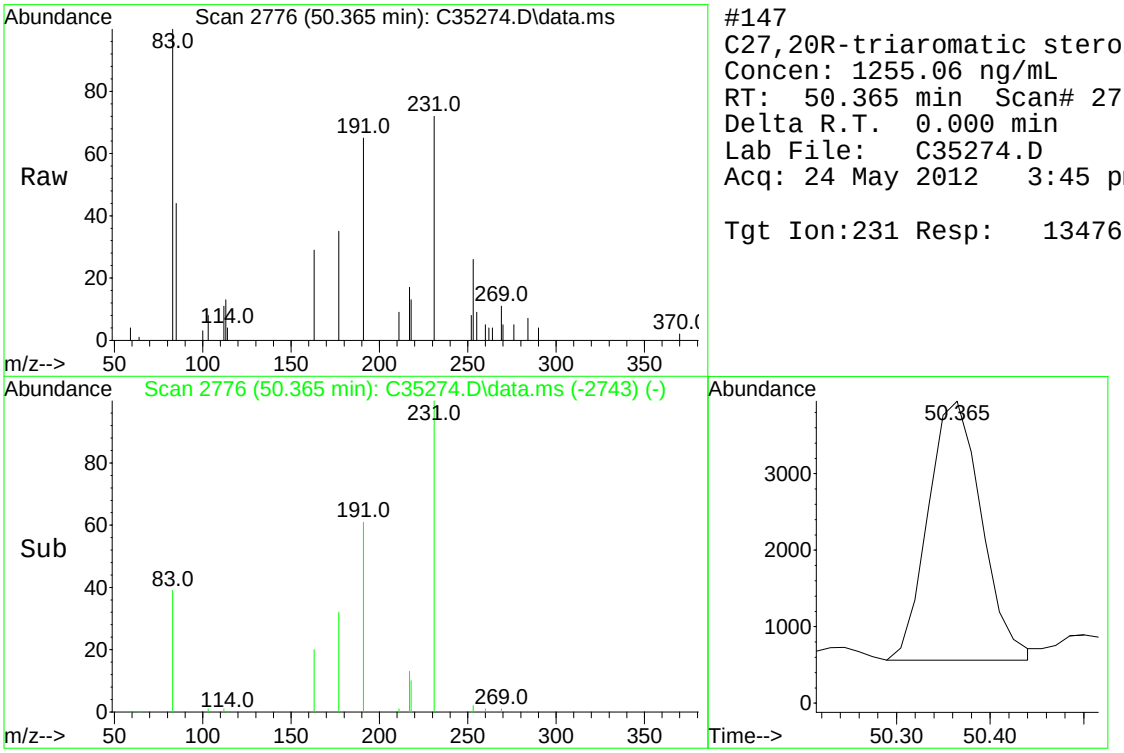




#146
C28,20S-triaromatic steroid
Concen: 1233.17 ng/mL
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

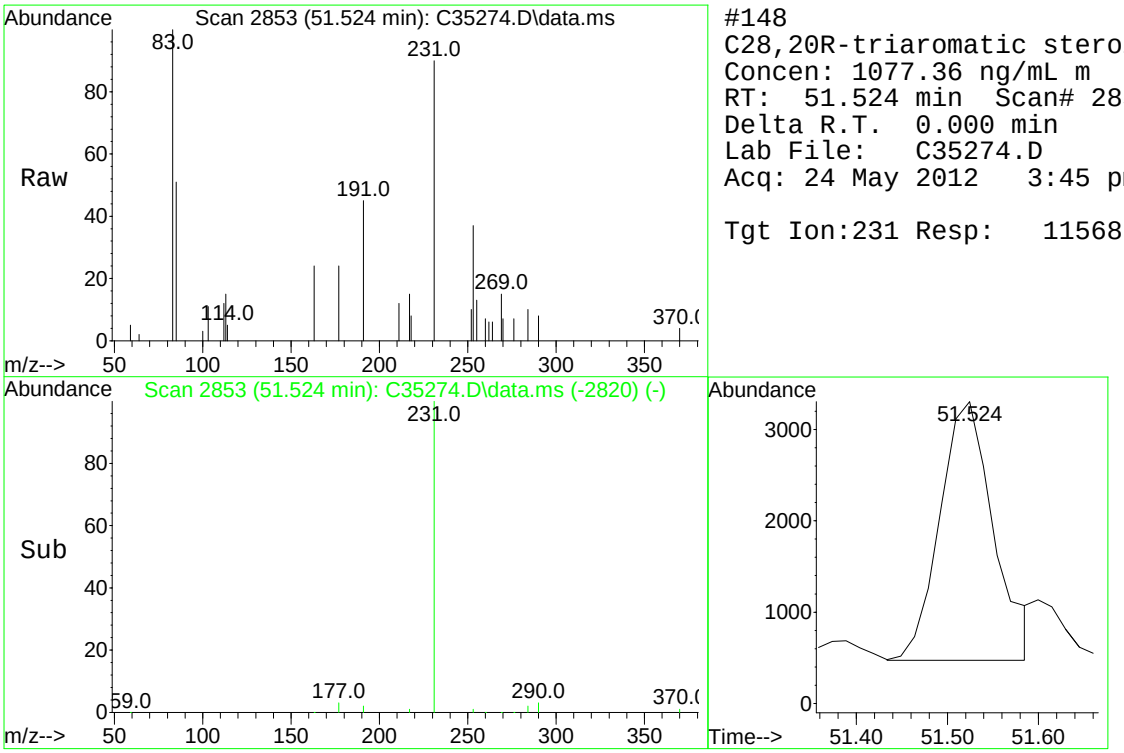
Tgt Ion:231 Resp: 13241





#147
C27,20R-triaromatic steroid
Concen: 1255.06 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:231 Resp: 13476



#148
C28,20R-triaromatic steroid
Concen: 1077.36 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35274.D
Acq: 24 May 2012 3:45 pm

Tgt Ion:231 Resp: 11568

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15230M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	31226	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	60170	910.259	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.03%			
42) Phenanthrene-d10	32.221	188	56388	1079.236	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 107.92%			
86) Benzo[a]pyrene-d12	47.850	264	55194	852.898	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.29%			
127) 5B(H)Cholane - Surr	43.438	217	11041M3	1130.922	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 113.09%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	9086	755.738	ng/mL	100
4) cis-Decalin	17.287	138	828	91.379	ng/mL	100
5) C1-Decalins	17.558	152	18119M5	1507.067	ng/mL	
6) C2-Decalins	18.973	166	24183M5	2011.447	ng/mL	
7) C3-Decalins	21.803	180	16218M5	1348.950	ng/mL	
8) C4-Decalins	25.176	194	17090M5	1421.479	ng/mL	
10) Naphthalene	19.485	128	29573	304.663	ng/mL#	100
11) C1-Naphthalenes	22.180	142	80551M5	829.843	ng/mL	
12) C2-Naphthalenes	25.010	156	194234M5	2001.014	ng/mL	
13) C3-Naphthalenes	27.690	170	214847M5	2213.370	ng/mL	
14) C4-Naphthalenes	30.113	184	159729M5	1645.541	ng/mL	
16) 2-Methylnaphthalene	22.180	142	49916	869.708	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31314	556.618	ng/mL#	100
18) Benzothiophene	19.711	134	2264M3	25.919	ng/mL	
19) C1-Benzo(b)thiophenes	21.743	148	12357M5	141.467	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	21717M5	248.624	ng/mL	
21) C3-Benzo(b)thiophenes	27.524	176	42944M5	491.638	ng/mL	
22) C4-Benzo(b)thiophenes	29.285	190	47787M5	547.082	ng/mL	
23) Biphenyl	24.062	154	5787M3	79.708	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	48813	1035.171	ng/mL#	100
25) Dibenzofuran	27.133	168	3301	39.595	ng/mL#	45
26) Acenaphthylene	25.763	152	1513	15.702	ng/mL#	100
27) Acenaphthene	26.485	153	3930M3	69.270	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	16260M3	427.758	ng/mL	
29) Fluorene	28.503	166	8921M3	142.572	ng/mL	
30) C1-Fluorenes	30.866	180	25667M5	410.201	ng/mL	
31) C2-Fluorenes	33.064	194	53043M5	847.714	ng/mL	
32) C3-Fluorenes	34.901	208	61428M5	981.720	ng/mL	
33) Dibenzothiophene	31.814	184	28650	285.638	ng/mL#	61
34) 4-Methyldibenzothiophene(	33.591	198	36326	362.167	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	28555	284.691	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	19727	196.676	ng/mL#	100
37) OTP	34.012	198	10159	101.284	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	101610M5	1013.042	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	91451m	911.758	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	165240M5	1647.427	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	175764M5	1752.350	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	123980M5	1236.069	ng/mL	
43) Phenanthrene	32.311	178	37454M3	425.016	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.283	192	19683M3	223.356	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	22362	253.757	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1541M3	17.487	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	31403	356.351	ng/mL	100
48) 1-Methylphenanthrene(1MP)	34.825	192	19649M3	222.971	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.735	192	97337M5	1104.550	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	133760M5	1517.866	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) C2-Phenanthrenes/Anthr BS	36.542	206	133760m	1517.866	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.643	220	115687M5	1312.780	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	61011M5	692.334	ng/mL	
56) Carbazole	33.169	167	2810M3	32.318	ng/mL	
57) 1-Methylphenanthrene	34.825	192	20002M3	358.166	ng/mL	
58) Fluoranthene	37.084	202	3306M3	37.774	ng/mL	
60) Pyrene	37.957	202	10866M3	122.134	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.357	216	36490M5	410.148	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.164	230	51537M5	579.276	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.182	244	55866M5	627.934	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.537	258	55758M5	626.720	ng/mL	
66) Naphthobenzothiophene	41.812	234	13143	137.217	ng/ml#	87
67) Naphthobenzothiophene-2,1	41.812	234	13143	137.217	ng/mL#	87
68) Naphthobenzothiophene-1,2	42.158	234	3276M3	34.203	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	2225M3	23.230	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	64767M5	676.189	ng/ml	
71) C2-Naphthobenzothiophenes	45.259	262	99012M5	1033.719	ng/ml	
72) C3-Naphthobenzothiophenes	46.811	276	84465M5	881.843	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	66736M5	696.747	ng/mL	
75) Benz[a]anthracene	42.745	228	1618M3	16.325	ng/mL	
77) Chrysene/Triphenylene	42.896	228	9510M3	95.042	ng/mL	
78) C1-Chrysenes	44.371	242	27844M5	278.271	ng/mL	
79) C2-Chrysenes	46.449	256	41388M5	413.629	ng/mL	
79) C2-Chrysenes BS	46.449	256	41388m	413.629	ng/mL	
80) C3-Chrysenes	47.789	270	51413M5	513.819	ng/mL	
81) C4-Chrysenes	49.175	284	33779M5	337.585	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3556	32.653	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	1378M3	11.622	ng/mL	
85) Benzo[e]pyrene	47.759	252	5182	48.107	ng/mL	96
87) Benzo[a]pyrene	47.940	252	2698M3	26.015	ng/mL	
88) Perylene	48.241	252	5287	47.700	ng/mL#	75
89) Indeno[1,2,3-cd]pyrene	52.579	276	1642M3	13.605	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	789M3	6.872	ng/mL	
91) Benzo[g,h,i]perylene	53.829	276	4854	38.067	ng/mL#	81
92) Hopane (T19)	51.705	191	27296M3	1326.327	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	11006M3	534.787	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	6061M3	294.507	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	5876M3	285.518	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2064M3	100.291	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	2334M3	113.410	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	2028M3	98.542	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	2575M3	125.121	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2630M3	127.793	ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	3183	154.664	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	2982M3	144.897	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.061	191	3560	172.982	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2991M3	145.334	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2340M3	113.702	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7751M3	376.625	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	4678M3	227.306	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.567	191	1482	72.011	ng/ml	100
110) 30-Norhopane (T15)	50.395	191	19394M3	942.364	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	3312M3	160.932	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	1309M3	63.605	ng/ml	
113) 30-Normoretane (T17)	51.133	191	2054M3	99.805	ng/ml	
115) Moretane (T20)	52.368	191	2068M3	100.485	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11827	574.680	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	9873	479.734	ng/ml	100
118) Gammacerane/C32-diahopane	54.160	191	4202	204.177	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.928	191	7679	373.127	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	5794	281.533	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
121)	30,31-Trishomohopane-22S	56.976	191	5888M3	286.101	ng/ml	
122)	30,31-Trishomohopane-22R	57.563	191	3881M3	188.580	ng/ml	
123)	Tetrakishomohopane-22S (T	59.505	191	3814	185.324	ng/ml	100
124)	Tetrakishomohopane-22R (T	60.364	191	3497	169.921	ng/ml	100
125)	Pentakishomohopane-22S (T	62.502	191	4675M3	227.161	ng/ml	
126)	Pentakishomohopane-22R (T	63.722	191	3523M3	171.184	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	1947M3	199.430	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	817	83.685	ng/ml	100
130)	13b,17a-20S-Methyldiachol	46.058	217	826M3	84.607	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	3342	342.319	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	3615M3	370.282	ng/ml	
133)	Unknown Sterane (S18)	47.684	217	786	80.509	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	47.940	217	447	45.786	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.106	217	1732M3	177.407	ng/ml	
136)	14a,17a-20R-Methylcholest	48.799	217	1303M3	133.465	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.145	217	3059M3	313.331	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2522M3	258.327	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	1988M3	203.629	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.097	218	2245M3	229.954	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	1819	186.319	ng/ml	100
142)	14b,17b-20S-Methylcholest	48.347	218	2382M3	243.987	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	3507M3	359.219	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	2111M3	216.228	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.100	231	17997	1843.420	ng/mL	100
146)	C28,20S-triaromatic stero	49.928	231	14951	1531.420	ng/mL	100
147)	C27,20R-triaromatic stero	50.365	231	11640	1192.277	ng/mL	100
148)	C28,20R-triaromatic stero	51.524	231	13353M3	1367.738	ng/mL	

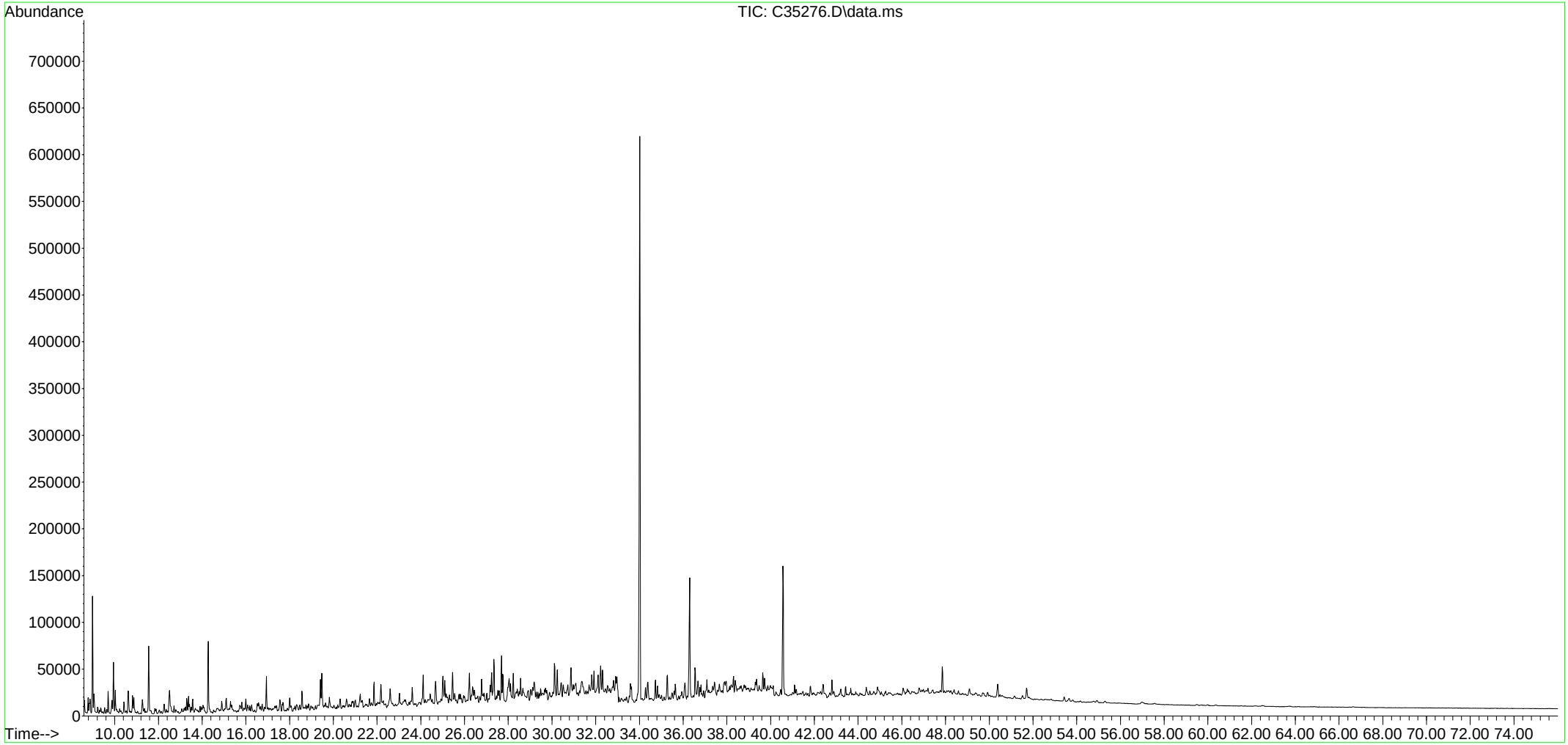
(#) = qualifier out of range (m) = manual integration (+) = signals summed

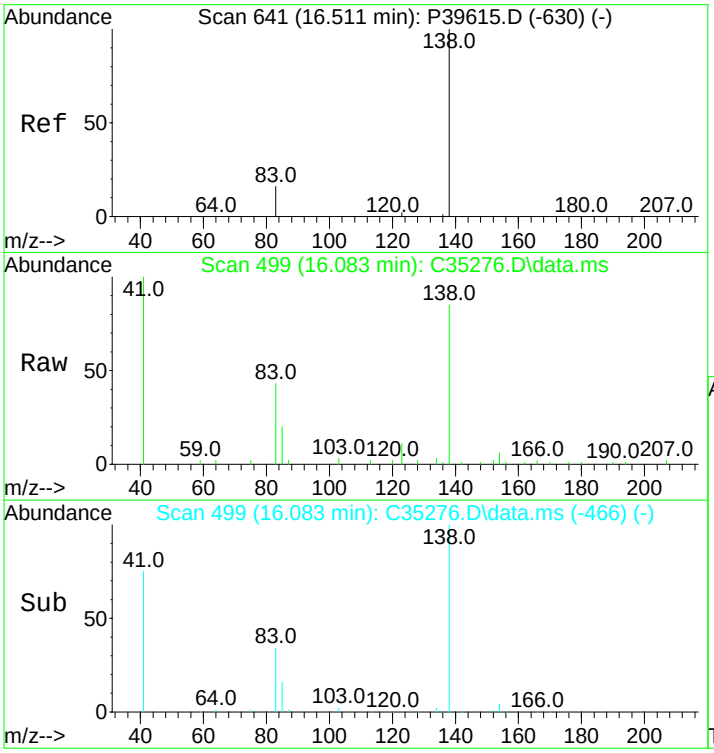
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35276.D
Acq On : 24 May 2012 5:15 pm
Operator : AC
Sample : SS052912WCS01
Misc : WHAP10
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 12:34:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

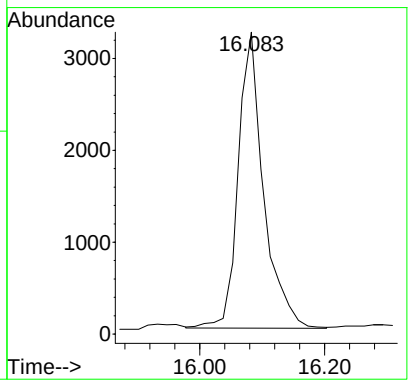
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

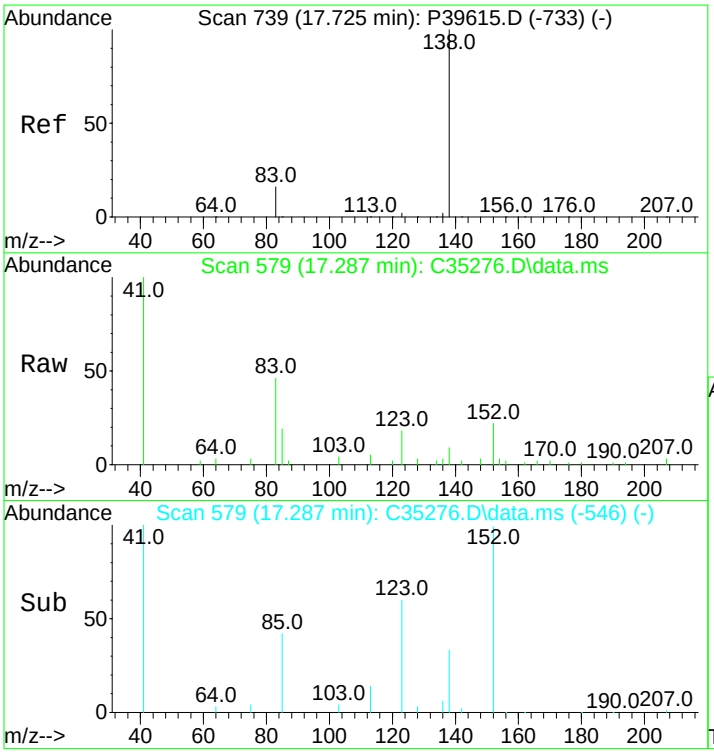




#3
trans-Decalin
Concen: 755.74 ng/mL
RT: 16.083 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

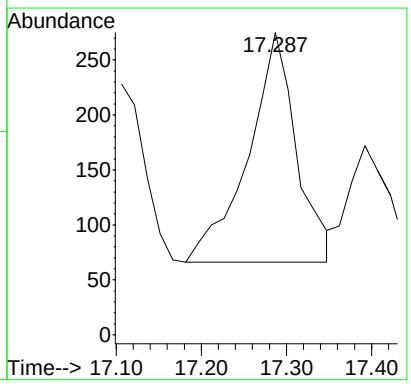
Tgt Ion:138 Resp: 9086

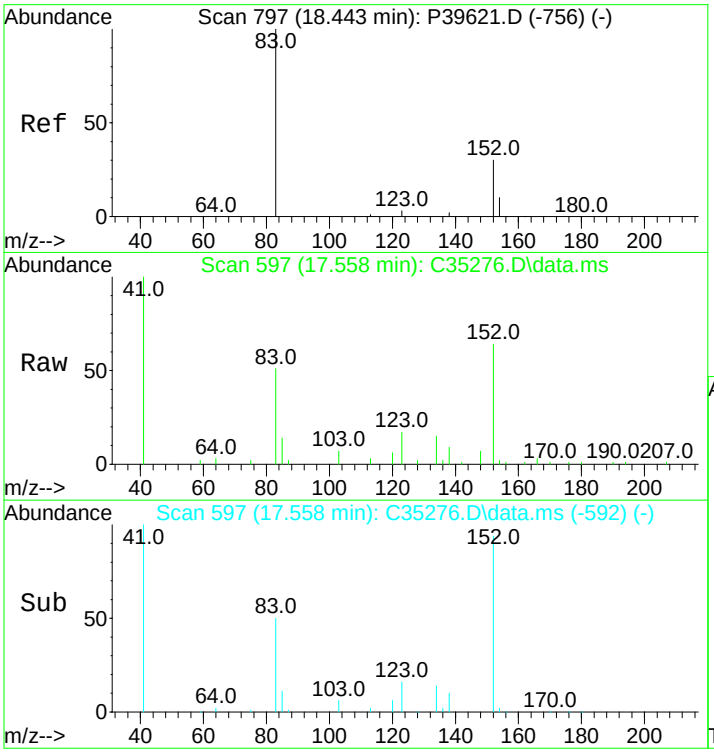




#4
cis-Decalin
Concen: 91.38 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

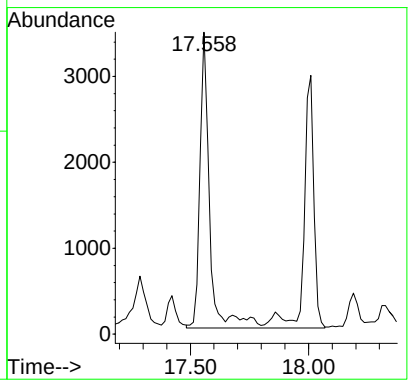
Tgt Ion:138 Resp: 828

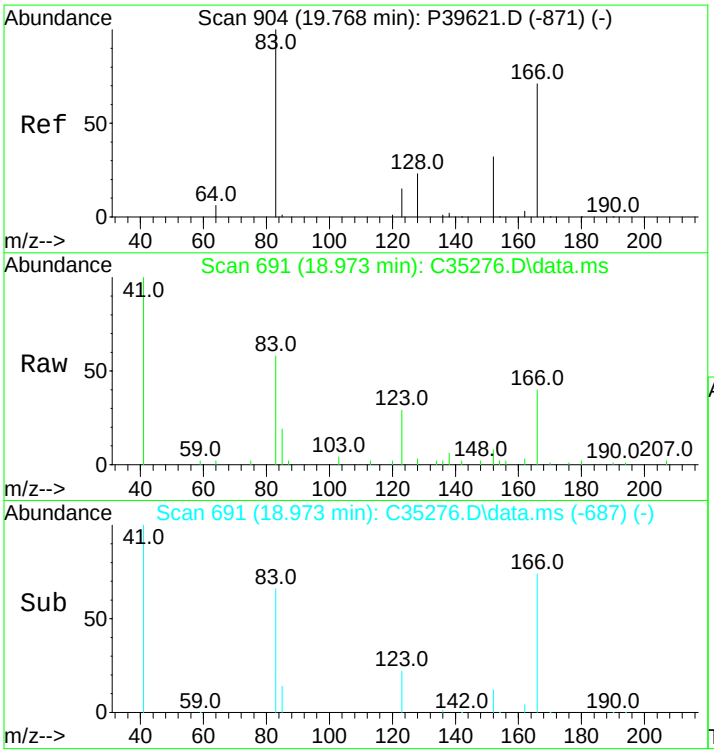




#5
C1-Decalins
Concen: 1507.07 ng/mL m
RT: 17.558 min Scan# 597
Delta R.T. -0.451 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

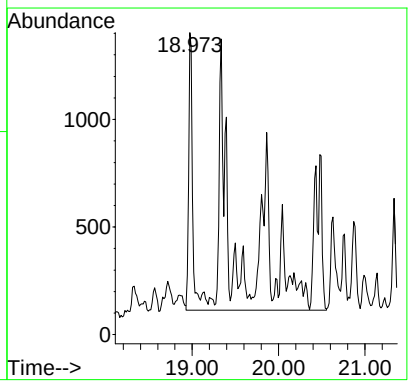
Tgt Ion:152 Resp: 18119

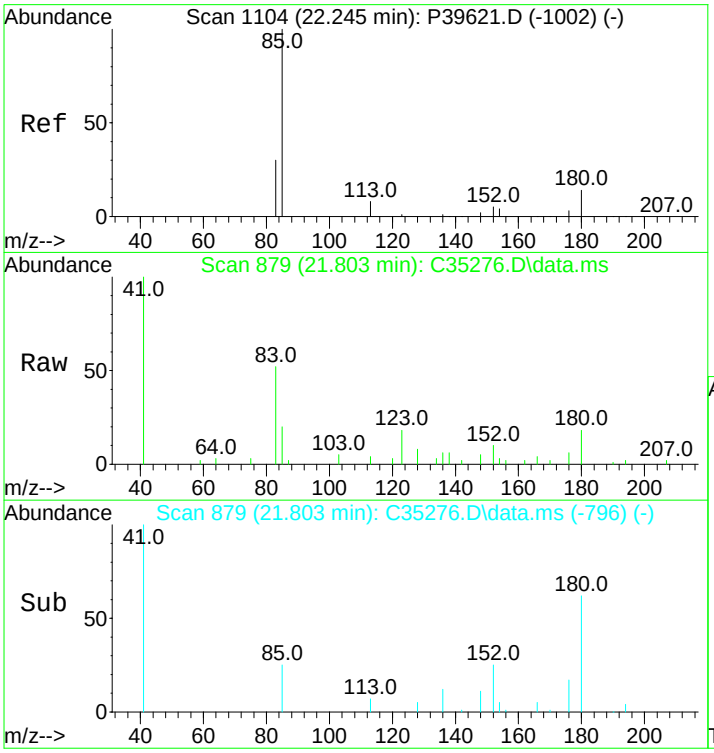




#6
C2-Decalins
Concen: 2011.45 ng/mL m
RT: 18.973 min Scan# 691
Delta R.T. -0.465 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

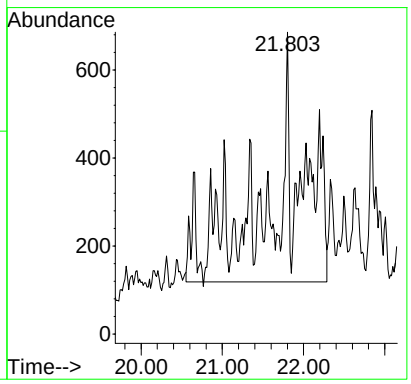
Tgt Ion:166 Resp: 24183

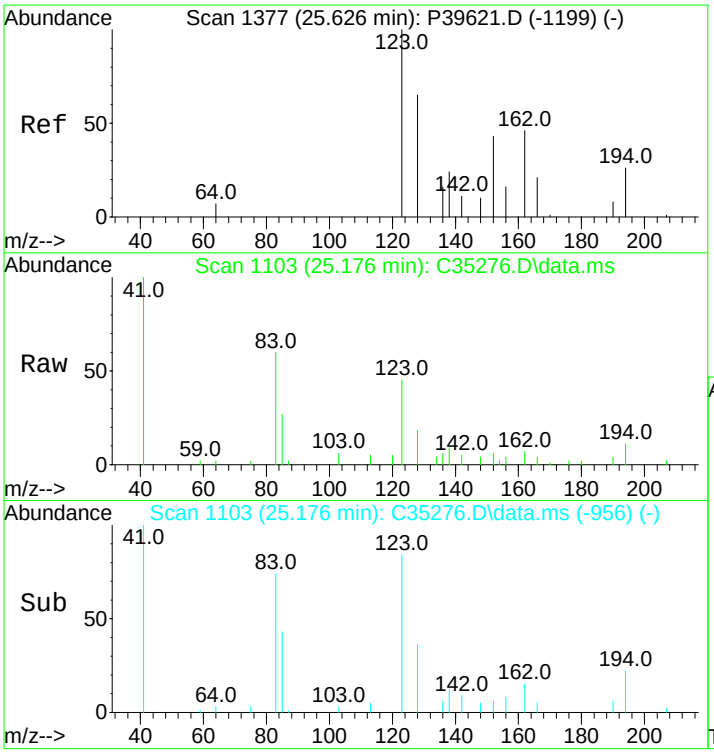




#7
C3-Decalins
Concen: 1348.95 ng/mL m
RT: 21.803 min Scan# 879
Delta R.T. -0.063 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

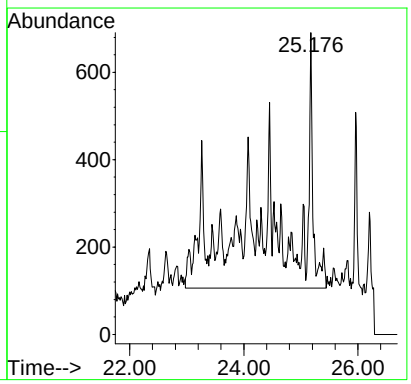
Tgt Ion:180 Resp: 16218

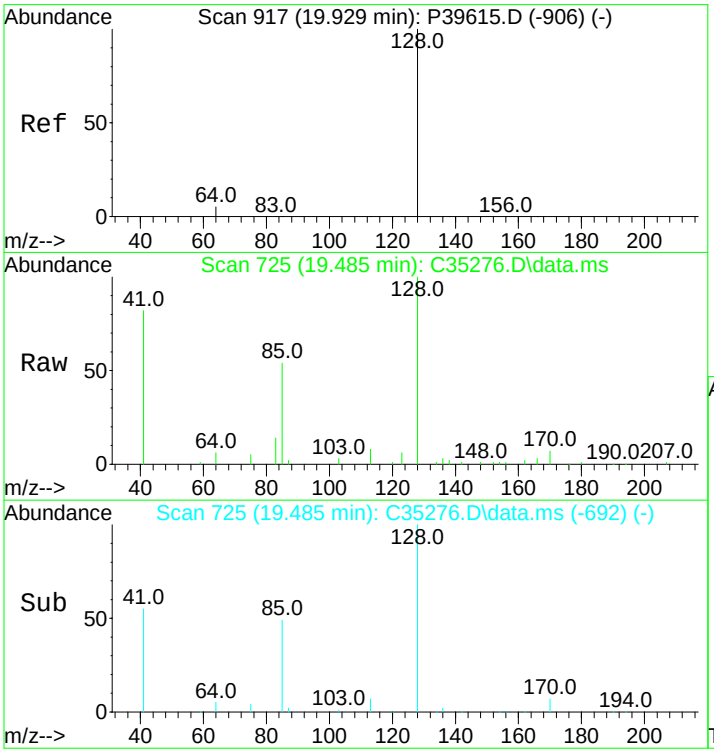




#8
C4-Decalins
Concen: 1421.48 ng/mL m
RT: 25.176 min Scan# 1103
Delta R.T. -0.020 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:194 Resp: 17090

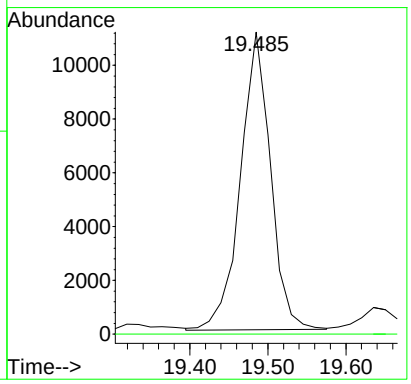


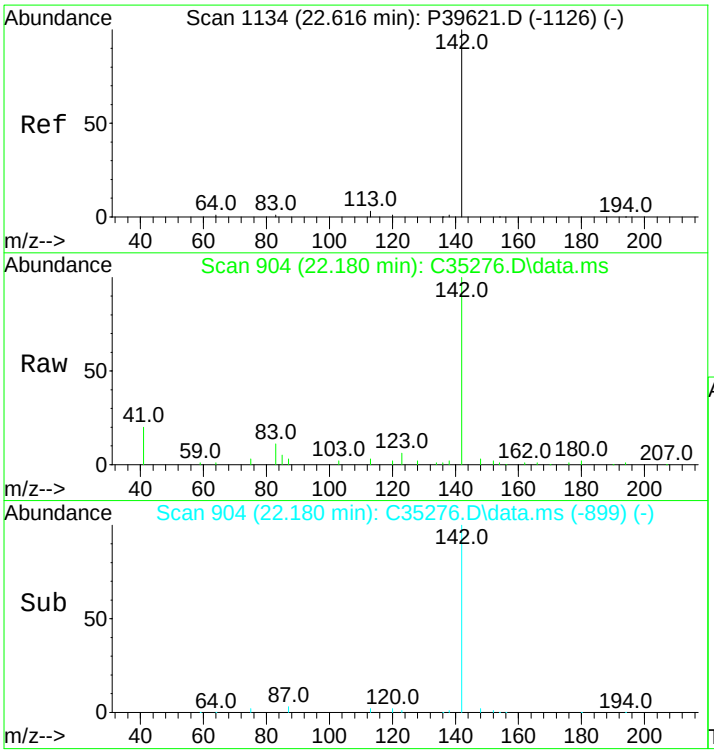


#10
Naphthalene
Concen: 304.66 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:128 Resp: 29573

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

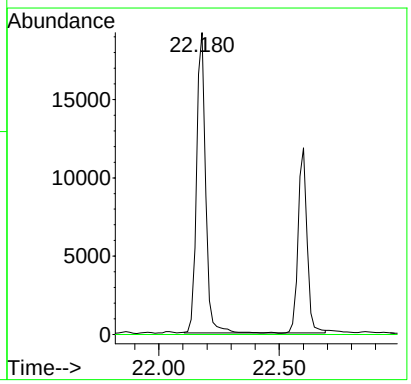


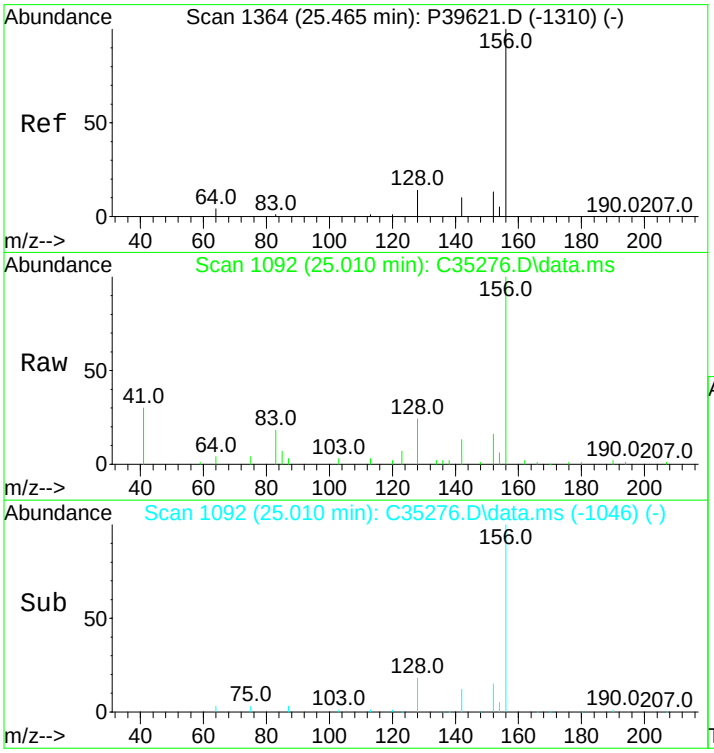


#11
C1-Naphthalenes
Concen: 829.84 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:142 Resp: 80551

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

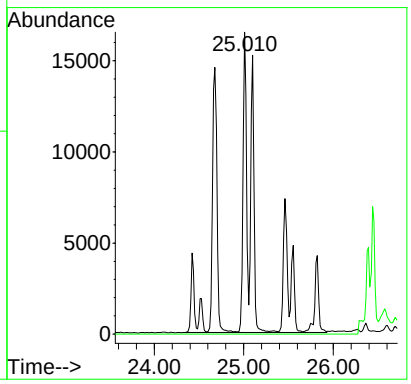


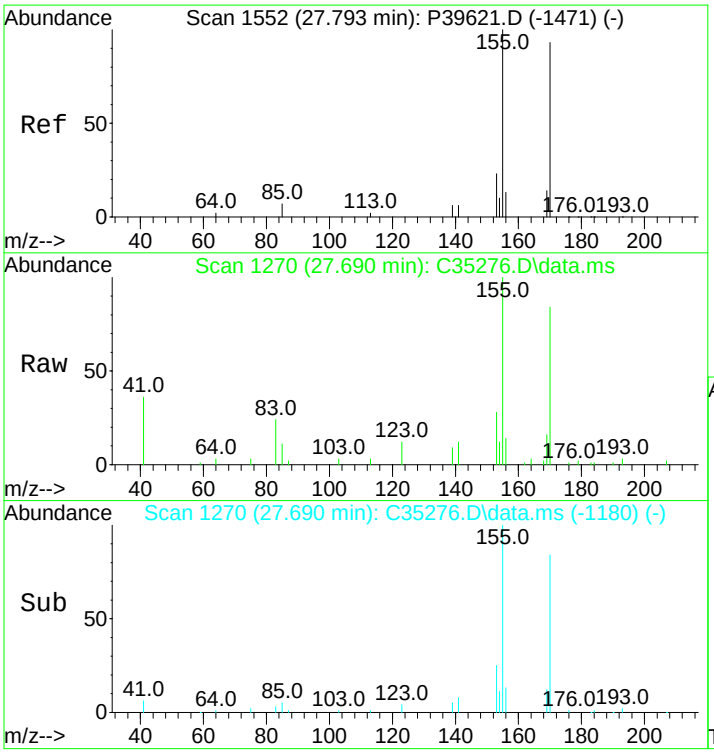


#12
C2-Naphthalenes
Concen: 2001.01 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.023 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:156 Resp: 194234

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

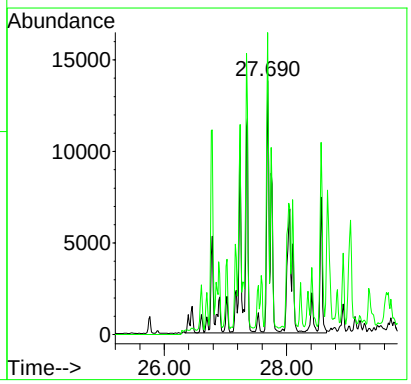


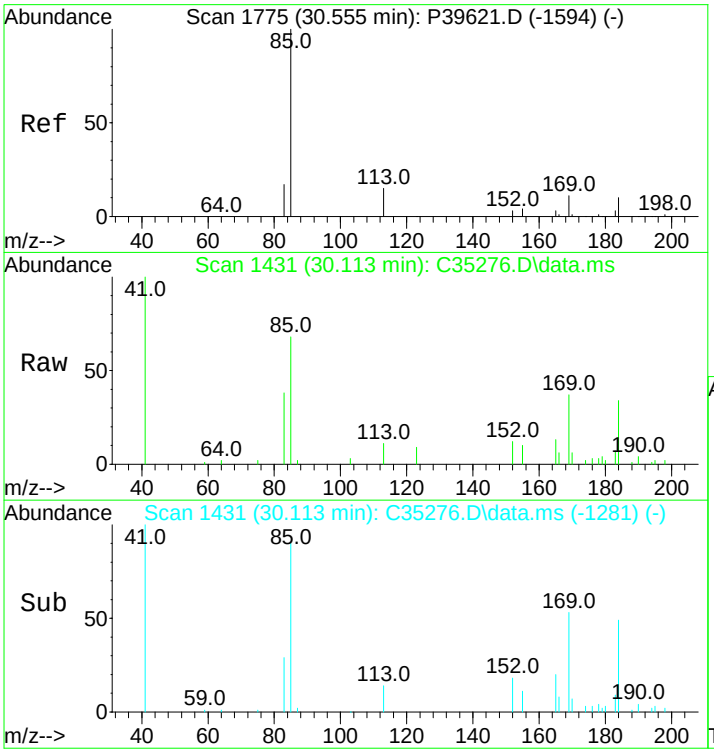


#13
C3-Naphthalenes
Concen: 2213.37 ng/mL m
RT: 27.690 min Scan# 1270
Delta R.T. 0.362 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:170 Resp: 214847

Ion	Ratio	Lower	Upper
170	100		
155	17.1	86.3	129.5#

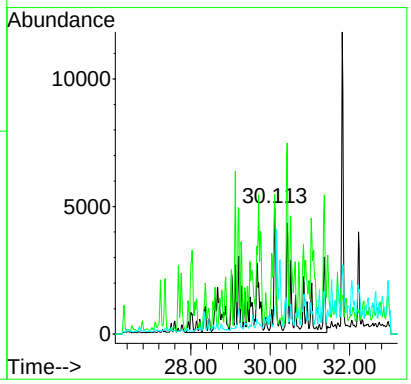


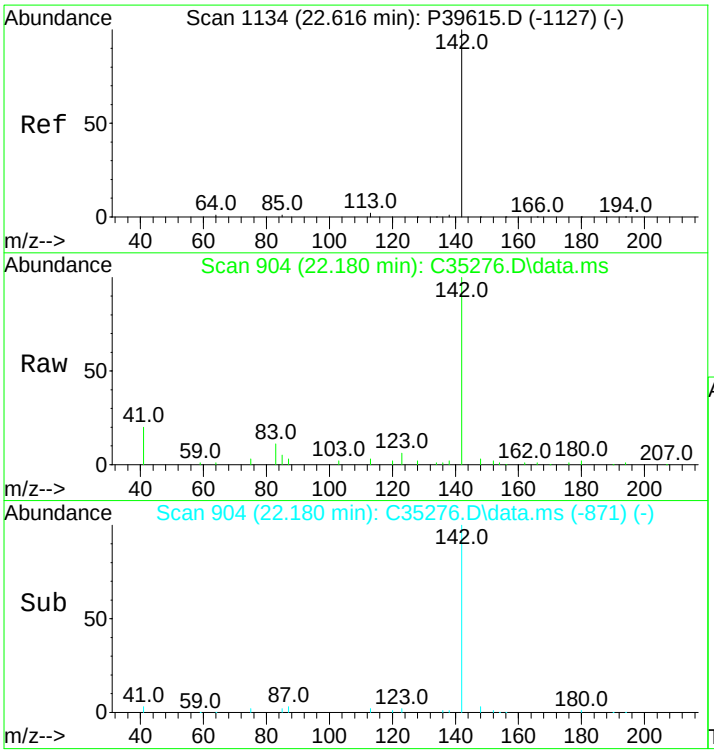


#14
C4-Naphthalenes
Concen: 1645.54 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:184 Resp: 159729

Ion	Ratio	Lower	Upper
184	100		
169	6.0	100.6	150.8#
183	0.0	26.6	40.0#

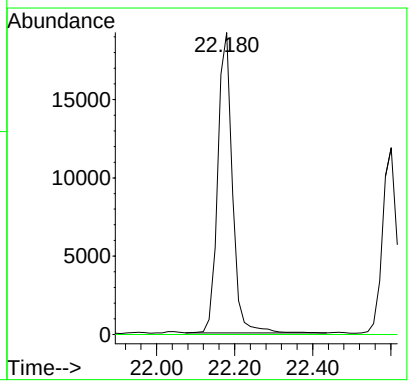


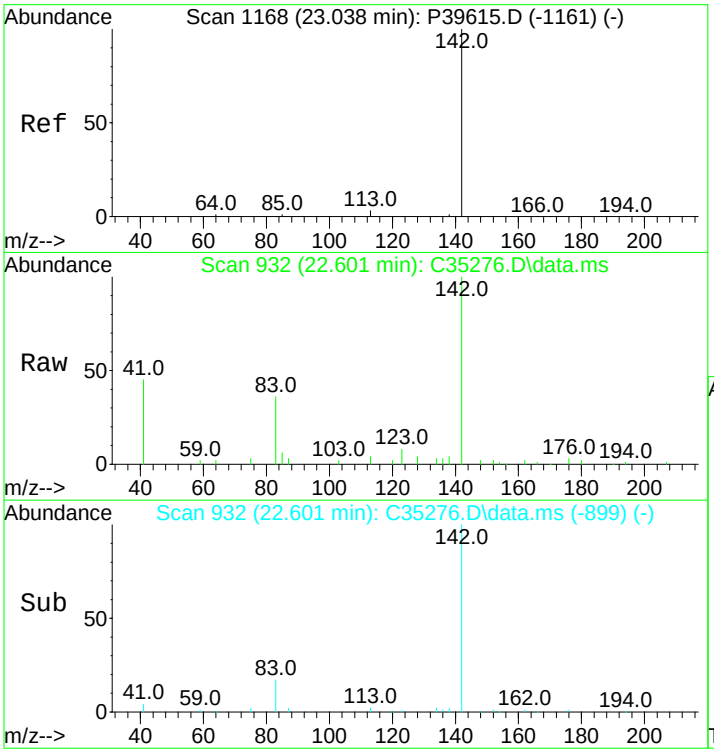


#16
2-Methylnaphthalene
Concen: 869.71 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:142 Resp: 49916

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

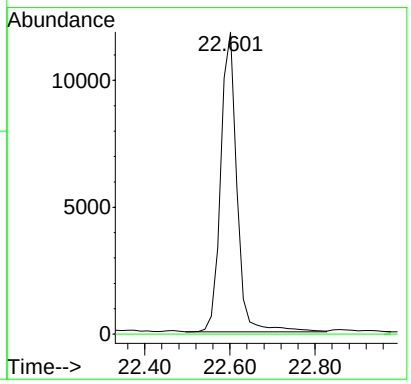


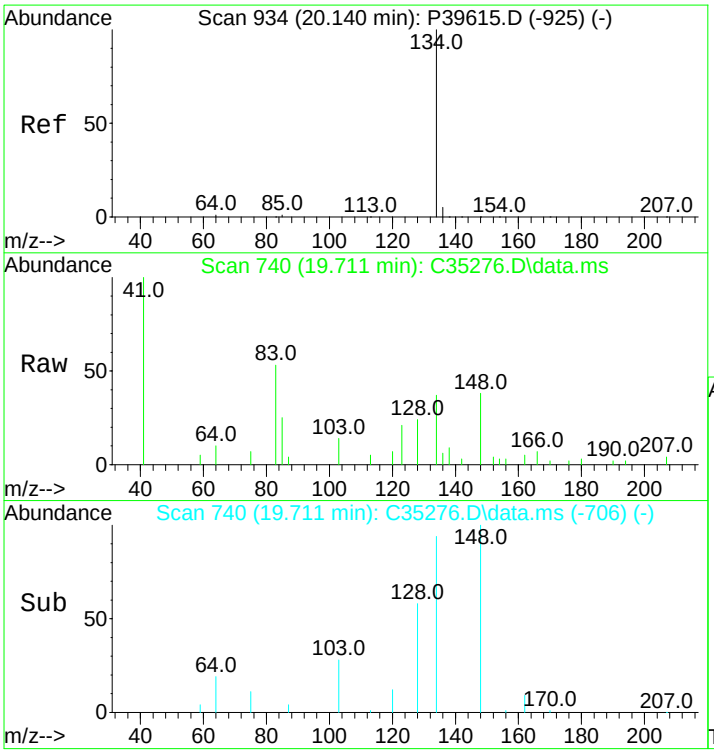


#17
1-Methylnaphthalene
Concen: 556.62 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:142 Resp: 31314

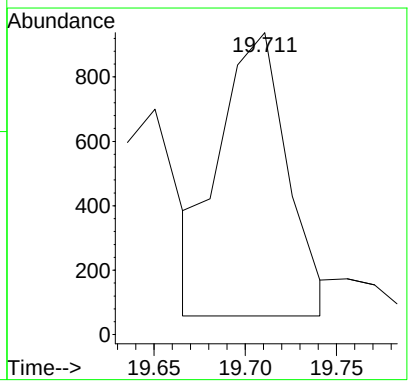
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

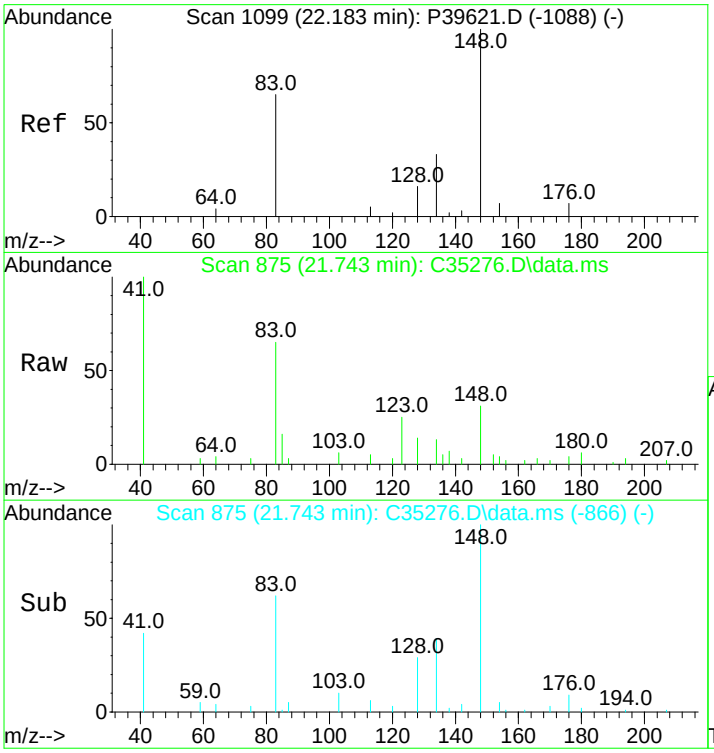




#18
Benzothiophene
Concen: 25.92 ng/mL m
RT: 19.711 min Scan# 740
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

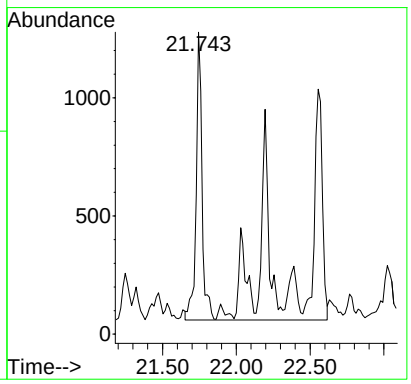
Tgt Ion:134 Resp: 2264

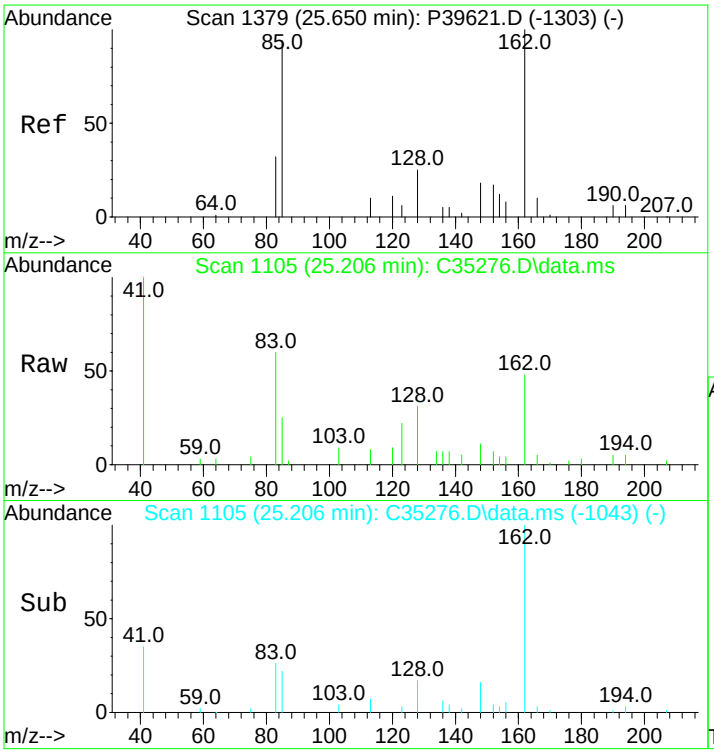




#19
C1-Benzo(b)thiophenes
Concen: 141.47 ng/mL m
RT: 21.743 min Scan# 875
Delta R.T. -0.063 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

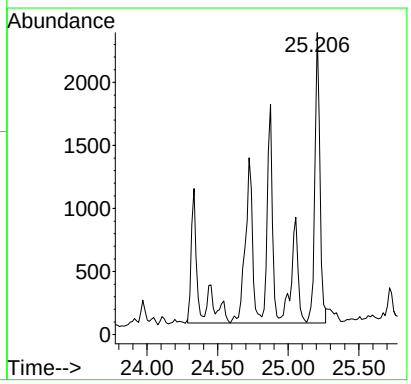
Tgt Ion:148 Resp: 12357

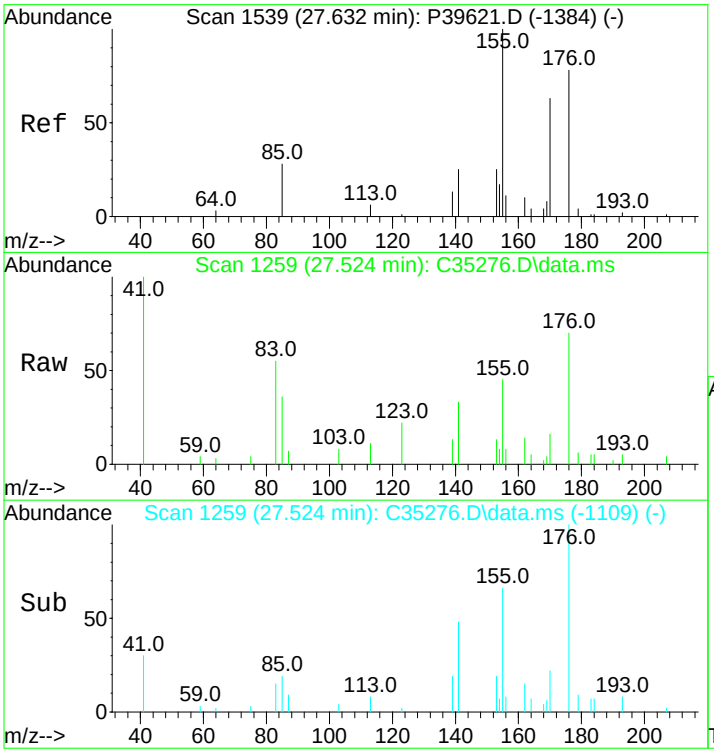




#20
C2-Benzo(b)thiophenes
Concen: 248.62 ng/mL m
RT: 25.206 min Scan# 1105
Delta R.T. -0.020 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

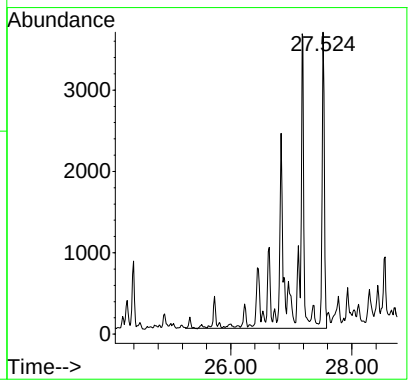
Tgt Ion:162 Resp: 21717

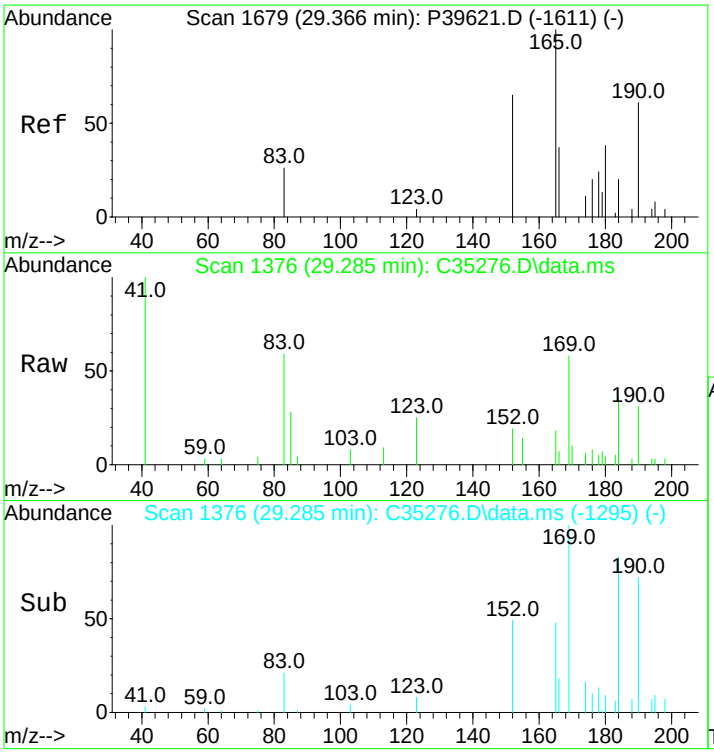




#21
C3-Benzo(b)thiophenes
Concen: 491.64 ng/mL m
RT: 27.524 min Scan# 1259
Delta R.T. 0.359 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

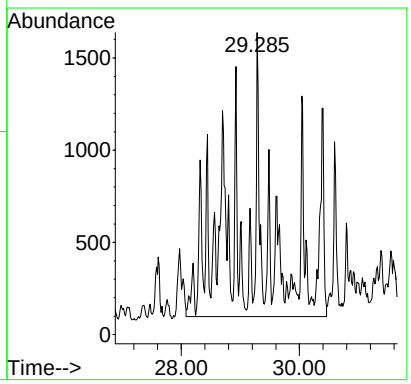
Tgt Ion:176 Resp: 42944

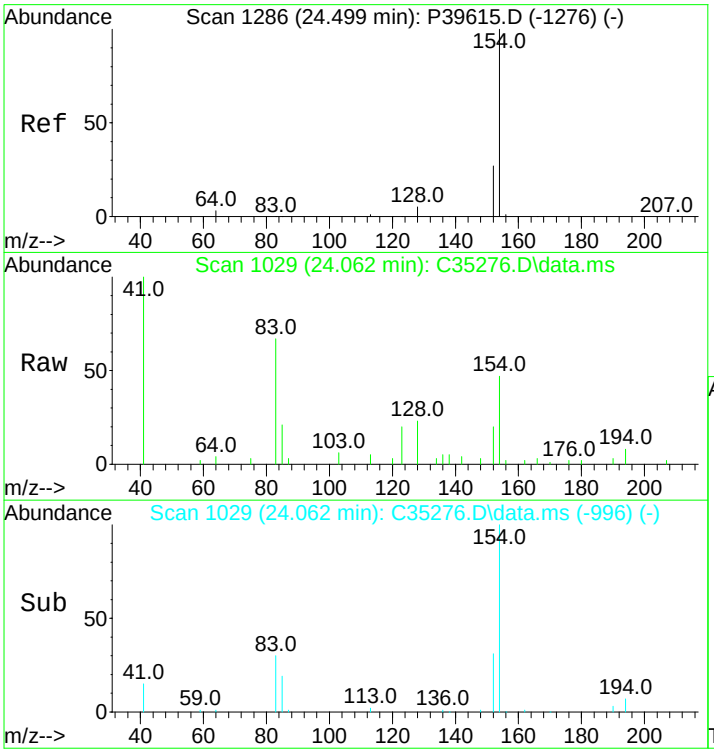




#22
C4-Benzo(b)thiophenes
Concen: 547.08 ng/mL m
RT: 29.285 min Scan# 1376
Delta R.T. 0.418 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:190 Resp: 47787

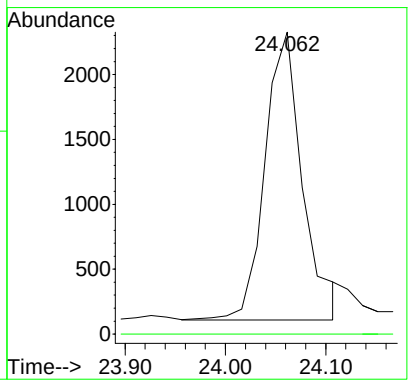


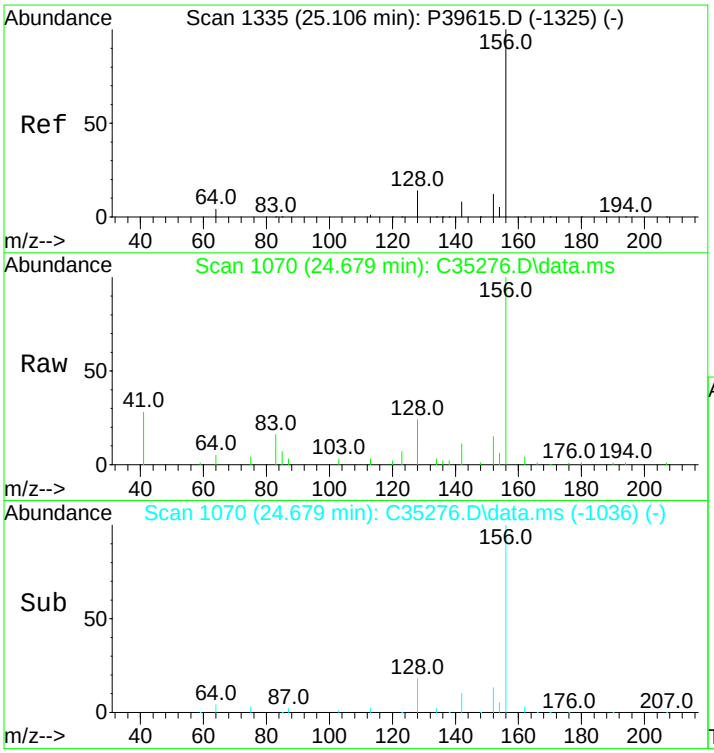


#23
Biphenyl
Concen: 79.71 ng/mL m
RT: 24.062 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:154 Resp: 5787

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

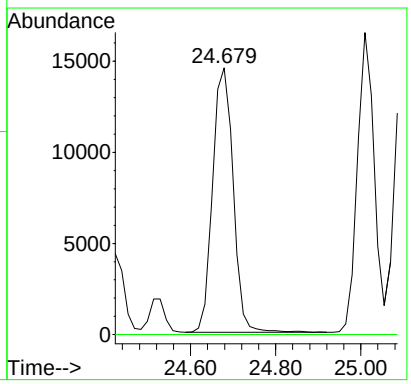


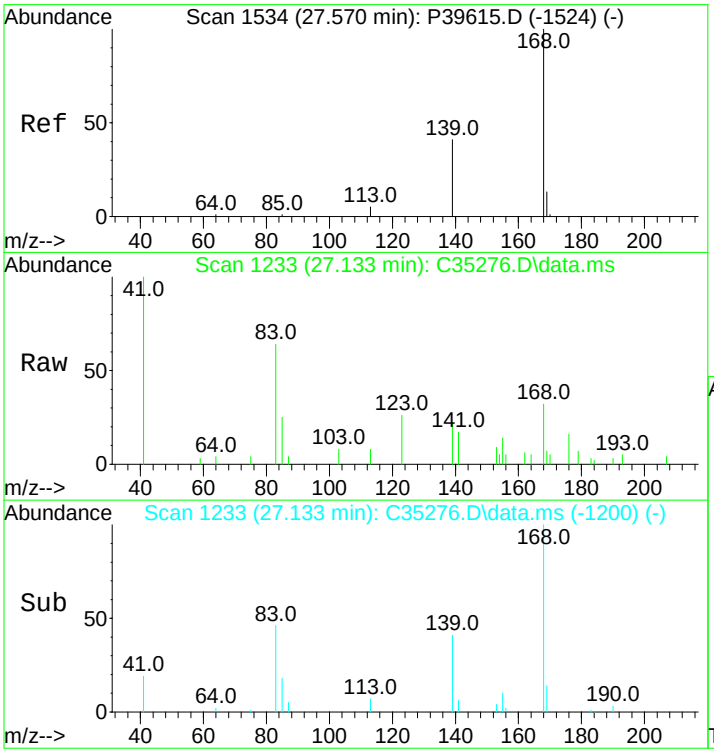


#24
2,6-Dimethylnaphthalene
Concen: 1035.17 ng/mL
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:156 Resp: 48813

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

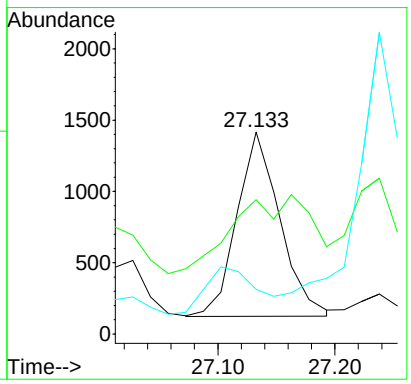


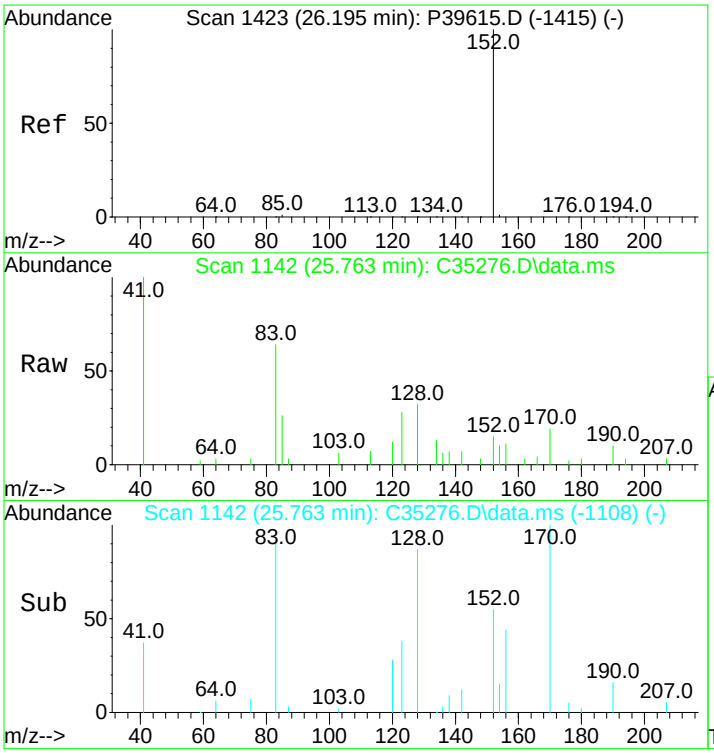


#25
Dibenzofuran
Concen: 39.59 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:168 Resp: 3301

Ion	Ratio	Lower	Upper
168	100		
139	0.0	29.9	44.9#
169	0.0	10.3	15.5#

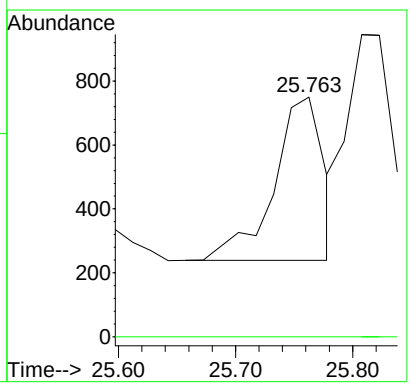


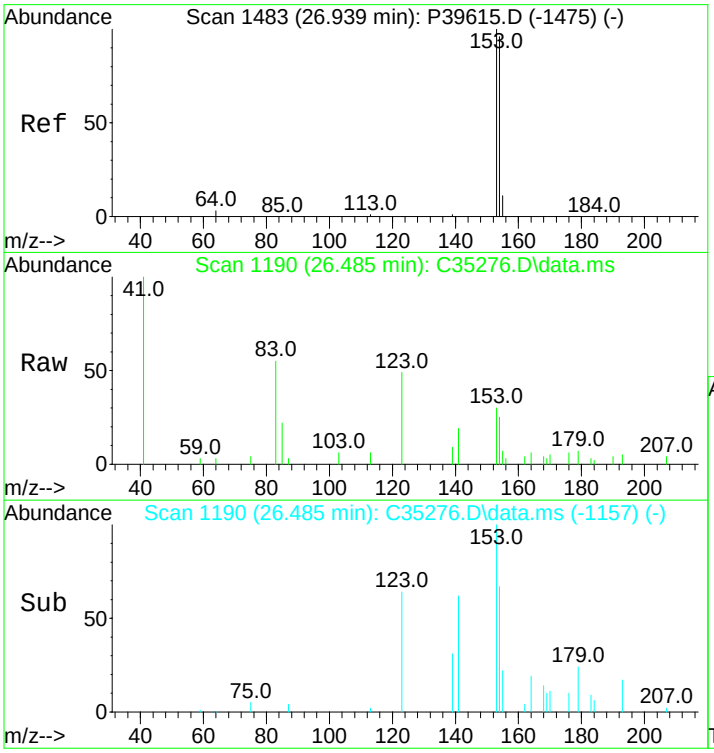


#26
Acenaphthylene
Concen: 15.70 ng/mL
RT: 25.763 min Scan# 1142
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:152 Resp: 1513

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

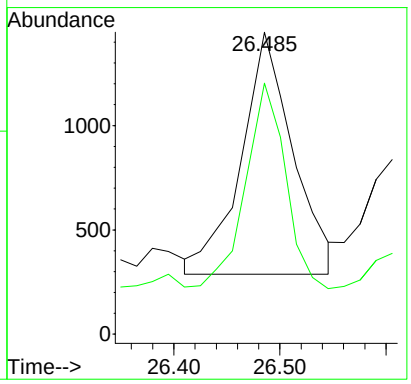


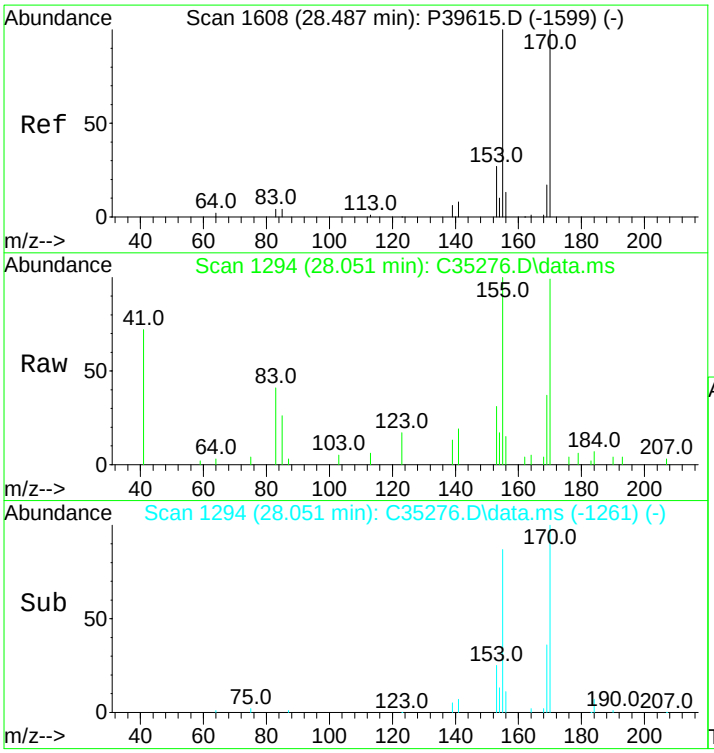


#27
Acenaphthene
Concen: 69.27 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:153 Resp: 3930

Ion	Ratio	Lower	Upper
153	100		
154	65.4	73.3	109.9#

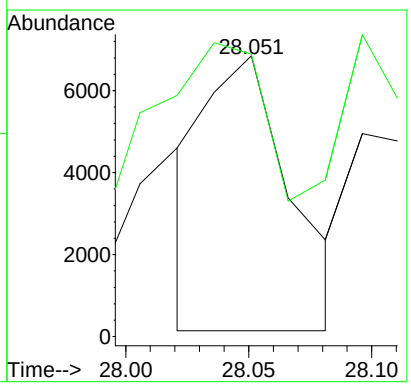


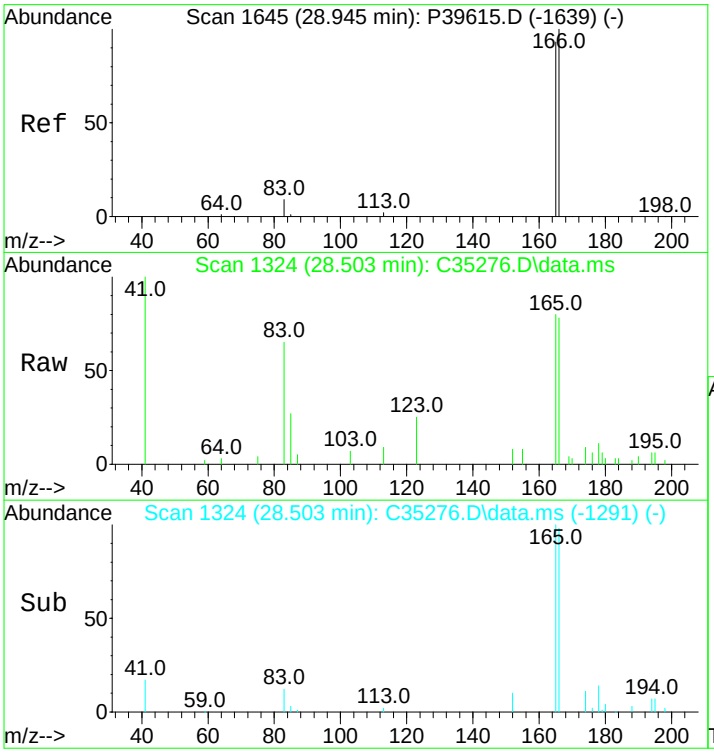


#28
2,3,5-Trimethylnaphthalene
Concen: 427.76 ng/mL m
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:170 Resp: 16260

Ion	Ratio	Lower	Upper
170	100		
155	167.0	78.4	117.6#

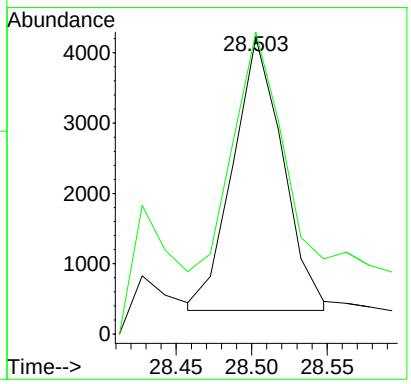


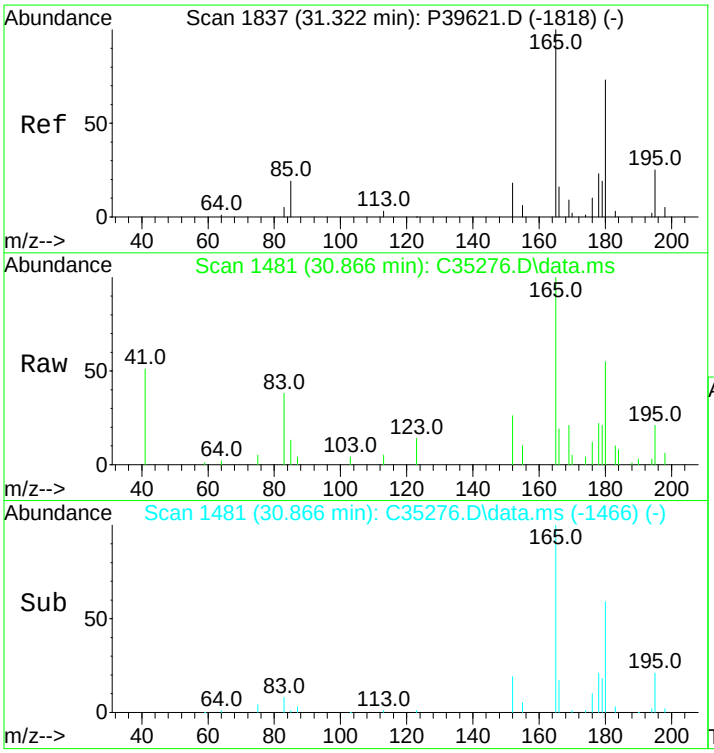


#29
Fluorene
Concen: 142.57 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:166 Resp: 8921

Ion	Ratio	Lower	Upper
166	100		
165	152.6	77.1	115.7#

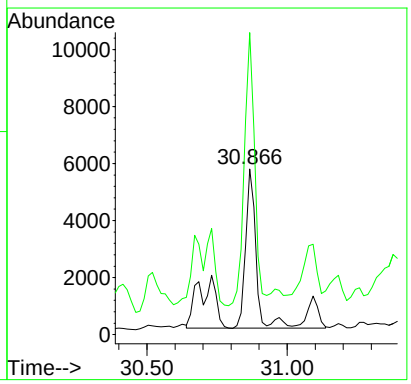


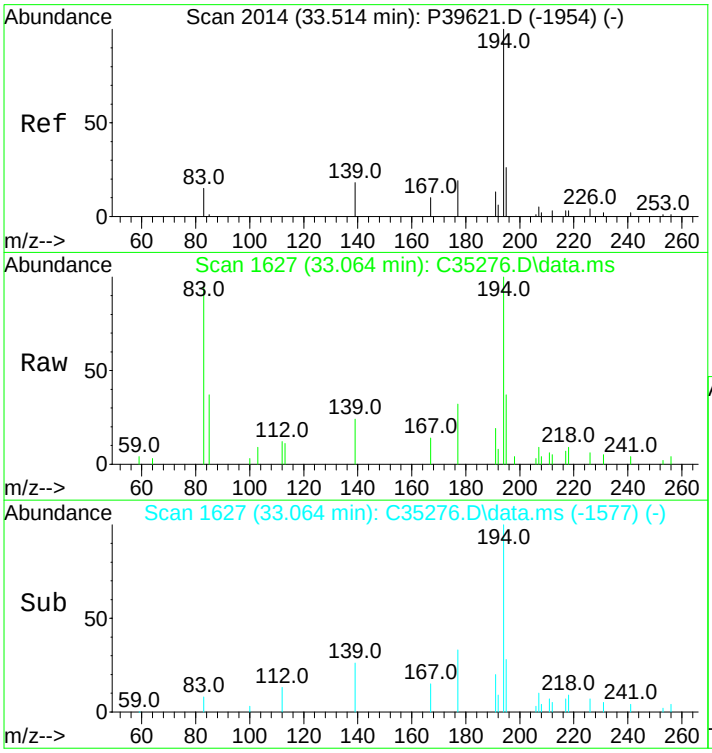


#30
C1-Fluorenes
Concen: 410.20 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:180 Resp: 25667

Ion	Ratio	Lower	Upper
180	100		
165	22.0	121.9	182.9#

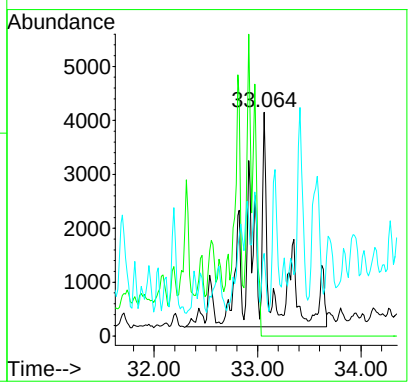


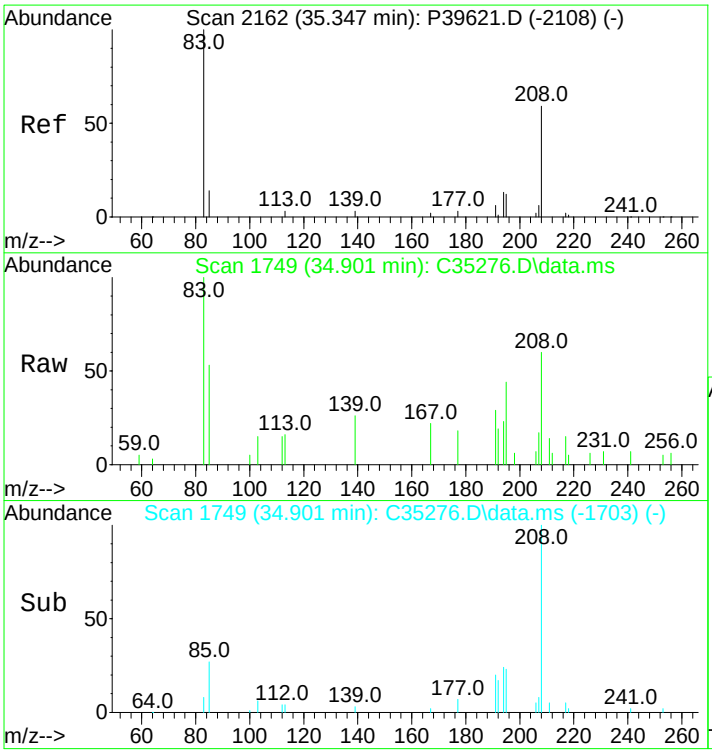


#31
C2-Fluorenes
Concen: 847.71 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:194 Resp: 53043

Ion	Ratio	Lower	Upper
194	100		
179	27.8	0.0	0.0#
195	11.2	30.5	45.7#

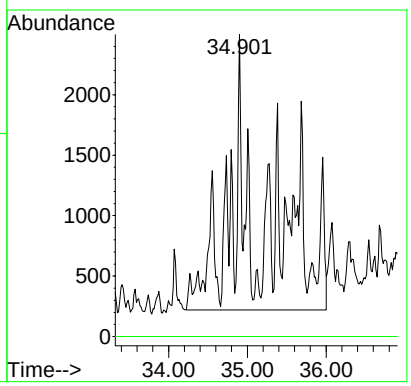


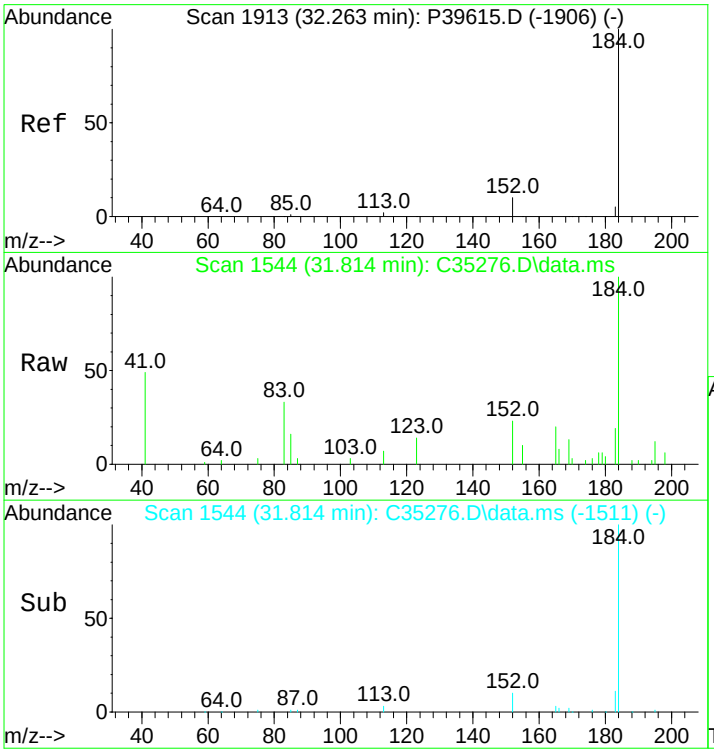


#32
C3-Fluorenes
Concen: 981.72 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.158 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:208 Resp: 61428

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

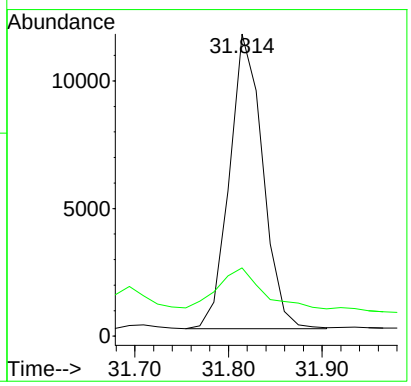


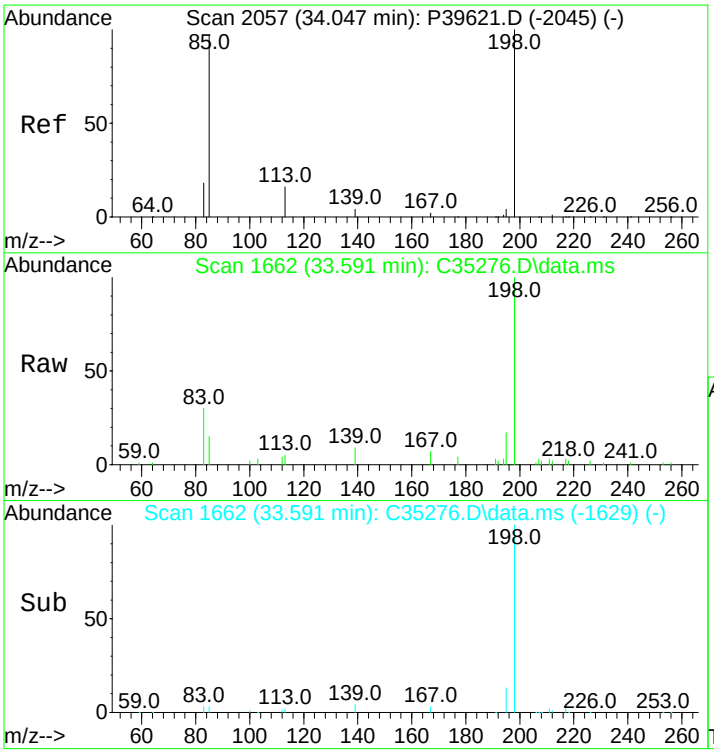


#33
Dibenzothiophene
Concen: 285.64 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:184 Resp: 28650

Ion	Ratio	Lower	Upper
184	100		
152	23.6	7.5	11.3#

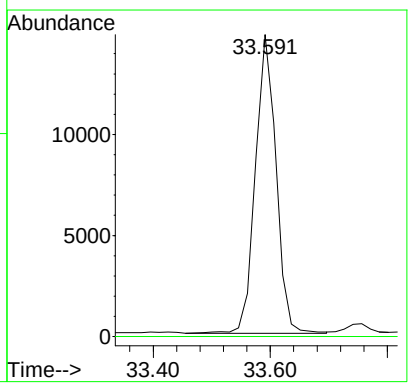


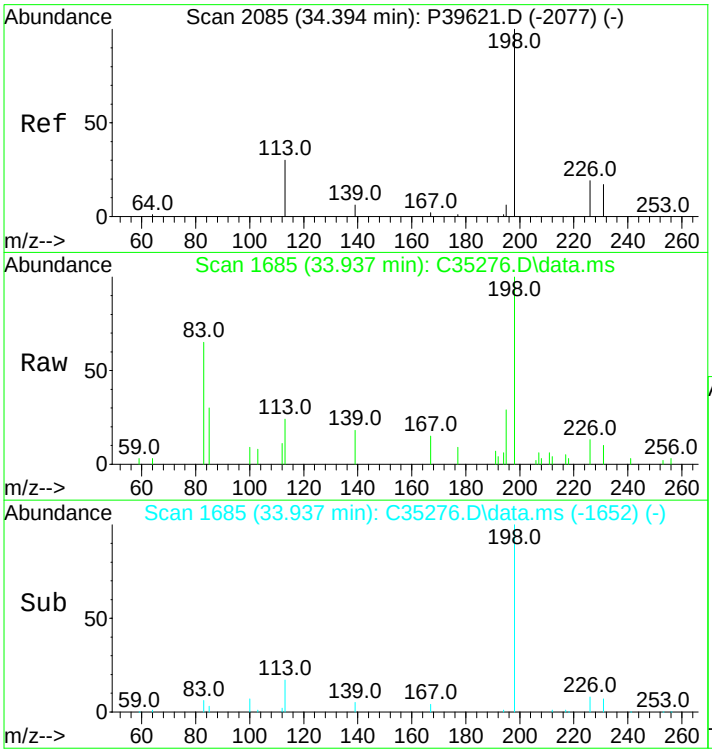


#34
4-Methyldibenzothiophene(4MDT)
Concen: 362.17 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:198 Resp: 36326

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

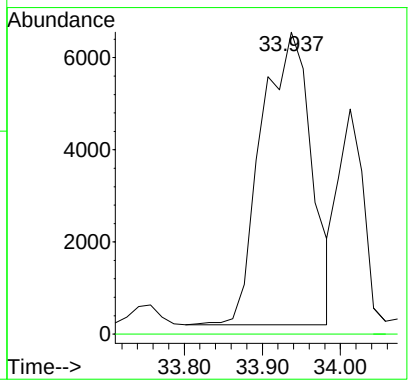


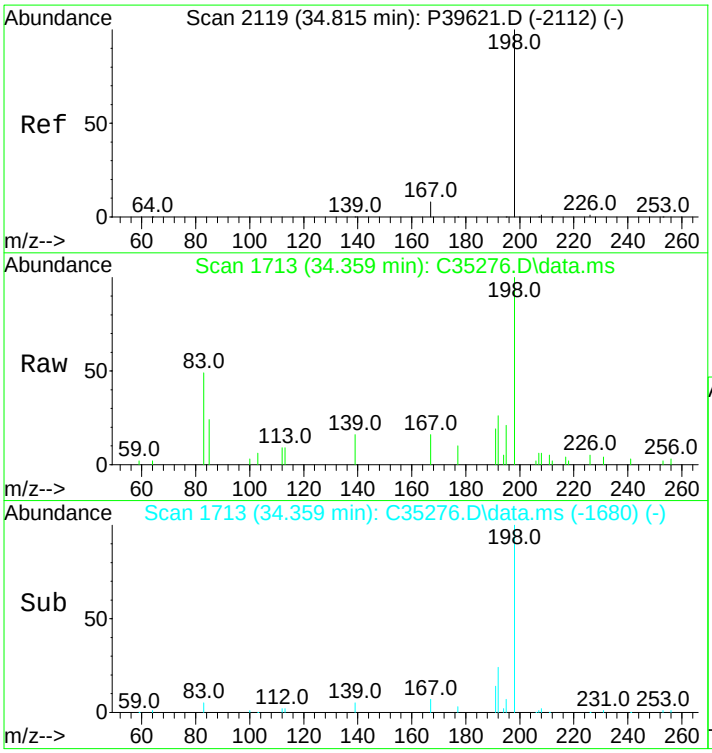


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 284.69 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:198 Resp: 28555

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

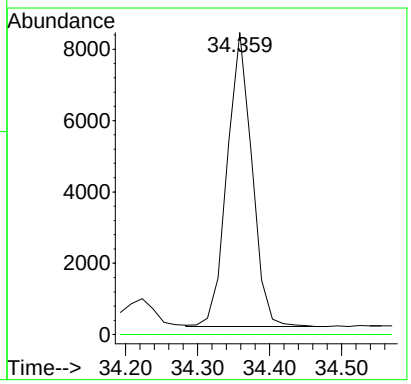


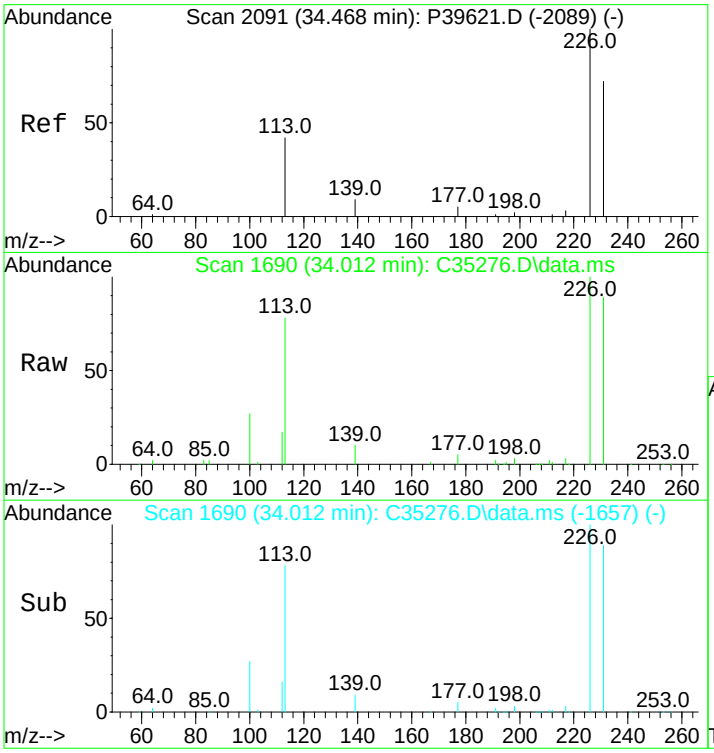


#36
1-Methyldibenzothiophene(1MDT)
Concen: 196.68 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:198 Resp: 19727

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

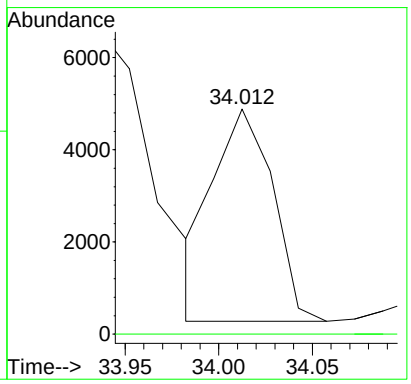


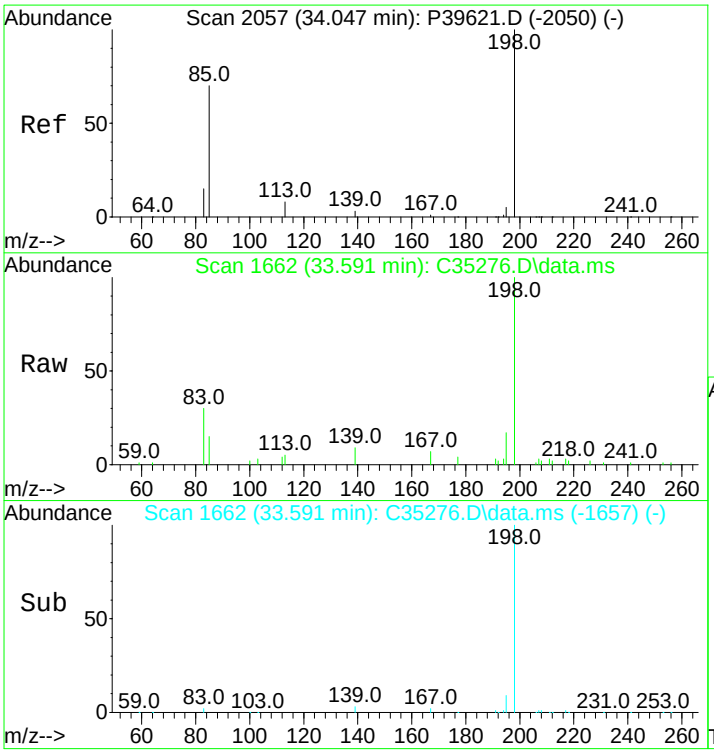


#37
OTP
Concen: 101.28 ng/mL
RT: 34.012 min Scan# 1690
Delta R.T. 0.030 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:198 Resp: 10159

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

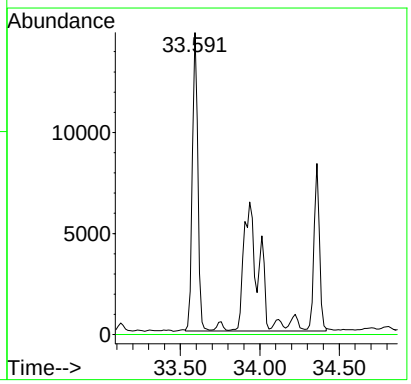


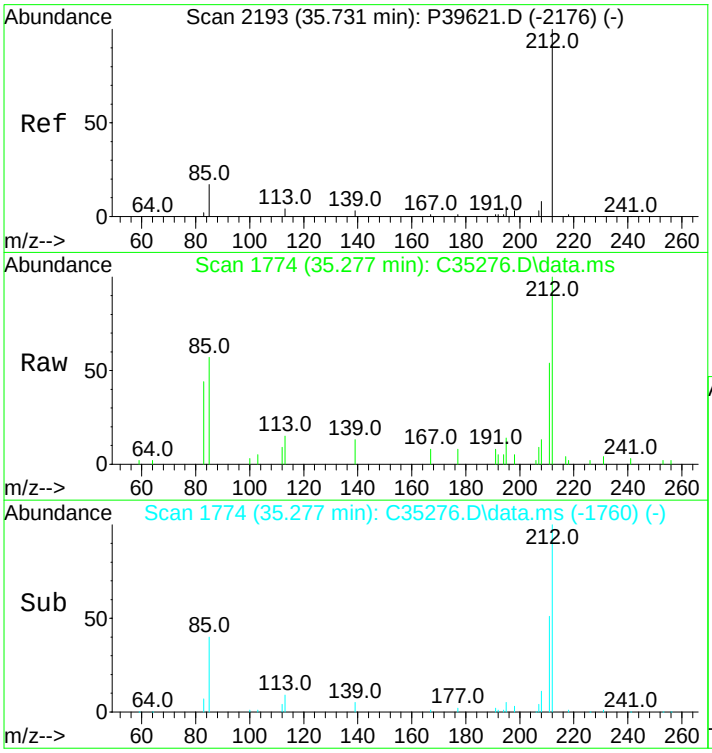


#38
C1-Dibenzothiophenes
Concen: 1013.04 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. -0.359 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:198 Resp: 101610

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

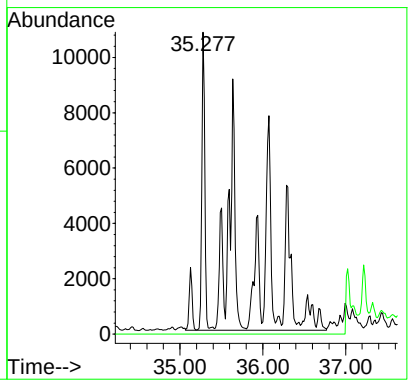


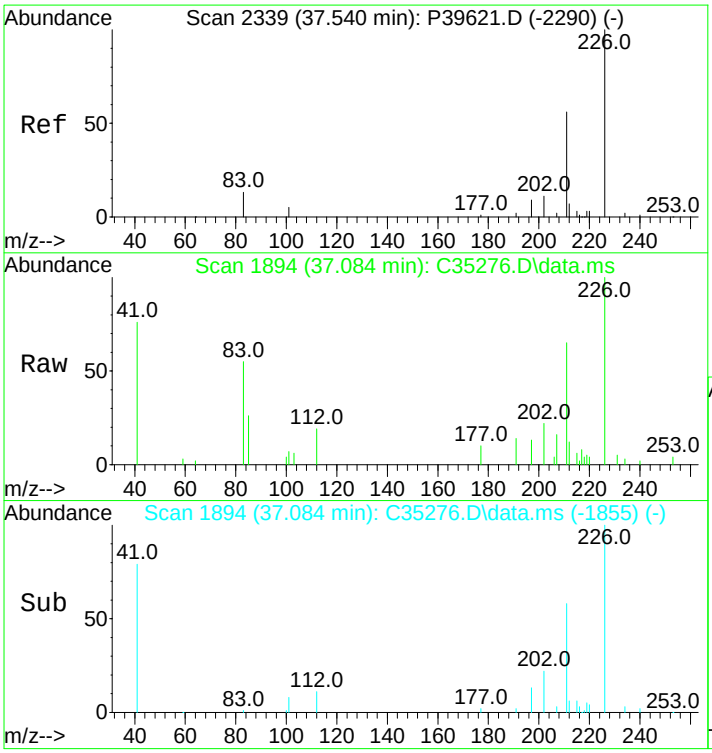


#39
C2-Dibenzothiophenes
Concen: 1647.43 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.191 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:212 Resp: 165240

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

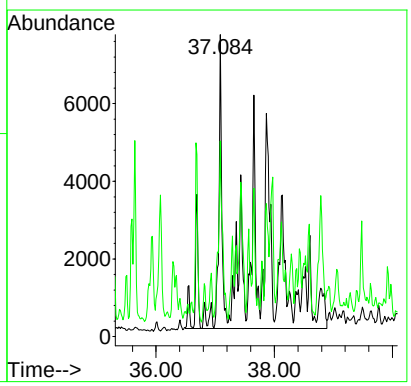


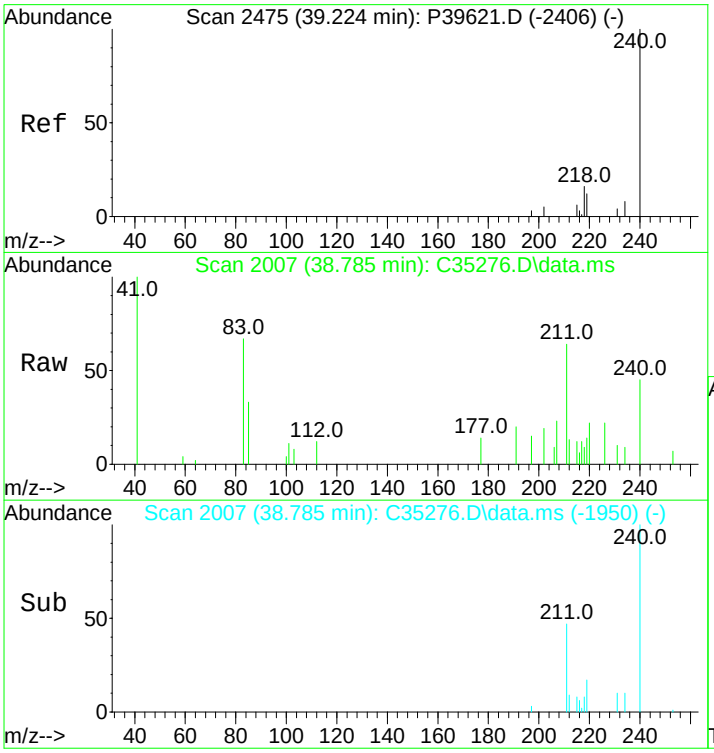


#40
C3-Dibenzothiophenes
Concen: 1752.35 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:226 Resp: 175764

Ion	Ratio	Lower	Upper
226	100		
211	1.7	51.4	77.2#

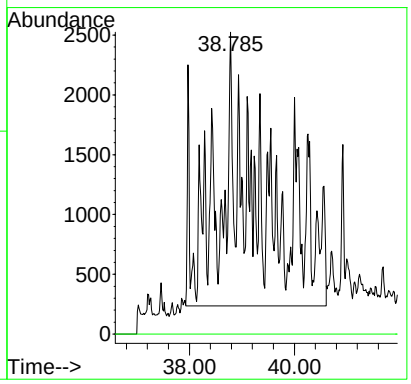


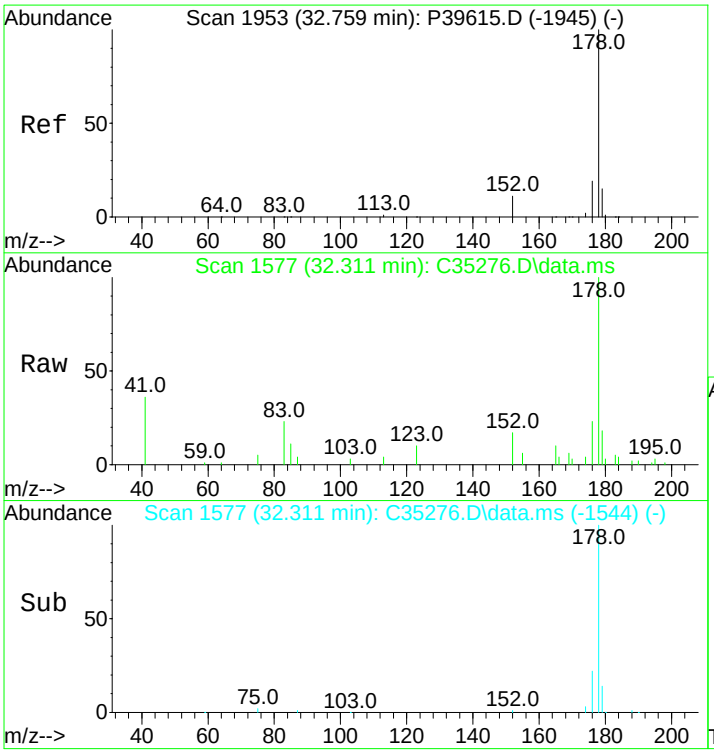


#41
C4-Dibenzothiophenes
Concen: 1236.07 ng/mL m
RT: 38.785 min Scan# 2007
Delta R.T. 0.153 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:240 Resp: 123980

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

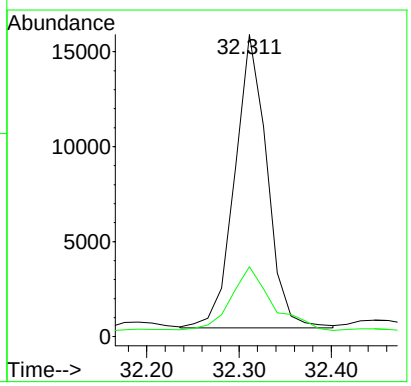


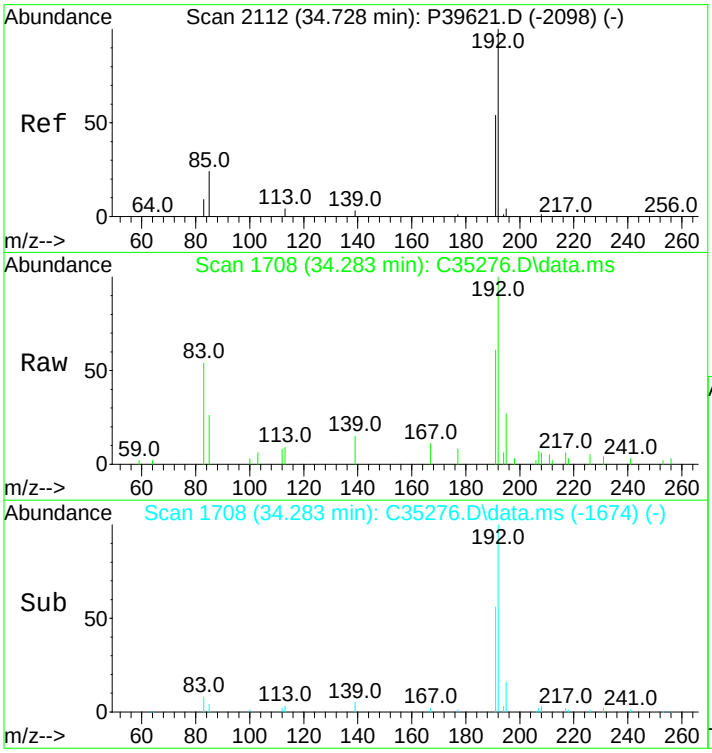


#43
Phenanthrene
Concen: 425.02 ng/mL m
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:178 Resp: 37454

Ion	Ratio	Lower	Upper
178	100		
176	0.7	15.8	23.6#

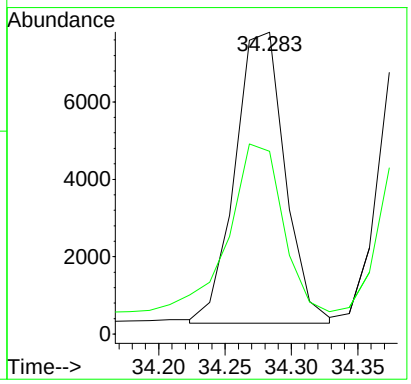


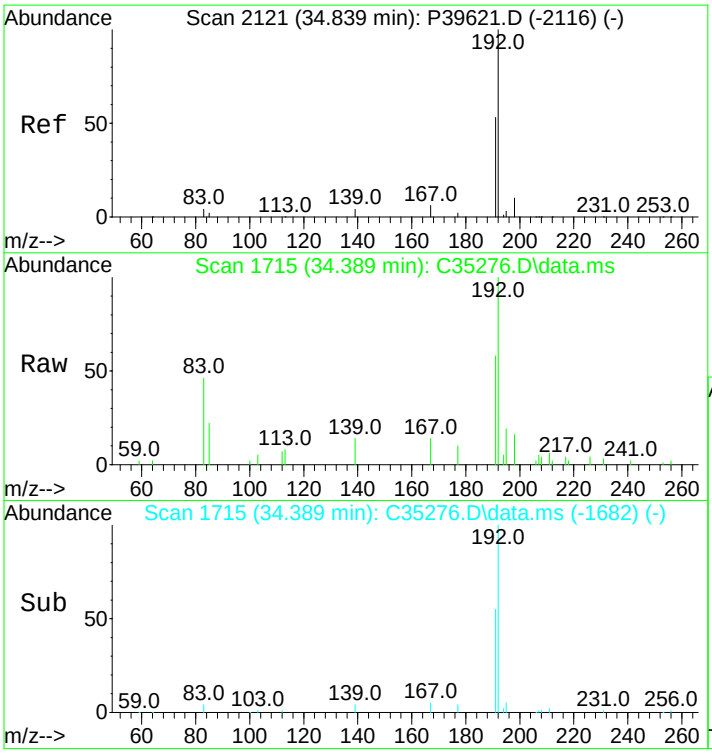


#44
3-Methylphenanthrene(3MP)
Concen: 223.36 ng/mL m
RT: 34.283 min Scan# 1708
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 19683

Ion	Ratio	Lower	Upper
192	100		
191	62.6	47.4	71.0

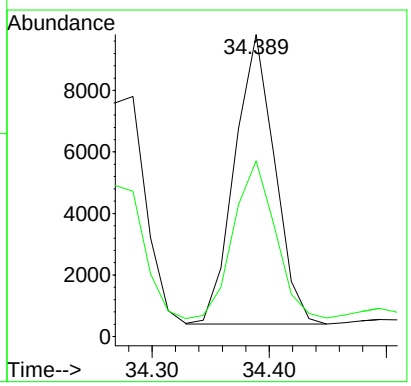


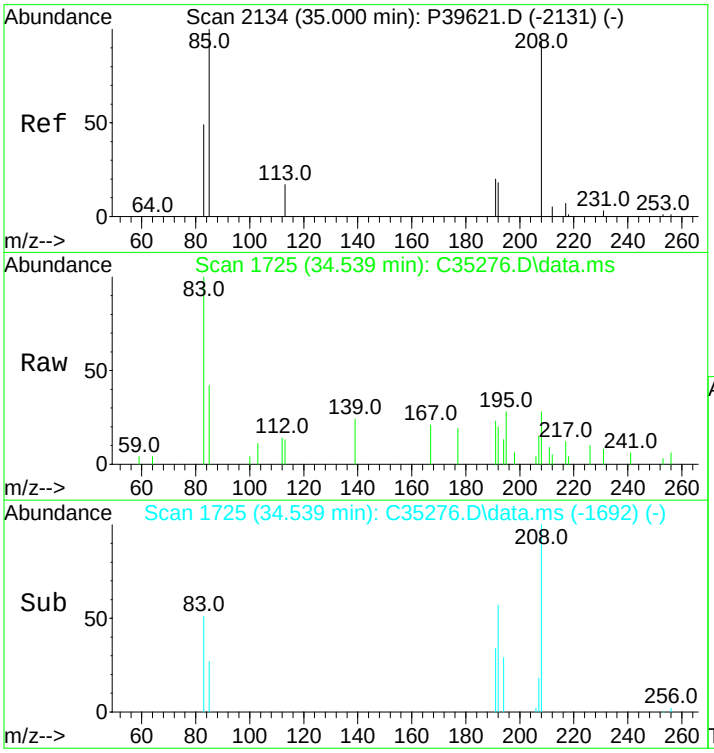


#45
2-Methylphenanthrene(2MP)
Concen: 253.76 ng/mL
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 22362

Ion	Ratio	Lower	Upper
192	100		
191	56.7	45.0	67.6

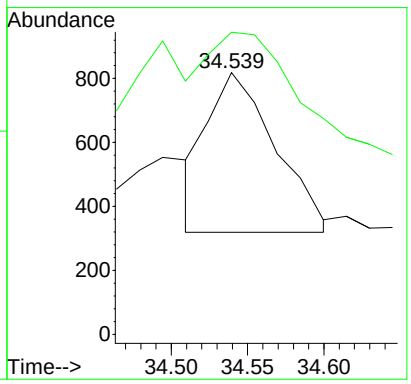


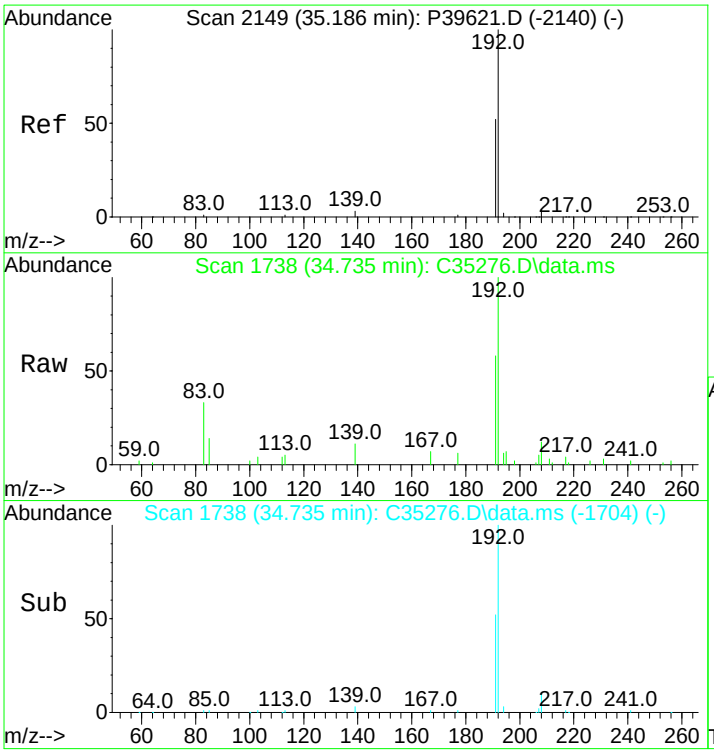


#46
2-Methylanthracene(2MA)
Concen: 17.49 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 1541

Ion	Ratio	Lower	Upper
192	100		
191	113.0	95.5	143.3

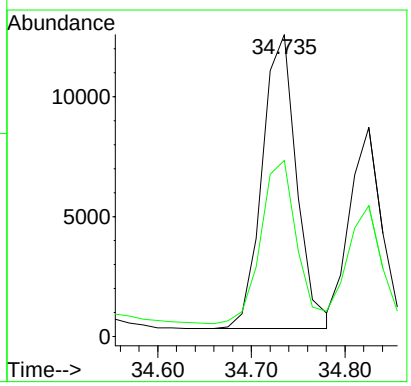


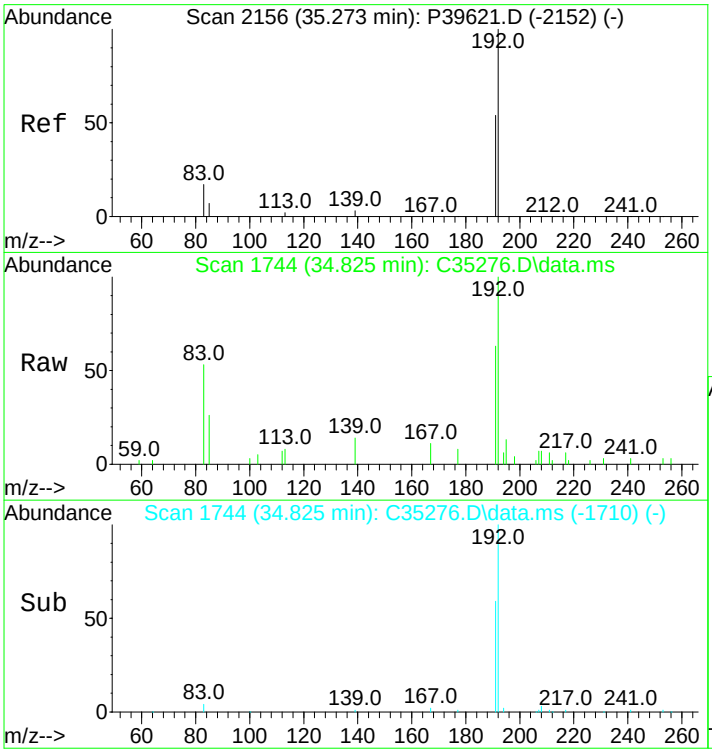


#47
9/4-Methylphenanthrene(9MP)
Concen: 356.35 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 31403

Ion	Ratio	Lower	Upper
192	100		
191	58.3	46.5	69.7

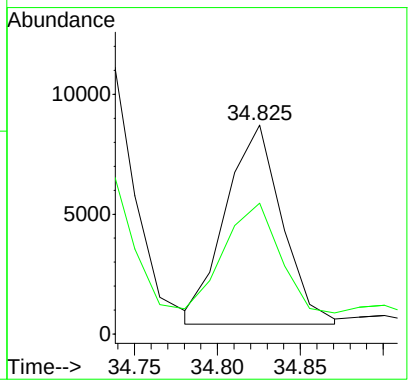


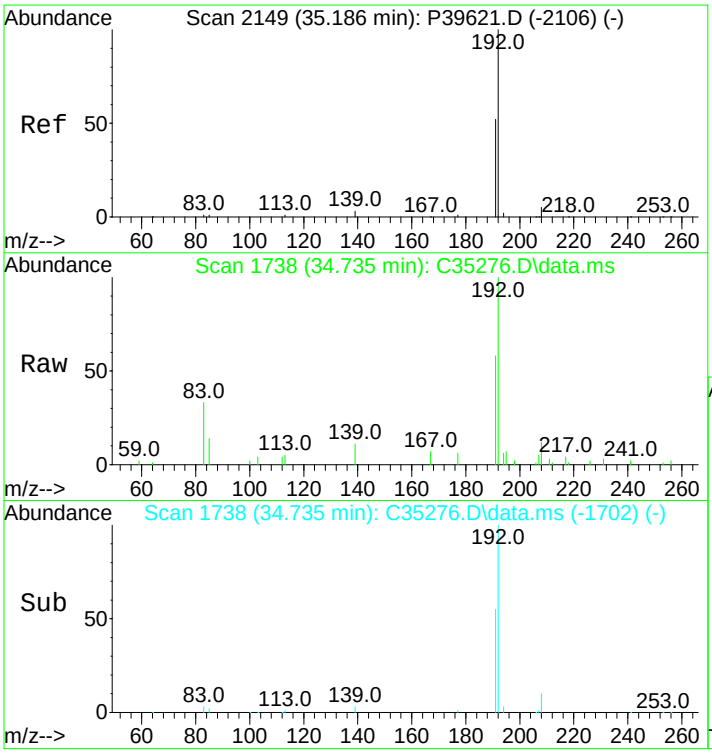


#48
1-Methylphenanthrene(1MP)
Concen: 222.97 ng/mL m
RT: 34.825 min Scan# 1744
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 19649

Ion	Ratio	Lower	Upper
192	100		
191	55.0	47.4	71.2

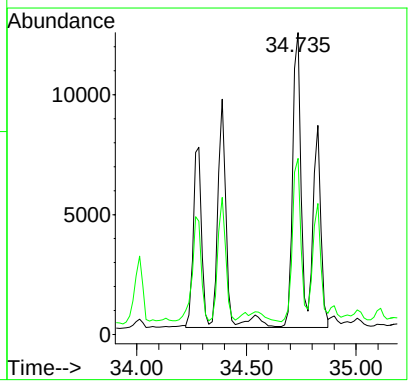


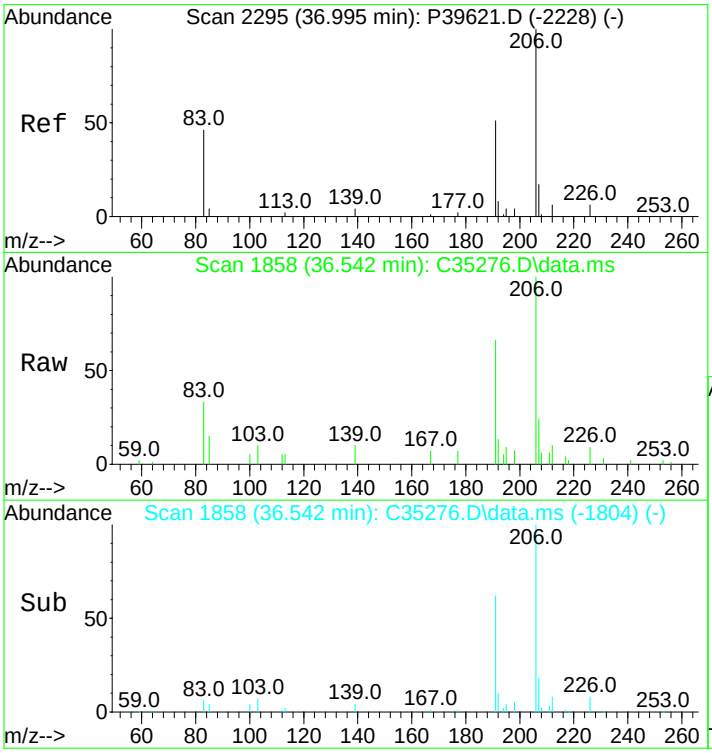


#49
C1-Phenanthrenes/Anthracenes
Concen: 1104.55 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.155 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 97337

Ion	Ratio	Lower	Upper
192	100		
191	18.8	45.3	67.9#

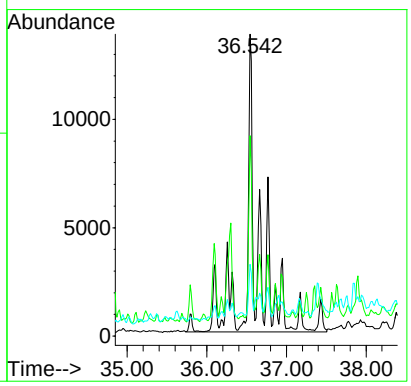


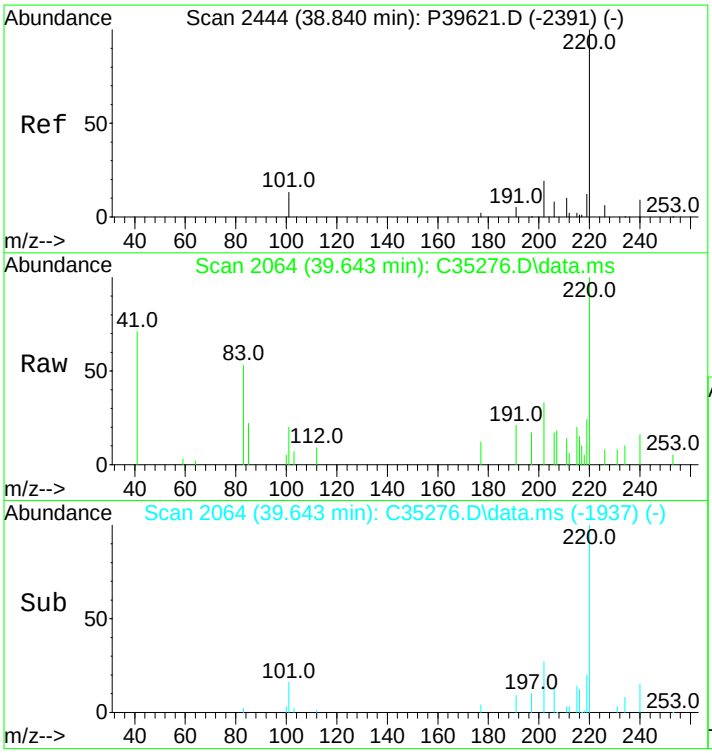


#50
C2-Phenanthrenes/Anthracenes
Concen: 1517.87 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:206 Resp: 133760

Ion	Ratio	Lower	Upper
206	100		
191	12.8	42.0	63.0#
207	0.0	15.4	23.2#

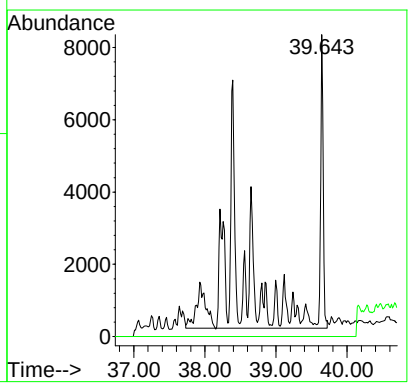


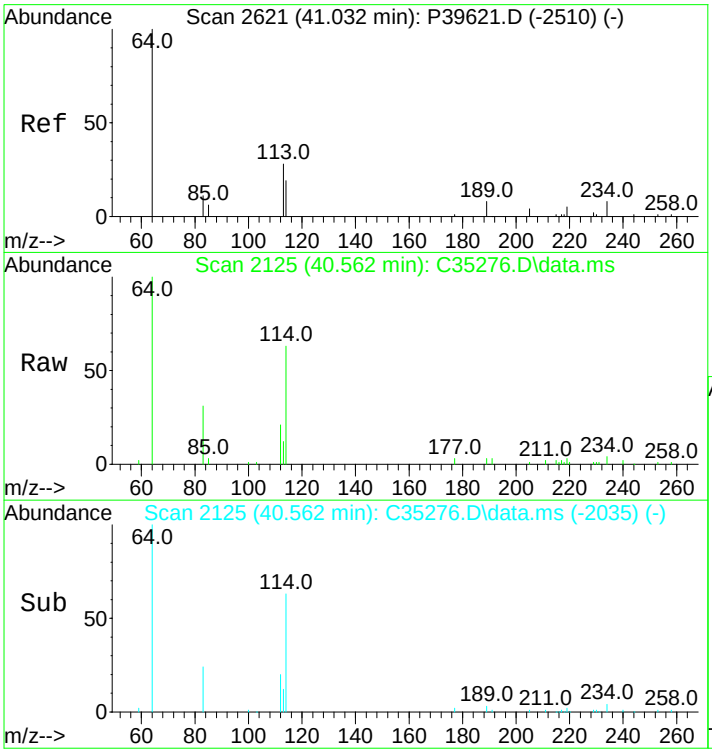


#52
C3-Phenanthrenes/Anthracenes
Concen: 1312.78 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 1.481 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:220 Resp: 115687

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

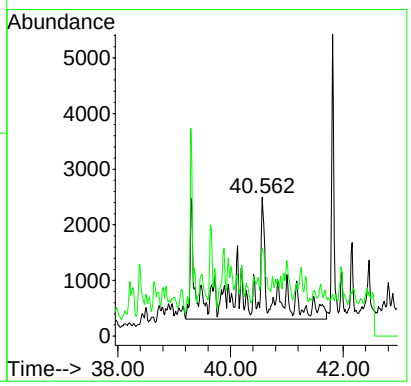


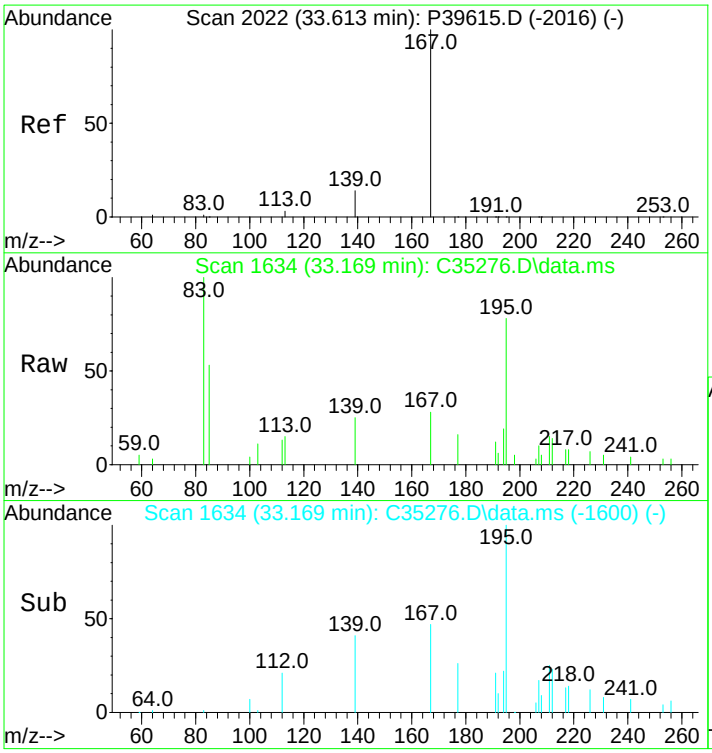


#53
C4-Phenanthrenes/Anthracenes
Concen: 692.33 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 0.268 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:234 Resp: 61011

Ion	Ratio	Lower	Upper
234	100		
219	2.4	48.6	73.0#

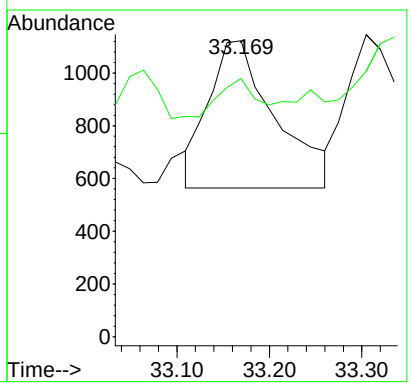


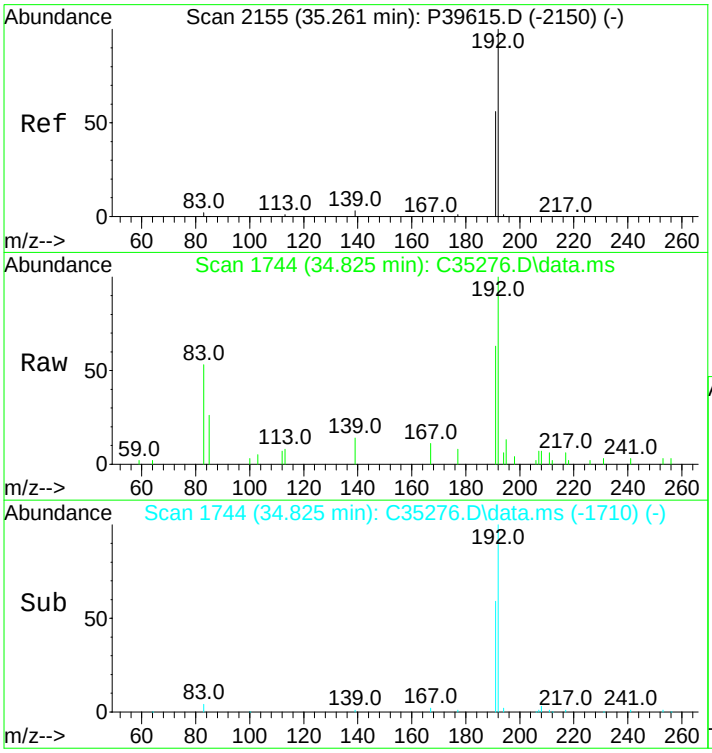


#56
Carbazole
Concen: 32.32 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:167 Resp: 2810

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

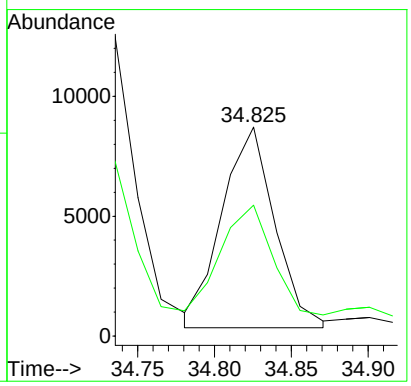


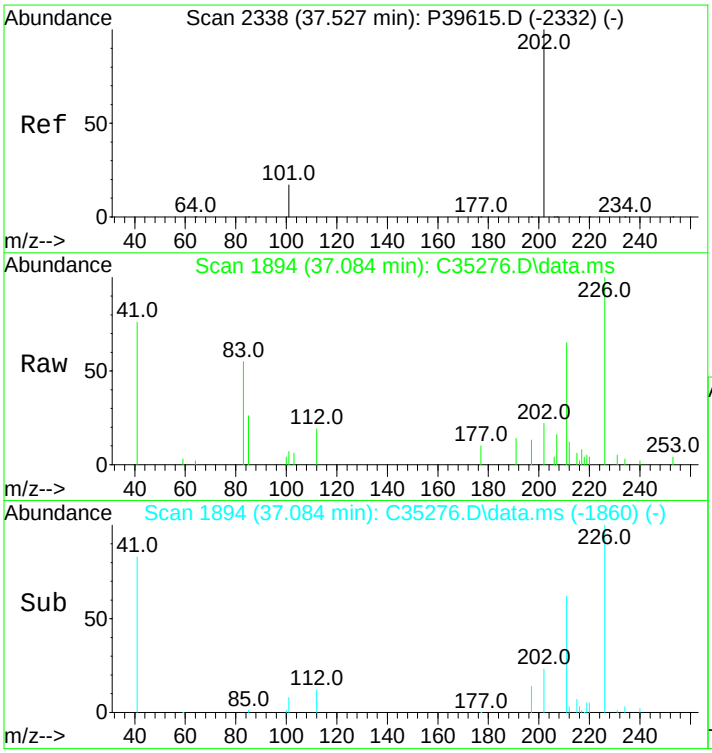


#57
1-Methylphenanthrene
Concen: 358.17 ng/mL m
RT: 34.825 min Scan# 1744
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:192 Resp: 20002

Ion	Ratio	Lower	Upper
192	100		
191	54.0	46.8	70.2

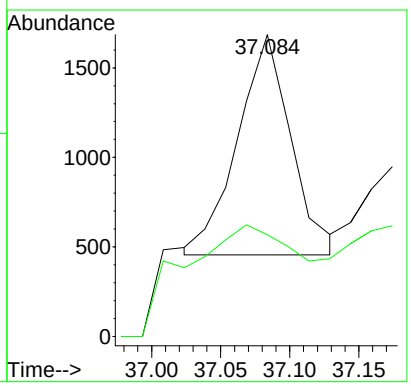


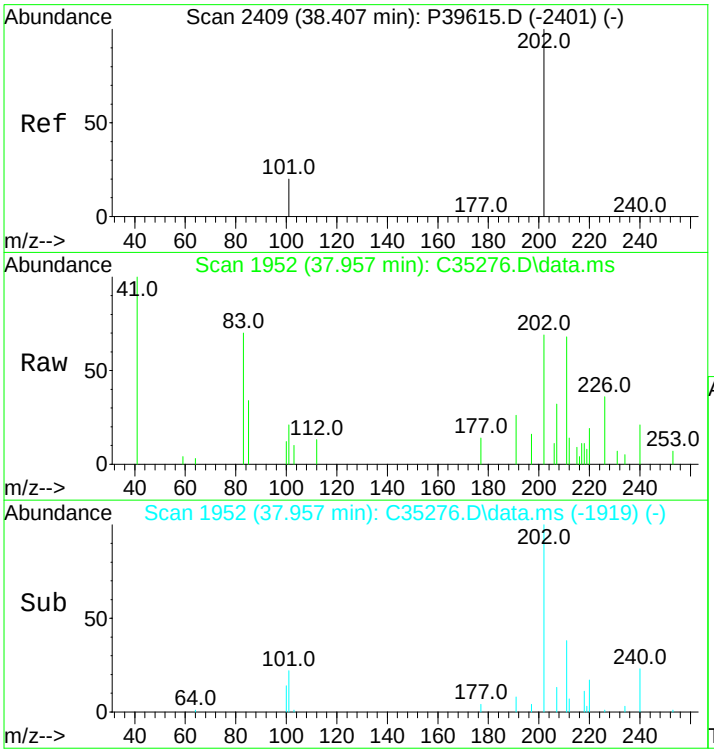


#58
Fluoranthene
Concen: 37.77 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:202 Resp: 3306

Ion	Ratio	Lower	Upper
202	100		
101	106.7	13.2	19.8#

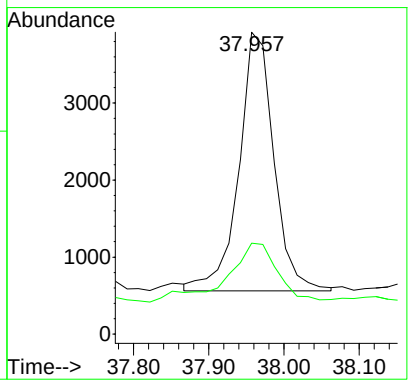


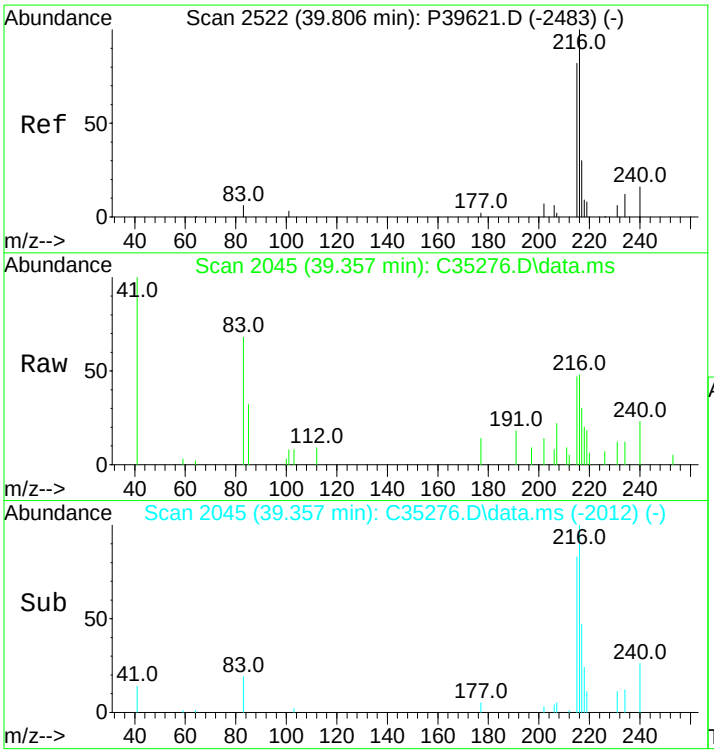


#60
Pyrene
Concen: 122.13 ng/mL m
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:202 Resp: 10866

Ion	Ratio	Lower	Upper
202	100		
101	34.3	13.5	20.3#

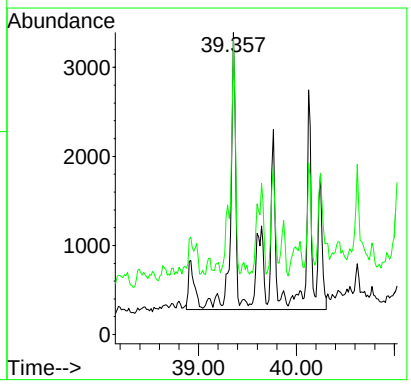


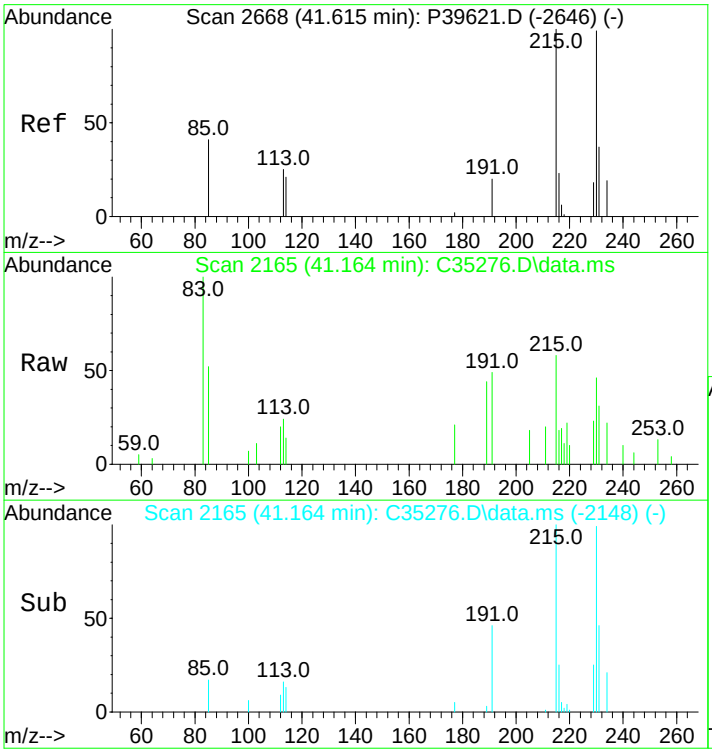


#61
C1-Fluoranthenes/Pyrenes
Concen: 410.15 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:216 Resp: 36490

Ion	Ratio	Lower	Upper
216	100		
215	25.2	77.7	116.5#

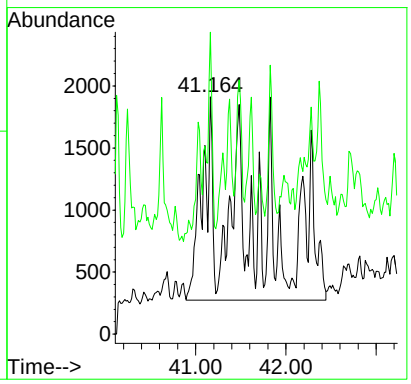


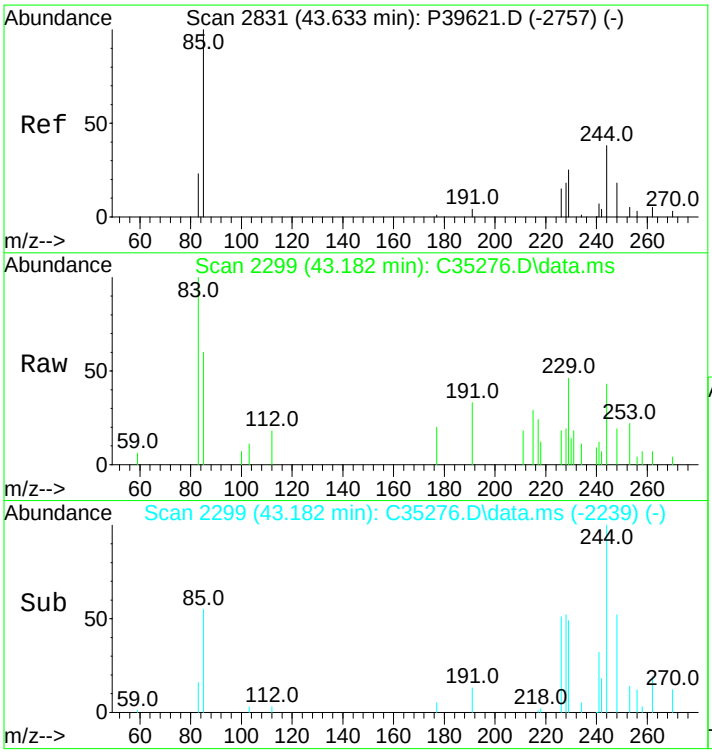


#62
C2-Fluoranthenes/Pyrenes
Concen: 579.28 ng/mL m
RT: 41.164 min Scan# 2165
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:230 Resp: 51537

Ion	Ratio	Lower	Upper
230	100		
215	4.4	92.7	139.1#

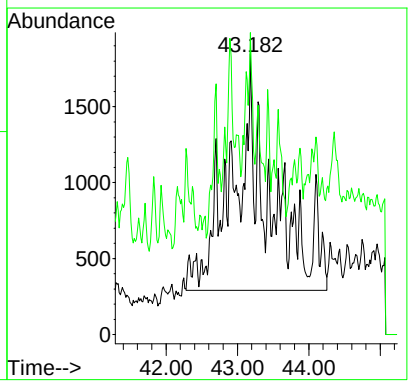


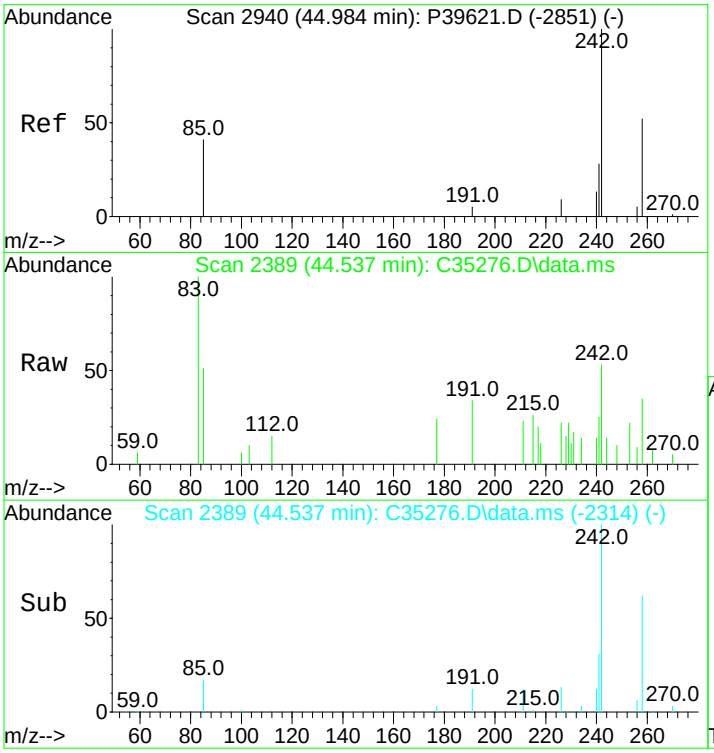


#63
C3-Fluoranthenes/Pyrenes
Concen: 627.93 ng/mL m
RT: 43.182 min Scan# 2299
Delta R.T. 0.312 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:244 Resp: 55866

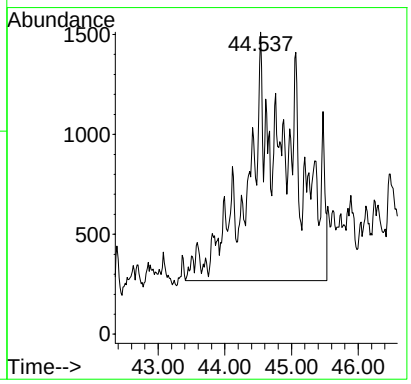
Ion	Ratio	Lower	Upper
244	100		
229	2.0	78.7	118.1#

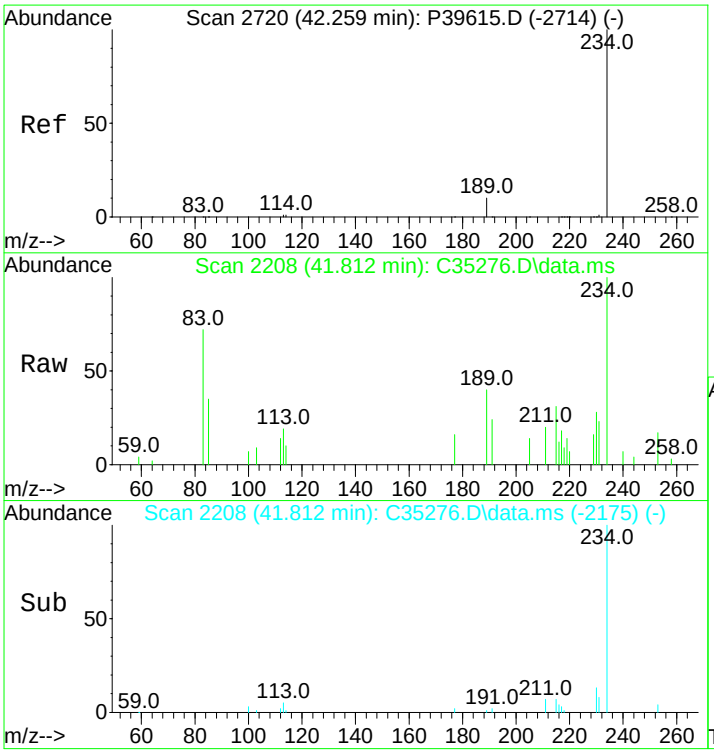




#64
C4-Fluoranthenes/Pyrenes
Concen: 626.72 ng/mL m
RT: 44.537 min Scan# 2389
Delta R.T. 0.335 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:258 Resp: 55758

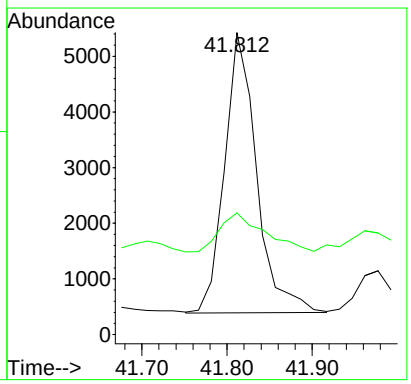


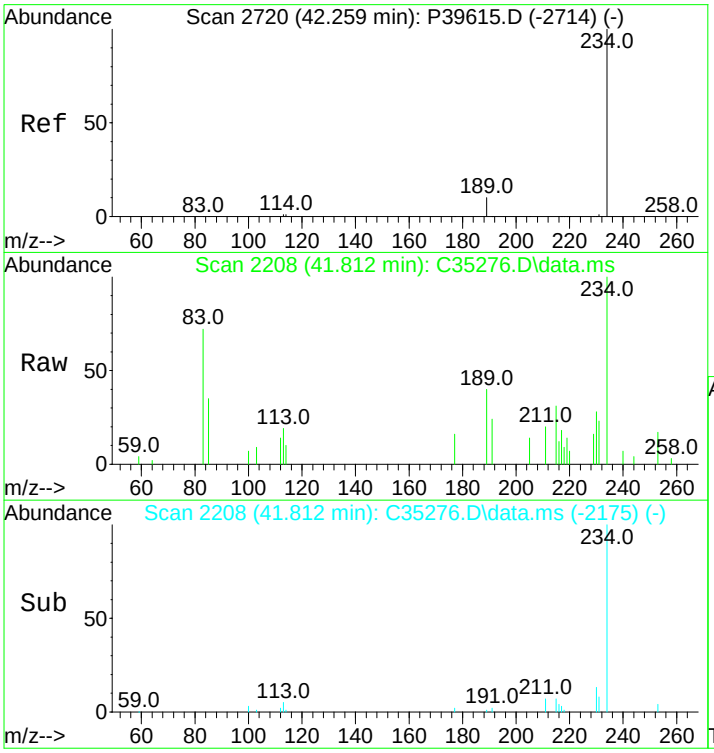


#66
Naphthobenzothiophene
Concen: 137.22 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:234 Resp: 13143

Ion	Ratio	Lower	Upper
234	100		
189	19.6	20.9	31.3#

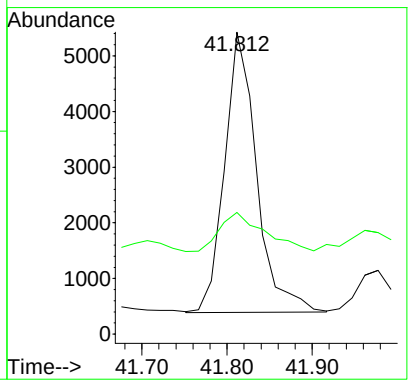


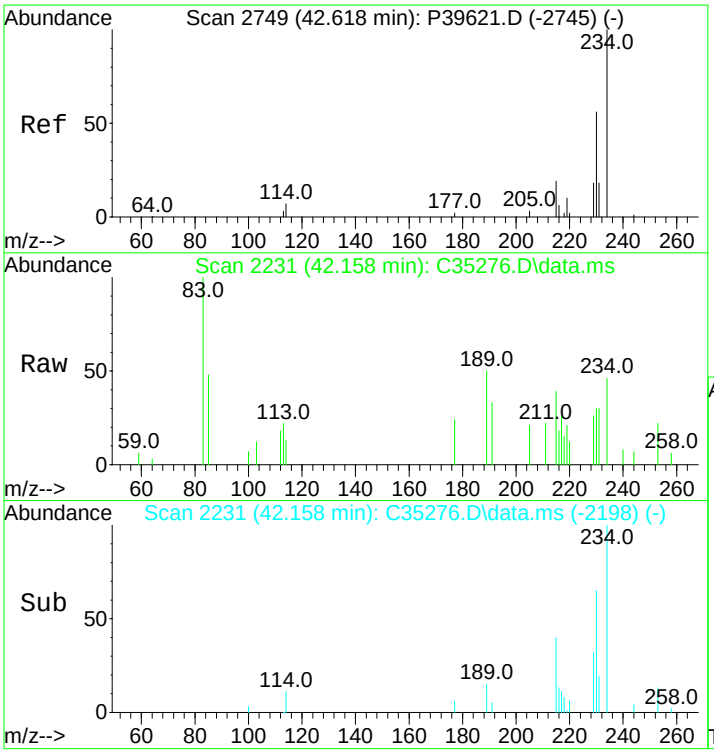


#67
Naphthobenzothiophene-2,1-D
Concen: 137.22 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:234 Resp: 13143

Ion	Ratio	Lower	Upper
234	100		
189	19.6	20.9	31.3#

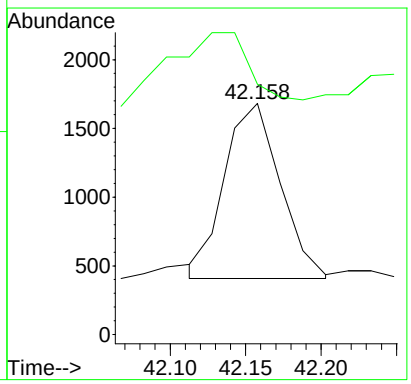


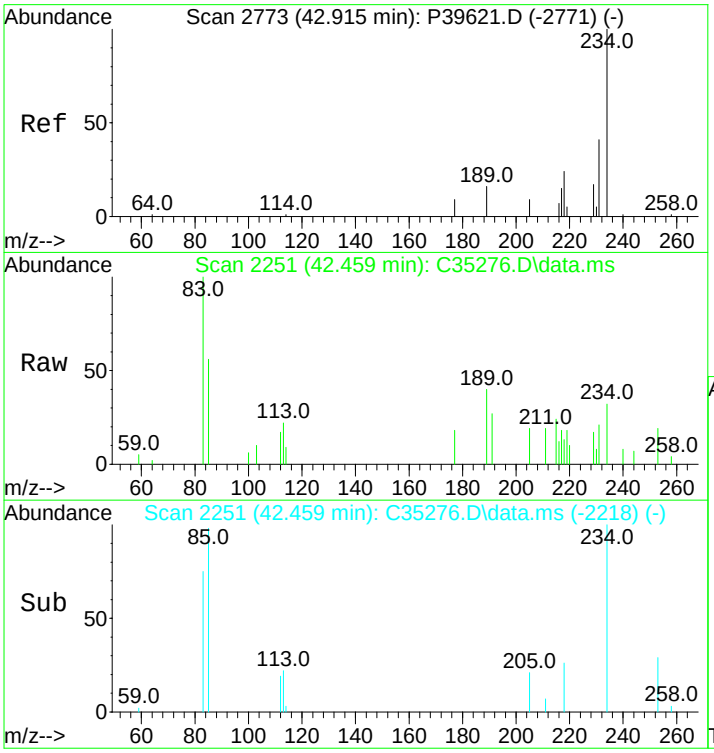


#68
Naphthobenzothiophene-1,2-D
Concen: 34.20 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:234 Resp: 3276

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

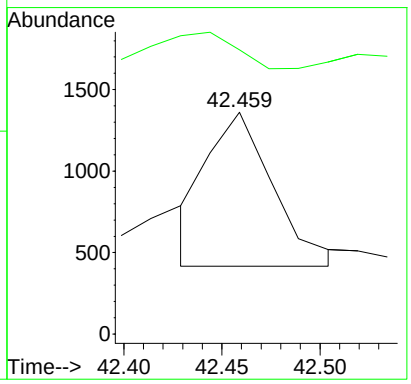


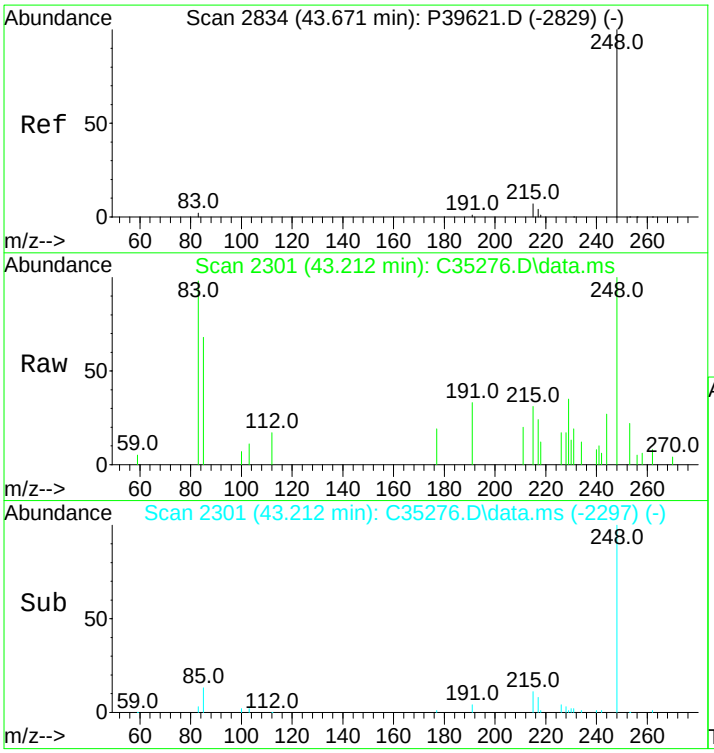


#69
Naphthobenzothiophene-2,3-D
Concen: 23.23 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:234 Resp: 2225

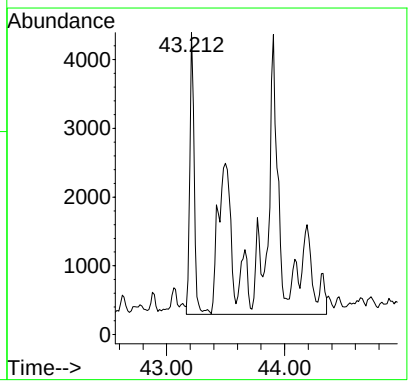
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

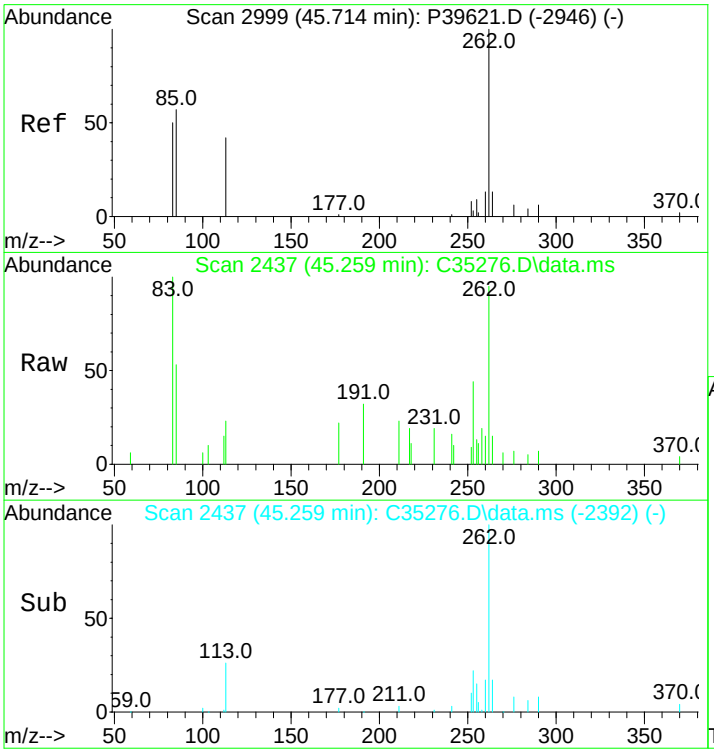




#70
C1-Naphthobenzothiophenes
Concen: 676.19 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

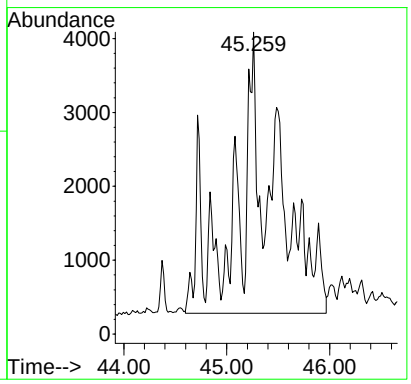
Tgt Ion:248 Resp: 64767

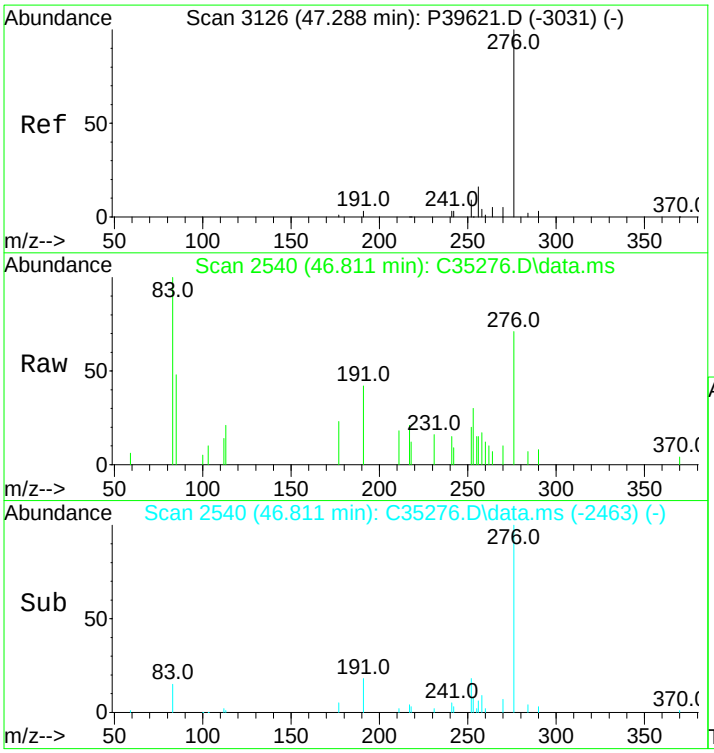




#71
C2-Naphthobenzothiophenes
Concen: 1033.72 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. 0.392 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

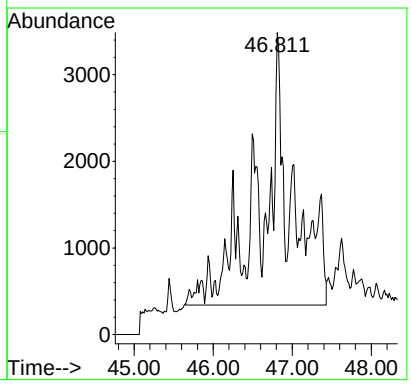
Tgt Ion:262 Resp: 99012

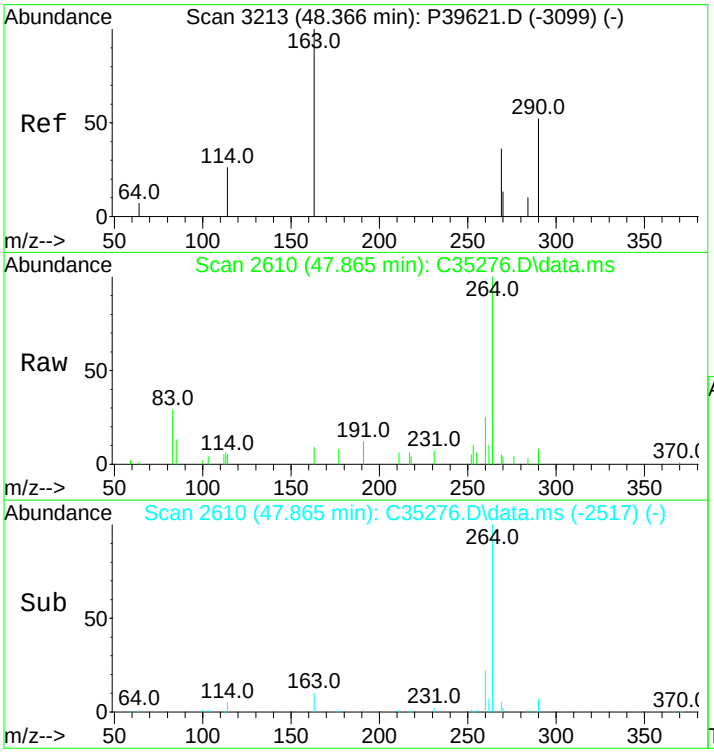




#72
C3-Naphthobenzothiophenes
Concen: 881.84 ng/ml m
RT: 46.811 min Scan# 2540
Delta R.T. 0.358 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

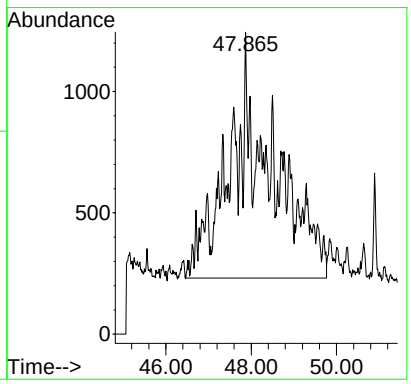
Tgt Ion:276 Resp: 84465

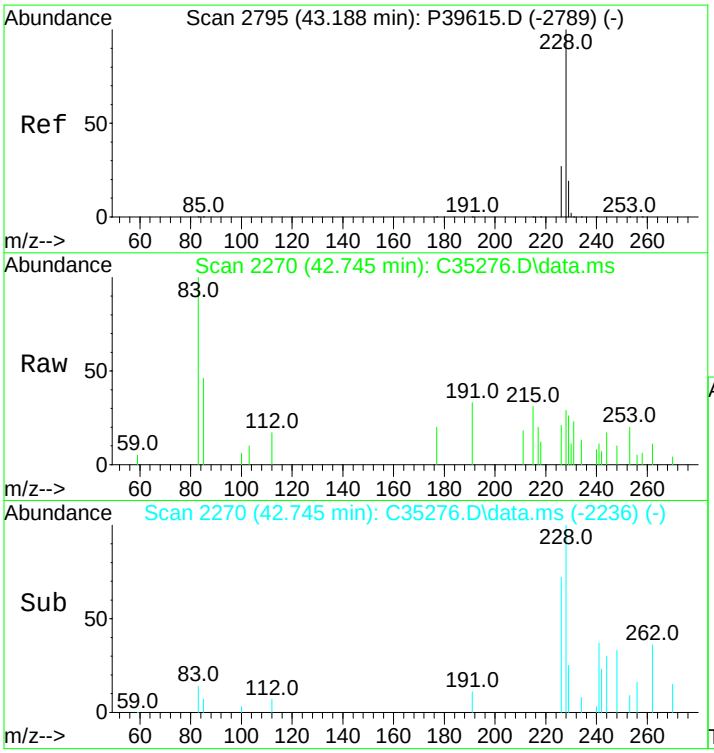




#73
C4-Naphthobenzothiophenes
Concen: 696.75 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:290 Resp: 66736

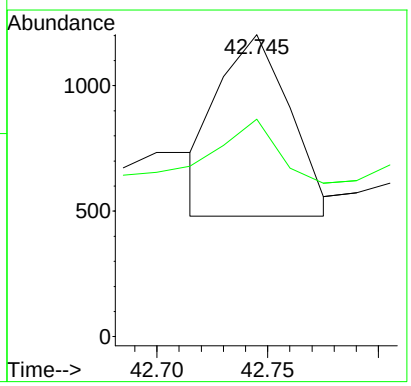


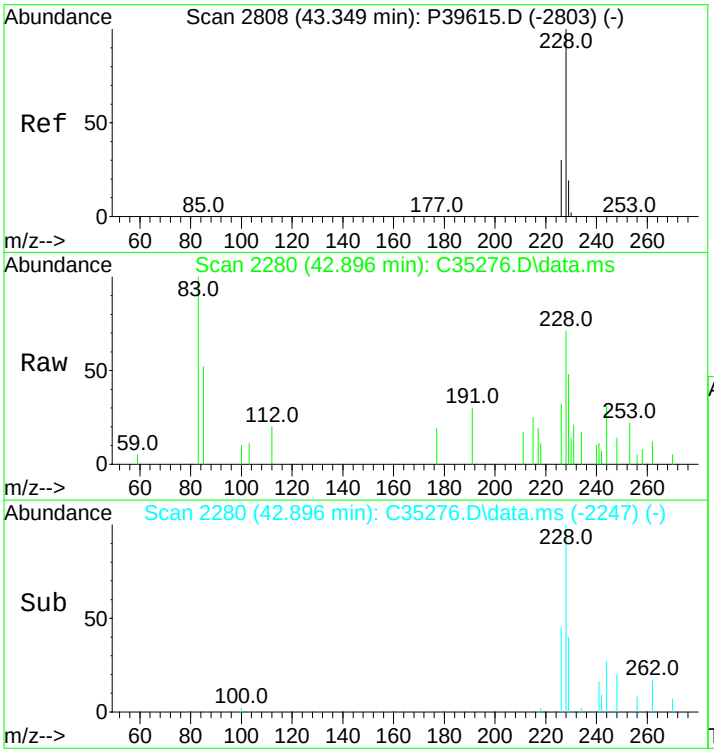


#75
Benz[a]anthracene
Concen: 16.33 ng/mL m
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:228 Resp: 1618

Ion	Ratio	Lower	Upper
228	100		
226	186.7	21.5	32.3#

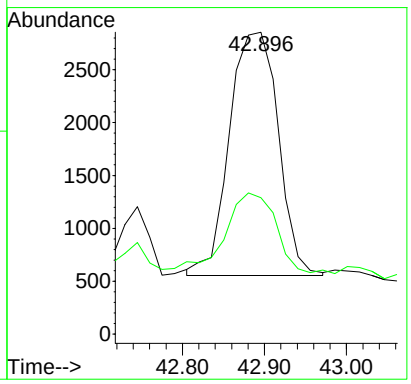


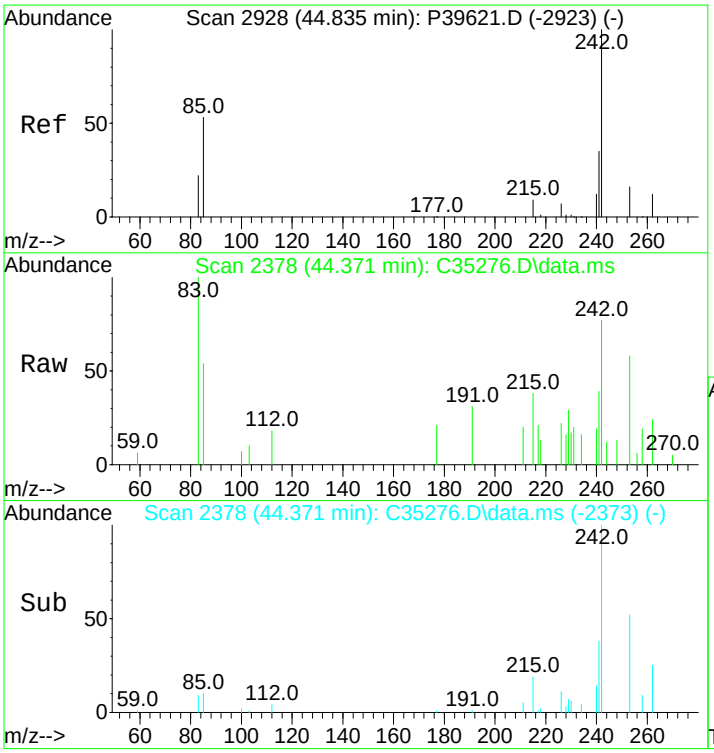


#77
Chrysene/Triphenylene
Concen: 95.04 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:228 Resp: 9510

Ion	Ratio	Lower	Upper
228	100		
226	31.8	23.5	35.3

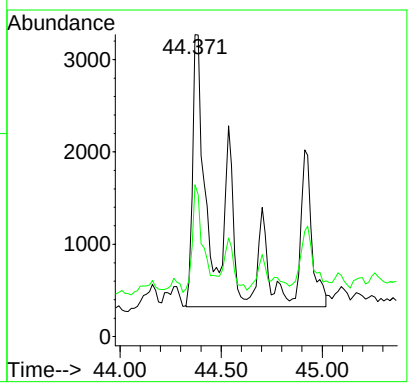


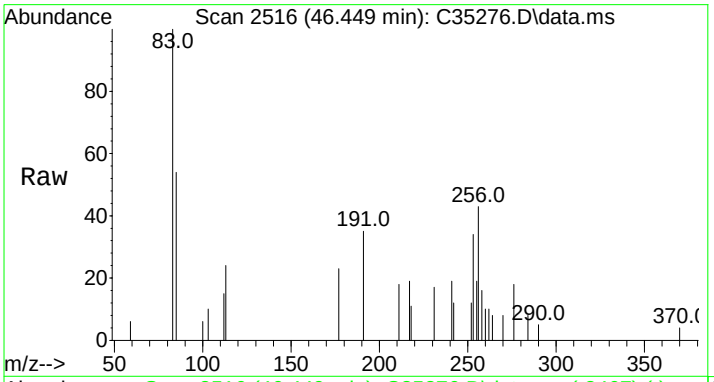


#78
C1-Chrysenes
Concen: 278.27 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:242 Resp: 27844

Ion	Ratio	Lower	Upper
242	100		
241	11.3	32.7	49.1#

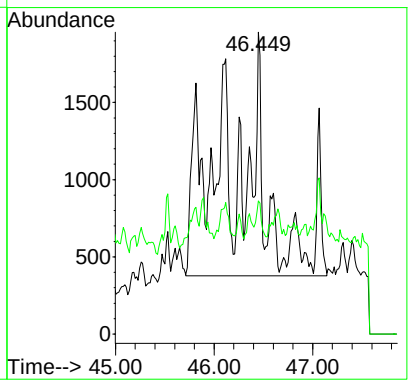


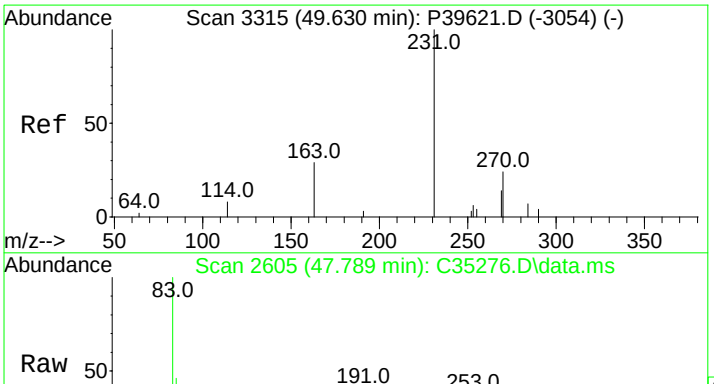


#79
C2-Chrysenes
Concen: 413.63 ng/mL m
RT: 46.449 min Scan# 2516
Delta R.T. 0.052 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:256 Resp: 41388

Ion	Ratio	Lower	Upper
256	100		
241	0.5	30.9	46.3#

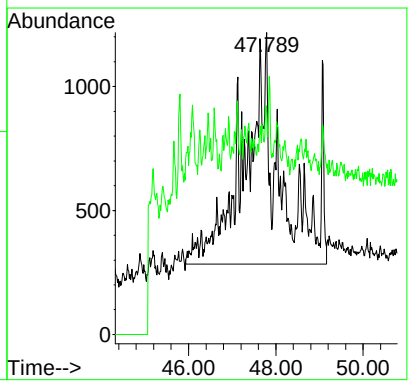


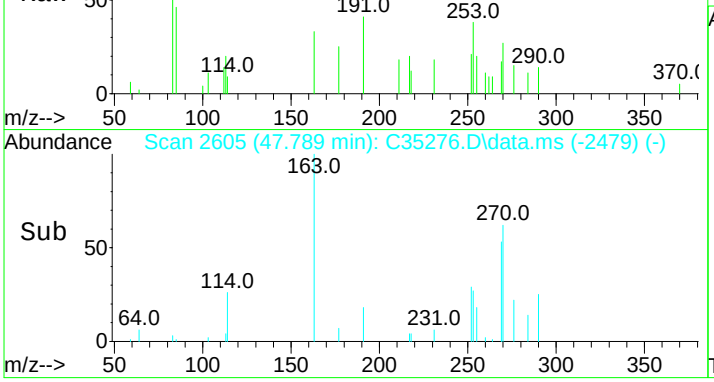


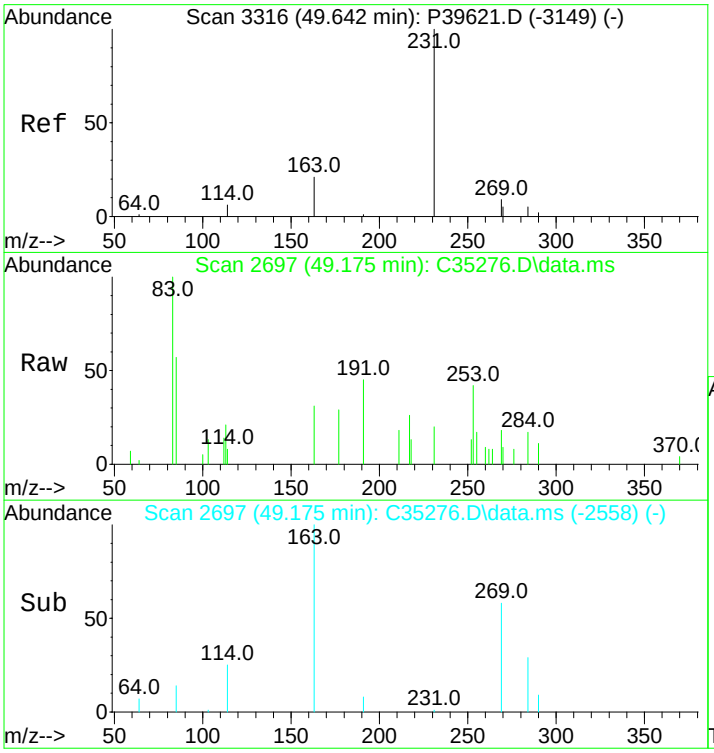
#80
C3-Chrysenes
Concen: 513.82 ng/mL m
RT: 47.789 min Scan# 2605
Delta R.T. -1.292 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:270 Resp: 51413

Ion	Ratio	Lower	Upper
270	100		
255	1.5	41.4	62.2#



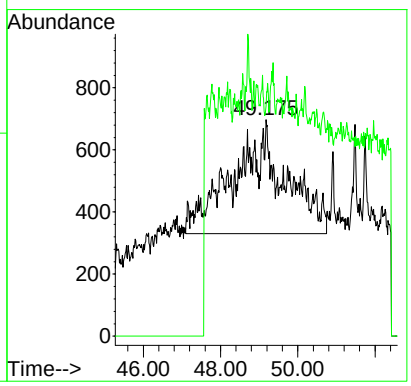


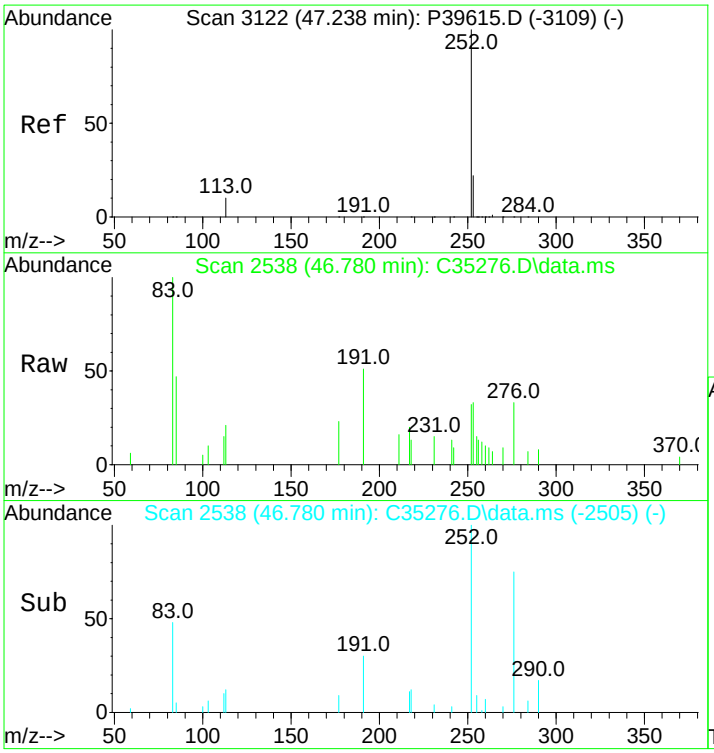


#81
C4-Chrysenes
Concen: 337.59 ng/mL m
RT: 49.175 min Scan# 2697
Delta R.T. -0.010 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:284 Resp: 33779

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

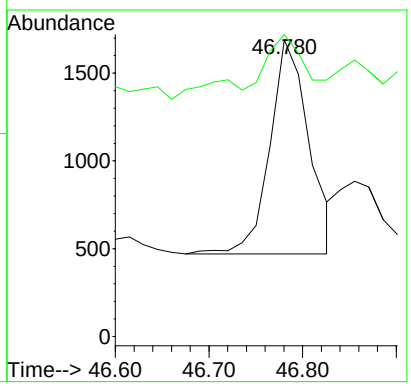


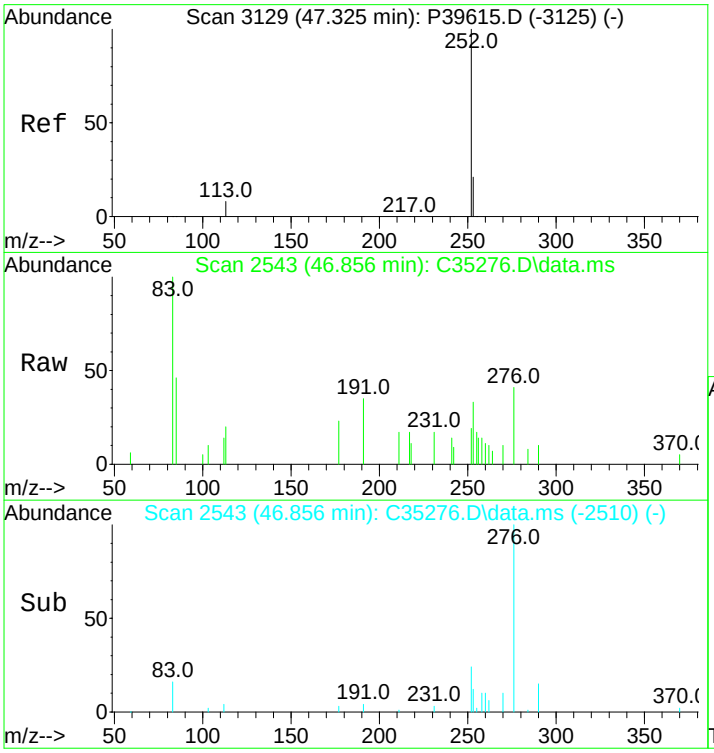


#82
Benzo[b]fluoranthene
Concen: 32.65 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:252 Resp: 3556

Ion	Ratio	Lower	Upper
252	100		
253	23.1	20.4	30.6

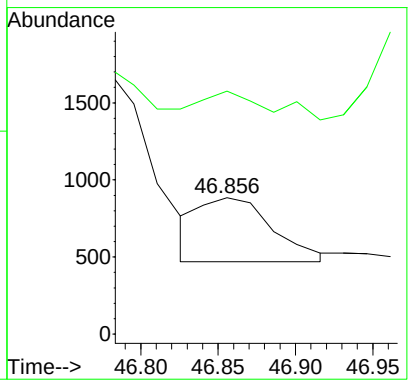


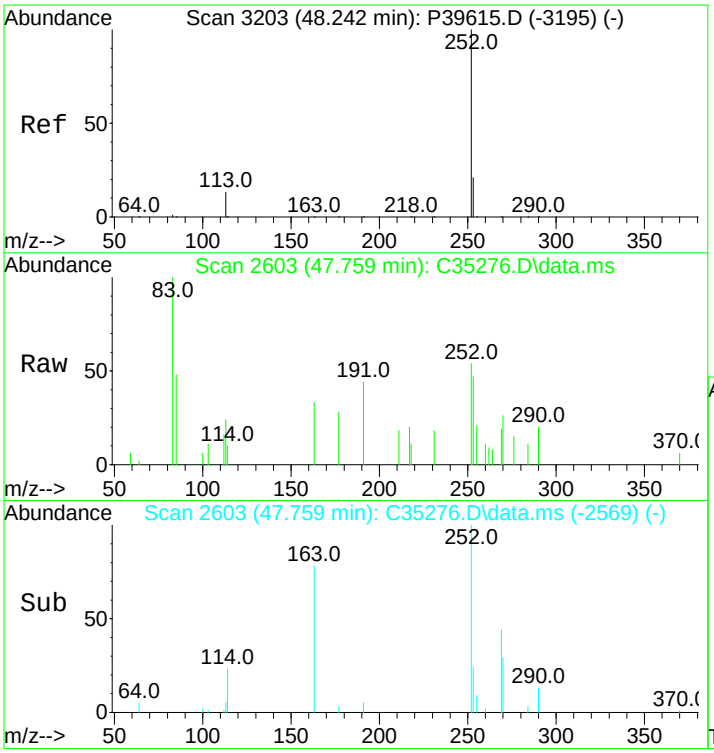


#83
Benzo[j]+[k]fluoranthene
Concen: 11.62 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:252 Resp: 1378

Ion	Ratio	Lower	Upper
252	100		
253	61.2	20.6	31.0#

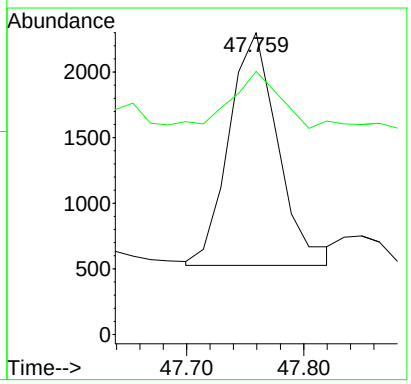


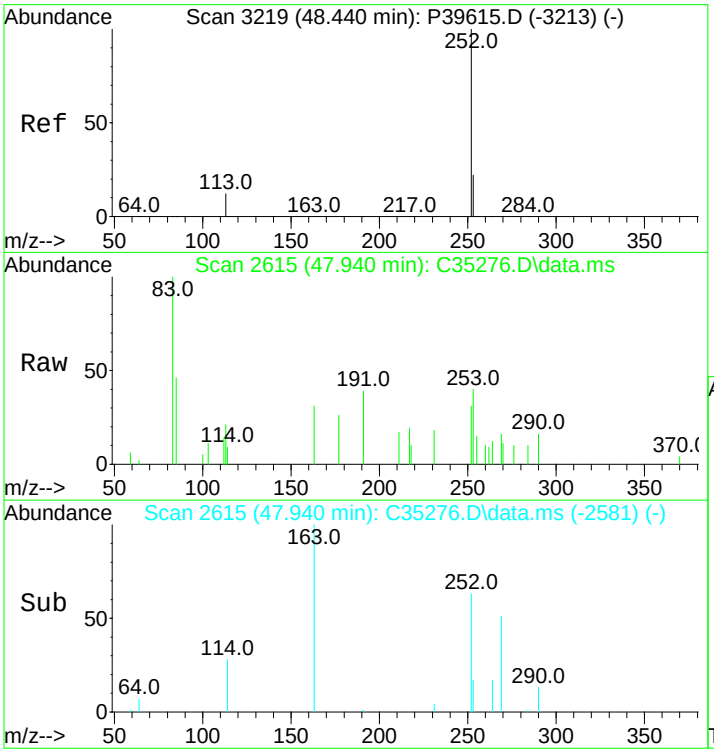


#85
Benzo[e]pyrene
Concen: 48.11 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:252 Resp: 5182

Ion	Ratio	Lower	Upper
252	100		
253	28.2	21.0	31.6

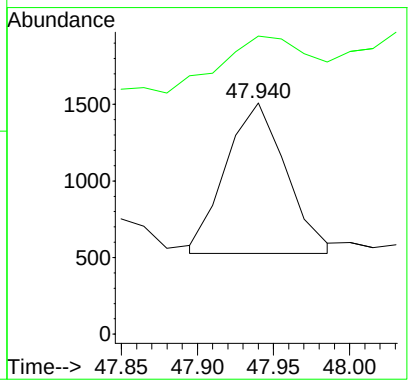


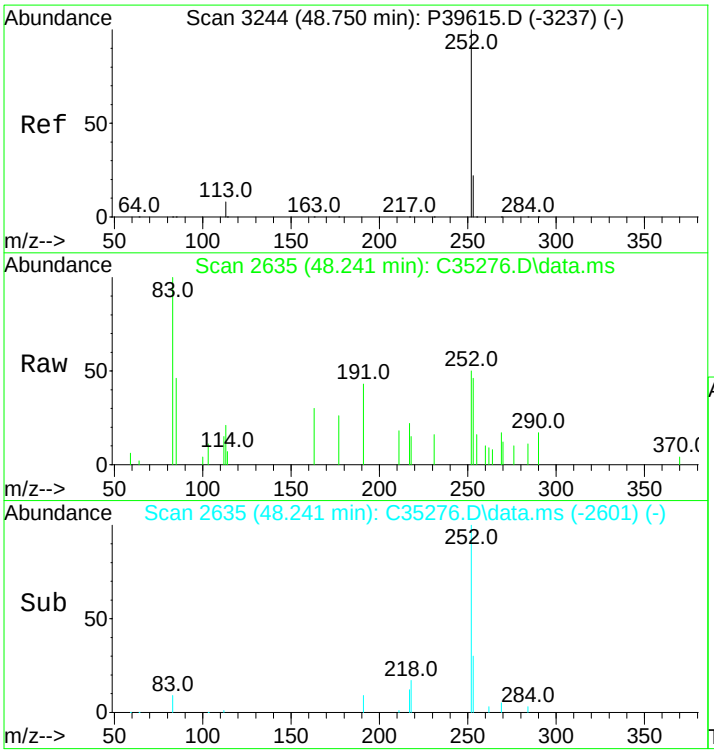


#87
Benzo[a]pyrene
Concen: 26.01 ng/mL m
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:252 Resp: 2698

Ion	Ratio	Lower	Upper
252	100		
253	65.3	21.4	32.0#

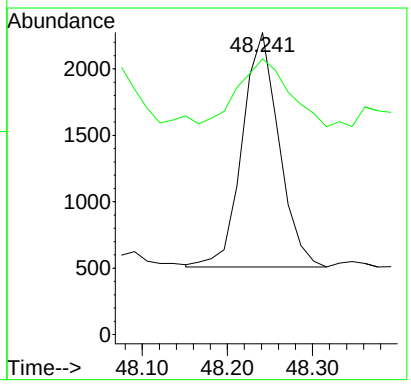


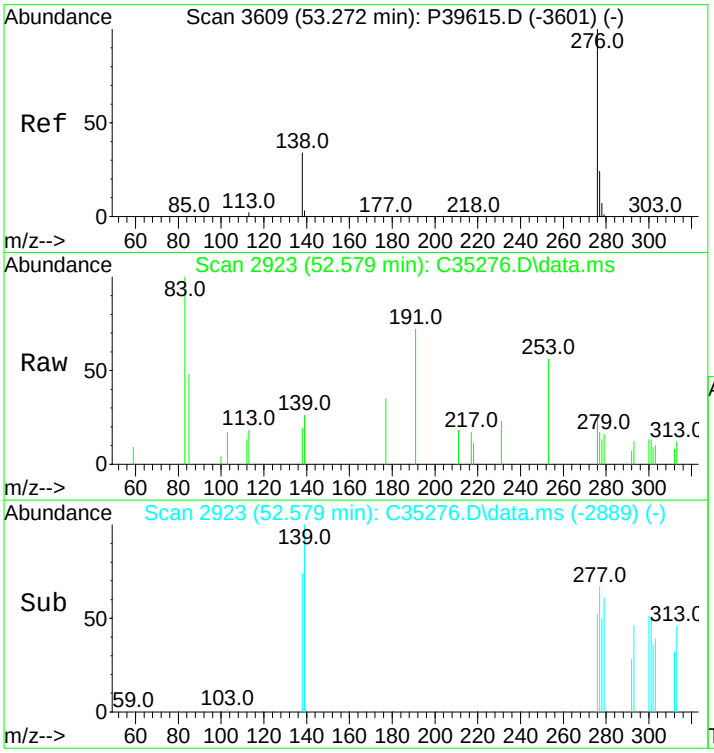


#88
Perylene
Concen: 47.70 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:252 Resp: 5287

Ion	Ratio	Lower	Upper
252	100		
253	40.1	21.8	32.6#

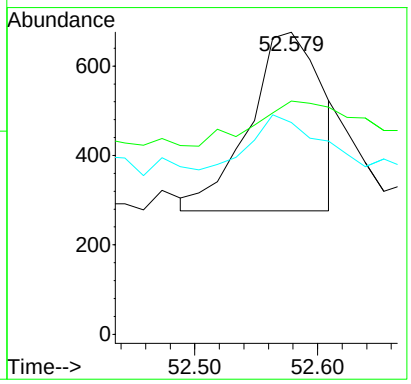


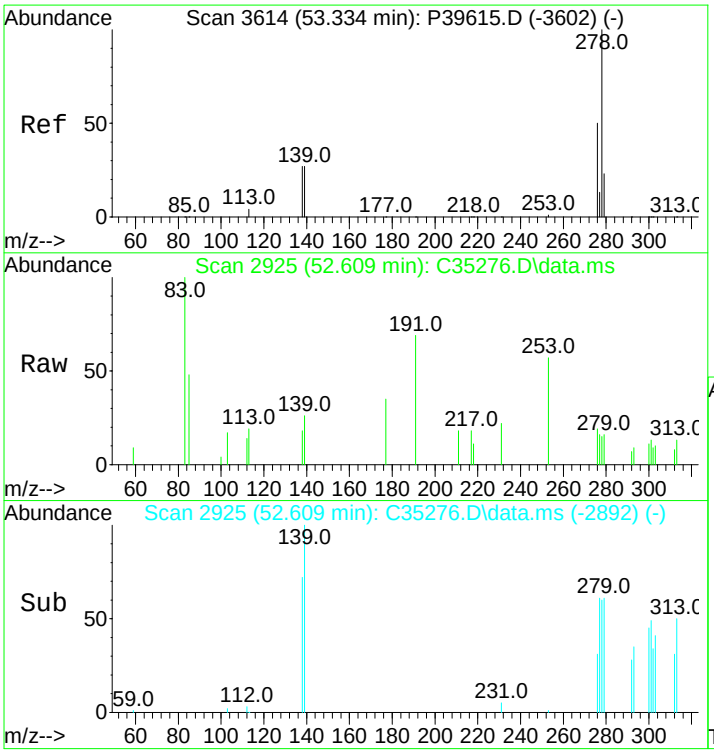


#89
Indeno[1,2,3-cd]pyrene
Concen: 13.60 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:276 Resp: 1642

Ion	Ratio	Lower	Upper
276	100		
138	0.0	19.1	28.7#
277	54.9	19.5	29.3#

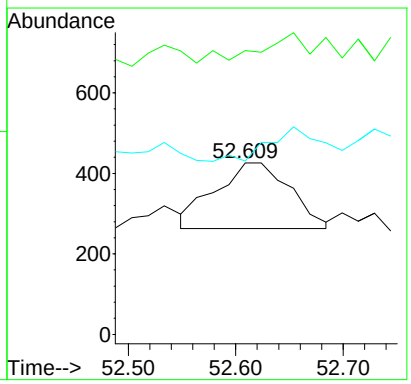


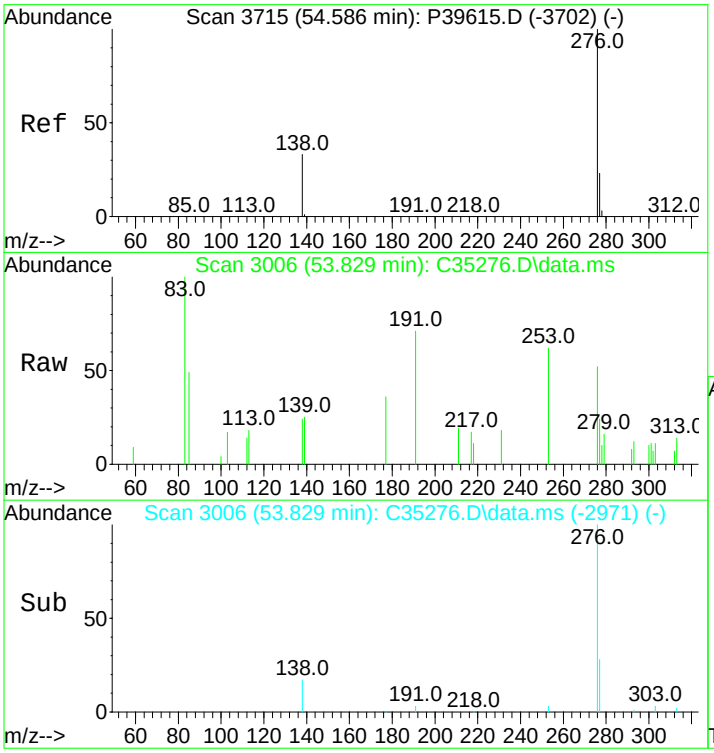


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.87 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:278 Resp: 789

Ion	Ratio	Lower	Upper
278	100		
139	470.8	16.6	25.0#
279	147.1	20.0	30.0#

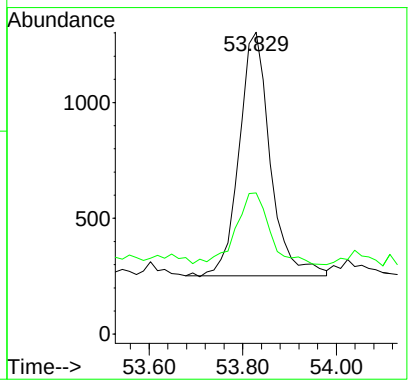


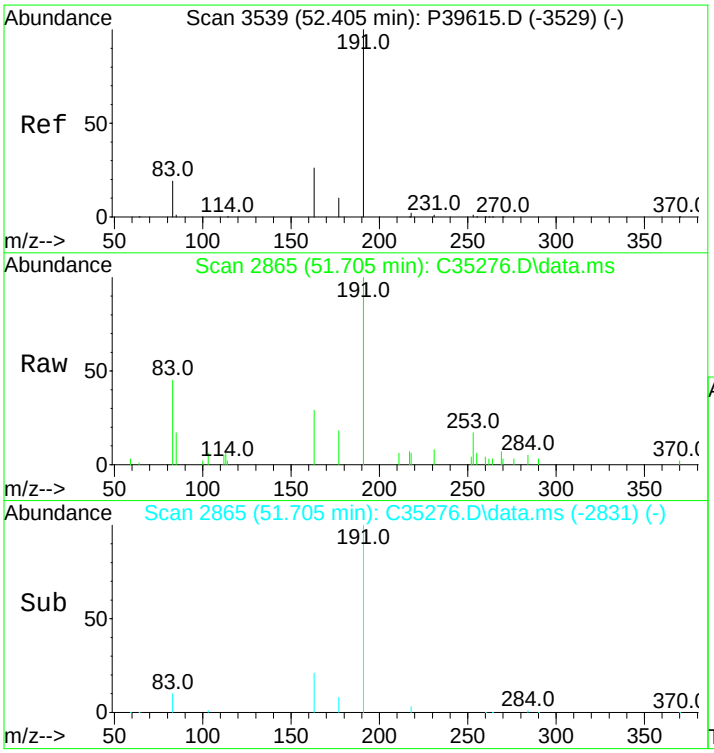


#91
Benzo[g,h,i]perylene
Concen: 38.07 ng/mL
RT: 53.829 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:276 Resp: 4854

Ion	Ratio	Lower	Upper
276	100		
277	32.6	18.8	28.2#

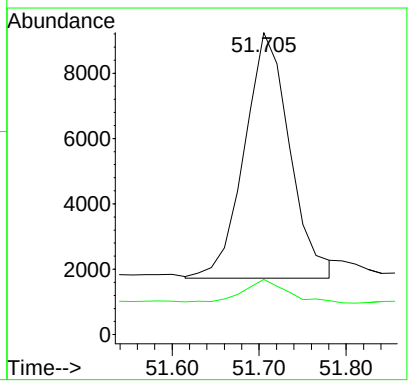


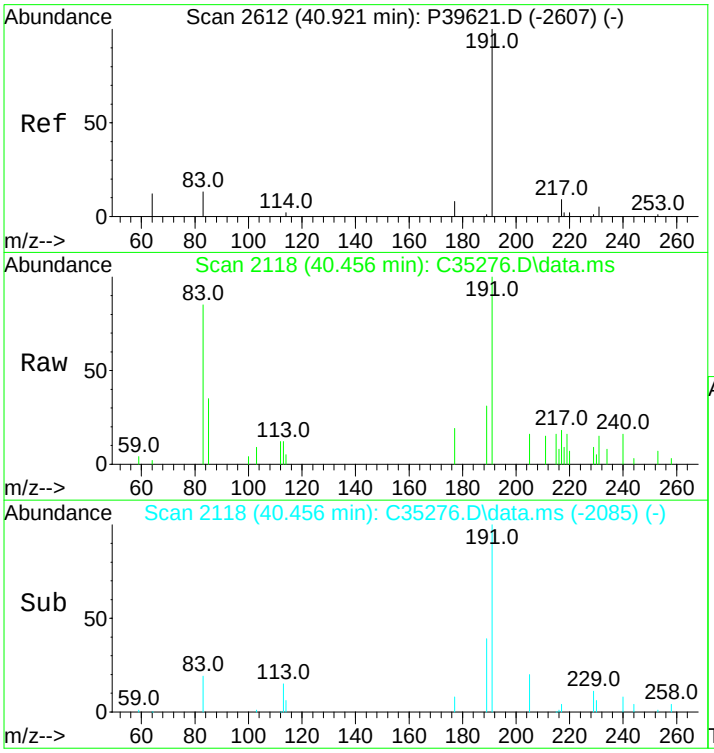


#92
Hopane (T19)
Concen: 1326.33 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:191 Resp: 27296

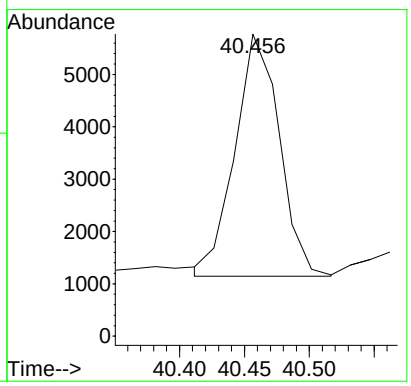
Ion	Ratio	Lower	Upper
191	100		
177	1.2	17.2	25.8#

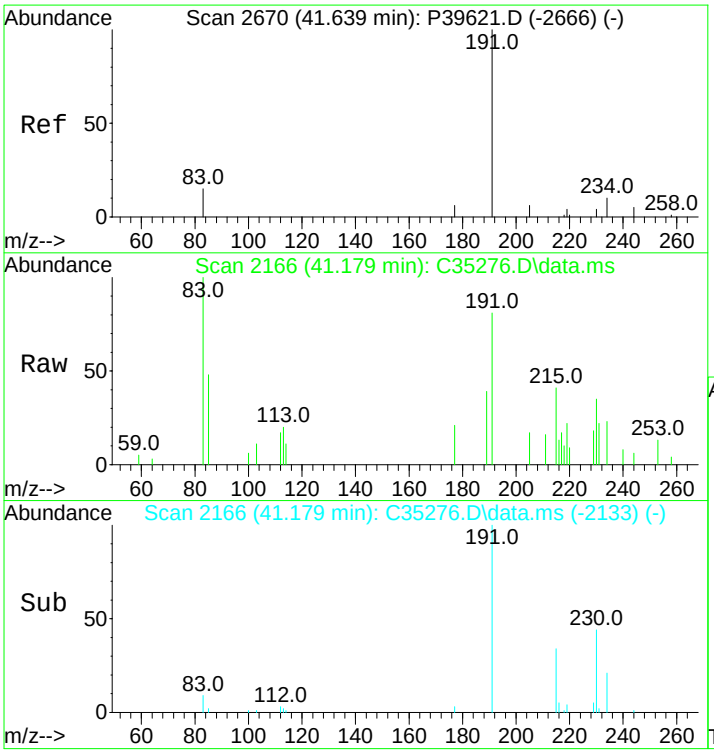




#94
C23 Tricyclic Terpane (T4)
Concen: 534.79 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

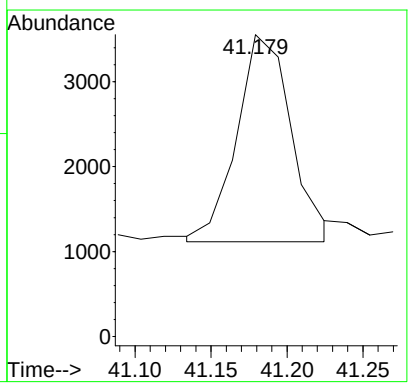
Tgt Ion:191 Resp: 11006

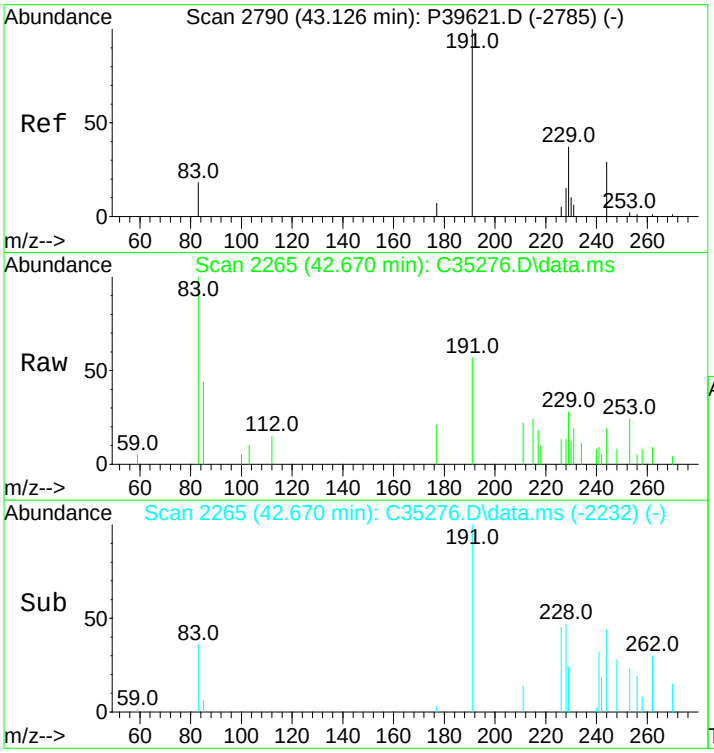




#95
C24 Tricyclic Terpane (T5)
Concen: 294.51 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

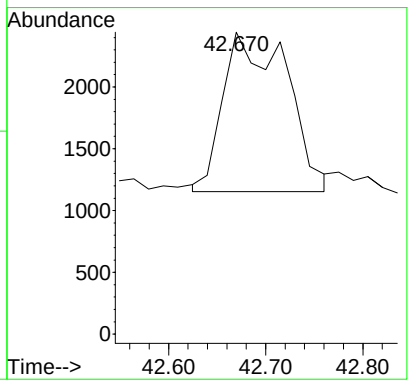
Tgt Ion:191 Resp: 6061

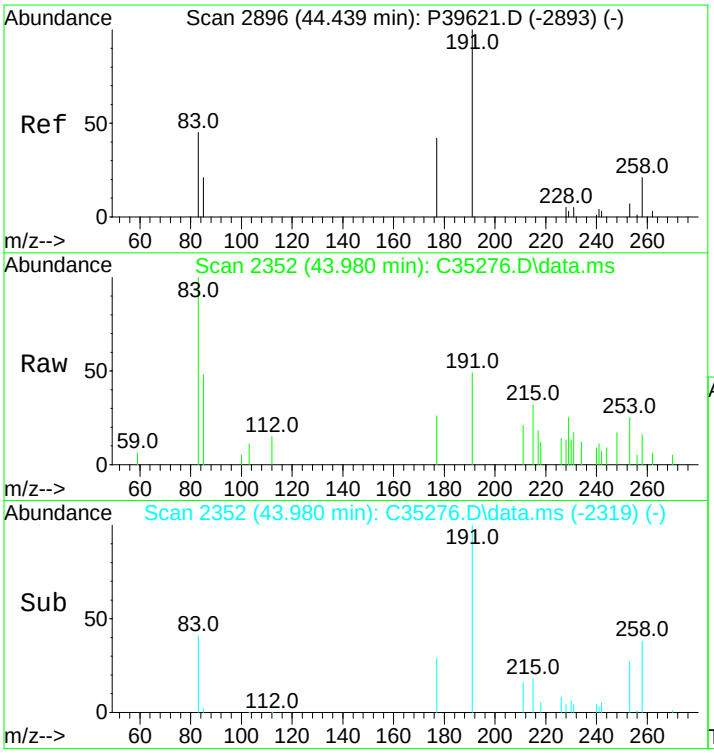




#96
C25 Tricyclic Terpane (T6)
Concen: 285.52 ng/ml m
RT: 42.670 min Scan# 2265
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

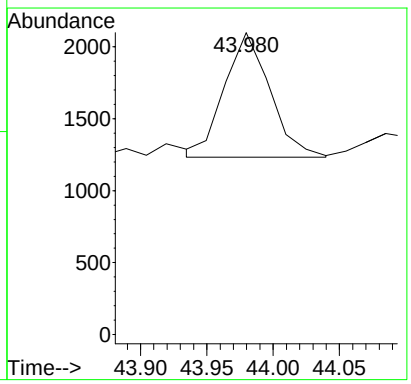
Tgt Ion:191 Resp: 5876

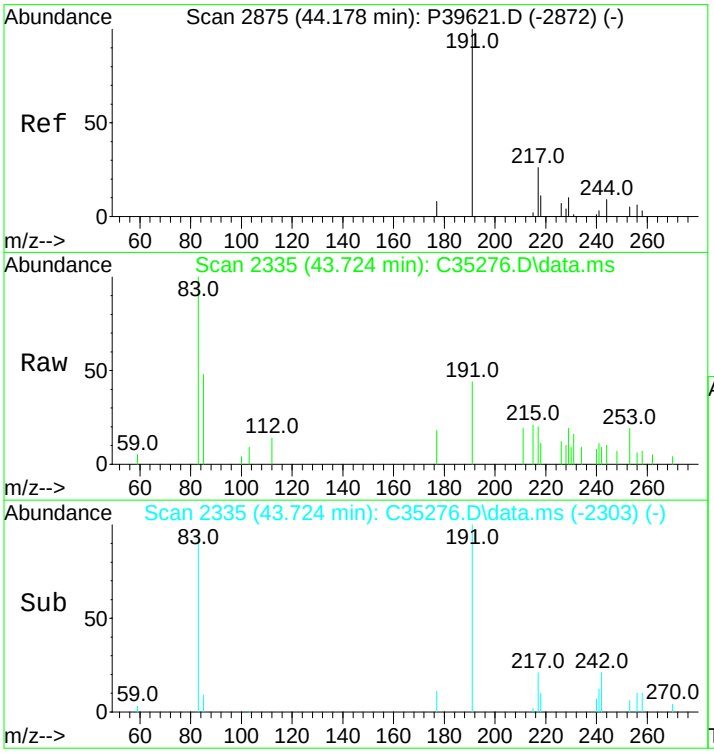




#97
C24 Tetracyclic Terpane (T6a)
Concen: 100.29 ng/ml m
RT: 43.980 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

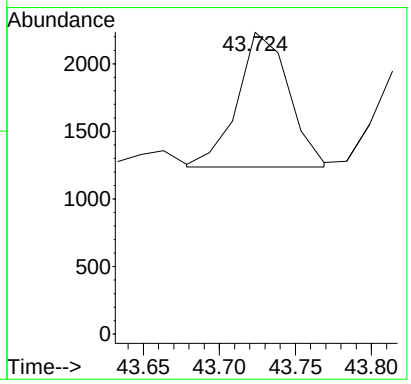
Tgt Ion:191 Resp: 2064

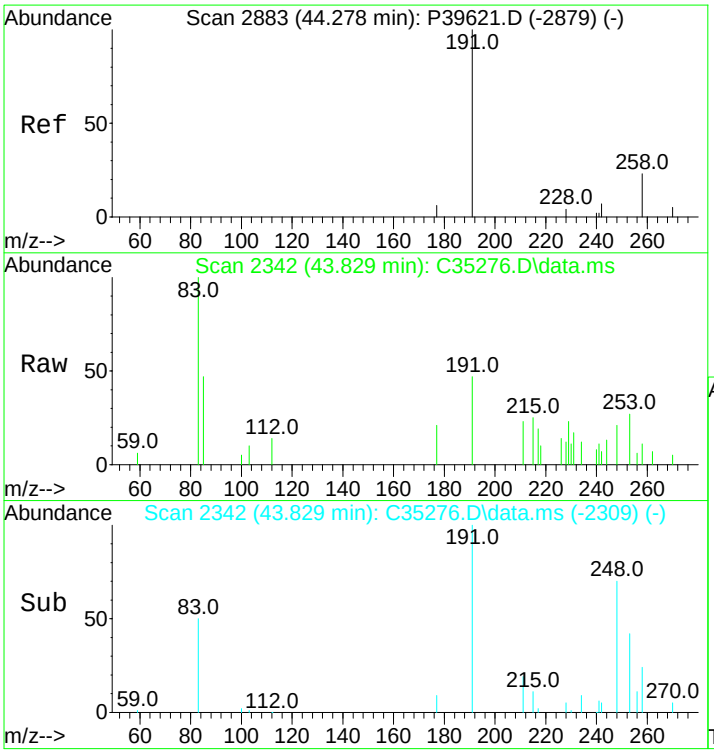




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 113.41 ng/ml m
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

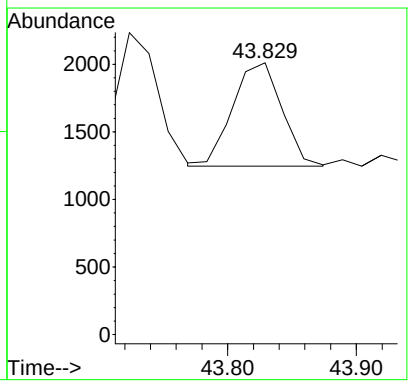
Tgt Ion:191 Resp: 2334

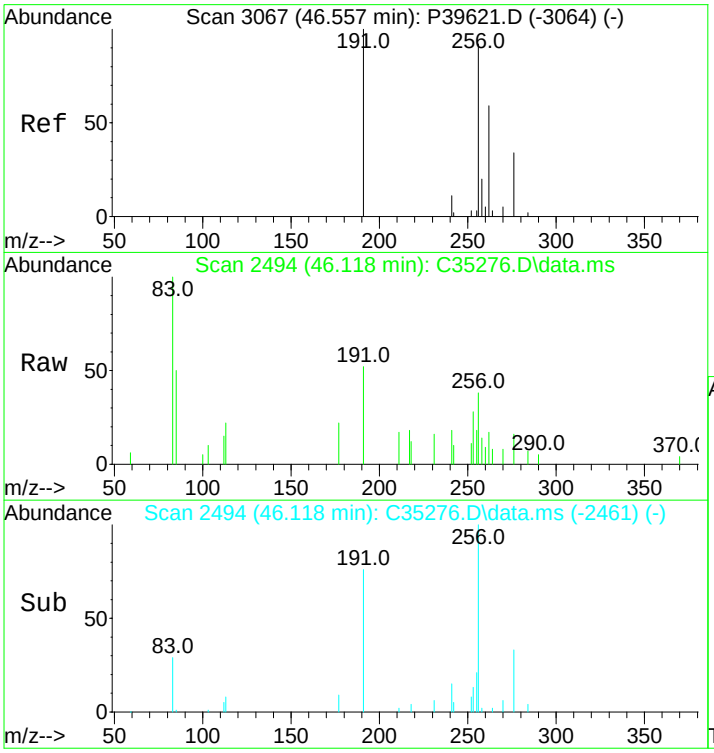




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 98.54 ng/ml m
RT: 43.829 min Scan# 2342
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

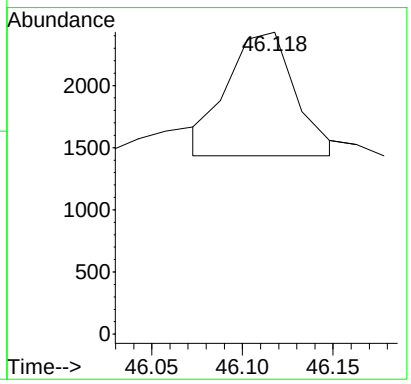
Tgt Ion:191 Resp: 2028

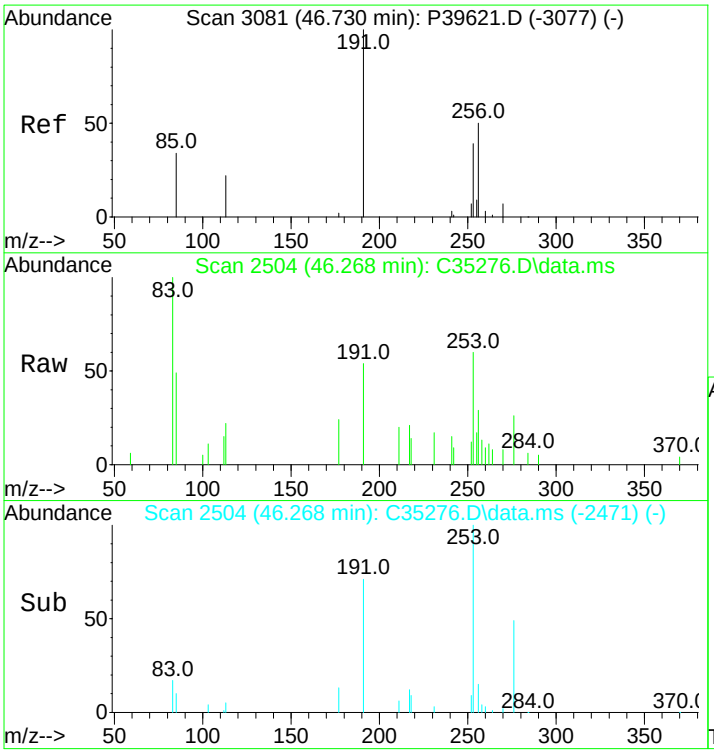




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 125.12 ng/ml m
RT: 46.118 min Scan# 2494
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

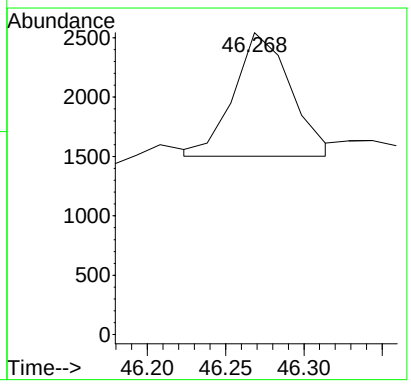
Tgt Ion:191 Resp: 2575

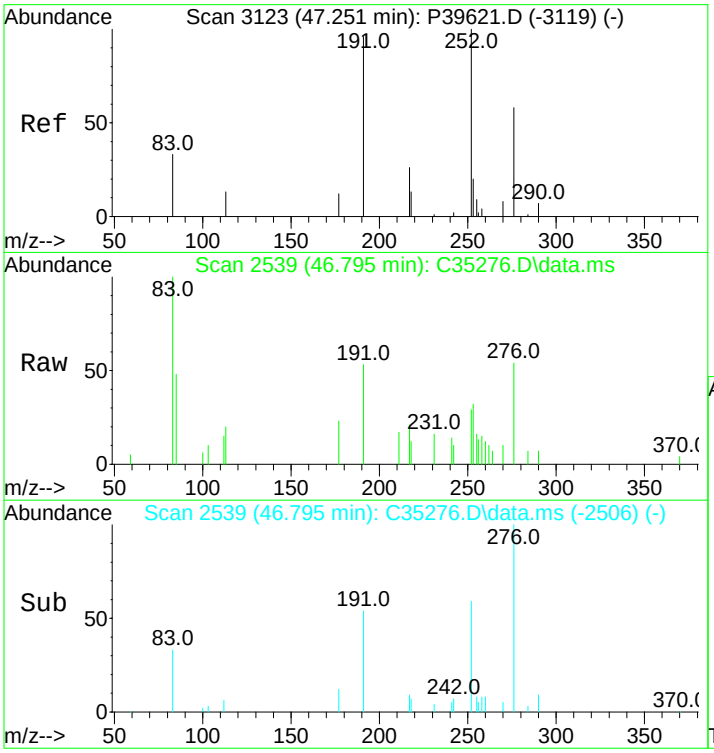




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 127.79 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

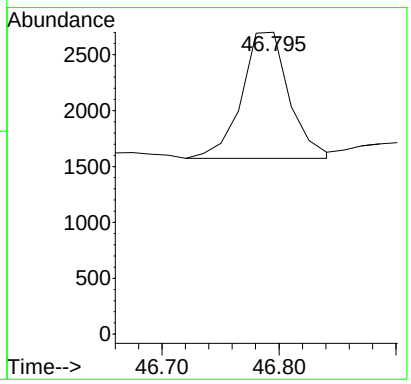
Tgt Ion:191 Resp: 2630

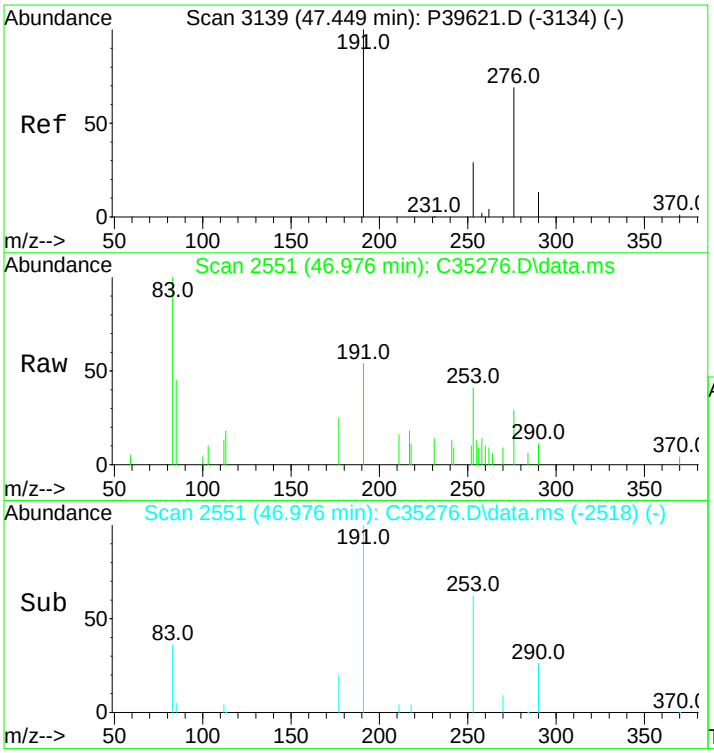




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 154.66 ng/ml
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

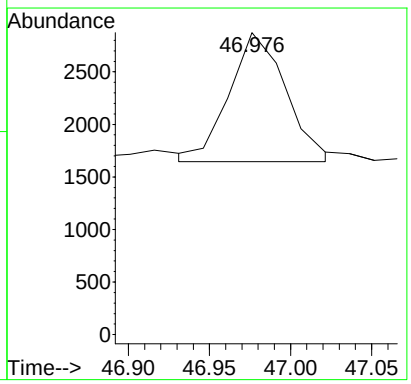
Tgt Ion:191 Resp: 3183

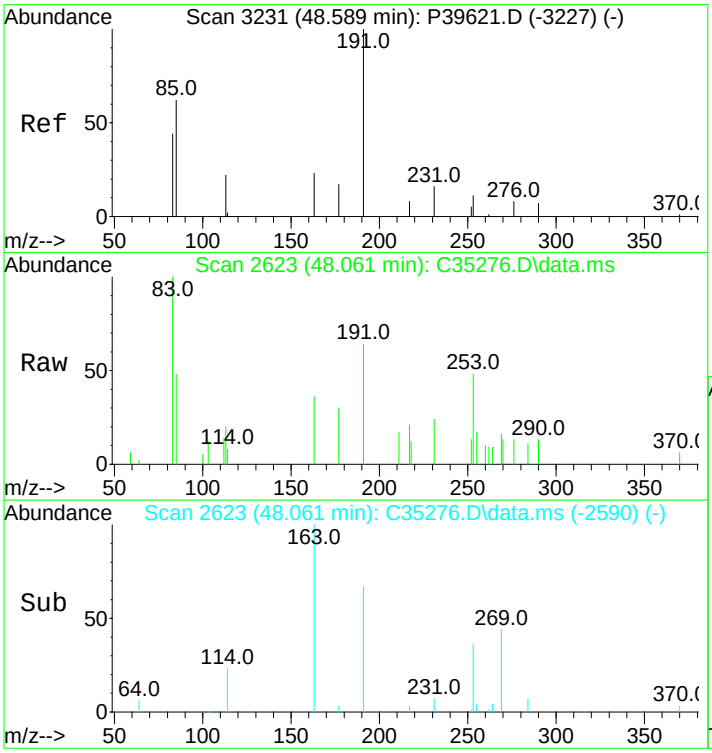




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 144.90 ng/ml m
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

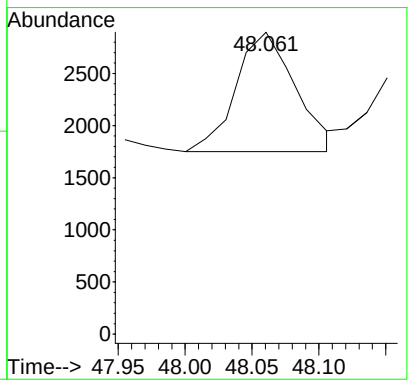
Tgt Ion:191 Resp: 2982

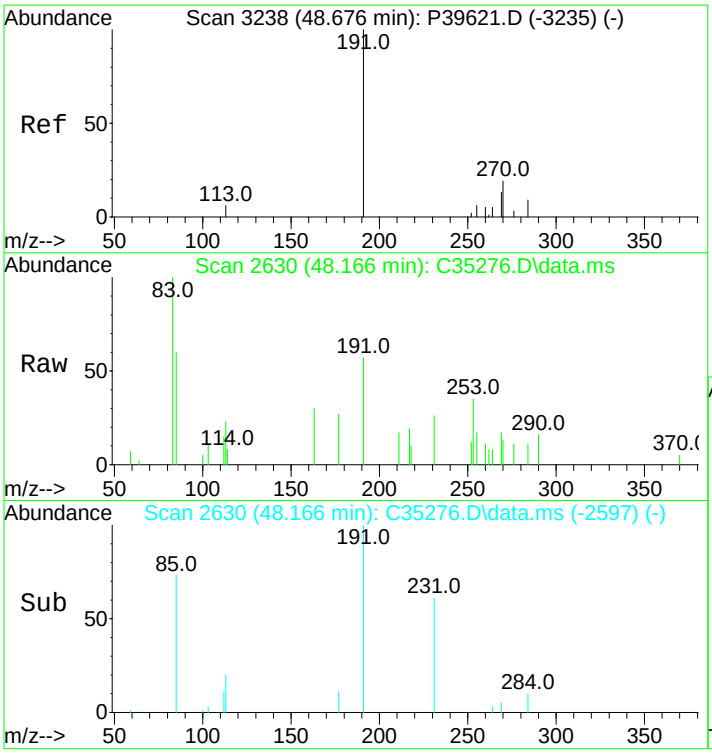




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 172.98 ng/ml
RT: 48.061 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

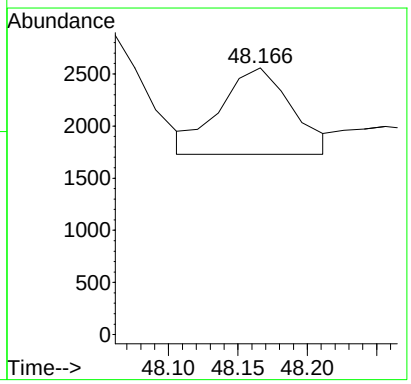
Tgt Ion:191 Resp: 3560

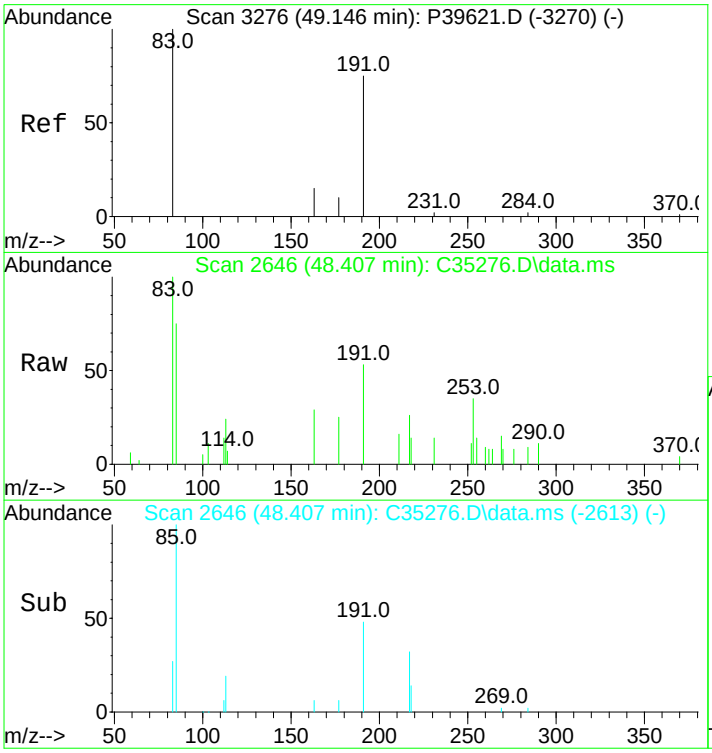




#105
C30 Tricyclic Terpane-22S
Concen: 145.33 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

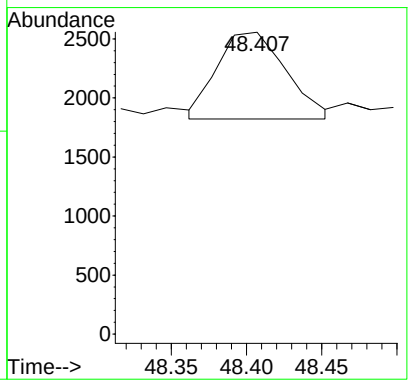
Tgt Ion:191 Resp: 2991

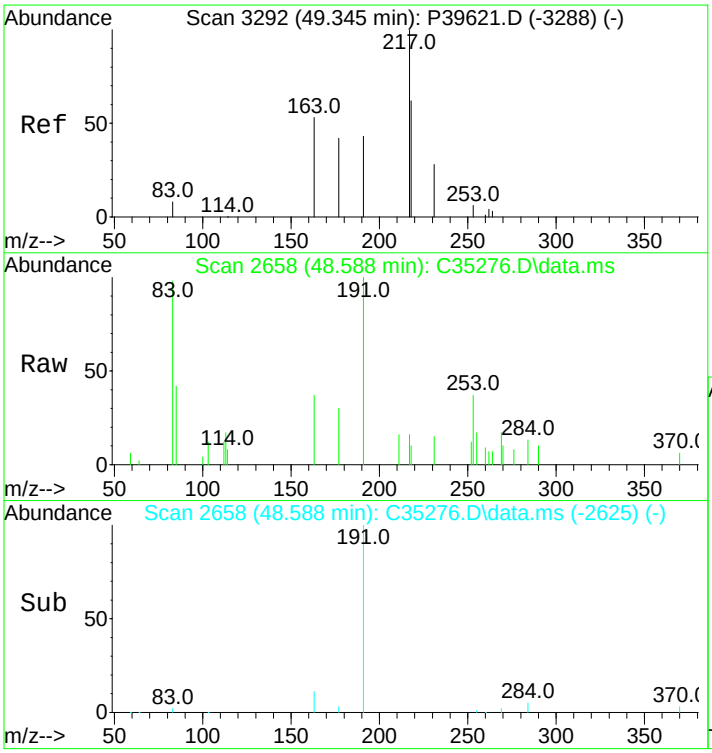




#106
C30 Tricyclic Terpane-22R
Concen: 113.70 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

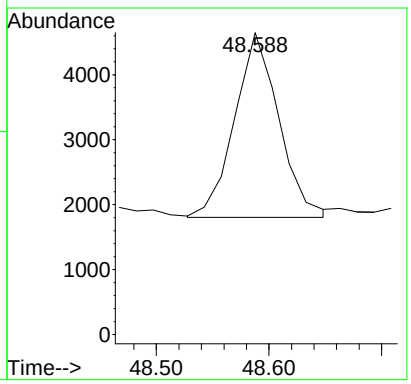
Tgt Ion:191 Resp: 2340

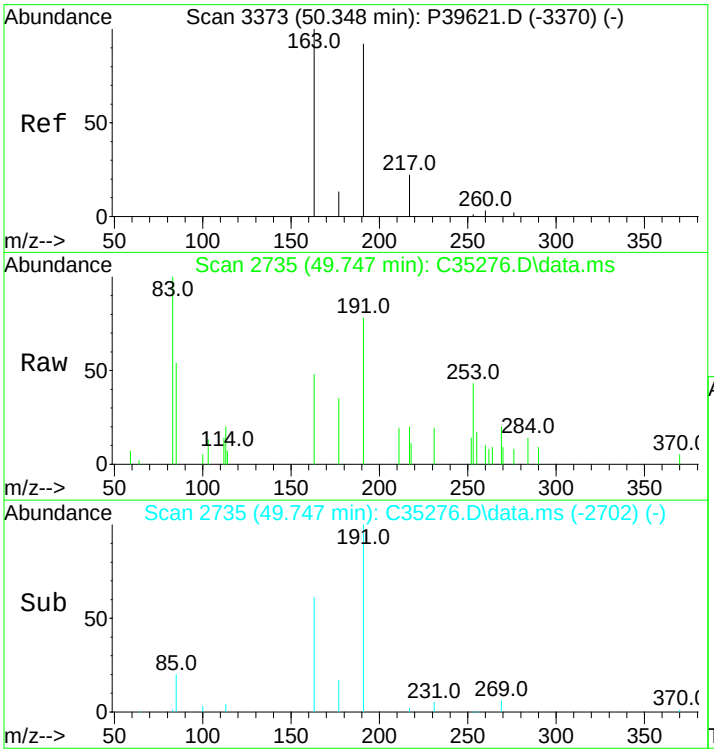




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 376.63 ng/ml m
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

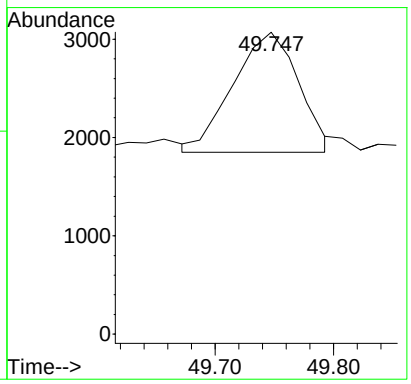
Tgt Ion:191 Resp: 7751

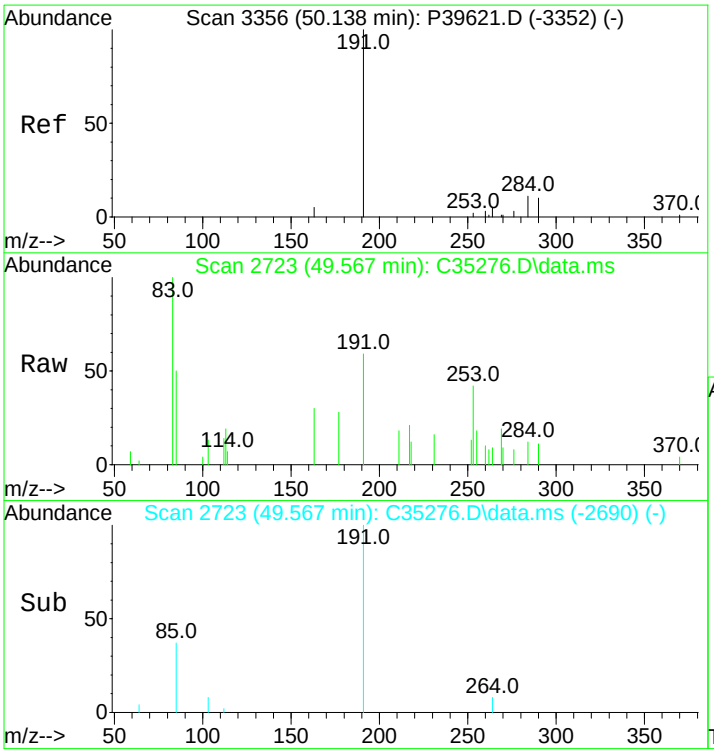




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 227.31 ng/ml m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

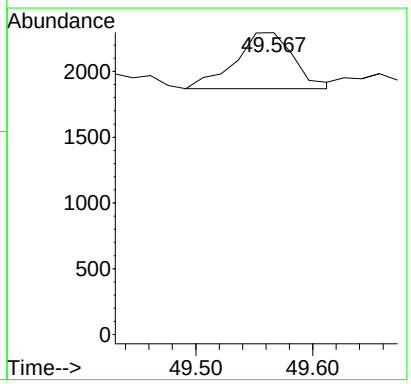
Tgt Ion:191 Resp: 4678

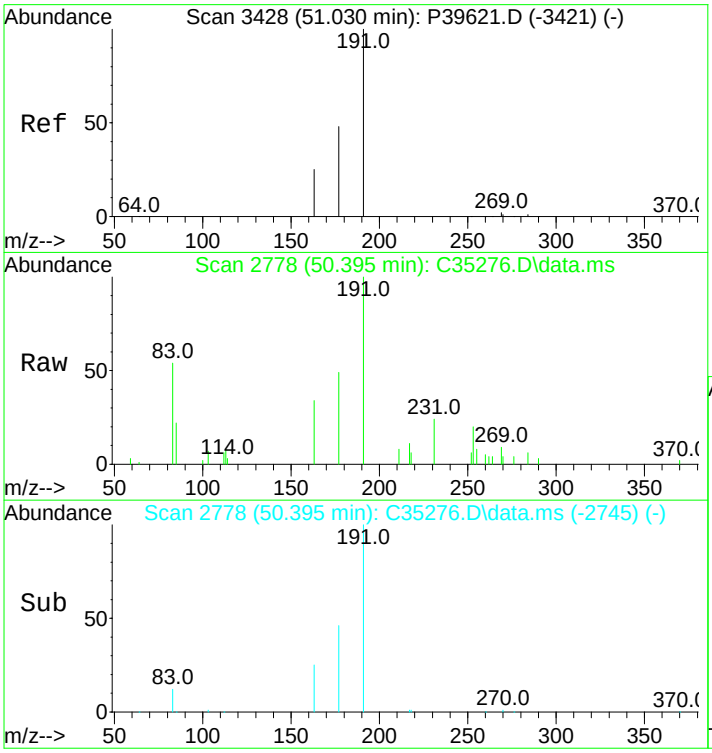




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 72.01 ng/ml
RT: 49.567 min Scan# 2723
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

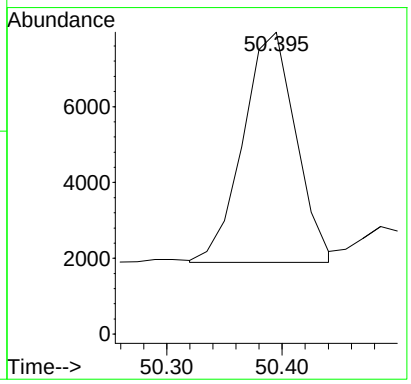
Tgt Ion:191 Resp: 1482

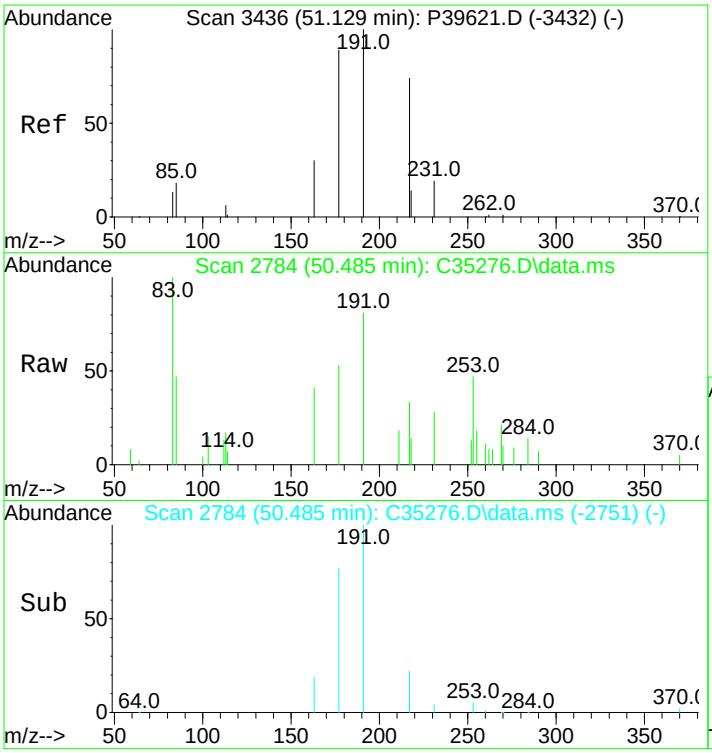




#110
30-Norhopane (T15)
Concen: 942.36 ng/ml m
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

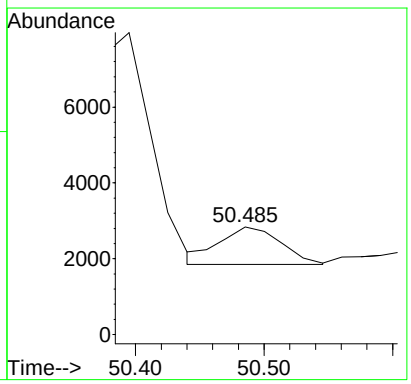
Tgt Ion:191 Resp: 19394

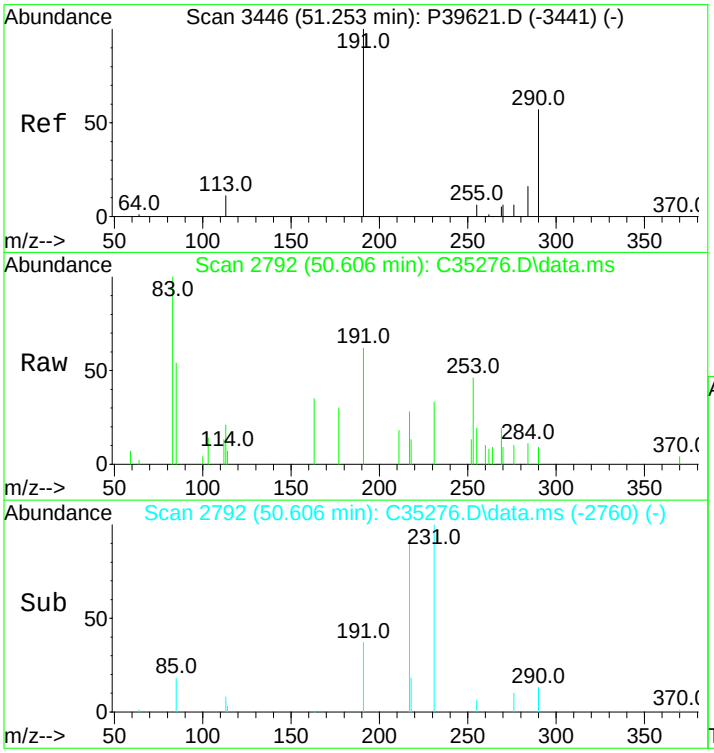




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 160.93 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

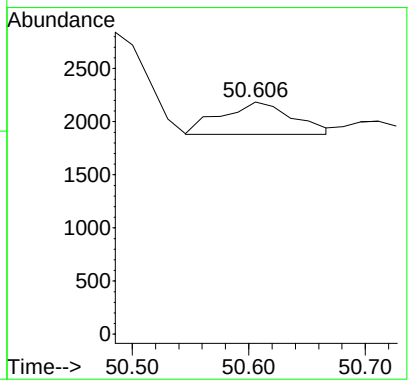
Tgt Ion:191 Resp: 3312

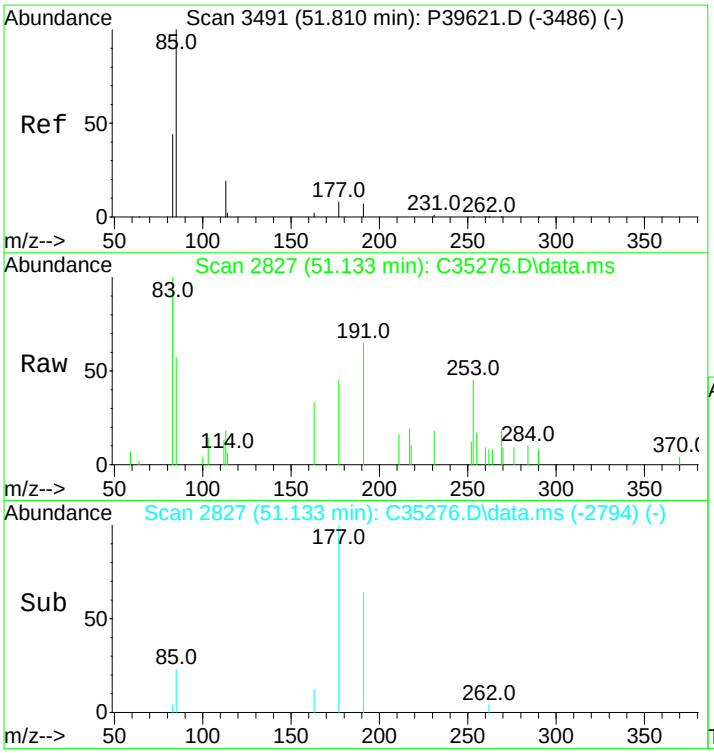




#112
17a(H)-Diahopane (X)
Concen: 63.60 ng/ml m
RT: 50.606 min Scan# 2792
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

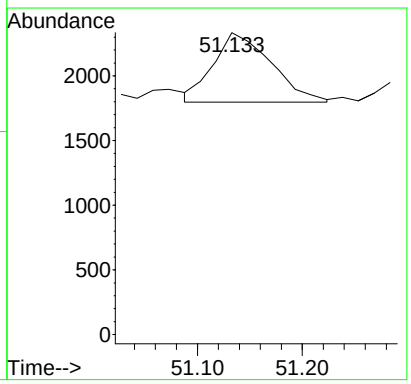
Tgt Ion:191 Resp: 1309

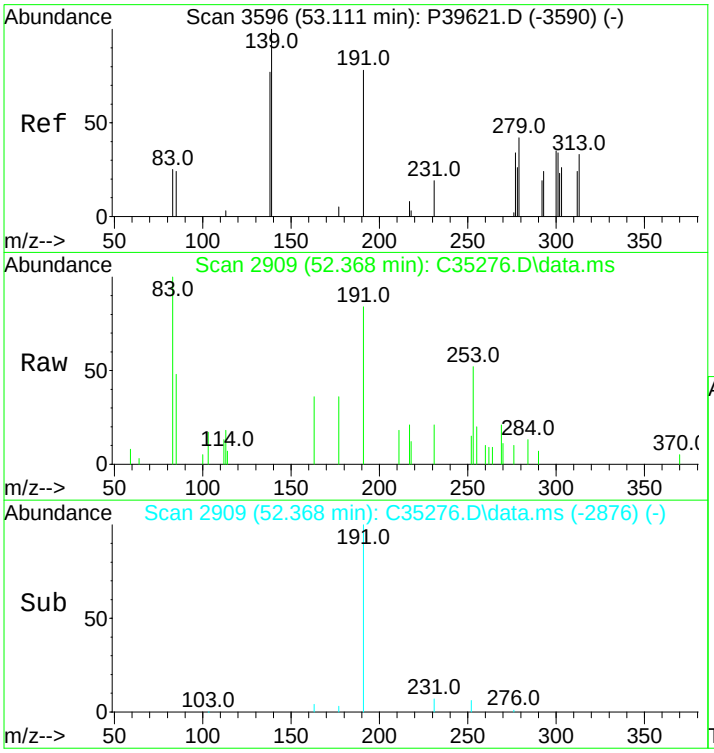




#113
30-Normoretane (T17)
Concen: 99.80 ng/ml m
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

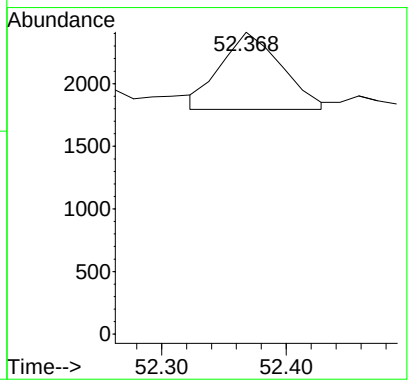
Tgt Ion:191 Resp: 2054

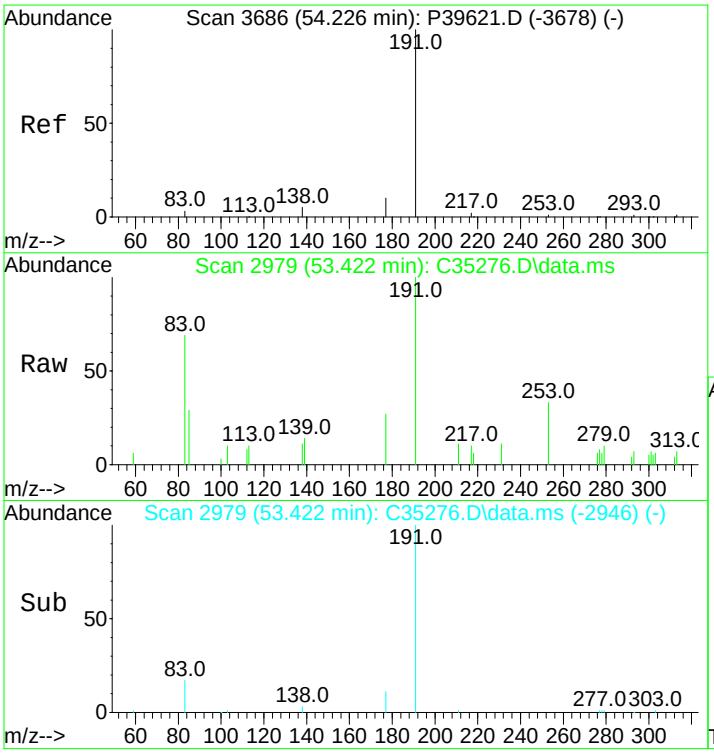




#115
Moretane (T20)
Concen: 100.49 ng/ml m
RT: 52.368 min Scan# 2909
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

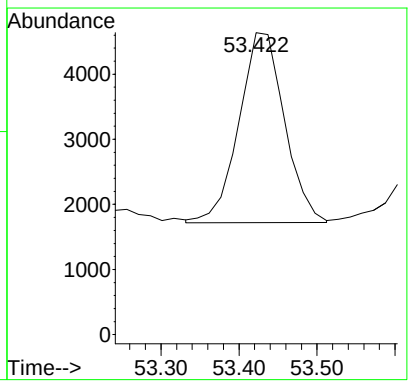
Tgt Ion:191 Resp: 2068

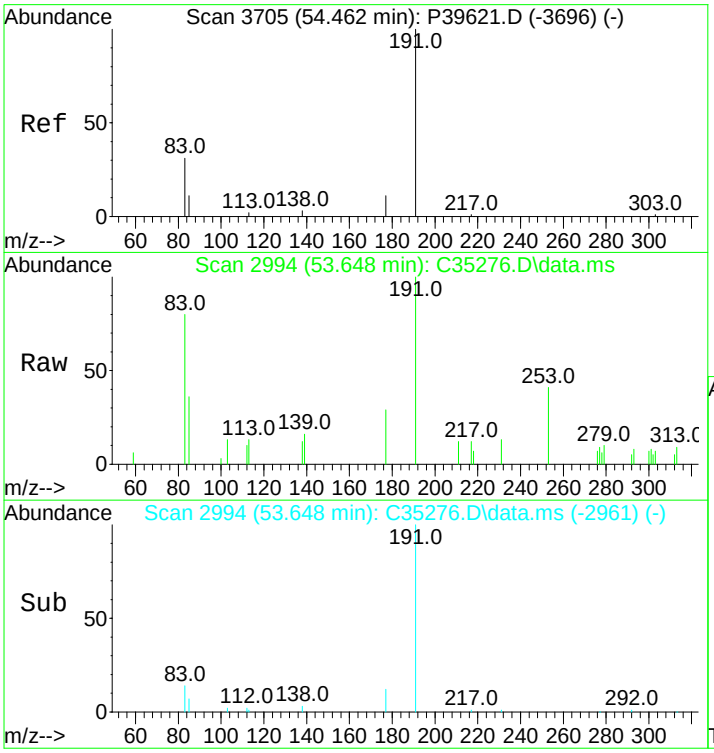




#116
30-Homohopane-22S (T21)
Concen: 574.68 ng/ml
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

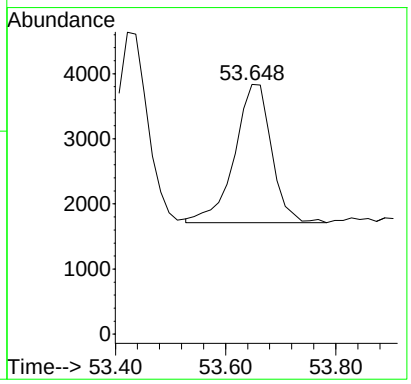
Tgt Ion:191 Resp: 11827

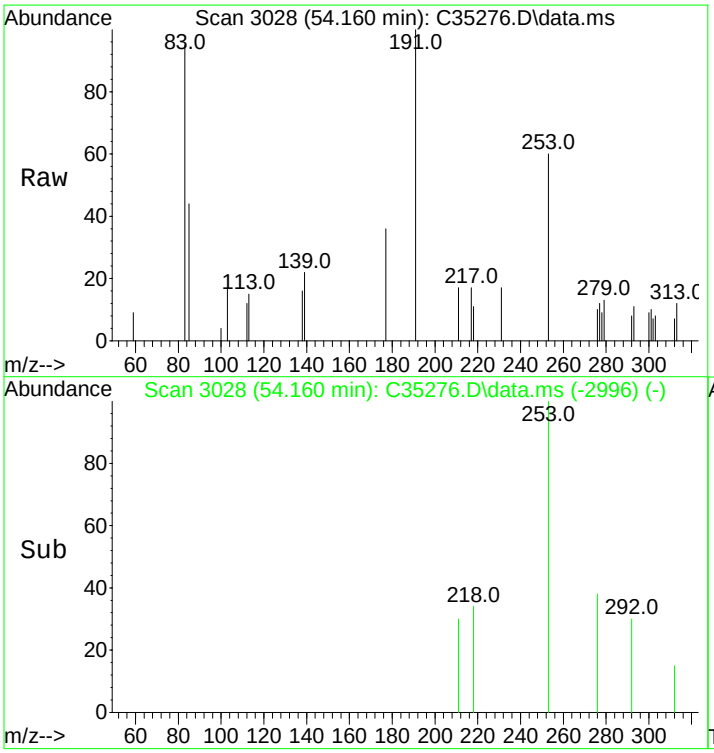




#117
30-Homohopane-22R (T22)
Concen: 479.73 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

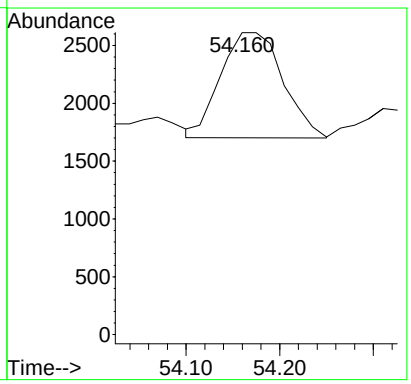
Tgt Ion:191 Resp: 9873

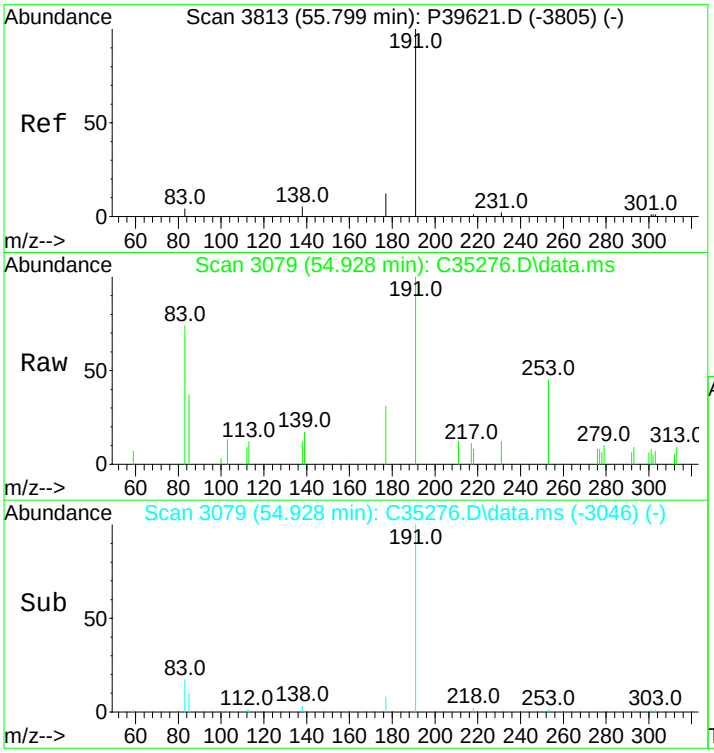




#118
Gammacerane/C32-diahopane
Concen: 204.18 ng/mL
RT: 54.160 min Scan# 3028
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

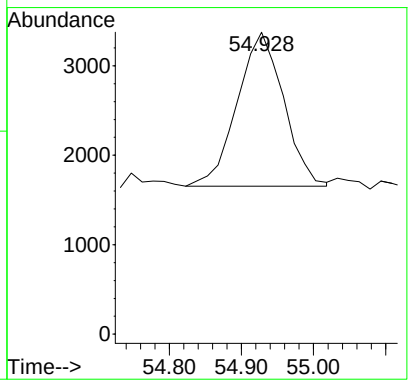
Tgt Ion:191 Resp: 4202

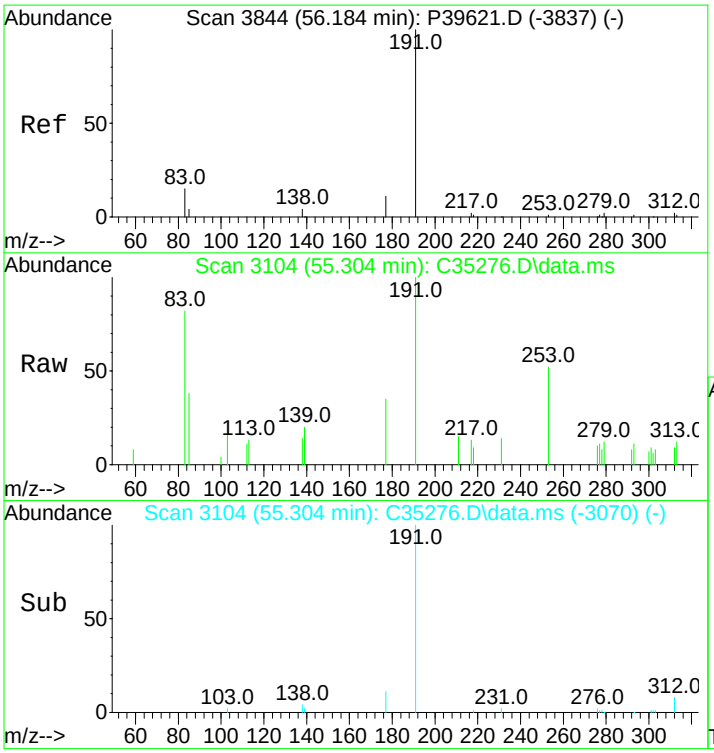




#119
30,31-Bishomohopane-22S (T26)
Concen: 373.13 ng/ml
RT: 54.928 min Scan# 3079
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

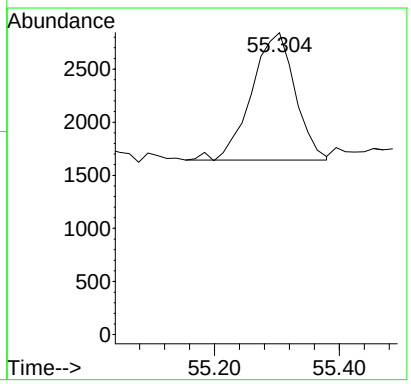
Tgt Ion:191 Resp: 7679

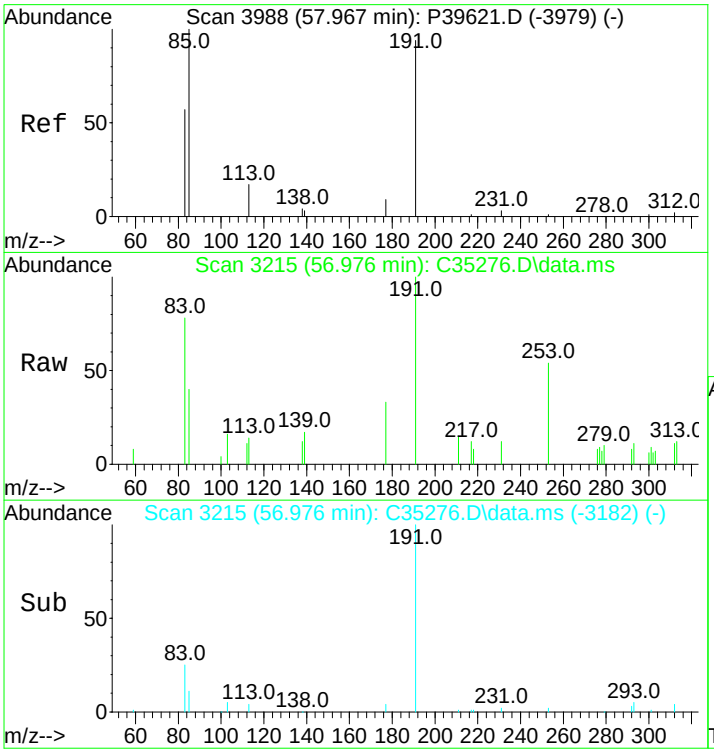




#120
30,31-Bishomohopane-22R (T27)
Concen: 281.53 ng/ml
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

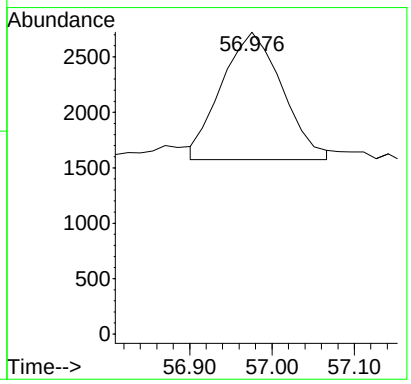
Tgt Ion:191 Resp: 5794

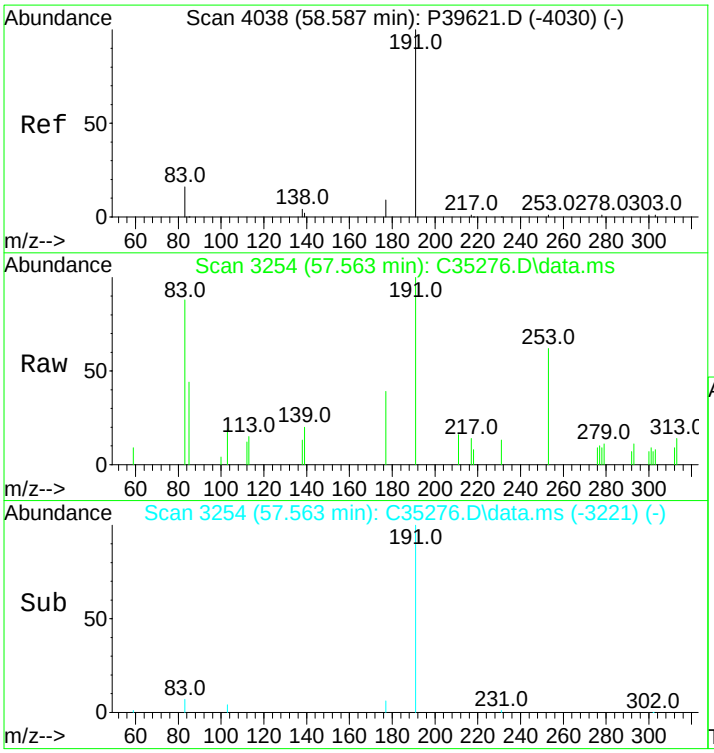




#121
30,31-Trishomohopane-22S (T30)
Concen: 286.10 ng/ml m
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

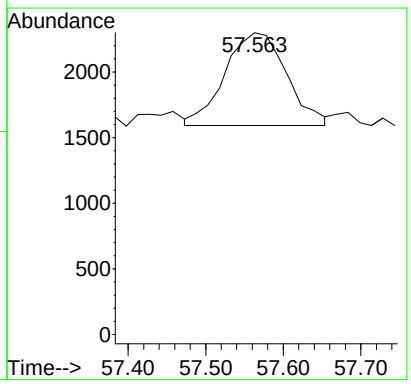
Tgt Ion:191 Resp: 5888

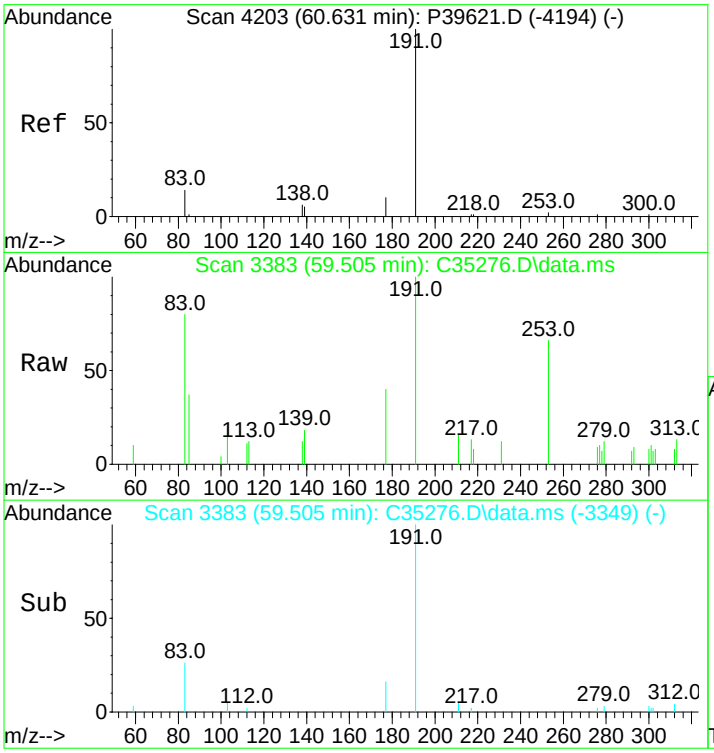




#122
30,31-Trishomohopane-22R (T31)
Concen: 188.58 ng/ml m
RT: 57.563 min Scan# 3254
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

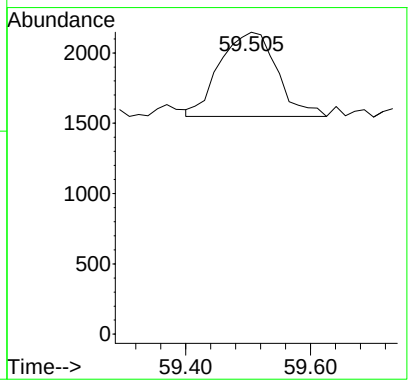
Tgt Ion:191 Resp: 3881

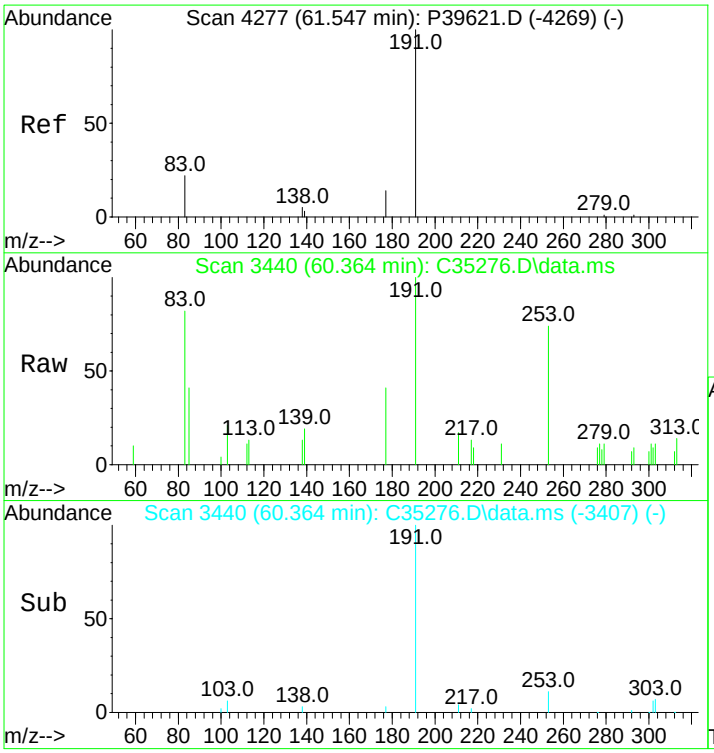




#123
Tetrakishomohopane-22S (T32)
Concen: 185.32 ng/ml
RT: 59.505 min Scan# 3383
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

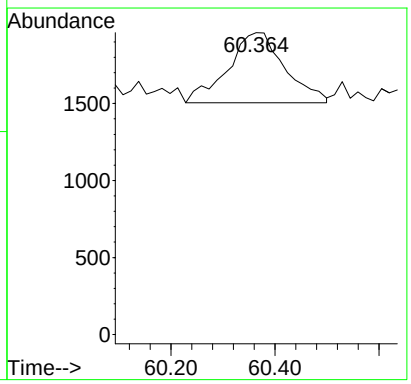
Tgt Ion:191 Resp: 3814

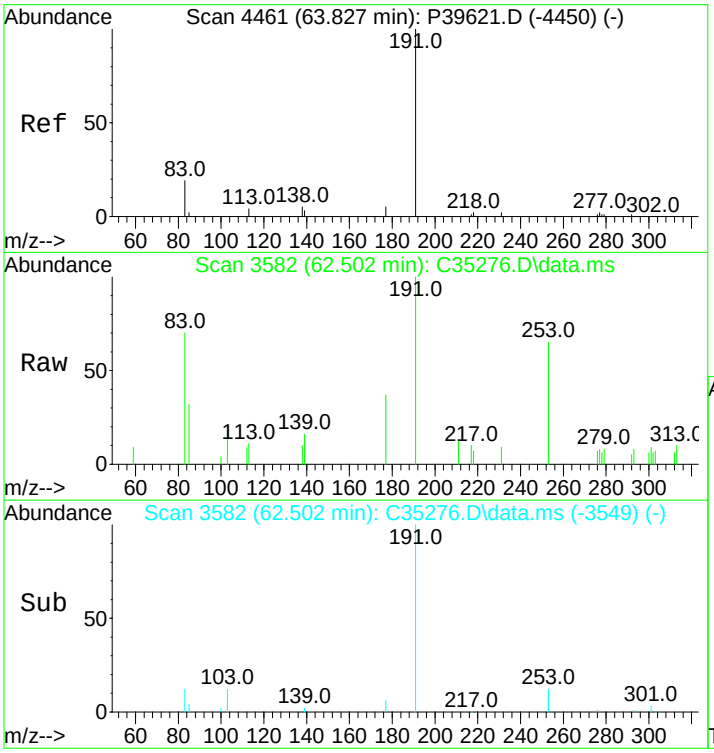




#124
Tetrakishomohopane-22R (T33)
Concen: 169.92 ng/ml
RT: 60.364 min Scan# 3440
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

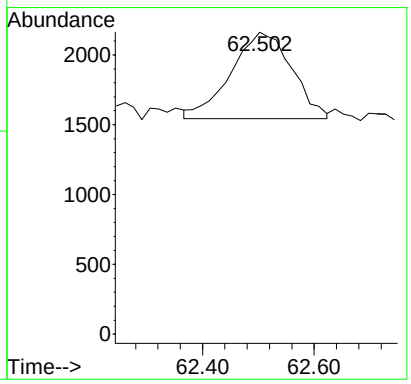
Tgt Ion:191 Resp: 3497

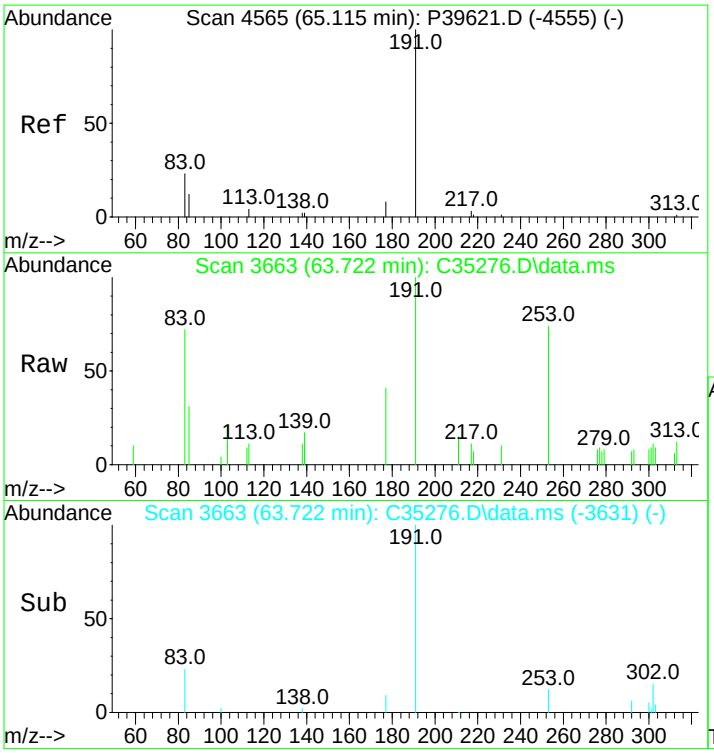




#125
Pentakishomohopane-22S (T34)
Concen: 227.16 ng/ml m
RT: 62.502 min Scan# 3582
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

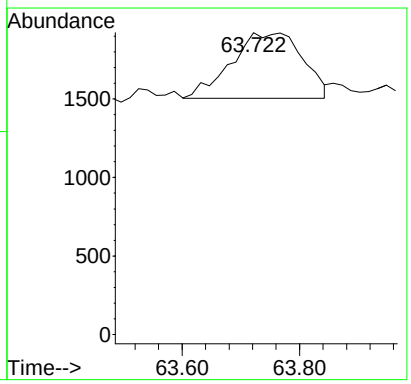
Tgt Ion:191 Resp: 4675

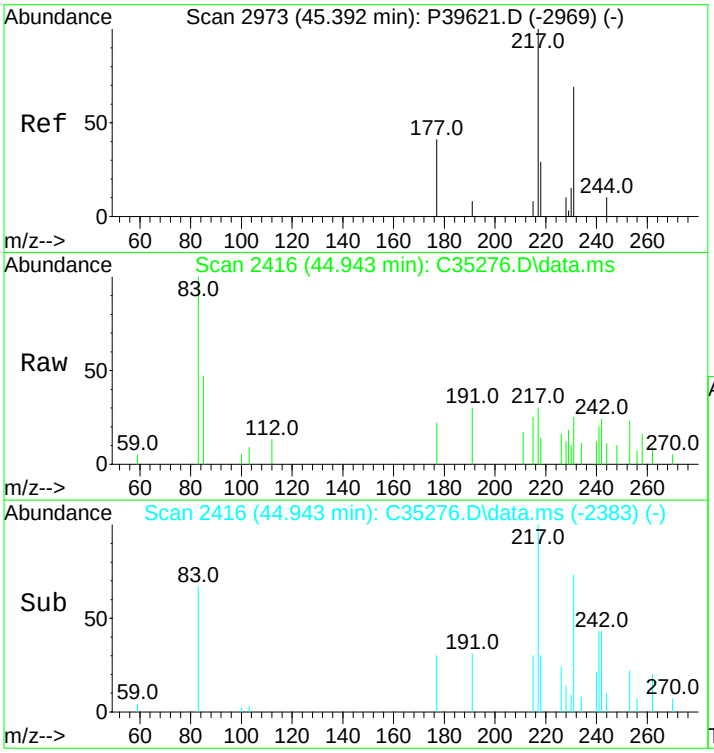




#126
Pentakishomohopane-22R (T35)
Concen: 171.18 ng/ml m
RT: 63.722 min Scan# 3663
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

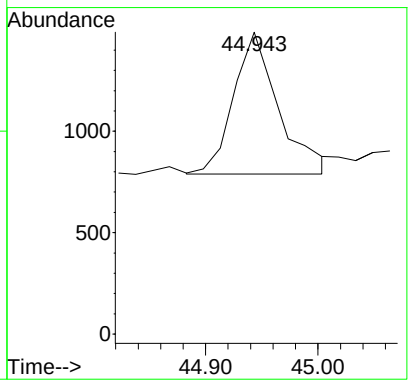
Tgt Ion:191 Resp: 3523

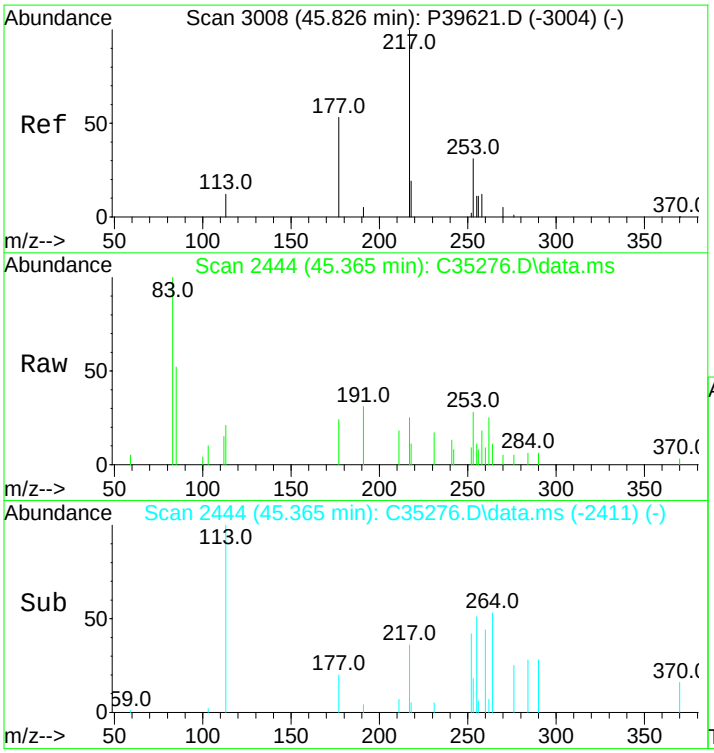




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 199.43 ng/ml m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

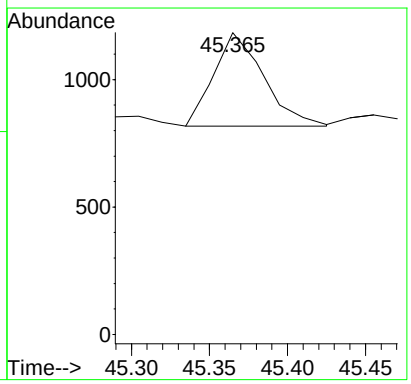
Tgt Ion:217 Resp: 1947

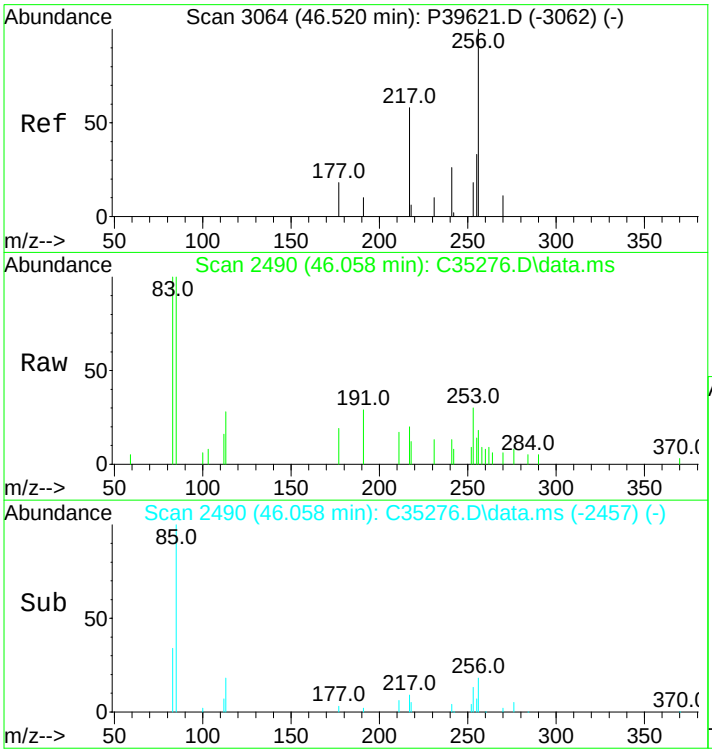




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 83.68 ng/ml
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

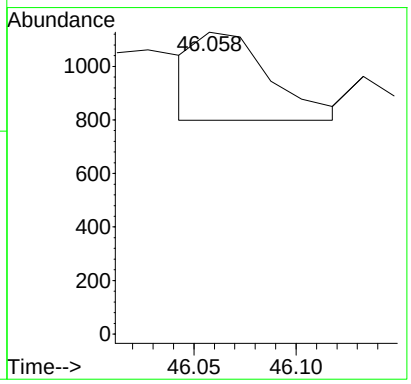
Tgt Ion:217 Resp: 817

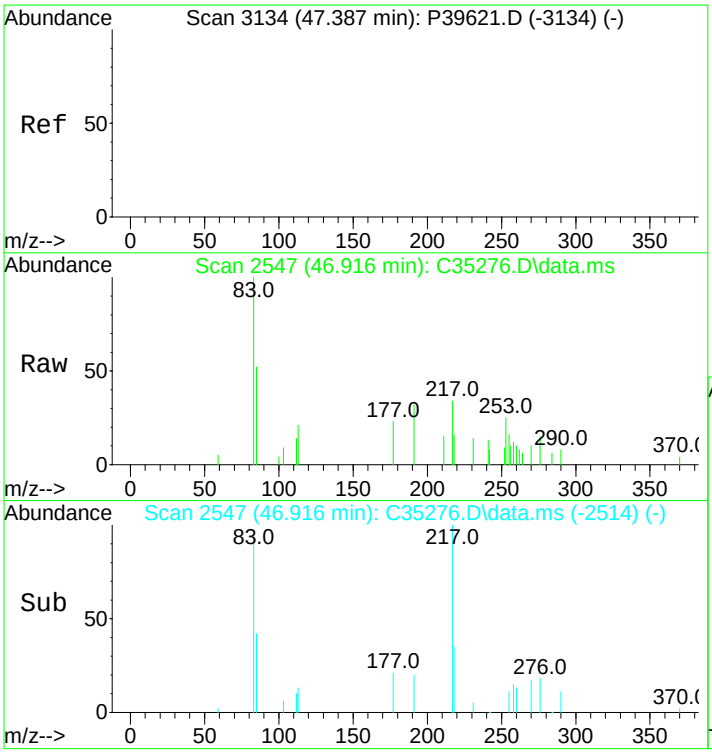




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 84.61 ng/ml m
RT: 46.058 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

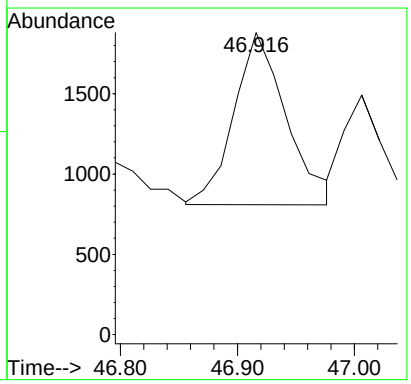
Tgt Ion:217 Resp: 826

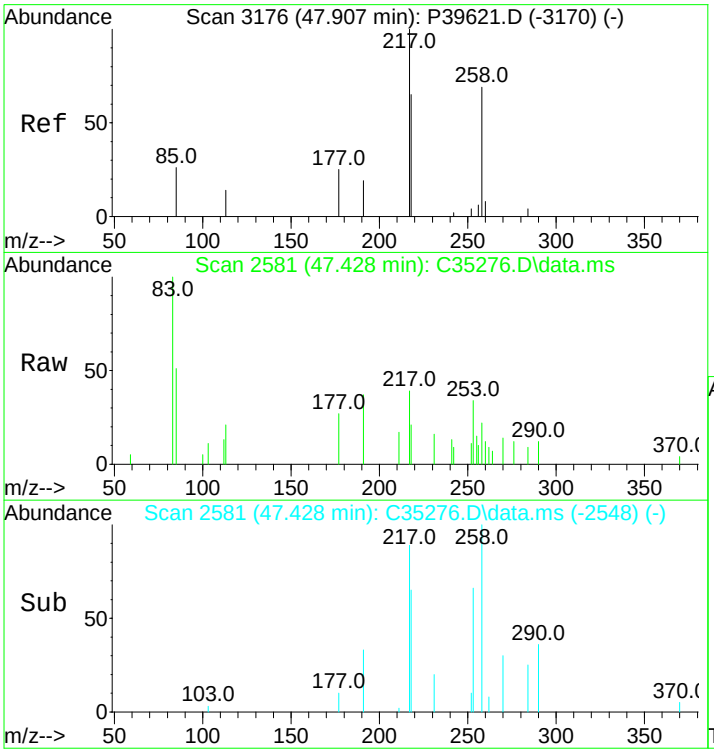




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 342.32 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

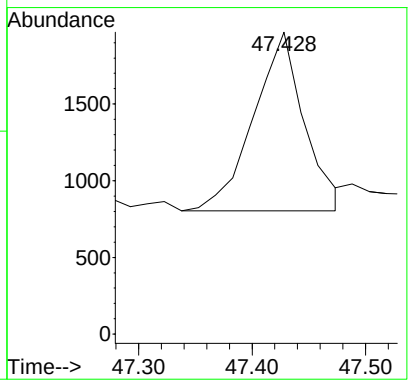
Tgt Ion:217 Resp: 3342

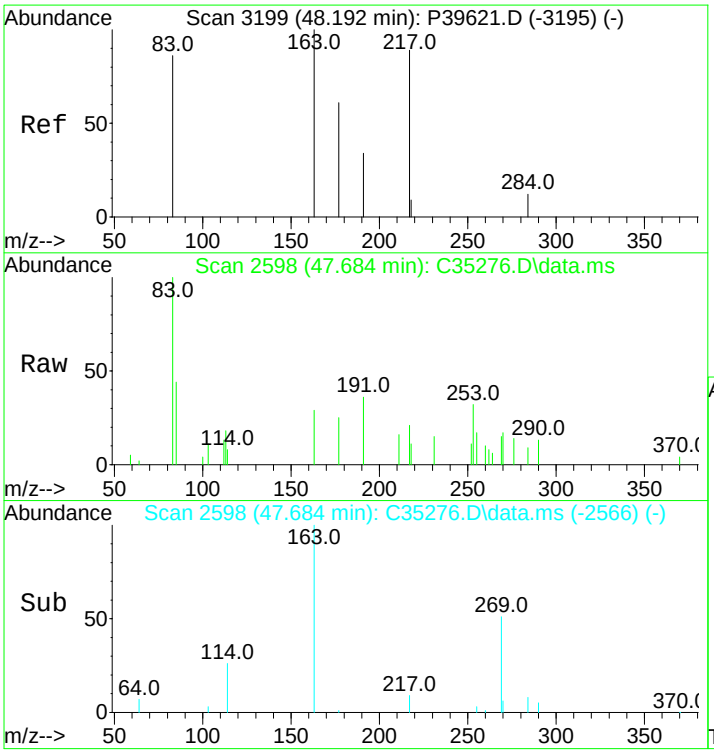




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 370.28 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

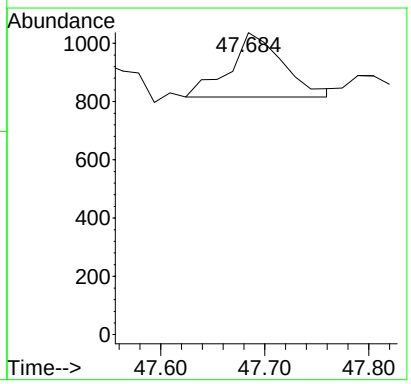
Tgt Ion:217 Resp: 3615

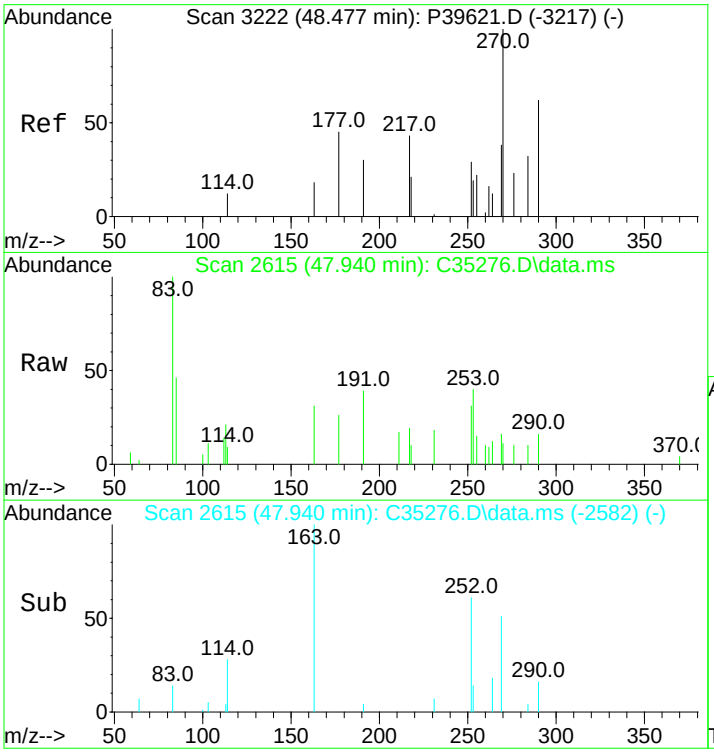




#133
Unknown Sterane (S18)
Concen: 80.51 ng/ml
RT: 47.684 min Scan# 2598
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

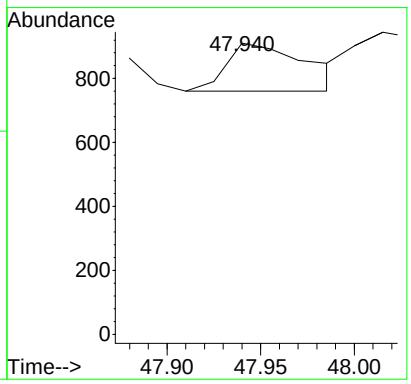
Tgt Ion:217 Resp: 786

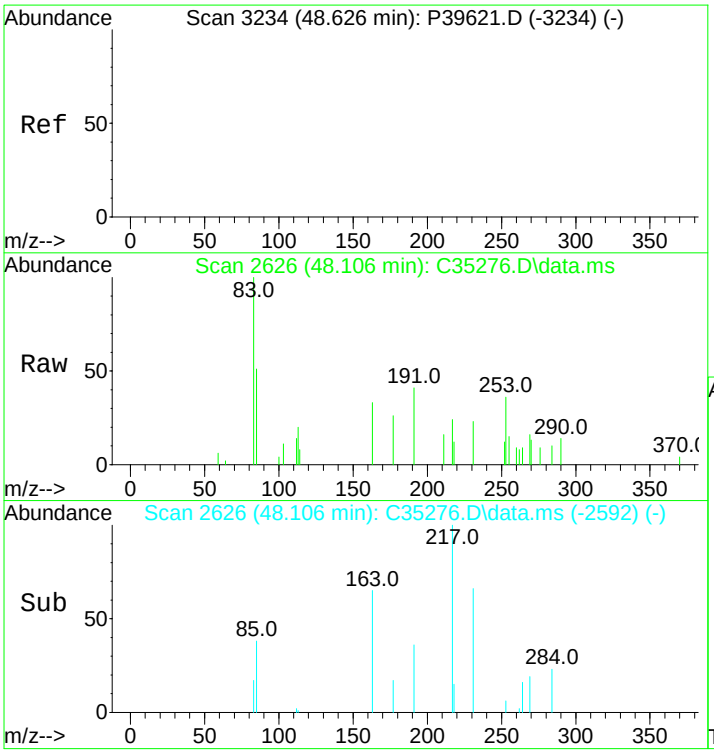




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 45.79 ng/ml
RT: 47.940 min Scan# 2615
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

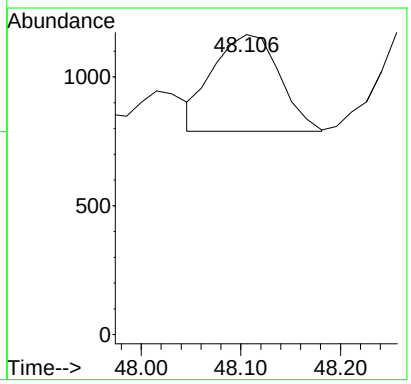
Tgt Ion:217 Resp: 447

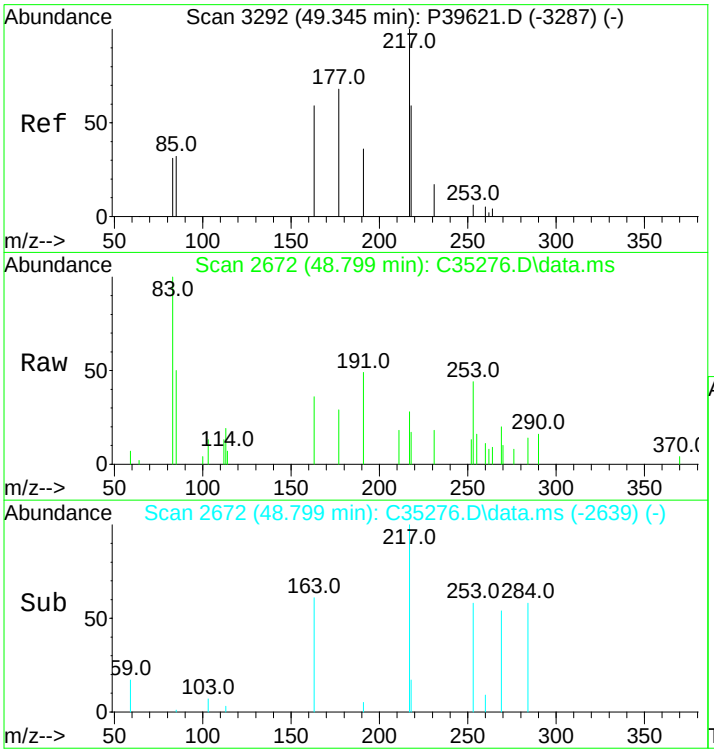




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 177.41 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

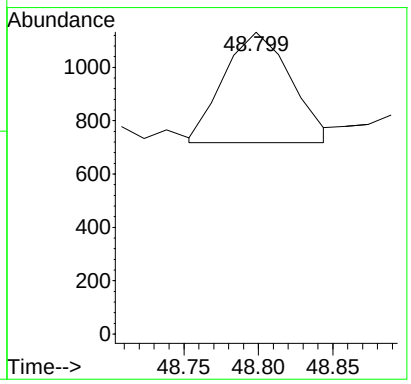
Tgt Ion:217 Resp: 1732

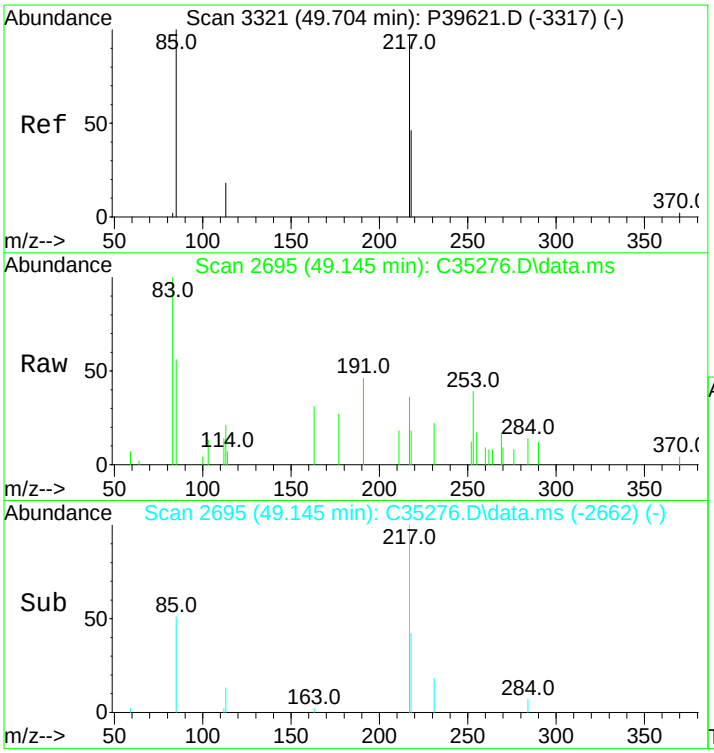




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 133.47 ng/ml m
RT: 48.799 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

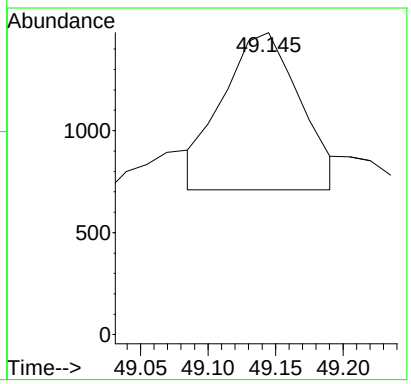
Tgt Ion:217 Resp: 1303

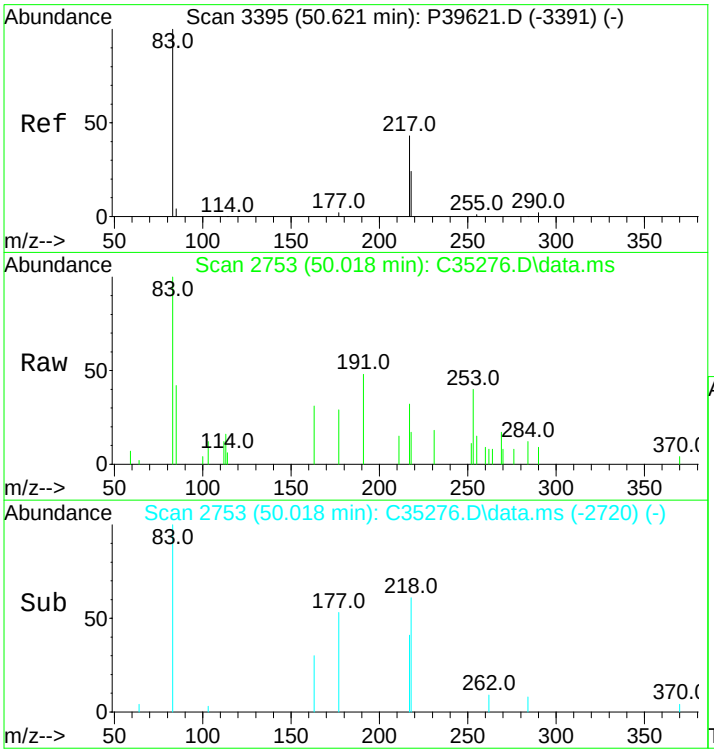




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 313.33 ng/ml m
RT: 49.145 min Scan# 2695
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

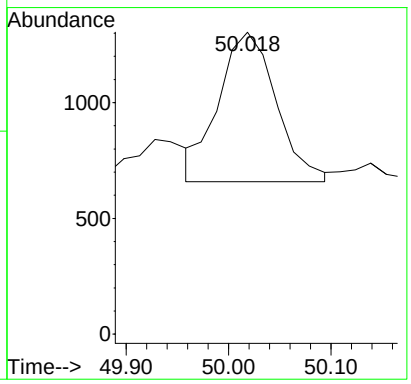
Tgt Ion:217 Resp: 3059

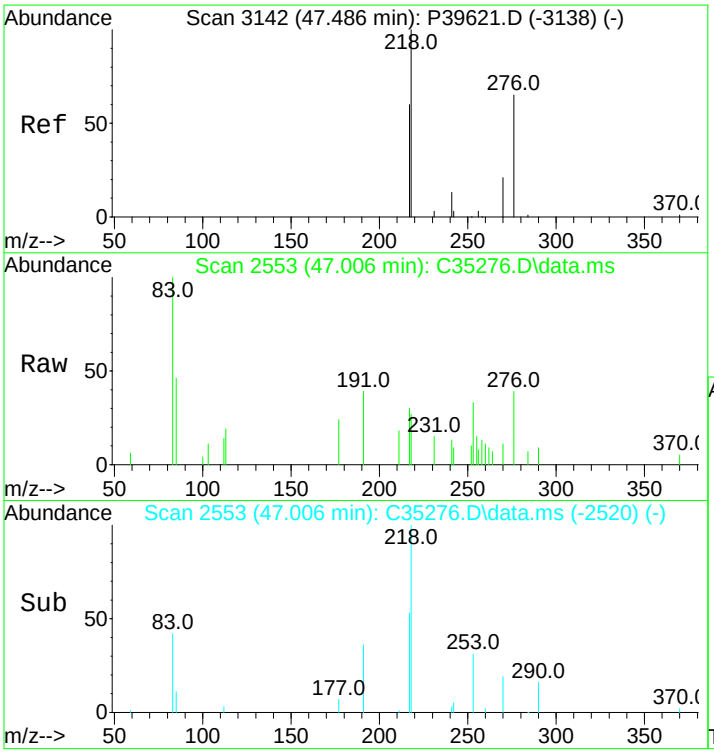




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 258.33 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

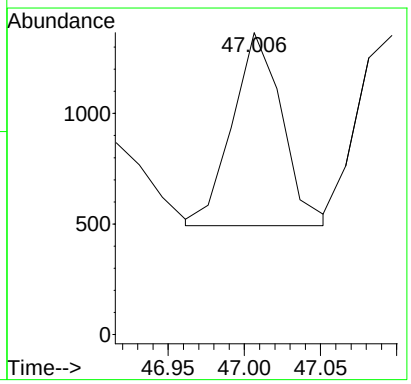
Tgt Ion:217 Resp: 2522

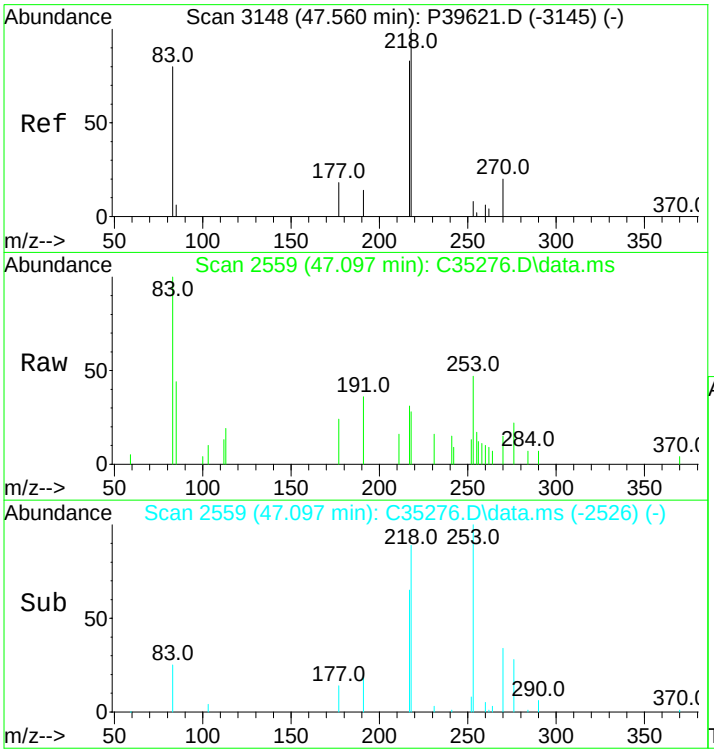




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 203.63 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

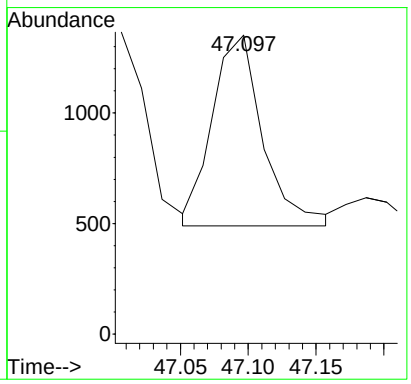
Tgt Ion:218 Resp: 1988

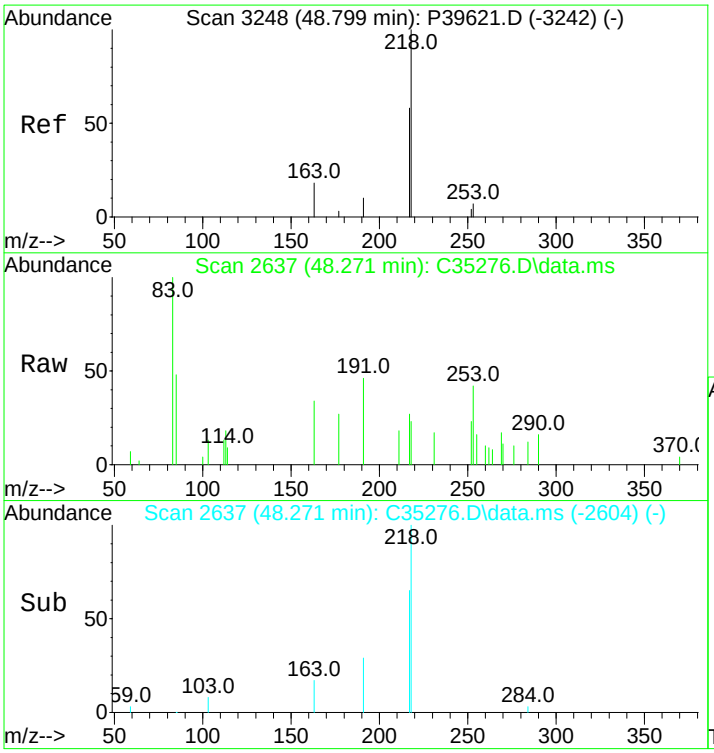




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 229.95 ng/ml m
RT: 47.097 min Scan# 2559
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

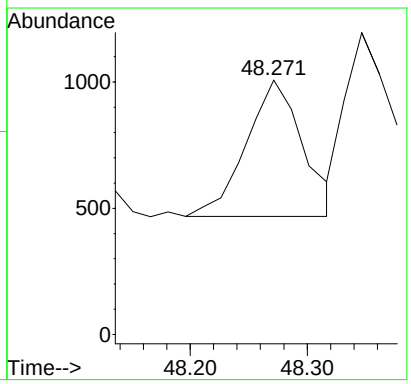
Tgt Ion:218 Resp: 2245

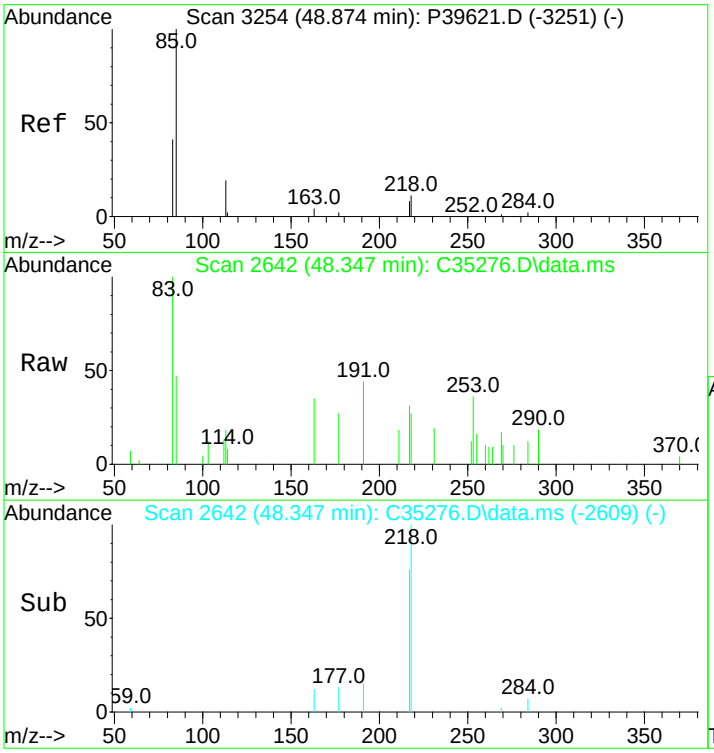




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 186.32 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

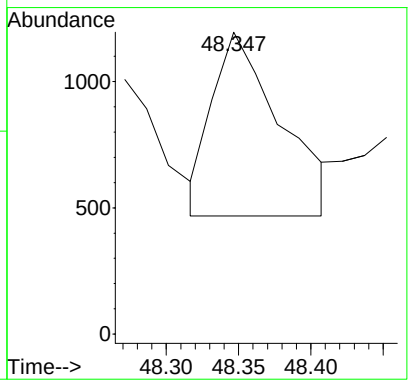
Tgt Ion:218 Resp: 1819

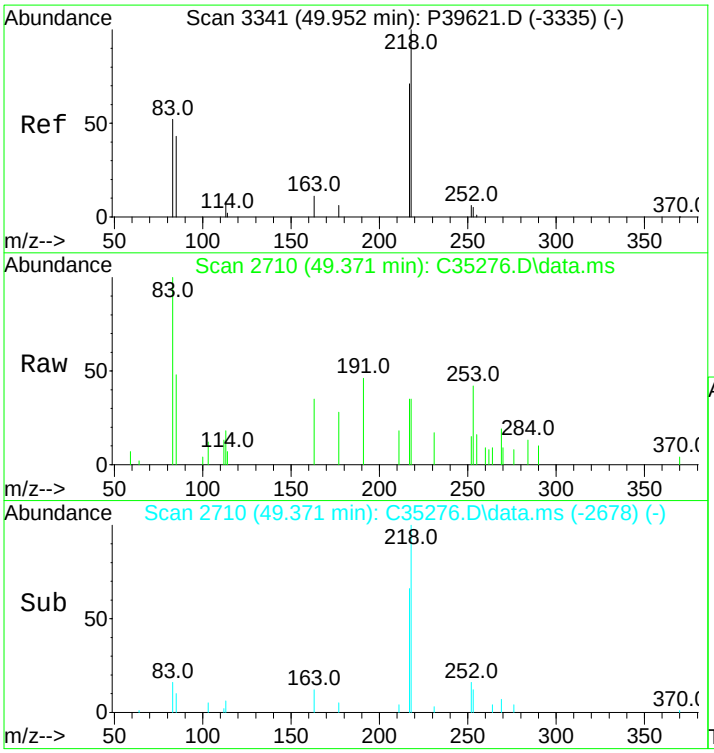




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 243.99 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

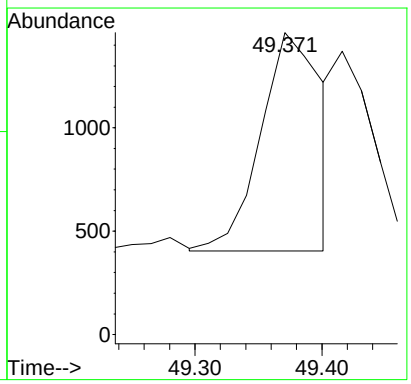
Tgt Ion:218 Resp: 2382

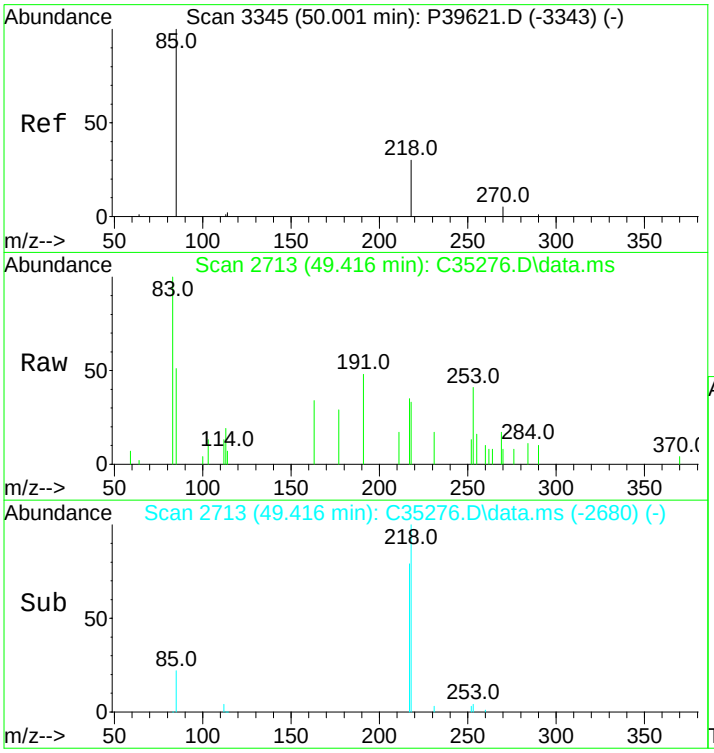




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 359.22 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

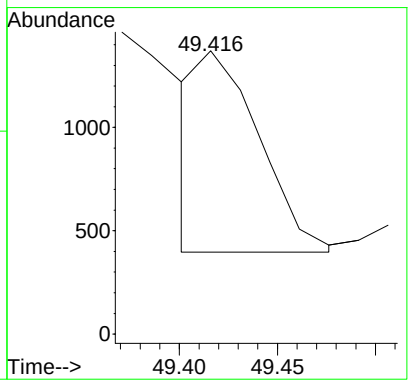
Tgt Ion:218 Resp: 3507

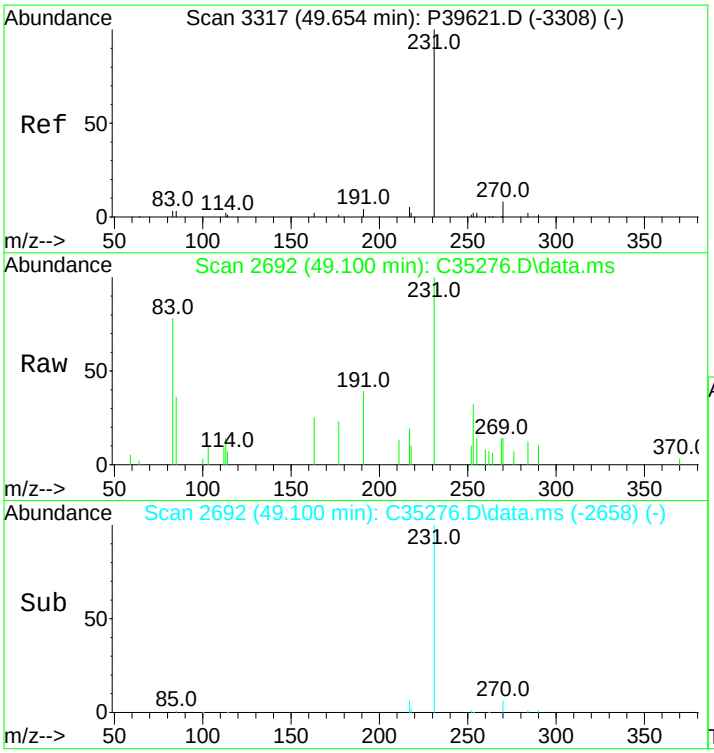




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 216.23 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

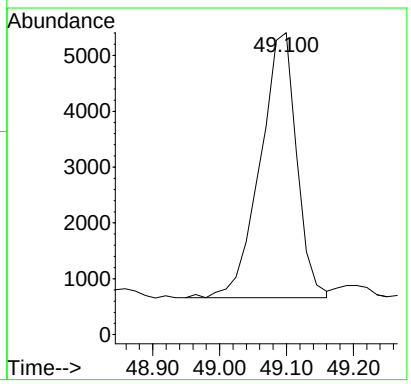
Tgt Ion:218 Resp: 2111

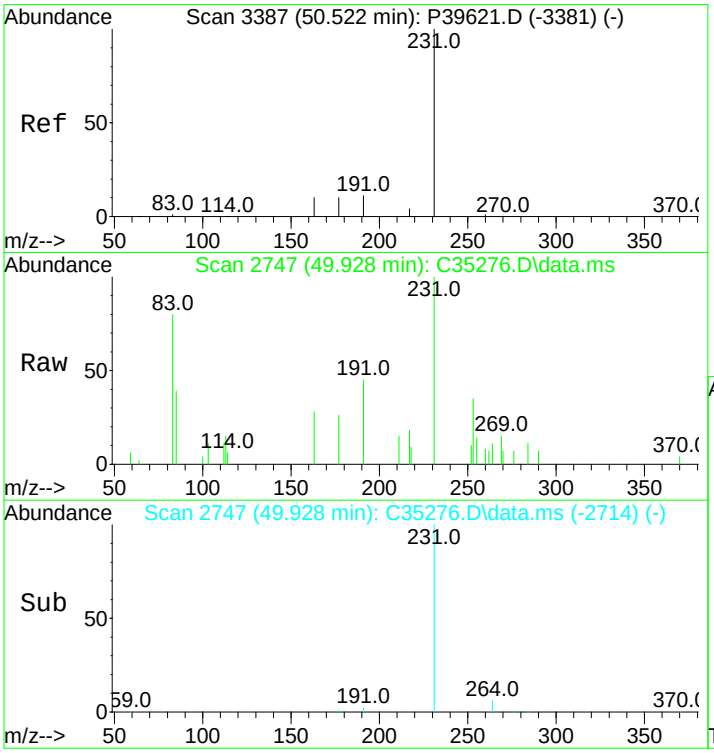




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1843.42 ng/mL
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

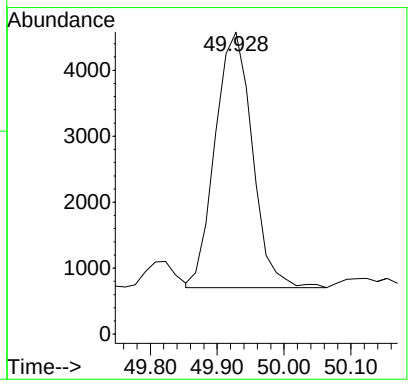
Tgt Ion:231 Resp: 17997

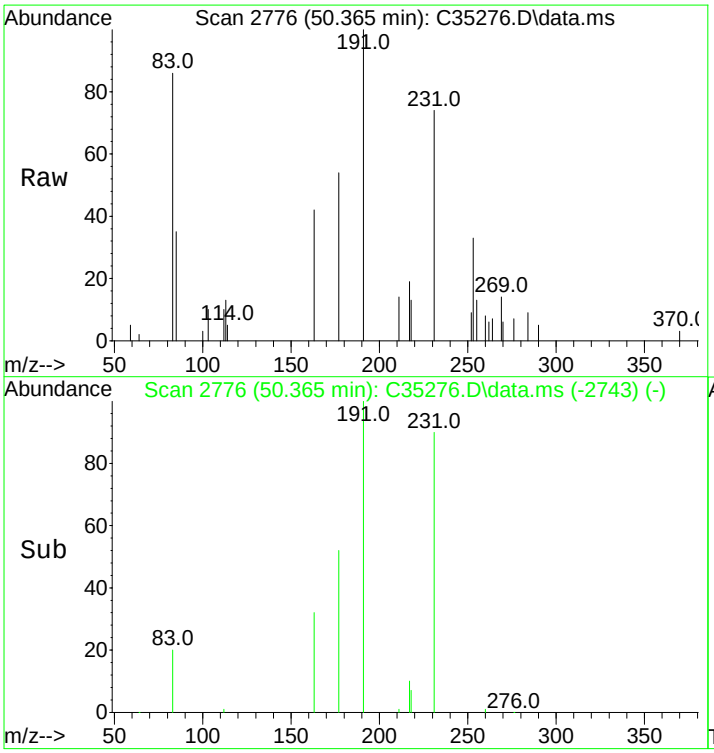




#146
C28,20S-triaromatic steroid
Concen: 1531.42 ng/mL
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

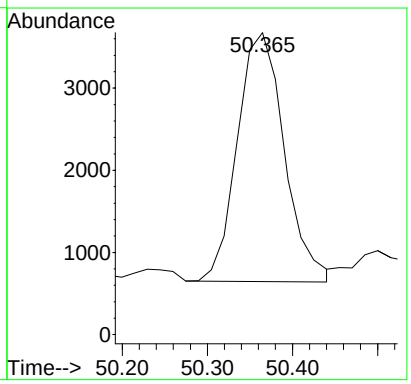
Tgt Ion:231 Resp: 14951

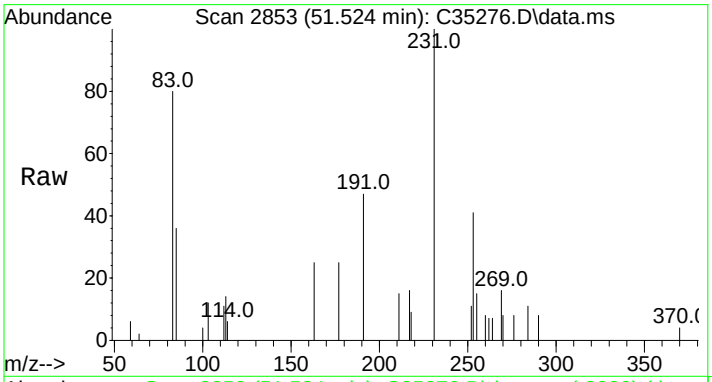




#147
C27,20R-triaromatic steroid
Concen: 1192.28 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

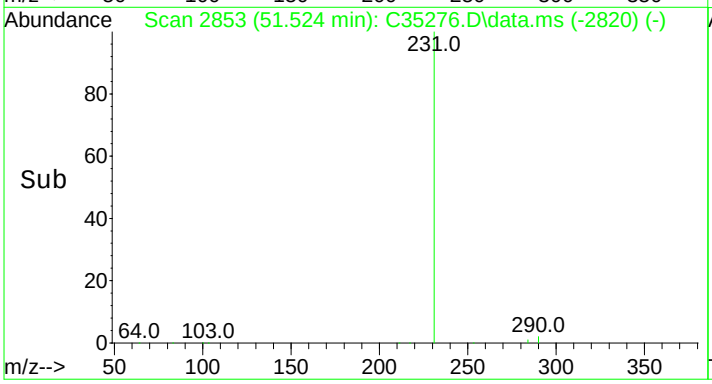
Tgt Ion:231 Resp: 11640

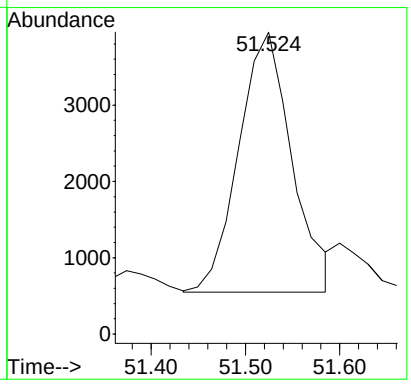




#148
C28,20R-triaromatic steroid
Concen: 1367.74 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35276.D
Acq: 24 May 2012 5:15 pm

Tgt Ion:231 Resp: 13353





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17616M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35118	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	64017	837.284	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.73%			
42) Phenanthrene-d10	32.221	188	60792	1005.932	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 100.59%			
86) Benzo[a]pyrene-d12	47.850	264	61993	851.794	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.18%			
127) 5B(H)Cholane - Surr	43.437	217	11905	1084.277	ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 108.43%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	8869	637.772	ng/mL	100
4) cis-Decalin	17.287	138	718	68.507	ng/mL	100
5) C1-Decalins	17.558	152	18447M5	1326.529	ng/mL	
6) C2-Decalins	18.973	166	26521M5	1907.133	ng/mL	
7) C3-Decalins	21.803	180	18626M5	1339.401	ng/mL	
8) C4-Decalins	25.175	194	16317M5	1173.360	ng/mL	
10) Naphthalene	19.485	128	31892	284.053	ng/mL#	100
11) C1-Naphthalenes	22.180	142	87190M5	776.576	ng/mL	
12) C2-Naphthalenes	25.010	156	181073M5	1612.765	ng/mL	
13) C3-Naphthalenes	27.690	170	219459M5	1954.658	ng/mL	
14) C4-Naphthalenes	30.113	184	167472M5	1491.625	ng/mL	
16) 2-Methylnaphthalene	22.180	142	52259	787.204	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	34996	537.811	ng/mL#	100
18) Benzothiophene	19.696	134	3808M3	37.691	ng/mL	
19) C1-Benzo(b)thiophenes	22.556	148	18988M5	187.938	ng/mL	
20) C2-Benzo(b)thiophenes	25.206	162	37261M5	368.799	ng/mL	
21) C3-Benzo(b)thiophenes	27.178	176	62729M5	620.874	ng/mL	
22) C4-Benzo(b)thiophenes	28.924	190	64582M5	639.215	ng/mL	
23) Biphenyl	24.061	154	6587M3	78.439	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	44487	815.647	ng/mL#	100
25) Dibenzofuran	27.133	168	3710	38.473	ng/mL#	48
26) Acenaphthylene	25.763	152	1304M3	11.700	ng/mL	
27) Acenaphthene	26.485	153	4649M3	70.844	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.051	170	15788M3	359.085	ng/mL	
29) Fluorene	28.503	166	9269M3	128.070	ng/mL	
30) C1-Fluorenes	30.866	180	27231M5	376.251	ng/mL	
31) C2-Fluorenes	33.064	194	55642M5	768.806	ng/mL	
32) C3-Fluorenes	34.901	208	68382M5	944.834	ng/mL	
33) Dibenzothiophene	31.814	184	36773	316.966	ng/mL#	68
34) 4-Methyldibenzothiophene(	33.591	198	46314	399.205	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.937	198	37046	319.319	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	26352	227.142	ng/mL#	100
37) OTP	34.012	198	11212	96.642	ng/mL#	100
38) C1-Dibenzothiophenes	33.591	198	131100M5	1130.020	ng/mL	
38) C1-Dibenzothiophenes BS	33.591	198	119888m	1033.378	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	212640M5	1832.857	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	228656M5	1970.907	ng/mL	
41) C4-Dibenzothiophenes	38.785	240	159093M5	1371.307	ng/mL	
43) Phenanthrene	32.311	178	40118	393.586	ng/mL#	75
44) 3-Methylphenanthrene(3MP)	34.283	192	21529	211.215	ng/mL	89
45) 2-Methylphenanthrene(2MP)	34.389	192	24783	243.139	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	2286M3	22.427	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	36512	358.208	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.825	192	21973M3	215.570	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.735	192	108582M5	1065.265	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	149030M5	1462.088	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) C2-Phenanthrenes/Anthr BS	36.542	206	149030m	1462.088	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.643	220	135714M5	1331.449	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	64729M5	635.037	ng/mL	
56) Carbazole	33.169	167	2855M3	28.388	ng/mL	
57) 1-Methylphenanthrene	34.825	192	21566M3	333.867	ng/mL	
58) Fluoranthene	37.084	202	3052M3	30.148	ng/mL	
60) Pyrene	37.972	202	9756M3	94.805	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.357	216	35841M5	348.289	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.826	230	51175M5	497.298	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.182	244	60220M5	585.194	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.063	258	59170M5	574.990	ng/mL	
66) Naphthobenzothiophene	41.811	234	16926	152.778	ng/ml	94
67) Naphthobenzothiophene-2,1	41.811	234	16926	152.778	ng/mL	94
68) Naphthobenzothiophene-1,2	42.158	234	4509M3	40.699	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	3067M3	27.684	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	80467M5	726.315	ng/ml	
71) C2-Naphthobenzothiophenes	45.259	262	119061M5	1074.674	ng/ml	
72) C3-Naphthobenzothiophenes	46.810	276	107464M5	969.997	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	77191M5	696.745	ng/mL	
75) Benz[a]anthracene	42.745	228	2458M3	22.052	ng/mL	
77) Chrysene/Triphenylene	42.895	228	11034M3	98.052	ng/mL	
78) C1-Chrysenes	44.386	242	29796M5	264.778	ng/mL	
79) C2-Chrysenes	46.449	256	43584M5	387.303	ng/mL	
79) C2-Chrysenes BS	46.449	256	43584m	387.303	ng/mL	
80) C3-Chrysenes	49.069	270	55663M5	494.641	ng/mL	
81) C4-Chrysenes	49.100	284	37577M5	333.922	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	3367M3	27.491	ng/mL	
83) Benzo[j]+[k]fluoranthene	46.856	252	1092M3	8.189	ng/mL	
85) Benzo[e]pyrene	47.759	252	5187	42.817	ng/mL	90
87) Benzo[a]pyrene	47.940	252	2623M3	22.489	ng/mL	
88) Perylene	48.241	252	5883	47.195	ng/mL#	83
89) Indeno[1,2,3-cd]pyrene	52.579	276	1673M3	12.326	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	865M3	6.699	ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	4247M3	29.616	ng/mL	
92) Hopane (T19)	51.705	191	33881	1463.842	ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	13215M3	570.959	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	7224M3	312.116	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	6865M3	296.605	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2354M3	101.706	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	2492M3	107.668	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	2294M3	99.113	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	3013M3	130.178	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	3223	139.251	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.795	191	3576M3	154.503	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	3252	140.504	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	3552M3	153.466	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	2776M3	119.938	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2682M3	115.877	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	8937	386.127	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	6020M3	260.097	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.566	191	1750M3	75.609	ng/ml	
110) 30-Norhopane (T15)	50.395	191	23509M3	1015.716	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	3009M3	130.005	ng/ml	
112) 17a(H)-Diahopane (X)	50.621	191	948	40.959	ng/ml	100
113) 30-Normoretane (T17)	51.148	191	2657	114.797	ng/ml	100
115) Moretane (T20)	52.383	191	2803M3	121.105	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	14812	639.958	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	11849	511.941	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	5194	224.409	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.928	191	9370	404.835	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	7148M3	308.832	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
121)	30,31-Trishomohopane-22S	56.961	191	6963M3	300.839	ng/ml	
122)	30,31-Trishomohopane-22R	57.563	191	4974M3	214.904	ng/ml	
123)	Tetrakishomohopane-22S (T	59.490	191	4684M3	202.374	ng/ml	
124)	Tetrakishomohopane-22R (T	60.364	191	3431	148.238	ng/ml	100
125)	Pentakishomohopane-22S (T	62.502	191	5876	253.875	ng/ml	100
126)	Pentakishomohopane-22R (T	63.752	191	3928M3	169.711	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	2223M3	202.465	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	1198	109.111	ng/ml	100
130)	13b,17a-20S-Methyldiachol	46.057	217	764M3	69.583	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	3530	321.503	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	5059	460.761	ng/ml	100
133)	Unknown Sterane (S18)	47.699	217	1040	94.721	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	47.955	217	418	38.070	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.121	217	1832M3	166.854	ng/ml	
136)	14a,17a-20R-Methylcholest	48.798	217	1523M3	138.711	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.145	217	3919M3	356.932	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2753M3	250.736	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	2624	238.987	ng/ml	100
140)	14b(H),17b(H)-20S-Cholest	47.097	218	2744M3	249.916	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	2386	217.311	ng/ml	100
142)	14b,17b-20S-Methylcholest	48.347	218	2614M3	238.076	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	4092M3	372.689	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	2536M3	230.972	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	20943	1907.434	ng/mL	100
146)	C28,20S-triaromatic stero	49.928	231	17297	1575.366	ng/mL	100
147)	C27,20R-triaromatic stero	50.365	231	13498	1229.363	ng/mL	100
148)	C28,20R-triaromatic stero	51.524	231	15555M3	1416.709	ng/mL	

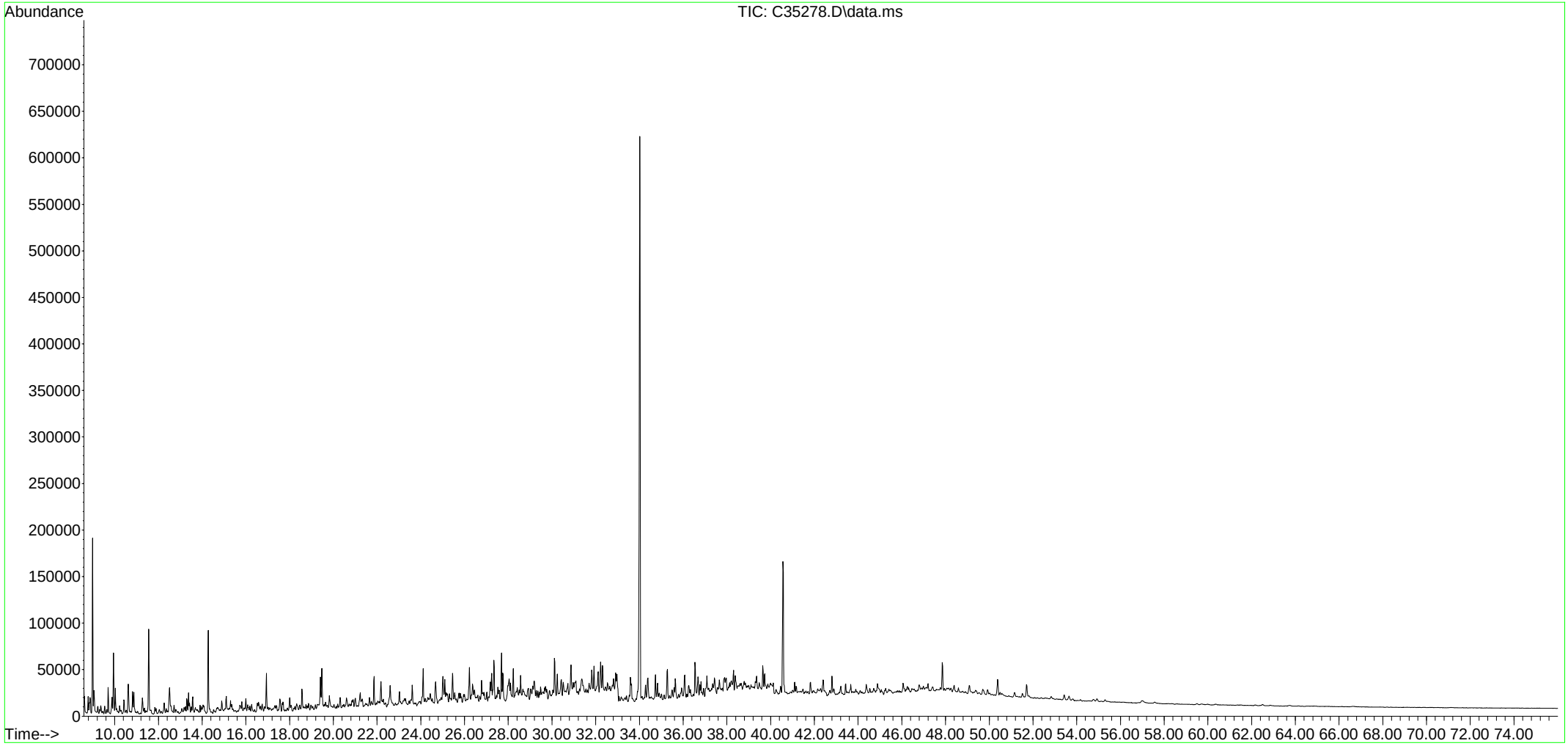
(#) = qualifier out of range (m) = manual integration (+) = signals summed

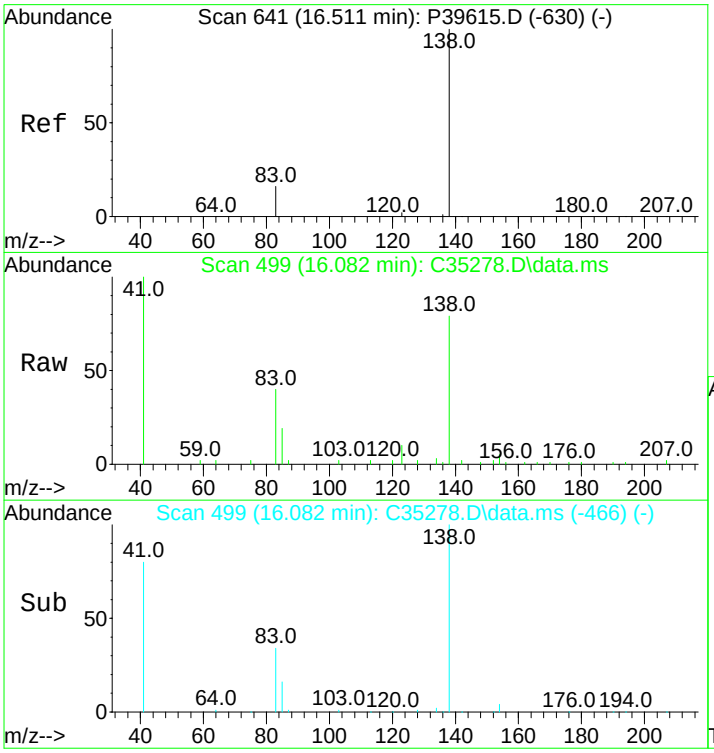
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35278.D
Acq On : 24 May 2012 6:45 pm
Operator : AC
Sample : SS052912CL01
Misc : WHAP12
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 12:38:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

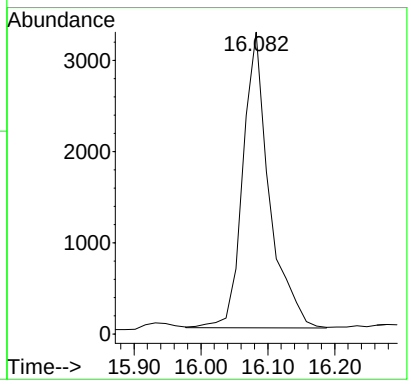
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

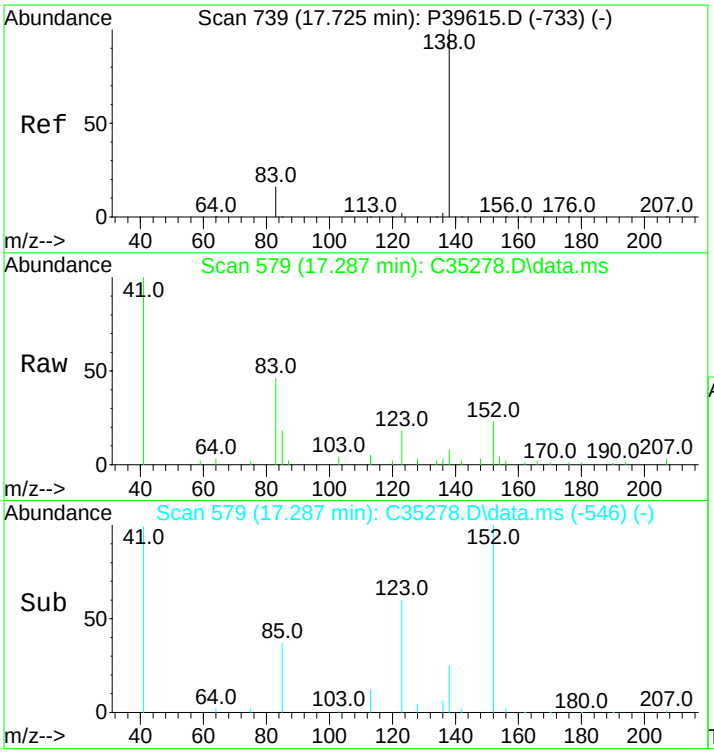




#3
trans-Decalin
Concen: 637.77 ng/mL
RT: 16.082 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

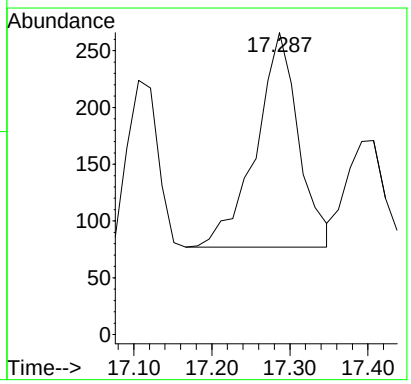
Tgt Ion:138 Resp: 8869

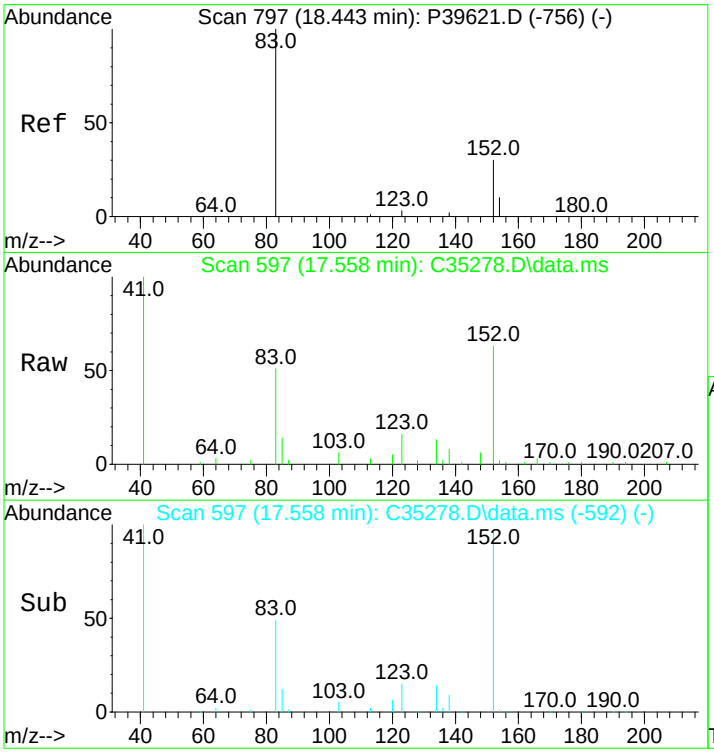




#4
cis-Decalin
Concen: 68.51 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

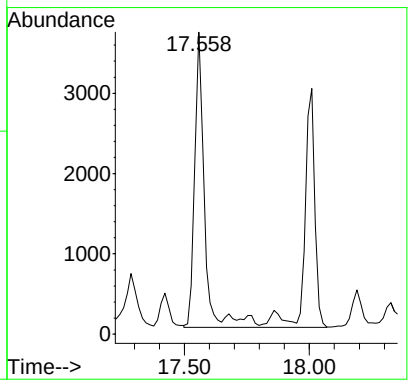
Tgt Ion:138 Resp: 718

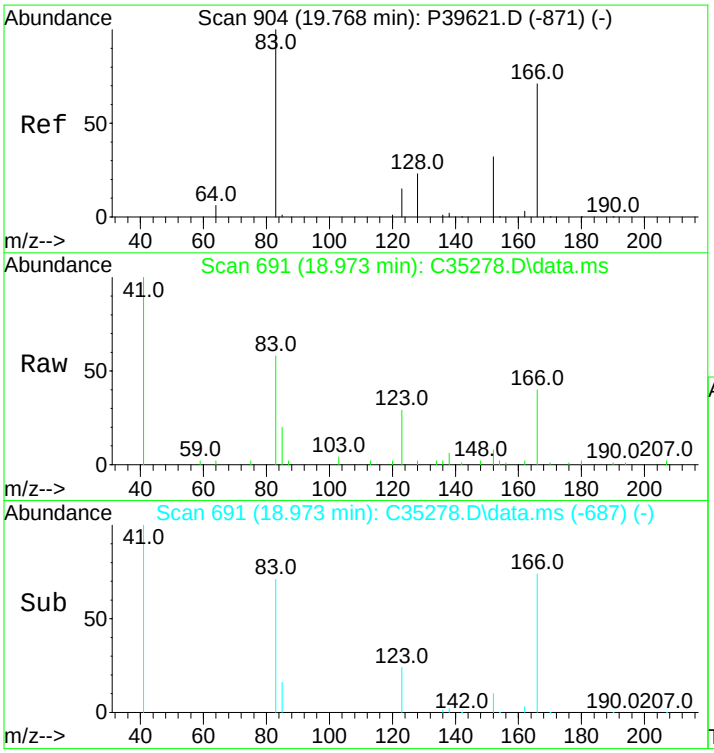




#5
C1-Decalins
Concen: 1326.53 ng/mL m
RT: 17.558 min Scan# 597
Delta R.T. -0.452 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

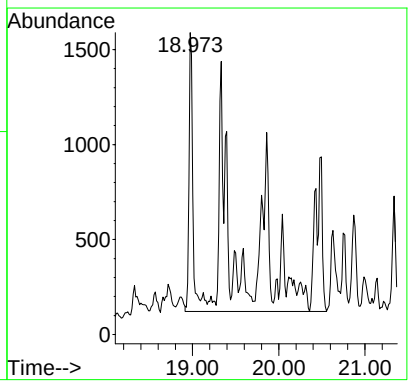
Tgt Ion:152 Resp: 18447

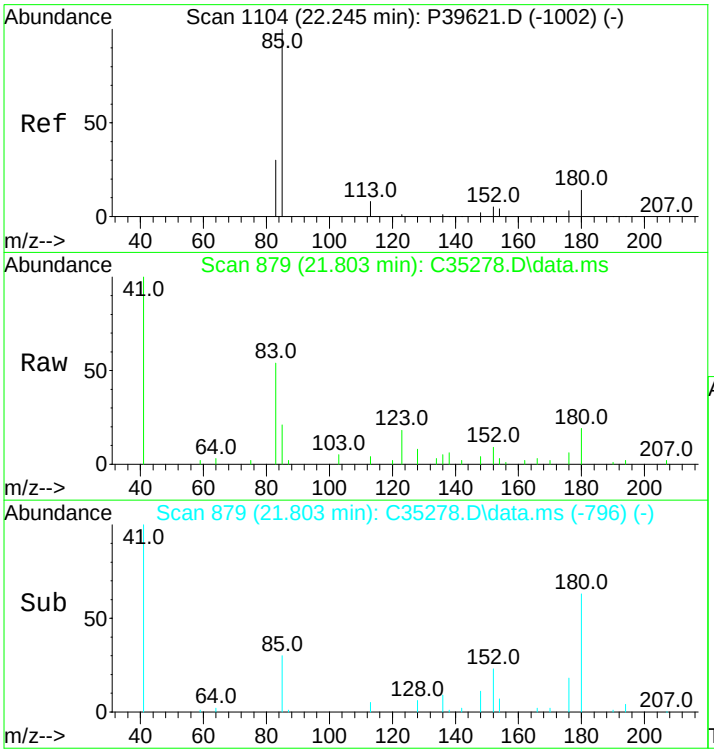




#6
C2-Decalins
Concen: 1907.13 ng/mL m
RT: 18.973 min Scan# 691
Delta R.T. -0.465 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

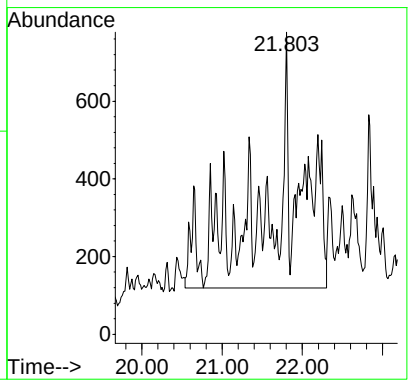
Tgt Ion:166 Resp: 26521

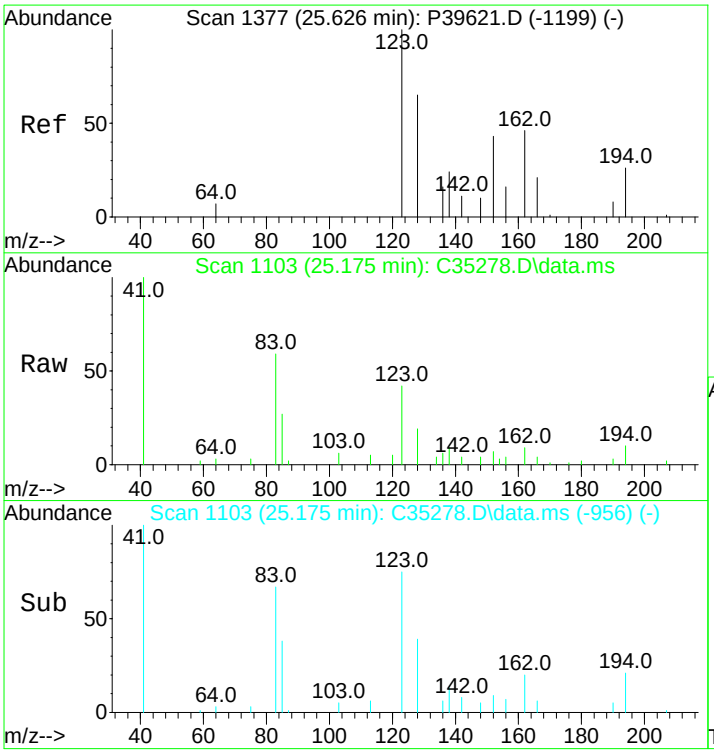




#7
C3-Decalins
Concen: 1339.40 ng/mL m
RT: 21.803 min Scan# 879
Delta R.T. -0.063 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

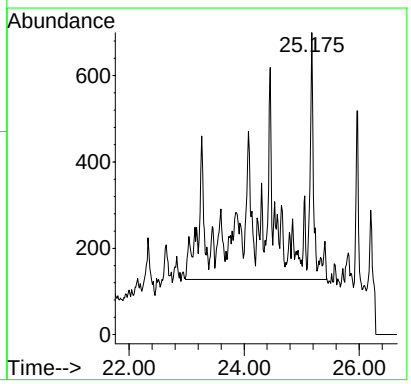
Tgt Ion:180 Resp: 18626

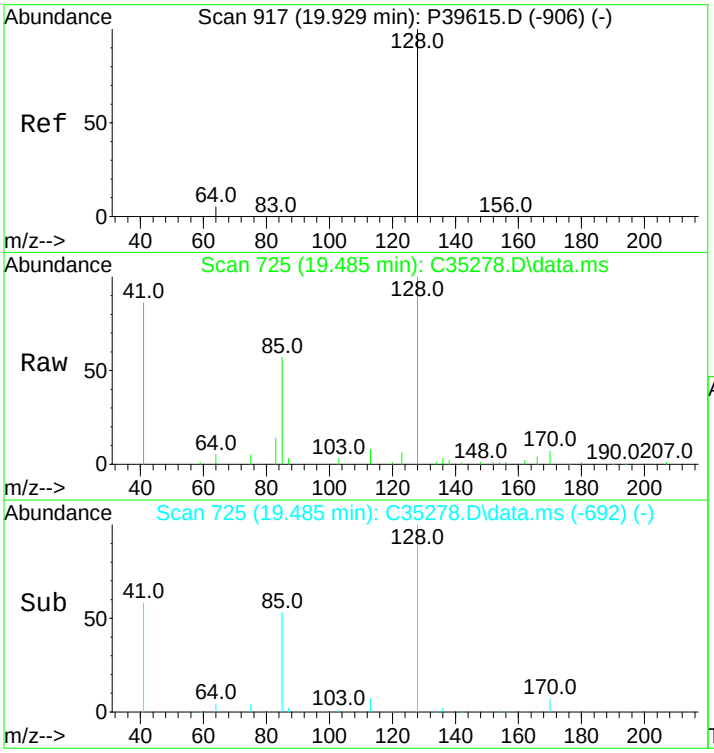




#8
C4-Decalins
Concen: 1173.36 ng/mL m
RT: 25.175 min Scan# 1103
Delta R.T. -0.021 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:194 Resp: 16317

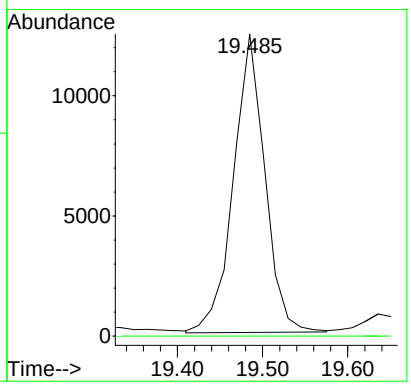


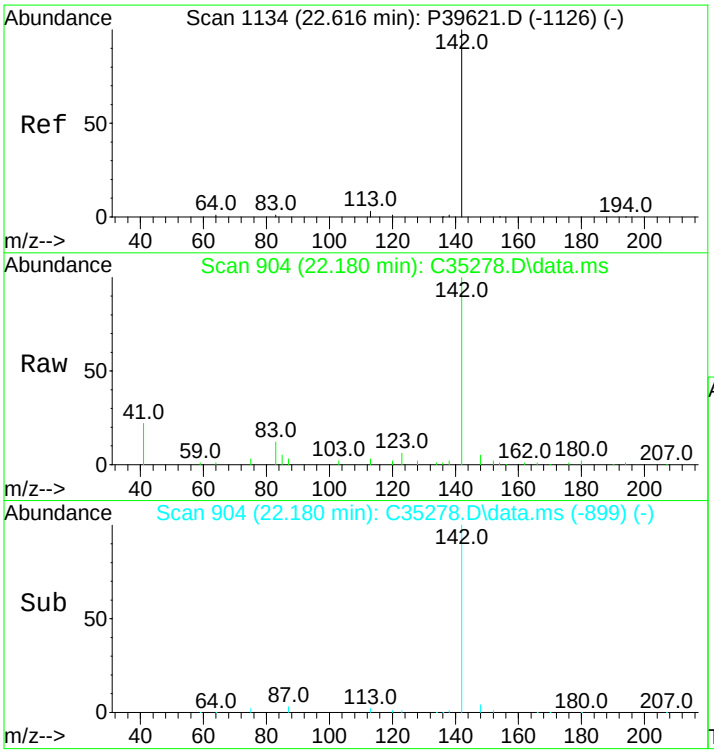


#10
Naphthalene
Concen: 284.05 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:128 Resp: 31892

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

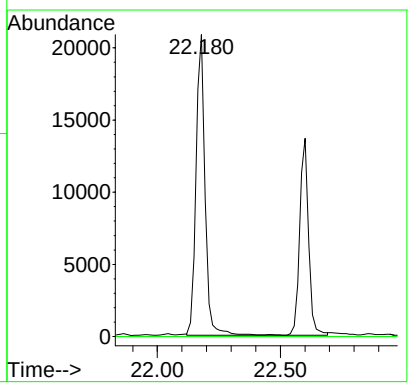


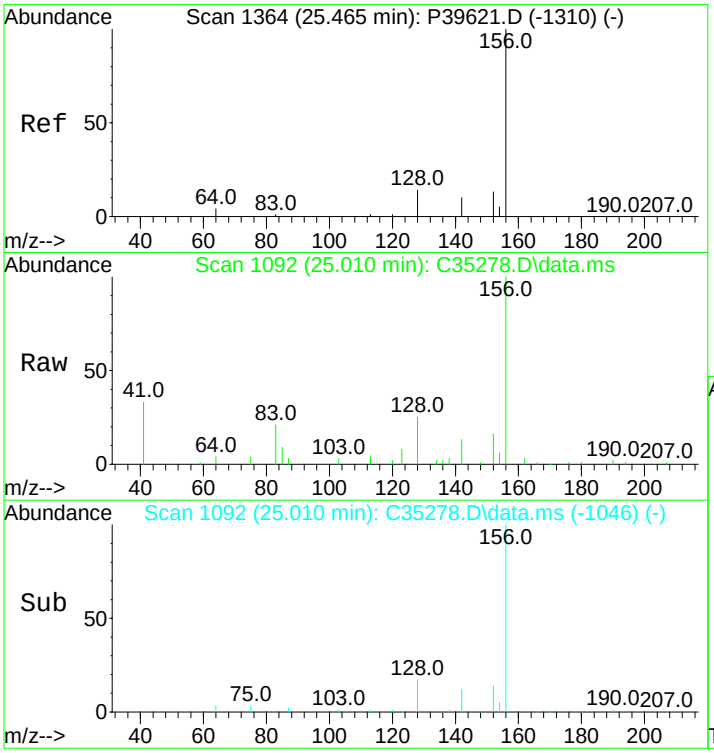


#11
C1-Naphthalenes
Concen: 776.58 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:142 Resp: 87190

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

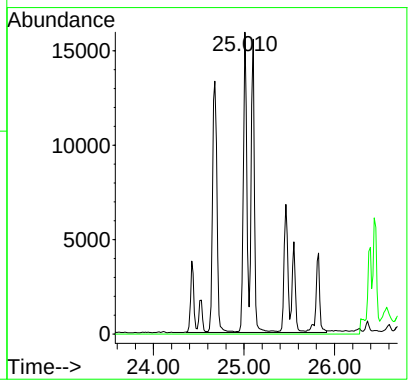


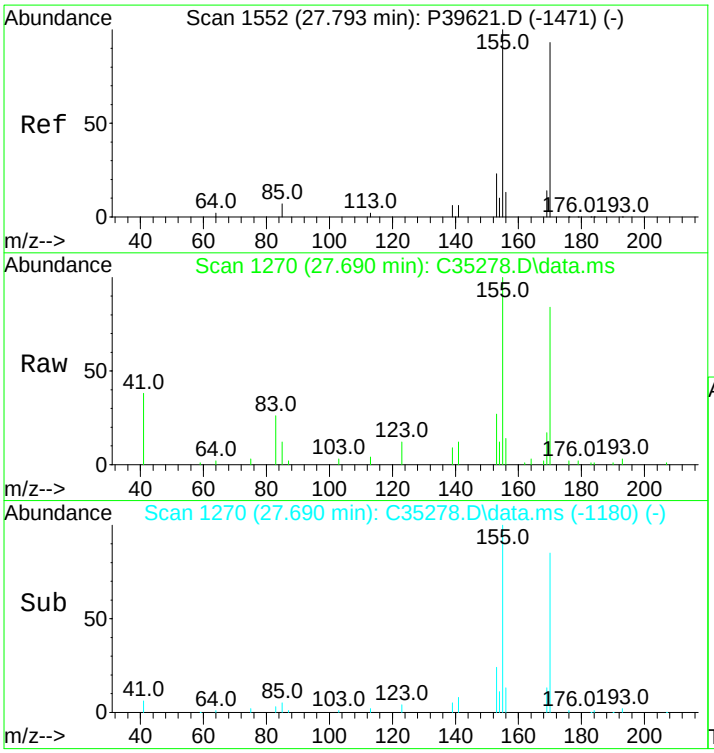


#12
C2-Naphthalenes
Concen: 1612.77 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.023 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:156 Resp: 181073

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

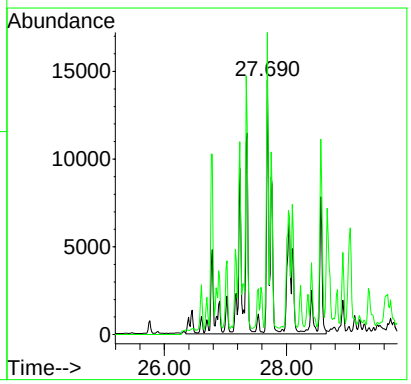


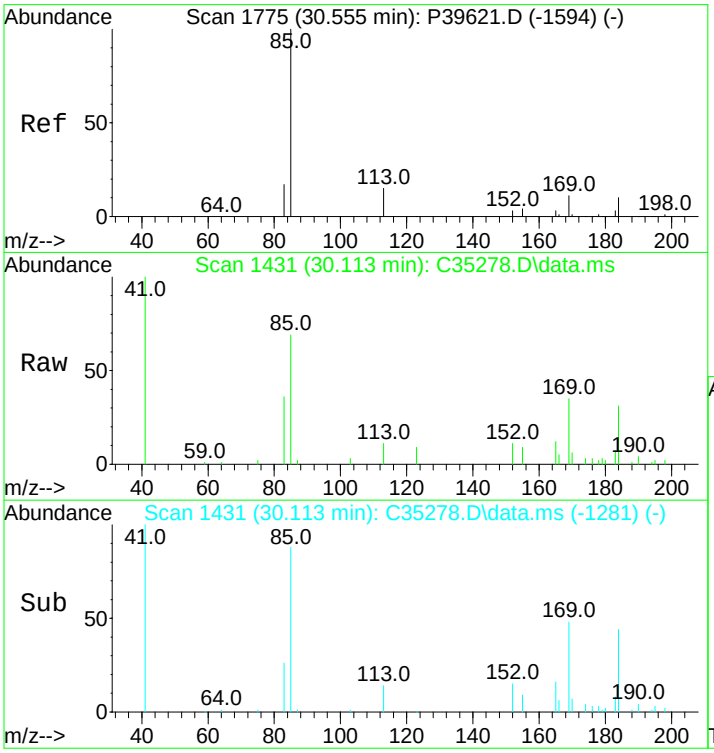


#13
C3-Naphthalenes
Concen: 1954.66 ng/mL m
RT: 27.690 min Scan# 1270
Delta R.T. 0.362 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:170 Resp: 219459

Ion	Ratio	Lower	Upper
170	100		
155	17.0	86.3	129.5#

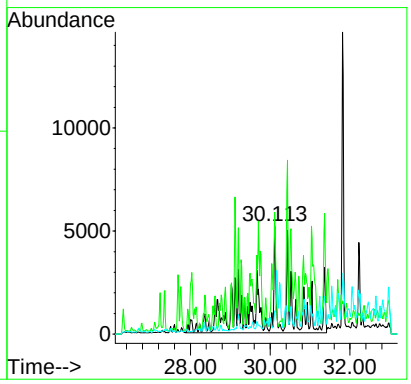


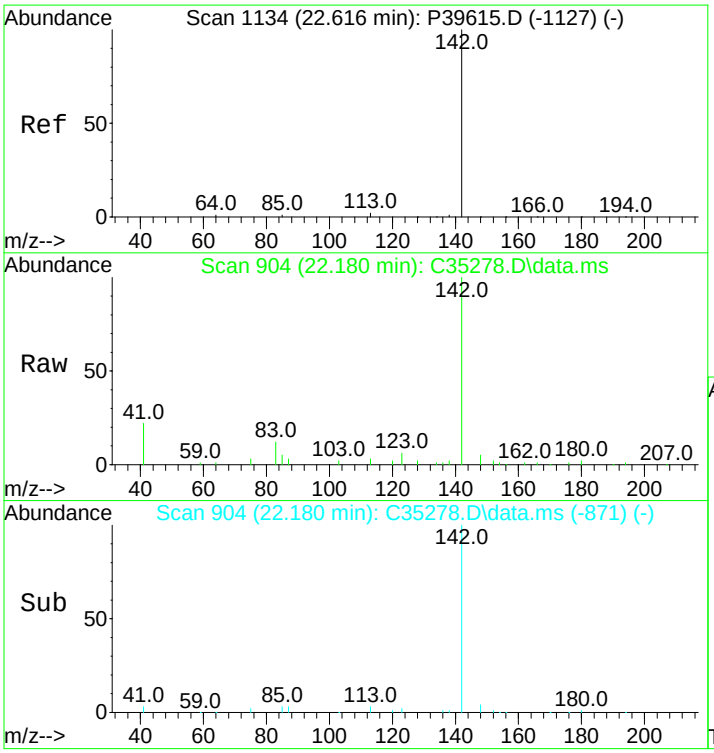


#14
C4-Naphthalenes
Concen: 1491.62 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:184 Resp: 167472

Ion	Ratio	Lower	Upper
184	100		
169	6.0	100.6	150.8#
183	0.0	26.6	40.0#

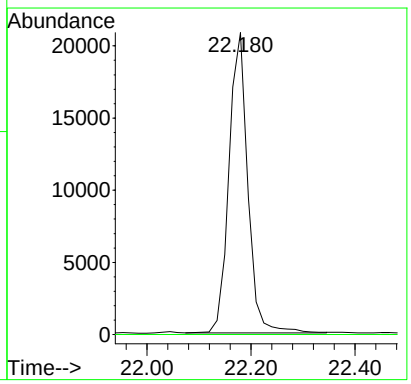


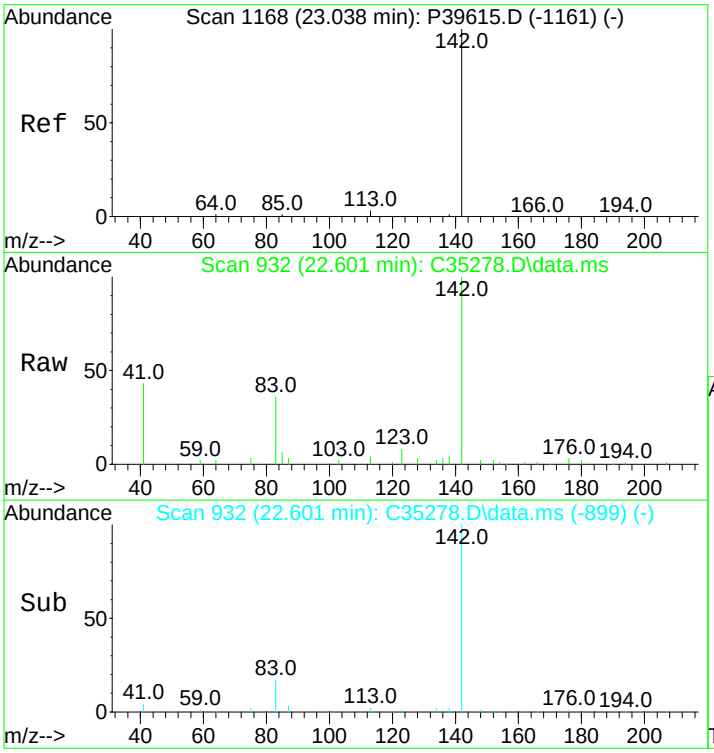


#16
2-Methylnaphthalene
Concen: 787.20 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:142 Resp: 52259

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

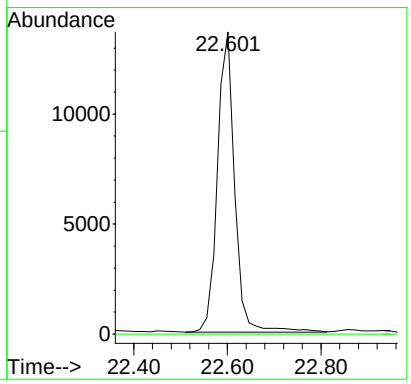


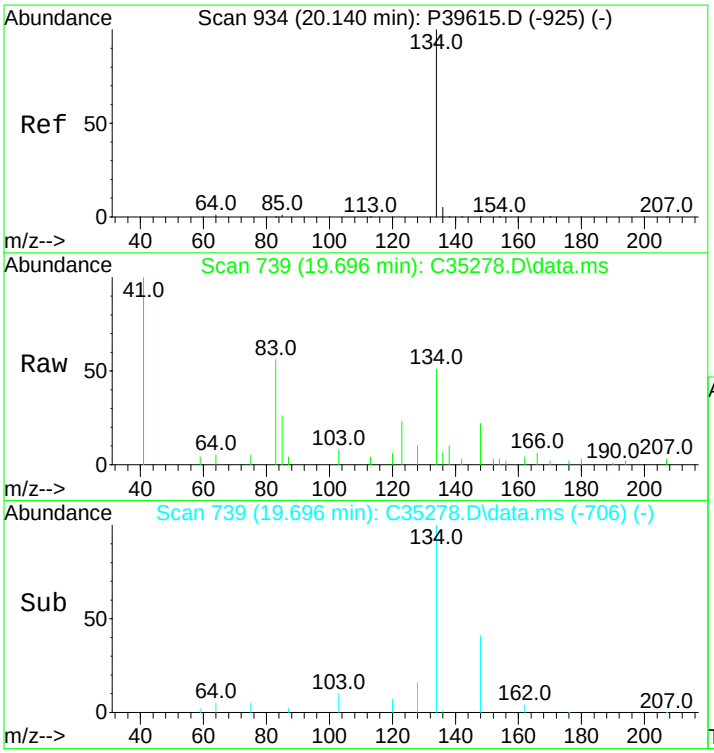


#17
1-Methylnaphthalene
Concen: 537.81 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:142 Resp: 34996

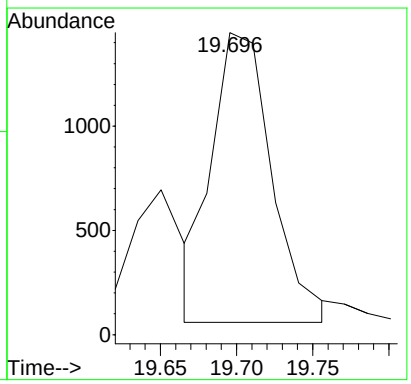
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

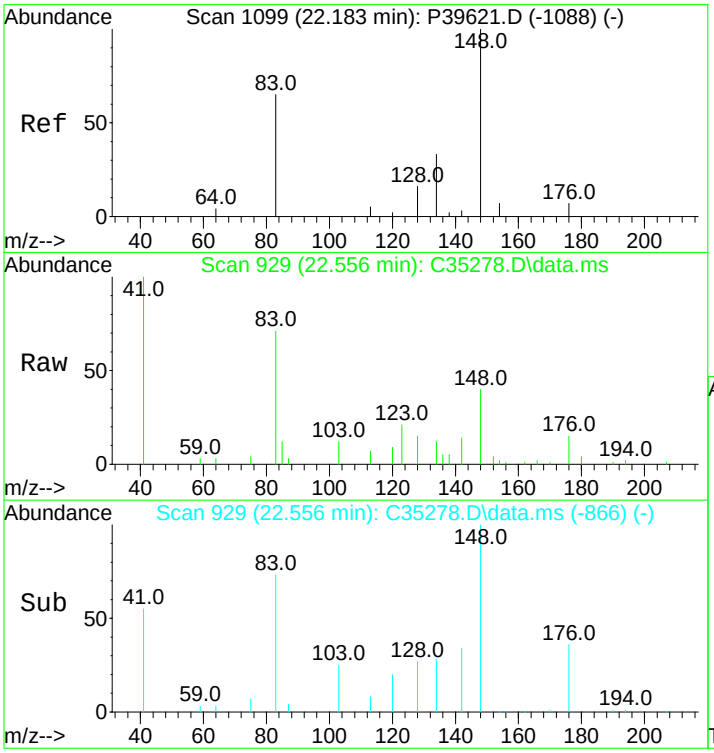




#18
Benzothiophene
Concen: 37.69 ng/mL m
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

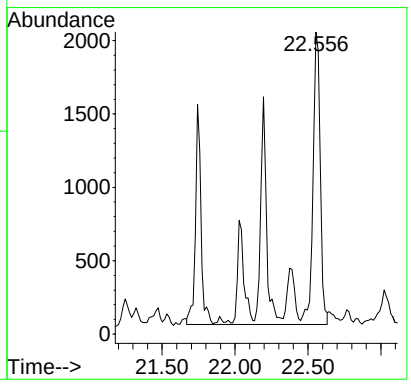
Tgt Ion:134 Resp: 3808

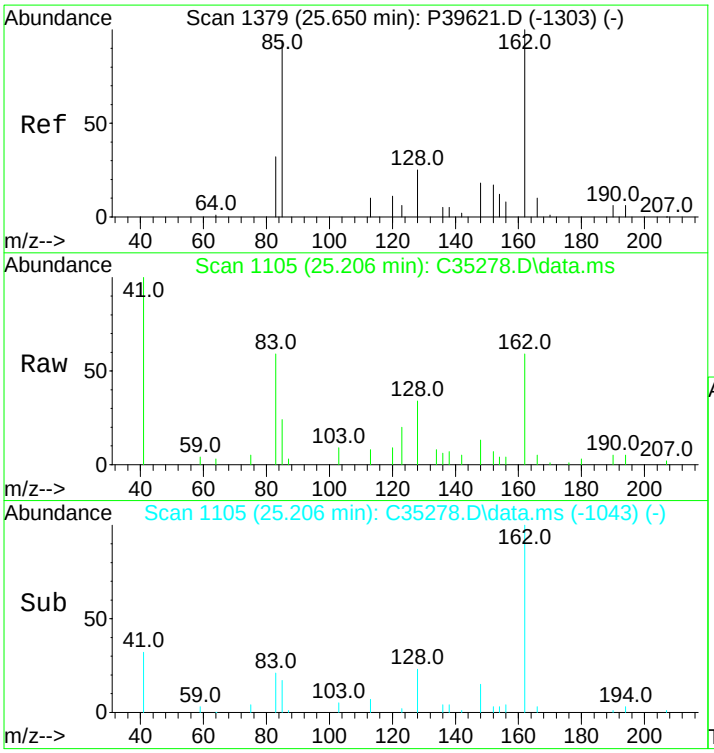




#19
C1-Benzo(b)thiophenes
Concen: 187.94 ng/mL m
RT: 22.556 min Scan# 929
Delta R.T. 0.750 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

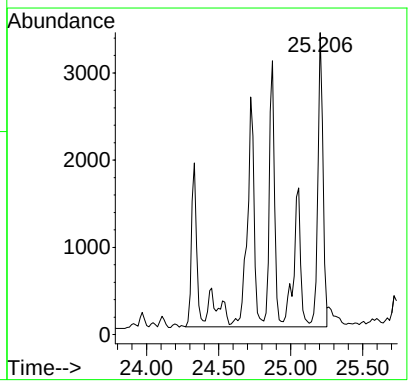
Tgt Ion:148 Resp: 18988

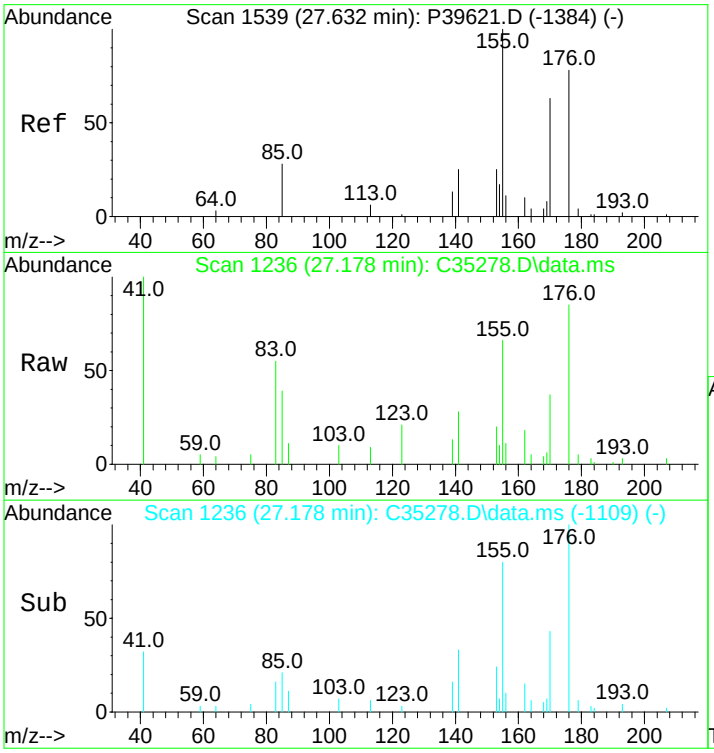




#20
C2-Benzo(b)thiophenes
Concen: 368.80 ng/mL m
RT: 25.206 min Scan# 1105
Delta R.T. -0.020 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

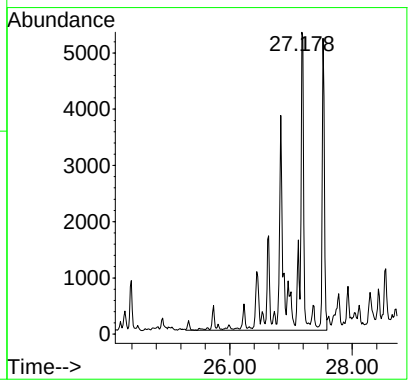
Tgt Ion:162 Resp: 37261

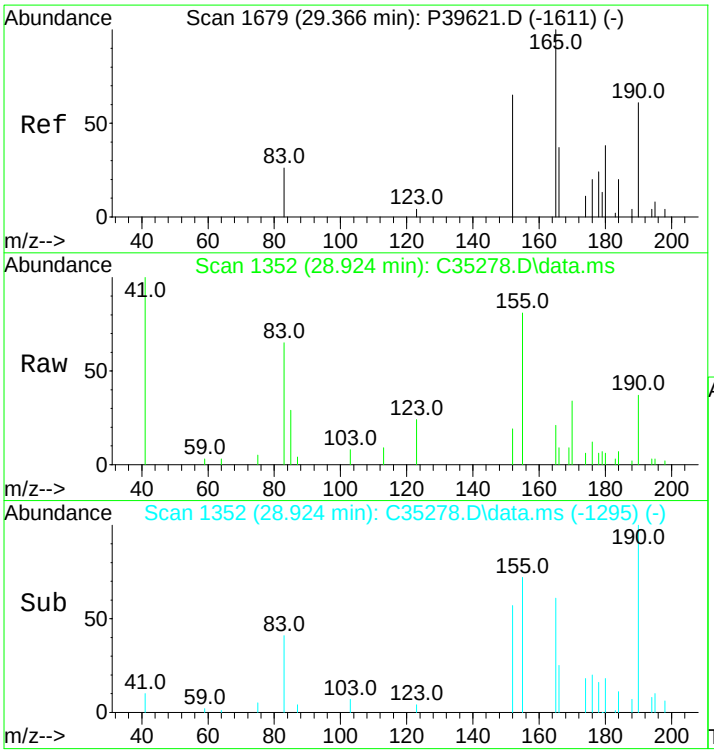




#21
C3-Benzo(b)thiophenes
Concen: 620.87 ng/mL m
RT: 27.178 min Scan# 1236
Delta R.T. 0.013 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

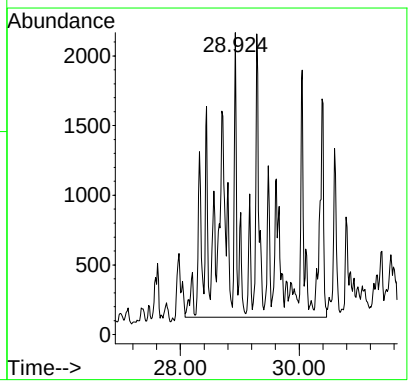
Tgt Ion:176 Resp: 62729

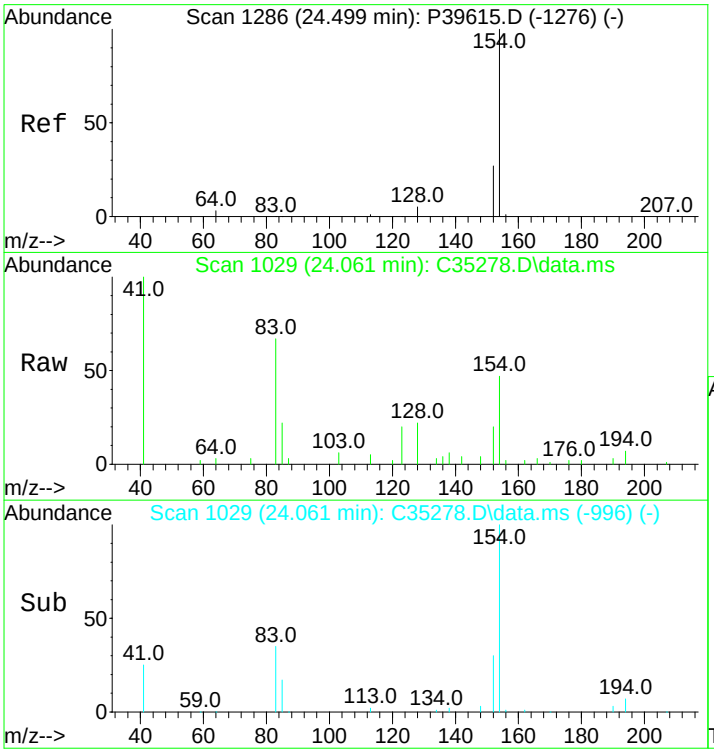




#22
C4-Benzo(b)thiophenes
Concen: 639.21 ng/mL m
RT: 28.924 min Scan# 1352
Delta R.T. 0.057 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:190 Resp: 64582

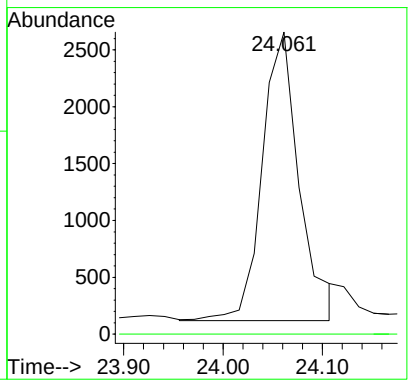


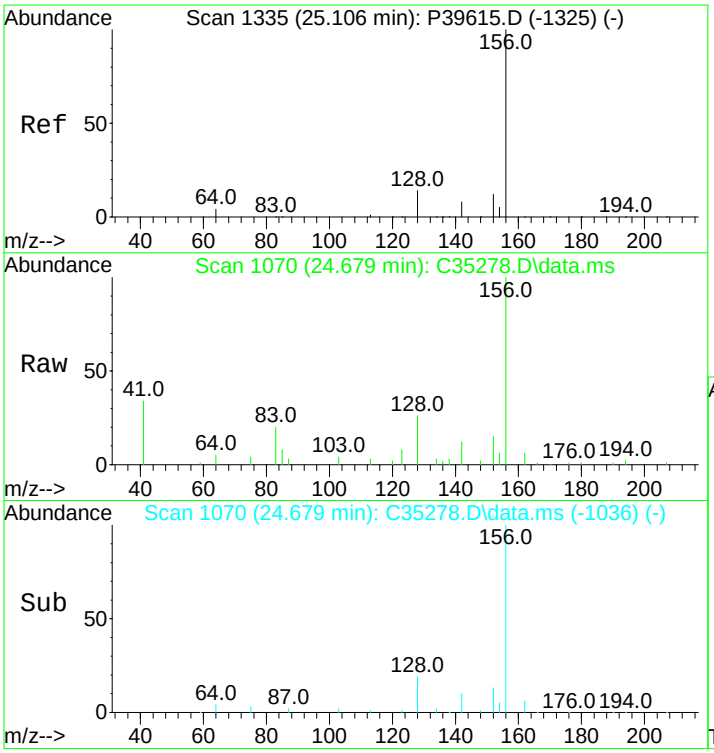


#23
Biphenyl
Concen: 78.44 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:154 Resp: 6587

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

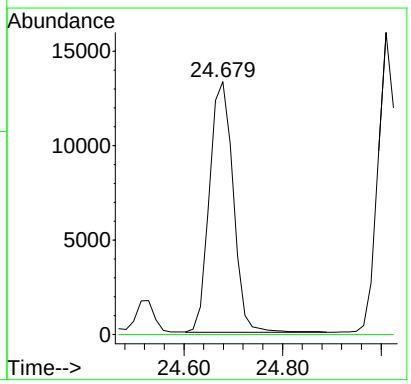


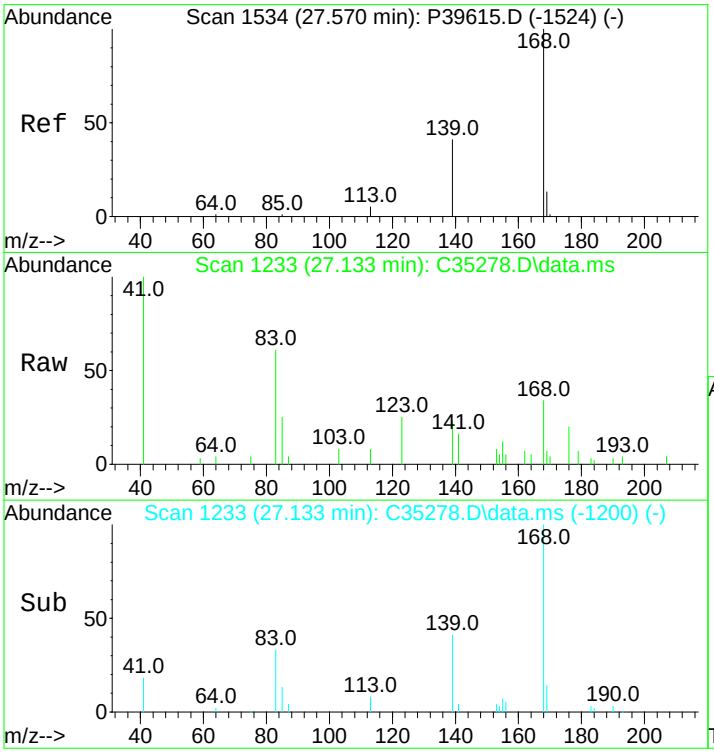


#24
2,6-Dimethylnaphthalene
Concen: 815.65 ng/mL
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:156 Resp: 44487

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

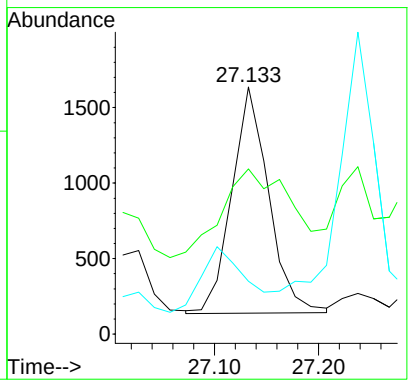


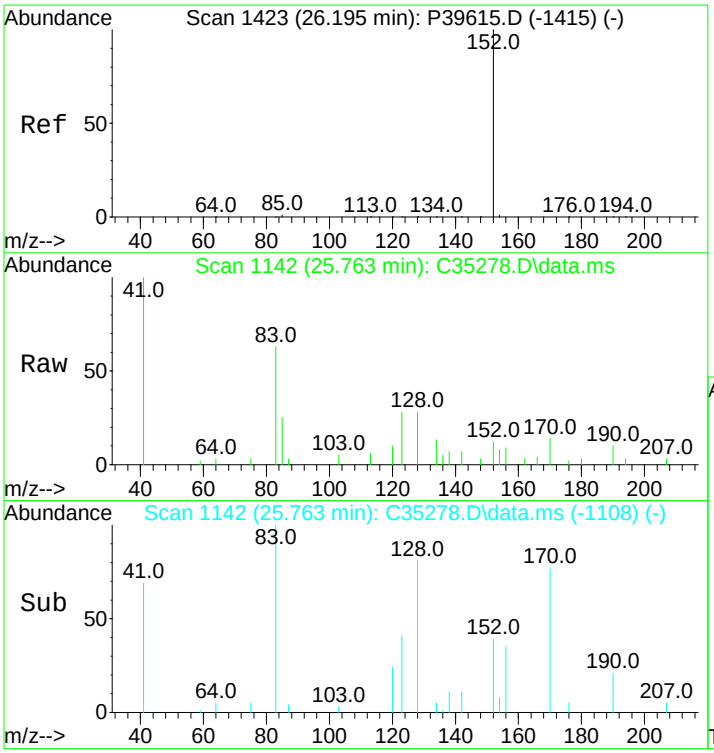


#25
Dibenzofuran
Concen: 38.47 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:168 Resp: 3710

Ion	Ratio	Lower	Upper
168	100		
139	72.2	29.9	44.9#
169	0.0	10.3	15.5#

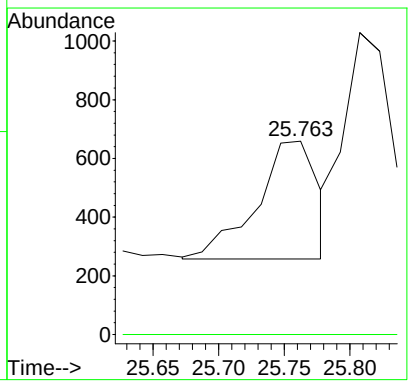


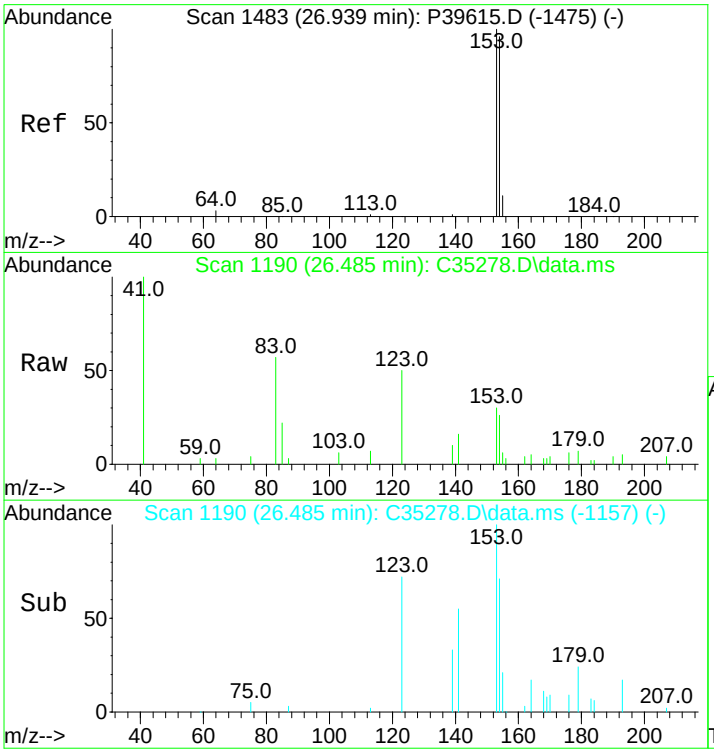


#26
Acenaphthylene
Concen: 11.70 ng/mL m
RT: 25.763 min Scan# 1142
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:152 Resp: 1304

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

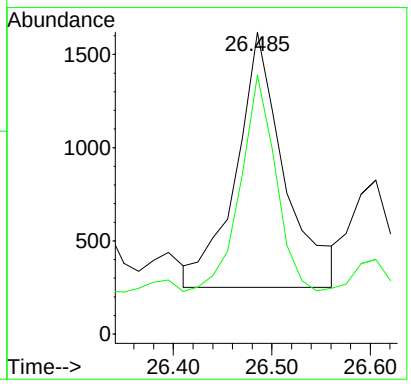


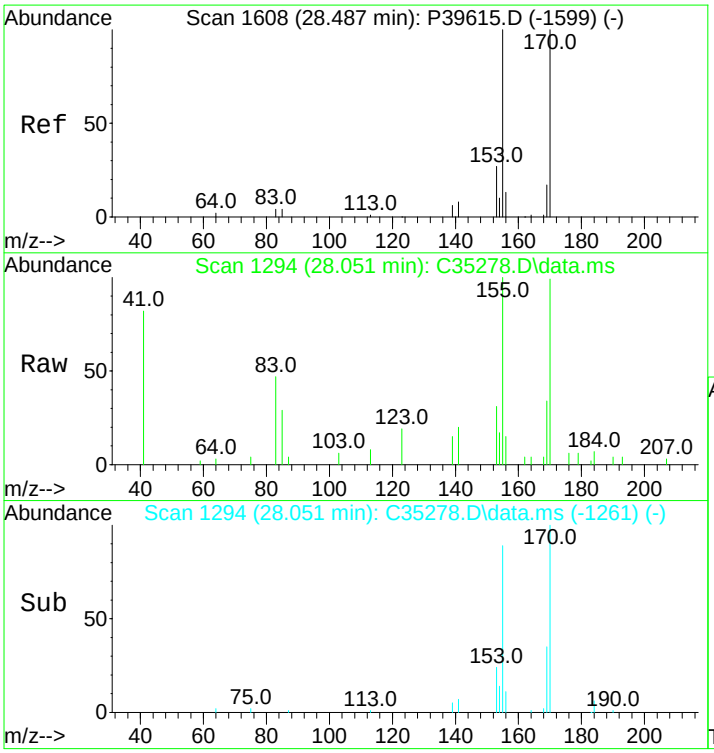


#27
Acenaphthene
Concen: 70.84 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:153 Resp: 4649

Ion	Ratio	Lower	Upper
153	100		
154	62.6	73.3	109.9#

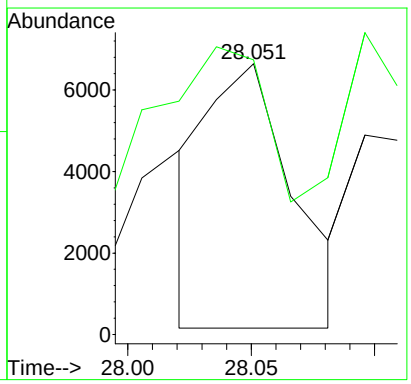


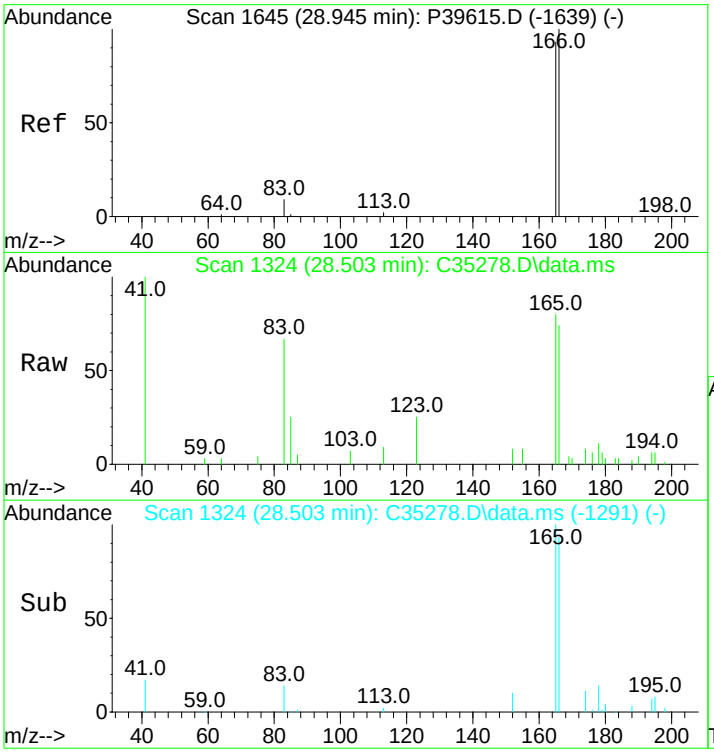


#28
2,3,5-Trimethylnaphthalene
Concen: 359.09 ng/mL m
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:170 Resp: 15788

Ion	Ratio	Lower	Upper
170	100		
155	169.7	78.4	117.6#

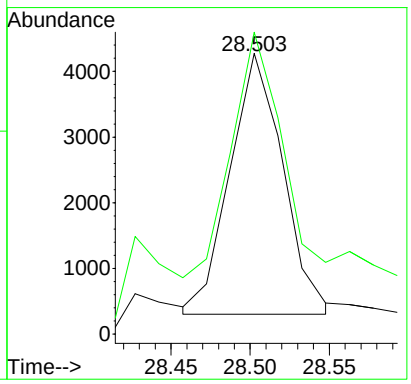


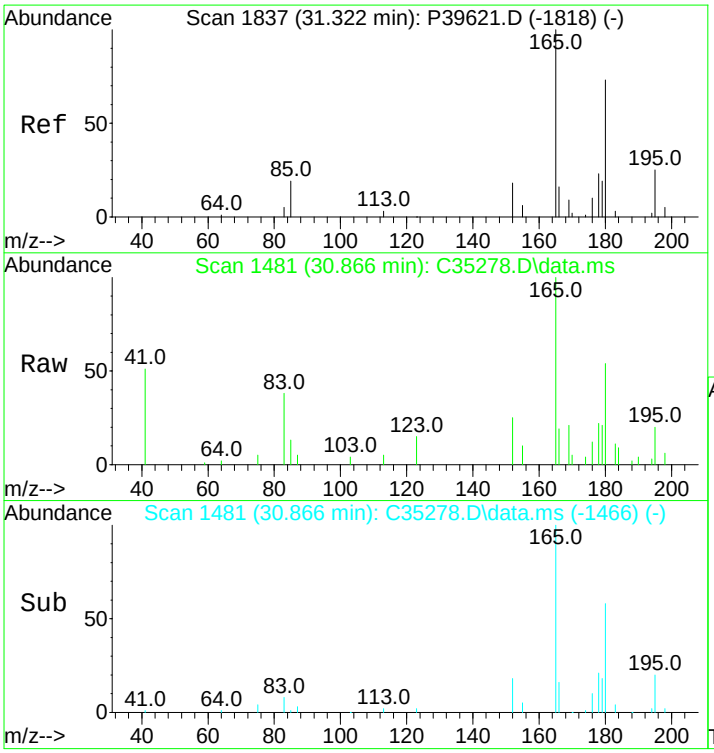


#29
Fluorene
Concen: 128.07 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:166 Resp: 9269

Ion	Ratio	Lower	Upper
166	100		
165	212.3	77.1	115.7#

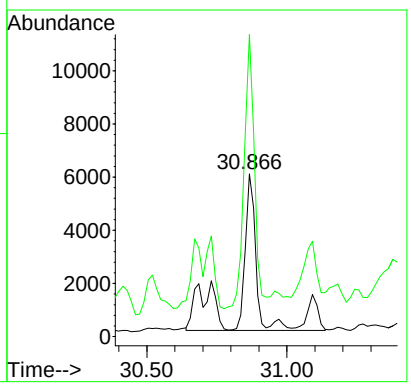


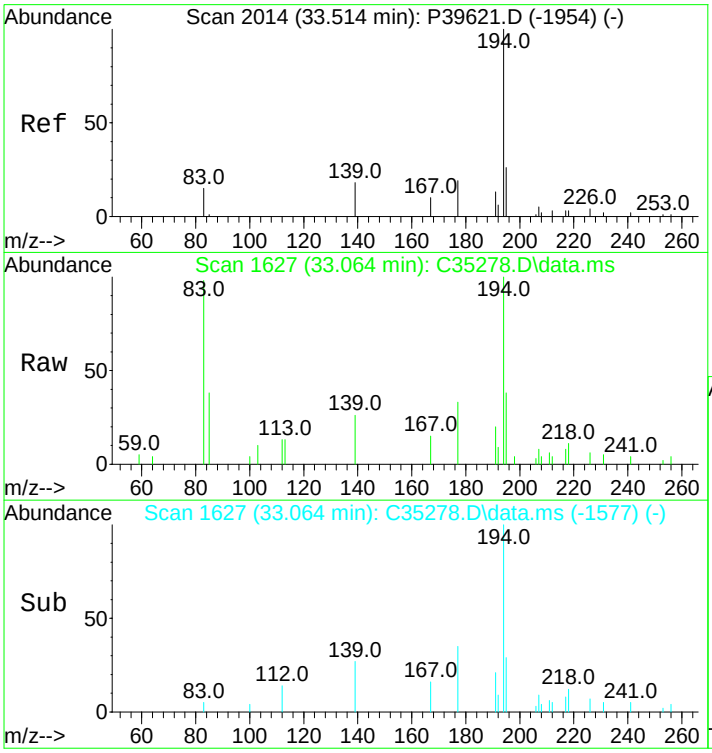


#30
C1-Fluorenes
Concen: 376.25 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:180 Resp: 27231

Ion	Ratio	Lower	Upper
180	100		
165	97.0	121.9	182.9#

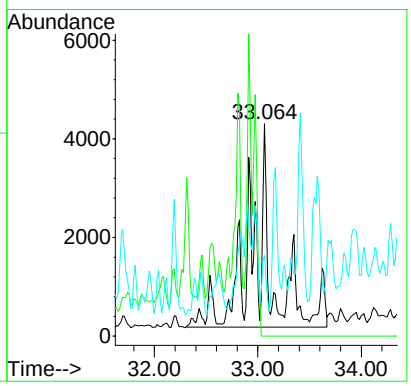


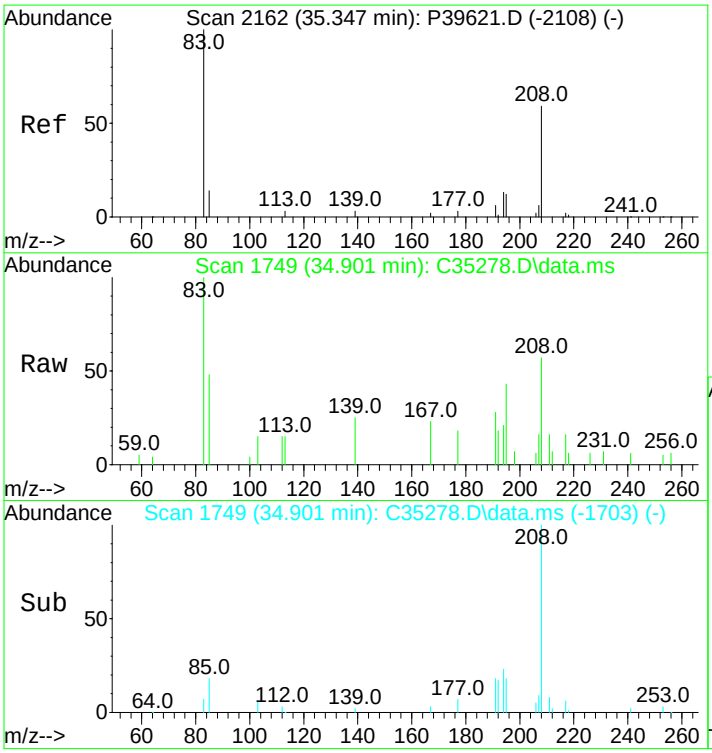


#31
C2-Fluorenes
Concen: 768.81 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:194 Resp: 55642

Ion	Ratio	Lower	Upper
194	100		
179	28.2	0.0	0.0#
195	11.2	30.5	45.7#

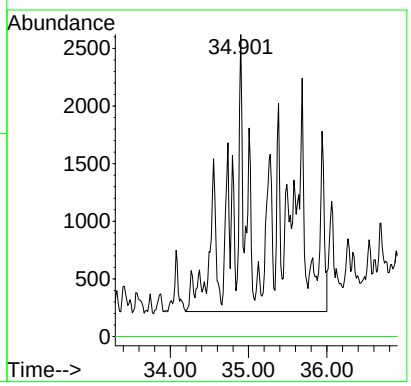


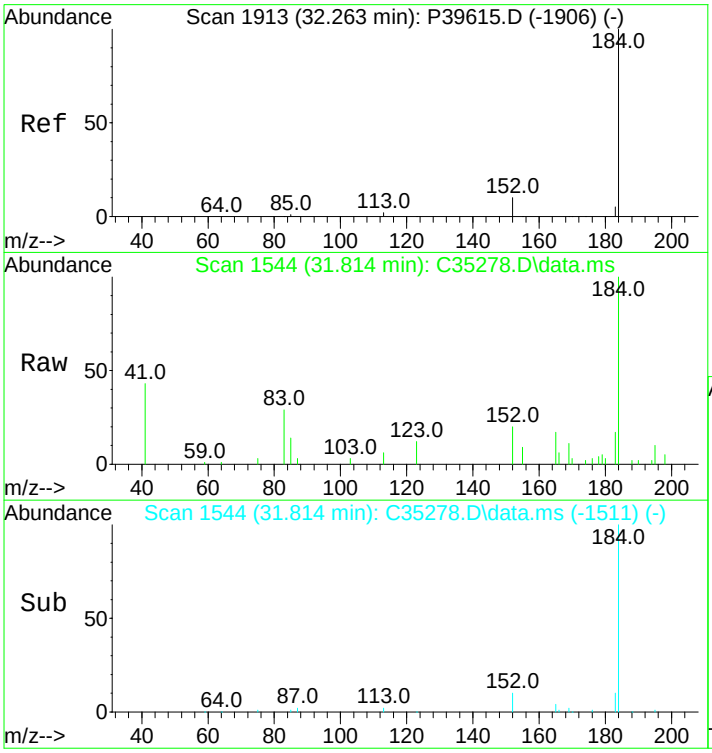


#32
C3-Fluorenes
Concen: 944.83 ng/mL m
RT: 34.901 min Scan# 1749
Delta R.T. 0.157 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:208 Resp: 68382

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

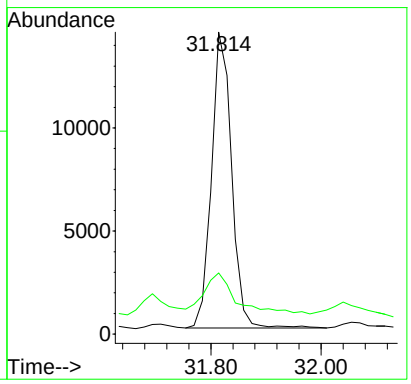


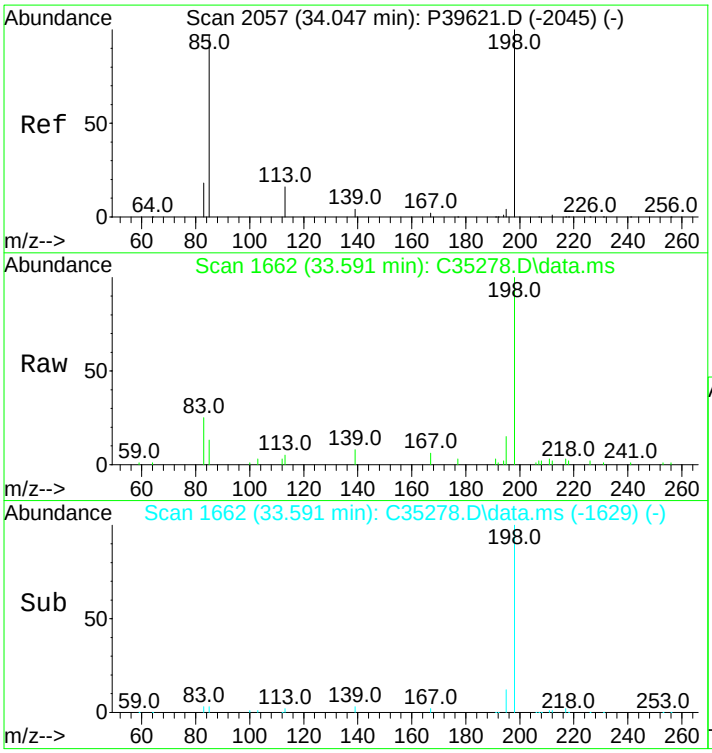


#33
Dibenzothiophene
Concen: 316.97 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:184 Resp: 36773

Ion	Ratio	Lower	Upper
184	100		
152	21.2	7.5	11.3#

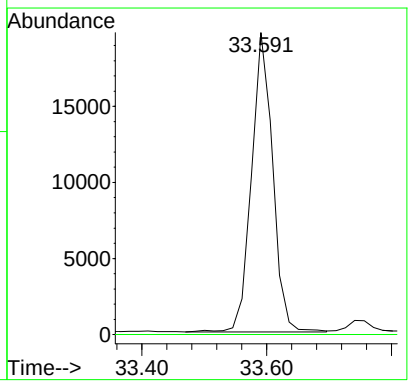


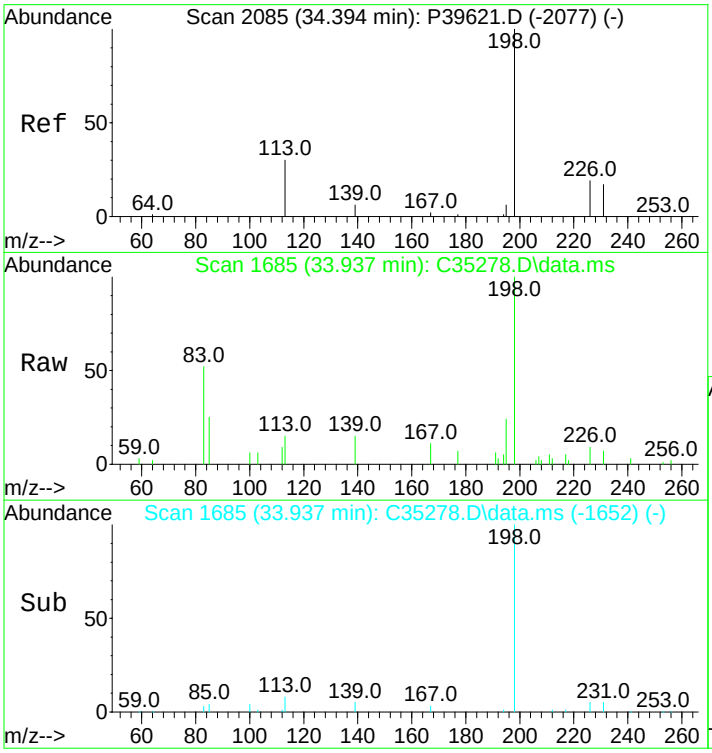


#34
4-Methyldibenzothiophene(4MDT)
Concen: 399.20 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:198 Resp: 46314

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

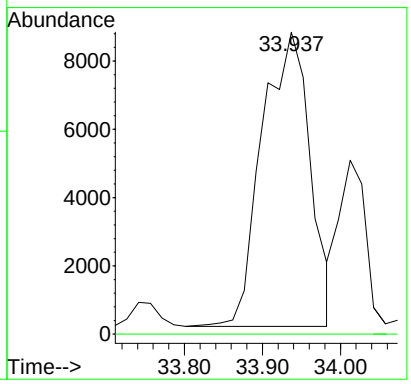


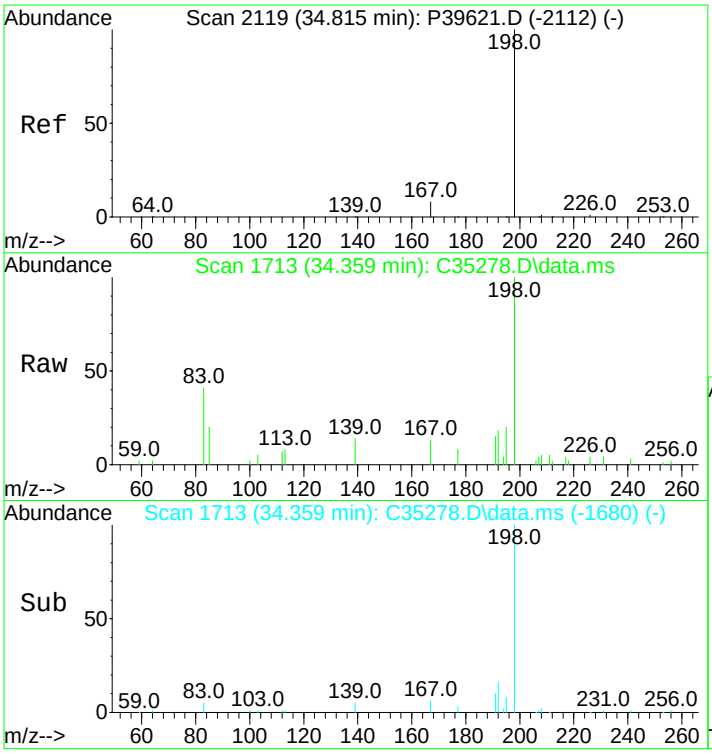


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 319.32 ng/mL
RT: 33.937 min Scan# 1685
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:198 Resp: 37046

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

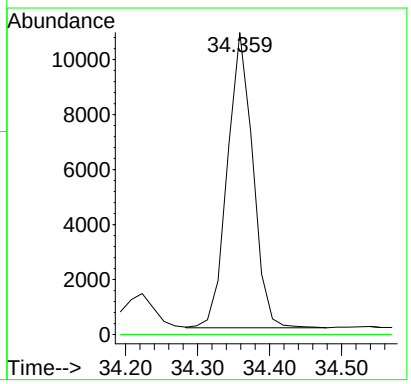


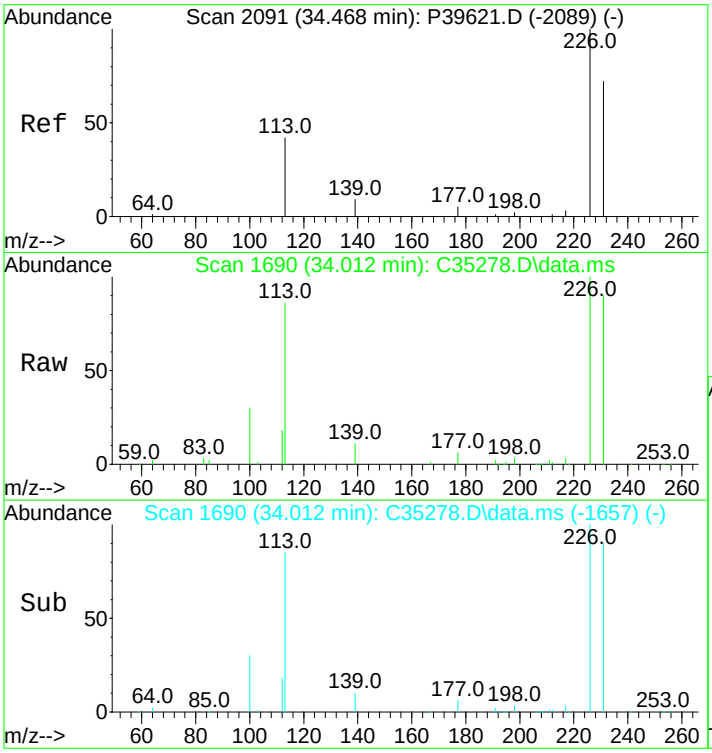


#36
1-Methyldibenzothiophene(1MDT)
Concen: 227.14 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:198 Resp: 26352

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

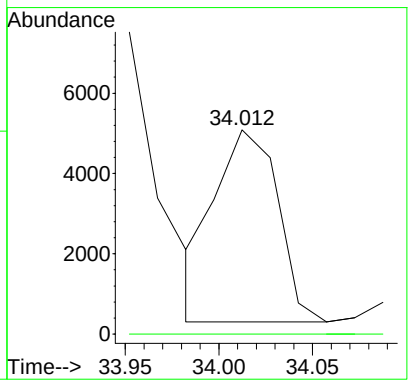


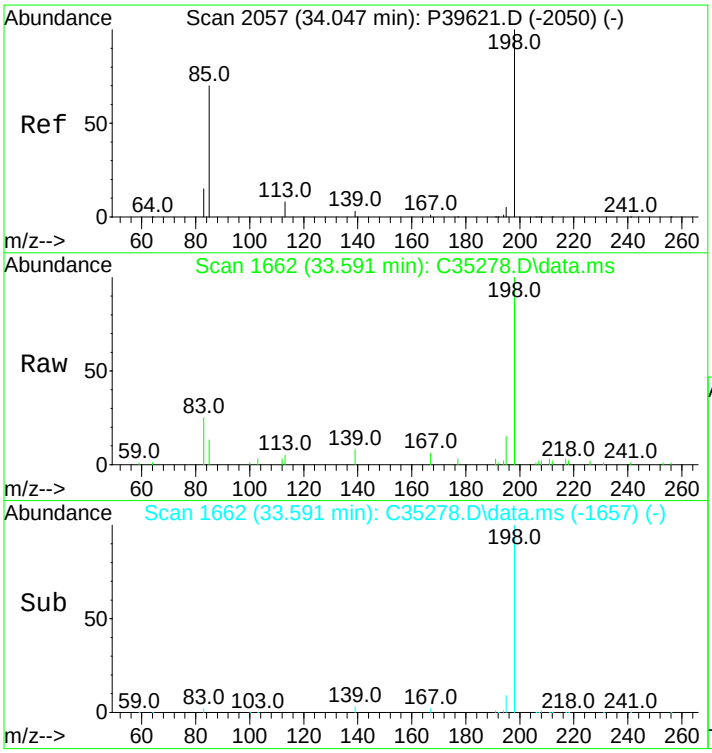


#37
OTP
Concen: 96.64 ng/mL
RT: 34.012 min Scan# 1690
Delta R.T. 0.030 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:198 Resp: 11212

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

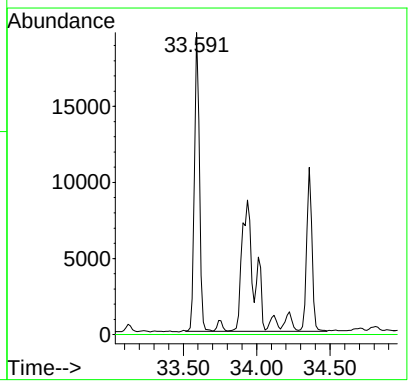


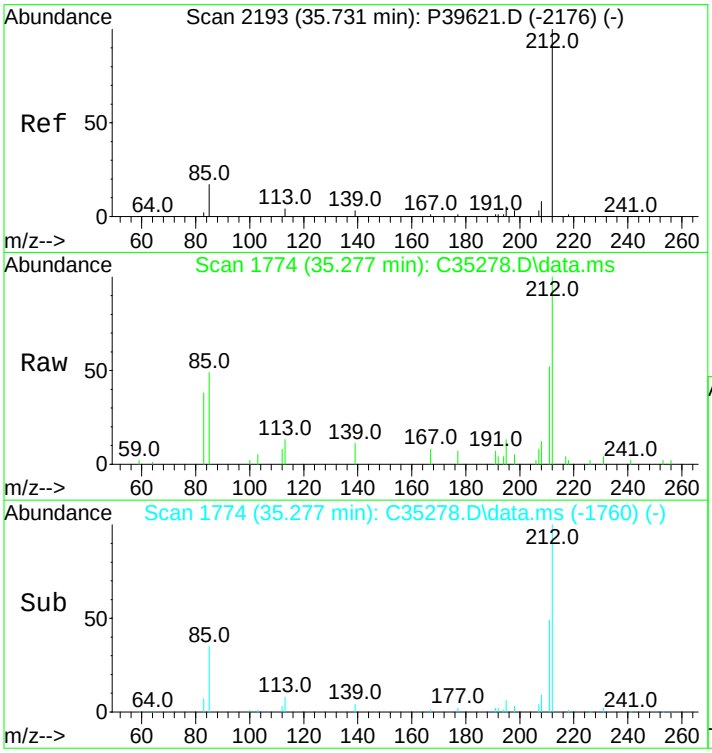


#38
C1-Dibenzothiophenes
Concen: 1130.02 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. -0.359 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:198 Resp: 131100

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

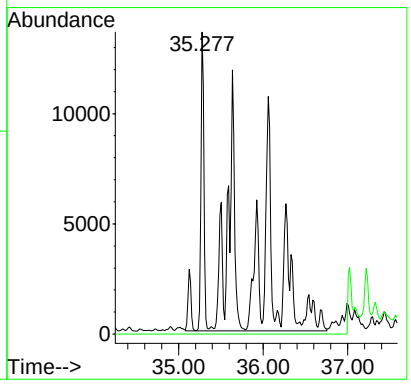


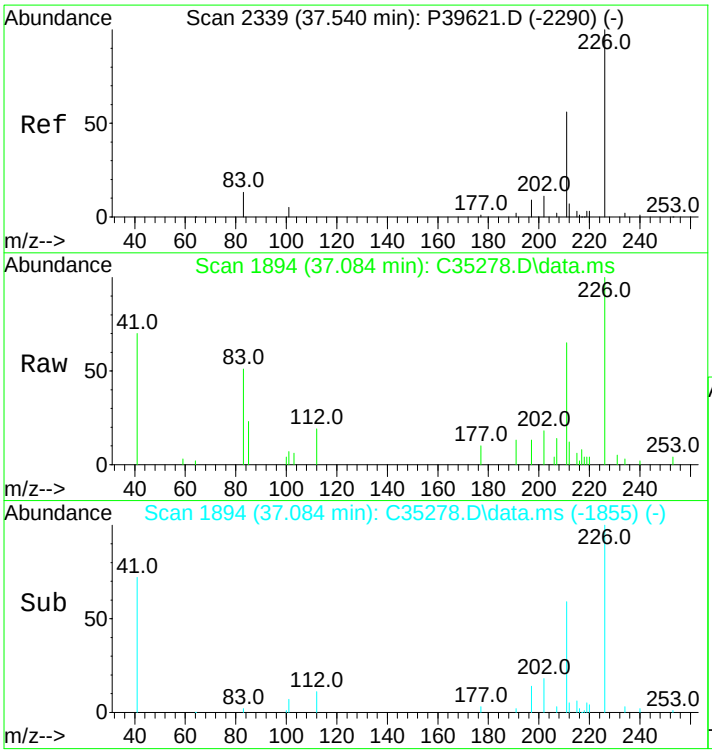


#39
C2-Dibenzothiophenes
Concen: 1832.86 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:212 Resp: 212640

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

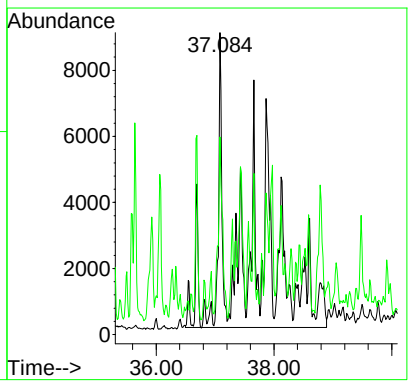


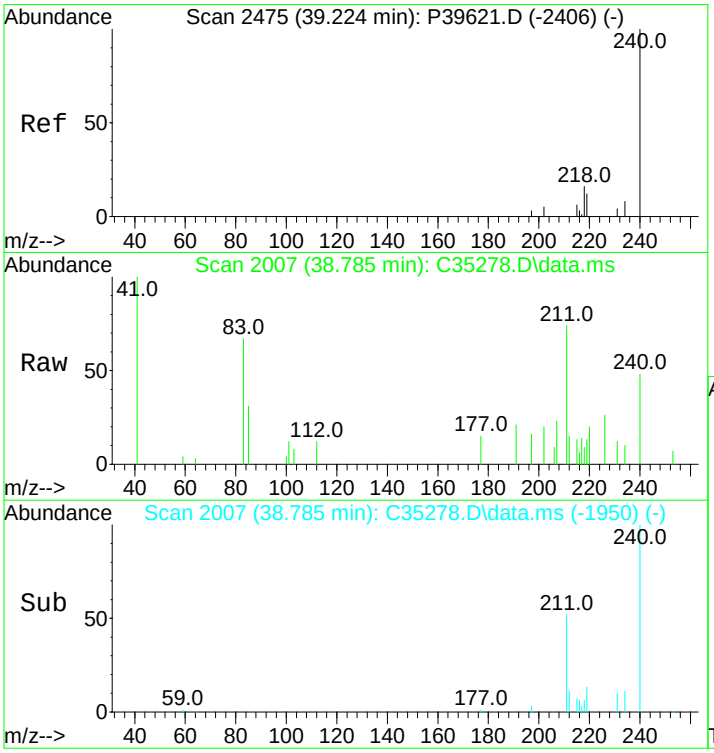


#40
C3-Dibenzothiophenes
Concen: 1970.91 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:226 Resp: 228656

Ion	Ratio	Lower	Upper
226	100		
211	1.5	51.4	77.2#

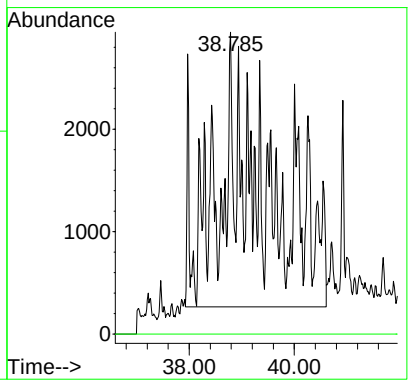


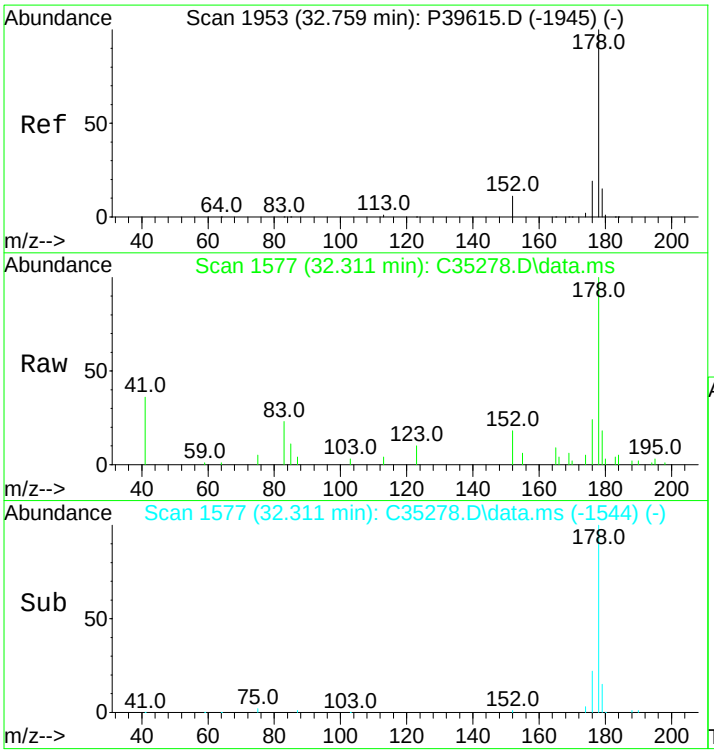


#41
C4-Dibenzothiophenes
Concen: 1371.31 ng/mL m
RT: 38.785 min Scan# 2007
Delta R.T. 0.153 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:240 Resp: 159093

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

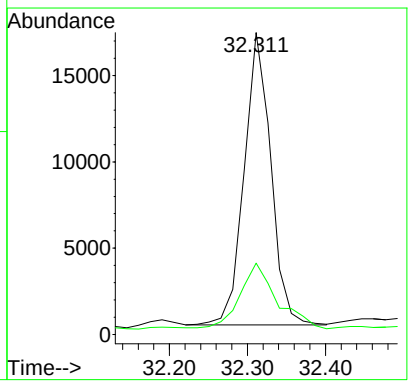


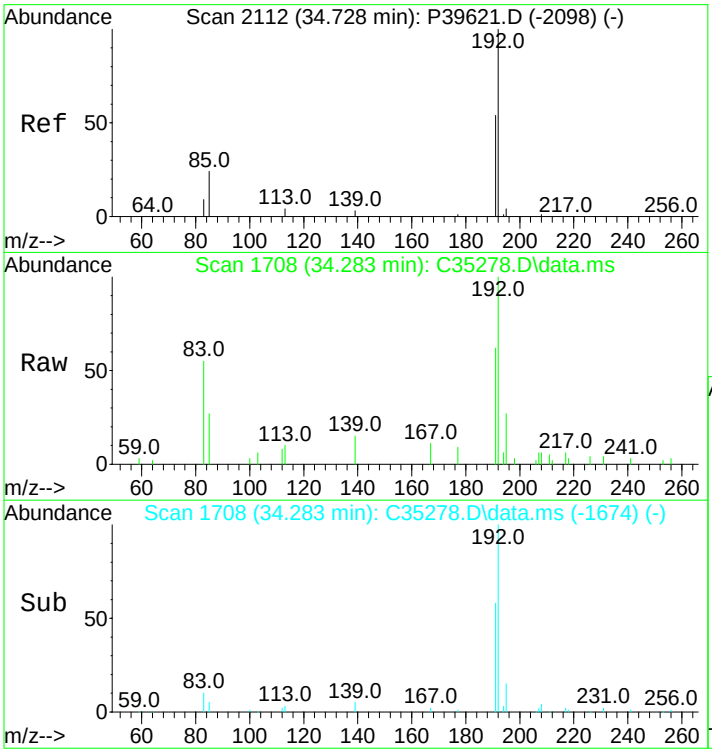


#43
Phenanthrene
Concen: 393.59 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:178 Resp: 40118

Ion	Ratio	Lower	Upper
178	100		
176	30.9	15.8	23.6#

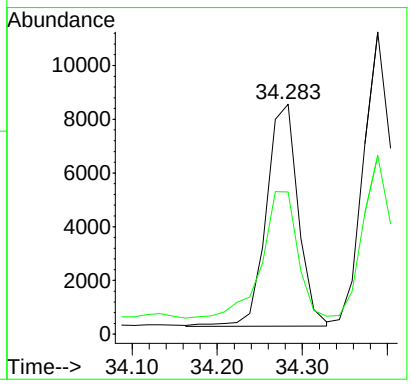


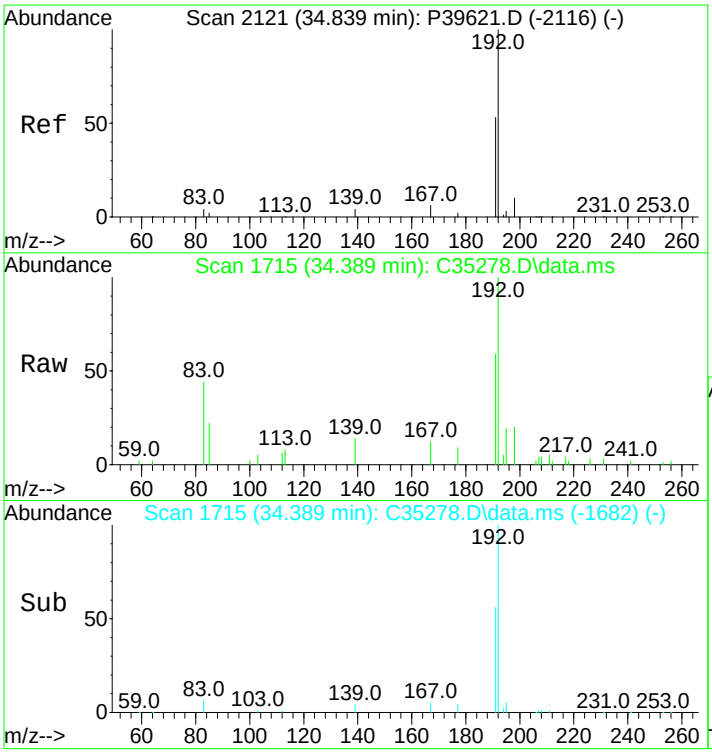


#44
3-Methylphenanthrene(3MP)
Concen: 211.21 ng/mL
RT: 34.283 min Scan# 1708
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 21529

Ion	Ratio	Lower	Upper
192	100		
191	67.7	47.4	71.0

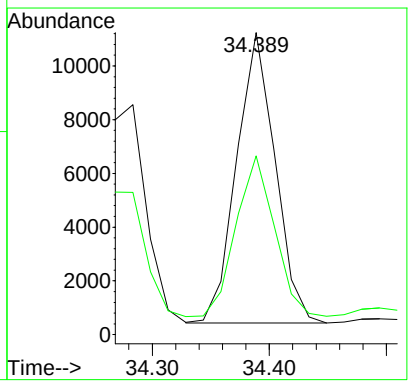


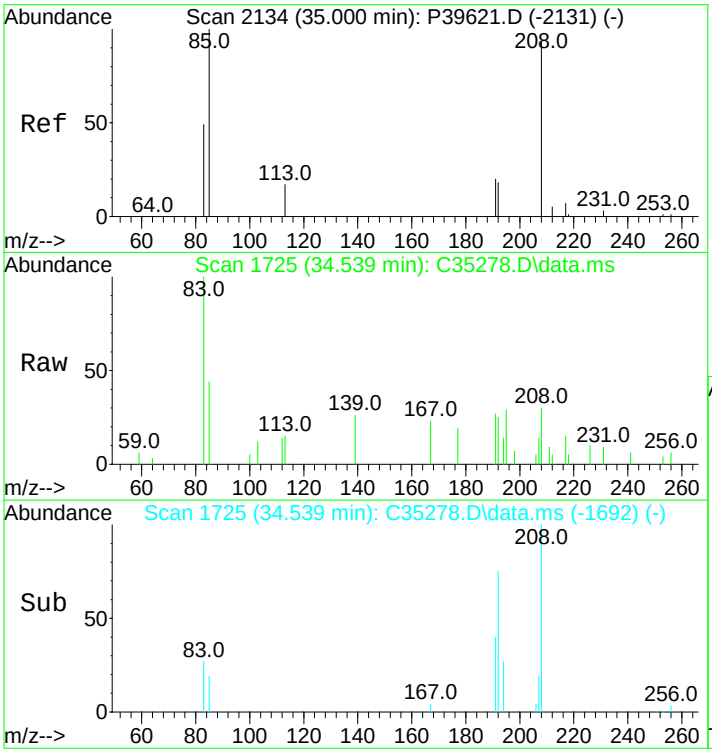


#45
2-Methylphenanthrene(2MP)
Concen: 243.14 ng/mL
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 24783

Ion	Ratio	Lower	Upper
192	100		
191	55.3	45.0	67.6

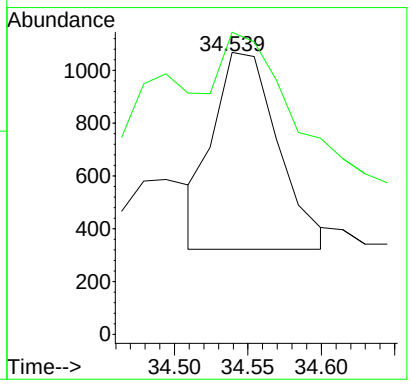


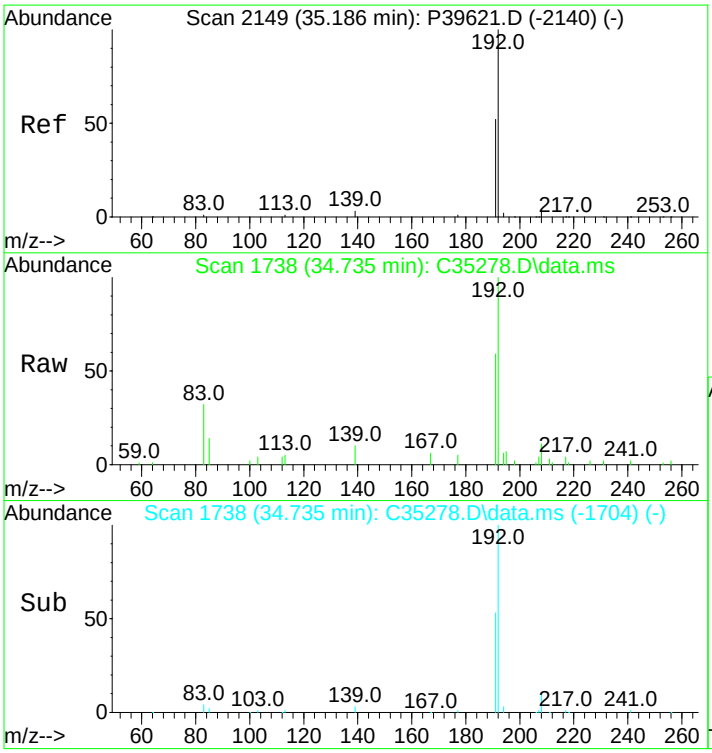


#46
2-Methylanthracene(2MA)
Concen: 22.43 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 2286

Ion	Ratio	Lower	Upper
192	100		
191	87.1	95.5	143.3#

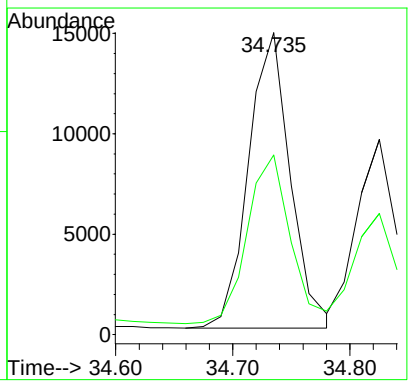


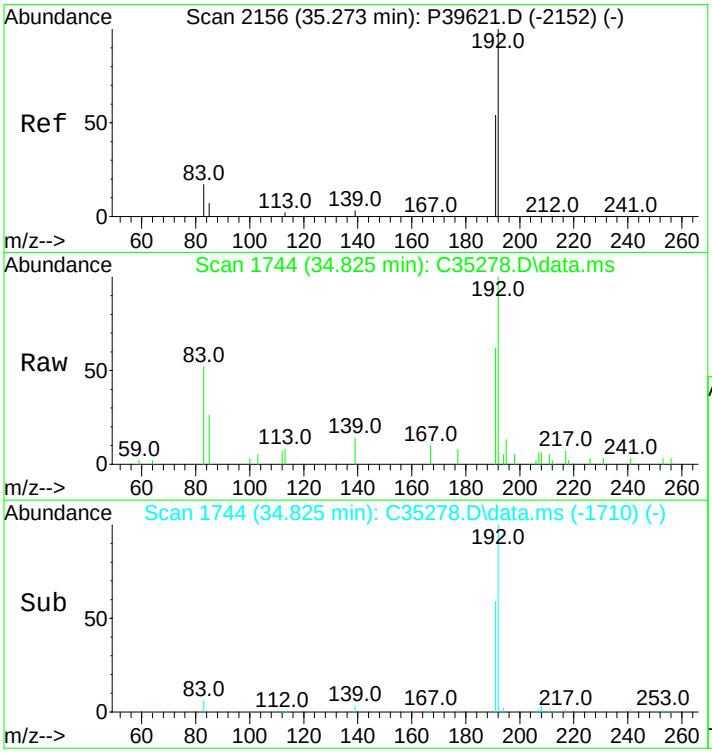


#47
9/4-Methylphenanthrene(9MP)
Concen: 358.21 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 36512

Ion	Ratio	Lower	Upper
192	100		
191	59.0	46.5	69.7

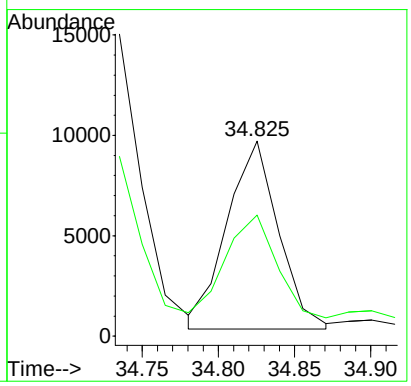


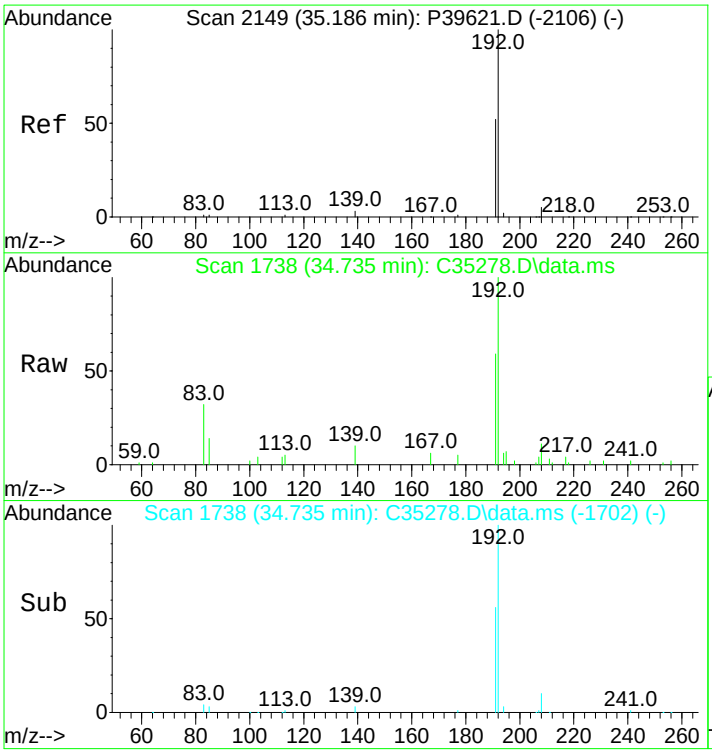


#48
1-Methylphenanthrene(1MP)
Concen: 215.57 ng/mL m
RT: 34.825 min Scan# 1744
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 21973

Ion	Ratio	Lower	Upper
192	100		
191	54.5	47.4	71.2

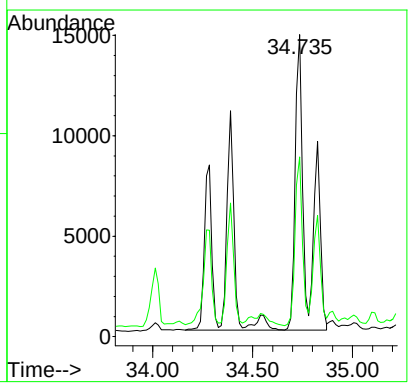


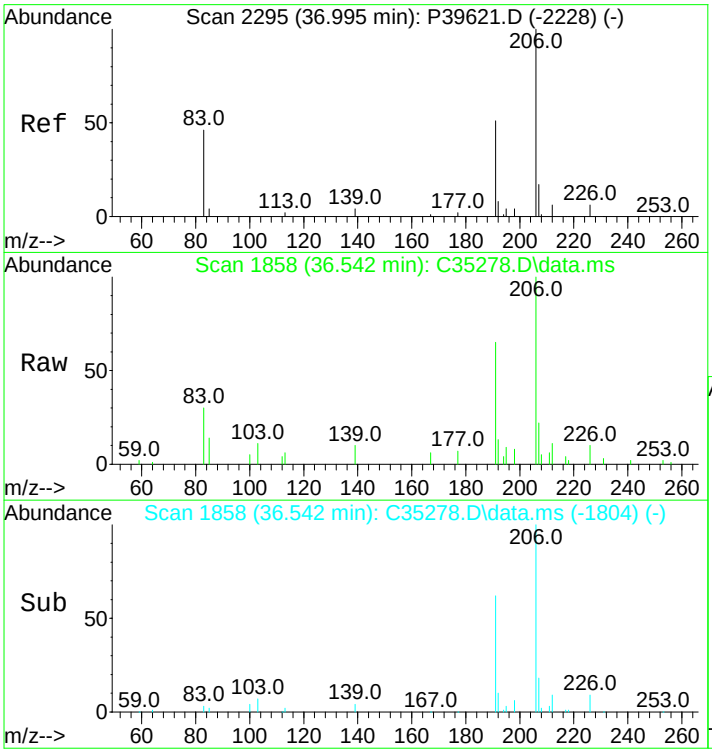


#49
C1-Phenanthrenes/Anthracenes
Concen: 1065.27 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.155 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 108582

Ion	Ratio	Lower	Upper
192	100		
191	1.8	45.3	67.9#

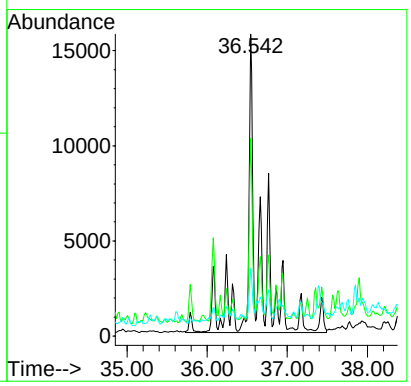


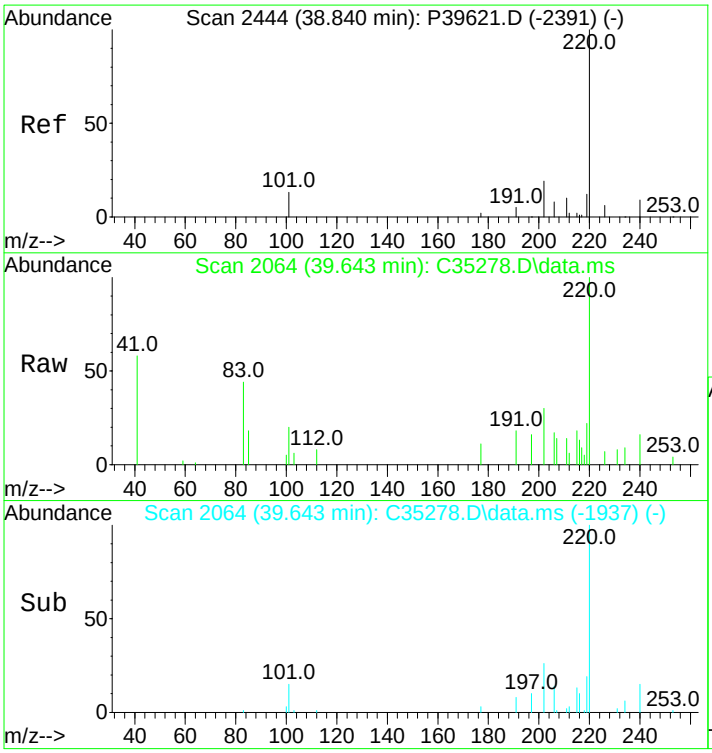


#50
C2-Phenanthrenes/Anthracenes
Concen: 1462.09 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:206 Resp: 149030

Ion	Ratio	Lower	Upper
206	100		
191	17.5	42.0	63.0#
207	5.1	15.4	23.2#

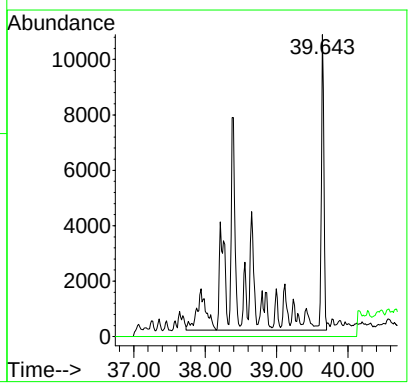


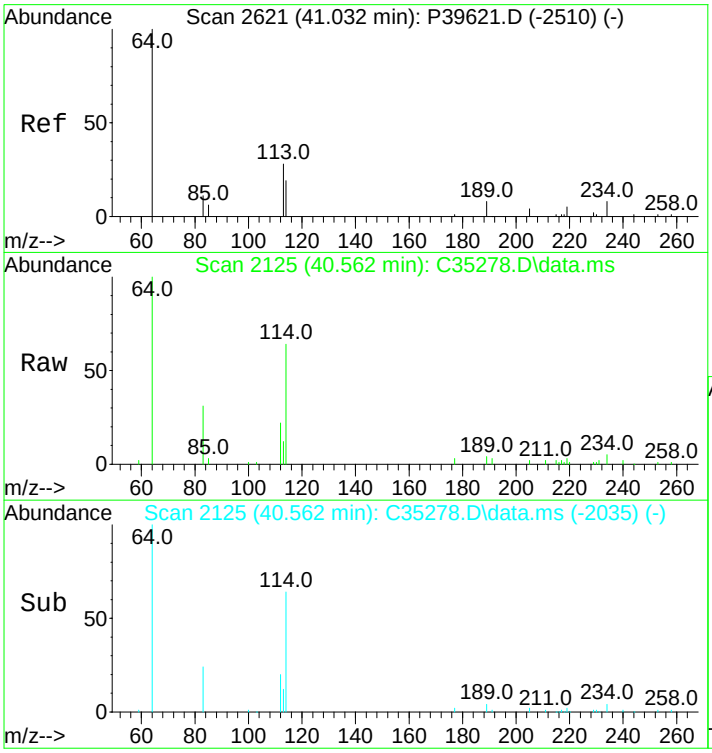


#52
C3-Phenanthrenes/Anthracenes
Concen: 1331.45 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 1.481 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:220 Resp: 135714

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

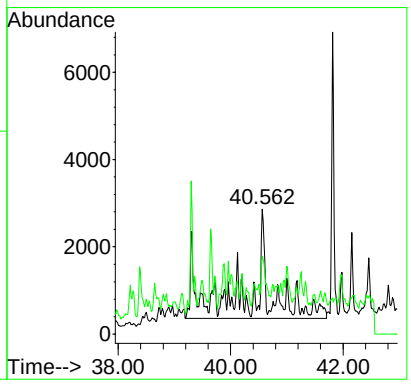


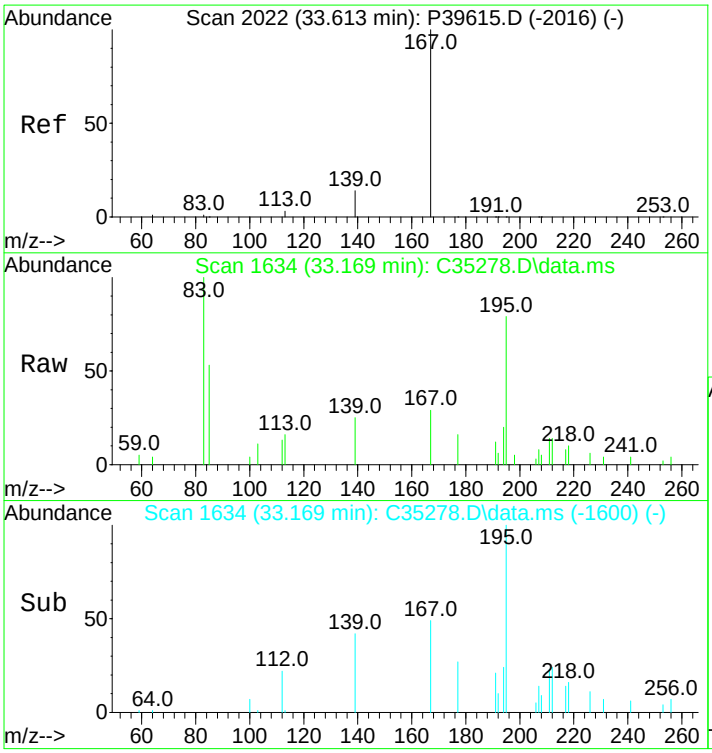


#53
C4-Phenanthrenes/Anthracenes
Concen: 635.04 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 0.267 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:234 Resp: 64729

Ion	Ratio	Lower	Upper
234	100		
219	2.4	48.6	73.0#

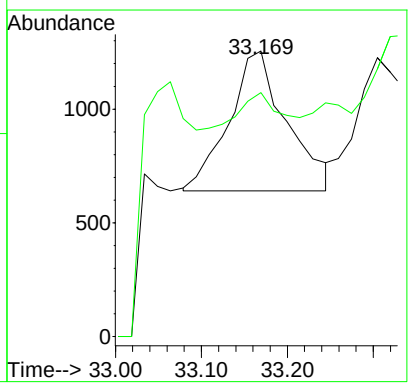


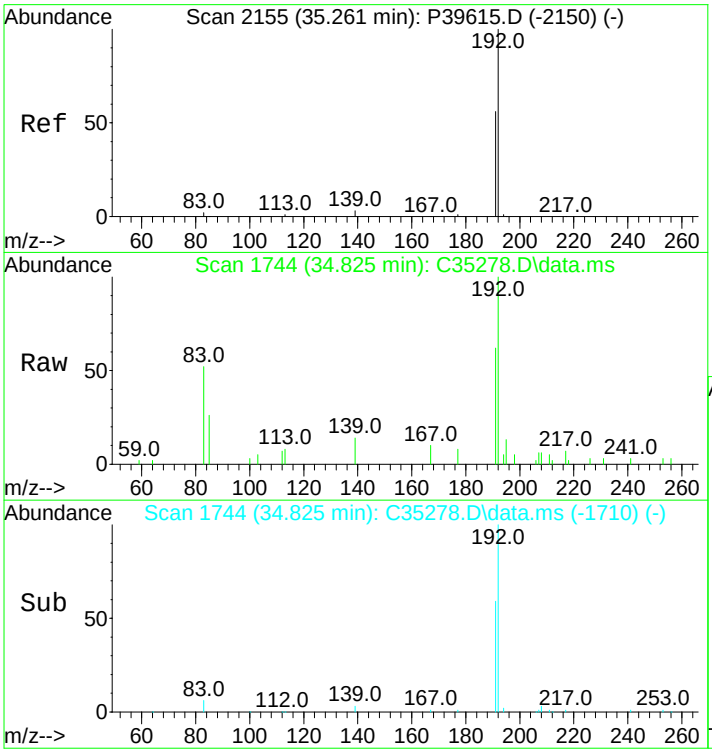


#56
Carbazole
Concen: 28.39 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:167 Resp: 2855

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

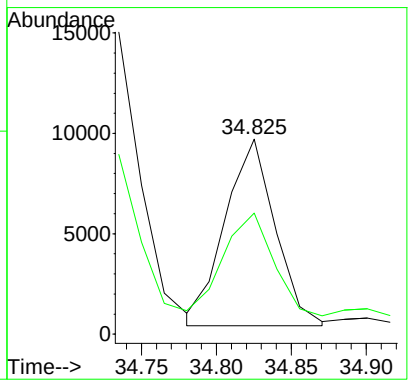


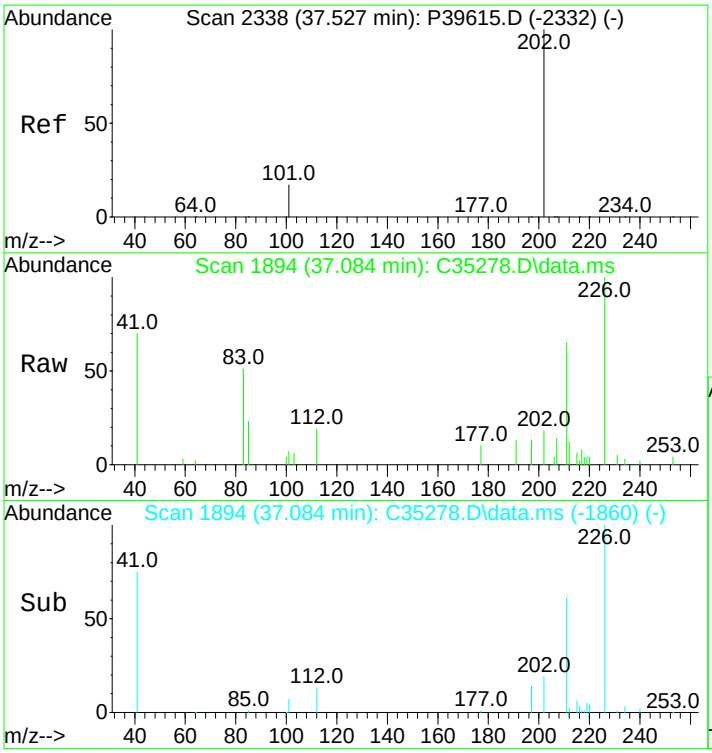


#57
1-Methylphenanthrene
Concen: 333.87 ng/mL m
RT: 34.825 min Scan# 1744
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:192 Resp: 21566

Ion	Ratio	Lower	Upper
192	100		
191	55.5	46.8	70.2

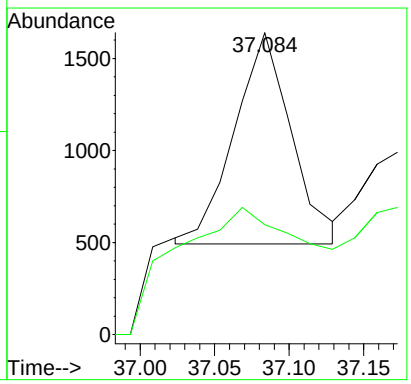


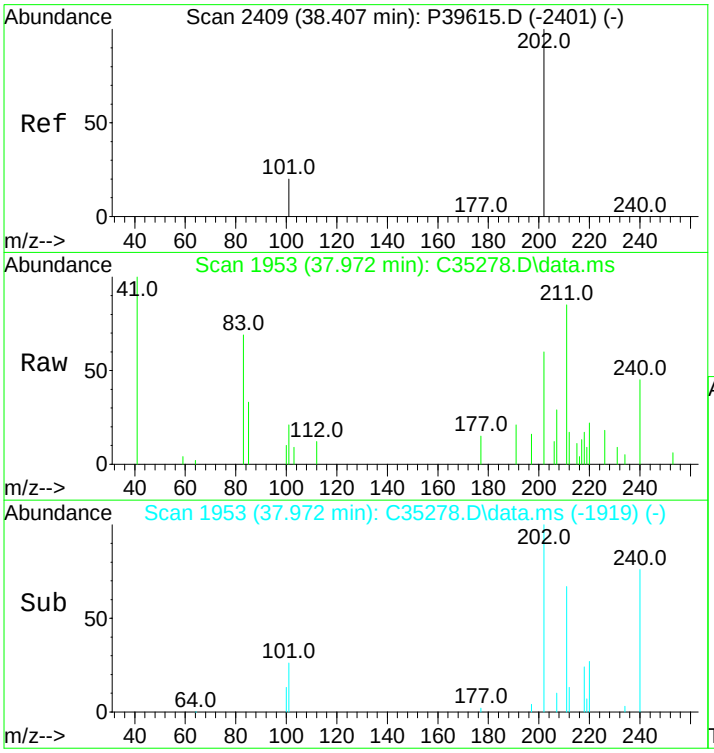


#58
Fluoranthene
Concen: 30.15 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:202 Resp: 3052

Ion	Ratio	Lower	Upper
202	100		
101	28.0	13.2	19.8#

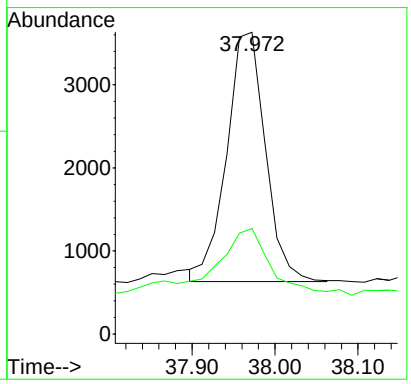


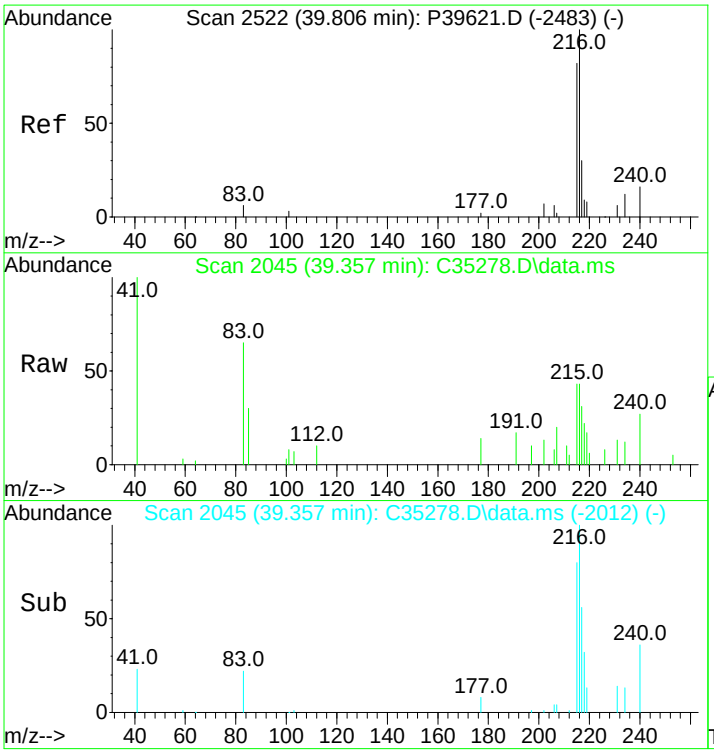


#60
Pyrene
Concen: 94.80 ng/mL m
RT: 37.972 min Scan# 1953
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:202 Resp: 9756

Ion	Ratio	Lower	Upper
202	100		
101	41.7	13.5	20.3#

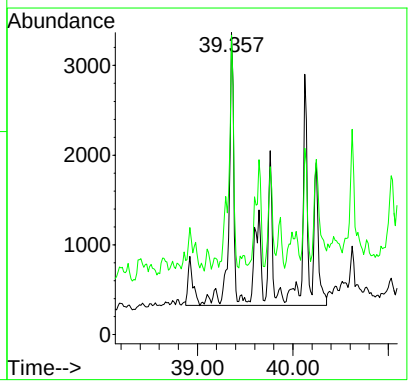


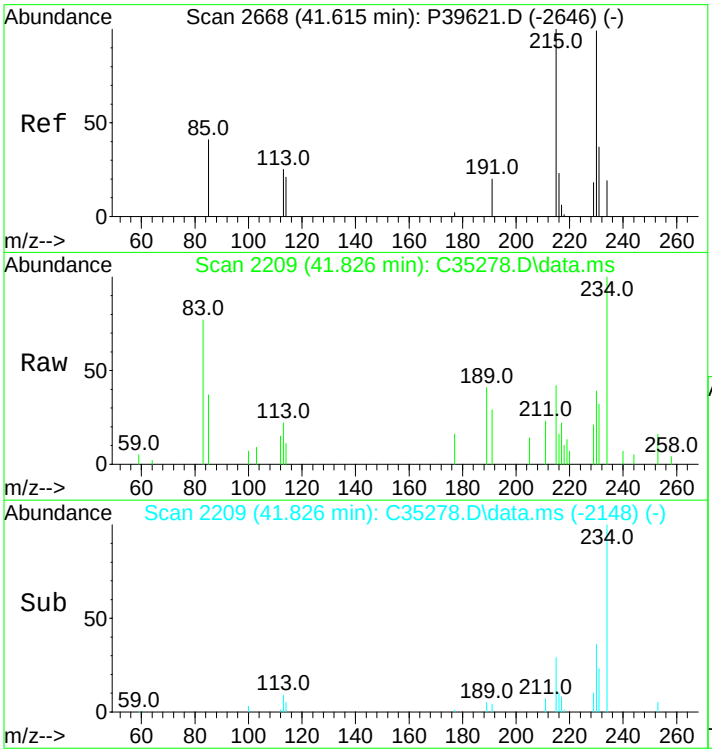


#61
C1-Fluoranthenes/Pyrenes
Concen: 348.29 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:216 Resp: 35841

Ion	Ratio	Lower	Upper
216	100		
215	1.1	77.7	116.5#

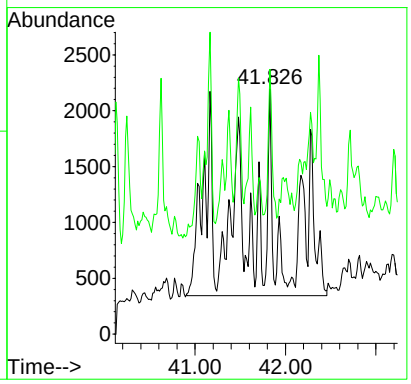


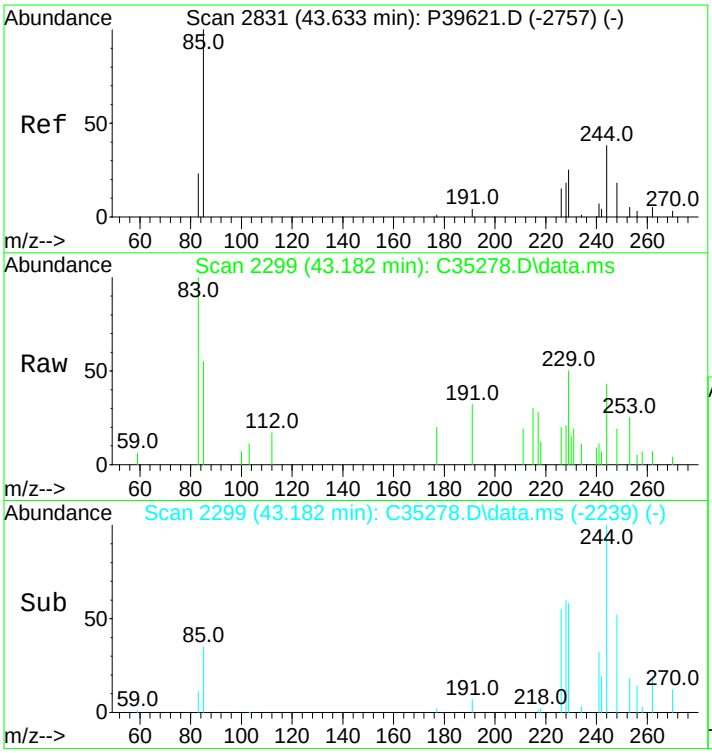


#62
C2-Fluoranthenes/Pyrenes
Concen: 497.30 ng/mL m
RT: 41.826 min Scan# 2209
Delta R.T. 0.663 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:230 Resp: 51175

Ion	Ratio	Lower	Upper
230	100		
215	11.7	92.7	139.1#

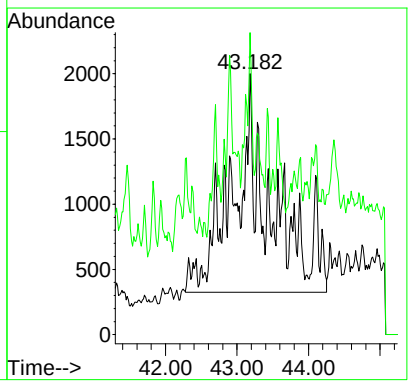


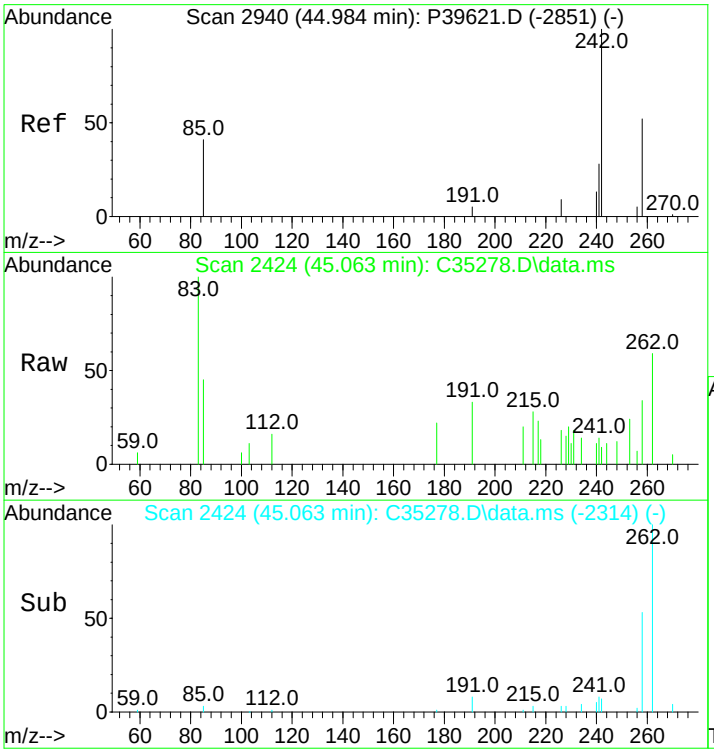


#63
C3-Fluoranthenes/Pyrenes
Concen: 585.19 ng/mL m
RT: 43.182 min Scan# 2299
Delta R.T. 0.312 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:244 Resp: 60220

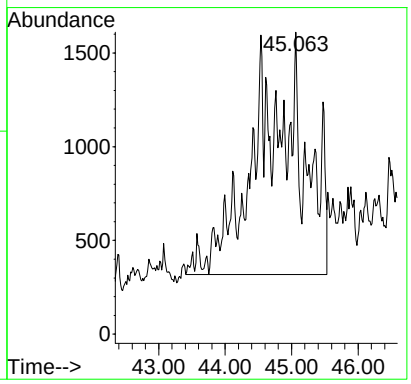
Ion	Ratio	Lower	Upper
244	100		
229	6.2	78.7	118.1#

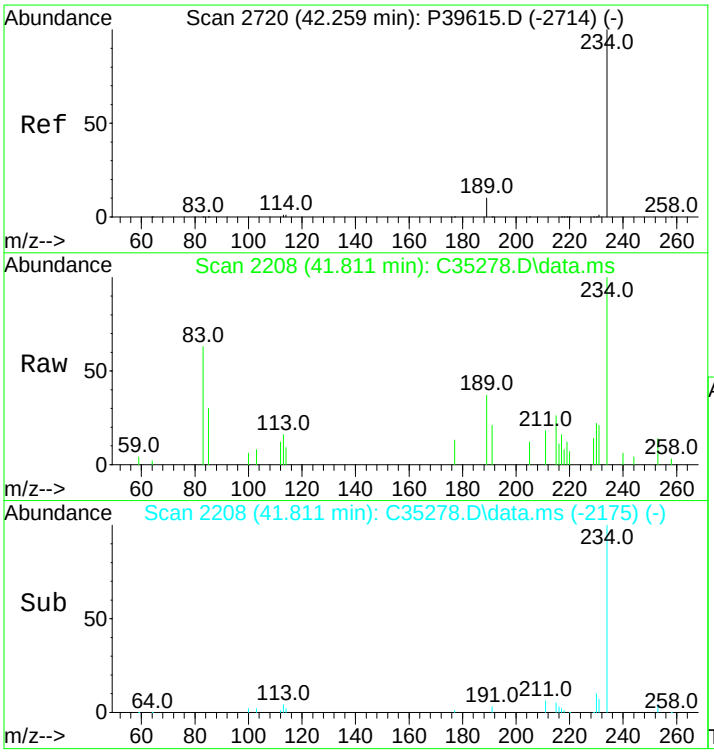




#64
C4-Fluoranthenes/Pyrenes
Concen: 574.99 ng/mL m
RT: 45.063 min Scan# 2424
Delta R.T. 0.862 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:258 Resp: 59170

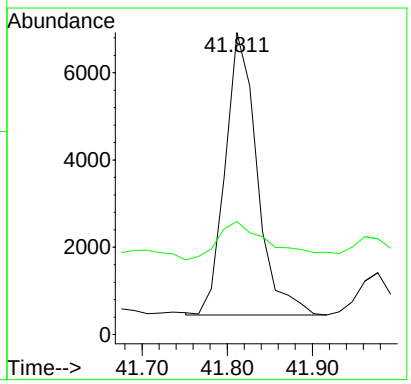


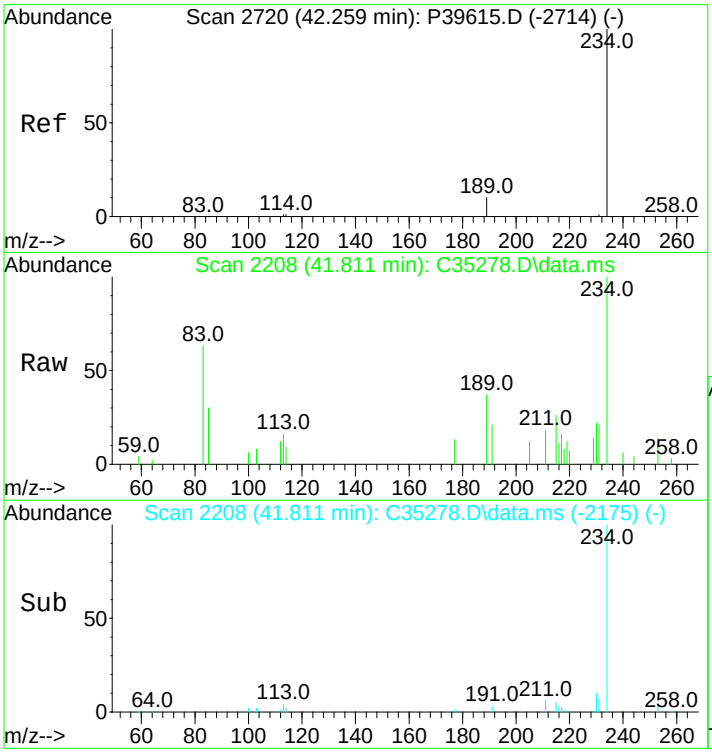


#66
Naphthobenzothiophene
Concen: 152.78 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:234 Resp: 16926

Ion	Ratio	Lower	Upper
234	100		
189	23.2	20.9	31.3

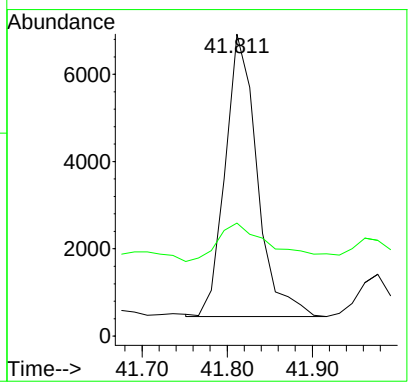


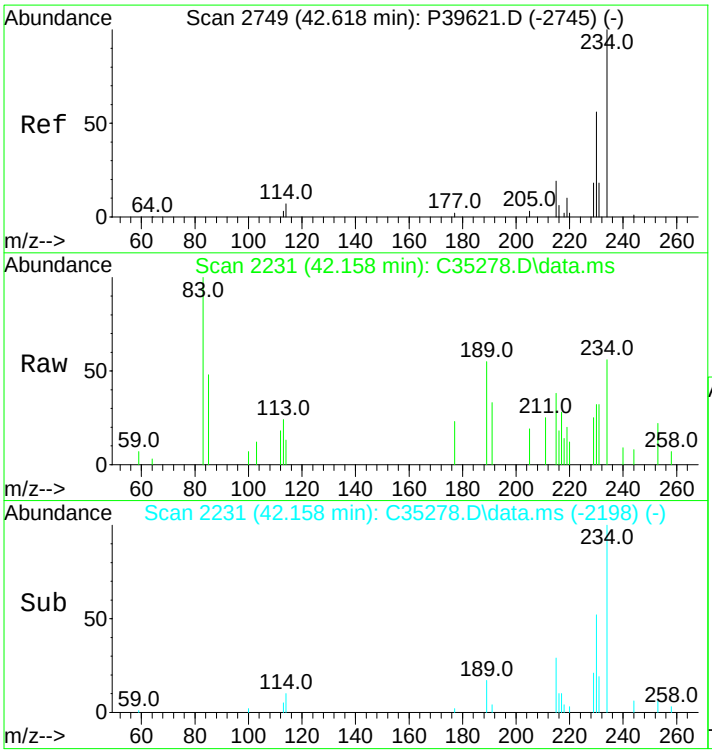


#67
Naphthobenzothiophene-2,1-D
Concen: 152.78 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:234 Resp: 16926

Ion	Ratio	Lower	Upper
234	100		
189	23.2	20.9	31.3

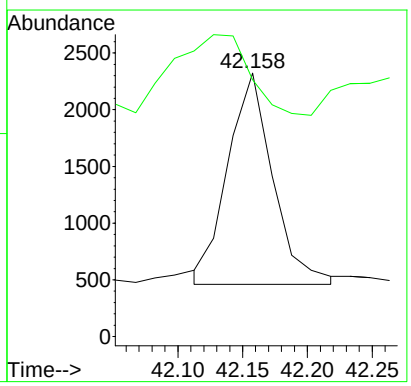


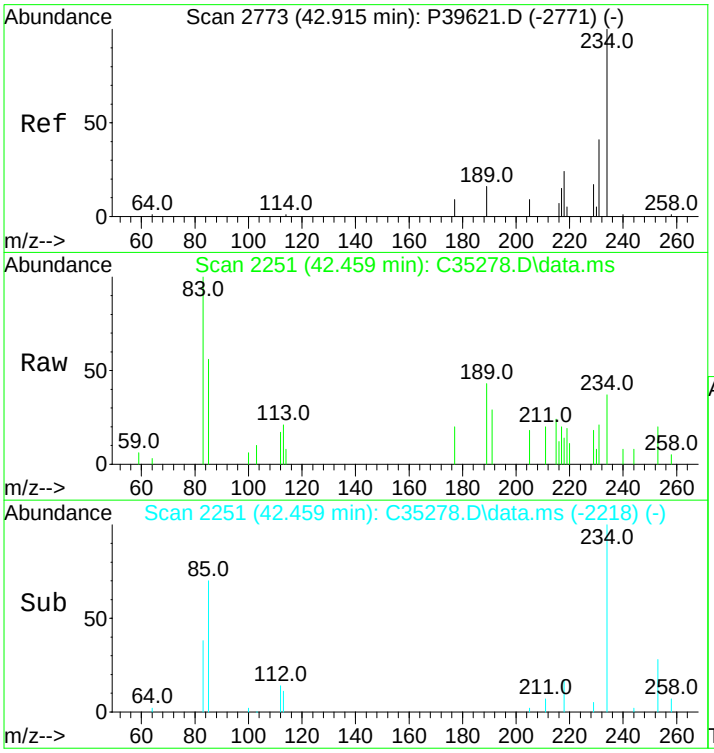


#68
Naphthobenzothiophene-1,2-D
Concen: 40.70 ng/mL m
RT: 42.158 min Scan# 2231
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:234 Resp: 4509

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

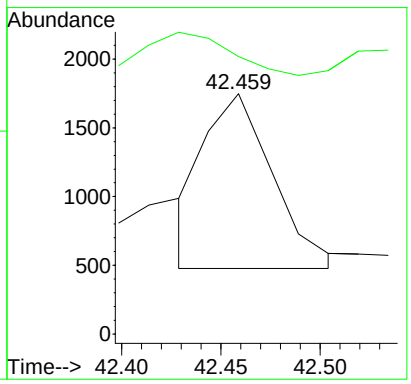


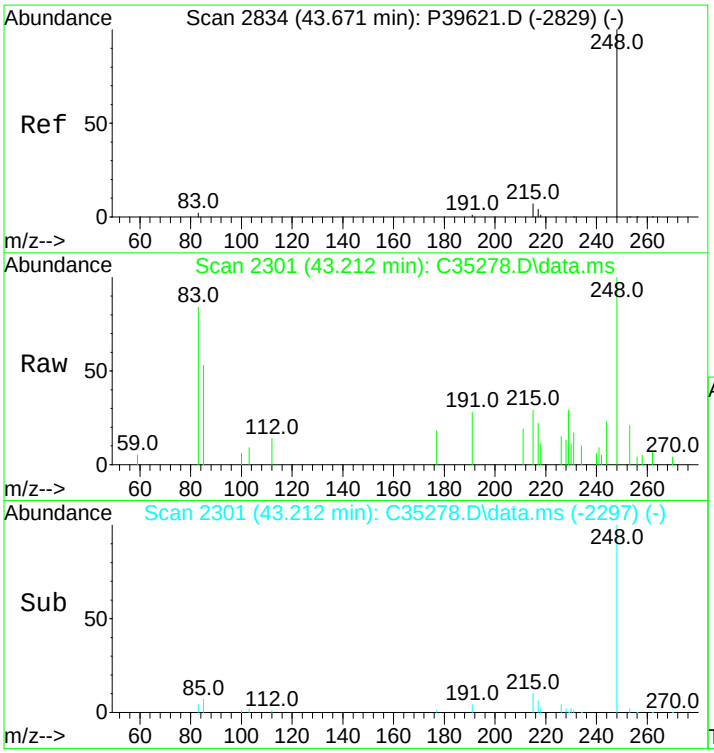


#69
Naphthobenzothiophene-2,3-D
Concen: 27.68 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:234 Resp: 3067

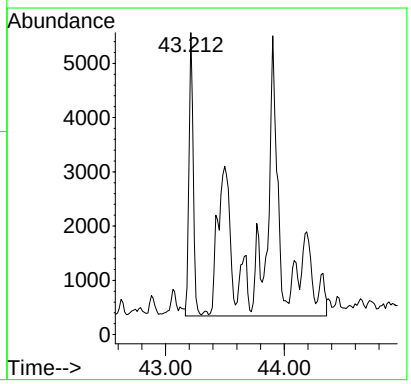
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

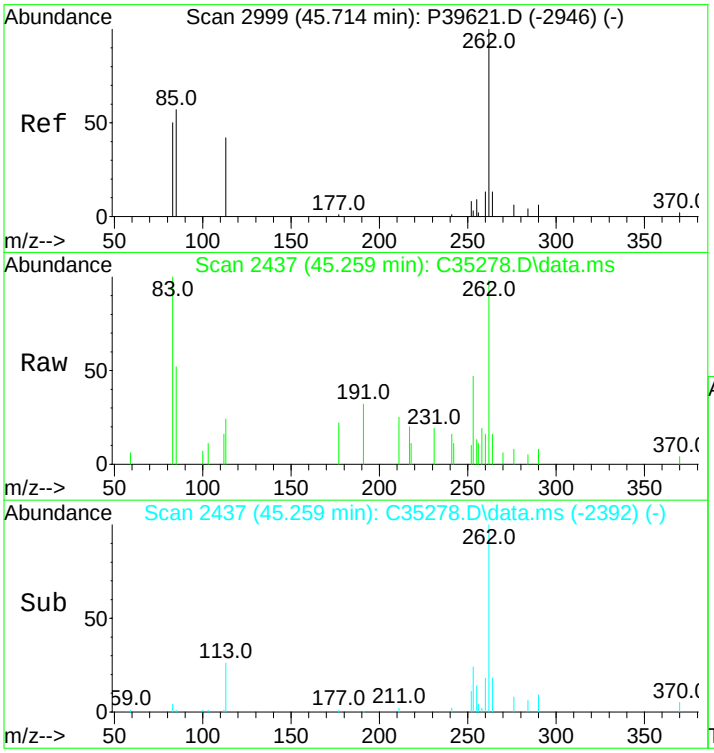




#70
C1-Naphthobenzothiophenes
Concen: 726.32 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

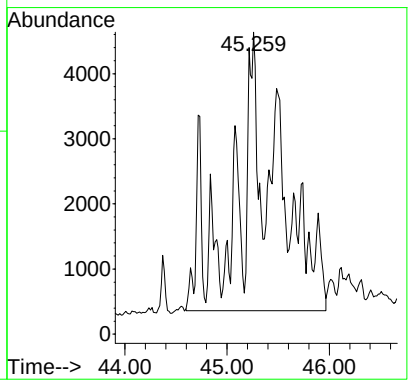
Tgt Ion:248 Resp: 80467

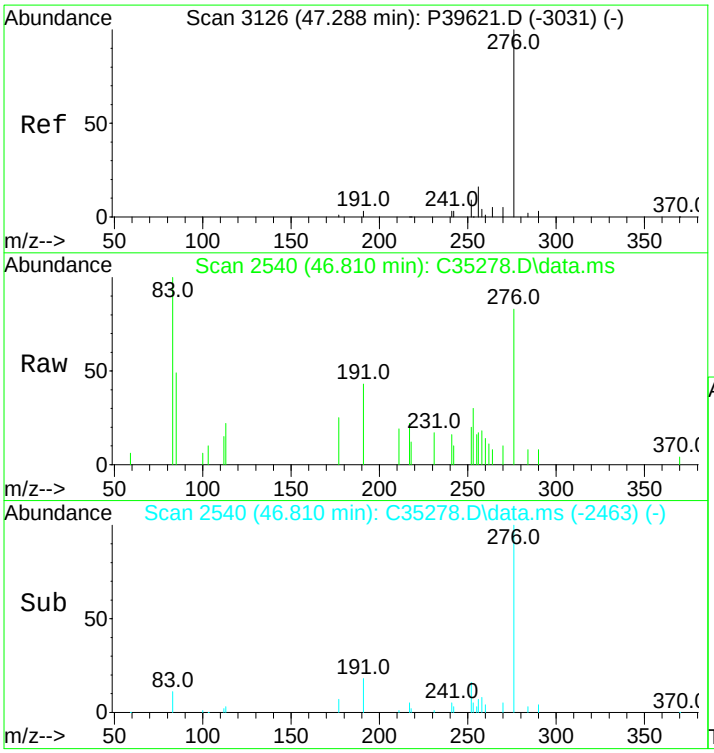




#71
C2-Naphthobenzothiophenes
Concen: 1074.67 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. 0.392 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

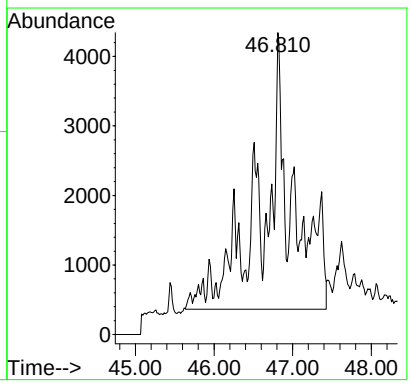
Tgt Ion:262 Resp: 119061

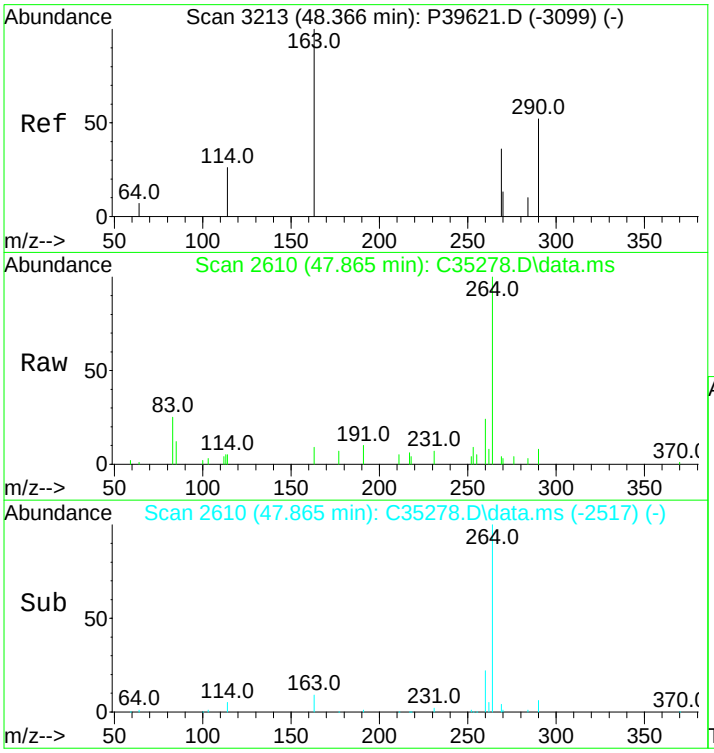




#72
C3-Naphthobenzothiophenes
Concen: 970.00 ng/ml m
RT: 46.810 min Scan# 2540
Delta R.T. 0.358 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

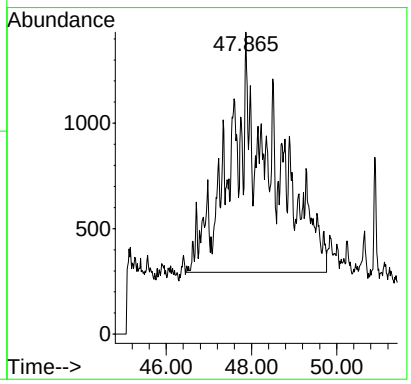
Tgt Ion:276 Resp: 107464

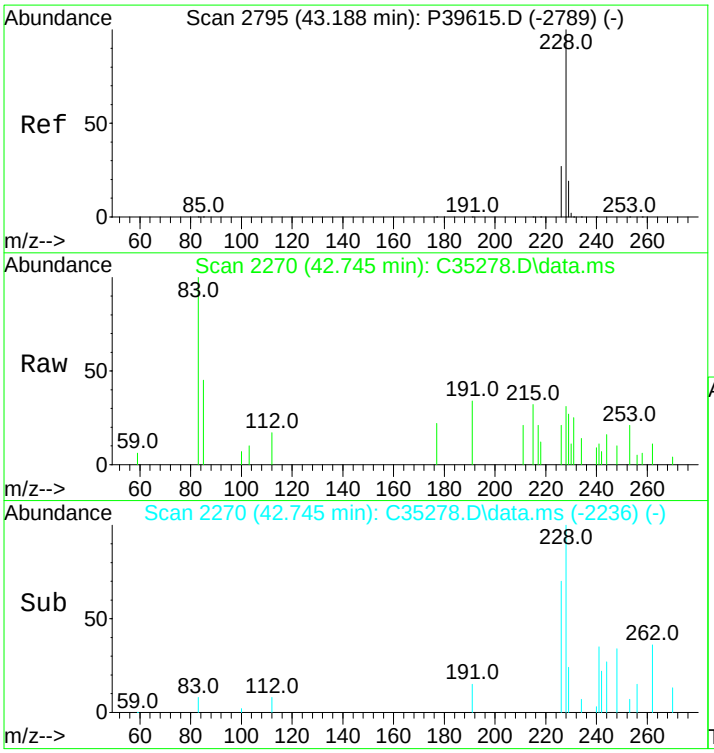




#73
C4-Naphthobenzothiophenes
Concen: 696.75 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:290 Resp: 77191

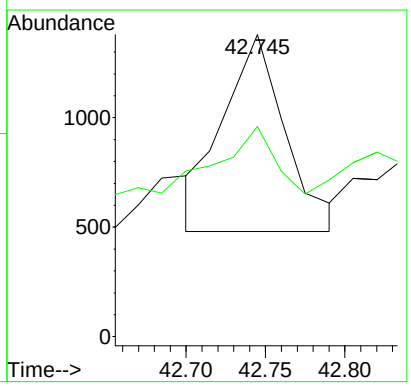


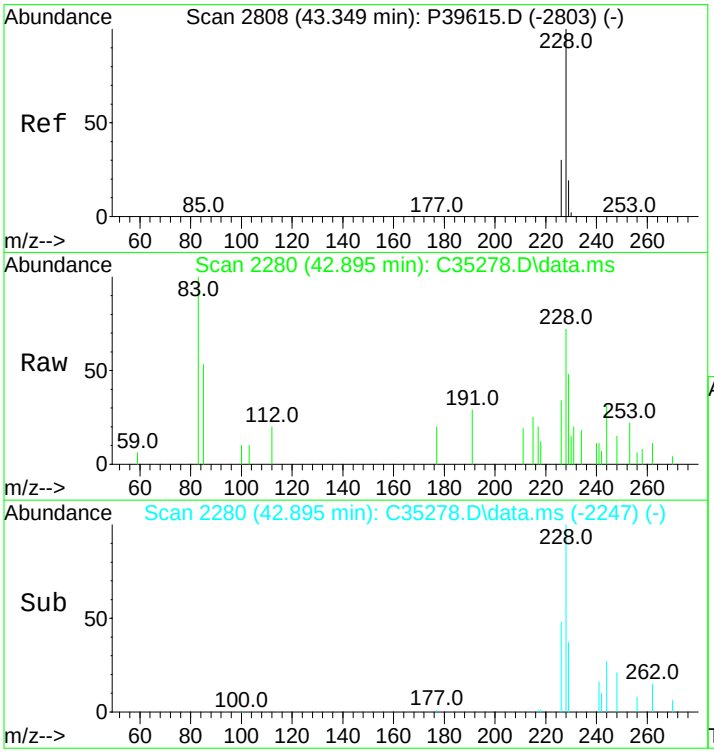


#75
Benz[a]anthracene
Concen: 22.05 ng/mL m
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:228 Resp: 2458

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.5	32.3#

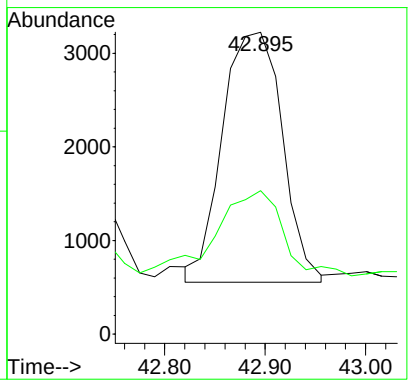


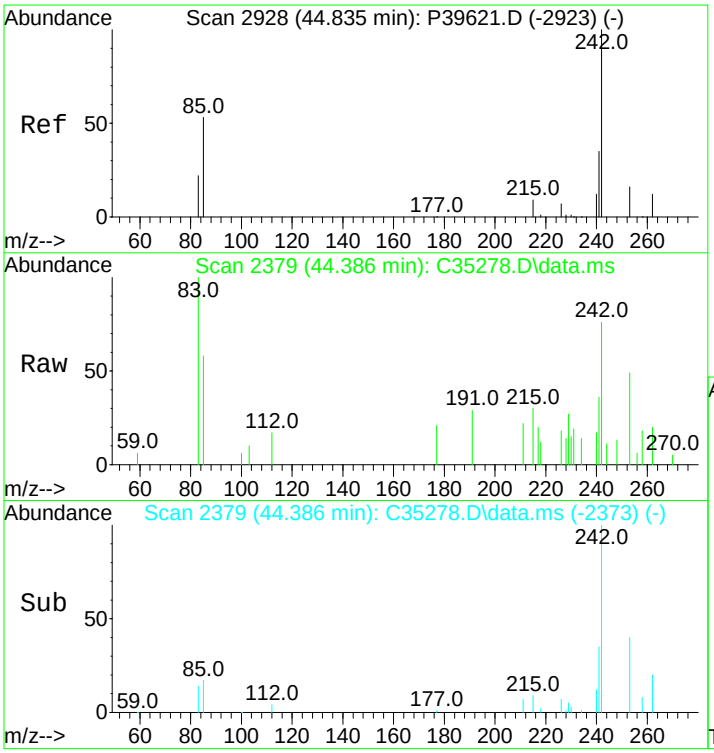


#77
Chrysene/Triphenylene
Concen: 98.05 ng/mL m
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:228 Resp: 11034

Ion	Ratio	Lower	Upper
228	100		
226	33.4	23.5	35.3

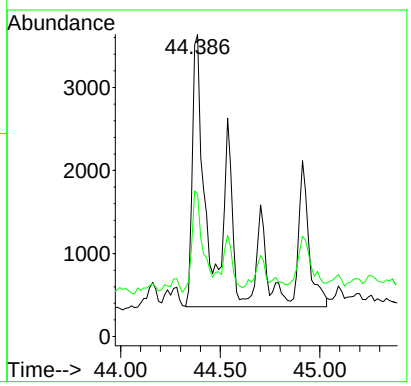


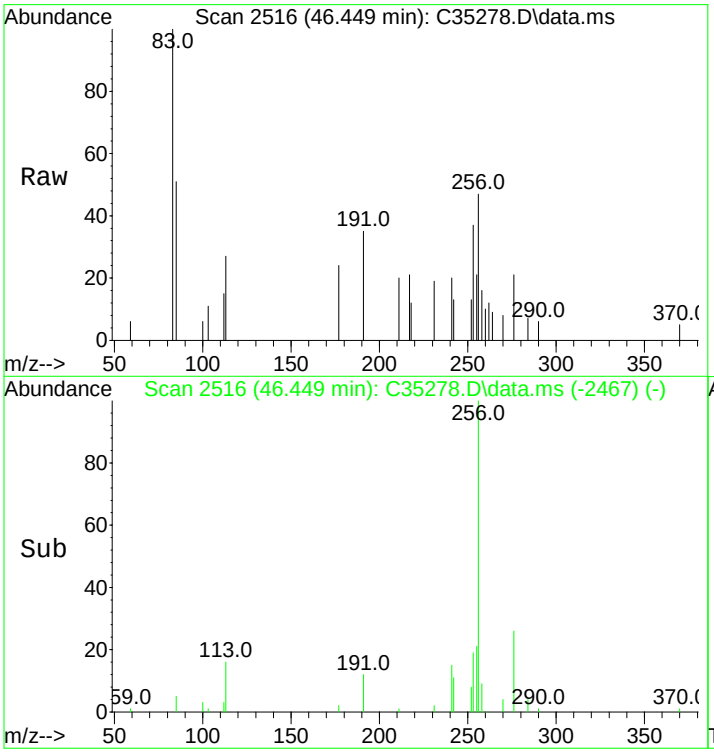


#78
C1-Chrysenes
Concen: 264.78 ng/mL m
RT: 44.386 min Scan# 2379
Delta R.T. 0.046 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:242 Resp: 29796

Ion	Ratio	Lower	Upper
242	100		
241	11.9	32.7	49.1#

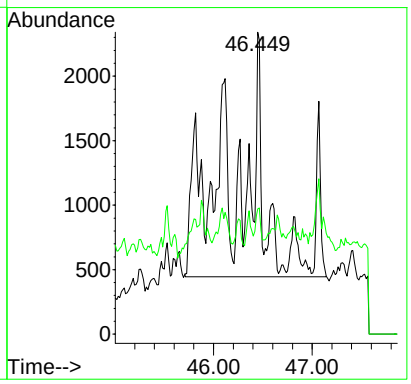


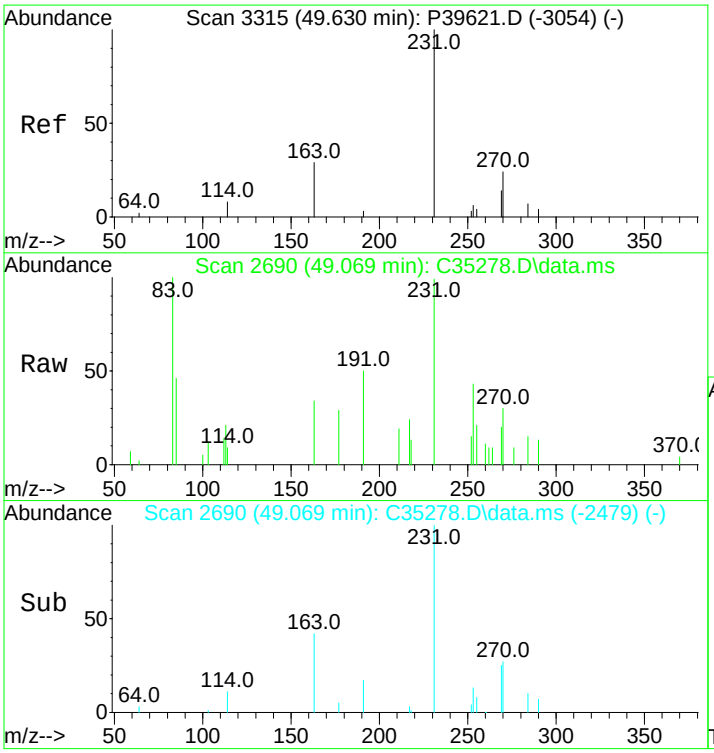


#79
C2-Chrysenes
Concen: 387.30 ng/mL m
RT: 46.449 min Scan# 2516
Delta R.T. 0.052 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:256 Resp: 43584

Ion	Ratio	Lower	Upper
256	100		
241	1.7	30.9	46.3#

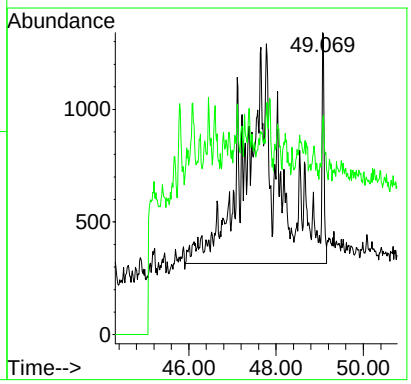


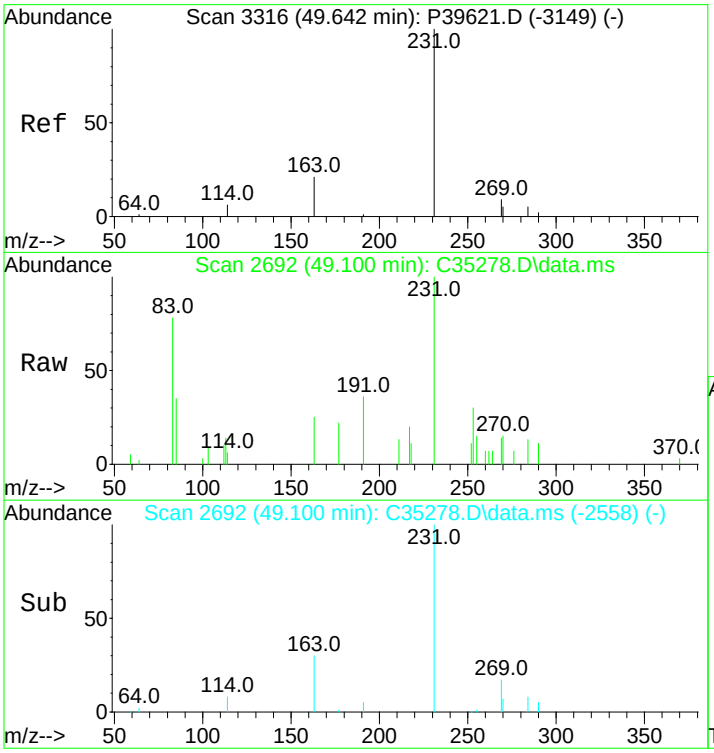


#80
C3-Chrysenes
Concen: 494.64 ng/mL m
RT: 49.069 min Scan# 2690
Delta R.T. -0.012 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:270 Resp: 55663

Ion	Ratio	Lower	Upper
270	100		
255	2.1	41.4	62.2#

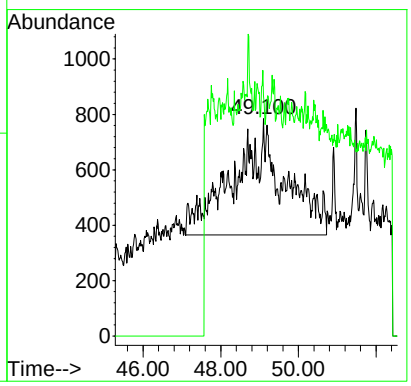


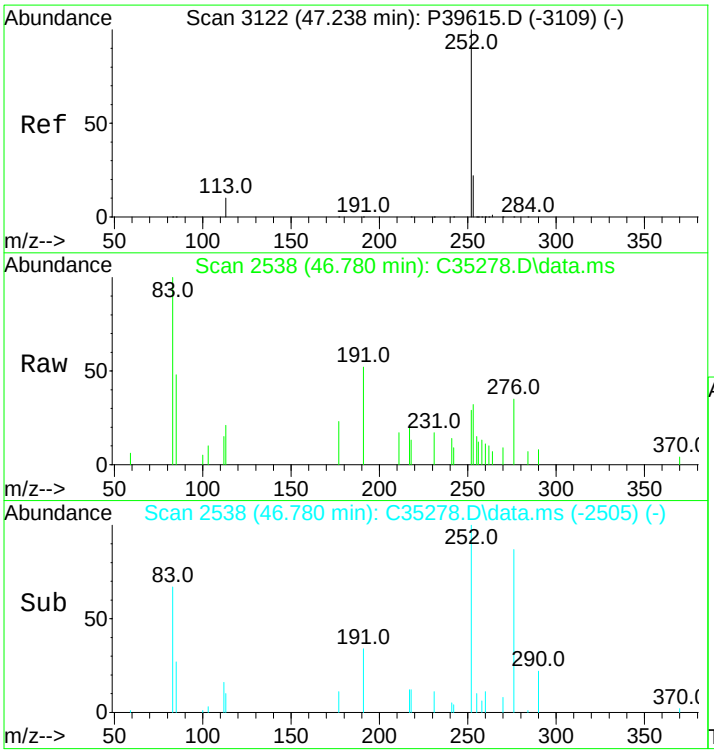


#81
C4-Chrysenes
Concen: 333.92 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. -0.085 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:284 Resp: 37577

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

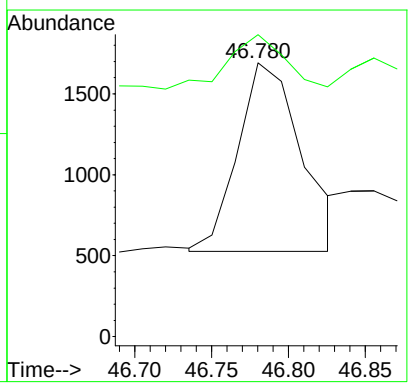


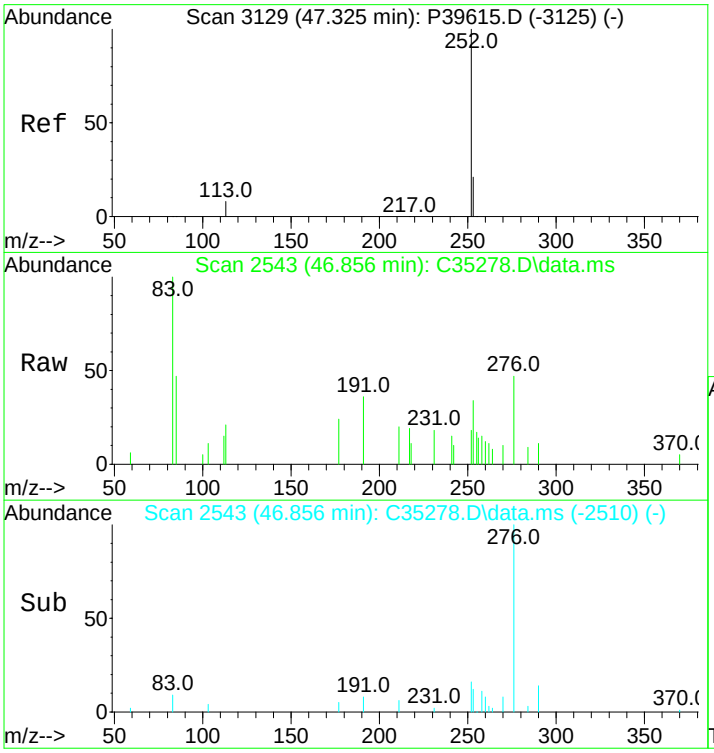


#82
Benzo[b]fluoranthene
Concen: 27.49 ng/mL m
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:252 Resp: 3367

Ion	Ratio	Lower	Upper
252	100		
253	42.8	20.4	30.6#

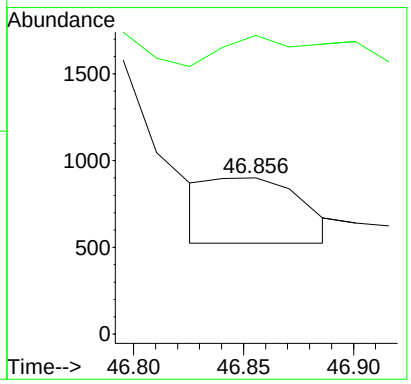


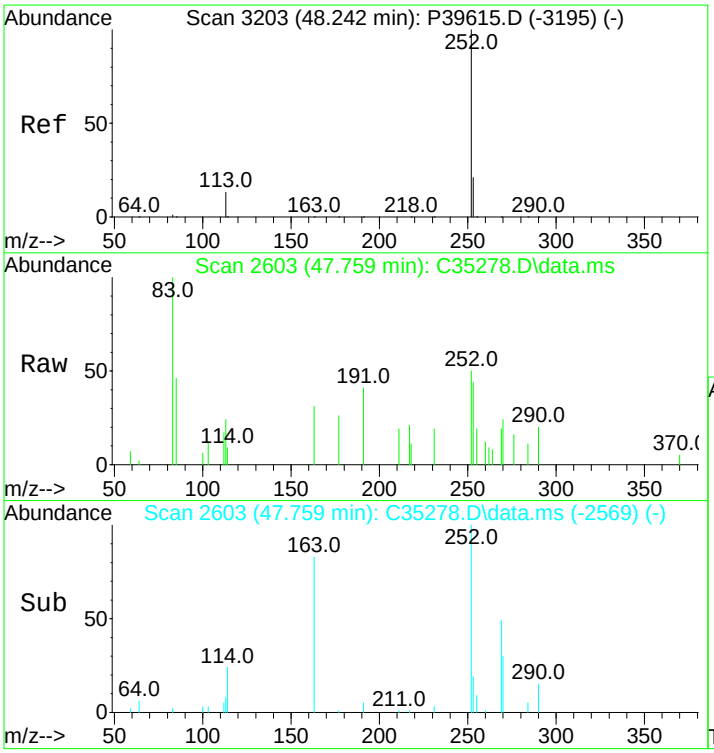


#83
Benzo[j]+[k]fluoranthene
Concen: 8.19 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:252 Resp: 1092

Ion	Ratio	Lower	Upper
252	100		
253	132.0	20.6	31.0#

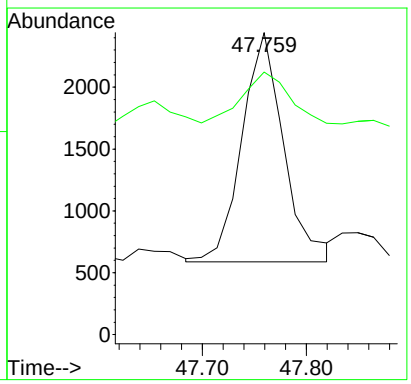


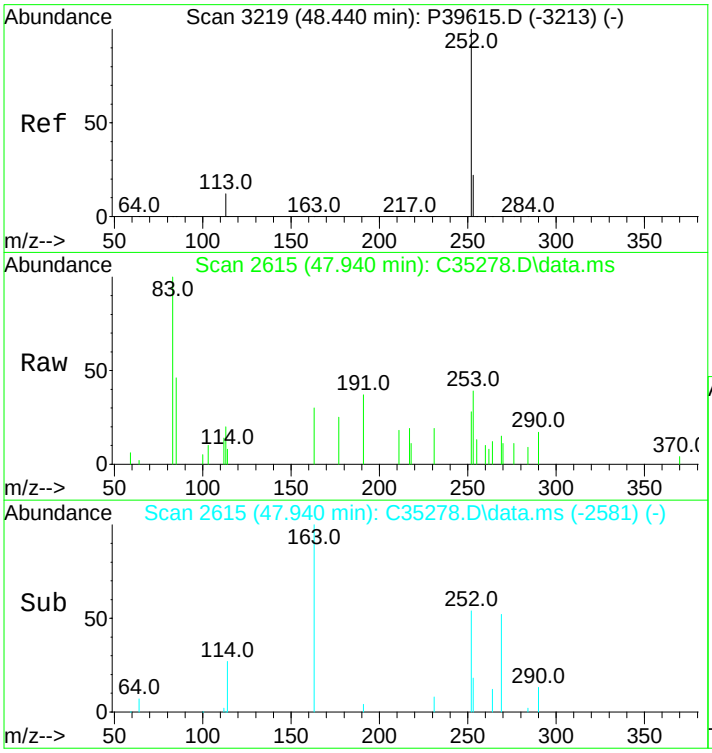


#85
Benzo[e]pyrene
Concen: 42.82 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:252 Resp: 5187

Ion	Ratio	Lower	Upper
252	100		
253	31.5	21.0	31.6

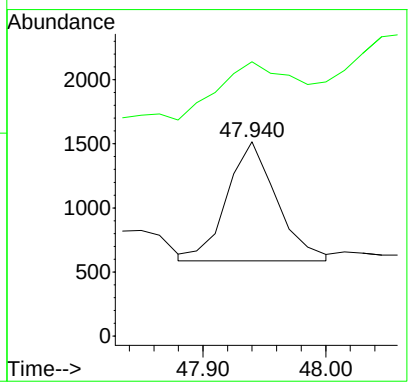


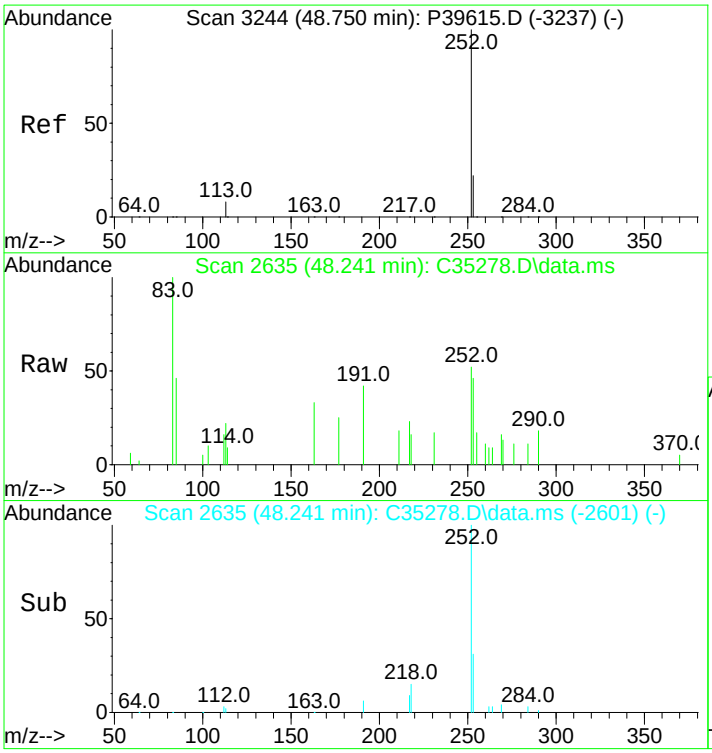


#87
Benzo[a]pyrene
Concen: 22.49 ng/mL m
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:252 Resp: 2623

Ion	Ratio	Lower	Upper
252	100		
253	74.8	21.4	32.0#

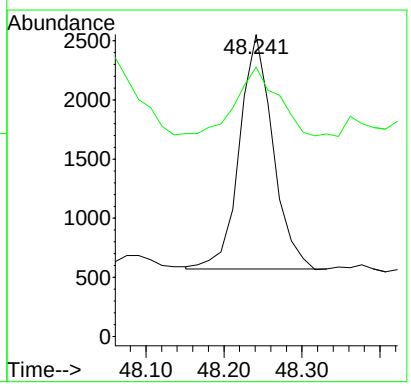


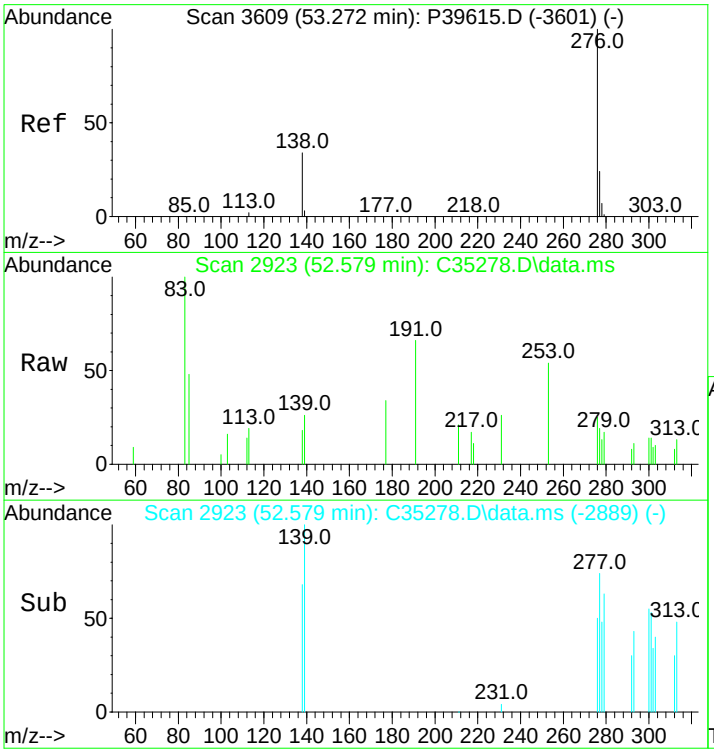


#88
Perylene
Concen: 47.20 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:252 Resp: 5883

Ion	Ratio	Lower	Upper
252	100		
253	36.1	21.8	32.6#

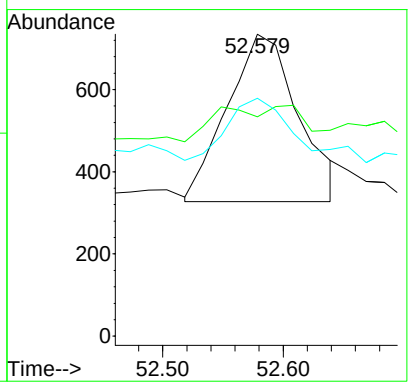


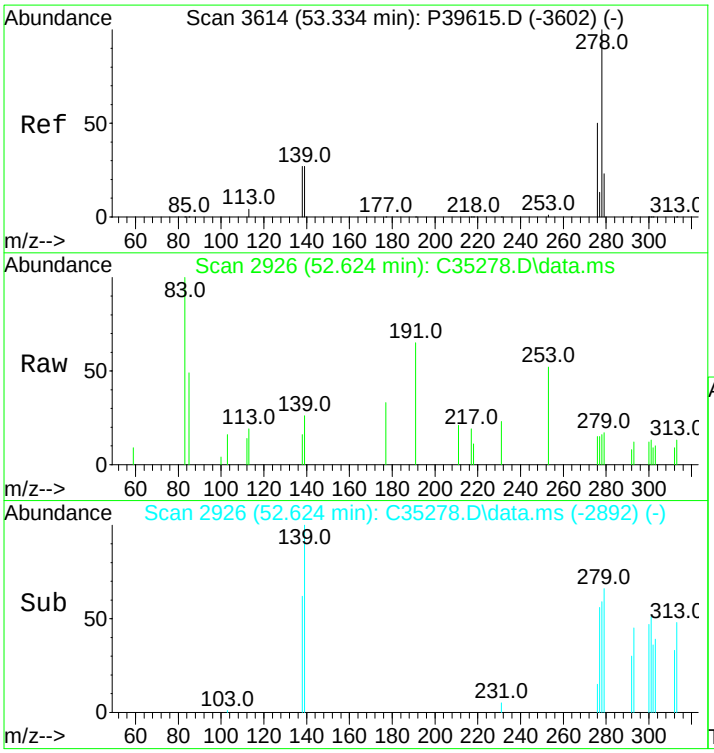


#89
Indeno[1,2,3-cd]pyrene
Concen: 12.33 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:276 Resp: 1673

Ion	Ratio	Lower	Upper
276	100		
138	0.0	19.1	28.7#
277	86.8	19.5	29.3#

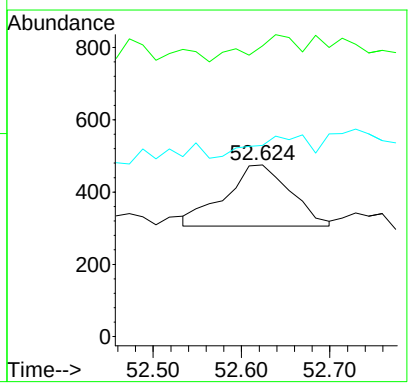


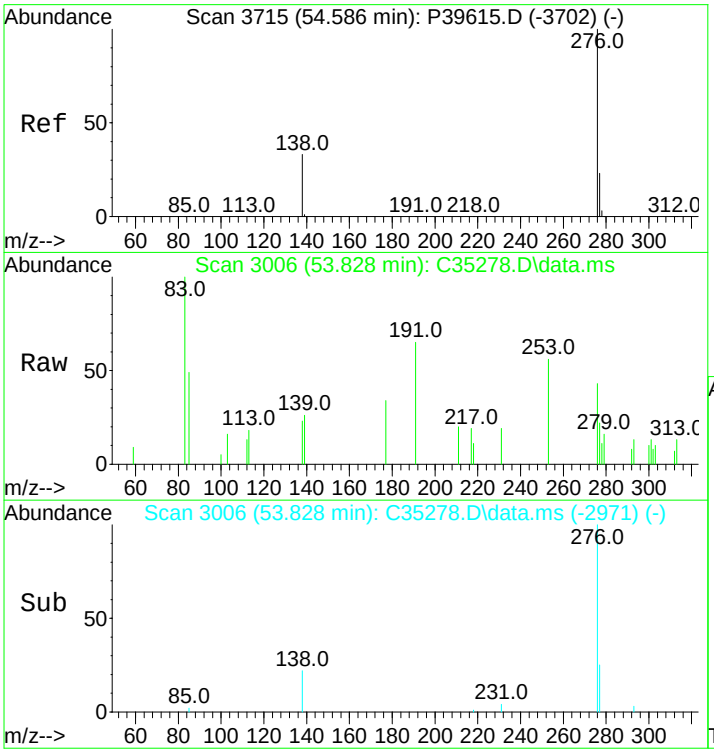


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.70 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:278 Resp: 865

Ion	Ratio	Lower	Upper
278	100		
139	0.0	16.6	25.0#
279	0.0	20.0	30.0#

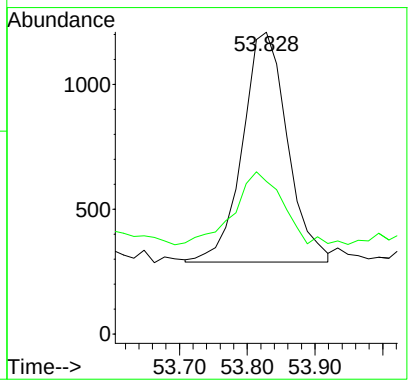


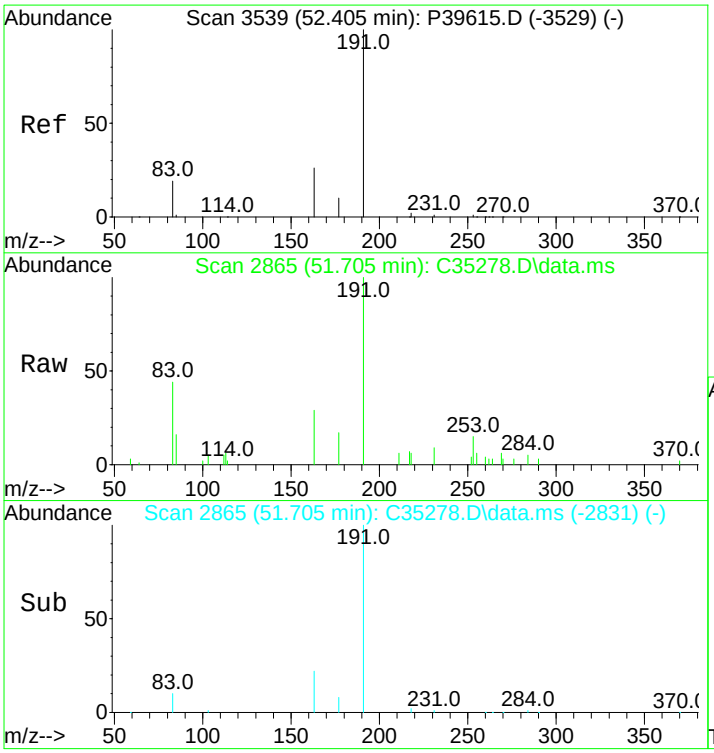


#91
Benzo[g,h,i]perylene
Concen: 29.62 ng/mL m
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:276 Resp: 4247

Ion	Ratio	Lower	Upper
276	100		
277	36.6	18.8	28.2#

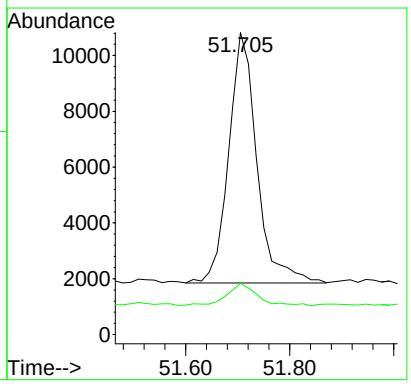


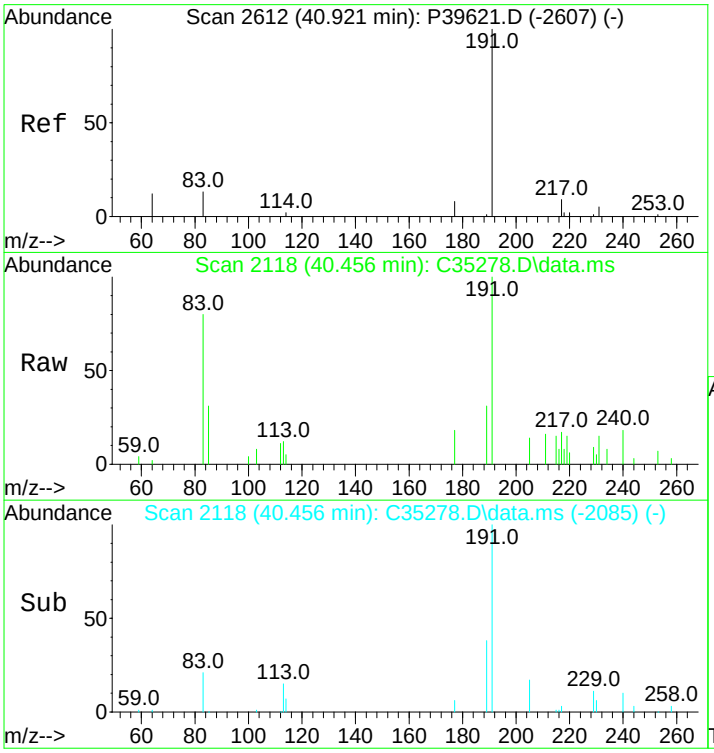


#92
Hopane (T19)
Concen: 1463.84 ng/mL
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:191 Resp: 33881

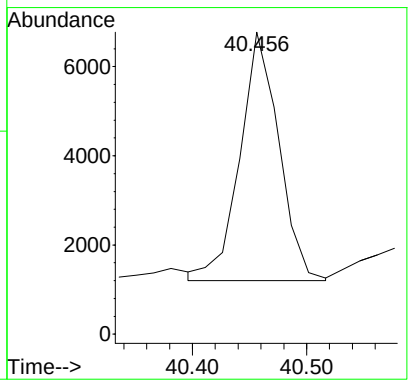
Ion	Ratio	Lower	Upper
191	100		
177	9.5	17.2	25.8#

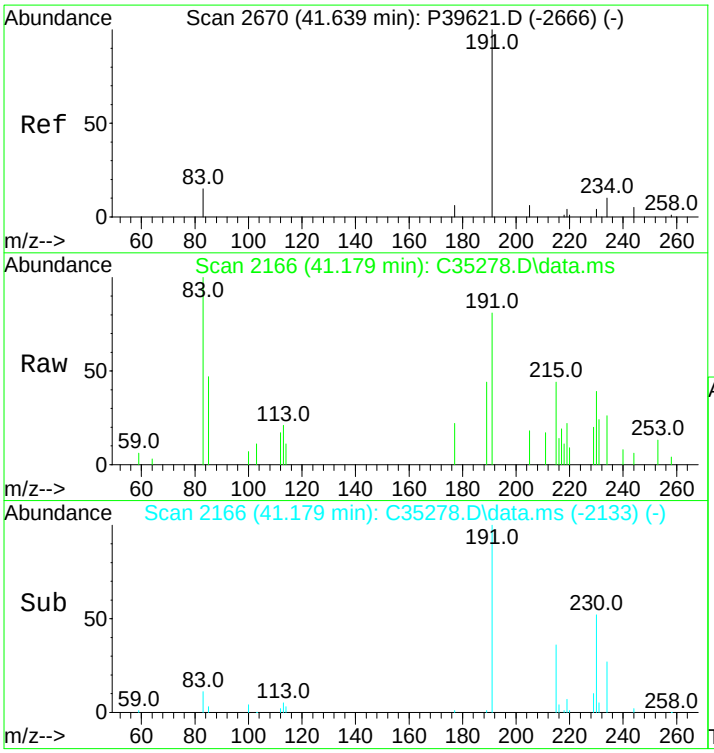




#94
C23 Tricyclic Terpane (T4)
Concen: 570.96 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

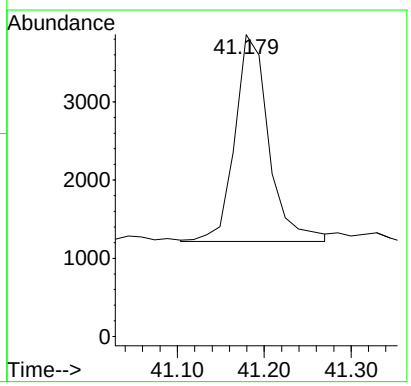
Tgt Ion:191 Resp: 13215

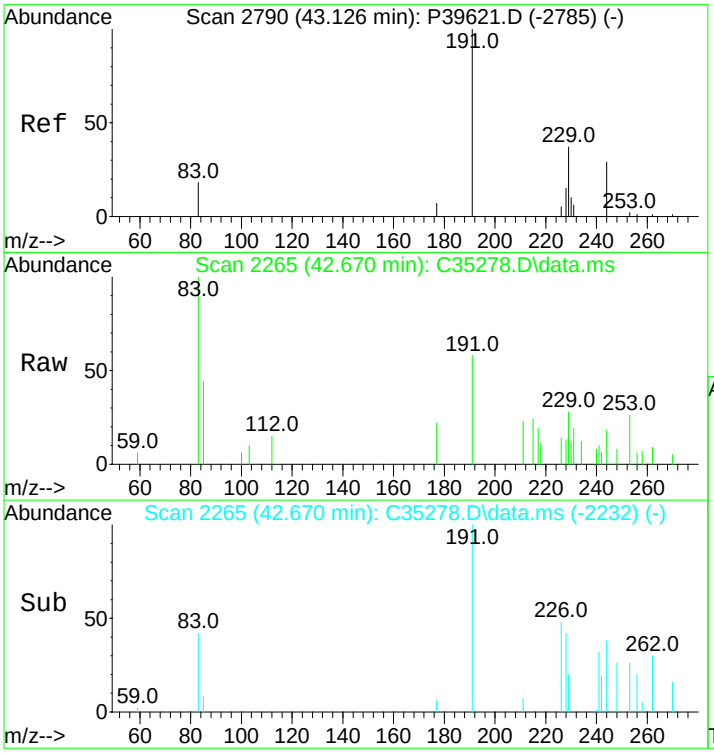




#95
C24 Tricyclic Terpane (T5)
Concen: 312.12 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

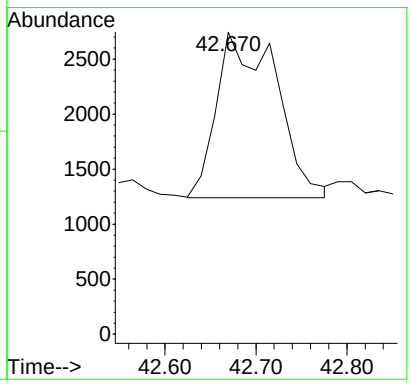
Tgt Ion:191 Resp: 7224

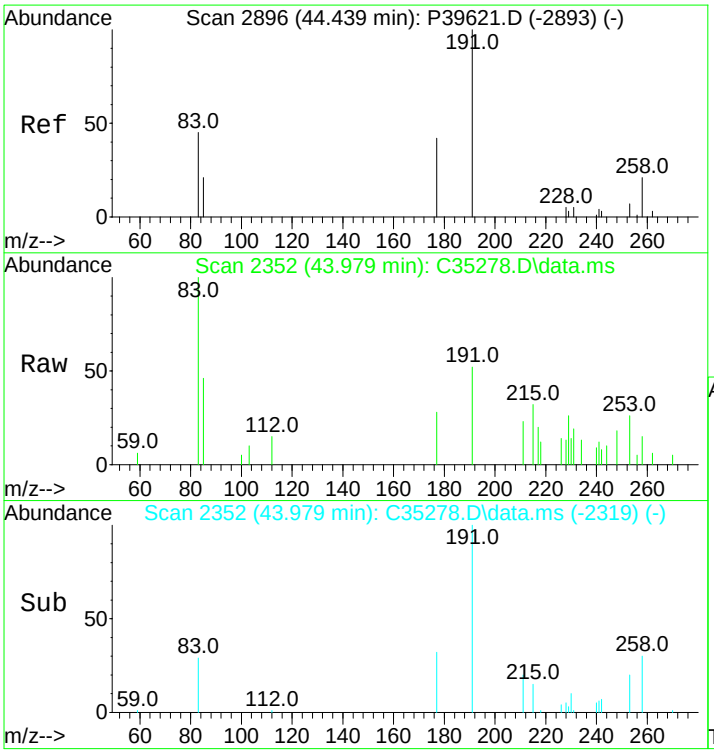




#96
C25 Tricyclic Terpane (T6)
Concen: 296.61 ng/ml m
RT: 42.670 min Scan# 2265
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

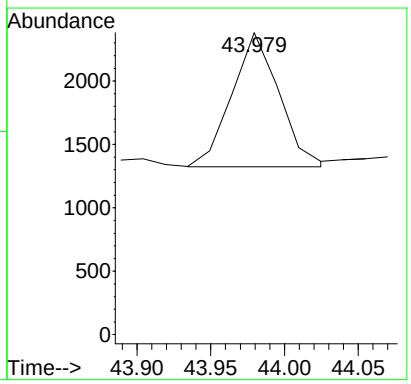
Tgt Ion:191 Resp: 6865

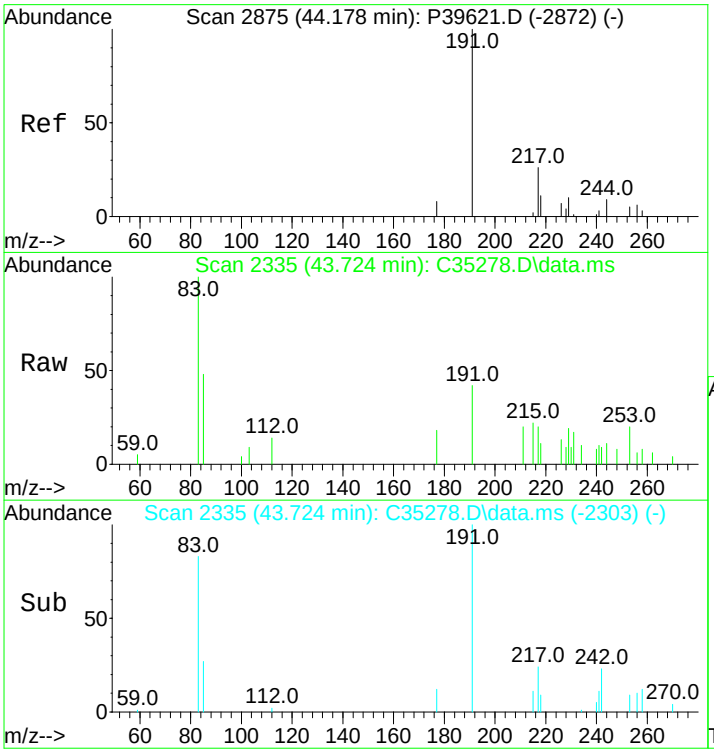




#97
C24 Tetracyclic Terpane (T6a)
Concen: 101.71 ng/ml m
RT: 43.979 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

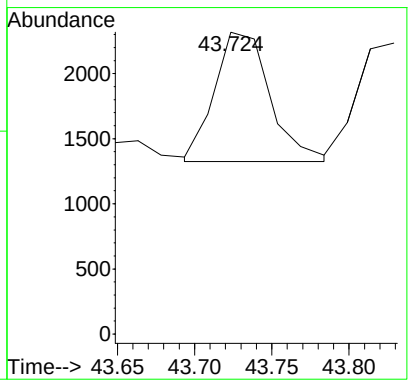
Tgt Ion:191 Resp: 2354

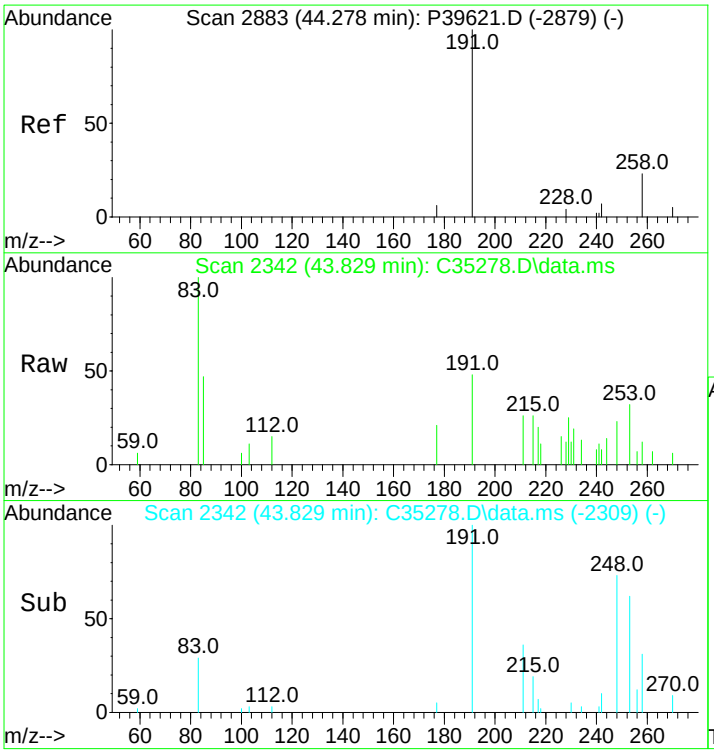




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 107.67 ng/ml m
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

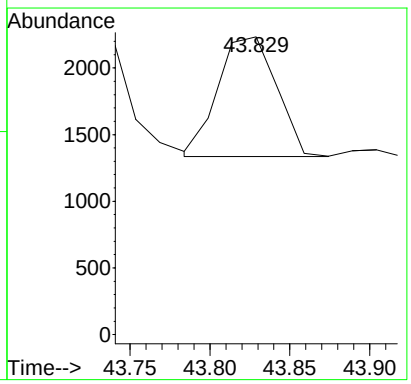
Tgt Ion:191 Resp: 2492

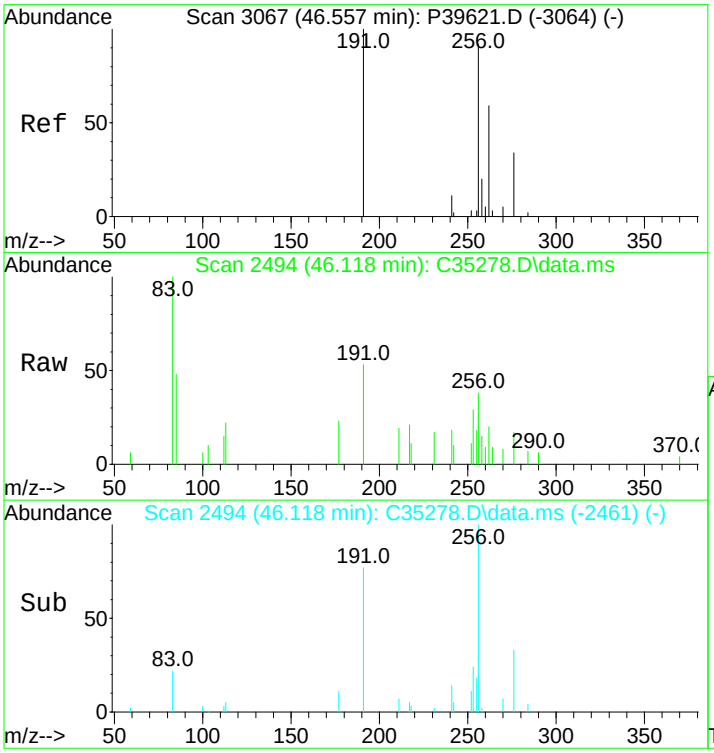




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 99.11 ng/ml m
RT: 43.829 min Scan# 2342
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

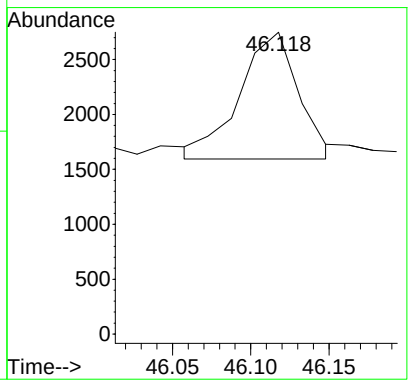
Tgt Ion:191 Resp: 2294

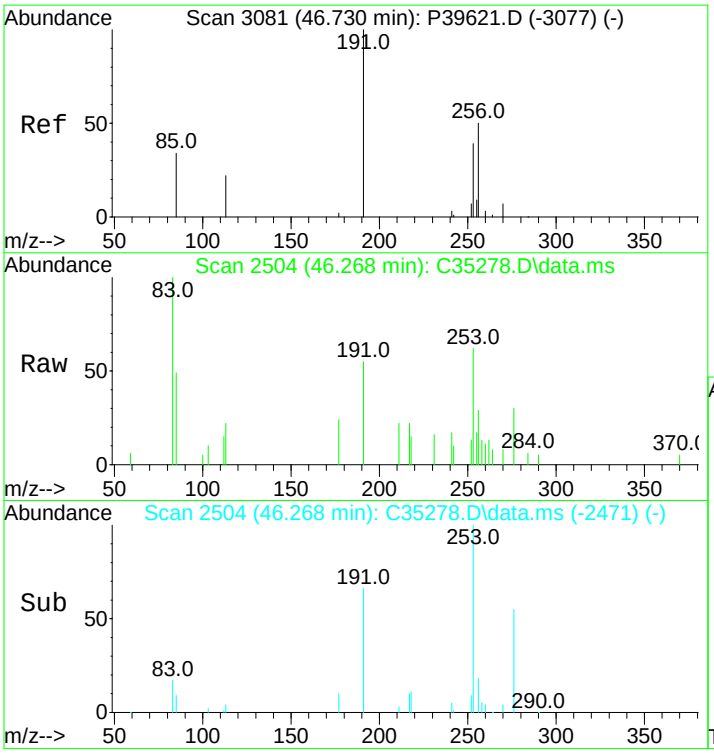




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 130.18 ng/ml m
RT: 46.118 min Scan# 2494
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

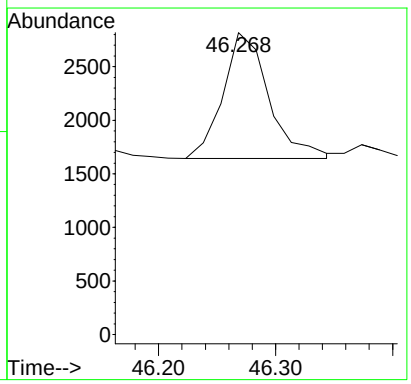
Tgt Ion:191 Resp: 3013

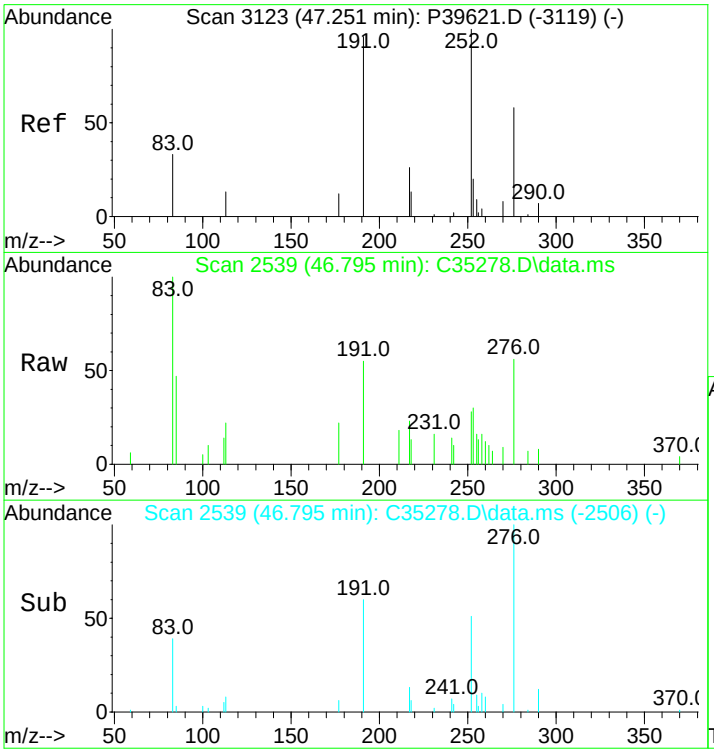




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 139.25 ng/ml
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

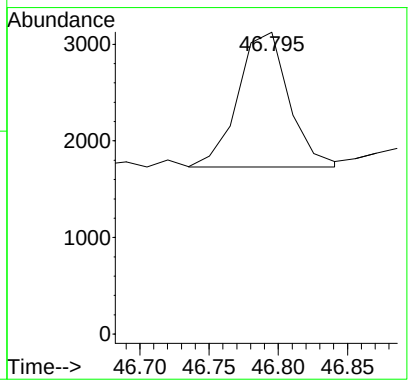
Tgt Ion:191 Resp: 3223

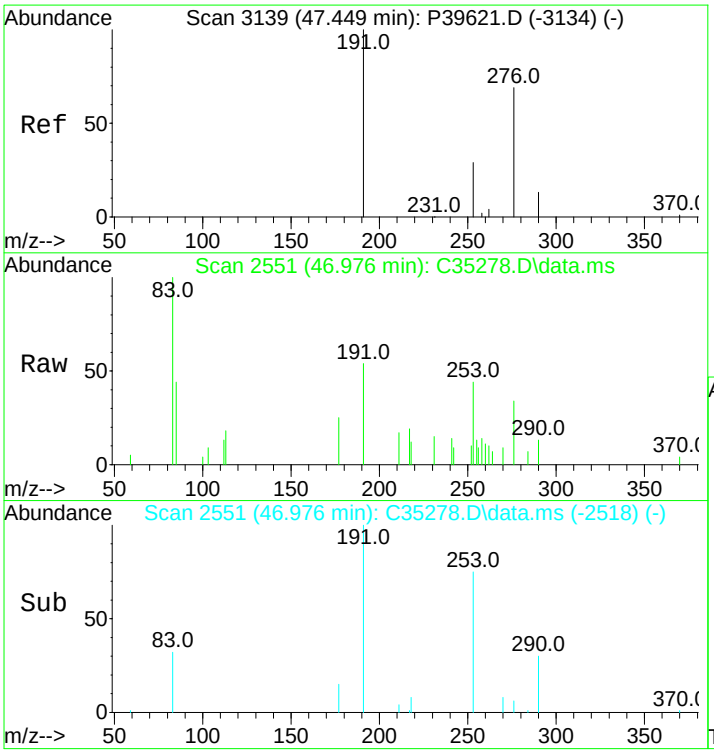




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 154.50 ng/ml m
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

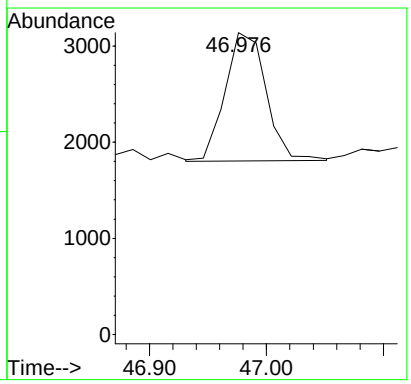
Tgt Ion:191 Resp: 3576

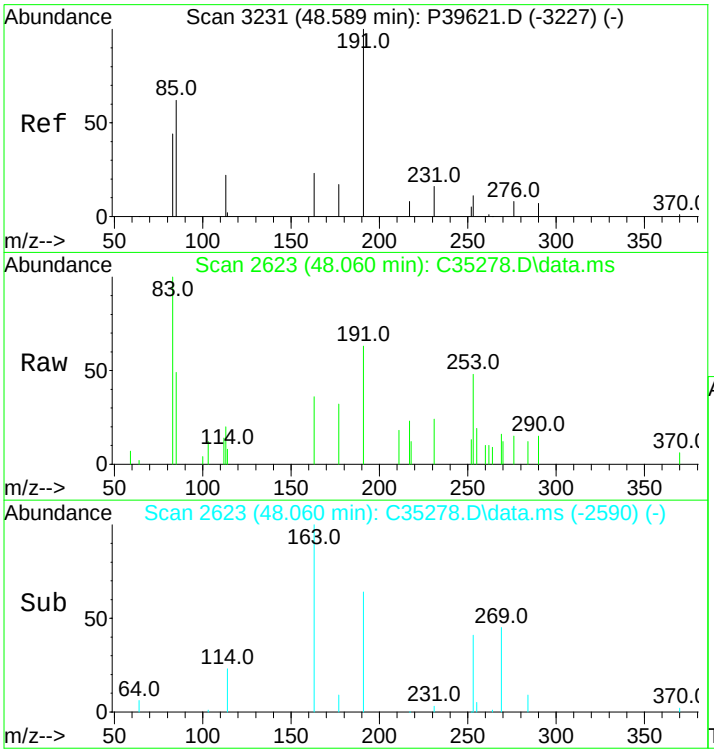




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 140.50 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

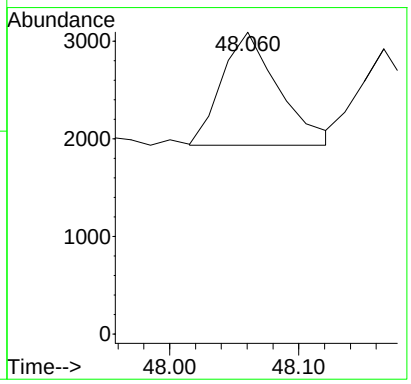
Tgt Ion:191 Resp: 3252

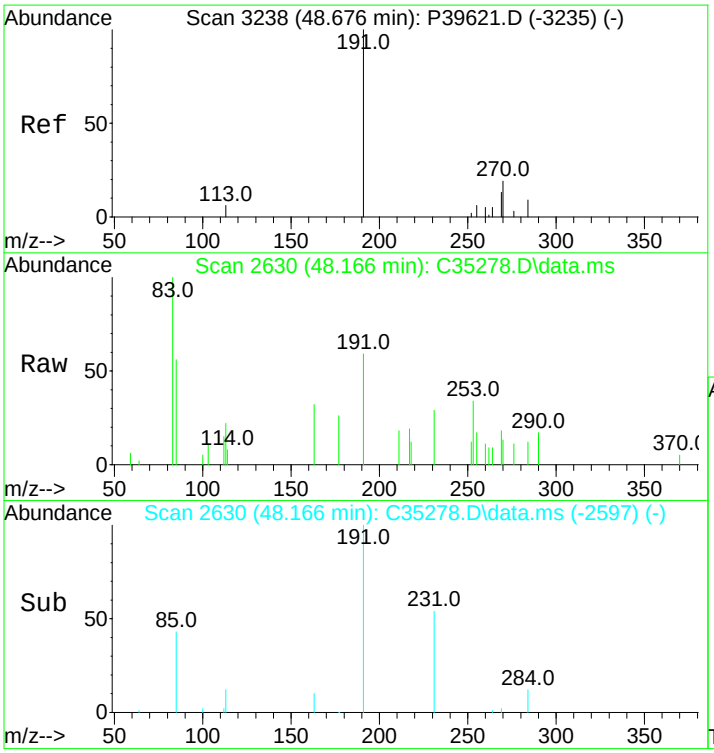




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 153.47 ng/ml m
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

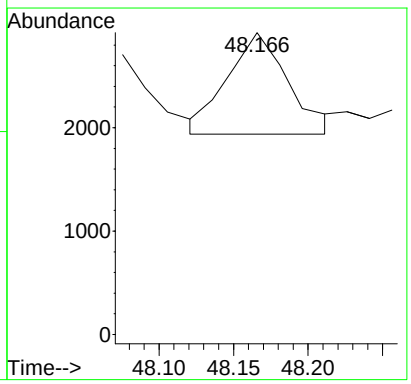
Tgt Ion:191 Resp: 3552

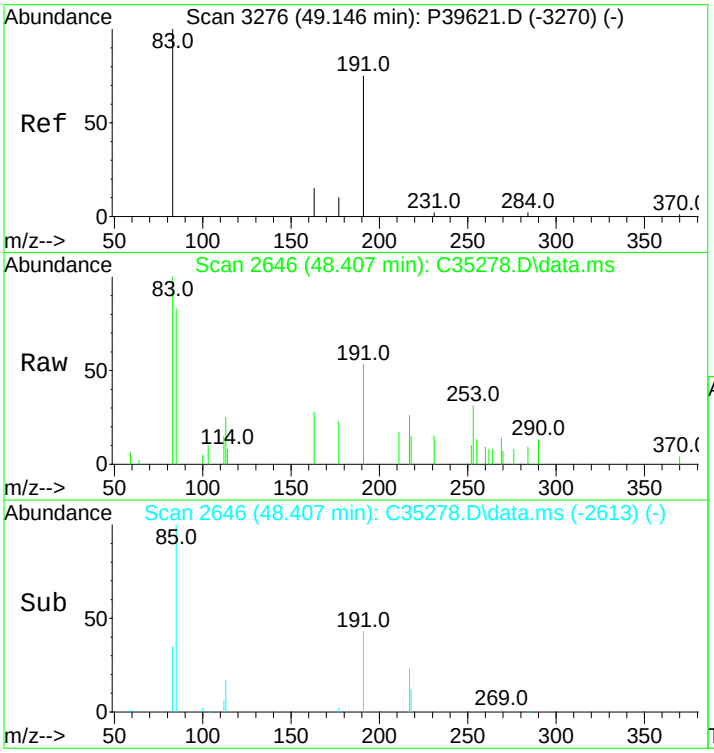




#105
C30 Tricyclic Terpane-22S
Concen: 119.94 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

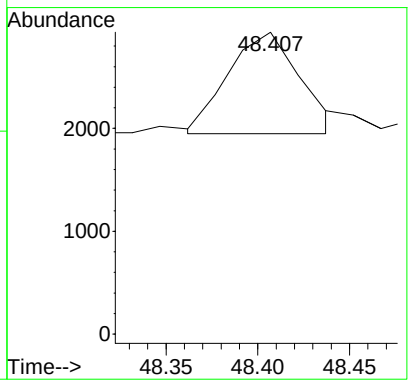
Tgt Ion:191 Resp: 2776

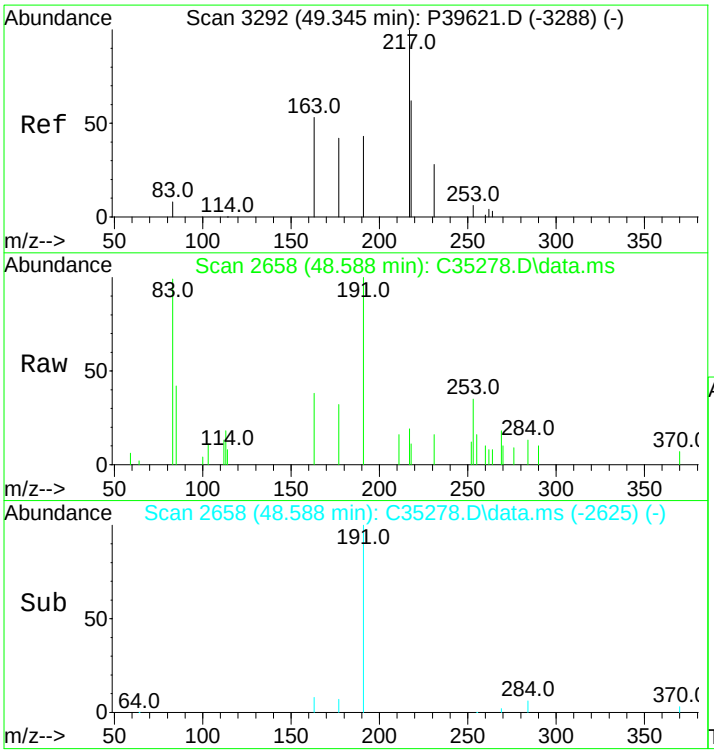




#106
C30 Tricyclic Terpane-22R
Concen: 115.88 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

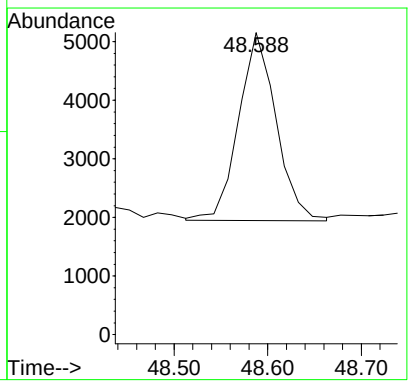
Tgt Ion:191 Resp: 2682

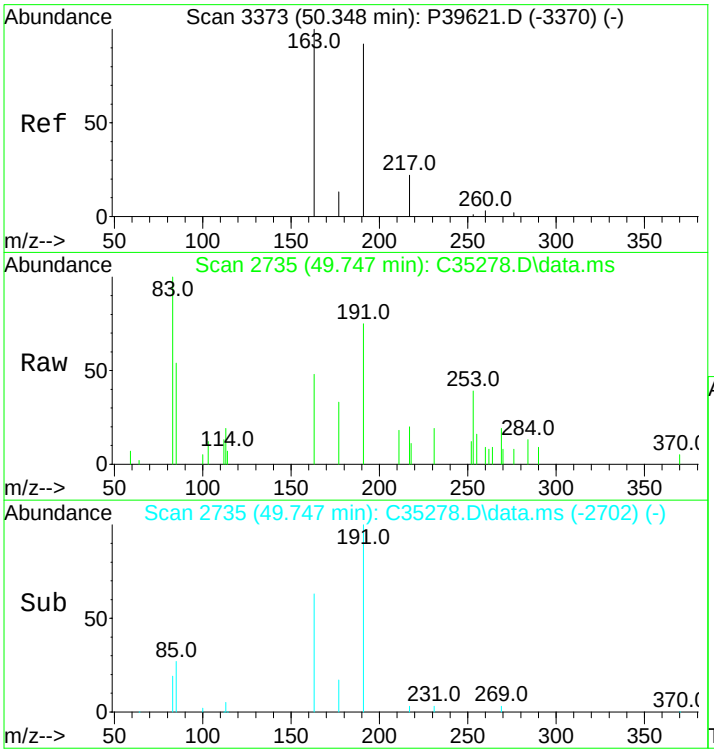




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 386.13 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

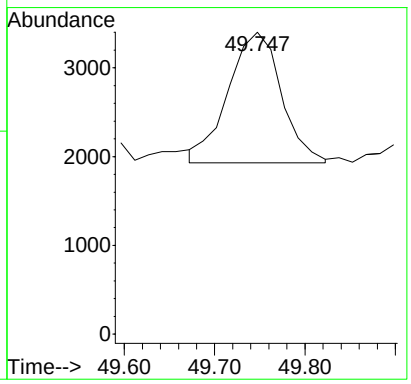
Tgt Ion:191 Resp: 8937

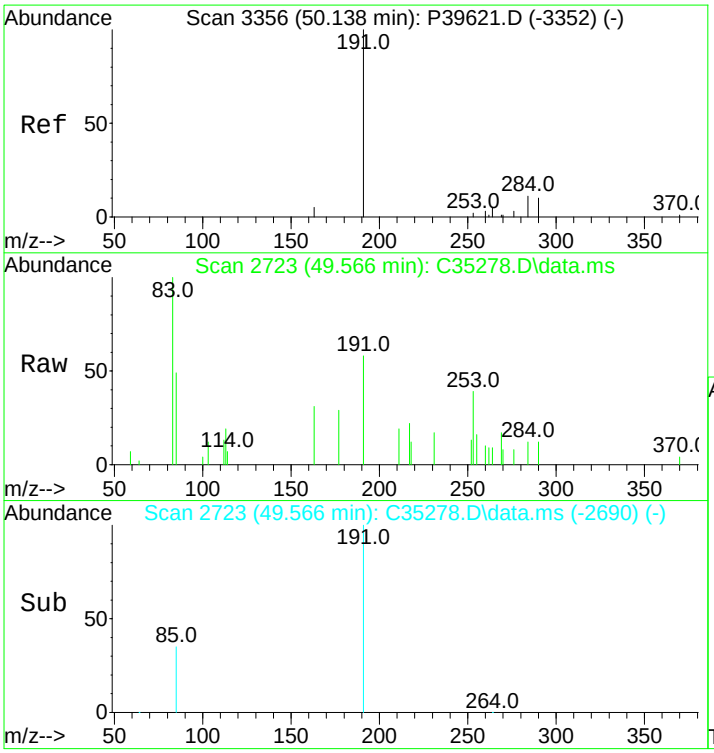




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 260.10 ng/ml m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

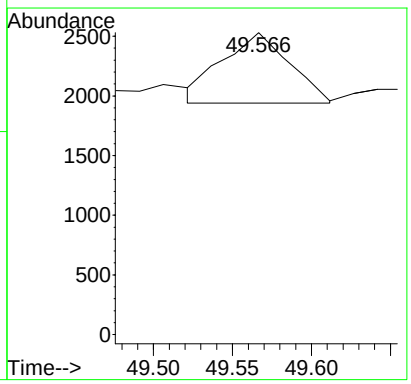
Tgt Ion:191 Resp: 6020

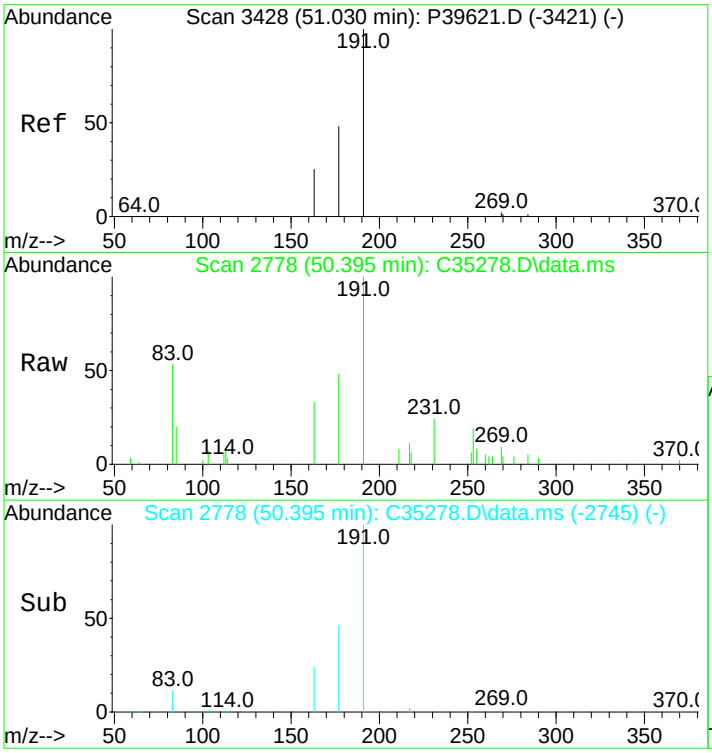




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 75.61 ng/ml m
RT: 49.566 min Scan# 2723
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

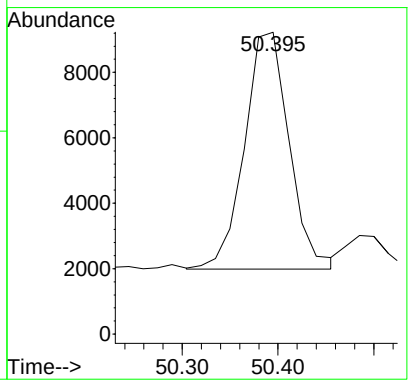
Tgt Ion:191 Resp: 1750

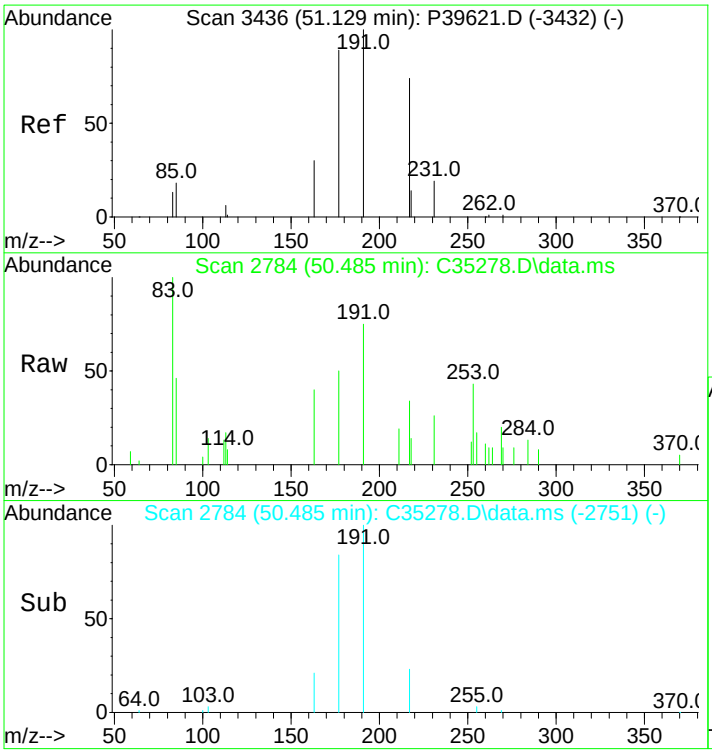




#110
30-Norhopane (T15)
Concen: 1015.72 ng/ml m
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

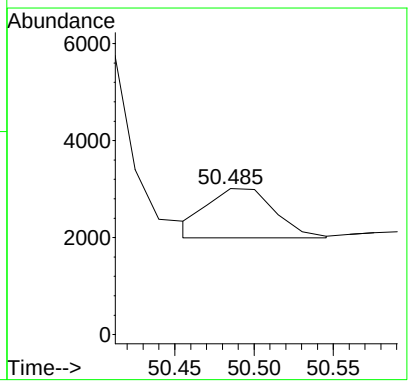
Tgt Ion:191 Resp: 23509

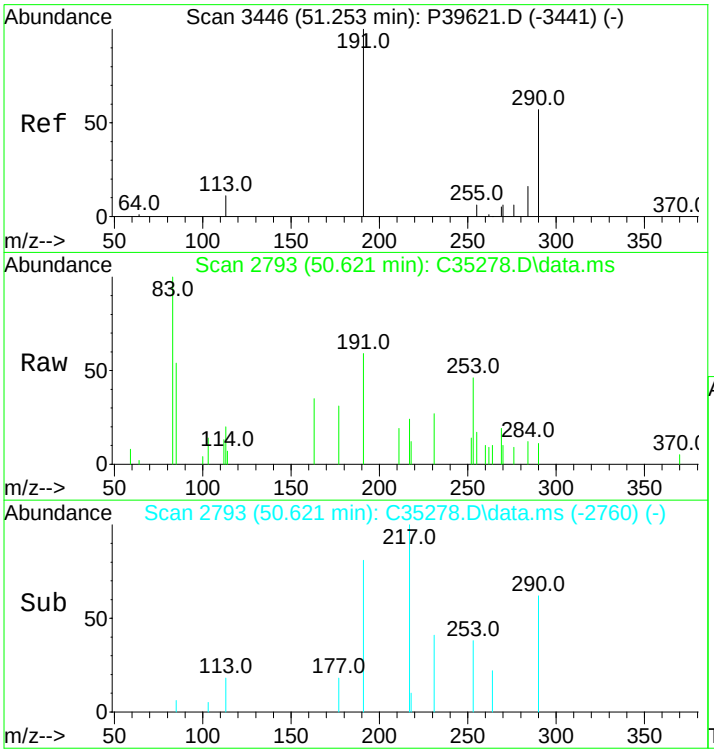




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 130.01 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

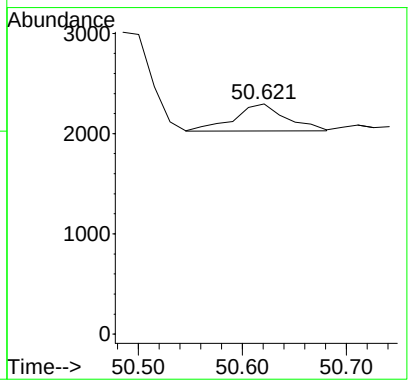
Tgt Ion:191 Resp: 3009

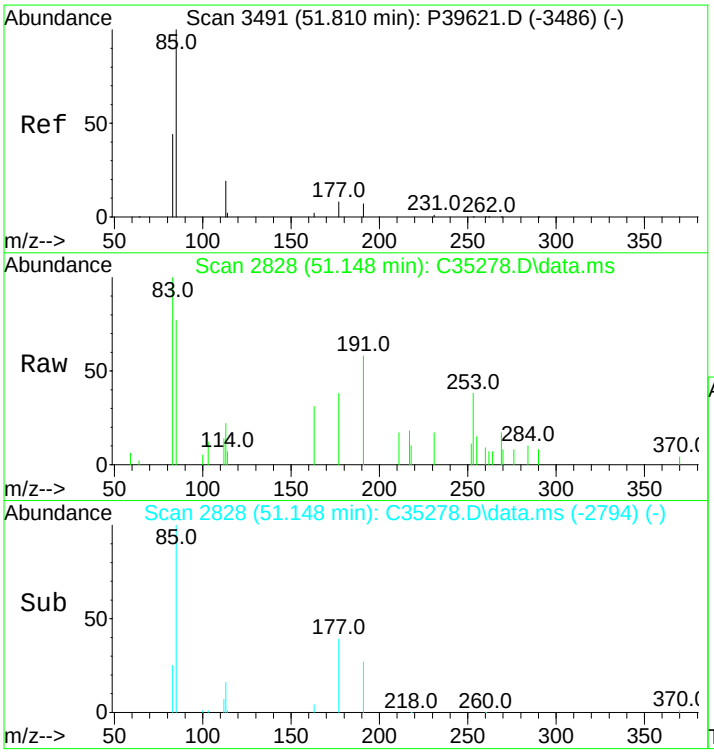




#112
17a(H)-Diahopane (X)
Concen: 40.96 ng/ml
RT: 50.621 min Scan# 2793
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

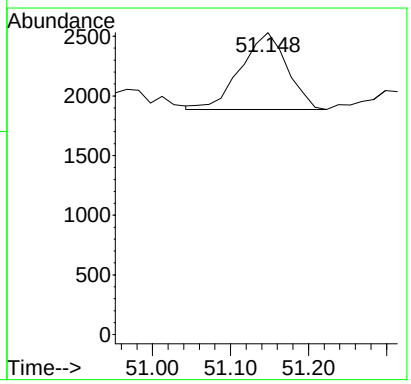
Tgt Ion:191 Resp: 948

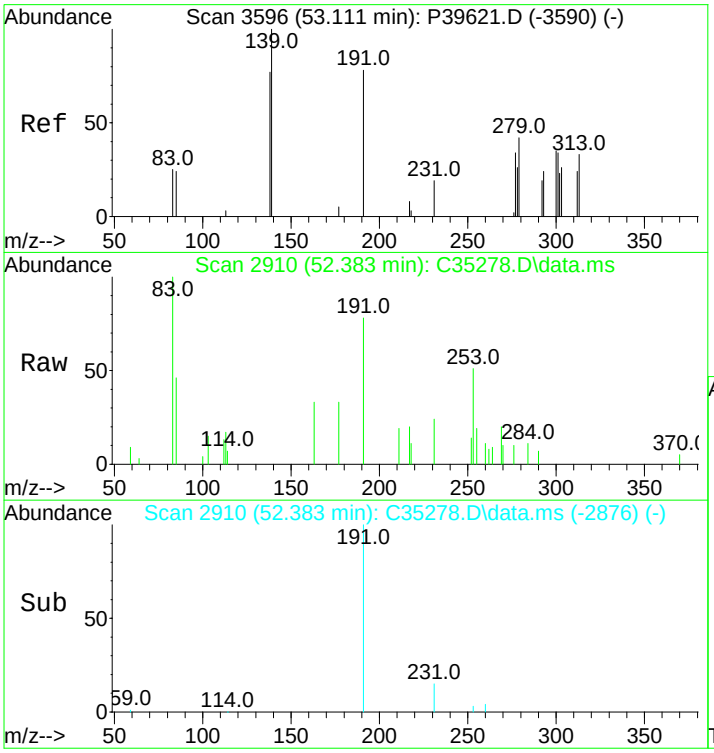




#113
30-Normoretane (T17)
Concen: 114.80 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

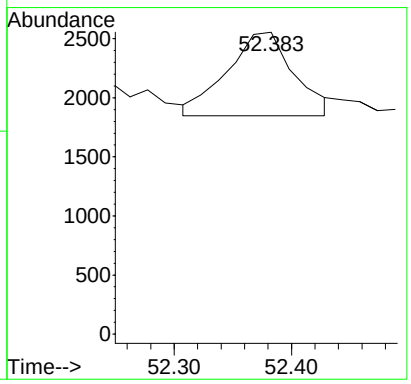
Tgt Ion:191 Resp: 2657

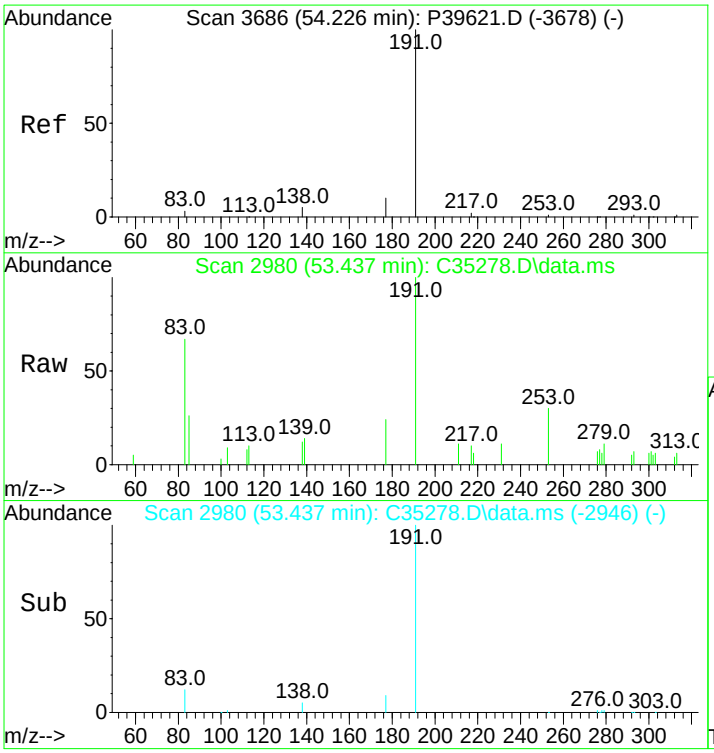




#115
Moretane (T20)
Concen: 121.10 ng/ml m
RT: 52.383 min Scan# 2910
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

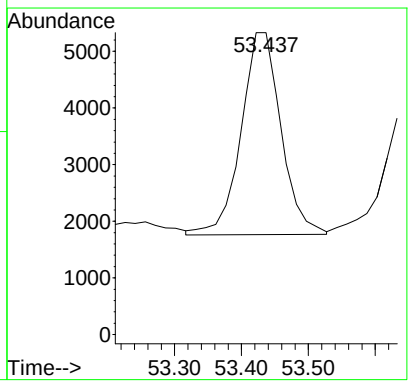
Tgt Ion:191 Resp: 2803

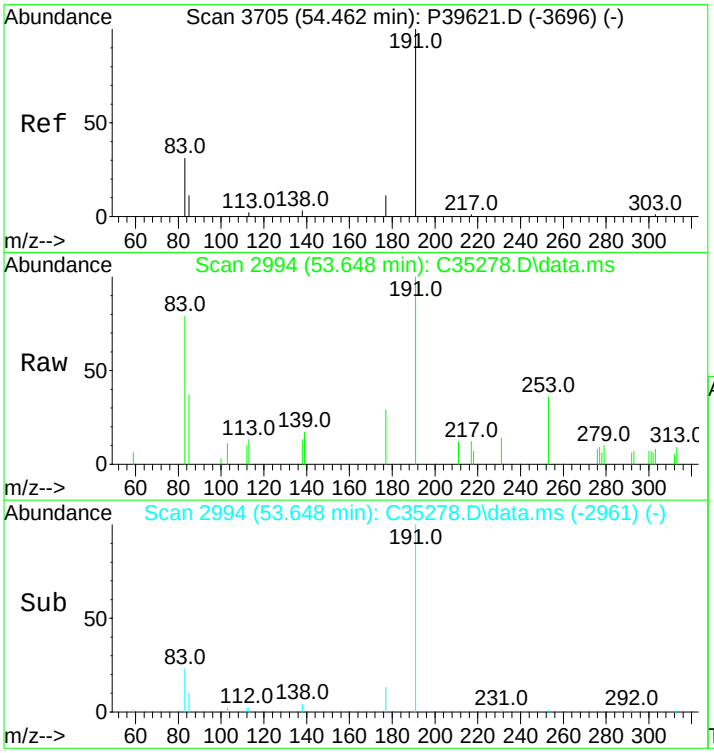




#116
30-Homohopane-22S (T21)
Concen: 639.96 ng/ml
RT: 53.437 min Scan# 2980
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

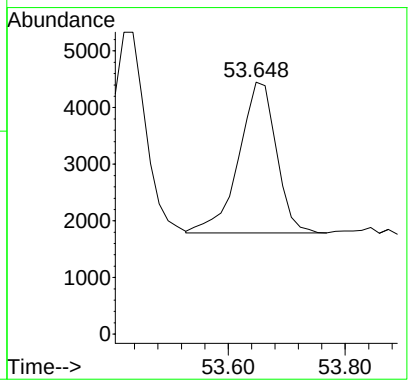
Tgt Ion:191 Resp: 14812

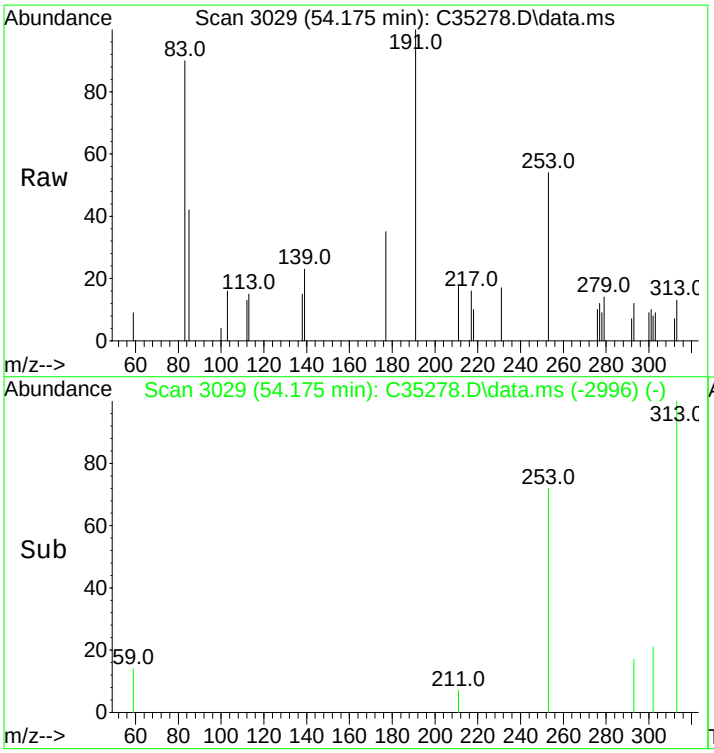




#117
30-Homohopane-22R (T22)
Concen: 511.94 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

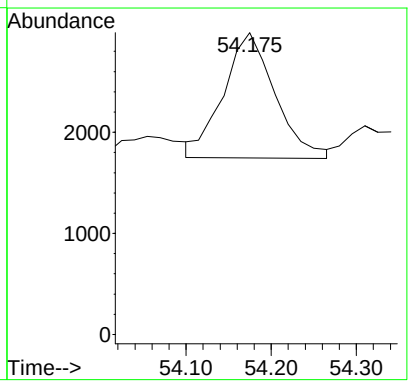
Tgt Ion:191 Resp: 11849

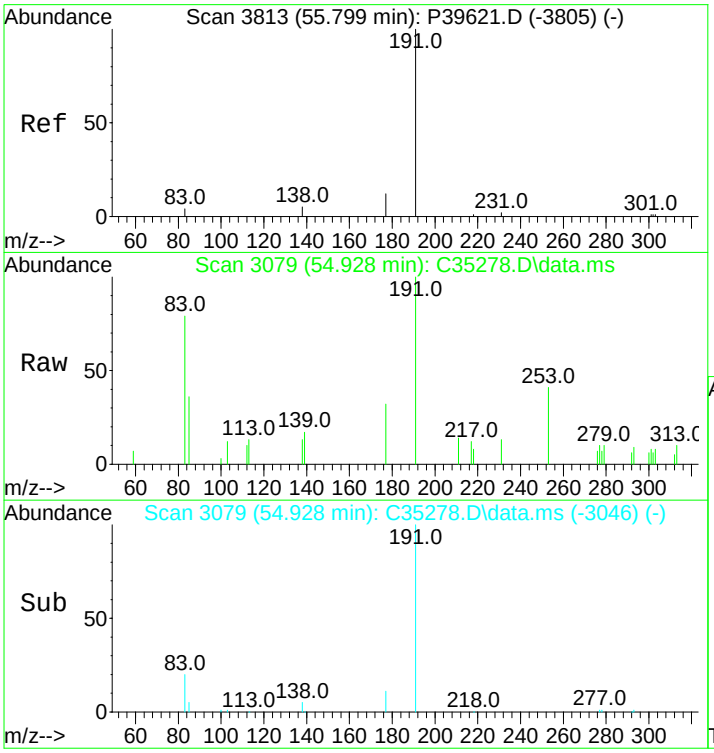




#118
Gammacerane/C32-diahopane
Concen: 224.41 ng/mL
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

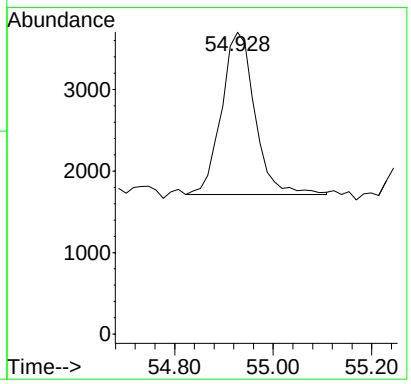
Tgt Ion:191 Resp: 5194

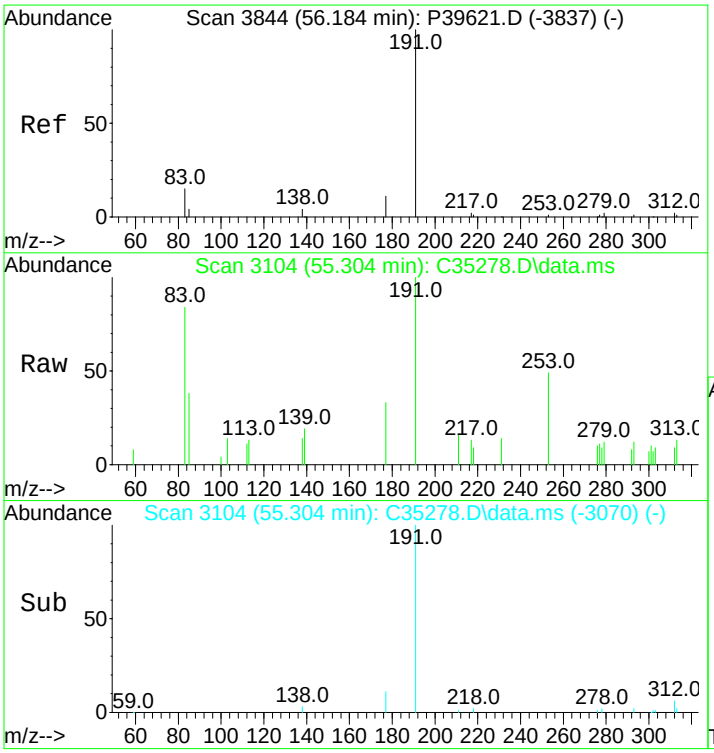




#119
30,31-Bishomohopane-22S (T26)
Concen: 404.83 ng/ml
RT: 54.928 min Scan# 3079
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

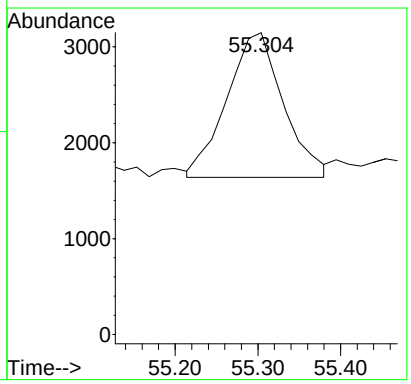
Tgt Ion:191 Resp: 9370

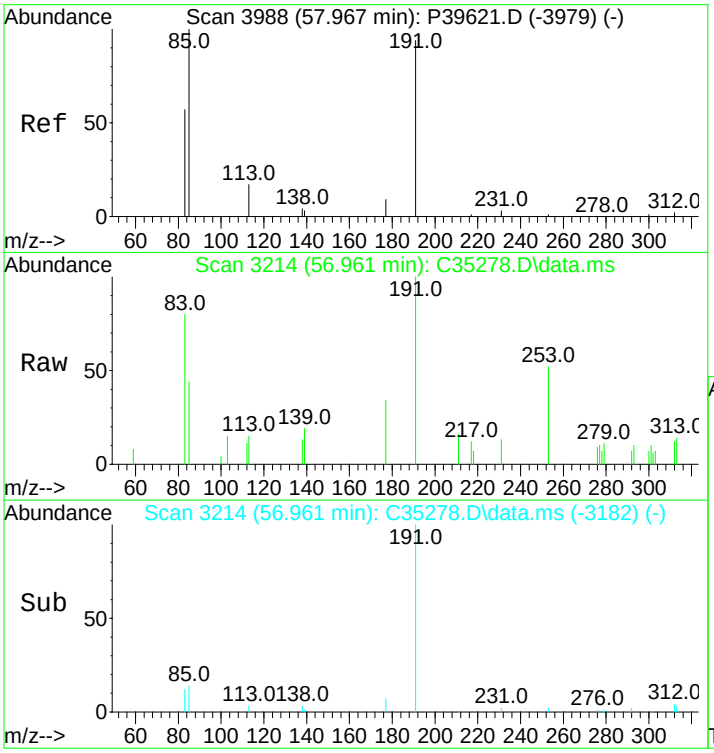




#120
30,31-Bishomohopane-22R (T27)
Concen: 308.83 ng/ml m
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

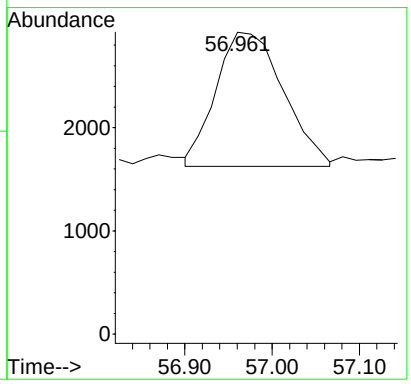
Tgt Ion:191 Resp: 7148

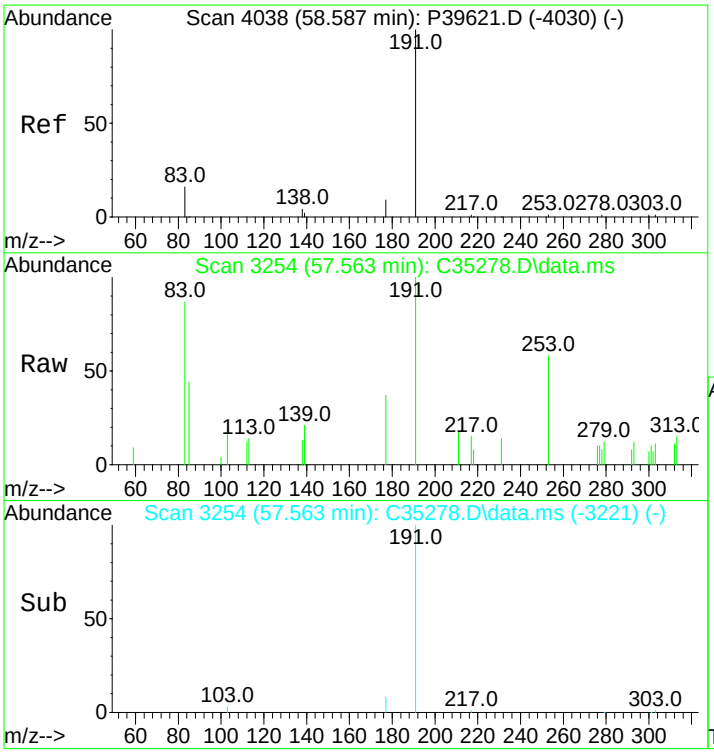




#121
30,31-Trishomohopane-22S (T30)
Concen: 300.84 ng/ml m
RT: 56.961 min Scan# 3214
Delta R.T. -0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

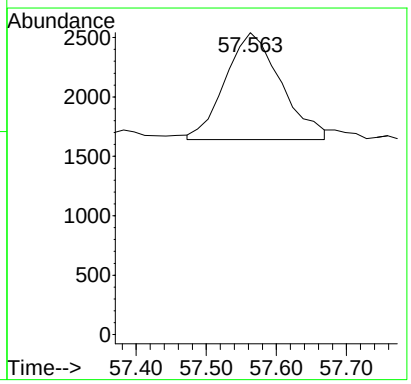
Tgt Ion:191 Resp: 6963

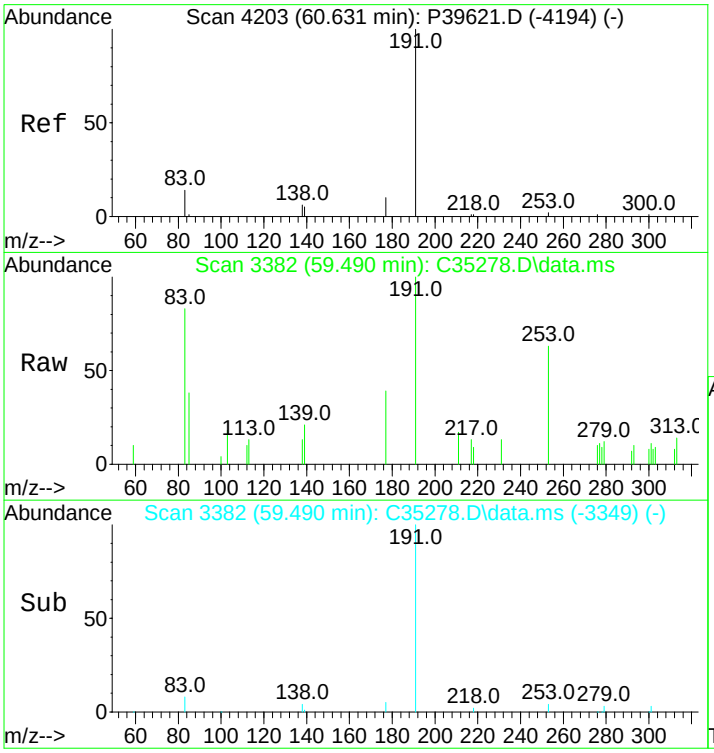




#122
30,31-Trishomohopane-22R (T31)
Concen: 214.90 ng/ml m
RT: 57.563 min Scan# 3254
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

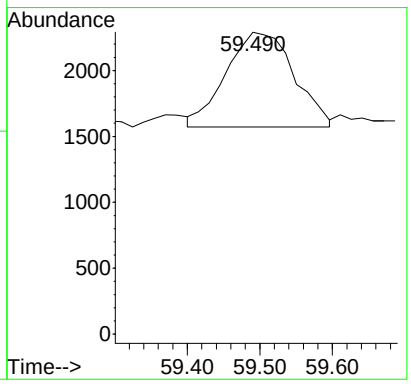
Tgt Ion:191 Resp: 4974

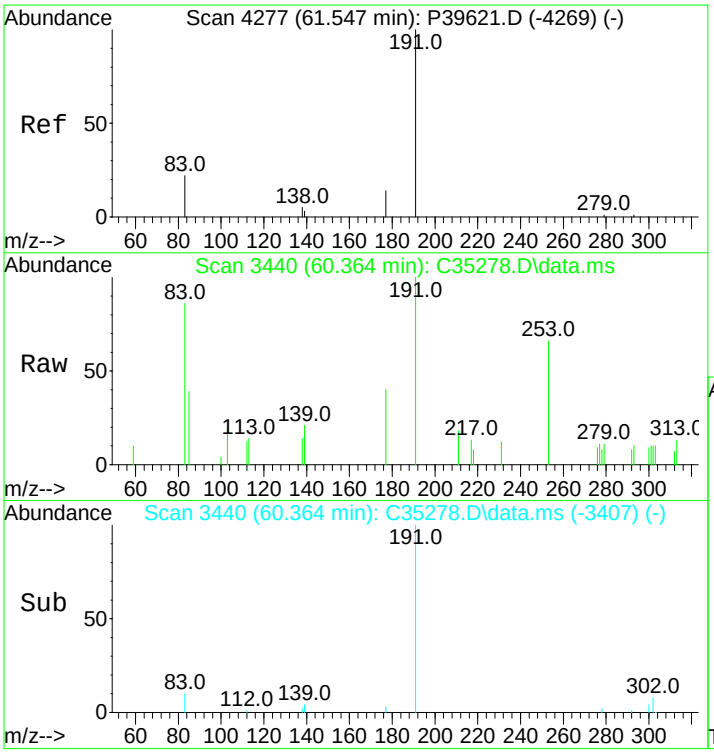




#123
Tetrakishomohopane-22S (T32)
Concen: 202.37 ng/ml m
RT: 59.490 min Scan# 3382
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

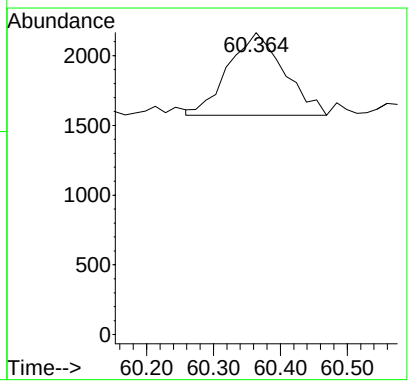
Tgt Ion:191 Resp: 4684

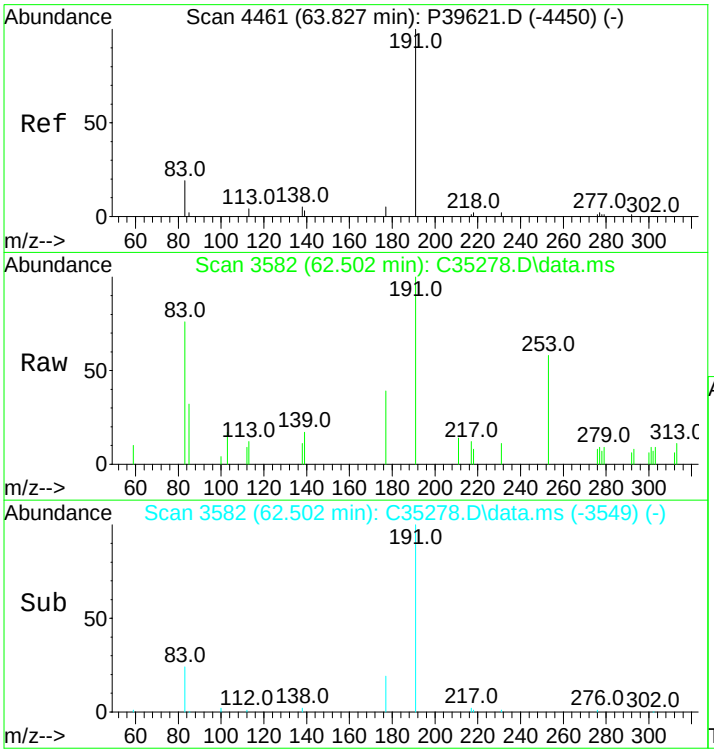




#124
Tetrakishomohopane-22R (T33)
Concen: 148.24 ng/ml
RT: 60.364 min Scan# 3440
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

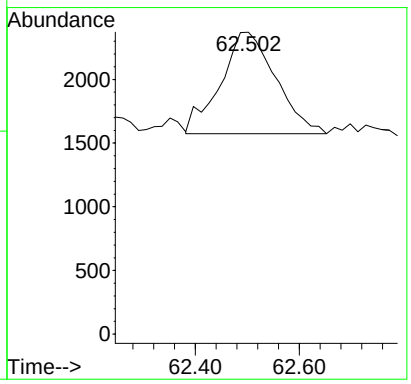
Tgt Ion:191 Resp: 3431

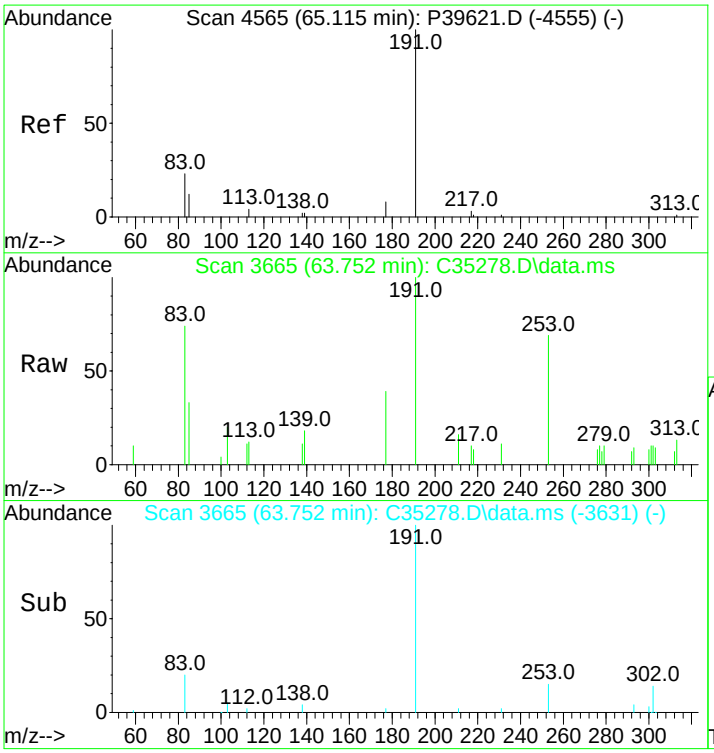




#125
Pentakishomohopane-22S (T34)
Concen: 253.87 ng/ml
RT: 62.502 min Scan# 3582
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

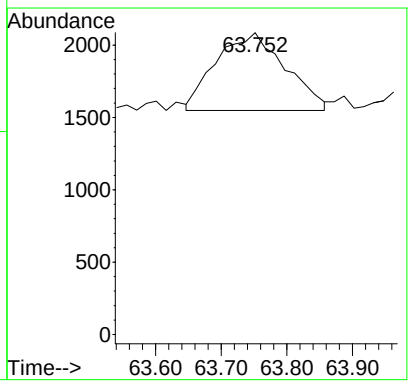
Tgt Ion:191 Resp: 5876

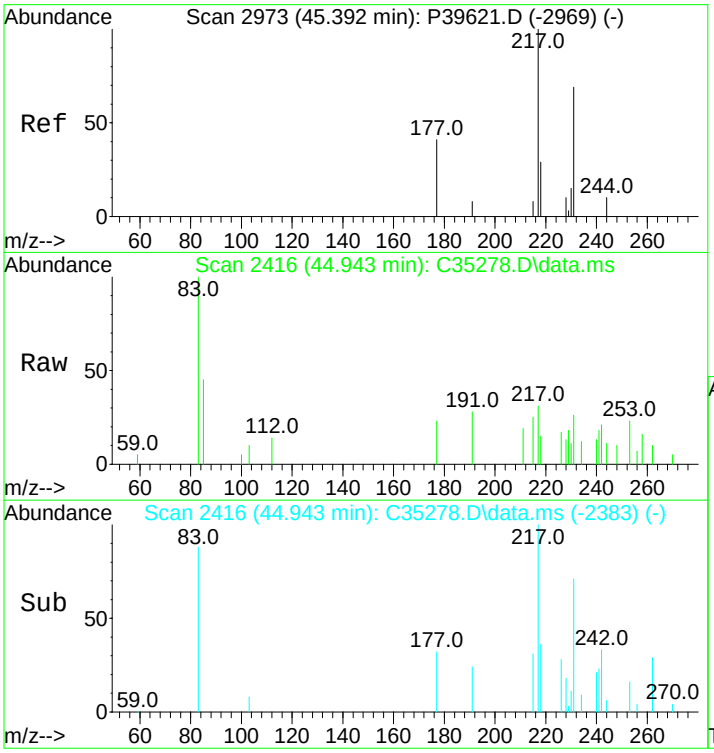




#126
Pentakishomohopane-22R (T35)
Concen: 169.71 ng/ml m
RT: 63.752 min Scan# 3665
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

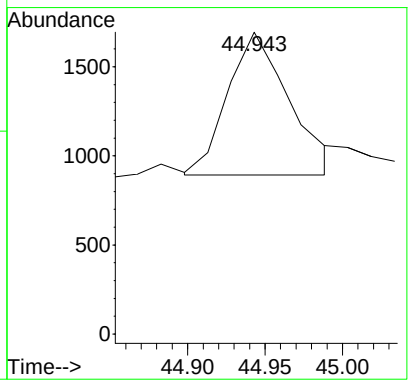
Tgt Ion:191 Resp: 3928

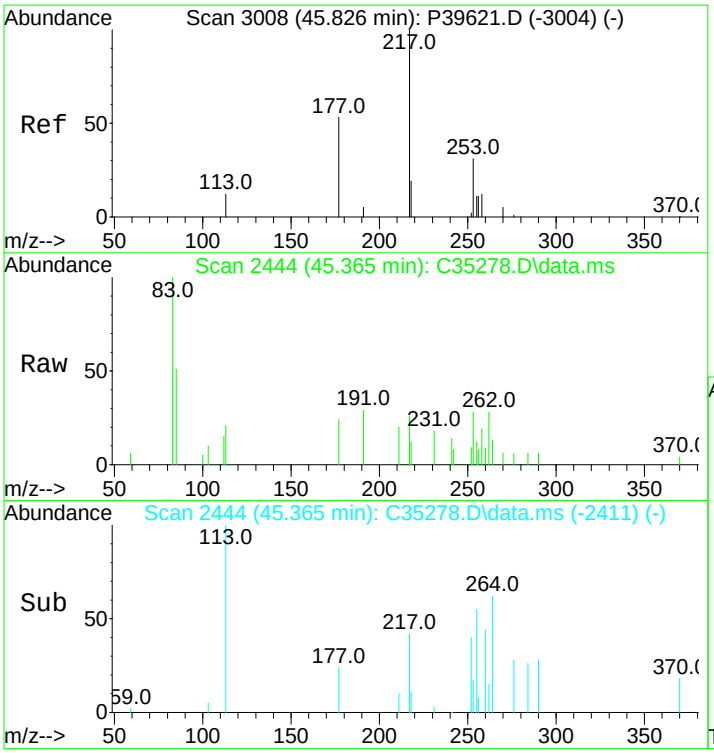




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 202.47 ng/ml m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

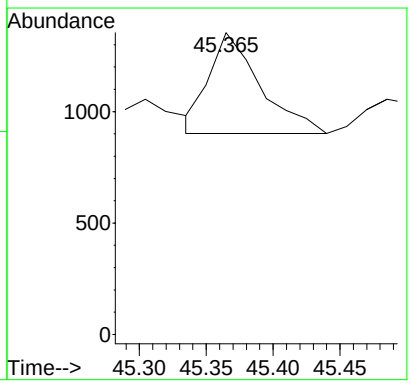
Tgt Ion:217 Resp: 2223

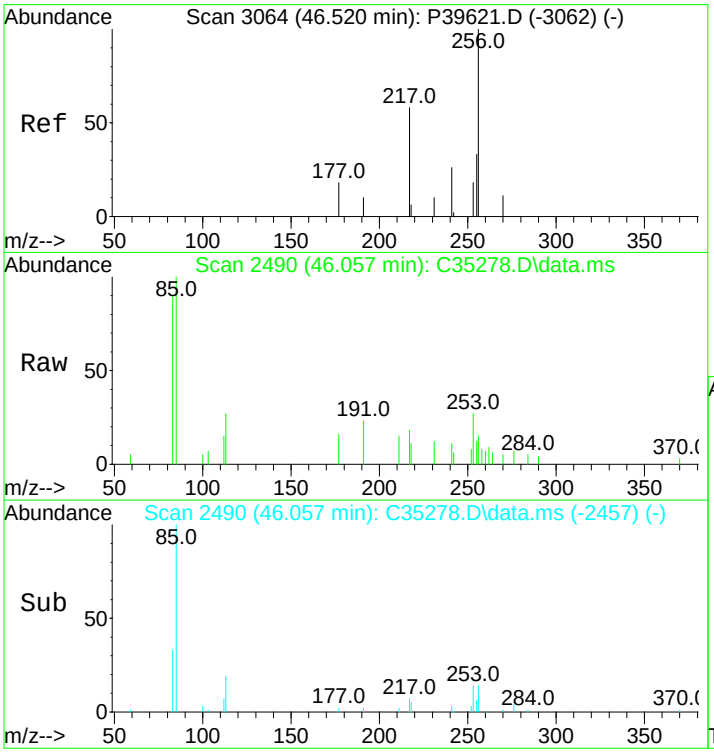




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 109.11 ng/ml
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

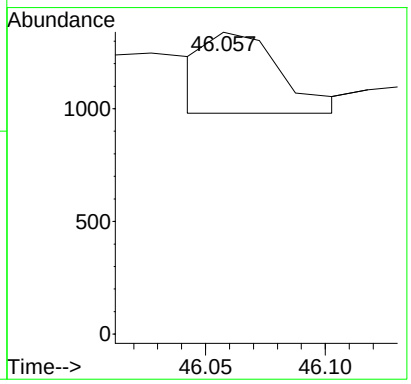
Tgt Ion:217 Resp: 1198

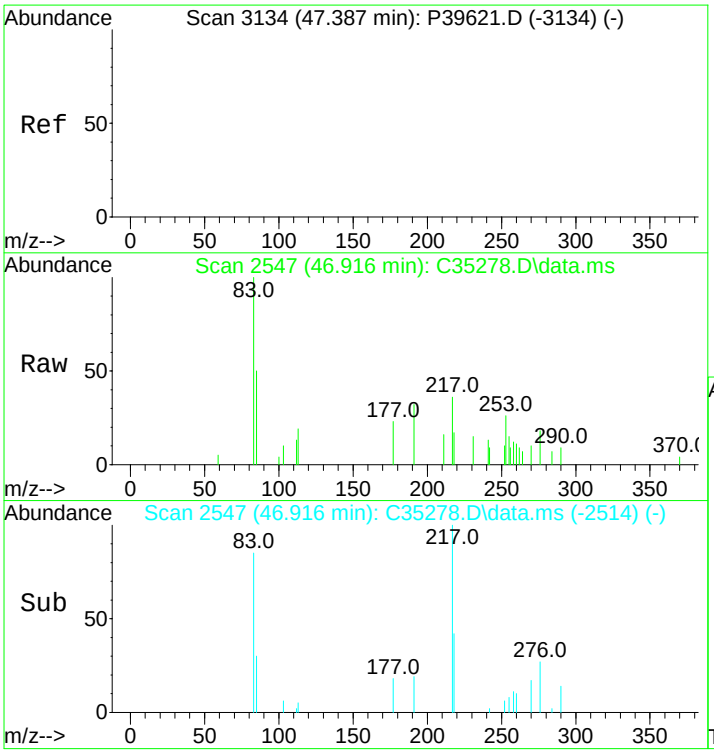




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 69.58 ng/ml m
RT: 46.057 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

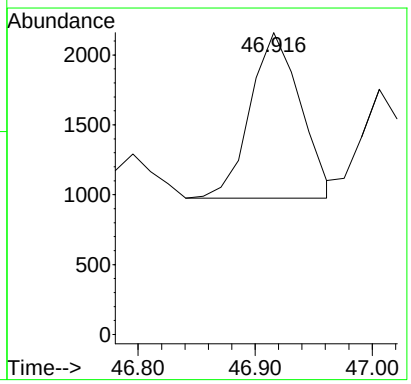
Tgt Ion:217 Resp: 764

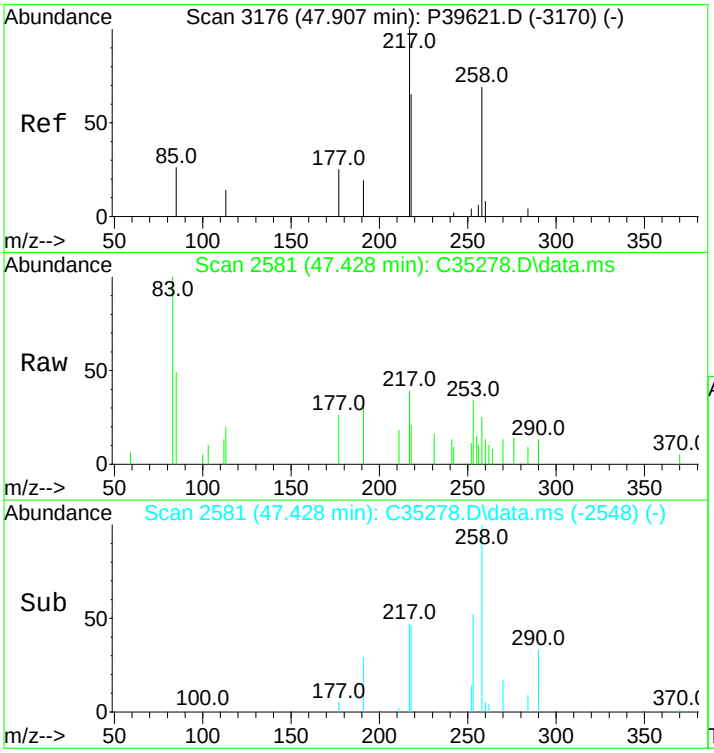




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 321.50 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

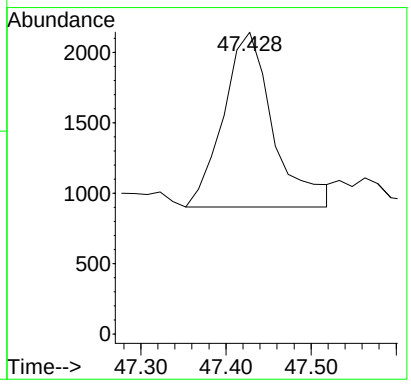
Tgt Ion:217 Resp: 3530

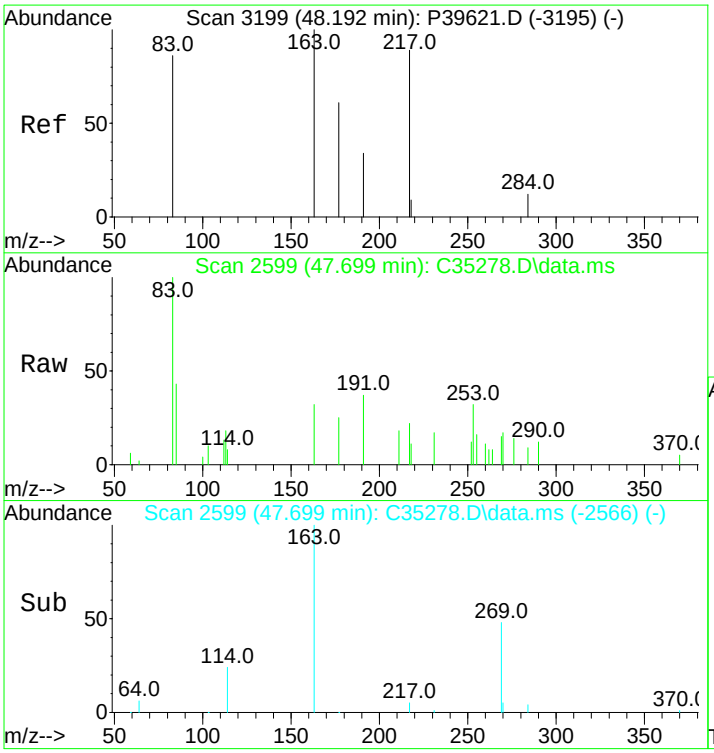




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 460.76 ng/ml
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

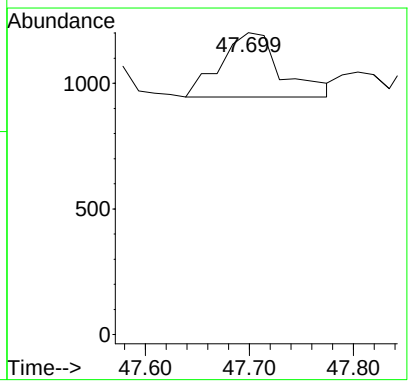
Tgt Ion:217 Resp: 5059

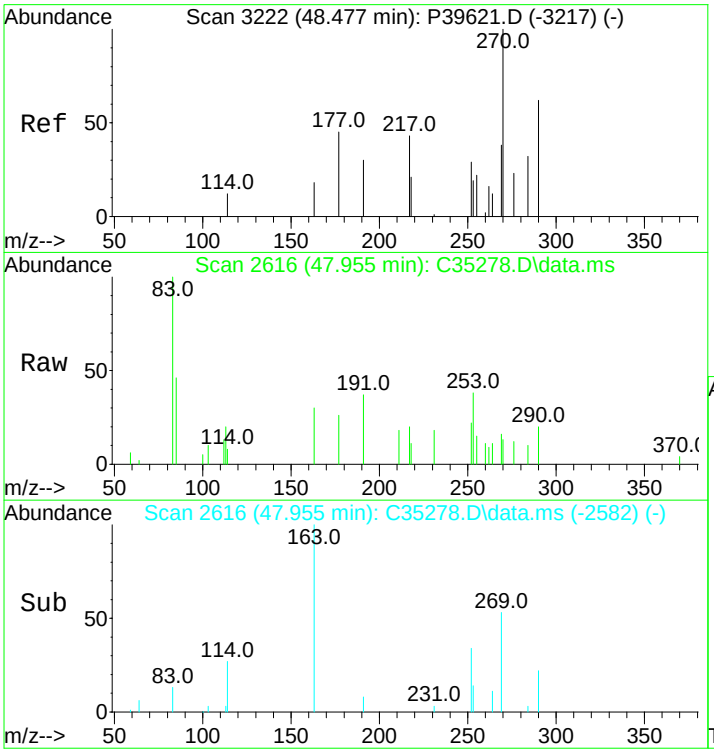




#133
Unknown Sterane (S18)
Concen: 94.72 ng/ml
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

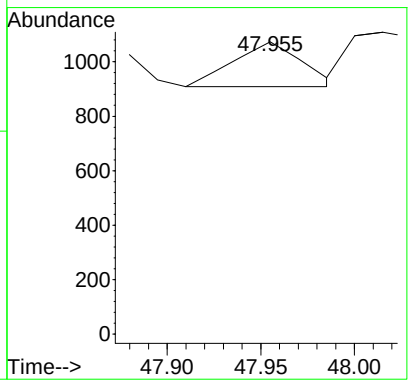
Tgt Ion:217 Resp: 1040

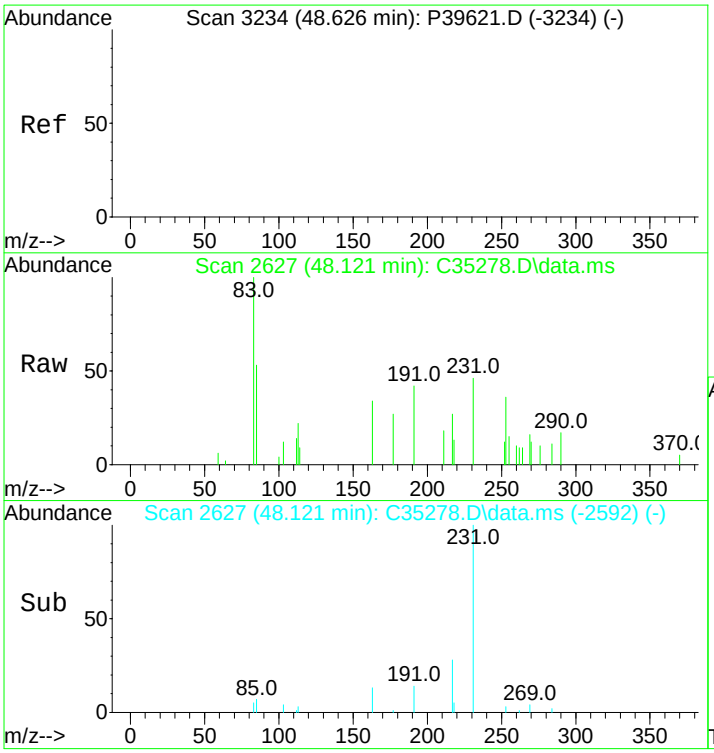




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 38.07 ng/ml
RT: 47.955 min Scan# 2616
Delta R.T. 0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

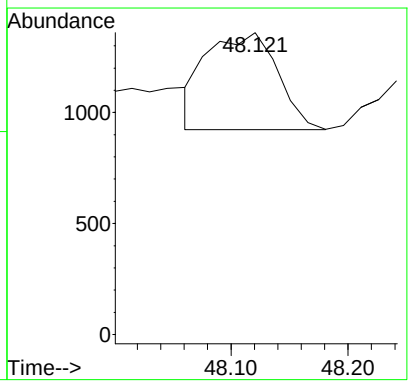
Tgt Ion:217 Resp: 418

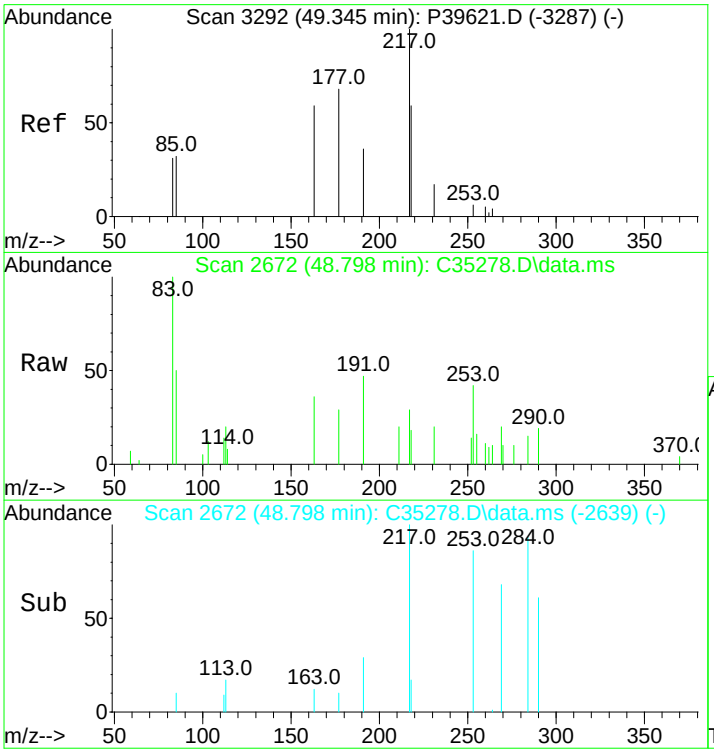




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 166.85 ng/ml m
RT: 48.121 min Scan# 2627
Delta R.T. 0.030 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

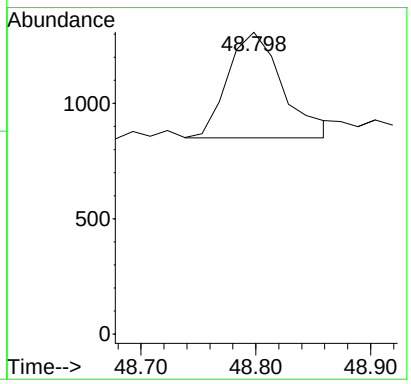
Tgt Ion:217 Resp: 1832

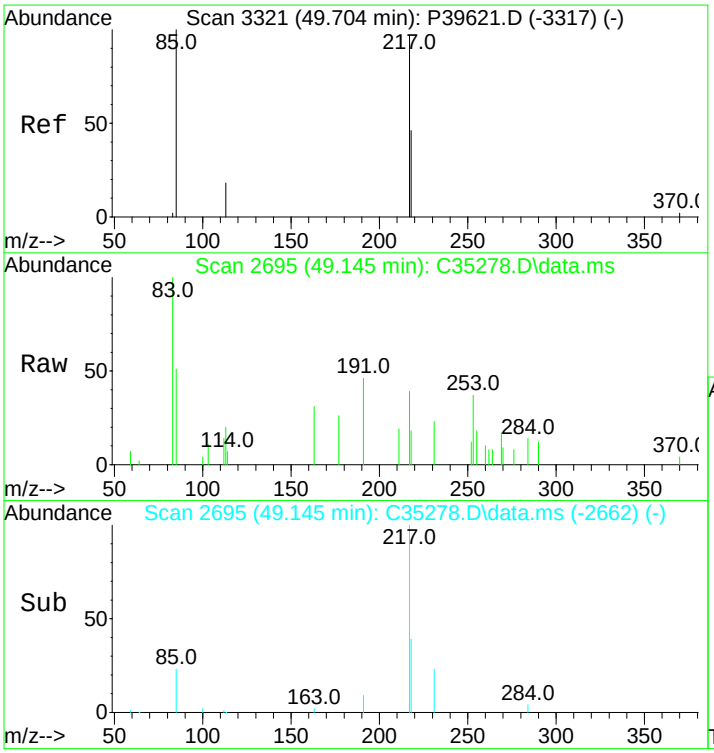




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 138.71 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

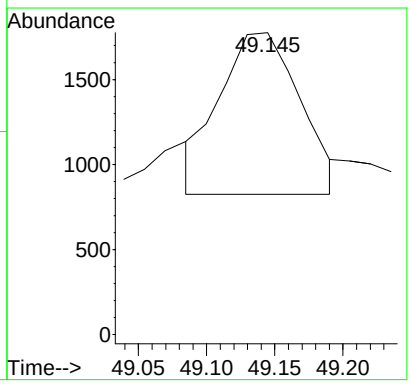
Tgt Ion:217 Resp: 1523

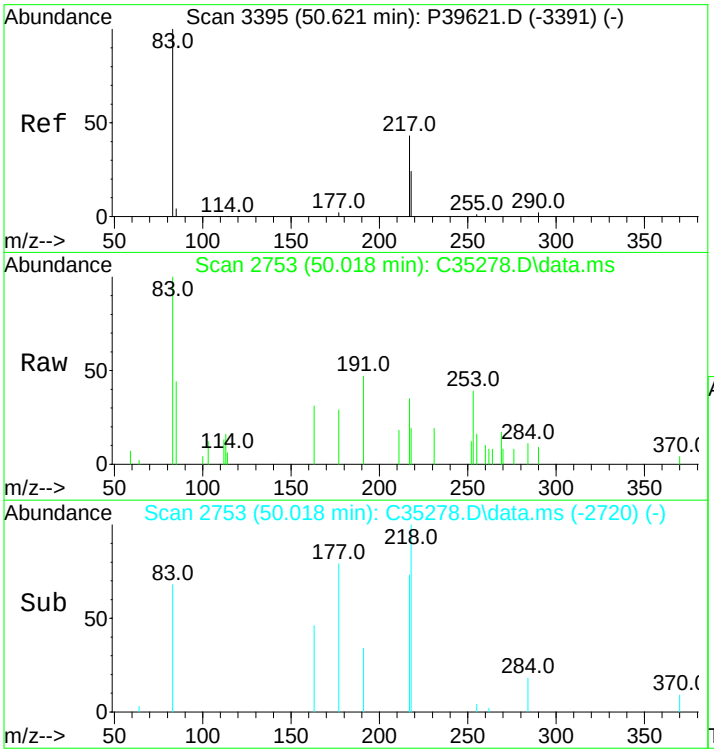




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 356.93 ng/ml m
RT: 49.145 min Scan# 2695
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

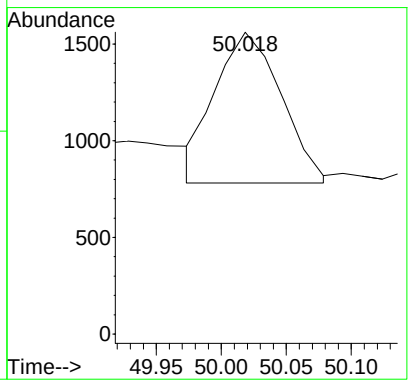
Tgt Ion:217 Resp: 3919

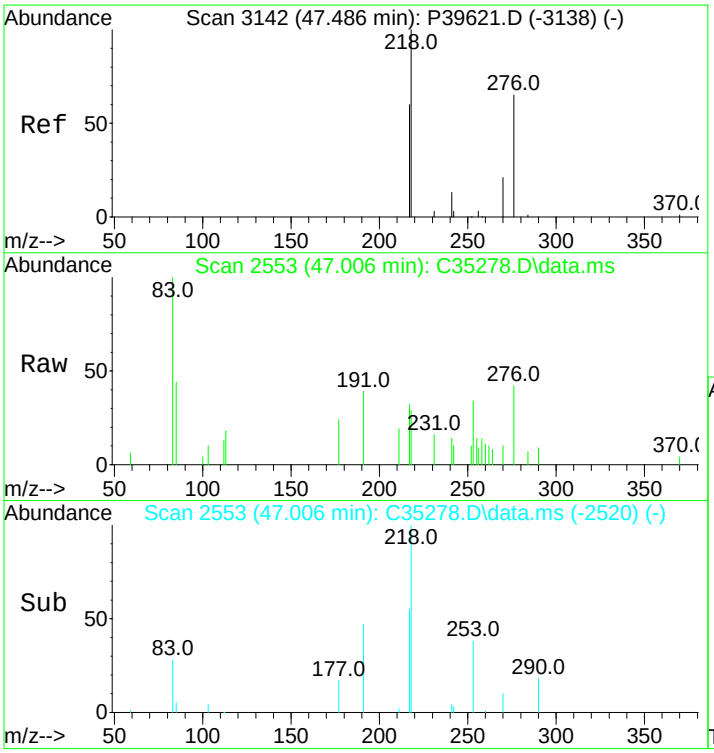




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 250.74 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

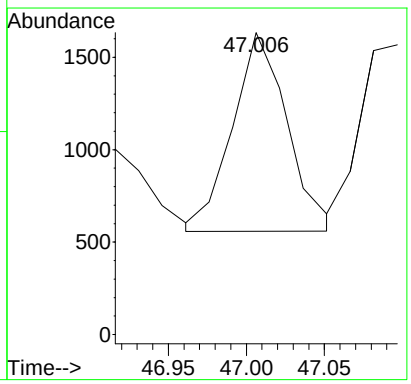
Tgt Ion:217 Resp: 2753

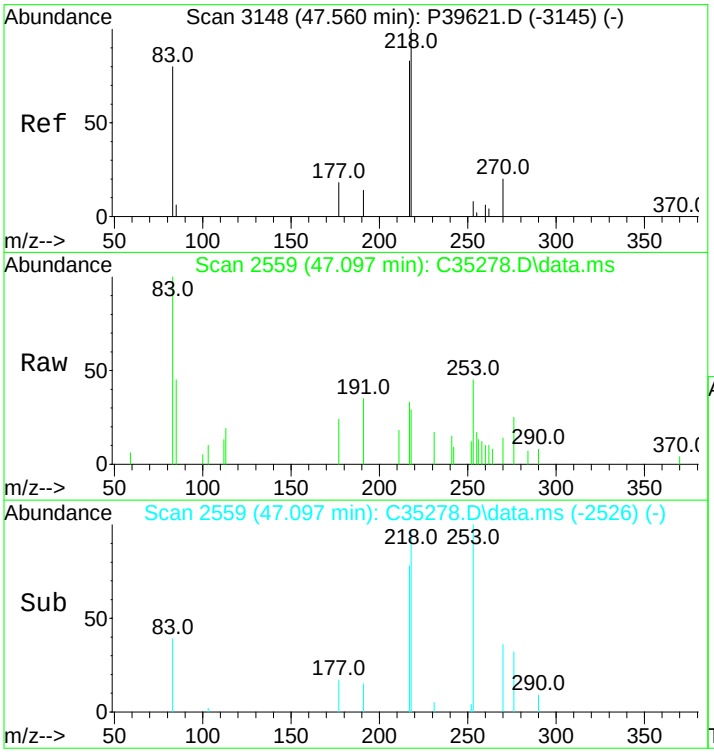




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 238.99 ng/ml
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

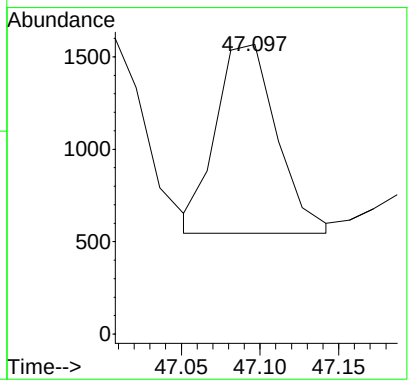
Tgt Ion:218 Resp: 2624

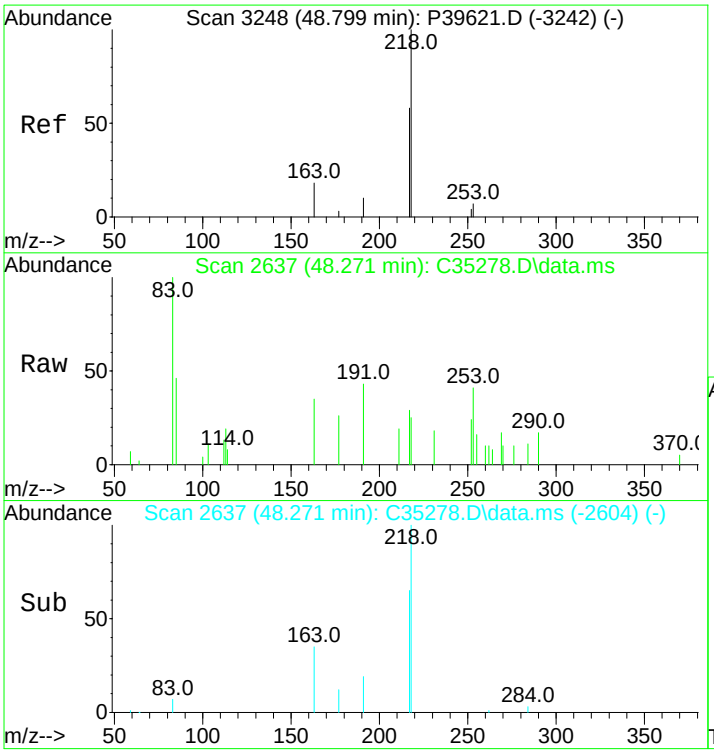




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 249.92 ng/ml m
RT: 47.097 min Scan# 2559
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

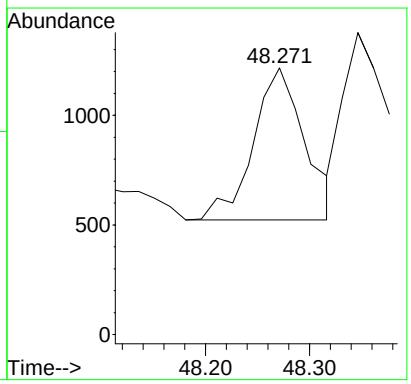
Tgt Ion:218 Resp: 2744

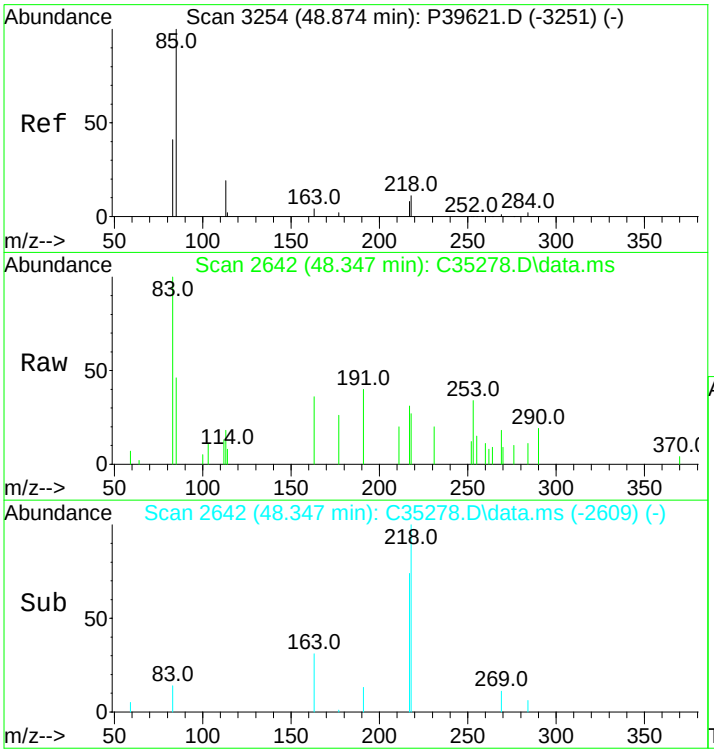




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 217.31 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

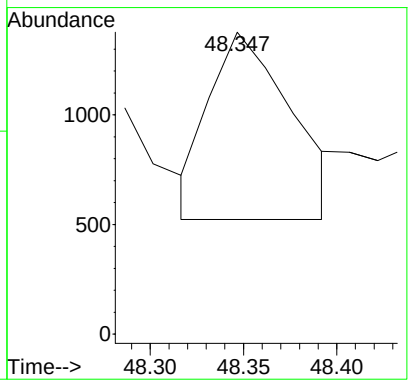
Tgt Ion:218 Resp: 2386

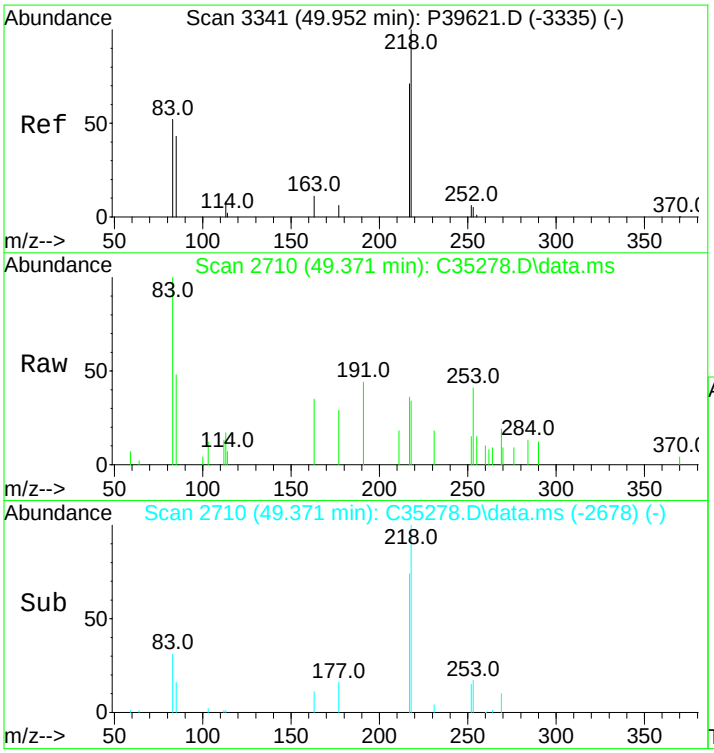




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 238.08 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

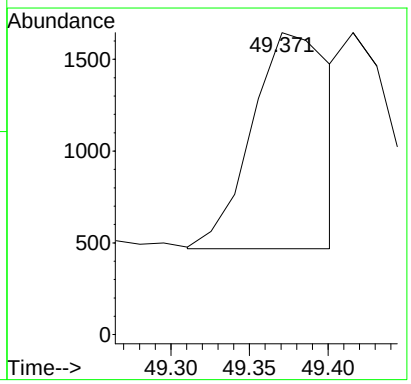
Tgt Ion:218 Resp: 2614

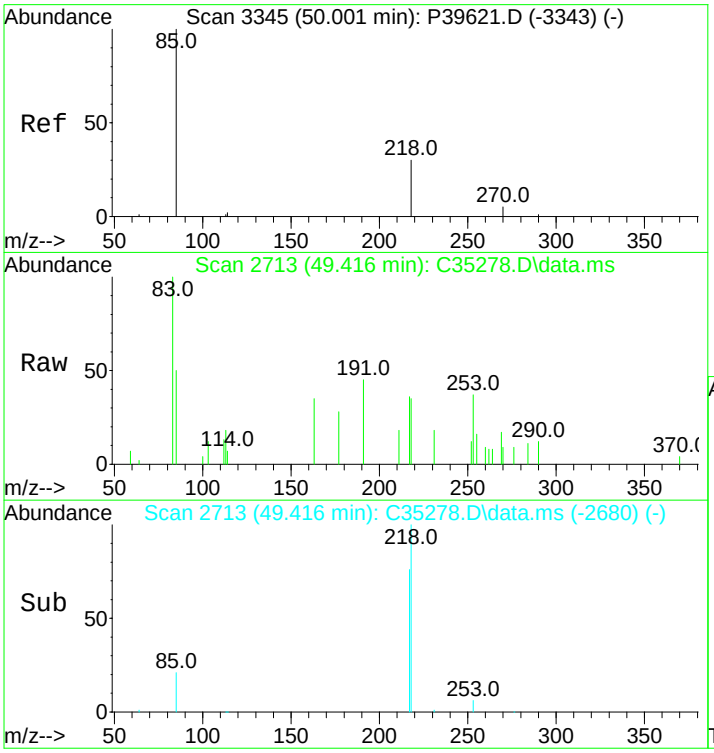




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 372.69 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

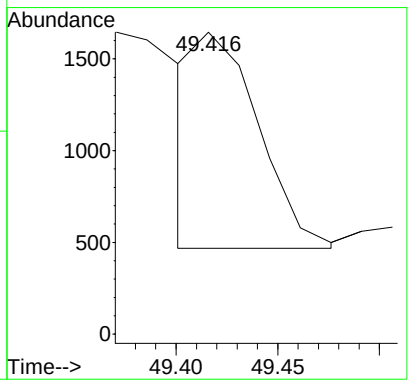
Tgt Ion:218 Resp: 4092

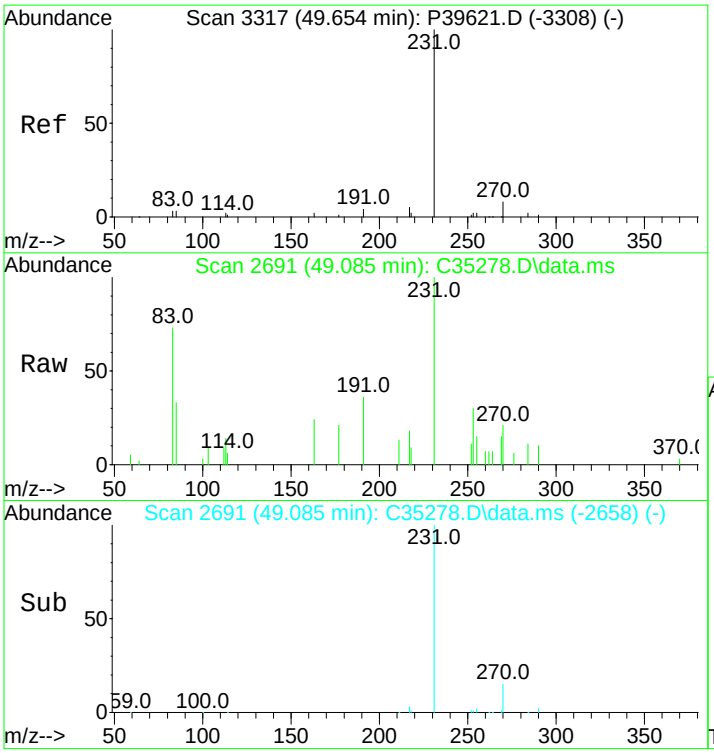




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 230.97 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

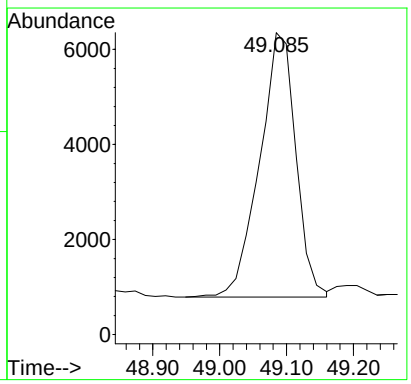
Tgt Ion:218 Resp: 2536

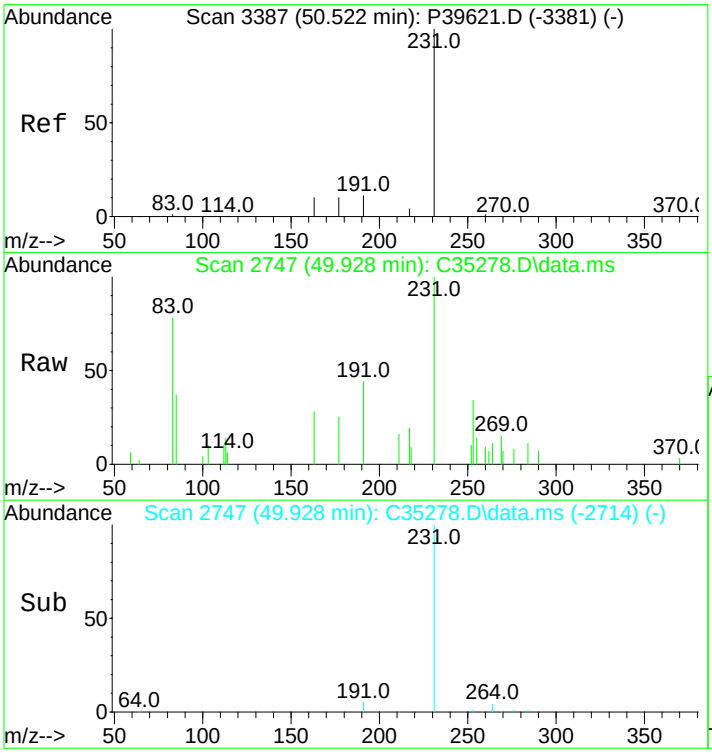




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1907.43 ng/mL
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

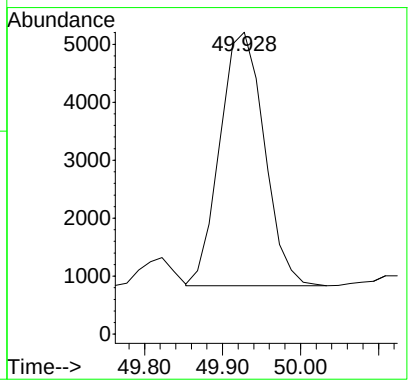
Tgt Ion:231 Resp: 20943

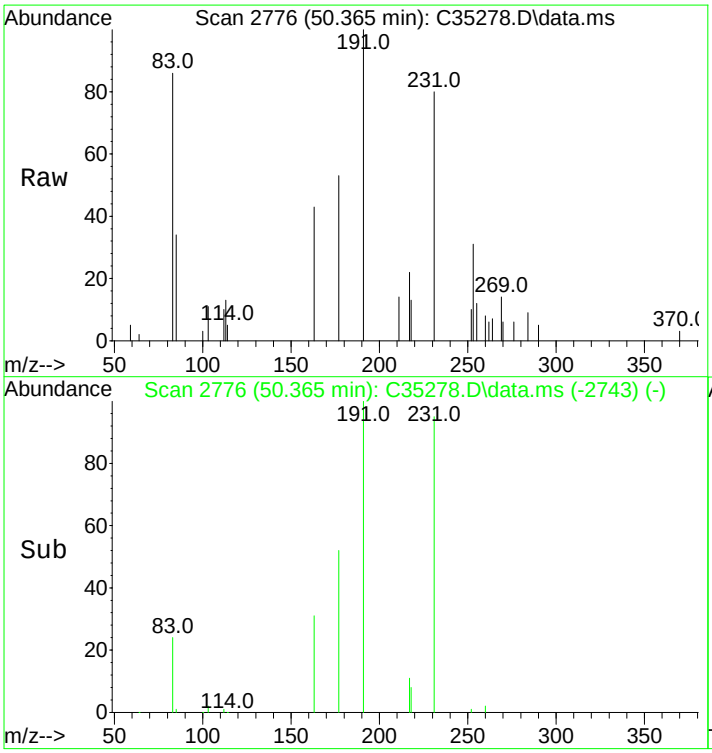




#146
C28,20S-triaromatic steroid
Concen: 1575.37 ng/mL
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

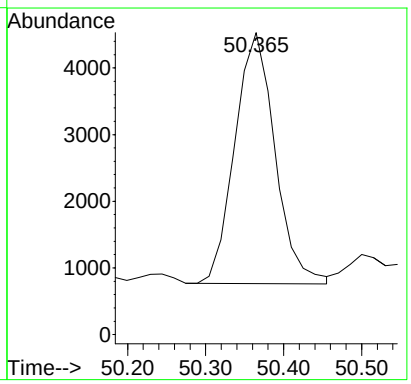
Tgt Ion:231 Resp: 17297

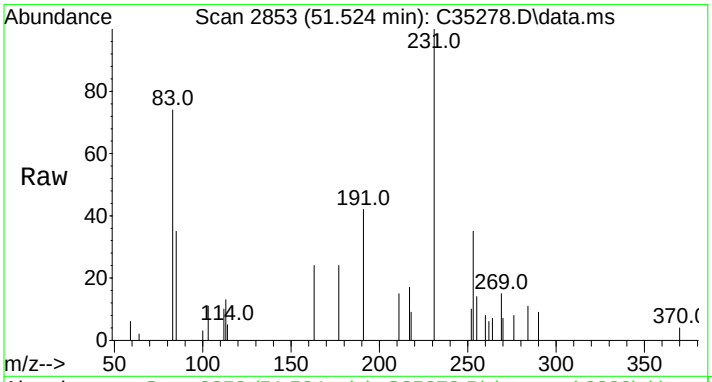




#147
C27,20R-triaromatic steroid
Concen: 1229.36 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

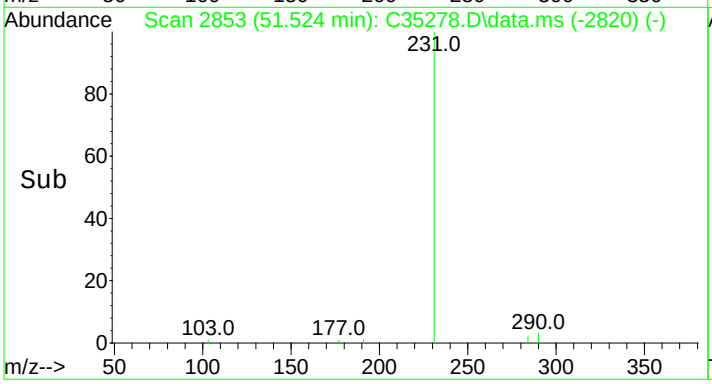
Tgt Ion:231 Resp: 13498

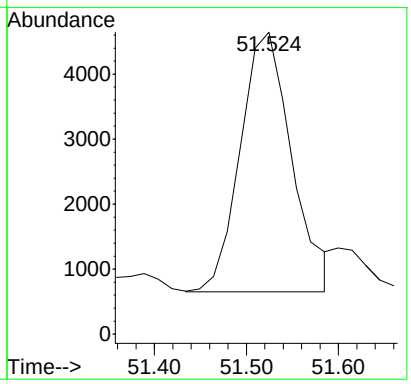




#148
C28,20R-triaromatic steroid
Concen: 1416.71 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35278.D
Acq: 24 May 2012 6:45 pm

Tgt Ion:231 Resp: 15555





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35284.D
Acq On : 24 May 2012 11:22 pm
Operator : AC
Sample : SO052312B08
Misc : 1X ETR1205027
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 09:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 07:49:11 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12883M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	25641	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	45823	819.504	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 81.95%			
42) Phenanthrene-d10	32.221	188	38963	881.587	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.16%			
86) Benzo[a]pyrene-d12	47.835	264	44127	830.407	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 83.04%			
127) 5B(H)Cholane - Surr	43.422	217	7255	904.988	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.50%			
Target Compounds						Qvalue
25) Dibenzofuran	27.133	168	71M2	1.007	ng/mL	
133) Unknown Sterane (S18)	47.714	217G	123M3	15.343	ng/ml	

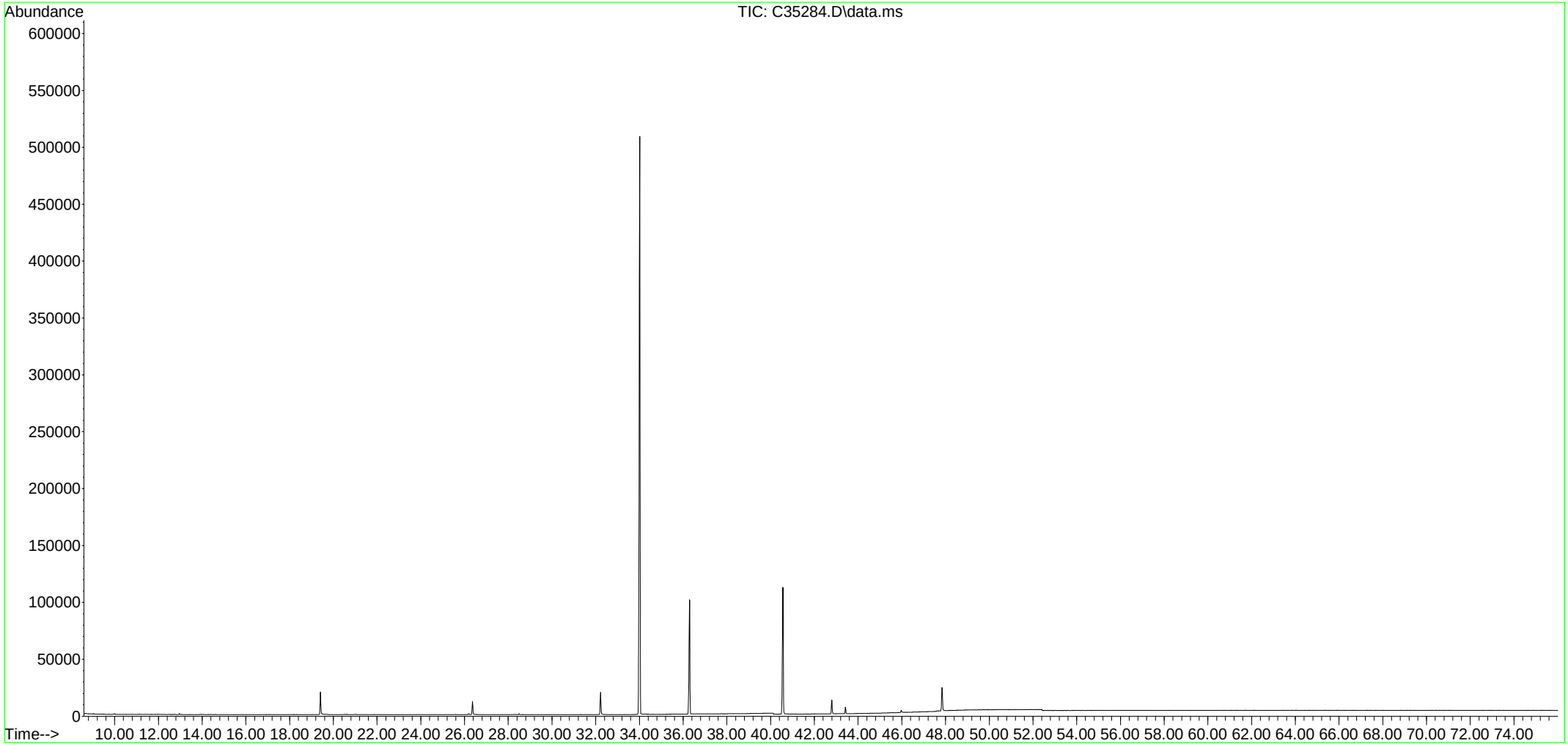
(#) = qualifier out of range (m) = manual integration (+) = signals summed

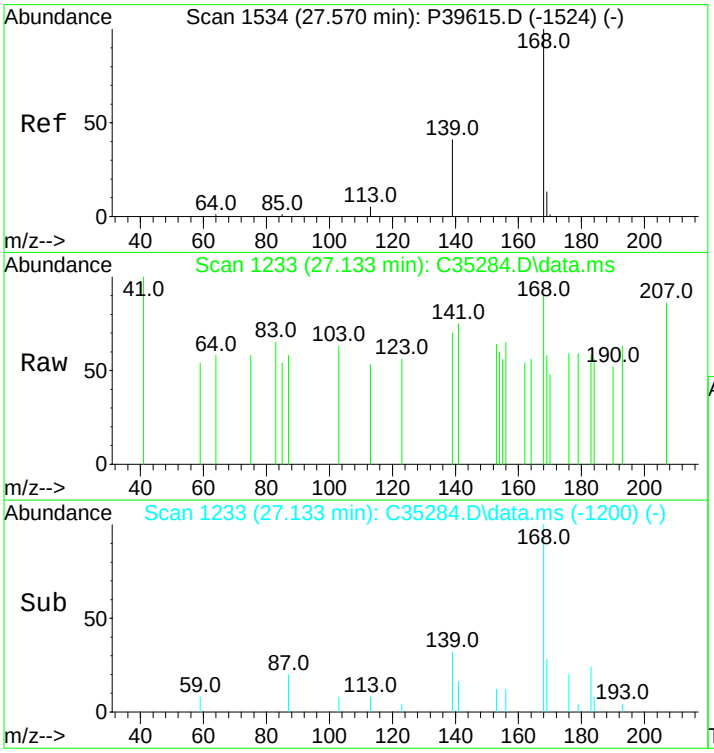
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35284.D
Acq On : 24 May 2012 11:22 pm
Operator : AC
Sample : SO052312B08
Misc : 1X ETR1205027
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 09:47:01 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 07:49:11 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

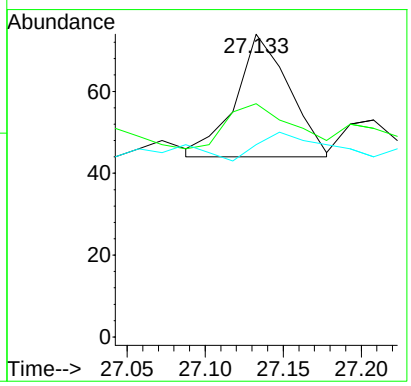


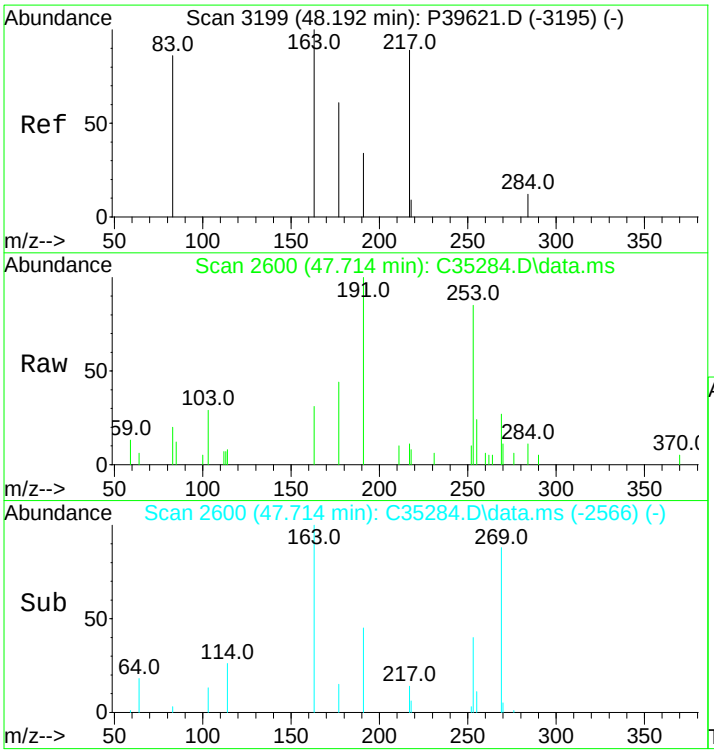


#25
Dibenzofuran
Concen: 1.01 ng/mL m
RT: 27.133 min Scan# 1233
Delta R.T. 0.001 min
Lab File: C35284.D
Acq: 24 May 2012 11:22 pm

Tgt Ion:168 Resp: 71

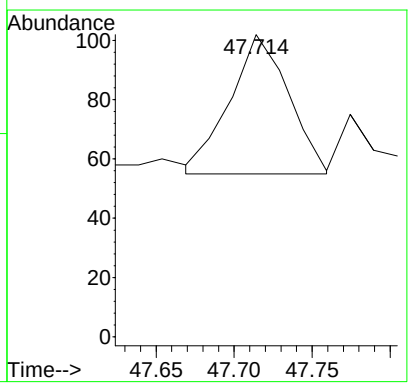
Ion	Ratio	Lower	Upper
168	100		
139	0.0	29.9	44.9#
169	0.0	10.3	15.5#





#133
Unknown Sterane (S18)
Concen: 15.34 ng/ml m
RT: 47.714 min Scan# 2600
Delta R.T. 0.015 min
Lab File: C35284.D
Acq: 24 May 2012 11:22 pm

Tgt Ion:217 Resp: 123



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35286.D
Acq On : 25 May 2012 12:55 am
Operator : AC
Sample : SO052312LCS03
Misc : 1X ETR1205027
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 11:31:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12508M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25430	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	32623	600.926	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 60.09%			
42) Phenanthrene-d10	32.221	188	39073	910.581	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 91.06%			
86) Benzo[a]pyrene-d12	47.835	264	44356	841.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 84.16%			
127) 5B(H)Cholane - Surr	43.422	217	5749	723.080	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 72.31%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	67798	850.460	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	41187	873.788	ng/mL#	100
26) Acenaphthylene	25.748	152	66746	843.443	ng/mL#	100
27) Acenaphthene	26.485	153	40751M3	874.582	ng/mL	
29) Fluorene	28.503	166	46579M3	906.408	ng/mL	
43) Phenanthrene	32.311	178	67630	934.456	ng/mL	100
55) Anthracene	32.492	178	63407M3	896.936	ng/mL	
58) Fluoranthene	37.084	202	75132M3	1045.254	ng/mL	
60) Pyrene	37.957	202	80553	1102.453	ng/mL	99
75) Benz[a]anthracene	42.730	228	75069M4	930.058	ng/mL	
77) Chrysene/Triphenylene	42.896	228	74008	908.209	ng/mL	99
82) Benzo[b]fluoranthene	46.780	252	84780	955.924	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	90299	935.166	ng/mL	92
87) Benzo[a]pyrene	47.925	252	81112	960.355	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.564	276	94842M3	964.931	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	89481M3	957.018	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	94105	906.226	ng/mL	99

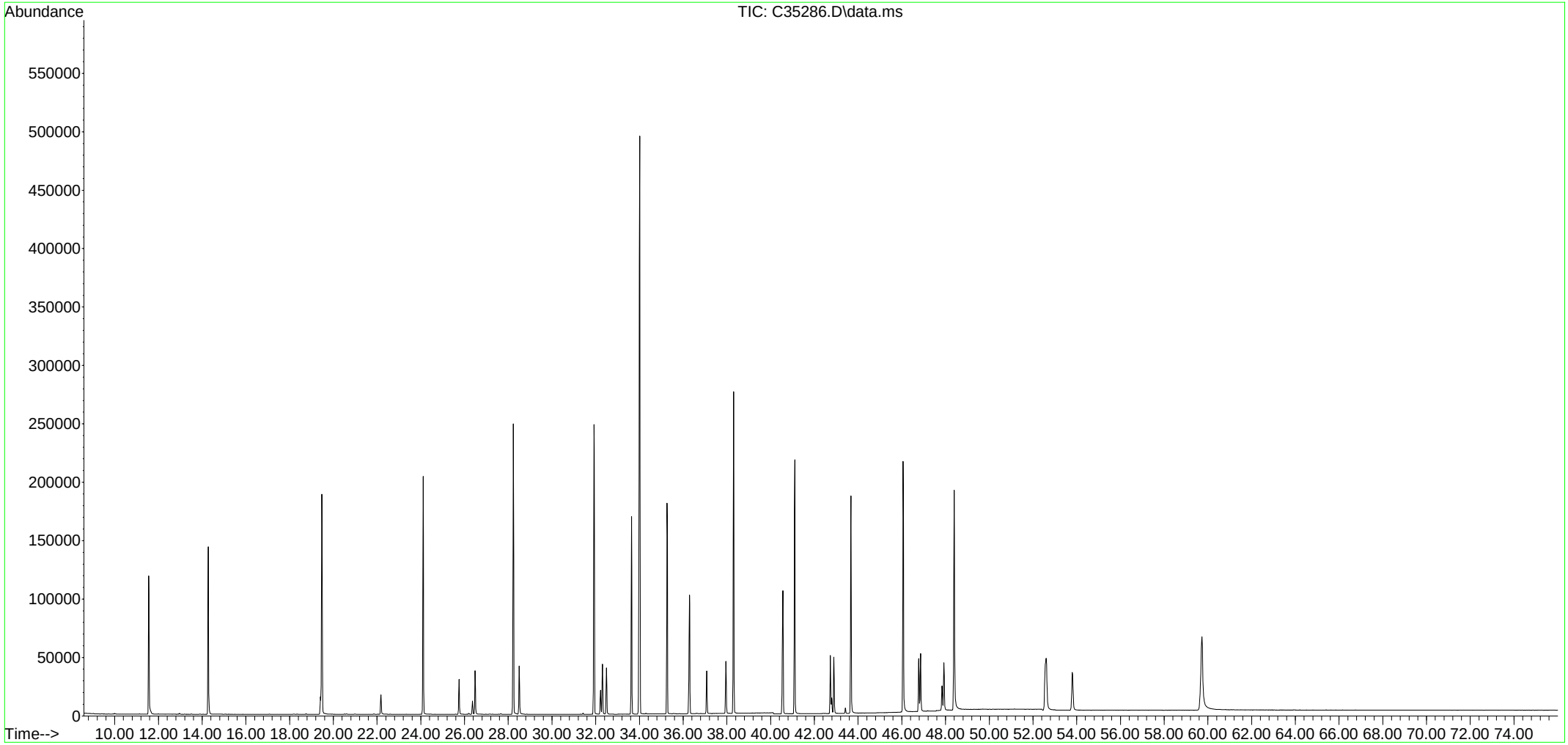
(#) = qualifier out of range (m) = manual integration (+) = signals summed

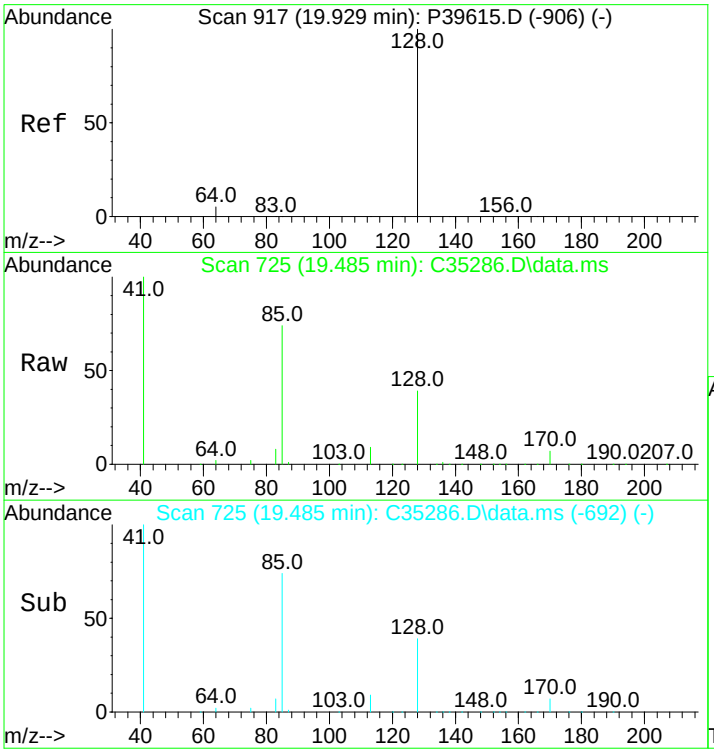
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35286.D
Acq On : 25 May 2012 12:55 am
Operator : AC
Sample : SO052312LCS03
Misc : 1X ETR1205027
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 11:31:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

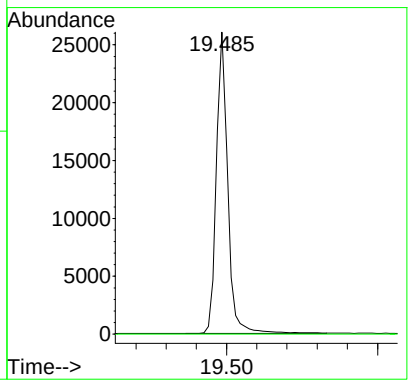


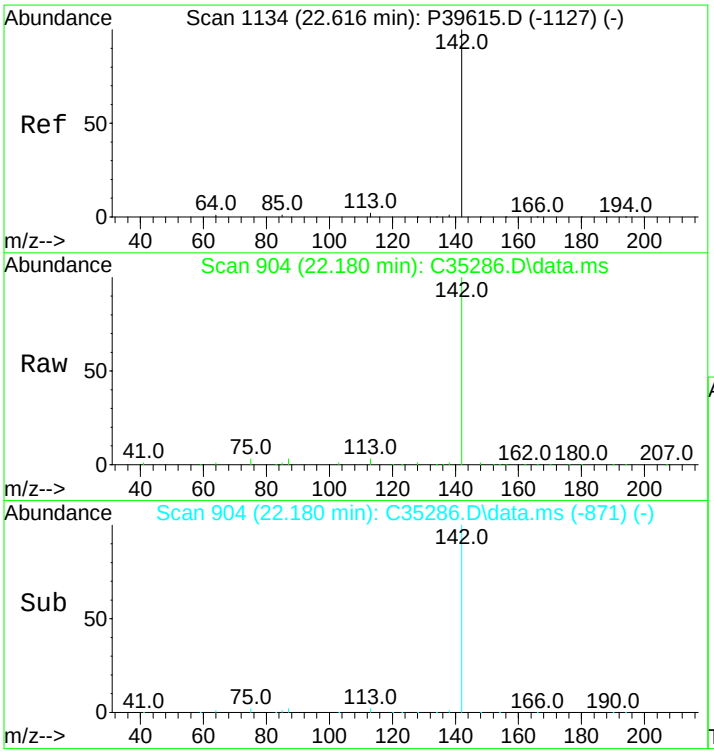


#10
Naphthalene
Concen: 850.46 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:128 Resp: 67798

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

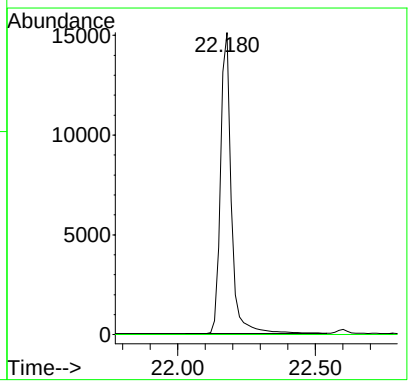


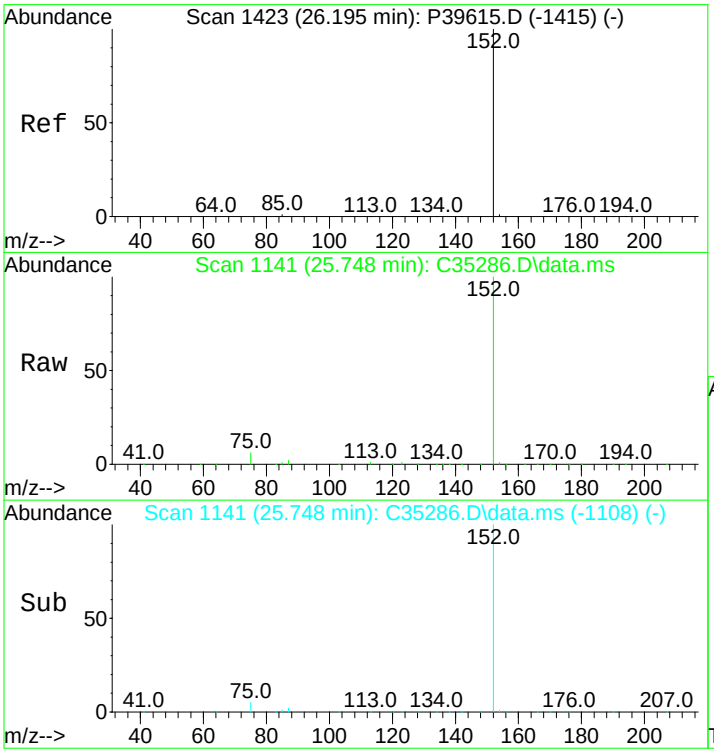


#16
2-Methylnaphthalene
Concen: 873.79 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:142 Resp: 41187

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

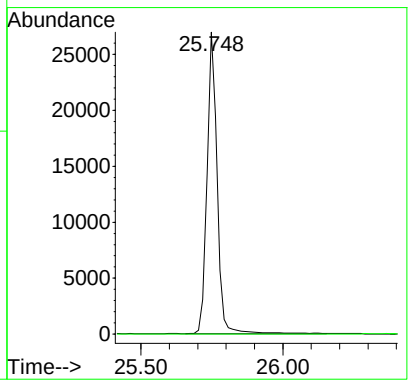


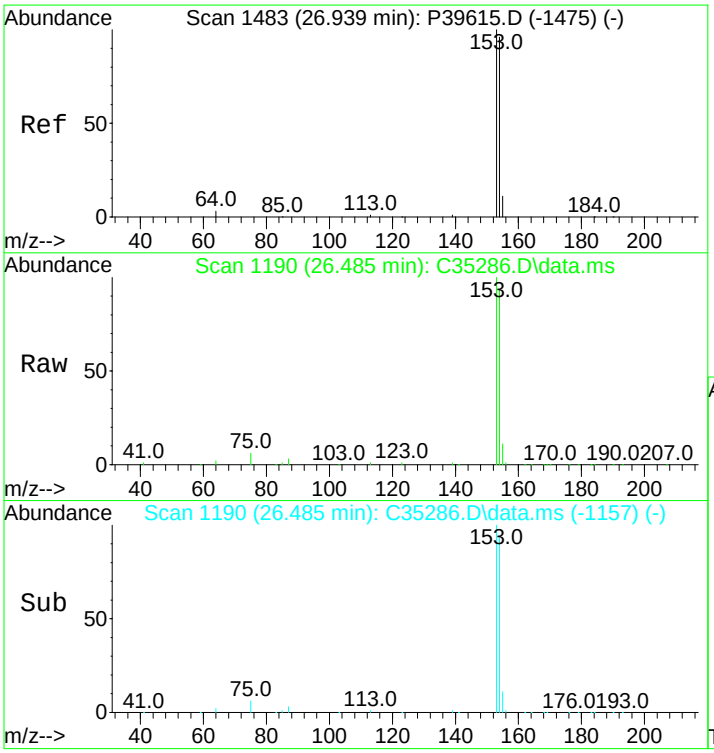


#26
Acenaphthylene
Concen: 843.44 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:152 Resp: 66746

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

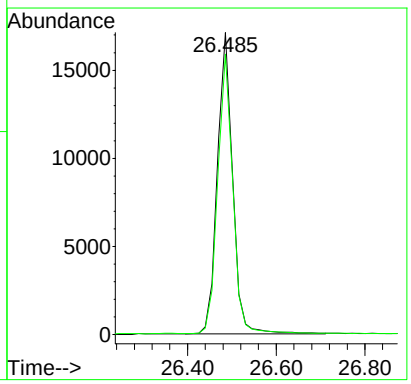


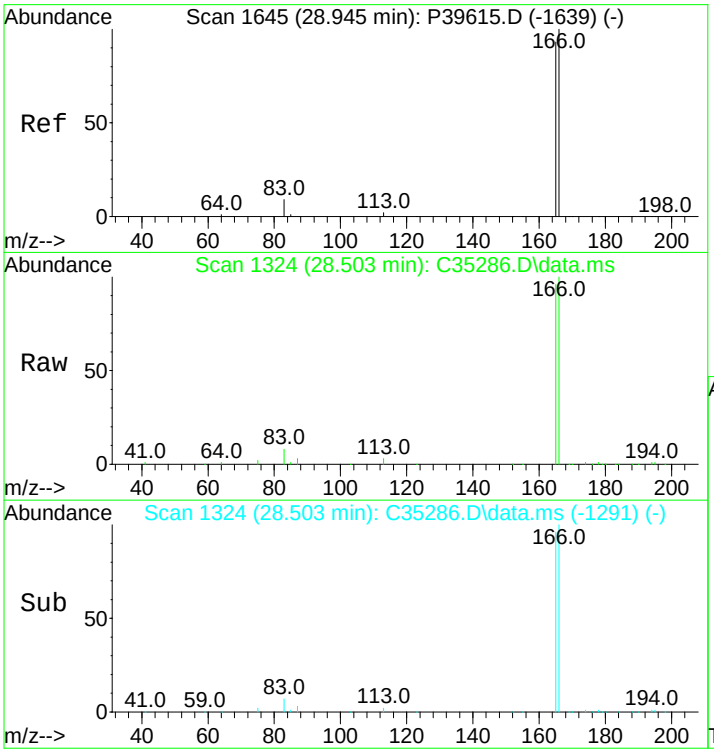


#27
Acenaphthene
Concen: 874.58 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:153 Resp: 40751

Ion	Ratio	Lower	Upper
153	100		
154	92.5	73.3	109.9

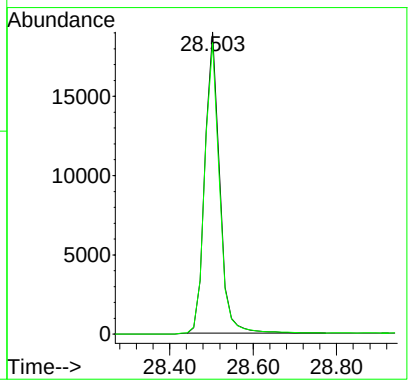


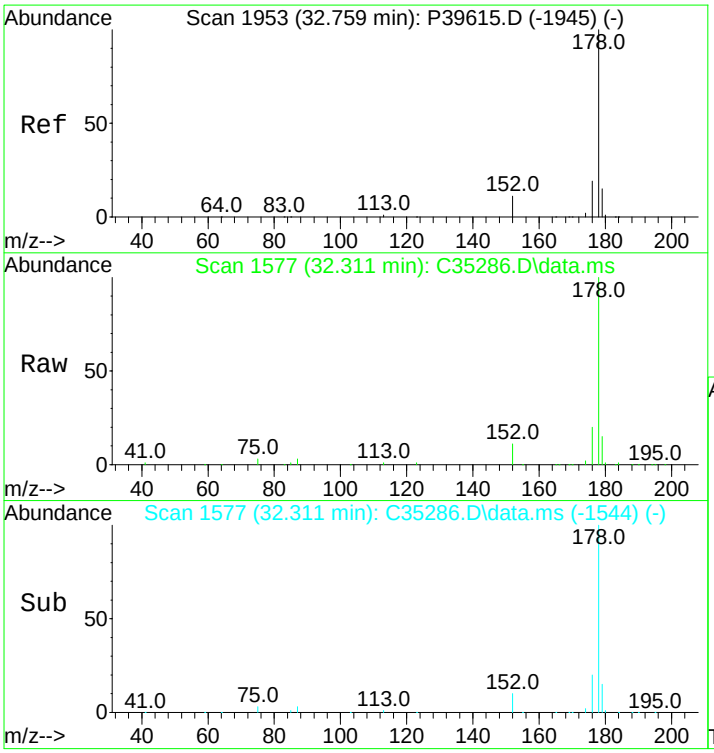


#29
Fluorene
Concen: 906.41 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:166 Resp: 46579

Ion	Ratio	Lower	Upper
166	100		
165	99.8	77.1	115.7

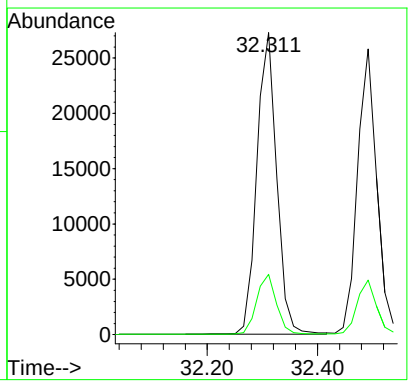


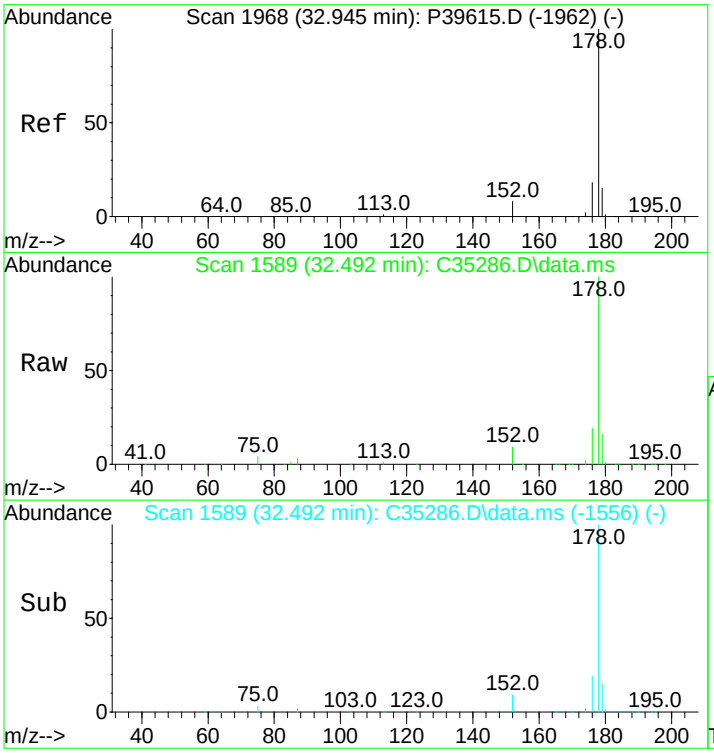


#43
Phenanthrene
Concen: 934.46 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:178 Resp: 67630

Ion	Ratio	Lower	Upper
178	100		
176	19.8	15.8	23.6

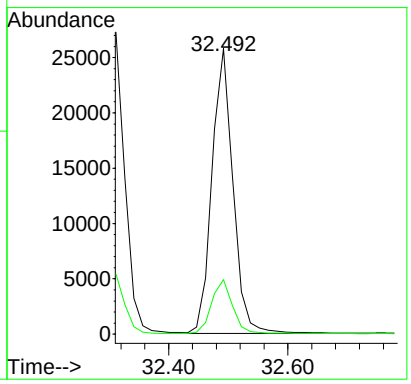


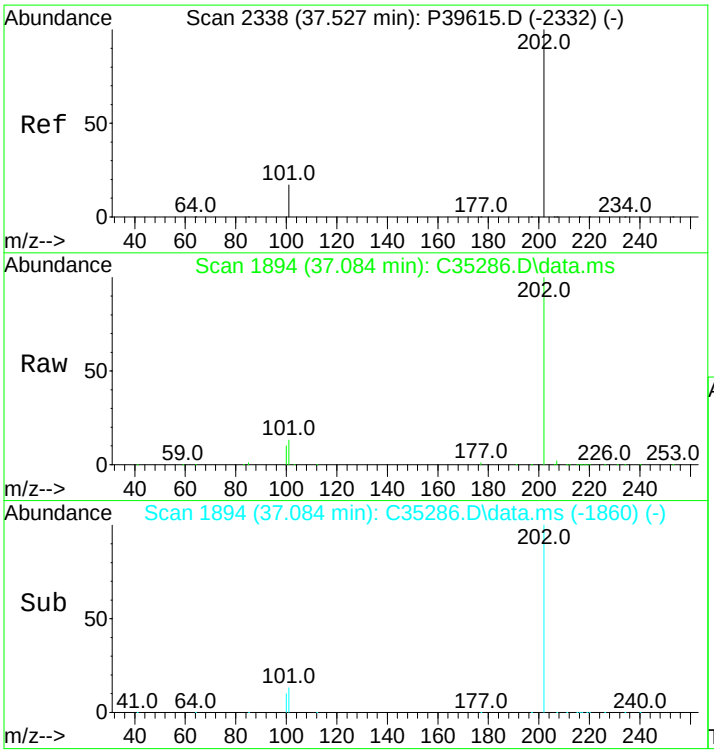


#55
Anthracene
Concen: 896.94 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:178 Resp: 63407

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.6	23.4

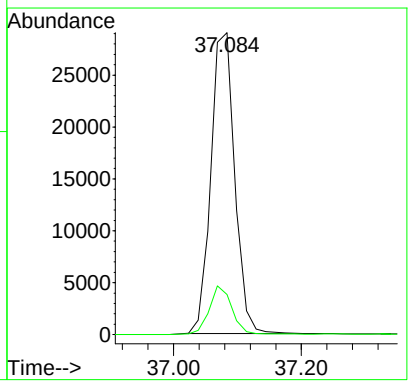


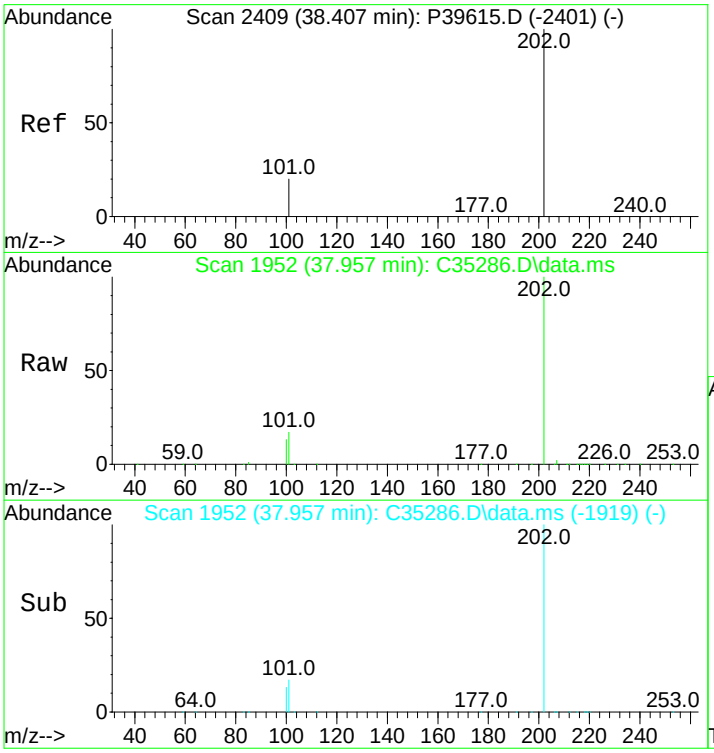


#58
Fluoranthene
Concen: 1045.25 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:202 Resp: 75132

Ion	Ratio	Lower	Upper
202	100		
101	15.9	13.2	19.8

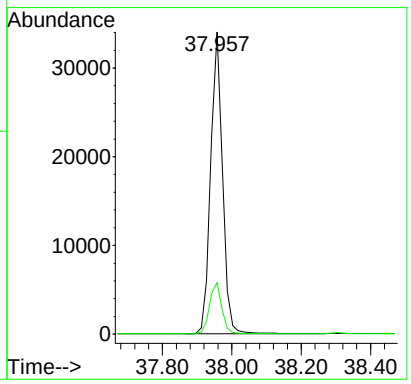


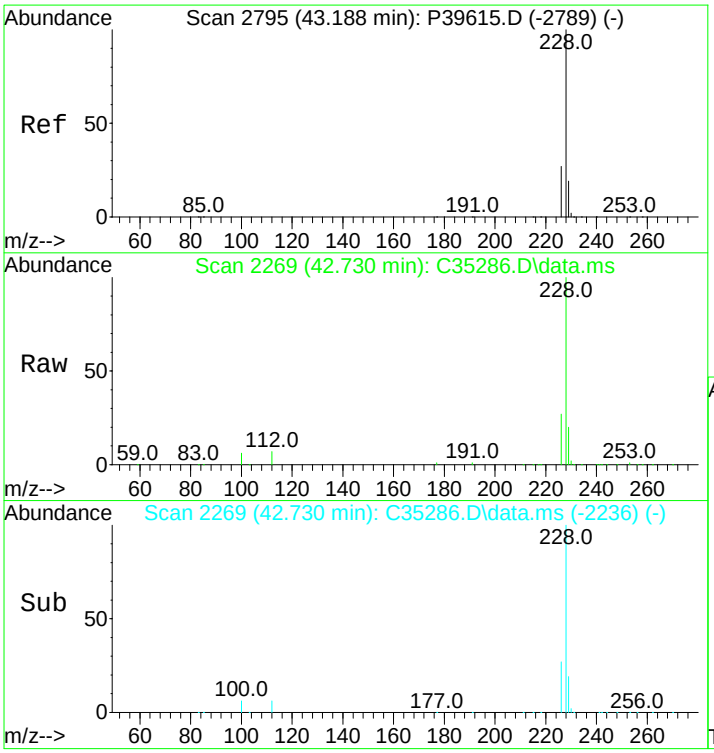


#60
Pyrene
Concen: 1102.45 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:202 Resp: 80553

Ion	Ratio	Lower	Upper
202	100		
101	17.4	13.5	20.3

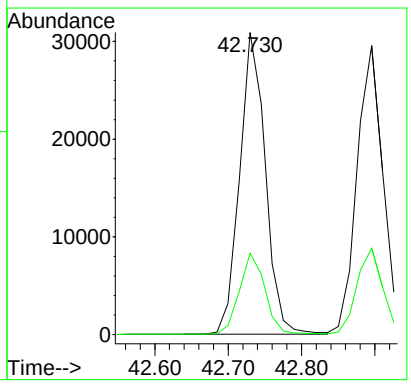


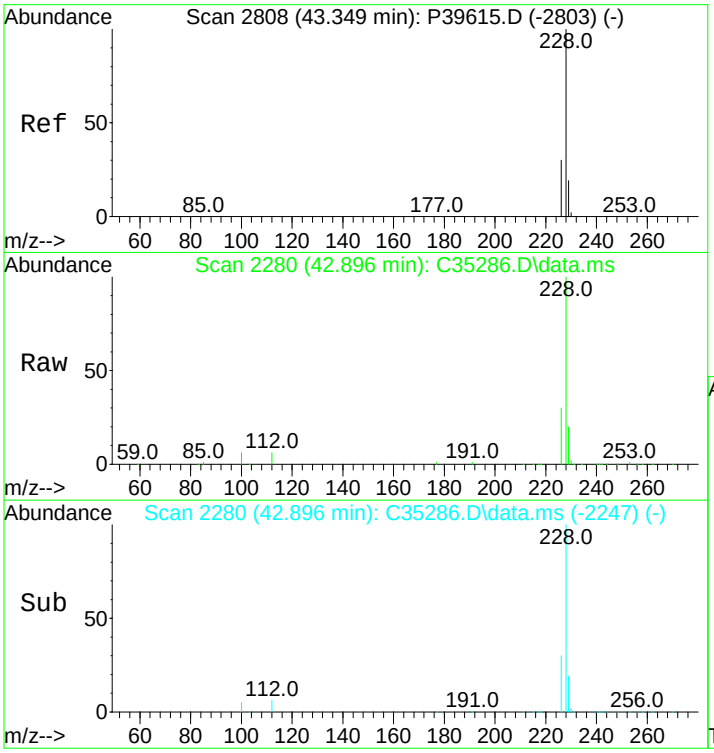


#75
Benz[a]anthracene
Concen: 930.06 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:228 Resp: 75069

Ion	Ratio	Lower	Upper
228	100		
226	27.7	21.5	32.3

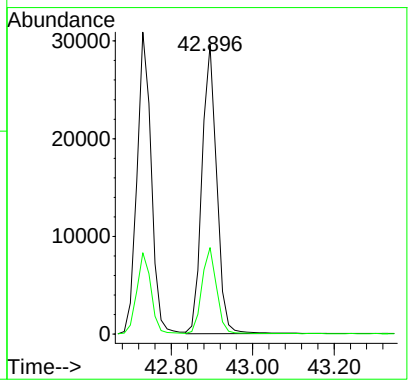


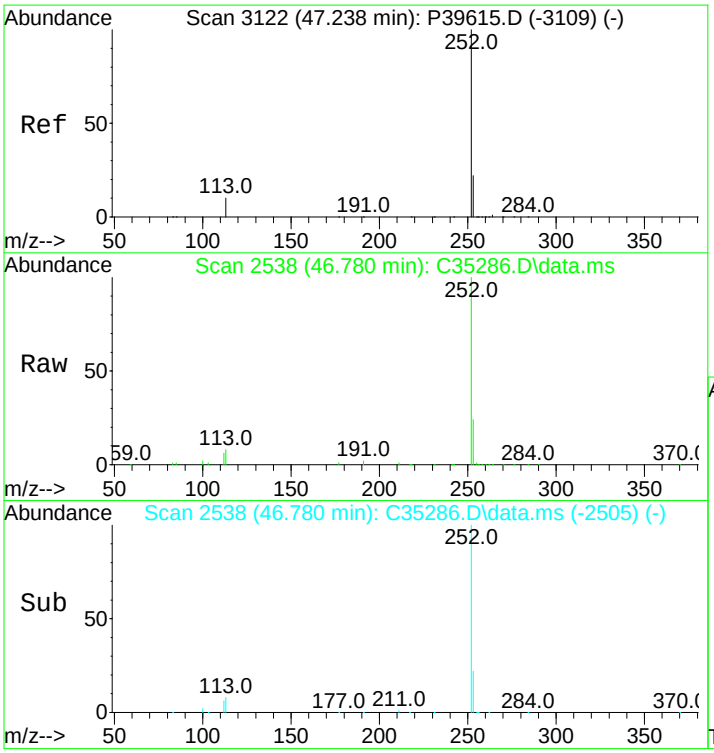


#77
Chrysene/Triphenylene
Concen: 908.21 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:228 Resp: 74008

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.5	35.3

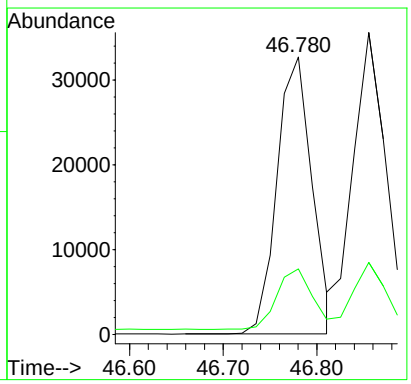


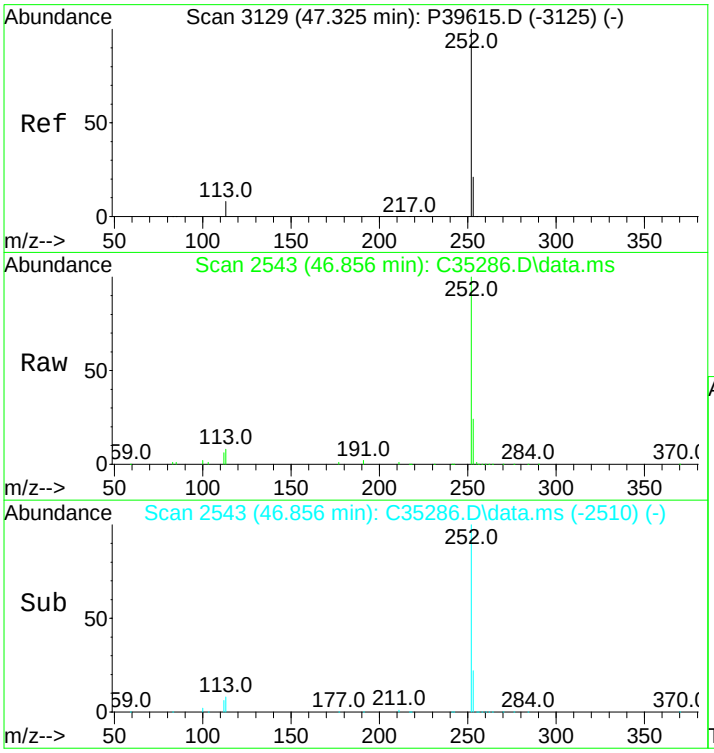


#82
Benzo[b]fluoranthene
Concen: 955.92 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:252 Resp: 84780

Ion	Ratio	Lower	Upper
252	100		
253	22.1	20.4	30.6

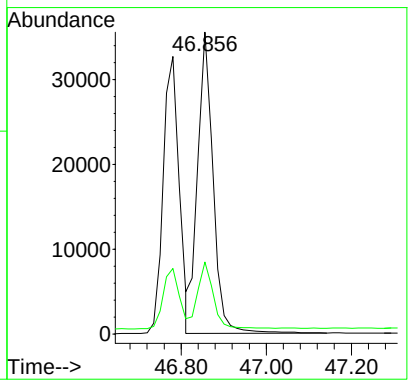


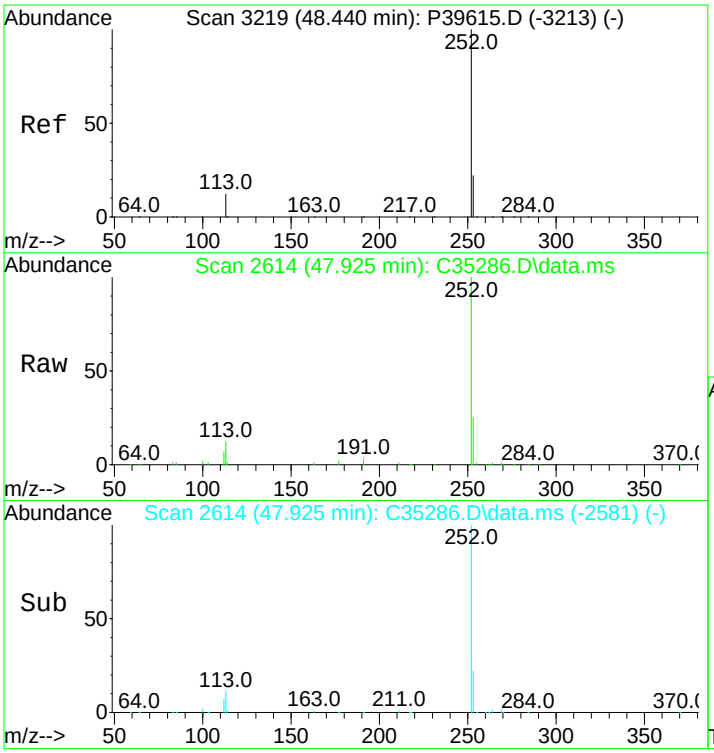


#83
Benzo[j]+[k]fluoranthene
Concen: 935.17 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:252 Resp: 90299

Ion	Ratio	Lower	Upper
252	100		
253	21.8	20.6	31.0

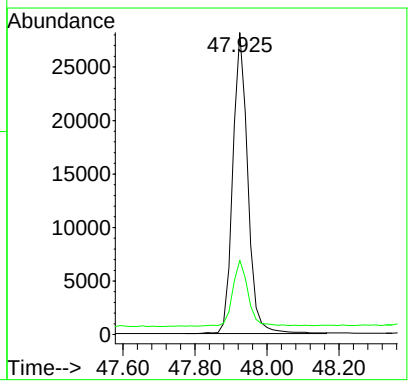


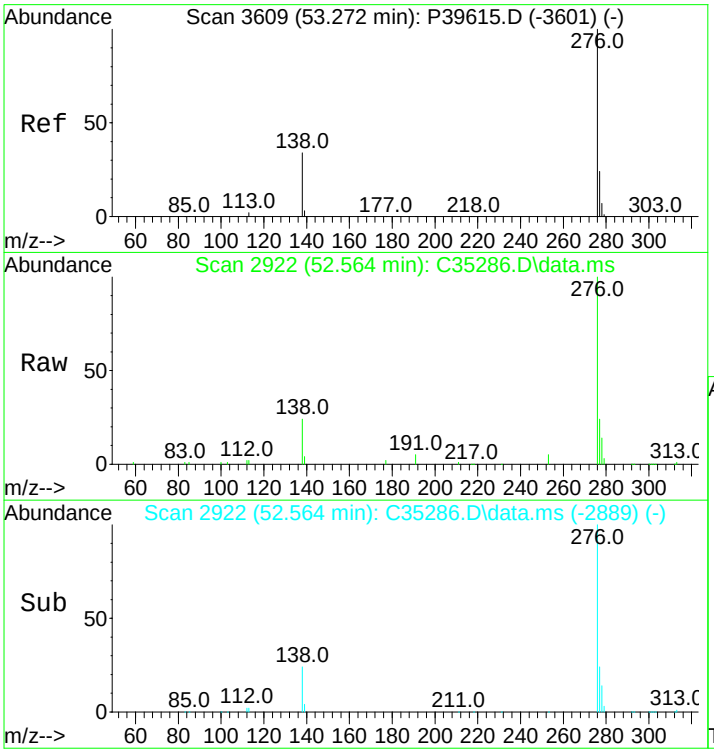


#87
Benzo[a]pyrene
Concen: 960.36 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:252 Resp: 81112

Ion	Ratio	Lower	Upper
252	100		
253	22.4	21.4	32.0

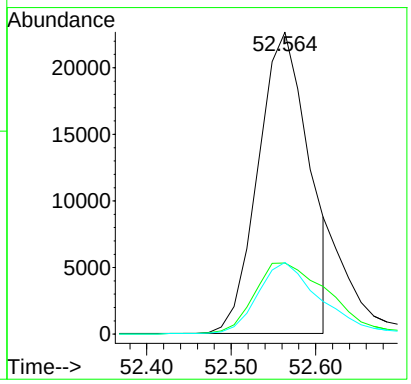


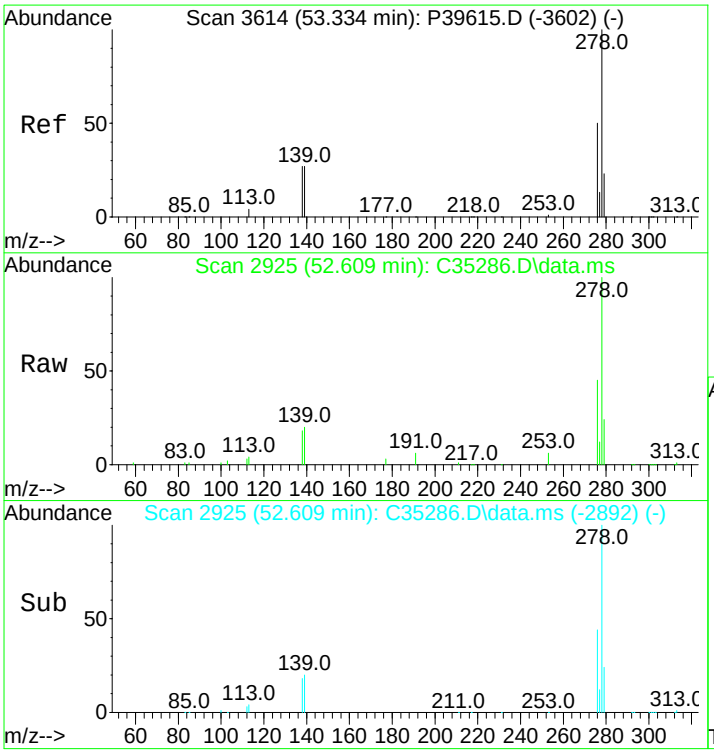


#89
Indeno[1,2,3-cd]pyrene
Concen: 964.93 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:276 Resp: 94842

Ion	Ratio	Lower	Upper
276	100		
138	36.1	19.1	28.7#
277	31.3	19.5	29.3#

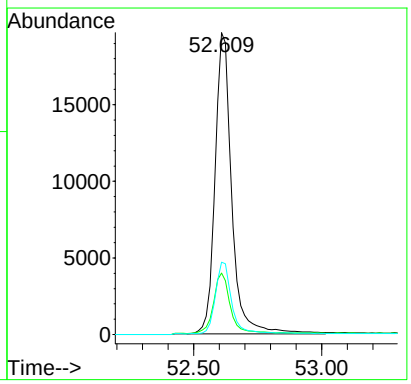


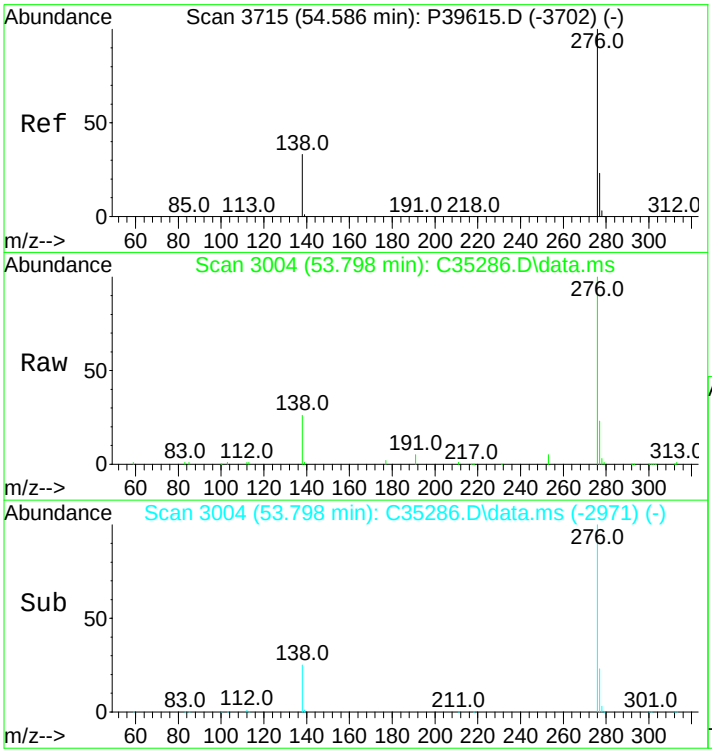


#90
Dibenz[ah]+[ac]anthracene
Concen: 957.02 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:278 Resp: 89481

Ion	Ratio	Lower	Upper
278	100		
139	20.8	16.6	25.0
279	23.7	20.0	30.0

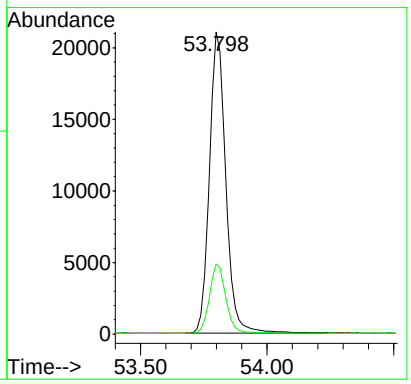




#91
Benzo[g,h,i]perylene
Concen: 906.23 ng/mL
RT: 53.798 min Scan# 3004
Delta R.T. 0.000 min
Lab File: C35286.D
Acq: 25 May 2012 12:55 am

Tgt Ion:276 Resp: 94105

Ion	Ratio	Lower	Upper
276	100		
277	23.0	18.8	28.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35288.D
Acq On : 25 May 2012 2:27 am
Operator : AC
Sample : SO052312LCSD03
Misc : 1X ETR1205027
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 11:32:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13463M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	26814	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	38889	665.533	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 66.55%			
42) Phenanthrene-d10	32.221	188	41941	908.085	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.81%			
86) Benzo[a]pyrene-d12	47.834	264	47223	849.794	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 84.98%			
127) 5B(H)Cholane - Surr	43.422	217	6608	788.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 78.82%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	73517	856.783	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	44185	870.897	ng/mL#	100
26) Acenaphthylene	25.747	152	73139	858.668	ng/mL#	100
27) Acenaphthene	26.485	153	44566M4	888.612	ng/mL	
29) Fluorene	28.502	166	50612M3	915.025	ng/mL	
43) Phenanthrene	32.311	178	73495	943.459	ng/mL	100
55) Anthracene	32.492	178	69309M3	910.877	ng/mL	
58) Fluoranthene	37.084	202	82396M3	1064.998	ng/mL	
60) Pyrene	37.957	202	86744	1102.971	ng/mL	98
75) Benz[a]anthracene	42.730	228	80764M4	948.968	ng/mL	
77) Chrysene/Triphenylene	42.895	228	79228	922.084	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	92277	986.753	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	98679	969.204	ng/mL	92
87) Benzo[a]pyrene	47.925	252	88187	990.230	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.563	276	101111M3	975.615	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	94832M3	961.897	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	100979	922.231	ng/mL	99

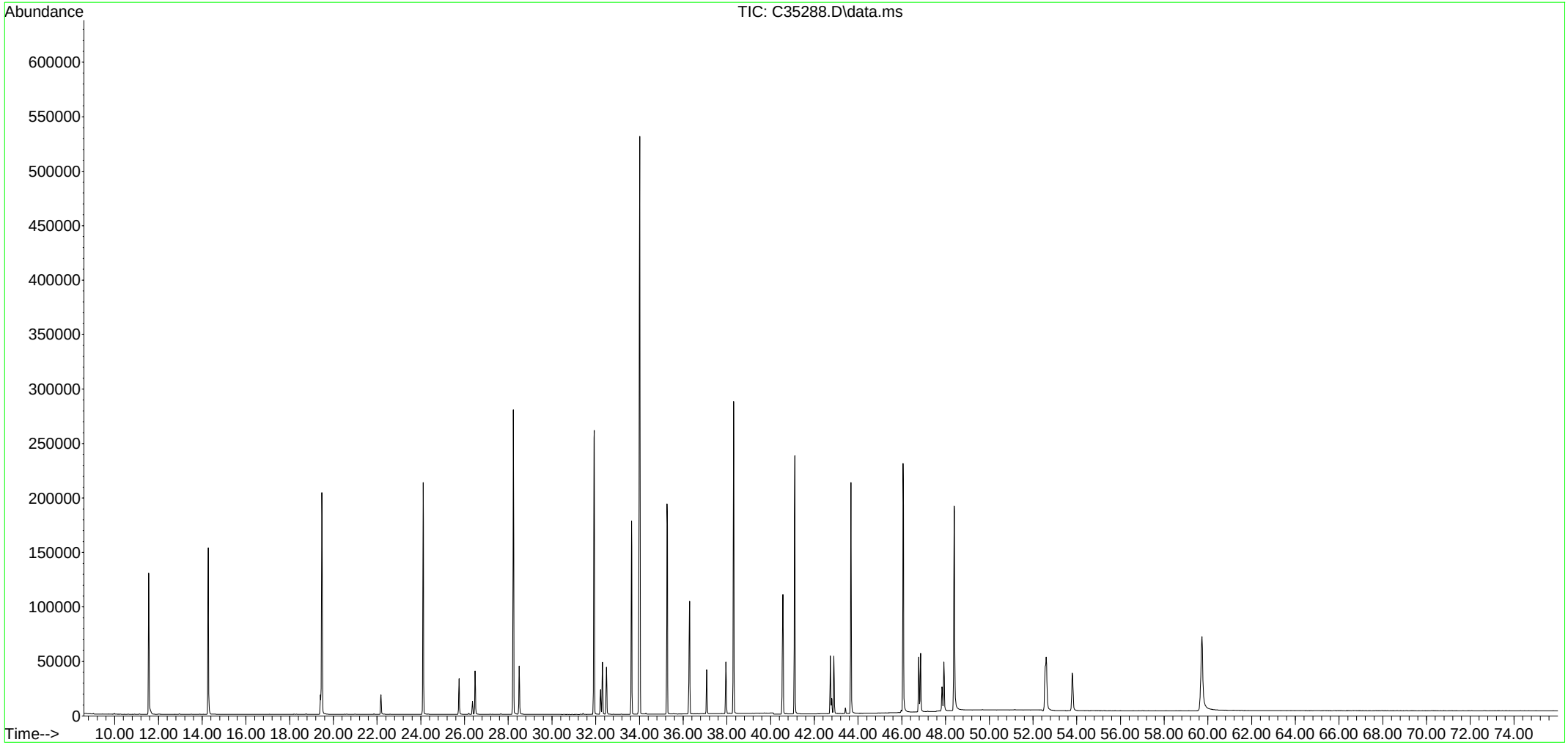
(#) = qualifier out of range (m) = manual integration (+) = signals summed

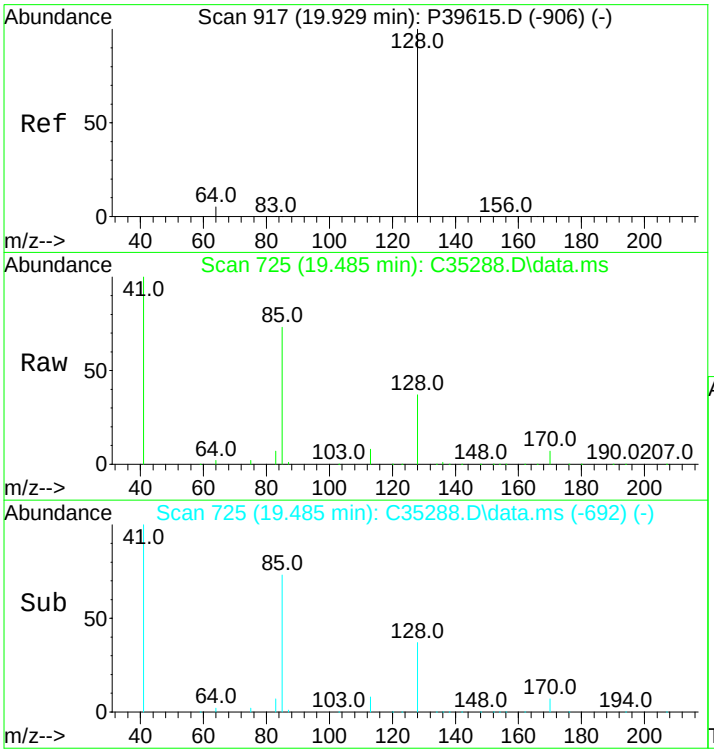
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35288.D
Acq On : 25 May 2012 2:27 am
Operator : AC
Sample : SO052312LCSD03
Misc : 1X ETR1205027
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 11:32:37 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

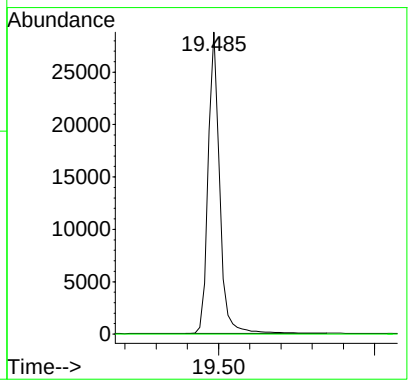


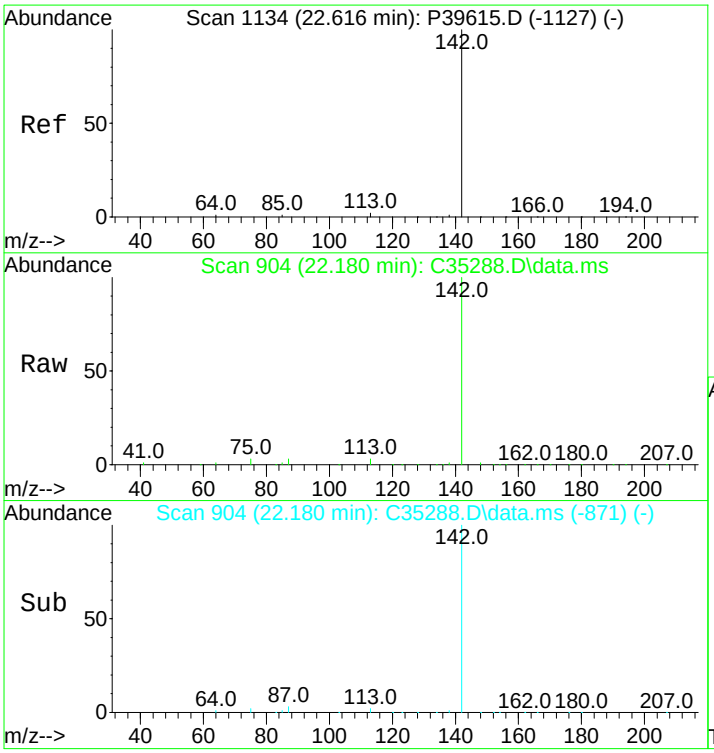


#10
Naphthalene
Concen: 856.78 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:128 Resp: 73517

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

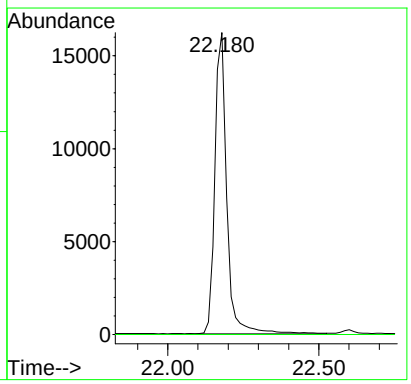


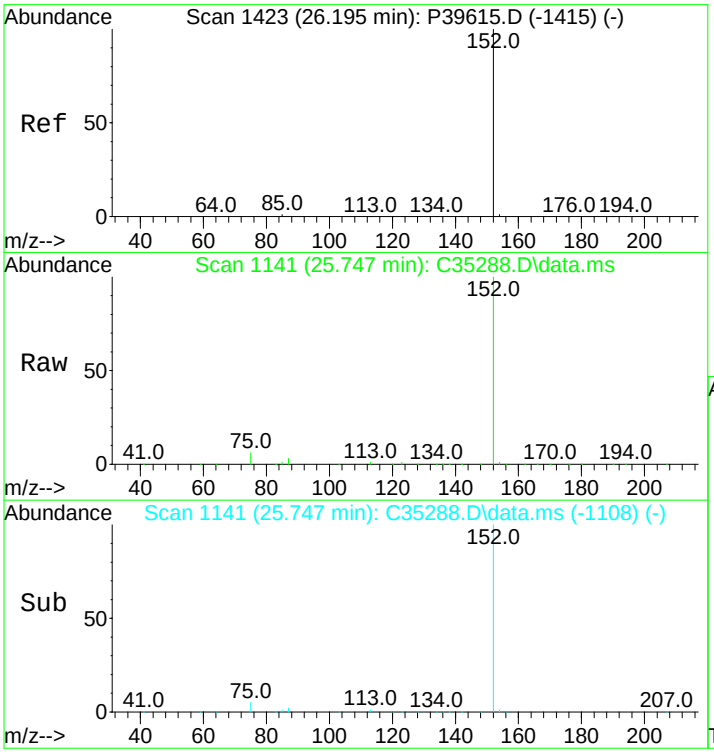


#16
2-Methylnaphthalene
Concen: 870.90 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:142 Resp: 44185

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

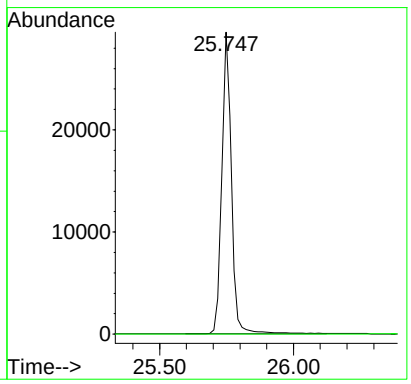


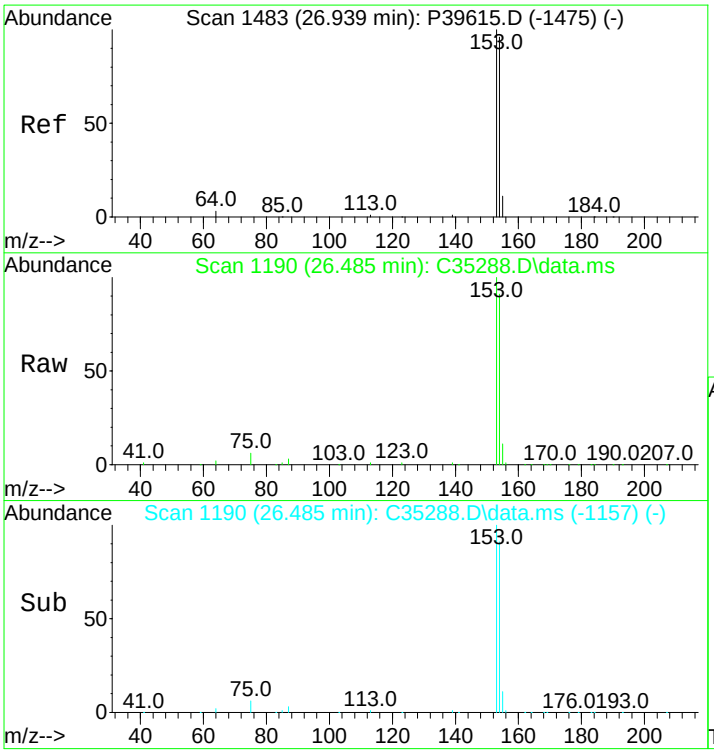


#26
Acenaphthylene
Concen: 858.67 ng/mL
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:152 Resp: 73139

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

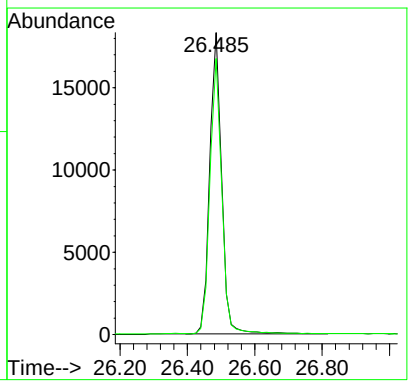


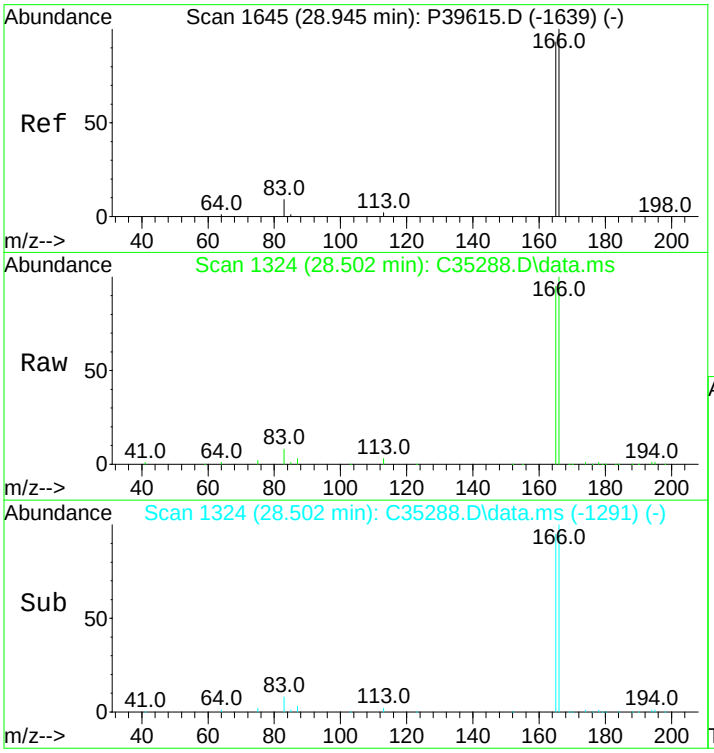


#27
Acenaphthene
Concen: 888.61 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:153 Resp: 44566

Ion	Ratio	Lower	Upper
153	100		
154	91.3	73.3	109.9

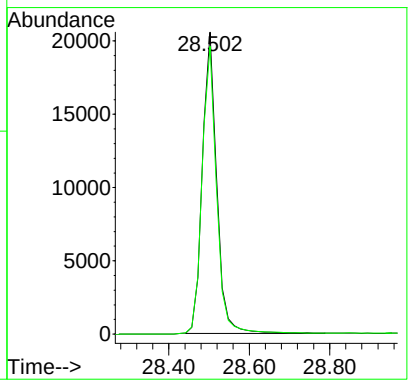


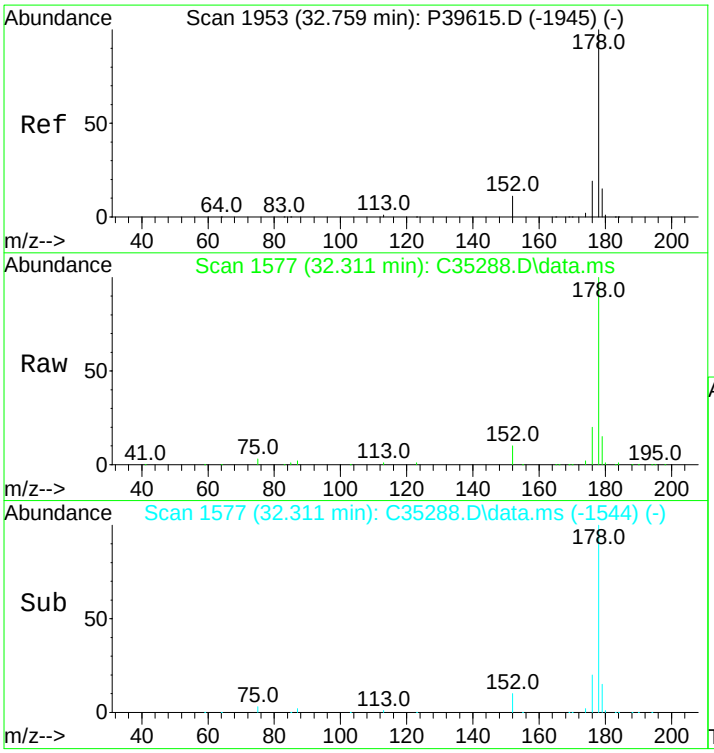


#29
Fluorene
Concen: 915.02 ng/mL m
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:166 Resp: 50612

Ion	Ratio	Lower	Upper
166	100		
165	99.1	77.1	115.7

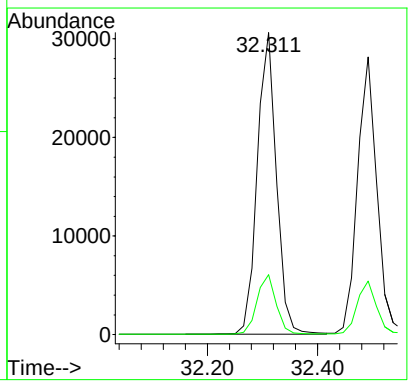


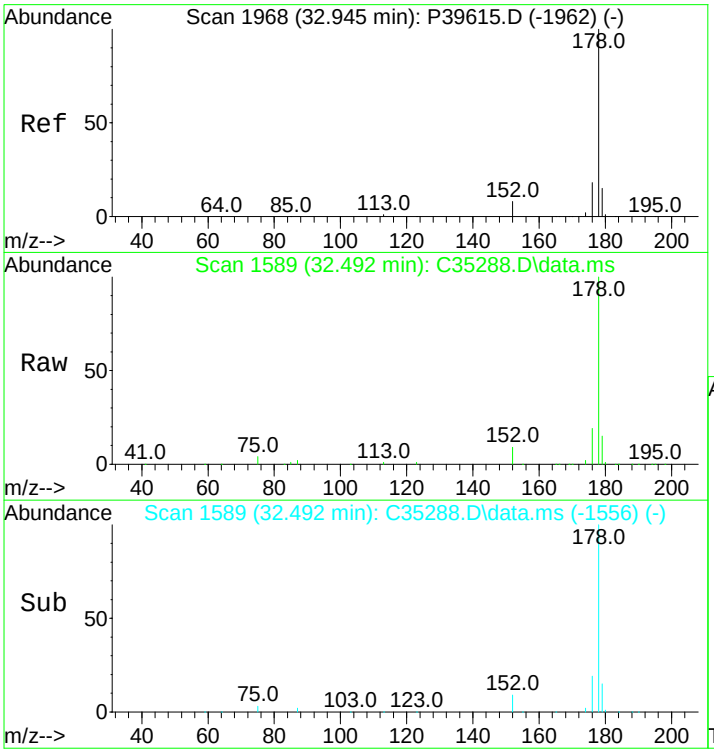


#43
Phenanthrene
Concen: 943.46 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:178 Resp: 73495

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.8	23.6

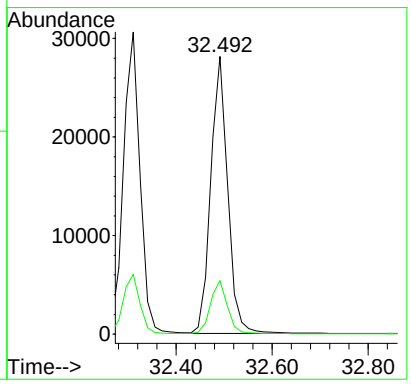


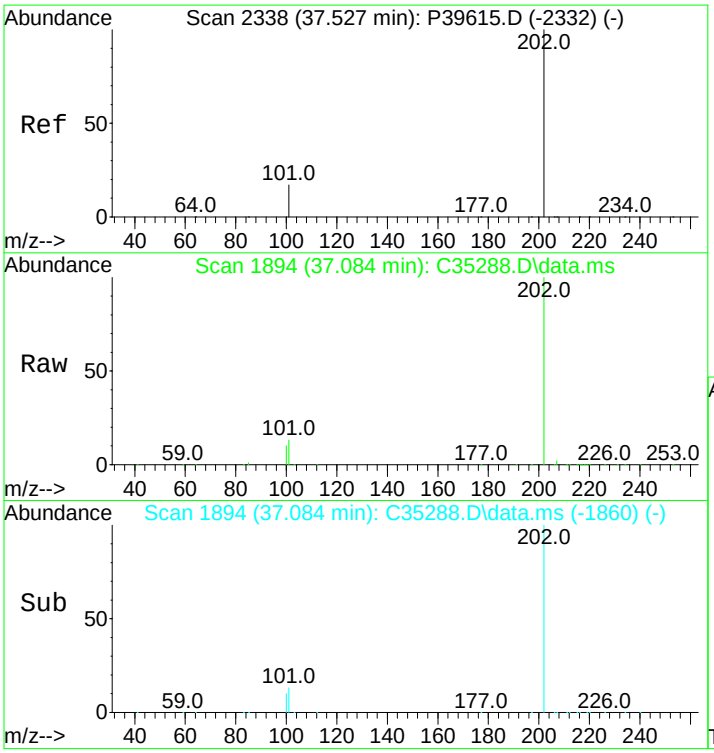


#55
Anthracene
Concen: 910.88 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:178 Resp: 69309

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.6	23.4

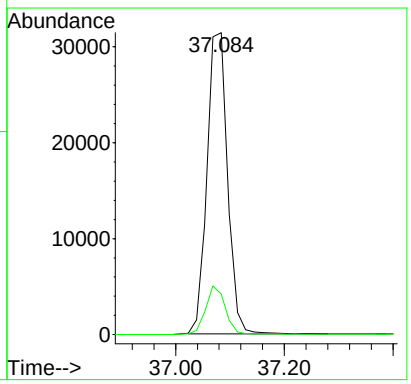


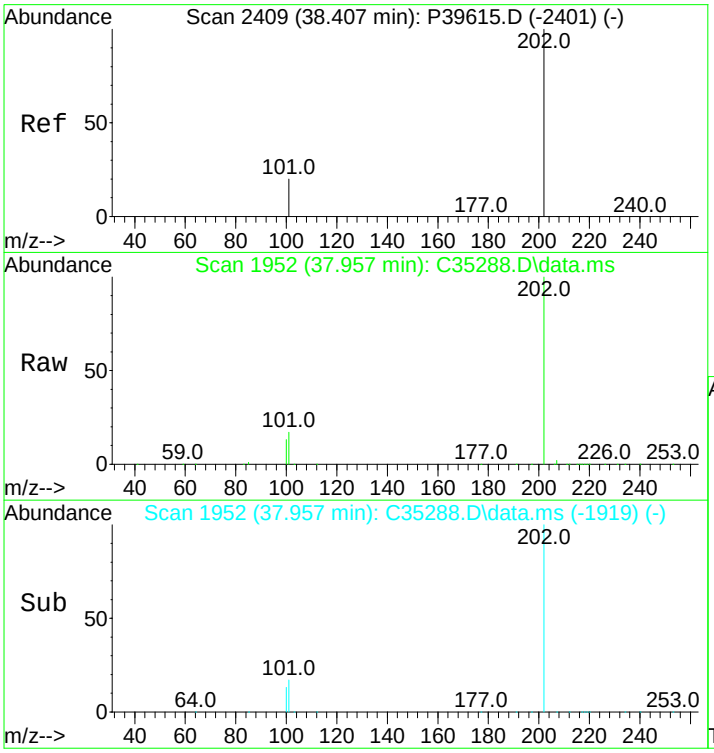


#58
Fluoranthene
Concen: 1065.00 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:202 Resp: 82396

Ion	Ratio	Lower	Upper
202	100		
101	16.0	13.2	19.8

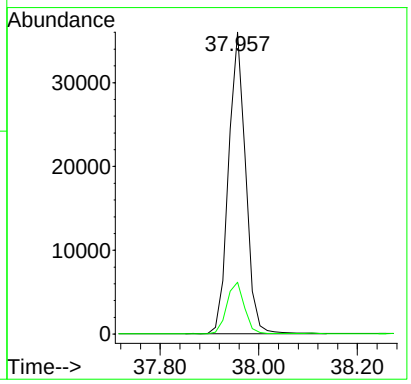


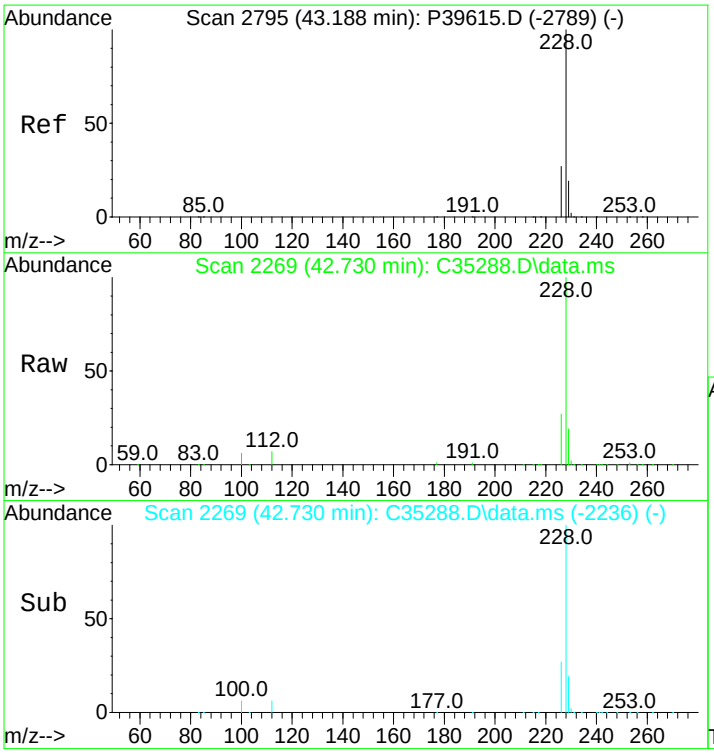


#60
Pyrene
Concen: 1102.97 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:202 Resp: 86744

Ion	Ratio	Lower	Upper
202	100		
101	17.7	13.5	20.3

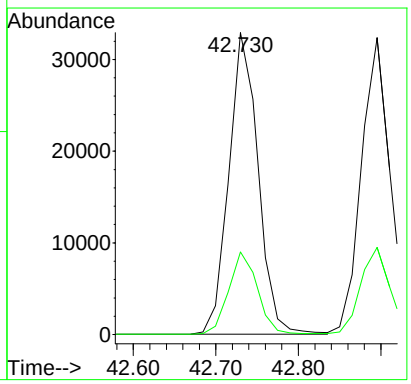


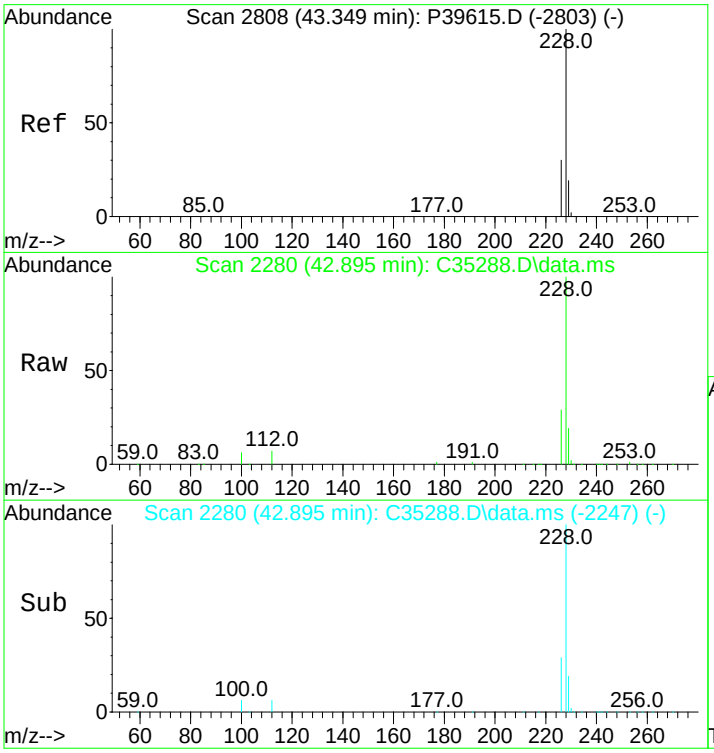


#75
Benz[a]anthracene
Concen: 948.97 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:228 Resp: 80764

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.5	32.3

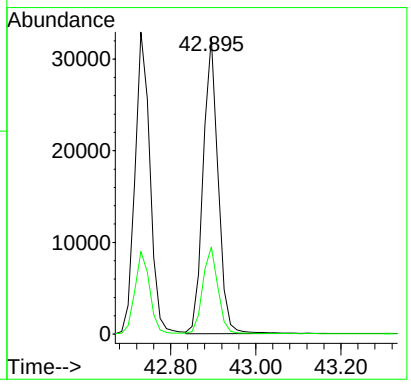


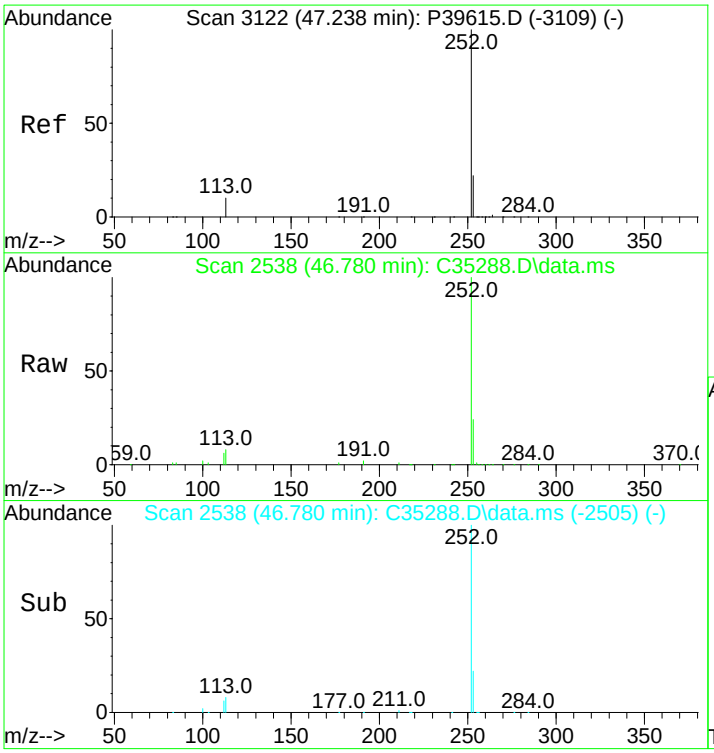


#77
Chrysene/Triphenylene
Concen: 922.08 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:228 Resp: 79228

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.5	35.3

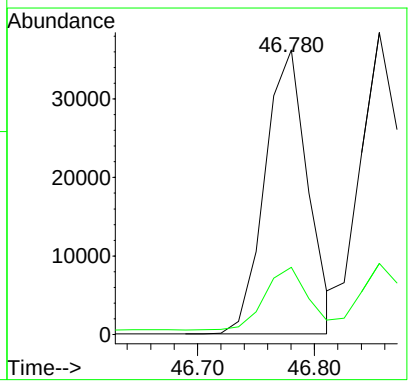


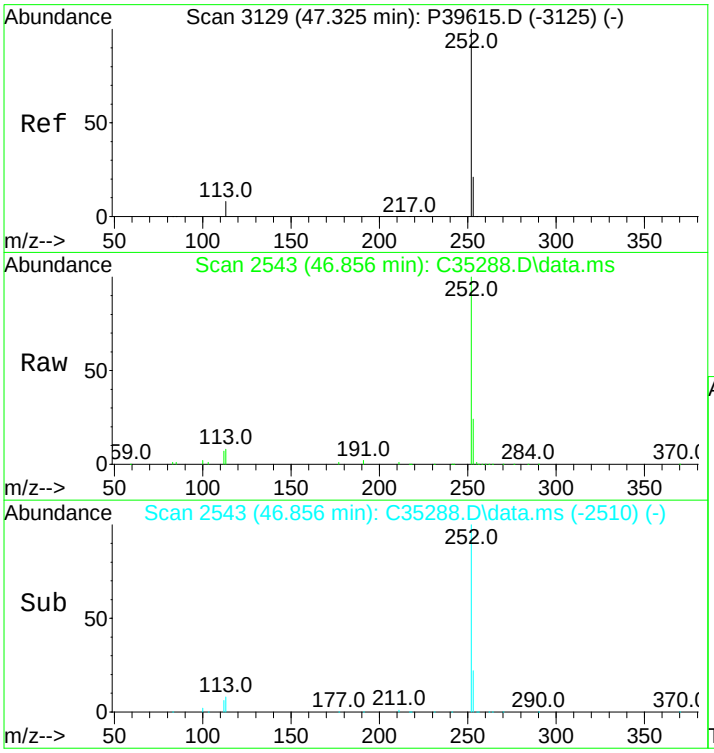


#82
Benzo[b]fluoranthene
Concen: 986.75 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:252 Resp: 92277

Ion	Ratio	Lower	Upper
252	100		
253	22.2	20.4	30.6

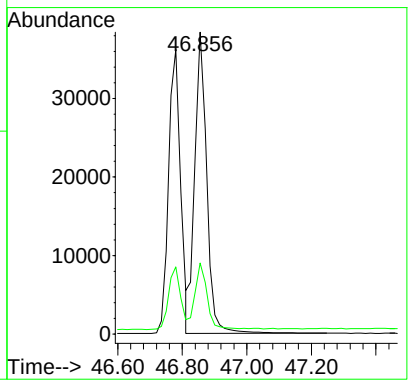


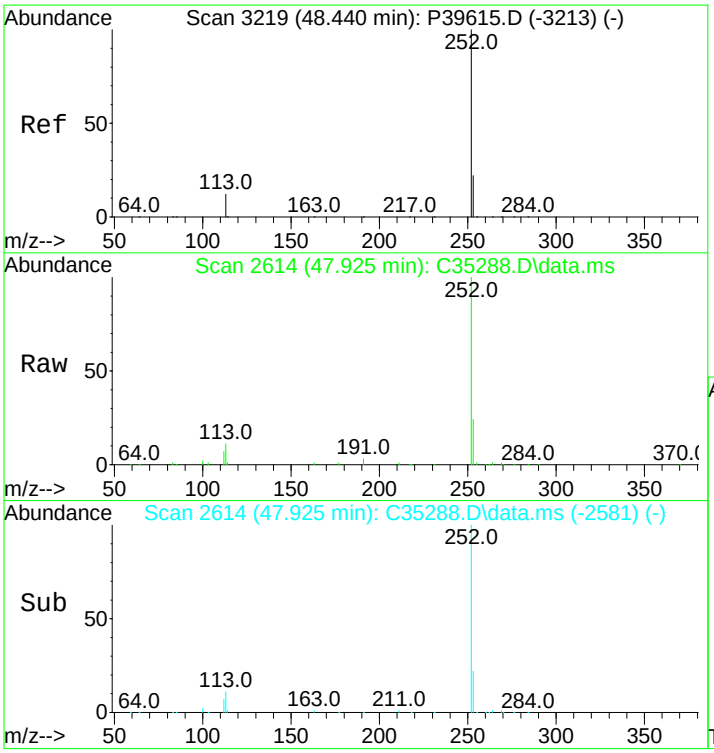


#83
Benzo[j]+[k]fluoranthene
Concen: 969.20 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:252 Resp: 98679

Ion	Ratio	Lower	Upper
252	100		
253	21.6	20.6	31.0

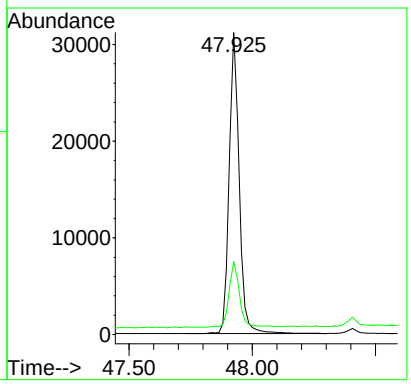


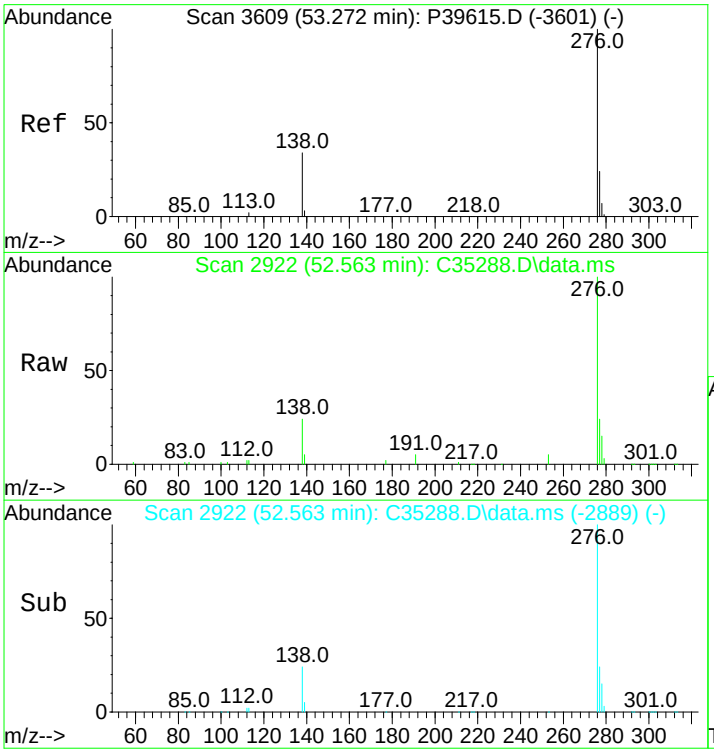


#87
Benzo[a]pyrene
Concen: 990.23 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:252 Resp: 88187

Ion	Ratio	Lower	Upper
252	100		
253	22.6	21.4	32.0

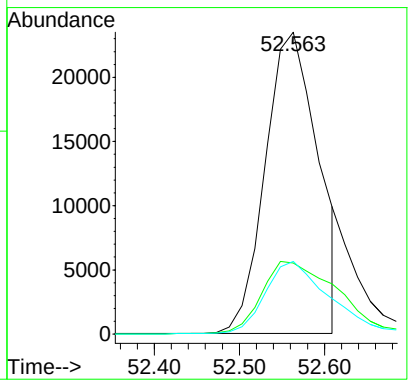


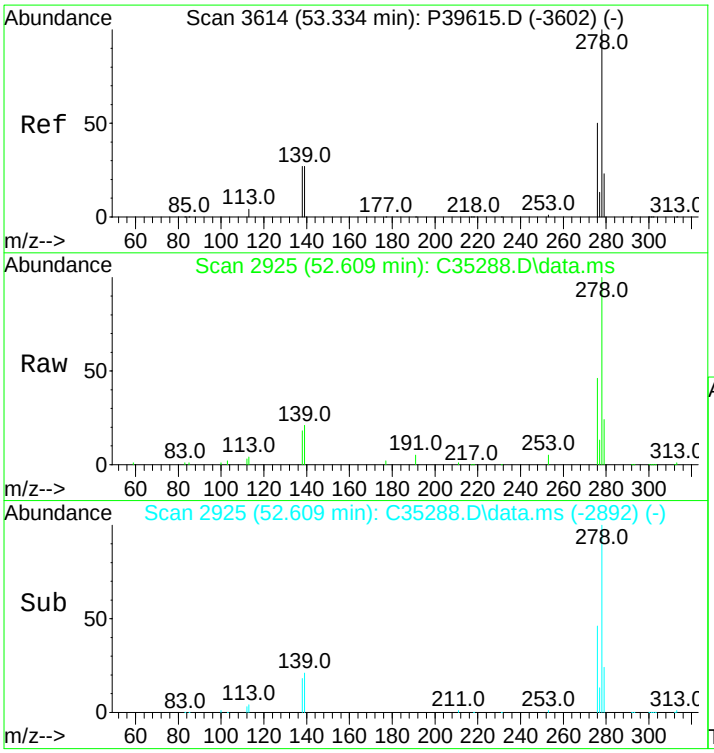


#89
Indeno[1,2,3-cd]pyrene
Concen: 975.62 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:276 Resp: 101111

Ion	Ratio	Lower	Upper
276	100		
138	36.5	19.1	28.7#
277	31.5	19.5	29.3#

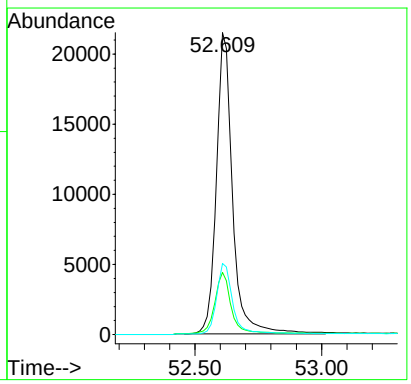


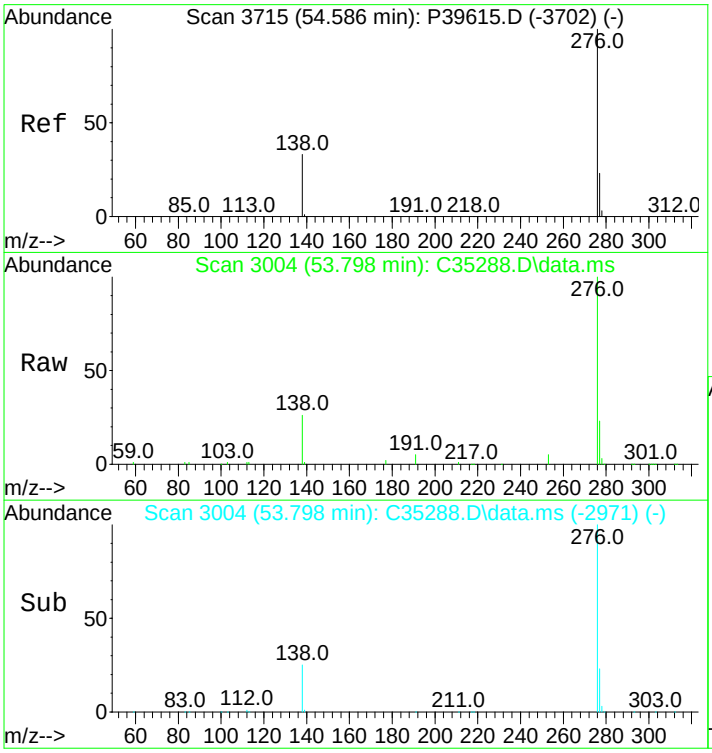


#90
Dibenz[ah]+[ac]anthracene
Concen: 961.90 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:278 Resp: 94832

Ion	Ratio	Lower	Upper
278	100		
139	23.1	16.6	25.0
279	25.2	20.0	30.0

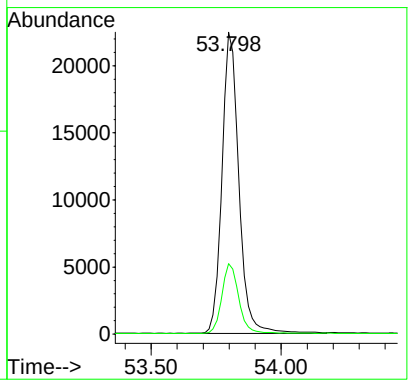




#91
Benzo[g,h,i]perylene
Concen: 922.23 ng/mL
RT: 53.798 min Scan# 3004
Delta R.T. 0.000 min
Lab File: C35288.D
Acq: 25 May 2012 2:27 am

Tgt Ion:276 Resp: 100979

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.8	28.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12701M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27050	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	38430	697.135	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.71%			
42) Phenanthrene-d10	32.221	188	39356	903.239	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.32%			
86) Benzo[a]pyrene-d12	47.835	264	47781	852.334	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.23%			
127) 5B(H)Cholane - Surr	43.422	217	8215	971.361	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.14%			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	1984	24.509	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3171M5	39.173	ng/mL	
12) C2-Naphthalenes	24.664	156	3896M5	48.129	ng/mL	
13) C3-Naphthalenes	27.750	170	3339M5	41.248	ng/mL	
14) C4-Naphthalenes	30.113	184	2622M4	32.391	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2284	47.719	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	814	17.350	ng/mL#	100
19) C1-Benzo(b)thiophenes	22.345	148	335M5	4.599	ng/mL	
23) Biphenyl	24.061	154	462M3	7.631	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1203M3	30.592	ng/mL	
25) Dibenzofuran	27.133	168	2863	41.179	ng/mL	99
26) Acenaphthylene	25.748	152	107M3	1.332	ng/mL	
27) Acenaphthene	26.485	153	501M3	10.589	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	216M3	6.814	ng/mL	
29) Fluorene	28.503	166	1066M3	20.429	ng/mL	
30) C1-Fluorenes	30.866	180	897M5	17.190	ng/mL	
31) C2-Fluorenes	33.034	194	1467M5	28.113	ng/mL	
33) Dibenzothiophene	31.814	184	547M3	6.539	ng/mL	
34) 4-Methyldibenzothiophene(	33.591	198	306	3.658	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.952	198	318M3	3.802	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	119M3	1.423	ng/mL	
37) OTP	34.012	198	9867M3	117.961	ng/mL	
38) C1-Dibenzothiophenes	34.012	198	10852M5	129.737	ng/mL	
38) C1-Dibenzothiophenes BS	34.012	198	985m	11.776	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	1016M5	12.146	ng/mL	
40) C3-Dibenzothiophenes	38.108	226	1135M5	13.569	ng/mL	
43) Phenanthrene	32.311	178	7158	97.400	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	536M3	7.293	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	732M3	9.960	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	346M3	4.708	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	334M3	4.545	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	2201M5	29.949	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	3187M5	43.366	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1257m	17.104	ng/mL	
51) 5AA IS BKGD	36.301	206	1930	26.262	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.379	220	937M5	12.750	ng/mL	
55) Anthracene	32.492	178	352M3	4.904	ng/mL	
56) Carbazole	33.154	167	88M3	1.214	ng/mL	
57) 1-Methylphenanthrene	34.810	192	341M3	7.322	ng/mL	
58) Fluoranthene	37.084	202	2212M3	30.306	ng/mL	
59) Benzo(b)fluorene	39.598	216	91M3	2.149	ng/mL	
60) Pyrene	37.957	202	1394	18.788	ng/mL#	53
61) C1-Fluoranthenes/Pyrenes	39.357	216	979M5	13.195	ng/mL	
66) Naphthobenzothiophene	41.811	234	137M3	1.715	ng/ml	
67) Naphthobenzothiophene-2,1	41.811	234	141M3	1.765	ng/mL	
69) Naphthobenzothiophene-2,3	42.459	234	342M3	4.282	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
70)	C1-Naphthobenzothiophenes	43.468	248	971M5	12.156	ng/ml	
71)	C2-Naphthobenzothiophenes	45.259	262	964M5	12.069	ng/ml	
75)	Benz[a]anthracene	42.730	228	328M3	3.820	ng/mL	
77)	Chrysene/Triphenylene	42.880	228	577M3	6.657	ng/mL	
78)	C1-Chrysenes	44.371	242	446M5	5.145	ng/mL	
82)	Benzo[b]fluoranthene	46.780	252	720	7.632	ng/mL#	5
83)	Benzo[j]+[k]fluoranthene	46.856	252	672M3	6.543	ng/mL	
85)	Benzo[e]pyrene	47.744	252	571M3	6.119	ng/mL	
87)	Benzo[a]pyrene	47.925	252	515M3	5.732	ng/mL	
88)	Perylene	48.226	252	559M3	5.822	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	52.564	276	643M3	6.150	ng/mL	
91)	Benzo[g,h,i]perylene	53.813	276	932	8.438	ng/mL	100
92)	Hopane (T19)	51.690	191	1391M3	78.024	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.456	191	299M3	16.771	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.179	191	257M3	14.416	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.045	191	417M3	23.390	ng/ml	
107)	17a(H)-22,29,30-Trisnorho	48.588	191	474	26.588	ng/ml	100
110)	30-Norhopane (T15)	50.380	191	1052M3	59.009	ng/ml	
119)	30,31-Bishomohopane-22S (	54.852	191G	1001M3	56.148	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.928	217	141M3	16.672	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	80M3	9.459	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	181	21.402	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	147M3	17.382	ng/ml	
133)	Unknown Sterane (S18)	47.699	217G	172M3	20.338	ng/ml	
135)	14a,17a-20S-Methylcholest	48.091	217	173M3	20.456	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	103M3	12.179	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.003	217	163M3	19.274	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	46.991	218	104M3	12.297	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.082	218	91M3	10.760	ng/ml	
141)	14b,17b-20R-Methylcholest	48.256	218	102M3	12.061	ng/ml	
142)	14b,17b-20S-Methylcholest	48.332	218	134M3	15.844	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	210M3	24.831	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.401	218	167M3	19.746	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	366	43.277	ng/mL	100
146)	C28,20S-triaromatic stero	49.913	231	291M3	34.409	ng/mL	
147)	C27,20R-triaromatic stero	50.350	231	215M3	25.422	ng/mL	
148)	C28,20R-triaromatic stero	51.509	231	225M3	26.605	ng/mL	

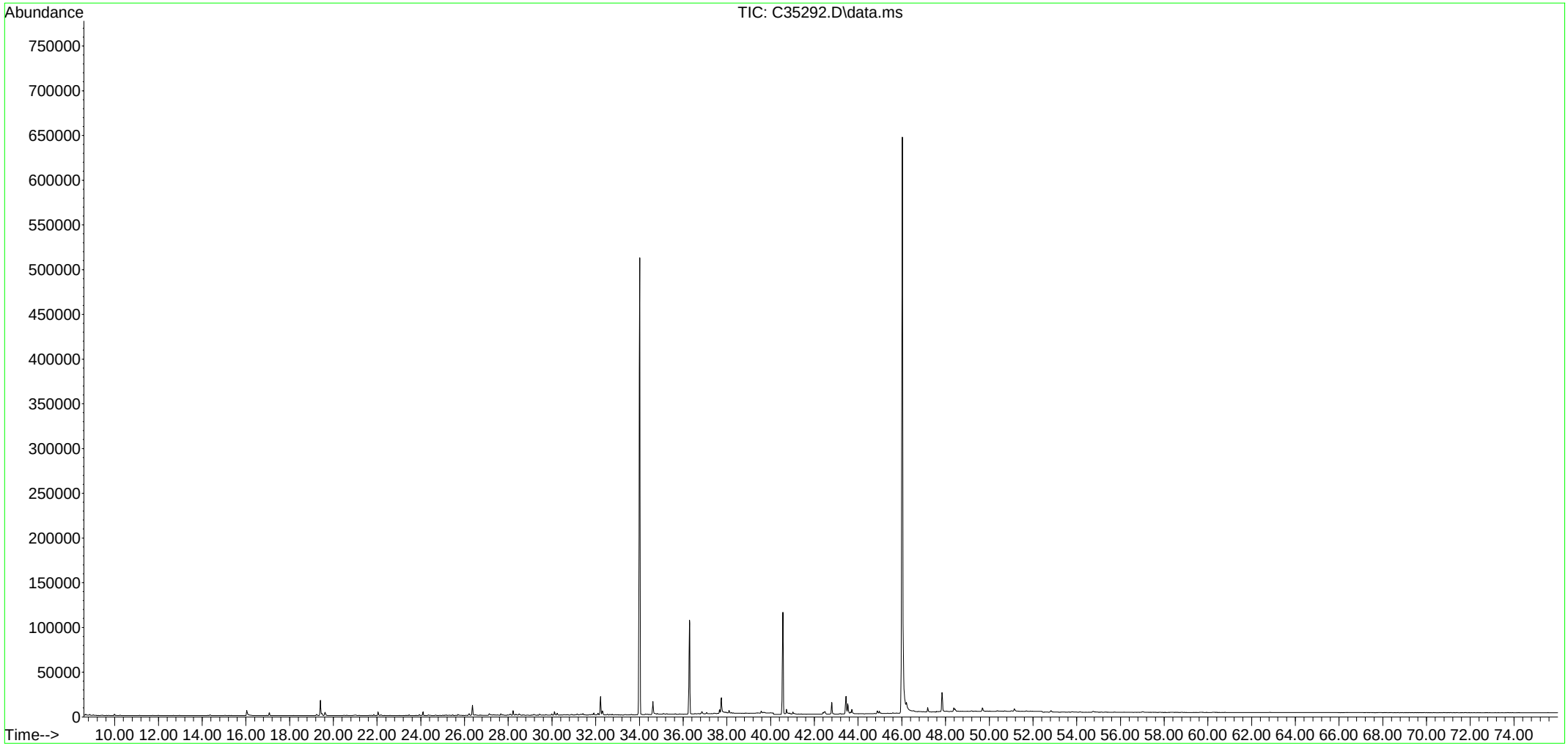
(#) = qualifier out of range (m) = manual integration (+) = signals summed

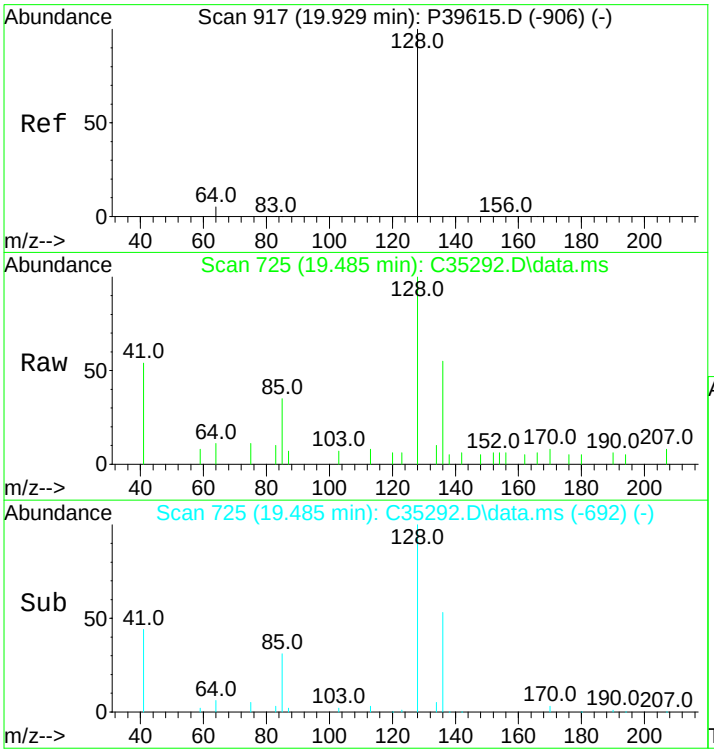
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35292.D
Acq On : 25 May 2012 5:31 am
Operator : AC
Sample : 1205027-01
Misc : 1X
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 29 11:38:24 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

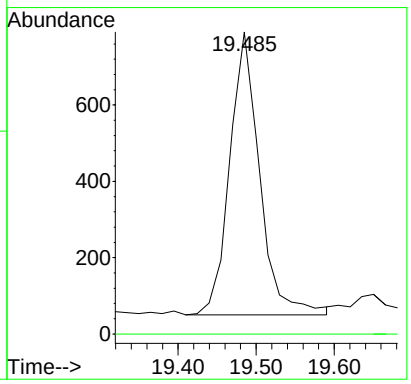


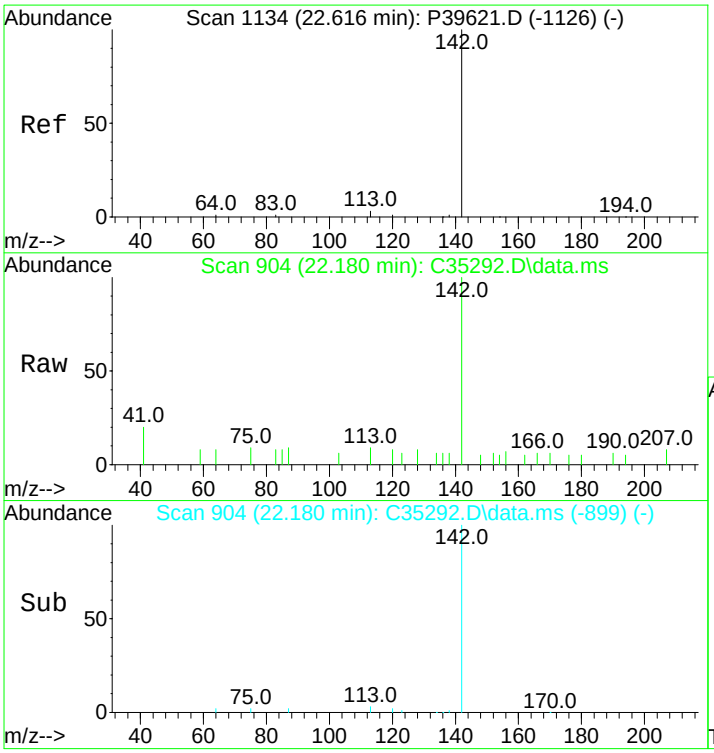


#10
Naphthalene
Concen: 24.51 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:128 Resp: 1984

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

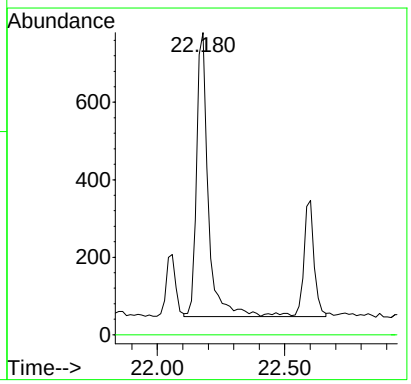


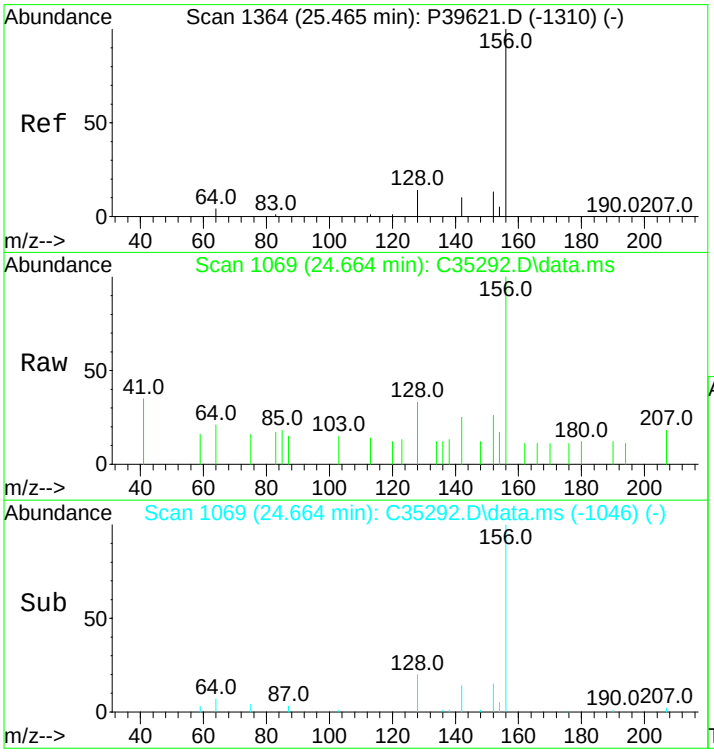


#11
C1-Naphthalenes
Concen: 39.17 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:142 Resp: 3171

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

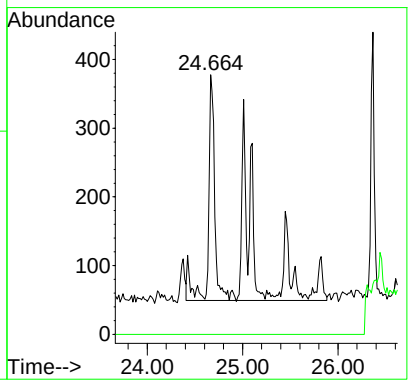


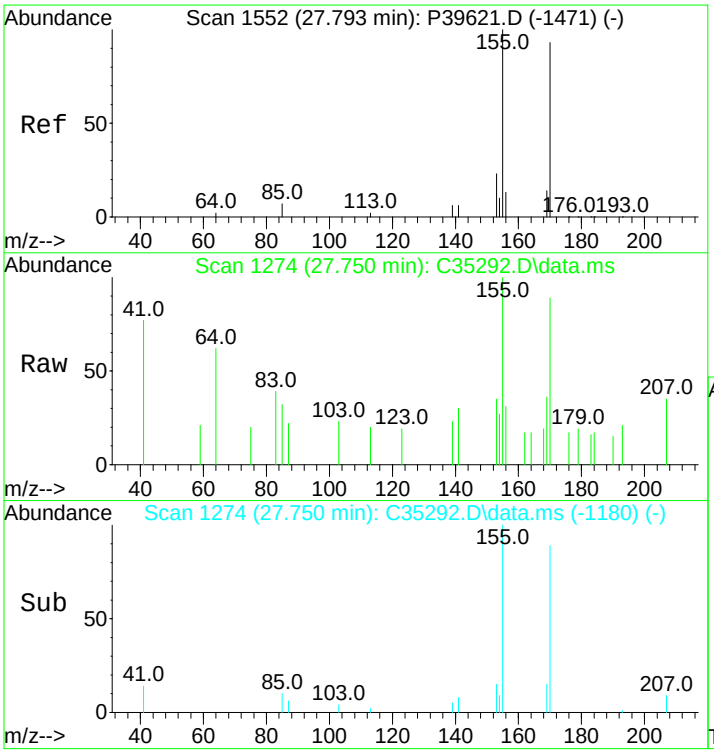


#12
C2-Naphthalenes
Concen: 48.13 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:156 Resp: 3896

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

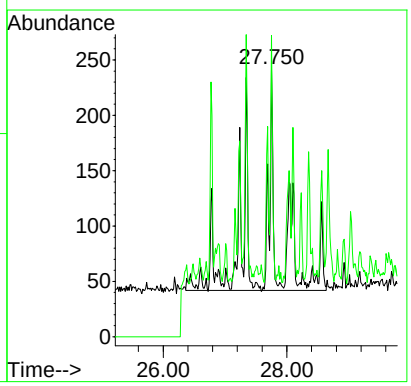


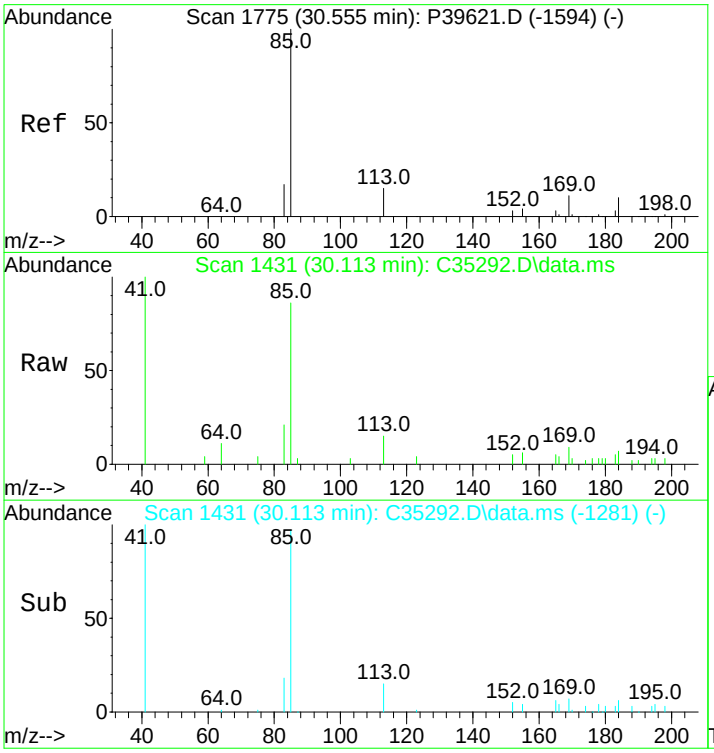


#13
C3-Naphthalenes
Concen: 41.25 ng/mL m
RT: 27.750 min Scan# 1274
Delta R.T. 0.422 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:170 Resp: 3339

Ion	Ratio	Lower	Upper
170	100		
155	16.9	86.3	129.5#

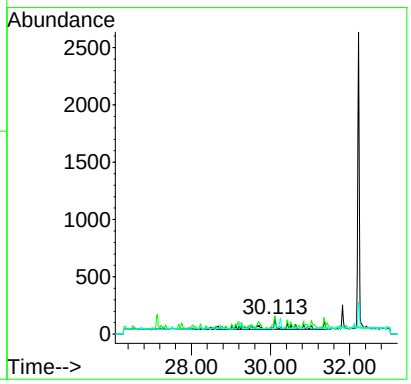


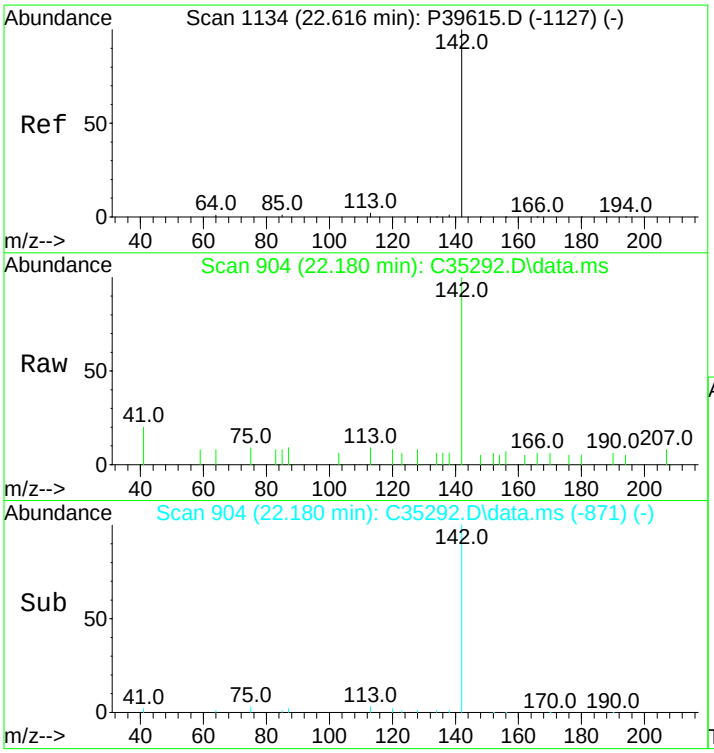


#14
C4-Naphthalenes
Concen: 32.39 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:184 Resp: 2622

Ion	Ratio	Lower	Upper
184	100		
169	20.2	100.6	150.8#
183	6.2	26.6	40.0#

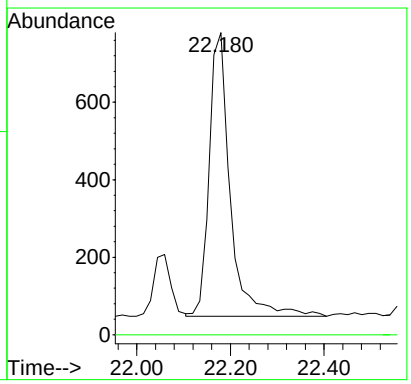


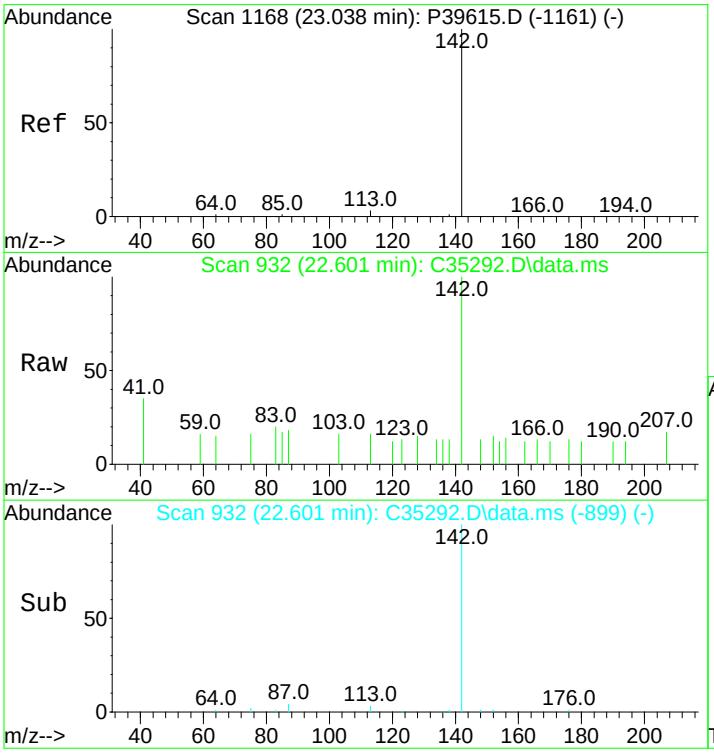


#16
2-Methylnaphthalene
Concen: 47.72 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:142 Resp: 2284

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

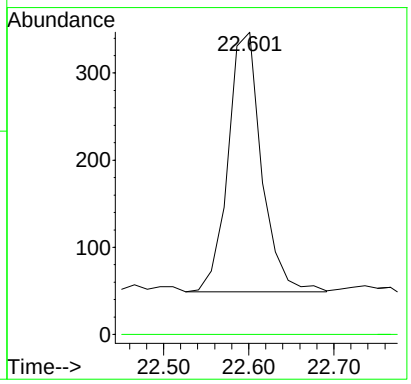


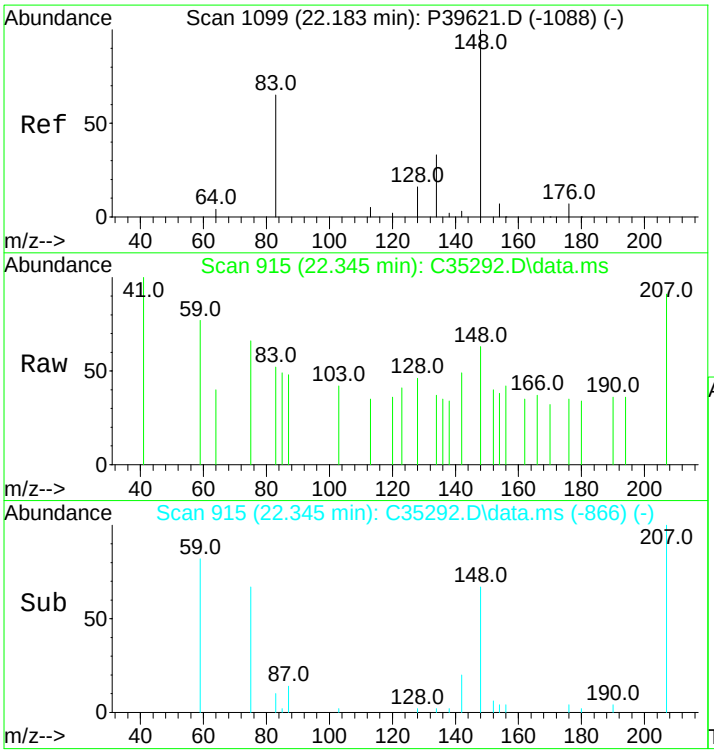


#17
1-Methylnaphthalene
Concen: 17.35 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:142 Resp: 814

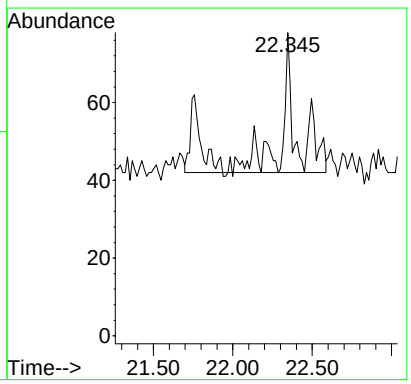
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

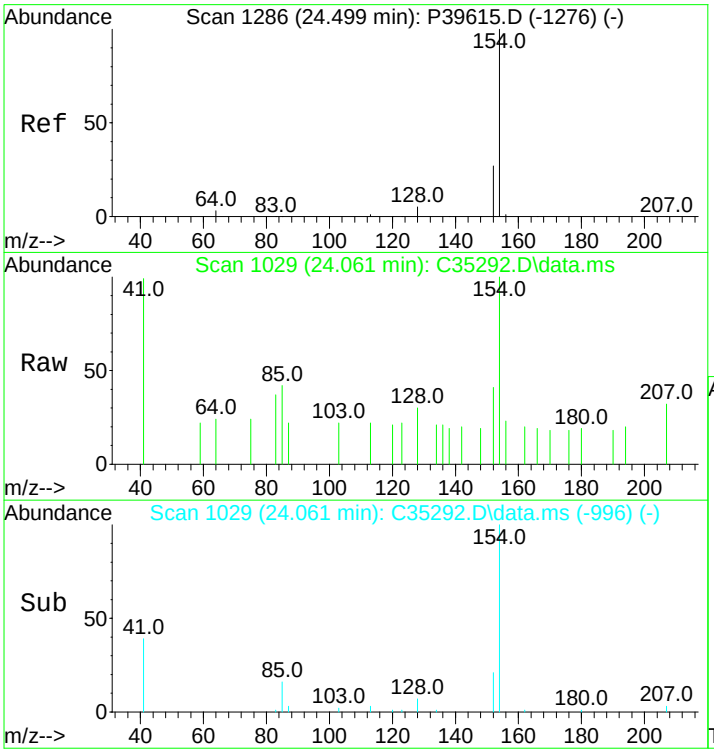




#19
C1-Benzo(b)thiophenes
Concen: 4.60 ng/mL m
RT: 22.345 min Scan# 915
Delta R.T. 0.539 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:148 Resp: 335

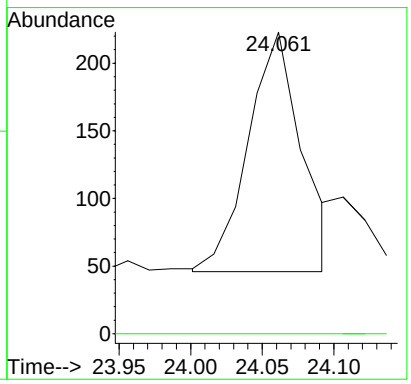


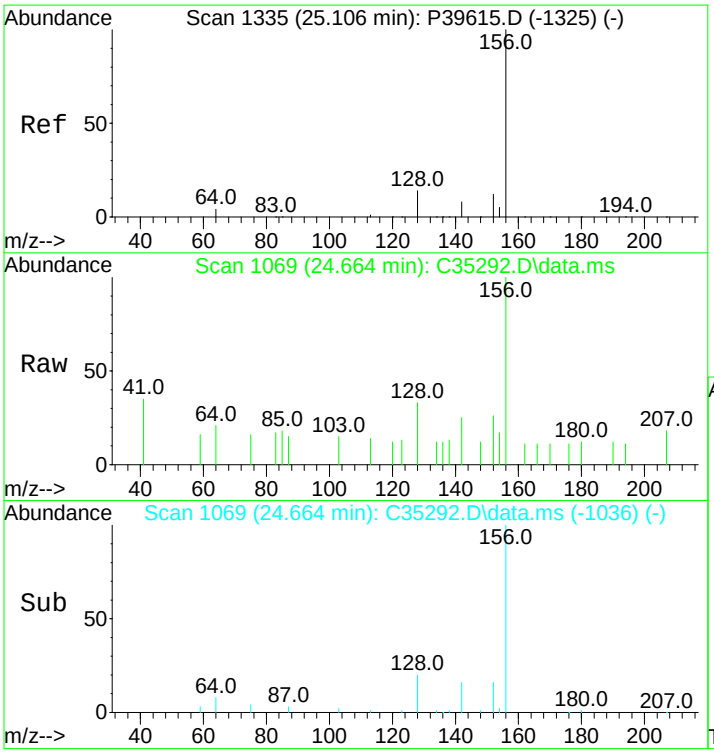


#23
Biphenyl
Concen: 7.63 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:154 Resp: 462

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

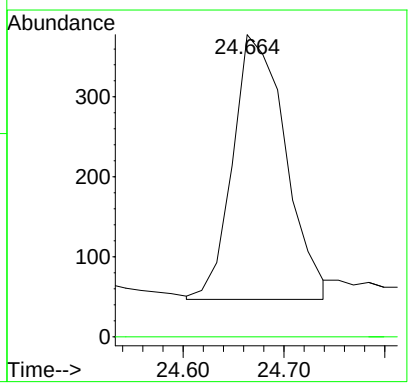


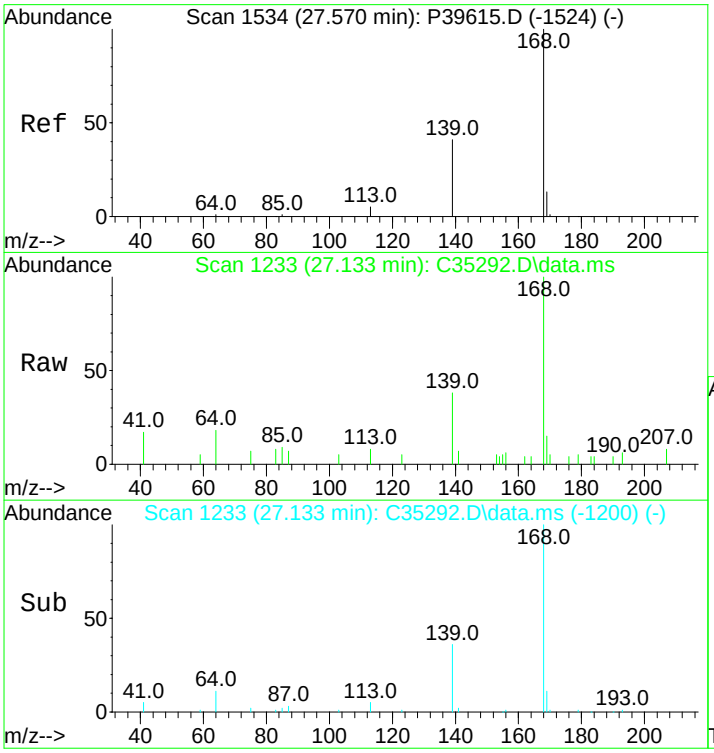


#24
2,6-Dimethylnaphthalene
Concen: 30.59 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:156 Resp: 1203

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

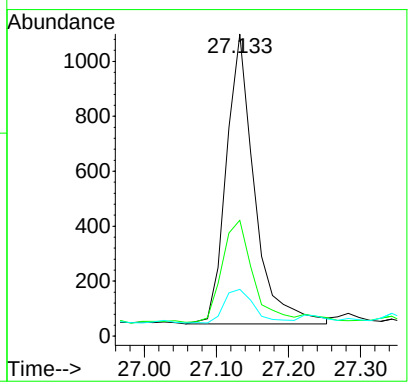


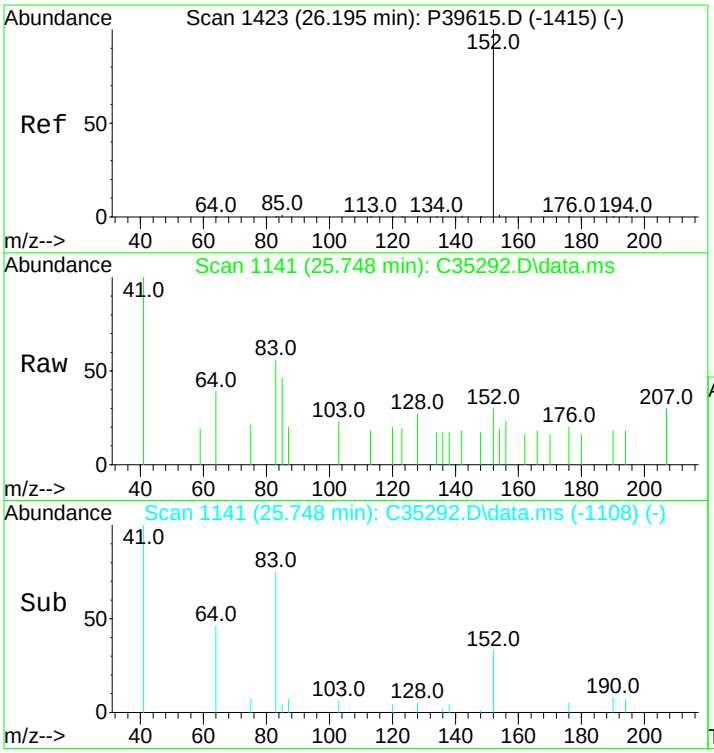


#25
Dibenzofuran
Concen: 41.18 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:168 Resp: 2863

Ion	Ratio	Lower	Upper
168	100		
139	38.4	29.9	44.9
169	12.5	10.3	15.5

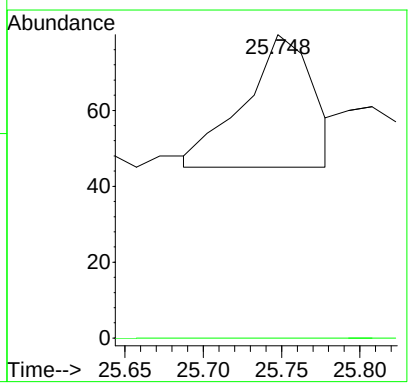


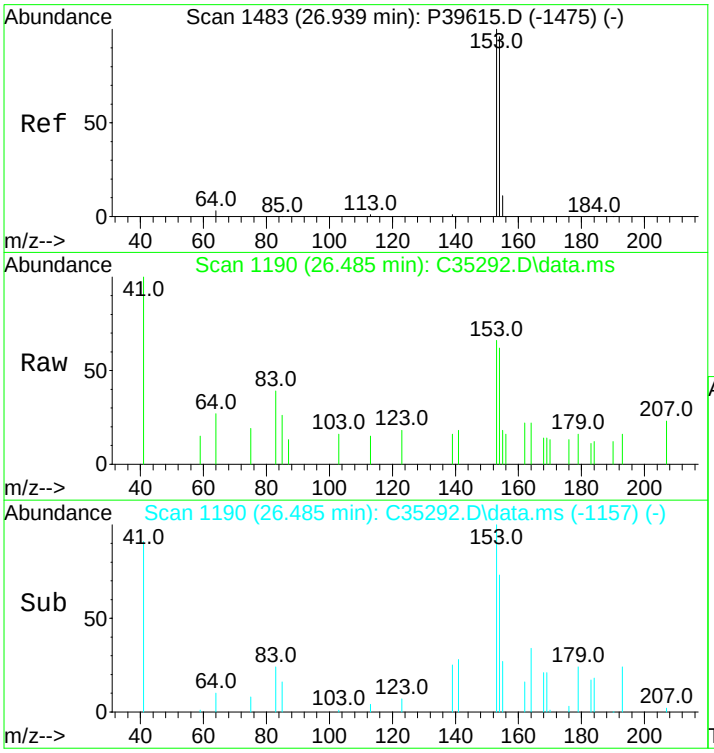


#26
Acenaphthylene
Concen: 1.33 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:152 Resp: 107

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

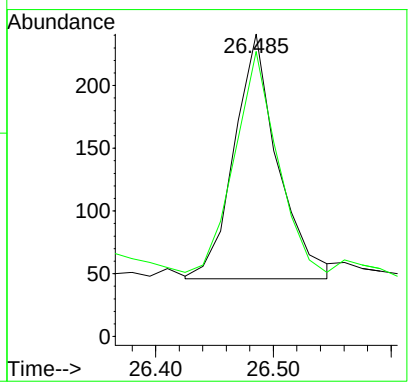


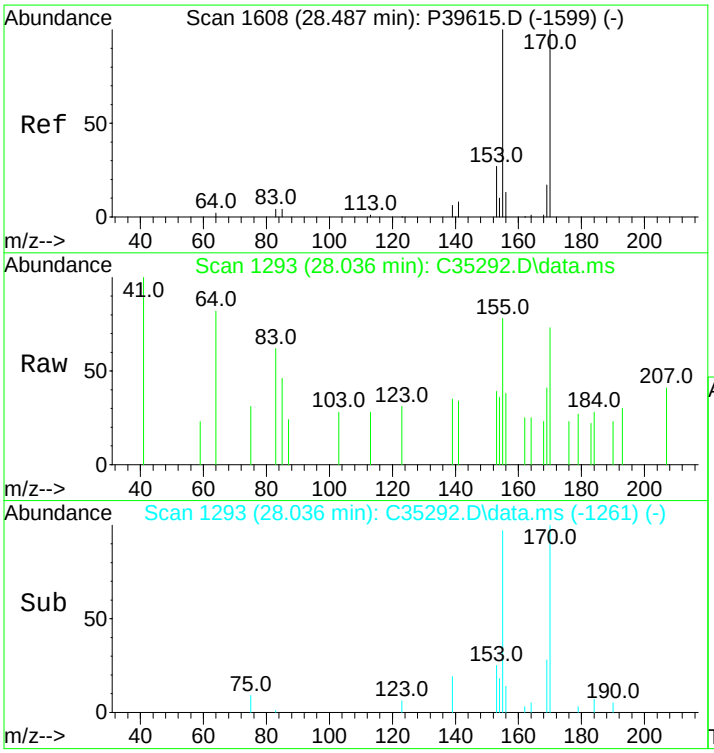


#27
Acenaphthene
Concen: 10.59 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:153 Resp: 501

Ion	Ratio	Lower	Upper
153	100		
154	88.8	73.3	109.9

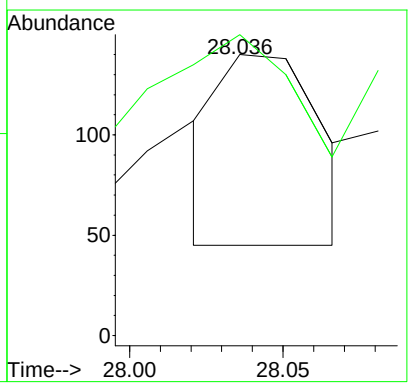


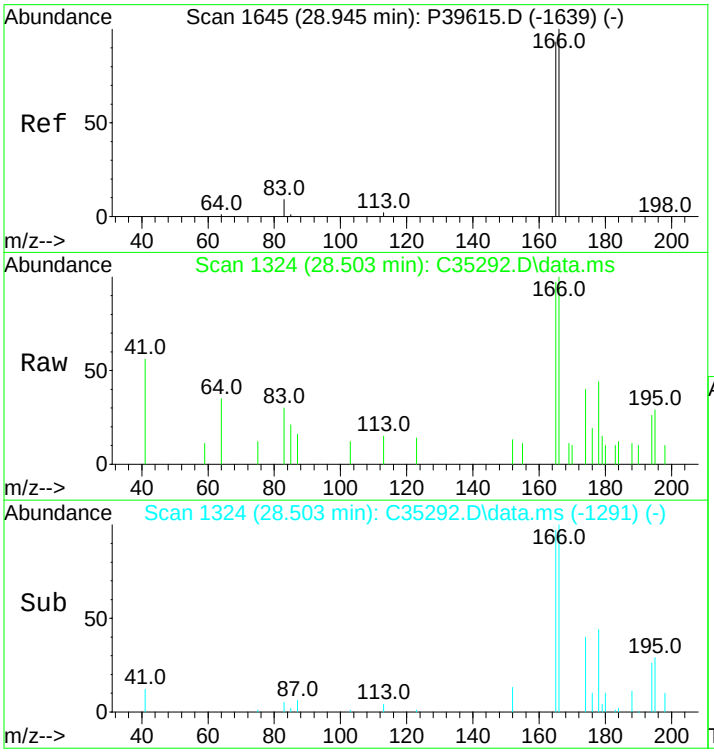


#28
2,3,5-Trimethylnaphthalene
Concen: 6.81 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:170 Resp: 216

Ion	Ratio	Lower	Upper
170	100		
155	188.4	78.4	117.6#

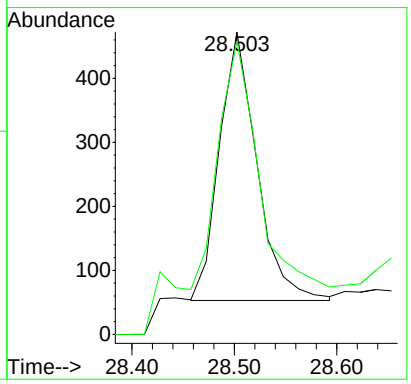


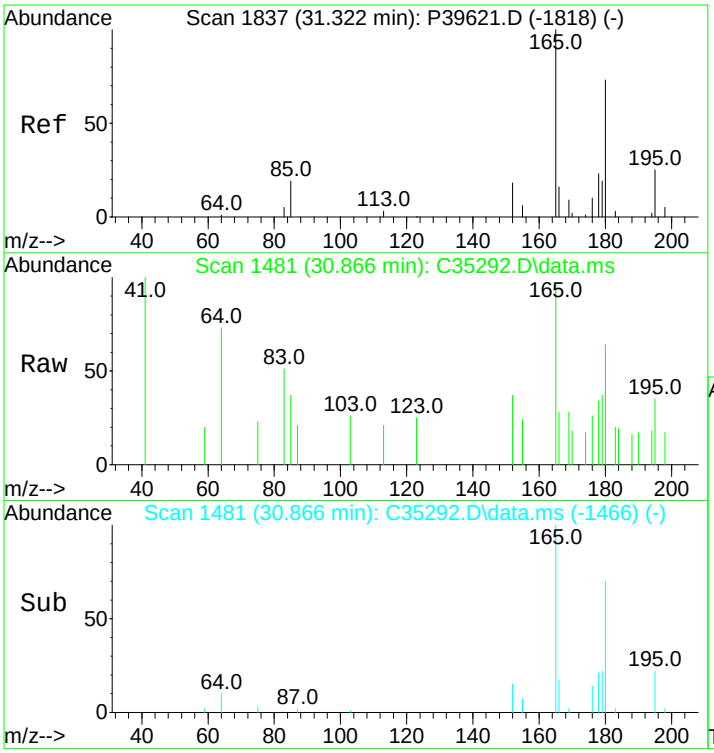


#29
Fluorene
Concen: 20.43 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:166 Resp: 1066

Ion	Ratio	Lower	Upper
166	100		
165	170.0	77.1	115.7#

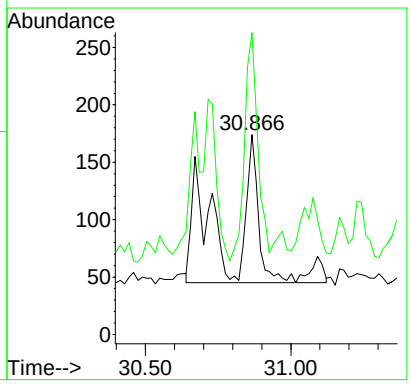


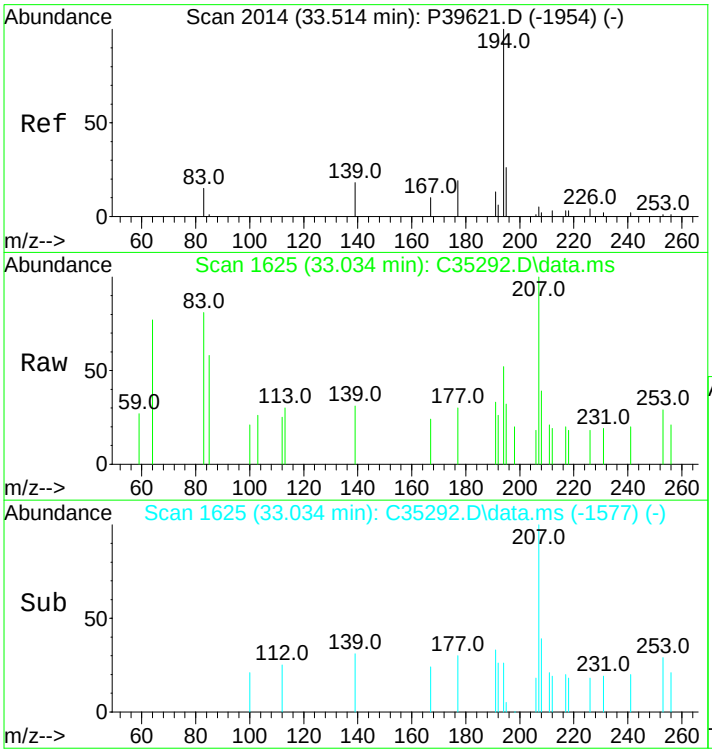


#30
C1-Fluorenes
Concen: 17.19 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:180 Resp: 897

Ion	Ratio	Lower	Upper
180	100		
165	46.2	121.9	182.9#

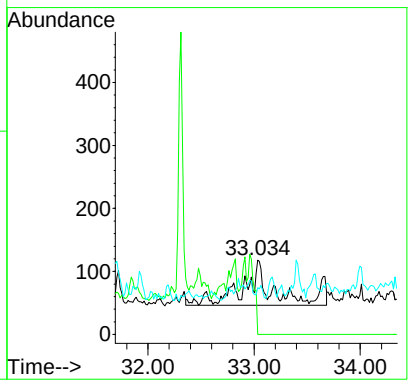


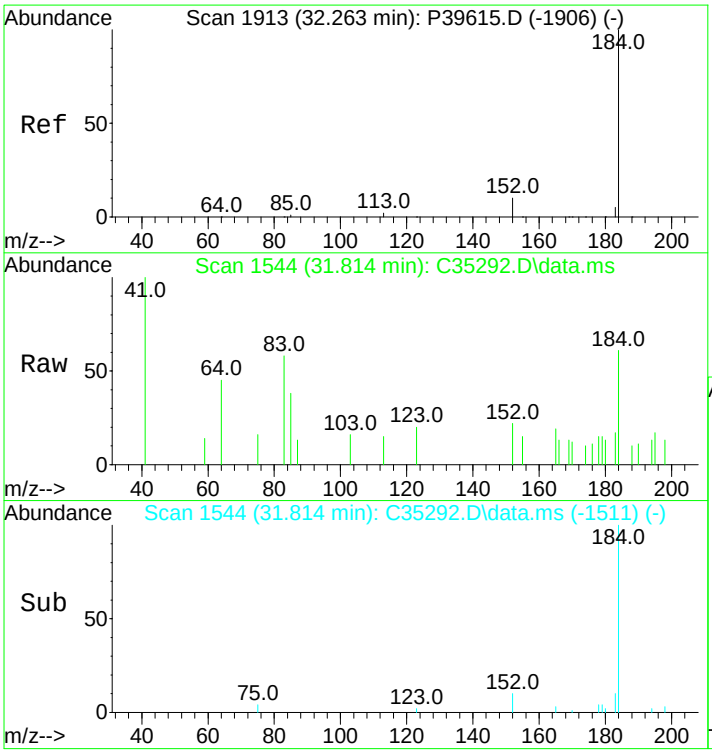


#31
C2-Fluorenes
Concen: 28.11 ng/mL m
RT: 33.034 min Scan# 1625
Delta R.T. 0.097 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:194 Resp: 1467

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	30.5	45.7#

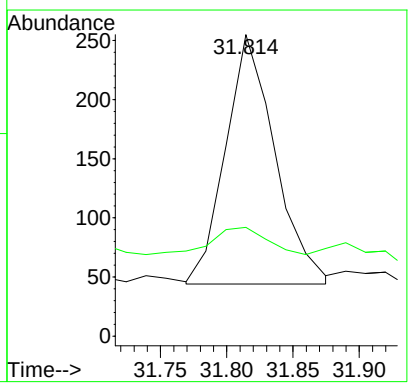


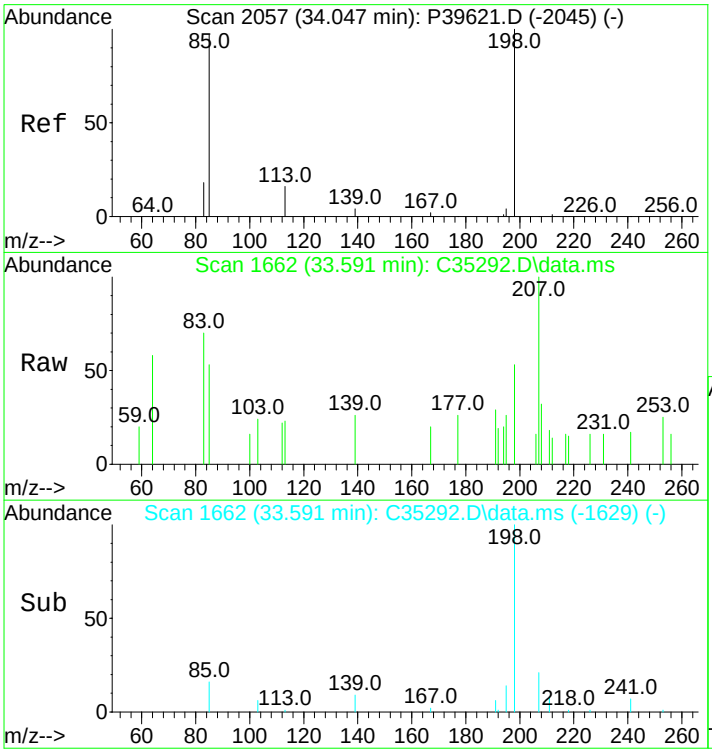


#33
Dibenzothiophene
Concen: 6.54 ng/mL m
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:184 Resp: 547

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

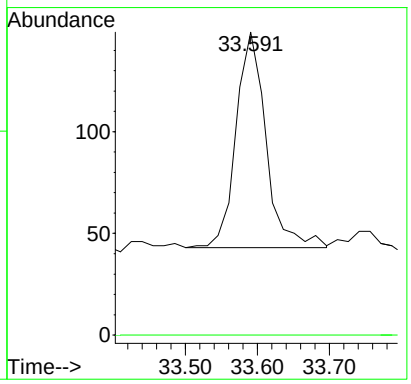


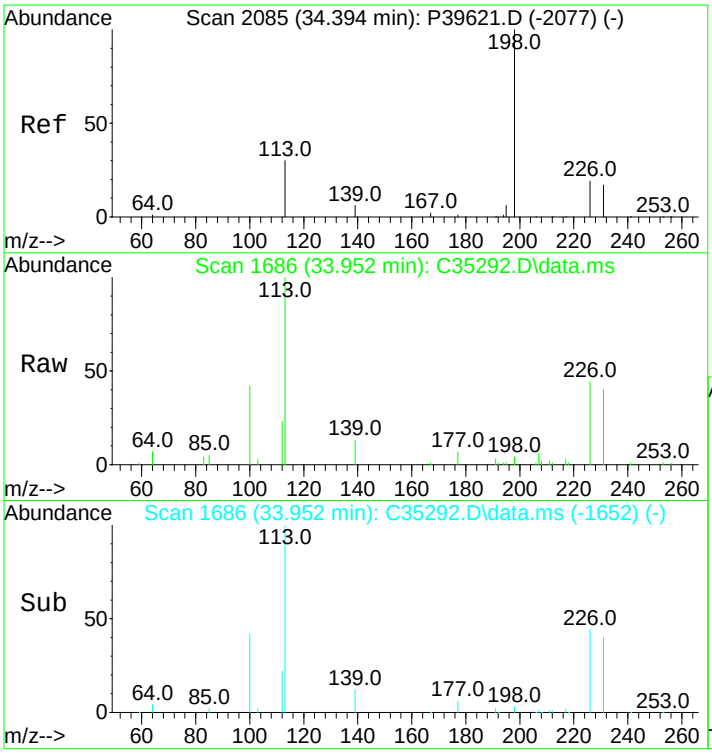


#34
4-Methyldibenzothiophene(4MDT)
Concen: 3.66 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:198 Resp: 306

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

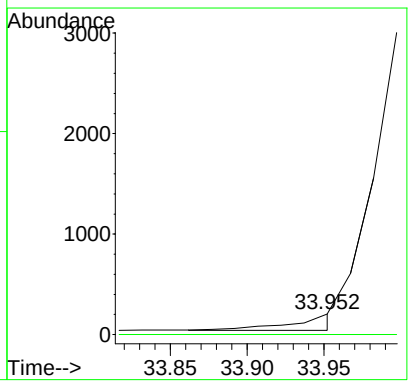


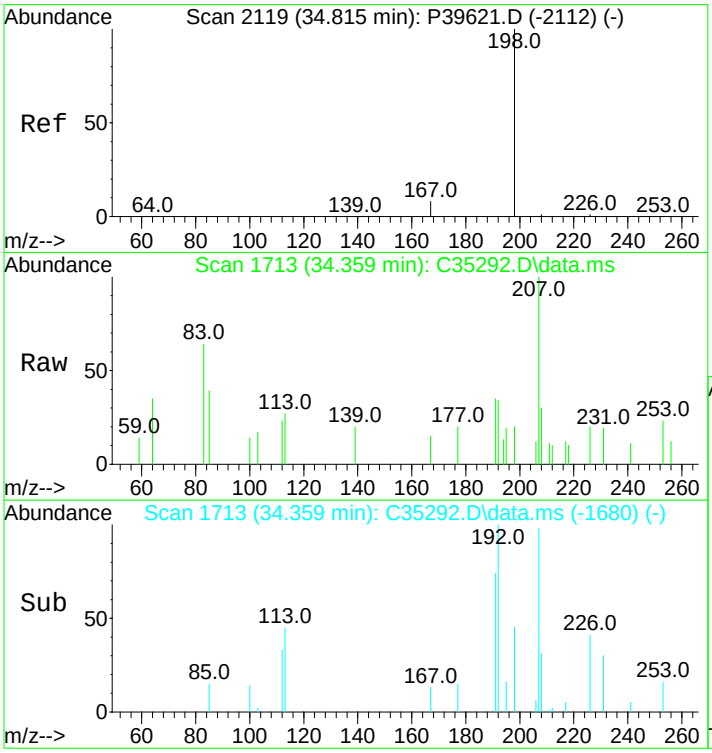


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 3.80 ng/mL m
RT: 33.952 min Scan# 1686
Delta R.T. 0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:198 Resp: 318

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

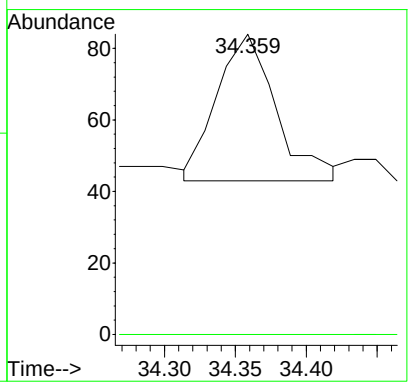


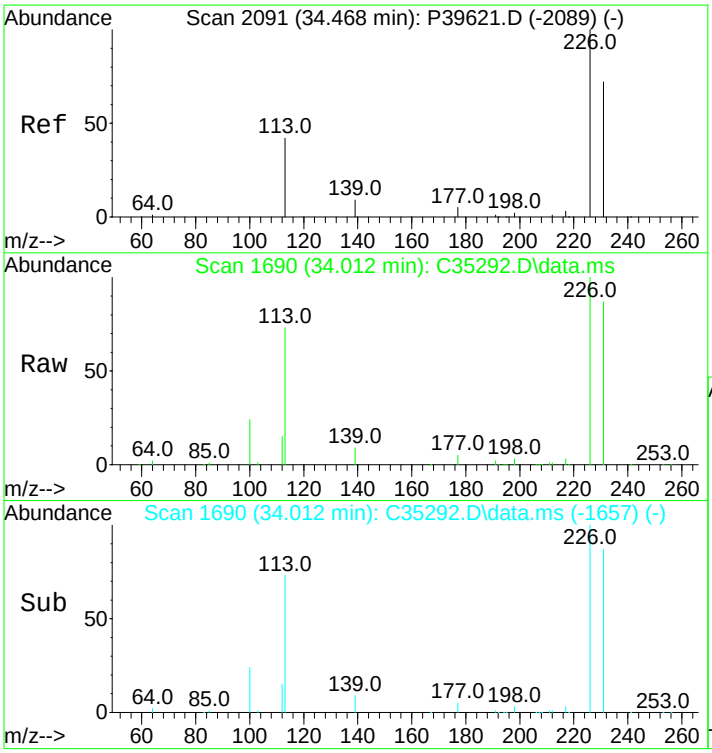


#36
1-Methyldibenzothiophene(1MDT)
Concen: 1.42 ng/mL m
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:198 Resp: 119

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

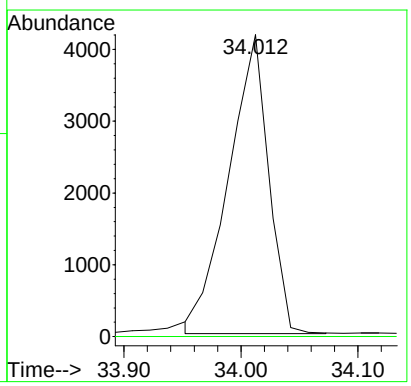


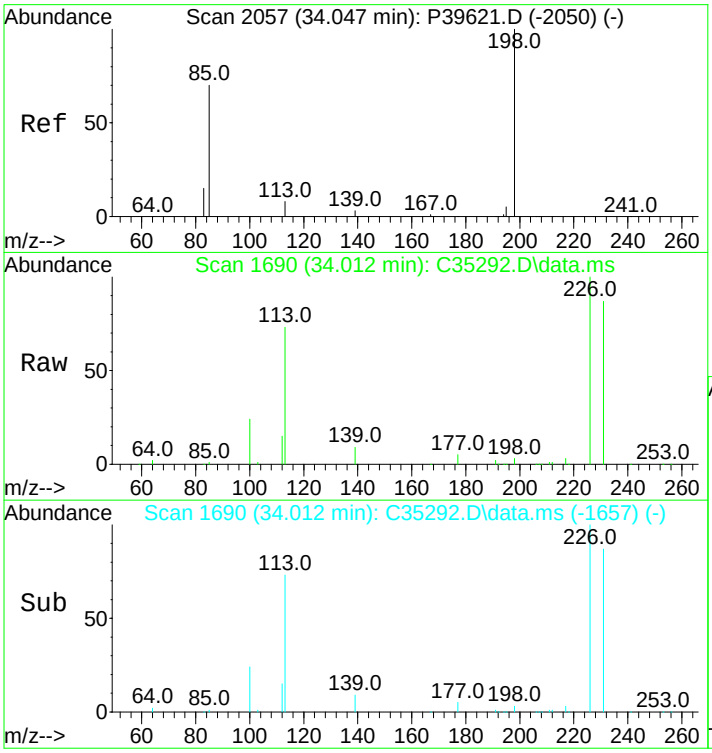


#37
OTP
Concen: 117.96 ng/mL m
RT: 34.012 min Scan# 1690
Delta R.T. 0.030 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:198 Resp: 9867

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

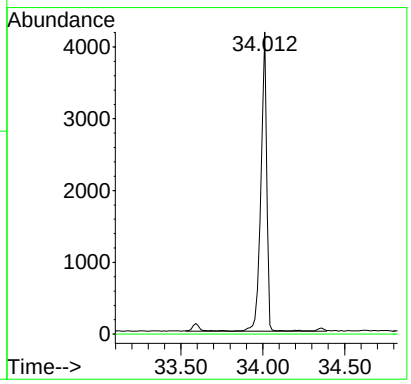


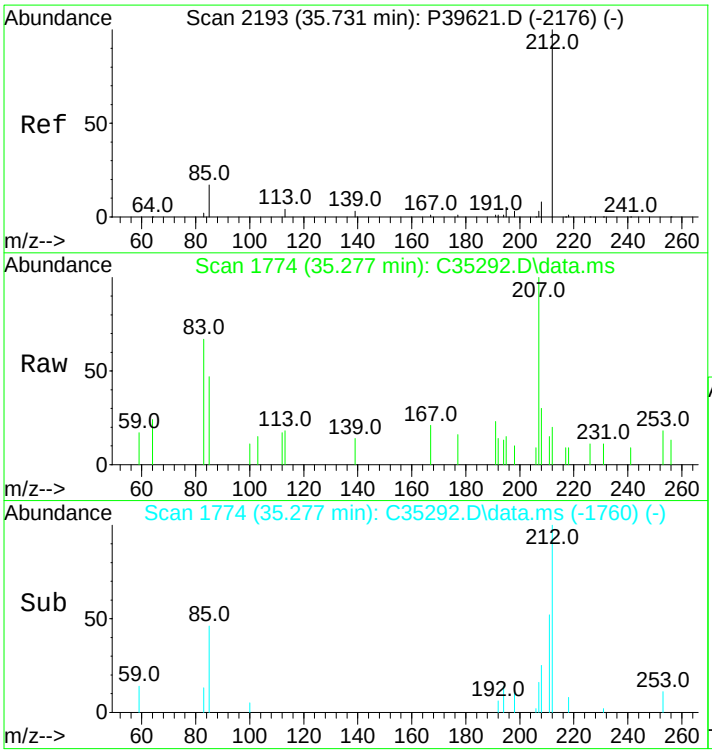


#38
C1-Dibenzothiophenes
Concen: 129.74 ng/mL m
RT: 34.012 min Scan# 1690
Delta R.T. 0.062 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:198 Resp: 10852

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

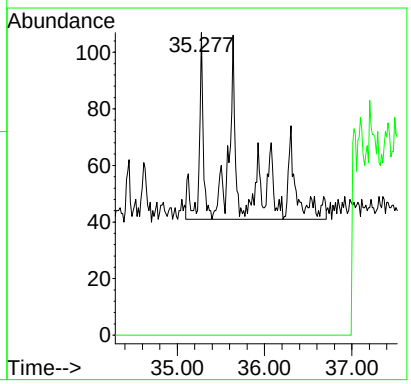


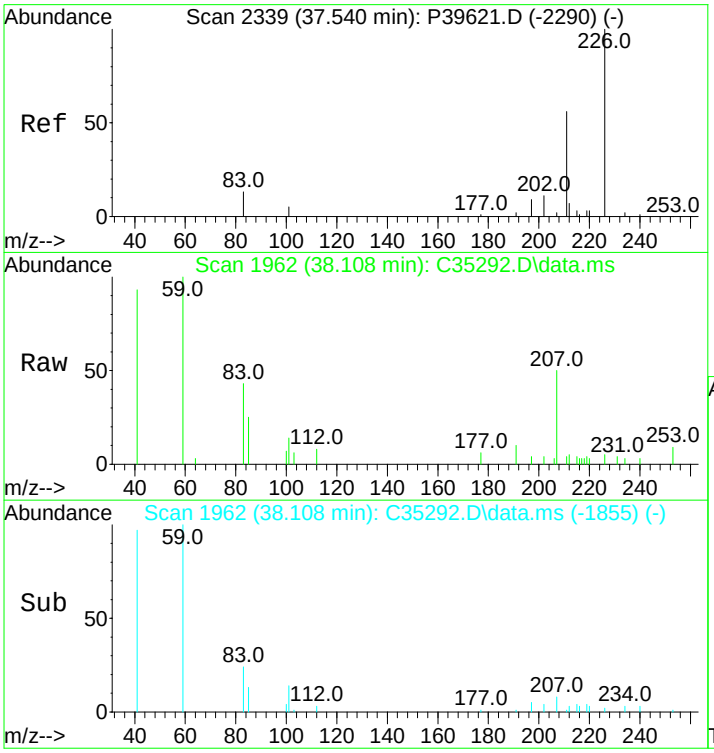


#39
C2-Dibenzothiophenes
Concen: 12.15 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:212 Resp: 1016

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

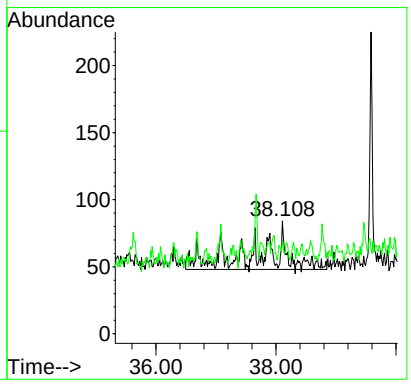


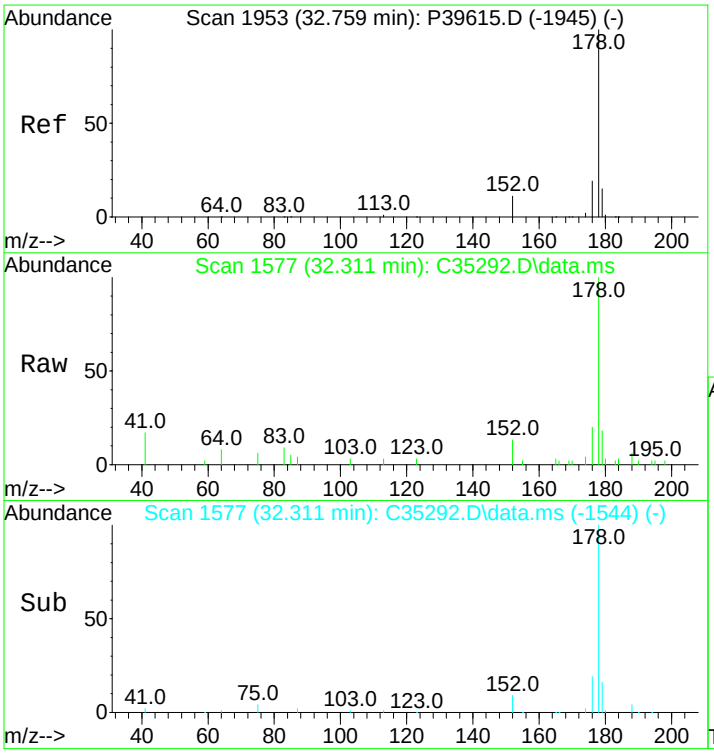


#40
C3-Dibenzothiophenes
Concen: 13.57 ng/mL m
RT: 38.108 min Scan# 1962
Delta R.T. 1.219 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:226 Resp: 1135

Ion	Ratio	Lower	Upper
226	100		
211	12.0	51.4	77.2#

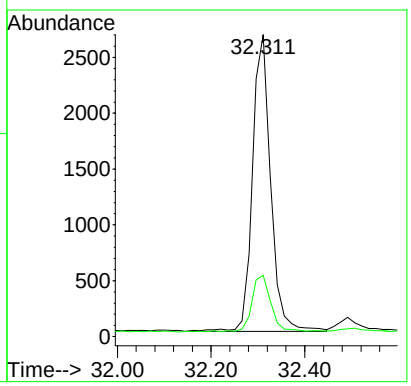


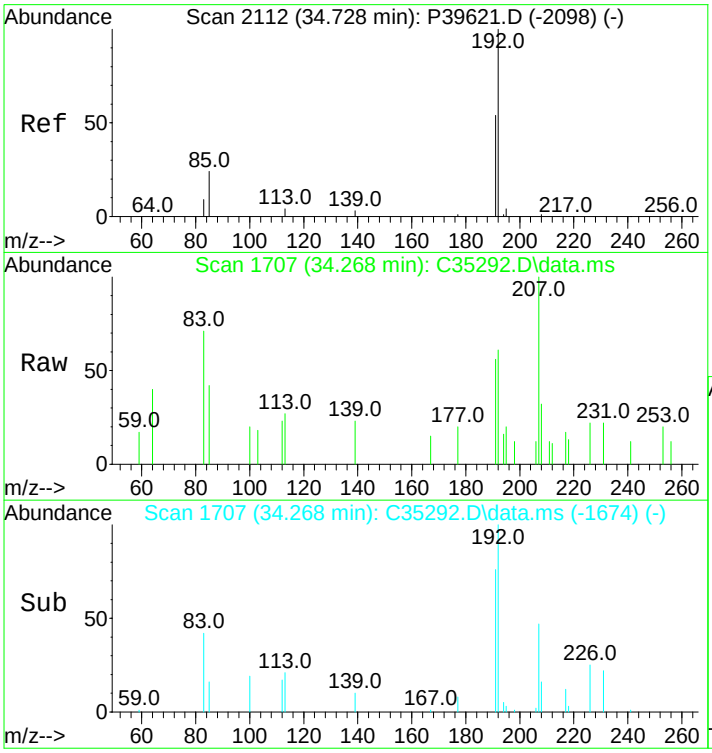


#43
Phenanthrene
Concen: 97.40 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:178 Resp: 7158

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.8	23.6

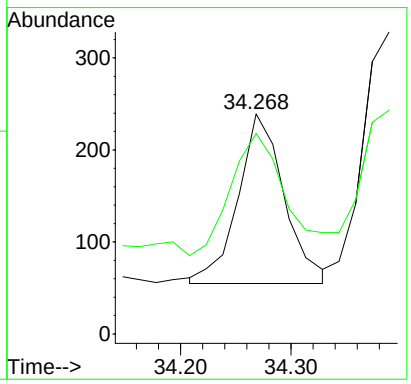


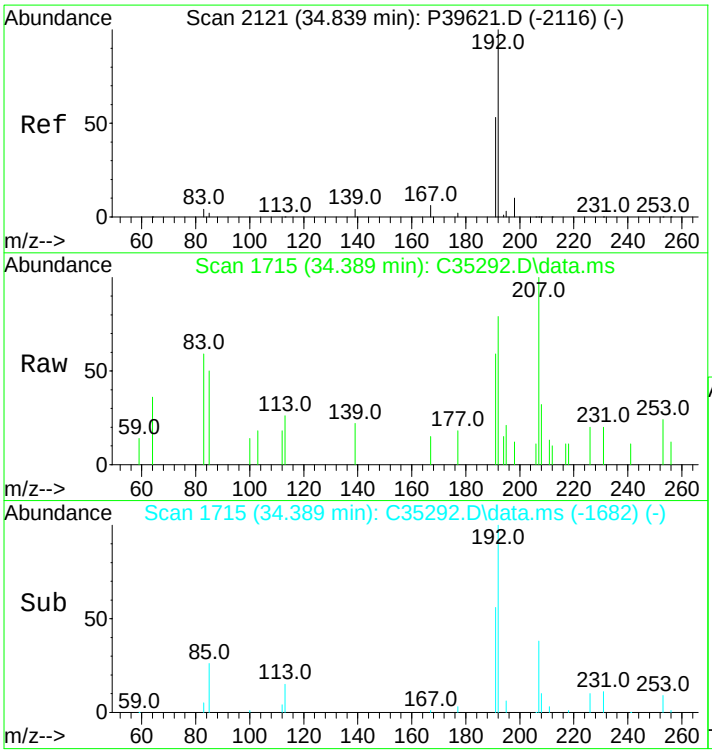


#44
3-Methylphenanthrene(3MP)
Concen: 7.29 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 536

Ion	Ratio	Lower	Upper
192	100		
191	82.3	47.4	71.0#

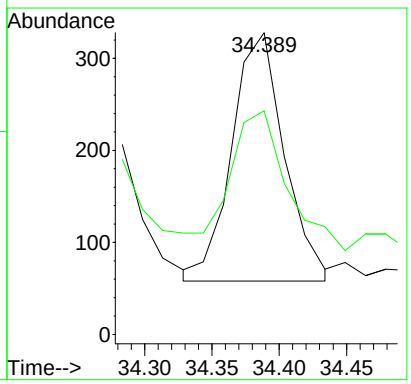


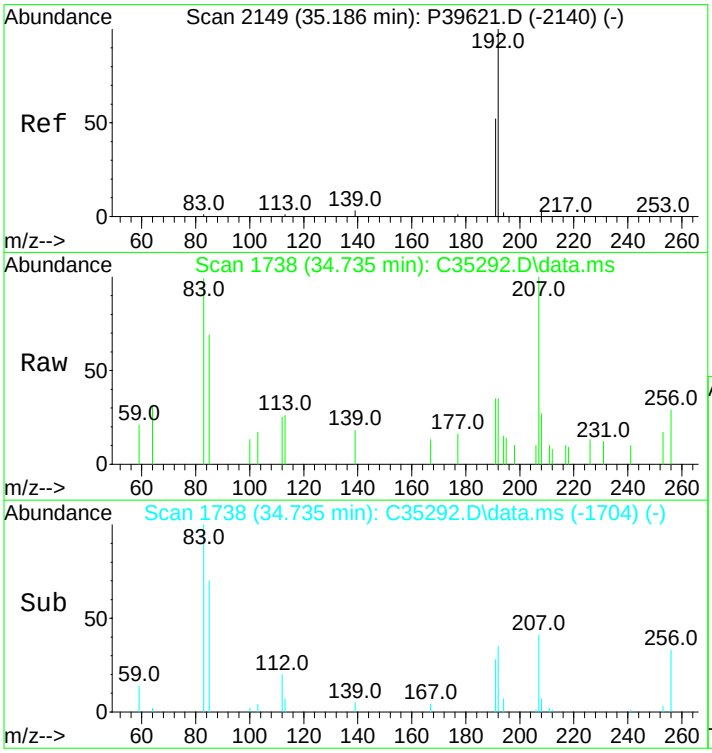


#45
2-Methylphenanthrene(2MP)
Concen: 9.96 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 732

Ion	Ratio	Lower	Upper
192	100		
191	60.2	45.0	67.6

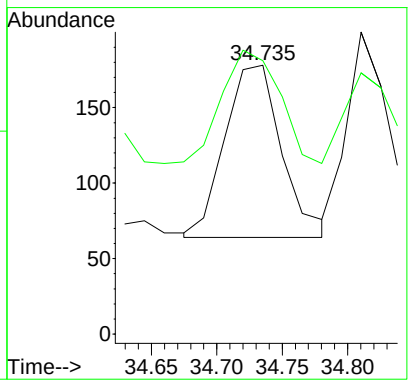


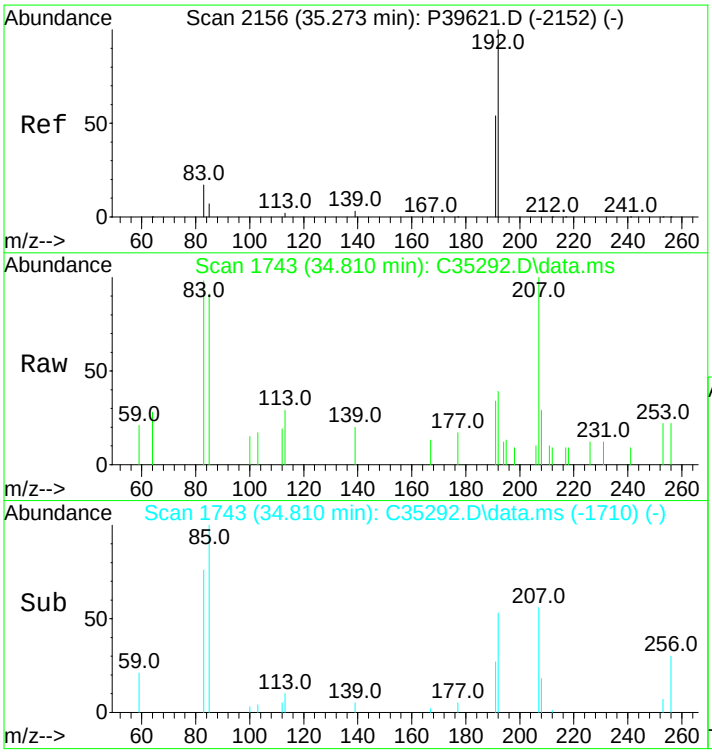


#47
9/4-Methylphenanthrene(9MP)
Concen: 4.71 ng/mL m
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 346

Ion	Ratio	Lower	Upper
192	100		
191	66.2	46.5	69.7

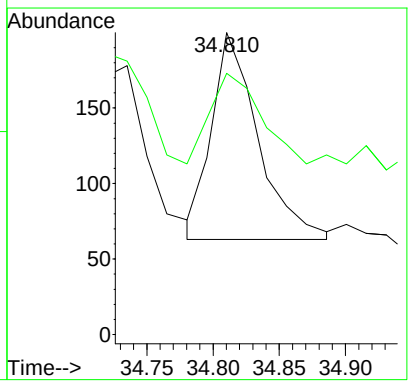


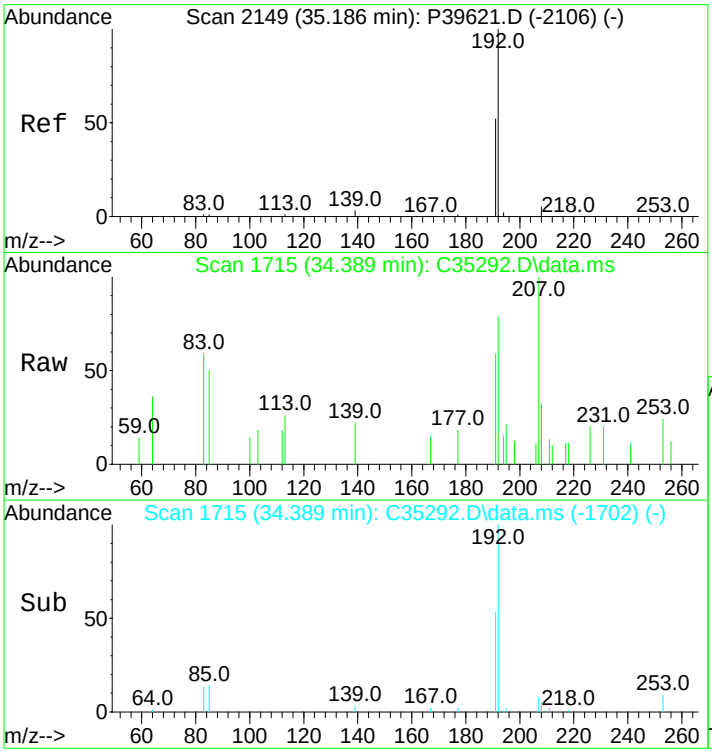


#48
1-Methylphenanthrene(1MP)
Concen: 4.54 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 334

Ion	Ratio	Lower	Upper
192	100		
191	68.6	47.4	71.2

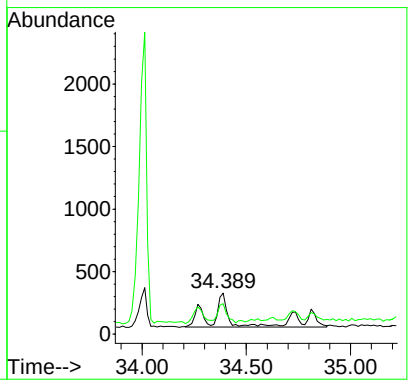


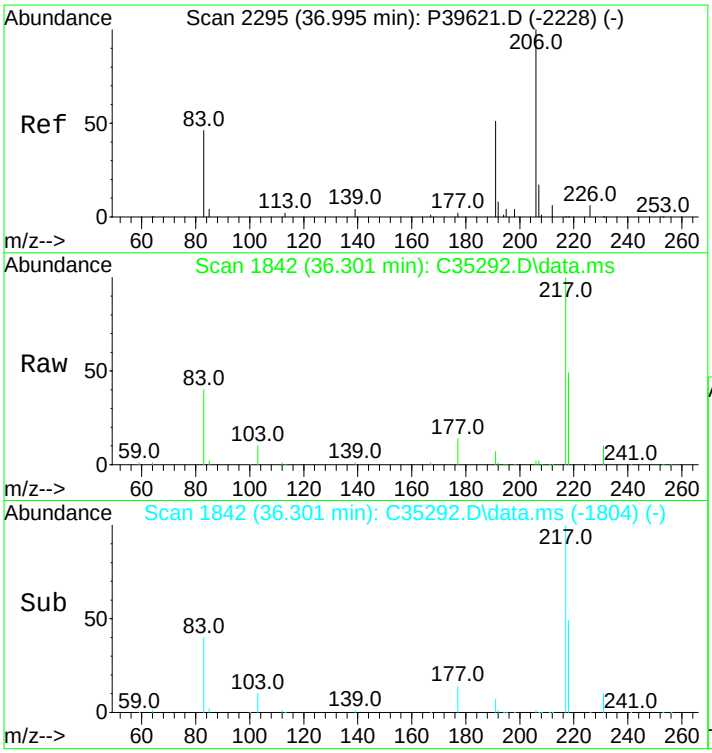


#49
C1-Phenanthrenes/Anthracenes
Concen: 29.95 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. -0.191 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 2201

Ion	Ratio	Lower	Upper
192	100		
191	19.6	45.3	67.9#

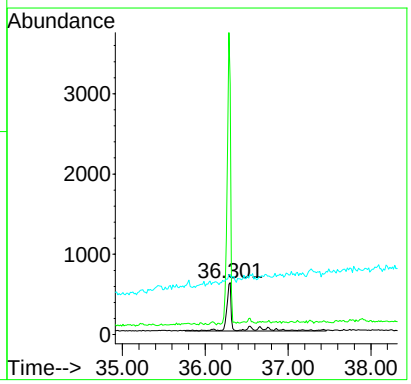


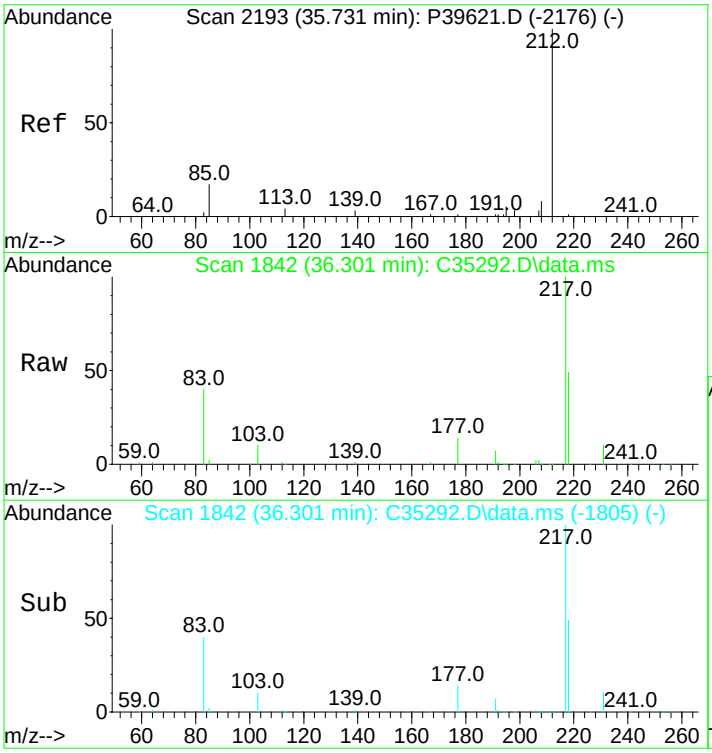


#50
C2-Phenanthrenes/Anthracenes
Concen: 43.37 ng/mL m
RT: 36.301 min Scan# 1842
Delta R.T. -0.055 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:206 Resp: 3187

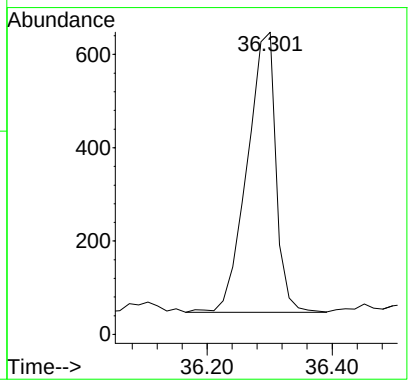
Ion	Ratio	Lower	Upper
206	100		
191	311.1	42.0	63.0#
207	27.0	15.4	23.2#

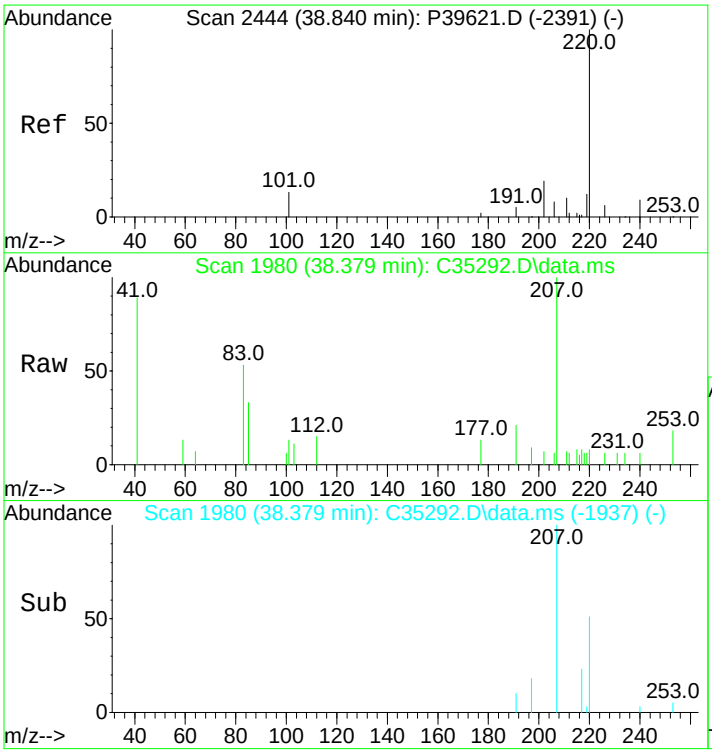




#51
5AA IS BKGD
Concen: 26.26 ng/mL
RT: 36.301 min Scan# 1842
Delta R.T. 0.060 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:206 Resp: 1930

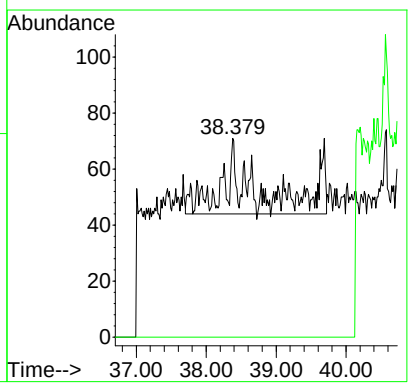


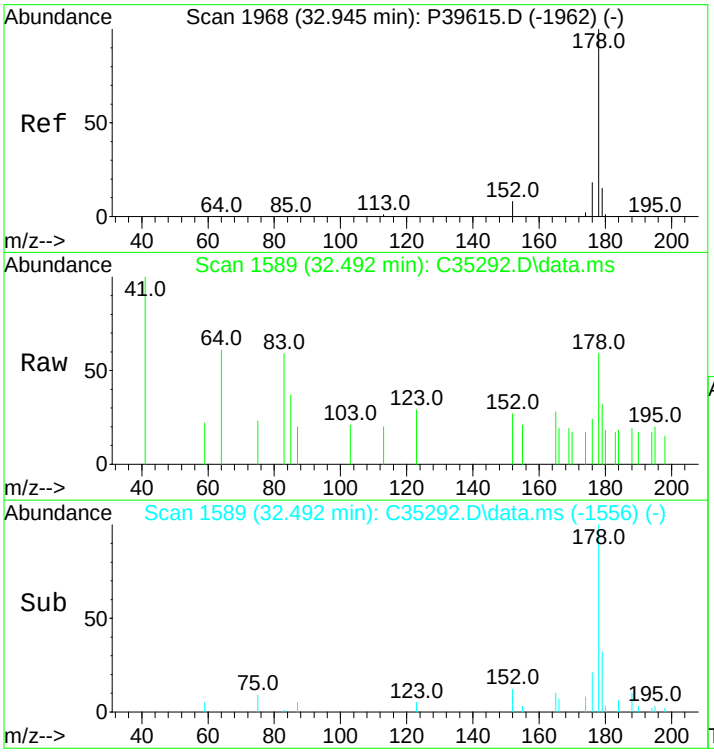


#52
C3-Phenanthrenes/Anthracenes
Concen: 12.75 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:220 Resp: 937

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

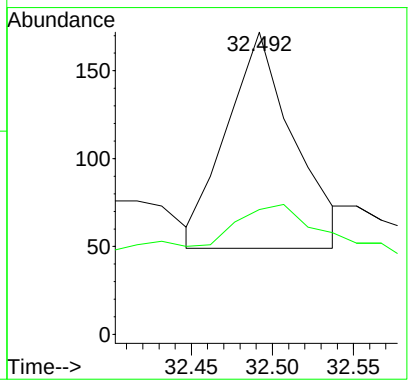


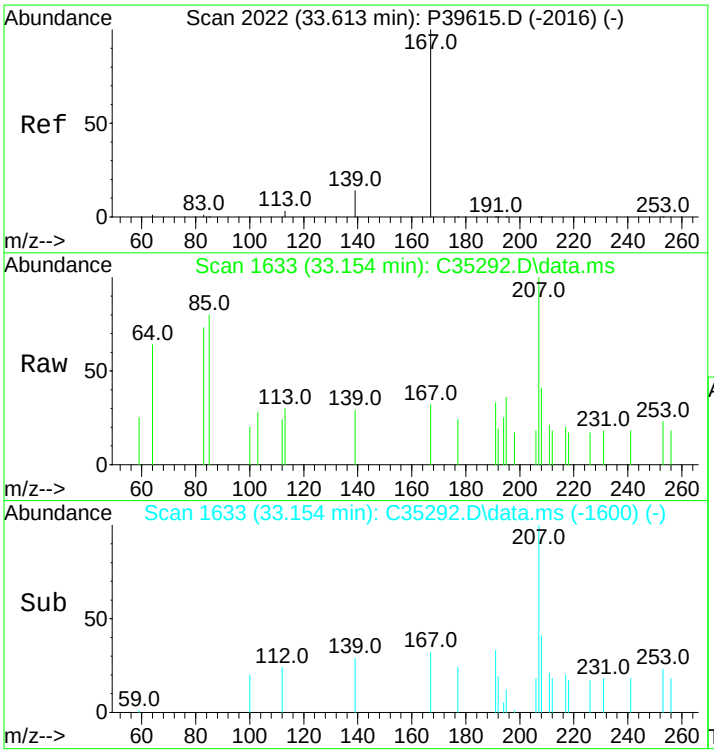


#55
Anthracene
Concen: 4.90 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:178 Resp: 352

Ion	Ratio	Lower	Upper
178	100		
176	404.5	15.6	23.4#

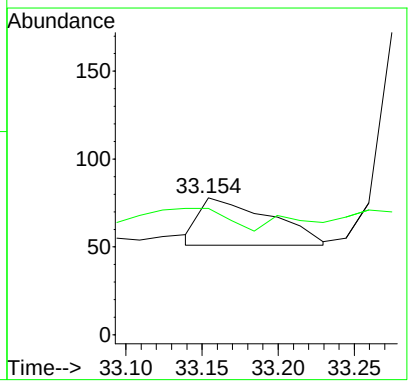


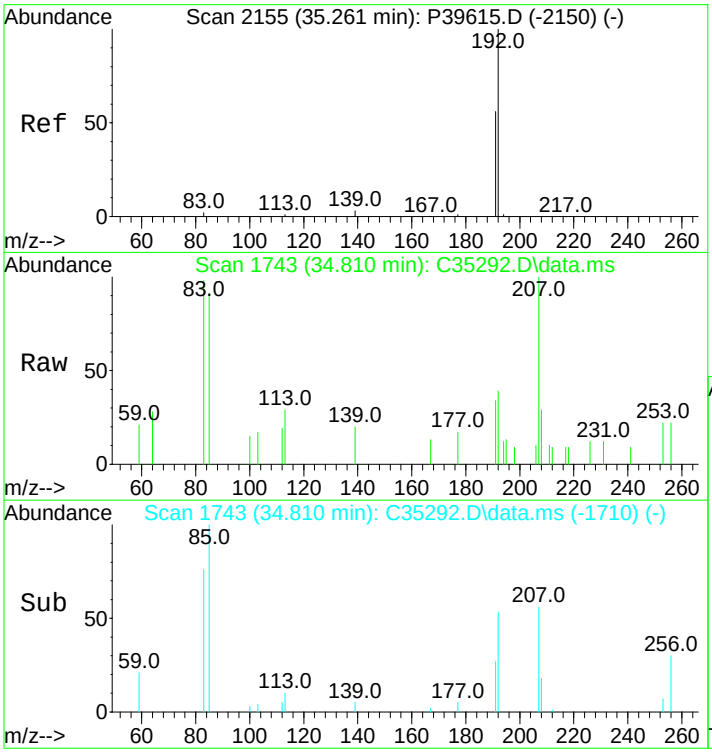


#56
Carbazole
Concen: 1.21 ng/mL m
RT: 33.154 min Scan# 1633
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:167 Resp: 88

Ion	Ratio	Lower	Upper
167	100		
139	355.7	11.9	17.9#

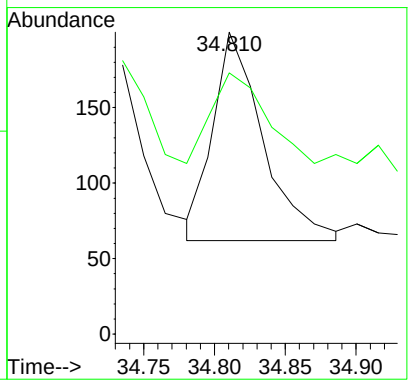


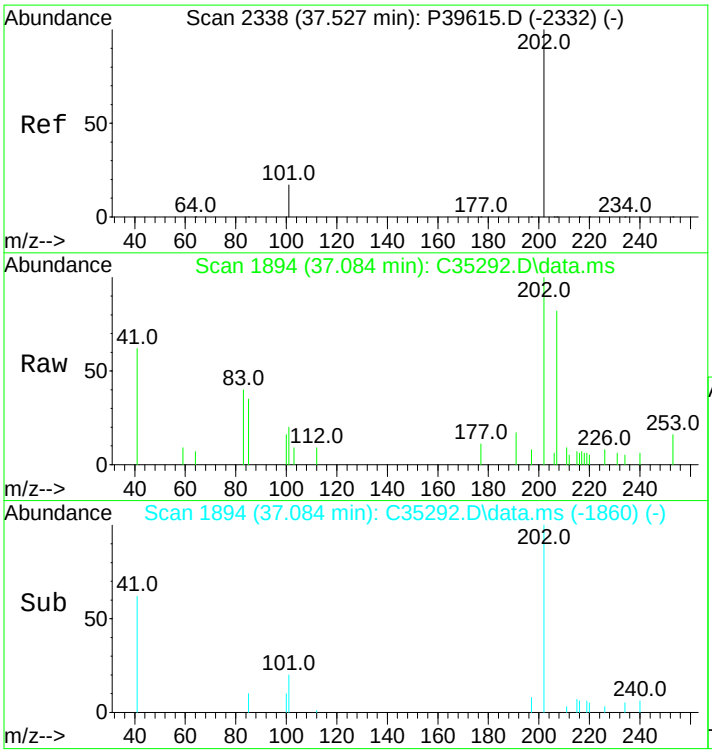


#57
1-Methylphenanthrene
Concen: 7.32 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:192 Resp: 341

Ion	Ratio	Lower	Upper
192	100		
191	67.2	46.8	70.2

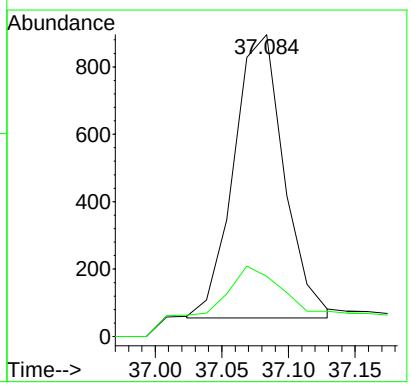


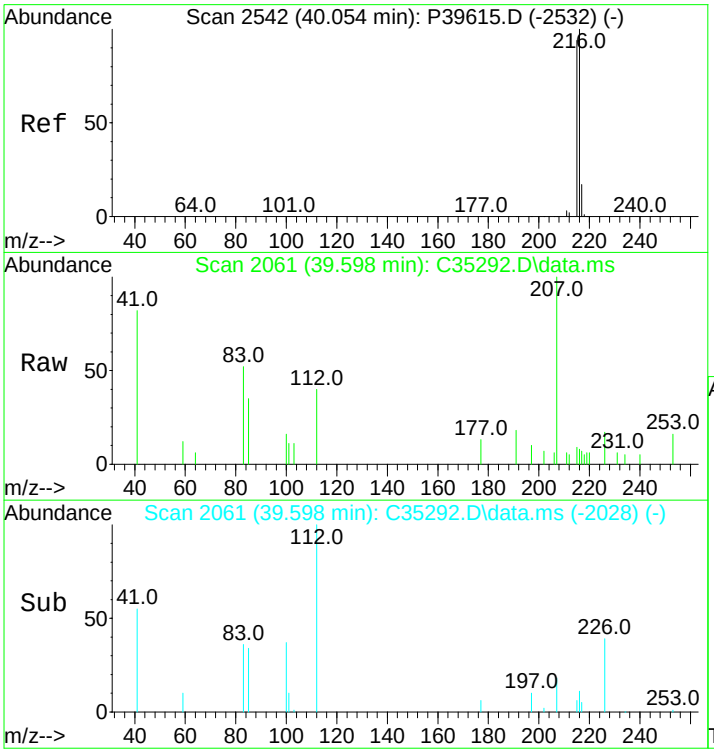


#58
Fluoranthene
Concen: 30.31 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:202 Resp: 2212

Ion	Ratio	Lower	Upper
202	100		
101	48.6	13.2	19.8#

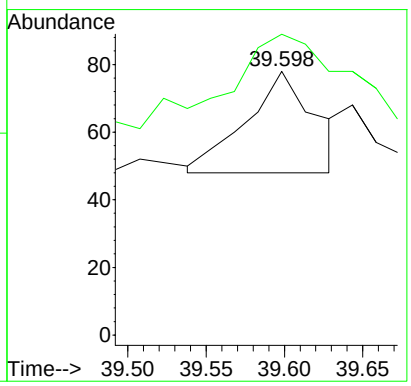


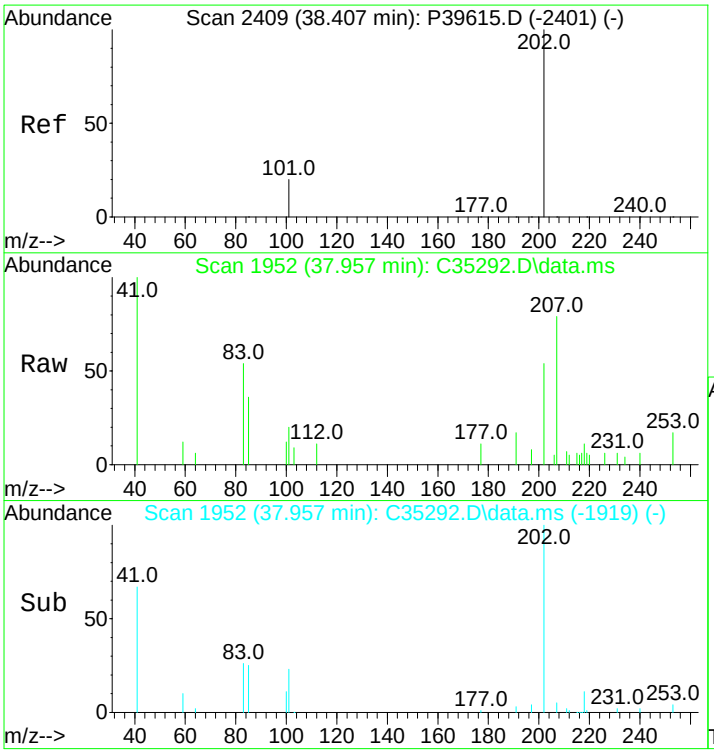


#59
Benzo(b)fluorene
Concen: 2.15 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:216 Resp: 91

Ion	Ratio	Lower	Upper
216	100		
215	159.3	76.0	114.0#

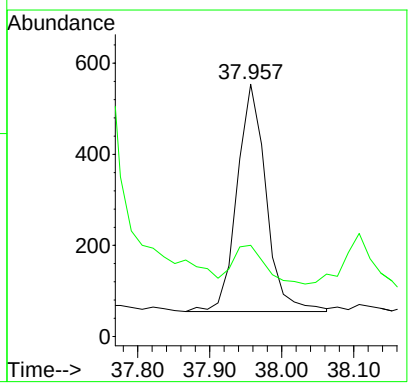


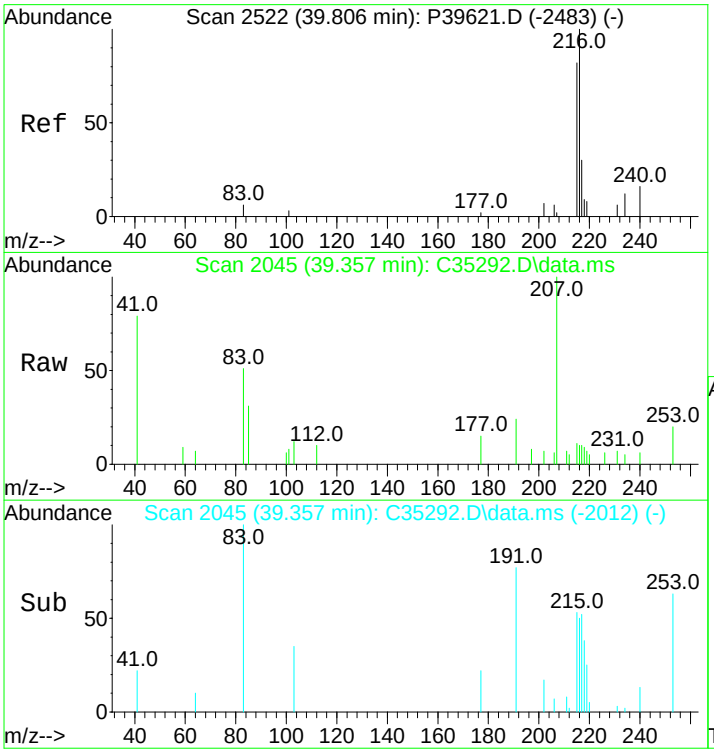


#60
Pyrene
Concen: 18.79 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:202 Resp: 1394

Ion	Ratio	Lower	Upper
202	100		
101	37.1	13.5	20.3#

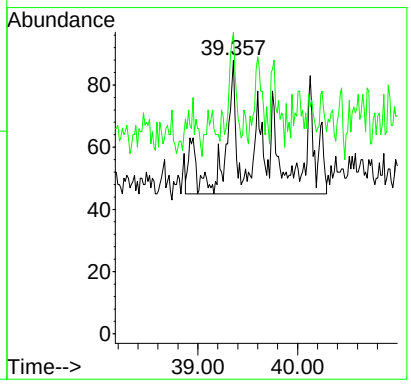


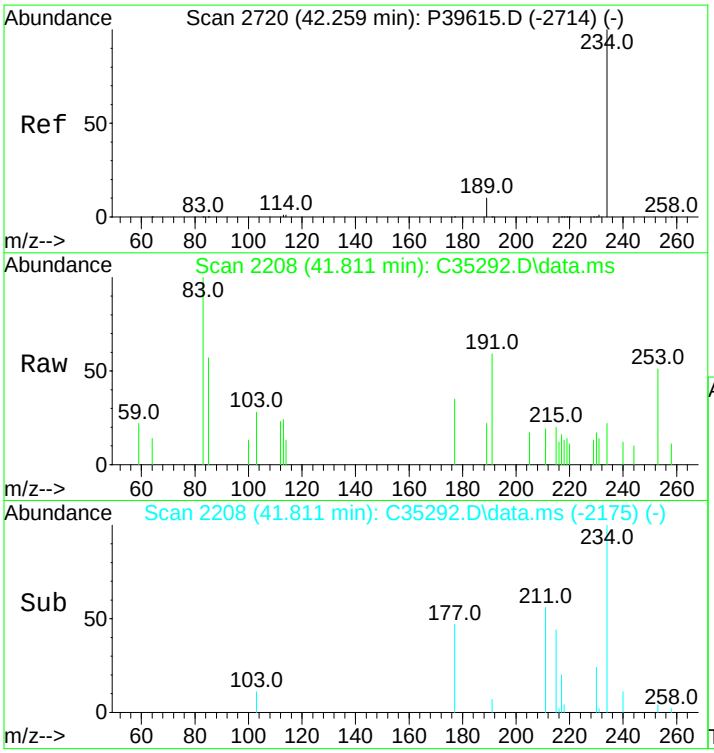


#61
C1-Fluoranthenes/Pyrenes
Concen: 13.20 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:216 Resp: 979

Ion	Ratio	Lower	Upper
216	100		
215	14.8	77.7	116.5#

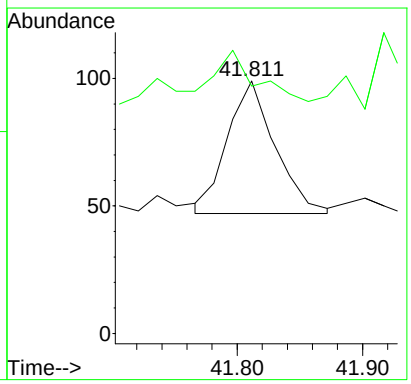


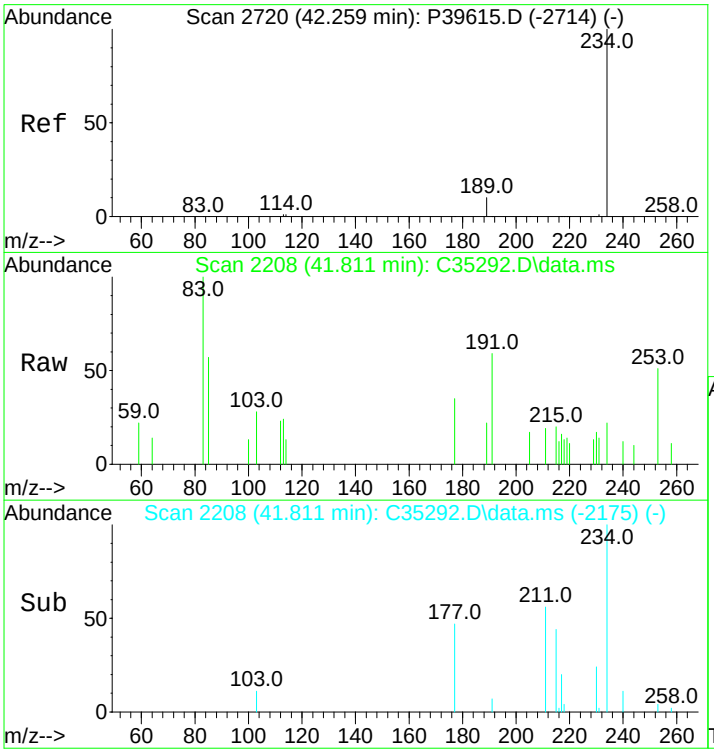


#66
Naphthobenzothiophene
Concen: 1.72 ng/ml m
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:234 Resp: 137

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

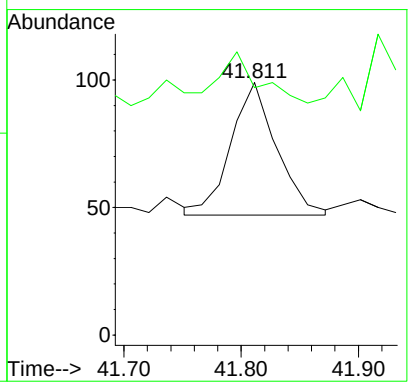


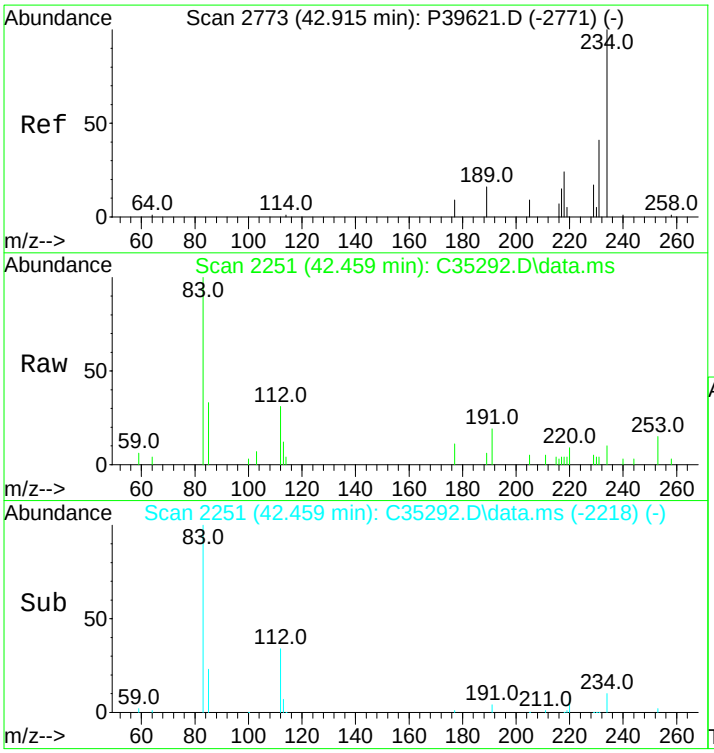


#67
Naphthobenzothiophene-2,1-D
Concen: 1.77 ng/mL m
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:234 Resp: 141

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

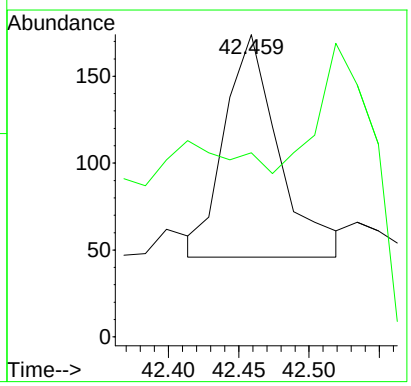


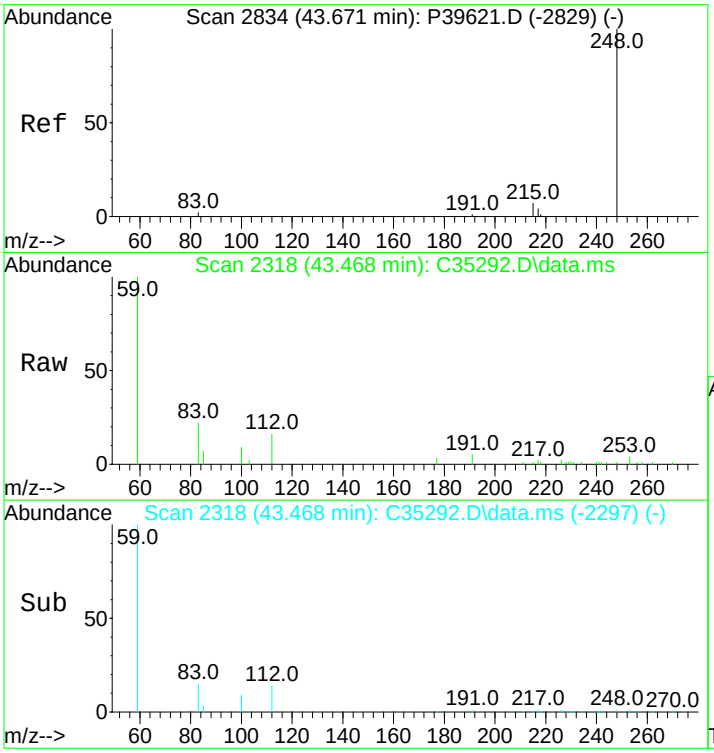


#69
Naphthobenzothiophene-2,3-D
Concen: 4.28 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:234 Resp: 342

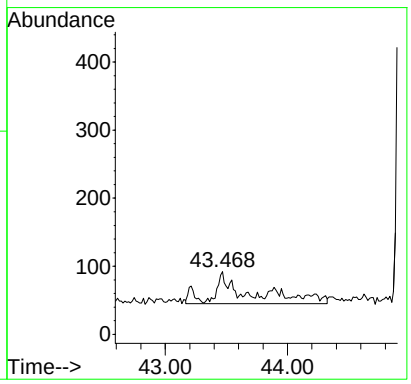
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

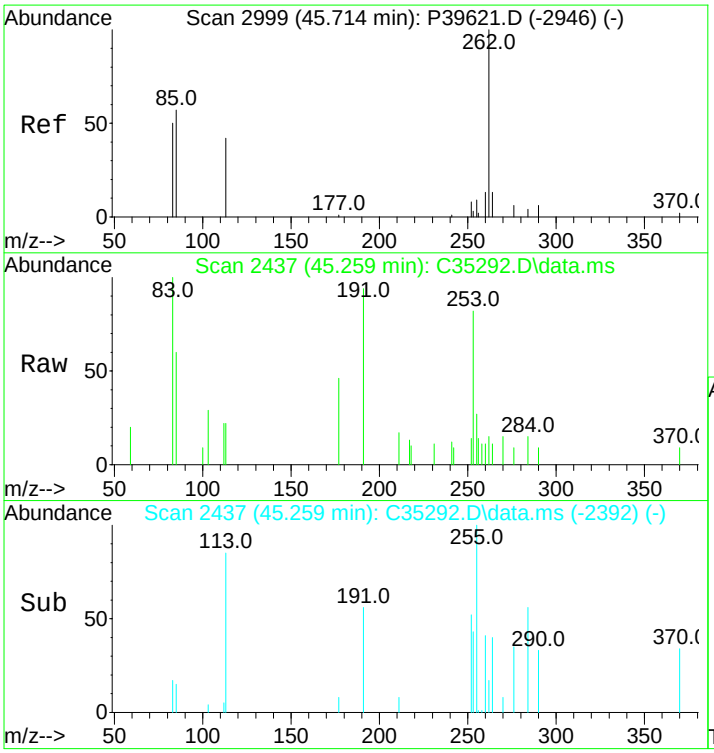




#70
C1-Naphthobenzothiophenes
Concen: 12.16 ng/ml m
RT: 43.468 min Scan# 2318
Delta R.T. -0.112 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

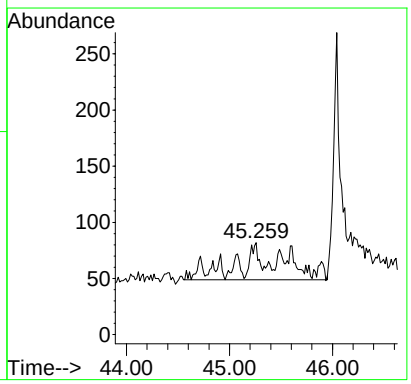
Tgt Ion:248 Resp: 971

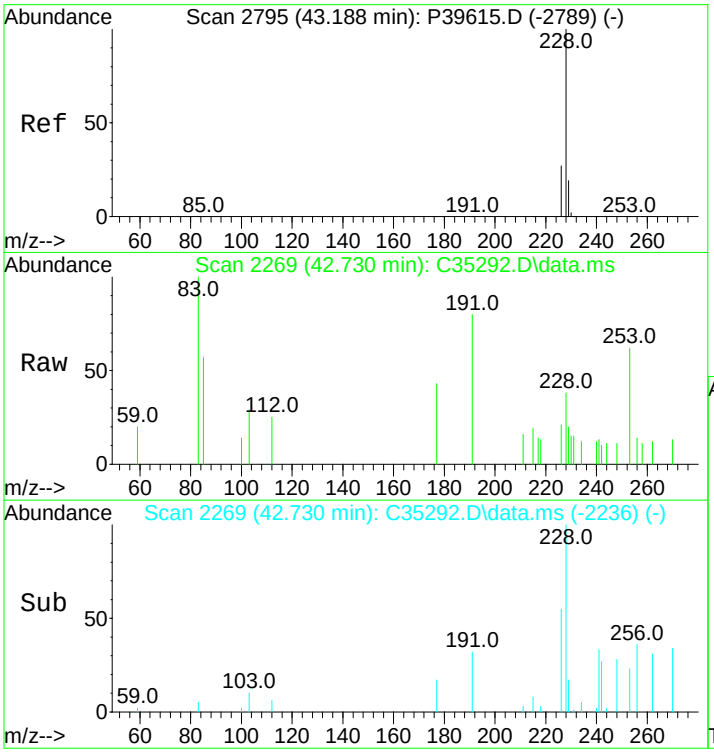




#71
C2-Naphthobenzothiophenes
Concen: 12.07 ng/ml m
RT: 45.259 min Scan# 2437
Delta R.T. 0.392 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:262 Resp: 964

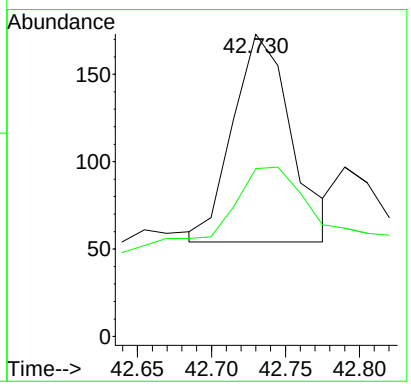


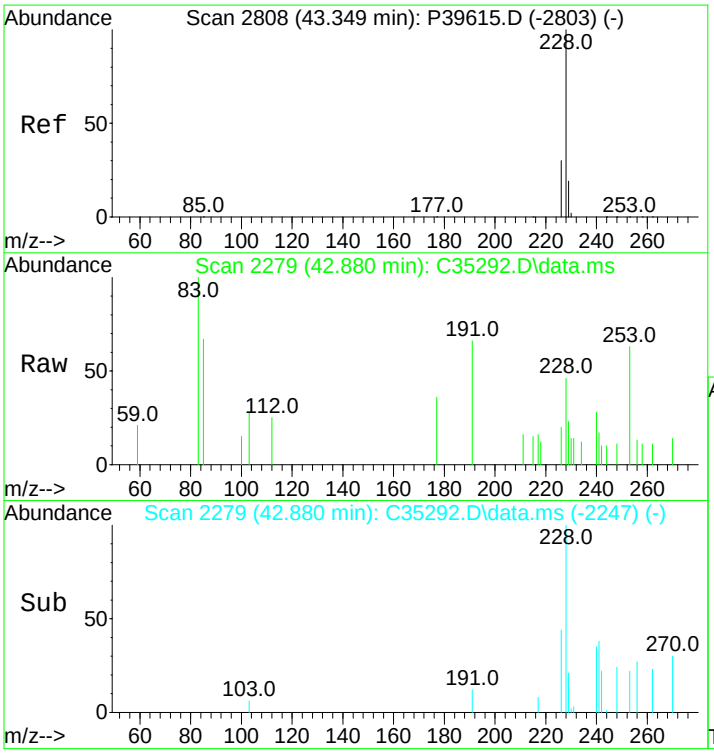


#75
Benz[a]anthracene
Concen: 3.82 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:228 Resp: 328

Ion	Ratio	Lower	Upper
228	100		
226	121.6	21.5	32.3#

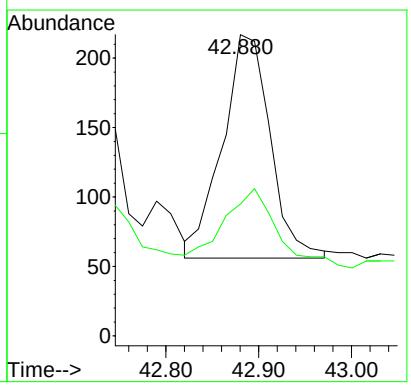


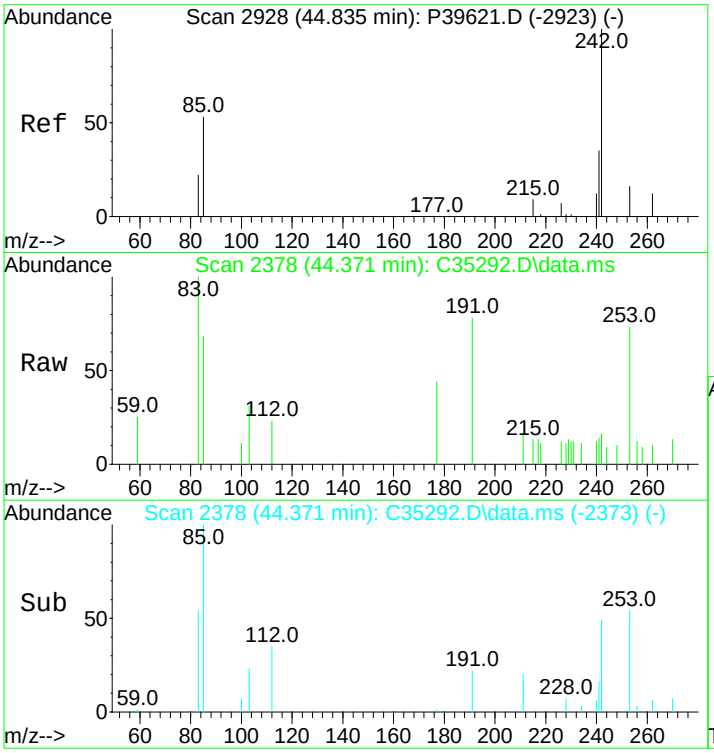


#77
Chrysene/Triphenylene
Concen: 6.66 ng/mL m
RT: 42.880 min Scan# 2279
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:228 Resp: 577

Ion	Ratio	Lower	Upper
228	100		
226	58.8	23.5	35.3#

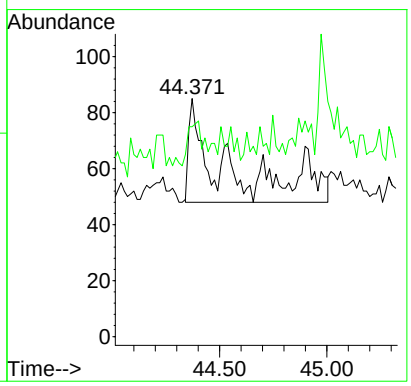


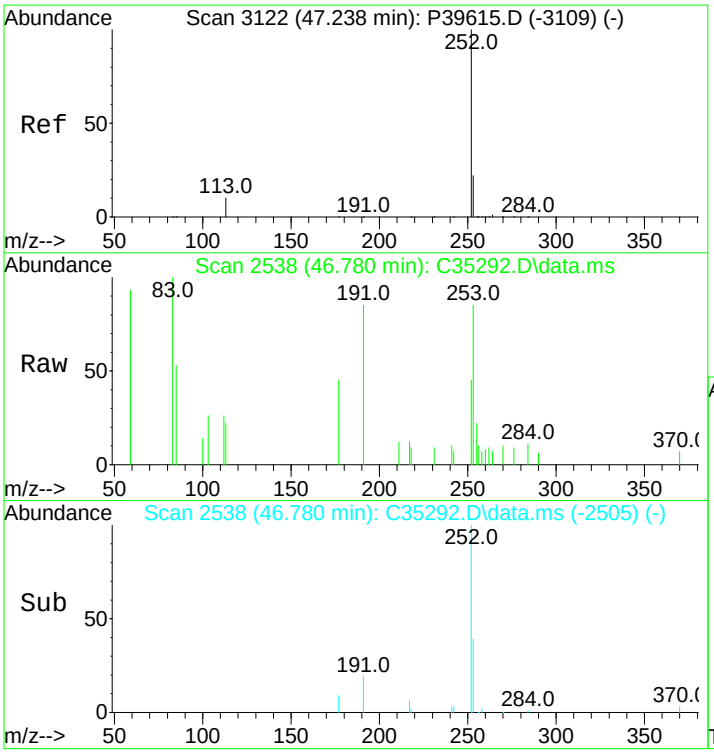


#78
C1-Chrysenes
Concen: 5.15 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:242 Resp: 446

Ion	Ratio	Lower	Upper
242	100		
241	0.0	32.7	49.1#

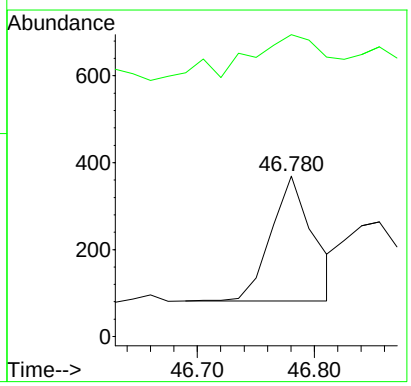


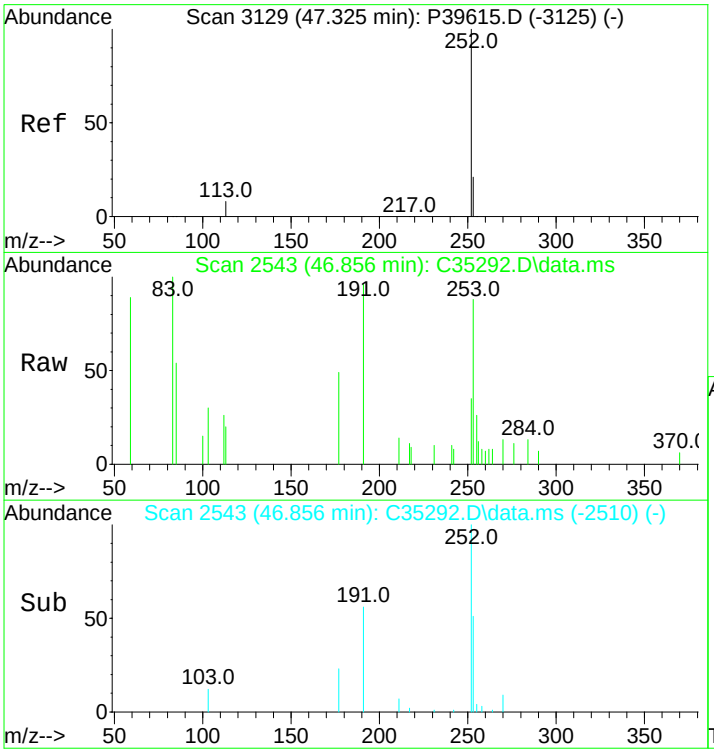


#82
Benzo[b]fluoranthene
Concen: 7.63 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:252 Resp: 720

Ion	Ratio	Lower	Upper
252	100		
253	73.3	20.4	30.6#

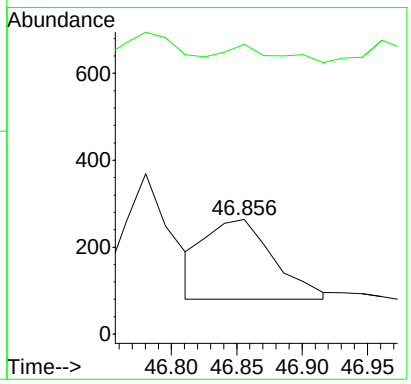


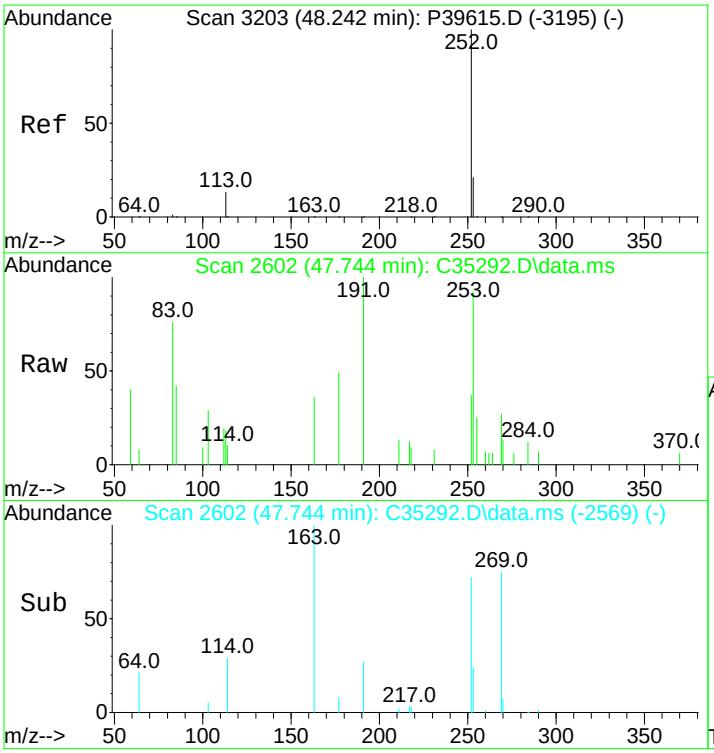


#83
Benzo[j]+[k]fluoranthene
Concen: 6.54 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:252 Resp: 672

Ion	Ratio	Lower	Upper
252	100		
253	0.0	20.6	31.0#

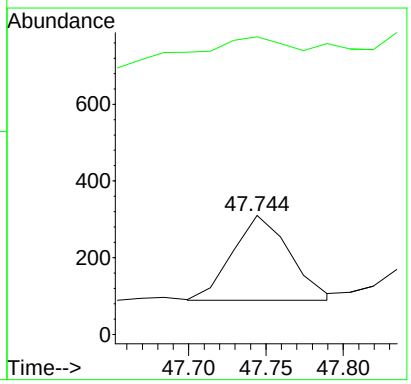


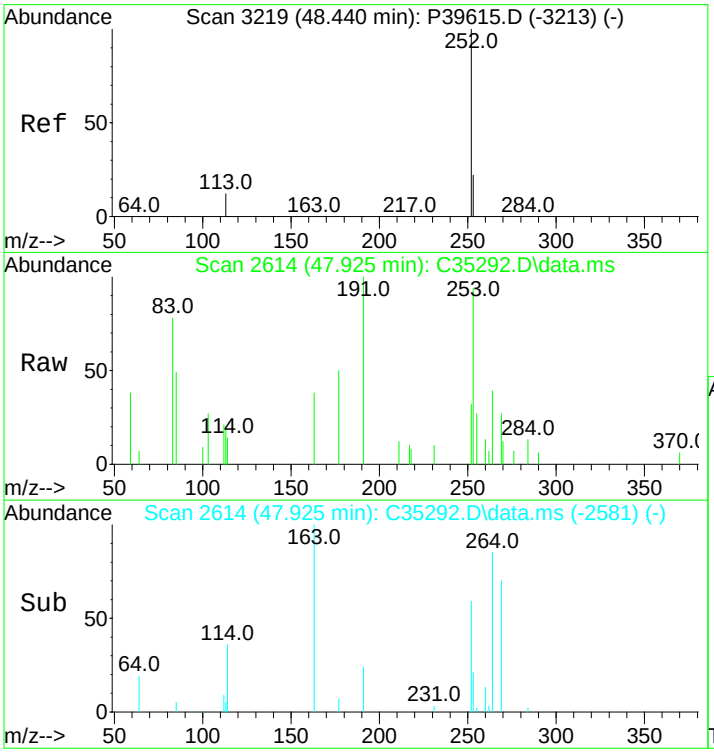


#85
Benzo[e]pyrene
Concen: 6.12 ng/mL m
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:252 Resp: 571

Ion	Ratio	Lower	Upper
252	100		
253	64.3	21.0	31.6#

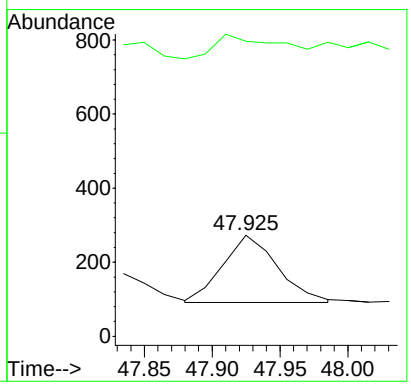


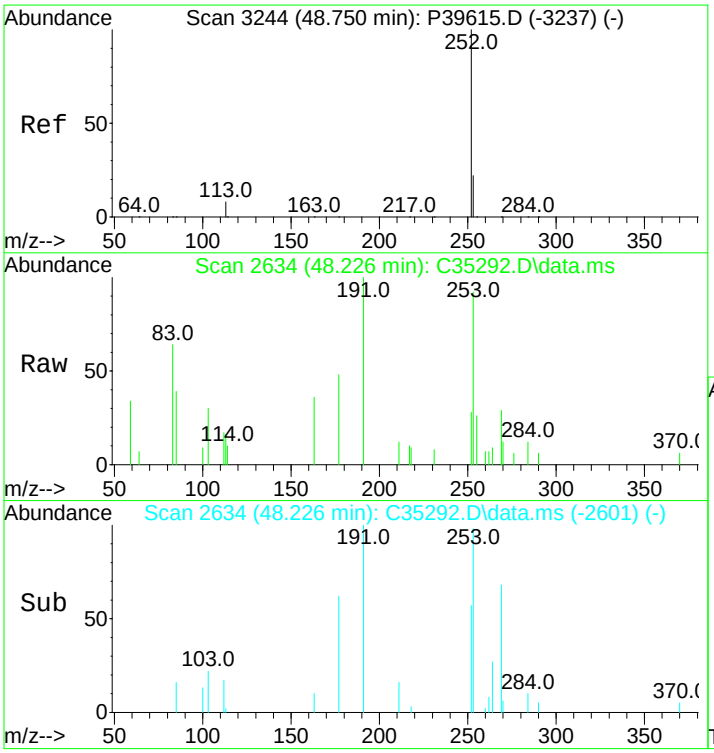


#87
Benzo[a]pyrene
Concen: 5.73 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:252 Resp: 515

Ion	Ratio	Lower	Upper
252	100		
253	42.1	21.4	32.0#

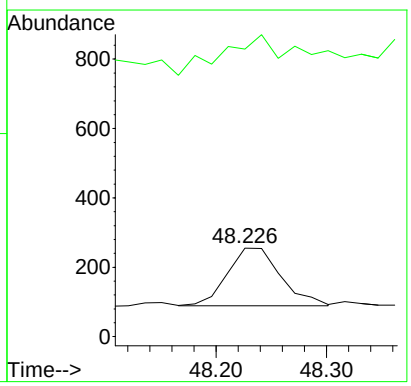


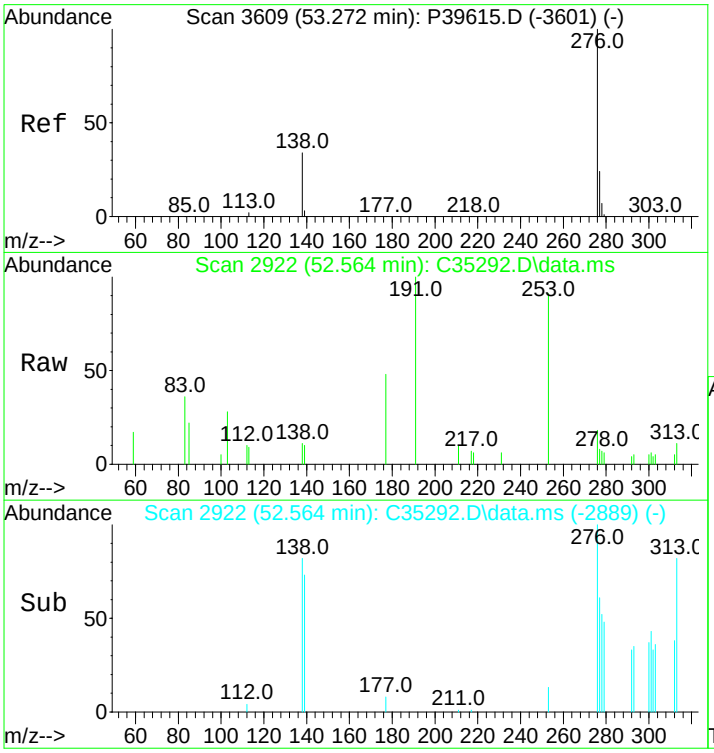


#88
Perylene
Concen: 5.82 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:252 Resp: 559

Ion	Ratio	Lower	Upper
252	100		
253	110.4	21.8	32.6#

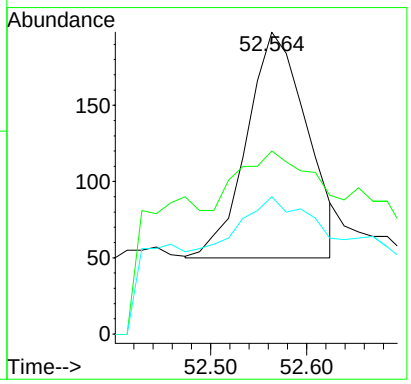


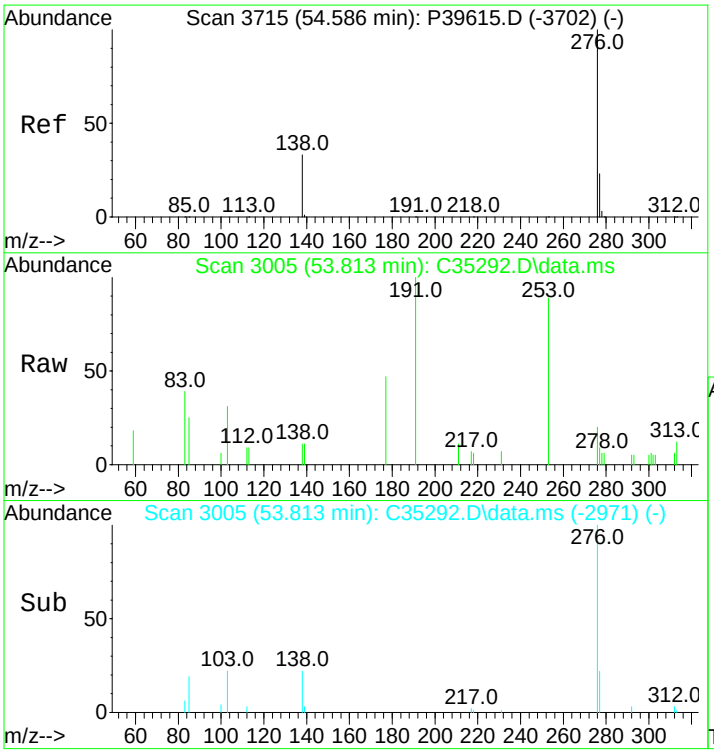


#89
Indeno[1,2,3-cd]pyrene
Concen: 6.15 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:276 Resp: 643

Ion	Ratio	Lower	Upper
276	100		
138	57.1	19.1	28.7#
277	63.8	19.5	29.3#

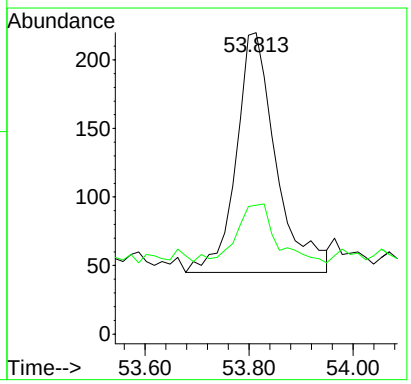


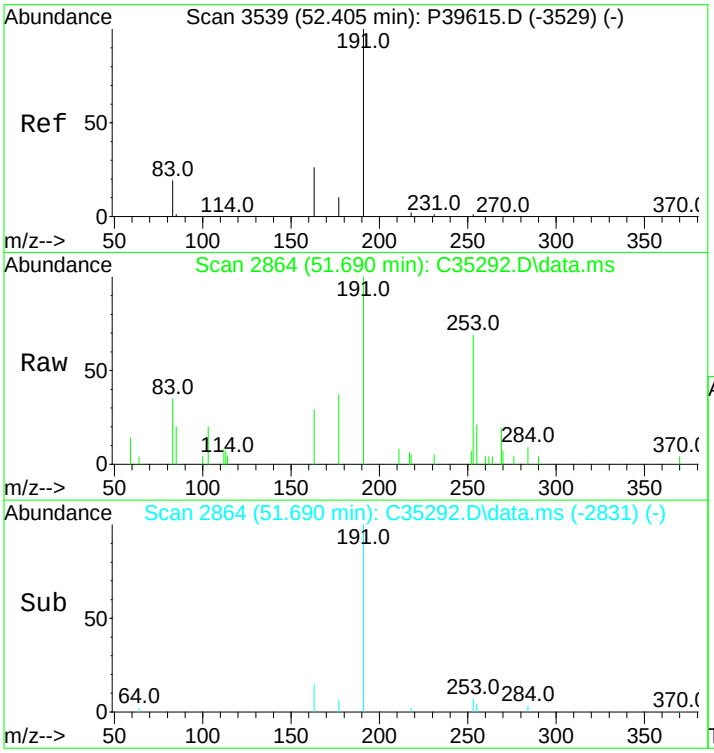


#91
Benzo[g,h,i]perylene
Concen: 8.44 ng/mL
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:276 Resp: 932

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.8	28.2

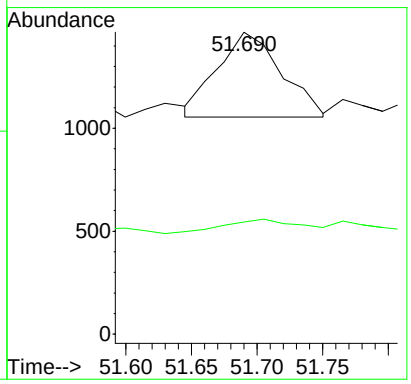


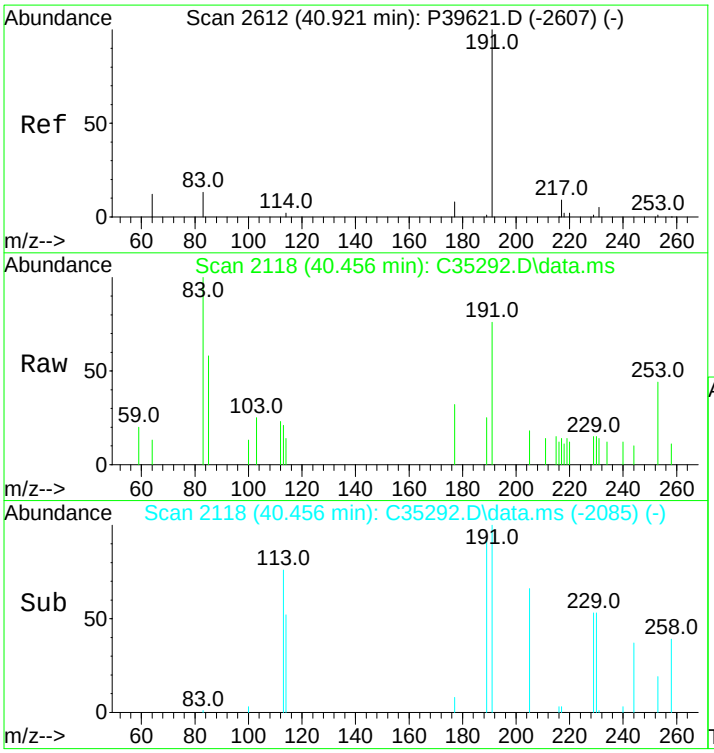


#92
Hopane (T19)
Concen: 78.02 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:191 Resp: 1391

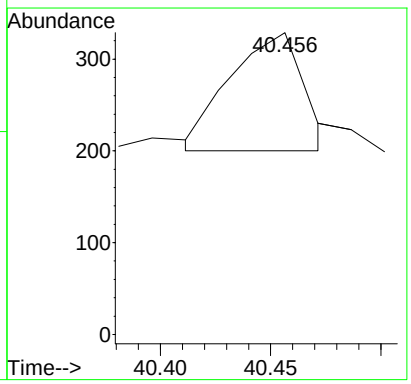
Ion	Ratio	Lower	Upper
191	100		
177	20.3	17.2	25.8

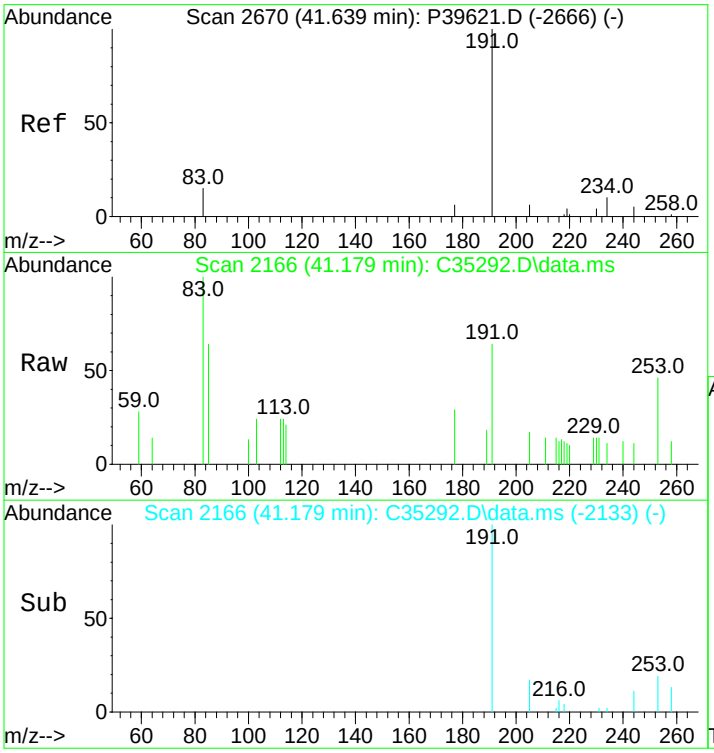




#94
C23 Tricyclic Terpane (T4)
Concen: 16.77 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

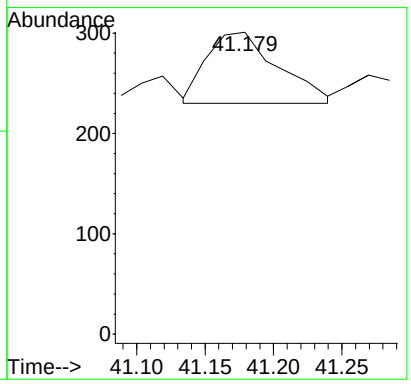
Tgt Ion:191 Resp: 299

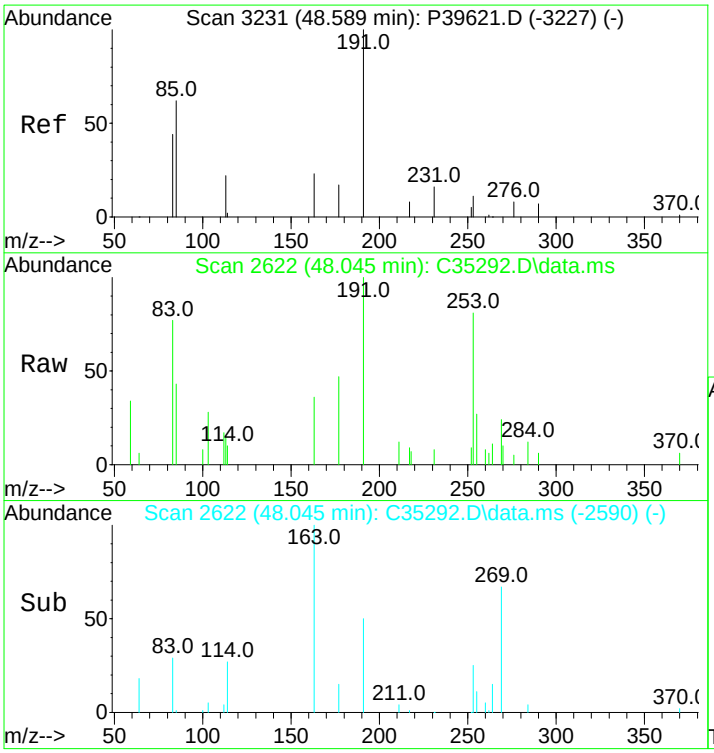




#95
C24 Tricyclic Terpane (T5)
Concen: 14.42 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

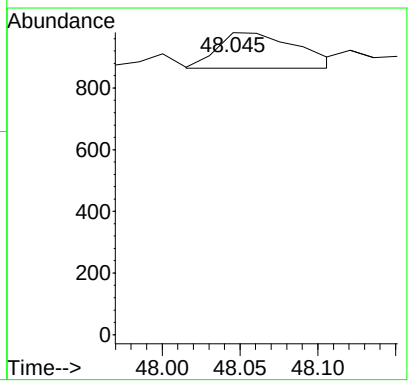
Tgt Ion:191 Resp: 257

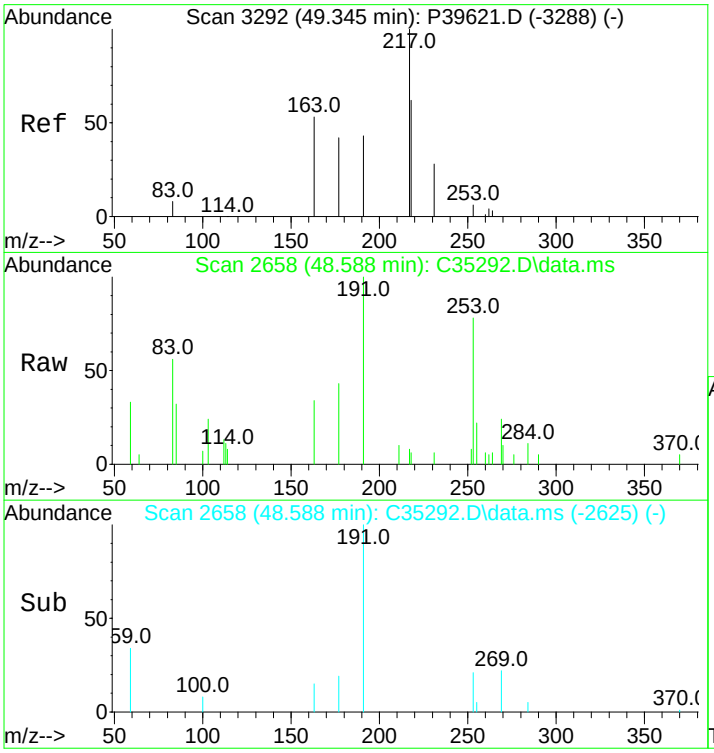




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 23.39 ng/ml m
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

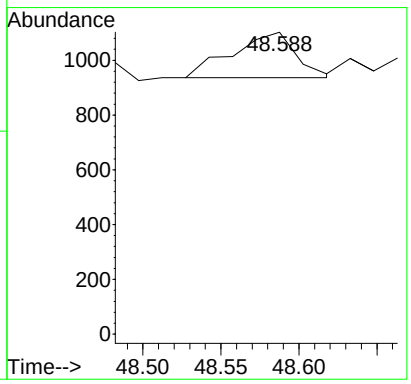
Tgt Ion:191 Resp: 417

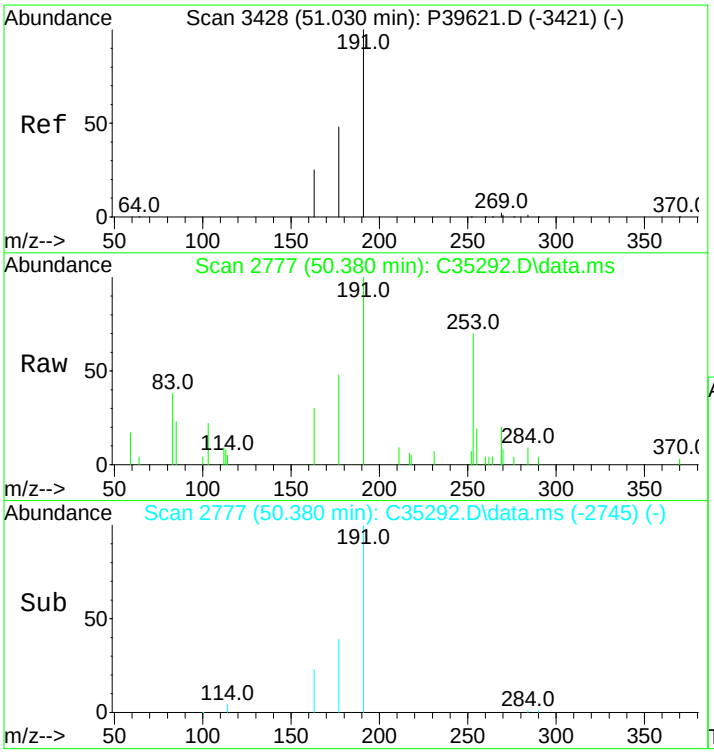




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 26.59 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

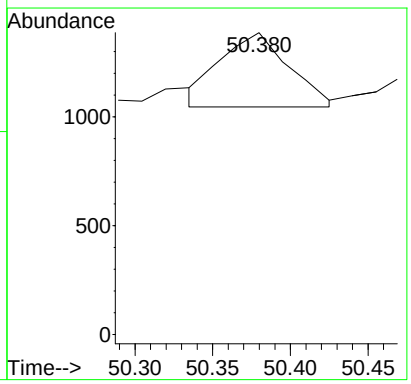
Tgt Ion:191 Resp: 474

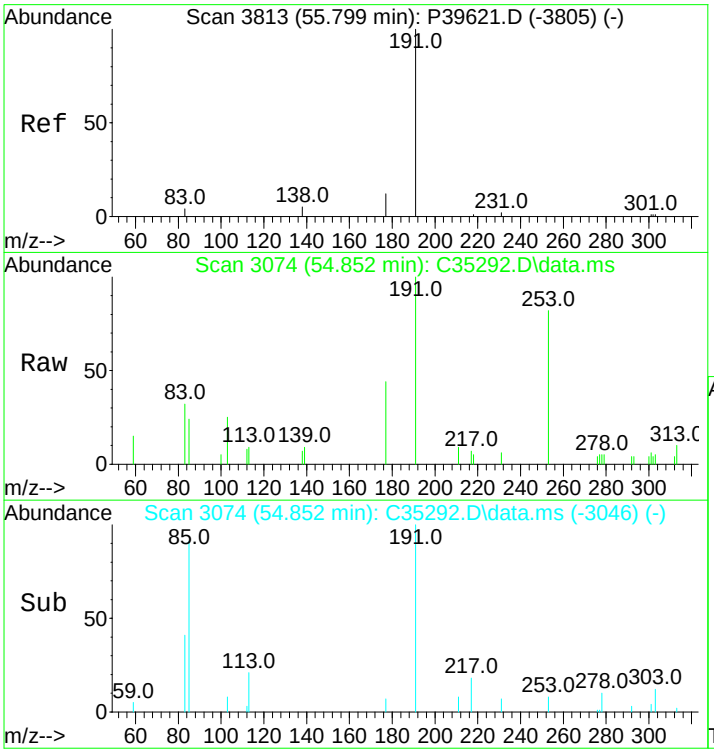




#110
30-Norhopane (T15)
Concen: 59.01 ng/ml m
RT: 50.380 min Scan# 2777
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

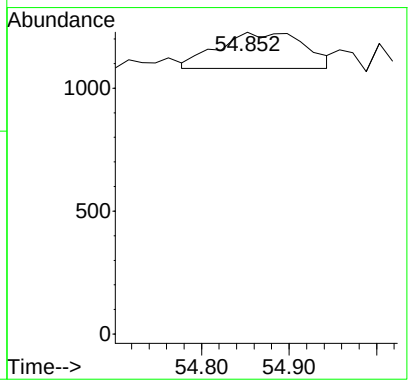
Tgt Ion:191 Resp: 1052

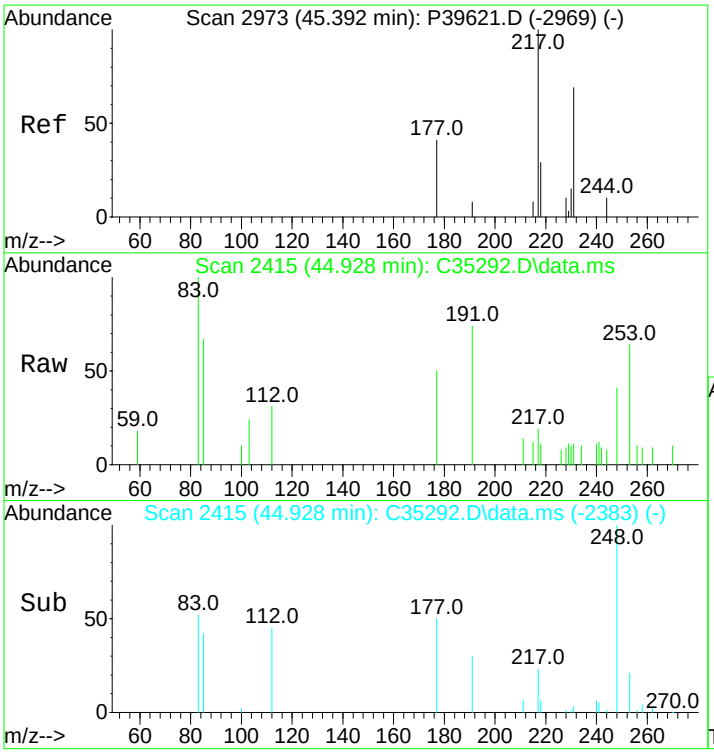




#119
30,31-Bishomohopane-22S (T26)
Concen: 56.15 ng/ml m
RT: 54.852 min Scan# 3074
Delta R.T. -0.075 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

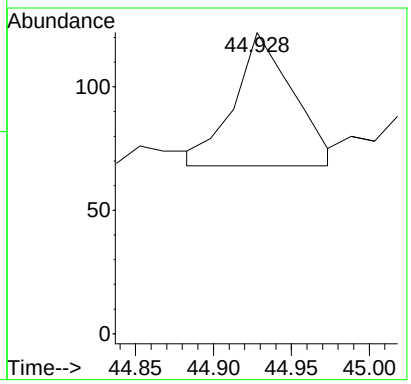
Tgt Ion:191 Resp: 1001

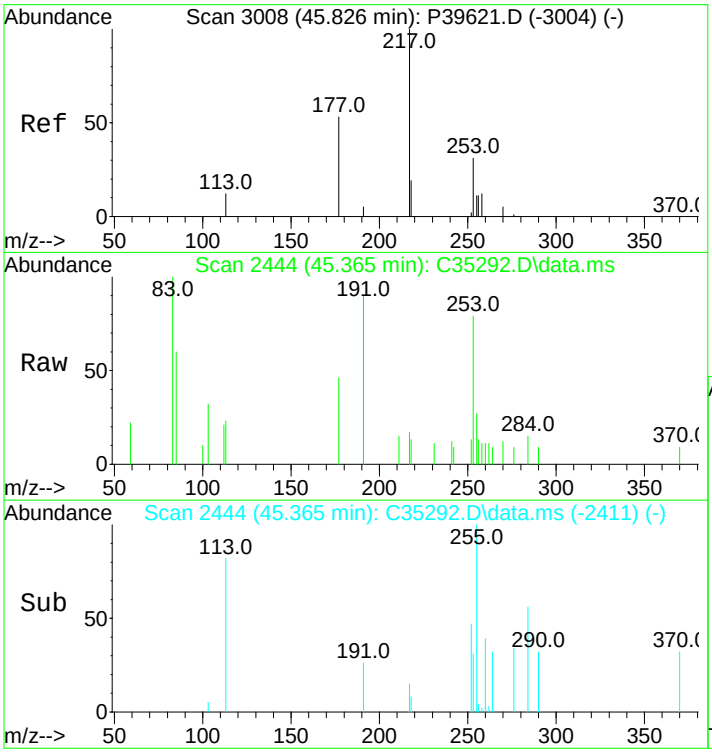




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 16.67 ng/ml m
RT: 44.928 min Scan# 2415
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

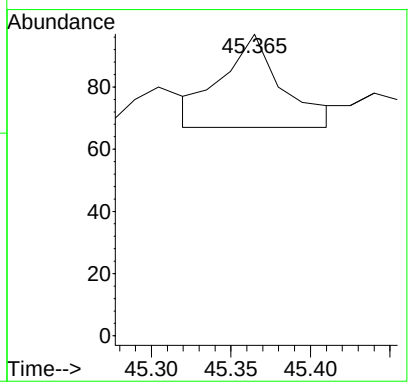
Tgt Ion:217 Resp: 141

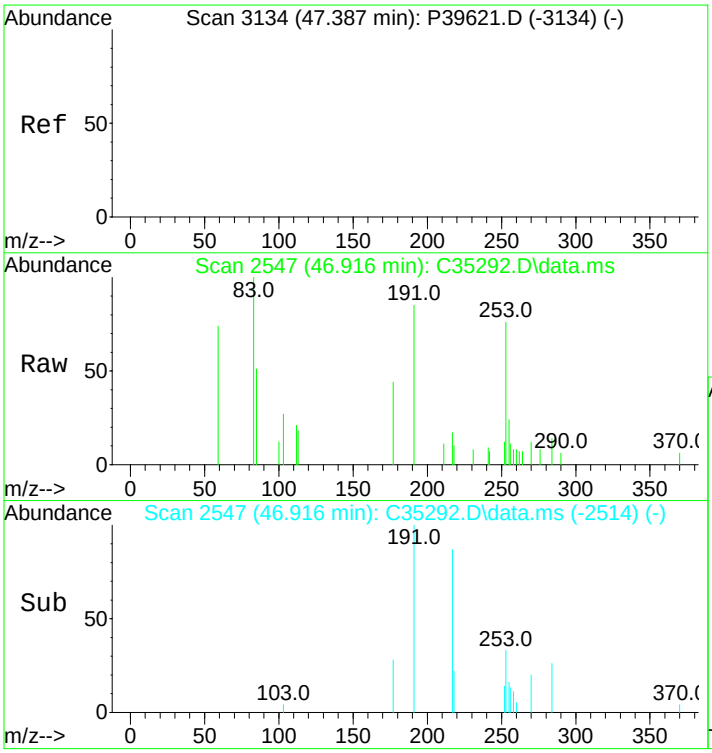




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 9.46 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

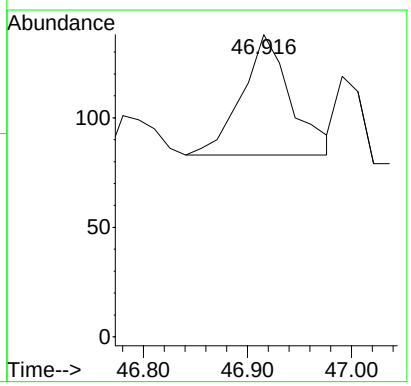
Tgt Ion:217 Resp: 80

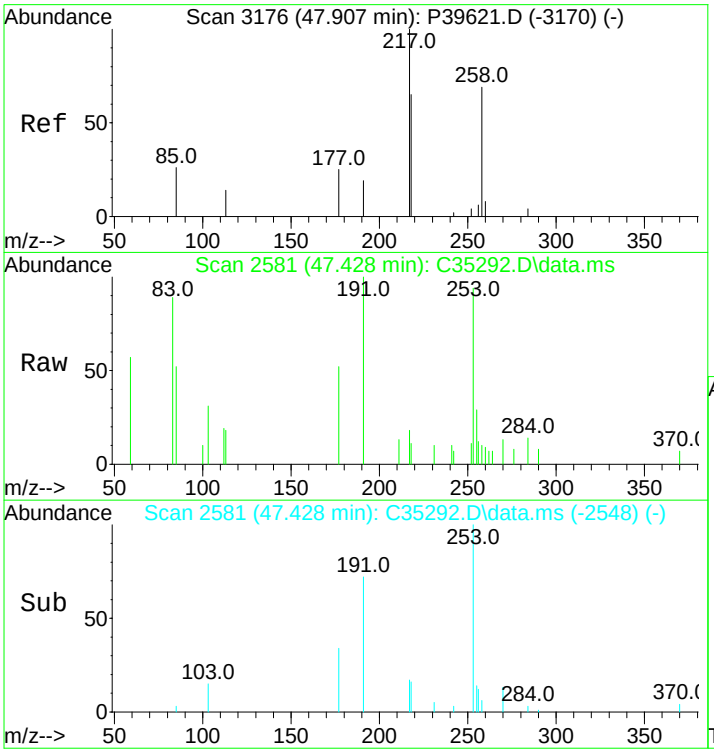




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 21.40 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

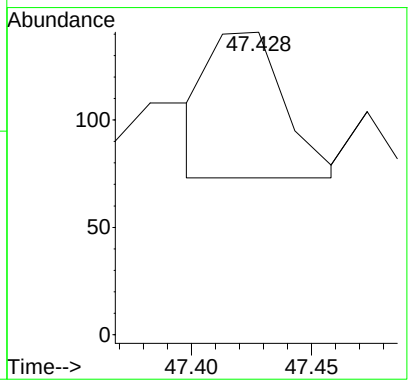
Tgt Ion:217 Resp: 181

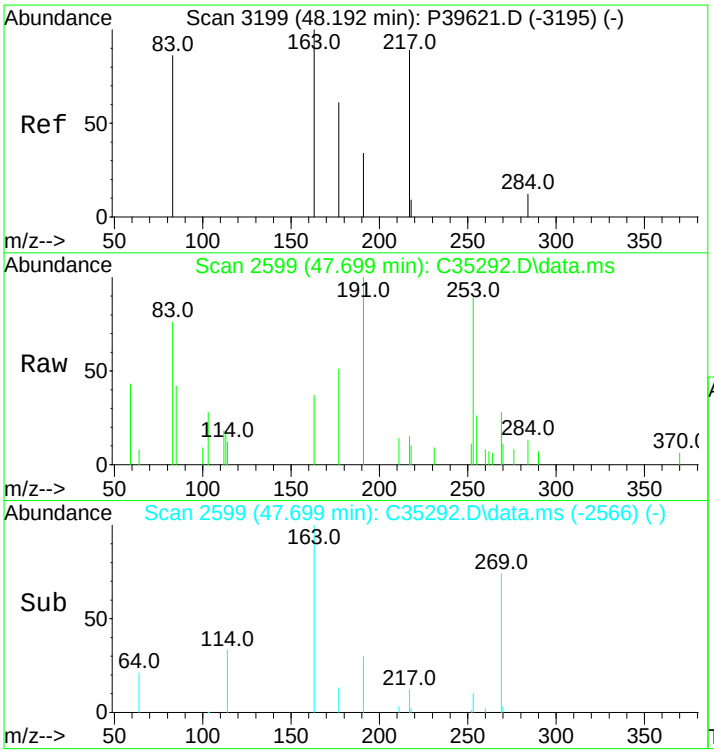




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 17.38 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

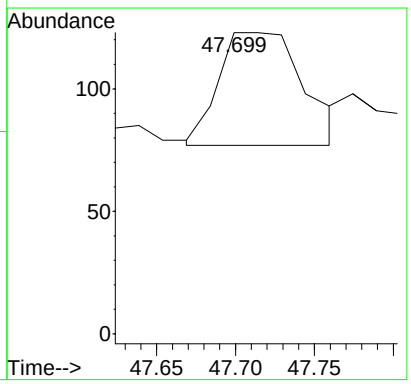
Tgt Ion:217 Resp: 147

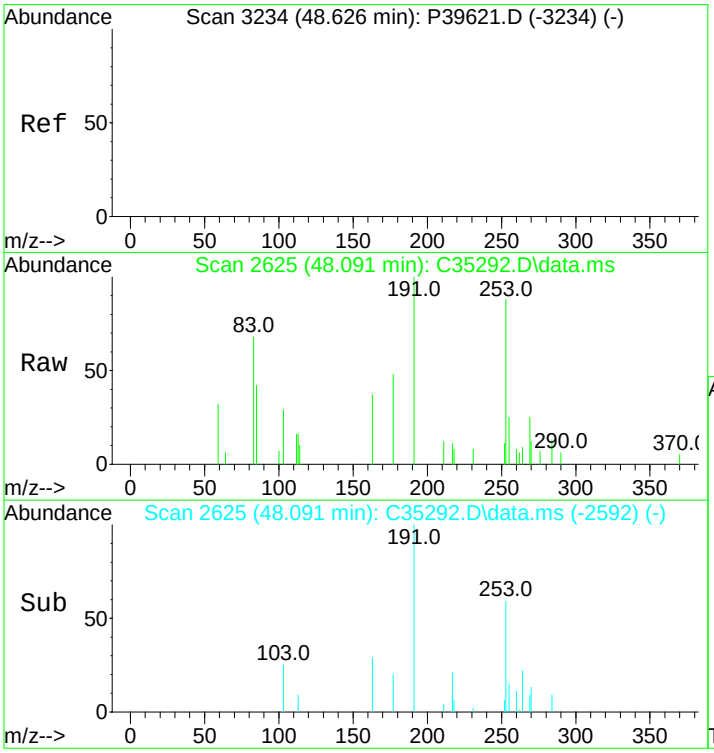




#133
Unknown Sterane (S18)
Concen: 20.34 ng/ml m
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

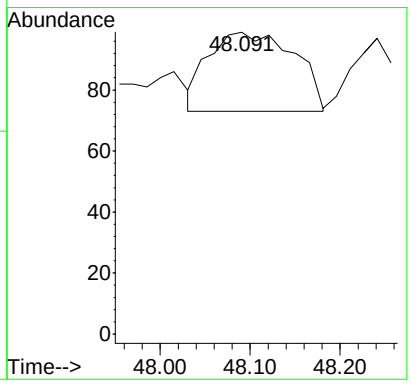
Tgt Ion:217 Resp: 172

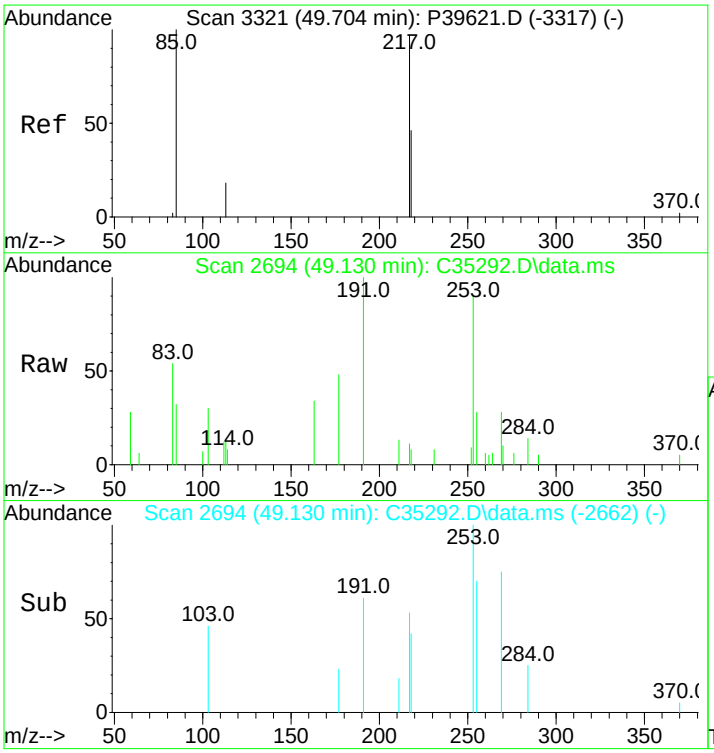




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 20.46 ng/ml m
RT: 48.091 min Scan# 2625
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

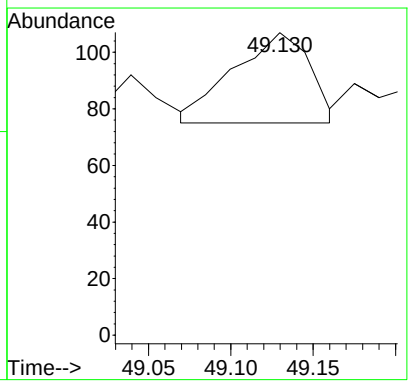
Tgt Ion:217 Resp: 173

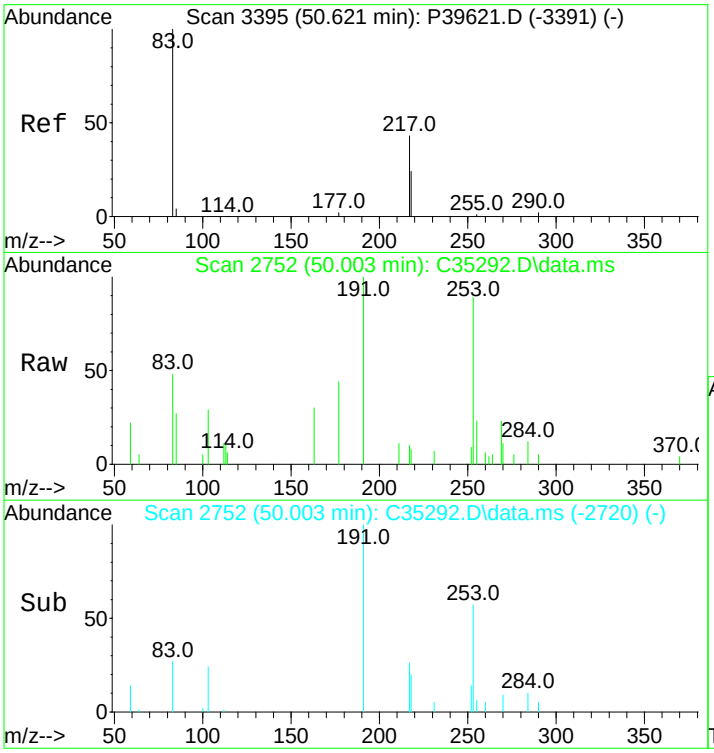




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 12.18 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

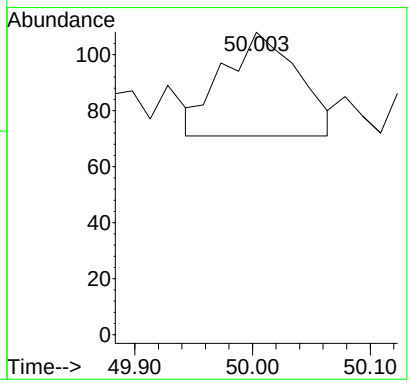
Tgt Ion:217 Resp: 103

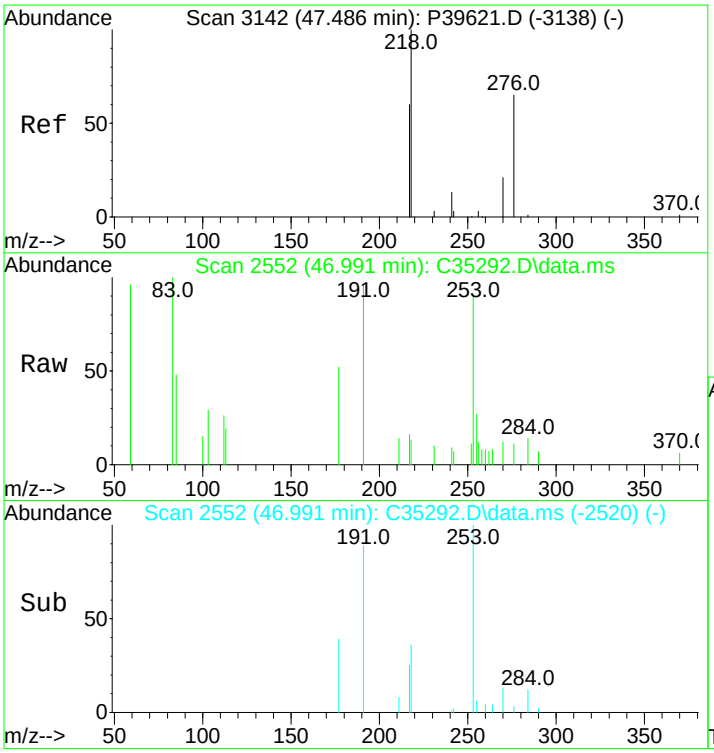




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 19.27 ng/ml m
RT: 50.003 min Scan# 2752
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

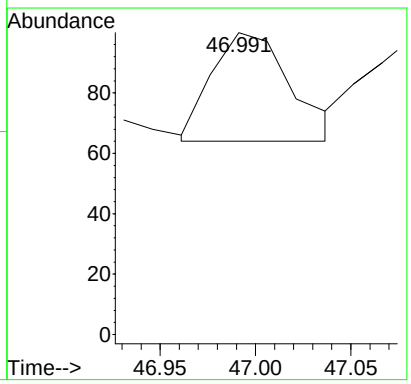
Tgt Ion:217 Resp: 163

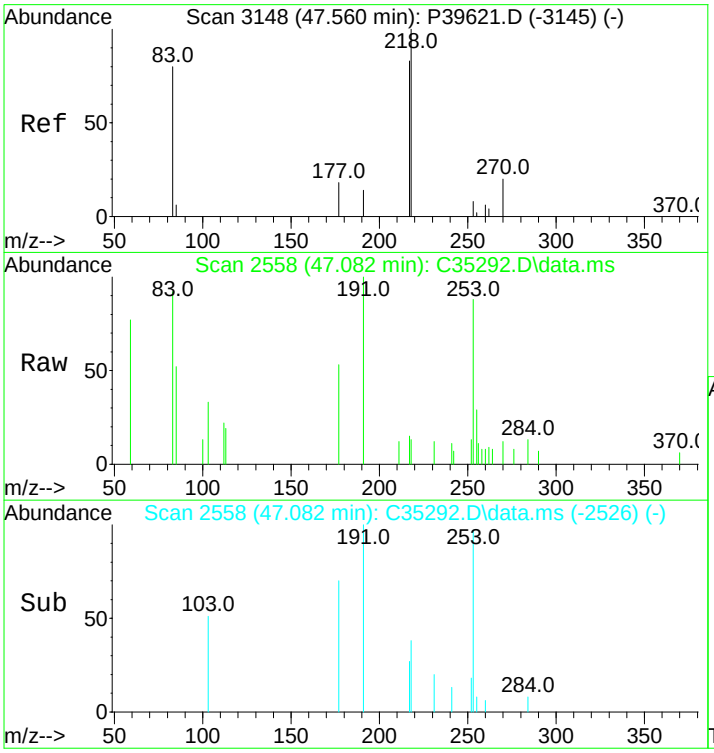




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 12.30 ng/ml m
RT: 46.991 min Scan# 2552
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

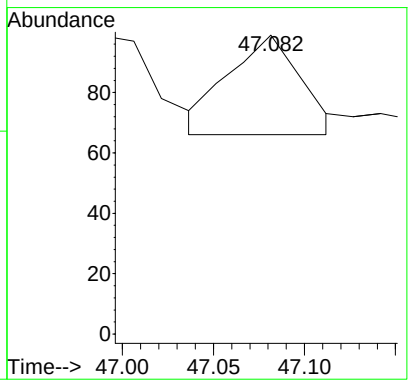
Tgt Ion:218 Resp: 104

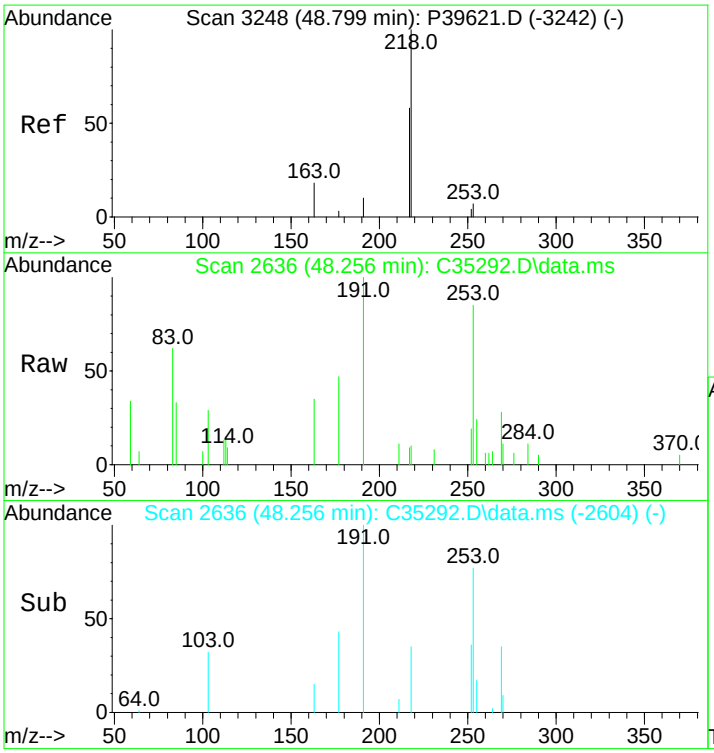




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 10.76 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

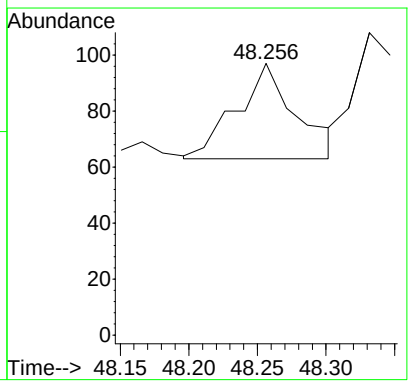
Tgt Ion:218 Resp: 91

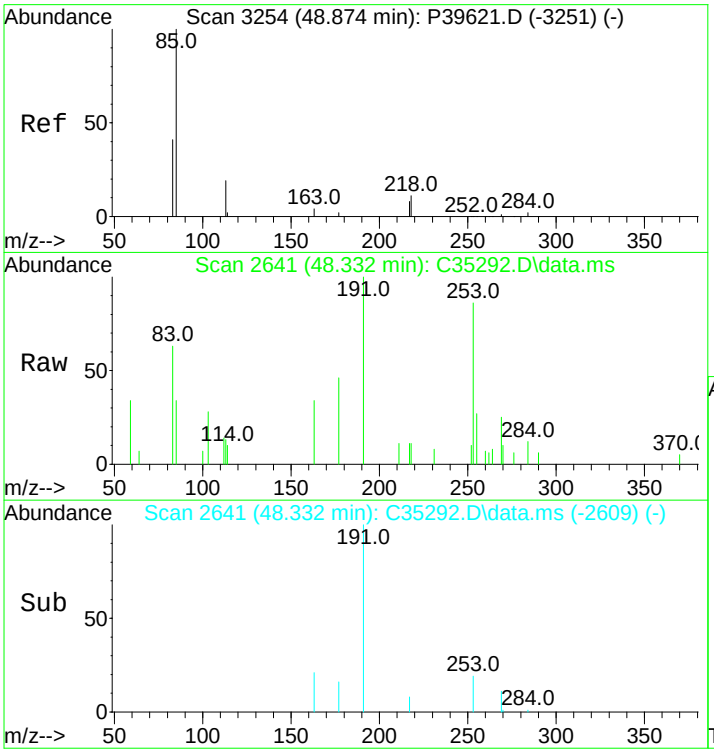




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 12.06 ng/ml m
RT: 48.256 min Scan# 2636
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

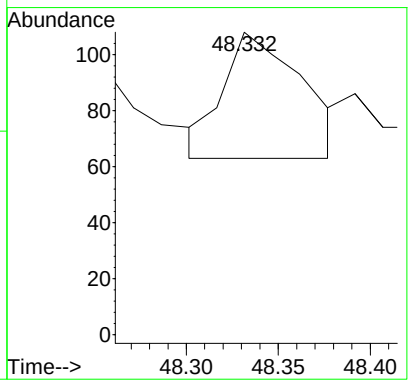
Tgt Ion:218 Resp: 102

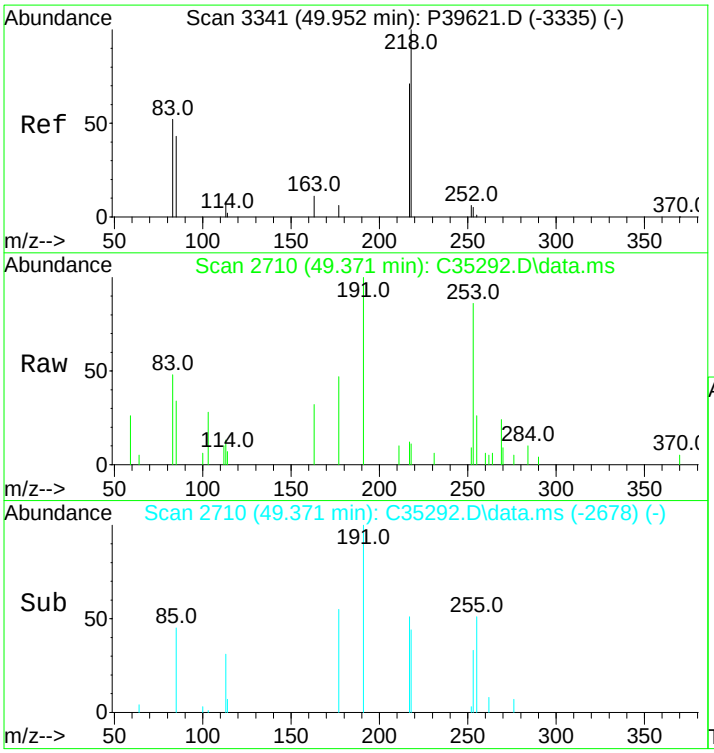




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 15.84 ng/ml m
RT: 48.332 min Scan# 2641
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

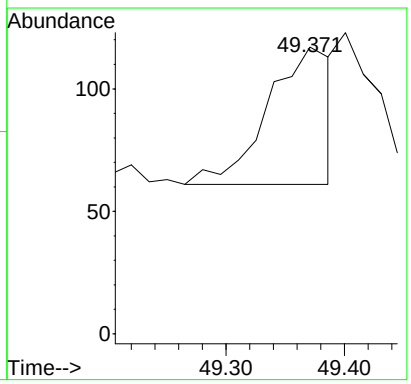
Tgt Ion:218 Resp: 134

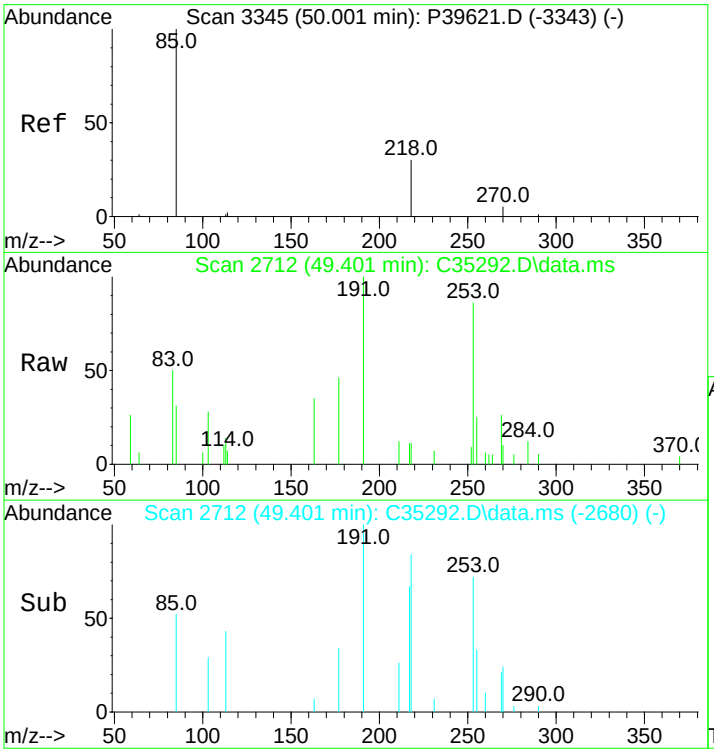




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 24.83 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

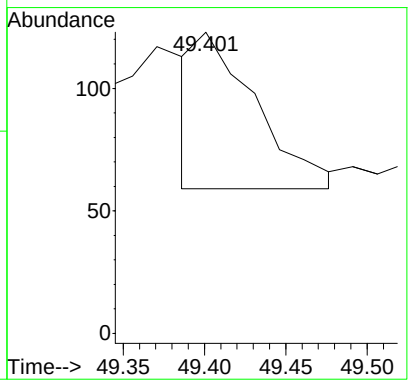
Tgt Ion:218 Resp: 210

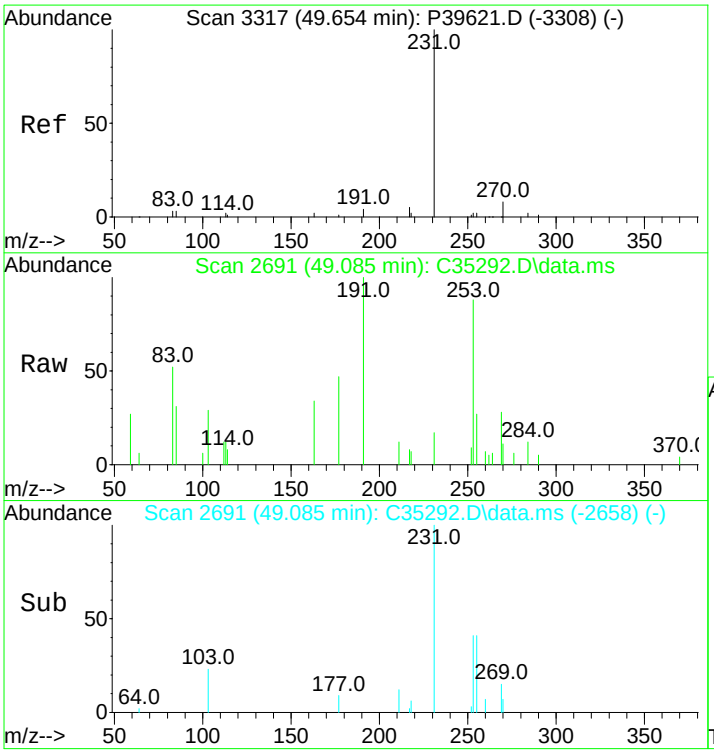




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 19.75 ng/ml m
RT: 49.401 min Scan# 2712
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

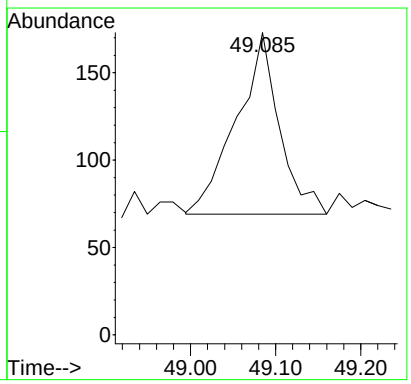
Tgt Ion:218 Resp: 167

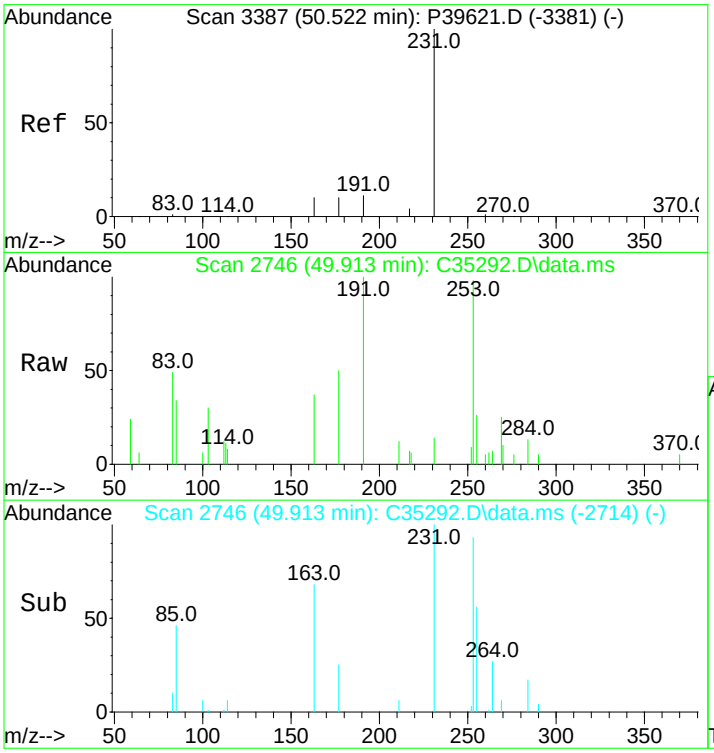




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 43.28 ng/mL
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

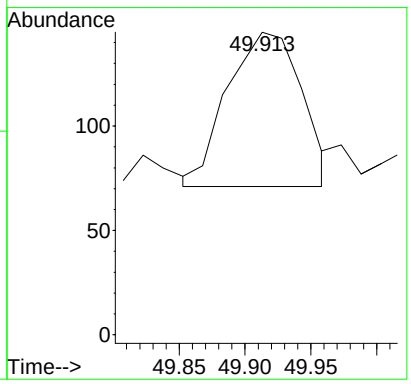
Tgt Ion:231 Resp: 366

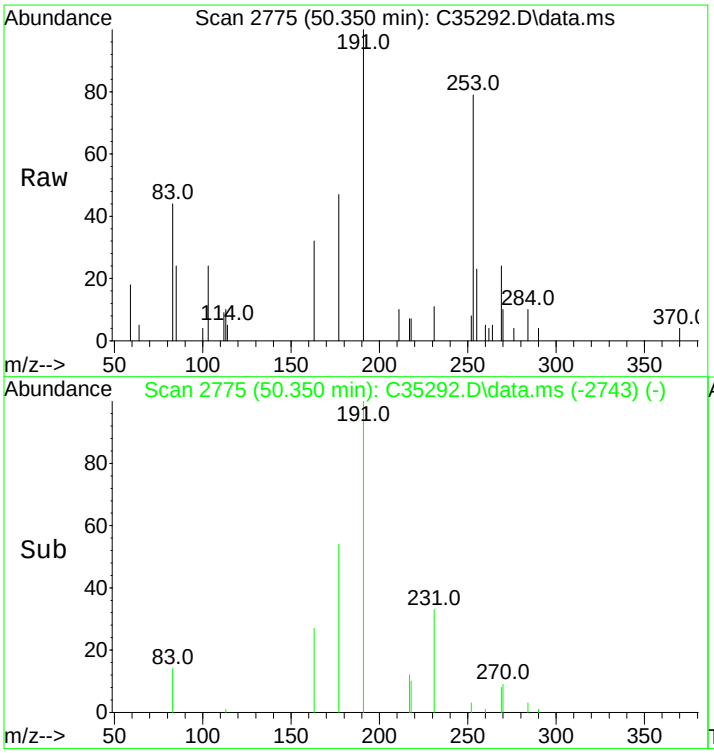




#146
C28,20S-triaromatic steroid
Concen: 34.41 ng/mL m
RT: 49.913 min Scan# 2746
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

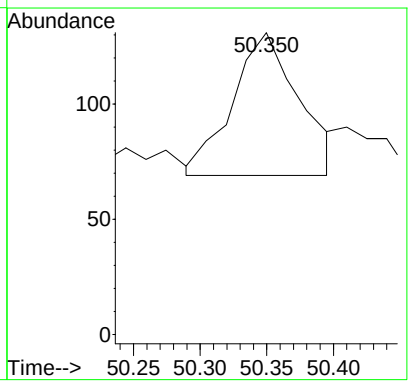
Tgt Ion:231 Resp: 291

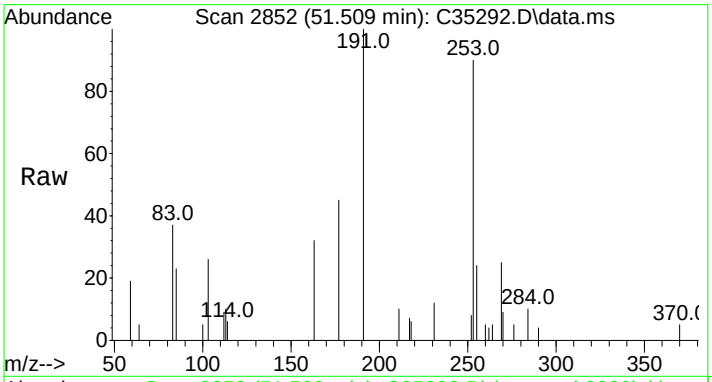




#147
C27,20R-triaromatic steroid
Concen: 25.42 ng/mL m
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

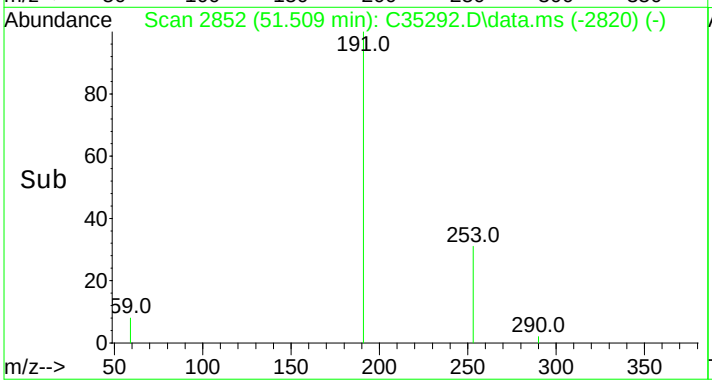
Tgt Ion:231 Resp: 215

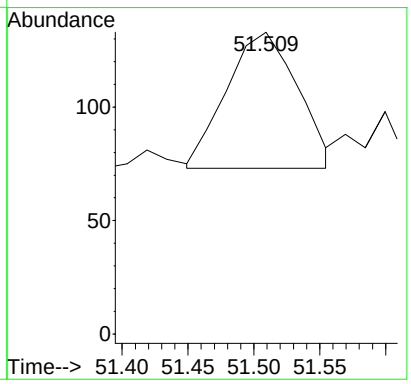




#148
C28,20R-triaromatic steroid
Concen: 26.60 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35292.D
Acq: 25 May 2012 5:31 am

Tgt Ion:231 Resp: 225





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13339M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27252	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	38577	666.331	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 66.63%			
42) Phenanthrene-d10	32.221	188	40388	882.589	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 88.26%			
86) Benzo[a]pyrene-d12	47.835	264	49448	875.532	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 87.55%			
127) 5B(H)Cholane - Surr	43.422	217	8349	979.888	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.99%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	47M2	4.463	ng/mL	
10) Naphthalene	19.485	128	1992	23.431	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2893M5	34.029	ng/mL	
12) C2-Naphthalenes	24.679	156	3913M5	46.027	ng/mL	
13) C3-Naphthalenes	27.343	170	2856M5	33.594	ng/mL	
14) C4-Naphthalenes	30.113	184	2481M5	29.183	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2062M3	41.020	ng/mL	
17) 1-Methylnaphthalene	22.586	142	759M3	15.404	ng/mL	
19) C1-Benzo(b)thiophenes	22.345	148	444M5	5.804	ng/mL	
23) Biphenyl	24.062	154	496M3	7.800	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	1339	32.422	ng/mL#	100
25) Dibenzofuran	27.133	168	2542	34.813	ng/mL	91
26) Acenaphthylene	25.748	152	171	2.026	ng/mL#	100
27) Acenaphthene	26.485	153	476M3	9.579	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	129M3	3.875	ng/mL	
29) Fluorene	28.503	166	924M3	16.860	ng/mL	
30) C1-Fluorenes	30.866	180	618M5	11.277	ng/mL	
31) C2-Fluorenes	33.034	194	1284M5	23.429	ng/mL	
33) Dibenzothiophene	31.814	184	565	6.432	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	298M3	3.392	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	117M3	1.332	ng/mL	
37) OTP	34.012	198	10314	117.407	ng/mL#	100
38) C1-Dibenzothiophenes	34.012	198	11013M5	125.364	ng/mL	
38) C1-Dibenzothiophenes BS	34.012	198	699m	7.957	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	2734M5	31.122	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	5046M5	57.440	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	4172M5	47.491	ng/mL	
43) Phenanthrene	32.311	178	6564	85.046	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.268	192	522M3	6.763	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	713M3	9.238	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	395	5.118	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.810	192	298M3	3.861	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	2136M5	27.675	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	4723M5	61.193	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	2709m	35.099	ng/mL	
51) 5AA IS BKGD	36.301	206	2014	26.094	ng/mL	100
52) C3-Phenanthrenes/Anthrace	39.643	220	2997M5	38.830	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.547	234	2479M5	32.119	ng/mL	
55) Anthracene	32.492	178	401M3	5.319	ng/mL	
56) Carbazole	33.169	167	181M3	2.377	ng/mL	
57) 1-Methylphenanthrene	34.810	192	293M3	5.990	ng/mL	
58) Fluoranthene	37.069	202	3240M3	42.267	ng/mL	
59) Benzo(b)fluorene	39.598	216	137M3	3.081	ng/mL	
60) Pyrene	37.957	202	2192	28.131	ng/mL#	64
61) C1-Fluoranthenes/Pyrenes	39.357	216	1836M5	23.562	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.827	230	2052M5	26.334	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
63)	C3-Fluoranthenes/Pyrenes	43.182	244	2354M5	30.210	ng/mL	
66)	Naphthobenzothiophene	41.812	234	518	6.175	ng/ml#	49
67)	Naphthobenzothiophene-2,1	41.812	234	518	6.175	ng/mL#	49
68)	Naphthobenzothiophene-1,2	42.143	234	128M3	1.526	ng/mL	
69)	Naphthobenzothiophene-2,3	42.459	234	521M3	6.211	ng/mL	
70)	C1-Naphthobenzothiophenes	43.889	248	2401M5	28.621	ng/ml	
71)	C2-Naphthobenzothiophenes	45.244	262	3927M5	46.811	ng/ml	
72)	C3-Naphthobenzothiophenes	46.027	276G	7119M5	84.861	ng/ml	
73)	C4-Naphthobenzothiophenes	47.865	290	3557M5	42.401	ng/mL	
75)	Benz[a]anthracene	42.730	228	584M3	6.752	ng/mL	
77)	Chrysene/Triphenylene	42.896	228	1185M3	13.570	ng/mL	
78)	C1-Chrysenes	44.371	242	1135M5	12.997	ng/mL	
79)	C2-Chrysenes	46.027	256	2534M5	29.018	ng/mL	
79)	C2-Chrysenes BS	46.027	256	2534m	29.018	ng/mL	
82)	Benzo[b]fluoranthene	46.780	252	1344M3	14.141	ng/mL	
83)	Benzo[j]+[k]fluoranthene	46.856	252	1108M3	10.708	ng/mL	
85)	Benzo[e]pyrene	47.744	252	1112	11.829	ng/mL#	72
87)	Benzo[a]pyrene	47.925	252	848M3	9.369	ng/mL	
88)	Perylene	48.226	252	763M3	7.888	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	52.564	276	969M3	9.200	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.594	278	208M3	2.076	ng/mL	
91)	Benzo[g,h,i]perylene	53.813	276	1516	13.623	ng/mL#	84
92)	Hopane (T19)	51.690	191	2970M3	165.358	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.441	191	897M3	49.942	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.179	191	545M3	30.344	ng/ml	
96)	C25 Tricyclic Terpane (T6	42.730	191	709M3	39.474	ng/ml	
97)	C24 Tetracyclic Terpane (	43.965	191	509M3	28.339	ng/ml	
98)	C26 Tricyclic Terpane-22S	43.724	191	224M3	12.471	ng/ml	
99)	C26 Tricyclic Terpane-22R	43.814	191	213M3	11.859	ng/ml	
100)	C28 Tricyclic Terpane-22S	46.103	191	385M3	21.435	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.268	191	298M3	16.592	ng/ml	
102)	C29 Tricyclic Terpane-22S	46.780	191	370M3	20.600	ng/ml	
103)	C29 Tricyclic Terpane-22R	46.976	191	346M3	19.264	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.045	191	848	47.213	ng/ml	100
107)	17a(H)-22,29,30-Trisnorho	48.573	191	719M3	40.031	ng/ml	
108)	17a/b,21b/a 28,30-Bisnorh	49.717	191	629M3	35.020	ng/ml	
110)	30-Norhopane (T15)	50.365	191	2275	126.663	ng/ml	100
111)	18a(H)-30-Norneohopane-C2	50.470	191	700M3	38.973	ng/ml	
116)	30-Homohopane-22S (T21)	53.422	191	1220M3	67.925	ng/ml	
117)	30-Homohopane-22R (T22)	53.633	191	1062M3	59.128	ng/ml	
118)	Gammacerane/C32-diahopane	54.160	191	412M3	22.939	ng/mL	
119)	30,31-Bishomohopane-22S (	54.898	191G	1723M3	95.930	ng/ml	
120)	30,31-Bishomohopane-22R (	55.289	191	1000M3	55.676	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.928	217	293M3	34.388	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.350	217	155M3	18.192	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.901	217	436	51.172	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.413	217	401M3	47.064	ng/ml	
133)	Unknown Sterane (S18)	47.714	217G	260	30.515	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.091	217	215	25.234	ng/ml	100
136)	14a,17a-20R-Methylcholest	48.798	217	161M3	18.896	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	290M3	34.036	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.003	217	272M3	31.924	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	221M3	25.938	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.082	218	185M3	21.713	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	200M3	23.473	ng/ml	
142)	14b,17b-20S-Methylcholest	48.332	218	344M3	40.374	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.356	218	407M3	47.768	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.401	218	257M3	30.163	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	1303M3	152.928	ng/mL	
146)	C28,20S-triaromatic stero	49.913	231	1040M3	122.061	ng/mL	
147)	C27,20R-triaromatic stero	50.350	231	731M3	85.794	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
148) C28,20R-triaromatic stero	51.509	231	820M3	96.240	ng/mL	

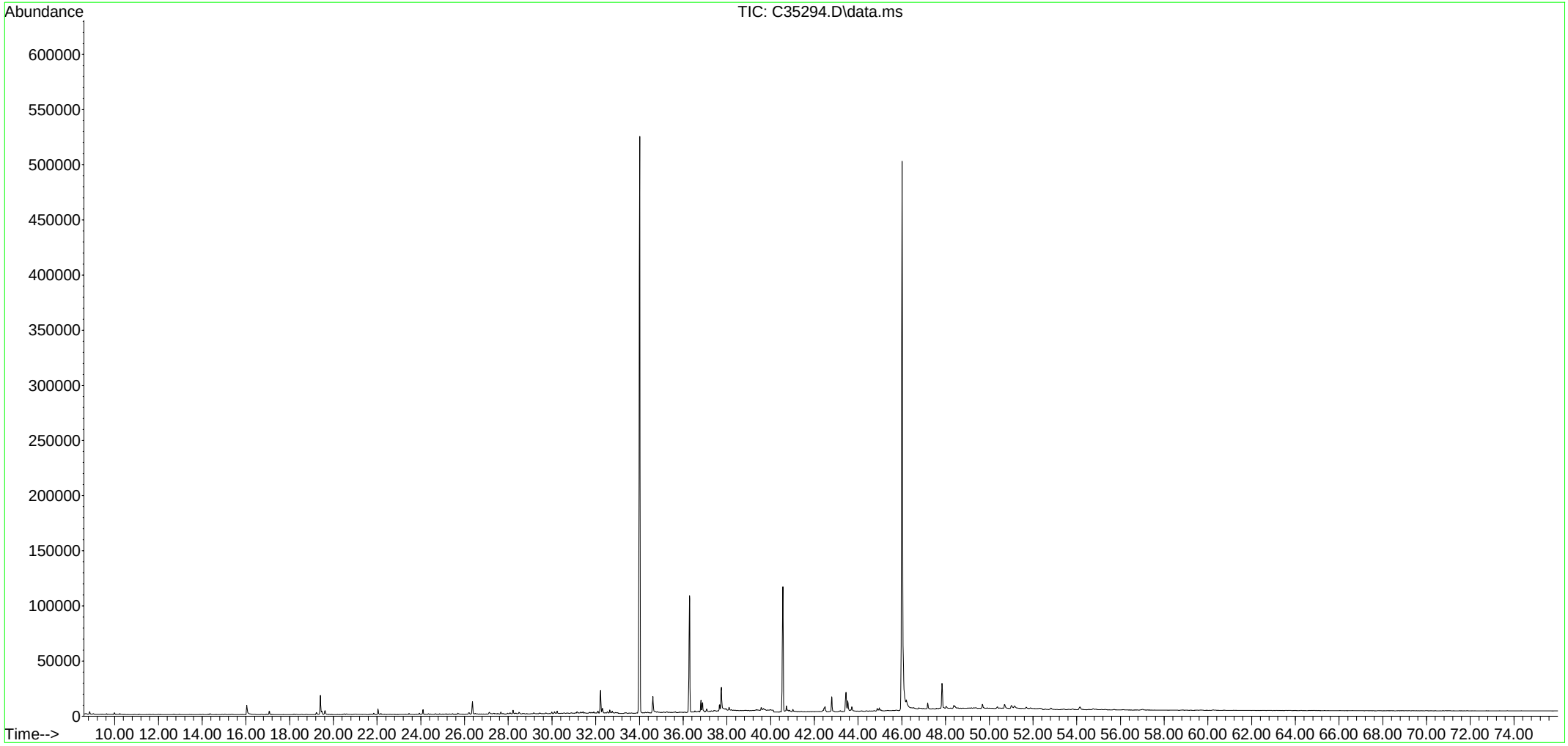
(#) = qualifier out of range (m) = manual integration (+) = signals summed

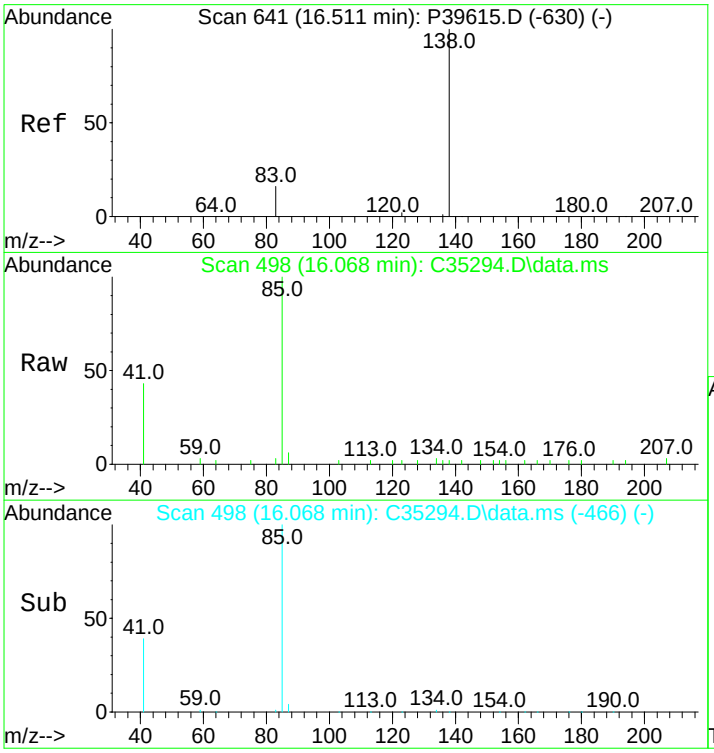
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35294.D
Acq On : 25 May 2012 7:03 am
Operator : AC
Sample : 1205027-02
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 29 11:39:42 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

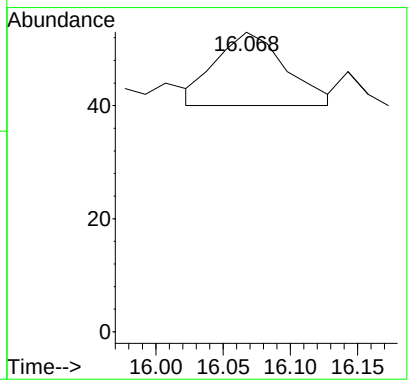
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

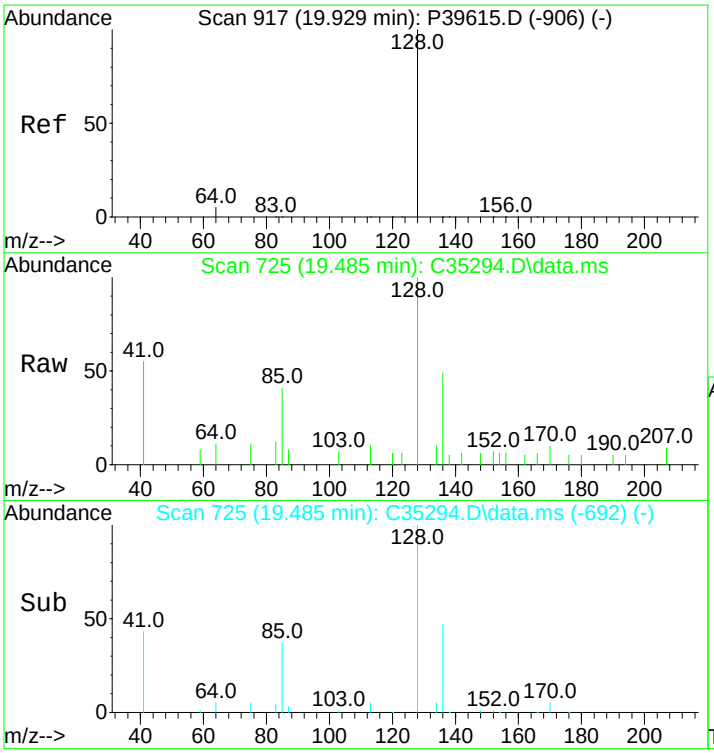




#3
trans-Decalin
Concen: 4.46 ng/mL m
RT: 16.068 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:138 Resp: 47

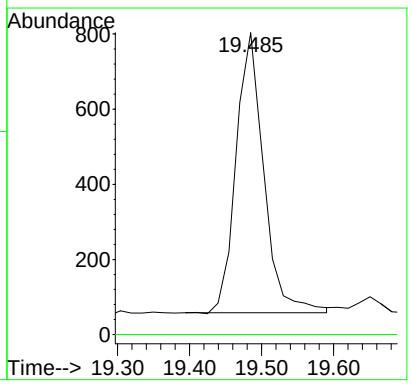


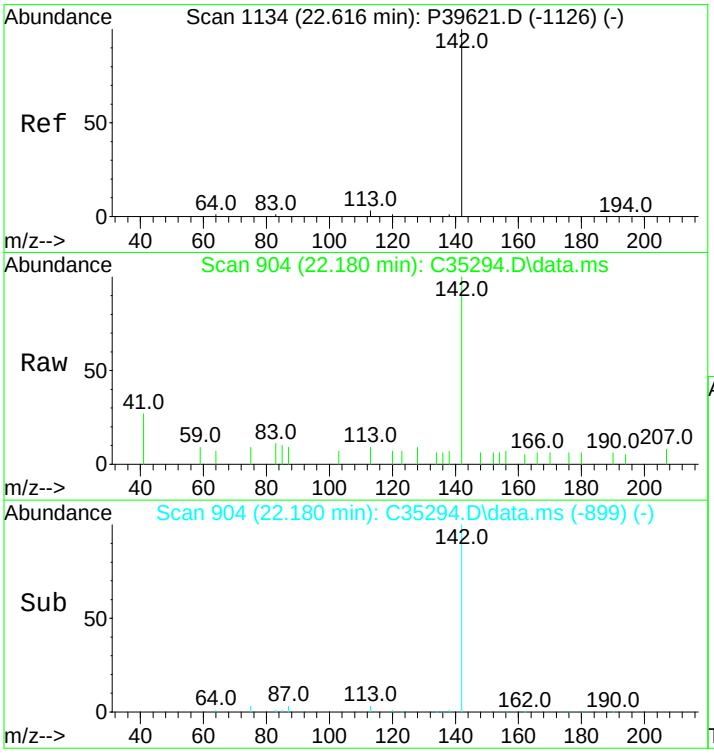


#10
Naphthalene
Concen: 23.43 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:128 Resp: 1992

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

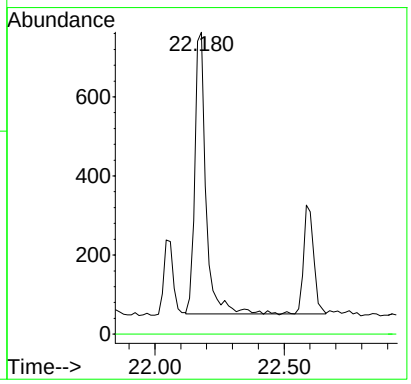


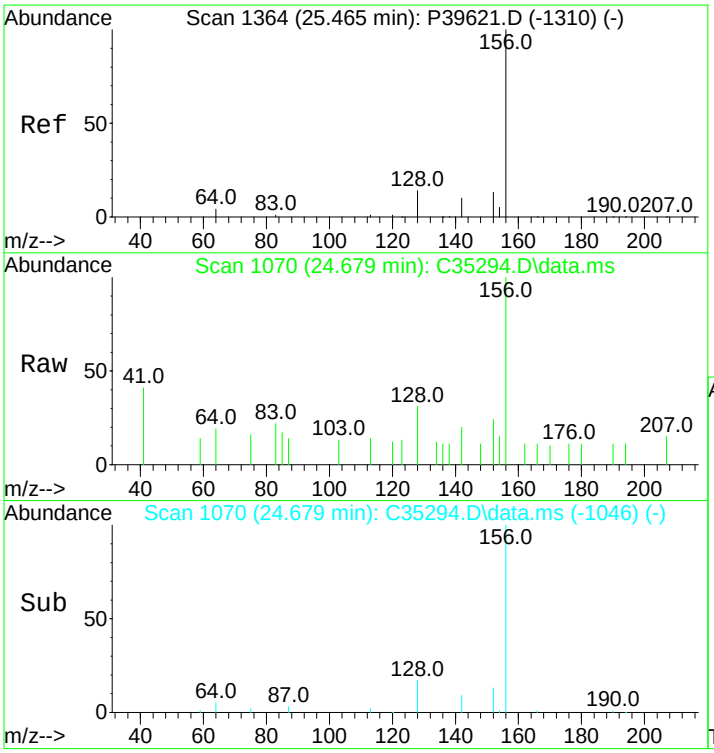


#11
C1-Naphthalenes
Concen: 34.03 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:142 Resp: 2893

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

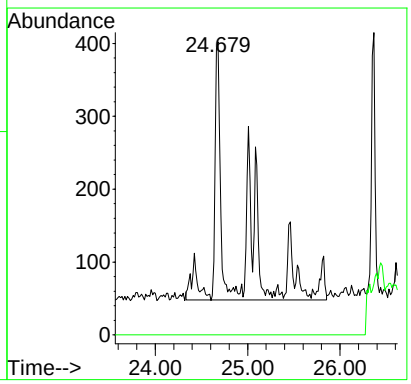


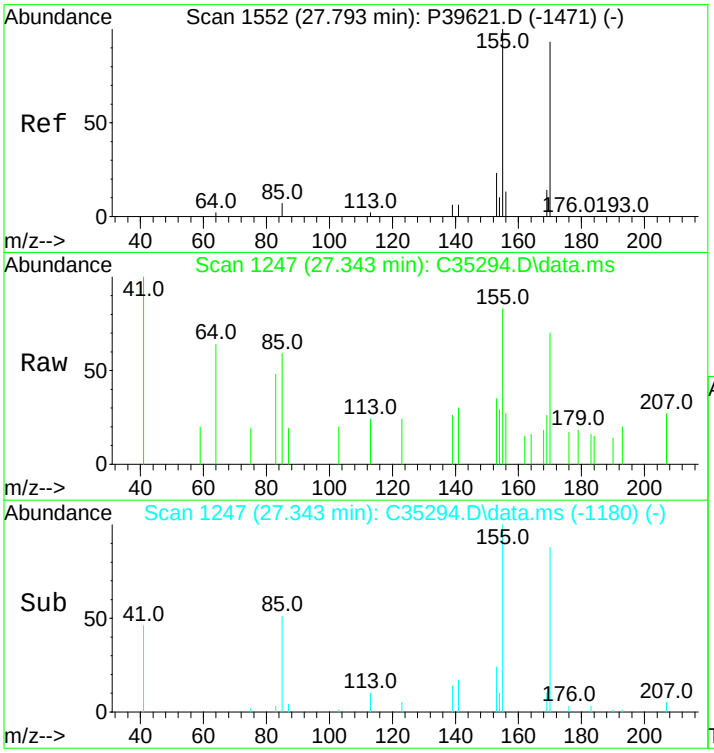


#12
C2-Naphthalenes
Concen: 46.03 ng/mL m
RT: 24.679 min Scan# 1070
Delta R.T. -0.354 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:156 Resp: 3913

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

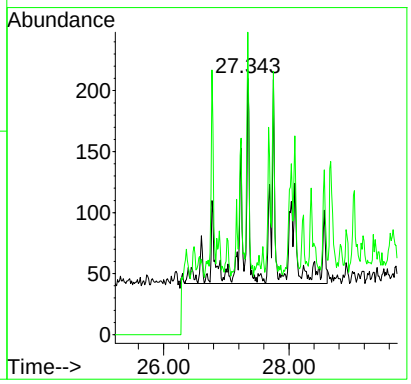


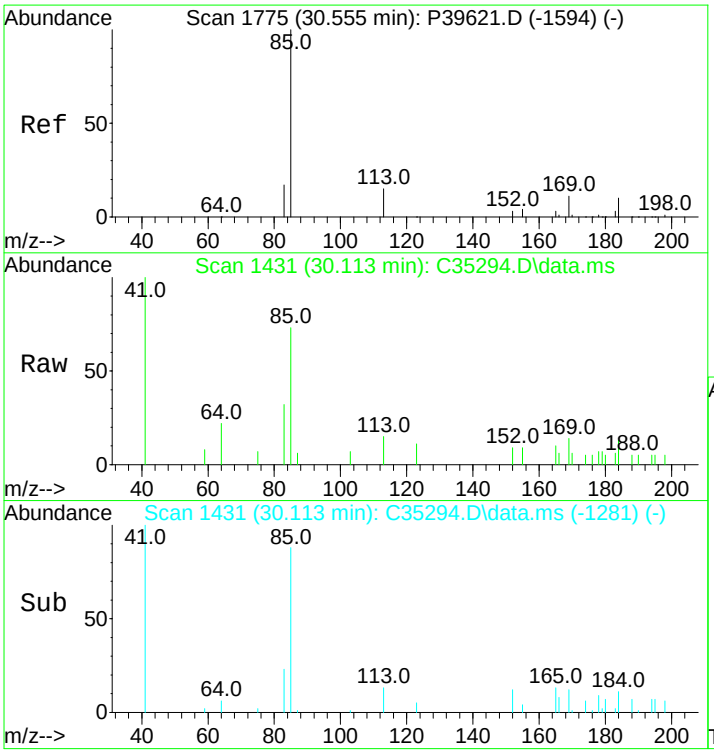


#13
C3-Naphthalenes
Concen: 33.59 ng/mL m
RT: 27.343 min Scan# 1247
Delta R.T. 0.016 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:170 Resp: 2856

Ion	Ratio	Lower	Upper
170	100		
155	17.0	86.3	129.5#

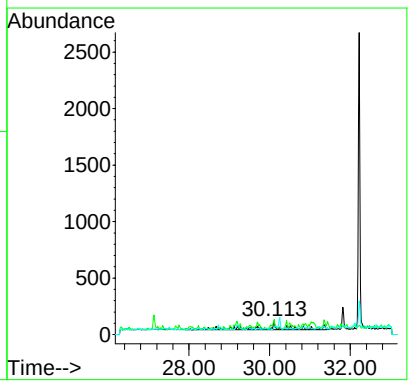


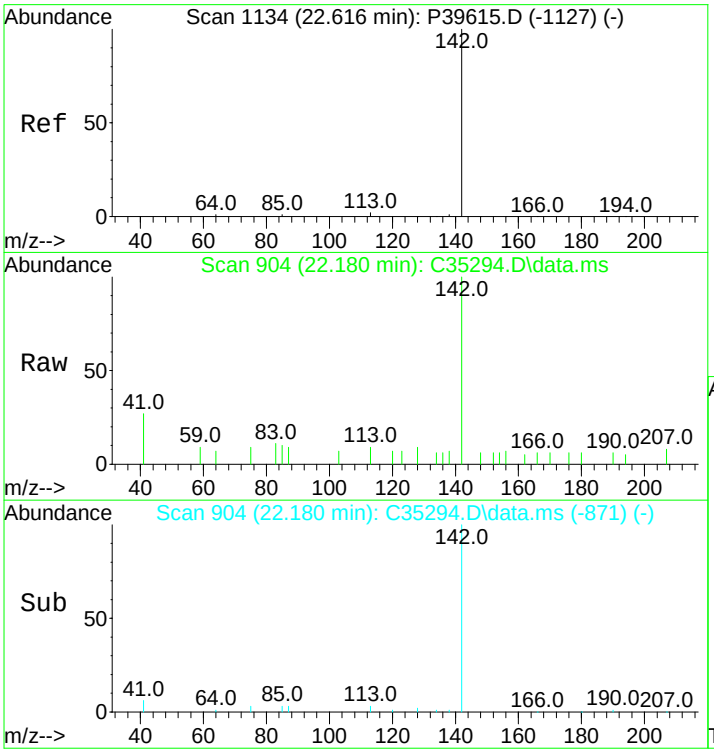


#14
C4-Naphthalenes
Concen: 29.18 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:184 Resp: 2481

Ion	Ratio	Lower	Upper
184	100		
169	10.8	100.6	150.8#
183	0.0	26.6	40.0#

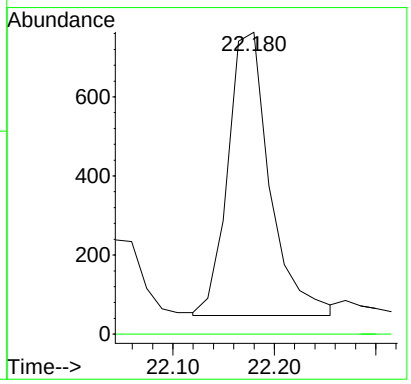


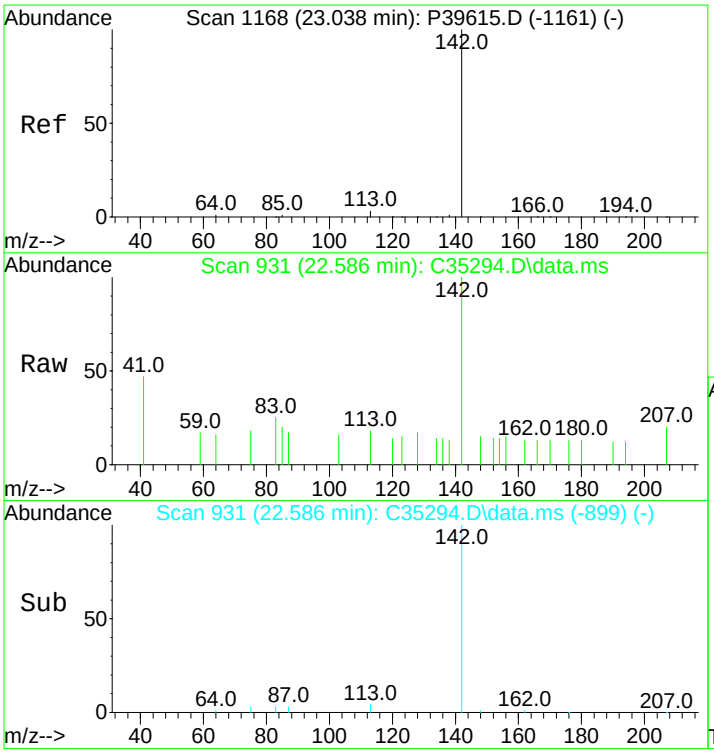


#16
2-Methylnaphthalene
Concen: 41.02 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:142 Resp: 2062

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

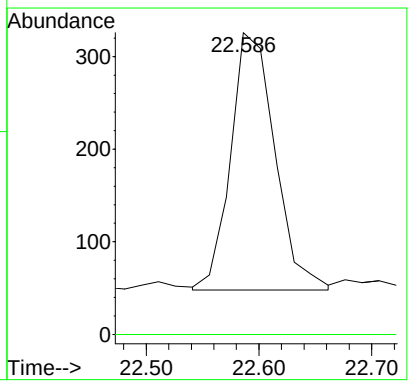


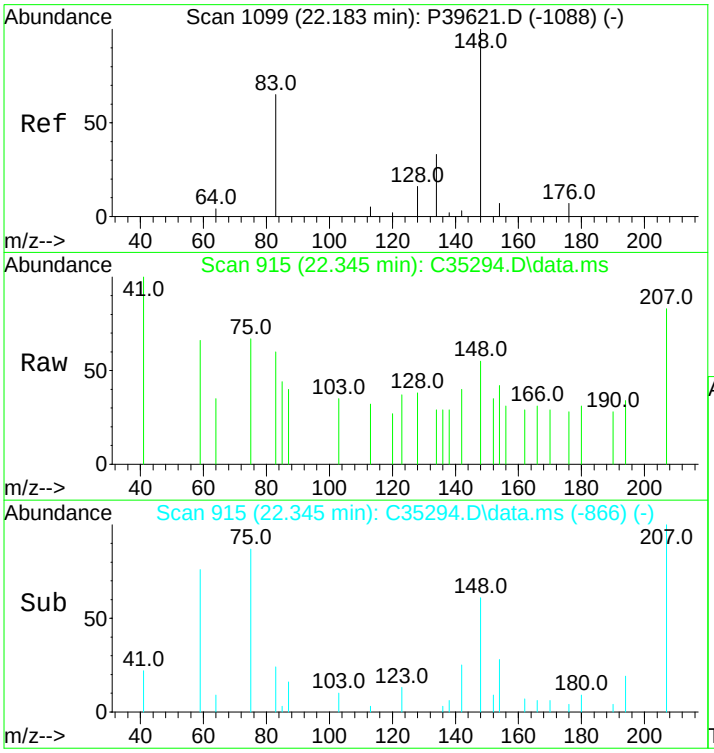


#17
1-Methylnaphthalene
Concen: 15.40 ng/mL m
RT: 22.586 min Scan# 931
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:142 Resp: 759

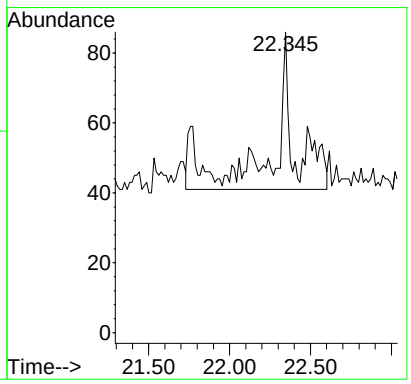
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

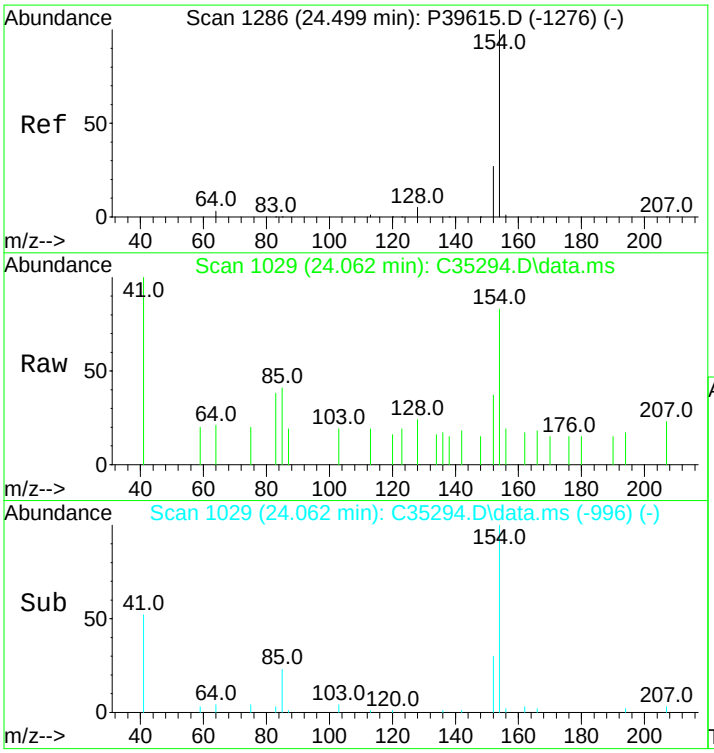




#19
C1-Benzo(b)thiophenes
Concen: 5.80 ng/mL m
RT: 22.345 min Scan# 915
Delta R.T. 0.539 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:148 Resp: 444

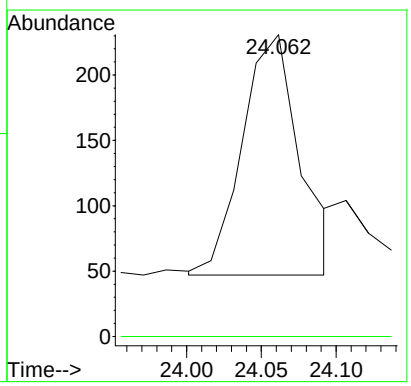


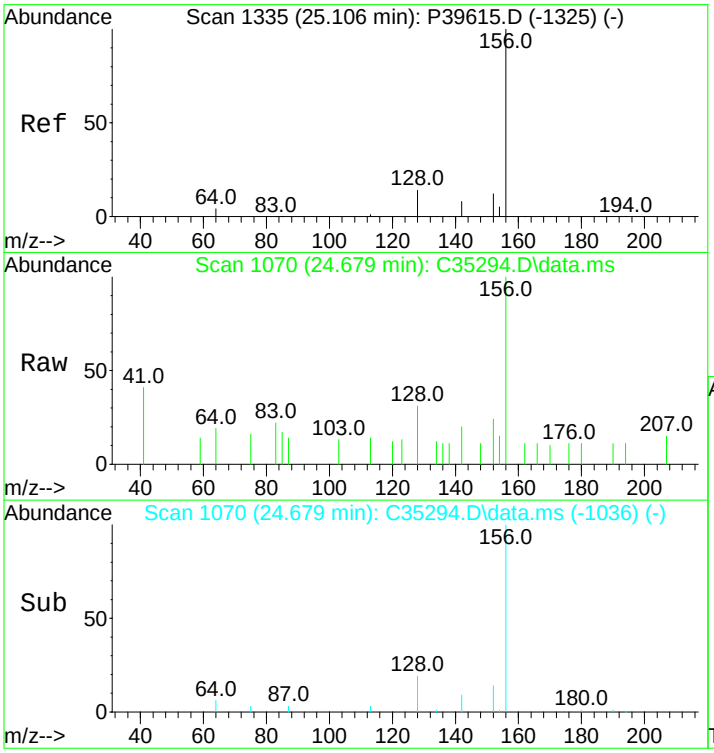


#23
Biphenyl
Concen: 7.80 ng/mL m
RT: 24.062 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:154 Resp: 496

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

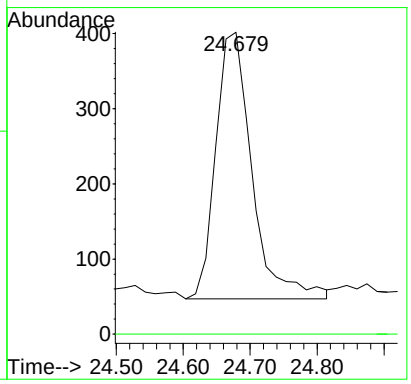


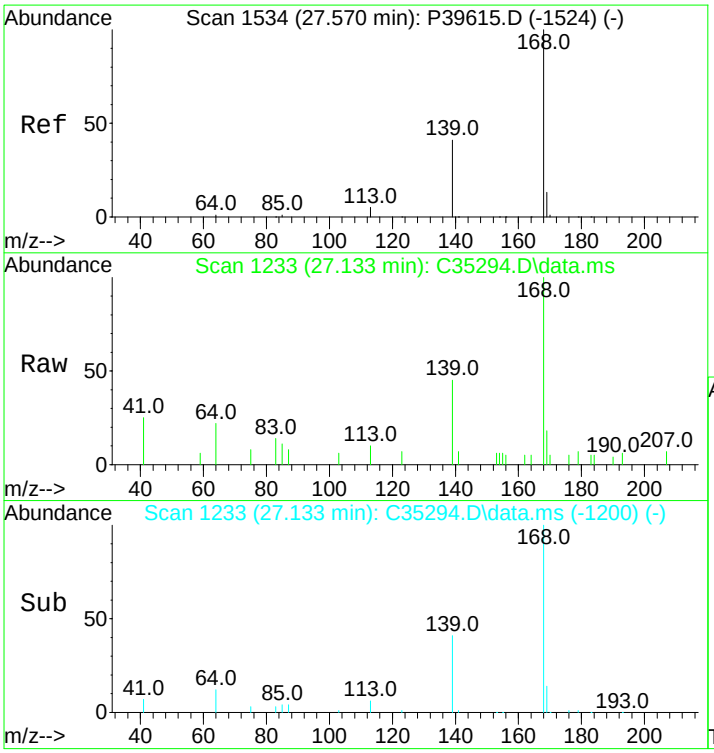


#24
2,6-Dimethylnaphthalene
Concen: 32.42 ng/mL
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:156 Resp: 1339

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

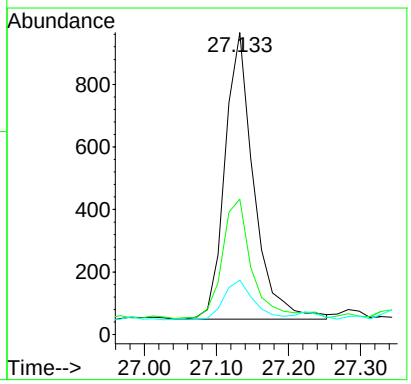


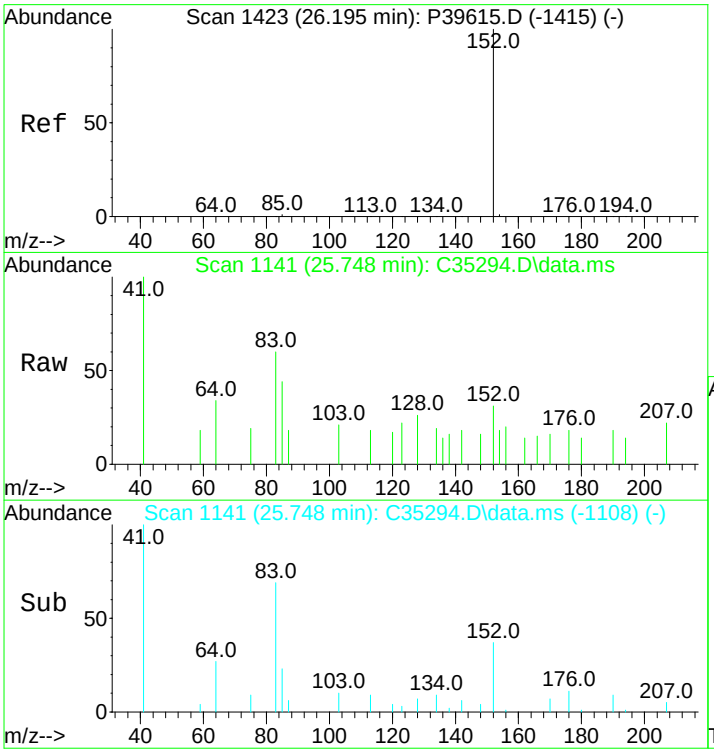


#25
Dibenzofuran
Concen: 34.81 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:168 Resp: 2542

Ion	Ratio	Lower	Upper
168	100		
139	43.7	29.9	44.9
169	14.0	10.3	15.5

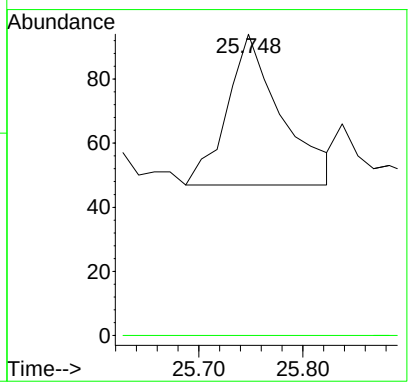


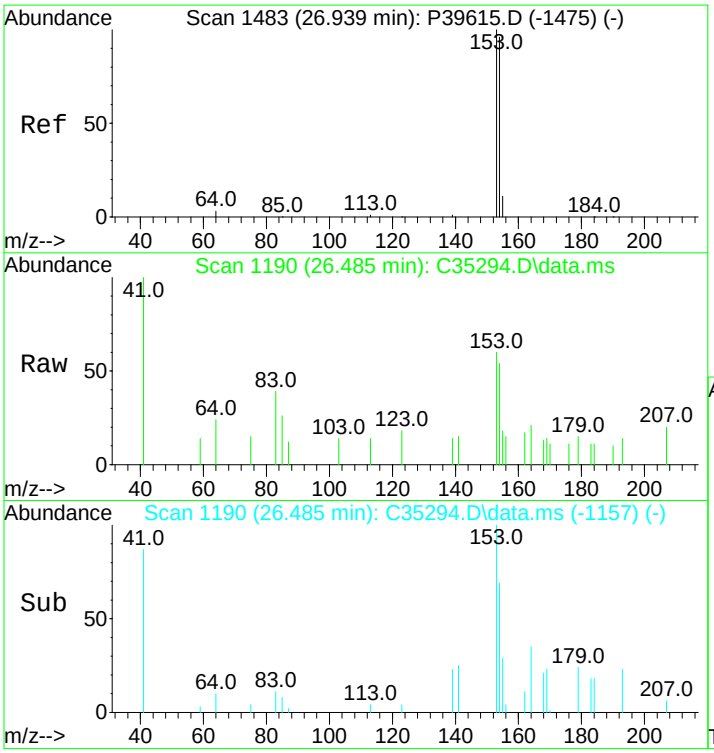


#26
Acenaphthylene
Concen: 2.03 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:152 Resp: 171

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

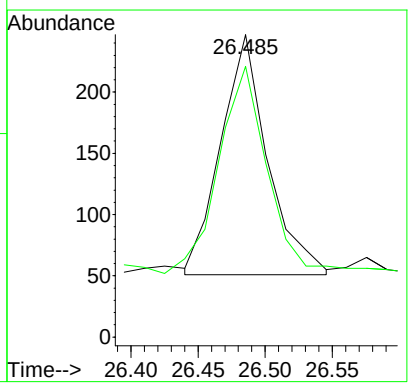


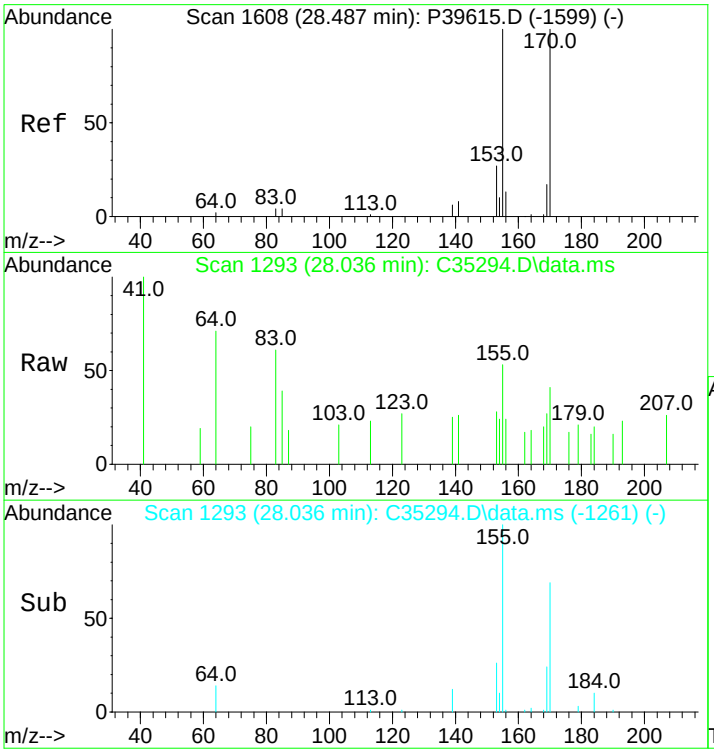


#27
Acenaphthene
Concen: 9.58 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:153 Resp: 476

Ion	Ratio	Lower	Upper
153	100		
154	96.2	73.3	109.9

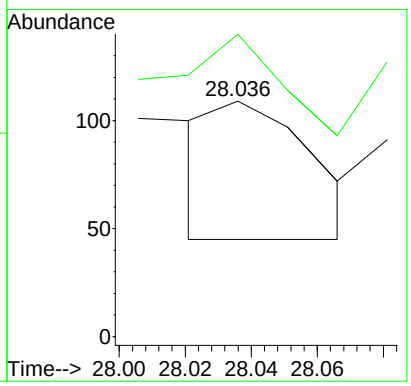


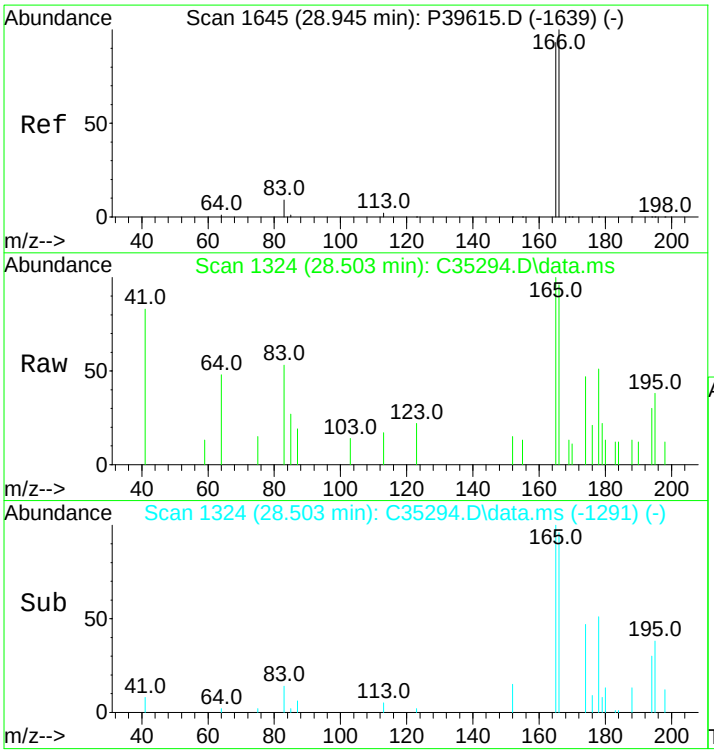


#28
2,3,5-Trimethylnaphthalene
Concen: 3.87 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:170 Resp: 129

Ion	Ratio	Lower	Upper
170	100		
155	293.0	78.4	117.6#

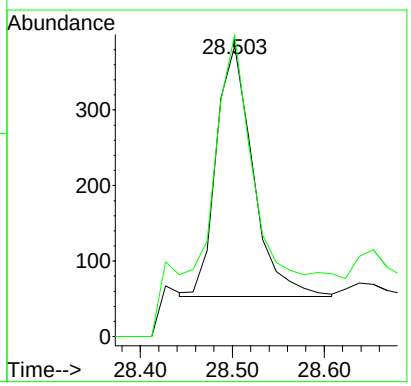


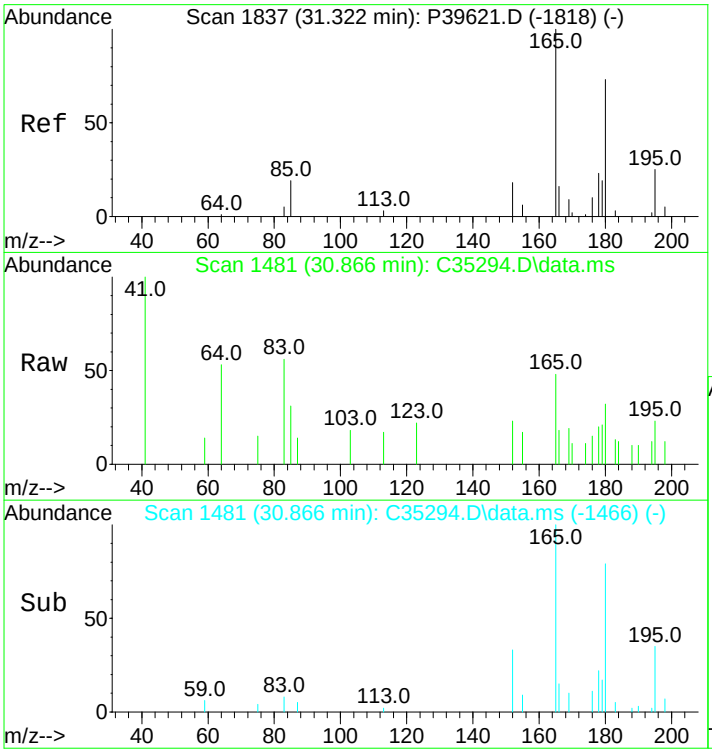


#29
Fluorene
Concen: 16.86 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:166 Resp: 924

Ion	Ratio	Lower	Upper
166	100		
165	189.4	77.1	115.7#

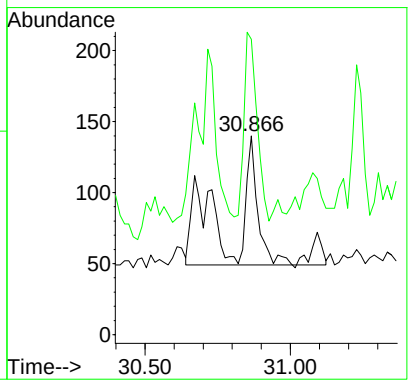


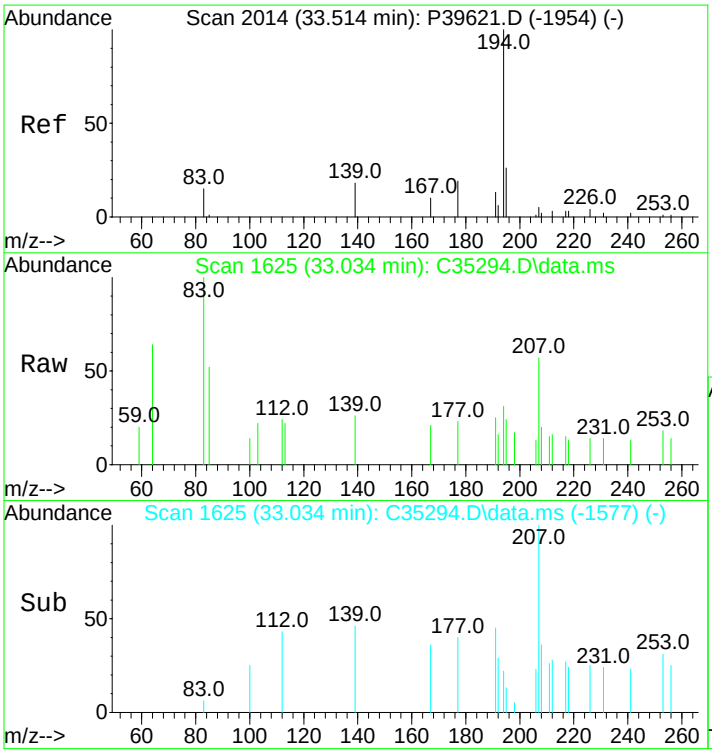


#30
C1-Fluorenes
Concen: 11.28 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:180 Resp: 618

Ion	Ratio	Lower	Upper
180	100		
165	66.7	121.9	182.9#

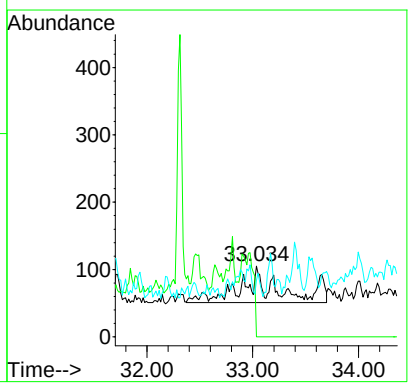


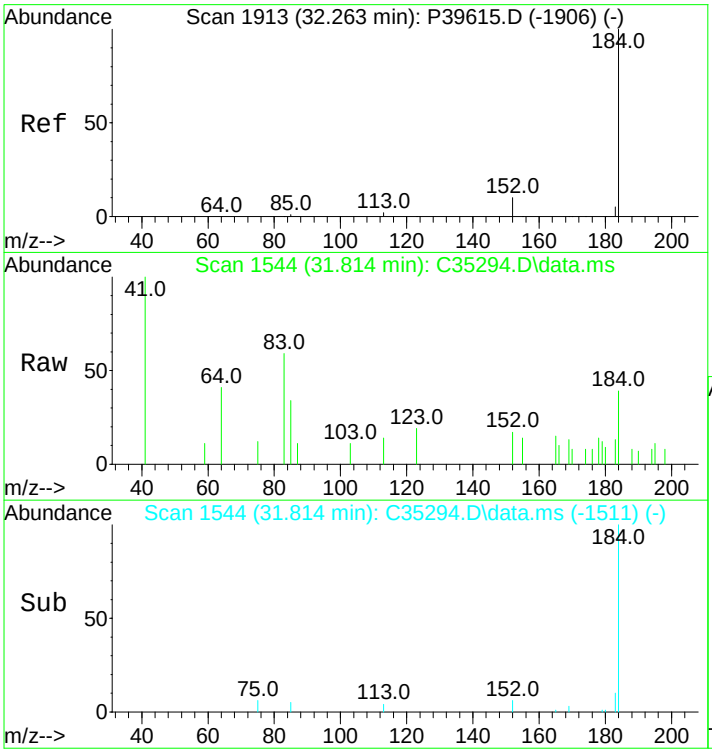


#31
C2-Fluorenes
Concen: 23.43 ng/mL m
RT: 33.034 min Scan# 1625
Delta R.T. 0.097 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:194 Resp: 1284

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	30.5	45.7#

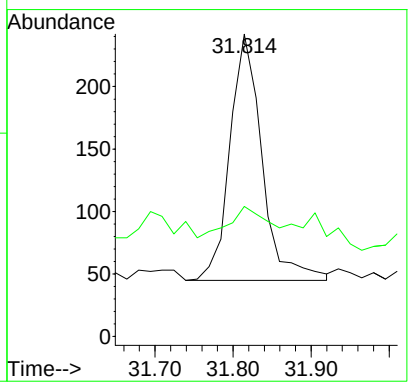


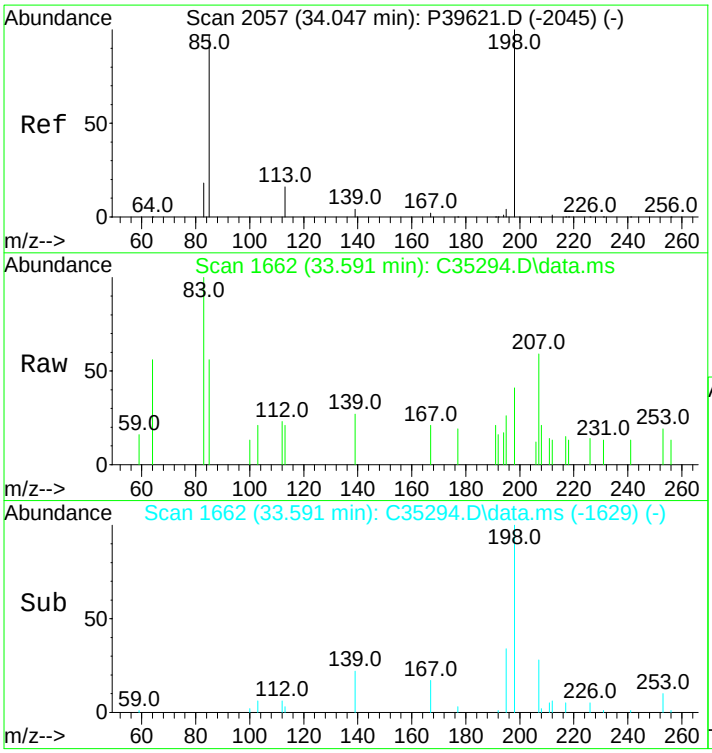


#33
Dibenzothiophene
Concen: 6.43 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:184 Resp: 565

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

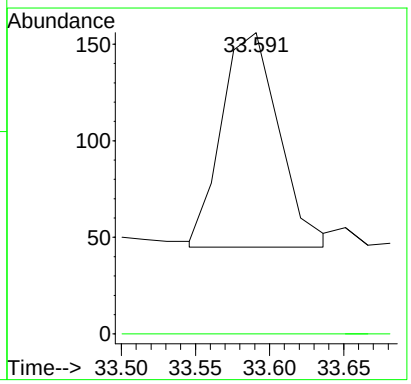


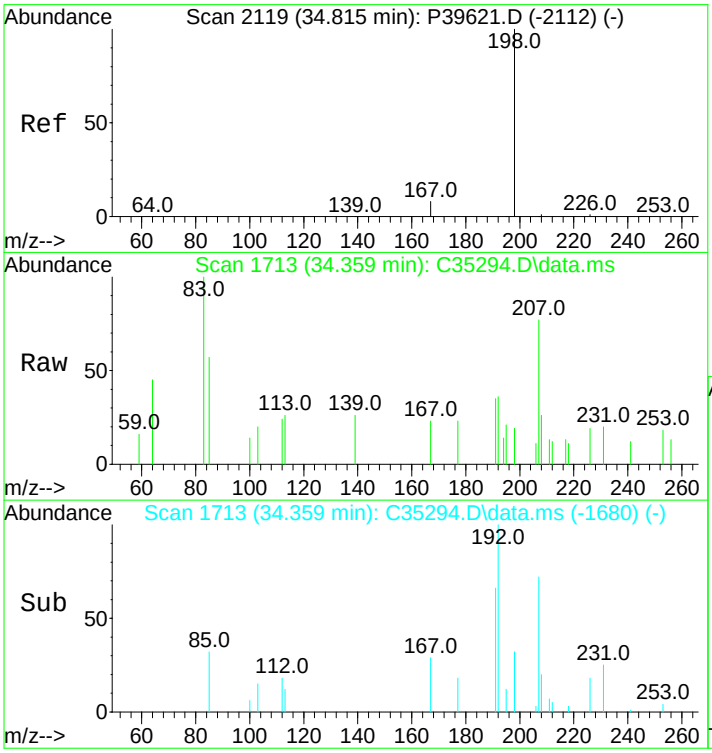


#34
4-Methyldibenzothiophene(4MDT)
Concen: 3.39 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:198 Resp: 298

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

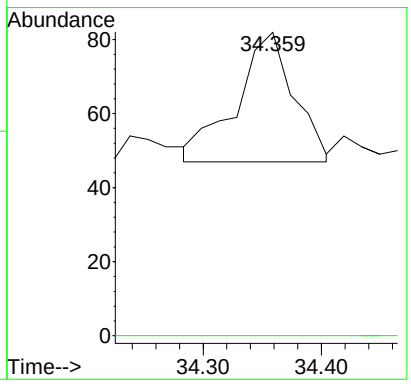


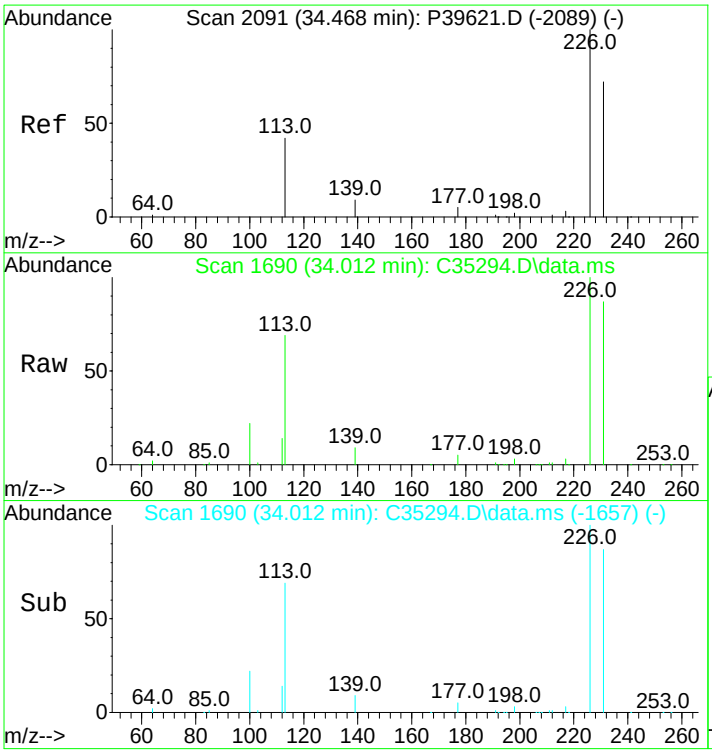


#36
1-Methyldibenzothiophene(1MDT)
Concen: 1.33 ng/mL m
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:198 Resp: 117

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

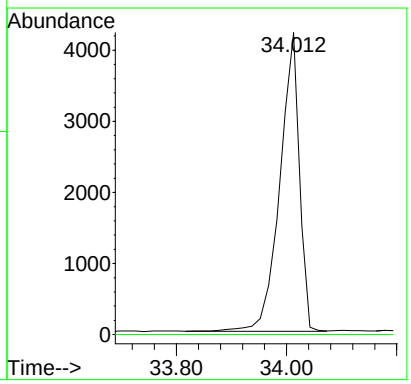


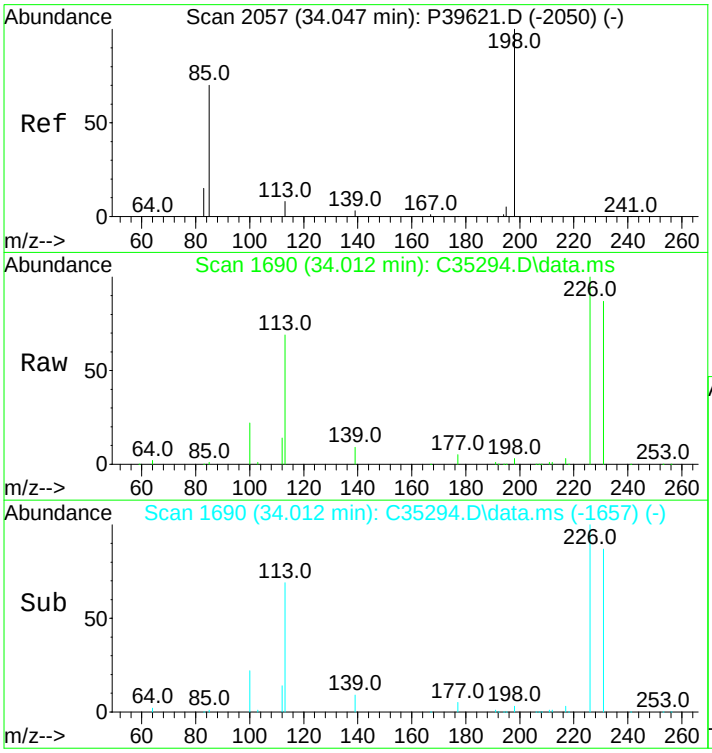


#37
OTP
Concen: 117.41 ng/mL
RT: 34.012 min Scan# 1690
Delta R.T. 0.030 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:198 Resp: 10314

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

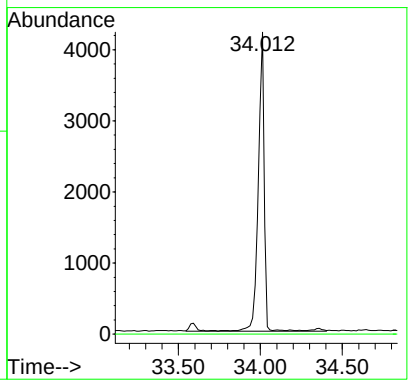


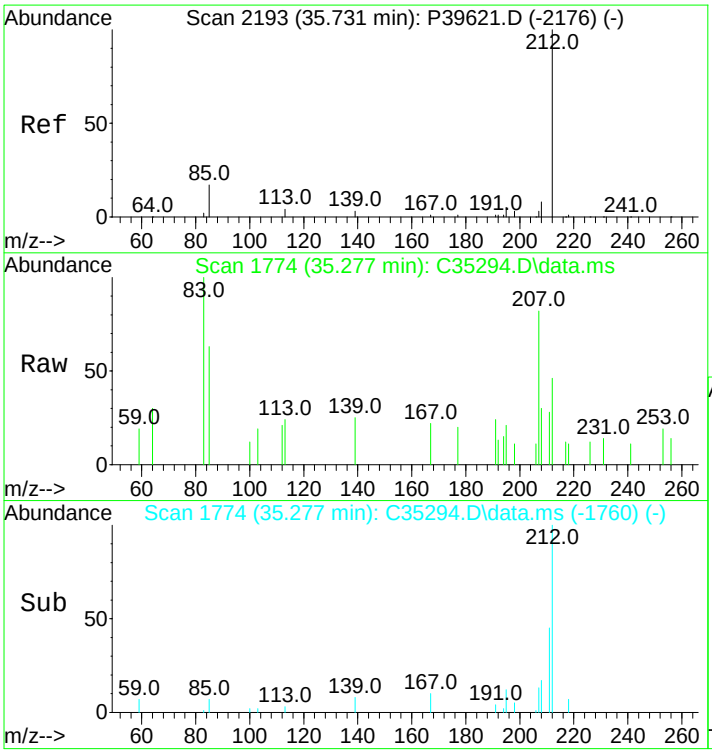


#38
C1-Dibenzothiophenes
Concen: 125.36 ng/mL m
RT: 34.012 min Scan# 1690
Delta R.T. 0.062 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:198 Resp: 11013

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

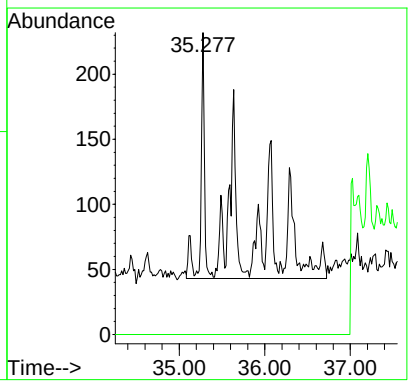


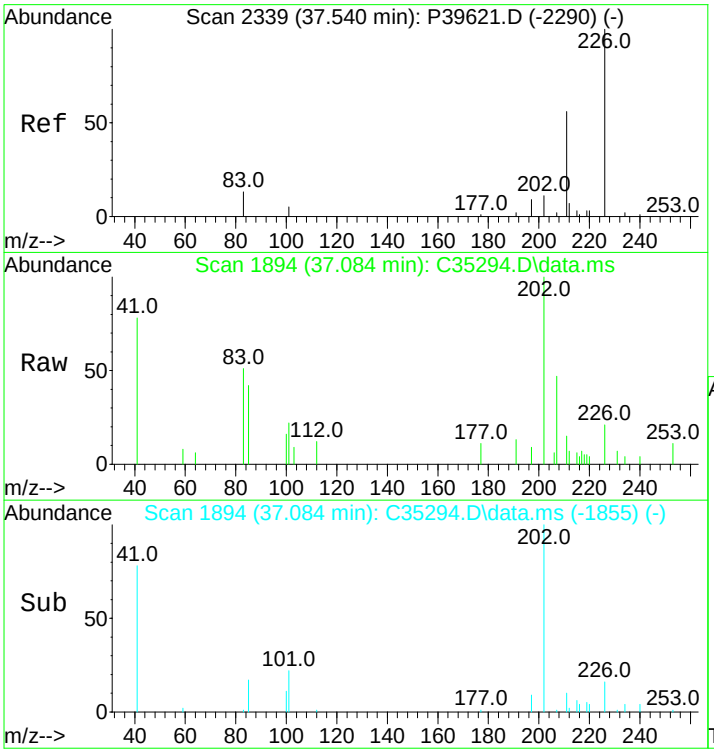


#39
C2-Dibenzothiophenes
Concen: 31.12 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.191 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:212 Resp: 2734

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

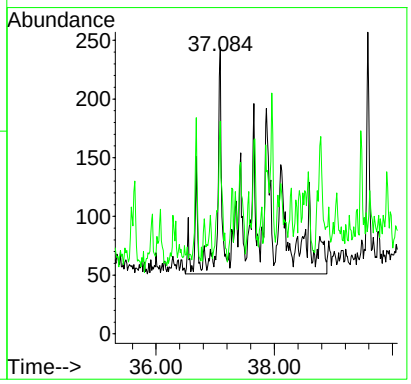


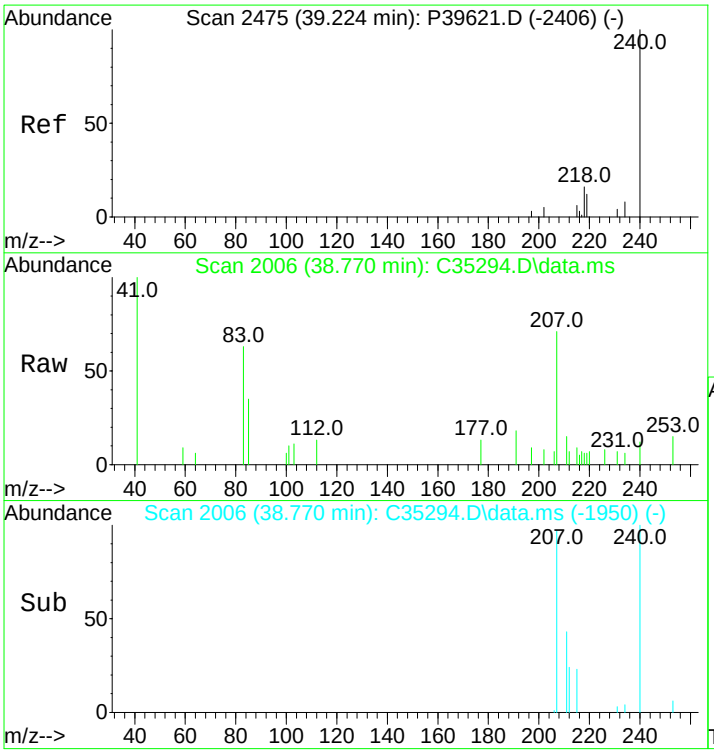


#40
C3-Dibenzothiophenes
Concen: 57.44 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:226 Resp: 5046

Ion	Ratio	Lower	Upper
226	100		
211	6.3	51.4	77.2#

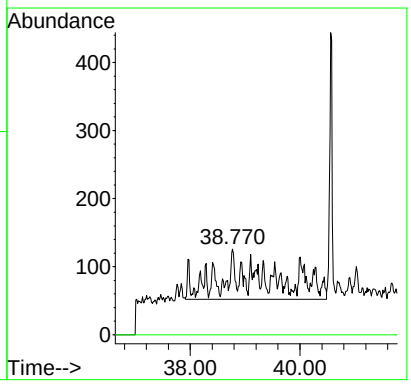


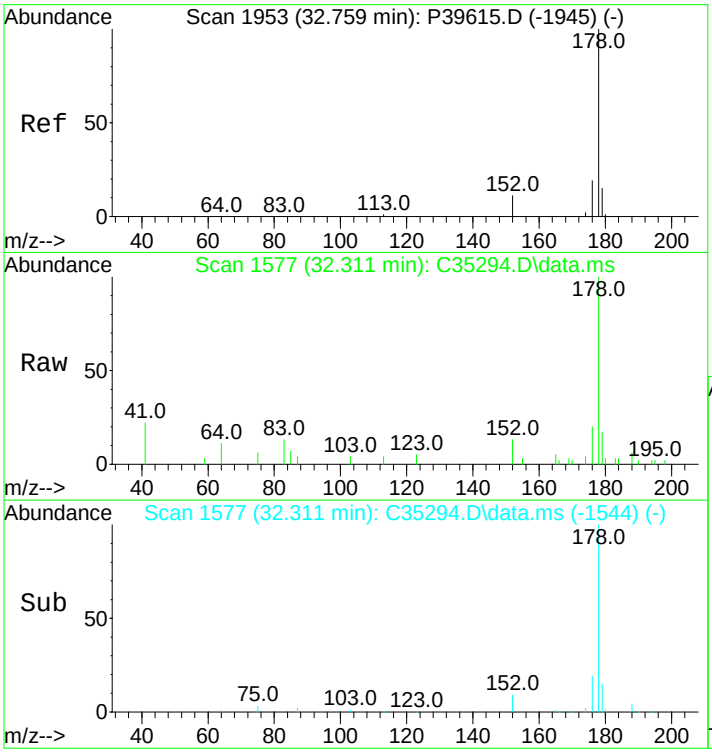


#41
C4-Dibenzothiophenes
Concen: 47.49 ng/mL m
RT: 38.770 min Scan# 2006
Delta R.T. 0.138 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:240 Resp: 4172

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

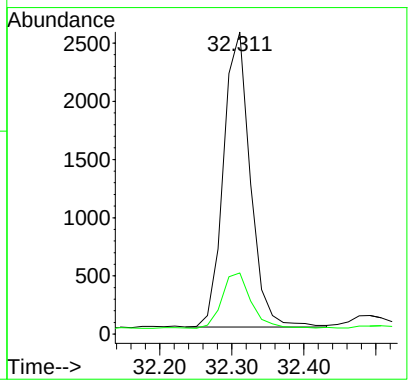


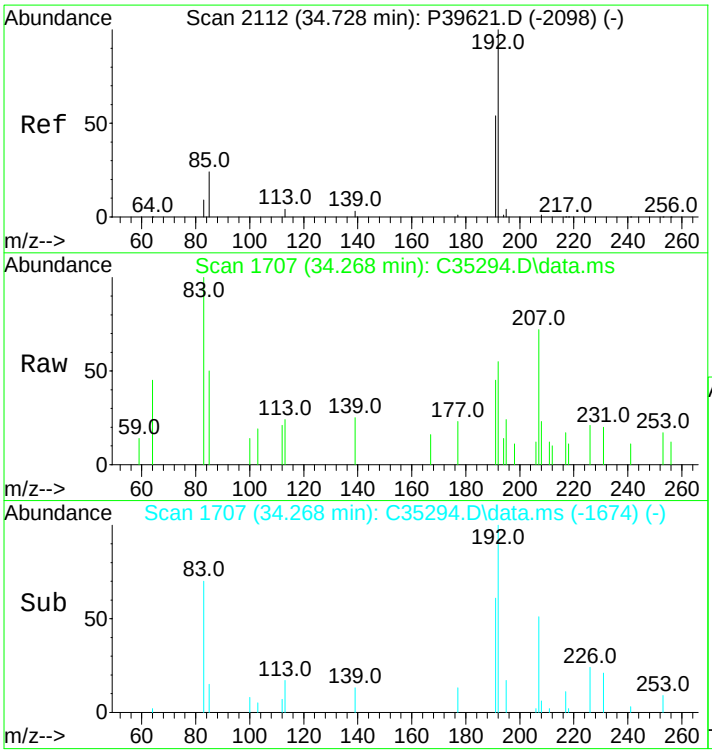


#43
Phenanthrene
Concen: 85.05 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:178 Resp: 6564

Ion	Ratio	Lower	Upper
178	100		
176	20.2	15.8	23.6

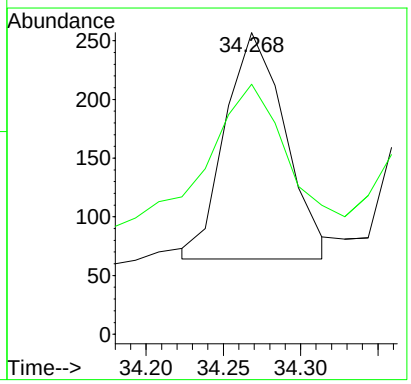


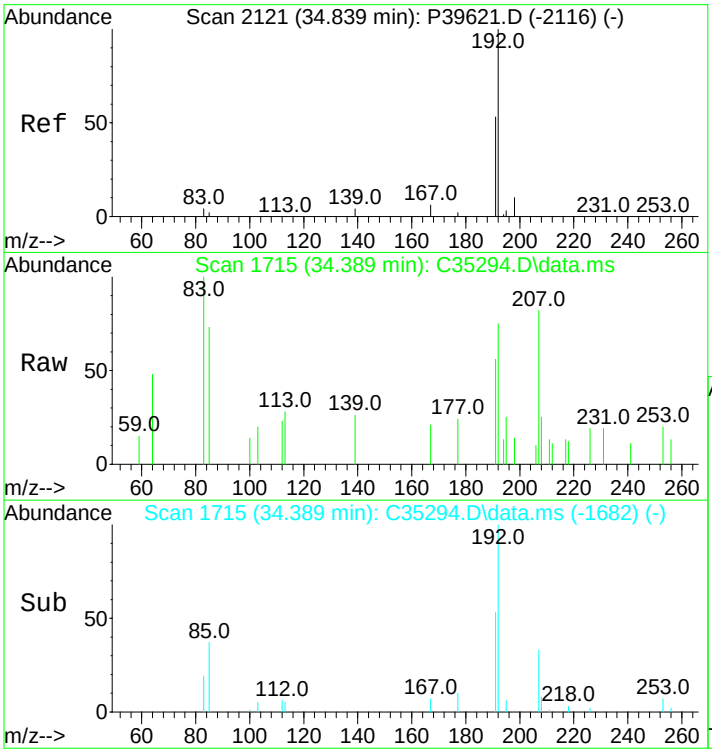


#44
3-Methylphenanthrene(3MP)
Concen: 6.76 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 522

Ion	Ratio	Lower	Upper
192	100		
191	81.6	47.4	71.0#

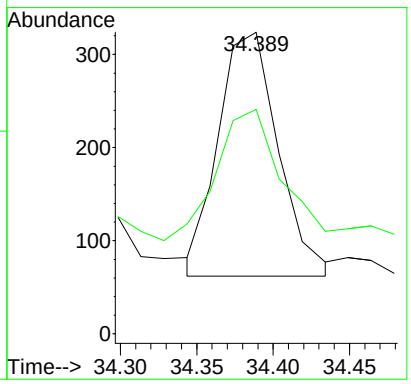


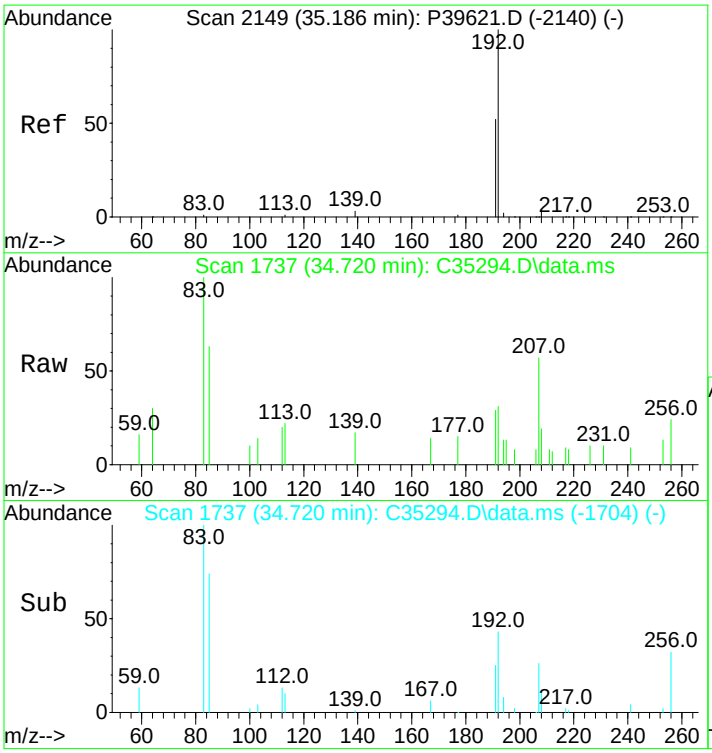


#45
2-Methylphenanthrene(2MP)
Concen: 9.24 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 713

Ion	Ratio	Lower	Upper
192	100		
191	59.7	45.0	67.6

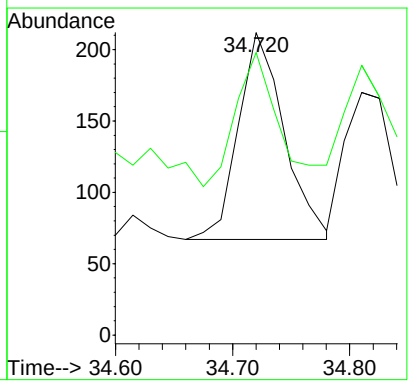


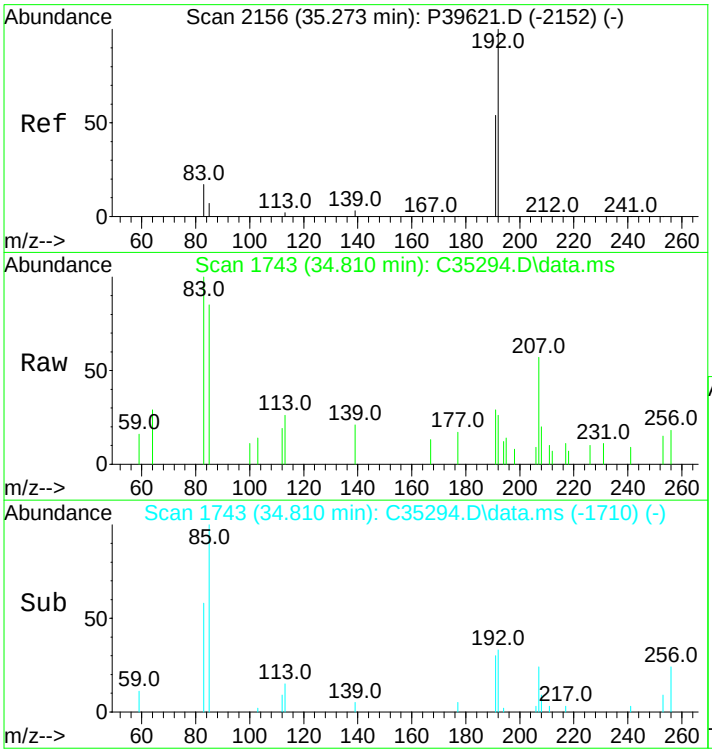


#47
9/4-Methylphenanthrene(9MP)
Concen: 5.12 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 395

Ion	Ratio	Lower	Upper
192	100		
191	58.7	46.5	69.7

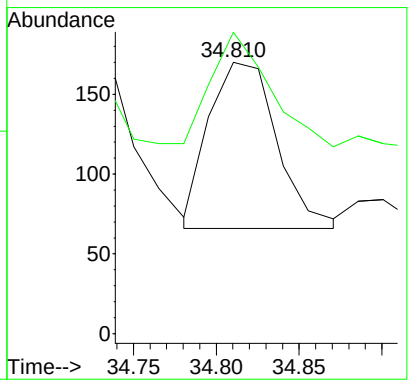


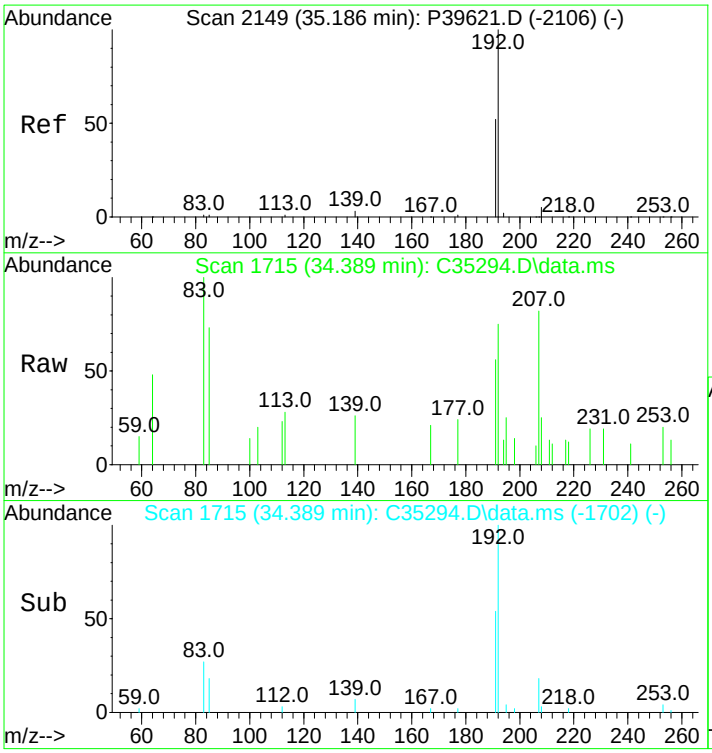


#48
1-Methylphenanthrene(1MP)
Concen: 3.86 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 298

Ion	Ratio	Lower	Upper
192	100		
191	77.9	47.4	71.2#

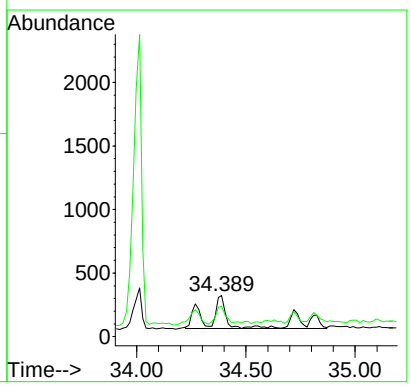


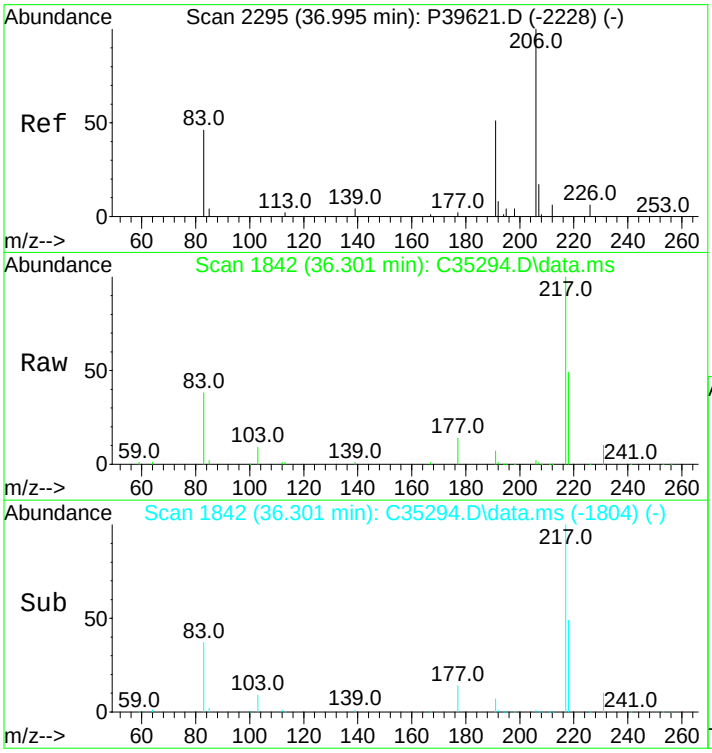


#49
C1-Phenanthrenes/Anthracenes
Concen: 27.67 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. -0.191 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 2136

Ion	Ratio	Lower	Upper
192	100		
191	10.9	45.3	67.9#

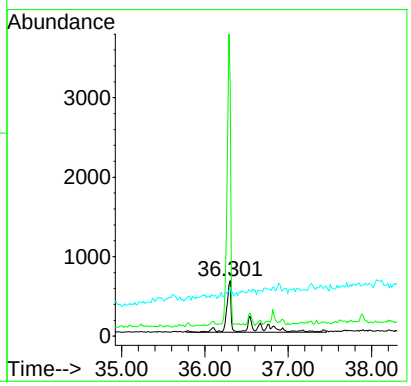


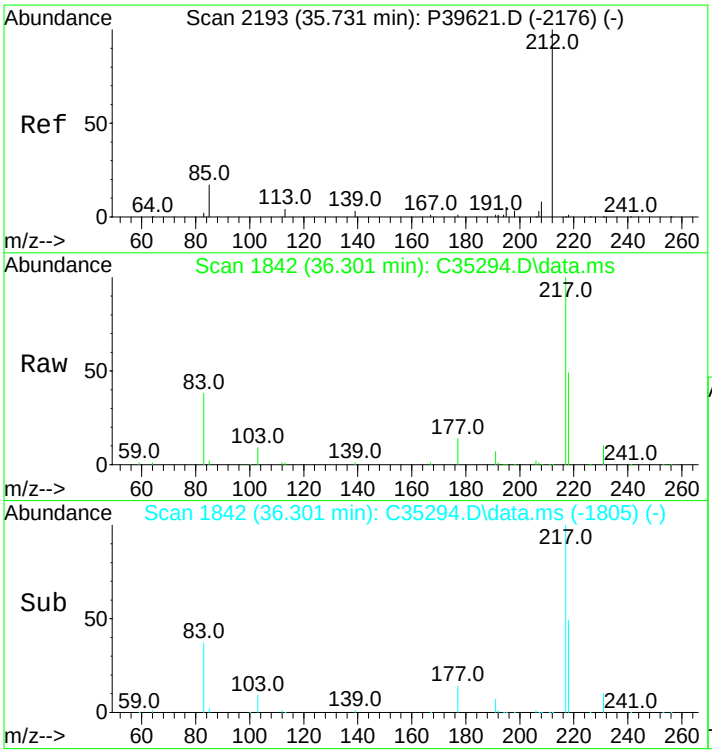


#50
C2-Phenanthrenes/Anthracenes
Concen: 61.19 ng/mL m
RT: 36.301 min Scan# 1842
Delta R.T. -0.055 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:206 Resp: 4723

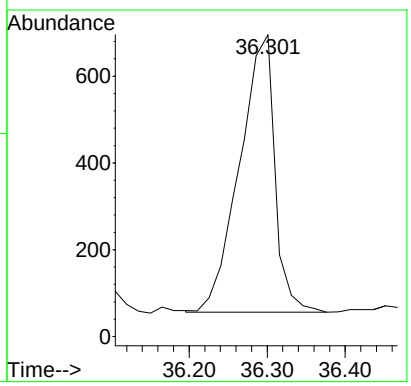
Ion	Ratio	Lower	Upper
206	100		
191	213.6	42.0	63.0#
207	9.4	15.4	23.2#

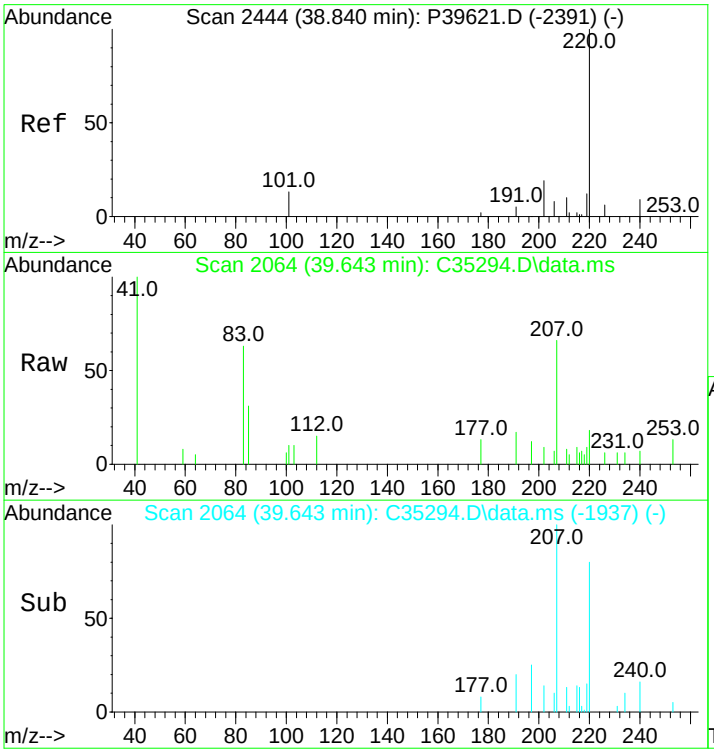




#51
5AA IS BKGD
Concen: 26.09 ng/mL
RT: 36.301 min Scan# 1842
Delta R.T. 0.060 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:206 Resp: 2014

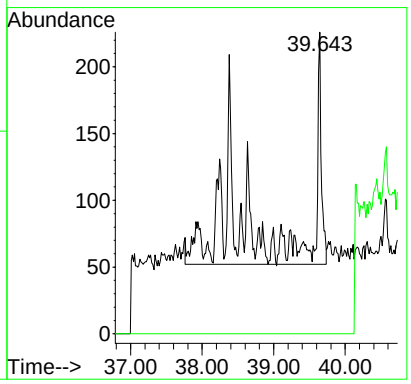


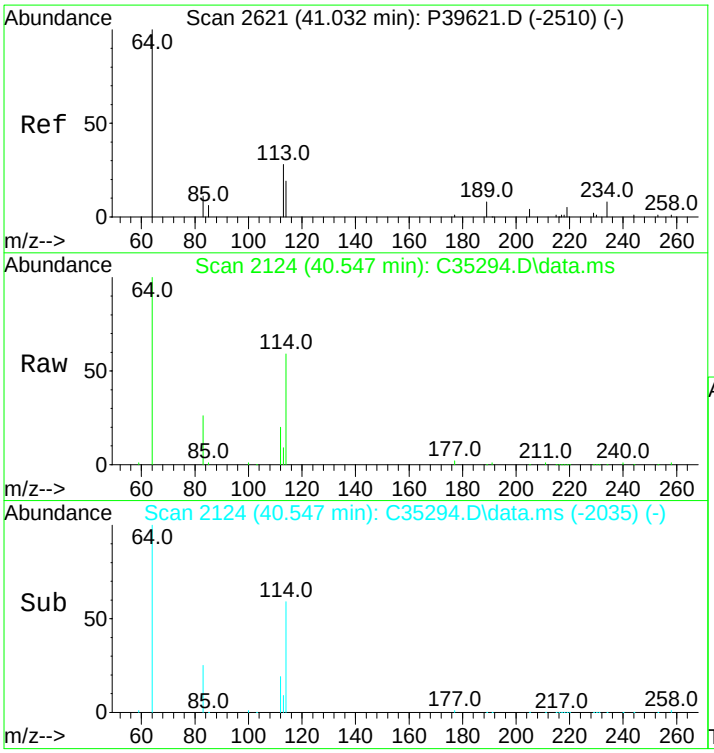


#52
C3-Phenanthrenes/Anthracenes
Concen: 38.83 ng/mL m
RT: 39.643 min Scan# 2064
Delta R.T. 1.481 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:220 Resp: 2997

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

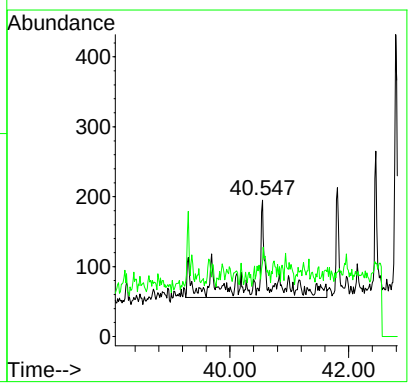


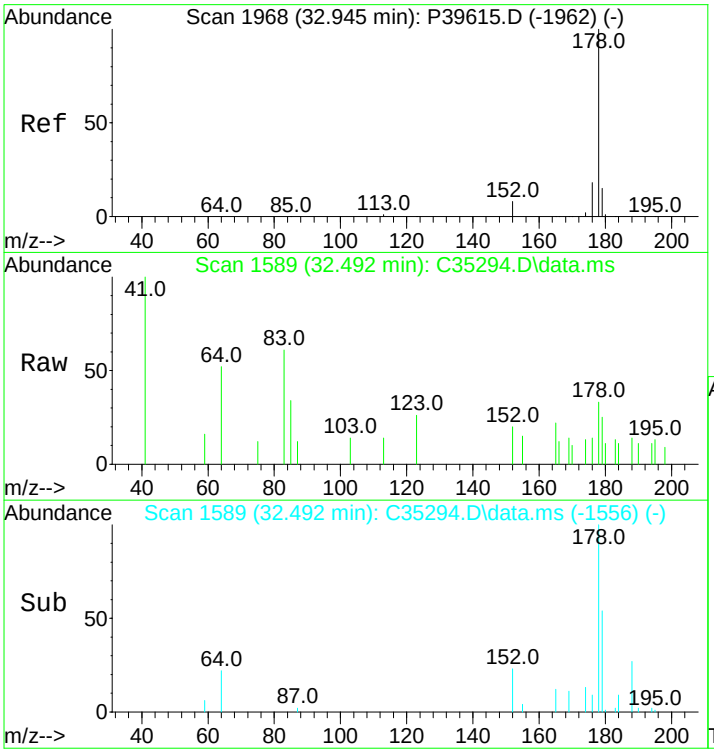


#53
C4-Phenanthrenes/Anthracenes
Concen: 32.12 ng/mL m
RT: 40.547 min Scan# 2124
Delta R.T. 0.252 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:234 Resp: 2479

Ion	Ratio	Lower	Upper
234	100		
219	9.5	48.6	73.0#

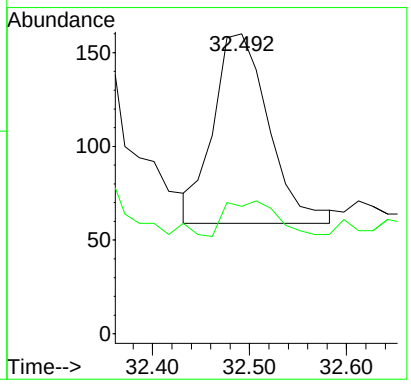


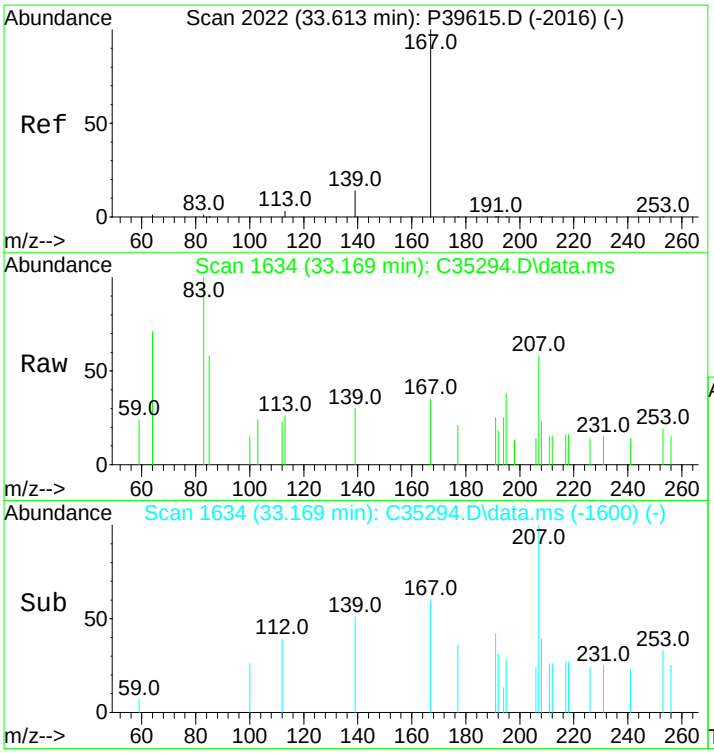


#55
Anthracene
Concen: 5.32 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:178 Resp: 401

Ion	Ratio	Lower	Upper
178	100		
176	331.2	15.6	23.4#

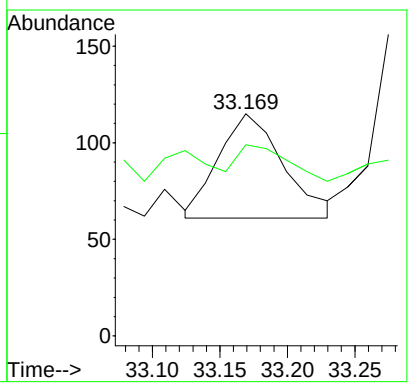


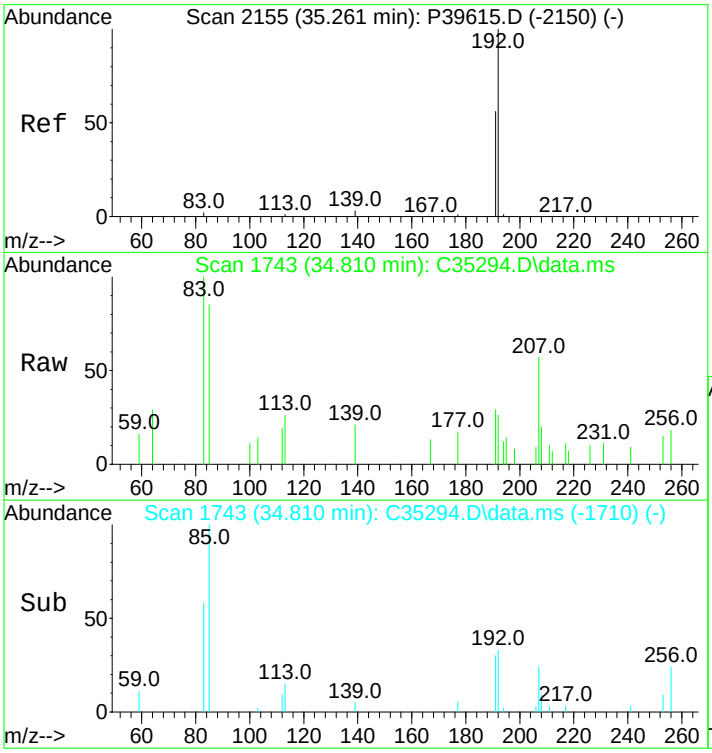


#56
Carbazole
Concen: 2.38 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:167 Resp: 181

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

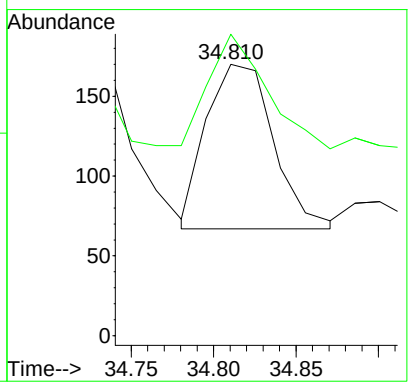


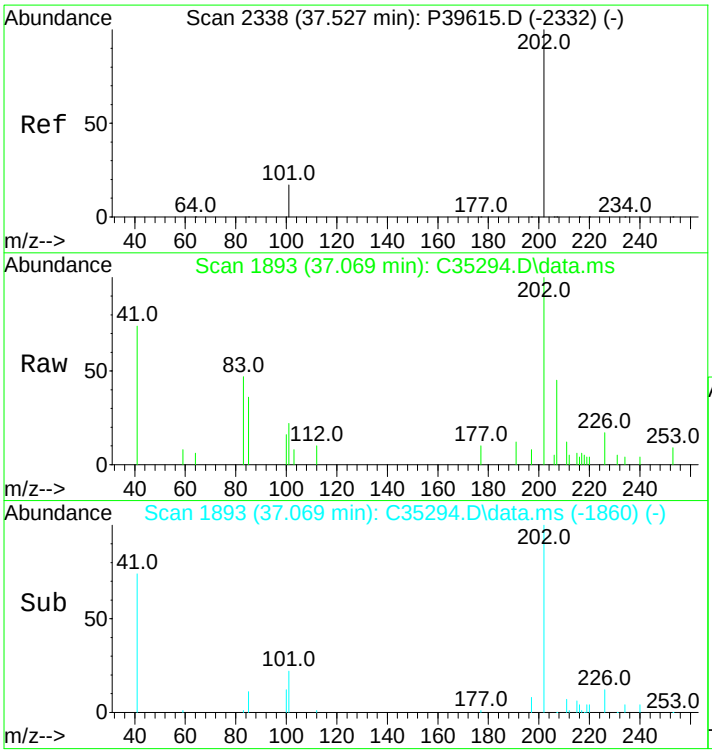


#57
1-Methylphenanthrene
Concen: 5.99 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:192 Resp: 293

Ion	Ratio	Lower	Upper
192	100		
191	79.2	46.8	70.2#

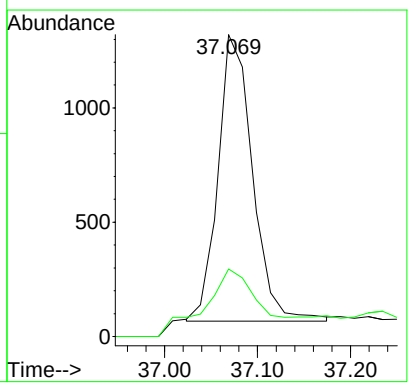


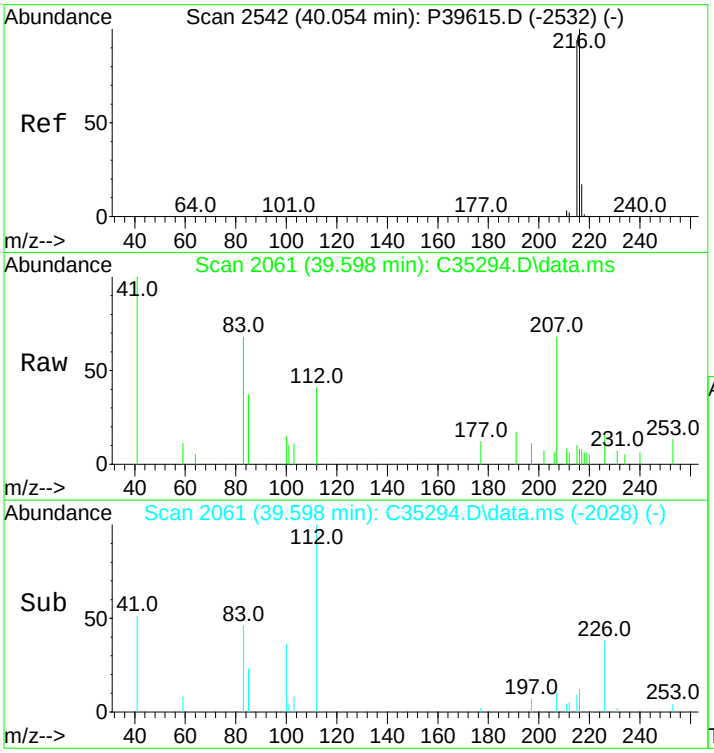


#58
Fluoranthene
Concen: 42.27 ng/mL m
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:202 Resp: 3240

Ion	Ratio	Lower	Upper
202	100		
101	39.5	13.2	19.8#

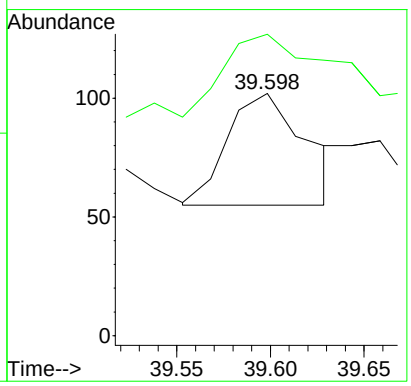


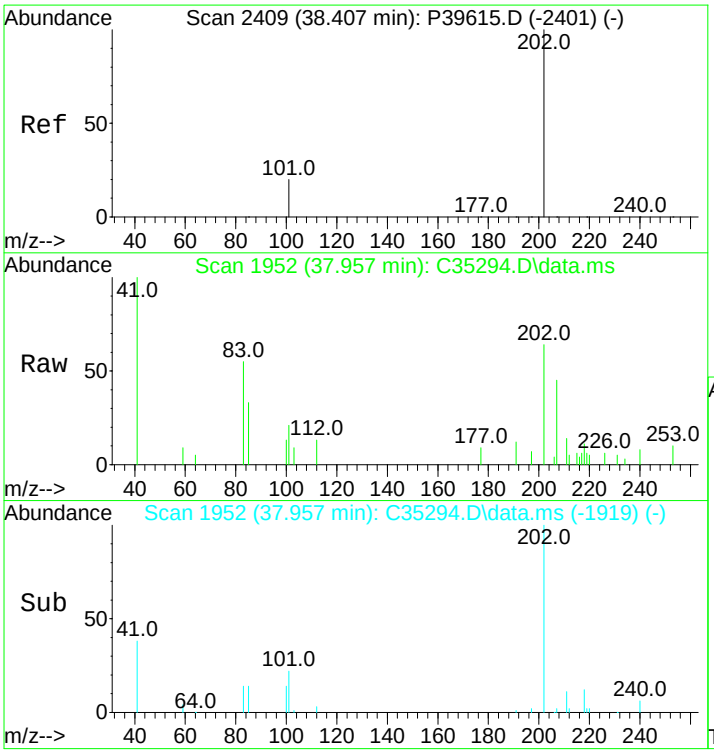


#59
Benzo(b)fluorene
Concen: 3.08 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:216 Resp: 137

Ion	Ratio	Lower	Upper
216	100		
215	148.2	76.0	114.0#

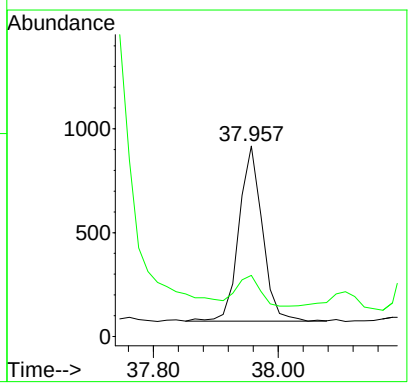


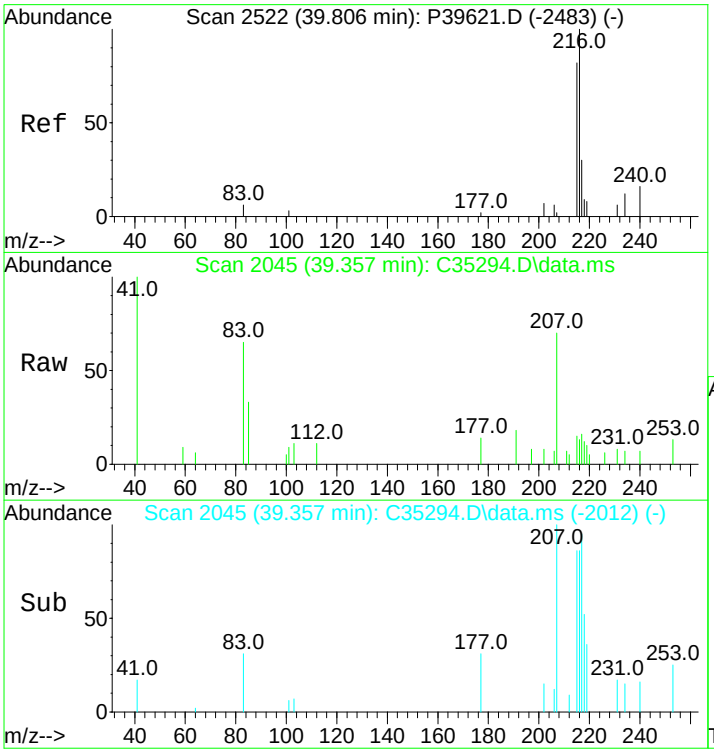


#60
Pyrene
Concen: 28.13 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:202 Resp: 2192

Ion	Ratio	Lower	Upper
202	100		
101	32.5	13.5	20.3#

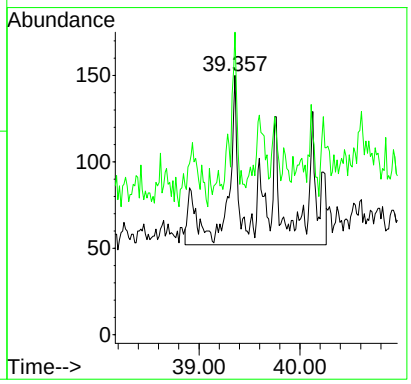


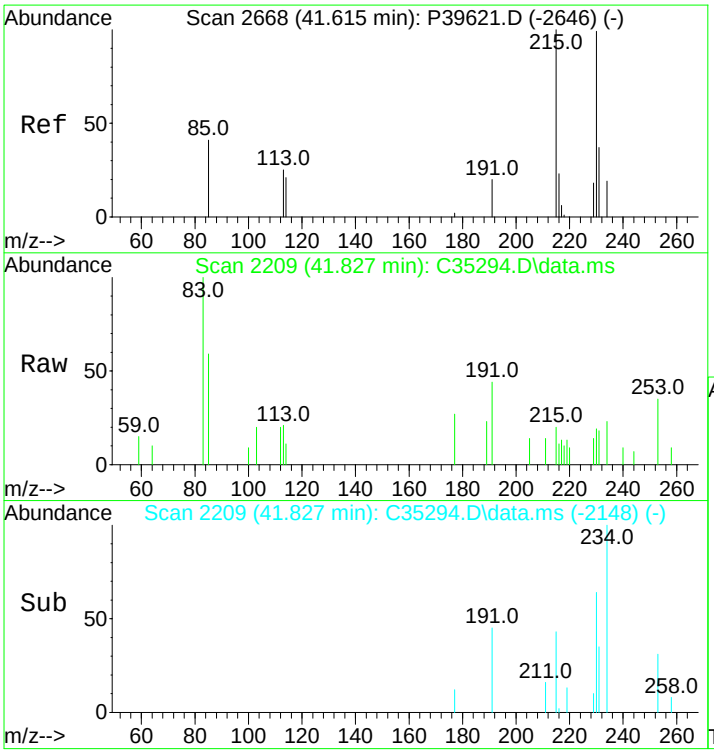


#61
C1-Fluoranthenes/Pyrenes
Concen: 23.56 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:216 Resp: 1836

Ion	Ratio	Lower	Upper
216	100		
215	20.1	77.7	116.5#

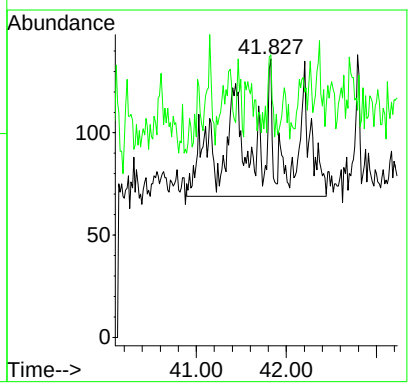


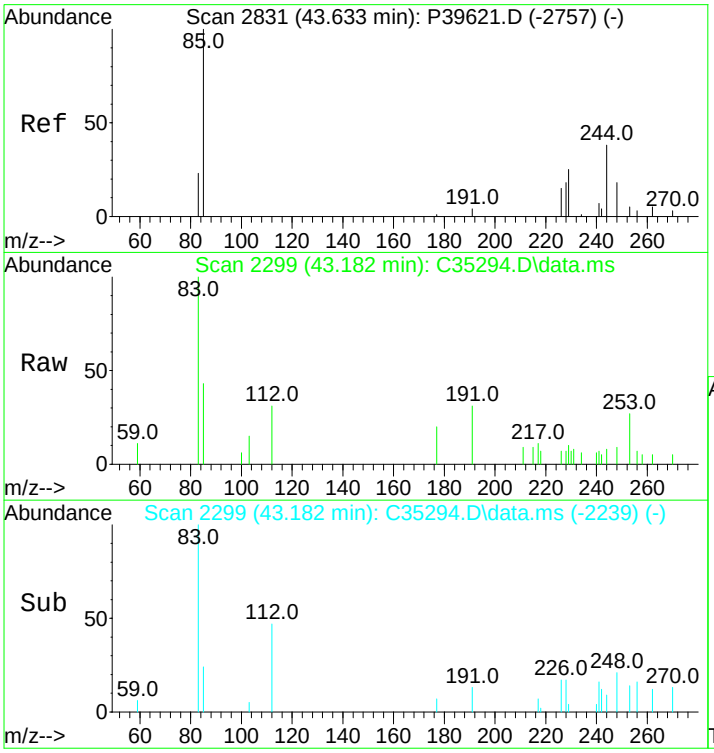


#62
C2-Fluoranthenes/Pyrenes
Concen: 26.33 ng/mL m
RT: 41.827 min Scan# 2209
Delta R.T. 0.663 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:230 Resp: 2052

Ion	Ratio	Lower	Upper
230	100		
215	5.4	92.7	139.1#

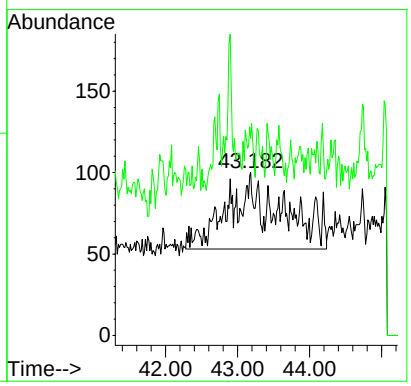


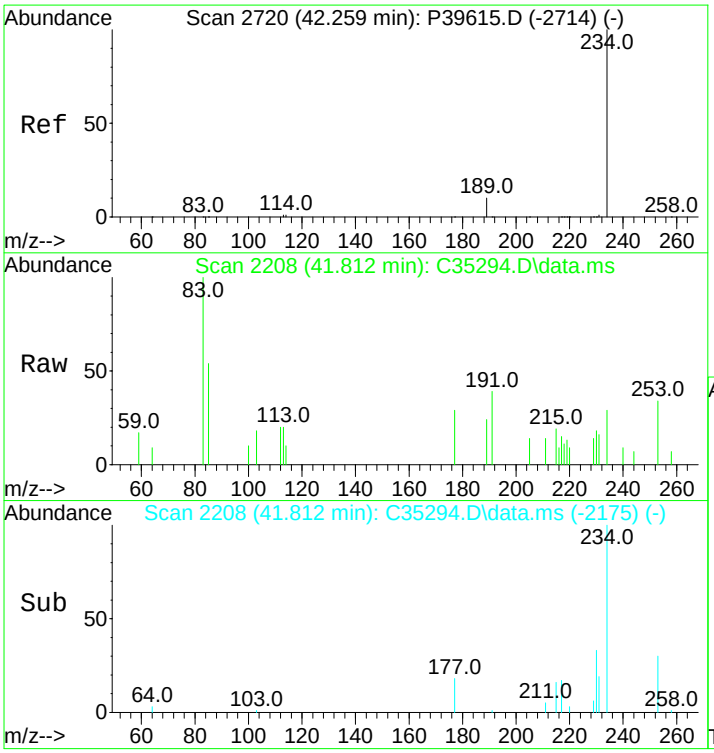


#63
C3-Fluoranthenes/Pyrenes
Concen: 30.21 ng/mL m
RT: 43.182 min Scan# 2299
Delta R.T. 0.312 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:244 Resp: 2354

Ion	Ratio	Lower	Upper
244	100		
229	4.6	78.7	118.1#

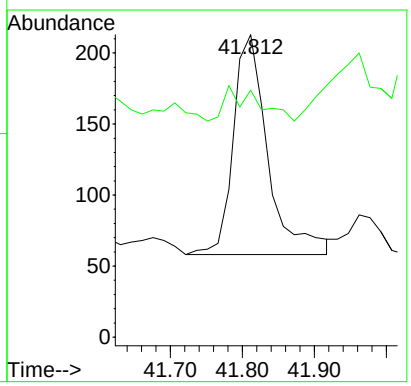


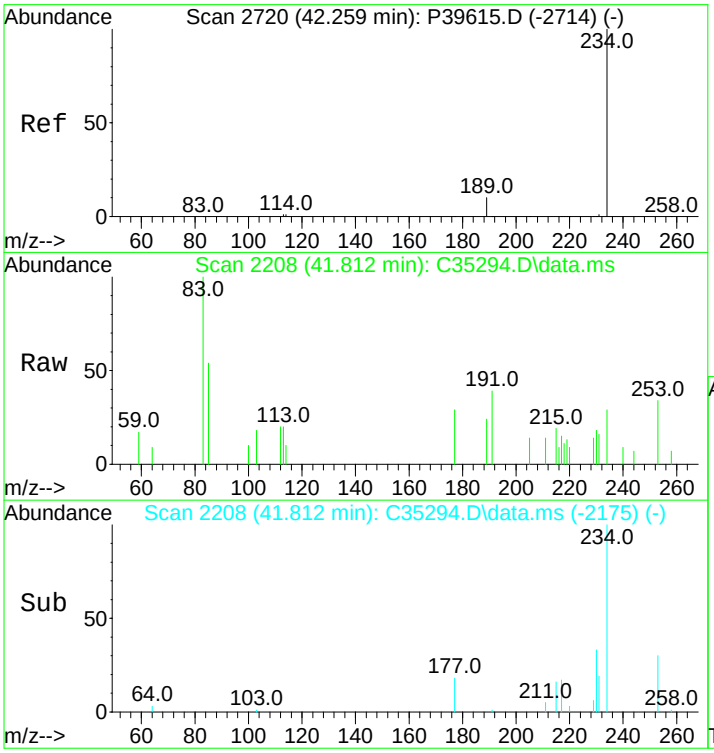


#66
Naphthobenzothiophene
Concen: 6.17 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:234 Resp: 518

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

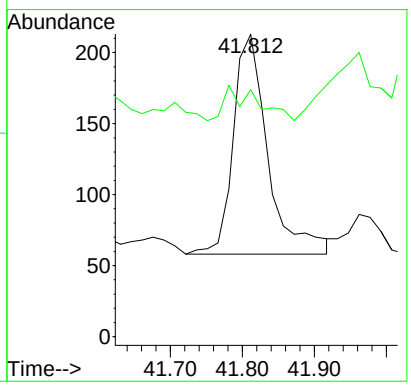


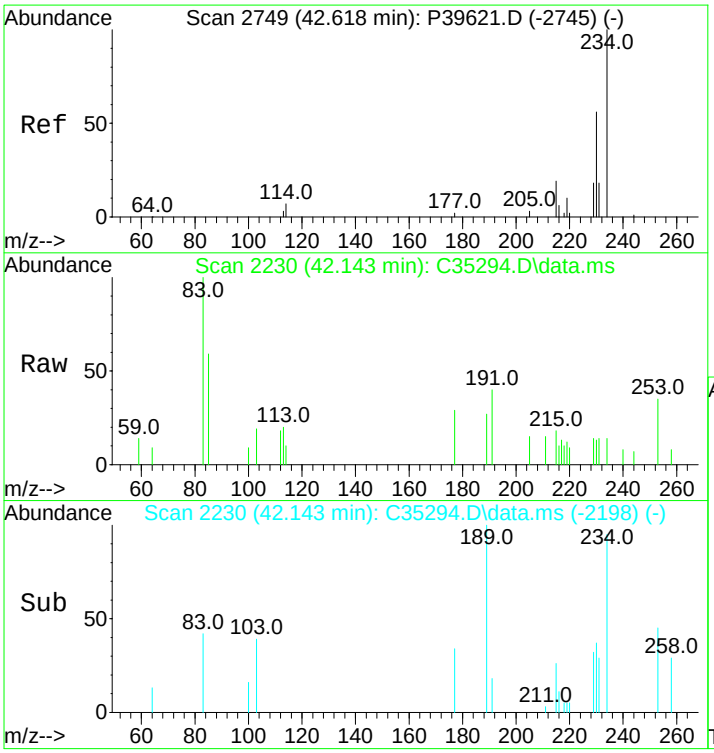


#67
Naphthobenzothiophene-2,1-D
Concen: 6.17 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:234 Resp: 518

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

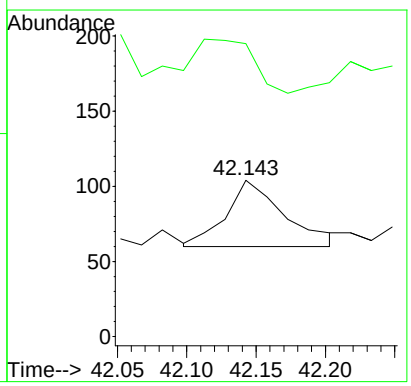


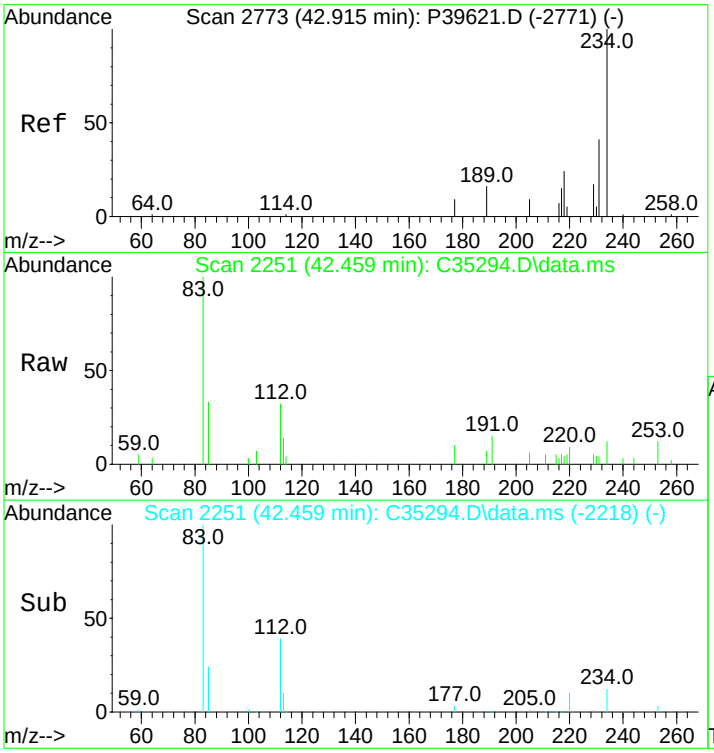


#68
Naphthobenzothiophene-1,2-D
Concen: 1.53 ng/mL m
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:234 Resp: 128

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

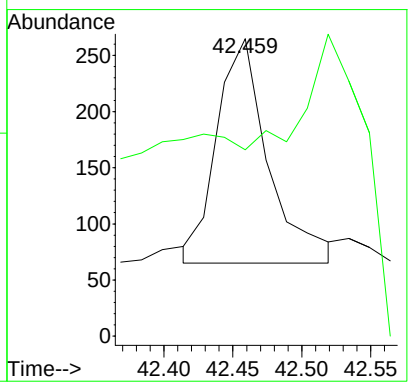


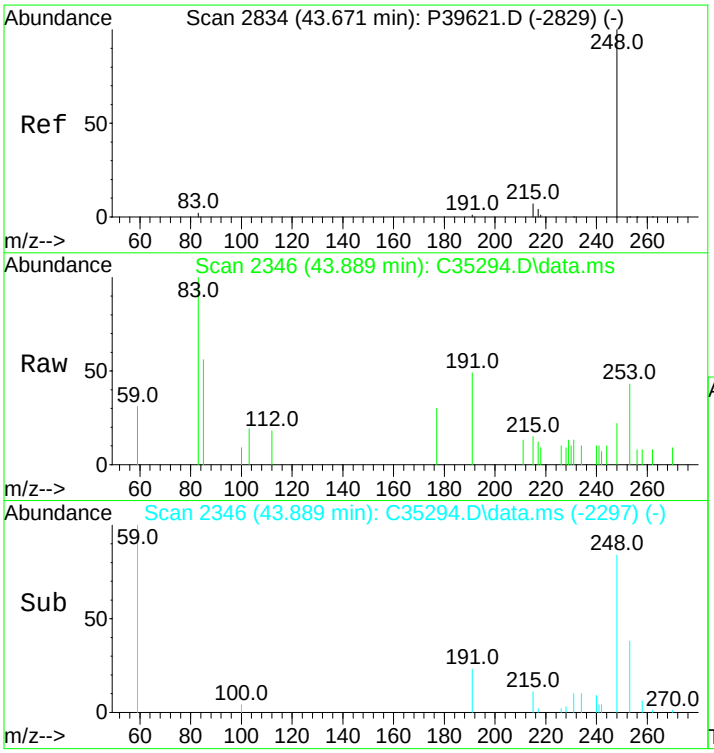


#69
Naphthobenzothiophene-2,3-D
Concen: 6.21 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:234 Resp: 521

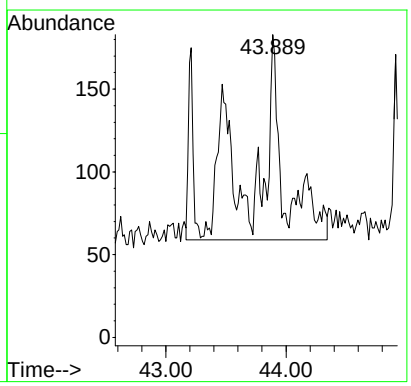
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

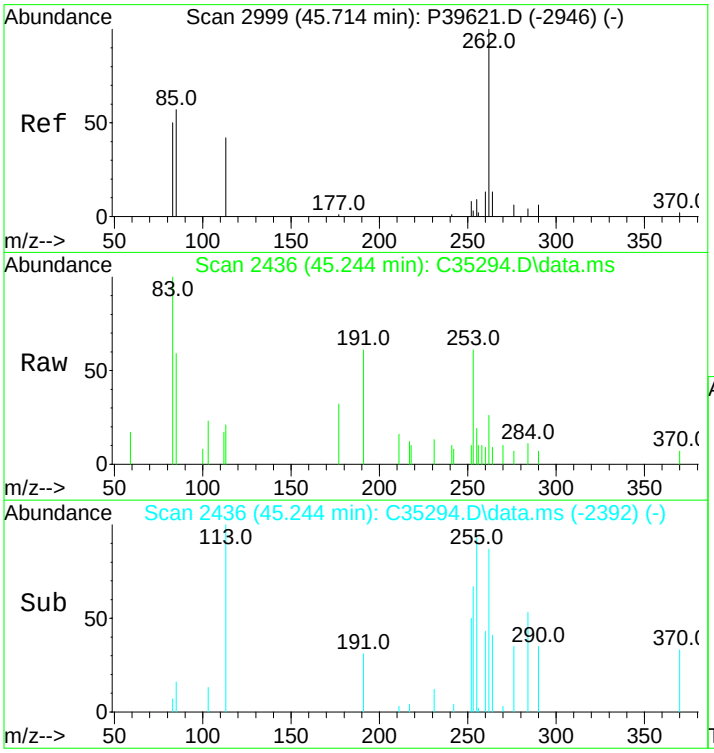




#70
C1-Naphthobenzothiophenes
Concen: 28.62 ng/ml m
RT: 43.889 min Scan# 2346
Delta R.T. 0.310 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

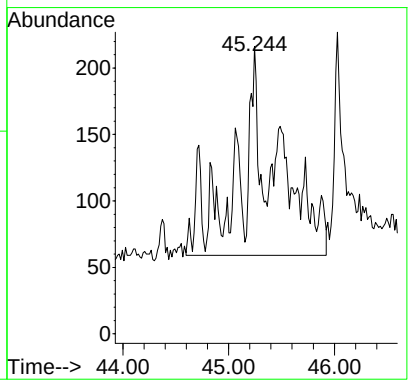
Tgt Ion:248 Resp: 2401

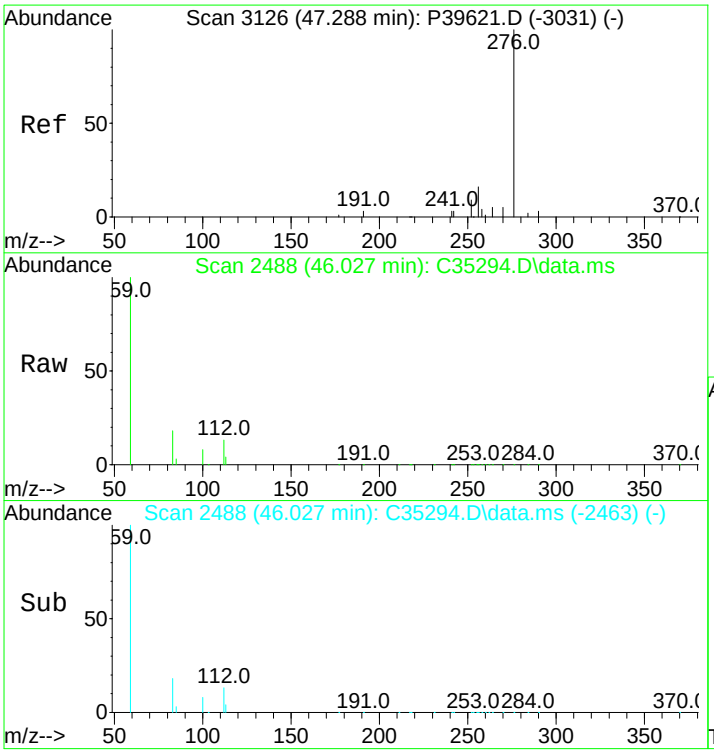




#71
C2-Naphthobenzothiophenes
Concen: 46.81 ng/ml m
RT: 45.244 min Scan# 2436
Delta R.T. 0.377 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

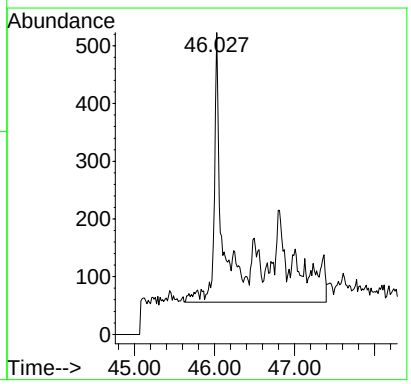
Tgt Ion:262 Resp: 3927

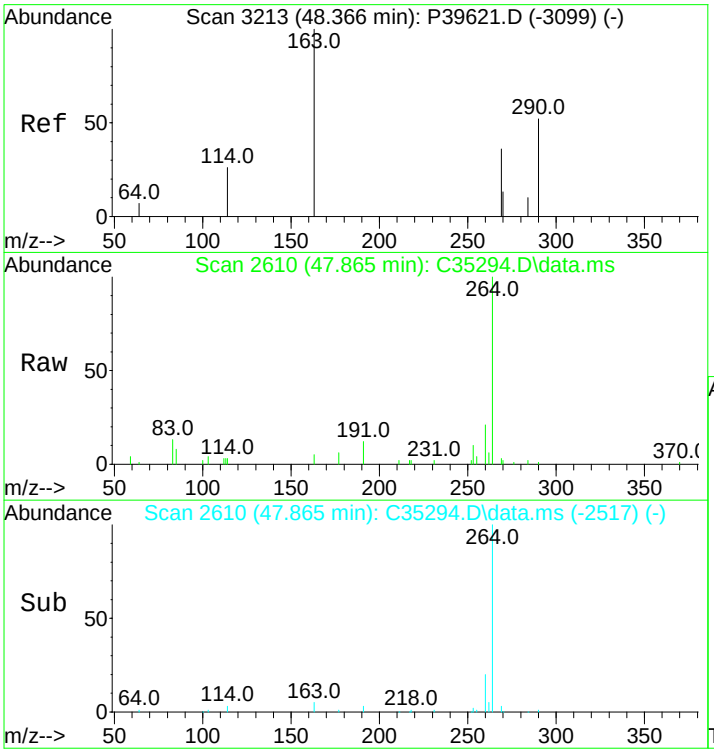




#72
C3-Naphthobenzothiophenes
Concen: 84.86 ng/ml m
RT: 46.027 min Scan# 2488
Delta R.T. -0.425 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

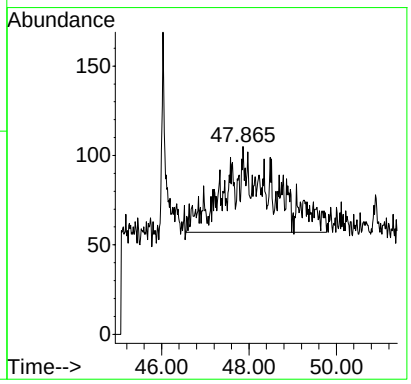
Tgt Ion:276 Resp: 7119

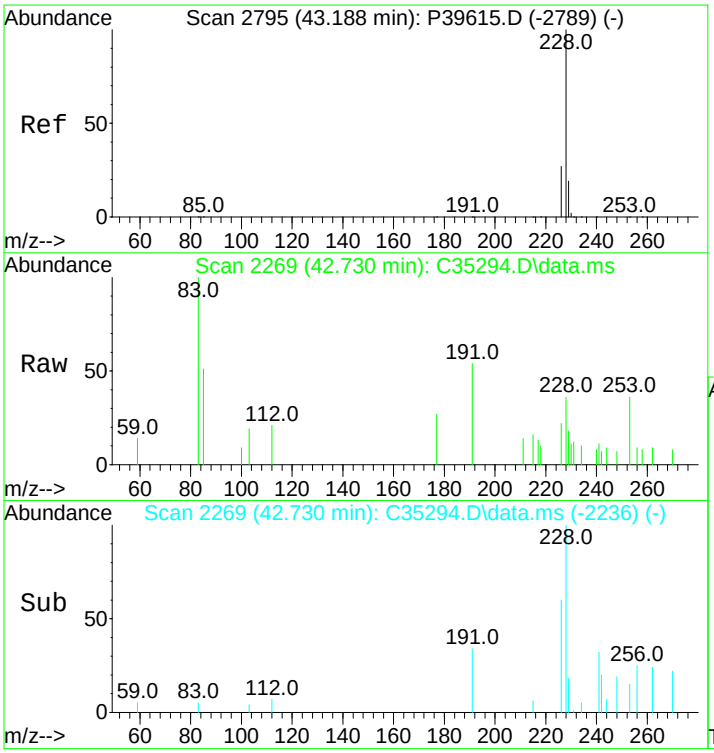




#73
C4-Naphthobenzothiophenes
Concen: 42.40 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:290 Resp: 3557

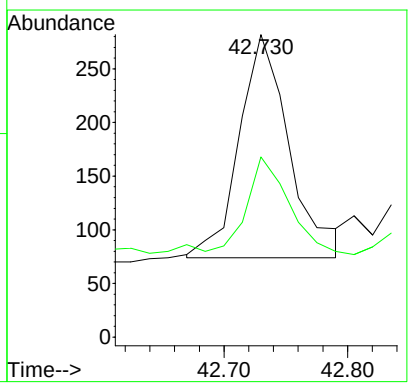


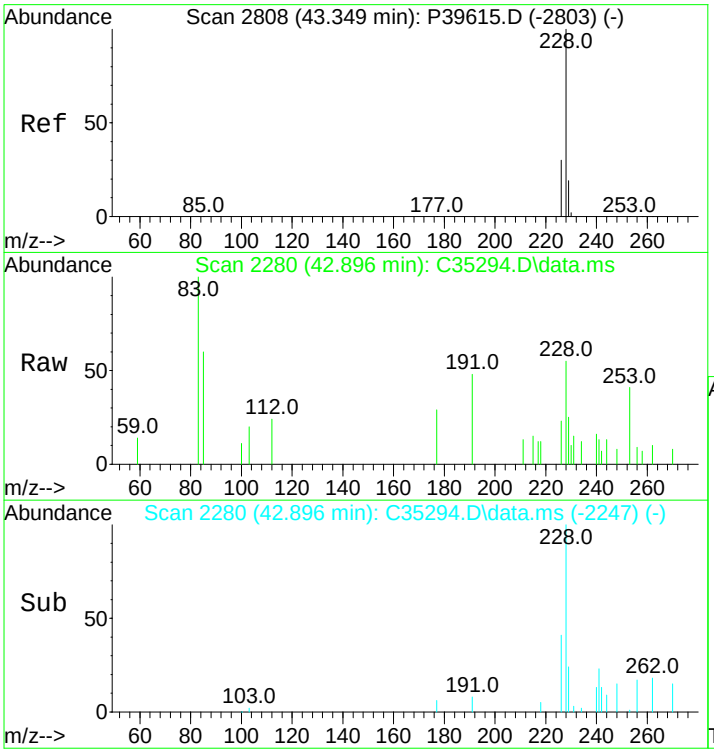


#75
Benz[a]anthracene
Concen: 6.75 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:228 Resp: 584

Ion	Ratio	Lower	Upper
228	100		
226	82.2	21.5	32.3#

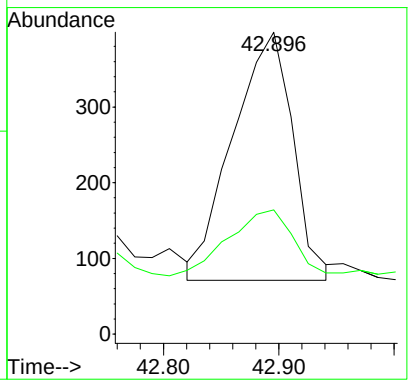


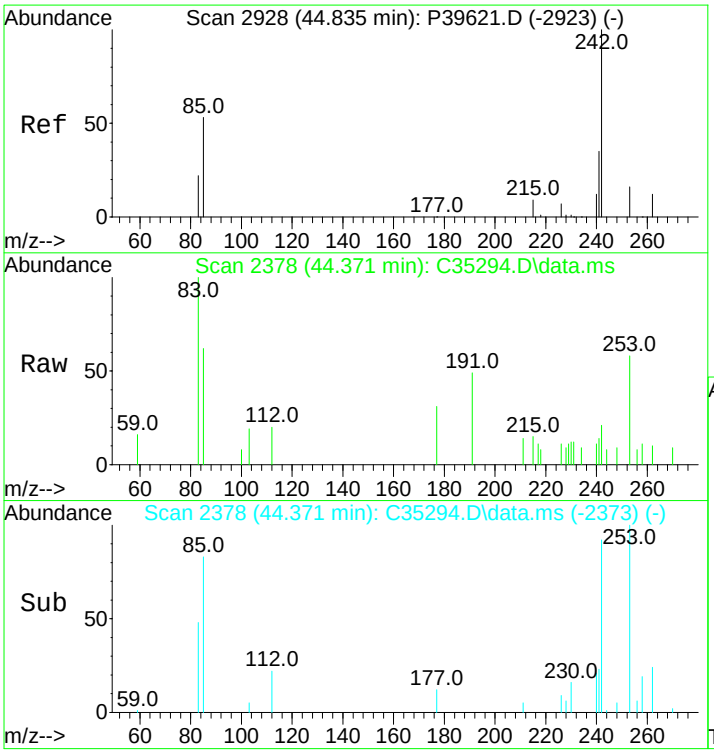


#77
Chrysene/Triphenylene
Concen: 13.57 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:228 Resp: 1185

Ion	Ratio	Lower	Upper
228	100		
226	38.3	23.5	35.3#

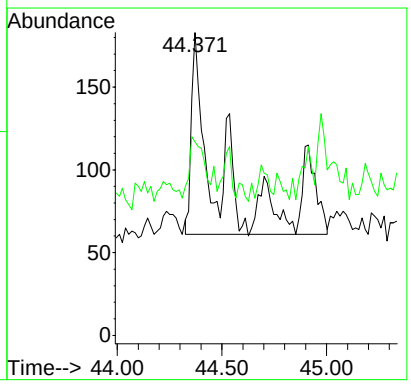


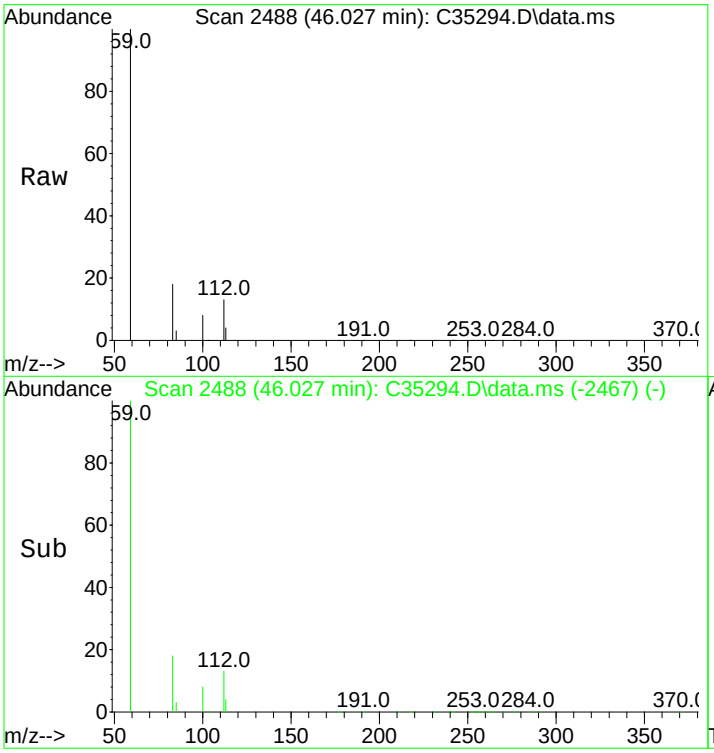


#78
C1-Chrysenes
Concen: 13.00 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:242 Resp: 1135

Ion	Ratio	Lower	Upper
242	100		
241	10.3	32.7	49.1#

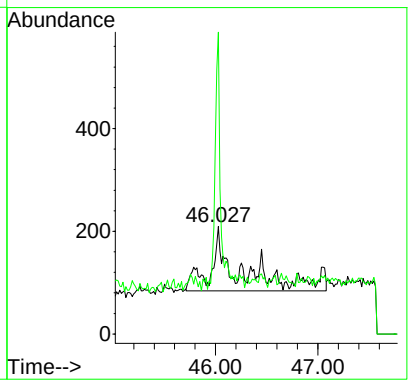


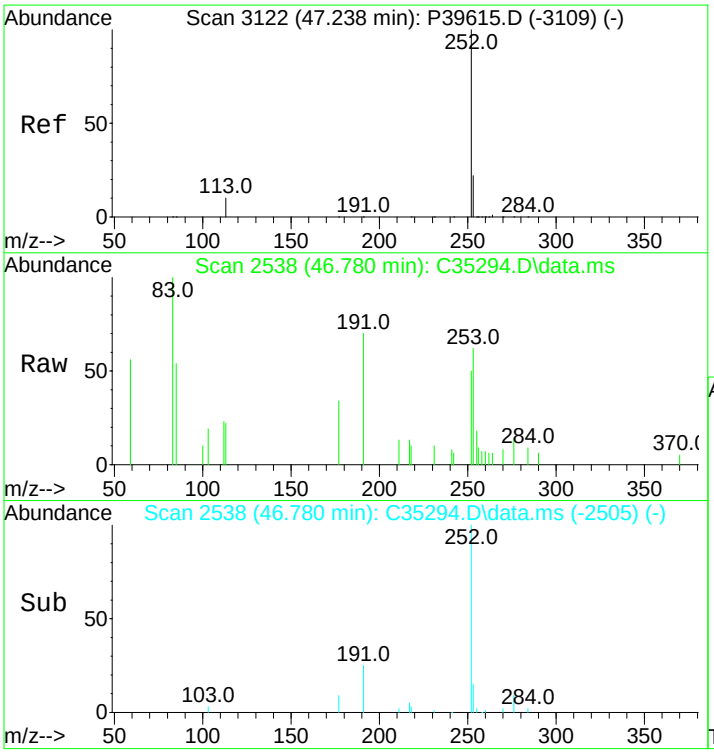


#79
C2-Chrysenes
Concen: 29.02 ng/mL m
RT: 46.027 min Scan# 2488
Delta R.T. -0.370 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:256 Resp: 2534

Ion	Ratio	Lower	Upper
256	100		
241	0.0	30.9	46.3#

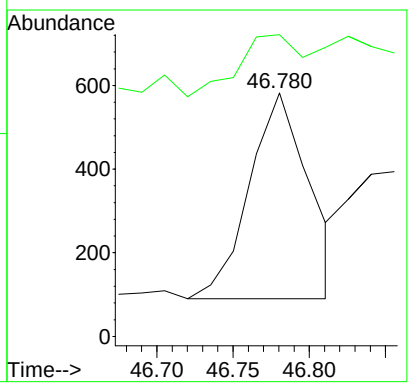


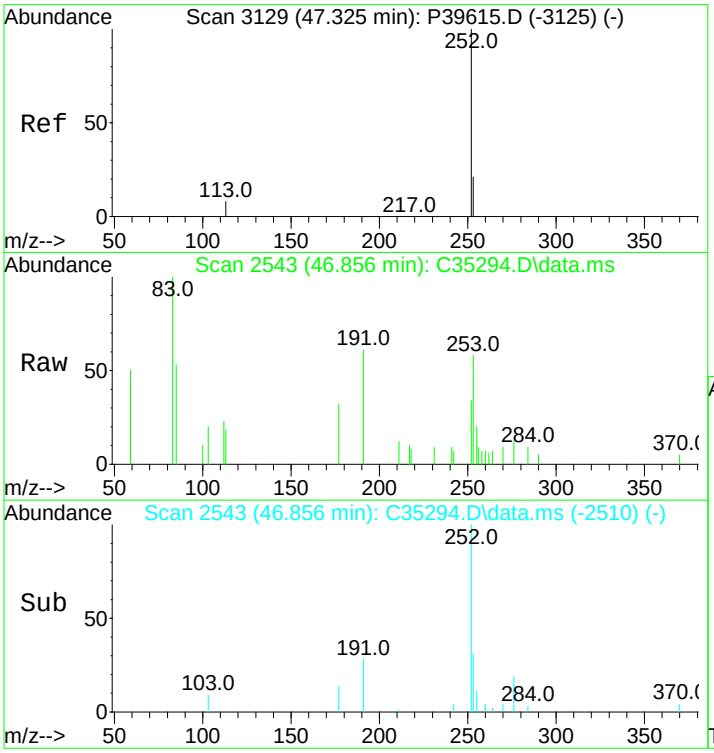


#82
Benzo[b]fluoranthene
Concen: 14.14 ng/mL m
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:252 Resp: 1344

Ion	Ratio	Lower	Upper
252	100		
253	31.5	20.4	30.6#

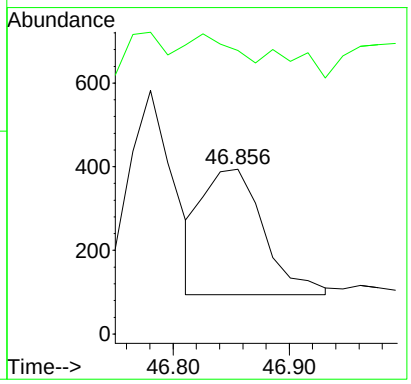


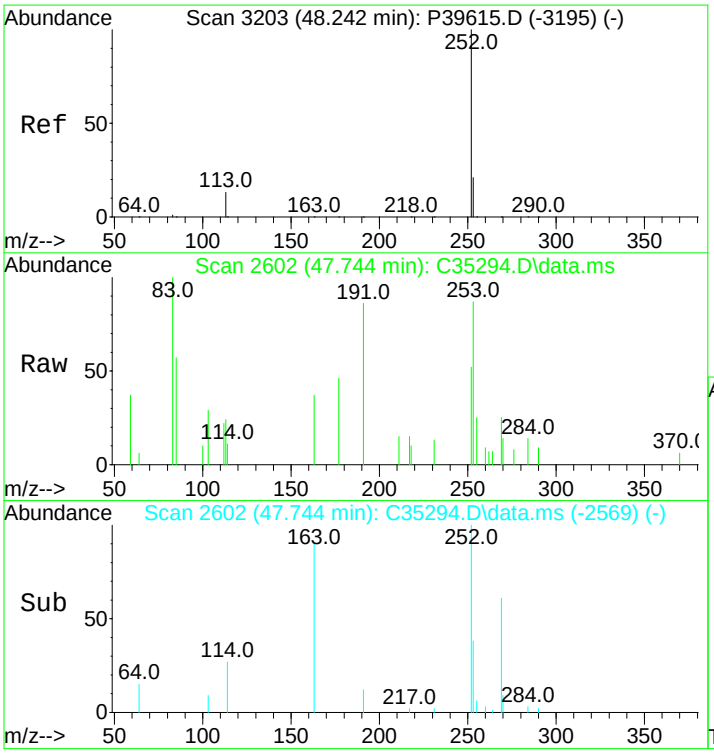


#83
Benzo[j]+[k]fluoranthene
Concen: 10.71 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:252 Resp: 1108

Ion	Ratio	Lower	Upper
252	100		
253	0.0	20.6	31.0#

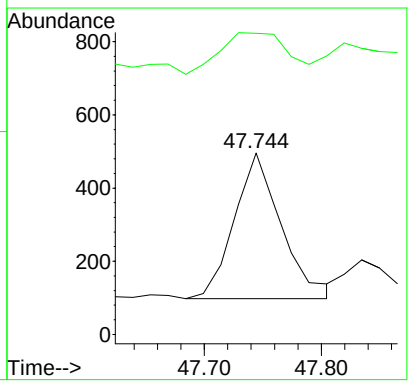


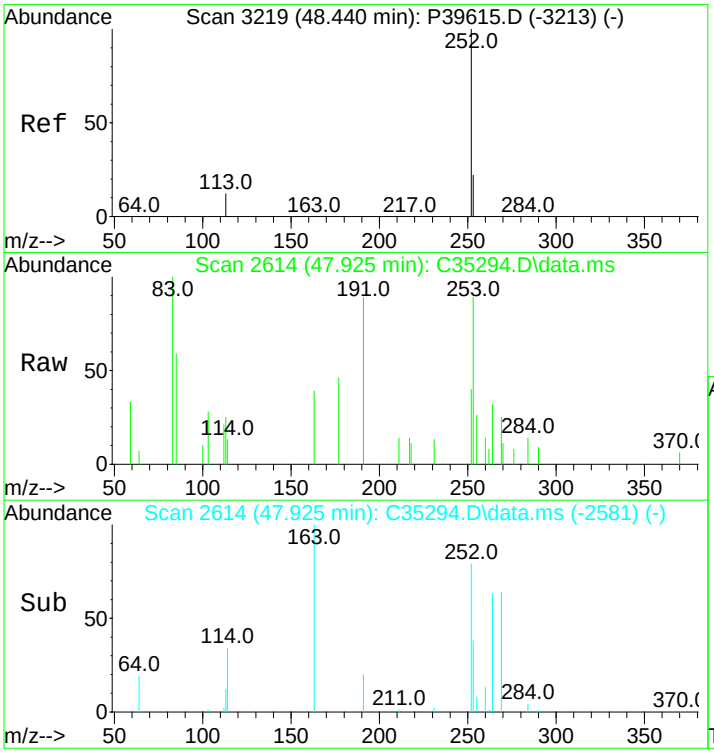


#85
Benzo[e]pyrene
Concen: 11.83 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:252 Resp: 1112

Ion	Ratio	Lower	Upper
252	100		
253	40.8	21.0	31.6#

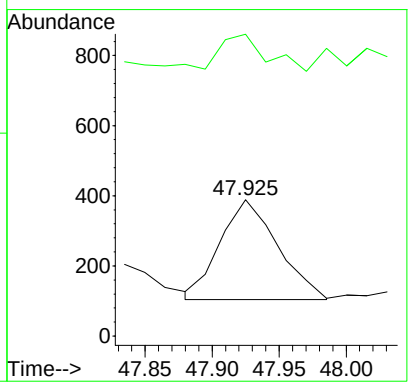


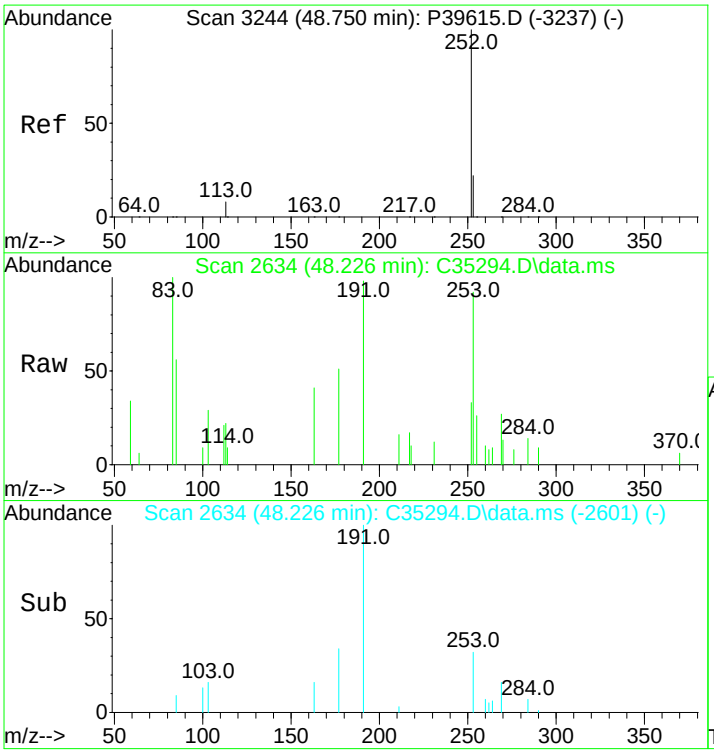


#87
Benzo[a]pyrene
Concen: 9.37 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:252 Resp: 848

Ion	Ratio	Lower	Upper
252	100		
253	40.3	21.4	32.0#

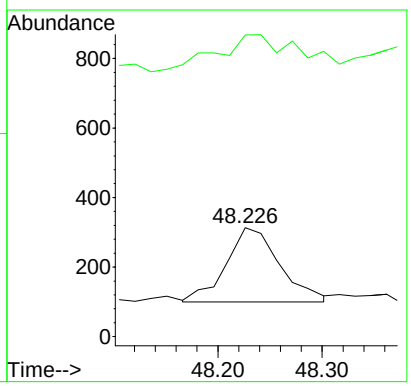


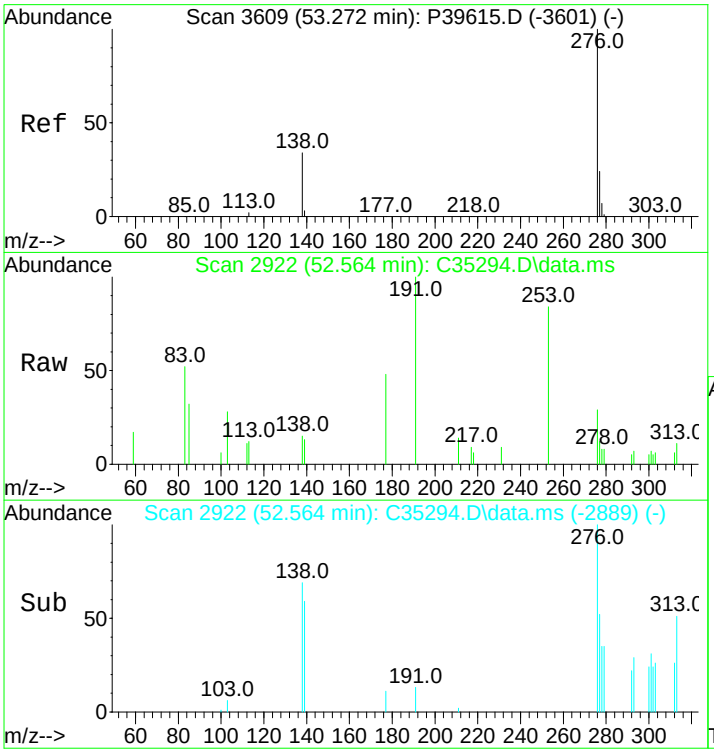


#88
Perylene
Concen: 7.89 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:252 Resp: 763

Ion	Ratio	Lower	Upper
252	100		
253	77.9	21.8	32.6#

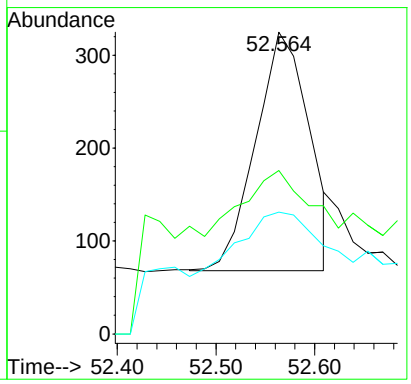


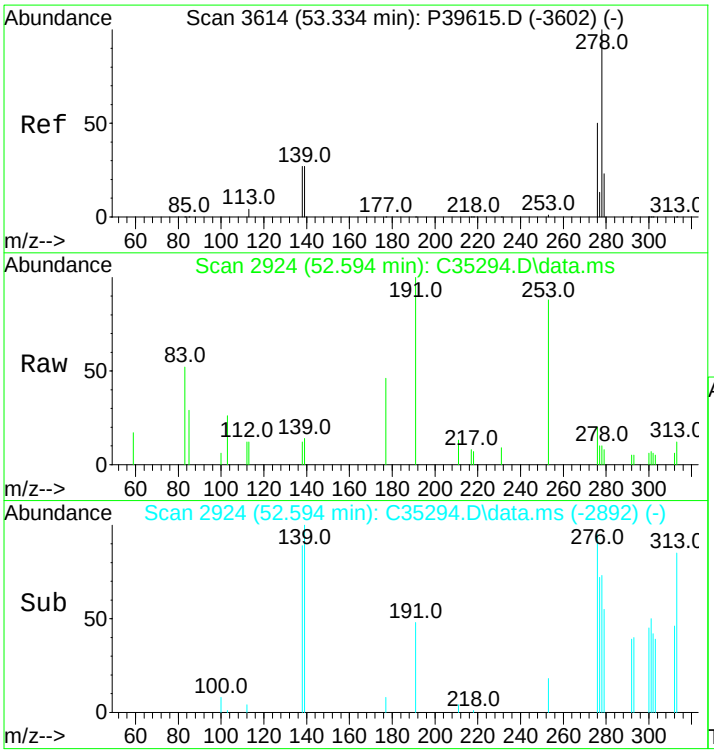


#89
Indeno[1,2,3-cd]pyrene
Concen: 9.20 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:276 Resp: 969

Ion	Ratio	Lower	Upper
276	100		
138	74.8	19.1	28.7#
277	76.4	19.5	29.3#

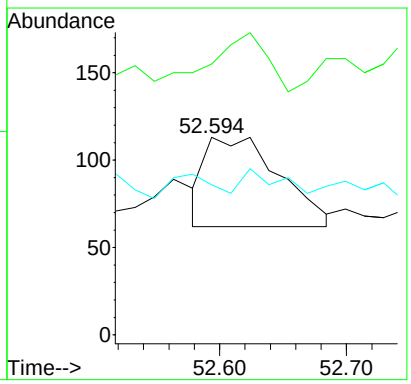


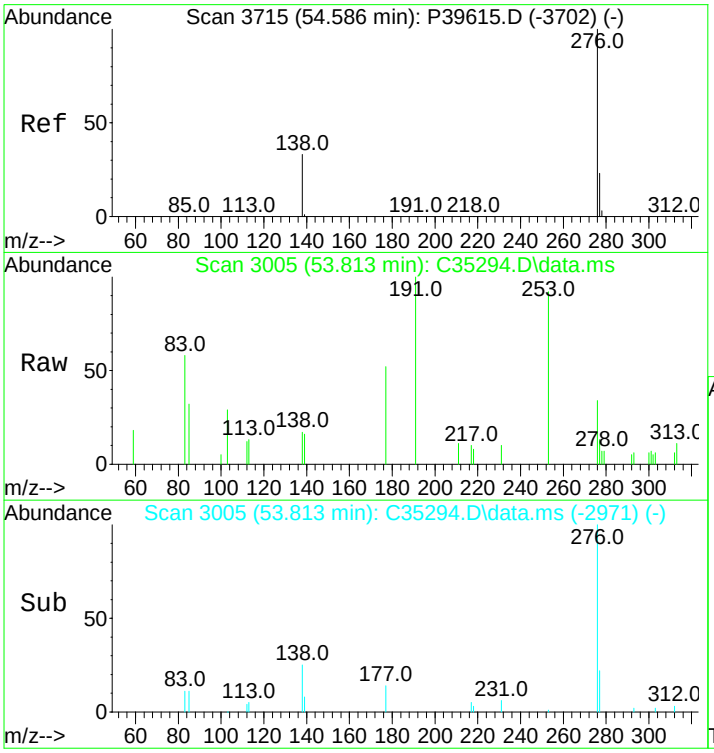


#90
Dibenz[ah]+[ac]anthracene
Concen: 2.08 ng/mL m
RT: 52.594 min Scan# 2924
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:278 Resp: 208

Ion	Ratio	Lower	Upper
278	100		
139	0.0	16.6	25.0#
279	0.0	20.0	30.0#

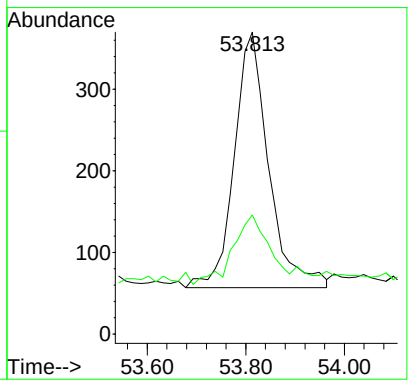


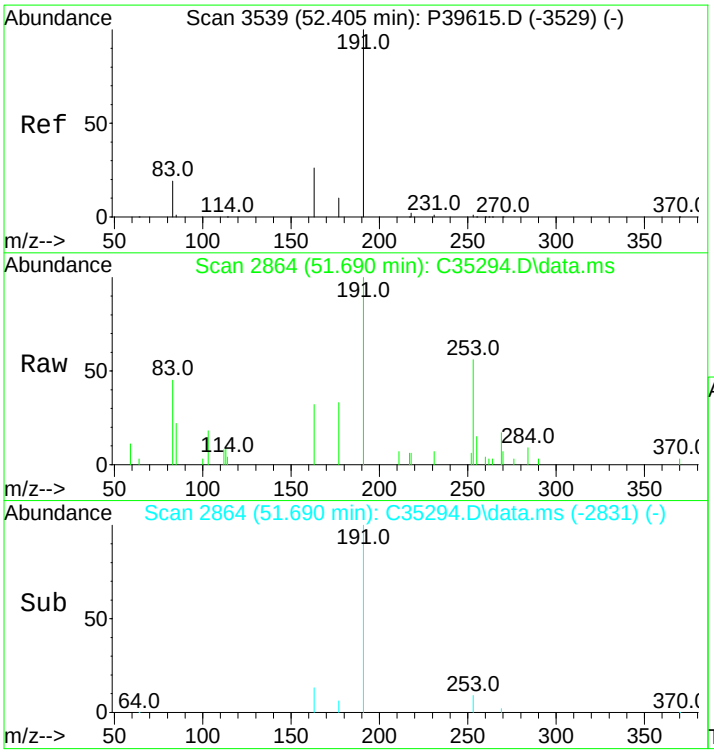


#91
Benzo[g,h,i]perylene
Concen: 13.62 ng/mL
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:276 Resp: 1516

Ion	Ratio	Lower	Upper
276	100		
277	31.5	18.8	28.2#

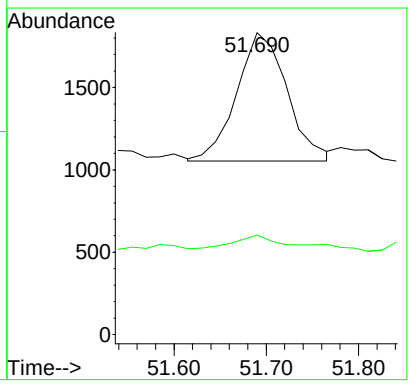


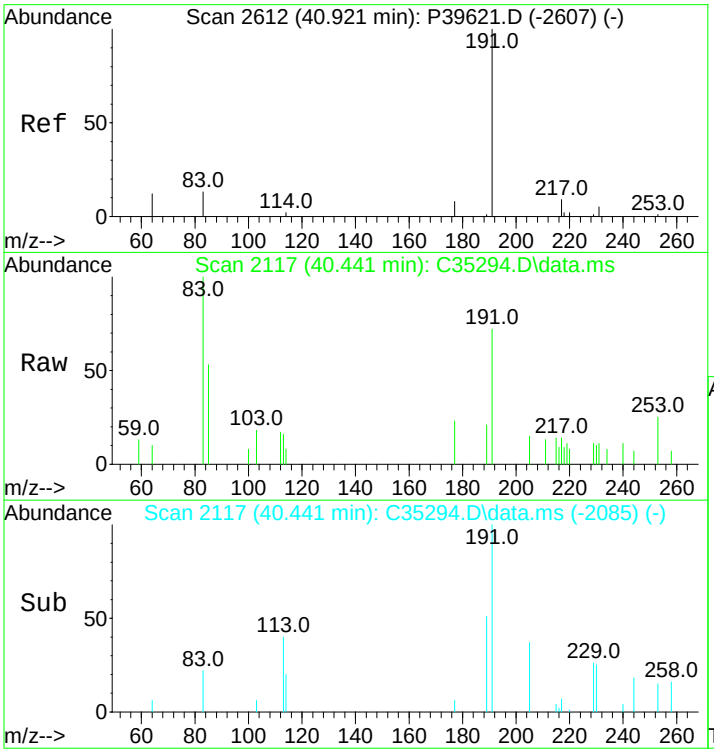


#92
Hopane (T19)
Concen: 165.36 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:191 Resp: 2970

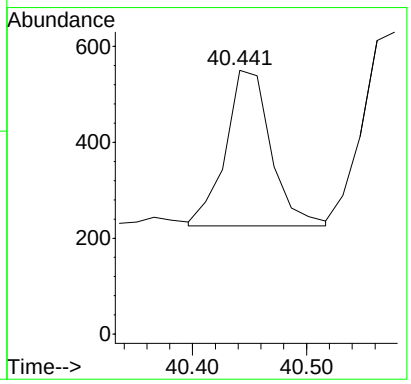
Ion	Ratio	Lower	Upper
191	100		
177	3.7	17.2	25.8#

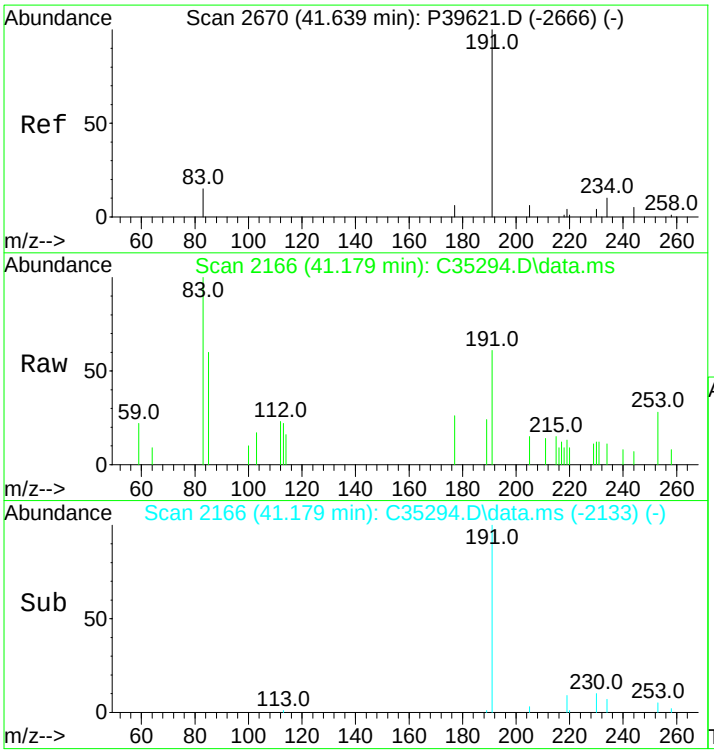




#94
C23 Tricyclic Terpane (T4)
Concen: 49.94 ng/ml m
RT: 40.441 min Scan# 2117
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

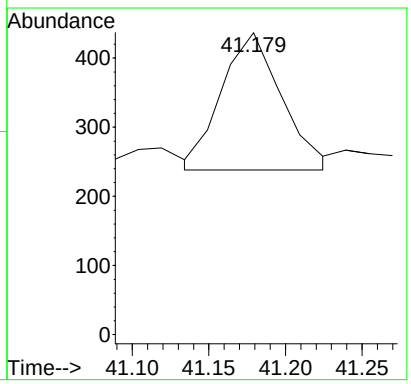
Tgt Ion:191 Resp: 897

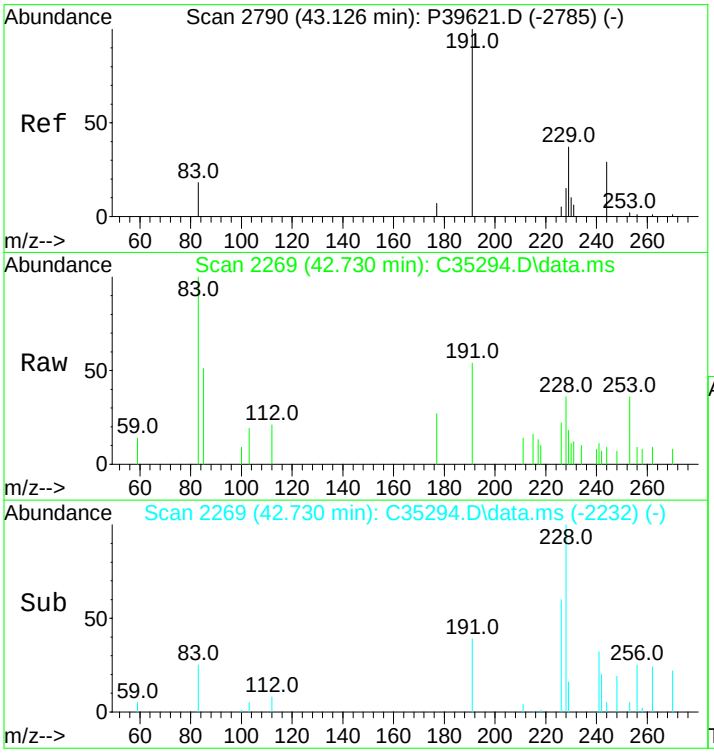




#95
C24 Tricyclic Terpane (T5)
Concen: 30.34 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

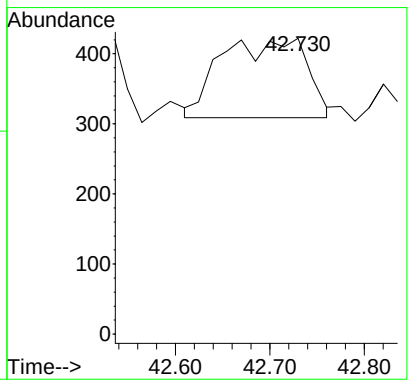
Tgt Ion:191 Resp: 545

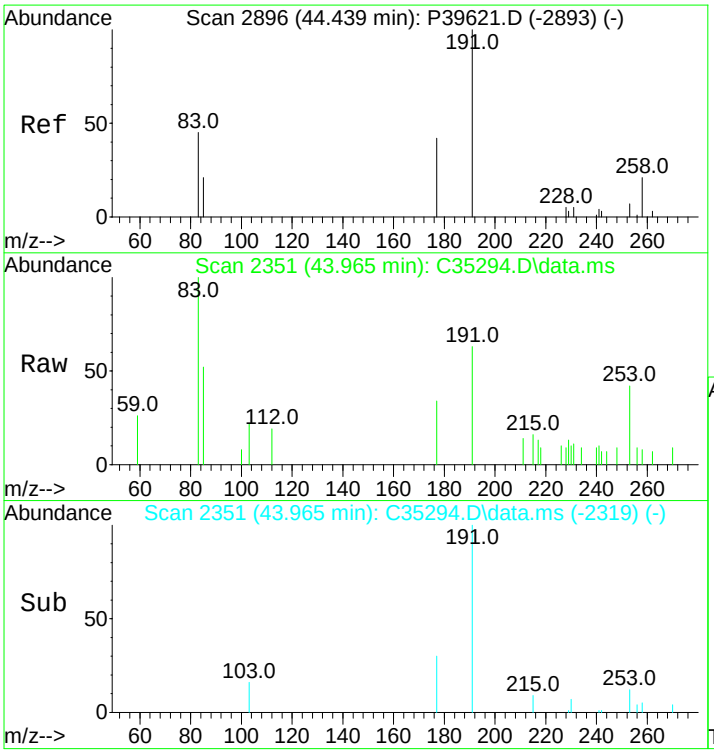




#96
C25 Tricyclic Terpane (T6)
Concen: 39.47 ng/ml m
RT: 42.730 min Scan# 2269
Delta R.T. 0.060 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

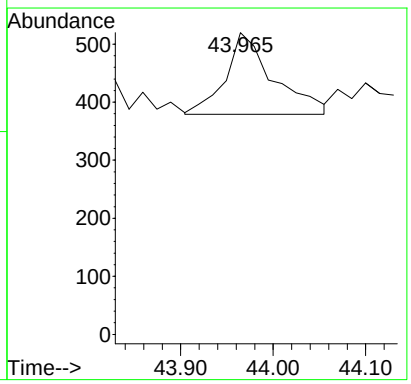
Tgt Ion:191 Resp: 709

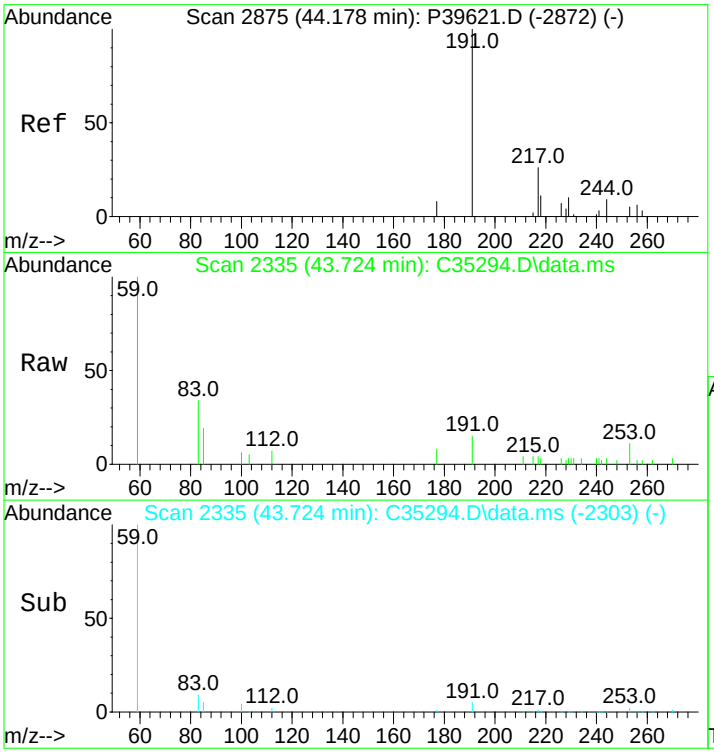




#97
C24 Tetracyclic Terpane (T6a)
Concen: 28.34 ng/ml m
RT: 43.965 min Scan# 2351
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

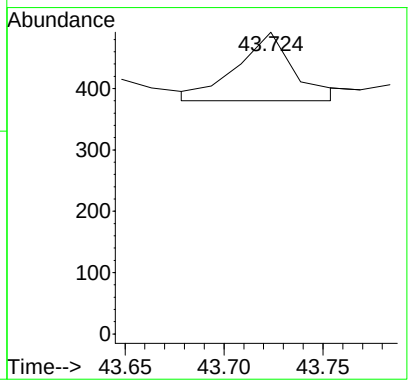
Tgt Ion:191 Resp: 509

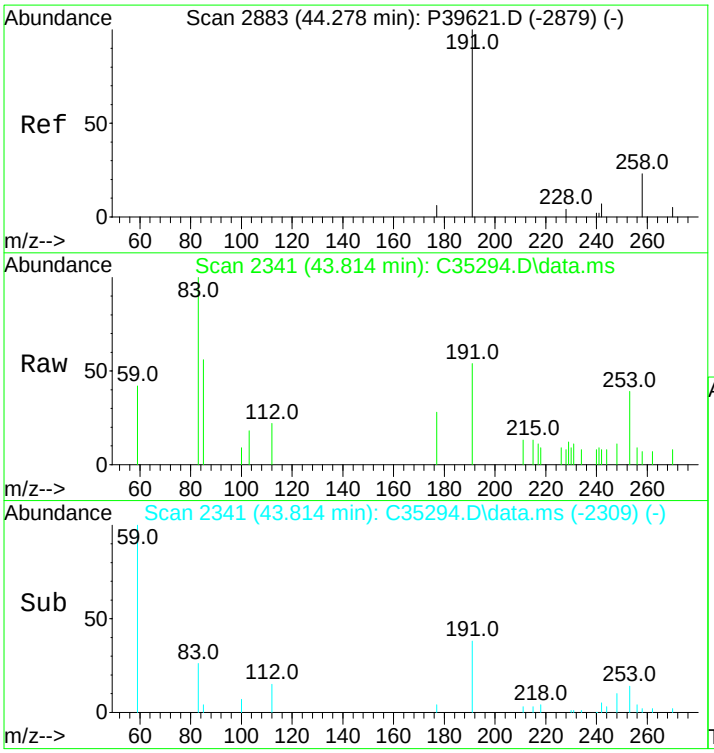




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 12.47 ng/ml m
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

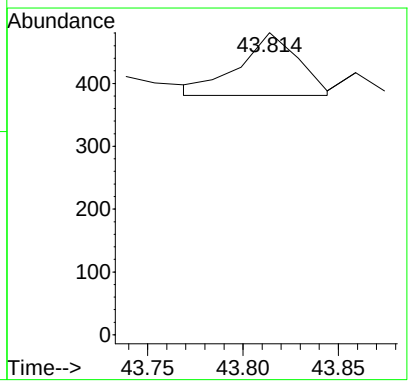
Tgt Ion:191 Resp: 224

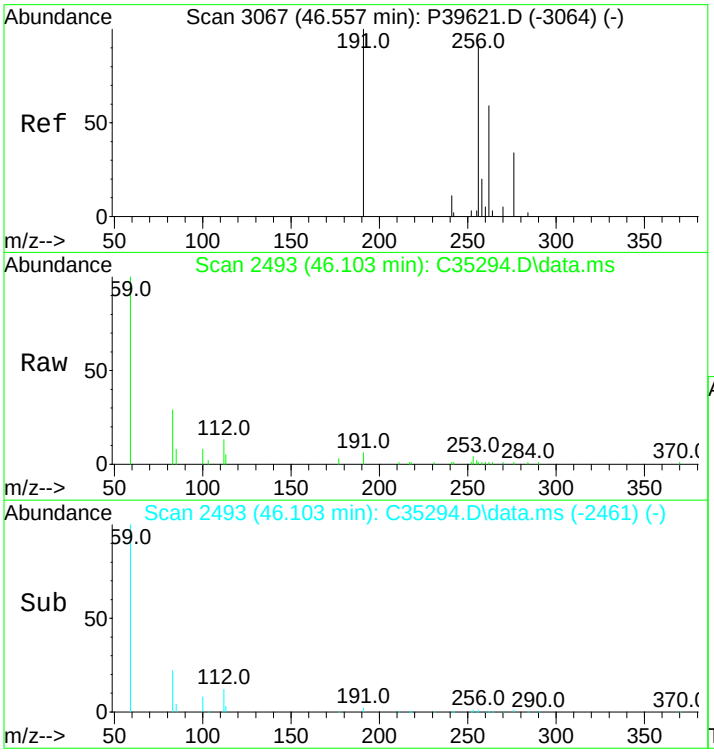




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 11.86 ng/ml m
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

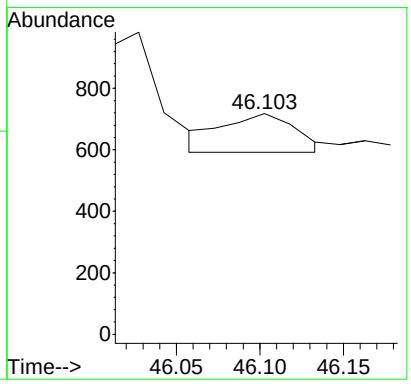
Tgt Ion:191 Resp: 213

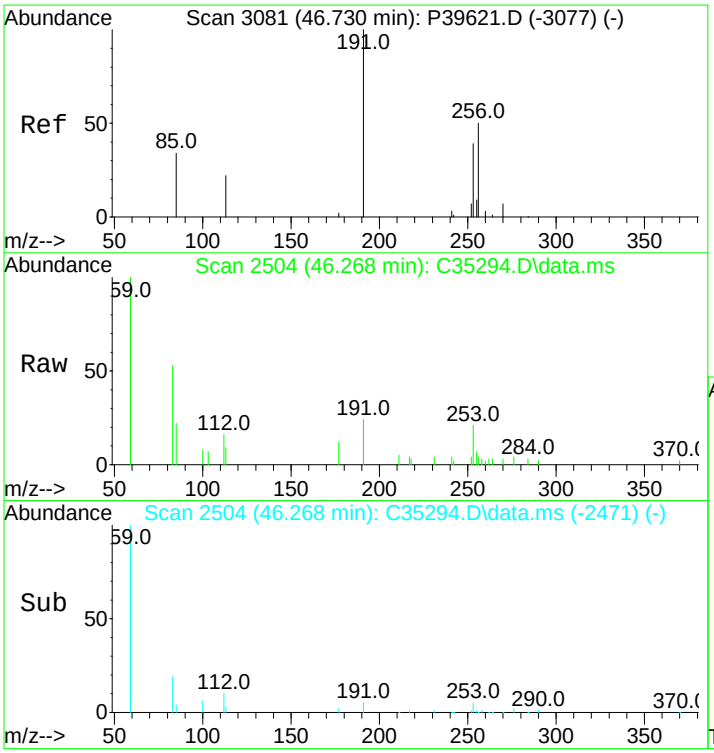




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 21.44 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

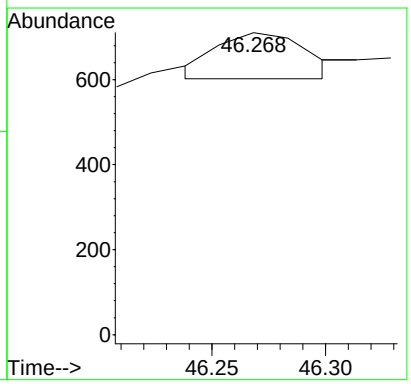
Tgt Ion:191 Resp: 385

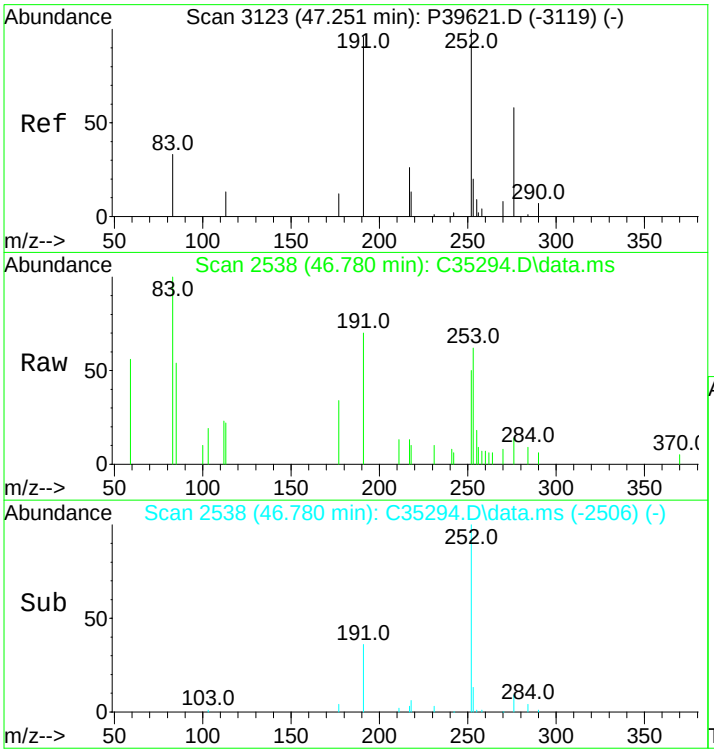




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 16.59 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

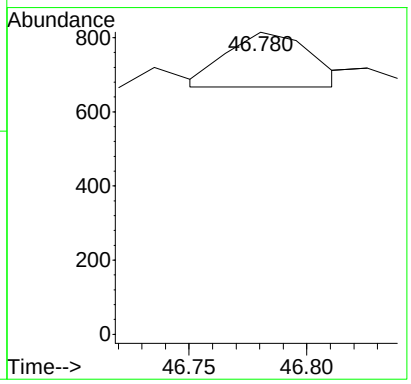
Tgt Ion:191 Resp: 298

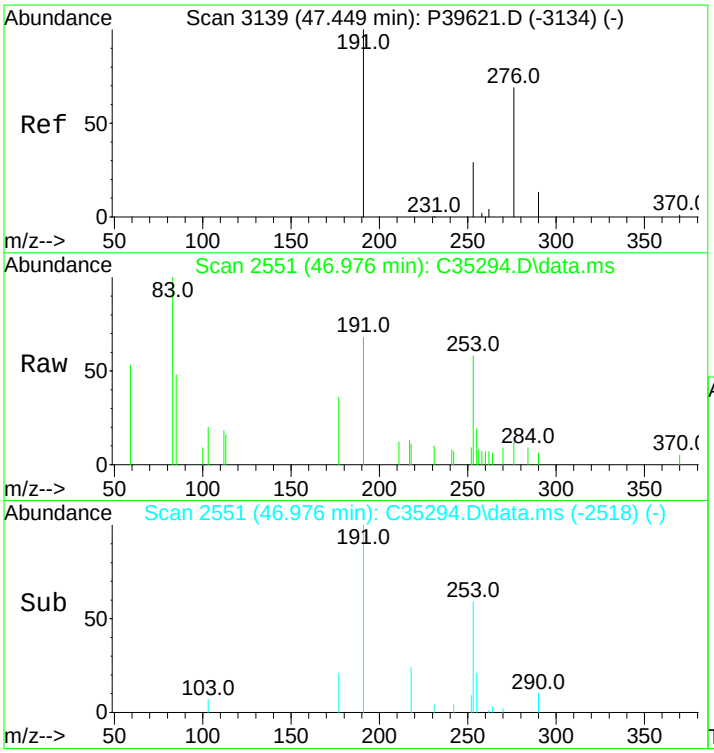




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 20.60 ng/ml m
RT: 46.780 min Scan# 2538
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

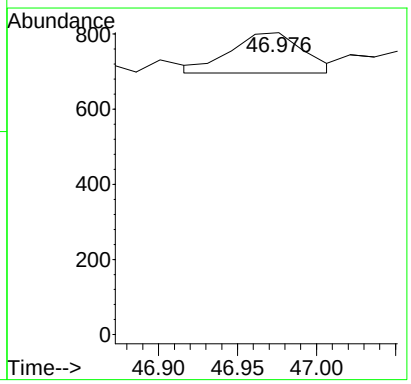
Tgt Ion:191 Resp: 370

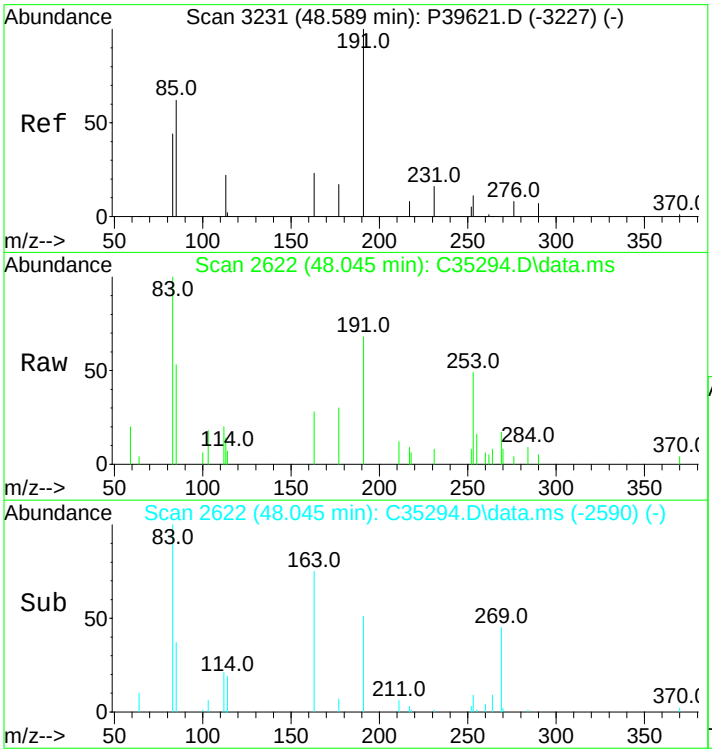




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 19.26 ng/ml m
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

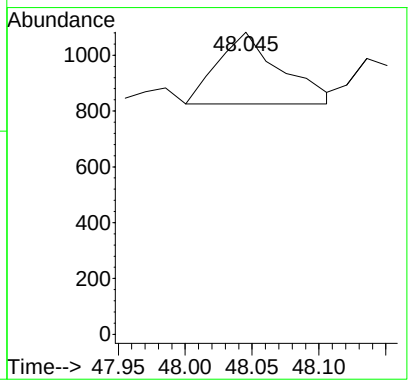
Tgt Ion:191 Resp: 346

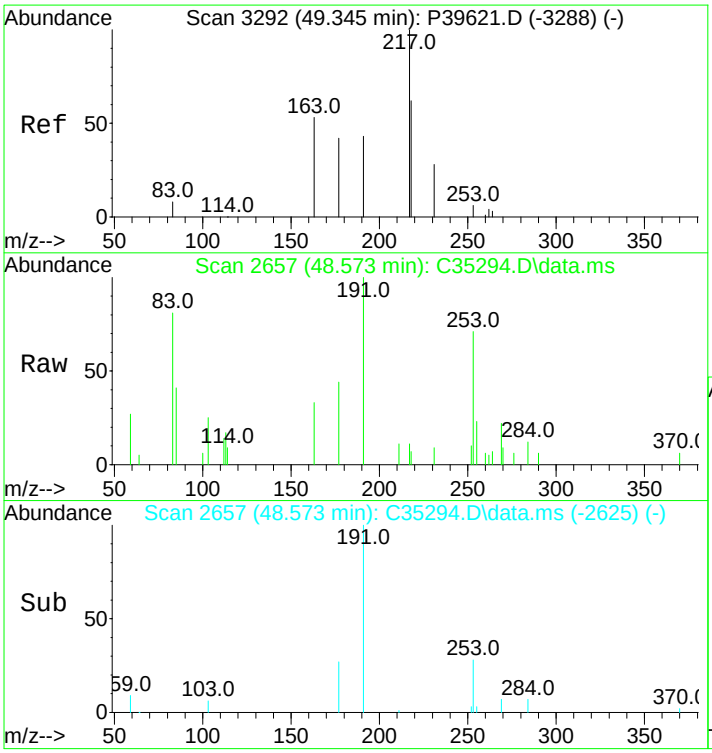




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 47.21 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

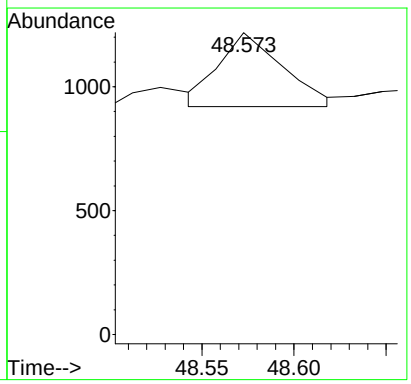
Tgt Ion:191 Resp: 848

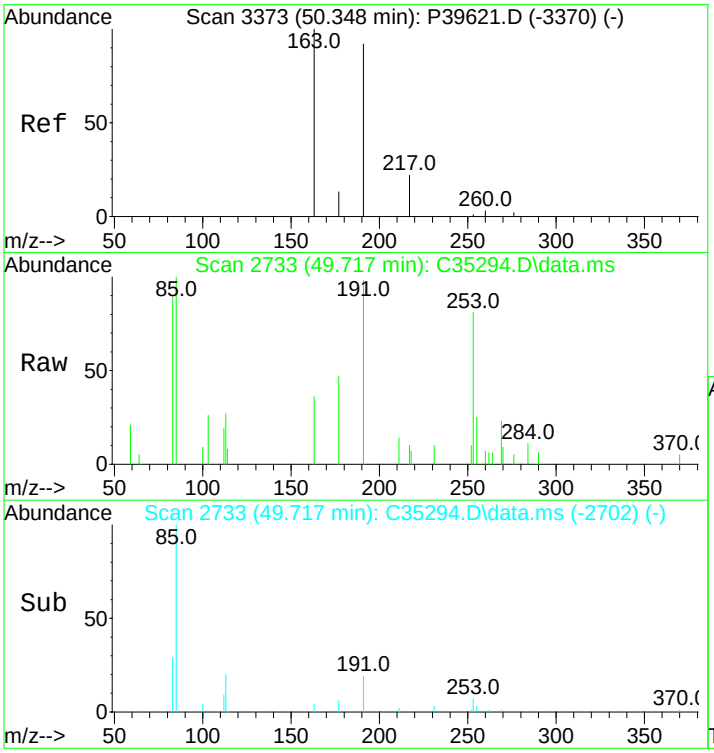




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 40.03 ng/ml m
RT: 48.573 min Scan# 2657
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

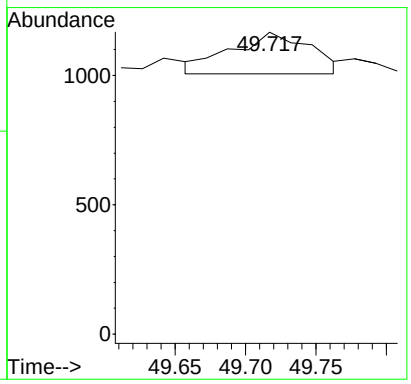
Tgt Ion:191 Resp: 719

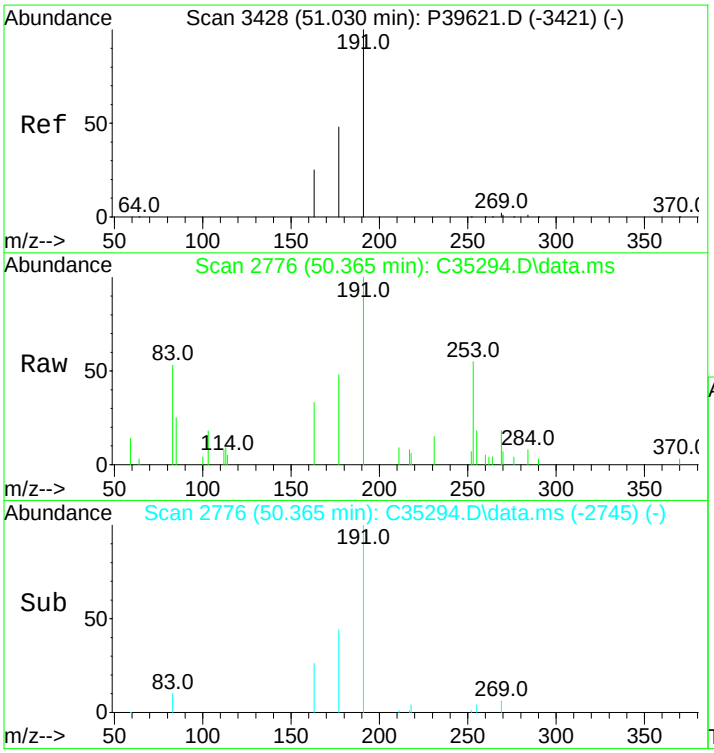




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 35.02 ng/ml m
RT: 49.717 min Scan# 2733
Delta R.T. -0.030 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

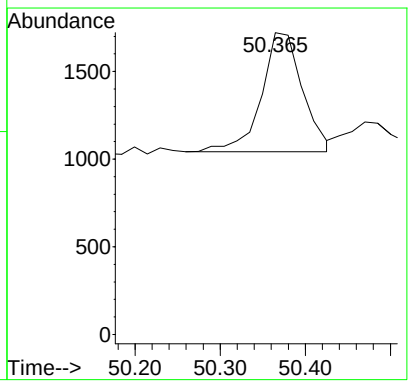
Tgt Ion:191 Resp: 629

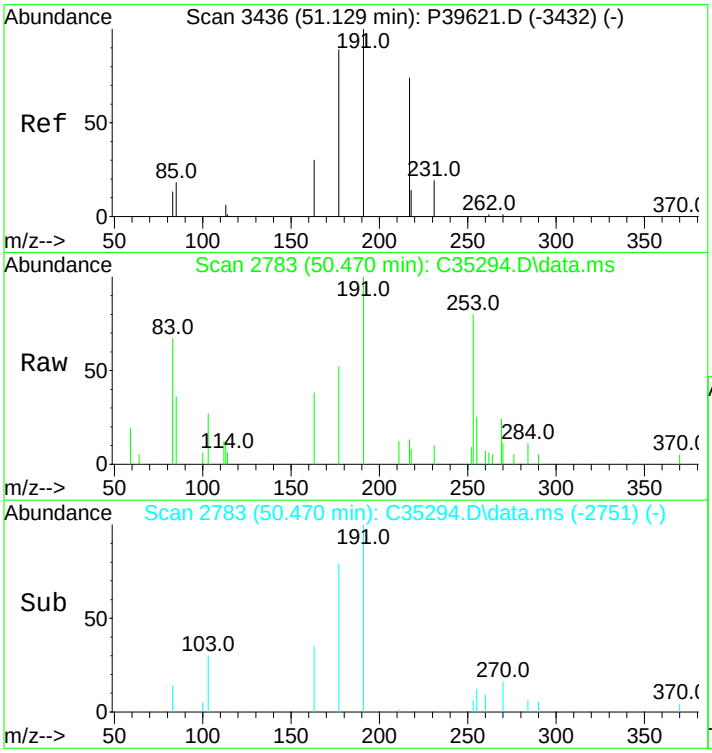




#110
30-Norhopane (T15)
Concen: 126.66 ng/ml
RT: 50.365 min Scan# 2776
Delta R.T. -0.030 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

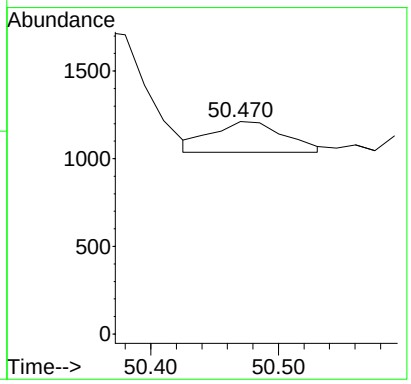
Tgt Ion:191 Resp: 2275

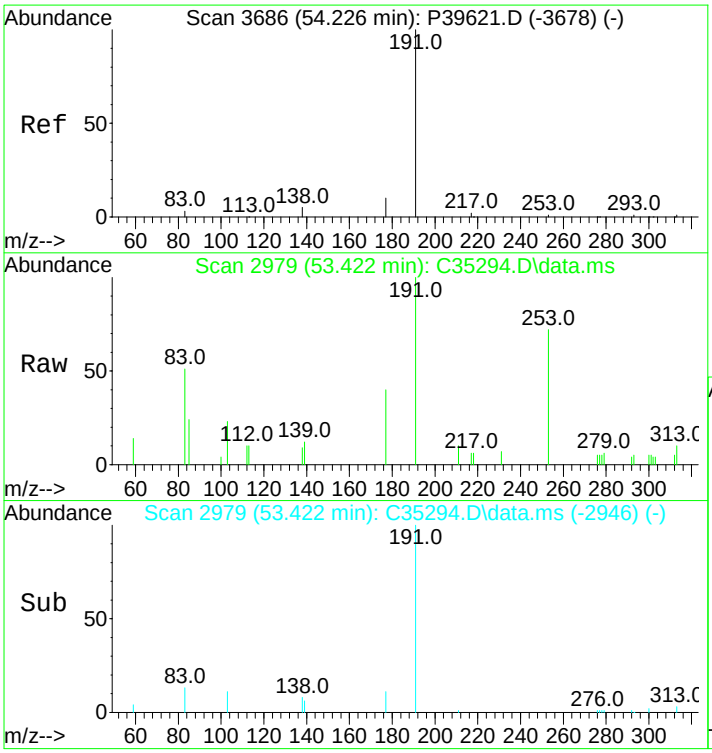




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 38.97 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

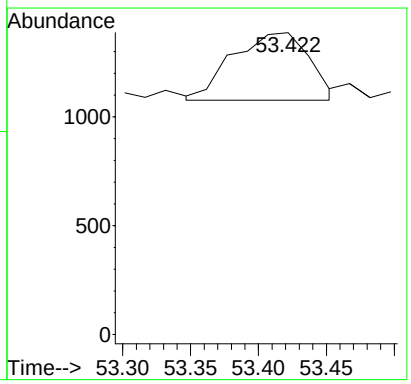
Tgt Ion:191 Resp: 700

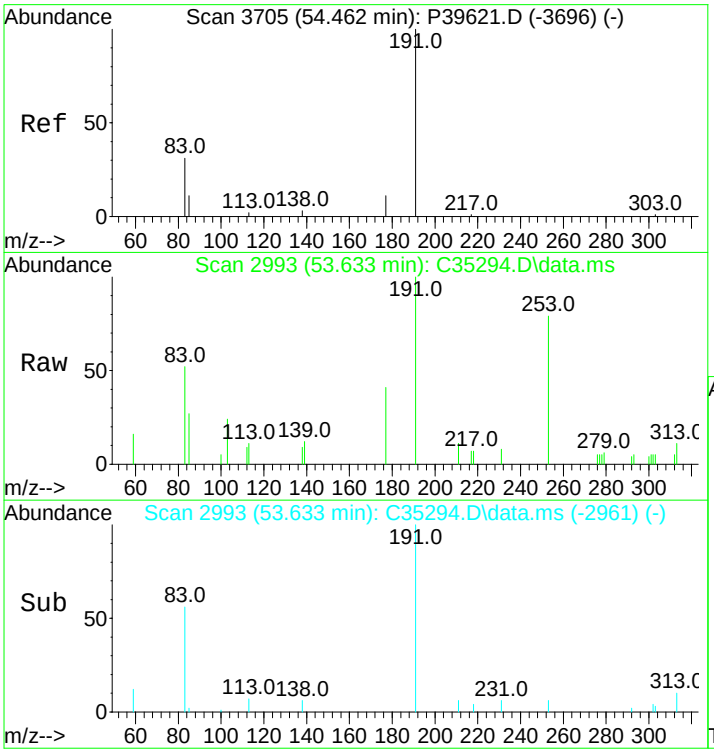




#116
30-Homohopane-22S (T21)
Concen: 67.92 ng/ml m
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

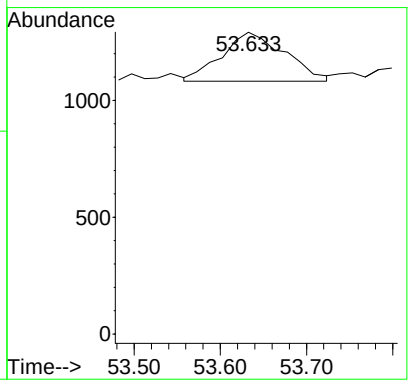
Tgt Ion:191 Resp: 1220

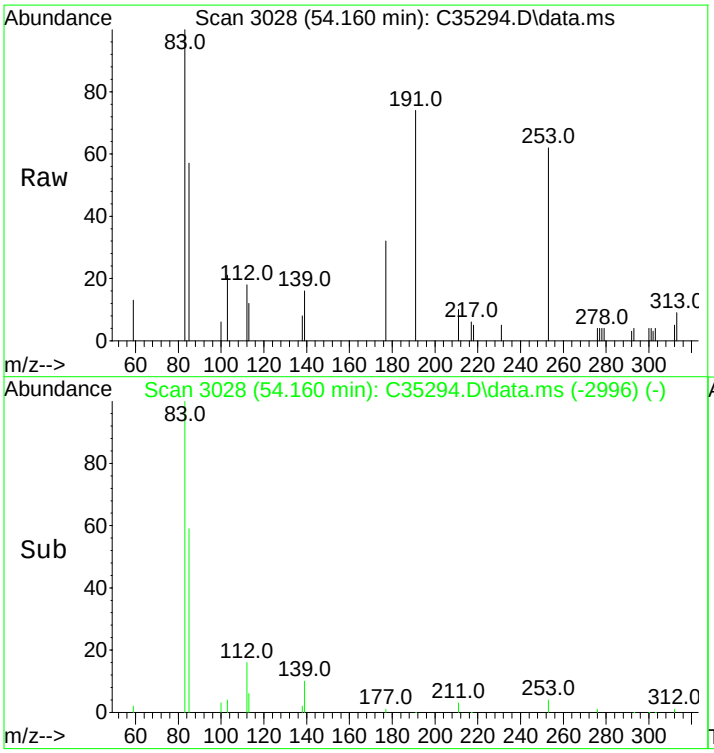




#117
30-Homohopane-22R (T22)
Concen: 59.13 ng/ml m
RT: 53.633 min Scan# 2993
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

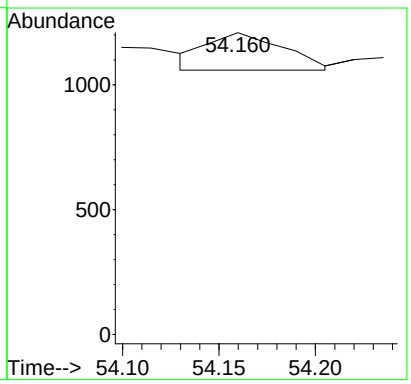
Tgt Ion:191 Resp: 1062

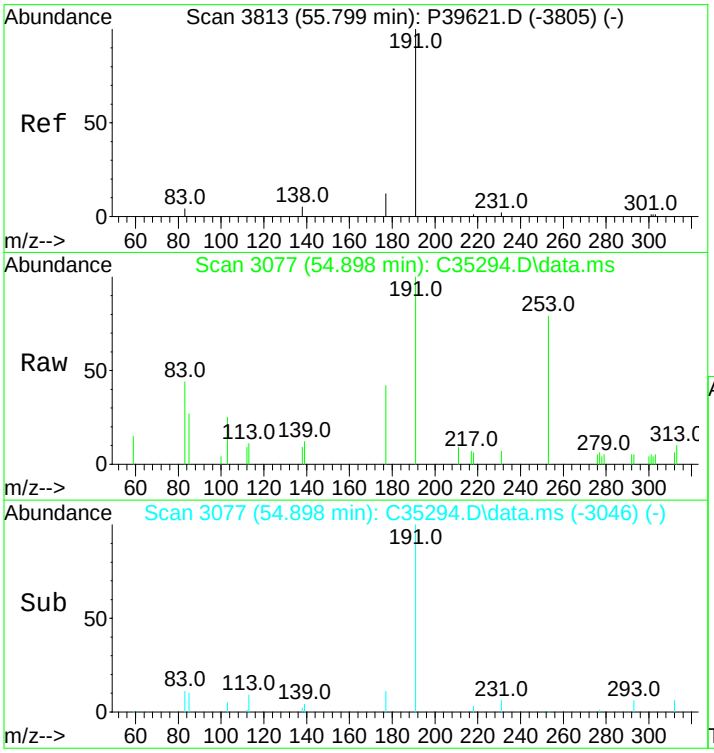




#118
Gammacerane/C32-diahopane
Concen: 22.94 ng/mL m
RT: 54.160 min Scan# 3028
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

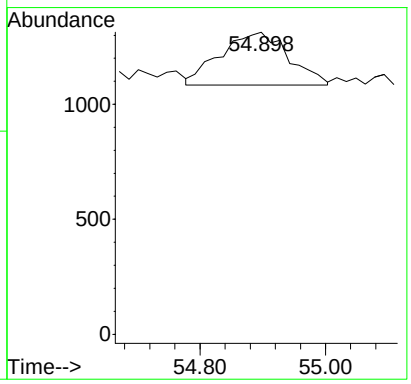
Tgt Ion:191 Resp: 412

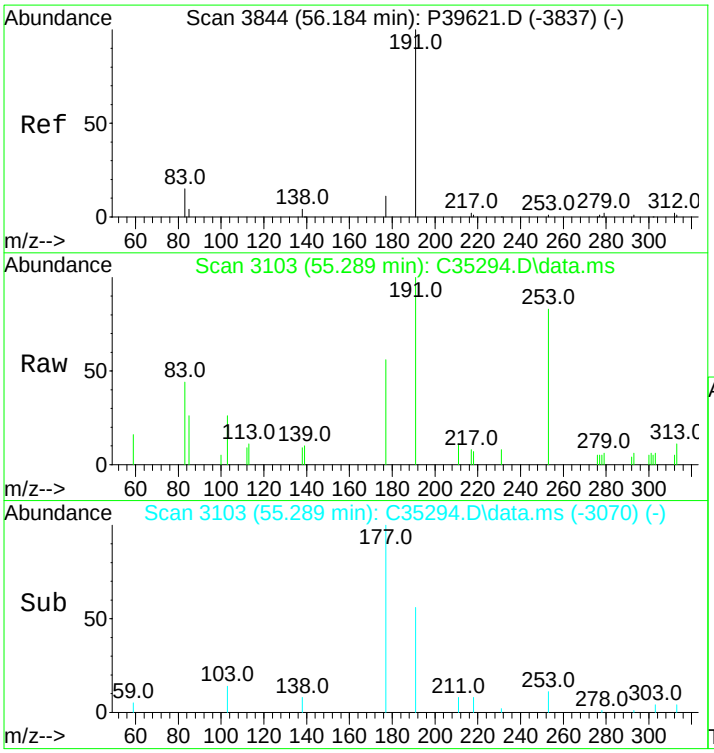




#119
30,31-Bishomohopane-22S (T26)
Concen: 95.93 ng/ml m
RT: 54.898 min Scan# 3077
Delta R.T. -0.030 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

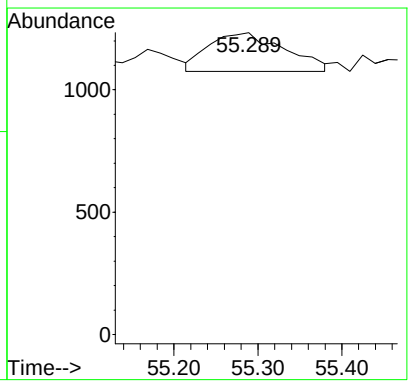
Tgt Ion:191 Resp: 1723

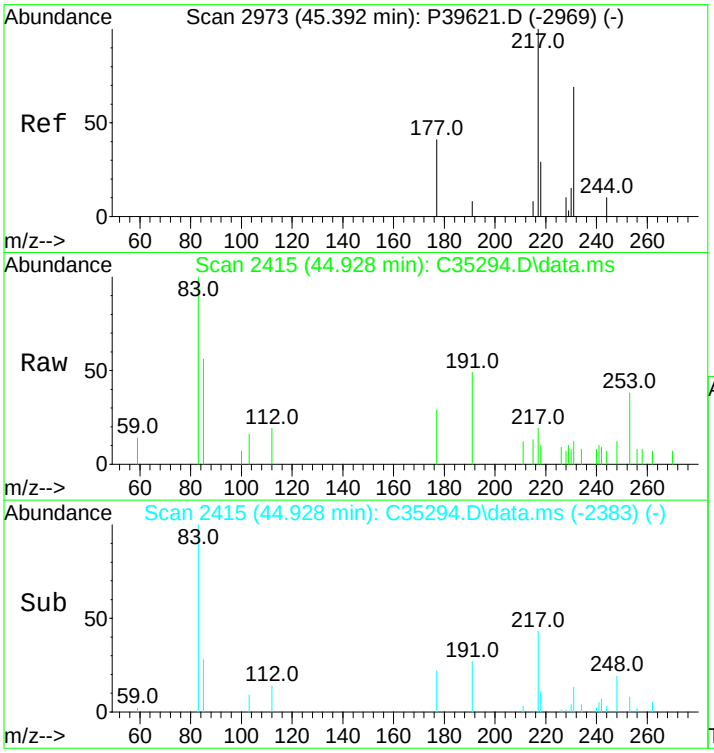




#120
30,31-Bishomohopane-22R (T27)
Concen: 55.68 ng/ml m
RT: 55.289 min Scan# 3103
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

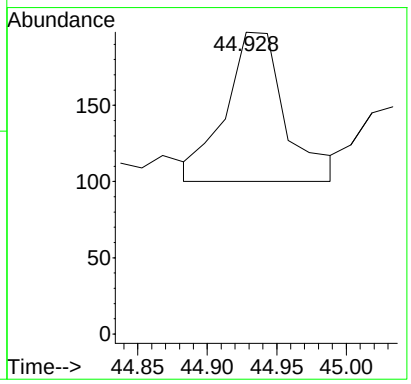
Tgt Ion:191 Resp: 1000

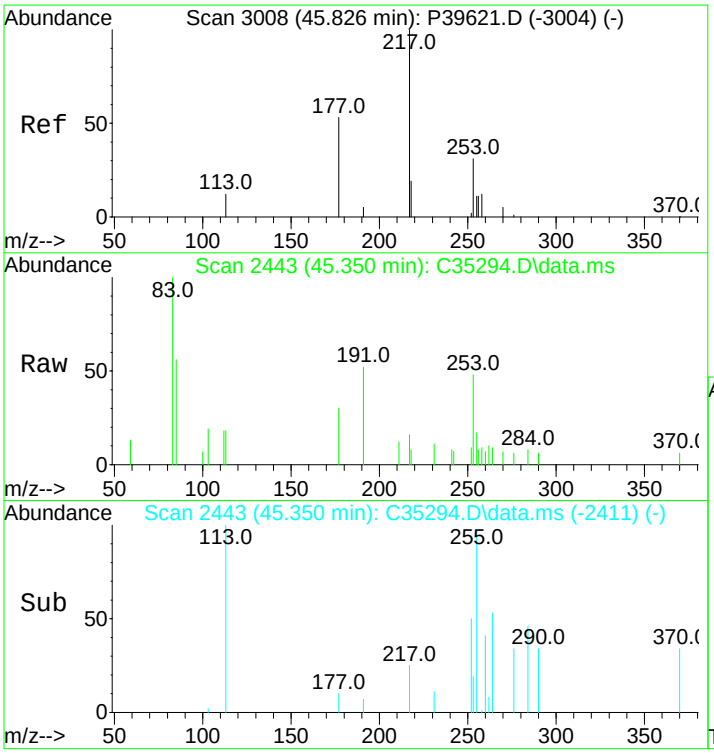




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 34.39 ng/ml m
RT: 44.928 min Scan# 2415
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

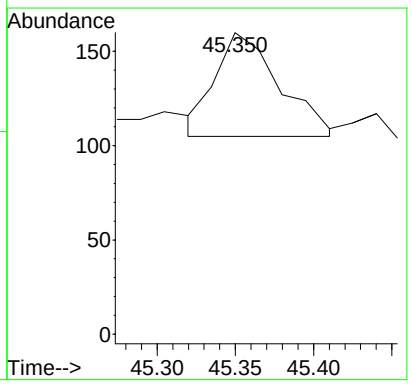
Tgt Ion:217 Resp: 293

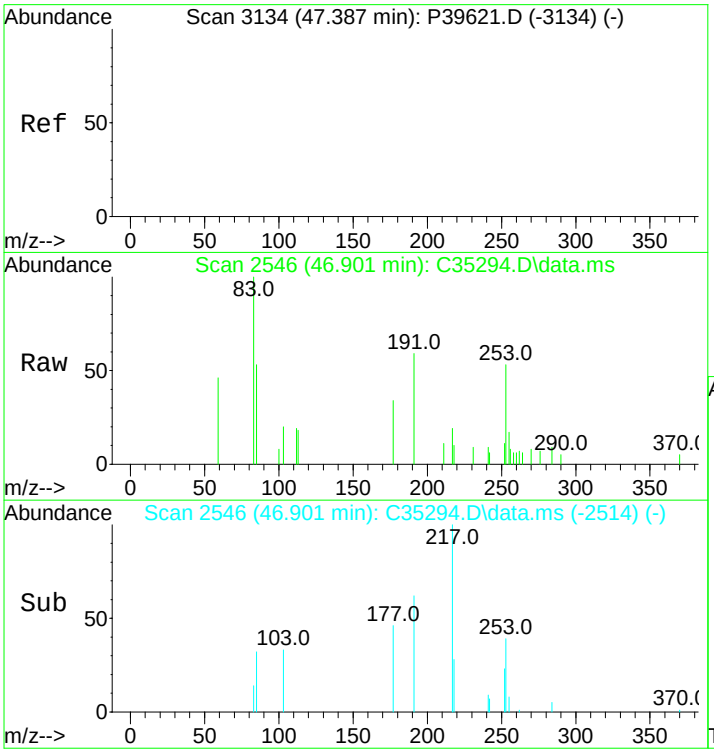




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 18.19 ng/ml m
RT: 45.350 min Scan# 2443
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

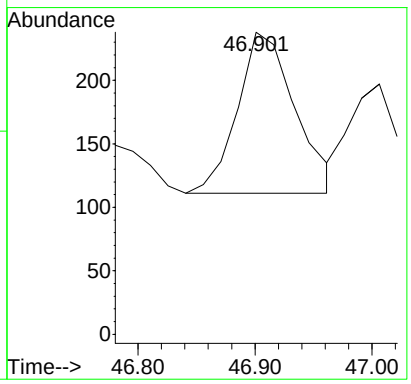
Tgt Ion:217 Resp: 155

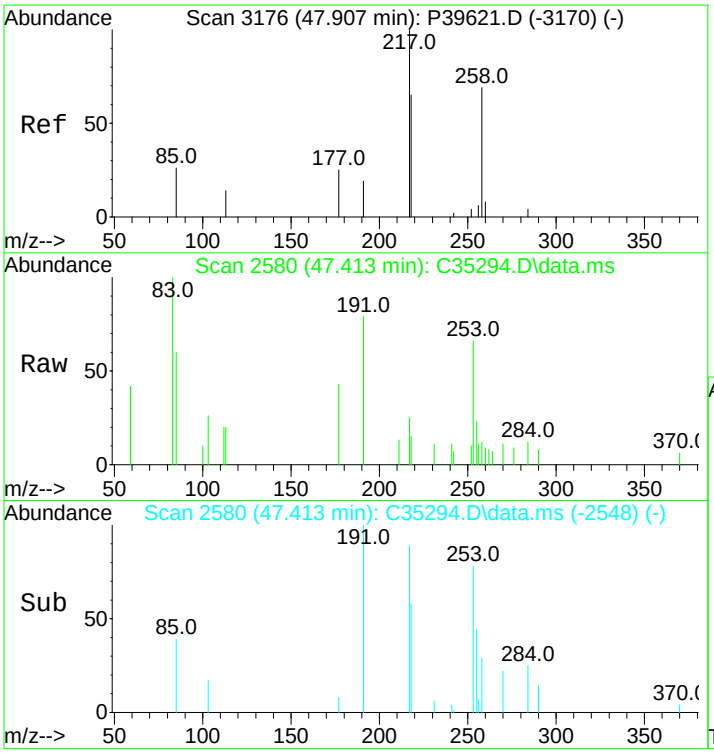




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 51.17 ng/ml
RT: 46.901 min Scan# 2546
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

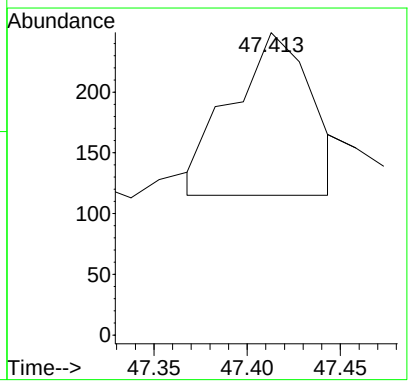
Tgt Ion:217 Resp: 436

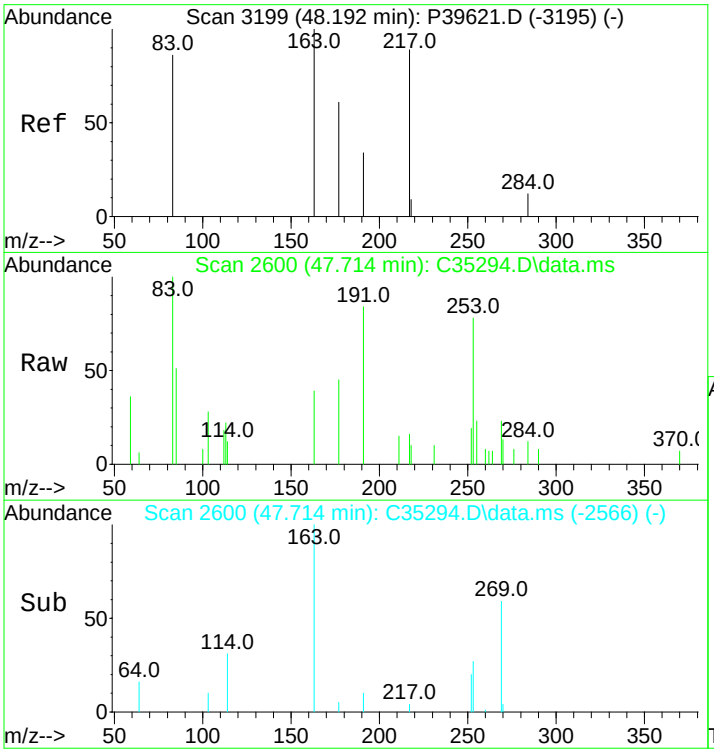




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 47.06 ng/ml m
RT: 47.413 min Scan# 2580
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

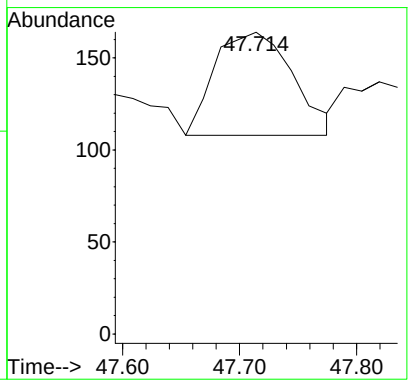
Tgt Ion:217 Resp: 401

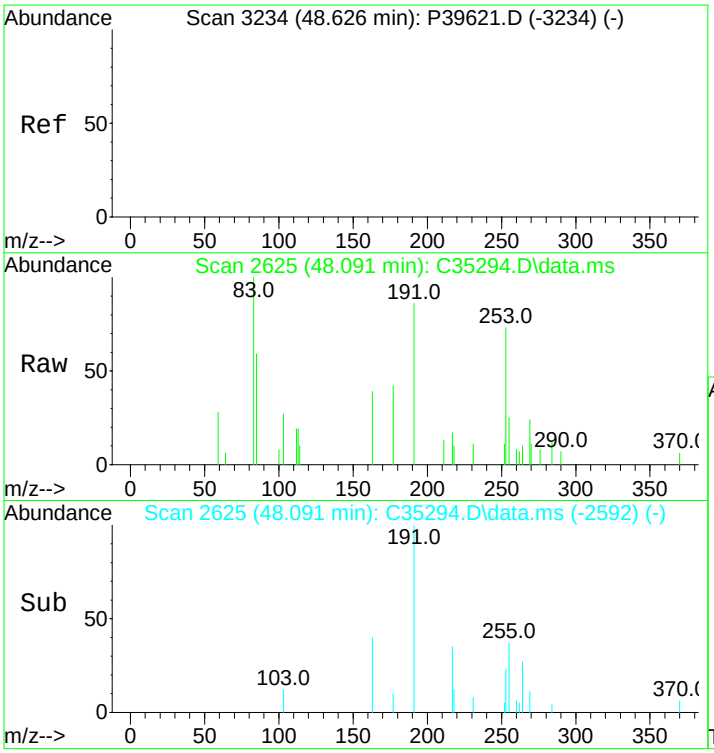




#133
Unknown Sterane (S18)
Concen: 30.52 ng/ml
RT: 47.714 min Scan# 2600
Delta R.T. 0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

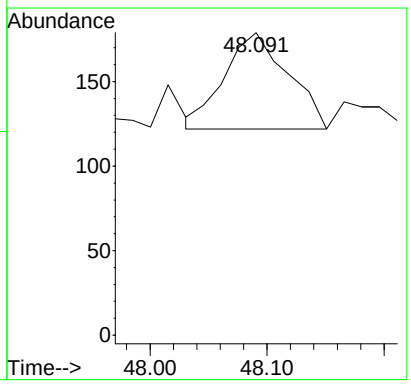
Tgt Ion:217 Resp: 260

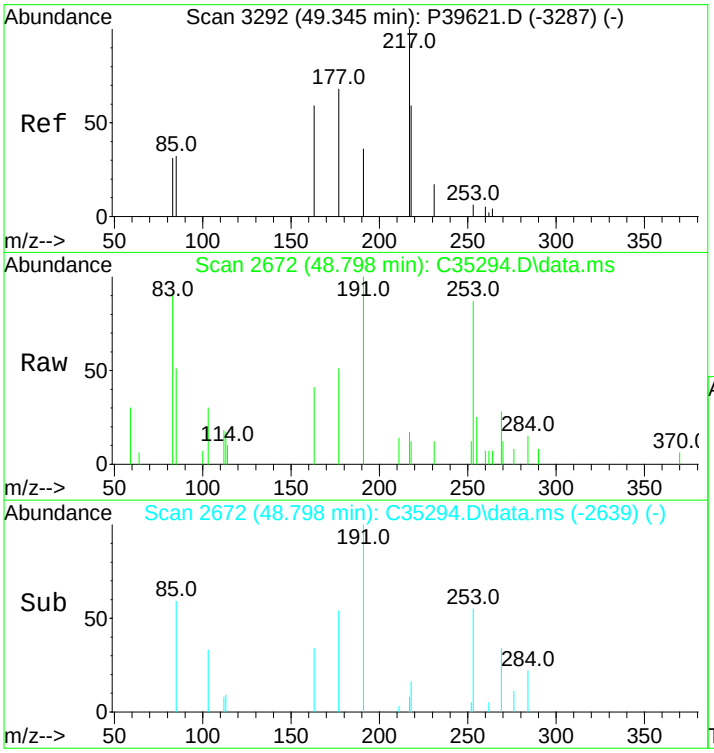




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 25.23 ng/ml
RT: 48.091 min Scan# 2625
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

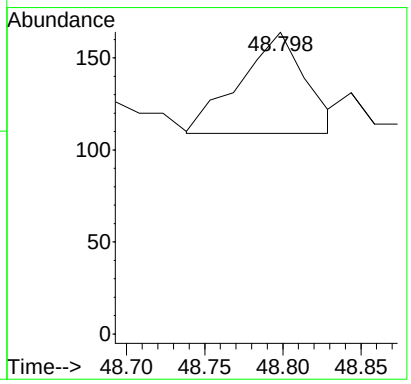
Tgt Ion:217 Resp: 215

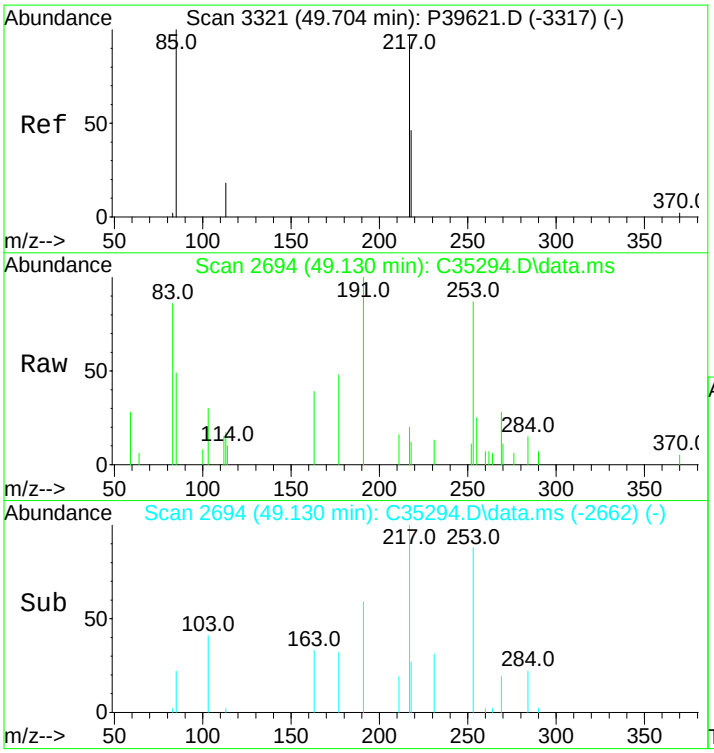




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 18.90 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

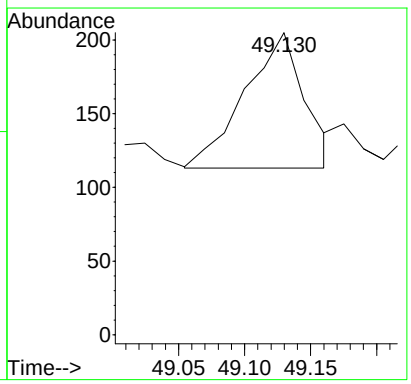
Tgt Ion:217 Resp: 161

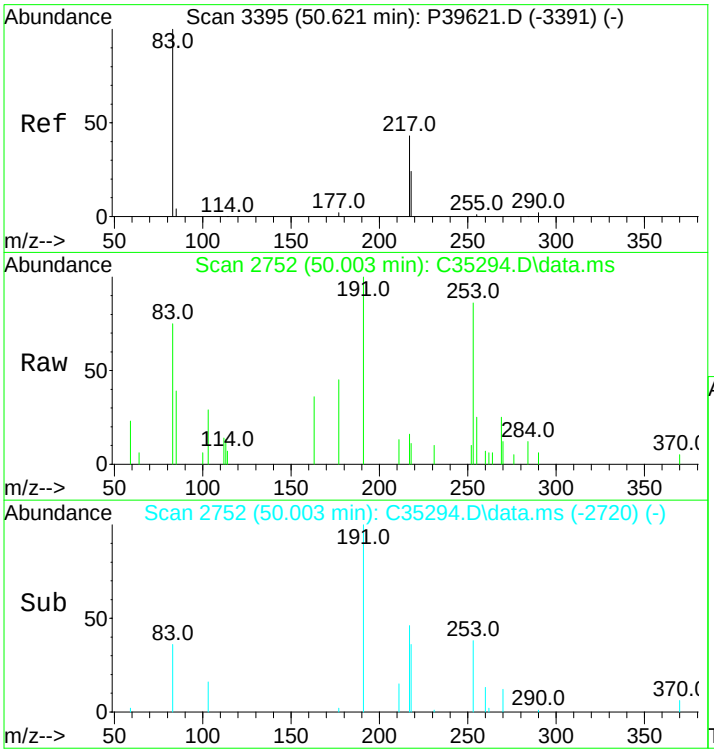




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 34.04 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

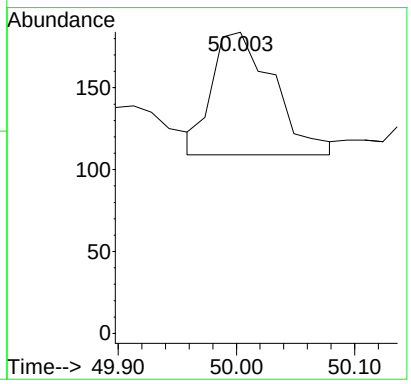
Tgt Ion:217 Resp: 290

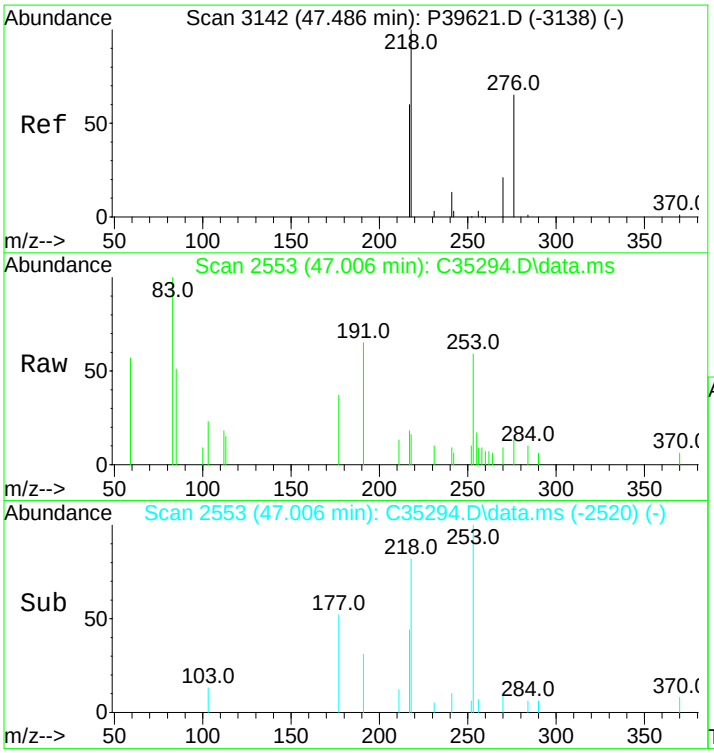




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 31.92 ng/ml m
RT: 50.003 min Scan# 2752
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

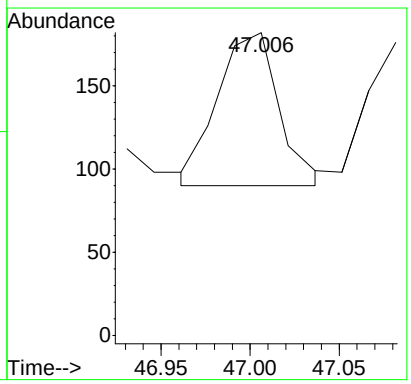
Tgt Ion:217 Resp: 272

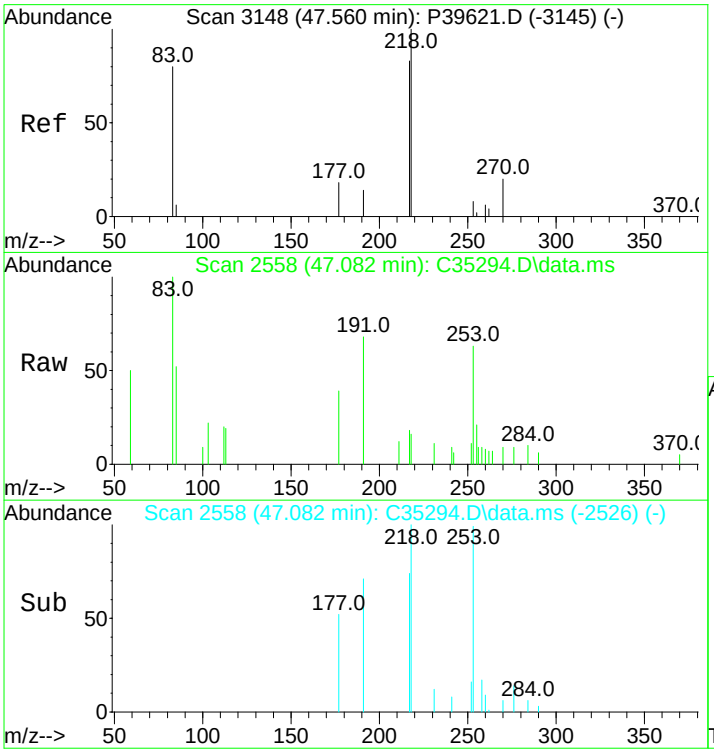




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 25.94 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

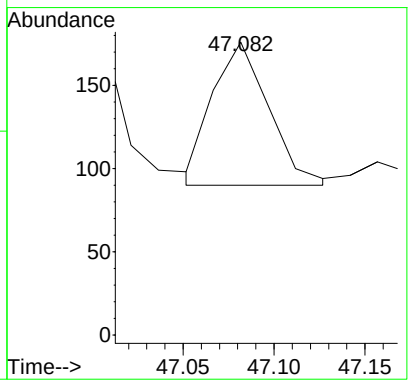
Tgt Ion:218 Resp: 221

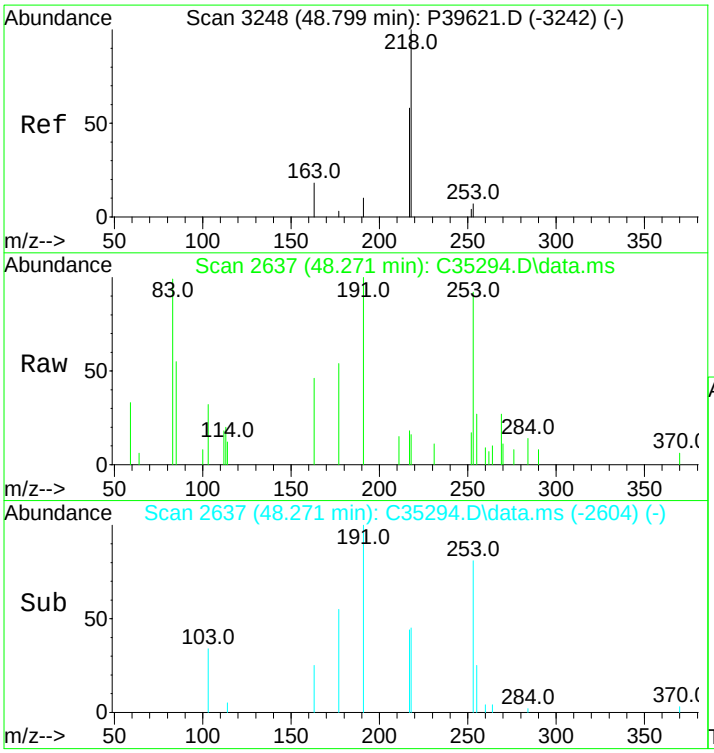




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 21.71 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

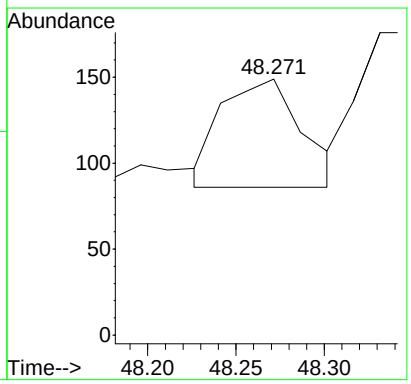
Tgt Ion:218 Resp: 185

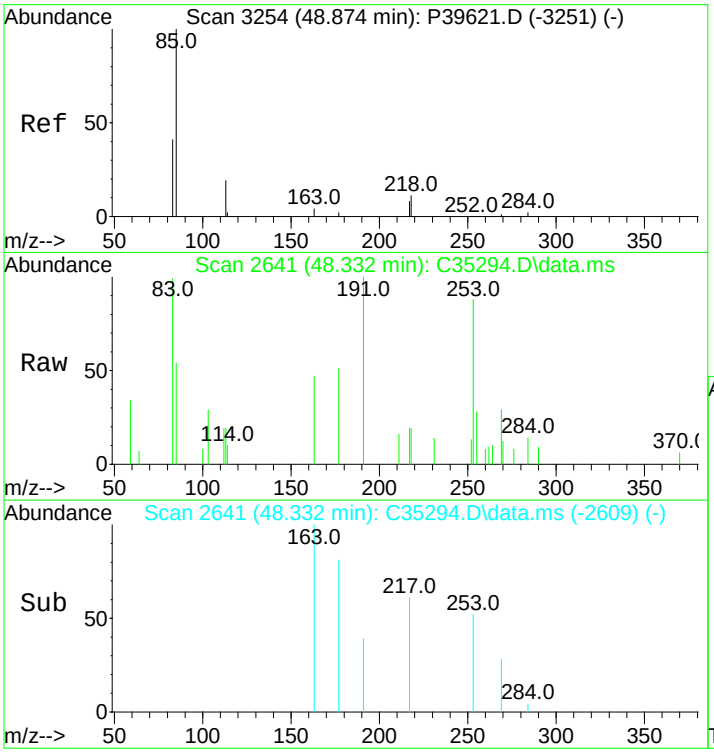




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 23.47 ng/ml m
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

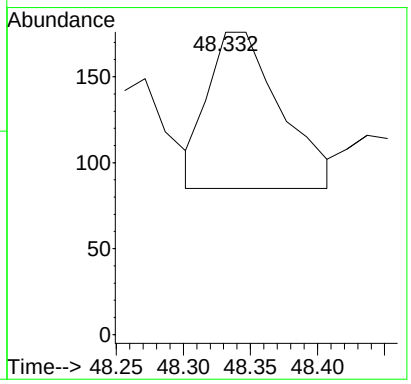
Tgt Ion:218 Resp: 200

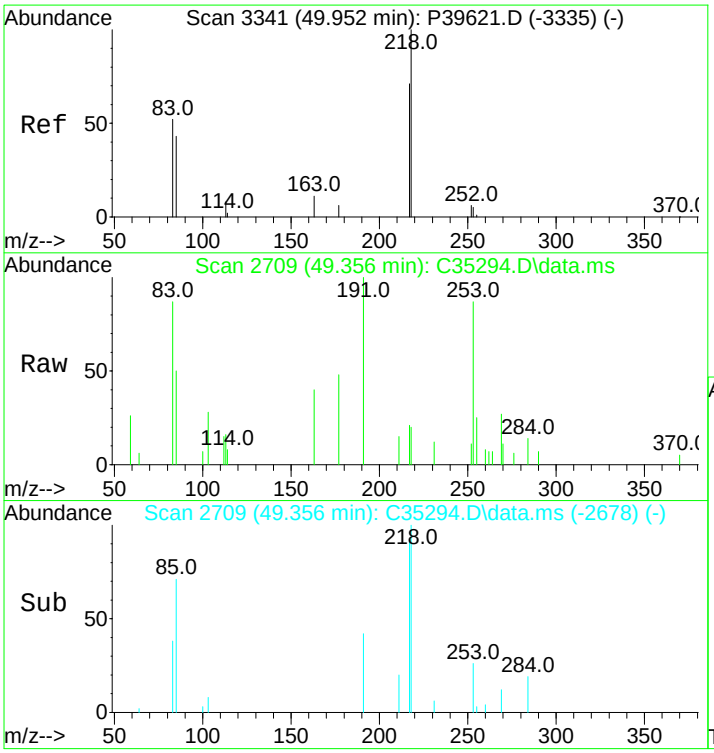




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 40.37 ng/ml m
RT: 48.332 min Scan# 2641
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

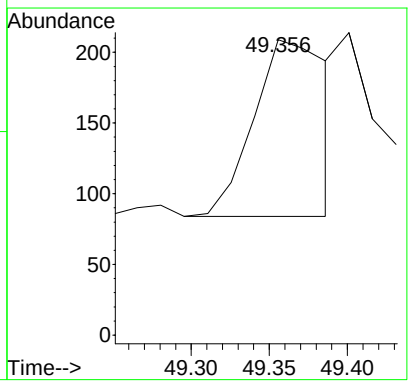
Tgt Ion:218 Resp: 344

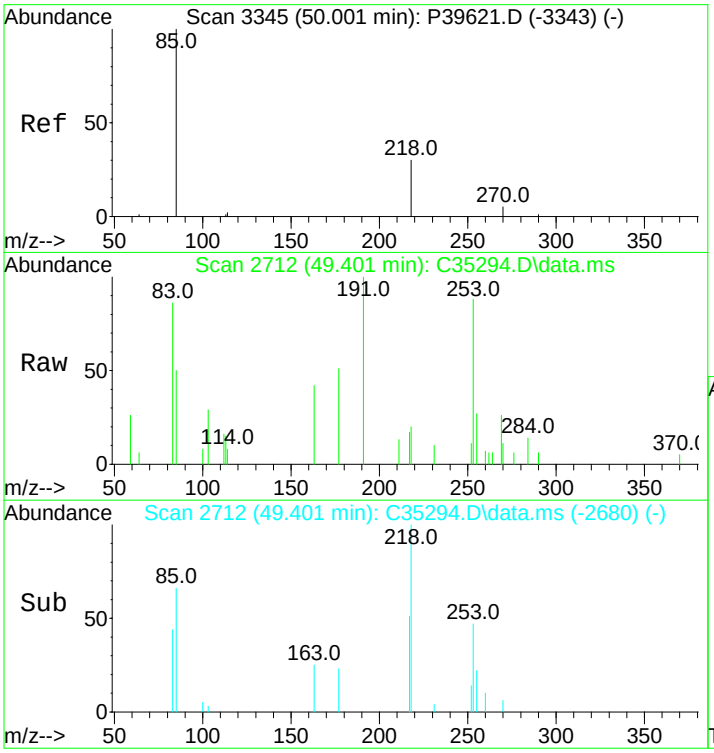




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 47.77 ng/ml m
RT: 49.356 min Scan# 2709
Delta R.T. -0.030 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

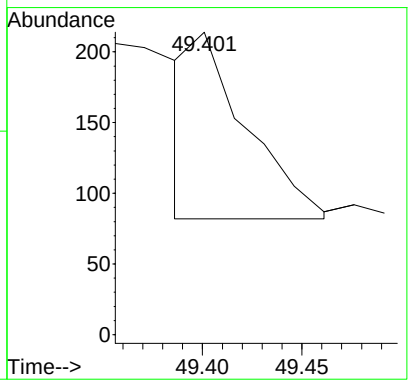
Tgt Ion:218 Resp: 407

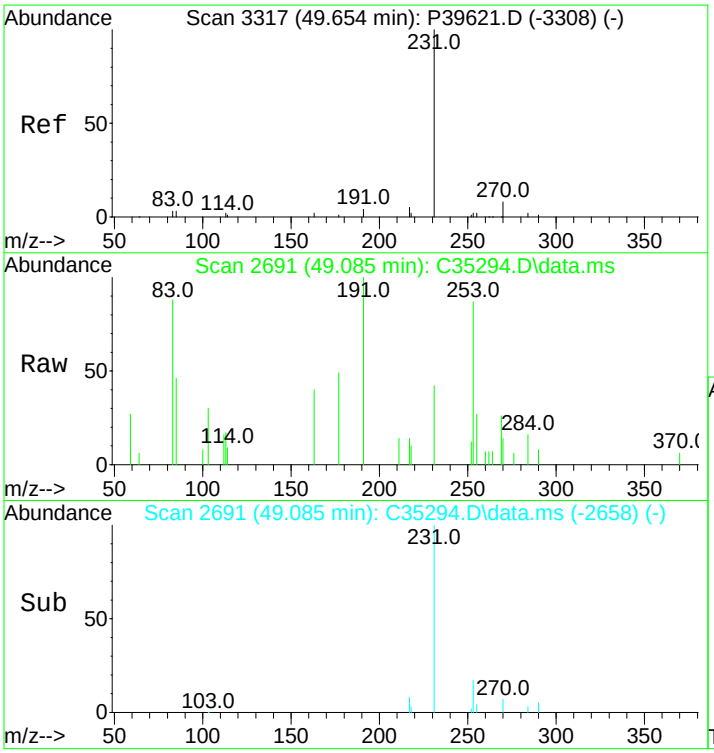




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 30.16 ng/ml m
RT: 49.401 min Scan# 2712
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

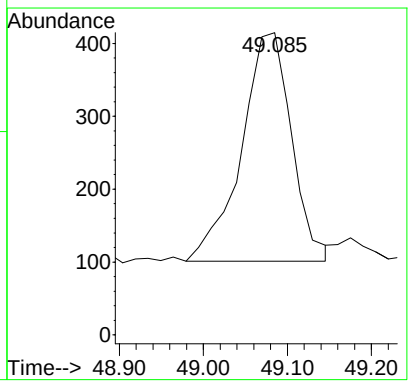
Tgt Ion:218 Resp: 257

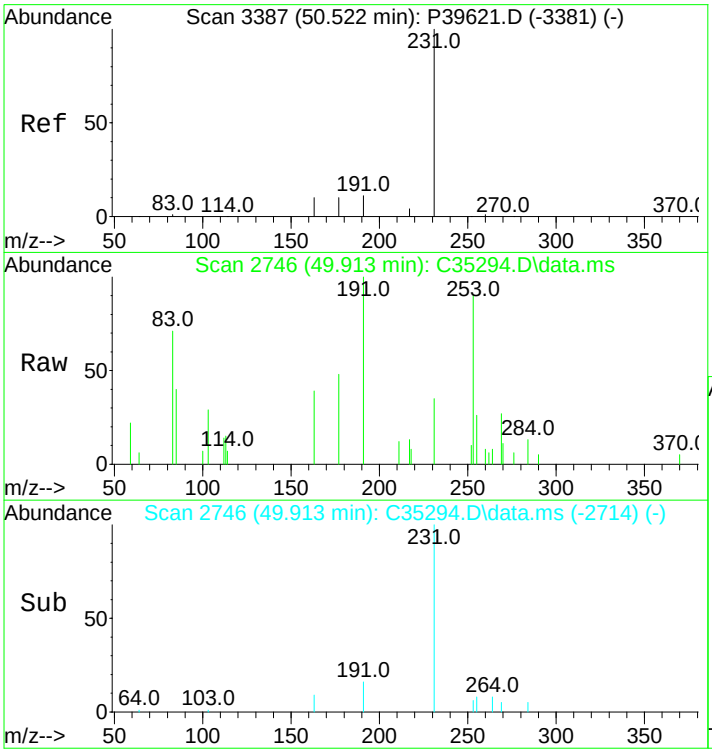




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 152.93 ng/mL m
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

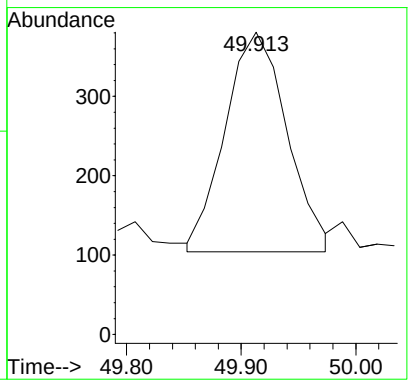
Tgt Ion:231 Resp: 1303

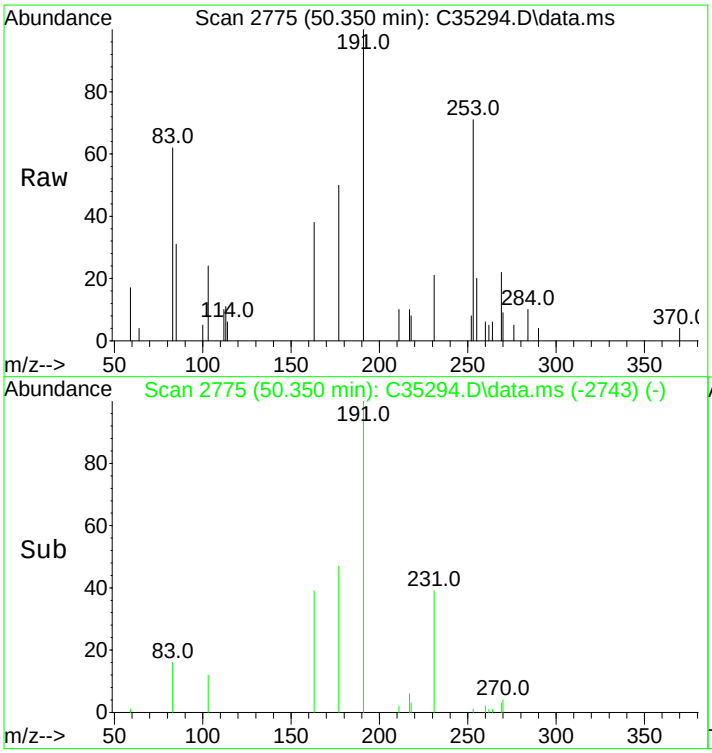




#146
C28,20S-triaromatic steroid
Concen: 122.06 ng/mL m
RT: 49.913 min Scan# 2746
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

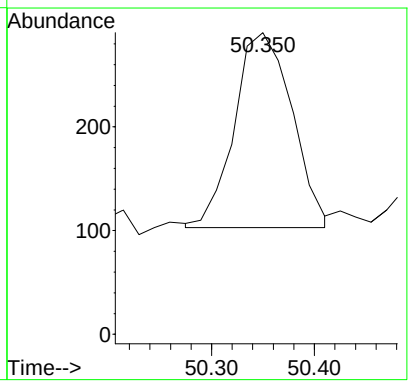
Tgt Ion:231 Resp: 1040

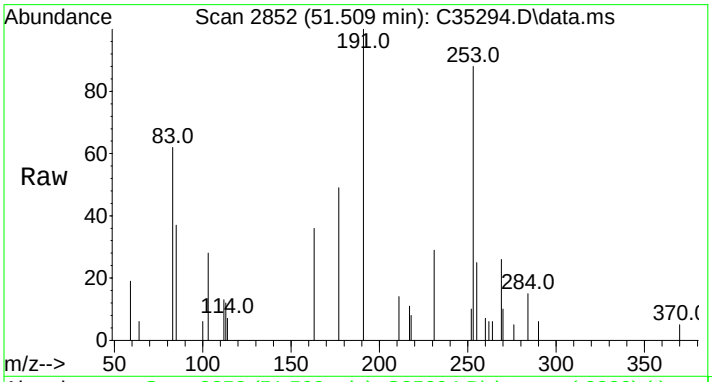




#147
C27,20R-triaromatic steroid
Concen: 85.79 ng/mL m
RT: 50.350 min Scan# 2775
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

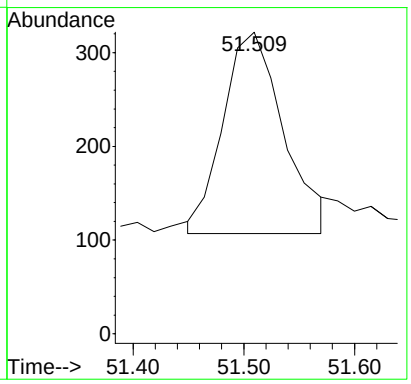
Tgt Ion:231 Resp: 731





#148
C28,20R-triaromatic steroid
Concen: 96.24 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35294.D
Acq: 25 May 2012 7:03 am

Tgt Ion:231 Resp: 820



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14576M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	29413	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	36140	571.261	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 57.13%			
42) Phenanthrene-d10	32.221	188	38560	771.131	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 77.11%			
86) Benzo[a]pyrene-d12	47.850	264	48788	800.379	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.04%			
127) 5B(H)Cholane - Surr	43.423	217	8702	946.281	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 94.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	42M3	3.650	ng/mL	
10) Naphthalene	19.485	128	2182	23.488	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3572M5	38.450	ng/mL	
12) C2-Naphthalenes	24.664	156	4783M5	51.486	ng/mL	
13) C3-Naphthalenes	27.343	170	3233M5	34.801	ng/mL	
14) C4-Naphthalenes	30.113	184	2394M5	25.770	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2555	46.514	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	981	18.220	ng/mL#	100
19) C1-Benzo(b)thiophenes	21.758	148	434M5	5.192	ng/mL	
23) Biphenyl	24.047	154	536M3	7.714	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1598	35.409	ng/mL#	100
25) Dibenzofuran	27.133	168	2750	34.465	ng/mL	93
26) Acenaphthylene	25.748	152	248M3	2.689	ng/mL	
27) Acenaphthene	26.485	153	556M3	10.240	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	192M3	5.278	ng/mL	
29) Fluorene	28.503	166	994M3	16.599	ng/mL	
30) C1-Fluorenes	30.866	180	610M5	10.186	ng/mL	
31) C2-Fluorenes	33.049	194	1055M5	17.617	ng/mL	
33) Dibenzothiophene	31.815	184	562	5.854	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	265	2.761	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.922	198	108M3	1.125	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	91M3	0.948	ng/mL	
37) OTP	34.013	198	9508M3	99.047	ng/mL	
38) C1-Dibenzothiophenes	34.013	198	10184M5	106.089	ng/mL	
38) C1-Dibenzothiophenes BS	34.013	198	676m	7.042	ng/mL	
39) C2-Dibenzothiophenes	35.639	212	1193M5	12.428	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	1393M5	14.511	ng/mL	
43) Phenanthrene	32.311	178	6281	74.473	ng/mL	97
44) 3-Methylphenanthrene(3MP)	34.268	192	472M3	5.596	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.389	192	679M4	8.051	ng/mL	
46) 2-Methylanthracene(2MA)	34.539	192	72M3	0.854	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	330	3.913	ng/mL	93
48) 1-Methylphenanthrene(1MP)	34.810	192	288	3.415	ng/mL	94
49) C1-Phenanthrenes/Anthrace	34.389	192	2025M5	24.010	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	3503M5	41.534	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1509m	17.892	ng/mL	
51) 5AA IS BKGD	36.301	206	1994	23.643	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.379	220	1881M5	22.303	ng/mL	
55) Anthracene	32.492	178	414M3	5.025	ng/mL	
56) Carbazole	33.154	167	130M3	1.562	ng/mL	
57) 1-Methylphenanthrene	34.810	192	288	5.388	ng/mL	93
58) Fluoranthene	37.084	202	2564M3	30.610	ng/mL	
59) Benzo(b)fluorene	39.598	216	158M3	3.251	ng/mL	
60) Pyrene	37.957	202	2157	25.333	ng/mL#	68
61) C1-Fluoranthenes/Pyrenes	39.357	216	1598M5	18.767	ng/mL	
66) Naphthobenzothiophene	41.812	234	303	3.305	ng/ml#	49

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
67)	Naphthobenzothiophene-2,1	41.812	234	303	3.305	ng/mL#	49
68)	Naphthobenzothiophene-1,2	42.143	234	78M3	0.851	ng/mL	
69)	Naphthobenzothiophene-2,3	42.459	234	594	6.480	ng/mL#	1
70)	C1-Naphthobenzothiophenes	43.468	248	1159M5	12.643	ng/ml	
71)	C2-Naphthobenzothiophenes	45.606	262	1515M5	16.527	ng/ml	
75)	Benz[a]anthracene	42.730	228	805M3	8.623	ng/mL	
77)	Chrysene/Triphenylene	42.896	228	1314M3	13.941	ng/mL	
78)	C1-Chrysenes	44.371	242	930M5	9.867	ng/mL	
82)	Benzo[b]fluoranthene	46.781	252	1491	14.535	ng/mL#	70
83)	Benzo[j]+[k]fluoranthene	46.841	252	1316M3	11.783	ng/mL	
84)	Benzo[a]fluoranthene	47.157	252	388	3.474	ng/mL#	63
85)	Benzo[e]pyrene	47.744	252	1232	12.142	ng/mL#	33
87)	Benzo[a]pyrene	47.925	252	1320M3	13.512	ng/mL	
88)	Perylene	48.226	252	771M3	7.385	ng/mL	
89)	Indeno[1,2,3-cd]pyrene	52.564	276	1297M3	11.409	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.624	278	306M3	2.830	ng/mL	
91)	Benzo[g,h,i]perylene	53.814	276	1674M3	13.938	ng/mL	
92)	Hopane (T19)	51.690	191	3016M3	155.582	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.457	191	336	17.333	ng/ml	100
95)	C24 Tricyclic Terpane (T5	41.179	191	231	11.916	ng/ml	100
97)	C24 Tetracyclic Terpane (	43.965	191	326	16.817	ng/ml	100
100)	C28 Tricyclic Terpane-22S	46.103	191	230M3	11.865	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.268	191	213M3	10.988	ng/ml	
102)	C29 Tricyclic Terpane-22S	46.781	191	276M3	14.238	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.046	191	717	36.987	ng/ml	100
107)	17a(H)-22,29,30-Trisnorho	48.573	191	614	31.674	ng/ml	100
110)	30-Norhopane (T15)	50.380	191	1909M3	98.477	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.485	191	665M3	34.304	ng/ml	
114)	18a(H)&18b(H)-Oleananes (	51.509	191	606M3	31.261	ng/ml	
116)	30-Homohopane-22S (T21)	53.407	191	1184M3	61.077	ng/ml	
117)	30-Homohopane-22R (T22)	53.633	191	822M3	42.403	ng/ml	
119)	30,31-Bishomohopane-22S (	54.868	191G	2149M3	110.857	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.928	217	281M3	30.557	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	203M3	22.075	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.901	217	433	47.086	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.413	217	502	54.589	ng/ml	100
133)	Unknown Sterane (S18)	47.714	217G	262	28.491	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.106	217	226	24.576	ng/ml	100
136)	14a,17a-20R-Methylcholest	48.784	217	263M3	28.599	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	294M3	31.970	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.003	217	391M3	42.518	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	46.991	218	245M3	26.642	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.082	218	198M3	21.531	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	291	31.644	ng/ml	100
142)	14b,17b-20S-Methylcholest	48.332	218	325M3	35.341	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	457M3	49.696	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	332M3	36.103	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	403M3	43.823	ng/mL	
146)	C28,20S-triaromatic stero	49.913	231	342M3	37.190	ng/mL	
147)	C27,20R-triaromatic stero	50.365	231	241M3	26.207	ng/mL	
148)	C28,20R-triaromatic stero	51.509	231	241M3	26.207	ng/mL	

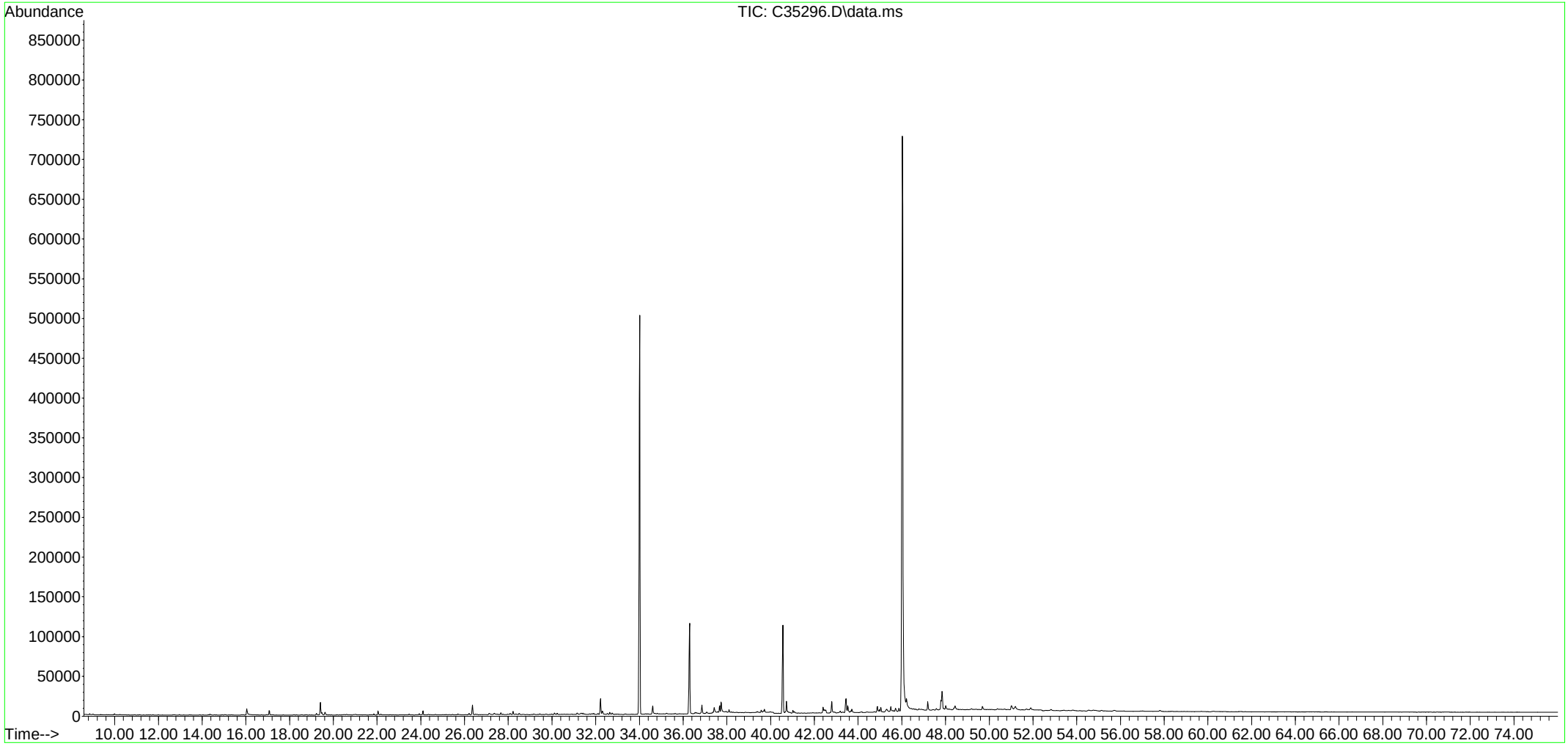
(#) = qualifier out of range (m) = manual integration (+) = signals summed

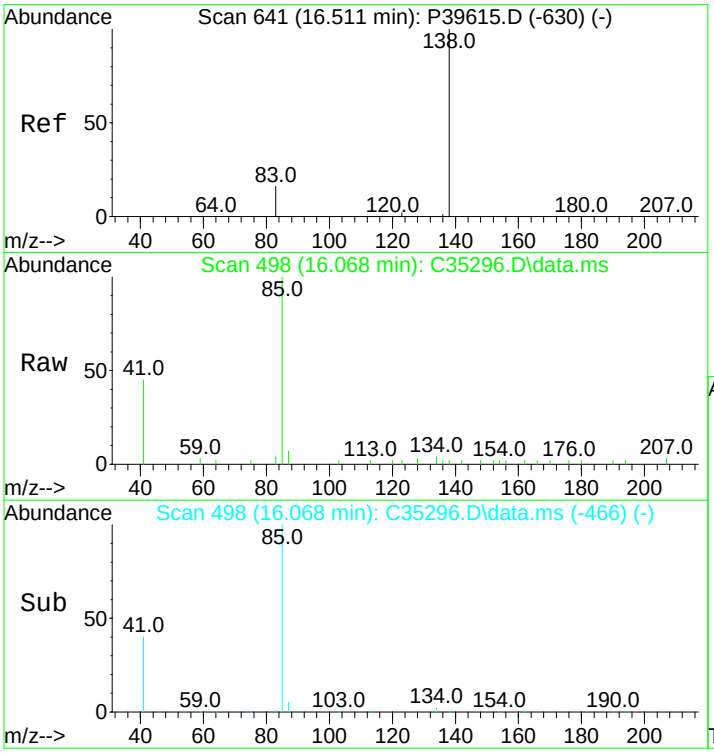
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35296.D
Acq On : 25 May 2012 8:36 am
Operator : AC
Sample : 1205027-03
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 11:40:41 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

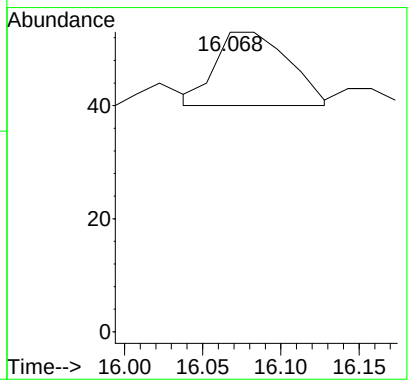
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

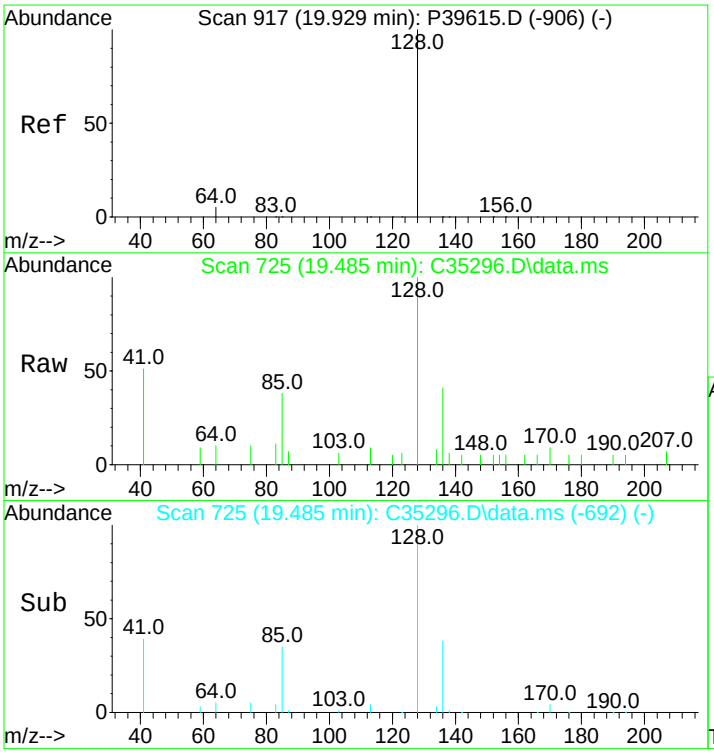




#3
trans-Decalin
Concen: 3.65 ng/mL m
RT: 16.068 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:138 Resp: 42

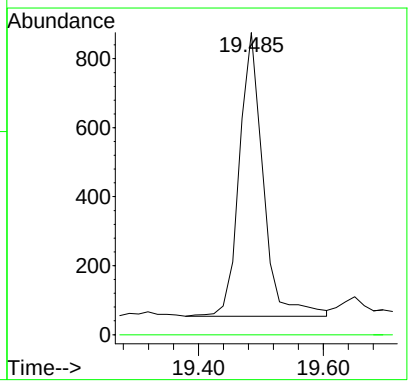


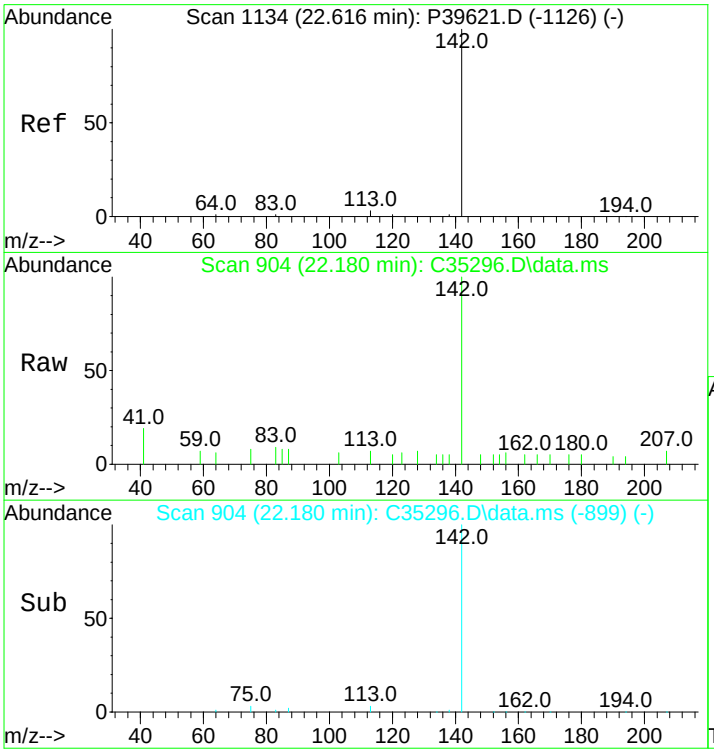


#10
Naphthalene
Concen: 23.49 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:128 Resp: 2182

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

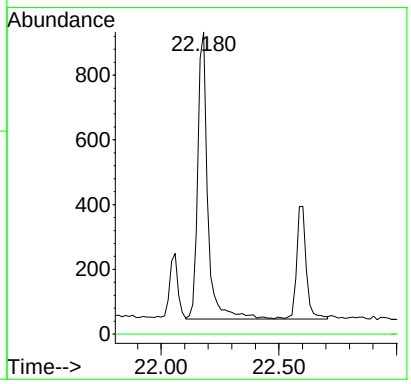


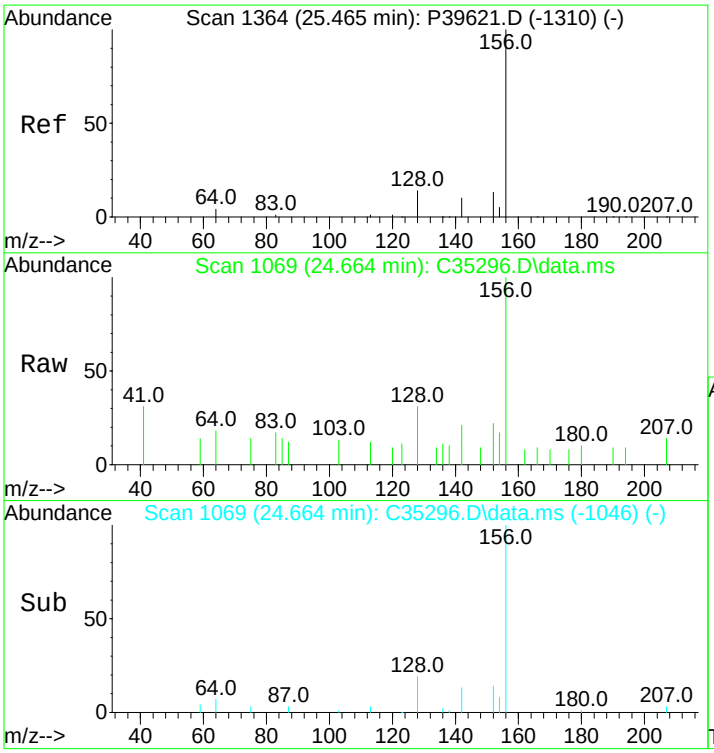


#11
C1-Naphthalenes
Concen: 38.45 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:142 Resp: 3572

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

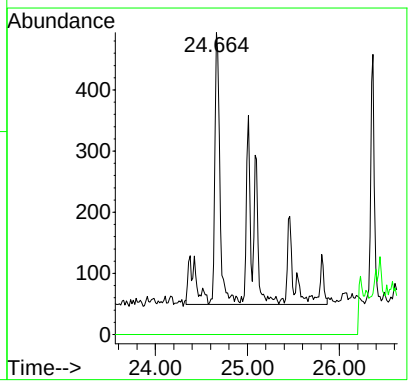


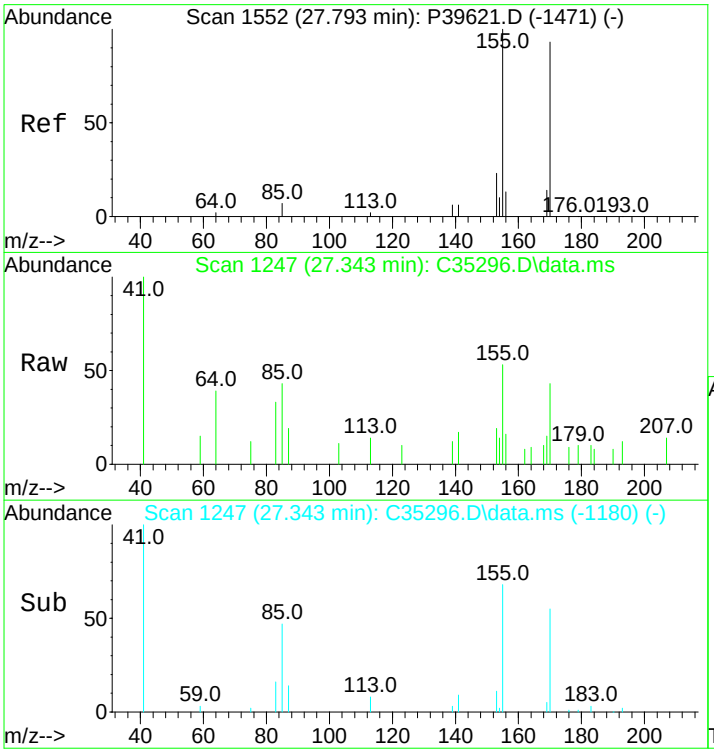


#12
C2-Naphthalenes
Concen: 51.49 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:156 Resp: 4783

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

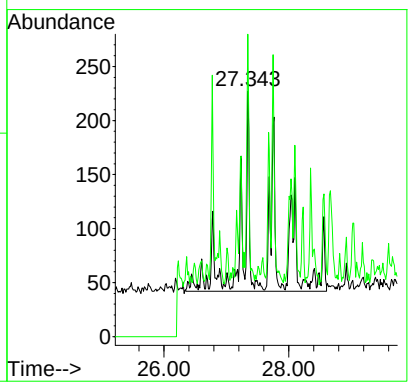


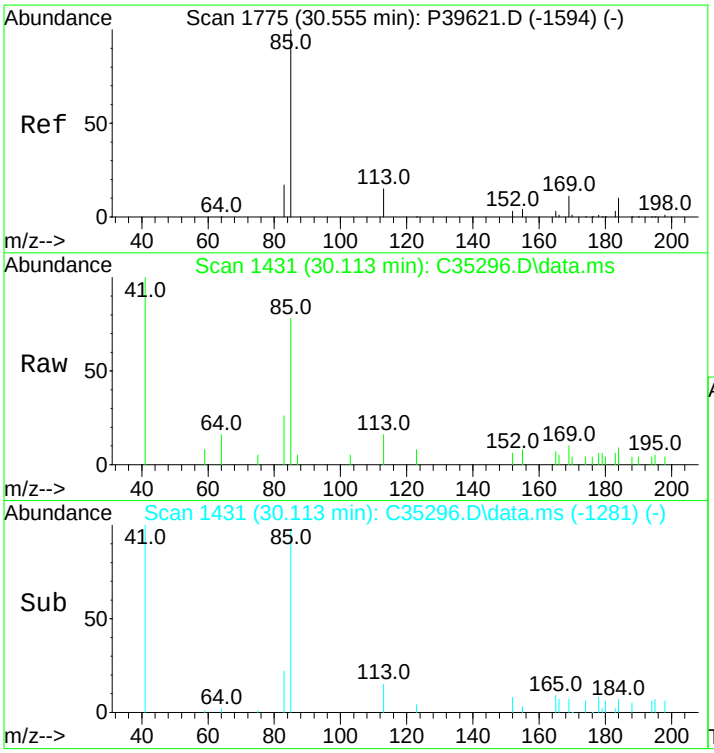


#13
C3-Naphthalenes
Concen: 34.80 ng/mL m
RT: 27.343 min Scan# 1247
Delta R.T. 0.016 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:170 Resp: 3233

Ion	Ratio	Lower	Upper
170	100		
155	17.5	86.3	129.5#

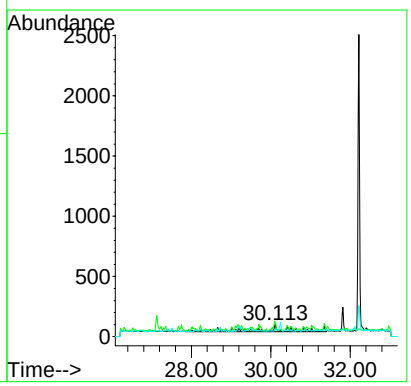


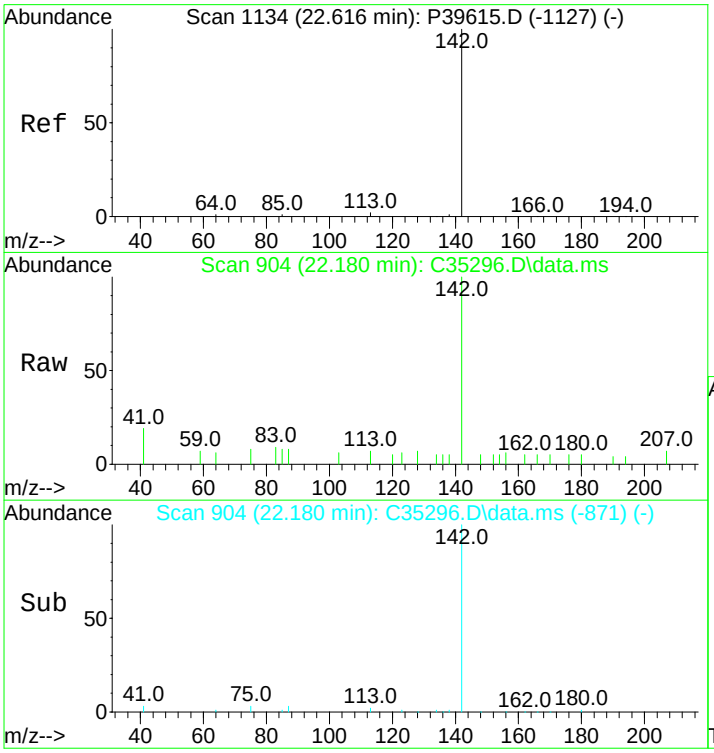


#14
C4-Naphthalenes
Concen: 25.77 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:184 Resp: 2394

Ion	Ratio	Lower	Upper
184	100		
169	15.5	100.6	150.8#
183	0.0	26.6	40.0#

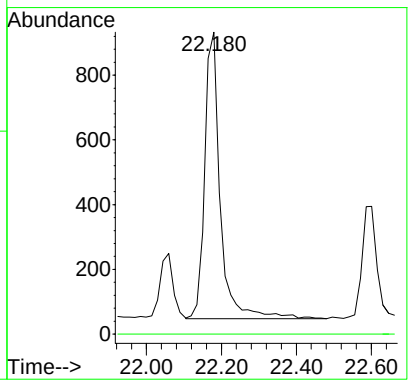


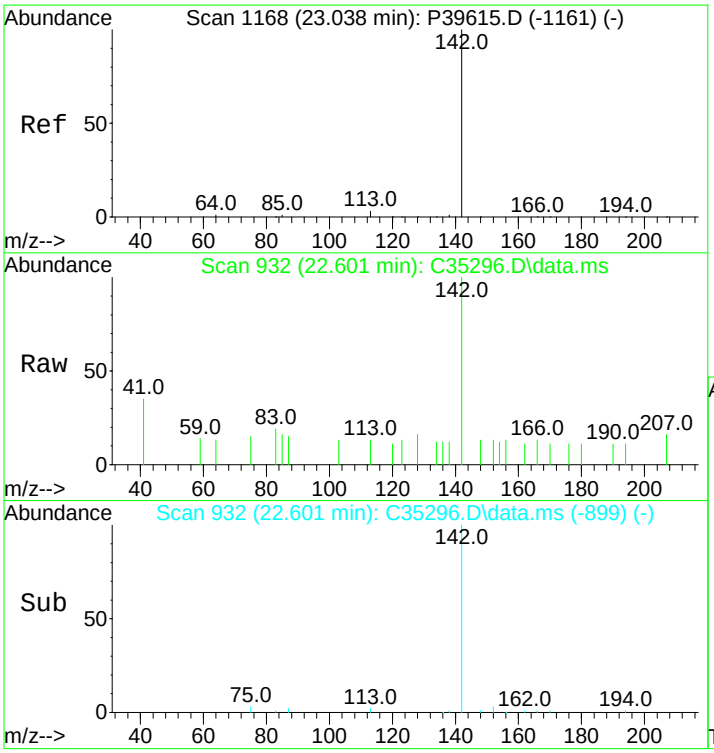


#16
2-Methylnaphthalene
Concen: 46.51 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:142 Resp: 2555

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

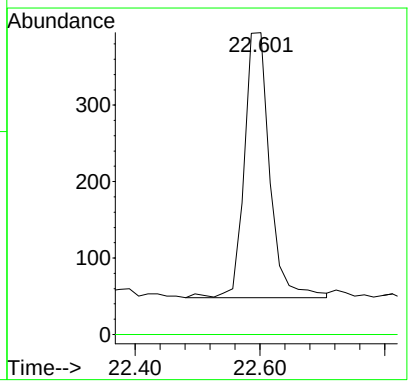


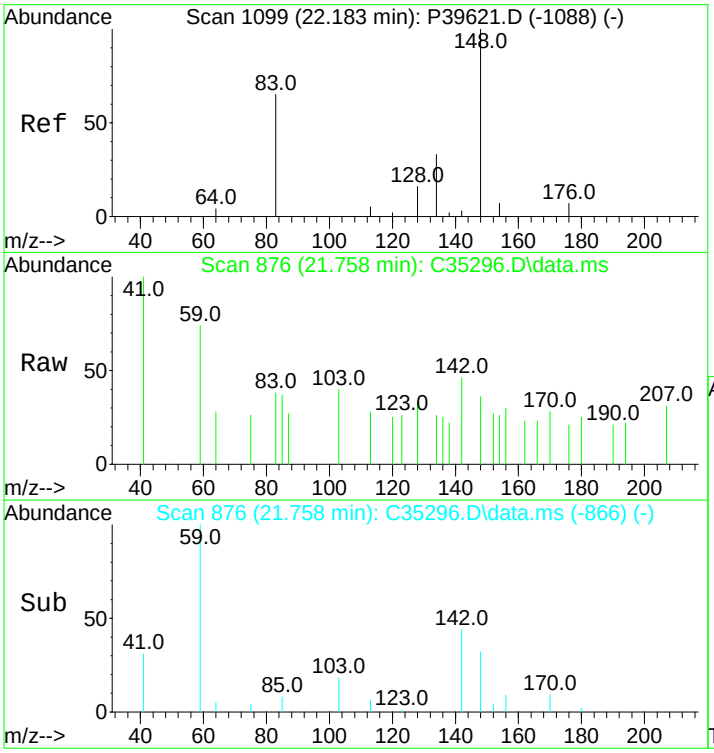


#17
1-Methylnaphthalene
Concen: 18.22 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:142 Resp: 981

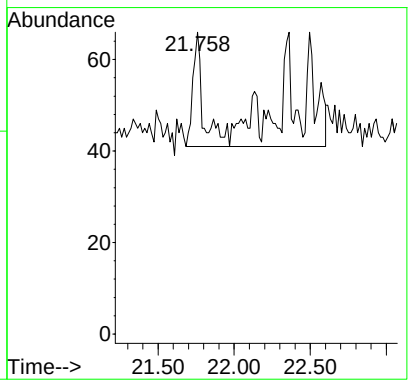
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

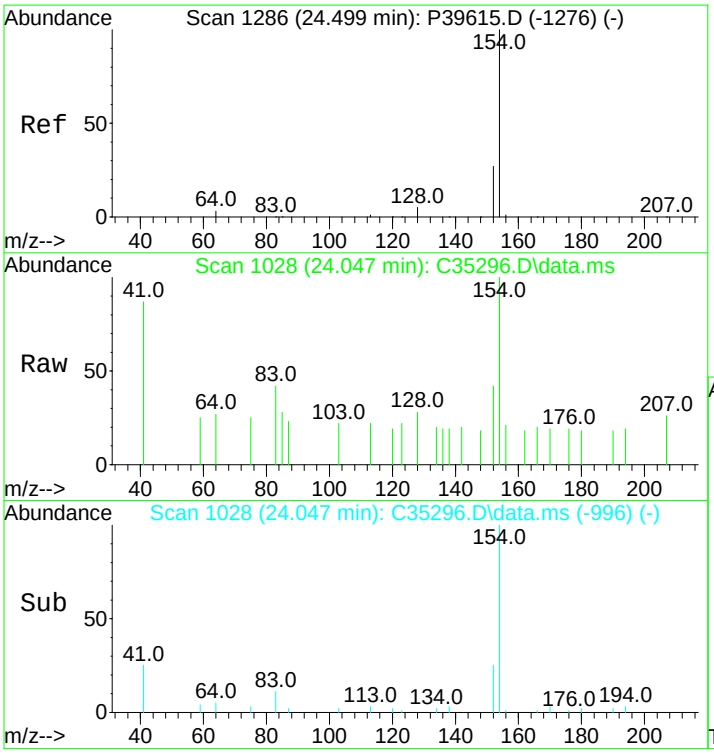




#19
C1-Benzo(b)thiophenes
Concen: 5.19 ng/mL m
RT: 21.758 min Scan# 876
Delta R.T. -0.048 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:148 Resp: 434

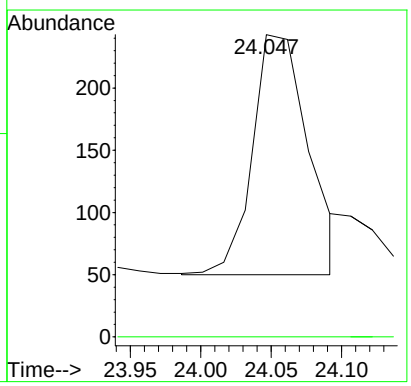


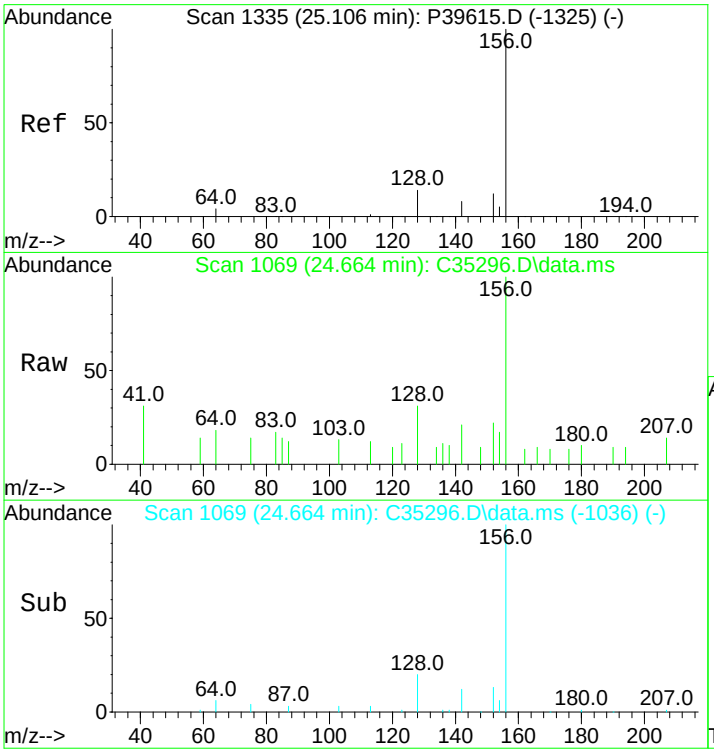


#23
Biphenyl
Concen: 7.71 ng/mL m
RT: 24.047 min Scan# 1028
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:154 Resp: 536

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

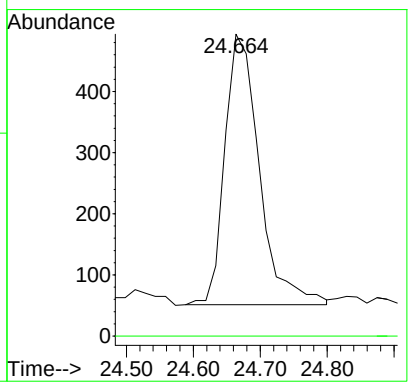


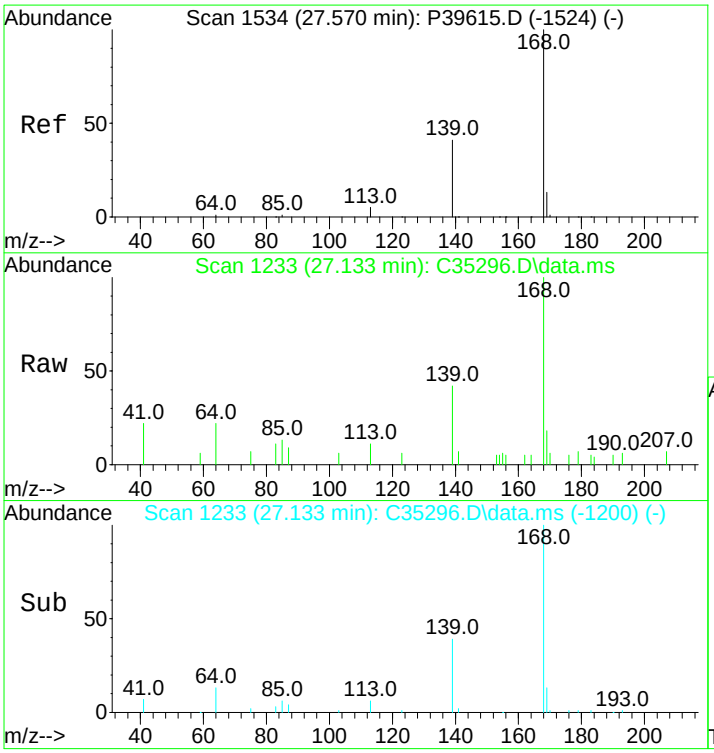


#24
2,6-Dimethylnaphthalene
Concen: 35.41 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:156 Resp: 1598

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

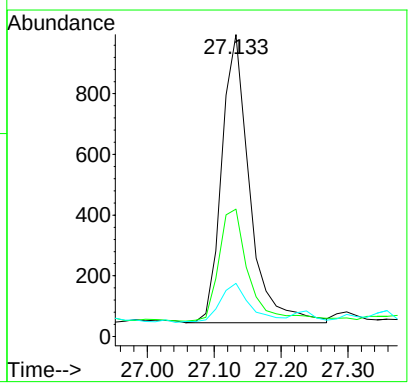


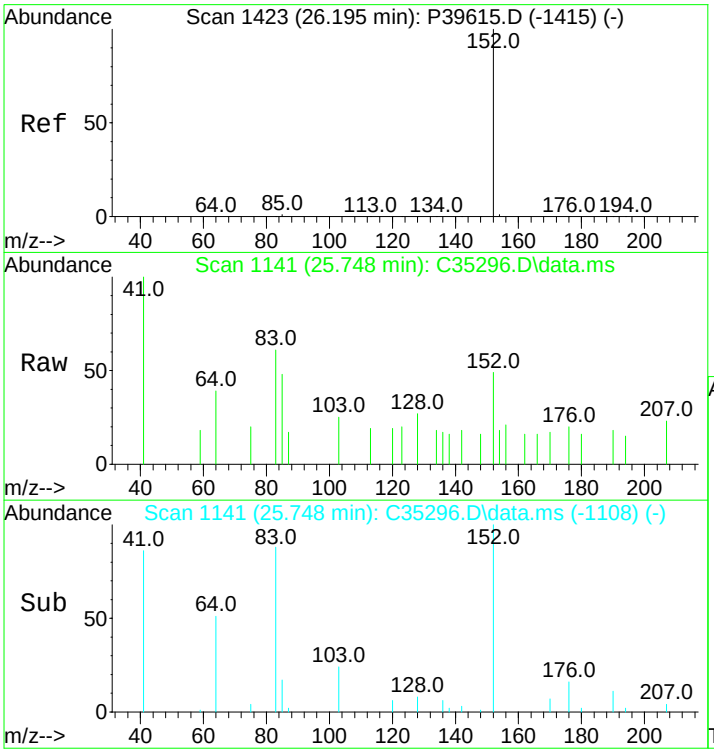


#25
Dibenzofuran
Concen: 34.47 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:168 Resp: 2750

Ion	Ratio	Lower	Upper
168	100		
139	41.9	29.9	44.9
169	15.1	10.3	15.5

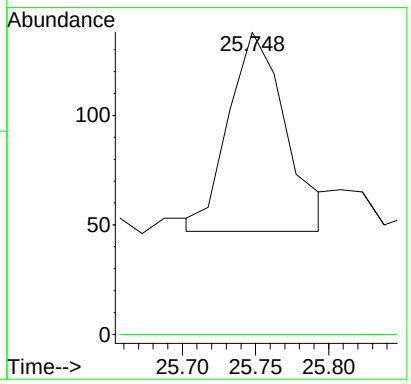


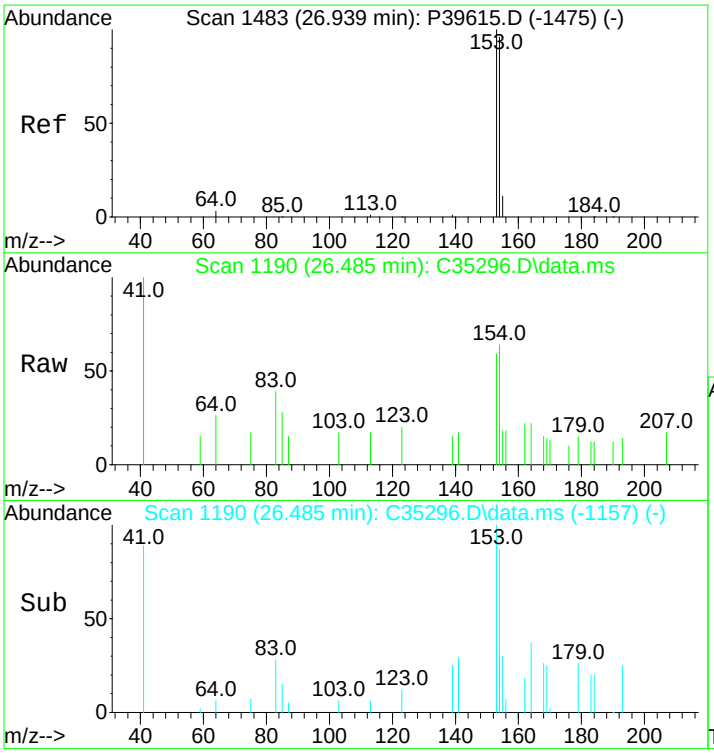


#26
Acenaphthylene
Concen: 2.69 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:152 Resp: 248

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

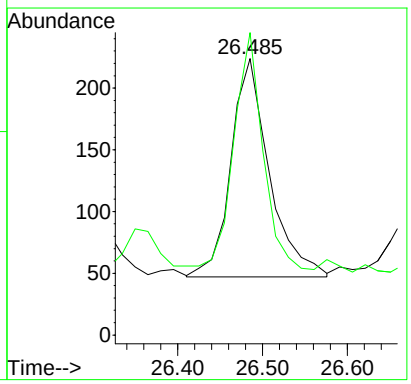


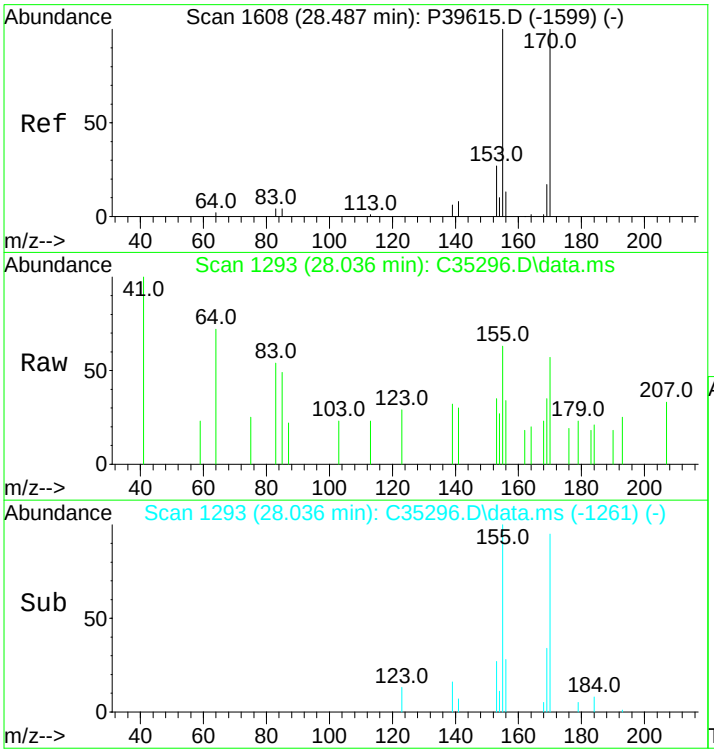


#27
Acenaphthene
Concen: 10.24 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:153 Resp: 556

Ion	Ratio	Lower	Upper
153	100		
154	83.1	73.3	109.9

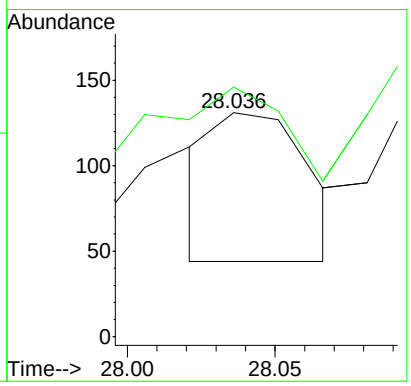


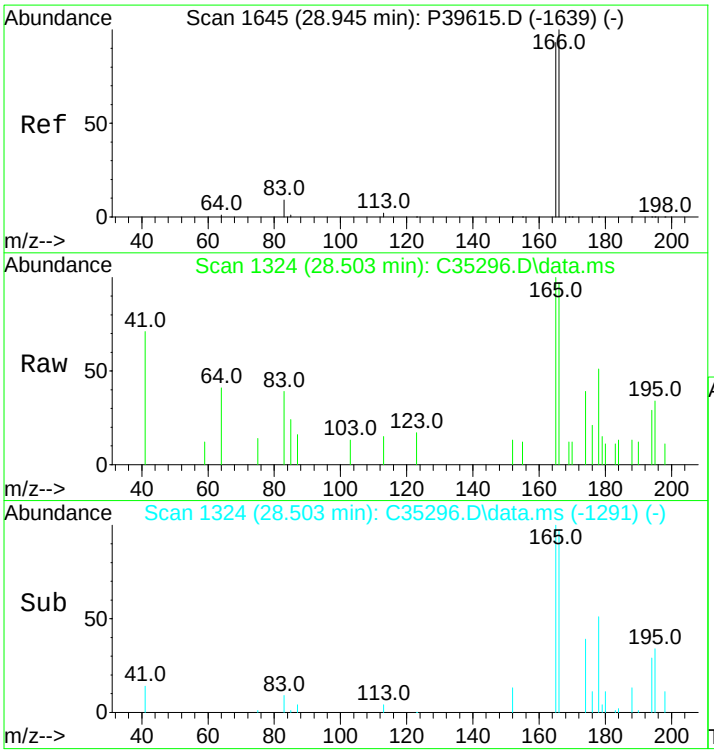


#28
2,3,5-Trimethylnaphthalene
Concen: 5.28 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:170 Resp: 192

Ion	Ratio	Lower	Upper
170	100		
155	272.4	78.4	117.6#

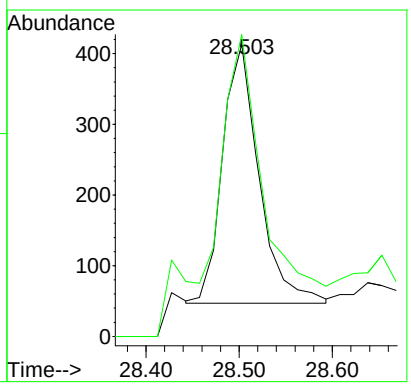


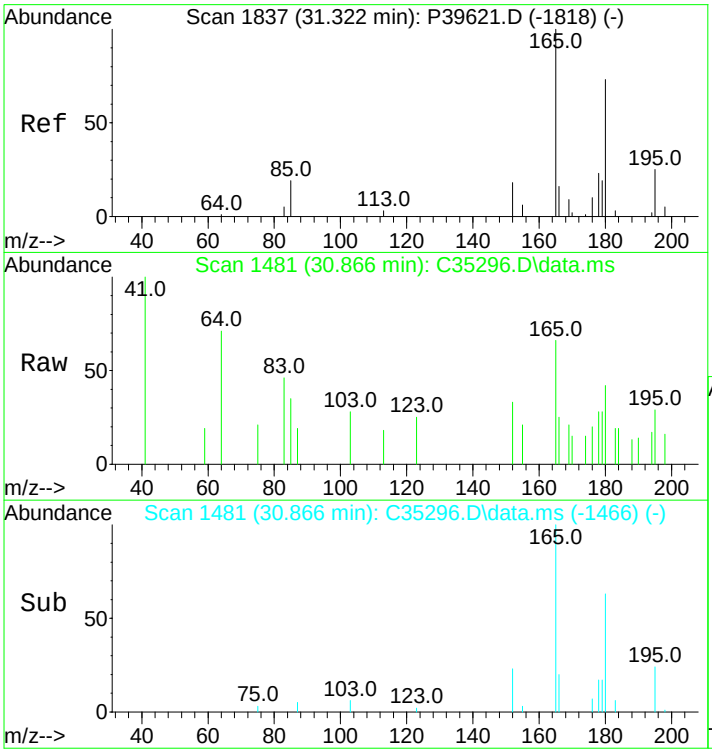


#29
Fluorene
Concen: 16.60 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:166 Resp: 994

Ion	Ratio	Lower	Upper
166	100		
165	174.1	77.1	115.7#

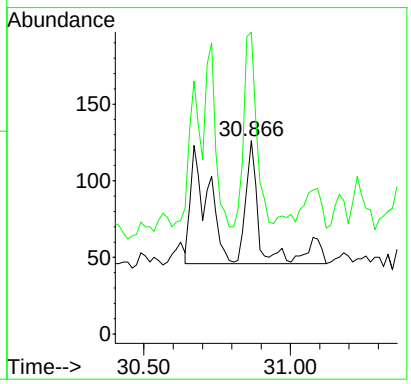


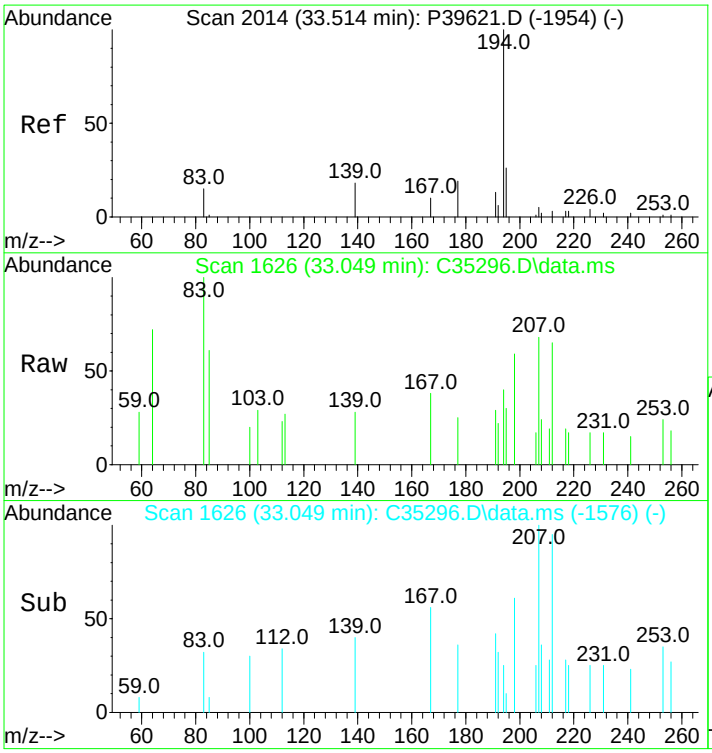


#30
C1-Fluorenes
Concen: 10.19 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:180 Resp: 610

Ion	Ratio	Lower	Upper
180	100		
165	63.0	121.9	182.9#

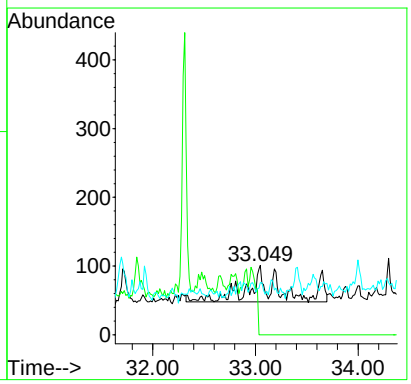


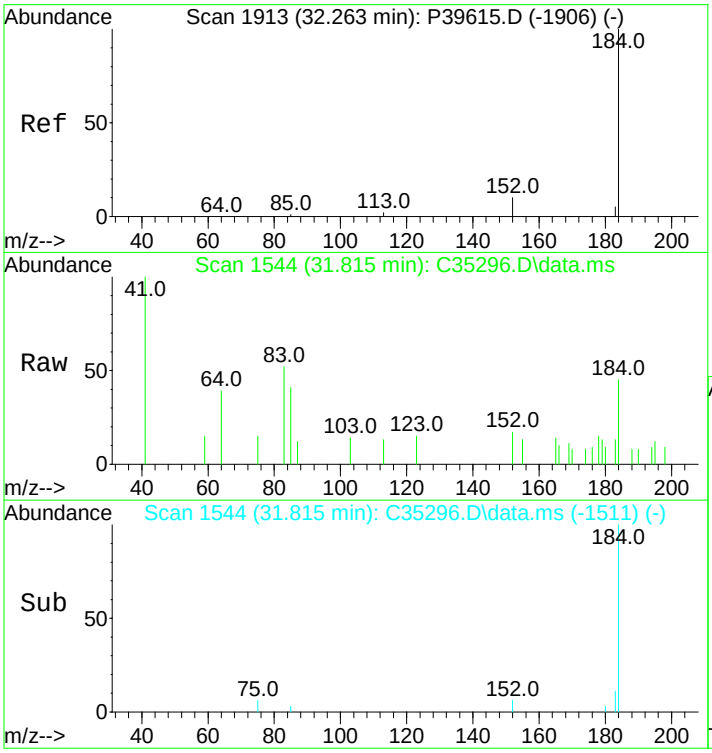


#31
C2-Fluorenes
Concen: 17.62 ng/mL m
RT: 33.049 min Scan# 1626
Delta R.T. 0.112 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:194 Resp: 1055

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	30.5	45.7#

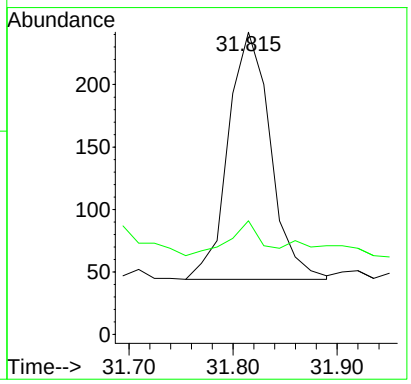


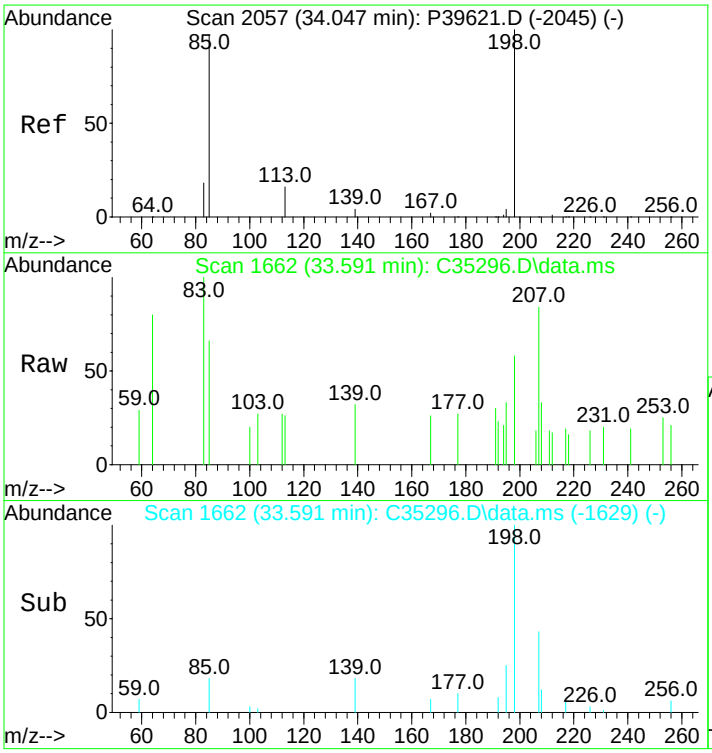


#33
Dibenzothiophene
Concen: 5.85 ng/mL
RT: 31.815 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:184 Resp: 562

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

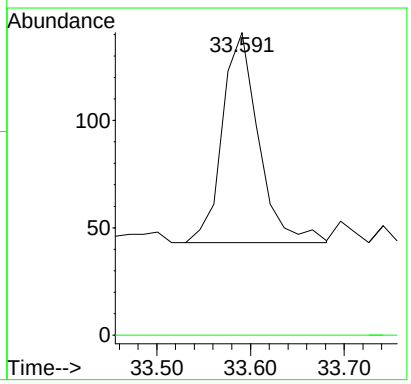


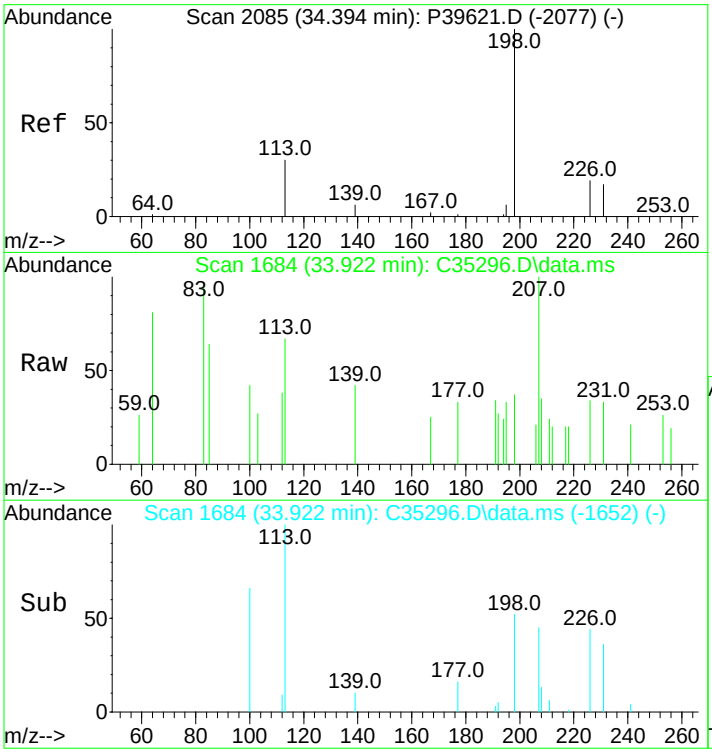


#34
4-Methyldibenzothiophene(4MDT)
Concen: 2.76 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:198 Resp: 265

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

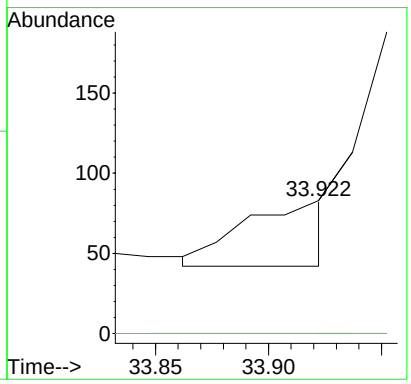


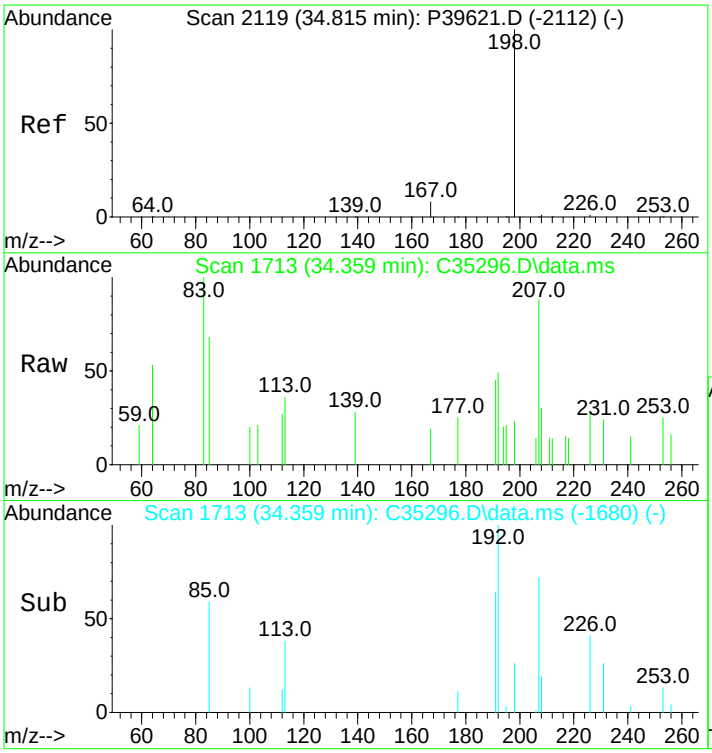


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 1.13 ng/mL m
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:198 Resp: 108

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

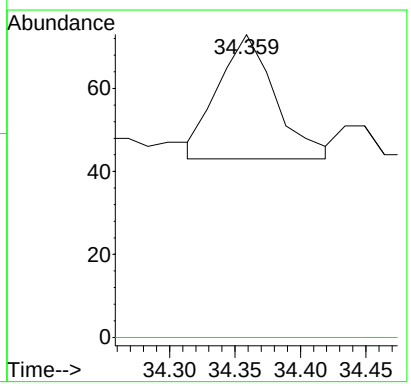


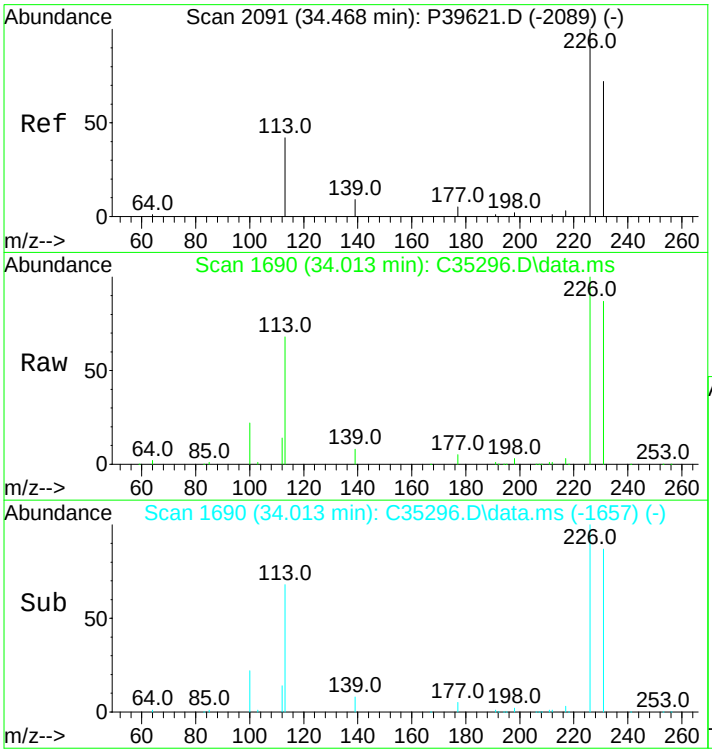


#36
1-Methyldibenzothiophene(1MDT)
Concen: 0.95 ng/mL m
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:198 Resp: 91

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

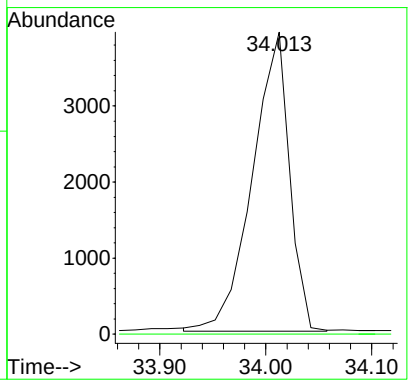


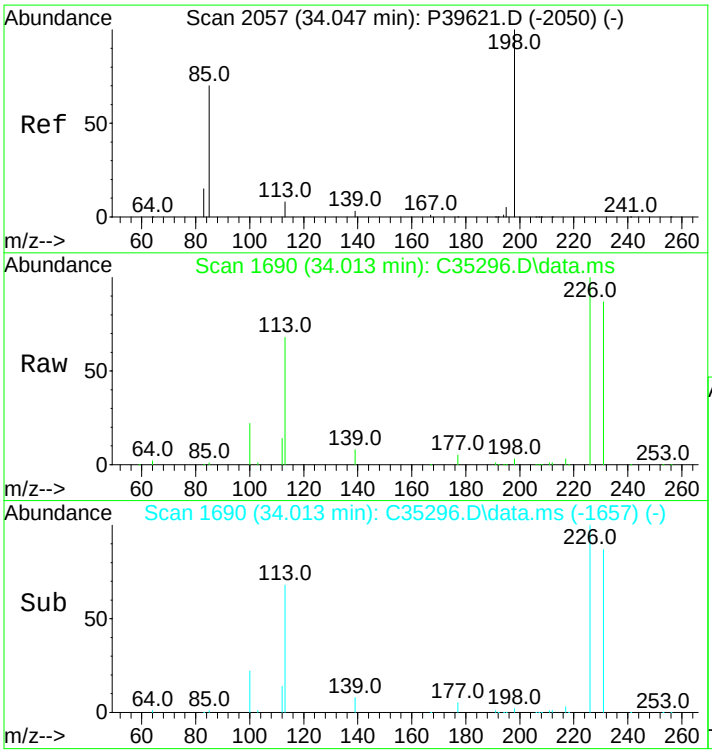


#37
OTP
Concen: 99.05 ng/mL m
RT: 34.013 min Scan# 1690
Delta R.T. 0.030 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:198 Resp: 9508

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

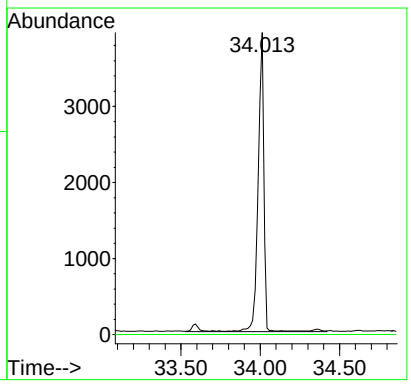


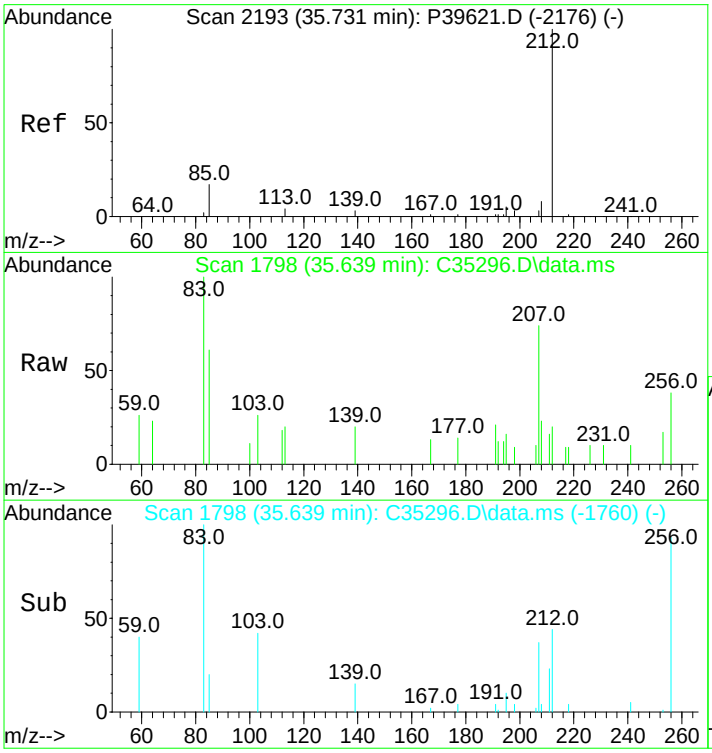


#38
C1-Dibenzothiophenes
Concen: 106.09 ng/mL m
RT: 34.013 min Scan# 1690
Delta R.T. 0.062 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:198 Resp: 10184

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

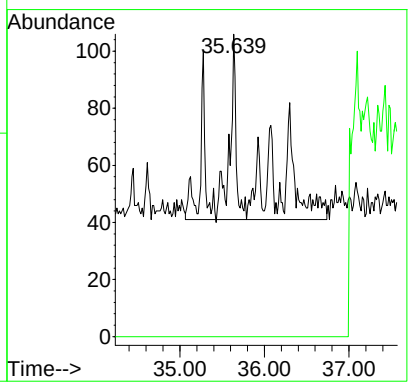


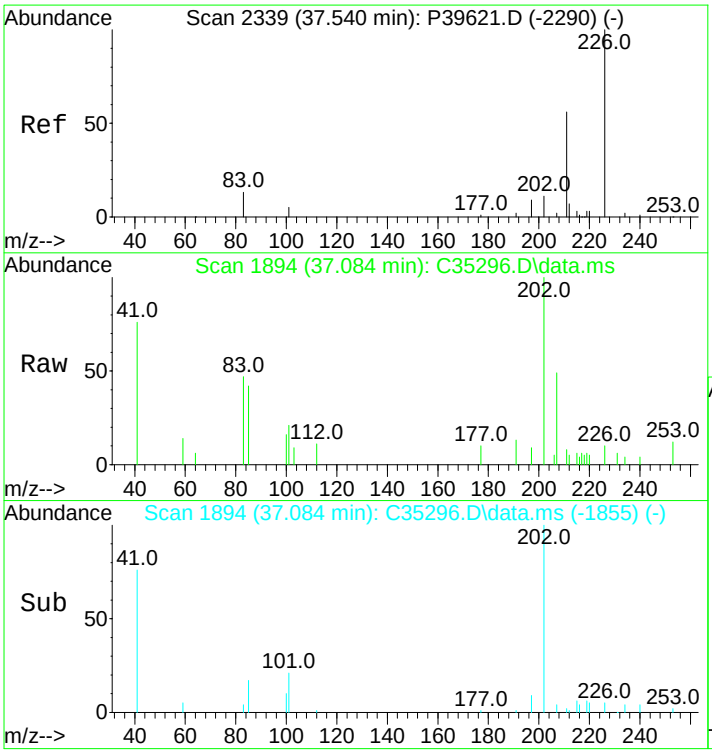


#39
C2-Dibenzothiophenes
Concen: 12.43 ng/mL m
RT: 35.639 min Scan# 1798
Delta R.T. 0.170 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:212 Resp: 1193

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

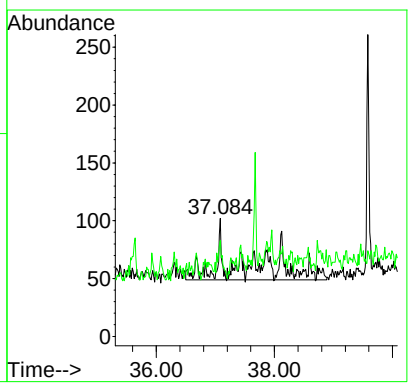


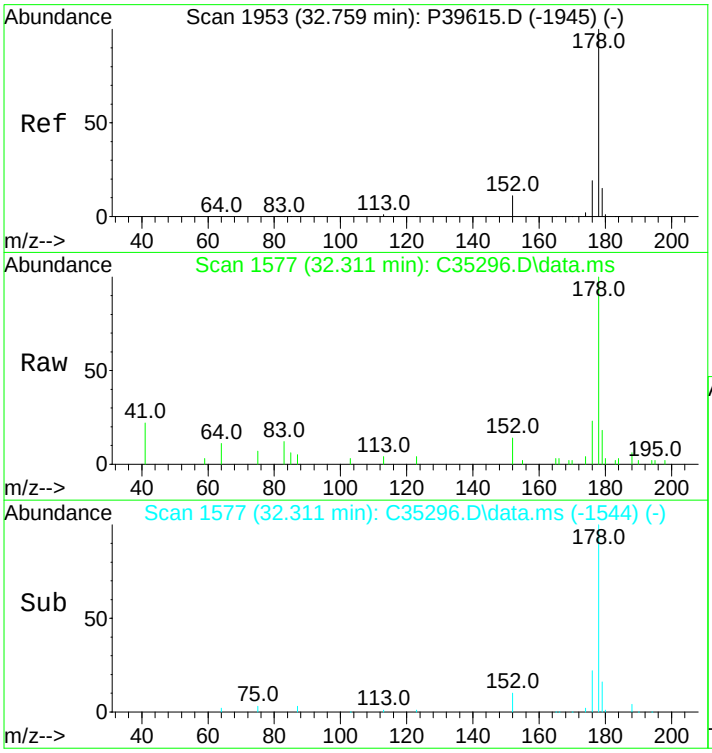


#40
C3-Dibenzothiophenes
Concen: 14.51 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:226 Resp: 1393

Ion	Ratio	Lower	Upper
226	100		
211	13.7	51.4	77.2#

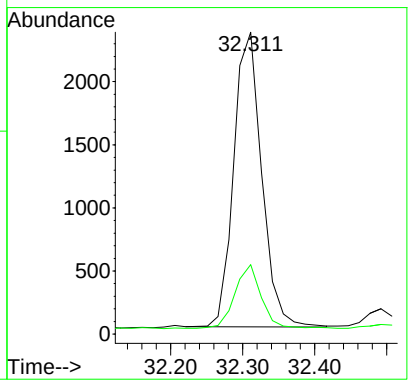


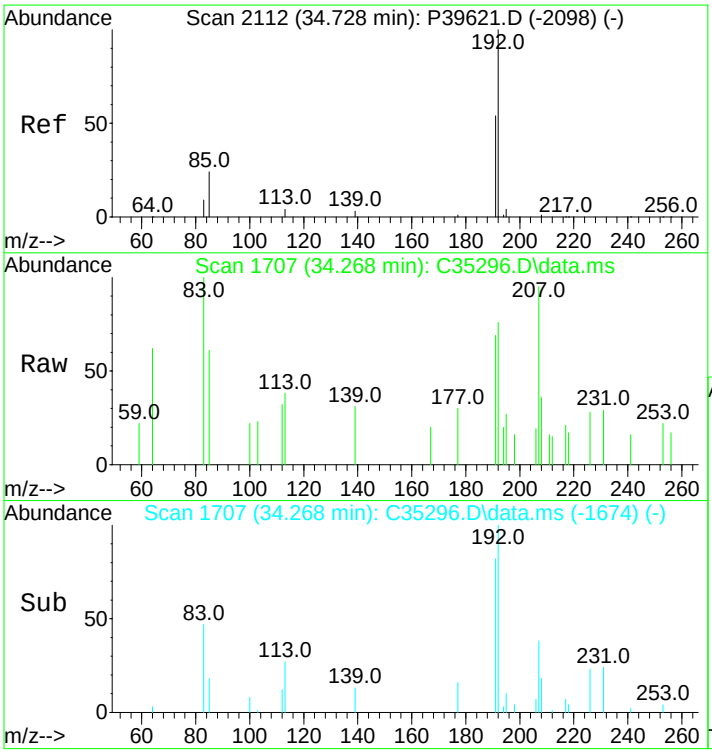


#43
Phenanthrene
Concen: 74.47 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:178 Resp: 6281

Ion	Ratio	Lower	Upper
178	100		
176	21.1	15.8	23.6

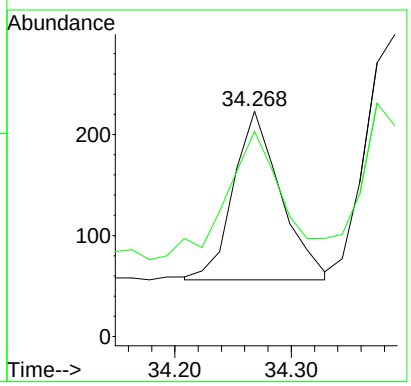


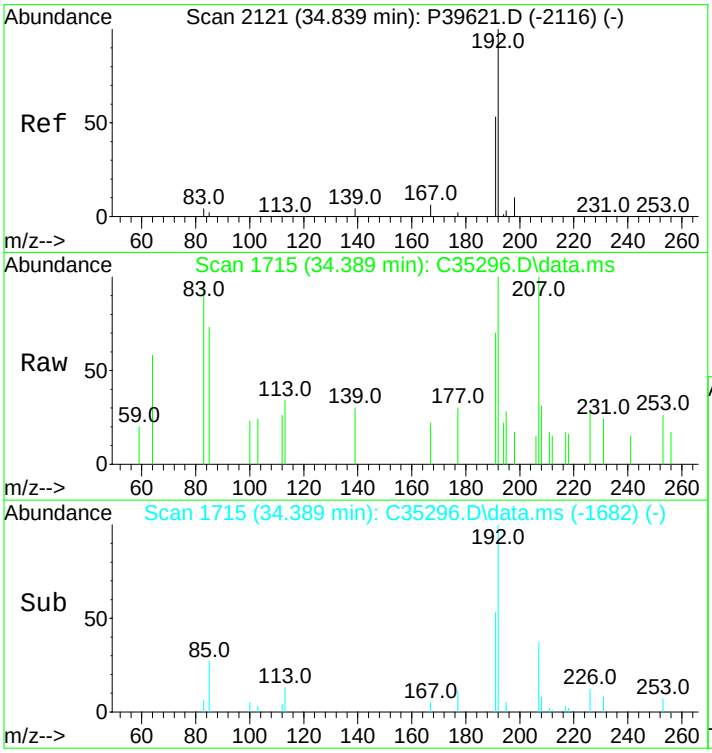


#44
3-Methylphenanthrene(3MP)
Concen: 5.60 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 472

Ion	Ratio	Lower	Upper
192	100		
191	86.0	47.4	71.0#

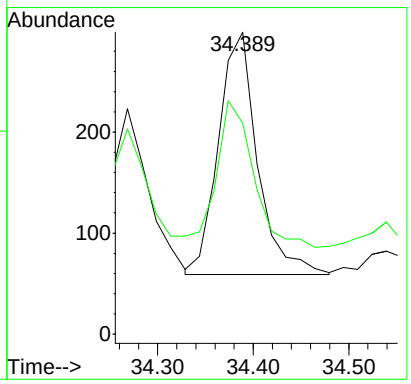


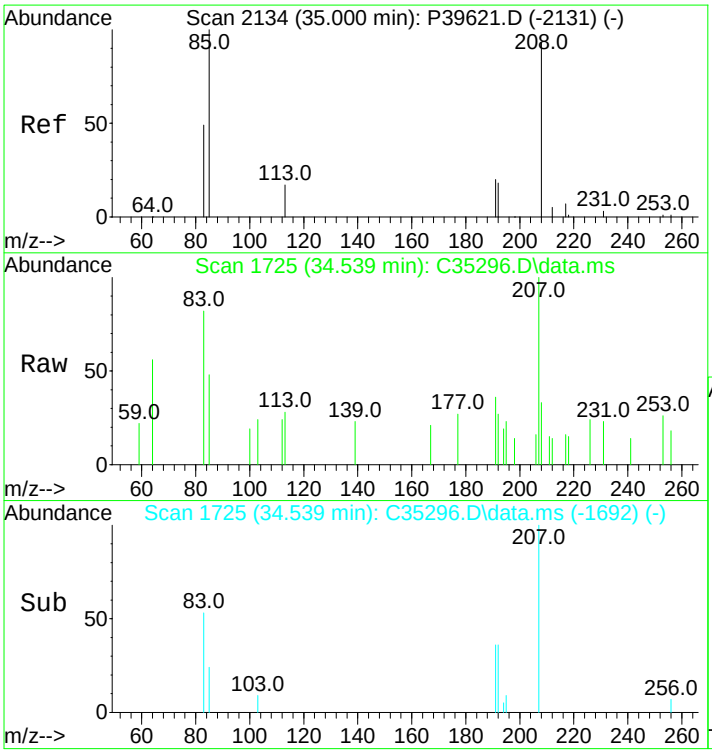


#45
2-Methylphenanthrene(2MP)
Concen: 8.05 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 679

Ion	Ratio	Lower	Upper
192	100		
191	59.8	45.0	67.6

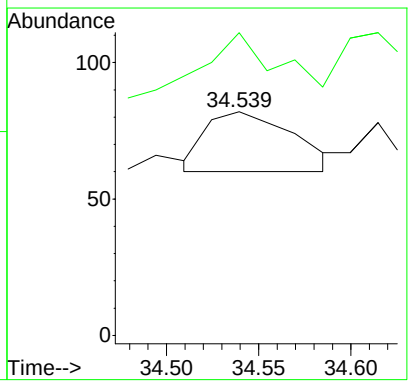


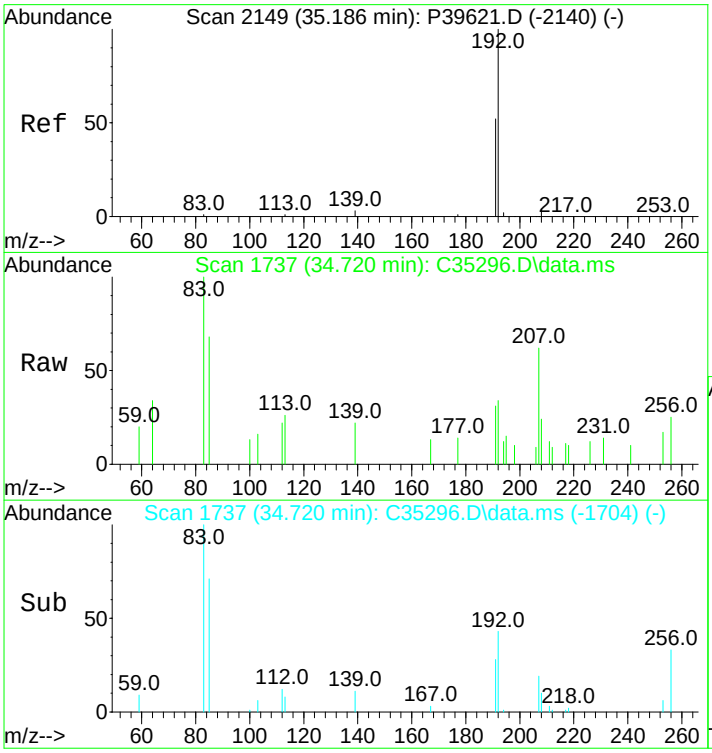


#46
2-Methylanthracene(2MA)
Concen: 0.85 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 72

Ion	Ratio	Lower	Upper
192	100		
191	563.9	95.5	143.3#

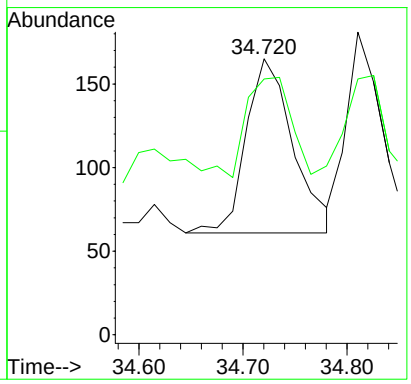


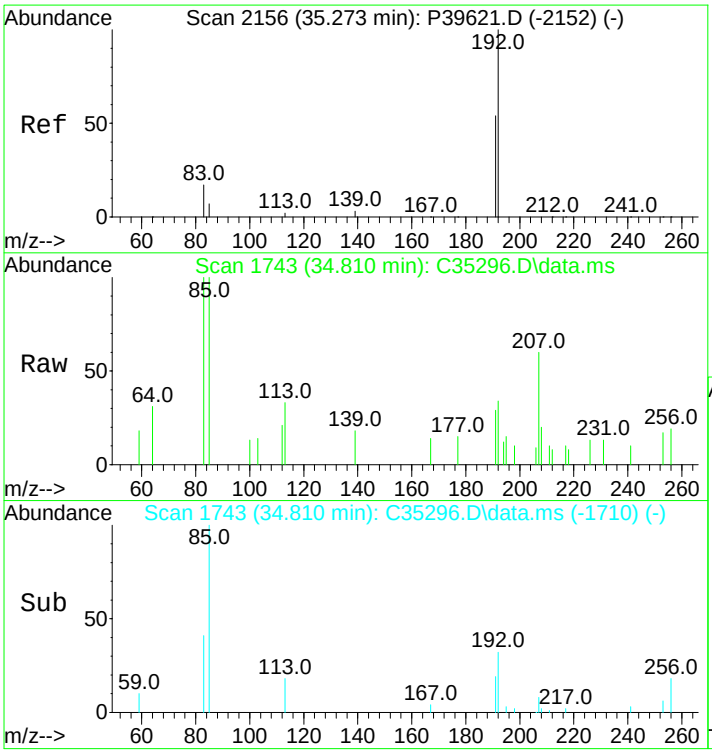


#47
9/4-Methylphenanthrene(9MP)
Concen: 3.91 ng/mL
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 330

Ion	Ratio	Lower	Upper
192	100		
191	52.7	46.5	69.7

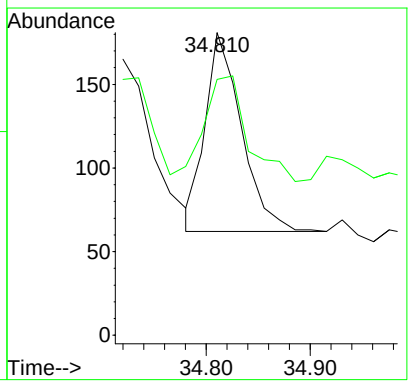


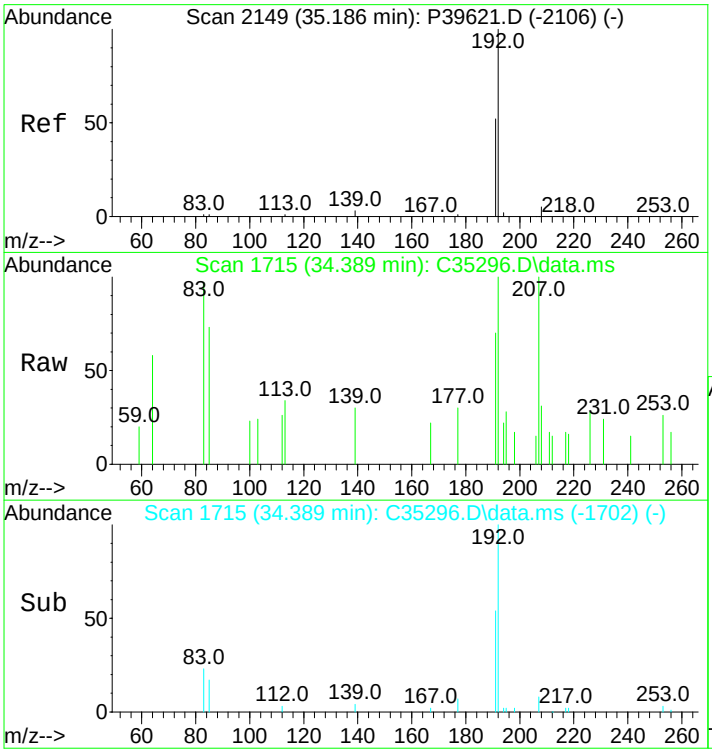


#48
1-Methylphenanthrene(1MP)
Concen: 3.41 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 288

Ion	Ratio	Lower	Upper
192	100		
191	63.9	47.4	71.2

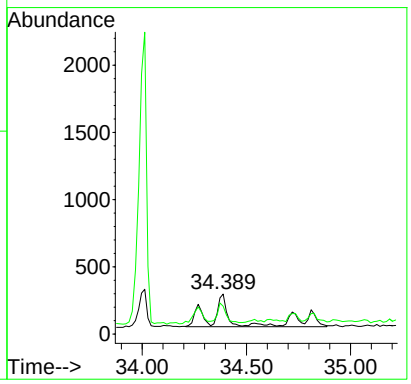


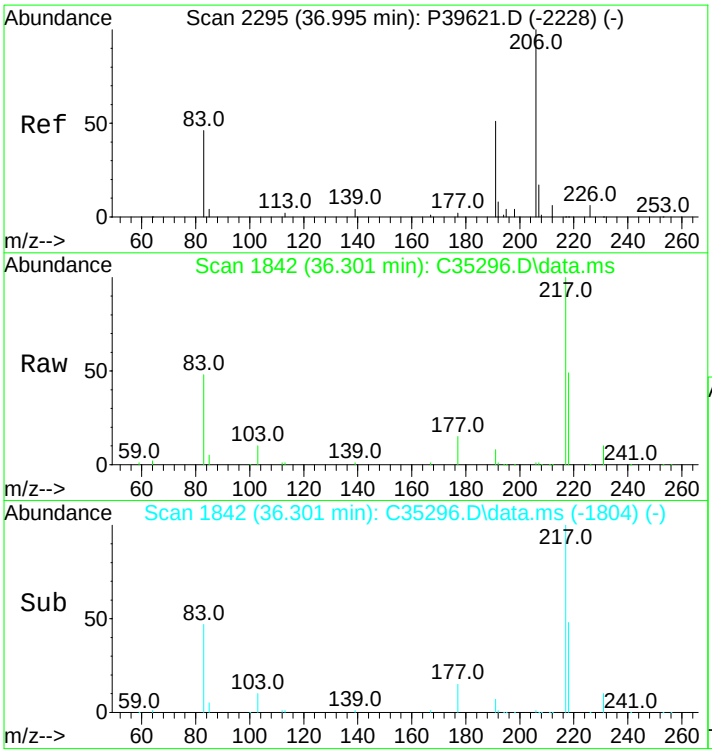


#49
C1-Phenanthrenes/Anthracenes
Concen: 24.01 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. -0.191 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 2025

Ion	Ratio	Lower	Upper
192	100		
191	8.4	45.3	67.9#

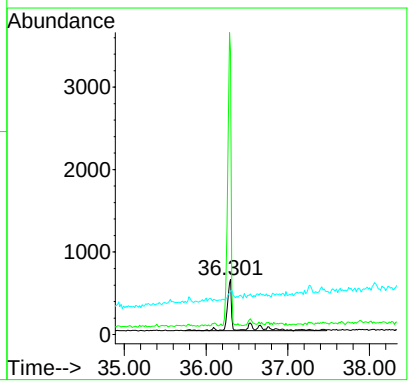


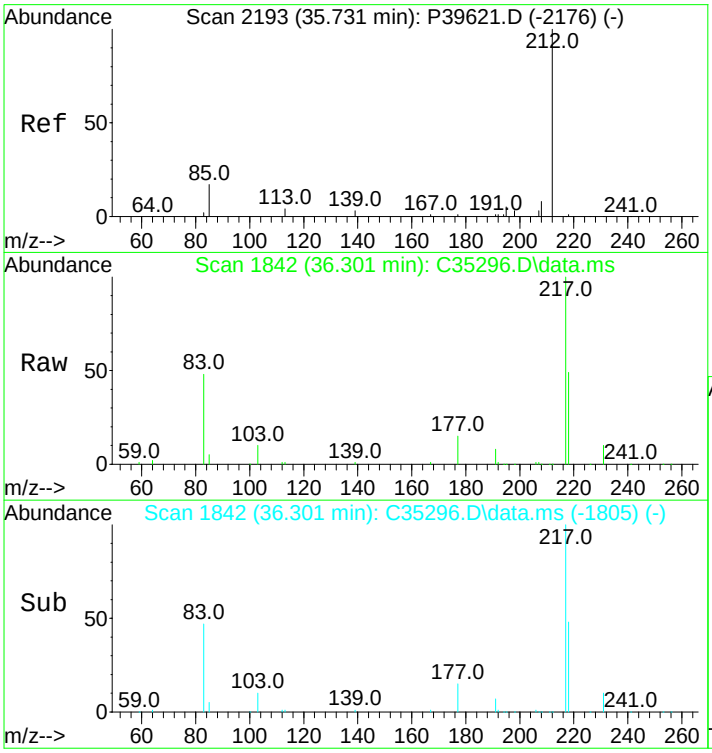


#50
C2-Phenanthrenes/Anthracenes
Concen: 41.53 ng/mL m
RT: 36.301 min Scan# 1842
Delta R.T. -0.055 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:206 Resp: 3503

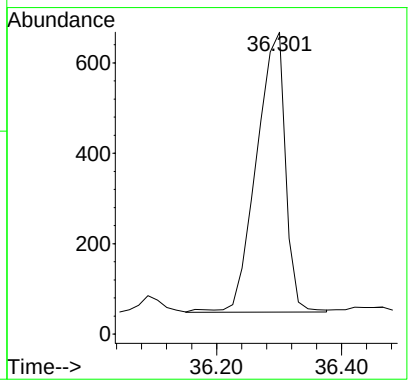
Ion	Ratio	Lower	Upper
206	100		
191	0.0	42.0	63.0#
207	16.0	15.4	23.2

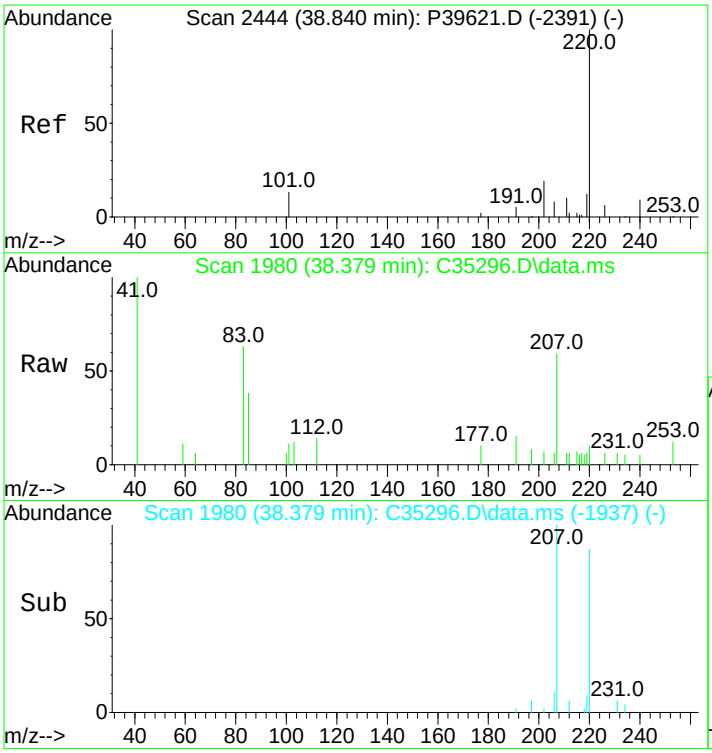




#51
5AA IS BKGD
Concen: 23.64 ng/mL
RT: 36.301 min Scan# 1842
Delta R.T. 0.060 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:206 Resp: 1994

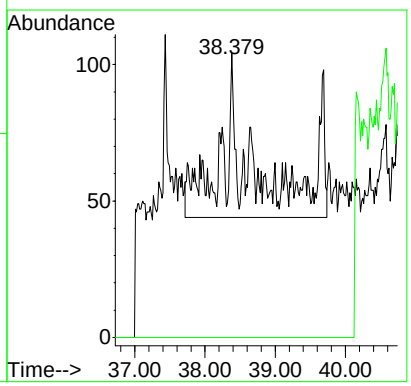


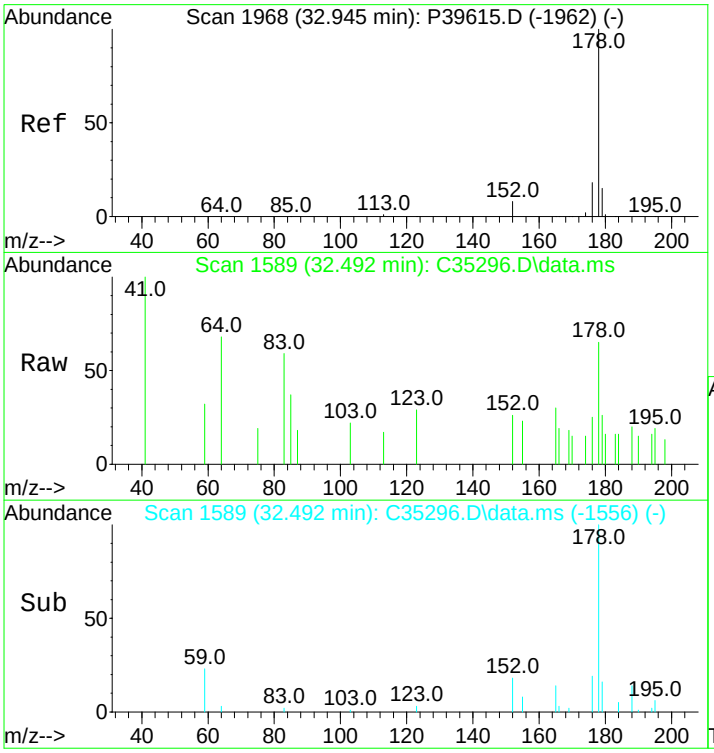


#52
C3-Phenanthrenes/Anthracenes
Concen: 22.30 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:220 Resp: 1881

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

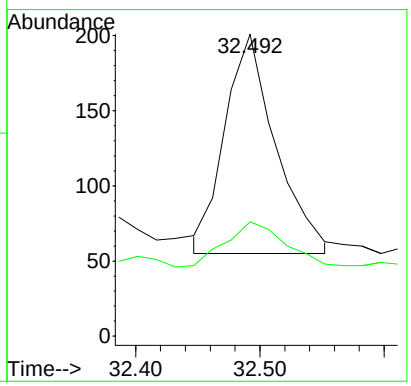


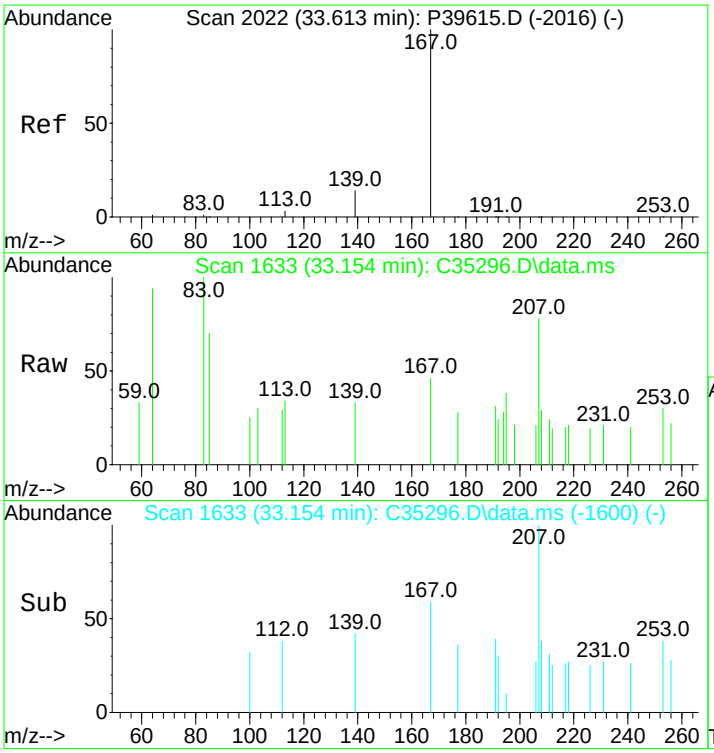


#55
Anthracene
Concen: 5.03 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:178 Resp: 414

Ion	Ratio	Lower	Upper
178	100		
176	24.4	15.6	23.4#

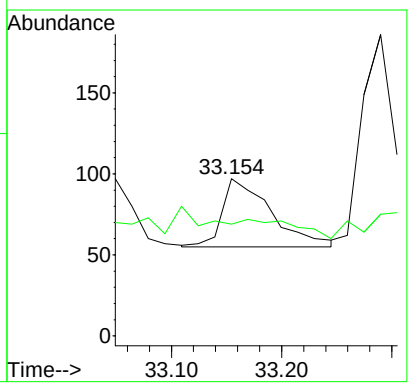


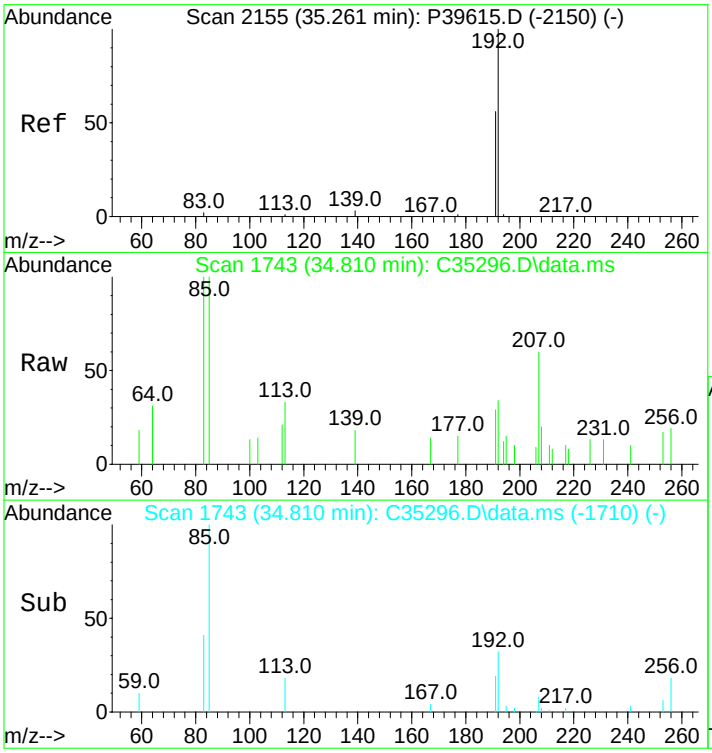


#56
Carbazole
Concen: 1.56 ng/mL m
RT: 33.154 min Scan# 1633
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:167 Resp: 130

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

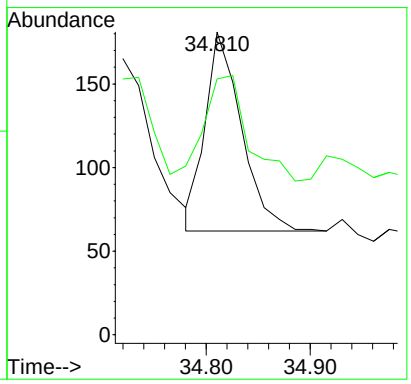


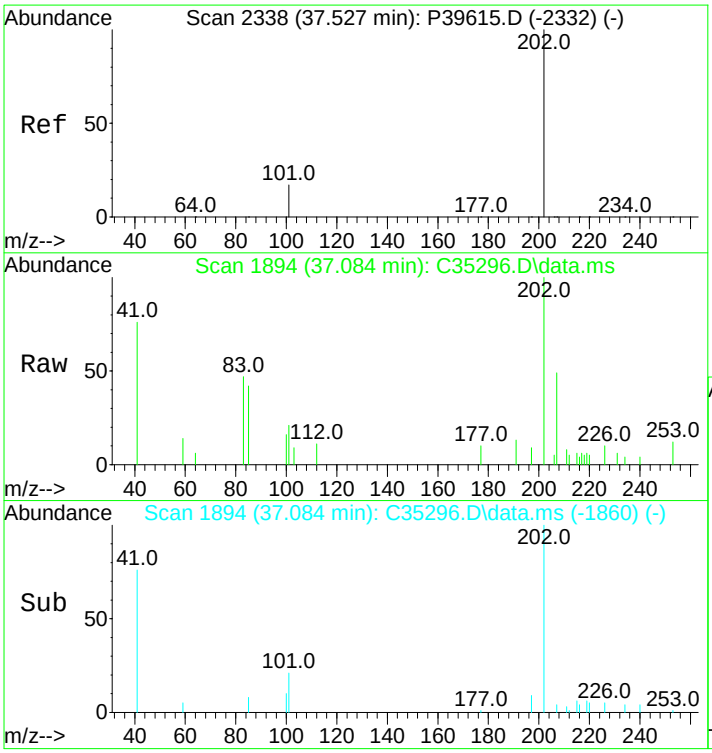


#57
1-Methylphenanthrene
Concen: 5.39 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:192 Resp: 288

Ion	Ratio	Lower	Upper
192	100		
191	63.9	46.8	70.2

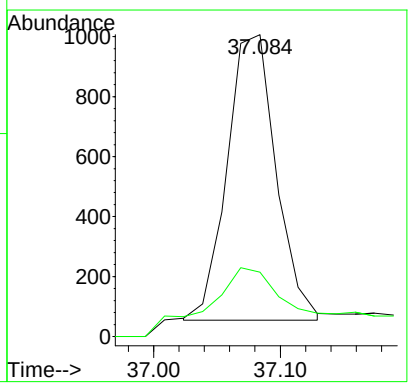


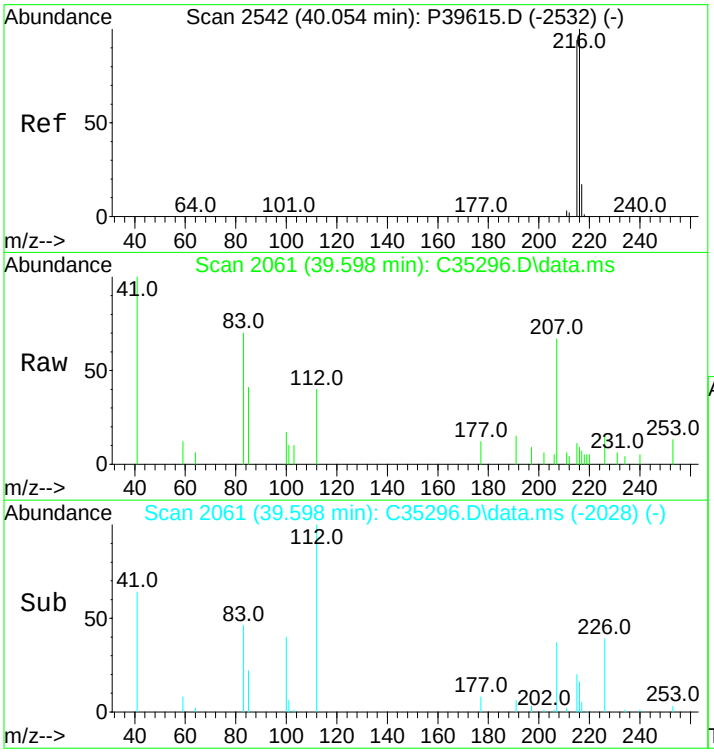


#58
Fluoranthene
Concen: 30.61 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:202 Resp: 2564

Ion	Ratio	Lower	Upper
202	100		
101	47.0	13.2	19.8#

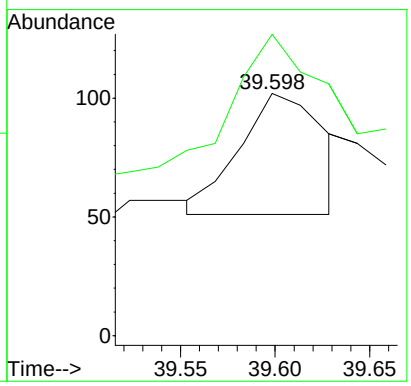


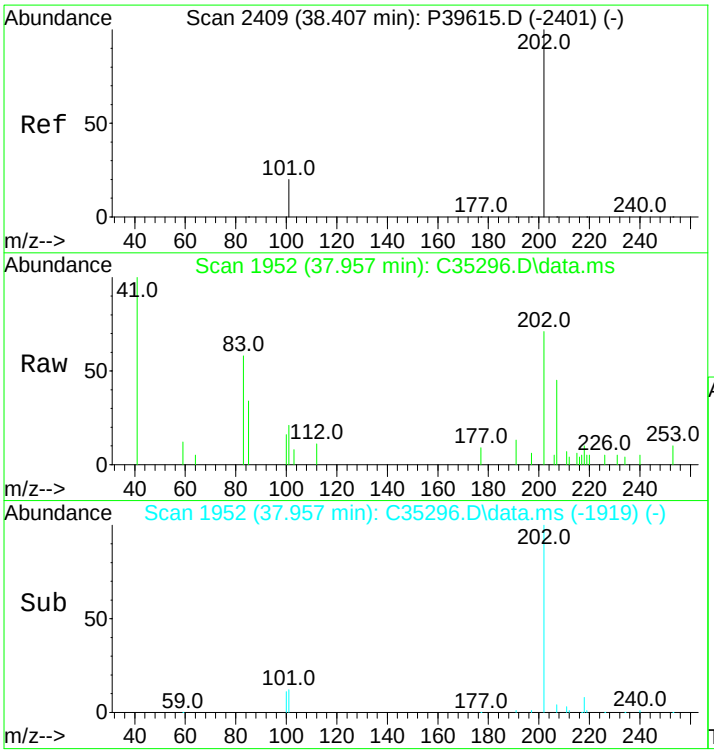


#59
Benzo(b)fluorene
Concen: 3.25 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:216 Resp: 158

Ion	Ratio	Lower	Upper
216	100		
215	148.1	76.0	114.0#

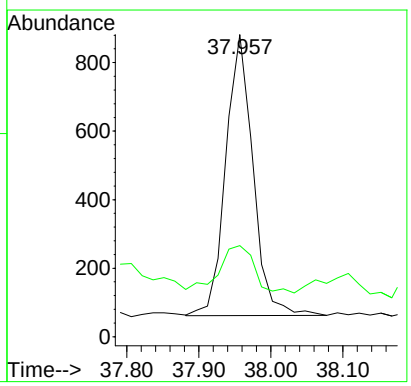


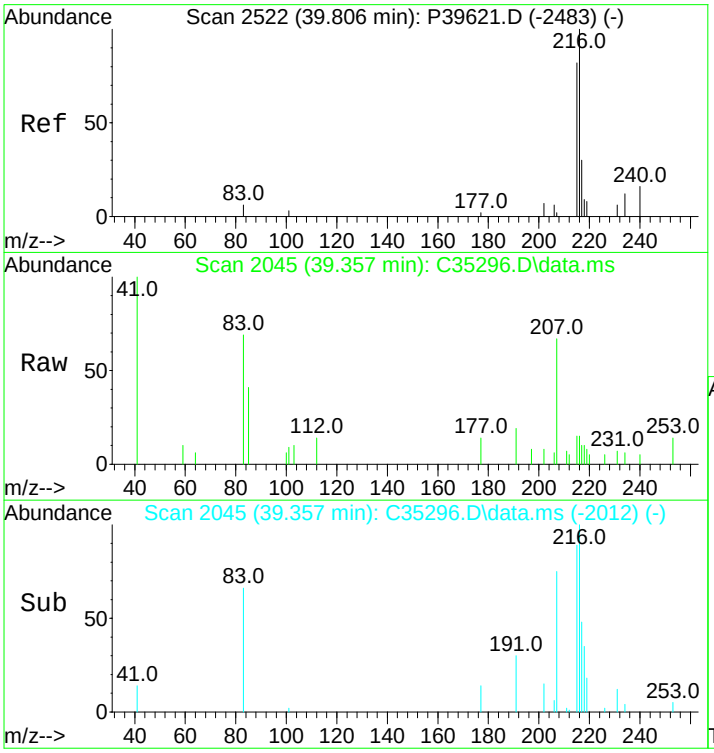


#60
Pyrene
Concen: 25.33 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:202 Resp: 2157

Ion	Ratio	Lower	Upper
202	100		
101	30.6	13.5	20.3#

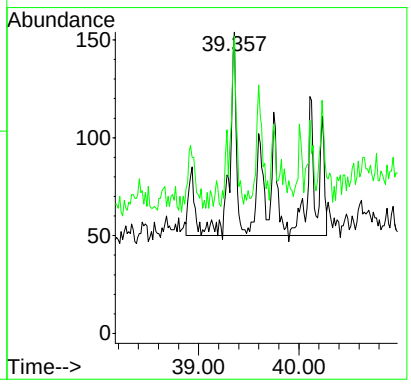


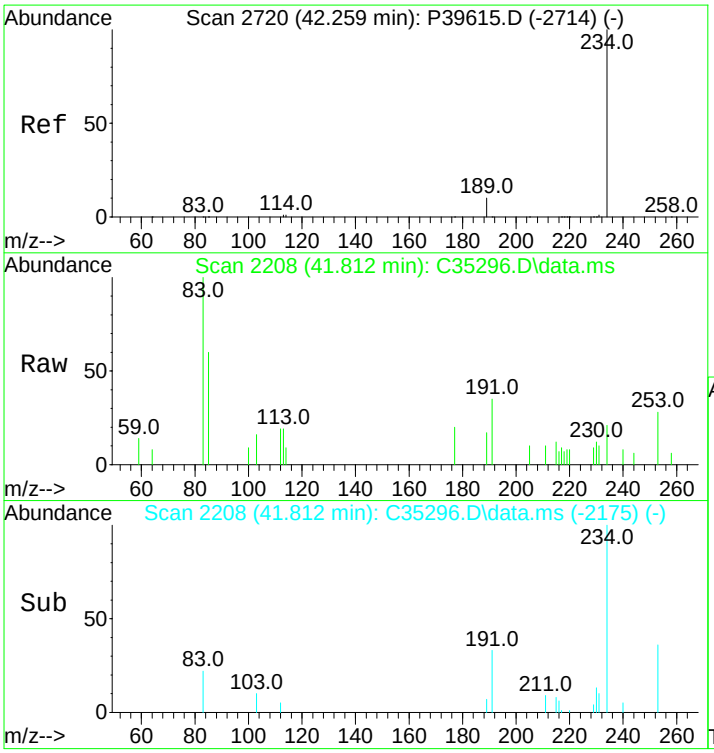


#61
C1-Fluoranthenes/Pyrenes
Concen: 18.77 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:216 Resp: 1598

Ion	Ratio	Lower	Upper
216	100		
215	14.6	77.7	116.5#

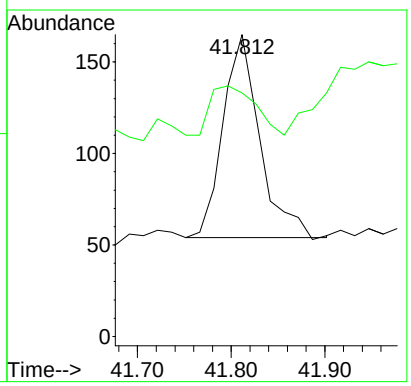


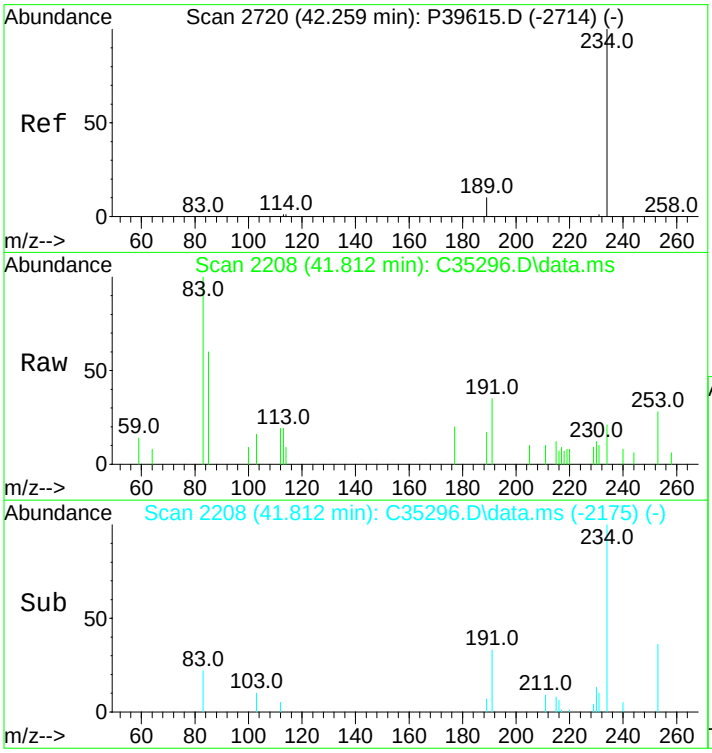


#66
Naphthobenzothiophene
Concen: 3.31 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:234 Resp: 303

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

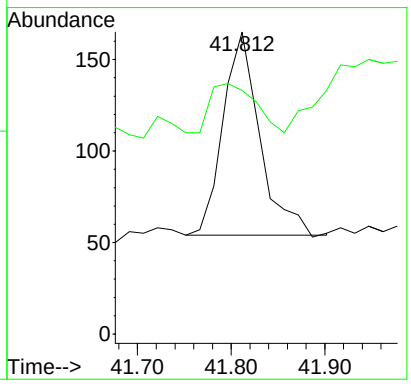


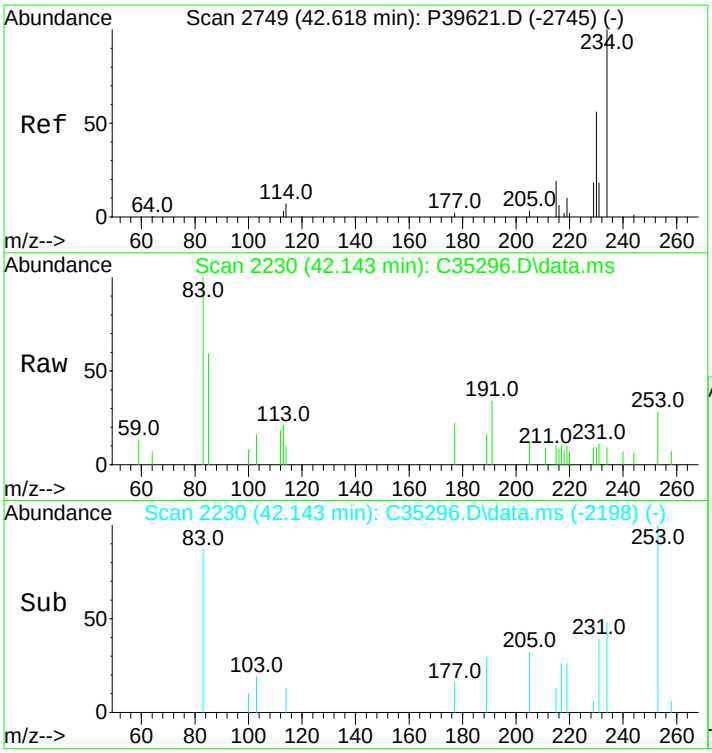


#67
Naphthobenzothiophene-2,1-D
Concen: 3.31 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:234 Resp: 303

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

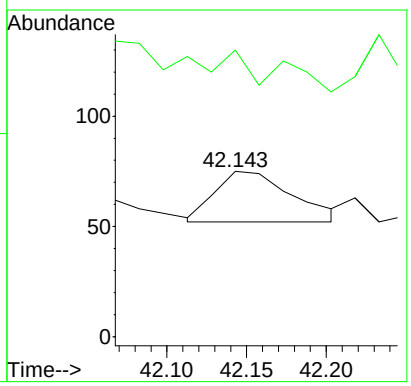


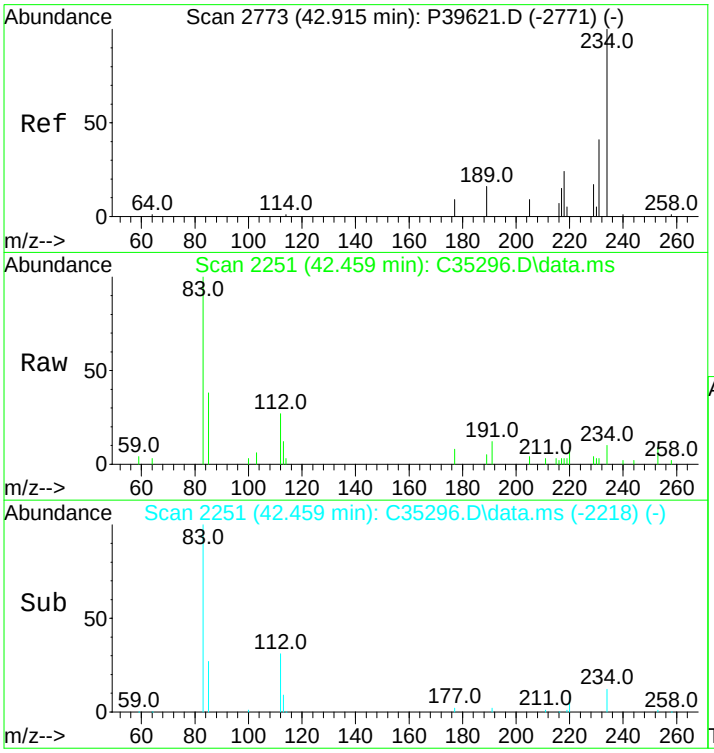


#68
Naphthobenzothiophene-1,2-D
Concen: 0.85 ng/mL m
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:234 Resp: 78

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

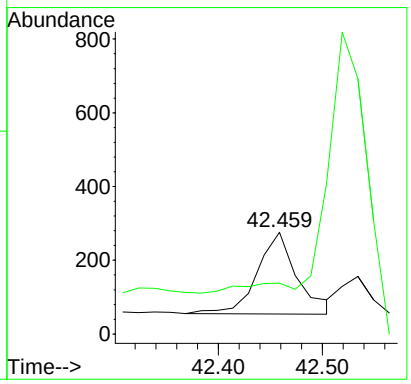


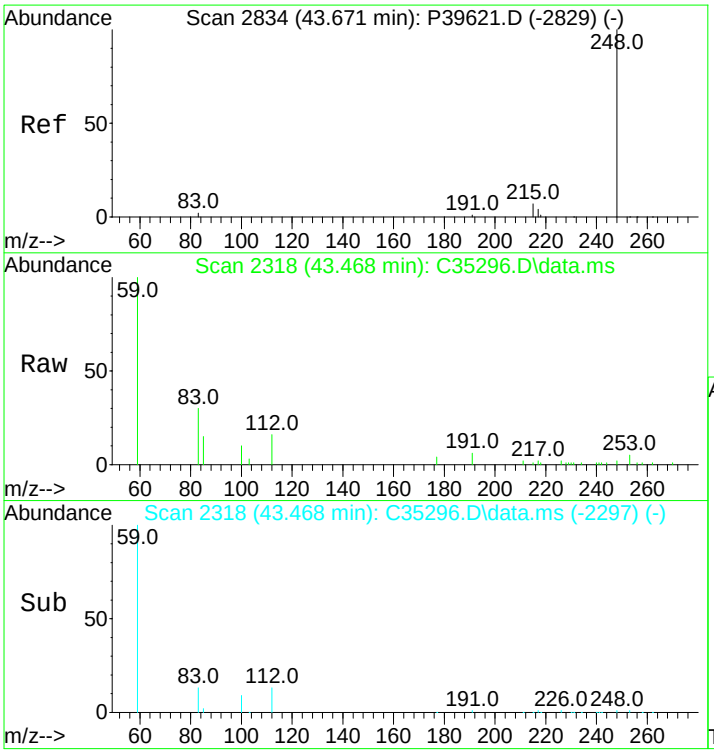


#69
Naphthobenzothiophene-2,3-D
Concen: 6.48 ng/mL
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:234 Resp: 594

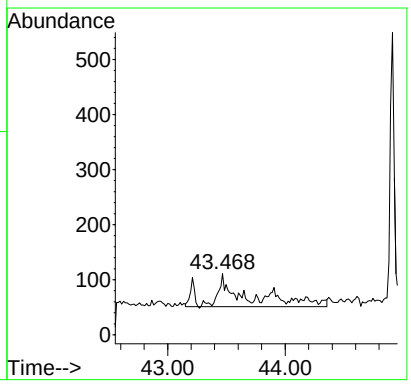
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

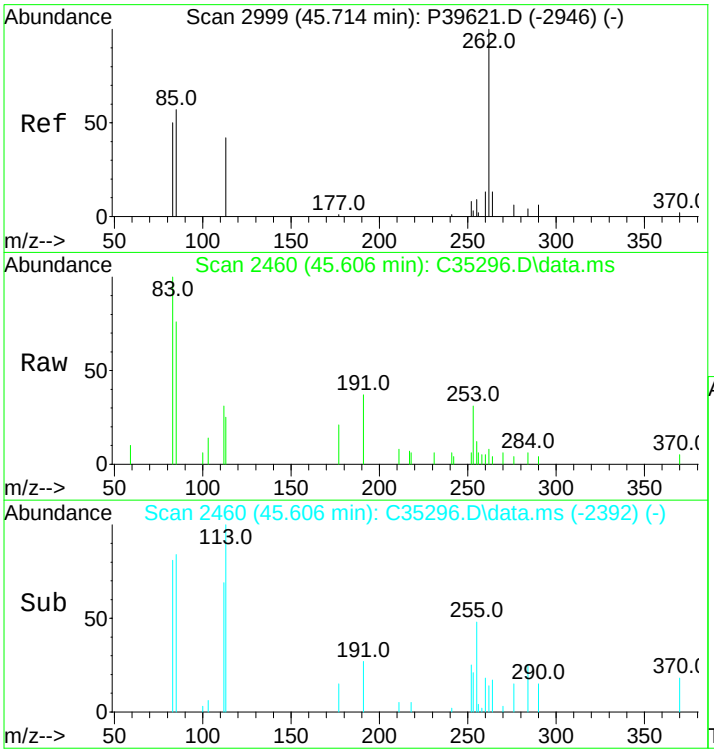




#70
C1-Naphthobenzothiophenes
Concen: 12.64 ng/ml m
RT: 43.468 min Scan# 2318
Delta R.T. -0.112 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

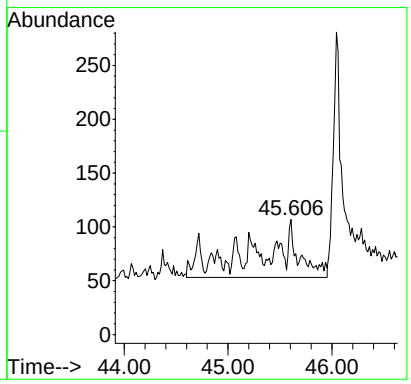
Tgt Ion:248 Resp: 1159

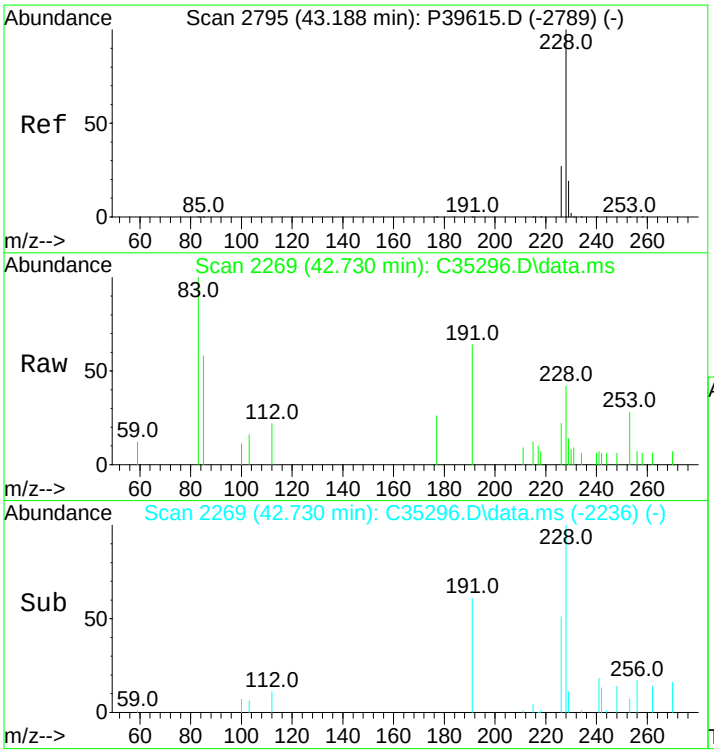




#71
C2-Naphthobenzothiophenes
Concen: 16.53 ng/ml m
RT: 45.606 min Scan# 2460
Delta R.T. 0.738 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:262 Resp: 1515

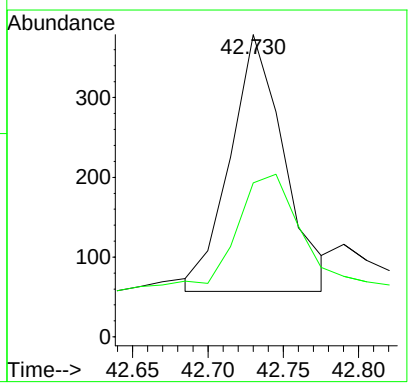


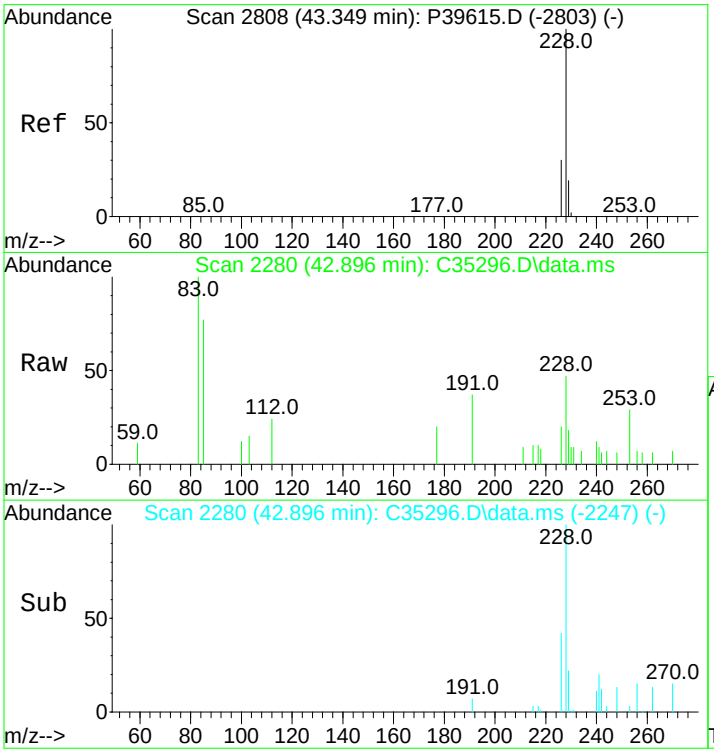


#75
Benz[a]anthracene
Concen: 8.62 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:228 Resp: 805

Ion	Ratio	Lower	Upper
228	100		
226	85.1	21.5	32.3#

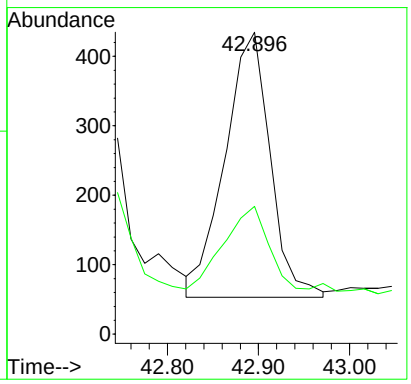


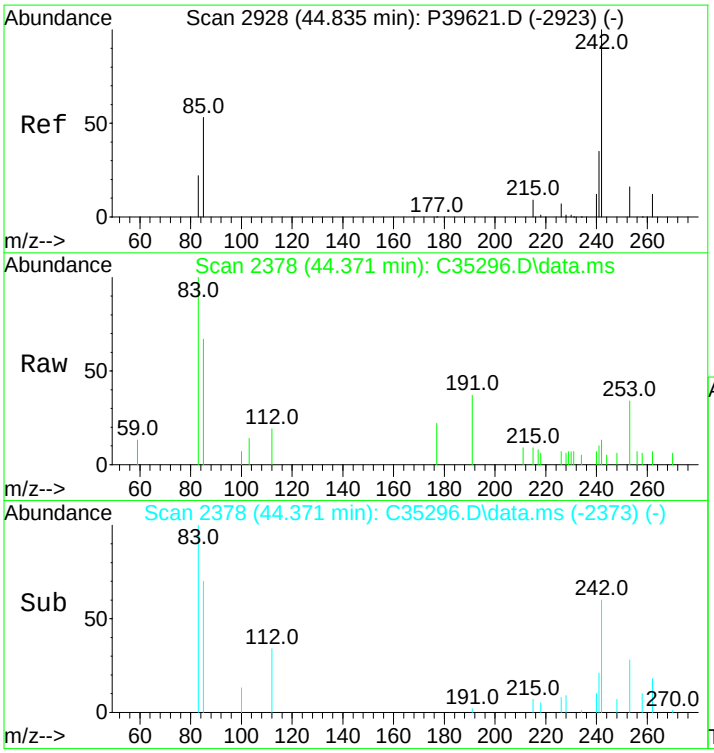


#77
Chrysene/Triphenylene
Concen: 13.94 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:228 Resp: 1314

Ion	Ratio	Lower	Upper
228	100		
226	36.7	23.5	35.3#

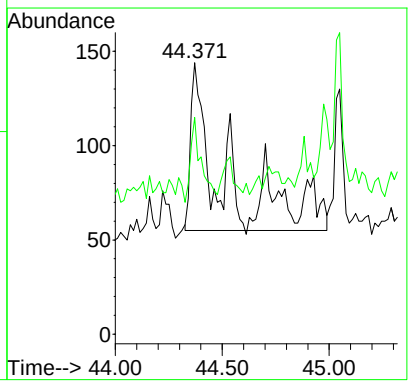


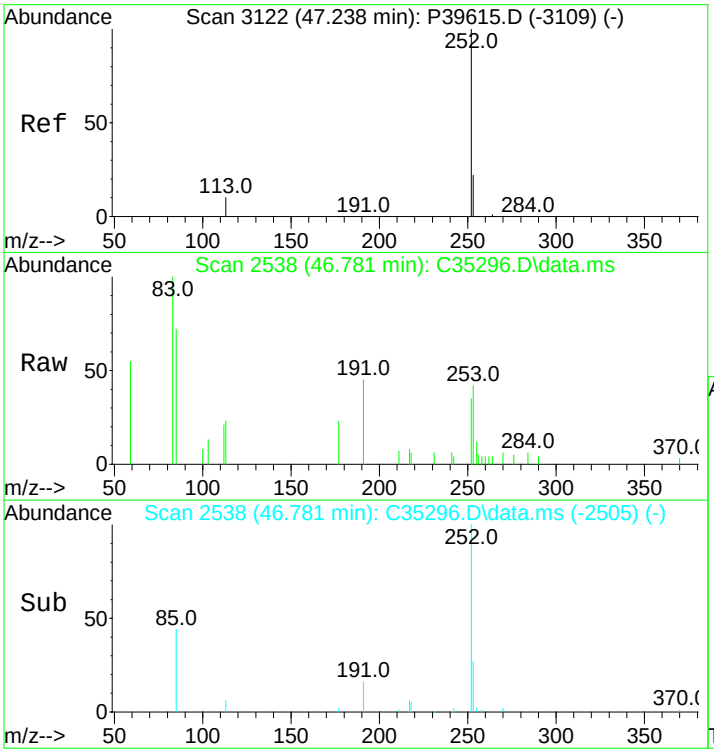


#78
C1-Chrysenes
Concen: 9.87 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:242 Resp: 930

Ion	Ratio	Lower	Upper
242	100		
241	17.2	32.7	49.1#

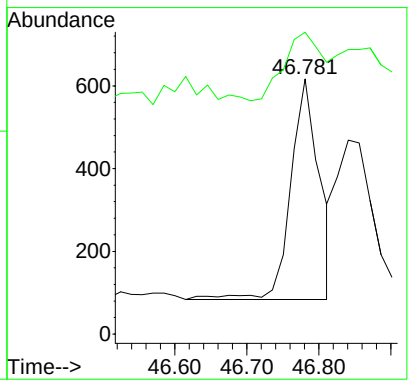


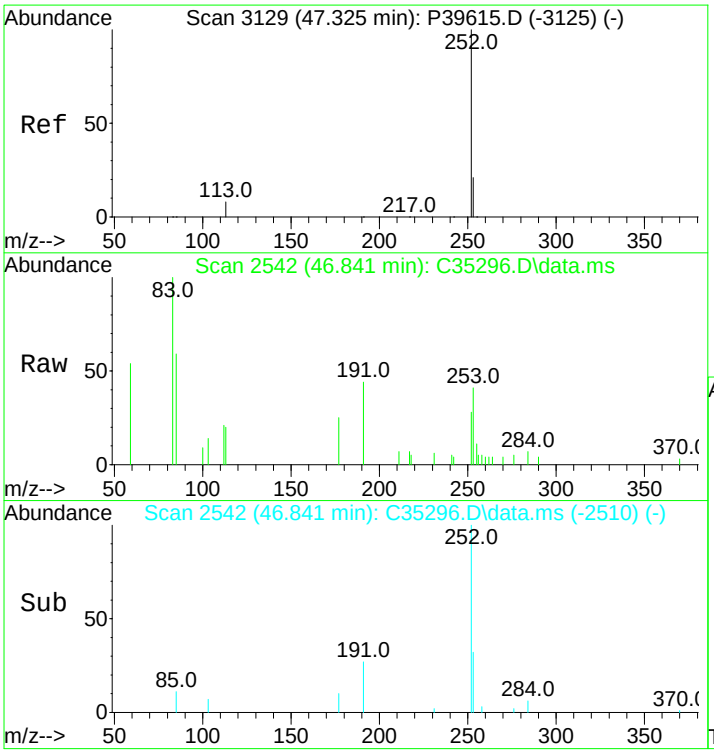


#82
Benzo[b]fluoranthene
Concen: 14.53 ng/mL
RT: 46.781 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 1491

Ion	Ratio	Lower	Upper
252	100		
253	40.7	20.4	30.6#

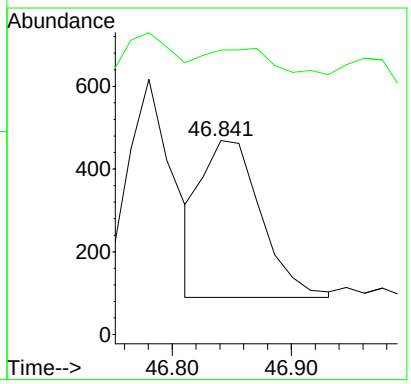


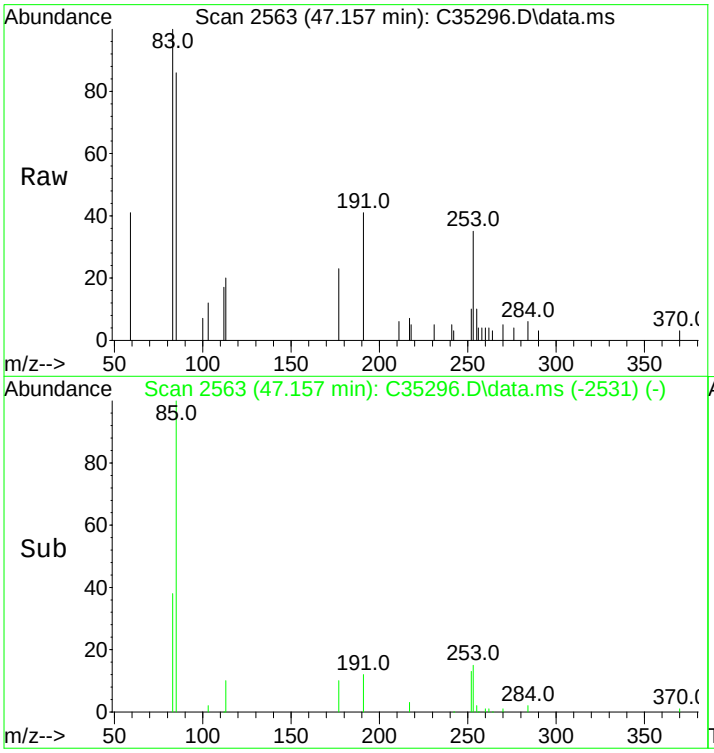


#83
Benzo[j]+[k]fluoranthene
Concen: 11.78 ng/mL m
RT: 46.841 min Scan# 2542
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 1316

Ion	Ratio	Lower	Upper
252	100		
253	0.0	20.6	31.0#

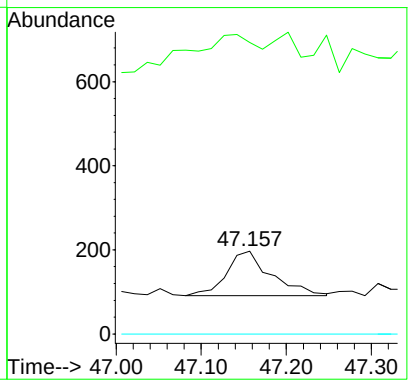


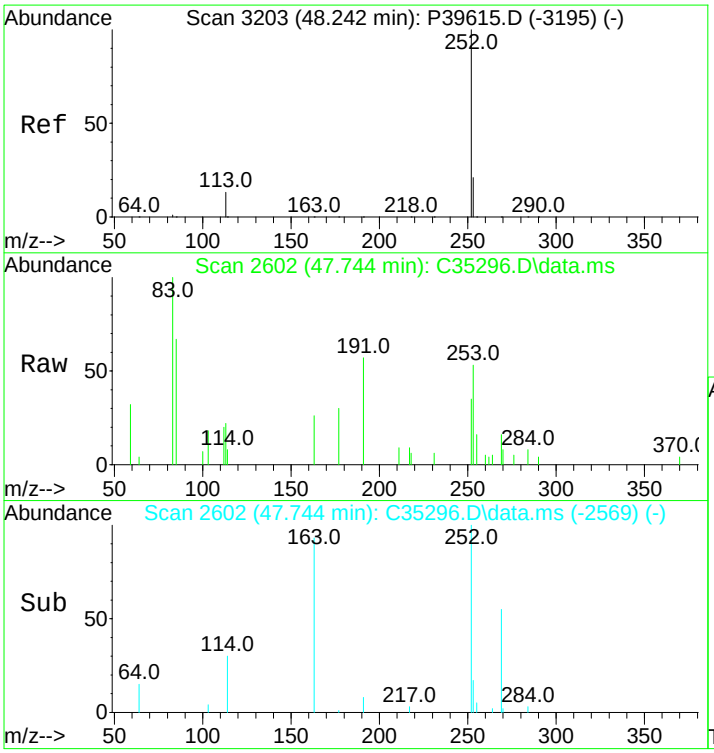


#84
Benzo[a]fluoranthene
Concen: 3.47 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 388

Ion	Ratio	Lower	Upper
252	100		
253	130.2	146.1	219.1#
125	0.0	0.0	0.0

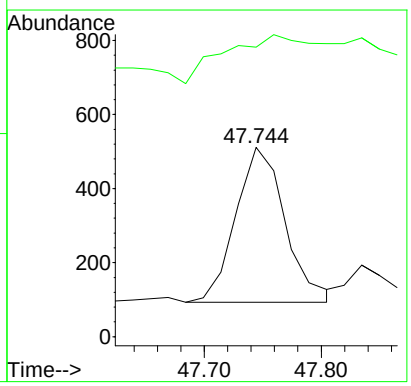


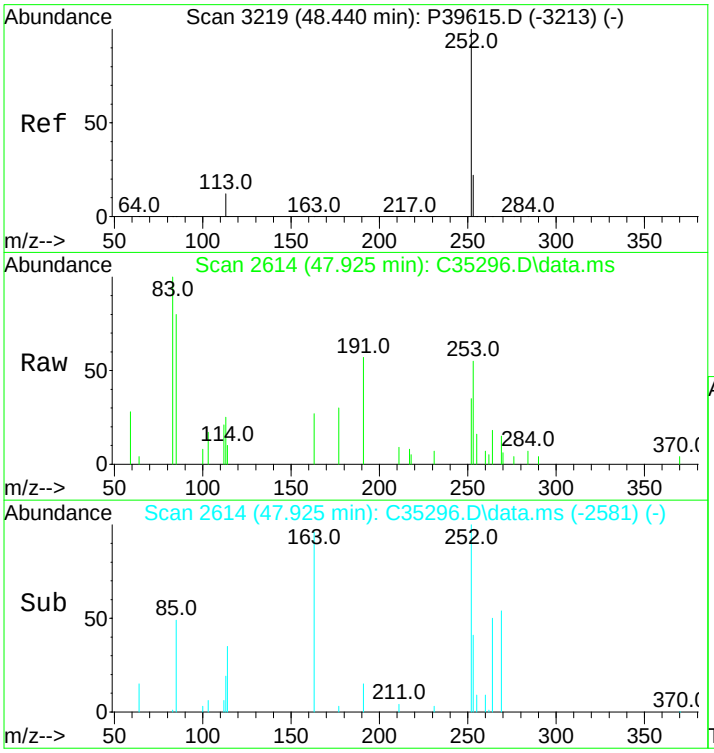


#85
Benzo[e]pyrene
Concen: 12.14 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 1232

Ion	Ratio	Lower	Upper
252	100		
253	60.4	21.0	31.6#

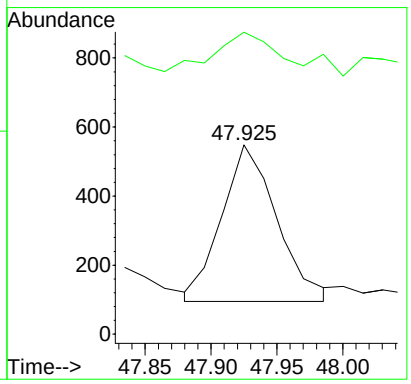


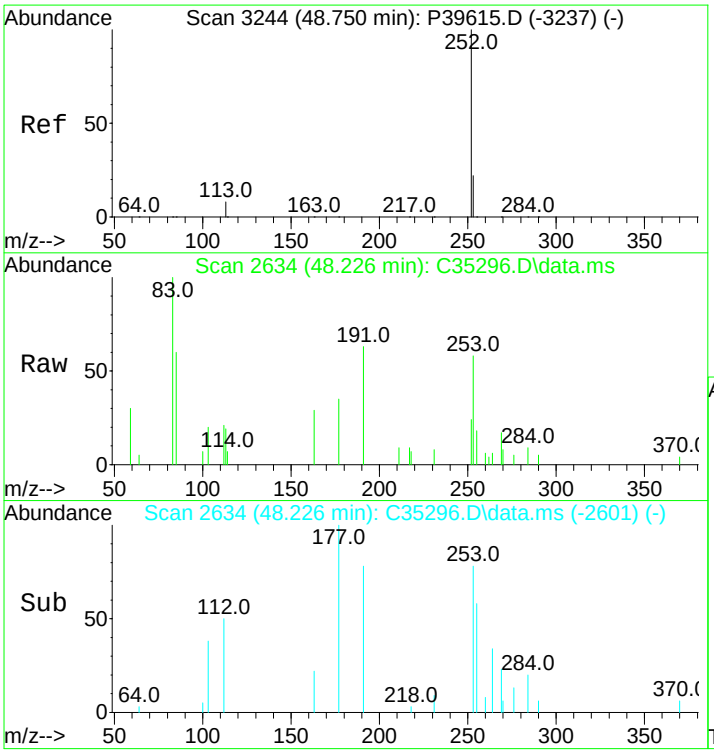


#87
Benzo[a]pyrene
Concen: 13.51 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 1320

Ion	Ratio	Lower	Upper
252	100		
253	39.8	21.4	32.0#

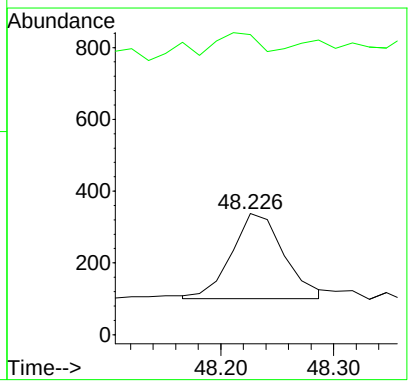


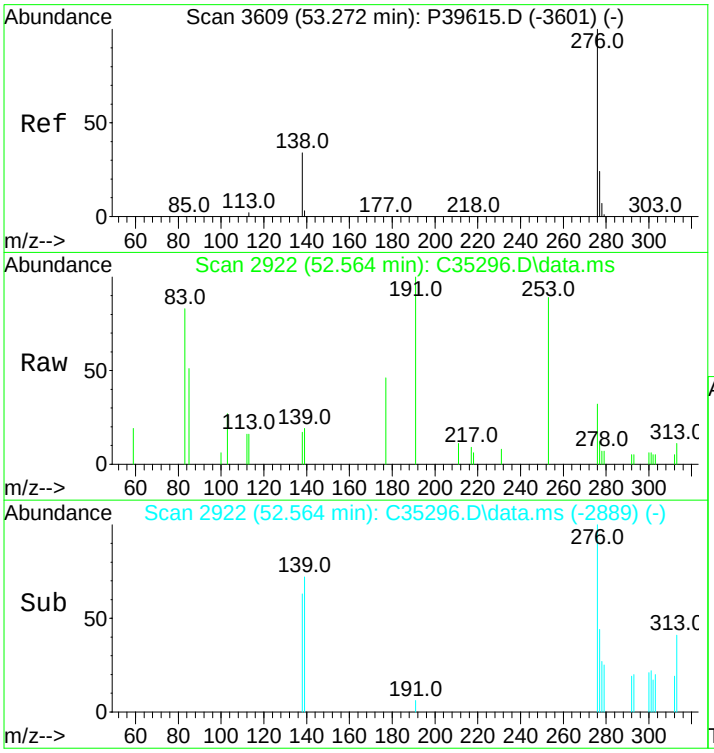


#88
Perylene
Concen: 7.38 ng/mL m
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:252 Resp: 771

Ion	Ratio	Lower	Upper
252	100		
253	40.7	21.8	32.6#

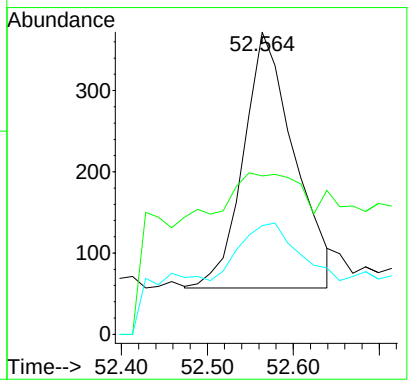


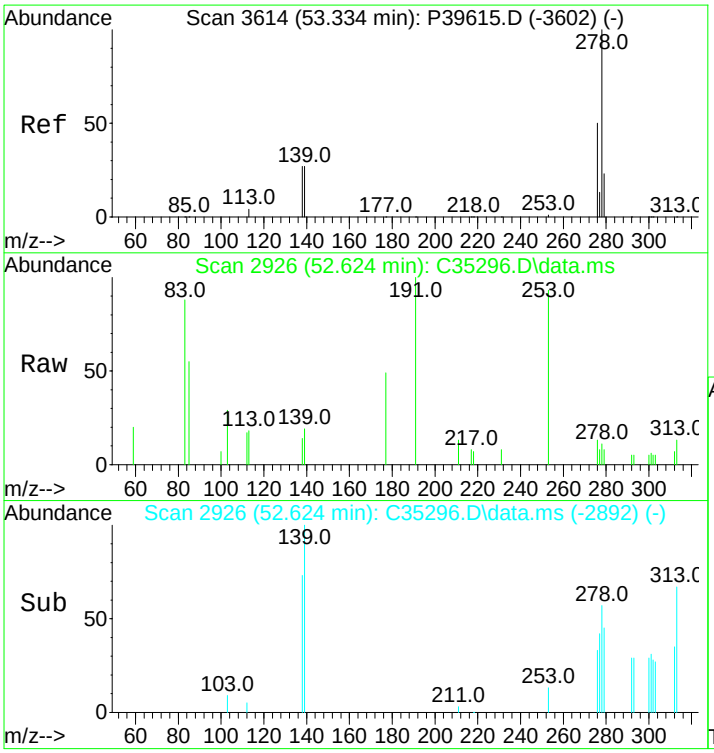


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.41 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:276 Resp: 1297

Ion	Ratio	Lower	Upper
276	100		
138	35.2	19.1	28.7#
277	0.0	19.5	29.3#

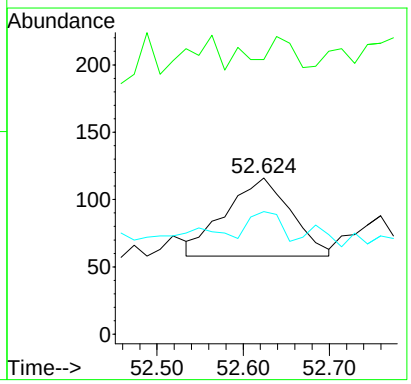


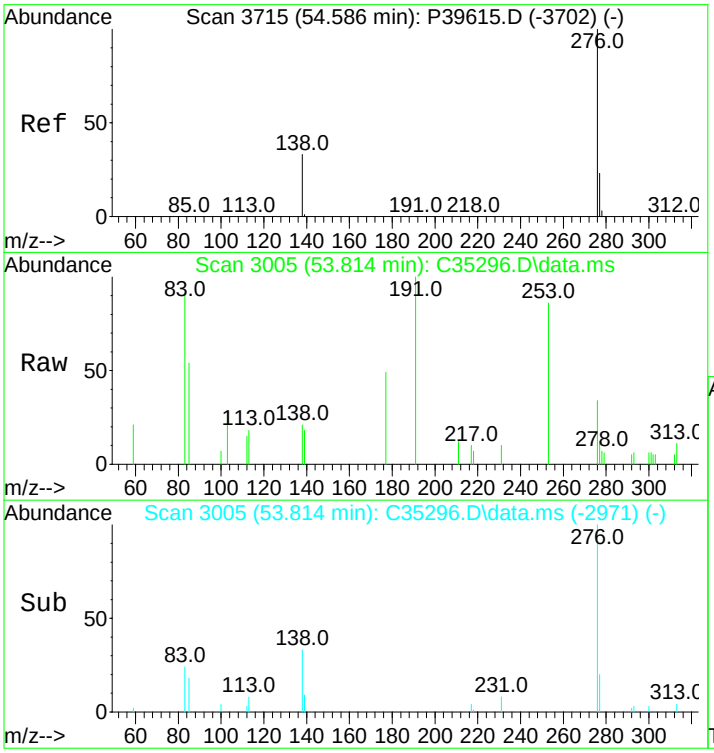


#90
Dibenz[ah]+[ac]anthracene
Concen: 2.83 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:278 Resp: 306

Ion	Ratio	Lower	Upper
278	100		
139	0.0	16.6	25.0#
279	0.0	20.0	30.0#

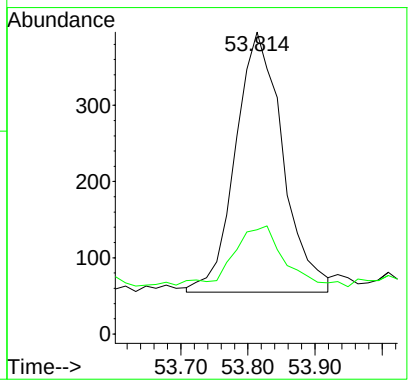


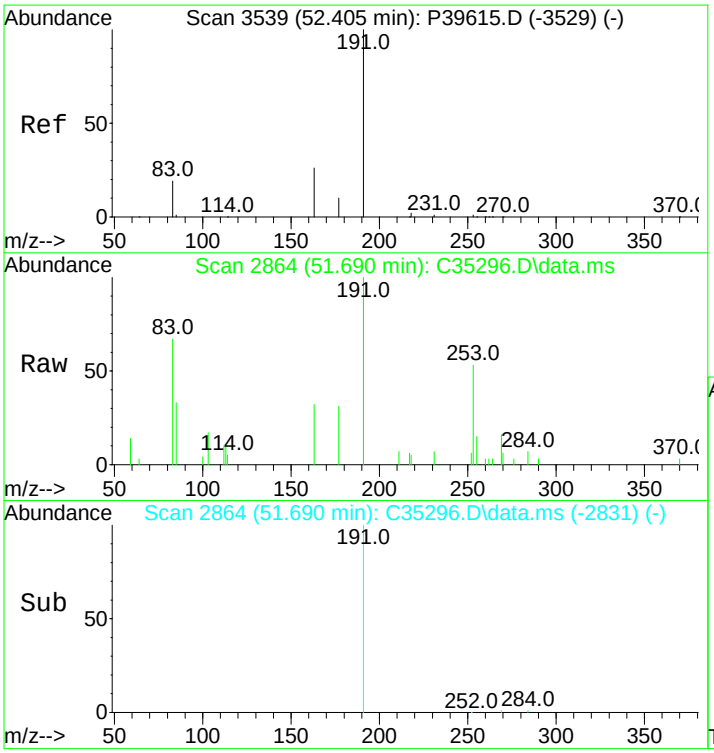


#91
Benzo[g,h,i]perylene
Concen: 13.94 ng/mL m
RT: 53.814 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:276 Resp: 1674

Ion	Ratio	Lower	Upper
276	100		
277	26.0	18.8	28.2

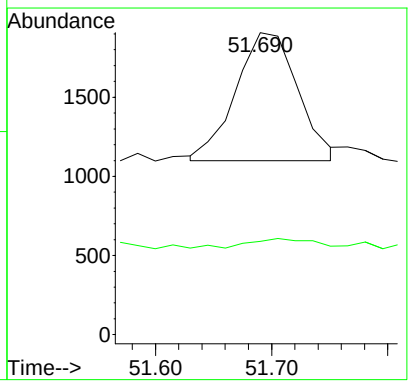


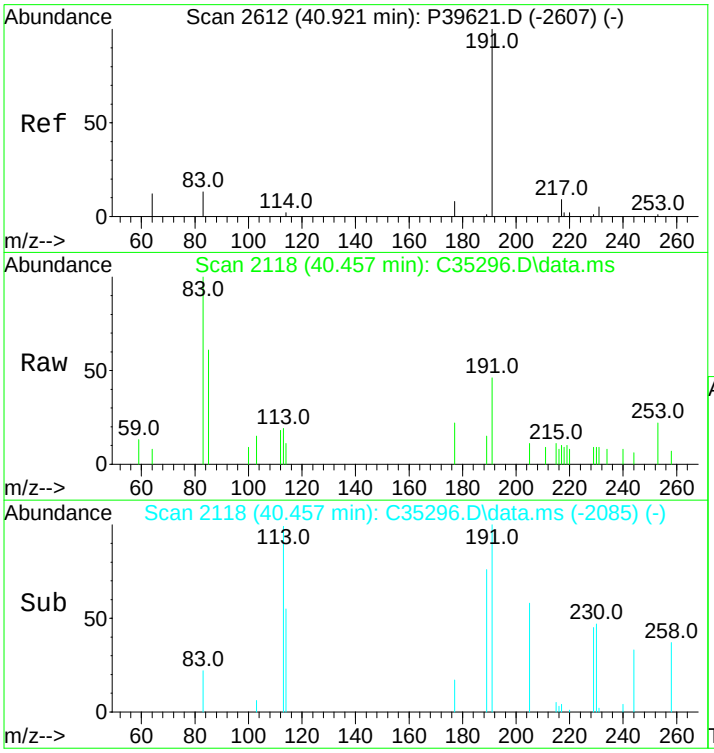


#92
Hopane (T19)
Concen: 155.58 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:191 Resp: 3016

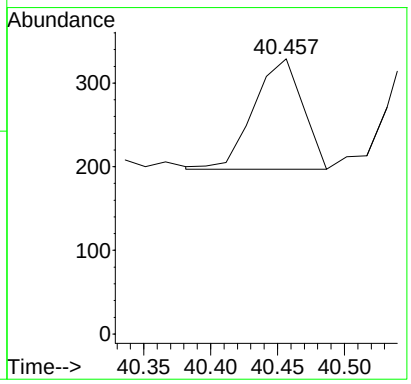
Ion	Ratio	Lower	Upper
191	100		
177	8.1	17.2	25.8#

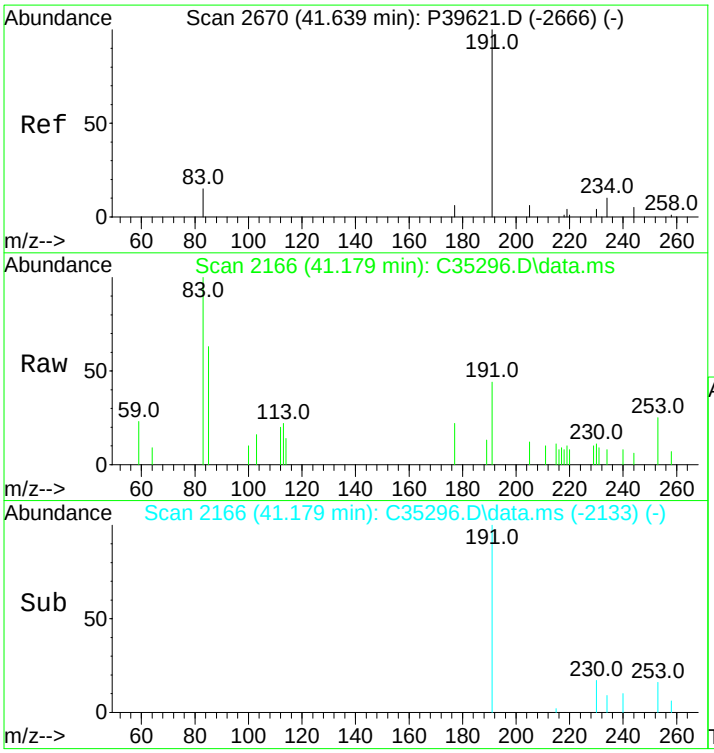




#94
C23 Tricyclic Terpane (T4)
Concen: 17.33 ng/ml
RT: 40.457 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

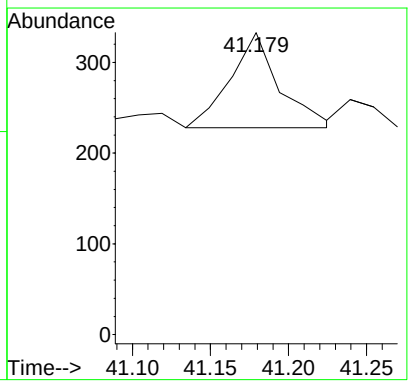
Tgt Ion:191 Resp: 336

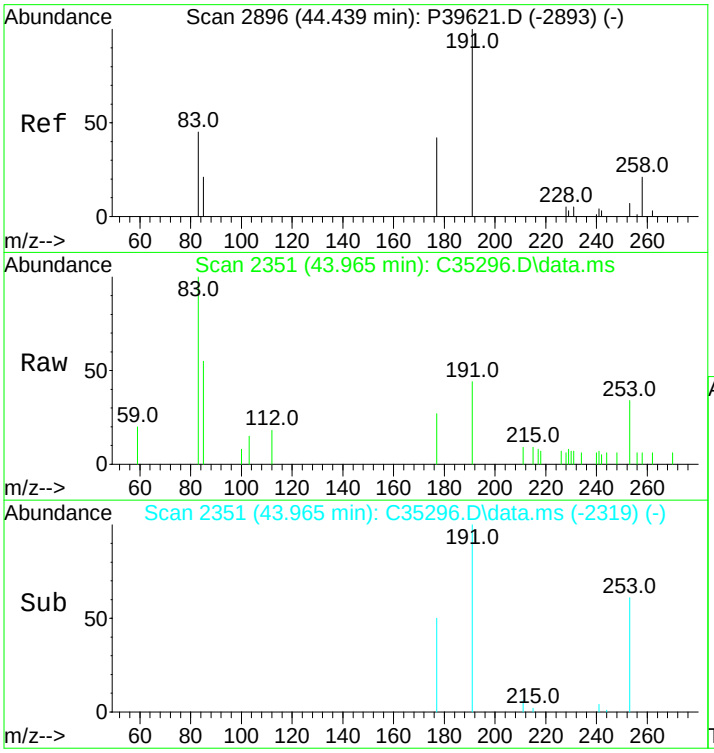




#95
C24 Tricyclic Terpane (T5)
Concen: 11.92 ng/ml
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

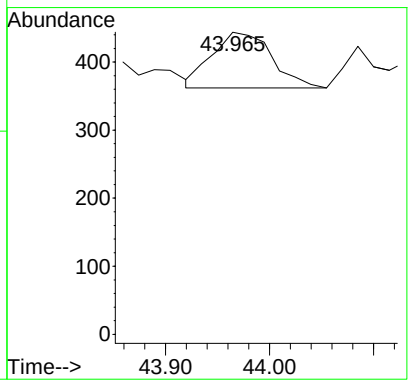
Tgt Ion:191 Resp: 231

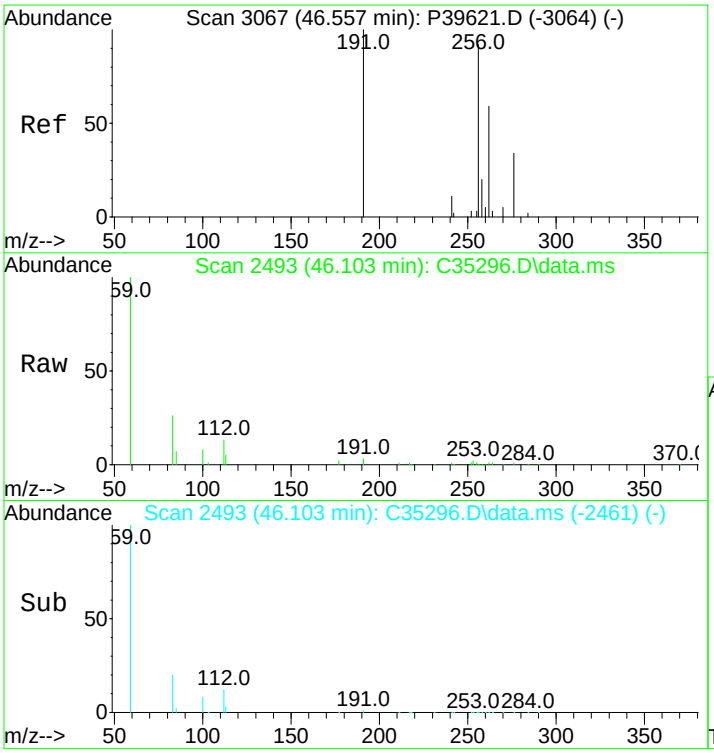




#97
C24 Tetracyclic Terpane (T6a)
Concen: 16.82 ng/ml
RT: 43.965 min Scan# 2351
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

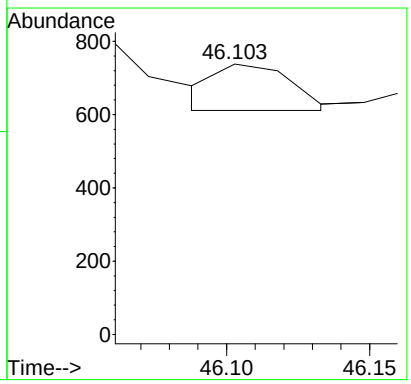
Tgt Ion:191 Resp: 326

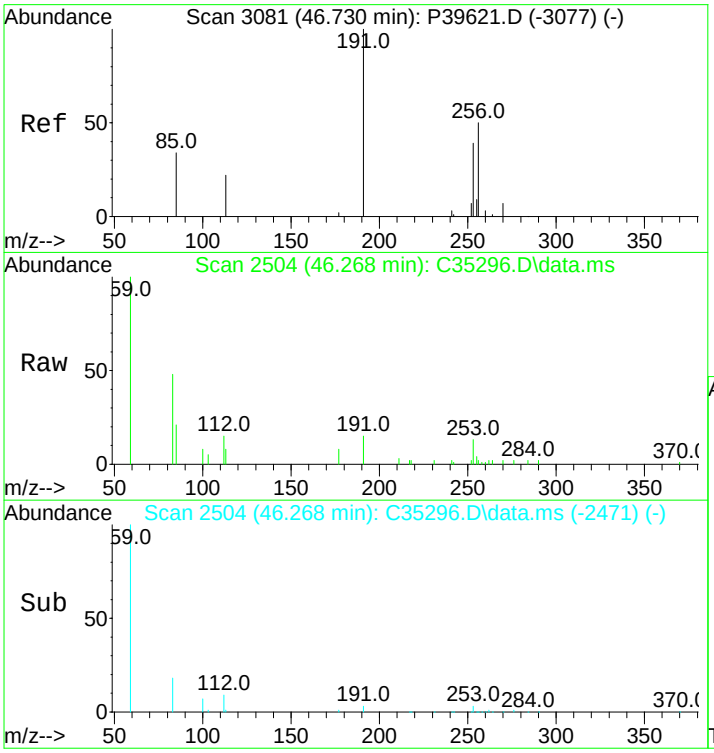




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 11.86 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

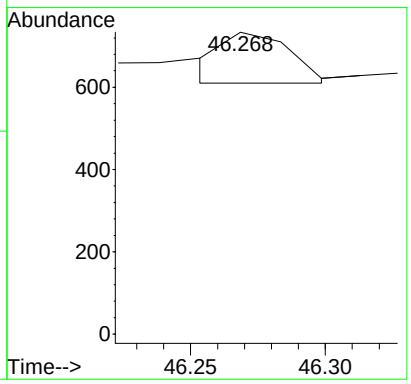
Tgt Ion:191 Resp: 230

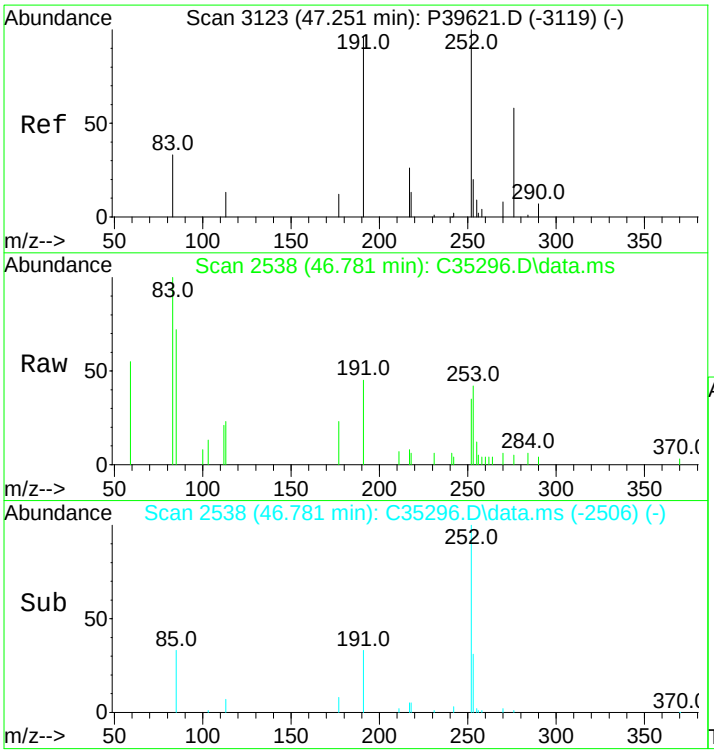




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 10.99 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

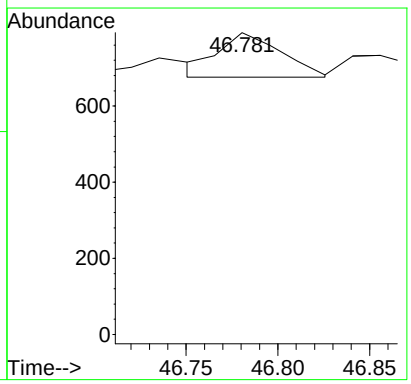
Tgt Ion:191 Resp: 213

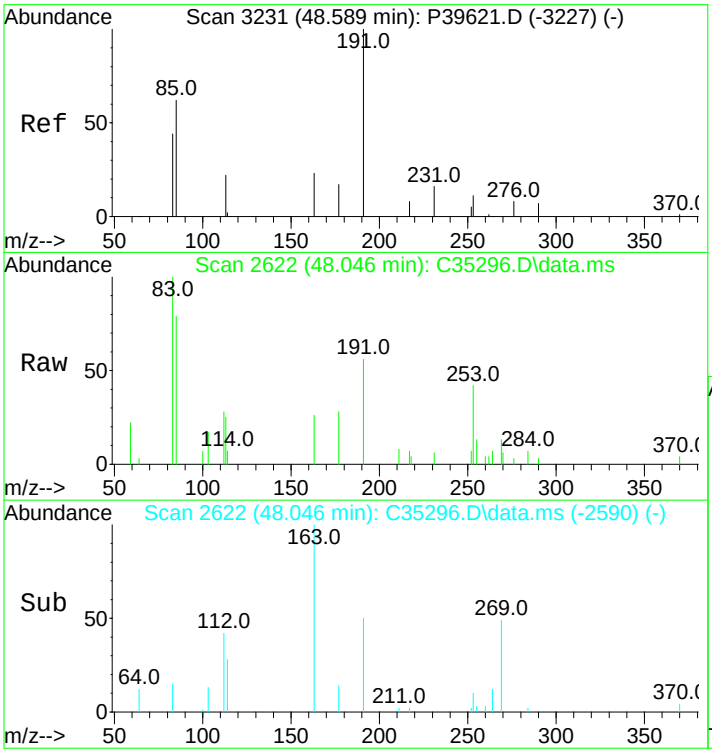




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 14.24 ng/ml m
RT: 46.781 min Scan# 2538
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

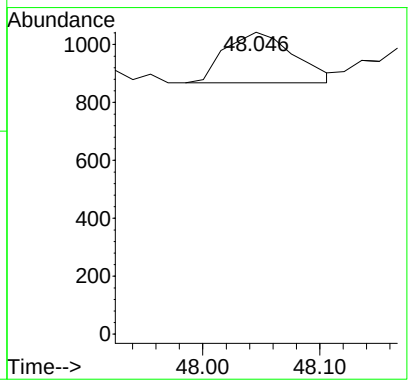
Tgt Ion:191 Resp: 276

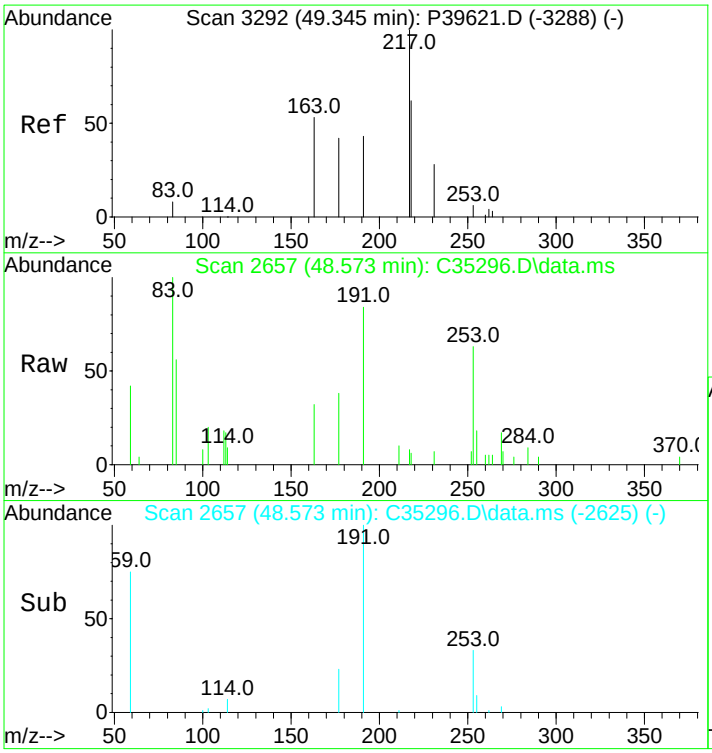




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 36.99 ng/ml
RT: 48.046 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

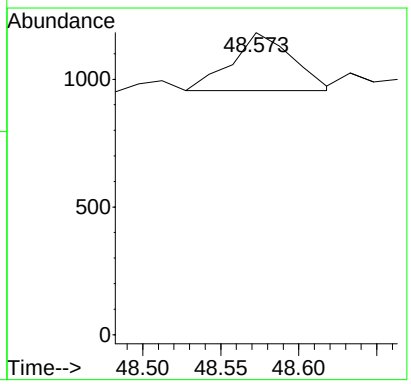
Tgt Ion:191 Resp: 717

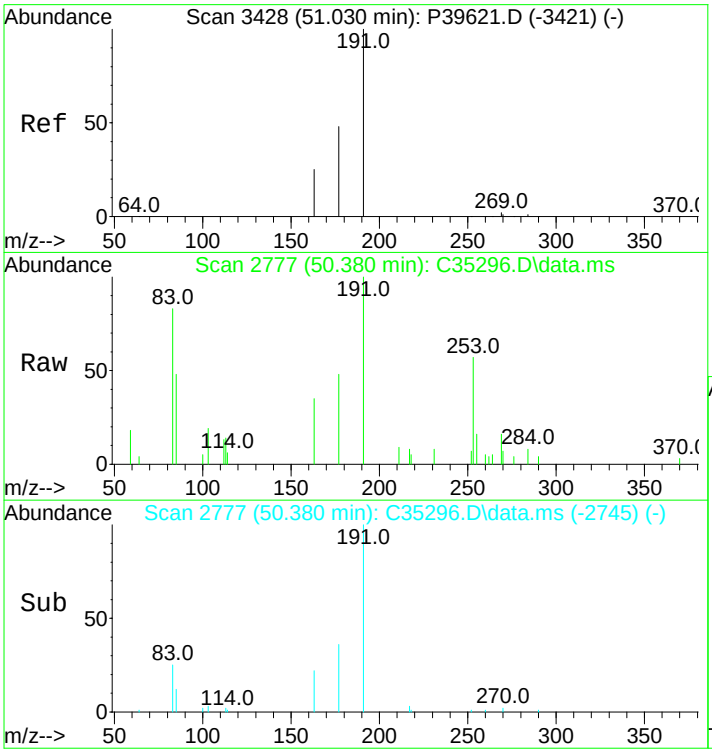




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 31.67 ng/ml
RT: 48.573 min Scan# 2657
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

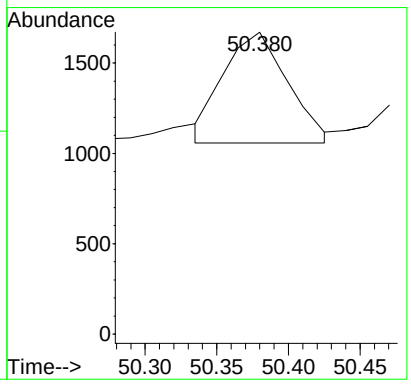
Tgt Ion:191 Resp: 614

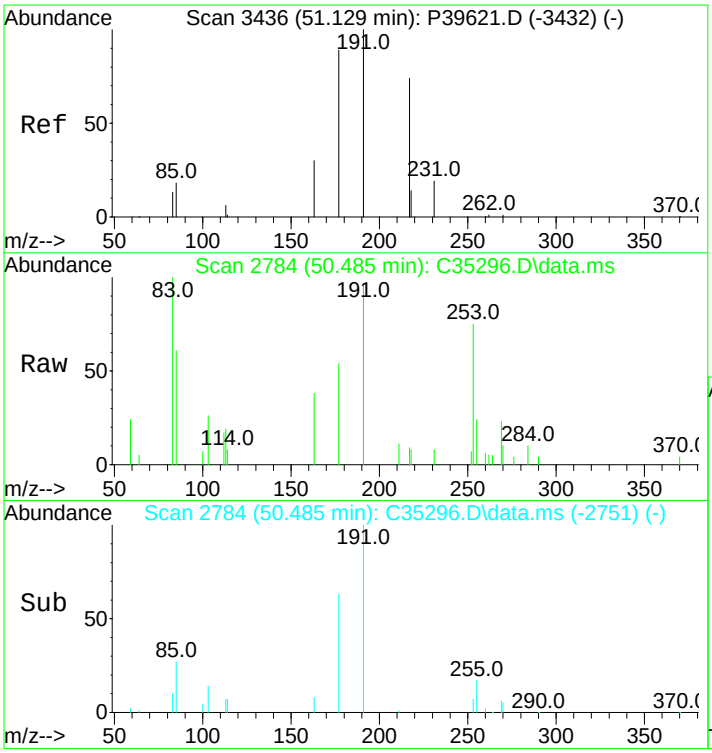




#110
30-Norhopane (T15)
Concen: 98.48 ng/ml m
RT: 50.380 min Scan# 2777
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

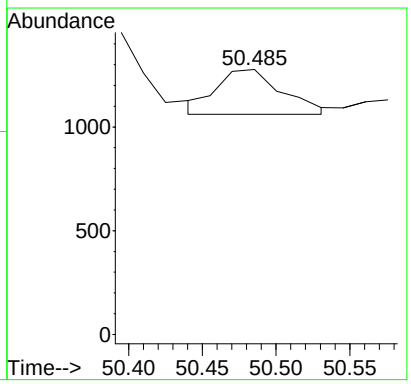
Tgt Ion:191 Resp: 1909

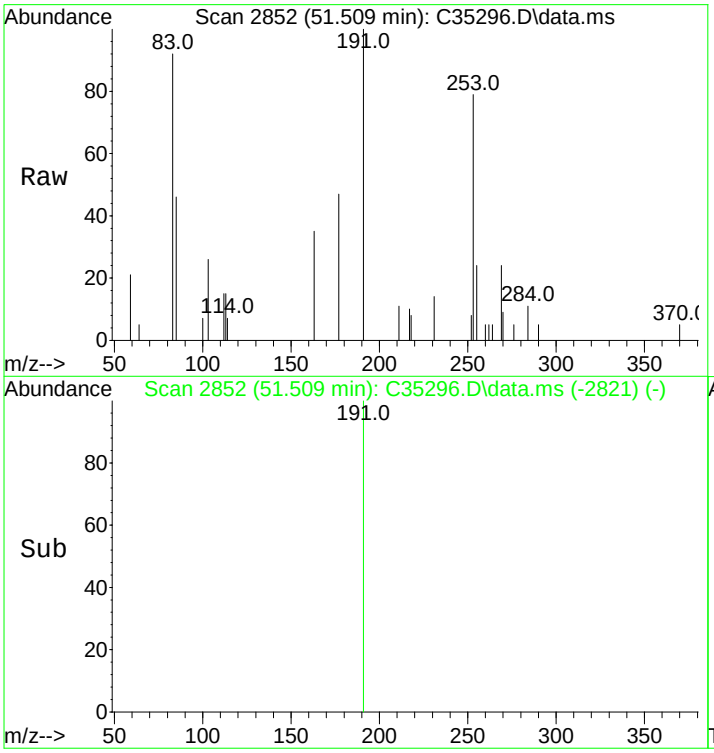




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 34.30 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

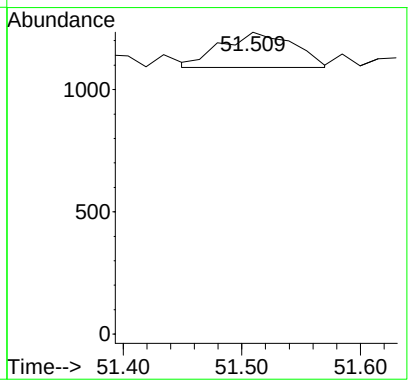
Tgt Ion:191 Resp: 665

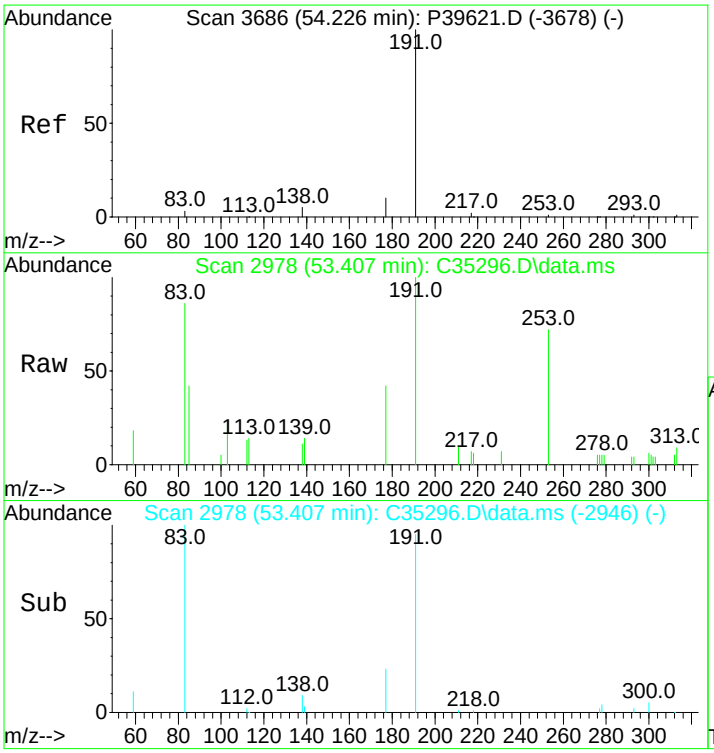




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 31.26 ng/ml m
RT: 51.509 min Scan# 2852
Delta R.T. -0.030 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

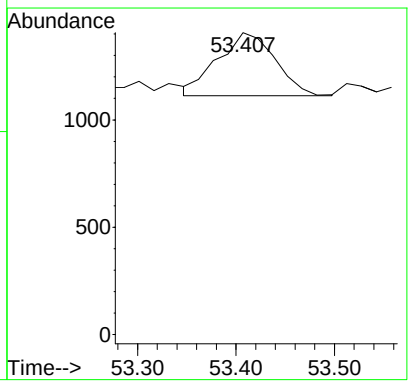
Tgt Ion:191 Resp: 606

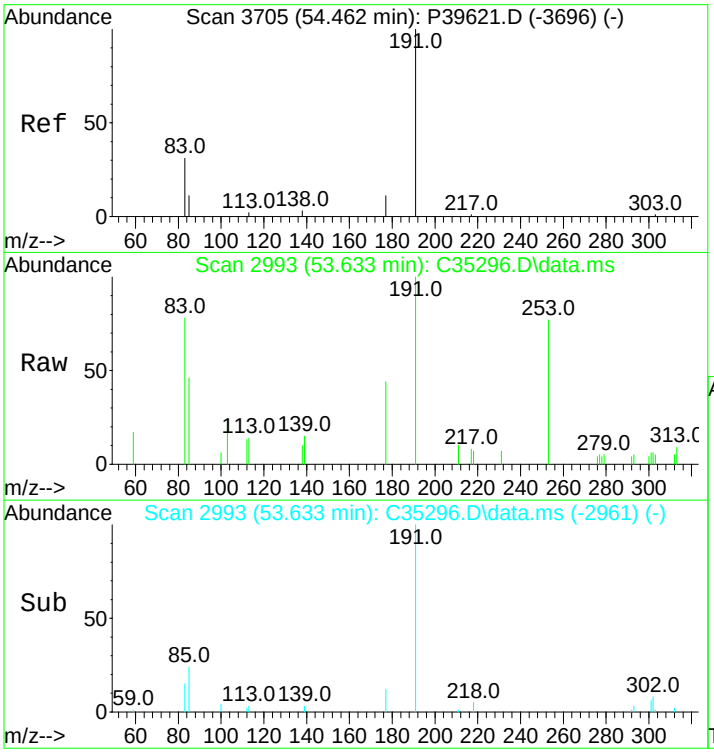




#116
30-Homohopane-22S (T21)
Concen: 61.08 ng/ml m
RT: 53.407 min Scan# 2978
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

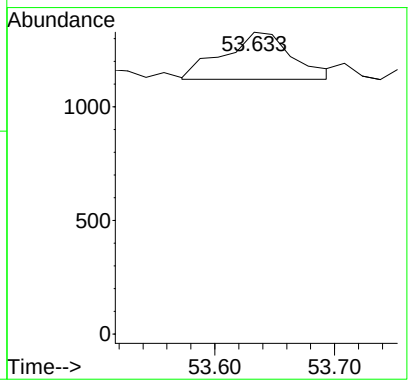
Tgt Ion:191 Resp: 1184

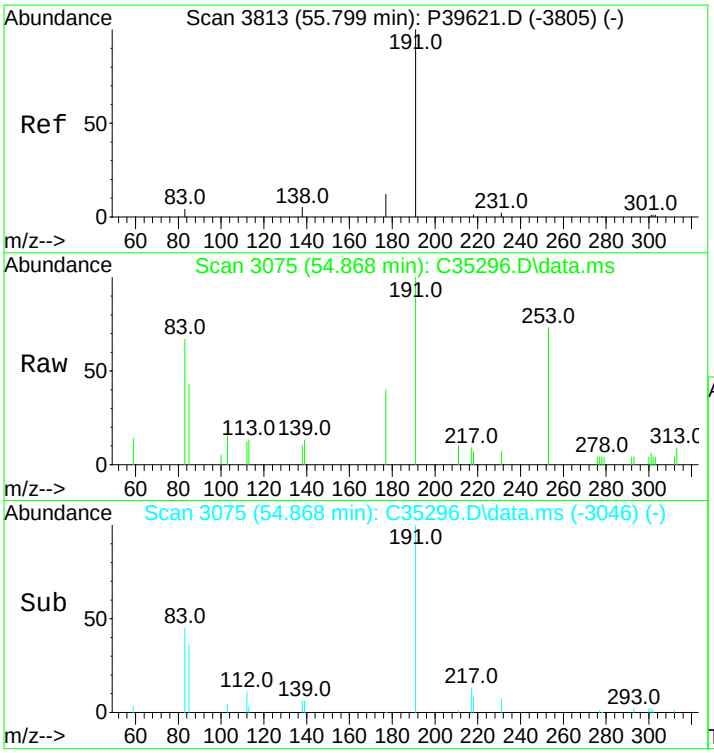




#117
30-Homohopane-22R (T22)
Concen: 42.40 ng/ml m
RT: 53.633 min Scan# 2993
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

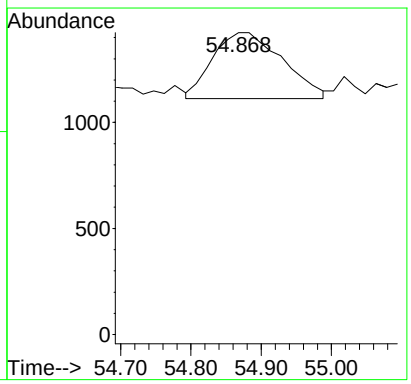
Tgt Ion:191 Resp: 822

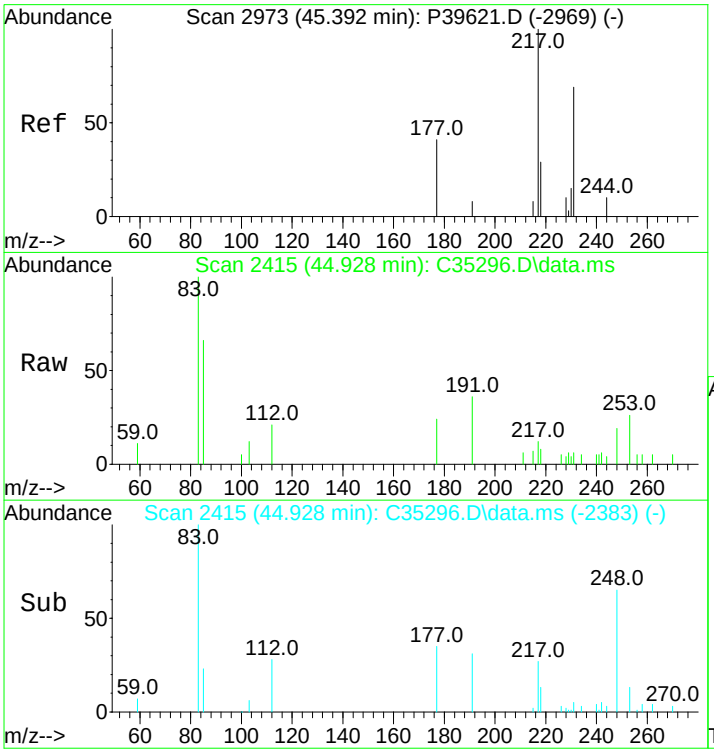




#119
30,31-Bishomohopane-22S (T26)
Concen: 110.86 ng/ml m
RT: 54.868 min Scan# 3075
Delta R.T. -0.060 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

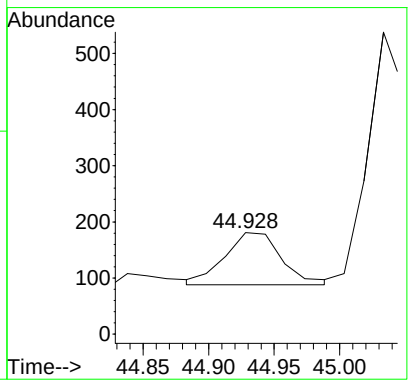
Tgt Ion:191 Resp: 2149

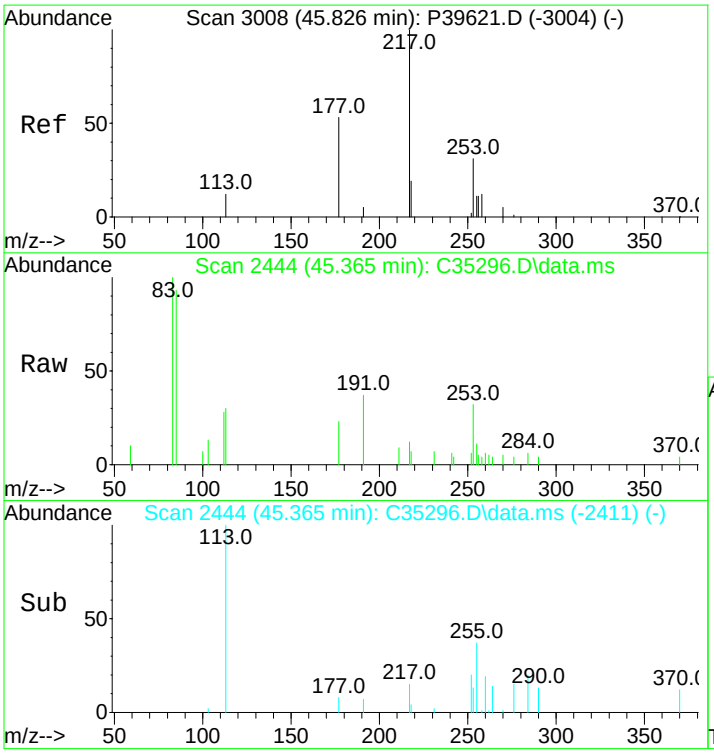




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 30.56 ng/ml m
RT: 44.928 min Scan# 2415
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

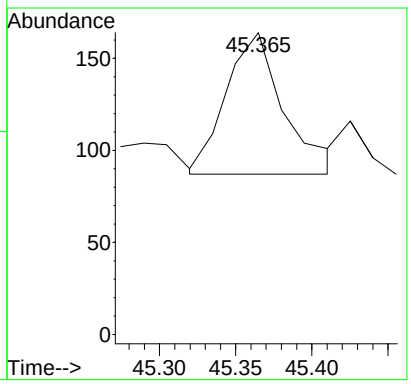
Tgt Ion:217 Resp: 281

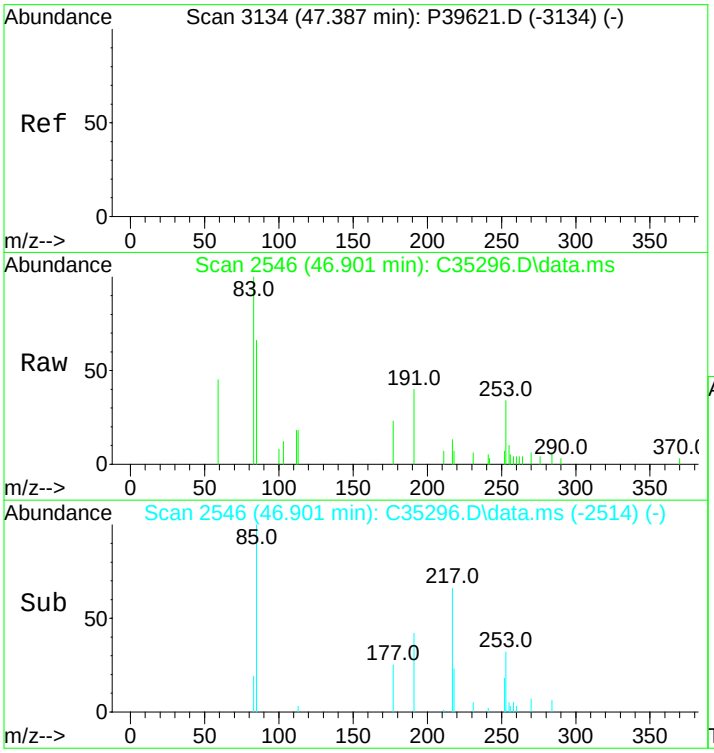




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 22.07 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

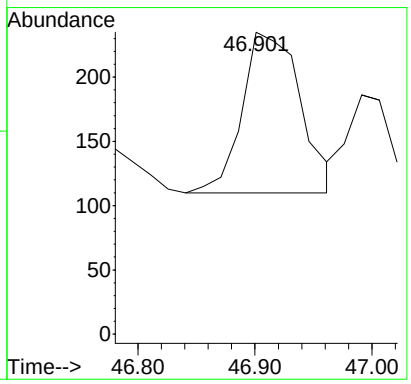
Tgt Ion:217 Resp: 203

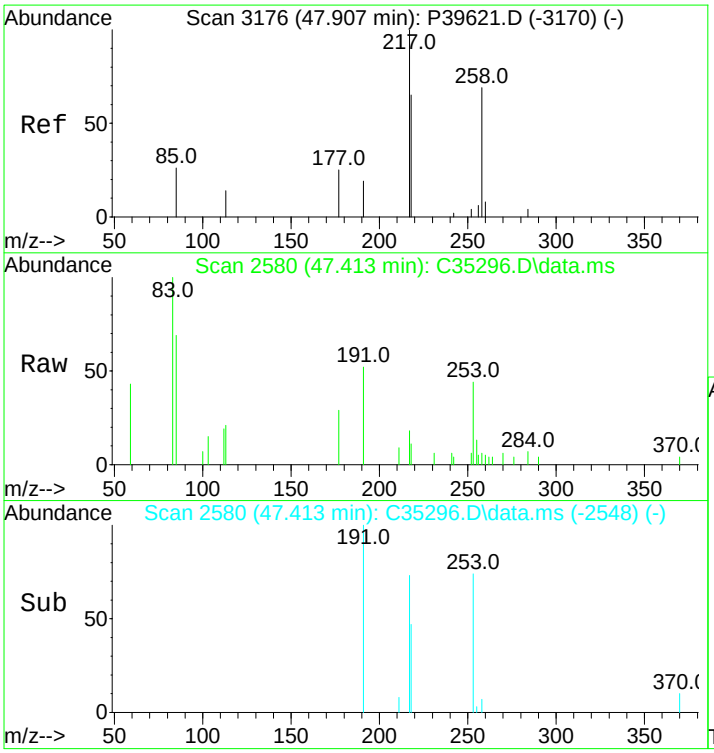




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 47.09 ng/ml
RT: 46.901 min Scan# 2546
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

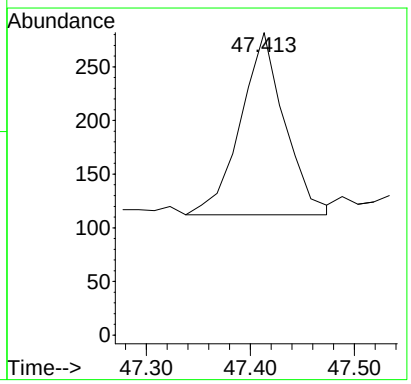
Tgt Ion:217 Resp: 433

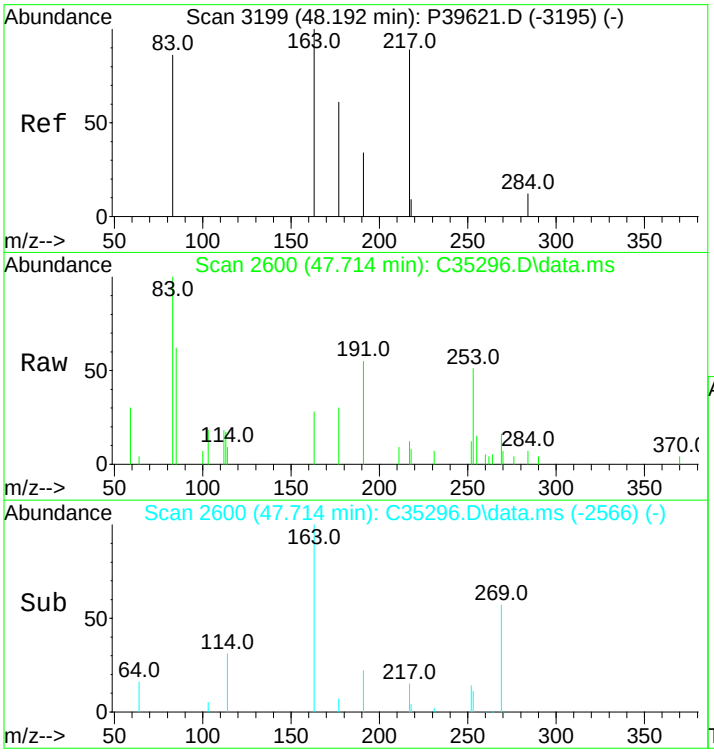




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 54.59 ng/ml
RT: 47.413 min Scan# 2580
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

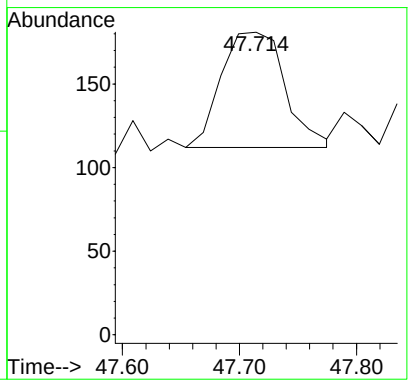
Tgt Ion:217 Resp: 502

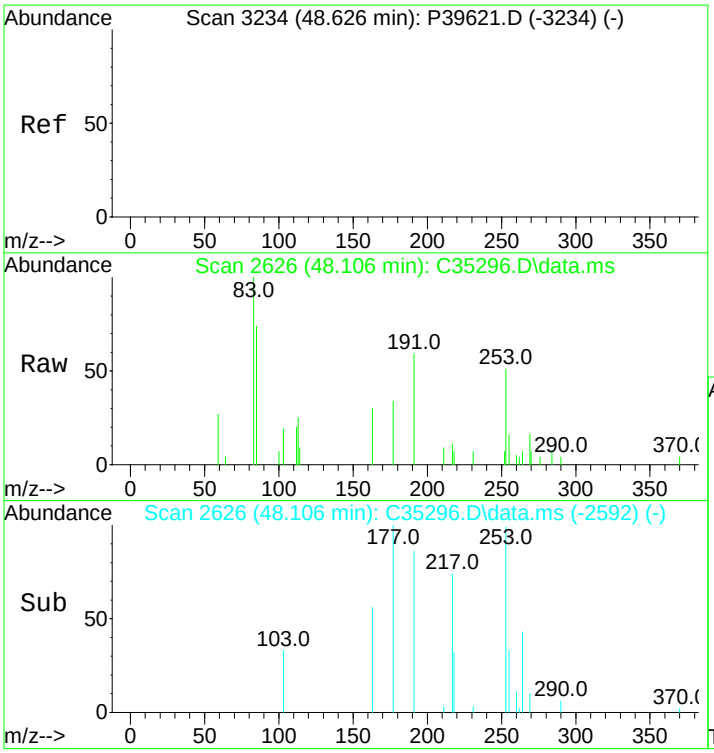




#133
Unknown Sterane (S18)
Concen: 28.49 ng/ml
RT: 47.714 min Scan# 2600
Delta R.T. 0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

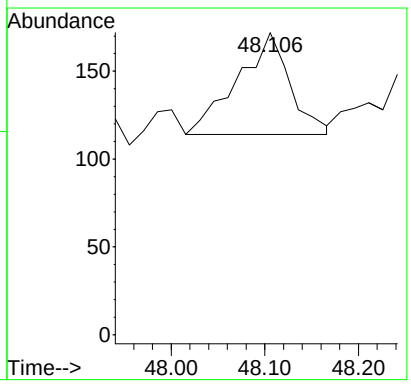
Tgt Ion:217 Resp: 262

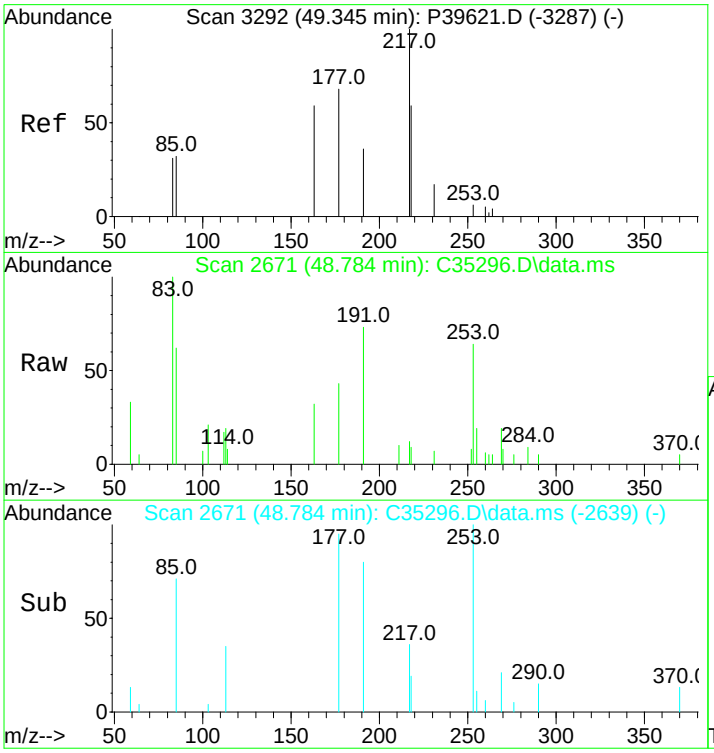




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 24.58 ng/ml
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

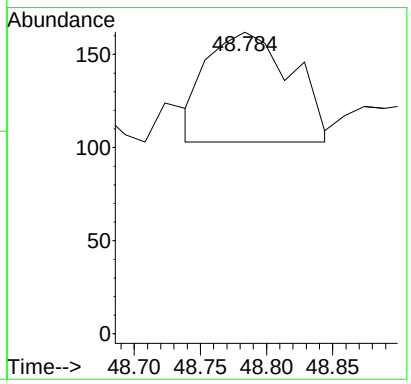
Tgt Ion:217 Resp: 226

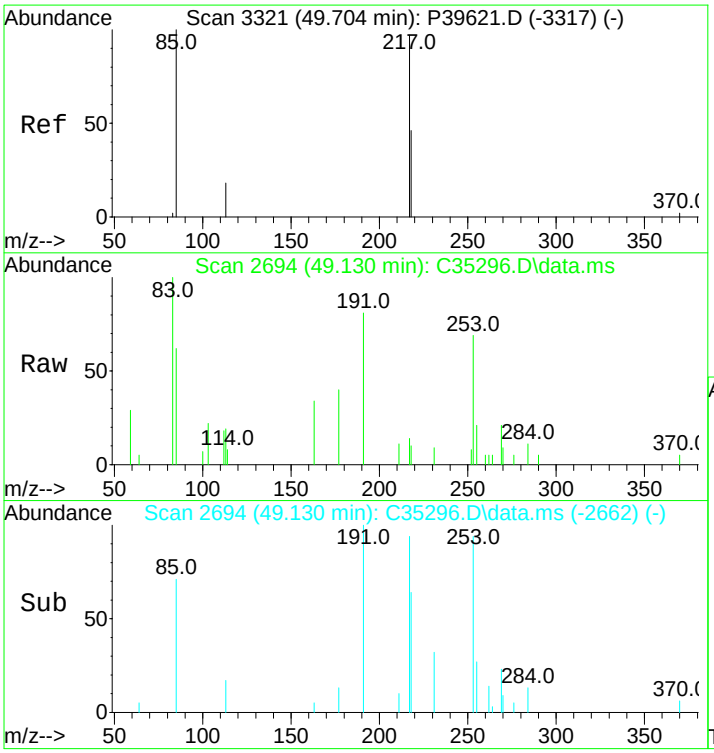




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 28.60 ng/ml m
RT: 48.784 min Scan# 2671
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

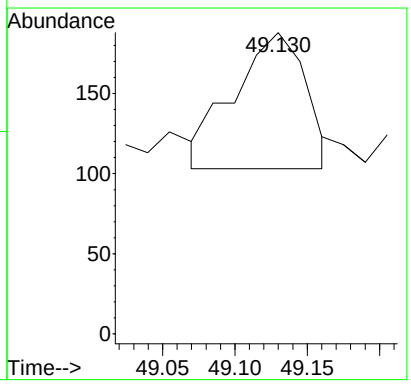
Tgt Ion:217 Resp: 263

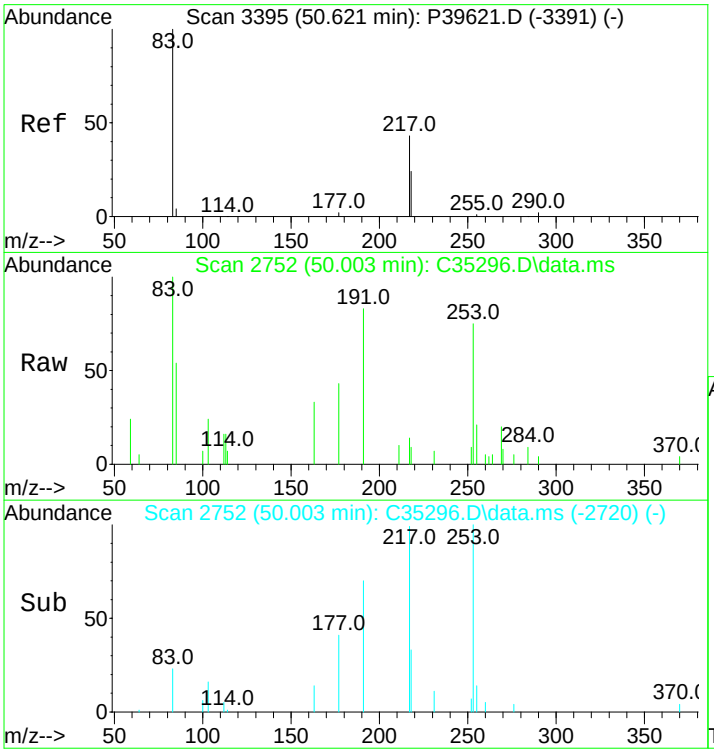




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 31.97 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

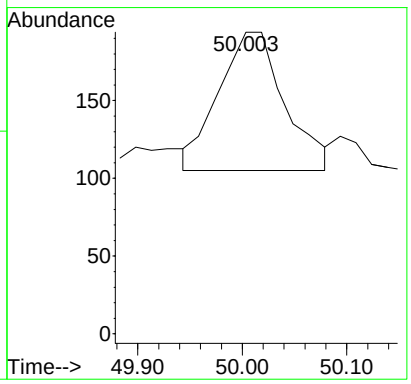
Tgt Ion:217 Resp: 294

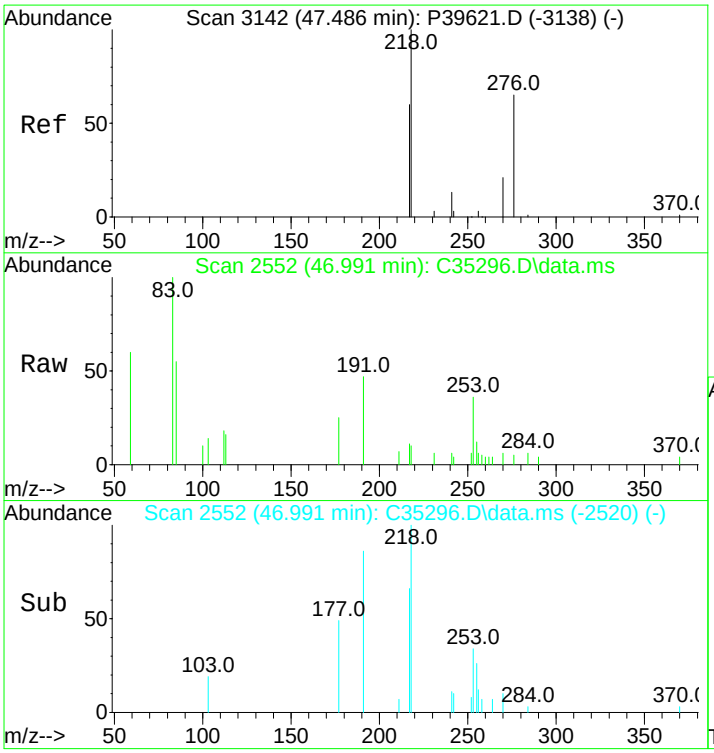




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 42.52 ng/ml m
RT: 50.003 min Scan# 2752
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

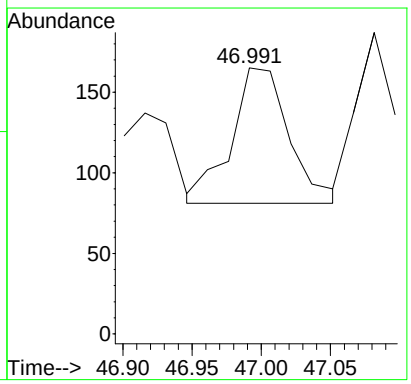
Tgt Ion:217 Resp: 391

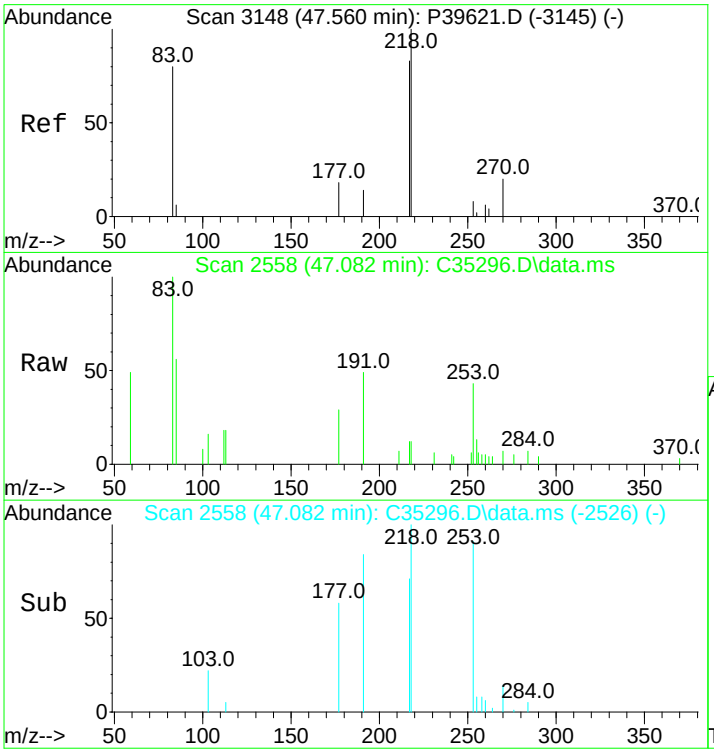




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 26.64 ng/ml m
RT: 46.991 min Scan# 2552
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

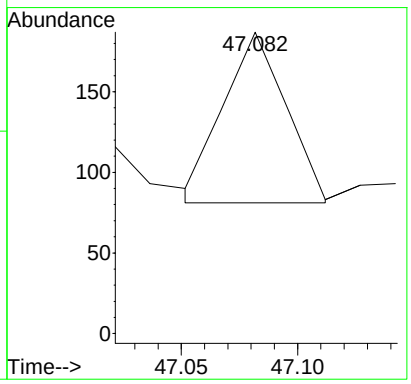
Tgt Ion:218 Resp: 245

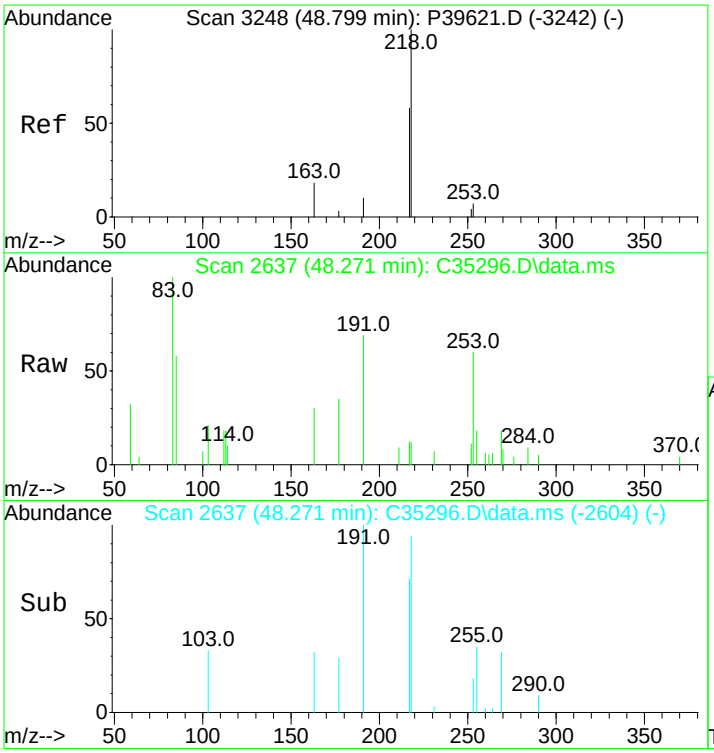




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 21.53 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

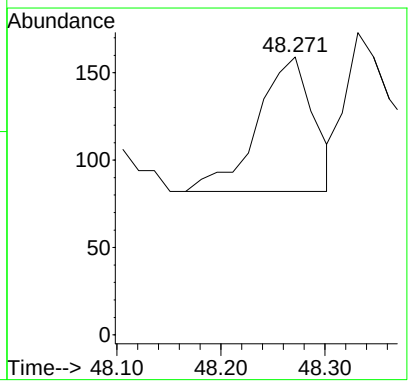
Tgt Ion:218 Resp: 198

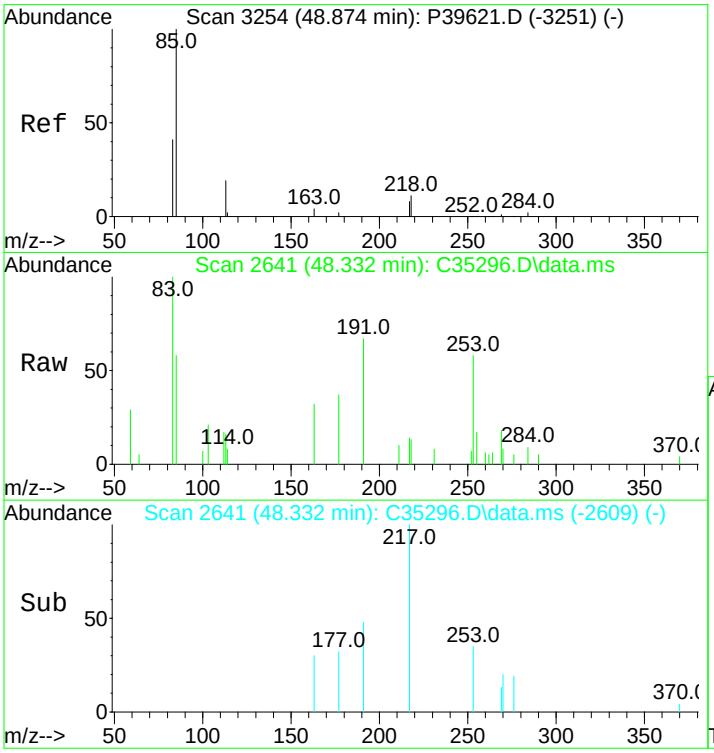




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 31.64 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

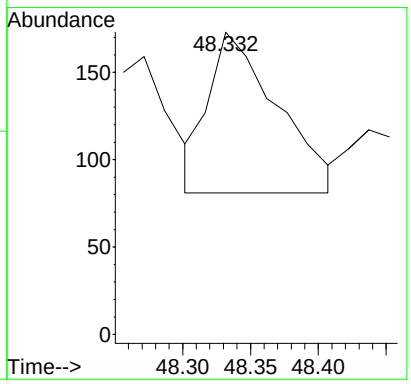
Tgt Ion:218 Resp: 291

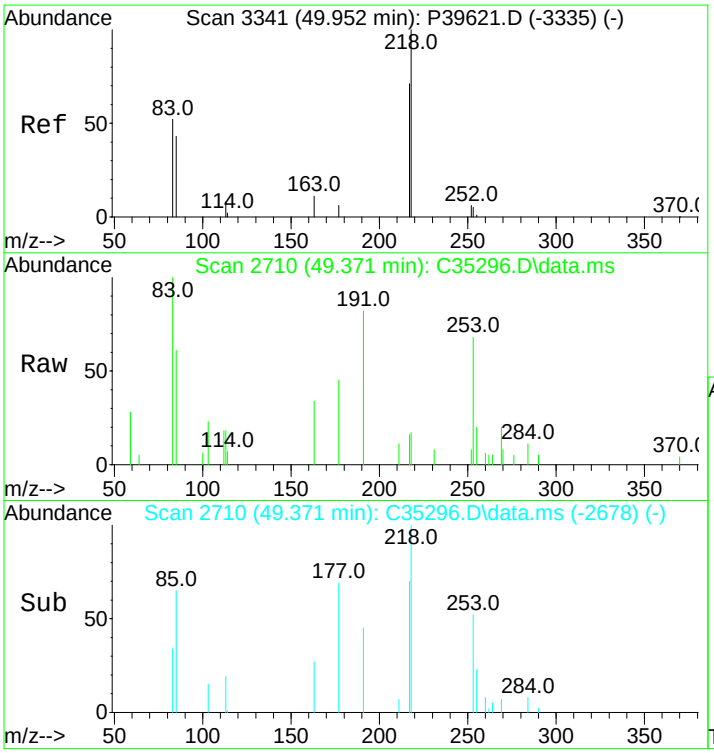




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 35.34 ng/ml m
RT: 48.332 min Scan# 2641
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

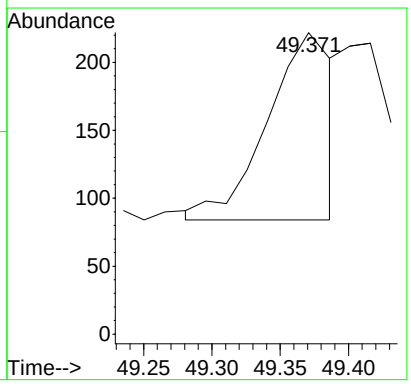
Tgt Ion:218 Resp: 325

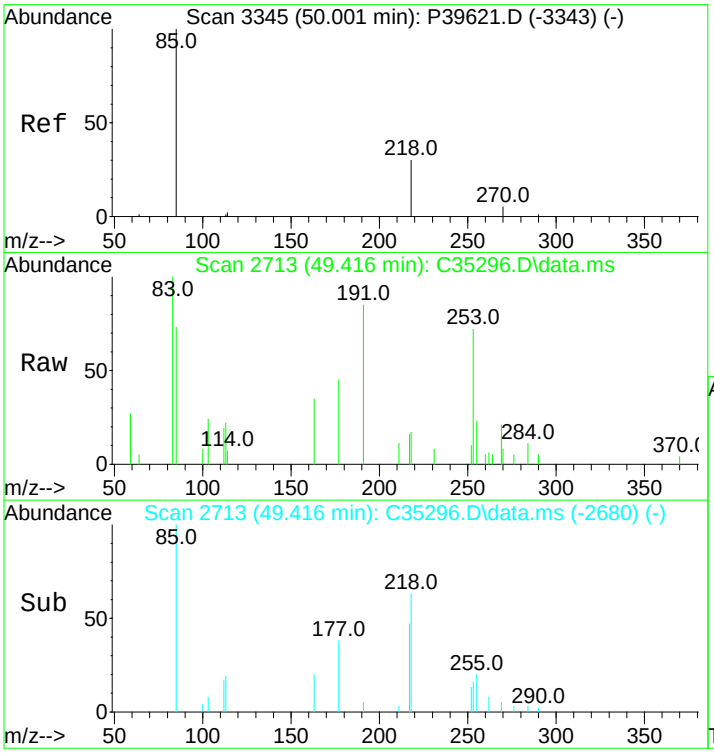




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 49.70 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

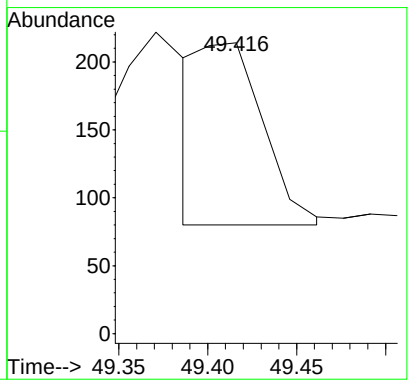
Tgt Ion:218 Resp: 457

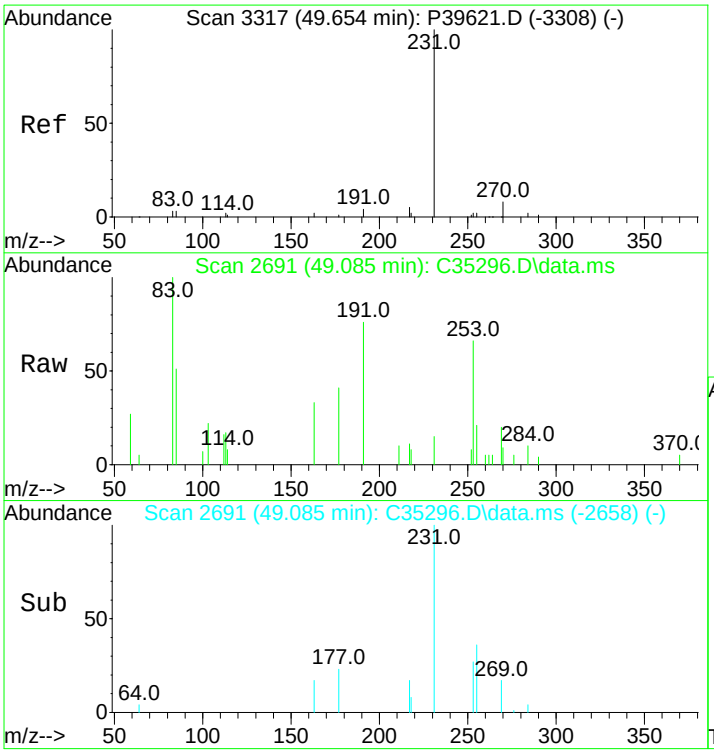




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 36.10 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

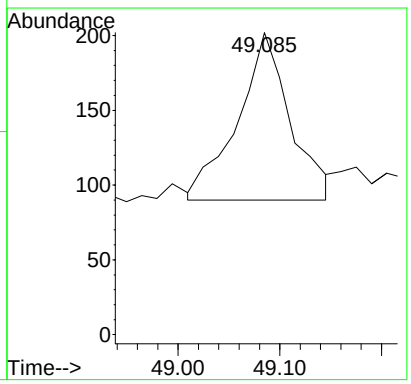
Tgt Ion:218 Resp: 332

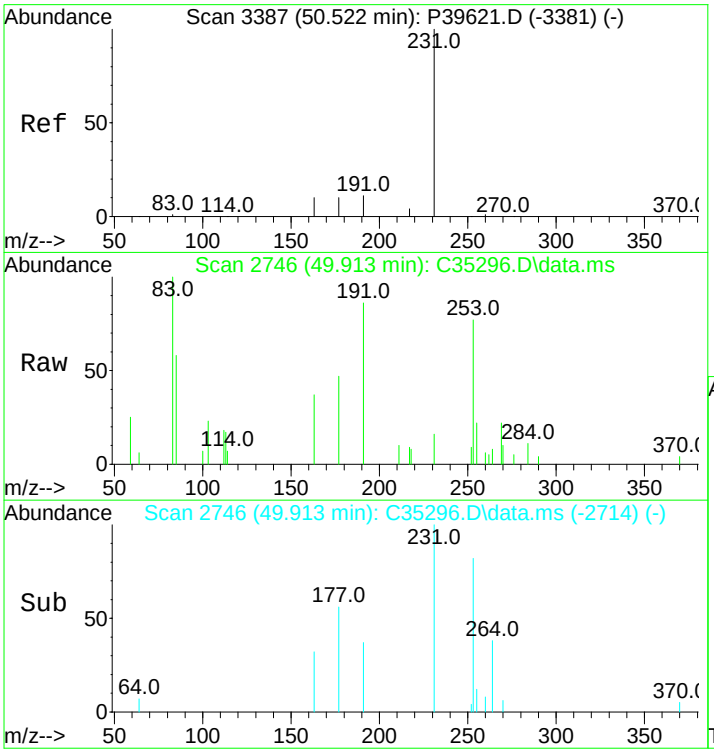




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 43.82 ng/mL m
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

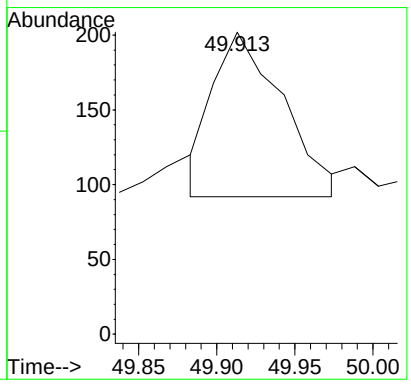
Tgt Ion:231 Resp: 403

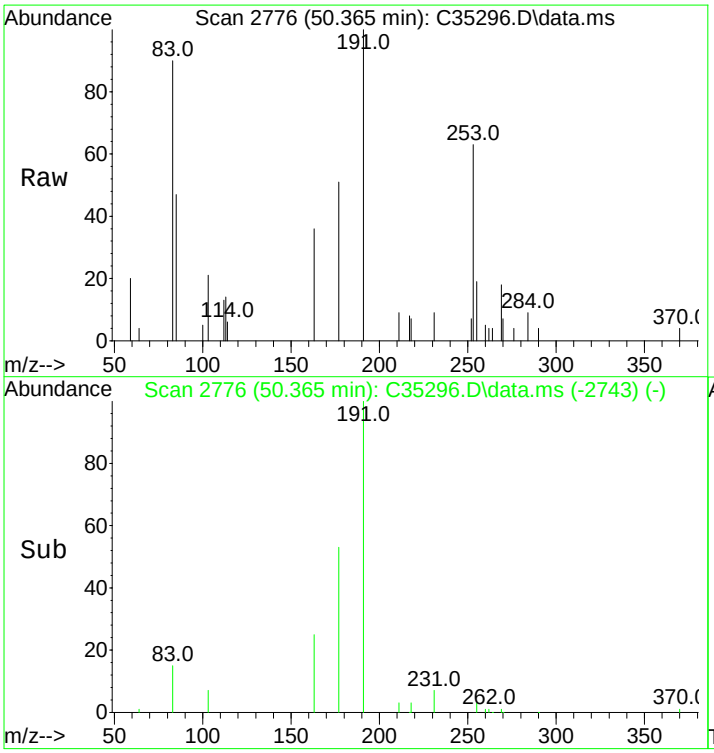




#146
C28,20S-triaromatic steroid
Concen: 37.19 ng/mL m
RT: 49.913 min Scan# 2746
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

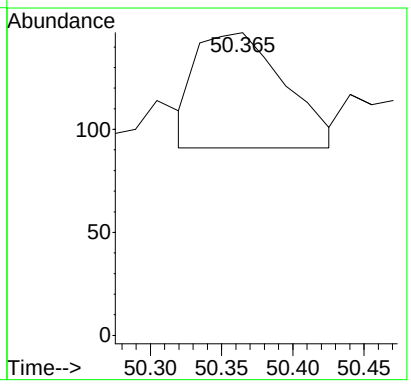
Tgt Ion:231 Resp: 342

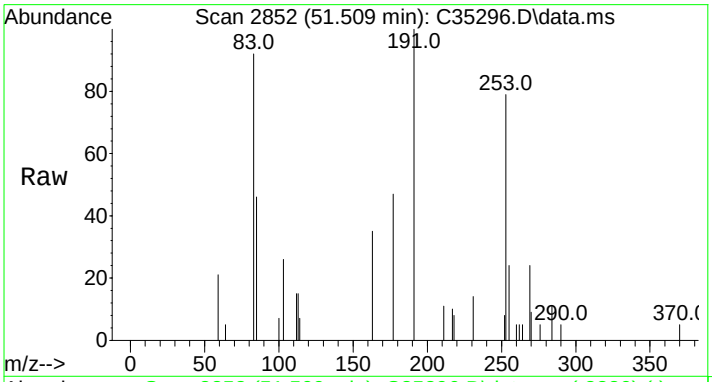




#147
C27,20R-triaromatic steroid
Concen: 26.21 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

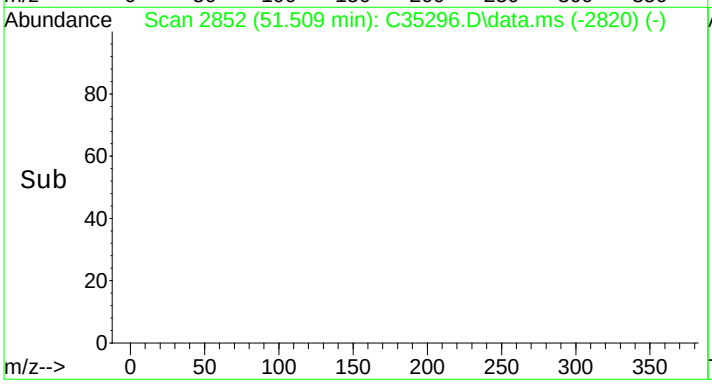
Tgt Ion:231 Resp: 241

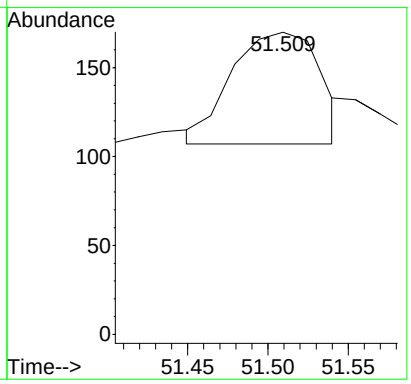




#148
C28,20R-triaromatic steroid
Concen: 26.21 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35296.D
Acq: 25 May 2012 8:36 am

Tgt Ion:231 Resp: 241





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35306.D
Acq On : 25 May 2012 4:21 pm
Operator : AC
Sample : SS052312B03
Misc : 1X ETR1205027
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 29 09:47:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	11852	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	22130	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	17308M3	336.465	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 33.65%#			
42) Phenanthrene-d10	32.221	188	14798	363.949	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.39%#			
86) Benzo[a]pyrene-d12	47.835	264	15412M3	336.046	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 33.60%#			
127) 5B(H)Cholane - Surr	43.422	217	2824	408.154	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.82%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	131M3	1.734	ng/mL	
25) Dibenzofuran	27.133	168	91M2	1.403	ng/mL	
43) Phenanthrene	32.311	178	59M2	0.860	ng/mL	

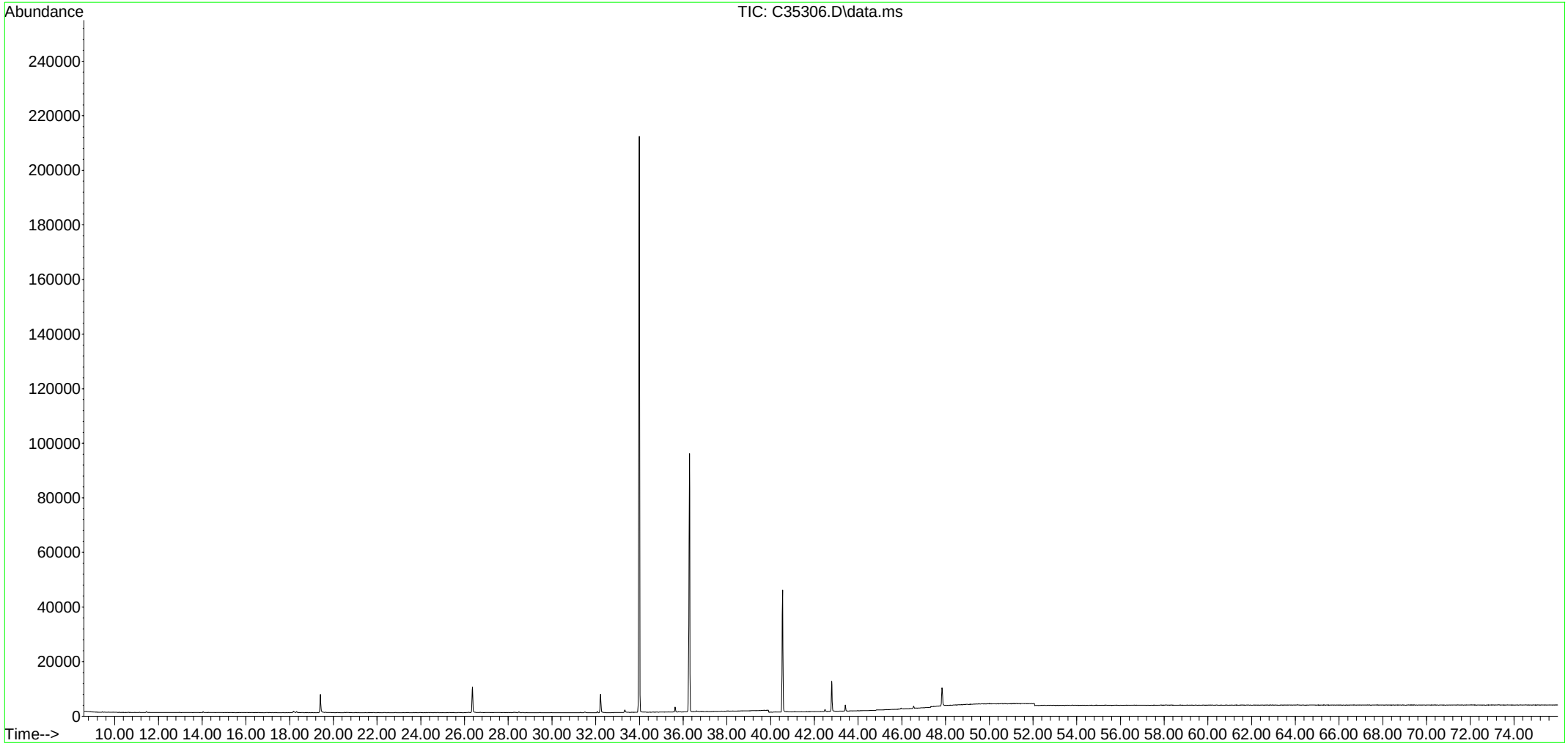
(#) = qualifier out of range (m) = manual integration (+) = signals summed

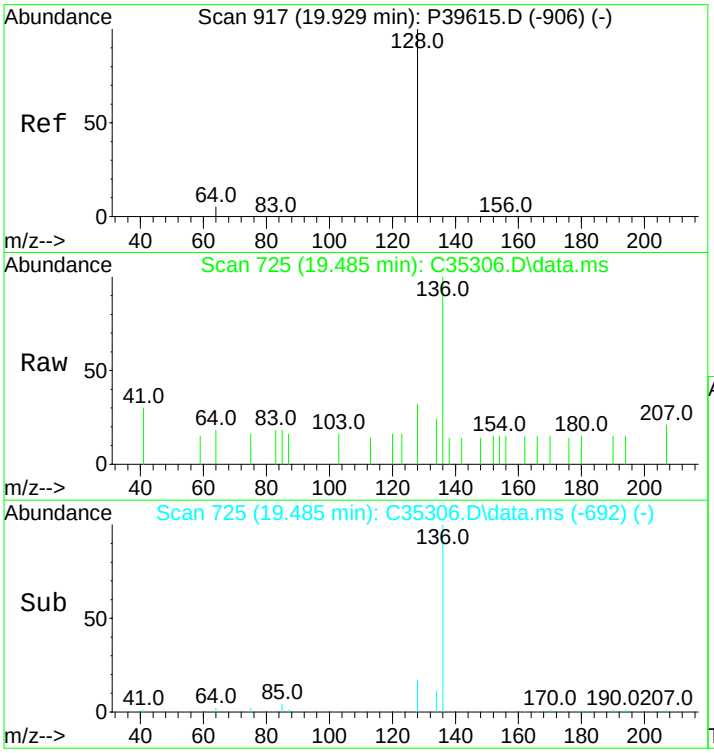
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35306.D
Acq On : 25 May 2012 4:21 pm
Operator : AC
Sample : SS052312B03
Misc : 1X ETR1205027
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 29 09:47:48 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

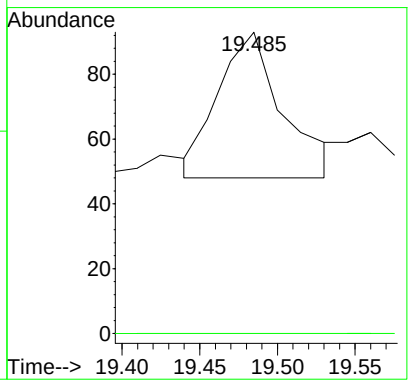


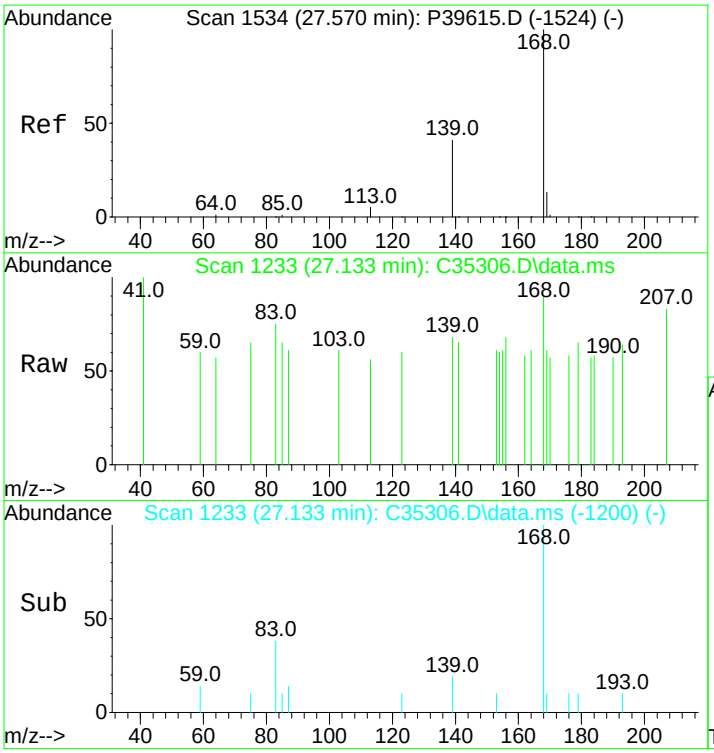


#10
Naphthalene
Concen: 1.73 ng/mL m
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35306.D
Acq: 25 May 2012 4:21 pm

Tgt Ion:128 Resp: 131

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

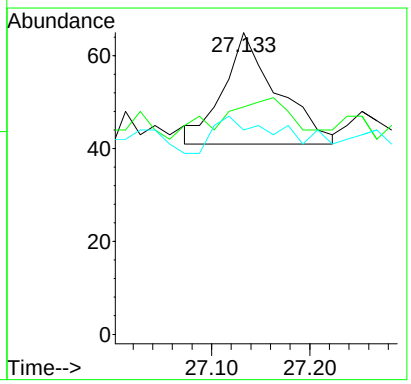


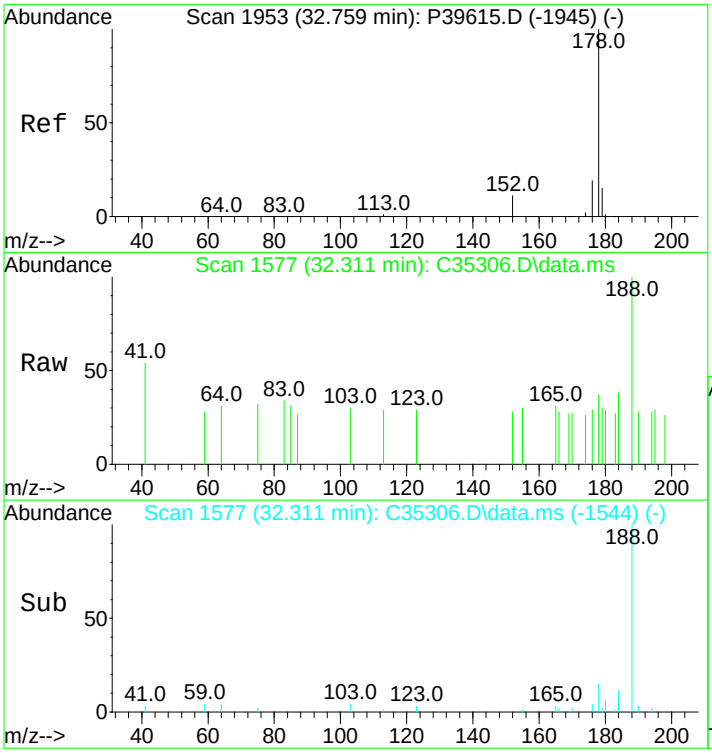


#25
Dibenzofuran
Concen: 1.40 ng/mL m
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35306.D
Acq: 25 May 2012 4:21 pm

Tgt Ion:168 Resp: 91

Ion	Ratio	Lower	Upper
168	100		
139	0.0	29.9	44.9#
169	0.0	10.3	15.5#

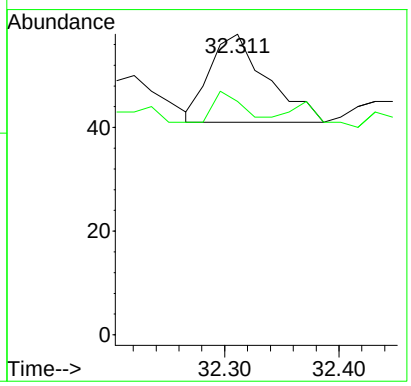




#43
Phenanthrene
Concen: 0.86 ng/mL m
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35306.D
Acq: 25 May 2012 4:21 pm

Tgt Ion:178 Resp: 59

Ion	Ratio	Lower	Upper
178	100		
176	0.0	15.8	23.6#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35308.D
Acq On : 25 May 2012 5:54 pm
Operator : AC
Sample : SS052312C41BN01
Misc : 1X ETR1205027
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 29 09:47:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : SRM_1941b_Default - SRM 1941b Organics in Marine Sediment

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12980	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	27899	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	13200	234.306	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 23.43%#			
42) Phenanthrene-d10	32.221	188	13279	298.209	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 29.82%#			
86) Benzo[a]pyrene-d12	47.850	264	14715	254.503	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.45%#			
127) 5B(H)Cholane - Surr	43.423	217	2638	302.431	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 30.24%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	76530	925.085	ng/mL#	100
29) Fluorene	28.503	166	3590M3	67.320	ng/mL	
43) Phenanthrene	32.311	178	44607	593.930	ng/mL	100
55) Anthracene	32.492	178	16552M3	225.625	ng/mL	
58) Fluoranthene	37.069	202	80849	1083.888	ng/mL	98
60) Pyrene	37.957	202	65907	869.207	ng/mL	96
75) Benz[a]anthracene	42.730	228	34651M3	391.312	ng/mL	
77) Chrysene/Triphenylene	42.896	228	48418	541.591	ng/mL	98
82) Benzo[b]fluoranthene	46.781	252	62823	645.664	ng/mL	94
85) Benzo[e]pyrene	47.744	252	43928	456.435	ng/mL	92
87) Benzo[a]pyrene	47.925	252	33959	366.488	ng/mL	92
88) Perylene	48.226	252	39934	403.258	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.564	276	40515M3	375.724	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	10550	102.849	ng/mL	95
91) Benzo[g,h,i]perylene	53.813	276	36958	324.407	ng/mL	98

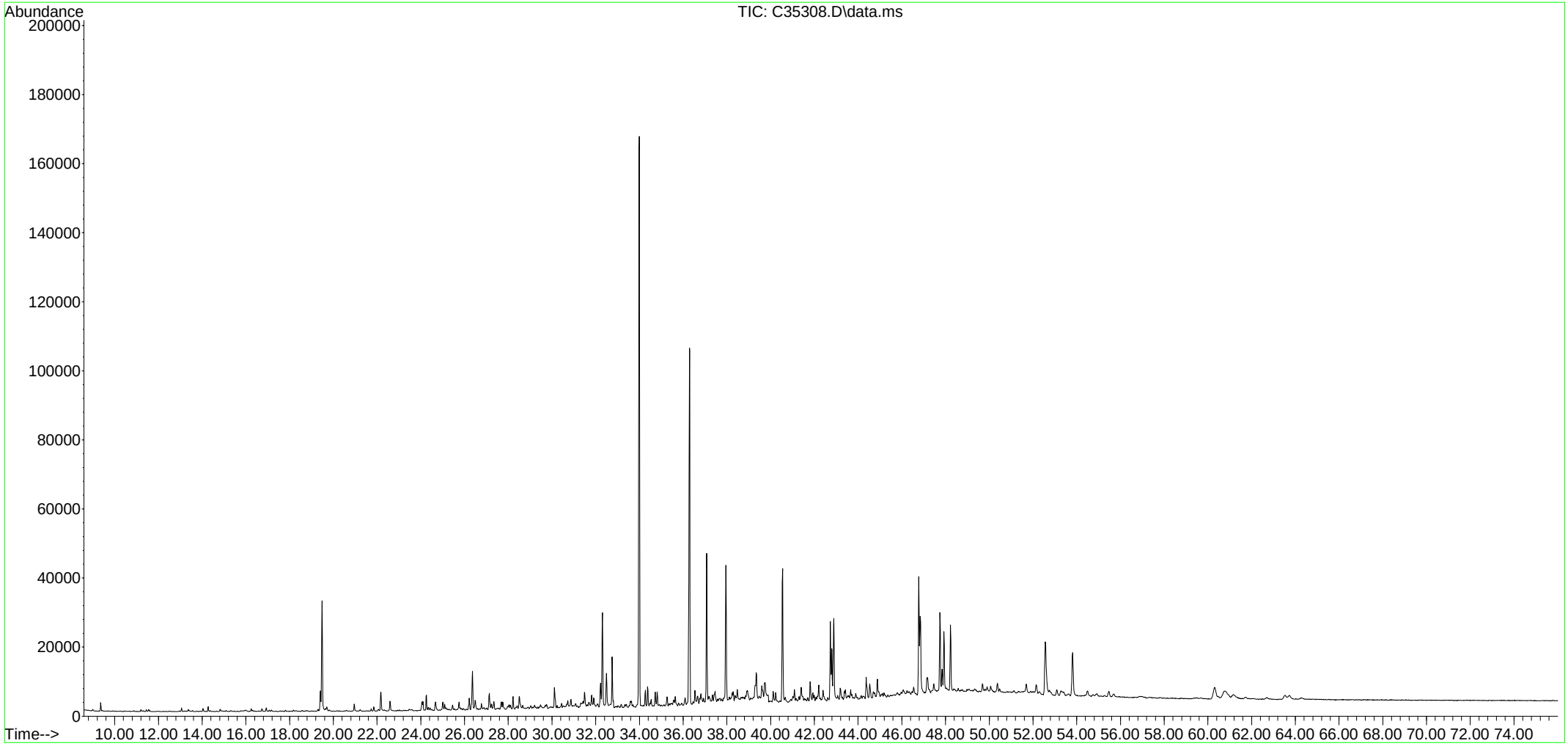
(#) = qualifier out of range (m) = manual integration (+) = signals summed

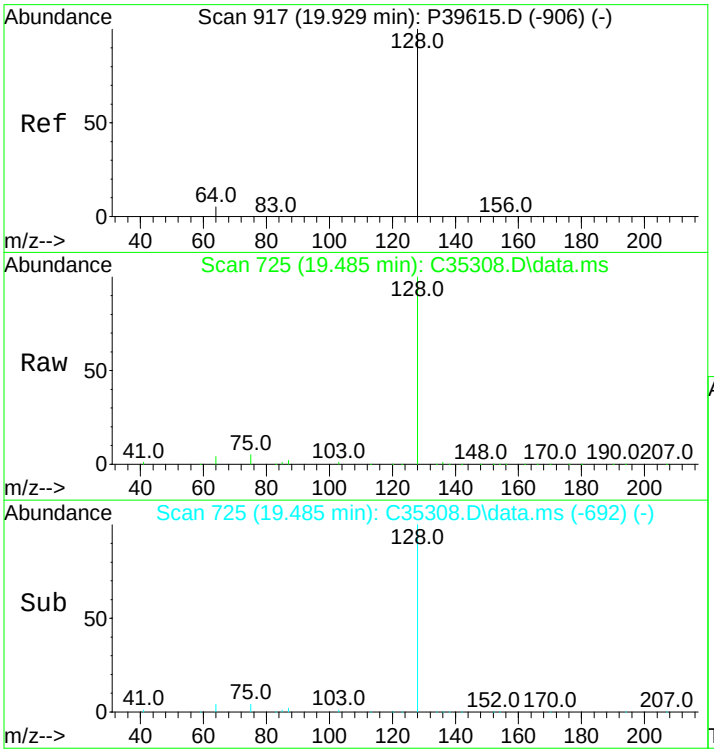
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35308.D
Acq On : 25 May 2012 5:54 pm
Operator : AC
Sample : SS052312C41BN01
Misc : 1X ETR1205027
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 29 09:47:54 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : SRM_1941b_Default - SRM 1941b Organics in Marine Sediment

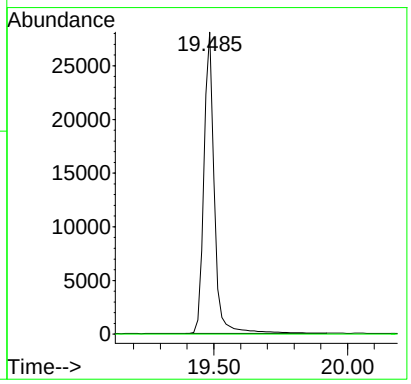


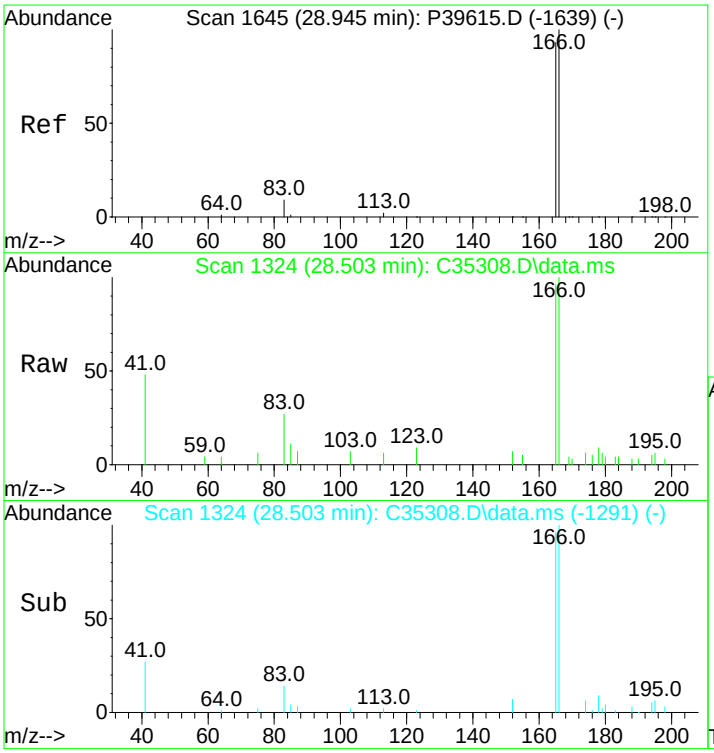


#10
Naphthalene
Concen: 925.09 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:128 Resp: 76530

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

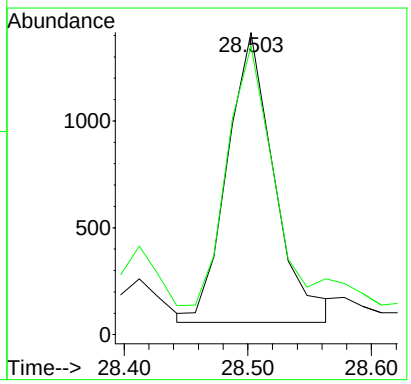


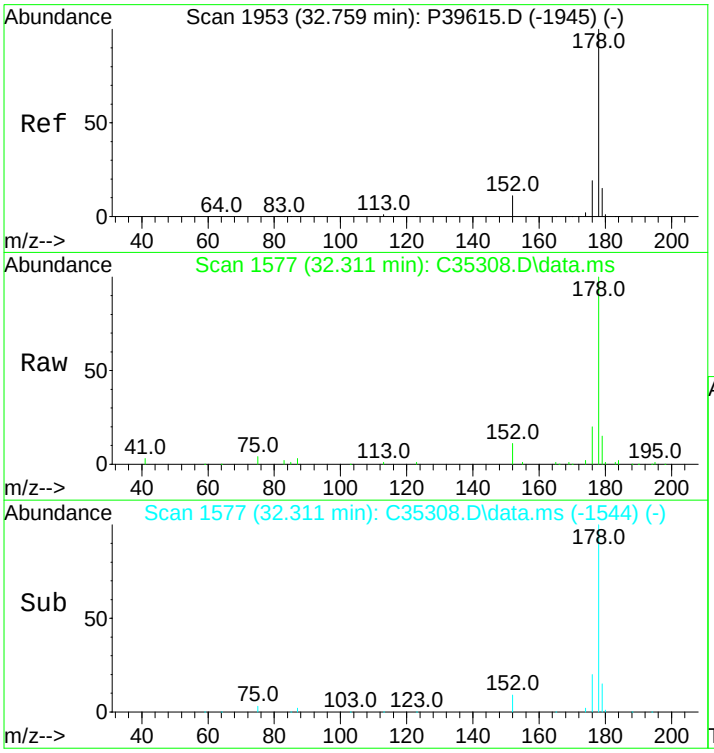


#29
Fluorene
Concen: 67.32 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:166 Resp: 3590

Ion	Ratio	Lower	Upper
166	100		
165	115.4	77.1	115.7

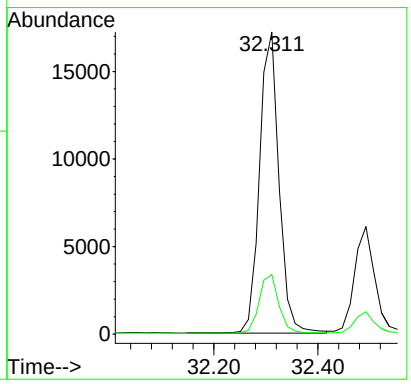


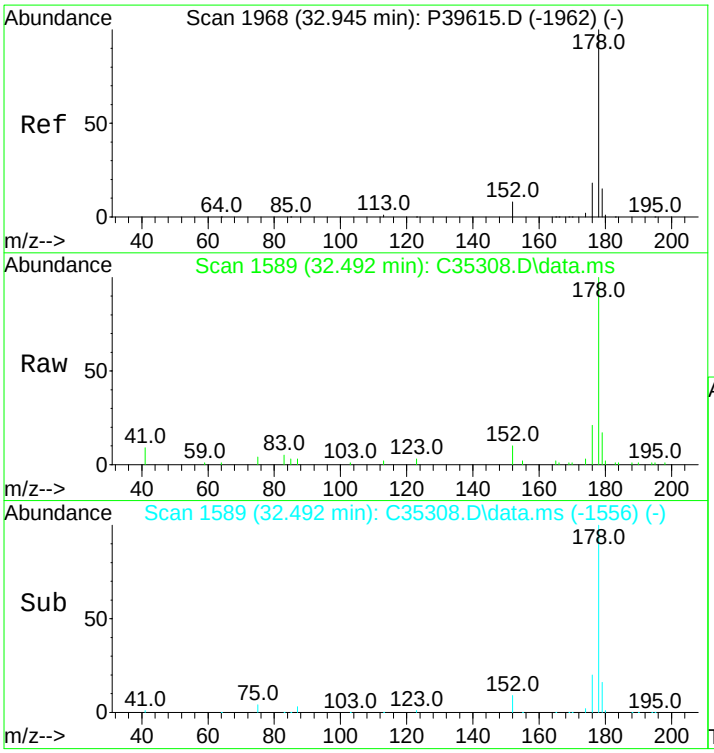


#43
Phenanthrene
Concen: 593.93 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:178 Resp: 44607

Ion	Ratio	Lower	Upper
178	100		
176	19.8	15.8	23.6

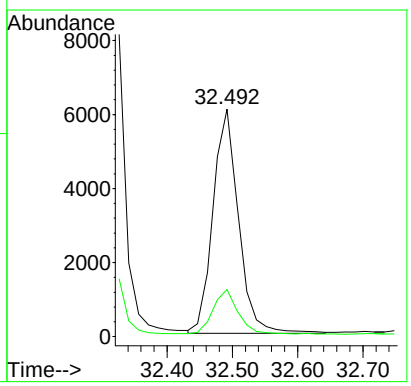


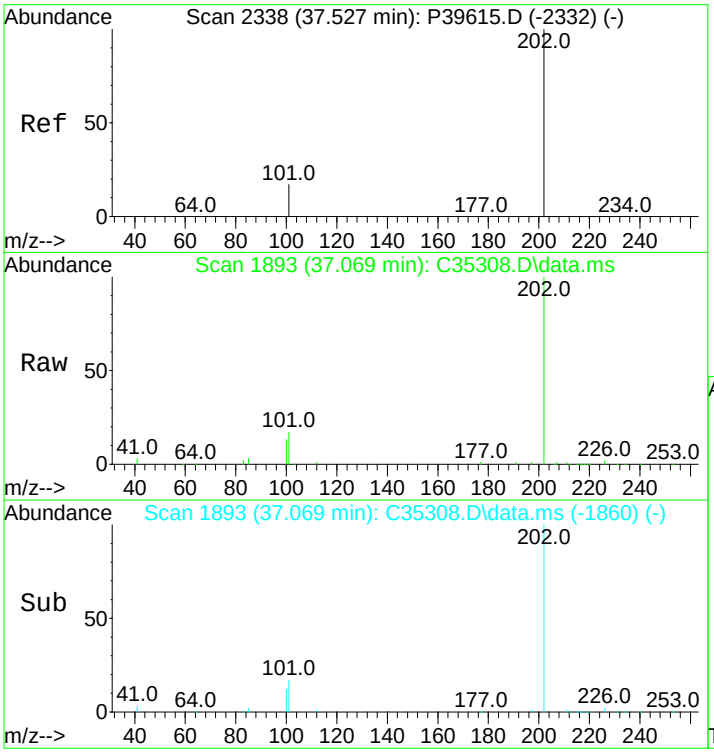


#55
Anthracene
Concen: 225.63 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:178 Resp: 16552

Ion	Ratio	Lower	Upper
178	100		
176	19.4	15.6	23.4

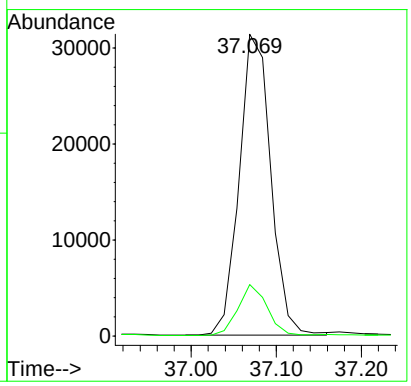


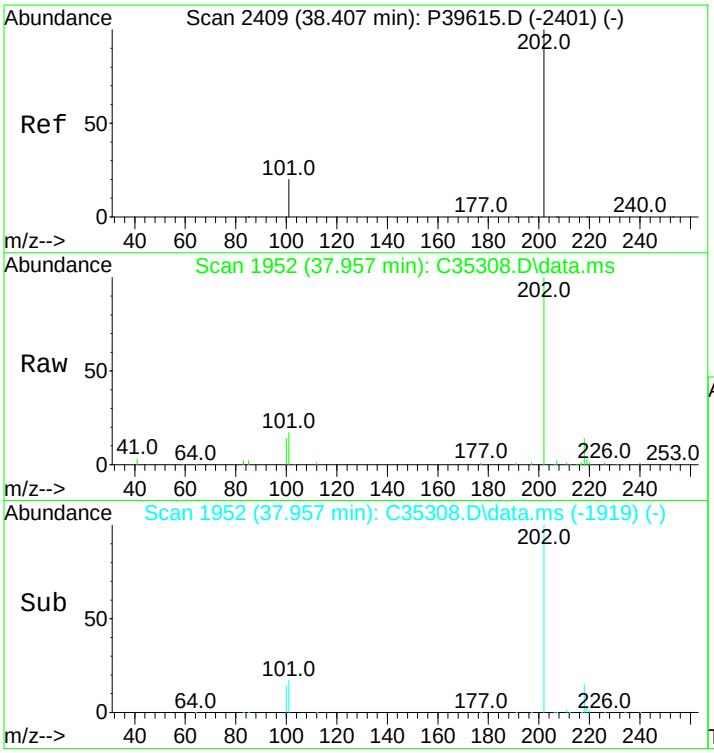


#58
Fluoranthene
Concen: 1083.89 ng/mL
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:202 Resp: 80849

Ion	Ratio	Lower	Upper
202	100		
101	15.6	13.2	19.8

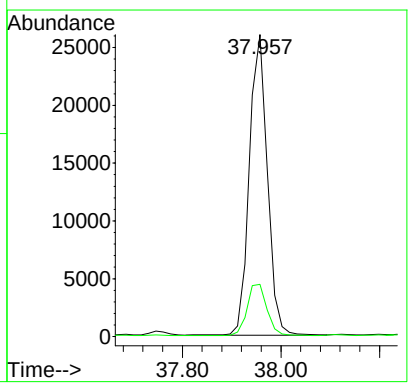


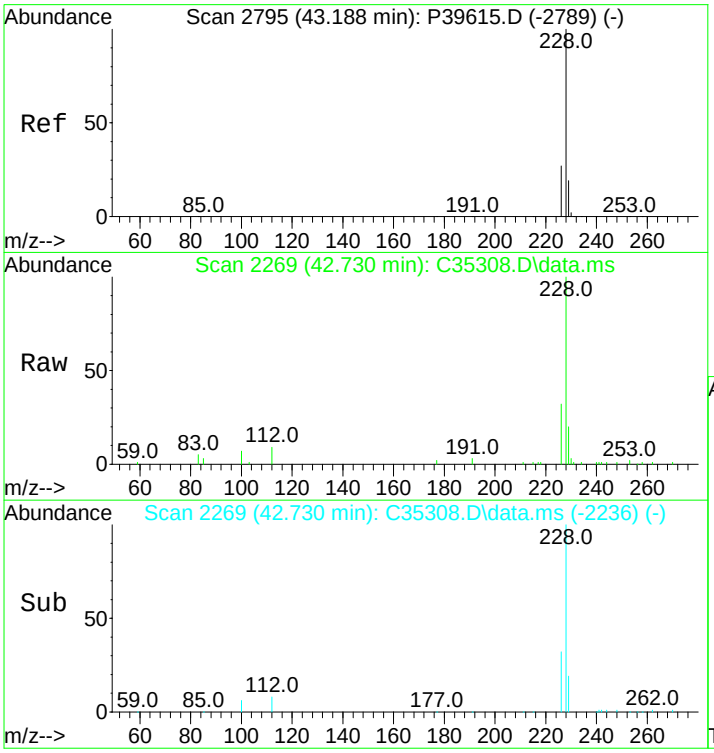


#60
Pyrene
Concen: 869.21 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:202 Resp: 65907

Ion	Ratio	Lower	Upper
202	100		
101	18.8	13.5	20.3

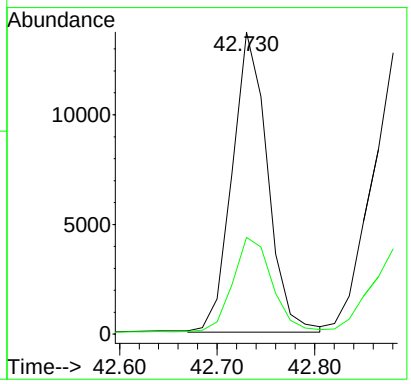


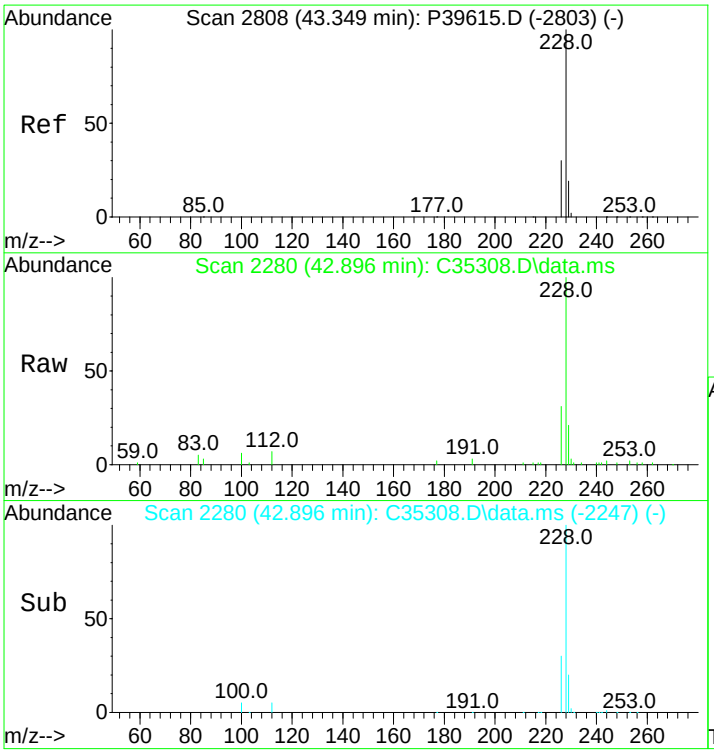


#75
Benz[a]anthracene
Concen: 391.31 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:228 Resp: 34651

Ion	Ratio	Lower	Upper
228	100		
226	40.8	21.5	32.3#

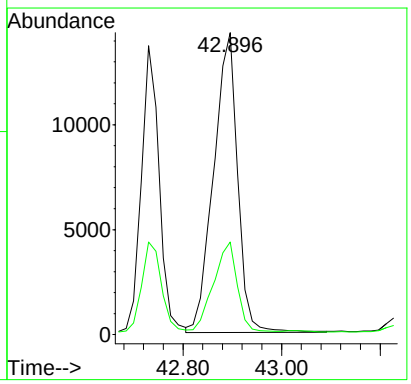


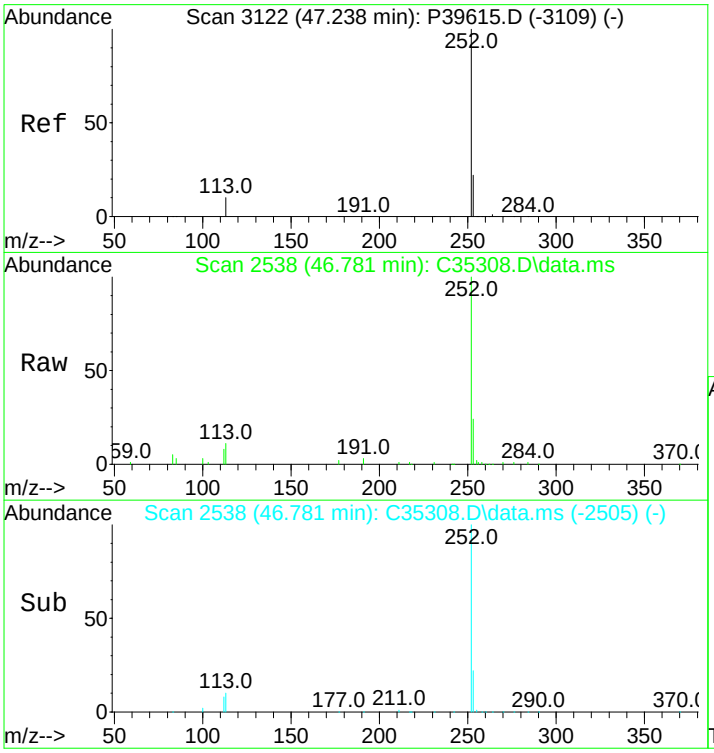


#77
Chrysene/Triphenylene
Concen: 541.59 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:228 Resp: 48418

Ion	Ratio	Lower	Upper
228	100		
226	30.3	23.5	35.3

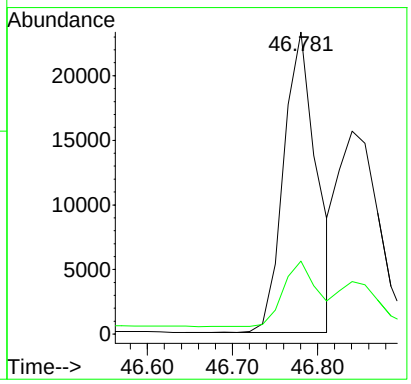


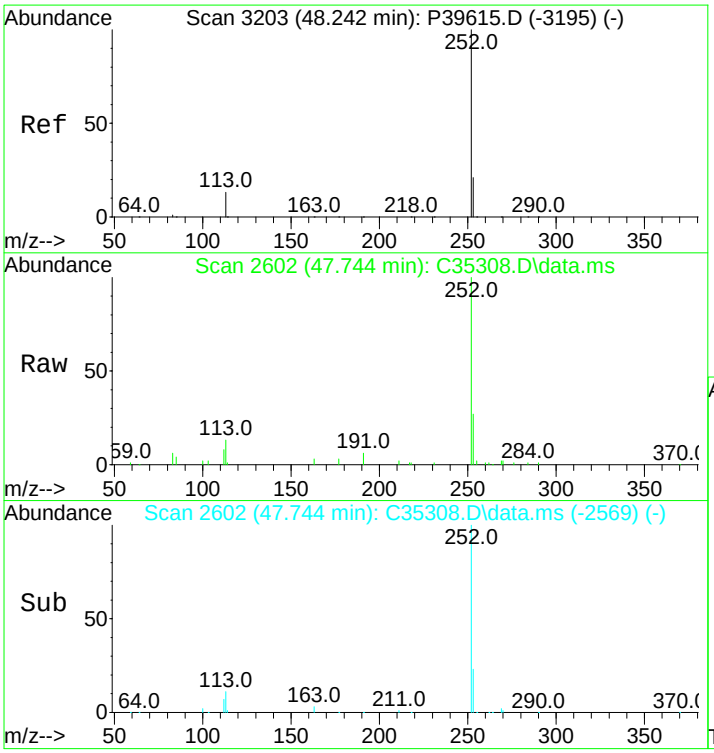


#82
Benzo[b]fluoranthene
Concen: 645.66 ng/mL
RT: 46.781 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:252 Resp: 62823

Ion	Ratio	Lower	Upper
252	100		
253	22.6	20.4	30.6

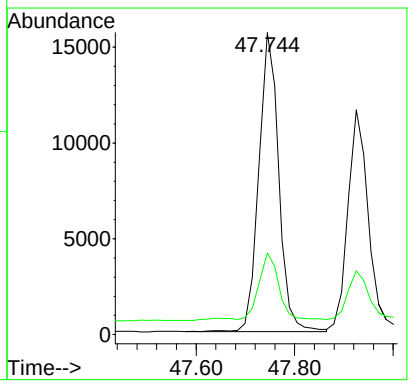


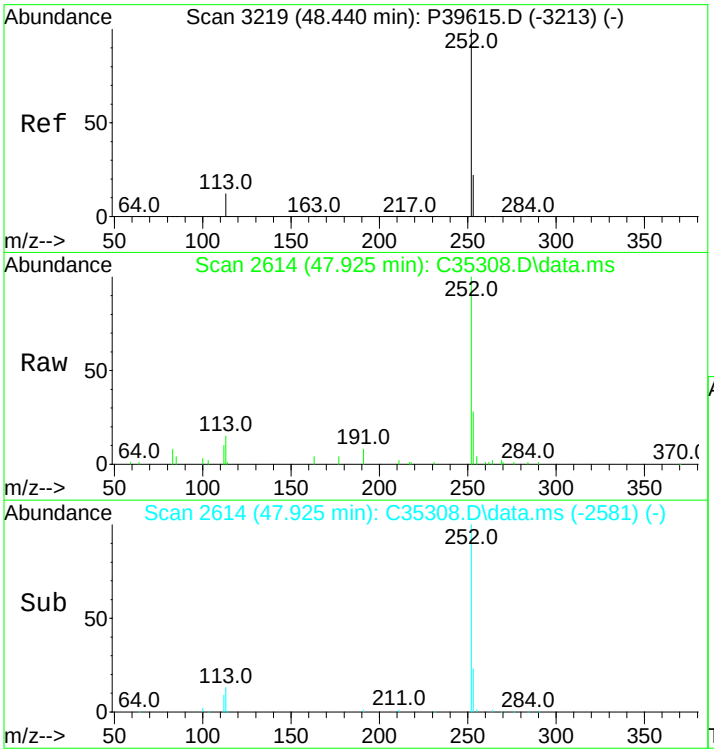


#85
Benzo[e]pyrene
Concen: 456.43 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:252 Resp: 43928

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.0	31.6

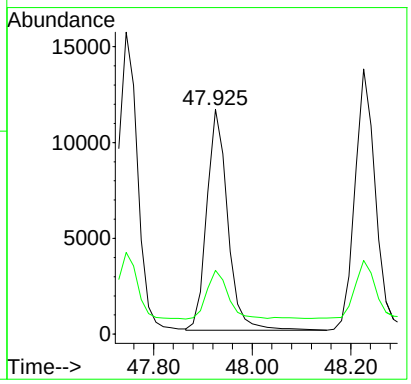


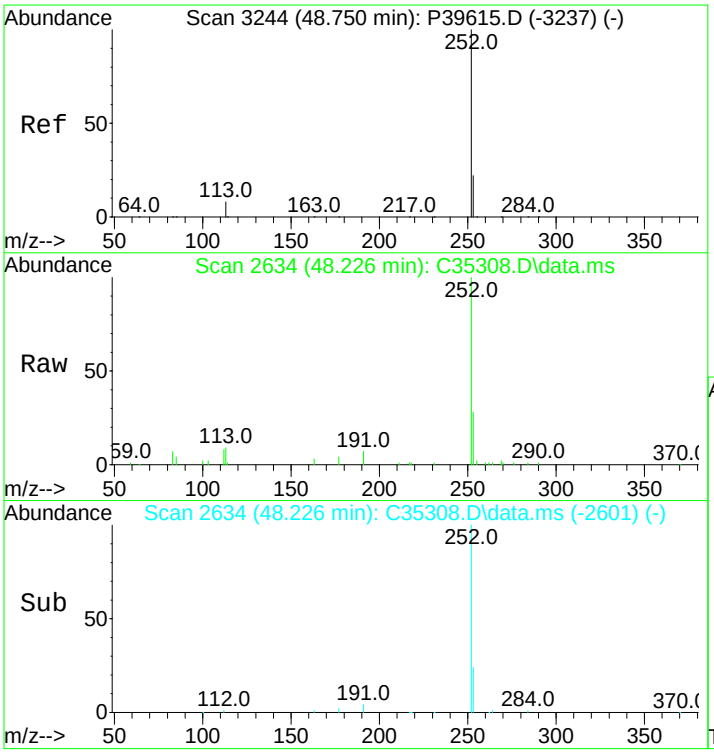


#87
Benzo[a]pyrene
Concen: 366.49 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:252 Resp: 33959

Ion	Ratio	Lower	Upper
252	100		
253	22.5	21.4	32.0

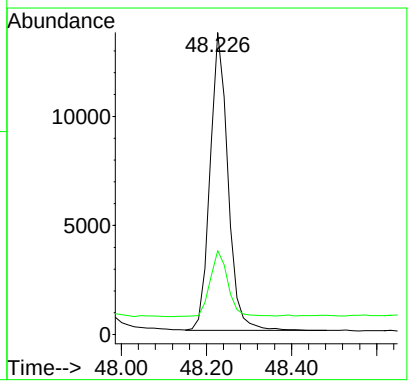


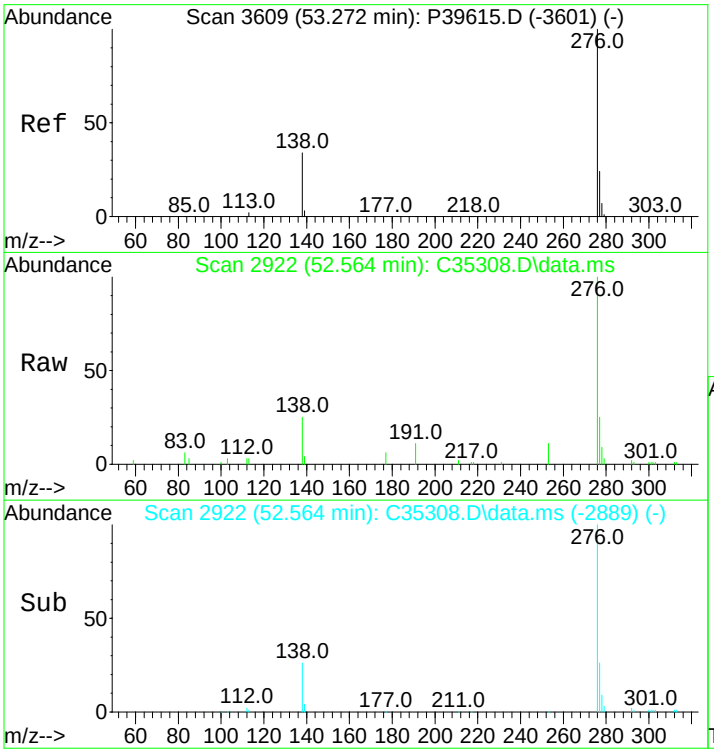


#88
Perylene
Concen: 403.26 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:252 Resp: 39934

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.8	32.6

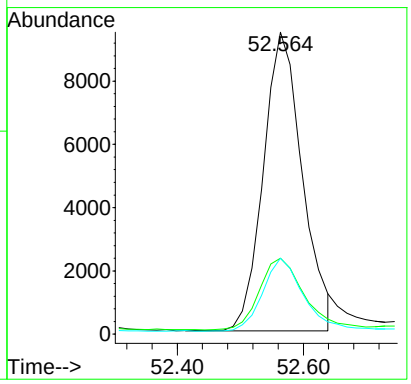


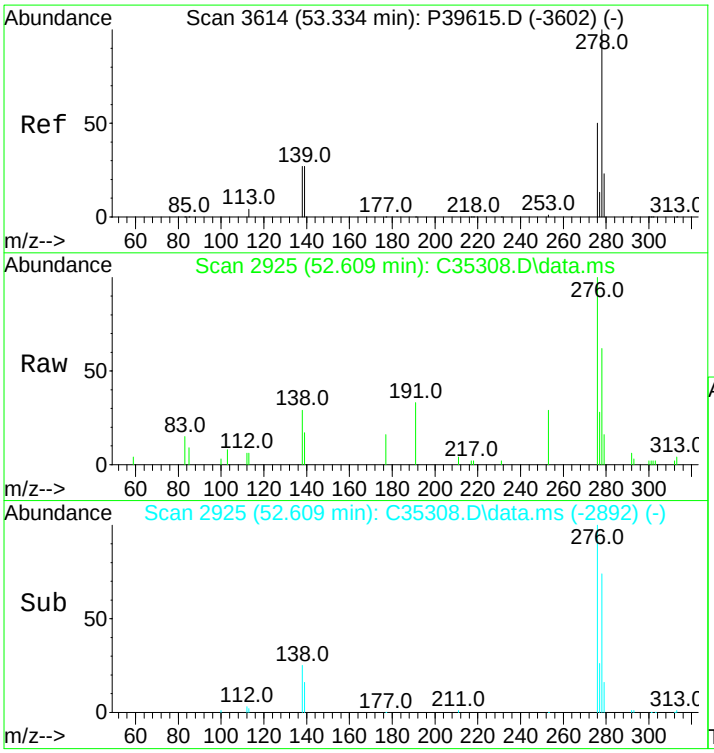


#89
Indeno[1,2,3-cd]pyrene
Concen: 375.72 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:276 Resp: 40515

Ion	Ratio	Lower	Upper
276	100		
138	27.7	19.1	28.7
277	26.6	19.5	29.3

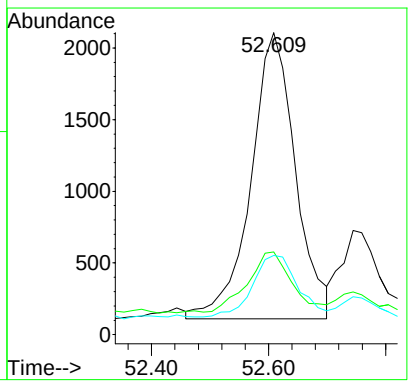


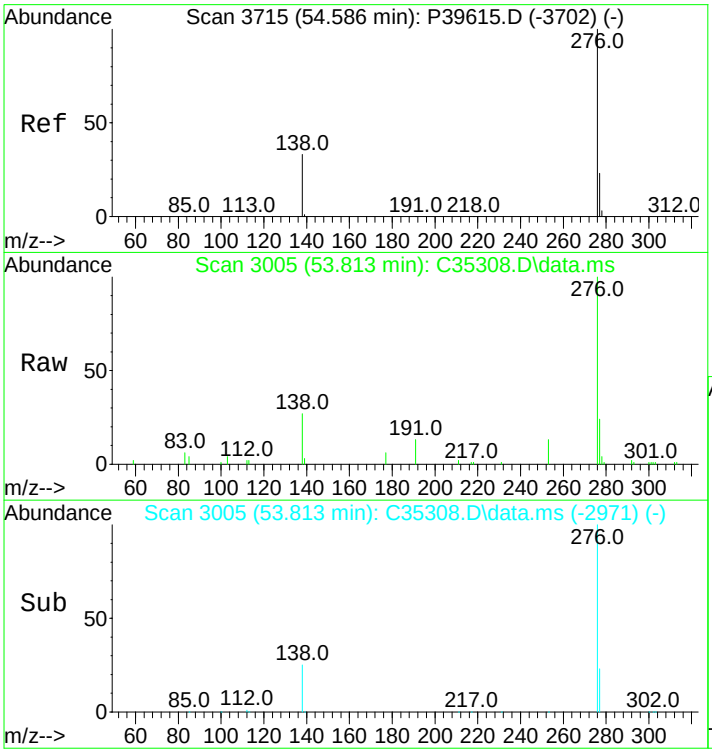


#90
Dibenz[ah]+[ac]anthracene
Concen: 102.85 ng/mL
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:278 Resp: 10550

Ion	Ratio	Lower	Upper
278	100		
139	21.9	16.6	25.0
279	21.7	20.0	30.0

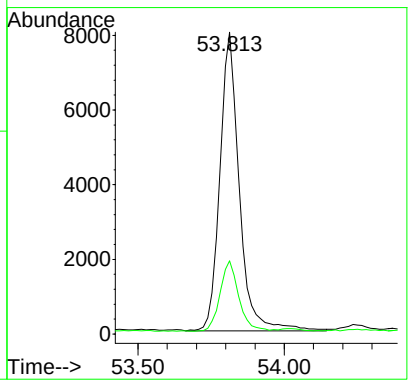




#91
Benzo[g,h,i]perylene
Concen: 324.41 ng/mL
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35308.D
Acq: 25 May 2012 5:54 pm

Tgt Ion:276 Resp: 36958

Ion	Ratio	Lower	Upper
276	100		
277	22.7	18.8	28.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35310.D
Acq On : 25 May 2012 7:24 pm
Operator : AC
Sample : SS052312LCS01
Misc : 1X ETR1205027
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 29 11:48:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13168M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25992	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	21747	380.508	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.05%#			
42) Phenanthrene-d10	32.221	188	18259	404.191	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.42%#			
86) Benzo[a]pyrene-d12	47.835	264	19876	368.987	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.90%#			
127) 5B(H)Cholane - Surr	43.422	217	3277	403.253	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.33%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	32812	390.965	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	19069	384.275	ng/mL#	100
26) Acenaphthylene	25.748	152	30709M3	368.607	ng/mL	
27) Acenaphthene	26.485	153	19043	388.209	ng/mL	99
29) Fluorene	28.503	166	21876	404.361	ng/mL	100
43) Phenanthrene	32.311	178	31744	416.629	ng/mL	100
55) Anthracene	32.492	178	29262M3	393.184	ng/mL	
58) Fluoranthene	37.069	202	35162	464.663	ng/mL	97
60) Pyrene	37.957	202	37124	482.616	ng/mL	97
75) Benz[a]anthracene	42.730	228	33480	405.827	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	33852	406.441	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	38532	425.068	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	42022	425.784	ng/mL	91
87) Benzo[a]pyrene	47.925	252	36268	420.124	ng/mL	95
89) Indeno[1,2,3-cd]pyrene	52.564	276	42528M3	423.328	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	39444M3	412.740	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	41589	391.840	ng/mL	99

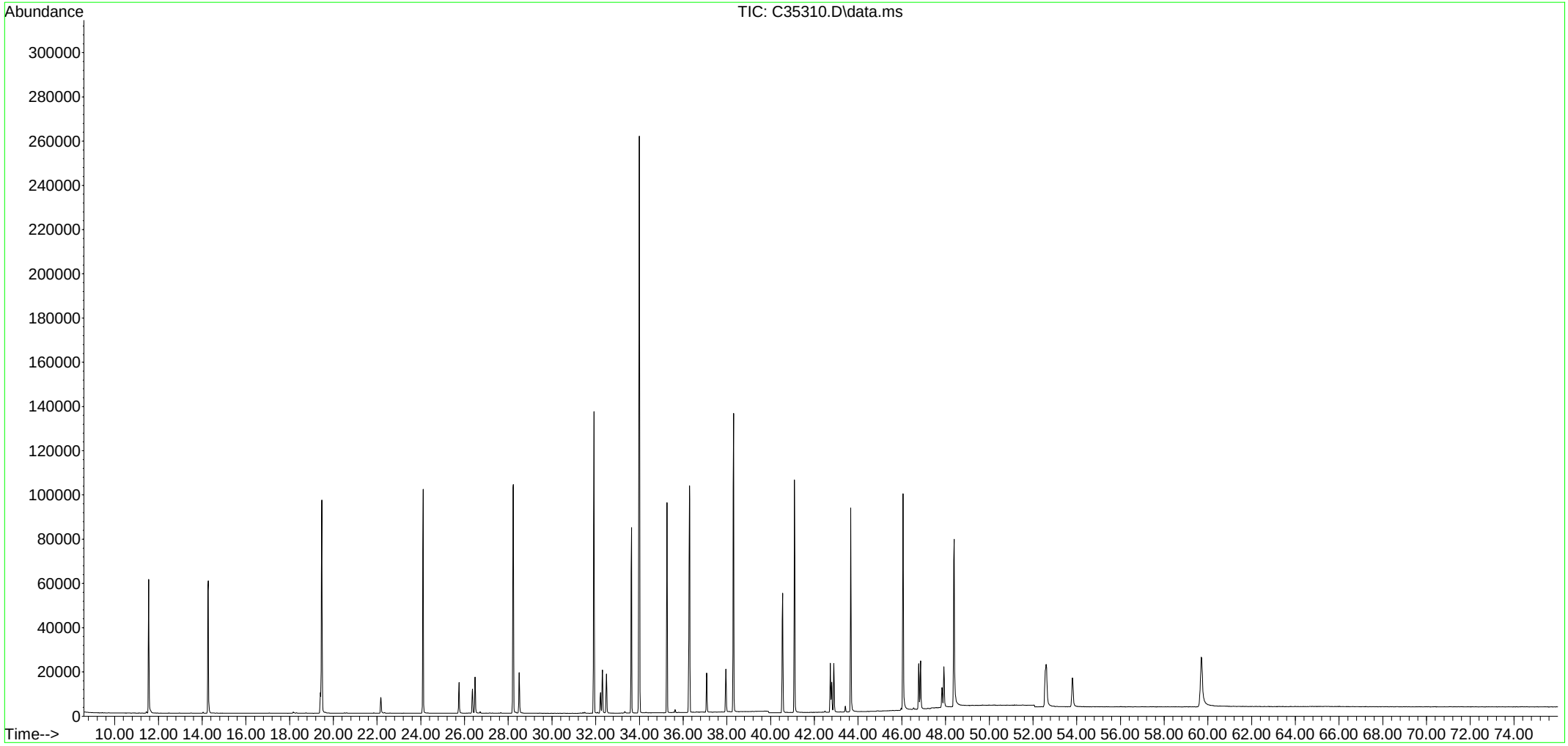
(#) = qualifier out of range (m) = manual integration (+) = signals summed

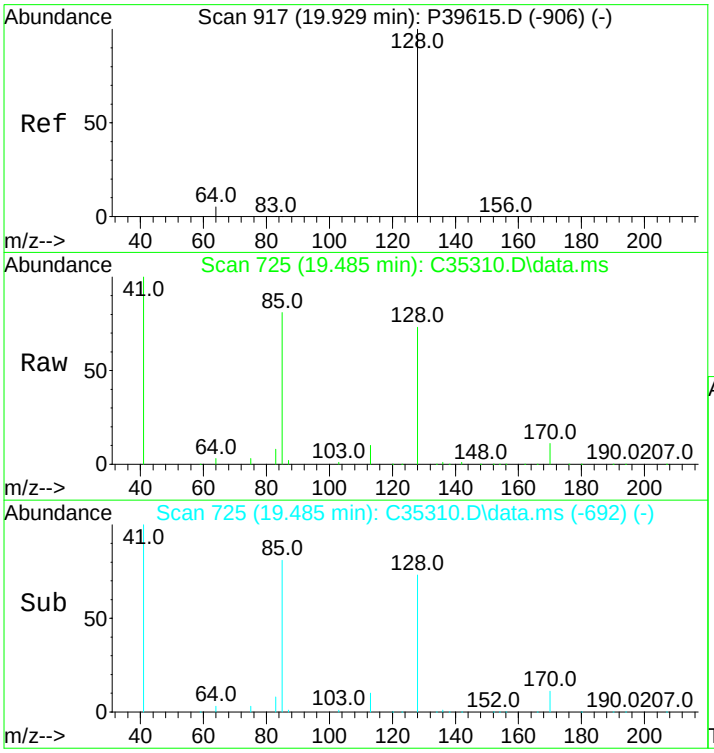
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35310.D
Acq On : 25 May 2012 7:24 pm
Operator : AC
Sample : SS052312LCS01
Misc : 1X ETR1205027
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 29 11:48:27 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

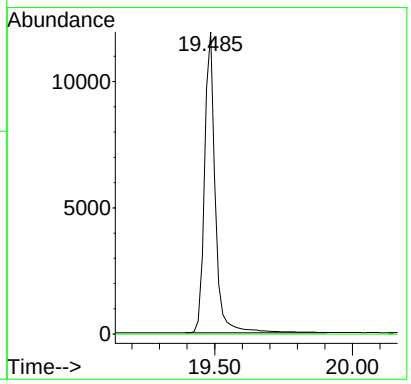


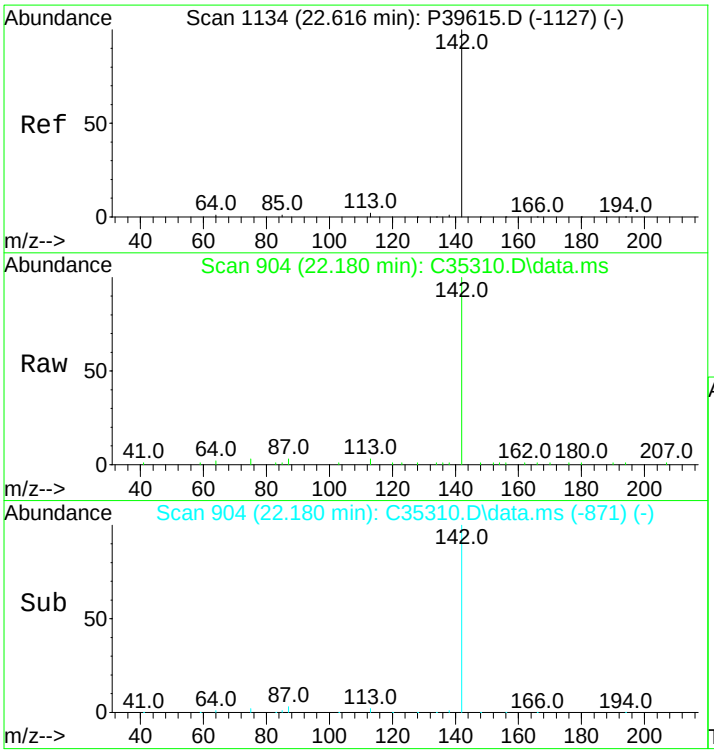


#10
Naphthalene
Concen: 390.96 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:128 Resp: 32812

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

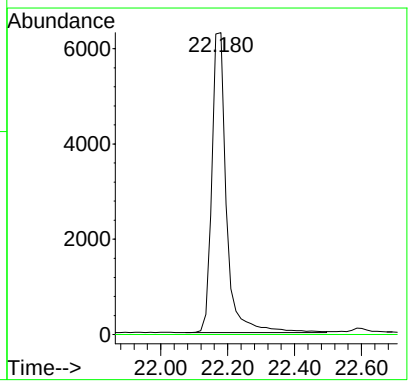


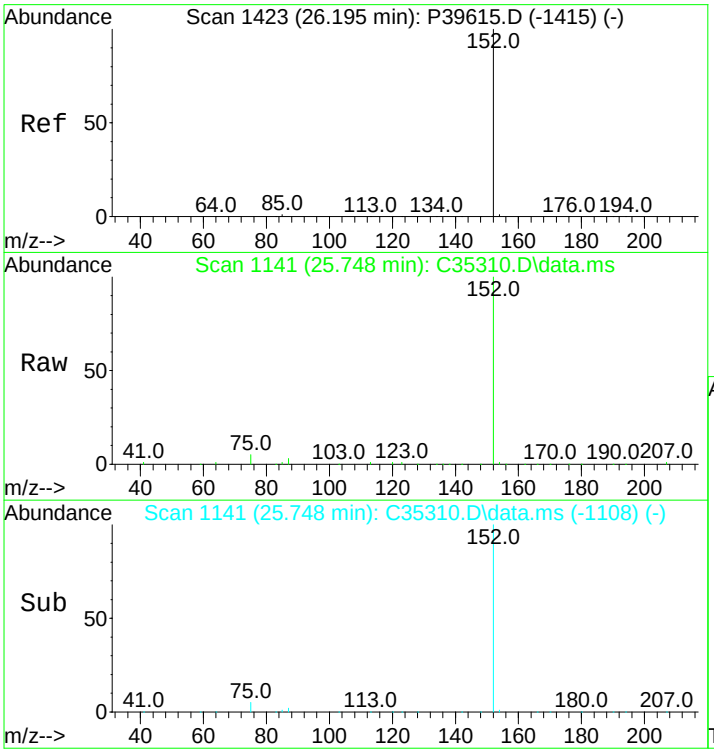


#16
2-Methylnaphthalene
Concen: 384.27 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:142 Resp: 19069

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

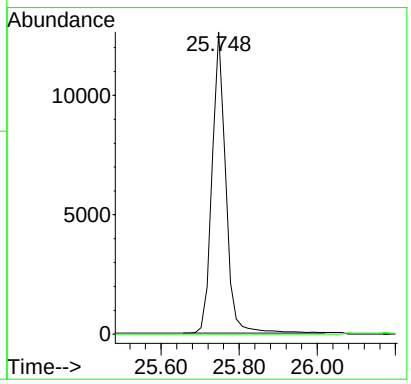


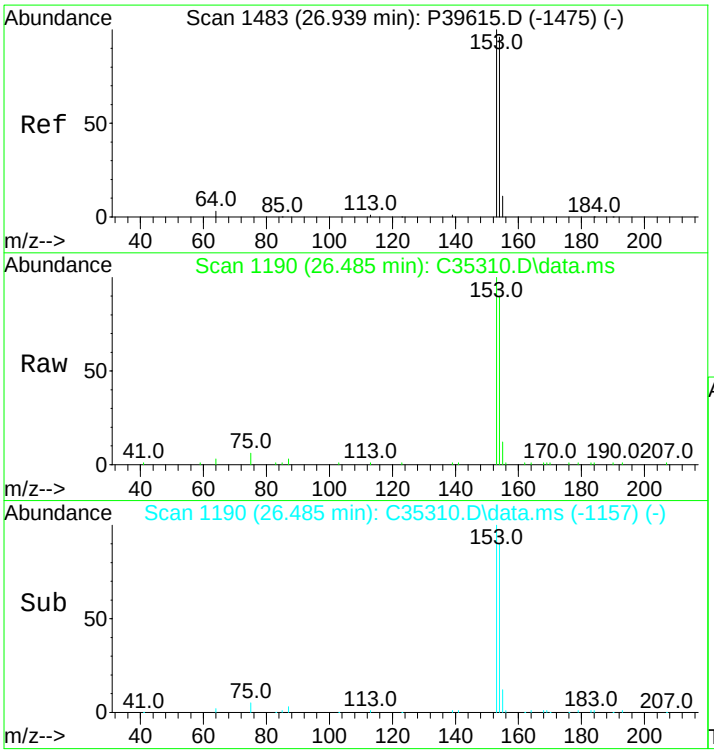


#26
Acenaphthylene
Concen: 368.61 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:152 Resp: 30709

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

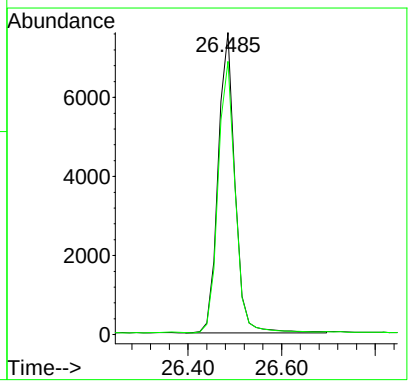


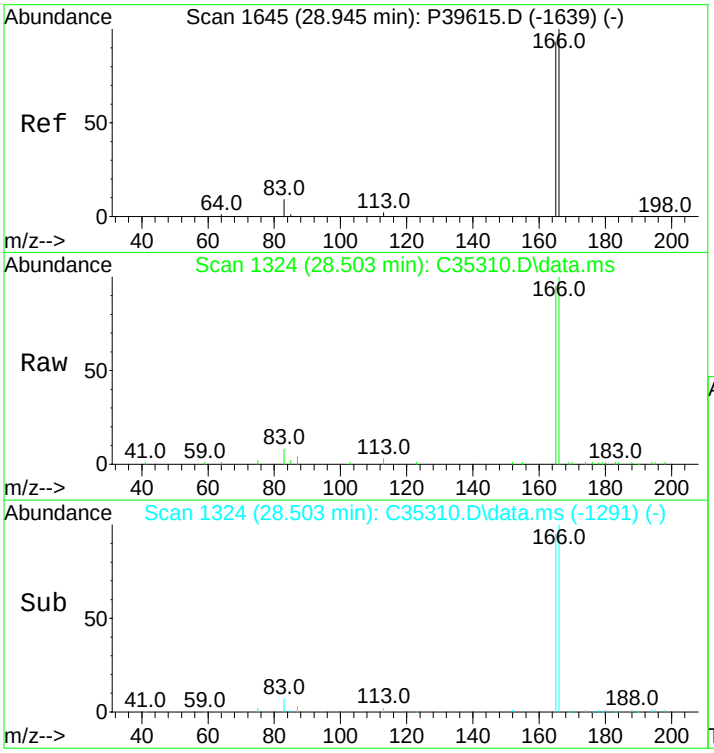


#27
Acenaphthene
Concen: 388.21 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:153 Resp: 19043

Ion	Ratio	Lower	Upper
153	100		
154	92.1	73.3	109.9

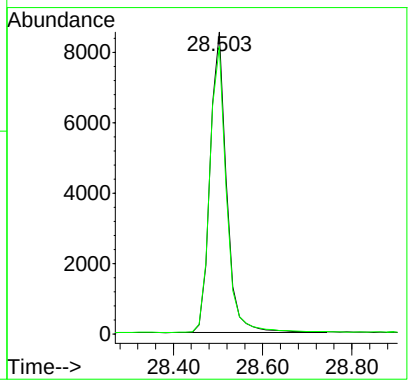


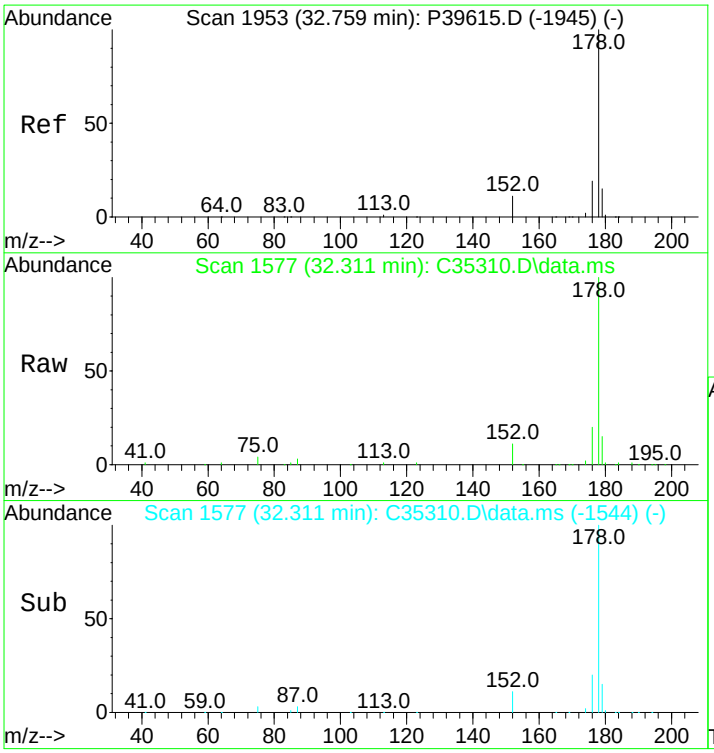


#29
Fluorene
Concen: 404.36 ng/mL
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:166 Resp: 21876

Ion	Ratio	Lower	Upper
166	100		
165	96.8	77.1	115.7

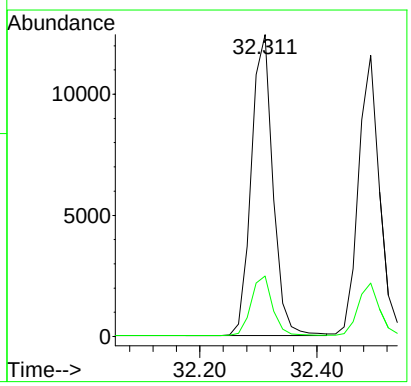


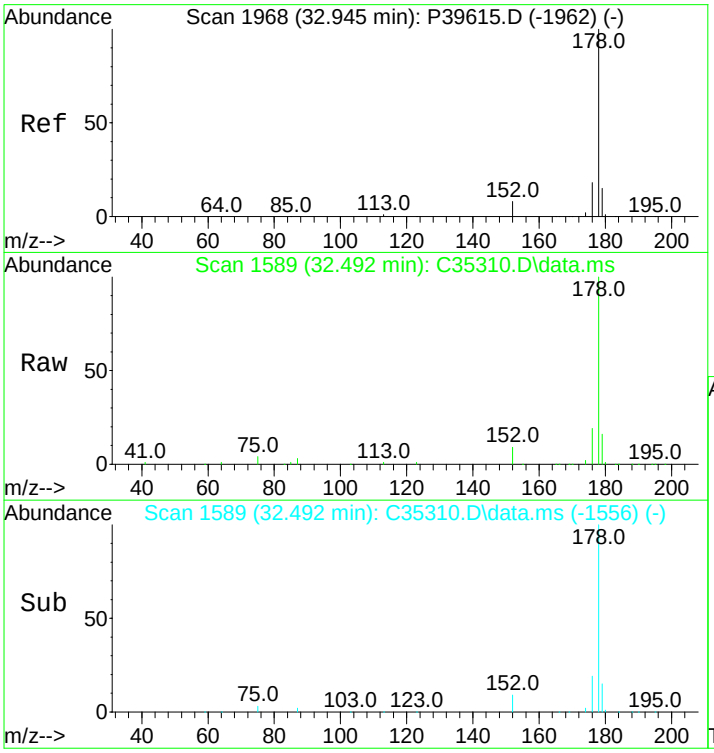


#43
Phenanthrene
Concen: 416.63 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:178 Resp: 31744

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.8	23.6

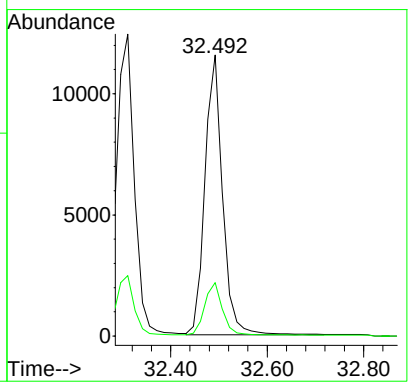


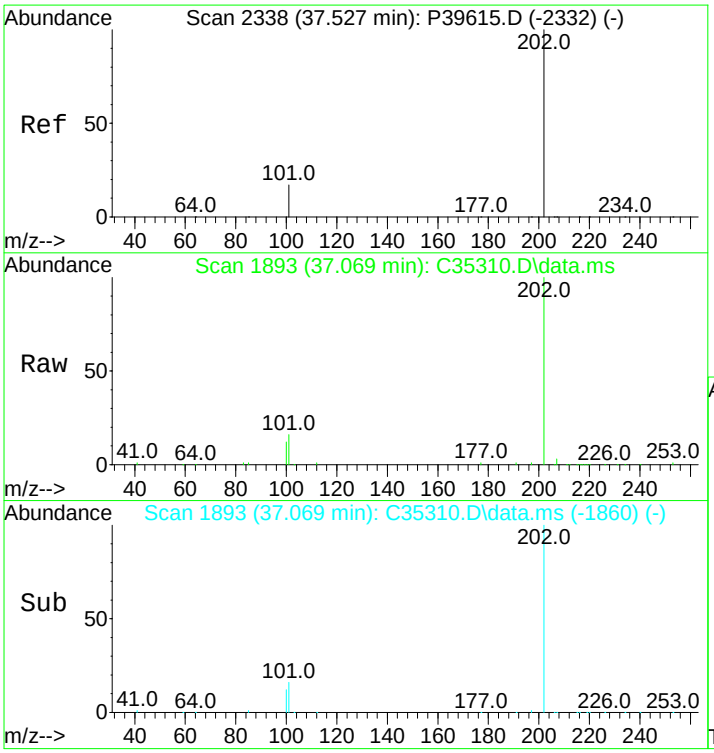


#55
Anthracene
Concen: 393.18 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:178 Resp: 29262

Ion	Ratio	Lower	Upper
178	100		
176	19.0	15.6	23.4

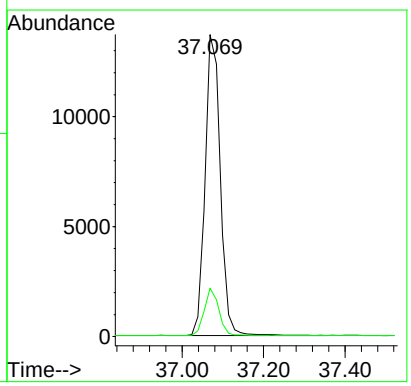


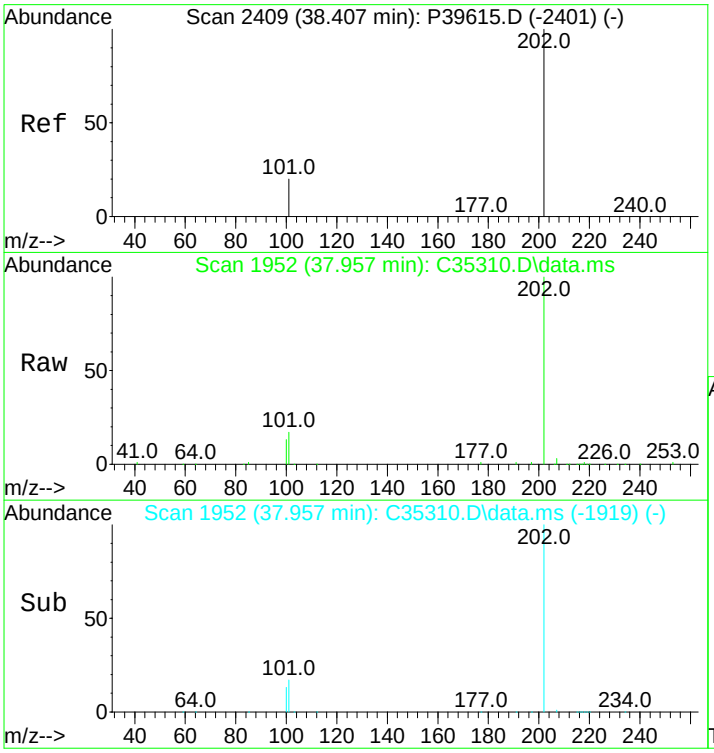


#58
Fluoranthene
Concen: 464.66 ng/mL
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:202 Resp: 35162

Ion	Ratio	Lower	Upper
202	100		
101	15.1	13.2	19.8

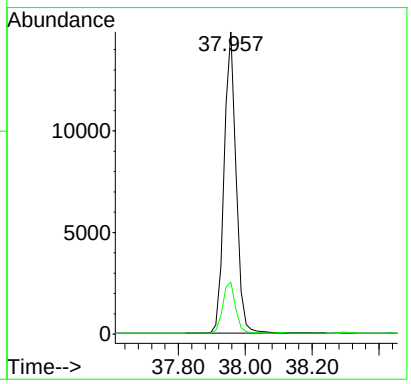


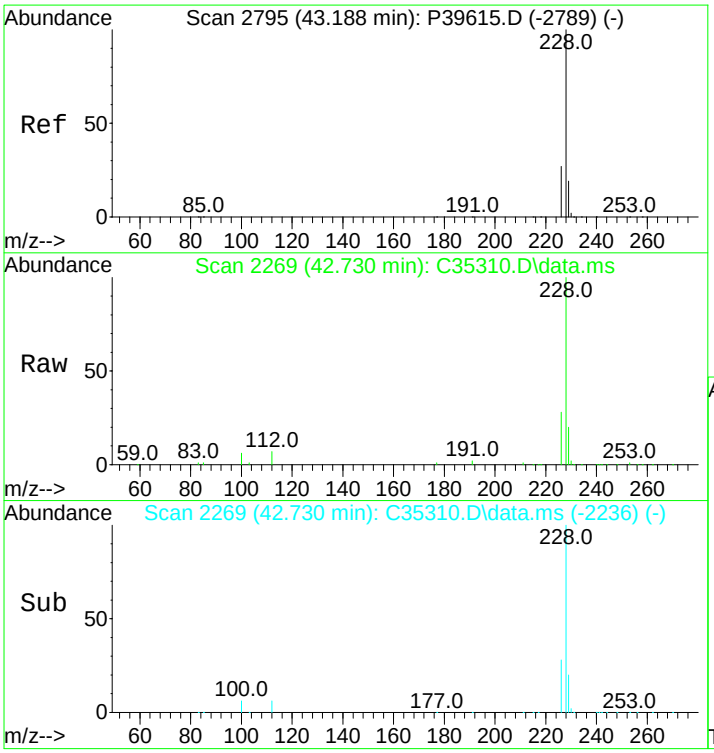


#60
Pyrene
Concen: 482.62 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:202 Resp: 37124

Ion	Ratio	Lower	Upper
202	100		
101	18.0	13.5	20.3

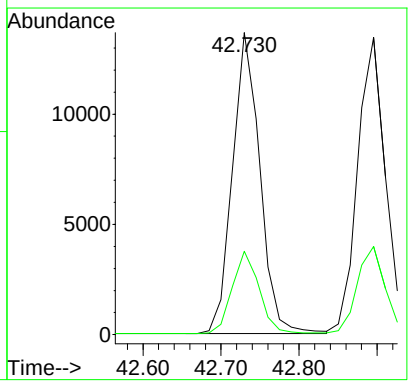


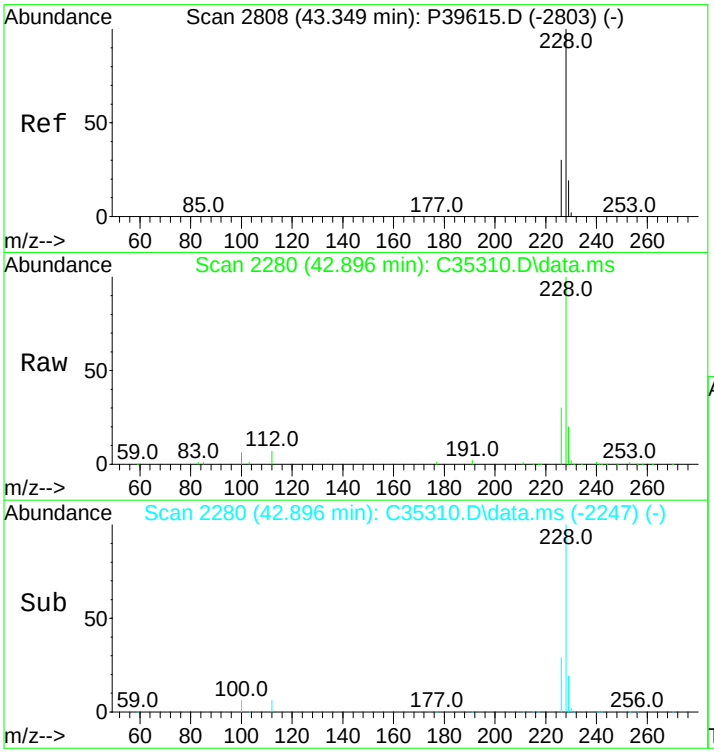


#75
Benz[a]anthracene
Concen: 405.83 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:228 Resp: 33480

Ion	Ratio	Lower	Upper
228	100		
226	26.8	21.5	32.3

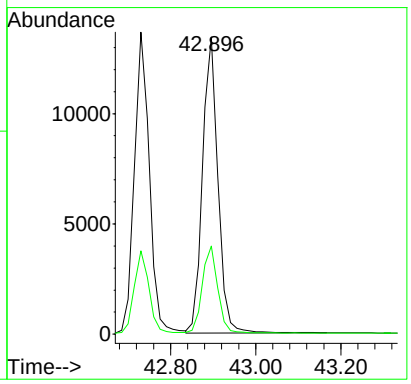


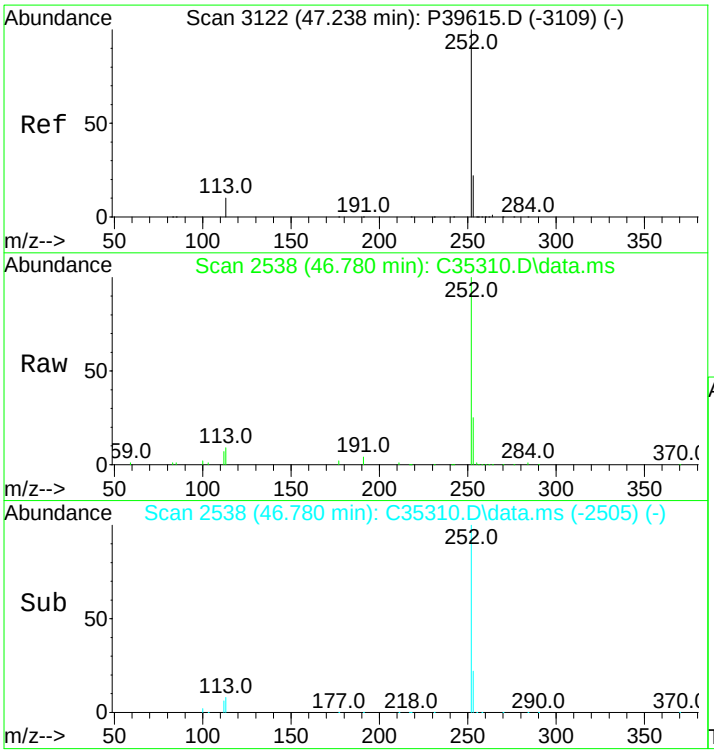


#77
Chrysene/Triphenylene
Concen: 406.44 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:228 Resp: 33852

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.5	35.3

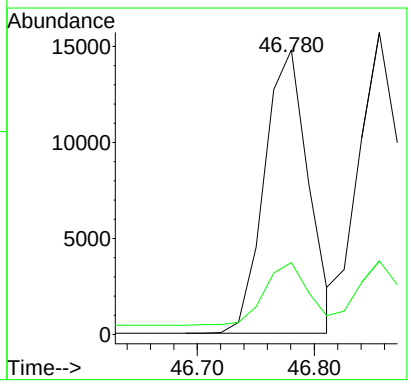


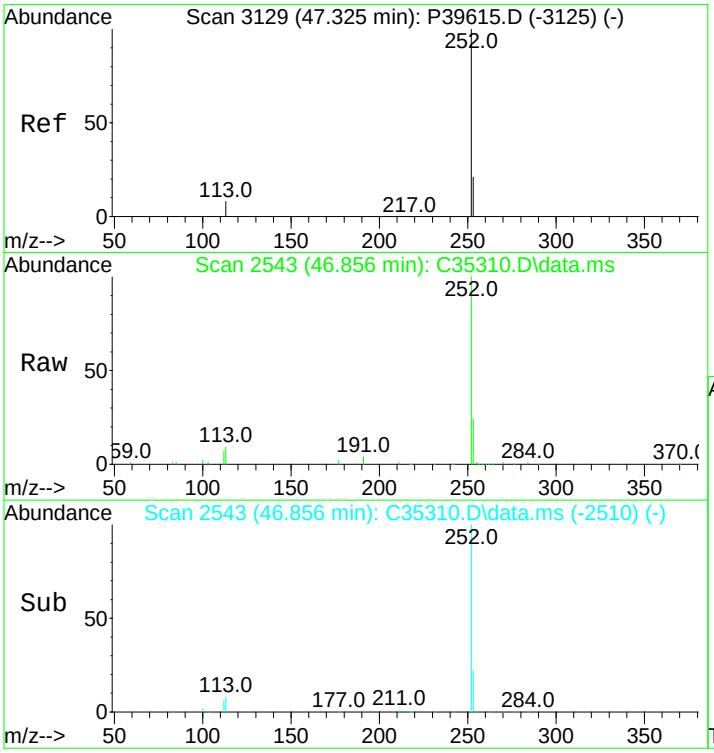


#82
Benzo[b]fluoranthene
Concen: 425.07 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:252 Resp: 38532

Ion	Ratio	Lower	Upper
252	100		
253	22.2	20.4	30.6

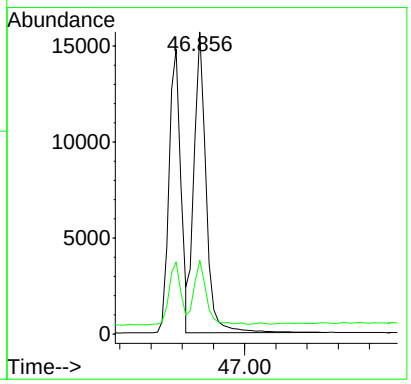


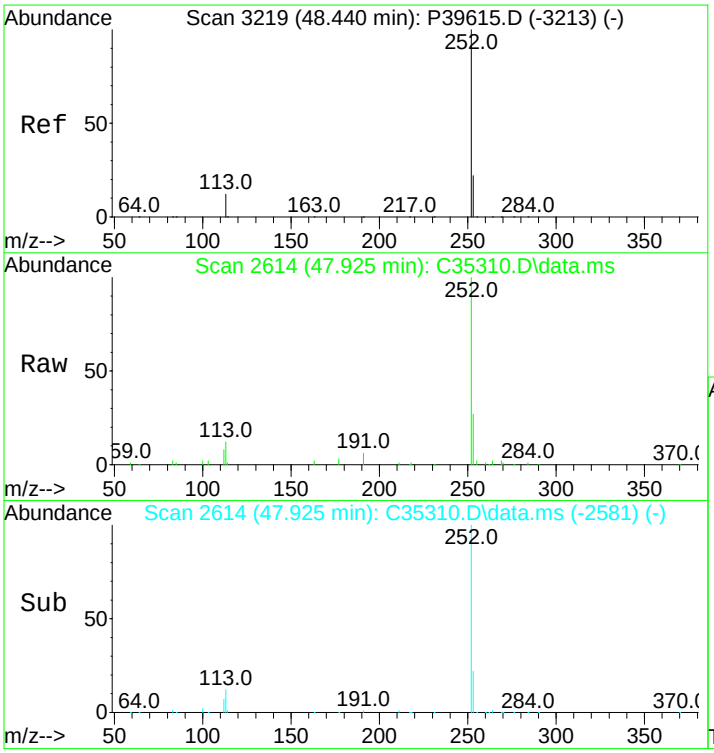


#83
Benzo[j]+[k]fluoranthene
Concen: 425.78 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:252 Resp: 42022

Ion	Ratio	Lower	Upper
252	100		
253	21.5	20.6	31.0

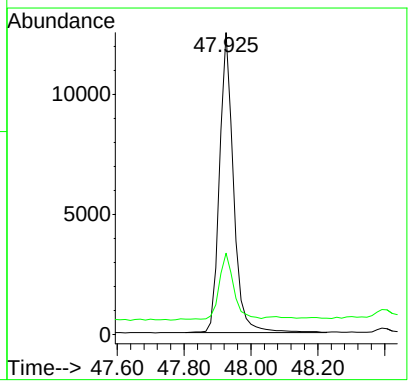


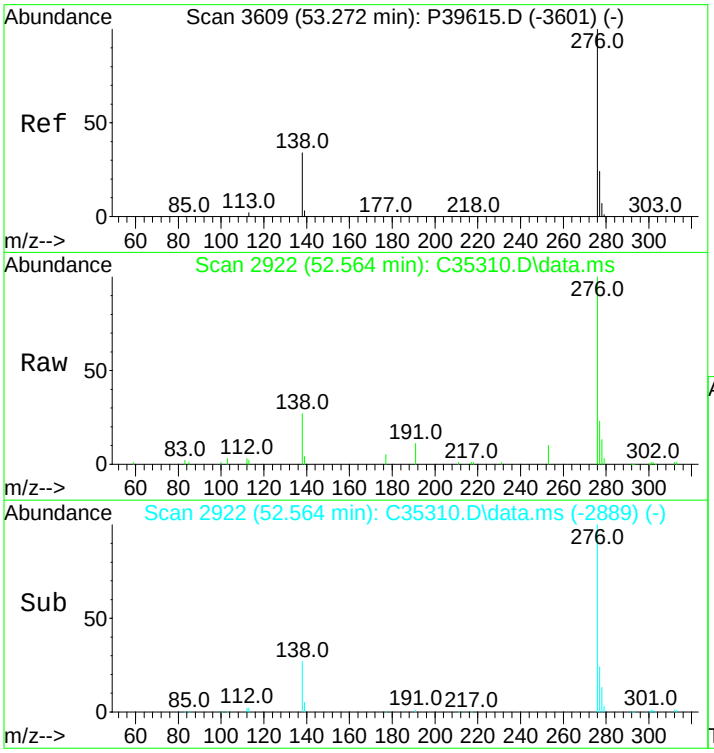


#87
Benzo[a]pyrene
Concen: 420.12 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:252 Resp: 36268

Ion	Ratio	Lower	Upper
252	100		
253	24.1	21.4	32.0

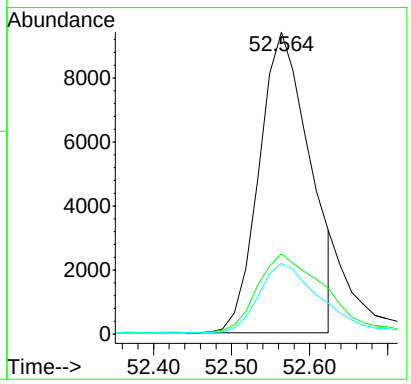


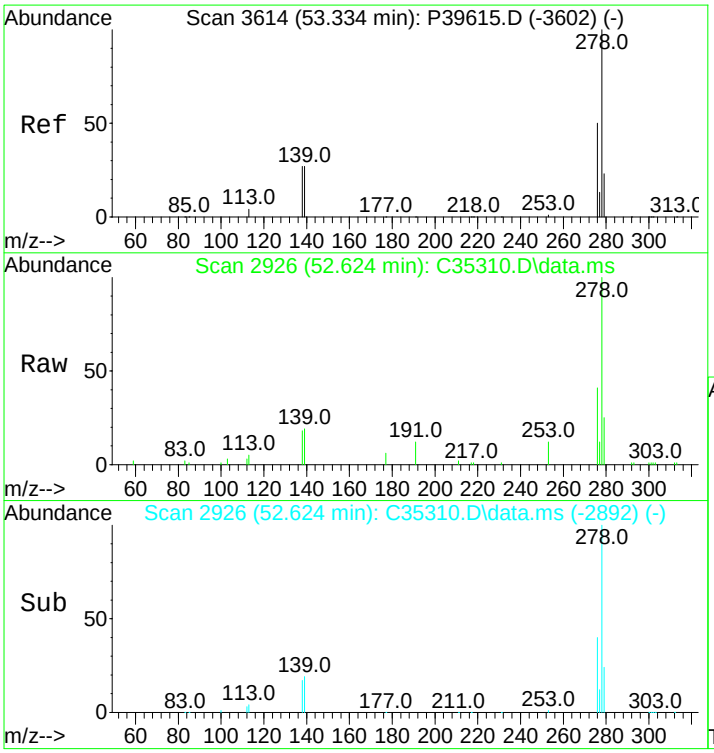


#89
Indeno[1,2,3-cd]pyrene
Concen: 423.33 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:276 Resp: 42528

Ion	Ratio	Lower	Upper
276	100		
138	36.5	19.1	28.7#
277	29.0	19.5	29.3

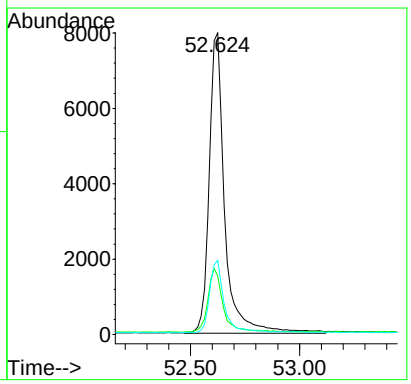


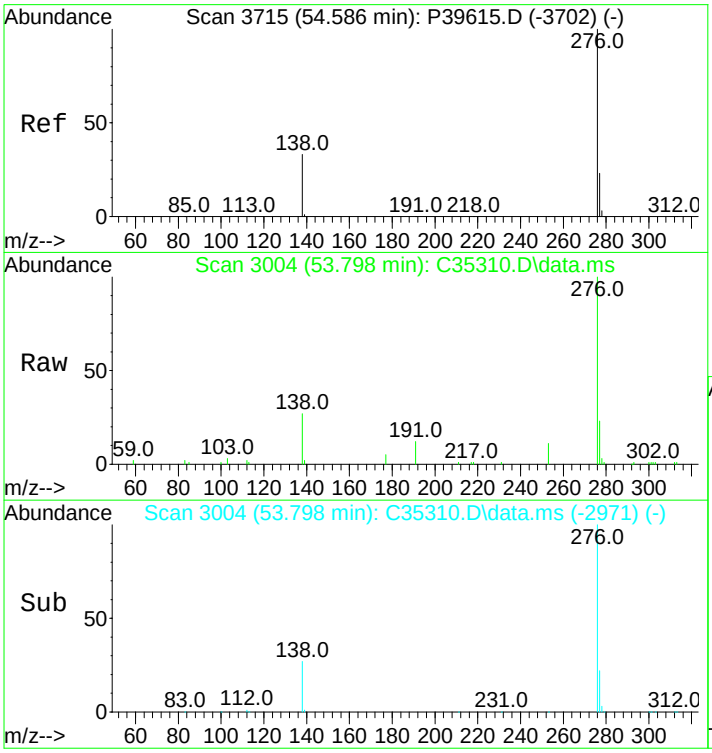


#90
Dibenz[ah]+[ac]anthracene
Concen: 412.74 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:278 Resp: 39444

Ion	Ratio	Lower	Upper
278	100		
139	21.0	16.6	25.0
279	22.9	20.0	30.0

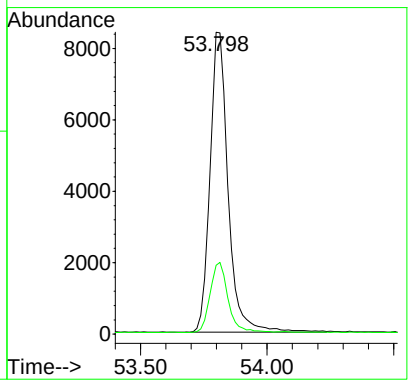




#91
Benzo[g,h,i]perylene
Concen: 391.84 ng/mL
RT: 53.798 min Scan# 3004
Delta R.T. 0.000 min
Lab File: C35310.D
Acq: 25 May 2012 7:24 pm

Tgt Ion:276 Resp: 41589

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.8	28.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35312.D
Acq On : 25 May 2012 8:57 pm
Operator : AC
Sample : SS052312LCSD01
Misc : 1X ETR1205027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 29 09:48:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	12787	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	25261	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	20504	369.449	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.94%#			
42) Phenanthrene-d10	32.221	188	17107	389.973	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 39.00%#			
86) Benzo[a]pyrene-d12	47.835	264	18305	349.656	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 34.97%#			
127) 5B(H)Cholane - Surr	43.422	217	3033	384.027	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.40%#			
Target Compounds						Qvalue
10) Naphthalene	19.485	128	31893	391.337	ng/mL#	100
16) 2-Methylnaphthalene	22.164	142	18431	382.485	ng/mL#	100
26) Acenaphthylene	25.747	152	29857M3	369.059	ng/mL	
27) Acenaphthene	26.485	153	18604	390.560	ng/mL	100
29) Fluorene	28.502	166	21404	407.425	ng/mL	100
43) Phenanthrene	32.311	178	30815	416.486	ng/mL	100
55) Anthracene	32.492	178	28200M3	390.205	ng/mL	
58) Fluoranthene	37.069	202	33550	456.571	ng/mL	98
60) Pyrene	37.957	202	35262	472.068	ng/mL	97
75) Benz[a]anthracene	42.730	228	31929	398.227	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	32325	399.339	ng/mL	99
82) Benzo[b]fluoranthene	46.780	252	35757	405.870	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	39795	414.887	ng/mL	91
87) Benzo[a]pyrene	47.925	252	34038	405.701	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	52.563	276	39203M3	401.523	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	36413M3	392.050	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	38881	376.927	ng/mL	99

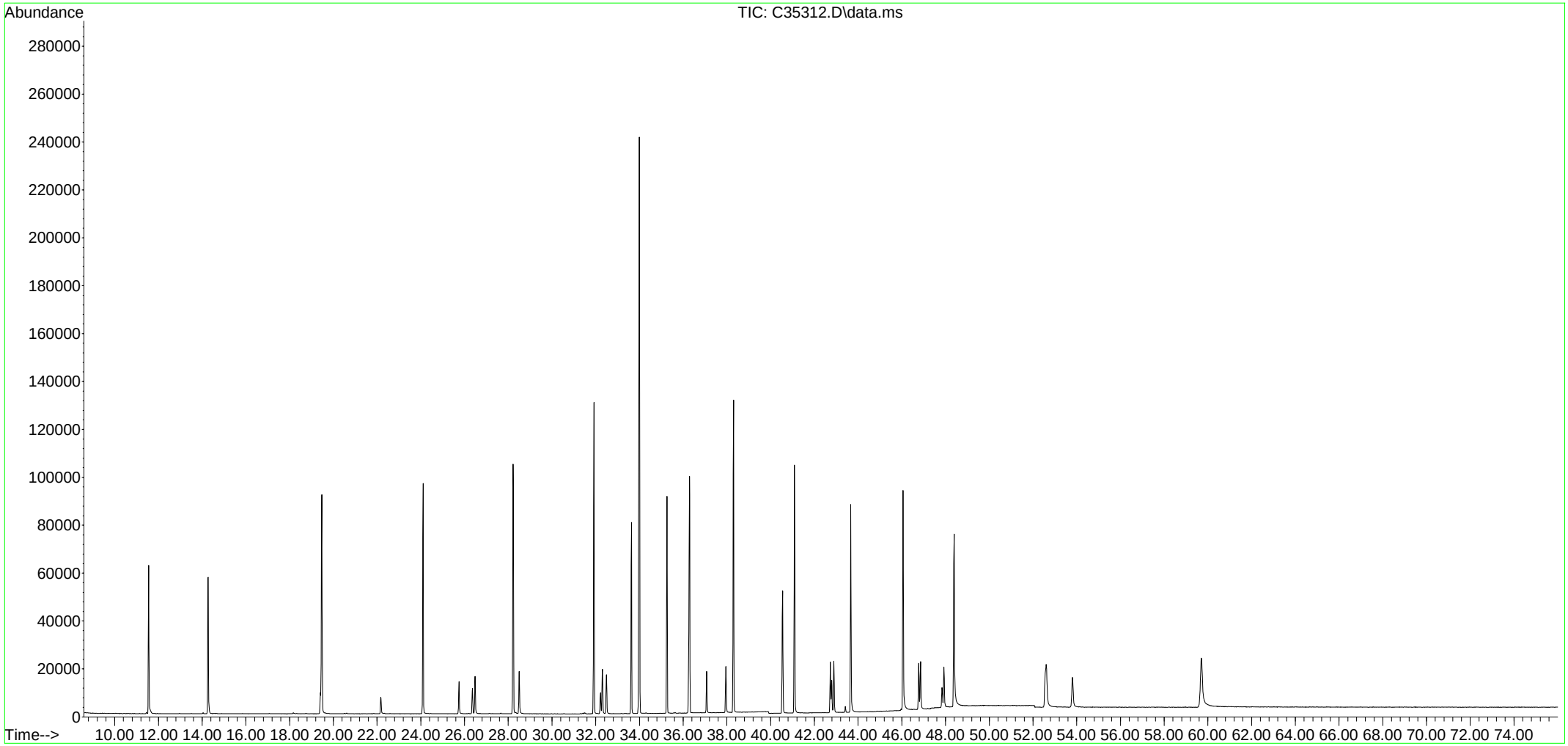
(#) = qualifier out of range (m) = manual integration (+) = signals summed

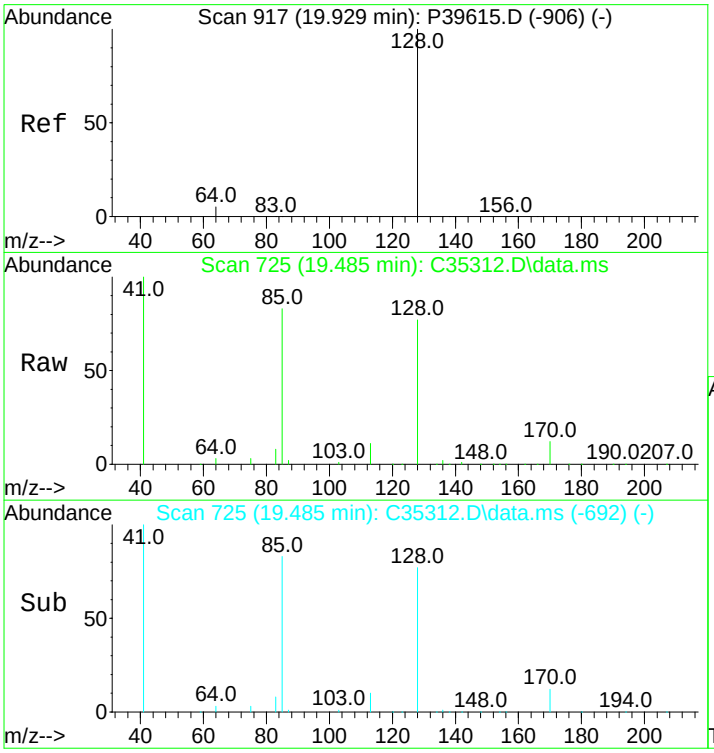
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35312.D
Acq On : 25 May 2012 8:57 pm
Operator : AC
Sample : SS052312LCSD01
Misc : 1X ETR1205027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 29 09:48:05 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

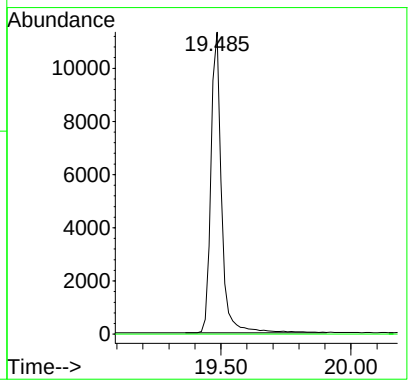


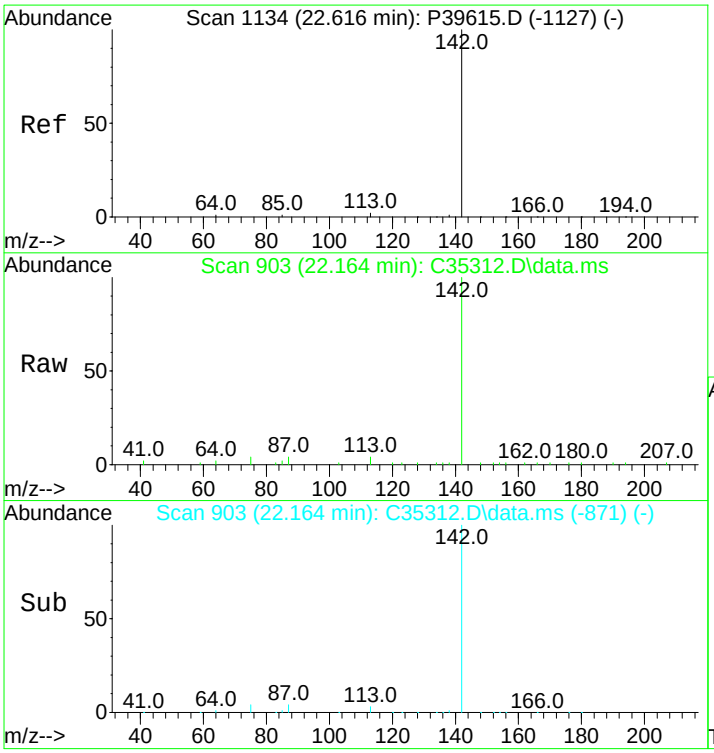


#10
Naphthalene
Concen: 391.34 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:128 Resp: 31893

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

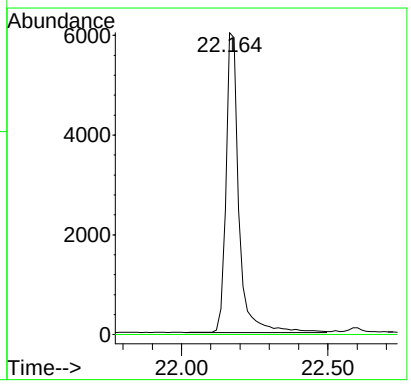


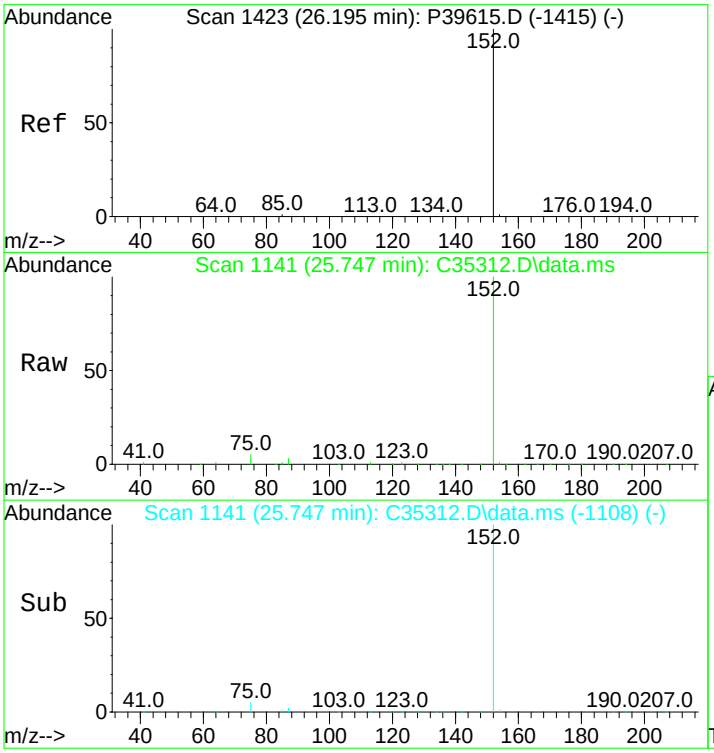


#16
2-Methylnaphthalene
Concen: 382.48 ng/mL
RT: 22.164 min Scan# 903
Delta R.T. -0.015 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:142 Resp: 18431

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

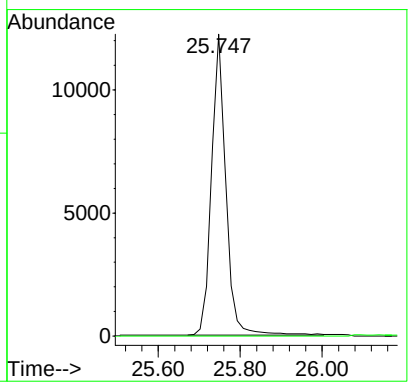


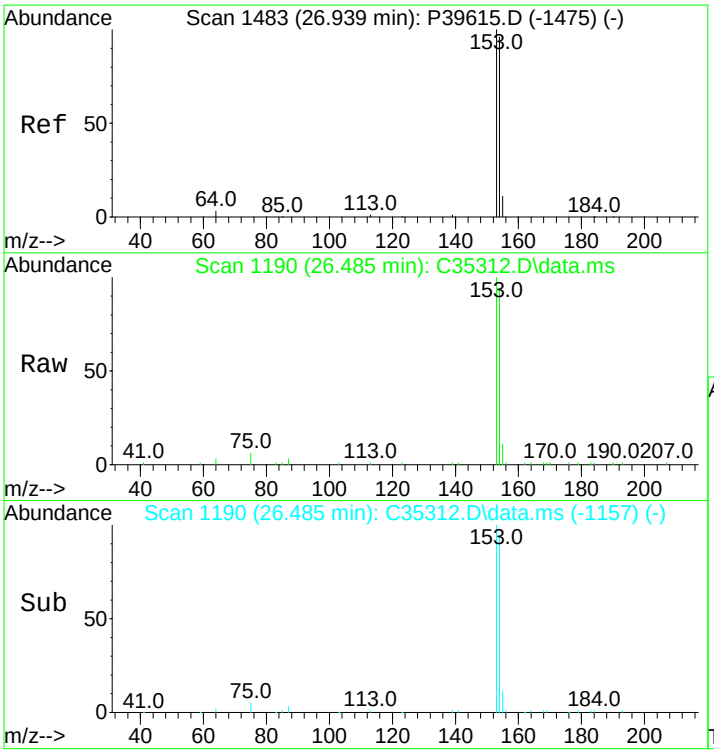


#26
Acenaphthylene
Concen: 369.06 ng/mL m
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:152 Resp: 29857

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

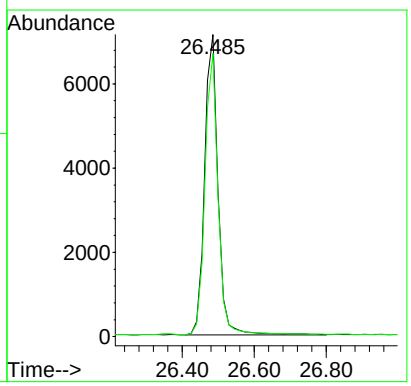


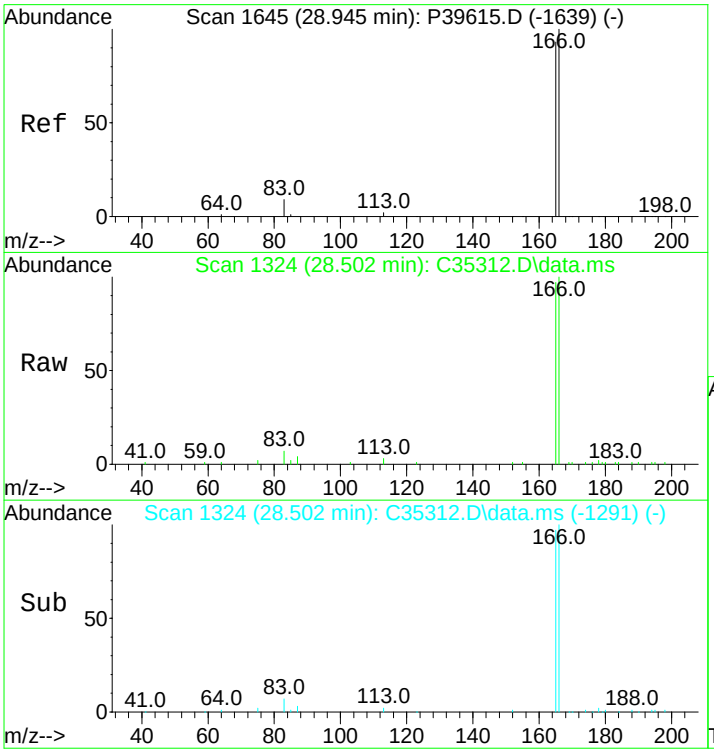


#27
Acenaphthene
Concen: 390.56 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:153 Resp: 18604

Ion	Ratio	Lower	Upper
153	100		
154	91.8	73.3	109.9

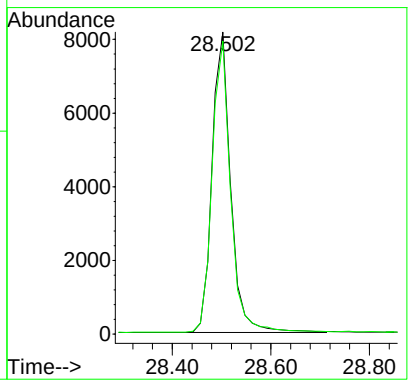


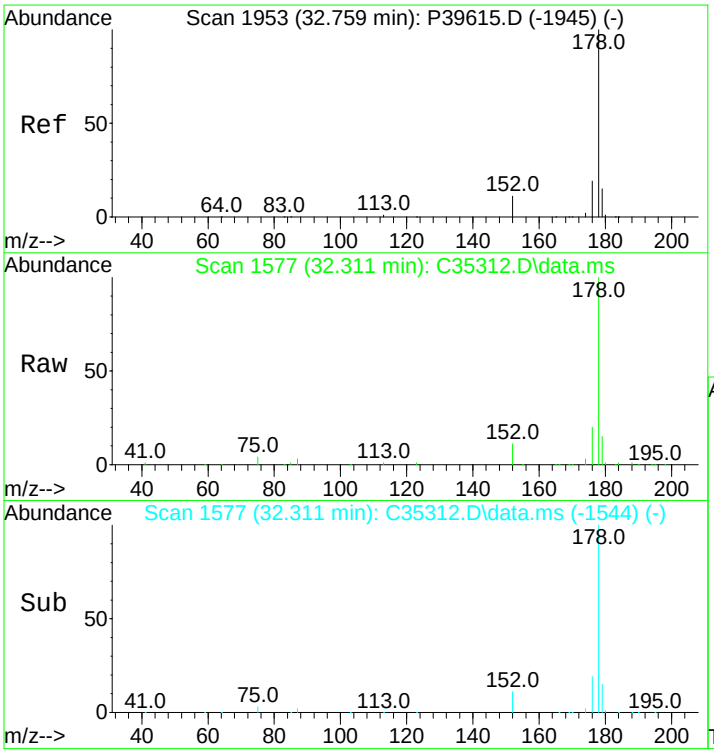


#29
Fluorene
Concen: 407.42 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:166 Resp: 21404

Ion	Ratio	Lower	Upper
166	100		
165	96.0	77.1	115.7

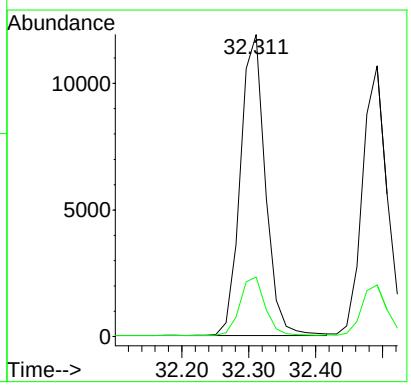


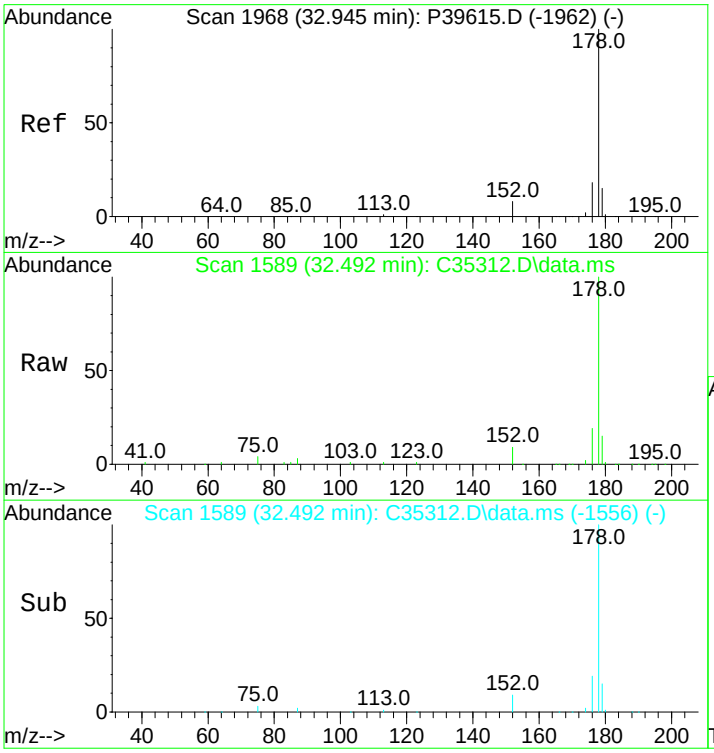


#43
Phenanthrene
Concen: 416.49 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:178 Resp: 30815

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.8	23.6

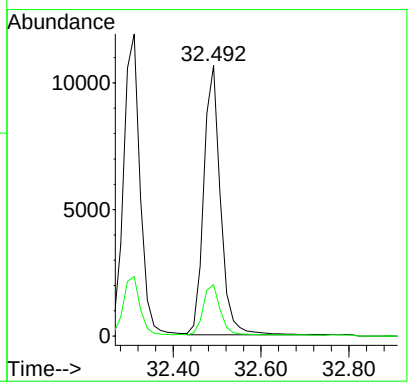


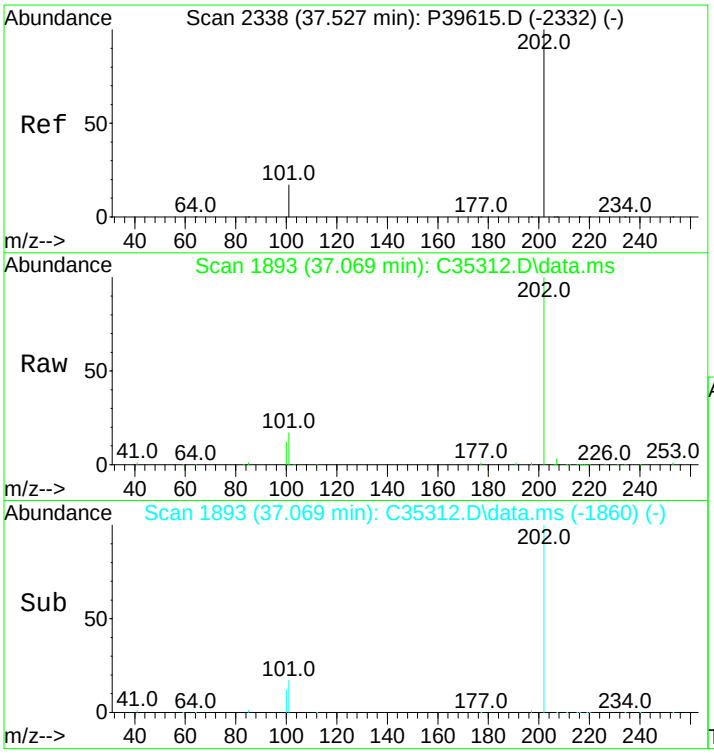


#55
Anthracene
Concen: 390.20 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:178 Resp: 28200

Ion	Ratio	Lower	Upper
178	100		
176	19.3	15.6	23.4

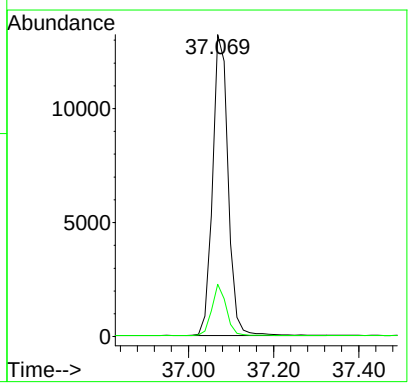


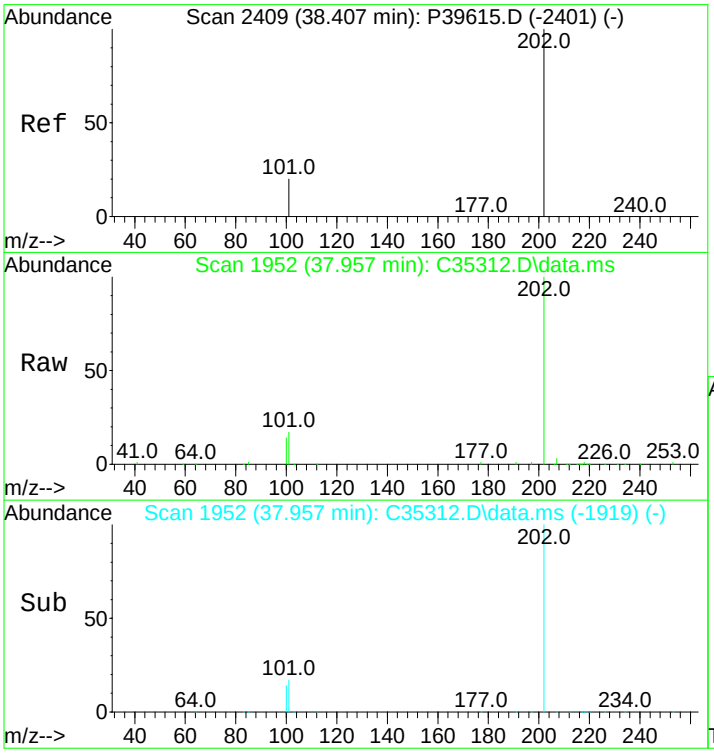


#58
Fluoranthene
Concen: 456.57 ng/mL
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:202 Resp: 33550

Ion	Ratio	Lower	Upper
202	100		
101	15.8	13.2	19.8

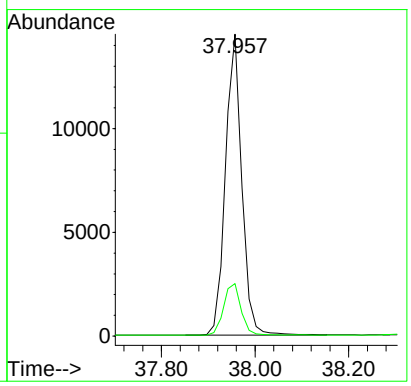


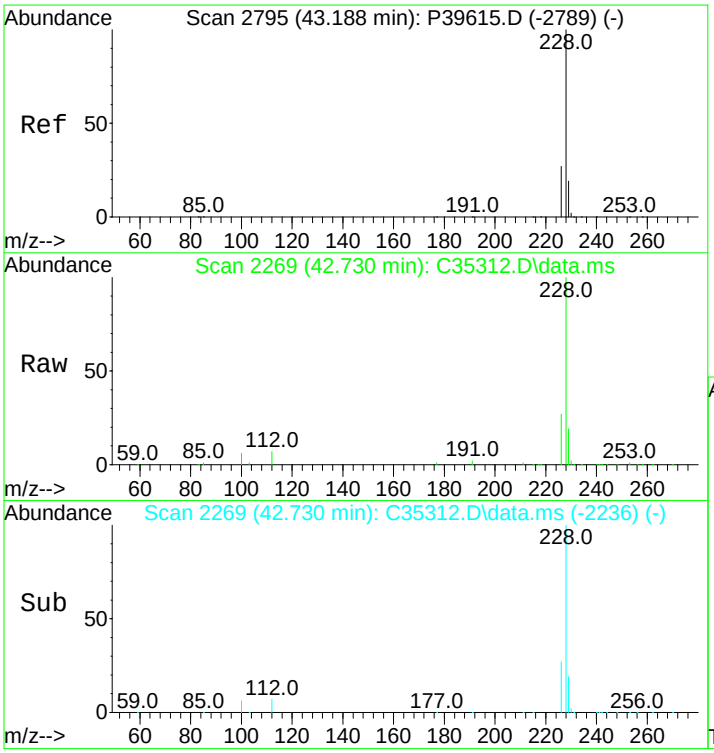


#60
Pyrene
Concen: 472.07 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:202 Resp: 35262

Ion	Ratio	Lower	Upper
202	100		
101	18.3	13.5	20.3

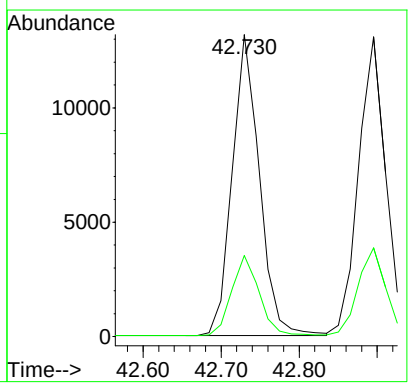


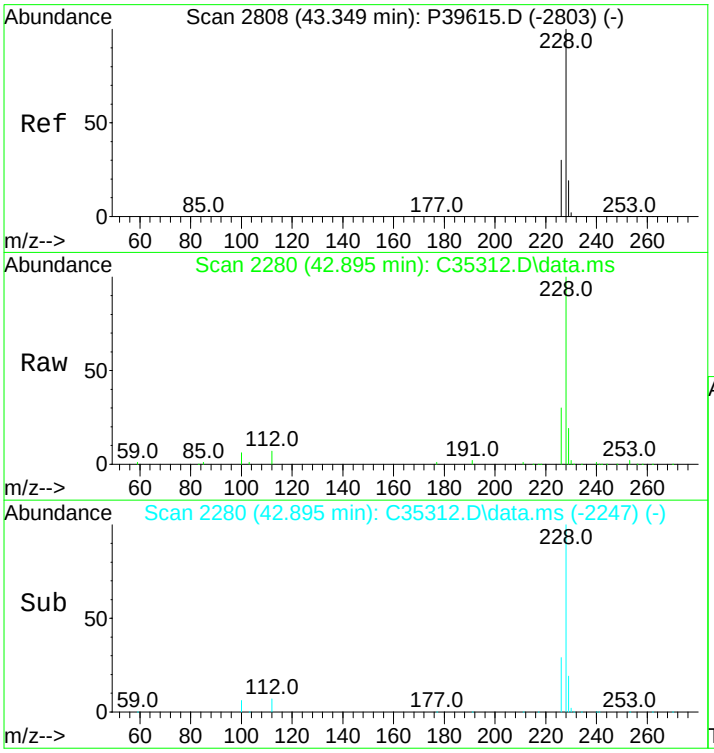


#75
Benz[a]anthracene
Concen: 398.23 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:228 Resp: 31929

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.5	32.3

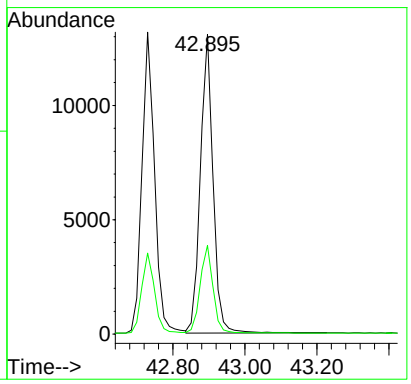


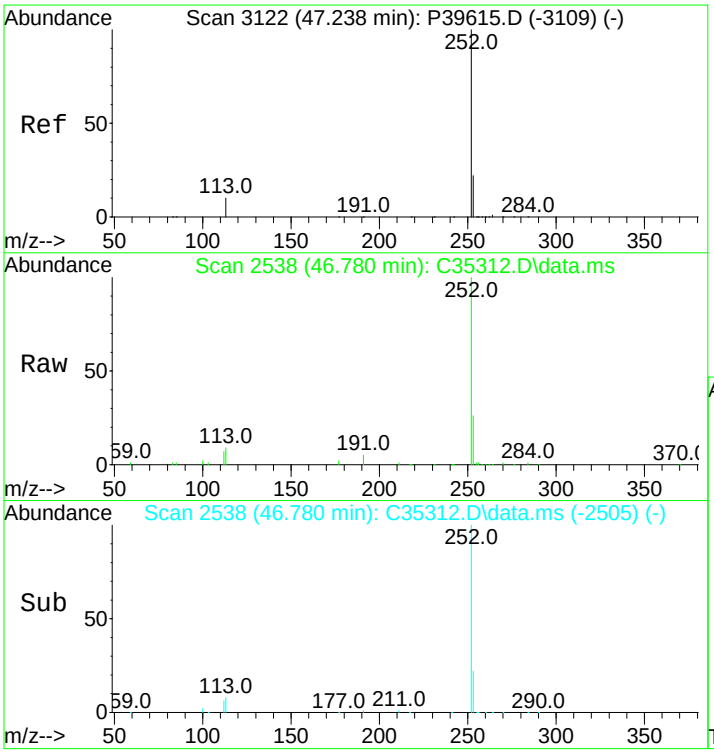


#77
Chrysene/Triphenylene
Concen: 399.34 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:228 Resp: 32325

Ion	Ratio	Lower	Upper
228	100		
226	30.1	23.5	35.3

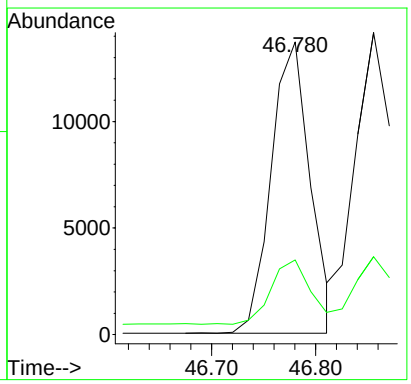


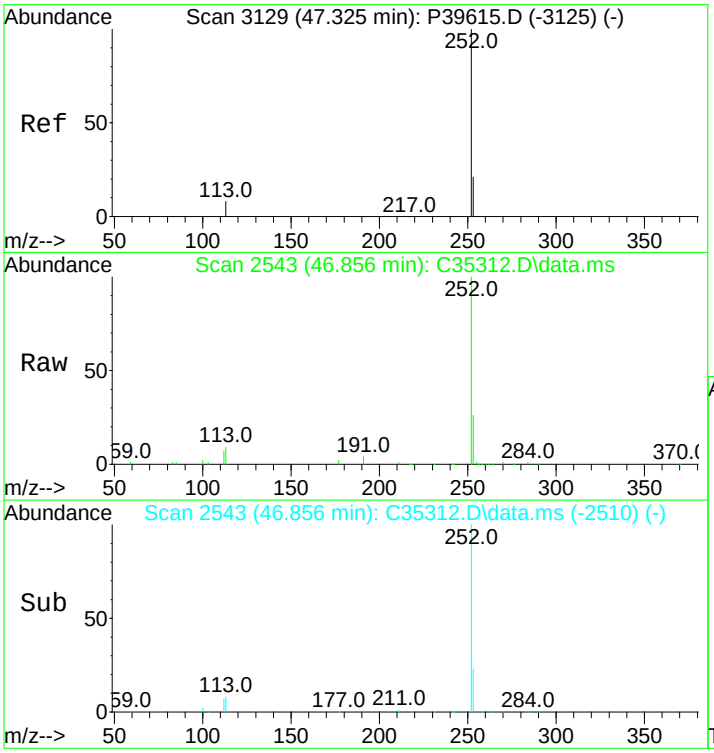


#82
Benzo[b]fluoranthene
Concen: 405.87 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:252 Resp: 35757

Ion	Ratio	Lower	Upper
252	100		
253	22.3	20.4	30.6

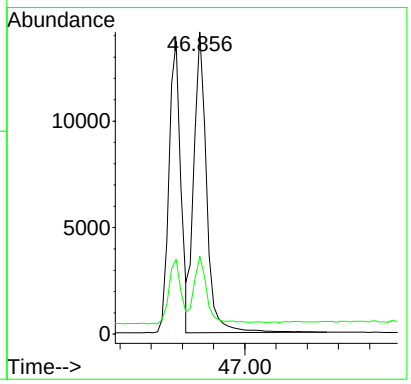


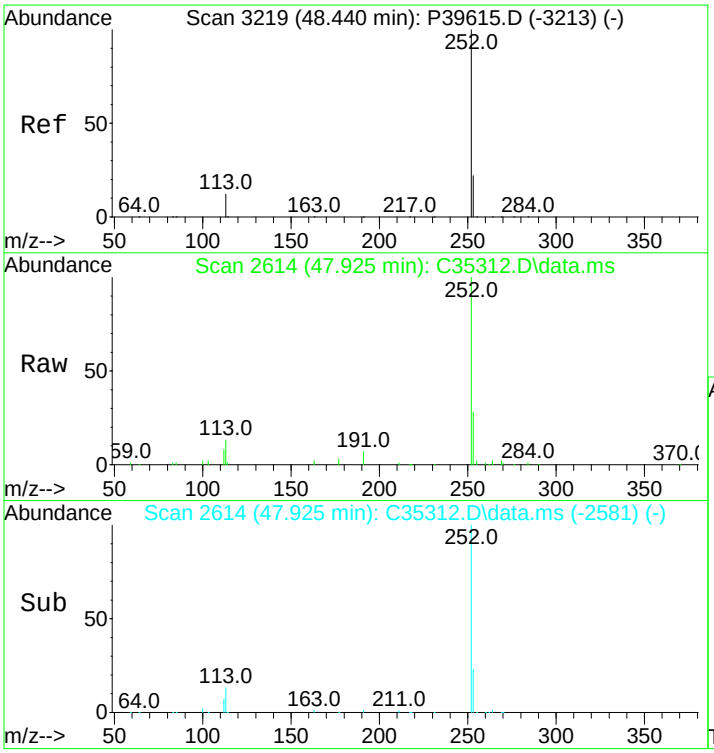


#83
Benzo[j]+[k]fluoranthene
Concen: 414.89 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:252 Resp: 39795

Ion	Ratio	Lower	Upper
252	100		
253	21.4	20.6	31.0

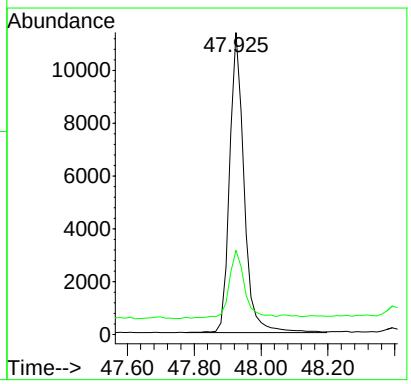


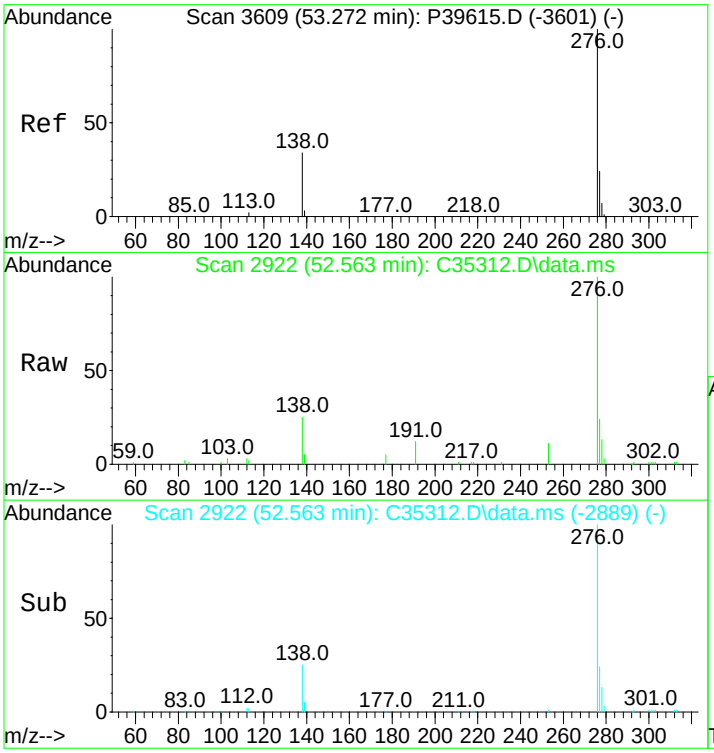


#87
Benzo[a]pyrene
Concen: 405.70 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:252 Resp: 34038

Ion	Ratio	Lower	Upper
252	100		
253	23.4	21.4	32.0

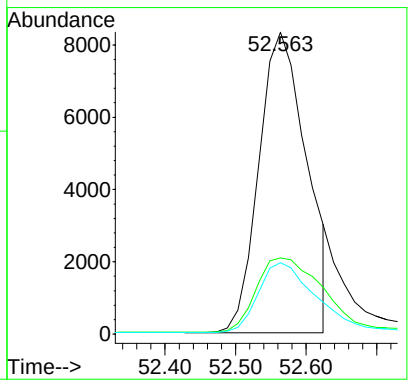


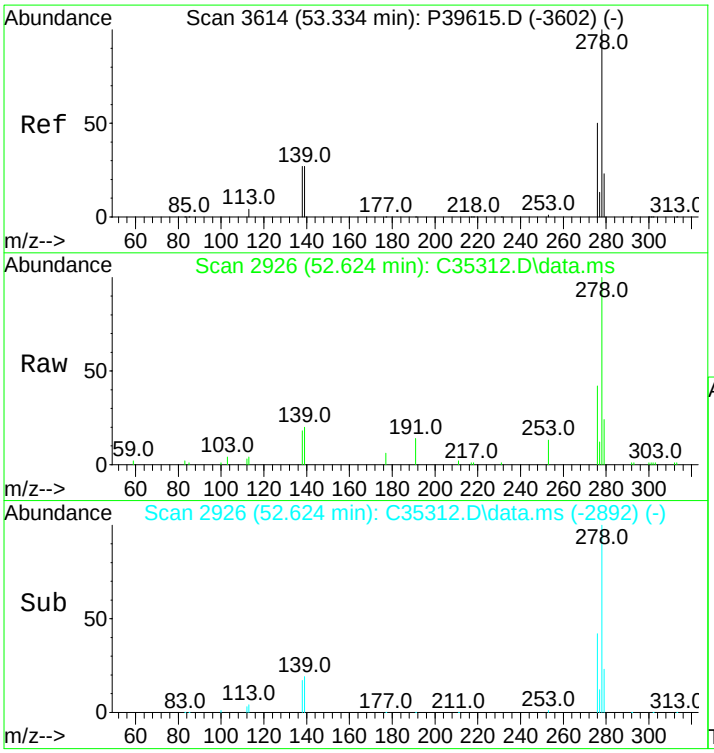


#89
Indeno[1,2,3-cd]pyrene
Concen: 401.52 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:276 Resp: 39203

Ion	Ratio	Lower	Upper
276	100		
138	36.1	19.1	28.7#
277	29.7	19.5	29.3#

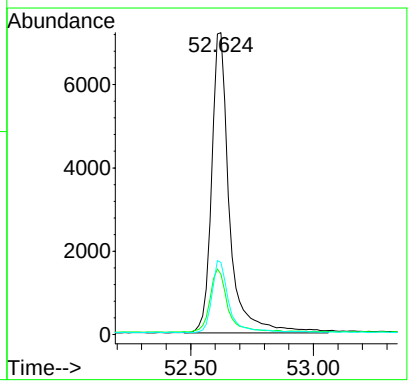


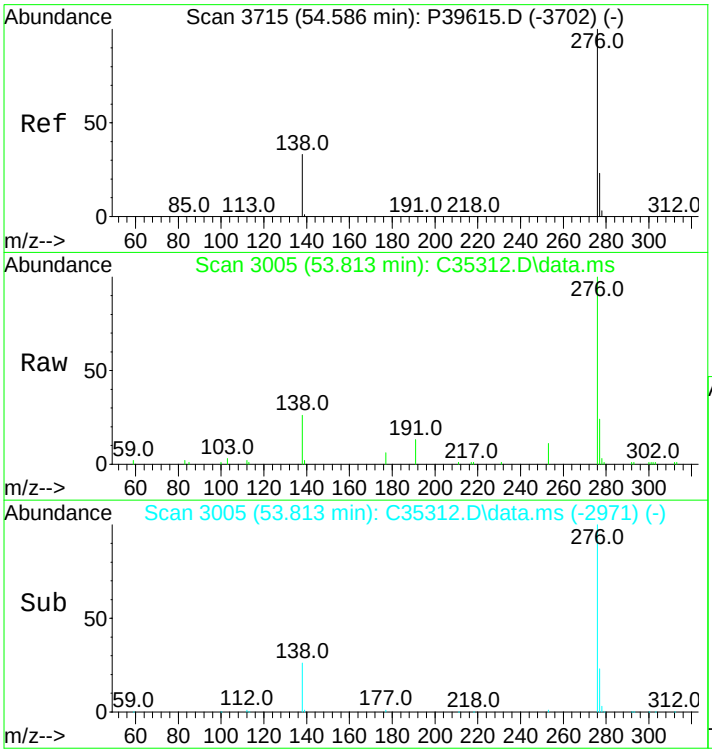


#90
Dibenz[ah]+[ac]anthracene
Concen: 392.05 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:278 Resp: 36413

Ion	Ratio	Lower	Upper
278	100		
139	20.9	16.6	25.0
279	22.6	20.0	30.0

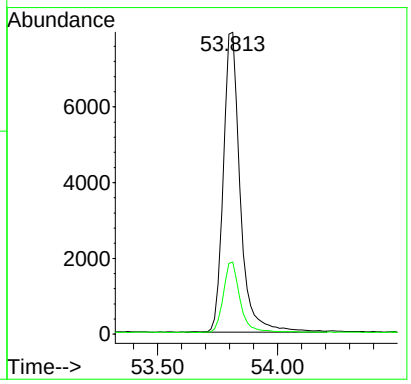




#91
Benzo[g,h,i]perylene
Concen: 376.93 ng/mL
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35312.D
Acq: 25 May 2012 8:57 pm

Tgt Ion:276 Resp: 38881

Ion	Ratio	Lower	Upper
276	100		
277	23.1	18.8	28.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14922	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35280	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	16223	250.489	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.05%#			
42) Phenanthrene-d10	32.221	188	19046	372.054	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.21%#			
86) Benzo[a]pyrene-d12	47.850	264	25482	348.519	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 34.85%#			
127) 5B(H)Cholane - Surr	43.422	217	4300	389.835	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.98%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	67M2	5.688	ng/mL	
10) Naphthalene	19.485	128	2638	27.738	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2728M5	28.684	ng/mL	
12) C2-Naphthalenes	24.664	156	4070M5	42.795	ng/mL	
13) C3-Naphthalenes	28.563	170	3550M5	37.327	ng/mL	
14) C4-Naphthalenes	31.363	184	2908M5	30.577	ng/mL	
16) 2-Methylnaphthalene	22.180	142	1706	30.338	ng/mL#	100
17) 1-Methylnaphthalene	22.586	142	952	17.271	ng/mL#	100
18) Benzothiophene	19.696	134	110M3	1.285	ng/mL	
23) Biphenyl	24.061	154	599	8.421	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	1350	29.220	ng/mL#	100
25) Dibenzofuran	27.133	168	1652	20.224	ng/mL	96
26) Acenaphthylene	25.748	152	2405	25.475	ng/mL#	100
27) Acenaphthene	26.485	153	950	17.090	ng/mL	97
28) 2,3,5-Trimethylnaphthalen	28.051	170	272M3	7.303	ng/mL	
29) Fluorene	28.502	166	1947	31.759	ng/mL	92
30) C1-Fluorenes	30.866	180	1310M5	21.368	ng/mL	
31) C2-Fluorenes	33.064	194	2626M5	42.834	ng/mL	
32) C3-Fluorenes	35.548	208	5961M5	97.233	ng/mL	
33) Dibenzothiophene	31.814	184	1890	19.232	ng/mL#	79
34) 4-Methyldibenzothiophene(	33.591	198	830	8.446	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.907	198	551M3	5.607	ng/mL	
36) 1-Methyldibenzothiophene(	34.344	198	307	3.124	ng/mL#	100
37) OTP	33.997	198	4708M3	47.907	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	6985M5	71.077	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2277m	23.170	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	5999M5	61.044	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	10906M5	110.976	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	10291M5	104.718	ng/mL	
43) Phenanthrene	32.311	178	17489	202.556	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2892	33.495	ng/mL	97
45) 2-Methylphenanthrene(2MP)	34.374	192	2520	29.186	ng/mL	97
46) 2-Methylanthracene(2MA)	34.539	192	987M3	11.431	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2757M3	31.931	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	2006M3	23.233	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11718M5	135.717	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	16378M5	189.689	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	16378m	189.689	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	16050M5	185.890	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.224	234	12880M5	149.175	ng/mL	
55) Anthracene	32.492	178	4564M3	54.117	ng/mL	
56) Carbazole	33.169	167	2249	26.400	ng/mL	94
57) 1-Methylphenanthrene	34.810	192	2028M3	37.064	ng/mL	
58) Fluoranthene	37.084	202	106531M3	1242.320	ng/mL	
59) Benzo(b)fluorene	39.598	216	7137M3	143.458	ng/mL	
60) Pyrene	37.957	202	93460	1072.174	ng/mL	96

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
61)	C1-Fluoranthenes/Pyrenes	39.357	216	44696M5	512.753	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	42.203	230	29522M5	338.677	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.287	244	18526M5	212.530	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.567	258	17935M5	205.750	ng/mL	
66)	Naphthobenzothiophene	41.811	234	10780	114.870	ng/mL#	72
67)	Naphthobenzothiophene-2,1	41.811	234	10780	114.870	ng/mL#	72
68)	Naphthobenzothiophene-1,2	42.143	234	2490	26.533	ng/mL#	9
69)	Naphthobenzothiophene-2,3	42.444	234	2726M3	29.048	ng/mL	
70)	C1-Naphthobenzothiophenes	43.212	248	14390M5	153.337	ng/ml	
71)	C2-Naphthobenzothiophenes	45.214	262	19687M5	209.781	ng/ml	
72)	C3-Naphthobenzothiophenes	46.826	276	19253M5	205.157	ng/ml	
73)	C4-Naphthobenzothiophenes	47.850	290	15352M5	163.588	ng/mL	
75)	Benz[a]anthracene	42.730	228	33750M3	301.398	ng/mL	
77)	Chrysene/Triphenylene	42.895	228	58812M3	520.224	ng/mL	
78)	C1-Chrysenes	44.371	242	24053M5	212.762	ng/mL	
79)	C2-Chrysenes	46.088	256	19397M5	171.577	ng/mL	
79)	C2-Chrysenes BS	46.088	256	19397m	171.577	ng/mL	
80)	C3-Chrysenes	47.624	270	25812M5	228.321	ng/mL	
81)	C4-Chrysenes	48.076	284	18155M5	160.591	ng/mL	
82)	Benzo[b]fluoranthene	46.780	252	78548	638.386	ng/mL	95
83)	Benzo[j]+[k]fluoranthene	46.856	252	79982M3	597.057	ng/mL	
84)	Benzo[a]fluoranthene	47.157	252	9259M3	69.117	ng/mL	
85)	Benzo[e]pyrene	47.759	252	56704	465.920	ng/mL	94
87)	Benzo[a]pyrene	47.940	252	58089	495.745	ng/mL	92
88)	Perylene	48.241	252	70556	563.422	ng/mL	90
89)	Indeno[1,2,3-cd]pyrene	52.579	276	63427M3	465.144	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.624	278	15518M3	119.631	ng/mL	
91)	Benzo[g,h,i]perylene	53.828	276	65784	456.628	ng/mL	100
92)	Hopane (T19)	51.705	191	32490M3	1397.298	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.456	191	3591M3	154.438	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.179	191	2316M3	99.604	ng/ml	
96)	C25 Tricyclic Terpane (T6	42.700	191	1979M3	85.111	ng/ml	
97)	C24 Tetracyclic Terpane (	43.964	191	2881M3	123.903	ng/ml	
98)	C26 Tricyclic Terpane-22S	43.724	191	1248	53.673	ng/ml	100
99)	C26 Tricyclic Terpane-22R	43.814	191	1222	52.555	ng/ml	100
100)	C28 Tricyclic Terpane-22S	46.103	191	1842M3	79.219	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.268	191	2170	93.325	ng/ml	100
102)	C29 Tricyclic Terpane-22S	46.795	191	1837	79.004	ng/ml	100
103)	C29 Tricyclic Terpane-22R	46.976	191	1809M3	77.800	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.061	191	7316	314.639	ng/ml	100
105)	C30 Tricyclic Terpane-22S	48.166	191	2085M3	89.670	ng/mL	
106)	C30 Tricyclic Terpane-22R	48.407	191	2081M3	89.498	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.588	191	7164	308.102	ng/ml	100
108)	17a/b,21b/a 28,30-Bisnorh	49.747	191	1402	60.296	ng/ml	100
109)	17a(H),21b(H)-25-Norhopan	49.551	191	2521M3	108.421	ng/ml	
110)	30-Norhopane (T15)	50.395	191	23483	1009.934	ng/ml	100
111)	18a(H)-30-Norneohopane-C2	50.485	191	7573M3	325.692	ng/ml	
112)	17a(H)-Diahopane (X)	50.621	191	1909M3	82.100	ng/ml	
113)	30-Normoretane (T17)	51.133	191	5102	219.422	ng/ml	100
114)	18a(H)&18b(H)-Oleananes (	51.524	191	2653M3	114.098	ng/ml	
115)	Moretane (T20)	52.368	191	6900M3	296.748	ng/ml	
116)	30-Homohopane-22S (T21)	53.422	191	10022	431.016	ng/ml	100
117)	30-Homohopane-22R (T22)	53.648	191	9648	414.932	ng/ml	100
118)	Gammacerane/C32-diahopane	54.190	191	2763M3	118.828	ng/mL	
119)	30,31-Bishomohopane-22S (	54.883	191G	57737	2483.096	ng/ml	100
120)	30,31-Bishomohopane-22R (	55.304	191	5859	251.978	ng/ml	100
121)	30,31-Trishomohopane-22S	56.976	191	8069M3	347.024	ng/ml	
122)	30,31-Trishomohopane-22R	57.548	191	3009	129.408	ng/ml	100
123)	Tetrakishomohopane-22S (T	59.536	191G	15140	651.126	ng/ml	100
124)	Tetrakishomohopane-22R (T	60.288	191G	16900	726.818	ng/ml	100
125)	Pentakishomohopane-22S (T	62.487	191	3059M3	131.558	ng/ml	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126) Pentakishomohopane-22R (T	63.737	191	2359M3	101.454	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2152	195.099	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1435M3	130.096	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.058	217	1515M3	137.349	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4161	377.233	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4114M3	372.972	ng/ml	
133) Unknown Sterane (S18)	47.699	217	943	85.492	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.955	217	128	11.604	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	1799M3	163.096	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1480M3	134.176	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2548M3	231.000	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2369M3	214.772	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2112M3	191.472	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2106M3	190.928	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1815	164.546	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	2694M3	244.236	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.386	218	4077M3	369.618	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2471M3	224.019	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4316M3	391.285	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4595M3	416.579	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	2992M3	271.252	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	3380M3	306.428	ng/mL	

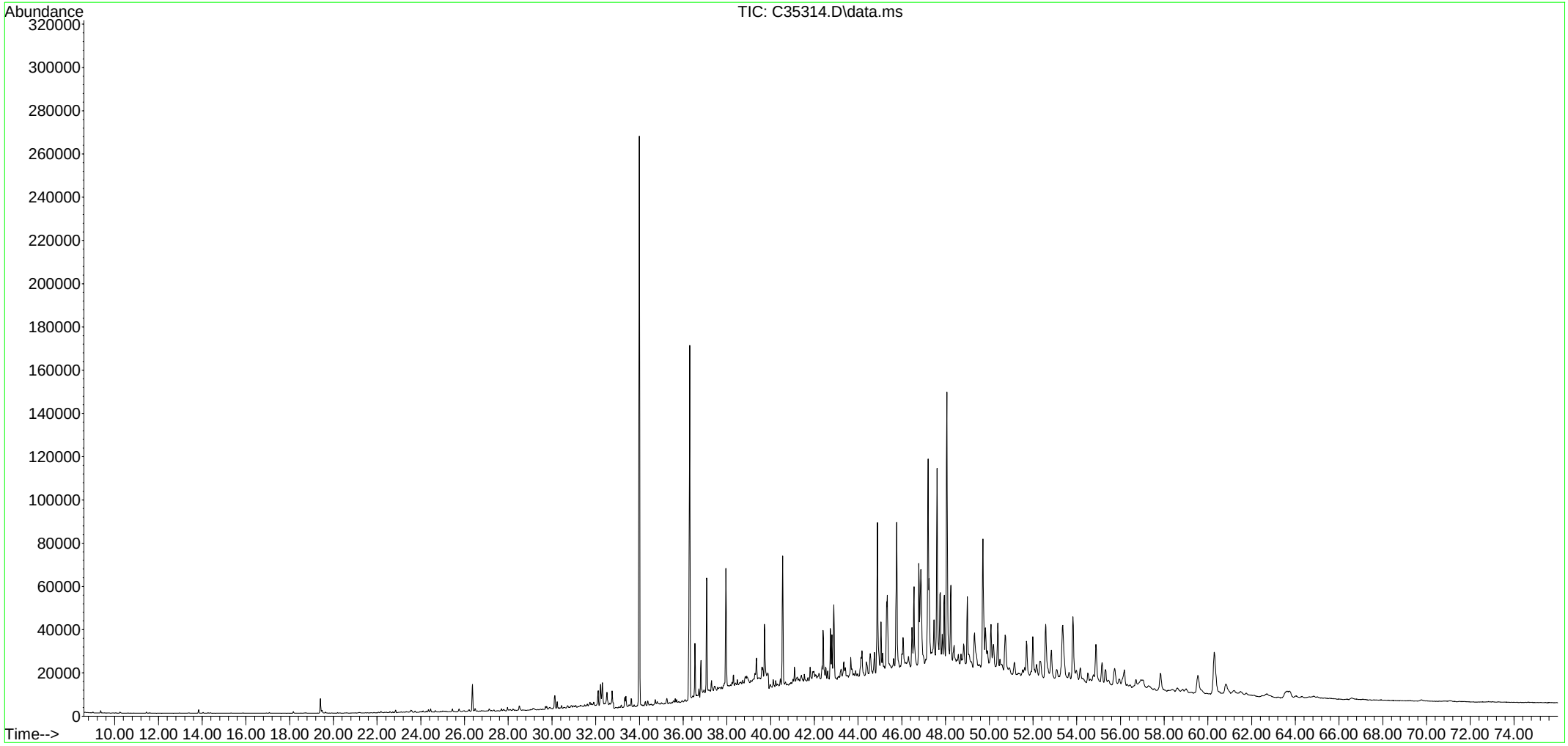
(#) = qualifier out of range (m) = manual integration (+) = signals summed

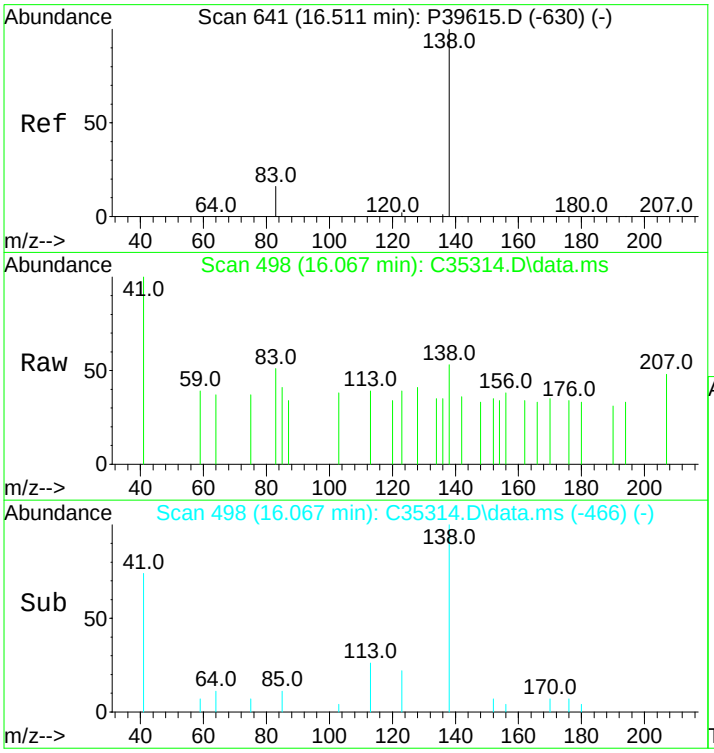
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35314.D
Acq On : 25 May 2012 10:30 pm
Operator : AC
Sample : 1205027-05
Misc : 1X
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 29 13:05:17 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

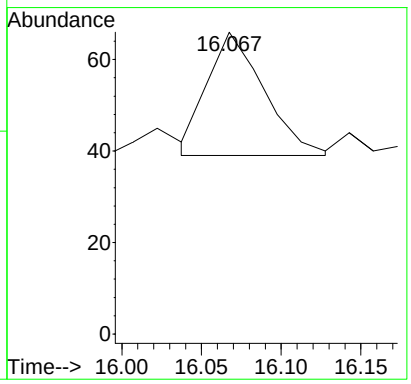
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

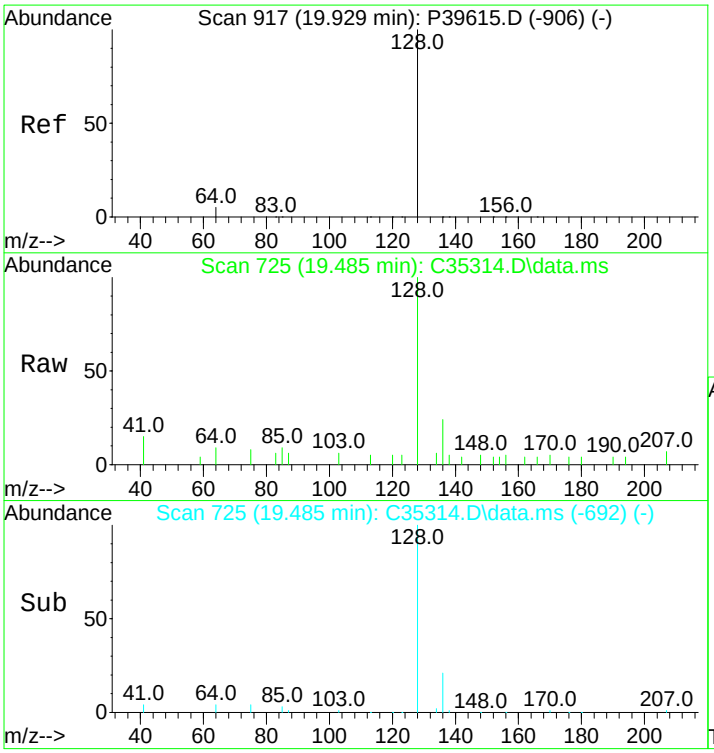




#3
trans-Decalin
Concen: 5.69 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:138 Resp: 67

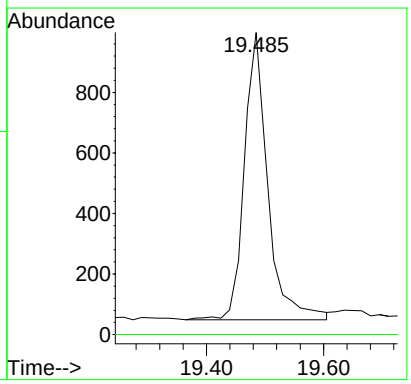


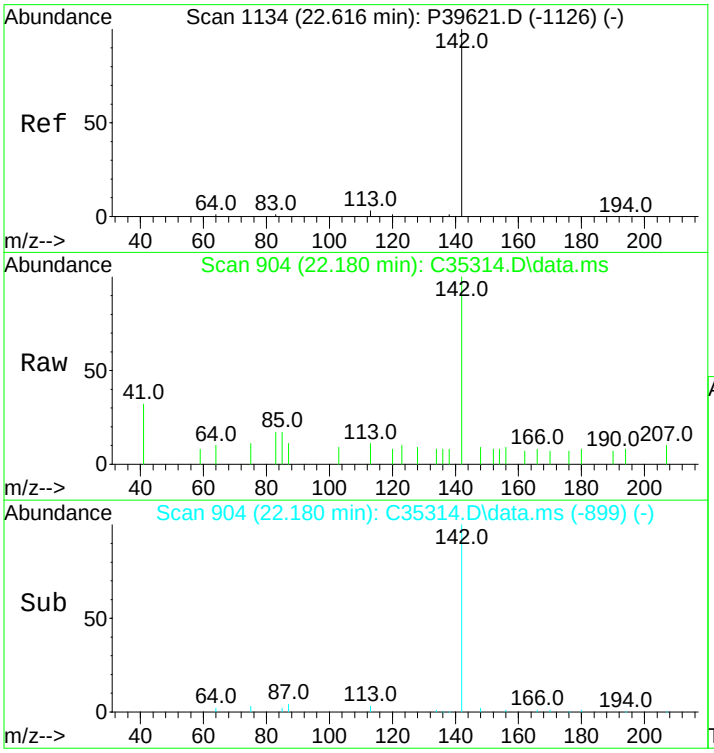


#10
Naphthalene
Concen: 27.74 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:128 Resp: 2638

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

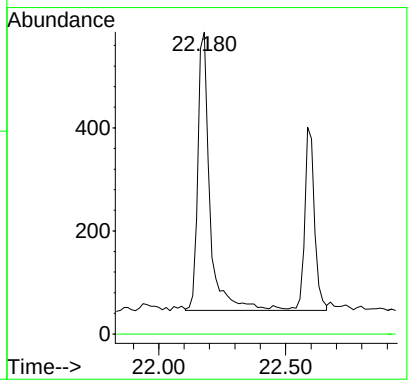


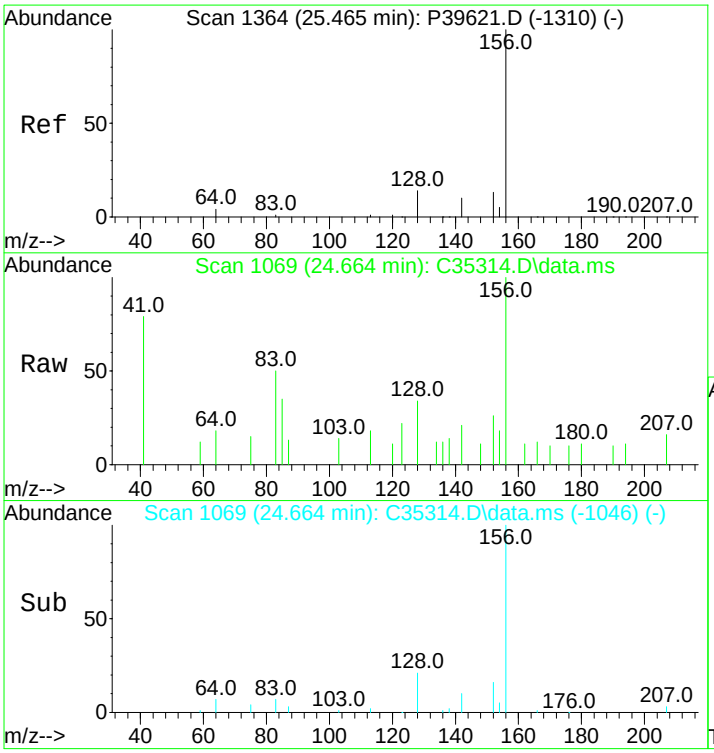


#11
C1-Naphthalenes
Concen: 28.68 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:142 Resp: 2728

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

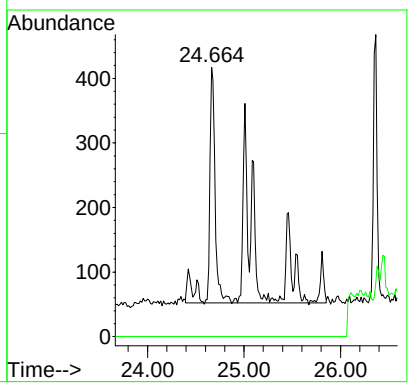


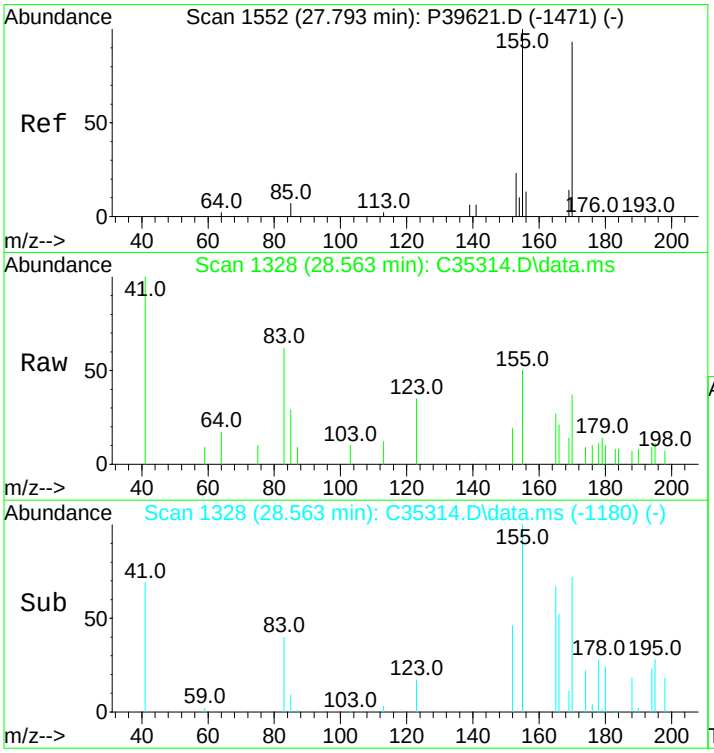


#12
C2-Naphthalenes
Concen: 42.79 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:156 Resp: 4070

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

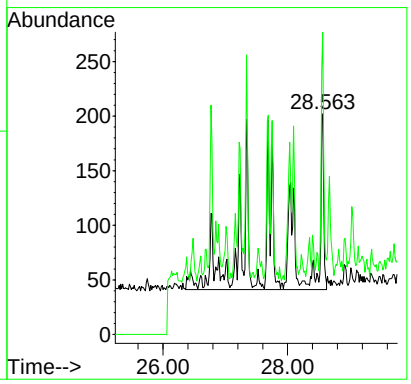


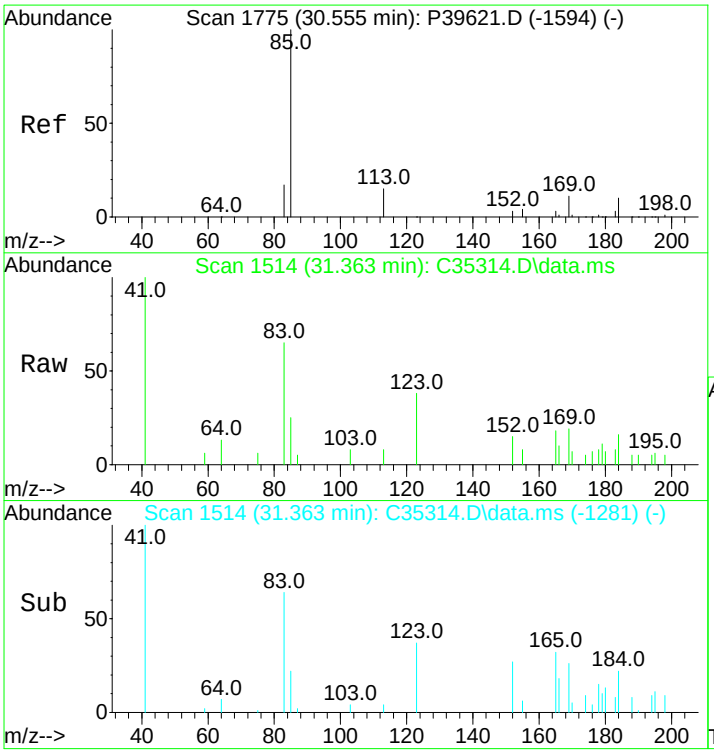


#13
C3-Naphthalenes
Concen: 37.33 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:170 Resp: 3550

Ion	Ratio	Lower	Upper
170	100		
155	13.8	86.3	129.5#

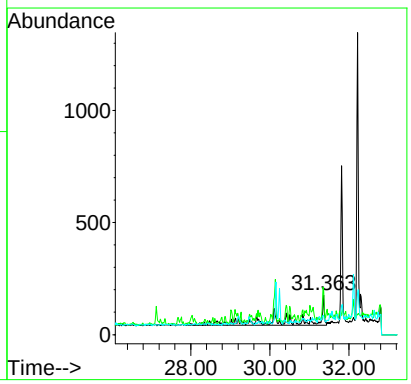


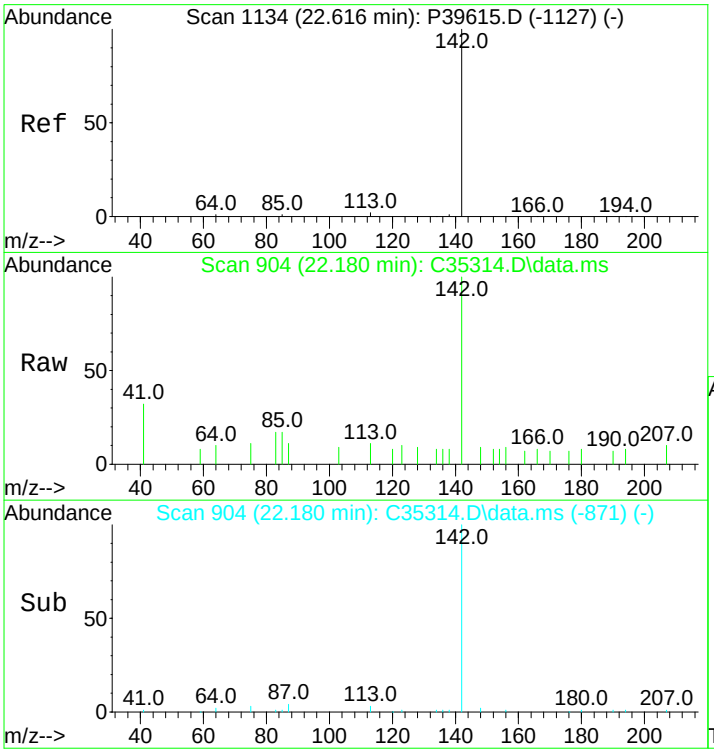


#14
C4-Naphthalenes
Concen: 30.58 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:184 Resp: 2908

Ion	Ratio	Lower	Upper
184	100		
169	0.0	100.6	150.8#
183	0.0	26.6	40.0#

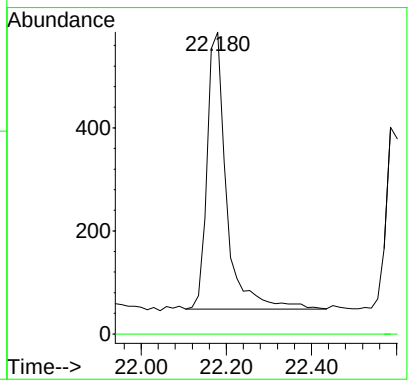


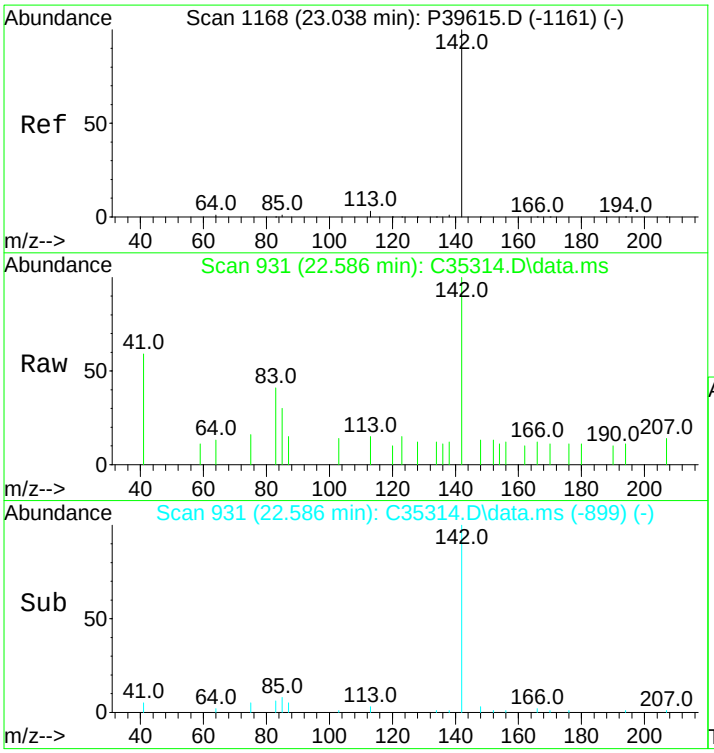


#16
2-Methylnaphthalene
Concen: 30.34 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:142 Resp: 1706

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

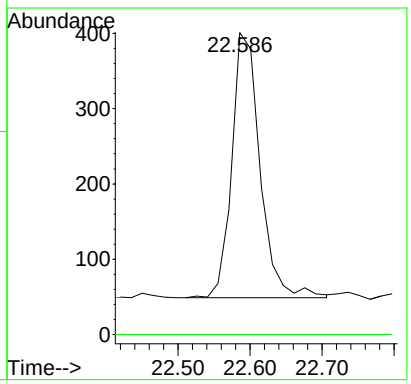


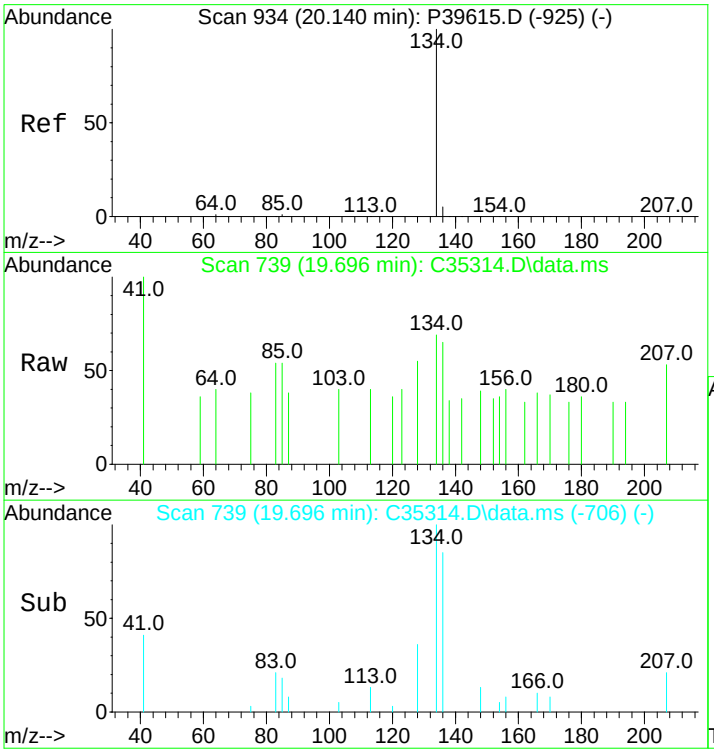


#17
1-Methylnaphthalene
Concen: 17.27 ng/mL
RT: 22.586 min Scan# 931
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:142 Resp: 952

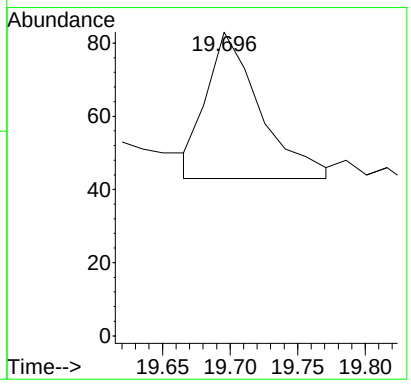
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

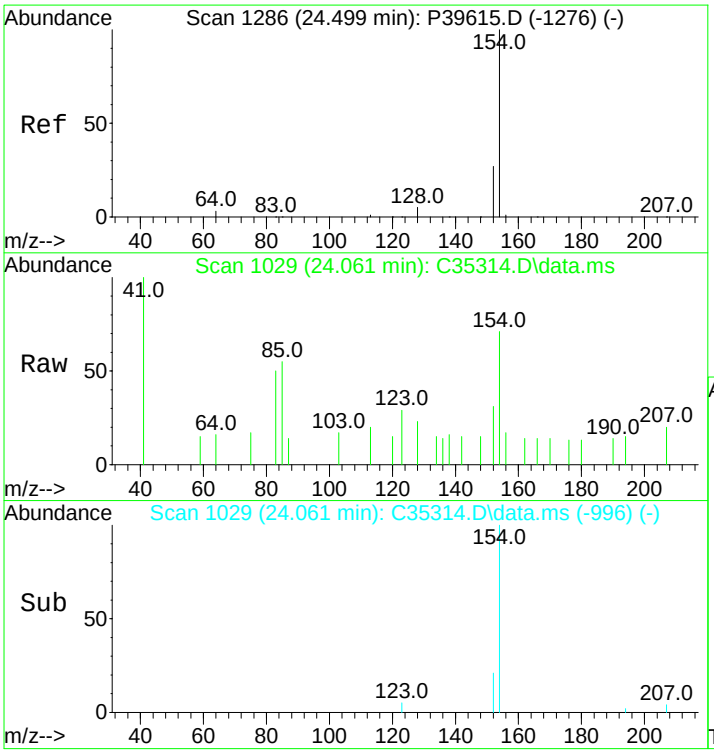




#18
Benzothiophene
Concen: 1.29 ng/mL m
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:134 Resp: 110

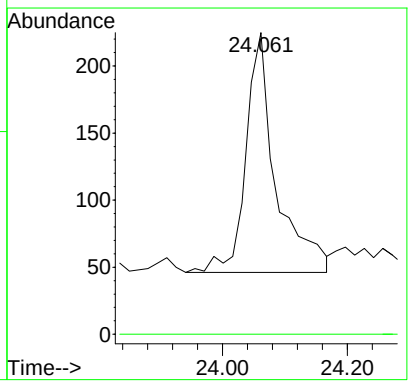


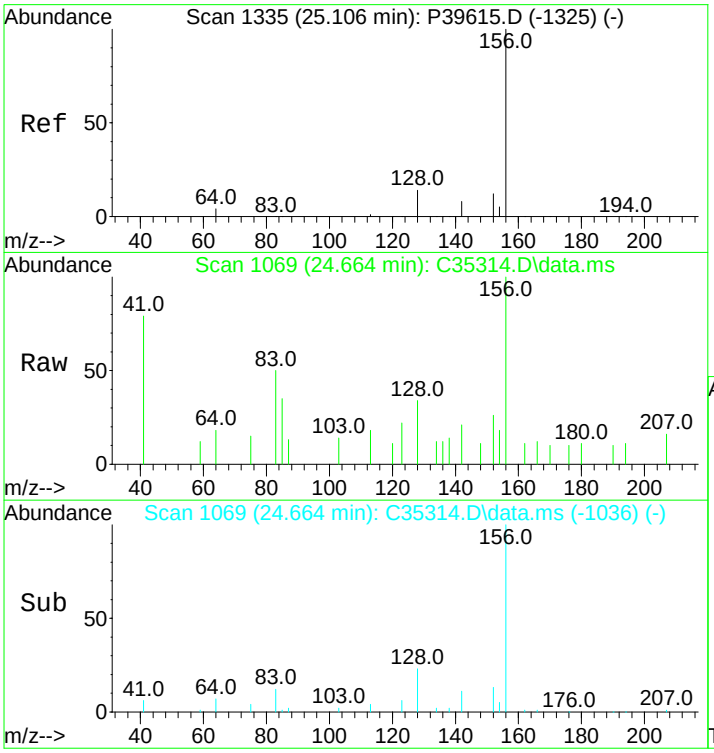


#23
Biphenyl
Concen: 8.42 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:154 Resp: 599

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

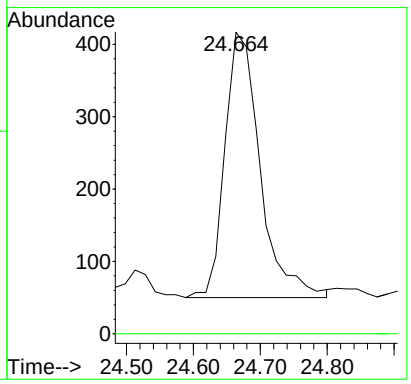


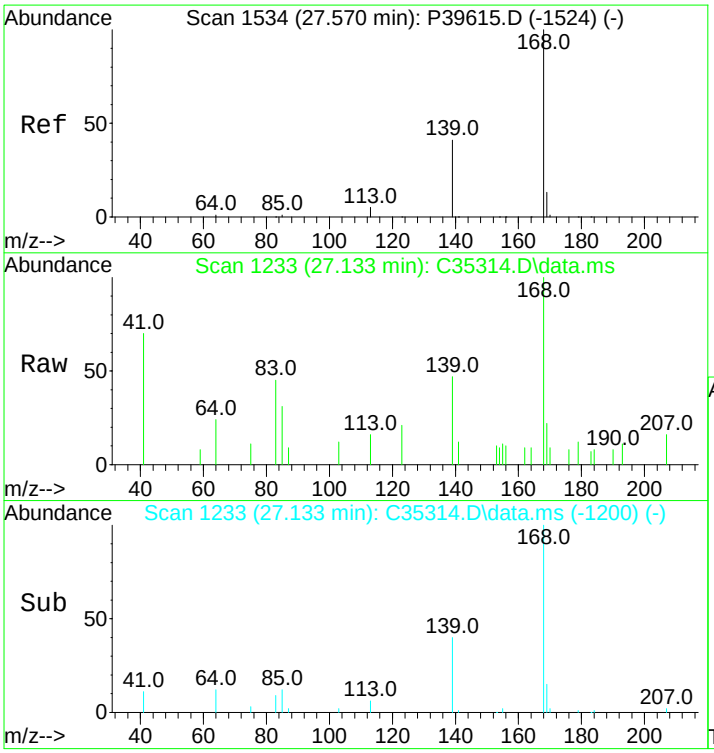


#24
2,6-Dimethylnaphthalene
Concen: 29.22 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:156 Resp: 1350

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

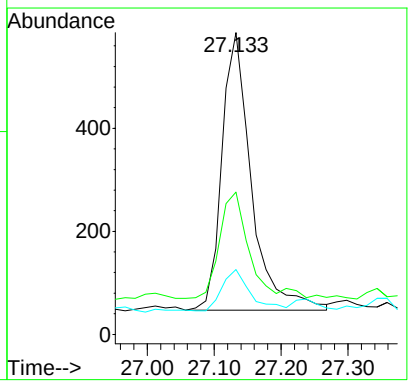


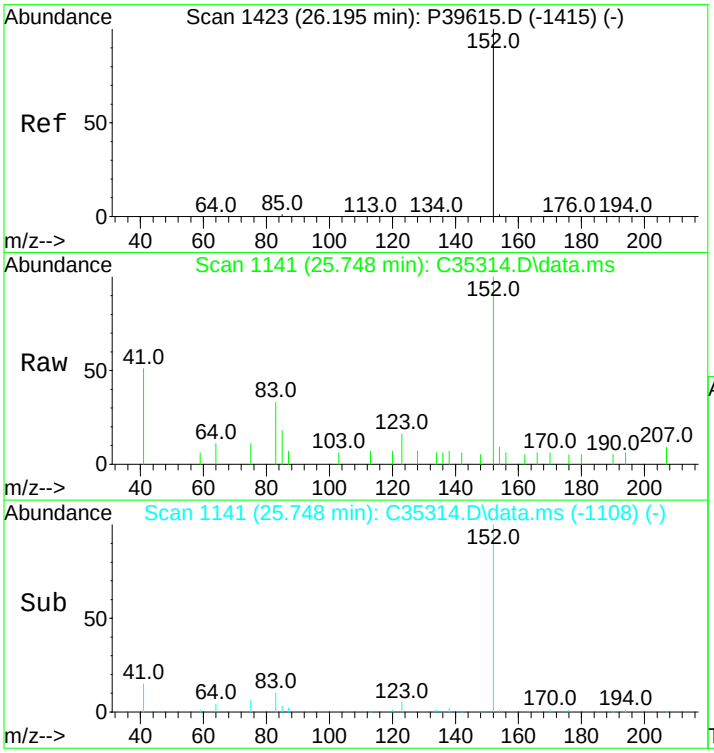


#25
Dibenzofuran
Concen: 20.22 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:168 Resp: 1652

Ion	Ratio	Lower	Upper
168	100		
139	40.0	29.9	44.9
169	14.1	10.3	15.5

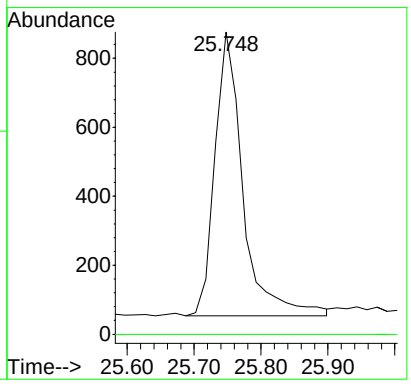


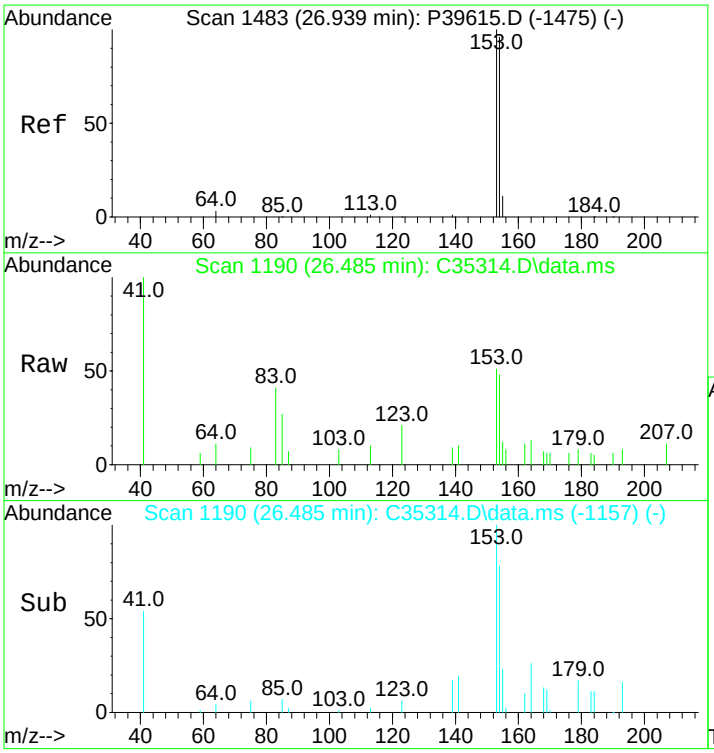


#26
Acenaphthylene
Concen: 25.47 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:152 Resp: 2405

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

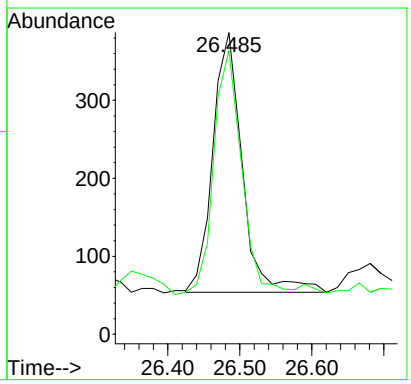


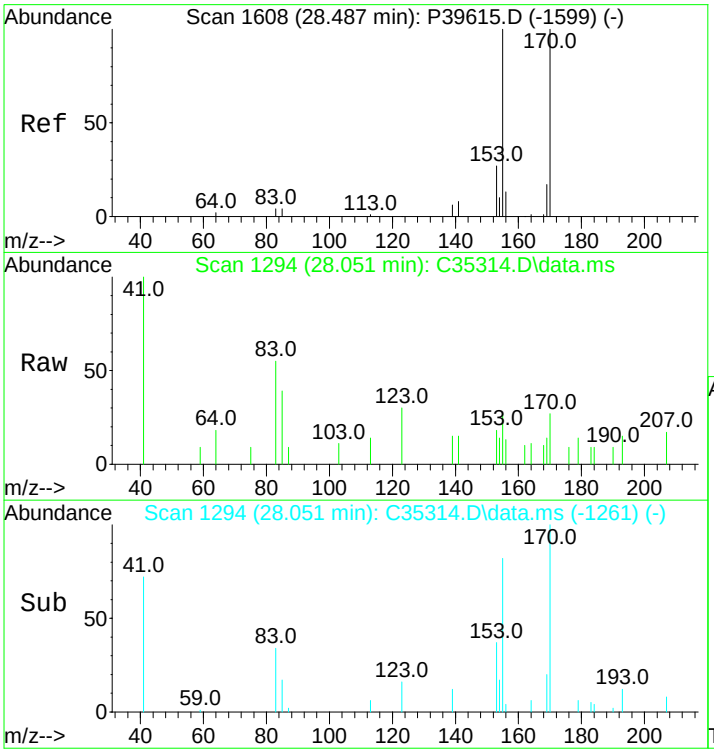


#27
Acenaphthene
Concen: 17.09 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:153 Resp: 950

Ion	Ratio	Lower	Upper
153	100		
154	89.1	73.3	109.9

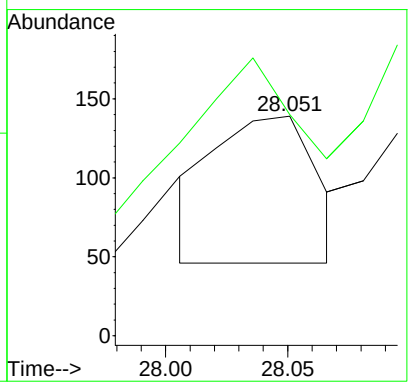


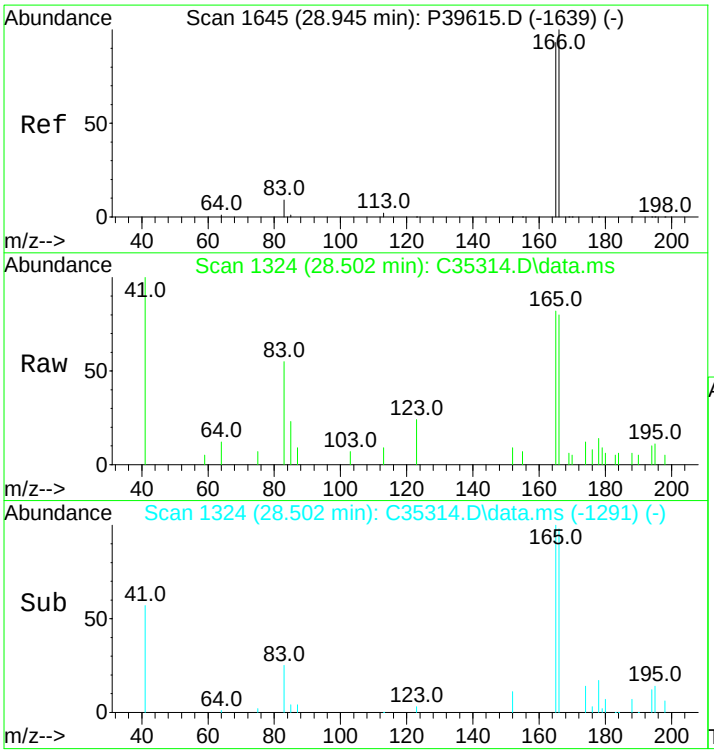


#28
2,3,5-Trimethylnaphthalene
Concen: 7.30 ng/mL m
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:170 Resp: 272

Ion	Ratio	Lower	Upper
170	100		
155	151.8	78.4	117.6#

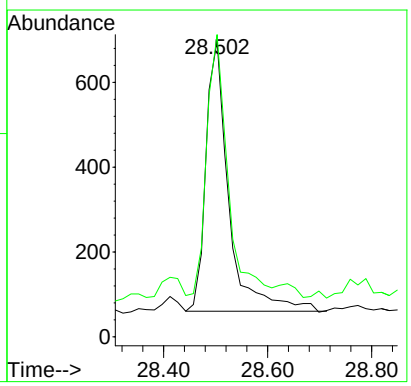


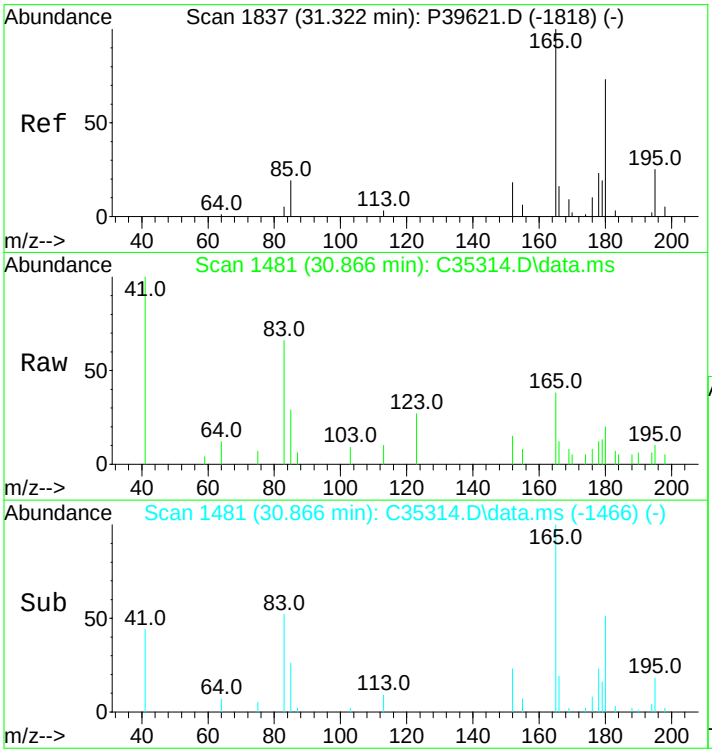


#29
Fluorene
Concen: 31.76 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:166 Resp: 1947

Ion	Ratio	Lower	Upper
166	100		
165	88.5	77.1	115.7

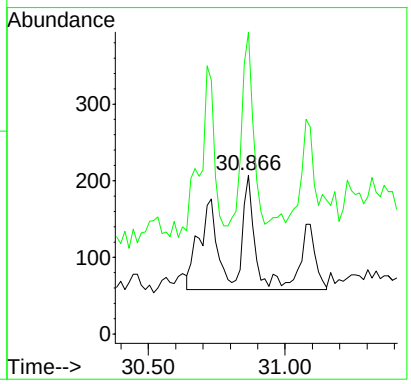


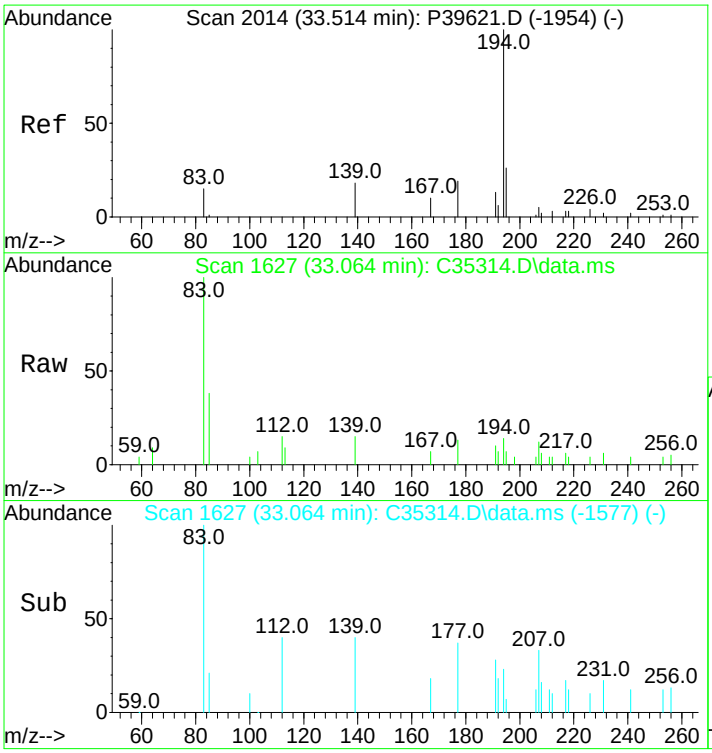


#30
C1-Fluorenes
Concen: 21.37 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:180 Resp: 1310

Ion	Ratio	Lower	Upper
180	100		
165	37.9	121.9	182.9#

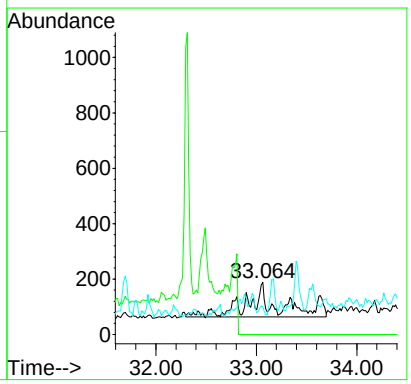


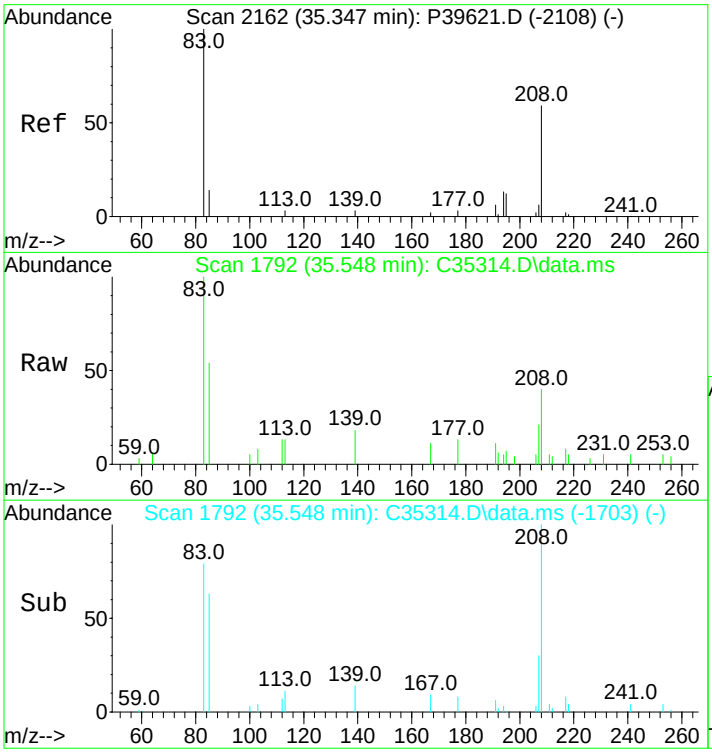


#31
C2-Fluorenes
Concen: 42.83 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:194 Resp: 2626

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	19.3	30.5	45.7#

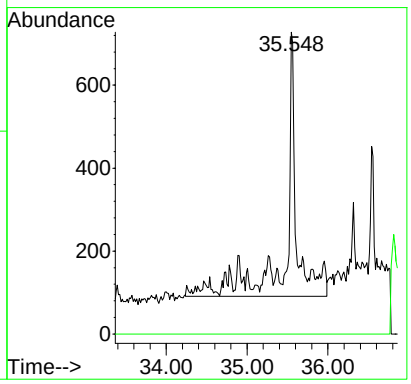


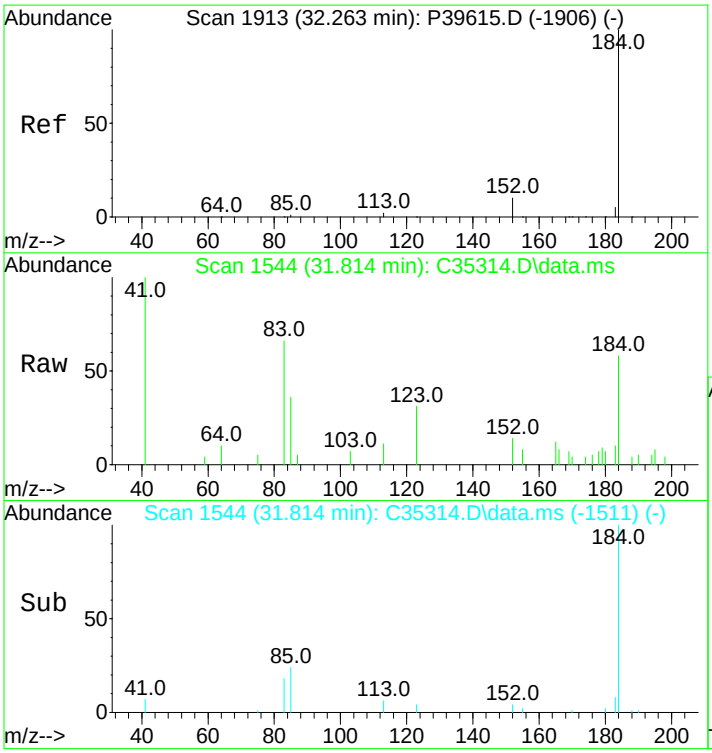


#32
C3-Fluorenes
Concen: 97.23 ng/mL m
RT: 35.548 min Scan# 1792
Delta R.T. 0.805 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:208 Resp: 5961

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

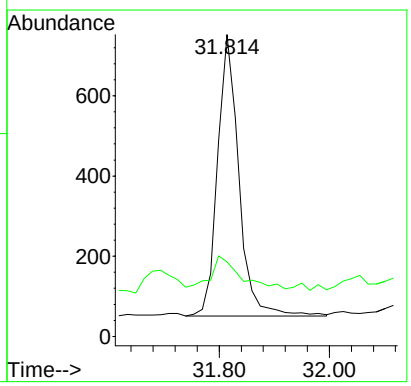


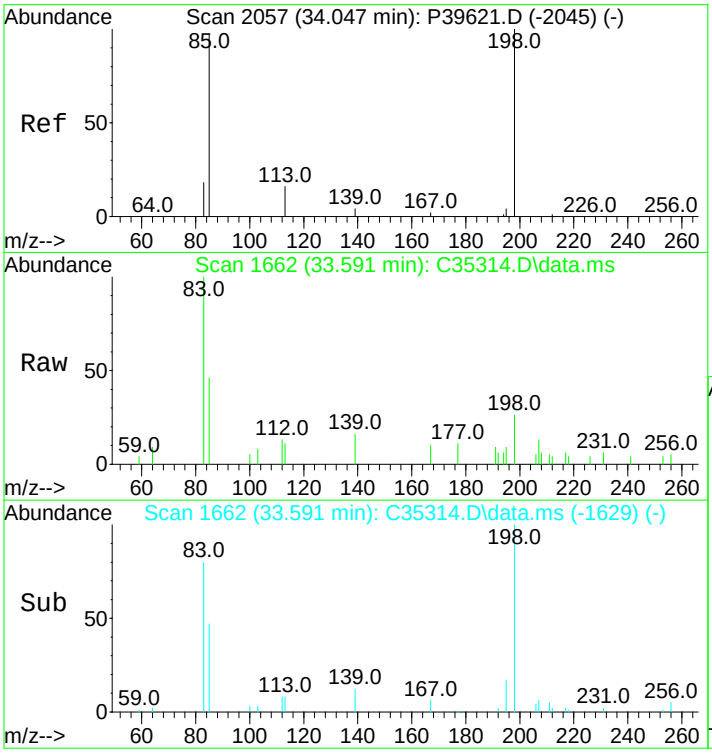


#33
Dibenzothiophene
Concen: 19.23 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:184 Resp: 1890

Ion	Ratio	Lower	Upper
184	100		
152	17.1	7.5	11.3#

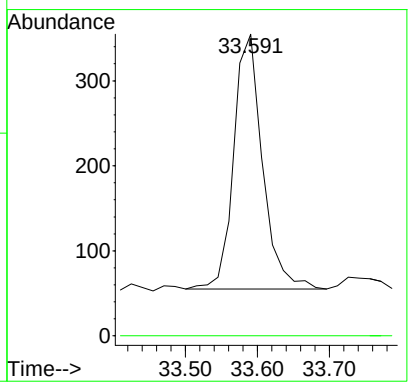


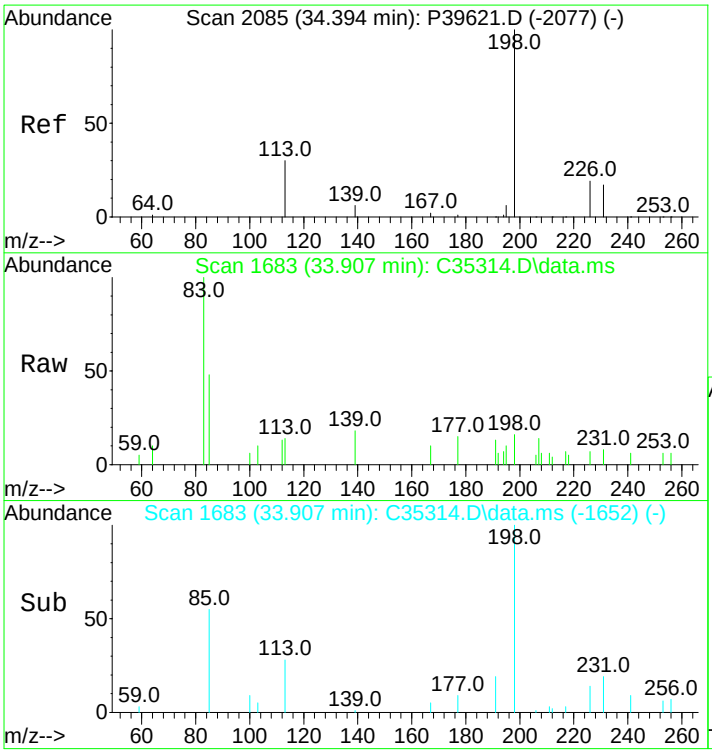


#34
4-Methyldibenzothiophene(4MDT)
Concen: 8.45 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:198 Resp: 830

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

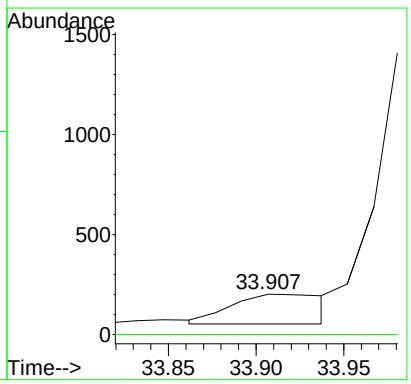


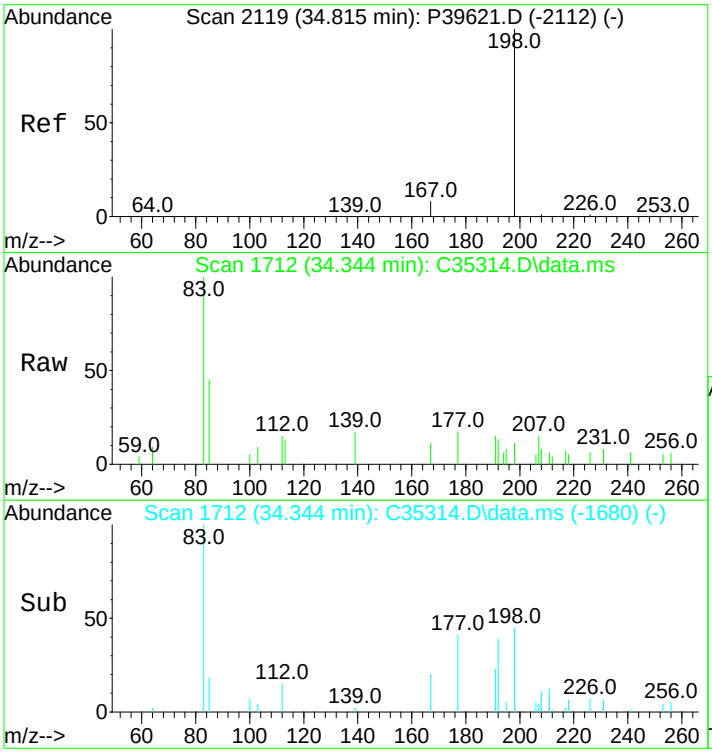


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 5.61 ng/mL m
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:198 Resp: 551

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

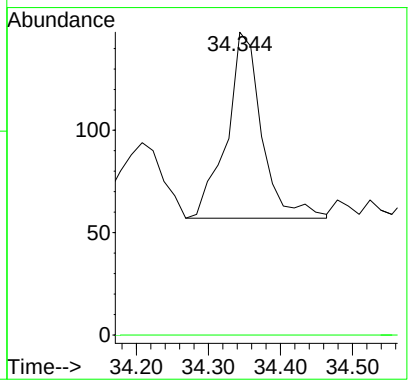


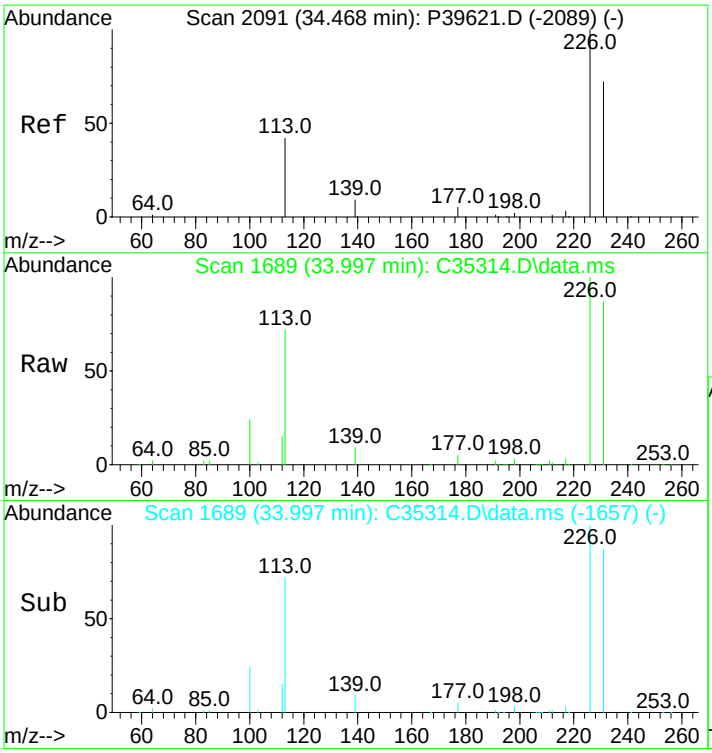


#36
1-Methyldibenzothiophene(1MDT)
Concen: 3.12 ng/mL
RT: 34.344 min Scan# 1712
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:198 Resp: 307

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

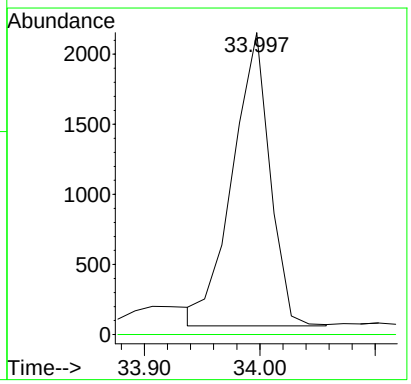


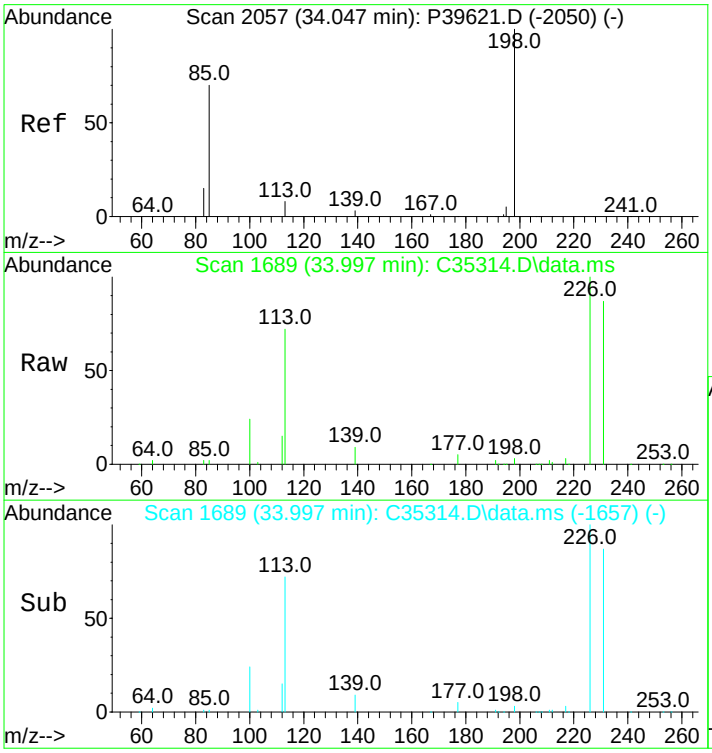


#37
OTP
Concen: 47.91 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:198 Resp: 4708

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

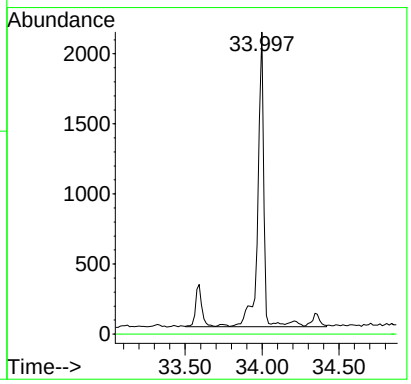


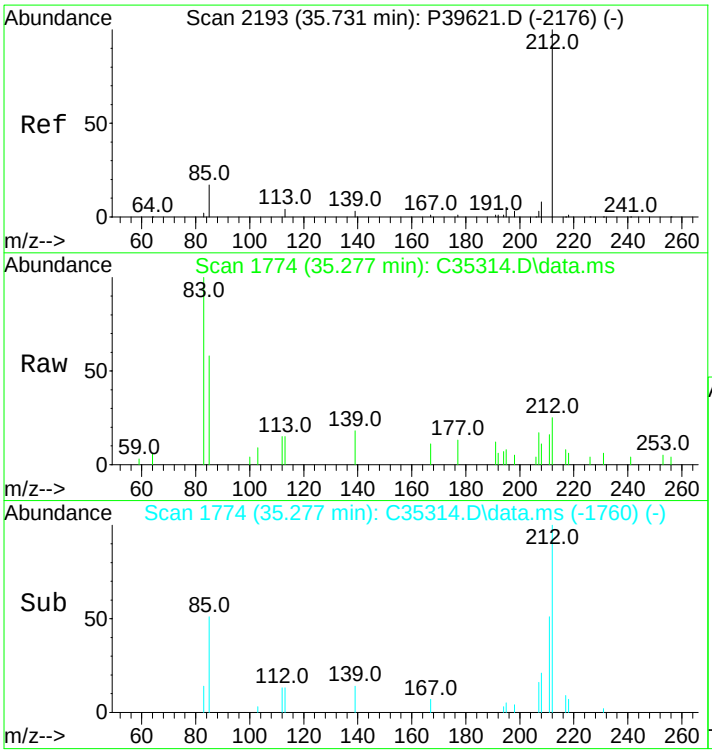


#38
C1-Dibenzothiophenes
Concen: 71.08 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:198 Resp: 6985

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

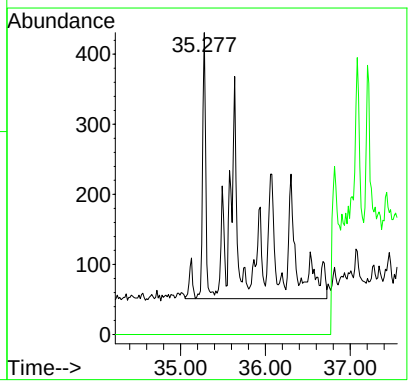


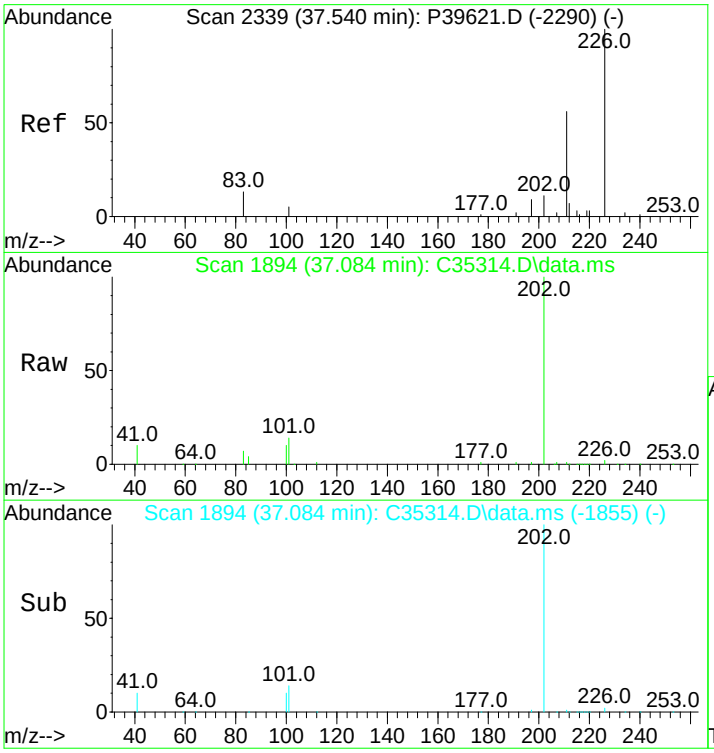


#39
C2-Dibenzothiophenes
Concen: 61.04 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:212 Resp: 5999

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

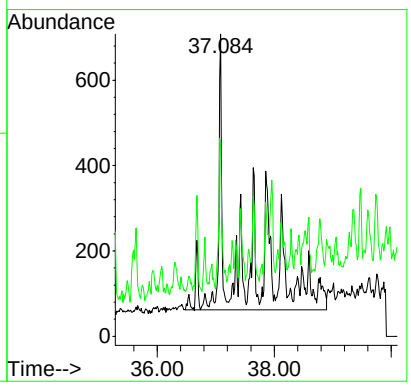


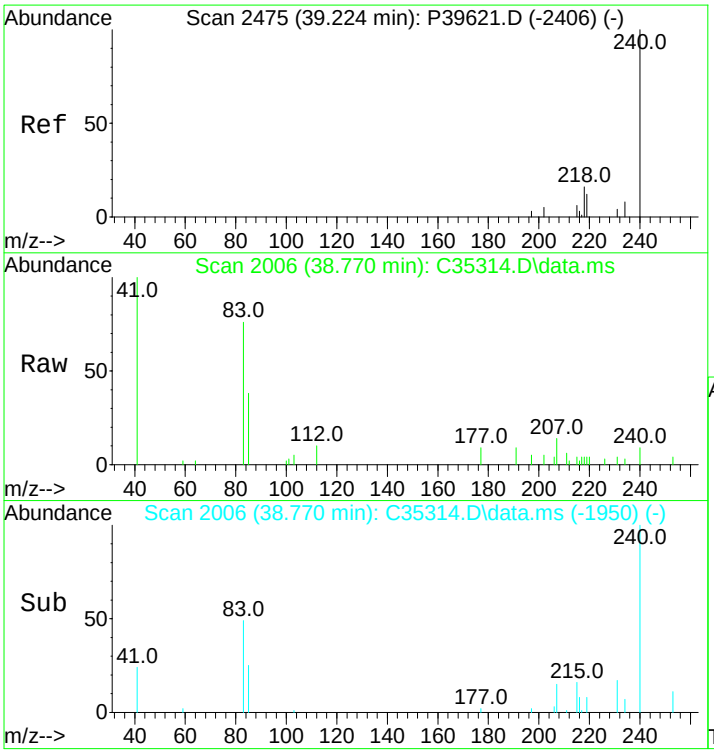


#40
C3-Dibenzothiophenes
Concen: 110.98 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:226 Resp: 10906

Ion	Ratio	Lower	Upper
226	100		
211	12.6	51.4	77.2#

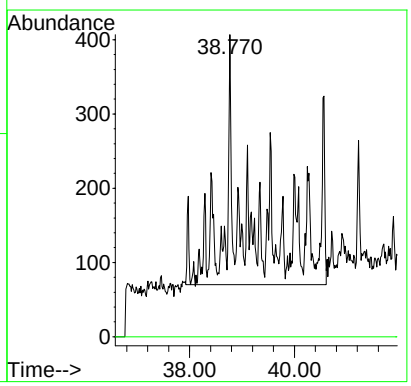


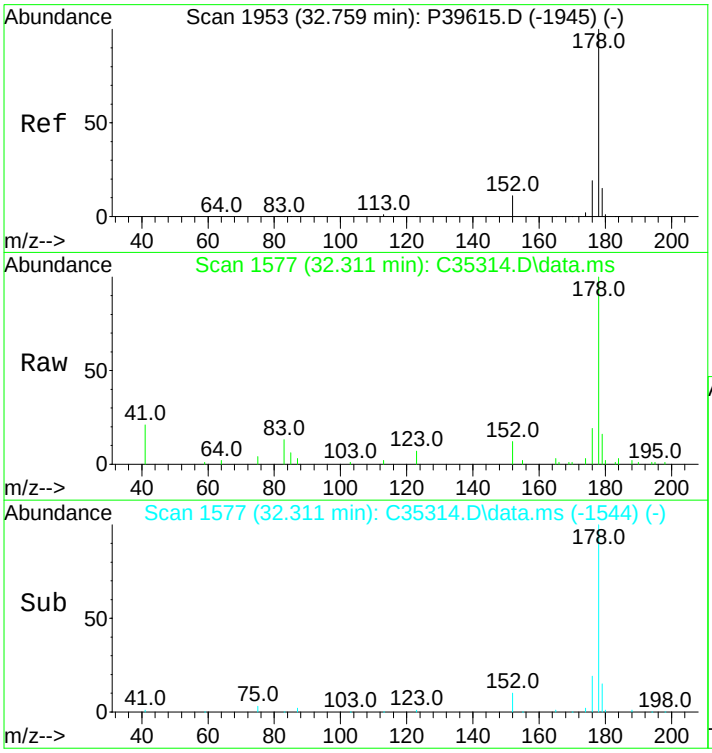


#41
C4-Dibenzothiophenes
Concen: 104.72 ng/mL m
RT: 38.770 min Scan# 2006
Delta R.T. 0.138 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:240 Resp: 10291

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

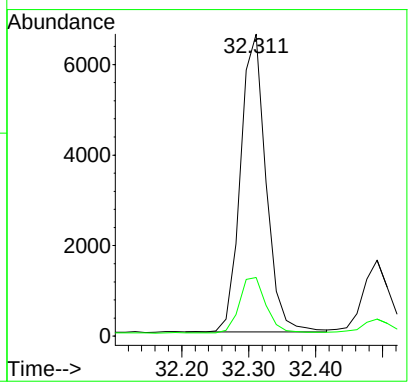


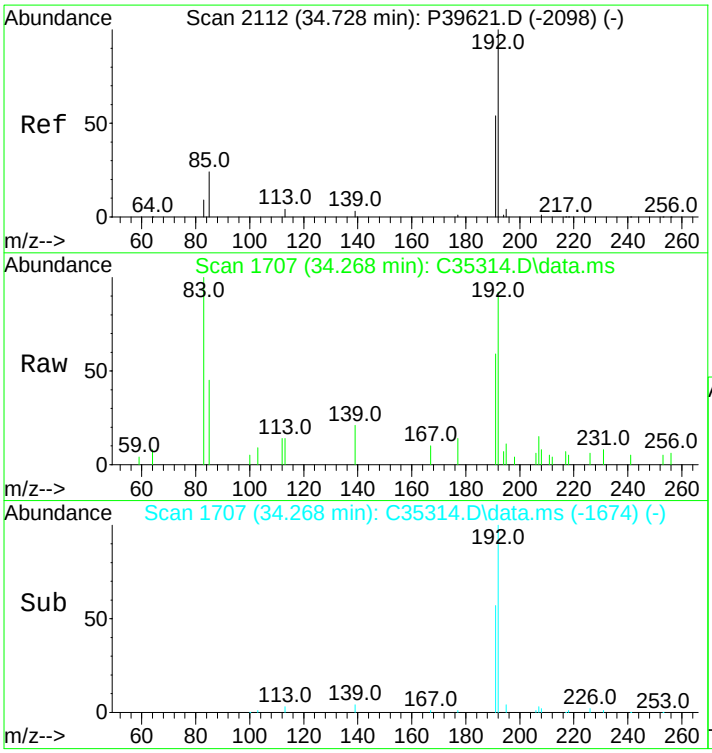


#43
Phenanthrene
Concen: 202.56 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:178 Resp: 17489

Ion	Ratio	Lower	Upper
178	100		
176	19.5	15.8	23.6

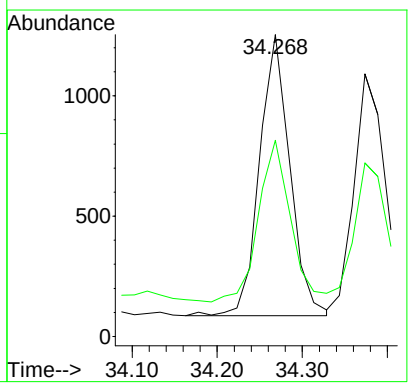


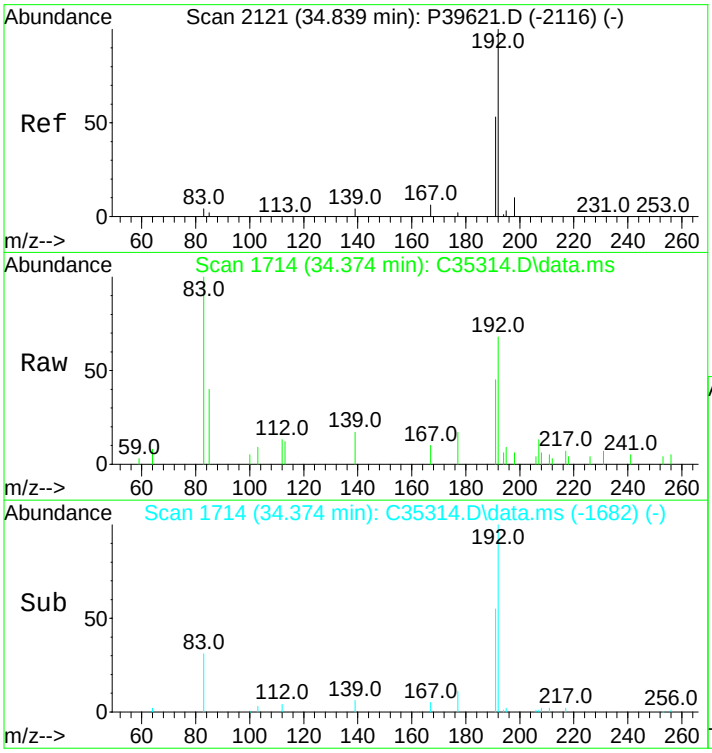


#44
3-Methylphenanthrene(3MP)
Concen: 33.49 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 2892

Ion	Ratio	Lower	Upper
192	100		
191	61.2	47.4	71.0

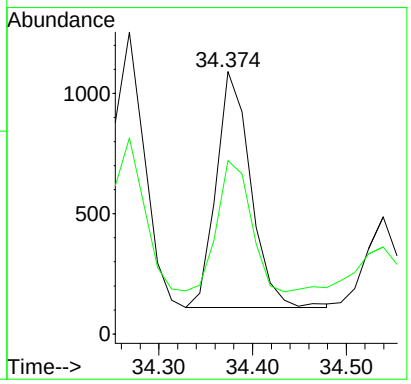


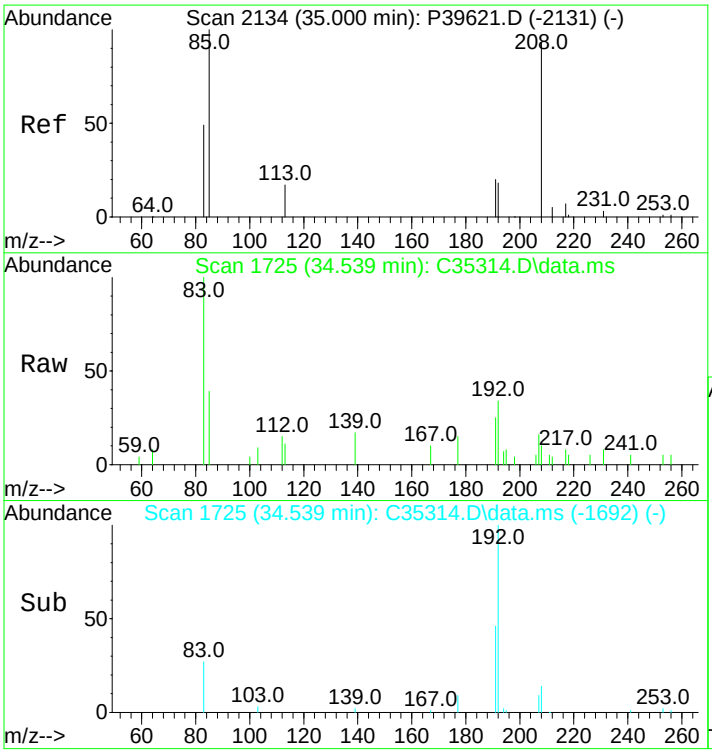


#45
2-Methylphenanthrene(2MP)
Concen: 29.19 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 2520

Ion	Ratio	Lower	Upper
192	100		
191	53.9	45.0	67.6

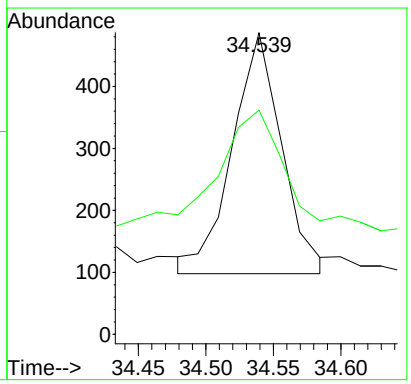


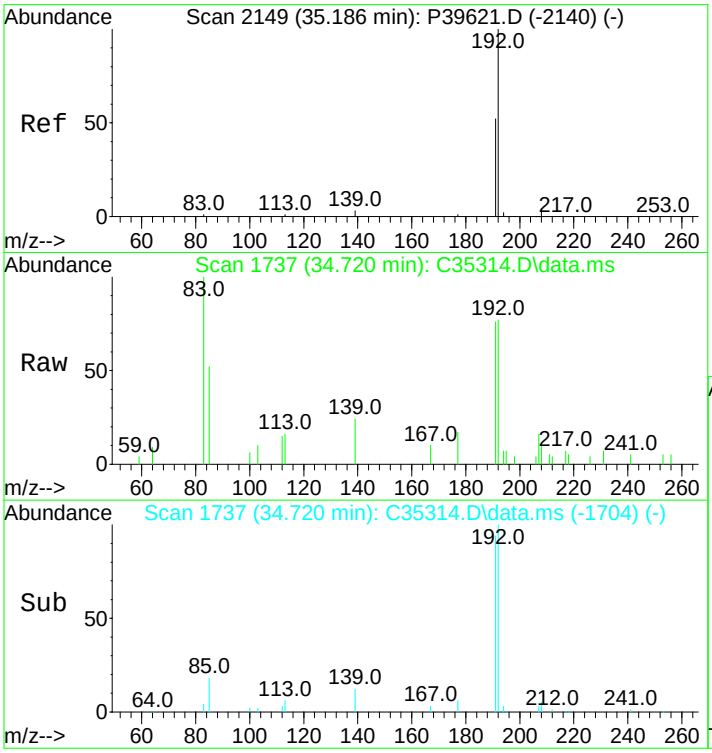


#46
2-Methylanthracene(2MA)
Concen: 11.43 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 987

Ion	Ratio	Lower	Upper
192	100		
191	78.4	95.5	143.3#

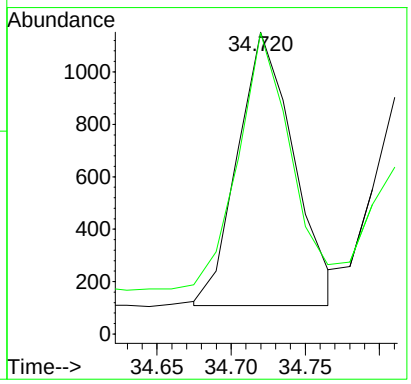


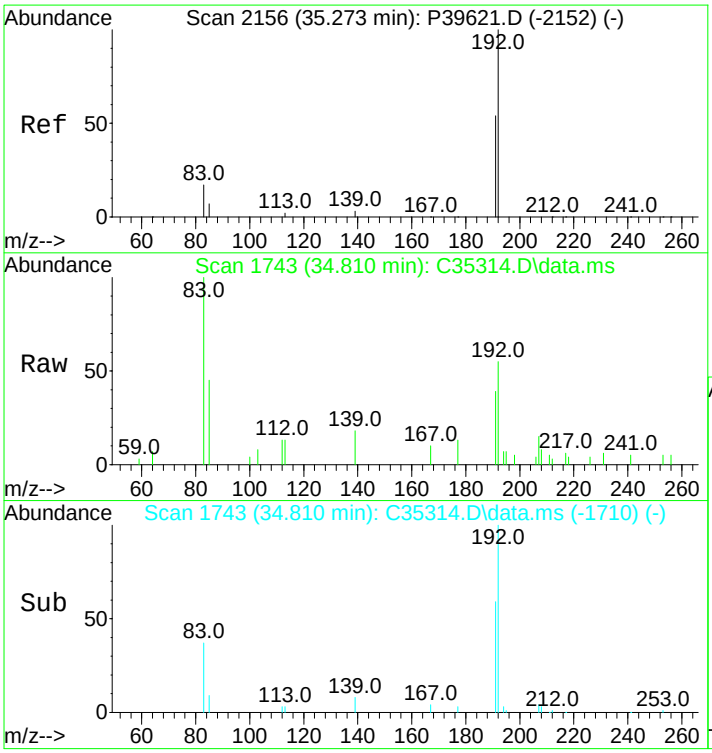


#47
9/4-Methylphenanthrene(9MP)
Concen: 31.93 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 2757

Ion	Ratio	Lower	Upper
192	100		
191	46.1	46.5	69.7#

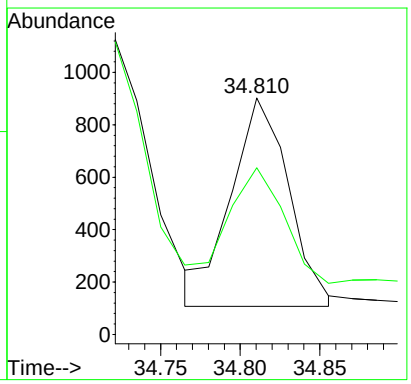


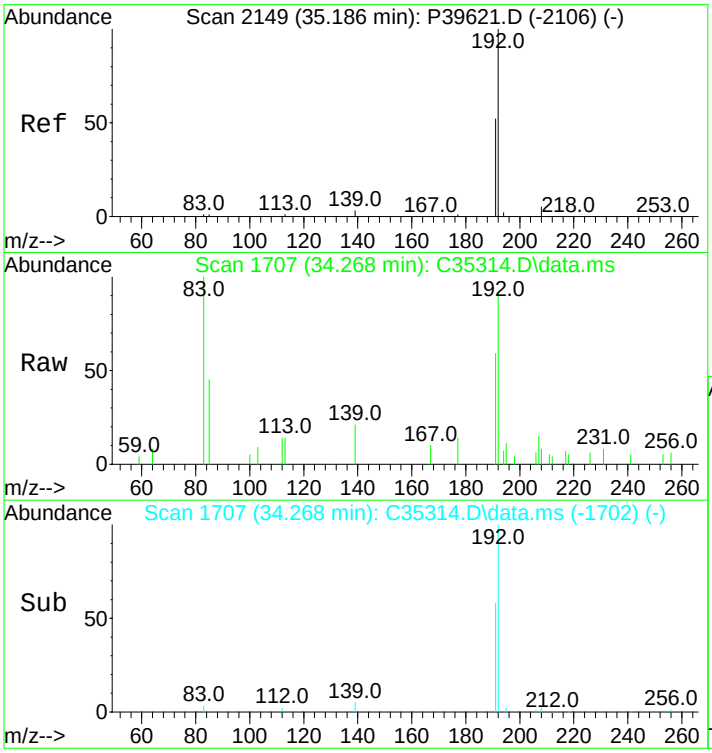


#48
1-Methylphenanthrene(1MP)
Concen: 23.23 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 2006

Ion	Ratio	Lower	Upper
192	100		
191	63.4	47.4	71.2

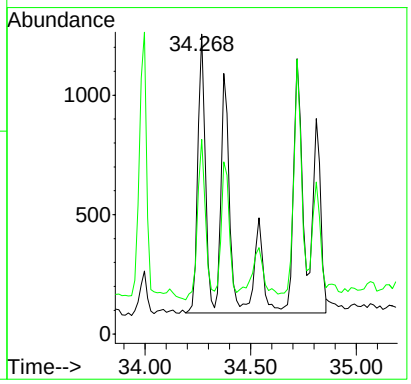


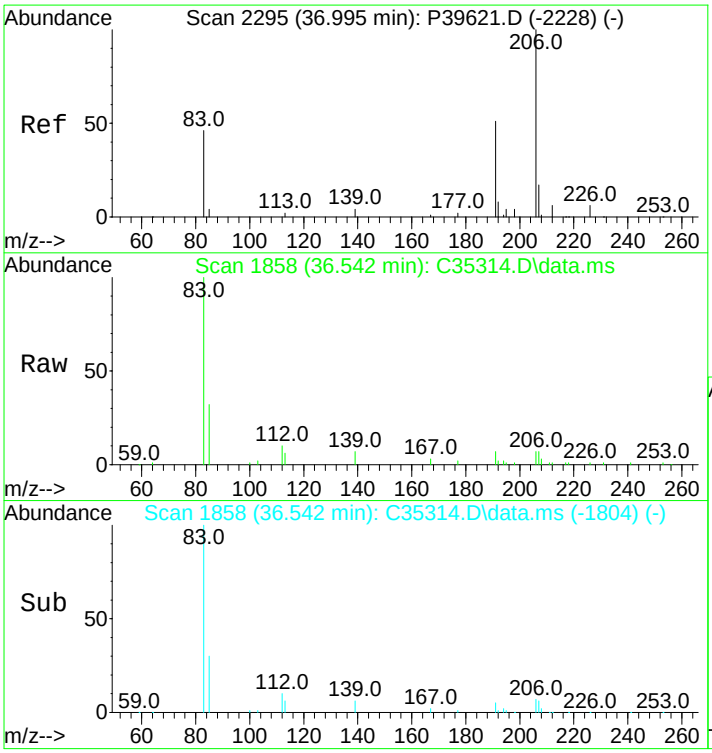


#49
C1-Phenanthrenes/Anthracenes
Concen: 135.72 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.312 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 11718

Ion	Ratio	Lower	Upper
192	100		
191	11.6	45.3	67.9#

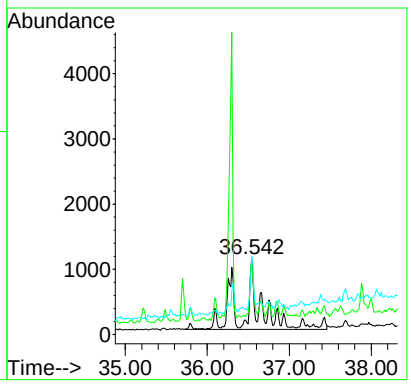


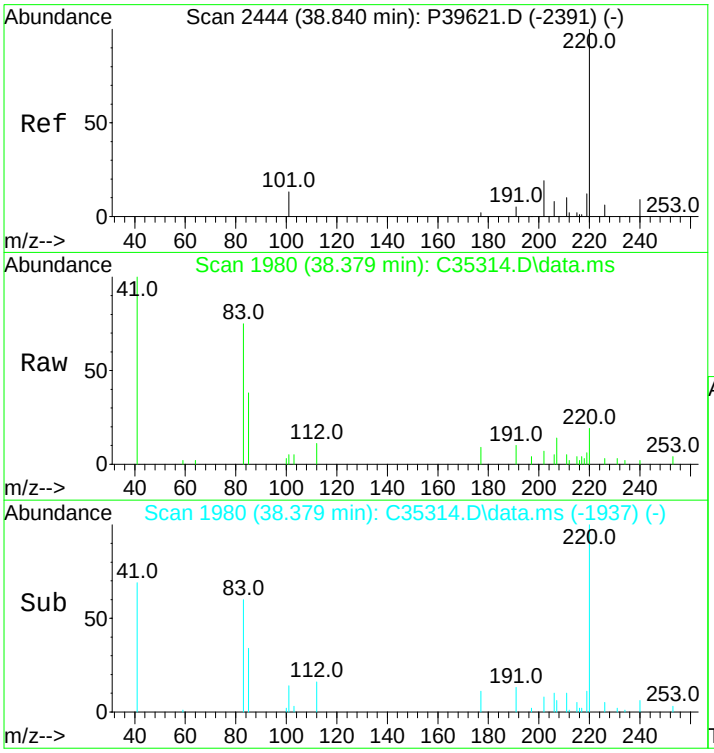


#50
C2-Phenanthrenes/Anthracenes
Concen: 189.69 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:206 Resp: 16378

Ion	Ratio	Lower	Upper
206	100		
191	78.9	42.0	63.0#
207	9.8	15.4	23.2#

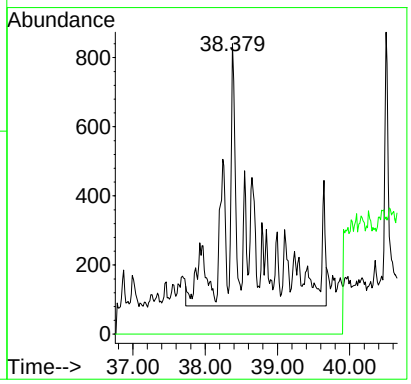


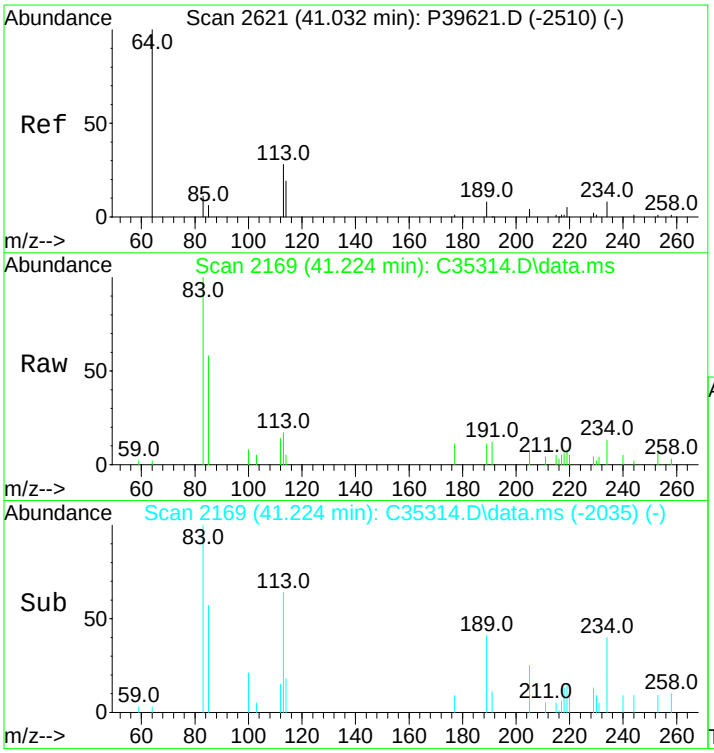


#52
C3-Phenanthrenes/Anthracenes
Concen: 185.89 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:220 Resp: 16050

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

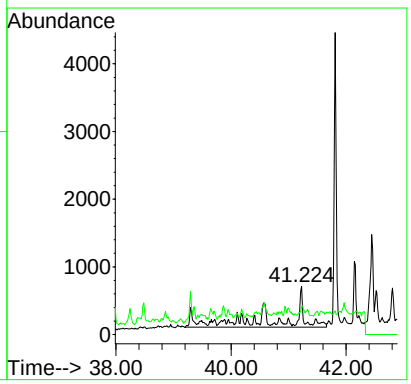


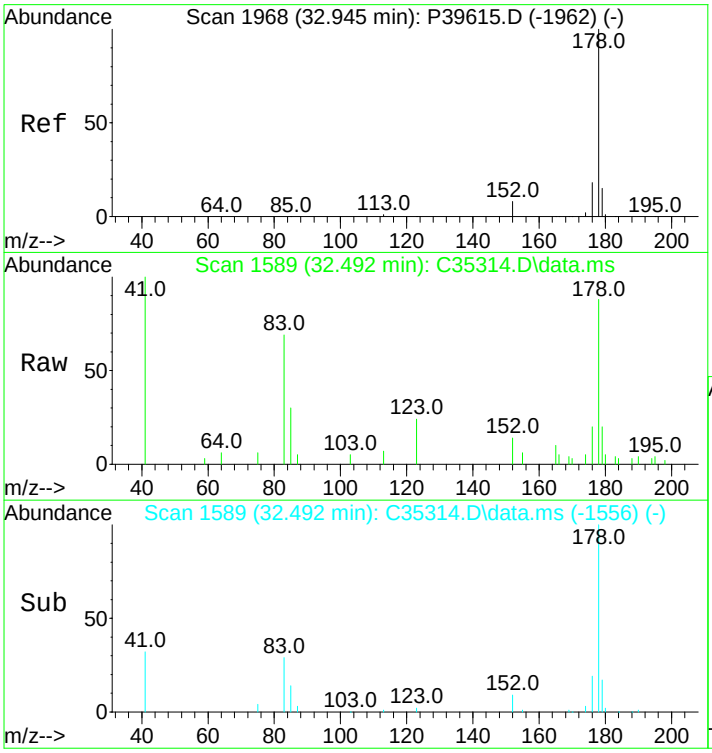


#53
C4-Phenanthrenes/Anthracenes
Concen: 149.17 ng/mL m
RT: 41.224 min Scan# 2169
Delta R.T. 0.930 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:234 Resp: 12880

Ion	Ratio	Lower	Upper
234	100		
219	6.4	48.6	73.0#

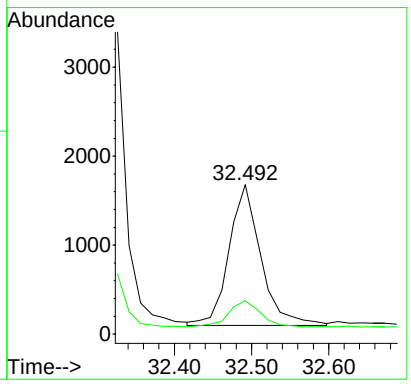


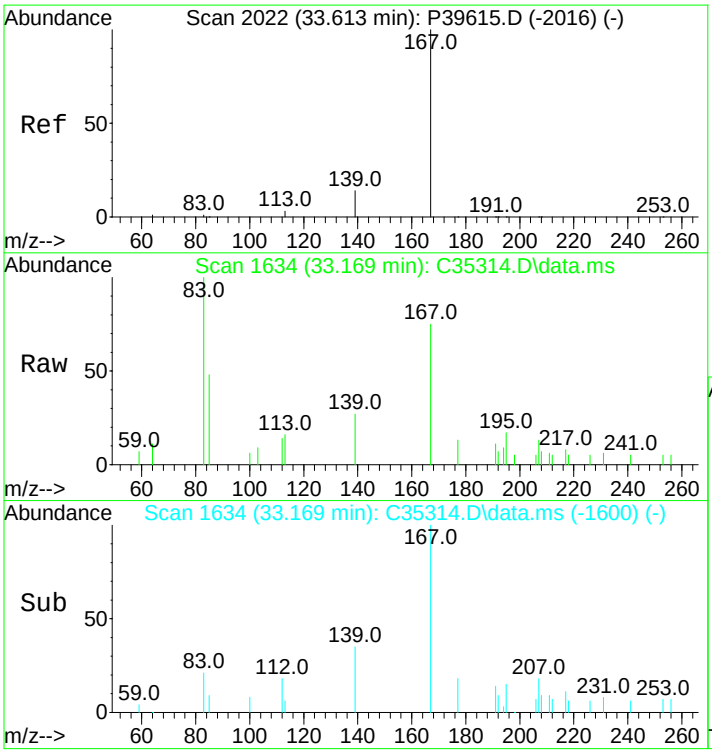


#55
Anthracene
Concen: 54.12 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:178 Resp: 4564

Ion	Ratio	Lower	Upper
178	100		
176	18.8	15.6	23.4

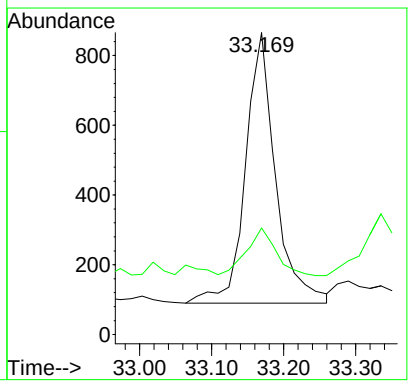


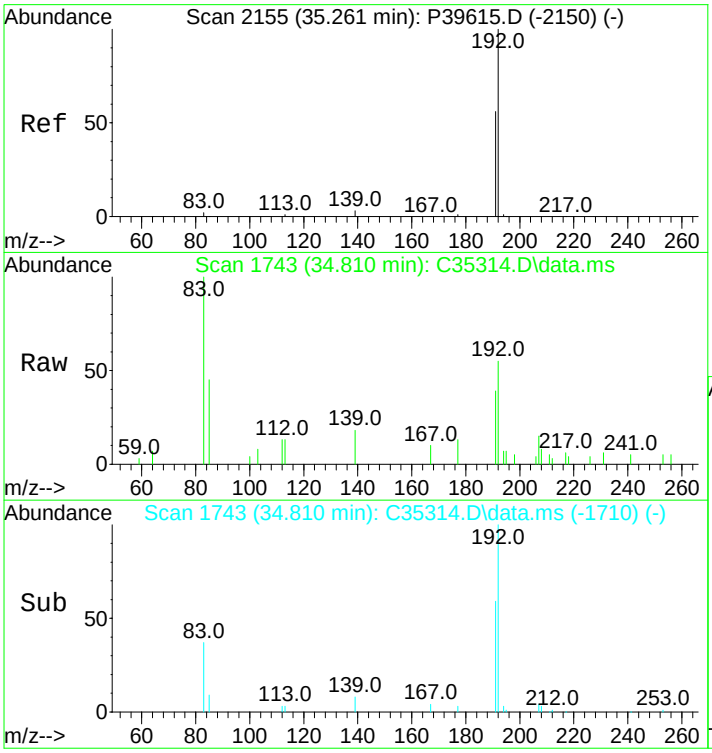


#56
Carbazole
Concen: 26.40 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:167 Resp: 2249

Ion	Ratio	Lower	Upper
167	100		
139	17.3	11.9	17.9

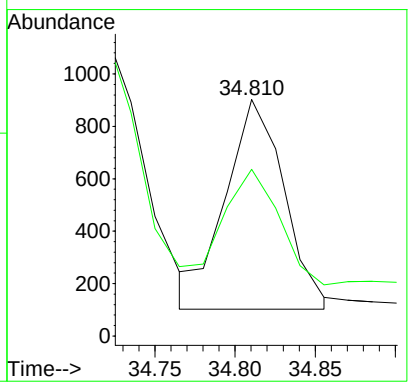


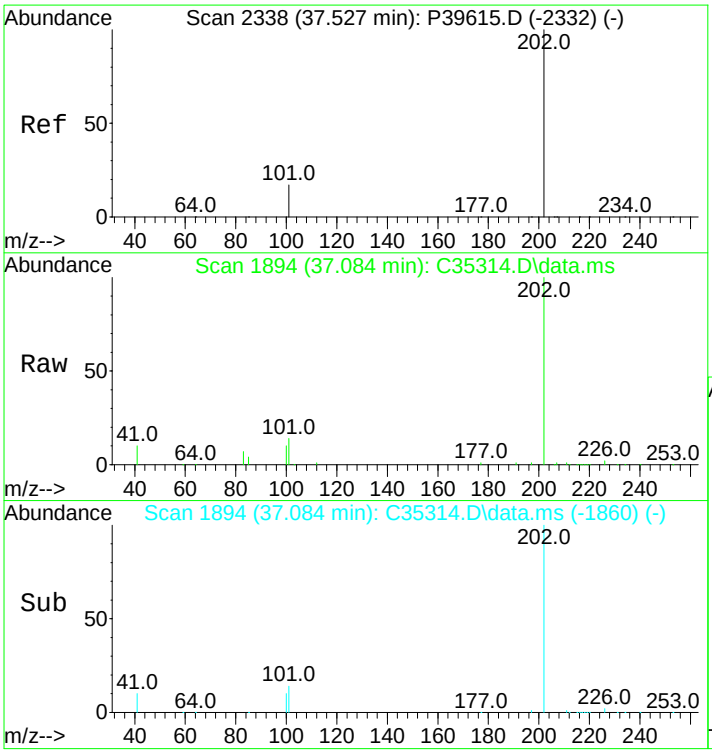


#57
1-Methylphenanthrene
Concen: 37.06 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:192 Resp: 2028

Ion	Ratio	Lower	Upper
192	100		
191	62.7	46.8	70.2

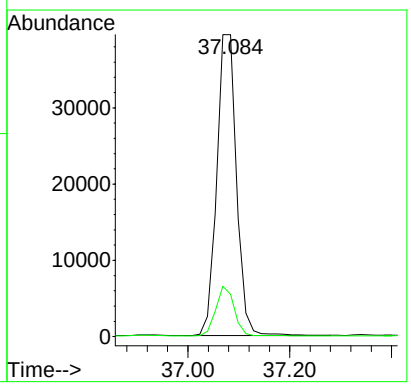


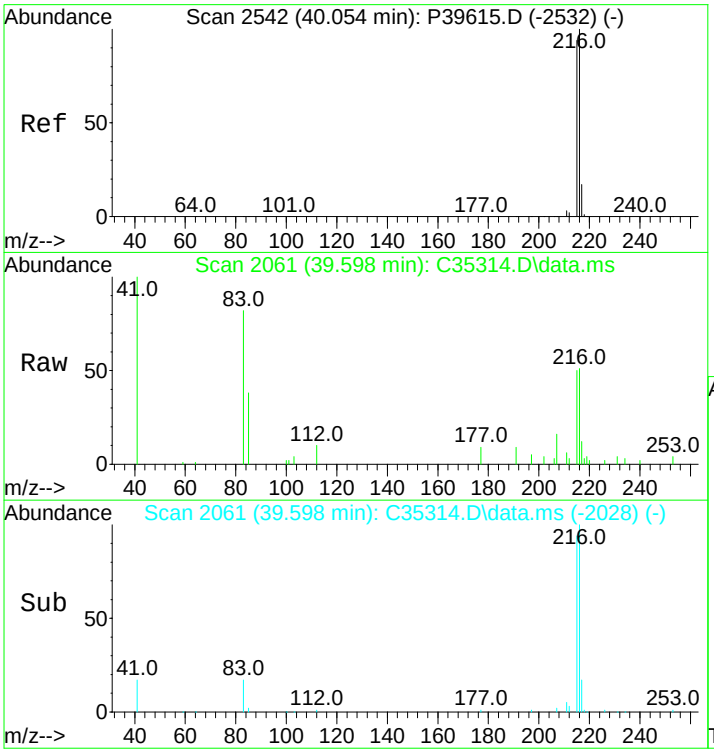


#58
Fluoranthene
Concen: 1242.32 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:202 Resp: 106531

Ion	Ratio	Lower	Upper
202	100		
101	16.0	13.2	19.8

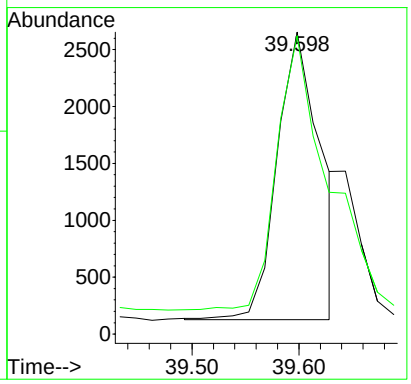


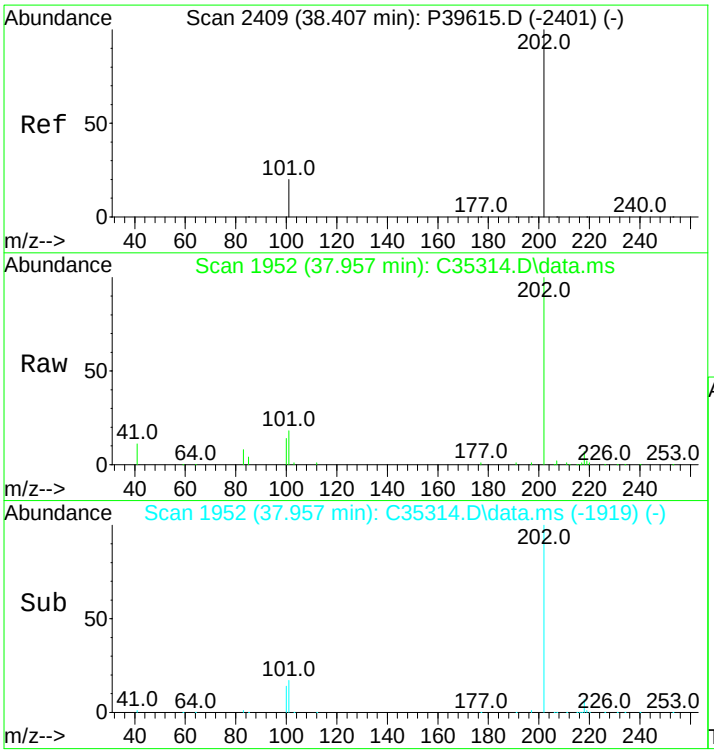


#59
Benzo(b)fluorene
Concen: 143.46 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:216 Resp: 7137

Ion	Ratio	Lower	Upper
216	100		
215	112.9	76.0	114.0

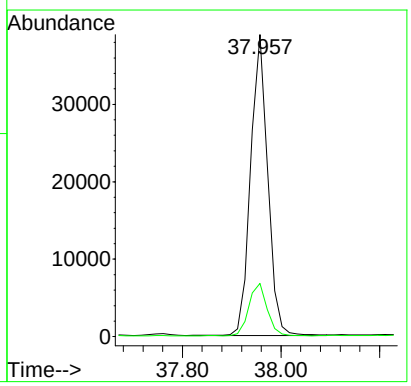


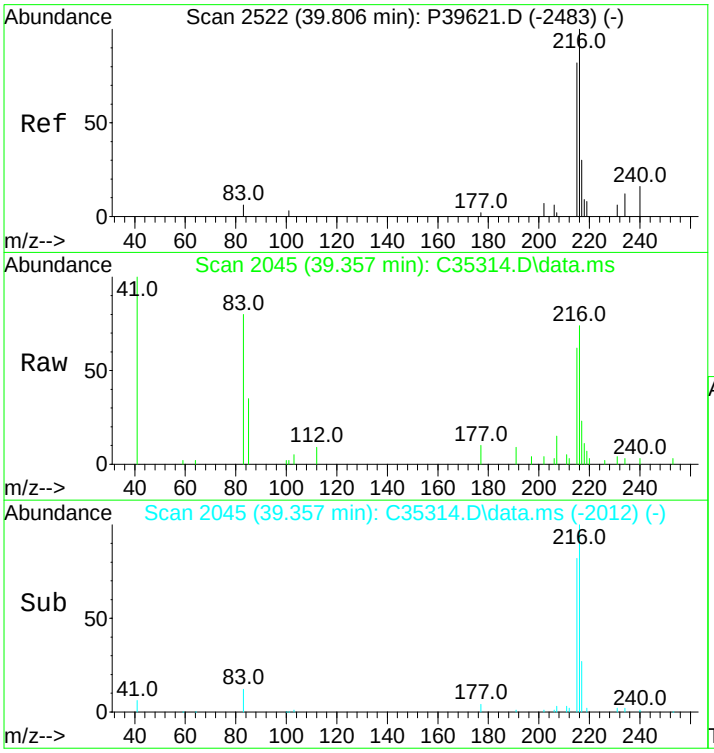


#60
Pyrene
Concen: 1072.17 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:202 Resp: 93460

Ion	Ratio	Lower	Upper
202	100		
101	18.7	13.5	20.3

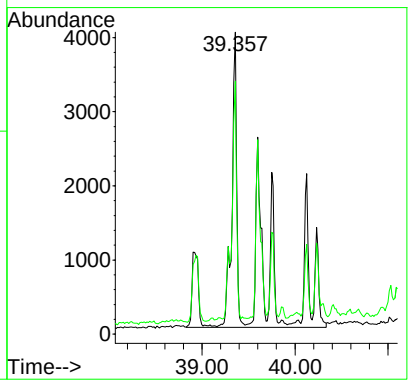


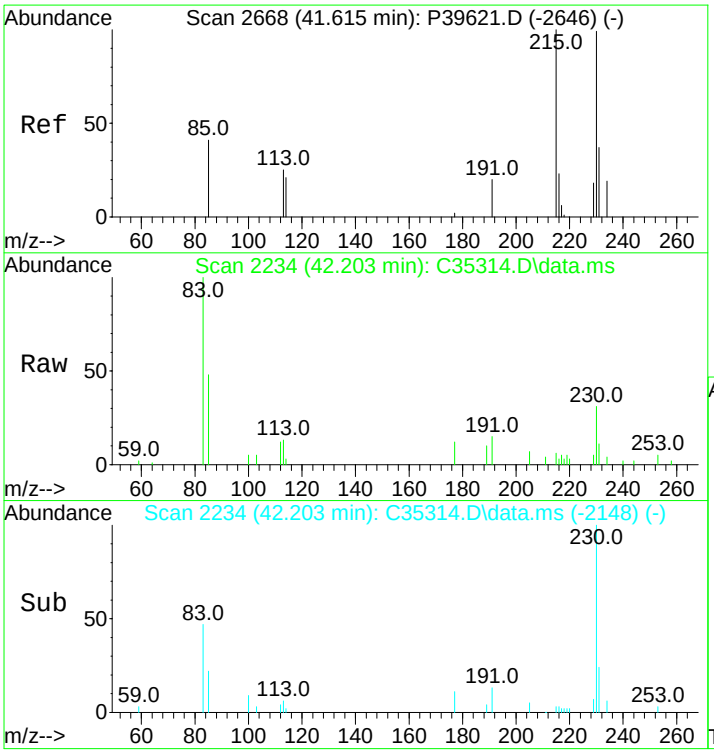


#61
C1-Fluoranthenes/Pyrenes
Concen: 512.75 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:216 Resp: 44696

Ion	Ratio	Lower	Upper
216	100		
215	25.7	77.7	116.5#

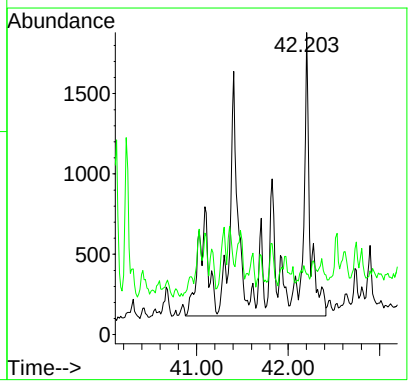


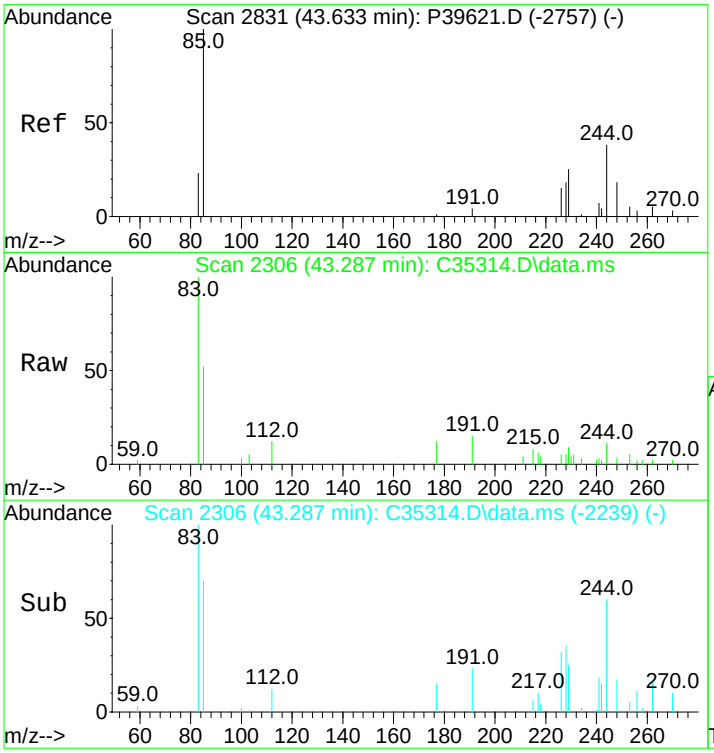


#62
C2-Fluoranthenes/Pyrenes
Concen: 338.68 ng/mL m
RT: 42.203 min Scan# 2234
Delta R.T. 1.039 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:230 Resp: 29522

Ion	Ratio	Lower	Upper
230	100		
215	4.4	92.7	139.1#

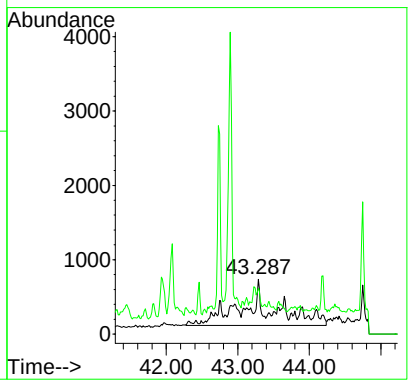


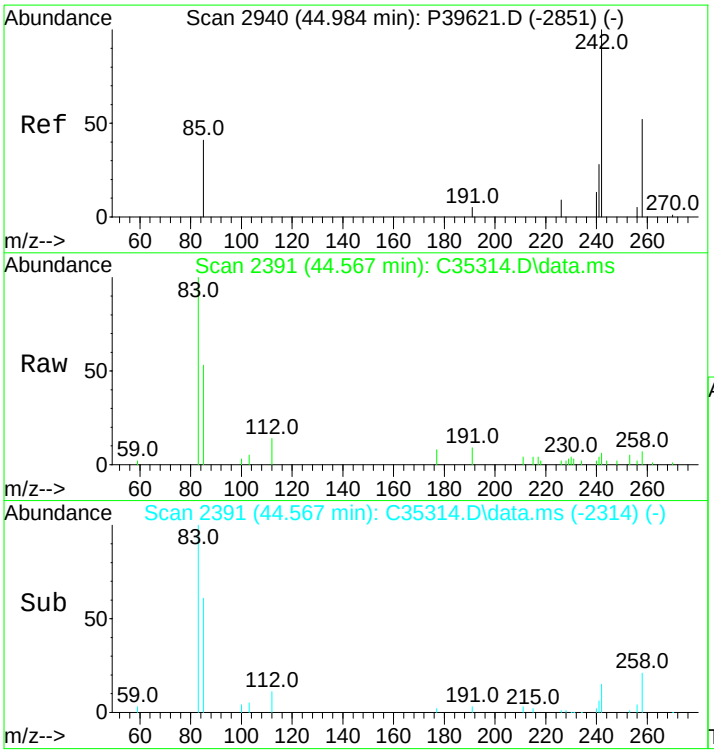


#63
C3-Fluoranthenes/Pyrenes
Concen: 212.53 ng/mL m
RT: 43.287 min Scan# 2306
Delta R.T. 0.418 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:244 Resp: 18526

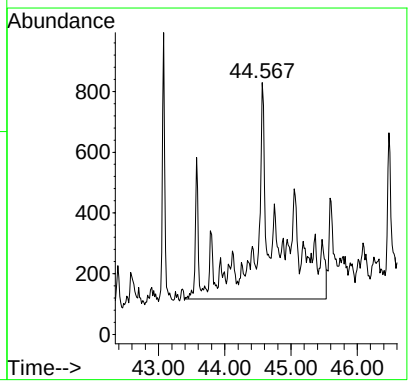
Ion	Ratio	Lower	Upper
244	100		
229	0.0	78.7	118.1#

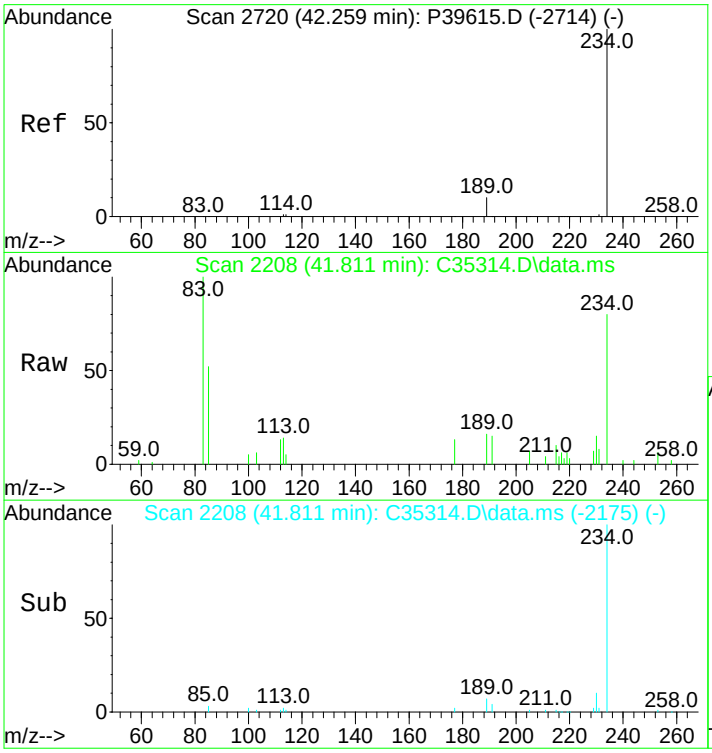




#64
C4-Fluoranthenes/Pyrenes
Concen: 205.75 ng/mL m
RT: 44.567 min Scan# 2391
Delta R.T. 0.365 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:258 Resp: 17935

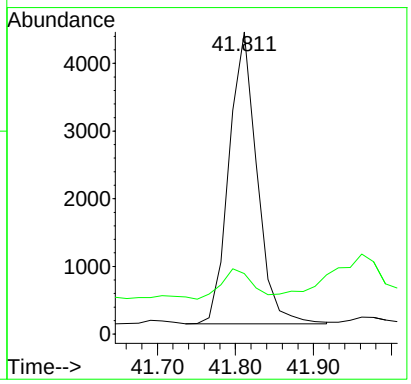


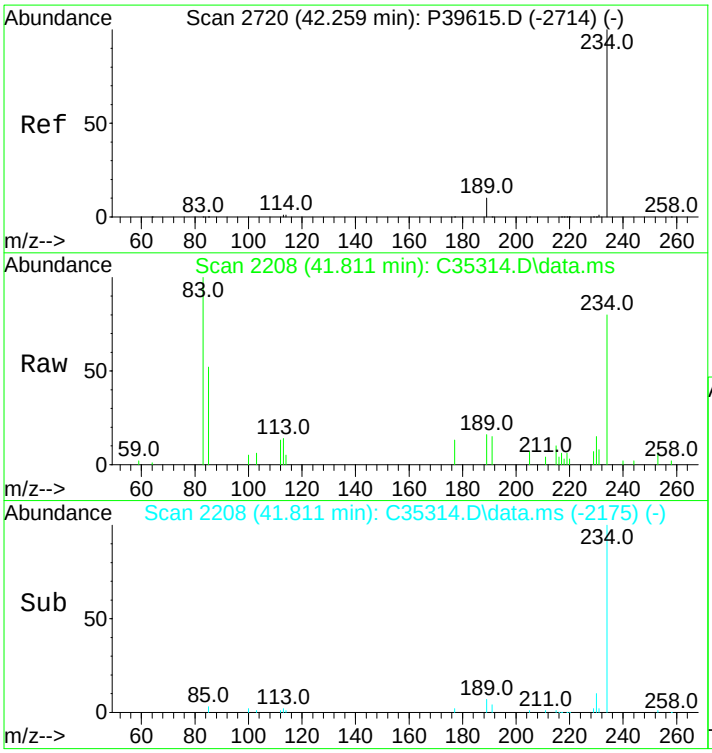


#66
Naphthobenzothiophene
Concen: 114.87 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:234 Resp: 10780

Ion	Ratio	Lower	Upper
234	100		
189	12.0	20.9	31.3#

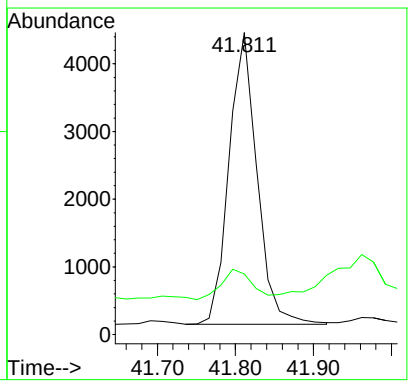


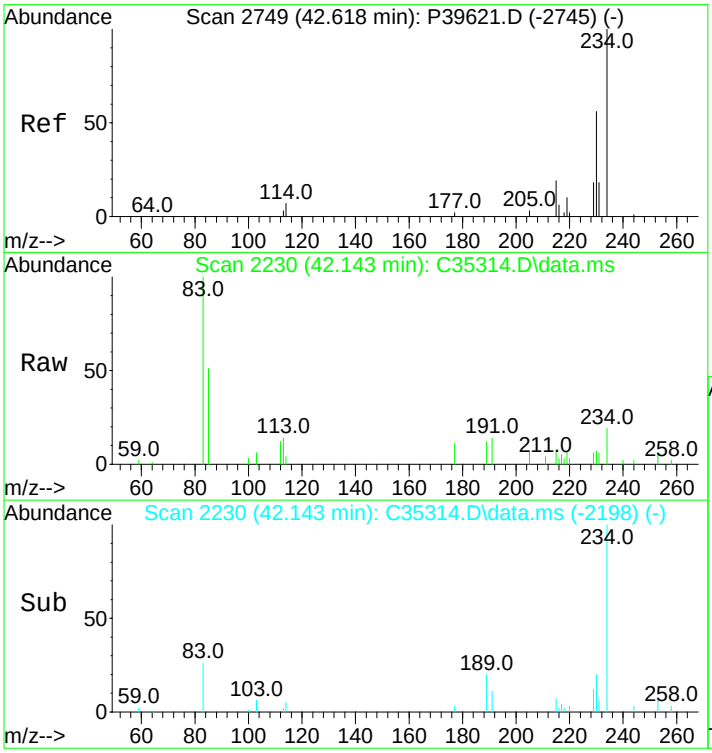


#67
Naphthobenzothiophene-2,1-D
Concen: 114.87 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:234 Resp: 10780

Ion	Ratio	Lower	Upper
234	100		
189	12.0	20.9	31.3#

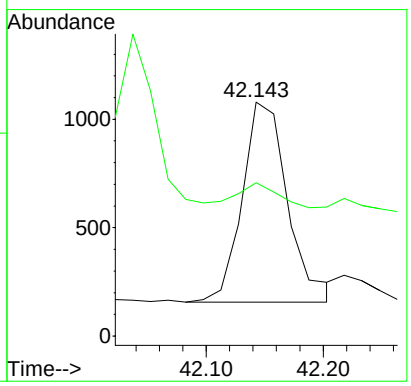


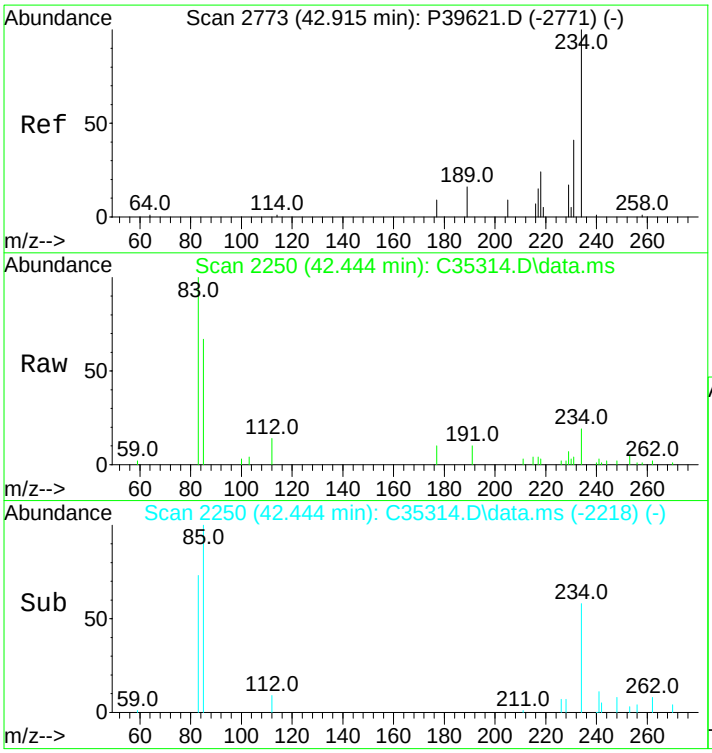


#68
Naphthobenzothiophene-1,2-D
Concen: 26.53 ng/mL
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:234 Resp: 2490

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

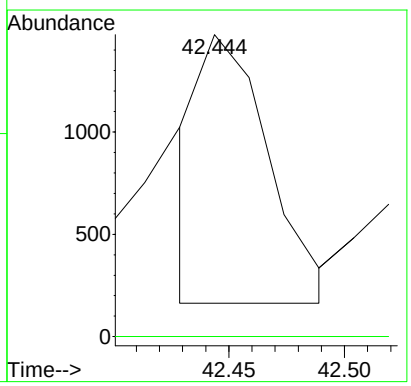


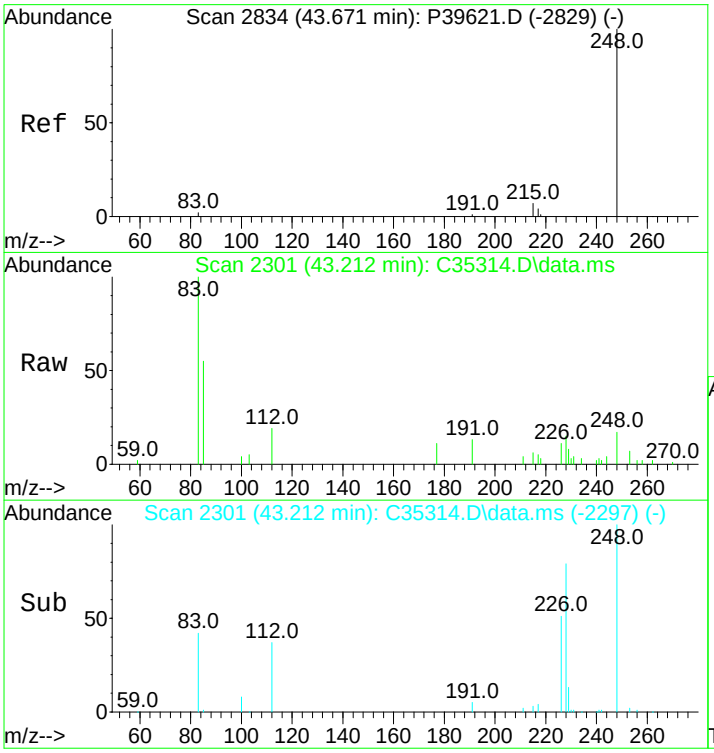


#69
Naphthobenzothiophene-2,3-D
Concen: 29.05 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:234 Resp: 2726

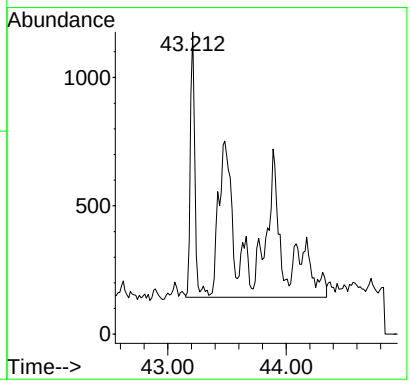
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

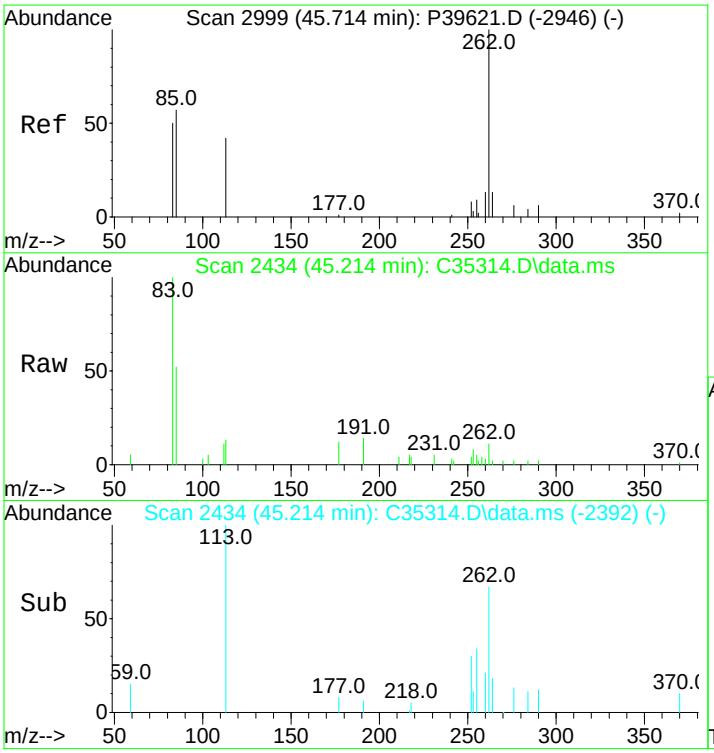




#70
C1-Naphthobenzothiophenes
Concen: 153.34 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

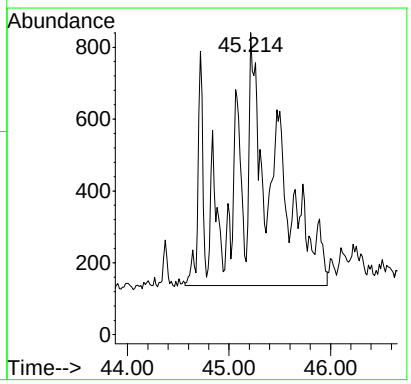
Tgt Ion:248 Resp: 14390

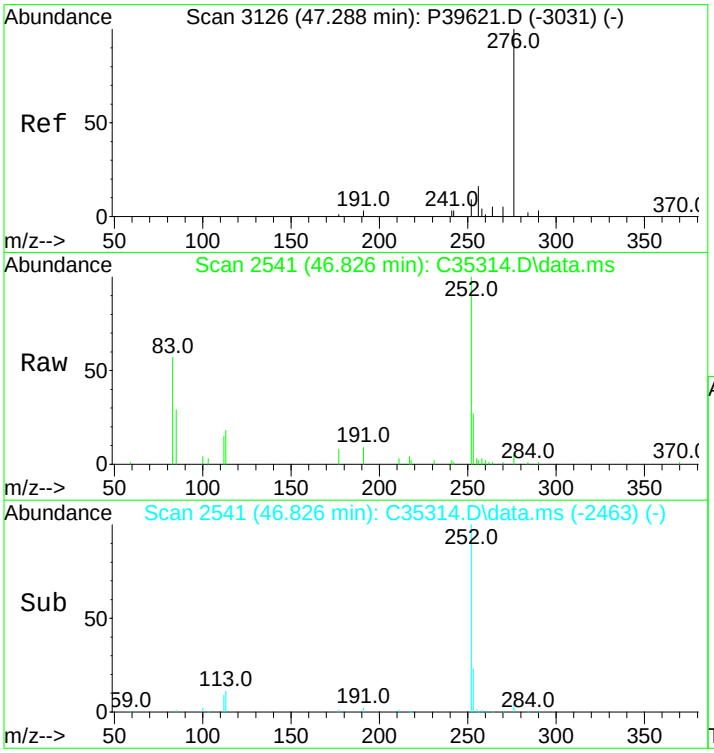




#71
C2-Naphthobenzothiophenes
Concen: 209.78 ng/ml m
RT: 45.214 min Scan# 2434
Delta R.T. 0.347 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

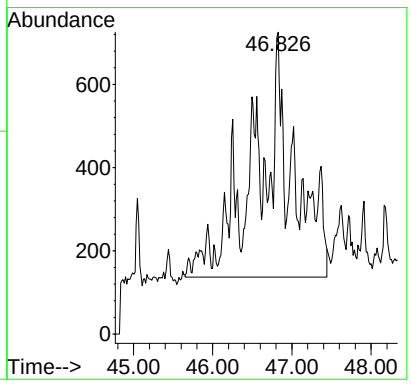
Tgt Ion:262 Resp: 19687

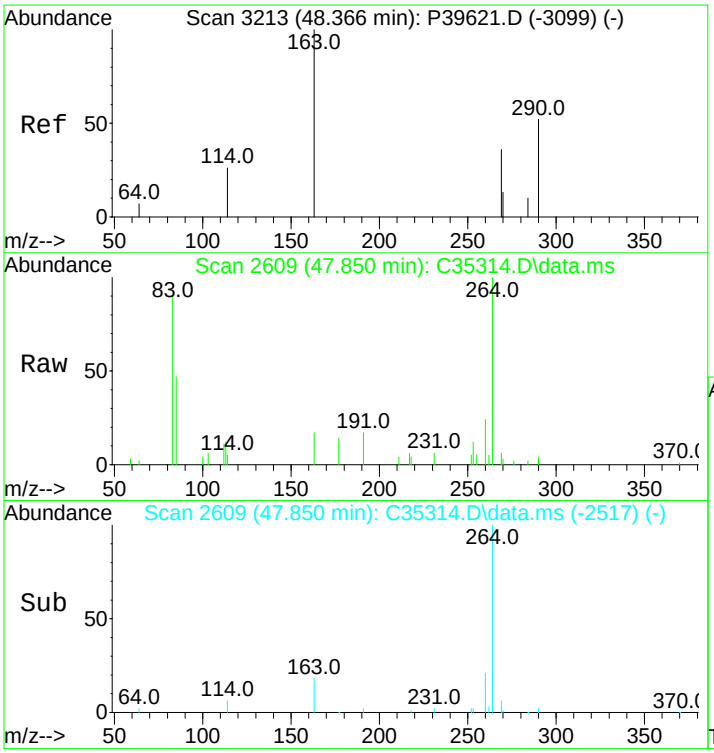




#72
C3-Naphthobenzothiophenes
Concen: 205.16 ng/ml m
RT: 46.826 min Scan# 2541
Delta R.T. 0.373 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

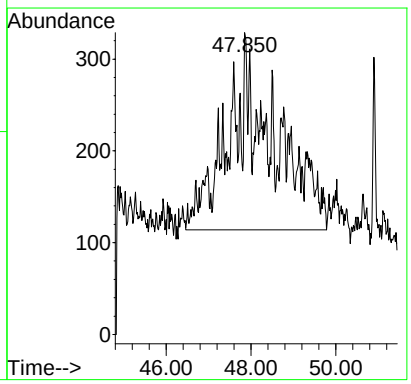
Tgt Ion:276 Resp: 19253

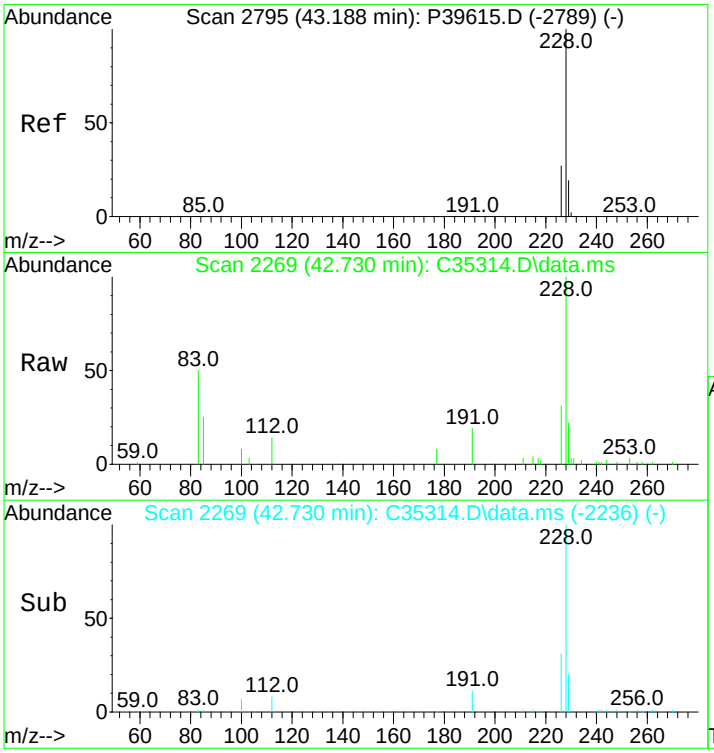




#73
C4-Naphthobenzothiophenes
Concen: 163.59 ng/mL m
RT: 47.850 min Scan# 2609
Delta R.T. 0.346 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:290 Resp: 15352

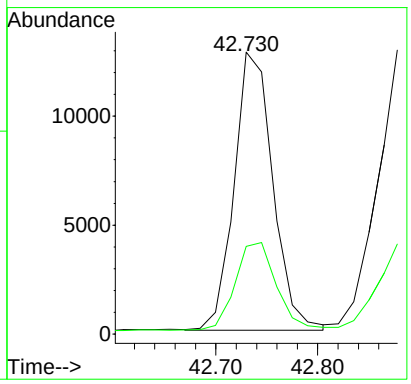


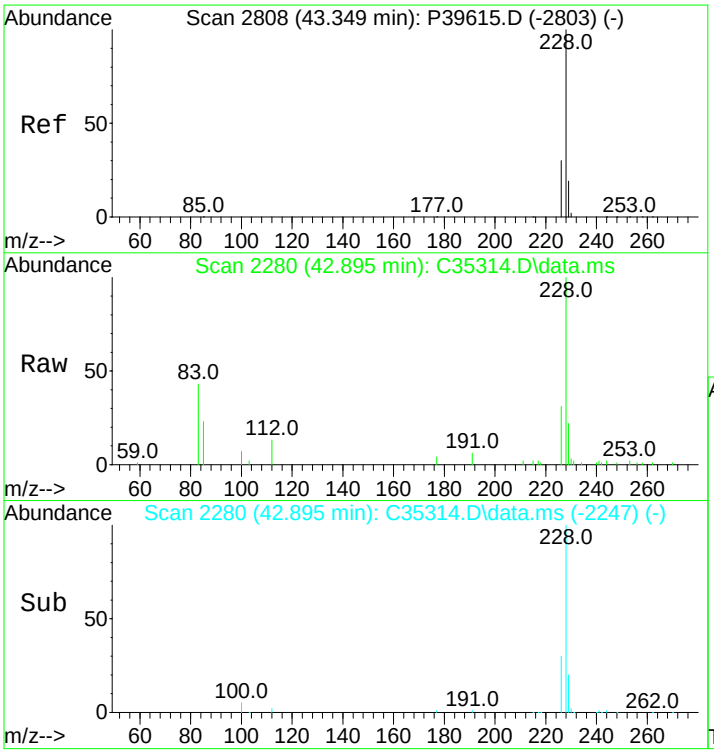


#75
Benz[a]anthracene
Concen: 301.40 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:228 Resp: 33750

Ion	Ratio	Lower	Upper
228	100		
226	52.5	21.5	32.3#

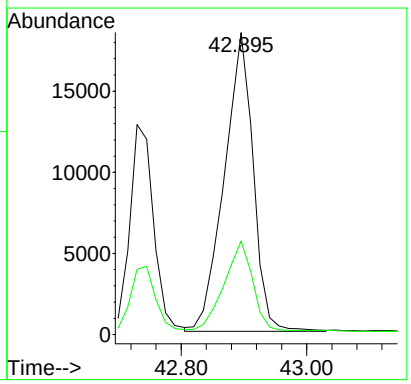


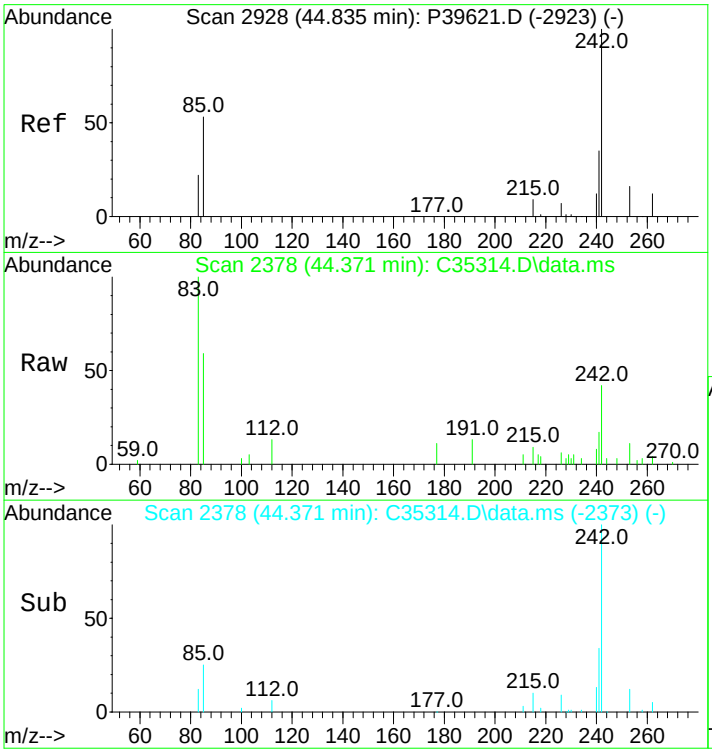


#77
Chrysene/Triphenylene
Concen: 520.22 ng/mL m
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:228 Resp: 58812

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.5	35.3

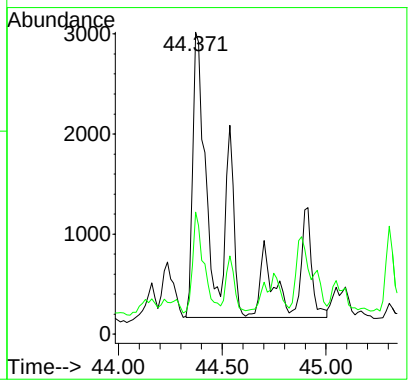


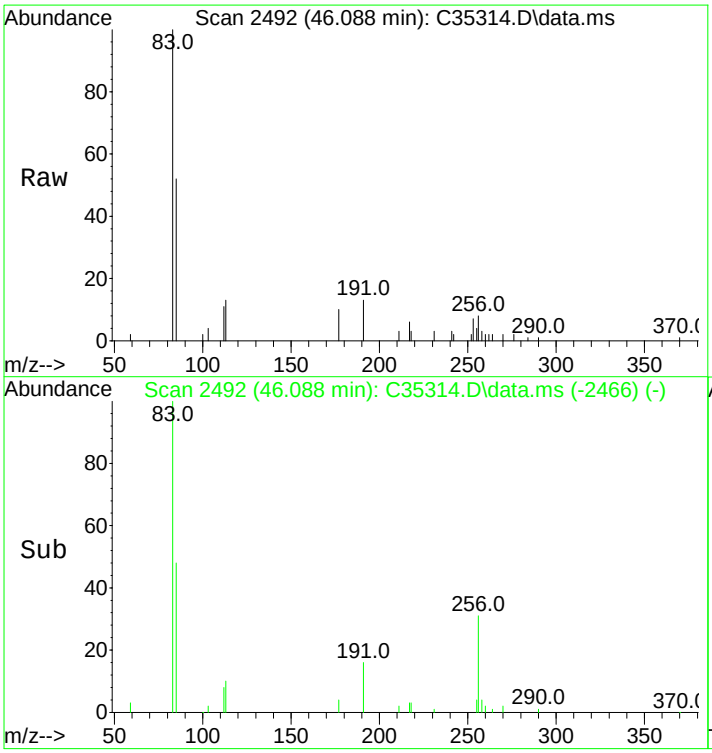


#78
C1-Chrysenes
Concen: 212.76 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:242 Resp: 24053

Ion	Ratio	Lower	Upper
242	100		
241	12.6	32.7	49.1#

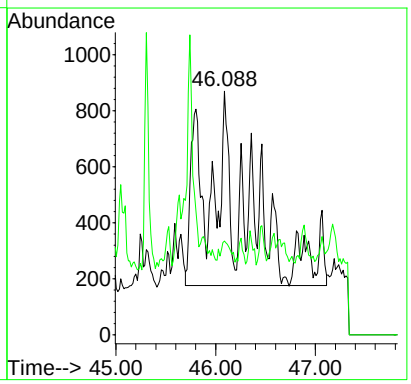


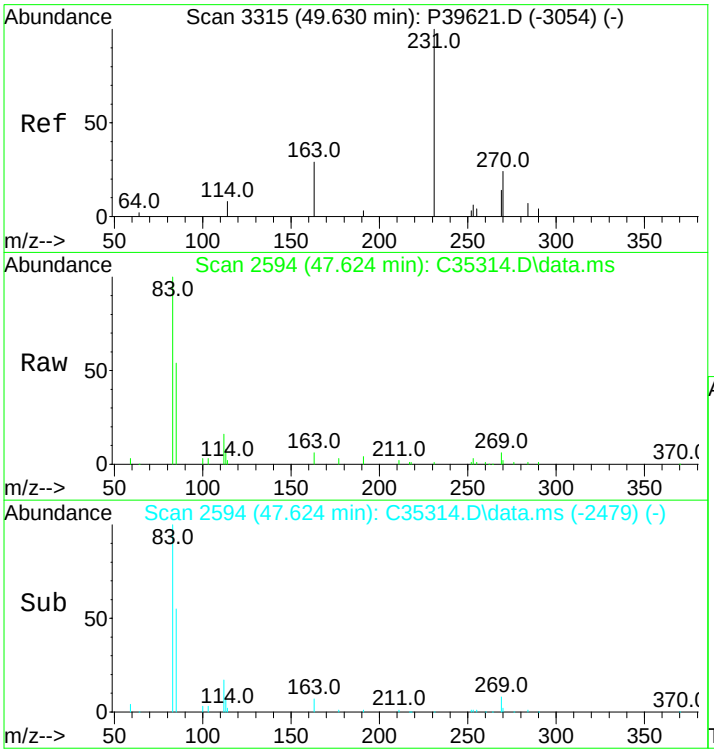


#79
C2-Chrysenes
Concen: 171.58 ng/mL m
RT: 46.088 min Scan# 2492
Delta R.T. -0.310 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:256 Resp: 19397

Ion	Ratio	Lower	Upper
256	100		
241	2.3	30.9	46.3#

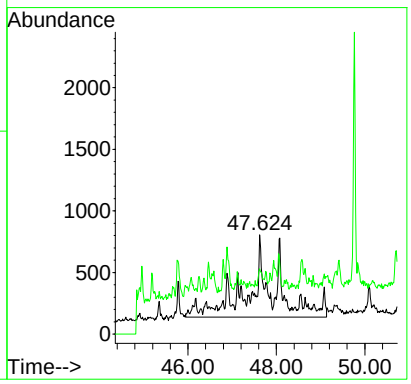


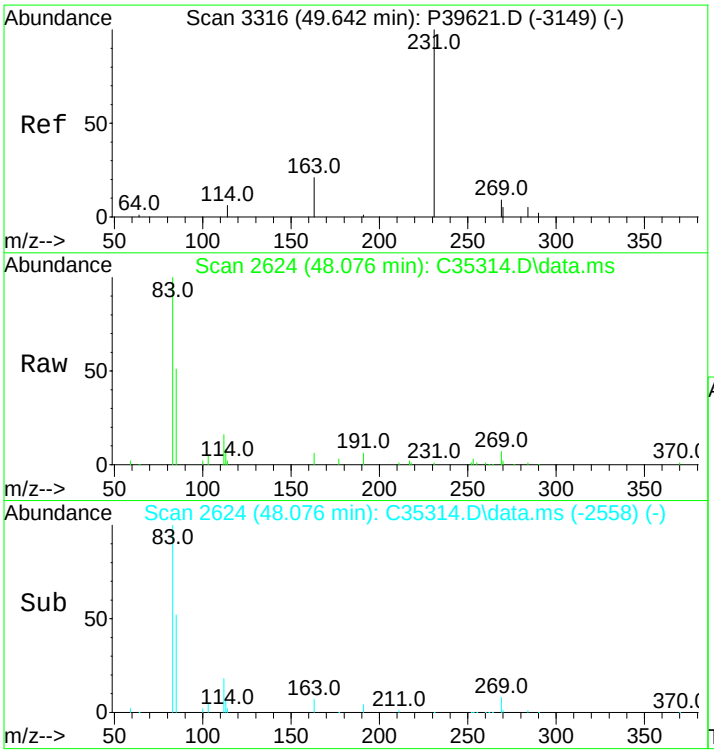


#80
C3-Chrysenes
Concen: 228.32 ng/mL m
RT: 47.624 min Scan# 2594
Delta R.T. -1.457 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:270 Resp: 25812

Ion	Ratio	Lower	Upper
270	100		
255	1.0	41.4	62.2#

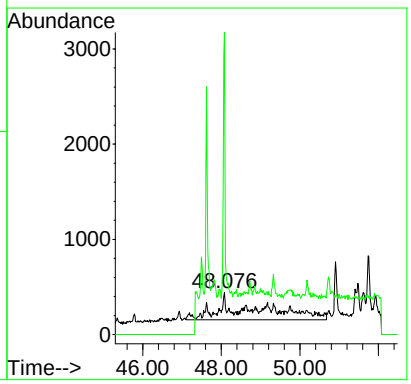


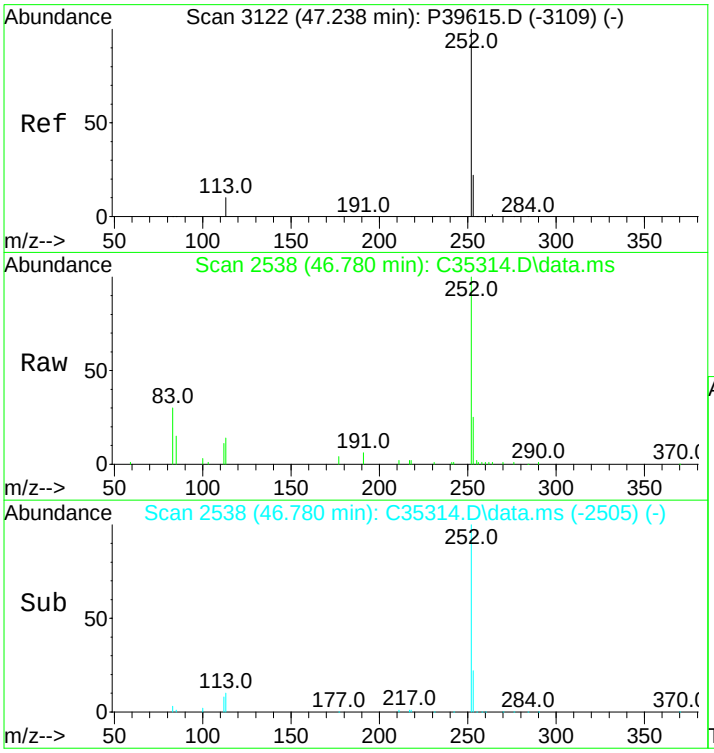


#81
C4-Chrysenes
Concen: 160.59 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.109 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:284 Resp: 18155

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

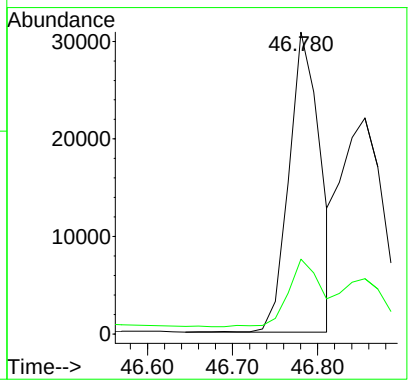


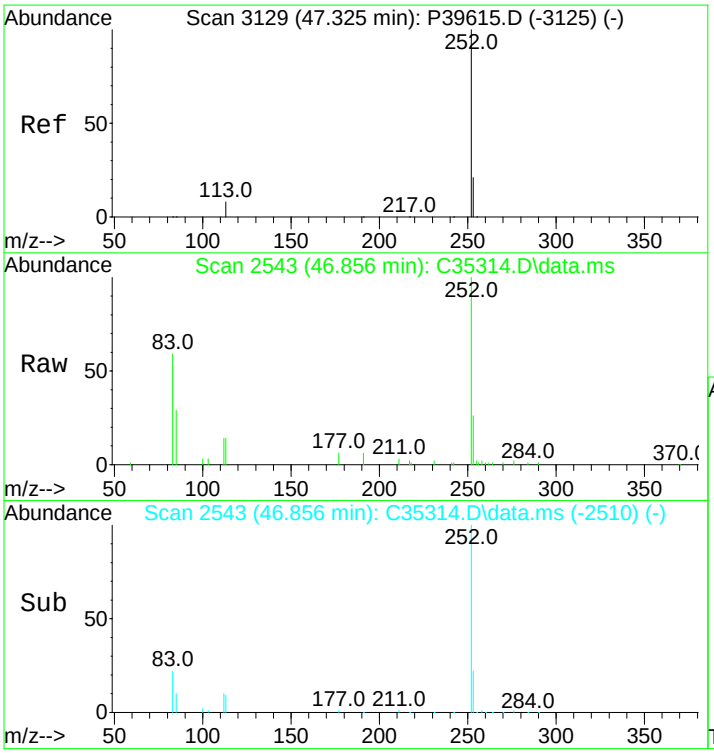


#82
Benzo[b]fluoranthene
Concen: 638.39 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 78548

Ion	Ratio	Lower	Upper
252	100		
253	22.9	20.4	30.6

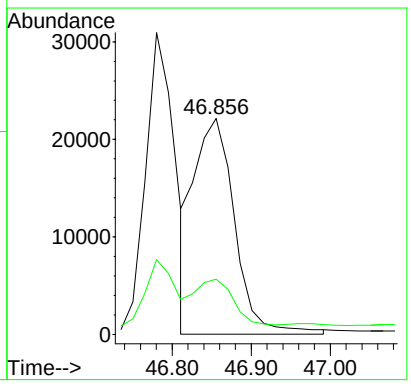


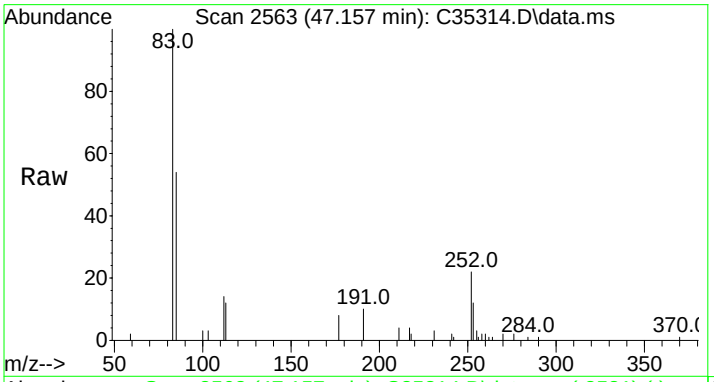


#83
Benzo[j]+[k]fluoranthene
Concen: 597.06 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 79982

Ion	Ratio	Lower	Upper
252	100		
253	17.2	20.6	31.0#

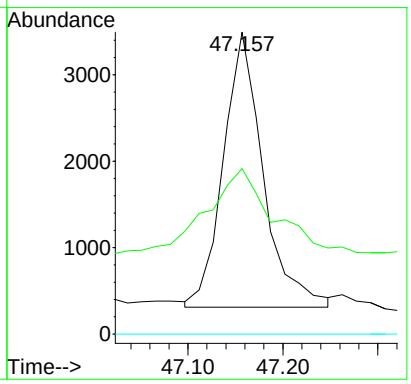


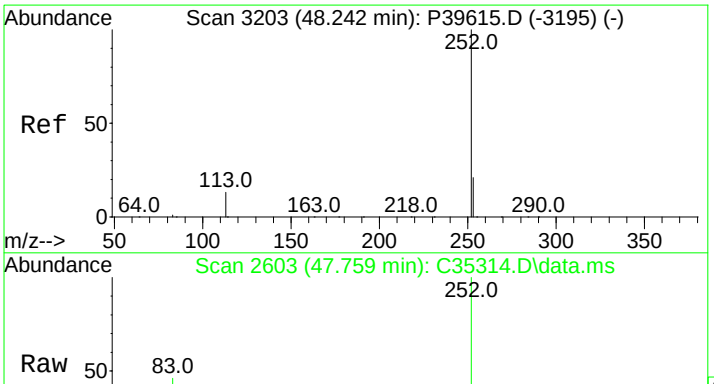


#84
Benzo[a]fluoranthene
Concen: 69.12 ng/mL m
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 9259

Ion	Ratio	Lower	Upper
252	100		
253	52.3	146.1	219.1#
125	0.0	0.0	0.0

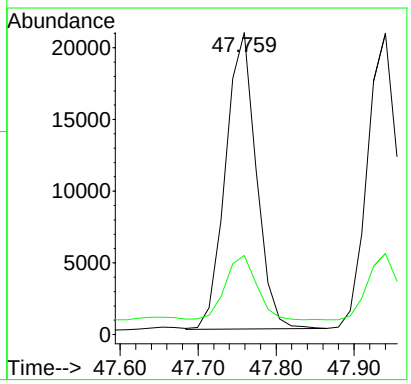


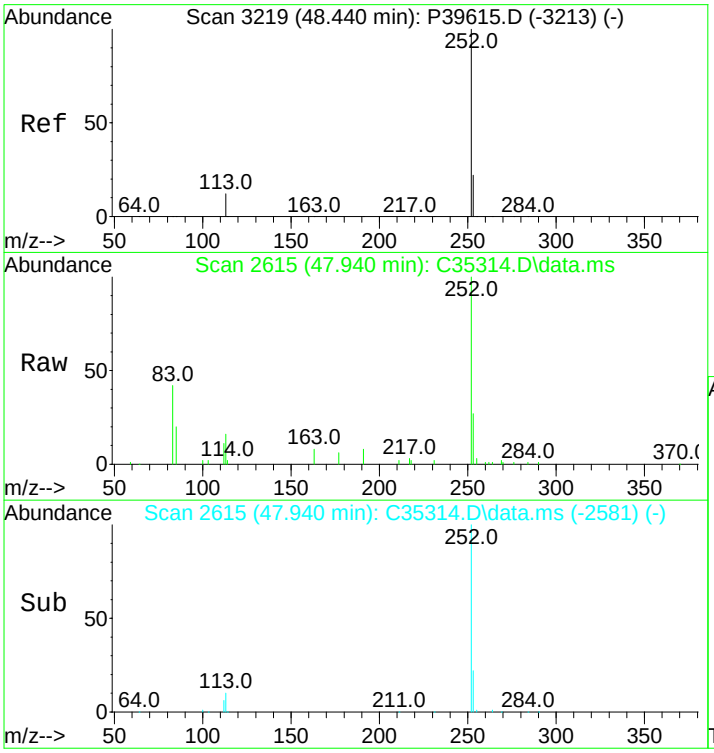


#85
Benzo[e]pyrene
Concen: 465.92 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 56704

Ion	Ratio	Lower	Upper
252	100		
253	23.1	21.0	31.6

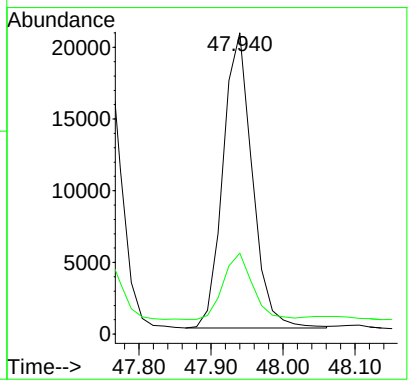


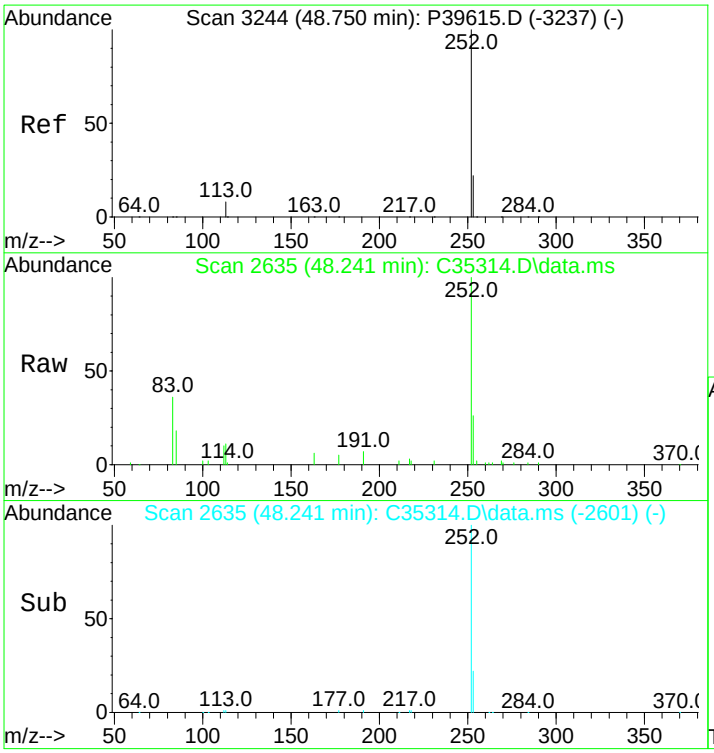


#87
Benzo[a]pyrene
Concen: 495.75 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 58089

Ion	Ratio	Lower	Upper
252	100		
253	22.6	21.4	32.0

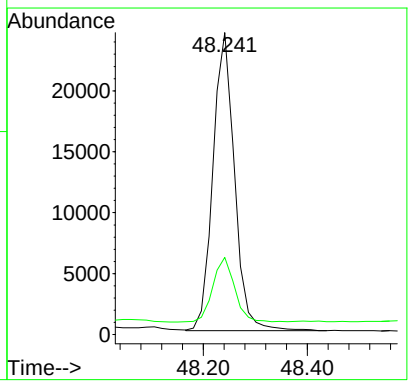


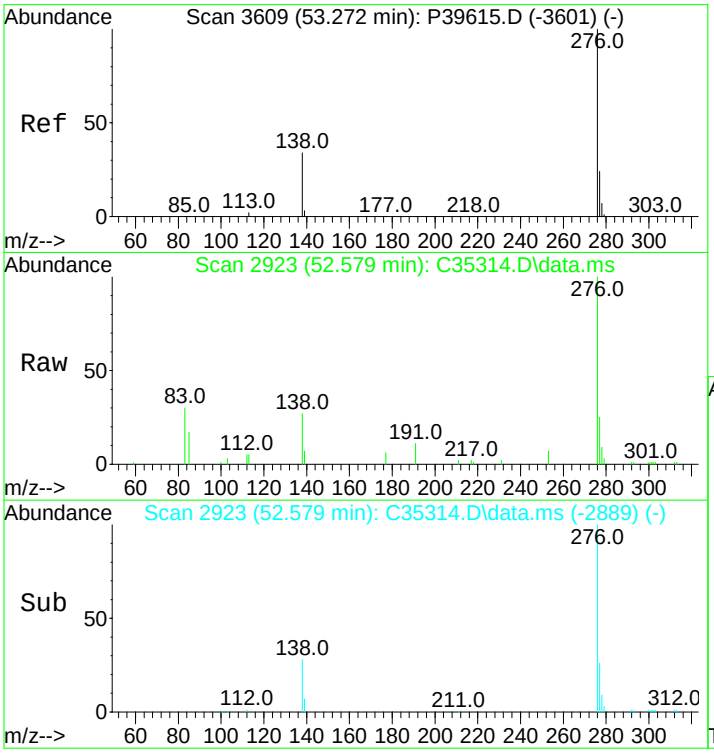


#88
Perylene
Concen: 563.42 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:252 Resp: 70556

Ion	Ratio	Lower	Upper
252	100		
253	22.1	21.8	32.6

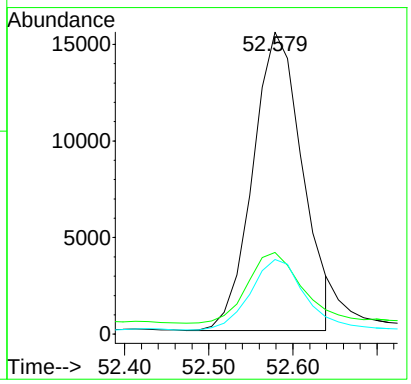


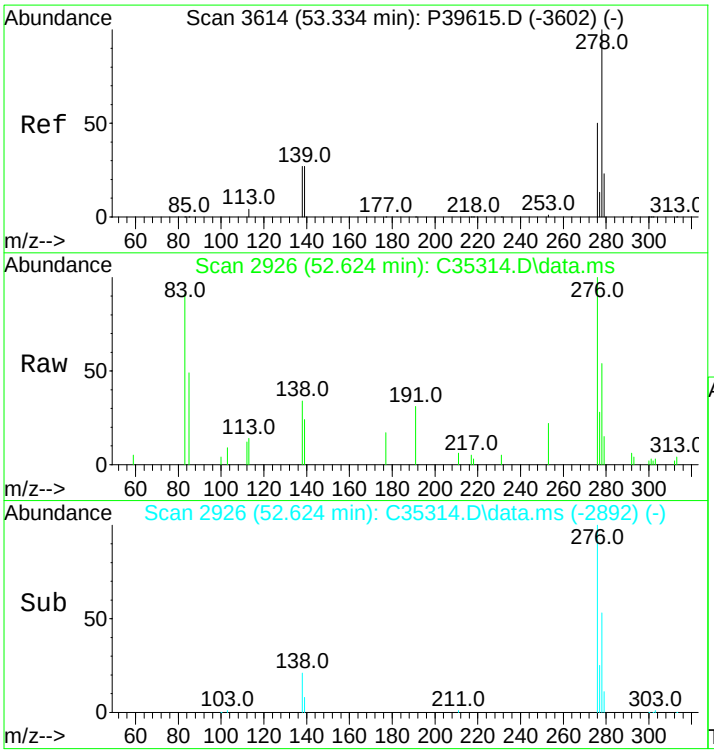


#89
Indeno[1,2,3-cd]pyrene
Concen: 465.14 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:276 Resp: 63427

Ion	Ratio	Lower	Upper
276	100		
138	27.5	19.1	28.7
277	28.1	19.5	29.3

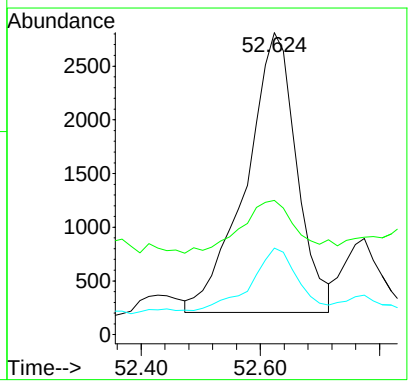


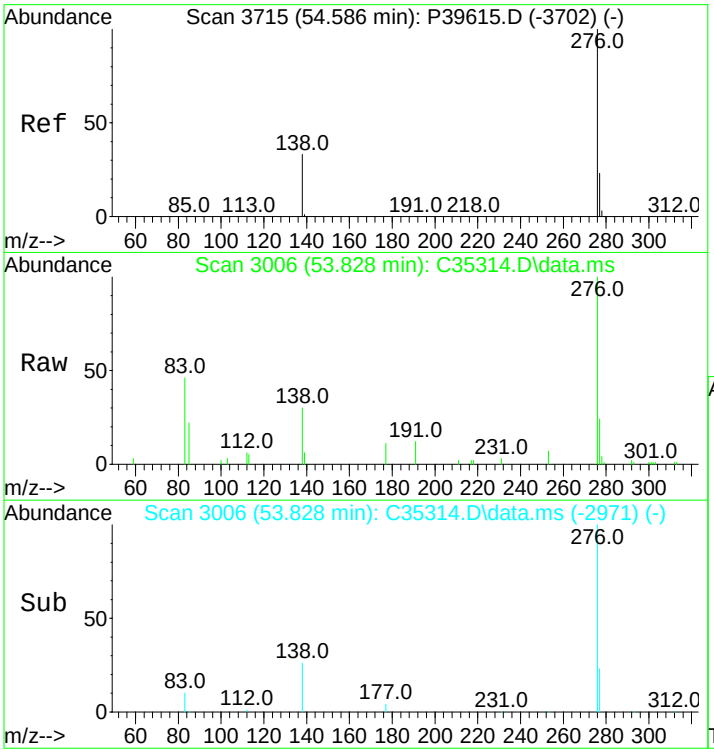


#90
Dibenz[ah]+[ac]anthracene
Concen: 119.63 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:278 Resp: 15518

Ion	Ratio	Lower	Upper
278	100		
139	20.7	16.6	25.0
279	22.5	20.0	30.0

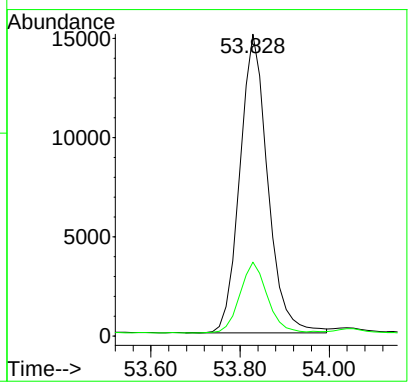


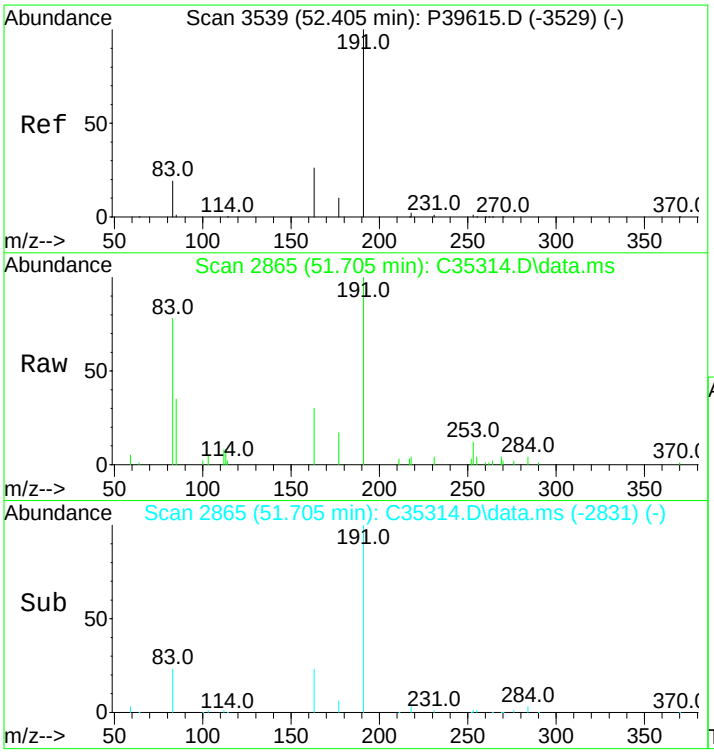


#91
Benzo[g,h,i]perylene
Concen: 456.63 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:276 Resp: 65784

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.8	28.2

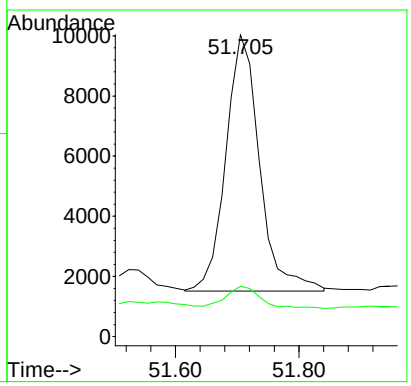


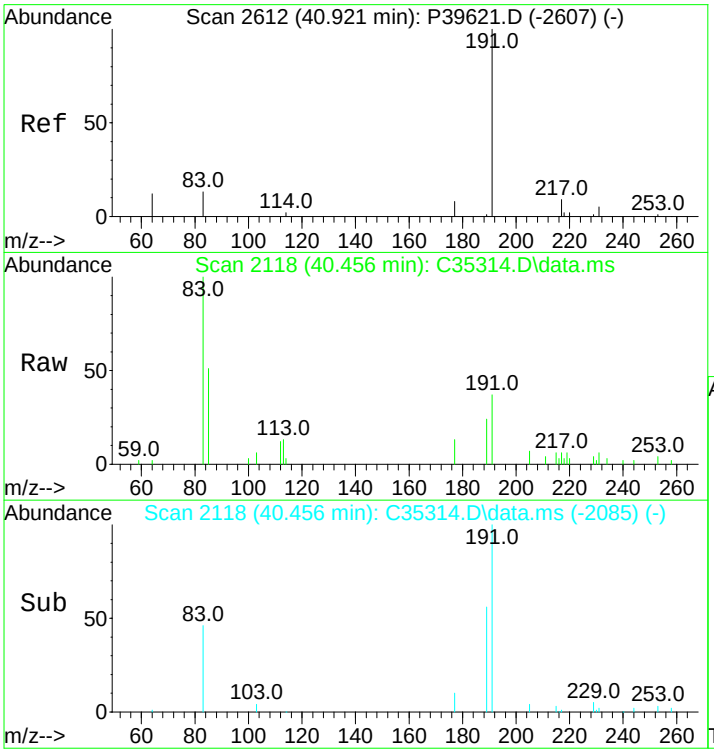


#92
Hopane (T19)
Concen: 1397.30 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:191 Resp: 32490

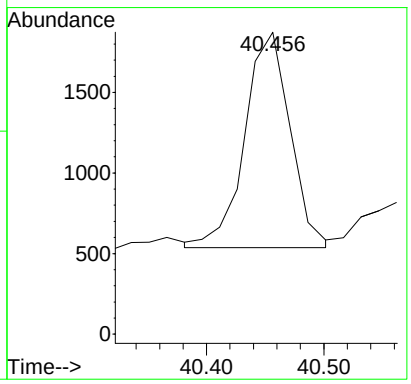
Ion	Ratio	Lower	Upper
191	100		
177	2.1	17.2	25.8#

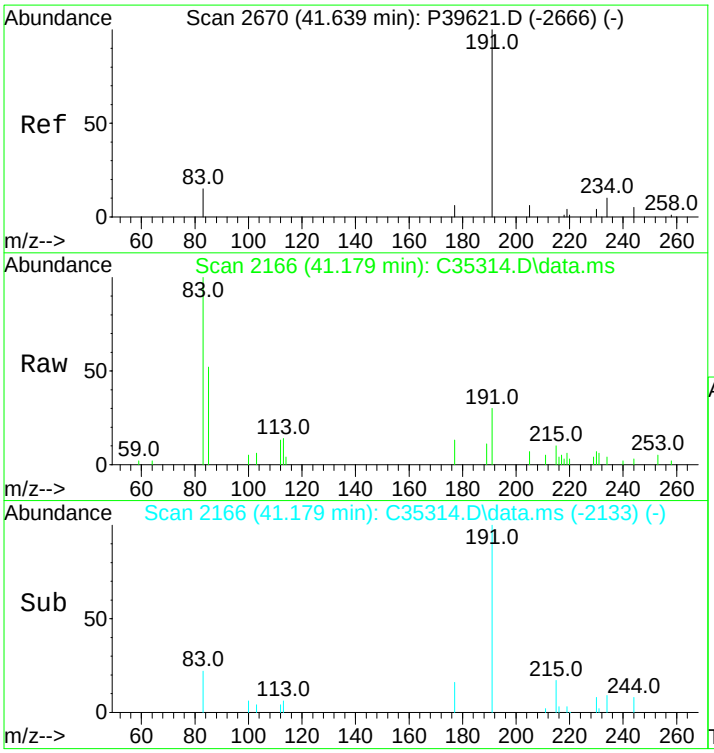




#94
C23 Tricyclic Terpane (T4)
Concen: 154.44 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

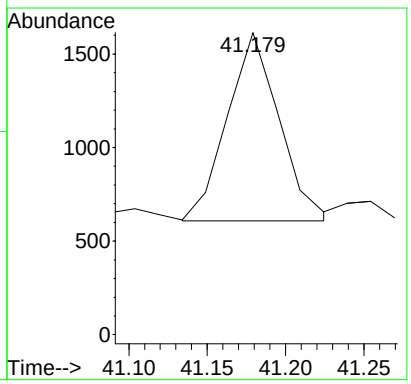
Tgt Ion:191 Resp: 3591

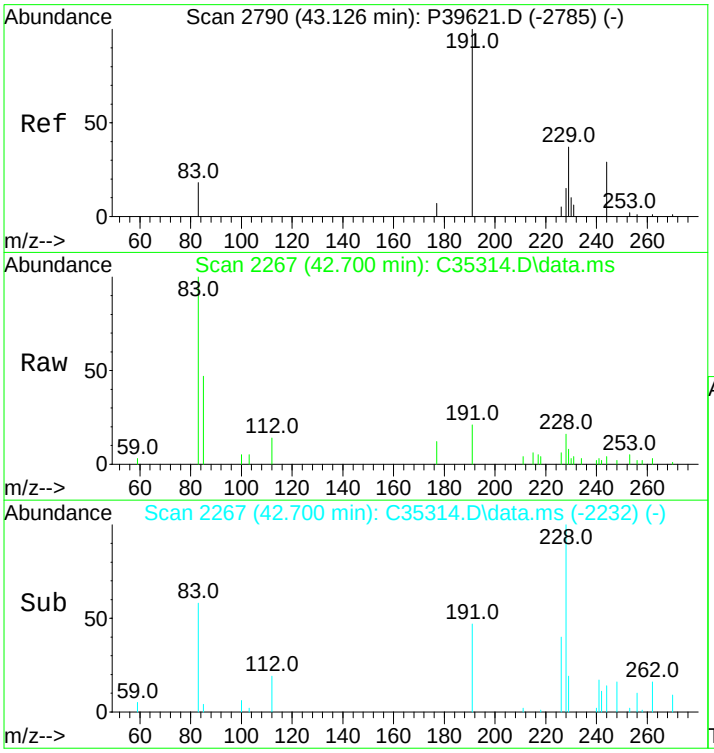




#95
C24 Tricyclic Terpane (T5)
Concen: 99.60 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

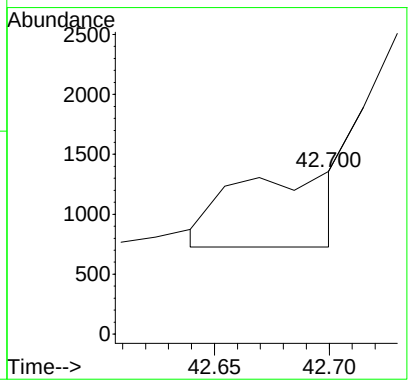
Tgt Ion:191 Resp: 2316

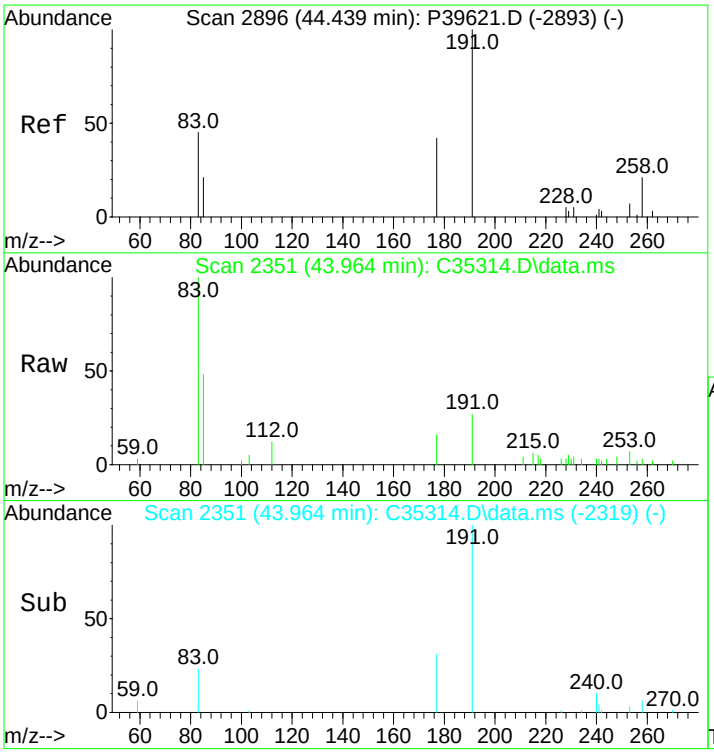




#96
C25 Tricyclic Terpane (T6)
Concen: 85.11 ng/ml m
RT: 42.700 min Scan# 2267
Delta R.T. 0.030 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

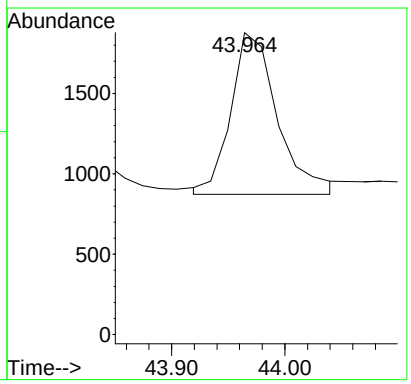
Tgt Ion:191 Resp: 1979

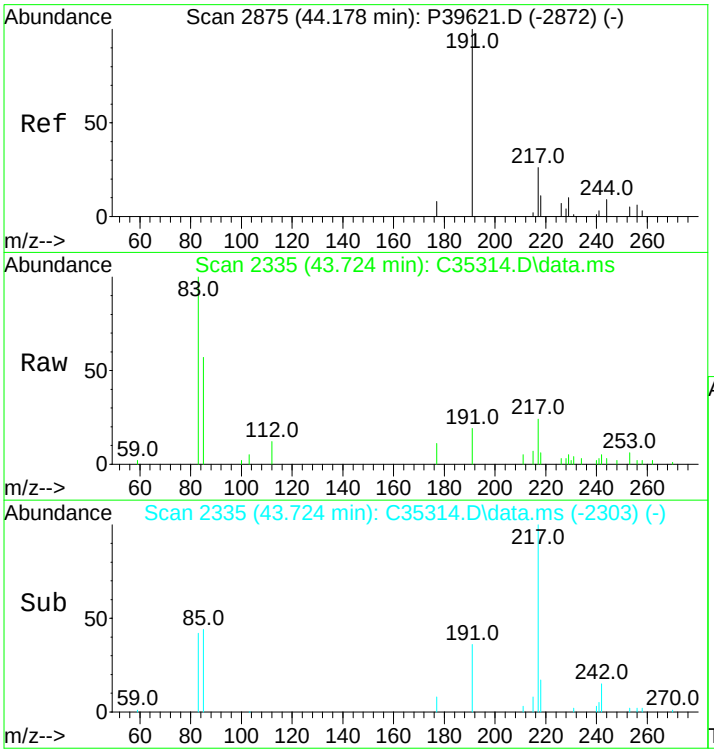




#97
C24 Tetracyclic Terpane (T6a)
Concen: 123.90 ng/ml m
RT: 43.964 min Scan# 2351
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

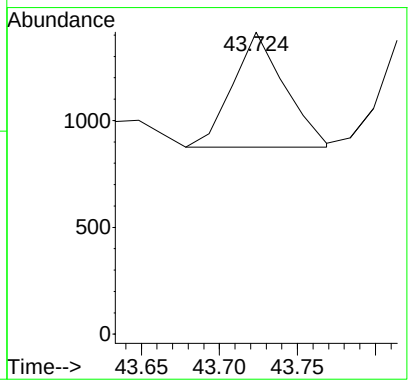
Tgt Ion:191 Resp: 2881

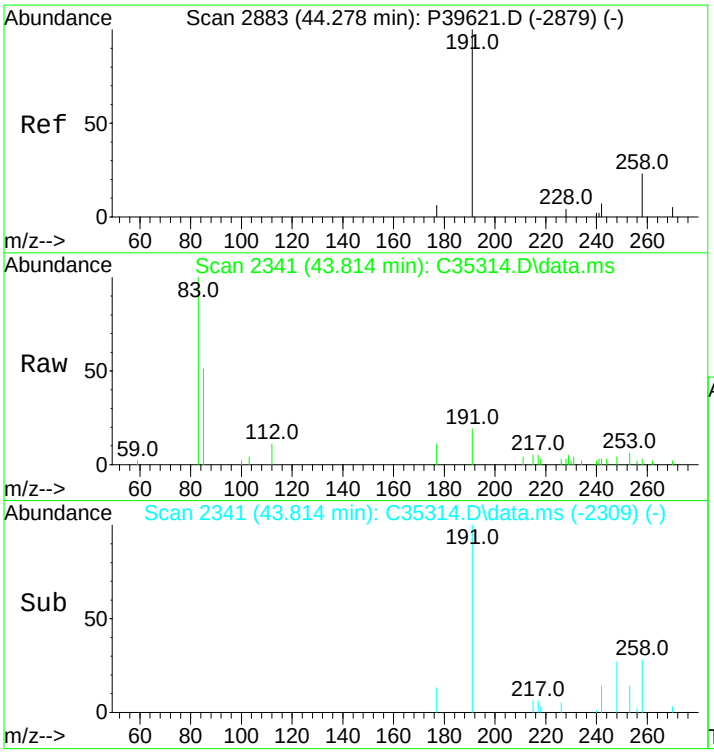




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 53.67 ng/ml
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

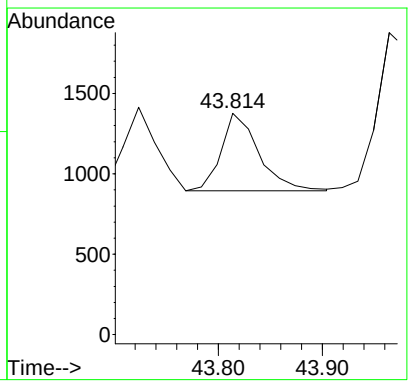
Tgt Ion:191 Resp: 1248

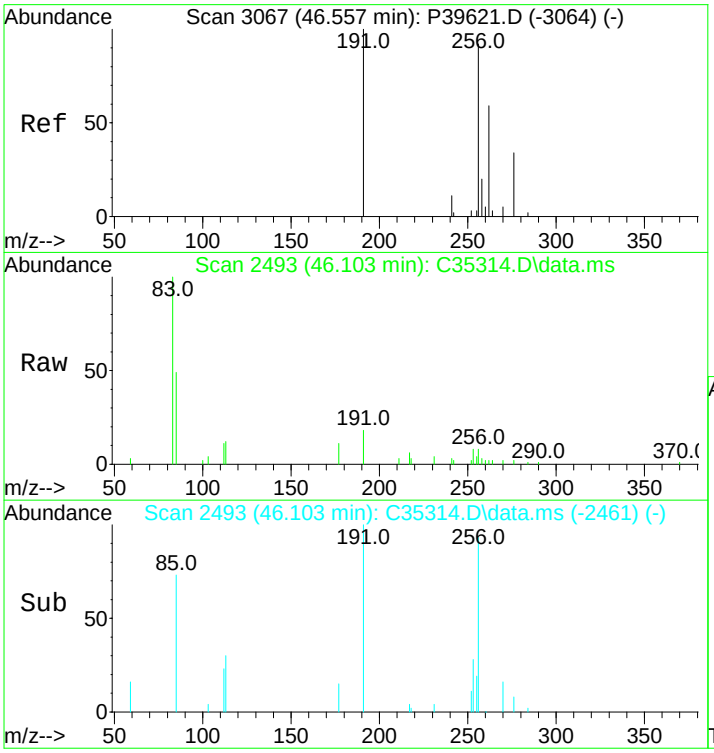




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 52.55 ng/ml
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

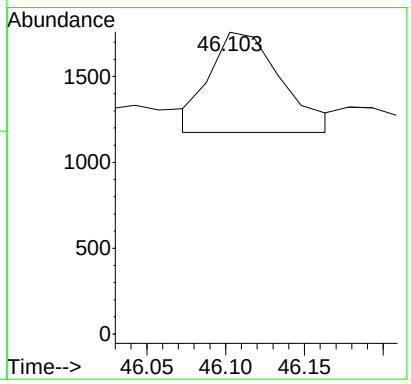
Tgt Ion:191 Resp: 1222

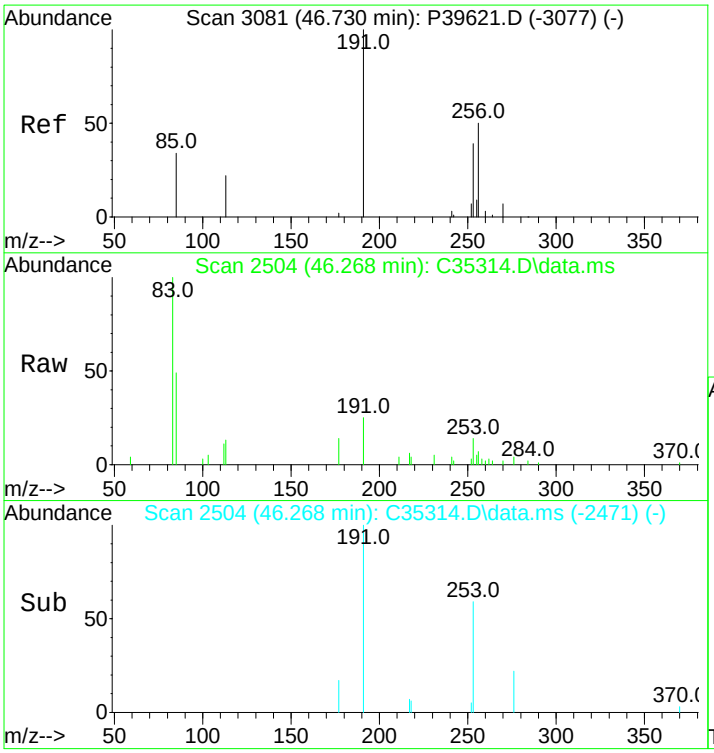




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 79.22 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

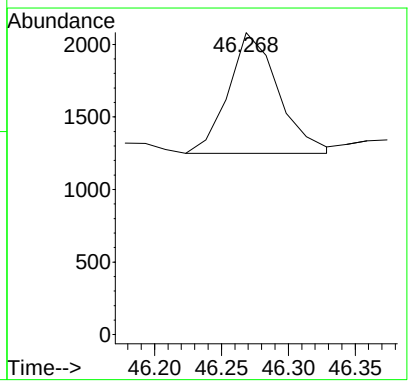
Tgt Ion:191 Resp: 1842

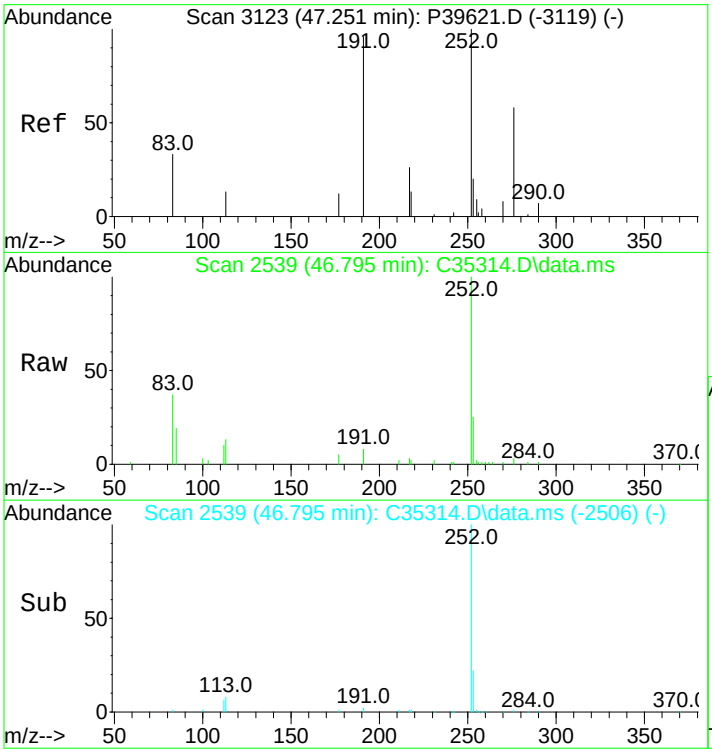




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 93.33 ng/ml
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

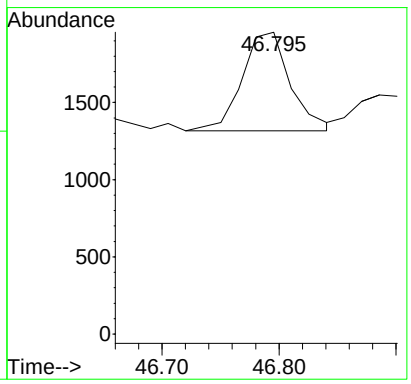
Tgt Ion:191 Resp: 2170

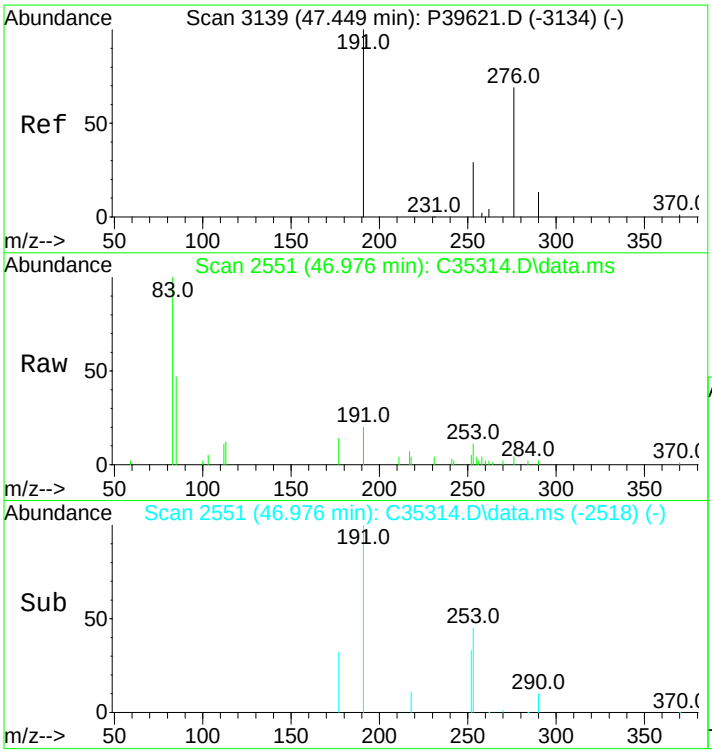




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 79.00 ng/ml
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

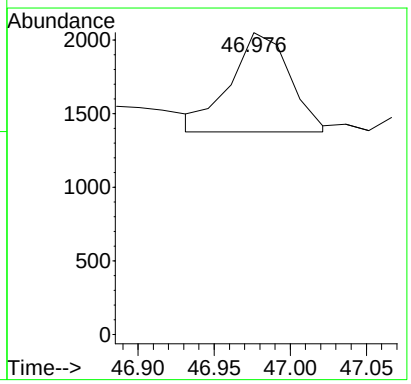
Tgt Ion:191 Resp: 1837

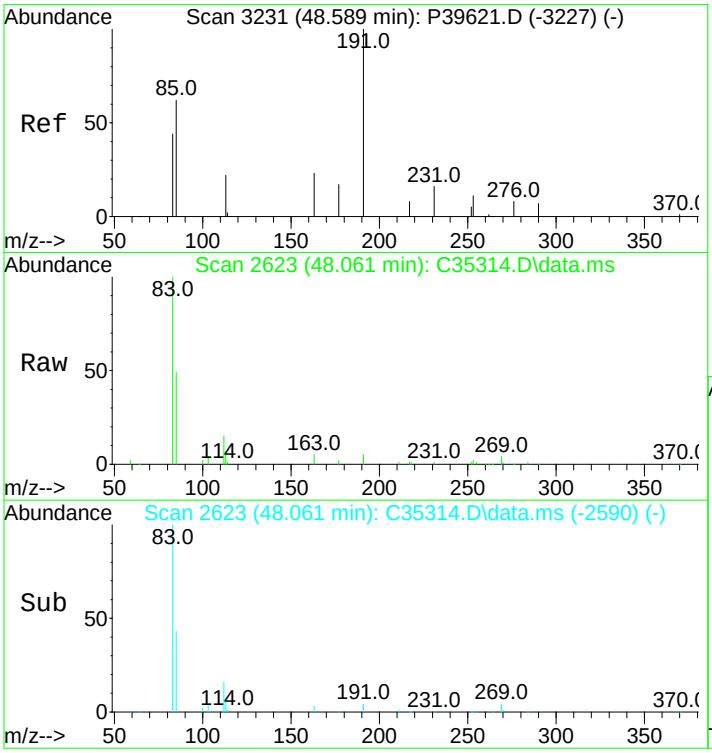




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 77.80 ng/ml m
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

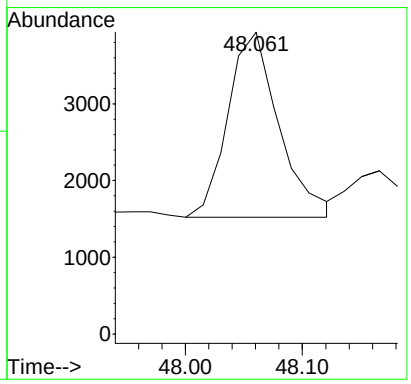
Tgt Ion:191 Resp: 1809

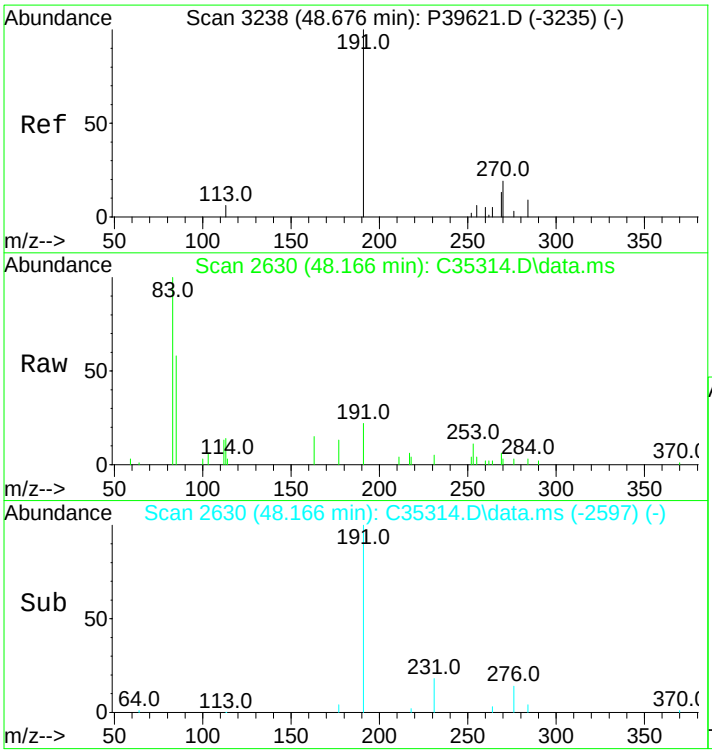




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 314.64 ng/ml
RT: 48.061 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

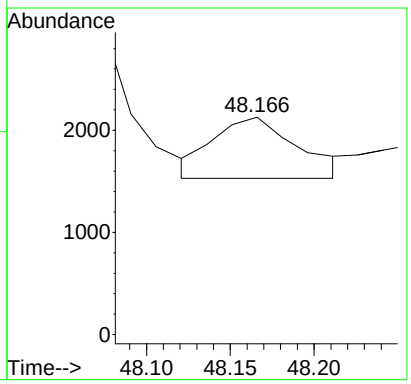
Tgt Ion:191 Resp: 7316

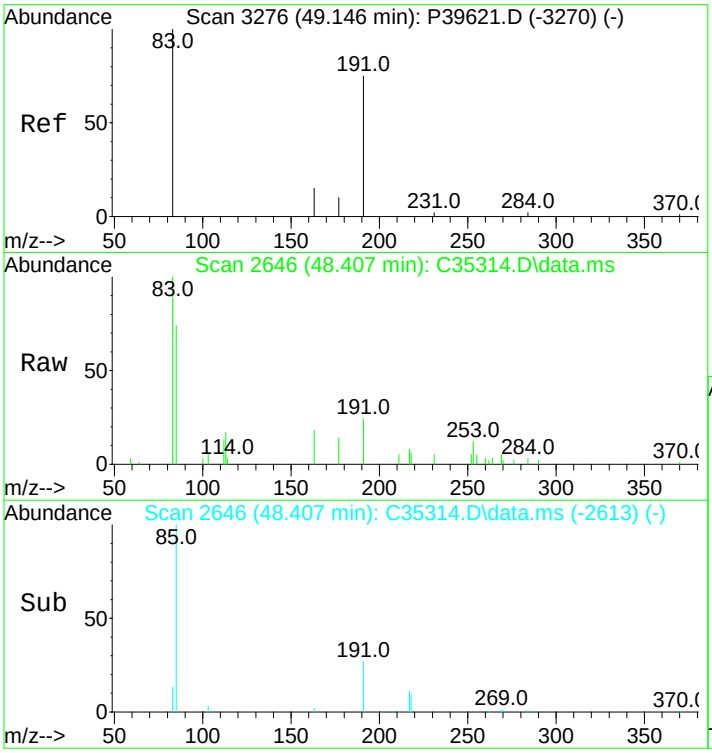




#105
C30 Tricyclic Terpane-22S
Concen: 89.67 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

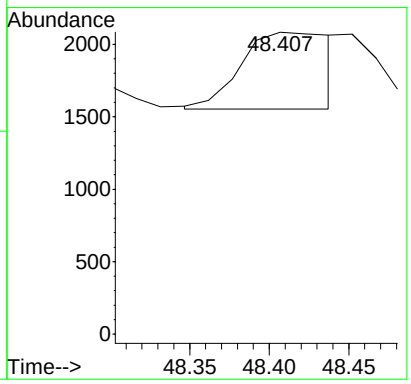
Tgt Ion:191 Resp: 2085

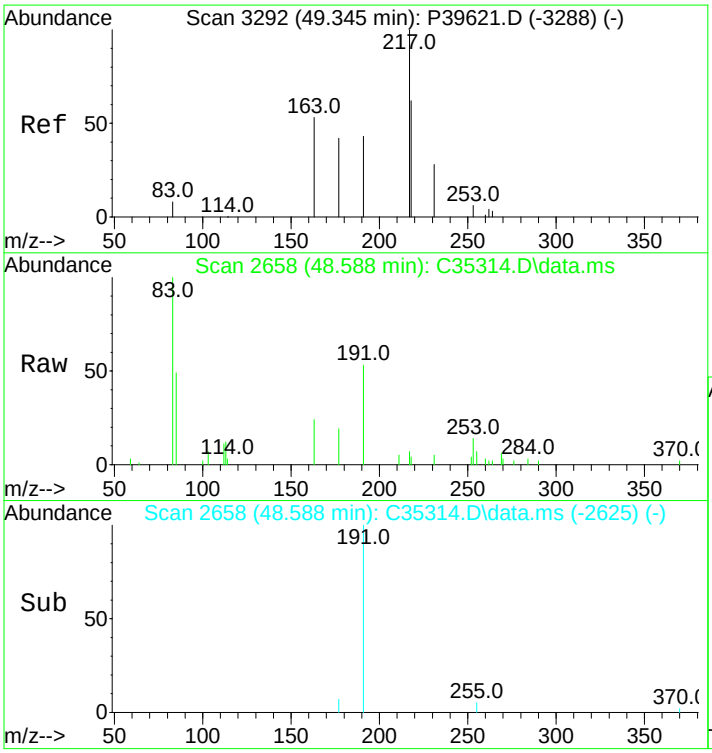




#106
C30 Tricyclic Terpane-22R
Concen: 89.50 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

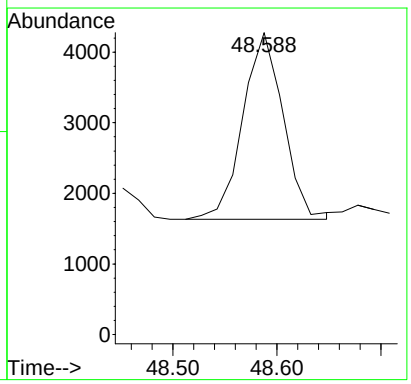
Tgt Ion:191 Resp: 2081

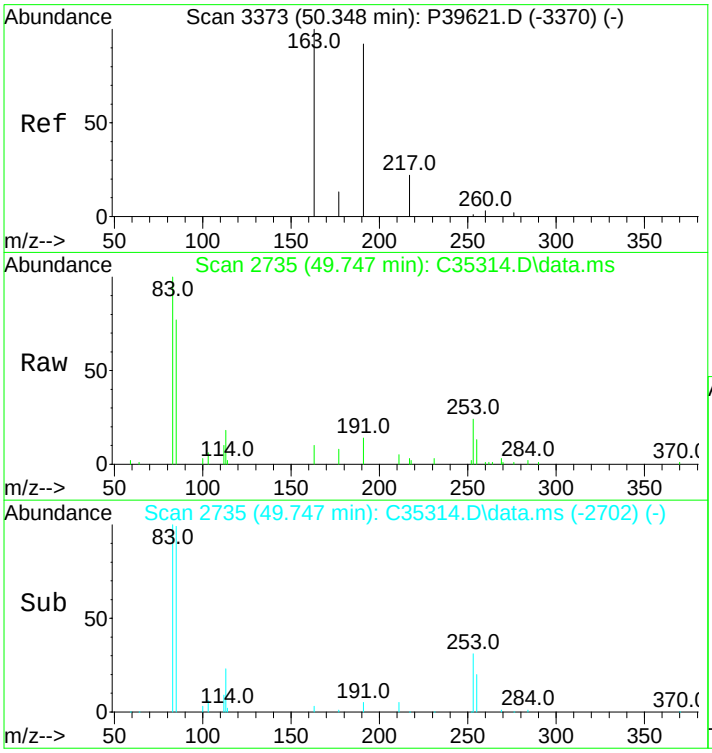




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 308.10 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

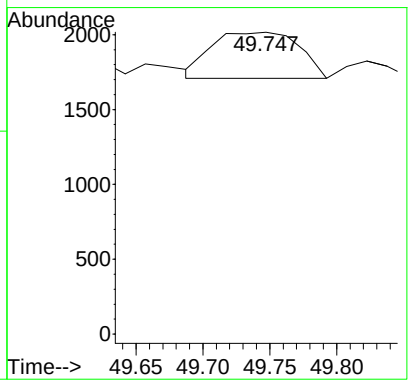
Tgt Ion:191 Resp: 7164

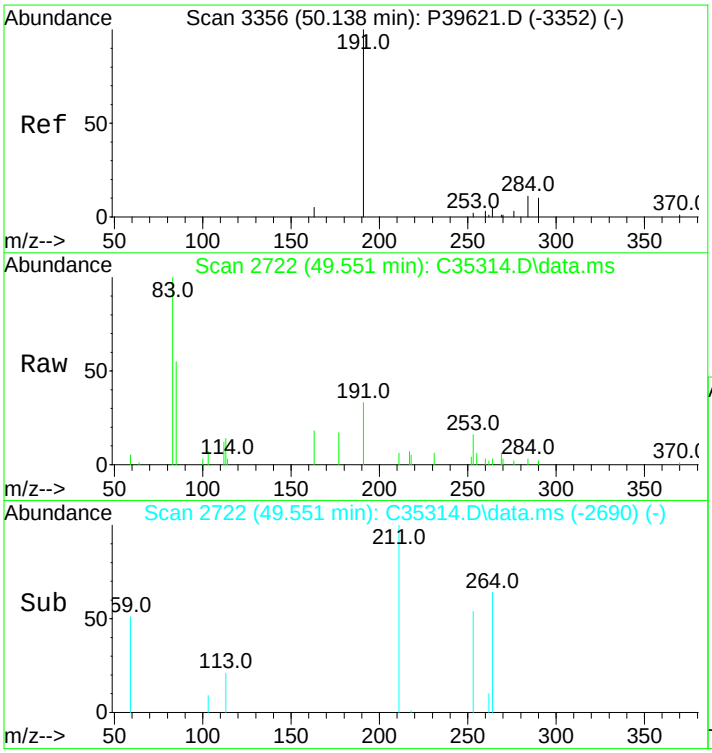




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 60.30 ng/ml
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

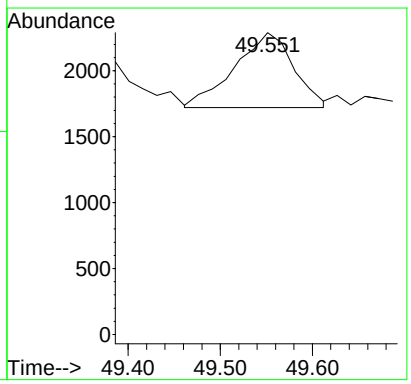
Tgt Ion:191 Resp: 1402

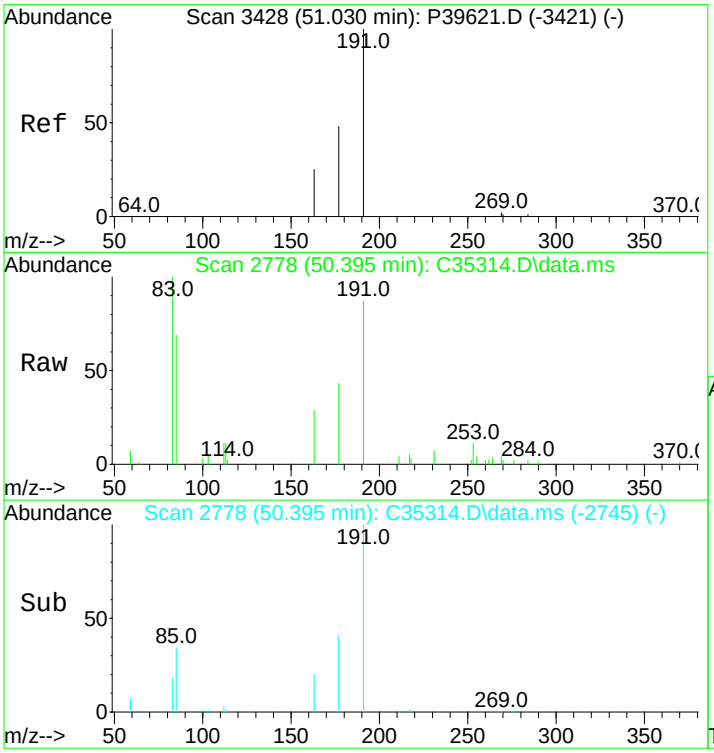




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 108.42 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

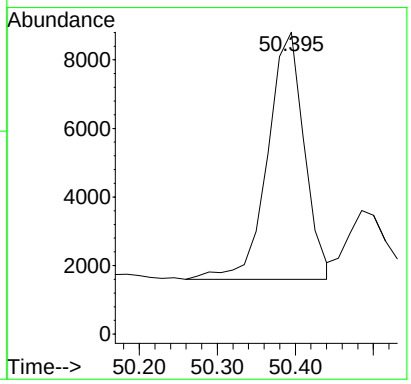
Tgt Ion:191 Resp: 2521

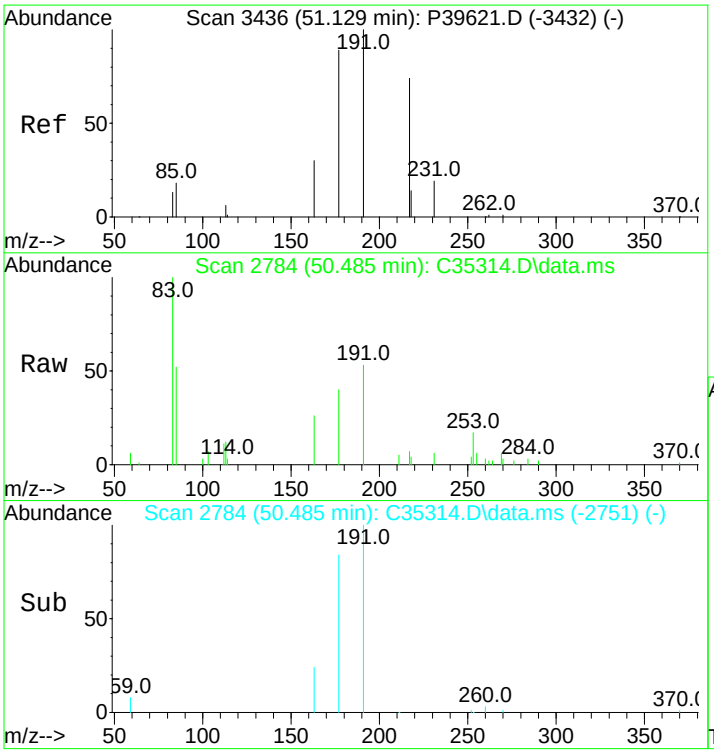




#110
30-Norhopane (T15)
Concen: 1009.93 ng/ml
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

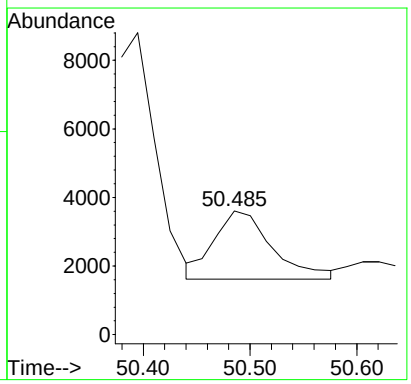
Tgt Ion:191 Resp: 23483

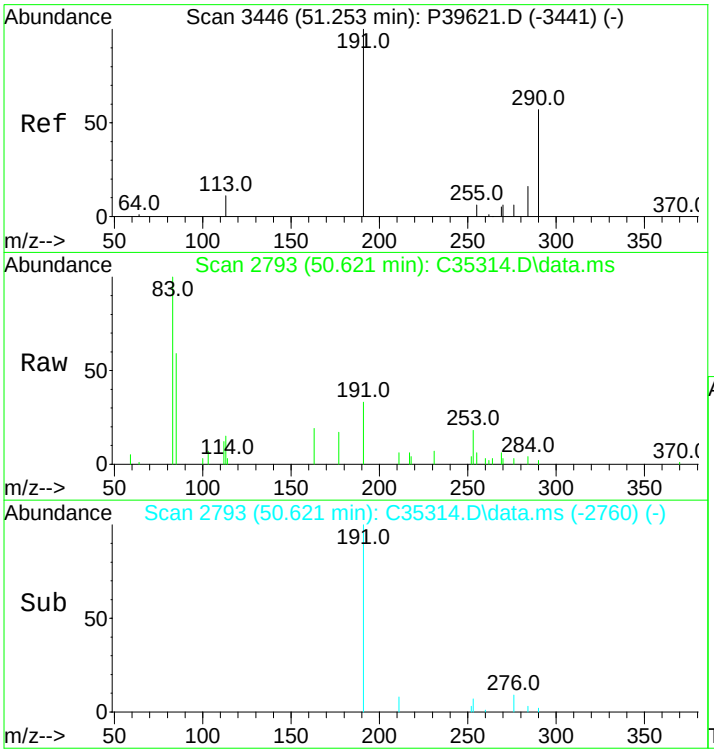




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 325.69 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

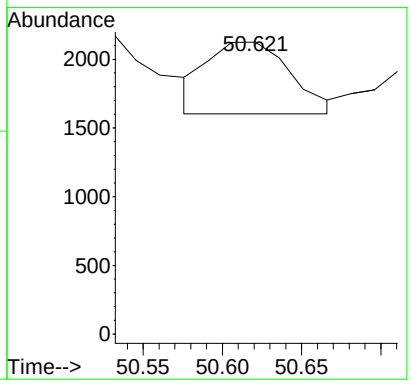
Tgt Ion:191 Resp: 7573

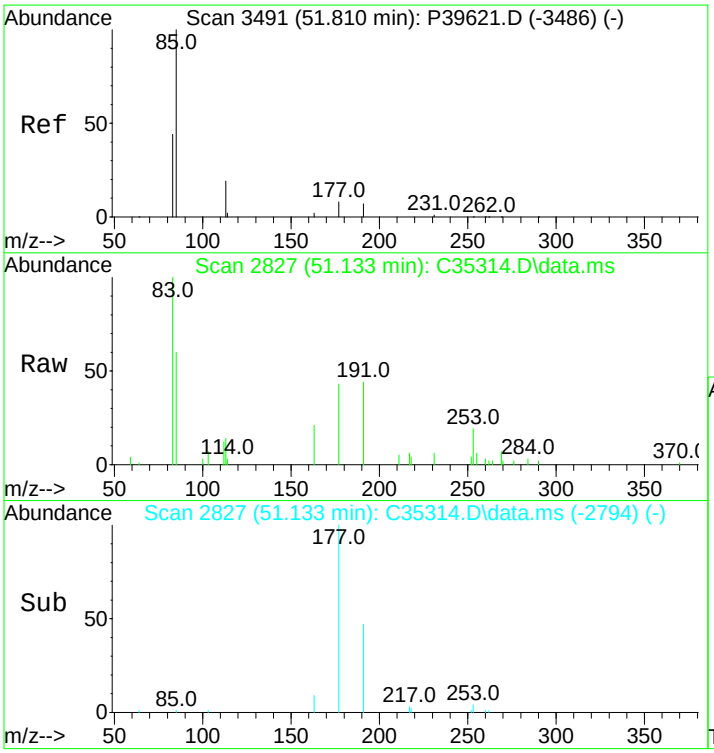




#112
17a(H)-Diahopane (X)
Concen: 82.10 ng/ml m
RT: 50.621 min Scan# 2793
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

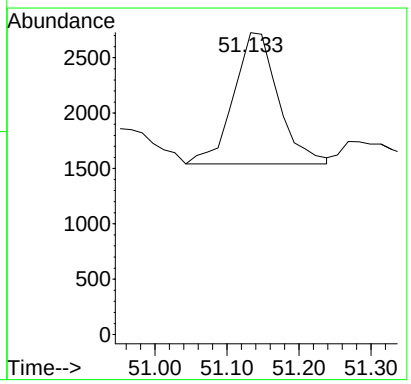
Tgt Ion:191 Resp: 1909

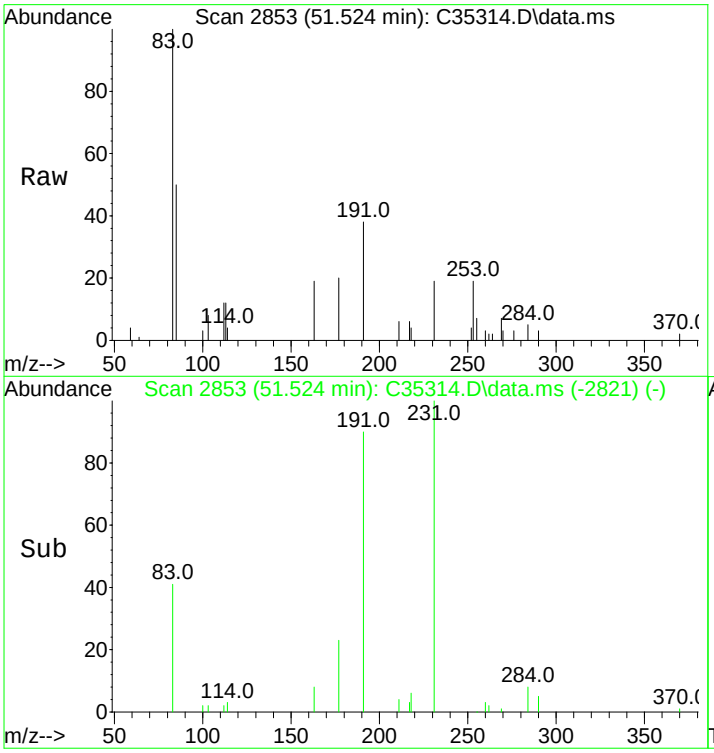




#113
30-Normoretane (T17)
Concen: 219.42 ng/ml
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

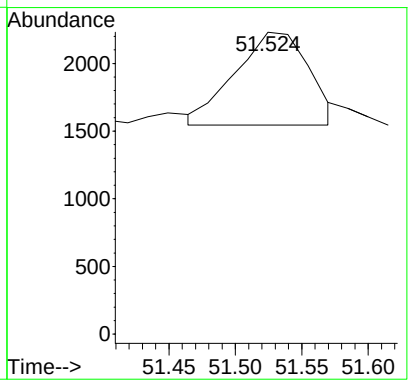
Tgt Ion:191 Resp: 5102

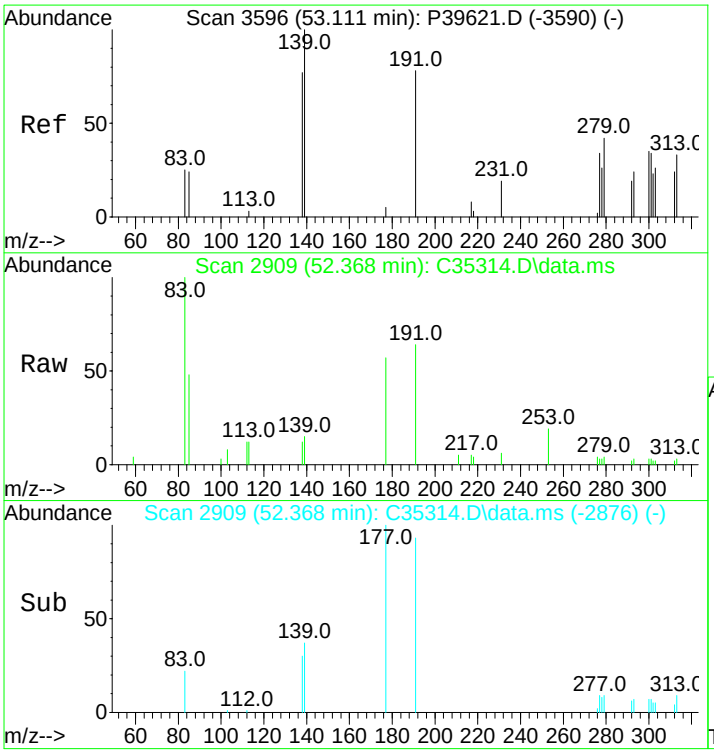




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 114.10 ng/ml m
RT: 51.524 min Scan# 2853
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

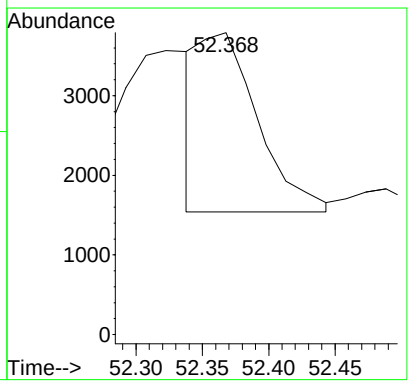
Tgt Ion:191 Resp: 2653

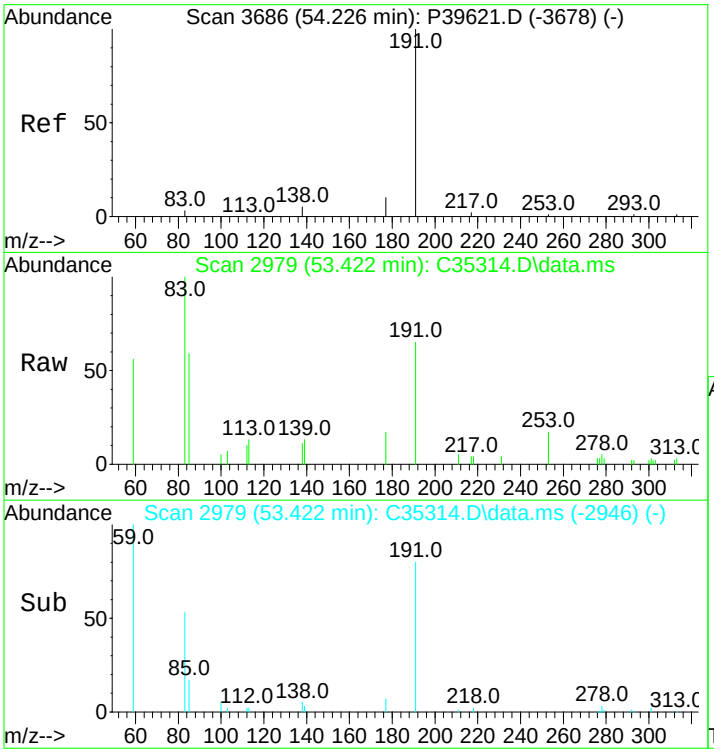




#115
Moretane (T20)
Concen: 296.75 ng/ml m
RT: 52.368 min Scan# 2909
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

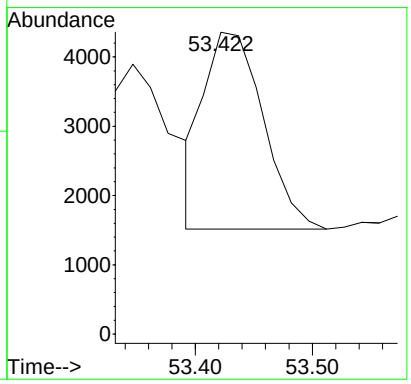
Tgt Ion:191 Resp: 6900

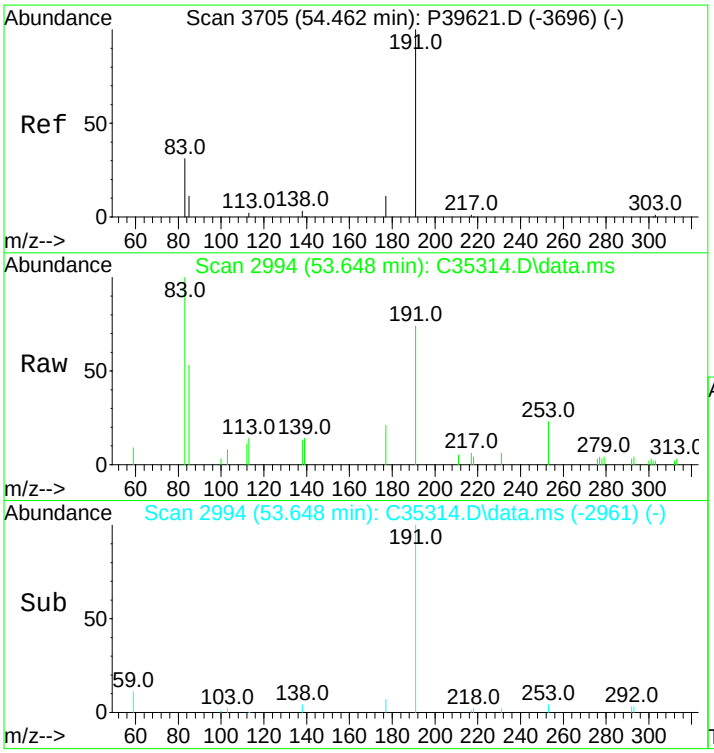




#116
30-Homohopane-22S (T21)
Concen: 431.02 ng/ml
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

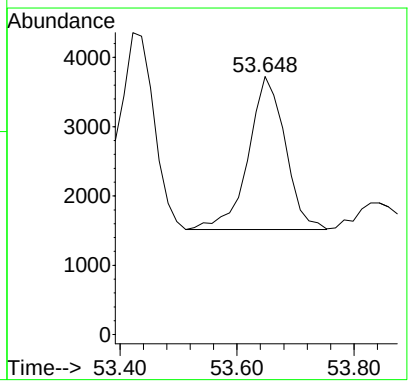
Tgt Ion:191 Resp: 10022

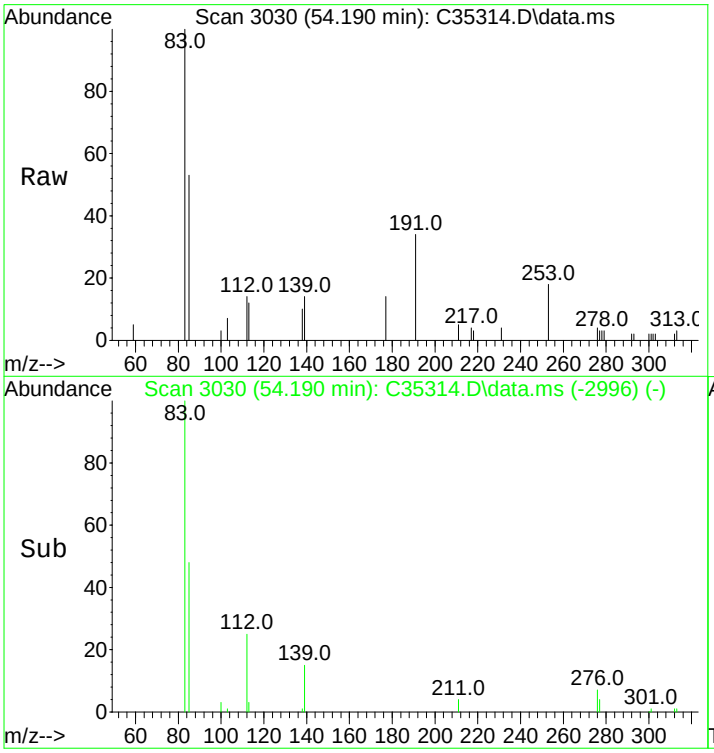




#117
30-Homohopane-22R (T22)
Concen: 414.93 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

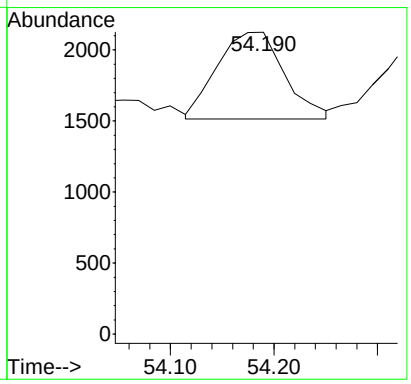
Tgt Ion:191 Resp: 9648

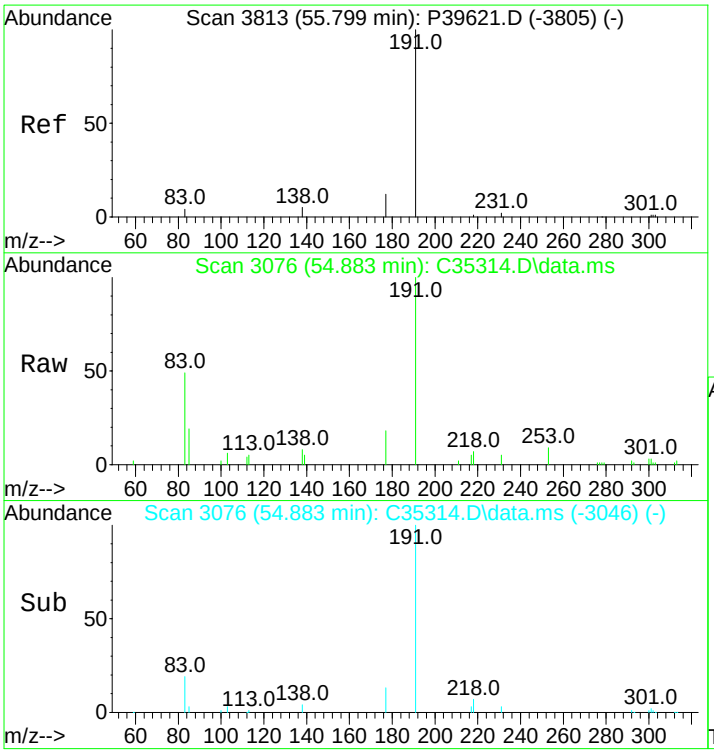




#118
Gammacerane/C32-diahopane
Concen: 118.83 ng/mL m
RT: 54.190 min Scan# 3030
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

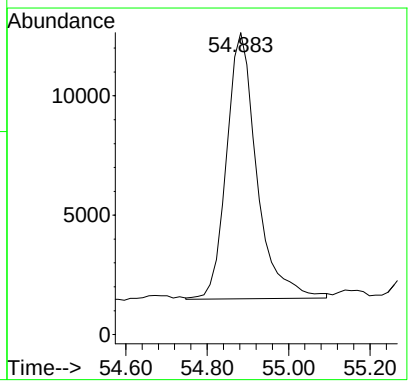
Tgt Ion:191 Resp: 2763

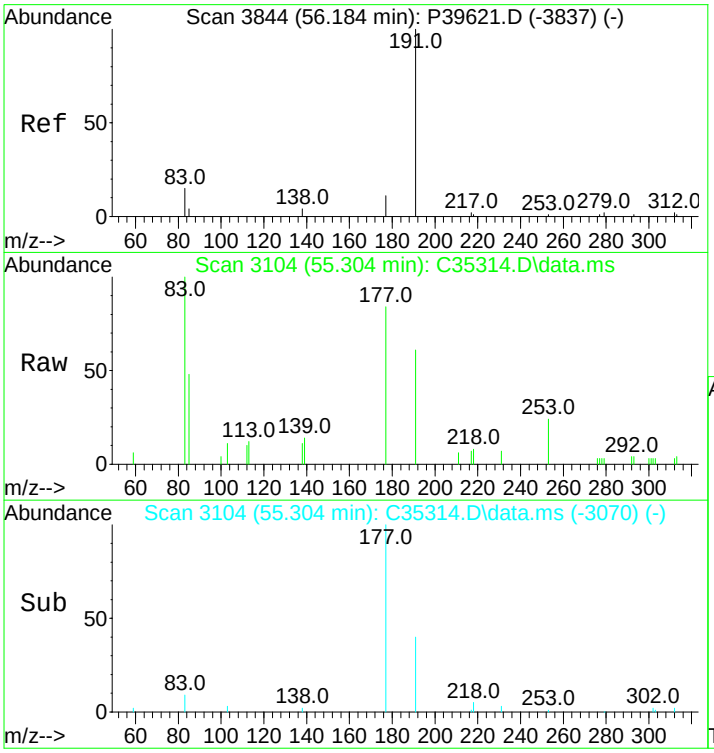




#119
30,31-Bishomohopane-22S (T26)
Concen: 2483.10 ng/ml
RT: 54.883 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

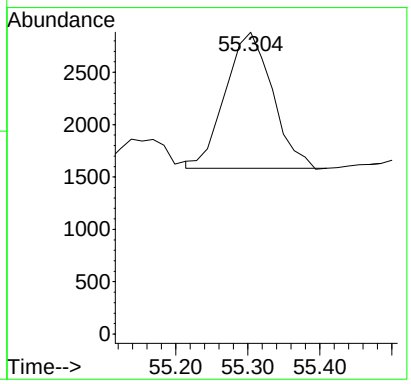
Tgt Ion:191 Resp: 57737

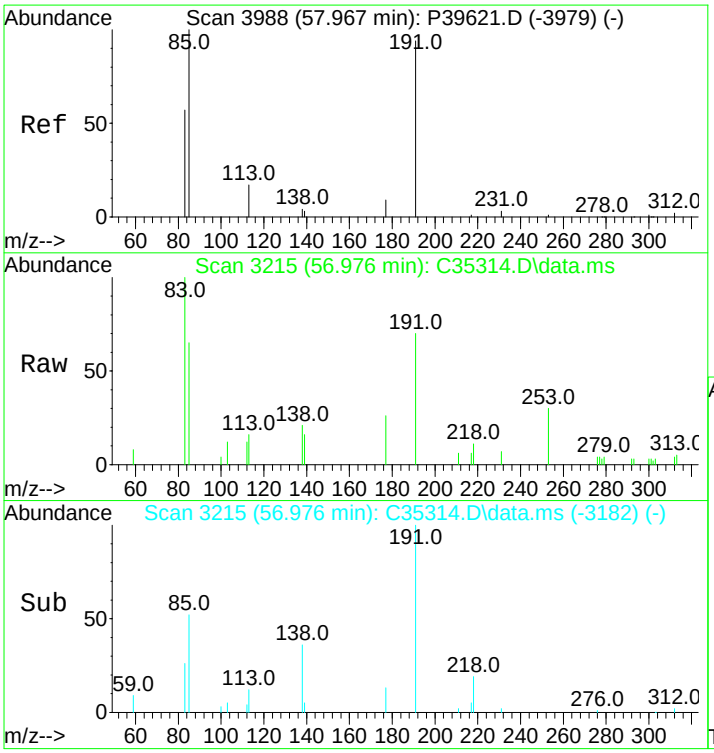




#120
30,31-Bishomohopane-22R (T27)
Concen: 251.98 ng/ml
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

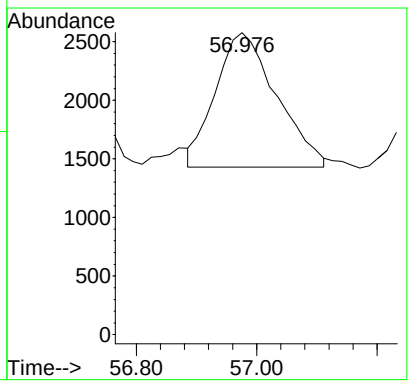
Tgt Ion:191 Resp: 5859

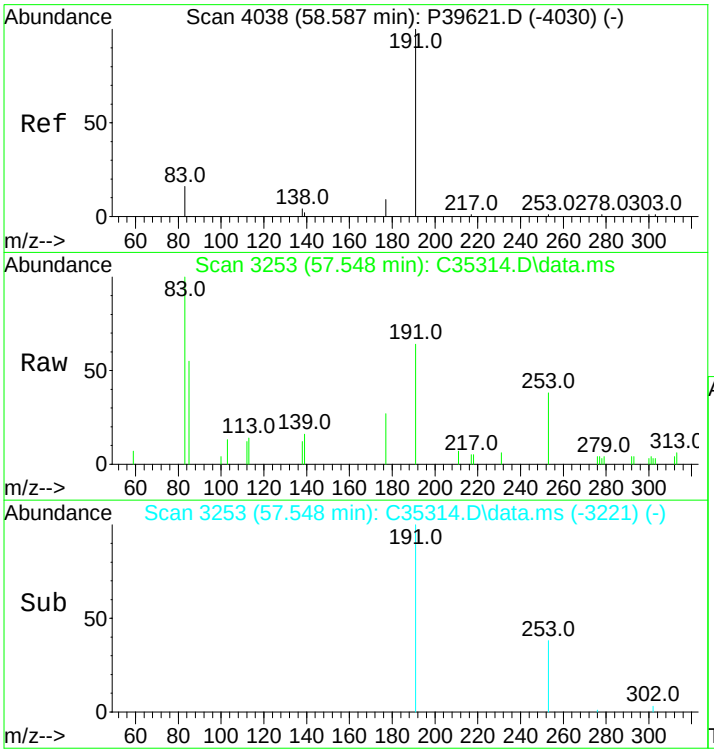




#121
30,31-Trishomohopane-22S (T30)
Concen: 347.02 ng/ml m
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

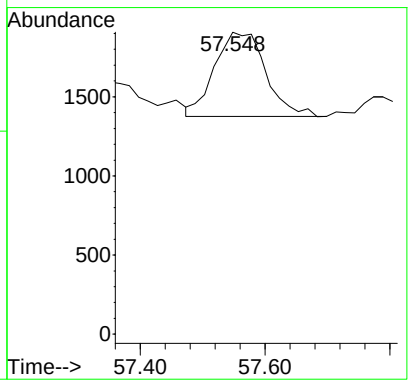
Tgt Ion:191 Resp: 8069

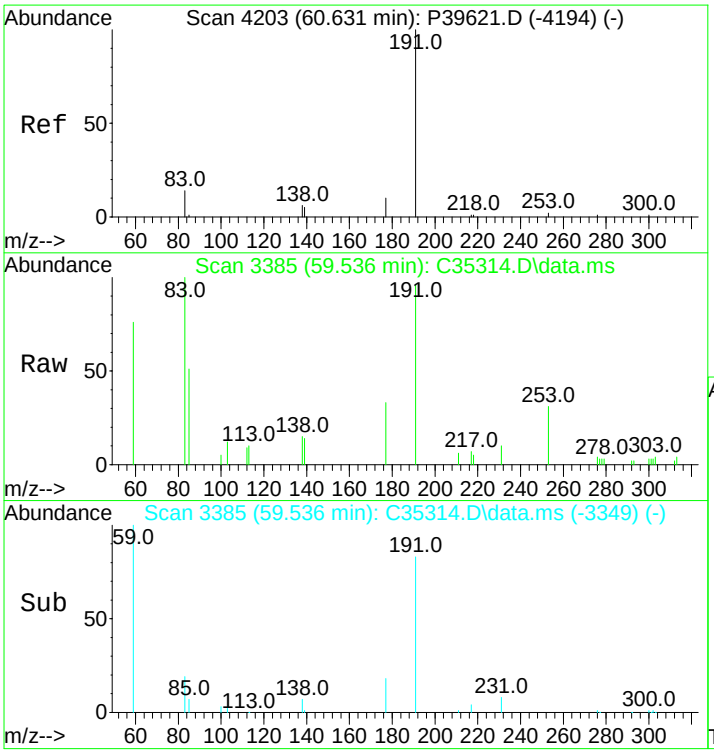




#122
30,31-Trishomohopane-22R (T31)
Concen: 129.41 ng/ml
RT: 57.548 min Scan# 3253
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

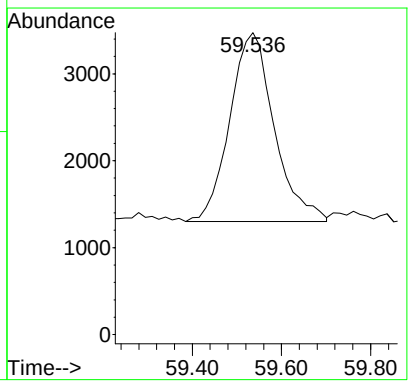
Tgt Ion:191 Resp: 3009

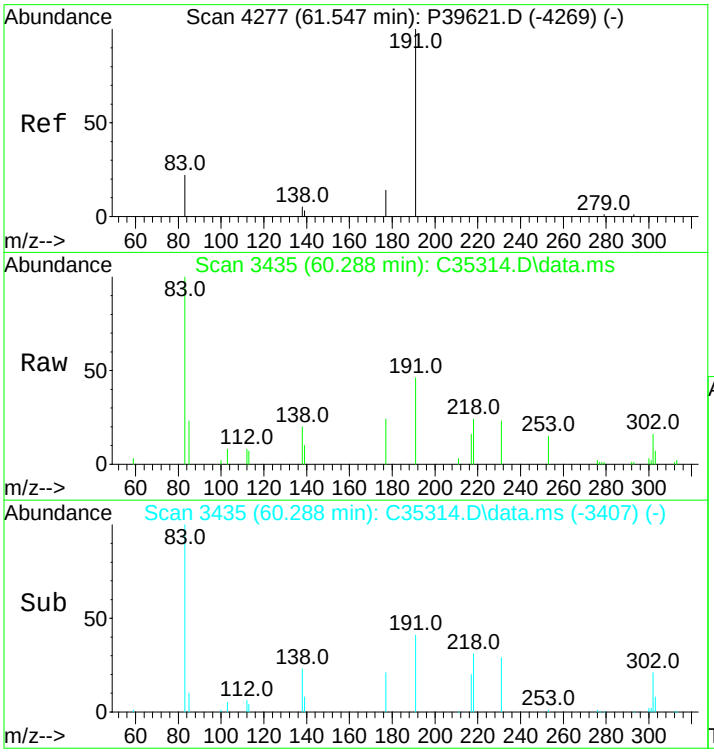




#123
Tetrakishomohopane-22S (T32)
Concen: 651.13 ng/ml
RT: 59.536 min Scan# 3385
Delta R.T. 0.045 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

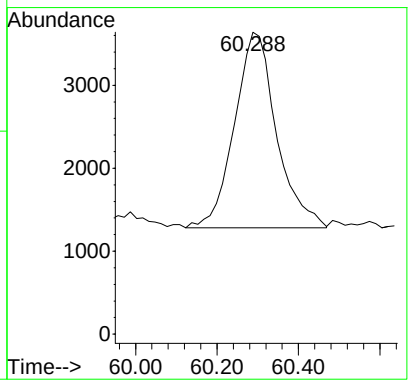
Tgt Ion:191 Resp: 15140

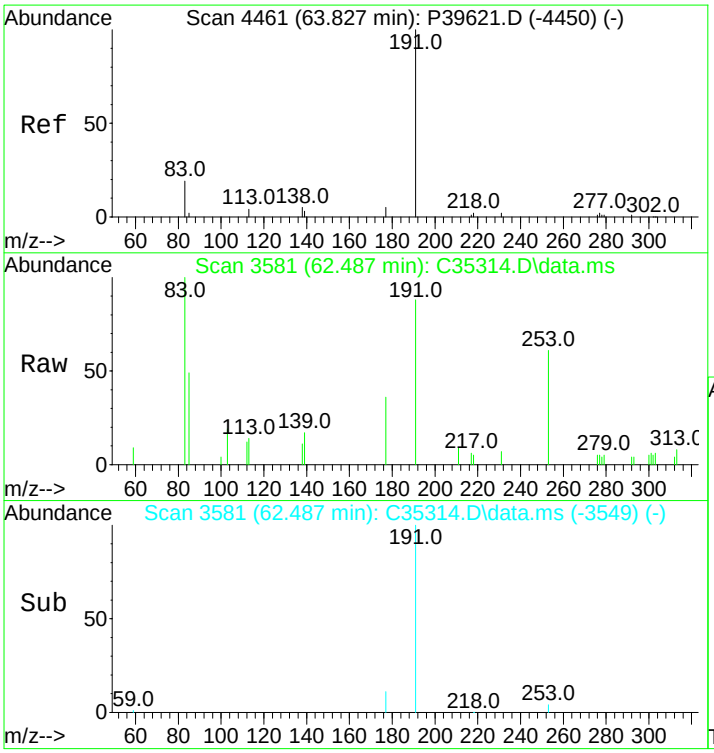




#124
Tetrakishomohopane-22R (T33)
Concen: 726.82 ng/ml
RT: 60.288 min Scan# 3435
Delta R.T. -0.075 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

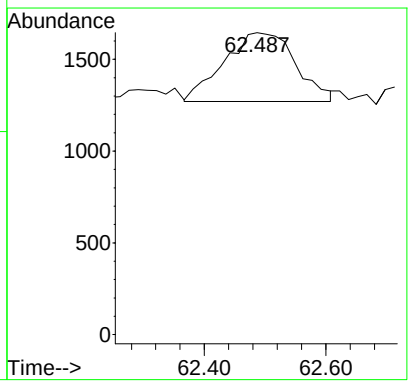
Tgt Ion:191 Resp: 16900

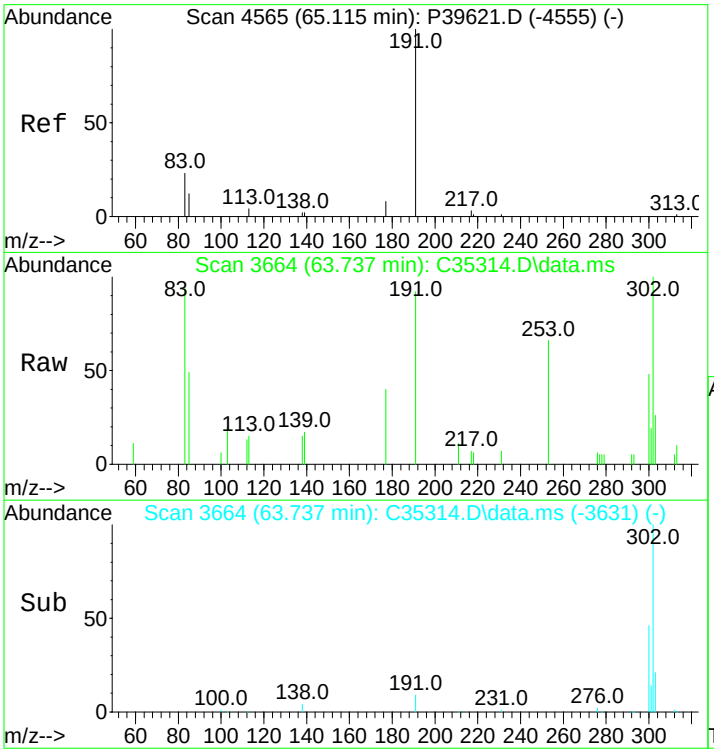




#125
Pentakishomohopane-22S (T34)
Concen: 131.56 ng/ml m
RT: 62.487 min Scan# 3581
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

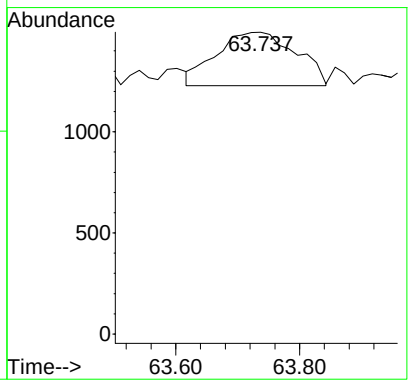
Tgt Ion:191 Resp: 3059

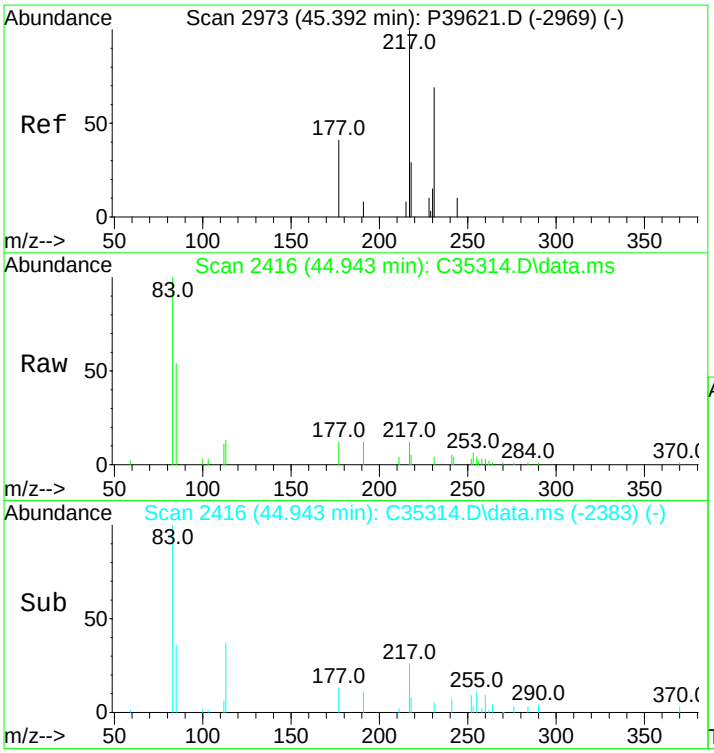




#126
Pentakishomohopane-22R (T35)
Concen: 101.45 ng/ml m
RT: 63.737 min Scan# 3664
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

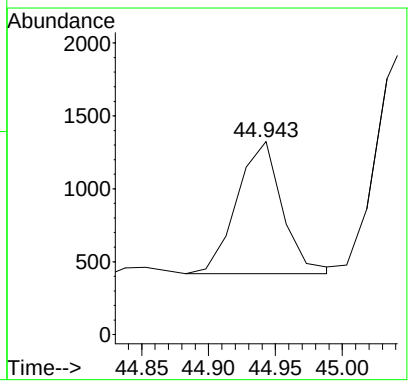
Tgt Ion:191 Resp: 2359

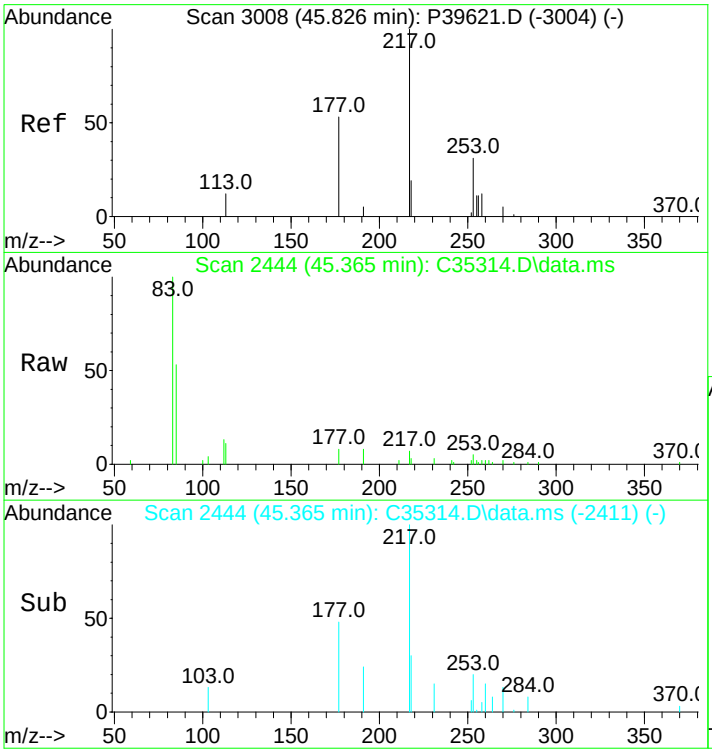




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 195.10 ng/ml
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

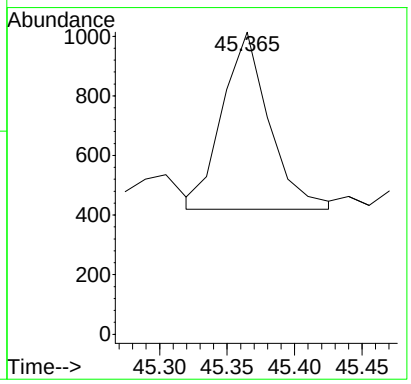
Tgt Ion:217 Resp: 2152

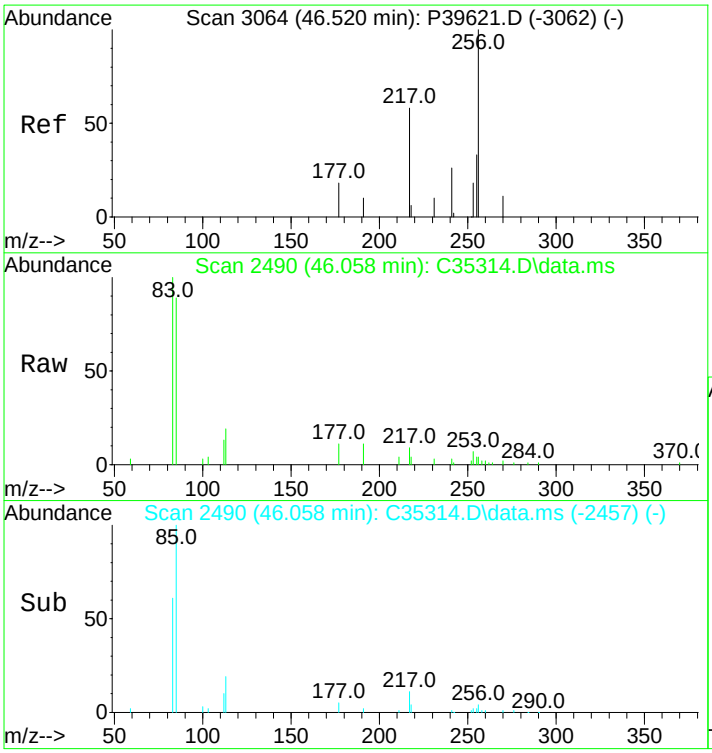




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 130.10 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

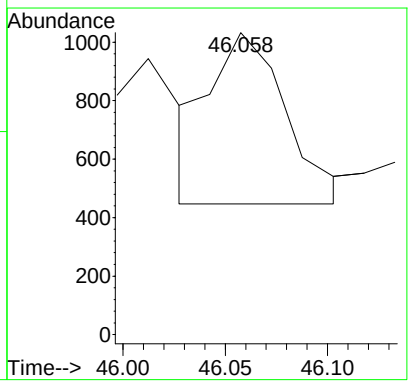
Tgt Ion:217 Resp: 1435

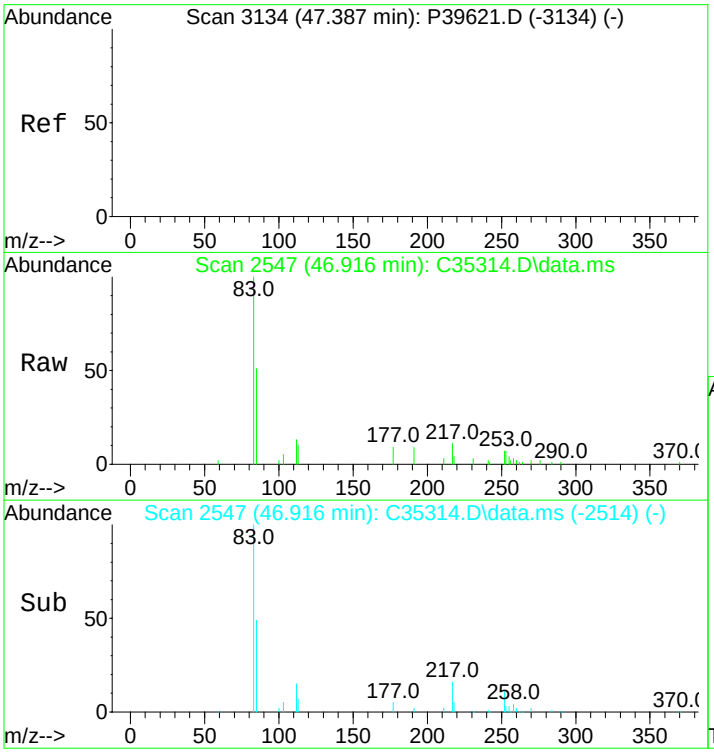




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 137.35 ng/ml m
RT: 46.058 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

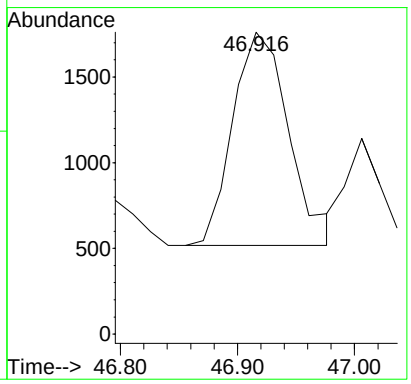
Tgt Ion:217 Resp: 1515

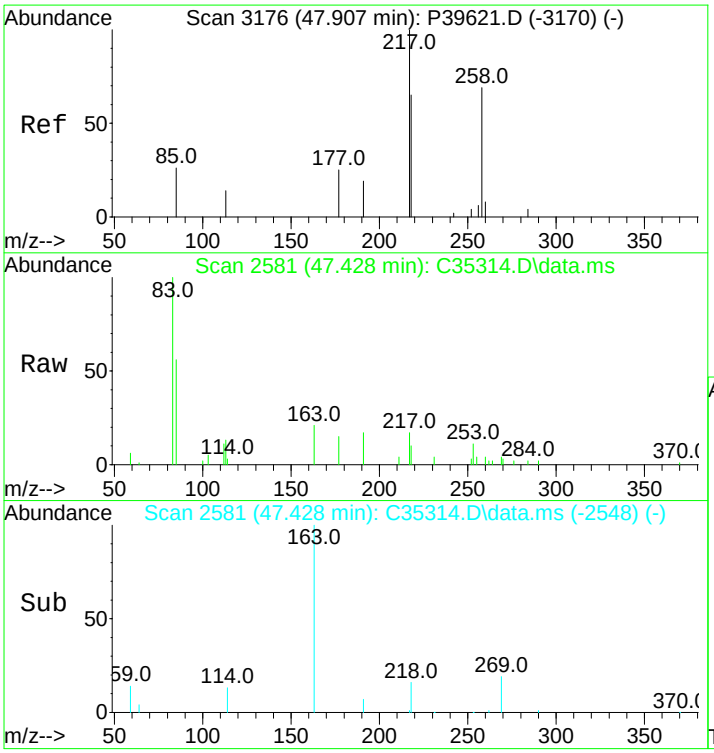




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 377.23 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

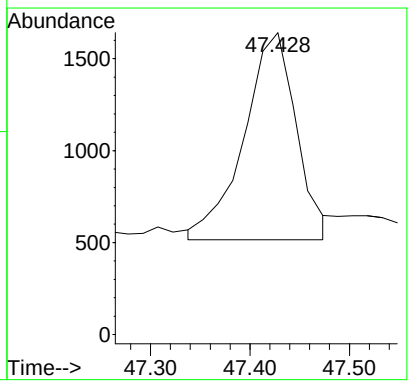
Tgt Ion:217 Resp: 4161

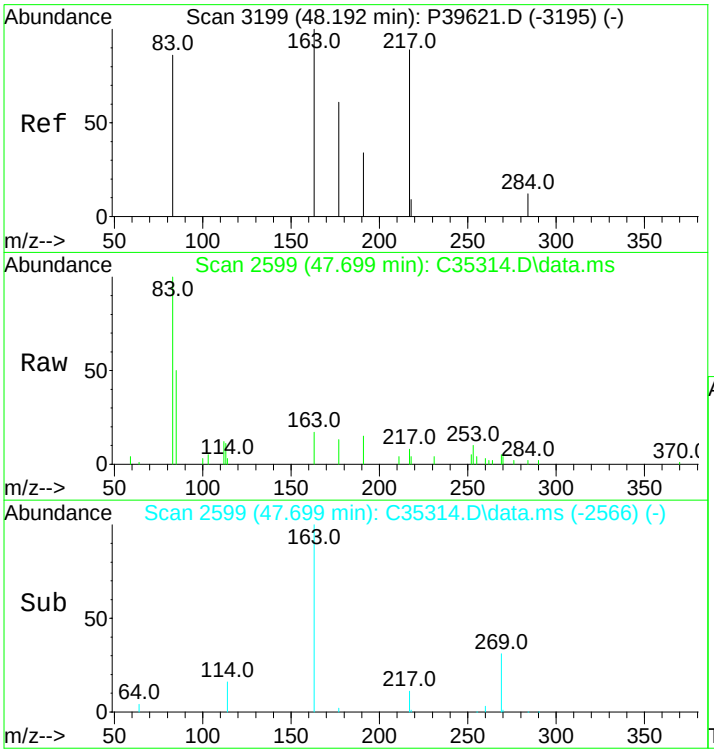




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 372.97 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

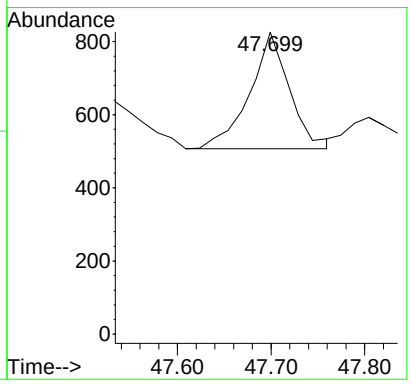
Tgt Ion:217 Resp: 4114

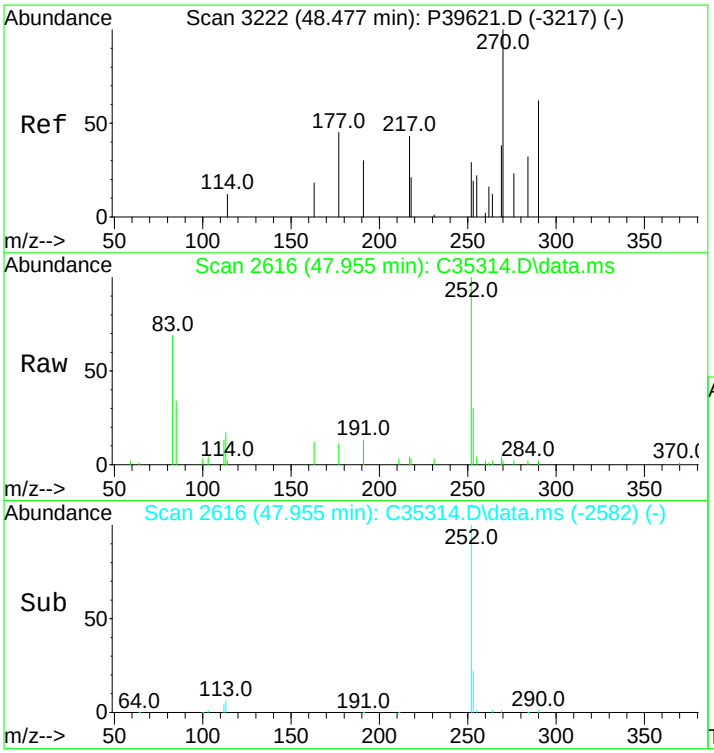




#133
Unknown Sterane (S18)
Concen: 85.49 ng/ml
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

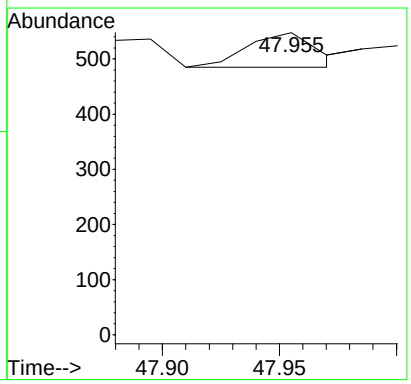
Tgt Ion:217 Resp: 943

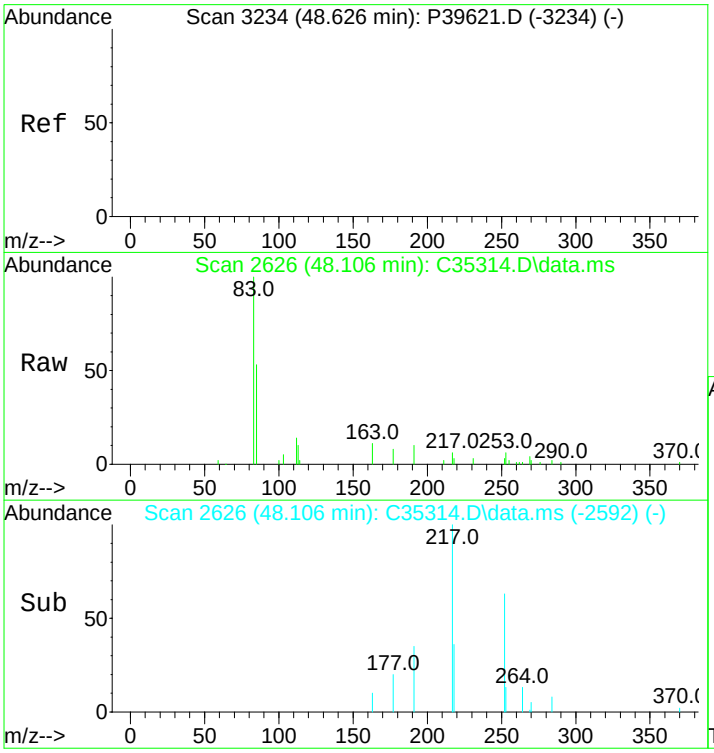




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 11.60 ng/ml
RT: 47.955 min Scan# 2616
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

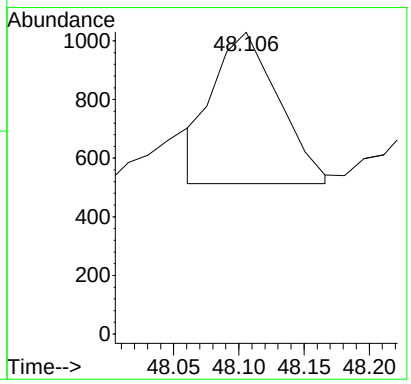
Tgt Ion:217 Resp: 128

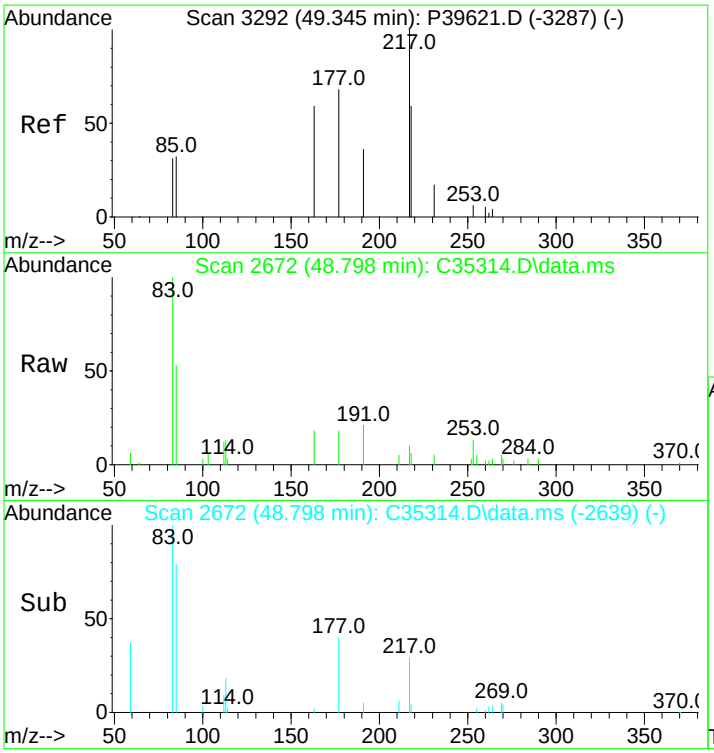




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 163.10 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

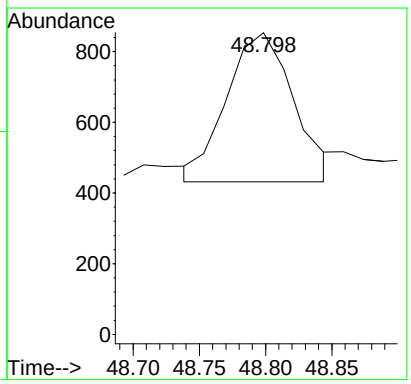
Tgt Ion:217 Resp: 1799

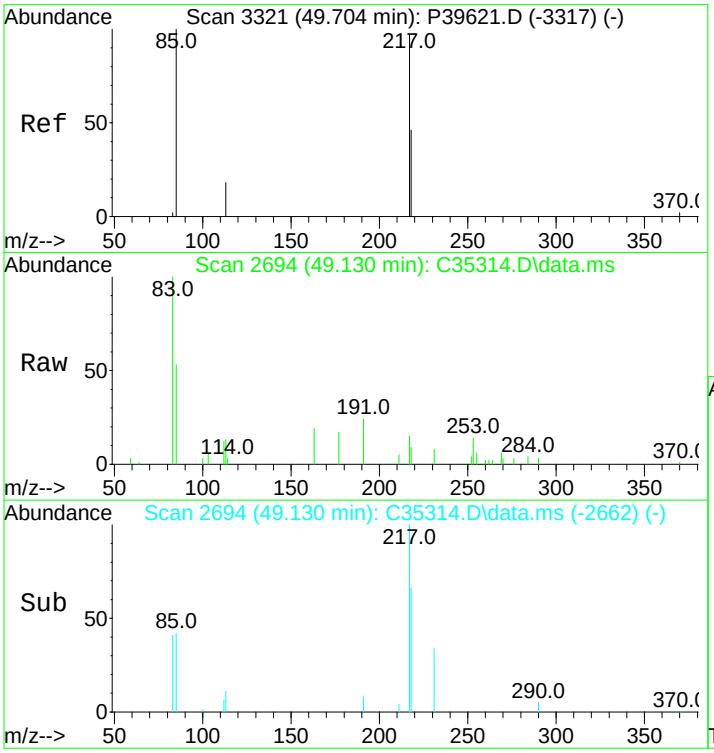




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 134.18 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

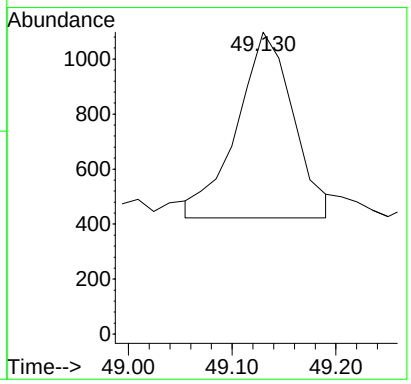
Tgt Ion:217 Resp: 1480

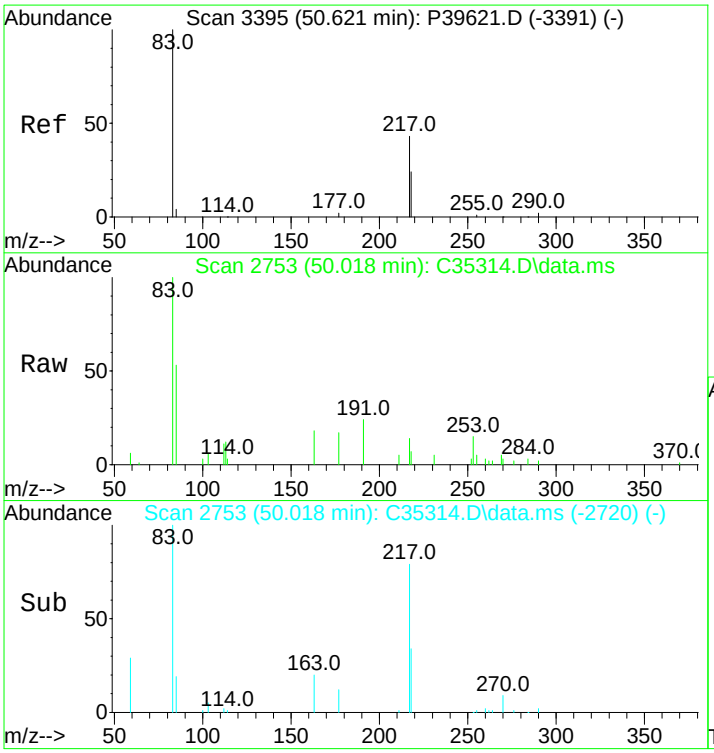




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 231.00 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

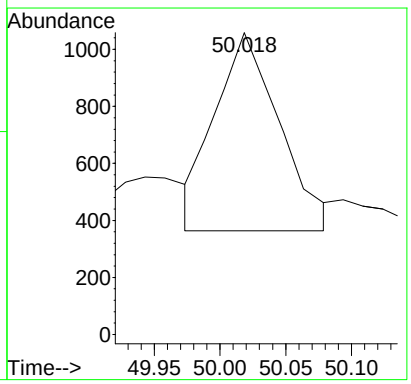
Tgt Ion:217 Resp: 2548

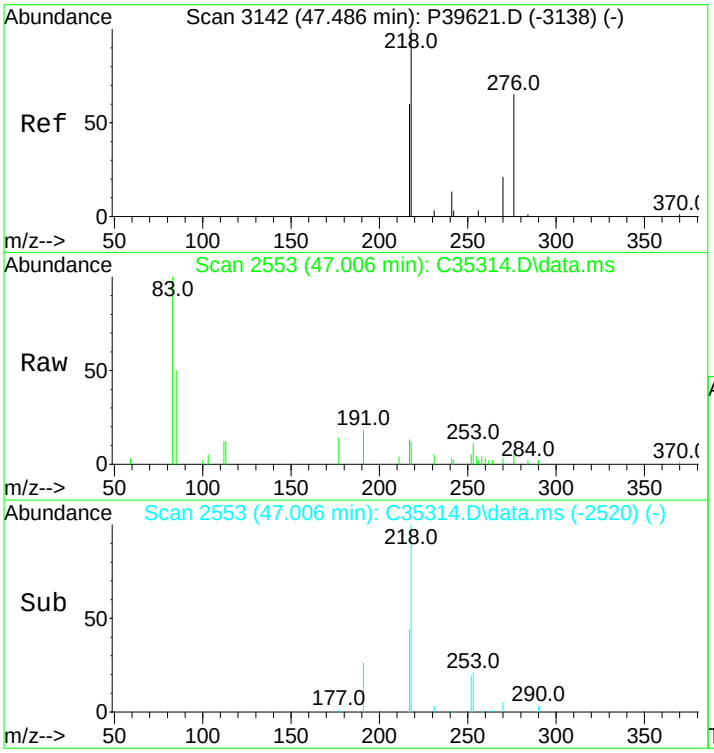




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 214.77 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

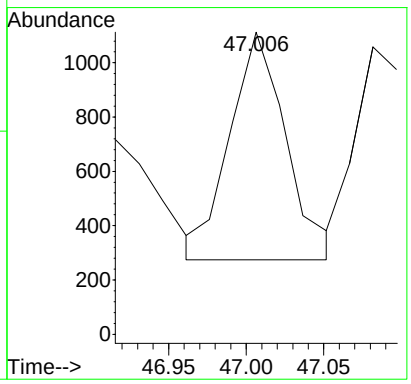
Tgt Ion:217 Resp: 2369

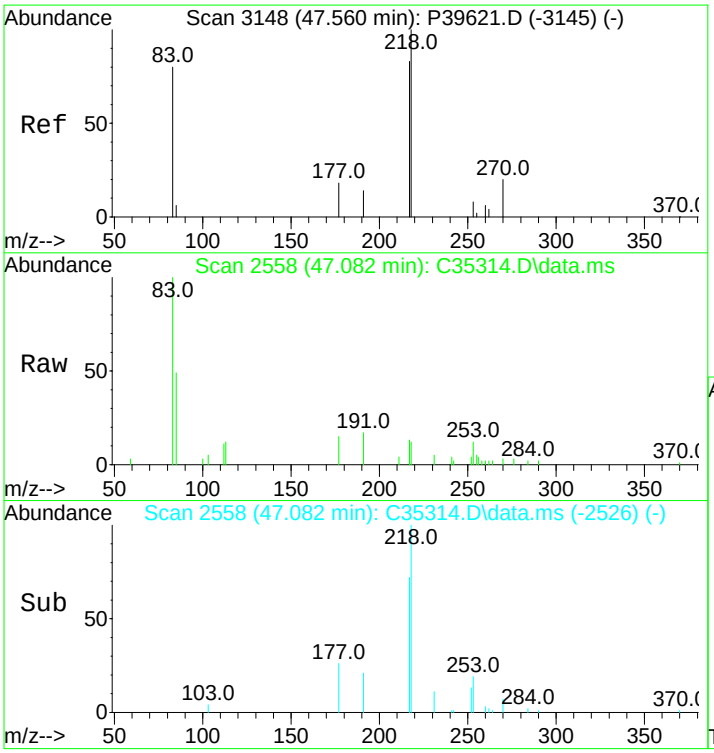




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 191.47 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

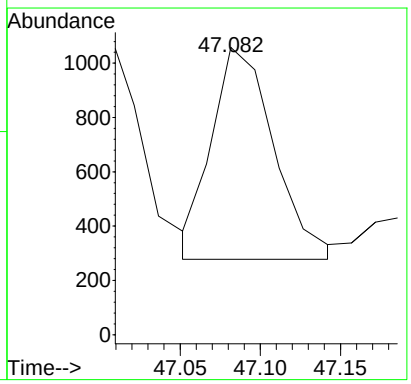
Tgt Ion:218 Resp: 2112

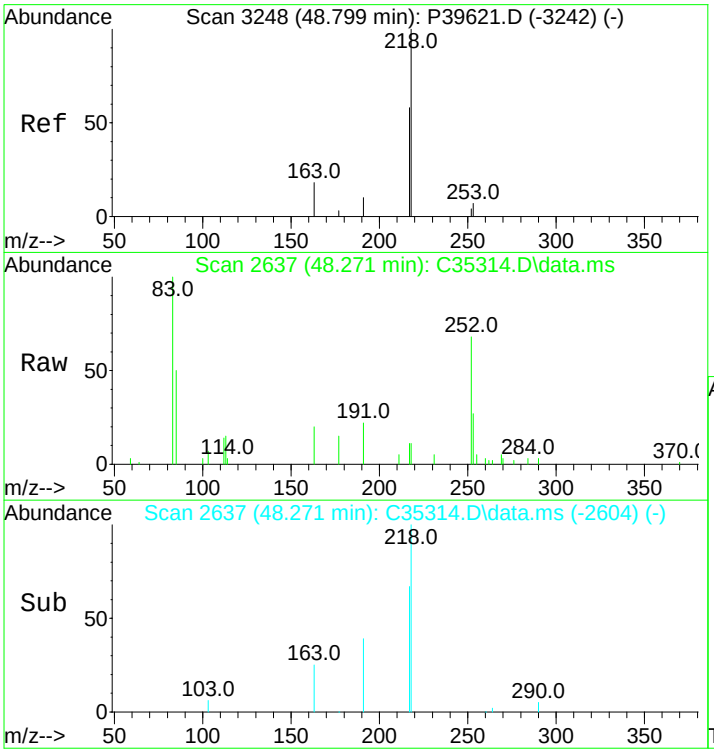




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 190.93 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

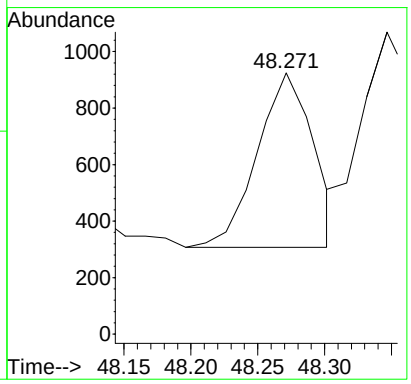
Tgt Ion:218 Resp: 2106

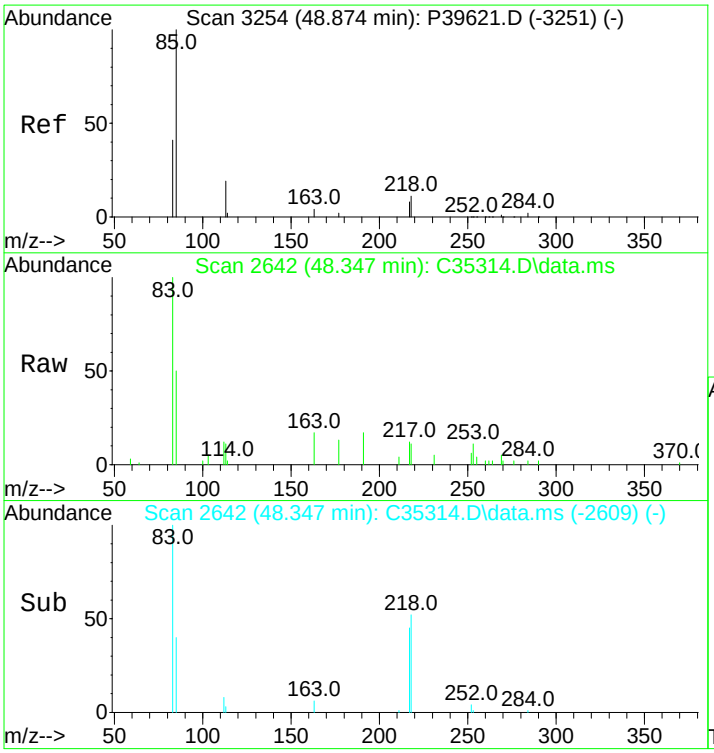




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 164.55 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

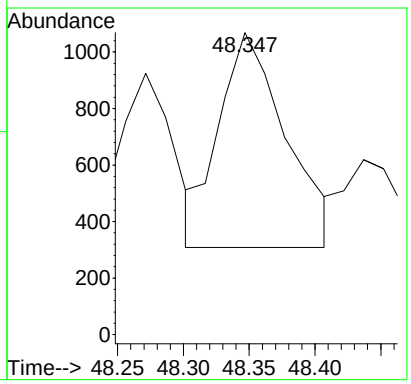
Tgt Ion:218 Resp: 1815

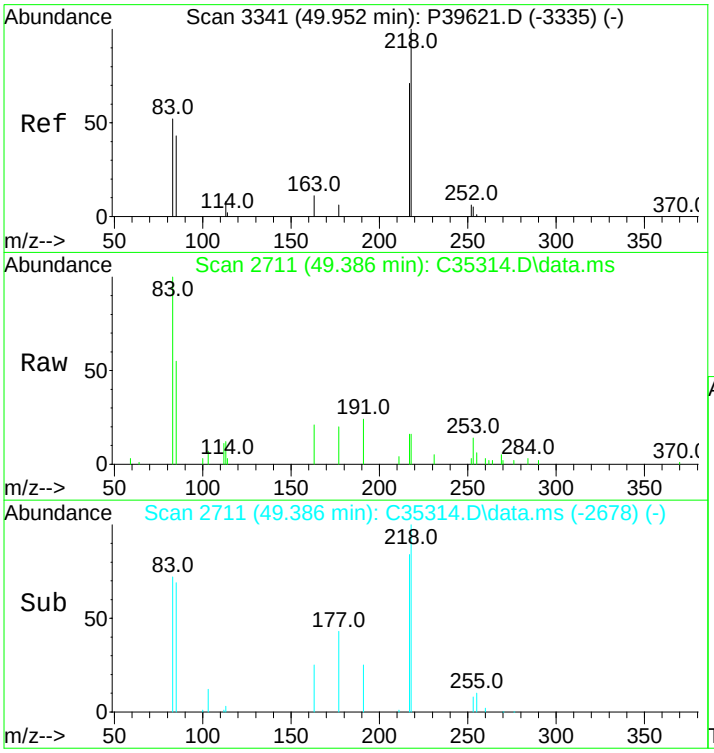




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 244.24 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

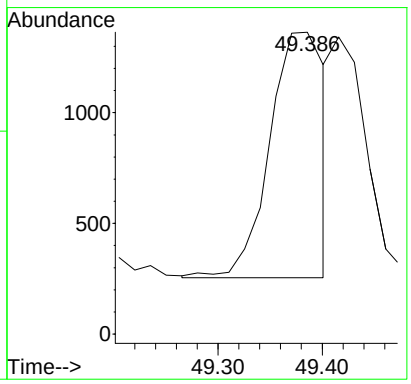
Tgt Ion:218 Resp: 2694

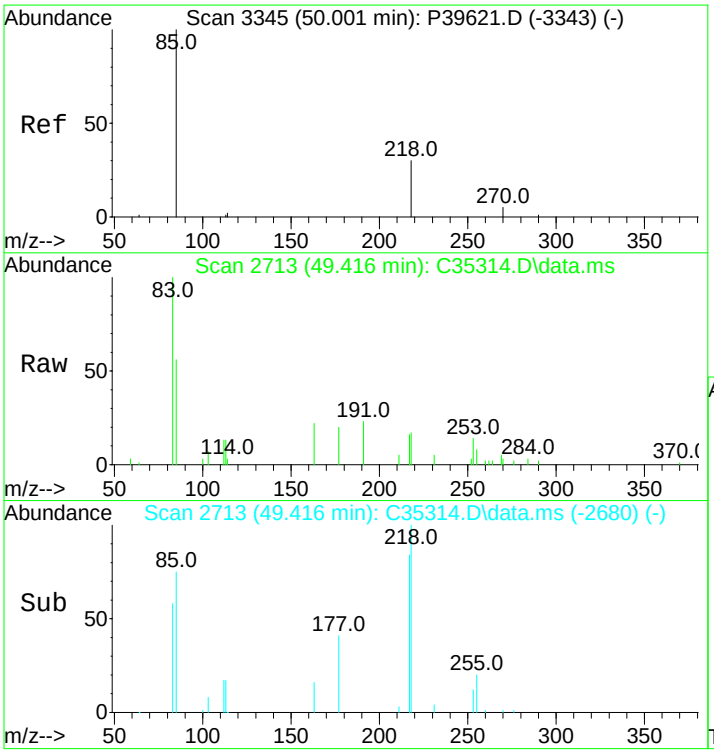




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 369.62 ng/ml m
RT: 49.386 min Scan# 2711
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

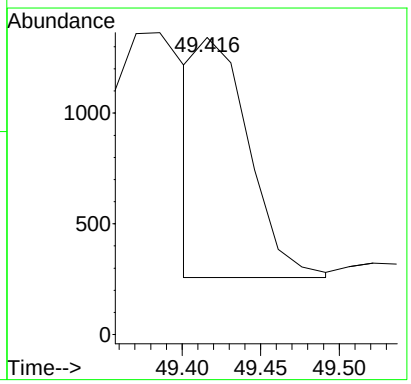
Tgt Ion:218 Resp: 4077

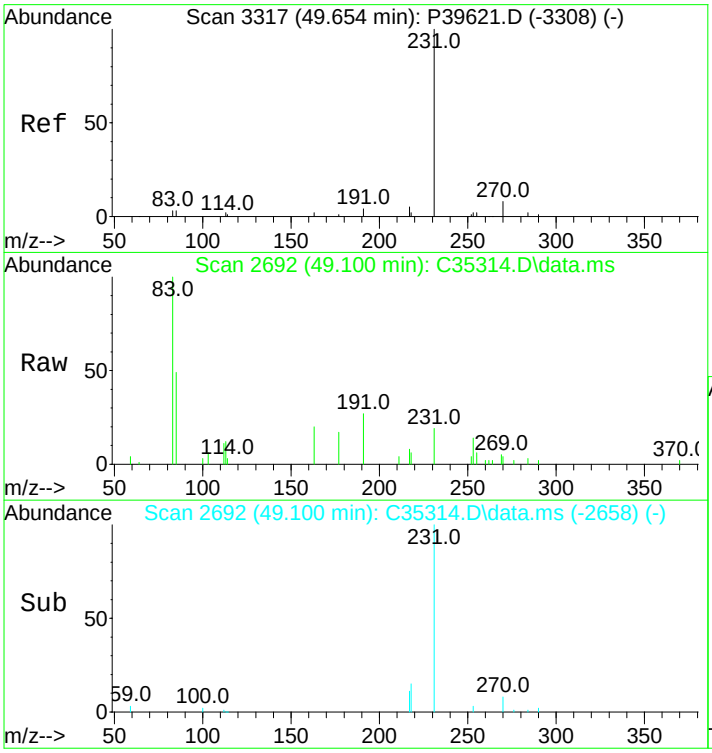




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 224.02 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

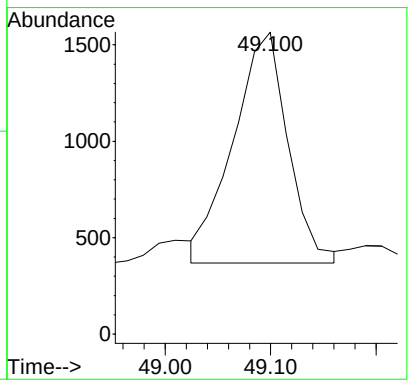
Tgt Ion:218 Resp: 2471

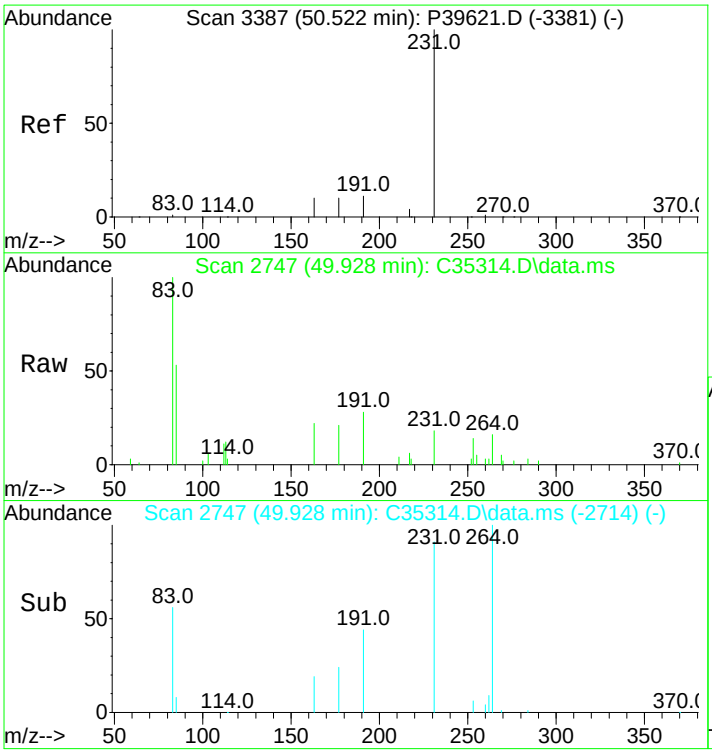




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 391.29 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

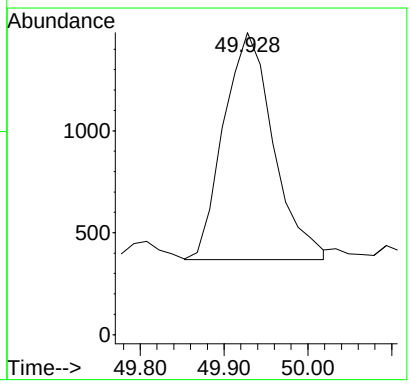
Tgt Ion:231 Resp: 4316

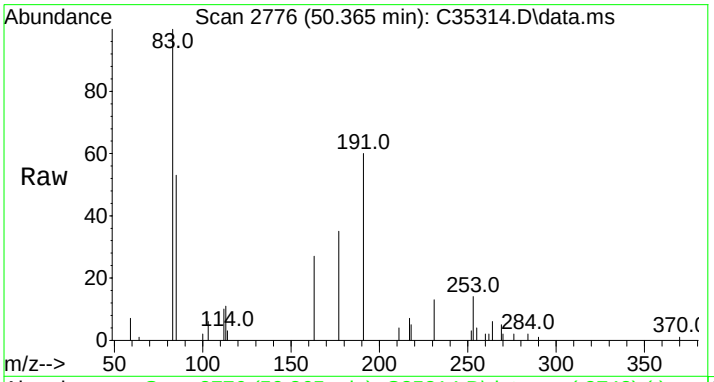




#146
C28,20S-triaromatic steroid
Concen: 416.58 ng/mL m
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

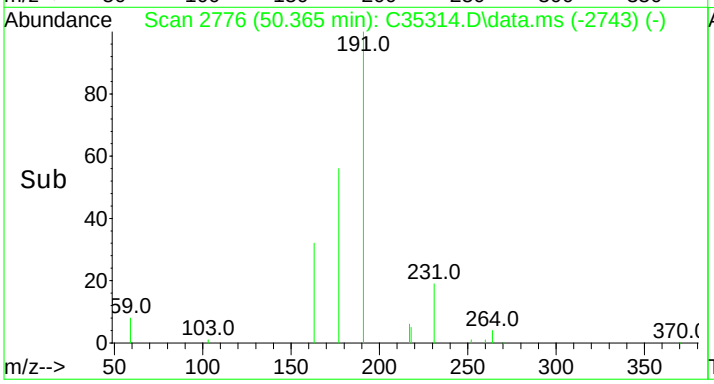
Tgt Ion:231 Resp: 4595

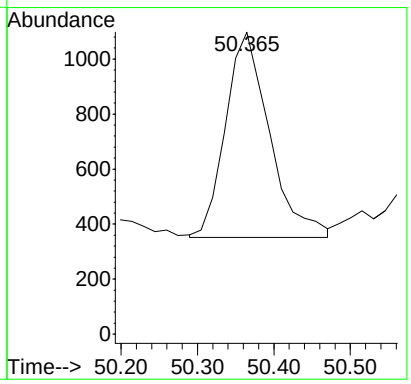


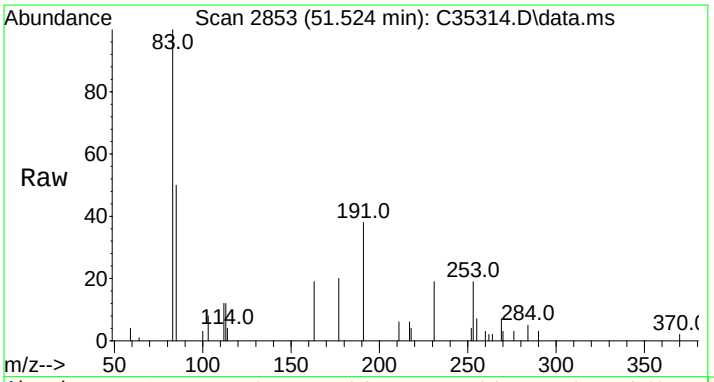


#147
C27,20R-triaromatic steroid
Concen: 271.25 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:231 Resp: 2992

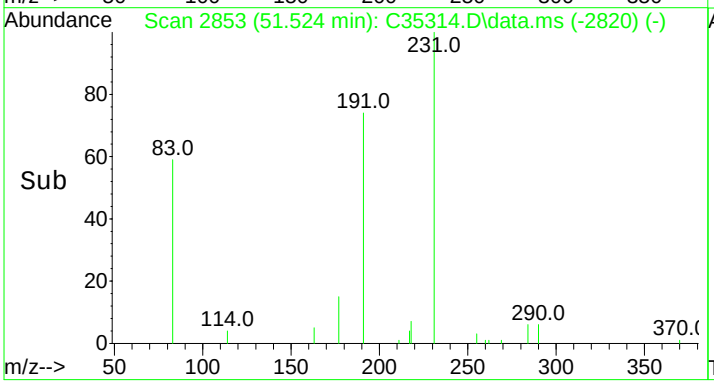


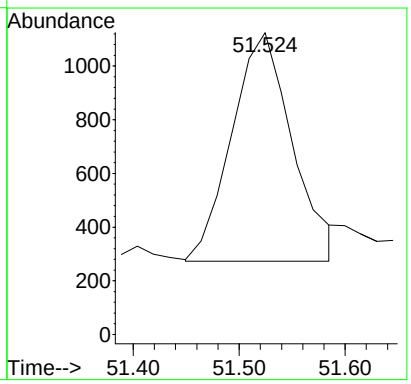




#148
C28,20R-triaromatic steroid
Concen: 306.43 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35314.D
Acq: 25 May 2012 10:30 pm

Tgt Ion:231 Resp: 3380





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14827	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33020	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	17512	272.124	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.21%#			
42) Phenanthrene-d10	32.221	188	19235	378.154	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.82%#			
86) Benzo[a]pyrene-d12	47.850	264	24709	361.077	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.11%#			
127) 5B(H)Cholane - Surr	43.422	217	4211	407.895	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.79%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	107M3	9.142	ng/mL	
10) Naphthalene	19.485	128	28961	306.468	ng/mL#	100
11) C1-Naphthalenes	22.165	142	20026M5	211.917	ng/mL	
12) C2-Naphthalenes	24.664	156	4645M5	49.154	ng/mL	
13) C3-Naphthalenes	28.563	170	3840M5	40.635	ng/mL	
14) C4-Naphthalenes	31.363	184	3381M5	35.778	ng/mL	
16) 2-Methylnaphthalene	22.165	142	18487	330.862	ng/mL#	100
17) 1-Methylnaphthalene	22.586	142	1336	24.393	ng/mL#	100
18) Benzothiophene	19.696	134	145	1.705	ng/mL	100
23) Biphenyl	24.061	154	642M3	9.083	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1305	28.427	ng/mL#	100
25) Dibenzofuran	27.133	168	1717	21.155	ng/mL	98
26) Acenaphthylene	25.748	152	32686	348.439	ng/mL#	100
27) Acenaphthene	26.485	153	19752	357.609	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	324M3	8.755	ng/mL	
29) Fluorene	28.503	166	24205M3	397.350	ng/mL	
30) C1-Fluorenes	30.866	180	1162M5	19.075	ng/mL	
31) C2-Fluorenes	33.064	194	2601M5	42.698	ng/mL	
32) C3-Fluorenes	35.548	208	7737M5	127.011	ng/mL	
33) Dibenzothiophene	31.814	184	2015	20.635	ng/mL	95
34) 4-Methyldibenzothiophene(	33.591	198	827m	8.469	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	597M3	6.114	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	290	2.970	ng/mL#	100
37) OTP	33.997	198	4755M3	48.695	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	7339M5	75.158	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2584m	26.462	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	6052M5	61.978	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	11409M5	116.838	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	10488M5	107.406	ng/mL	
43) Phenanthrene	32.311	178	51832	604.160	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2742	31.961	ng/mL	96
45) 2-Methylphenanthrene(2MP)	34.374	192	2573	29.991	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1027M3	11.971	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2963M3	34.537	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1858M3	21.657	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11628M5	135.537	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	16400M5	191.160	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	16400m	191.160	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	14639M5	170.634	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.224	234	14077M5	164.083	ng/mL	
55) Anthracene	32.492	178	36116M3	430.981	ng/mL	
56) Carbazole	33.169	167	2457	29.027	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	1880M3	34.579	ng/mL	
58) Fluoranthene	37.084	202	140855M3	1653.117	ng/mL	
59) Benzo(b)fluorene	39.598	216	6923M3	140.048	ng/mL	
60) Pyrene	37.957	202	131072	1513.293	ng/mL	97

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
61) C1-Fluoranthenes/Pyrenes	39.357	216	41985M5	484.738	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	30282M5	349.621	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	17764M5	205.094	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	17843M5	206.007	ng/mL	
66) Naphthobenzothiophene	41.811	234	10262	110.051	ng/mL#	75
67) Naphthobenzothiophene-2,1	41.811	234	10262	110.051	ng/mL#	75
68) Naphthobenzothiophene-1,2	42.158	234	2463	26.413	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.444	234	3352M3	35.947	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	13790M5	147.885	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	17324M5	185.784	ng/ml	
72) C3-Naphthobenzothiophenes	46.826	276	17932M5	192.305	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	14616M5	156.744	ng/mL	
75) Benz[a]anthracene	42.730	228	72349	690.321	ng/mL	94
77) Chrysene/Triphenylene	42.895	228	95187	899.609	ng/mL	100
78) C1-Chrysenes	44.371	242	24318M5	229.829	ng/mL	
79) C2-Chrysenes	46.088	256	19036M5	179.909	ng/mL	
79) C2-Chrysenes BS	46.088	256	19036m	179.909	ng/mL	
80) C3-Chrysenes	47.624	270	25174M5	237.919	ng/mL	
81) C4-Chrysenes	48.061	284	19760M5	186.751	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	124087	1077.521	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	109953	876.965	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	9857	78.618	ng/mL#	8
85) Benzo[e]pyrene	47.759	252	55162	484.271	ng/mL	92
87) Benzo[a]pyrene	47.940	252	101154	922.357	ng/mL	91
88) Perylene	48.241	252	64872	553.489	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	113384M3	888.416	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	60414	497.618	ng/mL	99
91) Benzo[g,h,i]perylene	53.828	276	115334	855.363	ng/mL	100
92) Hopane (T19)	51.705	191	31363	1441.147	ng/mL#	70
94) C23 Tricyclic Terpane (T4	40.456	191	3402M3	156.324	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2374	109.087	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.700	191	2019M3	92.774	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2674M3	122.872	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	1407M3	64.652	ng/ml	
99) C26 Tricyclic Terpane-22R	43.814	191	1348M3	61.941	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1672M3	76.829	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2114	97.139	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.780	191	1860	85.468	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1975	90.752	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.045	191	6692M3	307.501	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	1668M3	76.646	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1787M3	82.114	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7524M3	345.732	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.717	191	1545M3	70.994	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.552	191	2837M3	130.362	ng/ml	
110) 30-Norhopane (T15)	50.380	191	22640M3	1040.321	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	7321M3	336.404	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	2181M3	100.218	ng/ml	
113) 30-Normoretane (T17)	51.148	191	5121	235.313	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.524	191	2601	119.517	ng/ml	100
115) Moretane (T20)	52.353	191	7332M3	336.909	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	10543	484.457	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	9417	432.716	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	2647M3	121.631	ng/mL	
119) 30,31-Bishomohopane-22S (	54.883	191G	53570M3	2461.571	ng/ml	
120) 30,31-Bishomohopane-22R (	55.289	191	6017	276.484	ng/ml	100
121) 30,31-Trishomohopane-22S	56.961	191	7974M3	366.410	ng/ml	
122) 30,31-Trishomohopane-22R	57.548	191	2732M3	125.537	ng/ml	
123) Tetrakishomohopane-22S (T	59.521	191G	14800	680.068	ng/ml	100
124) Tetrakishomohopane-22R (T	60.288	191G	17868	821.045	ng/ml	100
125) Pentakishomohopane-22S (T	62.517	191	2537M3	116.577	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126) Pentakishomohopane-22R (T	63.737	191	1916M3	88.041	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2127	206.030	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1432	138.710	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.058	217	1623M3	157.211	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4086	395.787	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	4182M3	405.086	ng/ml	
133) Unknown Sterane (S18)	47.699	217	870	84.272	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	47.940	217	127	12.302	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	1813M3	175.615	ng/ml	
136) 14a,17a-20R-Methylcholest	48.799	217	1577M3	152.755	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2314M3	224.144	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2459M3	238.189	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2184M3	211.551	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2133M3	206.611	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	2025	196.150	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	3032M3	293.692	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4236M3	410.317	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2320M3	224.725	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4317M3	418.163	ng/mL	
146) C28,20S-triaromatic stero	49.913	231	4758	460.880	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	2959M3	286.621	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	3283M3	318.005	ng/mL	

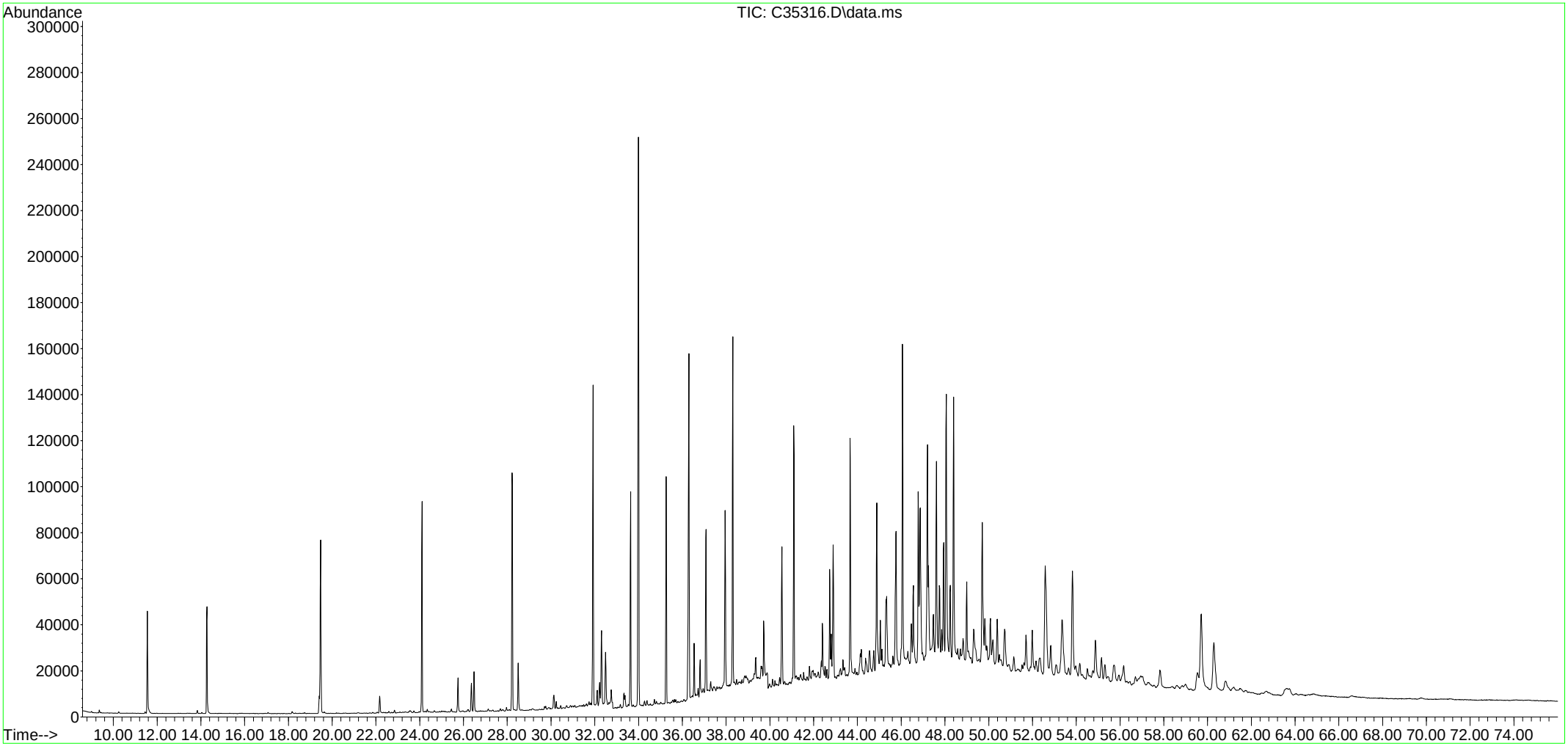
(#) = qualifier out of range (m) = manual integration (+) = signals summed

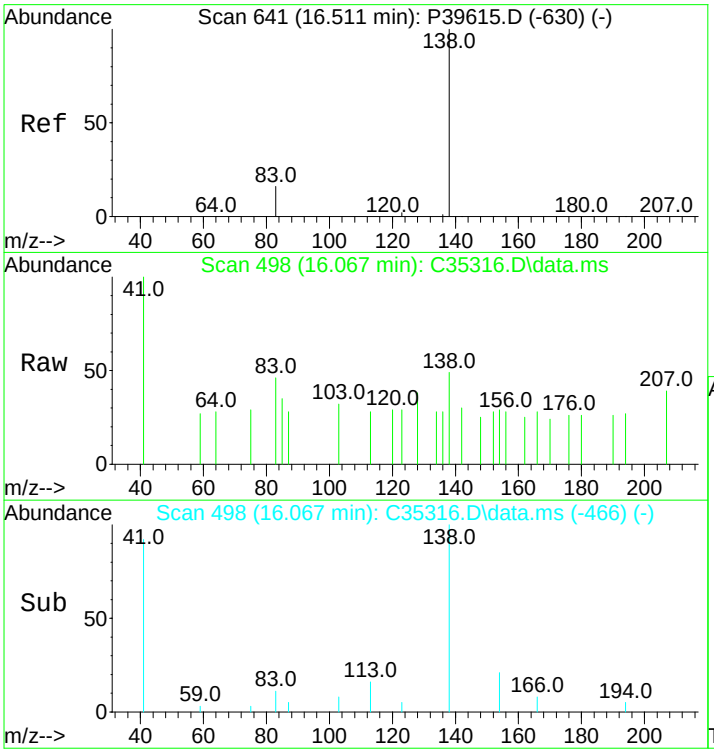
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35316.D
Acq On : 26 May 2012 12:05 am
Operator : AC
Sample : 1205027-05M
Misc : 1X
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 12:21:49 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

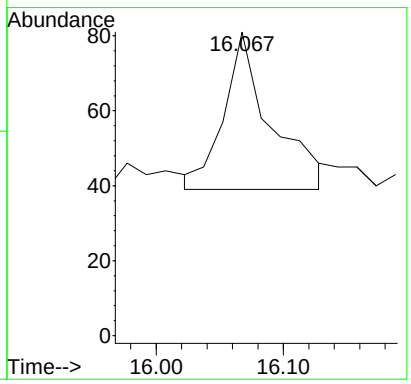
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

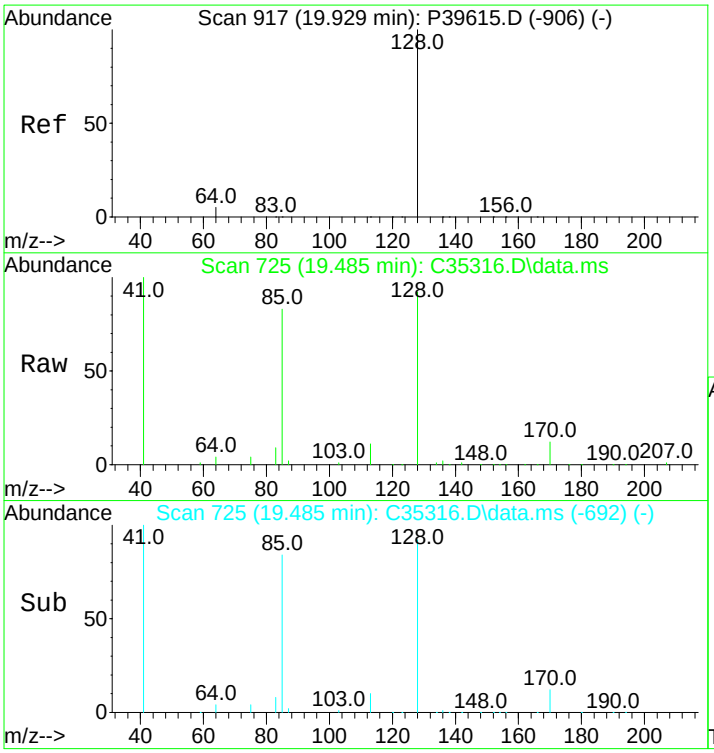




#3
trans-Decalin
Concen: 9.14 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:138 Resp: 107

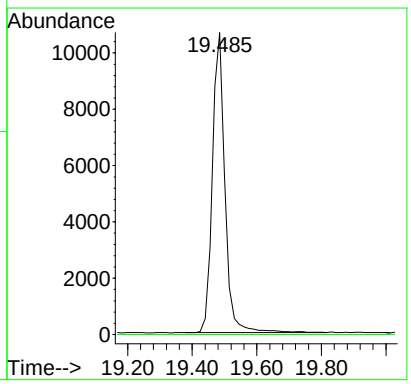


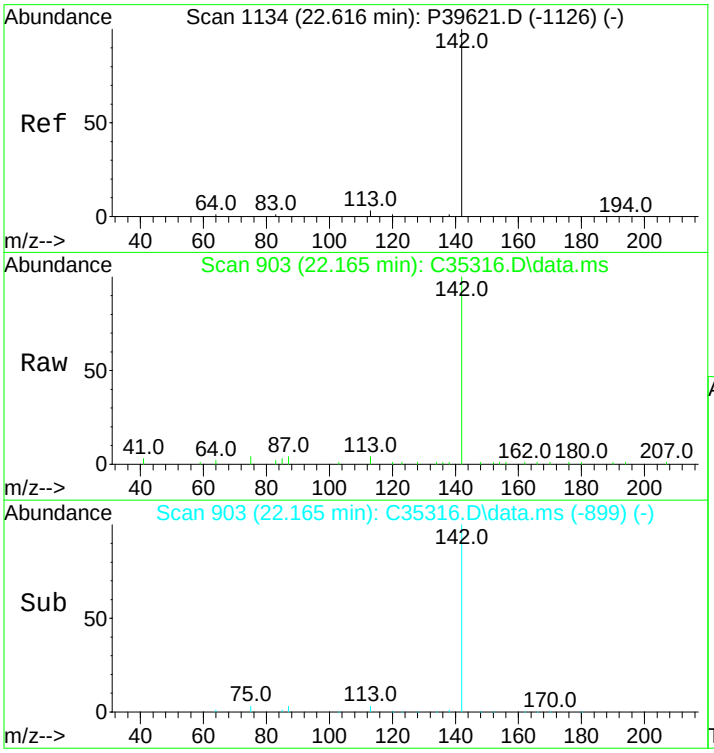


#10
Naphthalene
Concen: 306.47 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:128 Resp: 28961

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

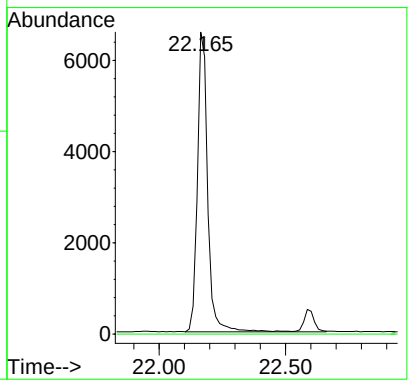


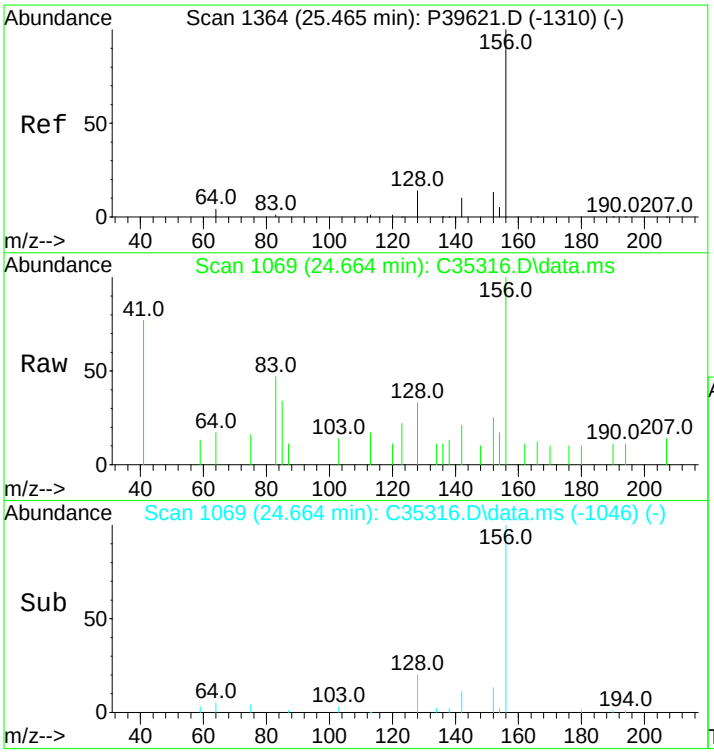


#11
C1-Naphthalenes
Concen: 211.92 ng/mL m
RT: 22.165 min Scan# 903
Delta R.T. -0.071 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:142 Resp: 20026

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

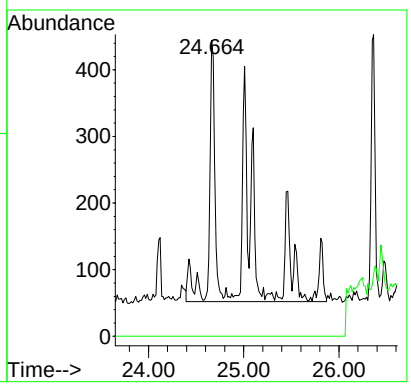


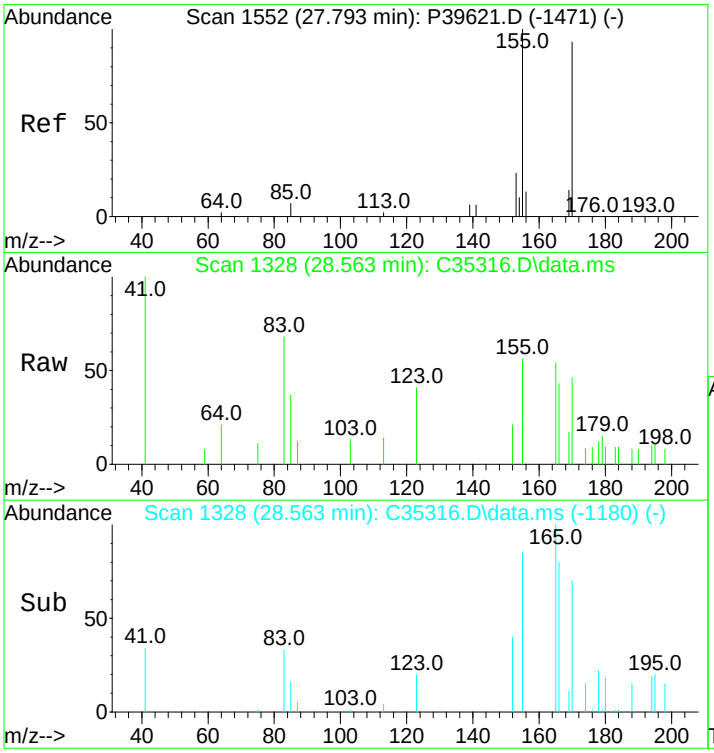


#12
C2-Naphthalenes
Concen: 49.15 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:156 Resp: 4645

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

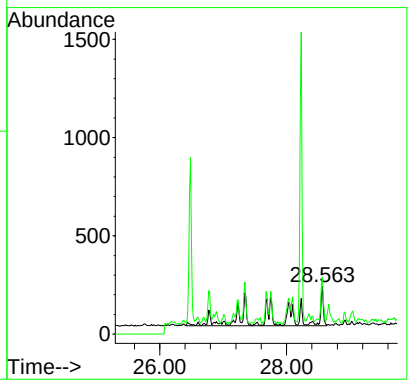


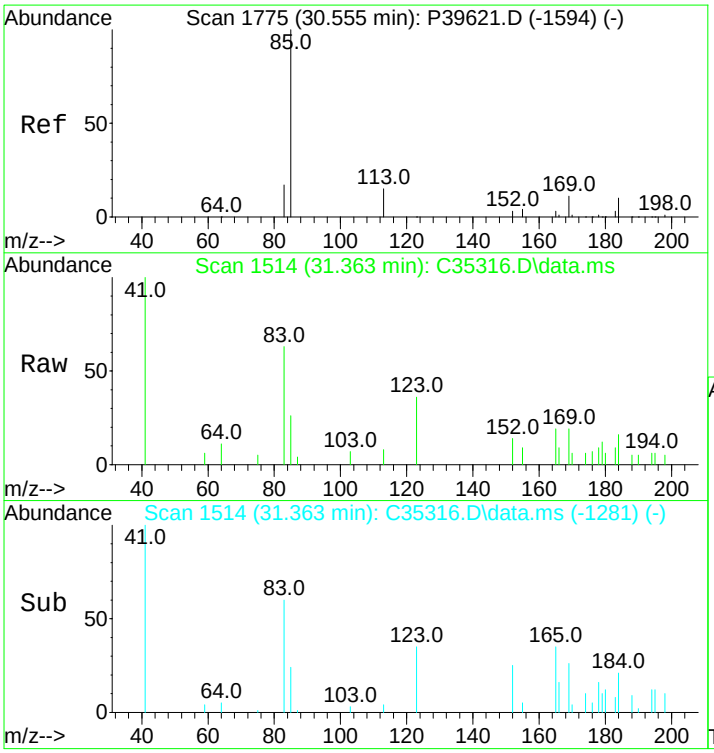


#13
C3-Naphthalenes
Concen: 40.64 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:170 Resp: 3840

Ion	Ratio	Lower	Upper
170	100		
155	14.7	86.3	129.5#

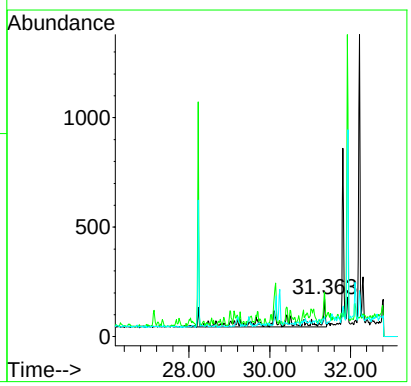


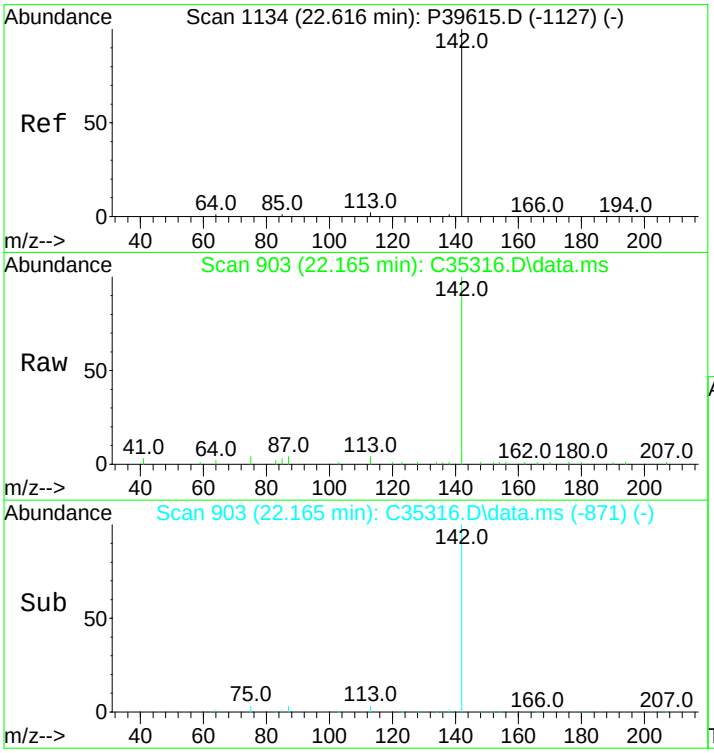


#14
C4-Naphthalenes
Concen: 35.78 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:184 Resp: 3381

Ion	Ratio	Lower	Upper
184	100		
169	0.0	100.6	150.8#
183	0.0	26.6	40.0#

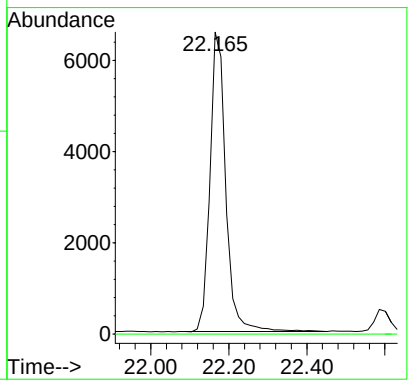


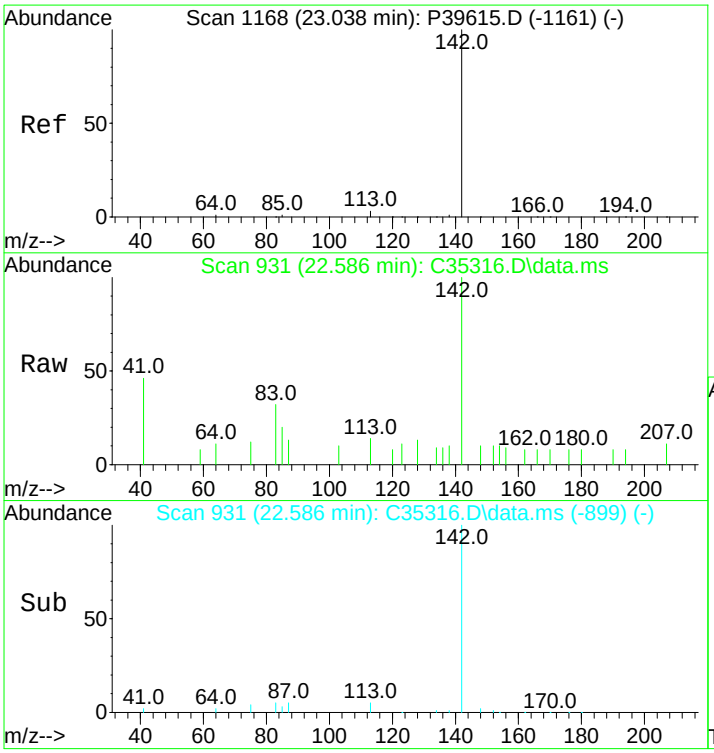


#16
2-Methylnaphthalene
Concen: 330.86 ng/mL
RT: 22.165 min Scan# 903
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:142 Resp: 18487

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

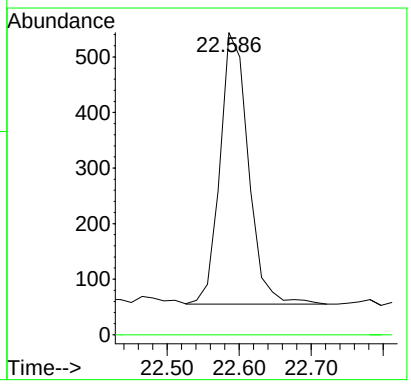


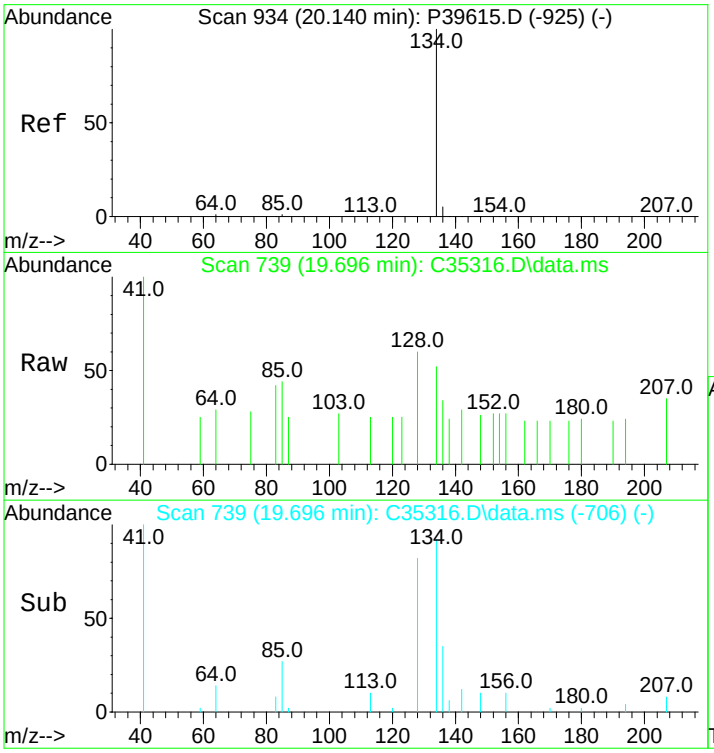


#17
1-Methylnaphthalene
Concen: 24.39 ng/mL
RT: 22.586 min Scan# 931
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:142 Resp: 1336

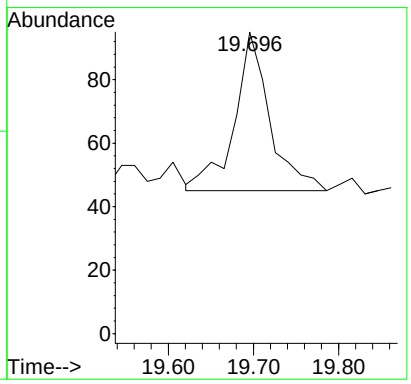
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

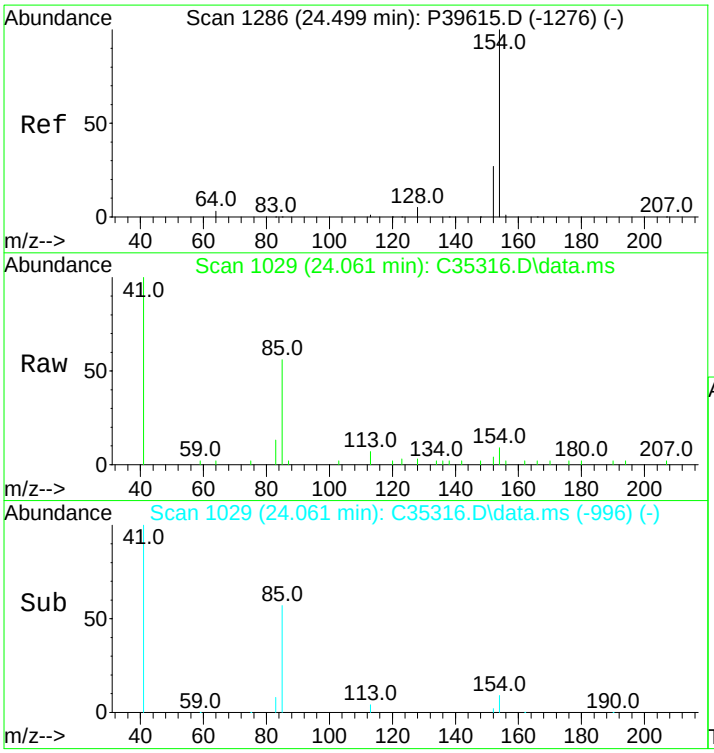




#18
Benzothiophene
Concen: 1.71 ng/mL
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:134 Resp: 145

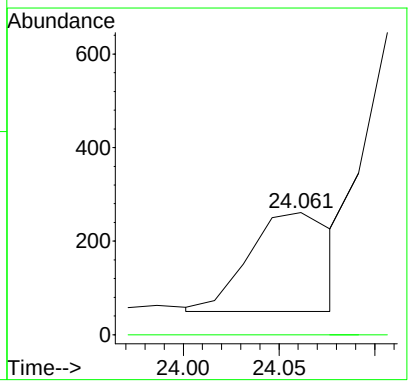


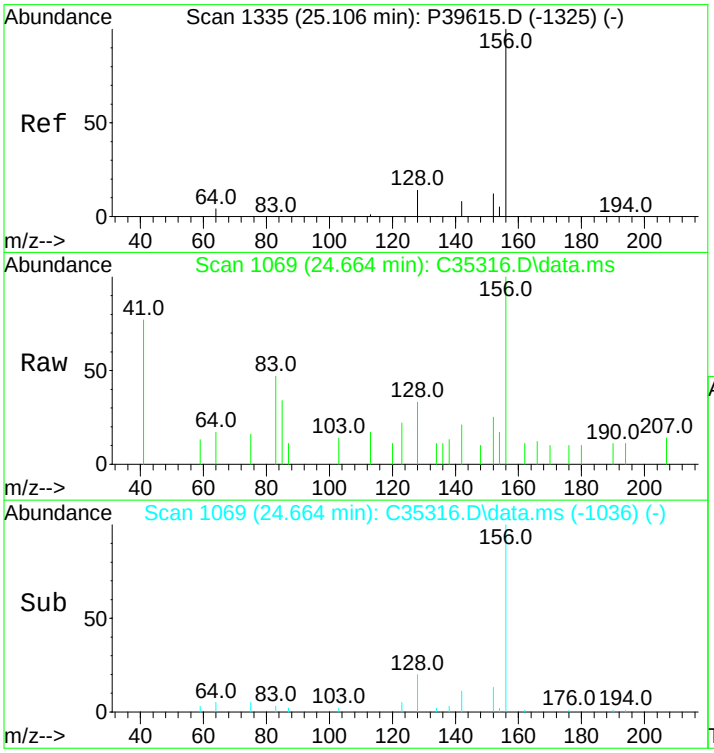


#23
Biphenyl
Concen: 9.08 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:154 Resp: 642

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

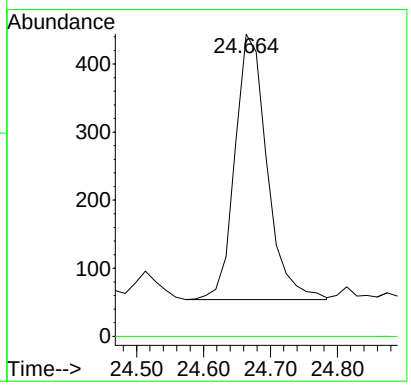


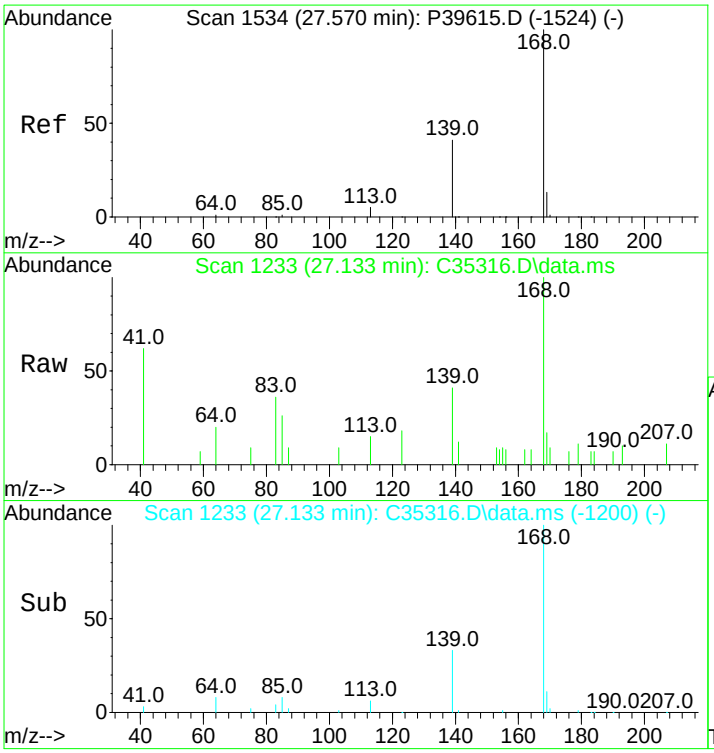


#24
2,6-Dimethylnaphthalene
Concen: 28.43 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:156 Resp: 1305

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

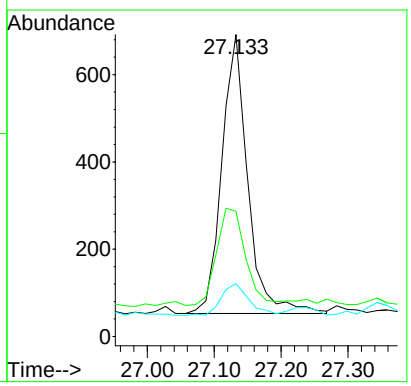


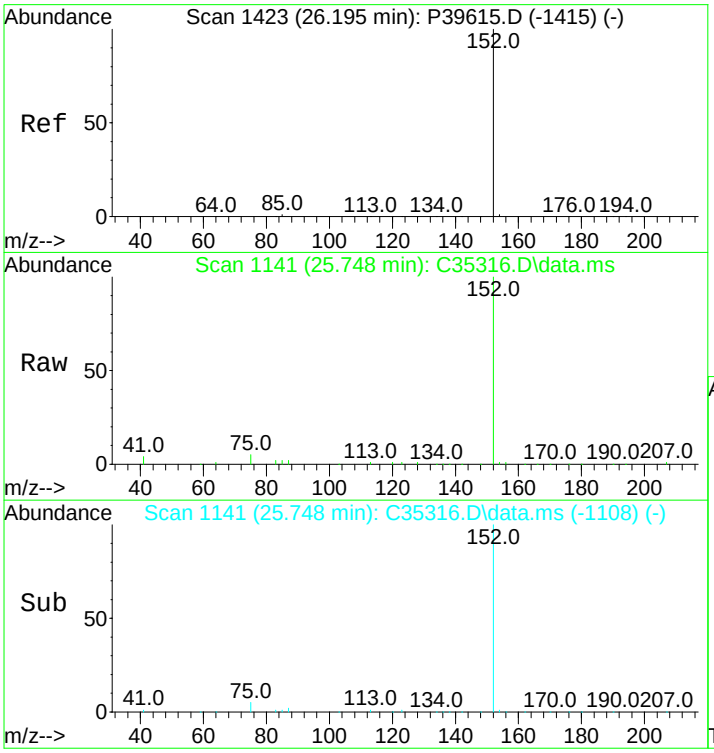


#25
Dibenzofuran
Concen: 21.15 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:168 Resp: 1717

Ion	Ratio	Lower	Upper
168	100		
139	38.7	29.9	44.9
169	12.3	10.3	15.5

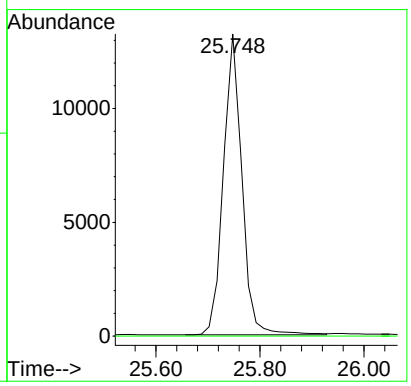


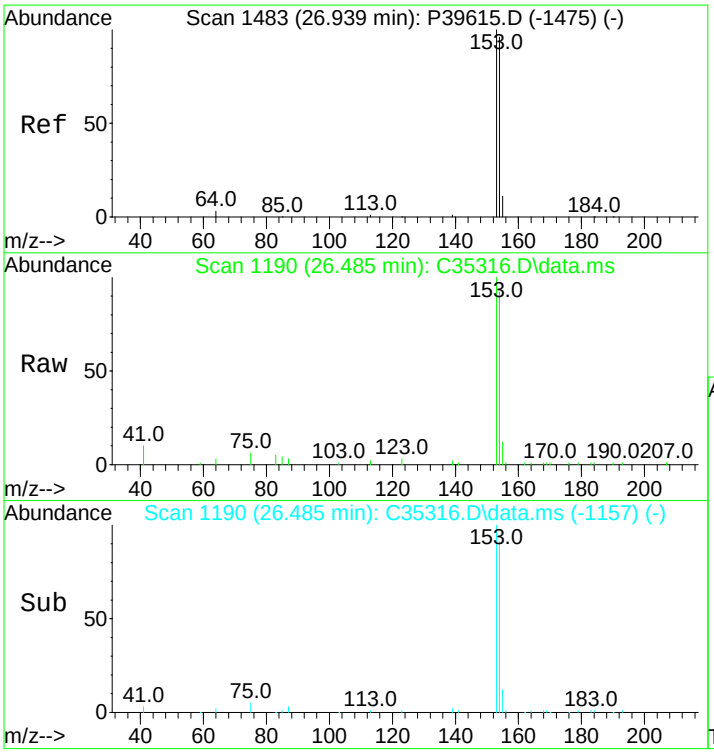


#26
Acenaphthylene
Concen: 348.44 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:152 Resp: 32686

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

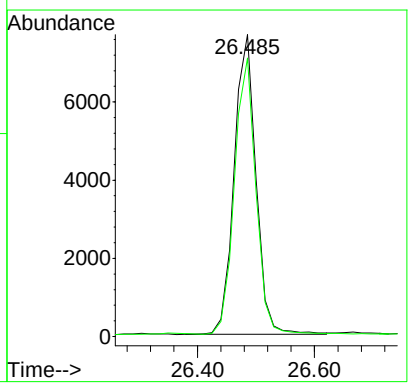


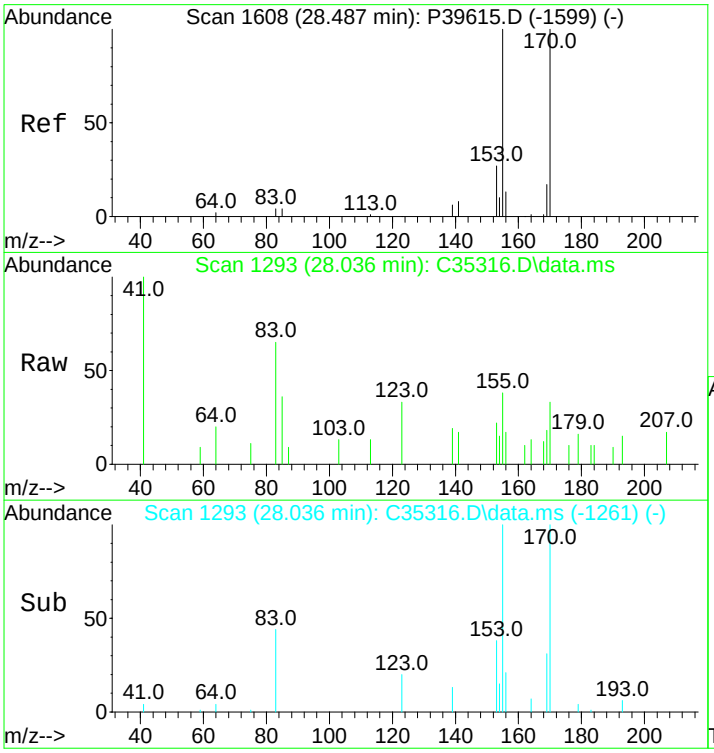


#27
Acenaphthene
Concen: 357.61 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:153 Resp: 19752

Ion	Ratio	Lower	Upper
153	100		
154	91.5	73.3	109.9

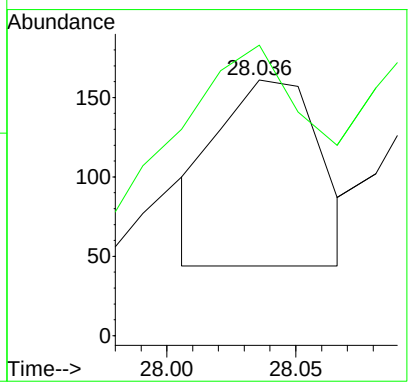


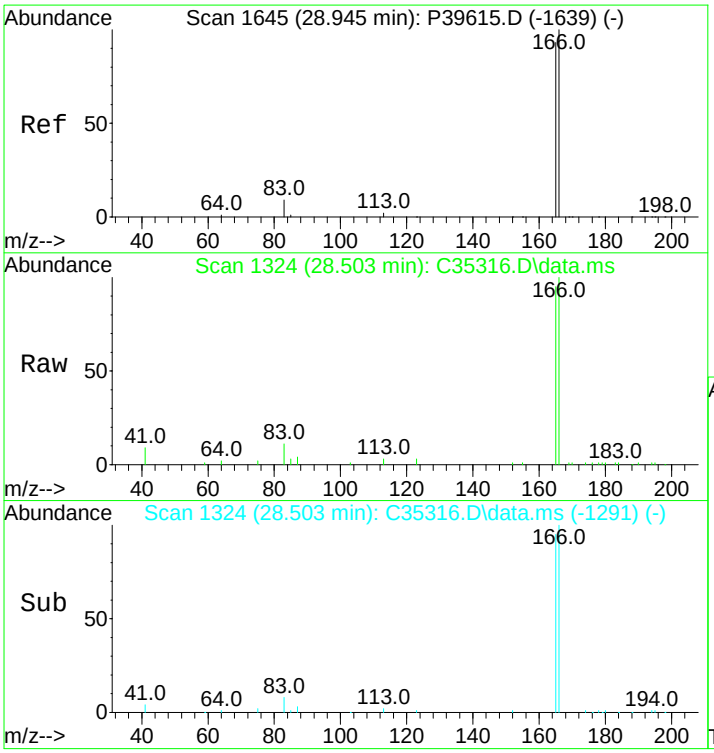


#28
2,3,5-Trimethylnaphthalene
Concen: 8.76 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:170 Resp: 324

Ion	Ratio	Lower	Upper
170	100		
155	125.3	78.4	117.6#

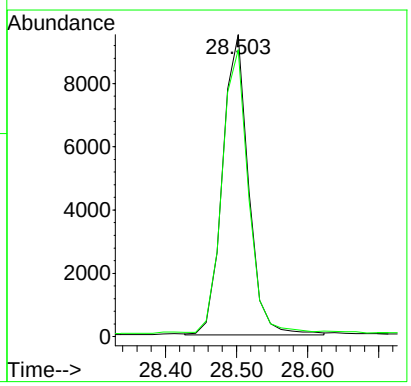


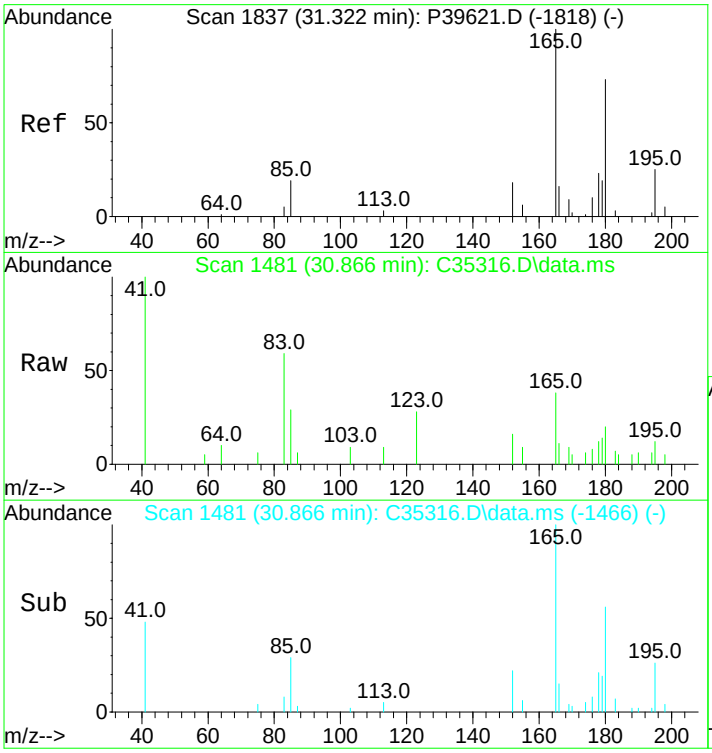


#29
Fluorene
Concen: 397.35 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:166 Resp: 24205

Ion	Ratio	Lower	Upper
166	100		
165	97.3	77.1	115.7

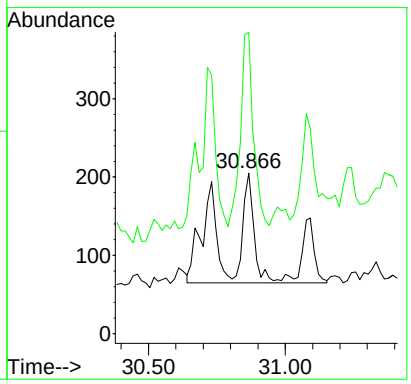


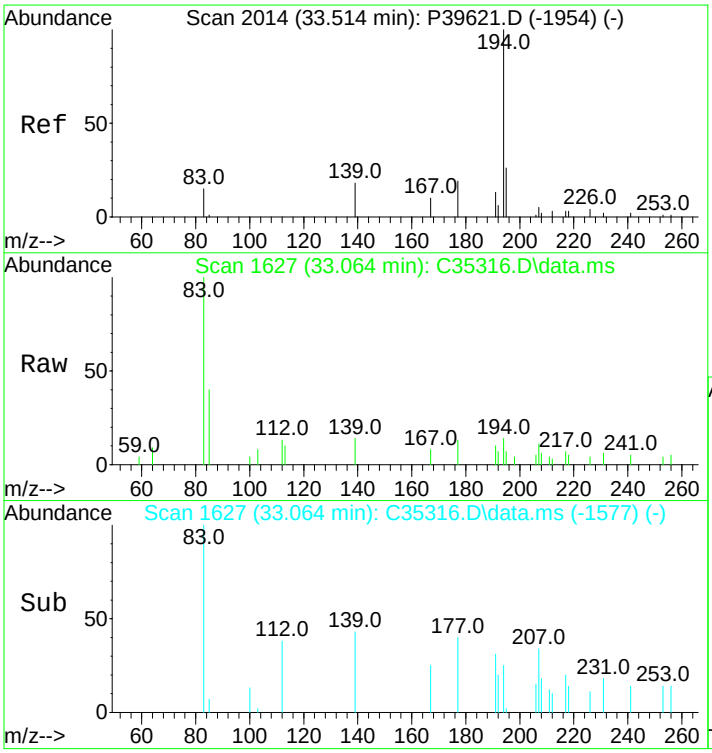


#30
C1-Fluorenes
Concen: 19.08 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:180 Resp: 1162

Ion	Ratio	Lower	Upper
180	100		
165	47.5	121.9	182.9#

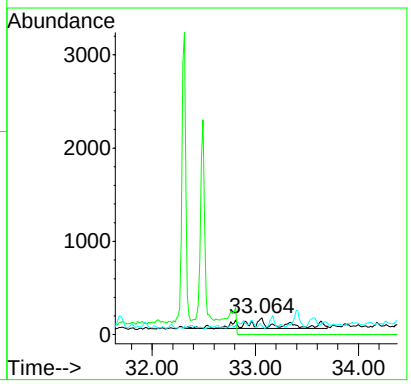


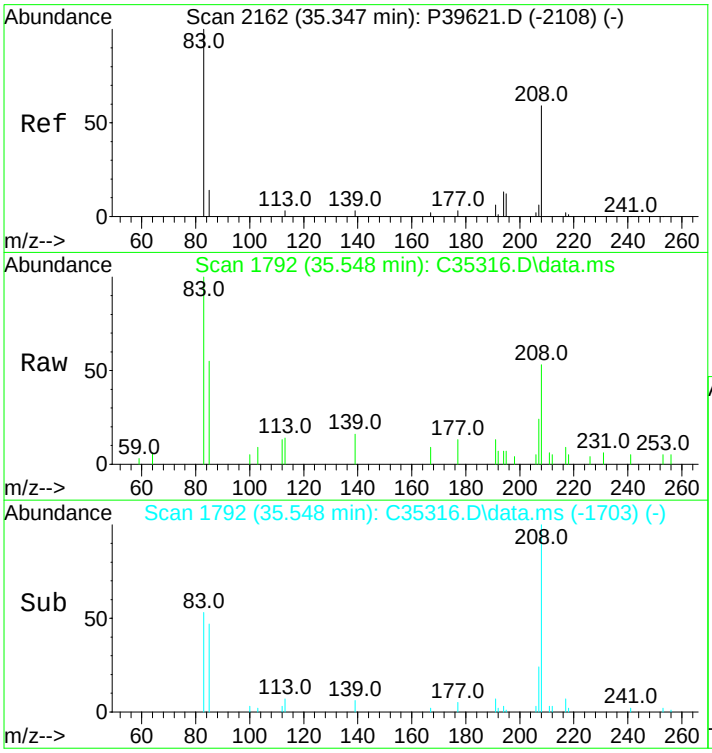


#31
C2-Fluorenes
Concen: 42.70 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:194 Resp: 2601

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	12.0	30.5	45.7#

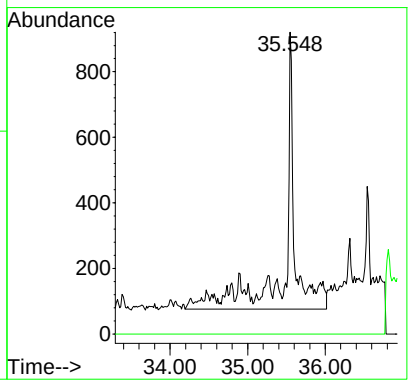


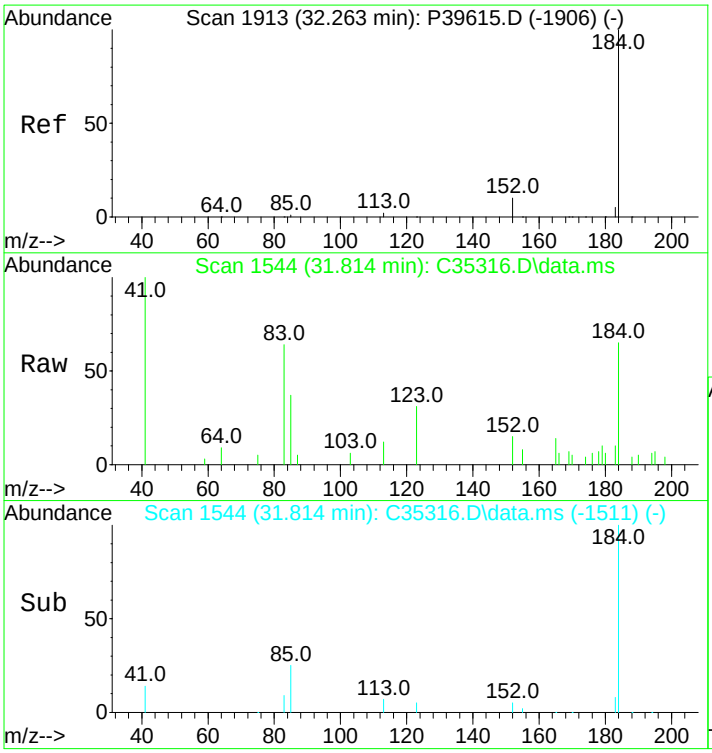


#32
C3-Fluorenes
Concen: 127.01 ng/mL m
RT: 35.548 min Scan# 1792
Delta R.T. 0.805 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:208 Resp: 7737

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

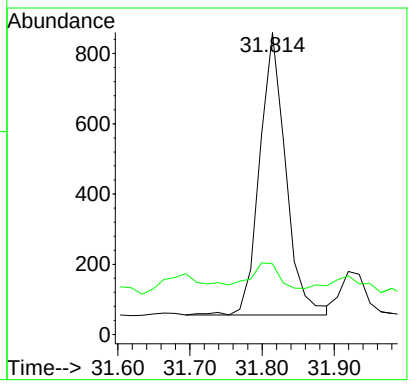


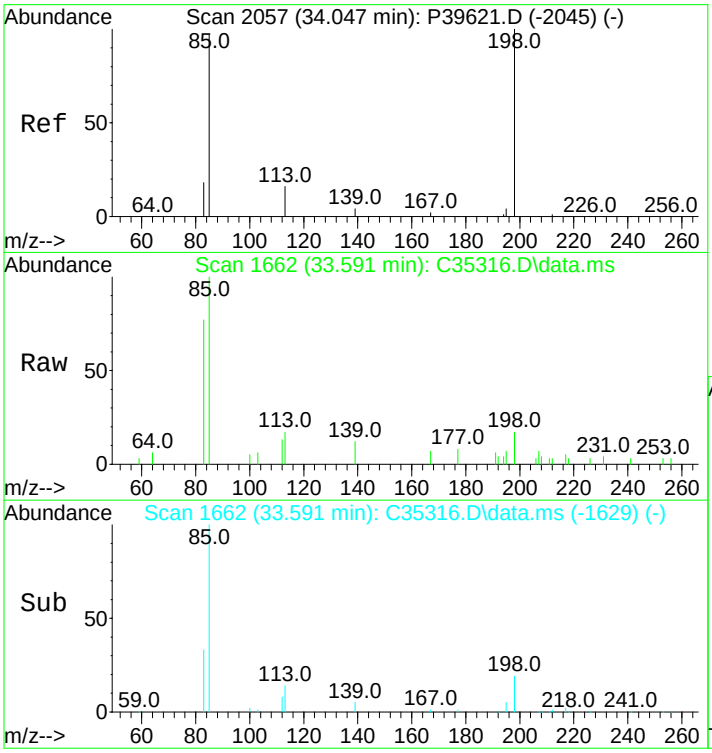


#33
Dibenzothiophene
Concen: 20.64 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:184 Resp: 2015

Ion	Ratio	Lower	Upper
184	100		
152	11.2	7.5	11.3

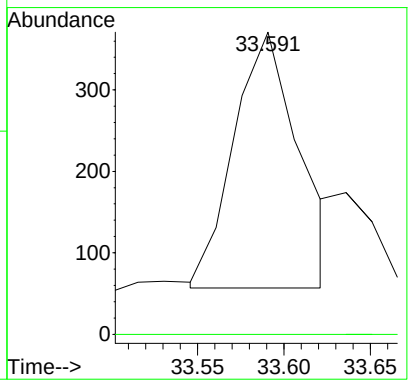


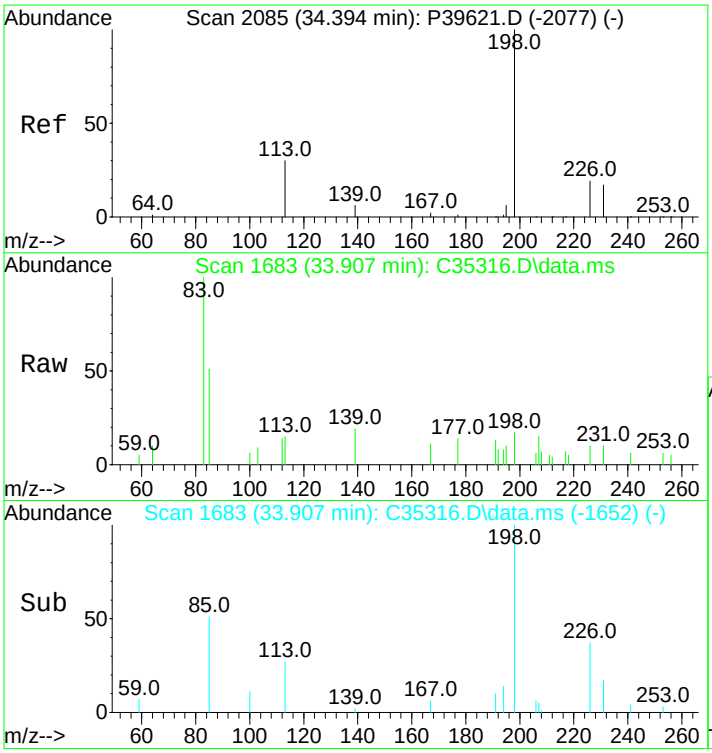


#34
4-Methyldibenzothiophene(4MDT)
Concen: 8.47 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:198 Resp: 827

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

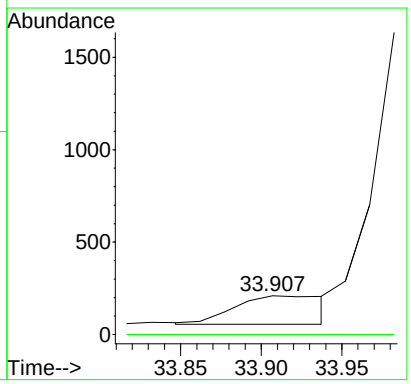


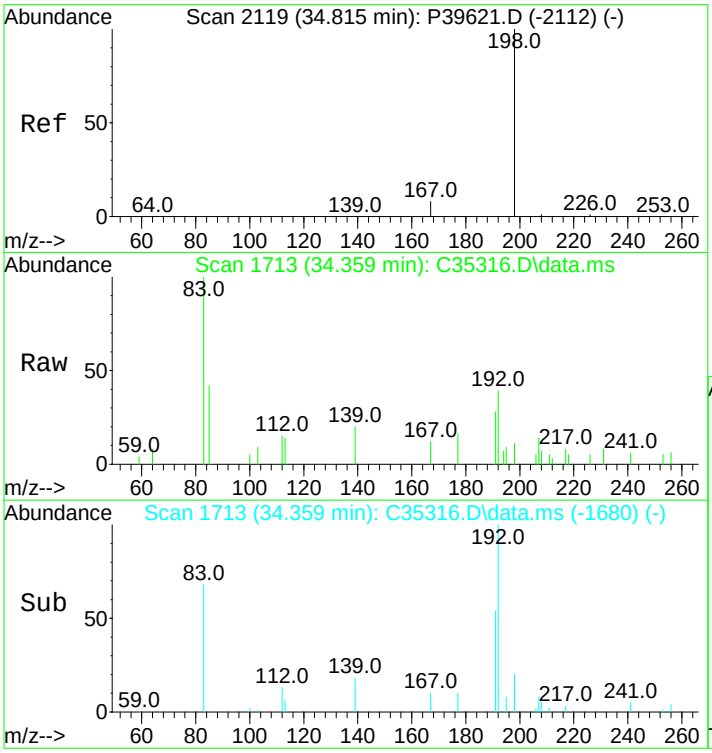


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 6.11 ng/mL m
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:198 Resp: 597

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

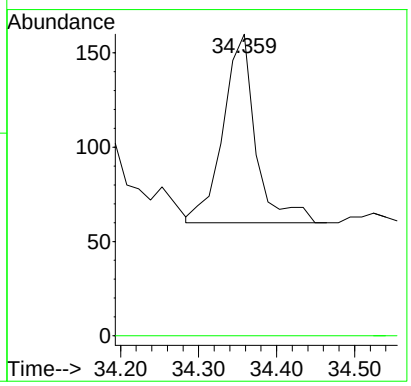


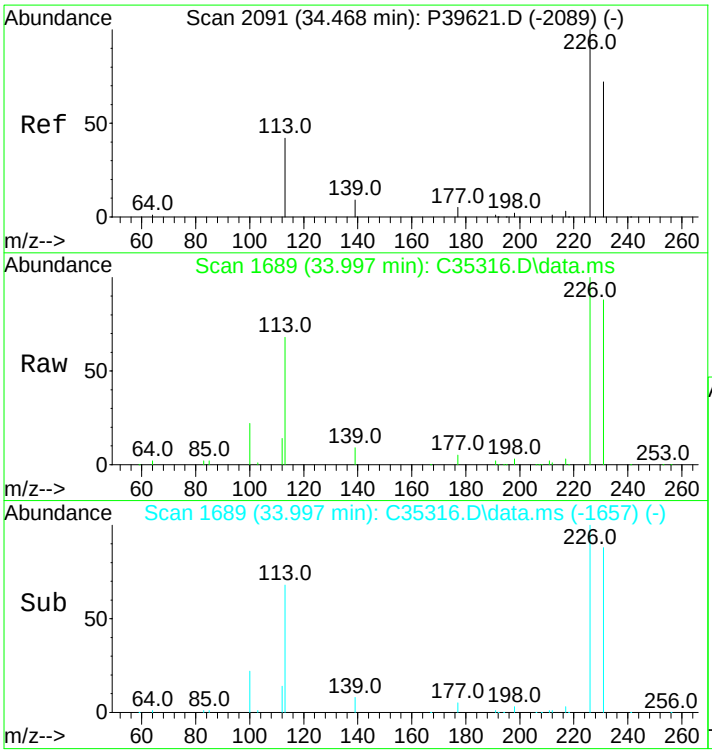


#36
1-Methyldibenzothiophene(1MDT)
Concen: 2.97 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:198 Resp: 290

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

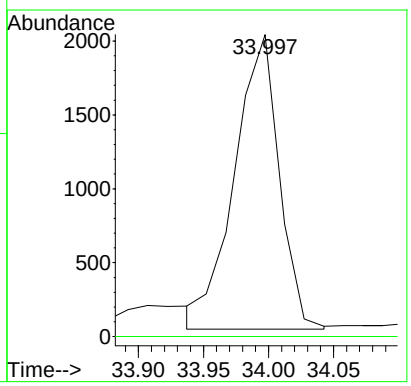


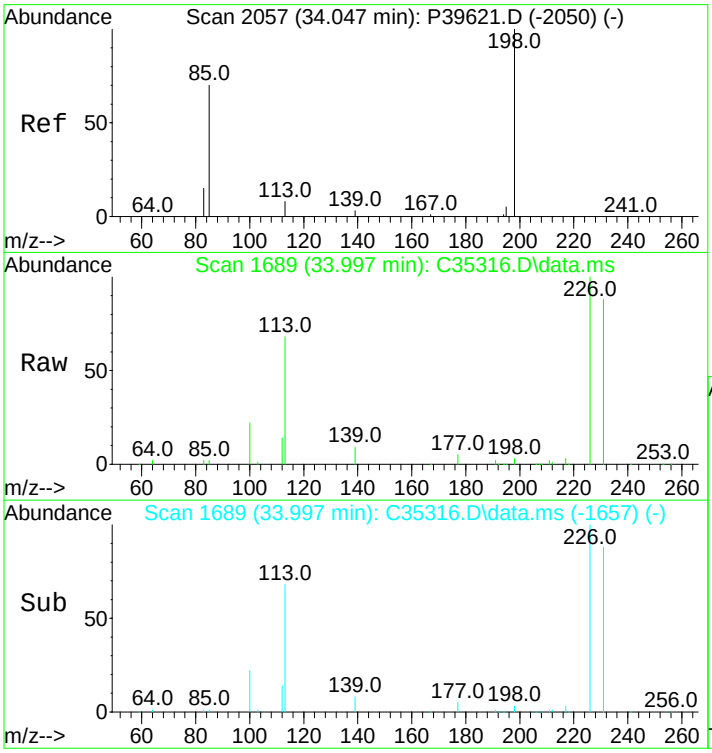


#37
OTP
Concen: 48.70 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:198 Resp: 4755

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

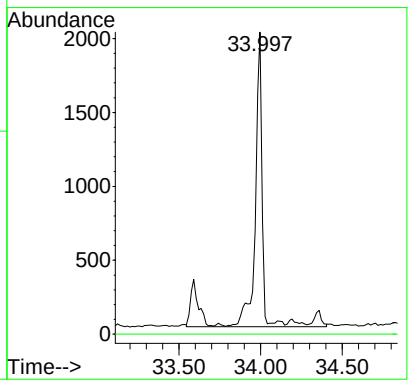


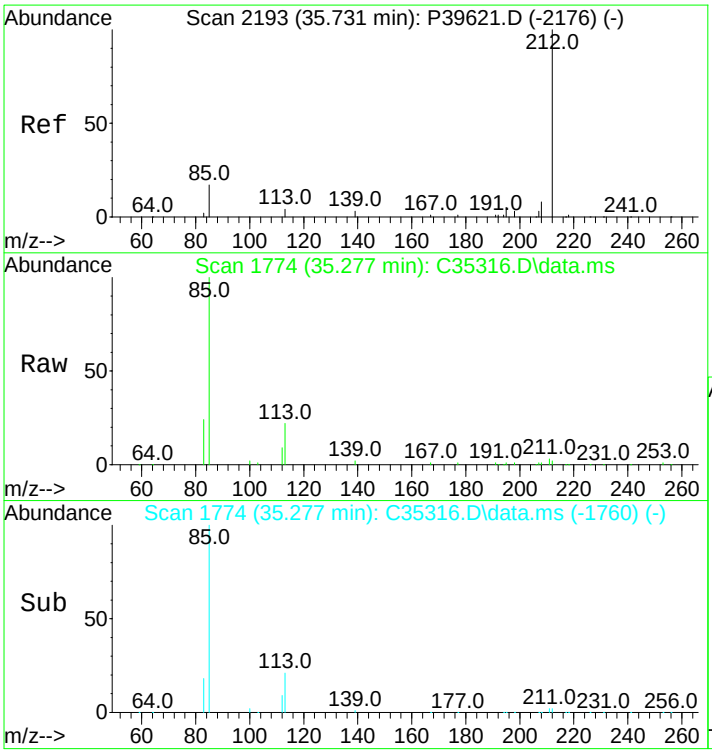


#38
C1-Dibenzothiophenes
Concen: 75.16 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:198 Resp: 7339

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

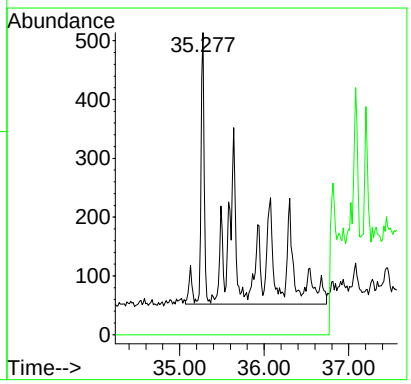


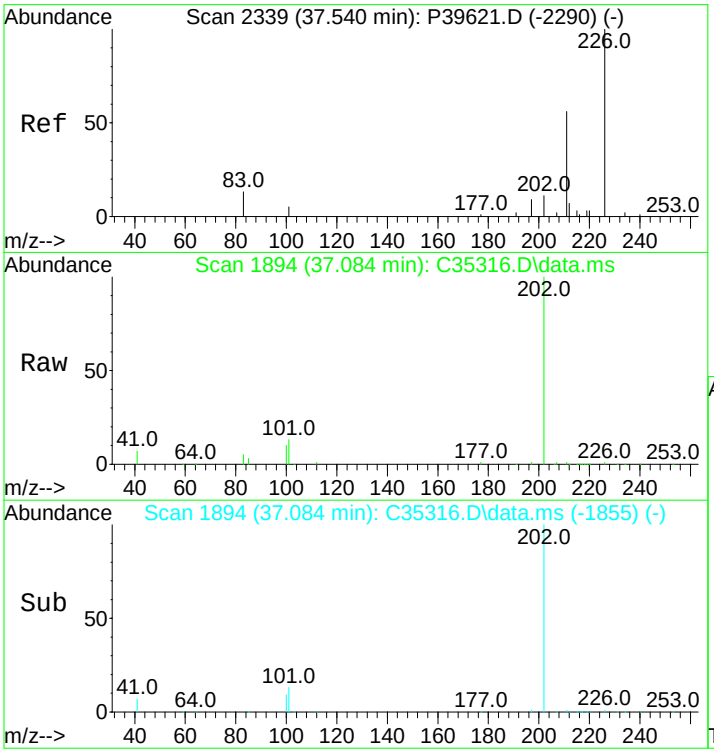


#39
C2-Dibenzothiophenes
Concen: 61.98 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:212 Resp: 6052

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

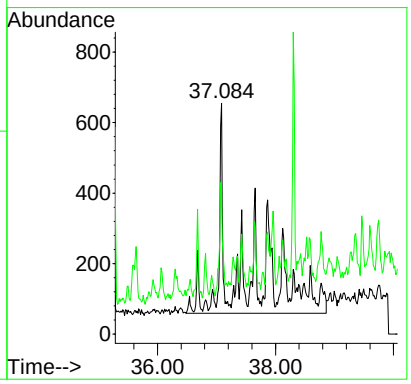


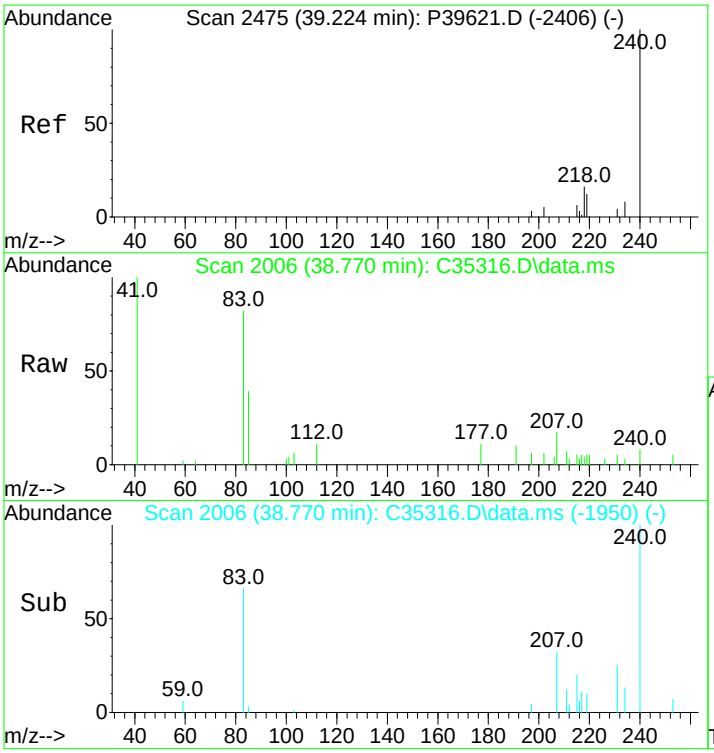


#40
C3-Dibenzothiophenes
Concen: 116.84 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:226 Resp: 11409

Ion	Ratio	Lower	Upper
226	100		
211	11.1	51.4	77.2#

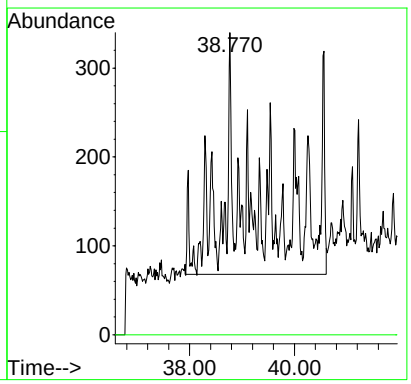


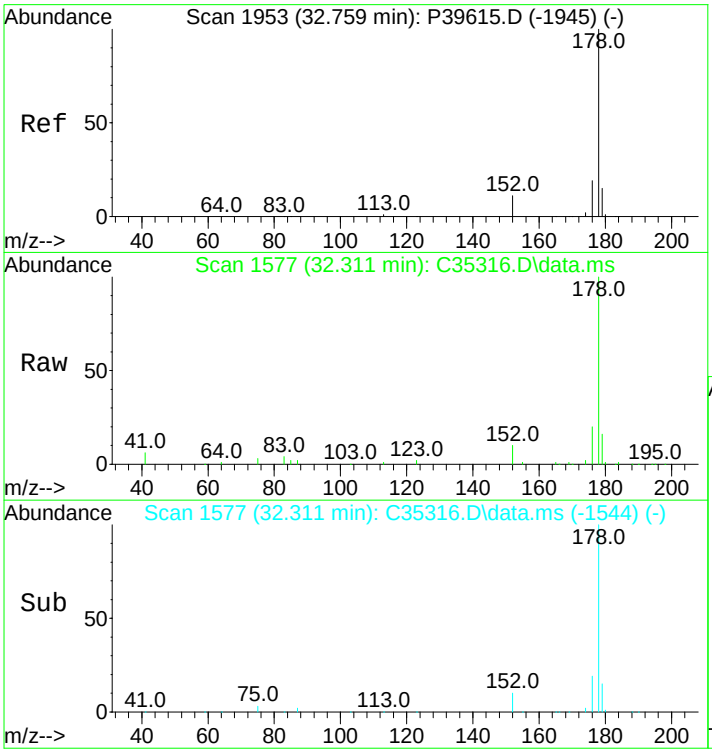


#41
C4-Dibenzothiophenes
Concen: 107.41 ng/mL m
RT: 38.770 min Scan# 2006
Delta R.T. 0.138 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:240 Resp: 10488

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

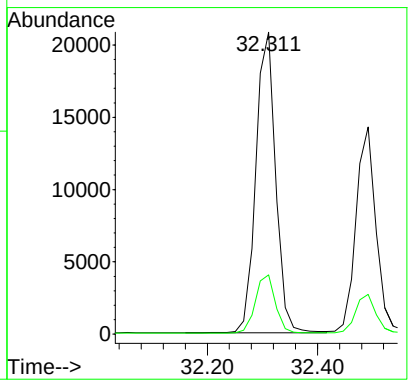


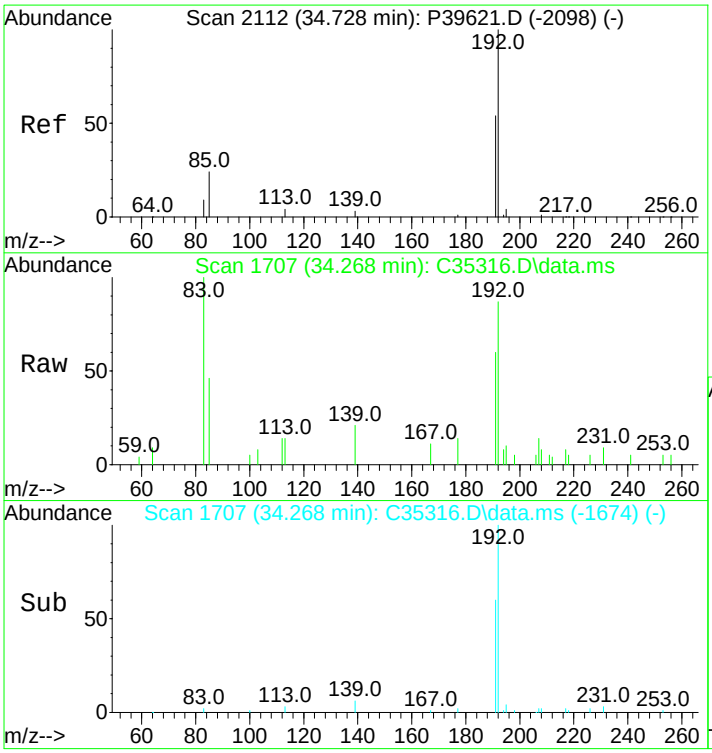


#43
Phenanthrene
Concen: 604.16 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:178 Resp: 51832

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.8	23.6

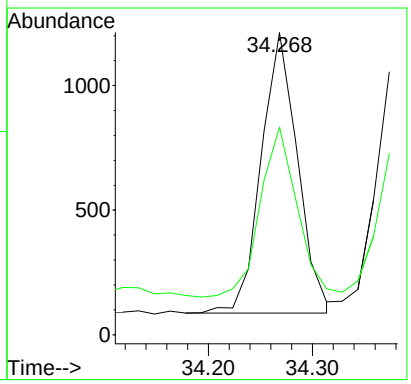


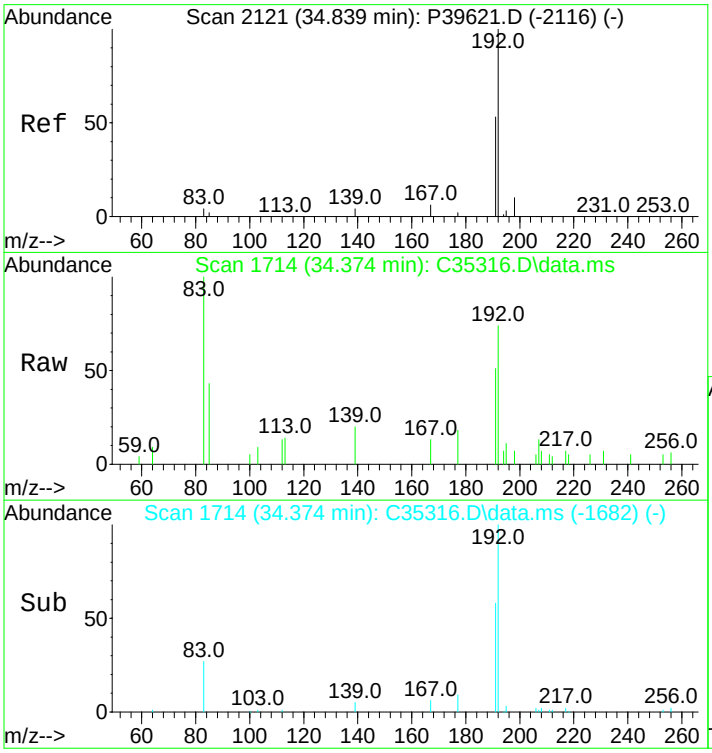


#44
3-Methylphenanthrene(3MP)
Concen: 31.96 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 2742

Ion	Ratio	Lower	Upper
192	100		
191	62.3	47.4	71.0

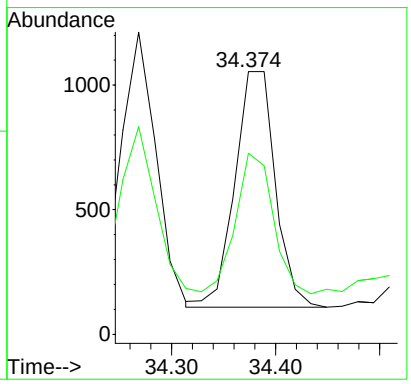


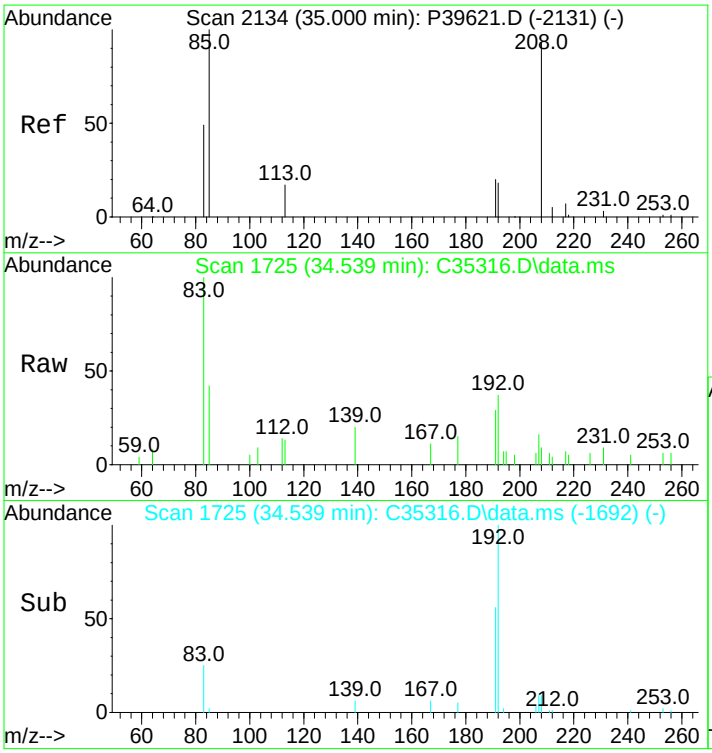


#45
2-Methylphenanthrene(2MP)
Concen: 29.99 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 2573

Ion	Ratio	Lower	Upper
192	100		
191	55.3	45.0	67.6

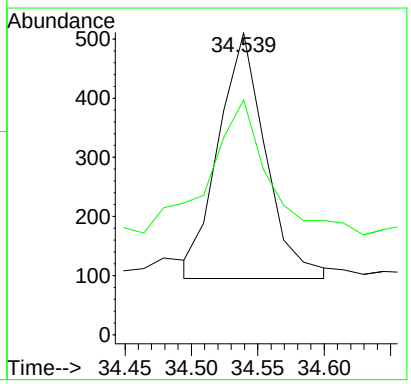


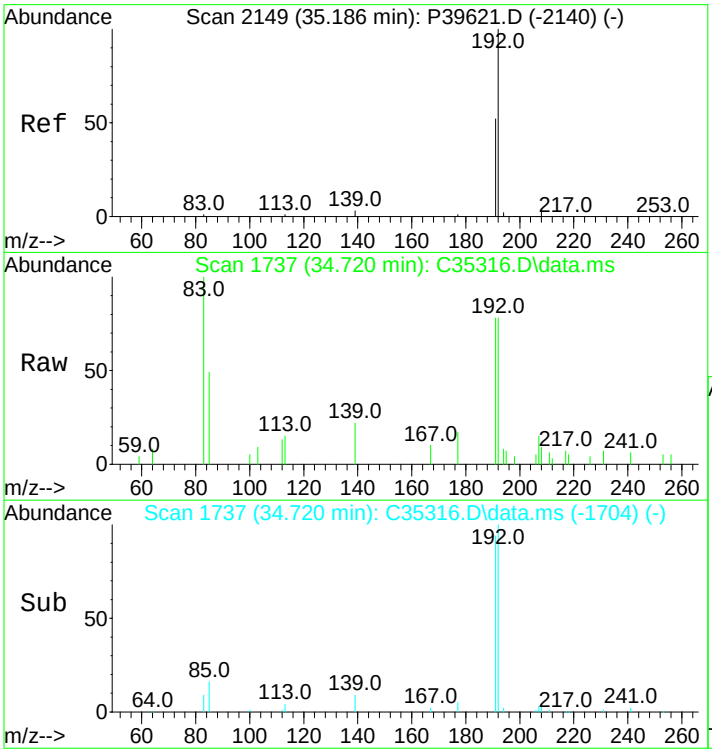


#46
2-Methylanthracene(2MA)
Concen: 11.97 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 1027

Ion	Ratio	Lower	Upper
192	100		
191	82.7	95.5	143.3#

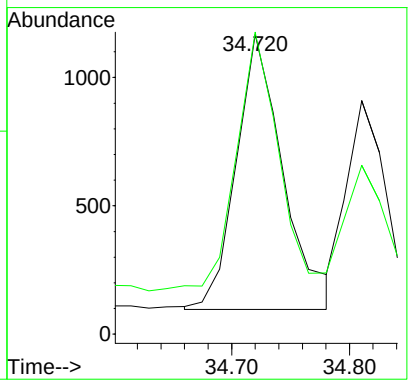


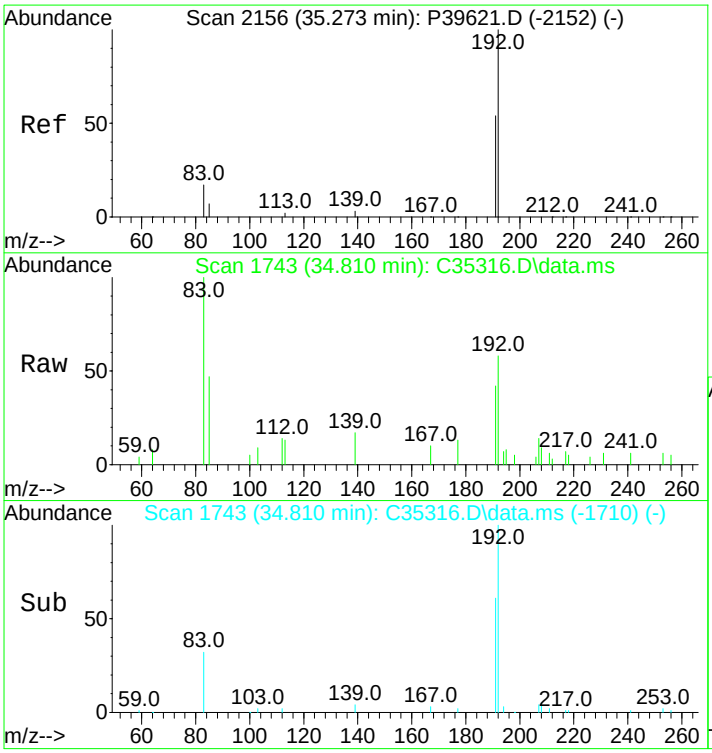


#47
9/4-Methylphenanthrene(9MP)
Concen: 34.54 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 2963

Ion	Ratio	Lower	Upper
192	100		
191	38.2	46.5	69.7#

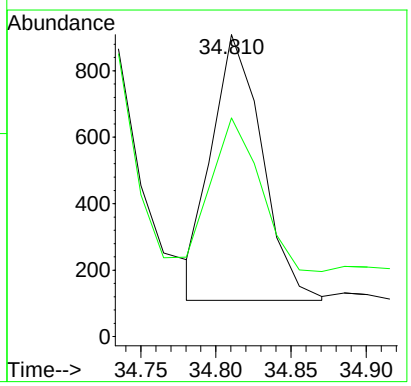


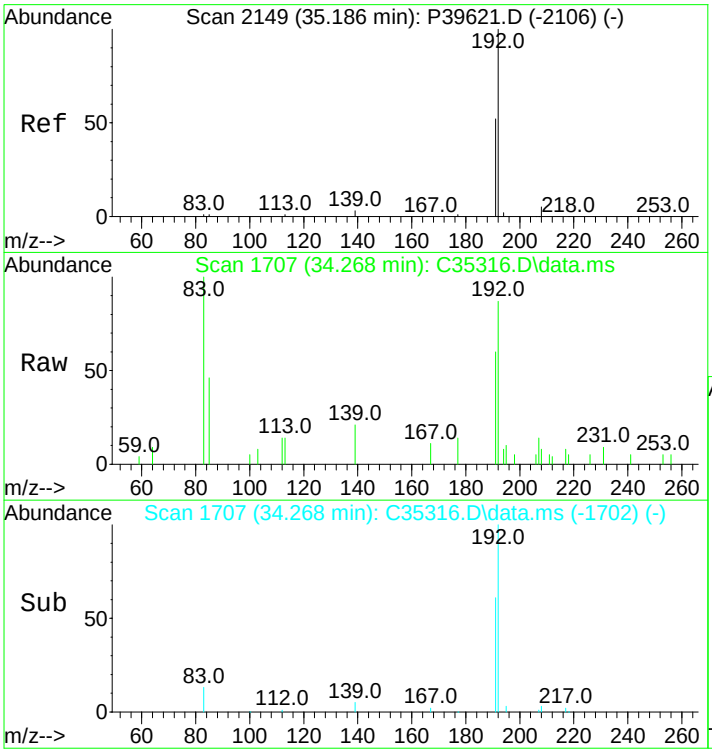


#48
1-Methylphenanthrene(1MP)
Concen: 21.66 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 1858

Ion	Ratio	Lower	Upper
192	100		
191	58.1	47.4	71.2

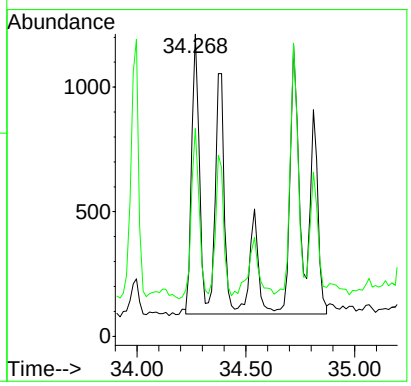


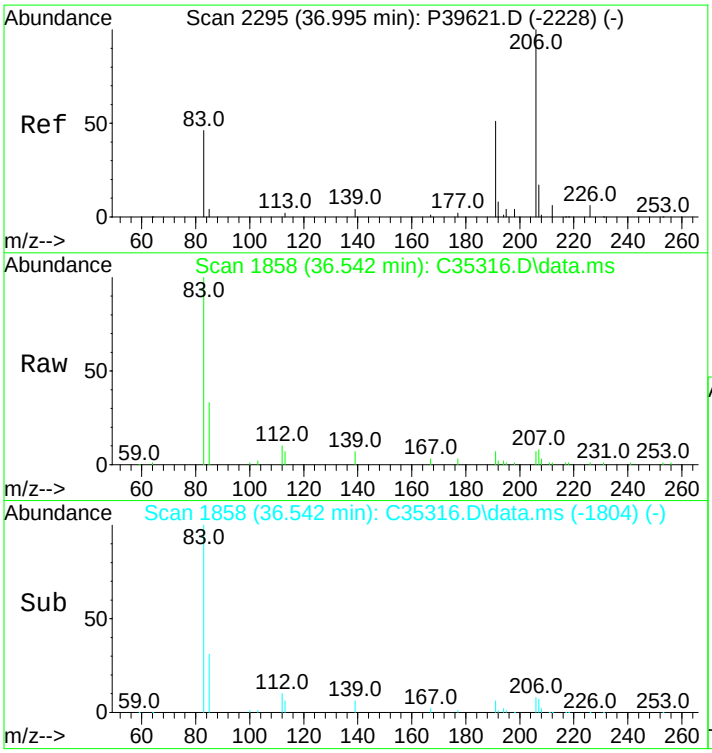


#49
C1-Phenanthrenes/Anthracenes
Concen: 135.54 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.312 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 11628

Ion	Ratio	Lower	Upper
192	100		
191	12.2	45.3	67.9#

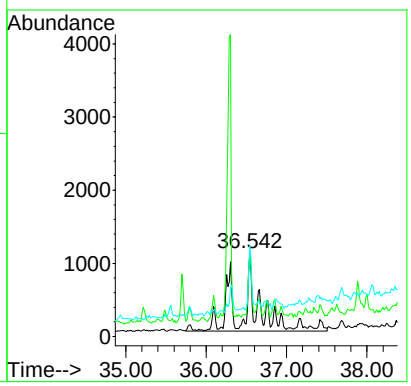


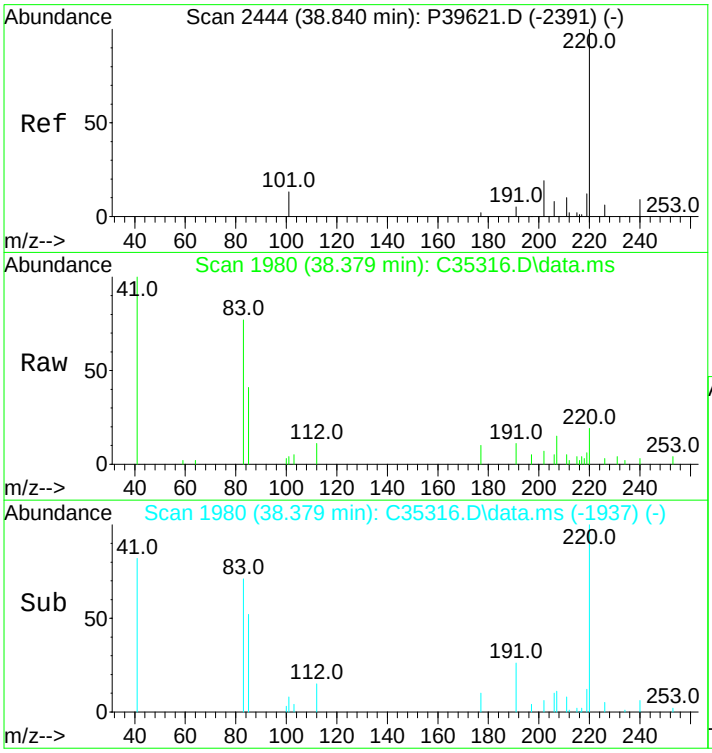


#50
C2-Phenanthrenes/Anthracenes
Concen: 191.16 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:206 Resp: 16400

Ion	Ratio	Lower	Upper
206	100		
191	75.3	42.0	63.0#
207	8.0	15.4	23.2#

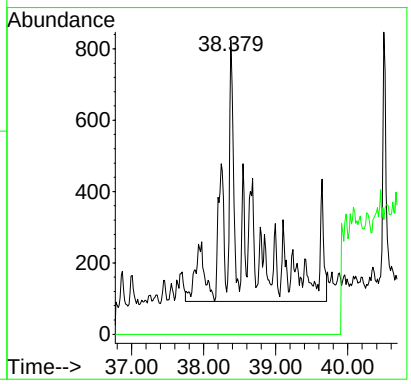


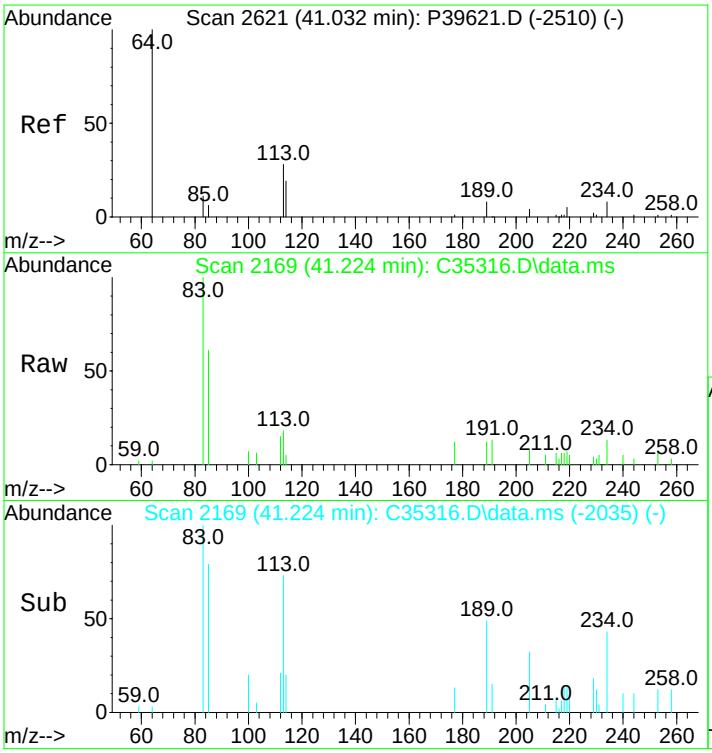


#52
C3-Phenanthrenes/Anthracenes
Concen: 170.63 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:220 Resp: 14639

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

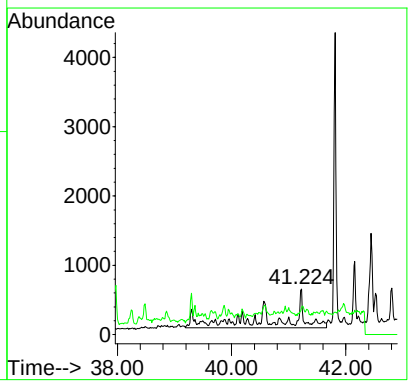


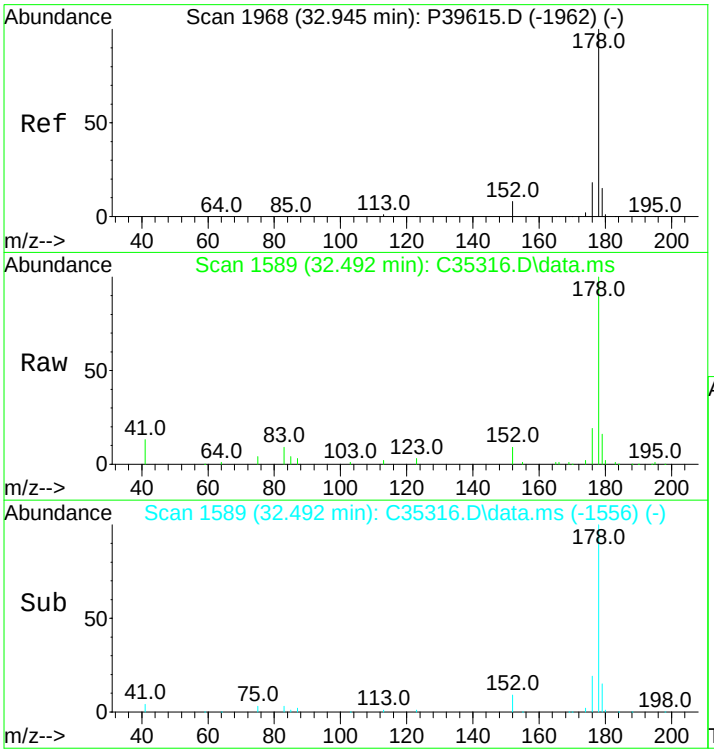


#53
C4-Phenanthrenes/Anthracenes
Concen: 164.08 ng/mL m
RT: 41.224 min Scan# 2169
Delta R.T. 0.930 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:234 Resp: 14077

Ion	Ratio	Lower	Upper
234	100		
219	1.5	48.6	73.0#

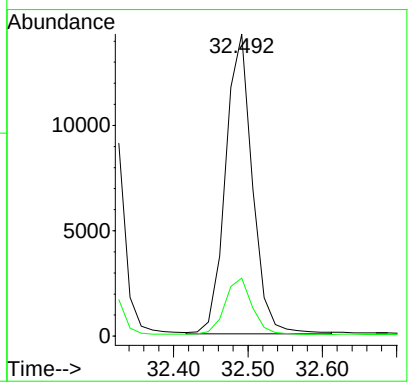


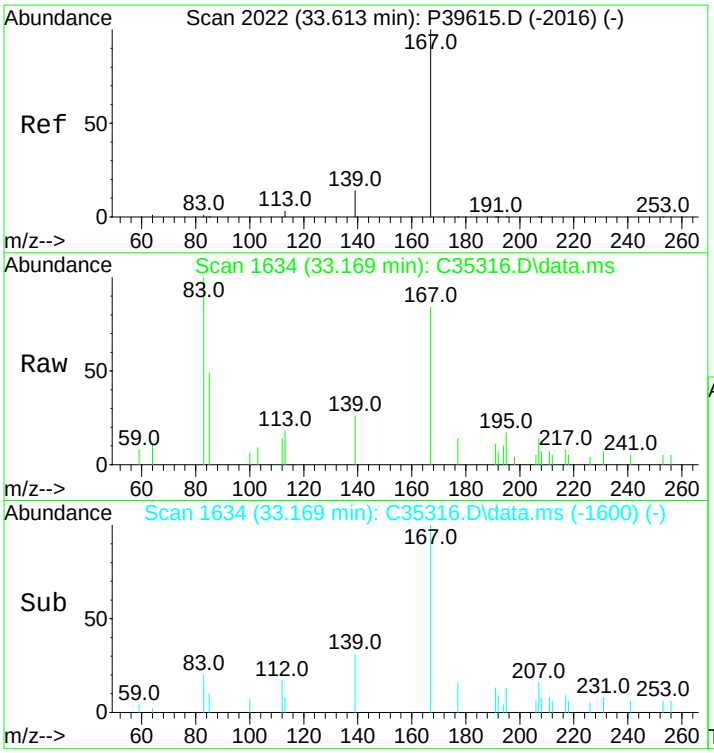


#55
Anthracene
Concen: 430.98 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:178 Resp: 36116

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.6	23.4

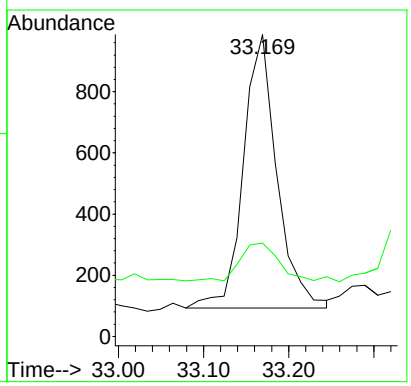


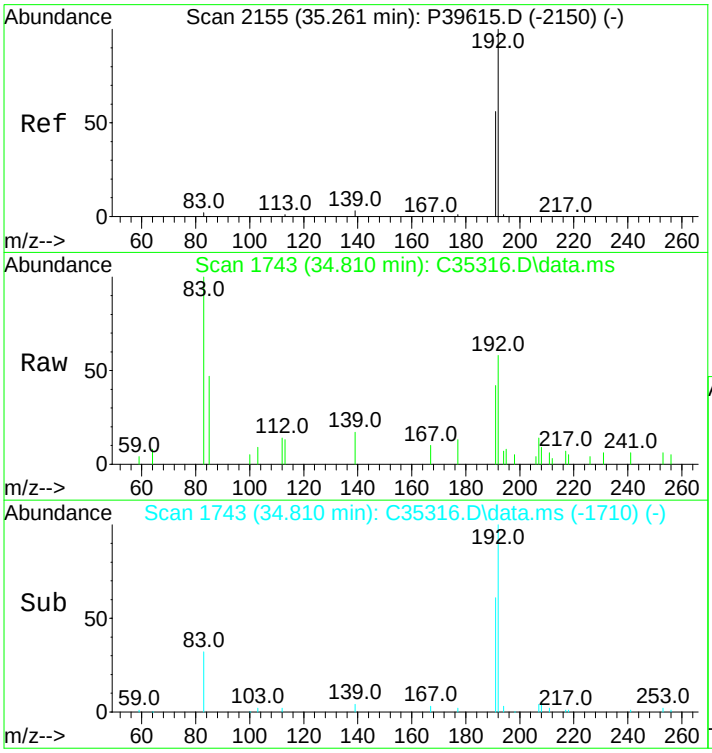


#56
Carbazole
Concen: 29.03 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:167 Resp: 2457

Ion	Ratio	Lower	Upper
167	100		
139	15.1	11.9	17.9

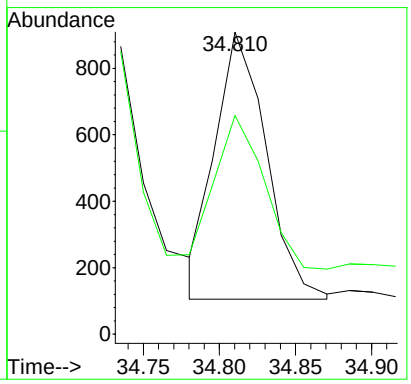


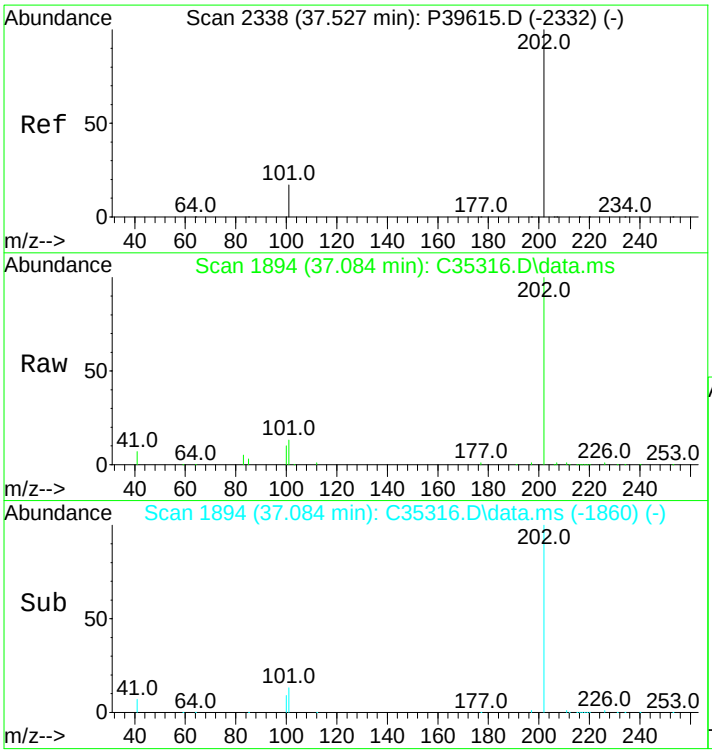


#57
1-Methylphenanthrene
Concen: 34.58 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:192 Resp: 1880

Ion	Ratio	Lower	Upper
192	100		
191	57.4	46.8	70.2

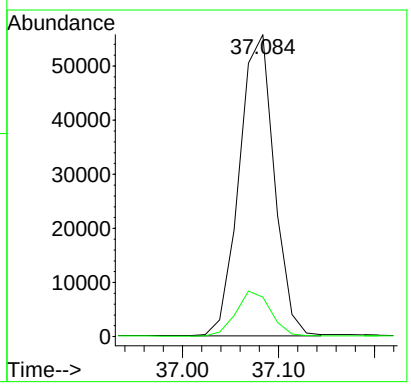


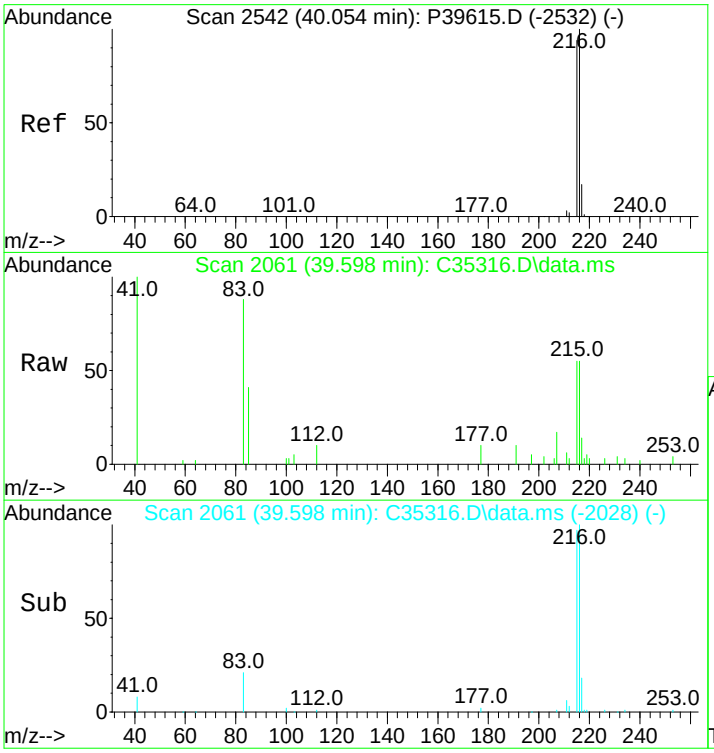


#58
Fluoranthene
Concen: 1653.12 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:202 Resp: 140855

Ion	Ratio	Lower	Upper
202	100		
101	15.2	13.2	19.8

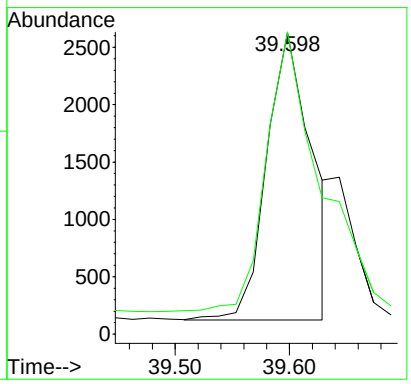


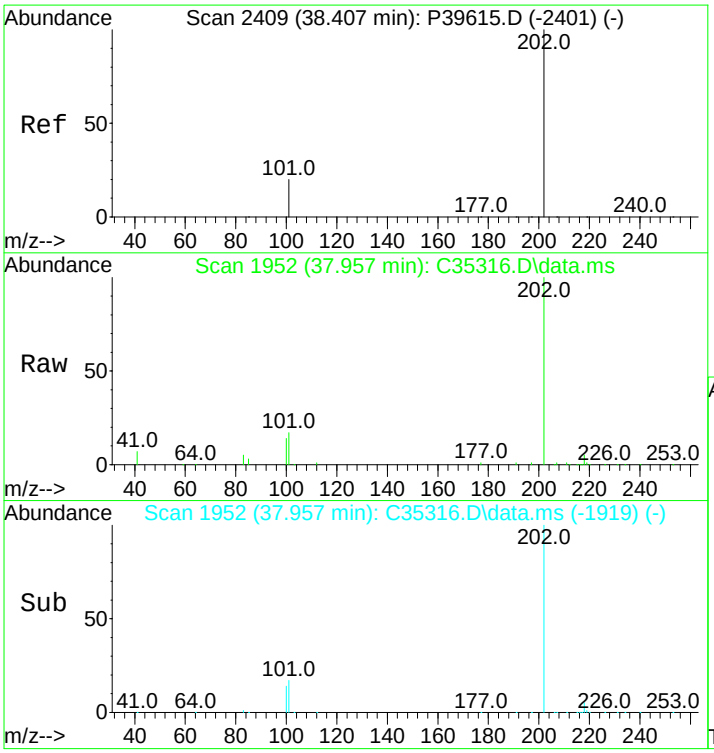


#59
Benzo(b)fluorene
Concen: 140.05 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:216 Resp: 6923

Ion	Ratio	Lower	Upper
216	100		
215	117.9	76.0	114.0#

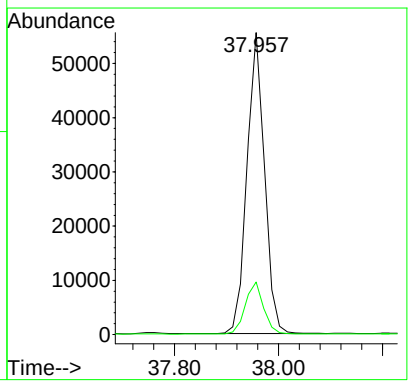


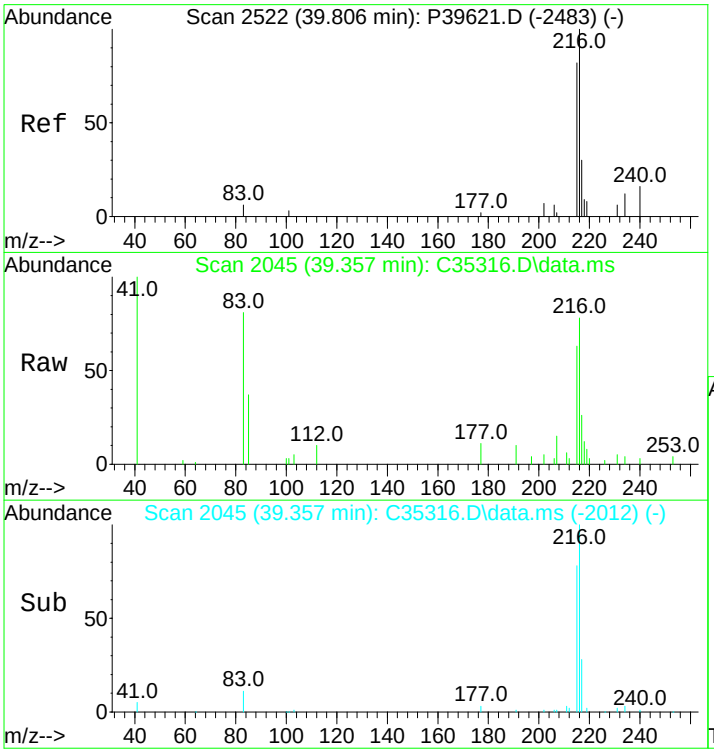


#60
Pyrene
Concen: 1513.29 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:202 Resp: 131072

Ion	Ratio	Lower	Upper
202	100		
101	18.1	13.5	20.3

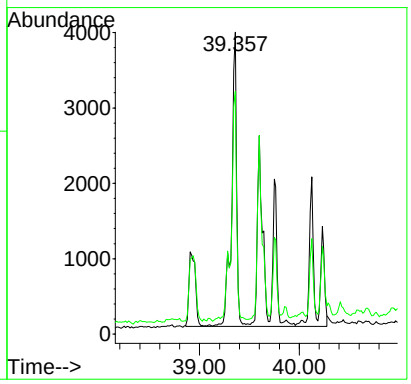


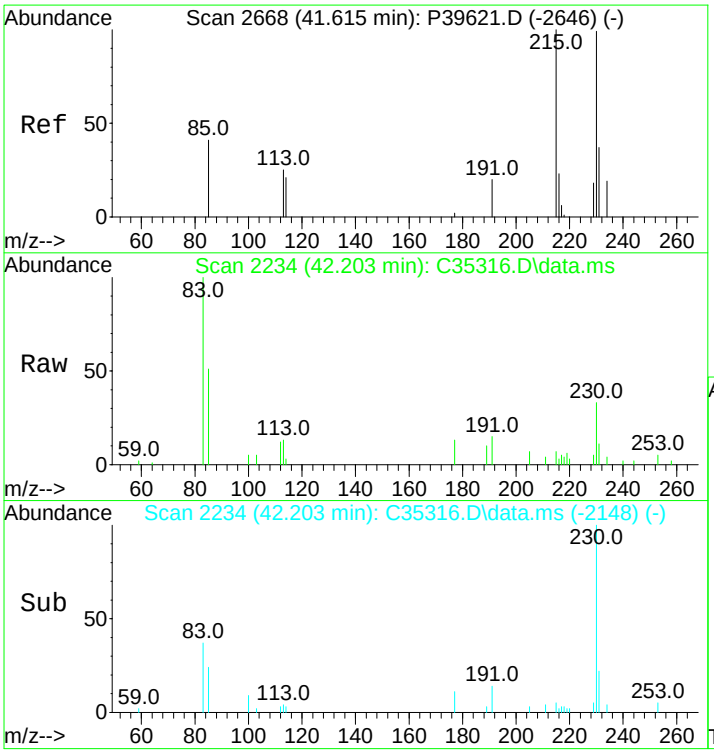


#61
C1-Fluoranthenes/Pyrenes
Concen: 484.74 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:216 Resp: 41985

Ion	Ratio	Lower	Upper
216	100		
215	28.1	77.7	116.5#

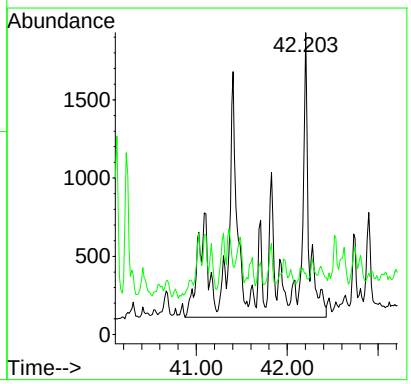


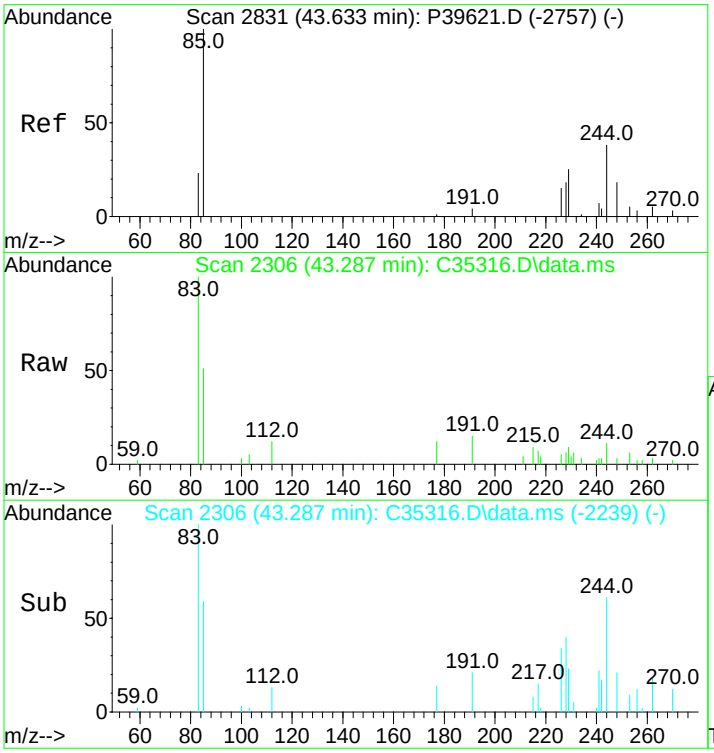


#62
C2-Fluoranthenes/Pyrenes
Concen: 349.62 ng/mL m
RT: 42.203 min Scan# 2234
Delta R.T. 1.039 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:230 Resp: 30282

Ion	Ratio	Lower	Upper
230	100		
215	4.2	92.7	139.1#

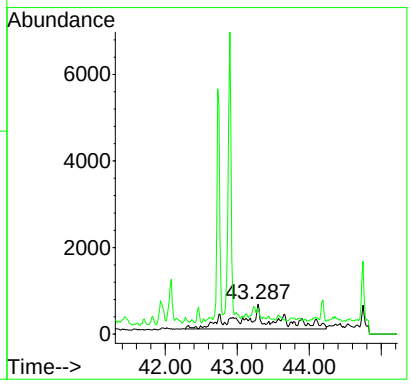


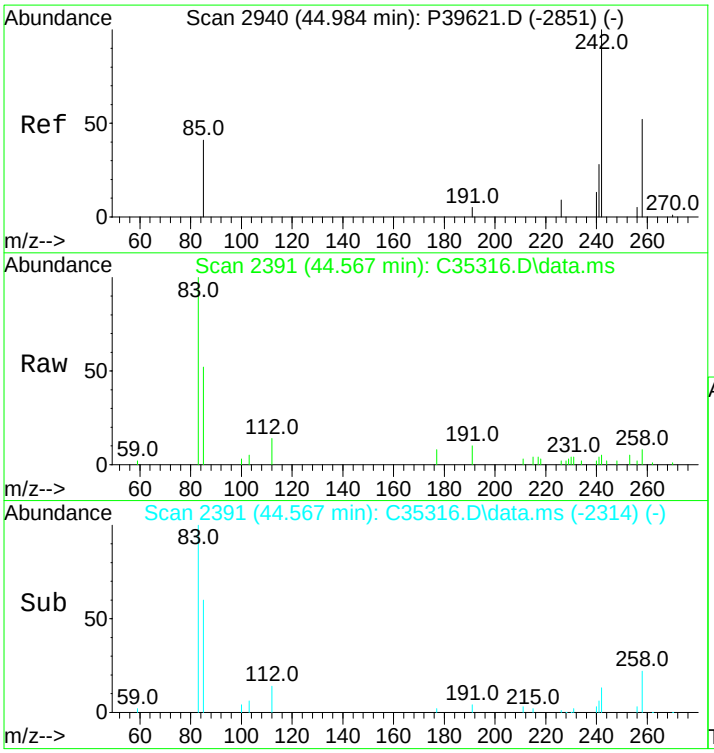


#63
C3-Fluoranthenes/Pyrenes
Concen: 205.09 ng/mL m
RT: 43.287 min Scan# 2306
Delta R.T. 0.418 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:244 Resp: 17764

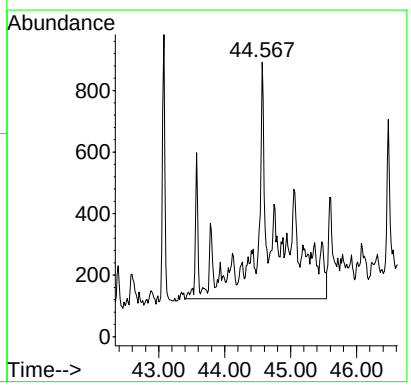
Ion	Ratio	Lower	Upper
244	100		
229	101.8	78.7	118.1

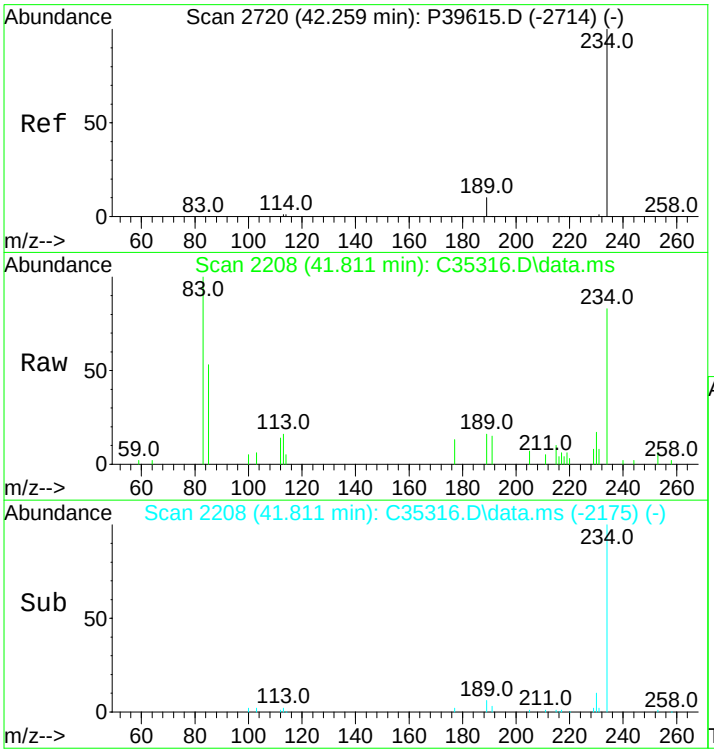




#64
C4-Fluoranthenes/Pyrenes
Concen: 206.01 ng/mL m
RT: 44.567 min Scan# 2391
Delta R.T. 0.365 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:258 Resp: 17843

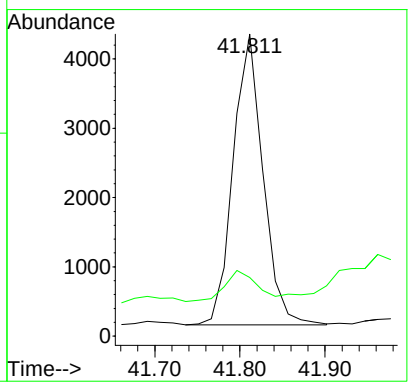


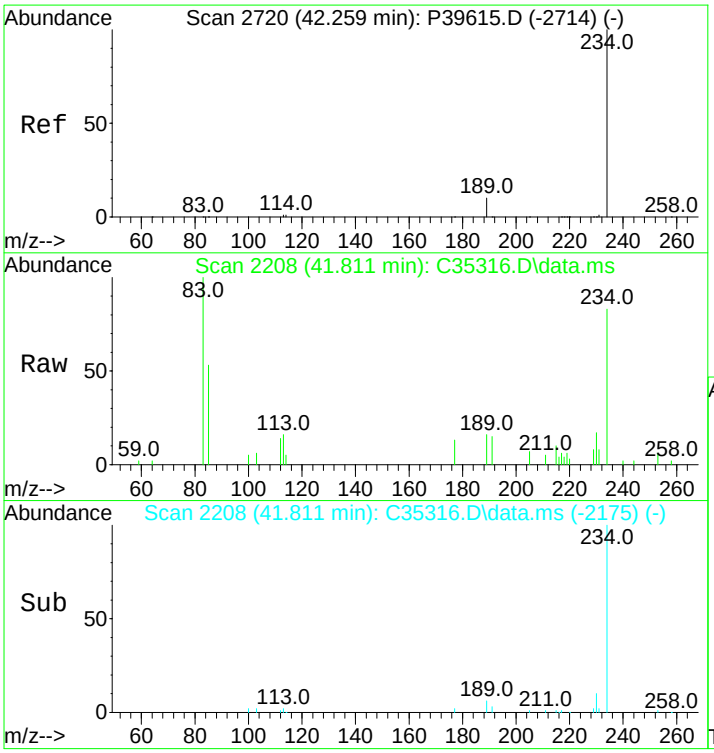


#66
Naphthobenzothiophene
Concen: 110.05 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:234 Resp: 10262

Ion	Ratio	Lower	Upper
234	100		
189	13.2	20.9	31.3#

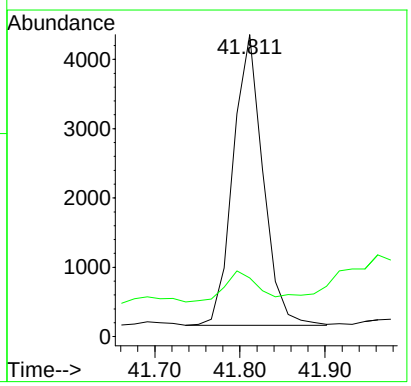


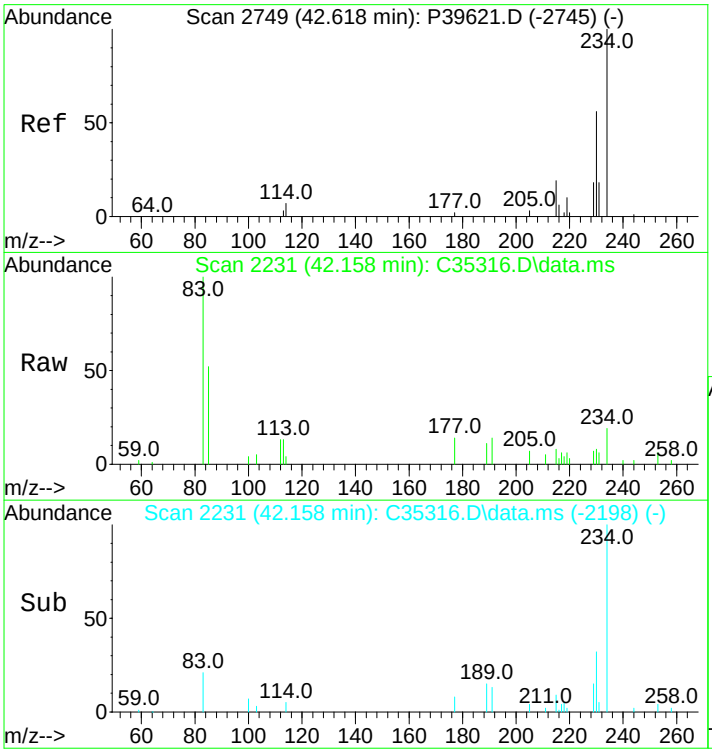


#67
Naphthobenzothiophene-2,1-D
Concen: 110.05 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:234 Resp: 10262

Ion	Ratio	Lower	Upper
234	100		
189	13.2	20.9	31.3#

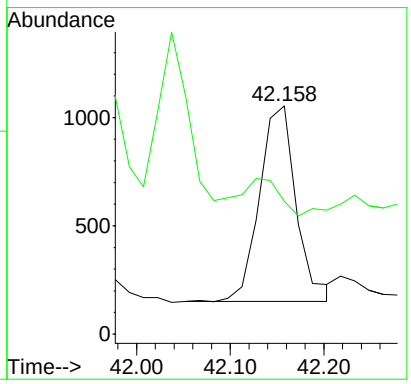


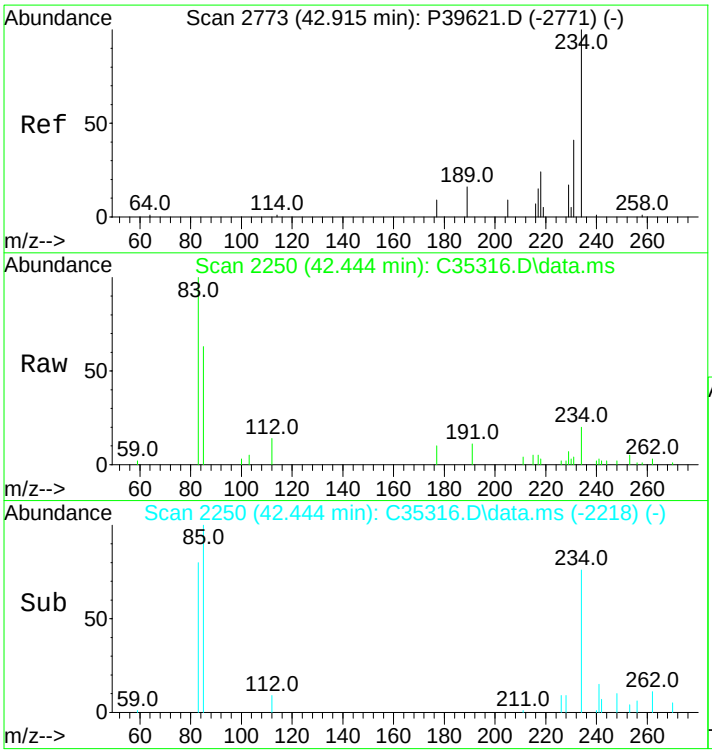


#68
Naphthobenzothiophene-1,2-D
Concen: 26.41 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:234 Resp: 2463

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

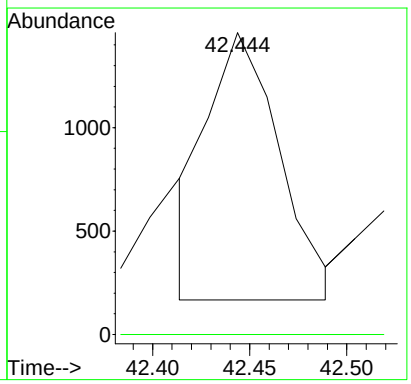


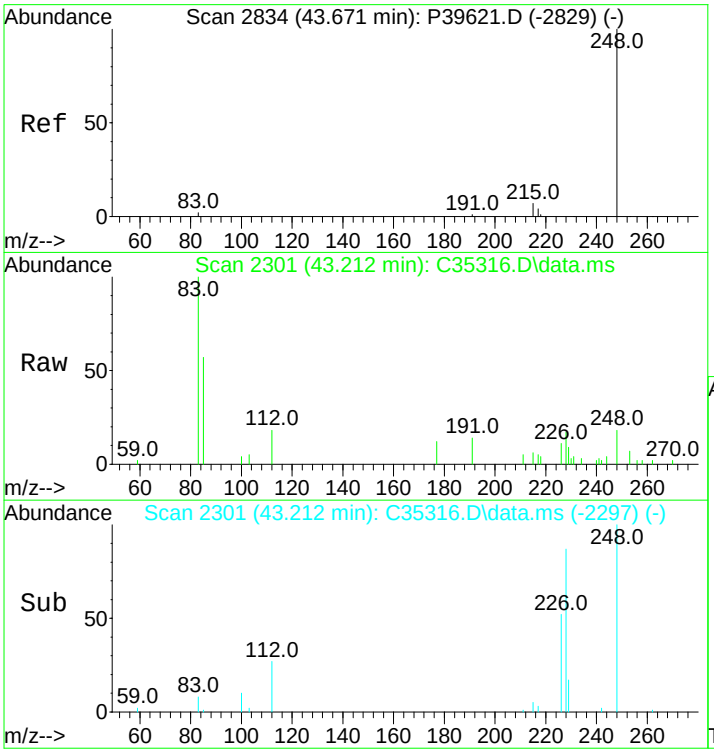


#69
Naphthobenzothiophene-2,3-D
Concen: 35.95 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:234 Resp: 3352

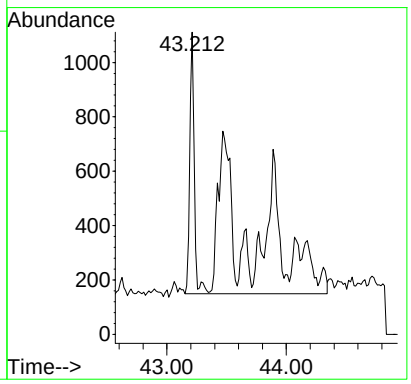
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

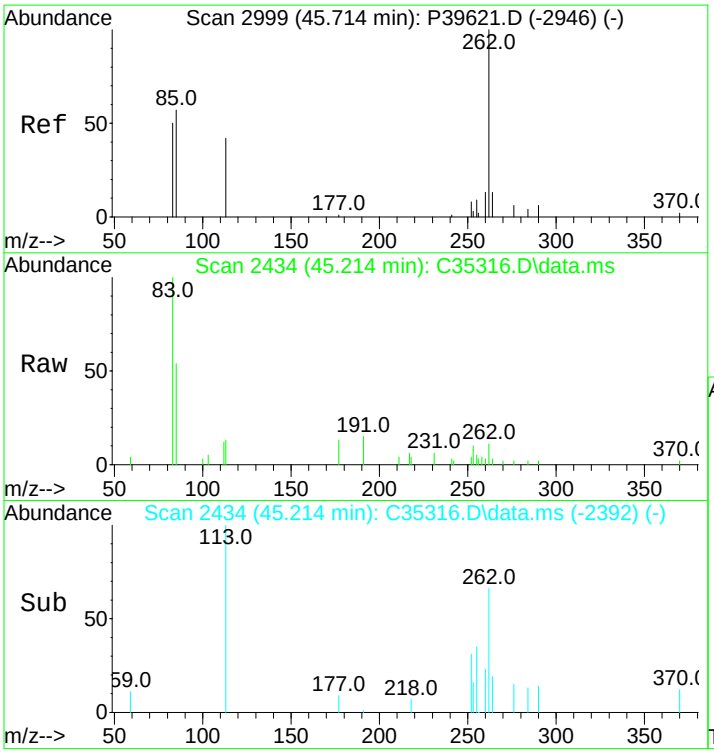




#70
C1-Naphthobenzothiophenes
Concen: 147.89 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

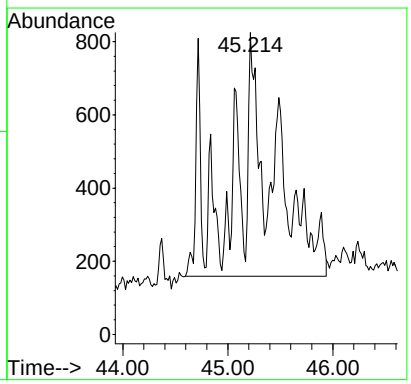
Tgt Ion:248 Resp: 13790

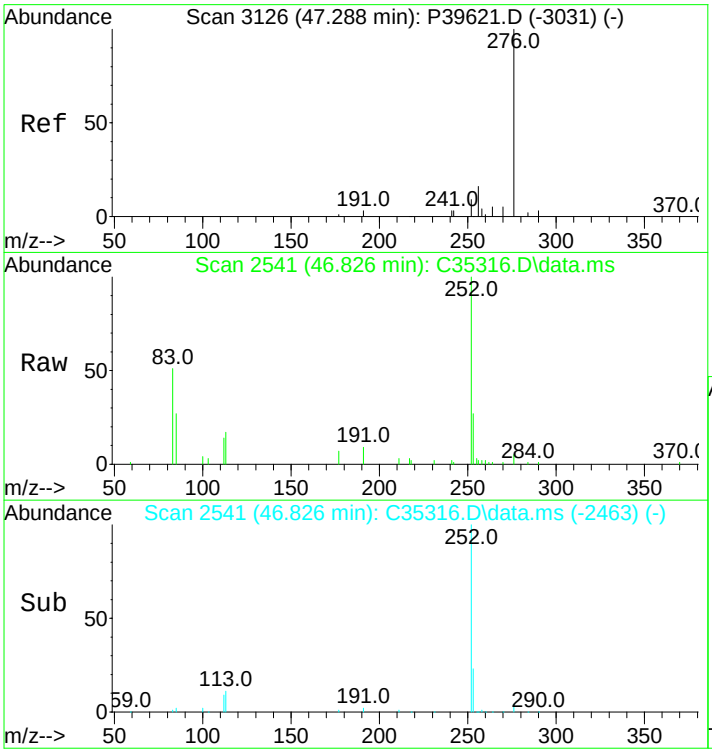




#71
C2-Naphthobenzothiophenes
Concen: 185.78 ng/ml m
RT: 45.214 min Scan# 2434
Delta R.T. 0.347 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

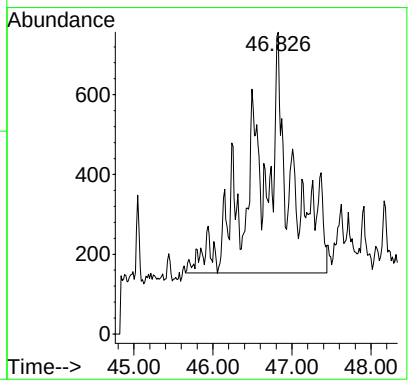
Tgt Ion:262 Resp: 17324

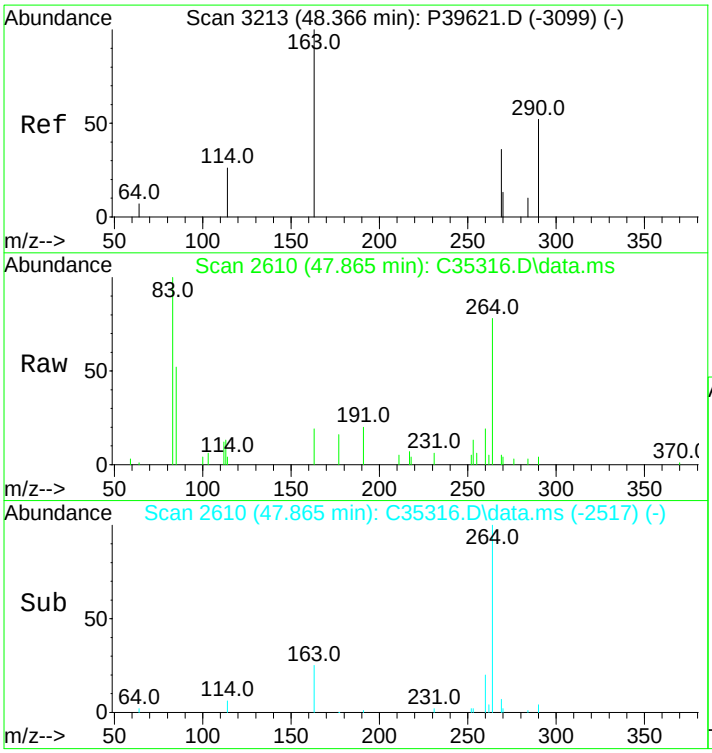




#72
C3-Naphthobenzothiophenes
Concen: 192.30 ng/ml m
RT: 46.826 min Scan# 2541
Delta R.T. 0.373 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

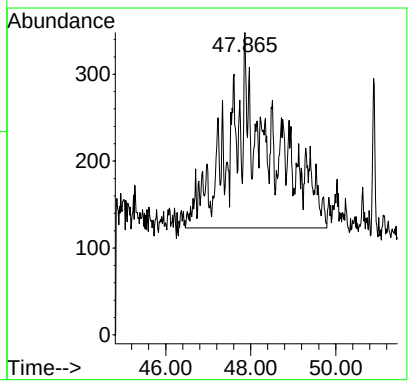
Tgt Ion:276 Resp: 17932

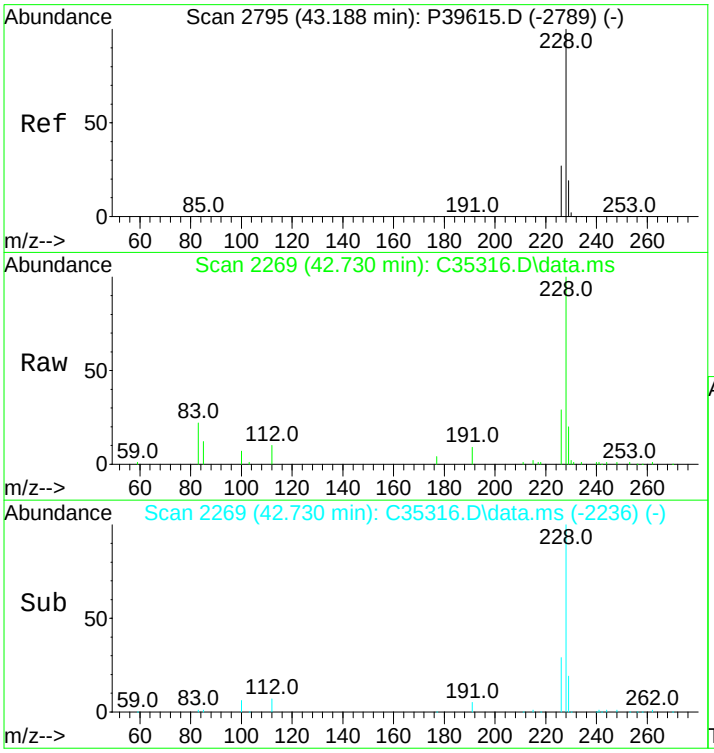




#73
C4-Naphthobenzothiophenes
Concen: 156.74 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:290 Resp: 14616

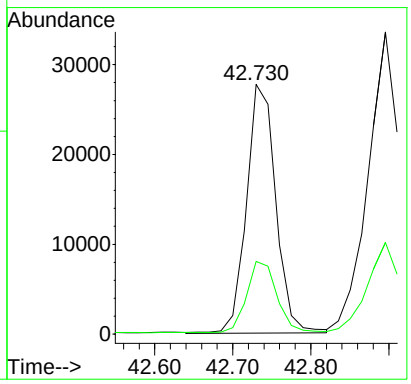


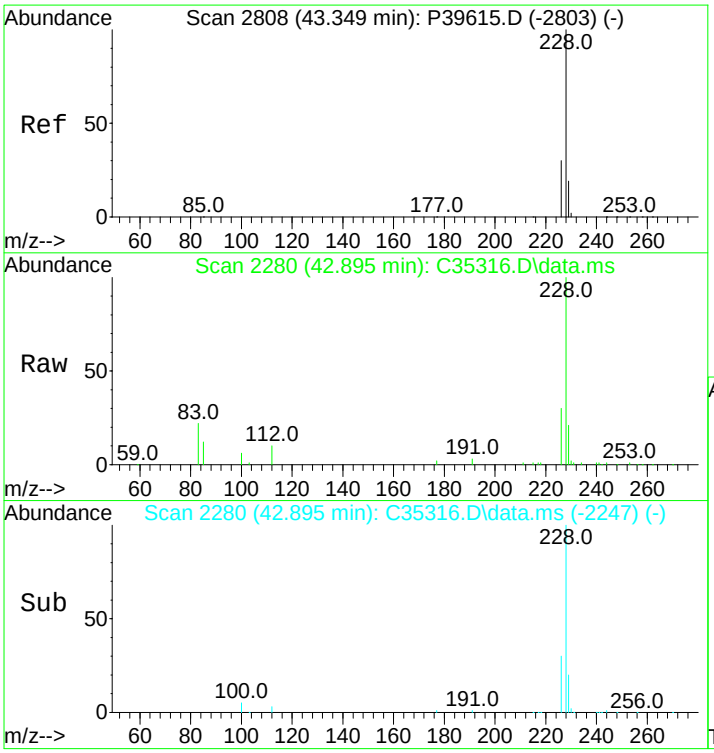


#75
Benz[a]anthracene
Concen: 690.32 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:228 Resp: 72349

Ion	Ratio	Lower	Upper
228	100		
226	29.8	21.5	32.3

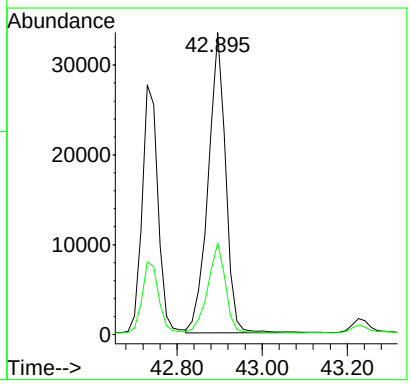


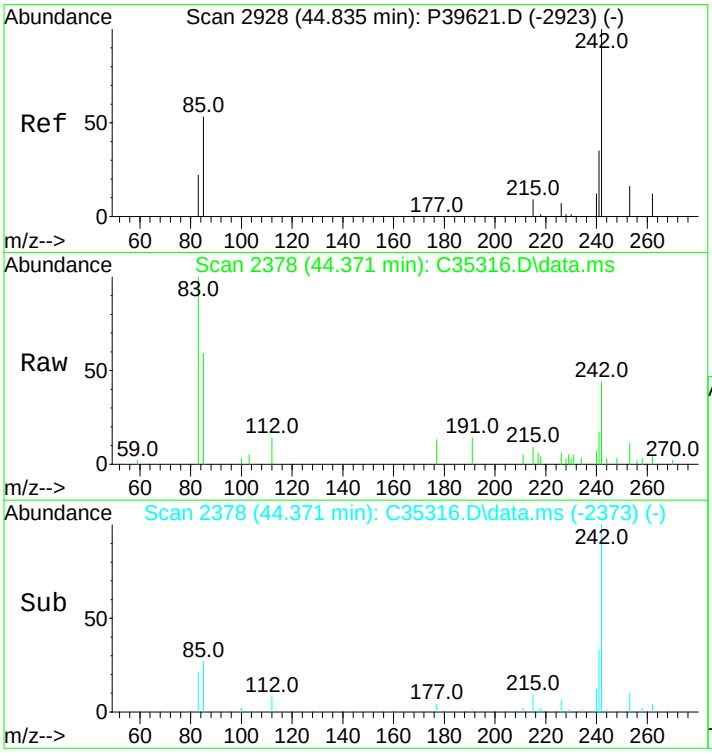


#77
Chrysene/Triphenylene
Concen: 899.61 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:228 Resp: 95187

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.5	35.3

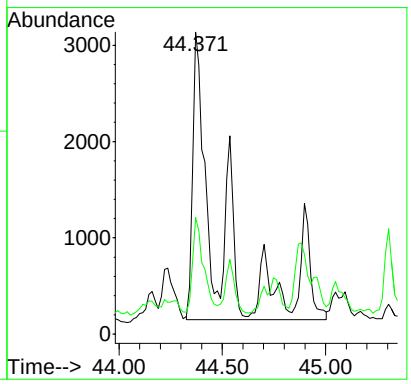


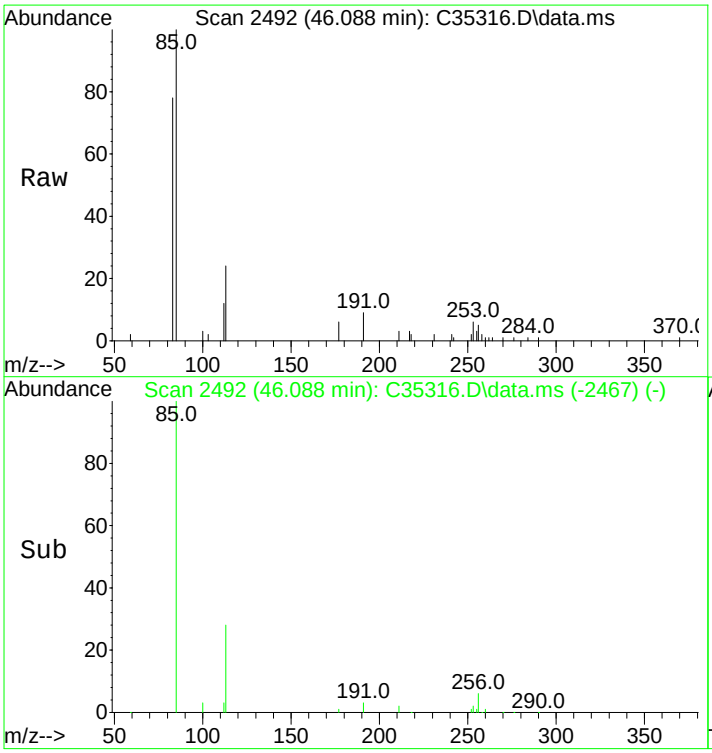


#78
C1-Chrysenes
Concen: 229.83 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:242 Resp: 24318

Ion	Ratio	Lower	Upper
242	100		
241	6.9	32.7	49.1#

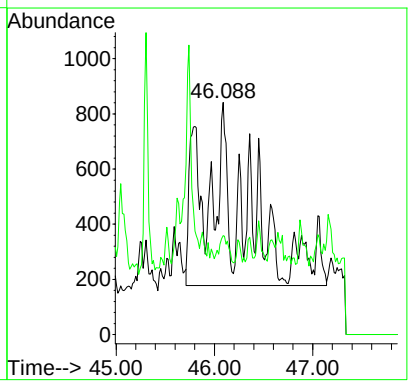


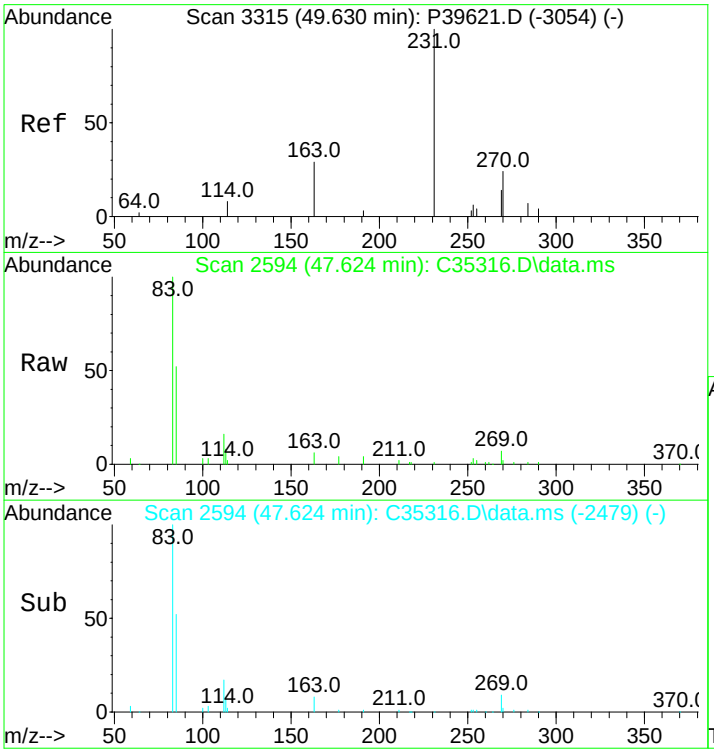


#79
C2-Chrysenes
Concen: 179.91 ng/mL m
RT: 46.088 min Scan# 2492
Delta R.T. -0.310 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:256 Resp: 19036

Ion	Ratio	Lower	Upper
256	100		
241	2.1	30.9	46.3#

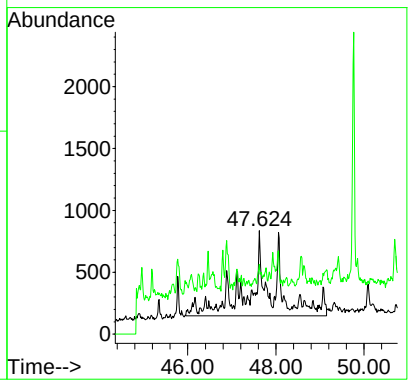


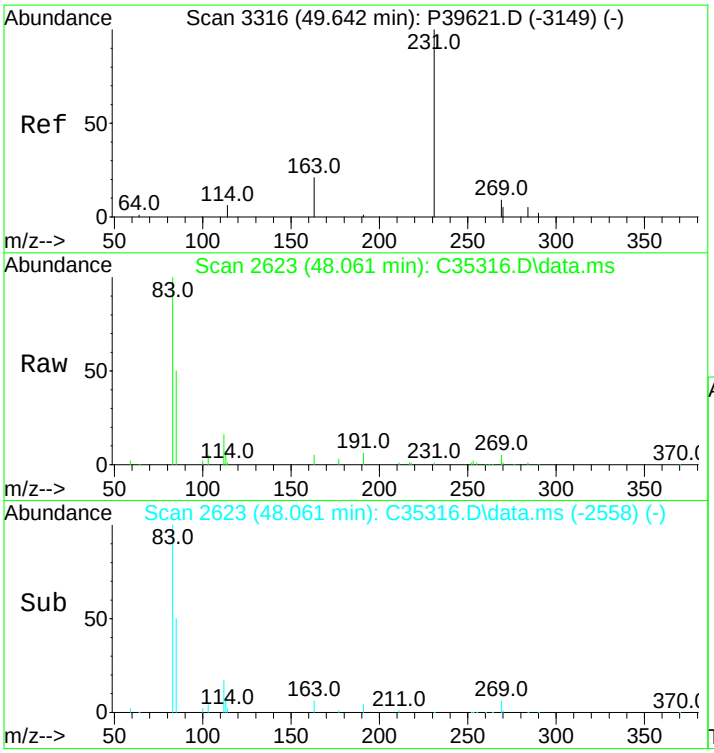


#80
C3-Chrysenes
Concen: 237.92 ng/mL m
RT: 47.624 min Scan# 2594
Delta R.T. -1.457 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:270 Resp: 25174

Ion	Ratio	Lower	Upper
270	100		
255	0.0	41.4	62.2#

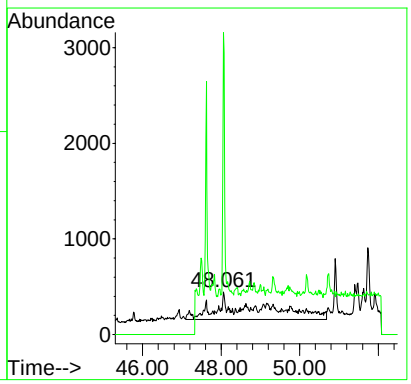


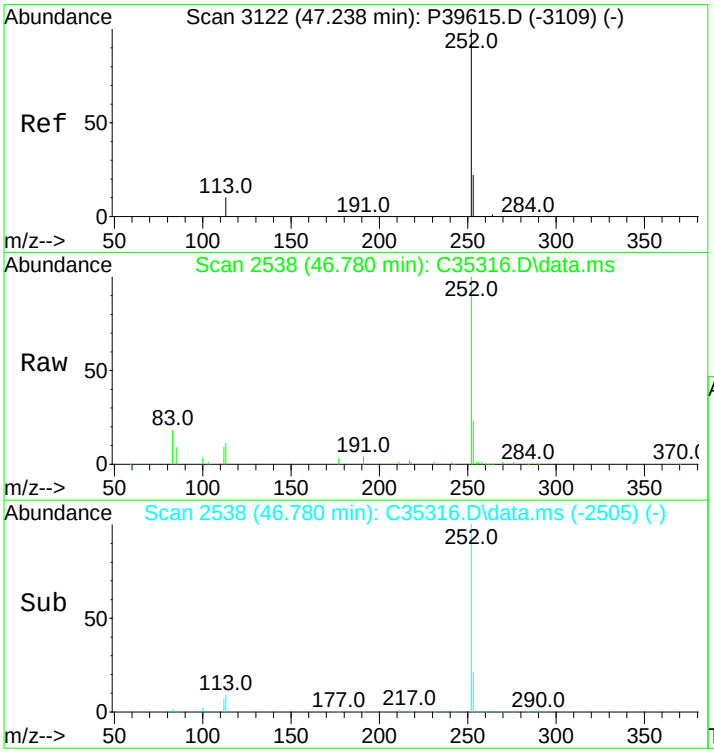


#81
C4-Chrysenes
Concen: 186.75 ng/mL m
RT: 48.061 min Scan# 2623
Delta R.T. -1.124 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:284 Resp: 19760

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

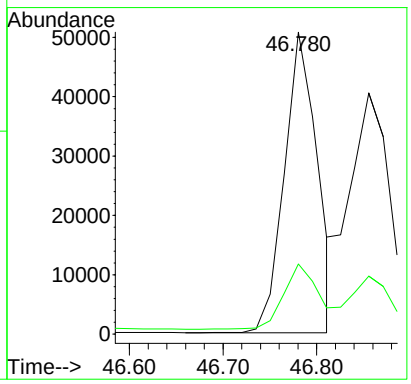


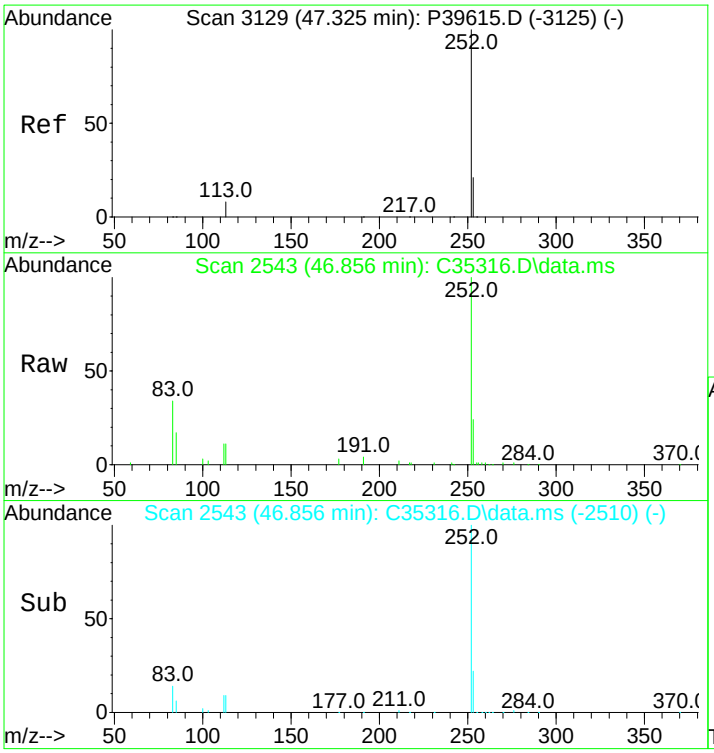


#82
Benzo[b]fluoranthene
Concen: 1077.52 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 124087

Ion	Ratio	Lower	Upper
252	100		
253	22.3	20.4	30.6

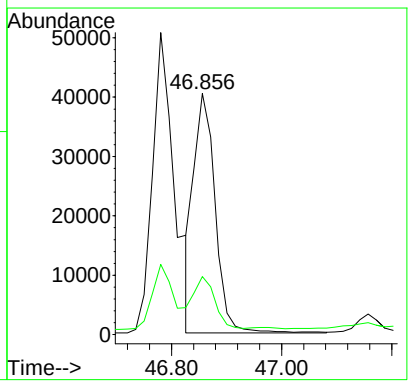


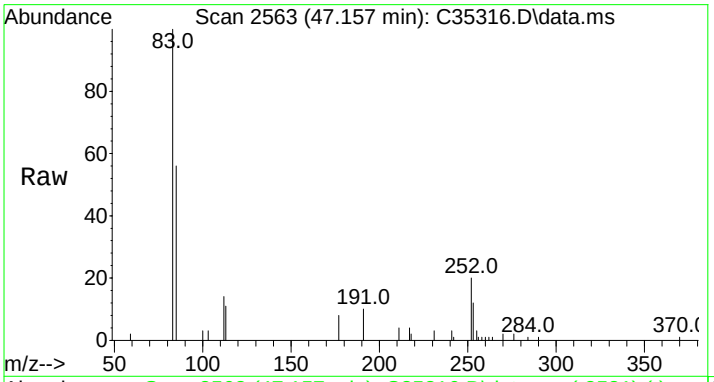


#83
Benzo[j]+[k]fluoranthene
Concen: 876.96 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 109953

Ion	Ratio	Lower	Upper
252	100		
253	21.5	20.6	31.0

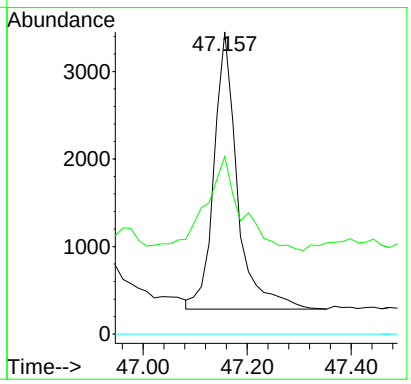


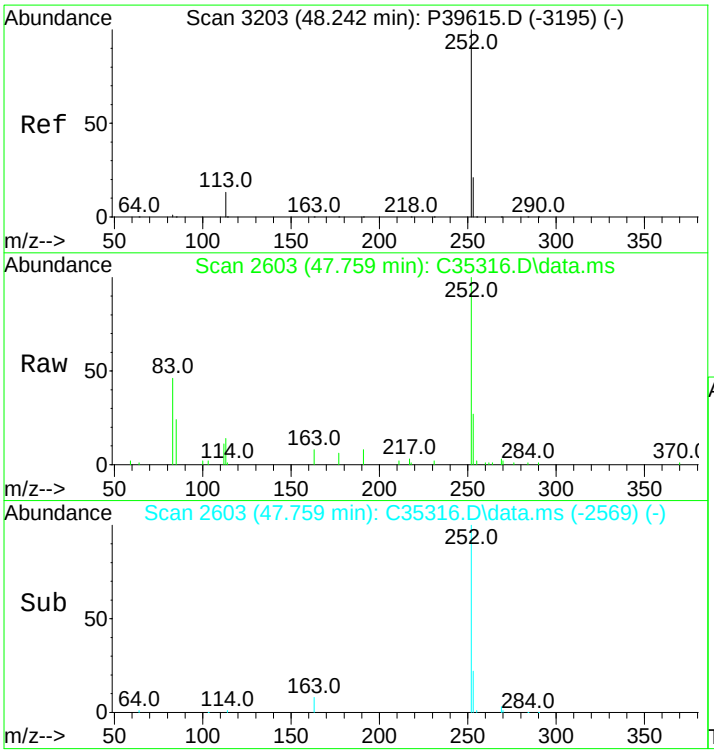


#84
Benzo[a]fluoranthene
Concen: 78.62 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 9857

Ion	Ratio	Lower	Upper
252	100		
253	51.1	146.1	219.1#
125	0.0	0.0	0.0

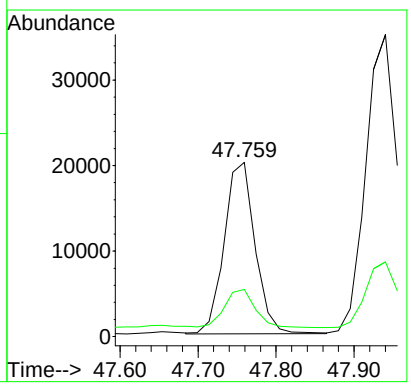


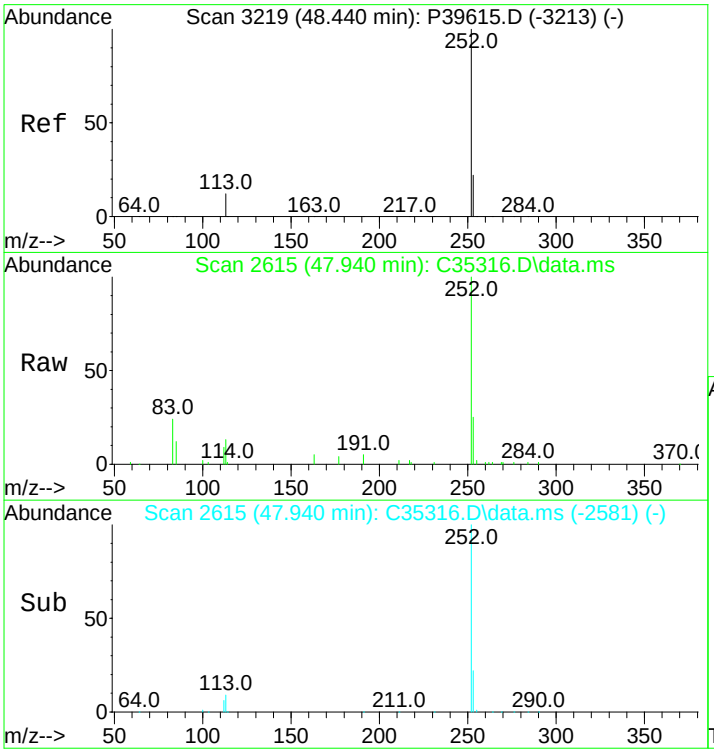


#85
Benzo[e]pyrene
Concen: 484.27 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 55162

Ion	Ratio	Lower	Upper
252	100		
253	22.4	21.0	31.6

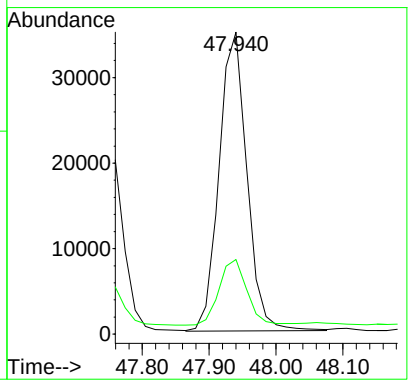


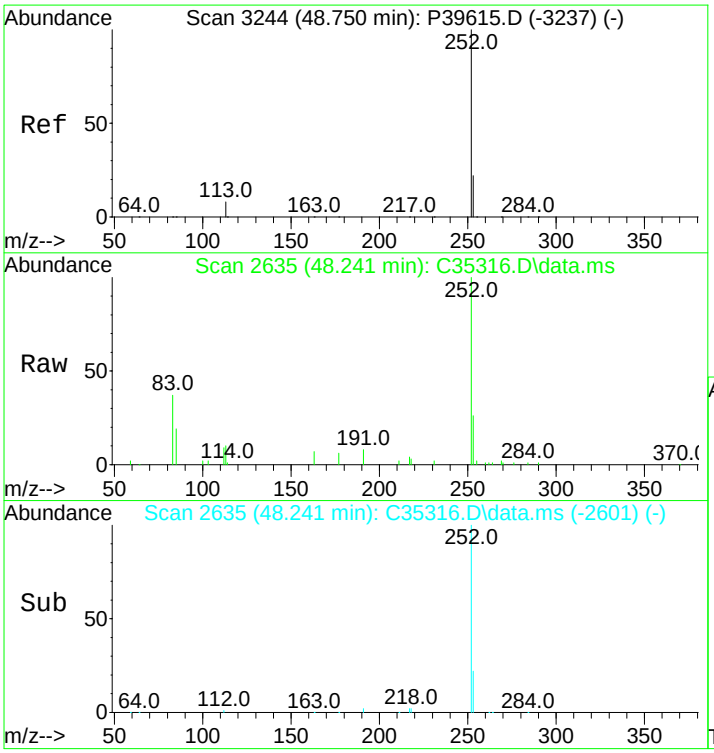


#87
Benzo[a]pyrene
Concen: 922.36 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 101154

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.4	32.0

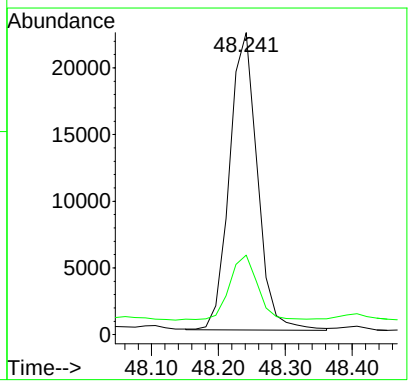


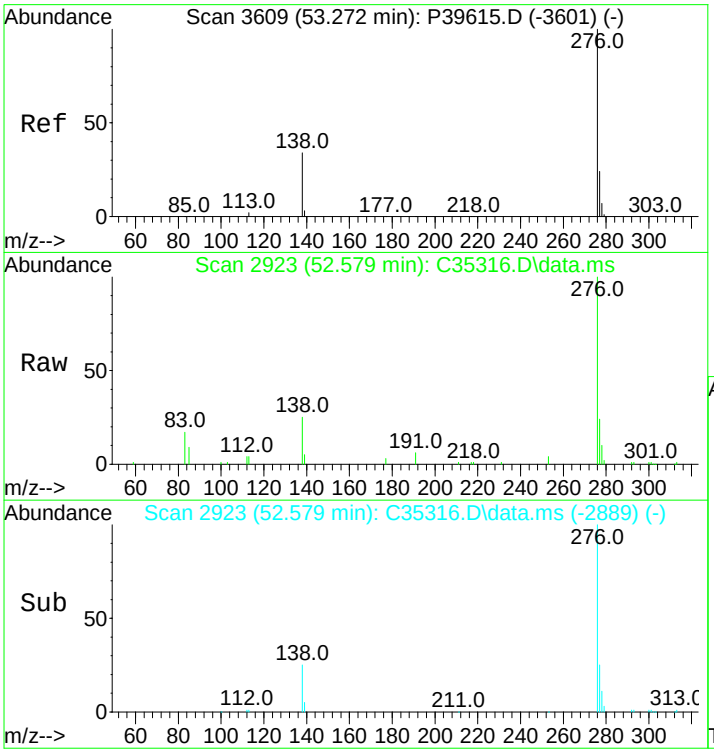


#88
Perylene
Concen: 553.49 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:252 Resp: 64872

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.8	32.6

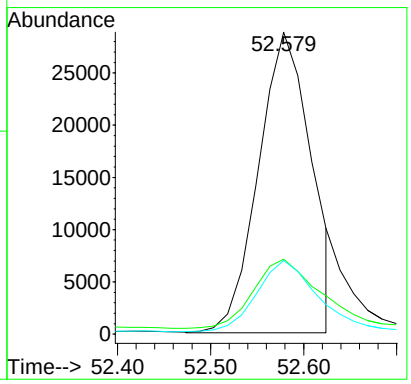


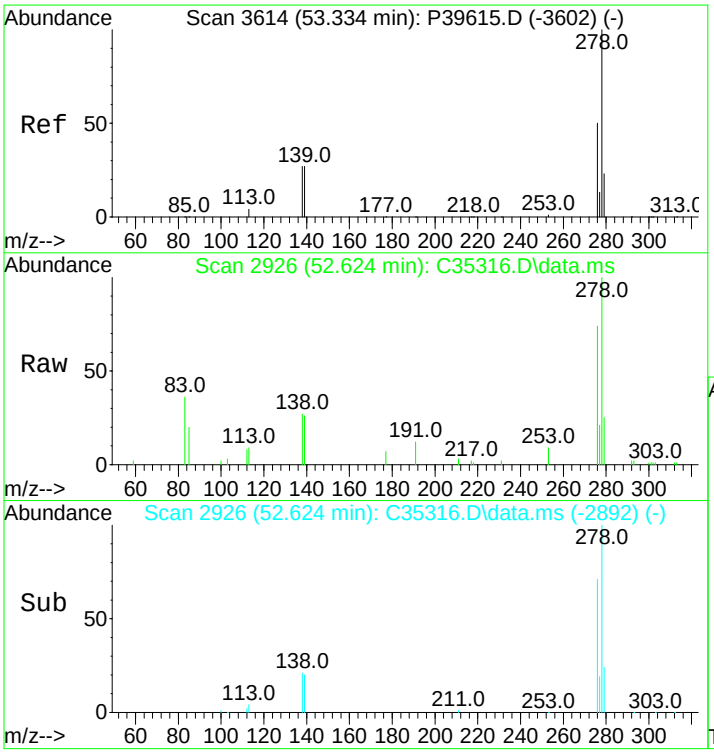


#89
Indeno[1,2,3-cd]pyrene
Concen: 888.42 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:276 Resp: 113384

Ion	Ratio	Lower	Upper
276	100		
138	30.3	19.1	28.7#
277	29.0	19.5	29.3

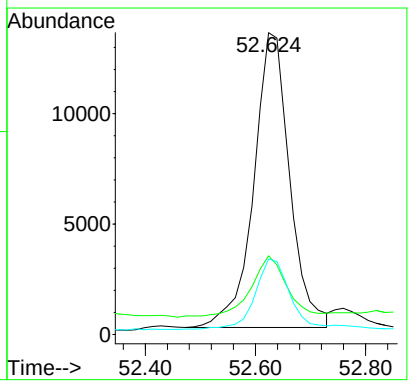


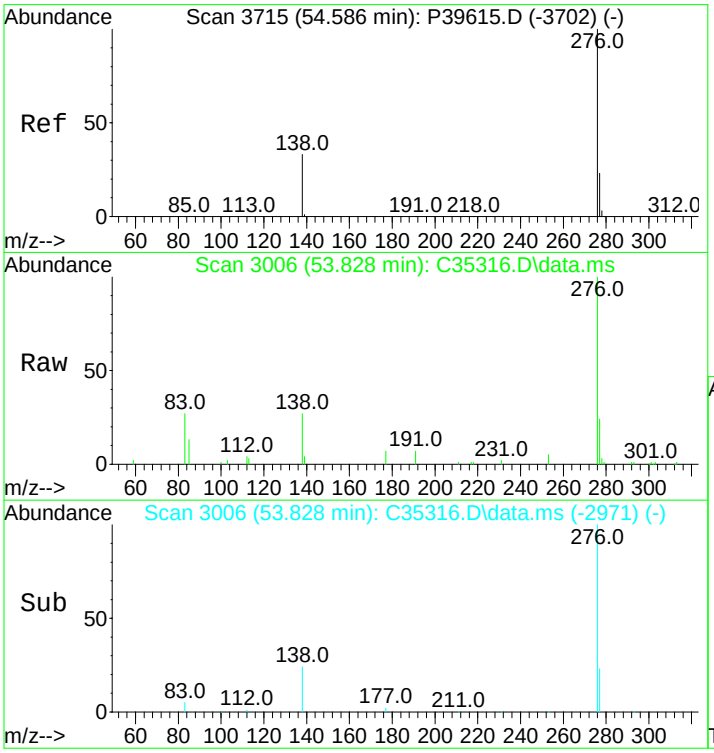


#90
Dibenz[ah]+[ac]anthracene
Concen: 497.62 ng/mL
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:278 Resp: 60414

Ion	Ratio	Lower	Upper
278	100		
139	21.2	16.6	25.0
279	24.7	20.0	30.0

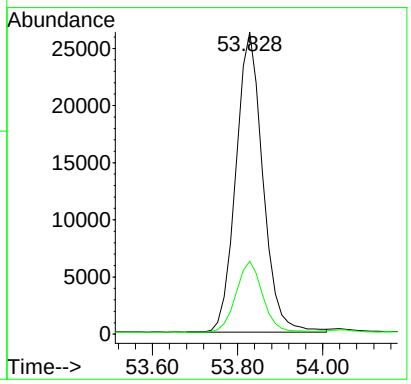


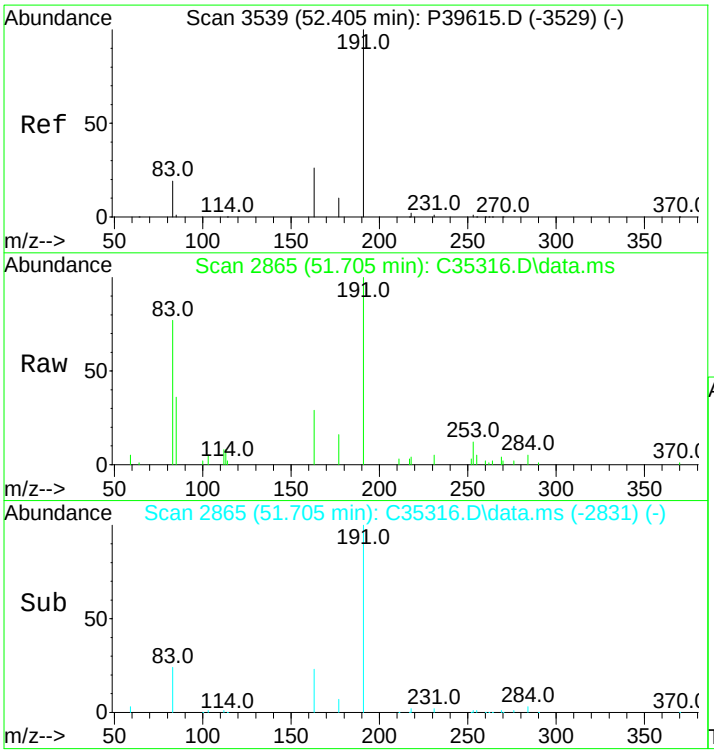


#91
Benzo[g,h,i]perylene
Concen: 855.36 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:276 Resp: 115334

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.8	28.2

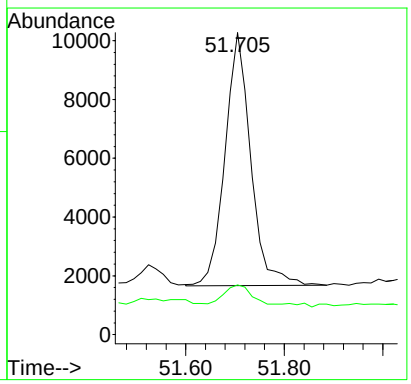


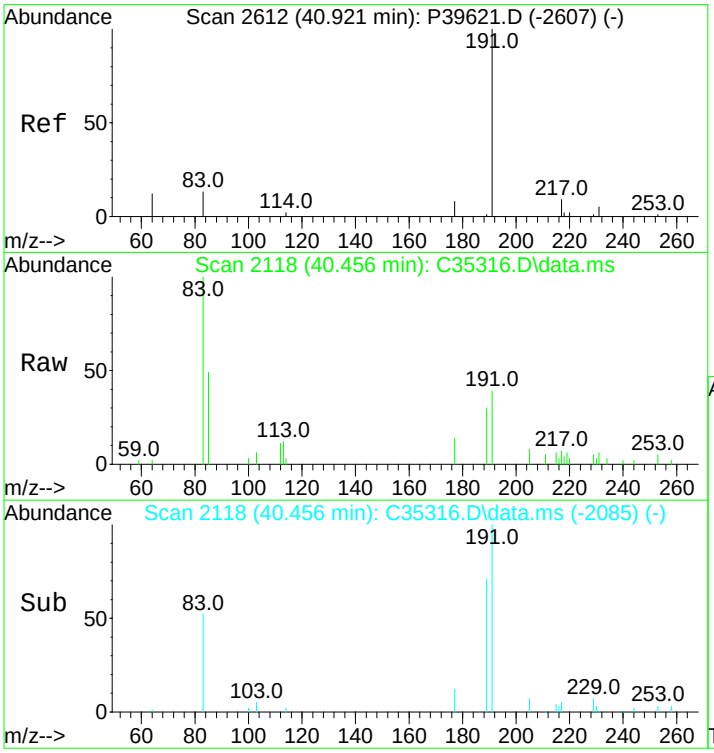


#92
Hopane (T19)
Concen: 1441.15 ng/mL
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:191 Resp: 31363

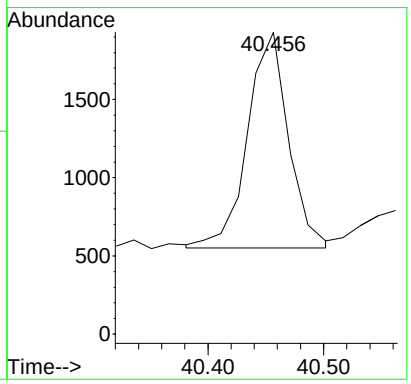
Ion	Ratio	Lower	Upper
191	100		
177	7.5	17.2	25.8#

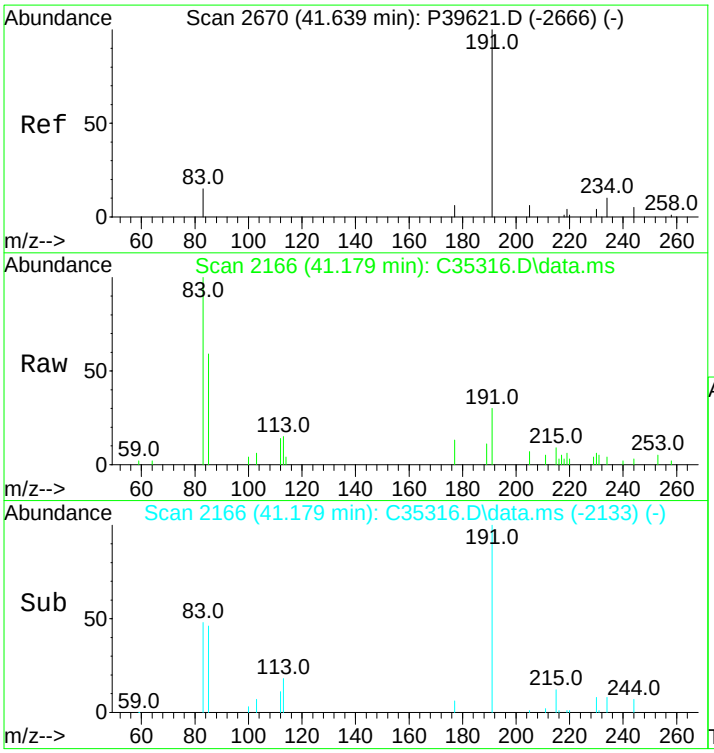




#94
C23 Tricyclic Terpane (T4)
Concen: 156.32 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

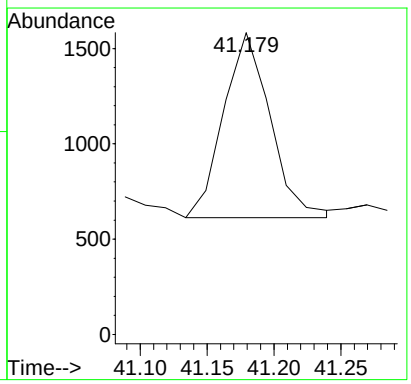
Tgt Ion:191 Resp: 3402

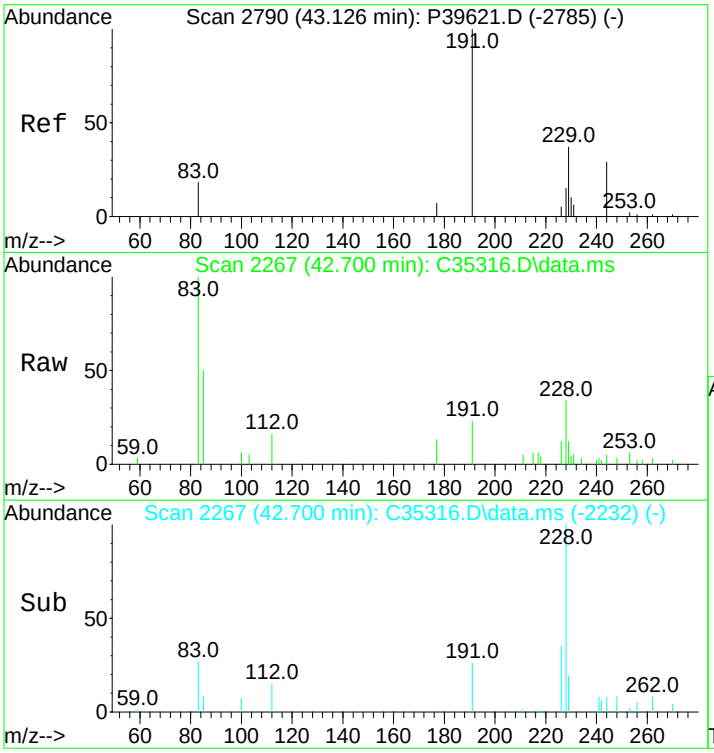




#95
C24 Tricyclic Terpane (T5)
Concen: 109.09 ng/ml
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

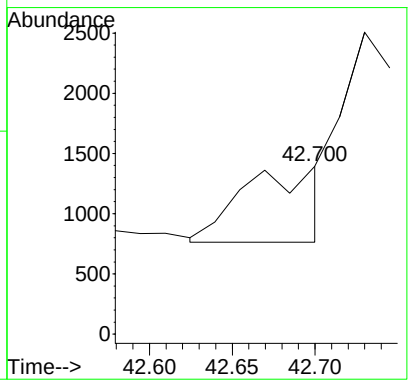
Tgt Ion:191 Resp: 2374

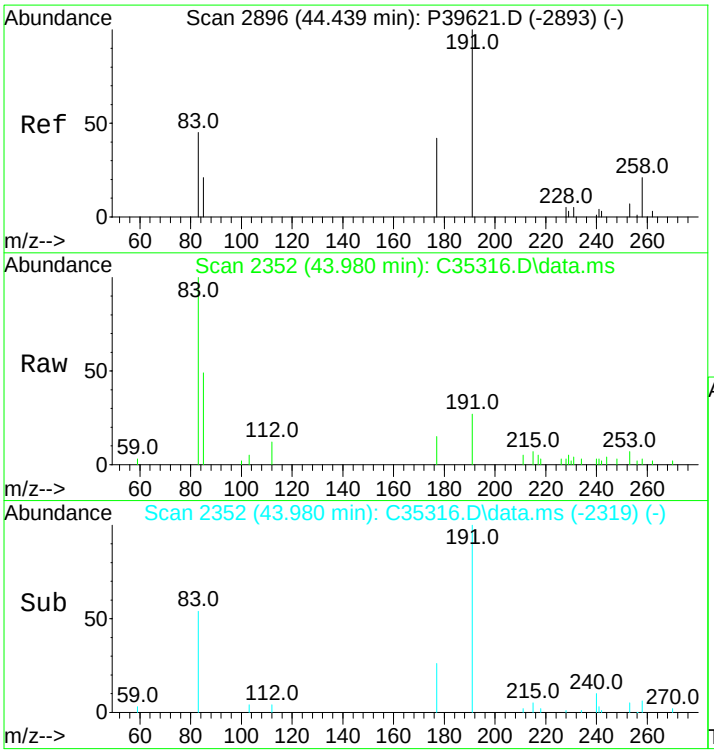




#96
C25 Tricyclic Terpane (T6)
Concen: 92.77 ng/ml m
RT: 42.700 min Scan# 2267
Delta R.T. 0.030 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

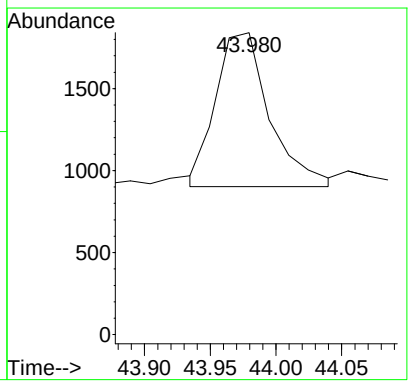
Tgt Ion:191 Resp: 2019

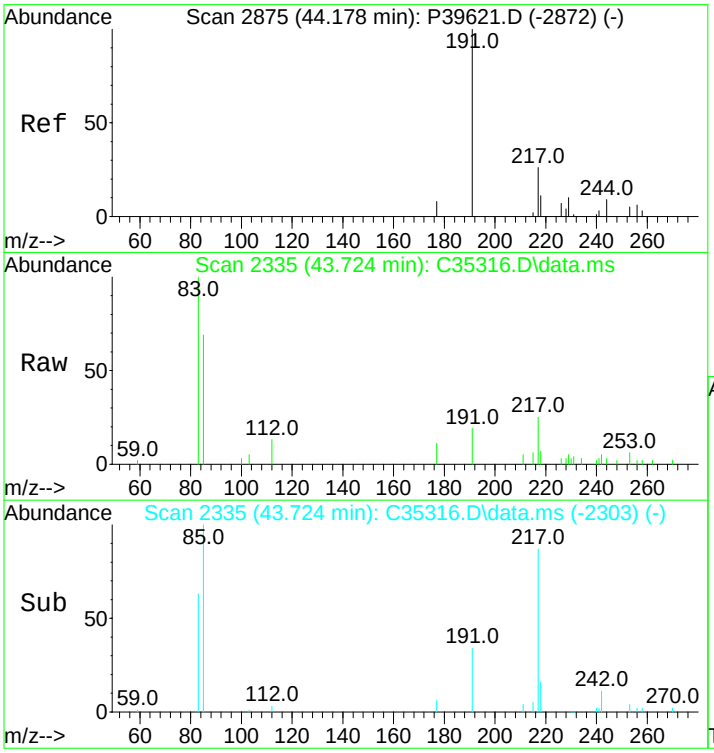




#97
C24 Tetracyclic Terpane (T6a)
Concen: 122.87 ng/ml m
RT: 43.980 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

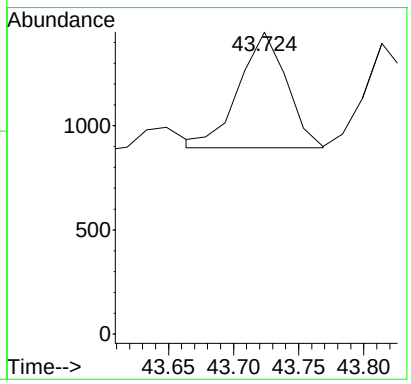
Tgt Ion:191 Resp: 2674

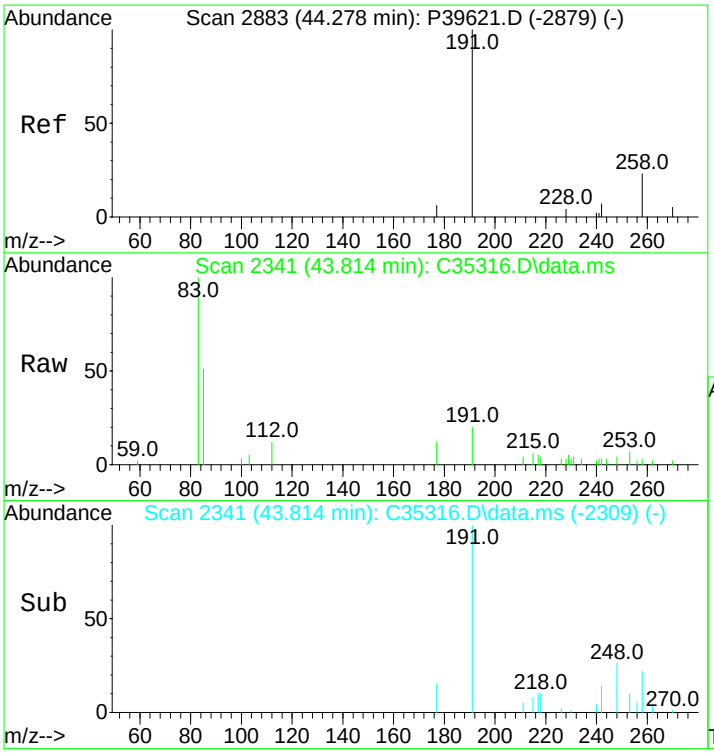




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 64.65 ng/ml m
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

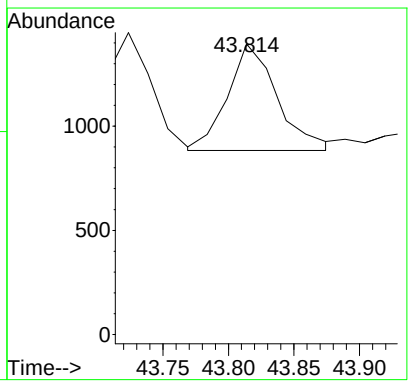
Tgt Ion:191 Resp: 1407

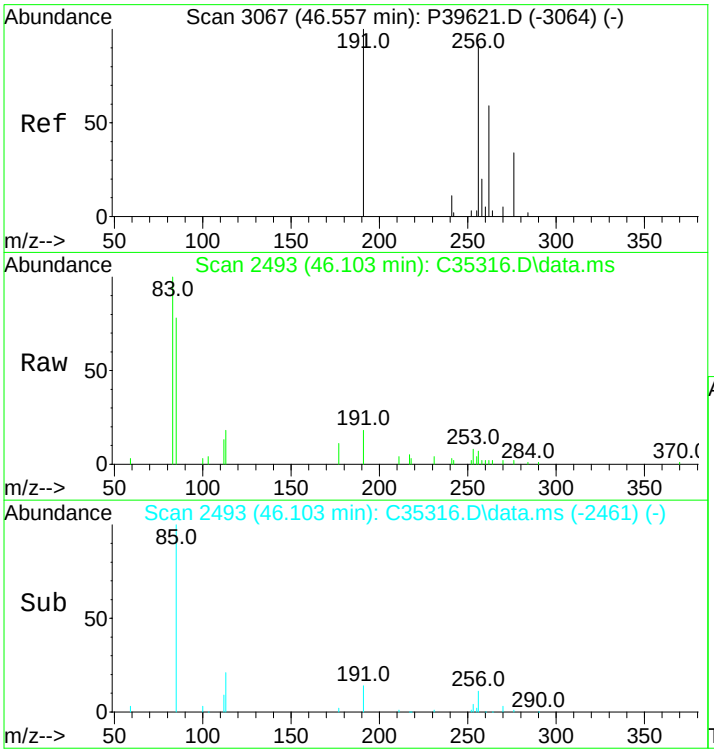




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 61.94 ng/ml m
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

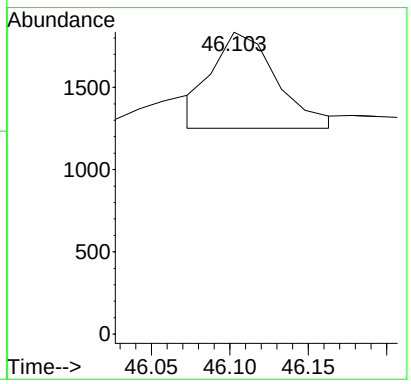
Tgt Ion:191 Resp: 1348

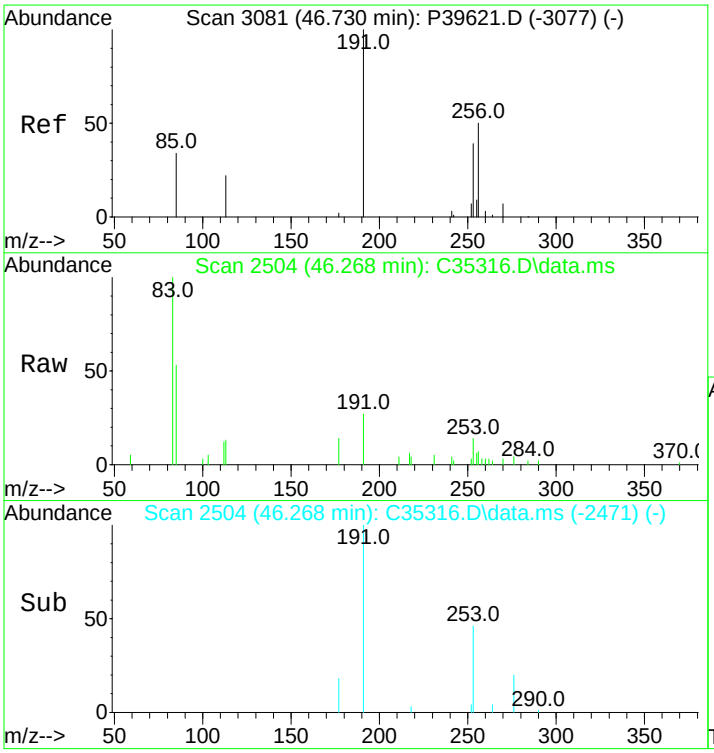




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 76.83 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

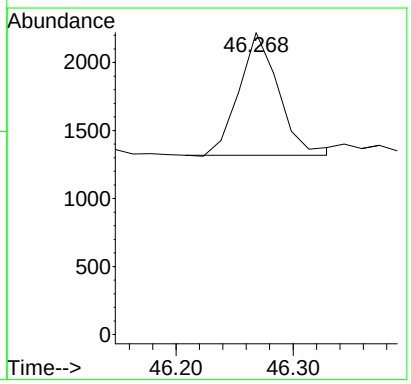
Tgt Ion:191 Resp: 1672

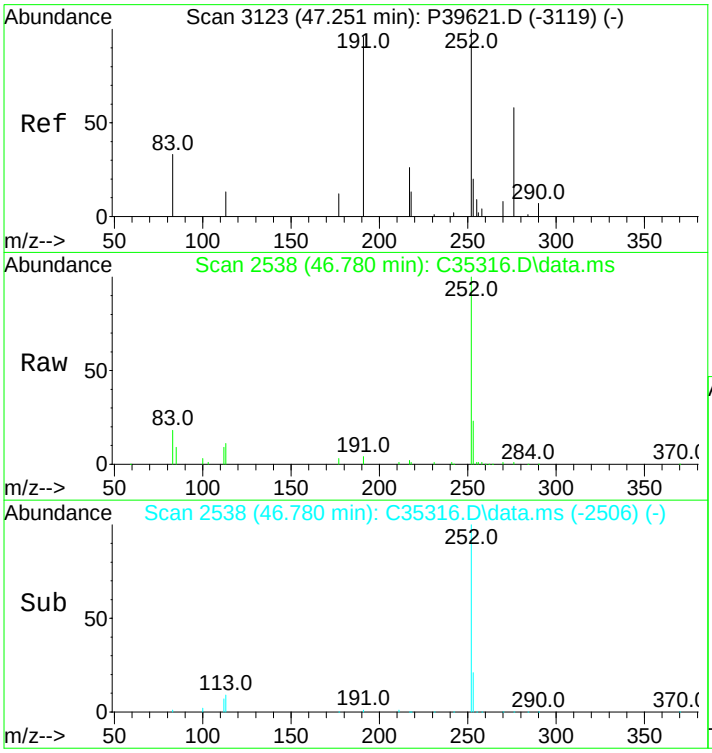




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 97.14 ng/ml
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

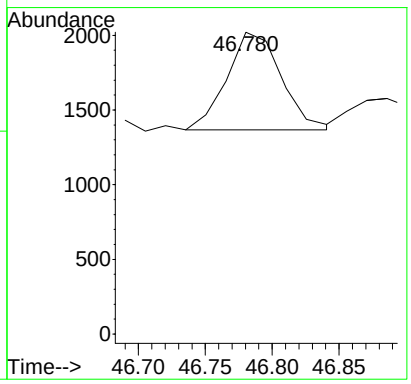
Tgt Ion:191 Resp: 2114

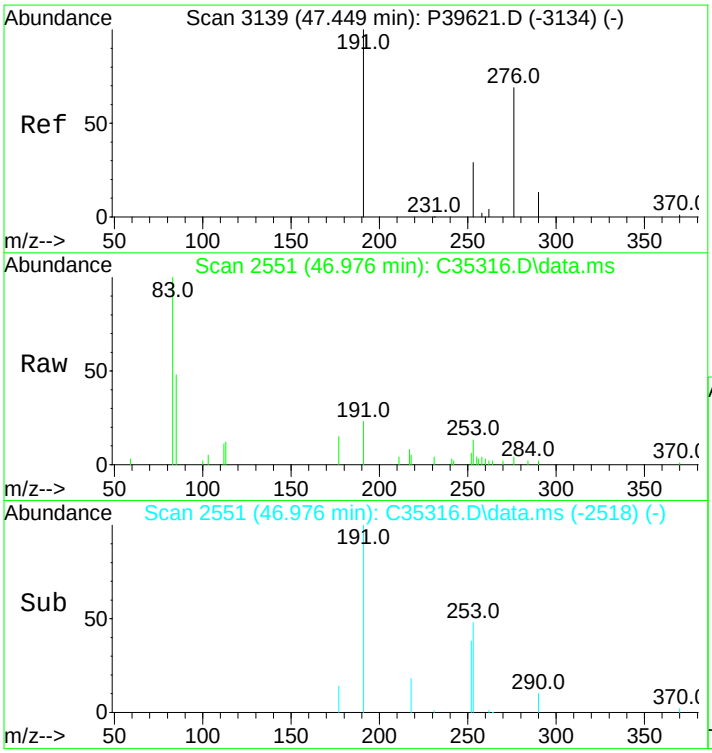




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 85.47 ng/ml
RT: 46.780 min Scan# 2538
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

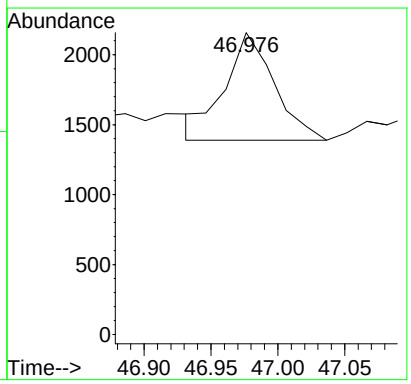
Tgt Ion:191 Resp: 1860

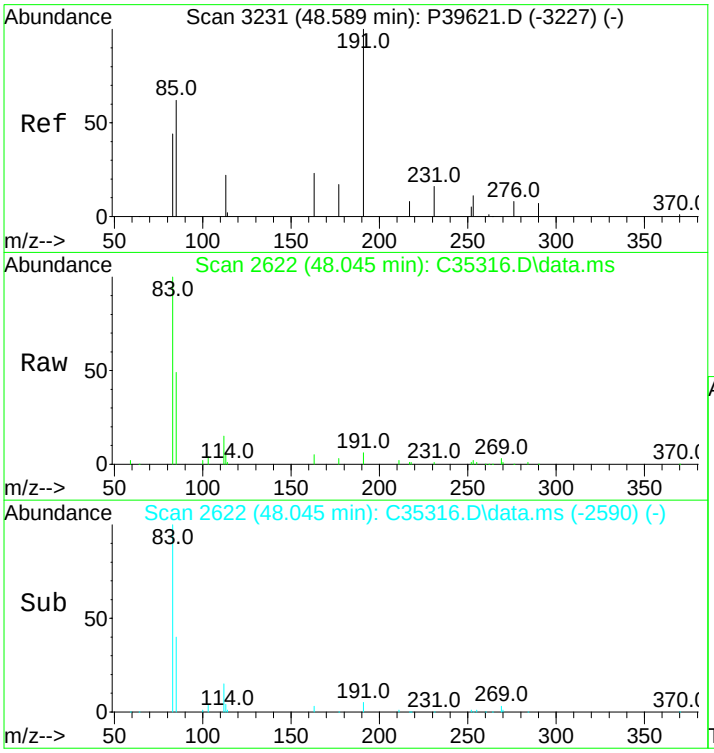




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 90.75 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

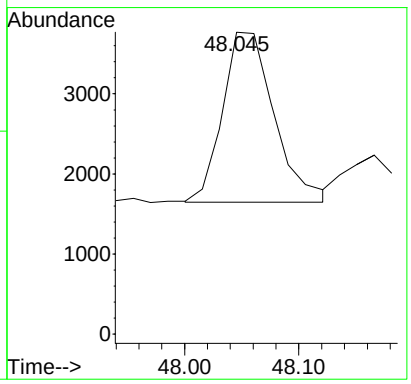
Tgt Ion:191 Resp: 1975

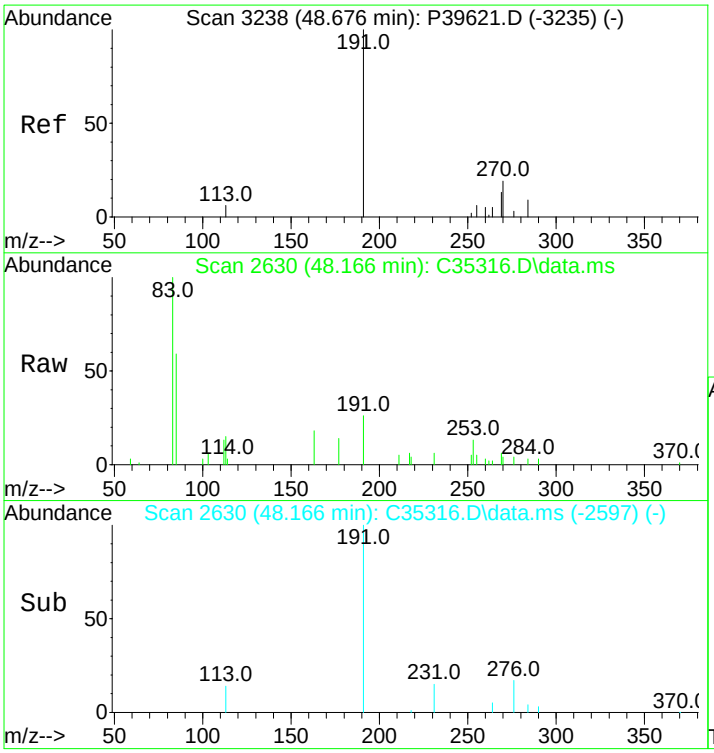




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 307.50 ng/ml m
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

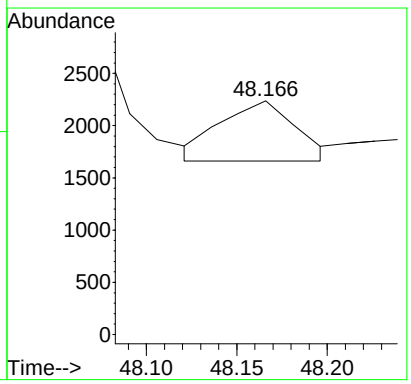
Tgt Ion:191 Resp: 6692

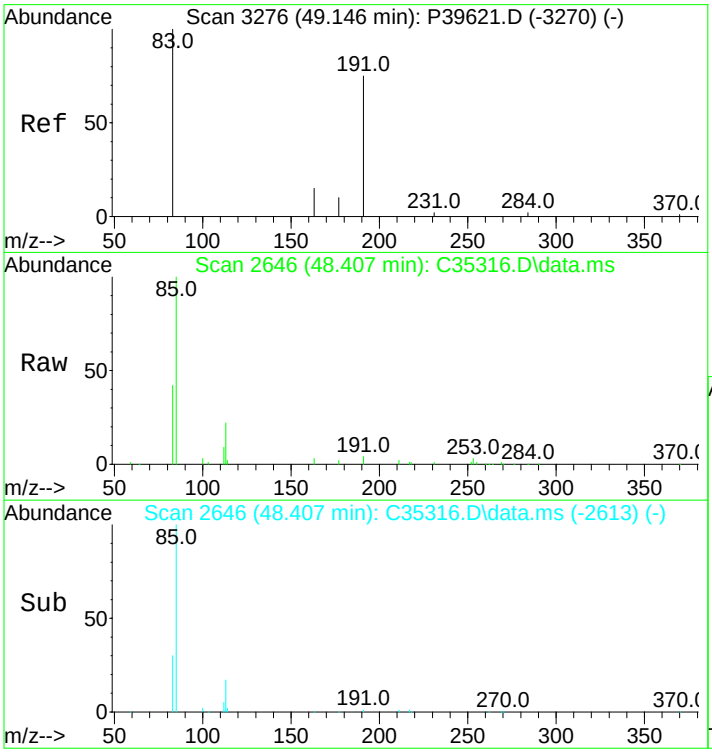




#105
C30 Tricyclic Terpane-22S
Concen: 76.65 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

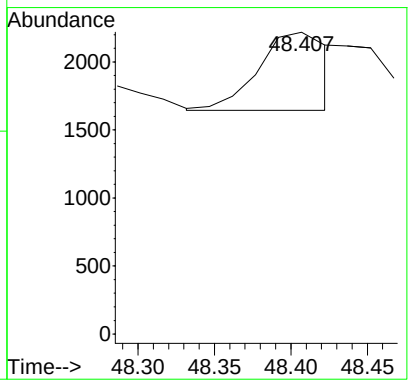
Tgt Ion:191 Resp: 1668

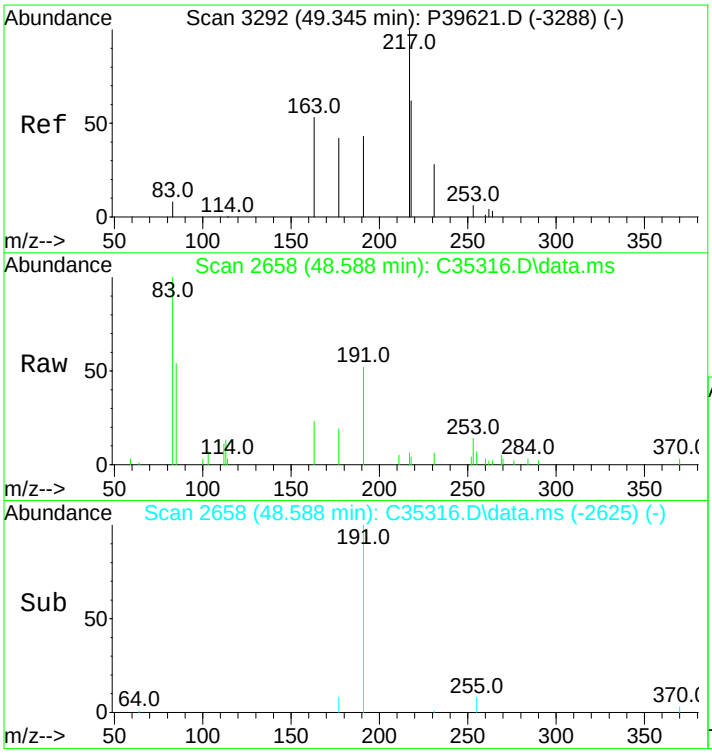




#106
C30 Tricyclic Terpane-22R
Concen: 82.11 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

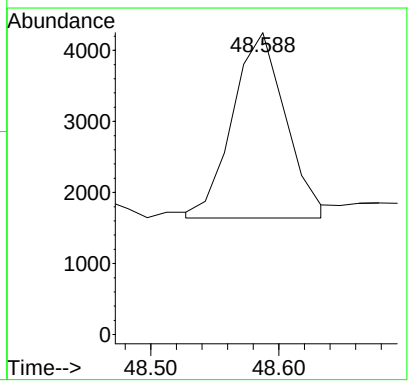
Tgt Ion:191 Resp: 1787

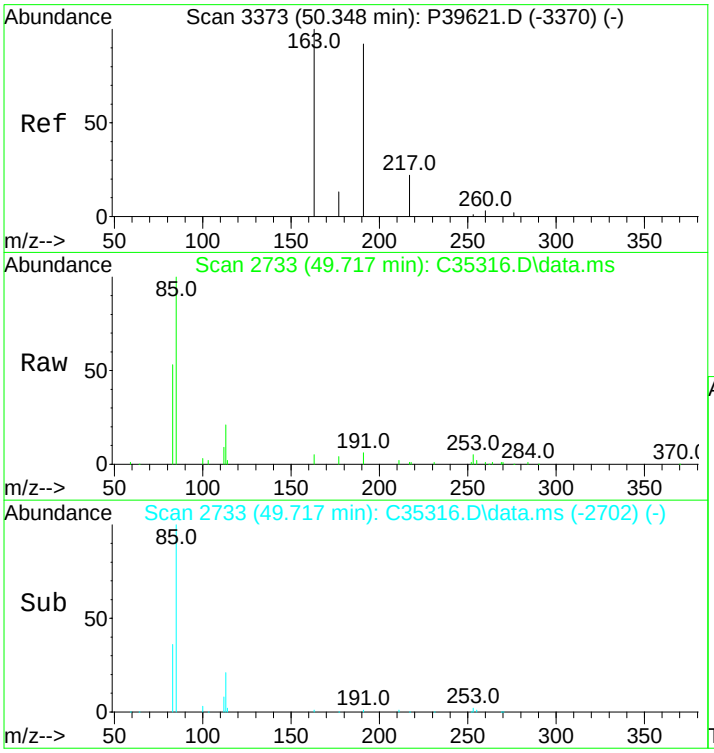




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 345.73 ng/ml m
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

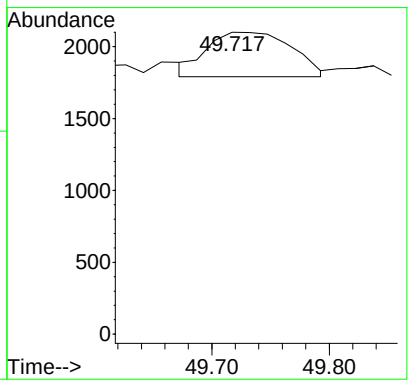
Tgt Ion:191 Resp: 7524

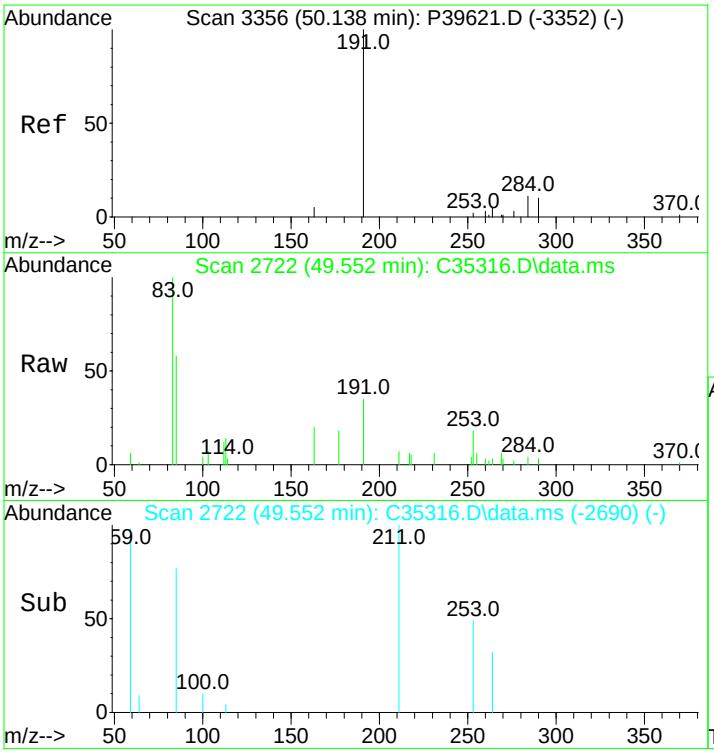




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 70.99 ng/ml m
RT: 49.717 min Scan# 2733
Delta R.T. -0.030 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

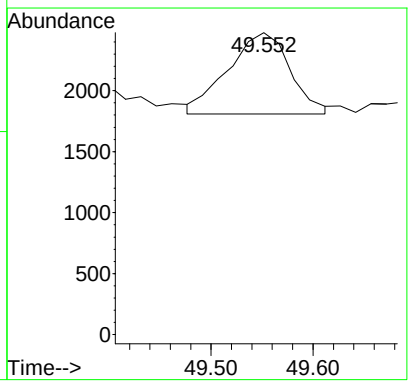
Tgt Ion:191 Resp: 1545

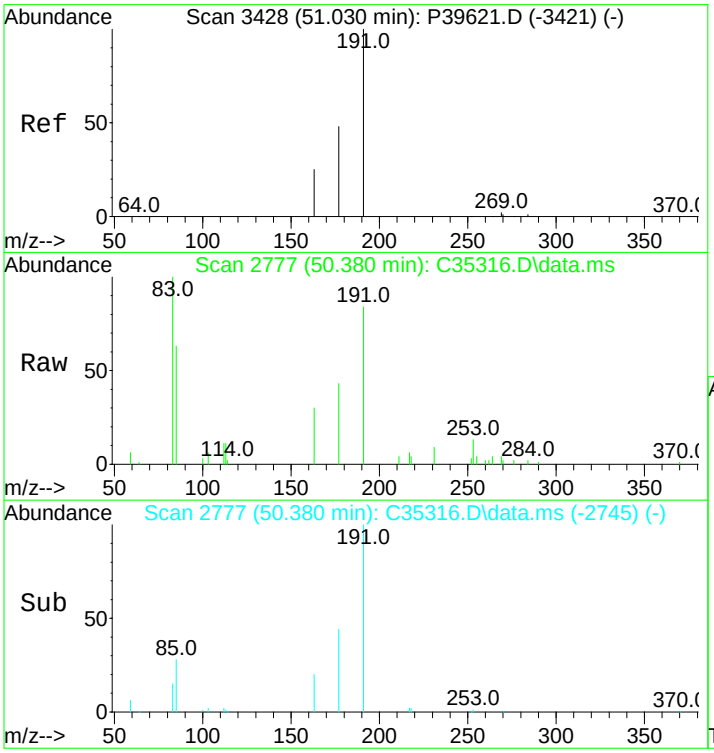




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 130.36 ng/ml m
RT: 49.552 min Scan# 2722
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

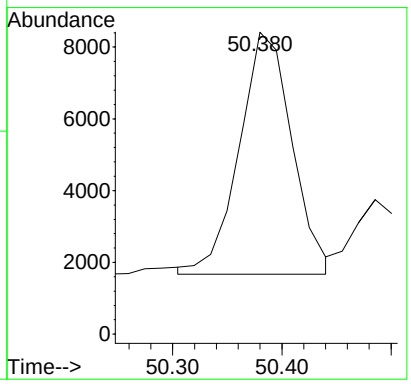
Tgt Ion:191 Resp: 2837

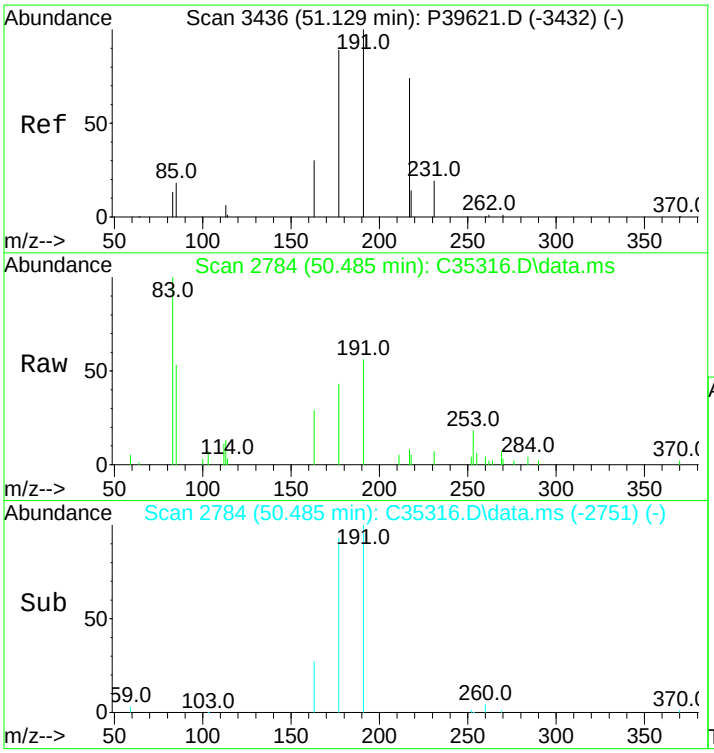




#110
30-Norhopane (T15)
Concen: 1040.32 ng/ml m
RT: 50.380 min Scan# 2777
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

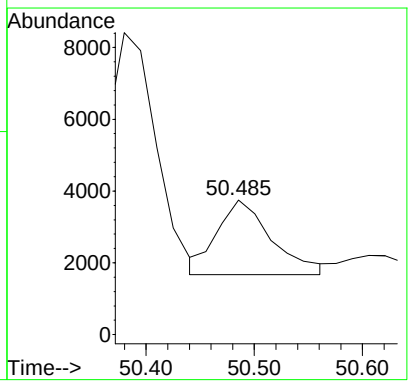
Tgt Ion:191 Resp: 22640

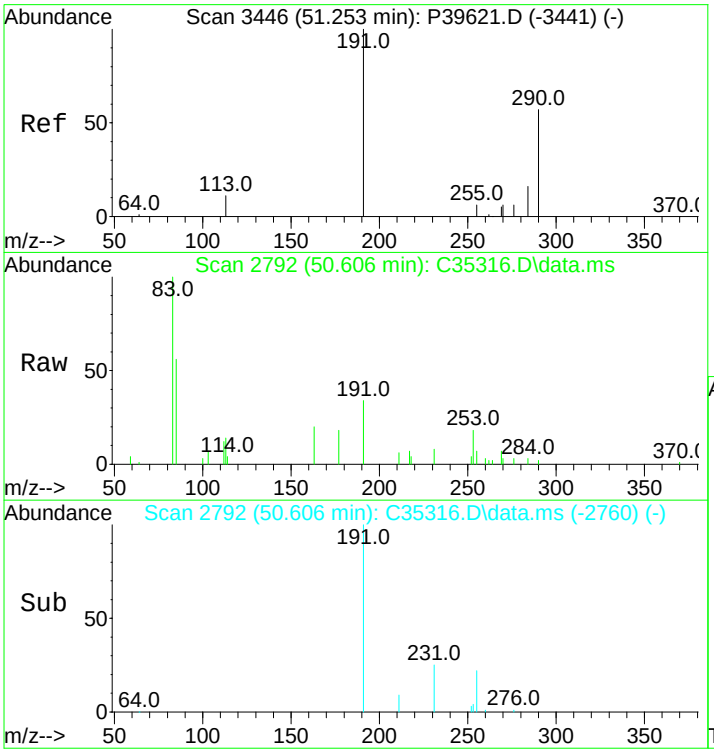




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 336.40 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

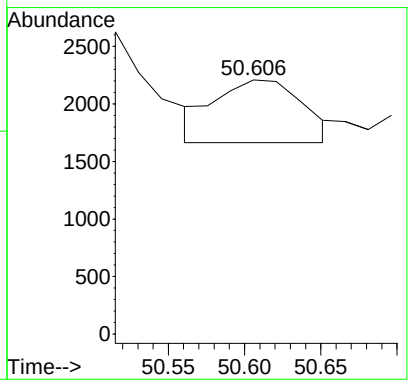
Tgt Ion:191 Resp: 7321

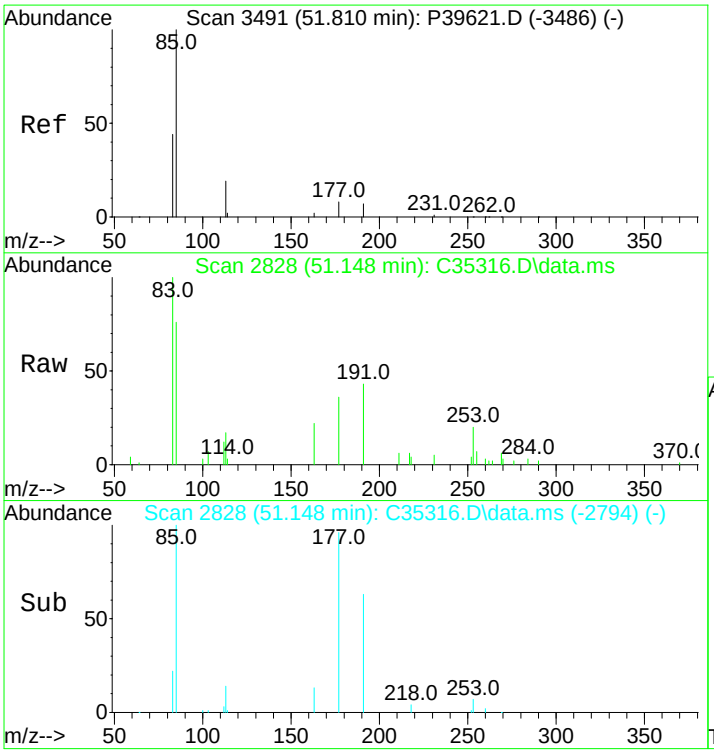




#112
17a(H)-Diahopane (X)
Concen: 100.22 ng/ml m
RT: 50.606 min Scan# 2792
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

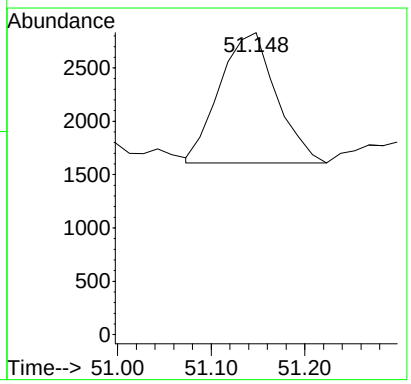
Tgt Ion:191 Resp: 2181

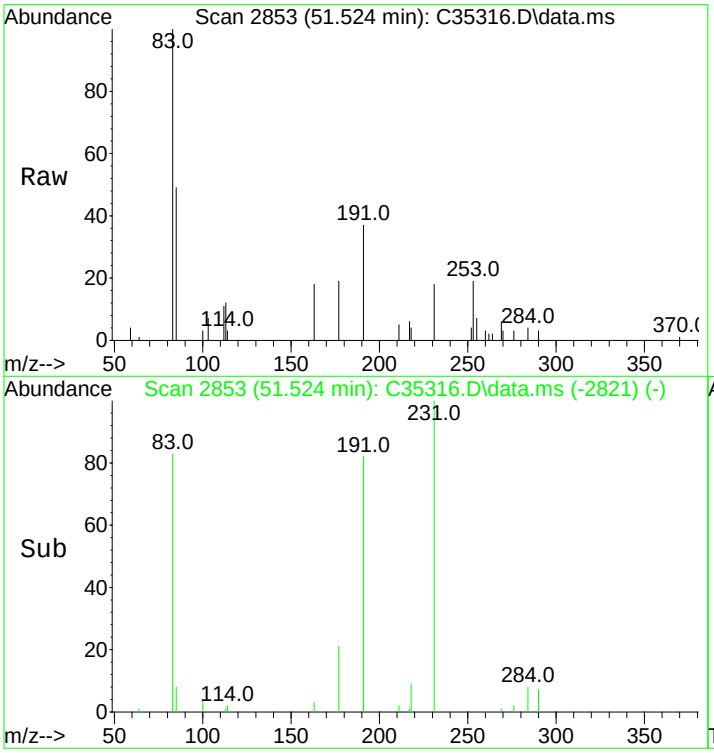




#113
30-Normoretane (T17)
Concen: 235.31 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

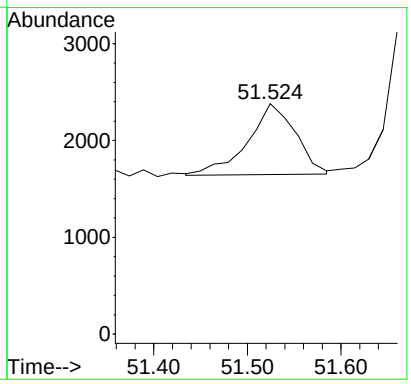
Tgt Ion:191 Resp: 5121

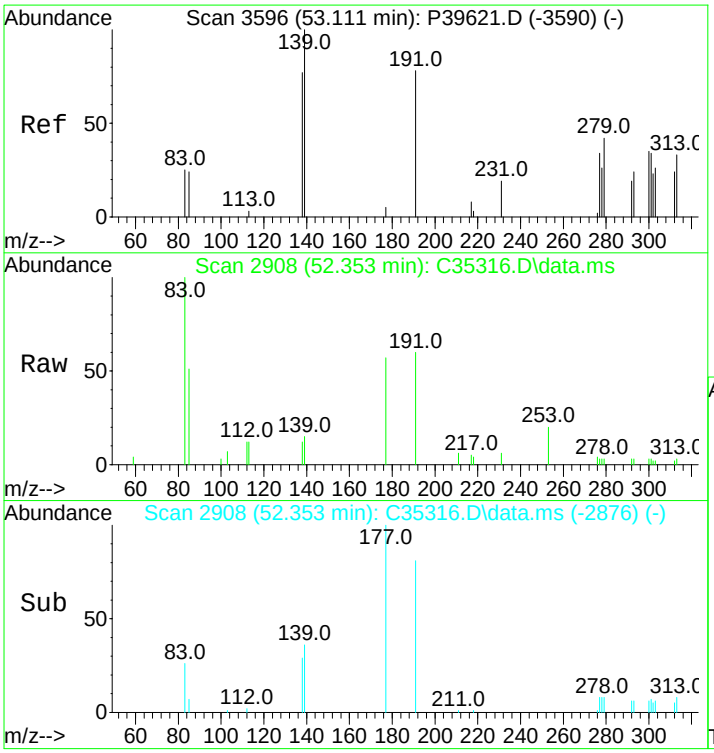




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 119.52 ng/ml
RT: 51.524 min Scan# 2853
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

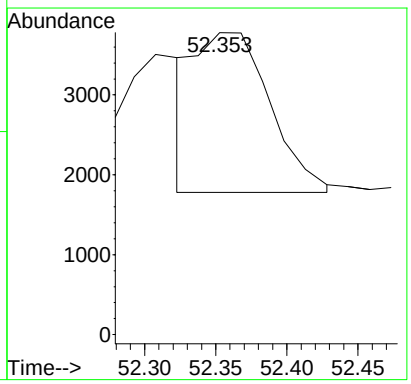
Tgt Ion:191 Resp: 2601

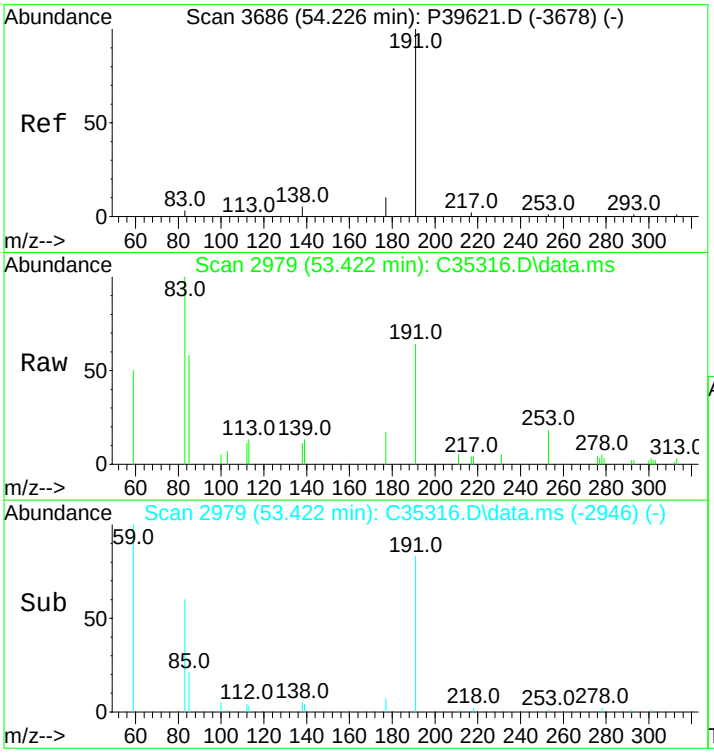




#115
Moretane (T20)
Concen: 336.91 ng/ml m
RT: 52.353 min Scan# 2908
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

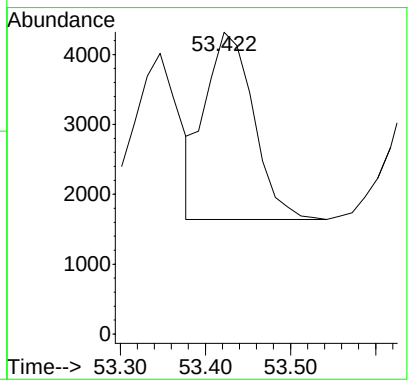
Tgt Ion:191 Resp: 7332

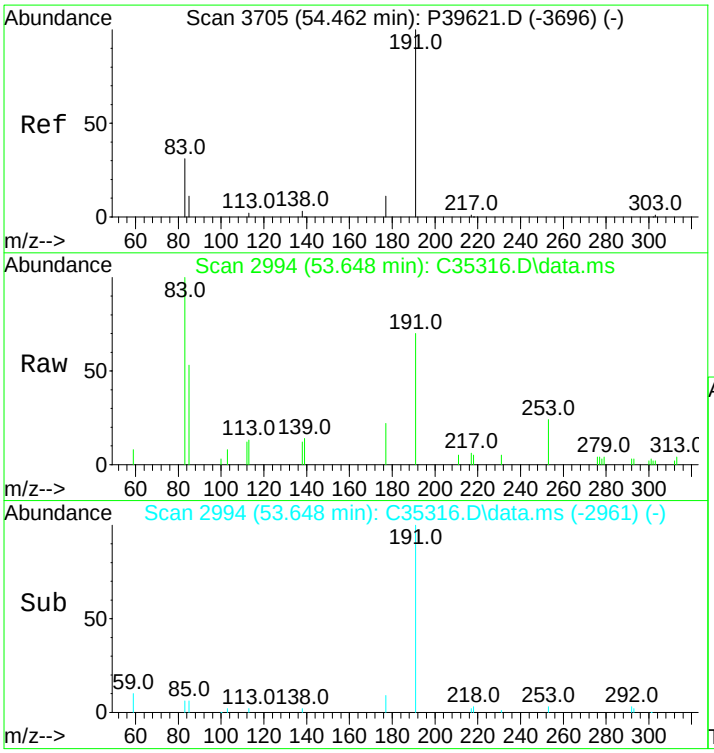




#116
30-Homohopane-22S (T21)
Concen: 484.46 ng/ml
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

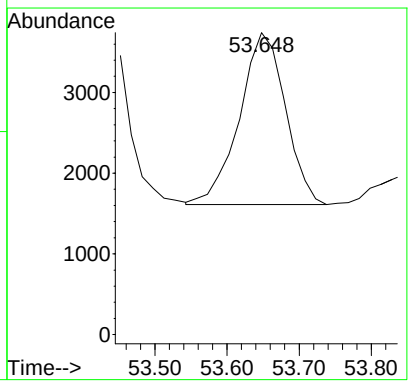
Tgt Ion:191 Resp: 10543

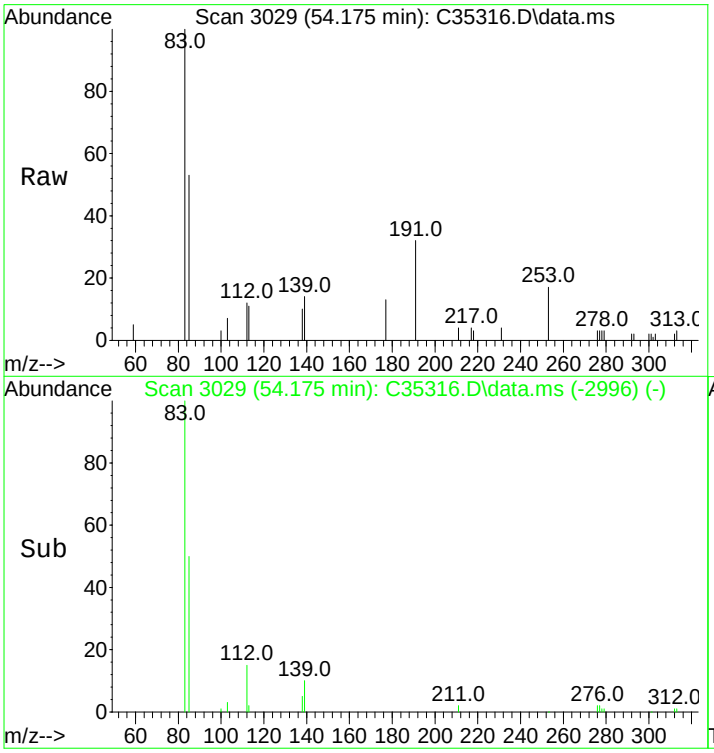




#117
30-Homohopane-22R (T22)
Concen: 432.72 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

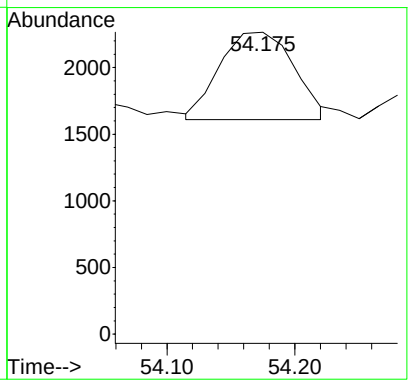
Tgt Ion:191 Resp: 9417

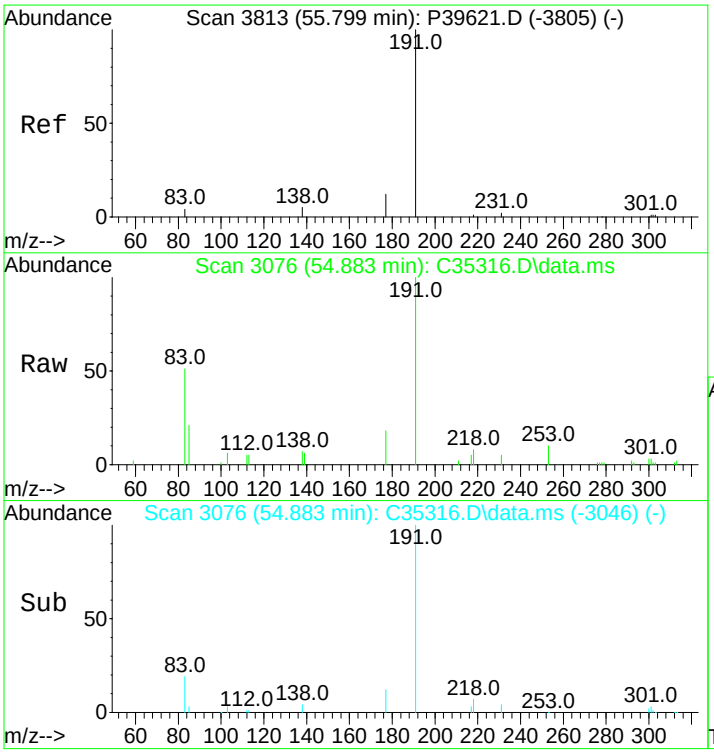




#118
Gammacerane/C32-diahopane
Concen: 121.63 ng/mL m
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

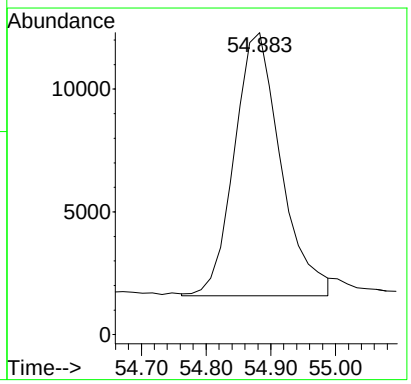
Tgt Ion:191 Resp: 2647

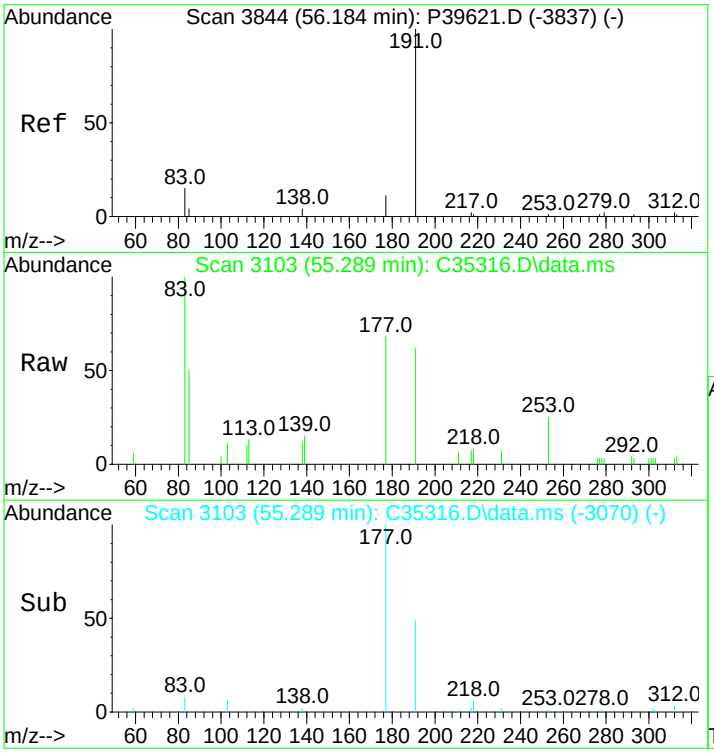




#119
30,31-Bishomohopane-22S (T26)
Concen: 2461.57 ng/ml m
RT: 54.883 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

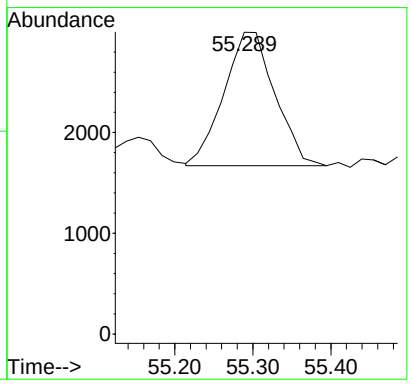
Tgt Ion:191 Resp: 53570

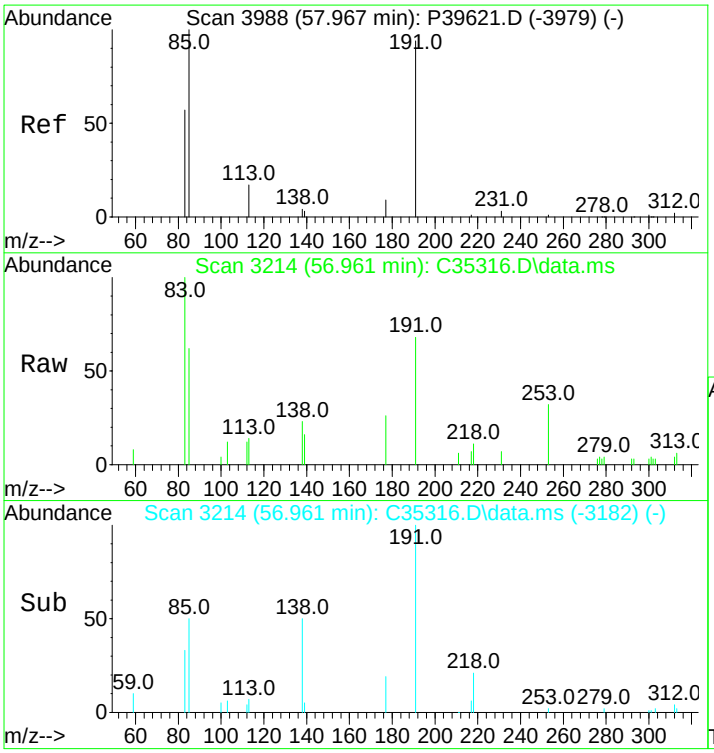




#120
30,31-Bishomohopane-22R (T27)
Concen: 276.48 ng/ml
RT: 55.289 min Scan# 3103
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

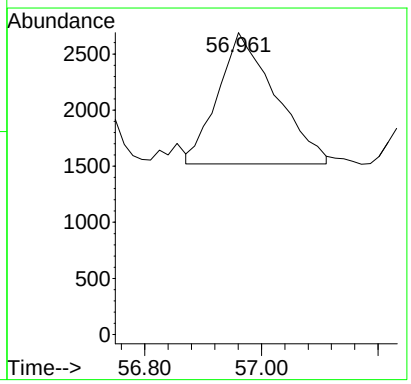
Tgt Ion:191 Resp: 6017

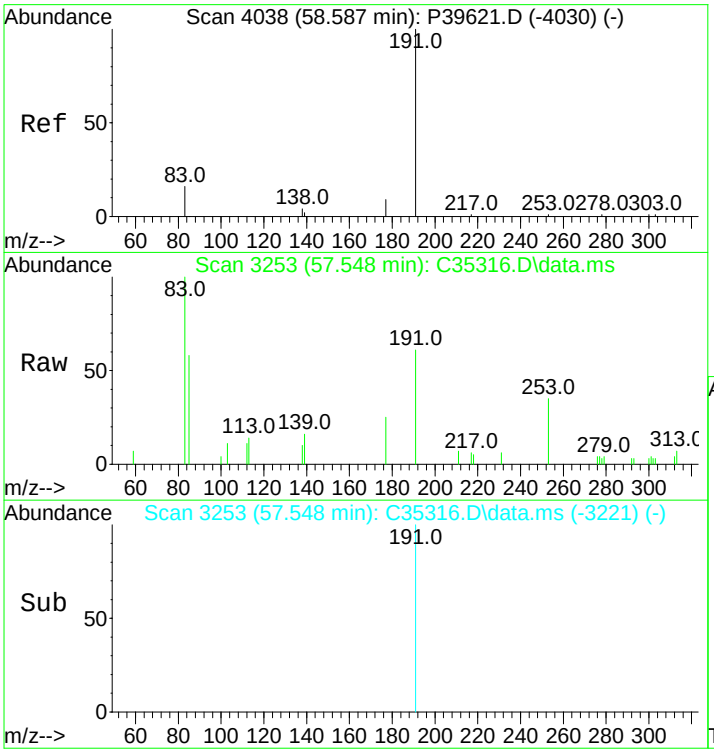




#121
30,31-Trishomohopane-22S (T30)
Concen: 366.41 ng/ml m
RT: 56.961 min Scan# 3214
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

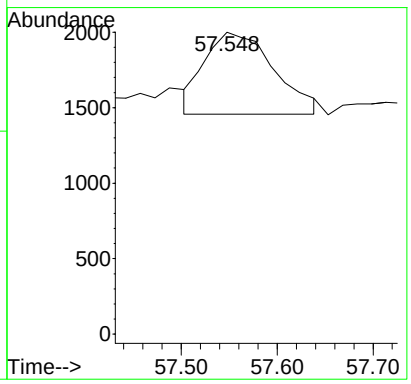
Tgt Ion:191 Resp: 7974

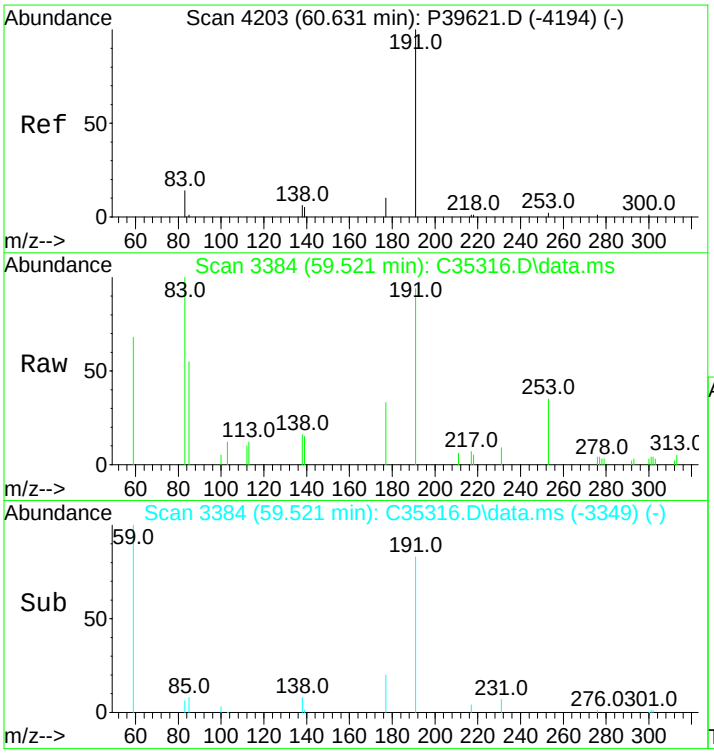




#122
30,31-Trishomohopane-22R (T31)
Concen: 125.54 ng/ml m
RT: 57.548 min Scan# 3253
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

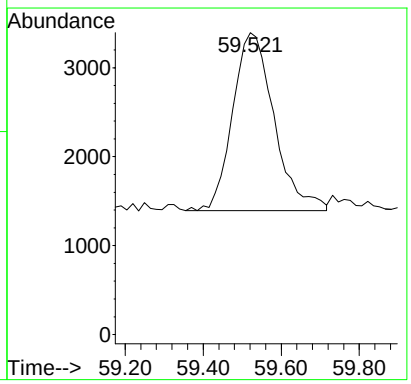
Tgt Ion:191 Resp: 2732

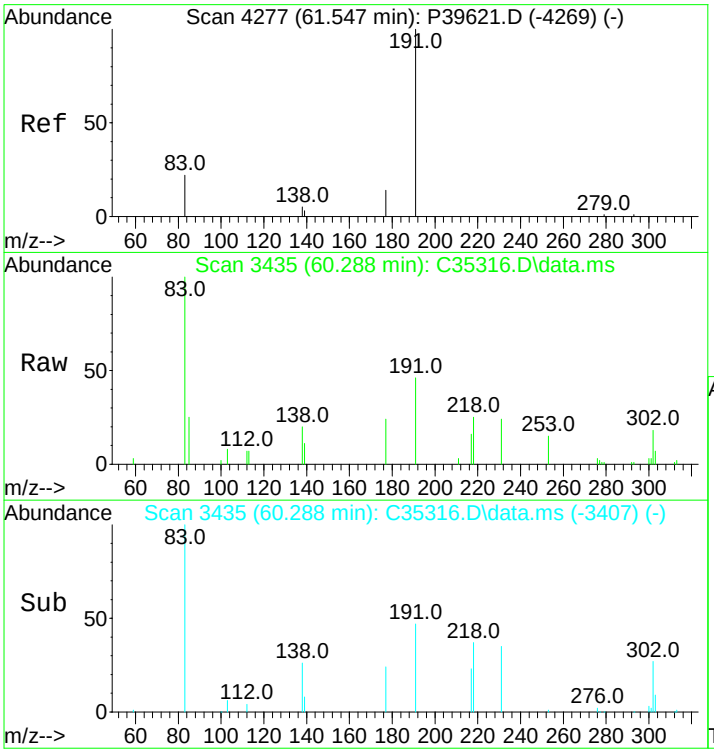




#123
Tetrakishomohopane-22S (T32)
Concen: 680.07 ng/ml
RT: 59.521 min Scan# 3384
Delta R.T. 0.030 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

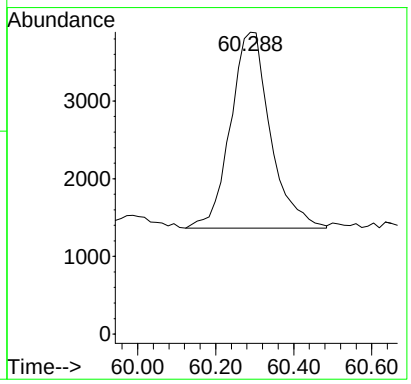
Tgt Ion:191 Resp: 14800

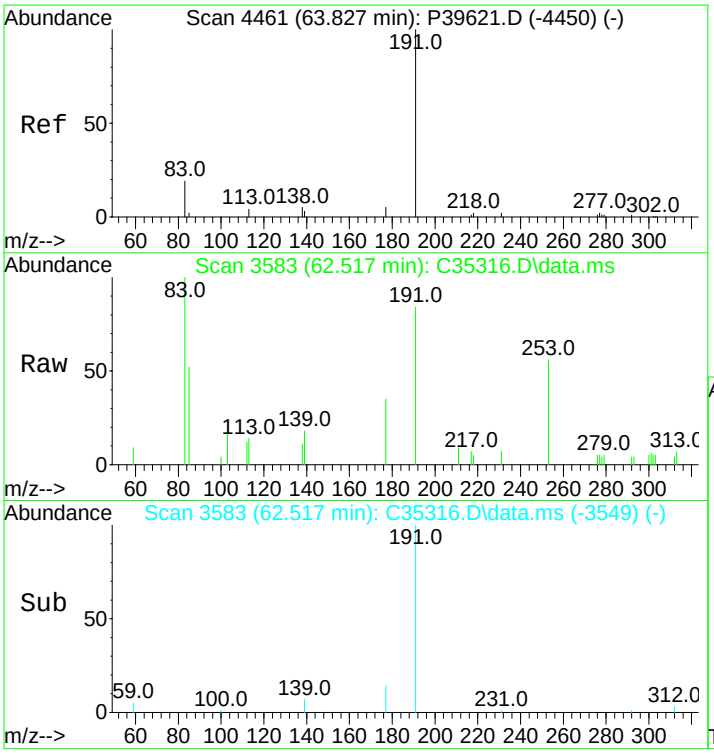




#124
Tetrakishomohopane-22R (T33)
Concen: 821.04 ng/ml
RT: 60.288 min Scan# 3435
Delta R.T. -0.075 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

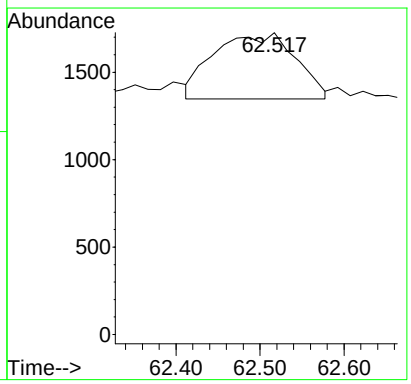
Tgt Ion:191 Resp: 17868

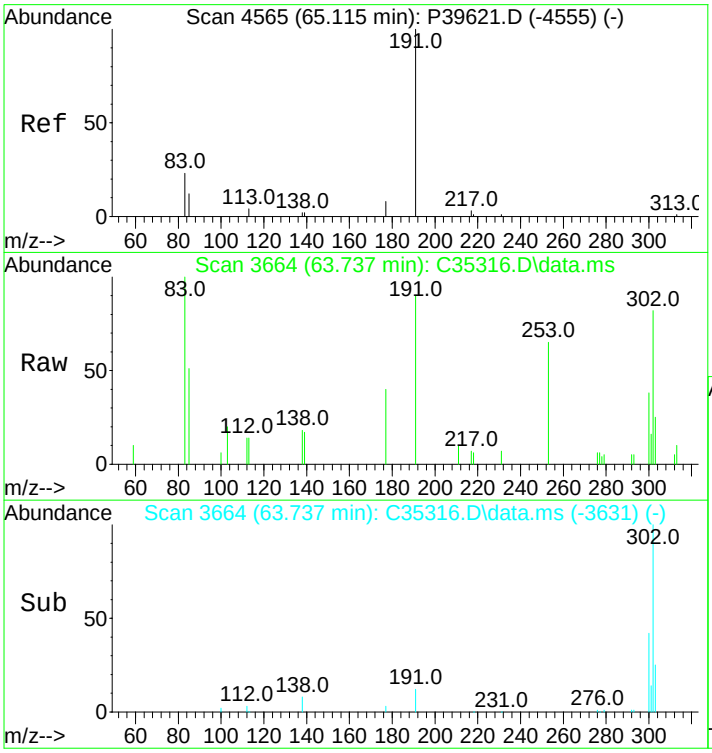




#125
Pentakishomohopane-22S (T34)
Concen: 116.58 ng/ml m
RT: 62.517 min Scan# 3583
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

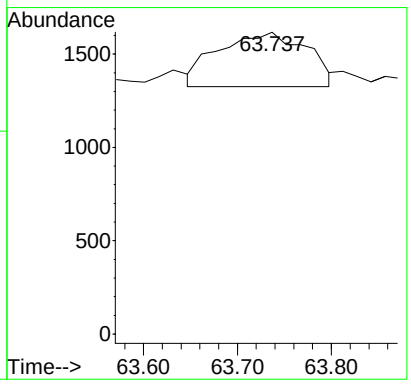
Tgt Ion:191 Resp: 2537

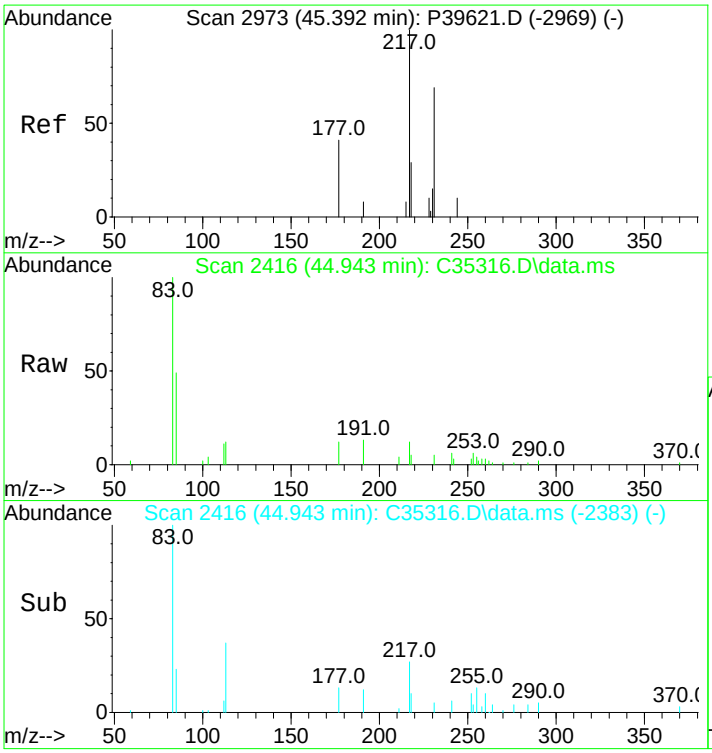




#126
Pentakishomohopane-22R (T35)
Concen: 88.04 ng/ml m
RT: 63.737 min Scan# 3664
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

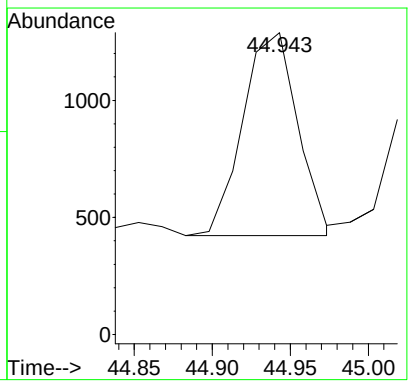
Tgt Ion:191 Resp: 1916

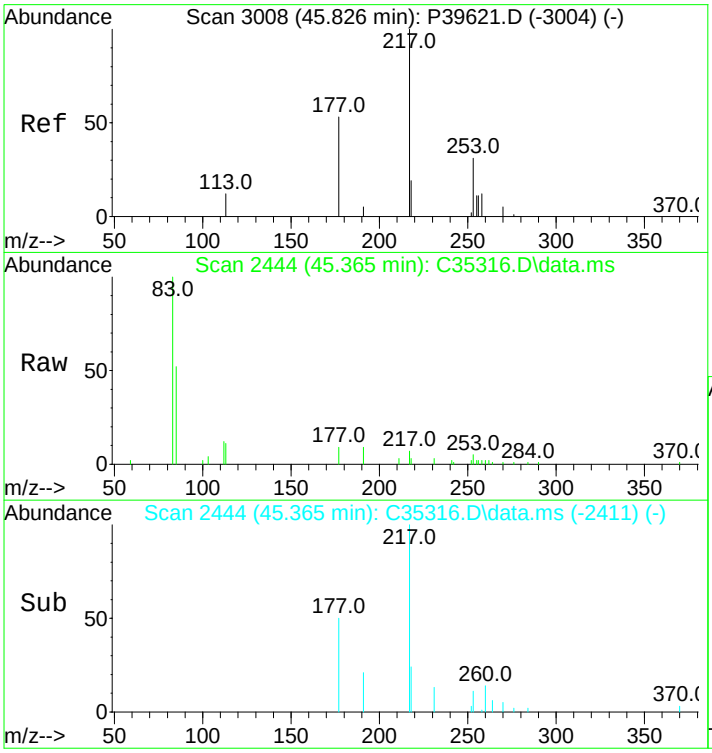




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 206.03 ng/ml
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

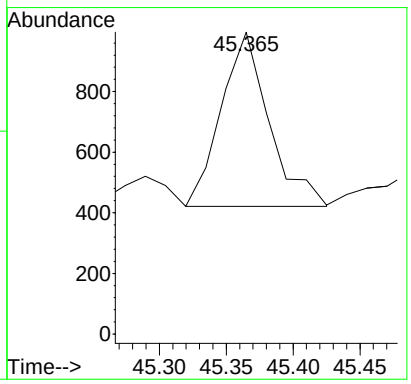
Tgt Ion:217 Resp: 2127

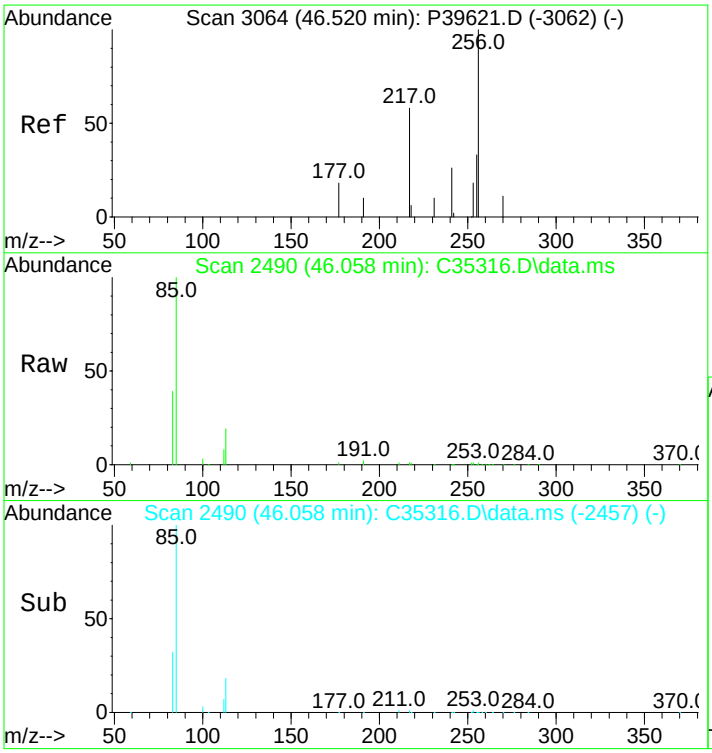




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 138.71 ng/ml
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

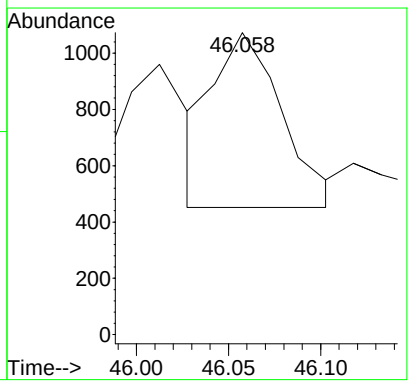
Tgt Ion:217 Resp: 1432

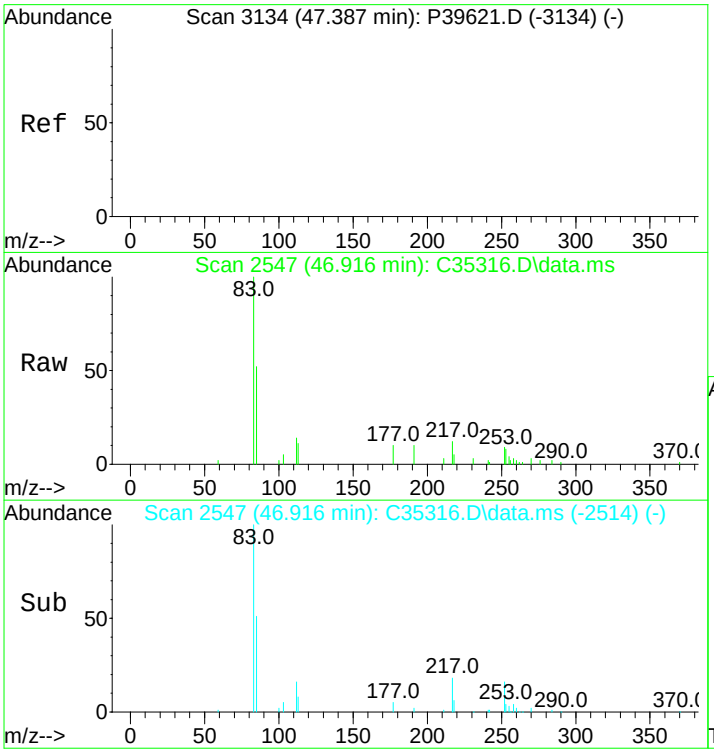




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 157.21 ng/ml m
RT: 46.058 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

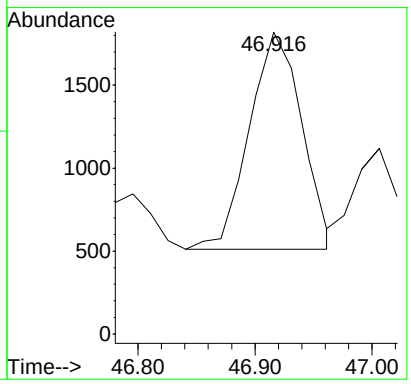
Tgt Ion:217 Resp: 1623

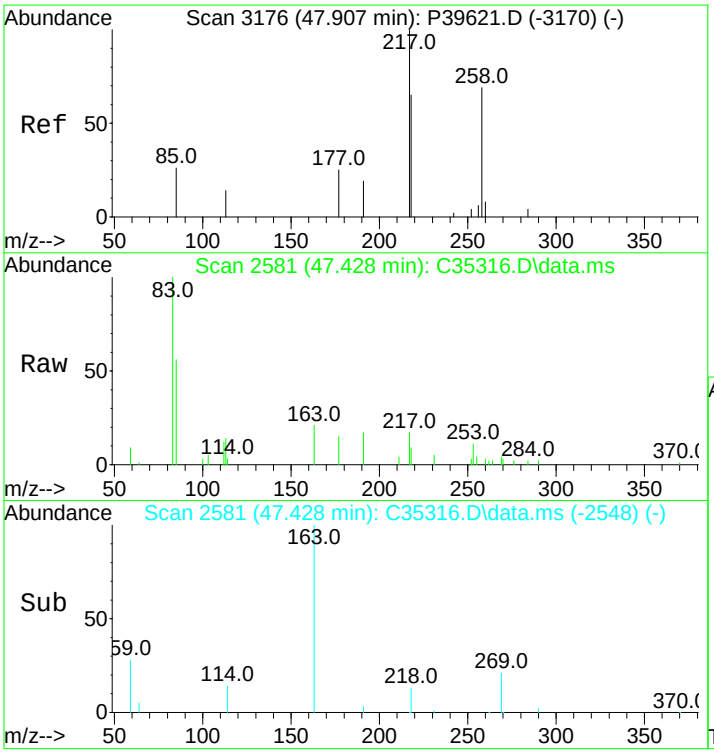




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 395.79 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

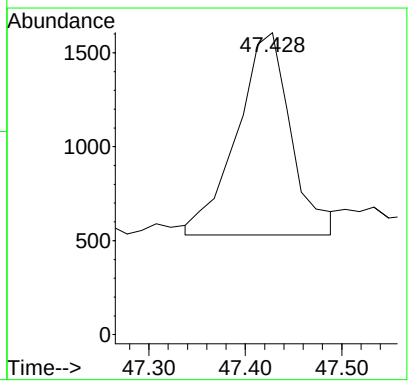
Tgt Ion:217 Resp: 4086

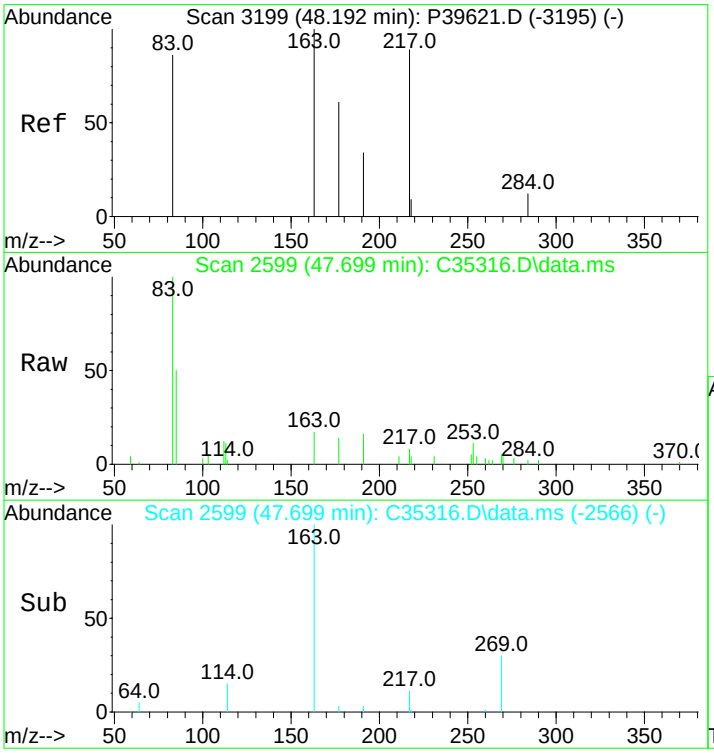




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 405.09 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

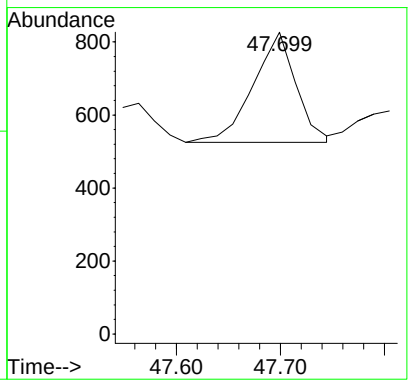
Tgt Ion:217 Resp: 4182

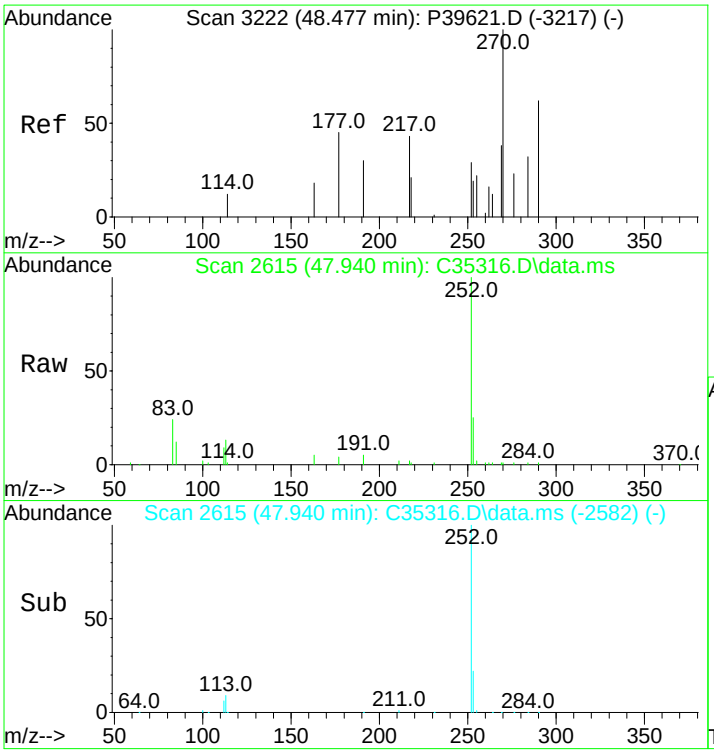




#133
Unknown Sterane (S18)
Concen: 84.27 ng/ml
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

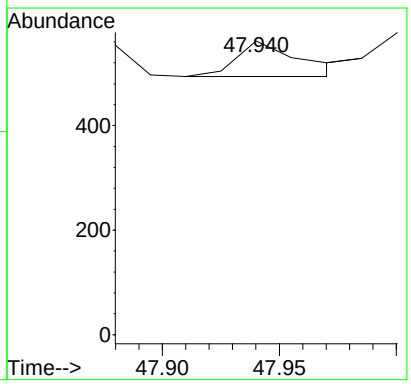
Tgt Ion:217 Resp: 870

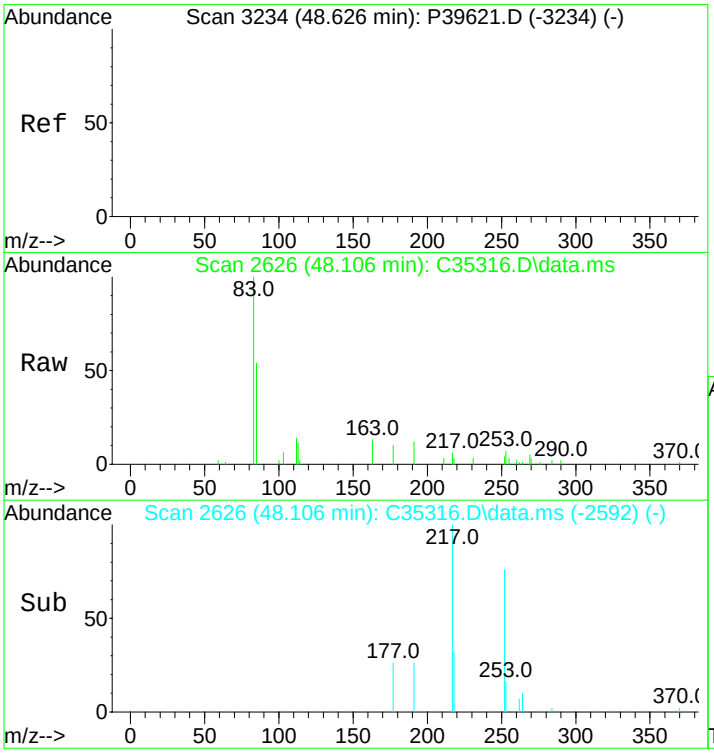




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 12.30 ng/ml
RT: 47.940 min Scan# 2615
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

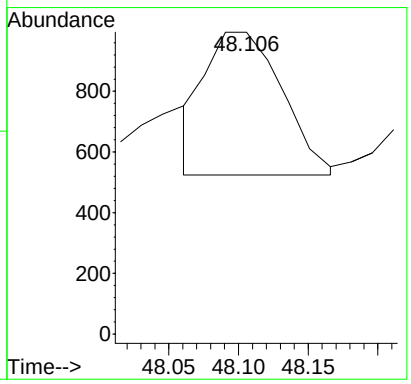
Tgt Ion:217 Resp: 127

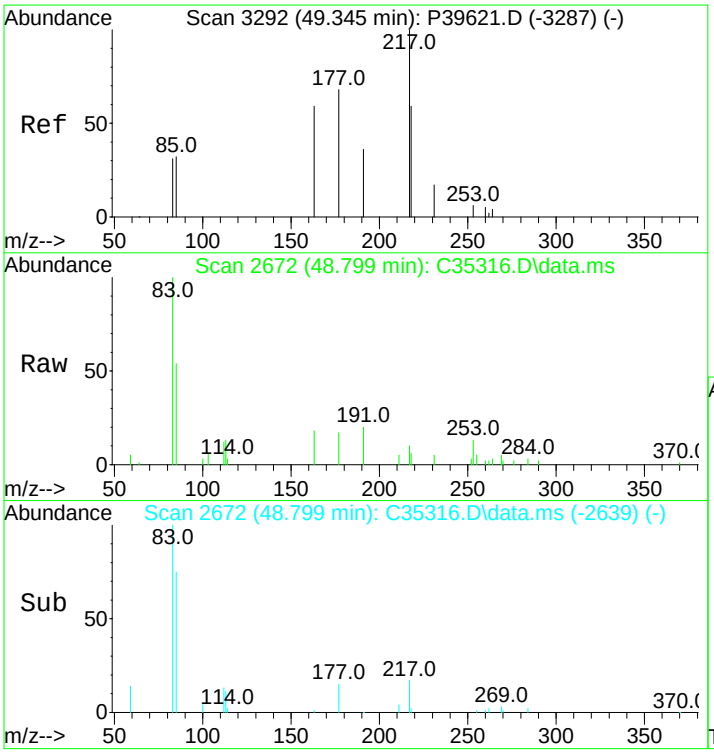




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 175.61 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

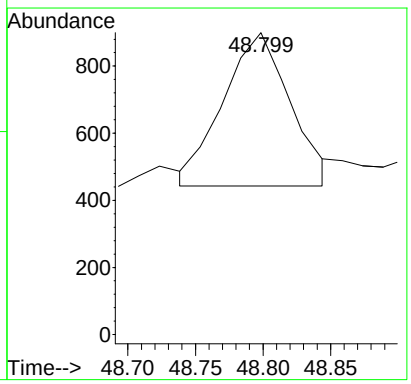
Tgt Ion:217 Resp: 1813

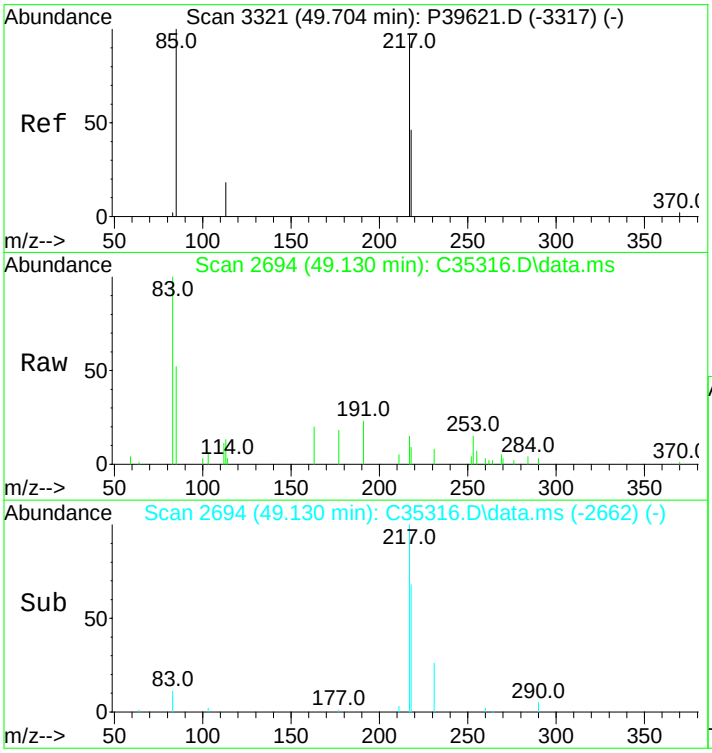




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 152.75 ng/ml m
RT: 48.799 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

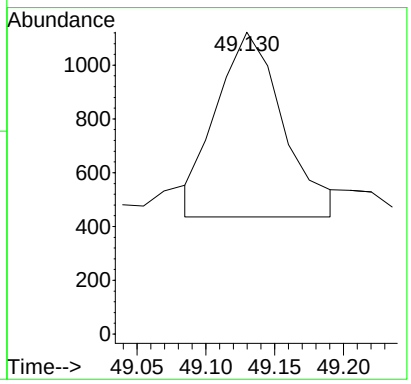
Tgt Ion:217 Resp: 1577

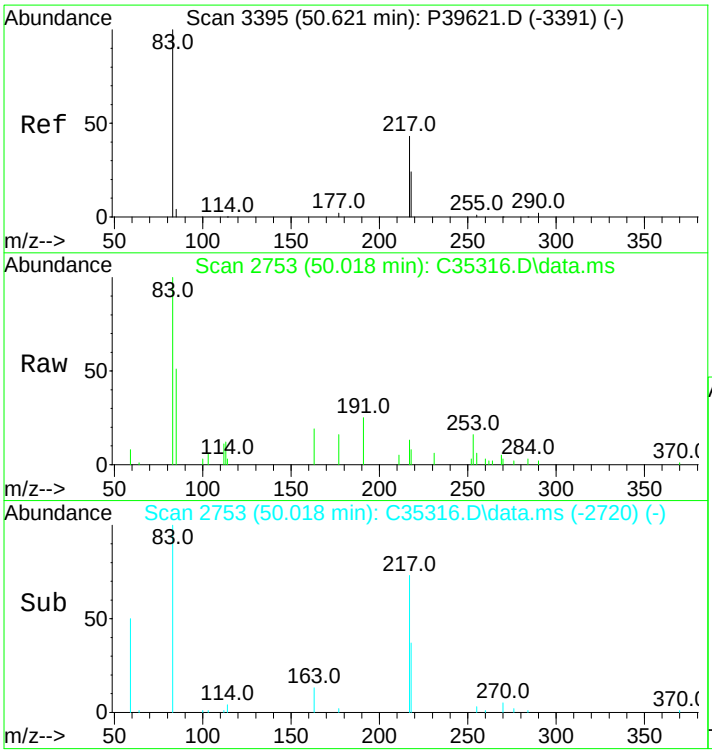




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 224.14 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

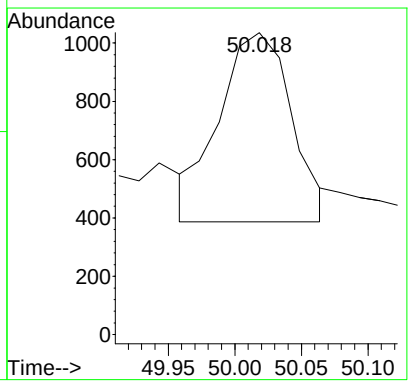
Tgt Ion:217 Resp: 2314

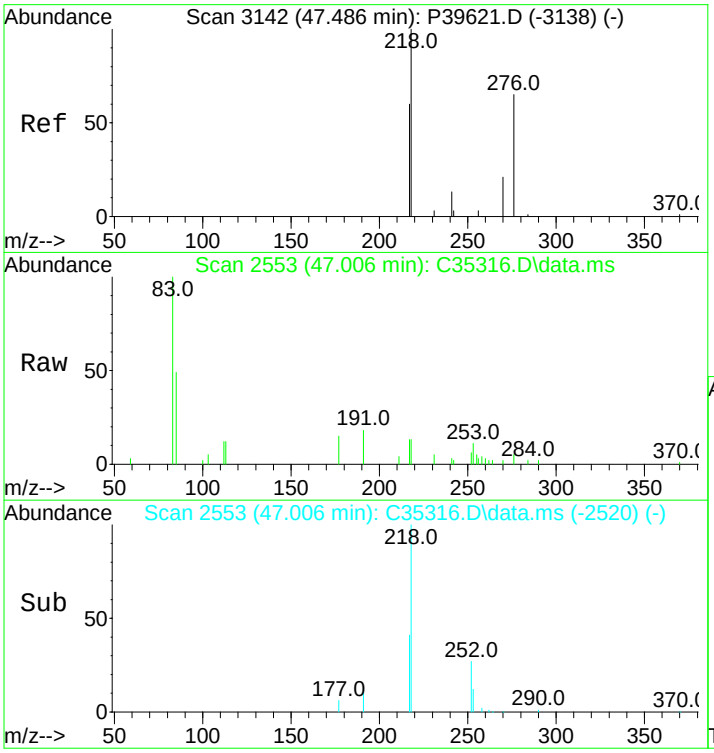




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 238.19 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

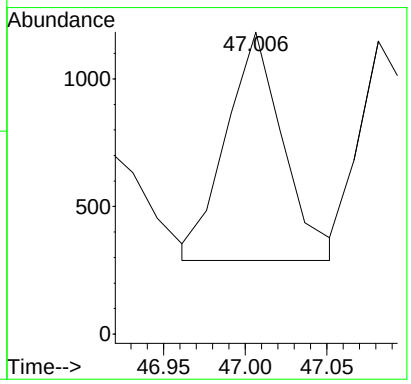
Tgt Ion:217 Resp: 2459

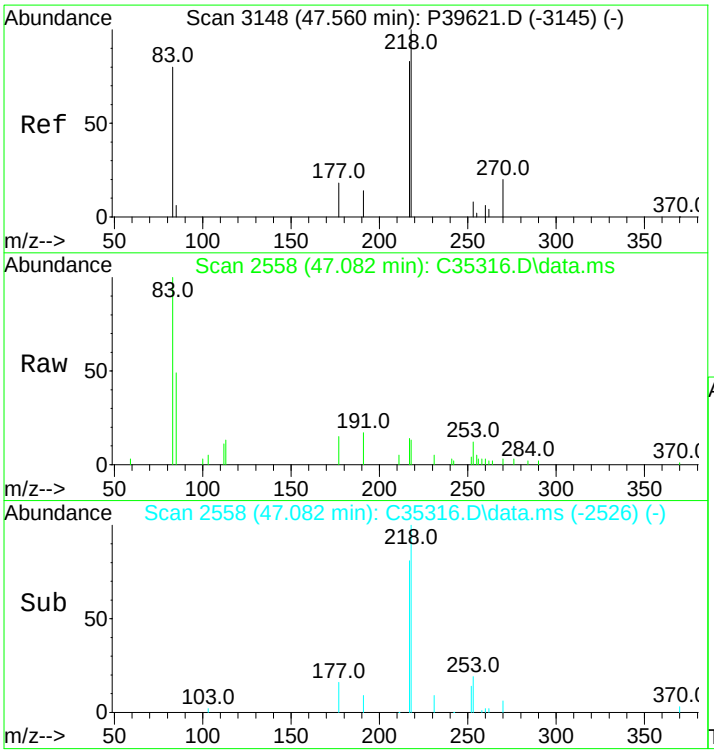




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 211.55 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

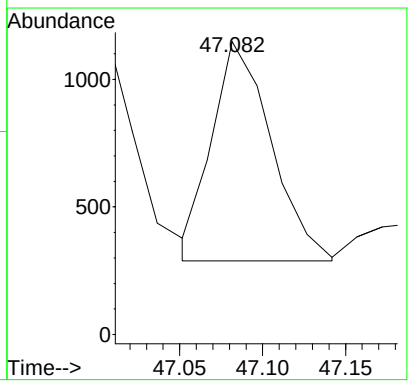
Tgt Ion:218 Resp: 2184

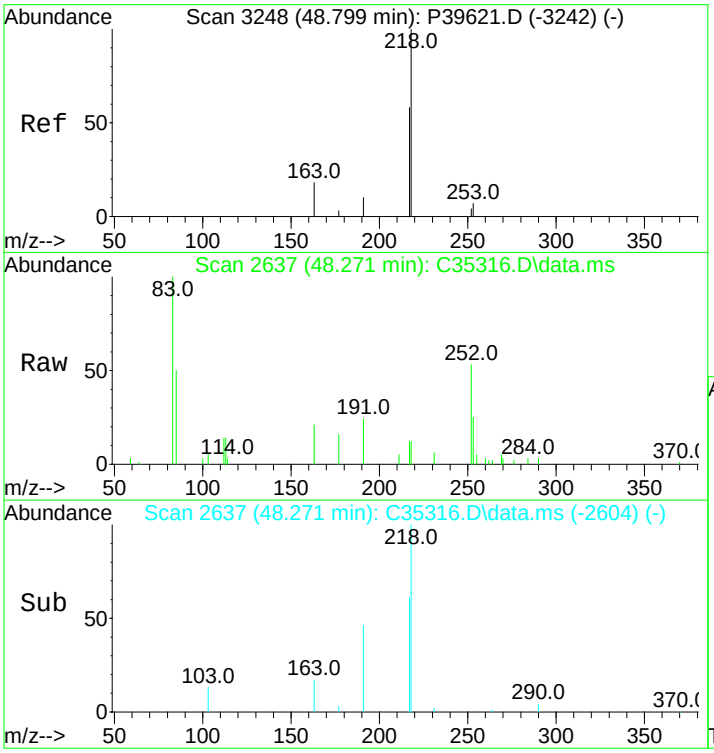




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 206.61 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

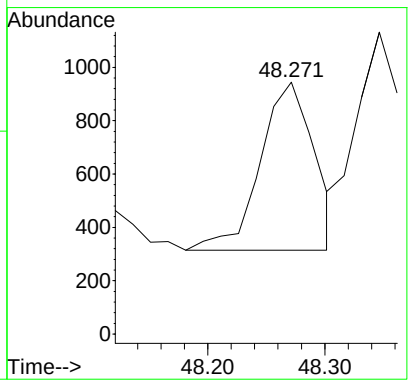
Tgt Ion:218 Resp: 2133

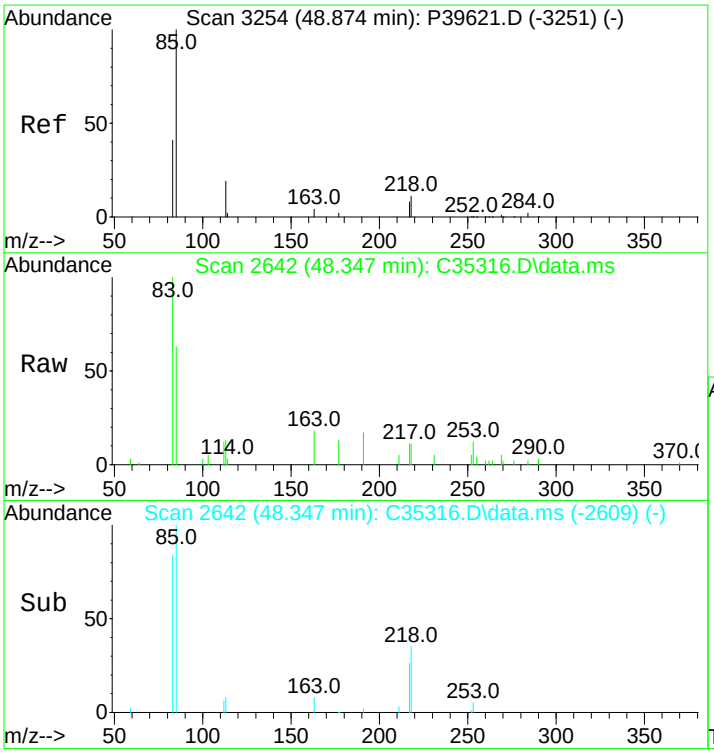




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 196.15 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

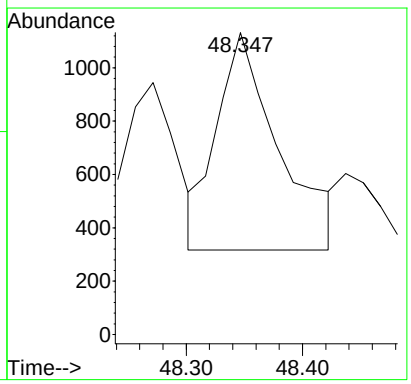
Tgt Ion:218 Resp: 2025

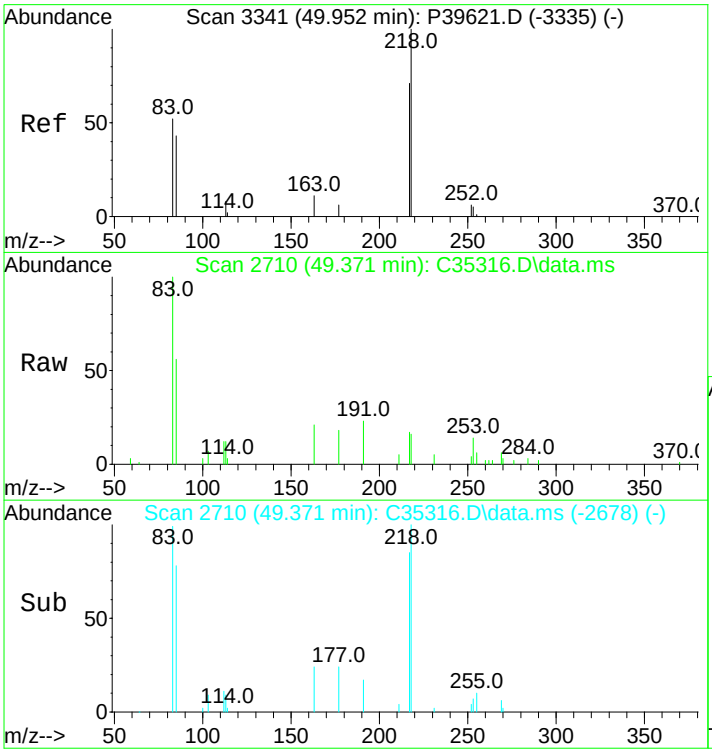




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 293.69 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

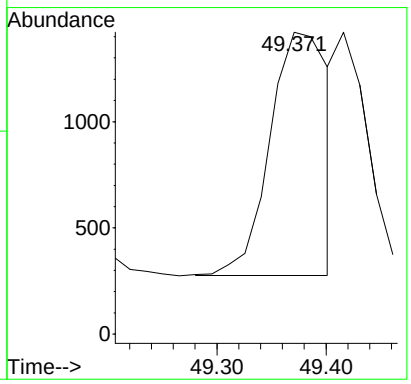
Tgt Ion:218 Resp: 3032

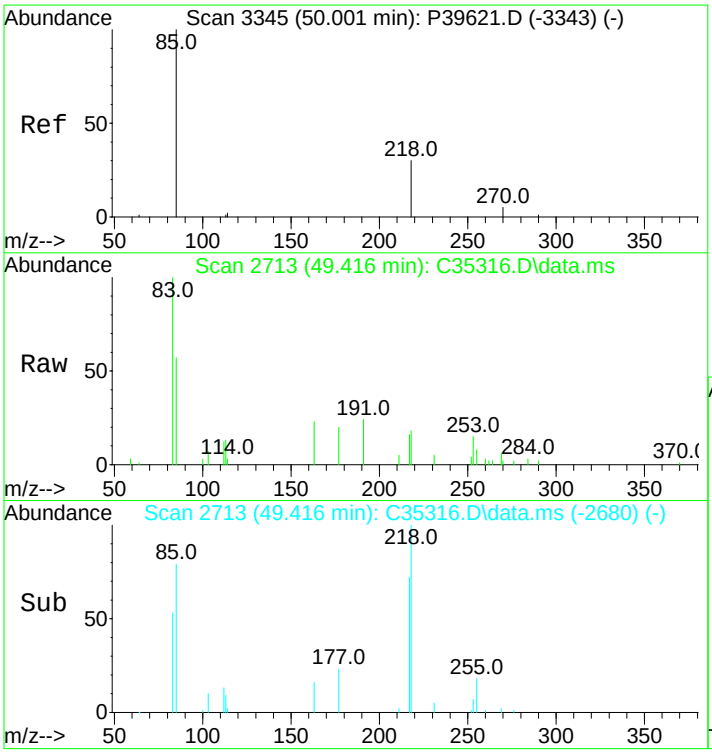




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 410.32 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

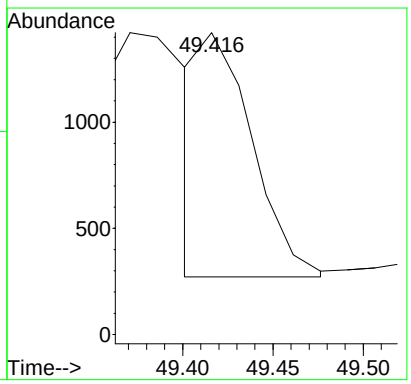
Tgt Ion:218 Resp: 4236

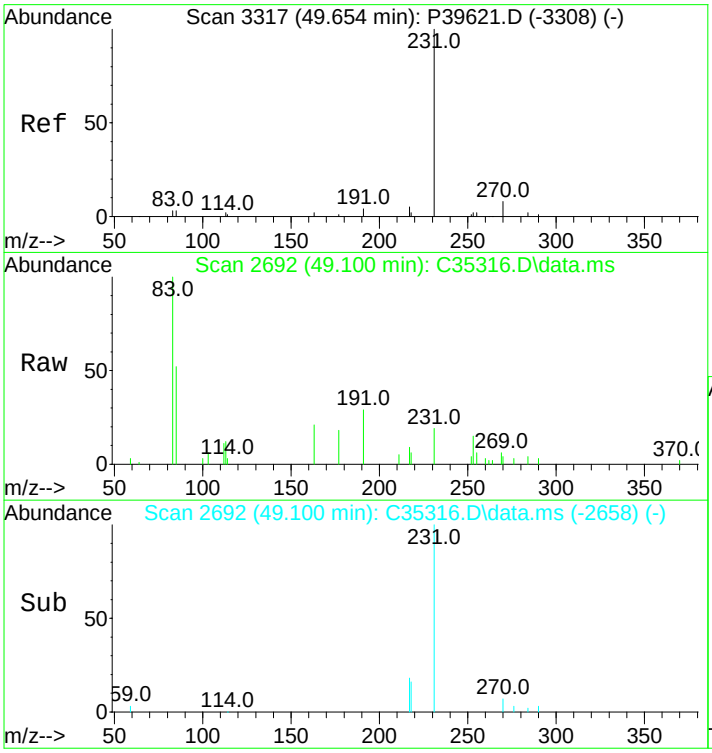




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 224.72 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

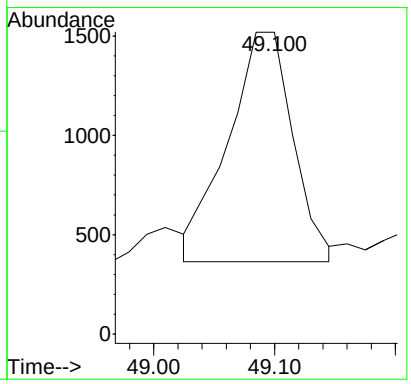
Tgt Ion:218 Resp: 2320

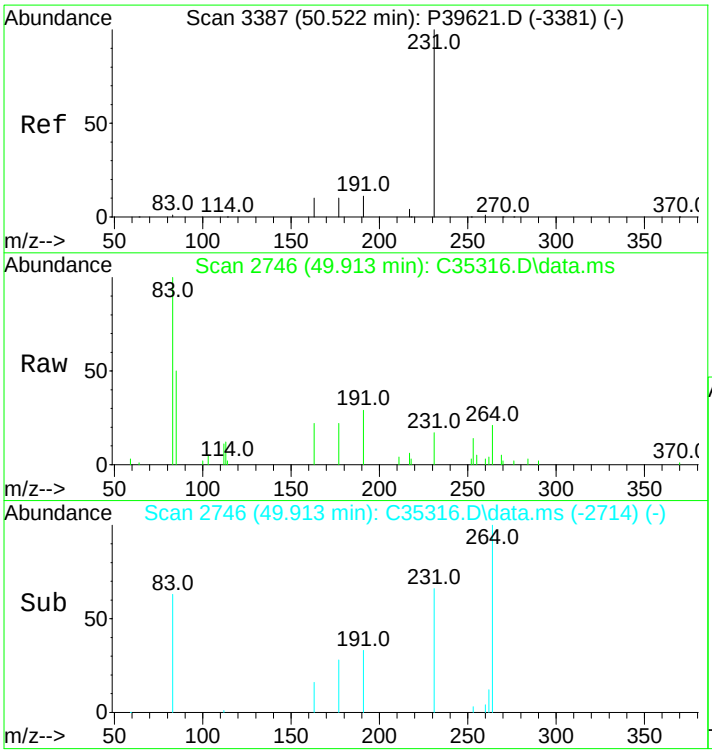




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 418.16 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

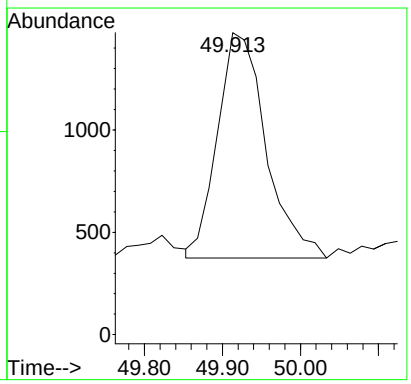
Tgt Ion:231 Resp: 4317

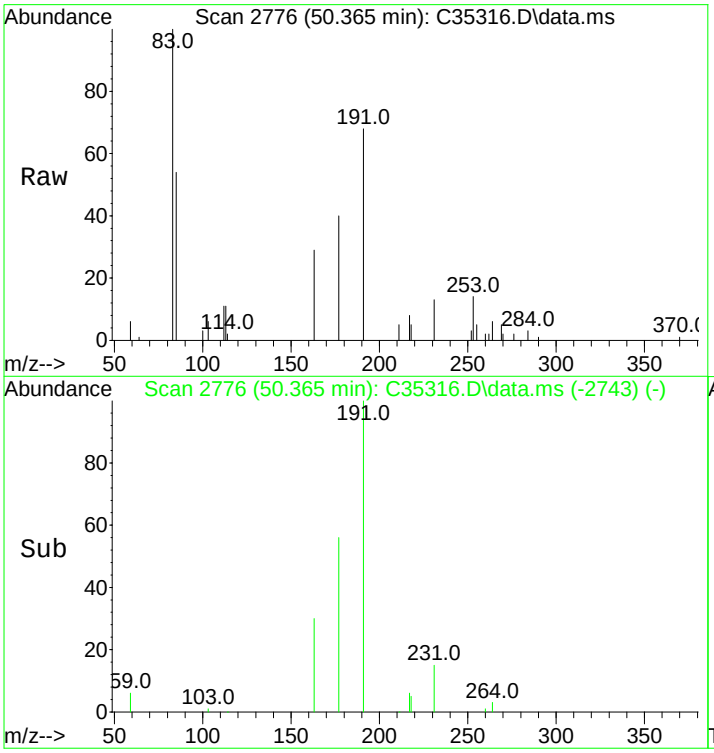




#146
C28,20S-triaromatic steroid
Concen: 460.88 ng/mL
RT: 49.913 min Scan# 2746
Delta R.T. -0.015 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

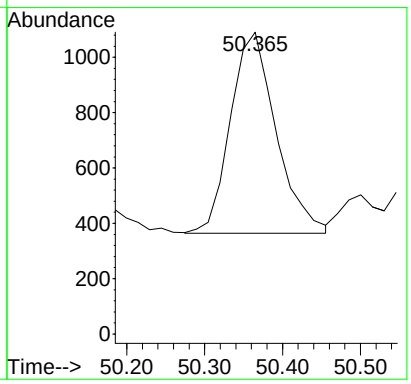
Tgt Ion:231 Resp: 4758

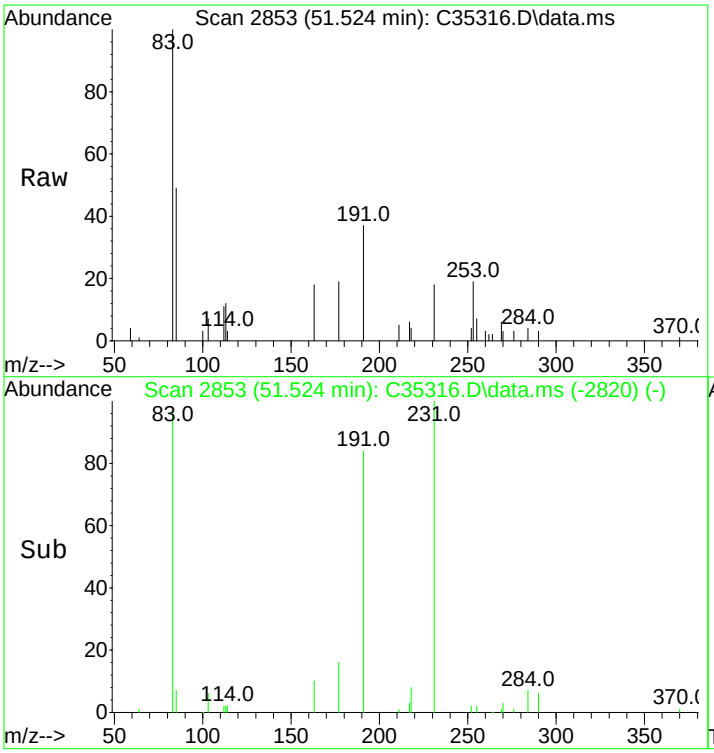




#147
C27,20R-triaromatic steroid
Concen: 286.62 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

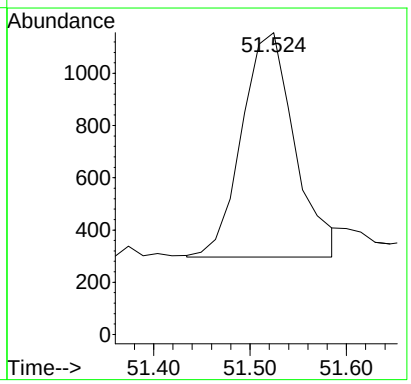
Tgt Ion:231 Resp: 2959





#148
C28,20R-triaromatic steroid
Concen: 318.01 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35316.D
Acq: 26 May 2012 12:05 am

Tgt Ion:231 Resp: 3283



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16365	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35935	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	18981	267.232	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 26.72%#			
42) Phenanthrene-d10	32.221	188	20888	372.058	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.21%#			
86) Benzo[a]pyrene-d12	47.850	264	26946	361.825	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.18%#			
127) 5B(H)Cholane - Surr	43.422	217	4537	403.823	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.38%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	76M2	5.883	ng/mL	
10) Naphthalene	19.485	128	31457	301.596	ng/mL#	100
11) C1-Naphthalenes	22.180	142	21662M5	207.686	ng/mL	
12) C2-Naphthalenes	24.664	156	5274M5	50.565	ng/mL	
13) C3-Naphthalenes	28.563	170	4197M5	40.239	ng/mL	
14) C4-Naphthalenes	31.363	184	3549M5	34.026	ng/mL	
16) 2-Methylnaphthalene	22.180	142	20025	324.706	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1433	23.706	ng/mL#	100
18) Benzothiophene	19.711	134	166M3	1.769	ng/mL	
23) Biphenyl	24.061	154	603M3	7.730	ng/mL	
24) 2,6-Dimethylnaphthalene	24.664	156	1710	33.749	ng/mL#	100
25) Dibenzofuran	27.133	168	1957	21.846	ng/mL	93
26) Acenaphthylene	25.748	152	35197M3	339.944	ng/mL	
27) Acenaphthene	26.485	153	21370	350.541	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	259M3	6.341	ng/mL	
29) Fluorene	28.503	166	26046M3	387.388	ng/mL	
30) C1-Fluorenes	30.866	180	1261M5	18.755	ng/mL	
31) C2-Fluorenes	33.064	194	2786M5	41.437	ng/mL	
32) C3-Fluorenes	35.563	208	6941M5	103.235	ng/mL	
33) Dibenzothiophene	31.814	184	2151	19.958	ng/mL	95
34) 4-Methyldibenzothiophene(	33.591	198	918M3	8.518	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	494	4.584	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.359	198	333	3.090	ng/mL#	100
37) OTP	33.997	198	5074	47.079	ng/mL#	100
38) C1-Dibenzothiophenes	33.997	198	7653M5	71.008	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	2579m	23.929	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	6199M5	57.517	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	11670M5	108.279	ng/mL	
41) C4-Dibenzothiophenes	38.770	240	12098M5	112.251	ng/mL	
43) Phenanthrene	32.311	178	55502	586.138	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	3032	32.020	ng/mL	98
45) 2-Methylphenanthrene(2MP)	34.374	192	2847	30.066	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	1180M3	12.462	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	3090M3	32.632	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	2024M3	21.375	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	12482M5	131.818	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	17597M5	185.836	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	17597m	185.836	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	15035M5	158.780	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.224	234	13027M5	137.574	ng/mL	
55) Anthracene	32.492	178	38740M3	418.847	ng/mL	
56) Carbazole	33.169	167	2389	25.571	ng/mL	98
57) 1-Methylphenanthrene	34.810	192	2041M3	34.012	ng/mL	
58) Fluoranthene	37.084	202	152554M3	1622.154	ng/mL	
59) Benzo(b)fluorene	39.598	216	7473M3	136.967	ng/mL	
60) Pyrene	37.957	202	142696	1492.664	ng/mL	98

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
61) C1-Fluoranthenes/Pyrenes	39.357	216	46311M5	484.434	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.405	230	29936M5	313.144	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	18699M5	195.600	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	19241M5	201.270	ng/mL	
66) Naphthobenzothiophene	41.811	234	11247	109.279	ng/mL#	71
67) Naphthobenzothiophene-2,1	41.811	234	11247	109.279	ng/mL#	71
68) Naphthobenzothiophene-1,2	42.143	234	2586M3	25.126	ng/mL	
69) Naphthobenzothiophene-2,3	42.444	234	3799M3	36.912	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	14598M5	141.838	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	20143M5	195.714	ng/ml	
72) C3-Naphthobenzothiophenes	46.826	276	19932M5	193.664	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	15490M5	150.505	ng/mL	
75) Benz[a]anthracene	42.745	228	79060M3	693.162	ng/mL	
77) Chrysene/Triphenylene	42.896	228	102746M3	892.279	ng/mL	
78) C1-Chrysenes	44.371	242	25096M4	217.942	ng/mL	
79) C2-Chrysenes	46.088	256	20691M5	179.687	ng/mL	
79) C2-Chrysenes BS	46.088	256	20691m	179.687	ng/mL	
80) C3-Chrysenes	48.061	270	29466M5	255.892	ng/mL	
81) C4-Chrysenes	48.076	284	19305M5	167.651	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	150084	1197.549	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	118681	869.792	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	11174	81.892	ng/mL#	8
85) Benzo[e]pyrene	47.759	252	58944	475.497	ng/mL	93
87) Benzo[a]pyrene	47.940	252	109534	917.750	ng/mL	92
88) Perylene	48.241	252	72191	565.971	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	122613M3	882.796	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	66378	502.391	ng/mL	97
91) Benzo[g,h,i]perylene	53.828	276	124058	845.430	ng/mL	100
92) Hopane (T19)	51.705	191	32774	1383.820	ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	3647M3	153.988	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2411M3	101.800	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2156M3	91.033	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2970M3	125.403	ng/ml	
98) C26 Tricyclic Terpane-22S	43.724	191	1315M3	55.523	ng/ml	
99) C26 Tricyclic Terpane-22R	43.814	191	1405M3	59.323	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1551M3	65.488	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2197M3	92.764	ng/ml	
102) C29 Tricyclic Terpane-22S	46.780	191	1940M3	81.913	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	1856	78.366	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.061	191	7828	330.522	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	2053M3	86.684	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	2374M3	100.238	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7771	328.116	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.732	191	1733	73.173	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.552	191	3480M3	146.936	ng/ml	
110) 30-Norhopane (T15)	50.395	191	23549M3	994.312	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.485	191	7939M3	335.209	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	1919M3	81.026	ng/ml	
113) 30-Normoretane (T17)	51.133	191	5077	214.367	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.540	191	2959M3	124.938	ng/ml	
115) Moretane (T20)	52.368	191	6981M3	294.760	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	9918	418.769	ng/ml	100
117) 30-Homohopane-22R (T22)	53.648	191	10438	440.725	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	3112	131.398	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.883	191G	58341	2463.338	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.304	191	6438	271.832	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7938M3	335.167	ng/ml	
122) 30,31-Trishomohopane-22R	57.548	191	2622	110.709	ng/ml	100
123) Tetrakishomohopane-22S (T	59.521	191G	11864	500.935	ng/ml	100
124) Tetrakishomohopane-22R (T	60.289	191G	15266M3	644.578	ng/ml	
125) Pentakishomohopane-22S (T	62.502	191	2783M3	117.507	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126)	Pentakishomohopane-22R (T	63.722	191	2143M3	90.484	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	2299M3	204.626	ng/ml	
129)	13b(H),17a(H)-20R-Diachol	45.365	217	1386	123.363	ng/ml	100
130)	13b,17a-20S-Methyldiachol	46.058	217	1641M3	146.060	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	4467	397.593	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	4031M3	358.786	ng/ml	
133)	Unknown Sterane (S18)	47.699	217	948M4	84.378	ng/ml	
134)	13a,17b-20S-Ethyldiachole	47.955	217	333	29.639	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.106	217	2082M3	185.312	ng/ml	
136)	14a,17a-20R-Methylcholest	48.799	217	1716M3	152.736	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	2360M3	210.056	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2566M3	228.391	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	2152M3	191.542	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.097	218	2164M3	192.611	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	1946M3	173.207	ng/ml	
142)	14b,17b-20S-Methylcholest	48.347	218	2842M3	252.957	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	4397M3	391.363	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.416	218	2529M3	225.098	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	4597M3	409.164	ng/mL	
146)	C28,20S-triaromatic stero	49.928	231	4679M3	416.462	ng/mL	
147)	C27,20R-triaromatic stero	50.365	231	3061M3	272.450	ng/mL	
148)	C28,20R-triaromatic stero	51.509	231	3332M3	296.570	ng/mL	

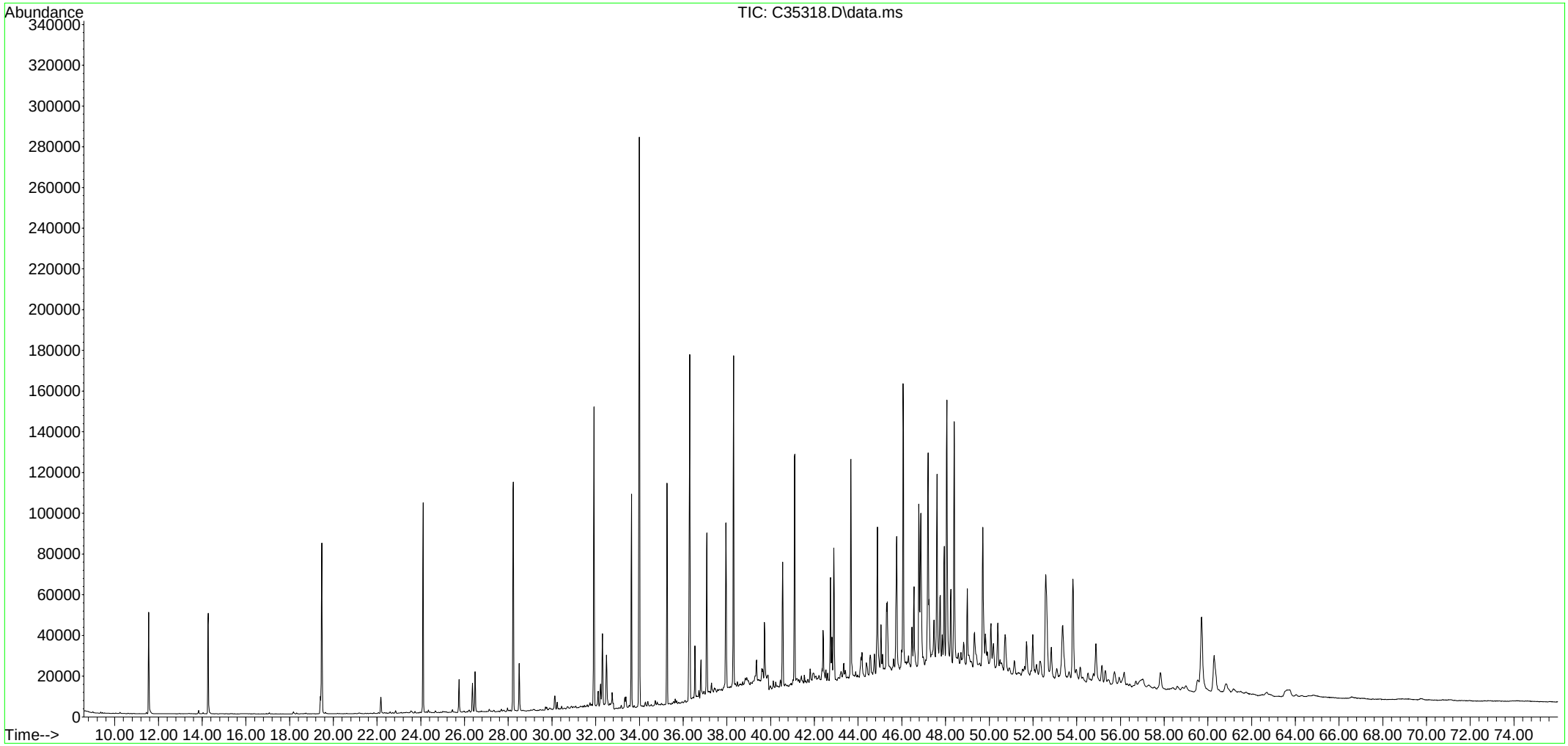
(#) = qualifier out of range (m) = manual integration (+) = signals summed

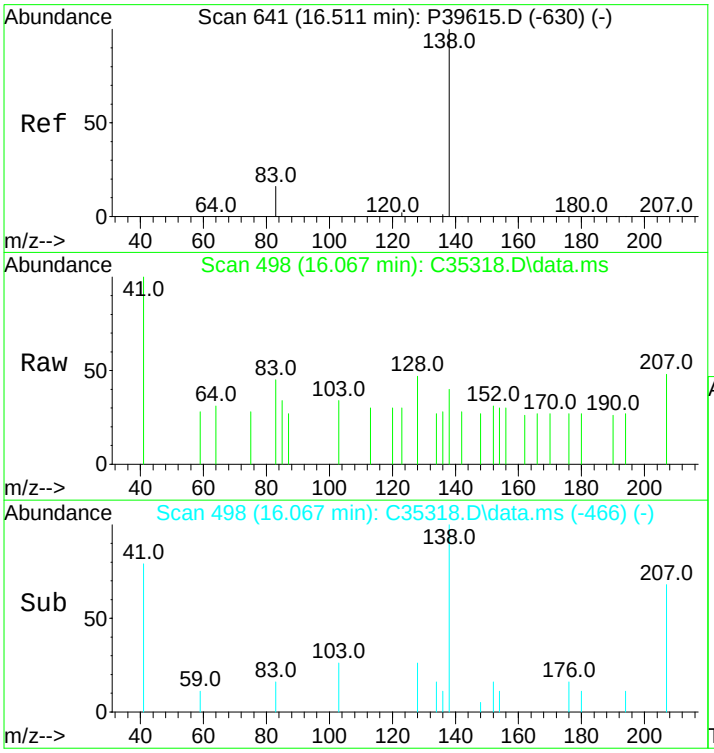
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35318.D
Acq On : 26 May 2012 1:42 am
Operator : AC
Sample : 1205027-05S
Misc : 1X
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 12:23:40 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

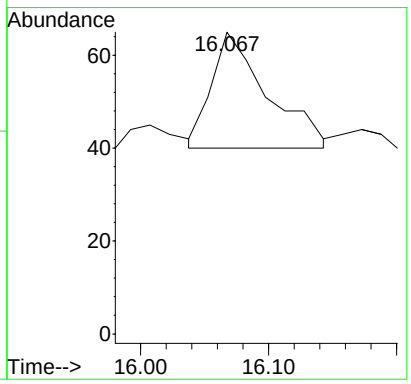
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

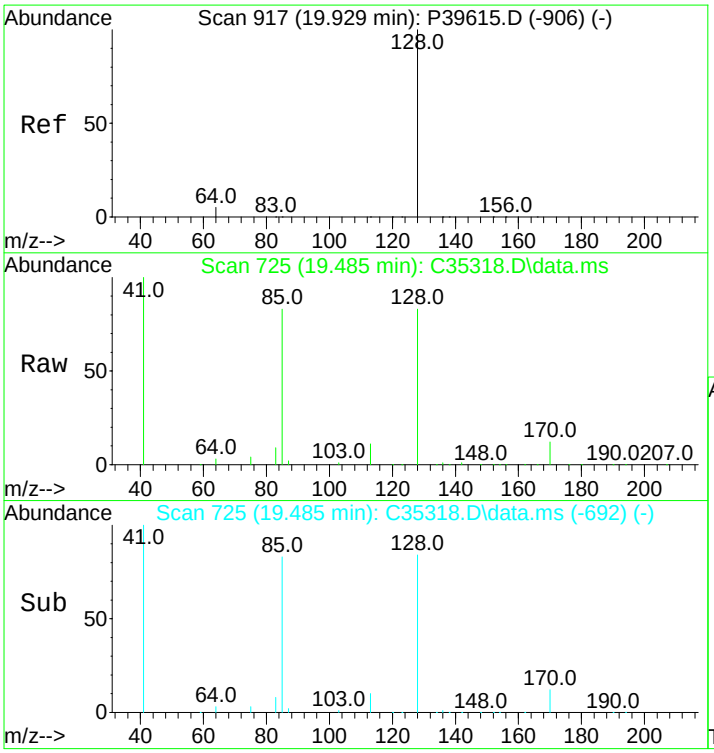




#3
trans-Decalin
Concen: 5.88 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:138 Resp: 76

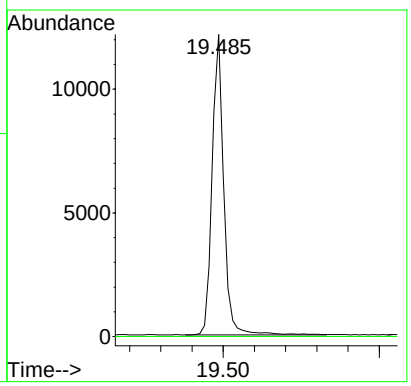


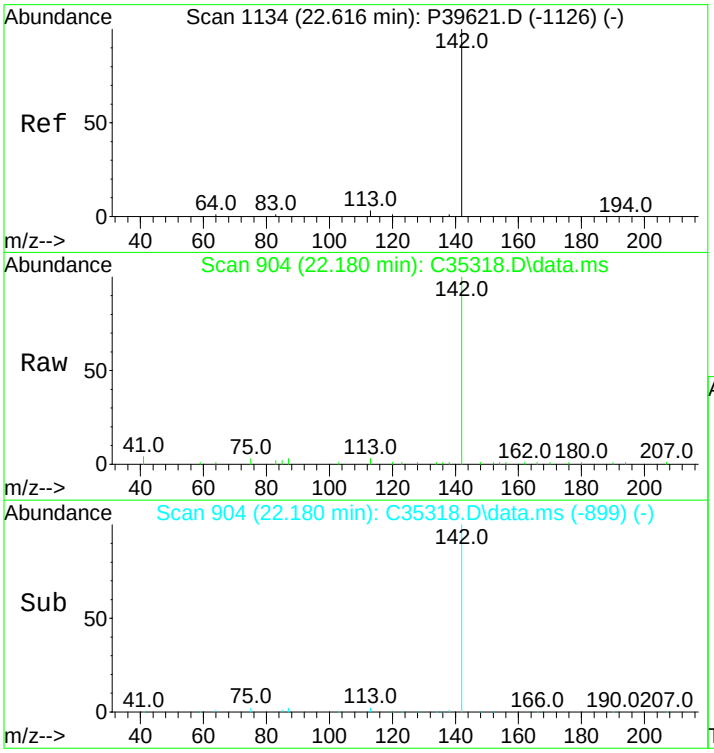


#10
Naphthalene
Concen: 301.60 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:128 Resp: 31457

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

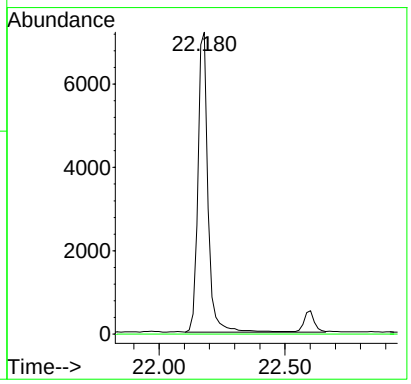


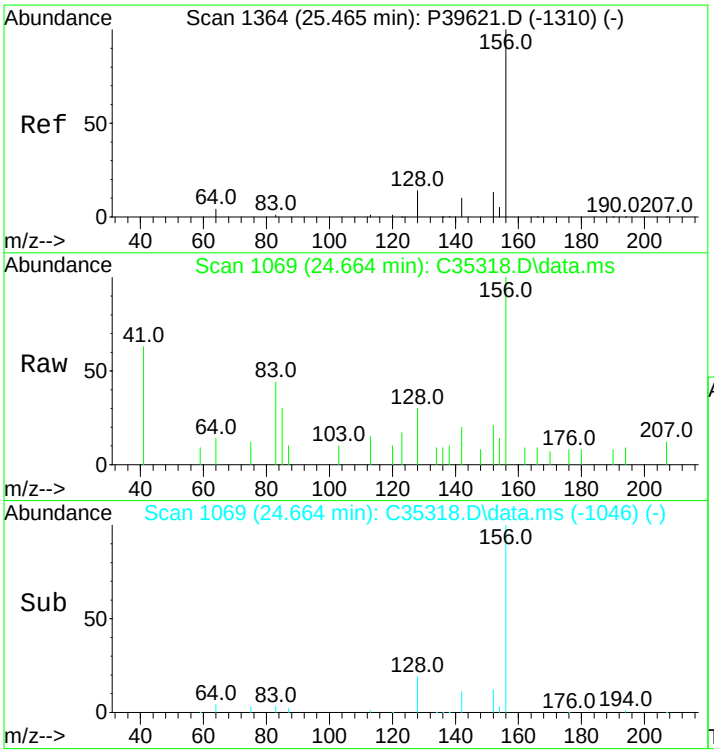


#11
C1-Naphthalenes
Concen: 207.69 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:142 Resp: 21662

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

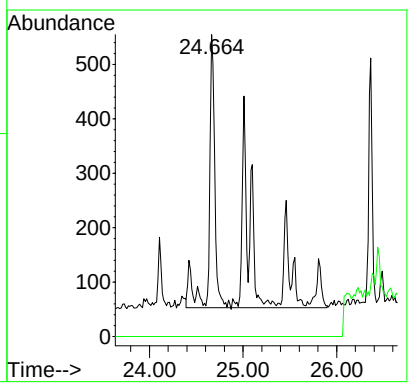


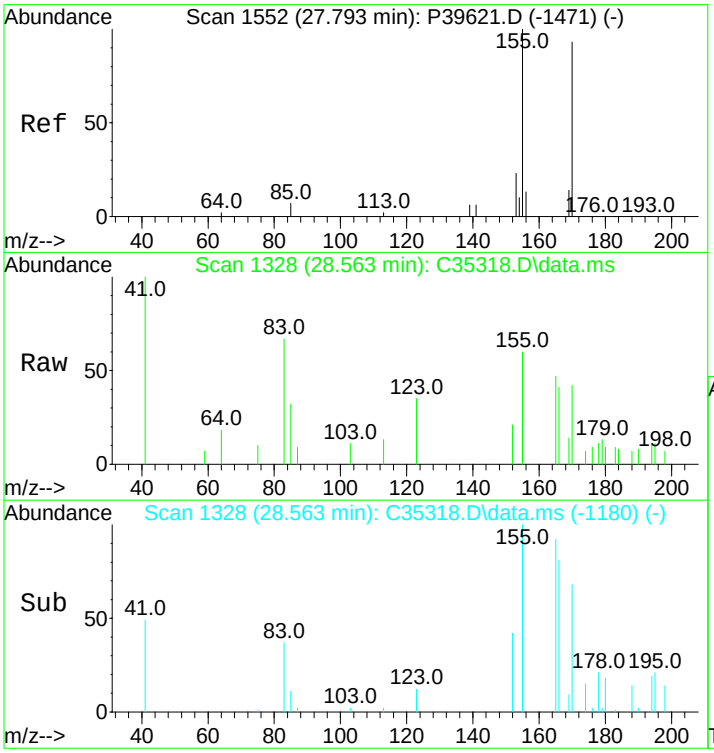


#12
C2-Naphthalenes
Concen: 50.56 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:156 Resp: 5274

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

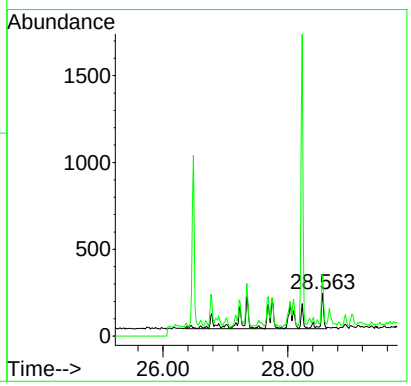


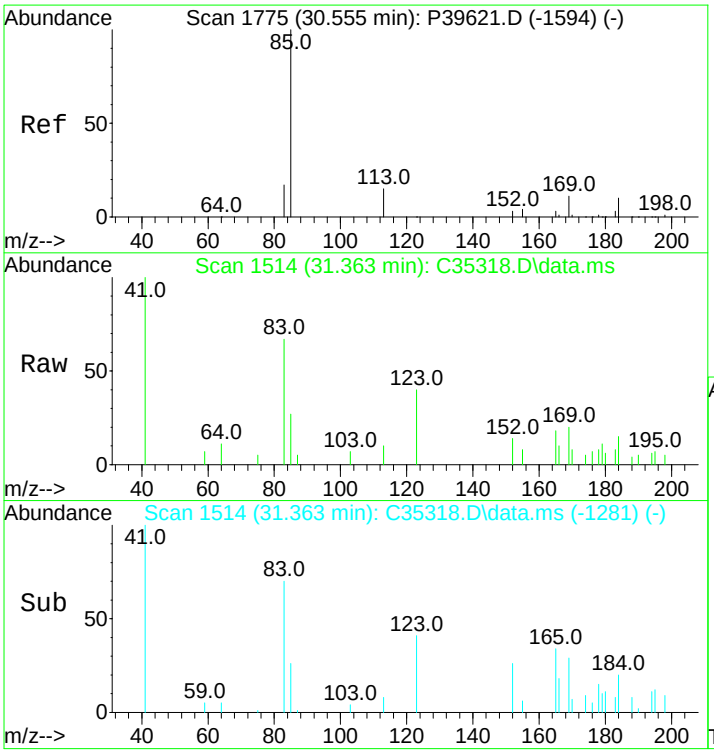


#13
C3-Naphthalenes
Concen: 40.24 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:170 Resp: 4197

Ion	Ratio	Lower	Upper
170	100		
155	11.0	86.3	129.5#

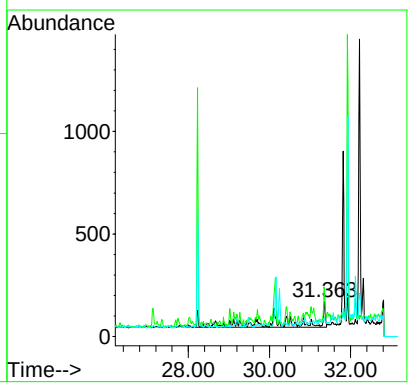


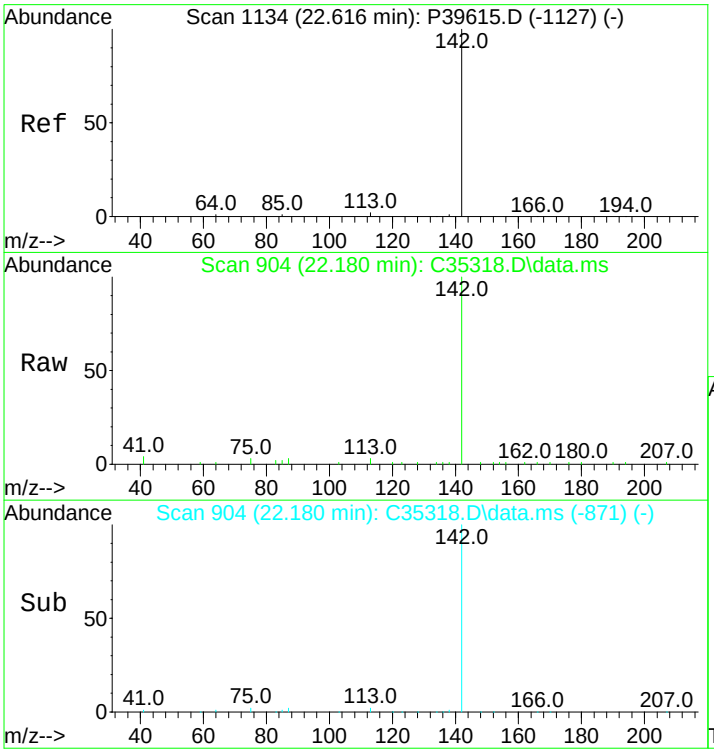


#14
C4-Naphthalenes
Concen: 34.03 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:184 Resp: 3549

Ion	Ratio	Lower	Upper
184	100		
169	0.0	100.6	150.8#
183	0.0	26.6	40.0#

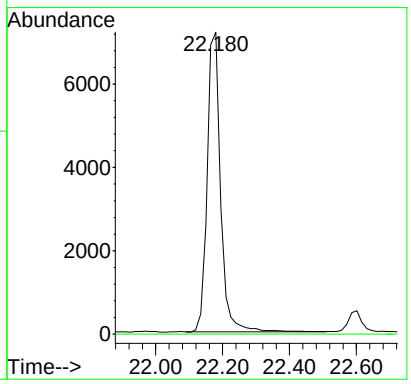


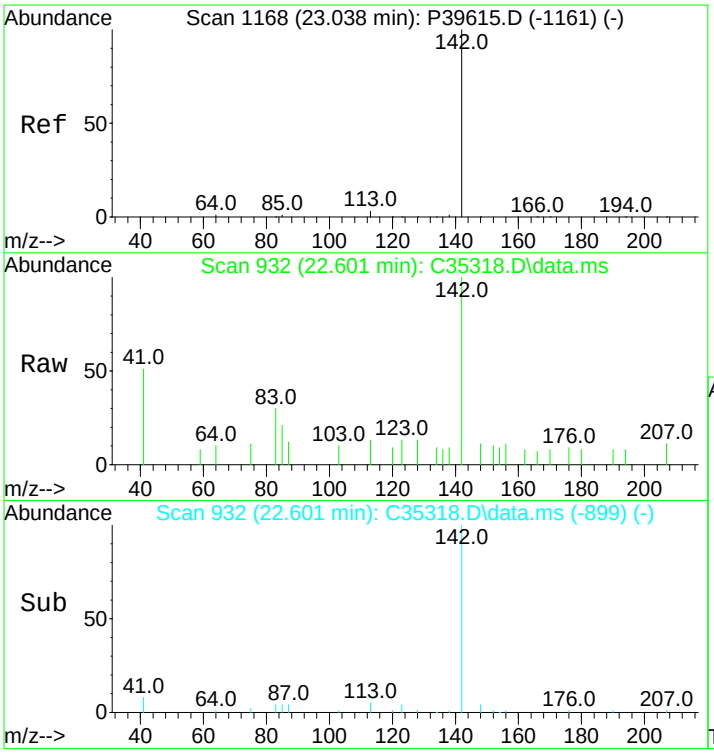


#16
2-Methylnaphthalene
Concen: 324.71 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:142 Resp: 20025

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

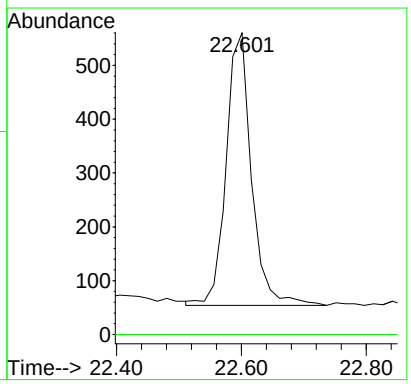


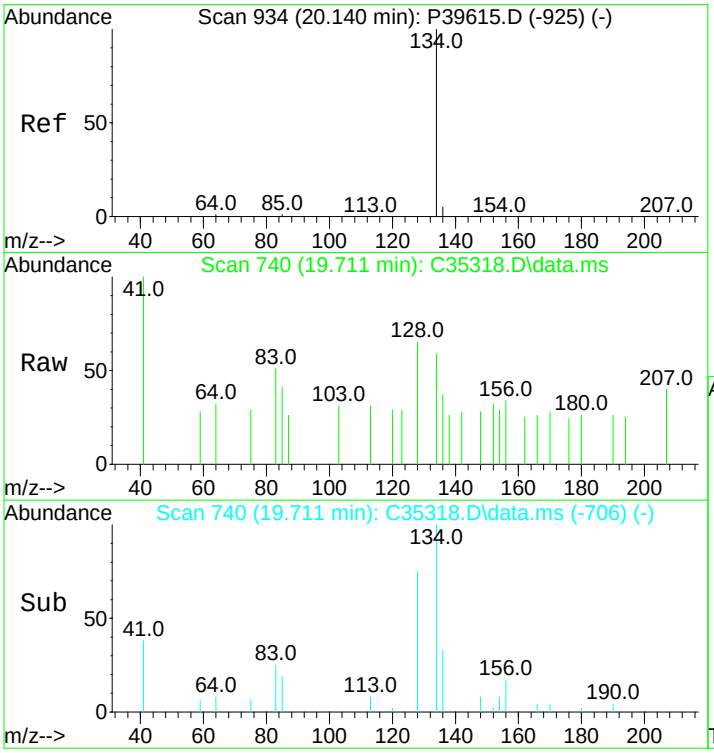


#17
1-Methylnaphthalene
Concen: 23.71 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:142 Resp: 1433

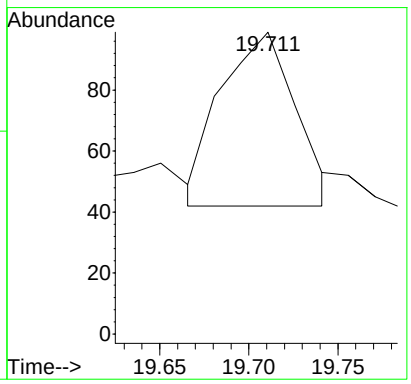
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

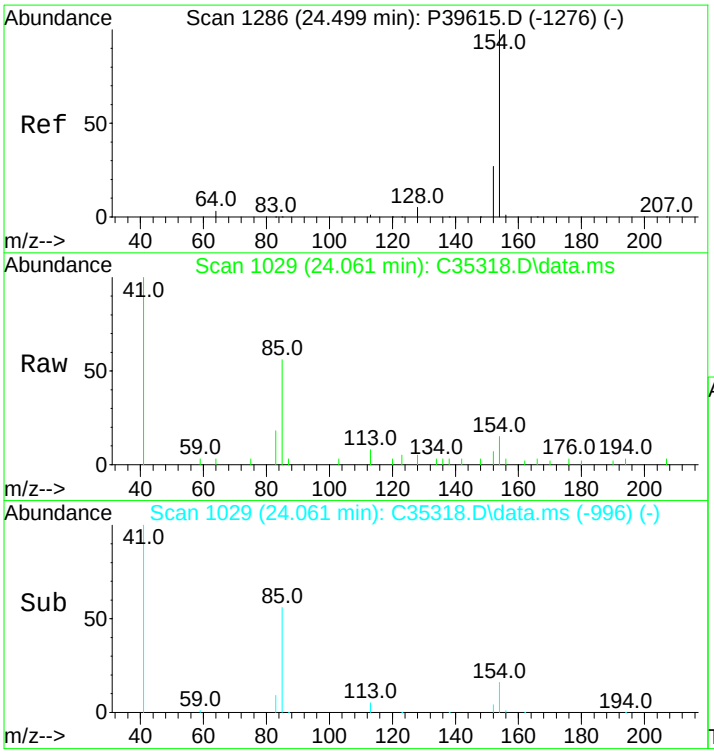




#18
Benzothiophene
Concen: 1.77 ng/mL m
RT: 19.711 min Scan# 740
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:134 Resp: 166

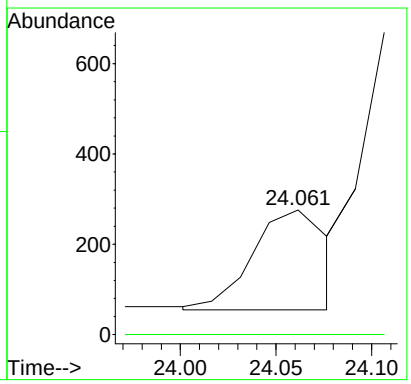


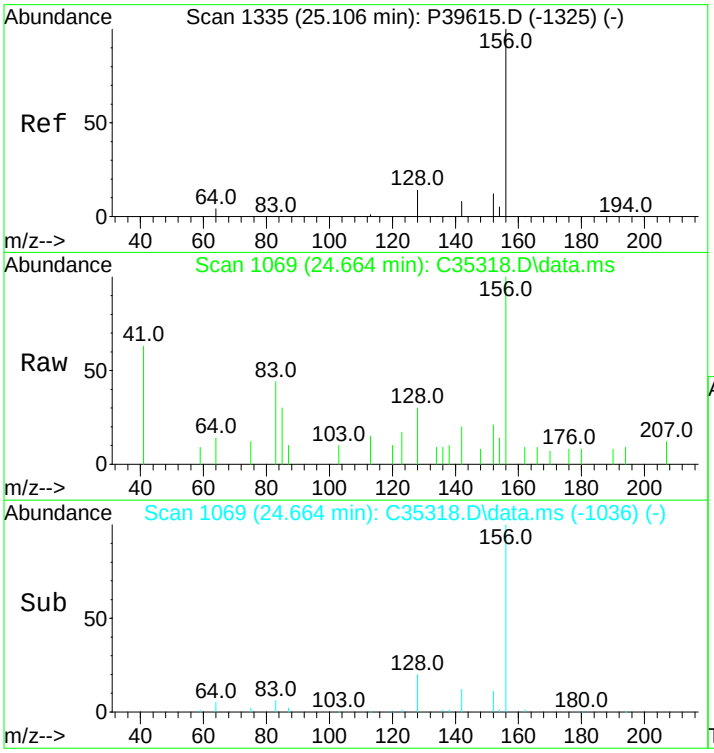


#23
Biphenyl
Concen: 7.73 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:154 Resp: 603

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

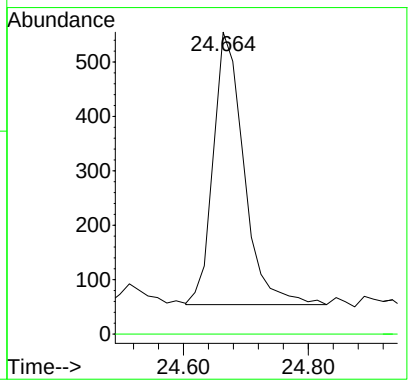


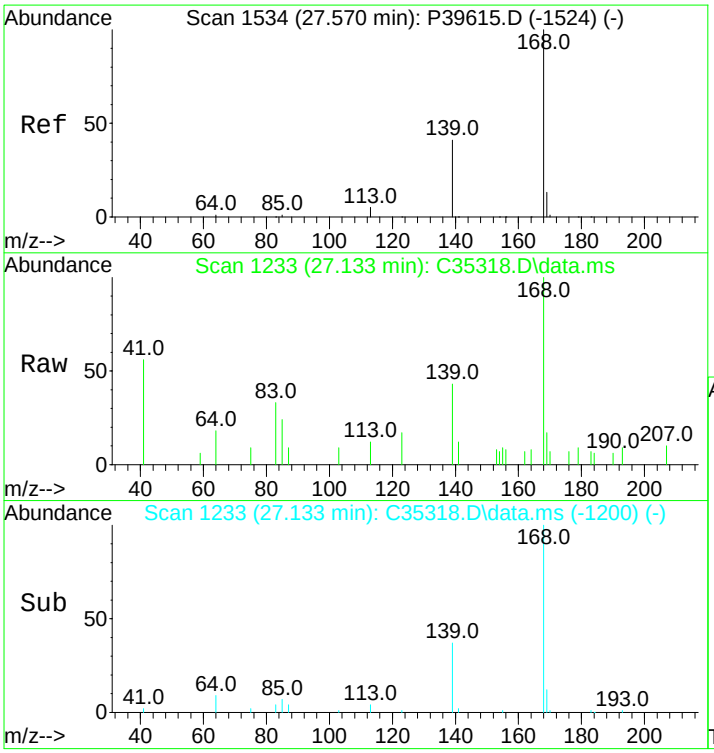


#24
2,6-Dimethylnaphthalene
Concen: 33.75 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:156 Resp: 1710

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

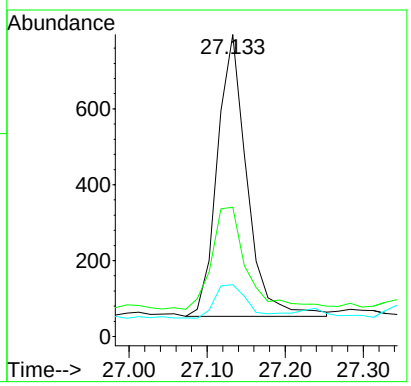


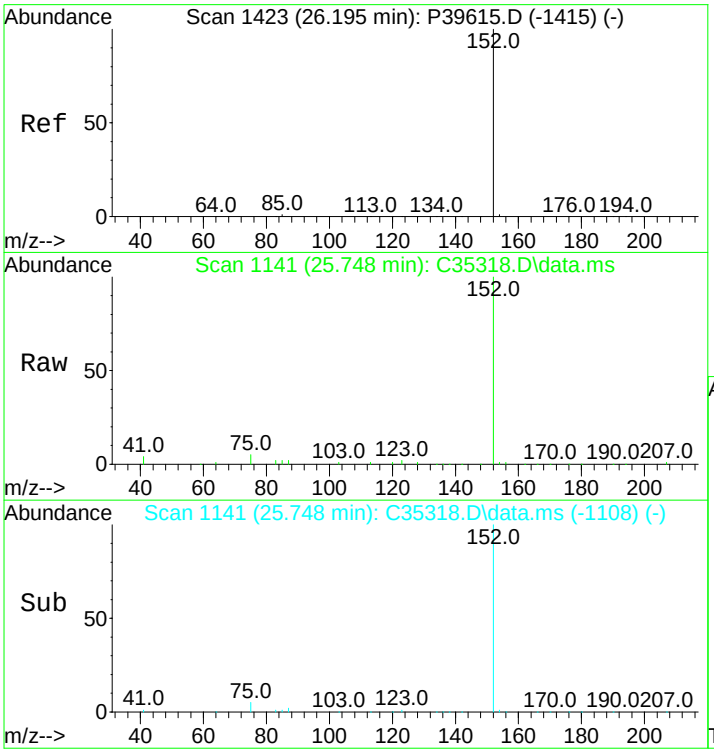


#25
Dibenzofuran
Concen: 21.85 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:168 Resp: 1957

Ion	Ratio	Lower	Upper
168	100		
139	42.5	29.9	44.9
169	12.6	10.3	15.5

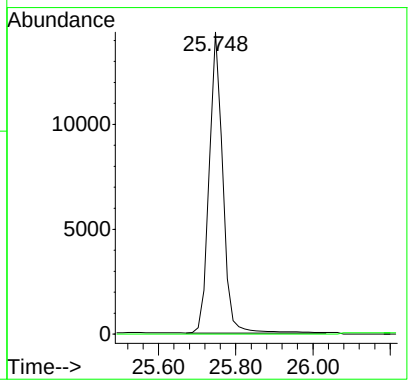


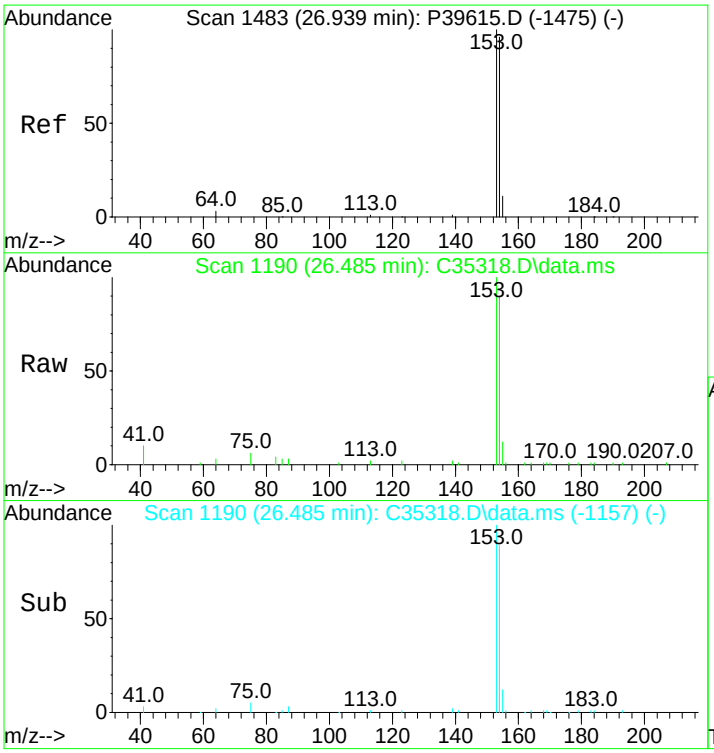


#26
Acenaphthylene
Concen: 339.94 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:152 Resp: 35197

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

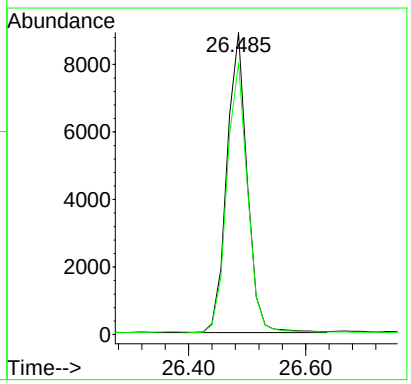


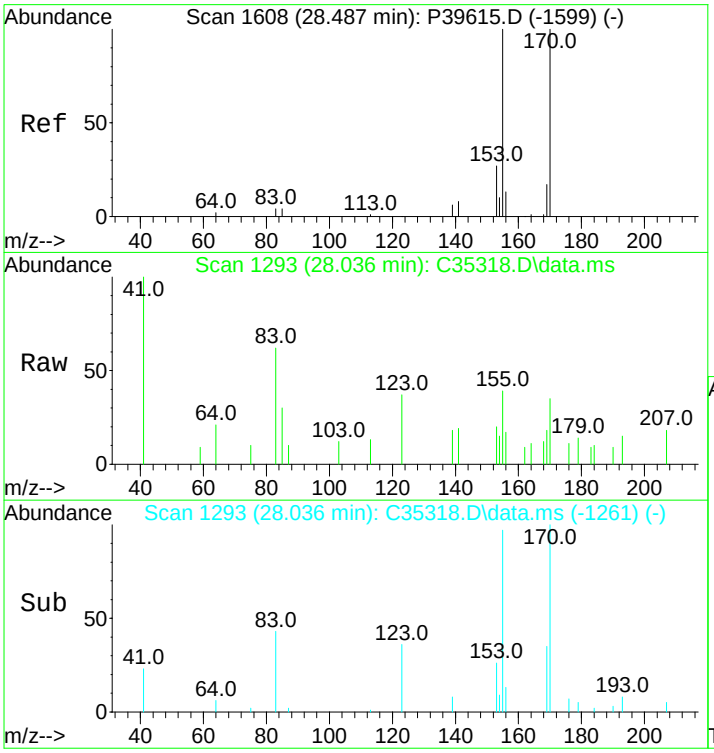


#27
Acenaphthene
Concen: 350.54 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:153 Resp: 21370

Ion	Ratio	Lower	Upper
153	100		
154	91.5	73.3	109.9

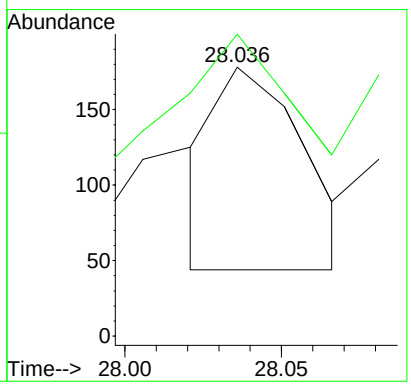


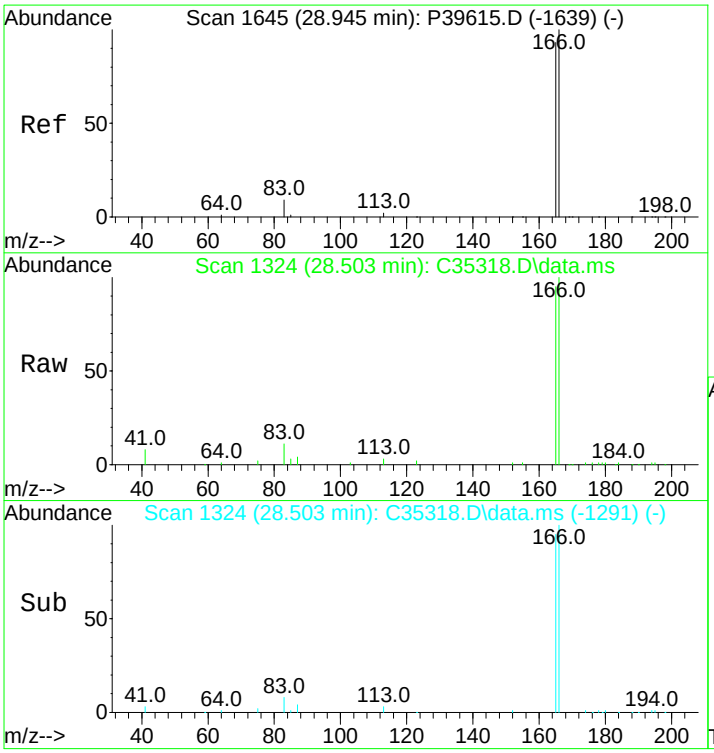


#28
2,3,5-Trimethylnaphthalene
Concen: 6.34 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:170 Resp: 259

Ion	Ratio	Lower	Upper
170	100		
155	167.6	78.4	117.6#

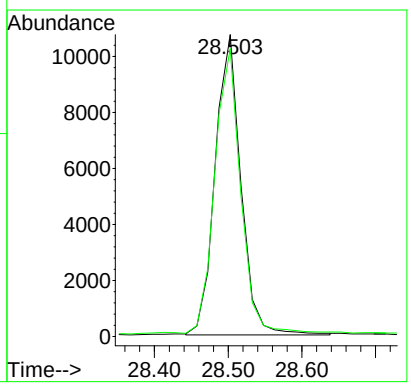


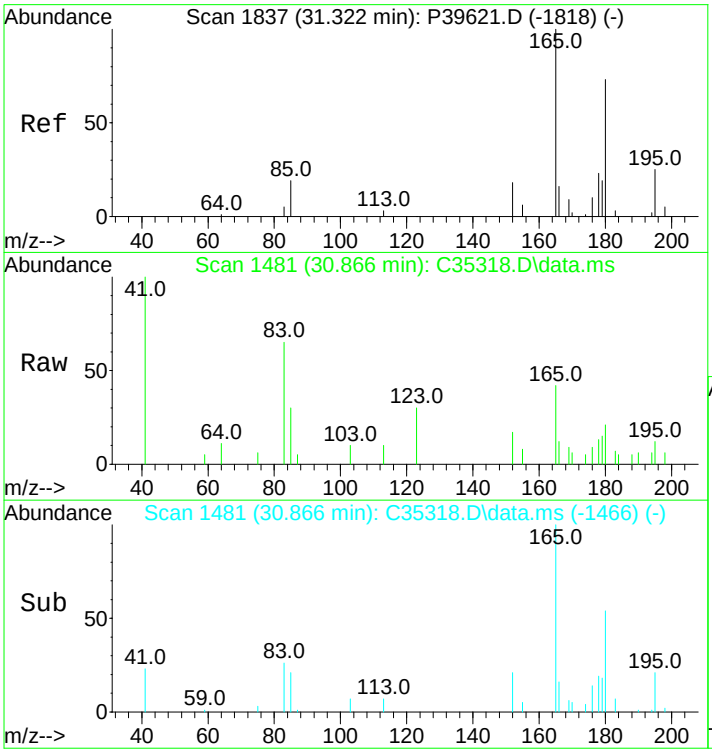


#29
Fluorene
Concen: 387.39 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:166 Resp: 26046

Ion	Ratio	Lower	Upper
166	100		
165	97.0	77.1	115.7

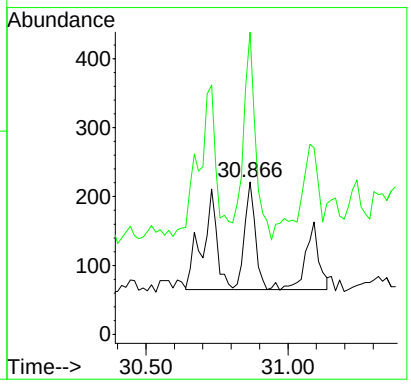


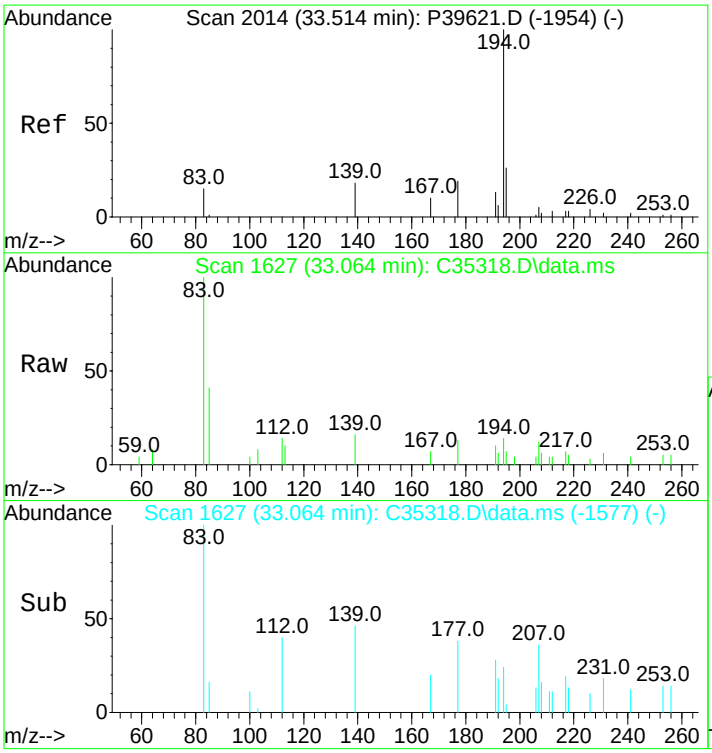


#30
C1-Fluorenes
Concen: 18.76 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:180 Resp: 1261

Ion	Ratio	Lower	Upper
180	100		
165	40.8	121.9	182.9#

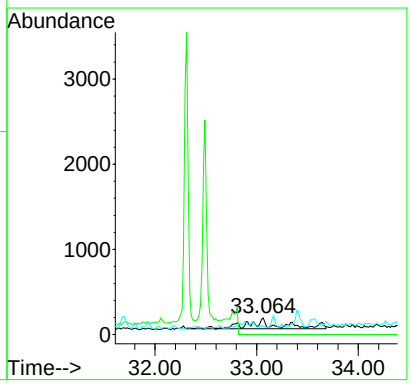


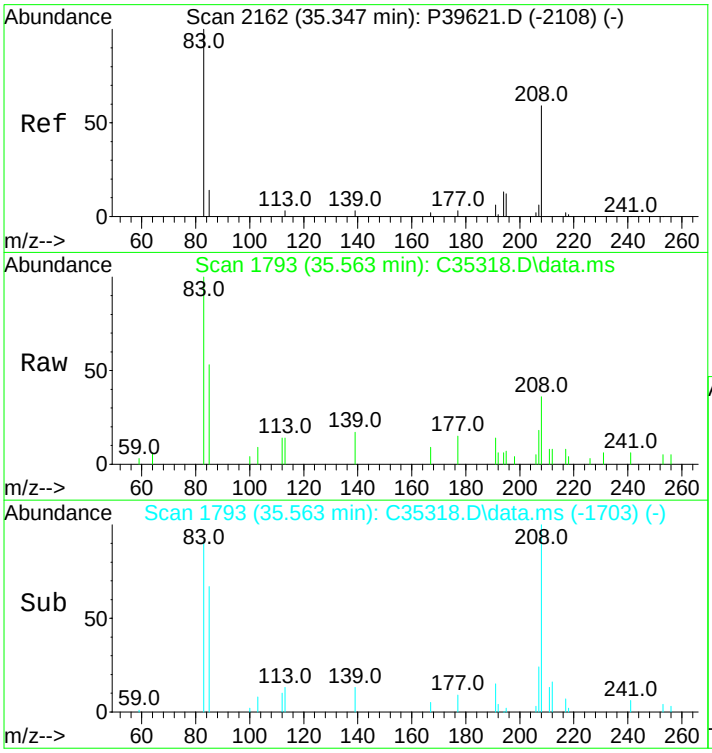


#31
C2-Fluorenes
Concen: 41.44 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:194 Resp: 2786

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	6.5	30.5	45.7#

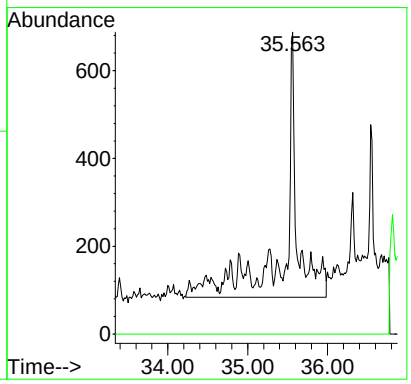


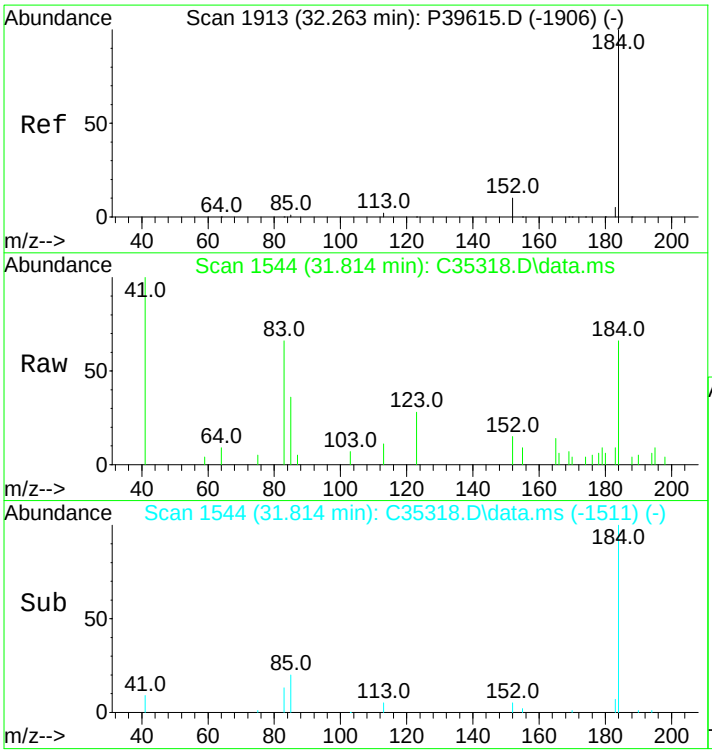


#32
C3-Fluorenes
Concen: 103.24 ng/mL m
RT: 35.563 min Scan# 1793
Delta R.T. 0.820 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:208 Resp: 6941

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

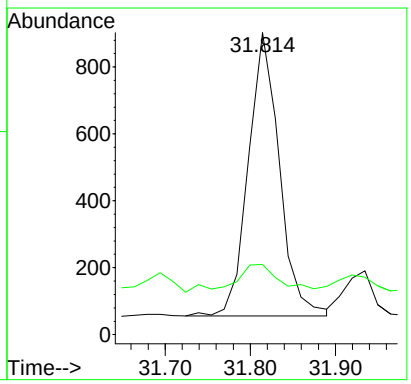


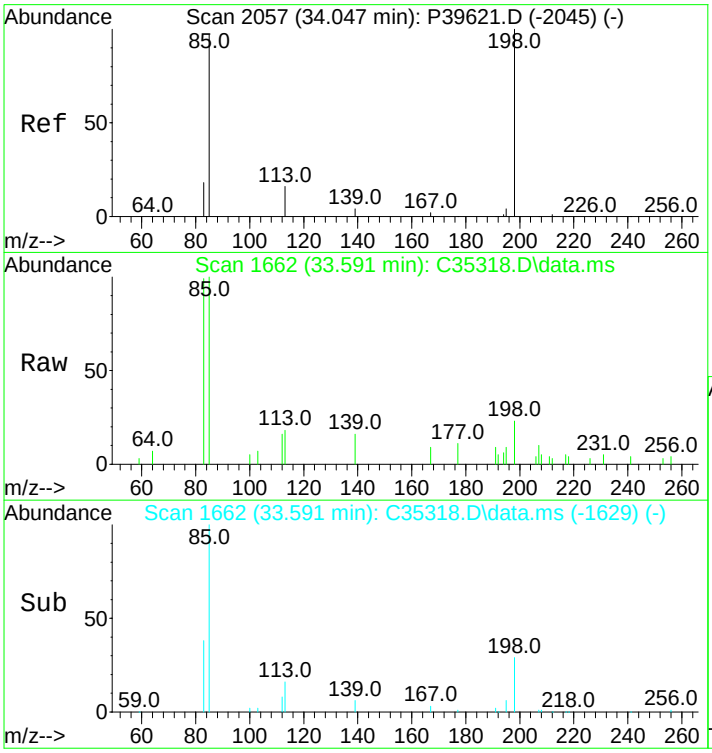


#33
Dibenzothiophene
Concen: 19.96 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:184 Resp: 2151

Ion	Ratio	Lower	Upper
184	100		
152	11.2	7.5	11.3

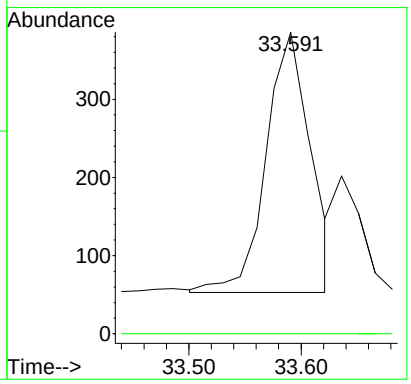


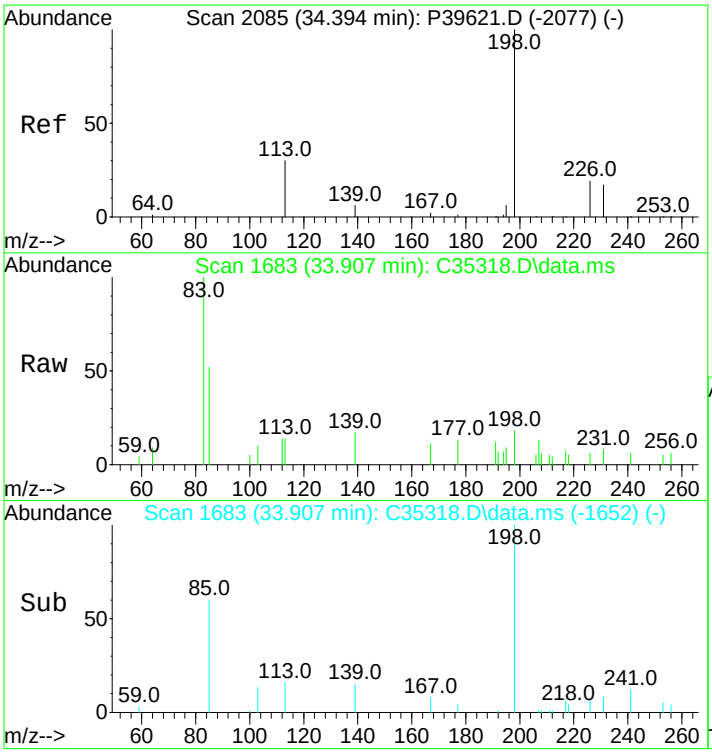


#34
4-Methyldibenzothiophene(4MDT)
Concen: 8.52 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:198 Resp: 918

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

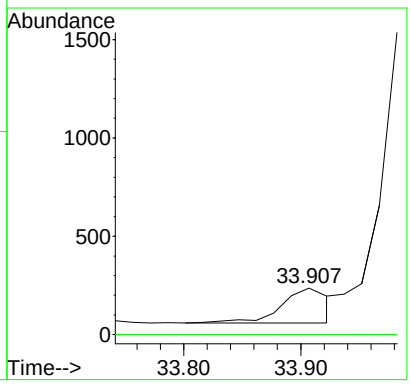


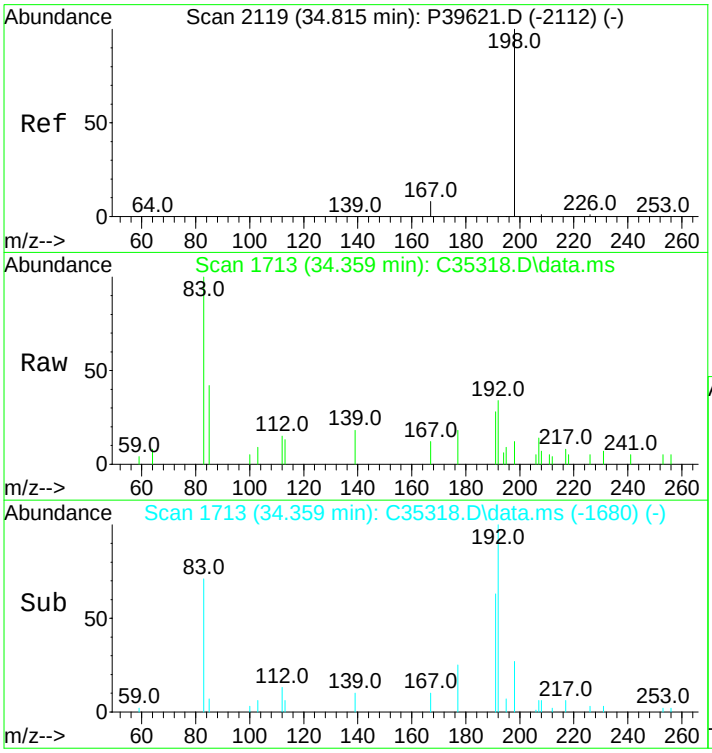


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 4.58 ng/mL
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:198 Resp: 494

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

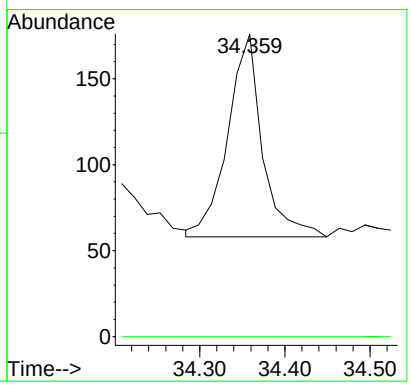


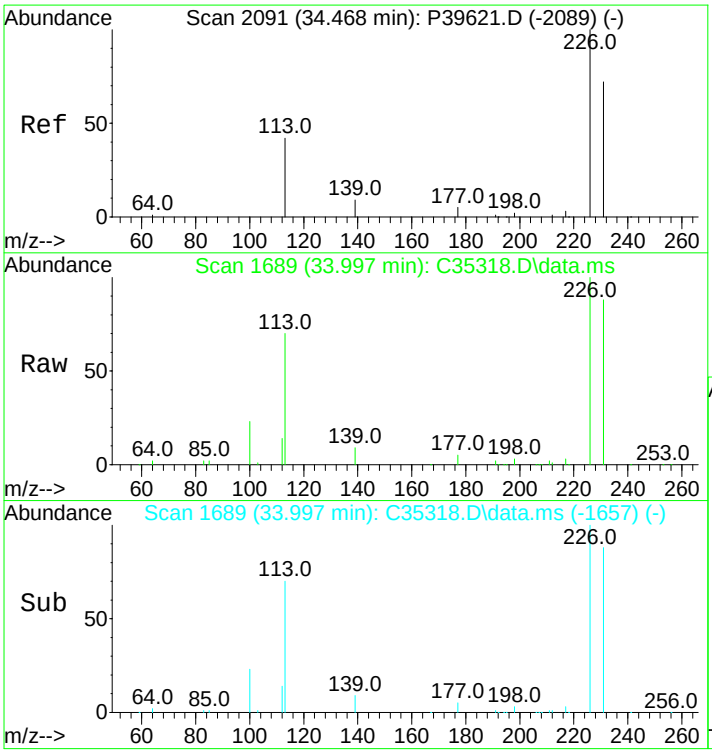


#36
1-Methyldibenzothiophene(1MDT)
Concen: 3.09 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:198 Resp: 333

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

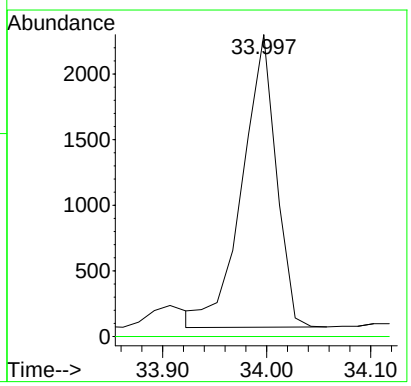


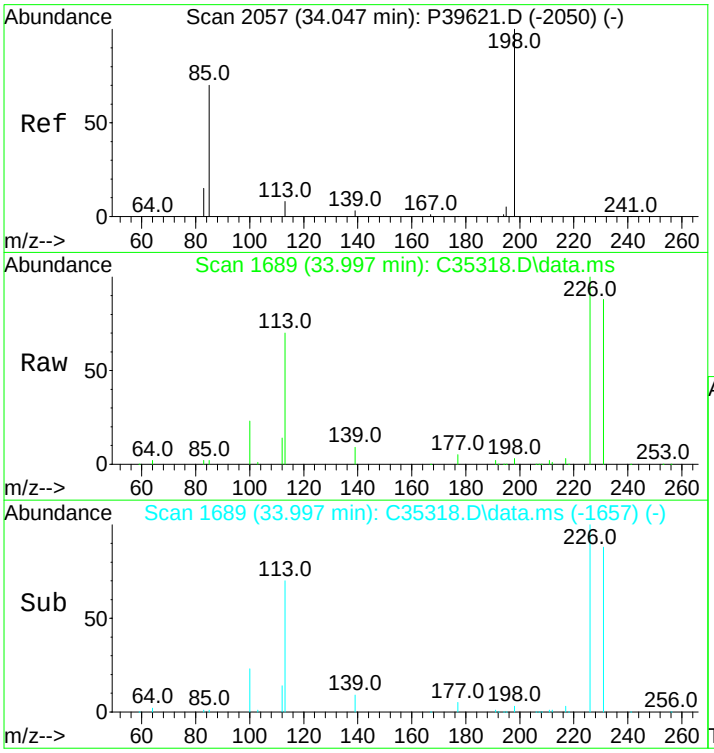


#37
OTP
Concen: 47.08 ng/mL
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:198 Resp: 5074

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

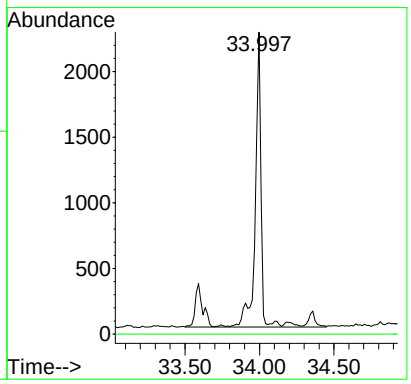


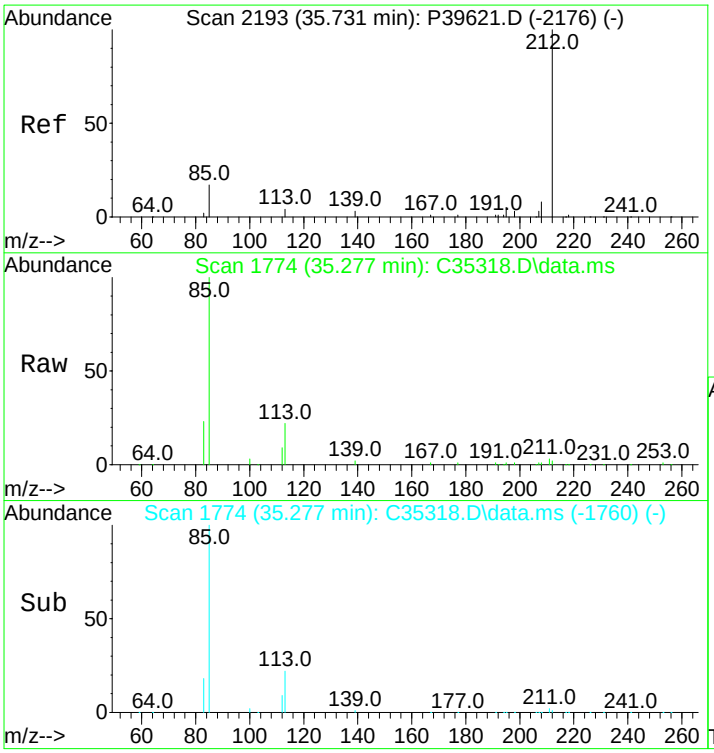


#38
C1-Dibenzothiophenes
Concen: 71.01 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:198 Resp: 7653

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

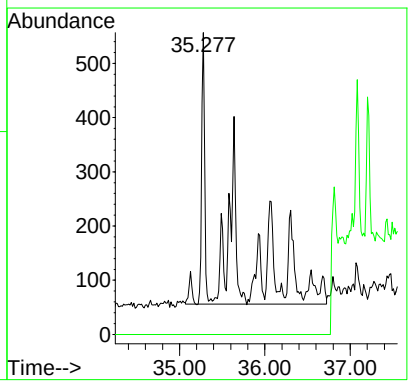


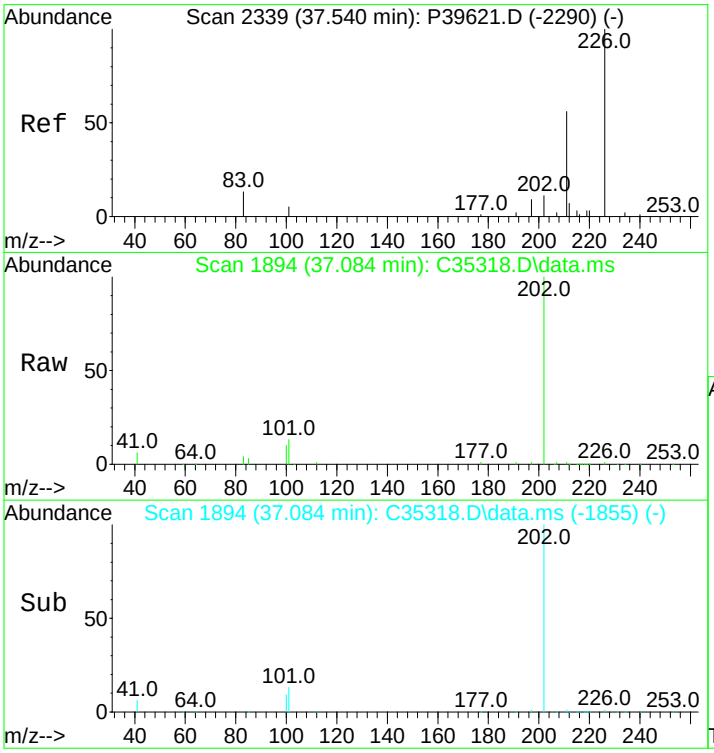


#39
C2-Dibenzothiophenes
Concen: 57.52 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.191 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:212 Resp: 6199

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

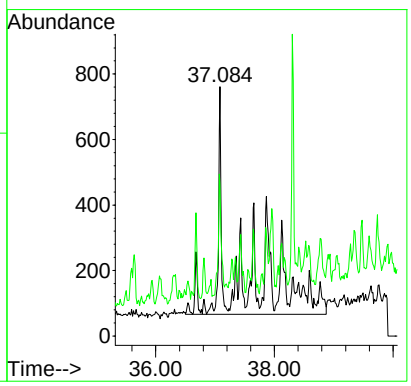


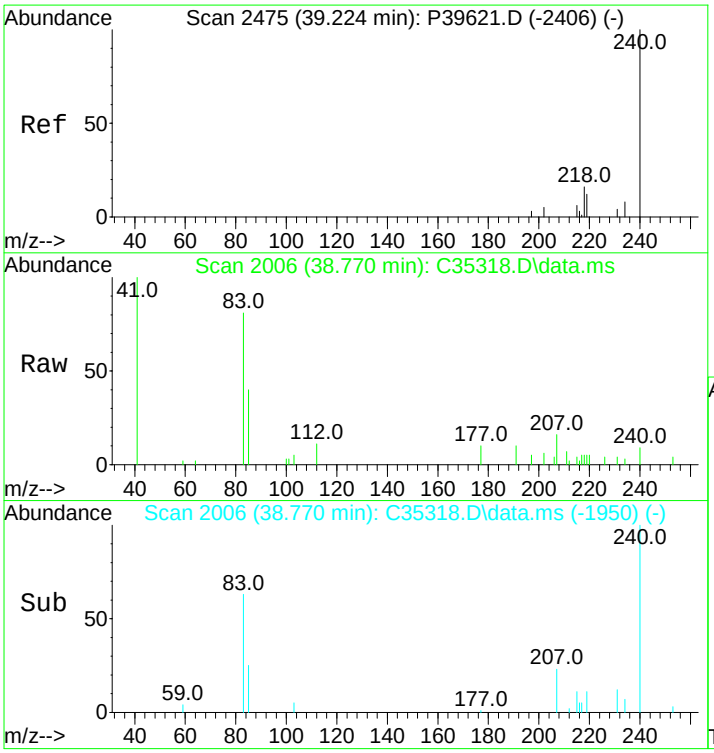


#40
C3-Dibenzothiophenes
Concen: 108.28 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:226 Resp: 11670

Ion	Ratio	Lower	Upper
226	100		
211	11.4	51.4	77.2#

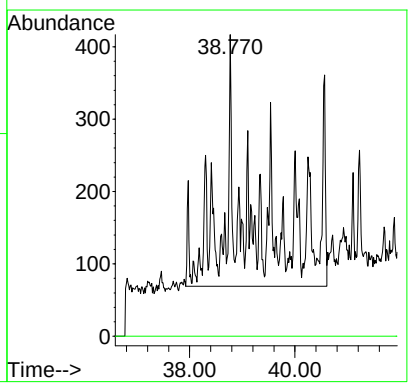


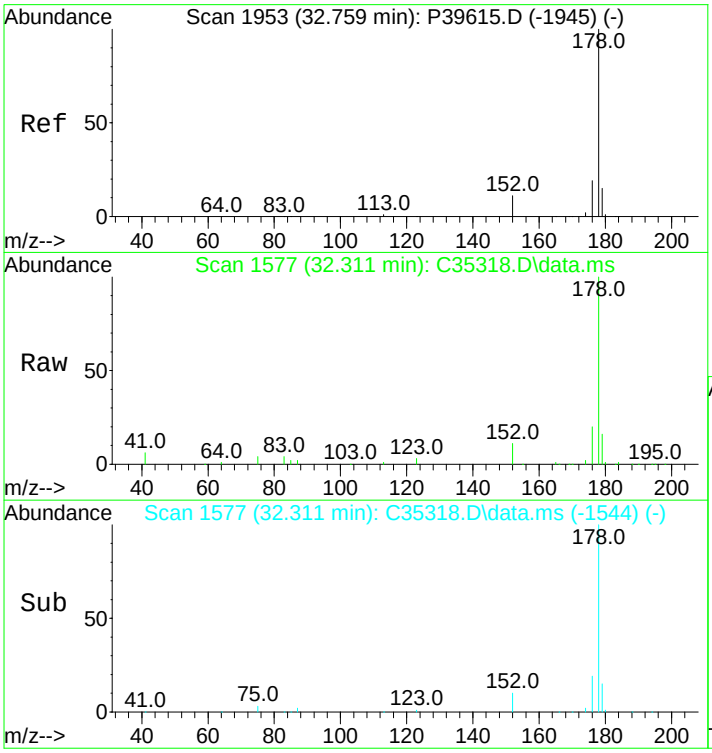


#41
C4-Dibenzothiophenes
Concen: 112.25 ng/mL m
RT: 38.770 min Scan# 2006
Delta R.T. 0.138 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:240 Resp: 12098

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

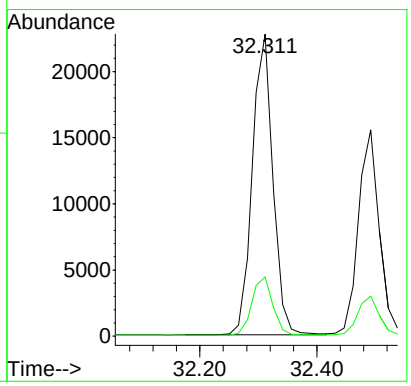


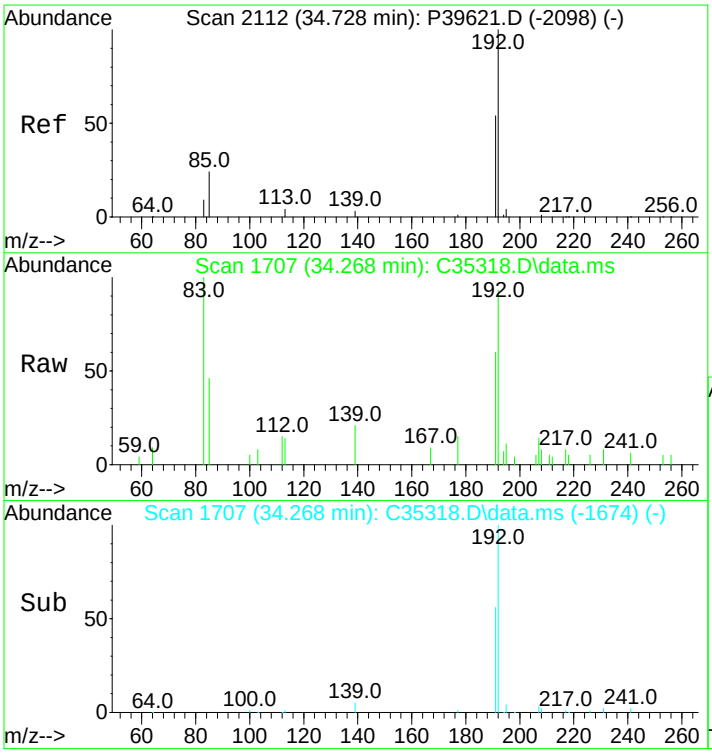


#43
Phenanthrene
Concen: 586.14 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:178 Resp: 55502

Ion	Ratio	Lower	Upper
178	100		
176	19.8	15.8	23.6

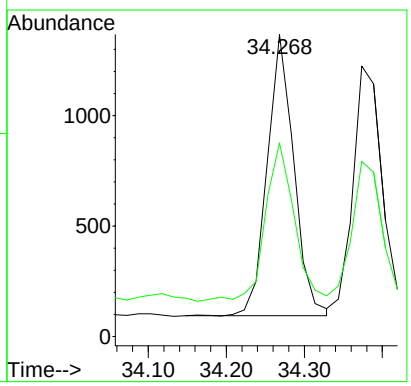


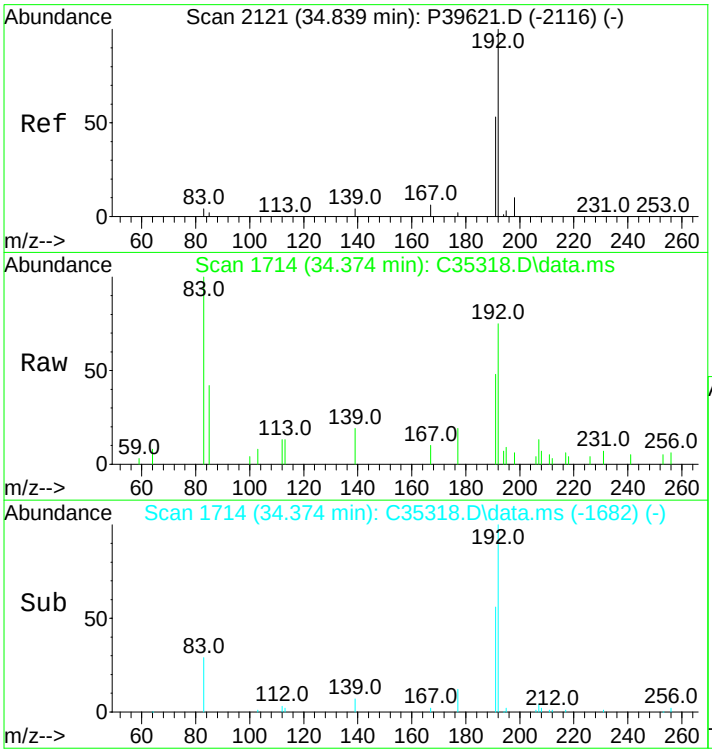


#44
3-Methylphenanthrene(3MP)
Concen: 32.02 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 3032

Ion	Ratio	Lower	Upper
192	100		
191	61.0	47.4	71.0

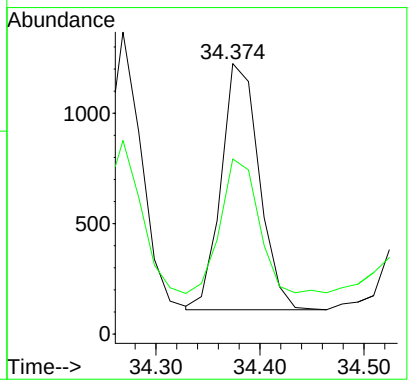


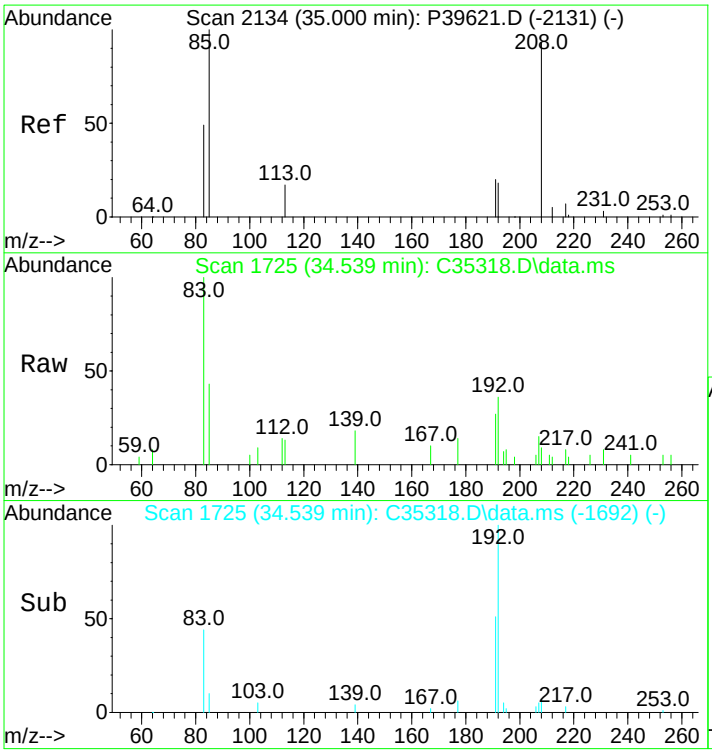


#45
2-Methylphenanthrene(2MP)
Concen: 30.07 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 2847

Ion	Ratio	Lower	Upper
192	100		
191	54.6	45.0	67.6

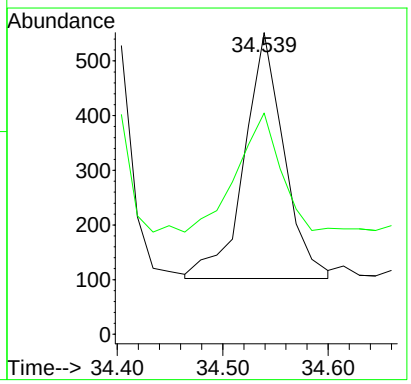


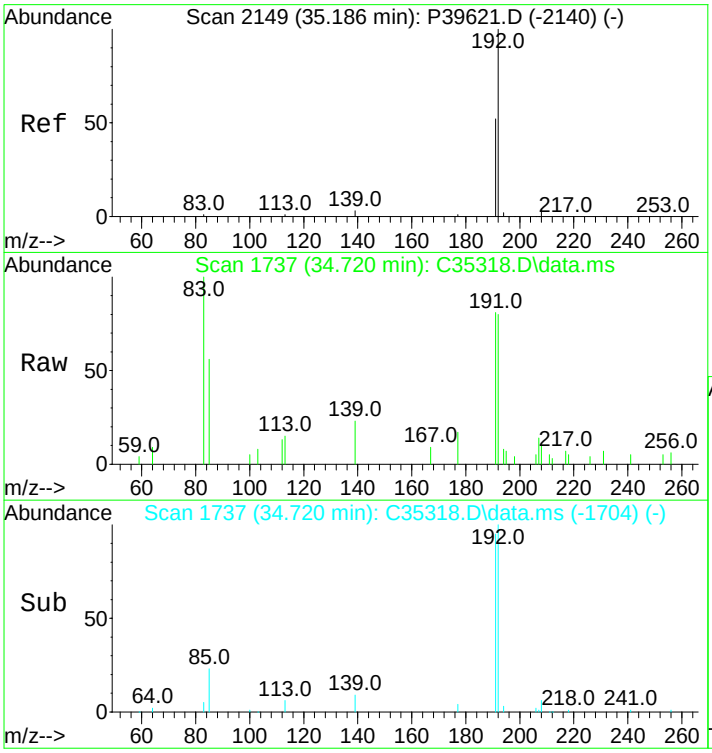


#46
2-Methylanthracene(2MA)
Concen: 12.46 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 1180

Ion	Ratio	Lower	Upper
192	100		
191	58.5	95.5	143.3#

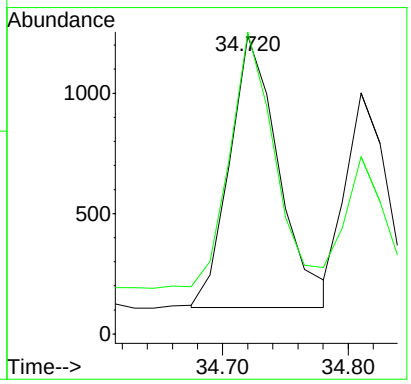


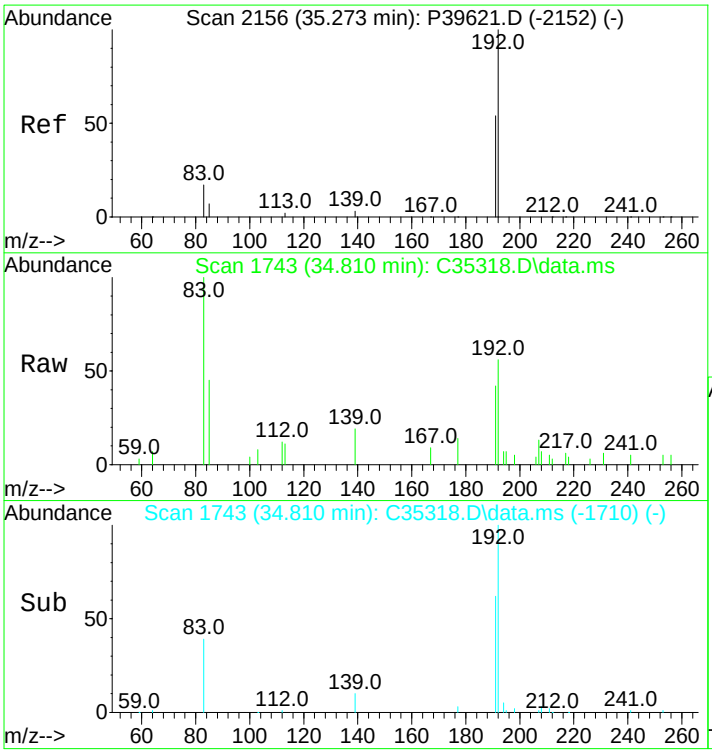


#47
9/4-Methylphenanthrene(9MP)
Concen: 32.63 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 3090

Ion	Ratio	Lower	Upper
192	100		
191	40.7	46.5	69.7#

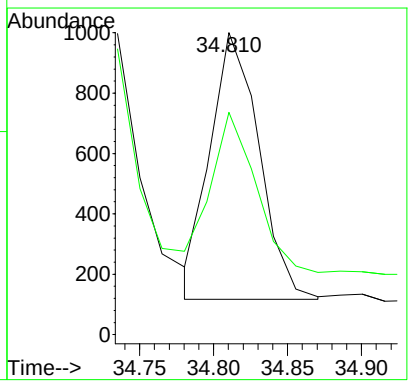


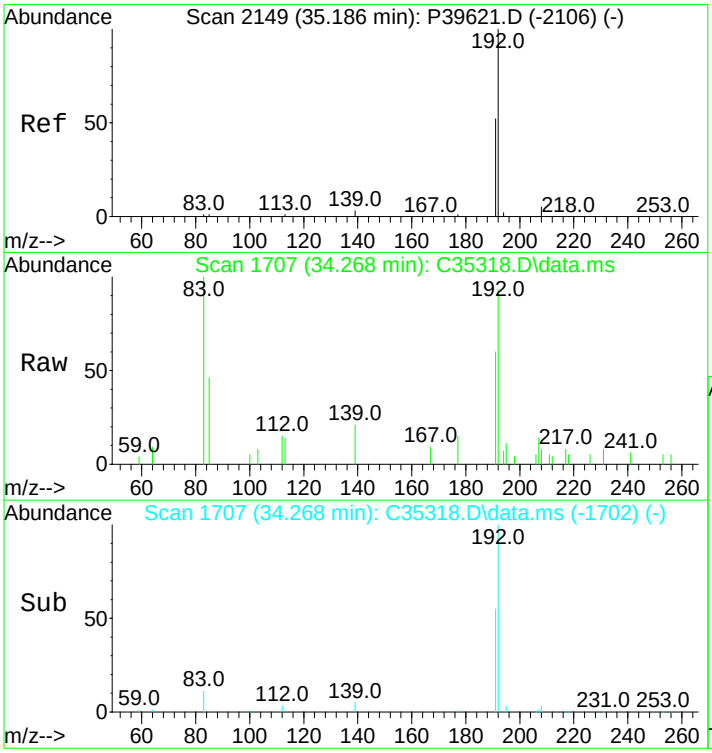


#48
1-Methylphenanthrene(1MP)
Concen: 21.37 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 2024

Ion	Ratio	Lower	Upper
192	100		
191	62.0	47.4	71.2

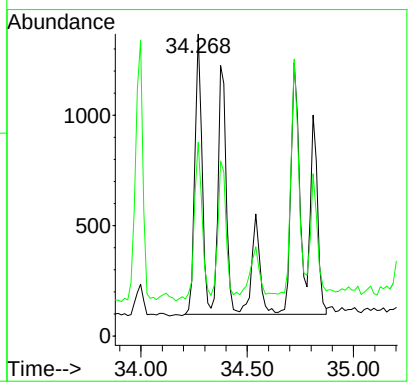


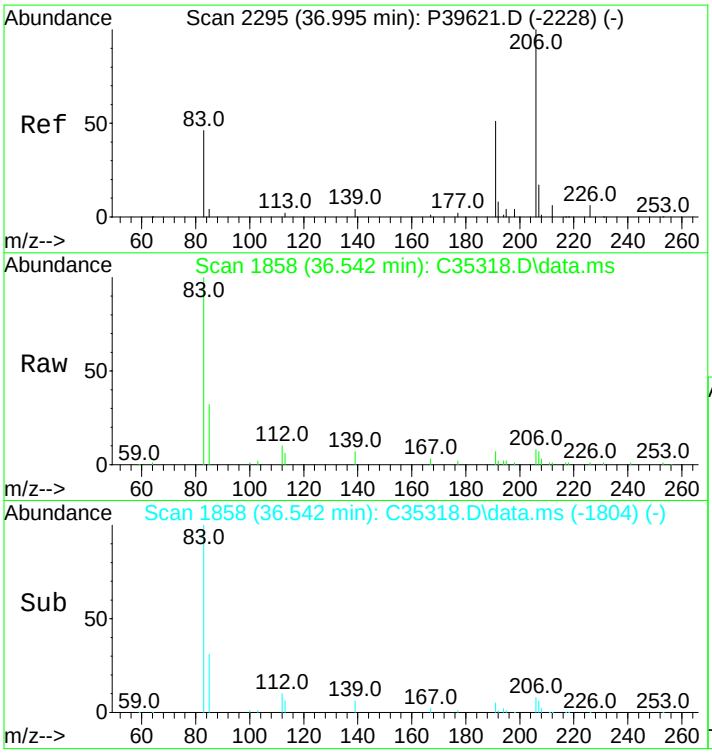


#49
C1-Phenanthrenes/Anthracenes
Concen: 131.82 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.312 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 12482

Ion	Ratio	Lower	Upper
192	100		
191	5.2	45.3	67.9#

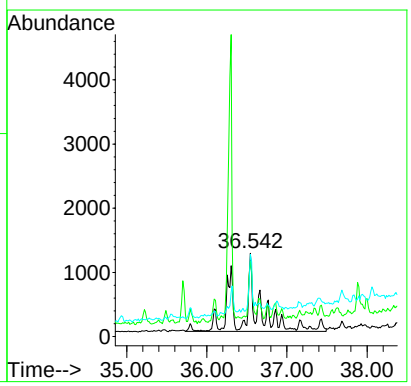


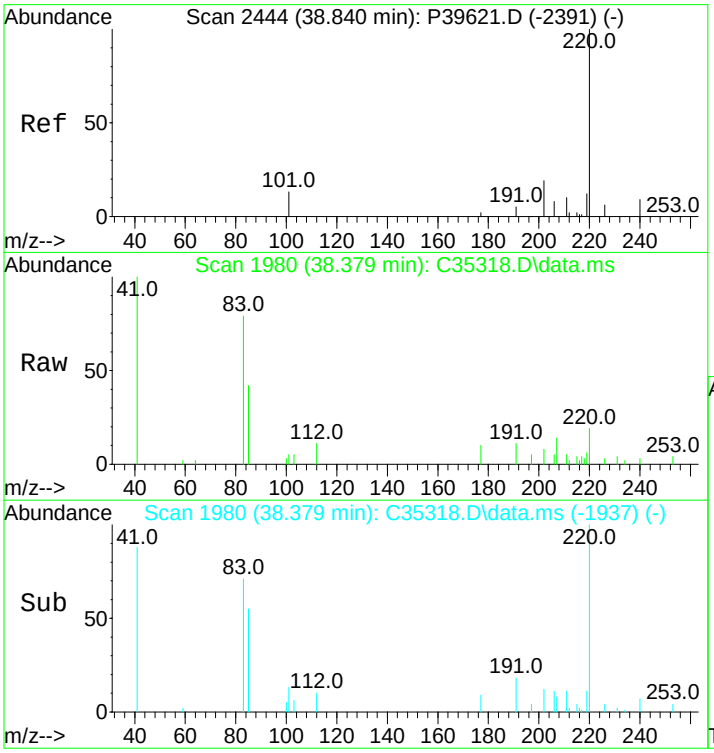


#50
C2-Phenanthrenes/Anthracenes
Concen: 185.84 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:206 Resp: 17597

Ion	Ratio	Lower	Upper
206	100		
191	75.6	42.0	63.0#
207	7.7	15.4	23.2#

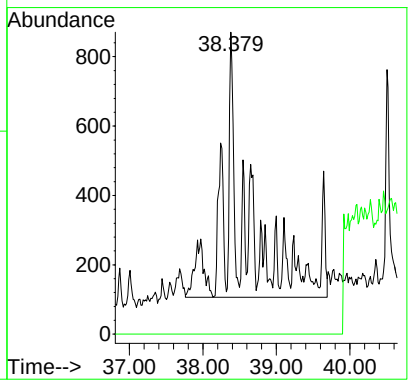


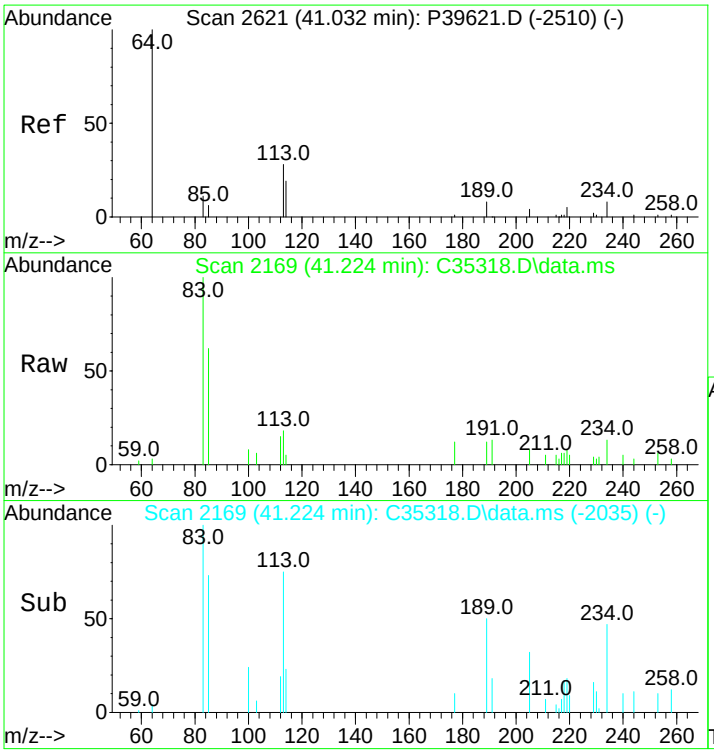


#52
C3-Phenanthrenes/Anthracenes
Concen: 158.78 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:220 Resp: 15035

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

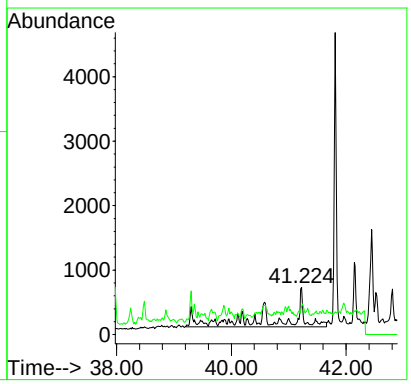


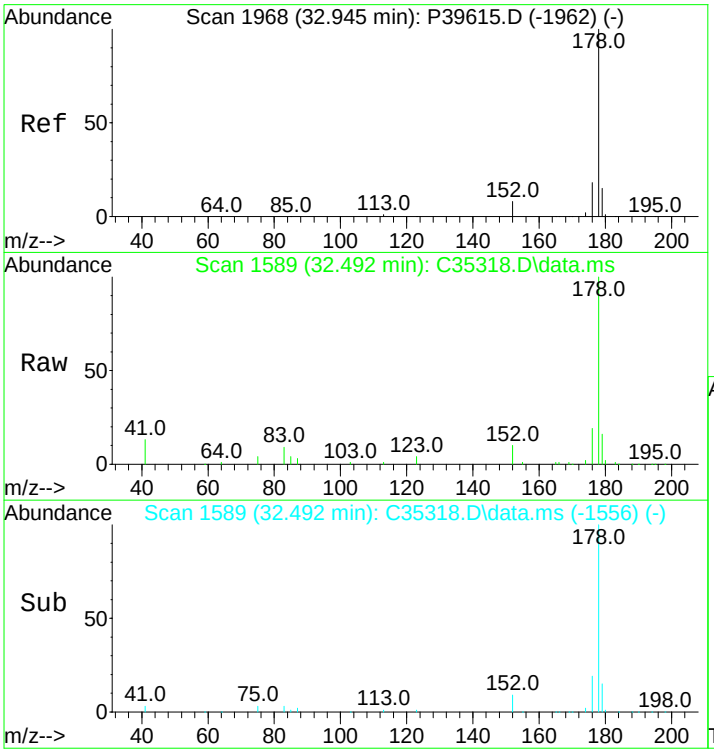


#53
C4-Phenanthrenes/Anthracenes
Concen: 137.57 ng/mL m
RT: 41.224 min Scan# 2169
Delta R.T. 0.930 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:234 Resp: 13027

Ion	Ratio	Lower	Upper
234	100		
219	1.3	48.6	73.0#

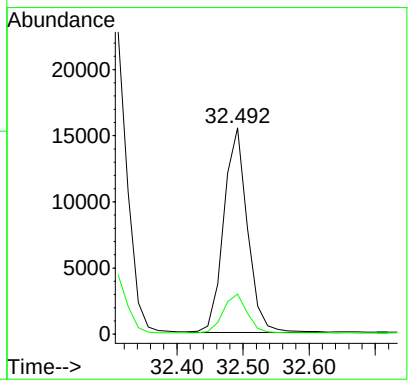


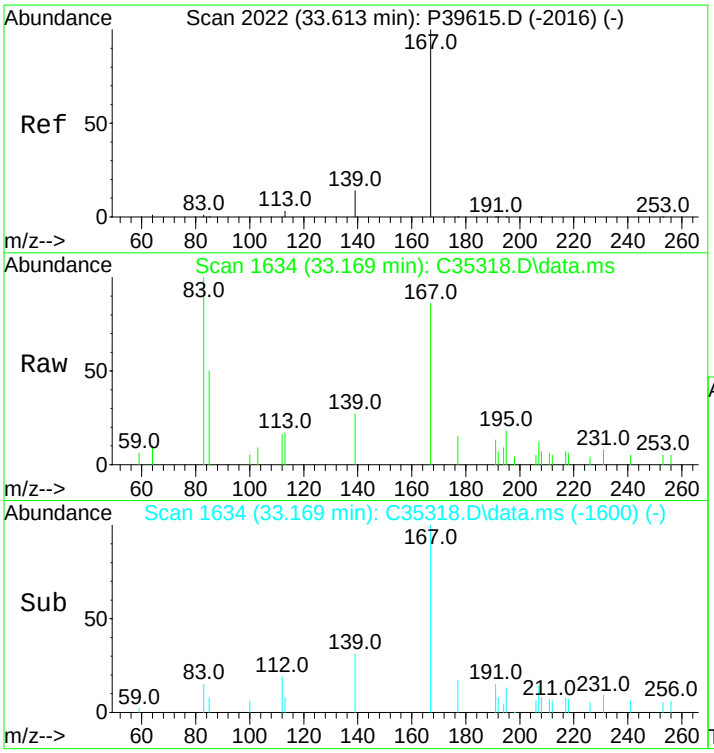


#55
Anthracene
Concen: 418.85 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:178 Resp: 38740

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.6	23.4

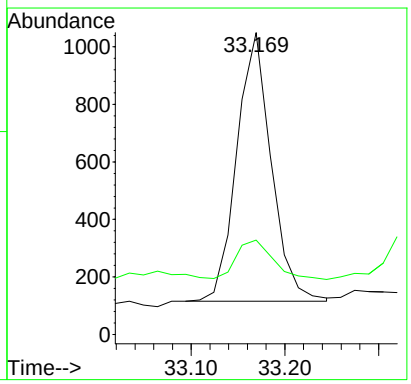


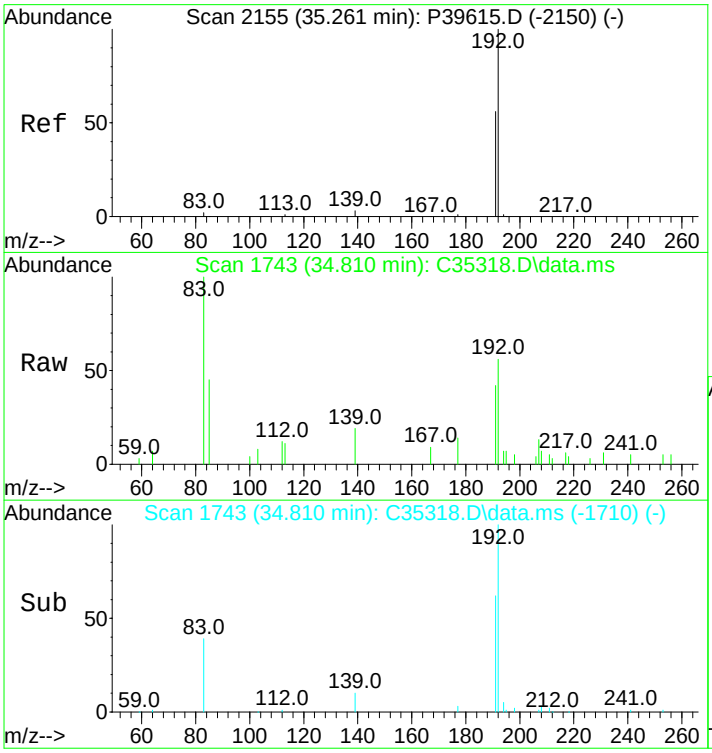


#56
Carbazole
Concen: 25.57 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:167 Resp: 2389

Ion	Ratio	Lower	Upper
167	100		
139	15.6	11.9	17.9

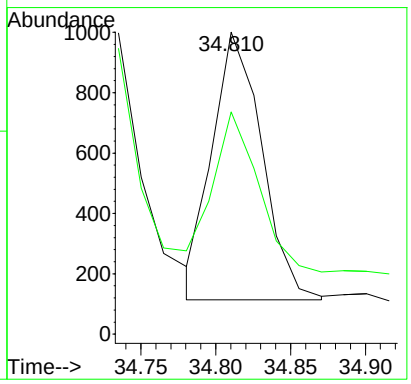


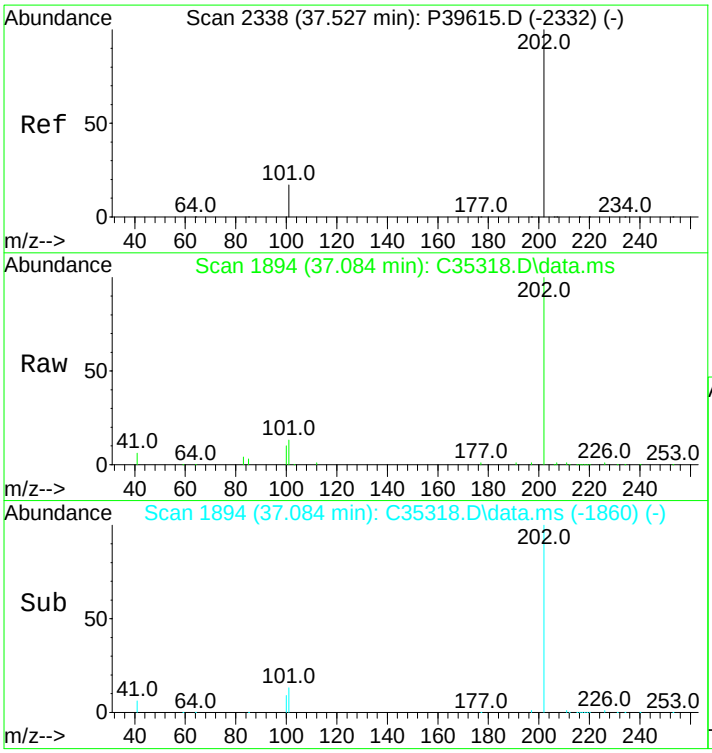


#57
1-Methylphenanthrene
Concen: 34.01 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:192 Resp: 2041

Ion	Ratio	Lower	Upper
192	100		
191	61.5	46.8	70.2

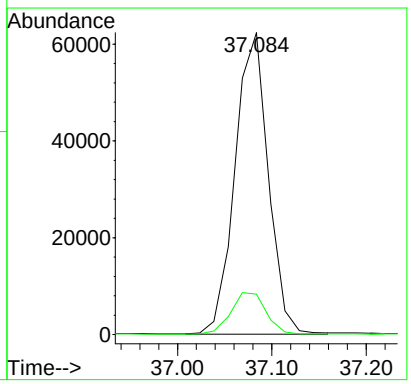


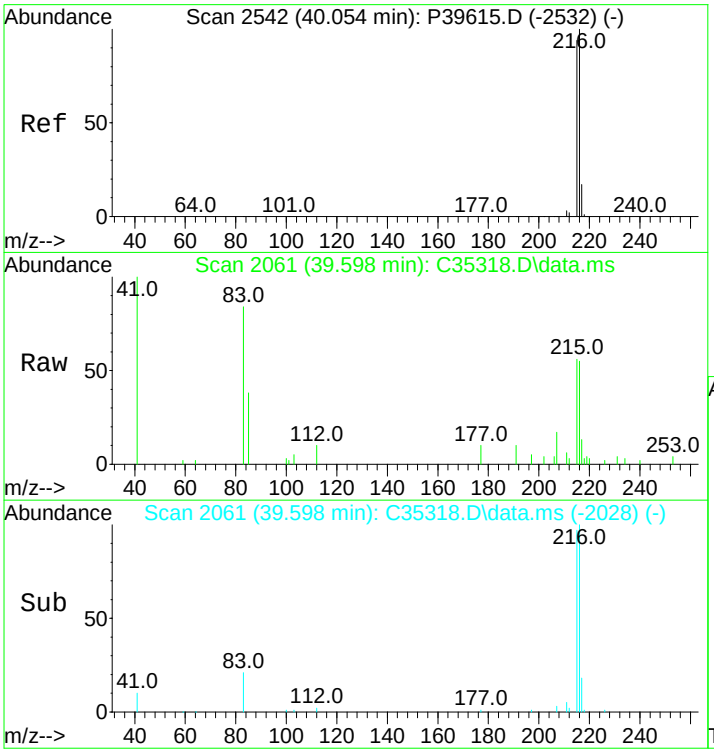


#58
Fluoranthene
Concen: 1622.15 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:202 Resp: 152554

Ion	Ratio	Lower	Upper
202	100		
101	15.0	13.2	19.8

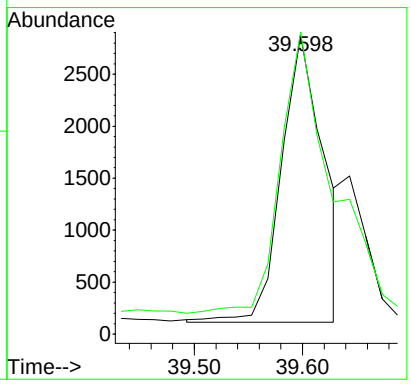


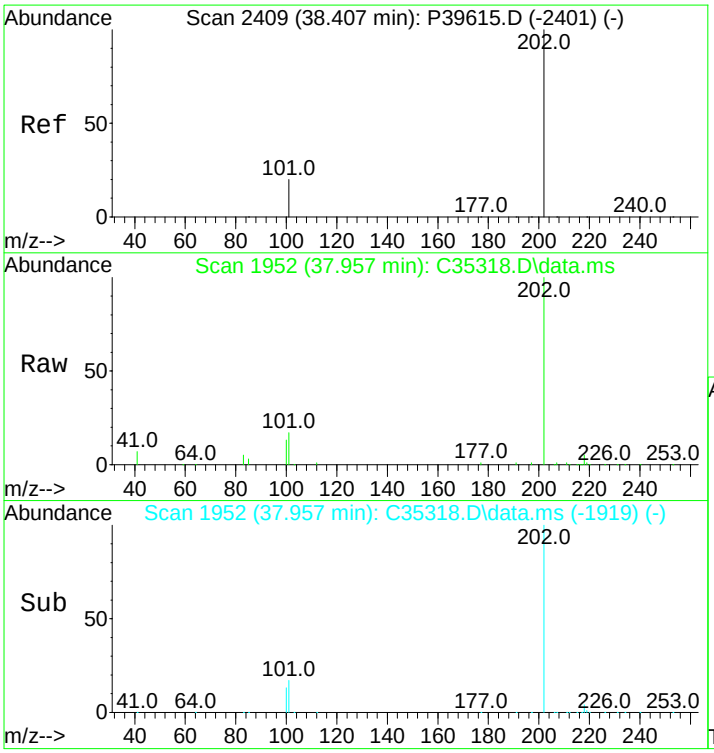


#59
Benzo(b)fluorene
Concen: 136.97 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:216 Resp: 7473

Ion	Ratio	Lower	Upper
216	100		
215	120.6	76.0	114.0#

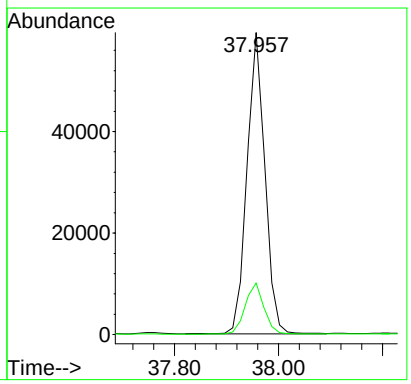


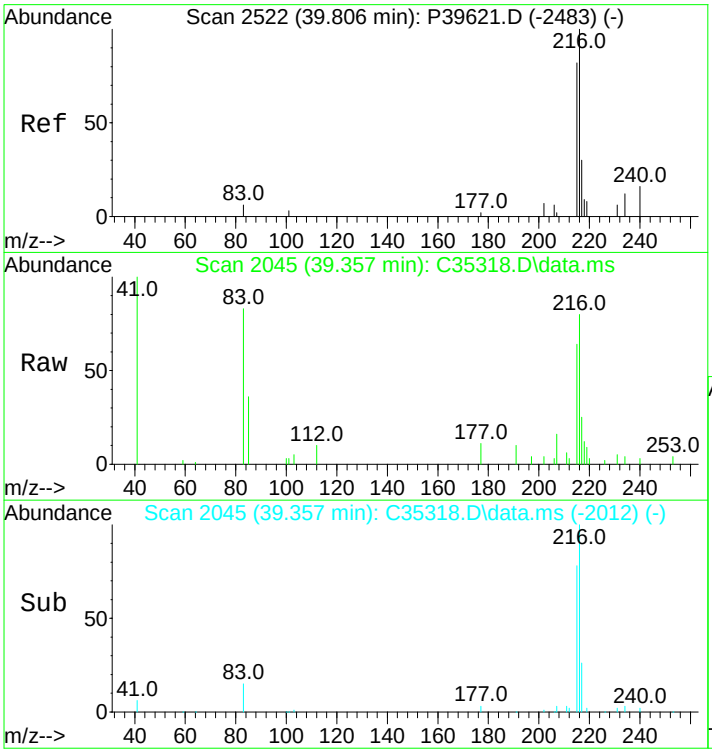


#60
Pyrene
Concen: 1492.66 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:202 Resp: 142696

Ion	Ratio	Lower	Upper
202	100		
101	17.8	13.5	20.3

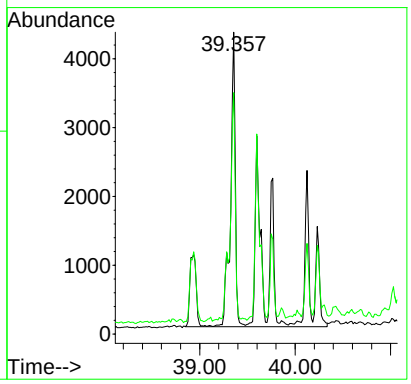


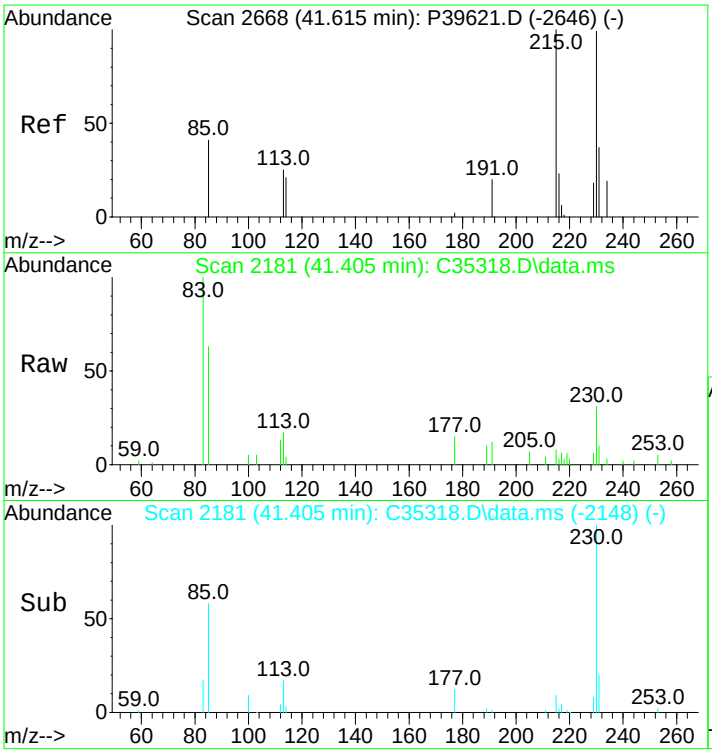


#61
C1-Fluoranthenes/Pyrenes
Concen: 484.43 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:216 Resp: 46311

Ion	Ratio	Lower	Upper
216	100		
215	8.6	77.7	116.5#

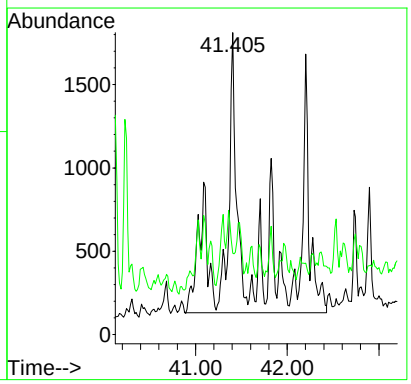


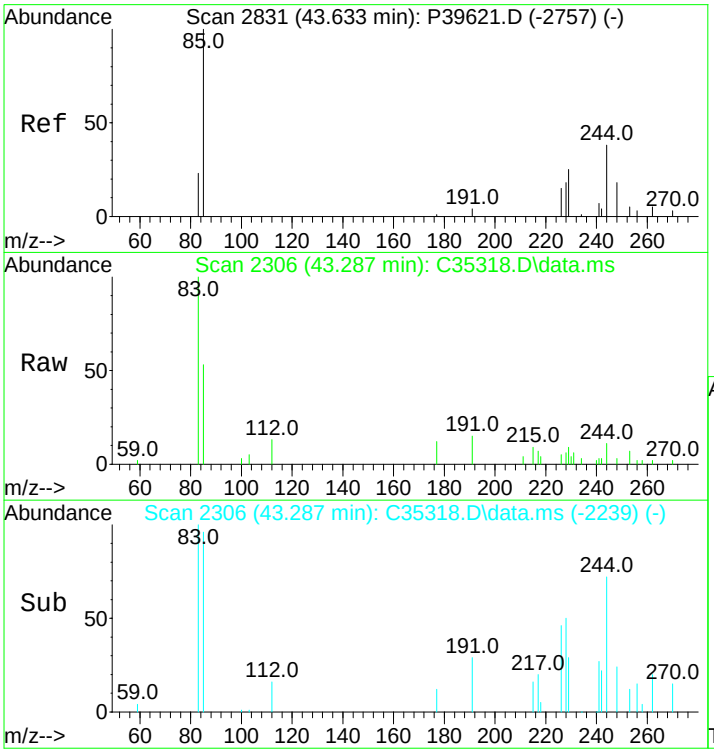


#62
C2-Fluoranthenes/Pyrenes
Concen: 313.14 ng/mL m
RT: 41.405 min Scan# 2181
Delta R.T. 0.241 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:230 Resp: 29936

Ion	Ratio	Lower	Upper
230	100		
215	4.9	92.7	139.1#

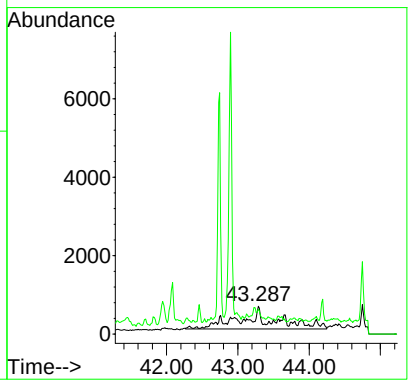


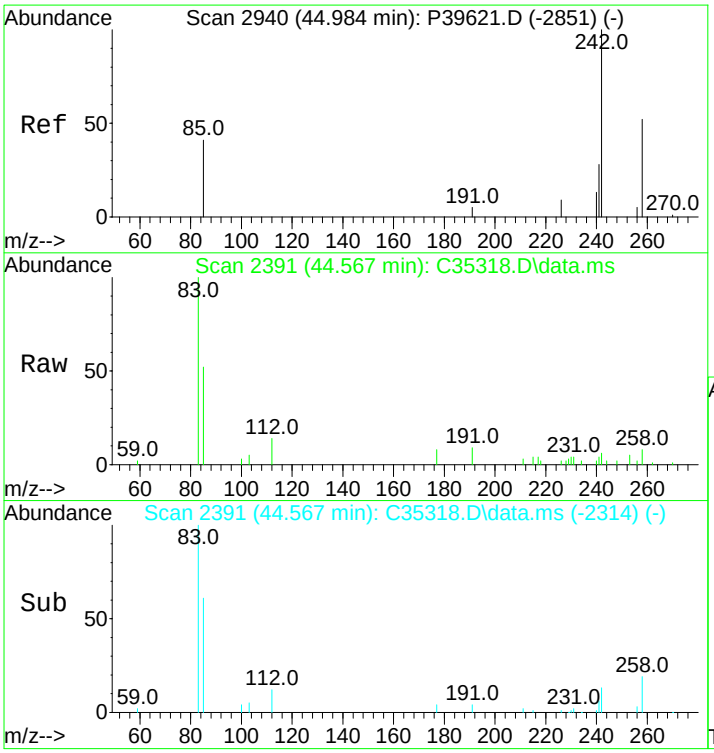


#63
C3-Fluoranthenes/Pyrenes
Concen: 195.60 ng/mL m
RT: 43.287 min Scan# 2306
Delta R.T. 0.418 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:244 Resp: 18699

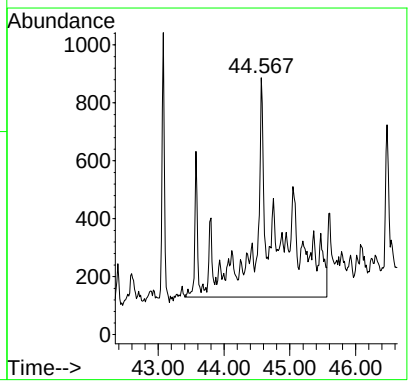
Ion	Ratio	Lower	Upper
244	100		
229	111.1	78.7	118.1

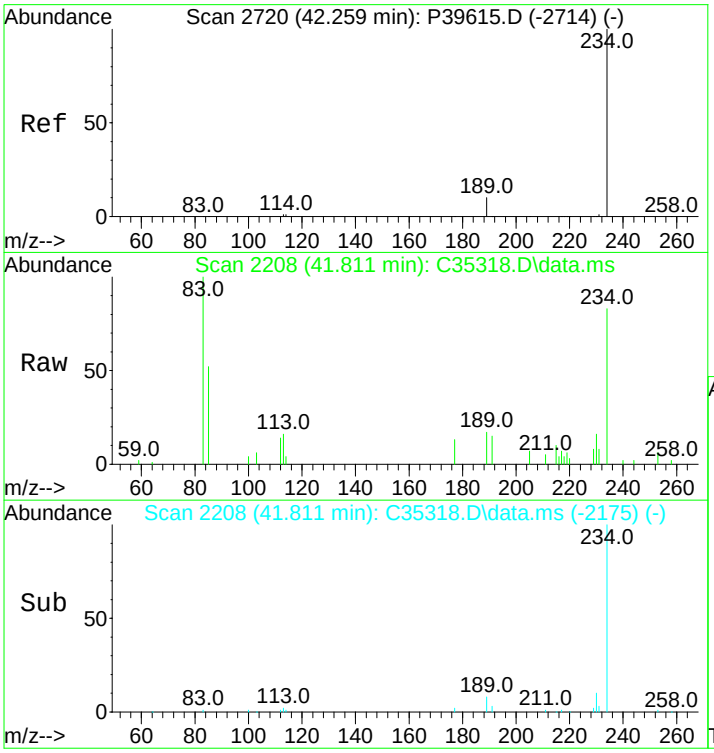




#64
C4-Fluoranthenes/Pyrenes
Concen: 201.27 ng/mL m
RT: 44.567 min Scan# 2391
Delta R.T. 0.365 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:258 Resp: 19241

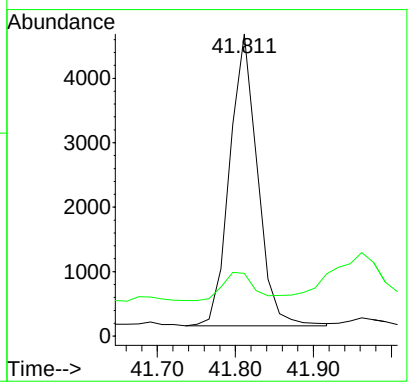


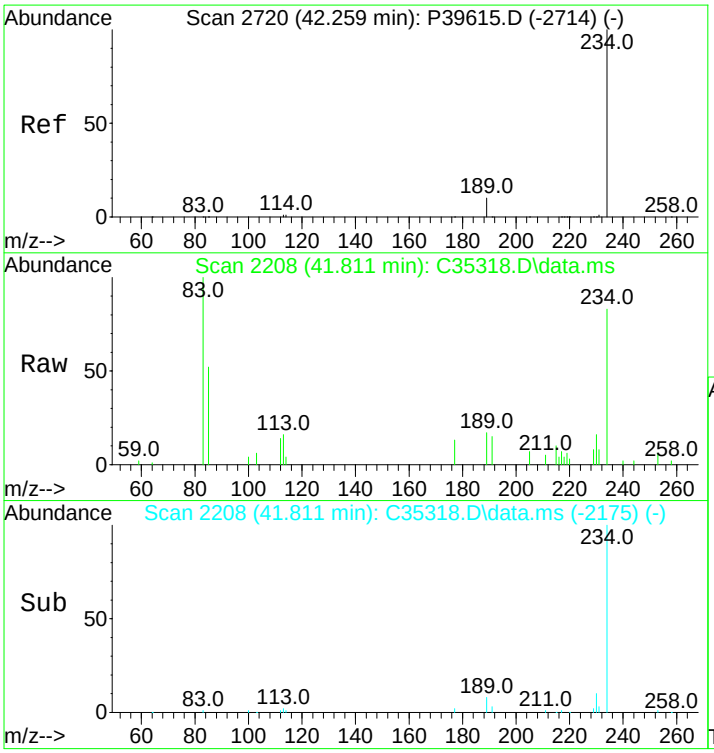


#66
Naphthobenzothiophene
Concen: 109.28 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:234 Resp: 11247

Ion	Ratio	Lower	Upper
234	100		
189	11.4	20.9	31.3#

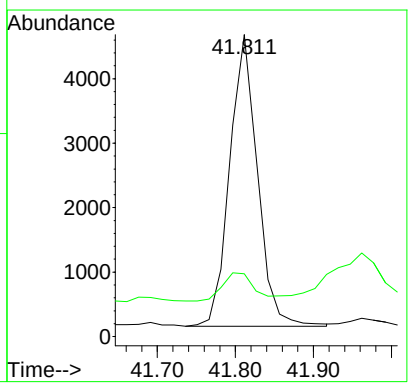


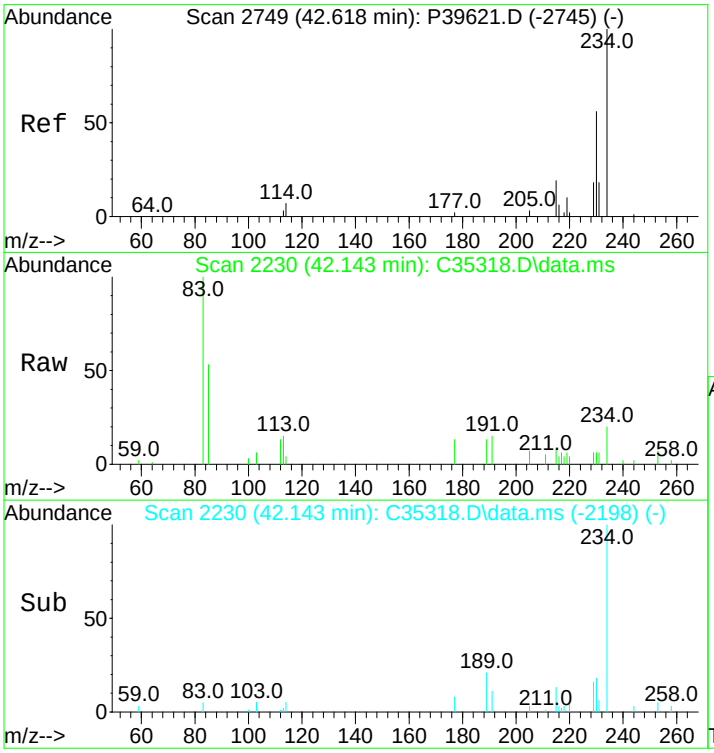


#67
Naphthobenzothiophene-2,1-D
Concen: 109.28 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:234 Resp: 11247

Ion	Ratio	Lower	Upper
234	100		
189	11.4	20.9	31.3#

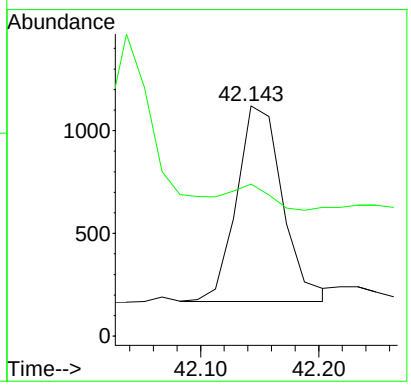


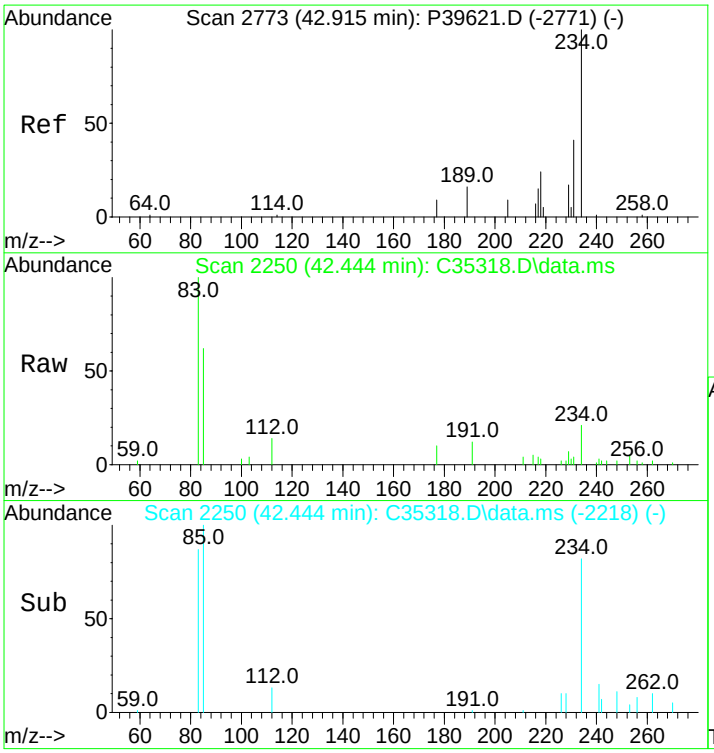


#68
Naphthobenzothiophene-1,2-D
Concen: 25.13 ng/mL m
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:234 Resp: 2586

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

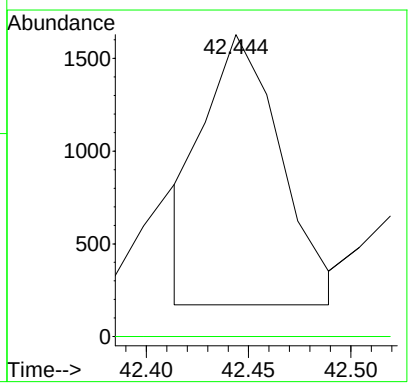


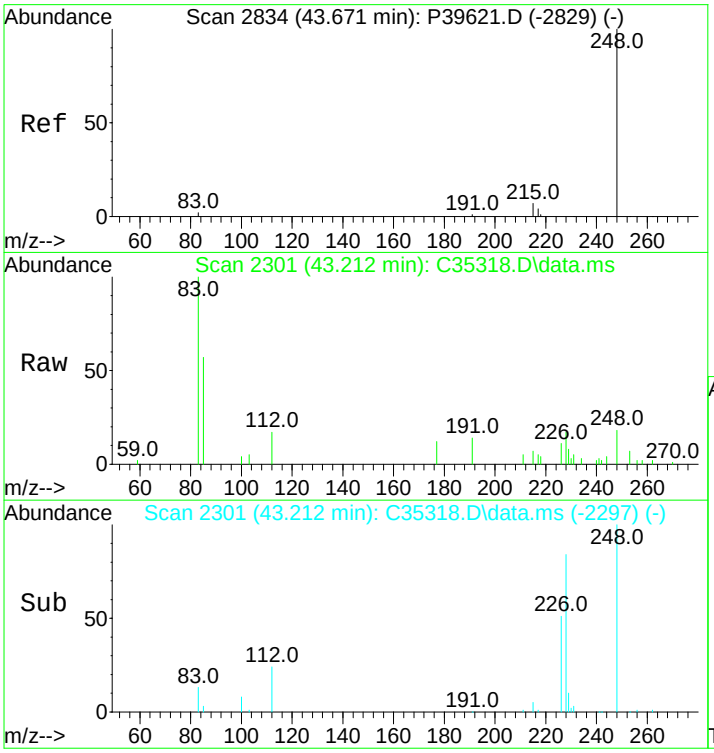


#69
Naphthobenzothiophene-2,3-D
Concen: 36.91 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:234 Resp: 3799

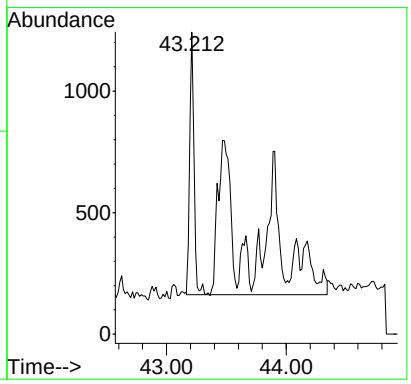
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

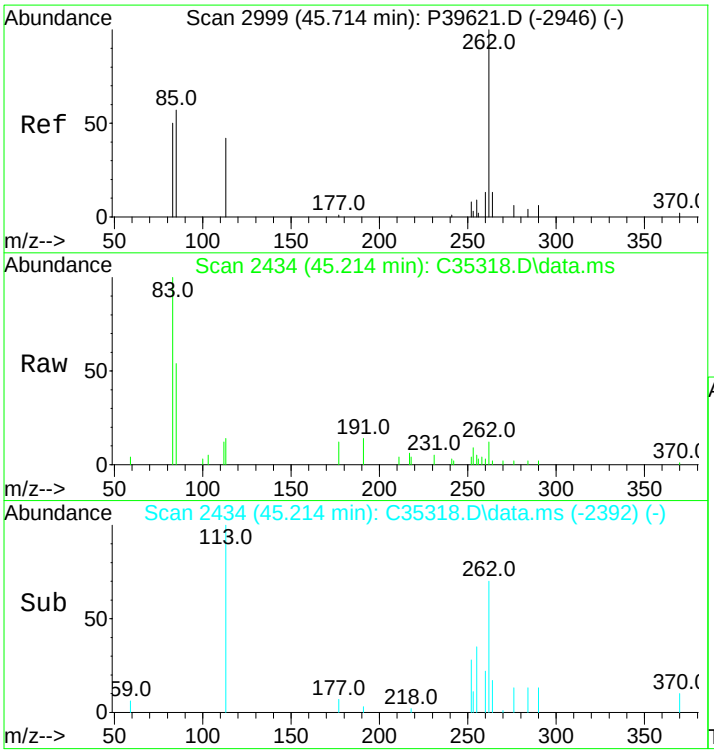




#70
C1-Naphthobenzothiophenes
Concen: 141.84 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

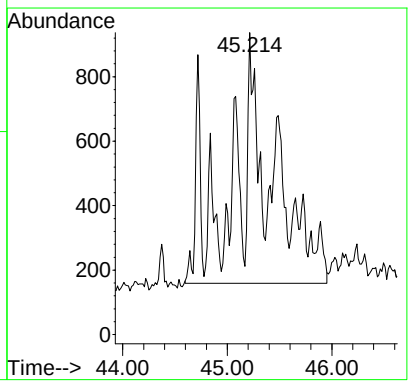
Tgt Ion:248 Resp: 14598

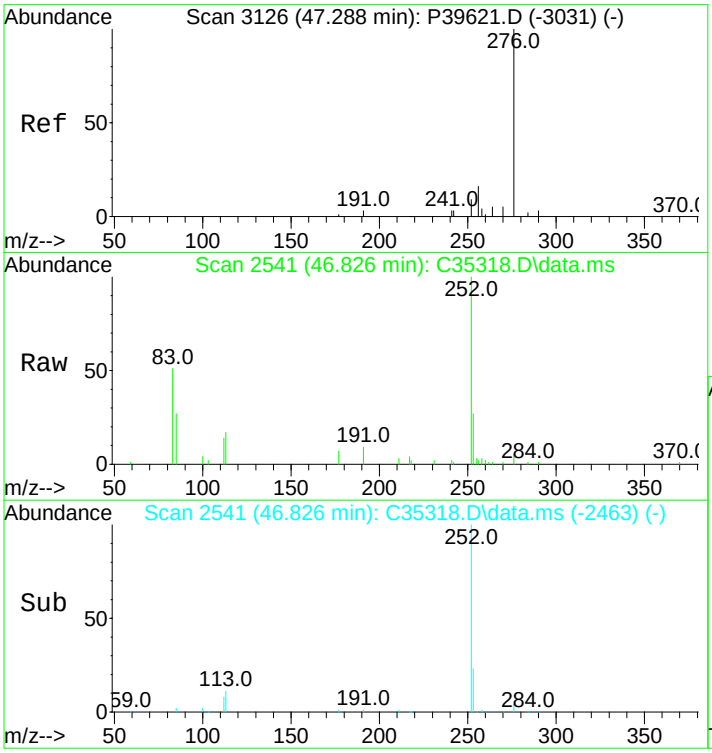




#71
C2-Naphthobenzothiophenes
Concen: 195.71 ng/ml m
RT: 45.214 min Scan# 2434
Delta R.T. 0.347 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

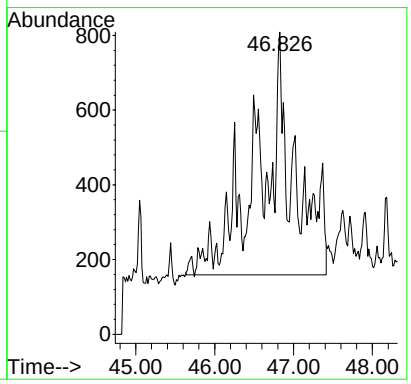
Tgt Ion:262 Resp: 20143

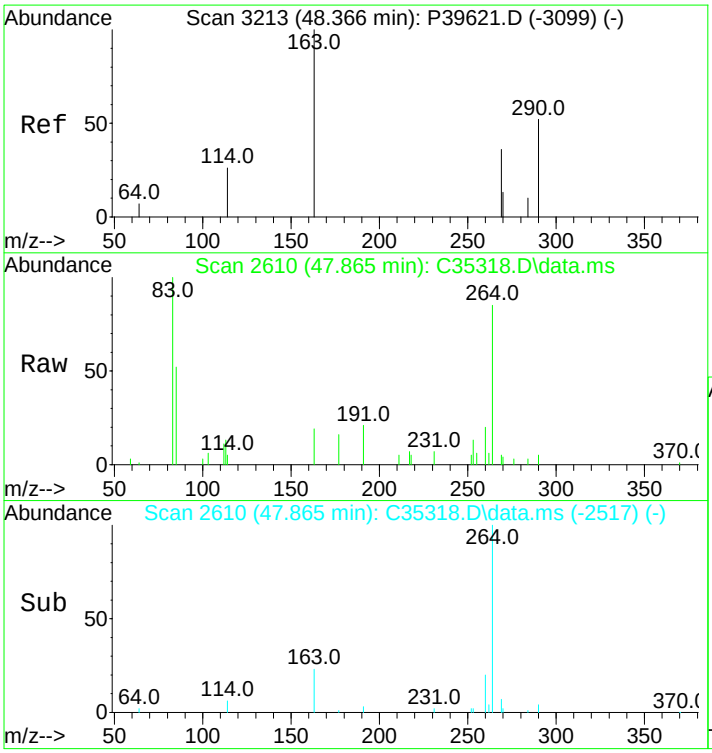




#72
C3-Naphthobenzothiophenes
Concen: 193.66 ng/ml m
RT: 46.826 min Scan# 2541
Delta R.T. 0.373 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

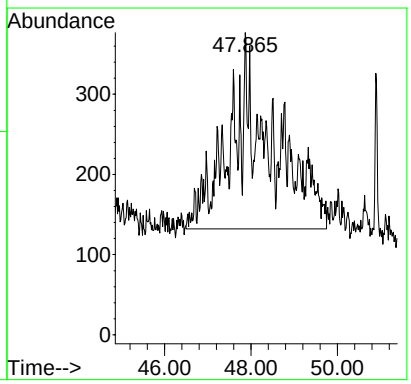
Tgt Ion:276 Resp: 19932

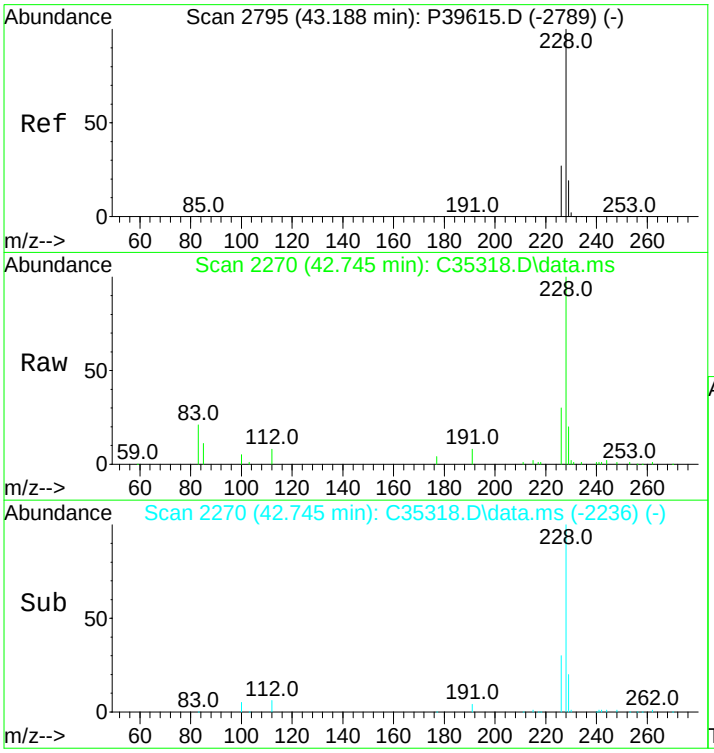




#73
C4-Naphthobenzothiophenes
Concen: 150.50 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:290 Resp: 15490

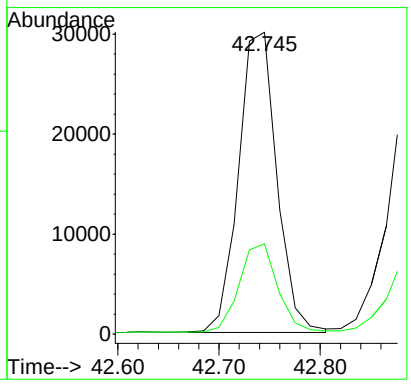


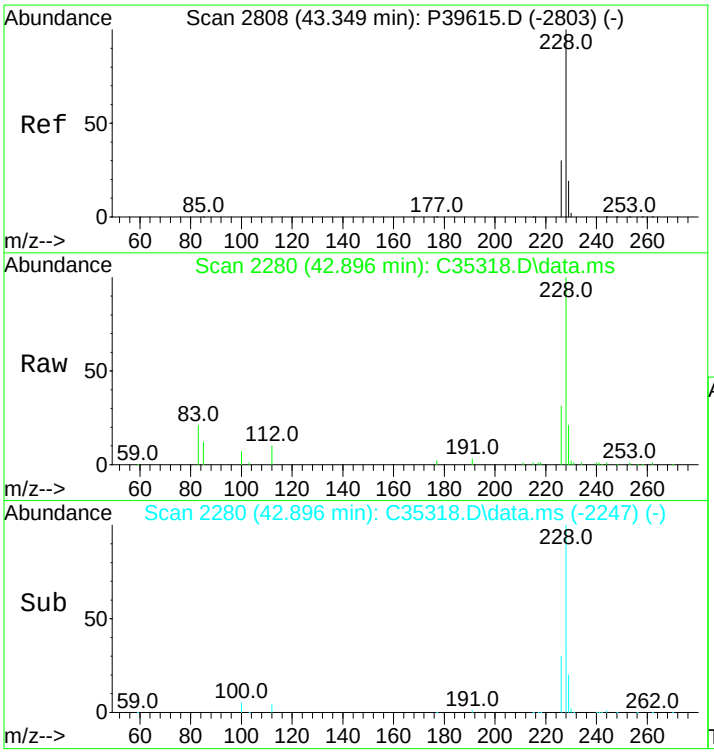


#75
Benz[a]anthracene
Concen: 693.16 ng/mL m
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:228 Resp: 79060

Ion	Ratio	Lower	Upper
228	100		
226	29.5	21.5	32.3

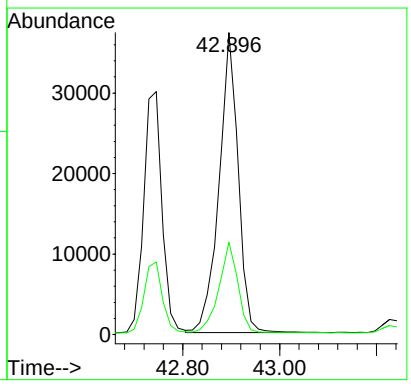


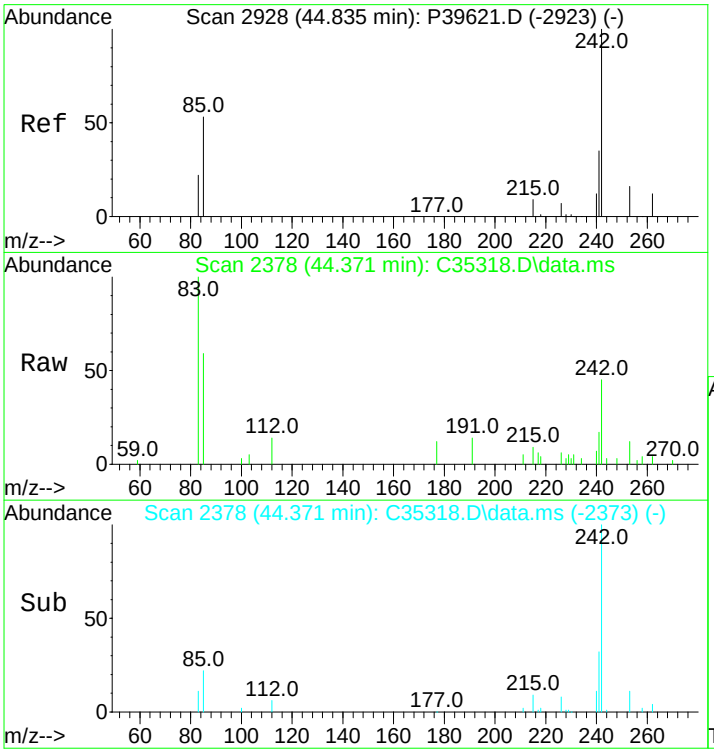


#77
Chrysene/Triphenylene
Concen: 892.28 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:228 Resp: 102746

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.5	35.3

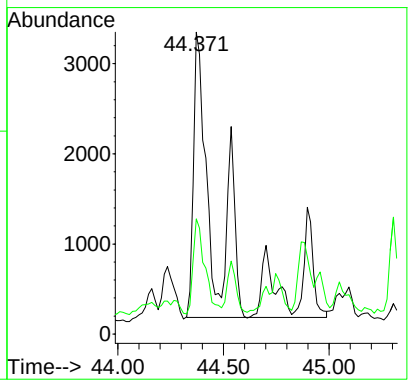


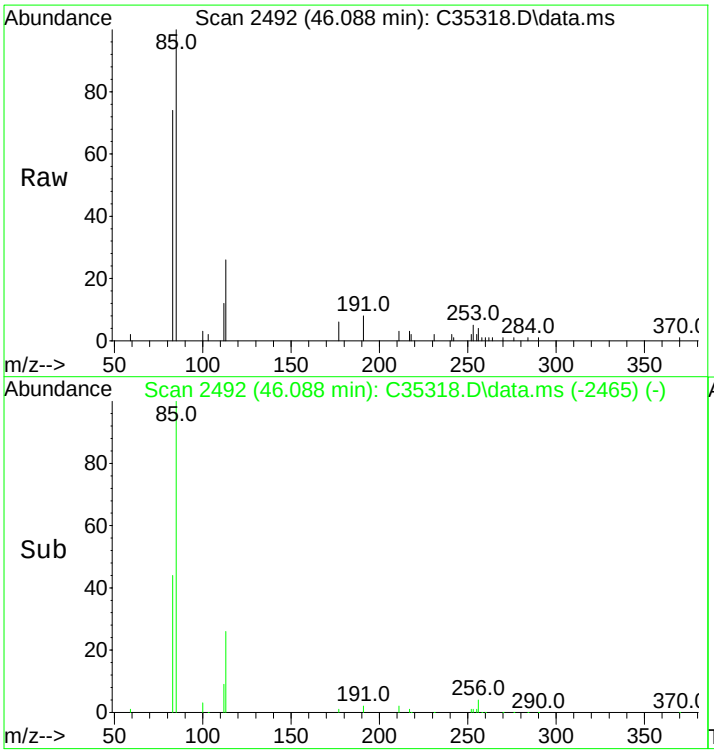


#78
C1-Chrysenes
Concen: 217.94 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:242 Resp: 25096

Ion	Ratio	Lower	Upper
242	100		
241	13.5	32.7	49.1#

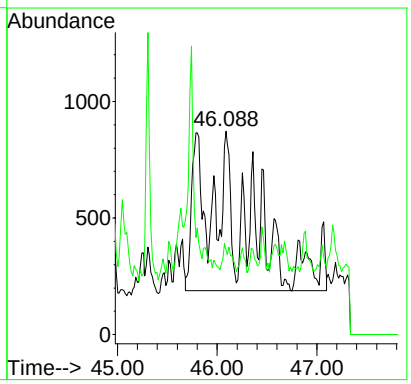


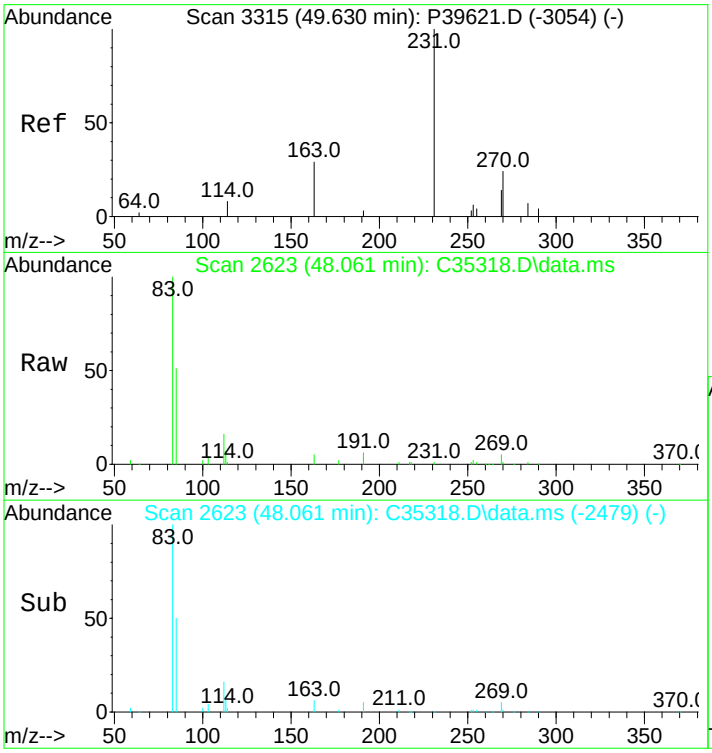


#79
C2-Chrysenes
Concen: 179.69 ng/mL m
RT: 46.088 min Scan# 2492
Delta R.T. -0.310 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:256 Resp: 20691

Ion	Ratio	Lower	Upper
256	100		
241	2.5	30.9	46.3#

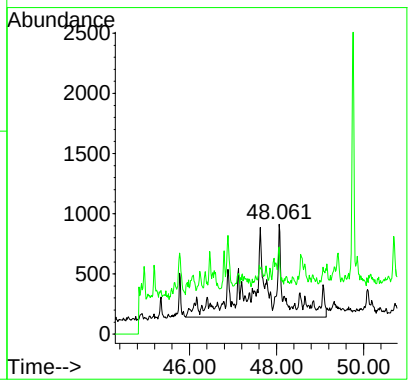


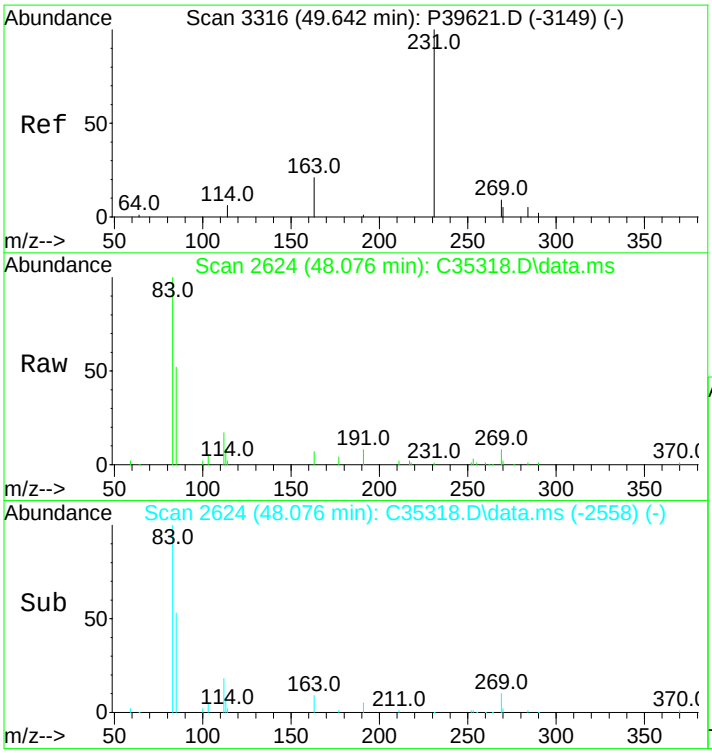


#80
C3-Chrysenes
Concen: 255.89 ng/mL m
RT: 48.061 min Scan# 2623
Delta R.T. -1.021 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:270 Resp: 29466

Ion	Ratio	Lower	Upper
270	100		
255	2.0	41.4	62.2#

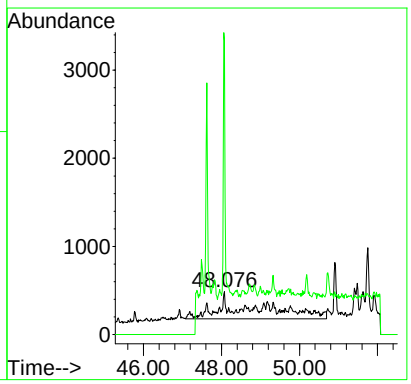


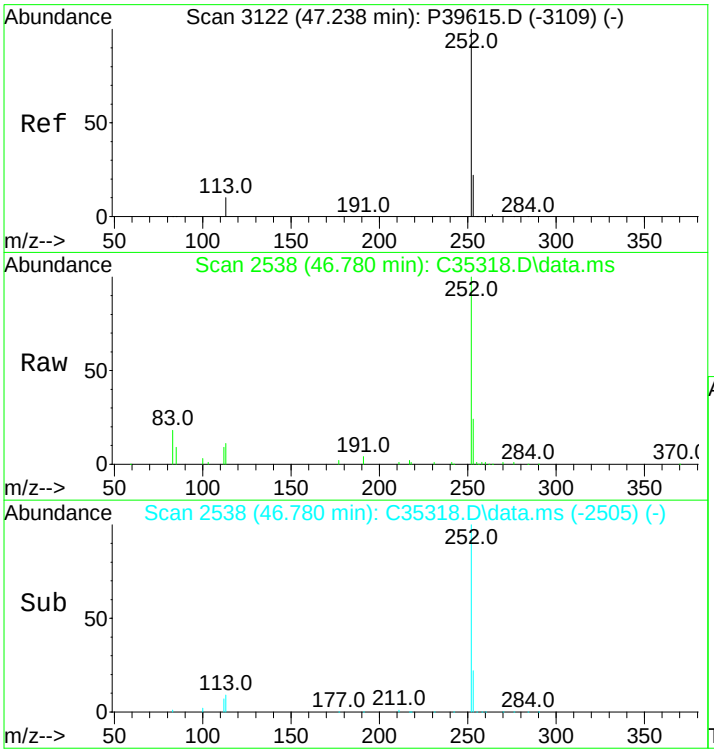


#81
C4-Chrysenes
Concen: 167.65 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.109 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:284 Resp: 19305

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

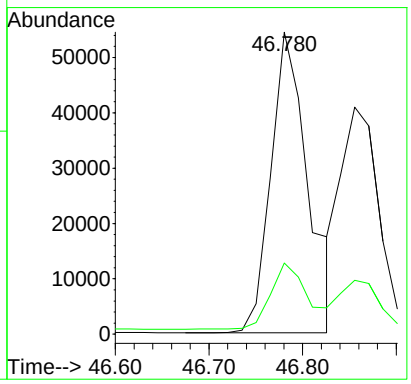


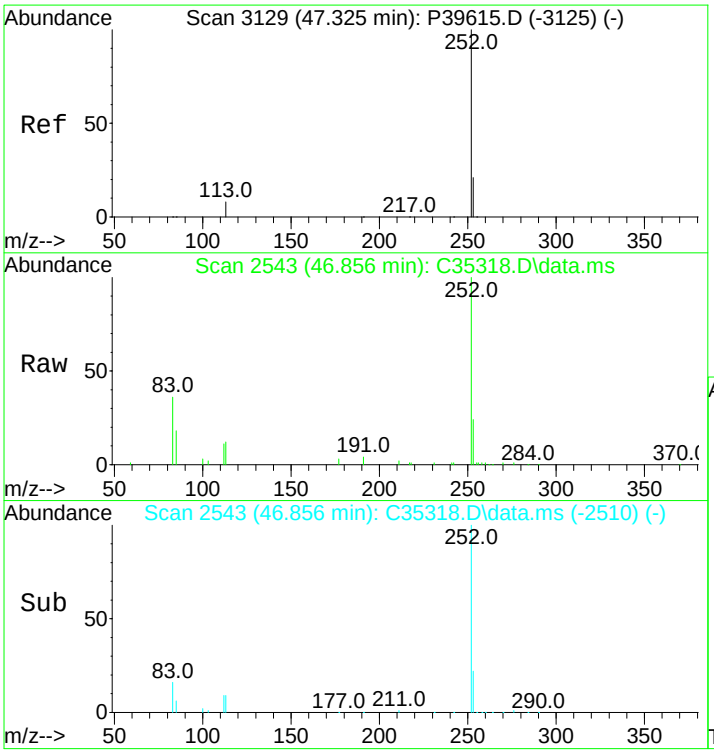


#82
Benzo[b]fluoranthene
Concen: 1197.55 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 150084

Ion	Ratio	Lower	Upper
252	100		
253	22.3	20.4	30.6

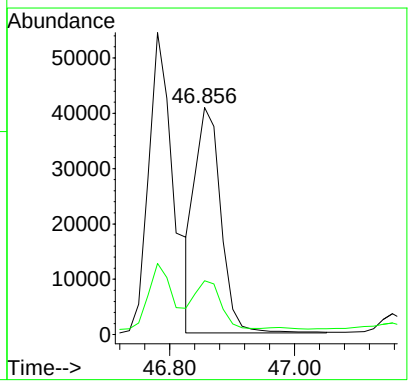


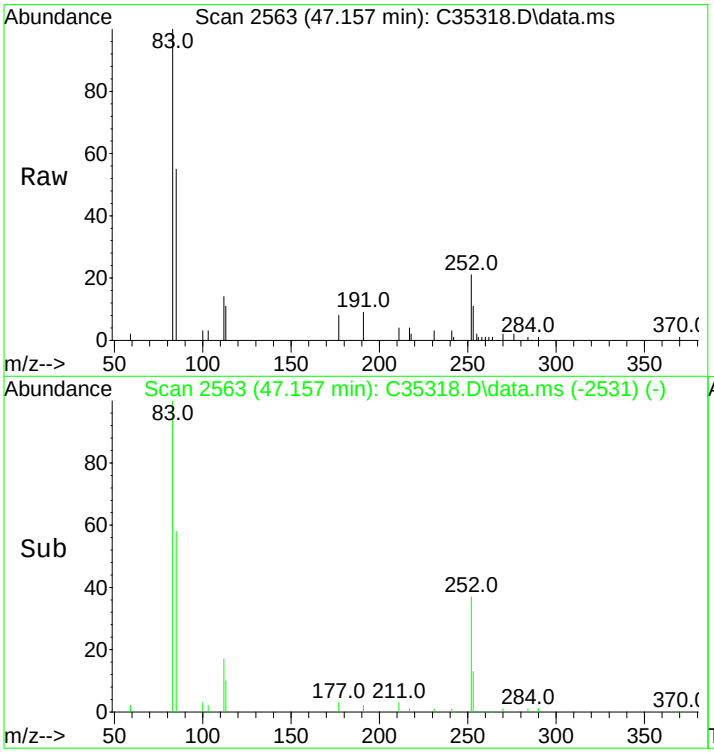


#83
Benzo[j]+[k]fluoranthene
Concen: 869.79 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 118681

Ion	Ratio	Lower	Upper
252	100		
253	21.7	20.6	31.0

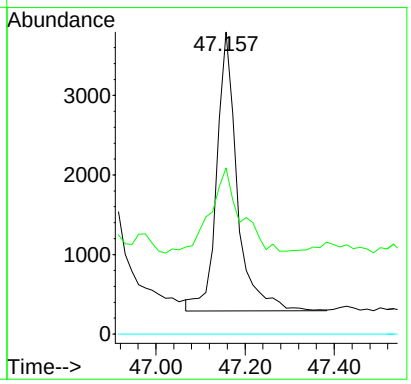


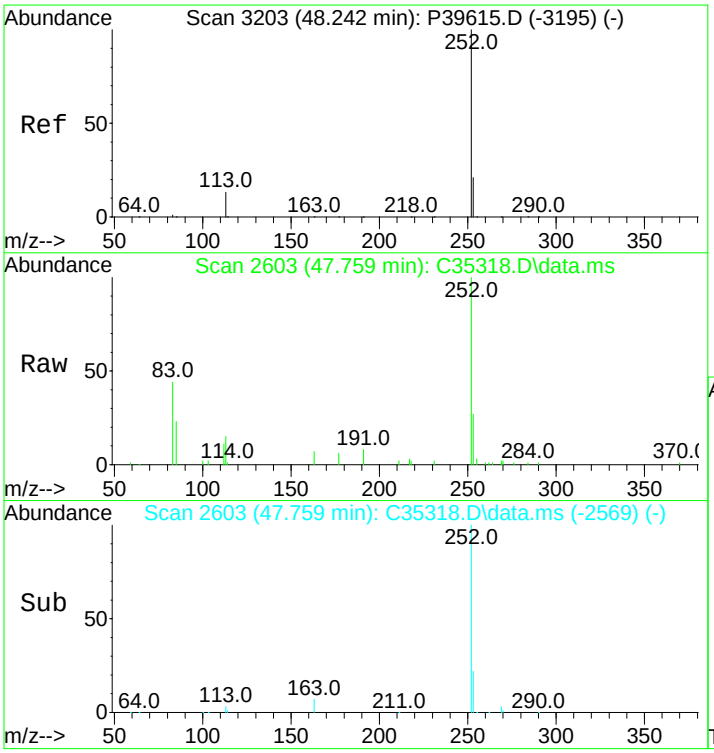


#84
Benzo[a]fluoranthene
Concen: 81.89 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 11174

Ion	Ratio	Lower	Upper
252	100		
253	50.6	146.1	219.1#
125	0.0	0.0	0.0

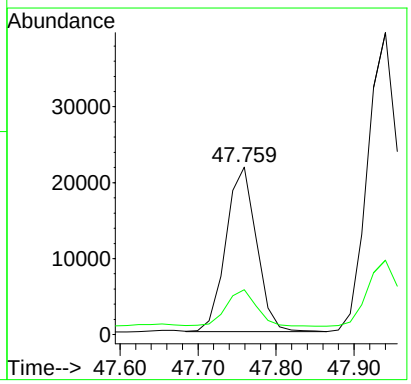


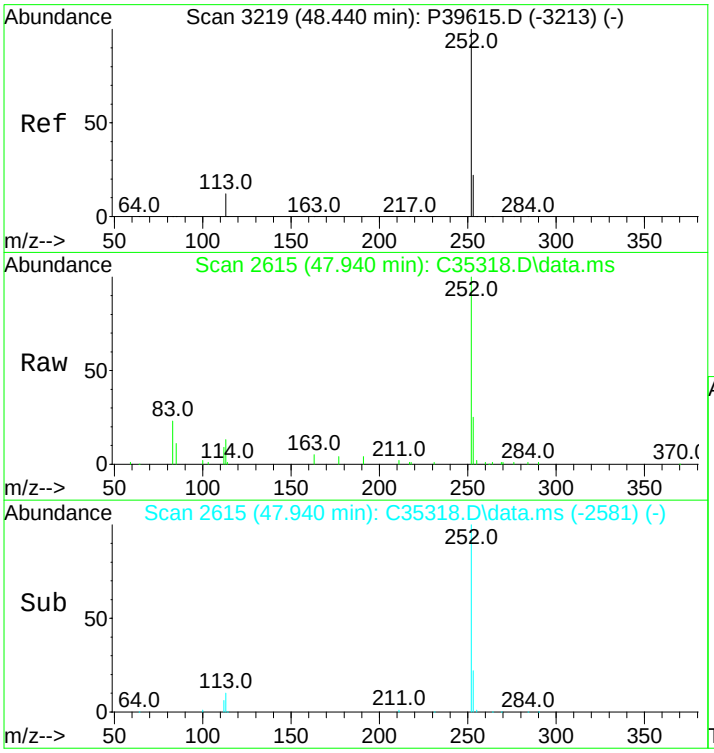


#85
Benzo[e]pyrene
Concen: 475.50 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 58944

Ion	Ratio	Lower	Upper
252	100		
253	22.5	21.0	31.6

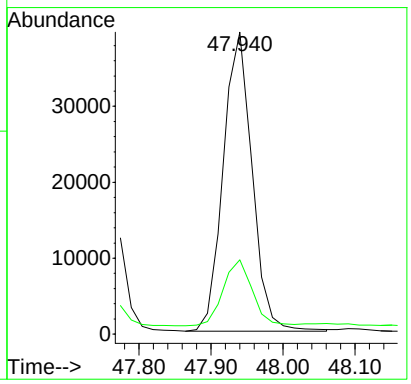


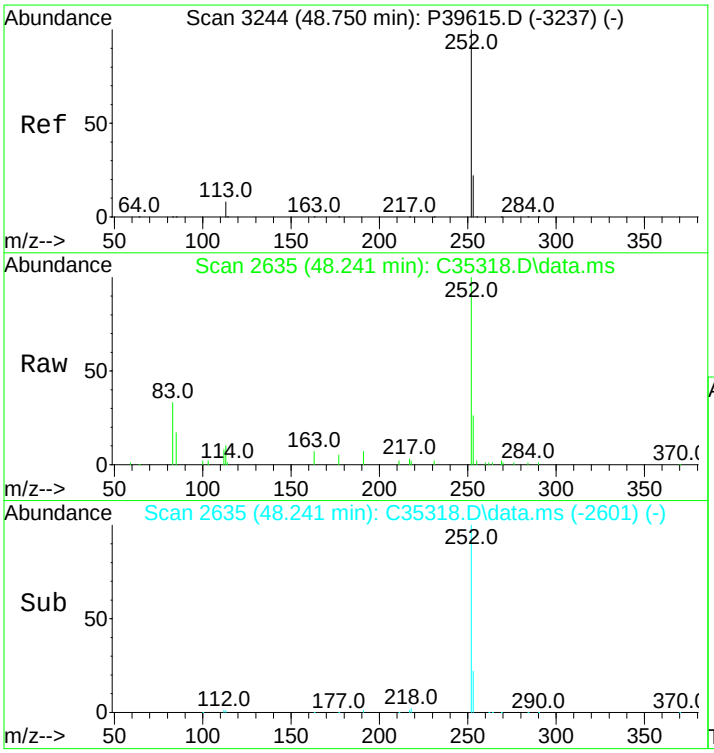


#87
Benzo[a]pyrene
Concen: 917.75 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 109534

Ion	Ratio	Lower	Upper
252	100		
253	22.5	21.4	32.0

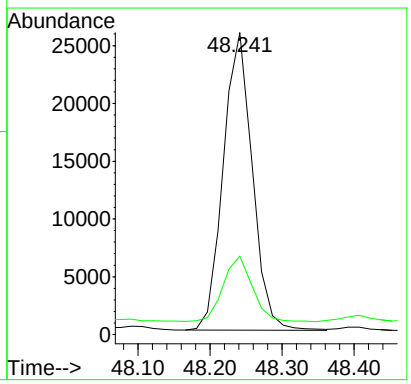


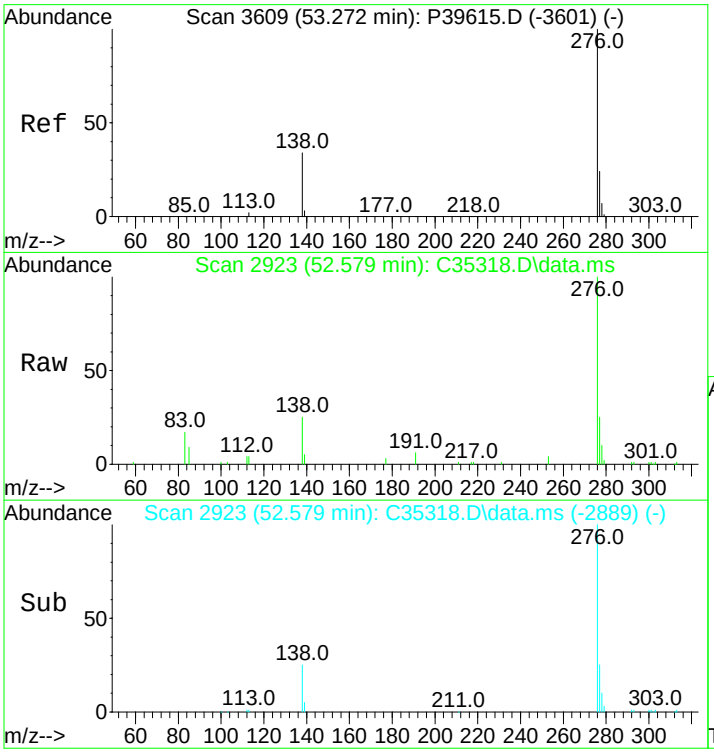


#88
Perylene
Concen: 565.97 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:252 Resp: 72191

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.8	32.6

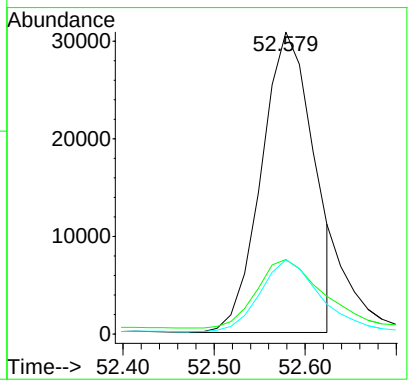


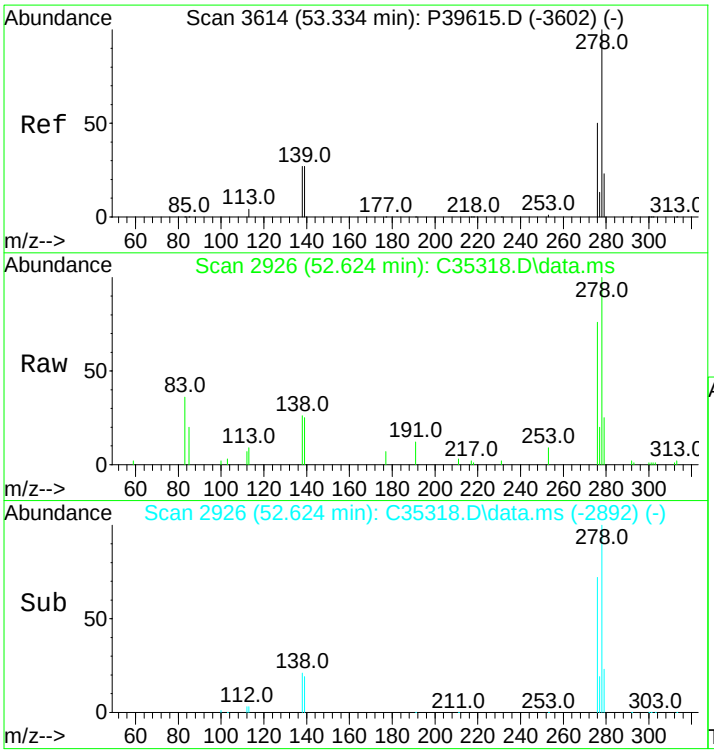


#89
Indeno[1,2,3-cd]pyrene
Concen: 882.80 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:276 Resp: 122613

Ion	Ratio	Lower	Upper
276	100		
138	29.4	19.1	28.7#
277	29.0	19.5	29.3

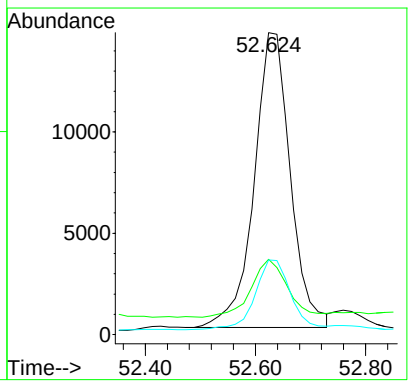


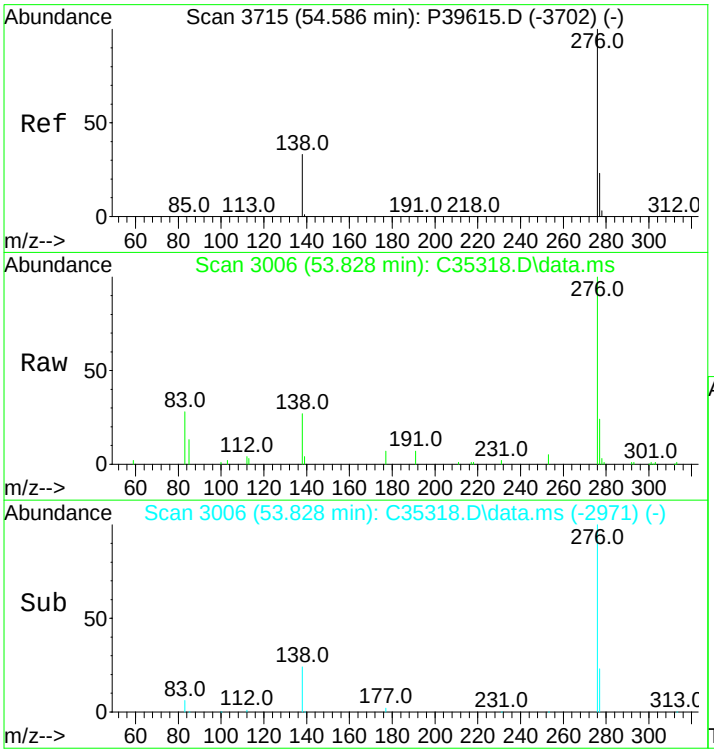


#90
Dibenz[ah]+[ac]anthracene
Concen: 502.39 ng/mL
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:278 Resp: 66378

Ion	Ratio	Lower	Upper
278	100		
139	19.9	16.6	25.0
279	23.3	20.0	30.0

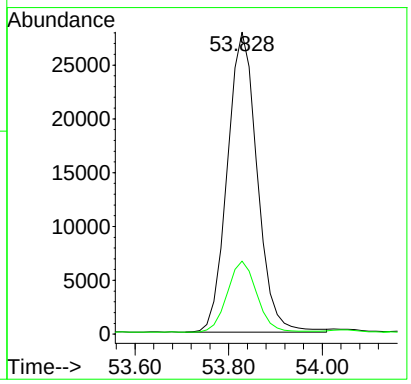


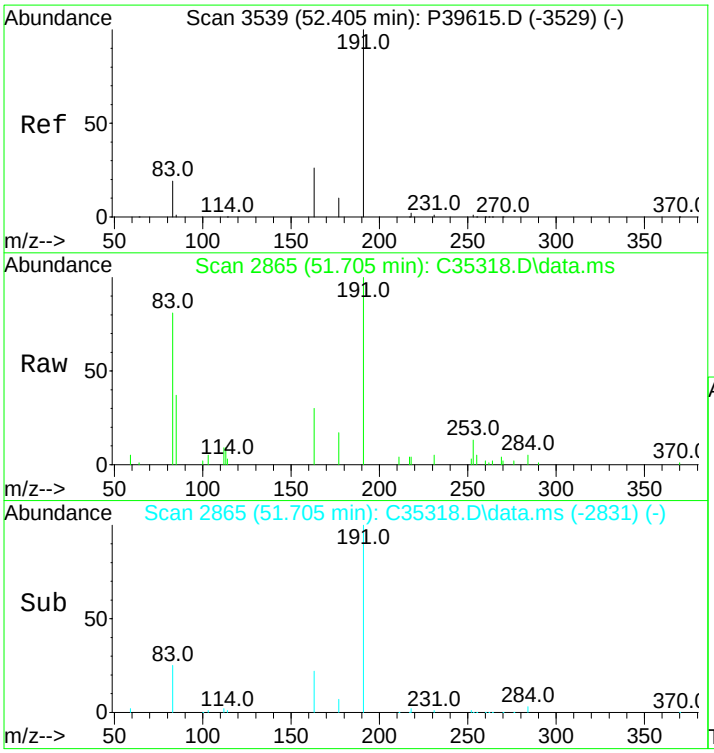


#91
Benzo[g,h,i]perylene
Concen: 845.43 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:276 Resp: 124058

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.8	28.2

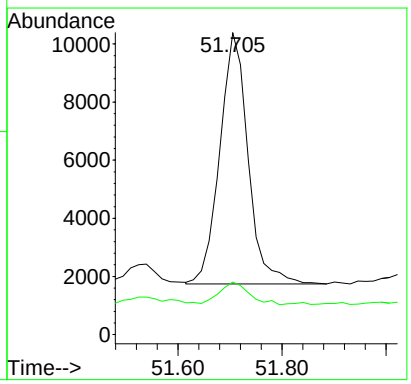


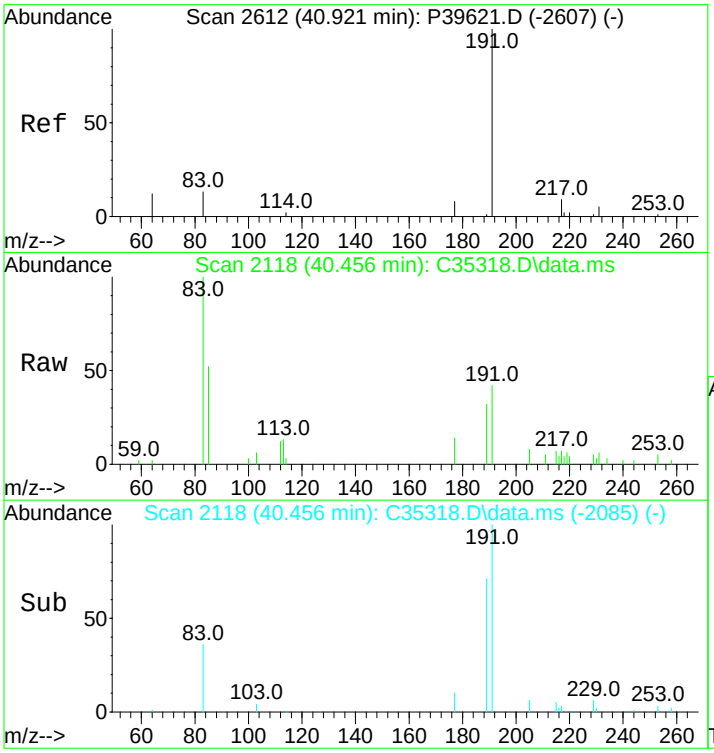


#92
Hopane (T19)
Concen: 1383.82 ng/mL
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:191 Resp: 32774

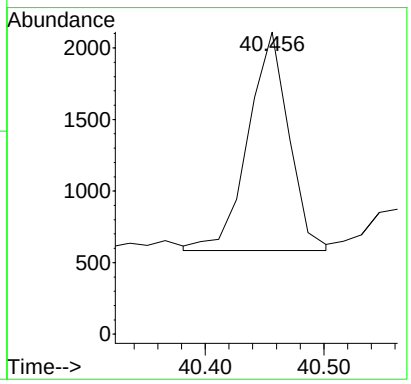
Ion	Ratio	Lower	Upper
191	100		
177	9.9	17.2	25.8#

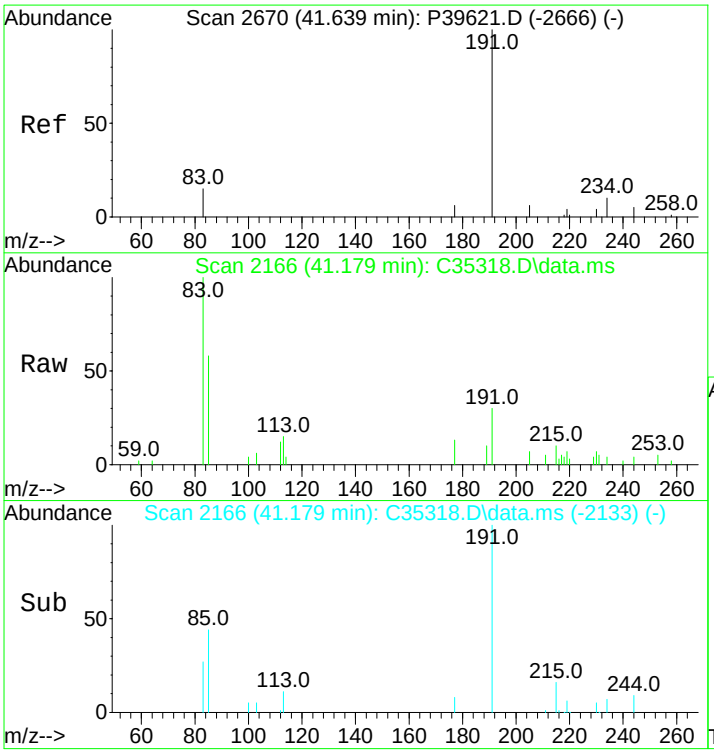




#94
C23 Tricyclic Terpane (T4)
Concen: 153.99 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

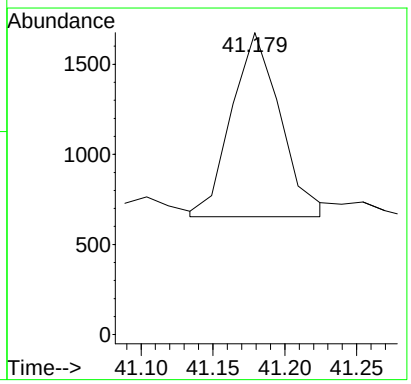
Tgt Ion:191 Resp: 3647

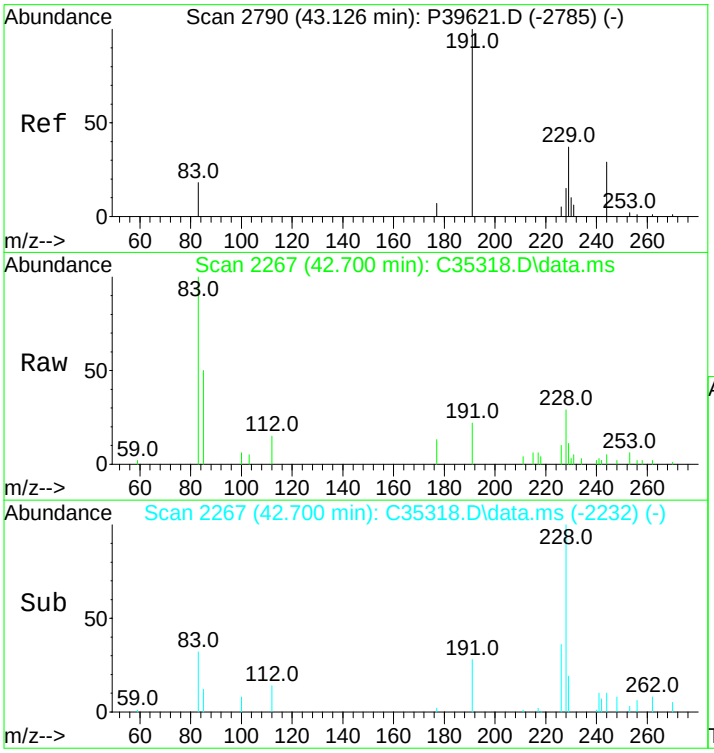




#95
C24 Tricyclic Terpane (T5)
Concen: 101.80 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

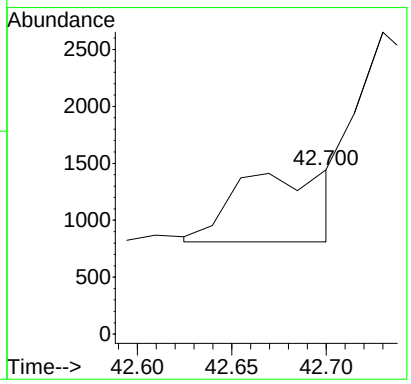
Tgt Ion:191 Resp: 2411

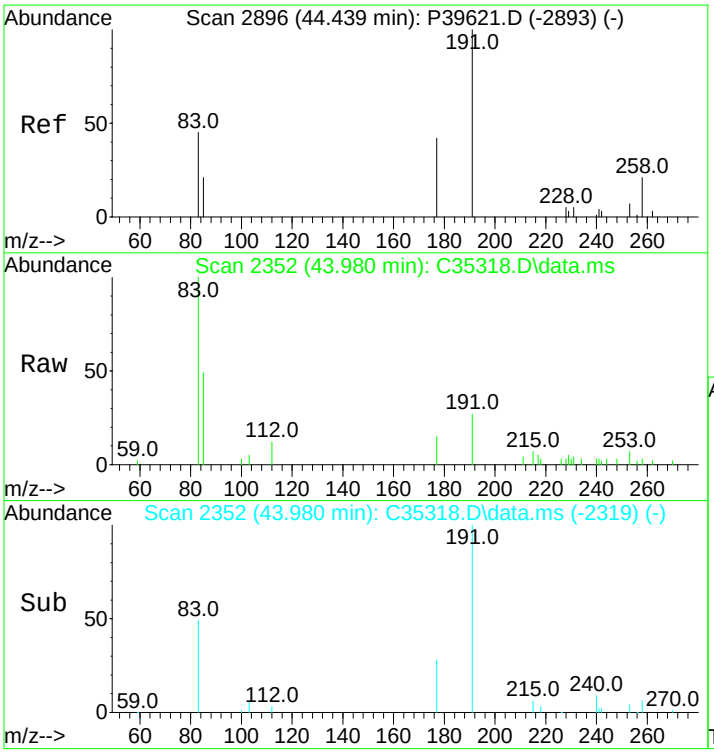




#96
C25 Tricyclic Terpane (T6)
Concen: 91.03 ng/ml m
RT: 42.700 min Scan# 2267
Delta R.T. 0.030 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

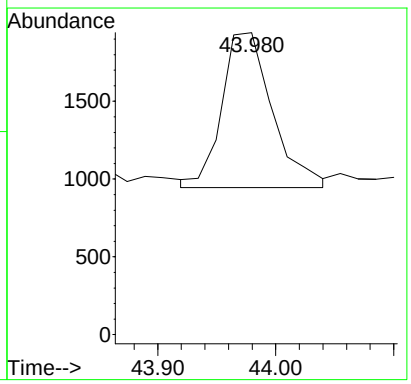
Tgt Ion:191 Resp: 2156

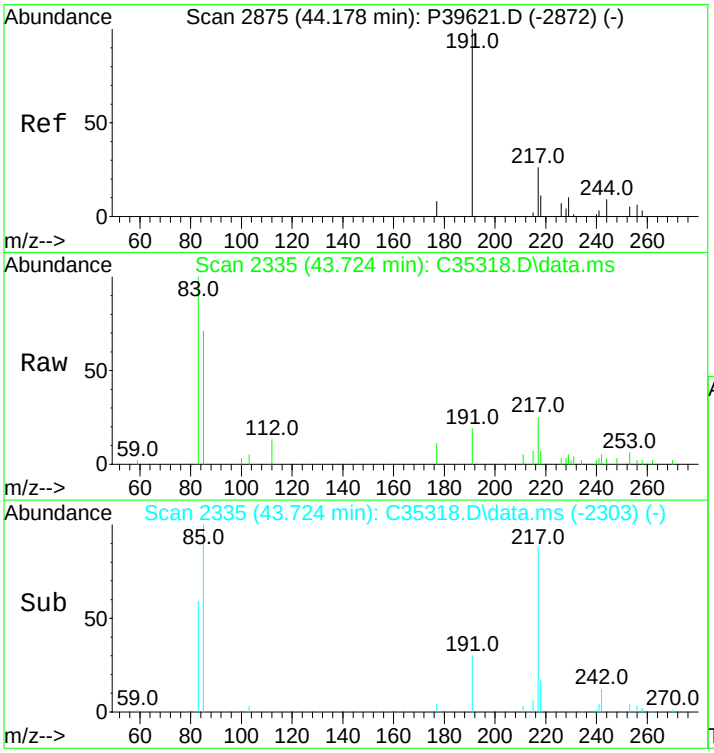




#97
C24 Tetracyclic Terpane (T6a)
Concen: 125.40 ng/ml m
RT: 43.980 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

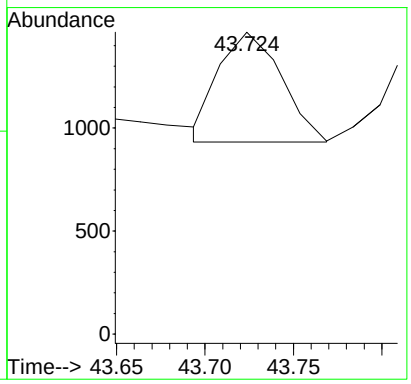
Tgt Ion:191 Resp: 2970

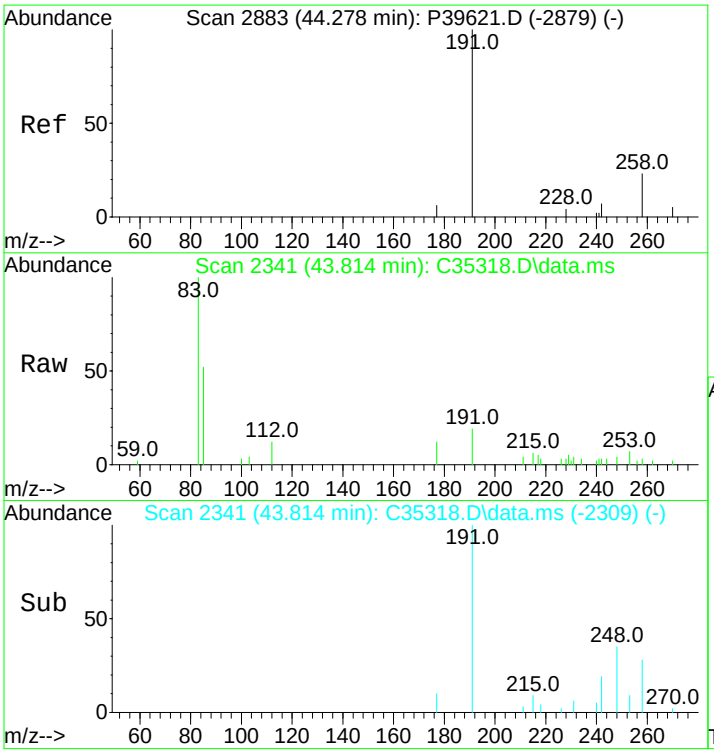




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 55.52 ng/ml m
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

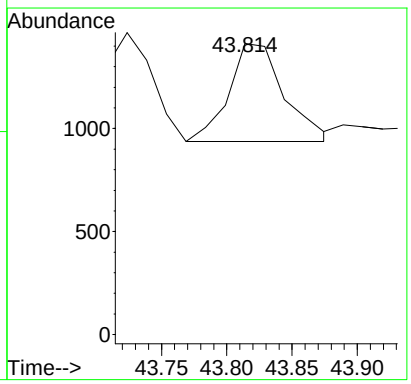
Tgt Ion:191 Resp: 1315

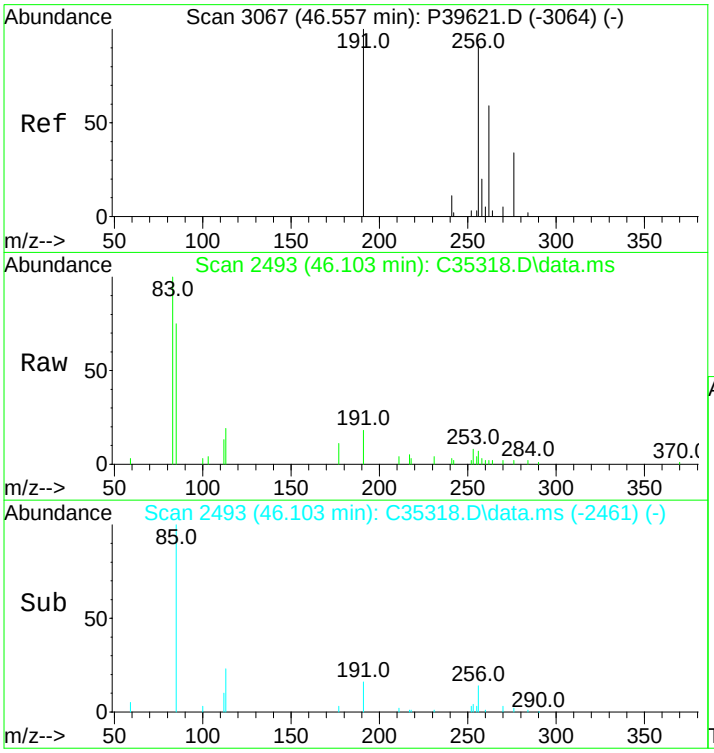




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 59.32 ng/ml m
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

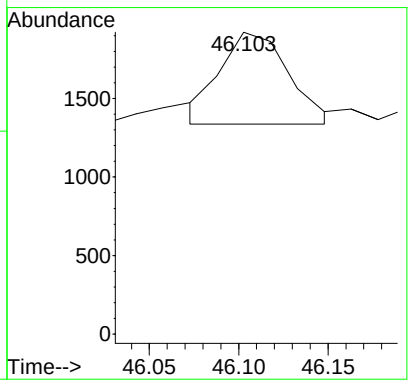
Tgt Ion:191 Resp: 1405

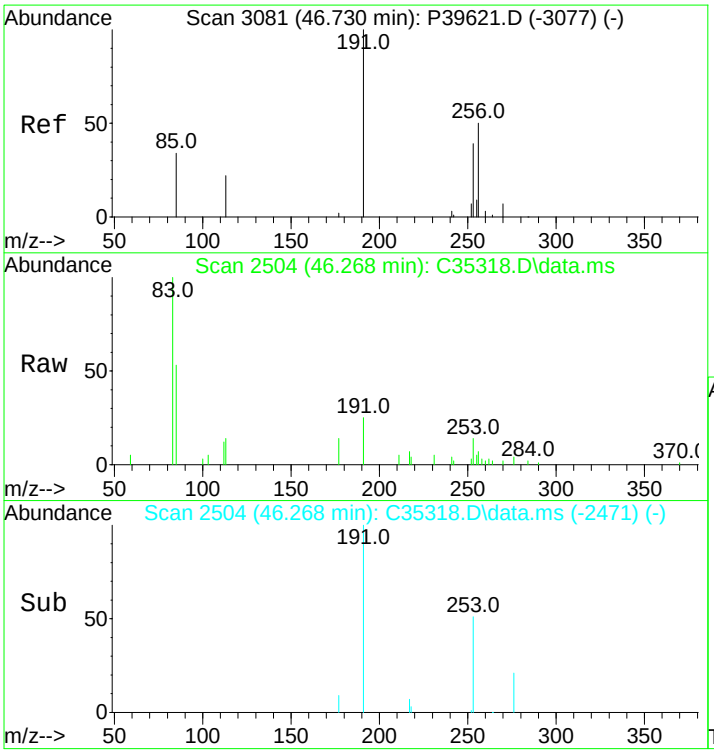




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 65.49 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

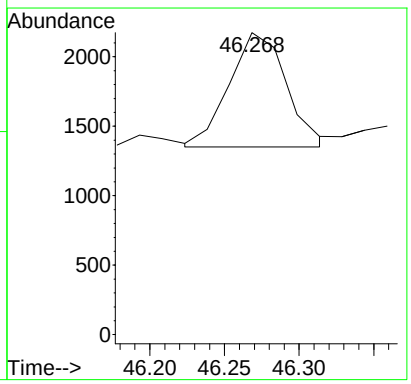
Tgt Ion:191 Resp: 1551

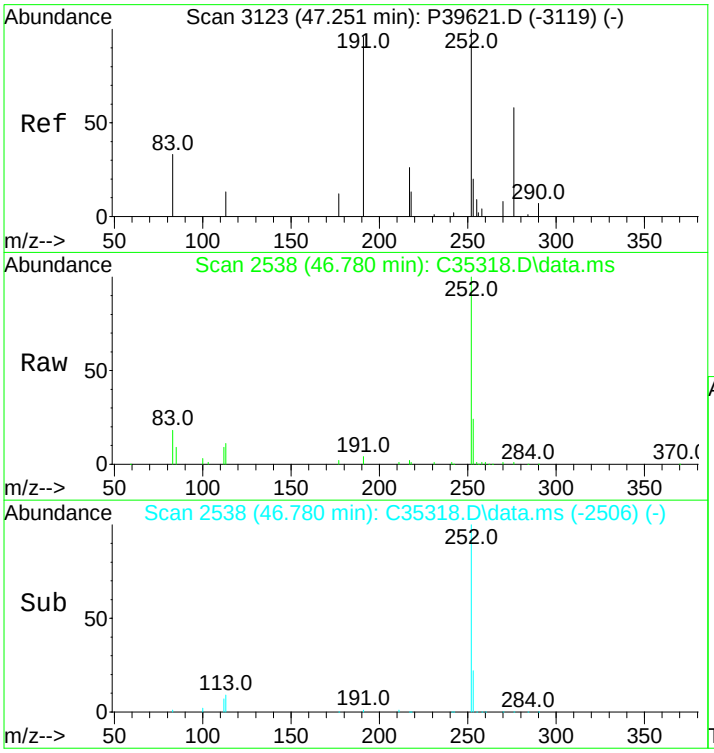




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 92.76 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

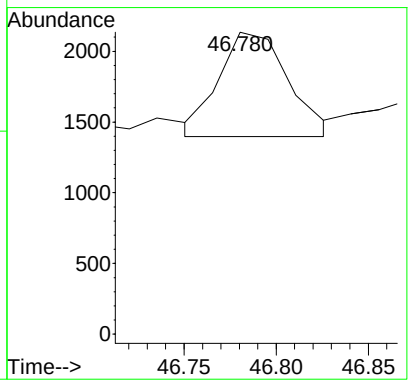
Tgt Ion:191 Resp: 2197

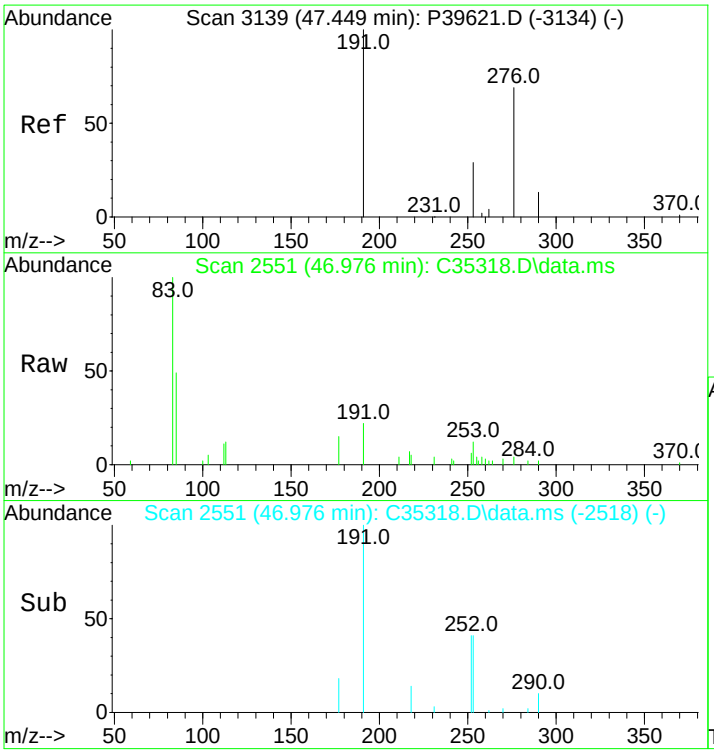




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 81.91 ng/ml m
RT: 46.780 min Scan# 2538
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

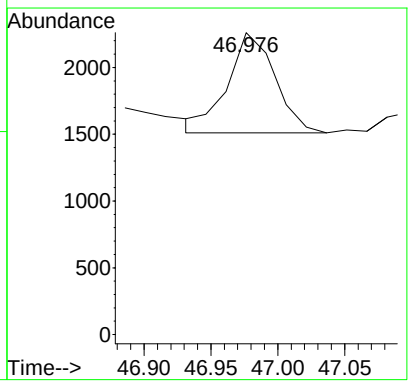
Tgt Ion:191 Resp: 1940

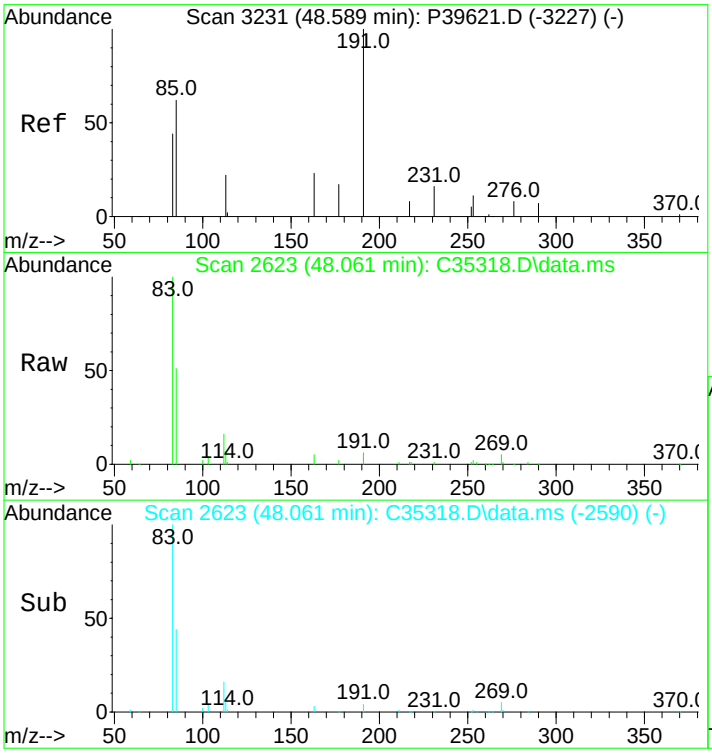




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 78.37 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

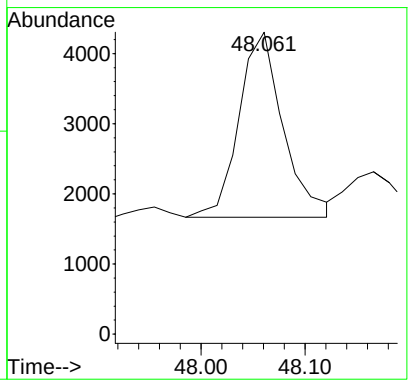
Tgt Ion:191 Resp: 1856

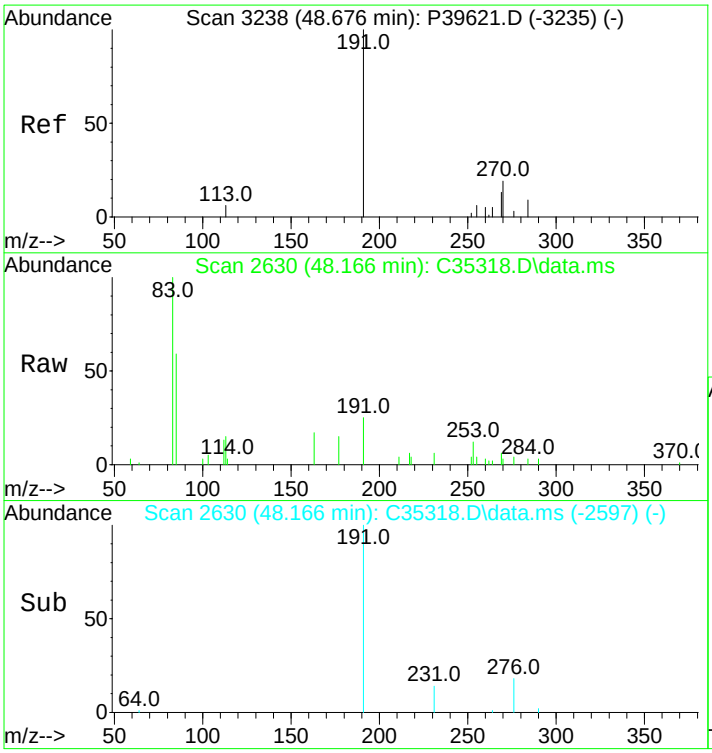




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 330.52 ng/ml
RT: 48.061 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

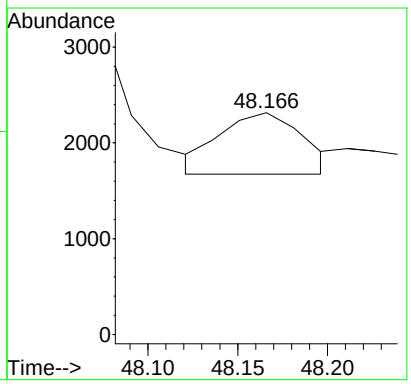
Tgt Ion:191 Resp: 7828

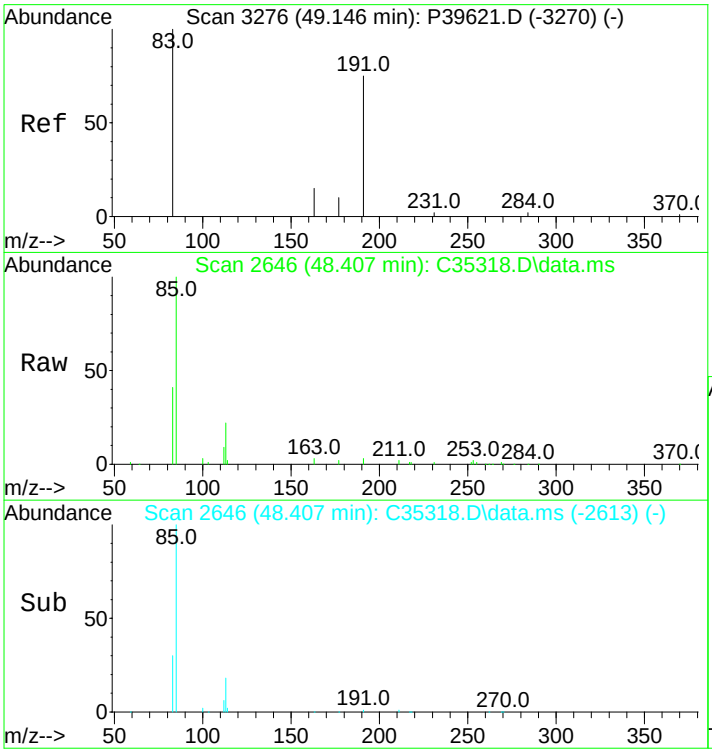




#105
C30 Tricyclic Terpane-22S
Concen: 86.68 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

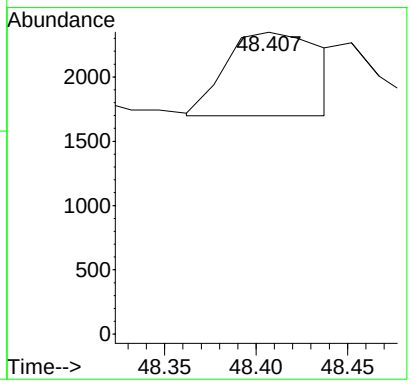
Tgt Ion:191 Resp: 2053

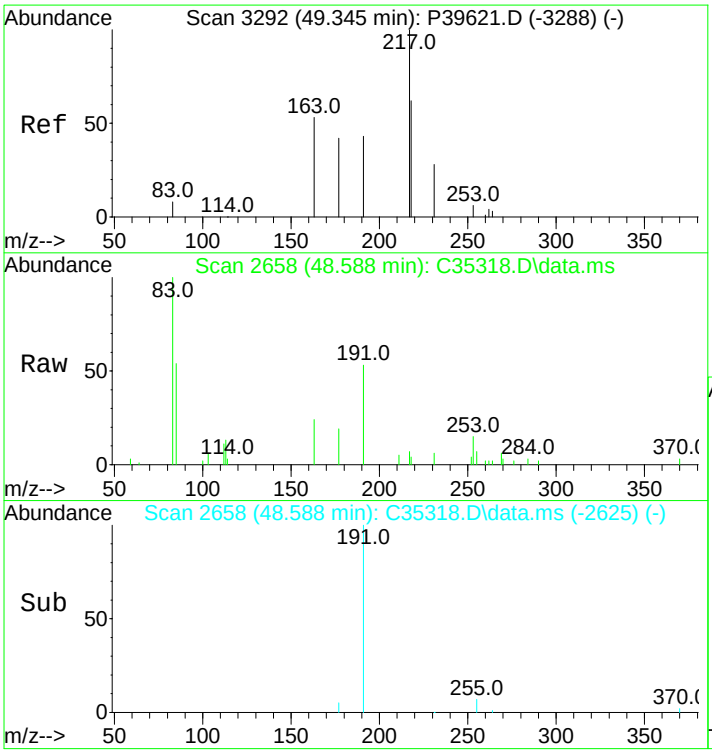




#106
C30 Tricyclic Terpane-22R
Concen: 100.24 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

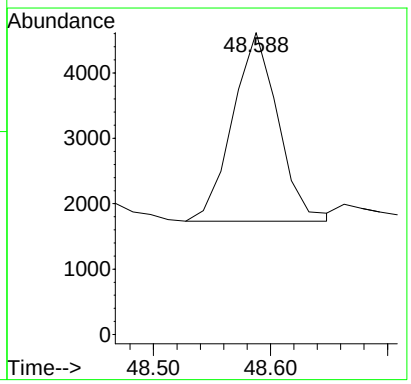
Tgt Ion:191 Resp: 2374

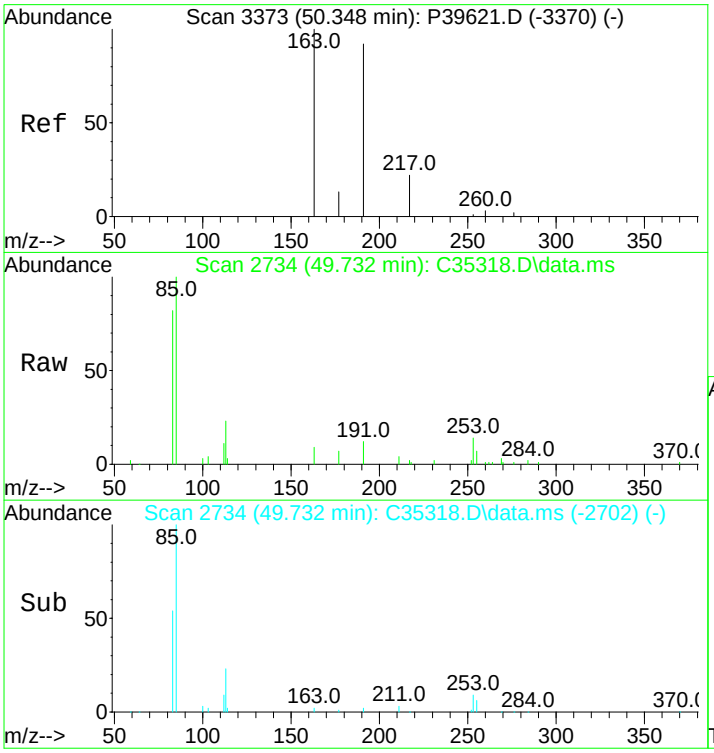




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 328.12 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

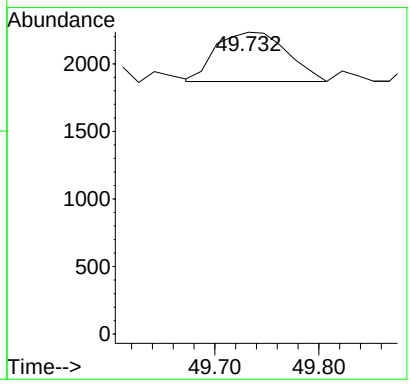
Tgt Ion:191 Resp: 7771

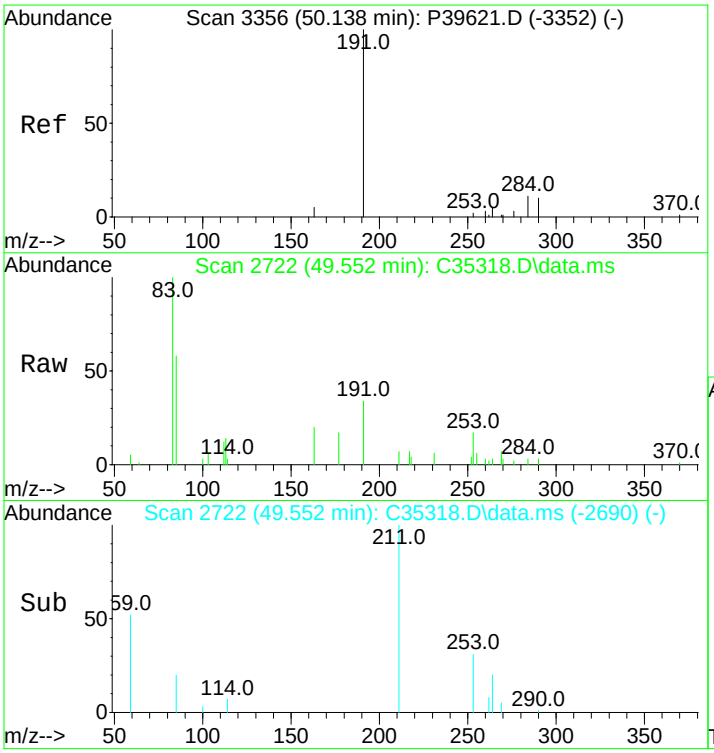




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 73.17 ng/ml
RT: 49.732 min Scan# 2734
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

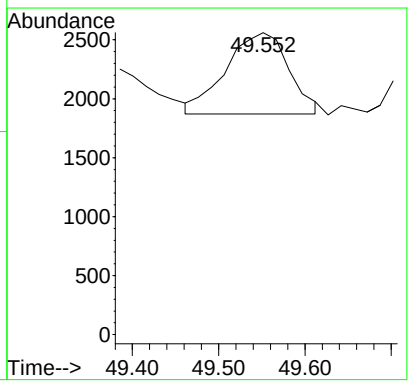
Tgt Ion:191 Resp: 1733

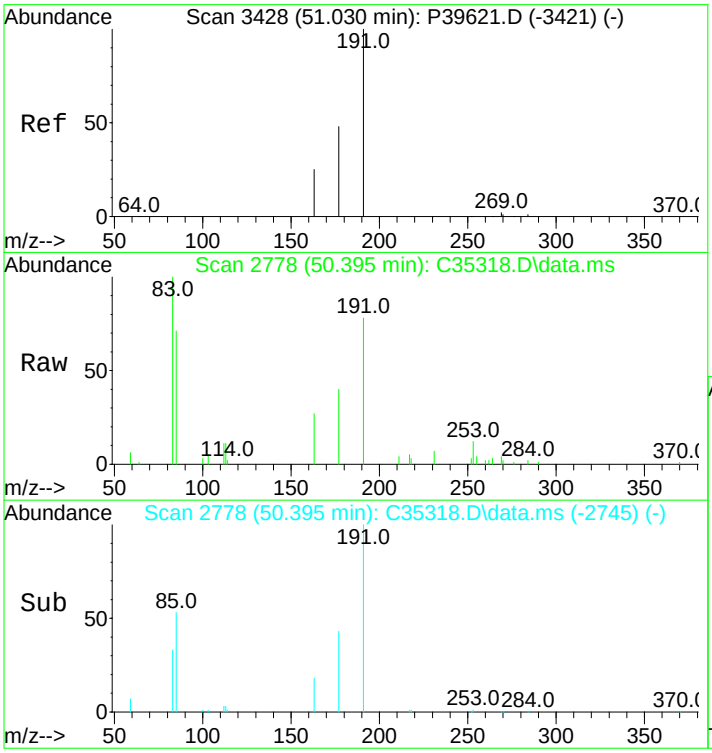




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 146.94 ng/ml m
RT: 49.552 min Scan# 2722
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

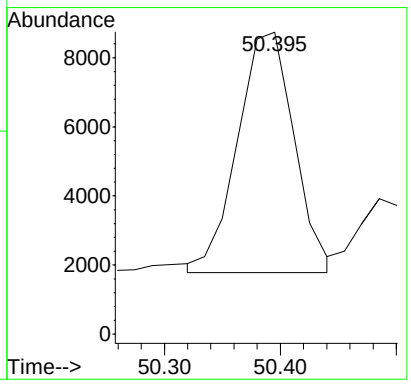
Tgt Ion:191 Resp: 3480

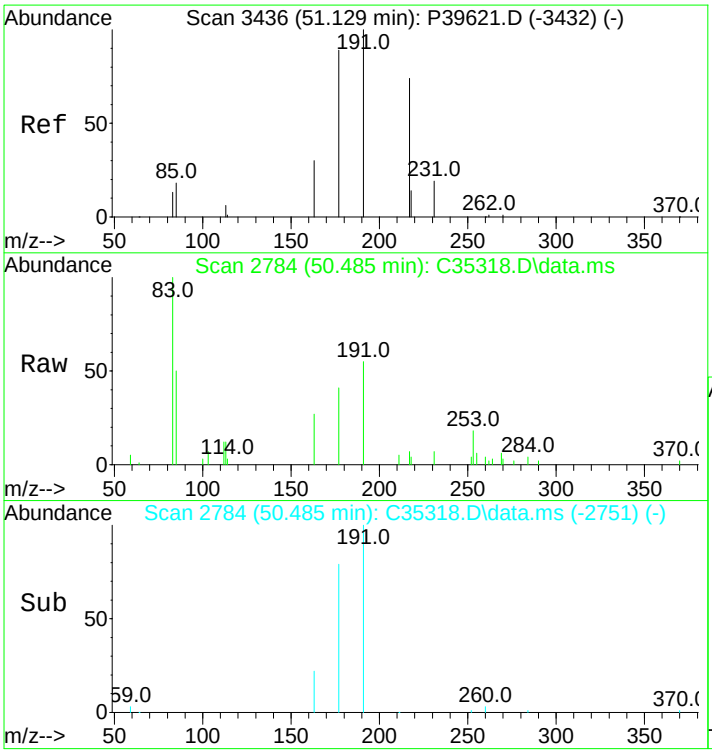




#110
30-Norhopane (T15)
Concen: 994.31 ng/ml m
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

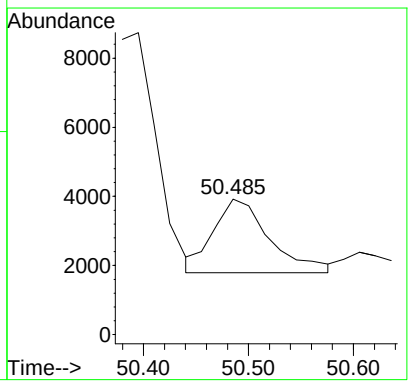
Tgt Ion:191 Resp: 23549

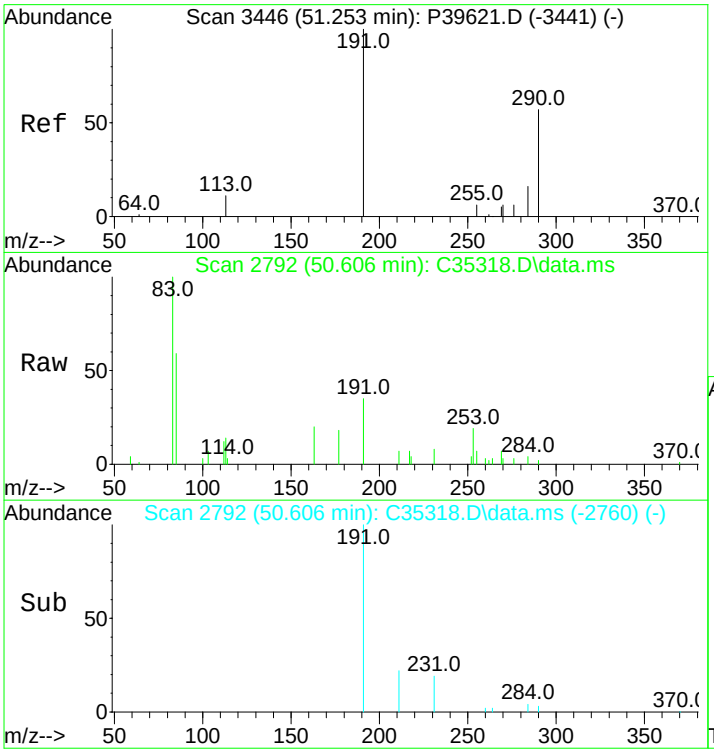




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 335.21 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

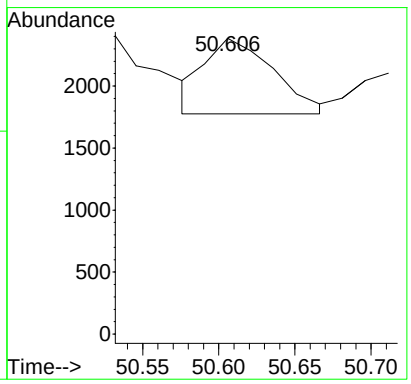
Tgt Ion:191 Resp: 7939

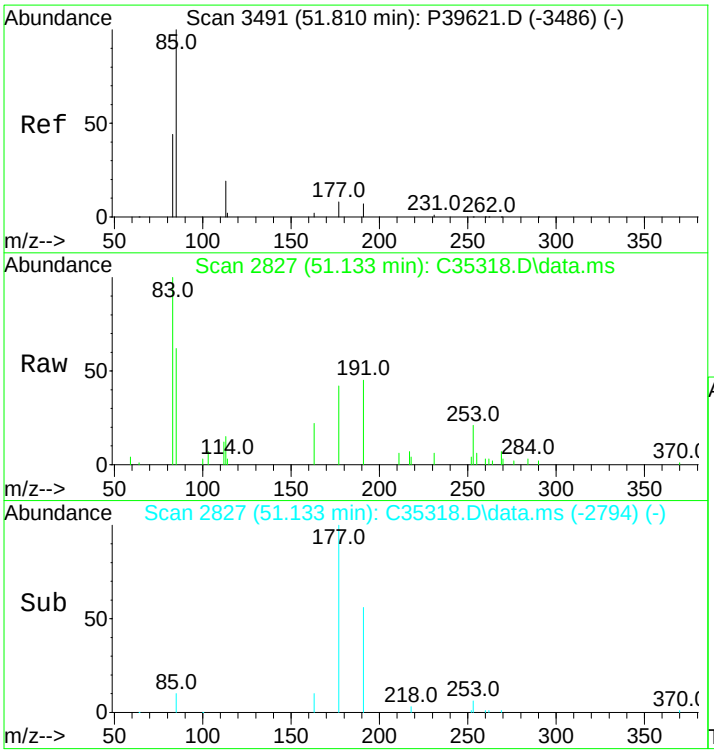




#112
17a(H)-Diahopane (X)
Concen: 81.03 ng/ml m
RT: 50.606 min Scan# 2792
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

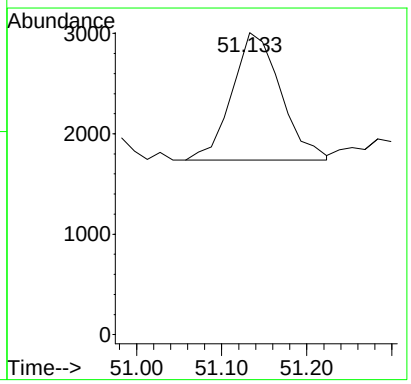
Tgt Ion:191 Resp: 1919

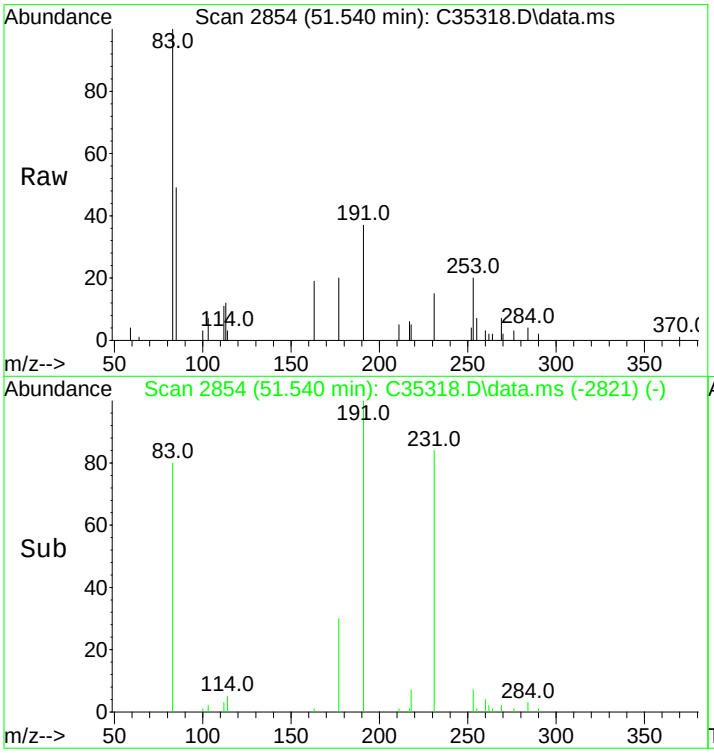




#113
30-Normoretane (T17)
Concen: 214.37 ng/ml
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

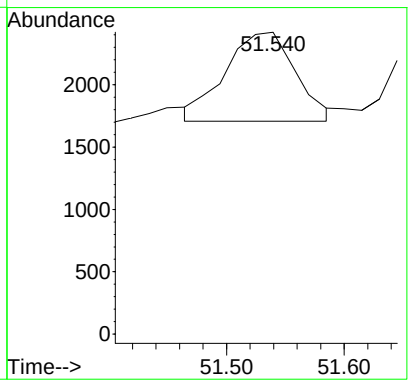
Tgt Ion:191 Resp: 5077

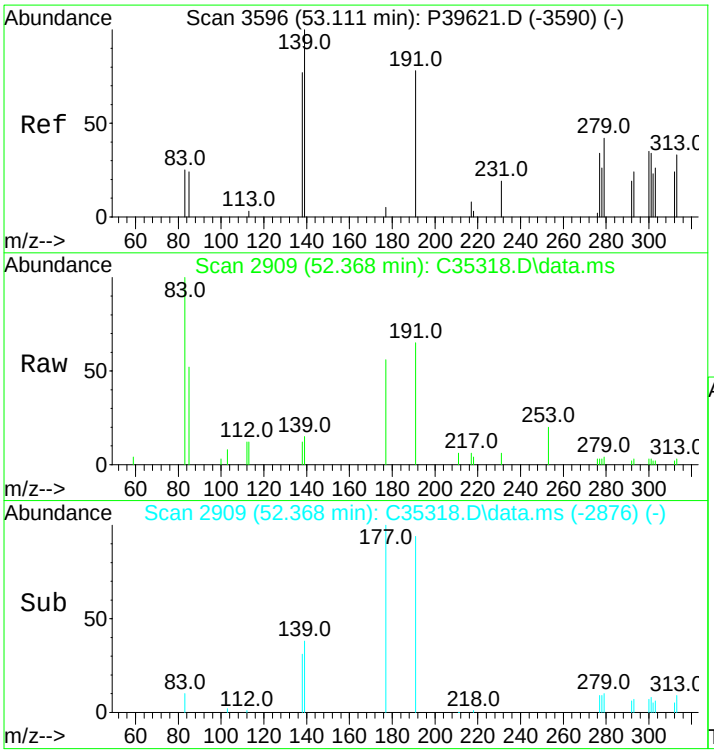




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 124.94 ng/ml m
RT: 51.540 min Scan# 2854
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

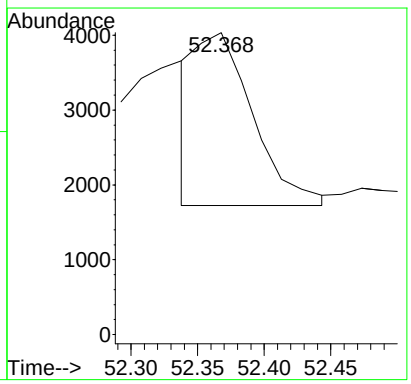
Tgt Ion:191 Resp: 2959

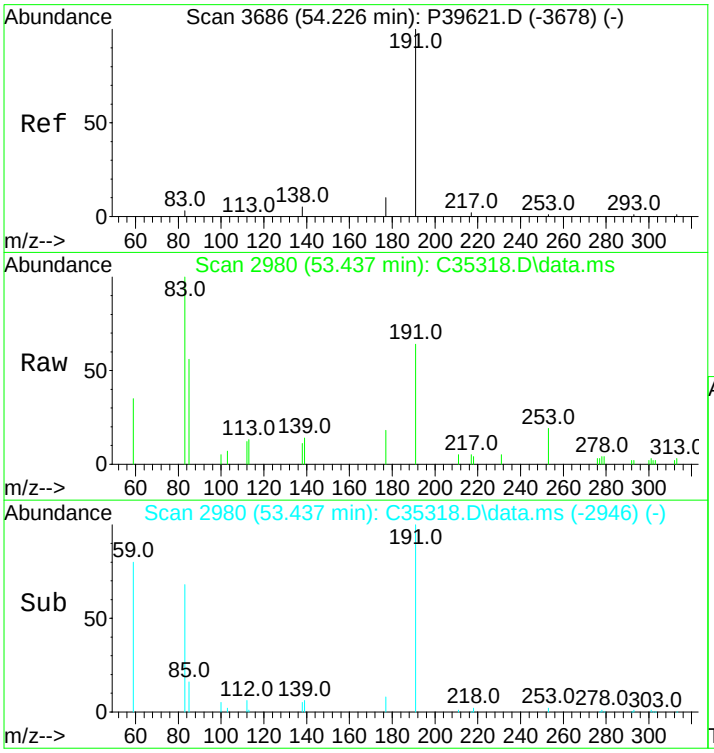




#115
Moretane (T20)
Concen: 294.76 ng/ml m
RT: 52.368 min Scan# 2909
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

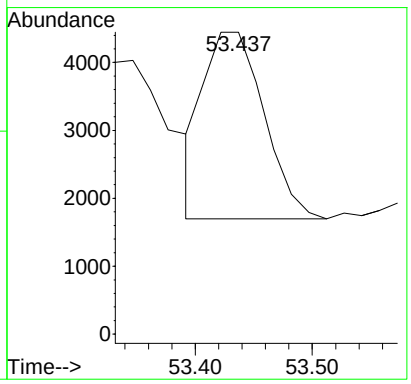
Tgt Ion:191 Resp: 6981

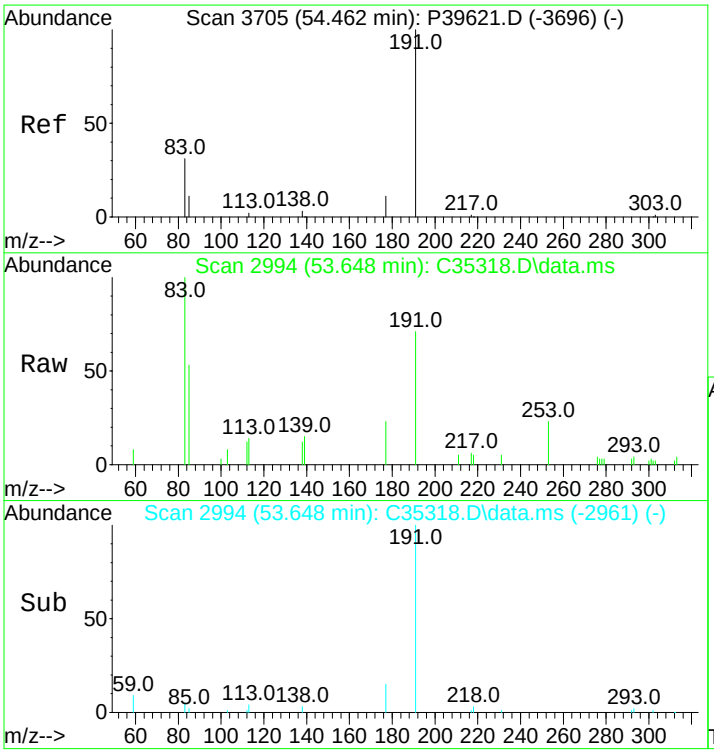




#116
30-Homohopane-22S (T21)
Concen: 418.77 ng/ml
RT: 53.437 min Scan# 2980
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

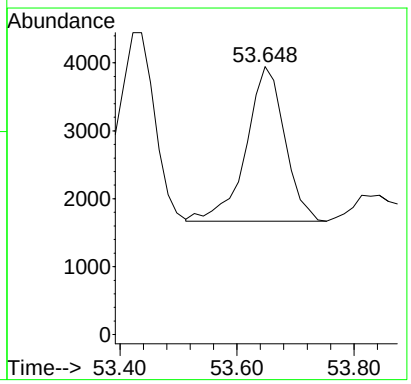
Tgt Ion:191 Resp: 9918

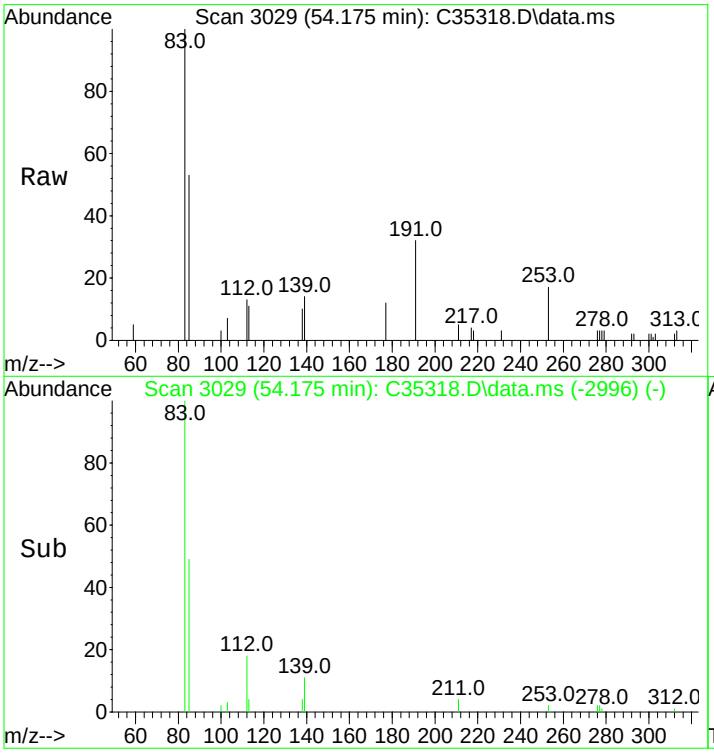




#117
30-Homohopane-22R (T22)
Concen: 440.72 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

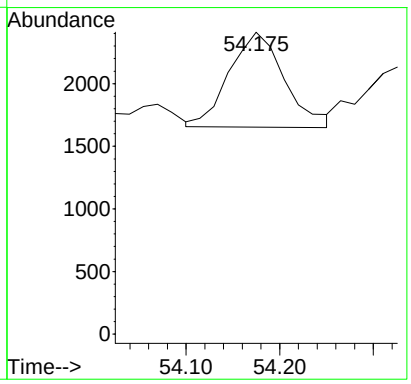
Tgt Ion:191 Resp: 10438

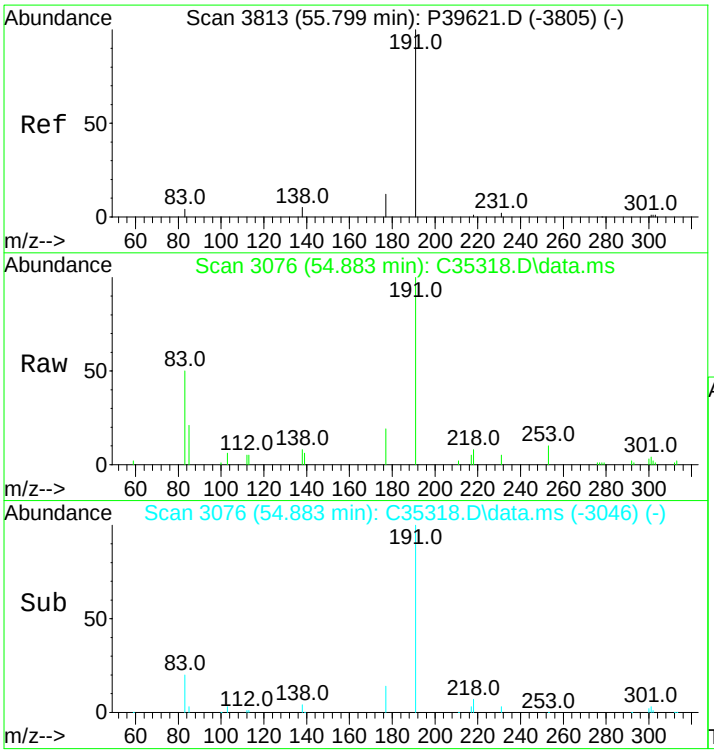




#118
Gammacerane/C32-diahopane
Concen: 131.40 ng/mL
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

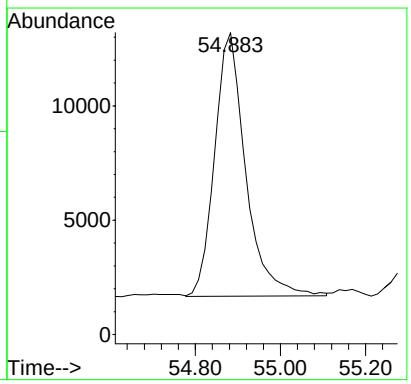
Tgt Ion:191 Resp: 3112

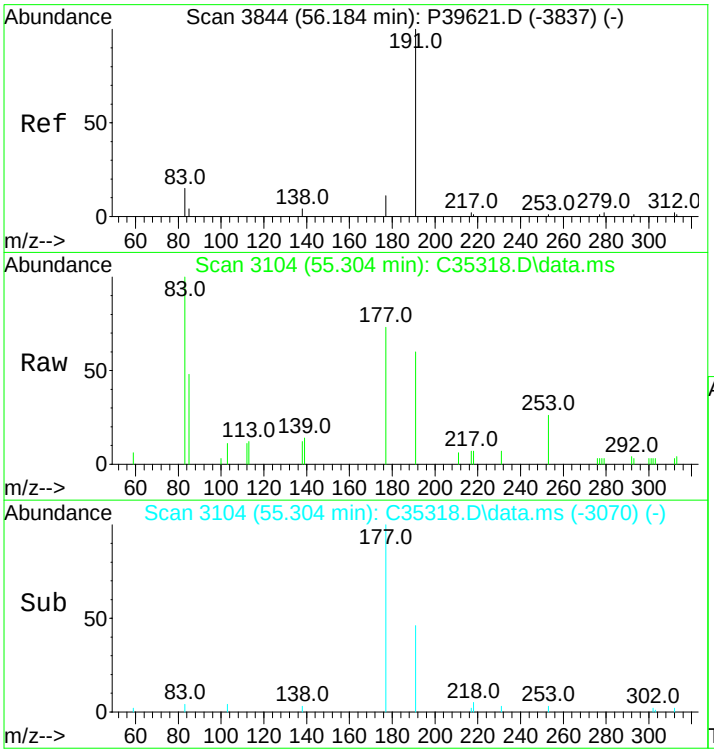




#119
30,31-Bishomohopane-22S (T26)
Concen: 2463.34 ng/ml
RT: 54.883 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

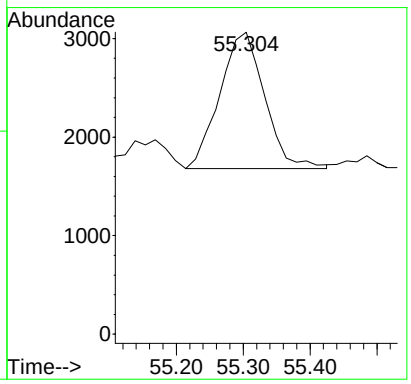
Tgt Ion:191 Resp: 58341

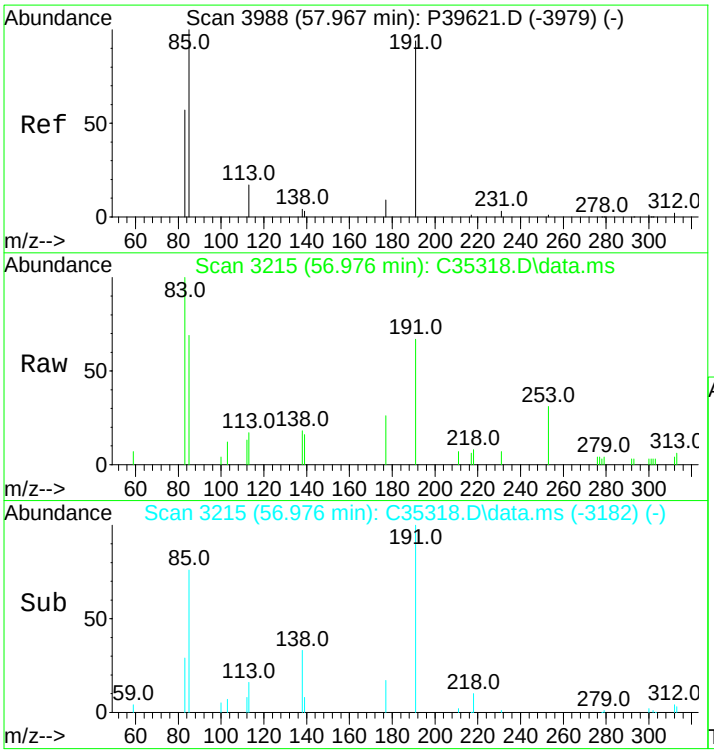




#120
30,31-Bishomohopane-22R (T27)
Concen: 271.83 ng/ml
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

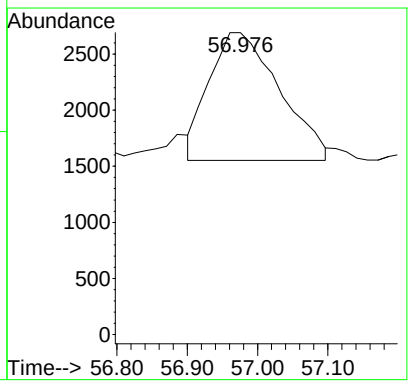
Tgt Ion:191 Resp: 6438

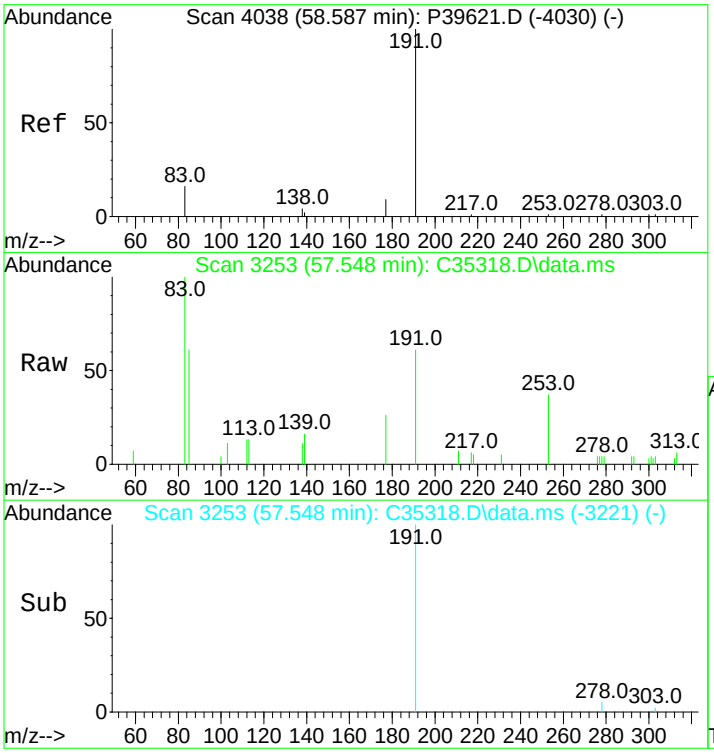




#121
30,31-Trishomohopane-22S (T30)
Concen: 335.17 ng/ml m
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

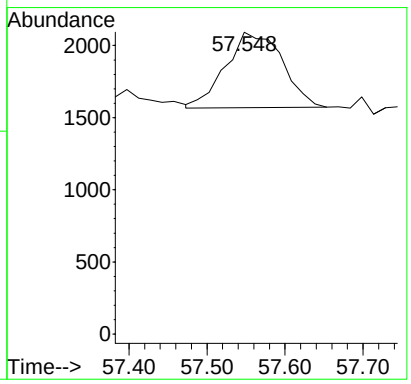
Tgt Ion:191 Resp: 7938

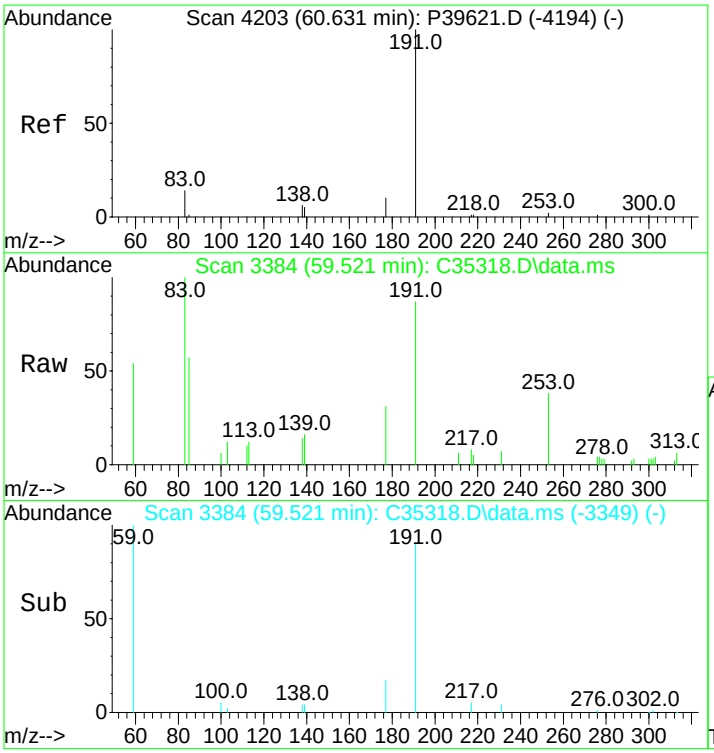




#122
30,31-Trishomohopane-22R (T31)
Concen: 110.71 ng/ml
RT: 57.548 min Scan# 3253
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

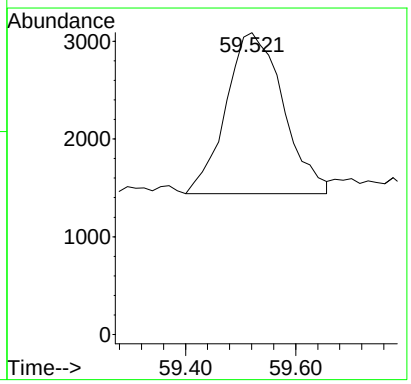
Tgt Ion:191 Resp: 2622

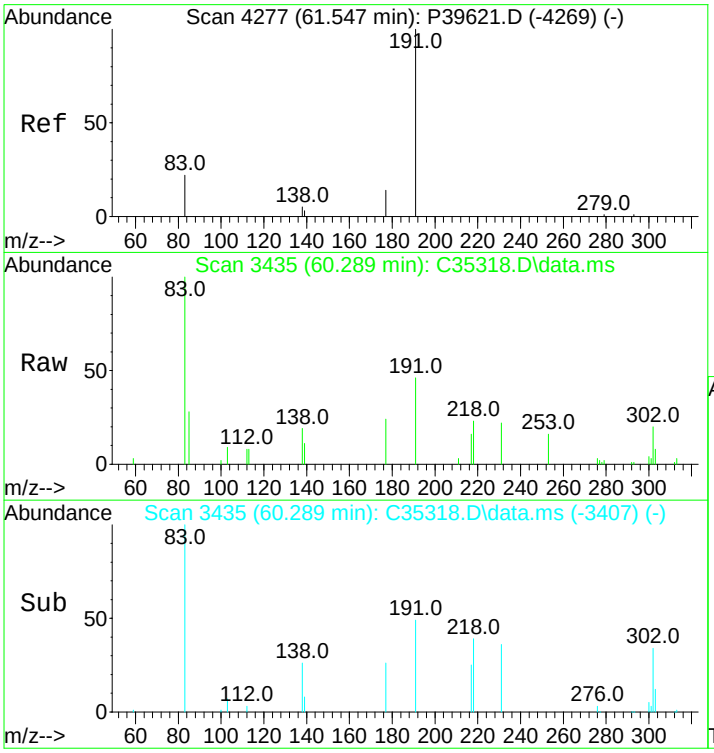




#123
Tetrakishomohopane-22S (T32)
Concen: 500.93 ng/ml
RT: 59.521 min Scan# 3384
Delta R.T. 0.030 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

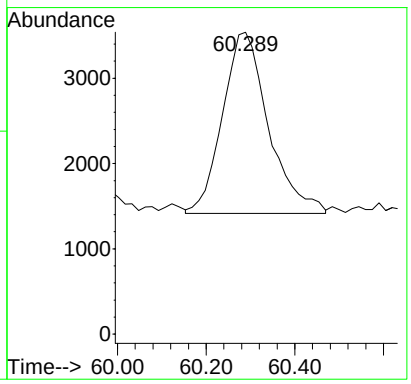
Tgt Ion:191 Resp: 11864

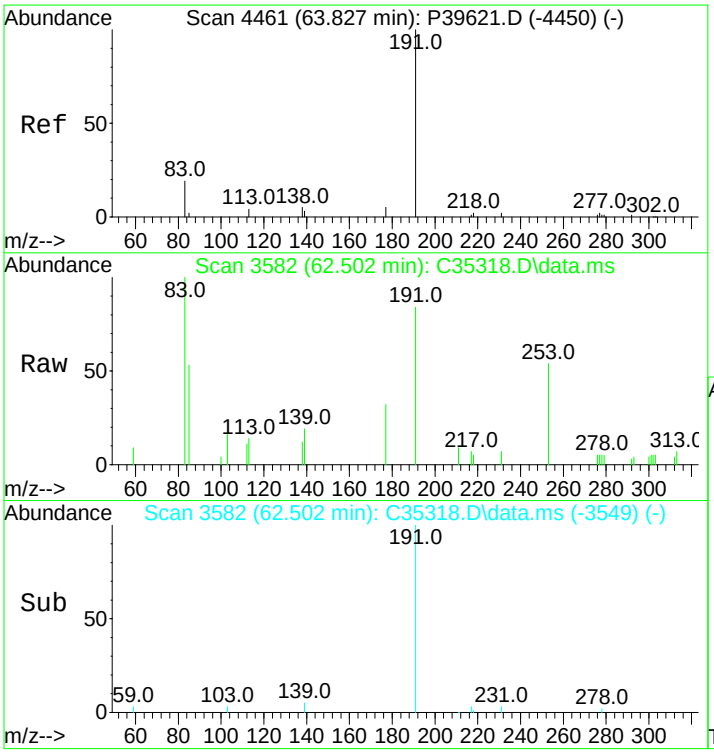




#124
Tetrakishomohopane-22R (T33)
Concen: 644.58 ng/ml m
RT: 60.289 min Scan# 3435
Delta R.T. -0.075 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

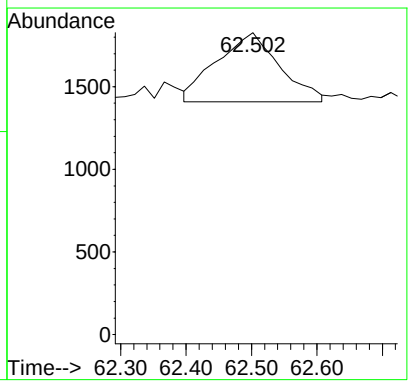
Tgt Ion:191 Resp: 15266

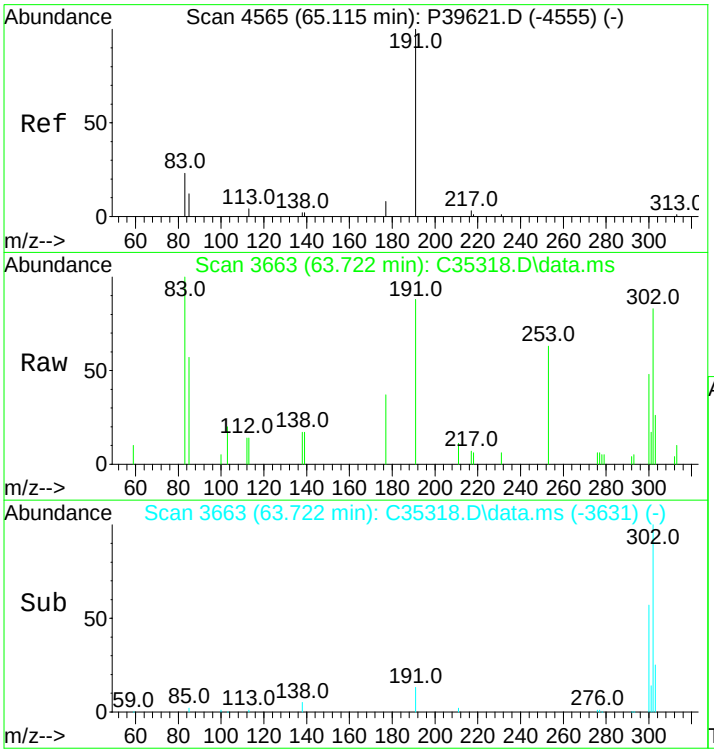




#125
Pentakishomohopane-22S (T34)
Concen: 117.51 ng/ml m
RT: 62.502 min Scan# 3582
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

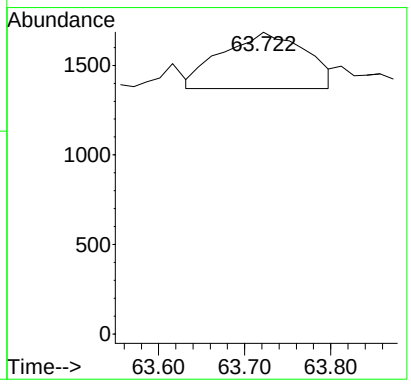
Tgt Ion:191 Resp: 2783

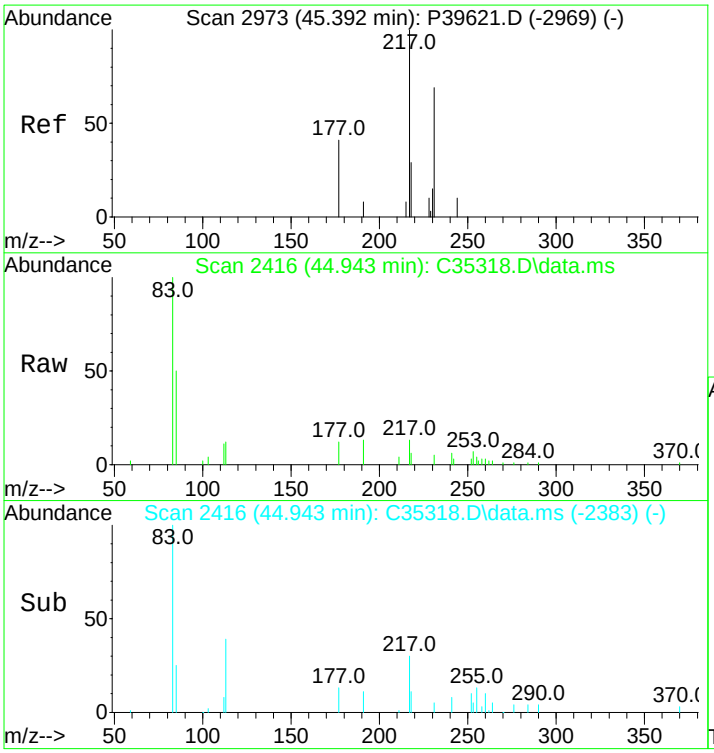




#126
Pentakishomohopane-22R (T35)
Concen: 90.48 ng/ml m
RT: 63.722 min Scan# 3663
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

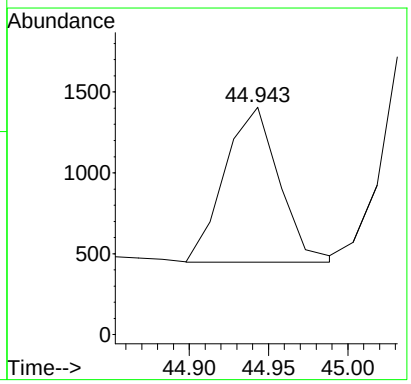
Tgt Ion:191 Resp: 2143

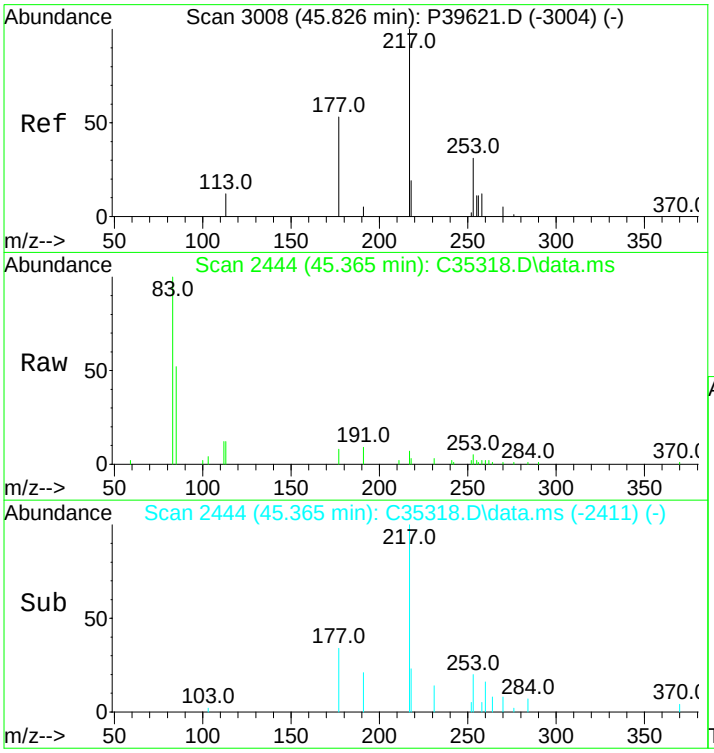




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 204.63 ng/ml m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

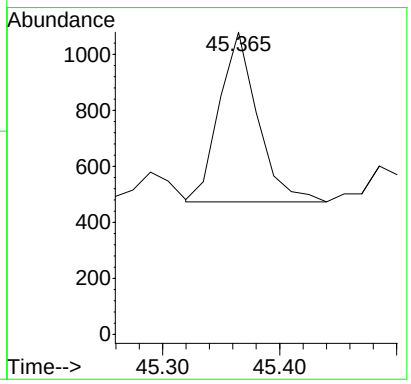
Tgt Ion:217 Resp: 2299

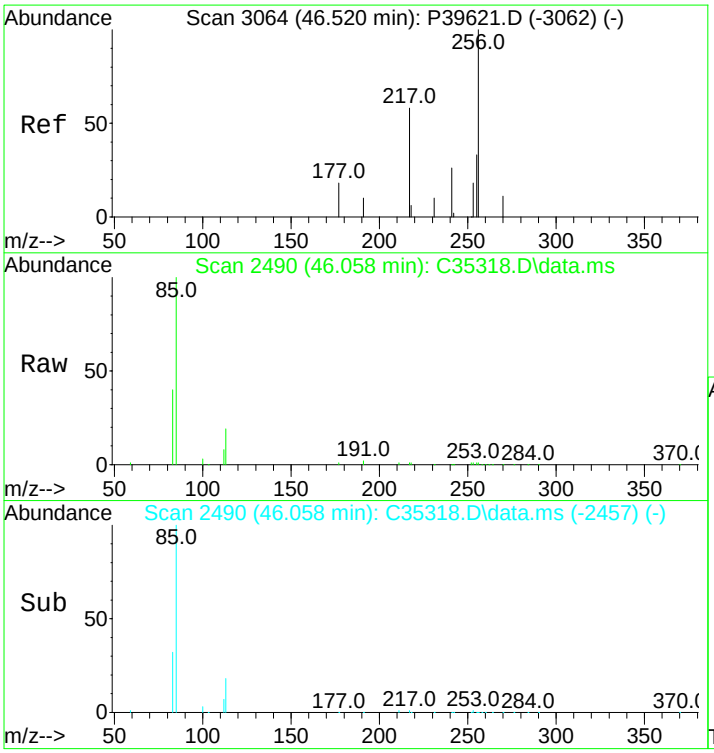




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 123.36 ng/ml
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

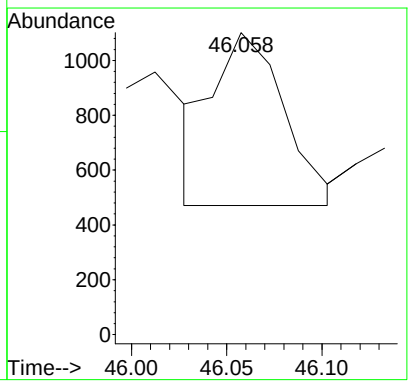
Tgt Ion:217 Resp: 1386

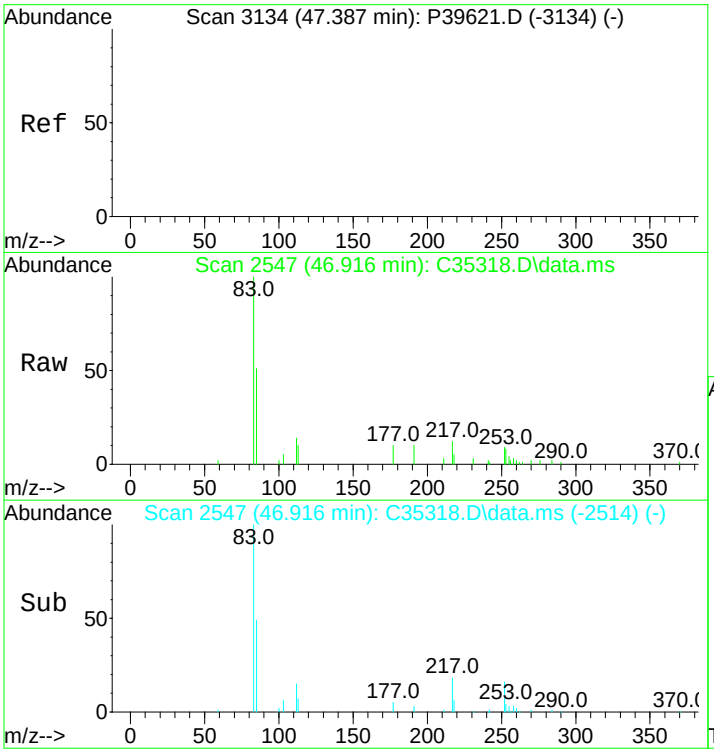




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 146.06 ng/ml m
RT: 46.058 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

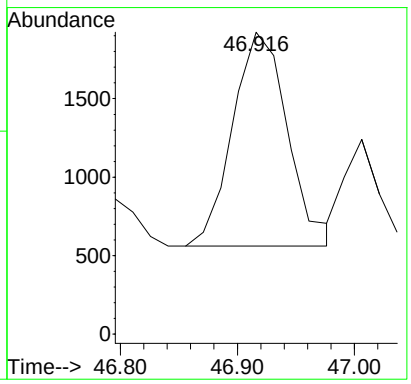
Tgt Ion:217 Resp: 1641

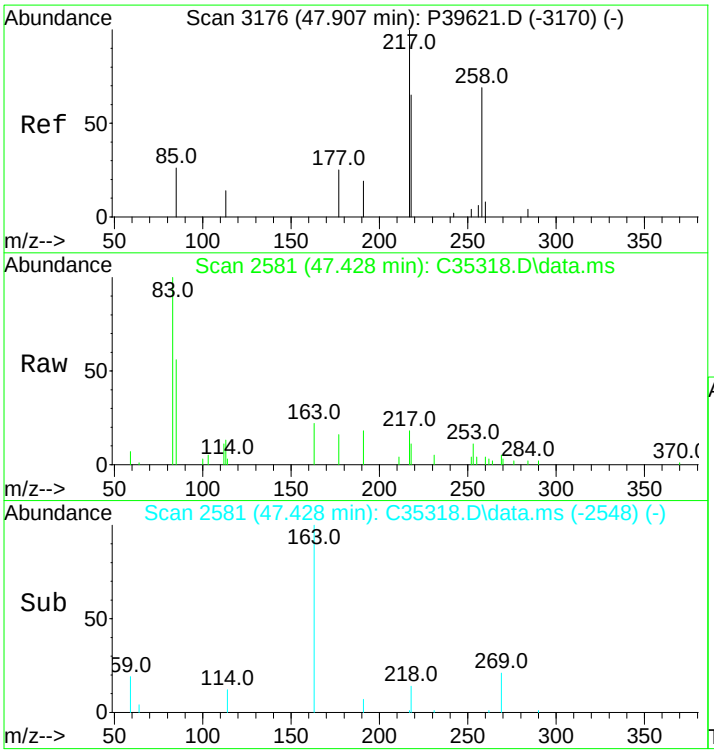




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 397.59 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

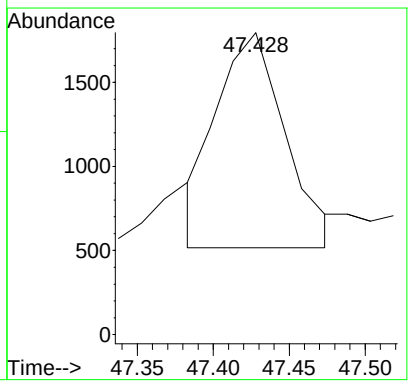
Tgt Ion:217 Resp: 4467

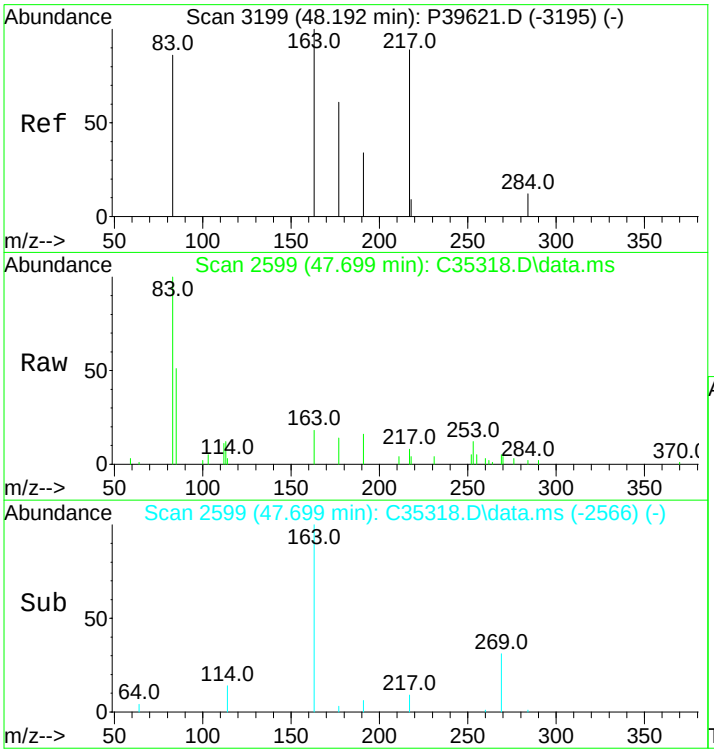




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 358.79 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

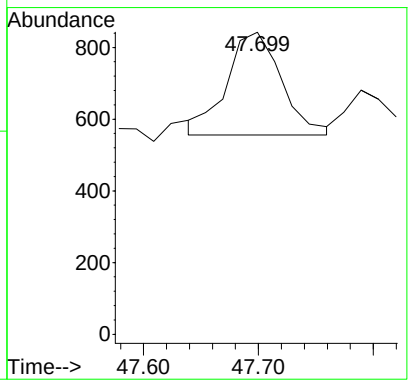
Tgt Ion:217 Resp: 4031

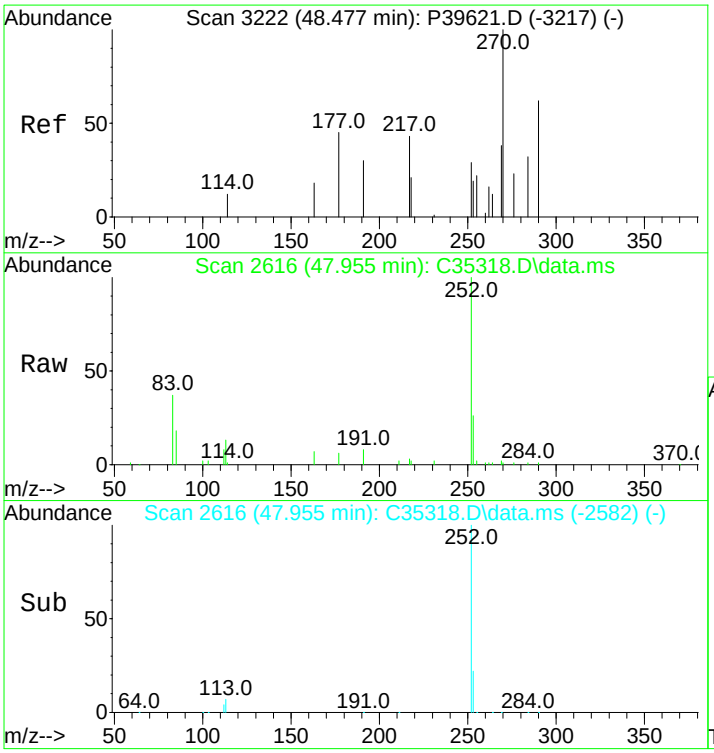




#133
Unknown Sterane (S18)
Concen: 84.38 ng/ml m
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

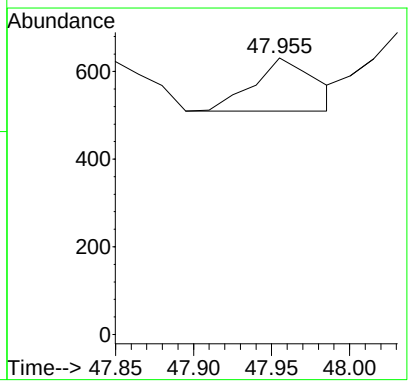
Tgt Ion:217 Resp: 948

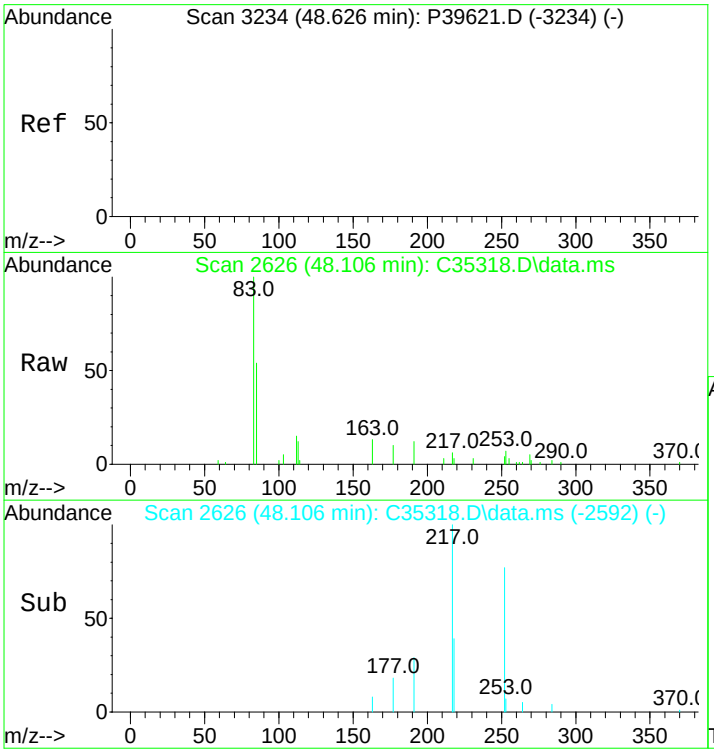




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 29.64 ng/ml
RT: 47.955 min Scan# 2616
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

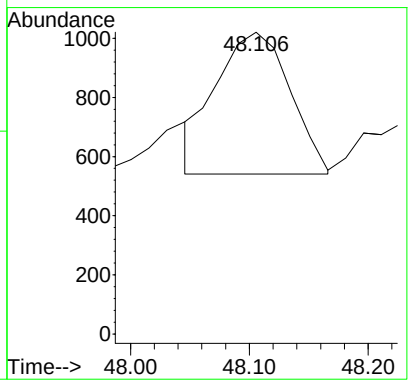
Tgt Ion:217 Resp: 333

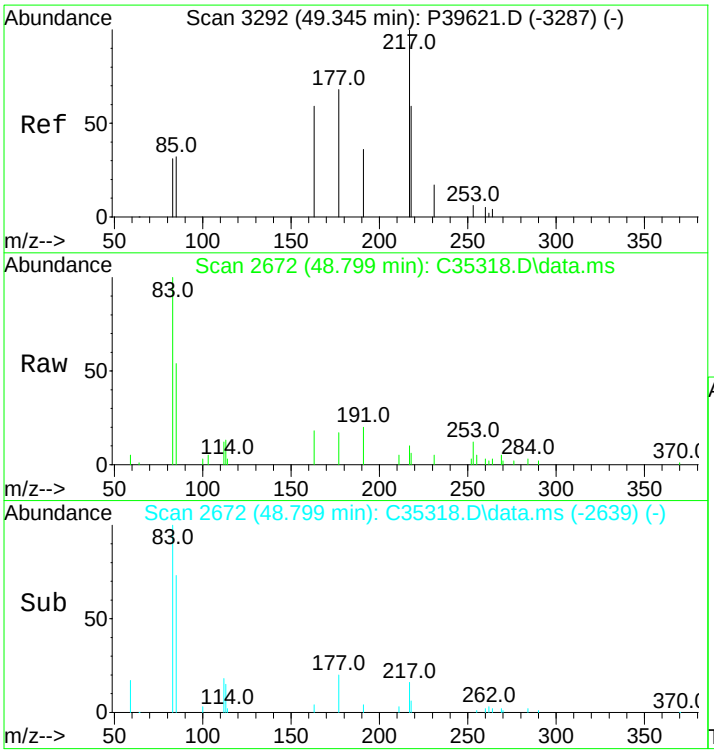




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 185.31 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

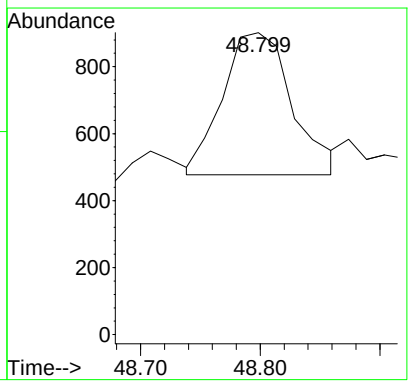
Tgt Ion:217 Resp: 2082

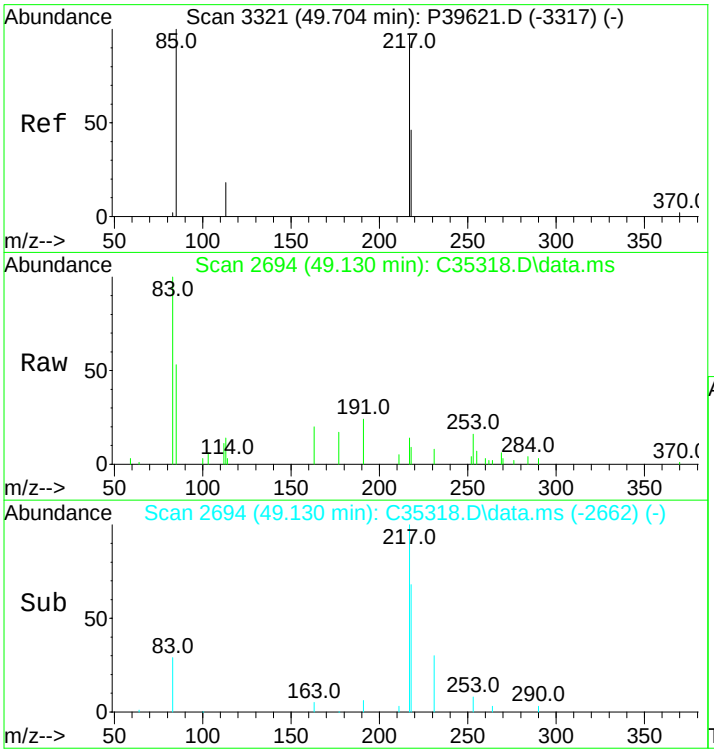




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 152.74 ng/ml m
RT: 48.799 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

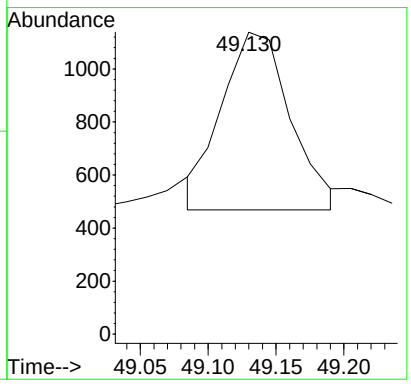
Tgt Ion:217 Resp: 1716

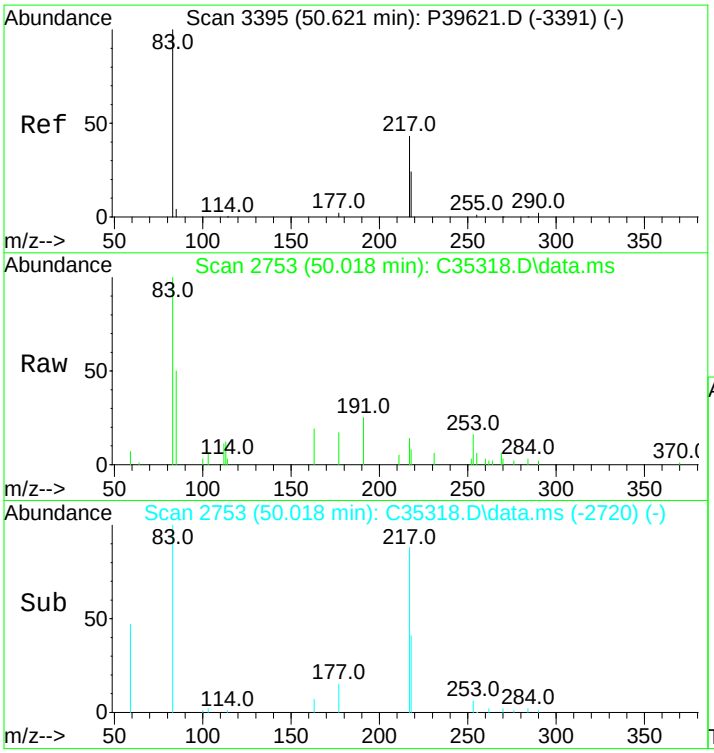




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 210.06 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

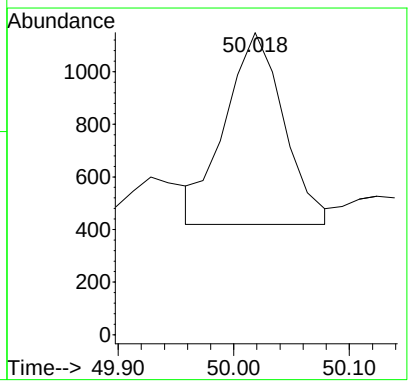
Tgt Ion:217 Resp: 2360

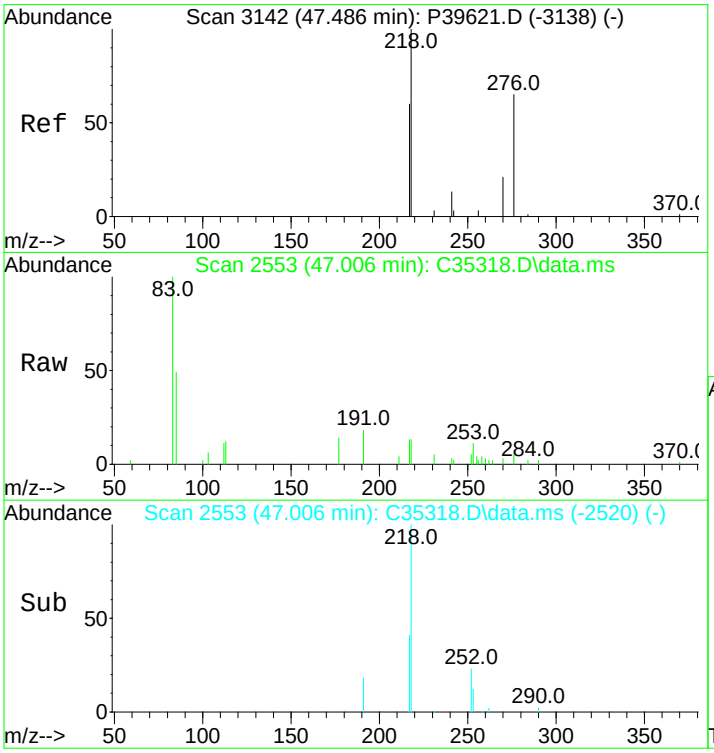




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 228.39 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

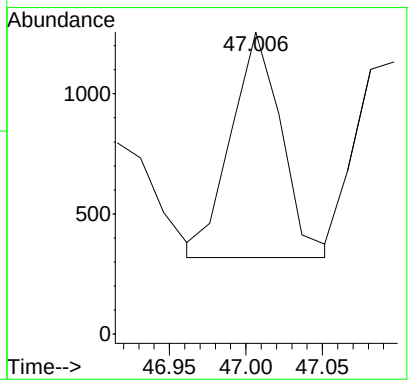
Tgt Ion:217 Resp: 2566

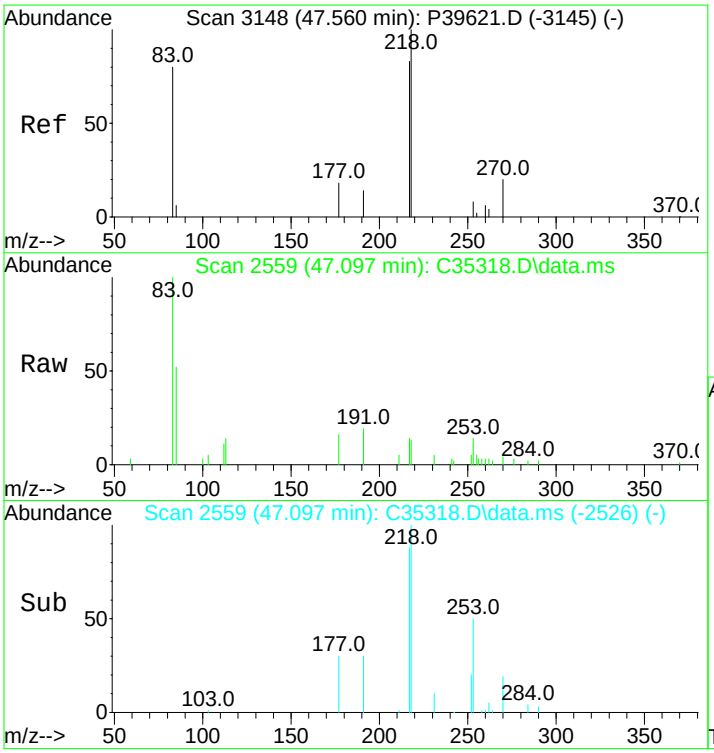




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 191.54 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

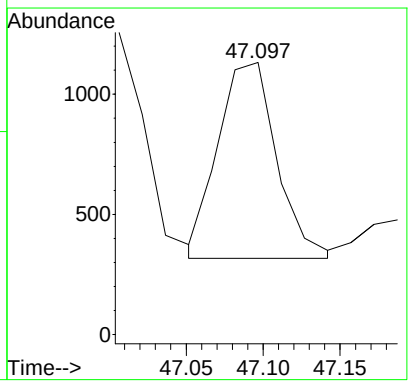
Tgt Ion:218 Resp: 2152

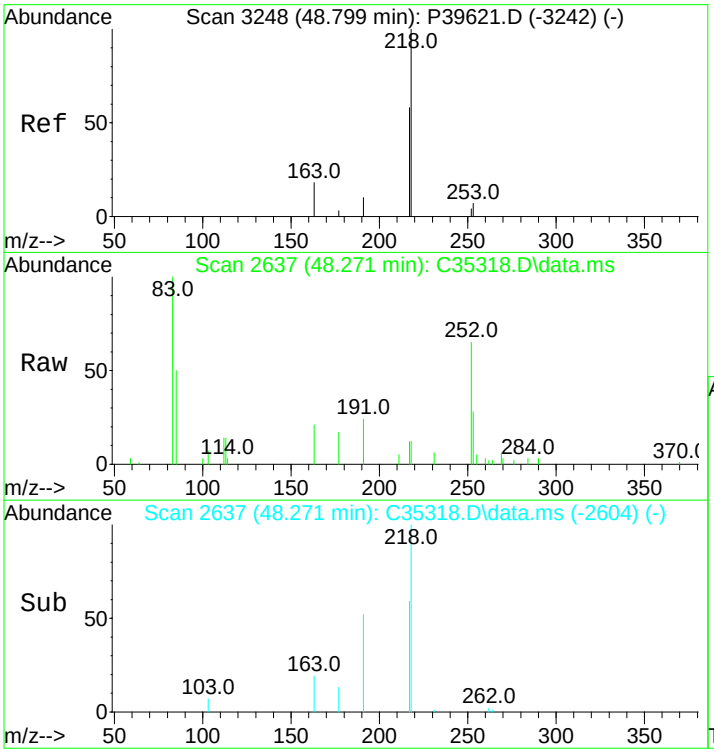




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 192.61 ng/ml m
RT: 47.097 min Scan# 2559
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

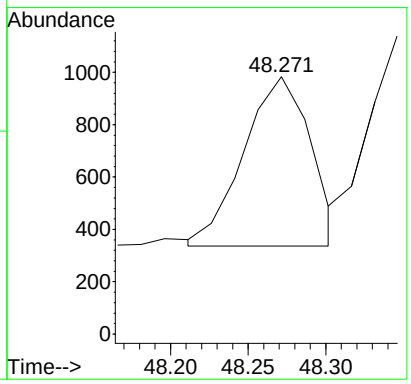
Tgt Ion:218 Resp: 2164

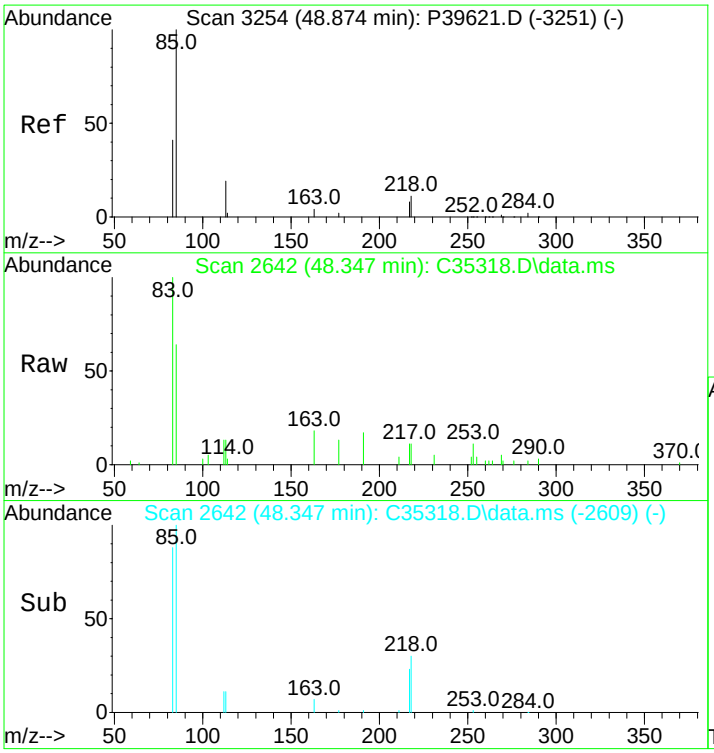




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 173.21 ng/ml m
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

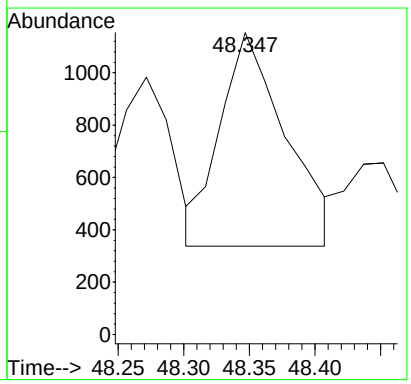
Tgt Ion:218 Resp: 1946

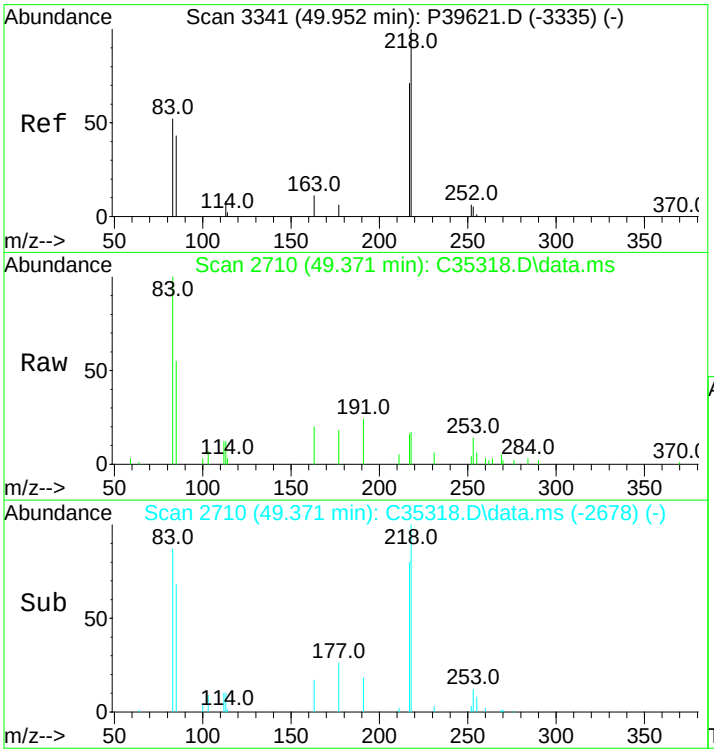




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 252.96 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

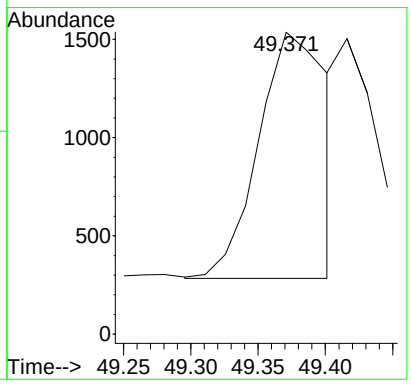
Tgt Ion:218 Resp: 2842

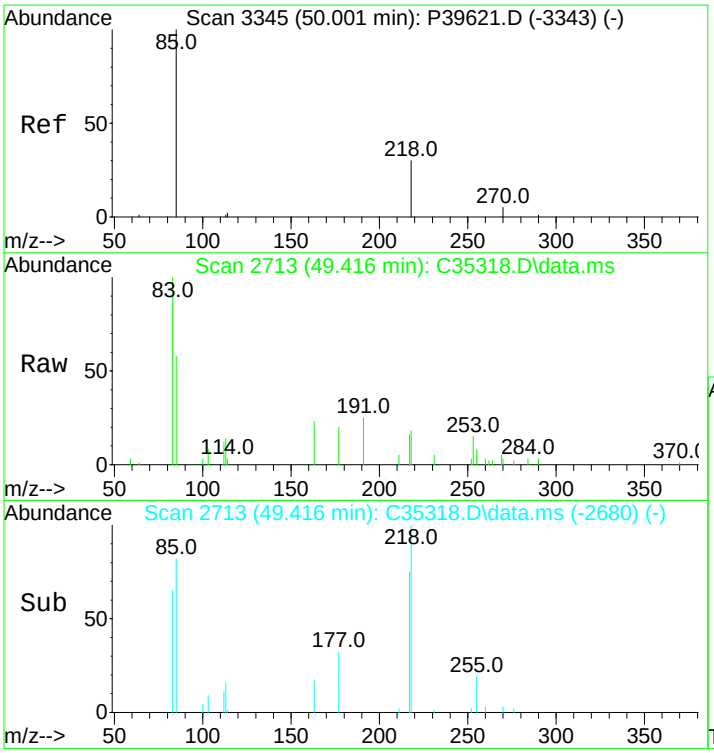




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 391.36 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

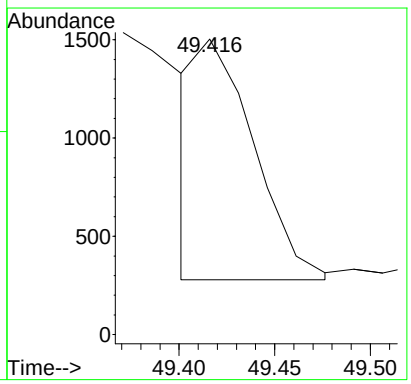
Tgt Ion:218 Resp: 4397

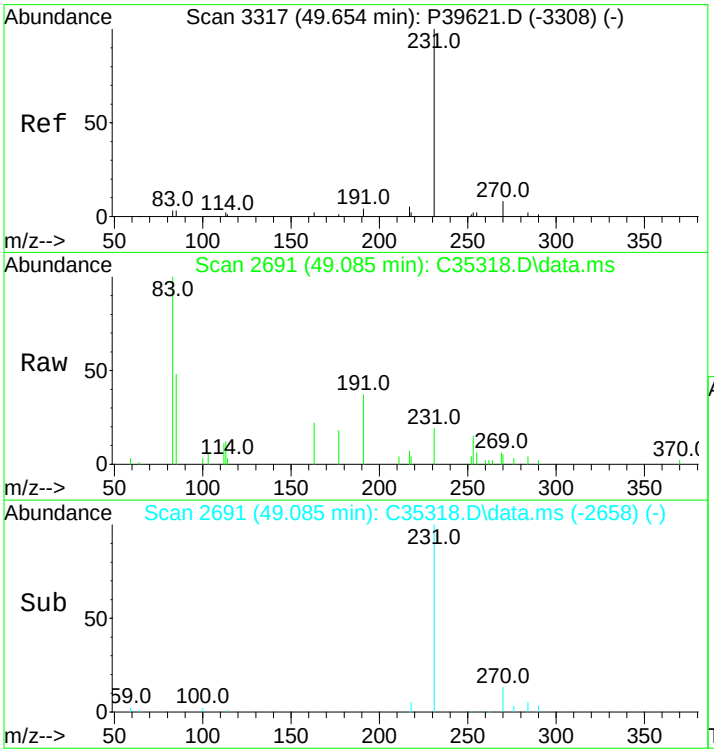




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 225.10 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

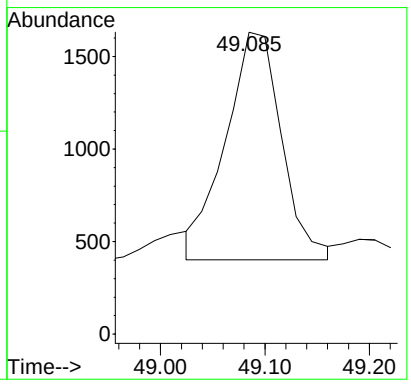
Tgt Ion:218 Resp: 2529

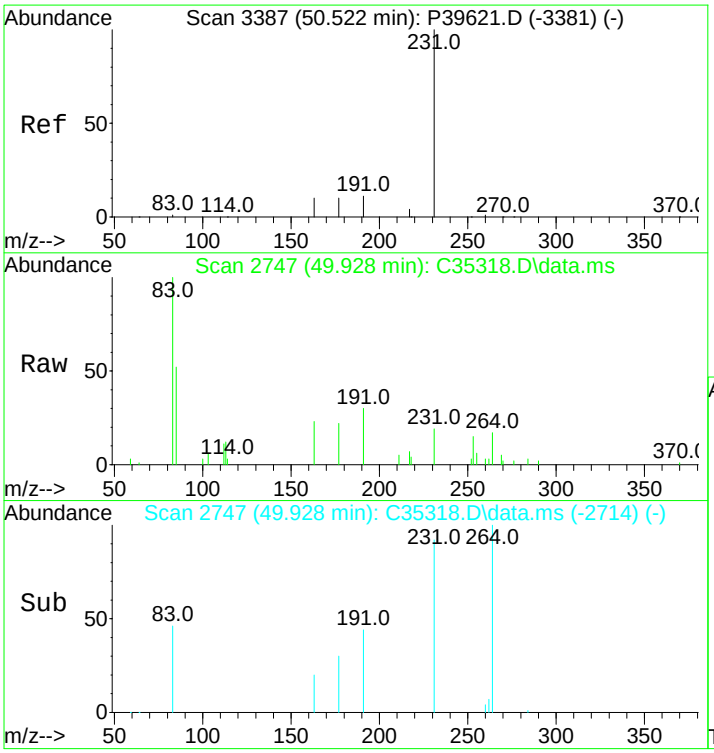




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 409.16 ng/mL m
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

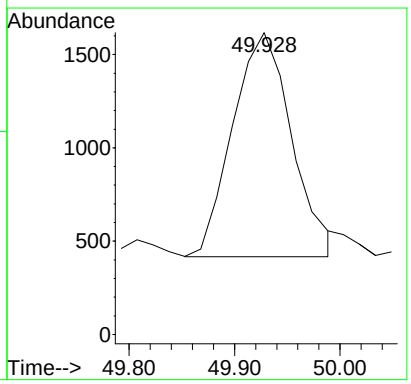
Tgt Ion:231 Resp: 4597

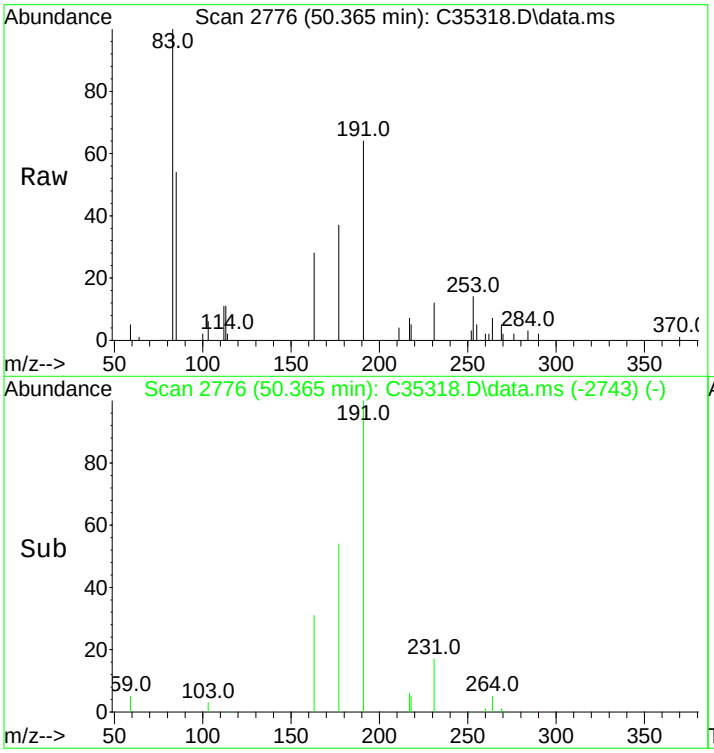




#146
C28,20S-triaromatic steroid
Concen: 416.46 ng/mL m
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

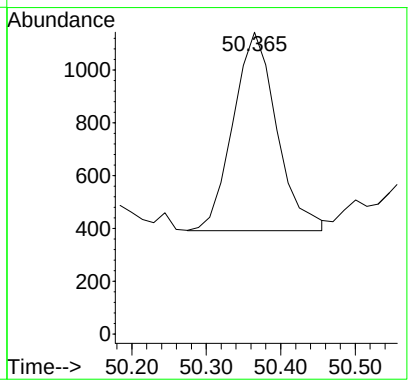
Tgt Ion:231 Resp: 4679

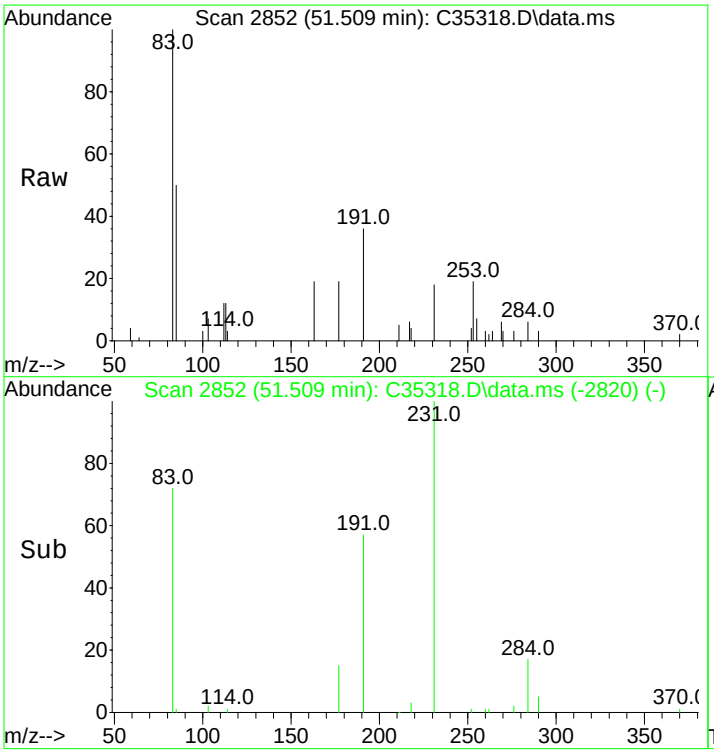




#147
C27,20R-triaromatic steroid
Concen: 272.45 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

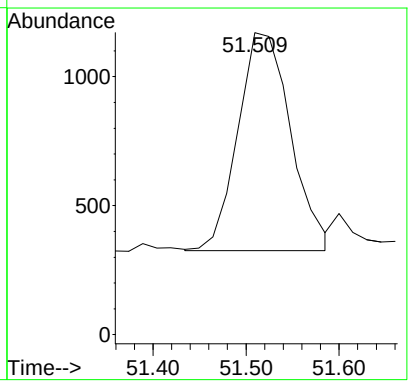
Tgt Ion:231 Resp: 3061





#148
C28,20R-triaromatic steroid
Concen: 296.57 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35318.D
Acq: 26 May 2012 1:42 am

Tgt Ion:231 Resp: 3332



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15719	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	35262	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	18894	276.939	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.69%#			
42) Phenanthrene-d10	32.221	188	20224	375.035	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.50%#			
86) Benzo[a]pyrene-d12	47.850	264	26784	366.514	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.65%#			
127) 5B(H)Cholane - Surr	43.422	217	4270	387.312	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.73%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	85M3	6.850	ng/mL	
10) Naphthalene	19.485	128	3257	32.510	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3397M5	33.907	ng/mL	
12) C2-Naphthalenes	24.664	156	5473M5	54.629	ng/mL	
13) C3-Naphthalenes	28.563	170	4084M5	40.765	ng/mL	
14) C4-Naphthalenes	31.363	184	3057M5	30.514	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2054	34.674	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1144	19.702	ng/mL#	100
18) Benzothiophene	19.711	134	117M3	1.298	ng/mL	
23) Biphenyl	24.061	154	655	8.741	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	1865	38.320	ng/mL#	100
25) Dibenzofuran	27.133	168	1720	19.989	ng/mL	97
26) Acenaphthylene	25.748	152	2721	27.360	ng/mL#	100
27) Acenaphthene	26.485	153	798	13.628	ng/mL	93
28) 2,3,5-Trimethylnaphthalen	28.036	170	275M3	7.009	ng/mL	
29) Fluorene	28.503	166	1582M3	24.496	ng/mL	
30) C1-Fluorenes	30.866	180	1185M5	18.349	ng/mL	
31) C2-Fluorenes	33.049	194	2478M5	38.371	ng/mL	
32) C3-Fluorenes	35.548	208	6665M5	103.204	ng/mL	
33) Dibenzothiophene	31.814	184	1627	15.716	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	701M3	6.771	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	425M3	4.105	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	254	2.454	ng/mL#	100
37) OTP	33.997	198	4979M3	48.096	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	6781M5	65.503	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	1802m	17.407	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	4456M5	43.044	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	7780M5	75.153	ng/mL	
41) C4-Dibenzothiophenes	40.547	240	7242M5	69.956	ng/mL	
43) Phenanthrene	32.311	178	18301	201.213	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2667	29.323	ng/mL	93
45) 2-Methylphenanthrene(2MP)	34.374	192	2672	29.378	ng/mL	95
46) 2-Methylanthracene(2MA)	34.539	192	1059M3	11.643	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2857M3	31.412	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1862M3	20.472	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	11239M5	123.569	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	14964M5	164.524	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	14964m	164.524	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	11569M5	127.197	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.562	234	9213M5	101.294	ng/mL	
55) Anthracene	32.492	178	4475M3	50.371	ng/mL	
56) Carbazole	33.169	167	2066	23.022	ng/mL#	87
57) 1-Methylphenanthrene	34.810	192	1857M3	32.218	ng/mL	
58) Fluoranthene	37.084	202	92523M3	1024.258	ng/mL	
59) Benzo(b)fluorene	39.598	216	6222M3	118.725	ng/mL	
60) Pyrene	37.957	202	81075	882.934	ng/mL	98

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
61) C1-Fluoranthenes/Pyrenes	39.357	216	39132M5	426.161	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	26324M5	286.677	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	15071M5	164.128	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	15805M5	172.122	ng/mL	
66) Naphthobenzothiophene	41.812	234	9705	98.171	ng/mL#	76
67) Naphthobenzothiophene-2,1	41.812	234	9705	98.171	ng/mL#	76
68) Naphthobenzothiophene-1,2	42.143	234	2198	22.234	ng/mL#	9
69) Naphthobenzothiophene-2,3	42.444	234	3089M3	31.247	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	11563M5	116.966	ng/ml	
71) C2-Naphthobenzothiophenes	44.717	262	15435M5	156.134	ng/ml	
72) C3-Naphthobenzothiophenes	46.811	276	14000M5	141.618	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	11983M5	121.215	ng/mL	
75) Benz[a]anthracene	42.730	228	32456M3	289.990	ng/mL	
77) Chrysene/Triphenylene	42.896	228	54040M3	478.257	ng/mL	
78) C1-Chrysenes	44.371	242	21893M5	193.754	ng/mL	
79) C2-Chrysenes	45.756	256	17415M5	154.124	ng/mL	
79) C2-Chrysenes BS	45.756	256	17415m	154.124	ng/mL	
80) C3-Chrysenes	48.076	270	27544M5	243.766	ng/mL	
81) C4-Chrysenes	48.076	284	17229M5	152.478	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	76092	618.741	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	71397M3	533.243	ng/mL	
84) Benzo[a]fluoranthene	47.157	252	10782	80.528	ng/mL#	7
85) Benzo[e]pyrene	47.759	252	54743	450.036	ng/mL	93
87) Benzo[a]pyrene	47.940	252	60034	512.606	ng/mL	92
88) Perylene	48.241	252	43961	351.228	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.579	276	65466M3	480.342	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	16100	124.181	ng/mL	95
91) Benzo[g,h,i]perylene	53.829	276	65458	454.597	ng/mL	99
92) Hopane (T19)	51.705	191	31684M3	1363.330	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	3369	144.965	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.179	191	2307M3	99.268	ng/ml	
96) C25 Tricyclic Terpane (T6	42.670	191	2057M3	88.511	ng/ml	
97) C24 Tetracyclic Terpane (	43.980	191	2910	125.214	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.724	191	1236	53.184	ng/ml	100
99) C26 Tricyclic Terpane-22R	43.814	191	1305	56.153	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.103	191	1540M3	66.265	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2111M3	90.834	ng/ml	
102) C29 Tricyclic Terpane-22S	46.796	191	2040	87.779	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1681M3	72.332	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.061	191	7270M3	312.821	ng/ml	
105) C30 Tricyclic Terpane-22S	48.166	191	2242M3	96.471	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1631M3	70.180	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7555M3	325.084	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.732	191	2018M3	86.832	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.552	191	2703M3	116.307	ng/ml	
110) 30-Norhopane (T15)	50.395	191	24005	1032.910	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.485	191	6945M4	298.836	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	1881M3	80.937	ng/ml	
113) 30-Normoretane (T17)	51.133	191	3809M3	163.897	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.525	191	3067	131.970	ng/ml	100
115) Moretane (T20)	52.353	191	7382M3	317.640	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11531M3	496.167	ng/ml	
117) 30-Homohopane-22R (T22)	53.648	191	10211	439.369	ng/ml	100
118) Gammacerane/C32-diahopane	54.160	191	3219	138.510	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.883	191G	42725M3	1838.413	ng/ml	
120) 30,31-Bishomohopane-22R (	55.304	191	5963	256.582	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7167M3	308.389	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	2939M3	126.462	ng/ml	
123) Tetrakishomohopane-22S (T	59.521	191G	11482	494.059	ng/ml	100
124) Tetrakishomohopane-22R (T	60.273	191G	9757	419.834	ng/ml	100
125) Pentakishomohopane-22S (T	62.502	191	3371M3	145.051	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126) Pentakishomohopane-22R (T	63.767	191	2176	93.631	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2350	213.158	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1502	136.240	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.058	217	1504	136.421	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4574	414.887	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	3599M3	326.449	ng/ml	
133) Unknown Sterane (S18)	47.699	217	936M3	84.900	ng/ml	
134) 13a,17b-20S-Ethyldiachole	47.940	217	161M3	14.604	ng/ml	
135) 14a,17a-20S-Methylcholest	48.106	217	1984M3	179.960	ng/ml	
136) 14a,17a-20R-Methylcholest	48.799	217	1936M3	175.606	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2425M3	219.961	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2516M3	228.215	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2208M3	200.278	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2134M3	193.565	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	1921M3	174.245	ng/ml	
142) 14b,17b-20S-Methylcholest	48.347	218	2857M3	259.146	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4649M3	421.690	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2680M3	243.091	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4003M4	363.094	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4433M3	402.097	ng/mL	
147) C27,20R-triaromatic stero	50.365	231	2840	257.604	ng/mL	100
148) C28,20R-triaromatic stero	51.509	231	3161M3	286.720	ng/mL	

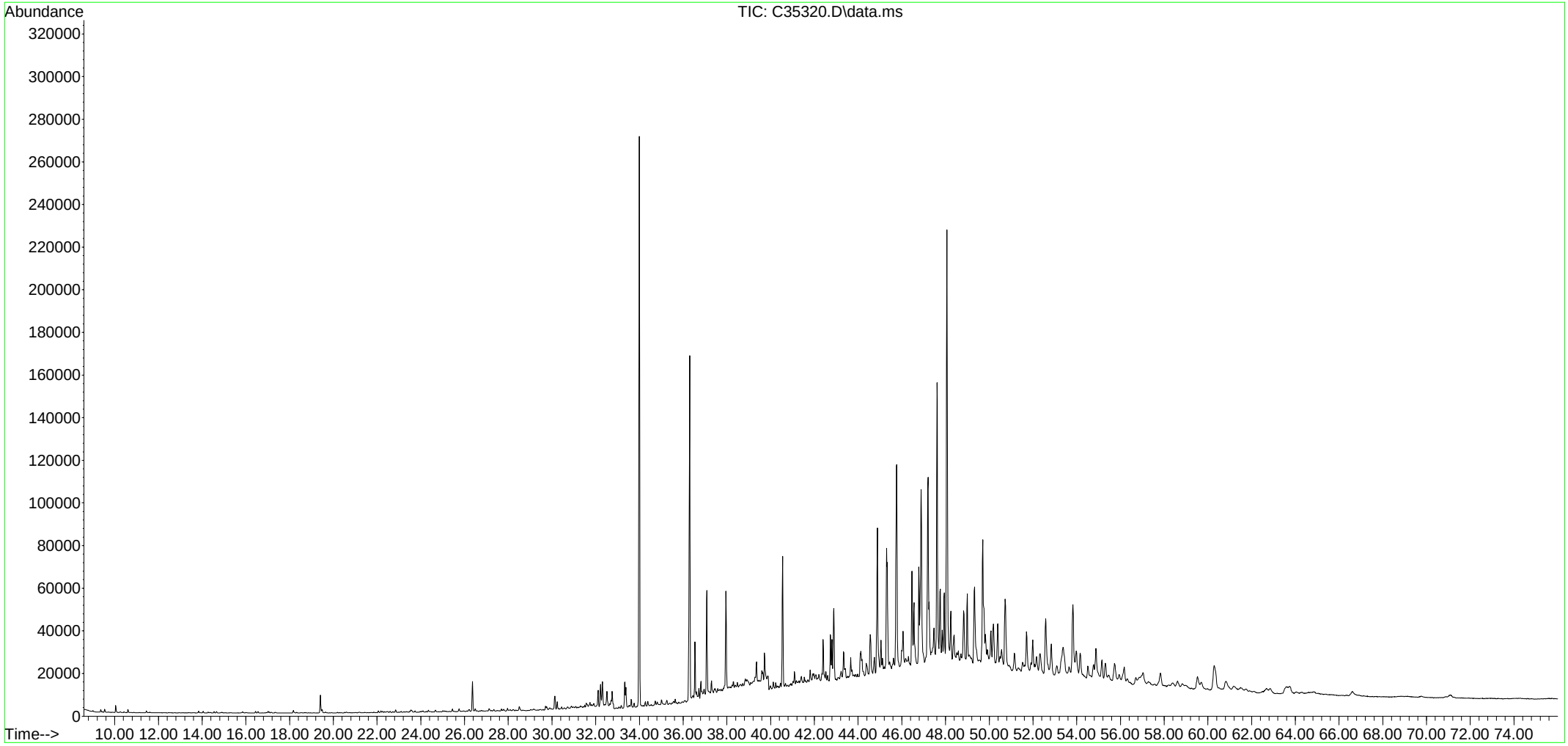
(#) = qualifier out of range (m) = manual integration (+) = signals summed

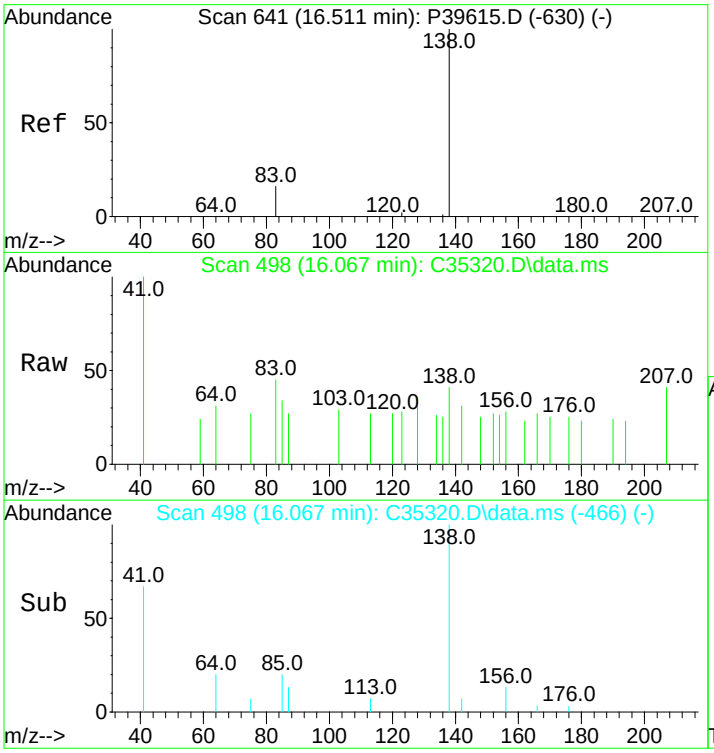
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35320.D
Acq On : 26 May 2012 3:19 am
Operator : AC
Sample : 1205027-06
Misc : 1X
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 29 12:16:11 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

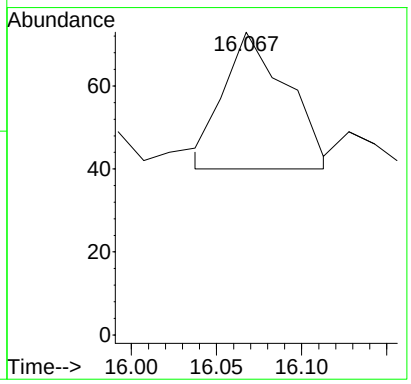
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

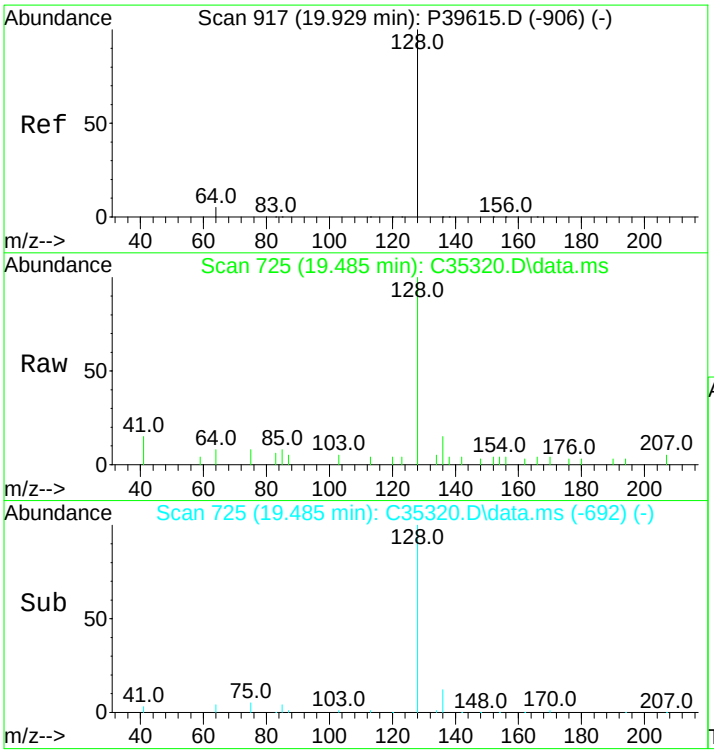




#3
trans-Decalin
Concen: 6.85 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:138 Resp: 85

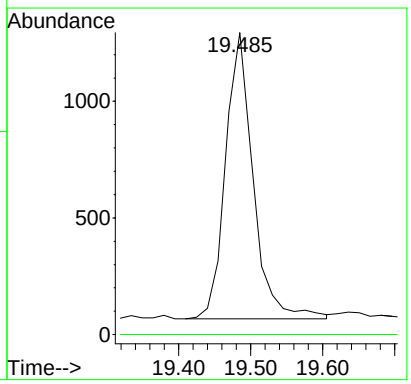


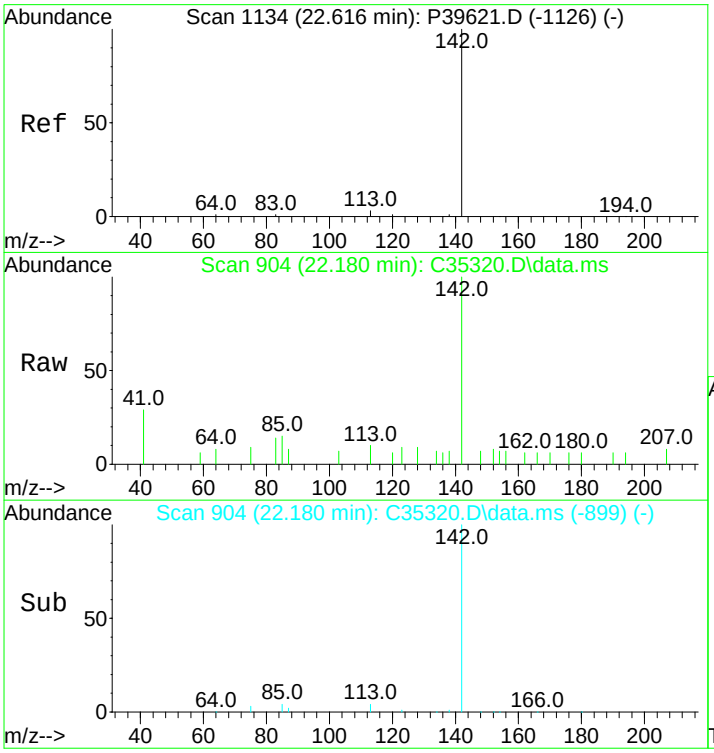


#10
Naphthalene
Concen: 32.51 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:128 Resp: 3257

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

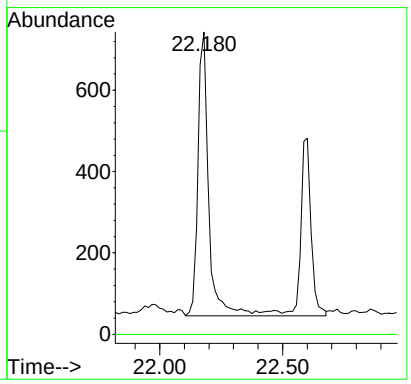


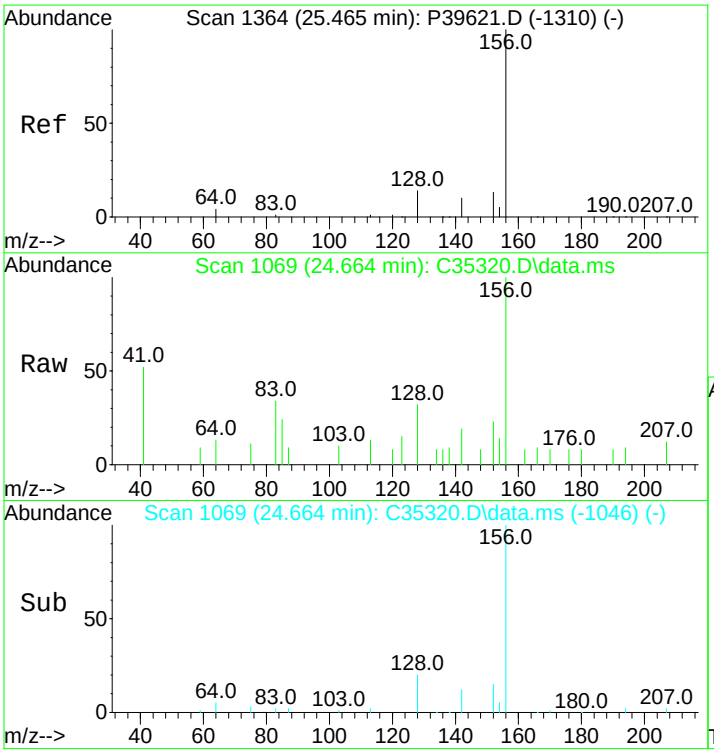


#11
C1-Naphthalenes
Concen: 33.91 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:142 Resp: 3397

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

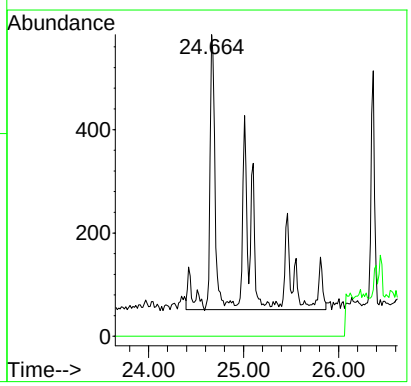


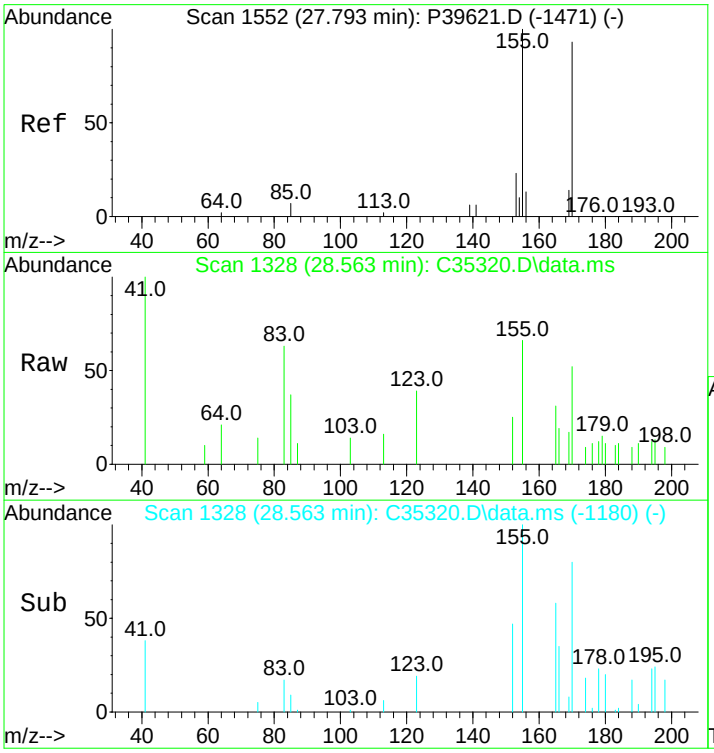


#12
C2-Naphthalenes
Concen: 54.63 ng/mL m
RT: 24.664 min Scan# 1069
Delta R.T. -0.369 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:156 Resp: 5473

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

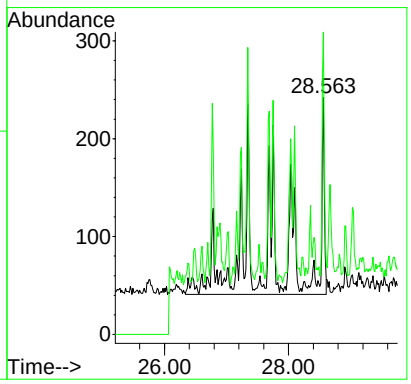


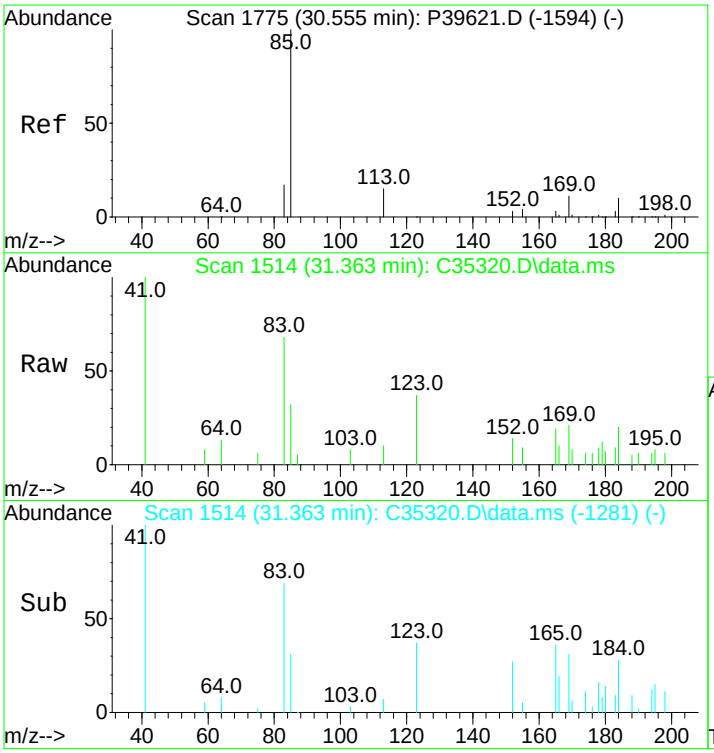


#13
C3-Naphthalenes
Concen: 40.76 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:170 Resp: 4084

Ion	Ratio	Lower	Upper
170	100		
155	14.2	86.3	129.5#

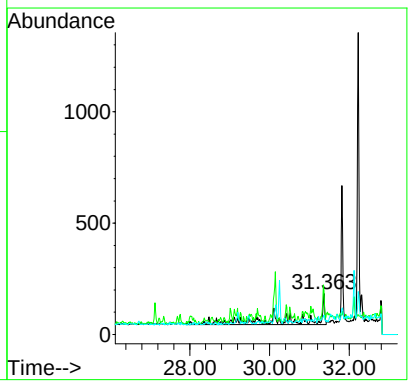


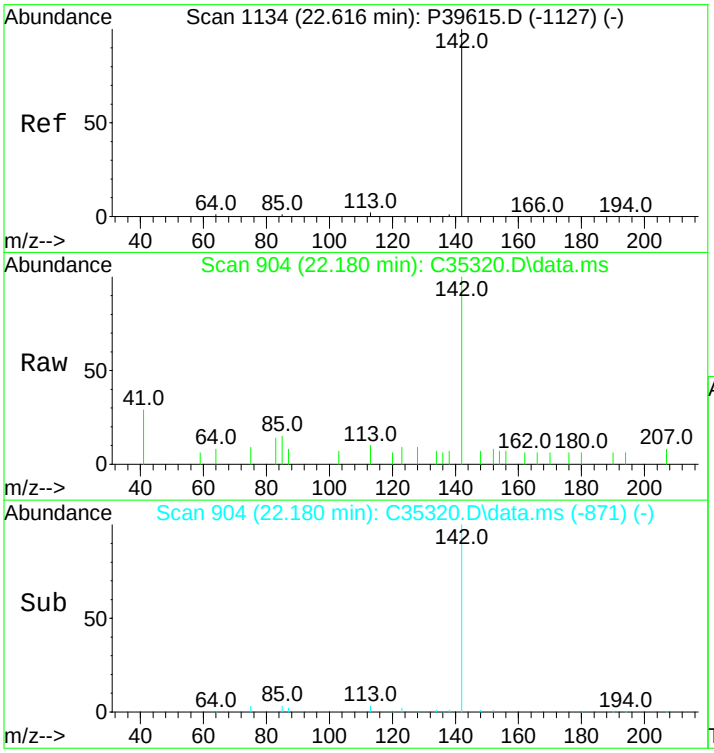


#14
C4-Naphthalenes
Concen: 30.51 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:184 Resp: 3057

Ion	Ratio	Lower	Upper
184	100		
169	0.0	100.6	150.8#
183	0.0	26.6	40.0#

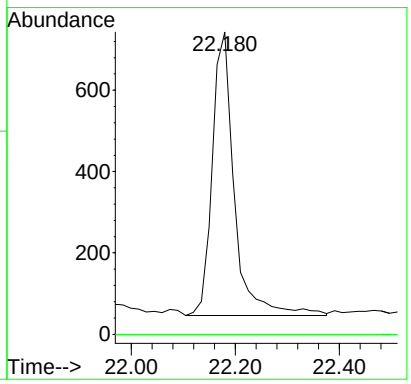


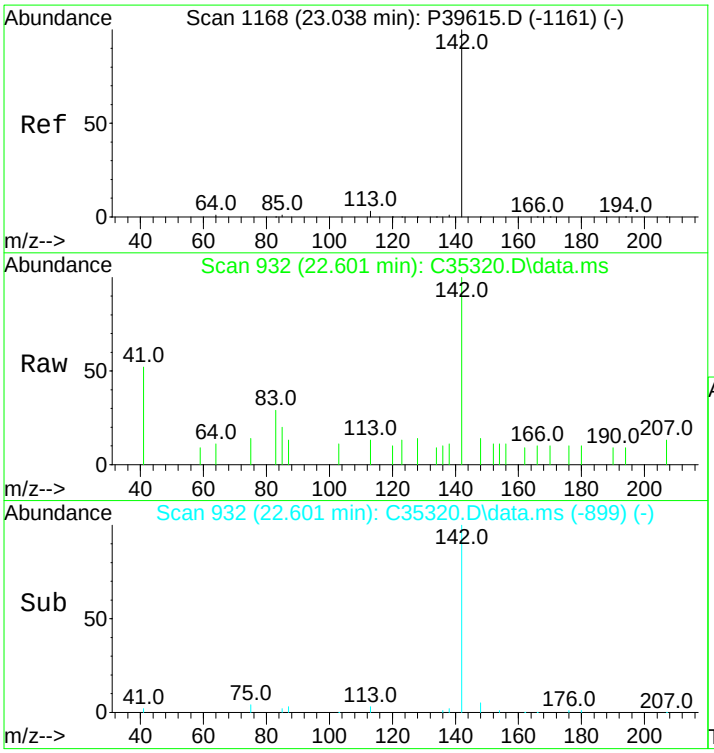


#16
2-Methylnaphthalene
Concen: 34.67 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:142 Resp: 2054

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

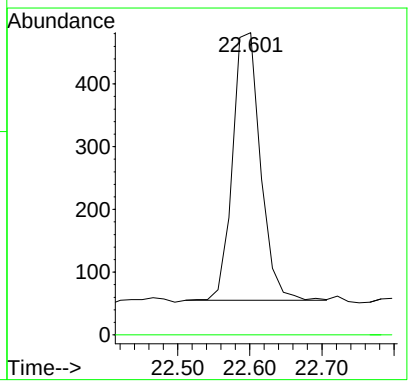


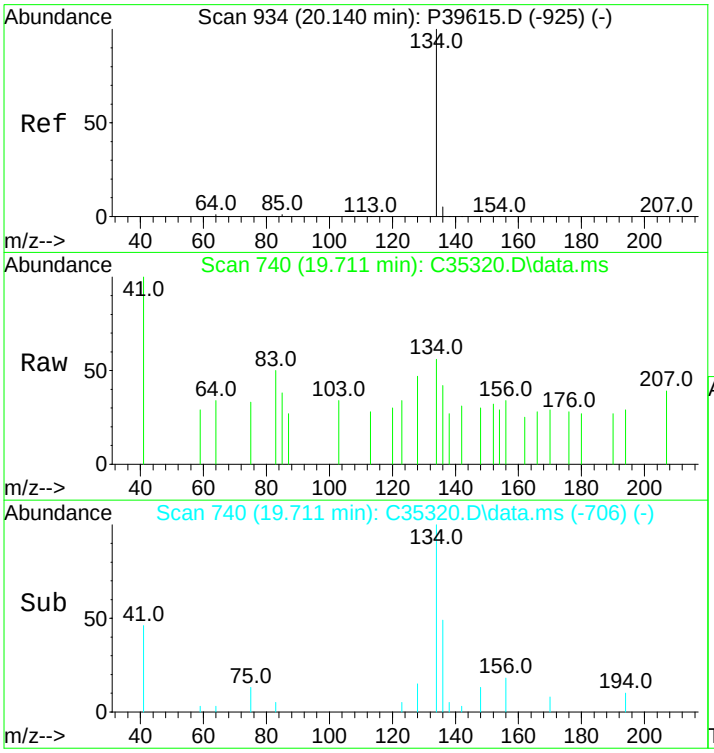


#17
1-Methylnaphthalene
Concen: 19.70 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:142 Resp: 1144

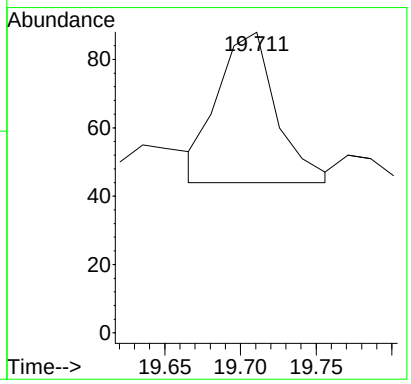
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

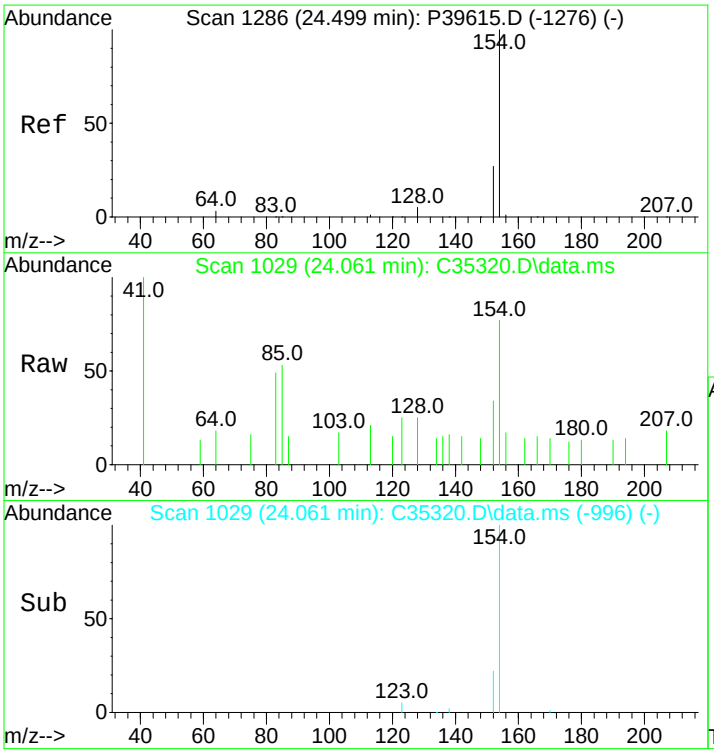




#18
Benzothiophene
Concen: 1.30 ng/mL m
RT: 19.711 min Scan# 740
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:134 Resp: 117

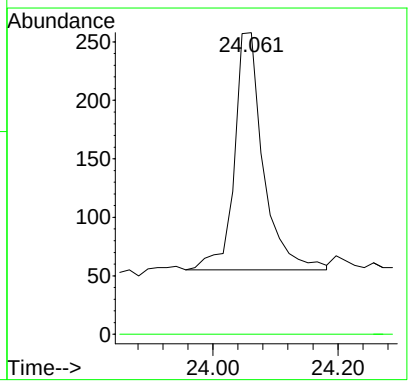


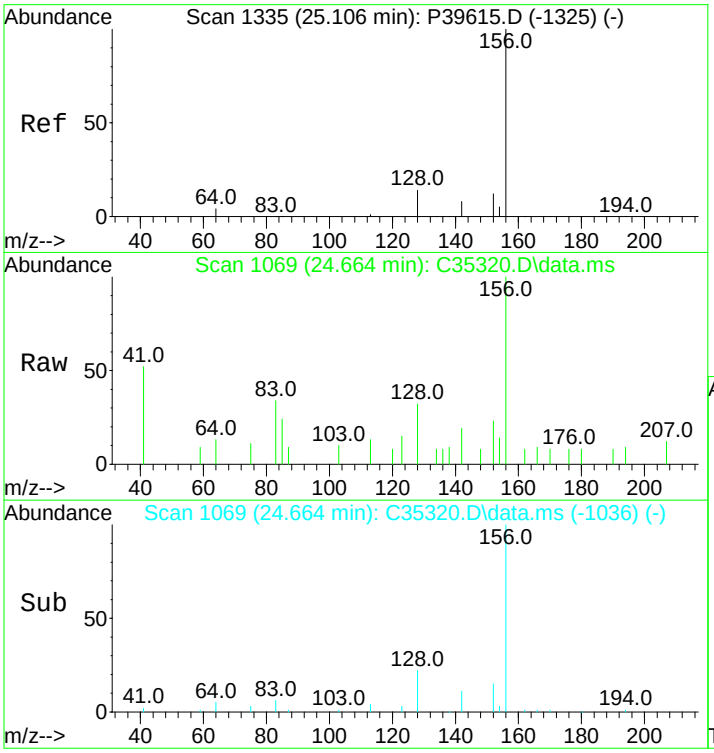


#23
Biphenyl
Concen: 8.74 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:154 Resp: 655

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

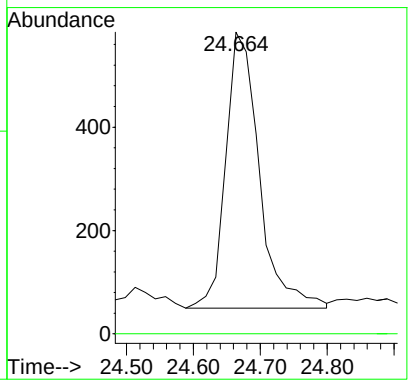


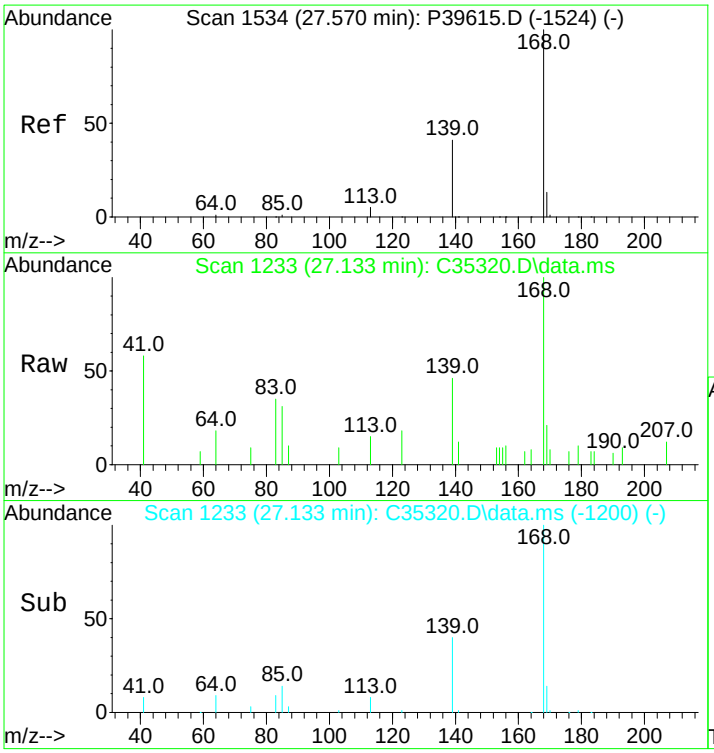


#24
2,6-Dimethylnaphthalene
Concen: 38.32 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:156 Resp: 1865

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

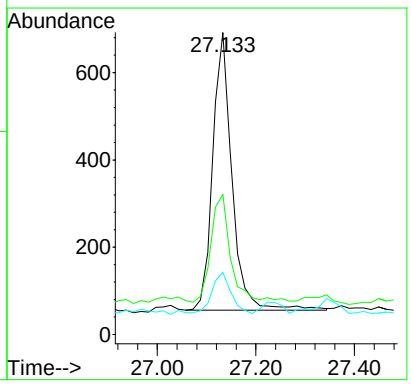


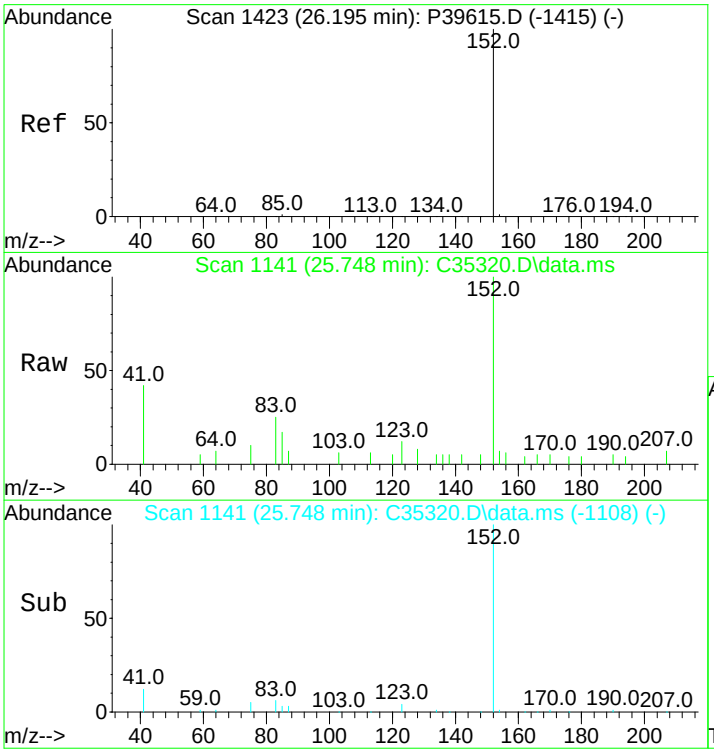


#25
Dibenzofuran
Concen: 19.99 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:168 Resp: 1720

Ion	Ratio	Lower	Upper
168	100		
139	38.6	29.9	44.9
169	14.5	10.3	15.5

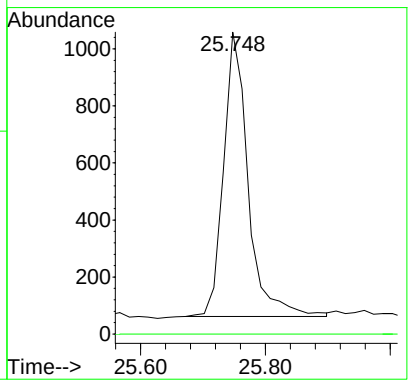


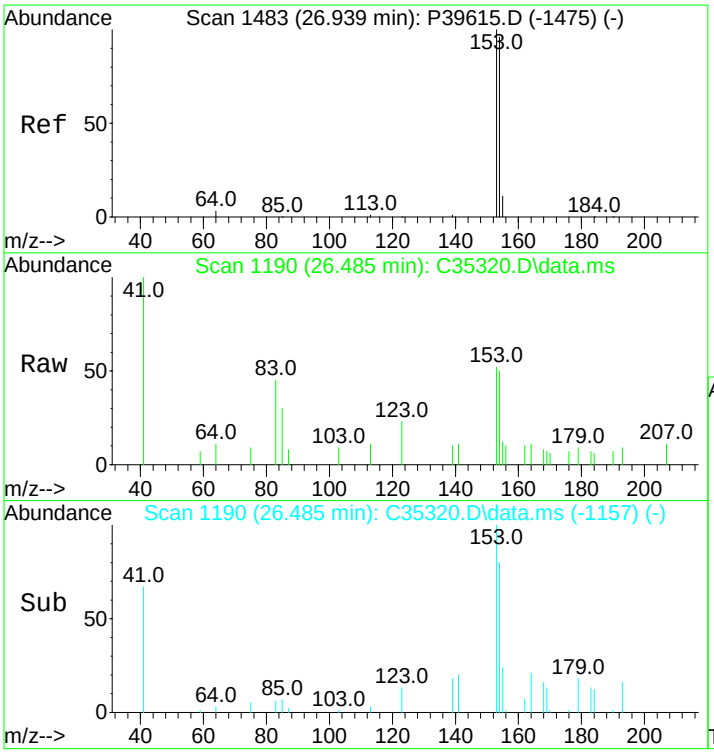


#26
Acenaphthylene
Concen: 27.36 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:152 Resp: 2721

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

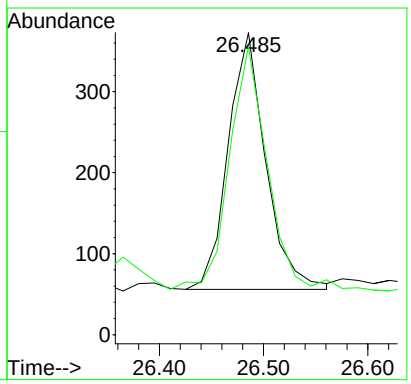


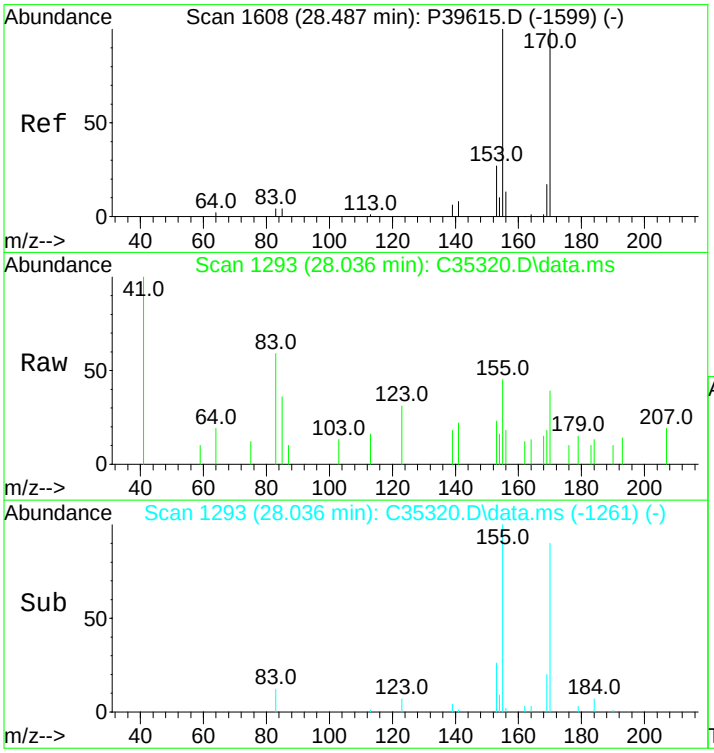


#27
Acenaphthene
Concen: 13.63 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:153 Resp: 798

Ion	Ratio	Lower	Upper
153	100		
154	98.6	73.3	109.9

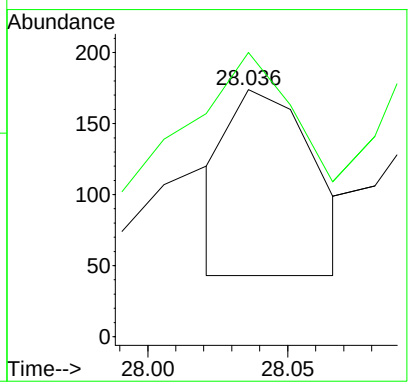


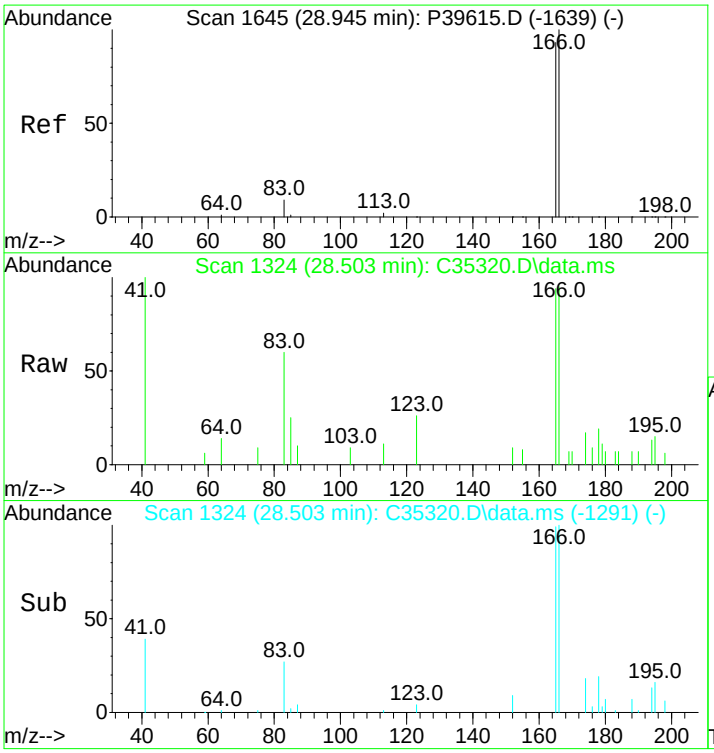


#28
2,3,5-Trimethylnaphthalene
Concen: 7.01 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:170 Resp: 275

Ion	Ratio	Lower	Upper
170	100		
155	154.9	78.4	117.6#

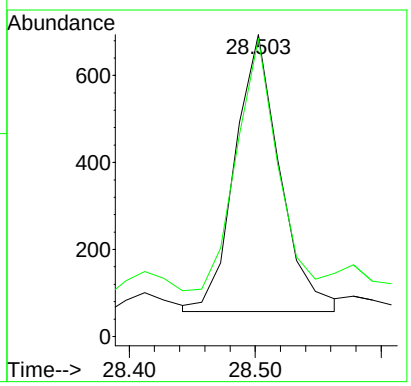


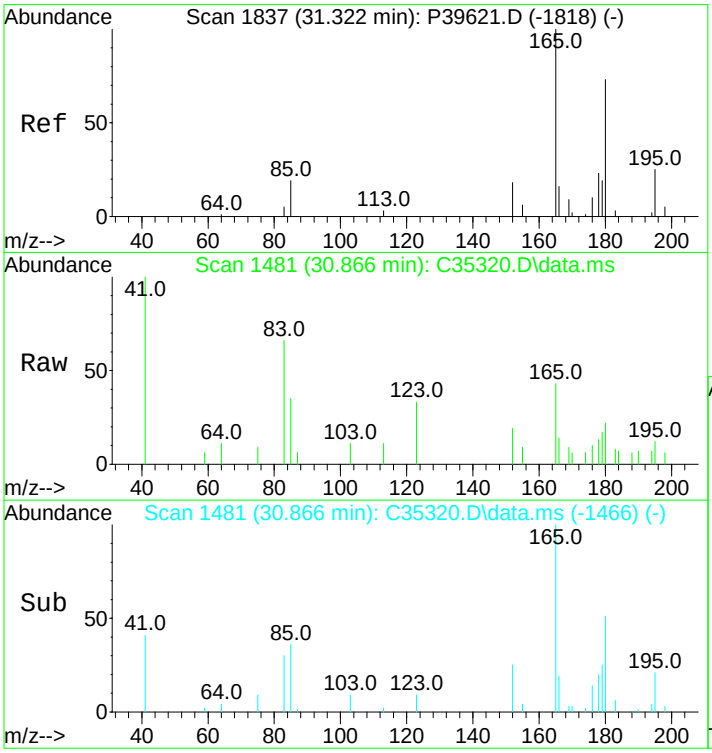


#29
Fluorene
Concen: 24.50 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:166 Resp: 1582

Ion	Ratio	Lower	Upper
166	100		
165	10.2	77.1	115.7#

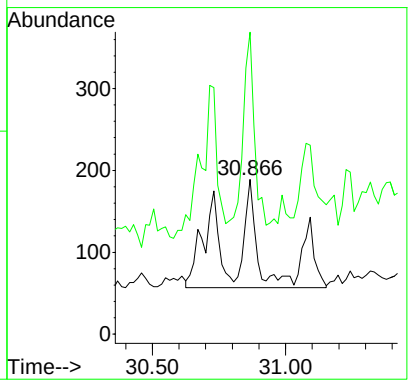


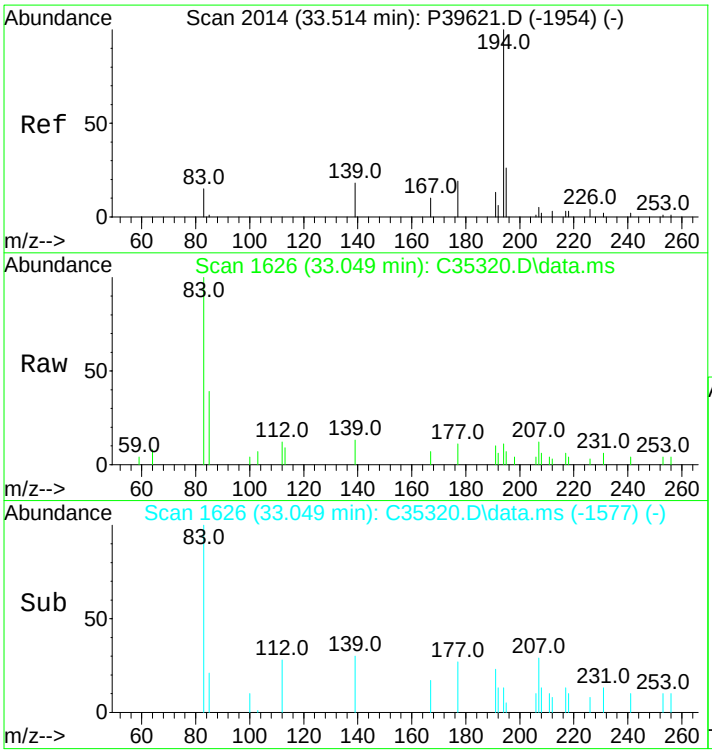


#30
C1-Fluorenes
Concen: 18.35 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:180 Resp: 1185

Ion	Ratio	Lower	Upper
180	100		
165	35.8	121.9	182.9#

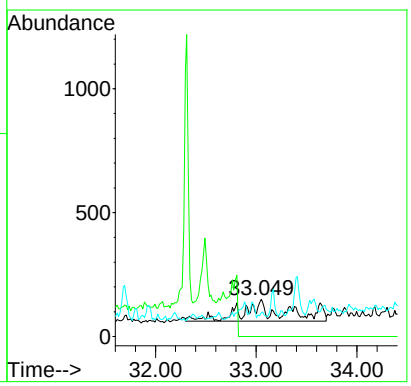


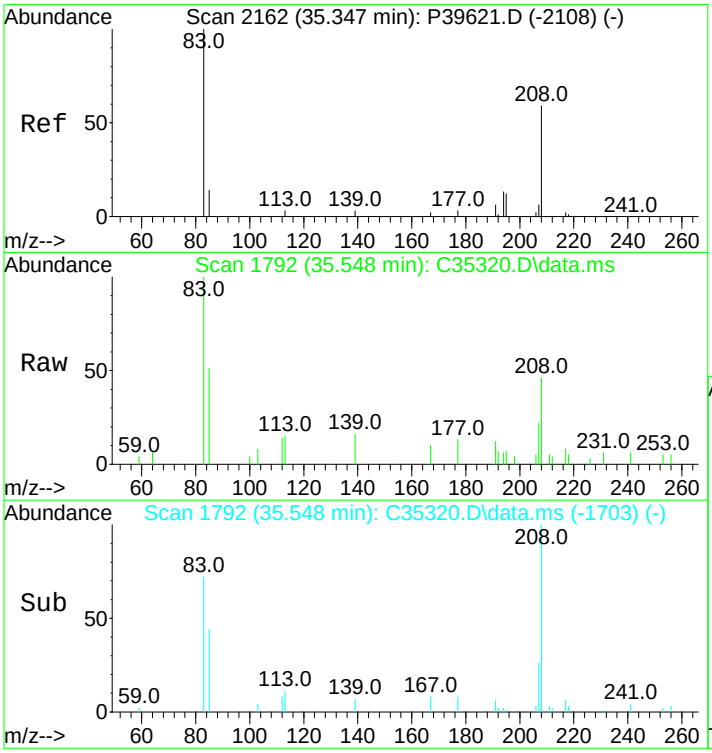


#31
C2-Fluorenes
Concen: 38.37 ng/mL m
RT: 33.049 min Scan# 1626
Delta R.T. 0.112 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:194 Resp: 2478

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	9.3	30.5	45.7#

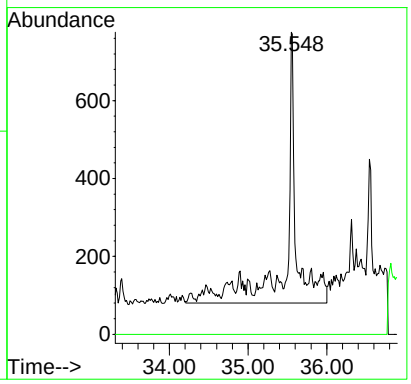


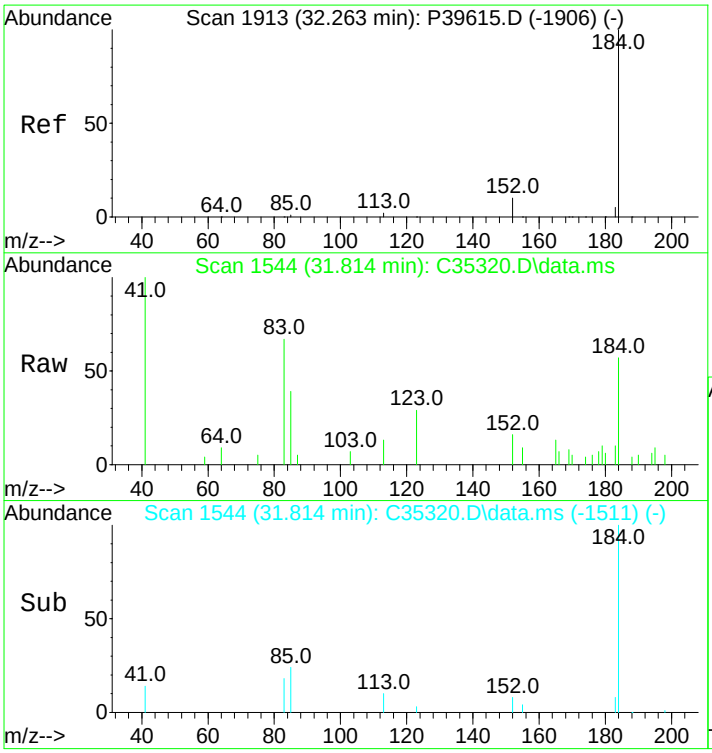


#32
C3-Fluorenes
Concen: 103.20 ng/mL m
RT: 35.548 min Scan# 1792
Delta R.T. 0.805 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:208 Resp: 6665

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

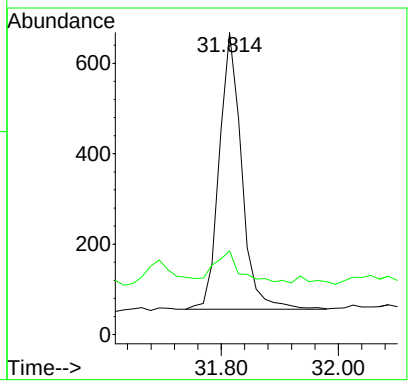


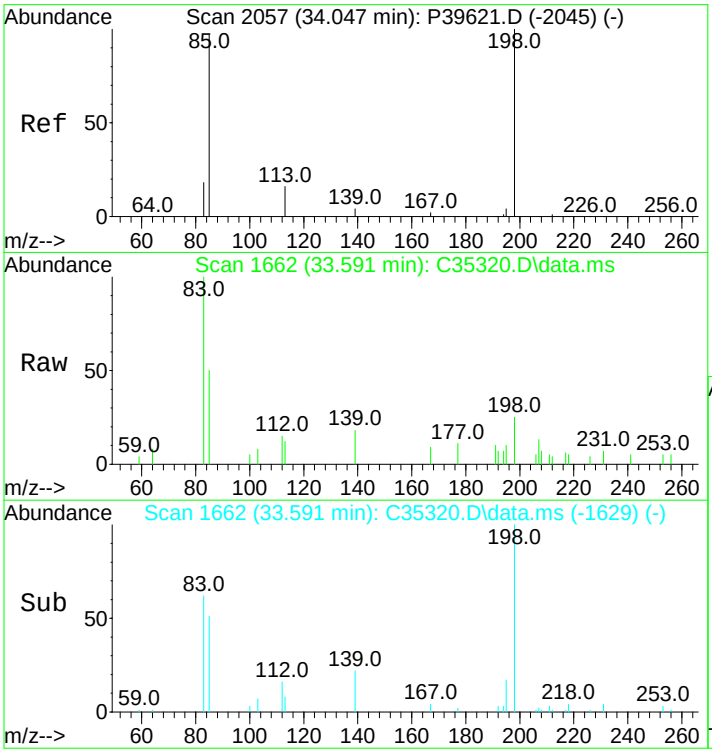


#33
Dibenzothiophene
Concen: 15.72 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:184 Resp: 1627

Ion	Ratio	Lower	Upper
184	100		
152	12.1	7.5	11.3#

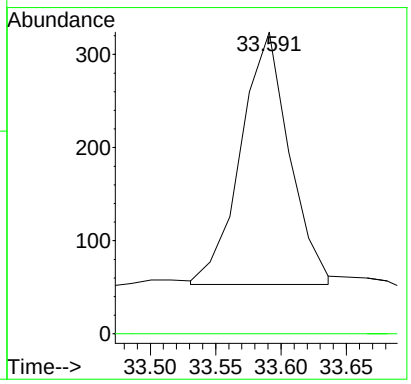


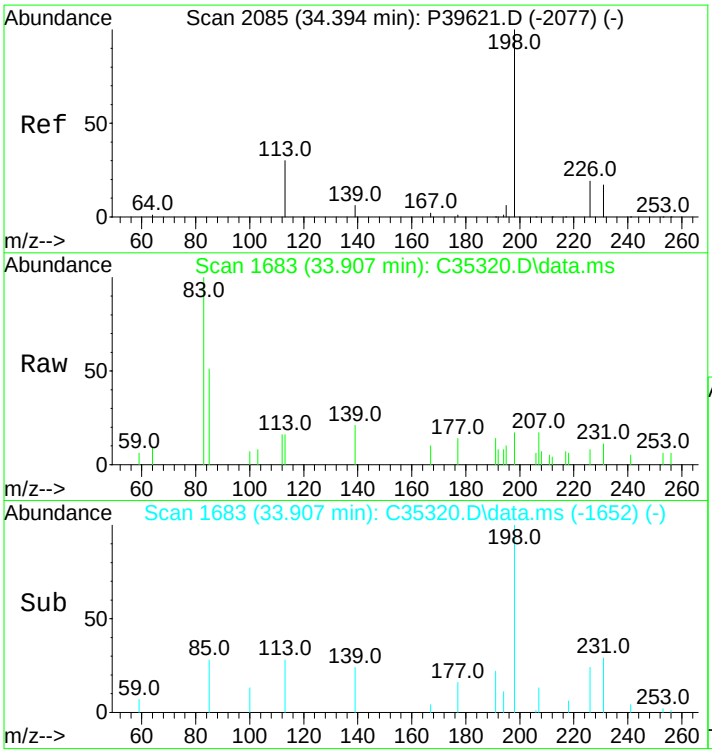


#34
4-Methyldibenzothiophene(4MDT)
Concen: 6.77 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:198 Resp: 701

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

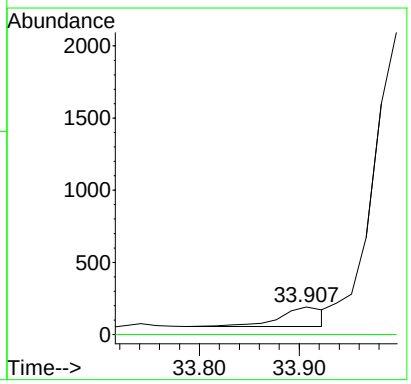


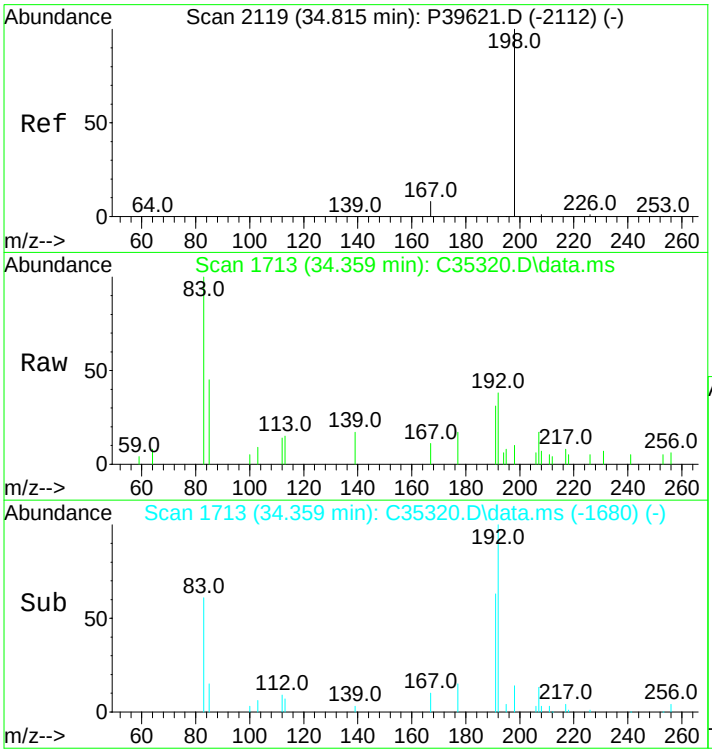


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 4.11 ng/mL m
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:198 Resp: 425

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

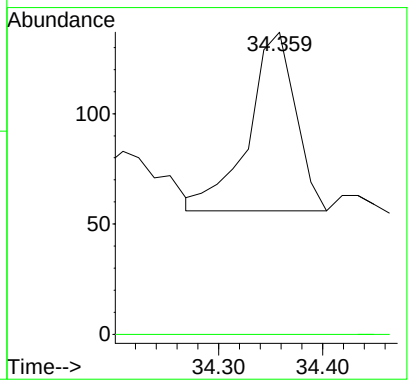


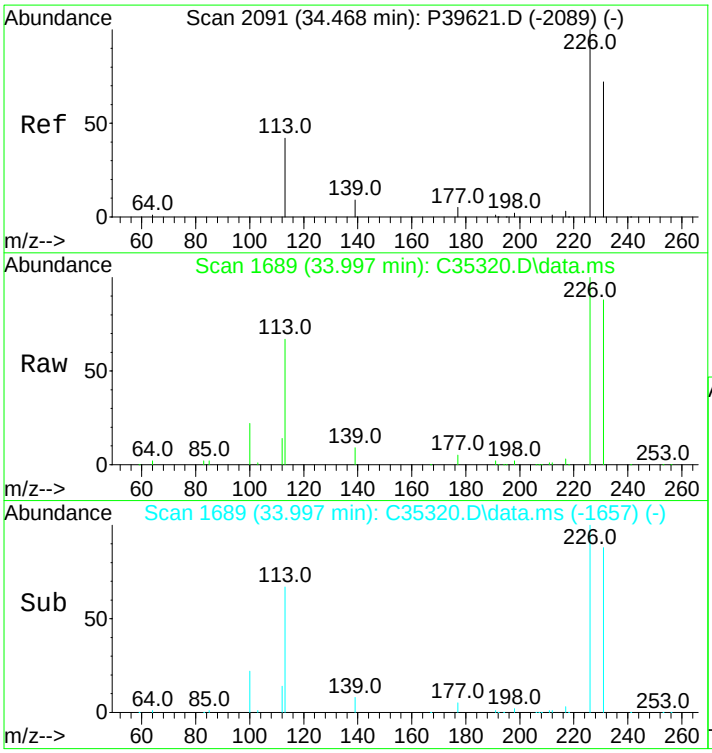


#36
1-Methyldibenzothiophene(1MDT)
Concen: 2.45 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:198 Resp: 254

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

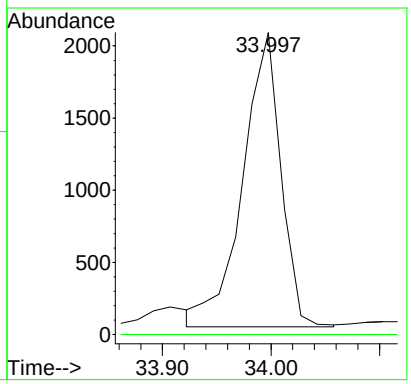


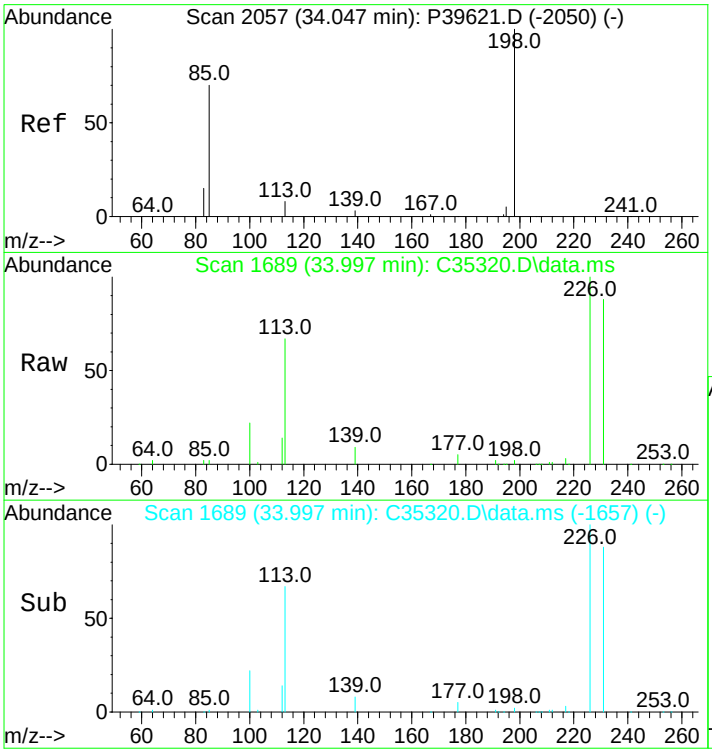


#37
OTP
Concen: 48.10 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:198 Resp: 4979

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

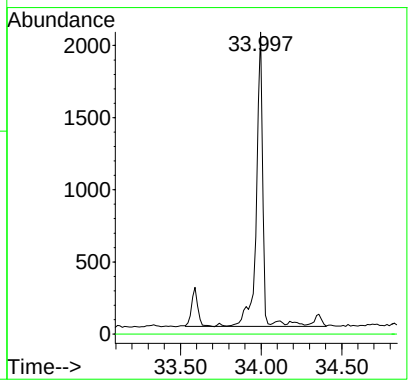


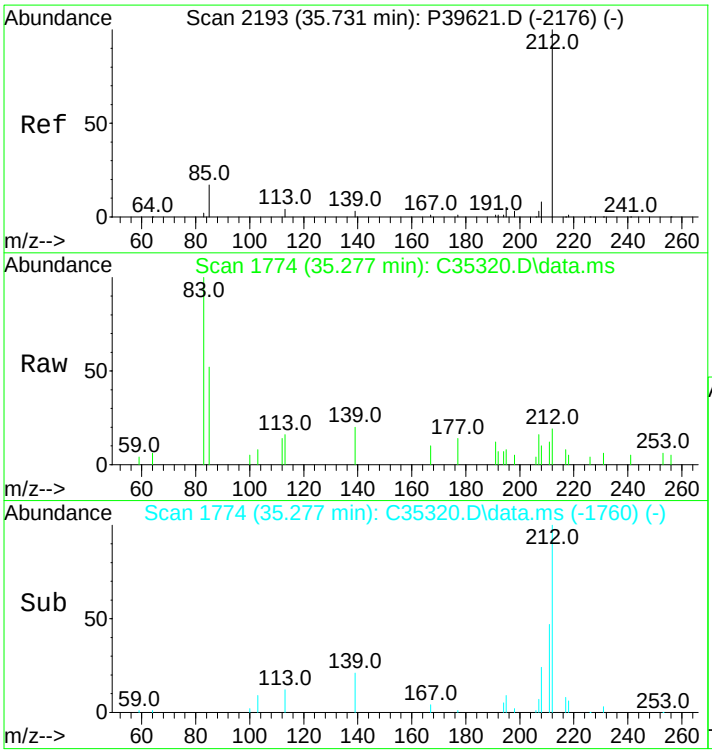


#38
C1-Dibenzothiophenes
Concen: 65.50 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:198 Resp: 6781

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

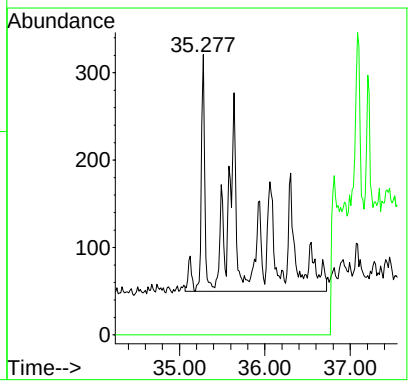


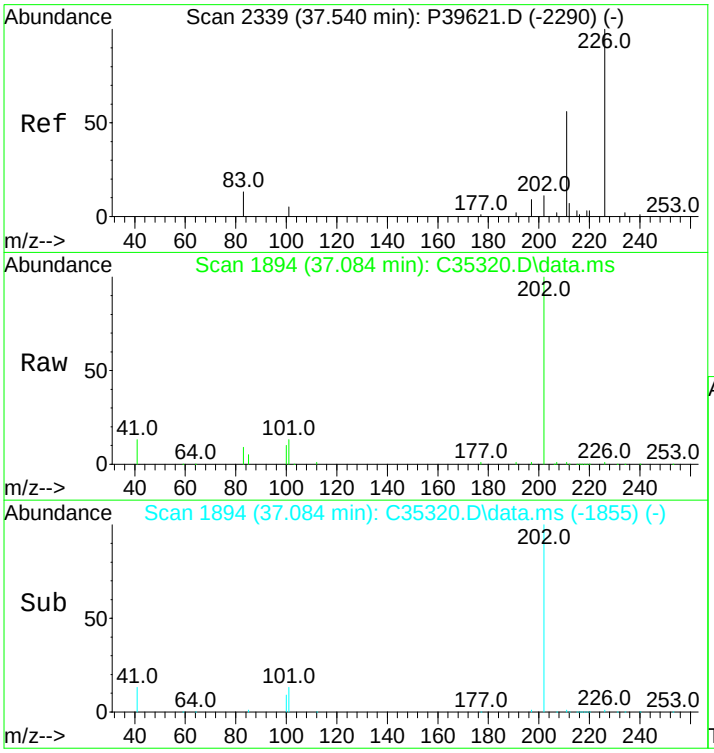


#39
C2-Dibenzothiophenes
Concen: 43.04 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.191 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:212 Resp: 4456

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

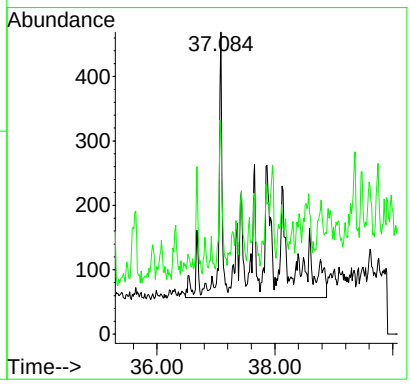


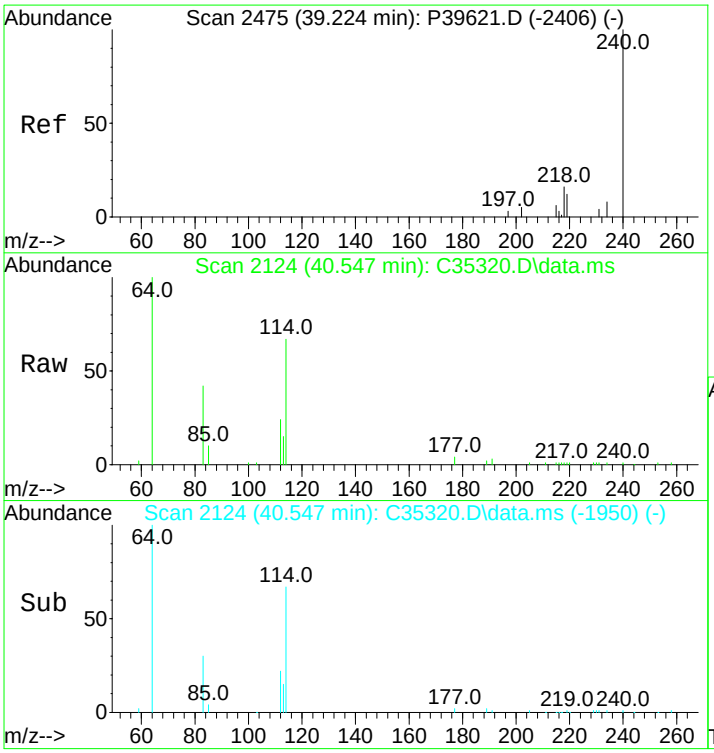


#40
C3-Dibenzothiophenes
Concen: 75.15 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:226 Resp: 7780

Ion	Ratio	Lower	Upper
226	100		
211	10.8	51.4	77.2#

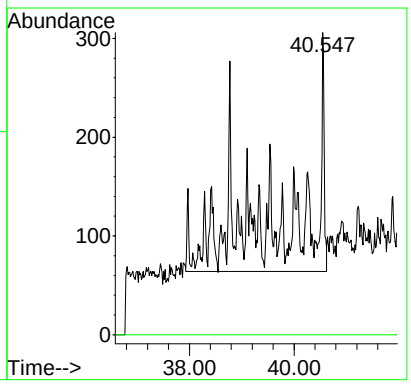


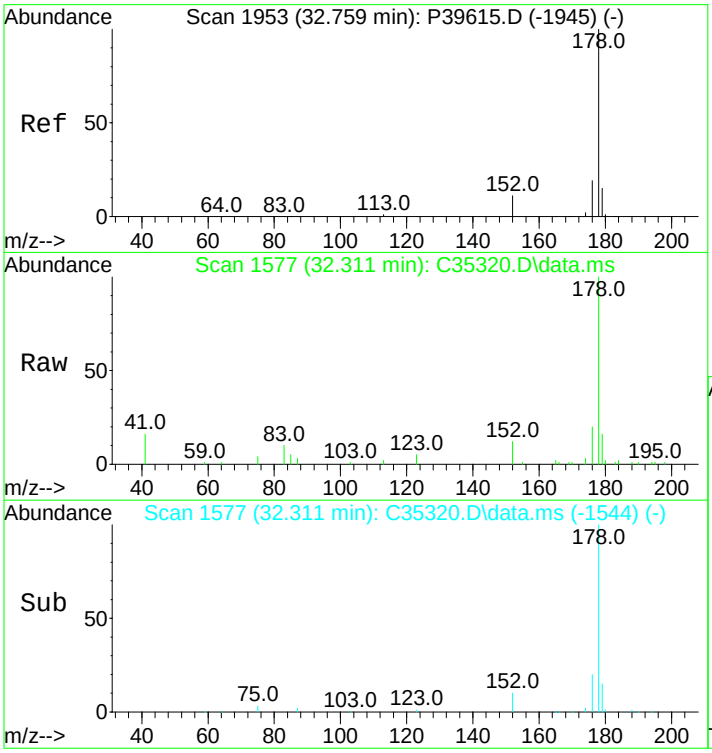


#41
C4-Dibenzothiophenes
Concen: 69.96 ng/mL m
RT: 40.547 min Scan# 2124
Delta R.T. 1.915 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:240 Resp: 7242

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

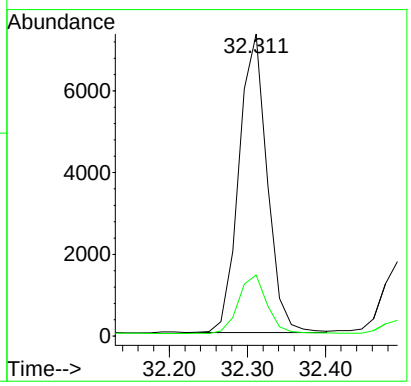


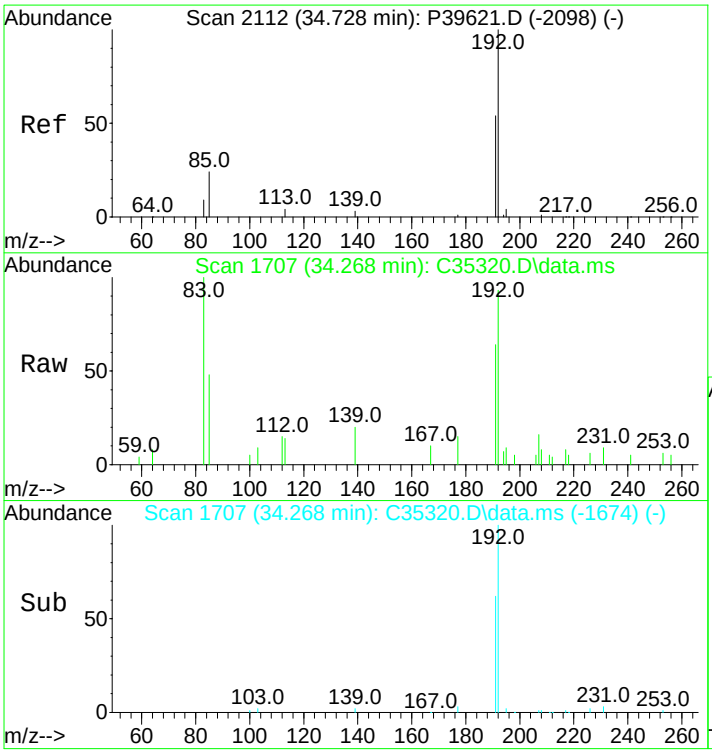


#43
Phenanthrene
Concen: 201.21 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:178 Resp: 18301

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.8	23.6

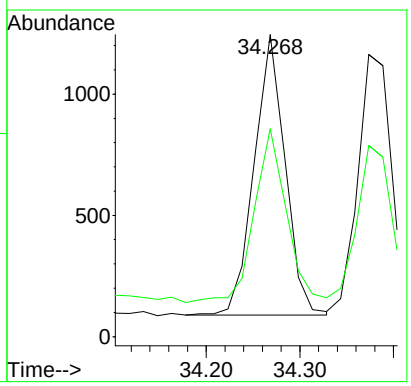


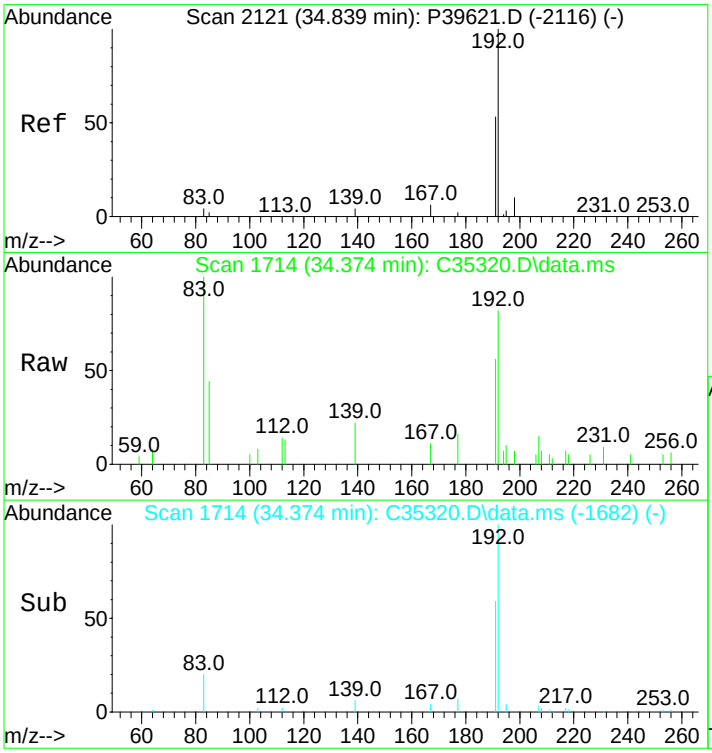


#44
3-Methylphenanthrene(3MP)
Concen: 29.32 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 2667

Ion	Ratio	Lower	Upper
192	100		
191	64.5	47.4	71.0

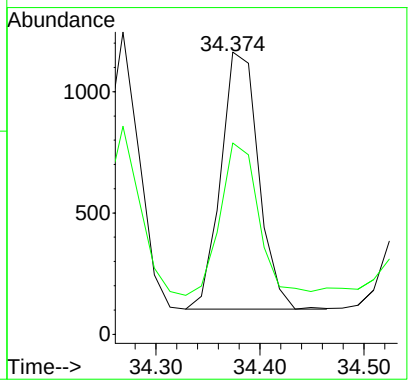


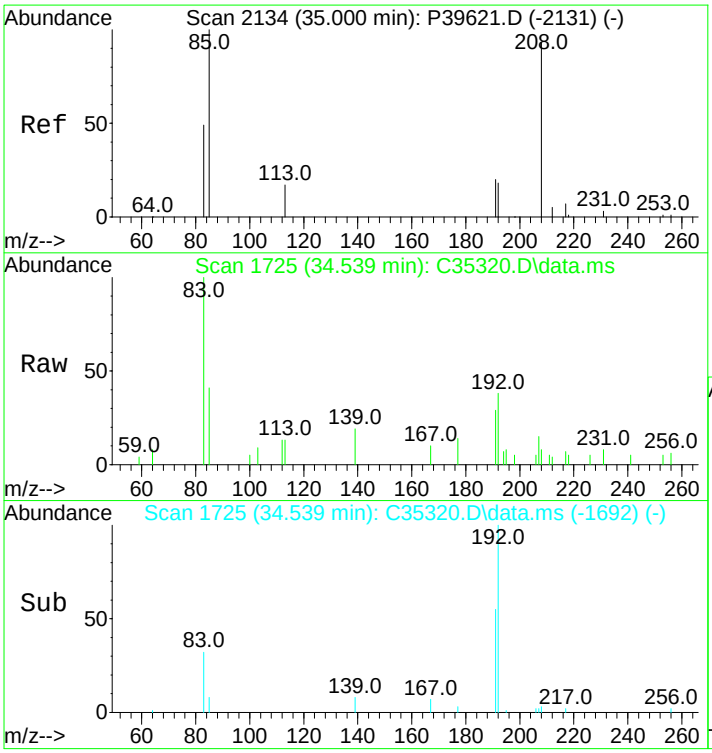


#45
2-Methylphenanthrene(2MP)
Concen: 29.38 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 2672

Ion	Ratio	Lower	Upper
192	100		
191	60.2	45.0	67.6

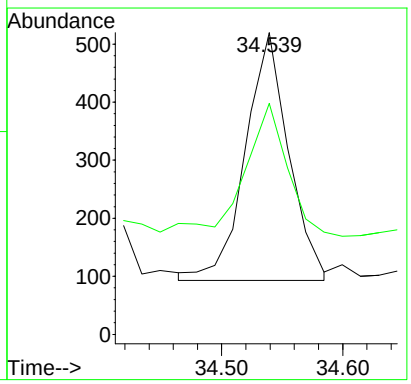


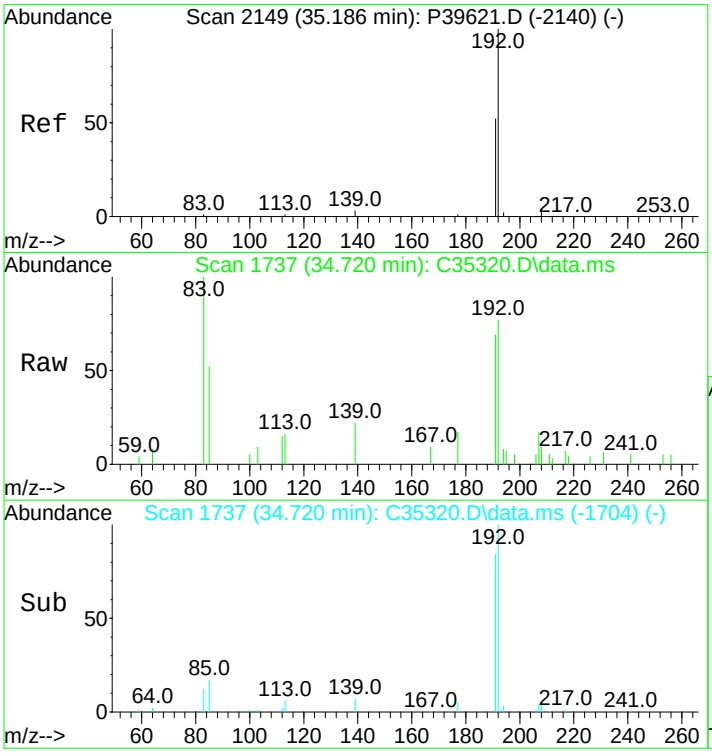


#46
2-Methylanthracene(2MA)
Concen: 11.64 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 1059

Ion	Ratio	Lower	Upper
192	100		
191	62.2	95.5	143.3#

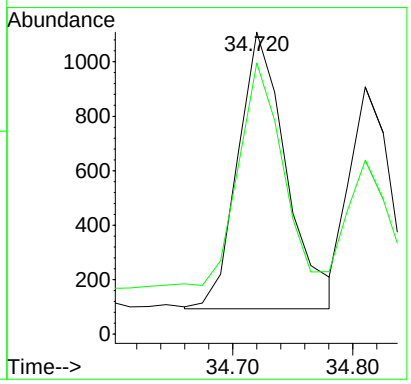


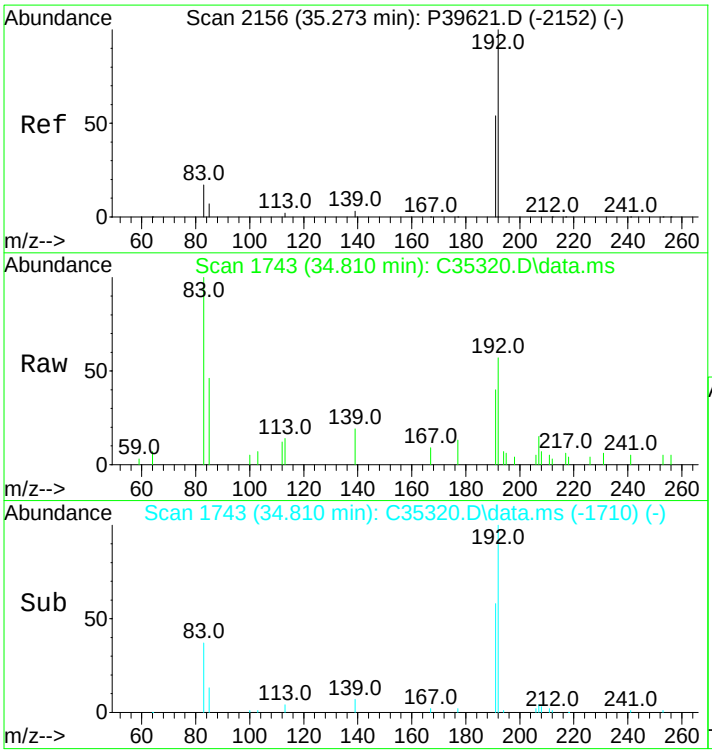


#47
9/4-Methylphenanthrene(9MP)
Concen: 31.41 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 2857

Ion	Ratio	Lower	Upper
192	100		
191	41.3	46.5	69.7#

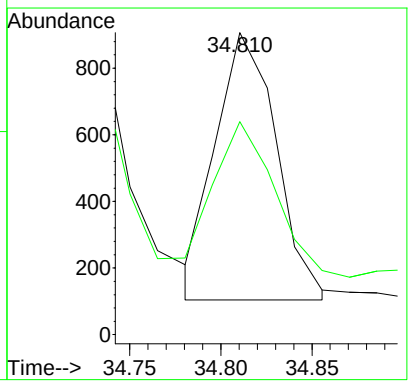


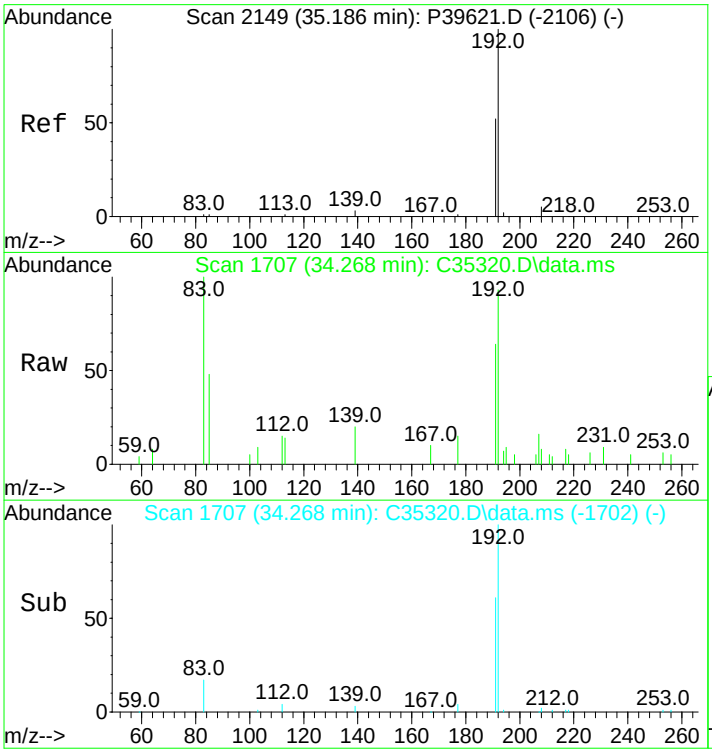


#48
1-Methylphenanthrene(1MP)
Concen: 20.47 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 1862

Ion	Ratio	Lower	Upper
192	100		
191	62.1	47.4	71.2

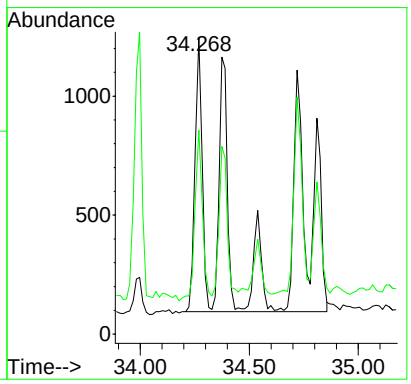


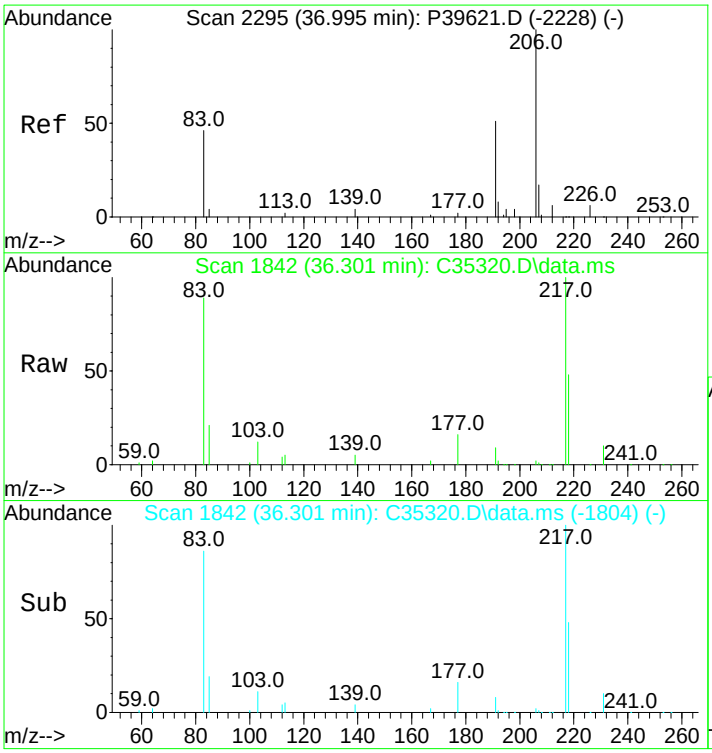


#49
C1-Phenanthrenes/Anthracenes
Concen: 123.57 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.312 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 11239

Ion	Ratio	Lower	Upper
192	100		
191	5.1	45.3	67.9#

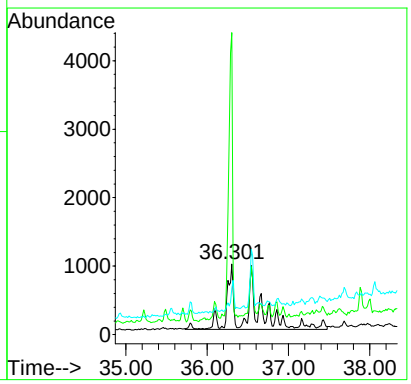


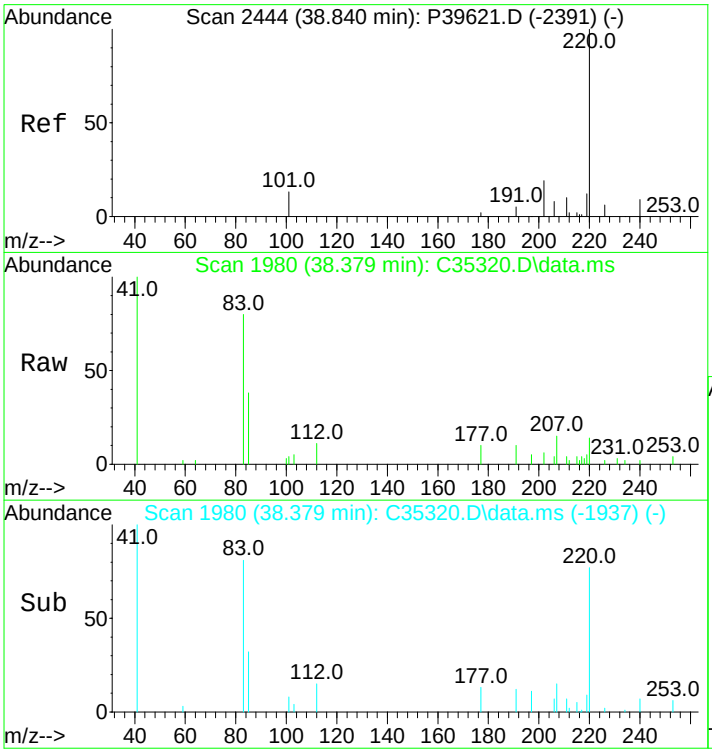


#50
C2-Phenanthrenes/Anthracenes
Concen: 164.52 ng/mL m
RT: 36.301 min Scan# 1842
Delta R.T. -0.055 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:206 Resp: 14964

Ion	Ratio	Lower	Upper
206	100		
191	88.1	42.0	63.0#
207	10.2	15.4	23.2#

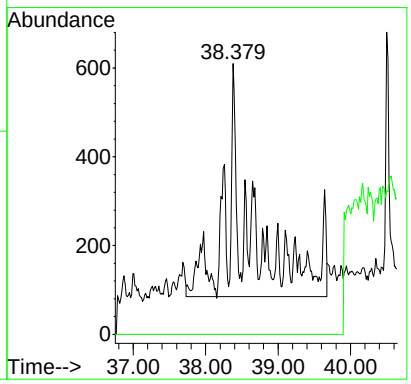


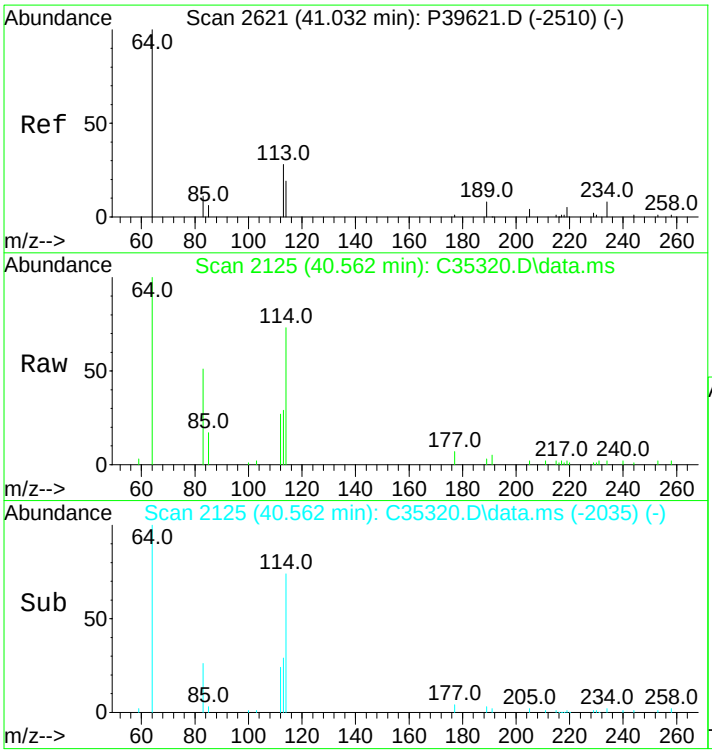


#52
C3-Phenanthrenes/Anthracenes
Concen: 127.20 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:220 Resp: 11569

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

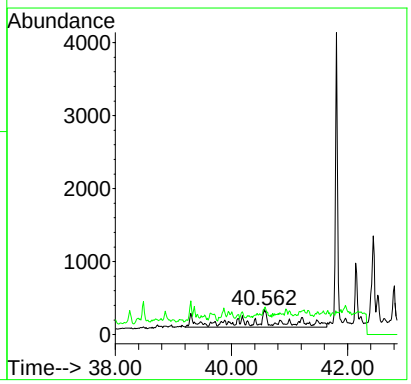


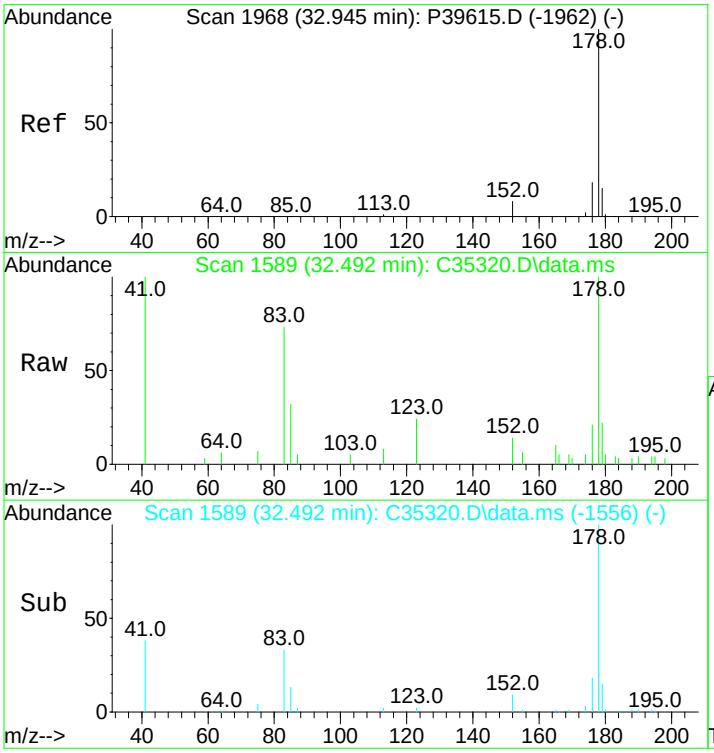


#53
C4-Phenanthrenes/Anthracenes
Concen: 101.29 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 0.268 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:234 Resp: 9213

Ion	Ratio	Lower	Upper
234	100		
219	2.1	48.6	73.0#

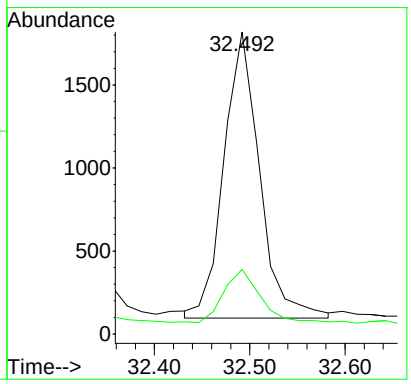


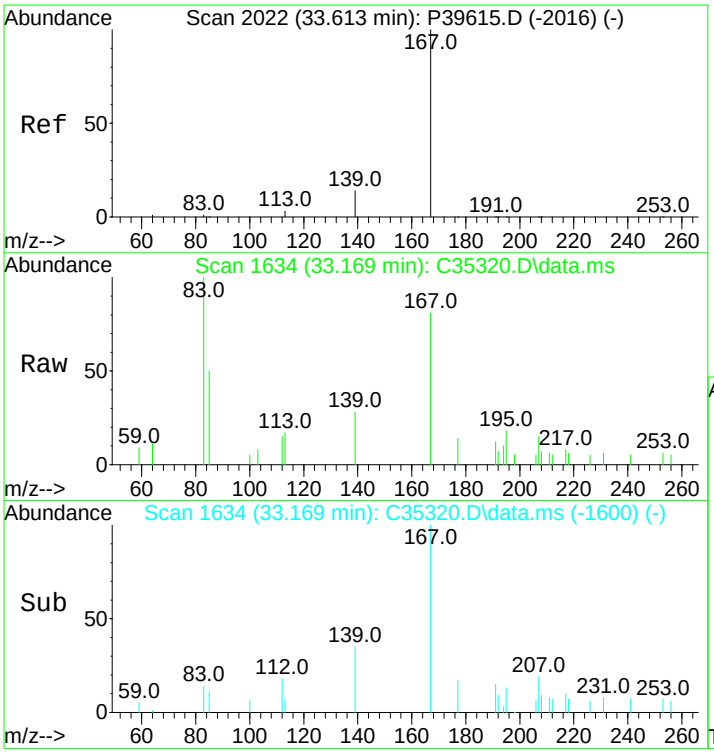


#55
Anthracene
Concen: 50.37 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:178 Resp: 4475

Ion	Ratio	Lower	Upper
178	100		
176	19.8	15.6	23.4

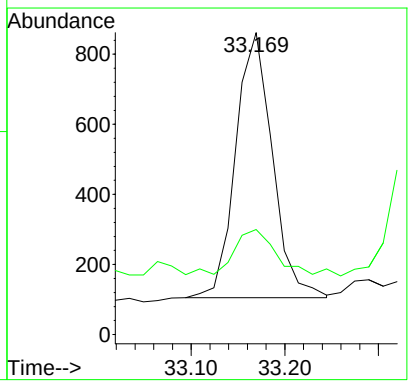


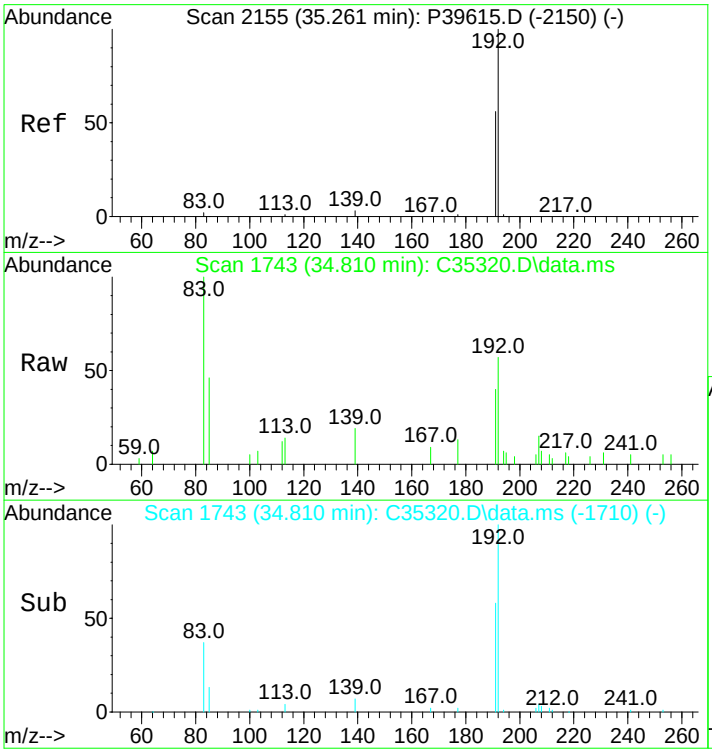


#56
Carbazole
Concen: 23.02 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:167 Resp: 2066

Ion	Ratio	Lower	Upper
167	100		
139	20.1	11.9	17.9#

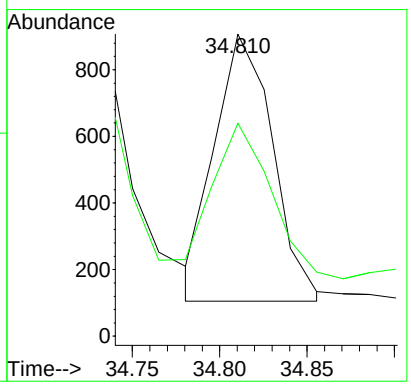


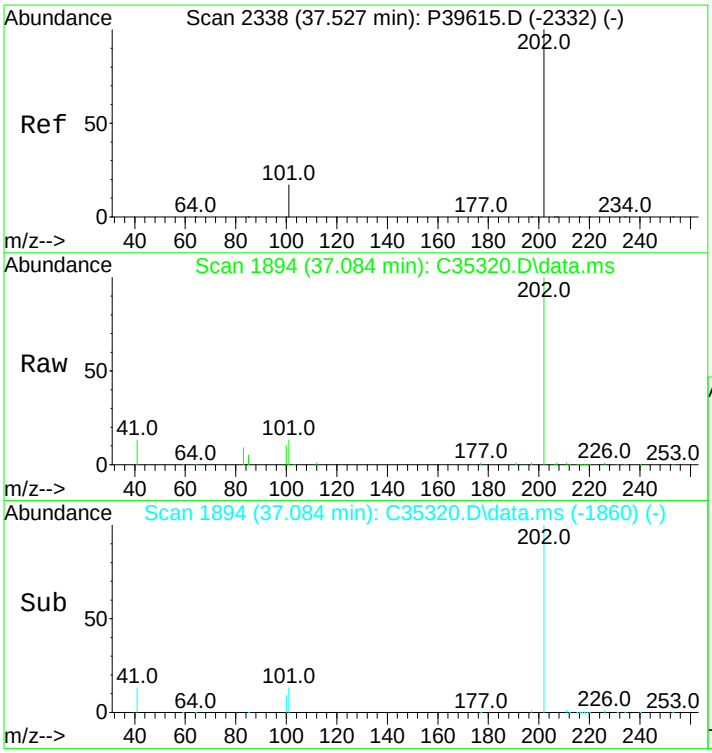


#57
1-Methylphenanthrene
Concen: 32.22 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:192 Resp: 1857

Ion	Ratio	Lower	Upper
192	100		
191	62.3	46.8	70.2

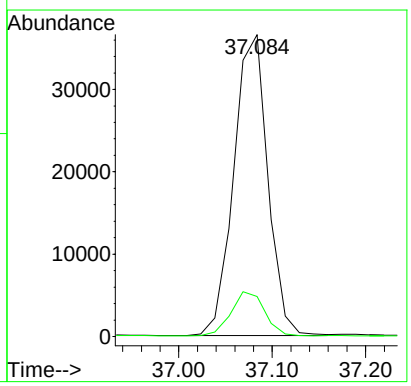


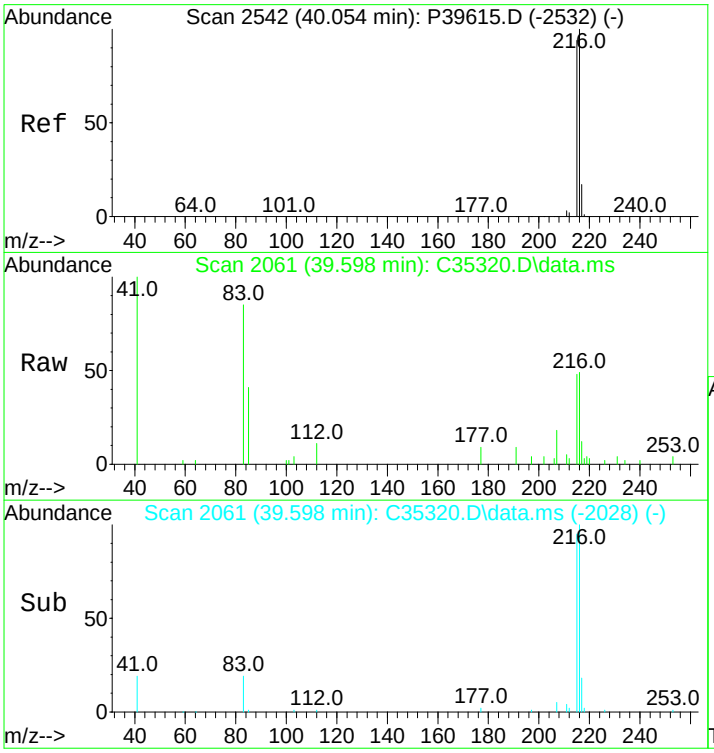


#58
Fluoranthene
Concen: 1024.26 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:202 Resp: 92523

Ion	Ratio	Lower	Upper
202	100		
101	14.6	13.2	19.8

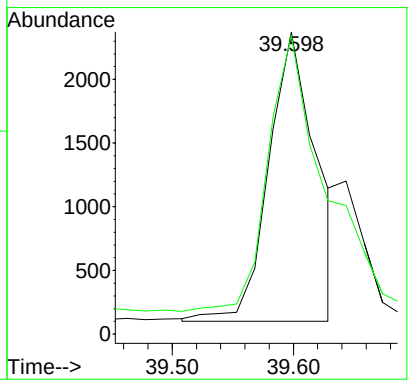


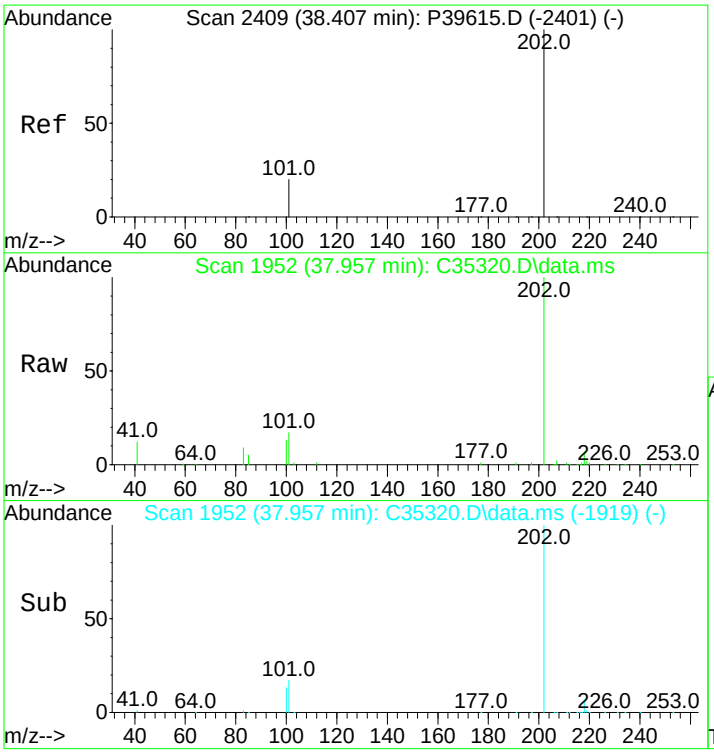


#59
Benzo(b)fluorene
Concen: 118.72 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:216 Resp: 6222

Ion	Ratio	Lower	Upper
216	100		
215	115.0	76.0	114.0#

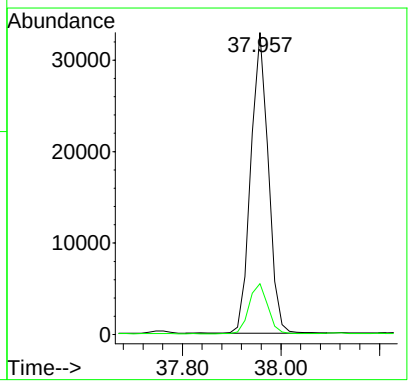


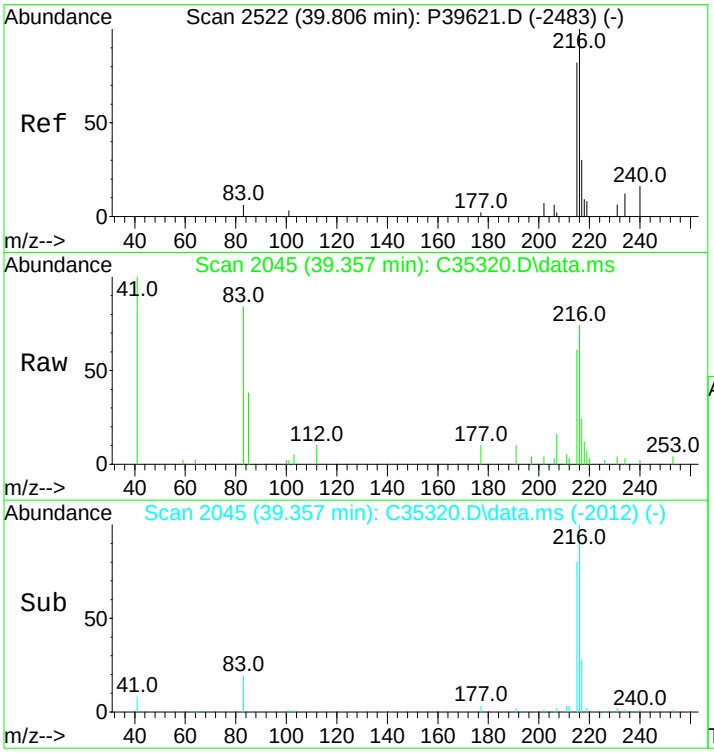


#60
Pyrene
Concen: 882.93 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:202 Resp: 81075

Ion	Ratio	Lower	Upper
202	100		
101	17.8	13.5	20.3

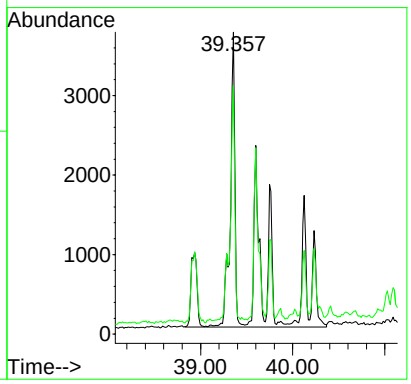


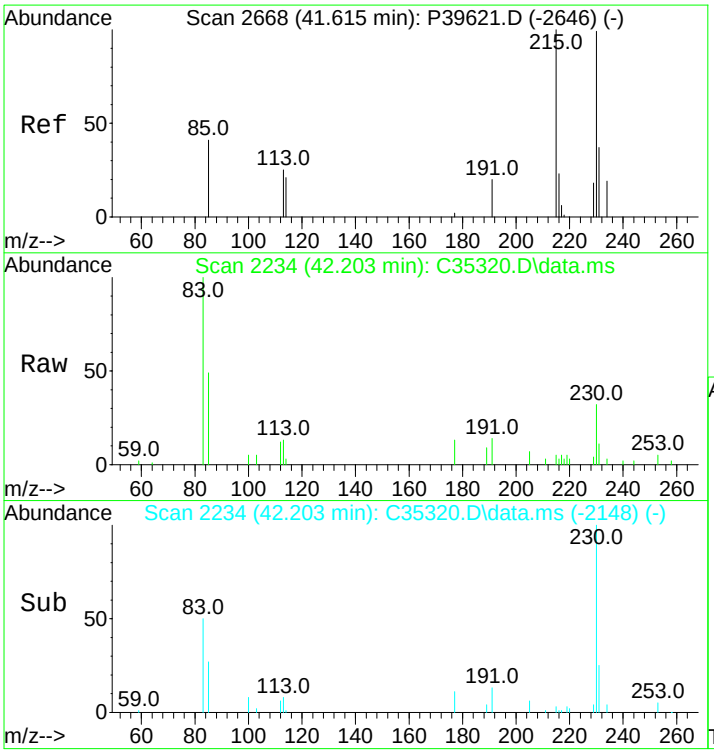


#61
C1-Fluoranthenes/Pyrenes
Concen: 426.16 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:216 Resp: 39132

Ion	Ratio	Lower	Upper
216	100		
215	9.1	77.7	116.5#

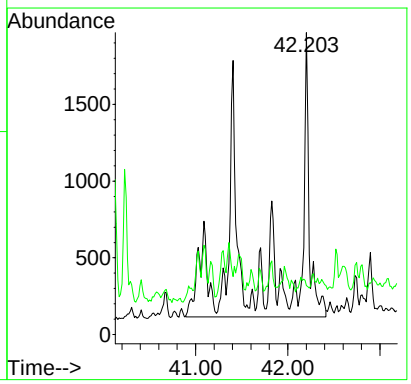


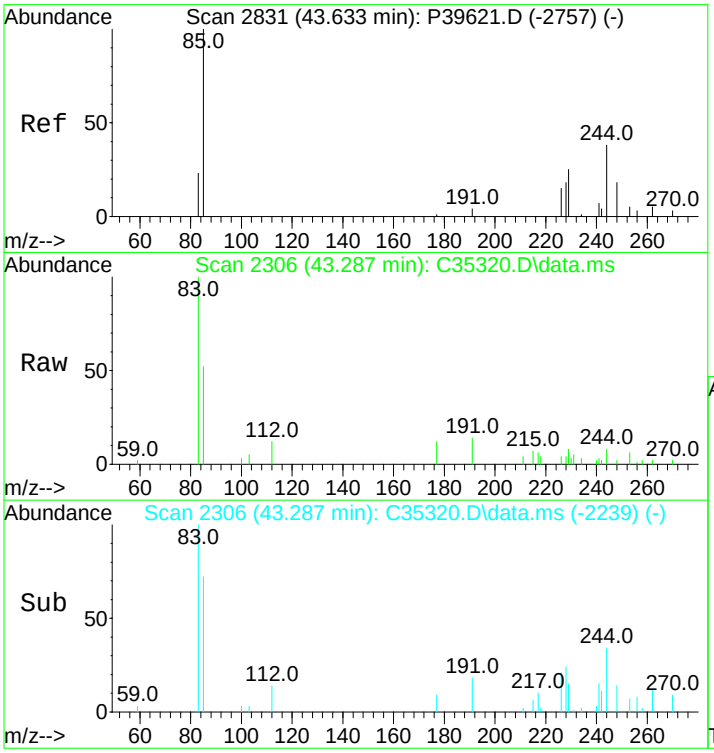


#62
C2-Fluoranthenes/Pyrenes
Concen: 286.68 ng/mL m
RT: 42.203 min Scan# 2234
Delta R.T. 1.039 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:230 Resp: 26324

Ion	Ratio	Lower	Upper
230	100		
215	4.2	92.7	139.1#

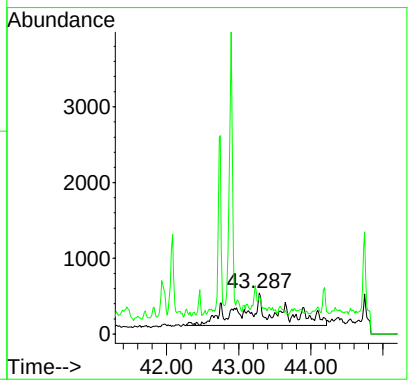


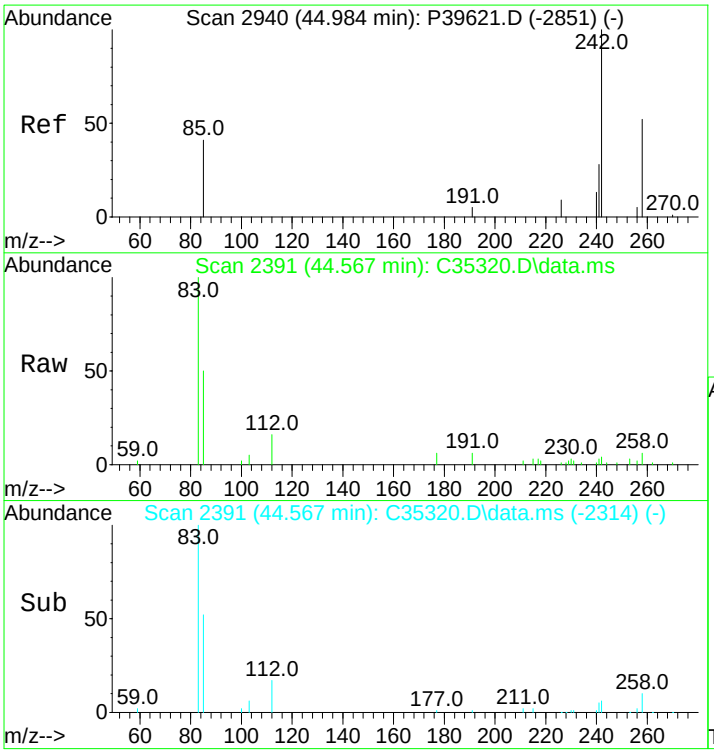


#63
C3-Fluoranthenes/Pyrenes
Concen: 164.13 ng/mL m
RT: 43.287 min Scan# 2306
Delta R.T. 0.418 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:244 Resp: 15071

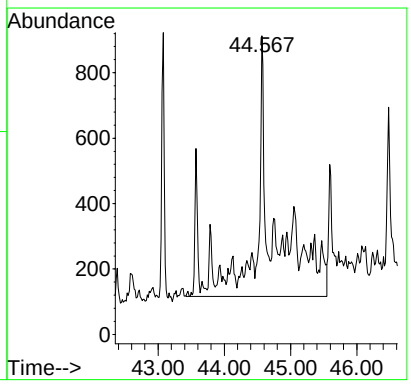
Ion	Ratio	Lower	Upper
244	100		
229	70.8	78.7	118.1#

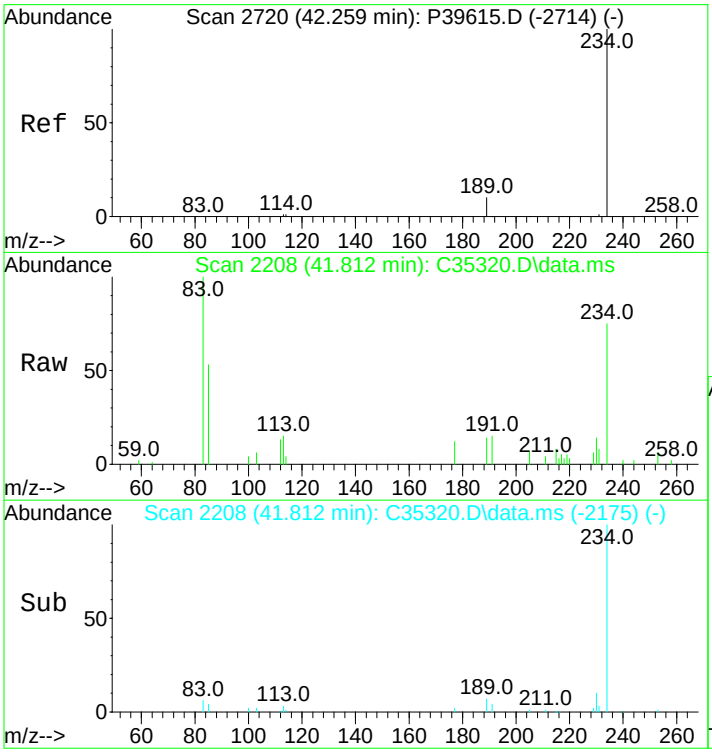




#64
C4-Fluoranthenes/Pyrenes
Concen: 172.12 ng/mL m
RT: 44.567 min Scan# 2391
Delta R.T. 0.365 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:258 Resp: 15805

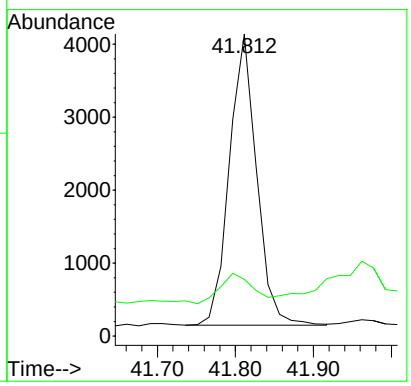


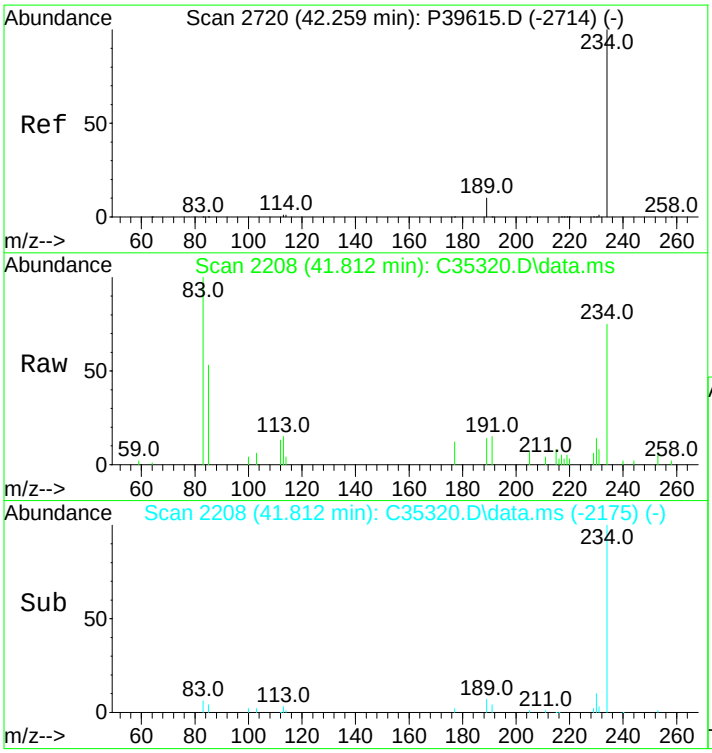


#66
Naphthobenzothiophene
Concen: 98.17 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:234 Resp: 9705

Ion	Ratio	Lower	Upper
234	100		
189	13.6	20.9	31.3#

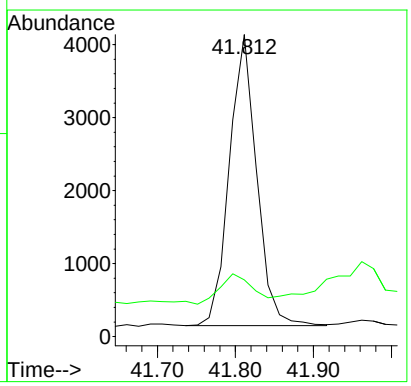


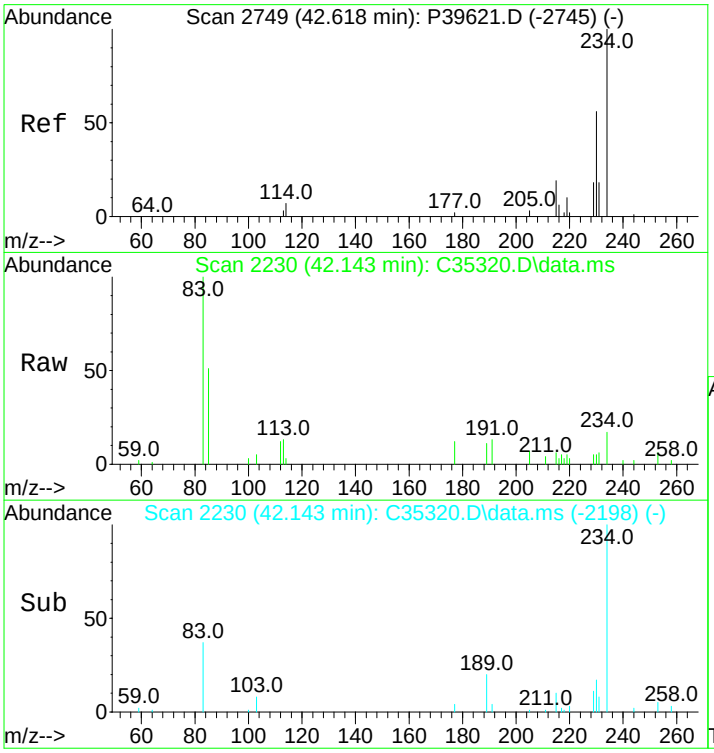


#67
Naphthobenzothiophene-2,1-D
Concen: 98.17 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:234 Resp: 9705

Ion	Ratio	Lower	Upper
234	100		
189	13.6	20.9	31.3#

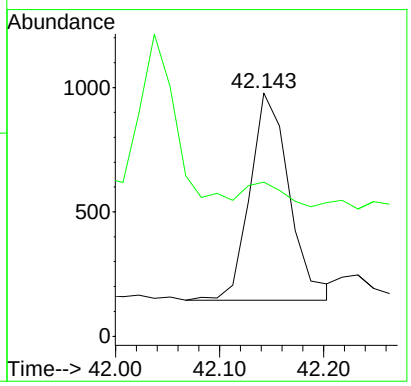


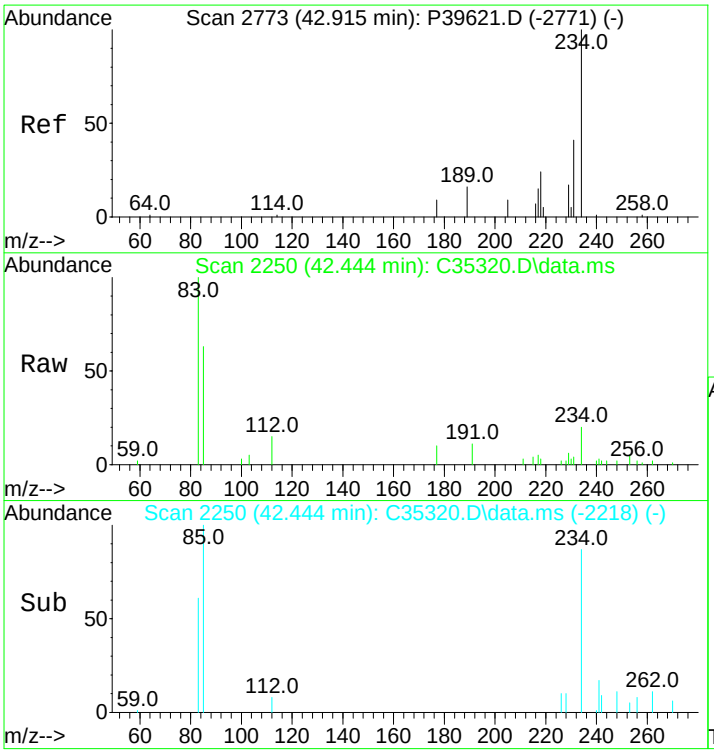


#68
Naphthobenzothiophene-1,2-D
Concen: 22.23 ng/mL
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:234 Resp: 2198

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

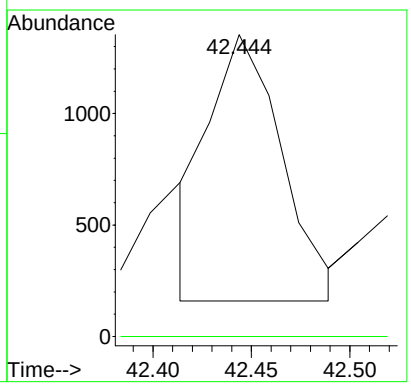


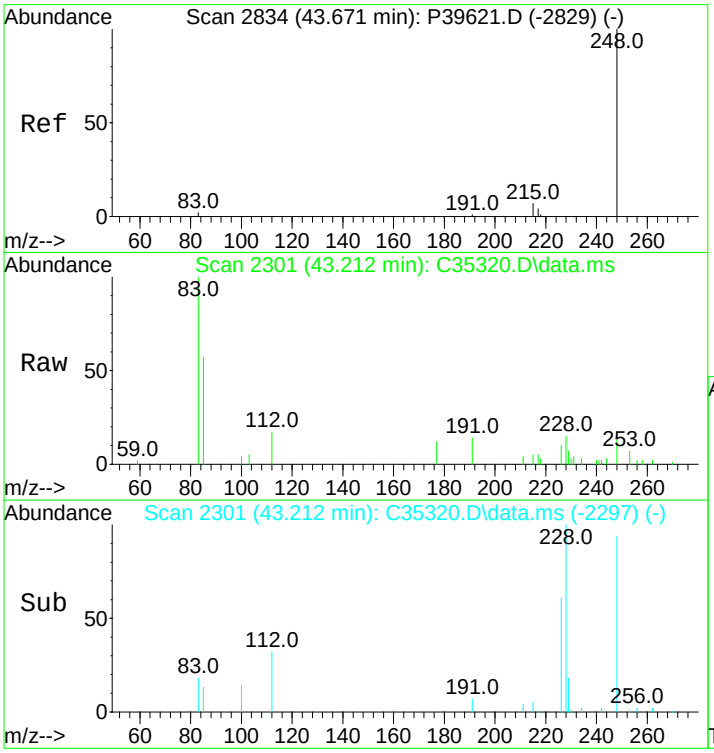


#69
Naphthobenzothiophene-2,3-D
Concen: 31.25 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:234 Resp: 3089

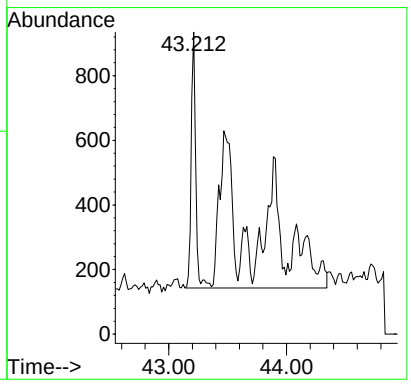
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

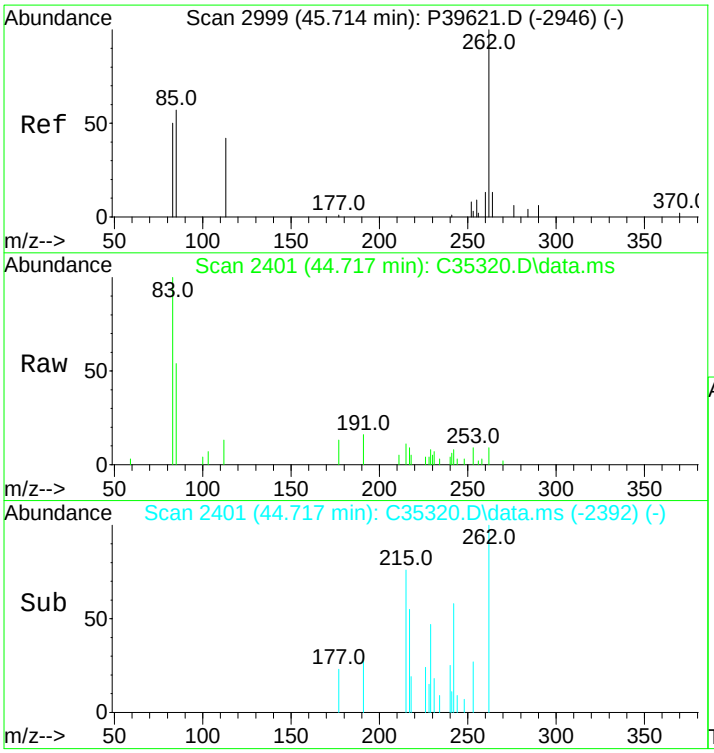




#70
C1-Naphthobenzothiophenes
Concen: 116.97 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

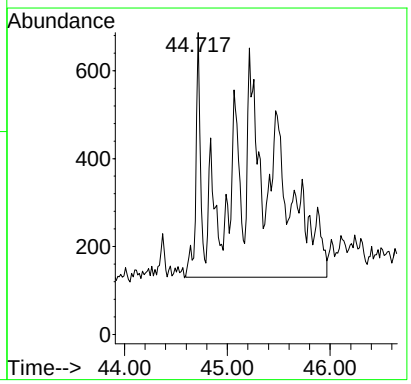
Tgt Ion:248 Resp: 11563

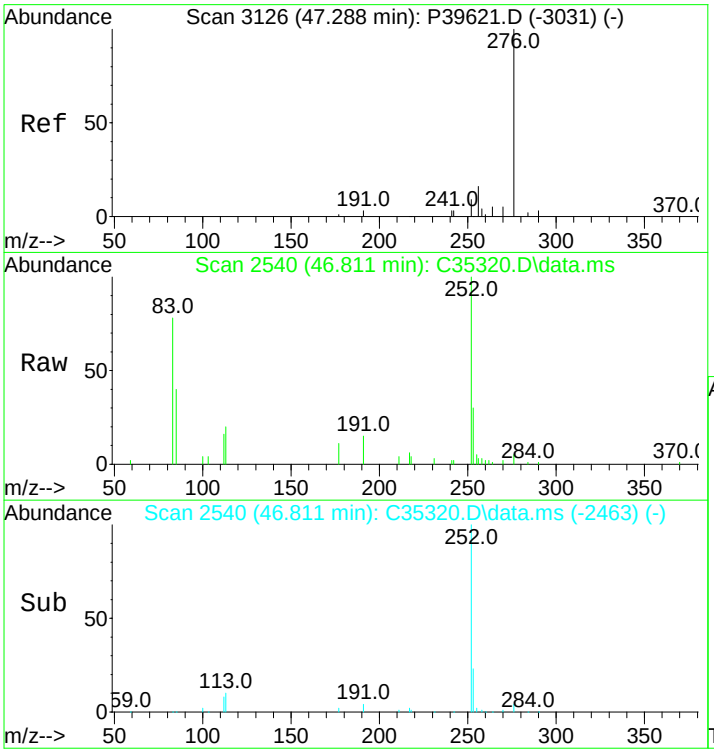




#71
C2-Naphthobenzothiophenes
Concen: 156.13 ng/ml m
RT: 44.717 min Scan# 2401
Delta R.T. -0.150 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

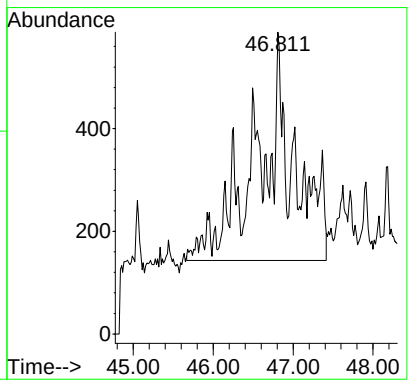
Tgt Ion:262 Resp: 15435

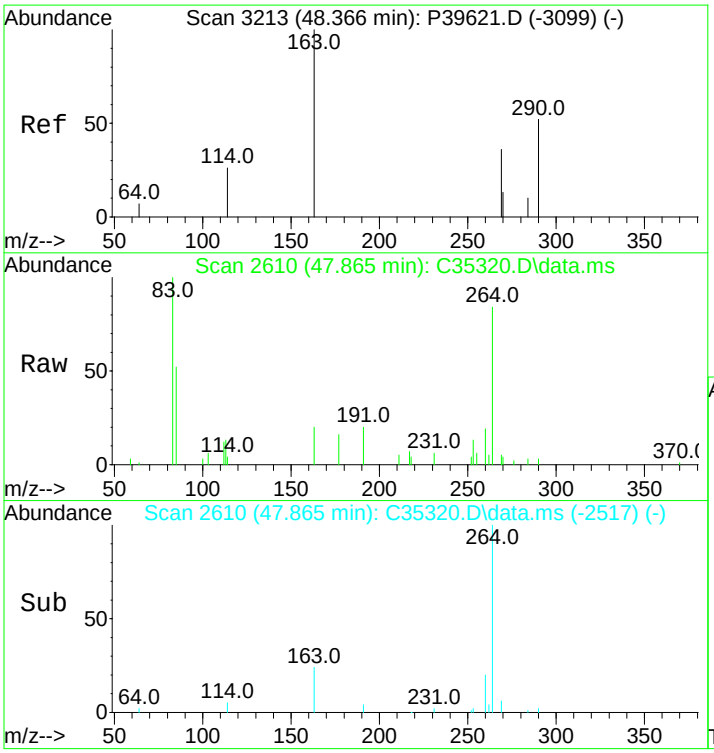




#72
C3-Naphthobenzothiophenes
Concen: 141.62 ng/ml m
RT: 46.811 min Scan# 2540
Delta R.T. 0.358 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

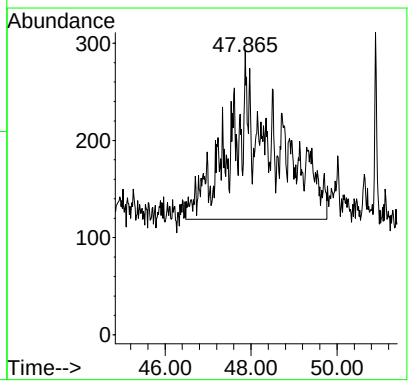
Tgt Ion:276 Resp: 14000

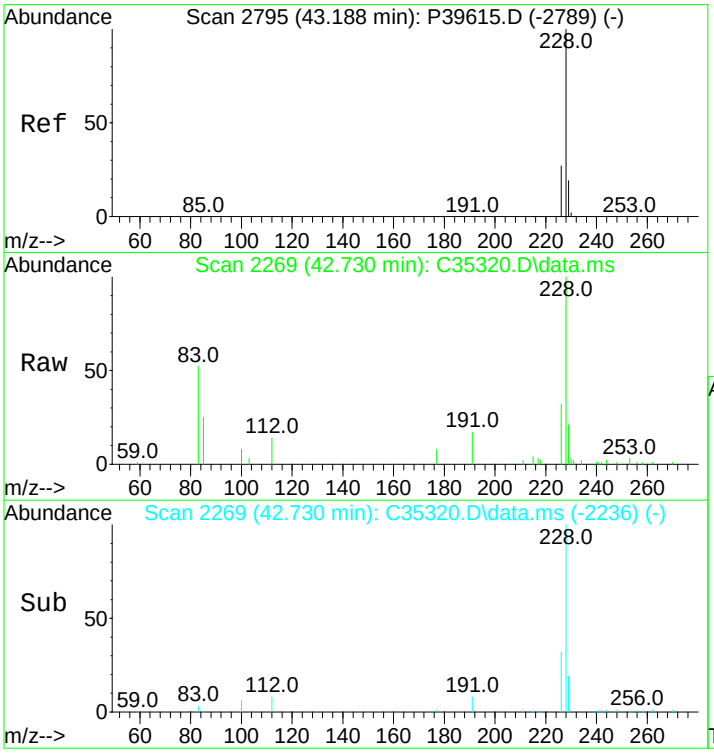




#73
C4-Naphthobenzothiophenes
Concen: 121.21 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:290 Resp: 11983

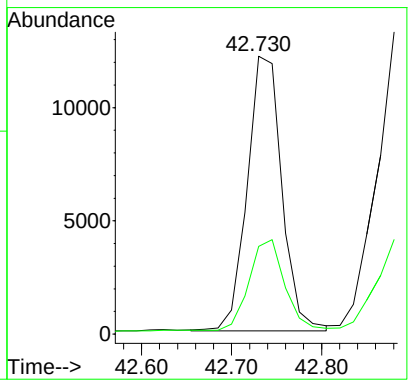


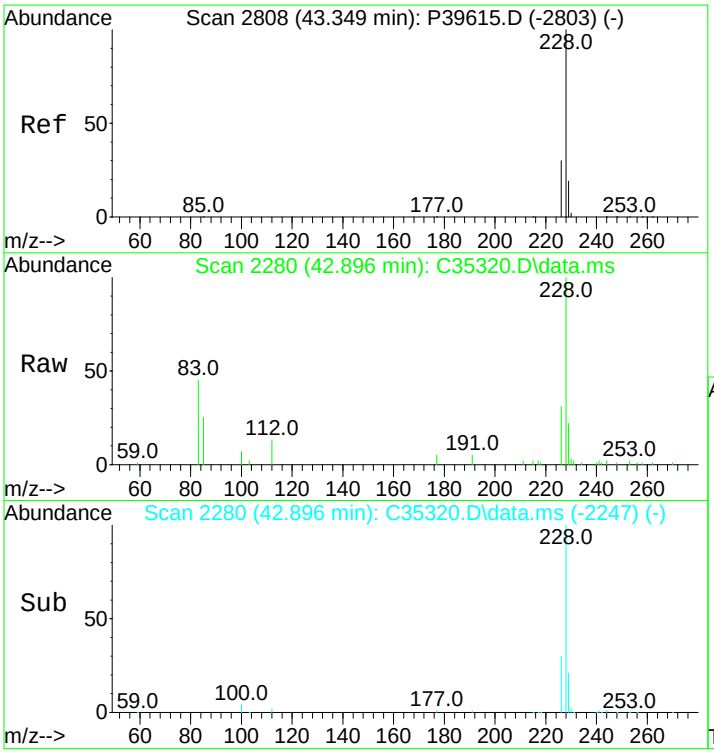


#75
Benz[a]anthracene
Concen: 289.99 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:228 Resp: 32456

Ion	Ratio	Lower	Upper
228	100		
226	50.1	21.5	32.3#

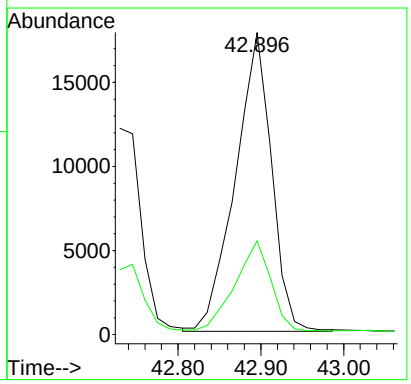


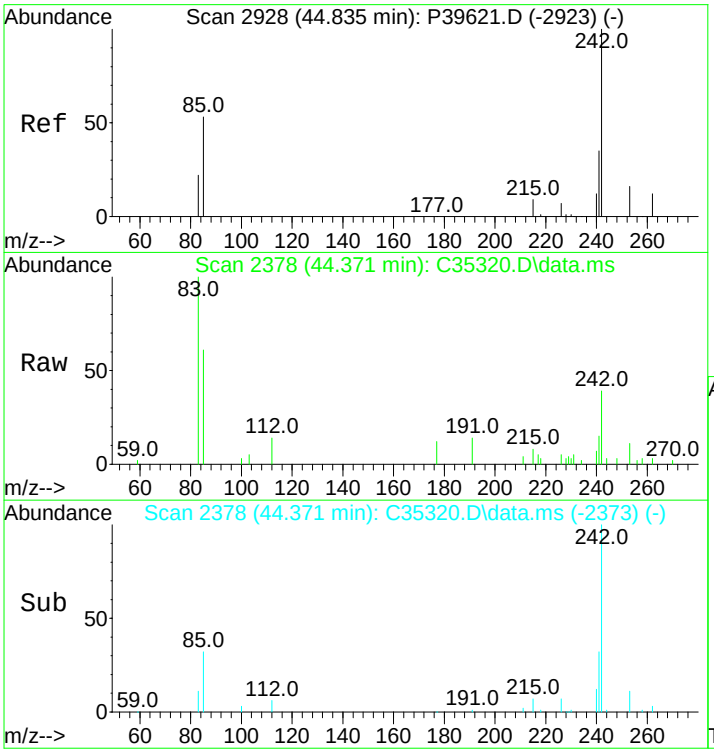


#77
Chrysene/Triphenylene
Concen: 478.26 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:228 Resp: 54040

Ion	Ratio	Lower	Upper
228	100		
226	30.8	23.5	35.3

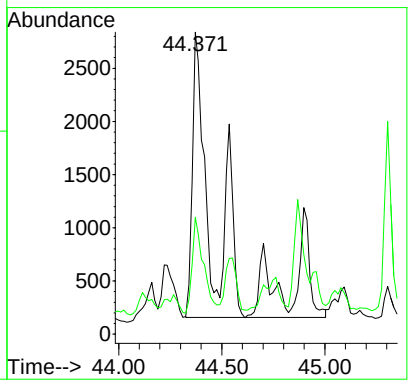


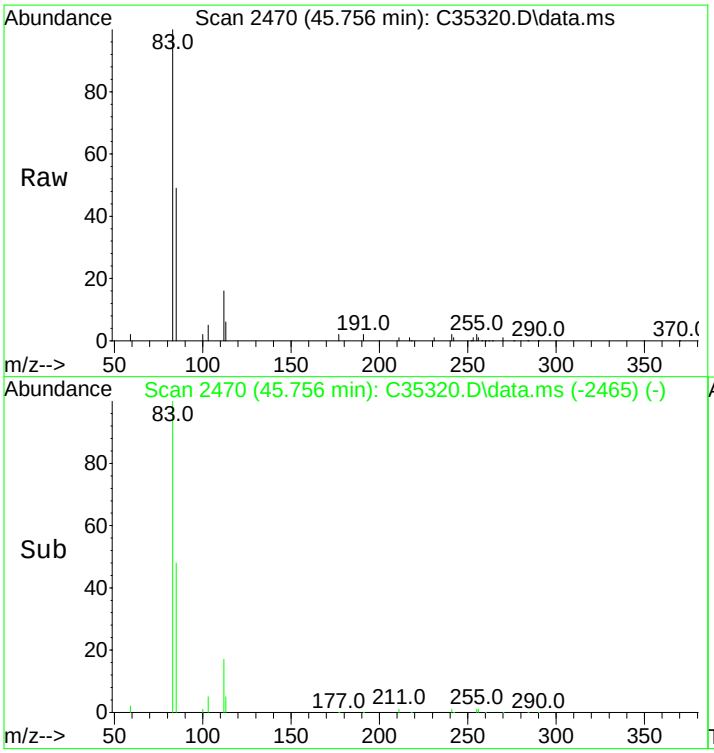


#78
C1-Chrysenes
Concen: 193.75 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:242 Resp: 21893

Ion	Ratio	Lower	Upper
242	100		
241	8.4	32.7	49.1#

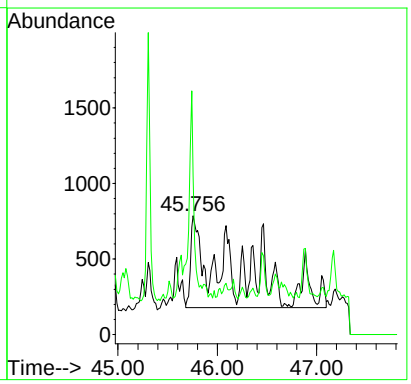


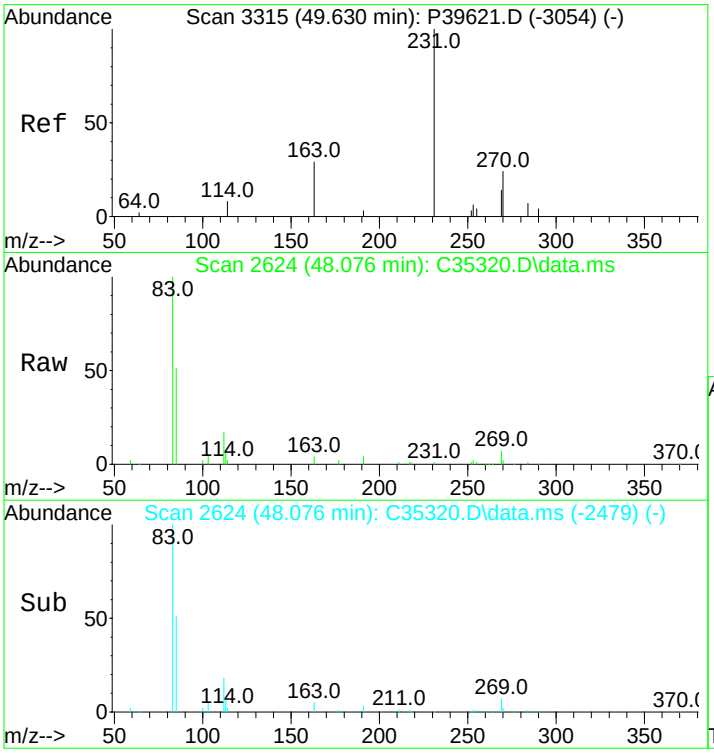


#79
C2-Chrysenes
Concen: 154.12 ng/mL m
RT: 45.756 min Scan# 2470
Delta R.T. -0.641 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:256 Resp: 17415

Ion	Ratio	Lower	Upper
256	100		
241	3.2	30.9	46.3#

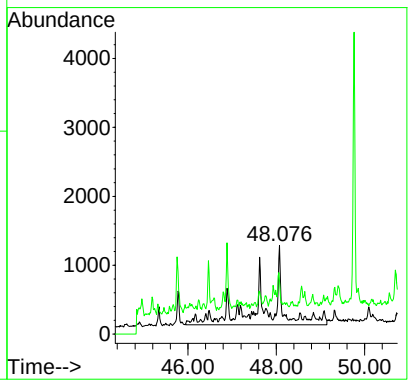


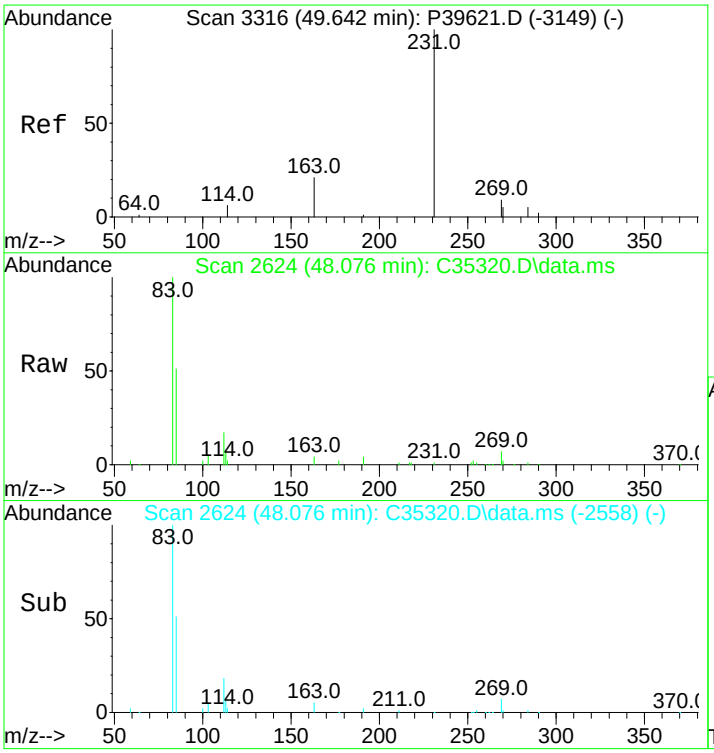


#80
C3-Chrysenes
Concen: 243.77 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.005 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:270 Resp: 27544

Ion	Ratio	Lower	Upper
270	100		
255	1.1	41.4	62.2#

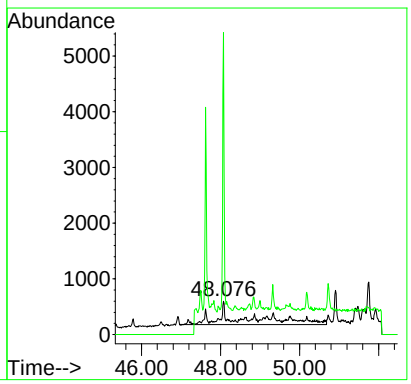


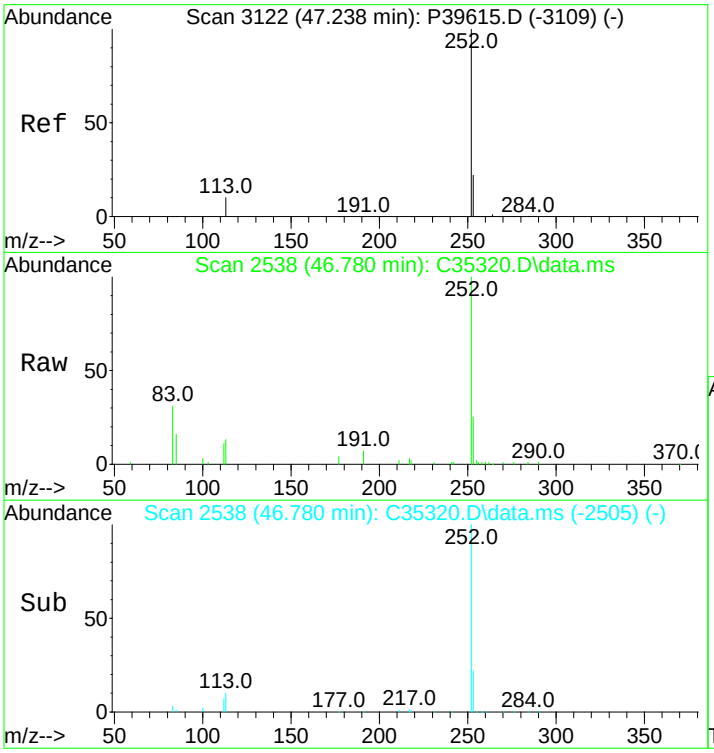


#81
C4-Chrysenes
Concen: 152.48 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.109 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:284 Resp: 17229

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

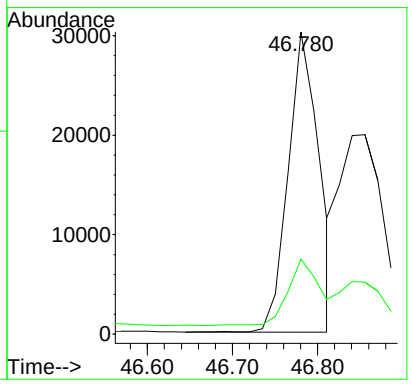


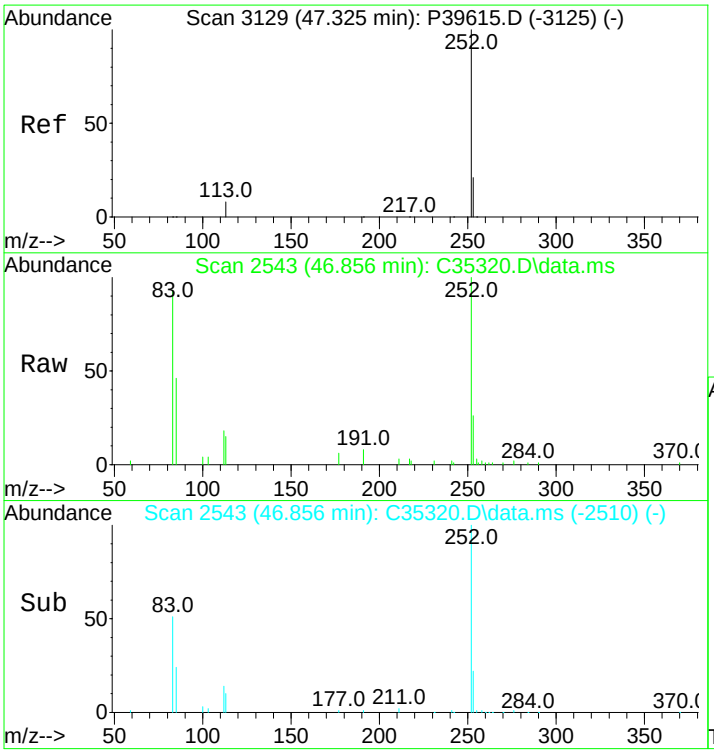


#82
Benzo[b]fluoranthene
Concen: 618.74 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 76092

Ion	Ratio	Lower	Upper
252	100		
253	22.2	20.4	30.6

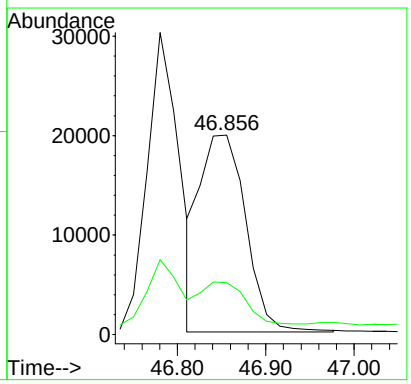


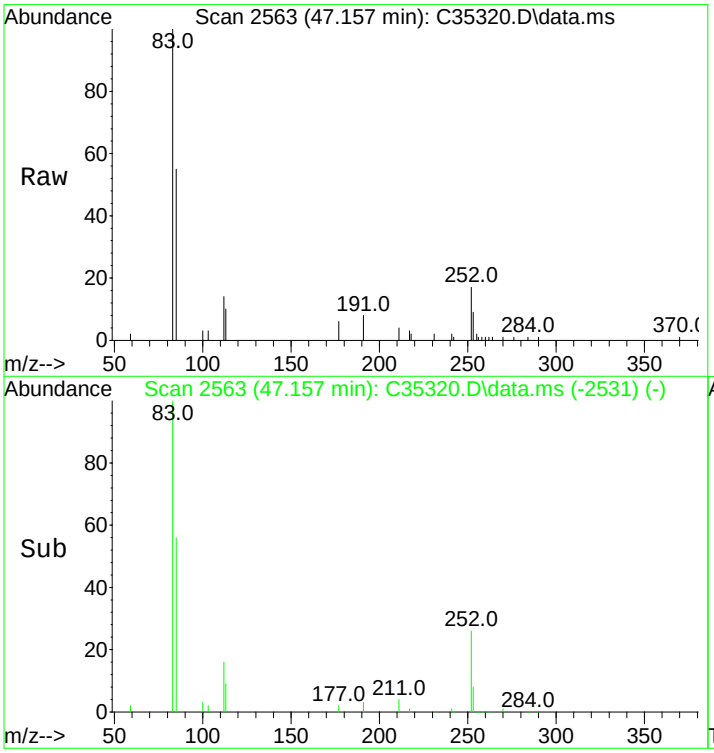


#83
Benzo[j]+[k]fluoranthene
Concen: 533.24 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 71397

Ion	Ratio	Lower	Upper
252	100		
253	17.9	20.6	31.0#

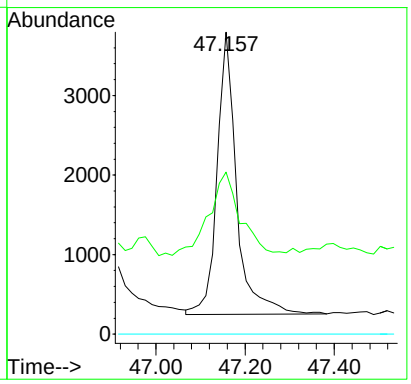


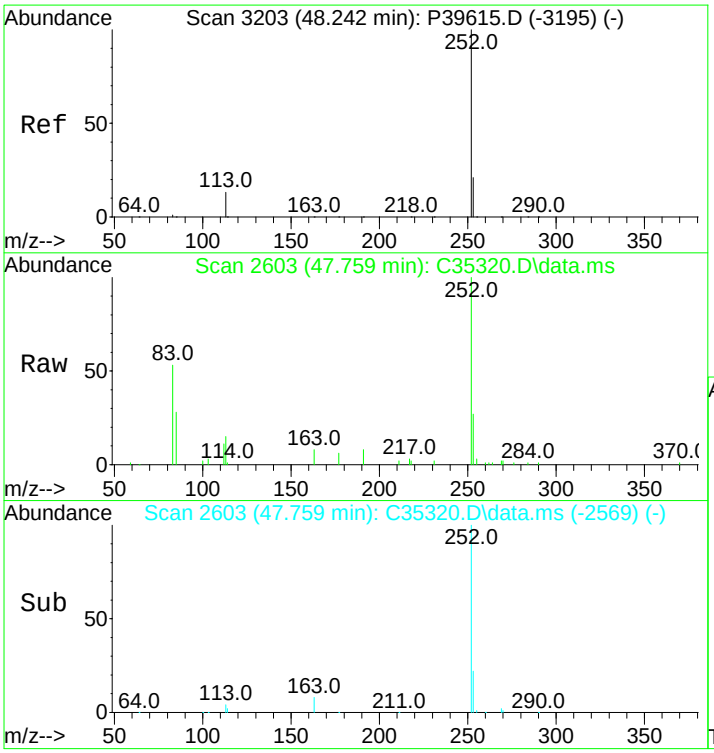


#84
Benzo[a]fluoranthene
Concen: 80.53 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 10782

Ion	Ratio	Lower	Upper
252	100		
253	49.9	146.1	219.1#
125	0.0	0.0	0.0

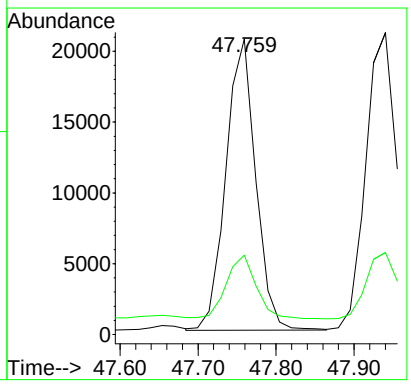


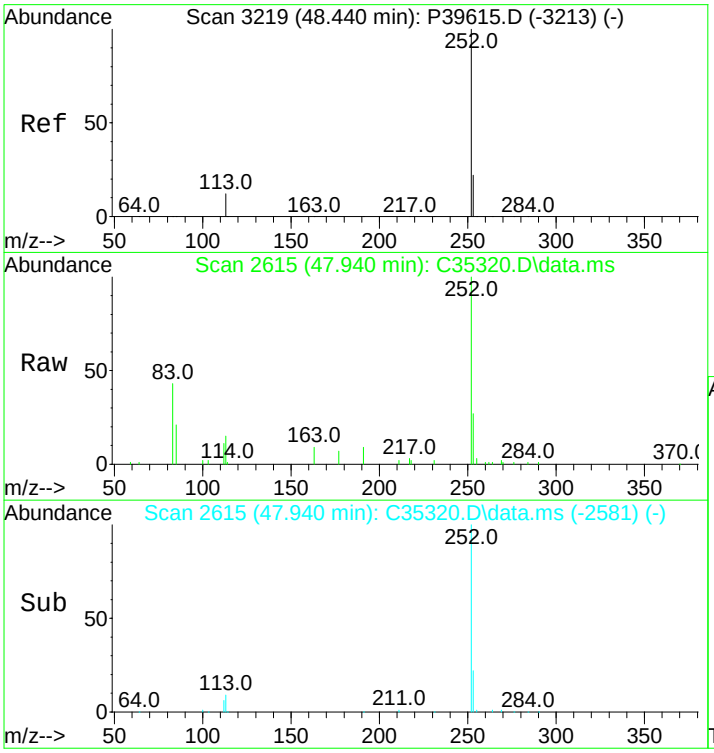


#85
Benzo[e]pyrene
Concen: 450.04 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 54743

Ion	Ratio	Lower	Upper
252	100		
253	22.9	21.0	31.6

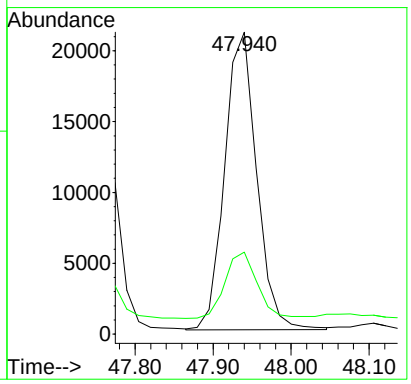


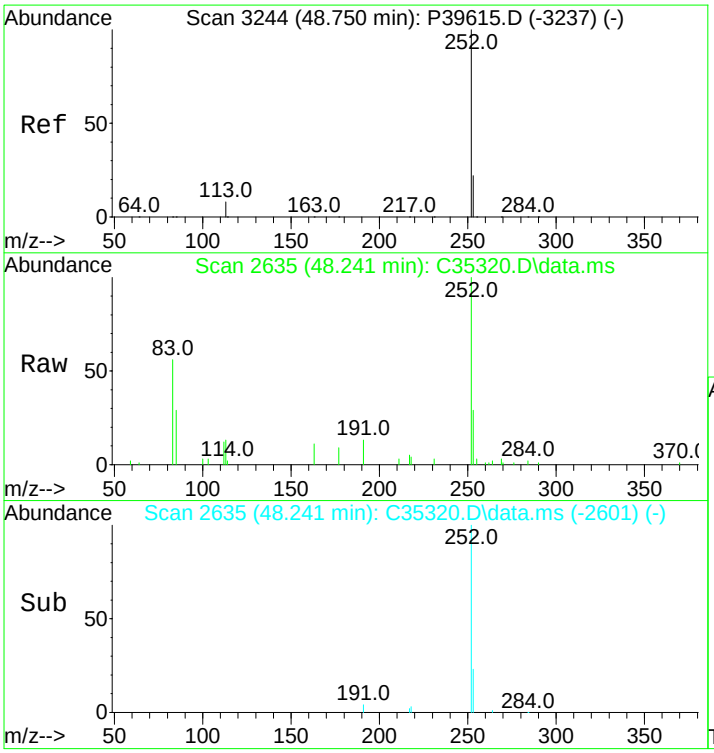


#87
Benzo[a]pyrene
Concen: 512.61 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 60034

Ion	Ratio	Lower	Upper
252	100		
253	22.6	21.4	32.0

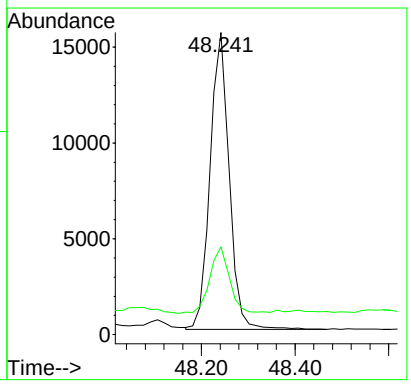


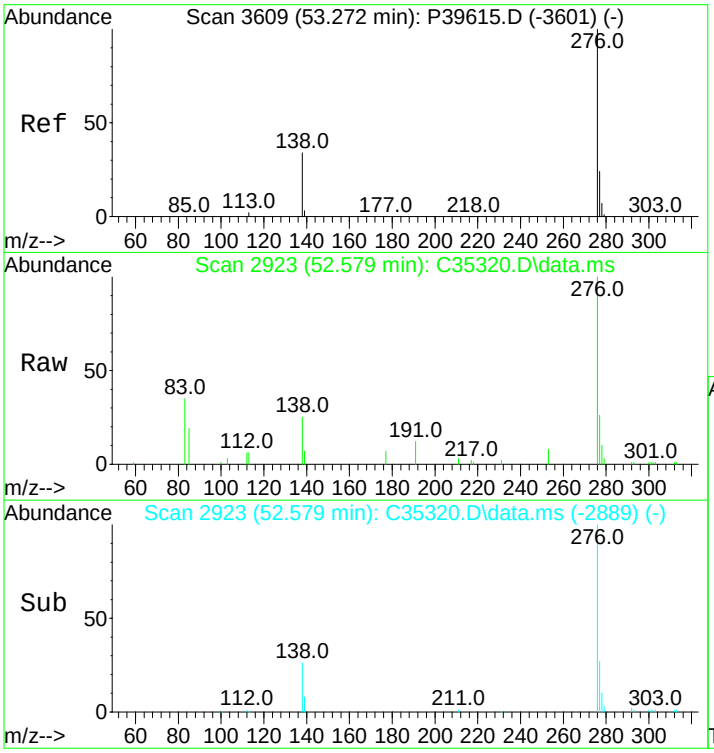


#88
Perylene
Concen: 351.23 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:252 Resp: 43961

Ion	Ratio	Lower	Upper
252	100		
253	23.0	21.8	32.6

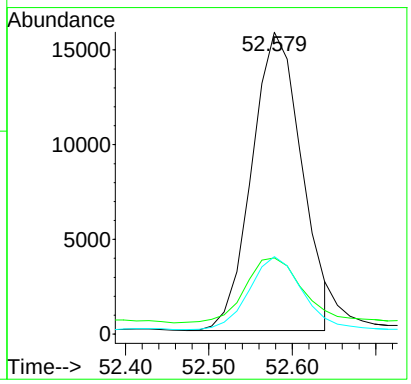


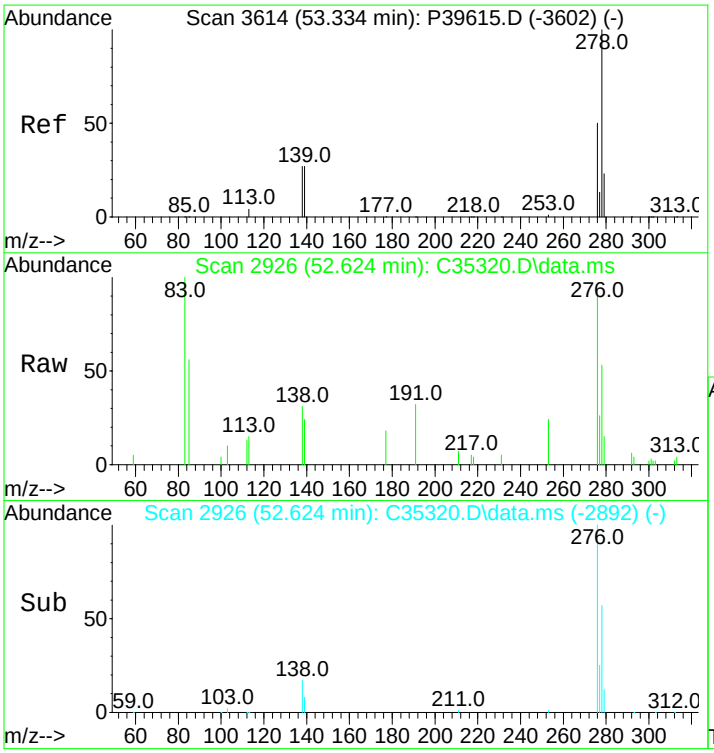


#89
Indeno[1,2,3-cd]pyrene
Concen: 480.34 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:276 Resp: 65466

Ion	Ratio	Lower	Upper
276	100		
138	25.8	19.1	28.7
277	27.1	19.5	29.3

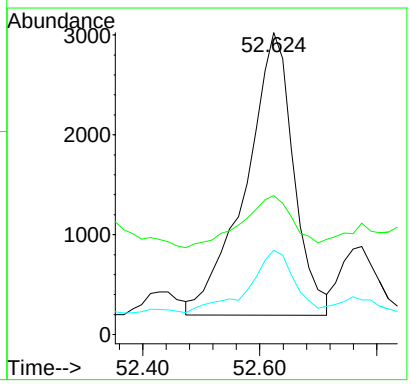


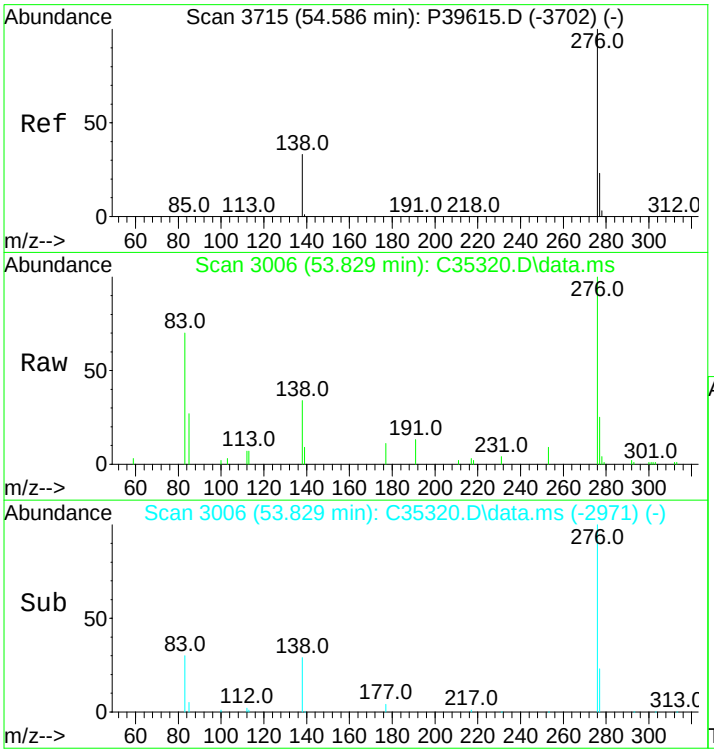


#90
Dibenz[ah]+[ac]anthracene
Concen: 124.18 ng/mL
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:278 Resp: 16100

Ion	Ratio	Lower	Upper
278	100		
139	19.6	16.6	25.0
279	21.2	20.0	30.0

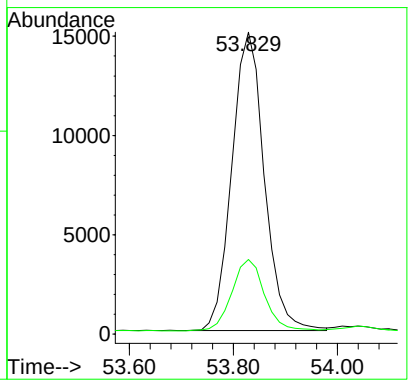


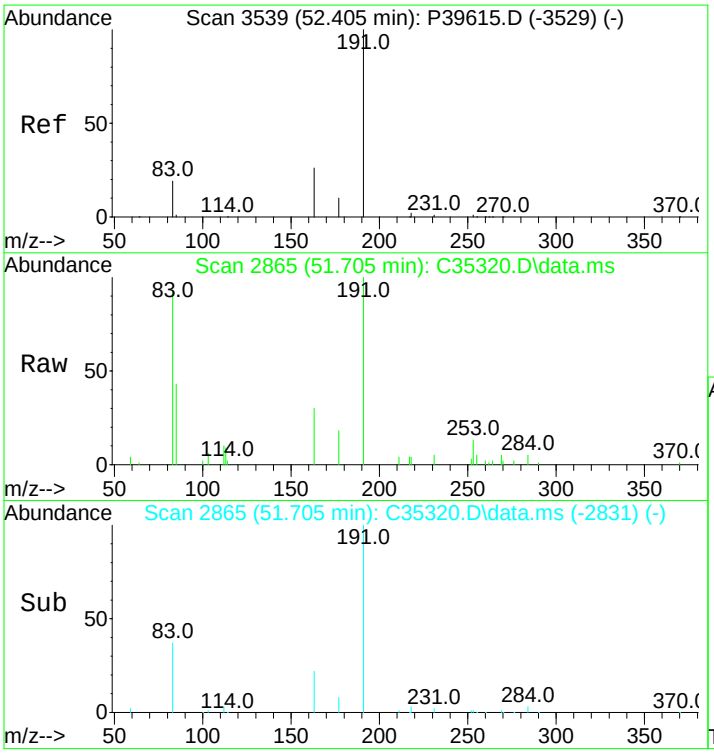


#91
Benzo[g,h,i]perylene
Concen: 454.60 ng/mL
RT: 53.829 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:276 Resp: 65458

Ion	Ratio	Lower	Upper
276	100		
277	24.0	18.8	28.2

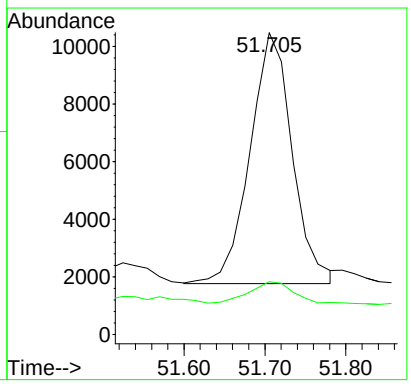


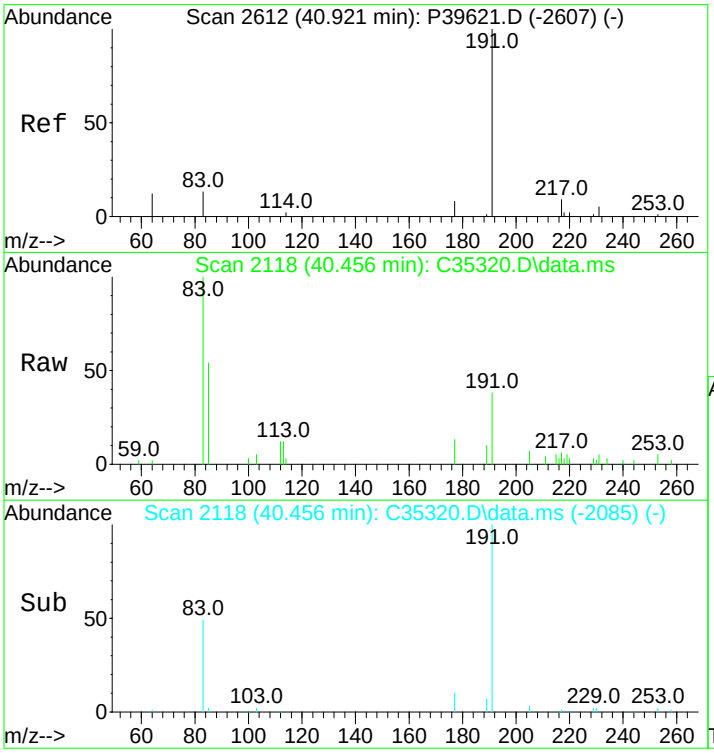


#92
Hopane (T19)
Concen: 1363.33 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:191 Resp: 31684

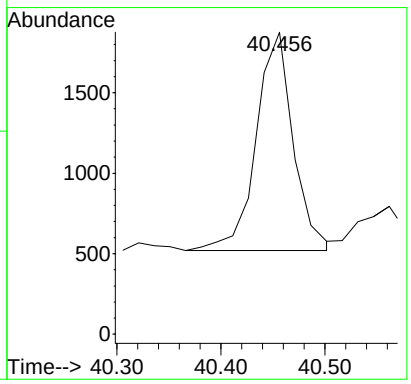
Ion	Ratio	Lower	Upper
191	100		
177	2.3	17.2	25.8#

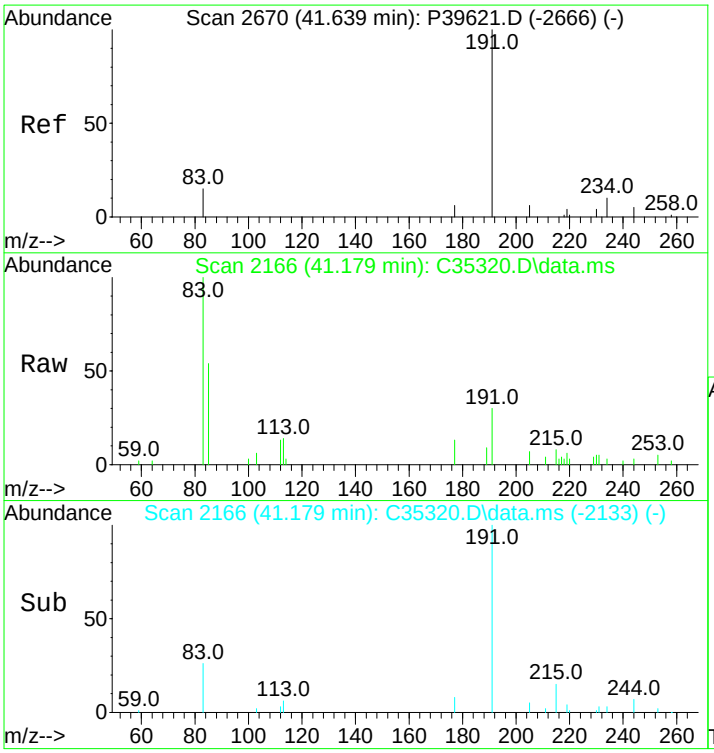




#94
C23 Tricyclic Terpane (T4)
Concen: 144.96 ng/ml
RT: 40.456 min Scan# 2118
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

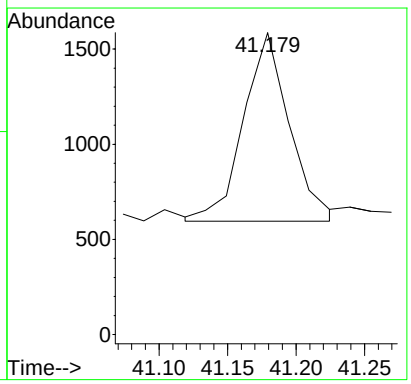
Tgt Ion:191 Resp: 3369

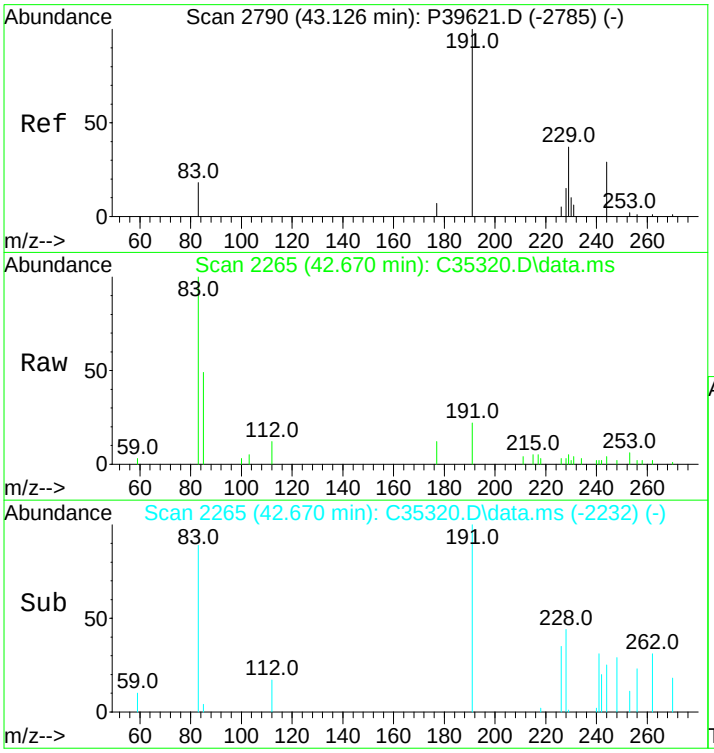




#95
C24 Tricyclic Terpane (T5)
Concen: 99.27 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

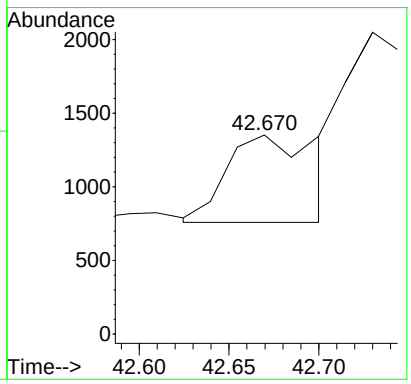
Tgt Ion:191 Resp: 2307

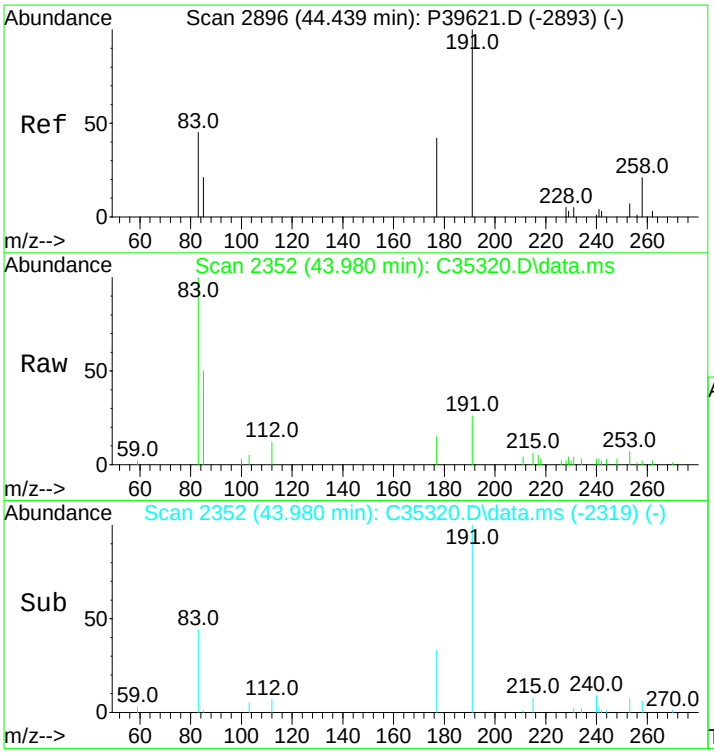




#96
C25 Tricyclic Terpane (T6)
Concen: 88.51 ng/ml m
RT: 42.670 min Scan# 2265
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

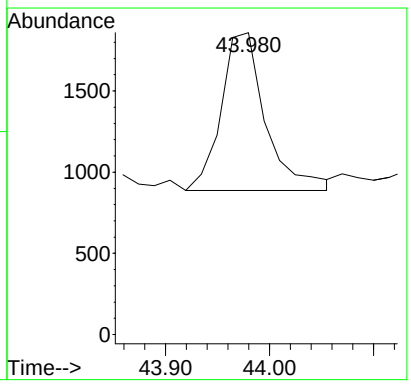
Tgt Ion:191 Resp: 2057

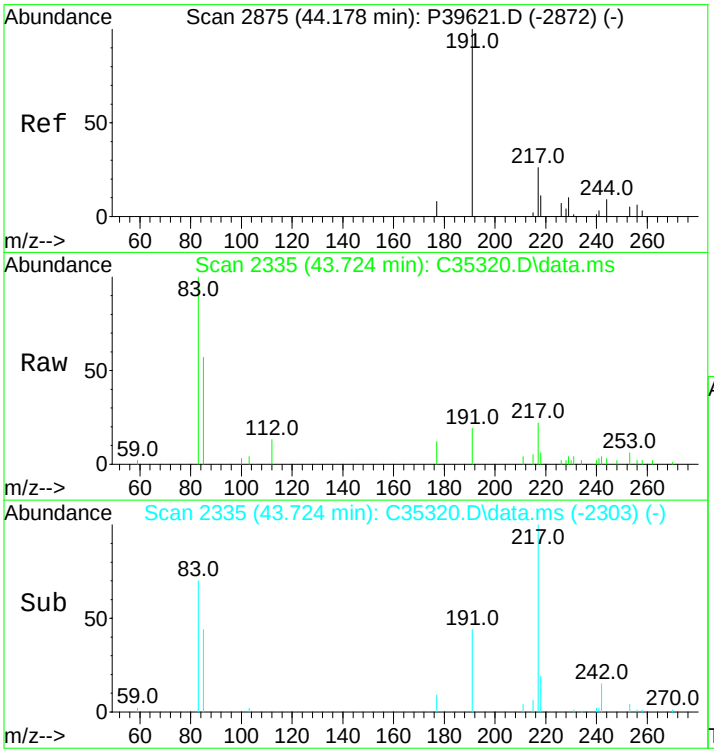




#97
C24 Tetracyclic Terpane (T6a)
Concen: 125.21 ng/ml
RT: 43.980 min Scan# 2352
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

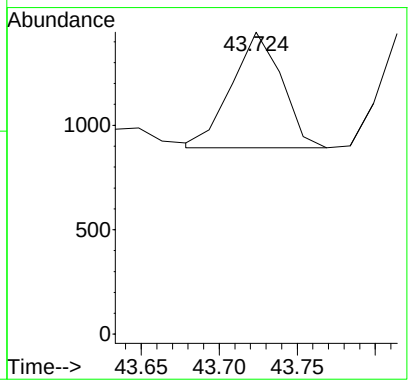
Tgt Ion:191 Resp: 2910

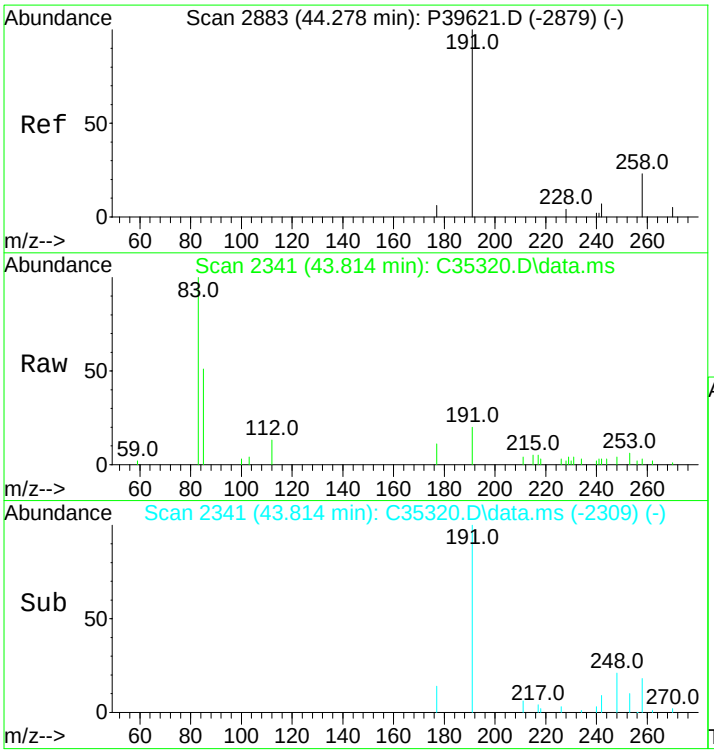




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 53.18 ng/ml
RT: 43.724 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

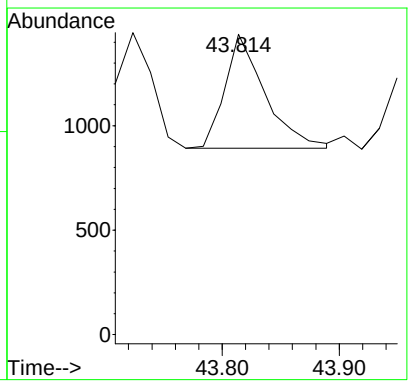
Tgt Ion:191 Resp: 1236

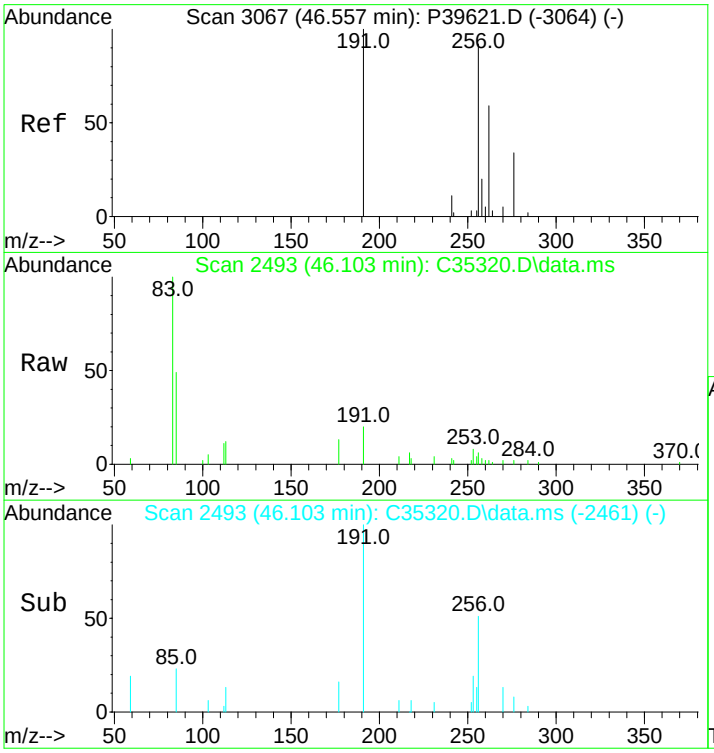




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 56.15 ng/ml
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

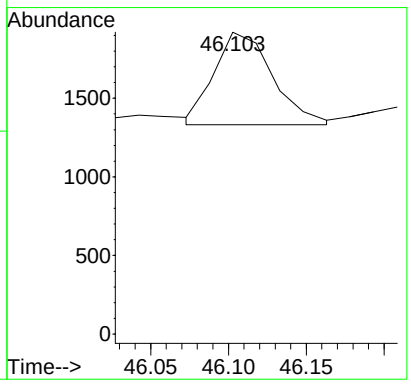
Tgt Ion:191 Resp: 1305

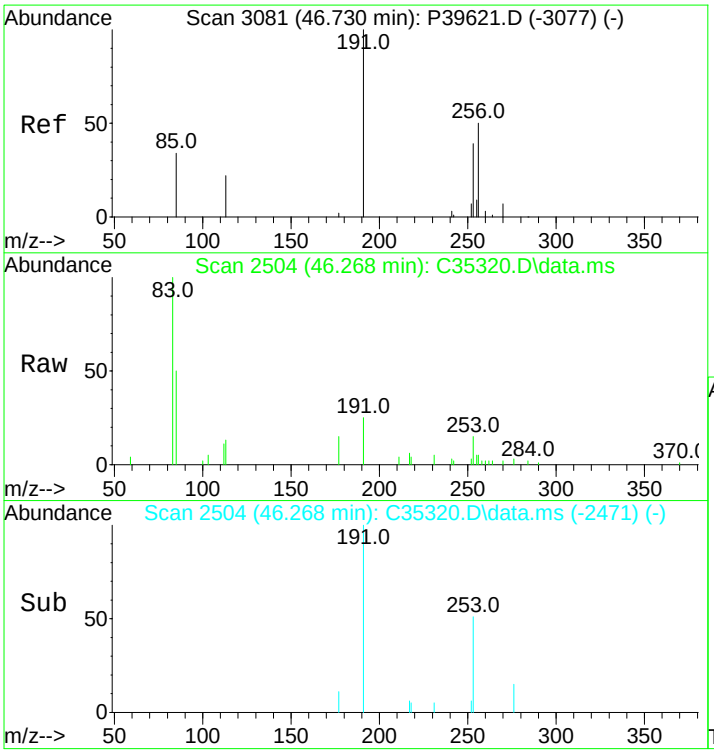




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 66.26 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

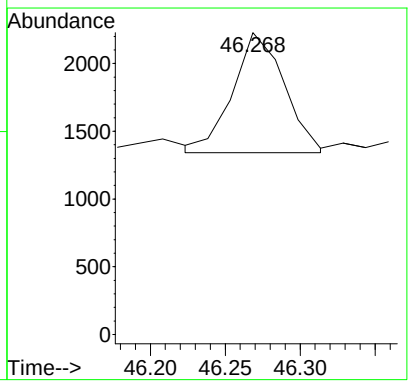
Tgt Ion:191 Resp: 1540

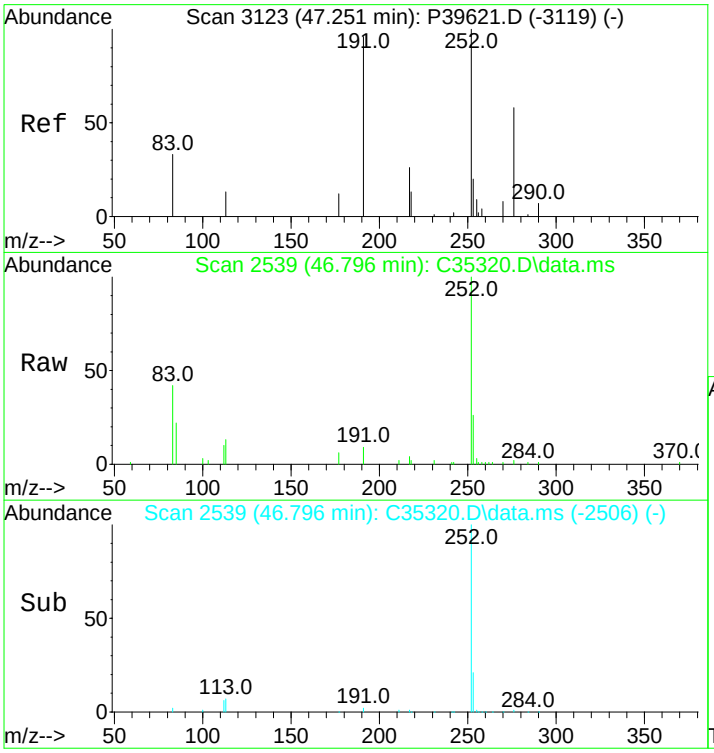




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 90.83 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

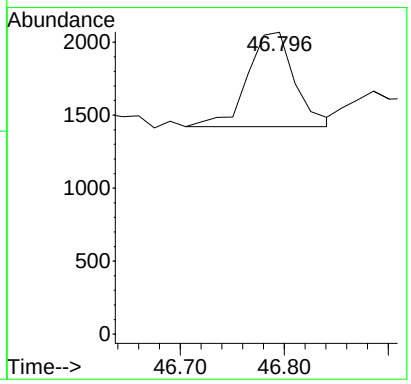
Tgt Ion:191 Resp: 2111

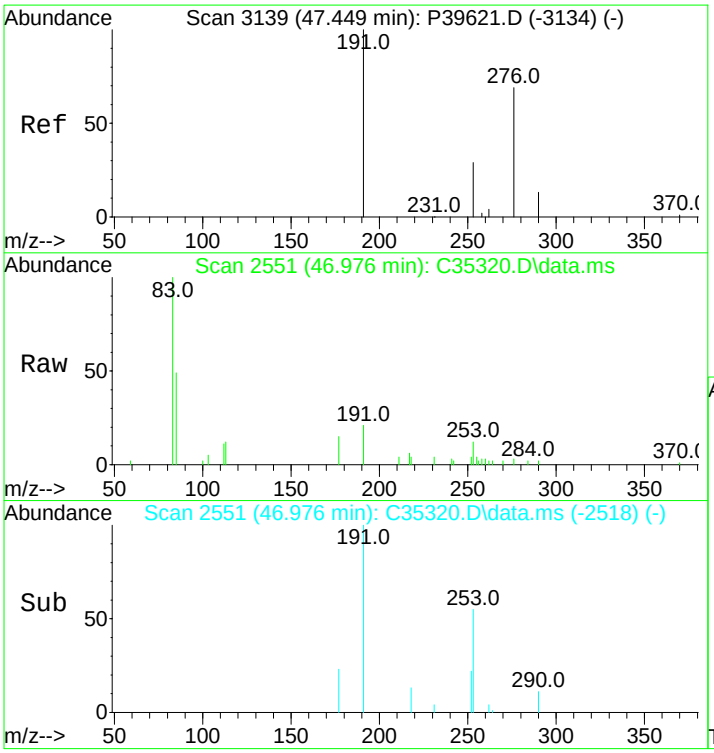




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 87.78 ng/ml
RT: 46.796 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

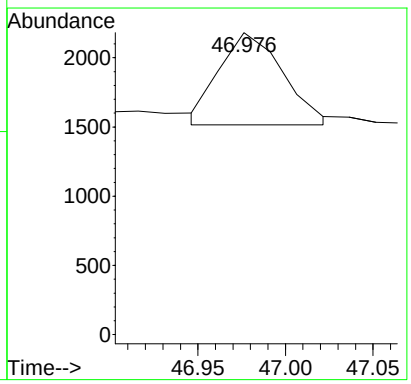
Tgt Ion:191 Resp: 2040

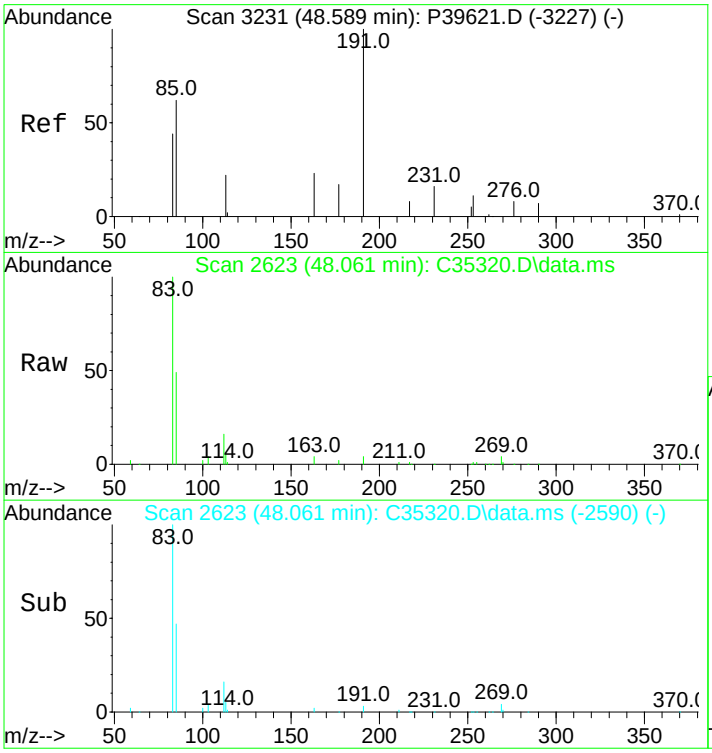




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 72.33 ng/ml m
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

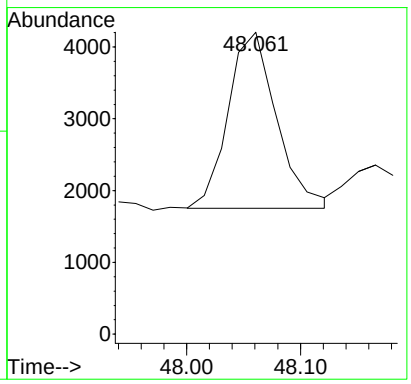
Tgt Ion:191 Resp: 1681

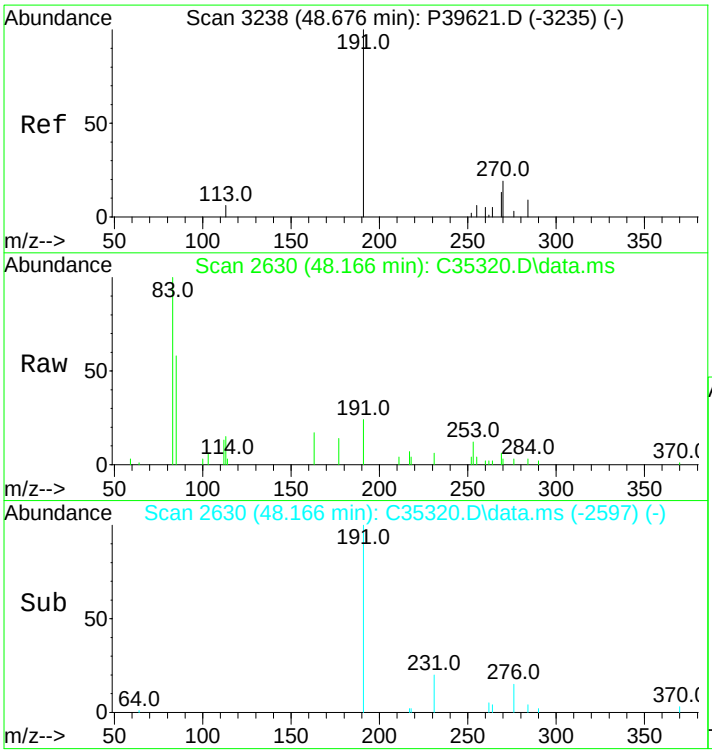




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 312.82 ng/ml m
RT: 48.061 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

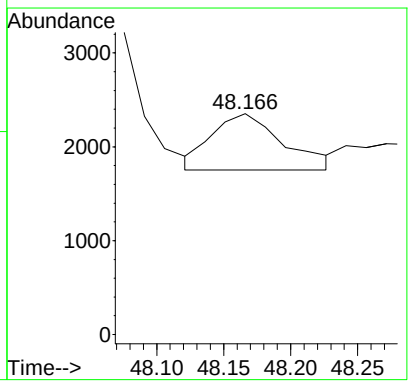
Tgt Ion:191 Resp: 7270

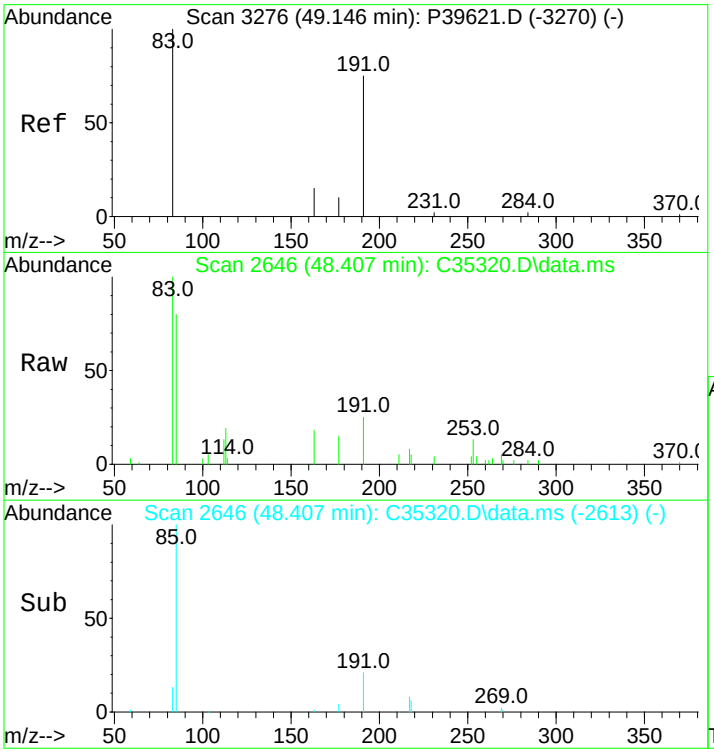




#105
C30 Tricyclic Terpane-22S
Concen: 96.47 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

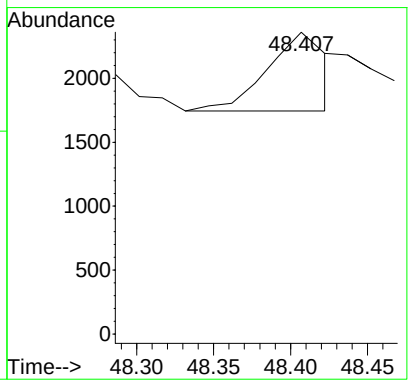
Tgt Ion:191 Resp: 2242

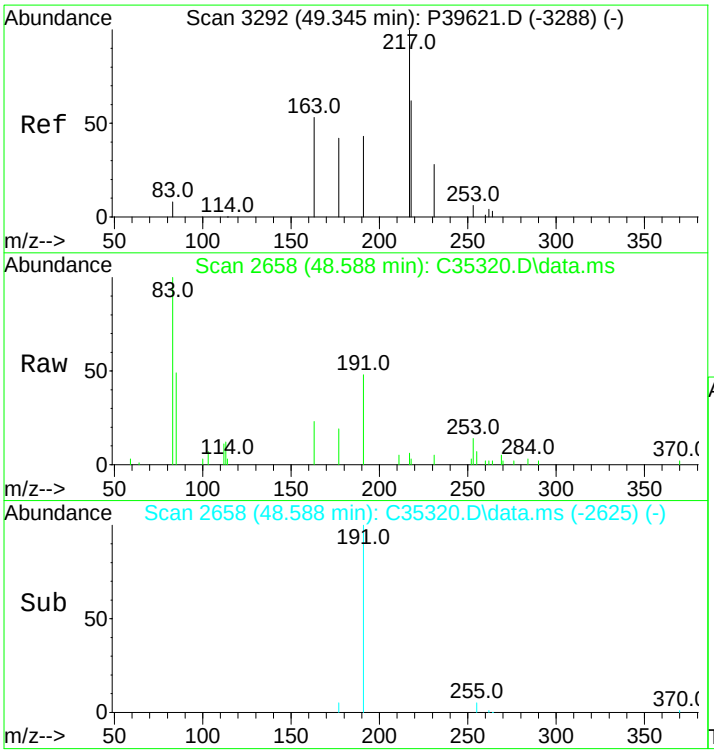




#106
C30 Tricyclic Terpane-22R
Concen: 70.18 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

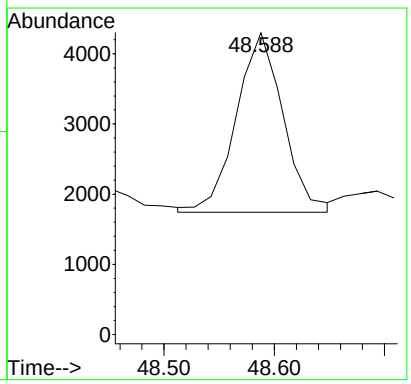
Tgt Ion:191 Resp: 1631

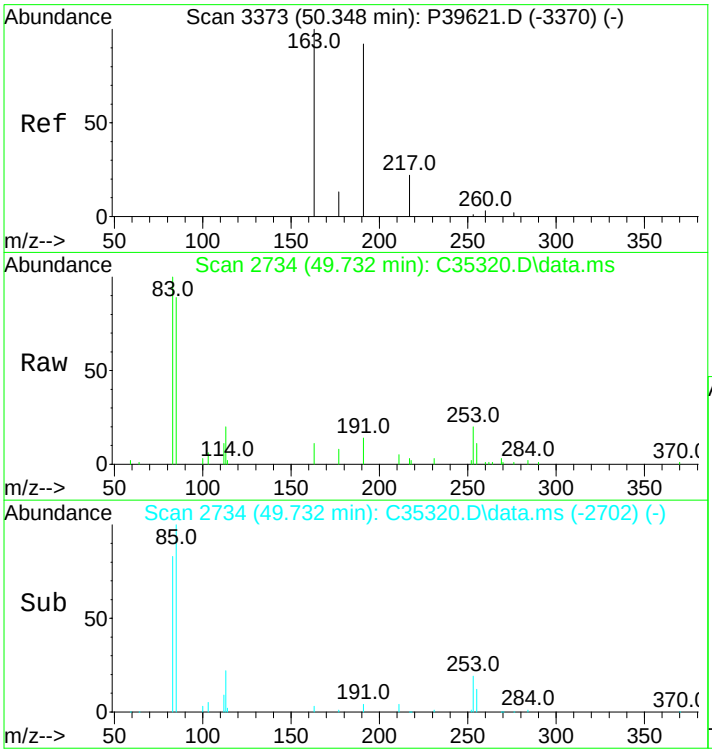




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 325.08 ng/ml m
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

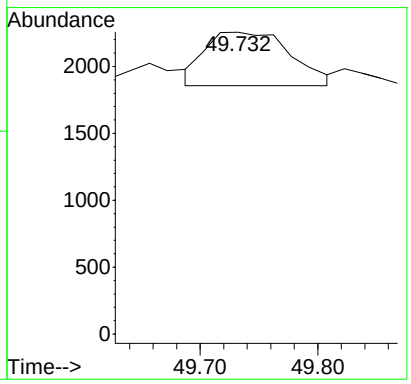
Tgt Ion:191 Resp: 7555

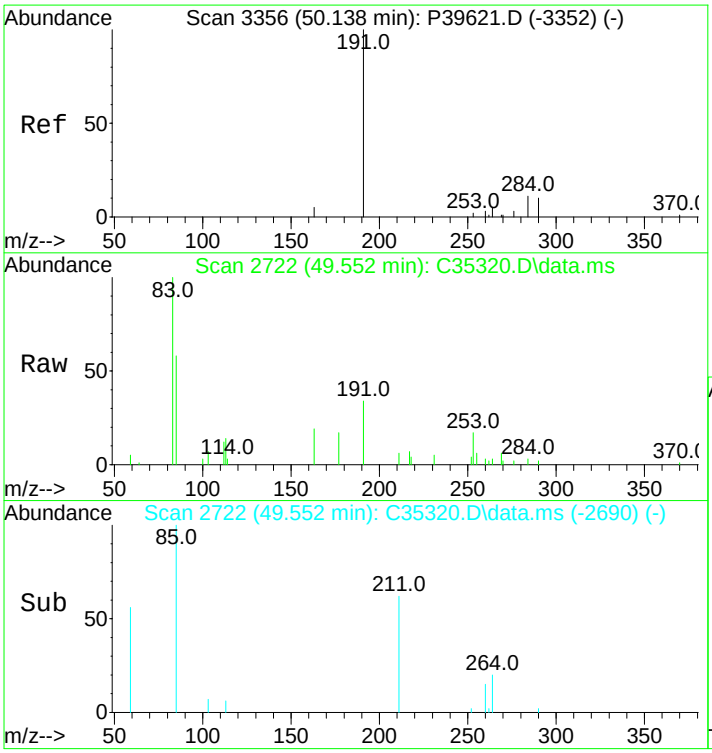




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 86.83 ng/ml m
RT: 49.732 min Scan# 2734
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

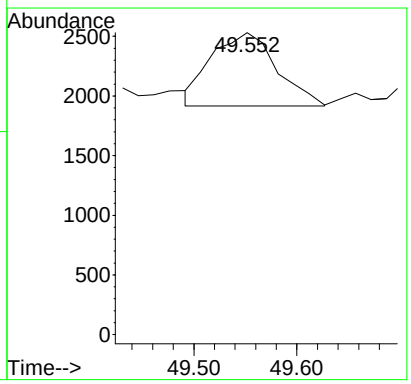
Tgt Ion:191 Resp: 2018

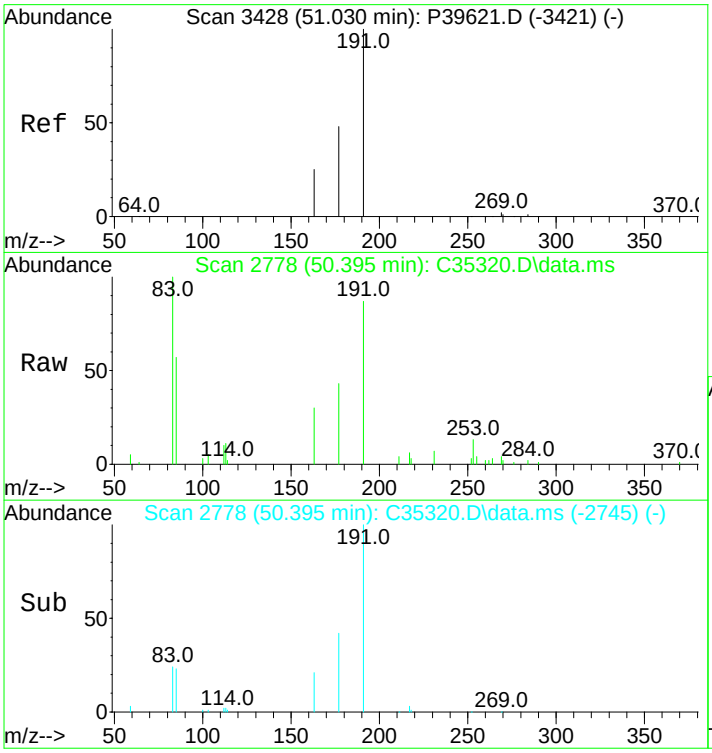




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 116.31 ng/ml m
RT: 49.552 min Scan# 2722
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

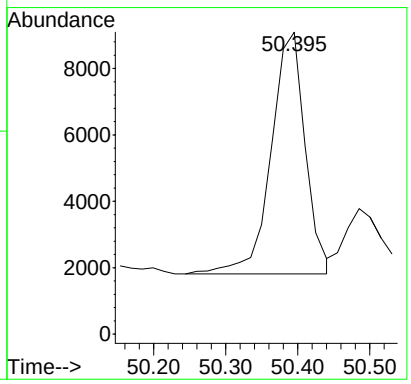
Tgt Ion:191 Resp: 2703

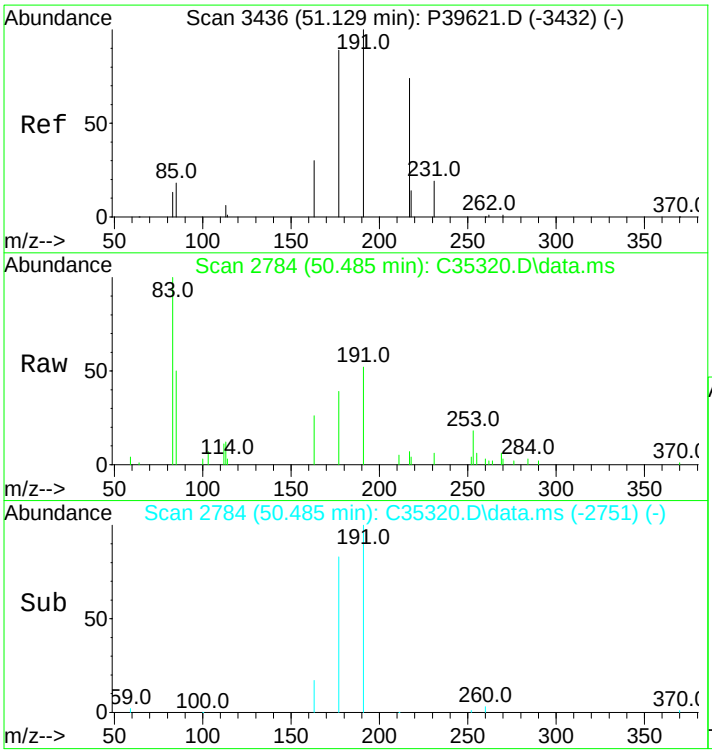




#110
30-Norhopane (T15)
Concen: 1032.91 ng/ml
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

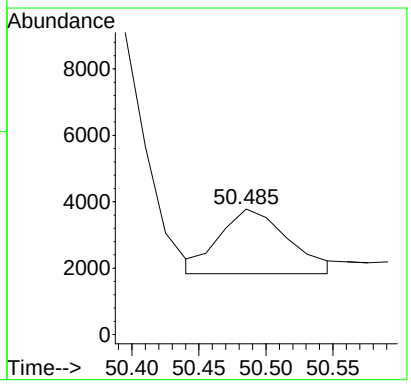
Tgt Ion:191 Resp: 24005

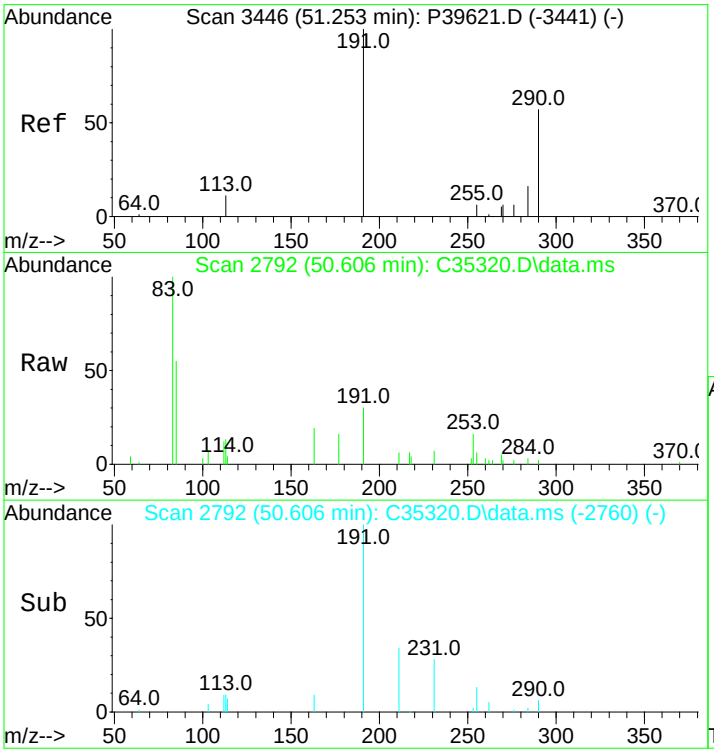




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 298.84 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

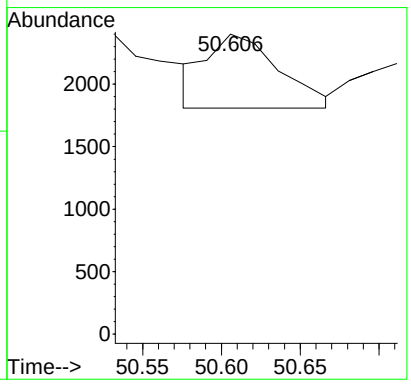
Tgt Ion:191 Resp: 6945

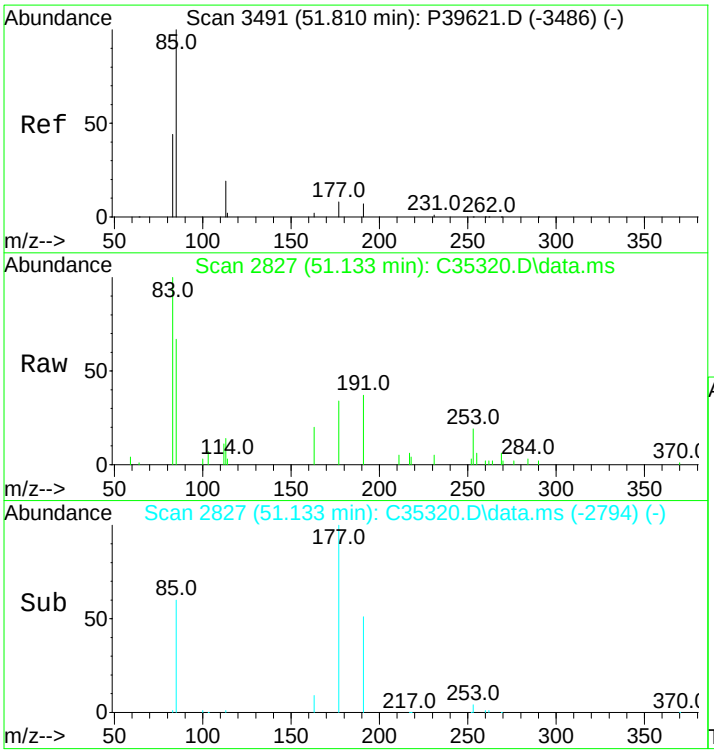




#112
17a(H)-Diahopane (X)
Concen: 80.94 ng/ml m
RT: 50.606 min Scan# 2792
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

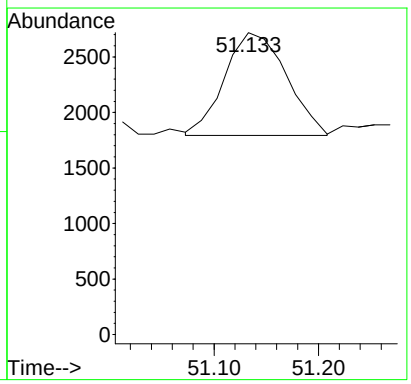
Tgt Ion:191 Resp: 1881

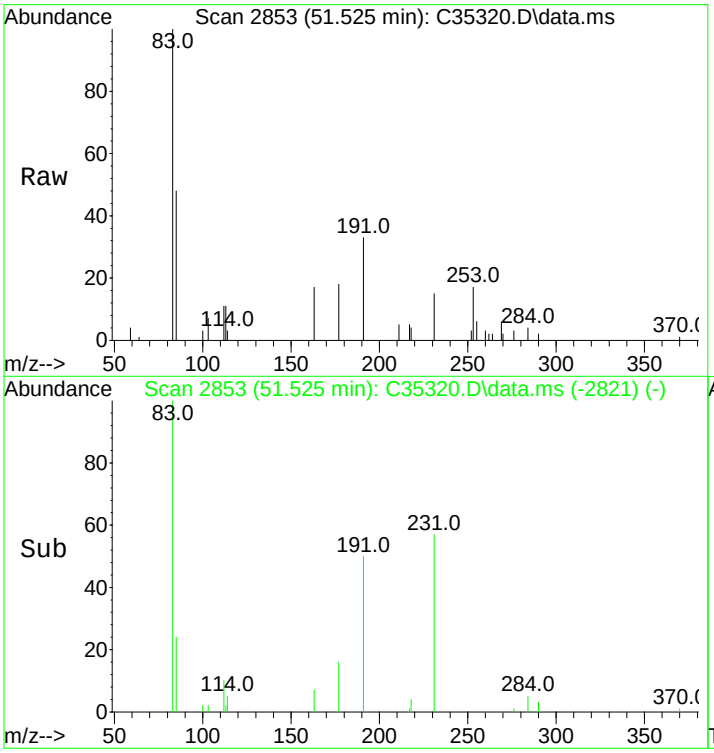




#113
30-Normoretane (T17)
Concen: 163.90 ng/ml m
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

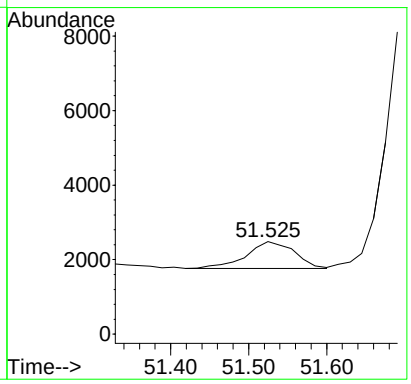
Tgt Ion:191 Resp: 3809

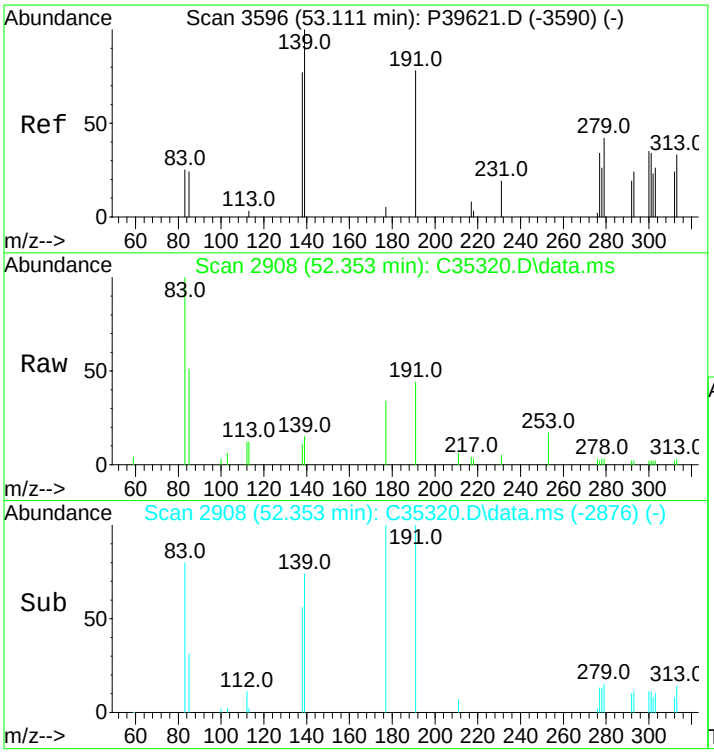




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 131.97 ng/ml
RT: 51.525 min Scan# 2853
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

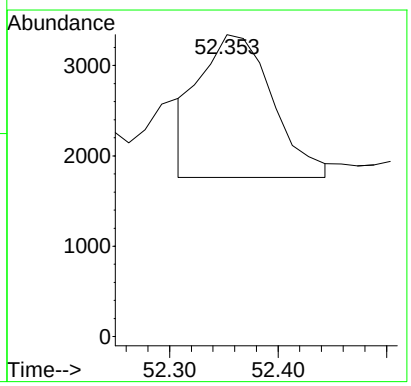
Tgt Ion:191 Resp: 3067

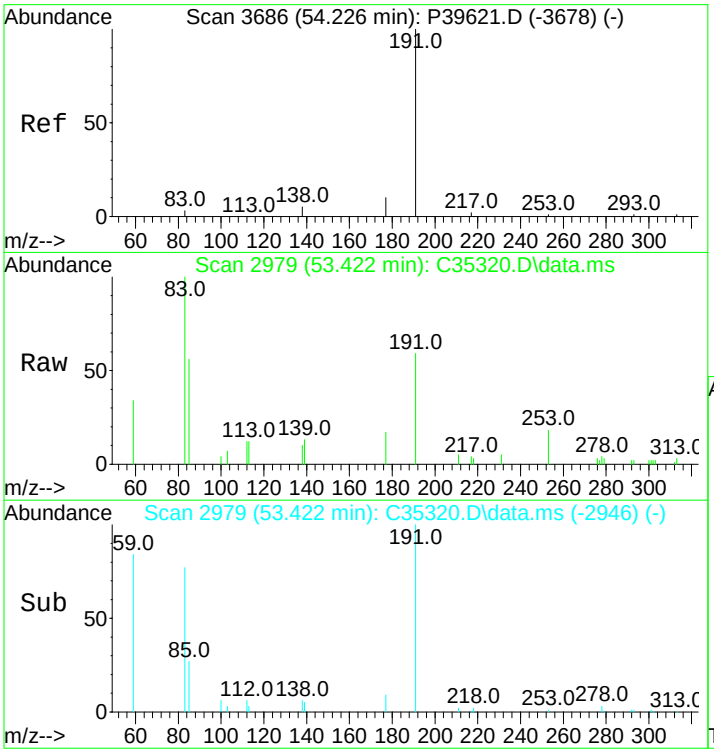




#115
Moretane (T20)
Concen: 317.64 ng/ml m
RT: 52.353 min Scan# 2908
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

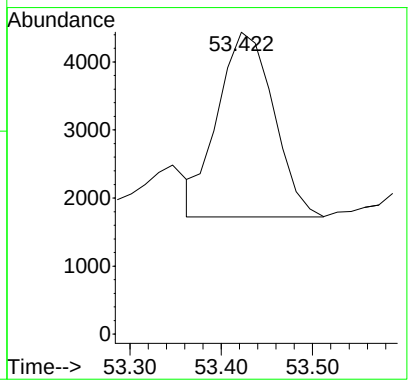
Tgt Ion:191 Resp: 7382

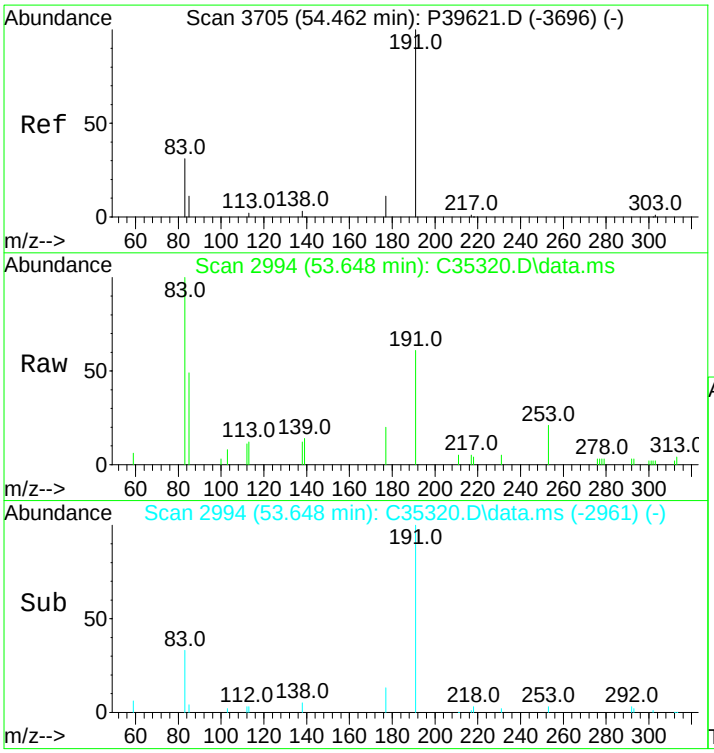




#116
30-Homohopane-22S (T21)
Concen: 496.17 ng/ml m
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

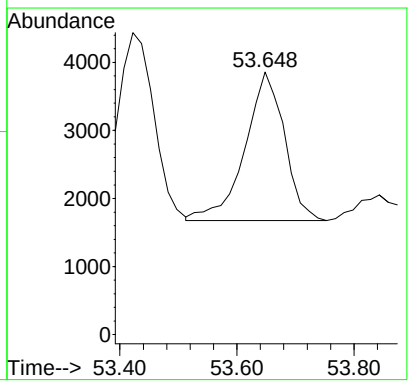
Tgt Ion:191 Resp: 11531

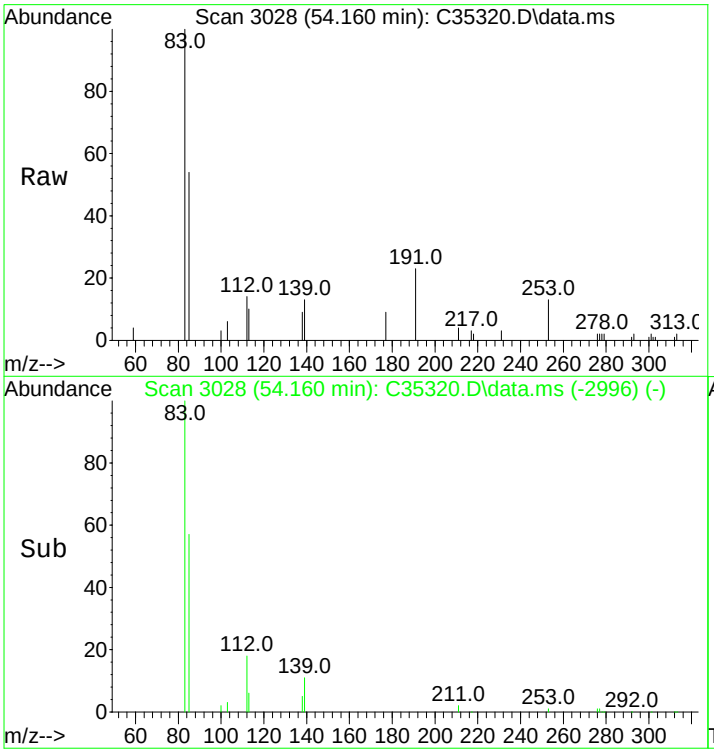




#117
30-Homohopane-22R (T22)
Concen: 439.37 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

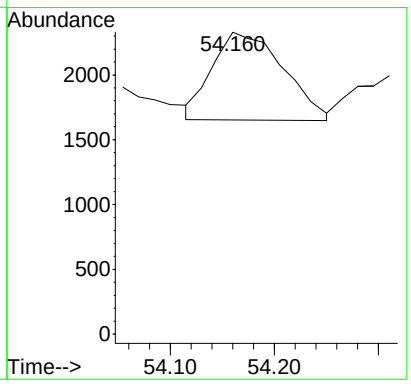
Tgt Ion:191 Resp: 10211

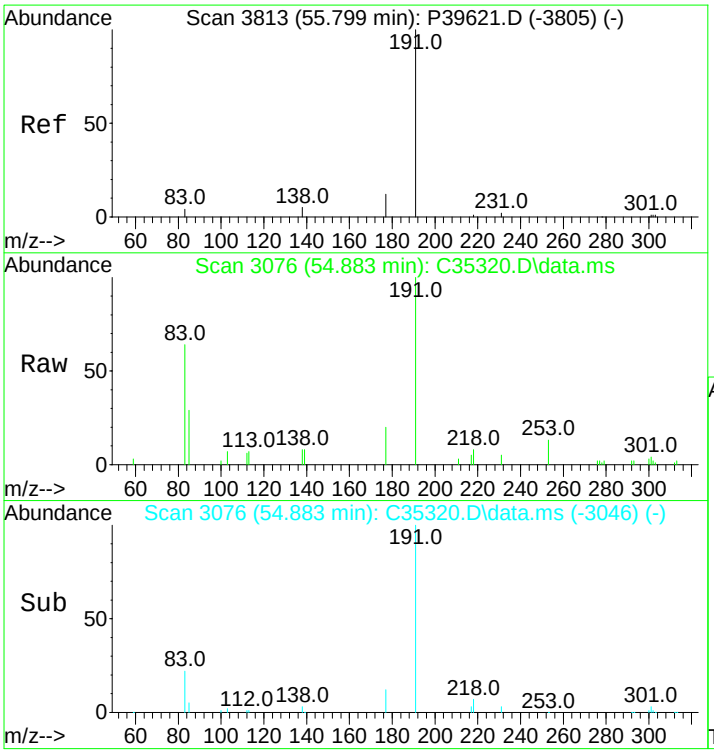




#118
Gammacerane/C32-diahopane
Concen: 138.51 ng/mL
RT: 54.160 min Scan# 3028
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

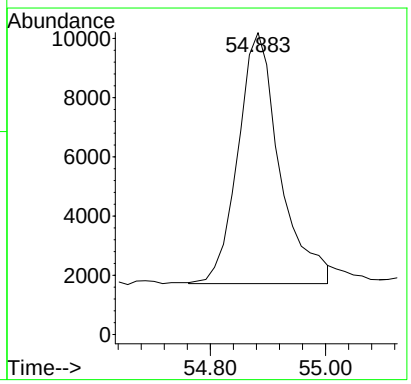
Tgt Ion:191 Resp: 3219

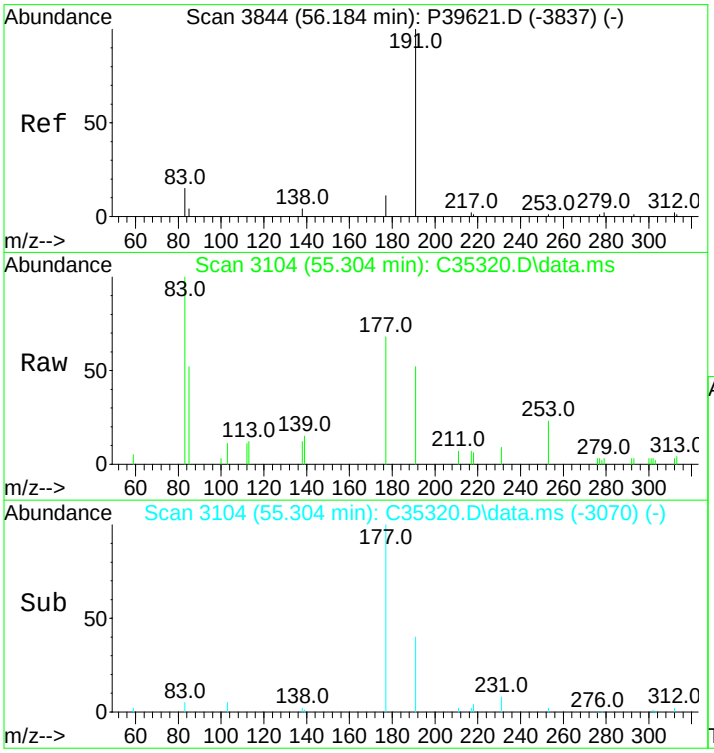




#119
30,31-Bishomohopane-22S (T26)
Concen: 1838.41 ng/ml m
RT: 54.883 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

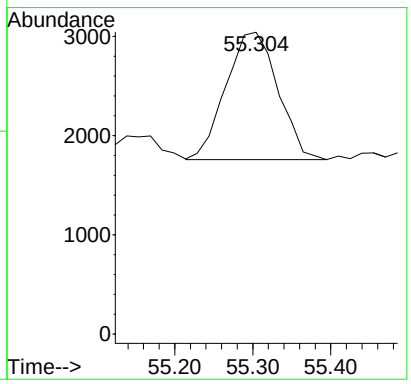
Tgt Ion:191 Resp: 42725

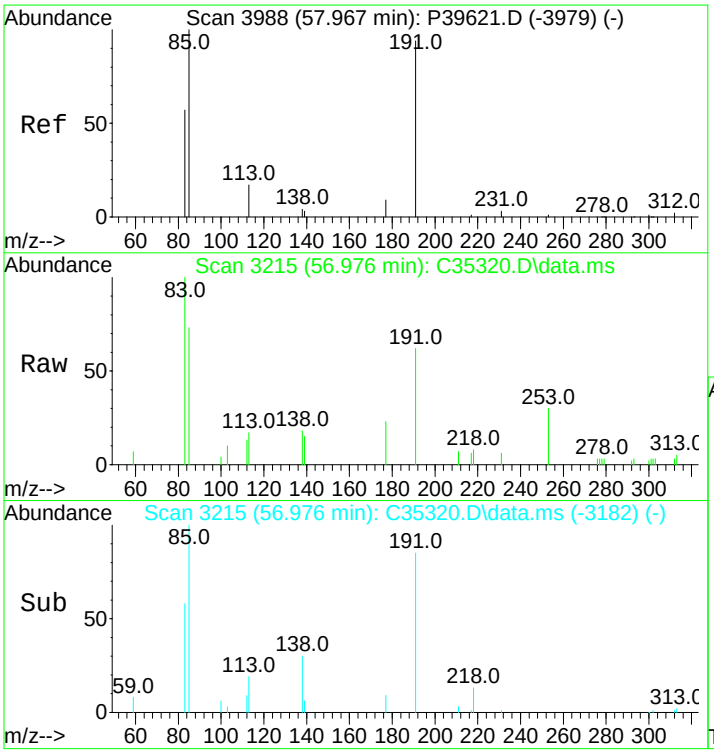




#120
30,31-Bishomohopane-22R (T27)
Concen: 256.58 ng/ml
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

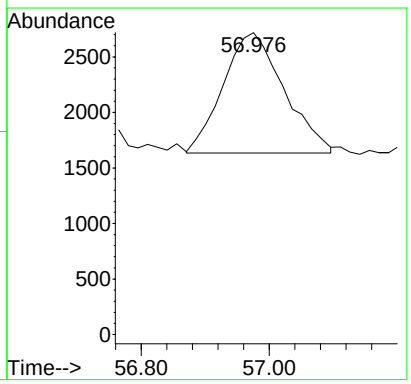
Tgt Ion:191 Resp: 5963

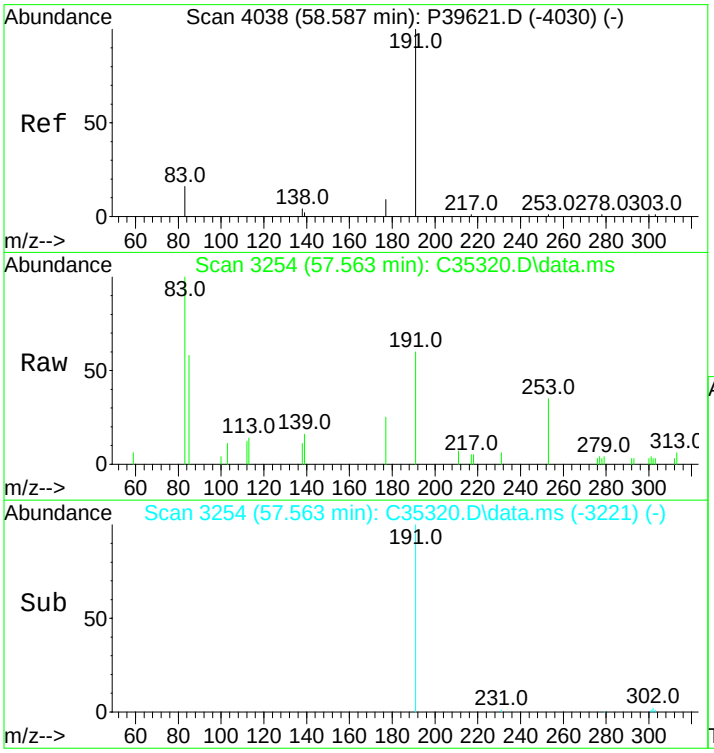




#121
30,31-Trishomohopane-22S (T30)
Concen: 308.39 ng/ml m
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

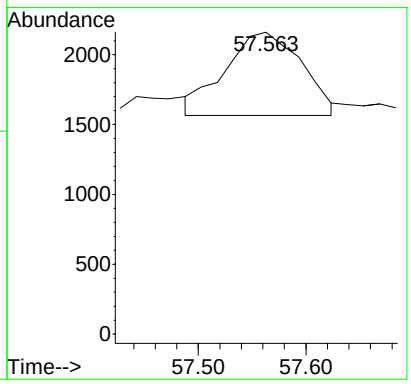
Tgt Ion:191 Resp: 7167

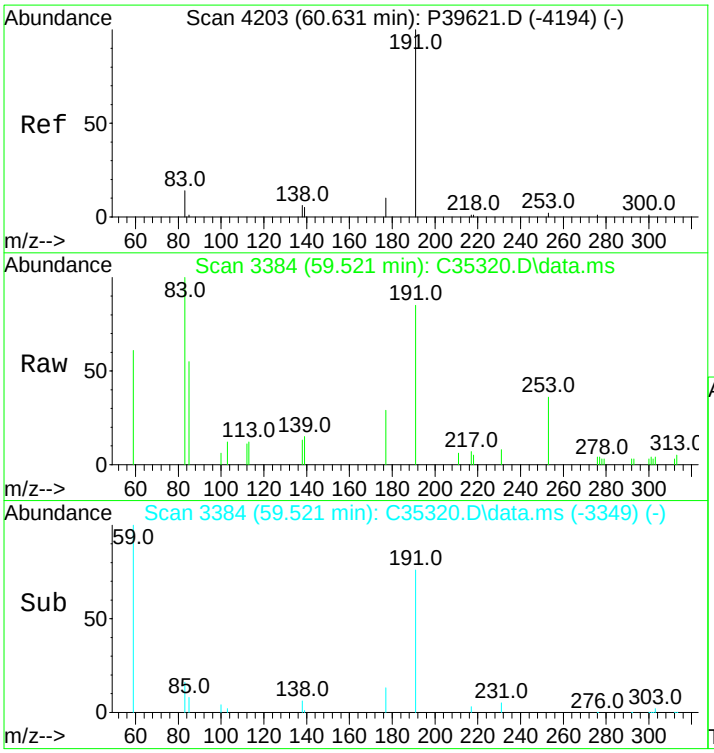




#122
30,31-Trishomohopane-22R (T31)
Concen: 126.46 ng/ml m
RT: 57.563 min Scan# 3254
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

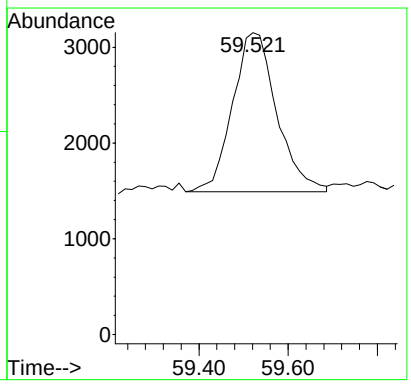
Tgt Ion:191 Resp: 2939

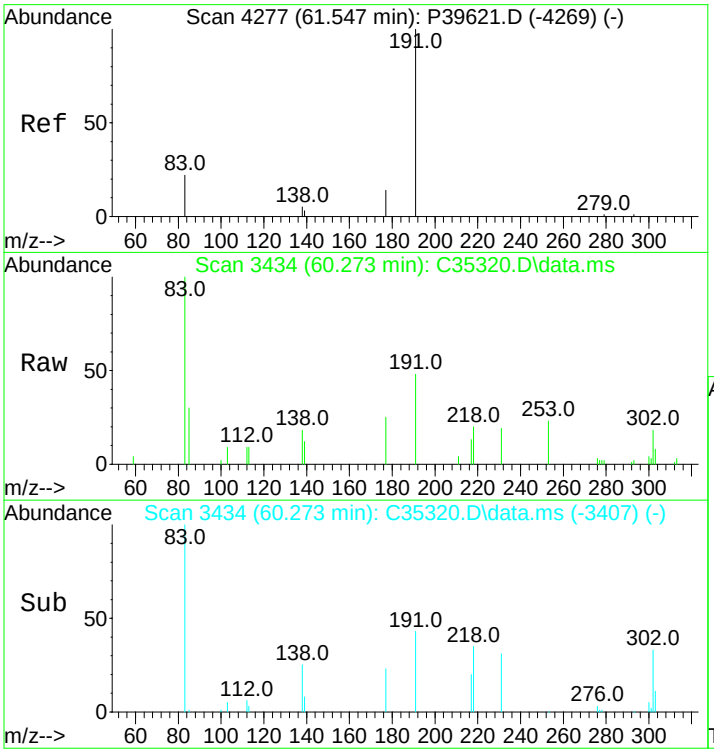




#123
Tetrakishomohopane-22S (T32)
Concen: 494.06 ng/ml
RT: 59.521 min Scan# 3384
Delta R.T. 0.030 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

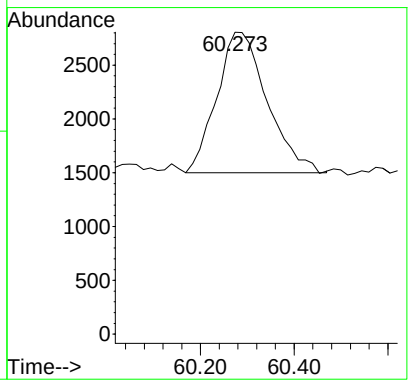
Tgt Ion:191 Resp: 11482

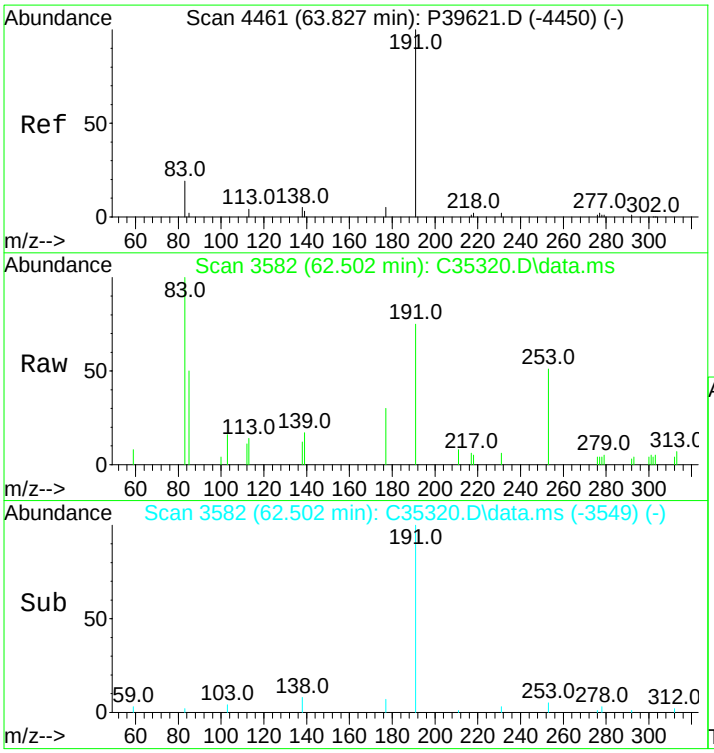




#124
Tetrakishomohopane-22R (T33)
Concen: 419.83 ng/ml
RT: 60.273 min Scan# 3434
Delta R.T. -0.090 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

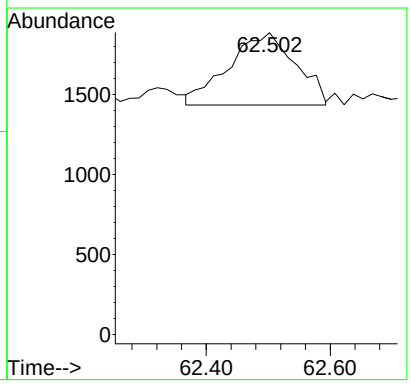
Tgt Ion:191 Resp: 9757

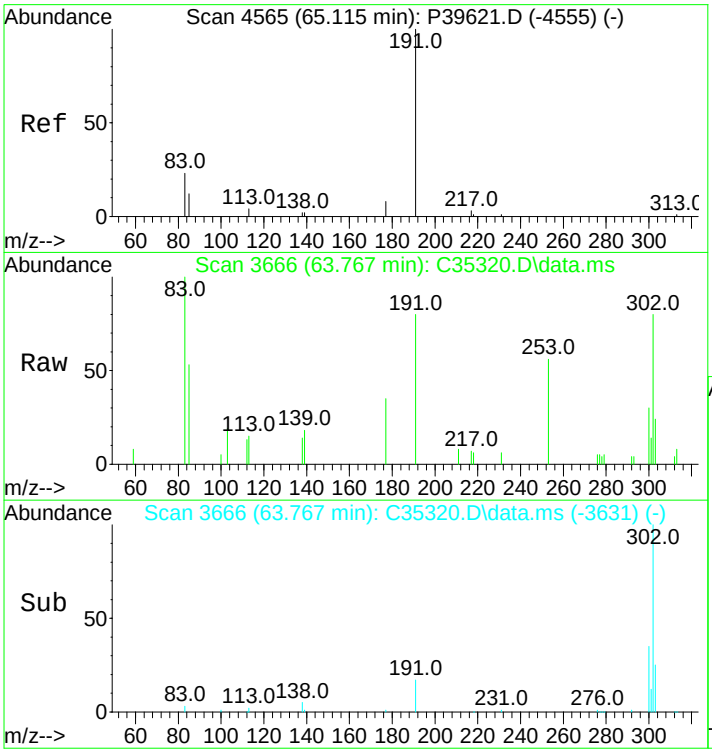




#125
Pentakishomohopane-22S (T34)
Concen: 145.05 ng/ml m
RT: 62.502 min Scan# 3582
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

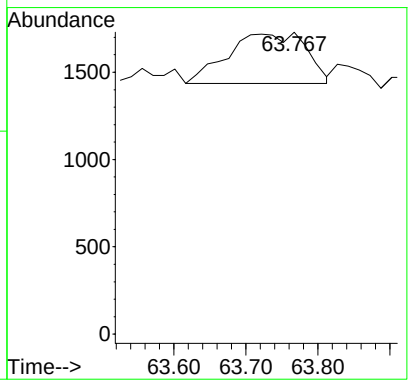
Tgt Ion:191 Resp: 3371

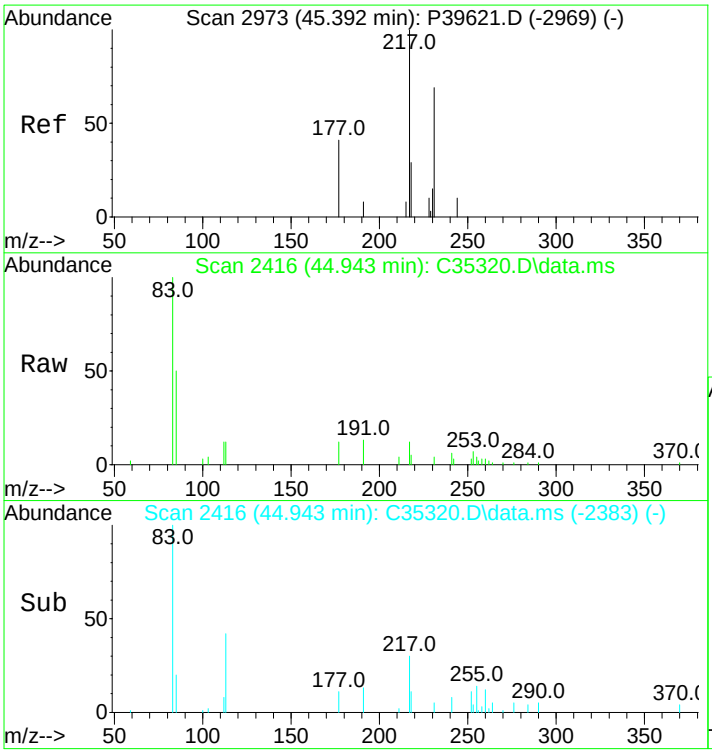




#126
Pentakishomohopane-22R (T35)
Concen: 93.63 ng/ml
RT: 63.767 min Scan# 3666
Delta R.T. 0.030 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

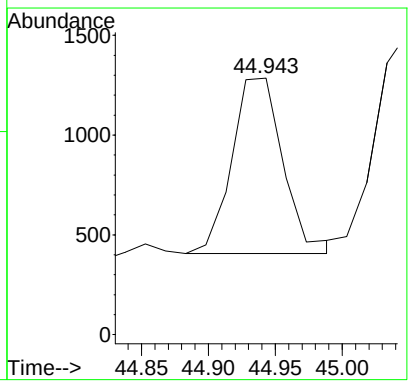
Tgt Ion:191 Resp: 2176

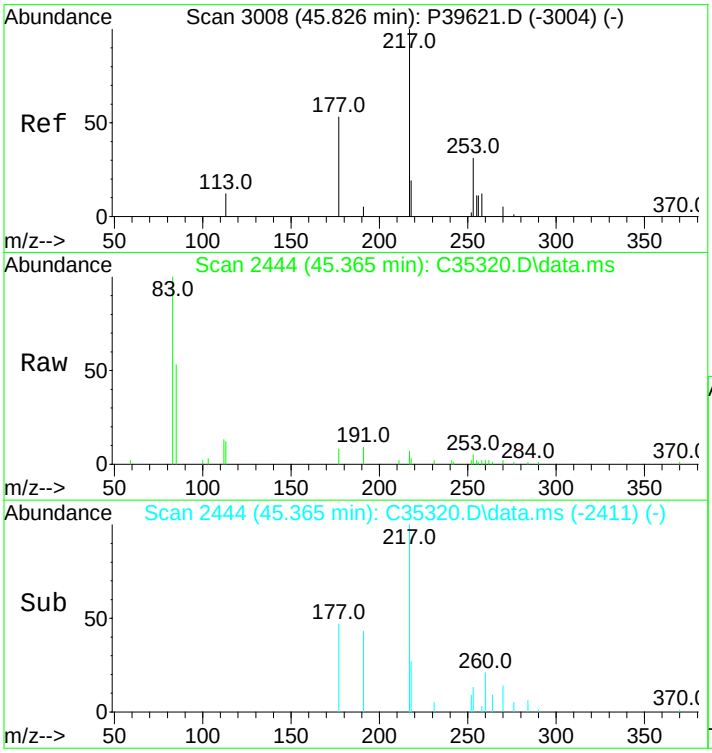




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 213.16 ng/ml
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

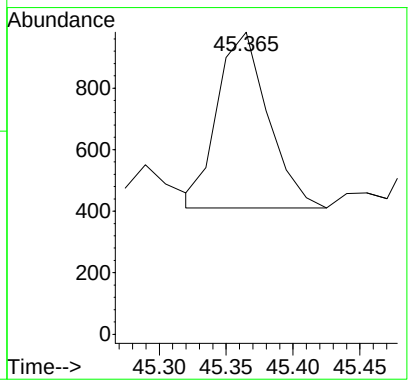
Tgt Ion:217 Resp: 2350

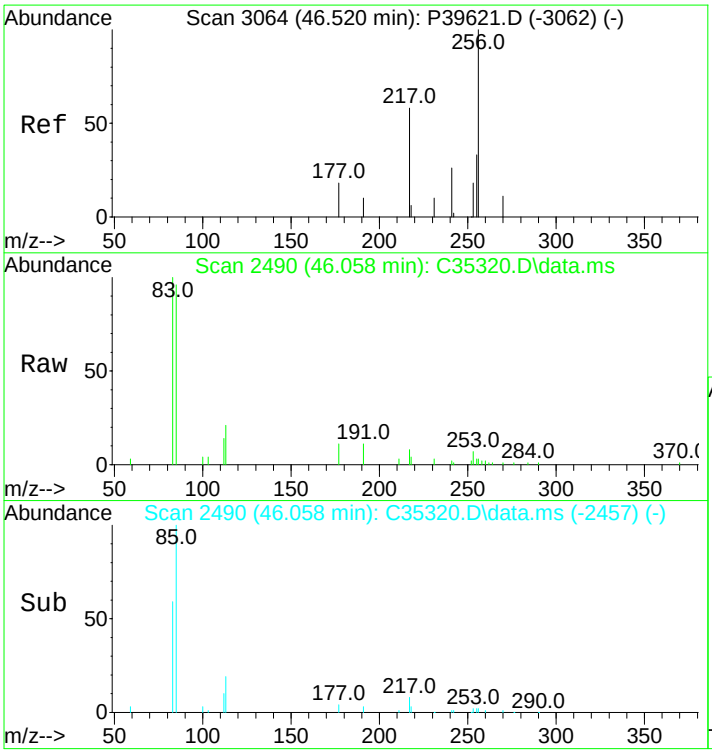




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 136.24 ng/ml
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

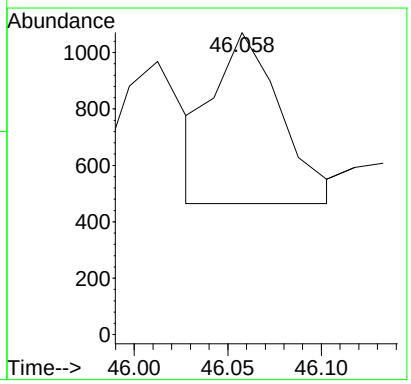
Tgt Ion:217 Resp: 1502

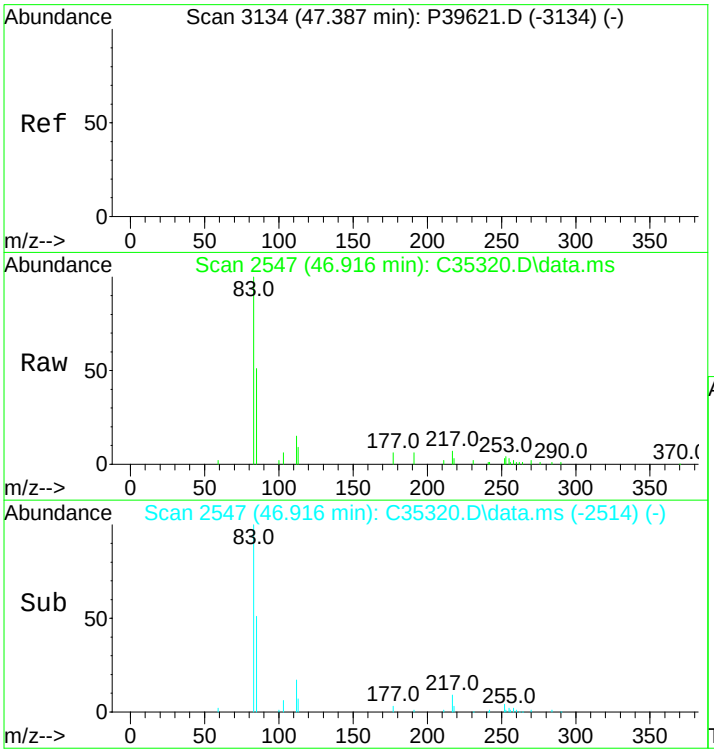




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 136.42 ng/ml
RT: 46.058 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

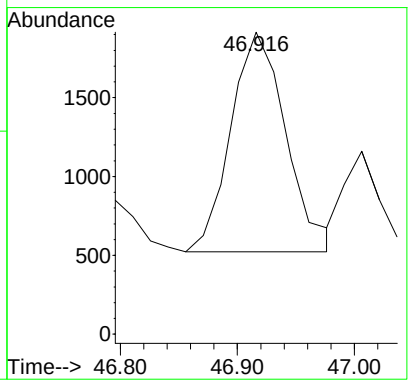
Tgt Ion:217 Resp: 1504

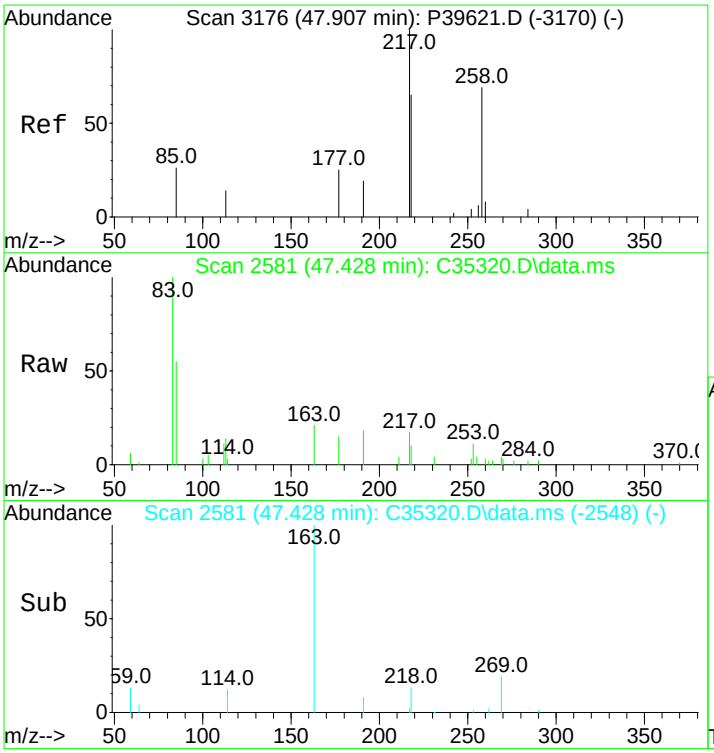




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 414.89 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

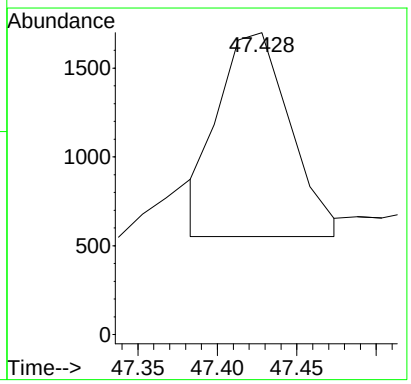
Tgt Ion:217 Resp: 4574

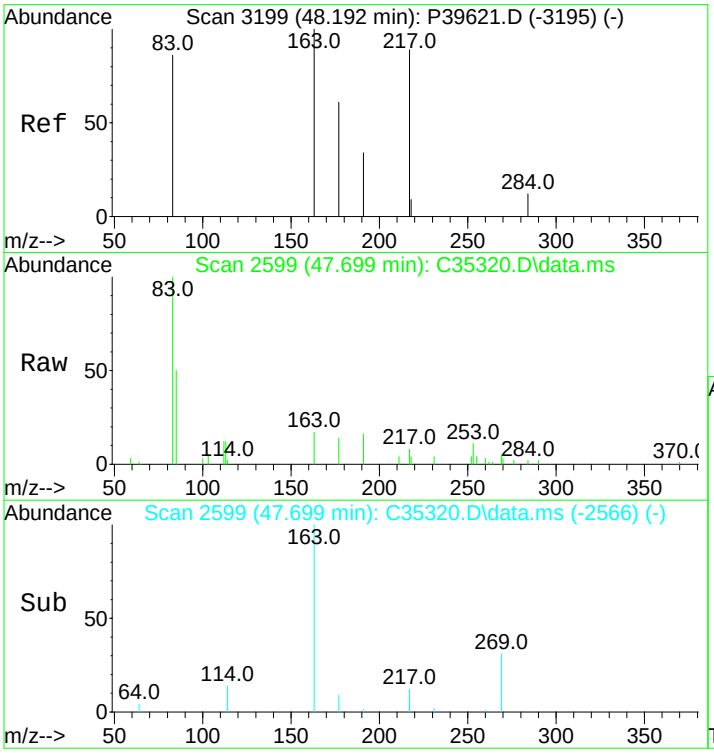




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 326.45 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

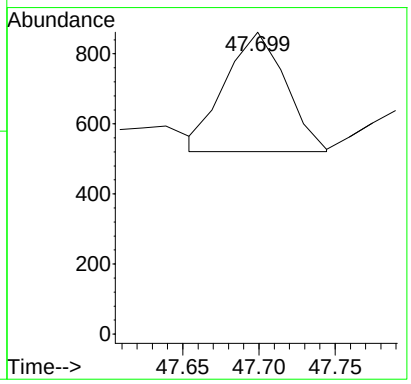
Tgt Ion:217 Resp: 3599

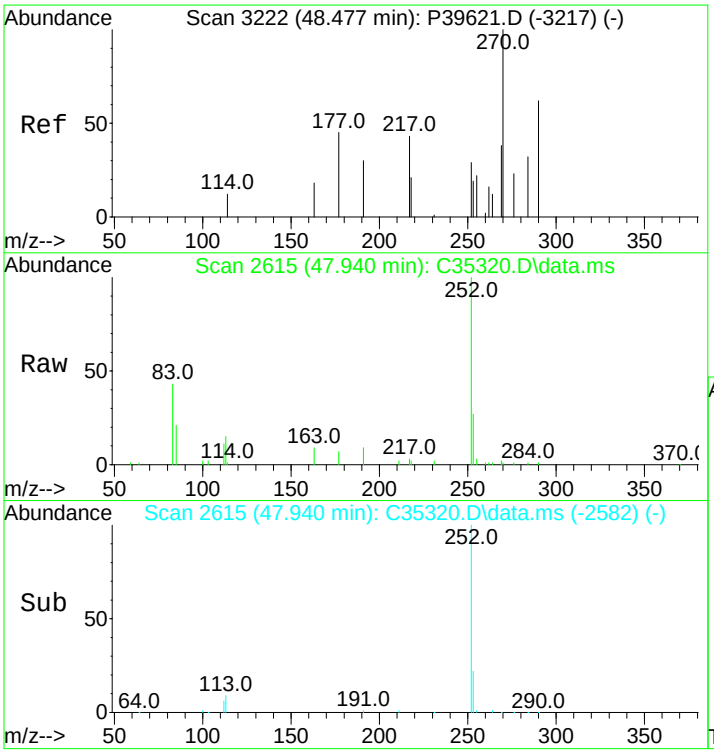




#133
Unknown Sterane (S18)
Concen: 84.90 ng/ml m
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

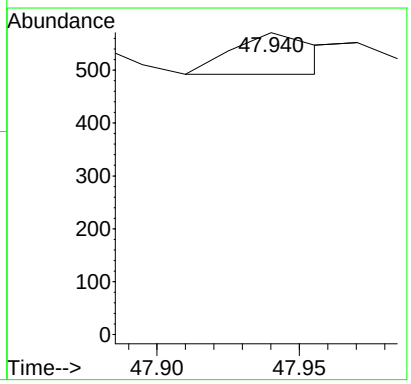
Tgt Ion:217 Resp: 936

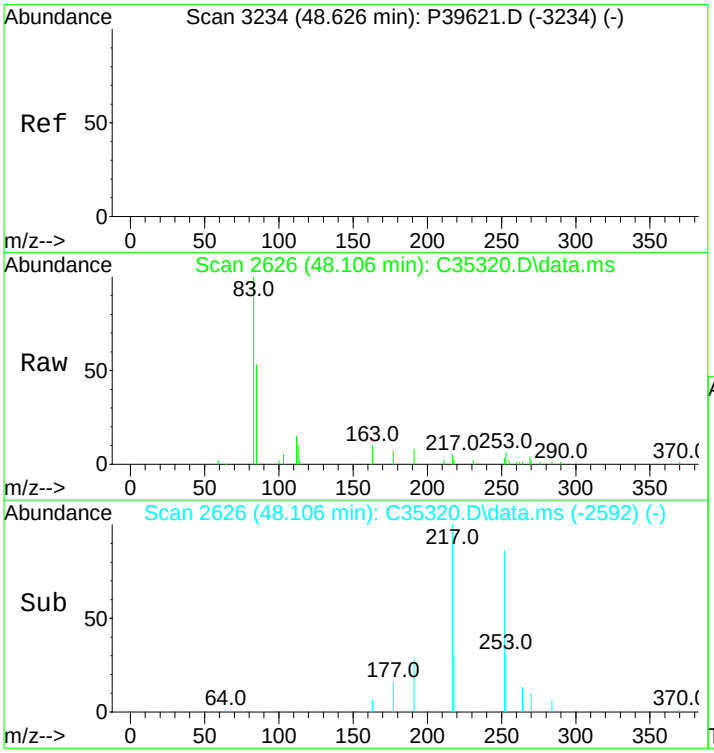




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 14.60 ng/ml m
RT: 47.940 min Scan# 2615
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

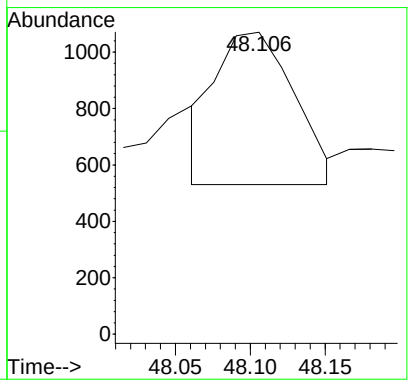
Tgt Ion:217 Resp: 161

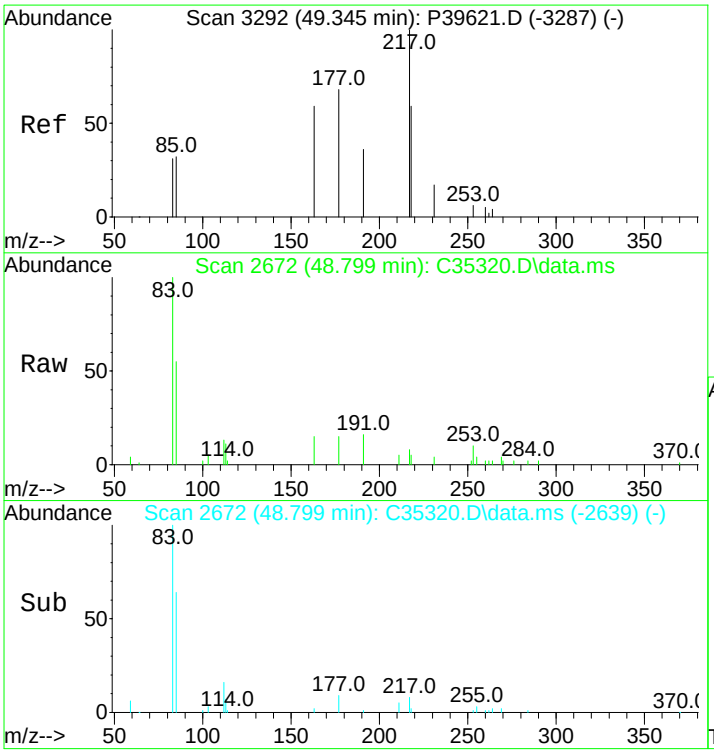




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 179.96 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

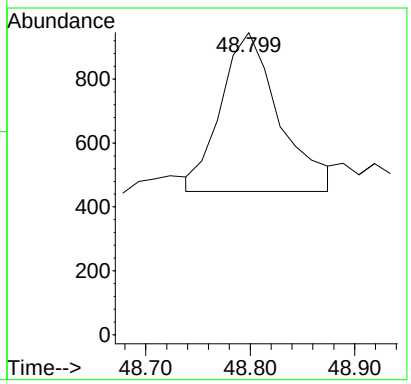
Tgt Ion:217 Resp: 1984

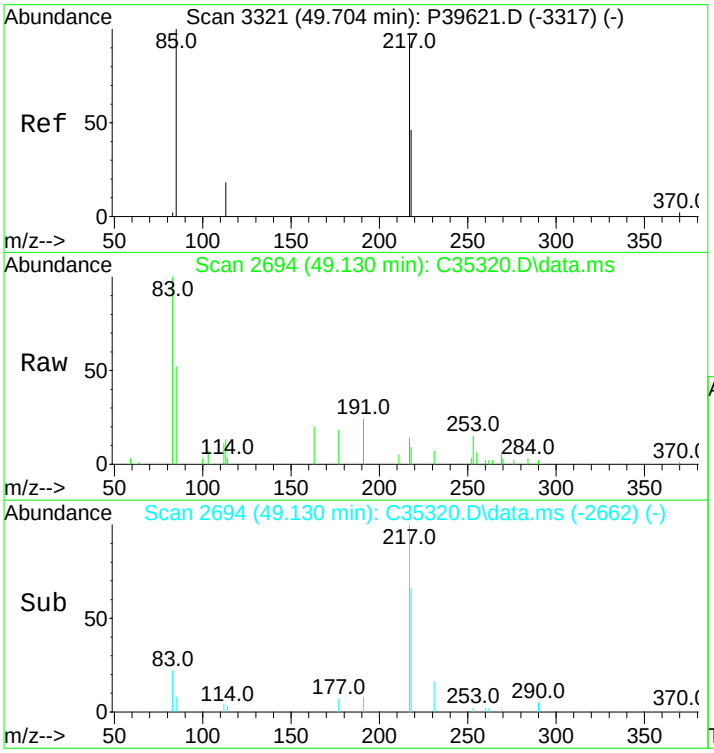




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 175.61 ng/ml m
RT: 48.799 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

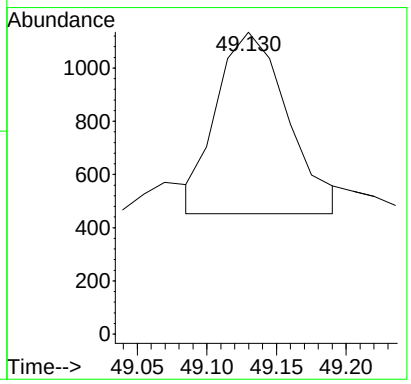
Tgt Ion:217 Resp: 1936

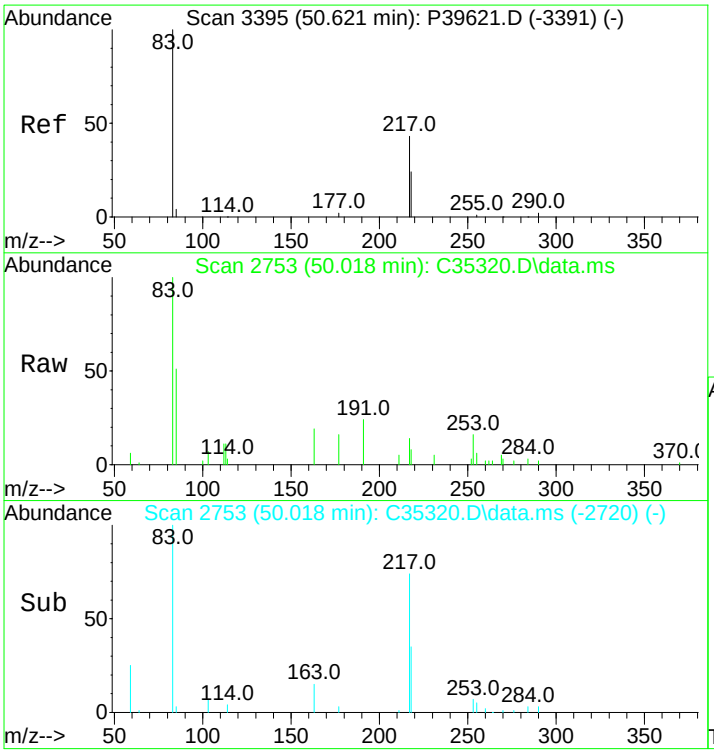




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 219.96 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

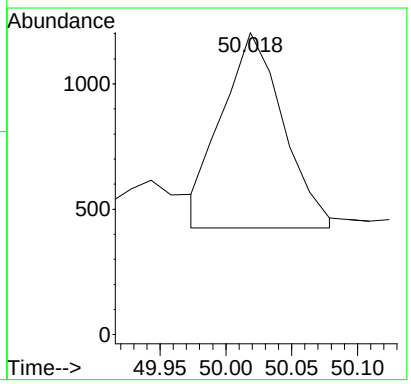
Tgt Ion:217 Resp: 2425

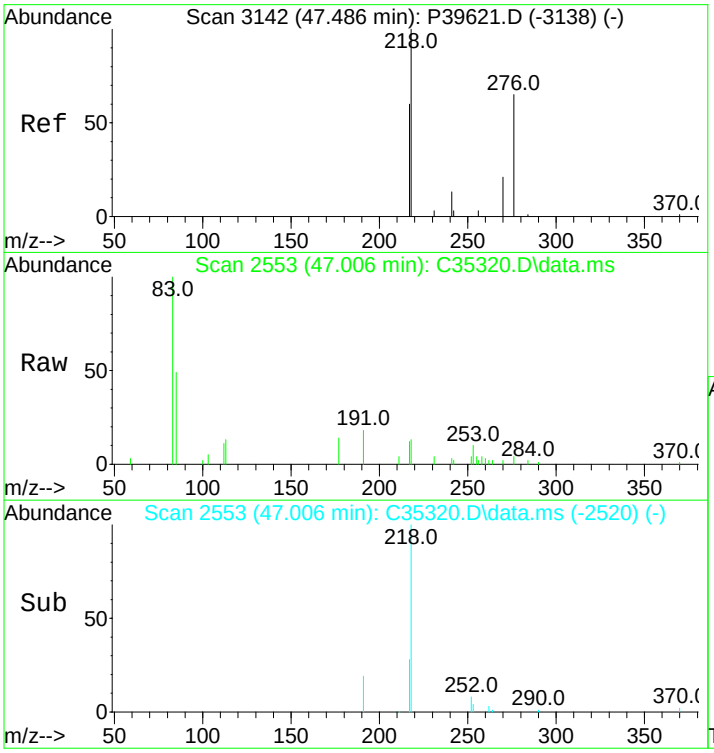




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 228.21 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

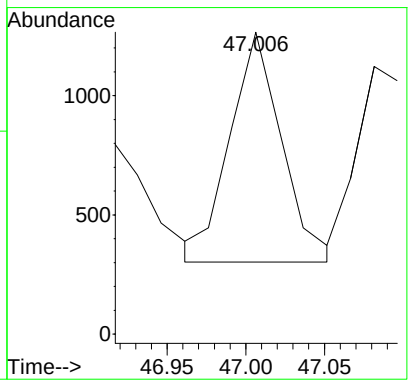
Tgt Ion:217 Resp: 2516

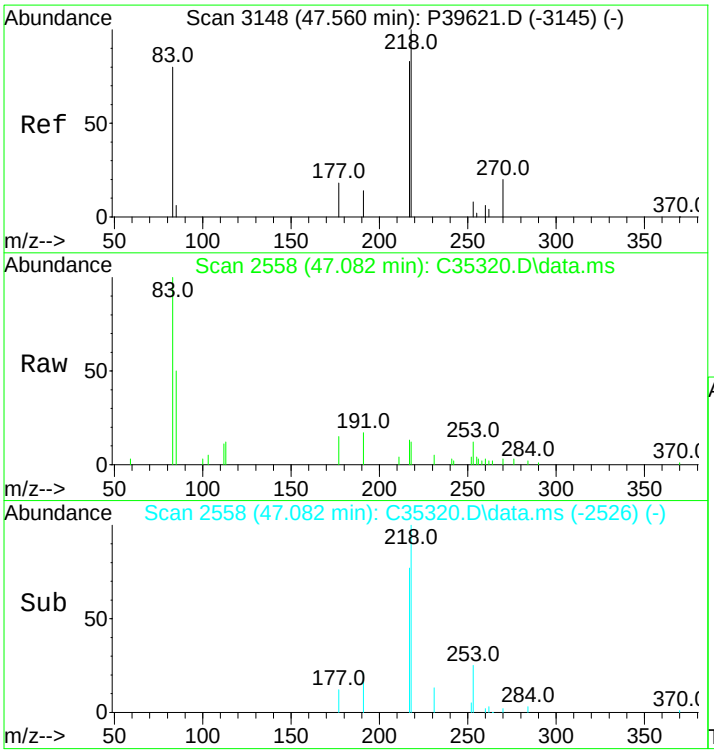




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 200.28 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

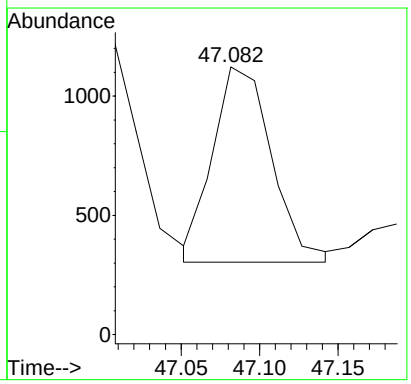
Tgt Ion:218 Resp: 2208

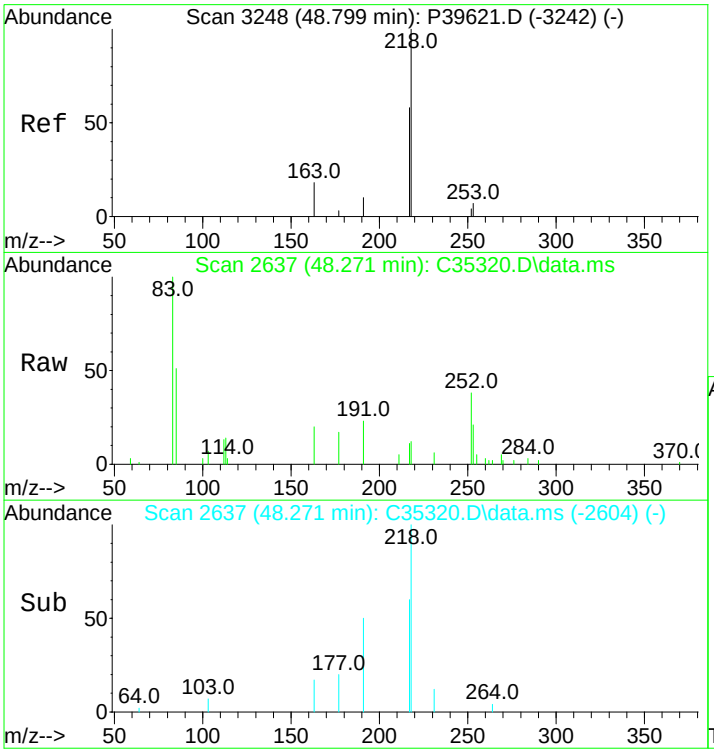




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 193.57 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

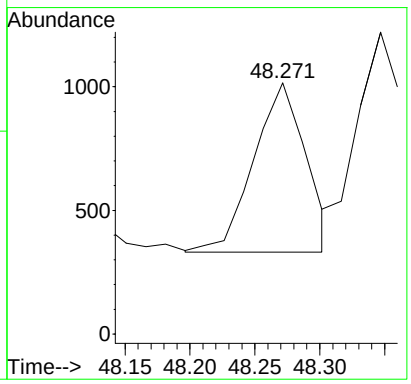
Tgt Ion:218 Resp: 2134

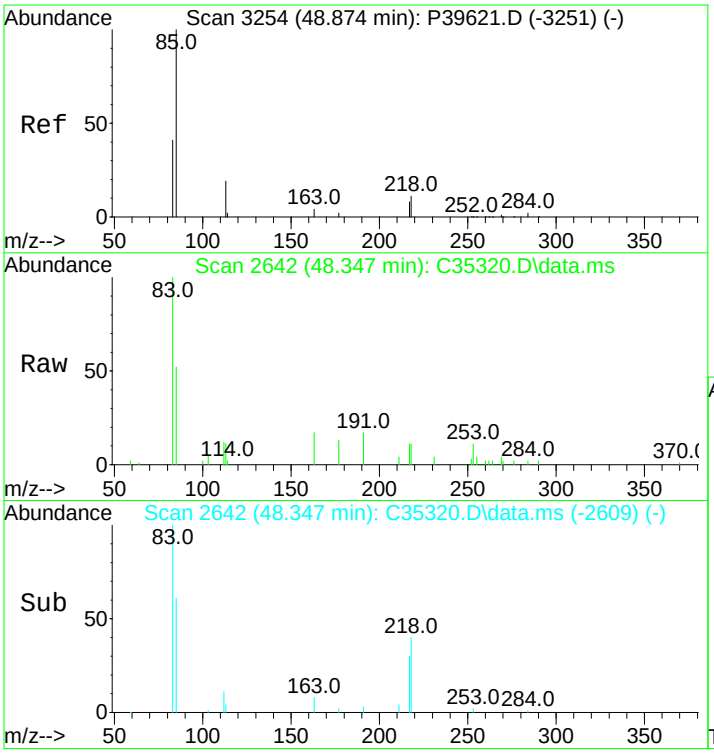




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 174.25 ng/ml m
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

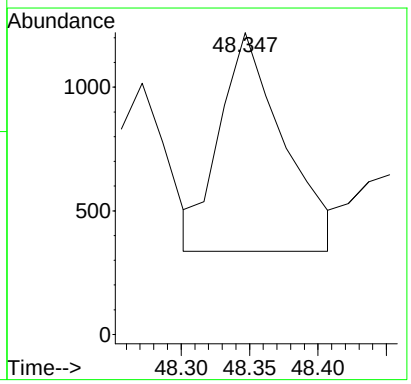
Tgt Ion:218 Resp: 1921

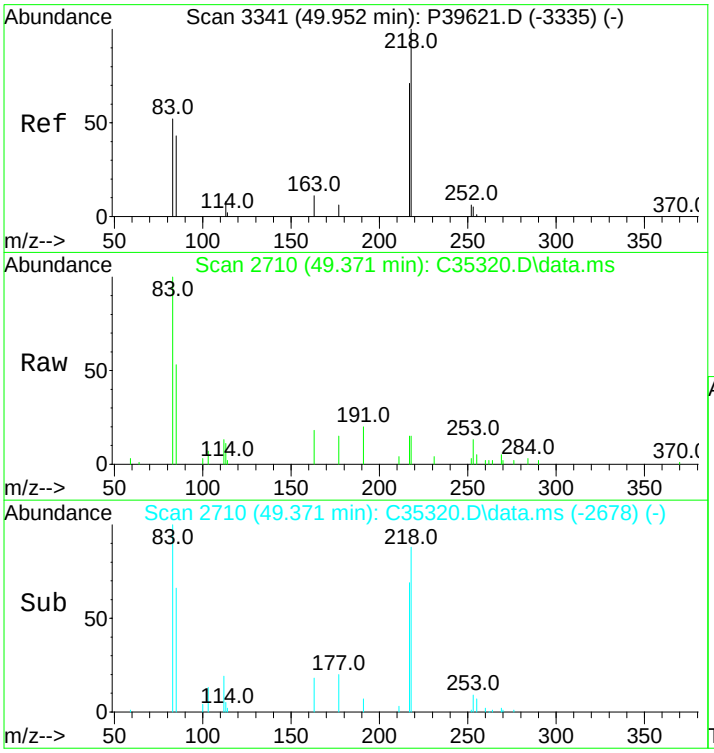




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 259.15 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

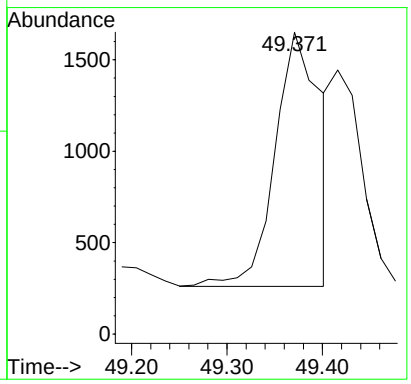
Tgt Ion:218 Resp: 2857

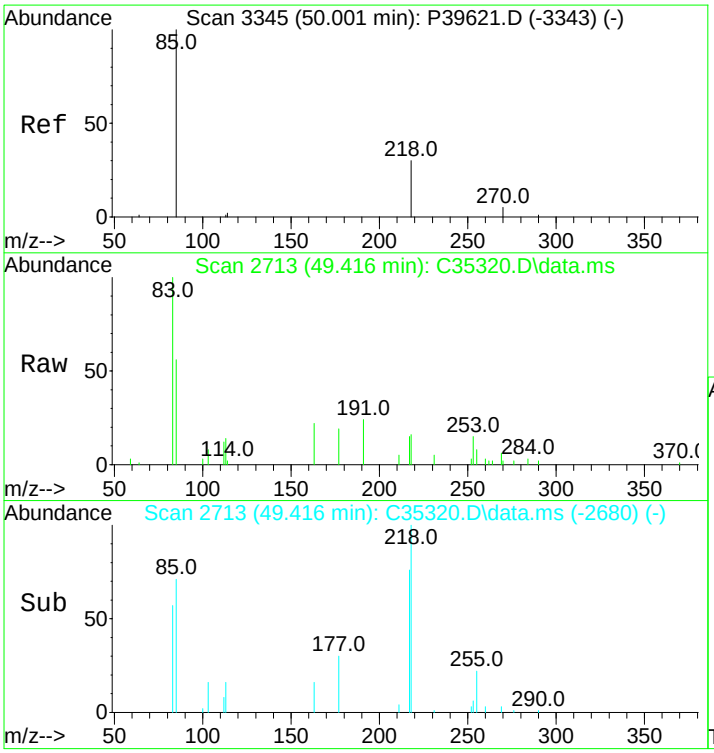




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 421.69 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

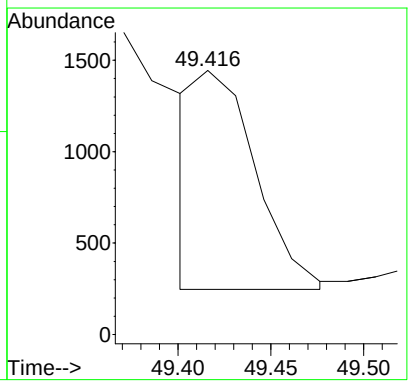
Tgt Ion:218 Resp: 4649

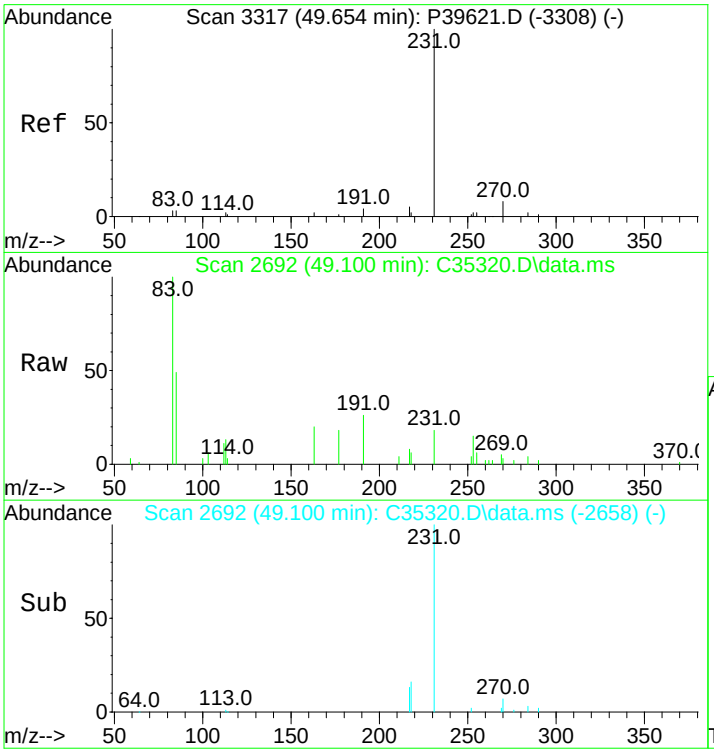




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 243.09 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

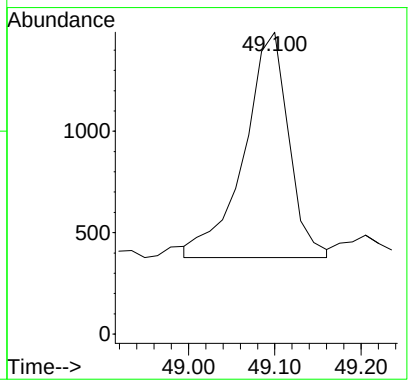
Tgt Ion:218 Resp: 2680

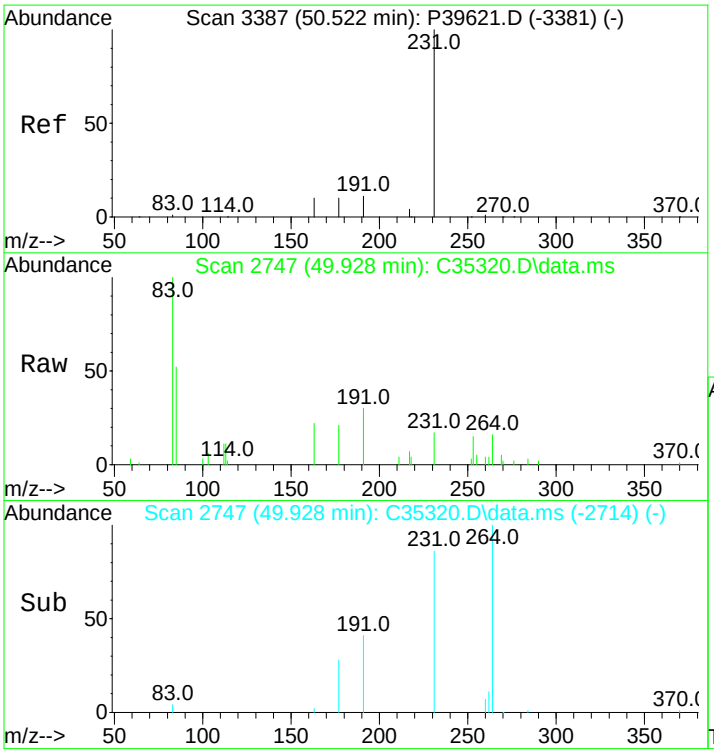




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 363.09 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

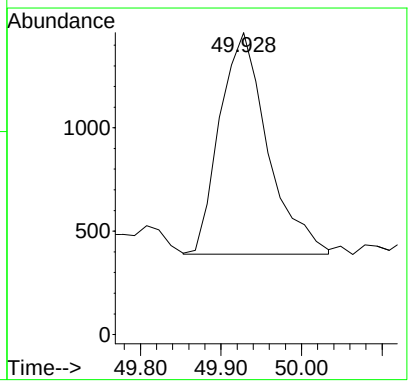
Tgt Ion:231 Resp: 4003

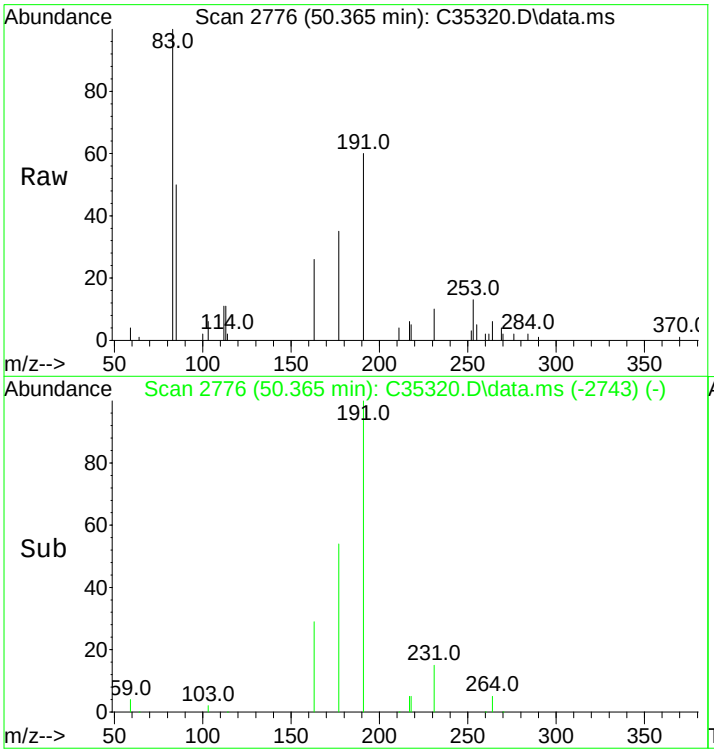




#146
C28,20S-triaromatic steroid
Concen: 402.10 ng/mL m
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

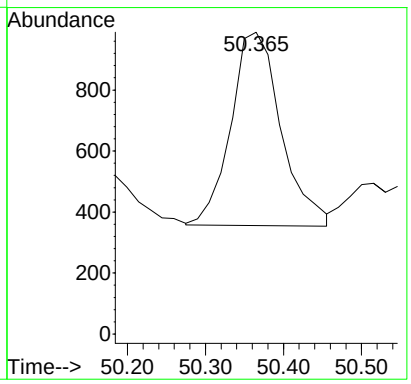
Tgt Ion:231 Resp: 4433

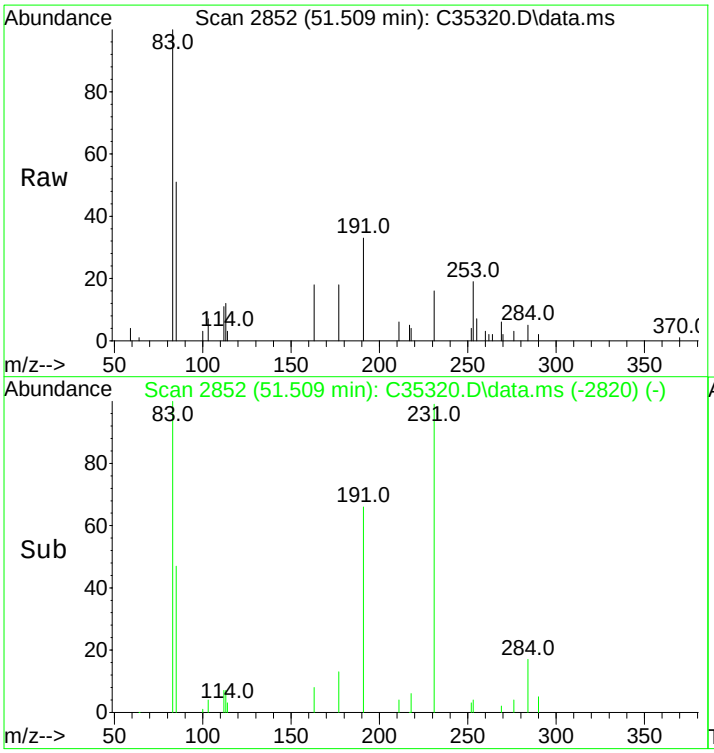




#147
C27,20R-triaromatic steroid
Concen: 257.60 ng/mL
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

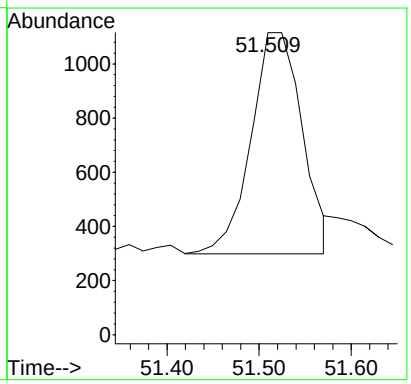
Tgt Ion:231 Resp: 2840





#148
C28,20R-triaromatic steroid
Concen: 286.72 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35320.D
Acq: 26 May 2012 3:19 am

Tgt Ion:231 Resp: 3161



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16811	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	37955	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	19355	265.268	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 26.53%#			
42) Phenanthrene-d10	32.221	188	20974	363.678	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.37%#			
86) Benzo[a]pyrene-d12	47.850	264	27994	355.892	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 35.59%#			
127) 5B(H)Cholane - Surr	43.422	217	4284	361.011	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.10%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	89M3	6.706	ng/mL	
10) Naphthalene	19.485	128	3278	30.594	ng/mL#	100
11) C1-Naphthalenes	22.180	142	3569M5	33.310	ng/mL	
12) C2-Naphthalenes	24.679	156	5846M5	54.562	ng/mL	
13) C3-Naphthalenes	28.563	170	4084M5	38.117	ng/mL	
14) C4-Naphthalenes	31.363	184	3356M5	31.322	ng/mL	
16) 2-Methylnaphthalene	22.180	142	2180	34.411	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	1234	19.872	ng/mL#	100
18) Benzothiophene	19.696	134	103M3	1.068	ng/mL	
23) Biphenyl	24.061	154	632M3	7.886	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	2176	41.806	ng/mL#	100
25) Dibenzofuran	27.132	168	1827	19.853	ng/mL	97
26) Acenaphthylene	25.747	152	2660	25.010	ng/mL#	100
27) Acenaphthene	26.485	153	953	15.218	ng/mL	91
28) 2,3,5-Trimethylnaphthalen	28.036	170	267M3	6.363	ng/mL	
29) Fluorene	28.502	166	1580	22.876	ng/mL	97
30) C1-Fluorenes	30.866	180	1091M5	15.796	ng/mL	
31) C2-Fluorenes	33.064	194	2536M5	36.718	ng/mL	
32) C3-Fluorenes	35.563	208	6096M5	88.262	ng/mL	
33) Dibenzothiophene	31.814	184	1778	16.059	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	711M3	6.422	ng/mL	
35) 2/3-Methyldibenzothiophen	33.907	198	441M3	3.983	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	281	2.538	ng/mL#	100
37) OTP	33.997	198	5158M3	46.588	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	7092M5	64.057	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	1934m	17.468	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	4598M5	41.530	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	7583M5	68.492	ng/mL	
41) C4-Dibenzothiophenes	40.562	240	7932M5	71.644	ng/mL	
43) Phenanthrene	32.311	178	19537	200.850	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	2957	30.399	ng/mL	99
45) 2-Methylphenanthrene(2MP)	34.374	192	2772	28.498	ng/mL	99
46) 2-Methylanthracene(2MA)	34.539	192	1129M3	11.607	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	2932M3	30.142	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	1963M3	20.181	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.268	192	12257M5	126.008	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	15783M5	162.257	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	15783m	162.257	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	11395M5	117.146	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.577	234	8849M5	90.972	ng/mL	
55) Anthracene	32.492	178	4858M3	51.130	ng/mL	
56) Carbazole	33.169	167	2165	22.558	ng/mL#	91
57) 1-Methylphenanthrene	34.810	192	1981M3	32.137	ng/mL	
58) Fluoranthene	37.084	202	95107M3	984.472	ng/mL	
59) Benzo(b)fluorene	39.598	216	6330M3	112.940	ng/mL	
60) Pyrene	37.957	202	84362	859.053	ng/mL	98

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
61) C1-Fluoranthenes/Pyrenes	39.357	216	40889M5	416.370	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	27138M5	276.344	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.287	244	16429M5	167.295	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.567	258	17250M5	175.656	ng/mL	
66) Naphthobenzothiophene	41.811	234	10166	96.155	ng/mL#	71
67) Naphthobenzothiophene-2,1	41.811	234	10166	96.155	ng/mL#	71
68) Naphthobenzothiophene-1,2	42.143	234	2278M3	21.546	ng/mL	
69) Naphthobenzothiophene-2,3	42.444	234	3331M3	31.506	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	11946M5	112.991	ng/ml	
71) C2-Naphthobenzothiophenes	45.214	262	15009M5	141.962	ng/ml	
72) C3-Naphthobenzothiophenes	46.810	276	15063M5	142.473	ng/ml	
73) C4-Naphthobenzothiophenes	47.865	290	13775M5	130.290	ng/mL	
75) Benz[a]anthracene	42.730	228	33785M3	280.447	ng/mL	
77) Chrysene/Triphenylene	42.895	228	56444M3	464.090	ng/mL	
78) C1-Chrysenes	44.371	242	23206M5	190.803	ng/mL	
79) C2-Chrysenes	45.756	256	17650M5	145.121	ng/mL	
79) C2-Chrysenes BS	45.756	256	17650m	145.121	ng/mL	
80) C3-Chrysenes	48.076	270	27877M5	229.208	ng/mL	
81) C4-Chrysenes	48.076	284	18277M5	150.276	ng/mL	
82) Benzo[b]fluoranthene	46.780	252	77757	587.418	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	74438M3	516.509	ng/mL	
84) Benzo[a]fluoranthene	47.157	252	10731	74.460	ng/mL#	8
85) Benzo[e]pyrene	47.759	252	55988	427.614	ng/mL	92
87) Benzo[a]pyrene	47.940	252	61723	489.634	ng/mL	92
88) Perylene	48.241	252	45649	338.837	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.579	276	67327M3	458.946	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	16817M3	120.508	ng/mL	
91) Benzo[g,h,i]perylene	53.828	276	67461	435.265	ng/mL	99
92) Hopane (T19)	51.705	191	34328	1372.295	ng/mL#	75
94) C23 Tricyclic Terpane (T4	40.456	191	3565M3	142.514	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2265M3	90.546	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2251M3	89.986	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2835M3	113.332	ng/ml	
98) C26 Tricyclic Terpane-22S	43.723	191	1492	59.644	ng/ml	100
99) C26 Tricyclic Terpane-22R	43.814	191	1298M3	51.889	ng/ml	
100) C28 Tricyclic Terpane-22S	46.103	191	1983M3	79.272	ng/ml	
101) C28 Tricyclic Terpane-22R	46.268	191	2335M3	93.344	ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	1932	77.234	ng/ml	100
103) C29 Tricyclic Terpane-22R	46.976	191	1964	78.513	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	7790	311.413	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	1921M3	76.794	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1775M3	70.957	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	7857	314.091	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.747	191	2152M3	86.028	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.551	191	3018M3	120.647	ng/ml	
110) 30-Norhopane (T15)	50.395	191	25445	1017.188	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.485	191	8282M3	331.081	ng/ml	
112) 17a(H)-Diahopane (X)	50.606	191	2299	91.905	ng/ml	100
113) 30-Normoretane (T17)	51.148	191	4121	164.741	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.524	191	3199	127.883	ng/ml	100
115) Moretane (T20)	52.368	191	6686M3	267.279	ng/ml	
116) 30-Homohopane-22S (T21)	53.422	191	11901M3	475.754	ng/ml	
117) 30-Homohopane-22R (T22)	53.648	191	10539	421.307	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	3464M3	138.477	ng/mL	
119) 30,31-Bishomohopane-22S (	54.882	191G	46131M3	1844.131	ng/ml	
120) 30,31-Bishomohopane-22R (	55.304	191	6214	248.411	ng/ml	100
121) 30,31-Trishomohopane-22S	56.976	191	7242M3	289.506	ng/ml	
122) 30,31-Trishomohopane-22R	57.563	191	2995M3	119.728	ng/ml	
123) Tetrakishomohopane-22S (T	59.520	191G	10767	430.421	ng/ml	100
124) Tetrakishomohopane-22R (T	60.288	191G	9581M3	383.010	ng/ml	
125) Pentakishomohopane-22S (T	62.487	191	3055M3	122.127	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
126) Pentakishomohopane-22R (T	63.722	191	2590M3	103.538	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	44.943	217	2542	214.214	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.365	217	1589M3	133.905	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.057	217	1306	110.056	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.916	217	4876M3	410.899	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	47.428	217	3690M3	310.955	ng/ml	
133) Unknown Sterane (S18)	47.699	217	1017M3	85.702	ng/ml	
134) 13a,17b-20S-Ethyldiachole	47.955	217	122	10.281	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.106	217	2079M3	175.197	ng/ml	
136) 14a,17a-20R-Methylcholest	48.798	217	1849M3	155.815	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.130	217	2434M3	205.112	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.018	217	2422M3	204.101	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.006	218	2314M3	195.000	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.082	218	2298M3	193.652	ng/ml	
141) 14b,17b-20R-Methylcholest	48.271	218	2161	182.107	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.347	218	3046M3	256.686	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.371	218	4690M3	395.225	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.416	218	2823M3	237.893	ng/ml	
145) C26,20R- +C27,20S- triaro	49.100	231	4003M3	337.332	ng/mL	
146) C28,20S-triaromatic stero	49.928	231	4643	391.264	ng/mL	100
147) C27,20R-triaromatic stero	50.365	231	2776M3	233.933	ng/mL	
148) C28,20R-triaromatic stero	51.524	231	3288M3	277.079	ng/mL	

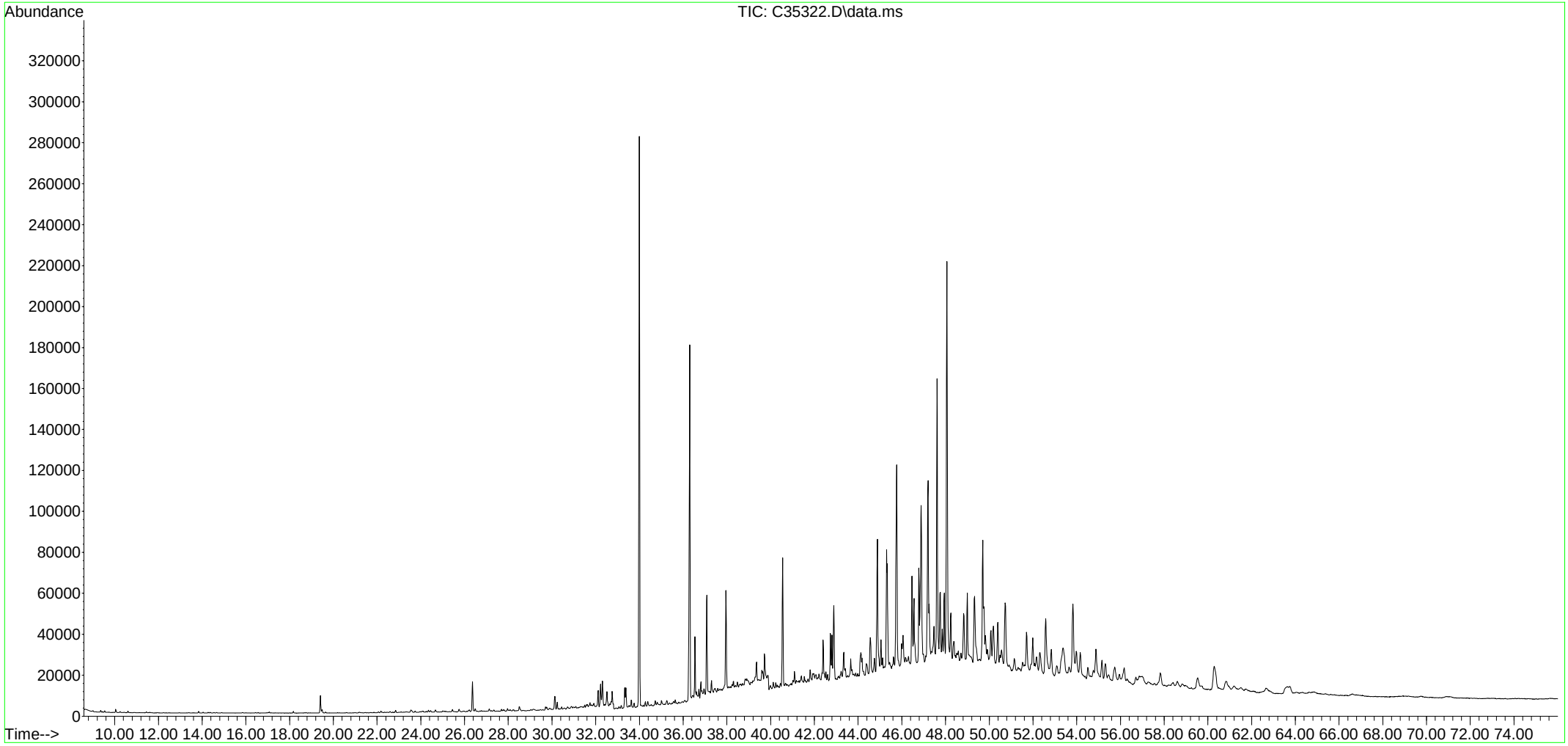
(#) = qualifier out of range (m) = manual integration (+) = signals summed

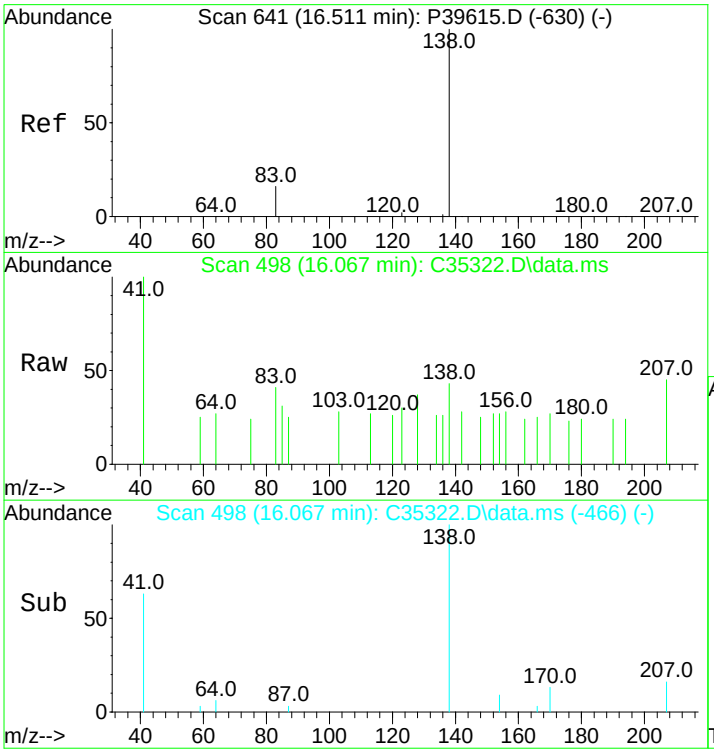
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35322.D
Acq On : 26 May 2012 4:55 am
Operator : AC
Sample : 1205027-06D
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 29 12:16:46 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

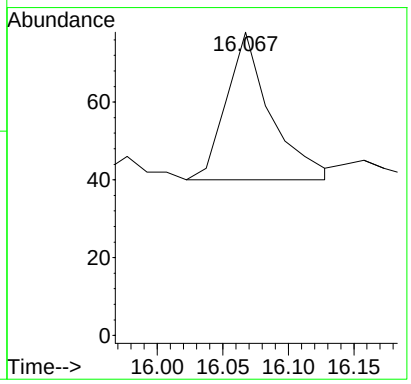
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

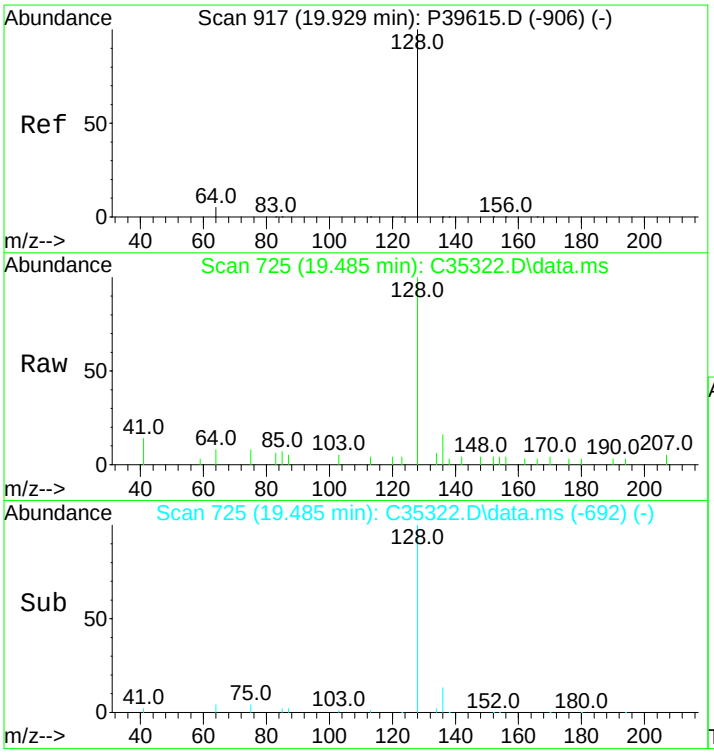




#3
trans-Decalin
Concen: 6.71 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:138 Resp: 89

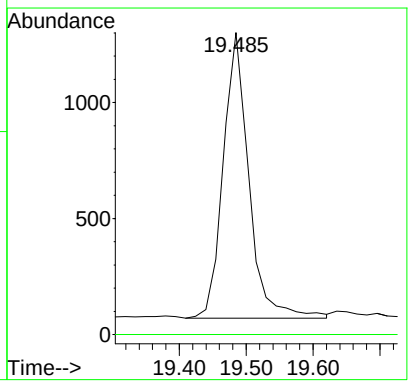


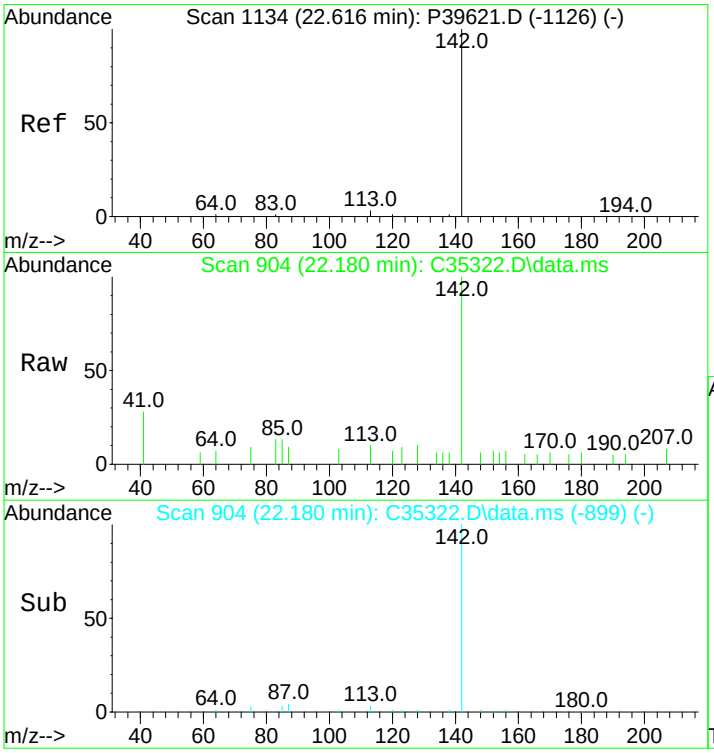


#10
Naphthalene
Concen: 30.59 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:128 Resp: 3278

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

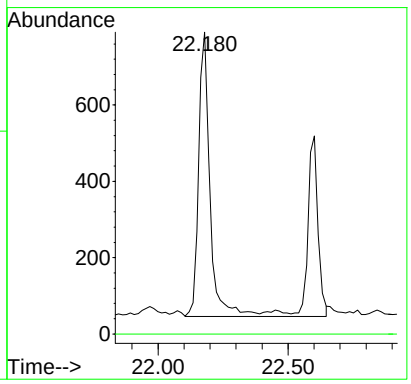


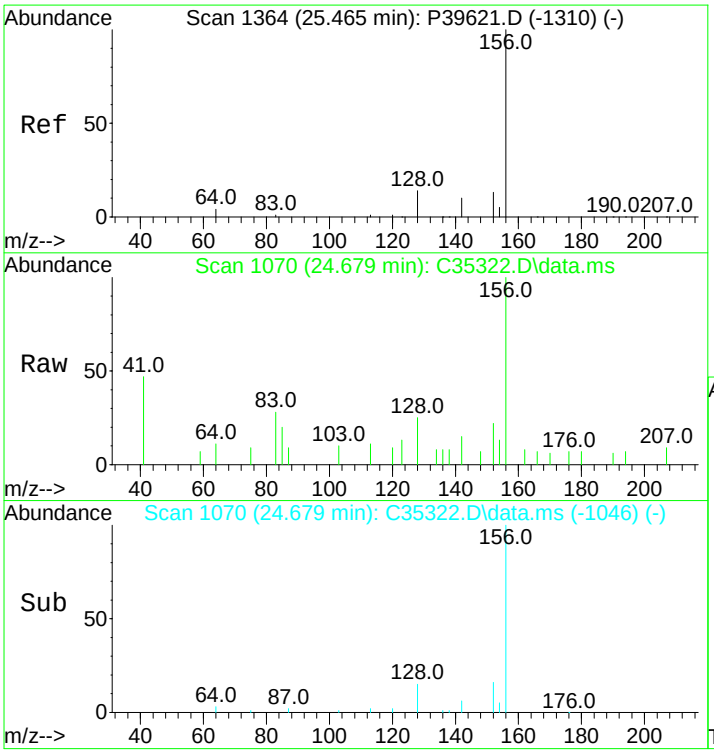


#11
C1-Naphthalenes
Concen: 33.31 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:142 Resp: 3569

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

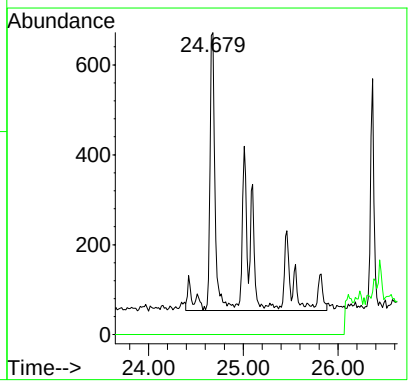


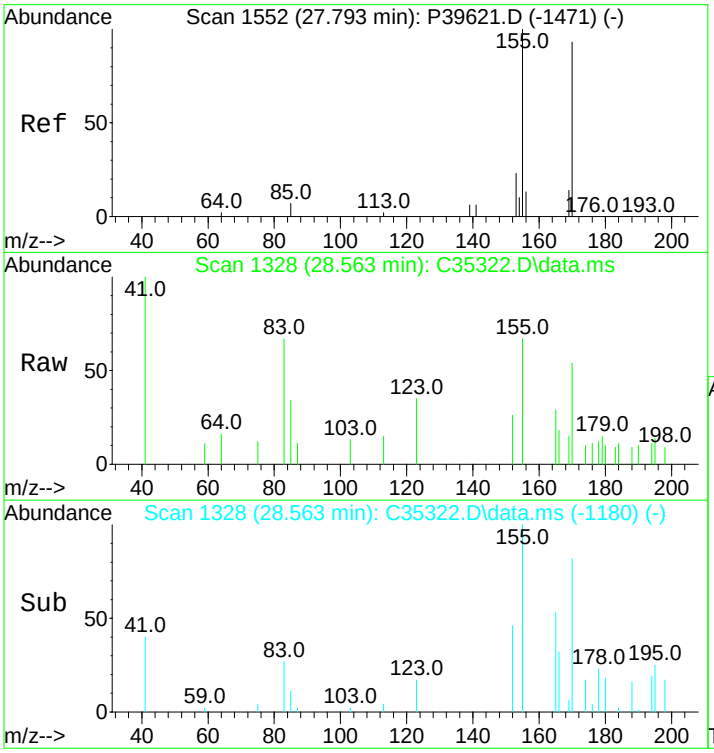


#12
C2-Naphthalenes
Concen: 54.56 ng/mL m
RT: 24.679 min Scan# 1070
Delta R.T. -0.354 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:156 Resp: 5846

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

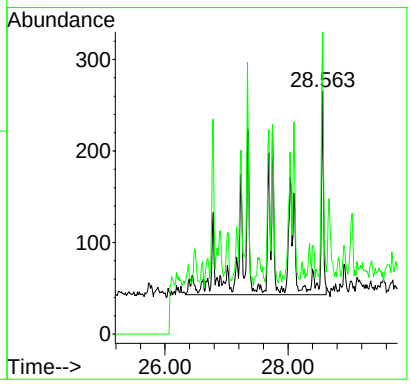


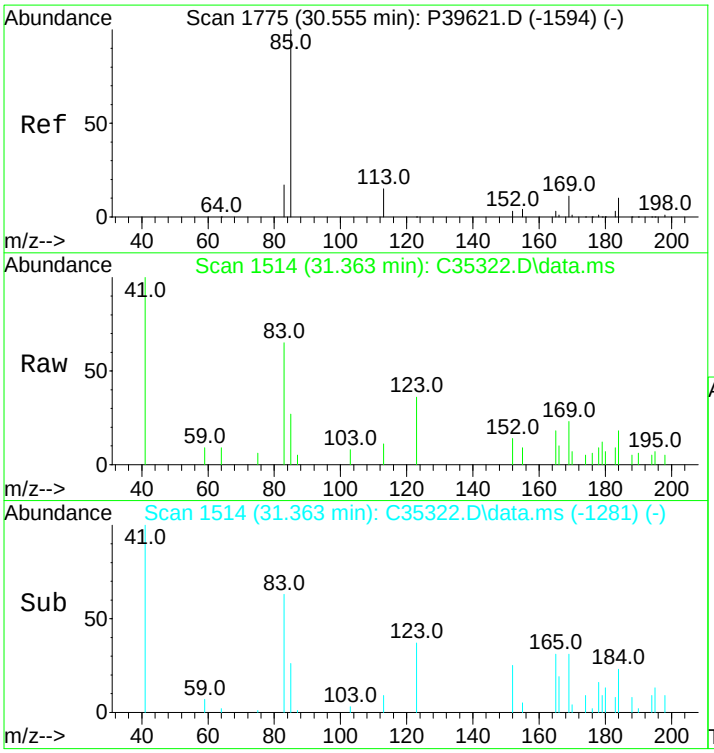


#13
C3-Naphthalenes
Concen: 38.12 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:170 Resp: 4084

Ion	Ratio	Lower	Upper
170	100		
155	14.6	86.3	129.5#

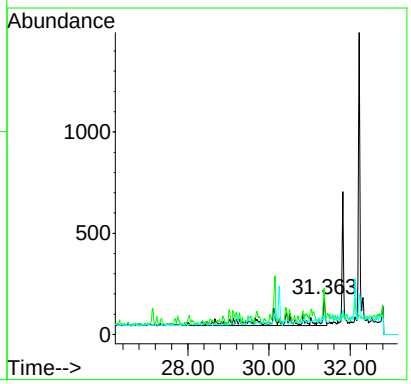


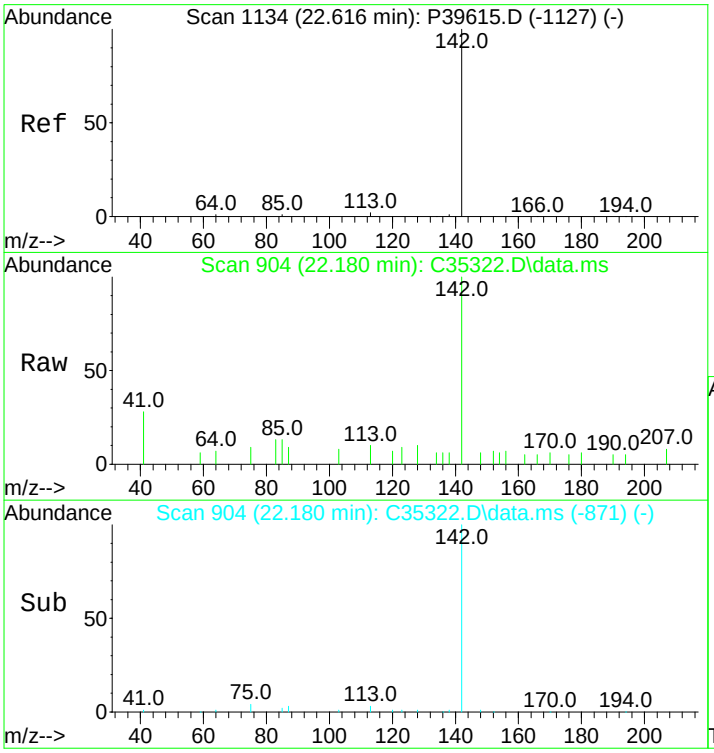


#14
C4-Naphthalenes
Concen: 31.32 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:184 Resp: 3356

Ion	Ratio	Lower	Upper
184	100		
169	0.0	100.6	150.8#
183	0.0	26.6	40.0#

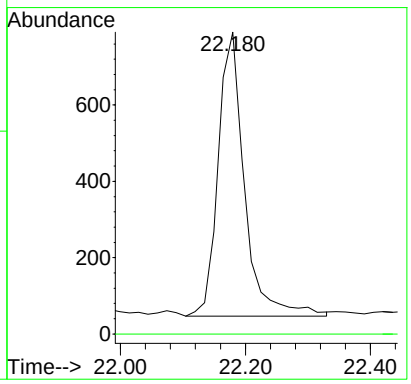


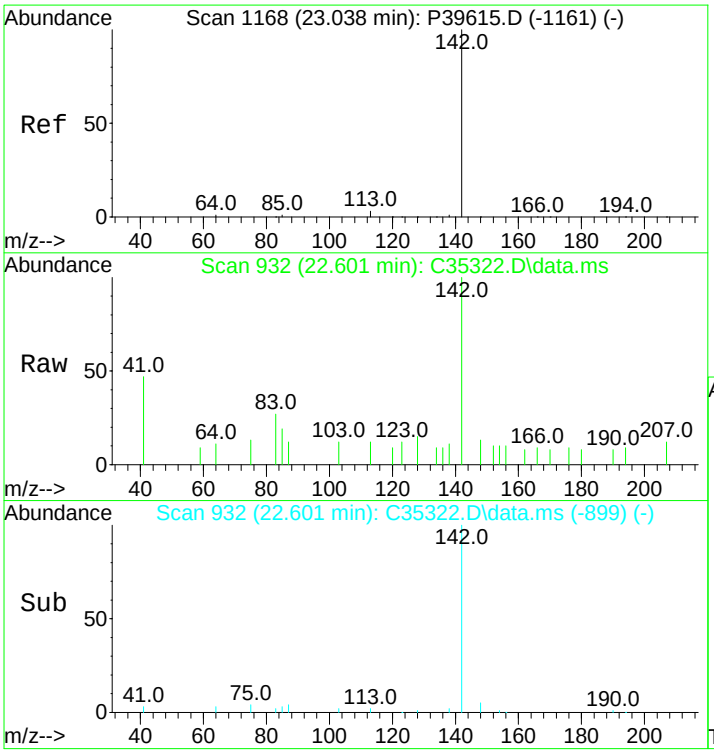


#16
2-Methylnaphthalene
Concen: 34.41 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:142 Resp: 2180

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

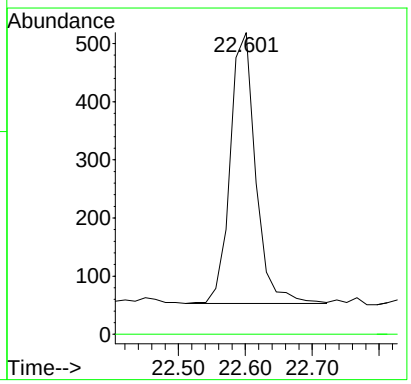


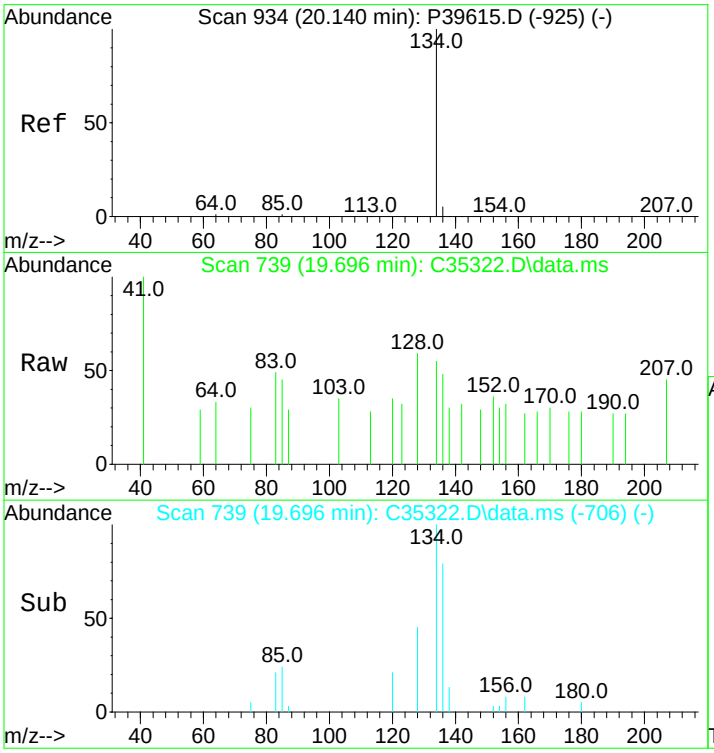


#17
1-Methylnaphthalene
Concen: 19.87 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:142 Resp: 1234

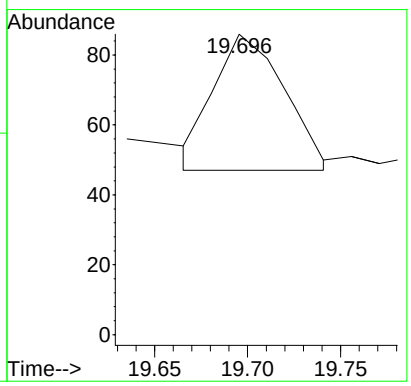
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

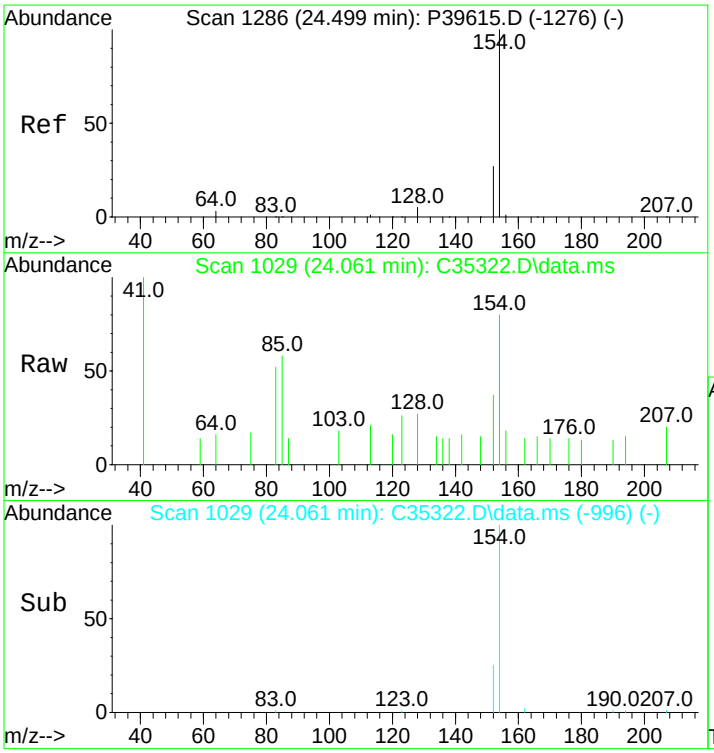




#18
Benzothiophene
Concen: 1.07 ng/mL m
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:134 Resp: 103

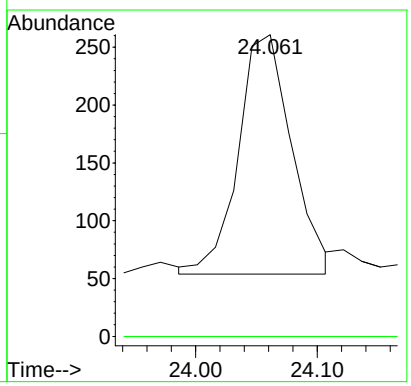


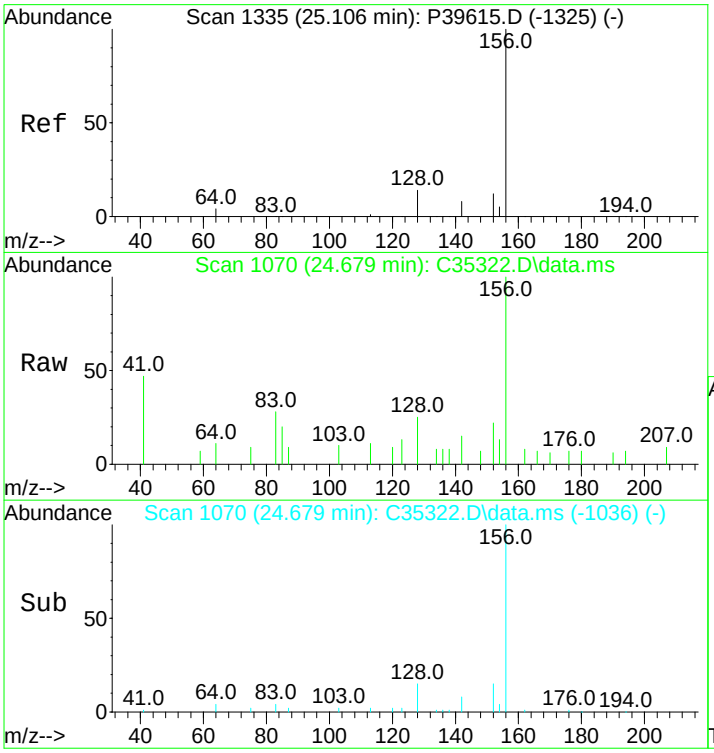


#23
Biphenyl
Concen: 7.89 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:154 Resp: 632

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

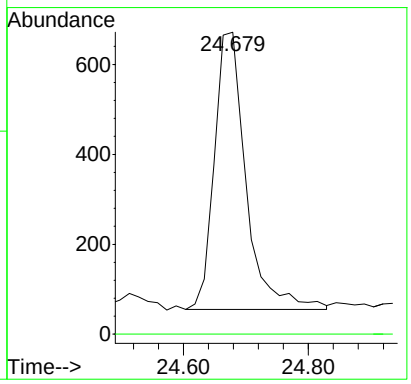


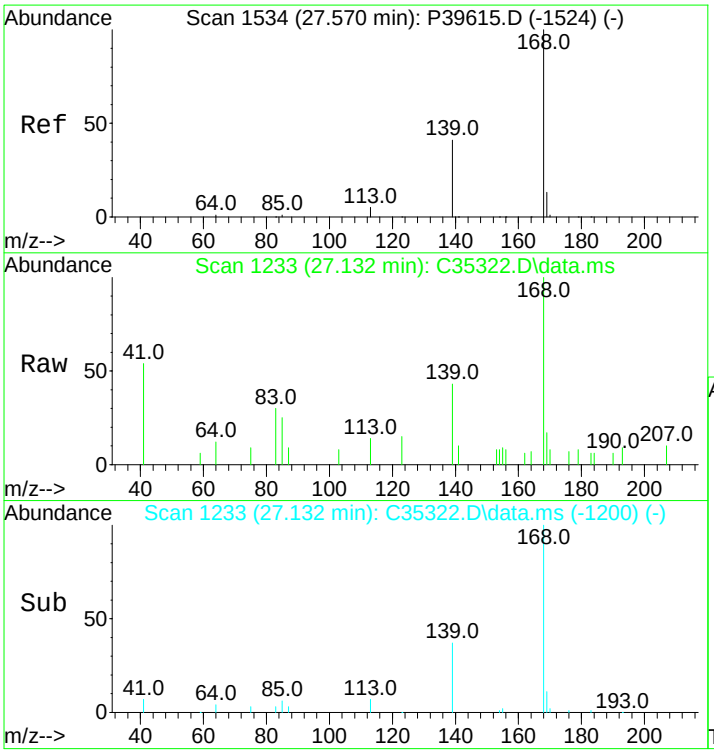


#24
2,6-Dimethylnaphthalene
Concen: 41.81 ng/mL
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:156 Resp: 2176

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

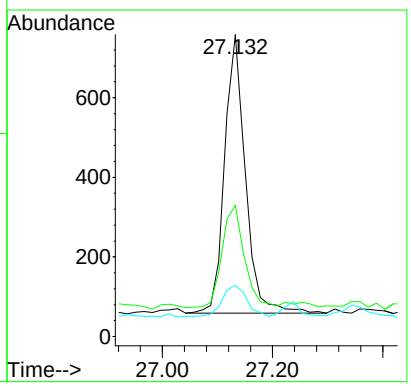


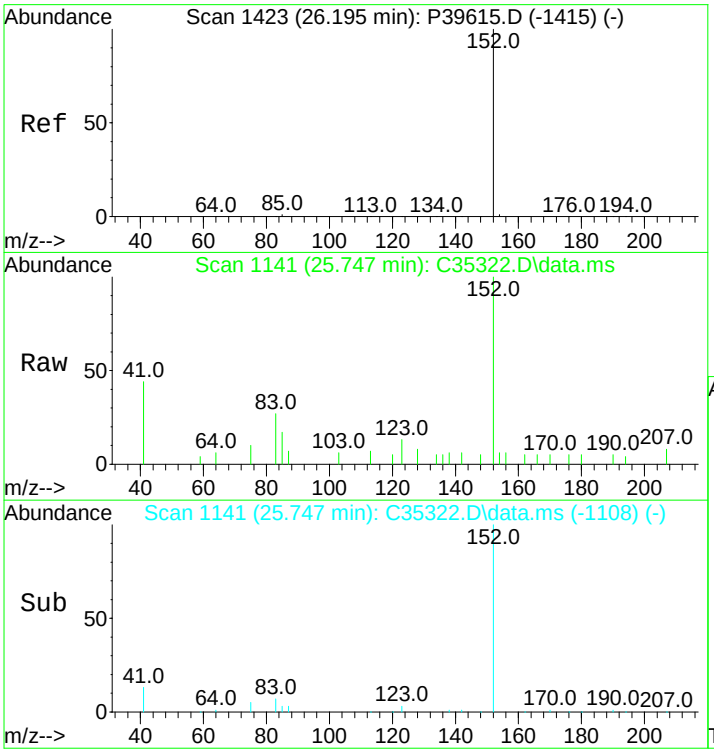


#25
Dibenzofuran
Concen: 19.85 ng/mL
RT: 27.132 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:168 Resp: 1827

Ion	Ratio	Lower	Upper
168	100		
139	39.8	29.9	44.9
169	12.9	10.3	15.5

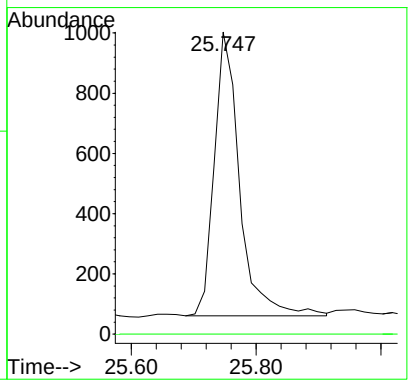


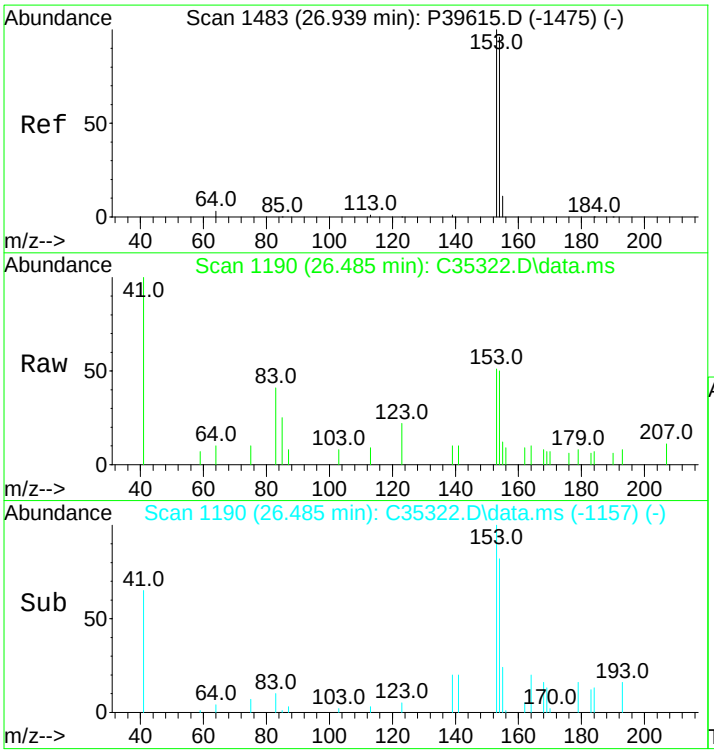


#26
Acenaphthylene
Concen: 25.01 ng/mL
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:152 Resp: 2660

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

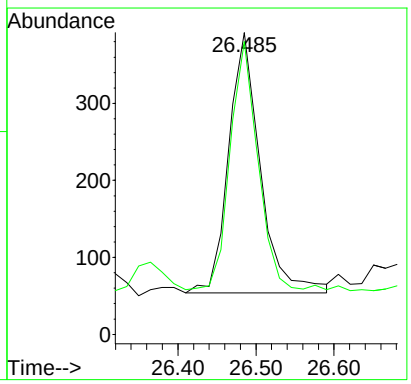


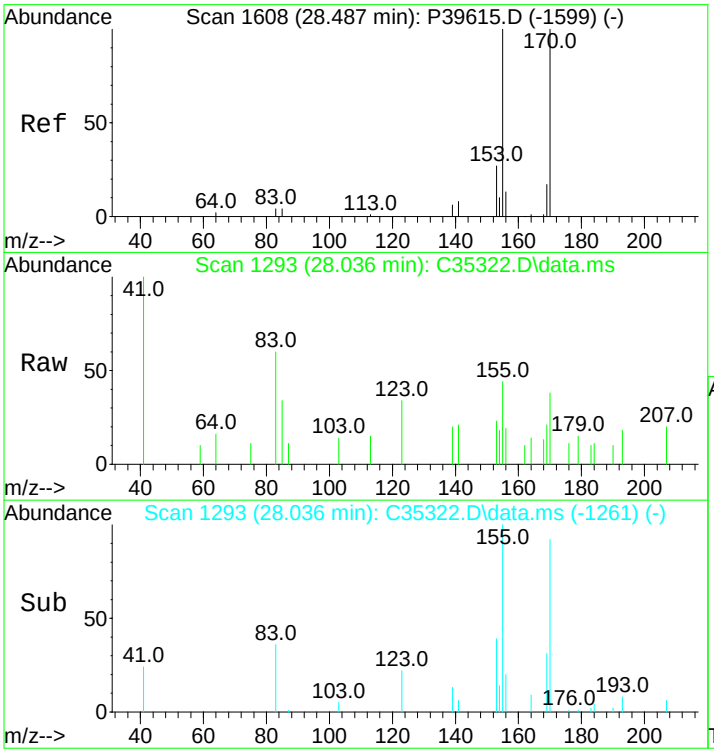


#27
Acenaphthene
Concen: 15.22 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:153 Resp: 953

Ion	Ratio	Lower	Upper
153	100		
154	83.0	73.3	109.9

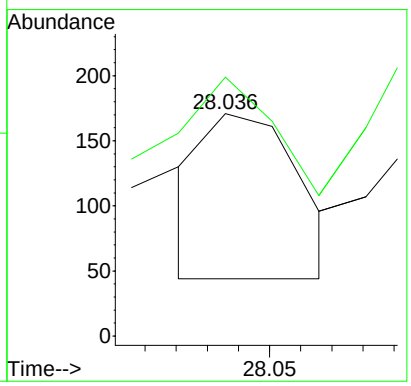


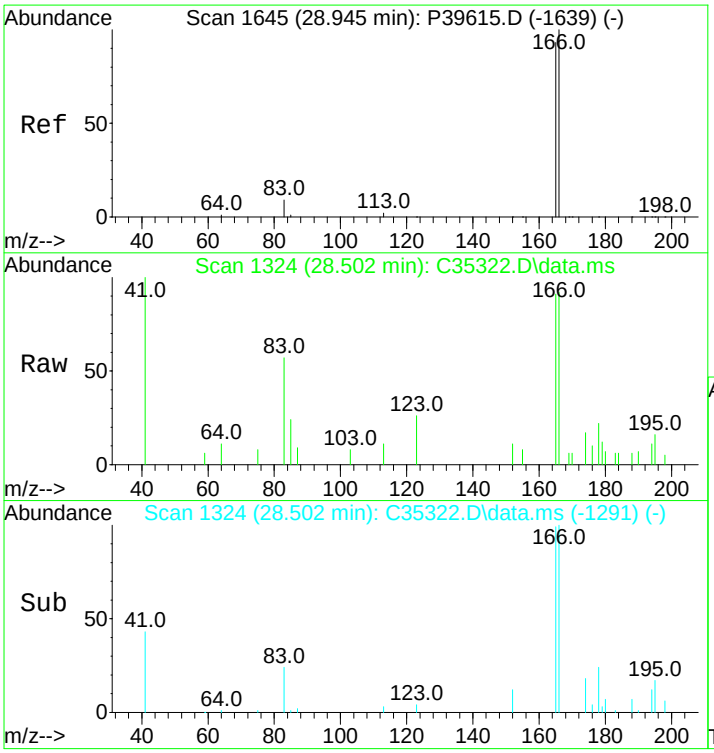


#28
2,3,5-Trimethylnaphthalene
Concen: 6.36 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:170 Resp: 267

Ion	Ratio	Lower	Upper
170	100		
155	190.6	78.4	117.6#

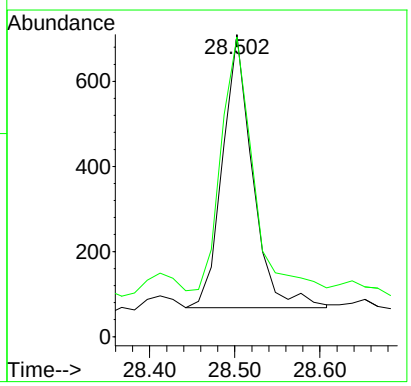


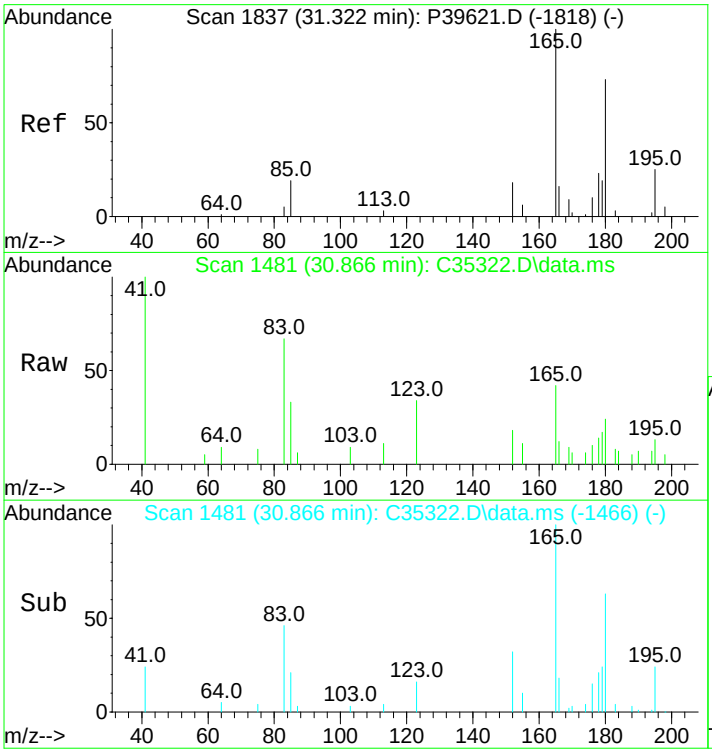


#29
Fluorene
Concen: 22.88 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:166 Resp: 1580

Ion	Ratio	Lower	Upper
166	100		
165	98.9	77.1	115.7

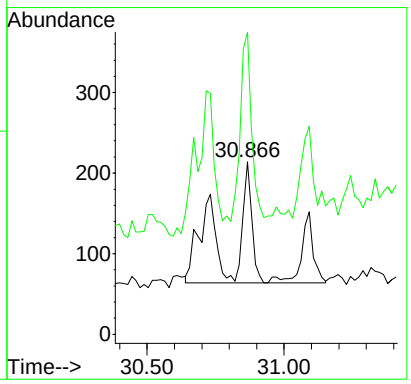


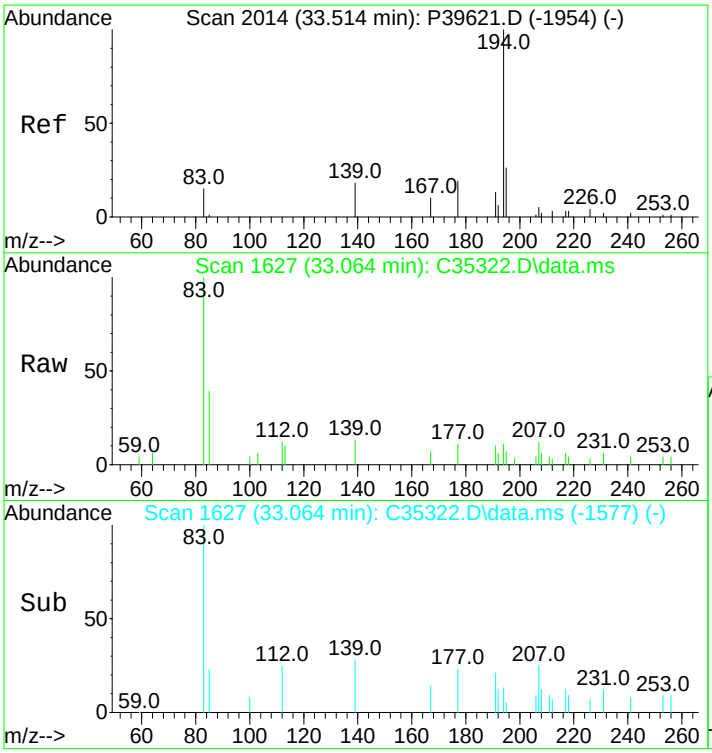


#30
C1-Fluorenes
Concen: 15.80 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:180 Resp: 1091

Ion	Ratio	Lower	Upper
180	100		
165	41.6	121.9	182.9#

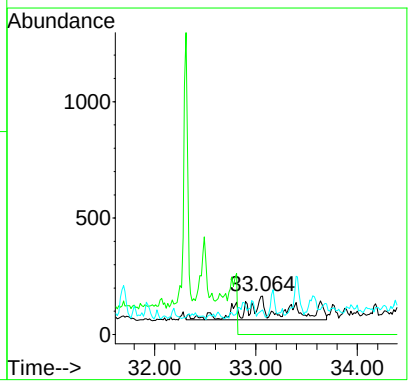


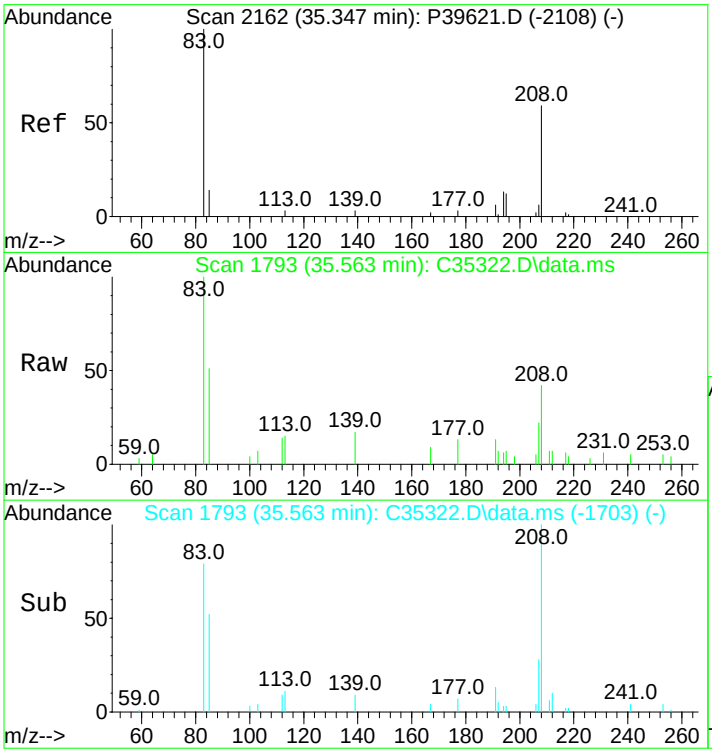


#31
C2-Fluorenes
Concen: 36.72 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.127 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:194 Resp: 2536

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	8.0	30.5	45.7#

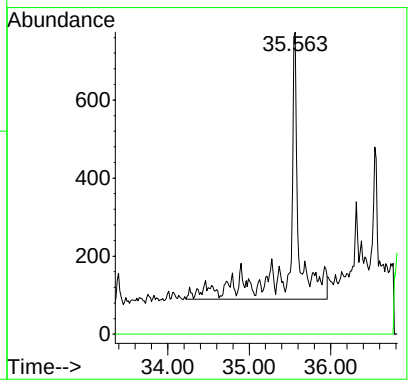


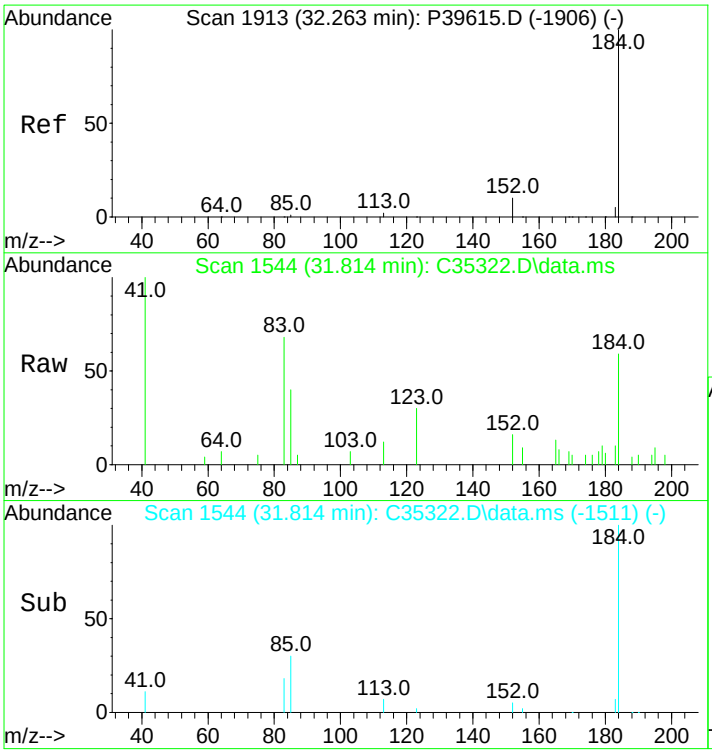


#32
C3-Fluorenes
Concen: 88.26 ng/mL m
RT: 35.563 min Scan# 1793
Delta R.T. 0.820 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:208 Resp: 6096

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

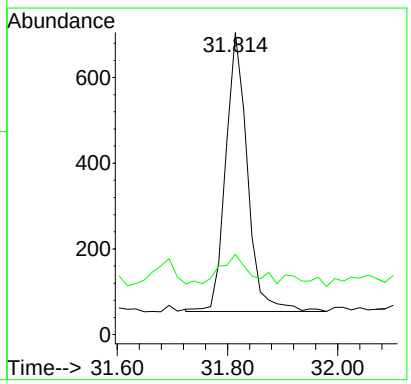


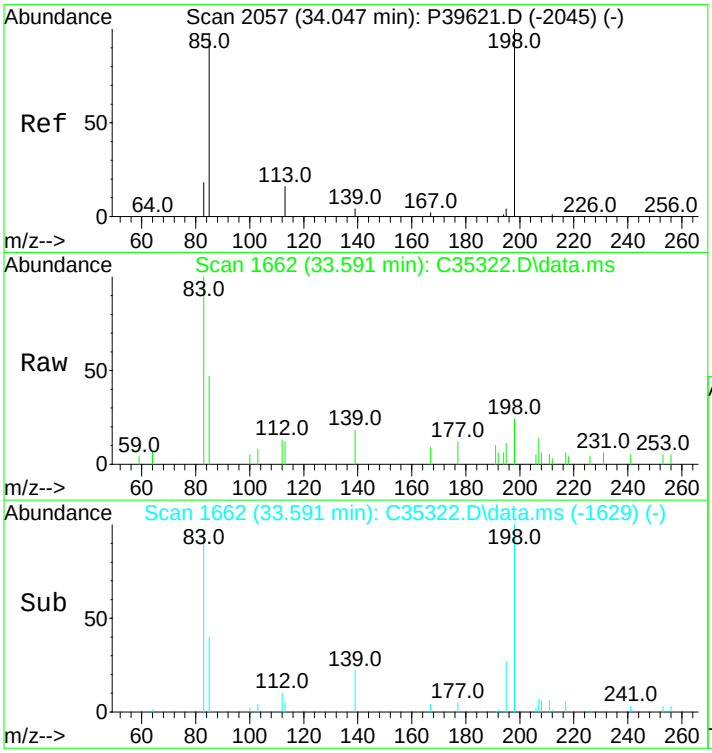


#33
Dibenzothiophene
Concen: 16.06 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:184 Resp: 1778

Ion	Ratio	Lower	Upper
184	100		
152	12.0	7.5	11.3#

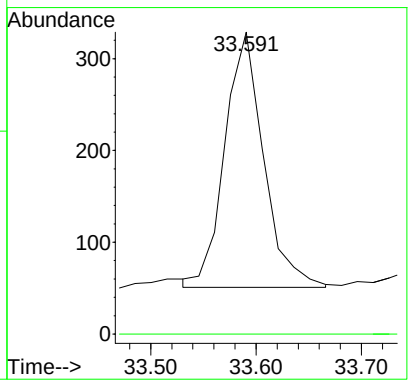


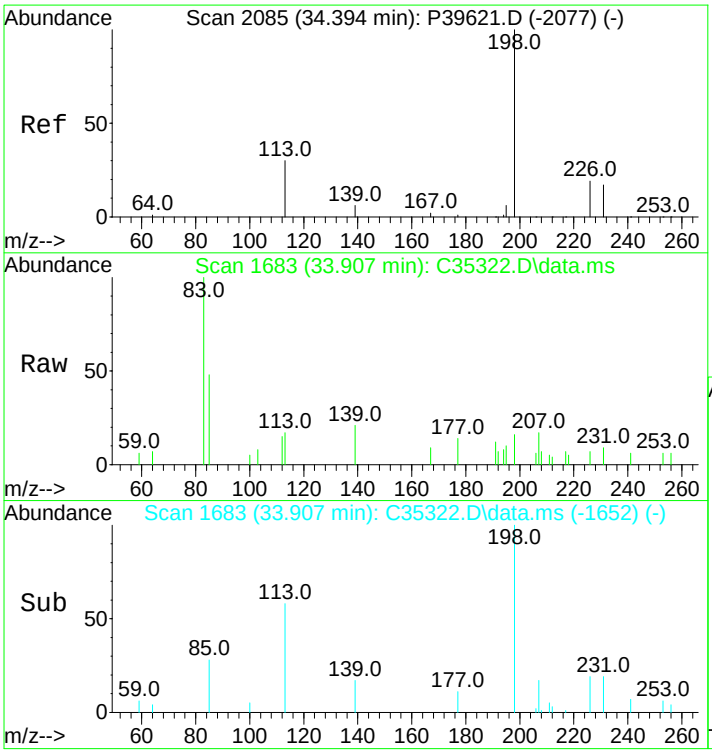


#34
4-Methyldibenzothiophene(4MDT)
Concen: 6.42 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:198 Resp: 711

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

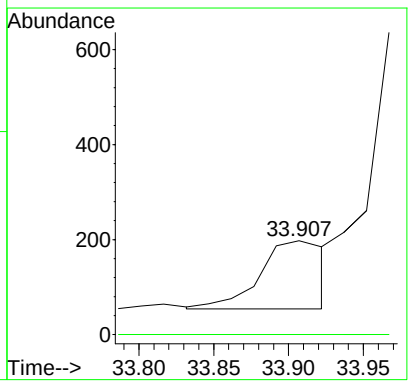


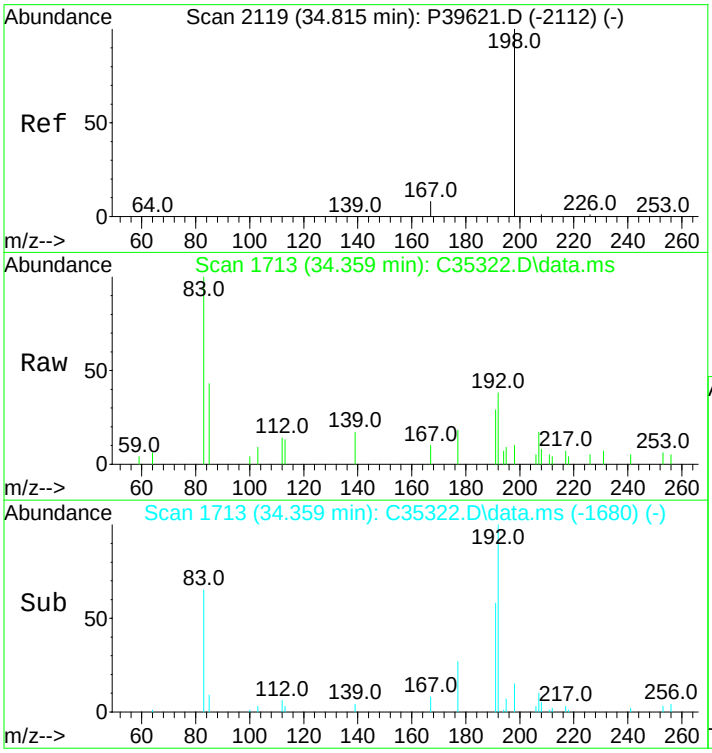


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 3.98 ng/mL m
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:198 Resp: 441

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

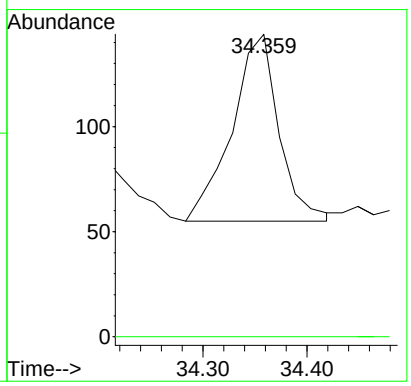


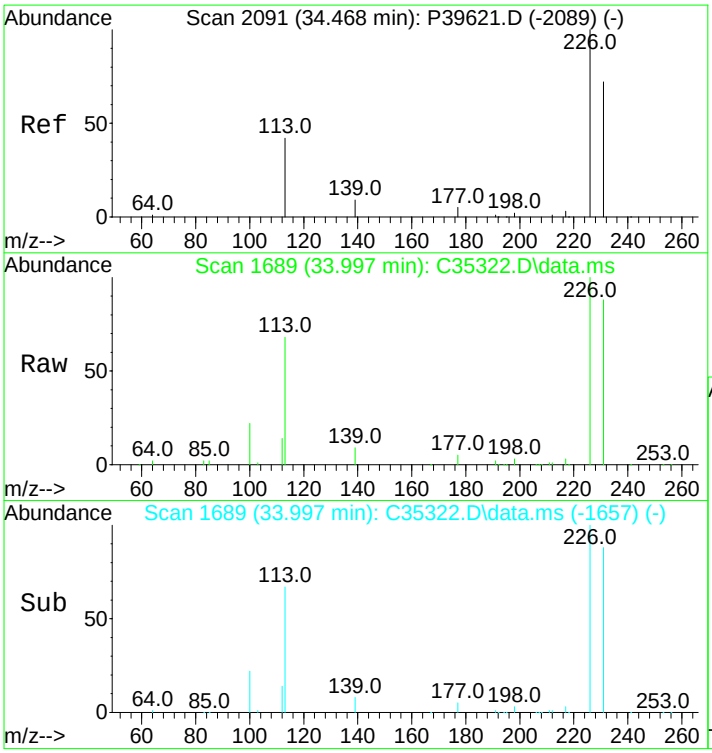


#36
1-Methyldibenzothiophene(1MDT)
Concen: 2.54 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:198 Resp: 281

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

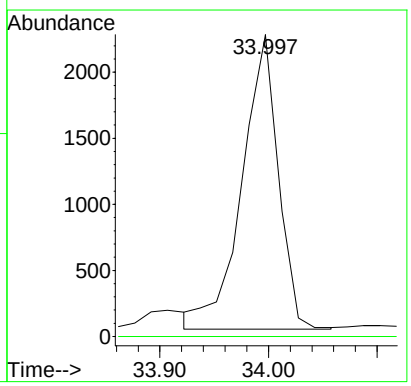


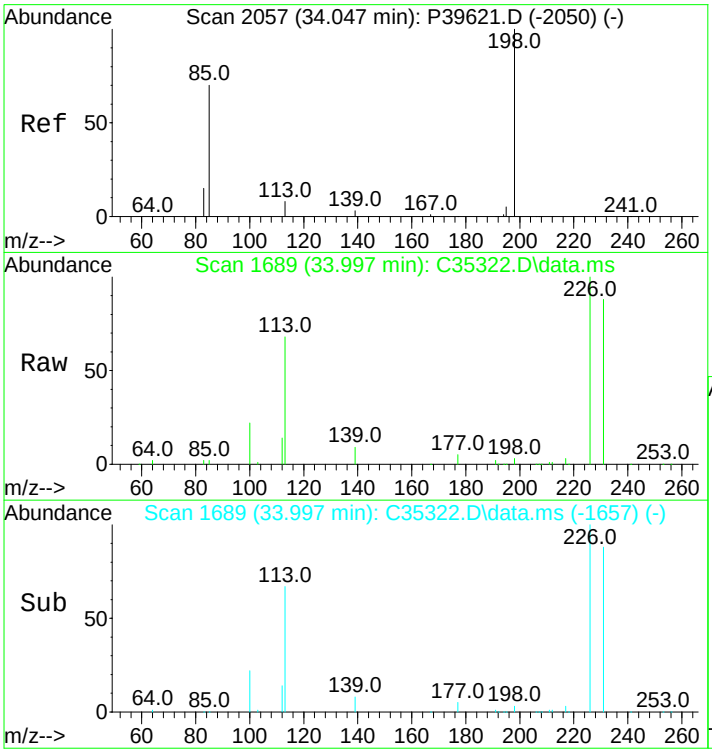


#37
OTP
Concen: 46.59 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:198 Resp: 5158

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

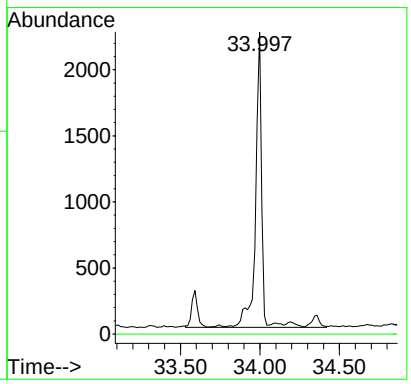


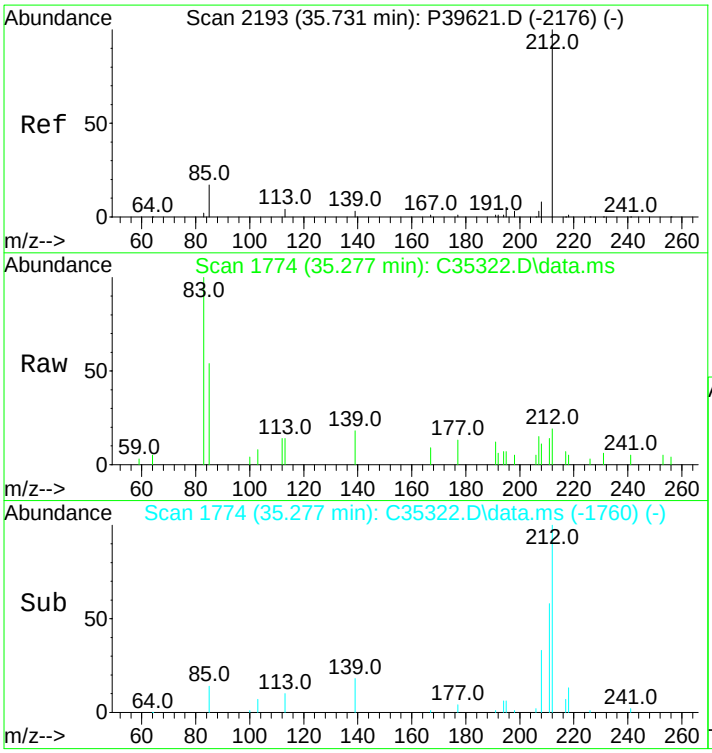


#38
C1-Dibenzothiophenes
Concen: 64.06 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:198 Resp: 7092

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

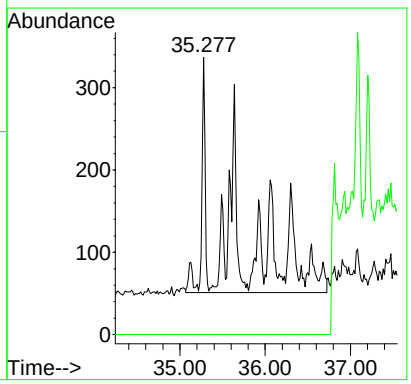


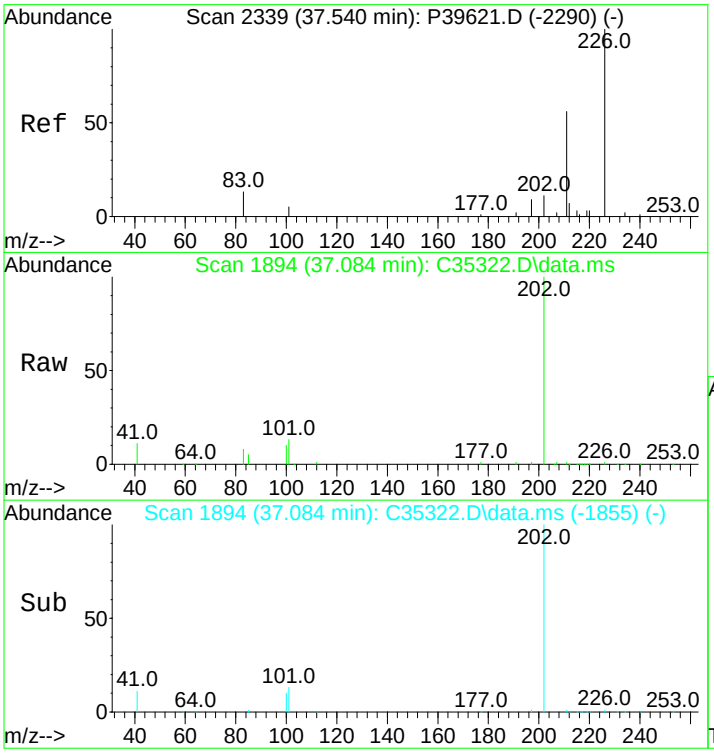


#39
C2-Dibenzothiophenes
Concen: 41.53 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:212 Resp: 4598

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

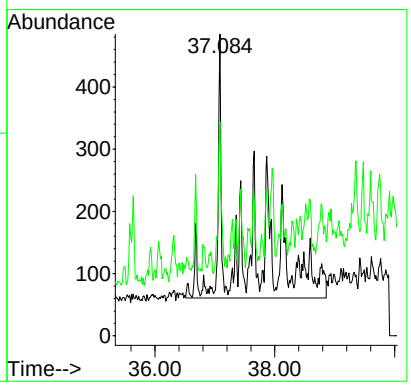


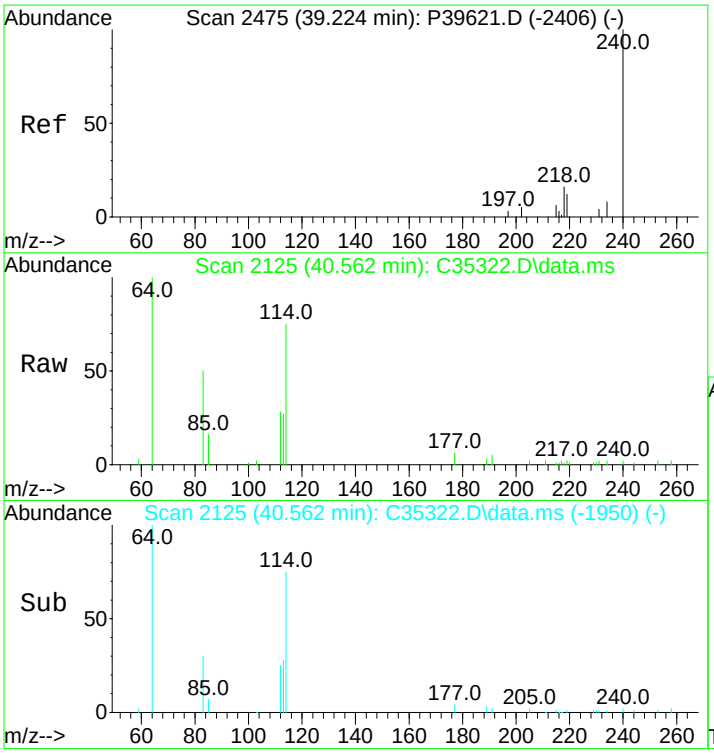


#40
C3-Dibenzothiophenes
Concen: 68.49 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:226 Resp: 7583

Ion	Ratio	Lower	Upper
226	100		
211	12.9	51.4	77.2#

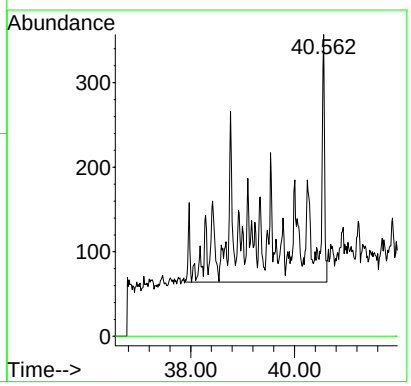


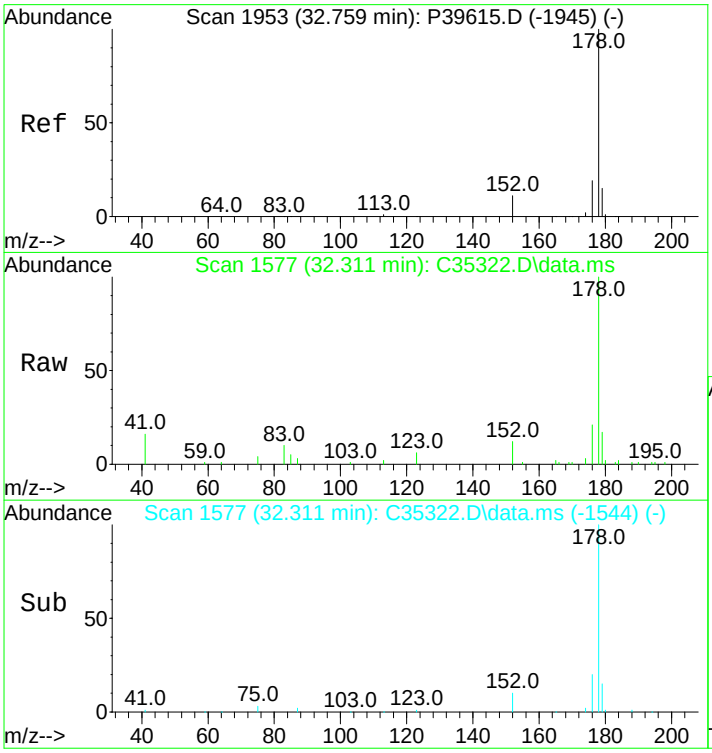


#41
C4-Dibenzothiophenes
Concen: 71.64 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 1.930 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:240 Resp: 7932

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

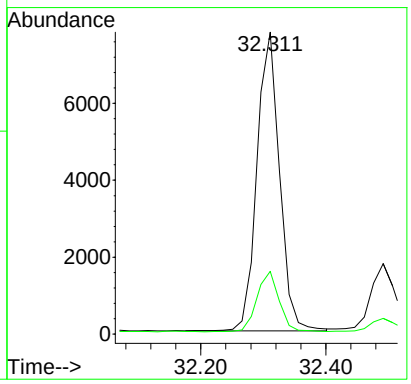


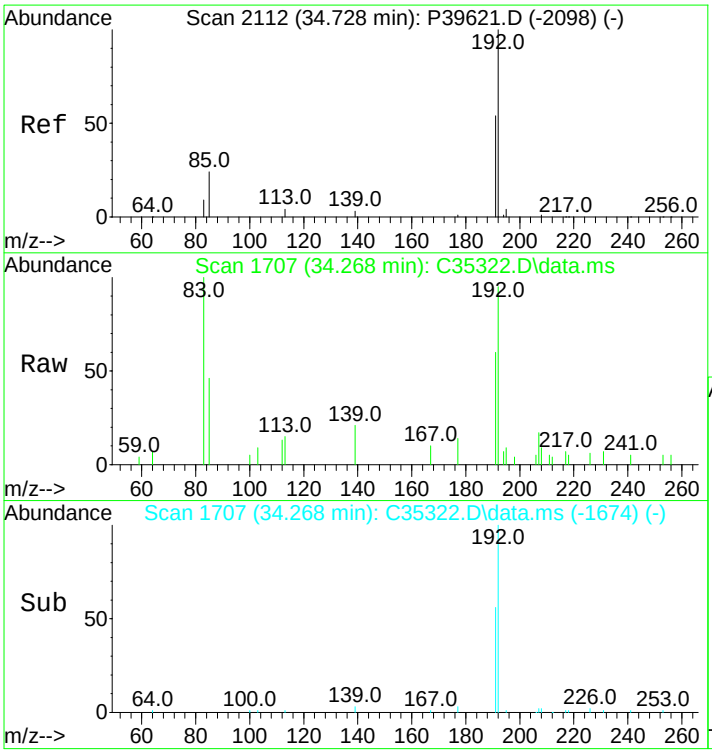


#43
Phenanthrene
Concen: 200.85 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:178 Resp: 19537

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.8	23.6

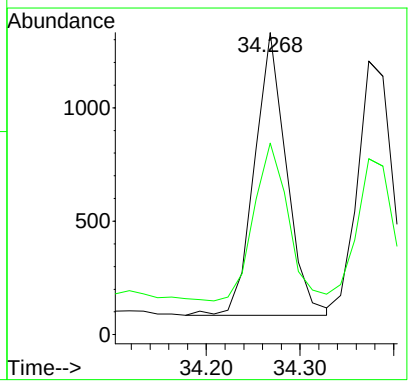


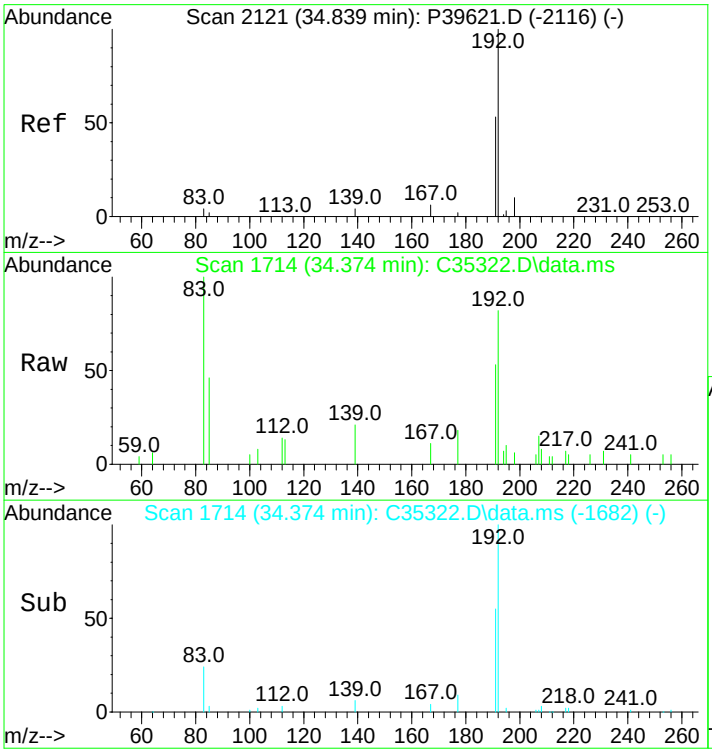


#44
3-Methylphenanthrene(3MP)
Concen: 30.40 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 2957

Ion	Ratio	Lower	Upper
192	100		
191	60.1	47.4	71.0

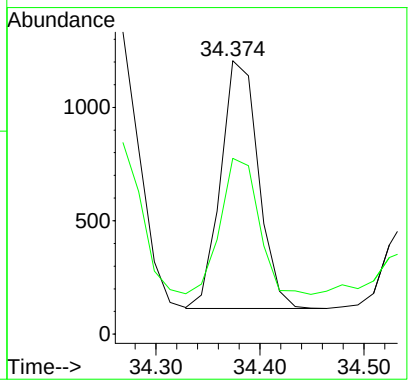


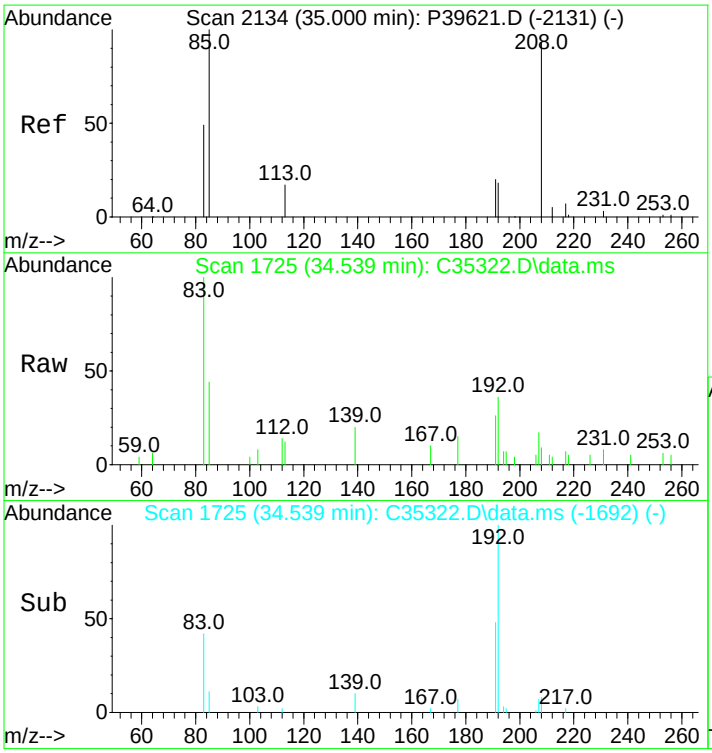


#45
2-Methylphenanthrene(2MP)
Concen: 28.50 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 2772

Ion	Ratio	Lower	Upper
192	100		
191	55.5	45.0	67.6

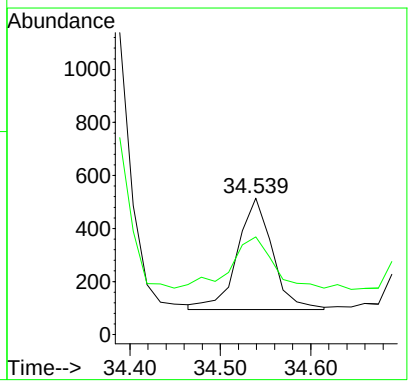


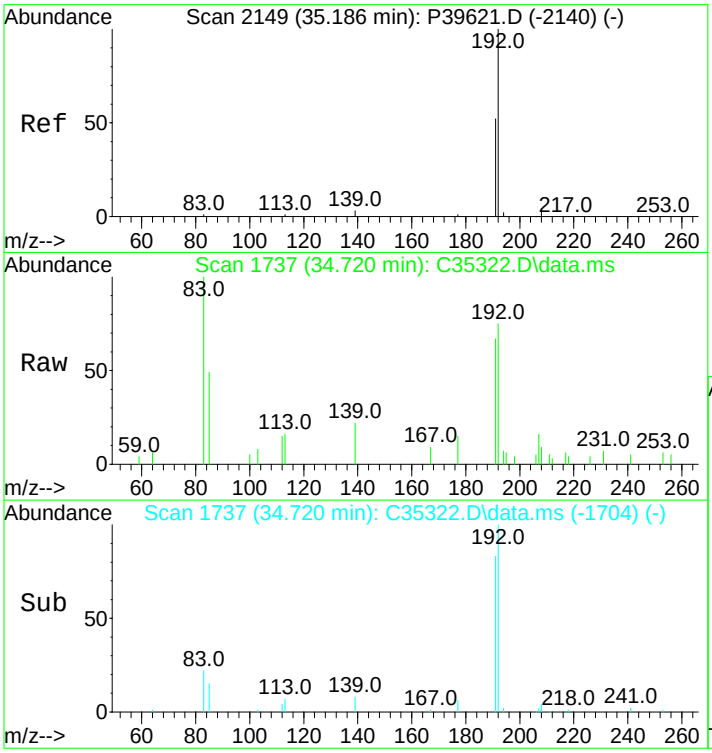


#46
2-Methylanthracene(2MA)
Concen: 11.61 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 1129

Ion	Ratio	Lower	Upper
192	100		
191	61.6	95.5	143.3#

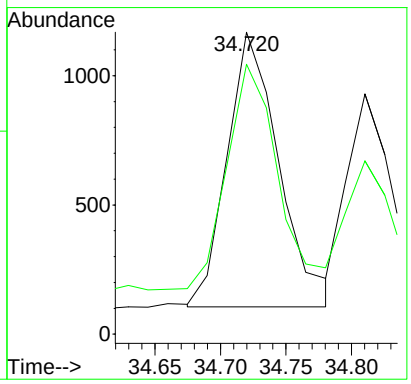


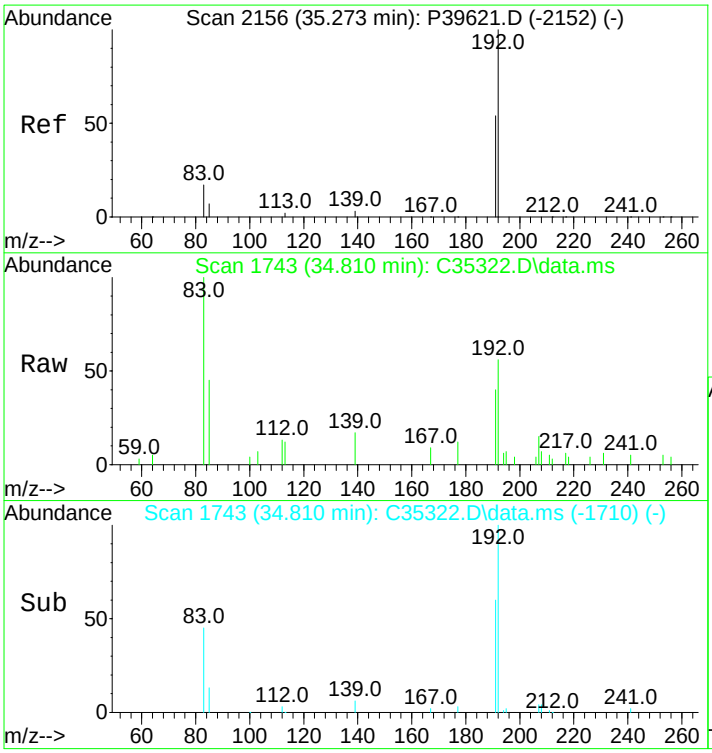


#47
9/4-Methylphenanthrene(9MP)
Concen: 30.14 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 2932

Ion	Ratio	Lower	Upper
192	100		
191	38.0	46.5	69.7#

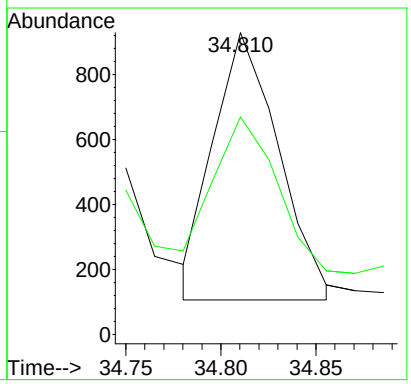


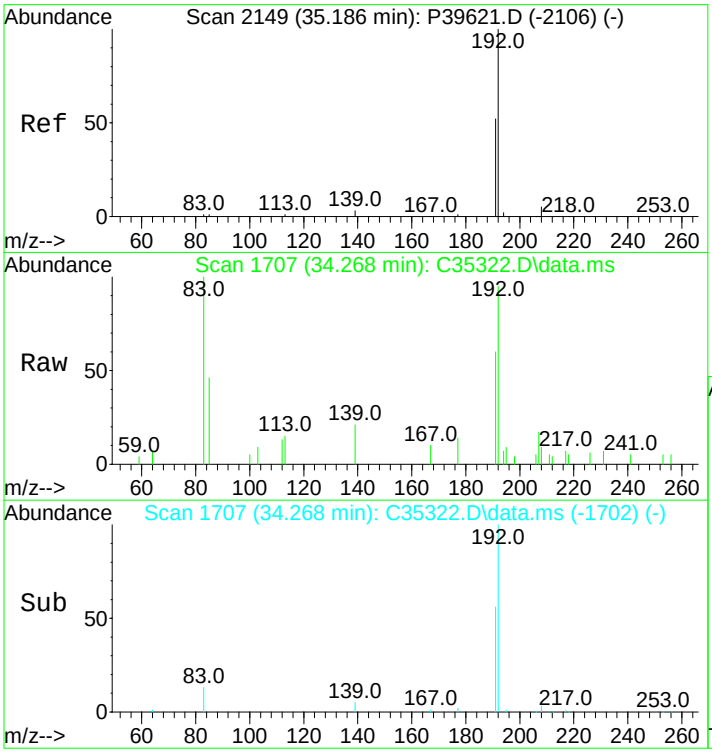


#48
1-Methylphenanthrene(1MP)
Concen: 20.18 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 1963

Ion	Ratio	Lower	Upper
192	100		
191	56.9	47.4	71.2

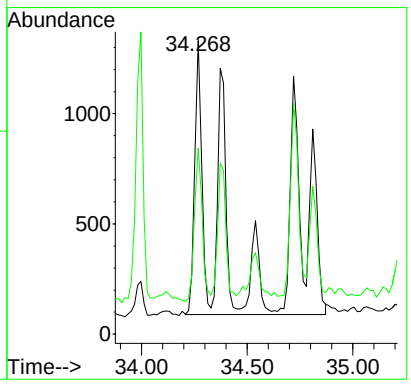


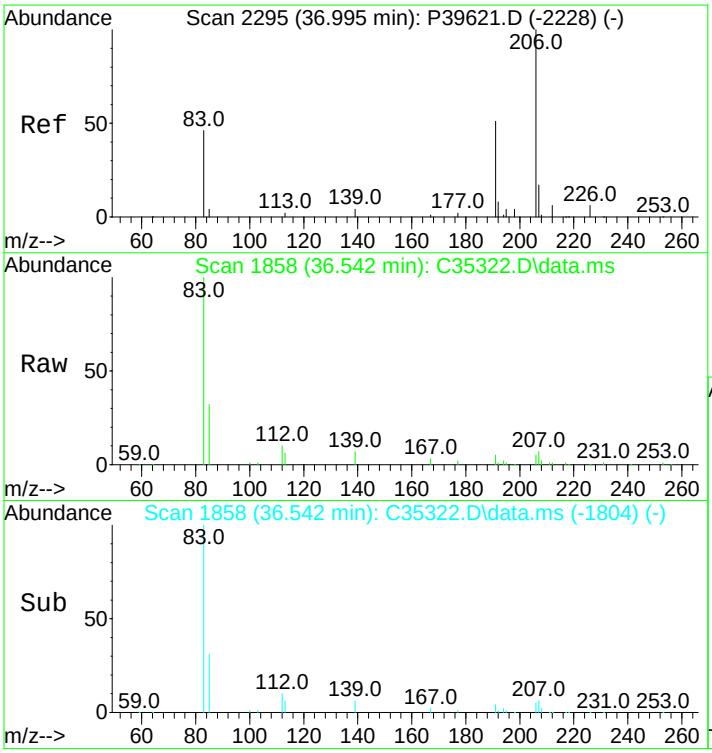


#49
C1-Phenanthrenes/Anthracenes
Concen: 126.01 ng/mL m
RT: 34.268 min Scan# 1707
Delta R.T. -0.312 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 12257

Ion	Ratio	Lower	Upper
192	100		
191	5.5	45.3	67.9#

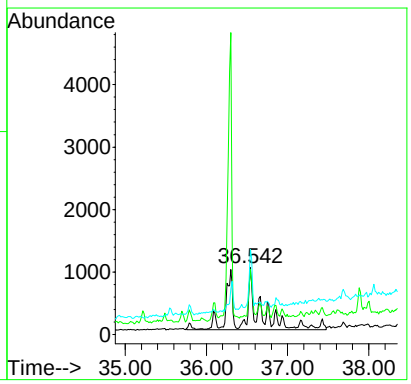


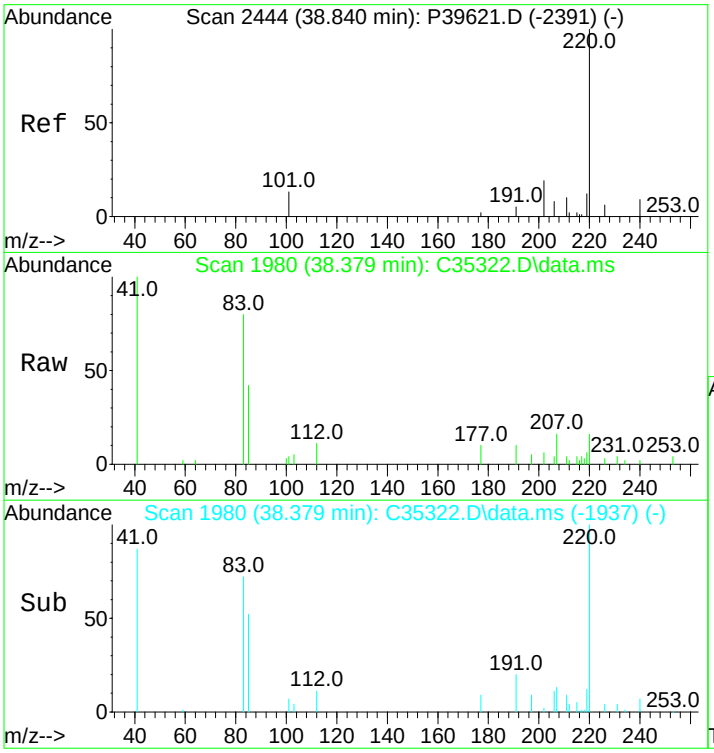


#50
C2-Phenanthrenes/Anthracenes
Concen: 162.26 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:206 Resp: 15783

Ion	Ratio	Lower	Upper
206	100		
191	87.7	42.0	63.0#
207	10.3	15.4	23.2#

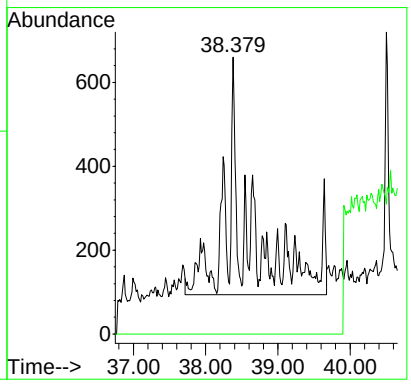


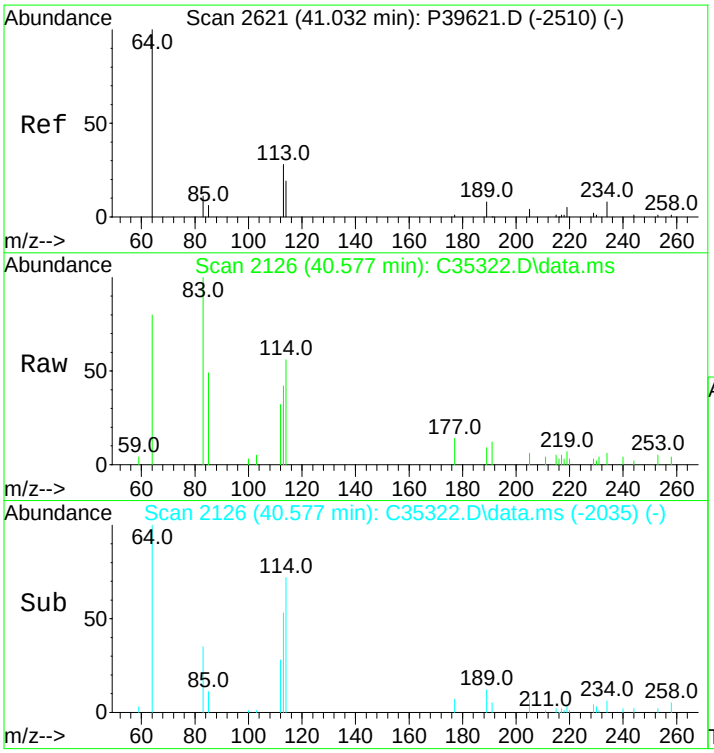


#52
C3-Phenanthrenes/Anthracenes
Concen: 117.15 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:220 Resp: 11395

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

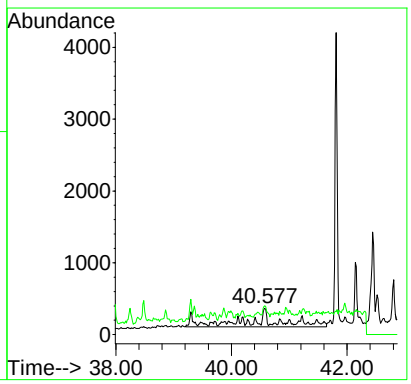


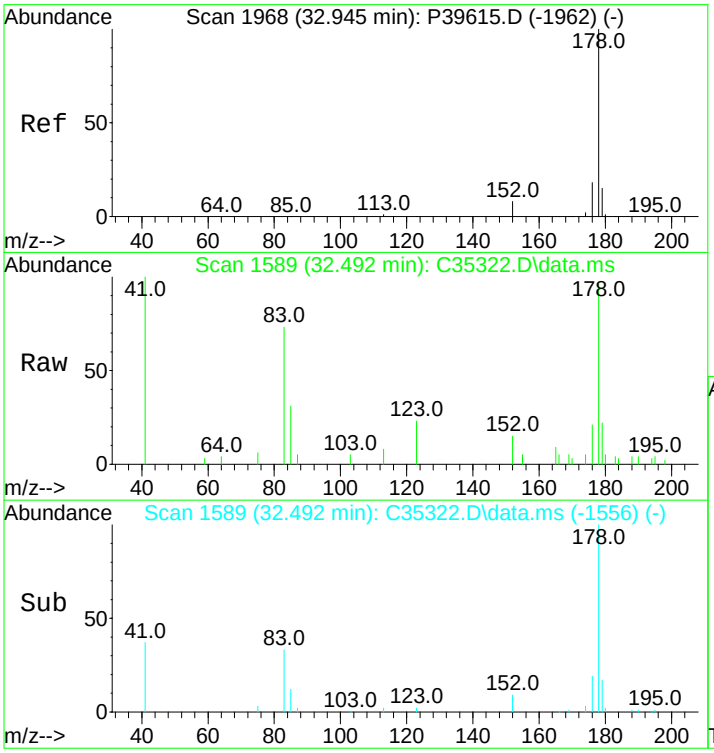


#53
C4-Phenanthrenes/Anthracenes
Concen: 90.97 ng/mL m
RT: 40.577 min Scan# 2126
Delta R.T. 0.282 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:234 Resp: 8849

Ion	Ratio	Lower	Upper
234	100		
219	2.5	48.6	73.0#

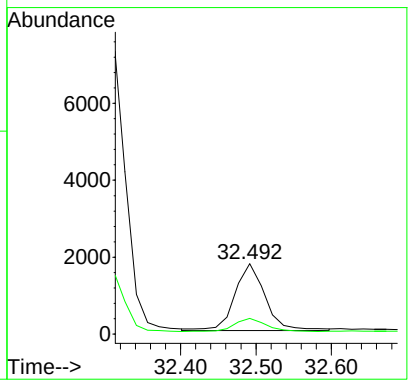


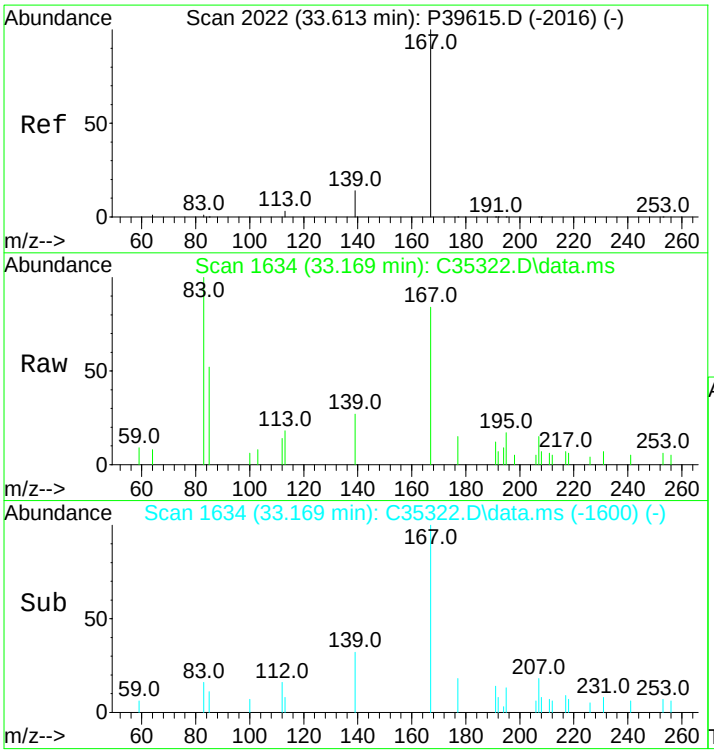


#55
Anthracene
Concen: 51.13 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:178 Resp: 4858

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.6	23.4

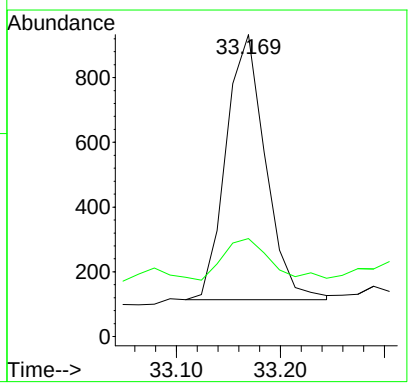


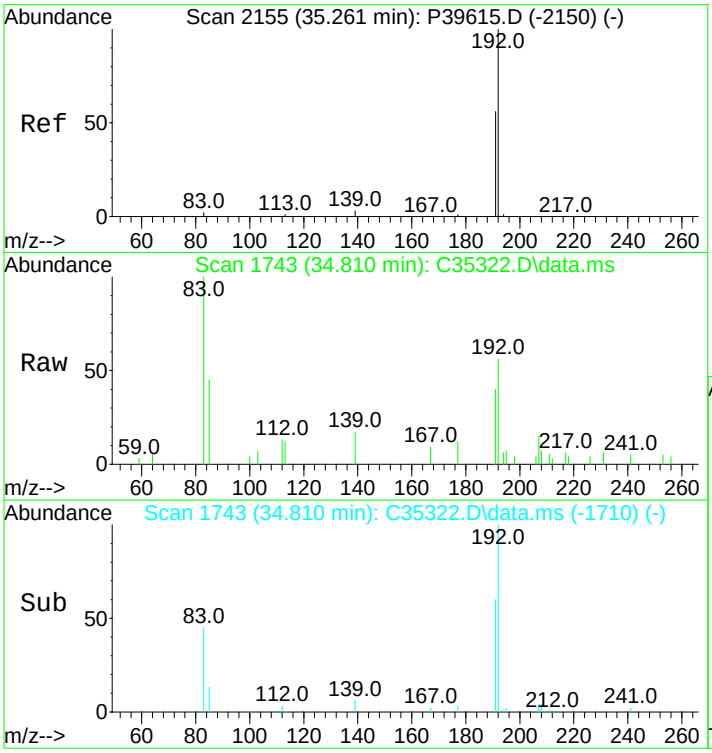


#56
Carbazole
Concen: 22.56 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:167 Resp: 2165

Ion	Ratio	Lower	Upper
167	100		
139	18.8	11.9	17.9#

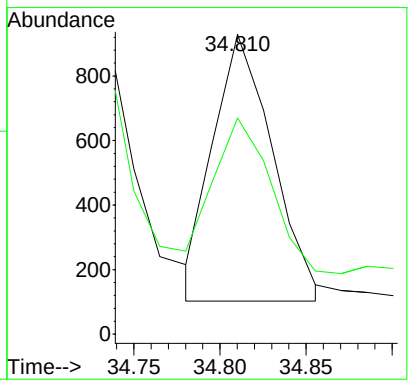


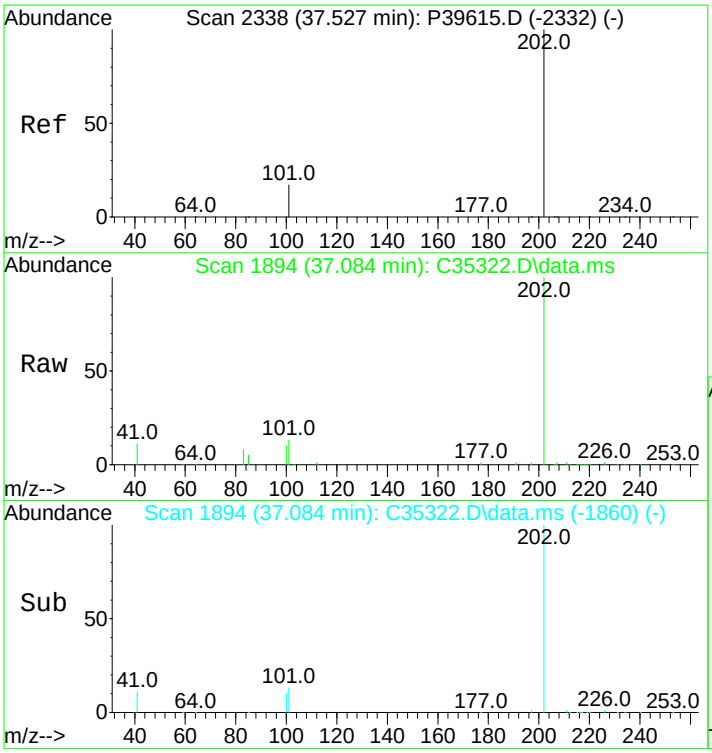


#57
1-Methylphenanthrene
Concen: 32.14 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:192 Resp: 1981

Ion	Ratio	Lower	Upper
192	100		
191	56.4	46.8	70.2

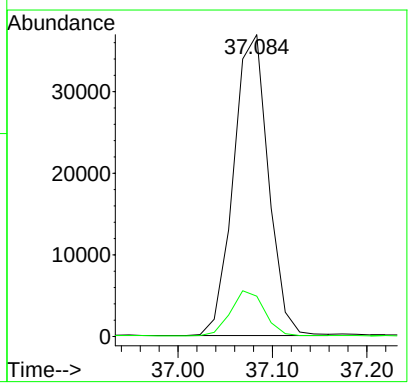


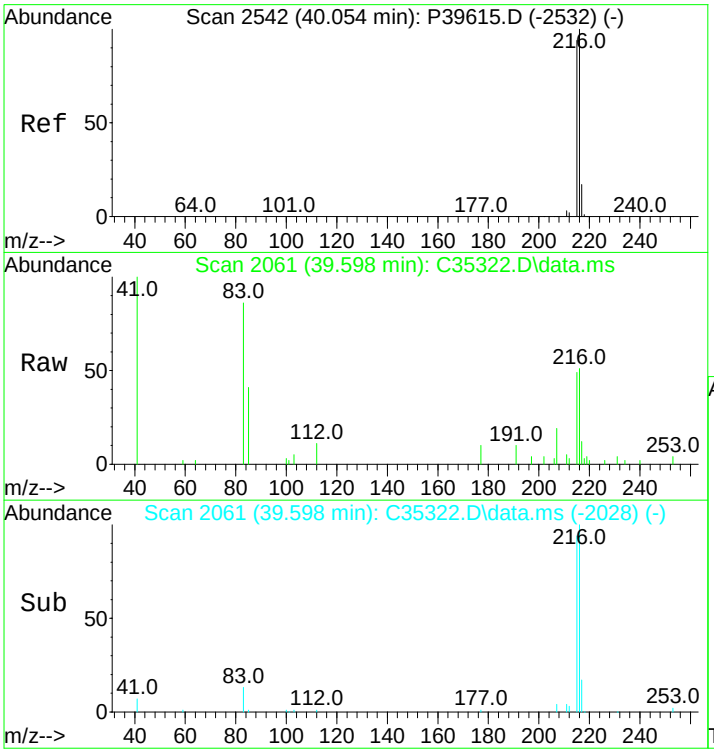


#58
Fluoranthene
Concen: 984.47 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:202 Resp: 95107

Ion	Ratio	Lower	Upper
202	100		
101	15.0	13.2	19.8

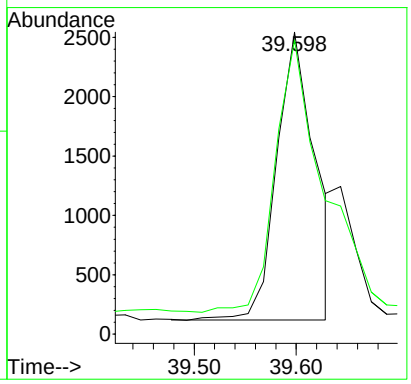


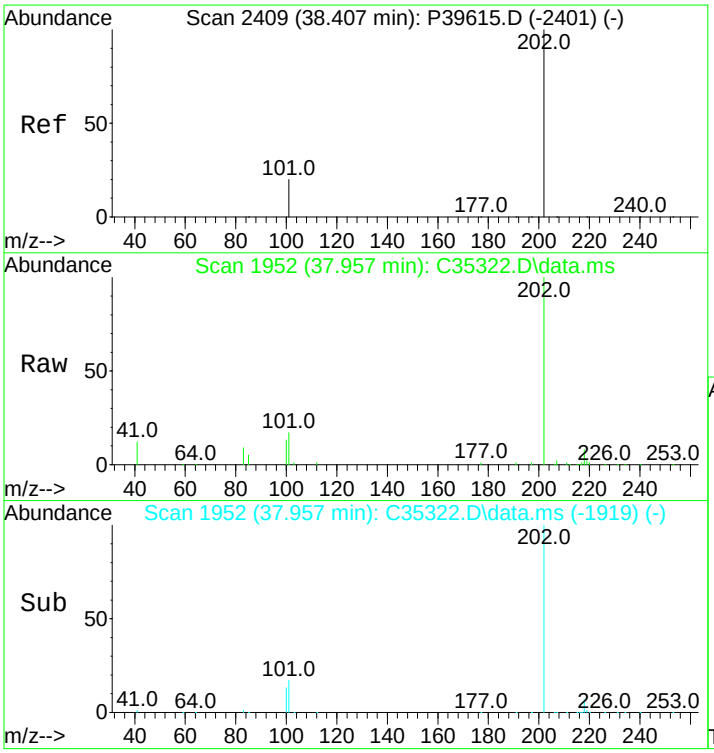


#59
Benzo(b)fluorene
Concen: 112.94 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:216 Resp: 6330

Ion	Ratio	Lower	Upper
216	100		
215	120.9	76.0	114.0#

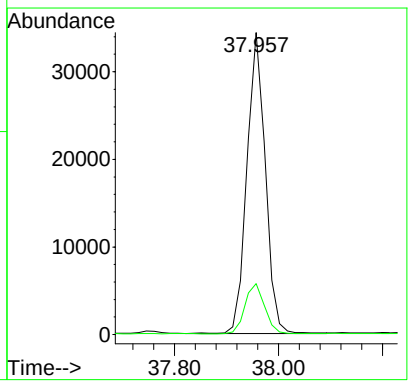


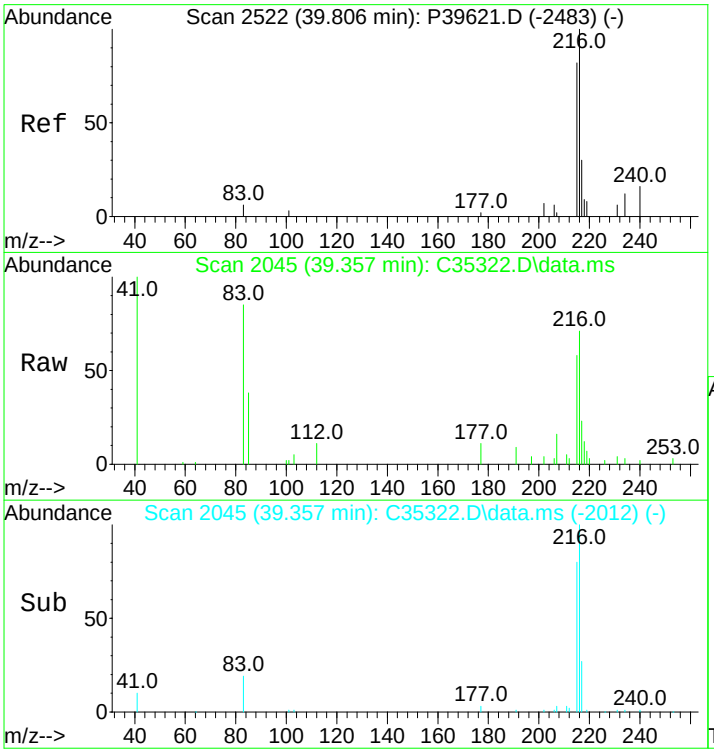


#60
Pyrene
Concen: 859.05 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:202 Resp: 84362

Ion	Ratio	Lower	Upper
202	100		
101	17.8	13.5	20.3

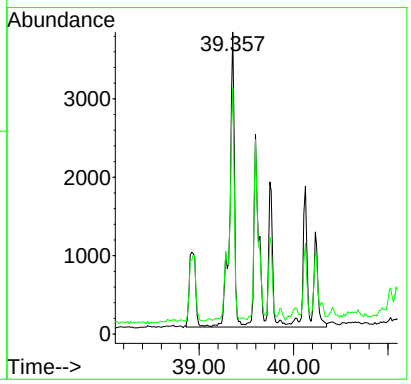


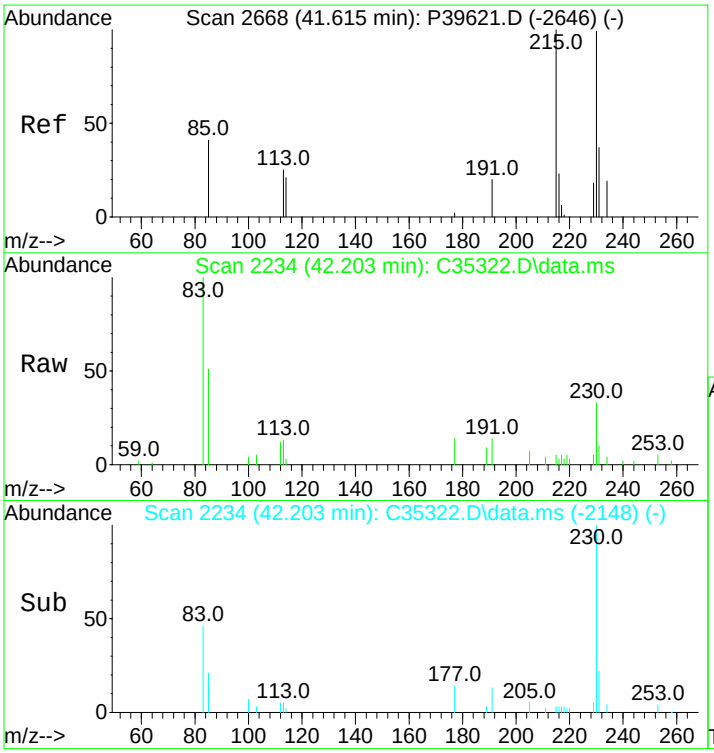


#61
C1-Fluoranthenes/Pyrenes
Concen: 416.37 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:216 Resp: 40889

Ion	Ratio	Lower	Upper
216	100		
215	8.4	77.7	116.5#

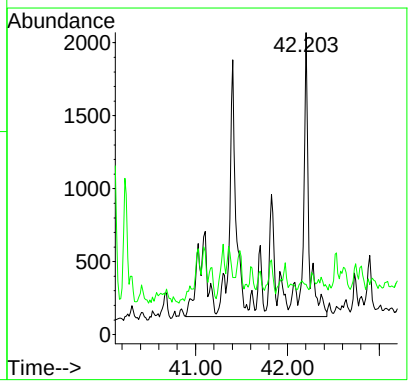


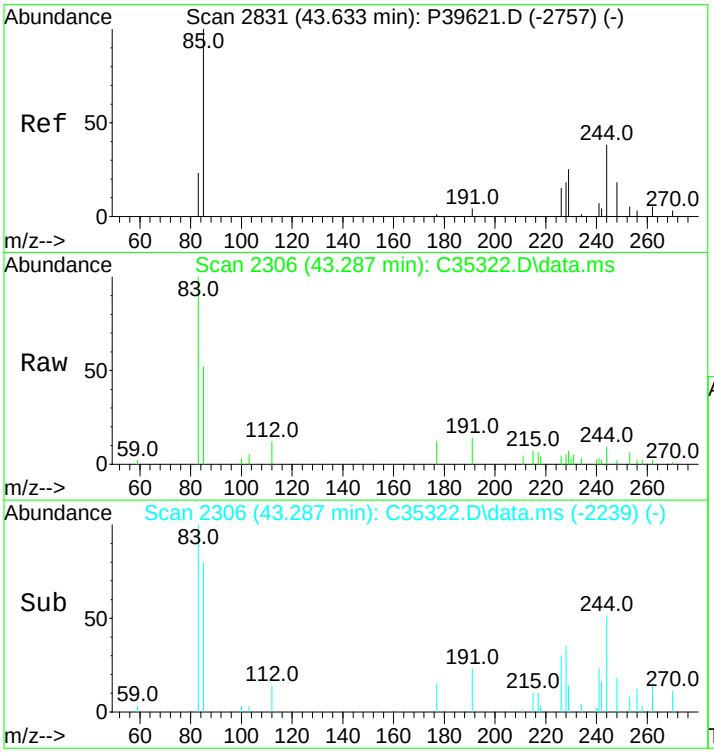


#62
C2-Fluoranthenes/Pyrenes
Concen: 276.34 ng/mL m
RT: 42.203 min Scan# 2234
Delta R.T. 1.039 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:230 Resp: 27138

Ion	Ratio	Lower	Upper
230	100		
215	4.6	92.7	139.1#

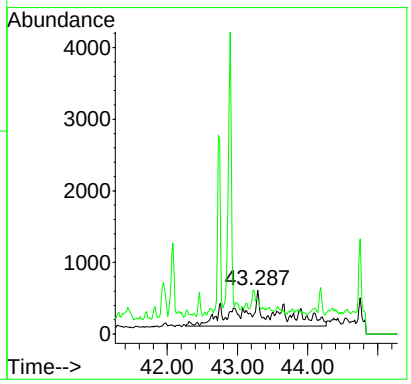


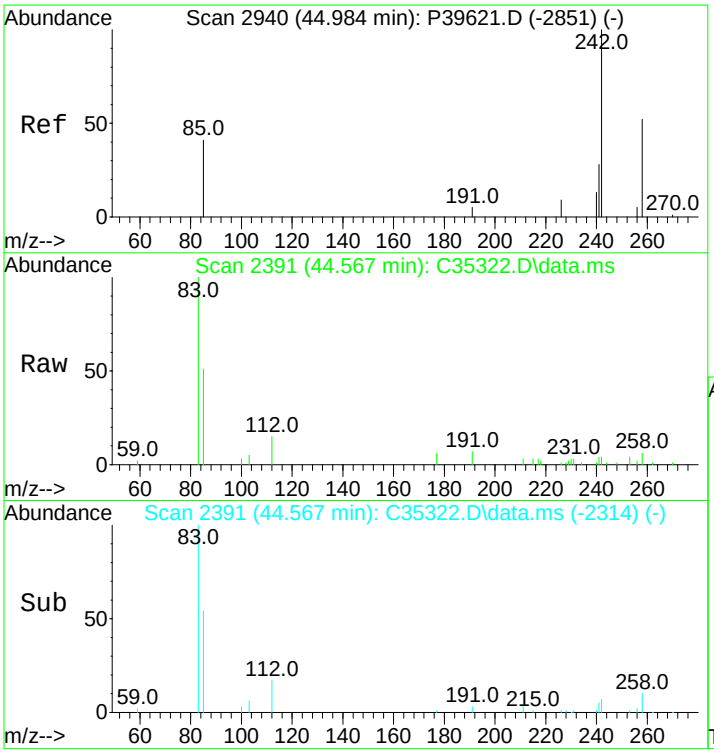


#63
C3-Fluoranthenes/Pyrenes
Concen: 167.30 ng/mL m
RT: 43.287 min Scan# 2306
Delta R.T. 0.418 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:244 Resp: 16429

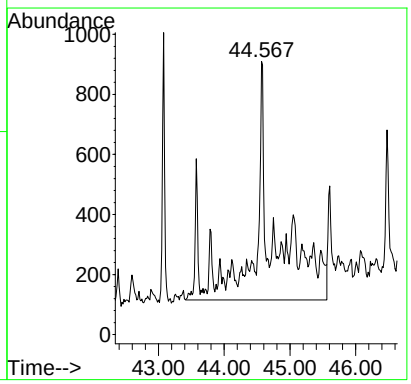
Ion	Ratio	Lower	Upper
244	100		
229	0.0	78.7	118.1#

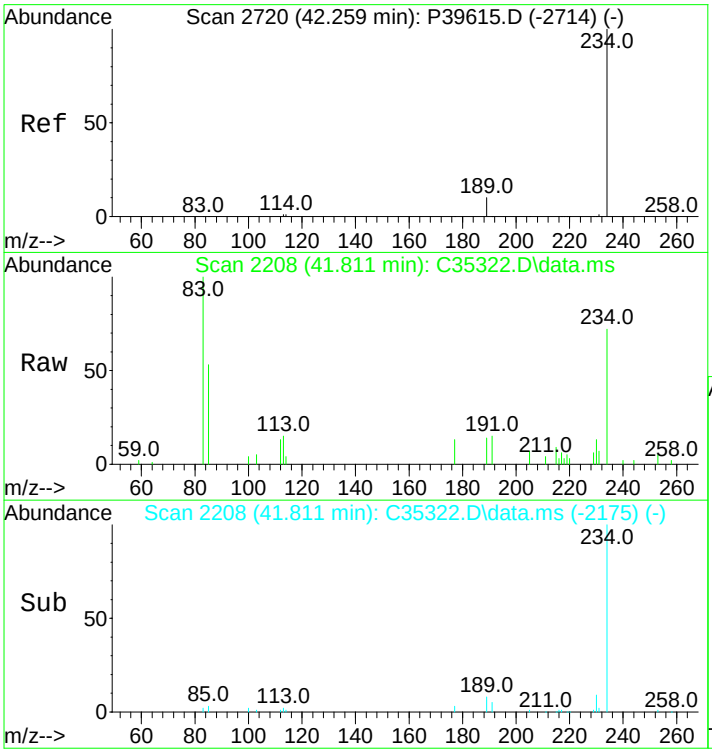




#64
C4-Fluoranthenes/Pyrenes
Concen: 175.66 ng/mL m
RT: 44.567 min Scan# 2391
Delta R.T. 0.365 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:258 Resp: 17250

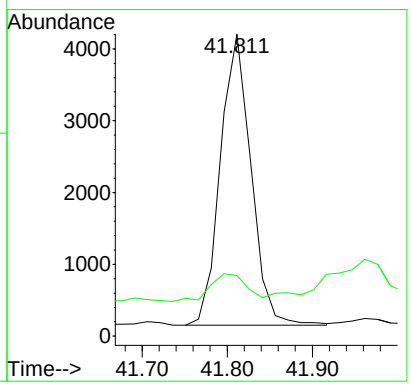


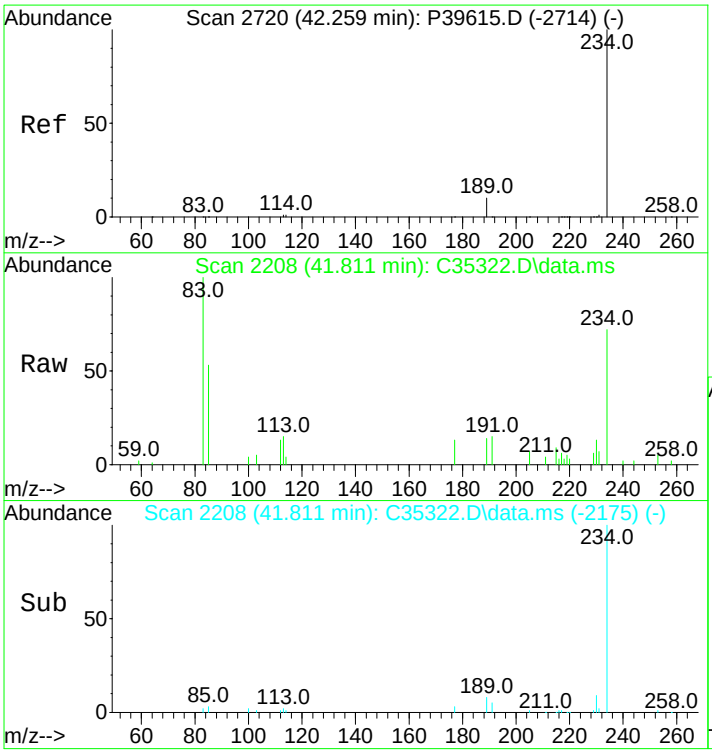


#66
Naphthobenzothiophene
Concen: 96.15 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:234 Resp: 10166

Ion	Ratio	Lower	Upper
234	100		
189	11.2	20.9	31.3#

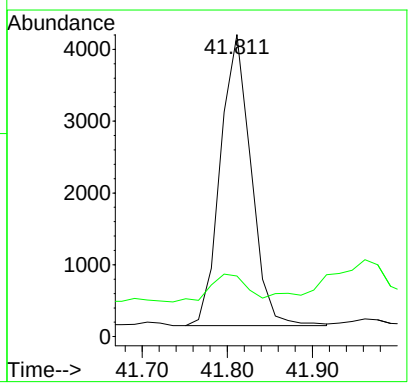


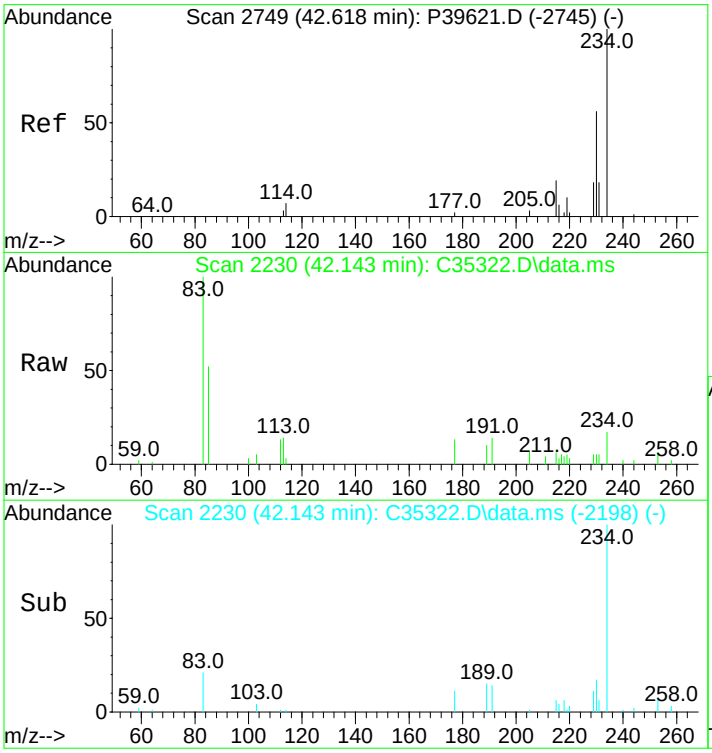


#67
Naphthobenzothiophene-2,1-D
Concen: 96.15 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:234 Resp: 10166

Ion	Ratio	Lower	Upper
234	100		
189	11.2	20.9	31.3#

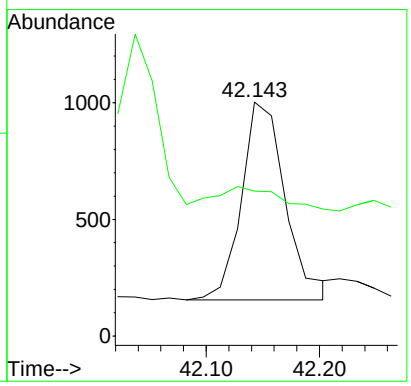


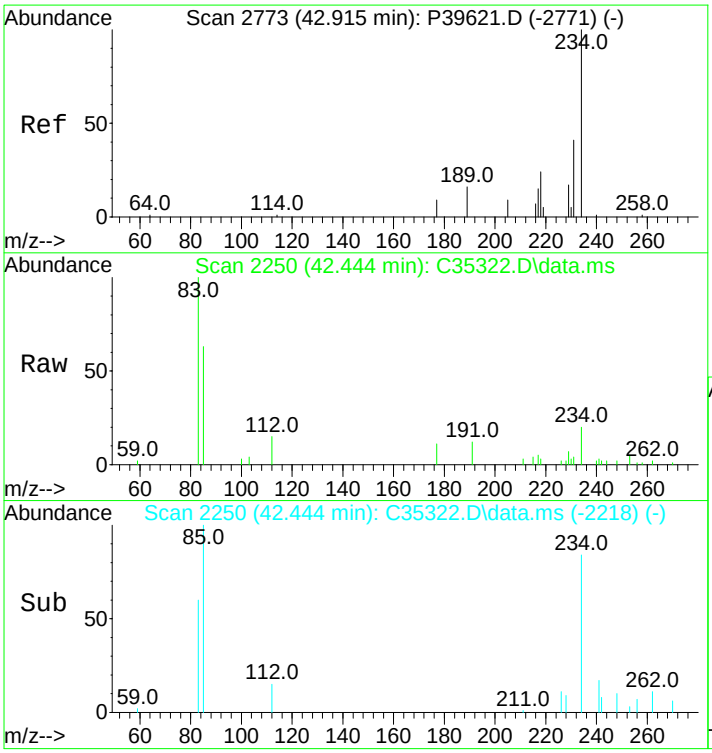


#68
Naphthobenzothiophene-1,2-D
Concen: 21.55 ng/mL m
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:234 Resp: 2278

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

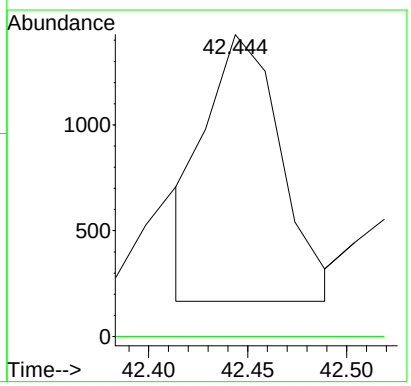


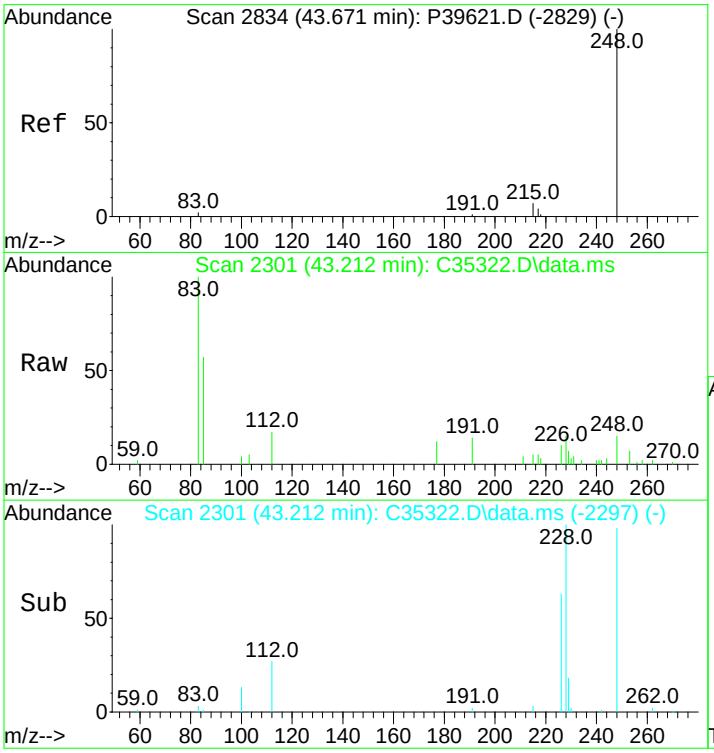


#69
Naphthobenzothiophene-2,3-D
Concen: 31.51 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:234 Resp: 3331

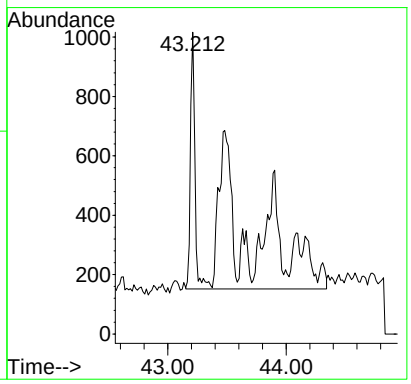
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

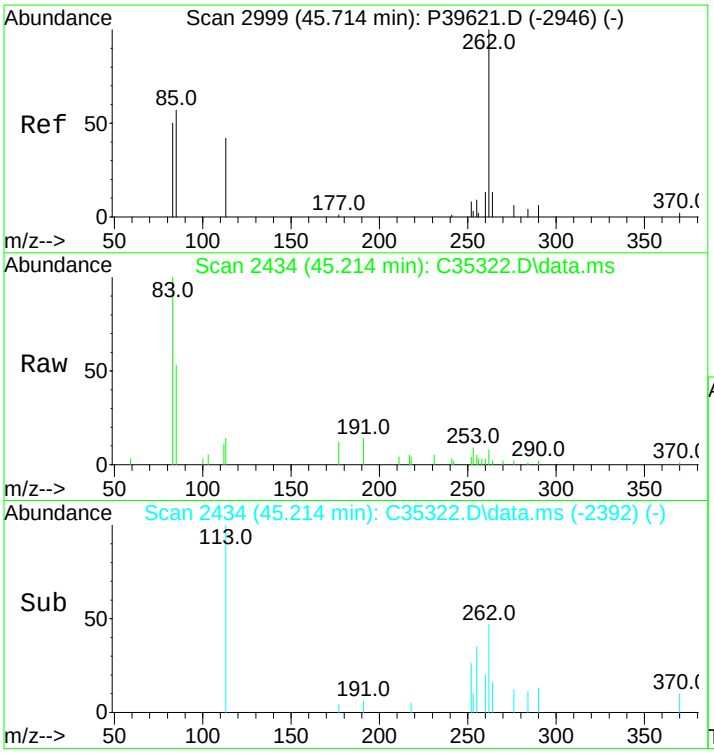




#70
C1-Naphthobenzothiophenes
Concen: 112.99 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

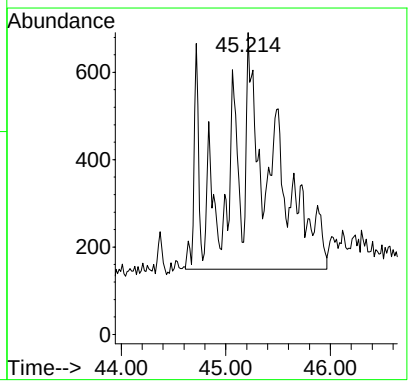
Tgt Ion:248 Resp: 11946

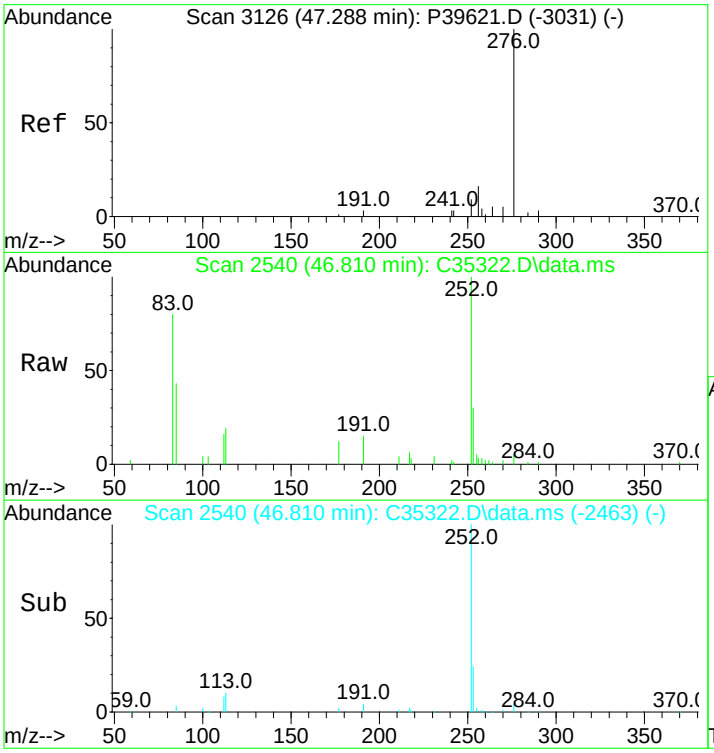




#71
C2-Naphthobenzothiophenes
Concen: 141.96 ng/ml m
RT: 45.214 min Scan# 2434
Delta R.T. 0.347 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

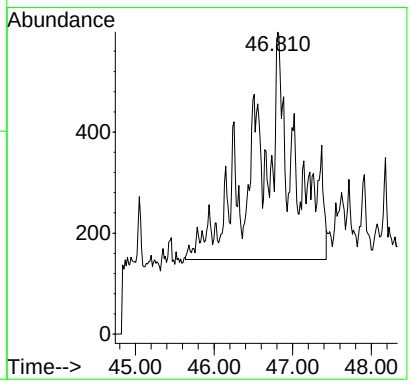
Tgt Ion:262 Resp: 15009

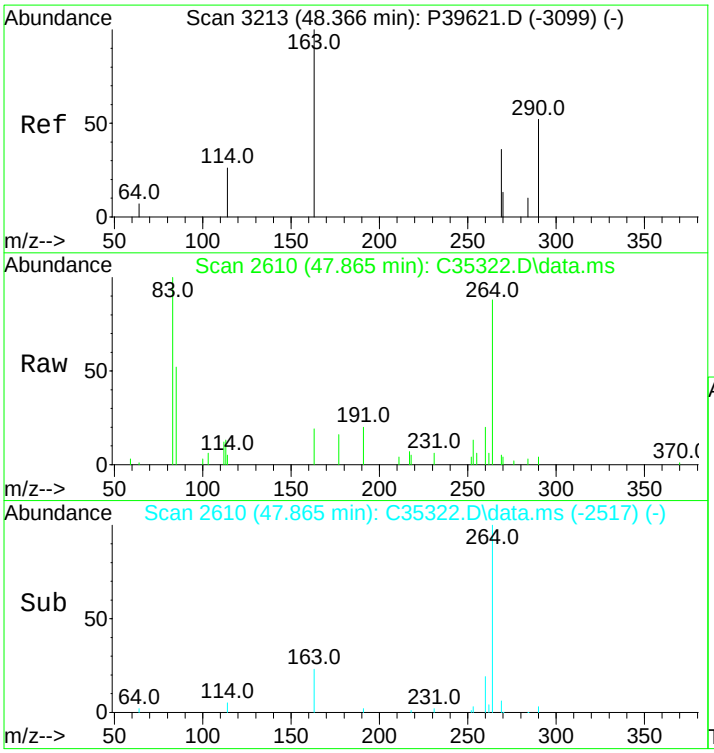




#72
C3-Naphthobenzothiophenes
Concen: 142.47 ng/ml m
RT: 46.810 min Scan# 2540
Delta R.T. 0.358 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

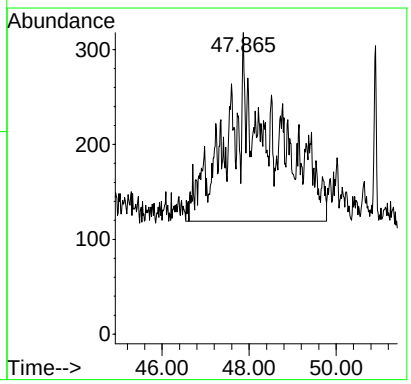
Tgt Ion:276 Resp: 15063

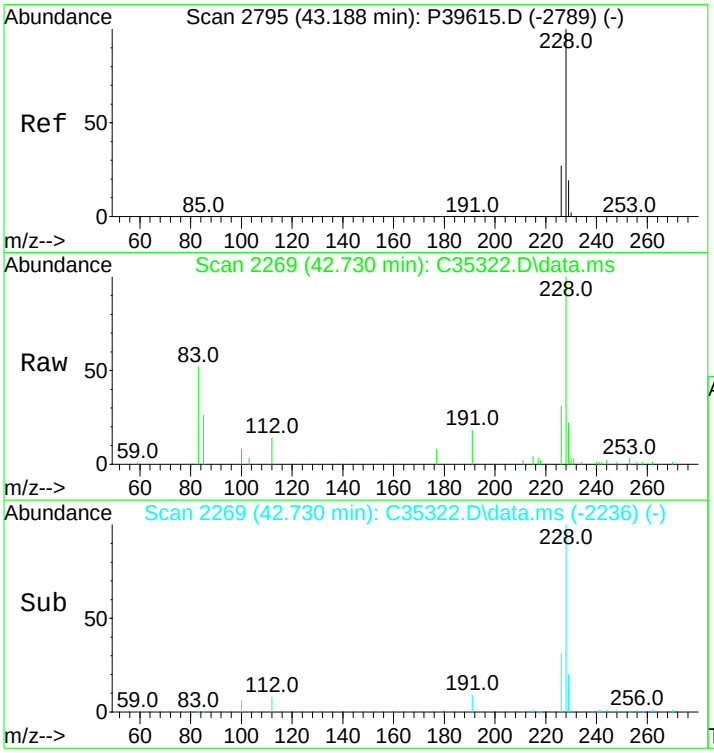




#73
C4-Naphthobenzothiophenes
Concen: 130.29 ng/mL m
RT: 47.865 min Scan# 2610
Delta R.T. 0.361 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:290 Resp: 13775

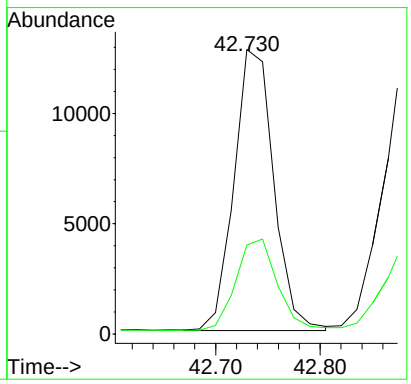


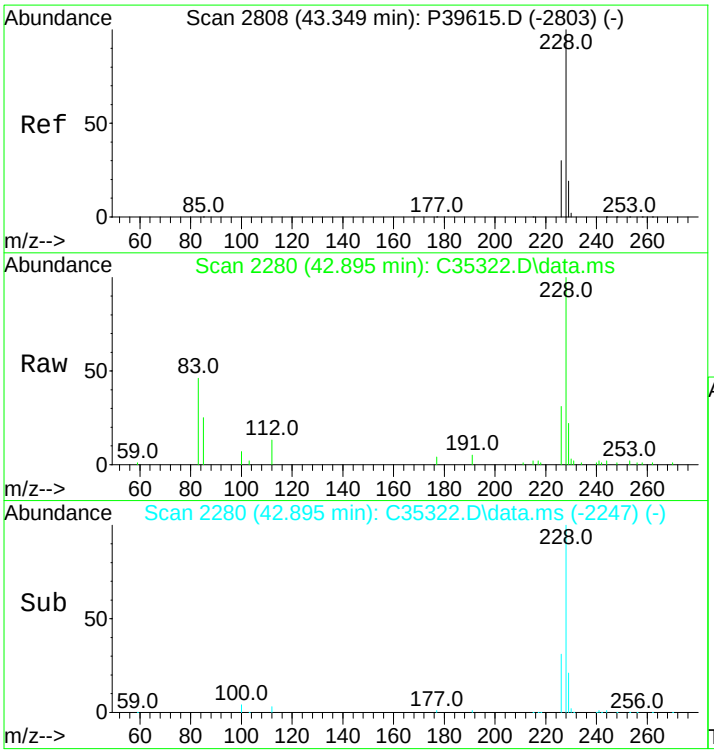


#75
Benz[a]anthracene
Concen: 280.45 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:228 Resp: 33785

Ion	Ratio	Lower	Upper
228	100		
226	50.4	21.5	32.3#

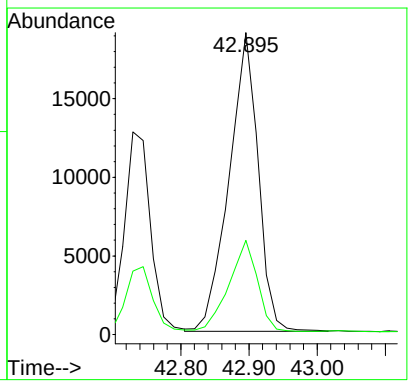


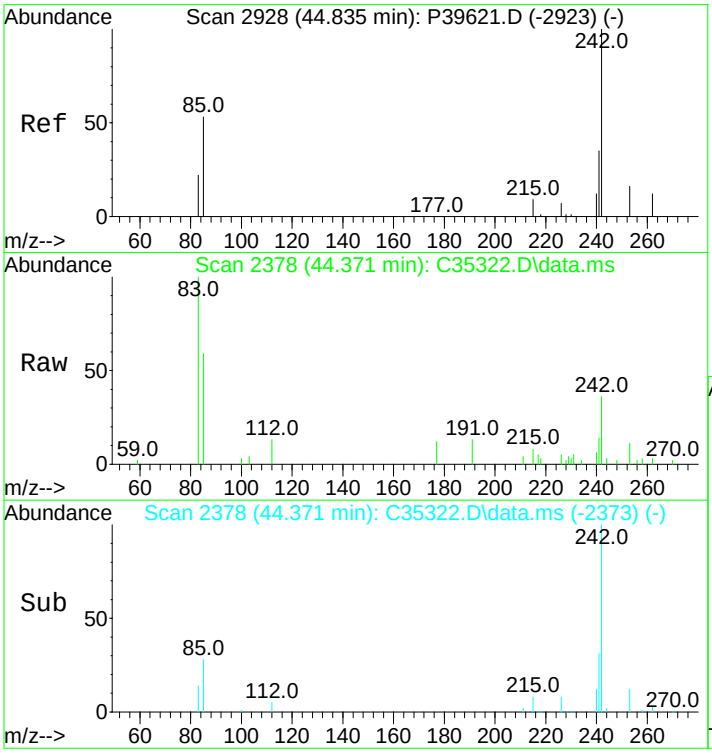


#77
Chrysene/Triphenylene
Concen: 464.09 ng/mL m
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:228 Resp: 56444

Ion	Ratio	Lower	Upper
228	100		
226	30.5	23.5	35.3

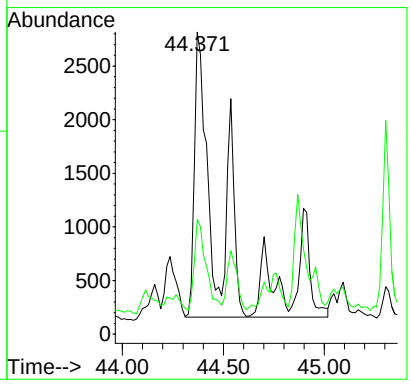


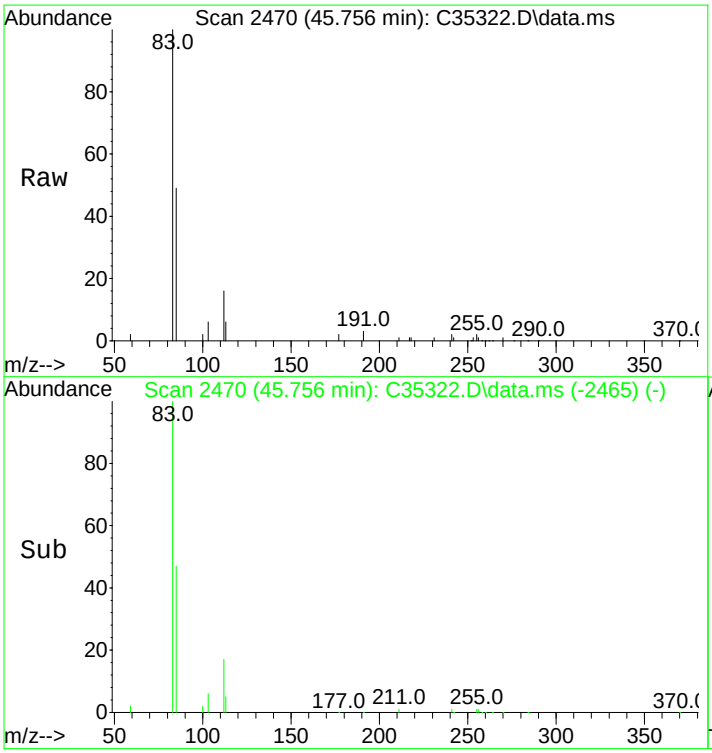


#78
C1-Chrysenes
Concen: 190.80 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:242 Resp: 23206

Ion	Ratio	Lower	Upper
242	100		
241	7.9	32.7	49.1#

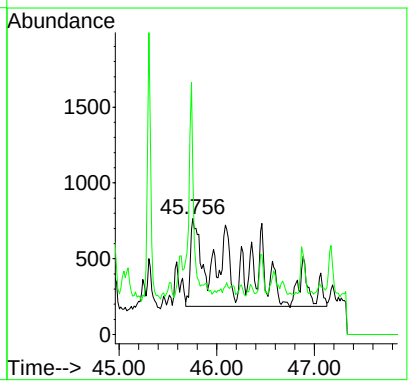


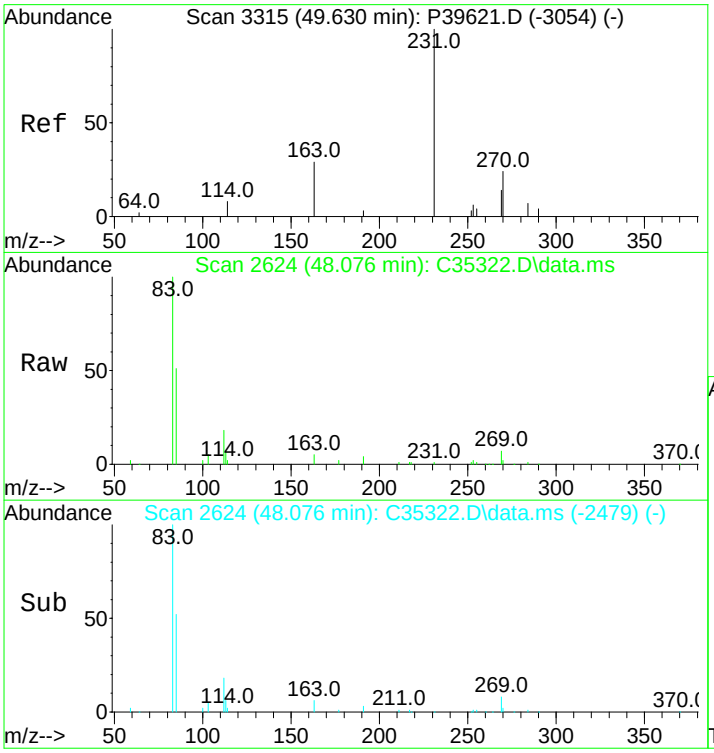


#79
C2-Chrysenes
Concen: 145.12 ng/mL m
RT: 45.756 min Scan# 2470
Delta R.T. -0.641 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:256 Resp: 17650

Ion	Ratio	Lower	Upper
256	100		
241	1.1	30.9	46.3#

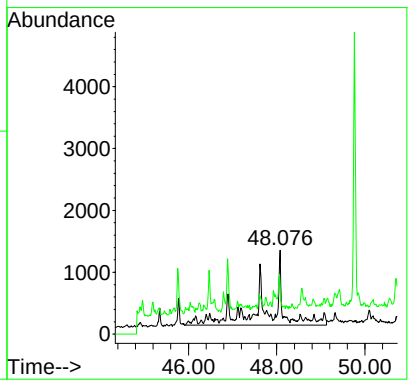


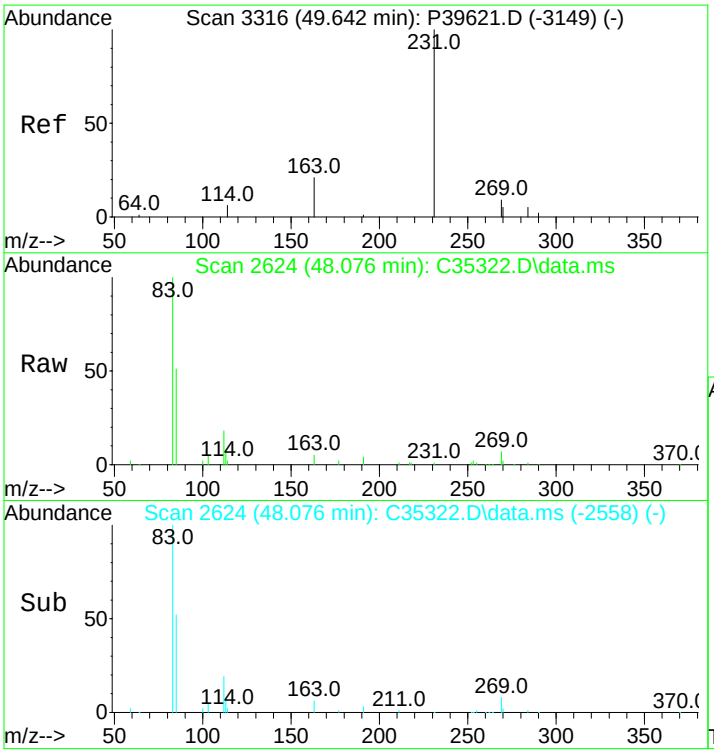


#80
C3-Chrysenes
Concen: 229.21 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.006 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:270 Resp: 27877

Ion	Ratio	Lower	Upper
270	100		
255	5.7	41.4	62.2#

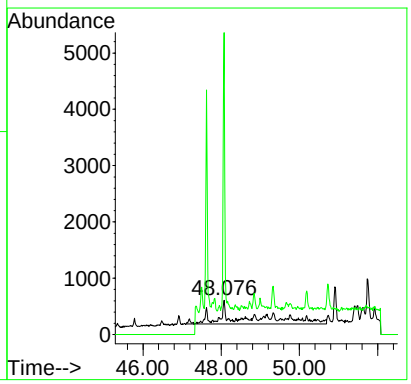


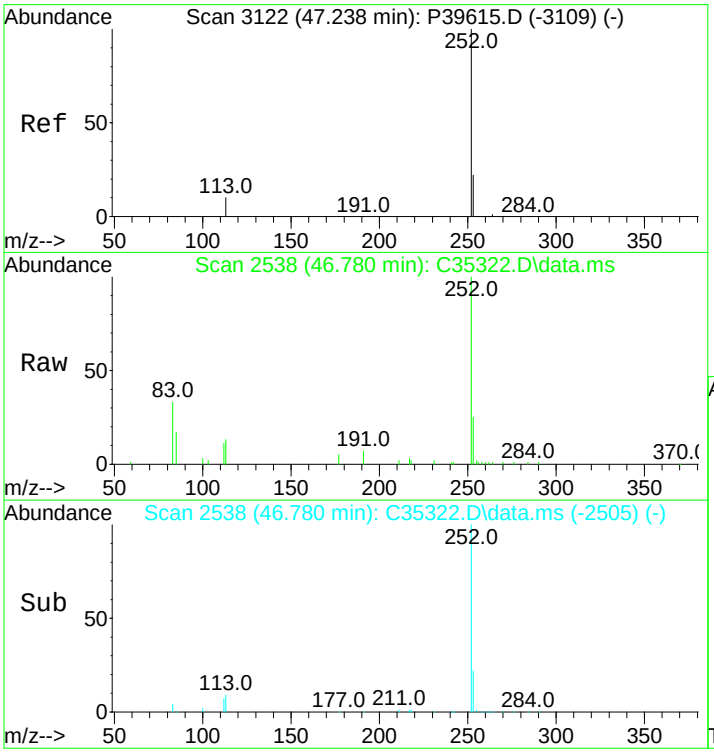


#81
C4-Chrysenes
Concen: 150.28 ng/mL m
RT: 48.076 min Scan# 2624
Delta R.T. -1.109 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:284 Resp: 18277

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

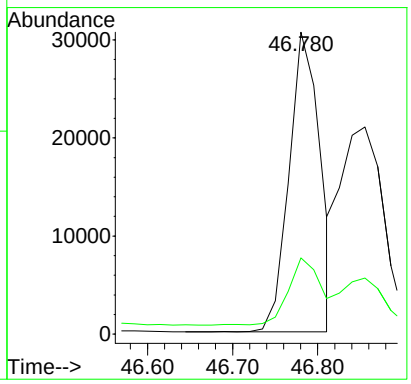


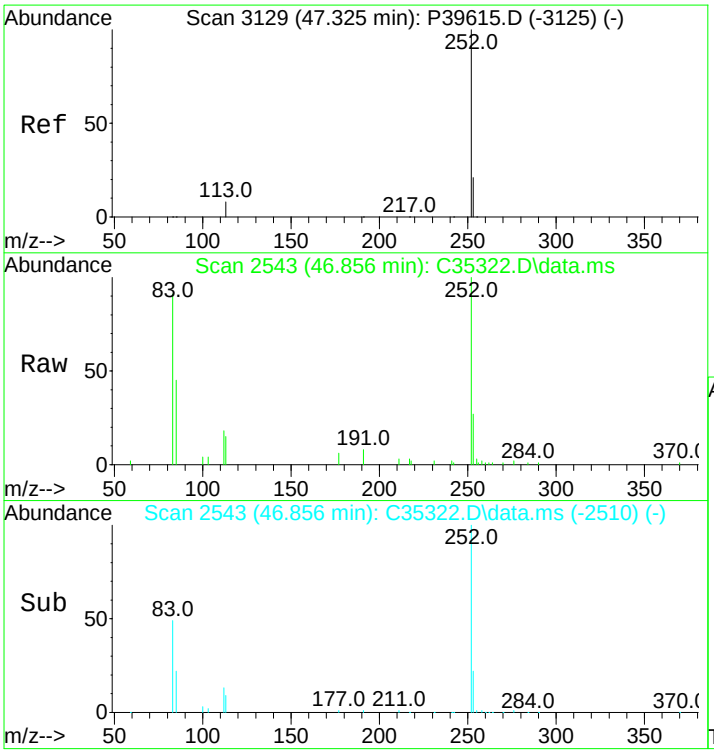


#82
Benzo[b]fluoranthene
Concen: 587.42 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 77757

Ion	Ratio	Lower	Upper
252	100		
253	22.9	20.4	30.6

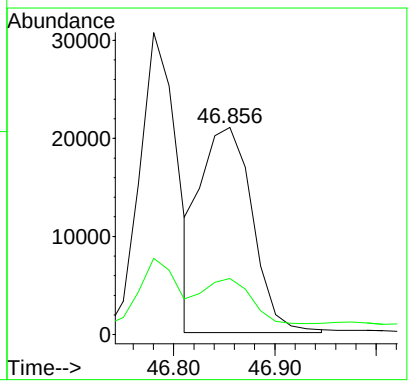


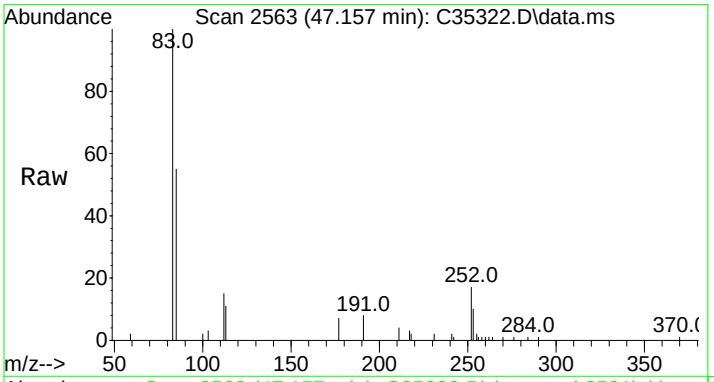


#83
Benzo[j]+[k]fluoranthene
Concen: 516.51 ng/mL m
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 74438

Ion	Ratio	Lower	Upper
252	100		
253	17.8	20.6	31.0#

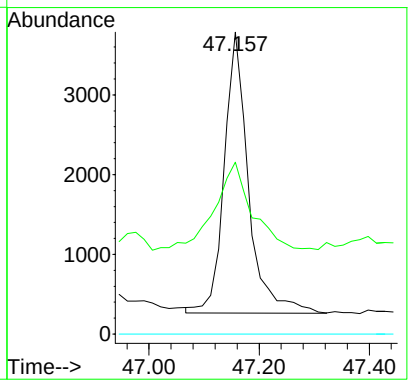


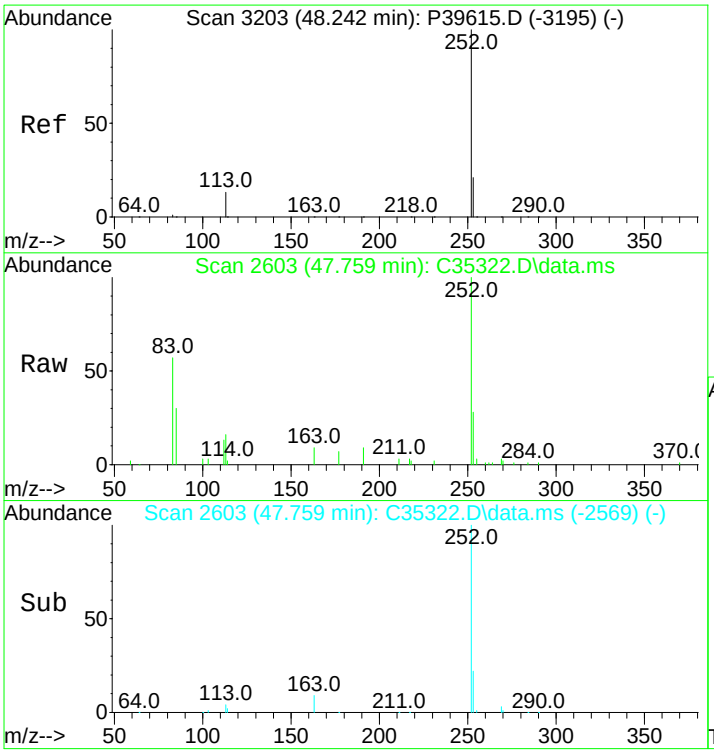


#84
Benzo[a]fluoranthene
Concen: 74.46 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 10731

Ion	Ratio	Lower	Upper
252	100		
253	51.3	146.1	219.1#
125	0.0	0.0	0.0

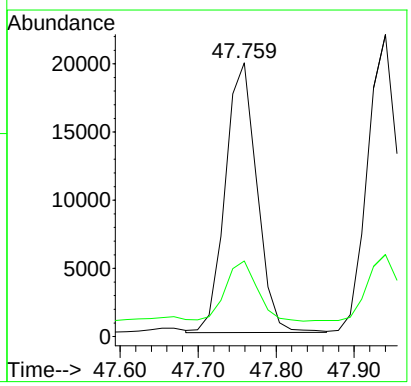


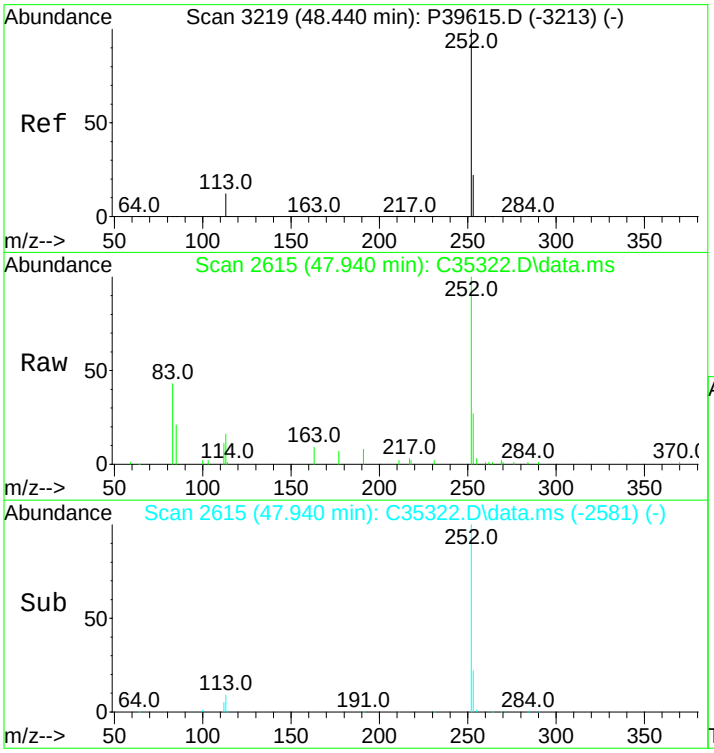


#85
Benzo[e]pyrene
Concen: 427.61 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 55988

Ion	Ratio	Lower	Upper
252	100		
253	22.2	21.0	31.6

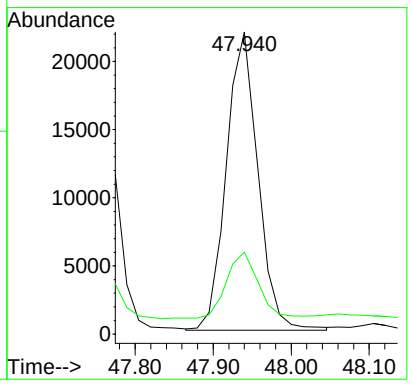


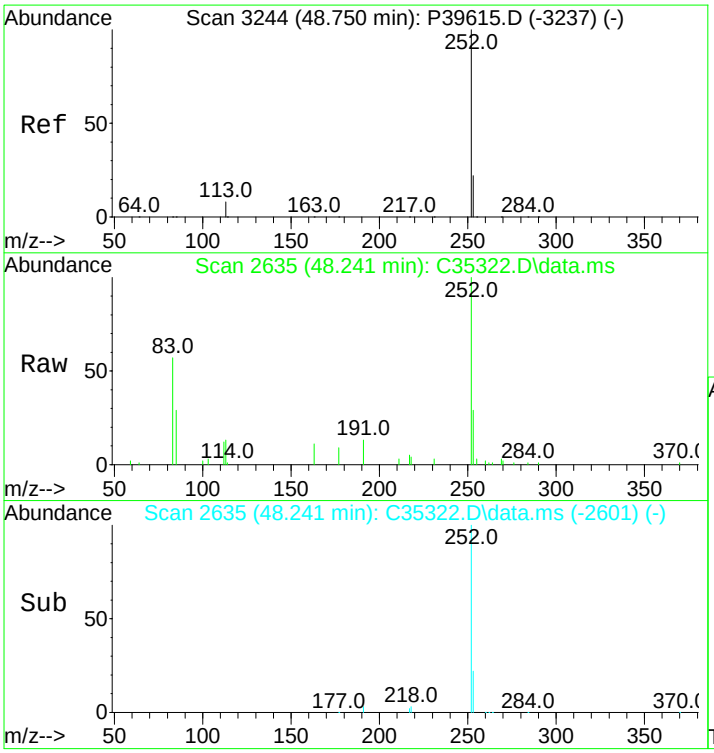


#87
Benzo[a]pyrene
Concen: 489.63 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 61723

Ion	Ratio	Lower	Upper
252	100		
253	22.3	21.4	32.0

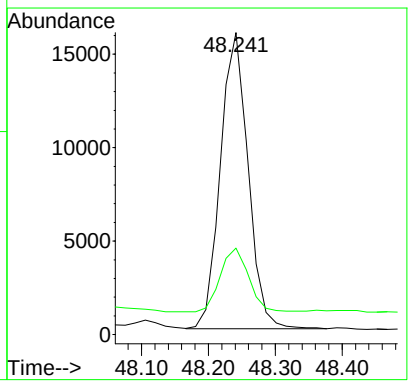


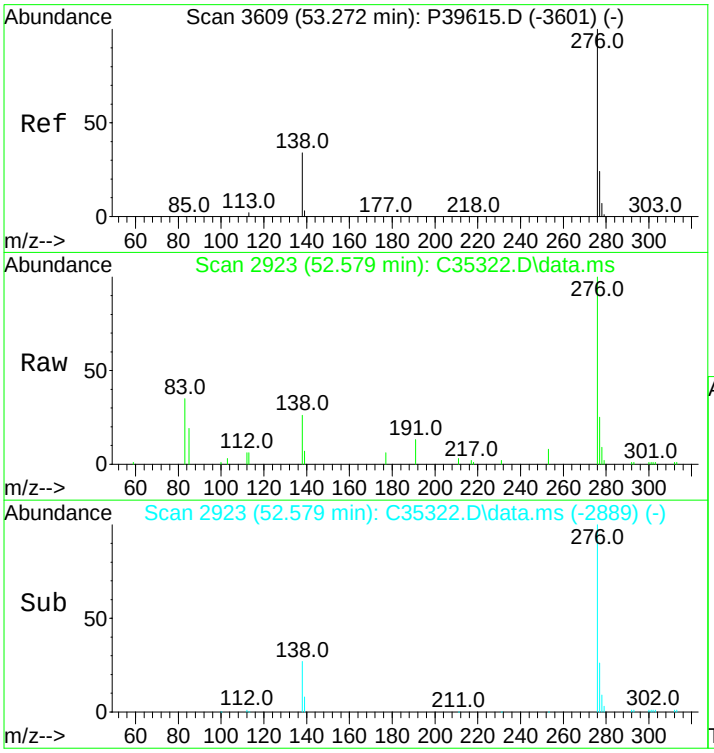


#88
Perylene
Concen: 338.84 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:252 Resp: 45649

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.8	32.6

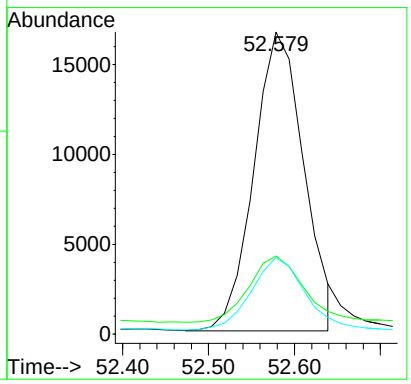


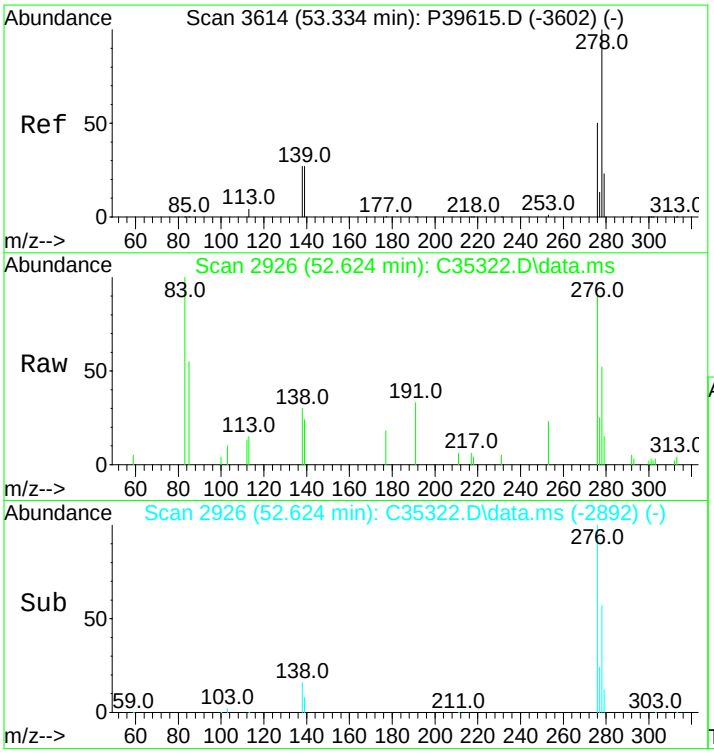


#89
Indeno[1,2,3-cd]pyrene
Concen: 458.95 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:276 Resp: 67327

Ion	Ratio	Lower	Upper
276	100		
138	25.1	19.1	28.7
277	26.7	19.5	29.3

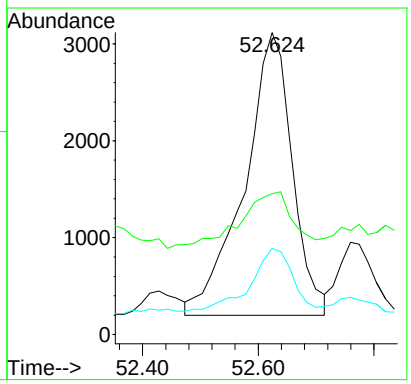


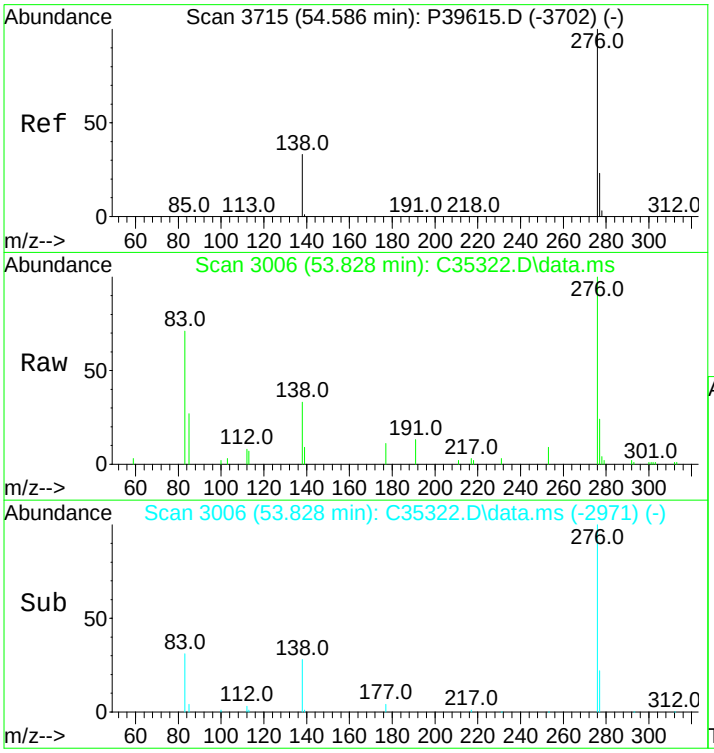


#90
Dibenz[ah]+[ac]anthracene
Concen: 120.51 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:278 Resp: 16817

Ion	Ratio	Lower	Upper
278	100		
139	22.0	16.6	25.0
279	21.5	20.0	30.0

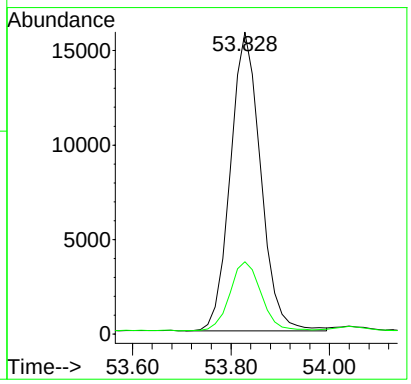


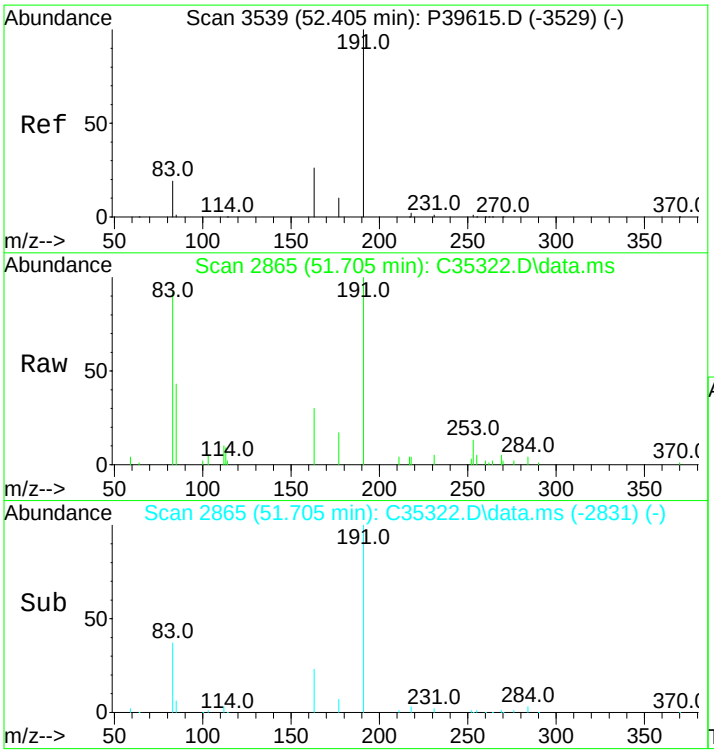


#91
Benzo[g,h,i]perylene
Concen: 435.27 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:276 Resp: 67461

Ion	Ratio	Lower	Upper
276	100		
277	23.8	18.8	28.2

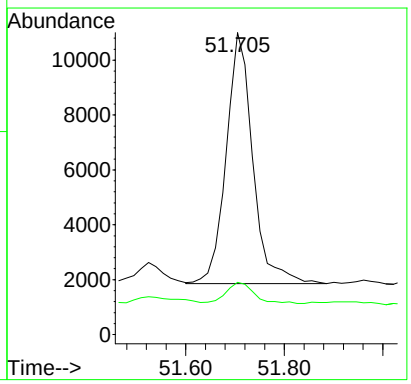


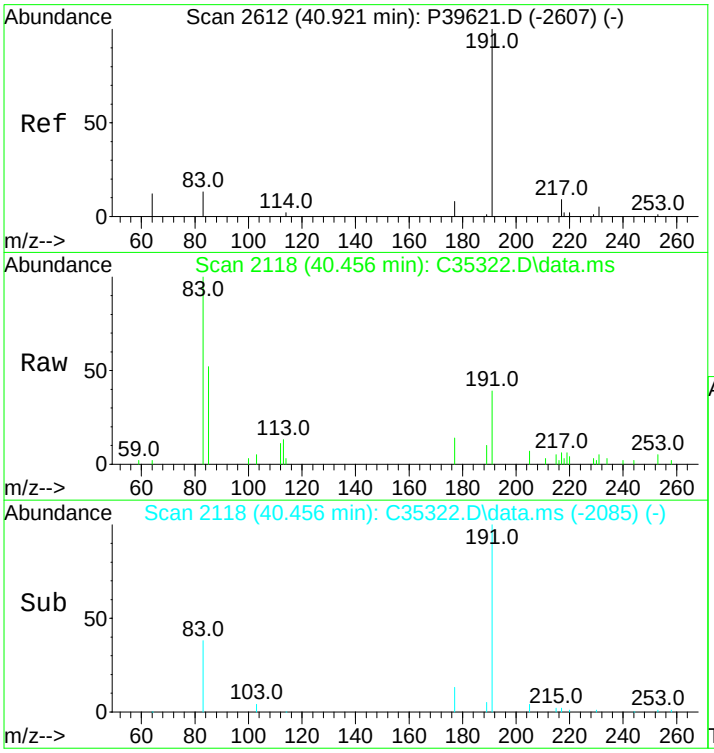


#92
Hopane (T19)
Concen: 1372.29 ng/mL
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:191 Resp: 34328

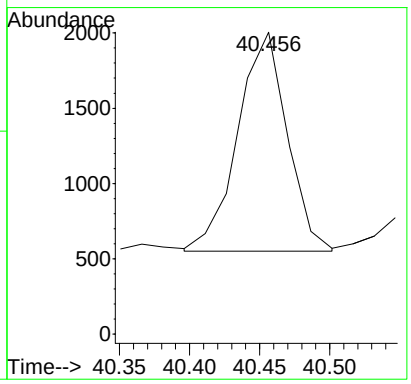
Ion	Ratio	Lower	Upper
191	100		
177	9.9	17.2	25.8#

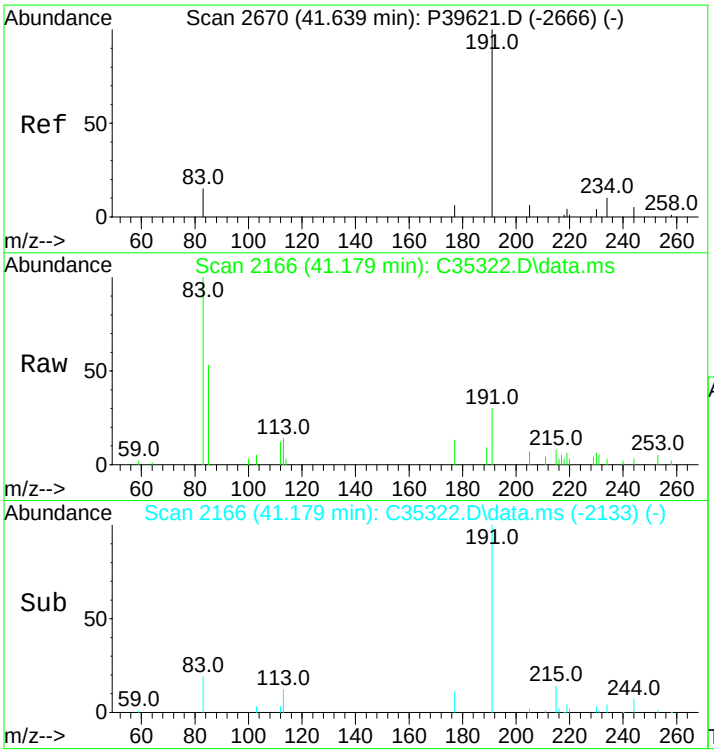




#94
C23 Tricyclic Terpane (T4)
Concen: 142.51 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

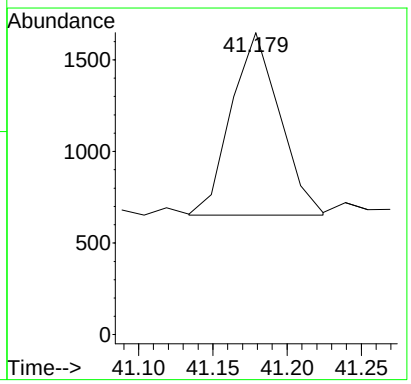
Tgt Ion:191 Resp: 3565

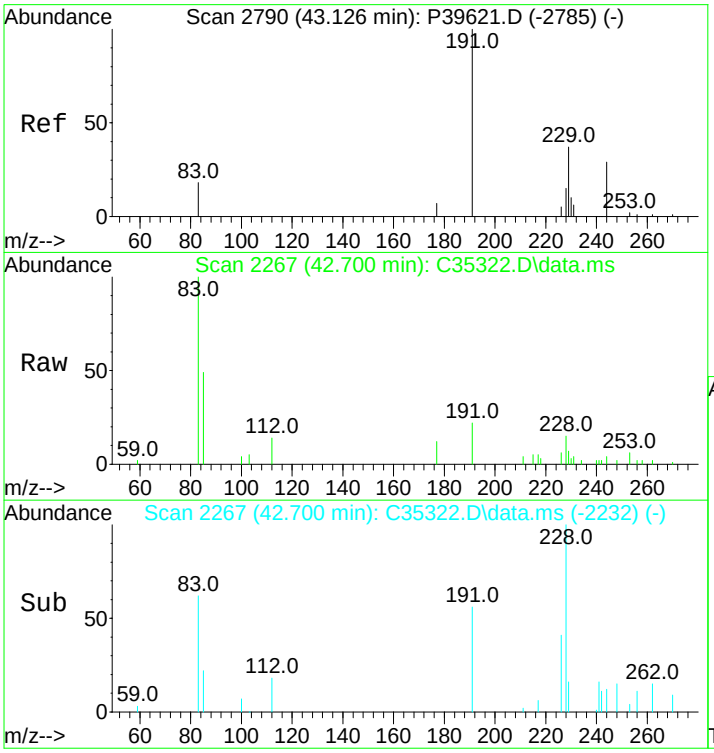




#95
C24 Tricyclic Terpane (T5)
Concen: 90.55 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

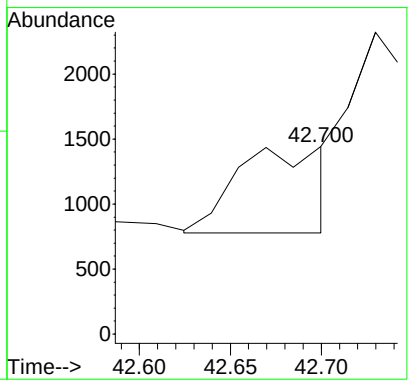
Tgt Ion:191 Resp: 2265

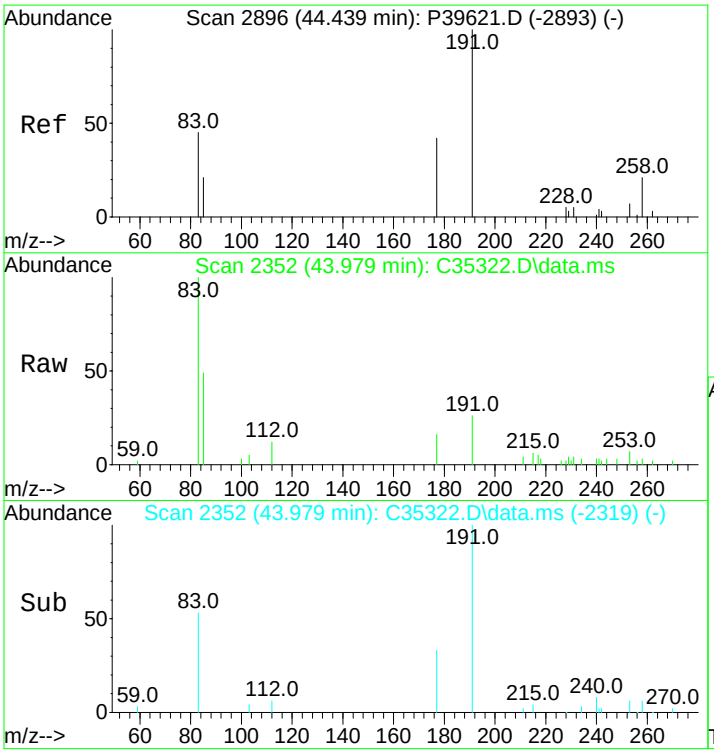




#96
C25 Tricyclic Terpane (T6)
Concen: 89.99 ng/ml m
RT: 42.700 min Scan# 2267
Delta R.T. 0.030 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

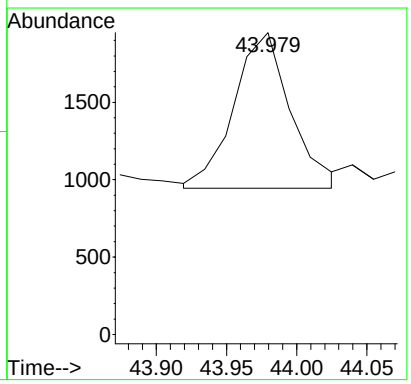
Tgt Ion:191 Resp: 2251

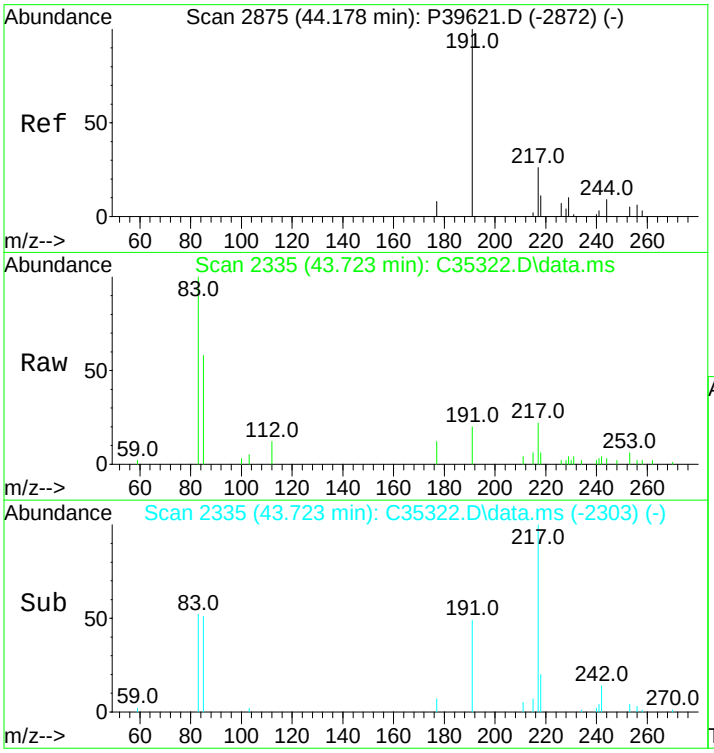




#97
C24 Tetracyclic Terpane (T6a)
Concen: 113.33 ng/ml m
RT: 43.979 min Scan# 2352
Delta R.T. -0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

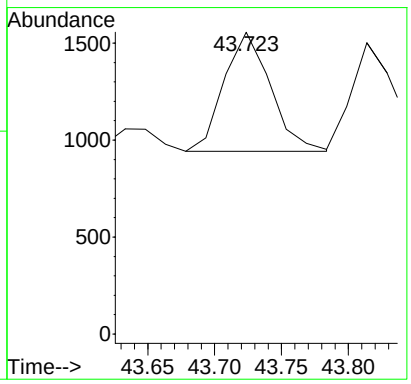
Tgt Ion:191 Resp: 2835

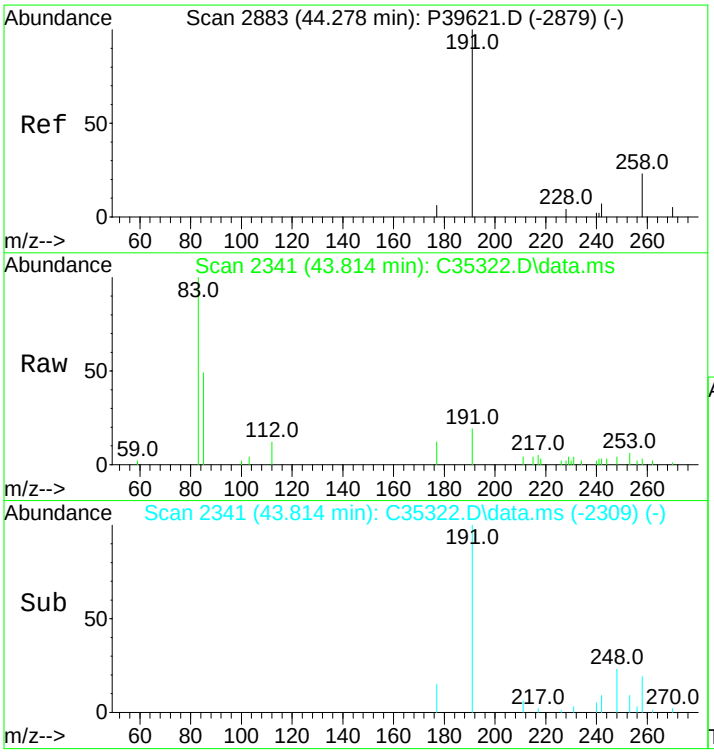




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 59.64 ng/ml
RT: 43.723 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

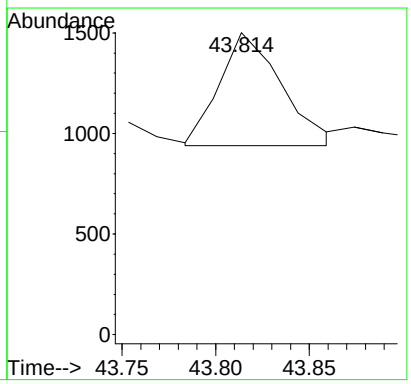
Tgt Ion:191 Resp: 1492

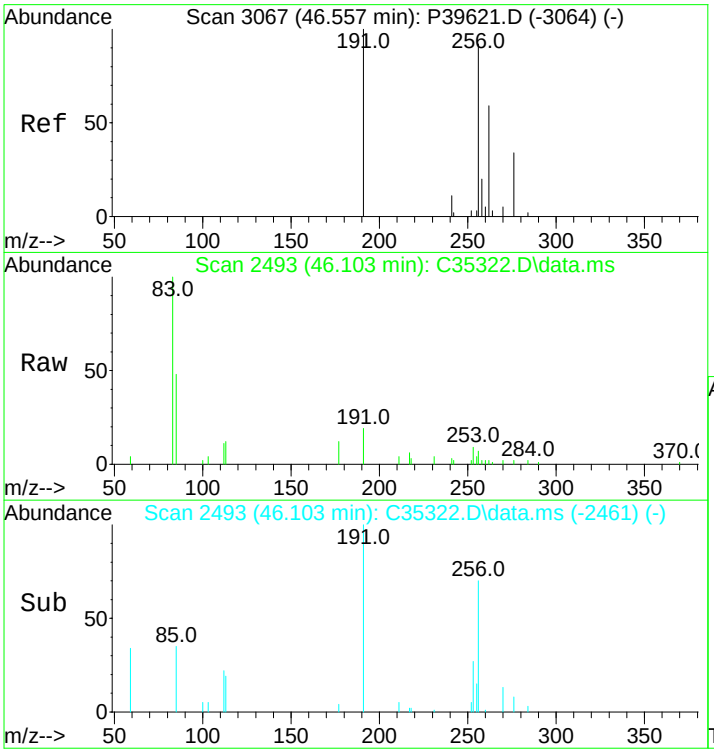




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 51.89 ng/ml m
RT: 43.814 min Scan# 2341
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

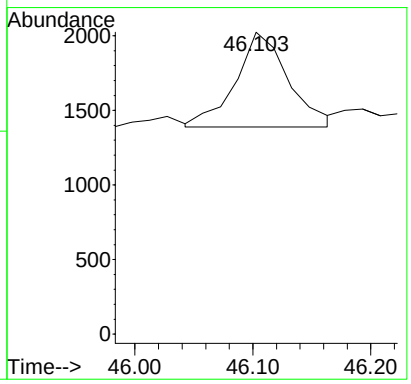
Tgt Ion:191 Resp: 1298

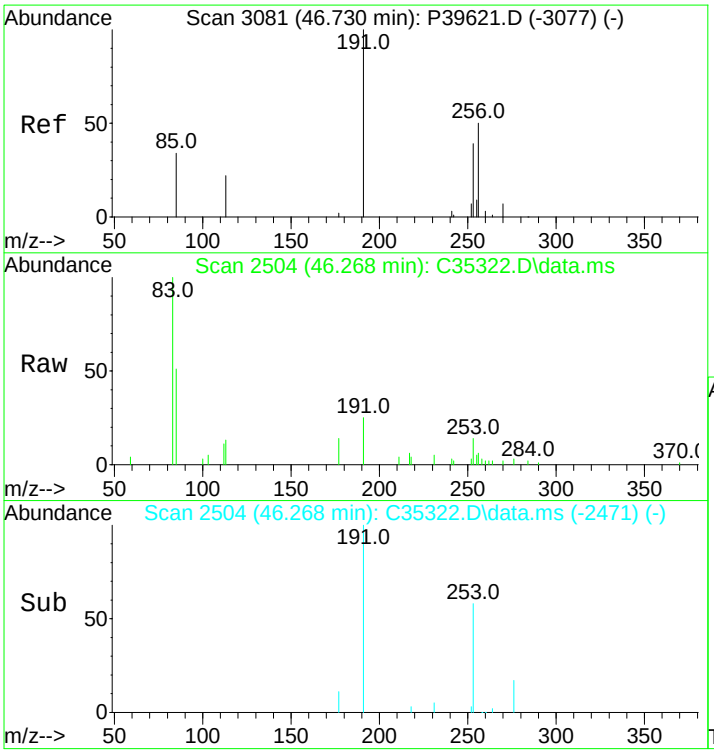




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 79.27 ng/ml m
RT: 46.103 min Scan# 2493
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

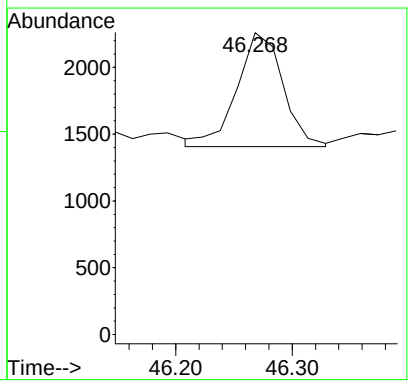
Tgt Ion:191 Resp: 1983

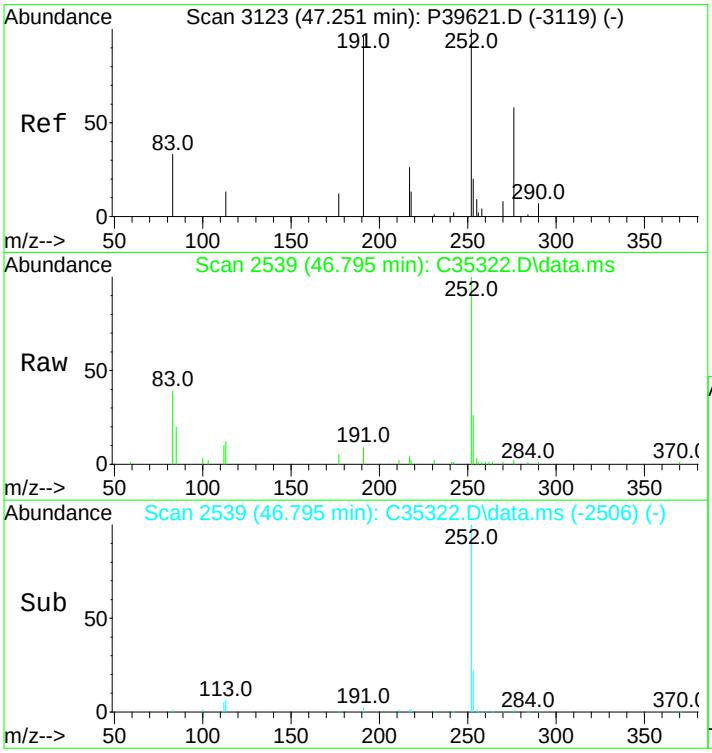




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 93.34 ng/ml m
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

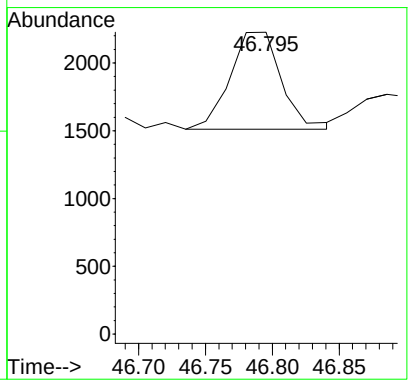
Tgt Ion:191 Resp: 2335

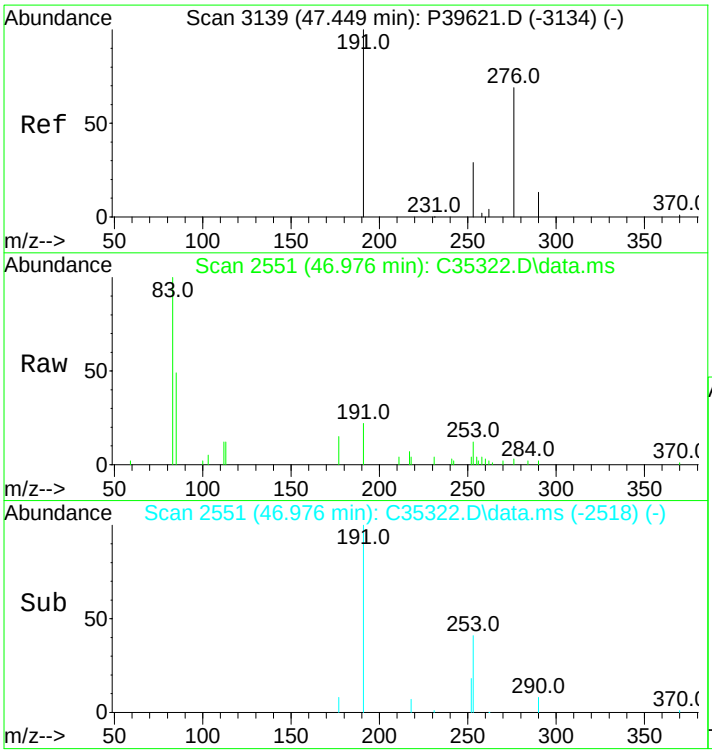




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 77.23 ng/ml
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

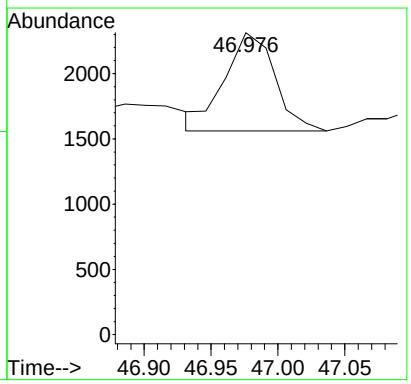
Tgt Ion:191 Resp: 1932

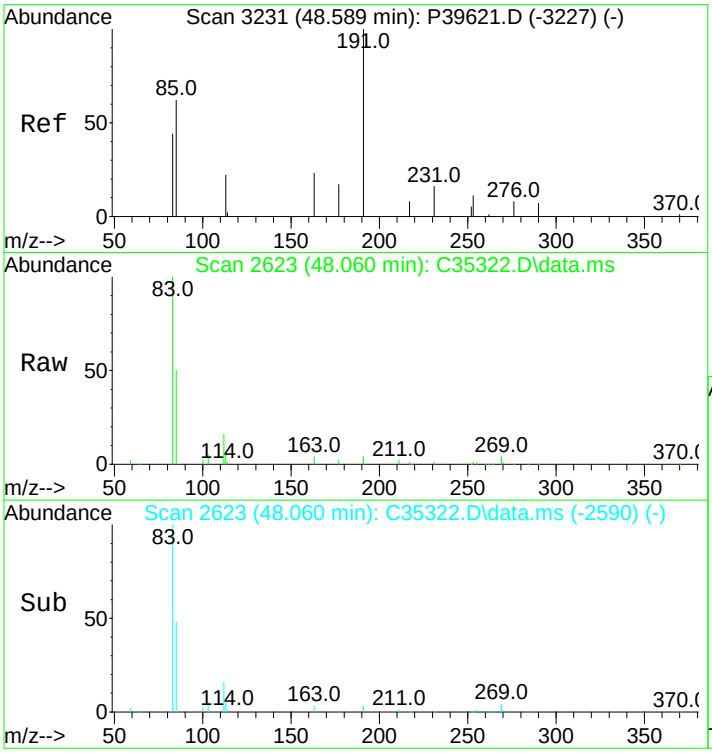




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 78.51 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

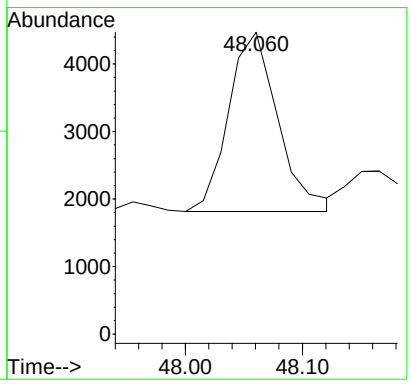
Tgt Ion:191 Resp: 1964

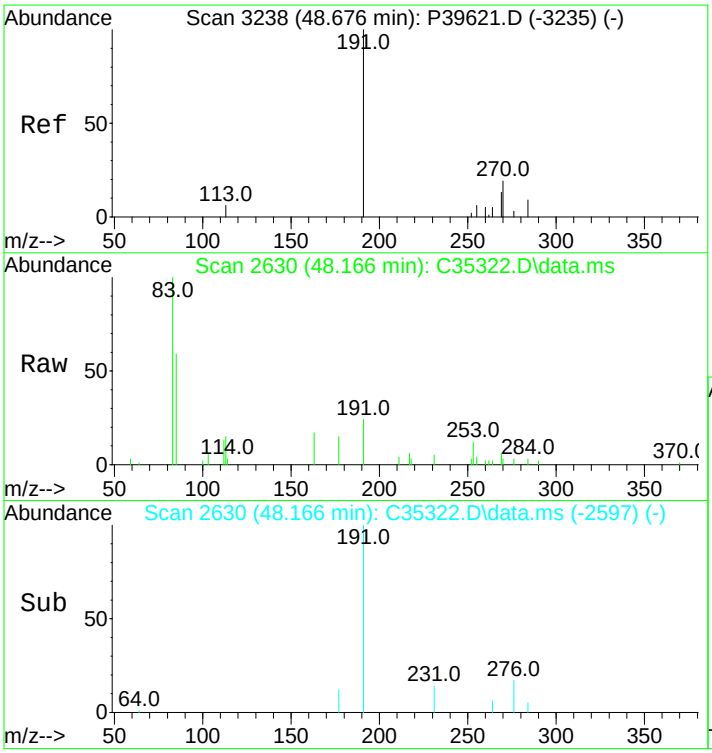




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 311.41 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

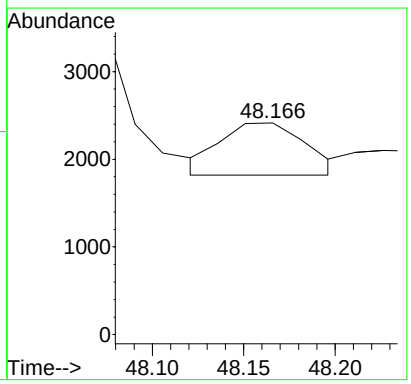
Tgt Ion:191 Resp: 7790

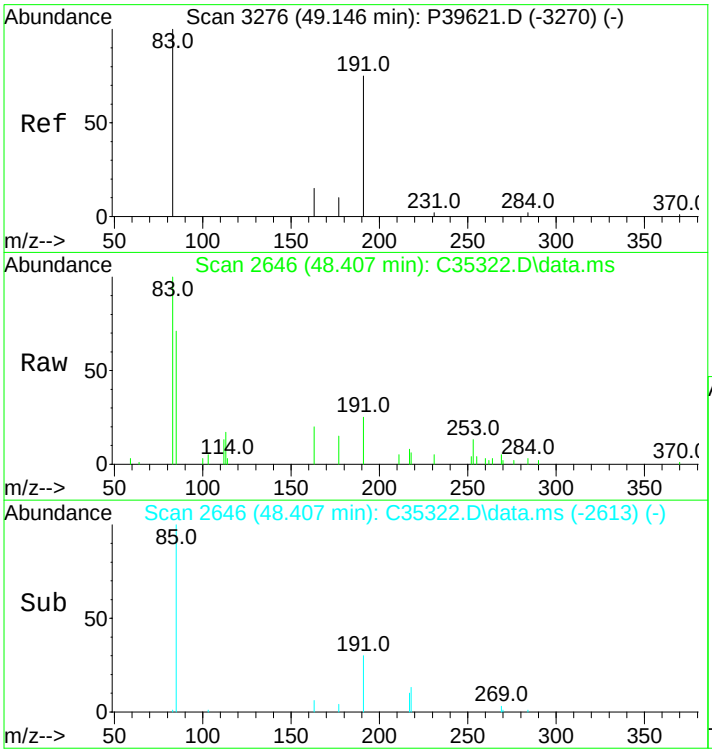




#105
C30 Tricyclic Terpane-22S
Concen: 76.79 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

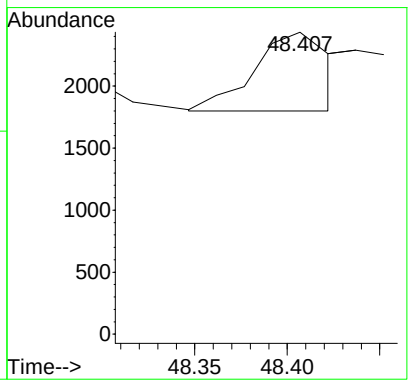
Tgt Ion:191 Resp: 1921

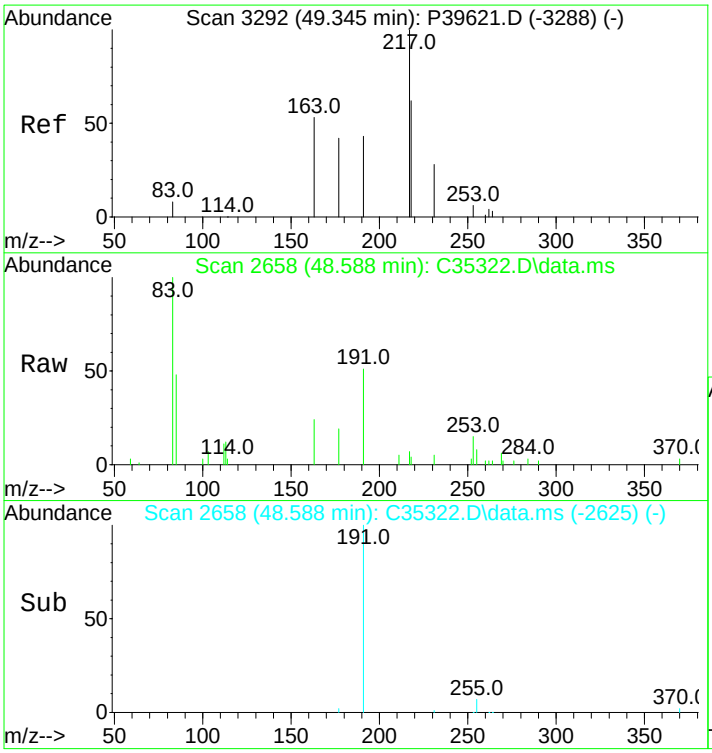




#106
C30 Tricyclic Terpane-22R
Concen: 70.96 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

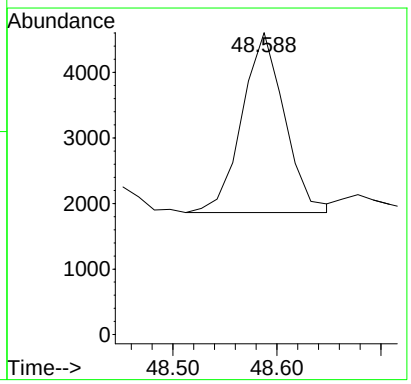
Tgt Ion:191 Resp: 1775

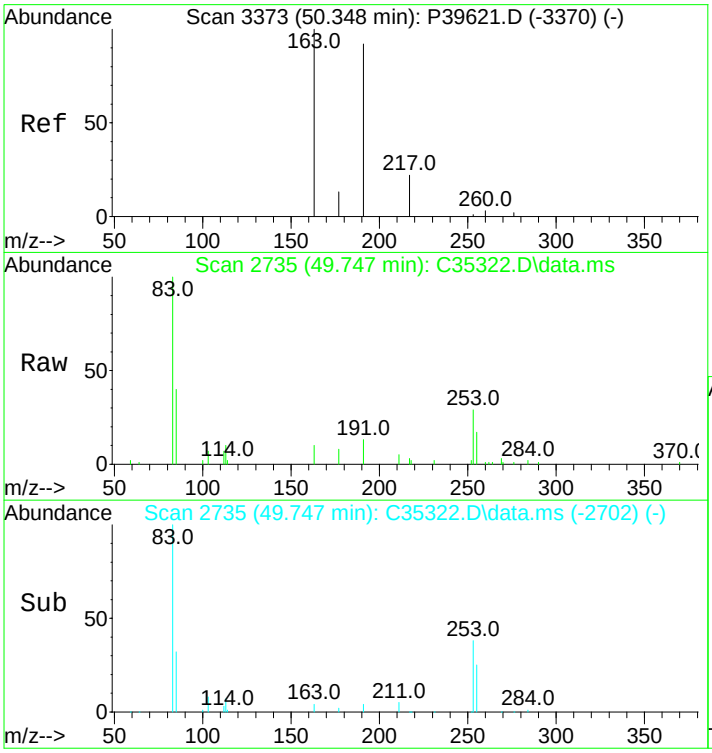




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 314.09 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

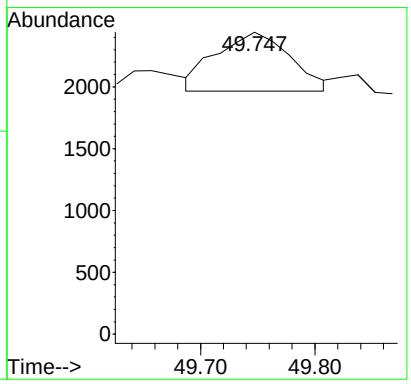
Tgt Ion:191 Resp: 7857

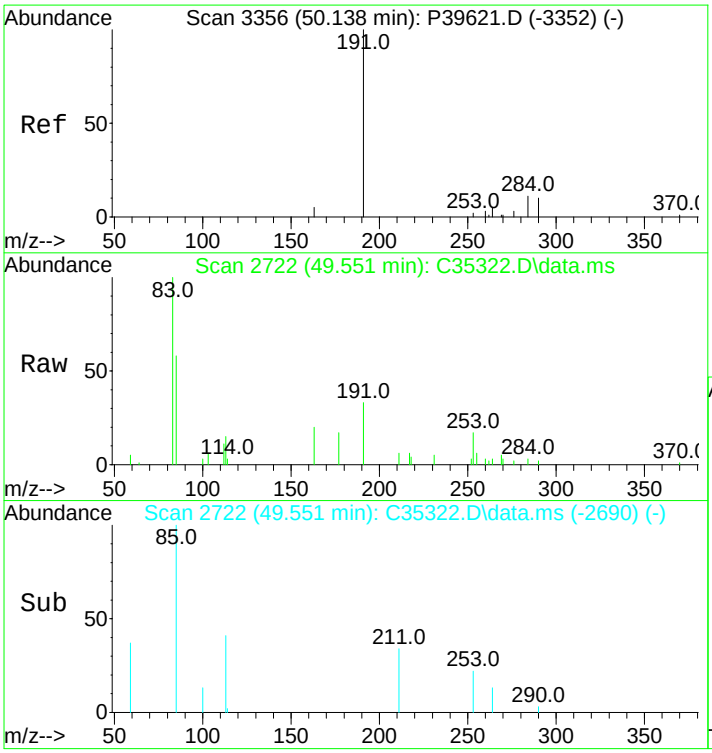




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 86.03 ng/ml m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

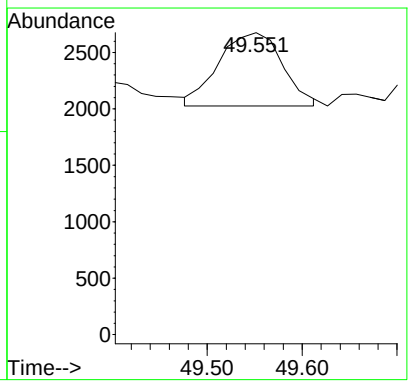
Tgt Ion:191 Resp: 2152

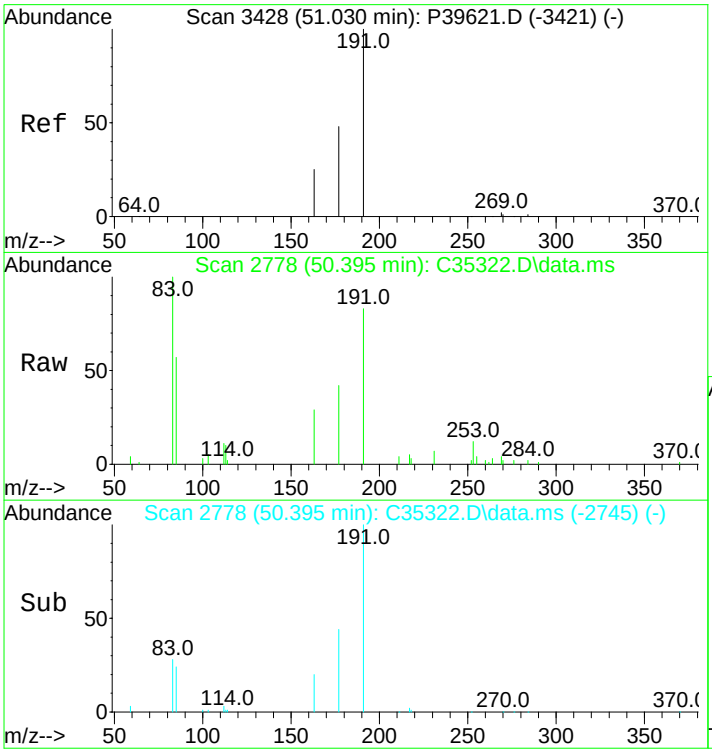




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 120.65 ng/ml m
RT: 49.551 min Scan# 2722
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

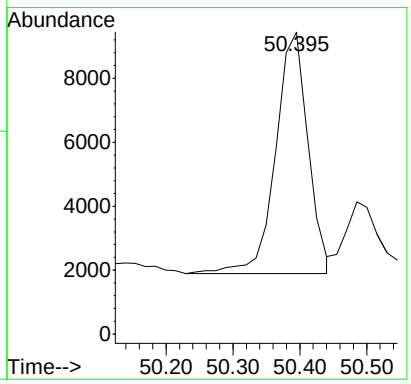
Tgt Ion:191 Resp: 3018

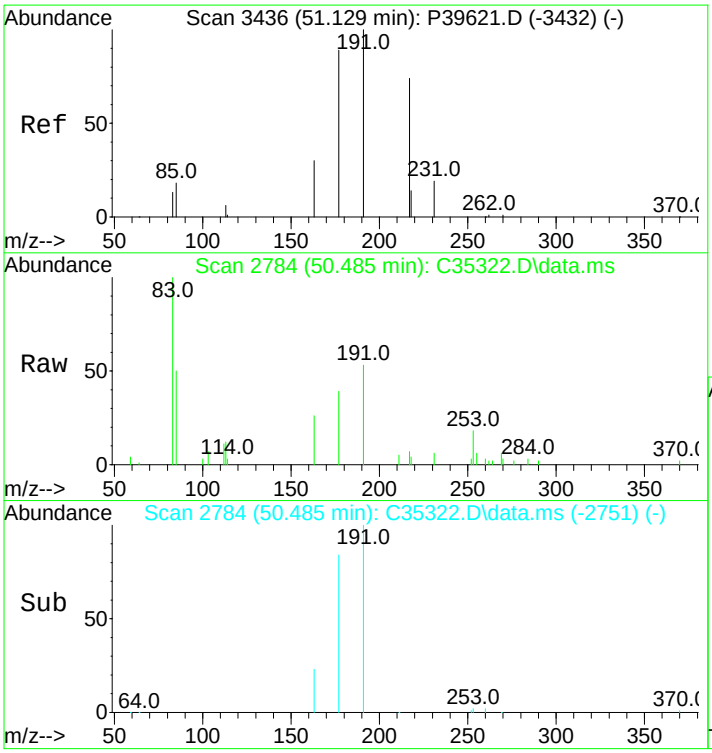




#110
30-Norhopane (T15)
Concen: 1017.19 ng/ml
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

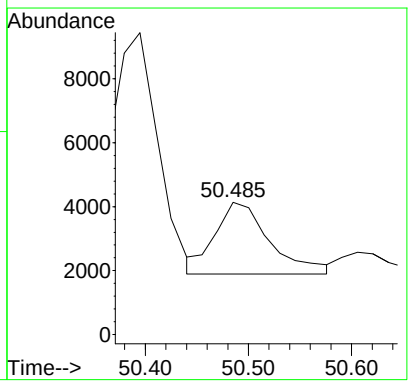
Tgt Ion:191 Resp: 25445

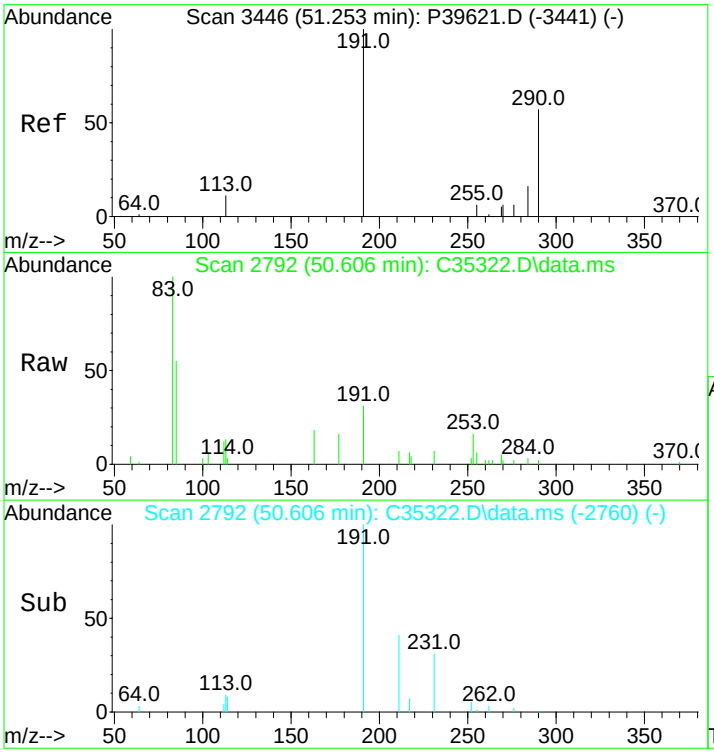




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 331.08 ng/ml m
RT: 50.485 min Scan# 2784
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

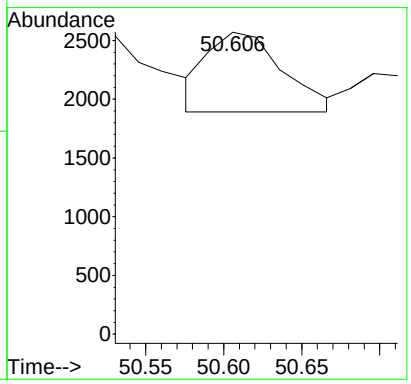
Tgt Ion:191 Resp: 8282

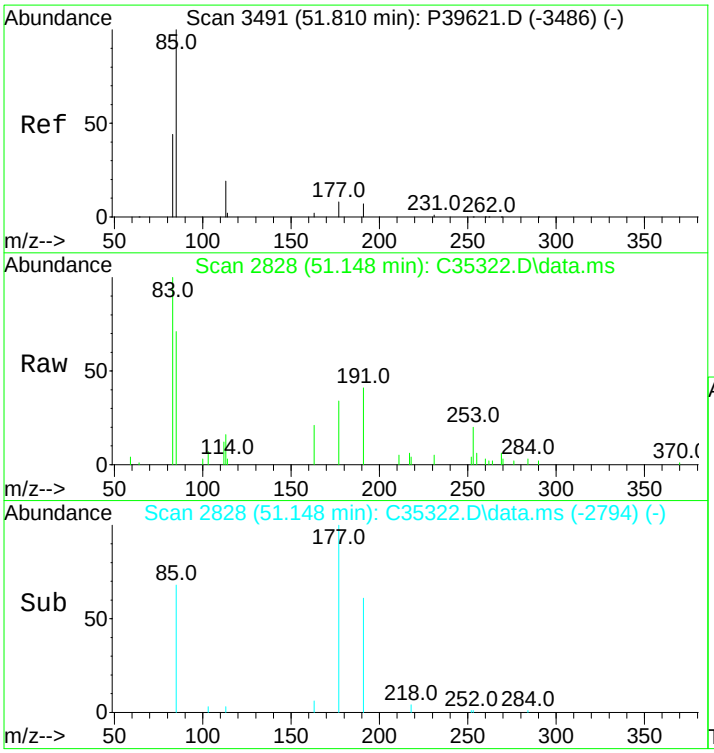




#112
17a(H)-Diahopane (X)
Concen: 91.90 ng/ml
RT: 50.606 min Scan# 2792
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

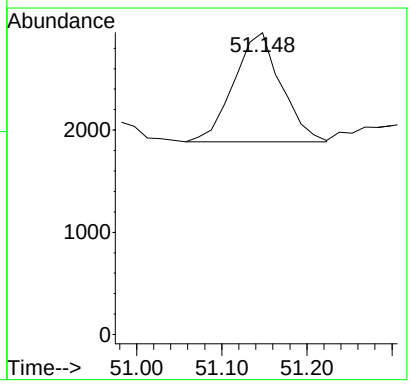
Tgt Ion:191 Resp: 2299

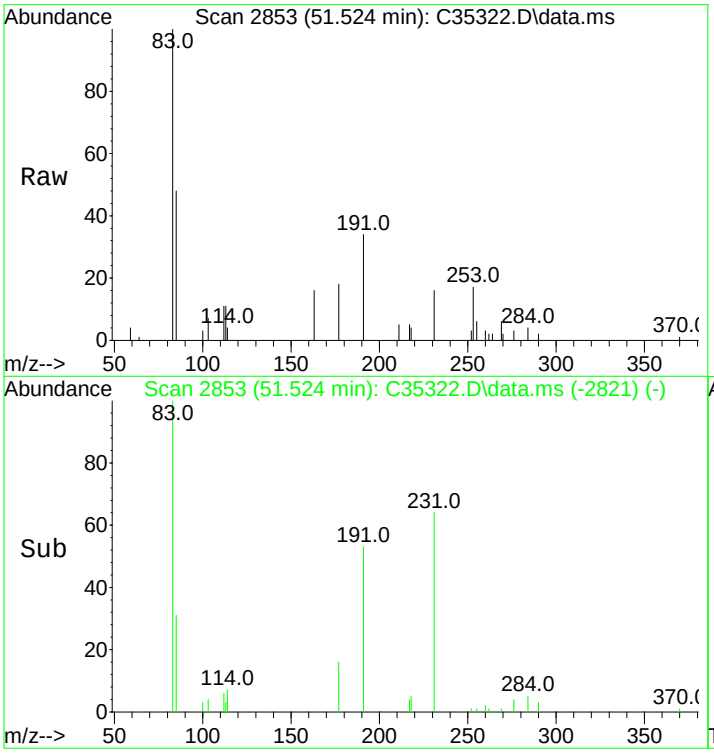




#113
30-Normoretane (T17)
Concen: 164.74 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

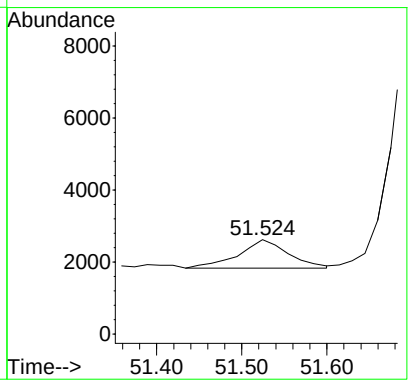
Tgt Ion:191 Resp: 4121

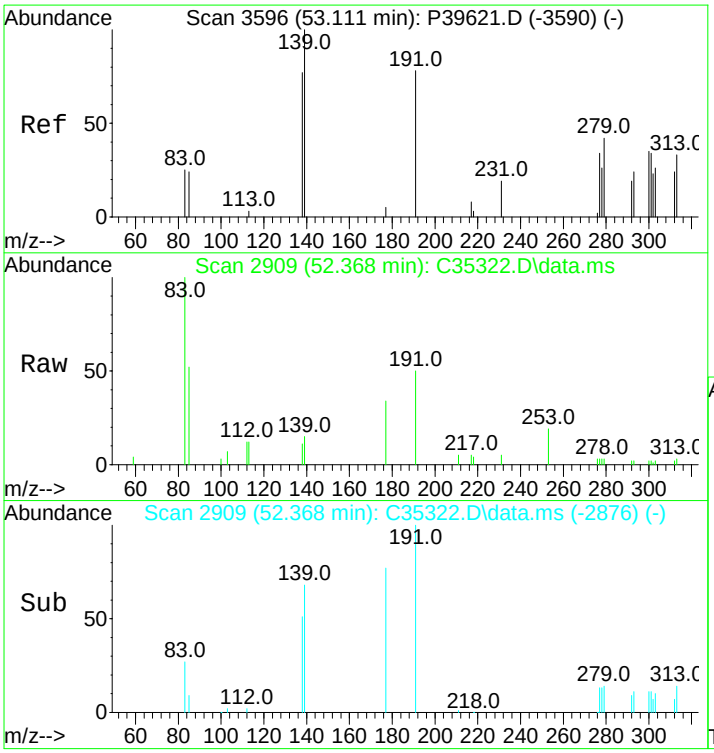




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 127.88 ng/ml
RT: 51.524 min Scan# 2853
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

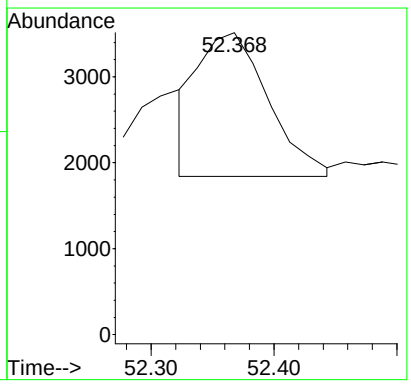
Tgt Ion:191 Resp: 3199

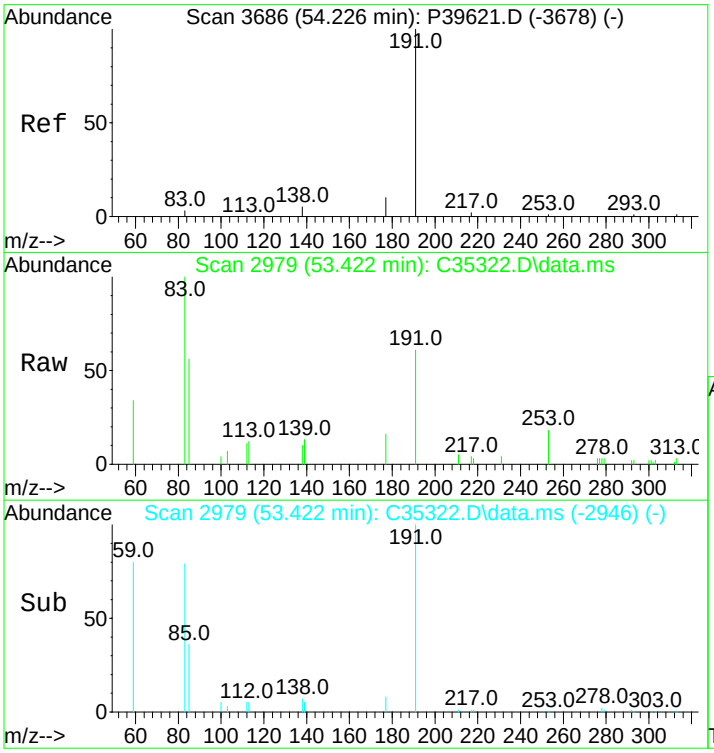




#115
Moretane (T20)
Concen: 267.28 ng/ml m
RT: 52.368 min Scan# 2909
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

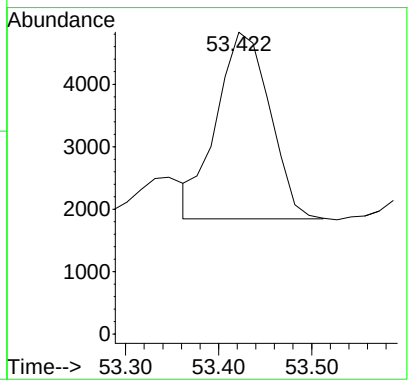
Tgt Ion:191 Resp: 6686

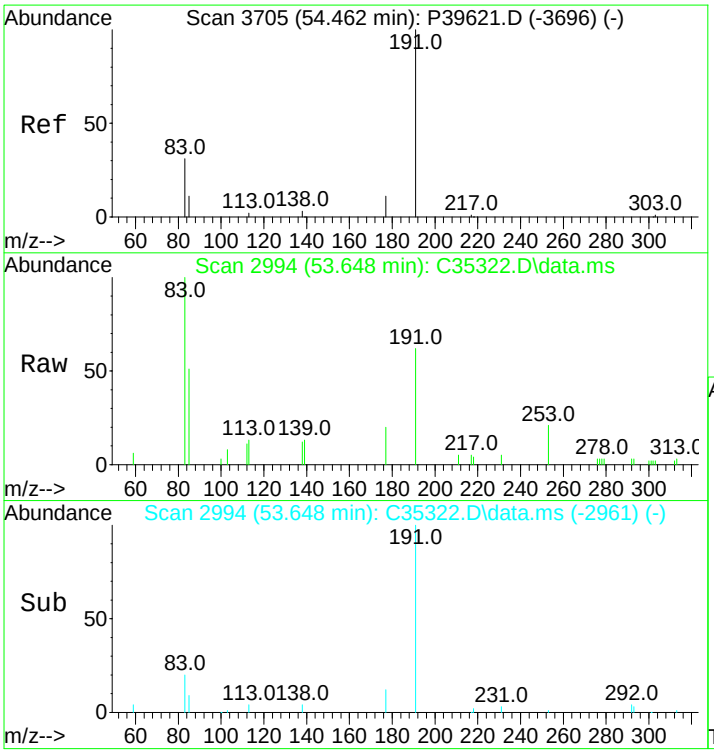




#116
30-Homohopane-22S (T21)
Concen: 475.75 ng/ml m
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

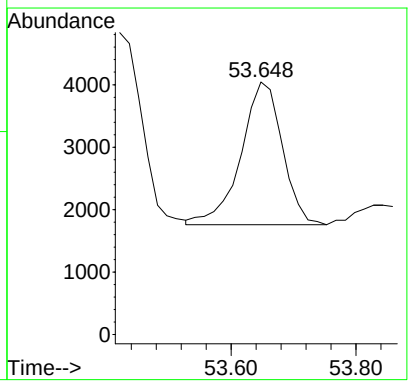
Tgt Ion:191 Resp: 11901

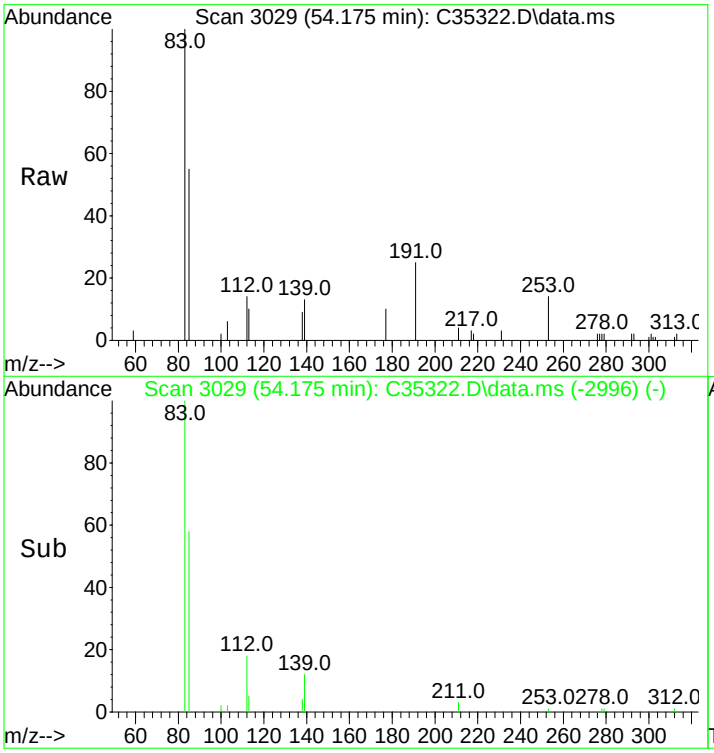




#117
30-Homohopane-22R (T22)
Concen: 421.31 ng/ml
RT: 53.648 min Scan# 2994
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

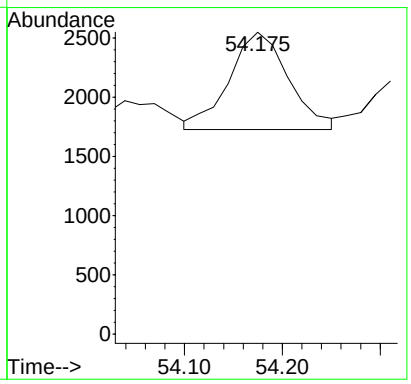
Tgt Ion:191 Resp: 10539

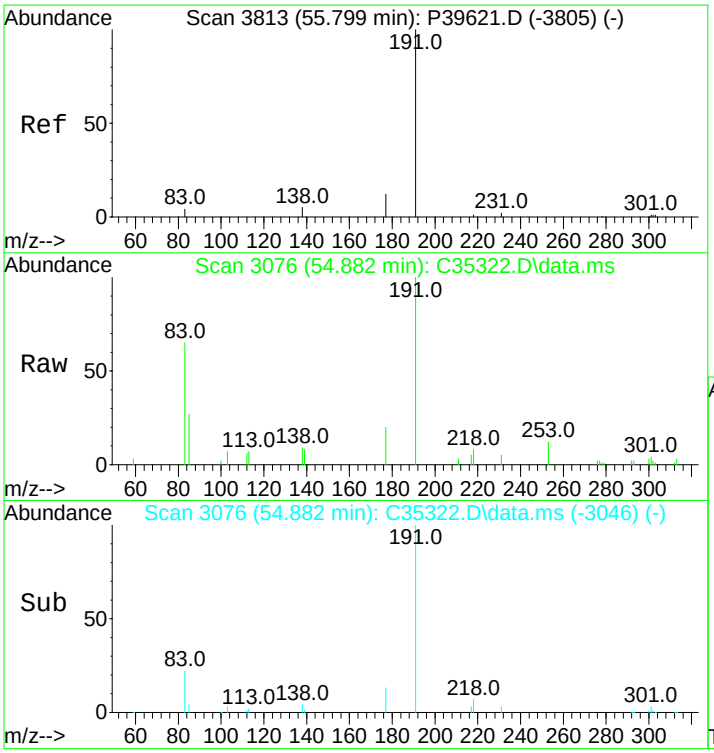




#118
Gammacerane/C32-diahopane
Concen: 138.48 ng/mL m
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

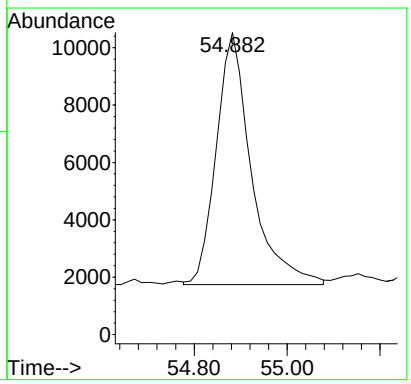
Tgt Ion:191 Resp: 3464

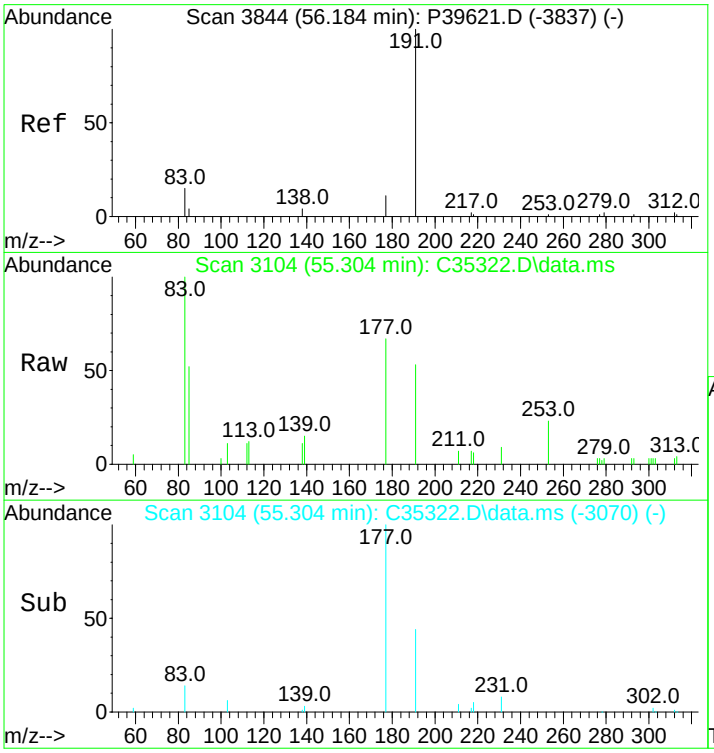




#119
30,31-Bishomohopane-22S (T26)
Concen: 1844.13 ng/ml m
RT: 54.882 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

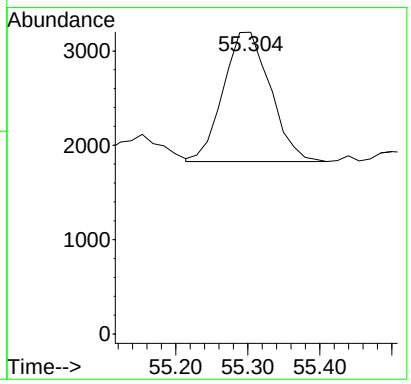
Tgt Ion:191 Resp: 46131

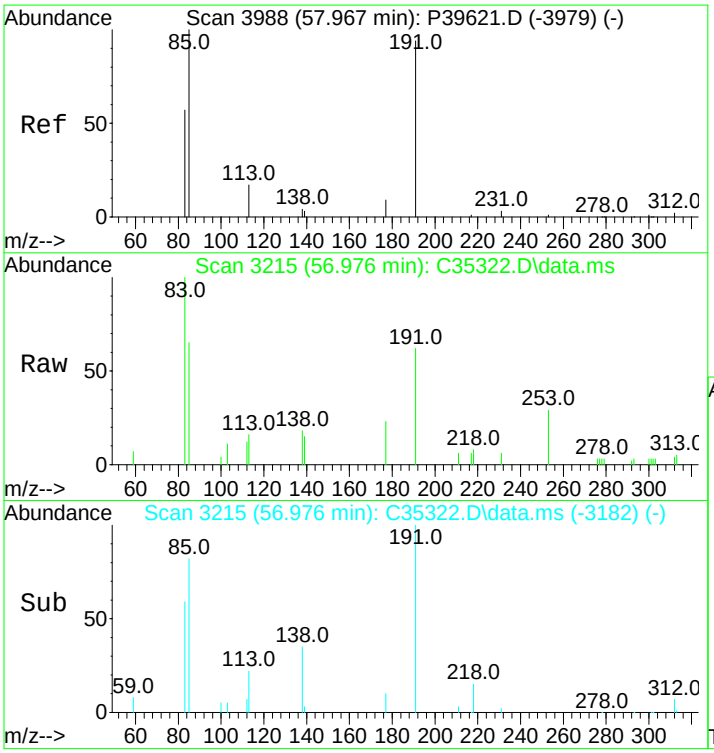




#120
30,31-Bishomohopane-22R (T27)
Concen: 248.41 ng/ml
RT: 55.304 min Scan# 3104
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

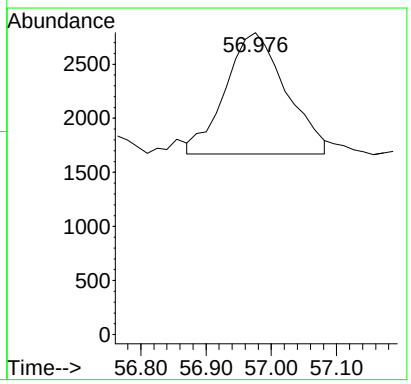
Tgt Ion:191 Resp: 6214

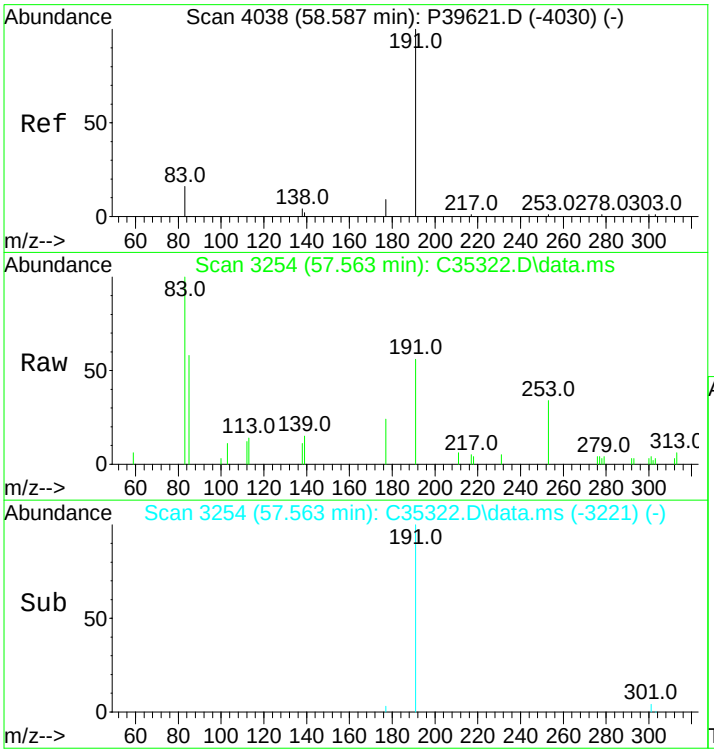




#121
30,31-Trishomohopane-22S (T30)
Concen: 289.51 ng/ml m
RT: 56.976 min Scan# 3215
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

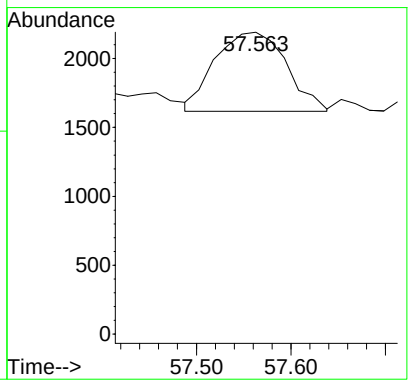
Tgt Ion:191 Resp: 7242

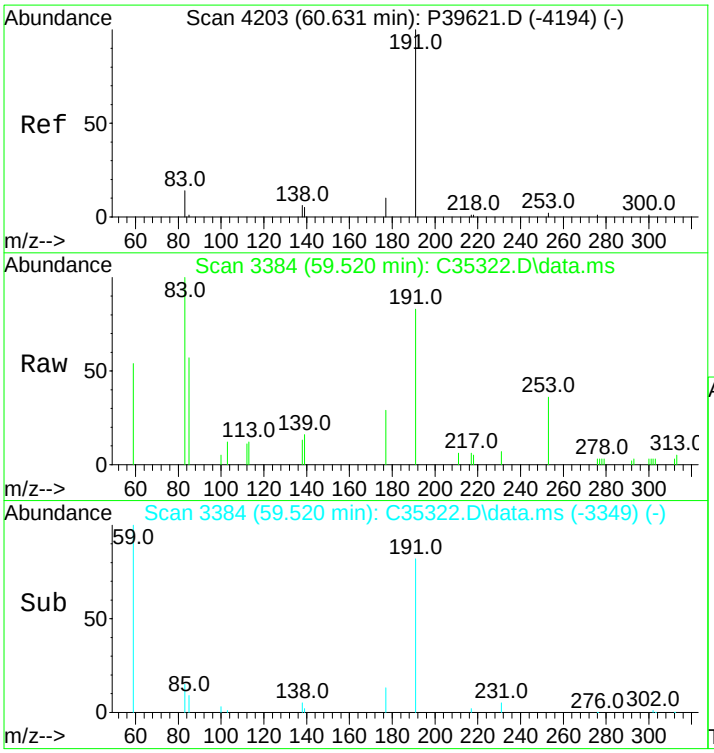




#122
30,31-Trishomohopane-22R (T31)
Concen: 119.73 ng/ml m
RT: 57.563 min Scan# 3254
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

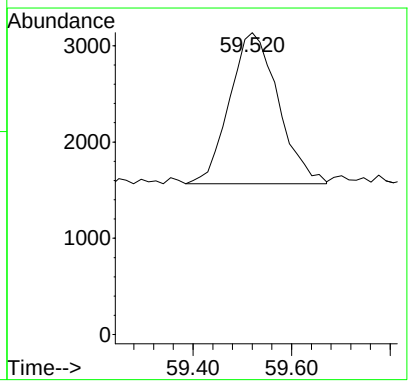
Tgt Ion:191 Resp: 2995

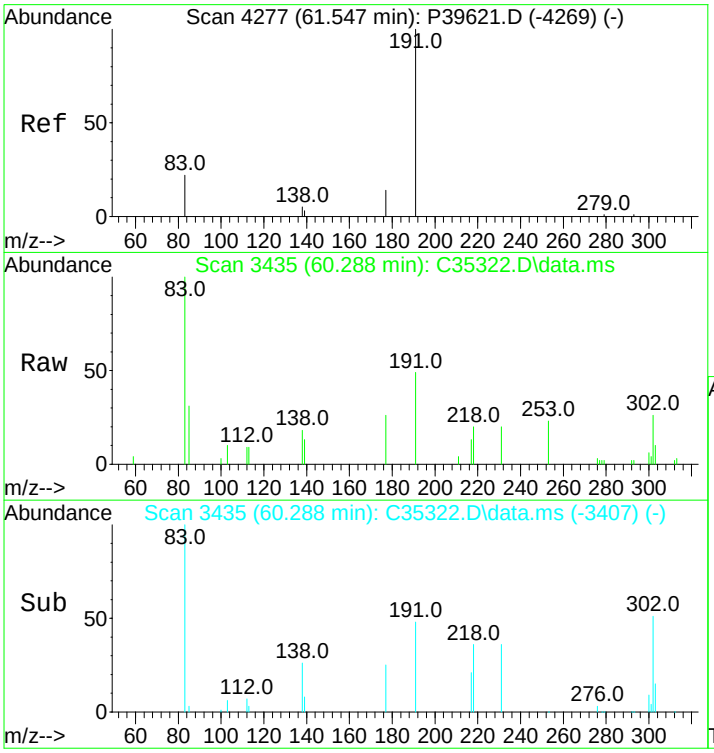




#123
Tetrakishomohopane-22S (T32)
Concen: 430.42 ng/ml
RT: 59.520 min Scan# 3384
Delta R.T. 0.030 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

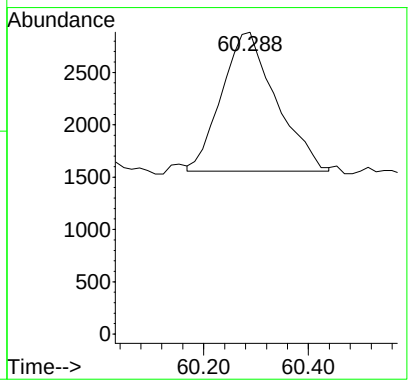
Tgt Ion:191 Resp: 10767

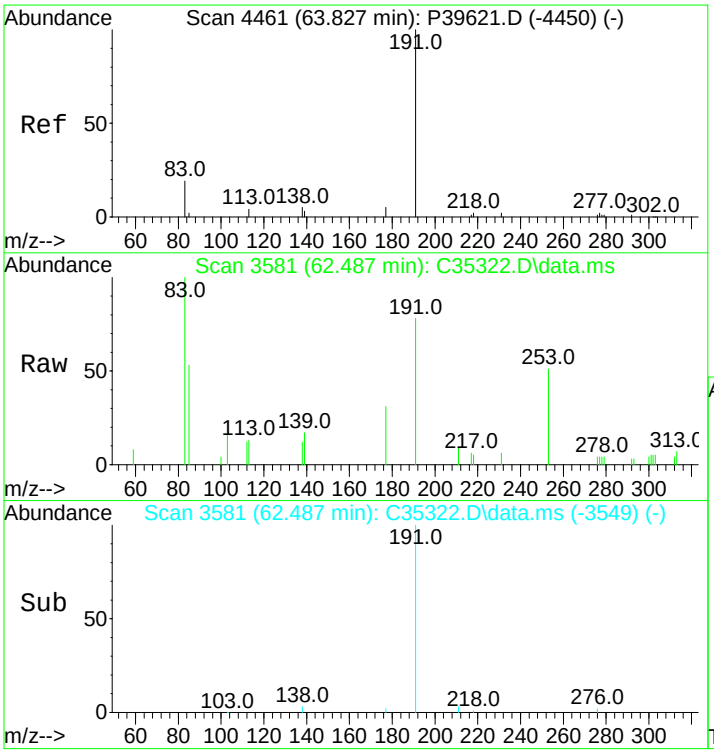




#124
Tetrakishomohopane-22R (T33)
Concen: 383.01 ng/ml m
RT: 60.288 min Scan# 3435
Delta R.T. -0.075 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

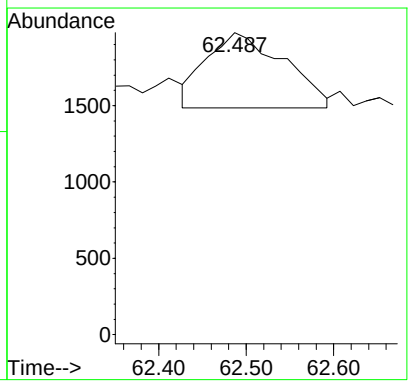
Tgt Ion:191 Resp: 9581

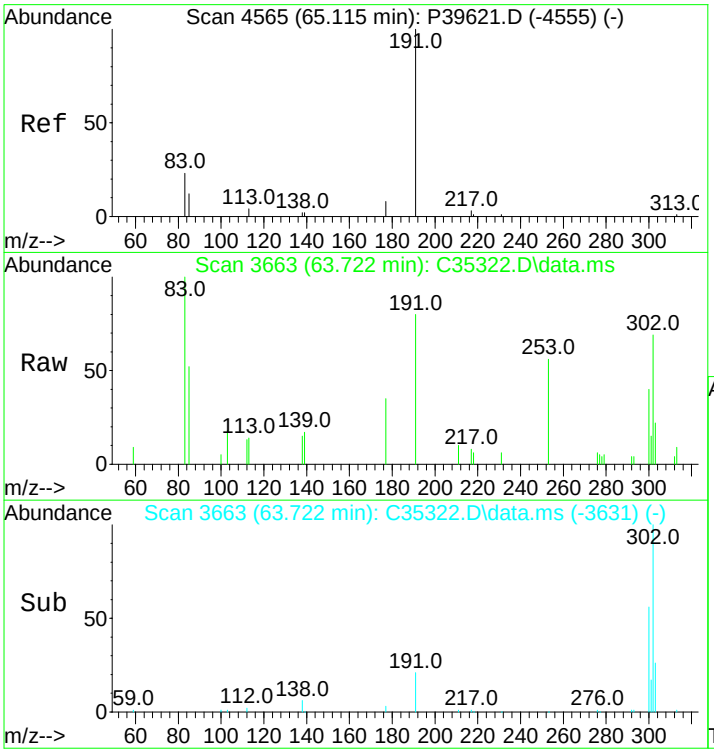




#125
Pentakishomohopane-22S (T34)
Concen: 122.13 ng/ml m
RT: 62.487 min Scan# 3581
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

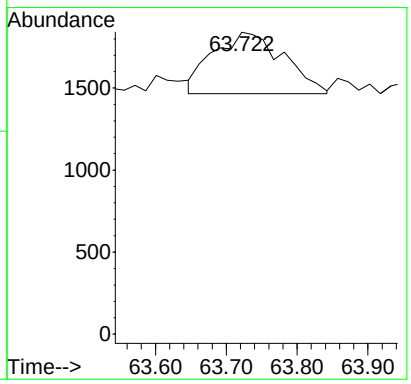
Tgt Ion:191 Resp: 3055

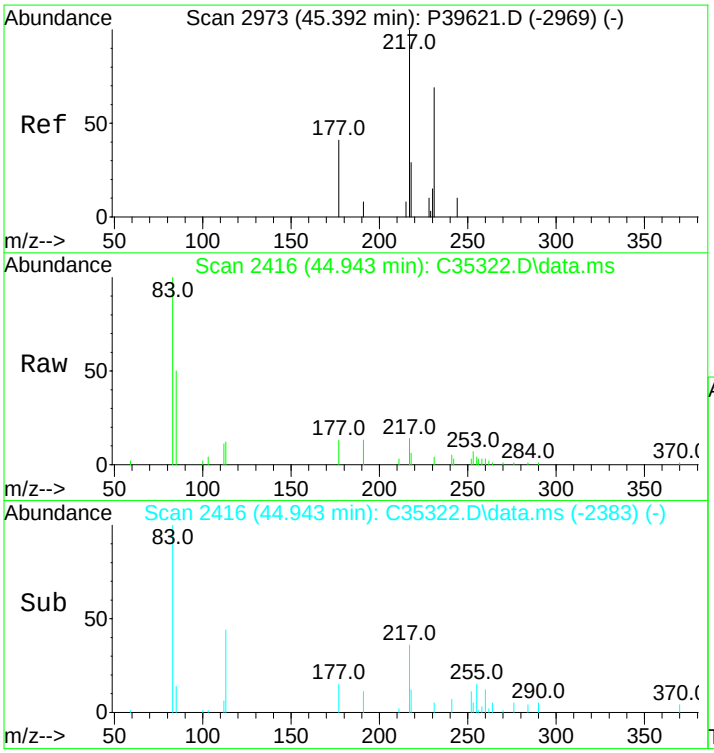




#126
Pentakishomohopane-22R (T35)
Concen: 103.54 ng/ml m
RT: 63.722 min Scan# 3663
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

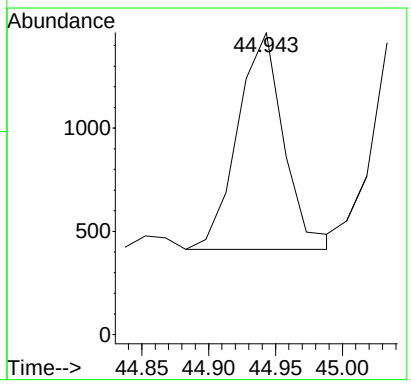
Tgt Ion:191 Resp: 2590

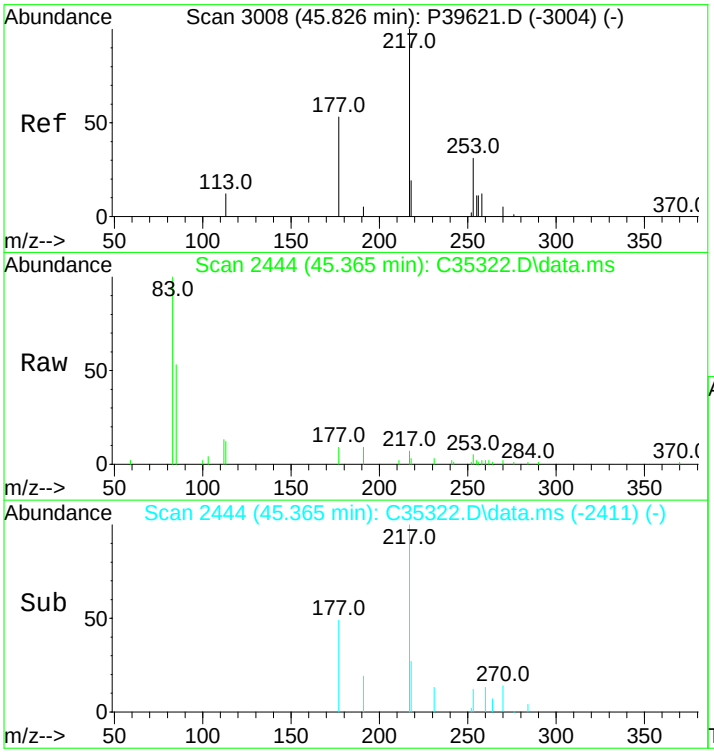




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 214.21 ng/ml
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

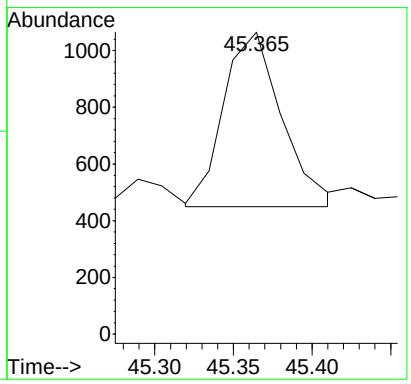
Tgt Ion:217 Resp: 2542

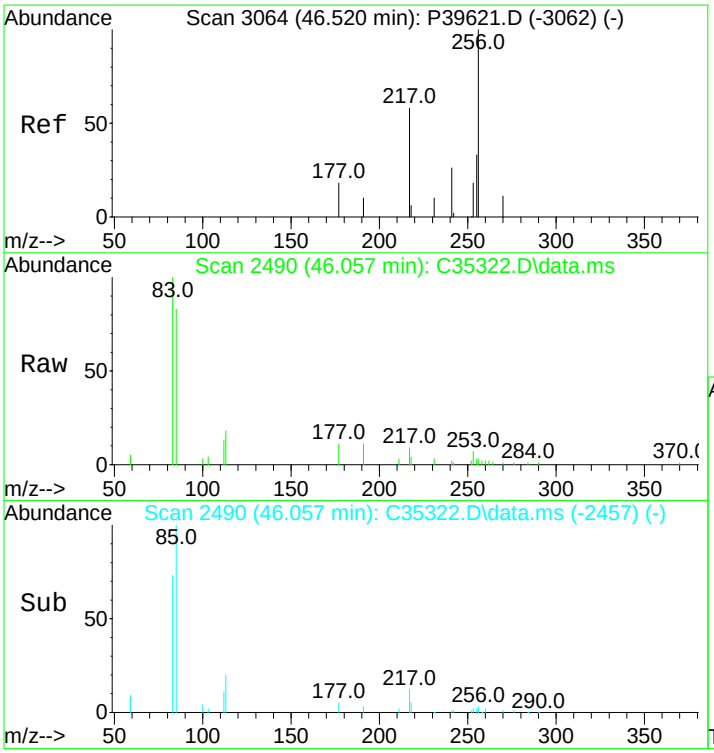




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 133.90 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

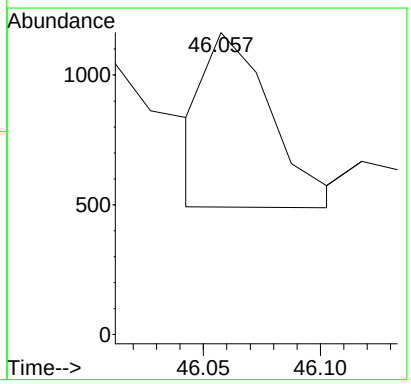
Tgt Ion:217 Resp: 1589

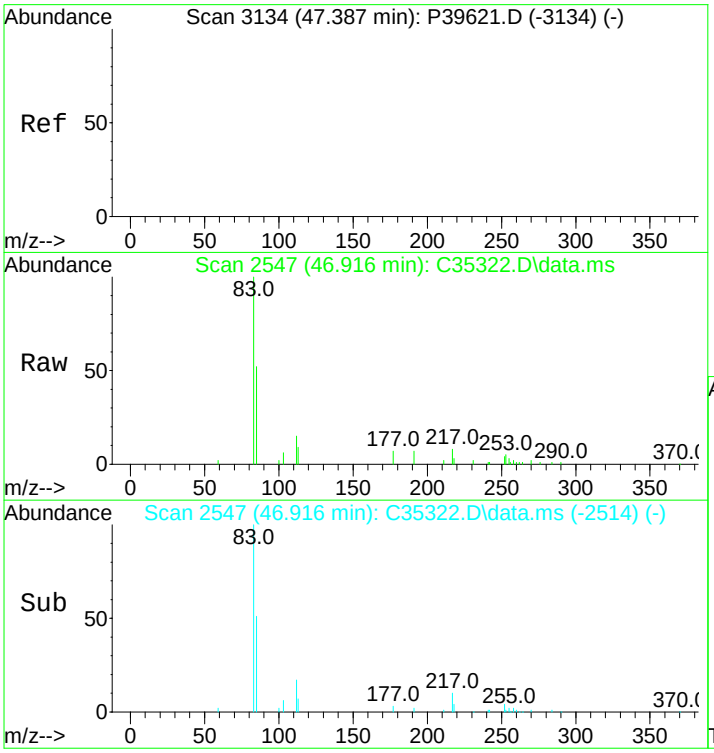




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 110.06 ng/ml
RT: 46.057 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

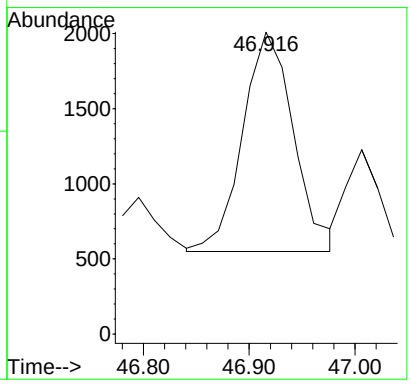
Tgt Ion:217 Resp: 1306

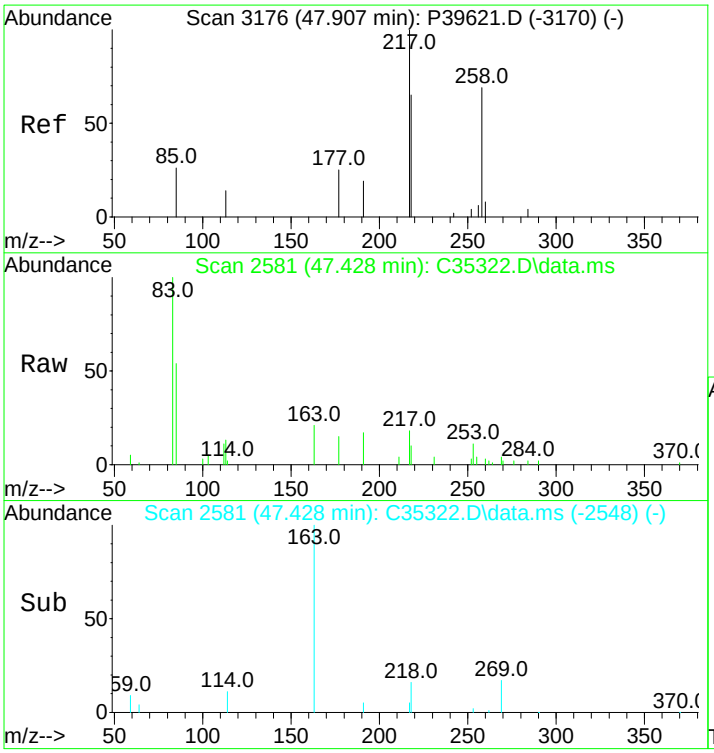




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 410.90 ng/ml m
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

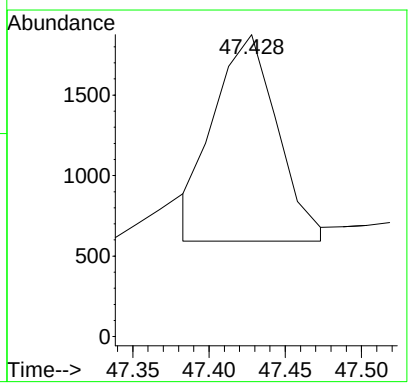
Tgt Ion:217 Resp: 4876

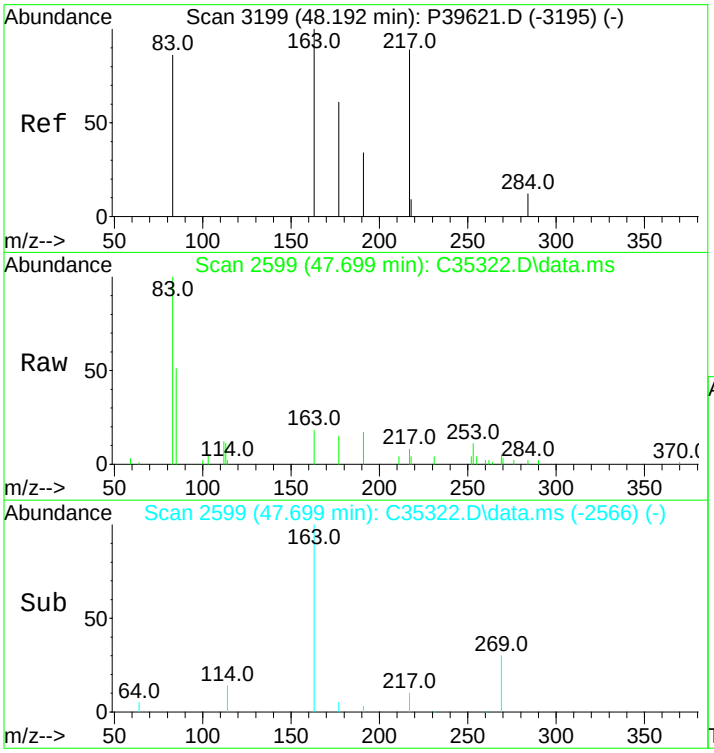




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 310.96 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

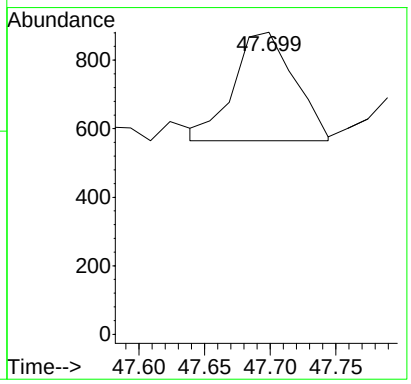
Tgt Ion:217 Resp: 3690

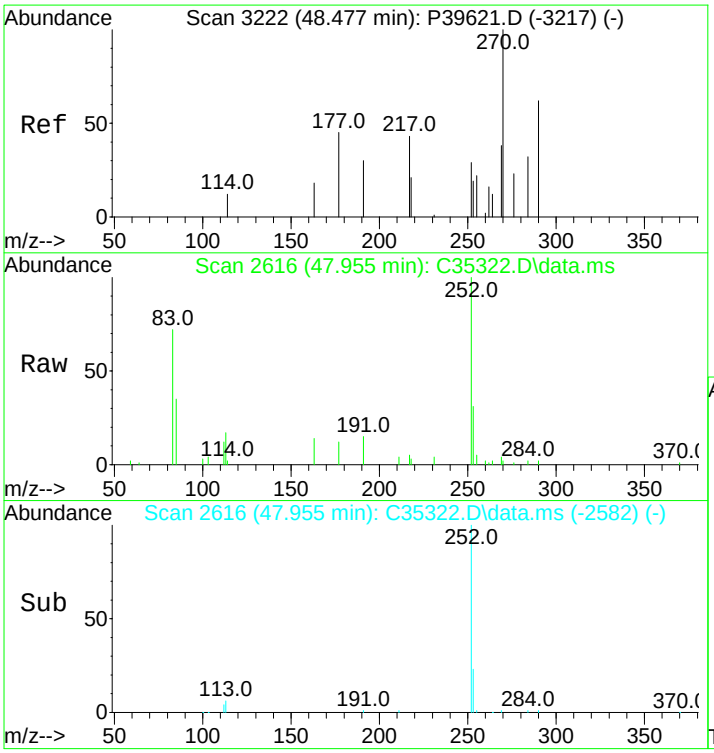




#133
Unknown Sterane (S18)
Concen: 85.70 ng/ml m
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

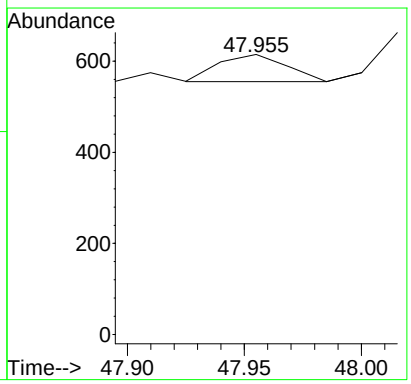
Tgt Ion:217 Resp: 1017

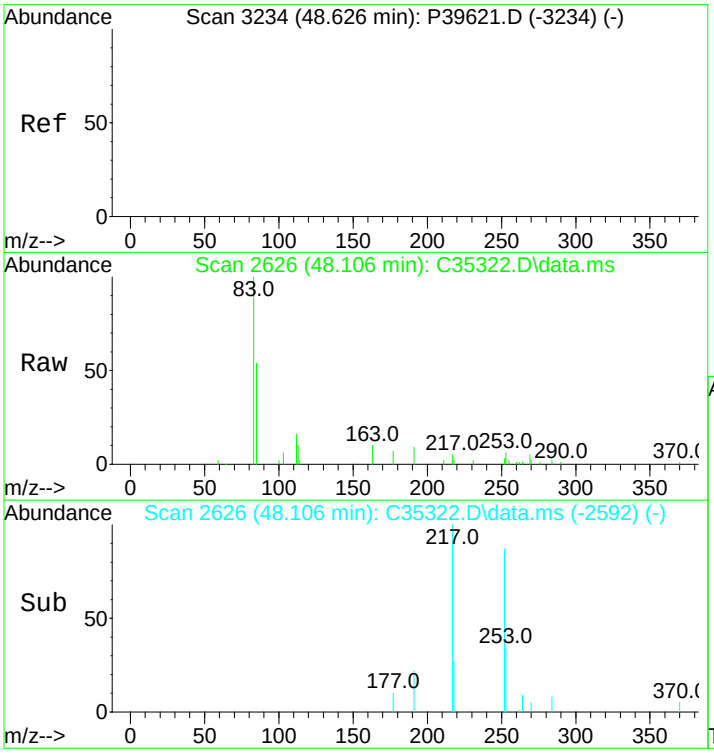




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 10.28 ng/ml
RT: 47.955 min Scan# 2616
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

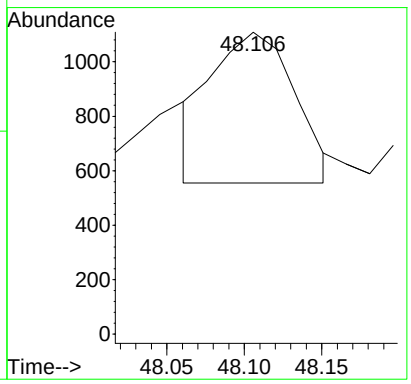
Tgt Ion:217 Resp: 122

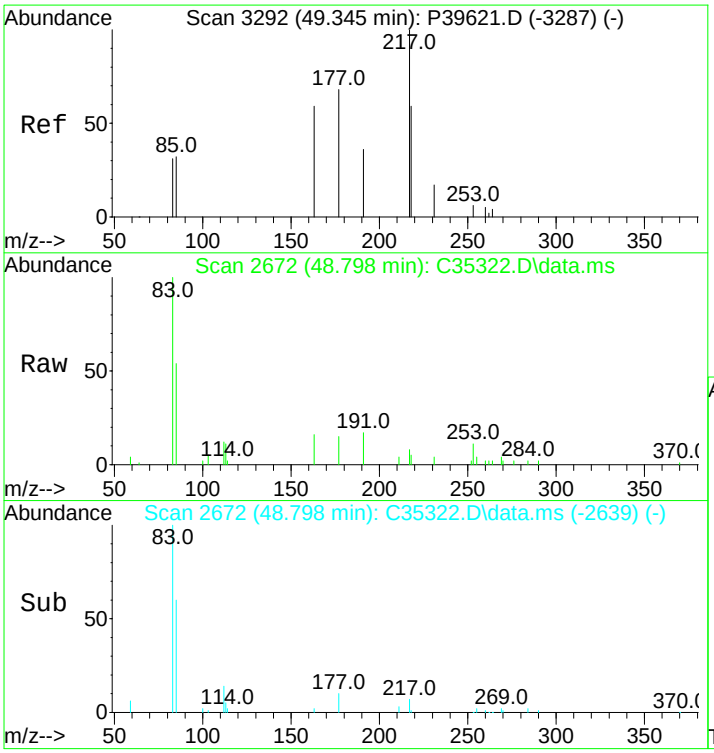




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 175.20 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

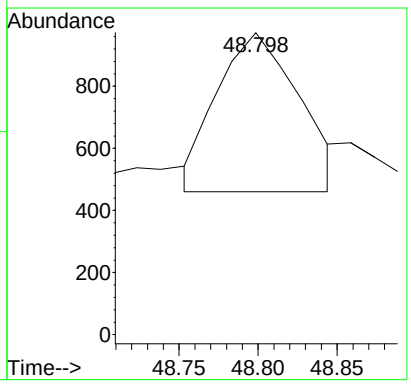
Tgt Ion:217 Resp: 2079

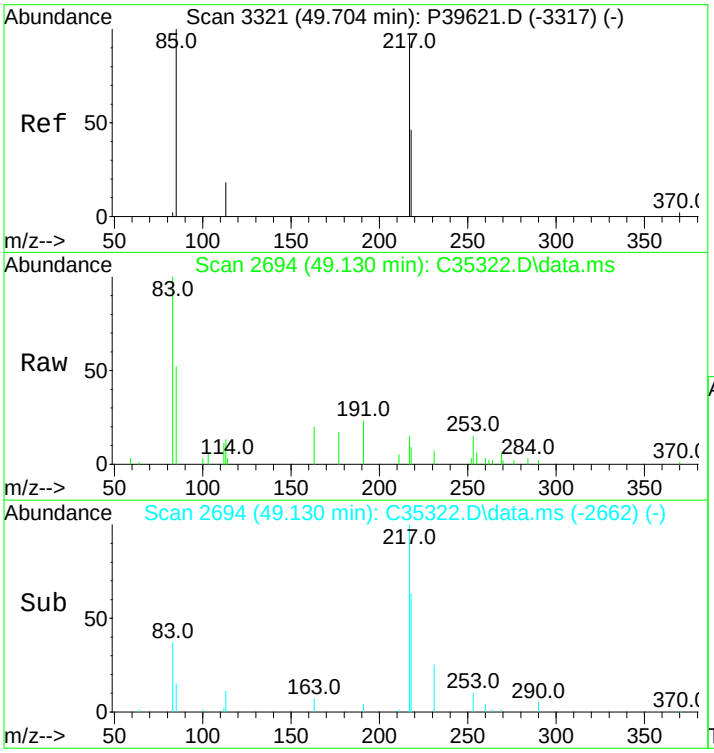




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 155.81 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

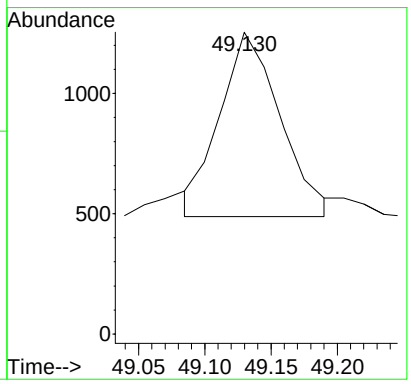
Tgt Ion:217 Resp: 1849

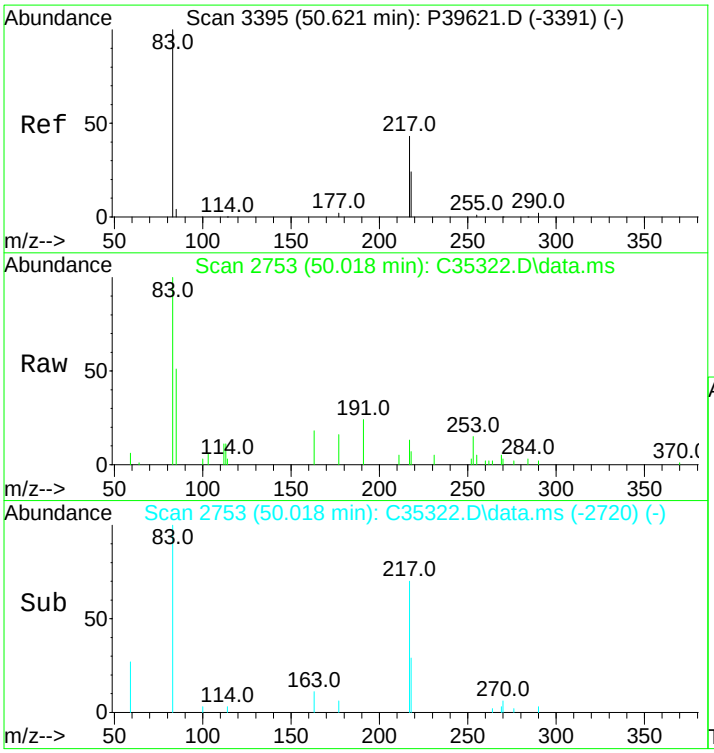




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 205.11 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

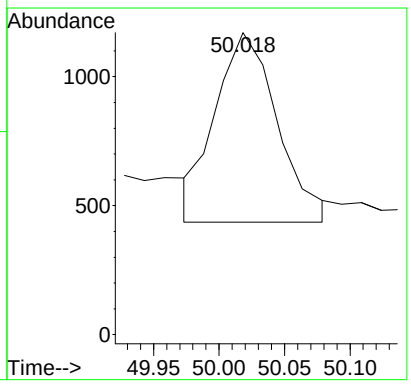
Tgt Ion:217 Resp: 2434

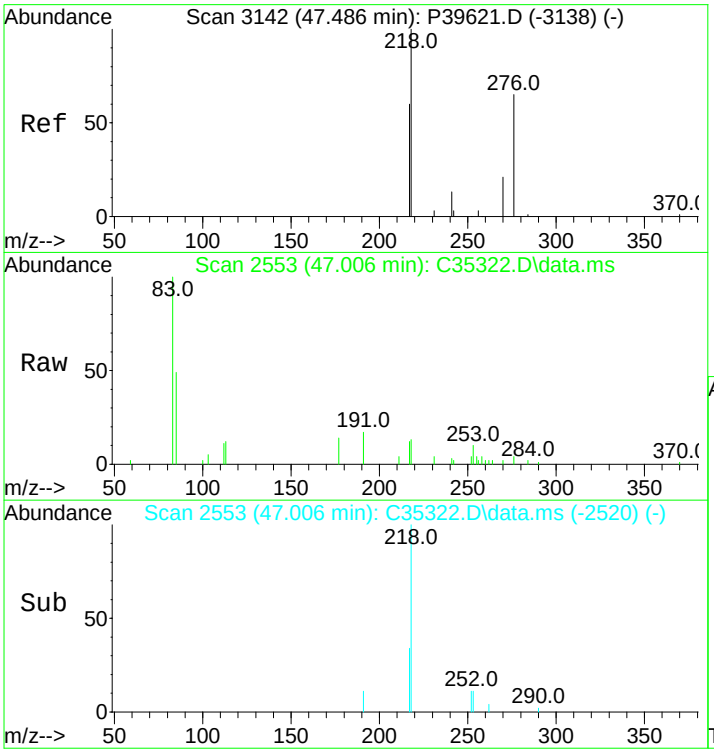




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 204.10 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

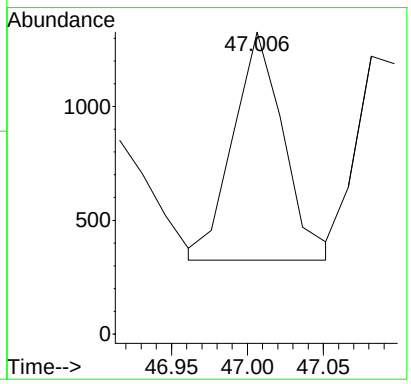
Tgt Ion:217 Resp: 2422

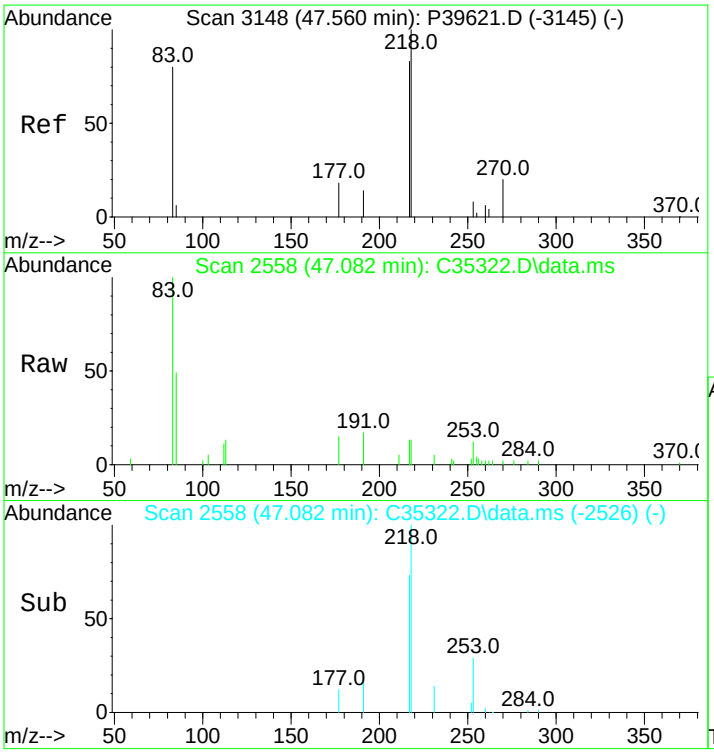




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 195.00 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

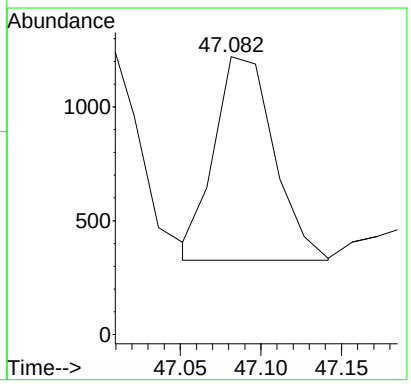
Tgt Ion:218 Resp: 2314

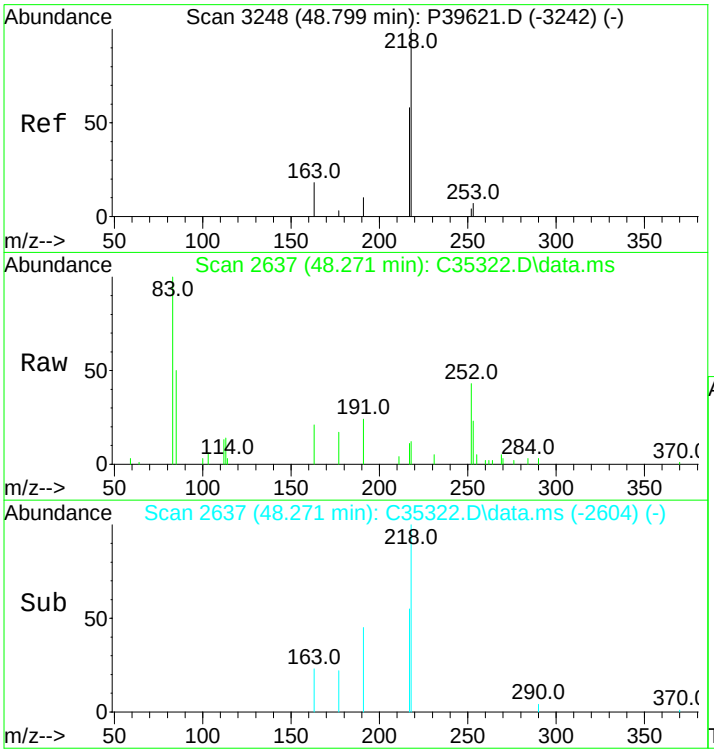




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 193.65 ng/ml m
RT: 47.082 min Scan# 2558
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

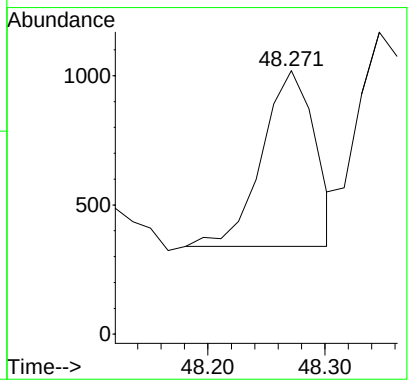
Tgt Ion:218 Resp: 2298

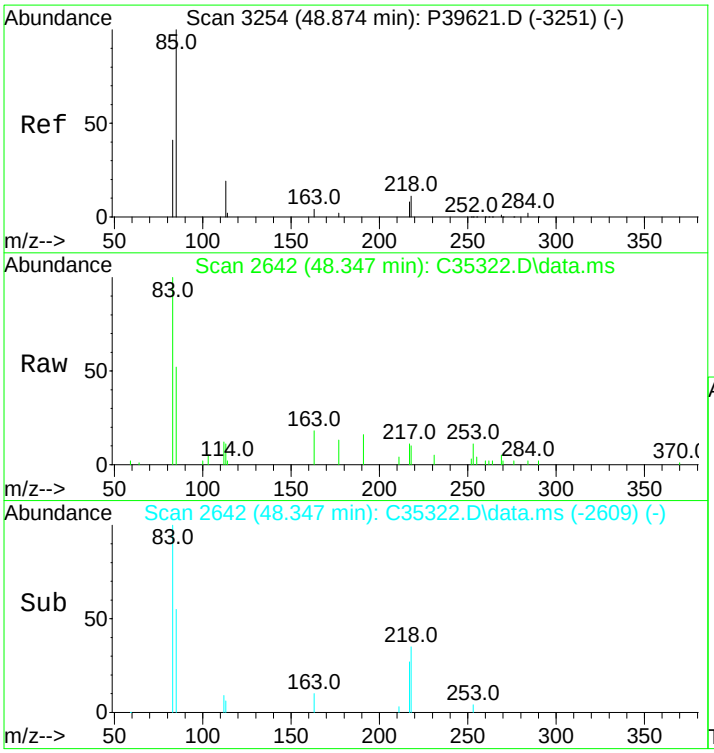




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 182.11 ng/ml
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

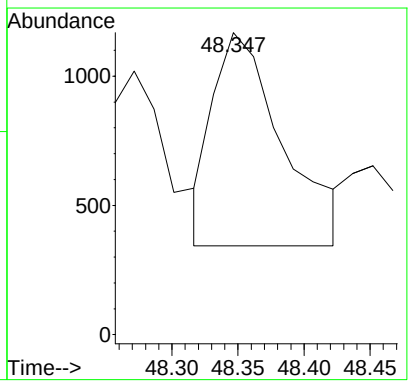
Tgt Ion:218 Resp: 2161

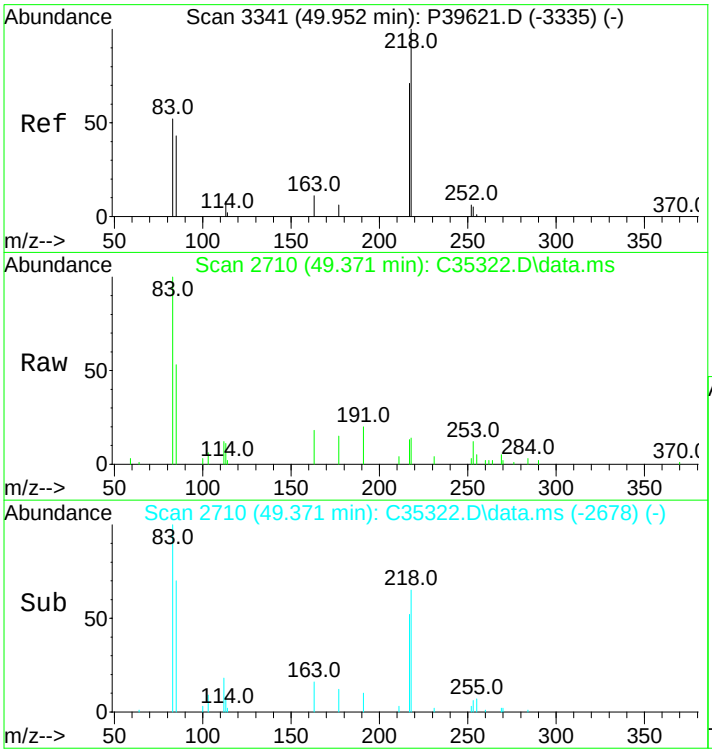




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 256.69 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

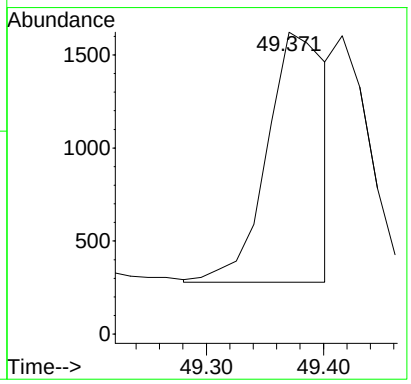
Tgt Ion:218 Resp: 3046

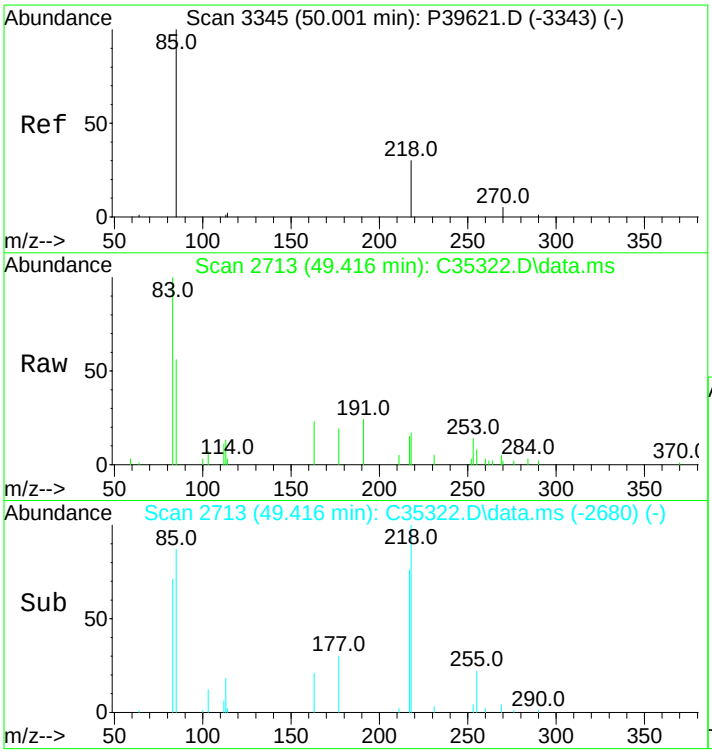




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 395.22 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

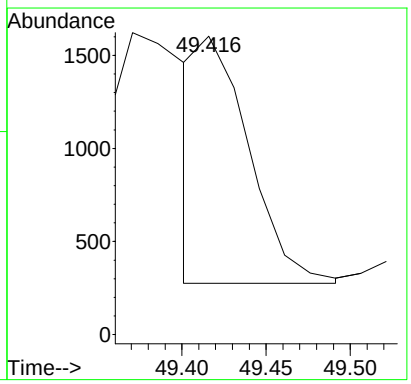
Tgt Ion:218 Resp: 4690

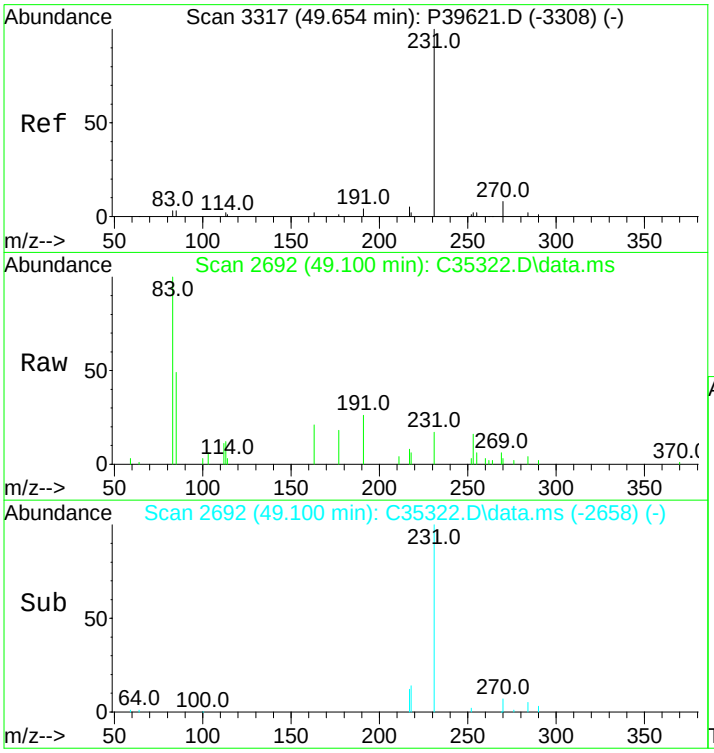




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 237.89 ng/ml m
RT: 49.416 min Scan# 2713
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

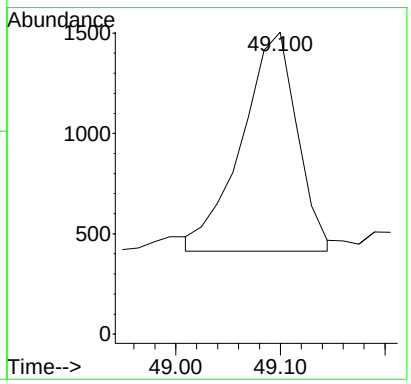
Tgt Ion:218 Resp: 2823

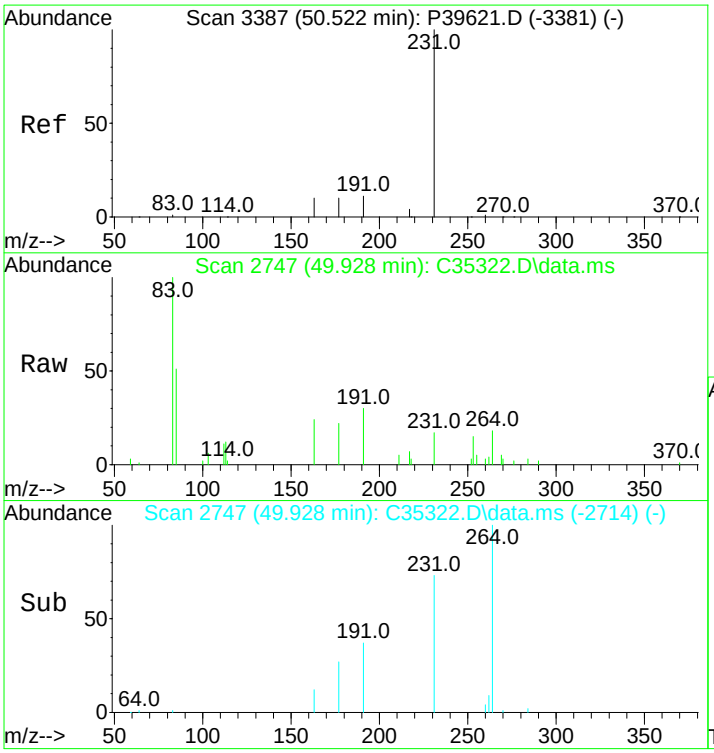




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 337.33 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

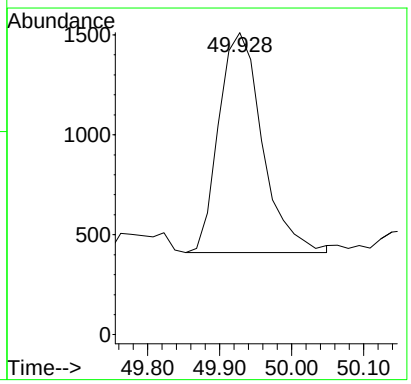
Tgt Ion:231 Resp: 4003

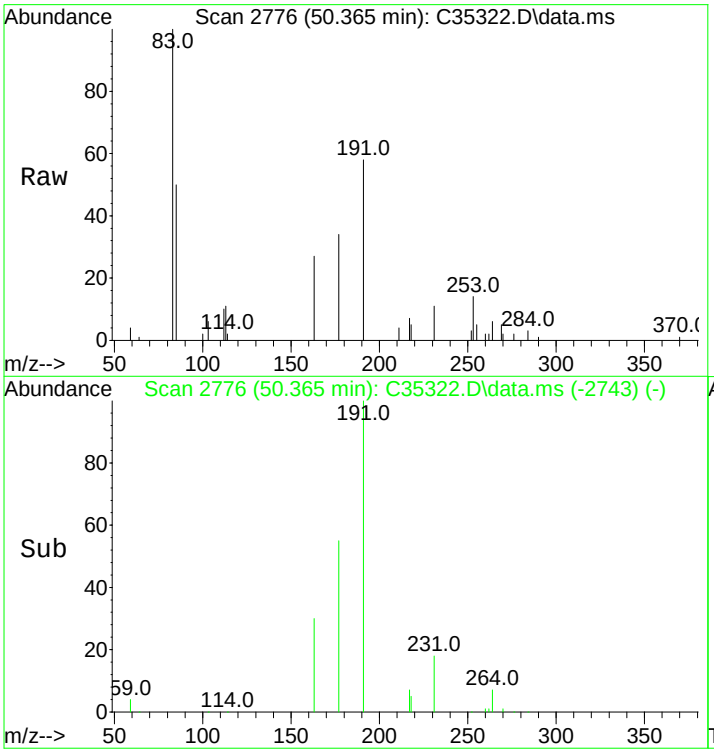




#146
C28,20S-triaromatic steroid
Concen: 391.26 ng/mL
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

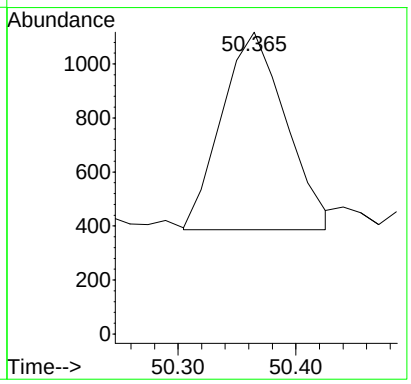
Tgt Ion:231 Resp: 4643

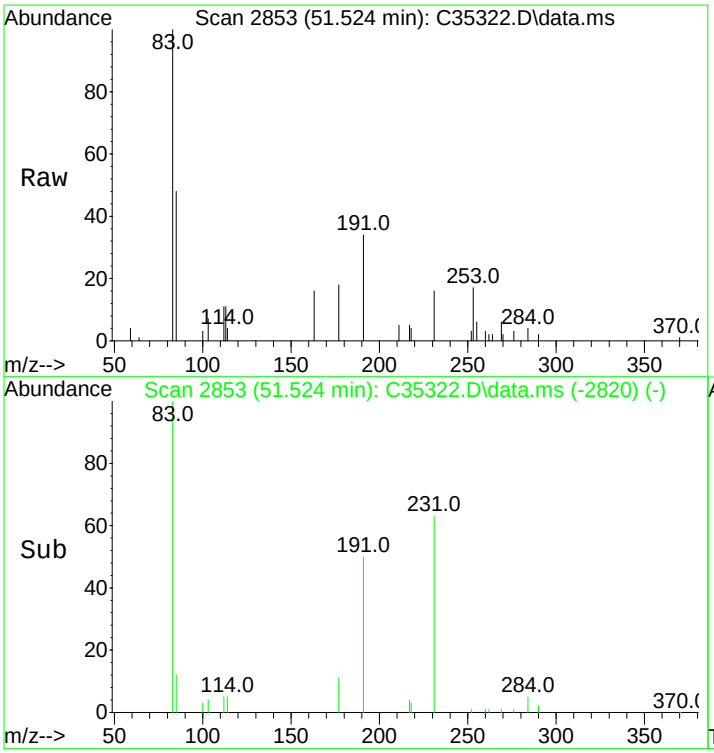




#147
C27,20R-triaromatic steroid
Concen: 233.93 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

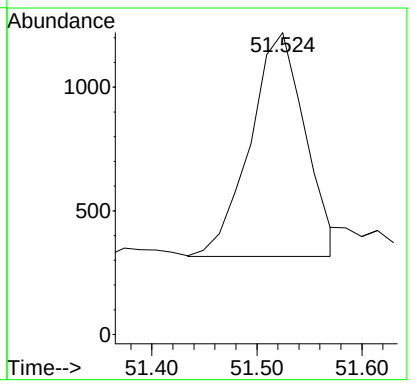
Tgt Ion:231 Resp: 2776





#148
C28,20R-triaromatic steroid
Concen: 277.08 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35322.D
Acq: 26 May 2012 4:55 am

Tgt Ion:231 Resp: 3288



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16580	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33075	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	22929	318.629	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 31.86%#			
42) Phenanthrene-d10	32.221	188	20584	361.889	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.19%#			
86) Benzo[a]pyrene-d12	47.850	264	25320	369.390	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 36.94%#			
127) 5B(H)Cholane - Surr	43.422	217	4191	405.283	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 40.53%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	49M2	3.744	ng/mL	
10) Naphthalene	19.485	128	1808	17.110	ng/mL#	100
11) C1-Naphthalenes	22.179	142	1166M5	11.034	ng/mL	
12) C2-Naphthalenes	25.010	156	1617m	15.302	ng/mL	
13) C3-Naphthalenes	27.343	170	1284m	12.151	ng/mL	
14) C4-Naphthalenes	30.143	184	1339m	12.671	ng/mL	
16) 2-Methylnaphthalene	22.179	142	602m	9.635	ng/mL	
17) 1-Methylnaphthalene	22.586	142	450m	7.348	ng/mL	
18) Benzothiophene	19.695	134	137m	1.441	ng/mL	
23) Biphenyl	24.061	154	560	7.085	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.679	156	327m	6.370	ng/mL	
25) Dibenzofuran	27.132	168	431	4.749	ng/mL#	77
26) Acenaphthylene	25.747	152	436	4.156	ng/mL#	100
27) Acenaphthene	26.485	153	207	3.351	ng/mL	97
28) 2,3,5-Trimethylnaphthalen	28.036	170	89m	2.151	ng/mL	
29) Fluorene	28.502	166	396	5.813	ng/mL	90
30) C1-Fluorenes	30.866	180	349m	5.123	ng/mL	
33) Dibenzothiophene	31.814	184	238	2.180	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	114m	1.044	ng/mL	
36) 1-Methyldibenzothiophene(	34.358	198	74m	0.678	ng/mL	
37) OTP	33.997	198	5044	46.194	ng/mL#	100
38) C1-Dibenzothiophenes	33.997	198	5499m	50.361	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	455m	4.167	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	1053m	9.644	ng/mL	
40) C3-Dibenzothiophenes	36.933	226	1772m	16.228	ng/mL	
43) Phenanthrene	32.311	178	1892	19.722	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.268	192	338	3.523	ng/mL	100
45) 2-Methylphenanthrene(2MP)	34.374	192	357	3.721	ng/mL	97
46) 2-Methylanthracene(2MA)	34.539	192	126m	1.313	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.720	192	430m	4.482	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	316	3.294	ng/mL	93
49) C1-Phenanthrenes/Anthrace	34.720	192	1719m	17.918	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.301	206	4057m	42.289	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.301	206	1734m	18.075	ng/mL	
51) 5AA IS BKGD	36.301	206	2323	24.214	ng/mL	100
52) C3-Phenanthrenes/Anthrace	38.378	220	1849m	19.273	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.224	234	1740m	18.137	ng/mL	
54) Retene	39.297	234	220	11.756	ng/mL	86
55) Anthracene	32.492	178	379m	4.045	ng/mL	
56) Carbazole	33.169	167	323	3.412	ng/mL#	64
57) 1-Methylphenanthrene	34.810	192	316	5.198	ng/mL	94
58) Fluoranthene	37.084	202	5563	58.386	ng/mL	98
59) Benzo(b)fluorene	39.598	216	367m	6.639	ng/mL	
60) Pyrene	37.957	202	4994	51.562	ng/mL	98
61) C1-Fluoranthenes/Pyrenes	39.357	216	3510m	36.240	ng/mL	
62) C2-Fluoranthenes/Pyrenes	42.203	230	3200m	33.039	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
63)	C3-Fluoranthenes/Pyrenes	43.272	244	2548m	26.308	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	44.747	258	2601m	26.855	ng/mL	
66)	Naphthobenzothiophene	41.811	234	603	5.783	ng/ml#	87
67)	Naphthobenzothiophene-2,1	41.811	234	603	5.783	ng/mL#	87
68)	Naphthobenzothiophene-1,2	42.143	234	149m	1.429	ng/mL	
69)	Naphthobenzothiophene-2,3	42.444	234	202m	1.937	ng/mL	
70)	C1-Naphthobenzothiophenes	43.196	248	1212m	11.623	ng/ml	
71)	C2-Naphthobenzothiophenes	45.244	262	1843m	17.675	ng/ml	
72)	C3-Naphthobenzothiophenes	46.795	276	2642m	25.337	ng/ml	
75)	Benz[a]anthracene	42.730	228	2018m	19.223	ng/mL	
77)	Chrysene/Triphenylene	42.895	228	2930m	27.645	ng/mL	
78)	C1-Chrysenes	44.371	242	2088m	19.701	ng/mL	
79)	C2-Chrysenes	47.051	256	2253m	21.258	ng/mL	
79)	C2-Chrysenes BS	47.051	256	2253m	21.258	ng/mL	
82)	Benzo[b]fluoranthene	46.780	252	3275m	28.391	ng/mL	
83)	Benzo[j]+[k]fluoranthene	46.841	252	2937m	23.386	ng/mL	
84)	Benzo[a]fluoranthene	47.157	252	625m	4.977	ng/mL	
85)	Benzo[e]pyrene	47.744	252	2571	22.533	ng/mL#	88
87)	Benzo[a]pyrene	47.925	252	2392m	21.775	ng/mL	
88)	Perylene	48.226	252	24510	208.772	ng/mL	92
89)	Indeno[1,2,3-cd]pyrene	52.578	276	2404m	18.805	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.624	278	537m	4.416	ng/mL	
91)	Benzo[g,h,i]perylene	53.828	276	2742	20.302	ng/mL	92
92)	Hopane (T19)	51.705	191	1085m	49.773	ng/mL	
96)	C25 Tricyclic Terpane (T6	42.715	191	263m	12.065	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.268	191	4573	209.782	ng/ml	100
104)	18a-22,29,30-Trisnorneoho	48.045	191	464	21.286	ng/ml	100
107)	17a(H)-22,29,30-Trisnorho	48.588	191	494m	22.662	ng/ml	
109)	17a(H),21b(H)-25-Norhopan	49.536	191	3783m	173.542	ng/ml	
110)	30-Norhopane (T15)	50.380	191	962m	44.131	ng/ml	
113)	30-Normoretane (T17)	51.133	191	479m	21.974	ng/ml	
115)	Moretane (T20)	52.322	191	1190m	54.590	ng/ml	
119)	30,31-Bishomohopane-22S (	54.867	191	8301	380.801	ng/ml	100
120)	30,31-Bishomohopane-22R (	55.364	191	1340m	61.471	ng/ml	
123)	Tetrakishomohopane-22S (T	59.535	191	2895m	132.806	ng/ml	
124)	Tetrakishomohopane-22R (T	60.273	191	15930	730.775	ng/ml	100
131)	14a,17a-20S-Chol/13b,17a-	46.901	217	117m	11.314	ng/ml	
132)	14a,17a-20R-Chol/13b,17a-	47.383	217	203m	19.631	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	152m	14.699	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.401	218	50m	4.835	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.069	231	221m	21.371	ng/mL	
146)	C28,20S-triaromatic stero	49.913	231	288m	27.851	ng/mL	
148)	C28,20R-triaromatic stero	51.509	231	241m	23.305	ng/mL	

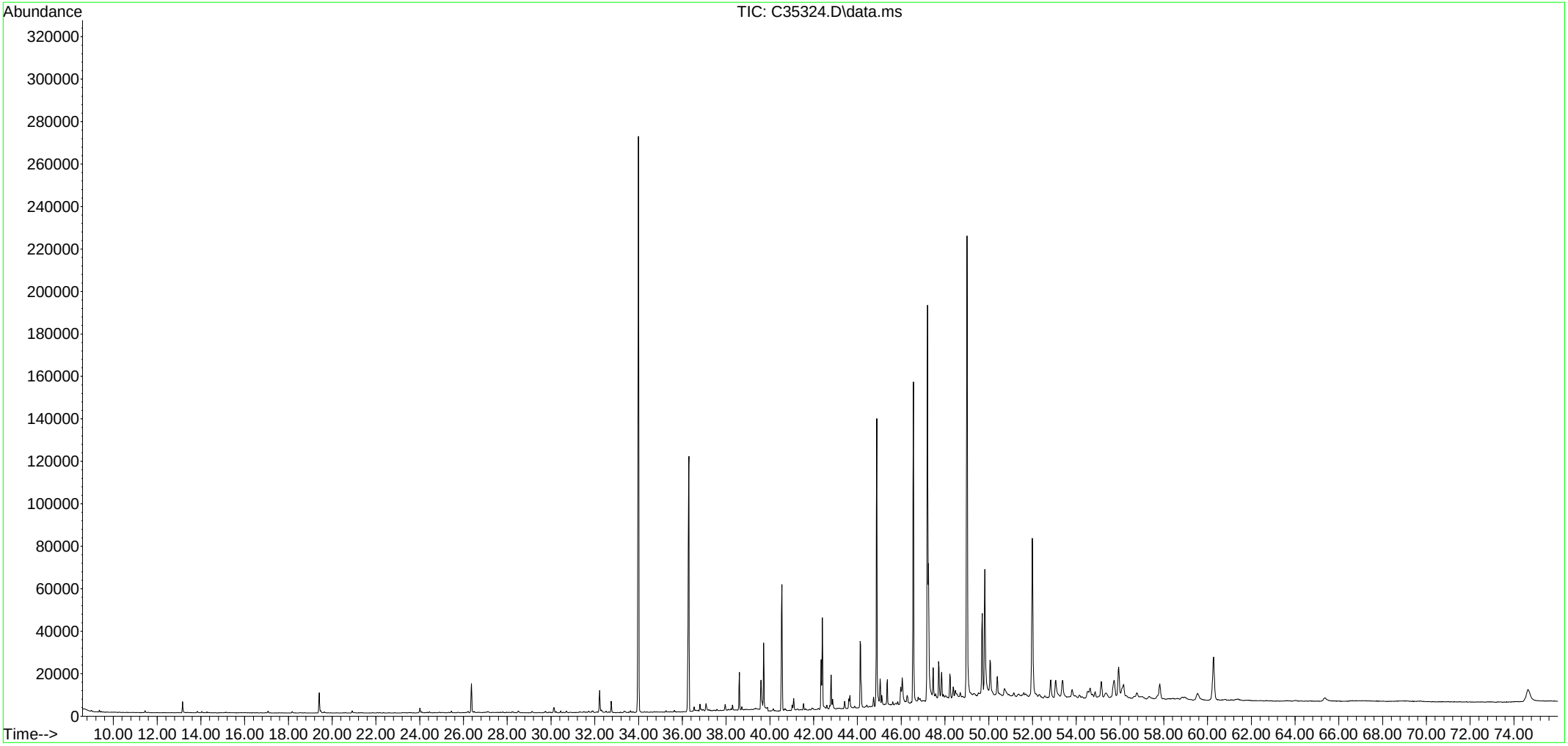
(#) = qualifier out of range (m) = manual integration (+) = signals summed

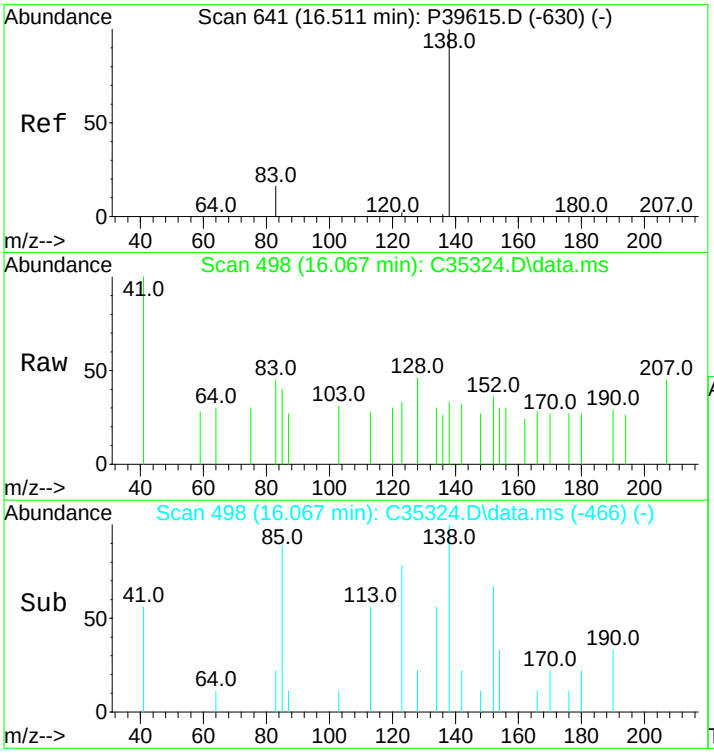
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35324.D
Acq On : 26 May 2012 6:32 am
Operator : AC
Sample : 1205027-07
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 12:26:35 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

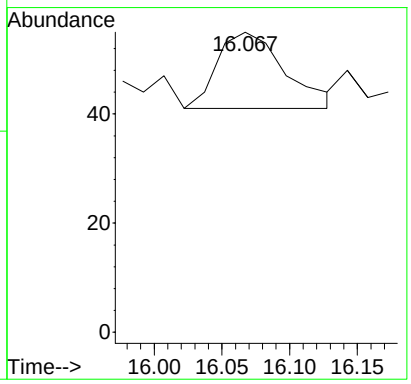
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

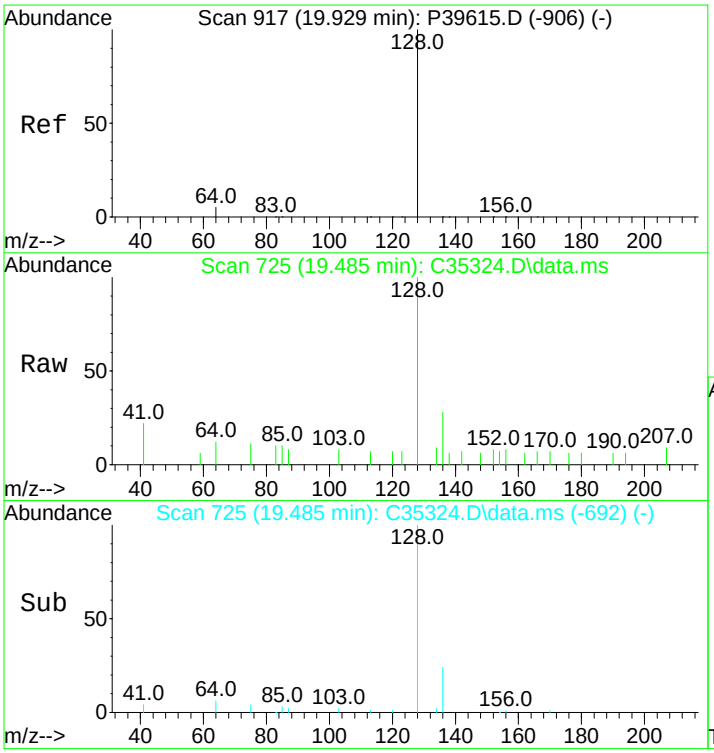




#3
trans-Decalin
Concen: 3.74 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:138 Resp: 49

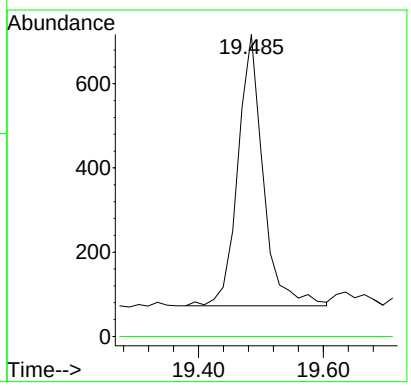


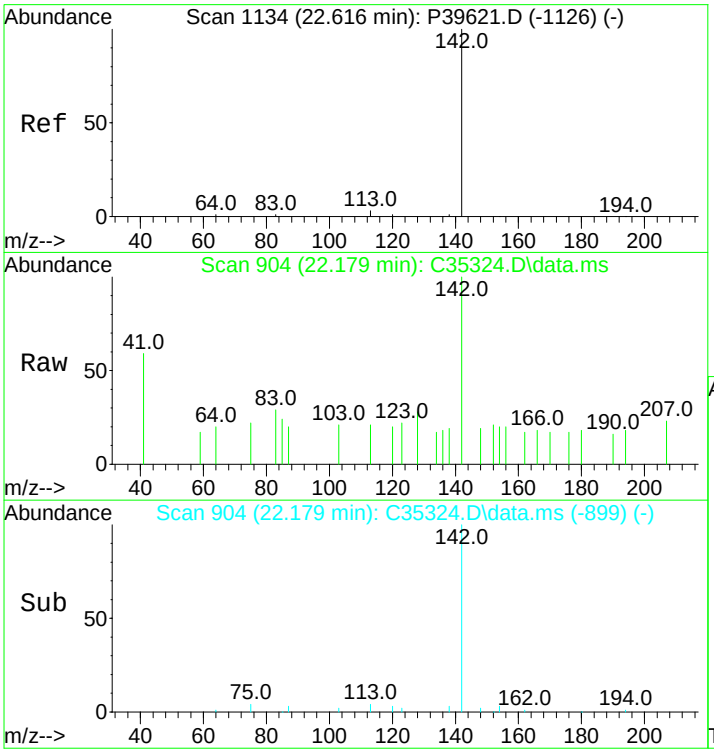


#10
Naphthalene
Concen: 17.11 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:128 Resp: 1808

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

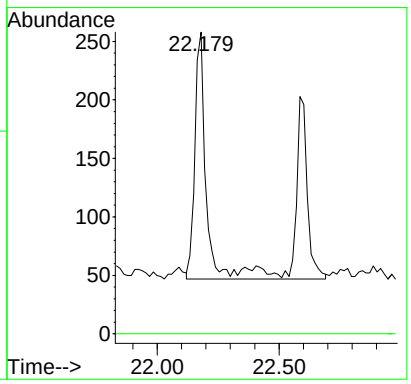


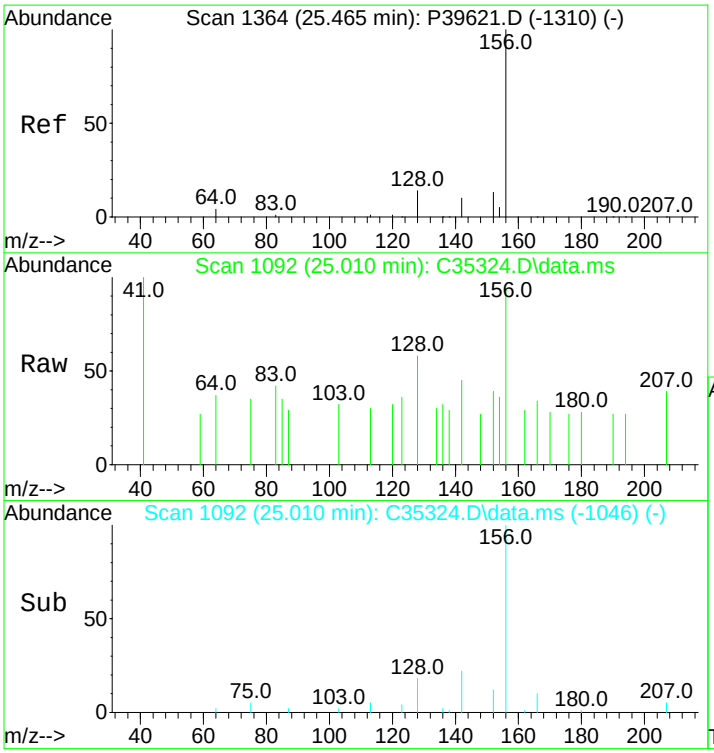


#11
C1-Naphthalenes
Concen: 11.03 ng/mL m
RT: 22.179 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:142 Resp: 1166

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

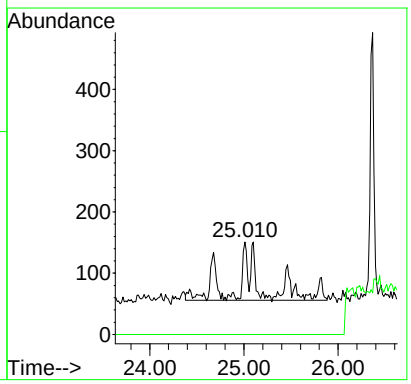


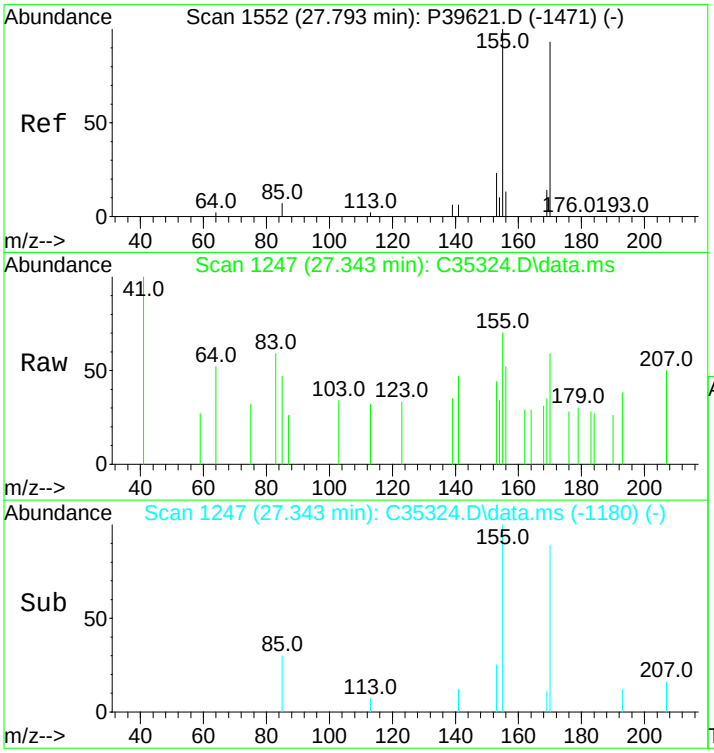


#12
C2-Naphthalenes
Concen: 15.30 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.023 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:156 Resp: 1617

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

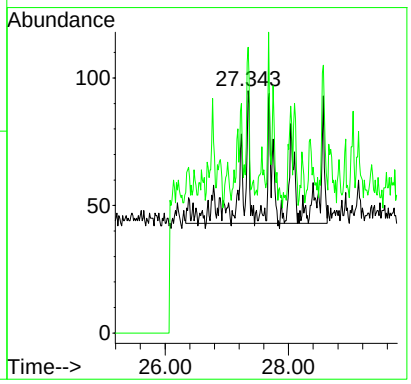


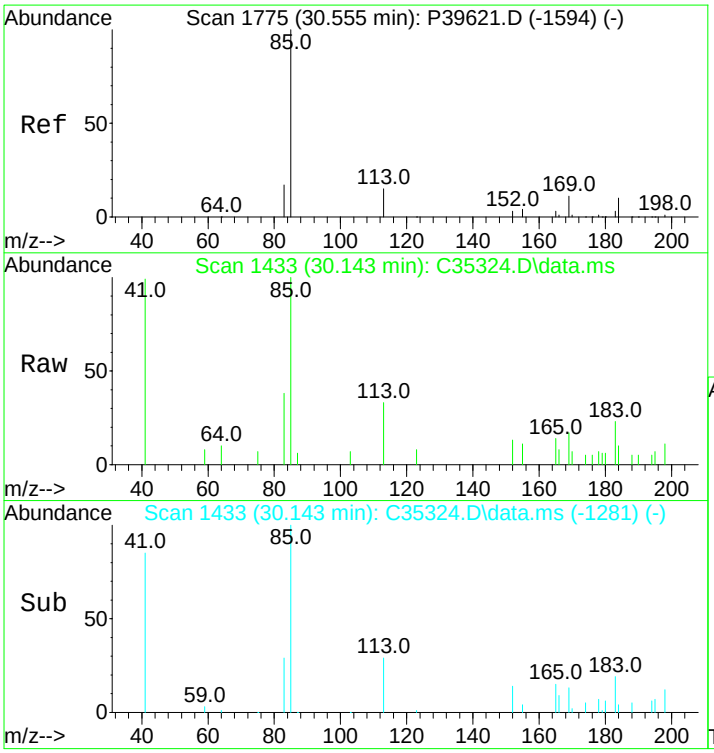


#13
C3-Naphthalenes
Concen: 12.15 ng/mL m
RT: 27.343 min Scan# 1247
Delta R.T. 0.016 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:170 Resp: 1284

Ion	Ratio	Lower	Upper
170	100		
155	12.1	86.3	129.5#

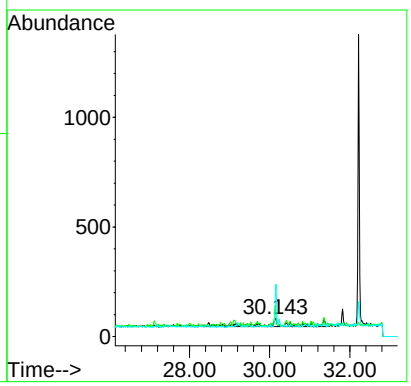


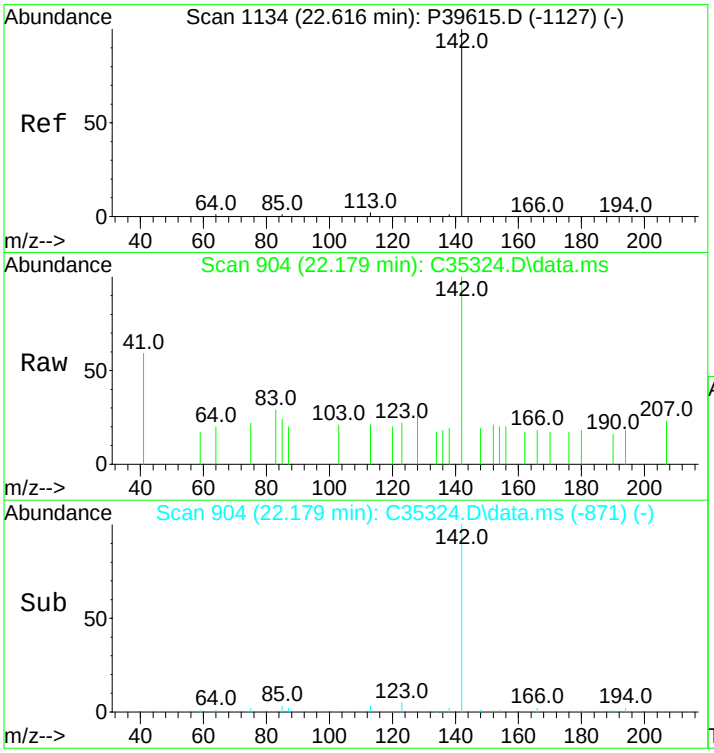


#14
C4-Naphthalenes
Concen: 12.67 ng/mL m
RT: 30.143 min Scan# 1433
Delta R.T. 0.108 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:184 Resp: 1339

Ion	Ratio	Lower	Upper
184	100		
169	20.1	100.6	150.8#
183	35.5	26.6	40.0

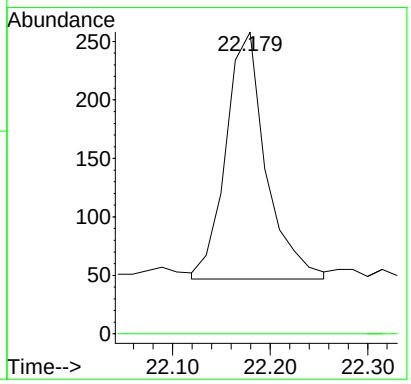


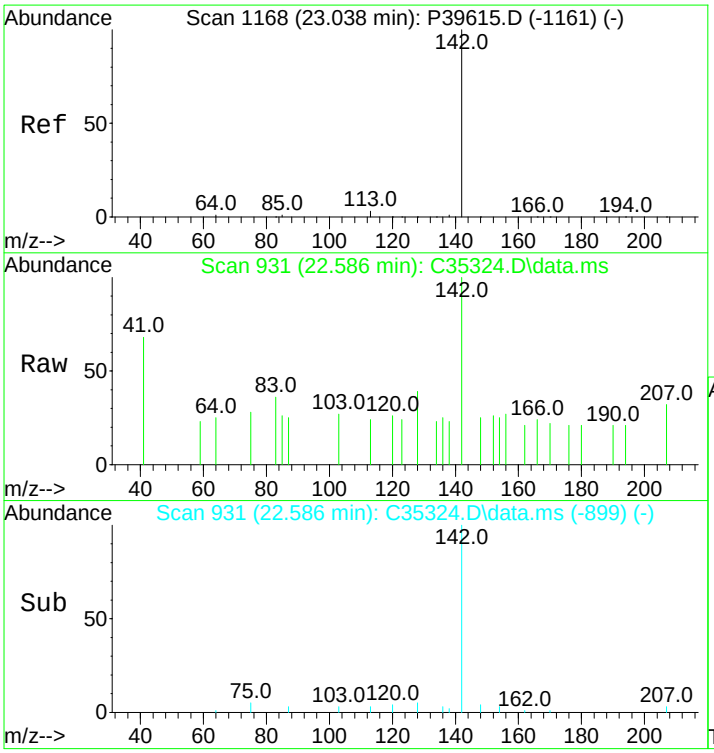


#16
2-Methylnaphthalene
Concen: 9.63 ng/mL m
RT: 22.179 min Scan# 904
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:142 Resp: 602

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

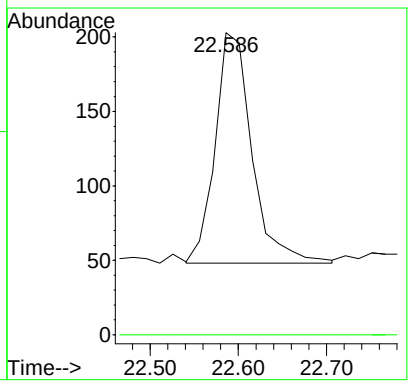


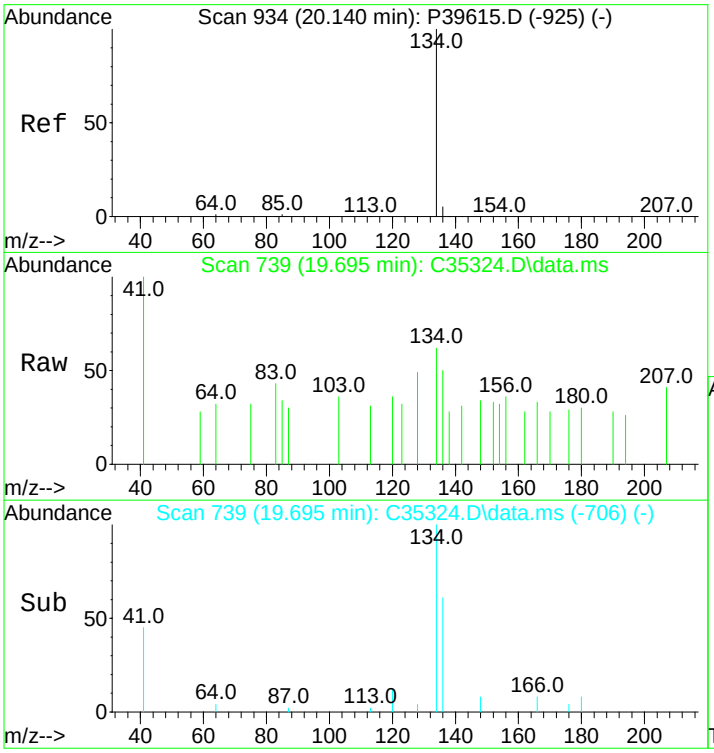


#17
1-Methylnaphthalene
Concen: 7.35 ng/mL m
RT: 22.586 min Scan# 931
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:142 Resp: 450

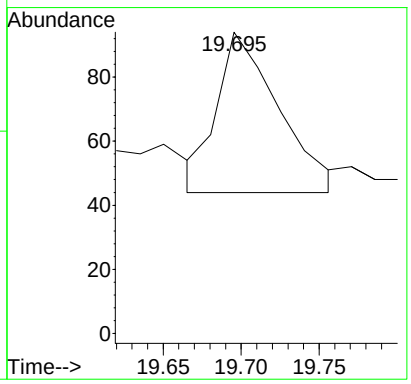
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

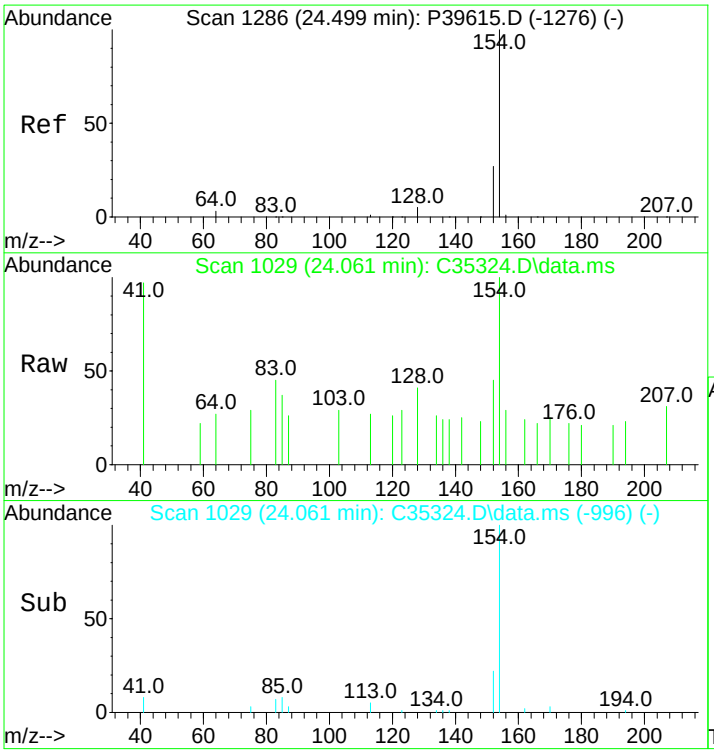




#18
Benzothiophene
Concen: 1.44 ng/mL m
RT: 19.695 min Scan# 739
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:134 Resp: 137

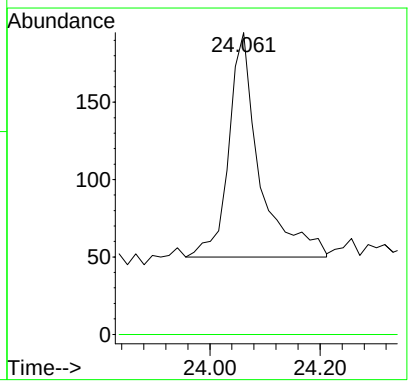


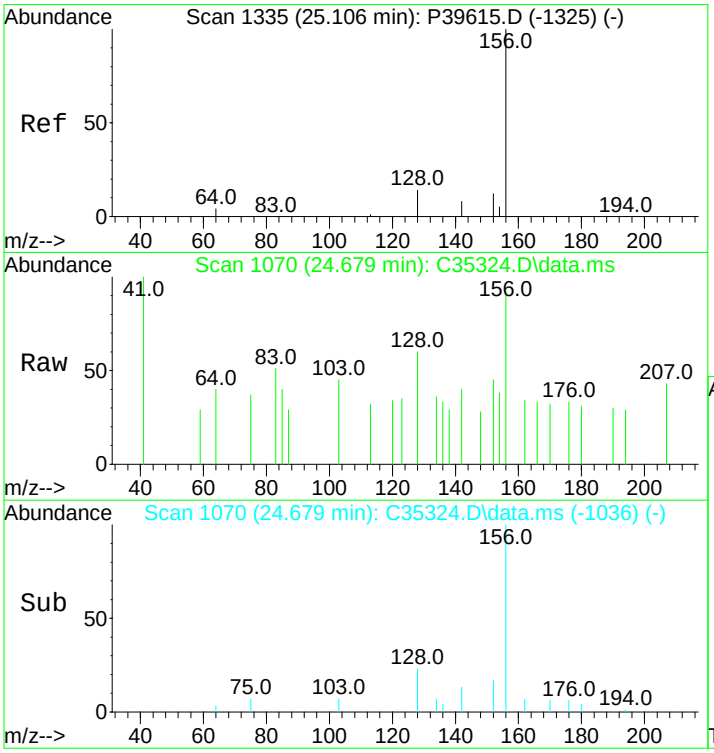


#23
Biphenyl
Concen: 7.09 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:154 Resp: 560

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

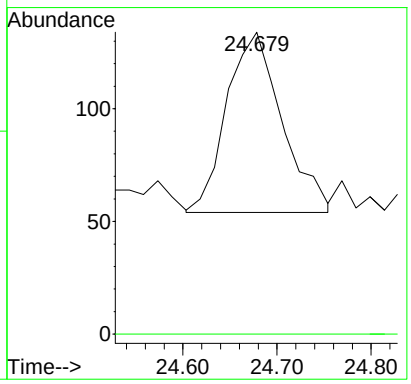


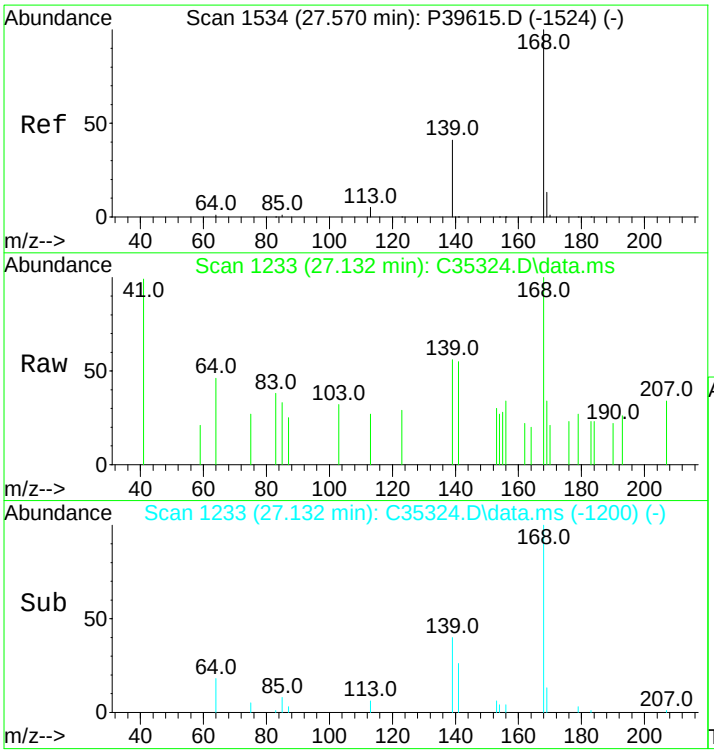


#24
2,6-Dimethylnaphthalene
Concen: 6.37 ng/mL m
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:156 Resp: 327

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

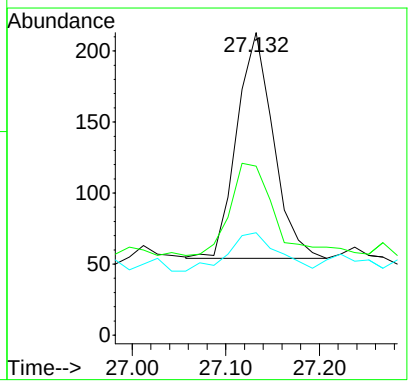


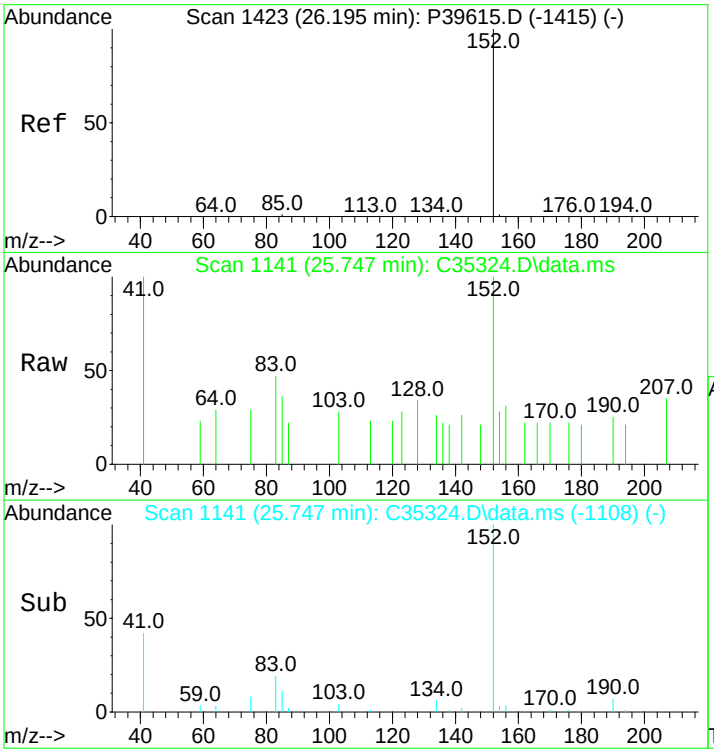


#25
Dibenzofuran
Concen: 4.75 ng/mL
RT: 27.132 min Scan# 1233
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:168 Resp: 431

Ion	Ratio	Lower	Upper
168	100		
139	50.3	29.9	44.9#
169	23.2	10.3	15.5#

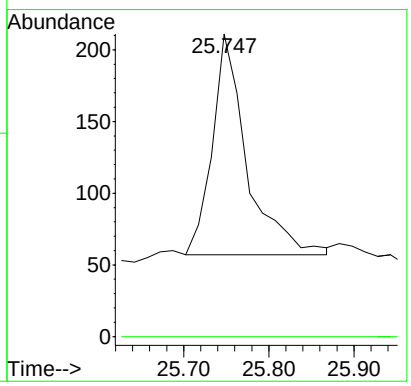


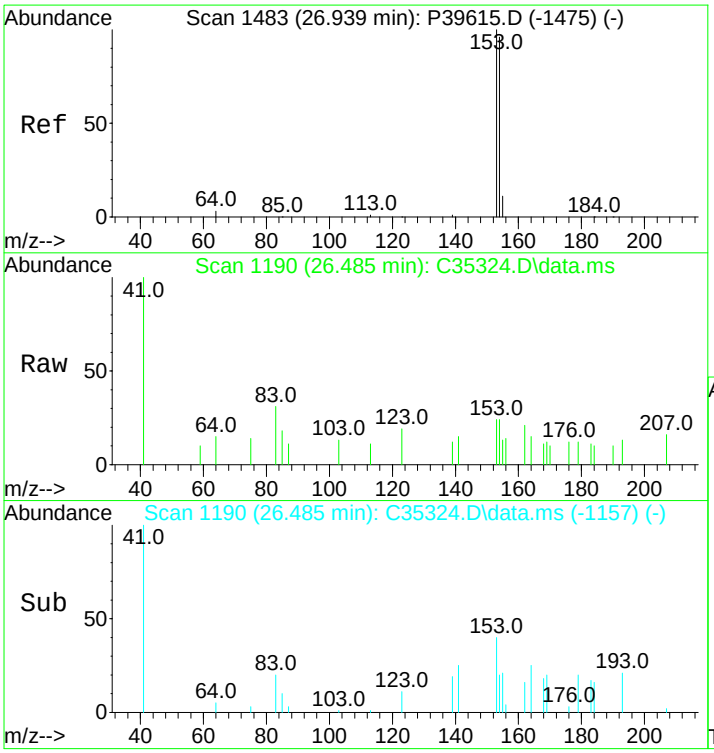


#26
Acenaphthylene
Concen: 4.16 ng/mL
RT: 25.747 min Scan# 1141
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:152 Resp: 436

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

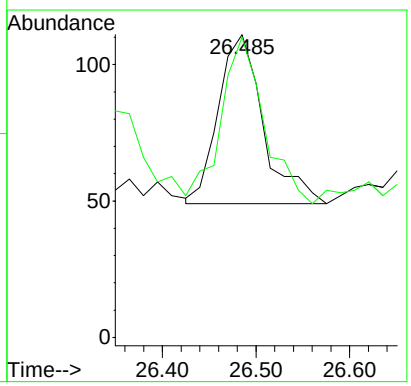


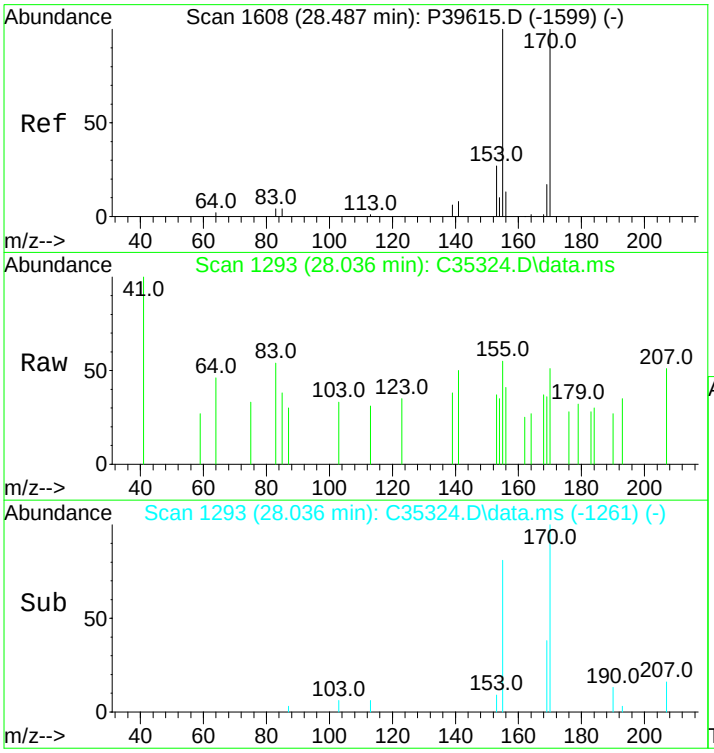


#27
Acenaphthene
Concen: 3.35 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:153 Resp: 207

Ion	Ratio	Lower	Upper
153	100		
154	94.2	73.3	109.9

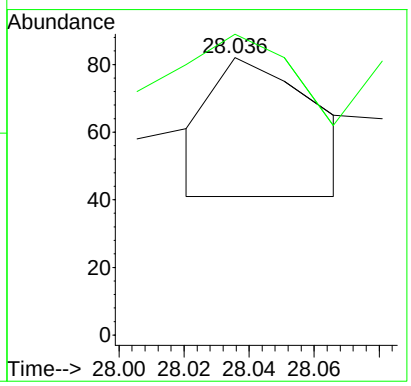


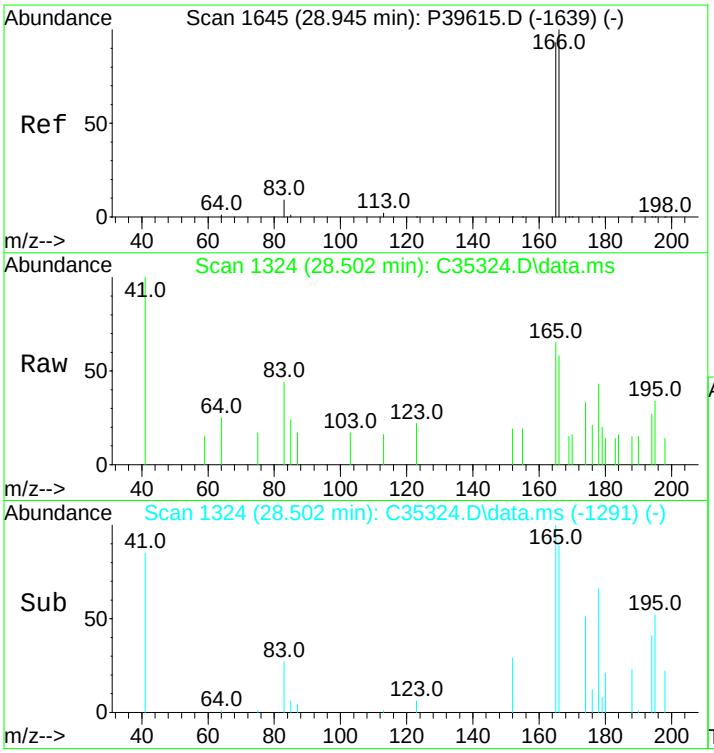


#28
2,3,5-Trimethylnaphthalene
Concen: 2.15 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:170 Resp: 89

Ion	Ratio	Lower	Upper
170	100		
155	149.4	78.4	117.6#

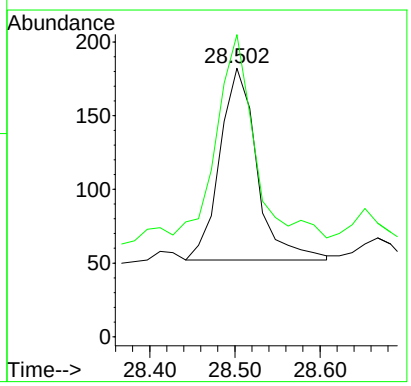


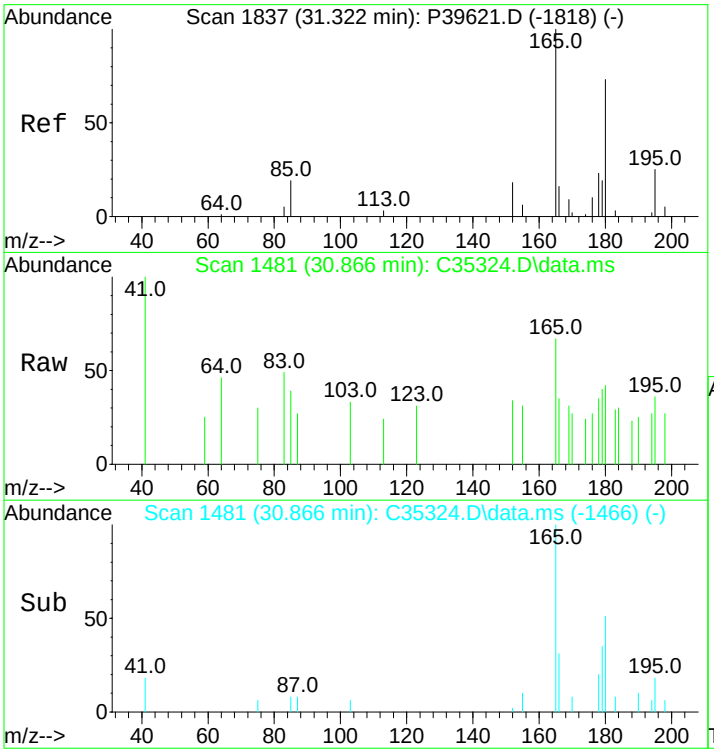


#29
Fluorene
Concen: 5.81 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:166 Resp: 396

Ion	Ratio	Lower	Upper
166	100		
165	106.1	77.1	115.7

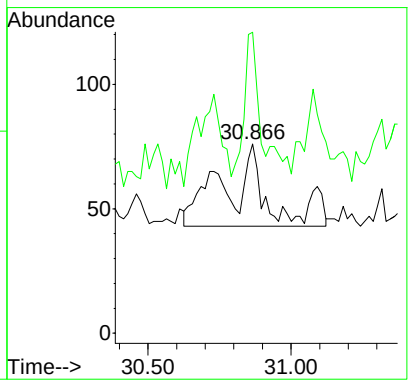


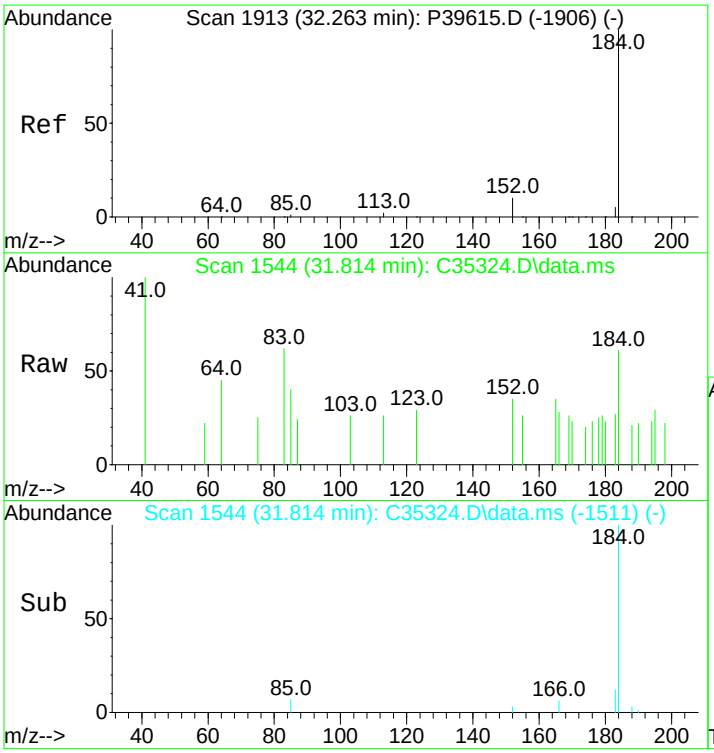


#30
C1-Fluorenes
Concen: 5.12 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:180 Resp: 349

Ion	Ratio	Lower	Upper
180	100		
165	53.9	121.9	182.9#

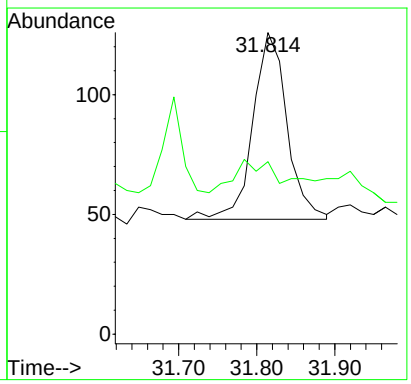


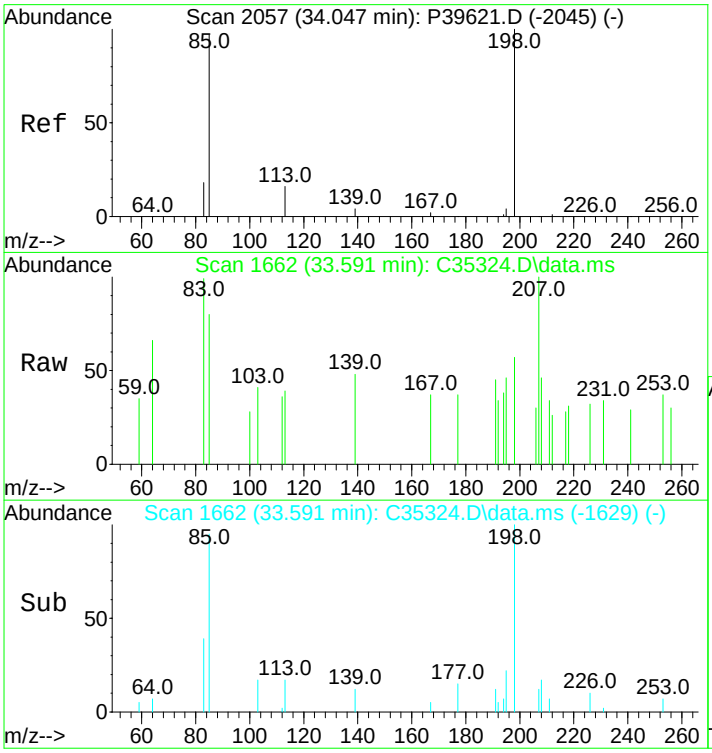


#33
Dibenzothiophene
Concen: 2.18 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:184 Resp: 238

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

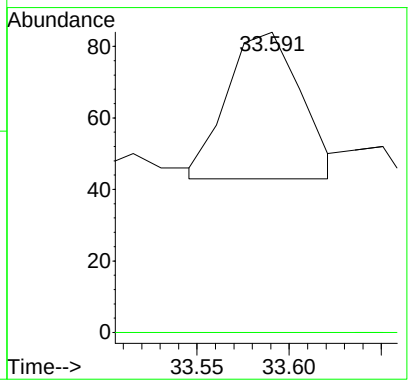


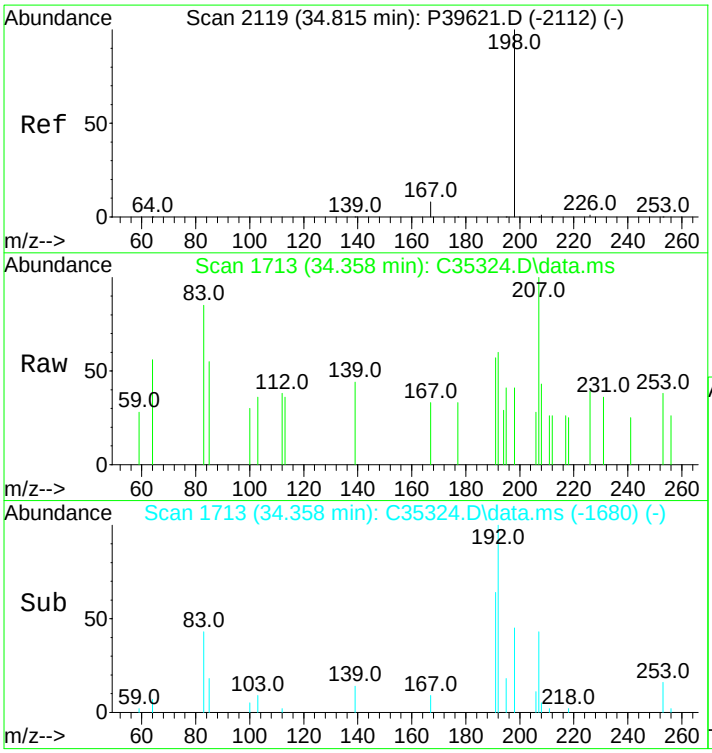


#34
4-Methyldibenzothiophene(4MDT)
Concen: 1.04 ng/mL m
RT: 33.591 min Scan# 1662
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:198 Resp: 114

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

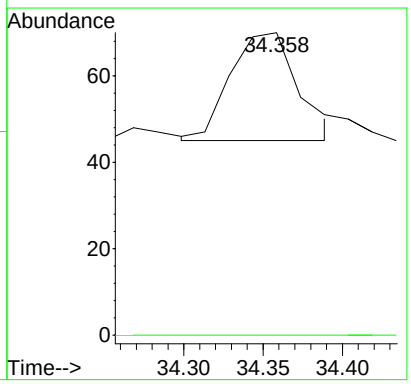


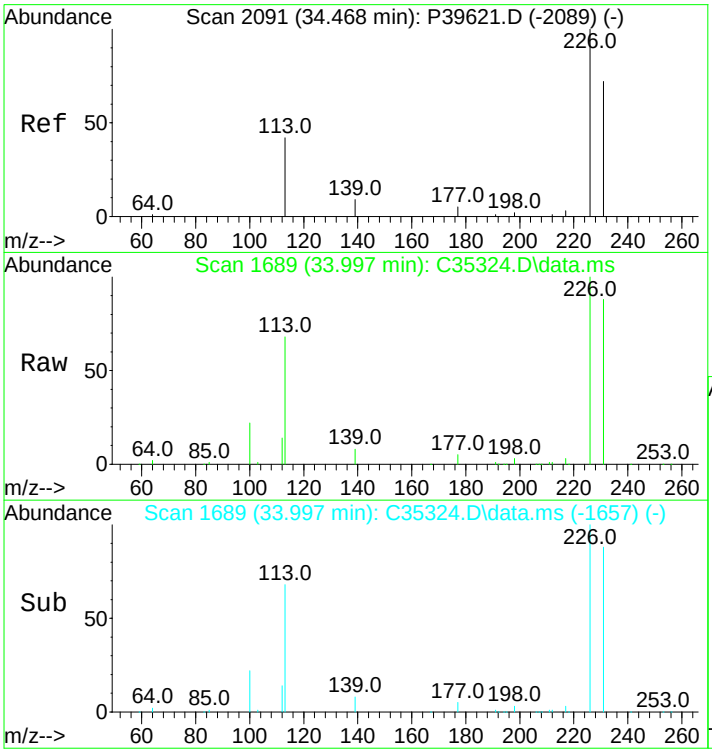


#36
1-Methyldibenzothiophene(1MDT)
Concen: 0.68 ng/mL m
RT: 34.358 min Scan# 1713
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:198 Resp: 74

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

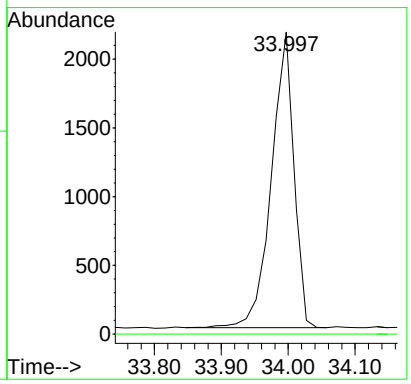


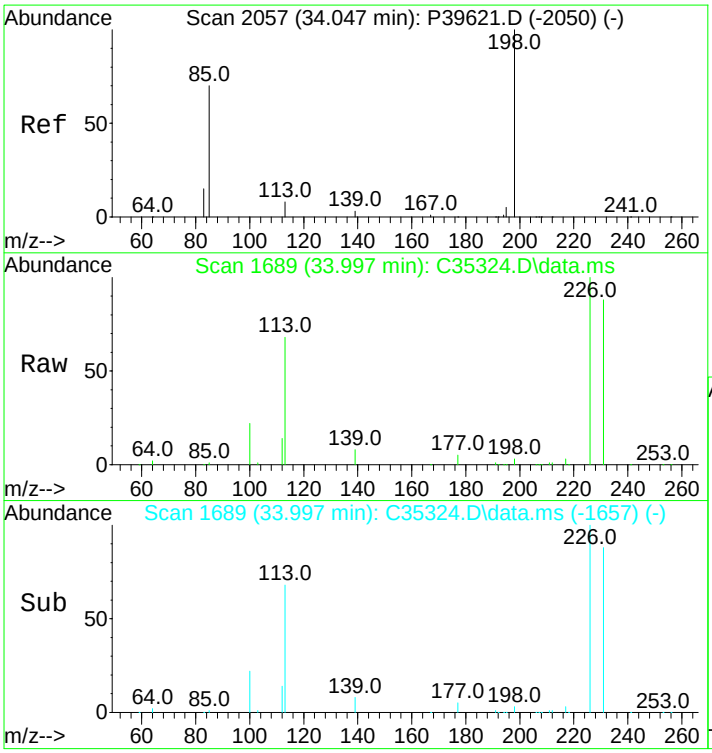


#37
OTP
Concen: 46.19 ng/mL
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:198 Resp: 5044

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

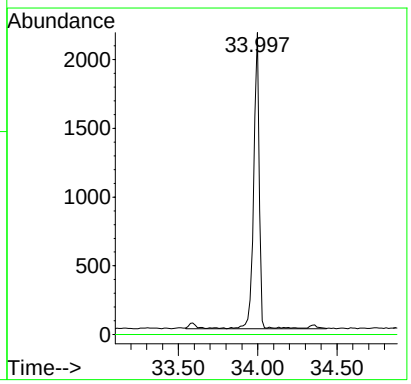


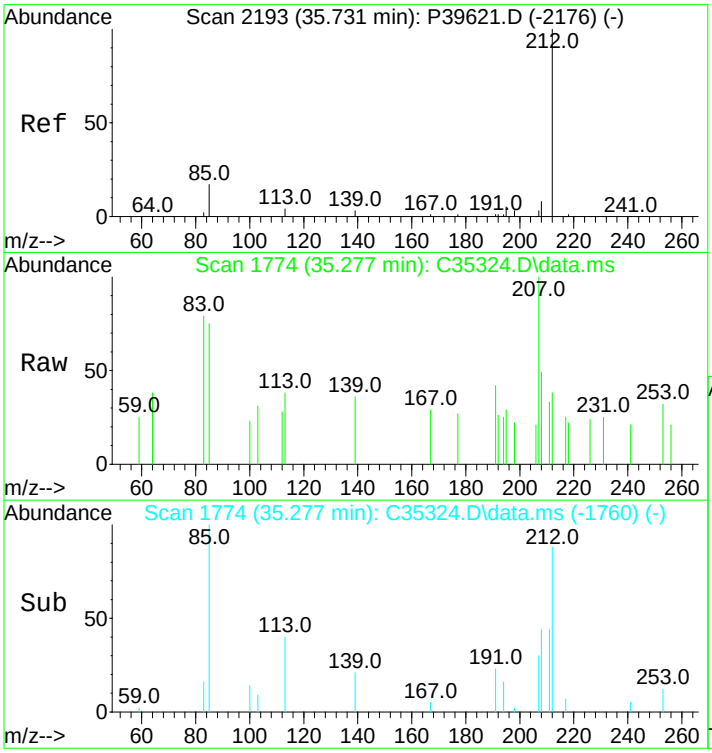


#38
C1-Dibenzothiophenes
Concen: 50.36 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:198 Resp: 5499

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

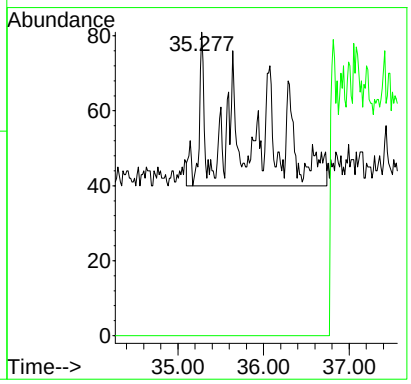


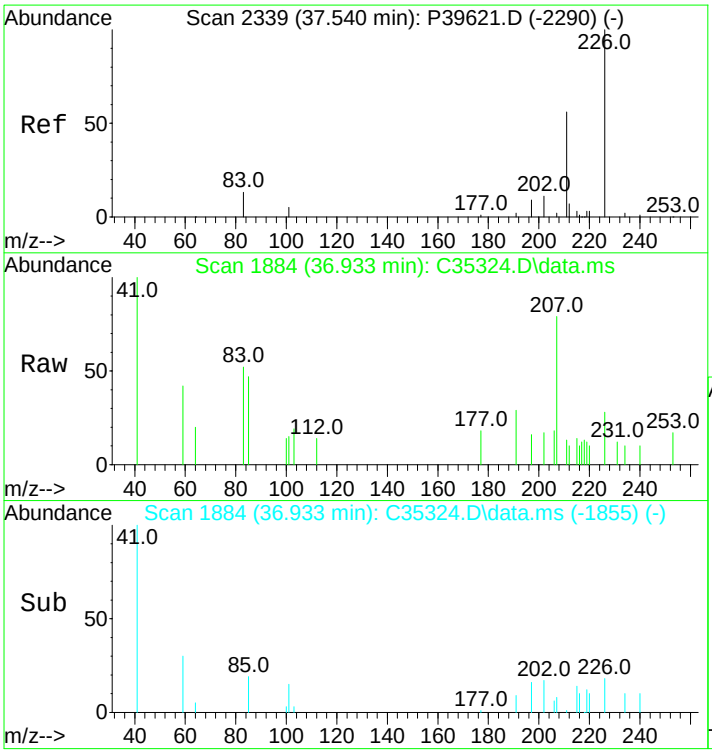


#39
C2-Dibenzothiophenes
Concen: 9.64 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:212 Resp: 1053

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

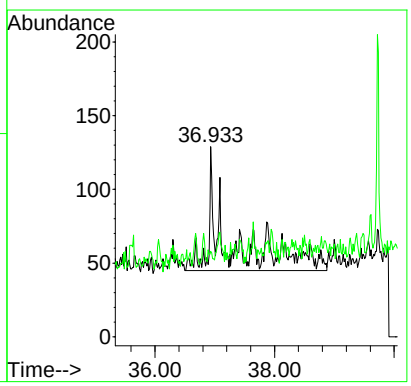


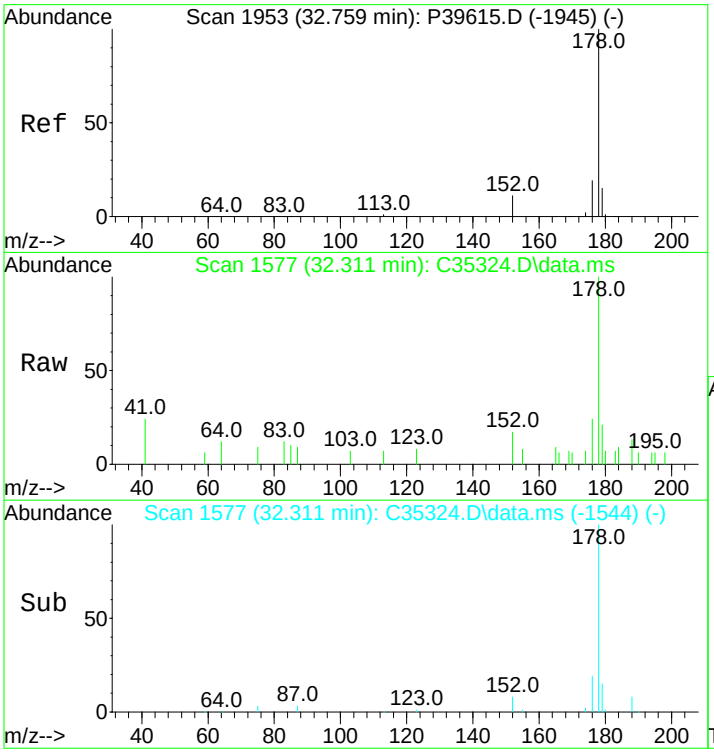


#40
C3-Dibenzothiophenes
Concen: 16.23 ng/mL m
RT: 36.933 min Scan# 1884
Delta R.T. 0.044 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:226 Resp: 1772

Ion	Ratio	Lower	Upper
226	100		
211	0.0	51.4	77.2#

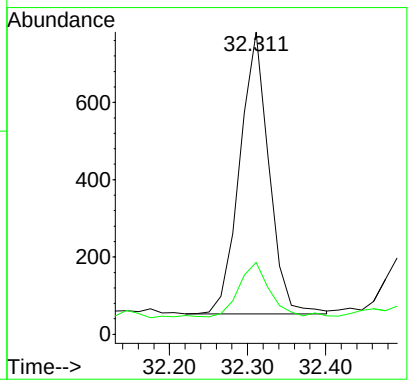


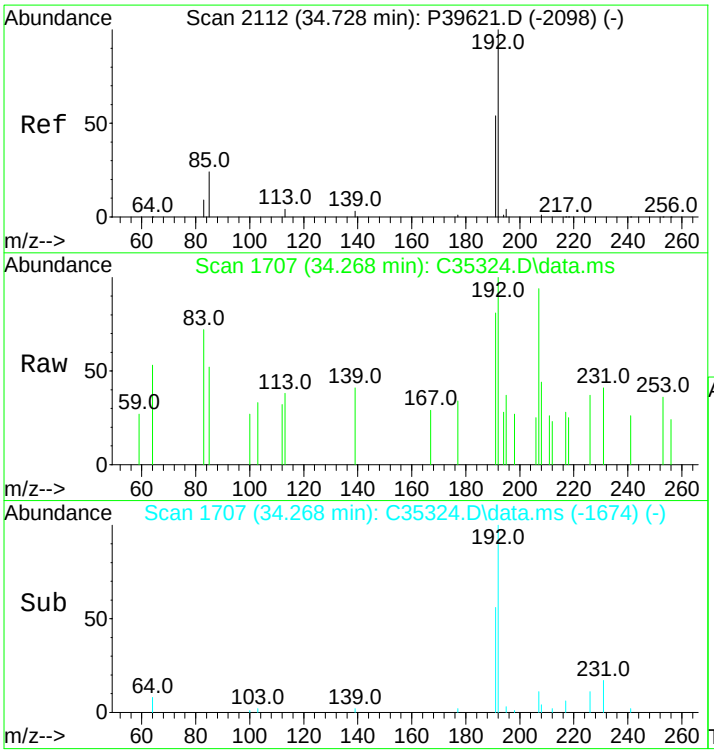


#43
Phenanthrene
Concen: 19.72 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:178 Resp: 1892

Ion	Ratio	Lower	Upper
178	100		
176	21.4	15.8	23.6

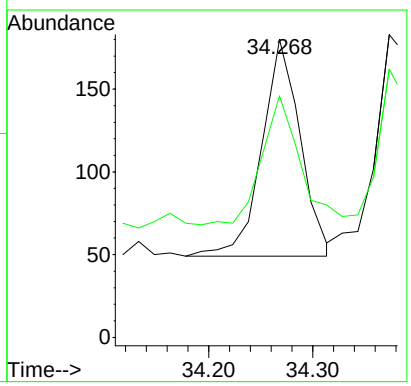


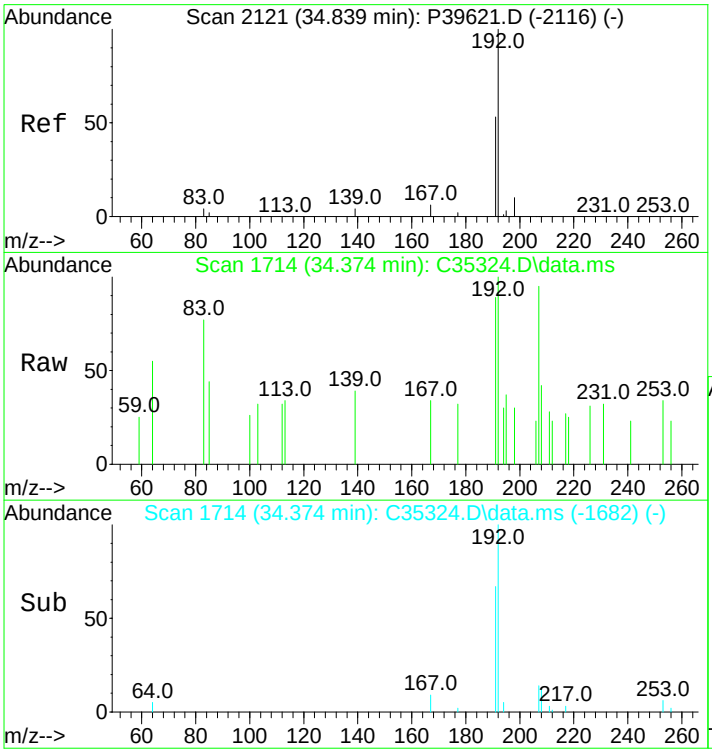


#44
3-Methylphenanthrene(3MP)
Concen: 3.52 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 338

Ion	Ratio	Lower	Upper
192	100		
191	59.5	47.4	71.0

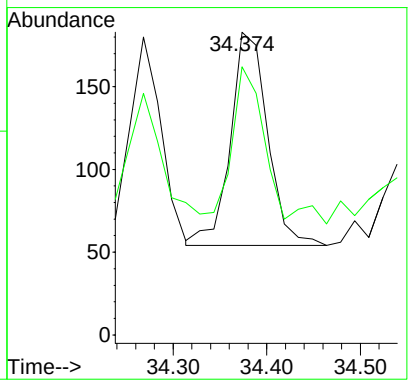


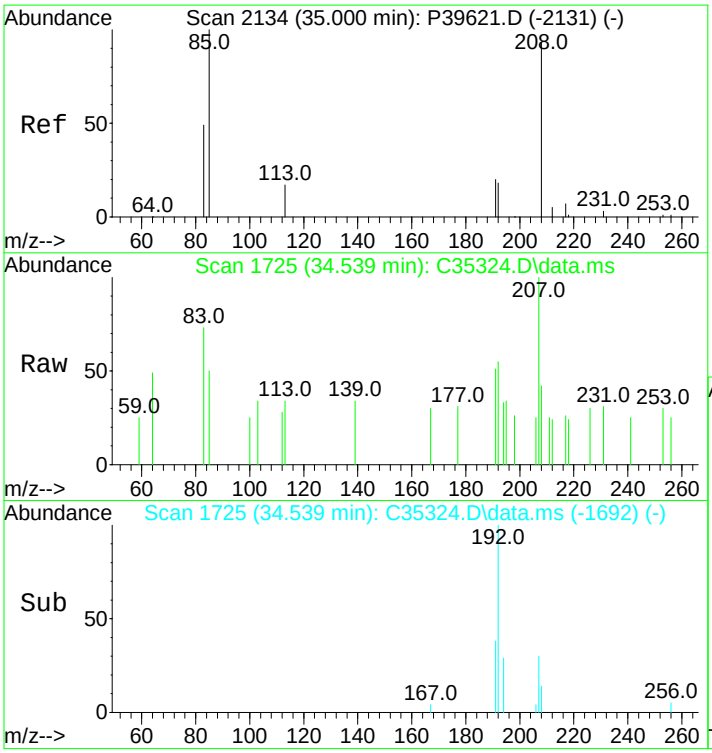


#45
2-Methylphenanthrene(2MP)
Concen: 3.72 ng/mL
RT: 34.374 min Scan# 1714
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 357

Ion	Ratio	Lower	Upper
192	100		
191	54.1	45.0	67.6

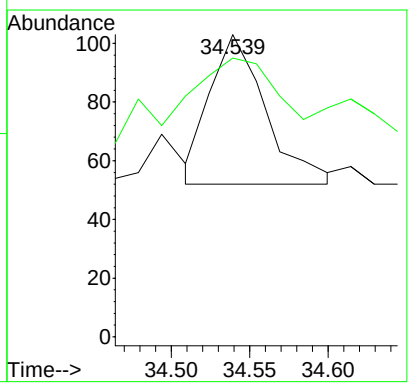


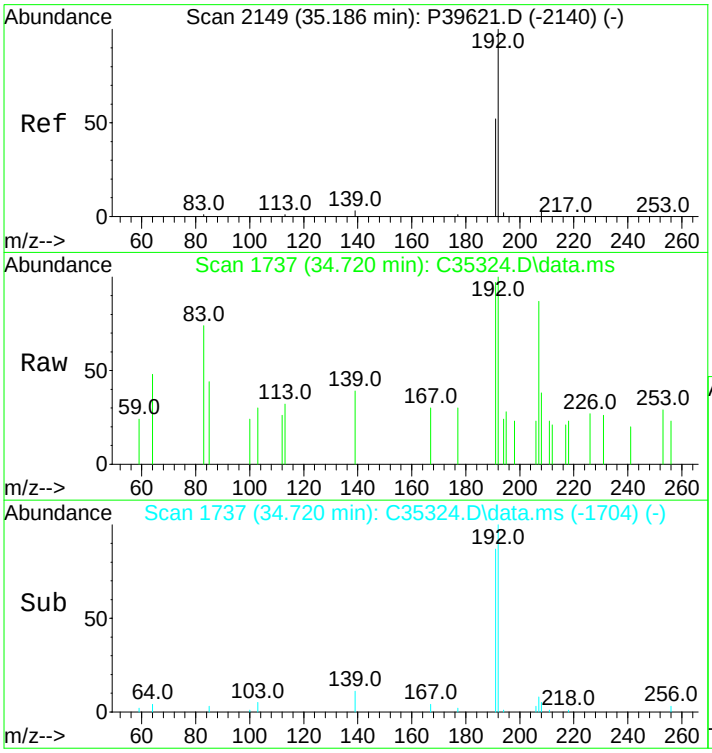


#46
2-Methylanthracene(2MA)
Concen: 1.31 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 126

Ion	Ratio	Lower	Upper
192	100		
191	94.4	95.5	143.3#

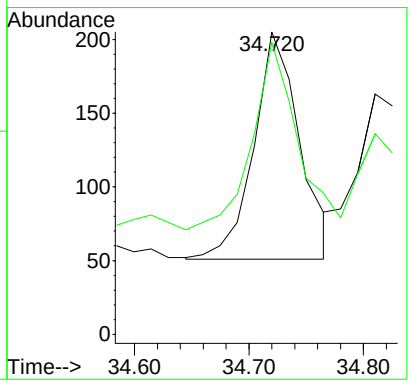


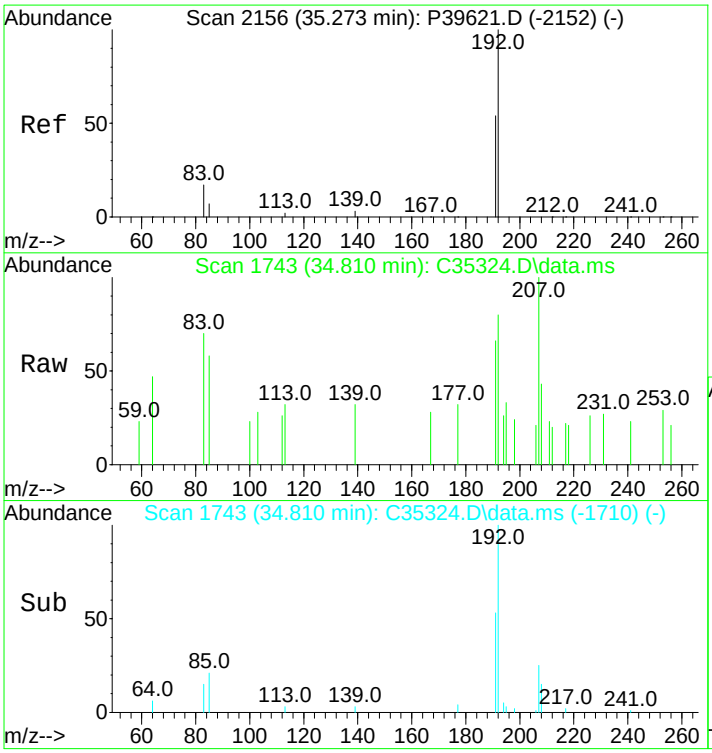


#47
9/4-Methylphenanthrene(9MP)
Concen: 4.48 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 430

Ion	Ratio	Lower	Upper
192	100		
191	39.5	46.5	69.7#

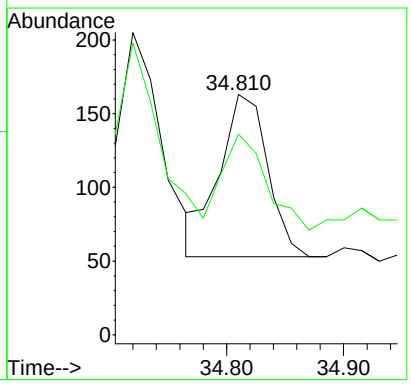


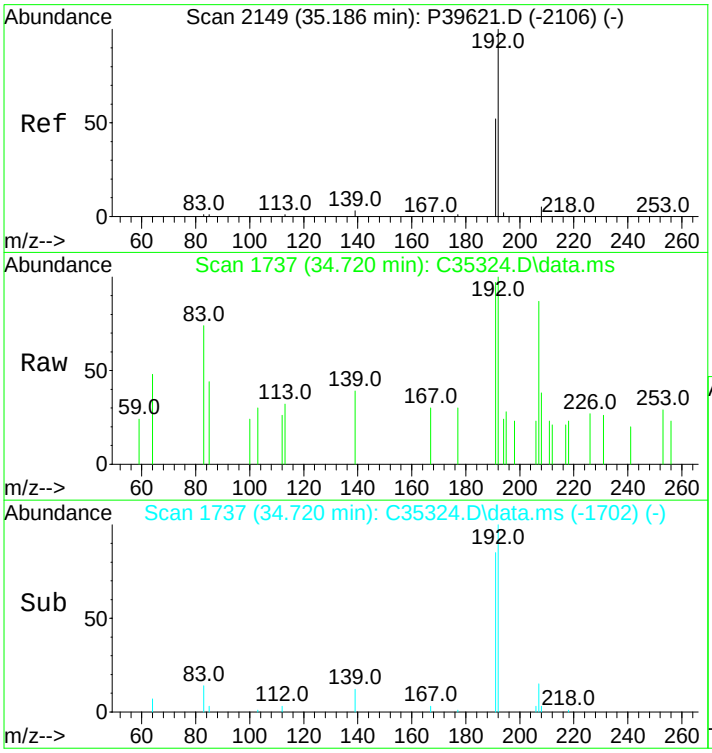


#48
1-Methylphenanthrene(1MP)
Concen: 3.29 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 316

Ion	Ratio	Lower	Upper
192	100		
191	53.8	47.4	71.2

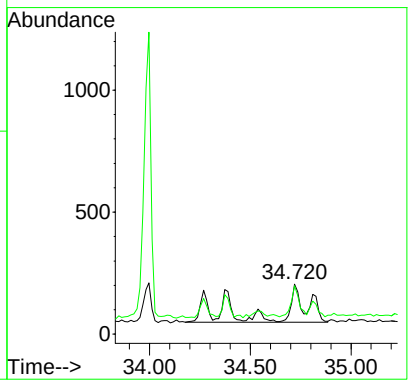


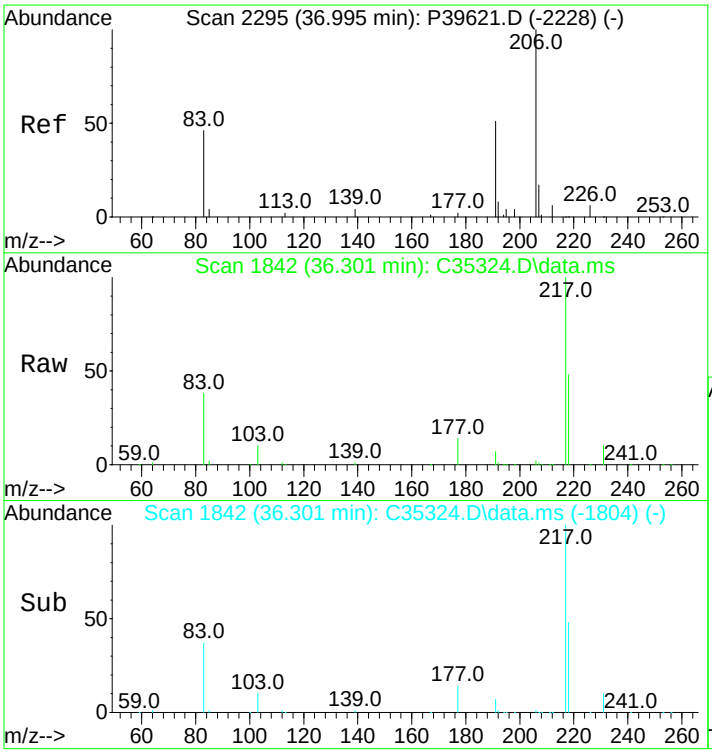


#49
C1-Phenanthrenes/Anthracenes
Concen: 17.92 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. 0.140 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 1719

Ion	Ratio	Lower	Upper
192	100		
191	11.6	45.3	67.9#

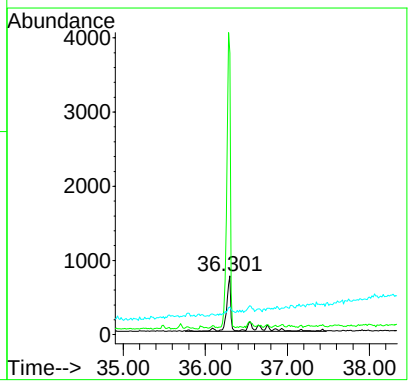


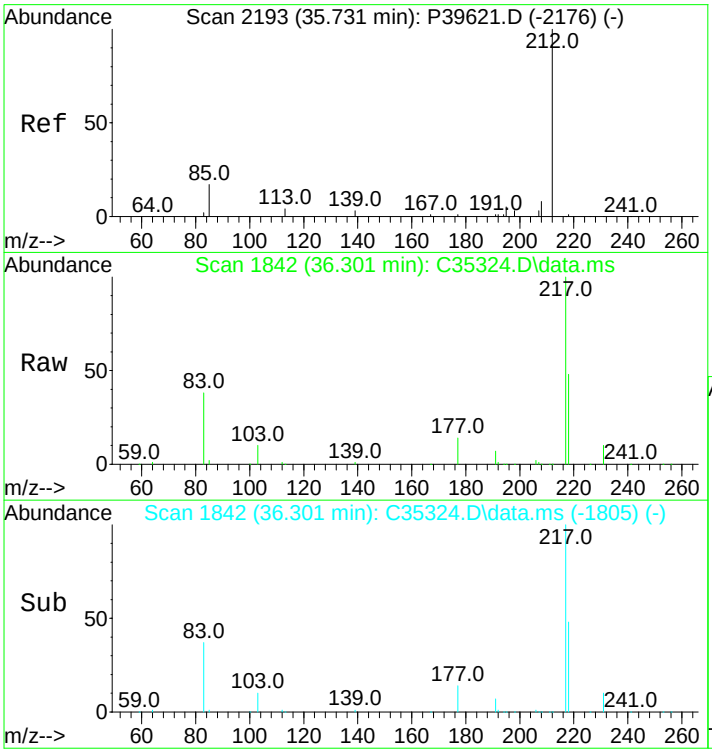


#50
C2-Phenanthrenes/Anthracenes
Concen: 42.29 ng/mL m
RT: 36.301 min Scan# 1842
Delta R.T. -0.055 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:206 Resp: 4057

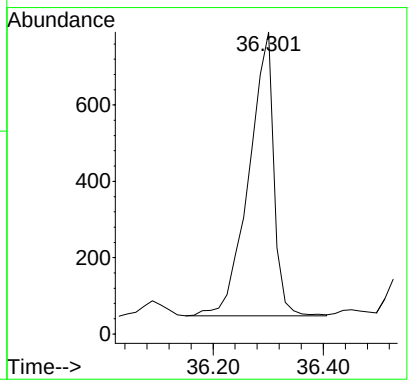
Ion	Ratio	Lower	Upper
206	100		
191	296.2	42.0	63.0#
207	13.4	15.4	23.2#

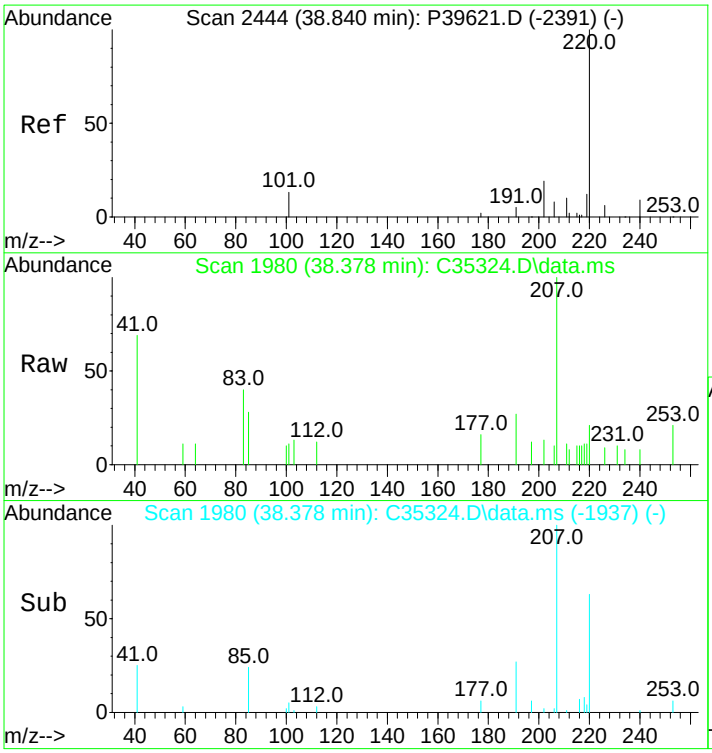




#51
5AA IS BKGD
Concen: 24.21 ng/mL
RT: 36.301 min Scan# 1842
Delta R.T. 0.060 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:206 Resp: 2323

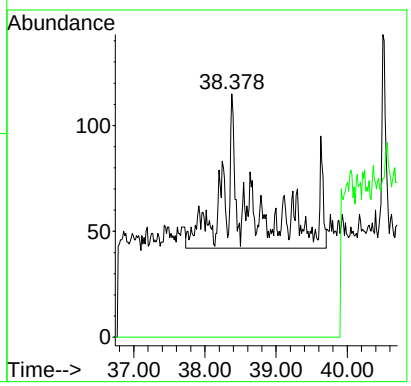


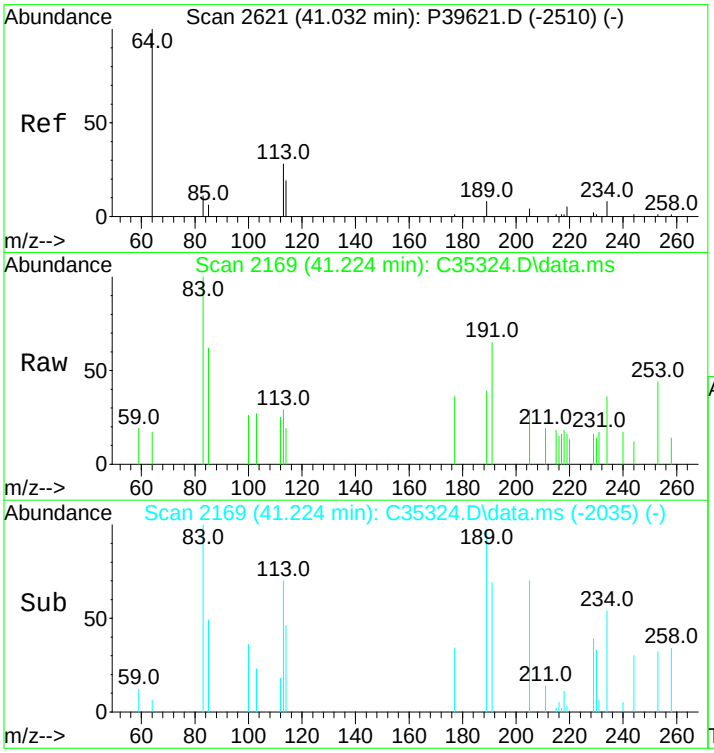


#52
C3-Phenanthrenes/Anthracenes
Concen: 19.27 ng/mL m
RT: 38.378 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:220 Resp: 1849

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

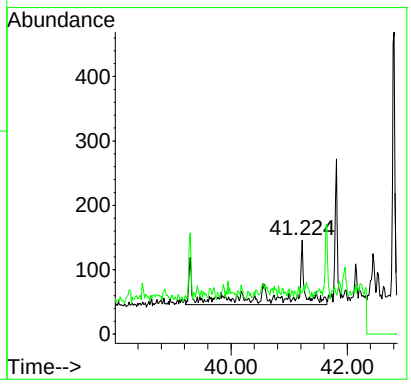


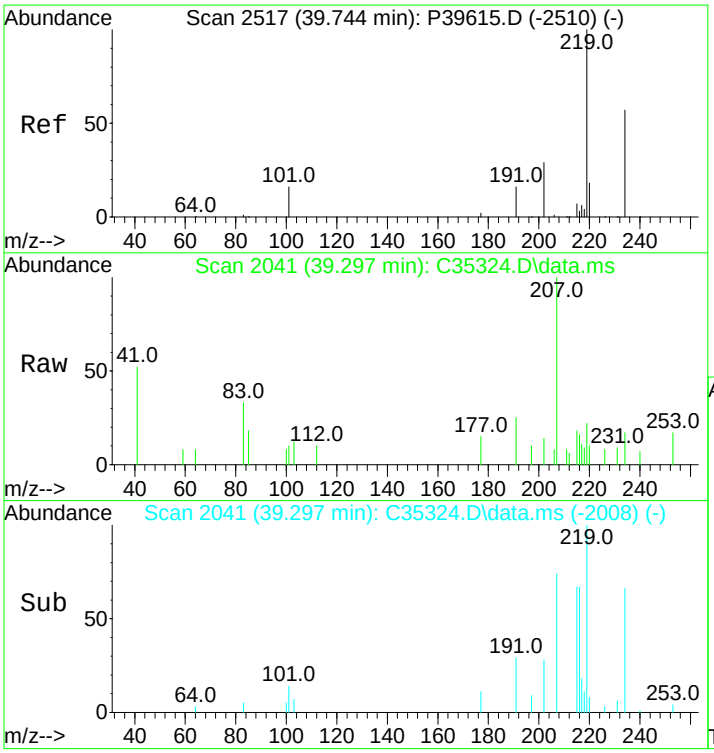


#53
C4-Phenanthrenes/Anthracenes
Concen: 18.14 ng/mL m
RT: 41.224 min Scan# 2169
Delta R.T. 0.930 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 1740

Ion	Ratio	Lower	Upper
234	100		
219	0.0	48.6	73.0#

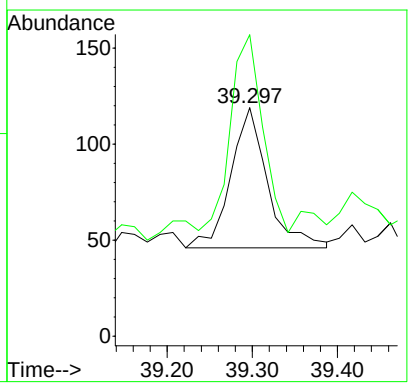


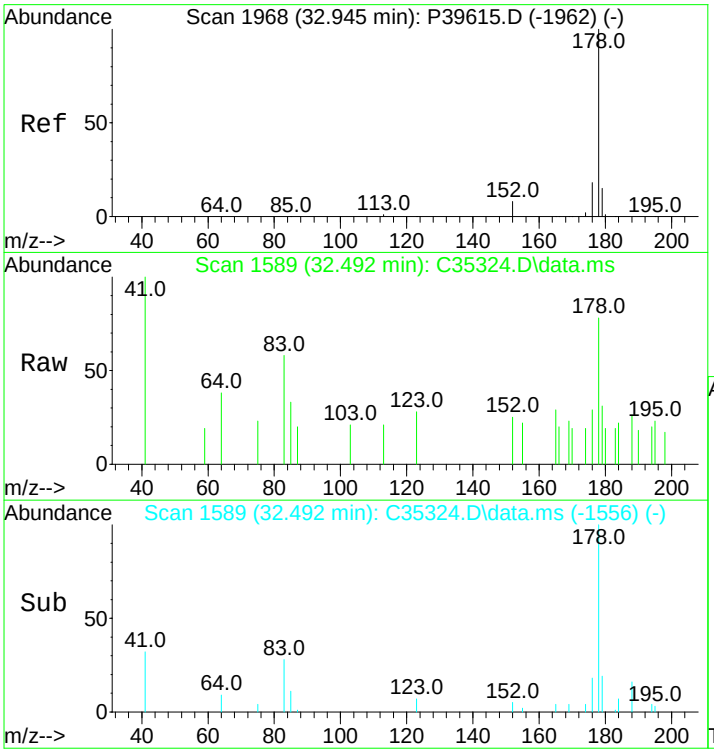


#54
Retene
Concen: 11.76 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 220

Ion	Ratio	Lower	Upper
234	100		
219	145.5	131.8	197.8

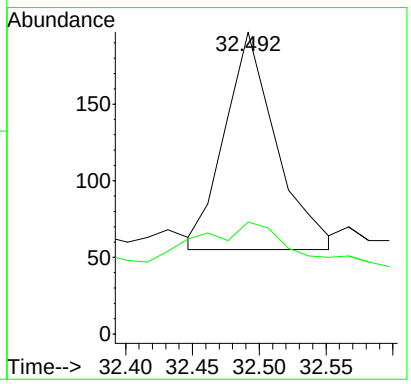


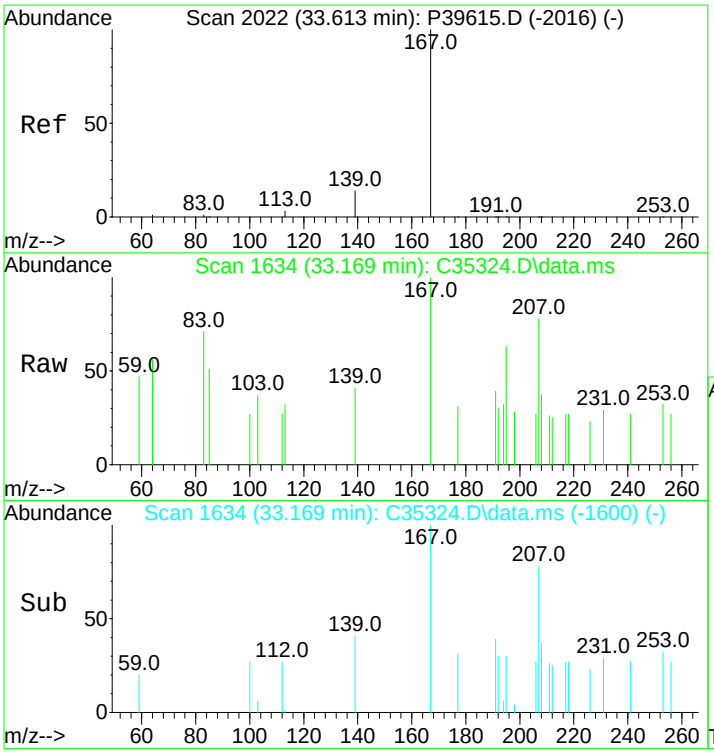


#55
Anthracene
Concen: 4.04 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:178 Resp: 379

Ion	Ratio	Lower	Upper
178	100		
176	104.0	15.6	23.4#

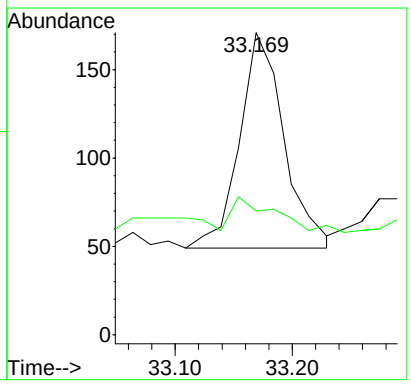


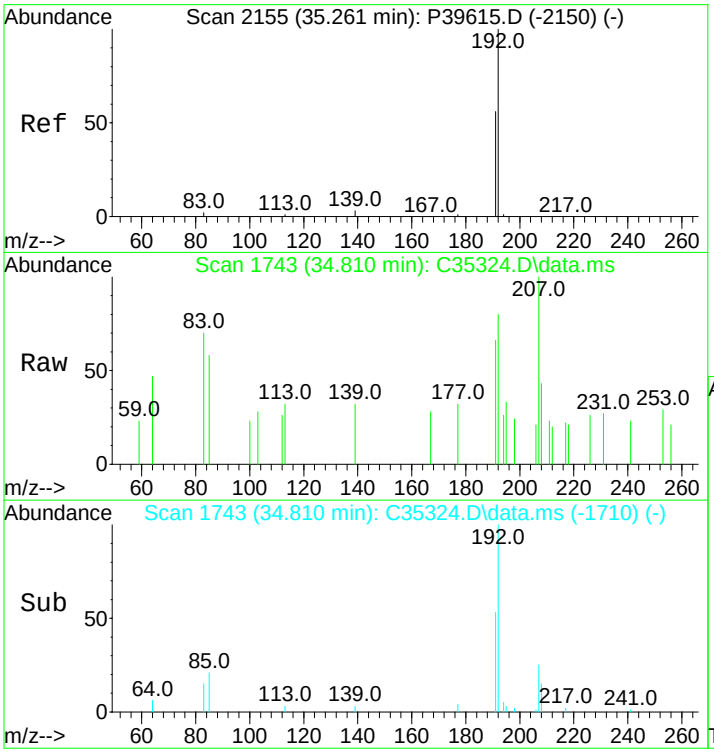


#56
Carbazole
Concen: 3.41 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:167 Resp: 323

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

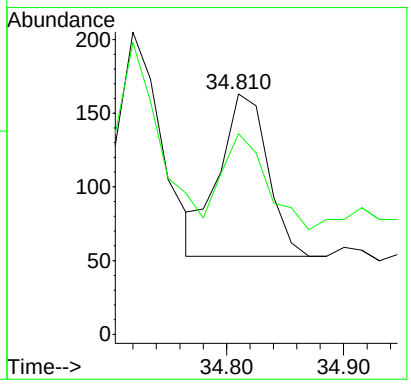


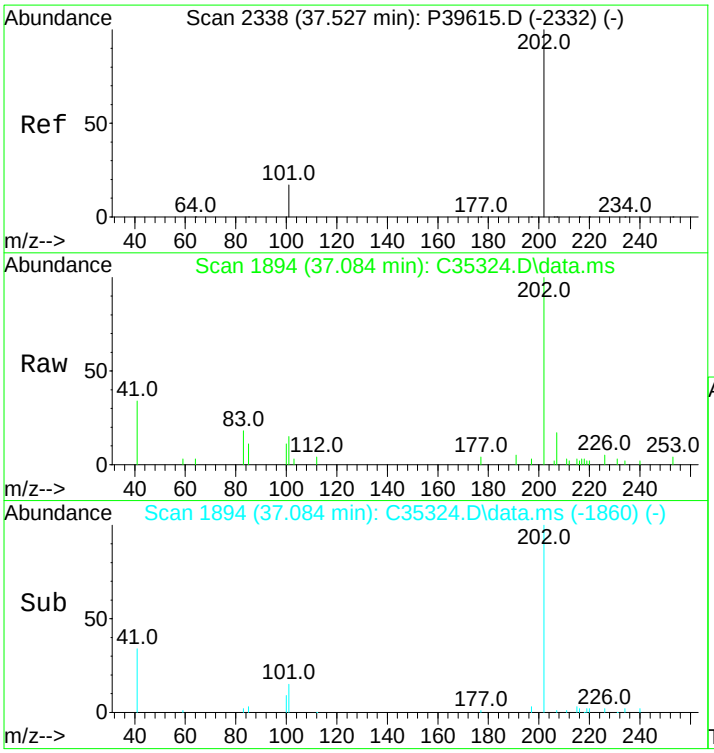


#57
1-Methylphenanthrene
Concen: 5.20 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:192 Resp: 316

Ion	Ratio	Lower	Upper
192	100		
191	53.8	46.8	70.2

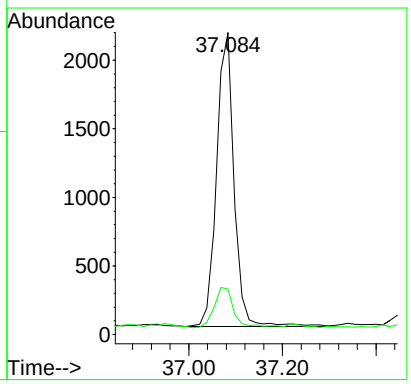


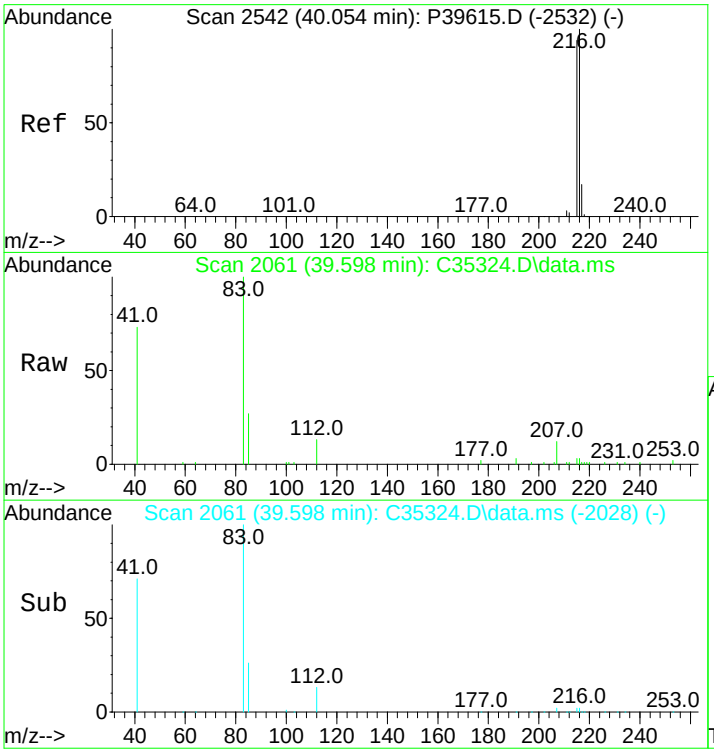


#58
Fluoranthene
Concen: 58.39 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:202 Resp: 5563

Ion	Ratio	Lower	Upper
202	100		
101	15.6	13.2	19.8

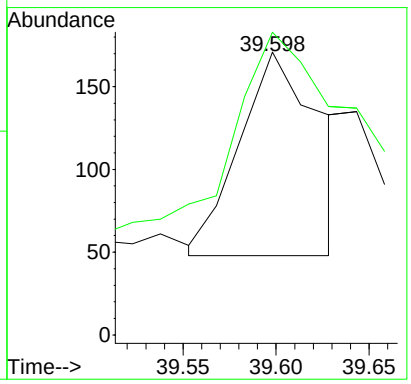


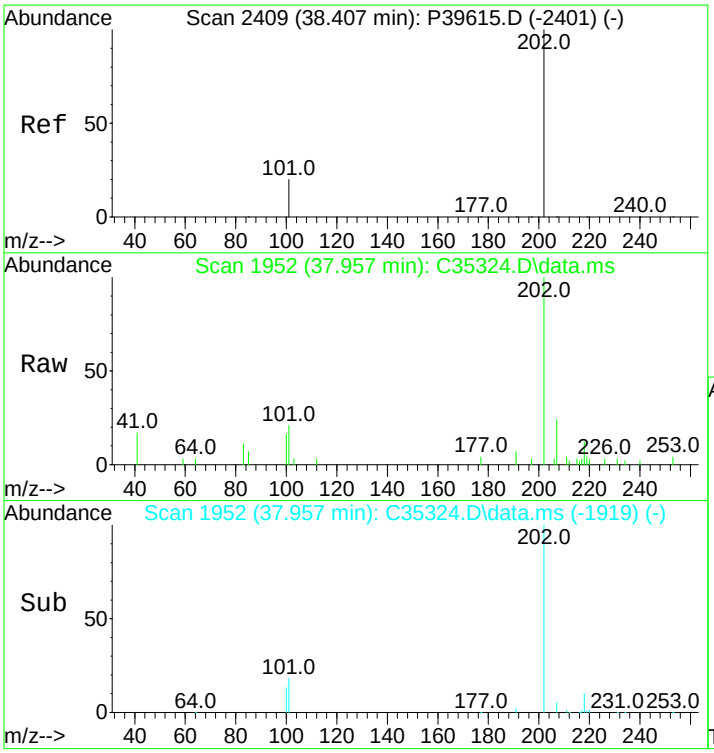


#59
Benzo(b)fluorene
Concen: 6.64 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:216 Resp: 367

Ion	Ratio	Lower	Upper
216	100		
215	151.8	76.0	114.0#

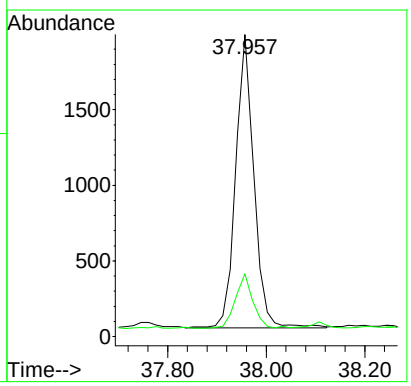


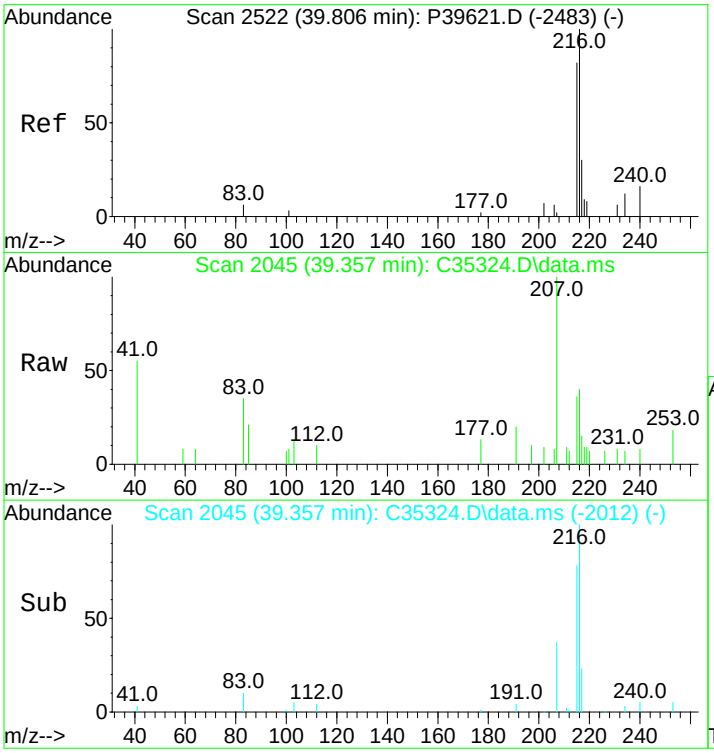


#60
Pyrene
Concen: 51.56 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:202 Resp: 4994

Ion	Ratio	Lower	Upper
202	100		
101	17.7	13.5	20.3

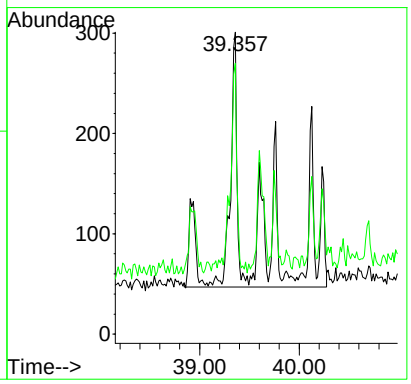


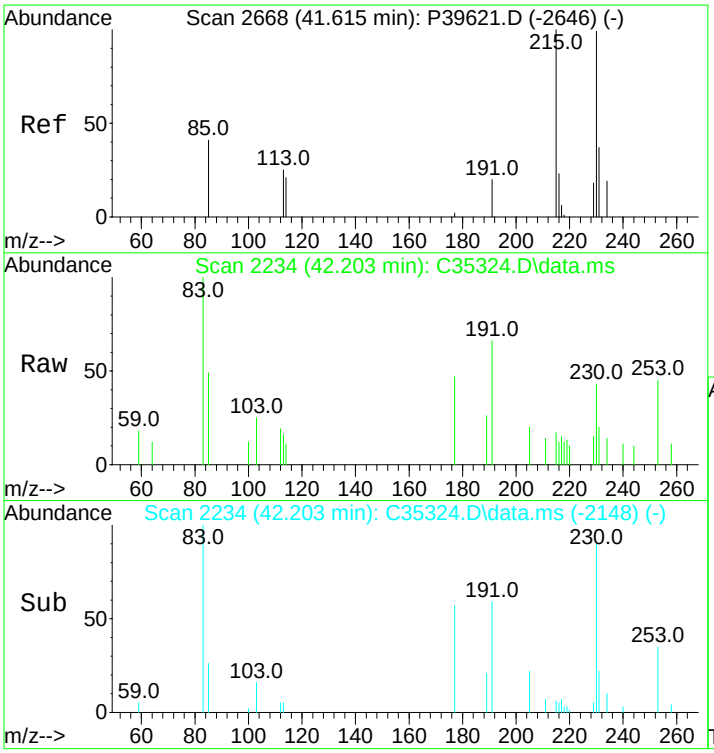


#61
C1-Fluoranthenes/Pyrenes
Concen: 36.24 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.232 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:216 Resp: 3510

Ion	Ratio	Lower	Upper
216	100		
215	8.5	77.7	116.5#

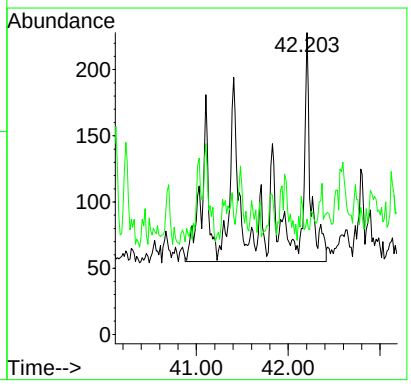


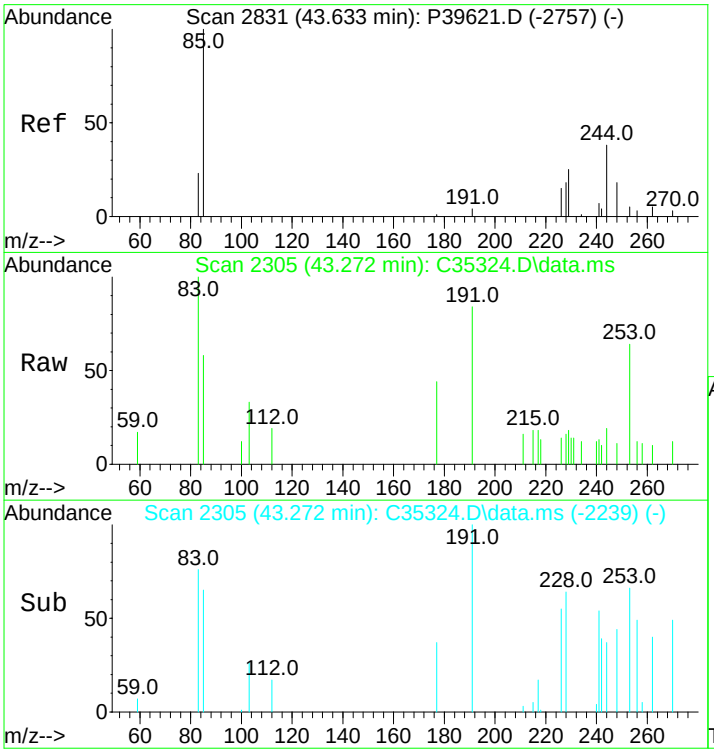


#62
C2-Fluoranthenes/Pyrenes
Concen: 33.04 ng/mL m
RT: 42.203 min Scan# 2234
Delta R.T. 1.039 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:230 Resp: 3200

Ion	Ratio	Lower	Upper
230	100		
215	3.9	92.7	139.1#

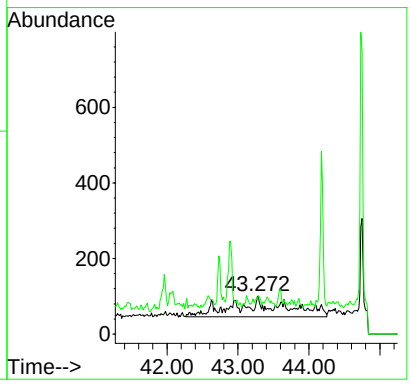


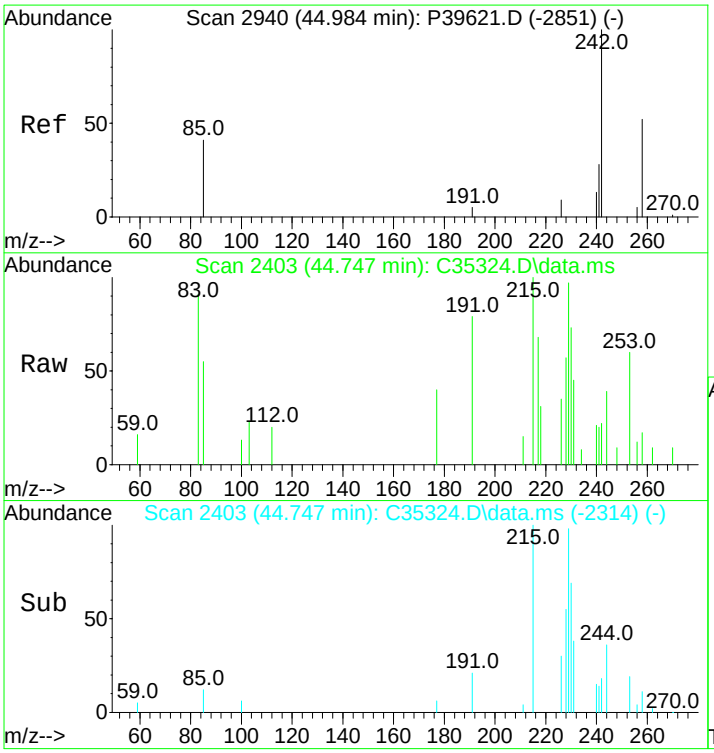


#63
C3-Fluoranthenes/Pyrenes
Concen: 26.31 ng/mL m
RT: 43.272 min Scan# 2305
Delta R.T. 0.403 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:244 Resp: 2548

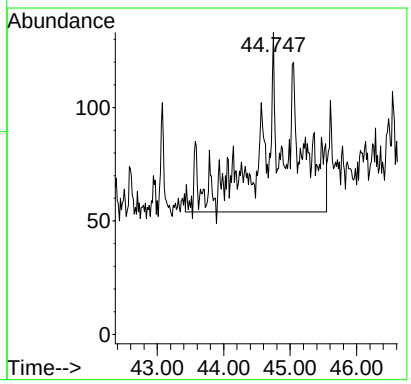
Ion	Ratio	Lower	Upper
244	100		
229	0.0	78.7	118.1#

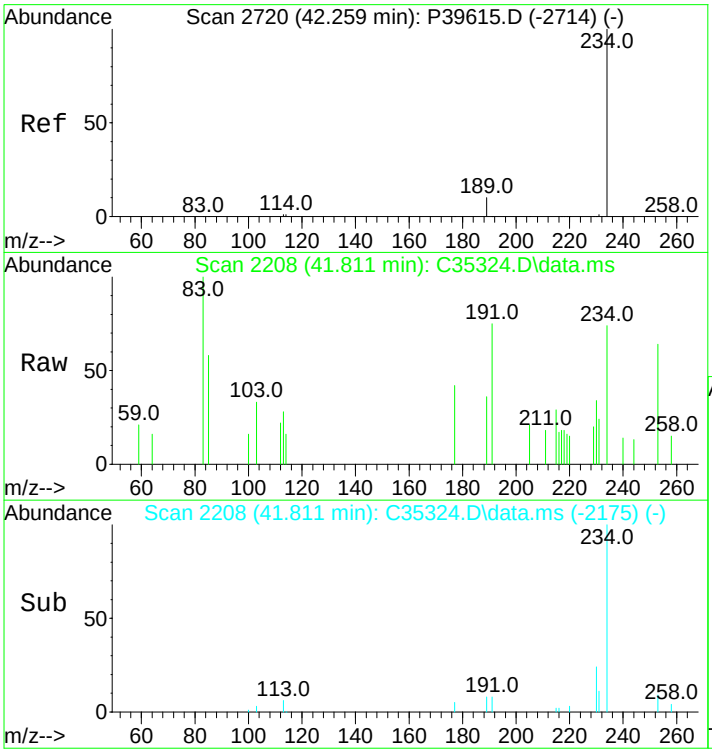




#64
C4-Fluoranthenes/Pyrenes
Concen: 26.85 ng/mL m
RT: 44.747 min Scan# 2403
Delta R.T. 0.545 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:258 Resp: 2601

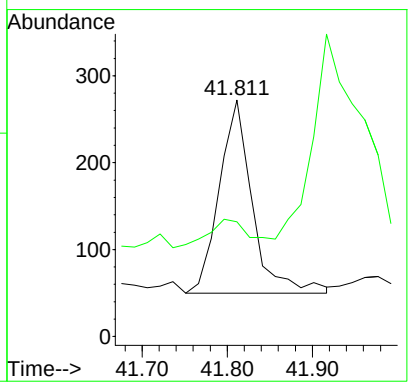


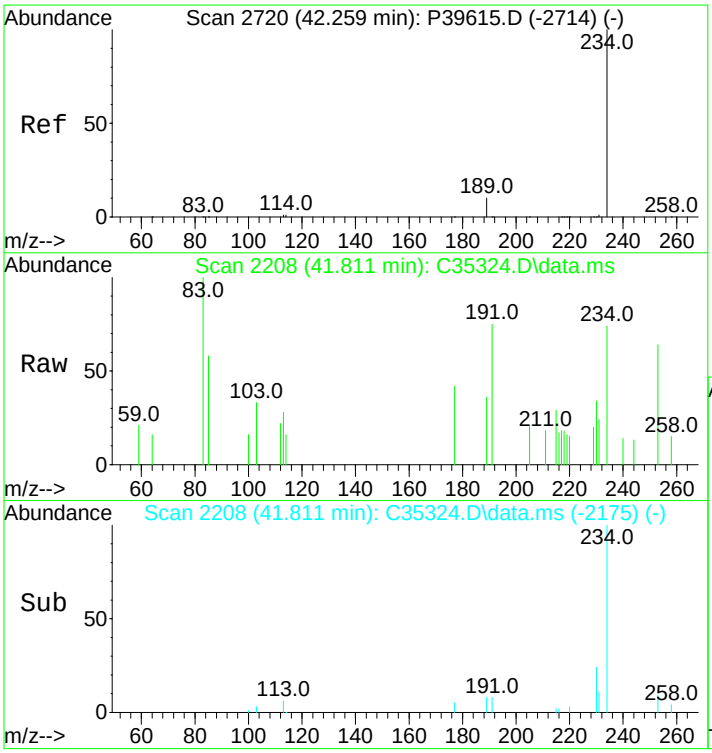


#66
Naphthobenzothiophene
Concen: 5.78 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 603

Ion	Ratio	Lower	Upper
234	100		
189	19.4	20.9	31.3#

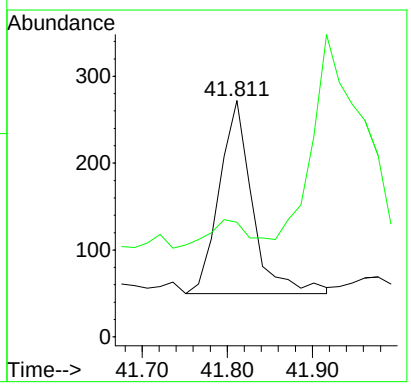


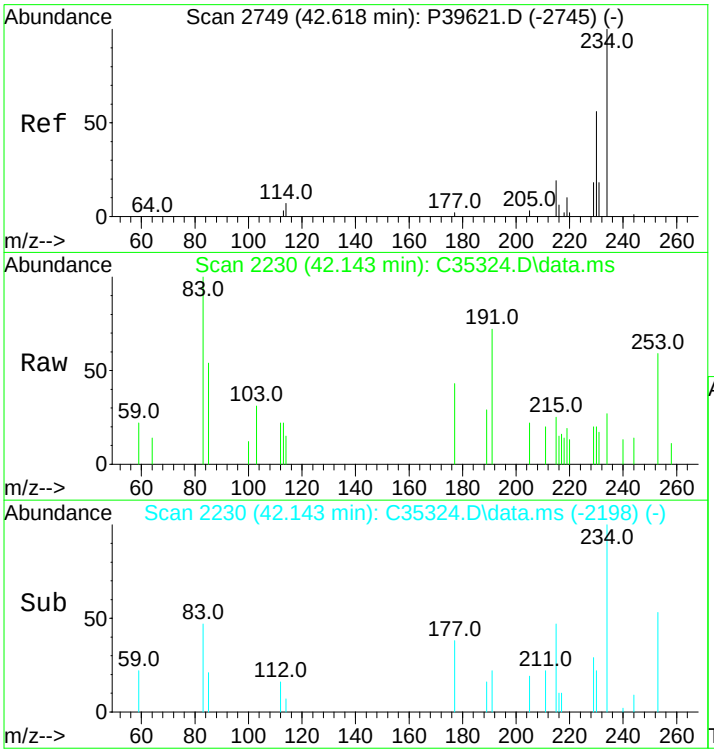


#67
Naphthobenzothiophene-2,1-D
Concen: 5.78 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 603

Ion	Ratio	Lower	Upper
234	100		
189	19.4	20.9	31.3#

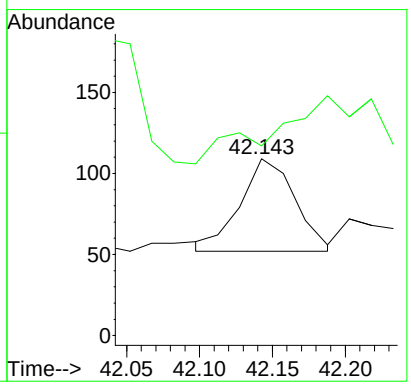


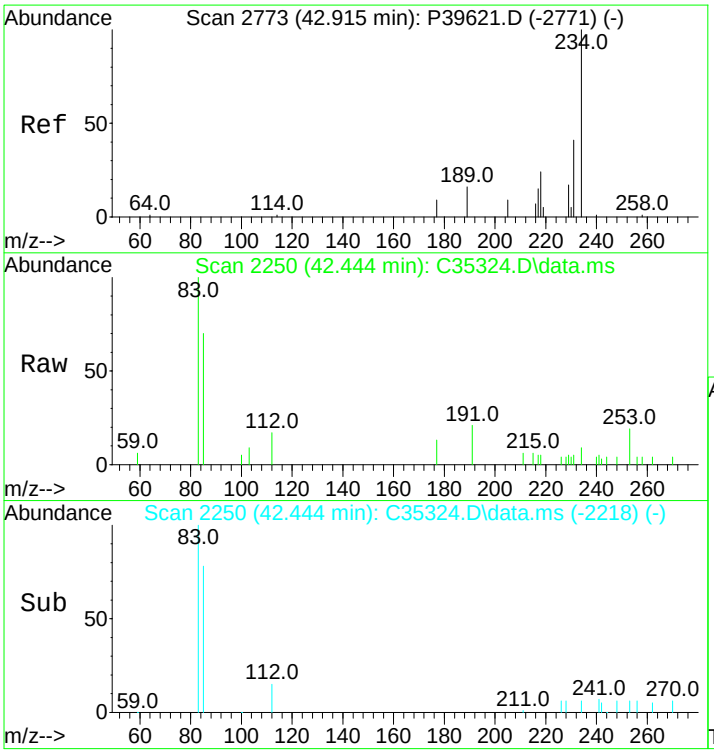


#68
Naphthobenzothiophene-1,2-D
Concen: 1.43 ng/mL m
RT: 42.143 min Scan# 2230
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 149

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

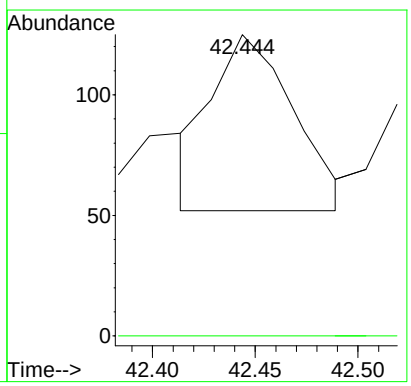


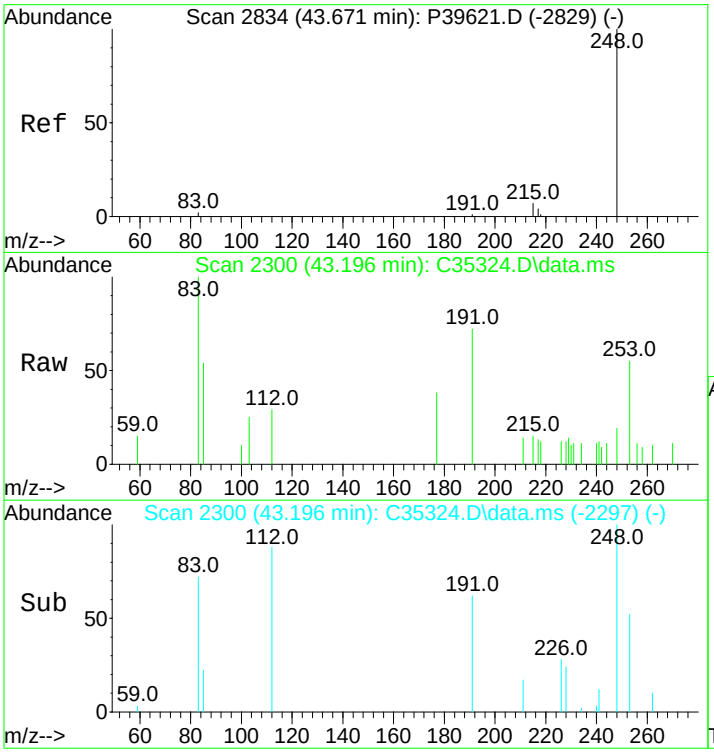


#69
Naphthobenzothiophene-2,3-D
Concen: 1.94 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:234 Resp: 202

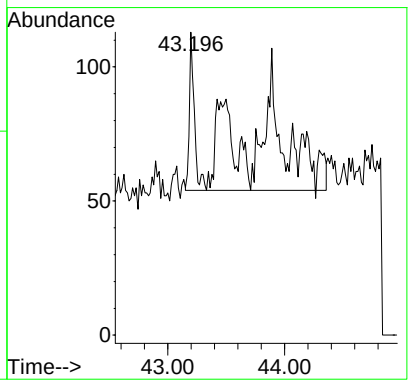
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

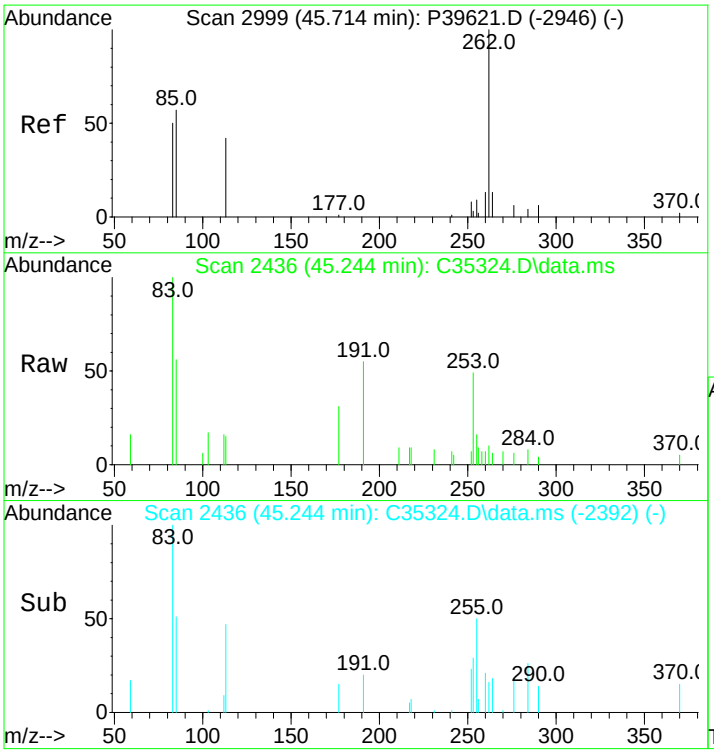




#70
C1-Naphthobenzothiophenes
Concen: 11.62 ng/ml m
RT: 43.196 min Scan# 2300
Delta R.T. -0.383 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

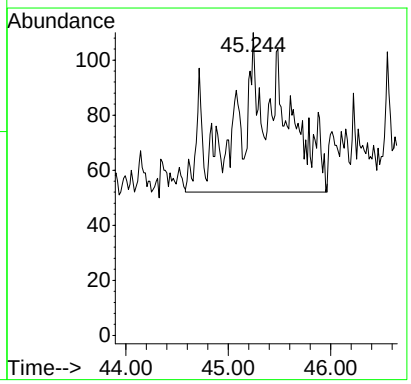
Tgt Ion:248 Resp: 1212

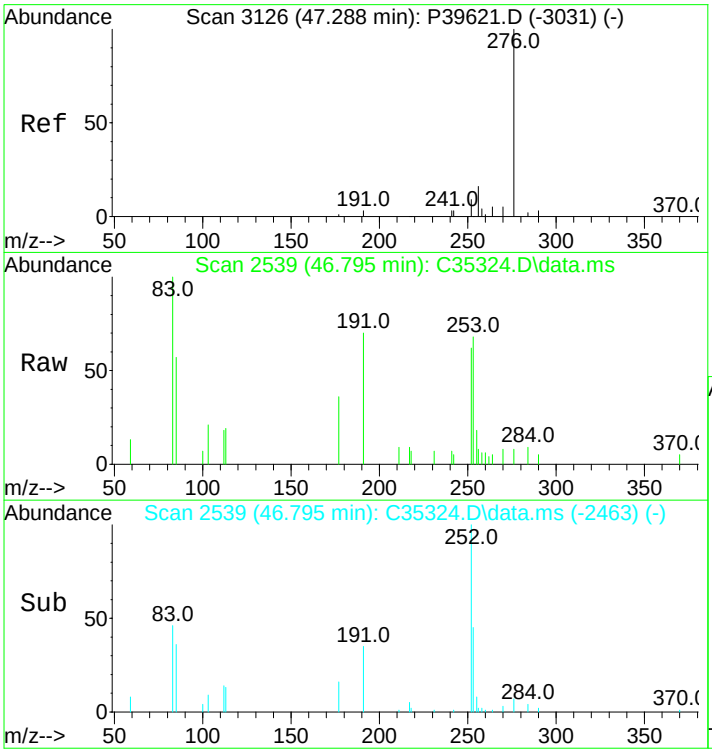




#71
C2-Naphthobenzothiophenes
Concen: 17.67 ng/ml m
RT: 45.244 min Scan# 2436
Delta R.T. 0.377 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

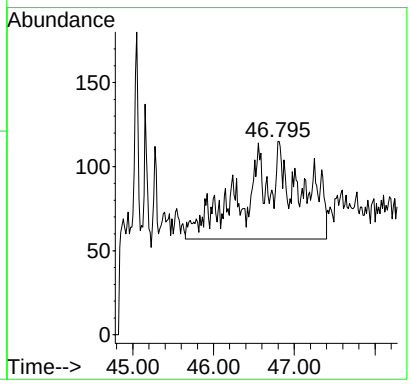
Tgt Ion:262 Resp: 1843

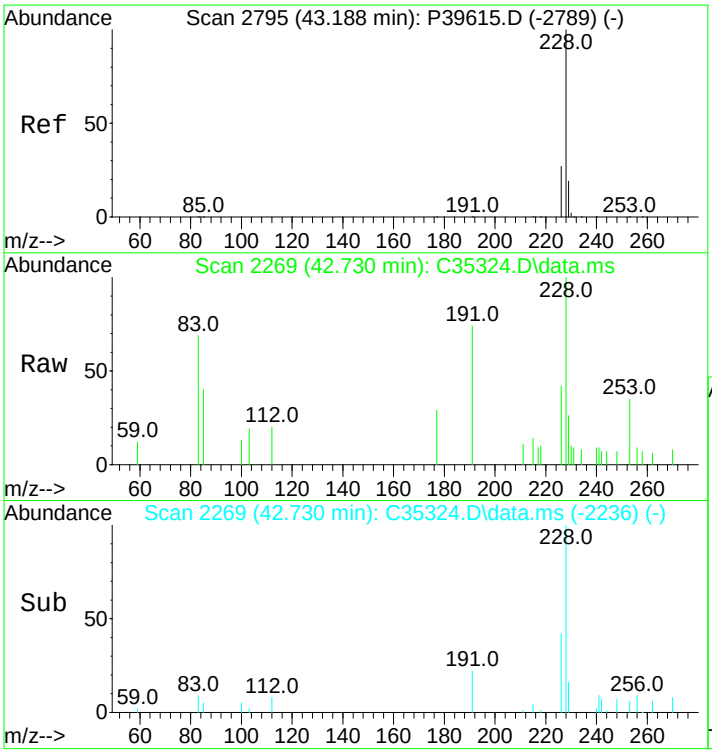




#72
C3-Naphthobenzothiophenes
Concen: 25.34 ng/ml m
RT: 46.795 min Scan# 2539
Delta R.T. 0.343 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:276 Resp: 2642

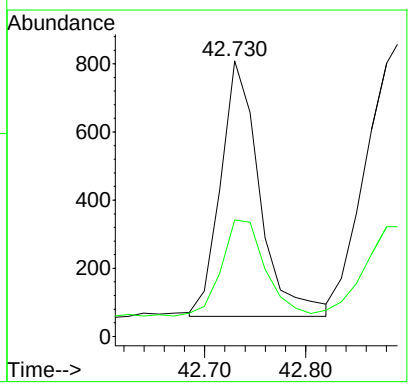


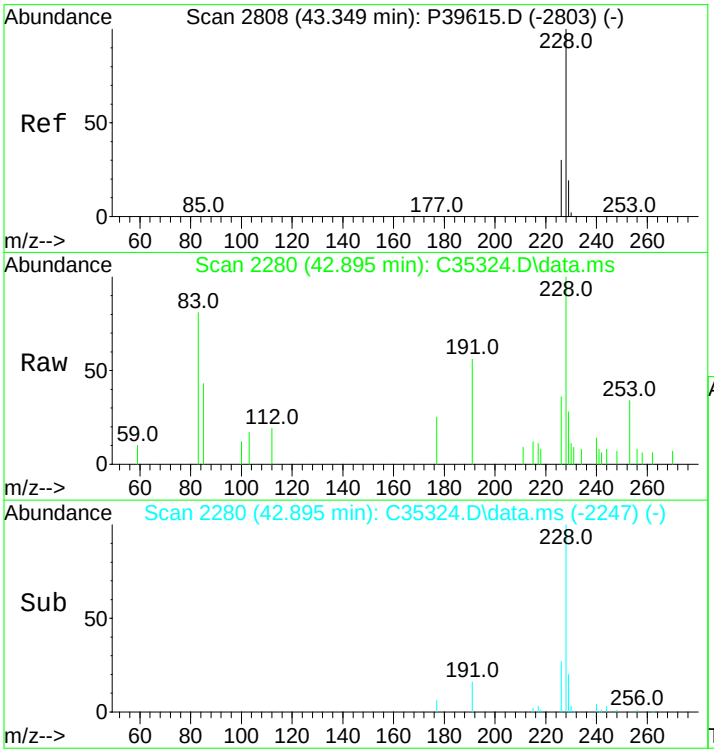


#75
Benz[a]anthracene
Concen: 19.22 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:228 Resp: 2018

Ion	Ratio	Lower	Upper
228	100		
226	46.6	21.5	32.3#

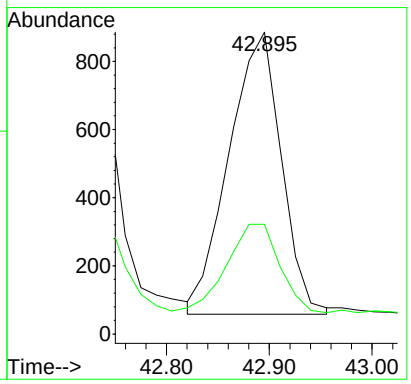


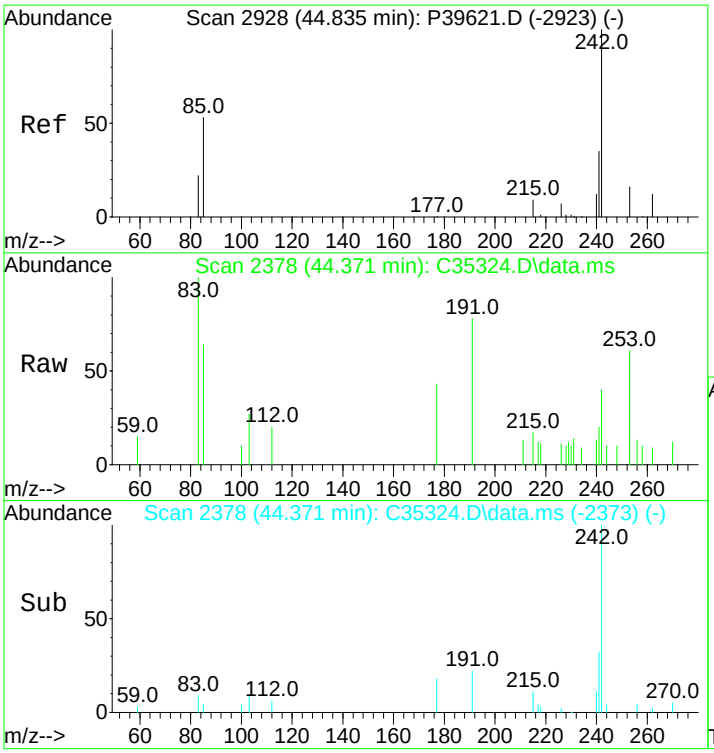


#77
Chrysene/Triphenylene
Concen: 27.65 ng/mL m
RT: 42.895 min Scan# 2280
Delta R.T. -0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:228 Resp: 2930

Ion	Ratio	Lower	Upper
228	100		
226	32.0	23.5	35.3

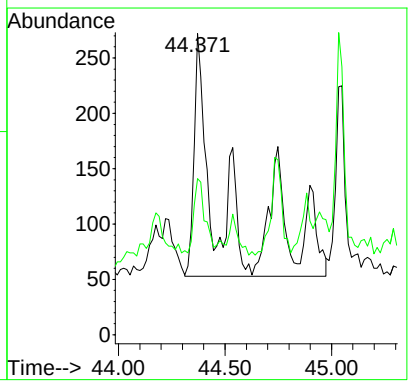


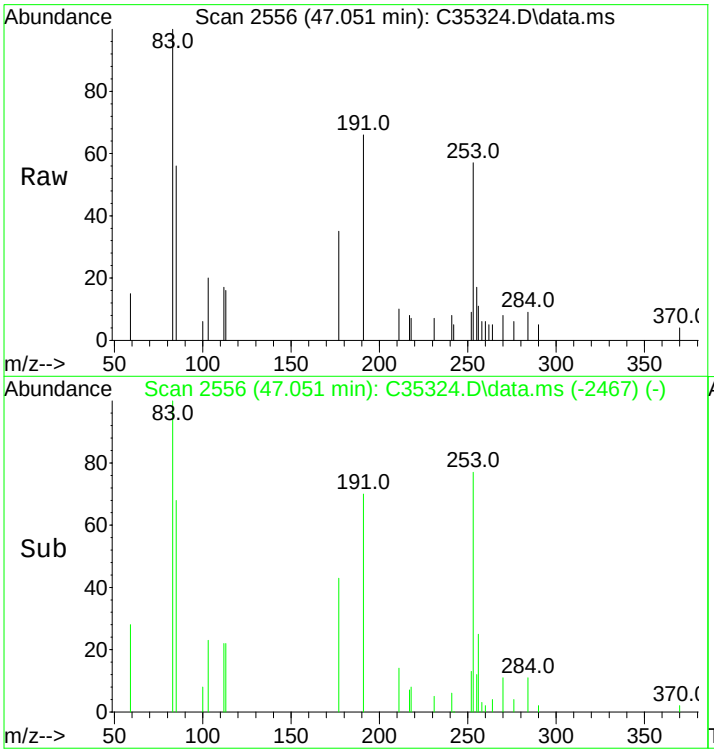


#78
C1-Chrysenes
Concen: 19.70 ng/mL m
RT: 44.371 min Scan# 2378
Delta R.T. 0.031 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:242 Resp: 2088

Ion	Ratio	Lower	Upper
242	100		
241	8.9	32.7	49.1#

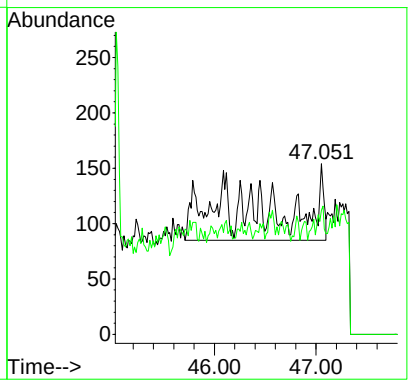


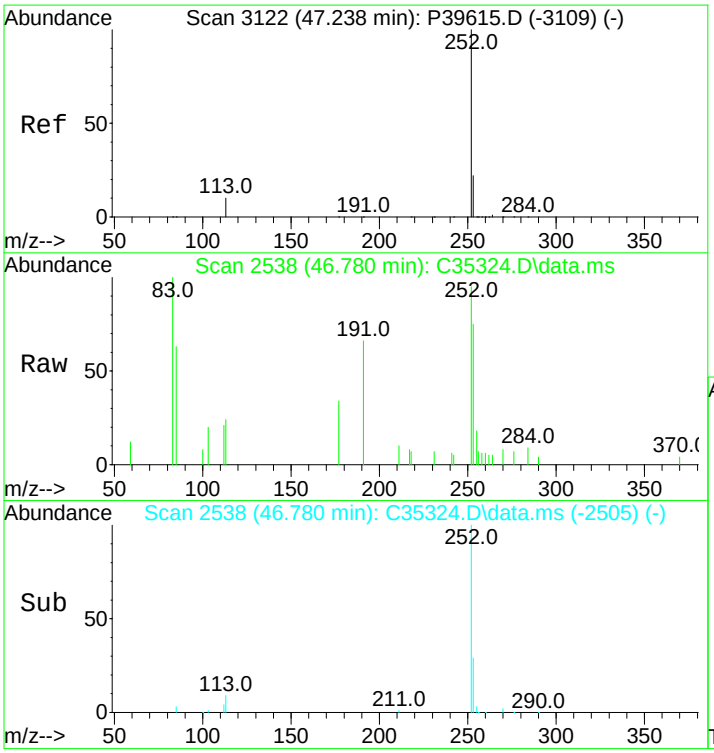


#79
C2-Chrysenes
Concen: 21.26 ng/mL m
RT: 47.051 min Scan# 2556
Delta R.T. 0.654 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:256 Resp: 2253

Ion	Ratio	Lower	Upper
256	100		
241	0.0	30.9	46.3#

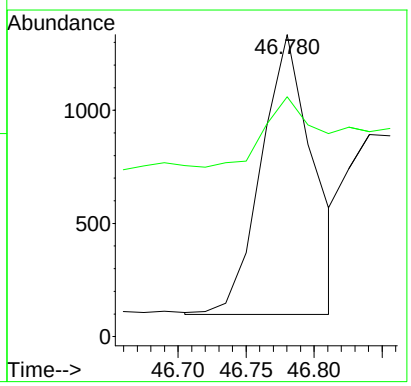


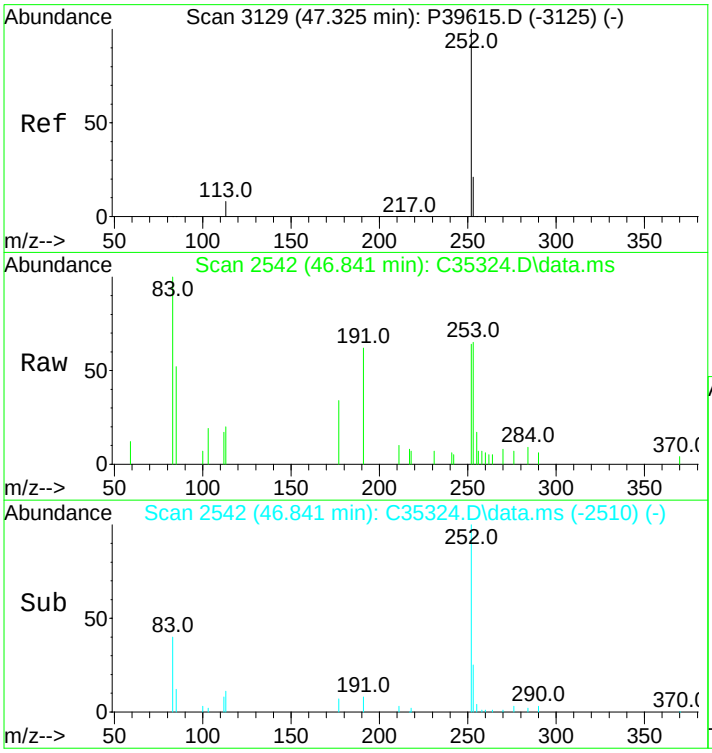


#82
Benzo[b]fluoranthene
Concen: 28.39 ng/mL m
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 3275

Ion	Ratio	Lower	Upper
252	100		
253	24.5	20.4	30.6

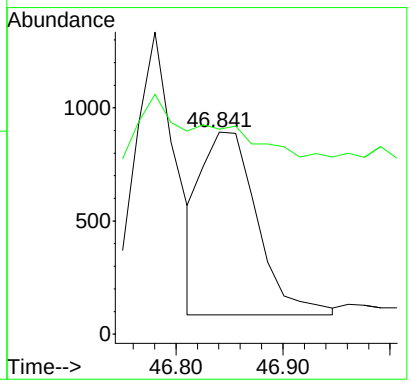


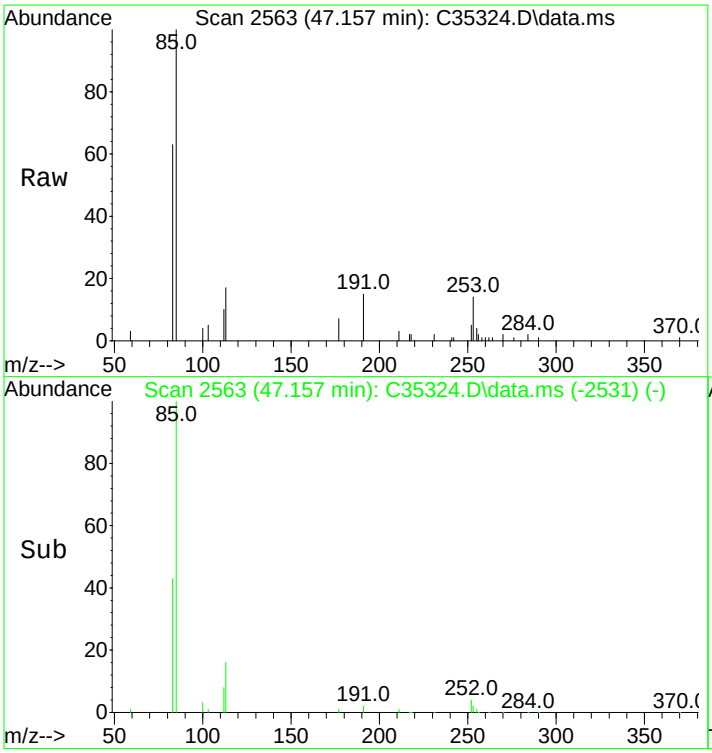


#83
Benzo[j]+[k]fluoranthene
Concen: 23.39 ng/mL m
RT: 46.841 min Scan# 2542
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 2937

Ion	Ratio	Lower	Upper
252	100		
253	27.3	20.6	31.0

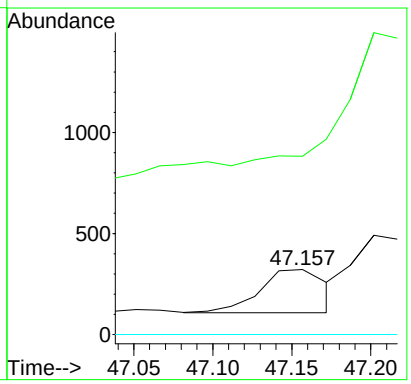


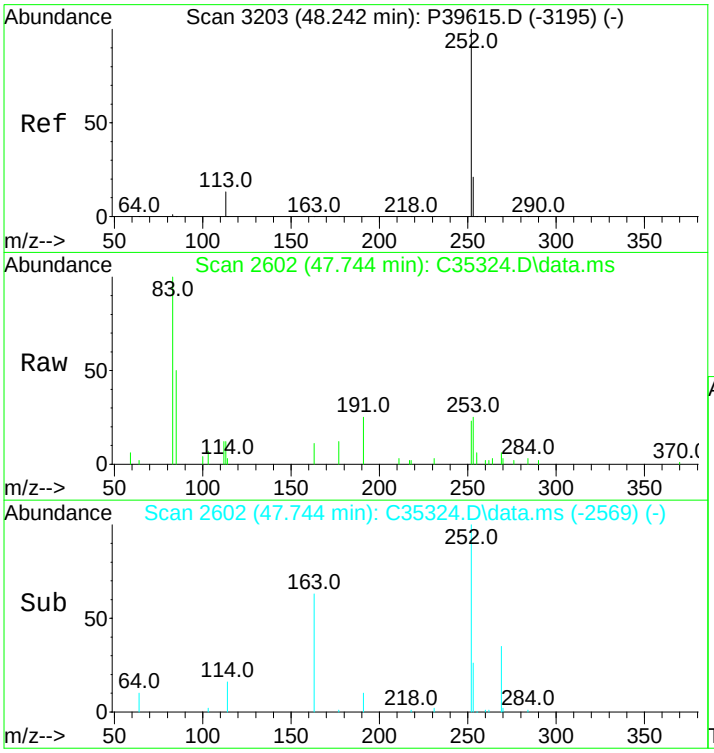


#84
Benzo[a]fluoranthene
Concen: 4.98 ng/mL m
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 625

Ion	Ratio	Lower	Upper
252	100		
253	510.2	146.1	219.1#
125	0.0	0.0	0.0

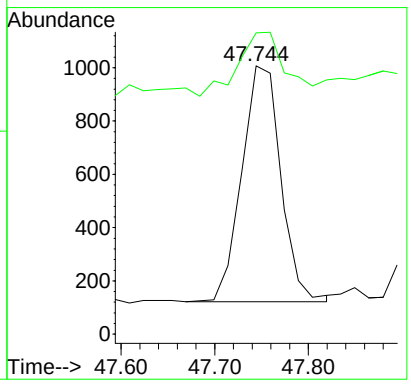


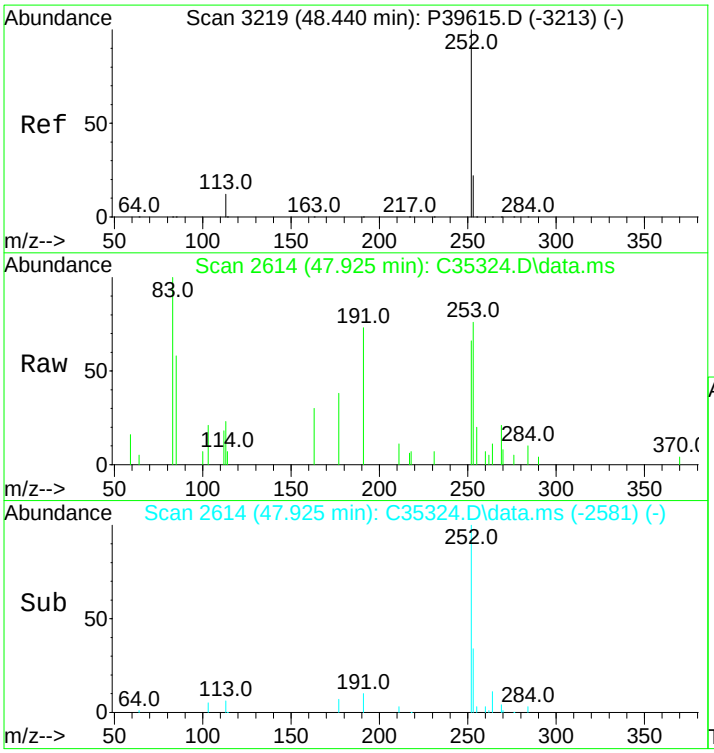


#85
Benzo[e]pyrene
Concen: 22.53 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 2571

Ion	Ratio	Lower	Upper
252	100		
253	32.6	21.0	31.6#

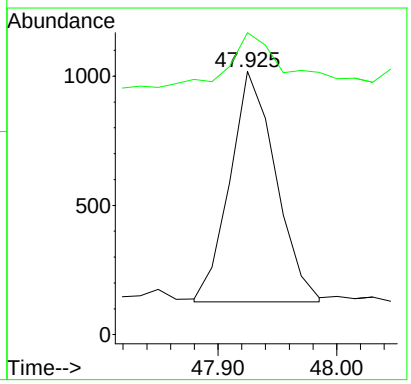


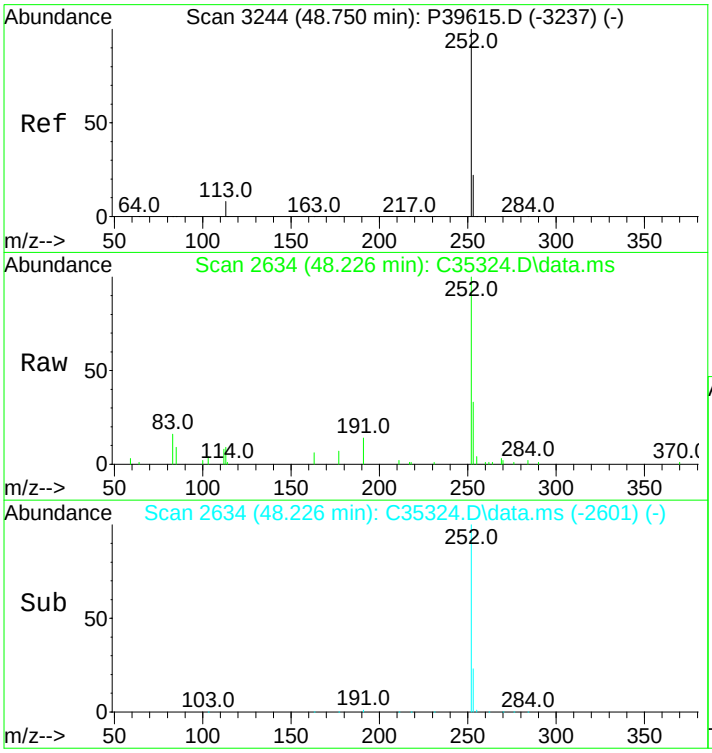


#87
Benzo[a]pyrene
Concen: 21.77 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 2392

Ion	Ratio	Lower	Upper
252	100		
253	33.6	21.4	32.0#

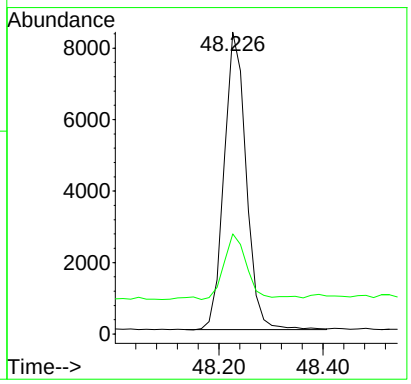


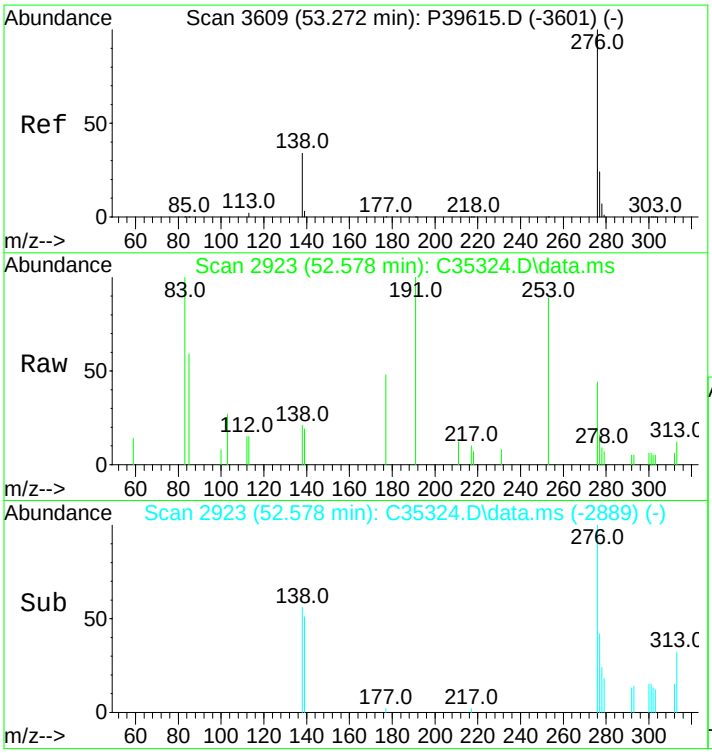


#88
Perylene
Concen: 208.77 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:252 Resp: 24510

Ion	Ratio	Lower	Upper
252	100		
253	22.8	21.8	32.6

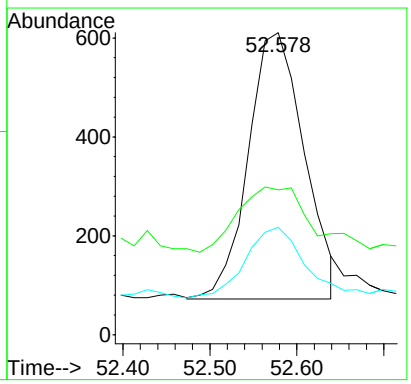


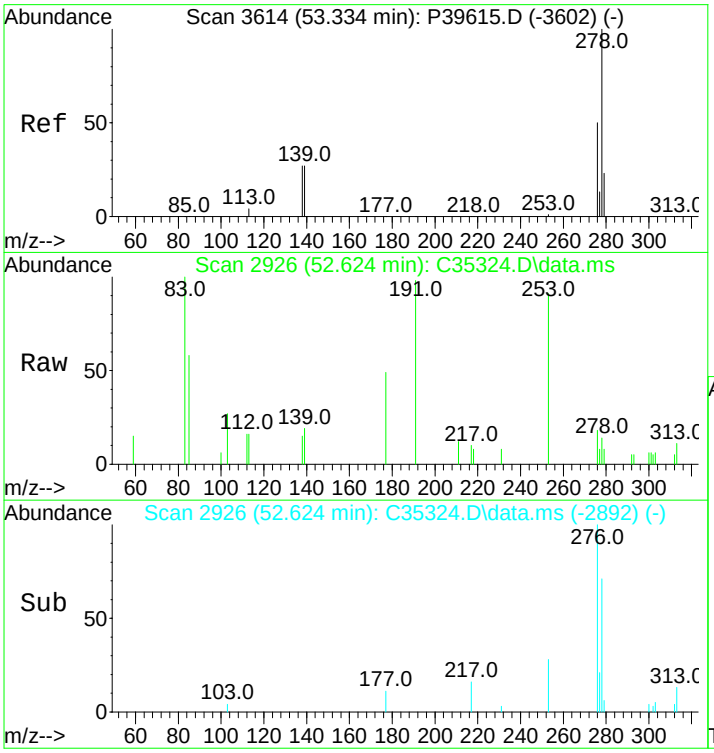


#89
Indeno[1,2,3-cd]pyrene
Concen: 18.81 ng/mL m
RT: 52.578 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:276 Resp: 2404

Ion	Ratio	Lower	Upper
276	100		
138	32.2	19.1	28.7#
277	28.9	19.5	29.3

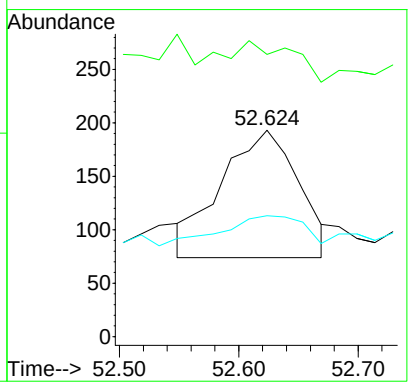


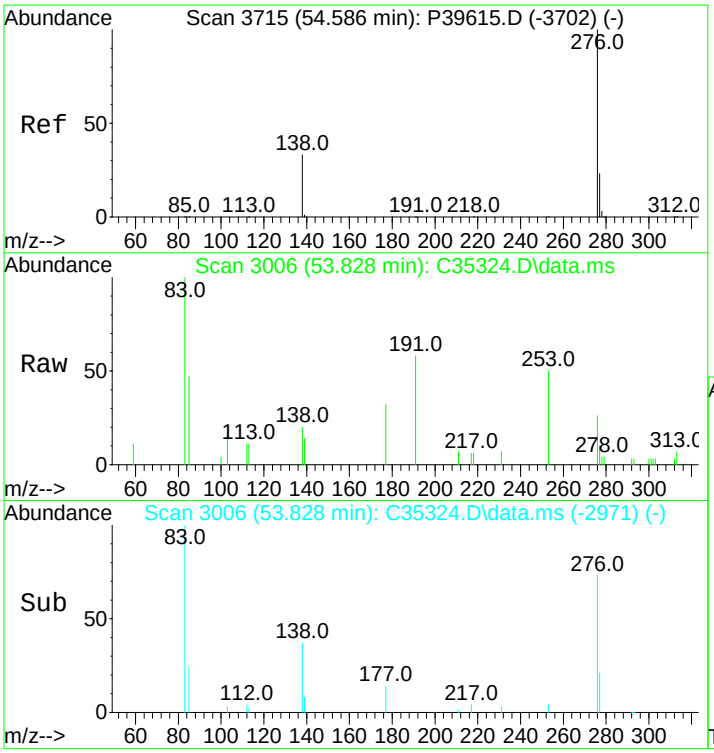


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.42 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:278 Resp: 537

Ion	Ratio	Lower	Upper
278	100		
139	0.0	16.6	25.0#
279	26.4	20.0	30.0

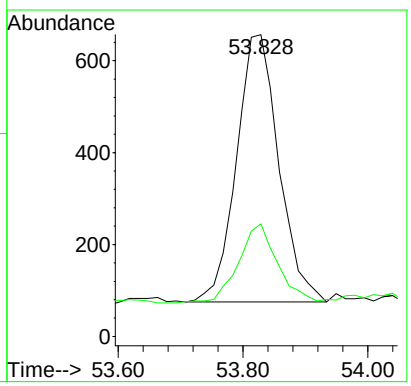


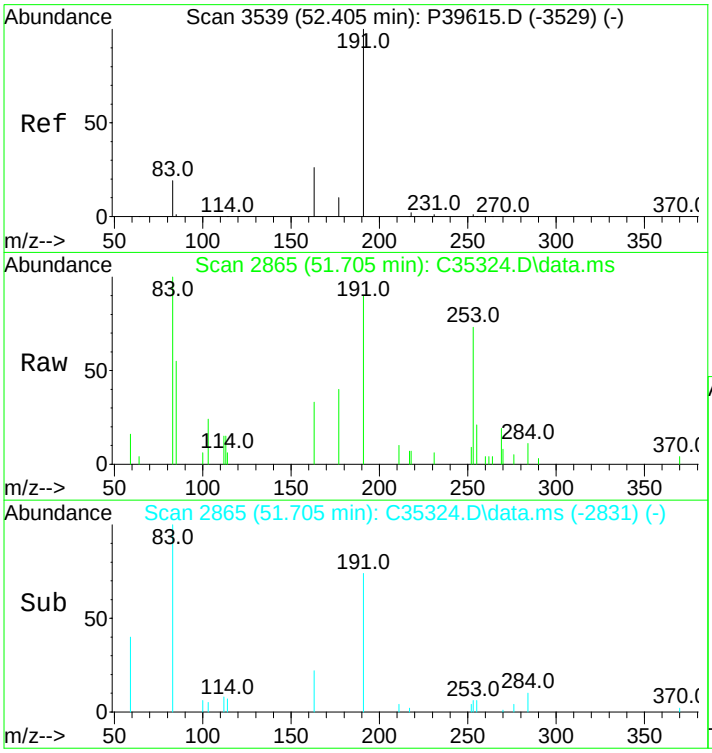


#91
Benzo[g,h,i]perylene
Concen: 20.30 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:276 Resp: 2742

Ion	Ratio	Lower	Upper
276	100		
277	27.3	18.8	28.2

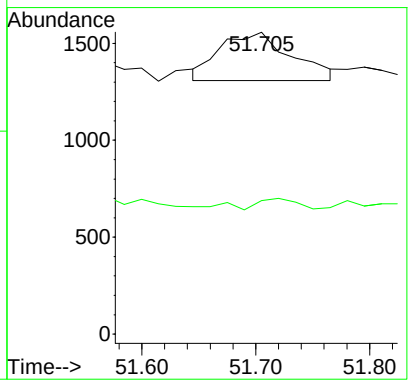


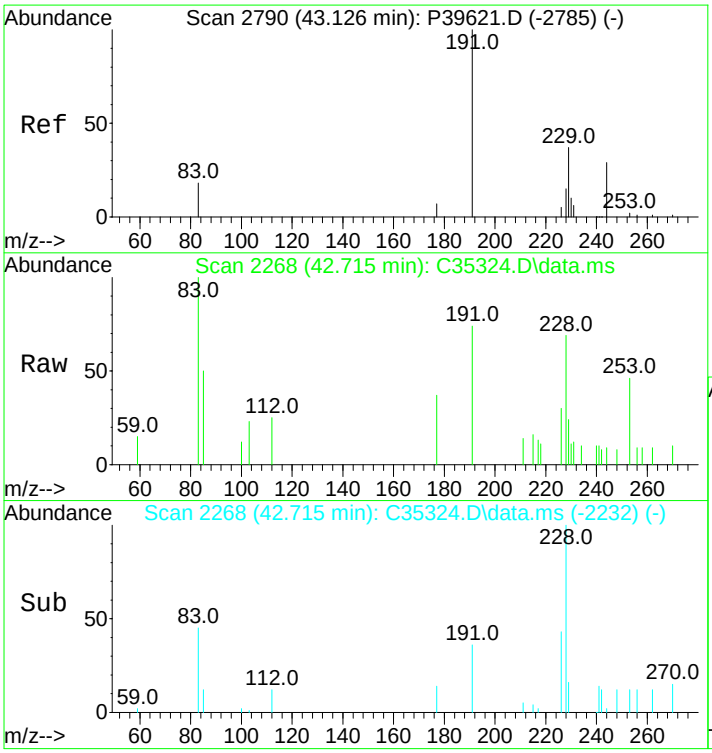


#92
Hopane (T19)
Concen: 49.77 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:191 Resp: 1085

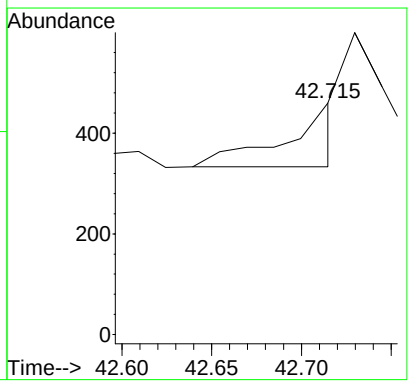
Ion	Ratio	Lower	Upper
191	100		
177	13.6	17.2	25.8#

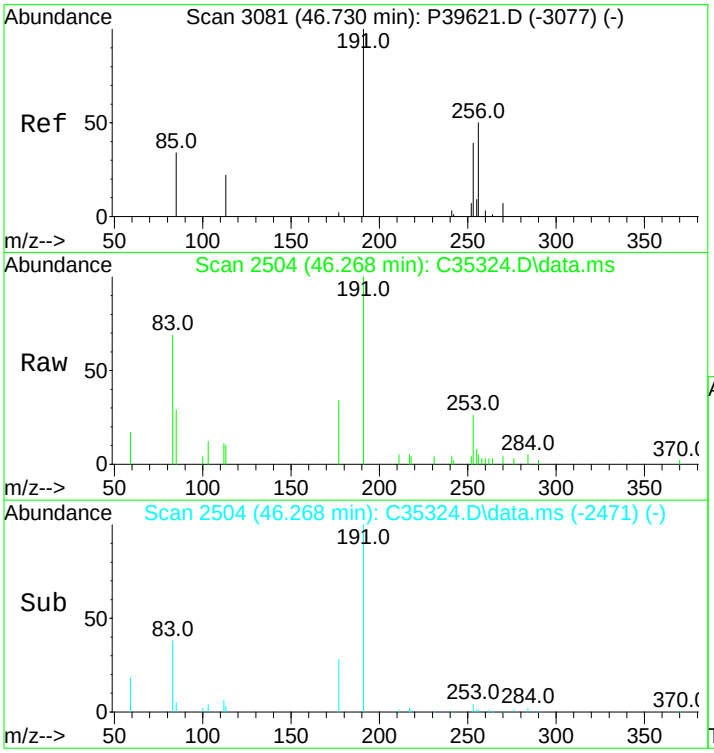




#96
C25 Tricyclic Terpane (T6)
Concen: 12.06 ng/ml m
RT: 42.715 min Scan# 2268
Delta R.T. 0.045 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

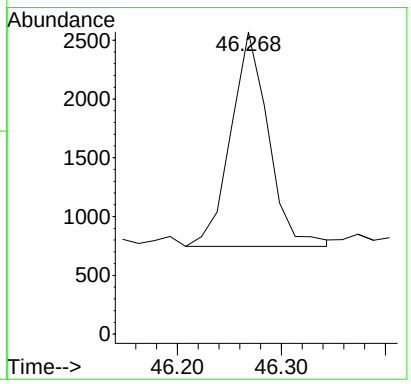
Tgt Ion:191 Resp: 263

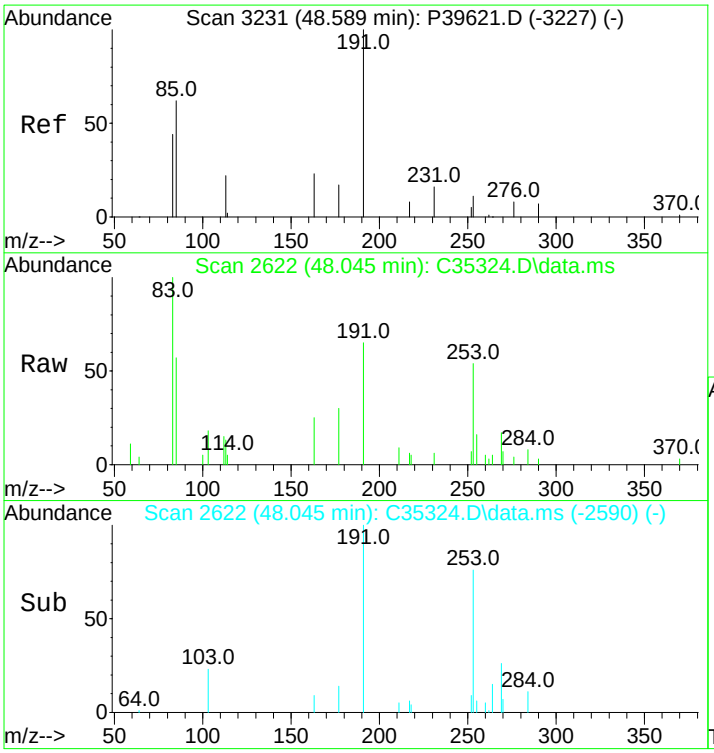




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 209.78 ng/ml
RT: 46.268 min Scan# 2504
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

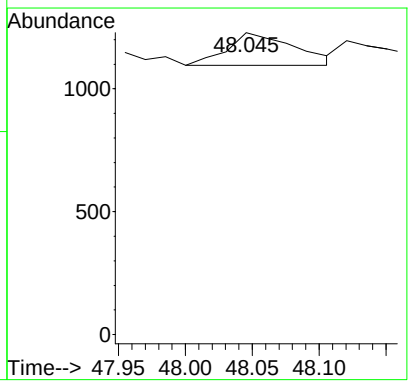
Tgt Ion:191 Resp: 4573

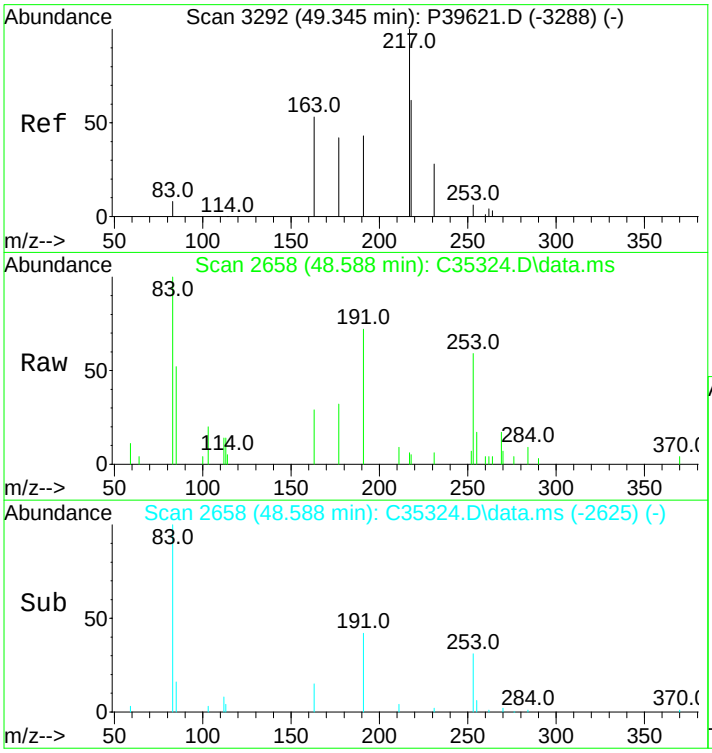




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 21.29 ng/ml
RT: 48.045 min Scan# 2622
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

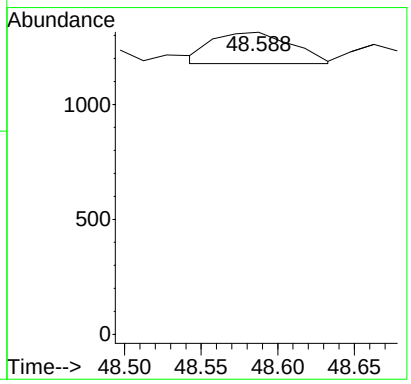
Tgt Ion:191 Resp: 464

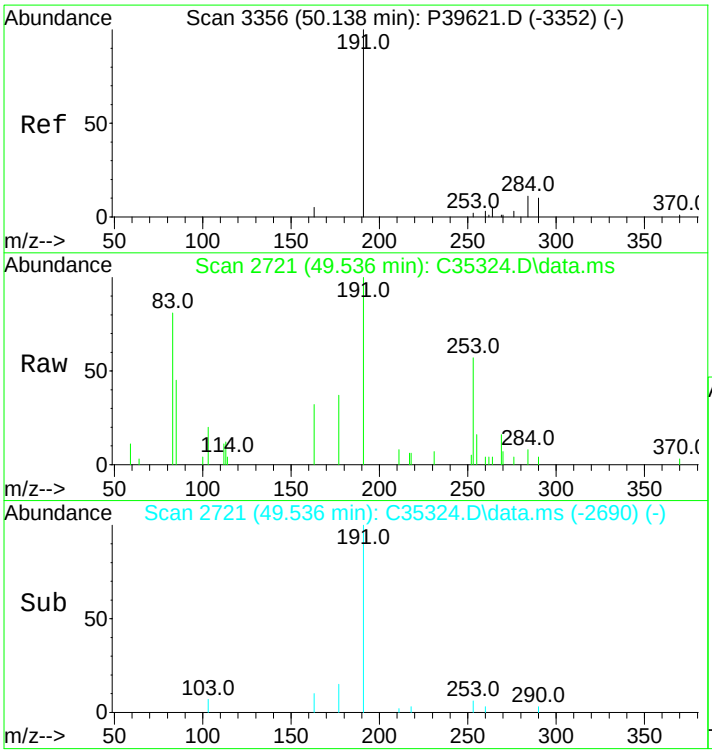




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 22.66 ng/ml m
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

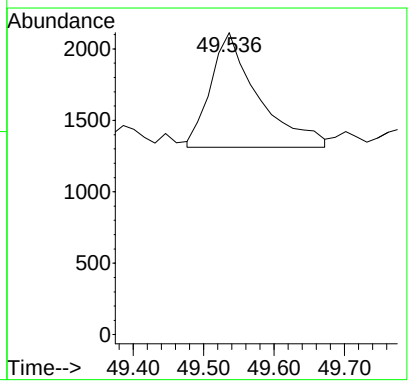
Tgt Ion:191 Resp: 494

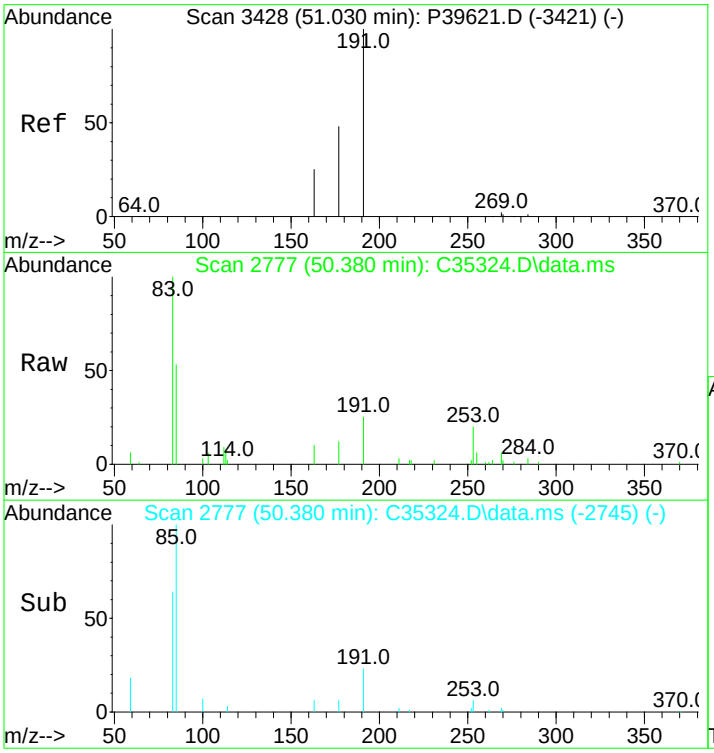




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 173.54 ng/ml m
RT: 49.536 min Scan# 2721
Delta R.T. -0.030 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

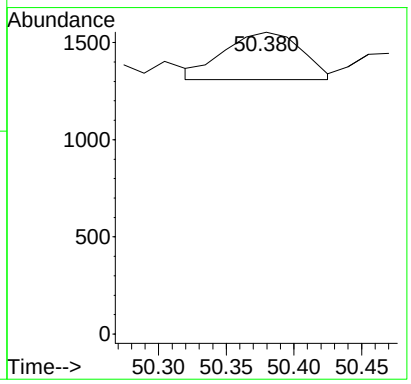
Tgt Ion:191 Resp: 3783

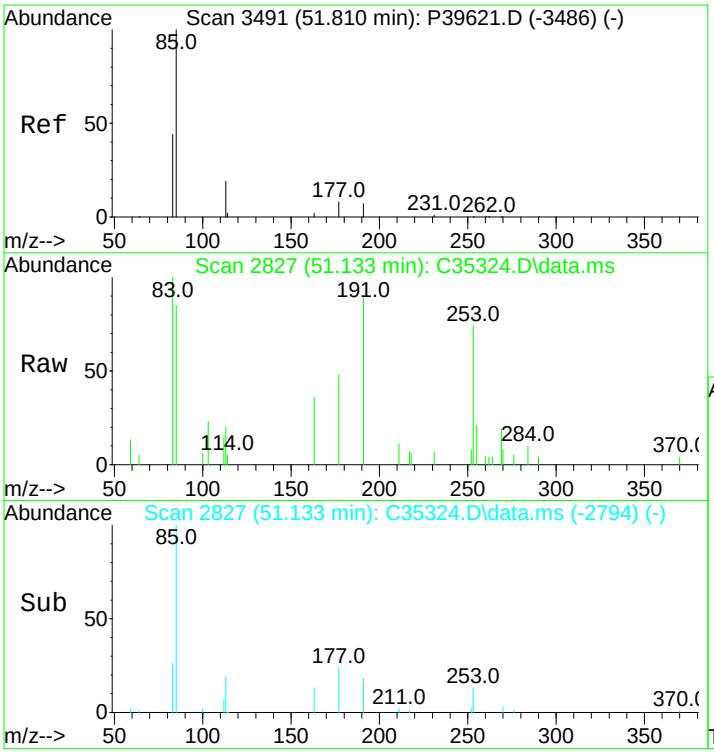




#110
30-Norhopane (T15)
Concen: 44.13 ng/ml m
RT: 50.380 min Scan# 2777
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

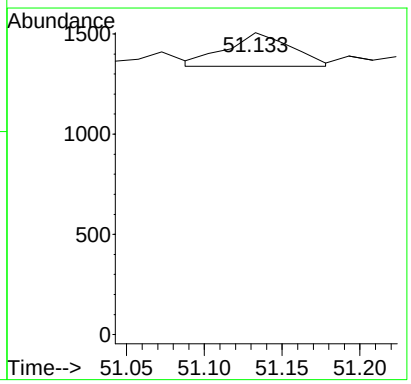
Tgt Ion:191 Resp: 962

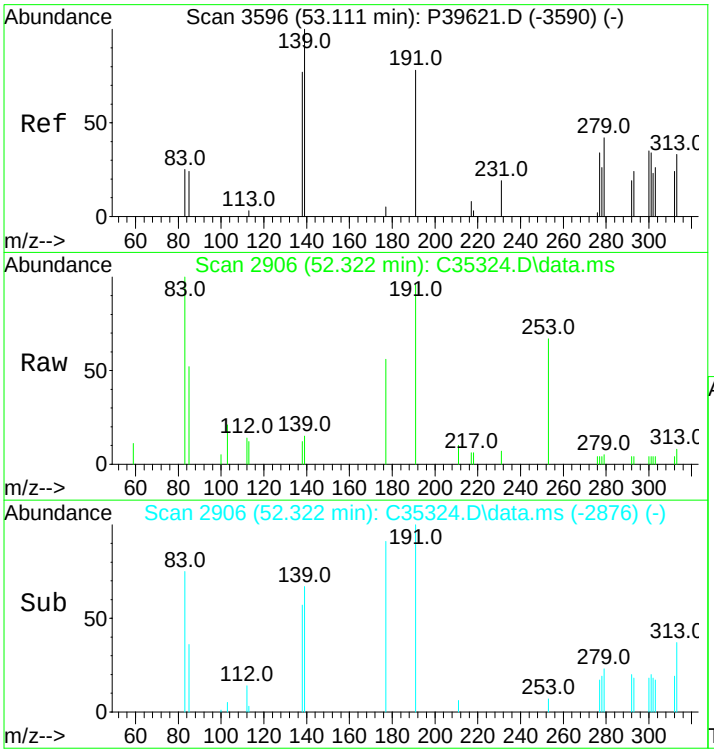




#113
30-Normoretane (T17)
Concen: 21.97 ng/ml m
RT: 51.133 min Scan# 2827
Delta R.T. 0.000 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

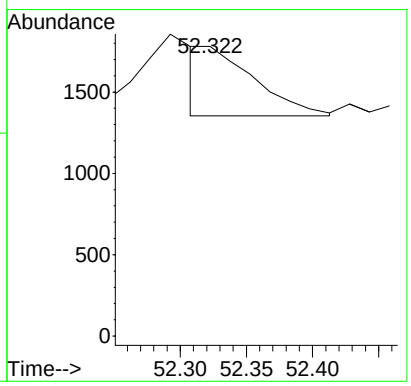
Tgt Ion:191 Resp: 479

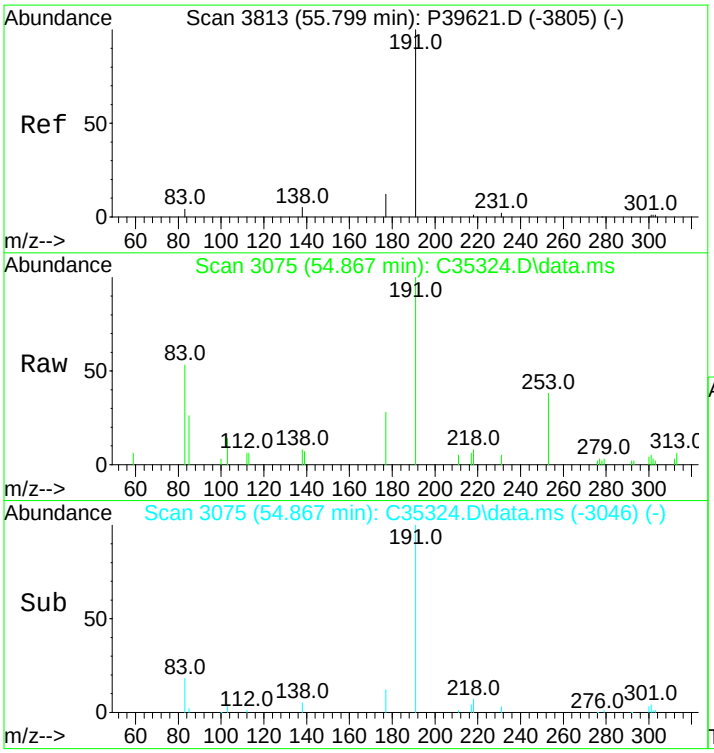




#115
Moretane (T20)
Concen: 54.59 ng/ml m
RT: 52.322 min Scan# 2906
Delta R.T. -0.045 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

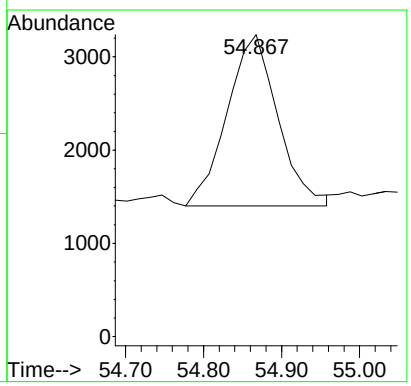
Tgt Ion:191 Resp: 1190

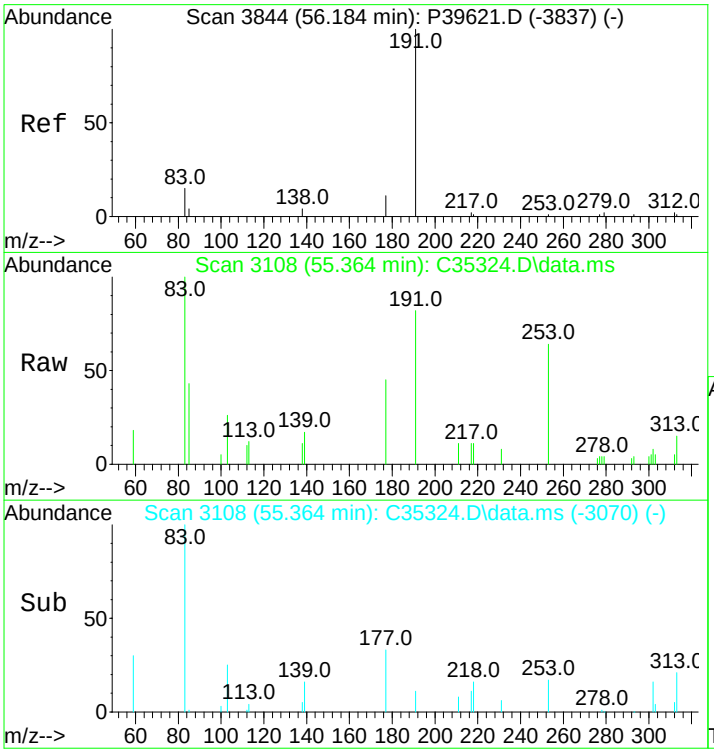




#119
30,31-Bishomohopane-22S (T26)
Concen: 380.80 ng/ml
RT: 54.867 min Scan# 3075
Delta R.T. -0.060 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

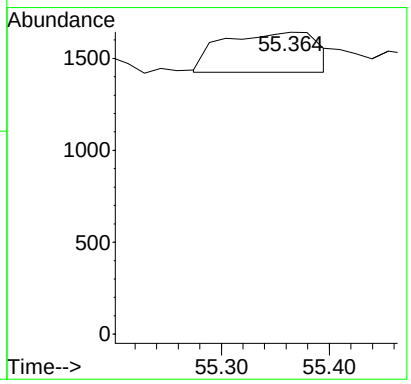
Tgt Ion:191 Resp: 8301

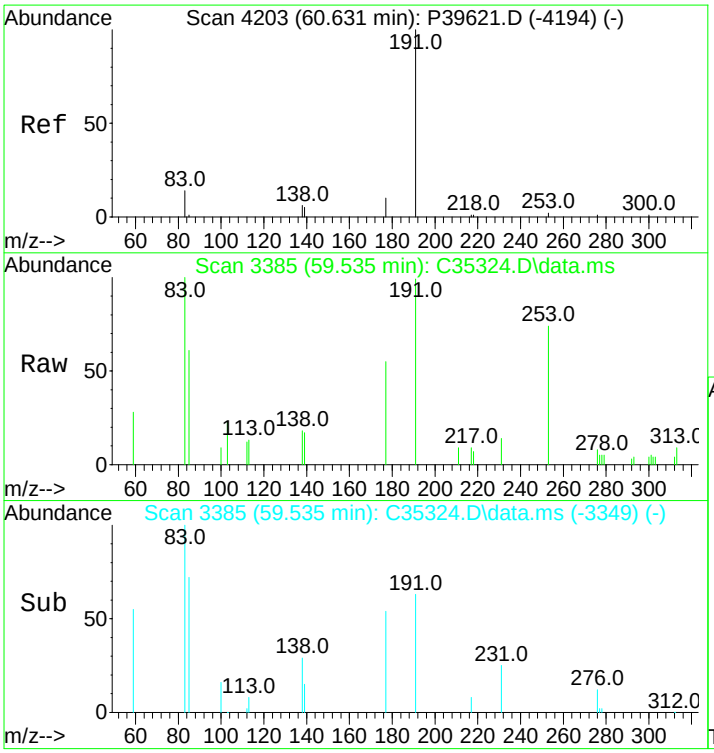




#120
30,31-Bishomohopane-22R (T27)
Concen: 61.47 ng/ml m
RT: 55.364 min Scan# 3108
Delta R.T. 0.075 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

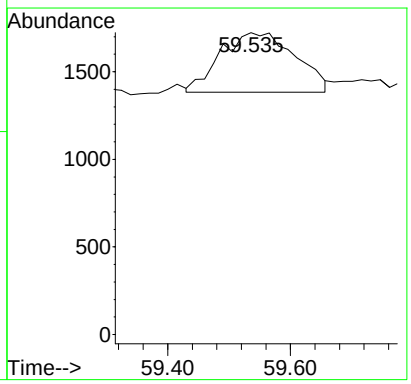
Tgt Ion:191 Resp: 1340

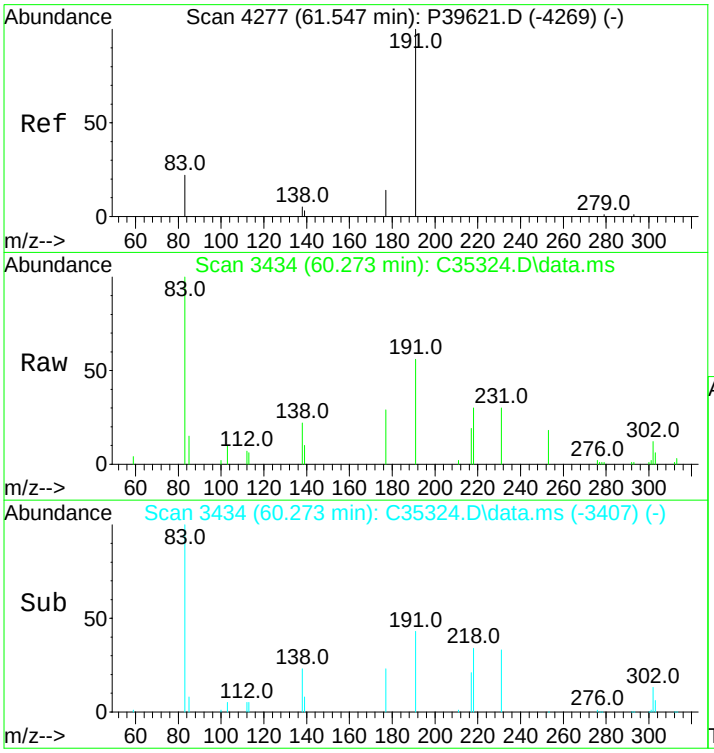




#123
Tetrakishomohopane-22S (T32)
Concen: 132.81 ng/ml m
RT: 59.535 min Scan# 3385
Delta R.T. 0.045 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

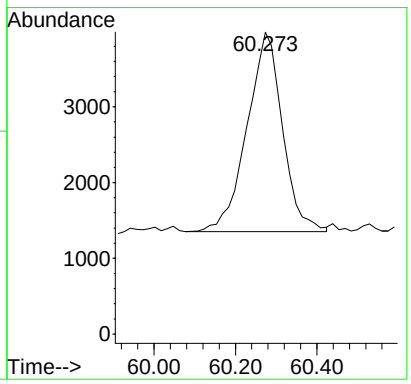
Tgt Ion:191 Resp: 2895

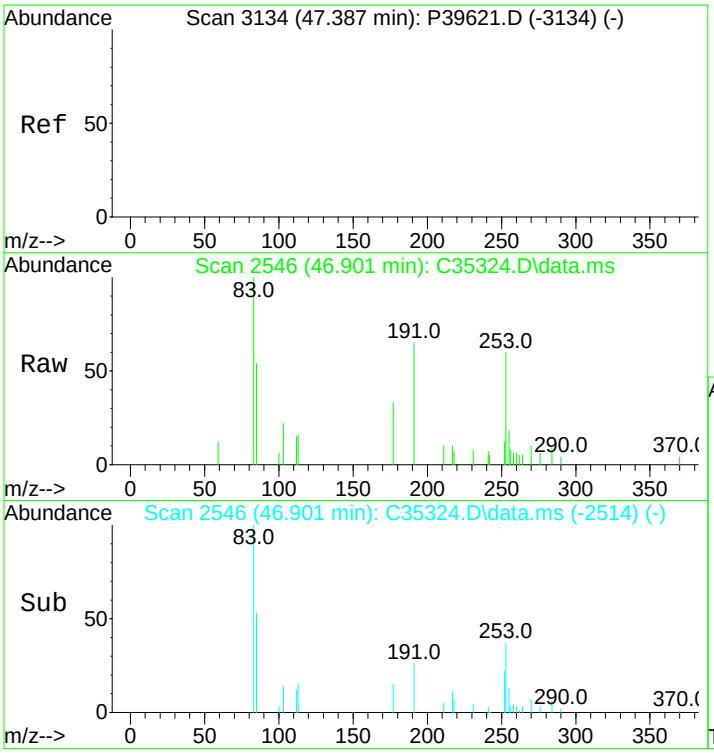




#124
Tetrakishomohopane-22R (T33)
Concen: 730.78 ng/ml
RT: 60.273 min Scan# 3434
Delta R.T. -0.090 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

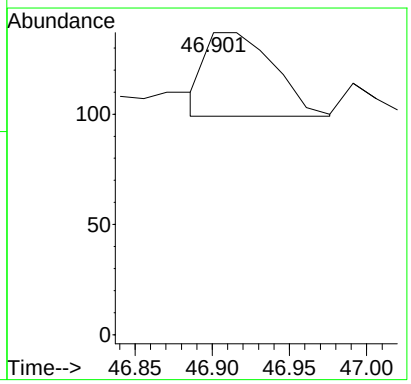
Tgt Ion:191 Resp: 15930

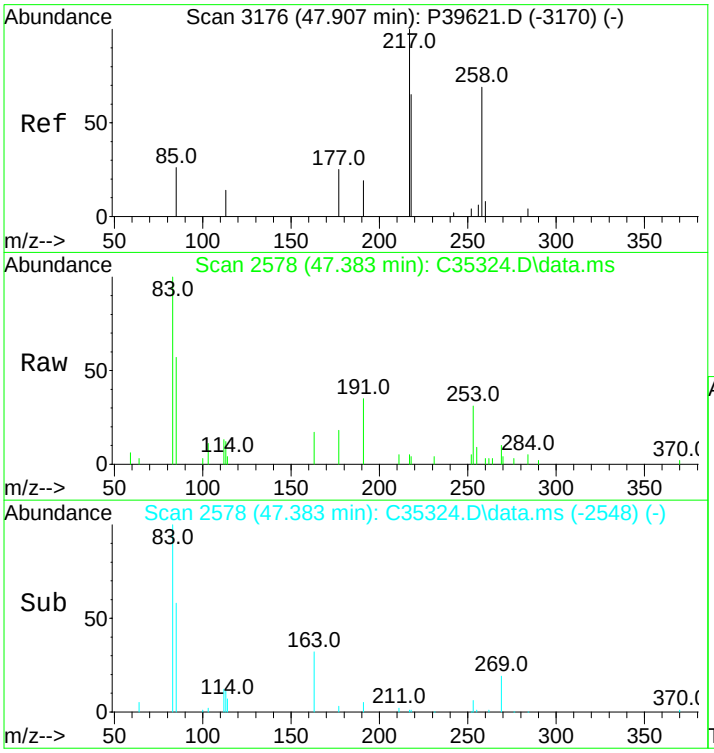




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 11.31 ng/ml m
RT: 46.901 min Scan# 2546
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

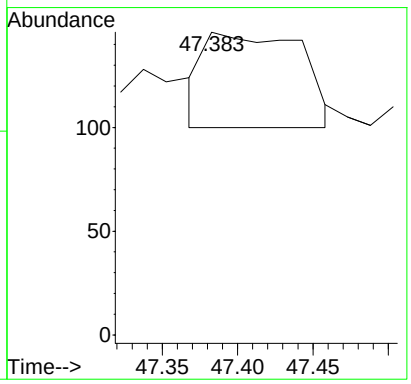
Tgt Ion:217 Resp: 117

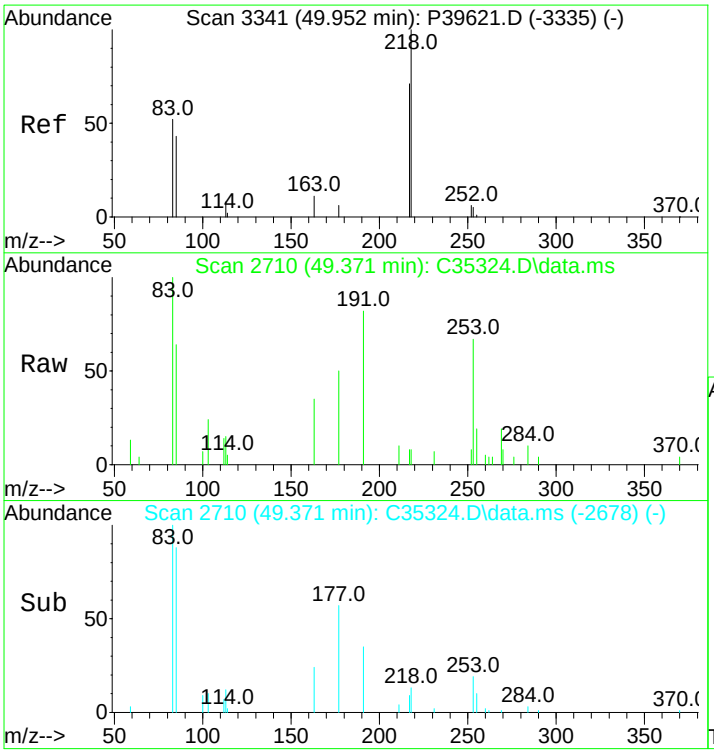




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 19.63 ng/ml m
RT: 47.383 min Scan# 2578
Delta R.T. -0.045 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

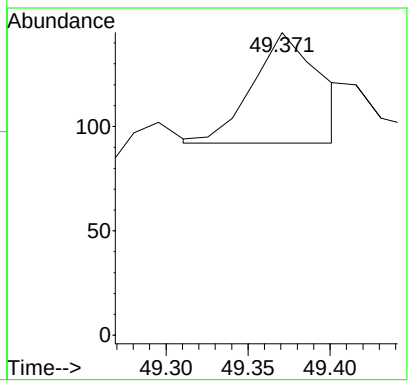
Tgt Ion:217 Resp: 203

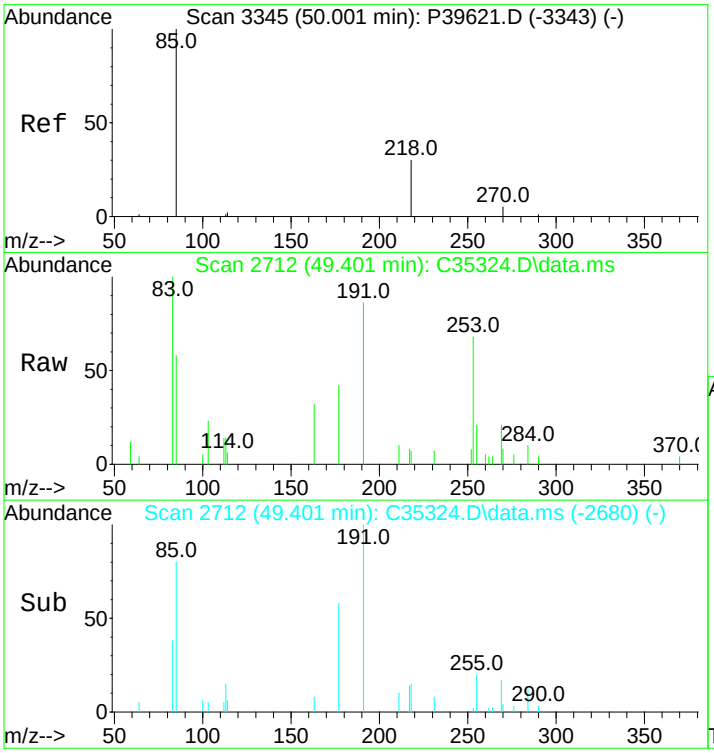




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 14.70 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

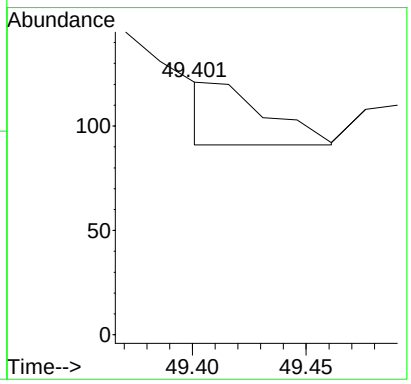
Tgt Ion:218 Resp: 152

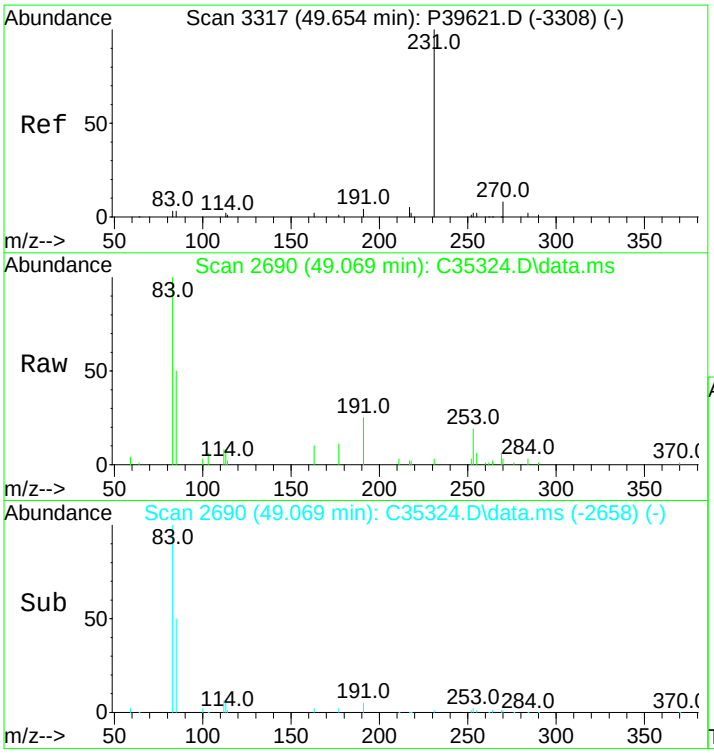




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 4.84 ng/ml m
RT: 49.401 min Scan# 2712
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

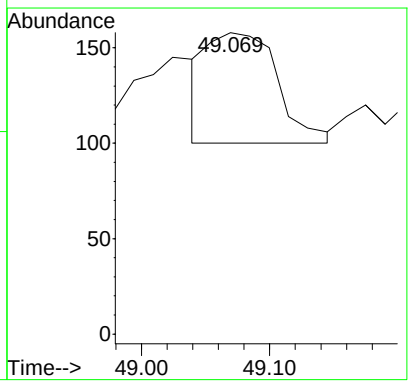
Tgt Ion:218 Resp: 50

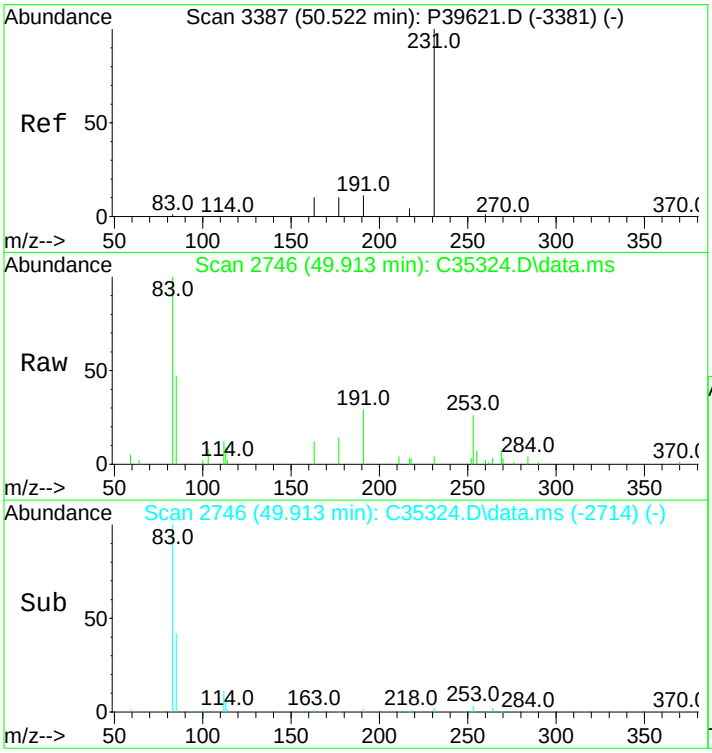




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 21.37 ng/mL m
RT: 49.069 min Scan# 2690
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

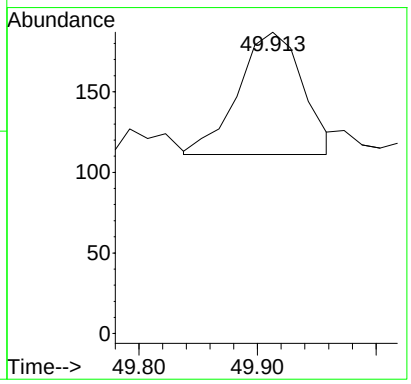
Tgt Ion:231 Resp: 221

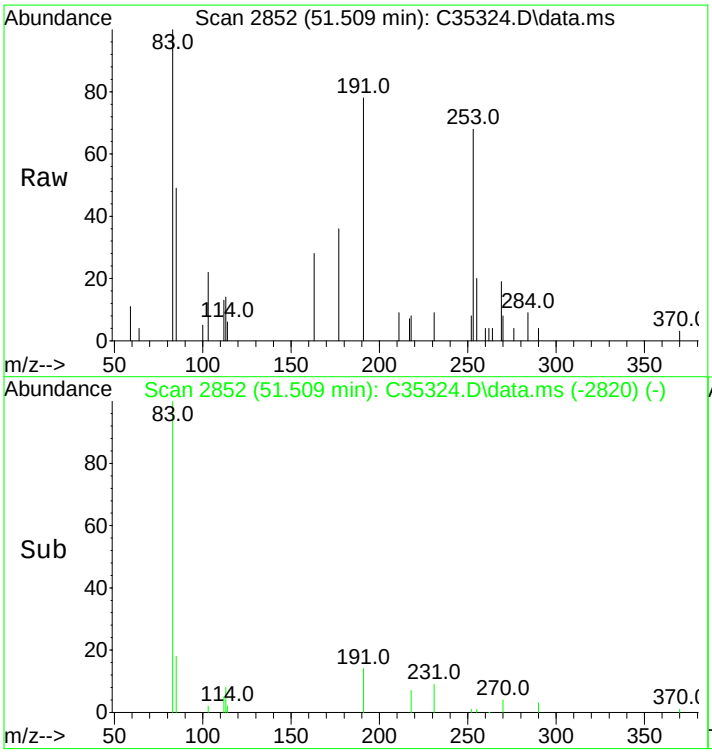




#146
C28,20S-triaromatic steroid
Concen: 27.85 ng/mL m
RT: 49.913 min Scan# 2746
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

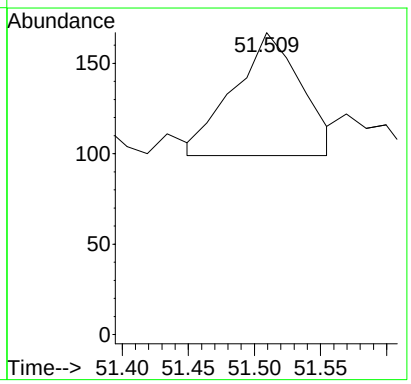
Tgt Ion:231 Resp: 288





#148
C28,20R-triaromatic steroid
Concen: 23.31 ng/mL m
RT: 51.509 min Scan# 2852
Delta R.T. -0.015 min
Lab File: C35324.D
Acq: 26 May 2012 6:32 am

Tgt Ion:231 Resp: 241



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	16795	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	37326	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	19819	271.886	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 27.19%#			
42) Phenanthrene-d10	32.221	188	21994	381.728	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 38.17%#			
86) Benzo[a]pyrene-d12	47.850	264	28894	373.524	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 37.35%#			
127) 5B(H)Cholane - Surr	43.422	217	4841	414.824	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 41.48%#			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	205M3	15.462	ng/mL	
5) C1-Decalins	17.558	152	269M5	20.289	ng/mL	
10) Naphthalene	19.485	128	8442	78.866	ng/mL#	100
11) C1-Naphthalenes	22.180	142	11343M5	105.967	ng/mL	
12) C2-Naphthalenes	25.010	156	16090M5	150.314	ng/mL	
13) C3-Naphthalenes	28.563	170	13476M5	125.894	ng/mL	
14) C4-Naphthalenes	31.363	184	8331M5	77.829	ng/mL	
16) 2-Methylnaphthalene	22.180	142	6400	101.119	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	5030	81.079	ng/mL#	100
18) Benzothiophene	19.711	134	189M3	1.962	ng/mL	
19) C1-Benzo(b)thiophenes	22.345	148	597M5	6.198	ng/mL	
20) C2-Benzo(b)thiophenes	24.393	162	1170M5	12.146	ng/mL	
21) C3-Benzo(b)thiophenes	26.831	176	1096M5	11.378	ng/mL	
23) Biphenyl	24.046	154	1537	19.198	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	3564	68.538	ng/mL#	100
25) Dibenzofuran	27.132	168	10168	110.598	ng/mL	98
26) Acenaphthylene	25.747	152	4251	40.006	ng/mL#	100
27) Acenaphthene	26.485	153	8897	142.205	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.036	170	1196M3	28.532	ng/mL	
29) Fluorene	28.502	166	12859	186.358	ng/mL	100
30) C1-Fluorenes	30.730	180	4288M5	62.144	ng/mL	
31) C2-Fluorenes	33.651	194	6768M5	98.085	ng/mL	
32) C3-Fluorenes	35.563	208	17875M5	259.052	ng/mL	
33) Dibenzothiophene	31.814	184	10317	93.275	ng/mL#	93
34) 4-Methyldibenzothiophene(	33.591	198	2447	22.123	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.907	198	2899M3	26.210	ng/mL	
36) 1-Methyldibenzothiophene(	34.359	198	990	8.950	ng/mL#	100
37) OTP	33.997	198	5252M3	47.483	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	13161M5	118.987	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	7909m	71.504	ng/mL	
39) C2-Dibenzothiophenes	35.277	212	8939M5	80.816	ng/mL	
40) C3-Dibenzothiophenes	37.084	226	9599M5	86.783	ng/mL	
41) C4-Dibenzothiophenes	40.562	240	8391M5	75.862	ng/mL	
43) Phenanthrene	32.311	178	192751	1983.462	ng/mL	100
44) 3-Methylphenanthrene(3MP)	34.268	192	17621	181.325	ng/mL	97
45) 2-Methylphenanthrene(2MP)	34.389	192	22049	226.890	ng/mL	98
46) 2-Methylanthracene(2MA)	34.539	192	6107	62.843	ng/mL#	40
47) 9/4-Methylphenanthrene(9M	34.720	192	13660M3	140.565	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.810	192	11471M3	118.040	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	72024M5	741.147	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.542	206	41962M5	431.801	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.542	206	41962m	431.801	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.379	220	21057M5	216.682	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.297	234	11482M5	118.153	ng/mL	
54) Retene	39.297	234	1053M3	55.548	ng/mL	
55) Anthracene	32.492	178	32886M3	346.452	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) Carbazole	33.169	167	21393	223.118	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	11531M3	187.240	ng/mL	
58) Fluoranthene	37.084	202	337449	3496.333	ng/mL	96
59) Benzo(b)fluorene	39.598	216	12505M3	223.327	ng/mL	
60) Pyrene	37.957	202	266199	2713.269	ng/mL	97
61) C1-Fluoranthenes/Pyrenes	39.357	216	109861M5	1119.773	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.405	230	101160M5	1031.087	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.904	244	39842M5	406.095	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.582	258	32708M5	333.381	ng/mL	
66) Naphthobenzothiophene	41.811	234	27656	261.833	ng/ml#	70
67) Naphthobenzothiophene-2,1	41.811	234	27656	261.833	ng/mL#	70
68) Naphthobenzothiophene-1,2	42.158	234	6006	56.862	ng/mL#	21
69) Naphthobenzothiophene-2,3	42.444	234	6062M3	57.392	ng/mL	
70) C1-Naphthobenzothiophenes	43.212	248	21513M5	203.674	ng/ml	
71) C2-Naphthobenzothiophenes	44.717	262	17427M5	164.990	ng/ml	
72) C3-Naphthobenzothiophenes	46.825	276	15002M5	142.031	ng/ml	
73) C4-Naphthobenzothiophenes	47.880	290	12447M5	117.842	ng/mL	
75) Benz[a]anthracene	42.745	228	121662	1026.926	ng/mL	93
77) Chrysene/Triphenylene	42.895	228	159787	1335.929	ng/mL	99
78) C1-Chrysenes	44.386	242	57943M5	484.443	ng/mL	
79) C2-Chrysenes	46.088	256	33259M5	278.068	ng/mL	
79) C2-Chrysenes BS	46.088	256	33259m	278.068	ng/mL	
80) C3-Chrysenes	46.886	270	35347M5	295.525	ng/mL	
81) C4-Chrysenes	48.060	284	22620M5	189.119	ng/mL	
82) Benzo[b]fluoranthene	46.795	252	168927	1297.670	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	140850	993.796	ng/mL	92
84) Benzo[a]fluoranthene	47.157	252	27640	195.020	ng/mL#	1
85) Benzo[e]pyrene	47.759	252	110317M3	856.755	ng/mL	
87) Benzo[a]pyrene	47.940	252	136870	1104.053	ng/mL	90
88) Perylene	48.241	252	58030	437.996	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.594	276	115924M3	803.533	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	34141M3	248.771	ng/mL	
91) Benzo[g,h,i]perylene	53.843	276	111550	731.861	ng/mL	99
92) Hopane (T19)	51.705	191	22444M3	912.340	ng/mL	
94) C23 Tricyclic Terpane (T4	40.456	191	3052M3	124.063	ng/ml	
95) C24 Tricyclic Terpane (T5	41.179	191	2476M3	100.648	ng/ml	
96) C25 Tricyclic Terpane (T6	42.700	191	2047M3	83.210	ng/ml	
97) C24 Tetracyclic Terpane (	43.979	191	2201M3	89.470	ng/ml	
98) C26 Tricyclic Terpane-22S	43.723	191	1427M3	58.007	ng/ml	
99) C26 Tricyclic Terpane-22R	43.829	191	1412M3	57.397	ng/ml	
100) C28 Tricyclic Terpane-22S	46.118	191	1317M3	53.536	ng/ml	
101) C28 Tricyclic Terpane-22R	46.283	191	2267M3	92.153	ng/ml	
102) C29 Tricyclic Terpane-22S	46.795	191	1681M3	68.332	ng/ml	
103) C29 Tricyclic Terpane-22R	46.976	191	1346	54.714	ng/ml	100
104) 18a-22,29,30-Trisnorneoho	48.060	191	5978	243.003	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.166	191	1914M3	77.803	ng/mL	
106) C30 Tricyclic Terpane-22R	48.407	191	1266M3	51.462	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.588	191	5713	232.231	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.717	191	2003M3	81.421	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.536	191	3261	132.558	ng/ml	100
110) 30-Norhopane (T15)	50.395	191	17621	716.287	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.500	191	6052M3	246.011	ng/ml	
112) 17a(H)-Diahopane (X)	50.621	191	1712M3	69.592	ng/ml	
113) 30-Normoretane (T17)	51.148	191	3000M3	121.949	ng/ml	
114) 18a(H)&18b(H)-Oleananes (	51.524	191	2228	90.567	ng/ml	100
115) Moretane (T20)	52.307	191G	12770M3	519.096	ng/ml	
116) 30-Homohopane-22S (T21)	53.437	191	8146M3	331.132	ng/ml	
117) 30-Homohopane-22R (T22)	53.663	191	6955	282.718	ng/ml	100
118) Gammacerane/C32-diahopane	54.175	191	2358	95.852	ng/mL	100
119) 30,31-Bishomohopane-22S (	54.882	191G	48071M3	1954.067	ng/ml	
120) 30,31-Bishomohopane-22R (	55.319	191	5110M3	207.720	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
121)	30,31-Trishomohopane-22S	56.991	191	5531M3	224.833	ng/ml	
122)	30,31-Trishomohopane-22R	57.578	191	2471	100.445	ng/ml	100
123)	Tetrakishomohopane-22S (T	59.551	191G	22382	909.820	ng/ml	100
124)	Tetrakishomohopane-22R (T	60.319	191G	27731	1127.254	ng/ml	100
125)	Pentakishomohopane-22S (T	62.502	191	2070M3	84.145	ng/ml	
126)	Pentakishomohopane-22R (T	63.737	191	2077M3	84.429	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	1751	150.043	ng/ml	100
129)	13b(H),17a(H)-20R-Diachol	45.365	217	1269M3	108.740	ng/ml	
130)	13b,17a-20S-Methyldiachol	46.057	217	1124M3	96.315	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.916	217	4048	346.872	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.428	217	4058M3	347.729	ng/ml	
133)	Unknown Sterane (S18)	47.699	217	810	69.409	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	47.940	217	70M3	5.998	ng/ml	
135)	14a,17a-20S-Methylcholest	48.106	217	1517M3	129.991	ng/ml	
136)	14a,17a-20R-Methylcholest	48.798	217	1526M3	130.763	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.130	217	2058M3	176.350	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.018	217	2340M3	200.514	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.006	218	1632M3	139.846	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.097	218	1704M3	146.015	ng/ml	
141)	14b,17b-20R-Methylcholest	48.271	218	1905M3	163.239	ng/ml	
142)	14b,17b-20S-Methylcholest	48.347	218	2575M3	220.651	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	3619M3	310.111	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.401	218	2066M3	177.035	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.100	231	3213M3	275.321	ng/mL	
146)	C28,20S-triaromatic stero	49.928	231	3473M3	297.601	ng/mL	
147)	C27,20R-triaromatic stero	50.365	231	2312M3	198.115	ng/mL	
148)	C28,20R-triaromatic stero	51.524	231	2661M3	228.020	ng/mL	

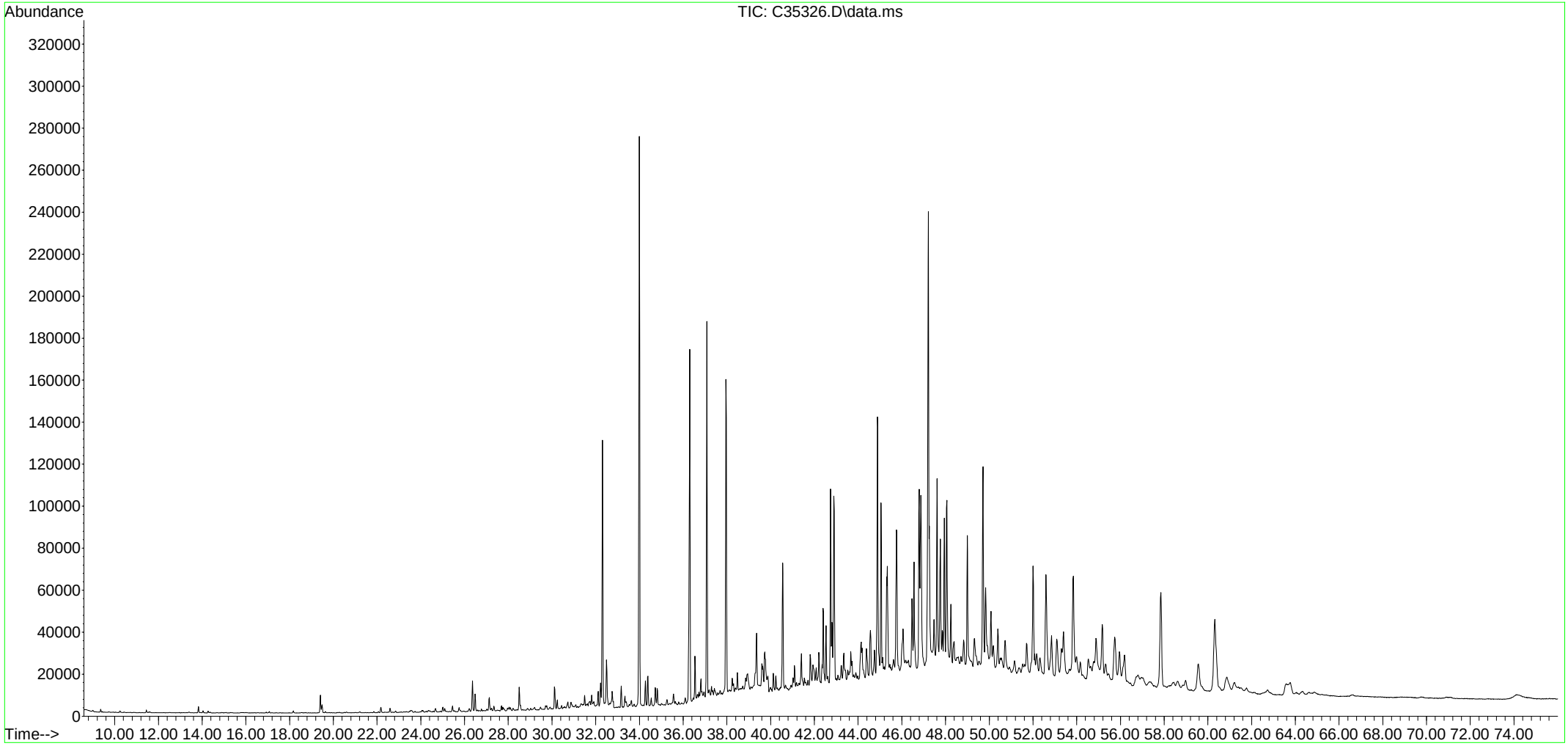
(#) = qualifier out of range (m) = manual integration (+) = signals summed

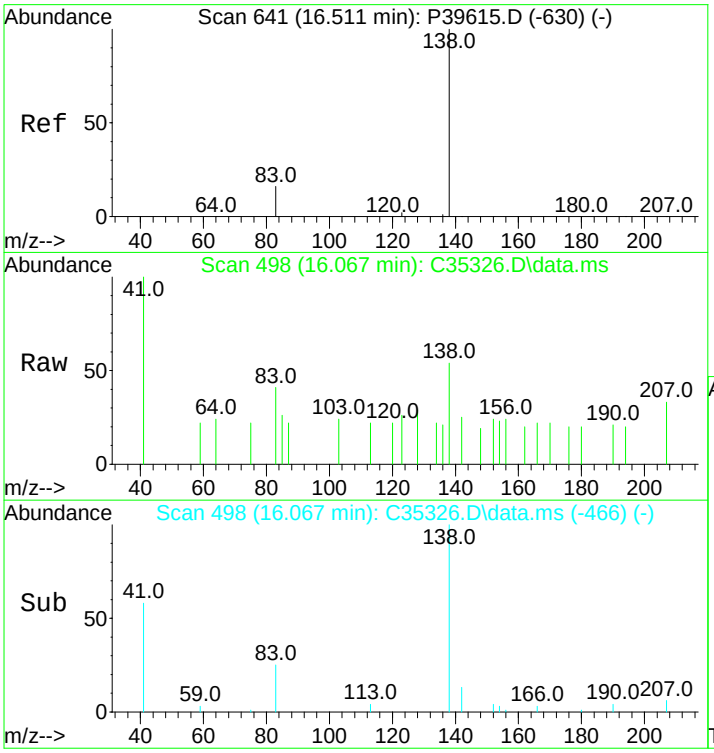
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35326.D
Acq On : 26 May 2012 8:09 am
Operator : AC
Sample : 1205027-08
Misc : 1X
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 29 12:28:02 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

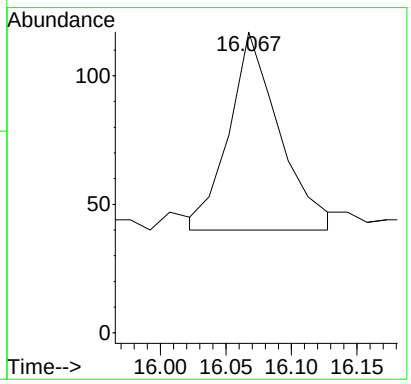
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

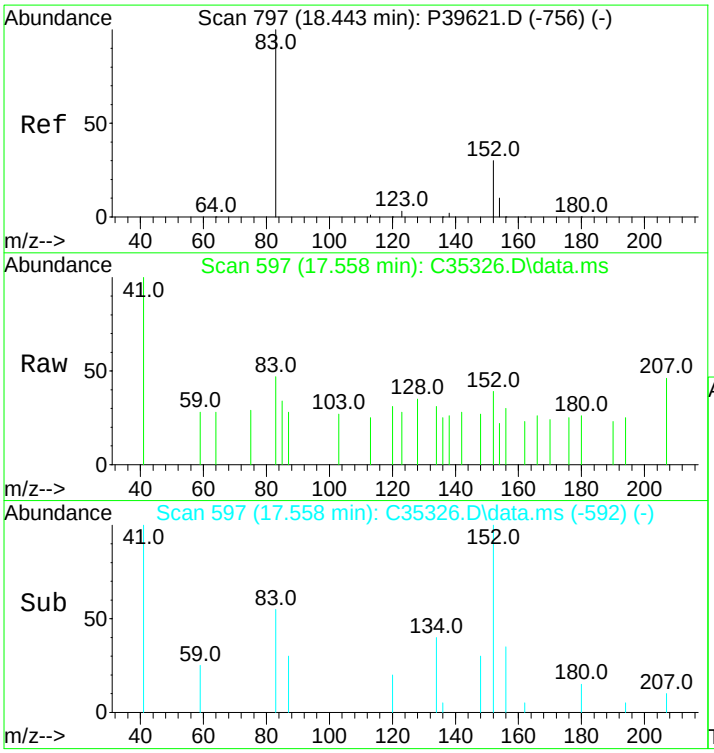




#3
trans-Decalin
Concen: 15.46 ng/mL m
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

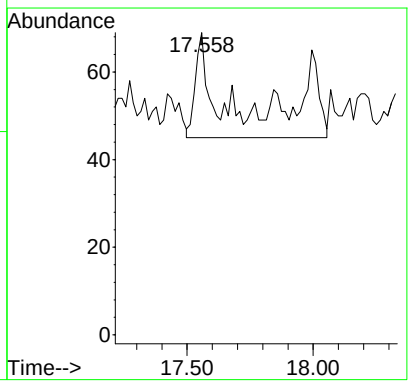
Tgt Ion:138 Resp: 205

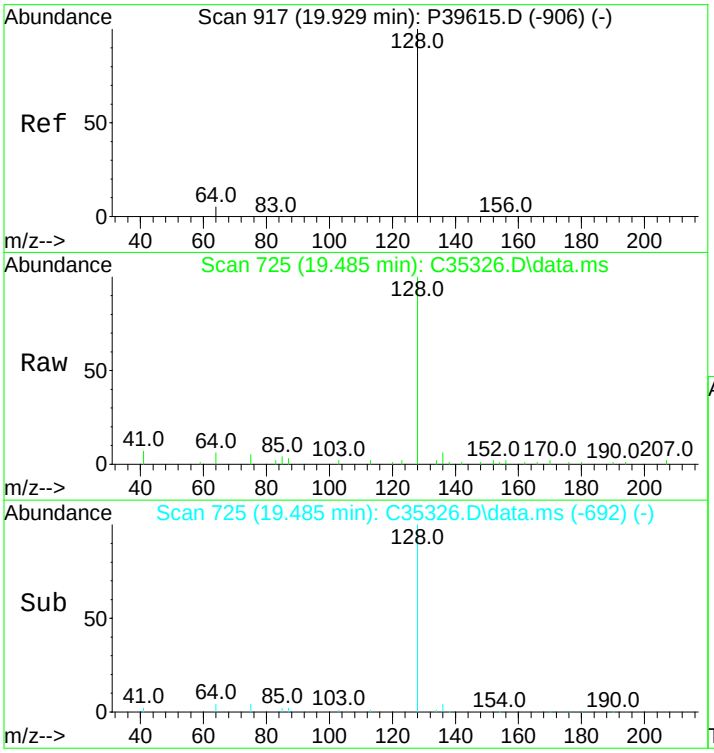




#5
C1-Decalins
Concen: 20.29 ng/mL m
RT: 17.558 min Scan# 597
Delta R.T. -0.452 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:152 Resp: 269

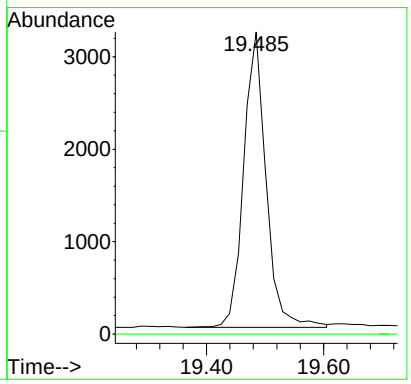


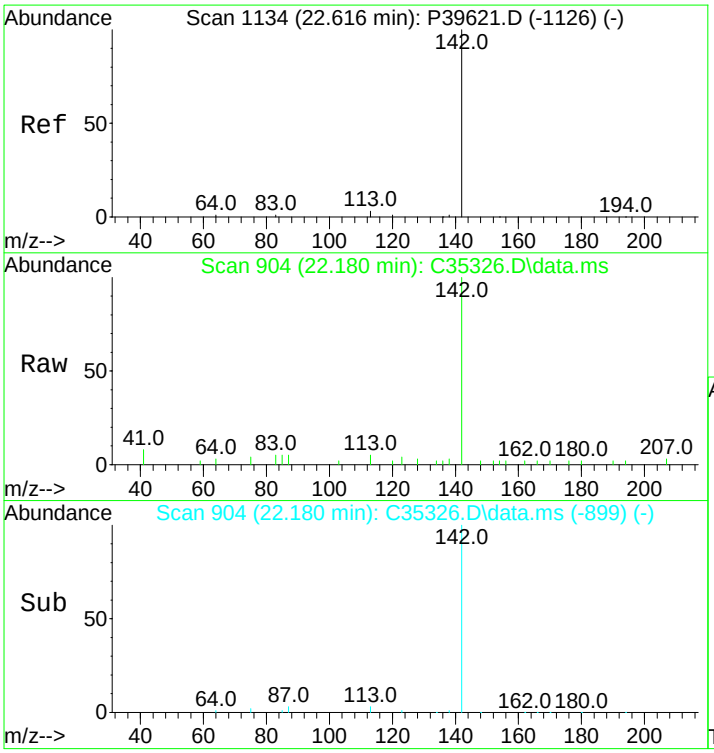


#10
Naphthalene
Concen: 78.87 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:128 Resp: 8442

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

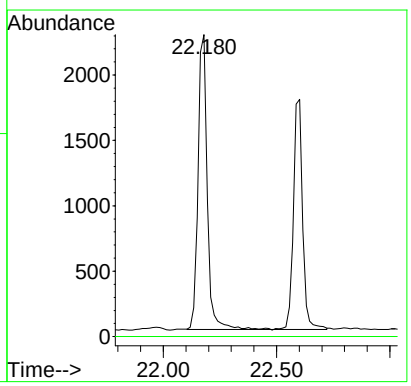


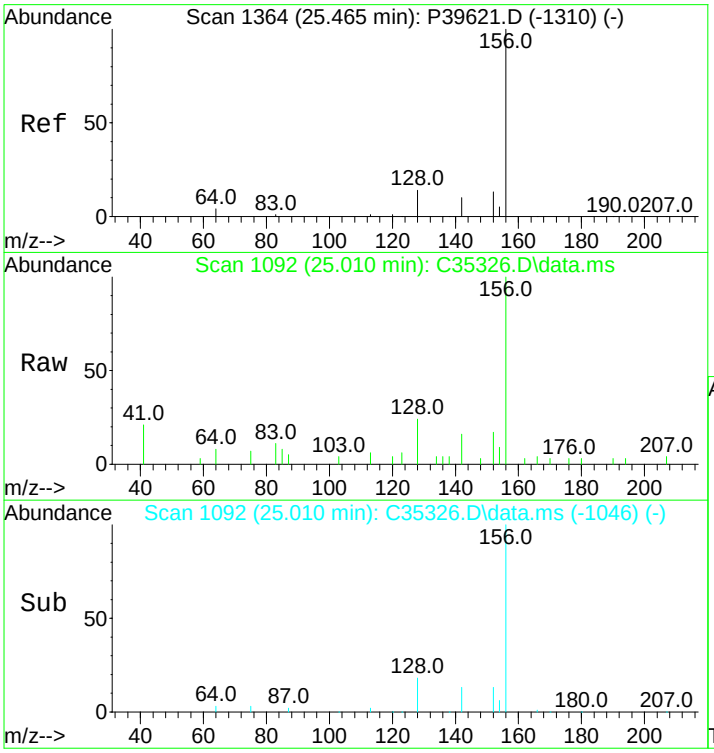


#11
C1-Naphthalenes
Concen: 105.97 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:142 Resp: 11343

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

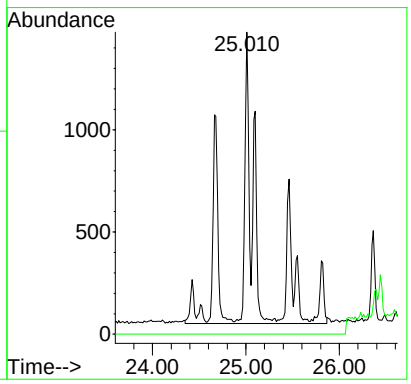


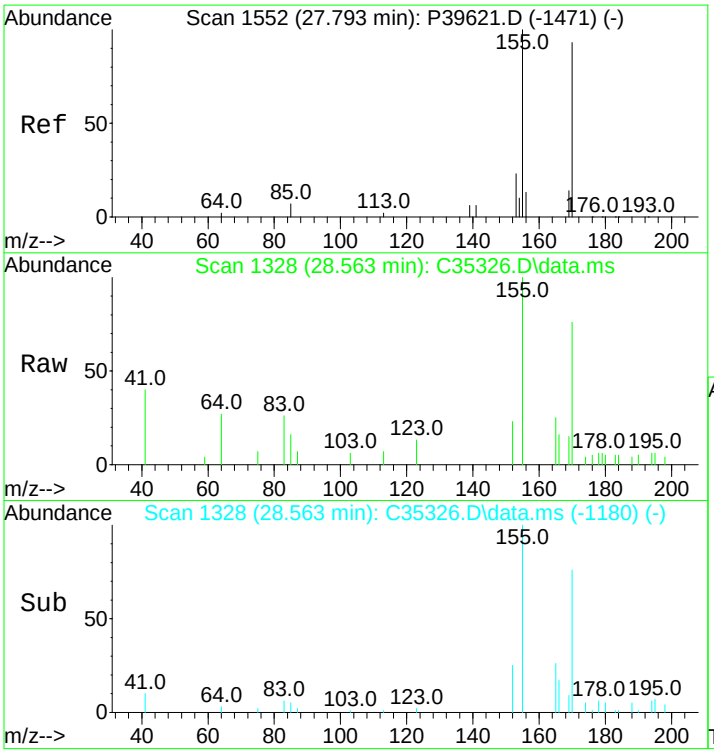


#12
C2-Naphthalenes
Concen: 150.31 ng/mL m
RT: 25.010 min Scan# 1092
Delta R.T. -0.023 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:156 Resp: 16090

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

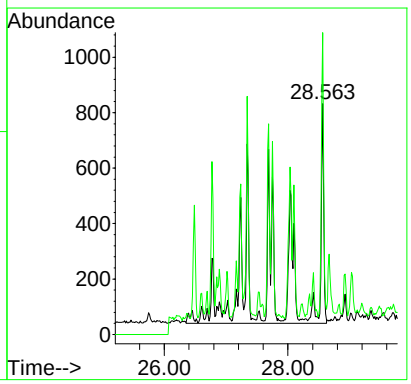


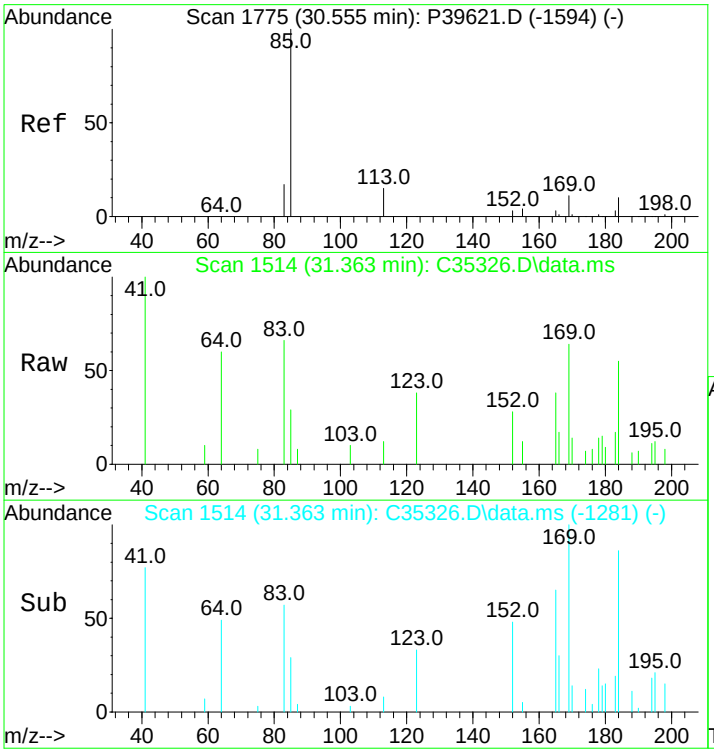


#13
C3-Naphthalenes
Concen: 125.89 ng/mL m
RT: 28.563 min Scan# 1328
Delta R.T. 1.235 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:170 Resp: 13476

Ion	Ratio	Lower	Upper
170	100		
155	15.2	86.3	129.5#

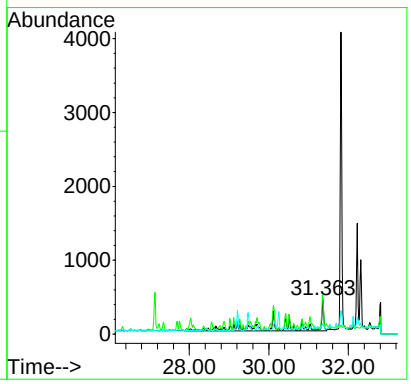


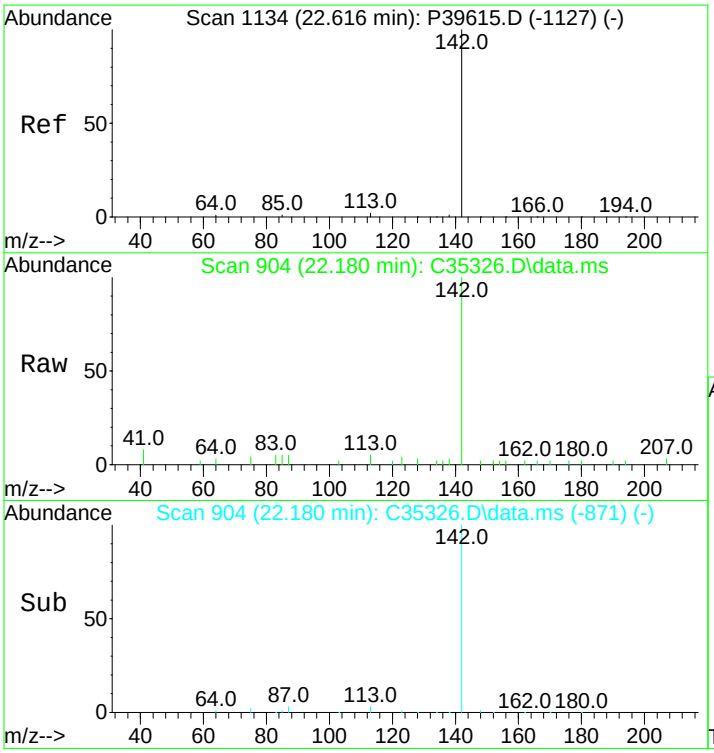


#14
C4-Naphthalenes
Concen: 77.83 ng/mL m
RT: 31.363 min Scan# 1514
Delta R.T. 1.327 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:184 Resp: 8331

Ion	Ratio	Lower	Upper
184	100		
169	14.6	100.6	150.8#
183	0.0	26.6	40.0#

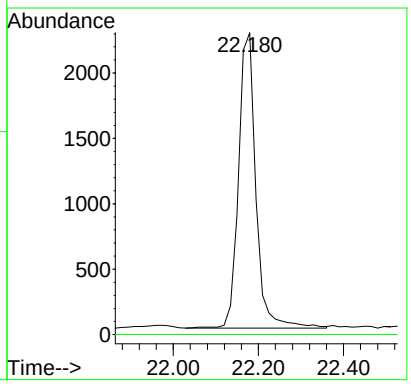


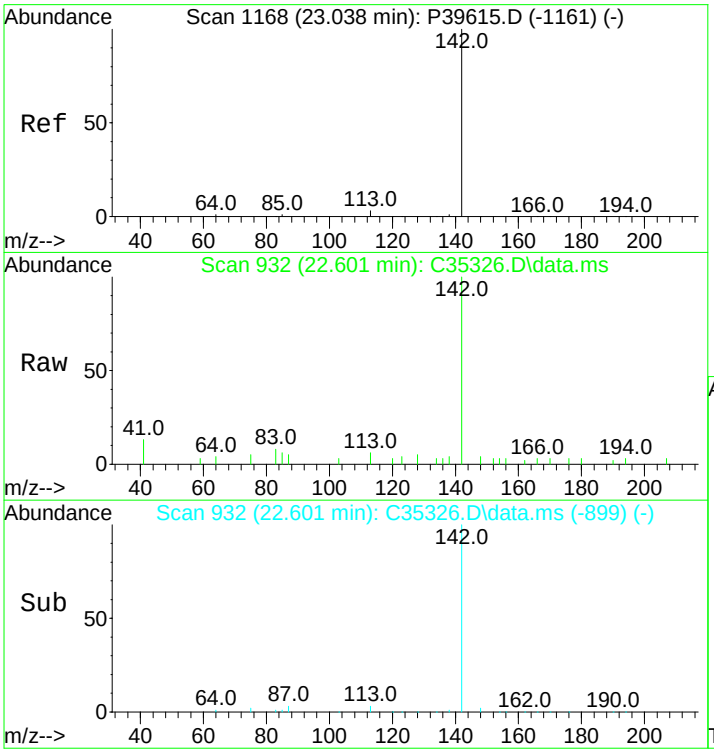


#16
2-Methylnaphthalene
Concen: 101.12 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:142 Resp: 6400

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

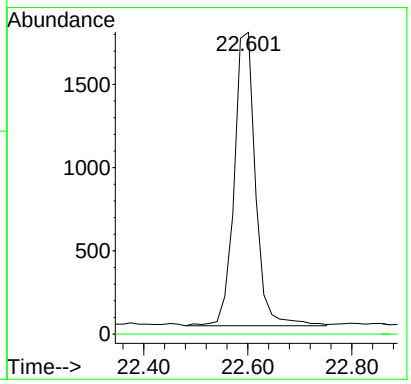


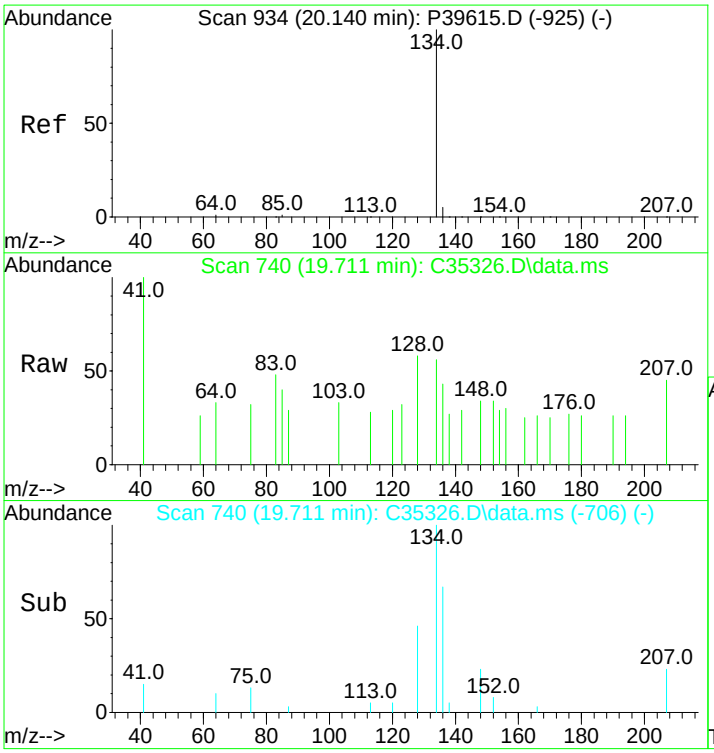


#17
1-Methylnaphthalene
Concen: 81.08 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:142 Resp: 5030

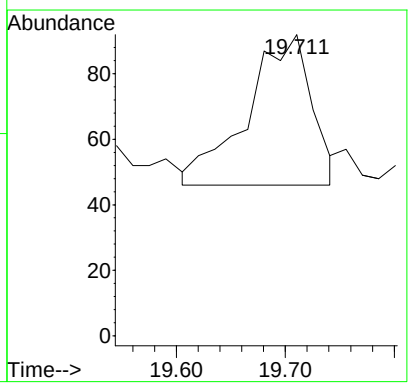
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

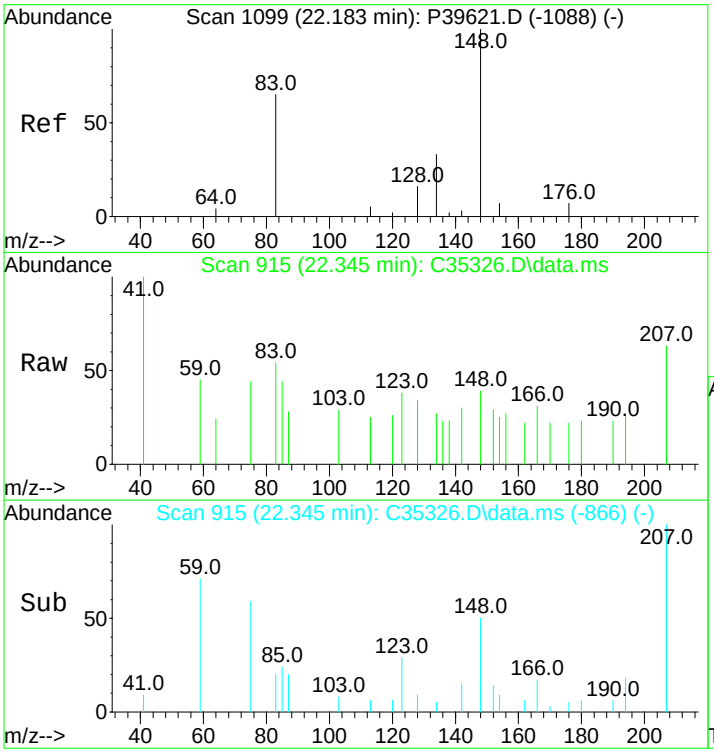




#18
Benzothiophene
Concen: 1.96 ng/mL m
RT: 19.711 min Scan# 740
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

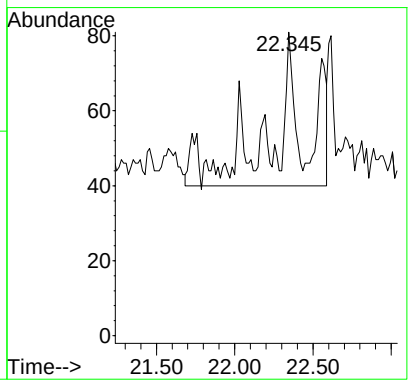
Tgt Ion:134 Resp: 189

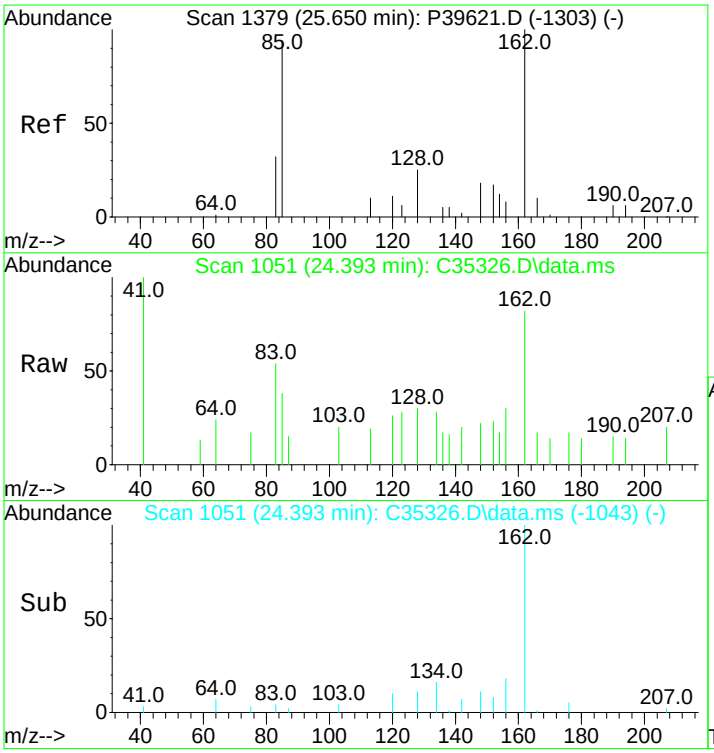




#19
C1-Benzo(b)thiophenes
Concen: 6.20 ng/mL m
RT: 22.345 min Scan# 915
Delta R.T. 0.539 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

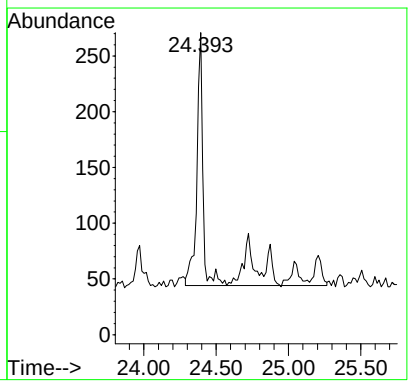
Tgt Ion:148 Resp: 597

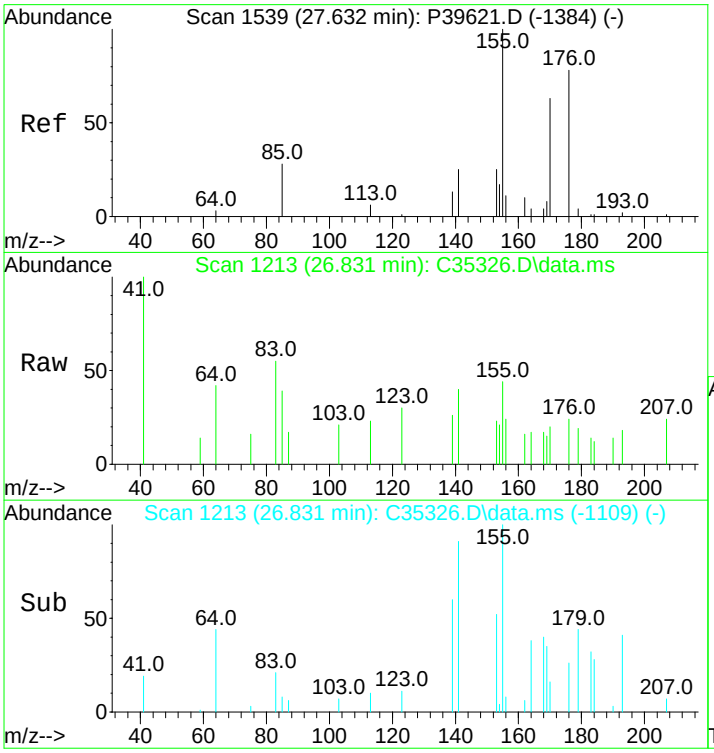




#20
C2-Benzo(b)thiophenes
Concen: 12.15 ng/mL m
RT: 24.393 min Scan# 1051
Delta R.T. -0.833 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

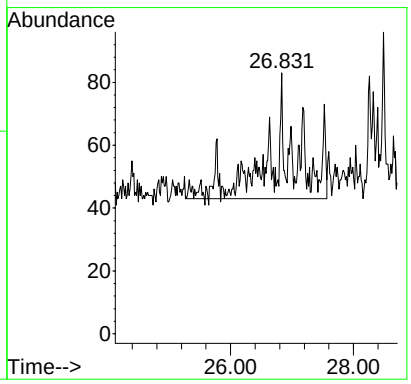
Tgt Ion:162 Resp: 1170

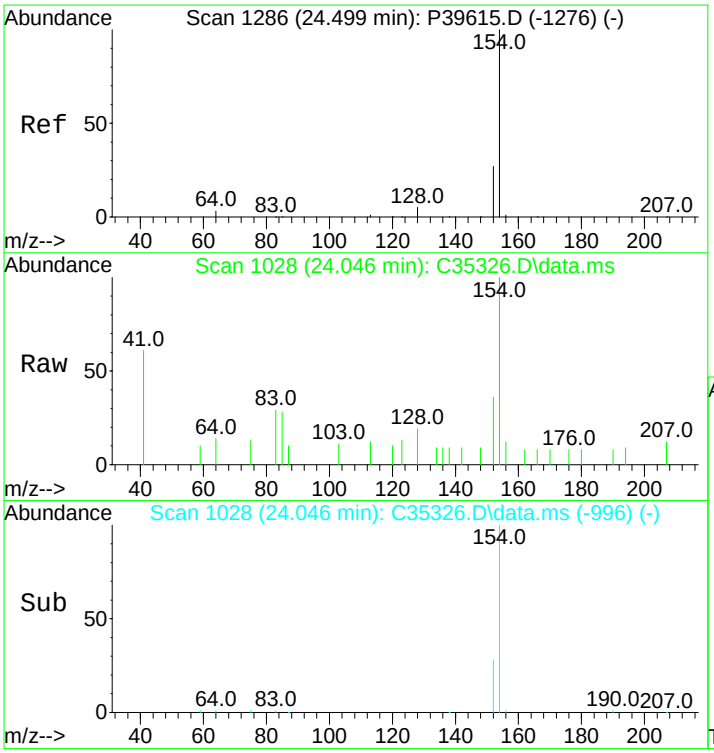




#21
C3-Benzo(b)thiophenes
Concen: 11.38 ng/mL m
RT: 26.831 min Scan# 1213
Delta R.T. -0.333 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:176 Resp: 1096

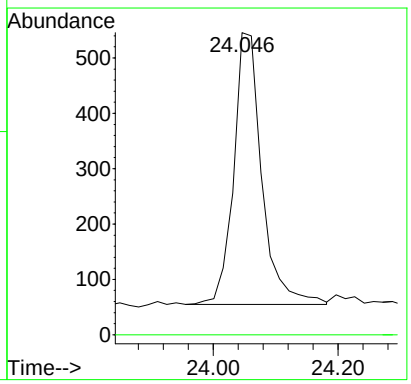


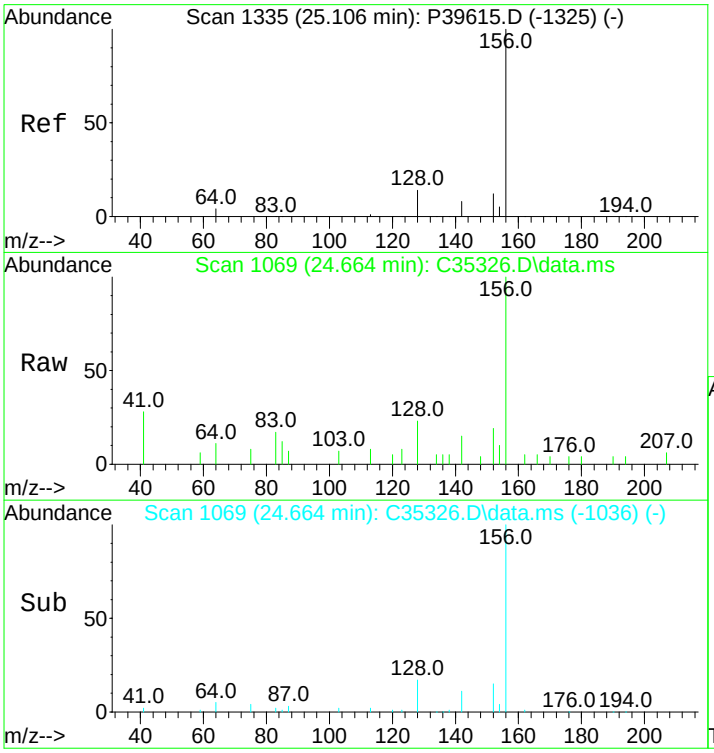


#23
Biphenyl
Concen: 19.20 ng/mL
RT: 24.046 min Scan# 1028
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:154 Resp: 1537

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

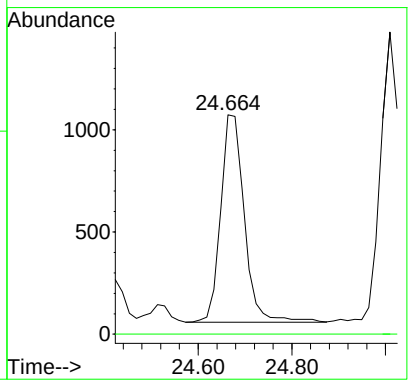


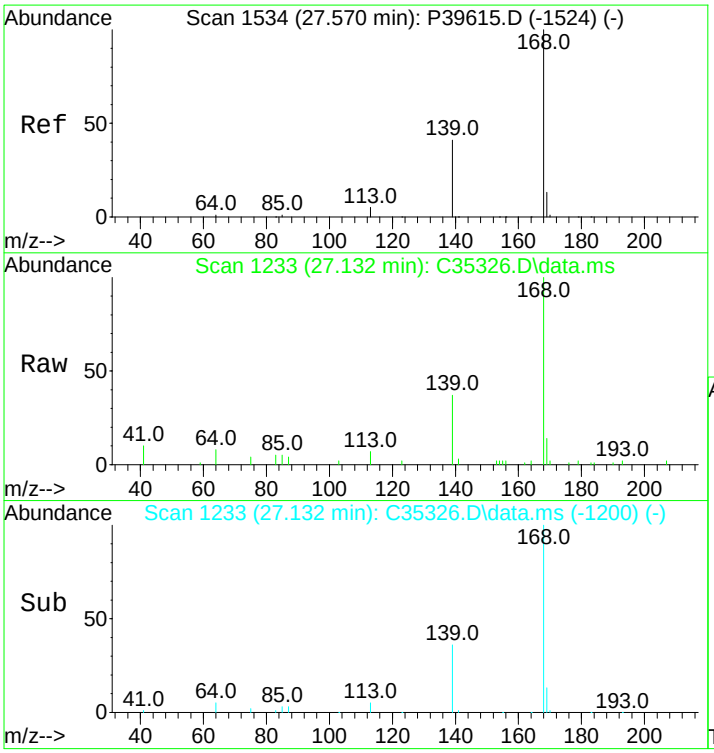


#24
2,6-Dimethylnaphthalene
Concen: 68.54 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:156 Resp: 3564

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

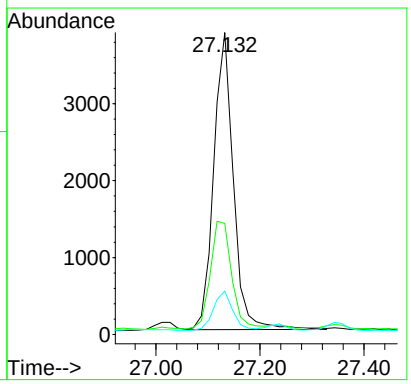


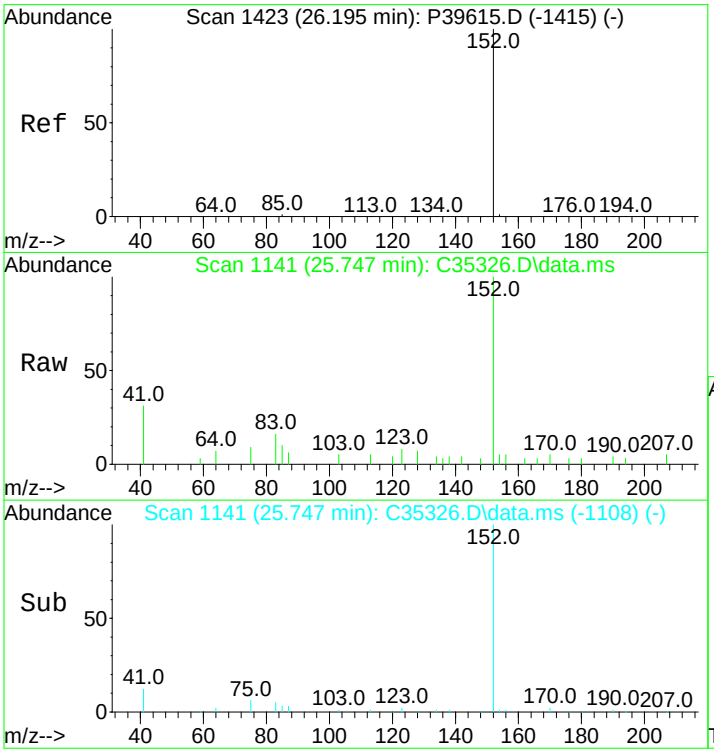


#25
Dibenzofuran
Concen: 110.60 ng/mL
RT: 27.132 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:168 Resp: 10168

Ion	Ratio	Lower	Upper
168	100		
139	39.2	29.9	44.9
169	13.3	10.3	15.5

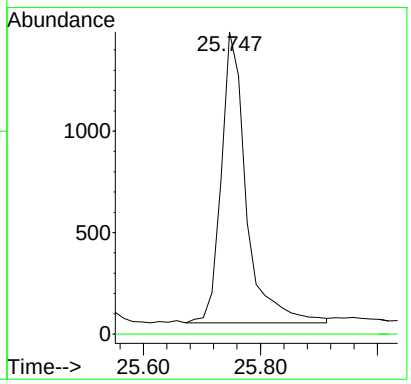


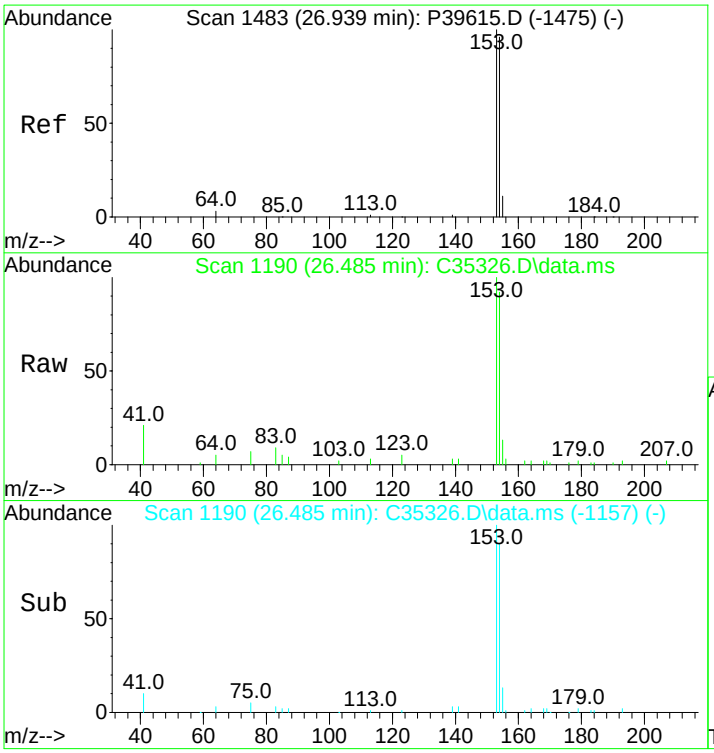


#26
Acenaphthylene
Concen: 40.01 ng/mL
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:152 Resp: 4251

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

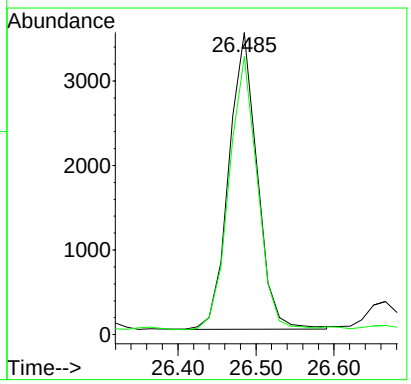


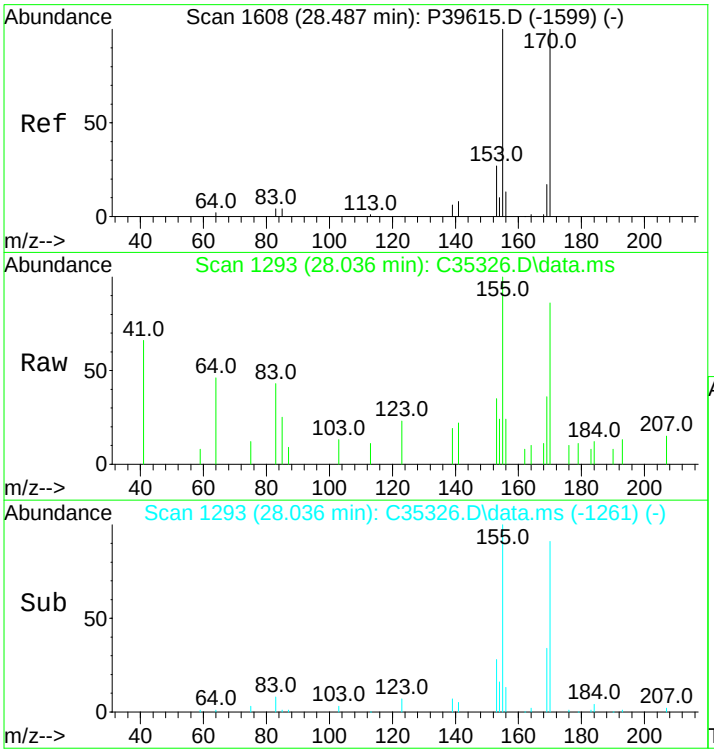


#27
Acenaphthene
Concen: 142.20 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:153 Resp: 8897

Ion	Ratio	Lower	Upper
153	100		
154	91.9	73.3	109.9

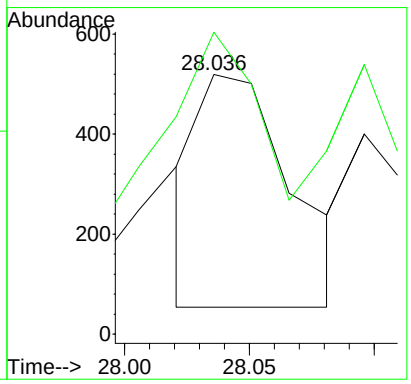


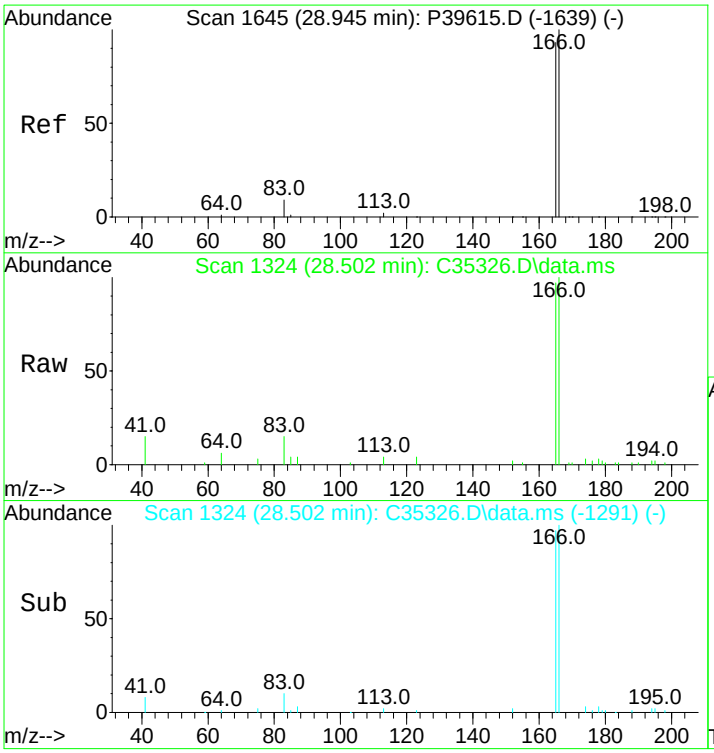


#28
2,3,5-Trimethylnaphthalene
Concen: 28.53 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:170 Resp: 1196

Ion	Ratio	Lower	Upper
170	100		
155	156.3	78.4	117.6#

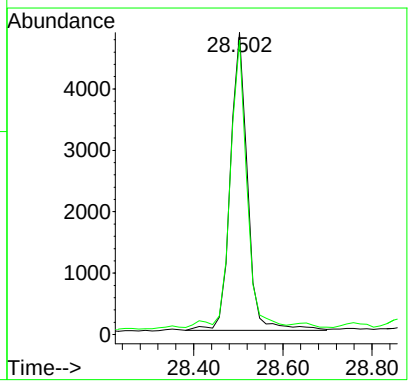


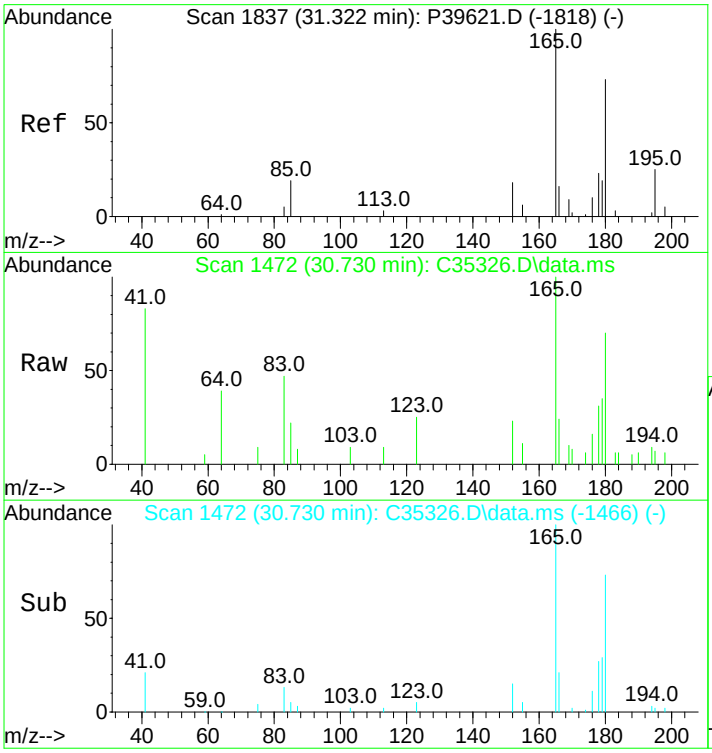


#29
Fluorene
Concen: 186.36 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:166 Resp: 12859

Ion	Ratio	Lower	Upper
166	100		
165	96.2	77.1	115.7

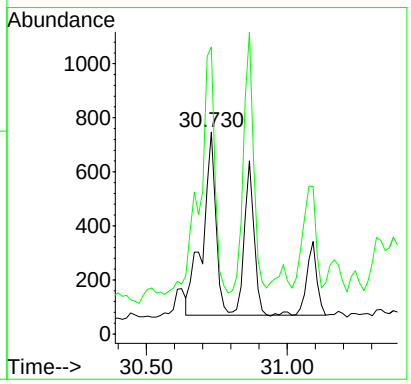


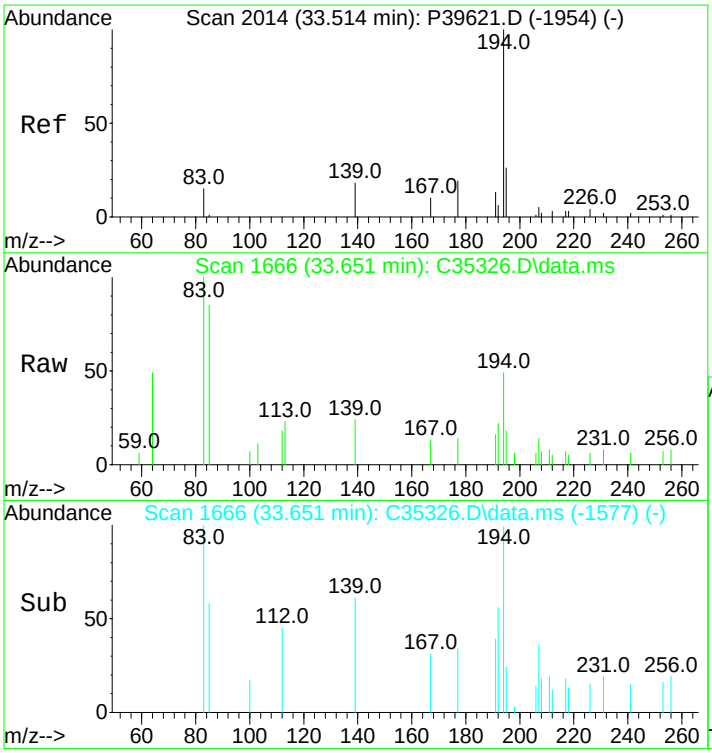


#30
C1-Fluorenes
Concen: 62.14 ng/mL m
RT: 30.730 min Scan# 1472
Delta R.T. -0.061 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:180 Resp: 4288

Ion	Ratio	Lower	Upper
180	100		
165	55.9	121.9	182.9#

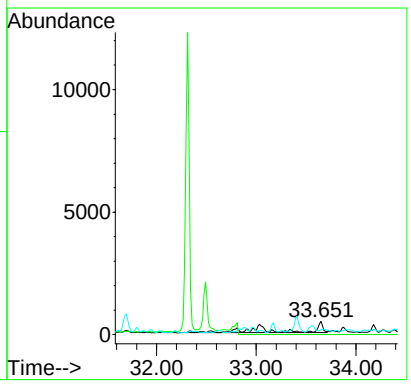


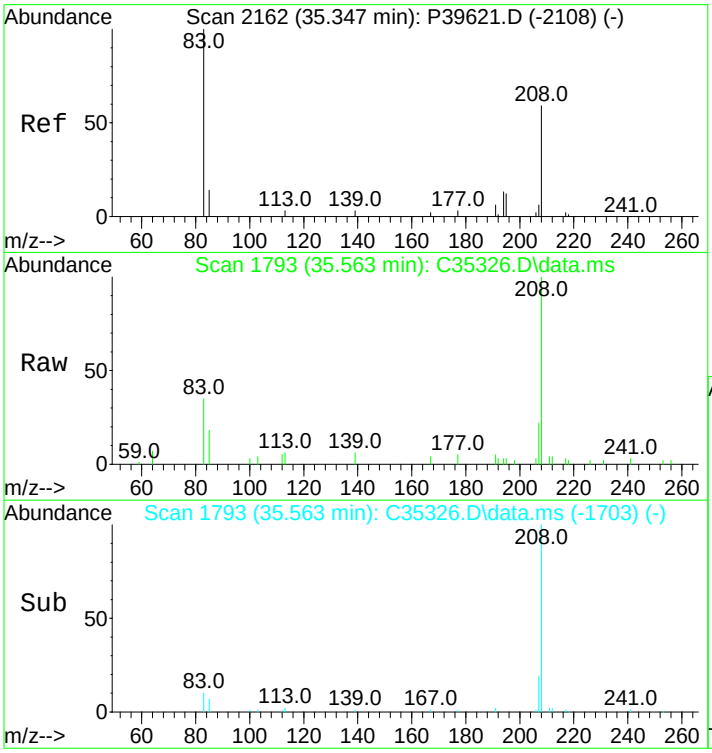


#31
C2-Fluorenes
Concen: 98.08 ng/mL m
RT: 33.651 min Scan# 1666
Delta R.T. 0.714 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:194 Resp: 6768

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	30.5	45.7#

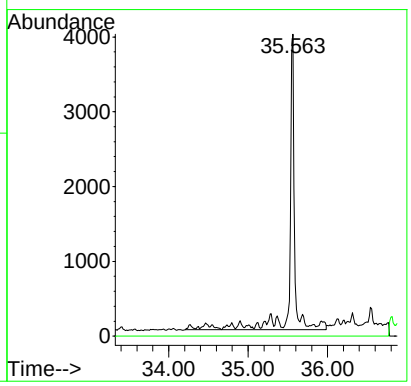


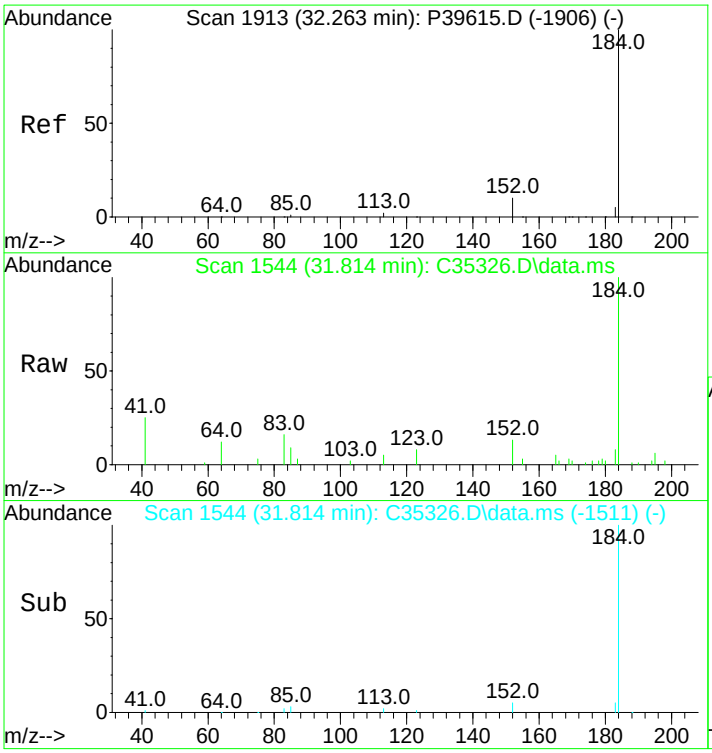


#32
C3-Fluorenes
Concen: 259.05 ng/mL m
RT: 35.563 min Scan# 1793
Delta R.T. 0.820 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:208 Resp: 17875

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

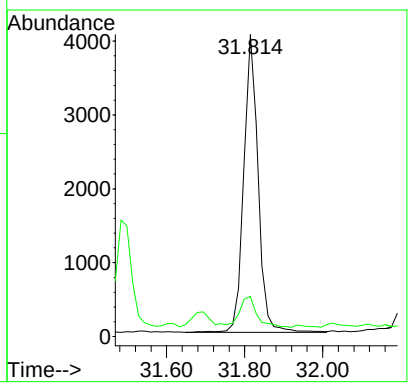


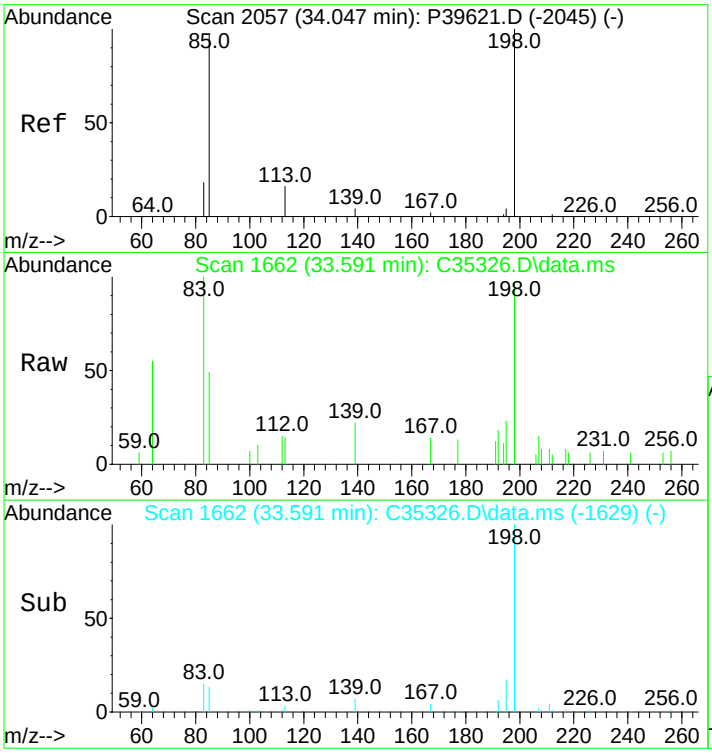


#33
Dibenzothiophene
Concen: 93.27 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:184 Resp: 10317

Ion	Ratio	Lower	Upper
184	100		
152	12.1	7.5	11.3#

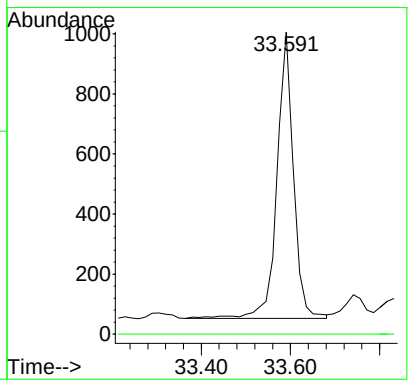


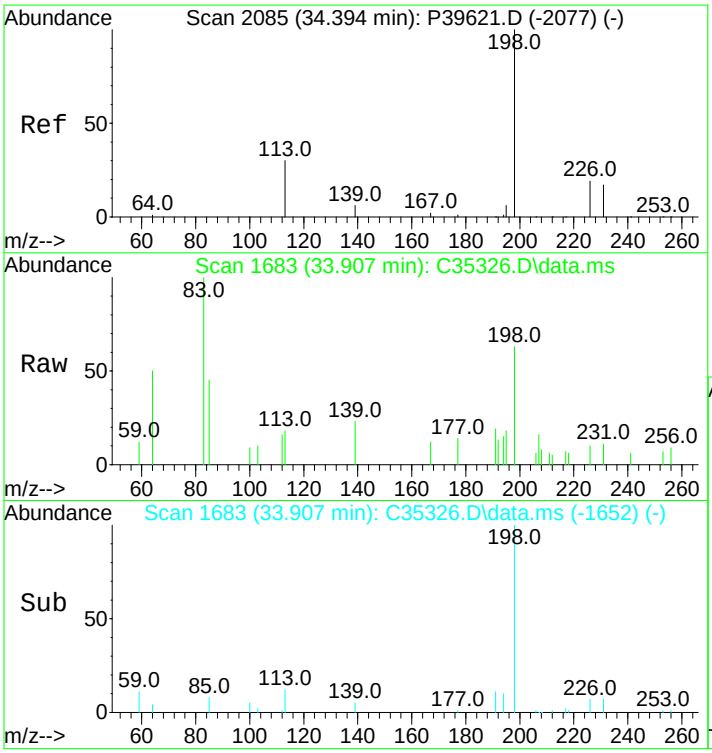


#34
4-Methyldibenzothiophene(4MDT)
Concen: 22.12 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:198 Resp: 2447

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

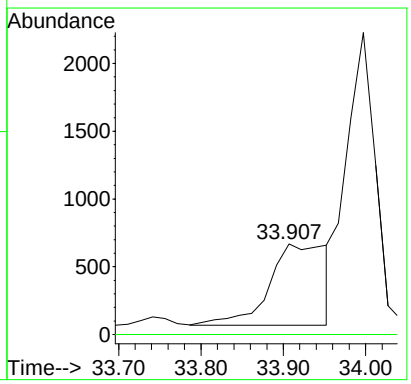


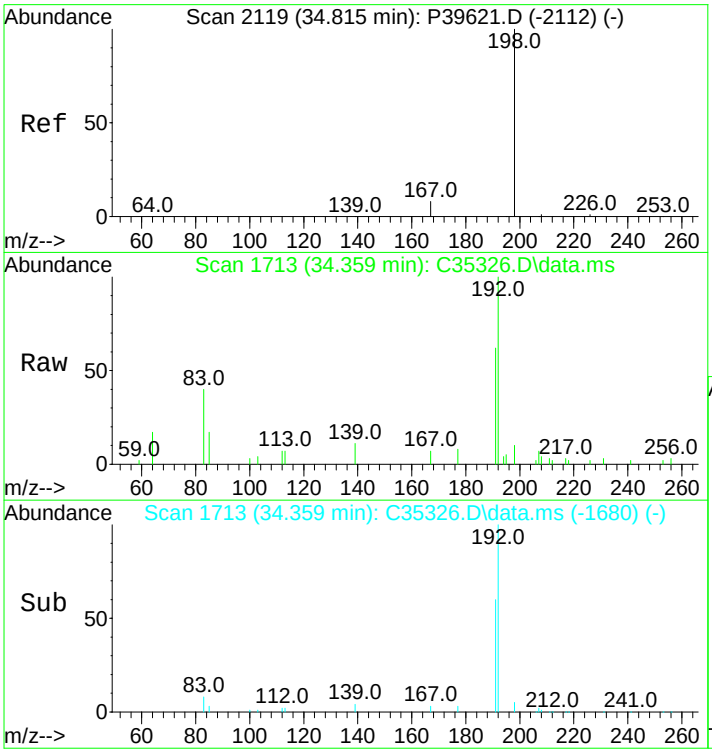


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 26.21 ng/mL m
RT: 33.907 min Scan# 1683
Delta R.T. -0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:198 Resp: 2899

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

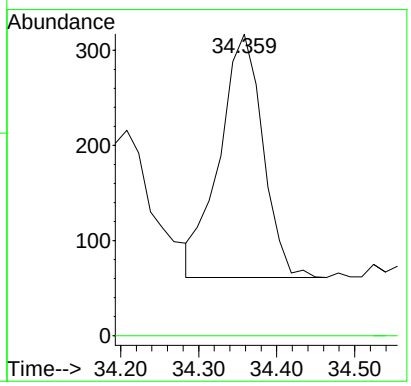


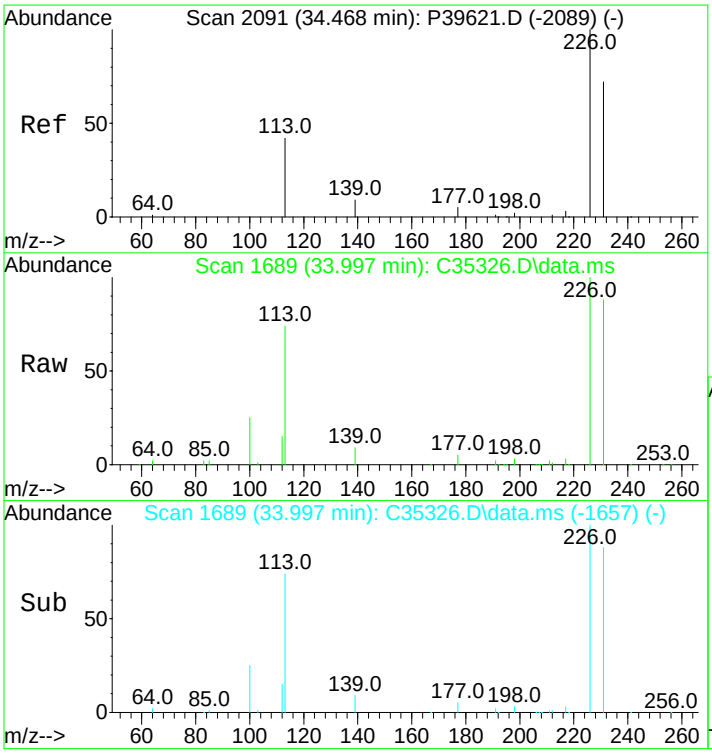


#36
1-Methyldibenzothiophene(1MDT)
Concen: 8.95 ng/mL
RT: 34.359 min Scan# 1713
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:198 Resp: 990

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

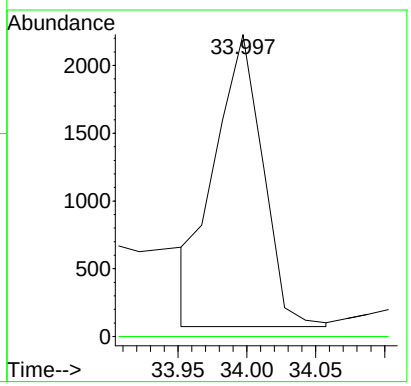


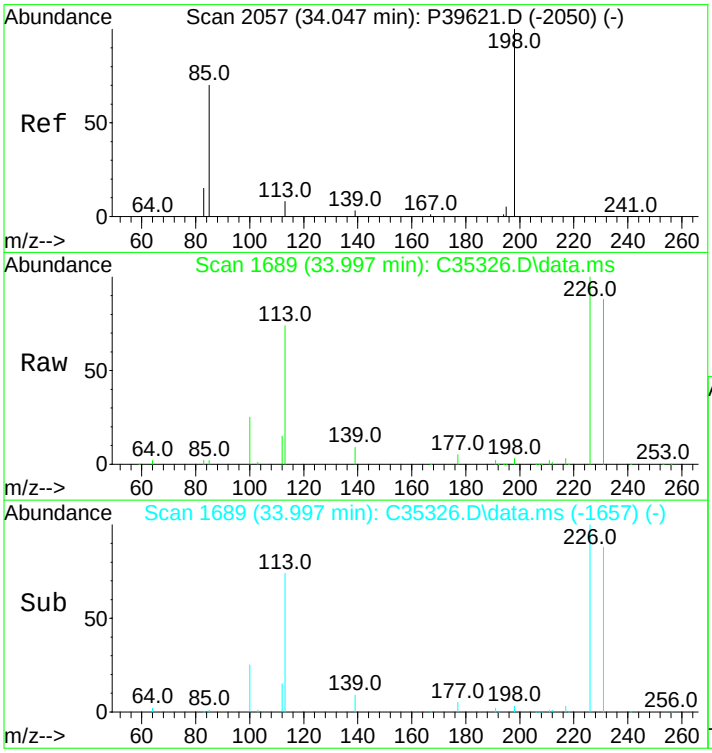


#37
OTP
Concen: 47.48 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:198 Resp: 5252

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

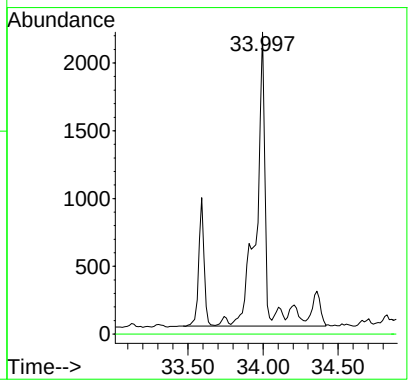


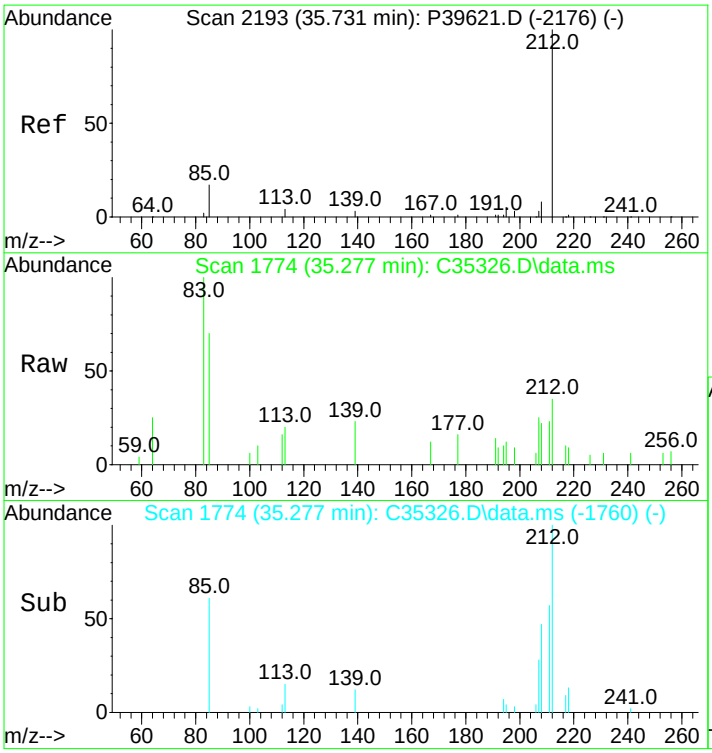


#38
C1-Dibenzothiophenes
Concen: 118.99 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:198 Resp: 13161

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

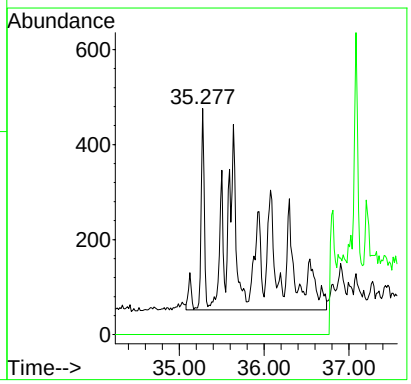


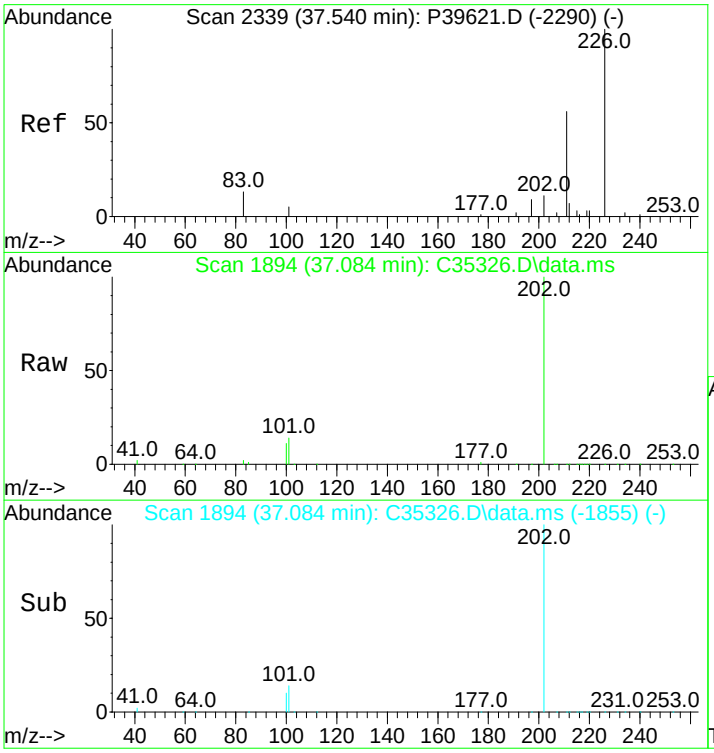


#39
C2-Dibenzothiophenes
Concen: 80.82 ng/mL m
RT: 35.277 min Scan# 1774
Delta R.T. -0.192 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:212 Resp: 8939

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

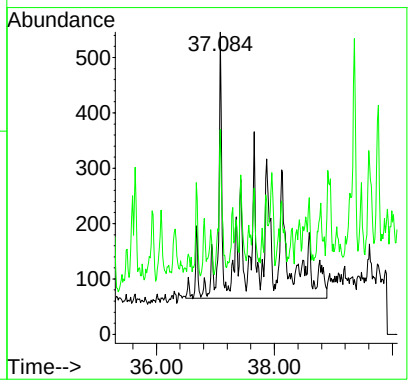


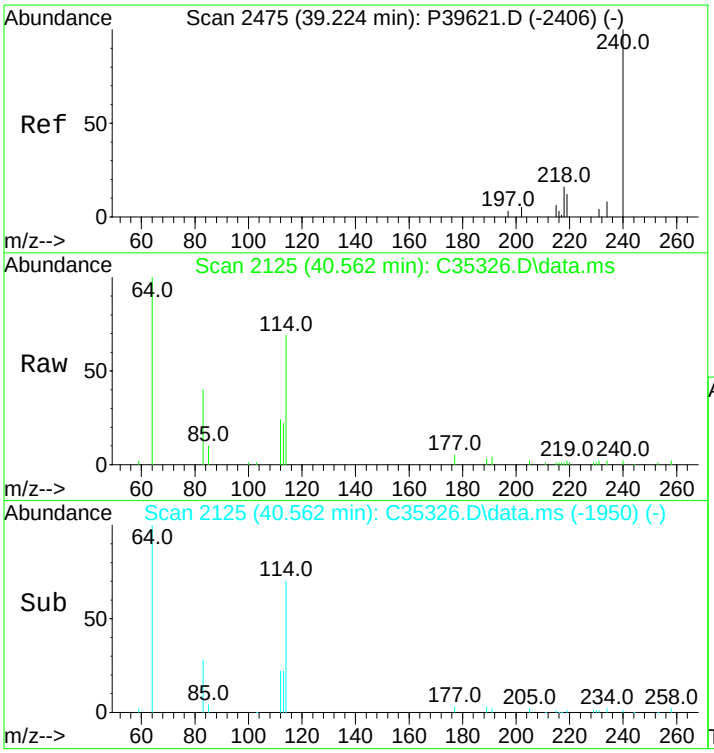


#40
C3-Dibenzothiophenes
Concen: 86.78 ng/mL m
RT: 37.084 min Scan# 1894
Delta R.T. 0.195 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:226 Resp: 9599

Ion	Ratio	Lower	Upper
226	100		
211	4.7	51.4	77.2#

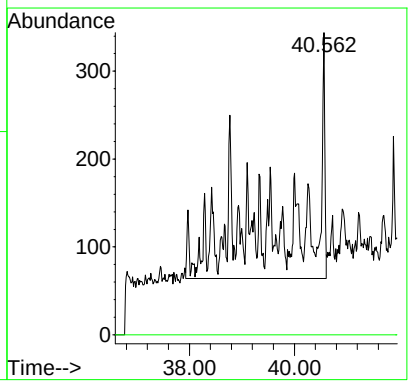


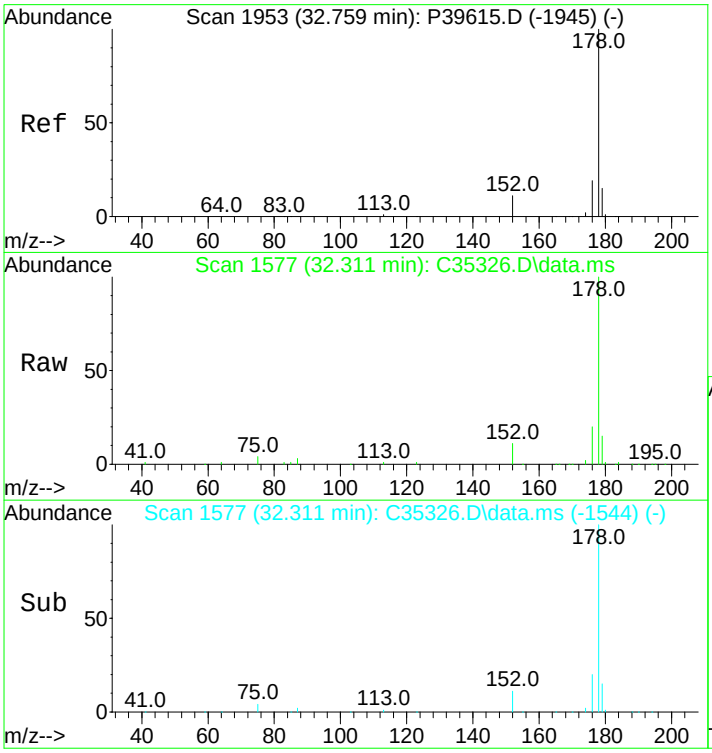


#41
C4-Dibenzothiophenes
Concen: 75.86 ng/mL m
RT: 40.562 min Scan# 2125
Delta R.T. 1.930 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:240 Resp: 8391

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

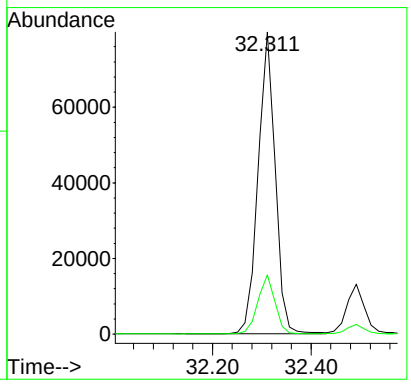


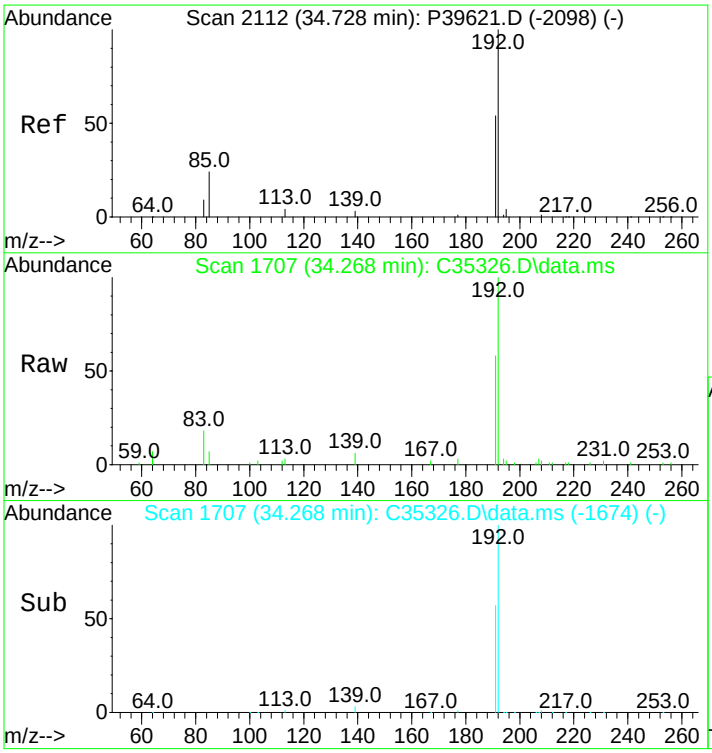


#43
Phenanthrene
Concen: 1983.46 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:178 Resp: 192751

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.8	23.6

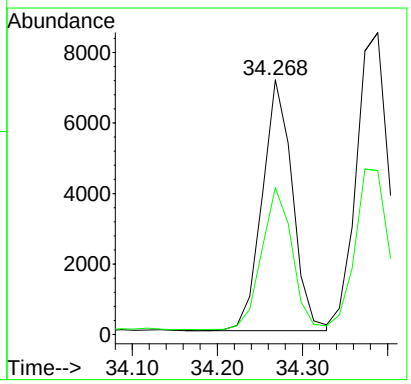


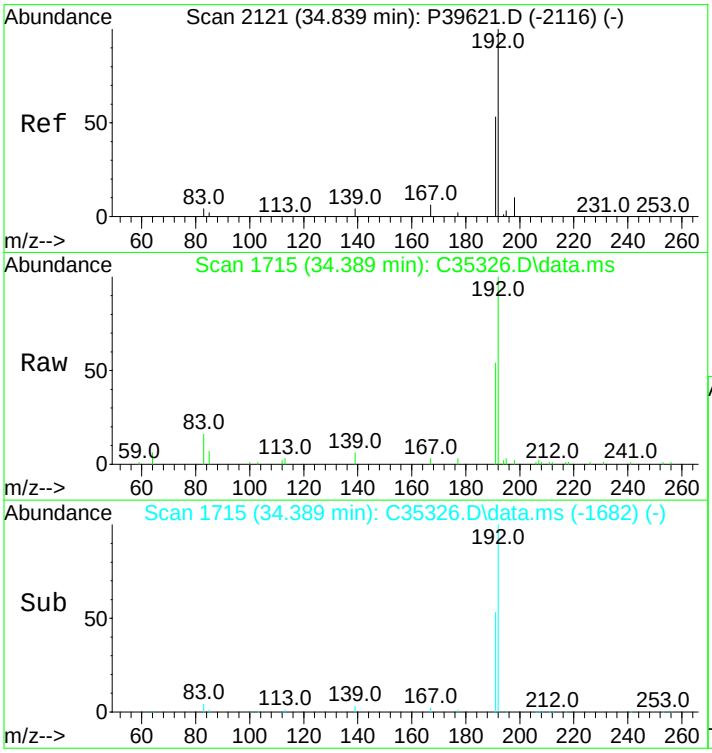


#44
3-Methylphenanthrene(3MP)
Concen: 181.33 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 17621

Ion	Ratio	Lower	Upper
192	100		
191	57.0	47.4	71.0

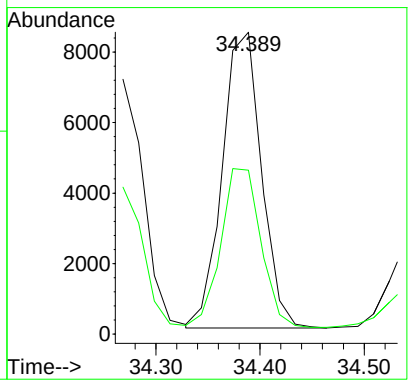


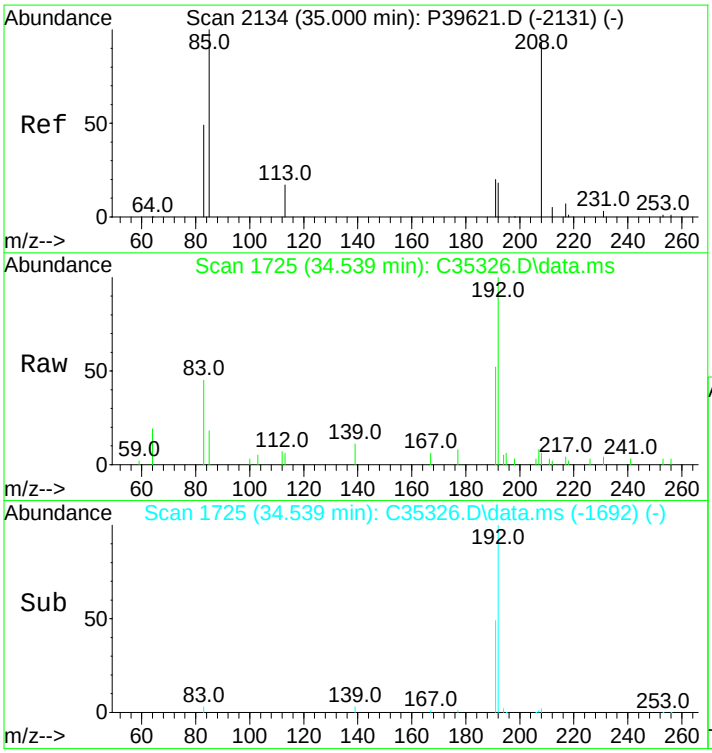


#45
2-Methylphenanthrene(2MP)
Concen: 226.89 ng/mL
RT: 34.389 min Scan# 1715
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 22049

Ion	Ratio	Lower	Upper
192	100		
191	54.9	45.0	67.6

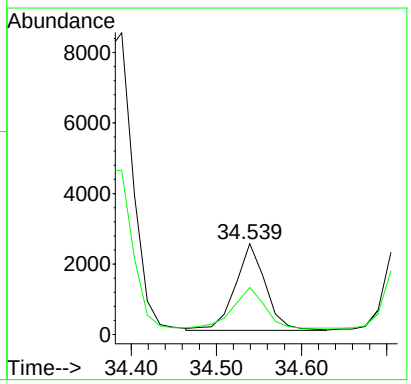


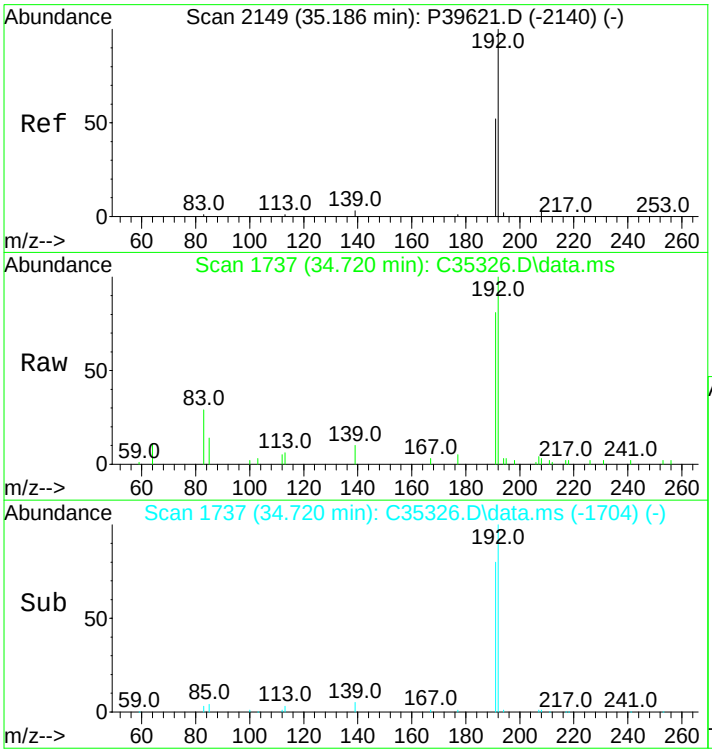


#46
2-Methylanthracene(2MA)
Concen: 62.84 ng/mL
RT: 34.539 min Scan# 1725
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 6107

Ion	Ratio	Lower	Upper
192	100		
191	52.4	95.5	143.3#

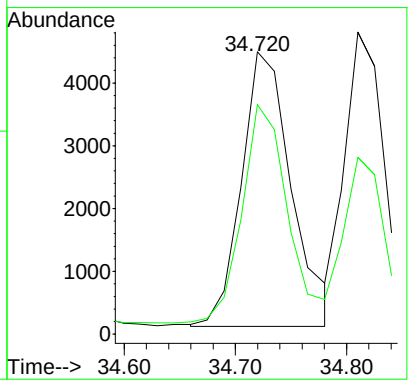


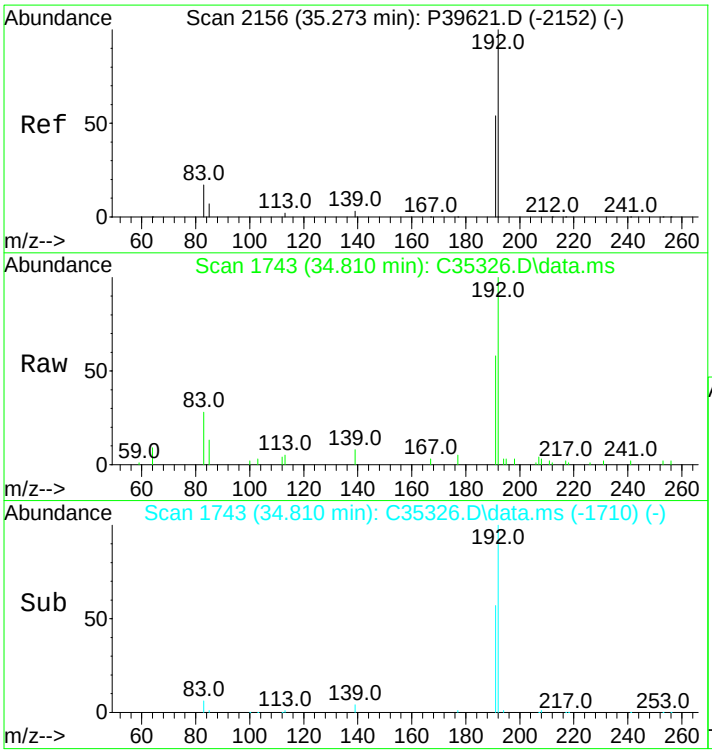


#47
9/4-Methylphenanthrene(9MP)
Concen: 140.57 ng/mL m
RT: 34.720 min Scan# 1737
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 13660

Ion	Ratio	Lower	Upper
192	100		
191	48.2	46.5	69.7

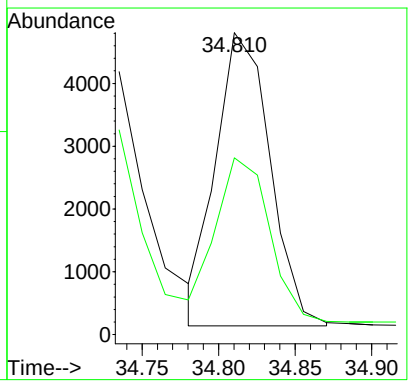


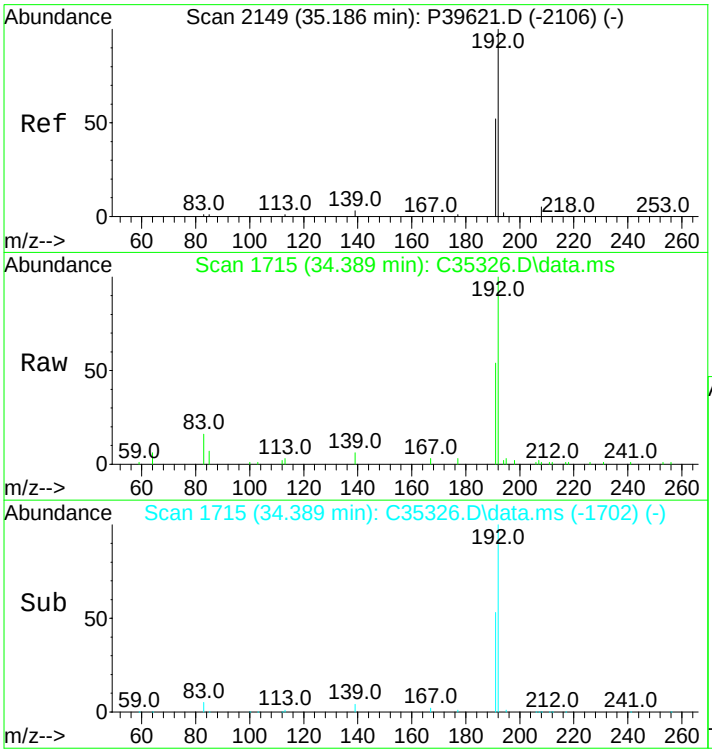


#48
1-Methylphenanthrene(1MP)
Concen: 118.04 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 11471

Ion	Ratio	Lower	Upper
192	100		
191	57.4	47.4	71.2

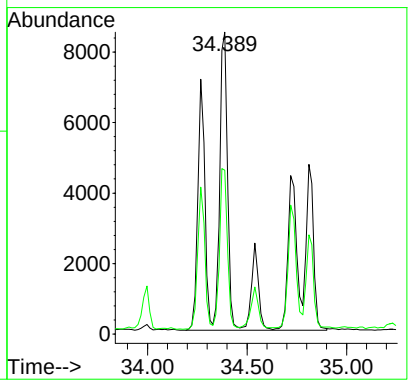


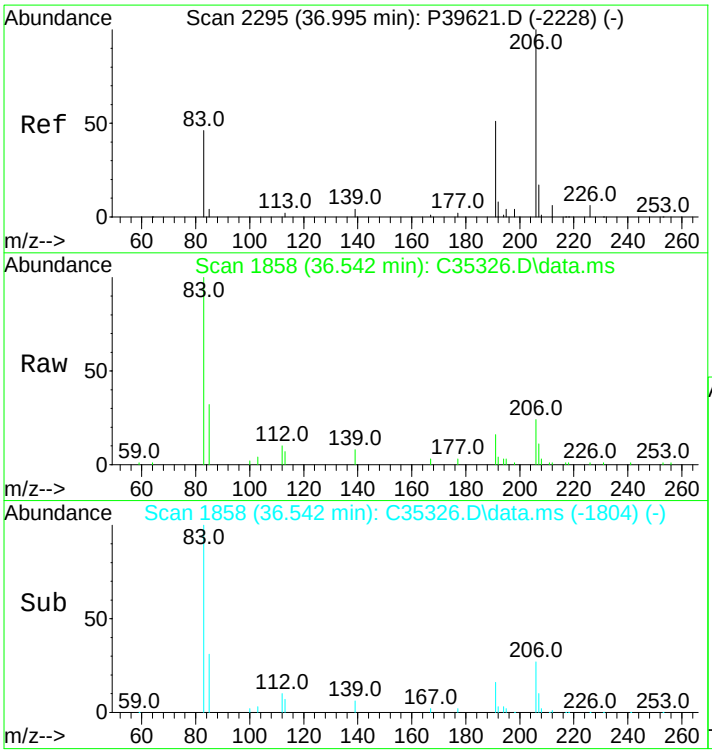


#49
C1-Phenanthrenes/Anthracenes
Concen: 741.15 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. -0.191 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 72024

Ion	Ratio	Lower	Upper
192	100		
191	4.2	45.3	67.9#

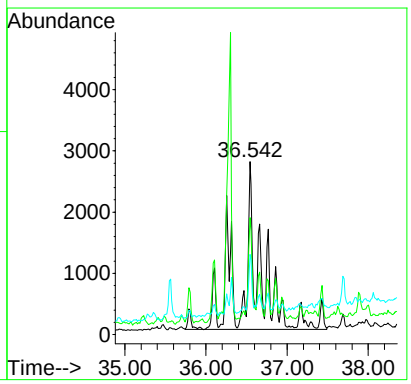


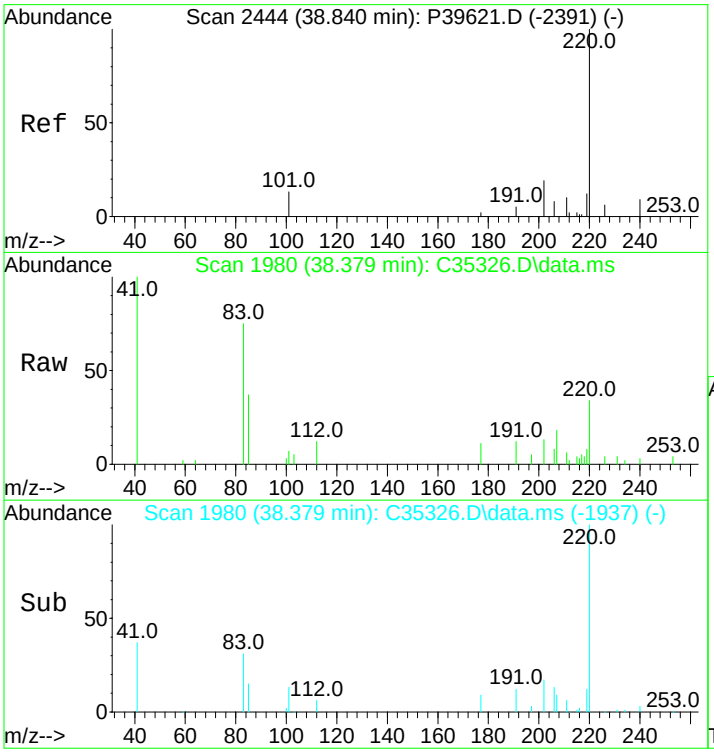


#50
C2-Phenanthrenes/Anthracenes
Concen: 431.80 ng/mL m
RT: 36.542 min Scan# 1858
Delta R.T. 0.186 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:206 Resp: 41962

Ion	Ratio	Lower	Upper
206	100		
191	37.7	42.0	63.0#
207	3.1	15.4	23.2#

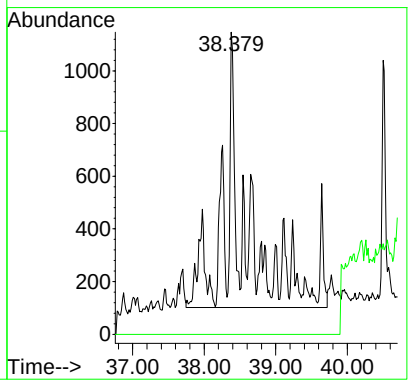


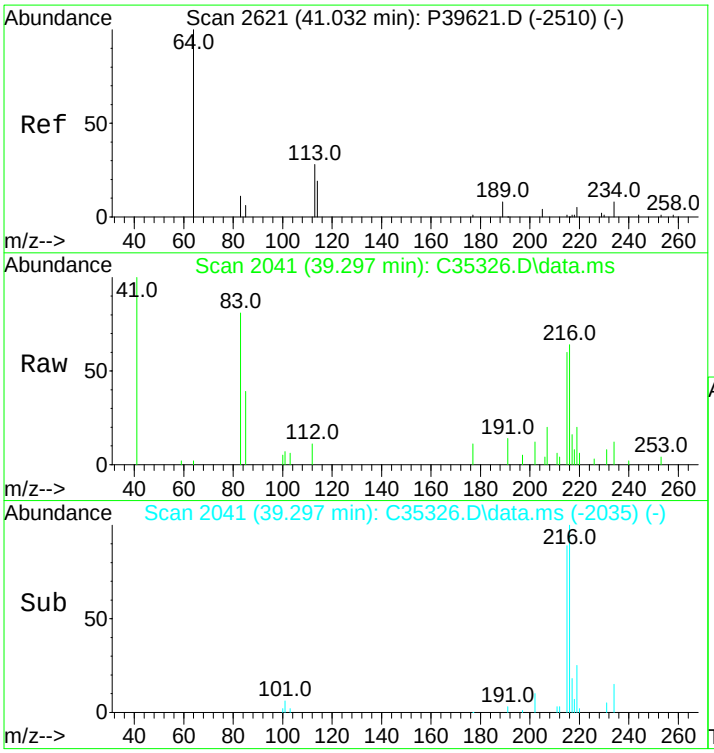


#52
C3-Phenanthrenes/Anthracenes
Concen: 216.68 ng/mL m
RT: 38.379 min Scan# 1980
Delta R.T. 0.216 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:220 Resp: 21057

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

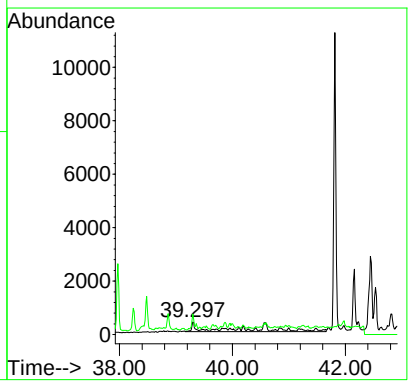


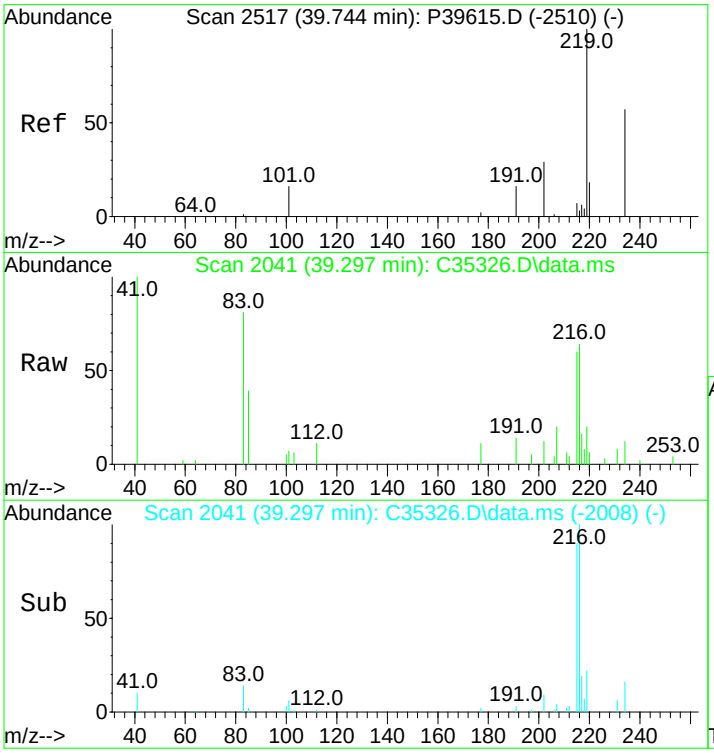


#53
C4-Phenanthrenes/Anthracenes
Concen: 118.15 ng/mL m
RT: 39.297 min Scan# 2041
Delta R.T. -0.997 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 11482

Ion	Ratio	Lower	Upper
234	100		
219	2.4	48.6	73.0#

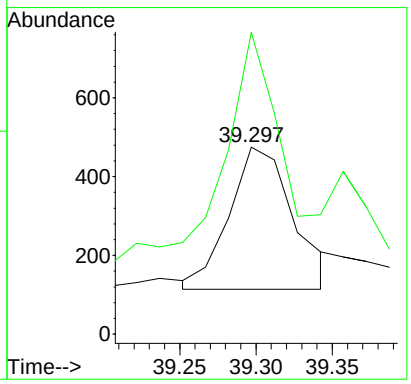


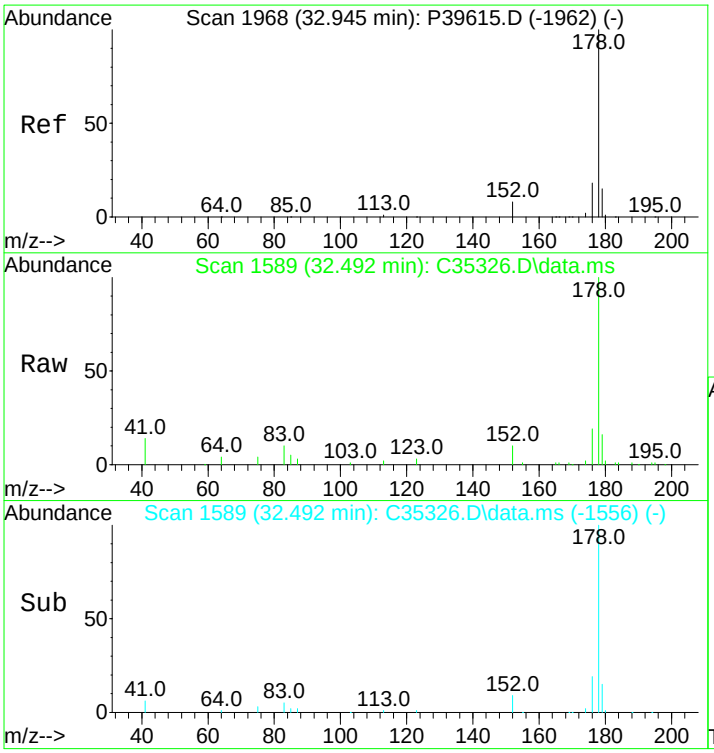


#54
Retene
Concen: 55.55 ng/mL m
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 1053

Ion	Ratio	Lower	Upper
234	100		
219	164.1	131.8	197.8

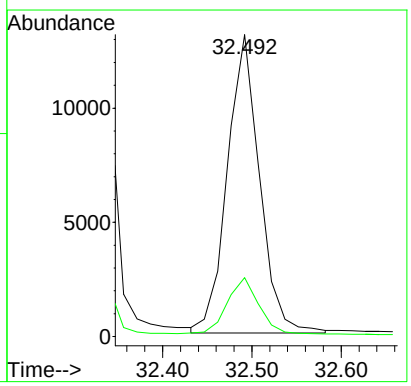


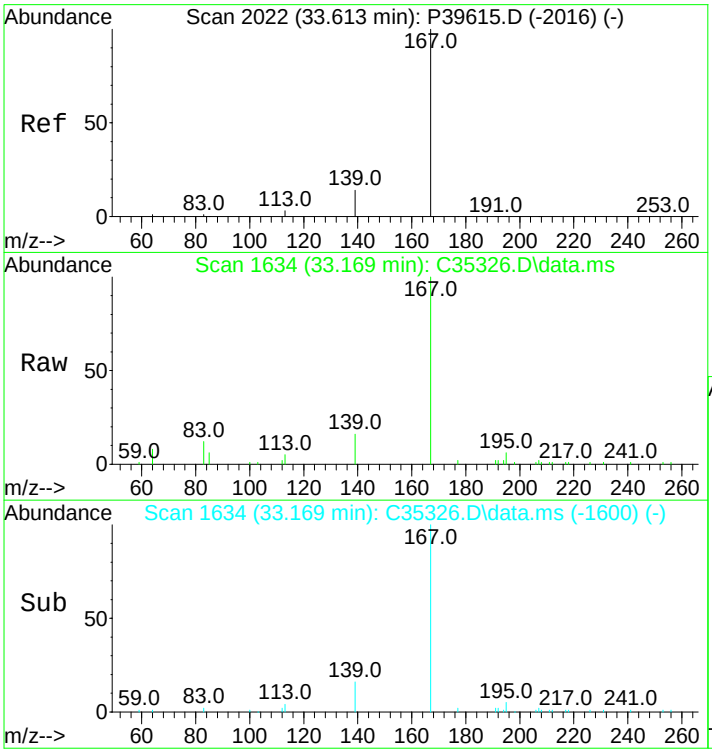


#55
Anthracene
Concen: 346.45 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:178 Resp: 32886

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.6	23.4

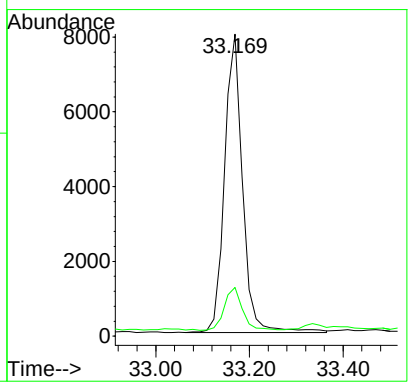


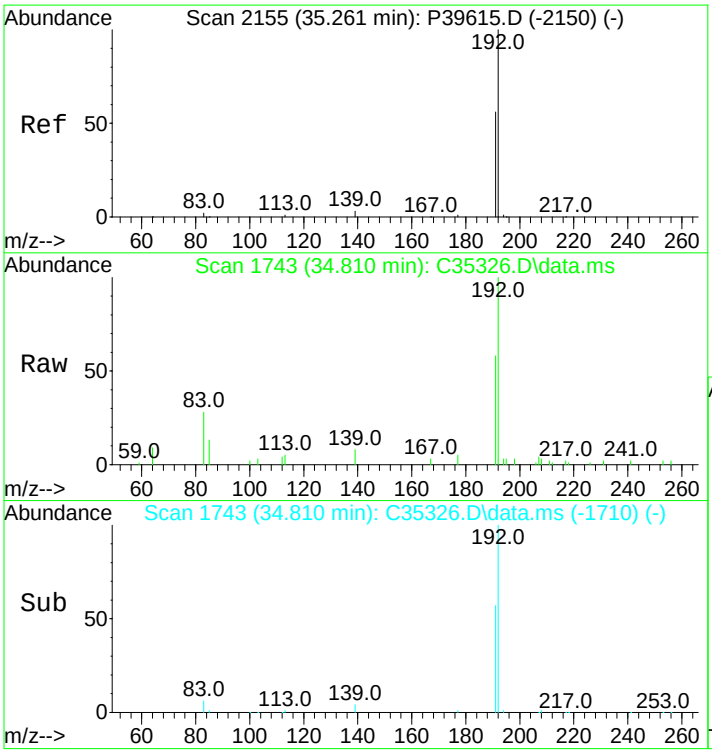


#56
Carbazole
Concen: 223.12 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:167 Resp: 21393

Ion	Ratio	Lower	Upper
167	100		
139	14.3	11.9	17.9

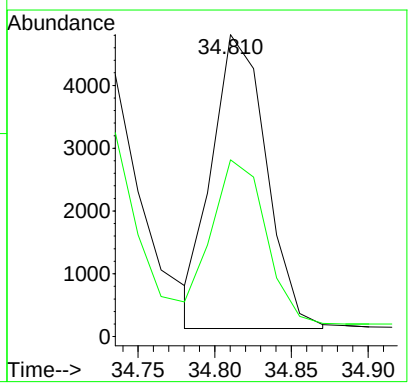


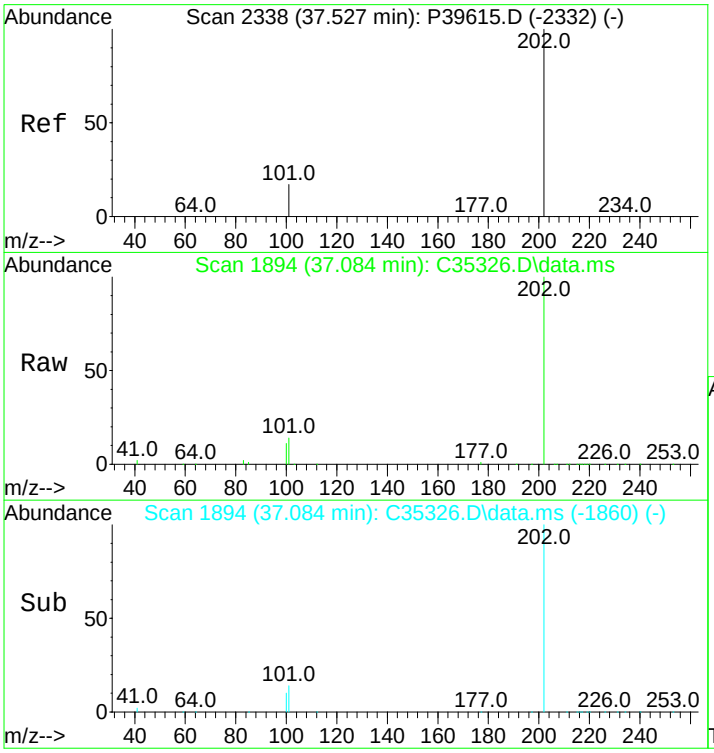


#57
1-Methylphenanthrene
Concen: 187.24 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:192 Resp: 11531

Ion	Ratio	Lower	Upper
192	100		
191	57.1	46.8	70.2

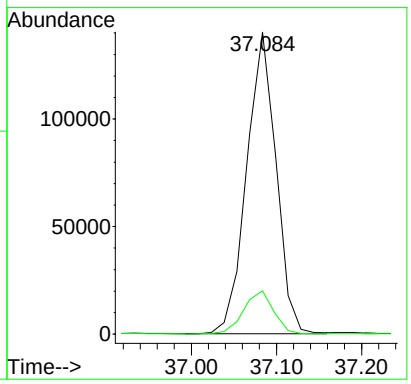


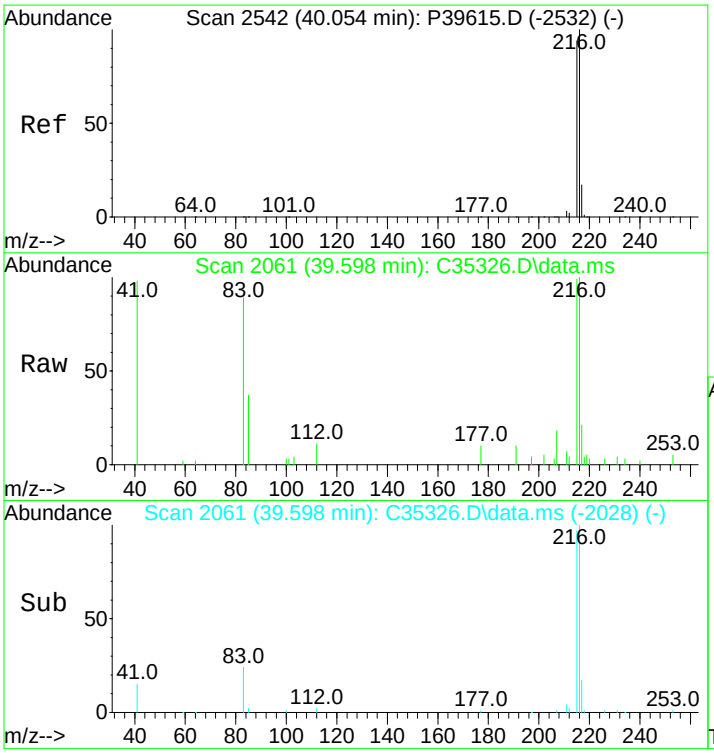


#58
Fluoranthene
Concen: 3496.33 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:202 Resp: 337449

Ion	Ratio	Lower	Upper
202	100		
101	15.0	13.2	19.8

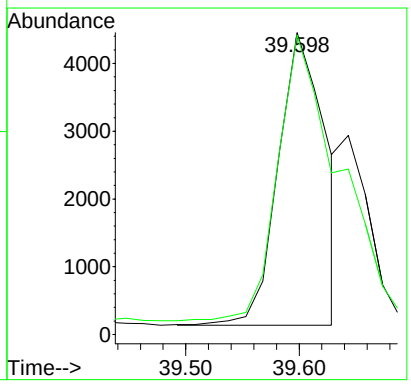


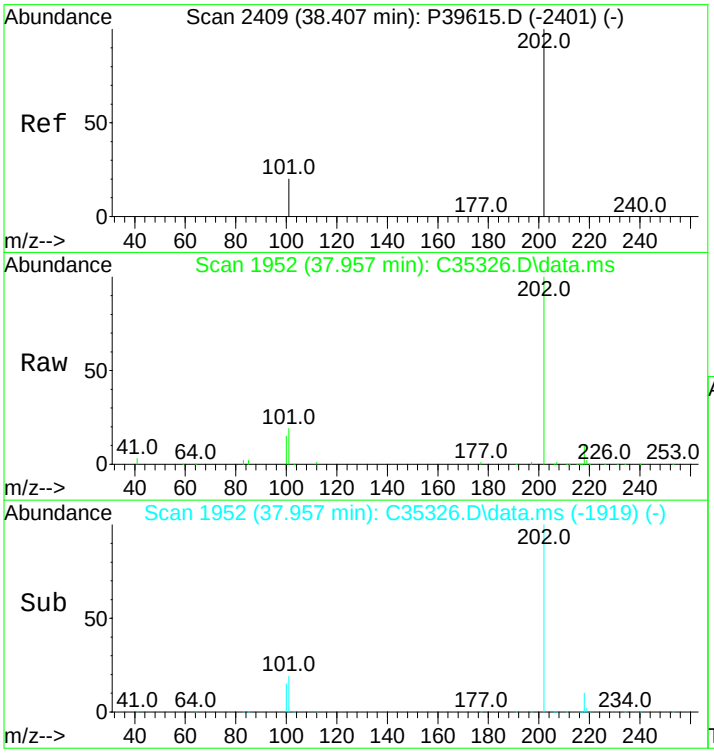


#59
Benzo(b)fluorene
Concen: 223.33 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:216 Resp: 12505

Ion	Ratio	Lower	Upper
216	100		
215	127.2	76.0	114.0#

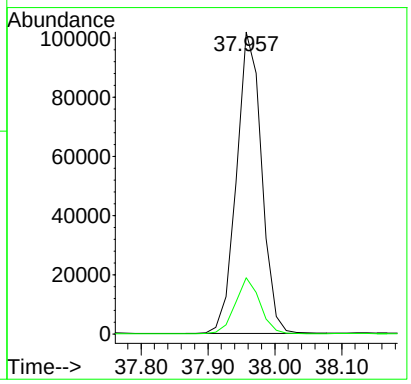


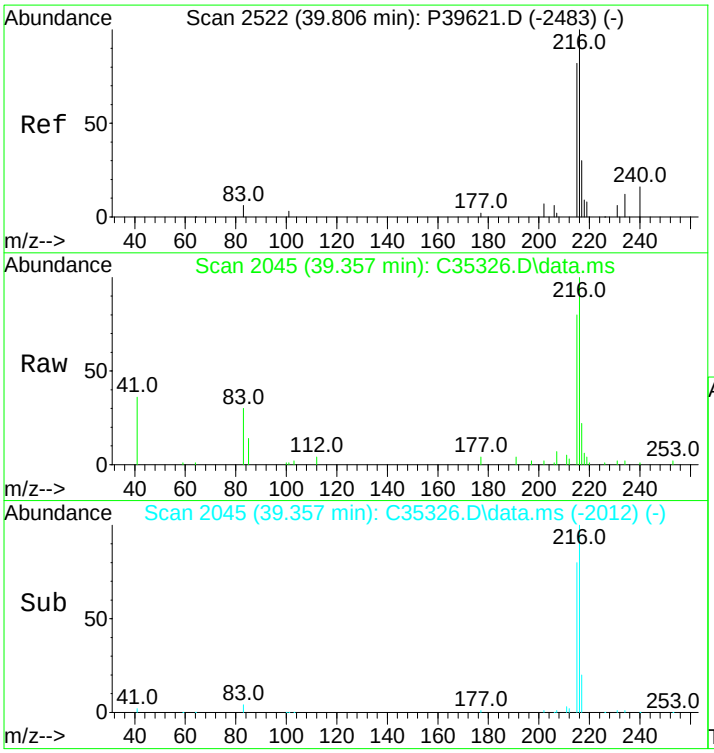


#60
Pyrene
Concen: 2713.27 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:202 Resp: 266199

Ion	Ratio	Lower	Upper
202	100		
101	18.2	13.5	20.3

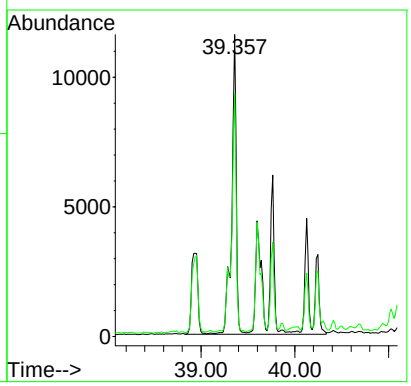


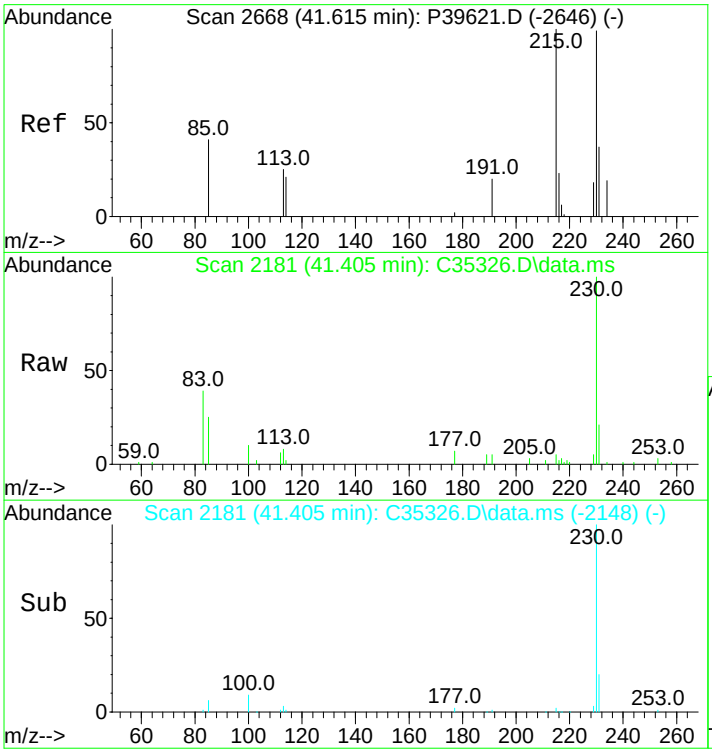


#61
C1-Fluoranthenes/Pyrenes
Concen: 1119.77 ng/mL m
RT: 39.357 min Scan# 2045
Delta R.T. 0.233 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:216 Resp: 109861

Ion	Ratio	Lower	Upper
216	100		
215	10.9	77.7	116.5#

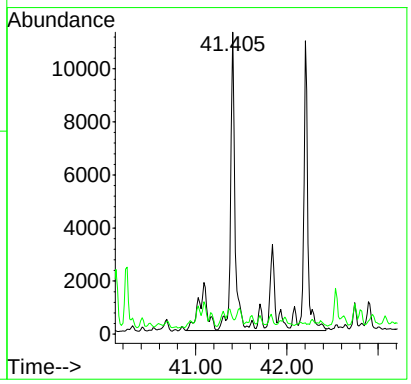


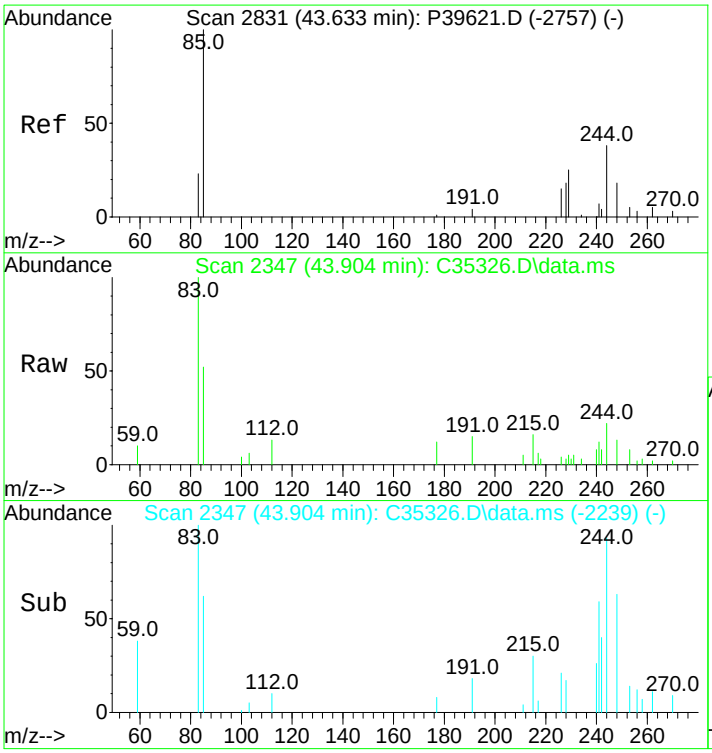


#62
C2-Fluoranthenes/Pyrenes
Concen: 1031.09 ng/mL m
RT: 41.405 min Scan# 2181
Delta R.T. 0.241 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:230 Resp: 101160

Ion	Ratio	Lower	Upper
230	100		
215	1.5	92.7	139.1#

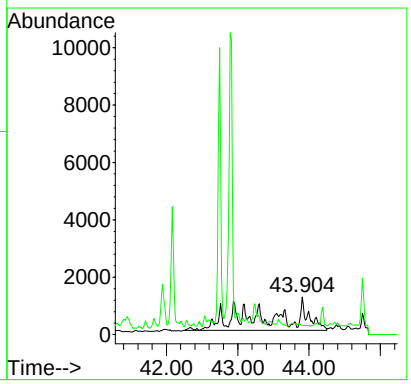


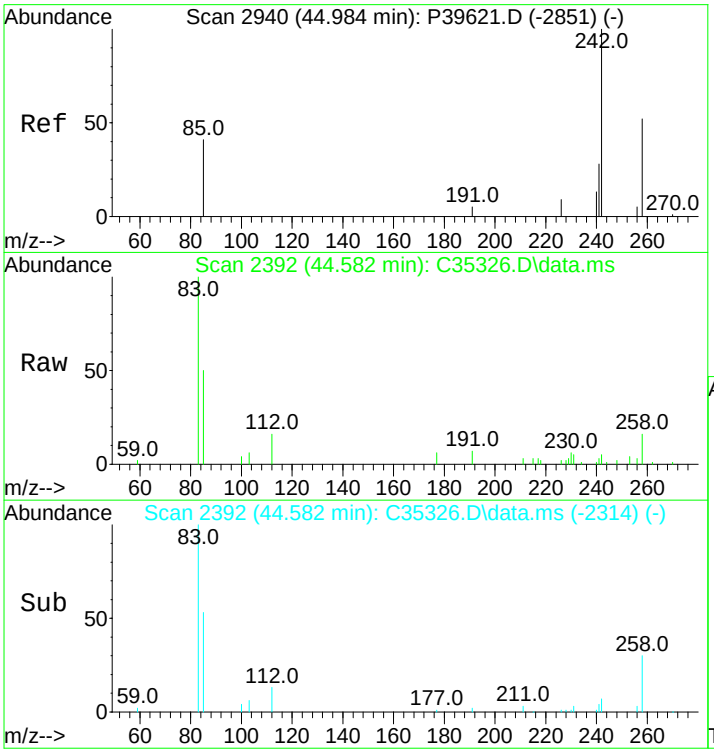


#63
C3-Fluoranthenes/Pyrenes
Concen: 406.09 ng/mL m
RT: 43.904 min Scan# 2347
Delta R.T. 1.035 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:244 Resp: 39842

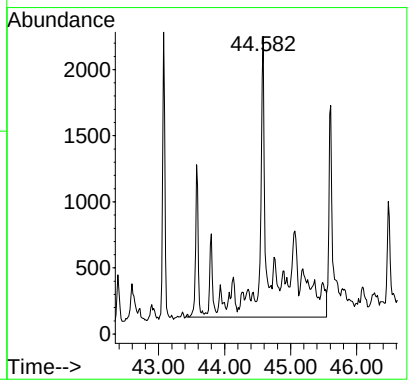
Ion	Ratio	Lower	Upper
244	100		
229	0.0	78.7	118.1#

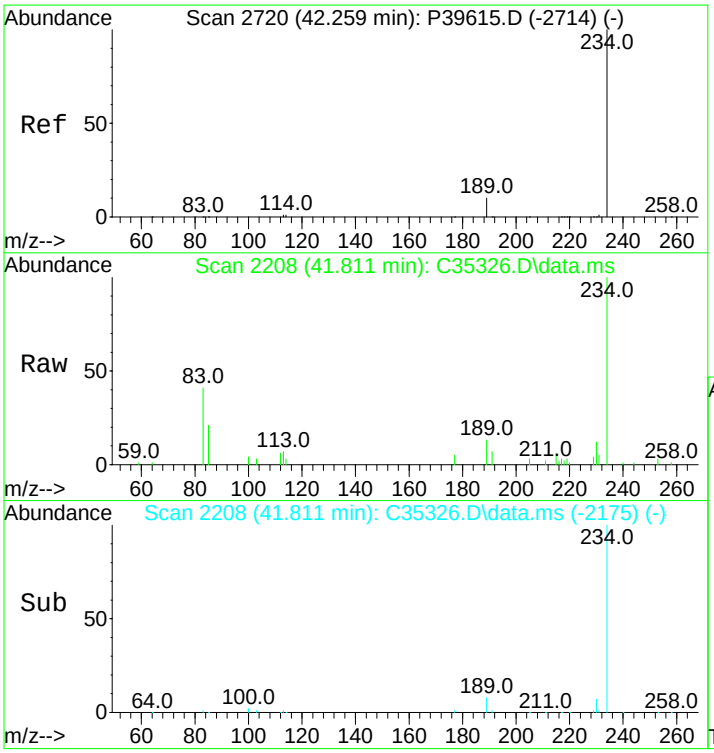




#64
C4-Fluoranthenes/Pyrenes
Concen: 333.38 ng/mL m
RT: 44.582 min Scan# 2392
Delta R.T. 0.380 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:258 Resp: 32708

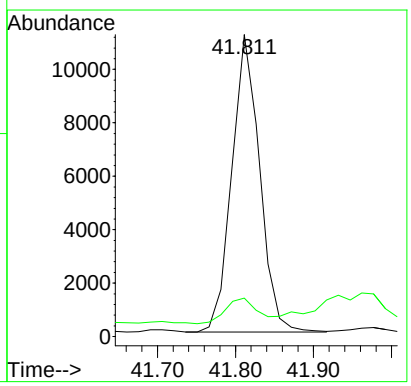


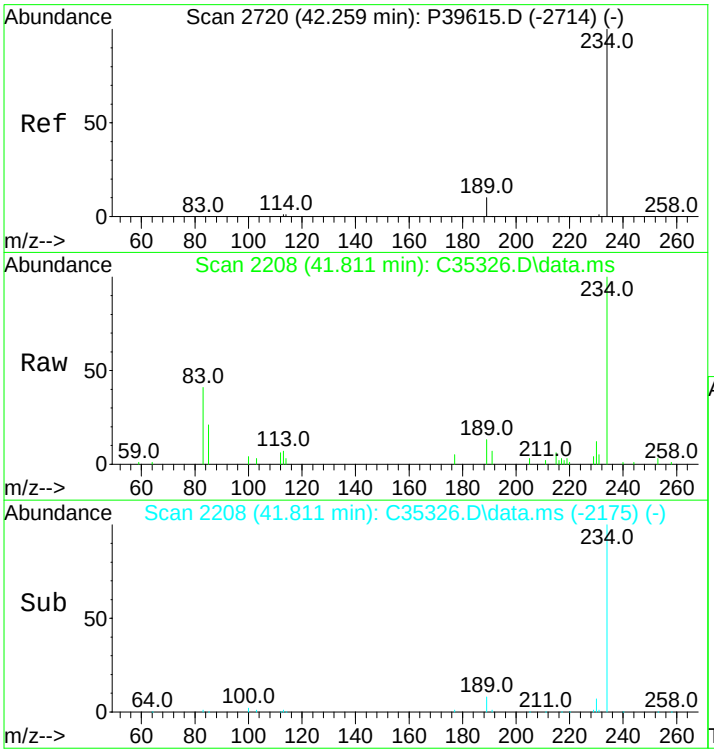


#66
Naphthobenzothiophene
Concen: 261.83 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 27656

Ion	Ratio	Lower	Upper
234	100		
189	10.6	20.9	31.3#

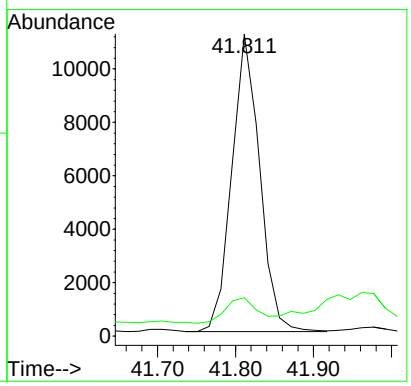


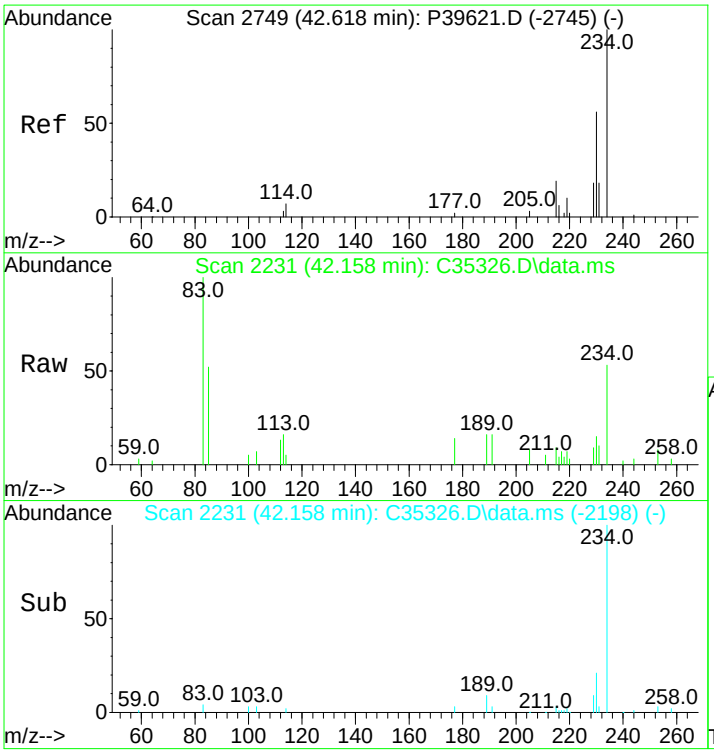


#67
Naphthobenzothiophene-2,1-D
Concen: 261.83 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 27656

Ion	Ratio	Lower	Upper
234	100		
189	10.6	20.9	31.3#

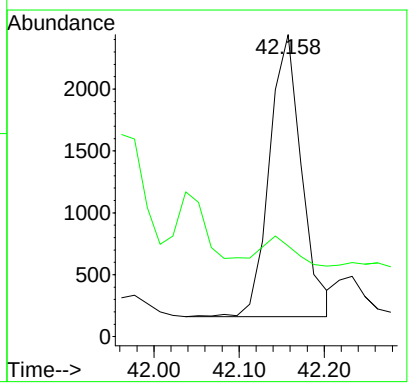


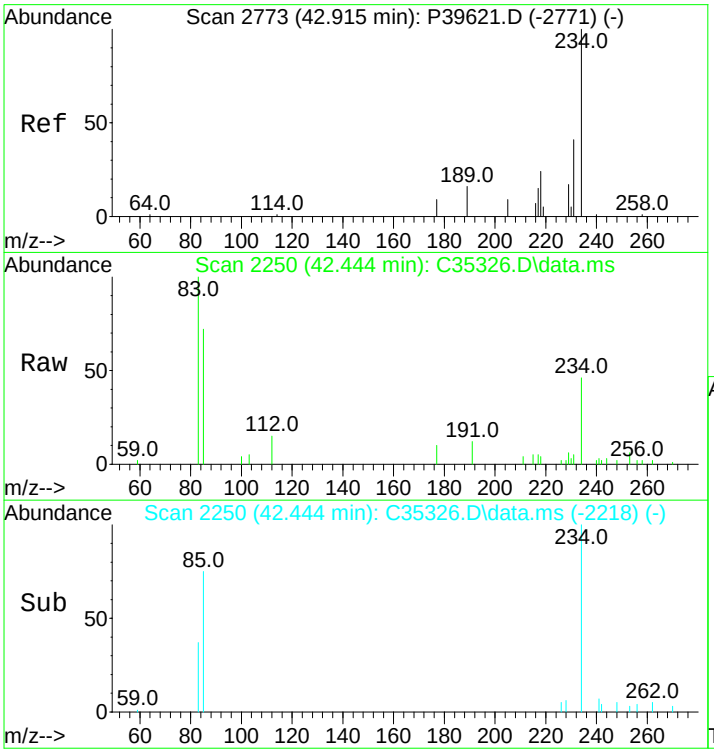


#68
Naphthobenzothiophene-1,2-D
Concen: 56.86 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 6006

Ion	Ratio	Lower	Upper
234	100		
189	10.6	64.9	97.3#

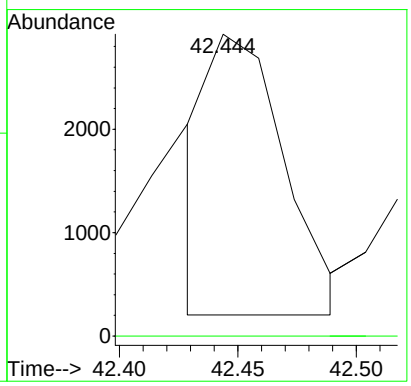


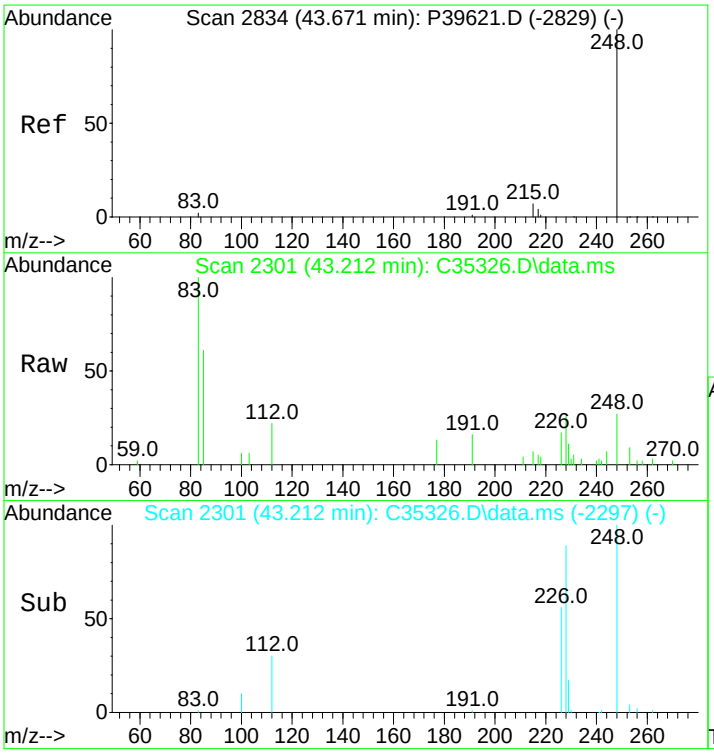


#69
Naphthobenzothiophene-2,3-D
Concen: 57.39 ng/mL m
RT: 42.444 min Scan# 2250
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:234 Resp: 6062

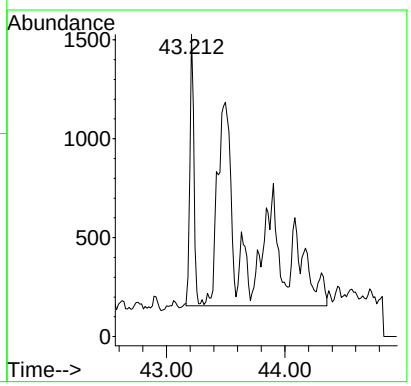
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

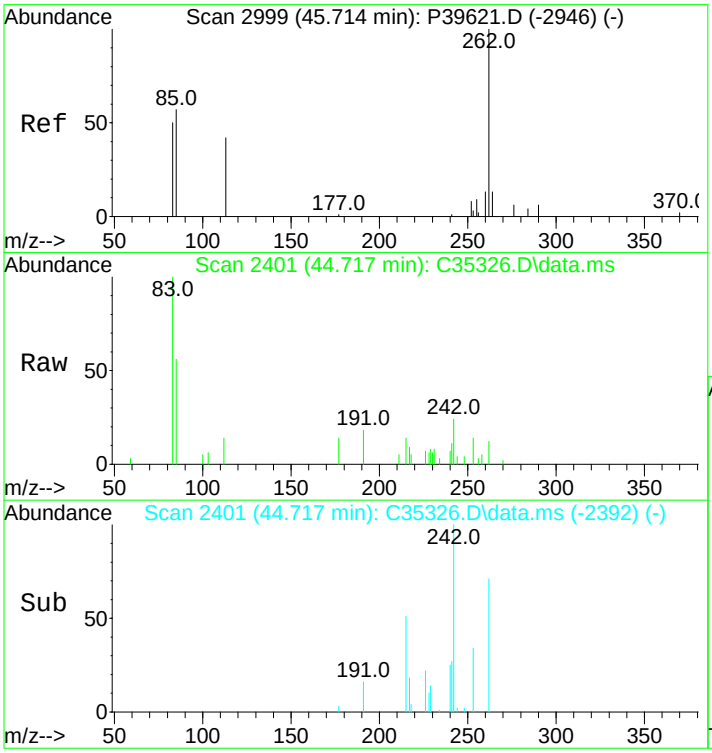




#70
C1-Naphthobenzothiophenes
Concen: 203.67 ng/ml m
RT: 43.212 min Scan# 2301
Delta R.T. -0.368 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

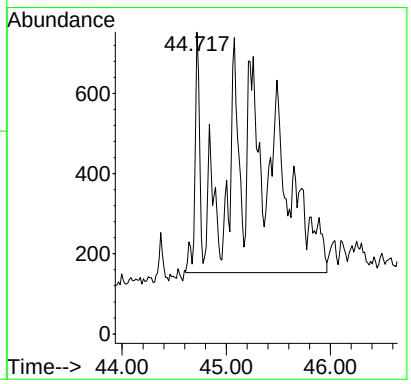
Tgt Ion:248 Resp: 21513

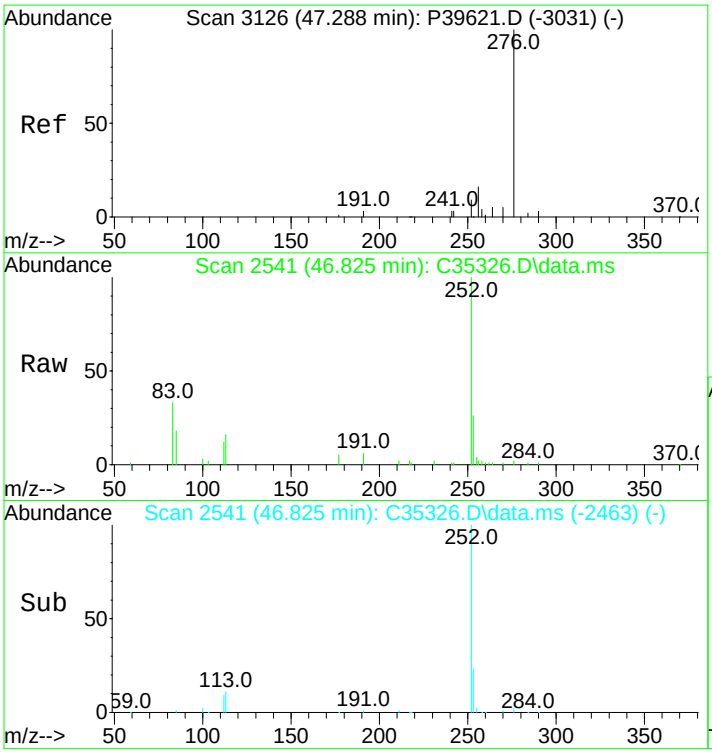




#71
C2-Naphthobenzothiophenes
Concen: 164.99 ng/ml m
RT: 44.717 min Scan# 2401
Delta R.T. -0.150 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

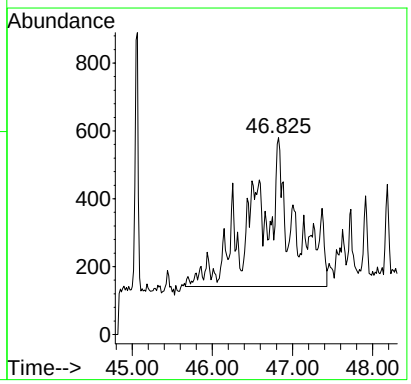
Tgt Ion:262 Resp: 17427

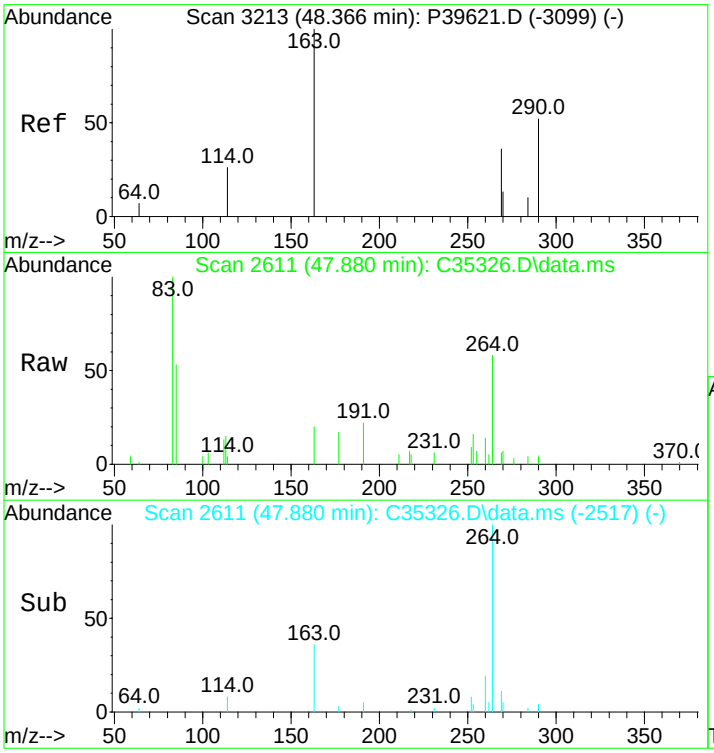




#72
C3-Naphthobenzothiophenes
Concen: 142.03 ng/ml m
RT: 46.825 min Scan# 2541
Delta R.T. 0.373 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

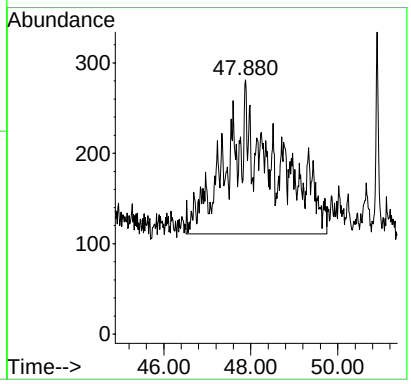
Tgt Ion:276 Resp: 15002

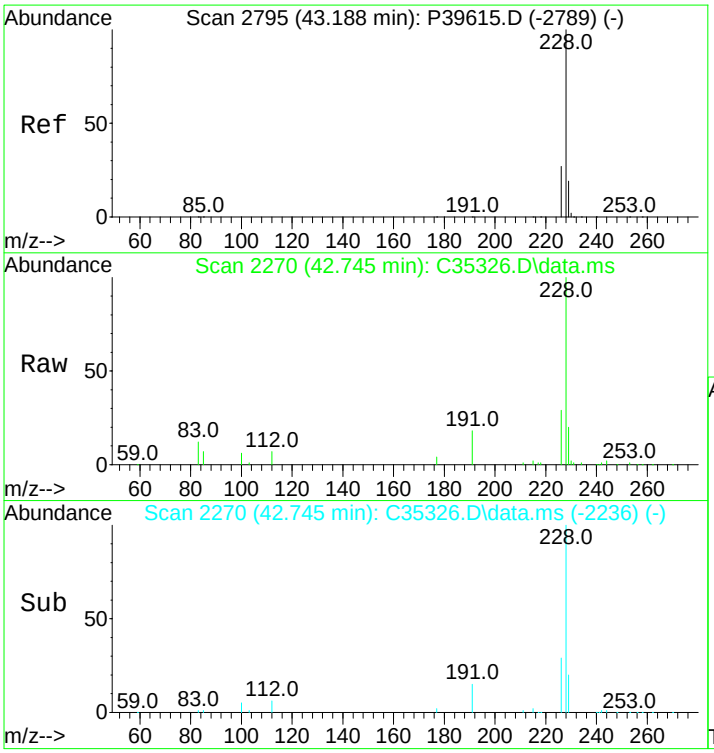




#73
C4-Naphthobenzothiophenes
Concen: 117.84 ng/mL m
RT: 47.880 min Scan# 2611
Delta R.T. 0.376 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:290 Resp: 12447

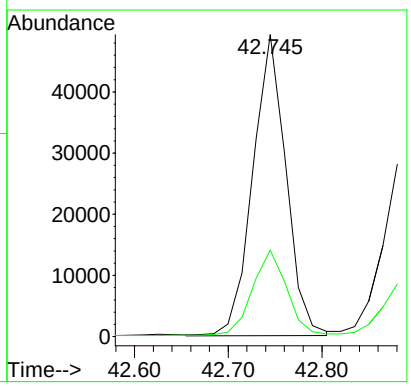


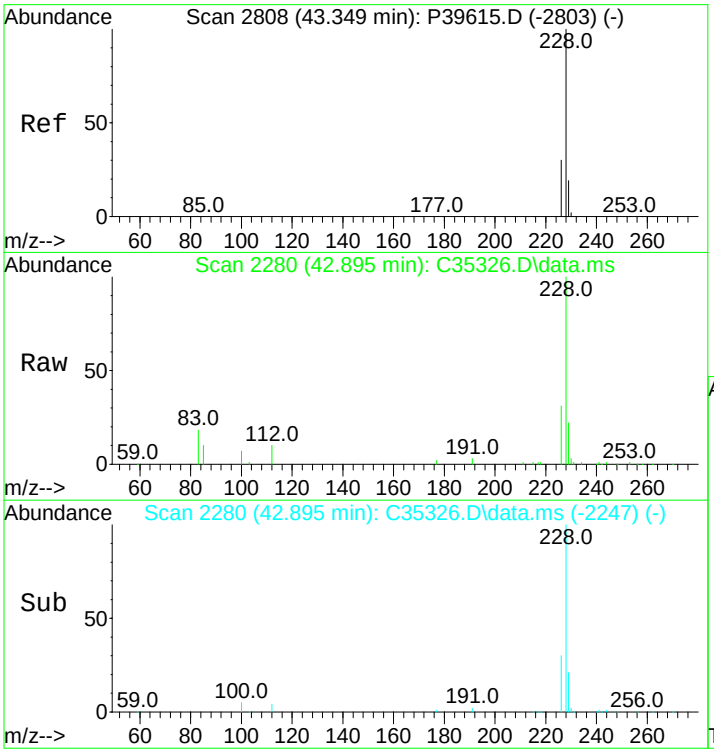


#75
Benz[a]anthracene
Concen: 1026.93 ng/mL
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:228 Resp: 121662

Ion	Ratio	Lower	Upper
228	100		
226	30.4	21.5	32.3

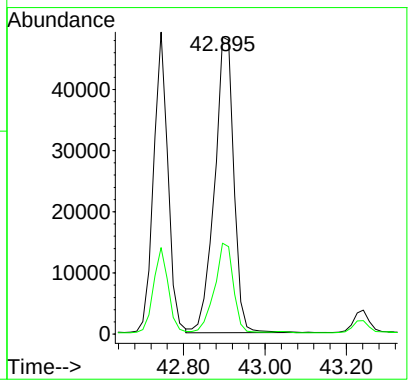


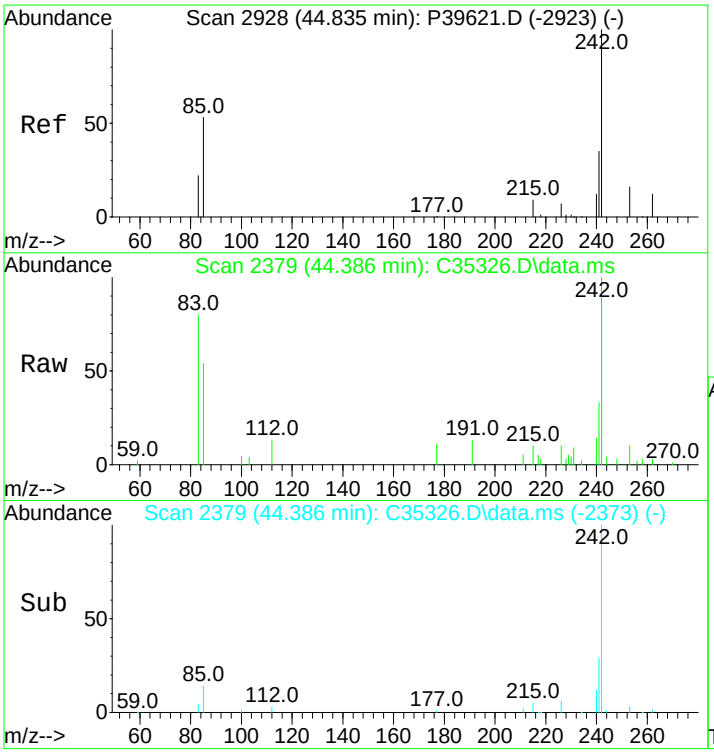


#77
Chrysene/Triphenylene
Concen: 1335.93 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:228 Resp: 159787

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.5	35.3

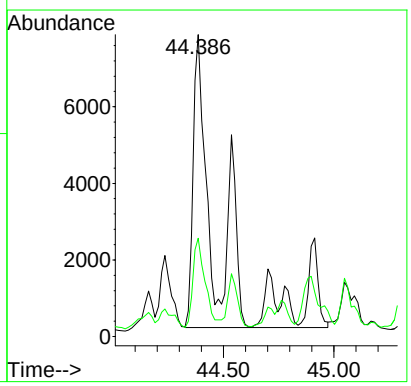


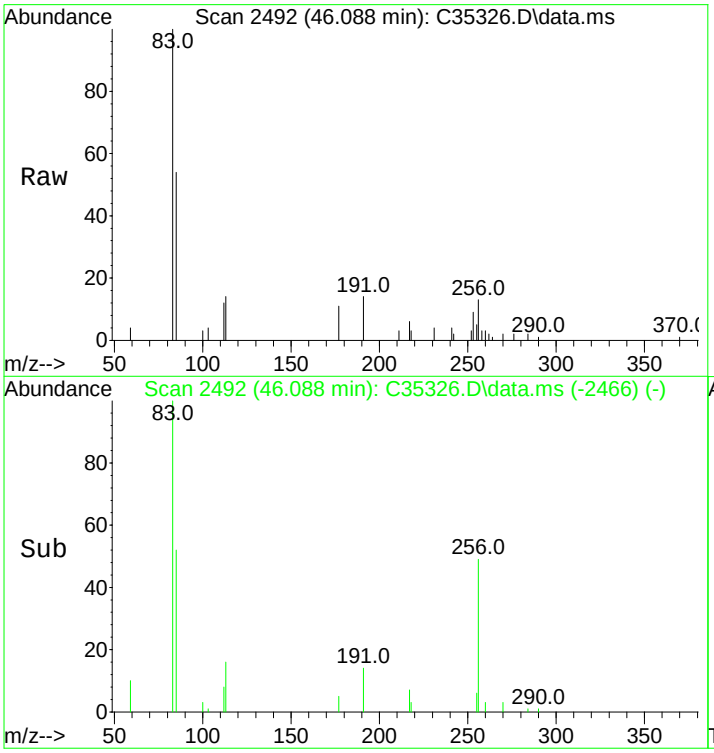


#78
C1-Chrysenes
Concen: 484.44 ng/mL m
RT: 44.386 min Scan# 2379
Delta R.T. 0.046 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:242 Resp: 57943

Ion	Ratio	Lower	Upper
242	100		
241	2.8	32.7	49.1#

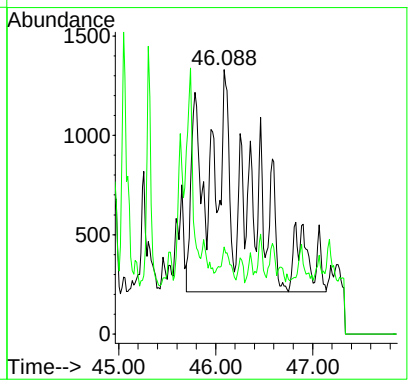


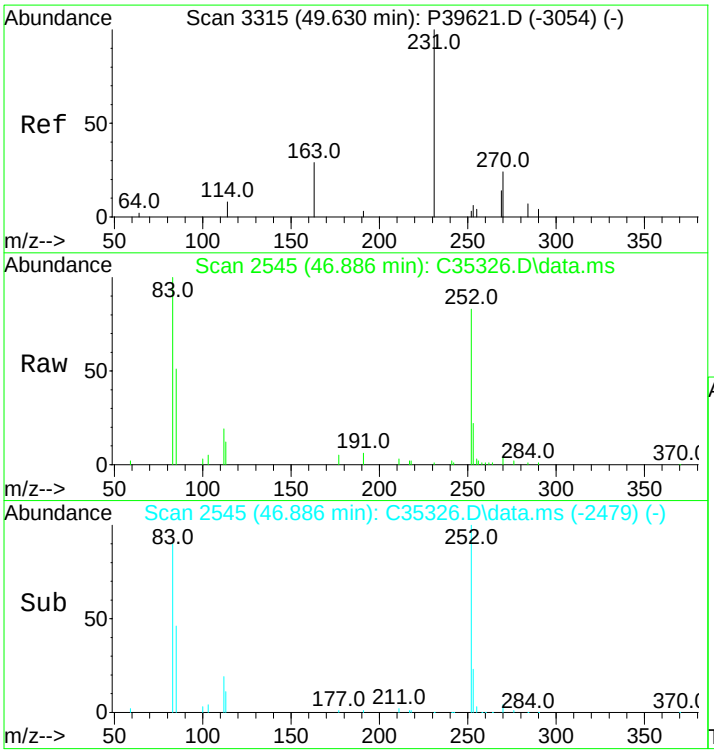


#79
C2-Chrysenes
Concen: 278.07 ng/mL m
RT: 46.088 min Scan# 2492
Delta R.T. -0.310 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:256 Resp: 33259

Ion	Ratio	Lower	Upper
256	100		
241	1.7	30.9	46.3#

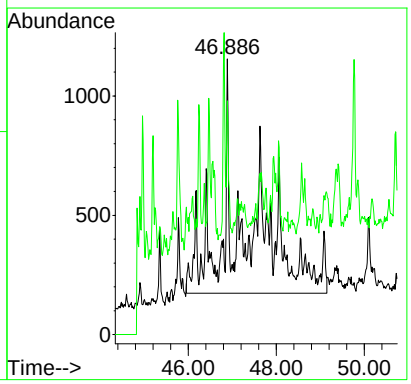


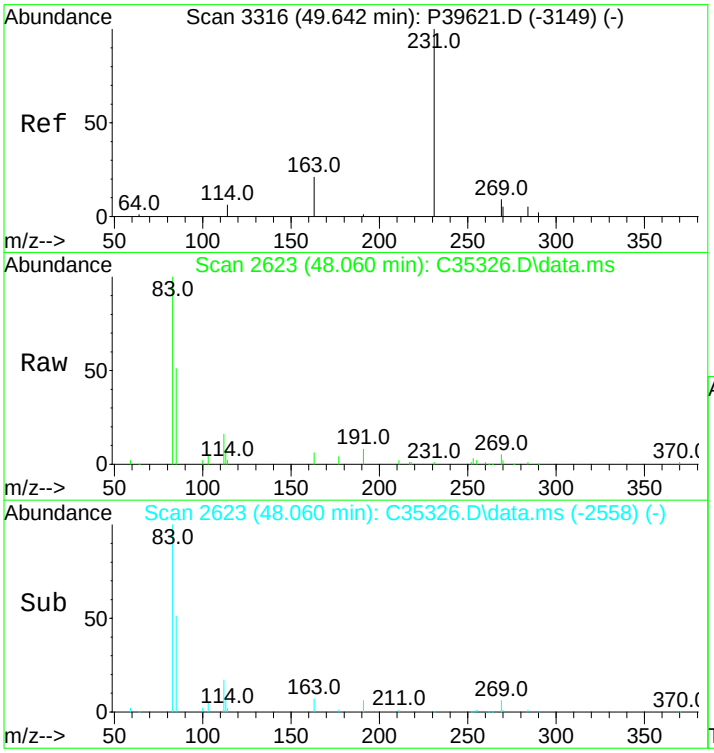


#80
C3-Chrysenes
Concen: 295.53 ng/mL m
RT: 46.886 min Scan# 2545
Delta R.T. -2.195 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:270 Resp: 35347

Ion	Ratio	Lower	Upper
270	100		
255	0.4	41.4	62.2#

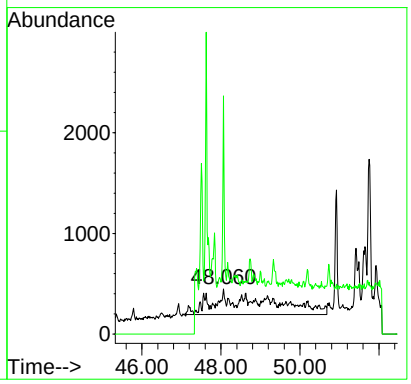


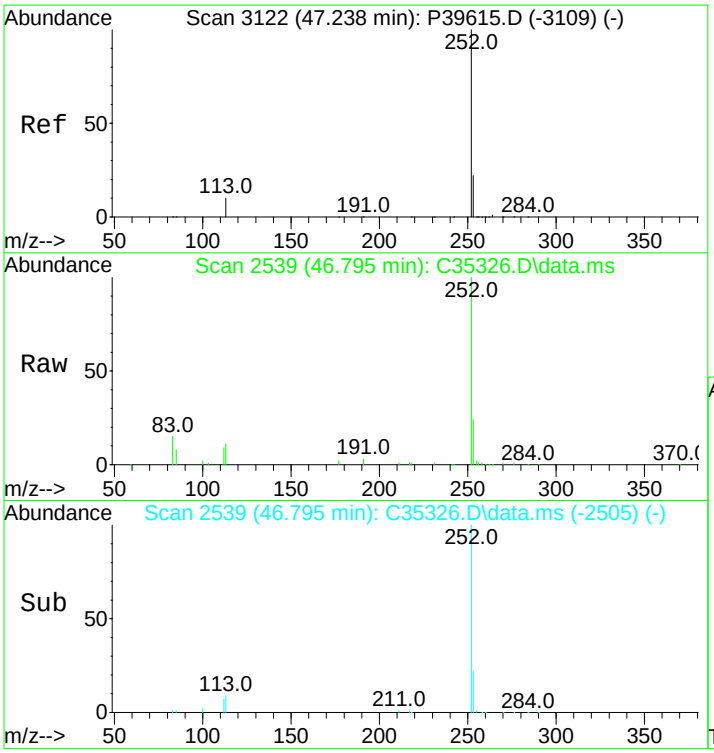


#81
C4-Chrysenes
Concen: 189.12 ng/mL m
RT: 48.060 min Scan# 2623
Delta R.T. -1.124 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:284 Resp: 22620

Ion	Ratio	Lower	Upper
284	100		
269	5.3	82.2	123.4#

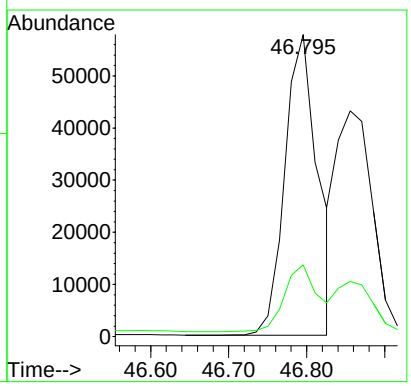


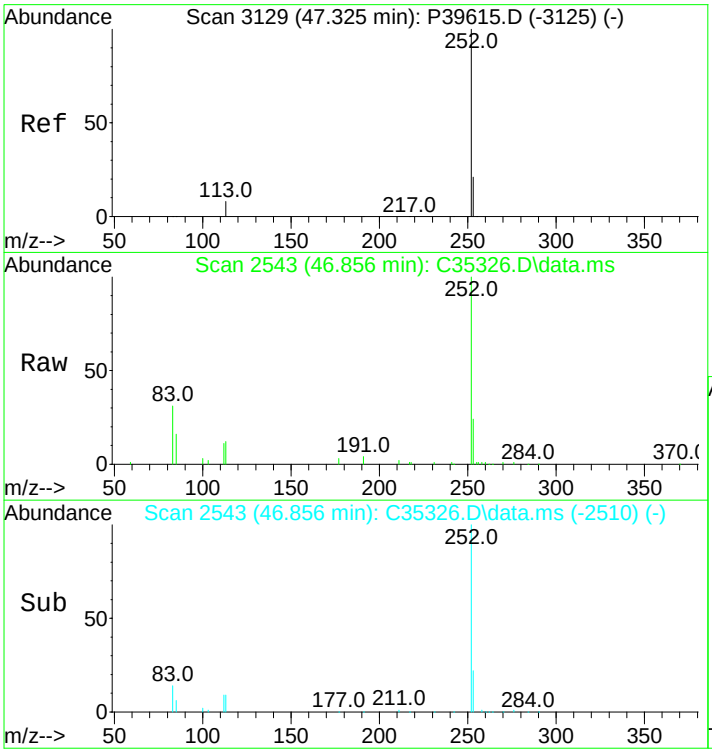


#82
Benzo[b]fluoranthene
Concen: 1297.67 ng/mL
RT: 46.795 min Scan# 2539
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 168927

Ion	Ratio	Lower	Upper
252	100		
253	22.6	20.4	30.6

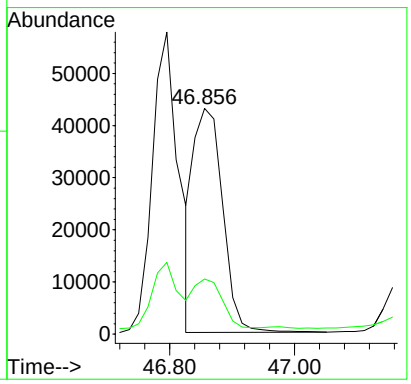


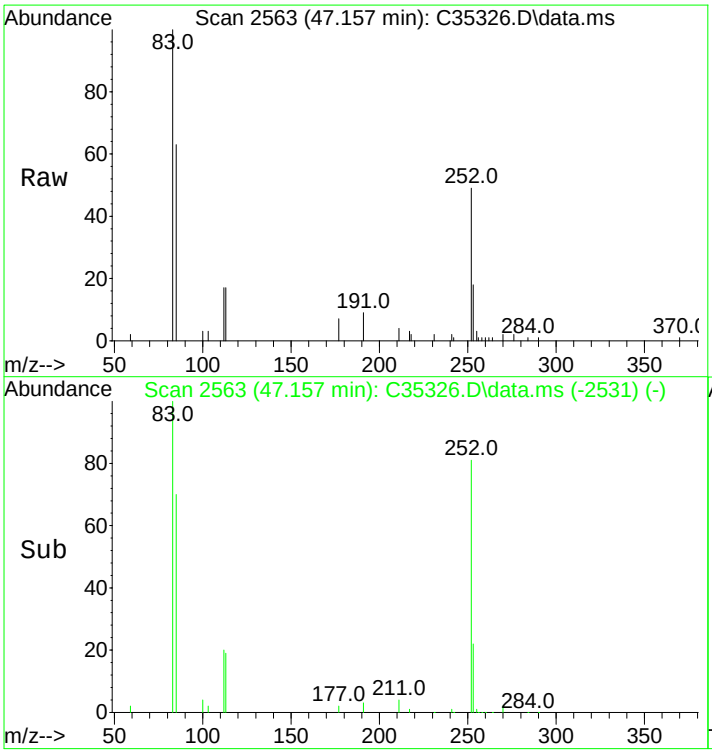


#83
Benzo[j]+[k]fluoranthene
Concen: 993.80 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 140850

Ion	Ratio	Lower	Upper
252	100		
253	21.7	20.6	31.0

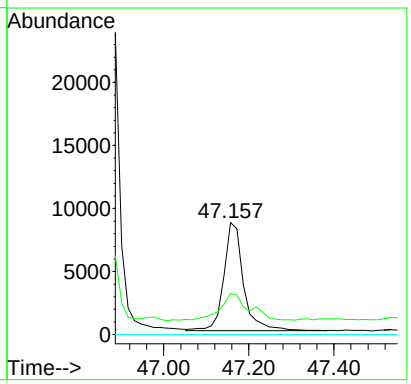


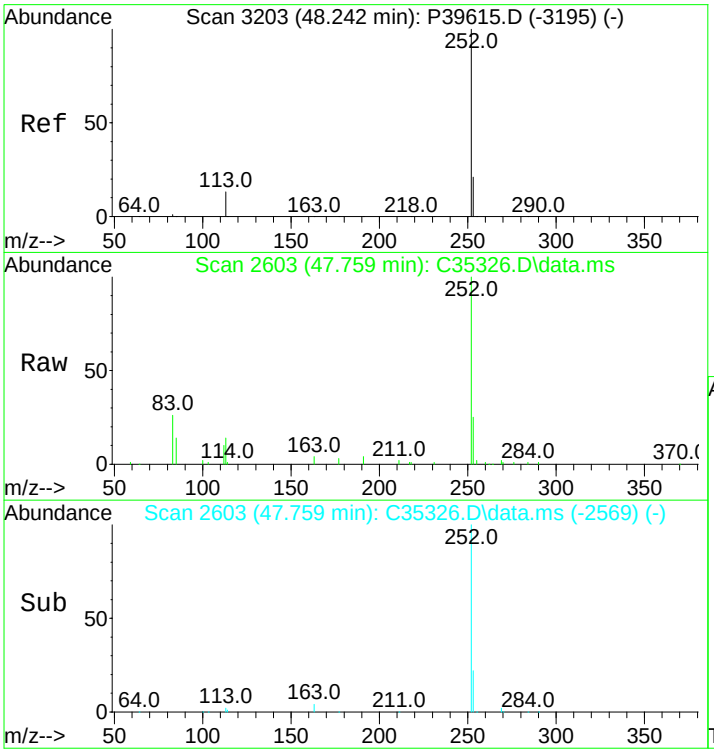


#84
Benzo[a]fluoranthene
Concen: 195.02 ng/mL
RT: 47.157 min Scan# 2563
Delta R.T. -0.013 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 27640

Ion	Ratio	Lower	Upper
252	100		
253	36.4	146.1	219.1#
125	0.0	0.0	0.0

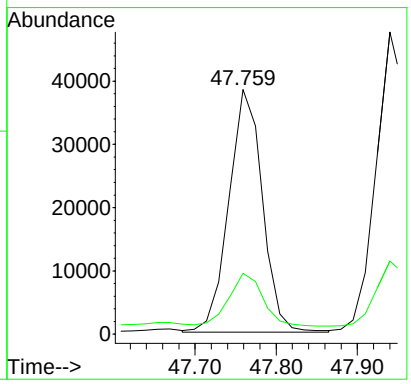


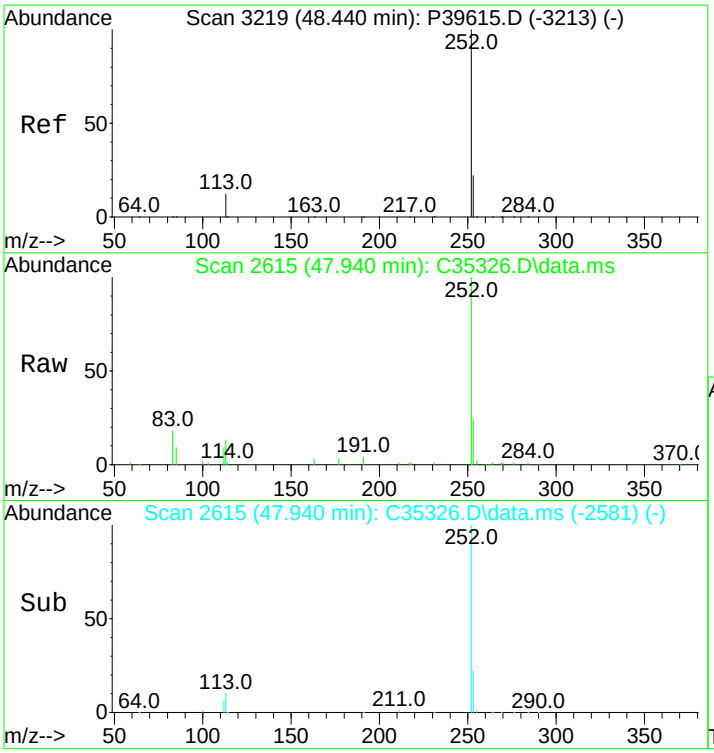


#85
Benzo[e]pyrene
Concen: 856.76 ng/mL m
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 110317

Ion	Ratio	Lower	Upper
252	100		
253	21.9	21.0	31.6

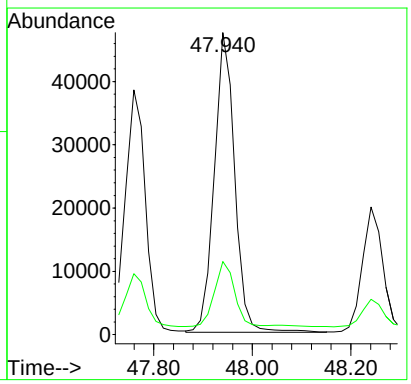


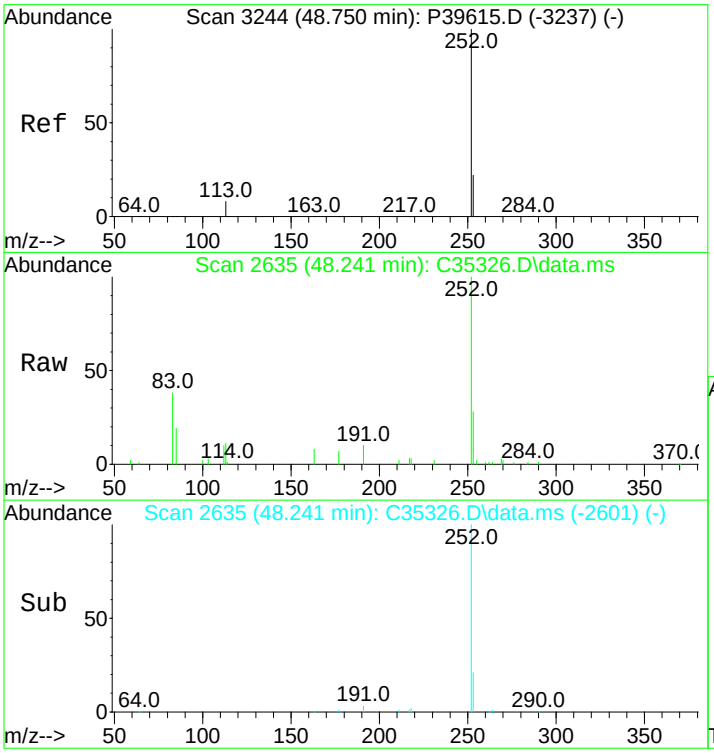


#87
Benzo[a]pyrene
Concen: 1104.05 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 136870

Ion	Ratio	Lower	Upper
252	100		
253	21.4	21.4	32.0

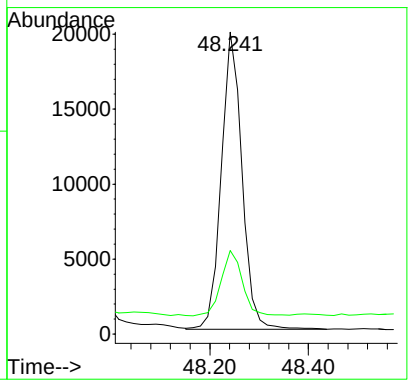


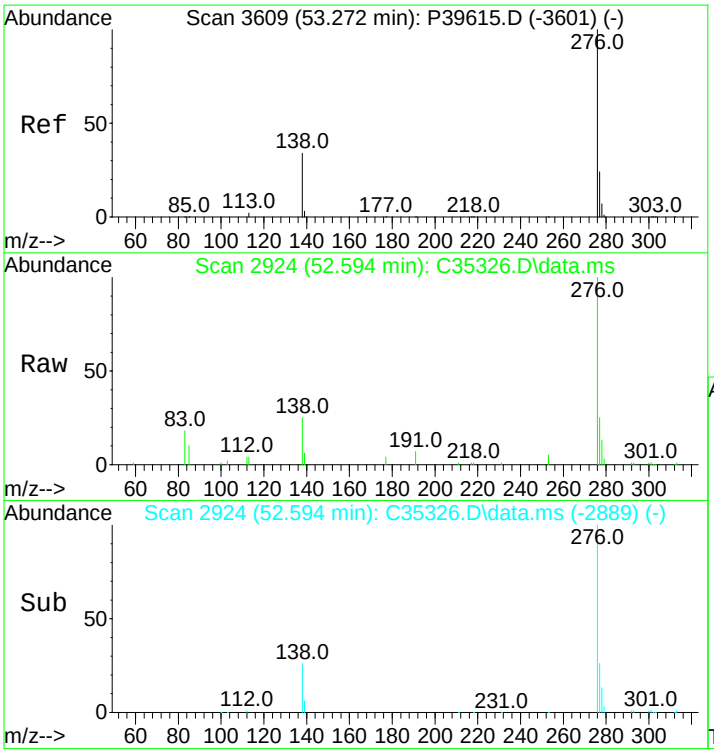


#88
Perylene
Concen: 438.00 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:252 Resp: 58030

Ion	Ratio	Lower	Upper
252	100		
253	22.6	21.8	32.6

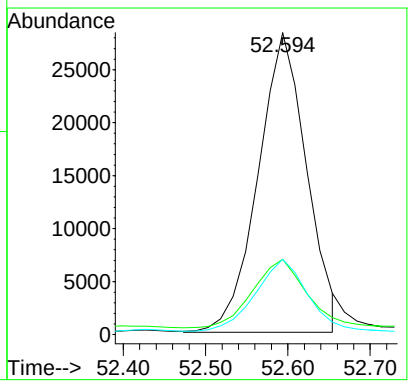


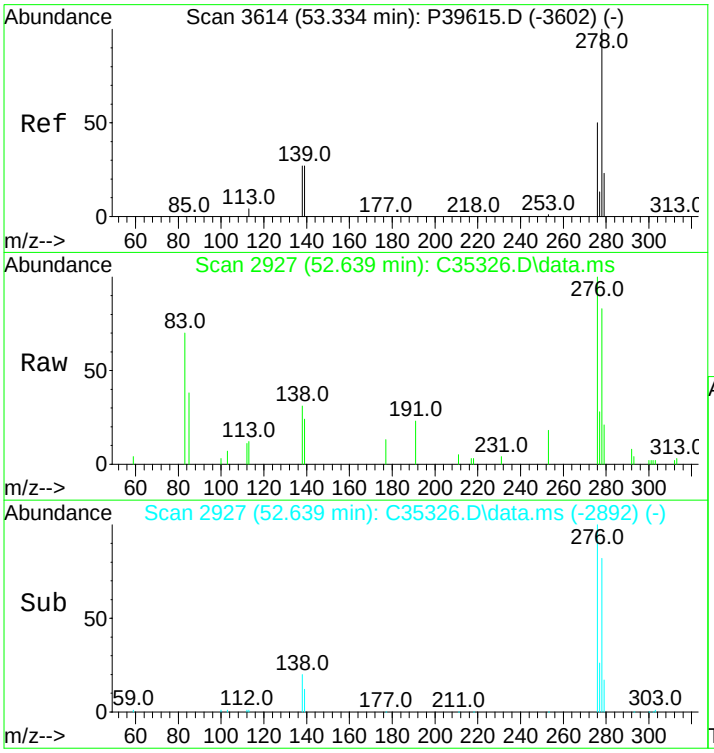


#89
Indeno[1,2,3-cd]pyrene
Concen: 803.53 ng/mL m
RT: 52.594 min Scan# 2924
Delta R.T. 0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:276 Resp: 115924

Ion	Ratio	Lower	Upper
276	100		
138	25.7	19.1	28.7
277	26.7	19.5	29.3

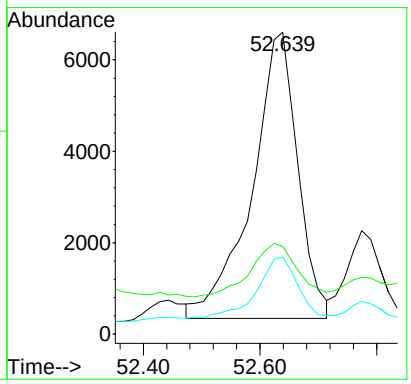


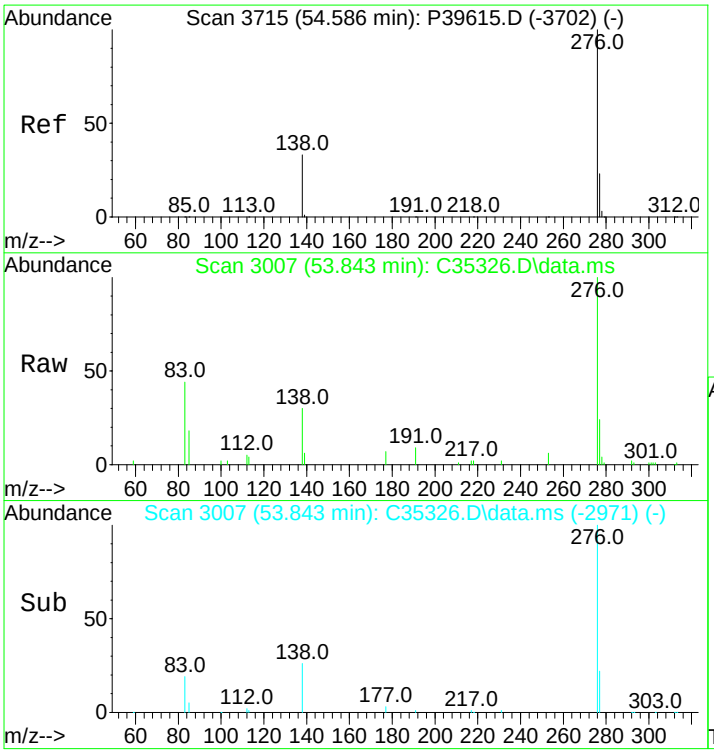


#90
Dibenz[ah]+[ac]anthracene
Concen: 248.77 ng/mL m
RT: 52.639 min Scan# 2927
Delta R.T. 0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:278 Resp: 34141

Ion	Ratio	Lower	Upper
278	100		
139	19.1	16.6	25.0
279	21.9	20.0	30.0

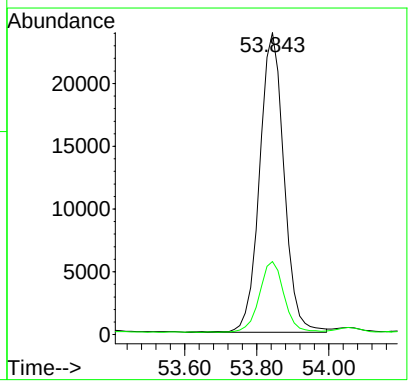


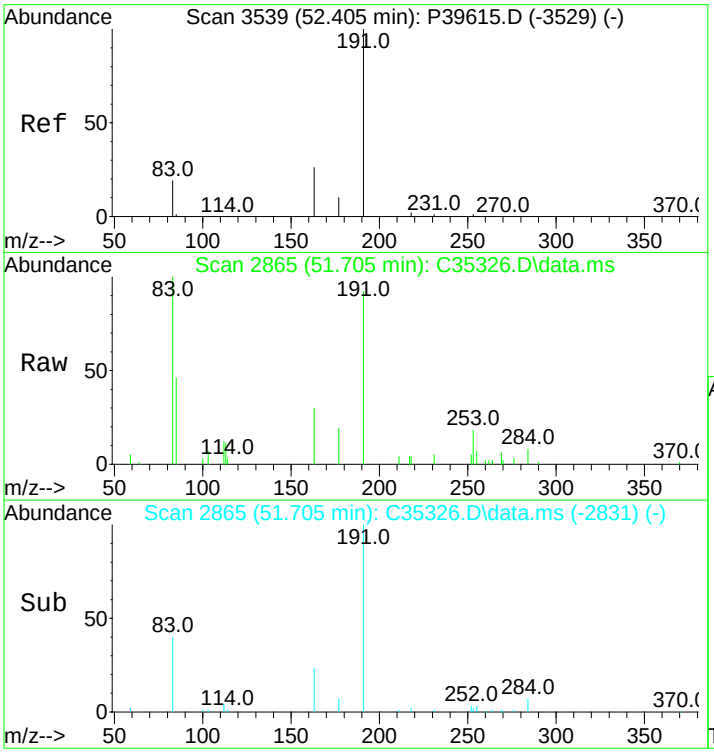


#91
Benzo[g,h,i]perylene
Concen: 731.86 ng/mL
RT: 53.843 min Scan# 3007
Delta R.T. 0.045 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:276 Resp: 111550

Ion	Ratio	Lower	Upper
276	100		
277	24.1	18.8	28.2

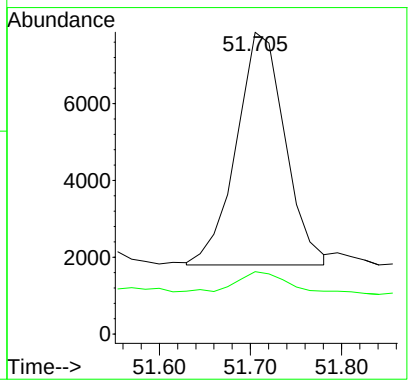


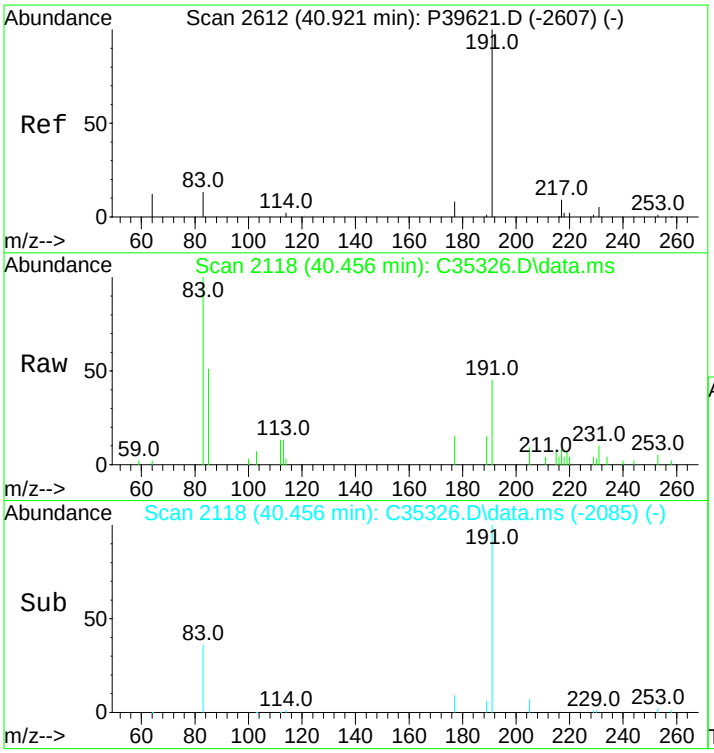


#92
Hopane (T19)
Concen: 912.34 ng/mL m
RT: 51.705 min Scan# 2865
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:191 Resp: 22444

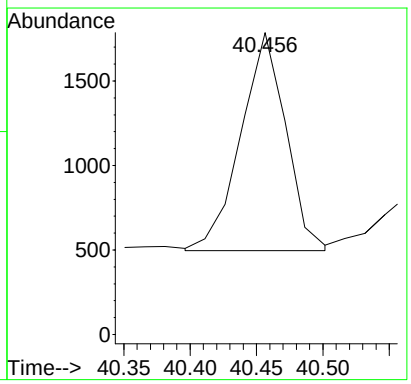
Ion	Ratio	Lower	Upper
191	100		
177	12.3	17.2	25.8#

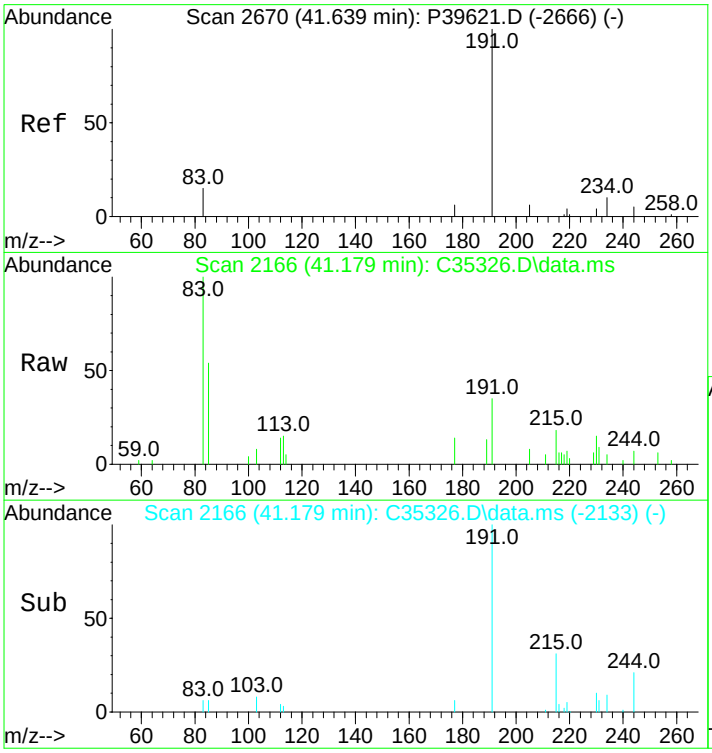




#94
C23 Tricyclic Terpane (T4)
Concen: 124.06 ng/ml m
RT: 40.456 min Scan# 2118
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

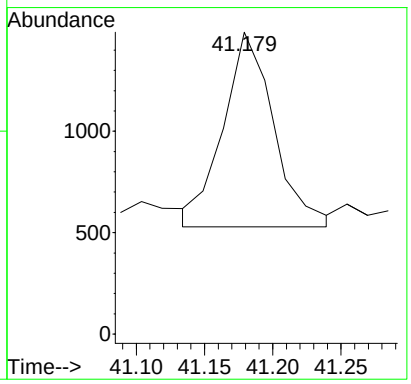
Tgt Ion:191 Resp: 3052

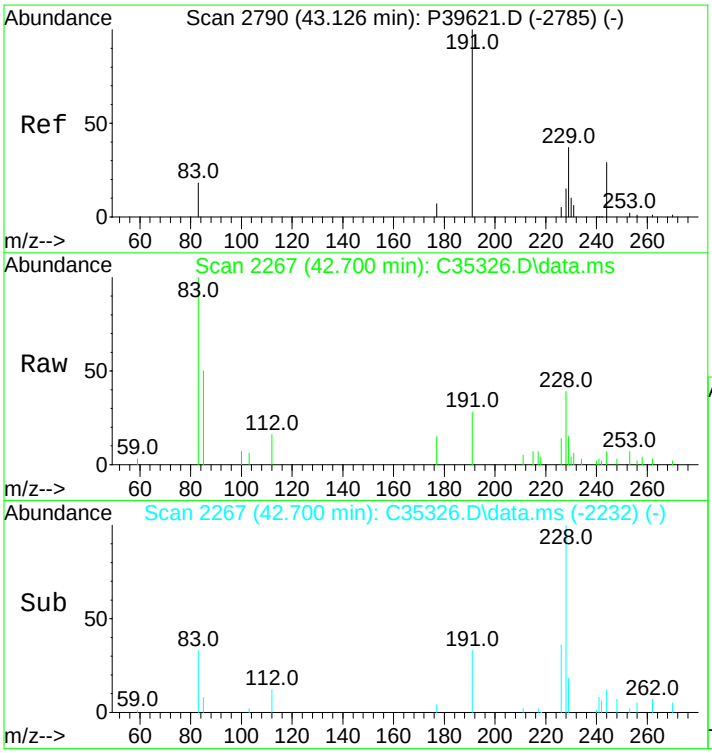




#95
C24 Tricyclic Terpane (T5)
Concen: 100.65 ng/ml m
RT: 41.179 min Scan# 2166
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

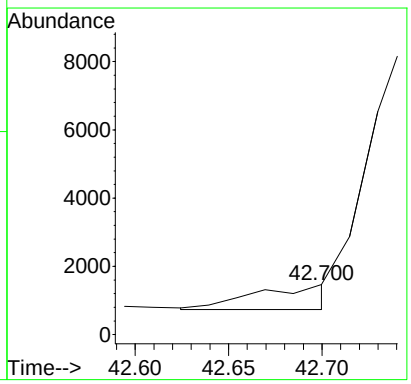
Tgt Ion:191 Resp: 2476

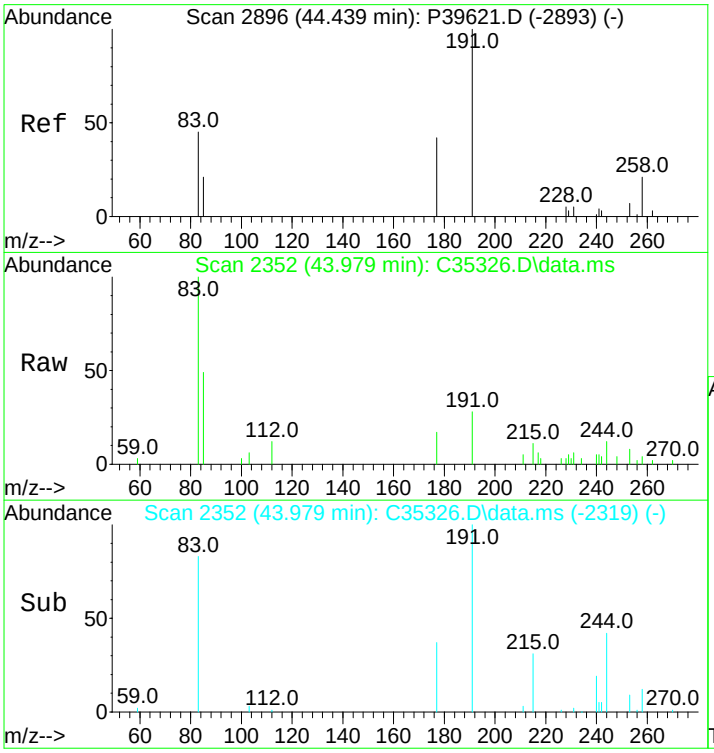




#96
C25 Tricyclic Terpane (T6)
Concen: 83.21 ng/ml m
RT: 42.700 min Scan# 2267
Delta R.T. 0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

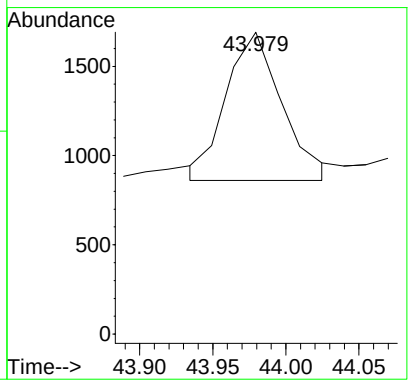
Tgt Ion:191 Resp: 2047

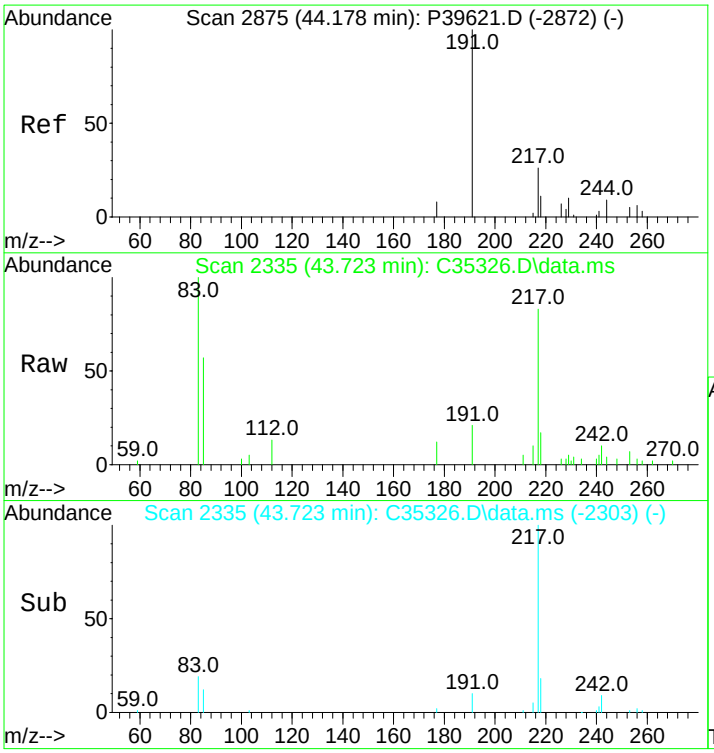




#97
C24 Tetracyclic Terpane (T6a)
Concen: 89.47 ng/ml m
RT: 43.979 min Scan# 2352
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

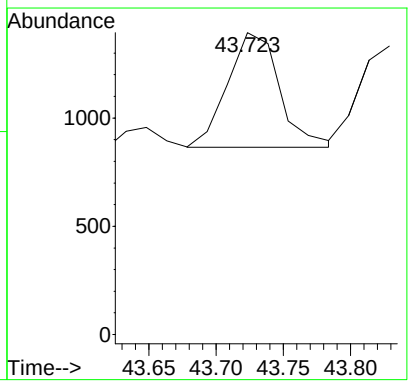
Tgt Ion:191 Resp: 2201

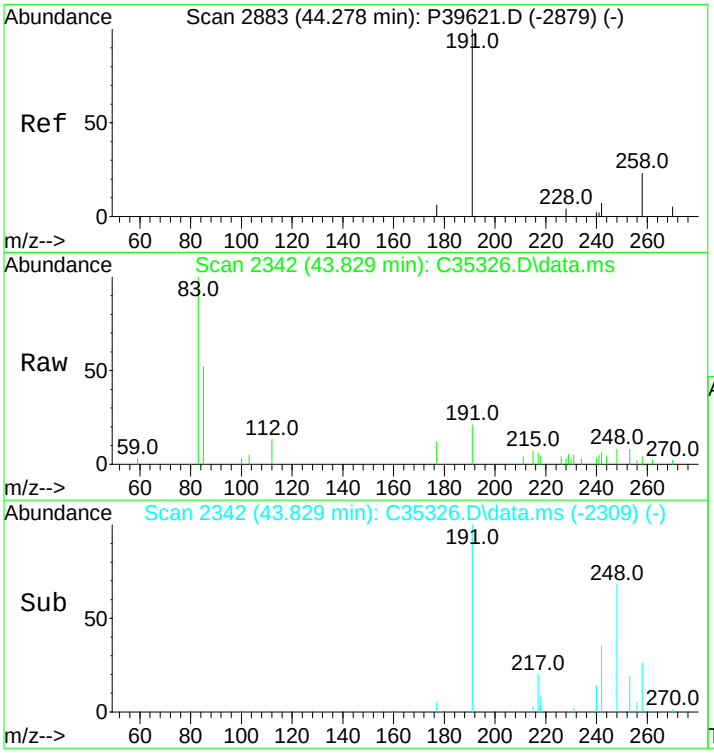




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 58.01 ng/ml m
RT: 43.723 min Scan# 2335
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

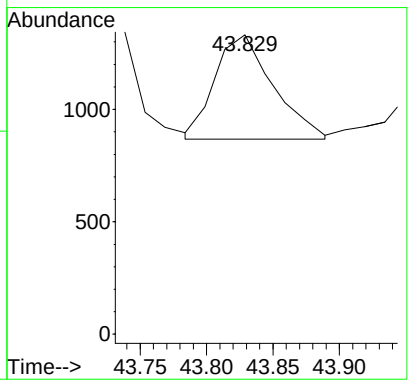
Tgt Ion:191 Resp: 1427

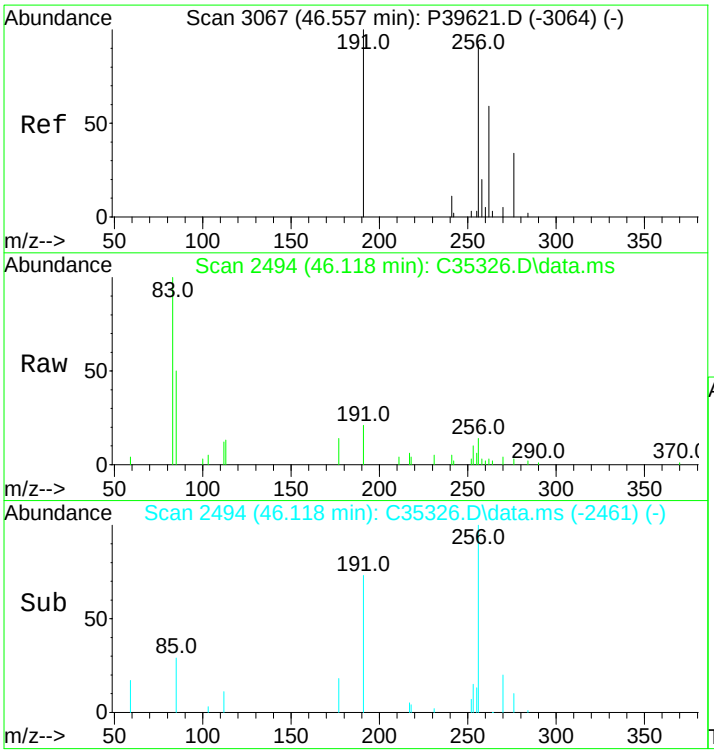




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 57.40 ng/ml m
RT: 43.829 min Scan# 2342
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

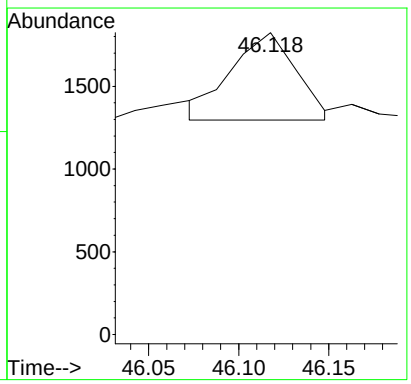
Tgt Ion:191 Resp: 1412

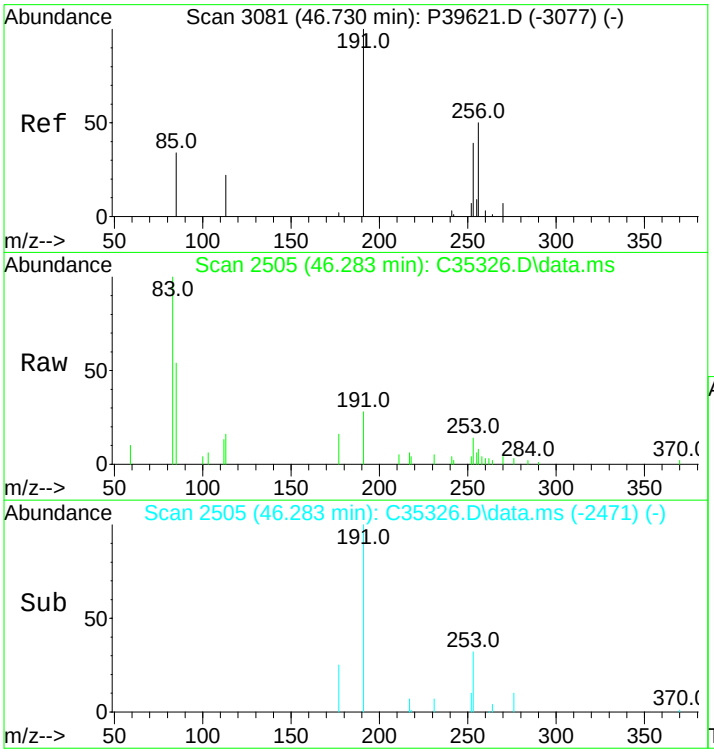




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 53.54 ng/ml m
RT: 46.118 min Scan# 2494
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

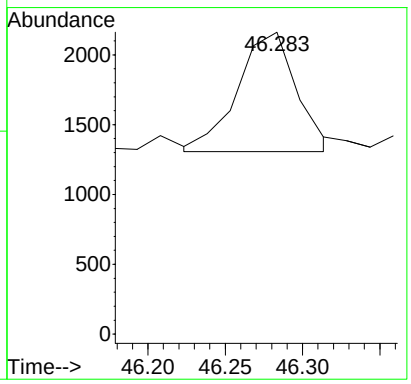
Tgt Ion:191 Resp: 1317

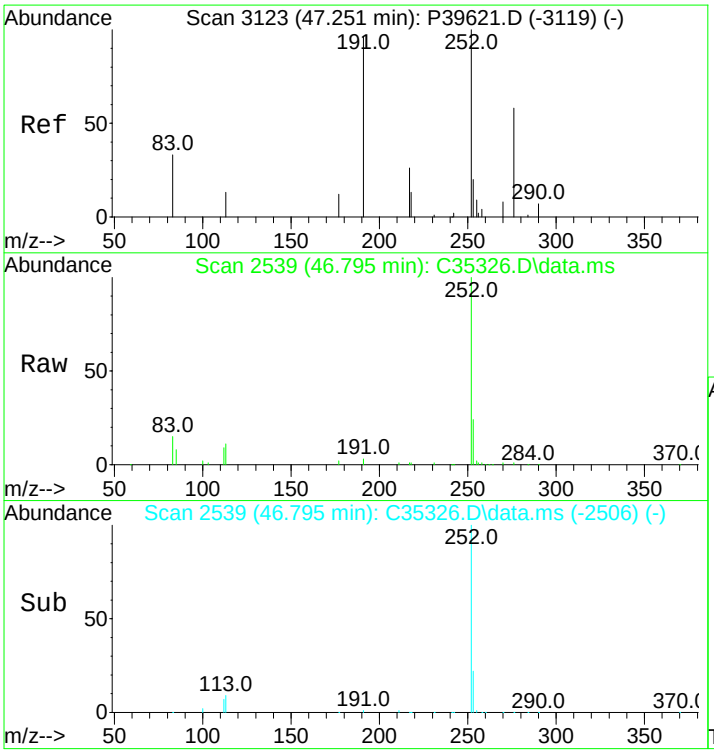




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 92.15 ng/ml m
RT: 46.283 min Scan# 2505
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

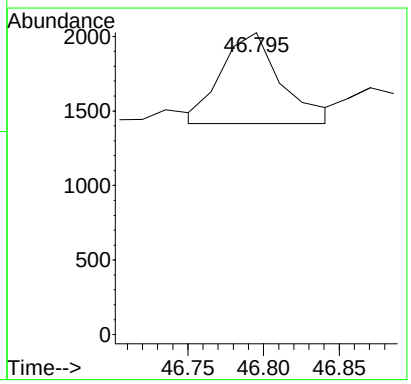
Tgt Ion:191 Resp: 2267

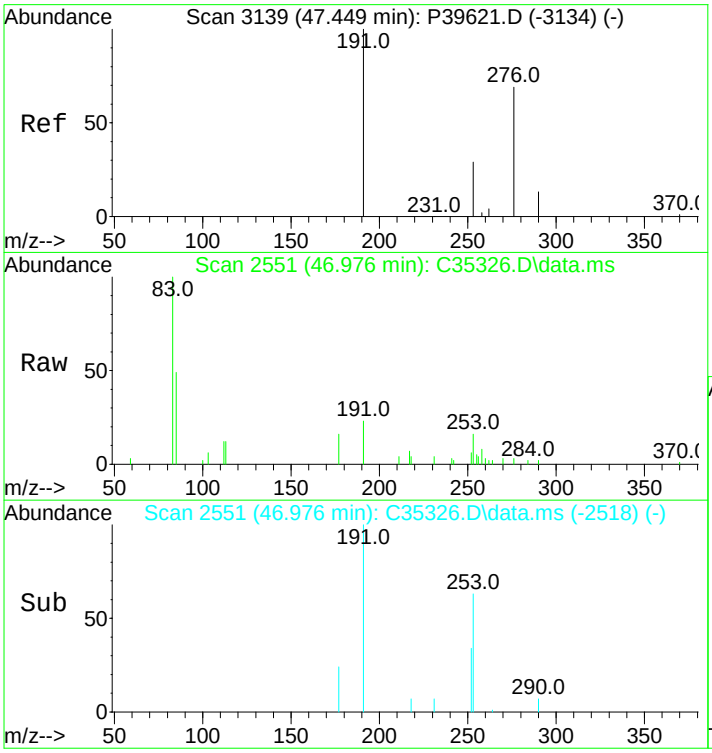




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 68.33 ng/ml m
RT: 46.795 min Scan# 2539
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

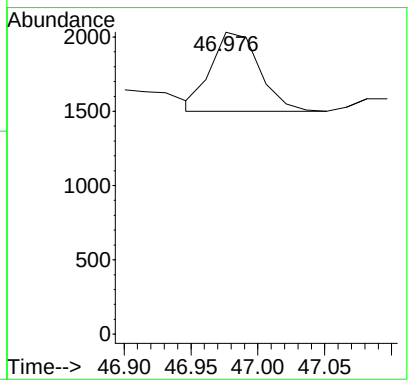
Tgt Ion:191 Resp: 1681

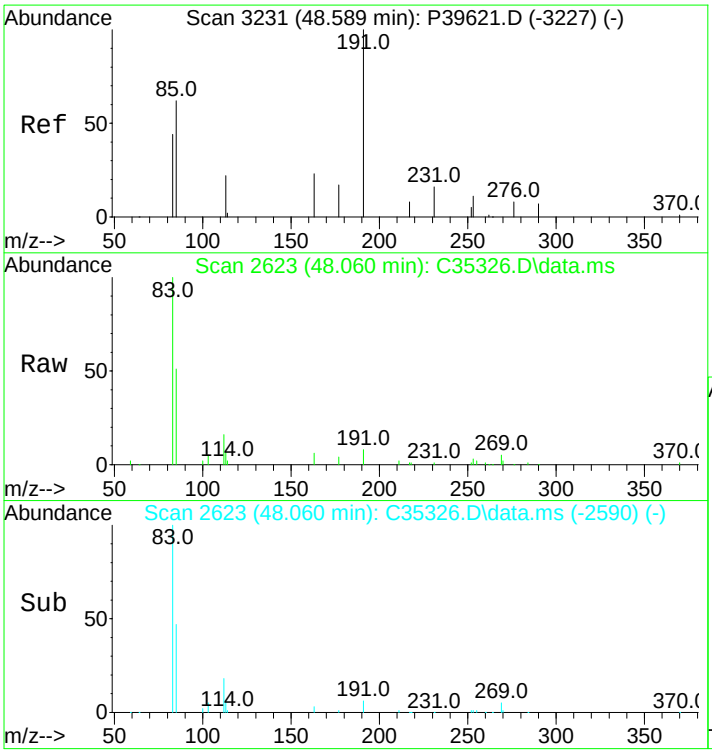




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 54.71 ng/ml
RT: 46.976 min Scan# 2551
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

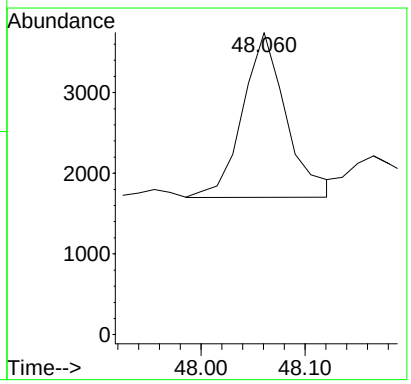
Tgt Ion:191 Resp: 1346

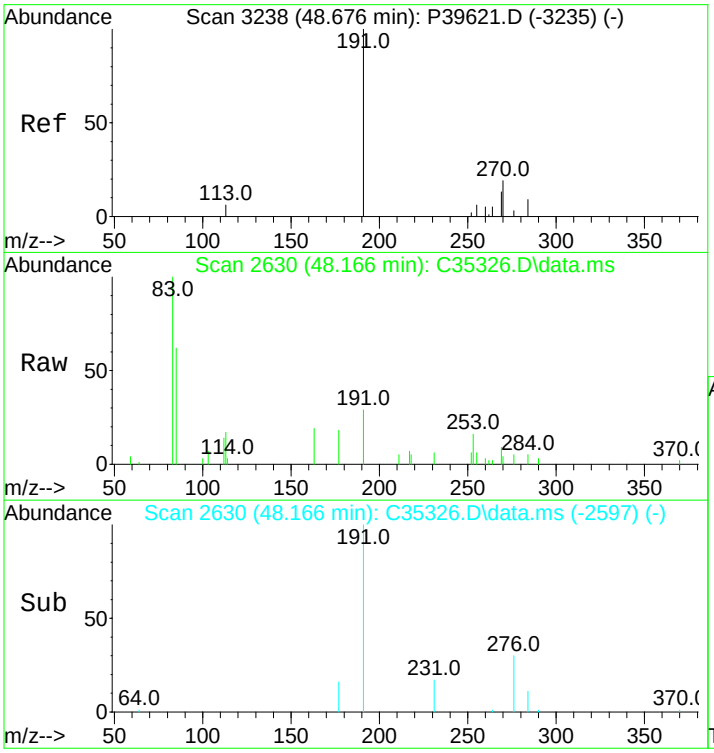




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 243.00 ng/ml
RT: 48.060 min Scan# 2623
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

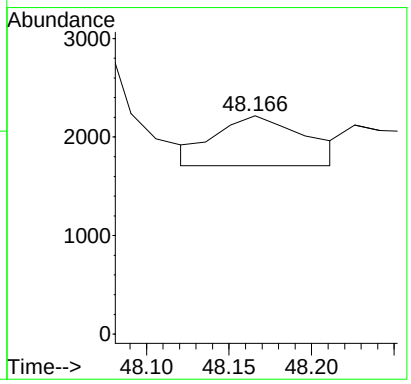
Tgt Ion:191 Resp: 5978

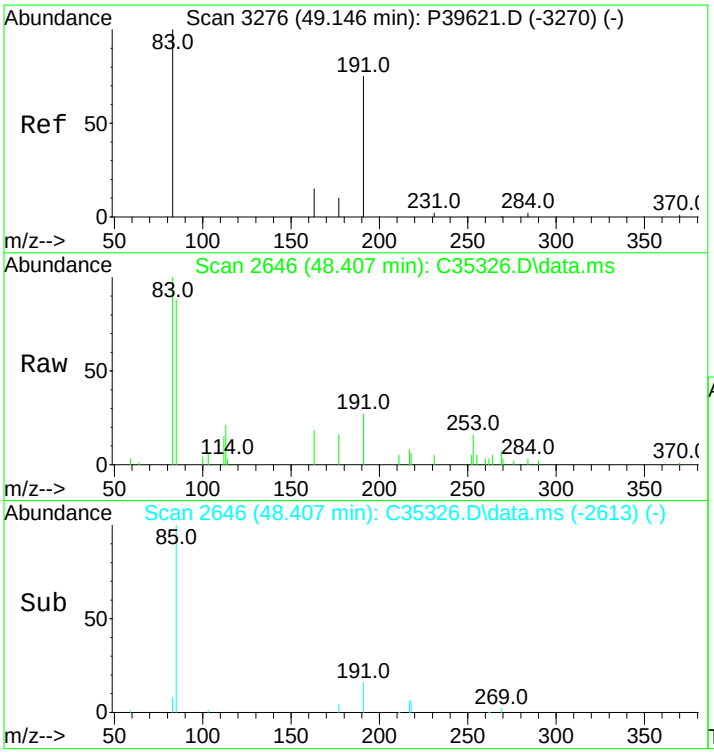




#105
C30 Tricyclic Terpane-22S
Concen: 77.80 ng/mL m
RT: 48.166 min Scan# 2630
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

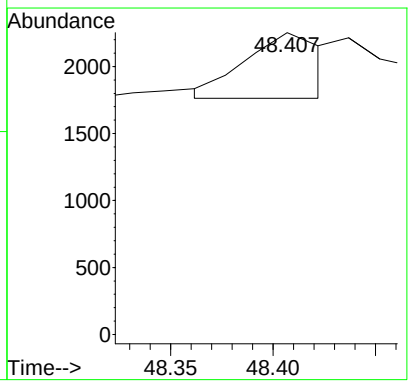
Tgt Ion:191 Resp: 1914

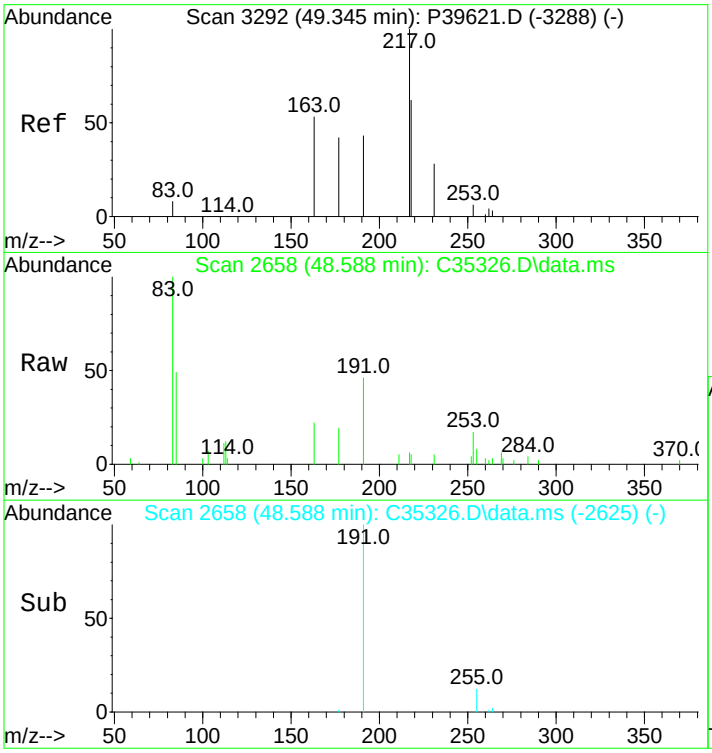




#106
C30 Tricyclic Terpane-22R
Concen: 51.46 ng/mL m
RT: 48.407 min Scan# 2646
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

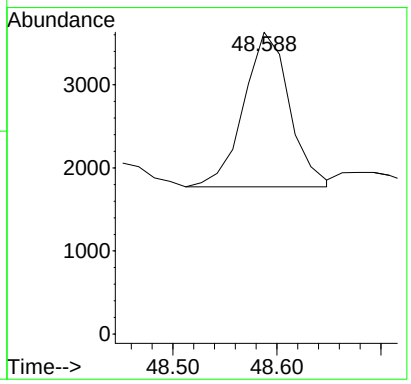
Tgt Ion:191 Resp: 1266

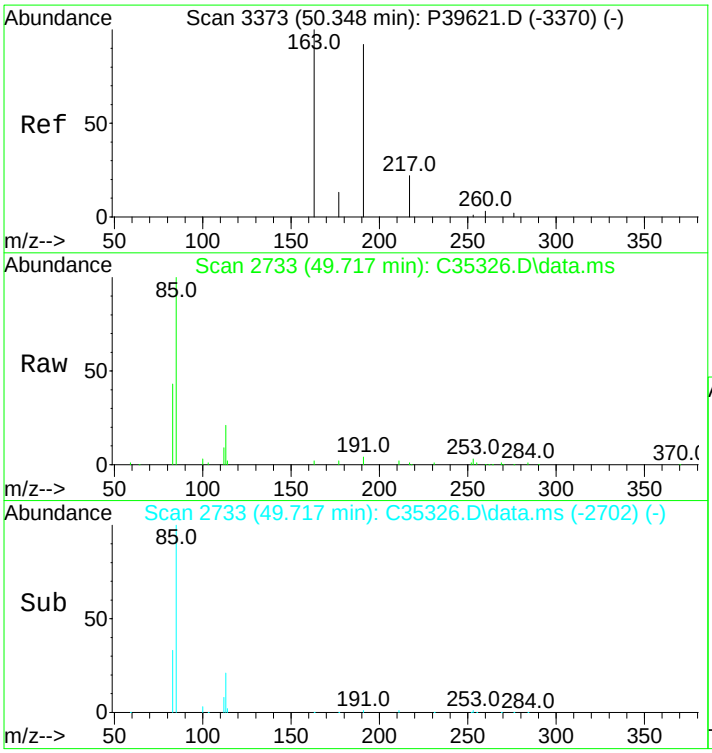




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 232.23 ng/ml
RT: 48.588 min Scan# 2658
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

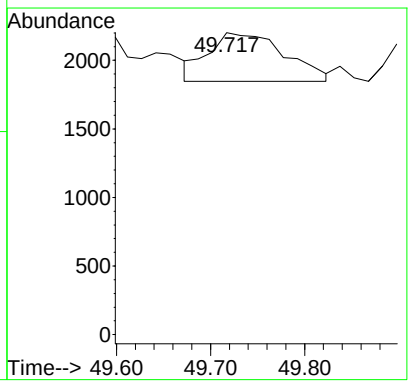
Tgt Ion:191 Resp: 5713

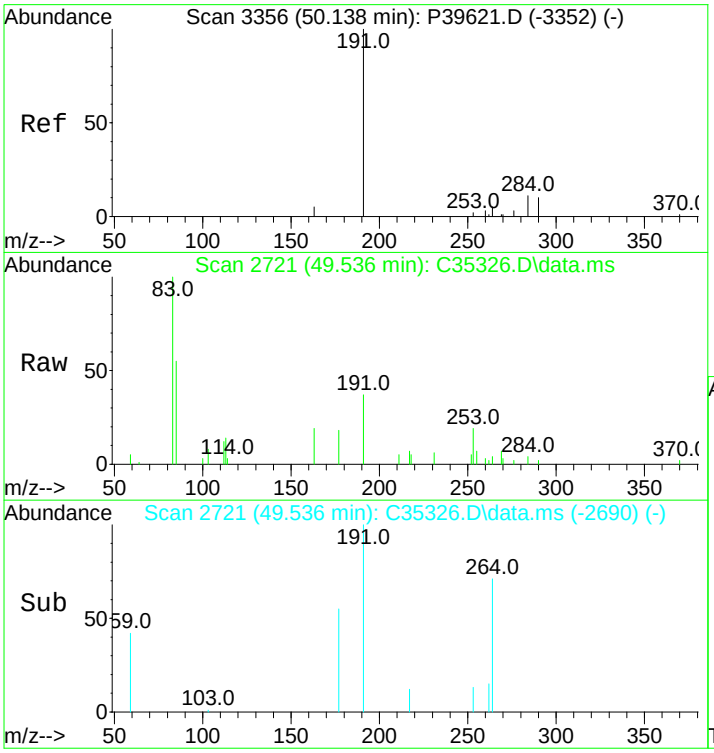




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 81.42 ng/ml m
RT: 49.717 min Scan# 2733
Delta R.T. -0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

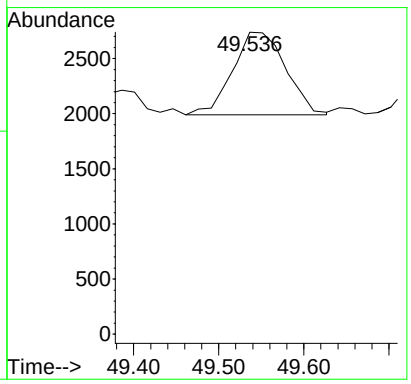
Tgt Ion:191 Resp: 2003

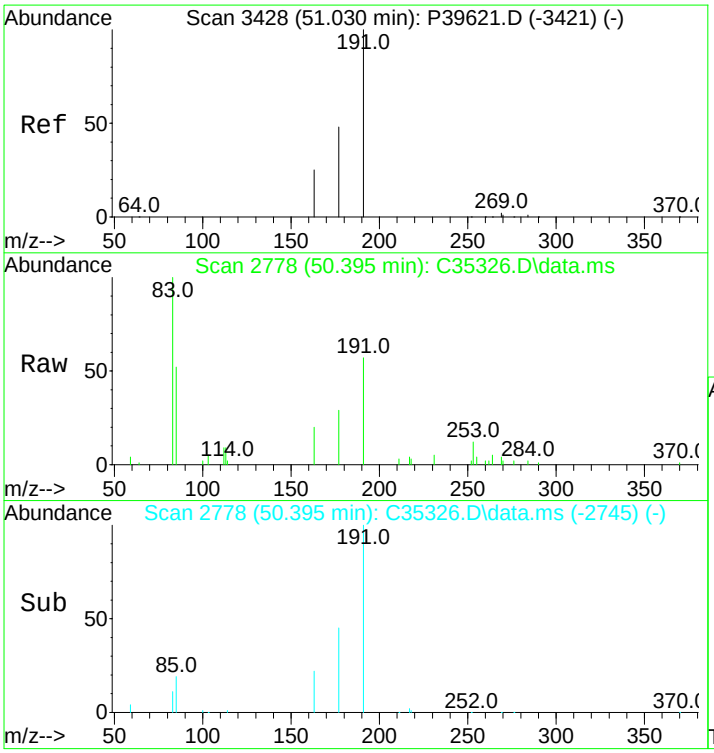




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 132.56 ng/ml
RT: 49.536 min Scan# 2721
Delta R.T. -0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

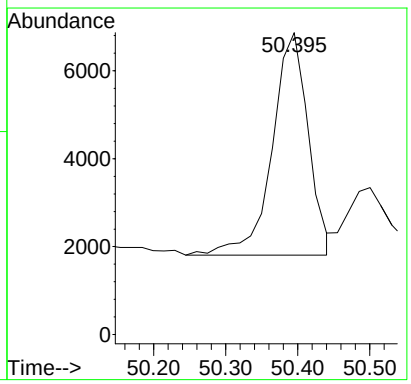
Tgt Ion:191 Resp: 3261

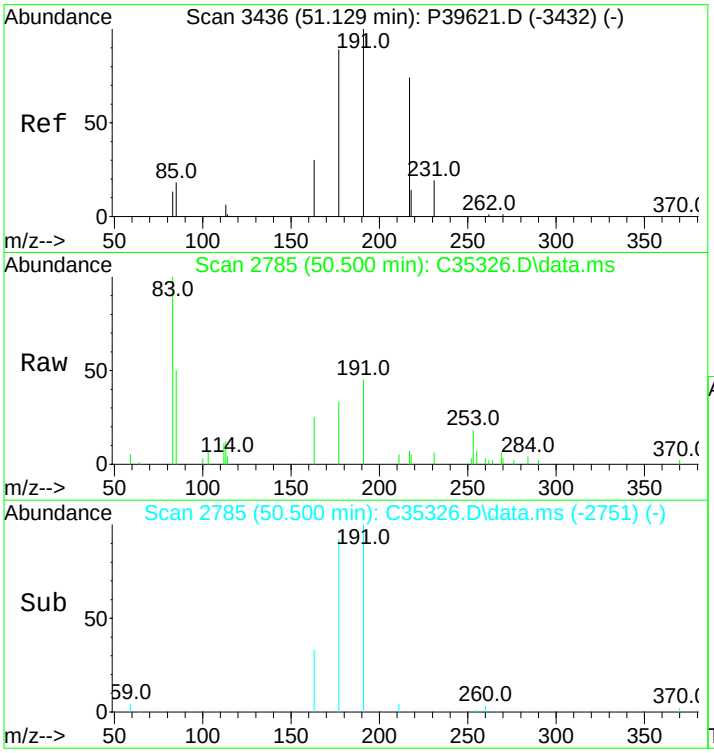




#110
30-Norhopane (T15)
Concen: 716.29 ng/ml
RT: 50.395 min Scan# 2778
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

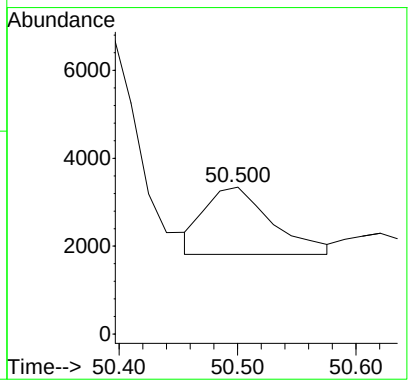
Tgt Ion:191 Resp: 17621

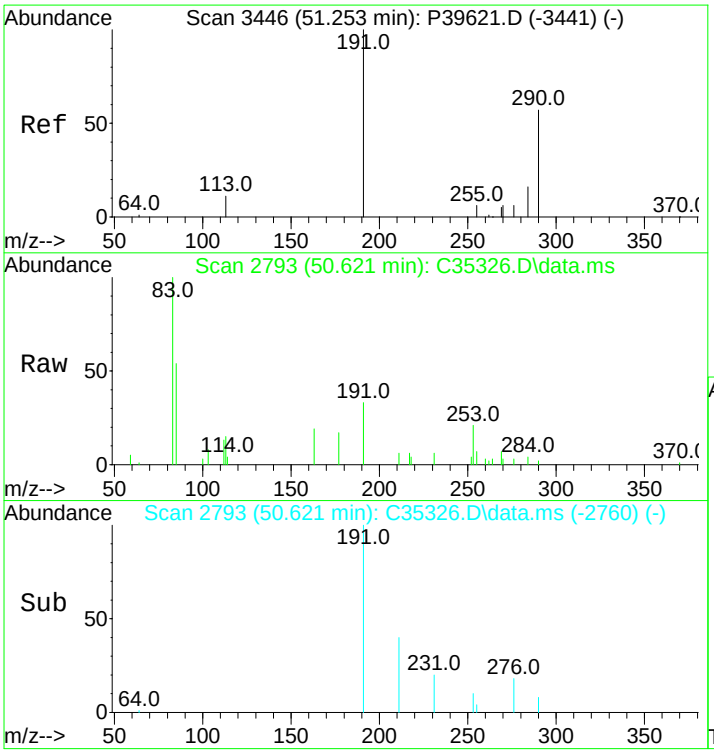




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 246.01 ng/ml m
RT: 50.500 min Scan# 2785
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

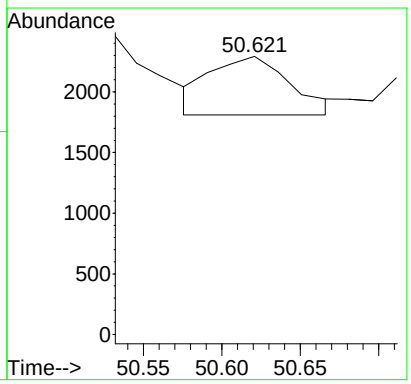
Tgt Ion:191 Resp: 6052

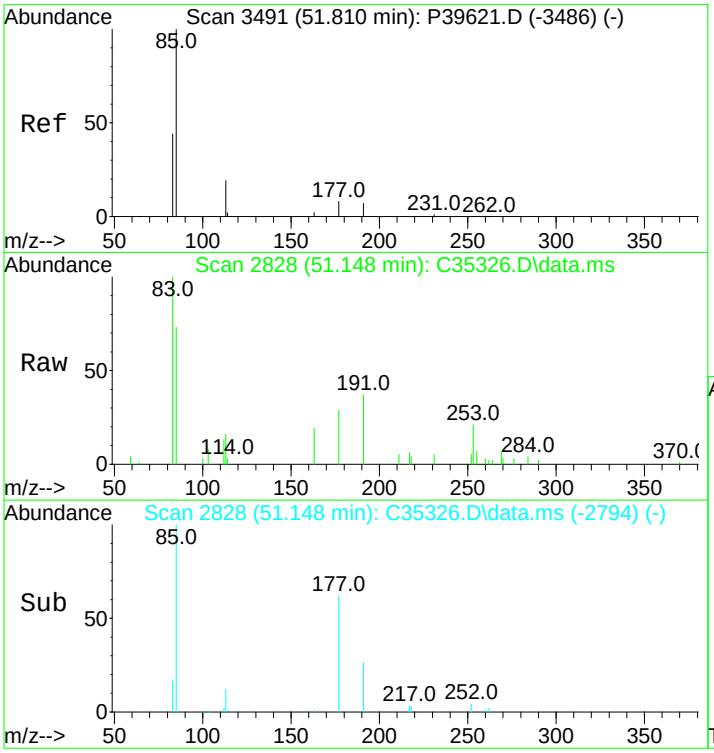




#112
17a(H)-Diahopane (X)
Concen: 69.59 ng/ml m
RT: 50.621 min Scan# 2793
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

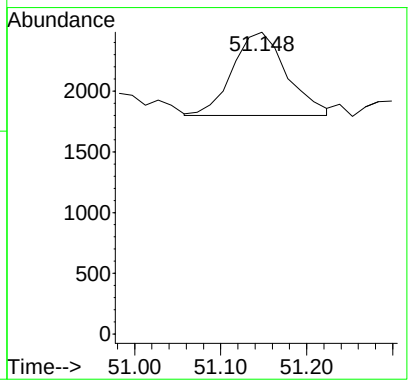
Tgt Ion:191 Resp: 1712

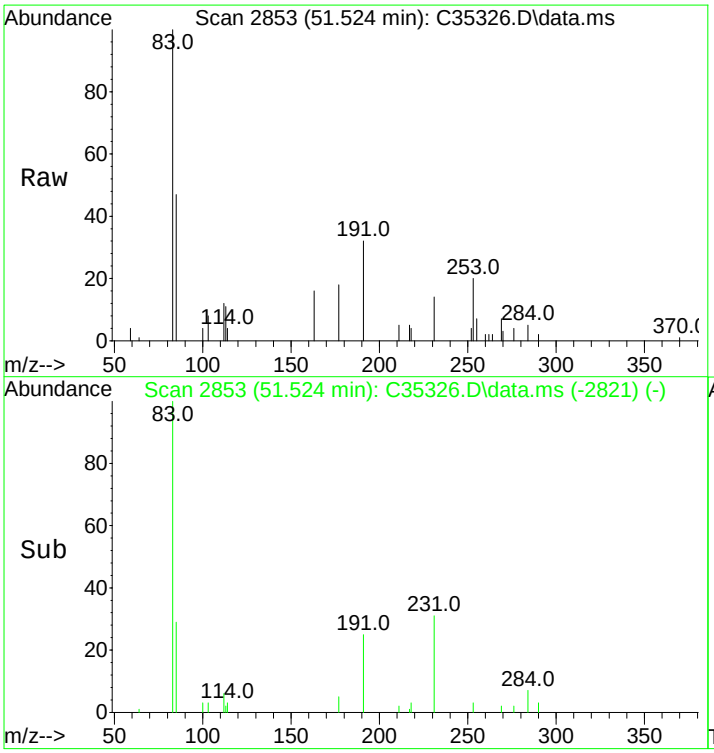




#113
30-Normoretane (T17)
Concen: 121.95 ng/ml m
RT: 51.148 min Scan# 2828
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

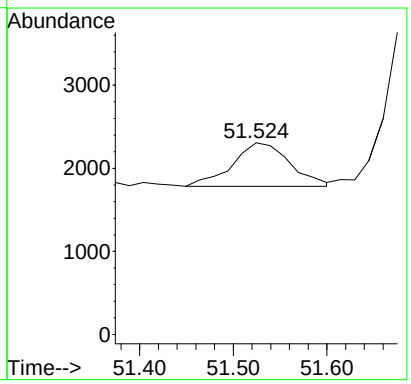
Tgt Ion:191 Resp: 3000

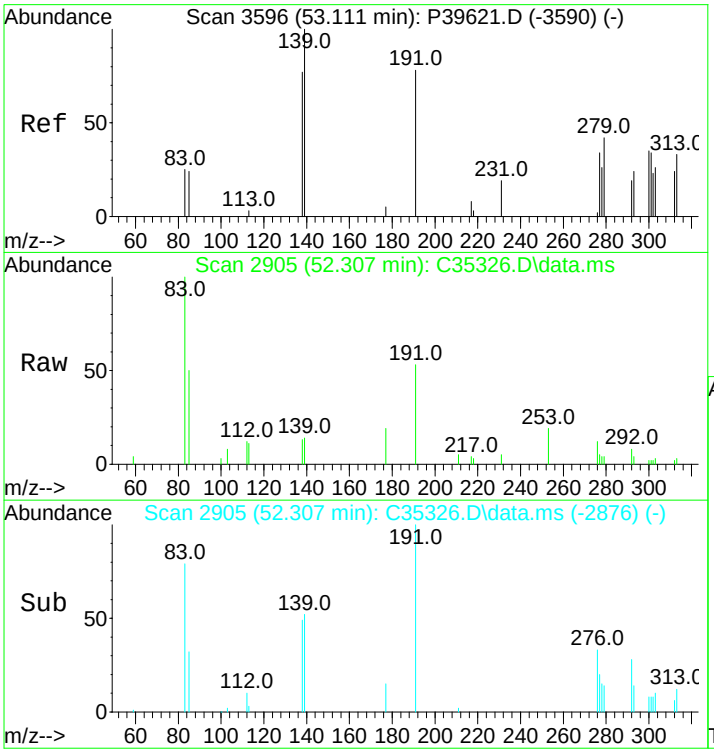




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 90.57 ng/ml
RT: 51.524 min Scan# 2853
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

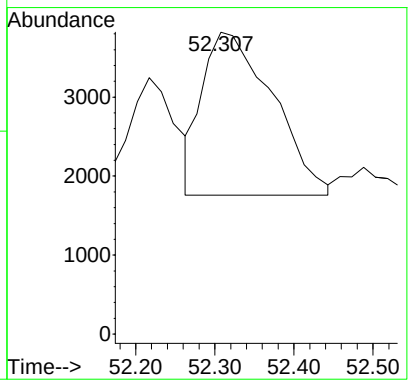
Tgt Ion:191 Resp: 2228

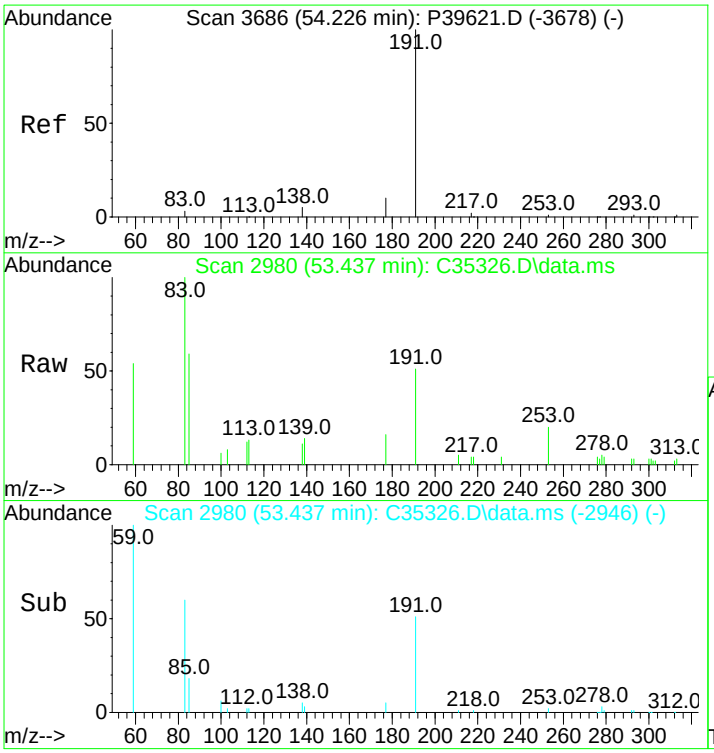




#115
Moretane (T20)
Concen: 519.10 ng/ml m
RT: 52.307 min Scan# 2905
Delta R.T. -0.060 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

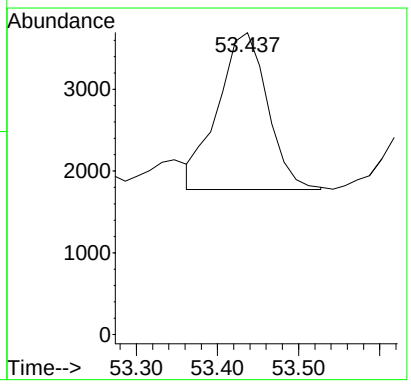
Tgt Ion:191 Resp: 12770

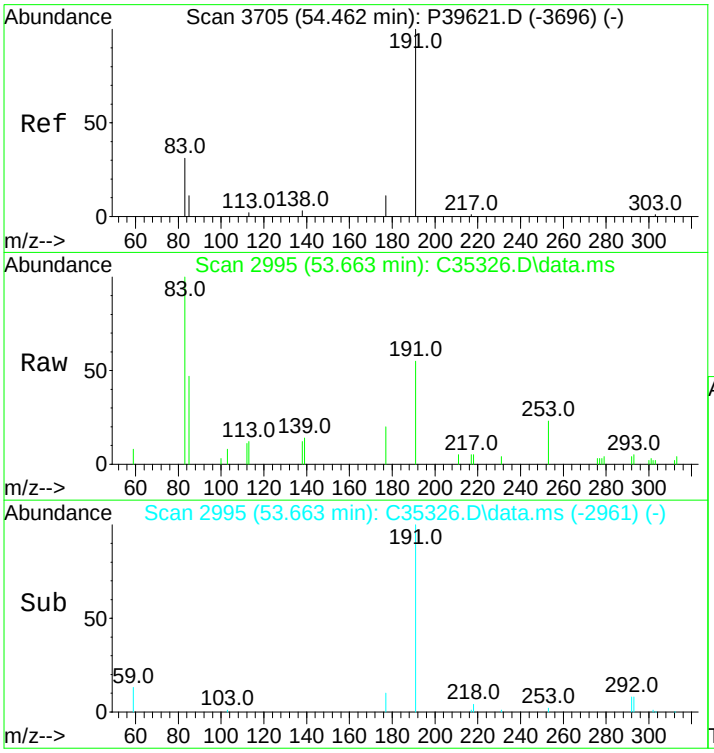




#116
30-Homohopane-22S (T21)
Concen: 331.13 ng/ml m
RT: 53.437 min Scan# 2980
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

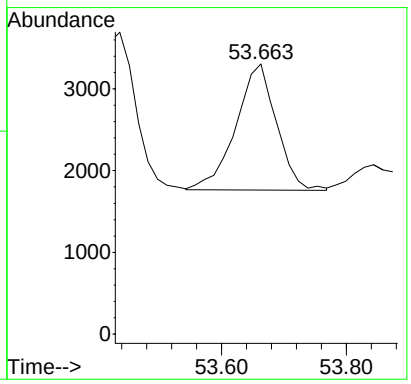
Tgt Ion:191 Resp: 8146

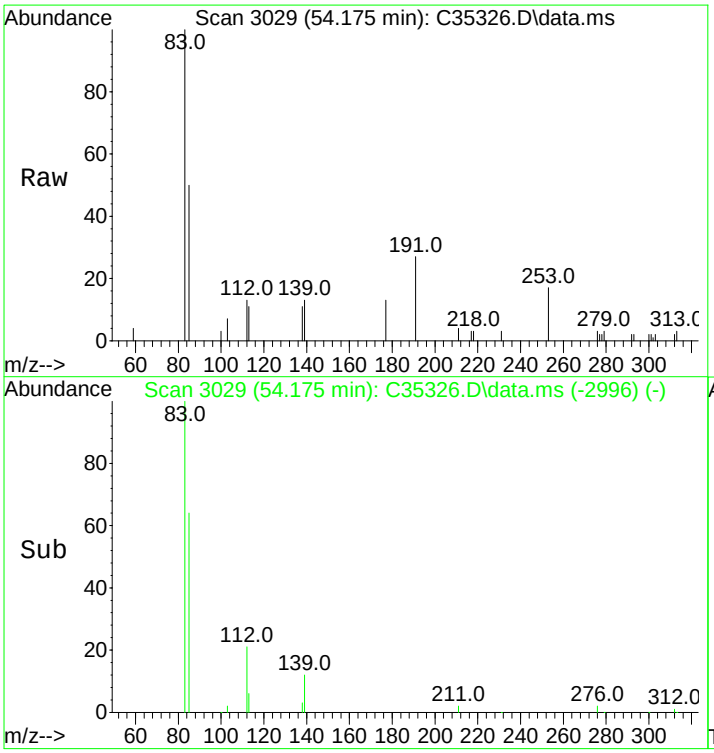




#117
30-Homohopane-22R (T22)
Concen: 282.72 ng/ml
RT: 53.663 min Scan# 2995
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

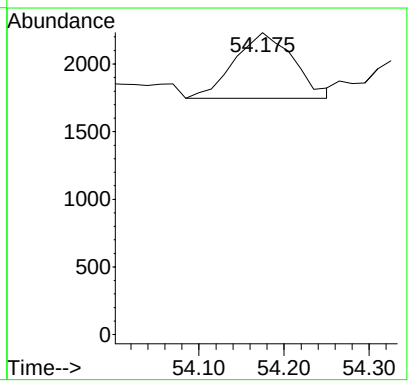
Tgt Ion:191 Resp: 6955

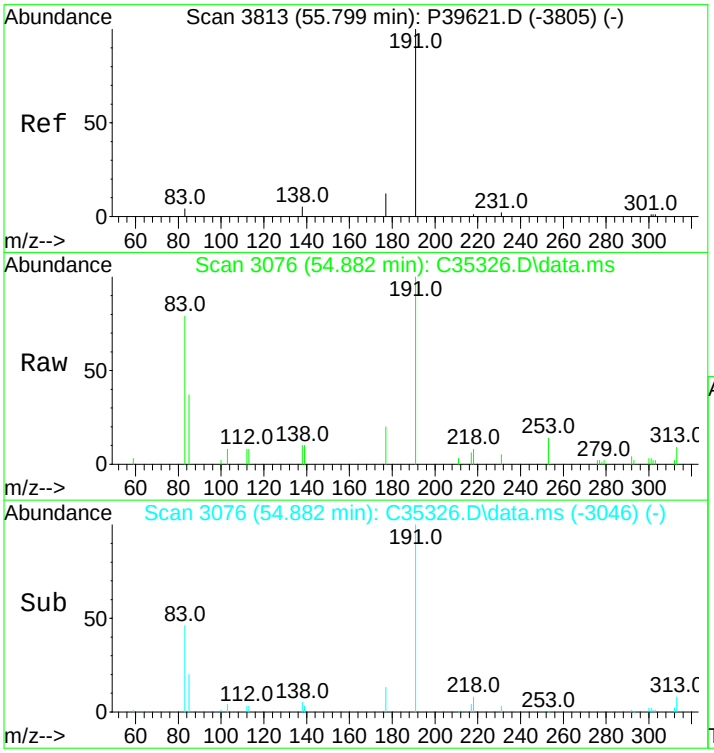




#118
Gammacerane/C32-diahopane
Concen: 95.85 ng/mL
RT: 54.175 min Scan# 3029
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

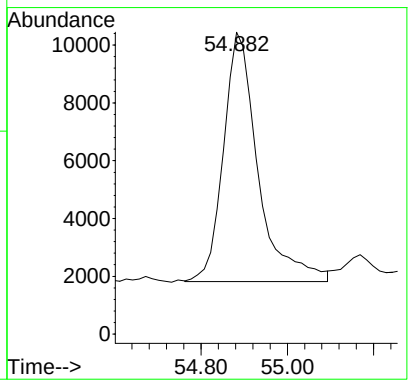
Tgt Ion:191 Resp: 2358

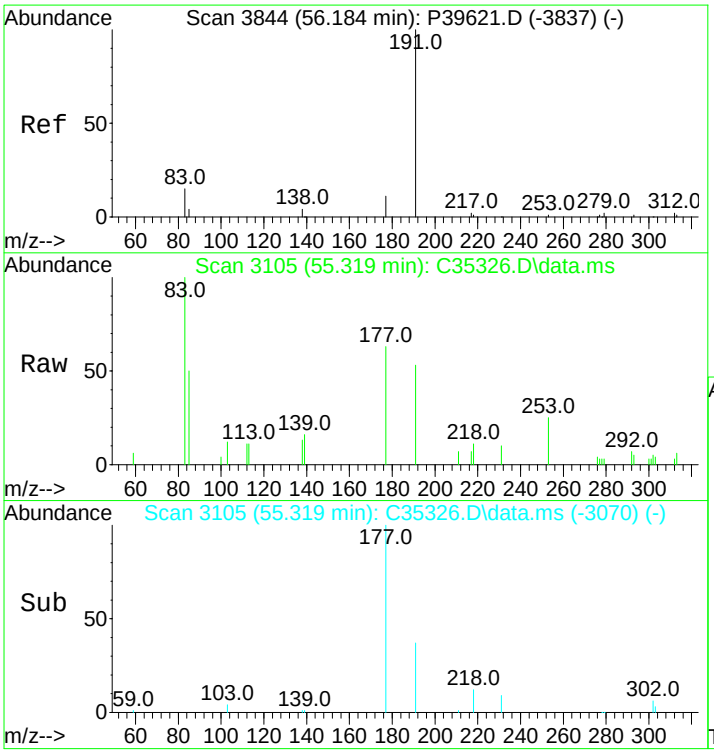




#119
30,31-Bishomohopane-22S (T26)
Concen: 1954.07 ng/ml m
RT: 54.882 min Scan# 3076
Delta R.T. -0.045 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

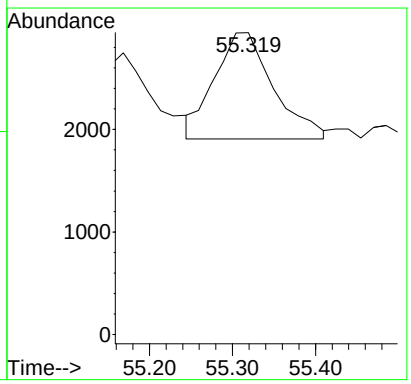
Tgt Ion:191 Resp: 48071

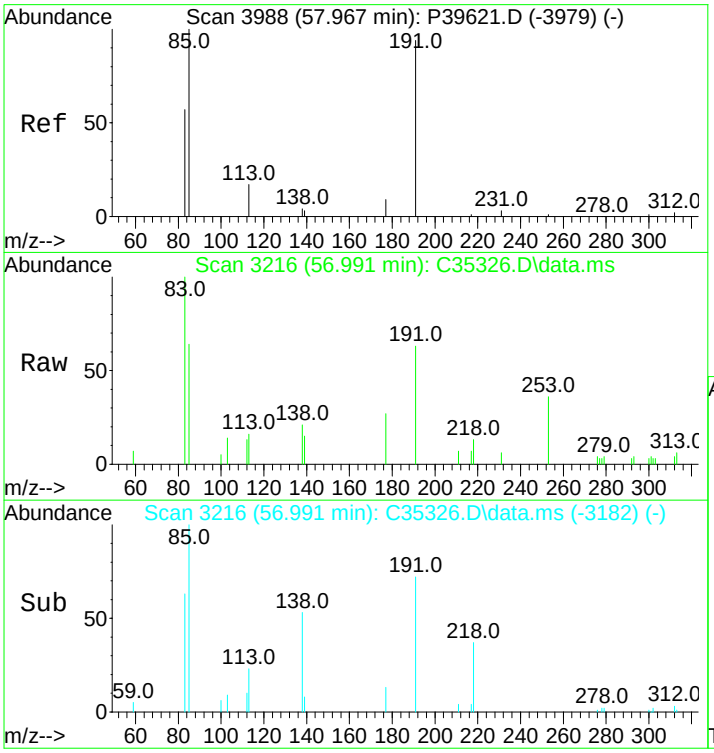




#120
30,31-Bishomohopane-22R (T27)
Concen: 207.72 ng/ml m
RT: 55.319 min Scan# 3105
Delta R.T. 0.030 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

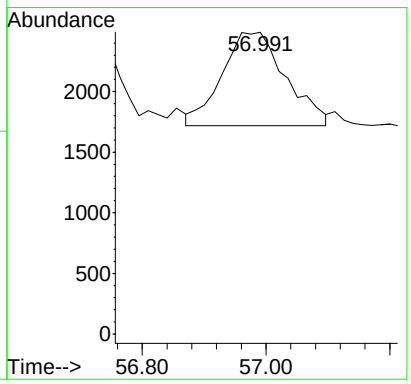
Tgt Ion:191 Resp: 5110

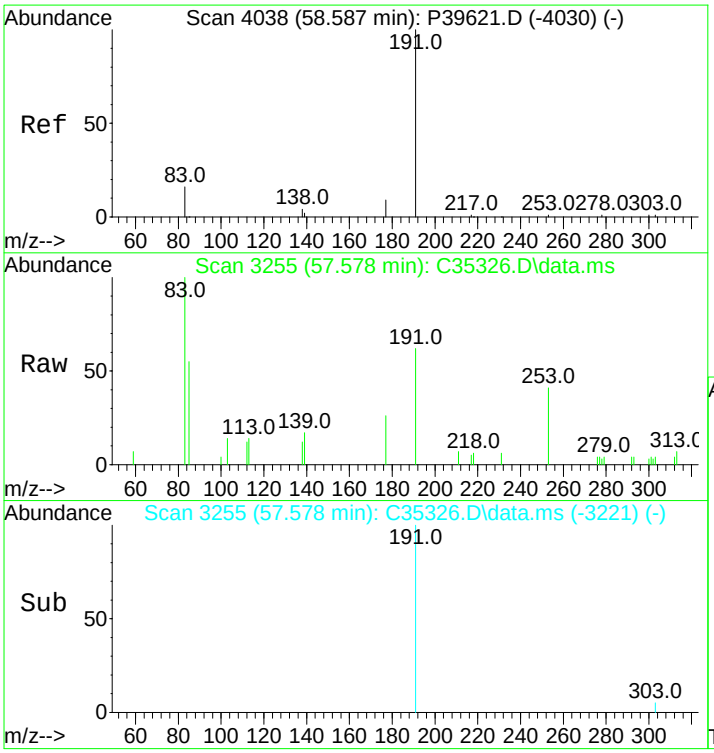




#121
30,31-Trishomohopane-22S (T30)
Concen: 224.83 ng/ml m
RT: 56.991 min Scan# 3216
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

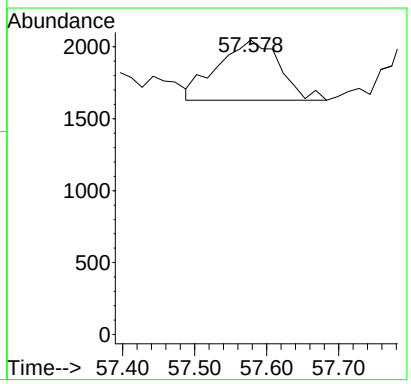
Tgt Ion:191 Resp: 5531

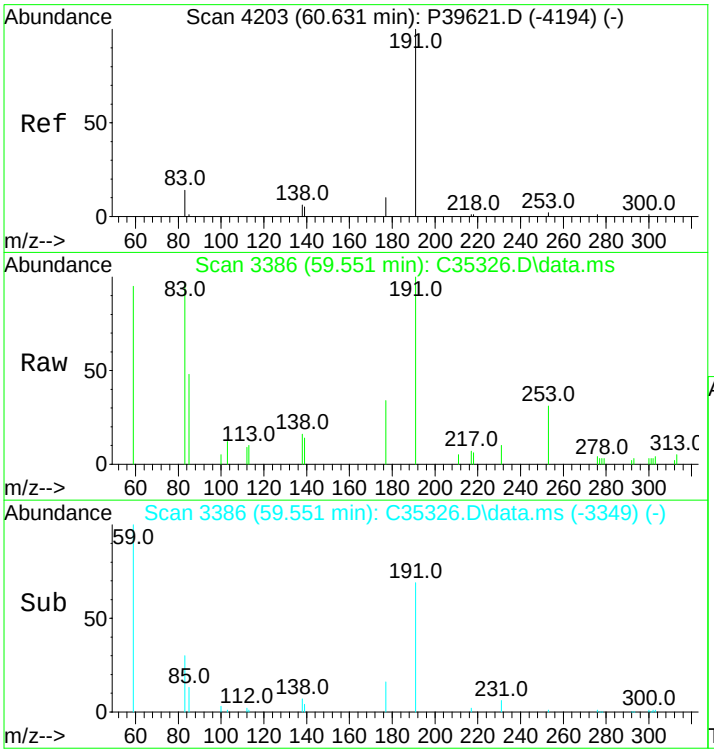




#122
30,31-Trishomohopane-22R (T31)
Concen: 100.45 ng/ml
RT: 57.578 min Scan# 3255
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

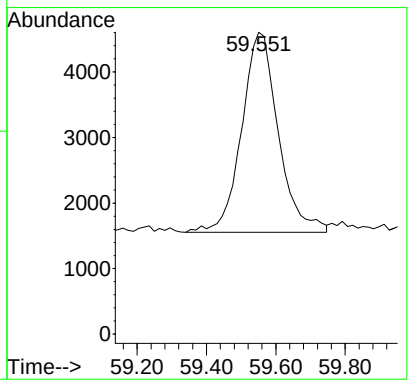
Tgt Ion:191 Resp: 2471

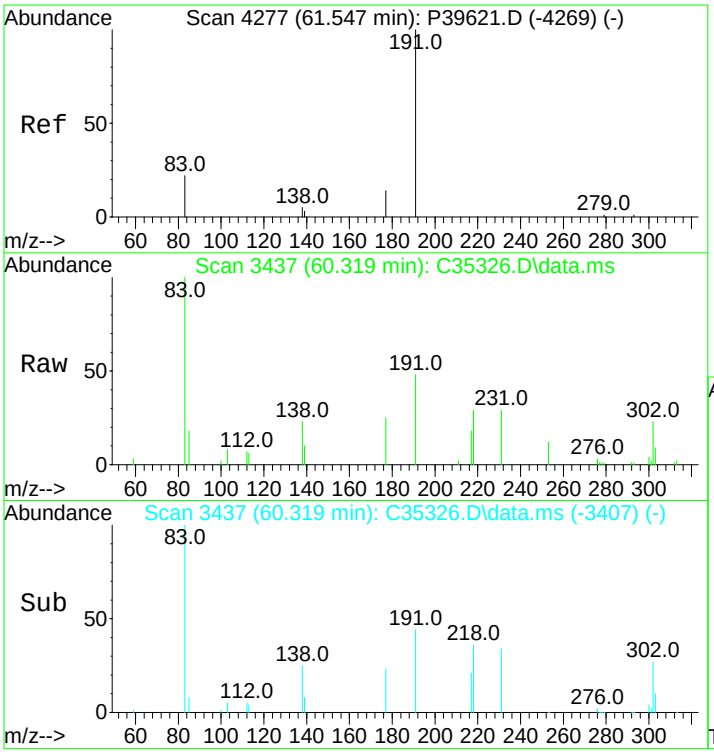




#123
Tetrakishomohopane-22S (T32)
Concen: 909.82 ng/ml
RT: 59.551 min Scan# 3386
Delta R.T. 0.060 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

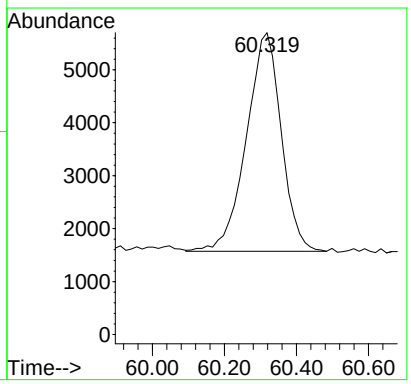
Tgt Ion:191 Resp: 22382

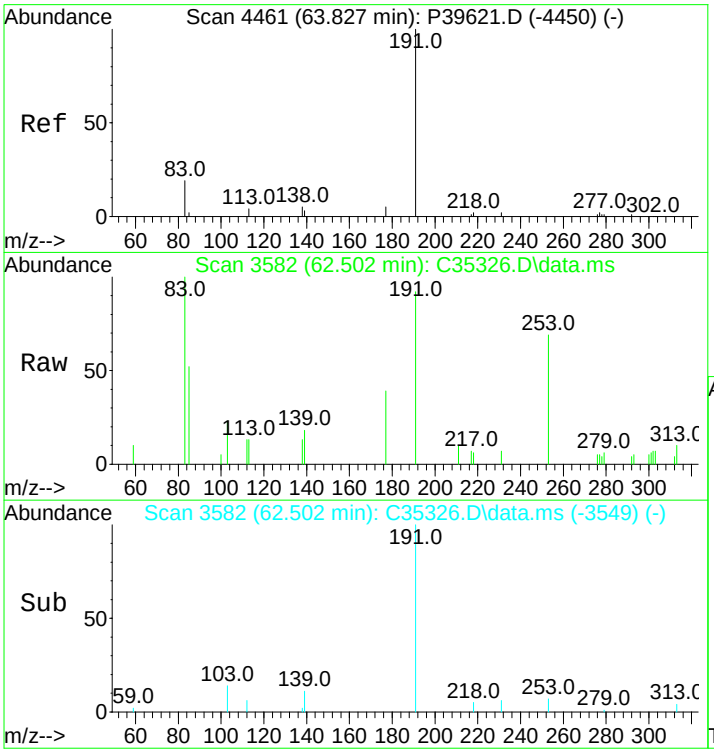




#124
Tetrakishomohopane-22R (T33)
Concen: 1127.25 ng/ml
RT: 60.319 min Scan# 3437
Delta R.T. -0.045 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

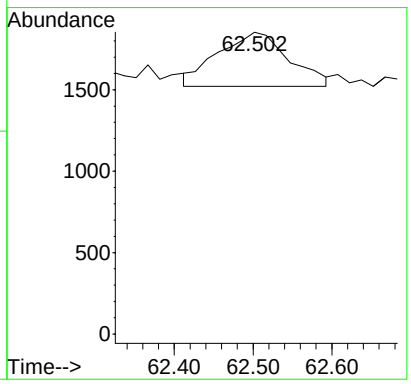
Tgt Ion:191 Resp: 27731

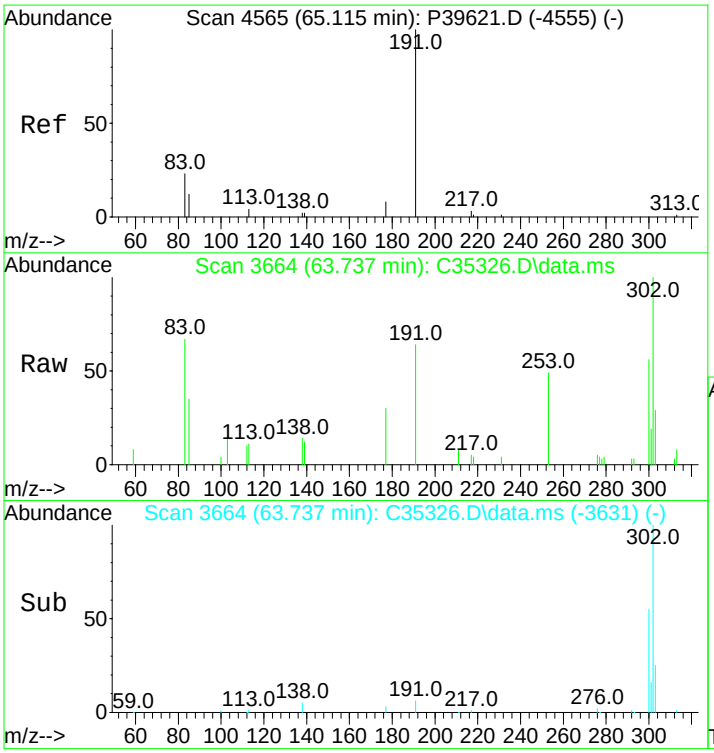




#125
Pentakishomohopane-22S (T34)
Concen: 84.14 ng/ml m
RT: 62.502 min Scan# 3582
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

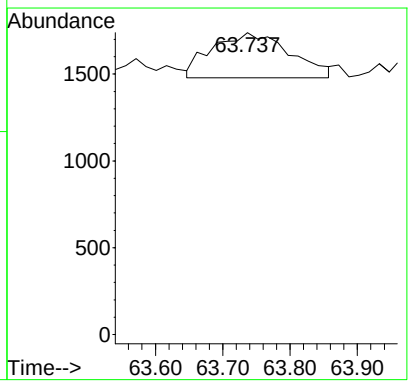
Tgt Ion:191 Resp: 2070

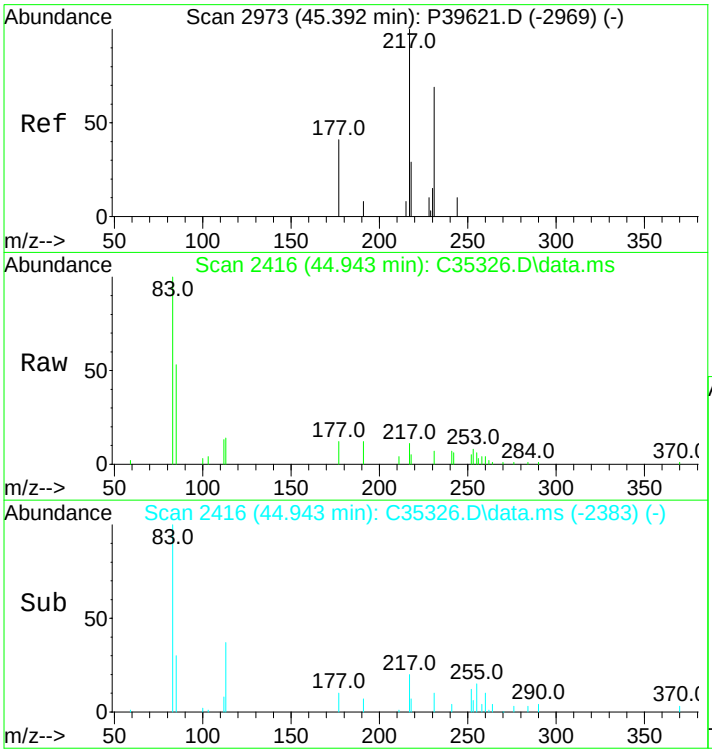




#126
Pentakishomohopane-22R (T35)
Concen: 84.43 ng/ml m
RT: 63.737 min Scan# 3664
Delta R.T. -0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

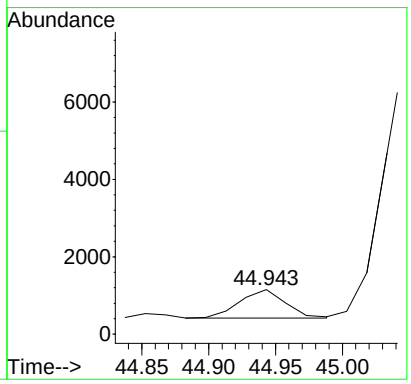
Tgt Ion:191 Resp: 2077

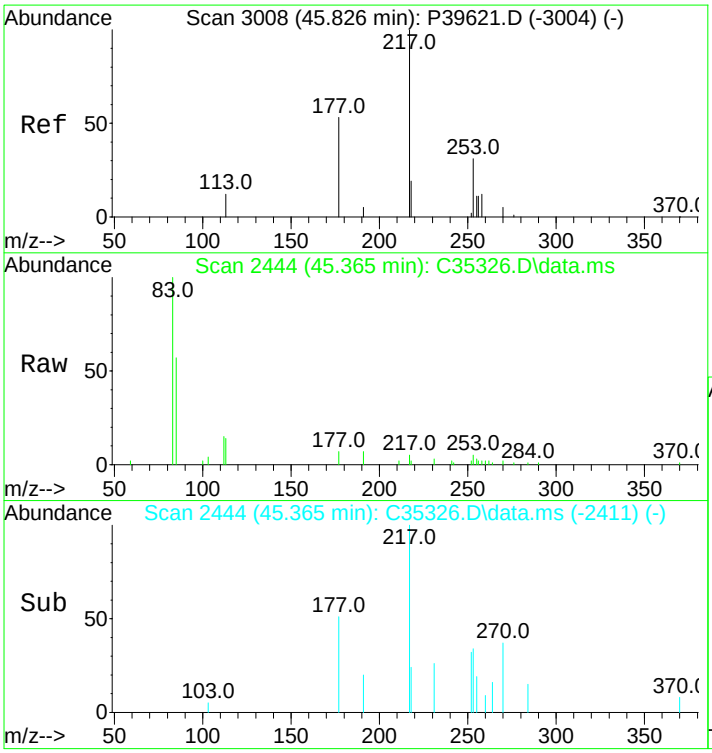




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 150.04 ng/ml
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

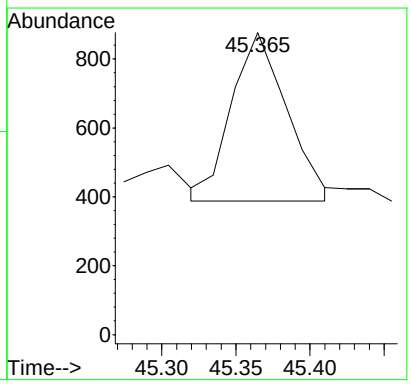
Tgt Ion:217 Resp: 1751

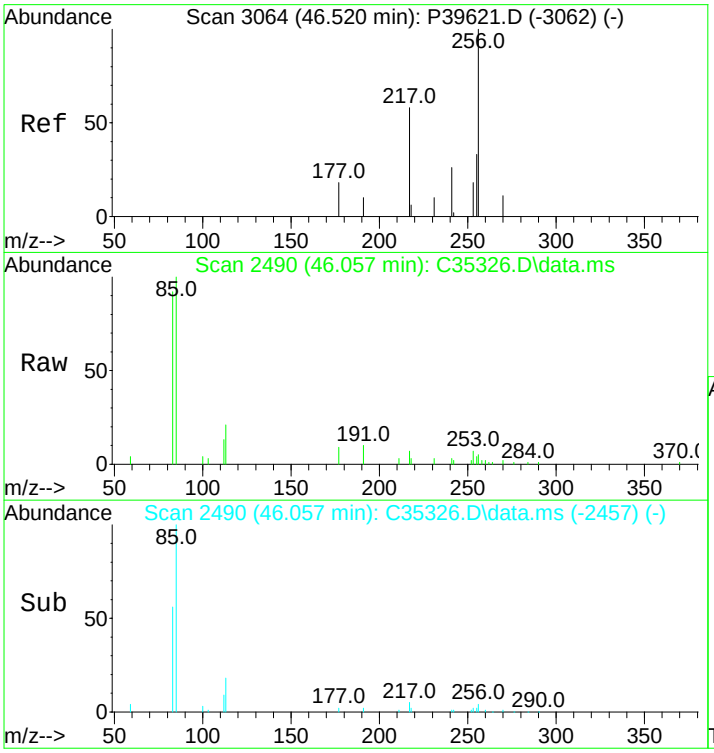




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 108.74 ng/ml m
RT: 45.365 min Scan# 2444
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

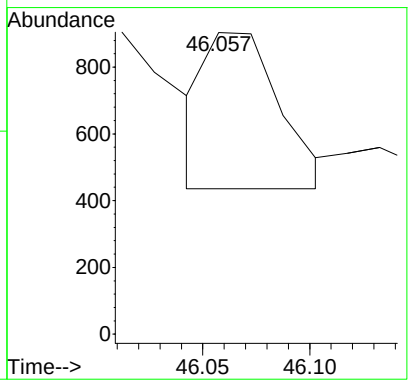
Tgt Ion:217 Resp: 1269

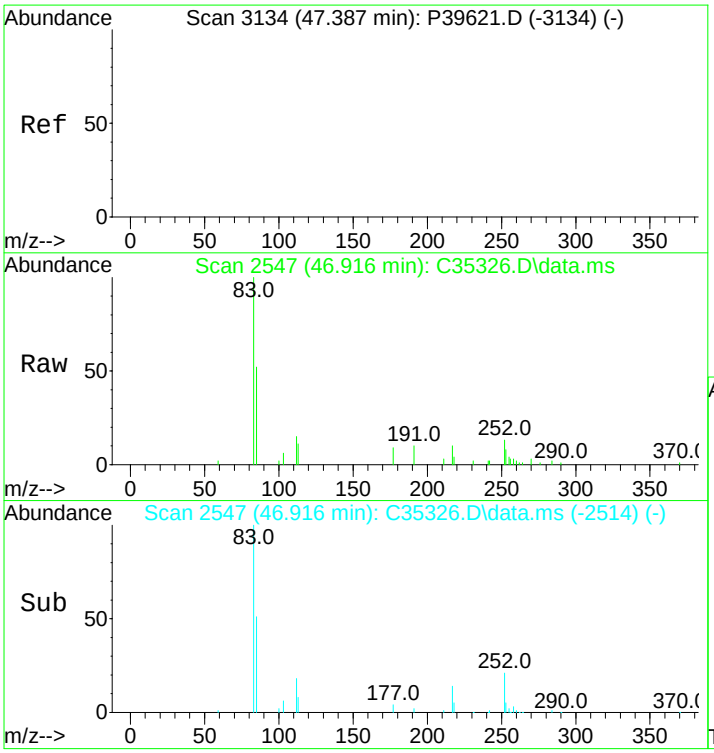




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 96.32 ng/ml m
RT: 46.057 min Scan# 2490
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

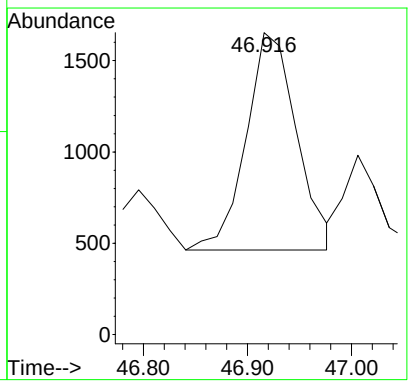
Tgt Ion:217 Resp: 1124

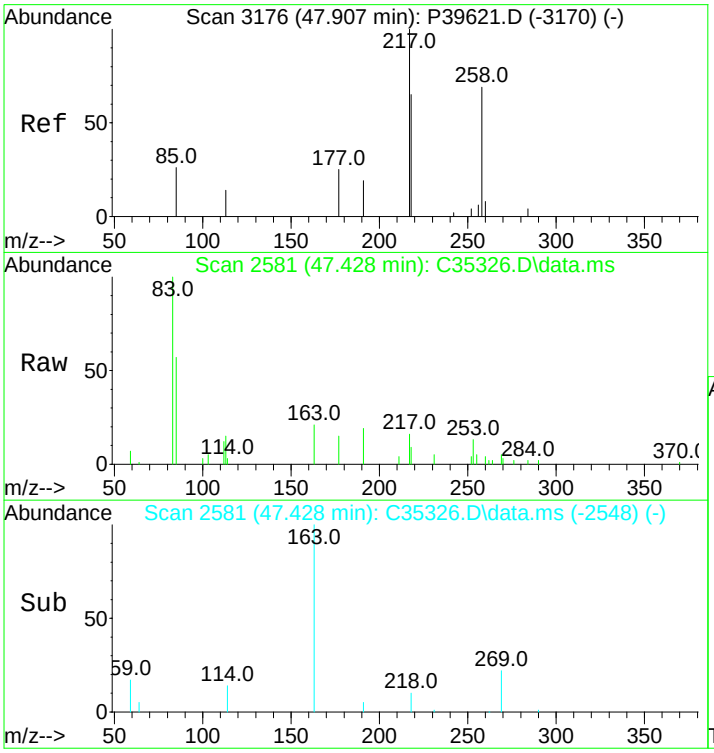




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 346.87 ng/ml
RT: 46.916 min Scan# 2547
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

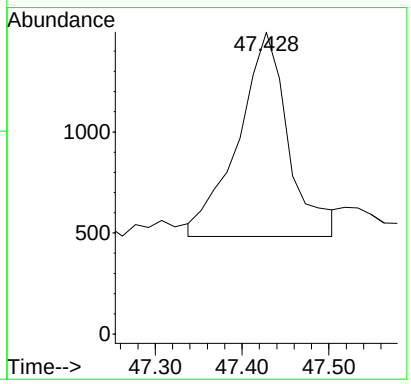
Tgt Ion:217 Resp: 4048

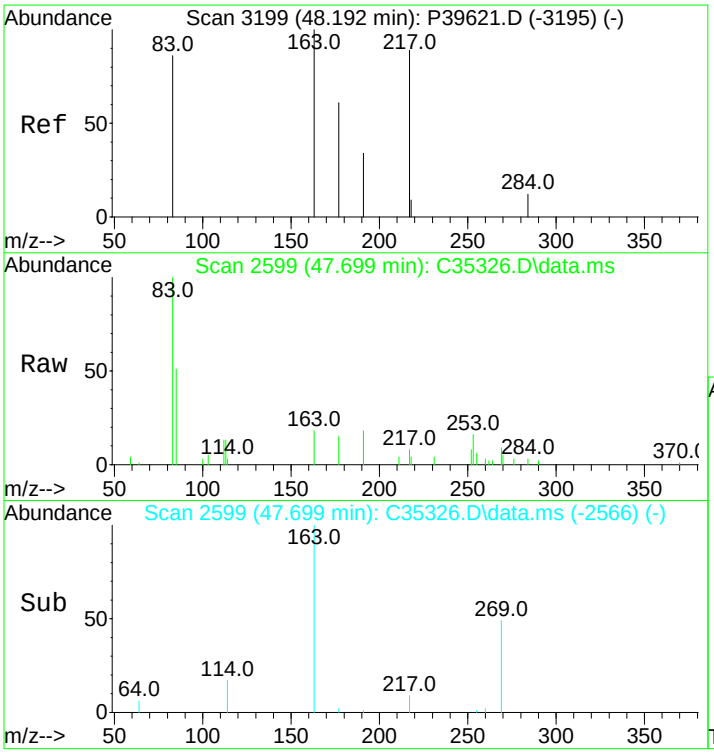




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 347.73 ng/ml m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

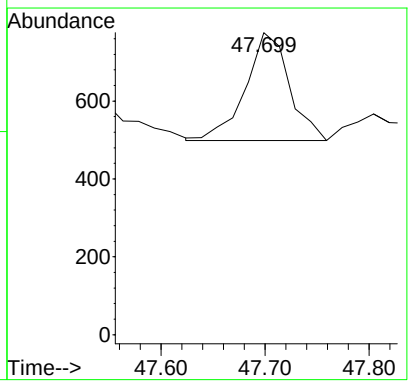
Tgt Ion:217 Resp: 4058

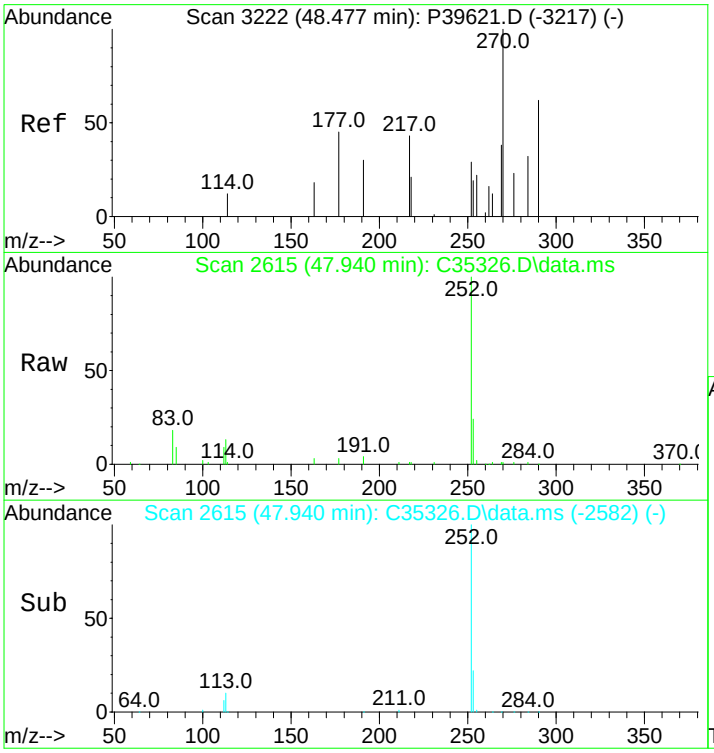




#133
Unknown Sterane (S18)
Concen: 69.41 ng/ml
RT: 47.699 min Scan# 2599
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

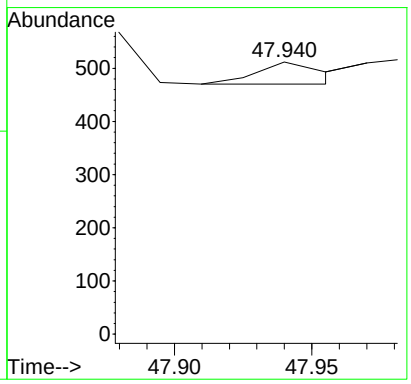
Tgt Ion:217 Resp: 810

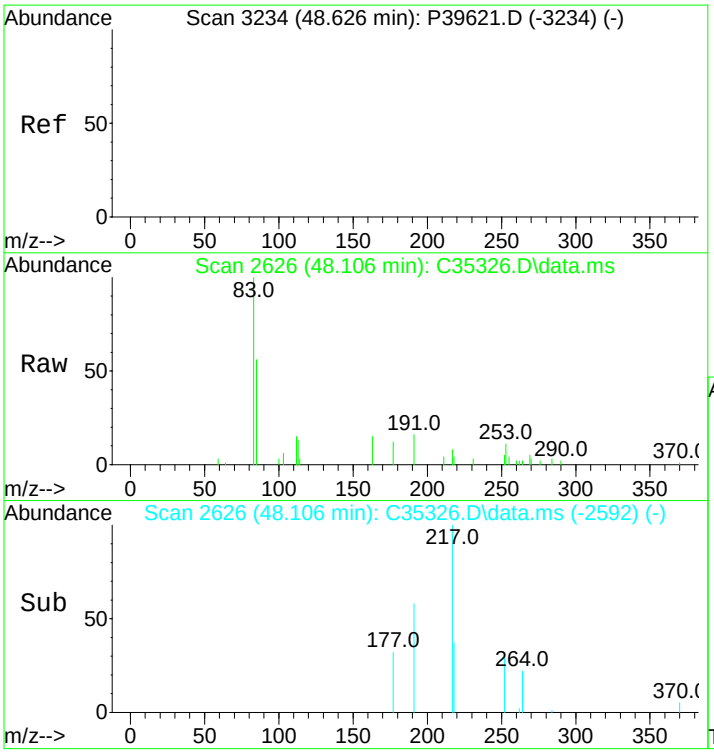




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 6.00 ng/ml m
RT: 47.940 min Scan# 2615
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

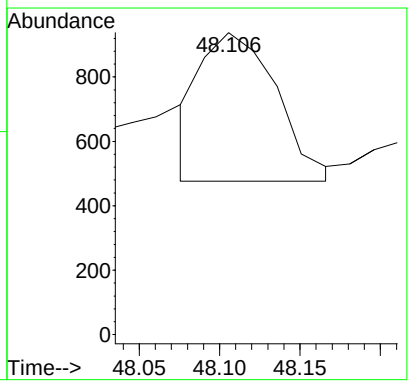
Tgt Ion:217 Resp: 70

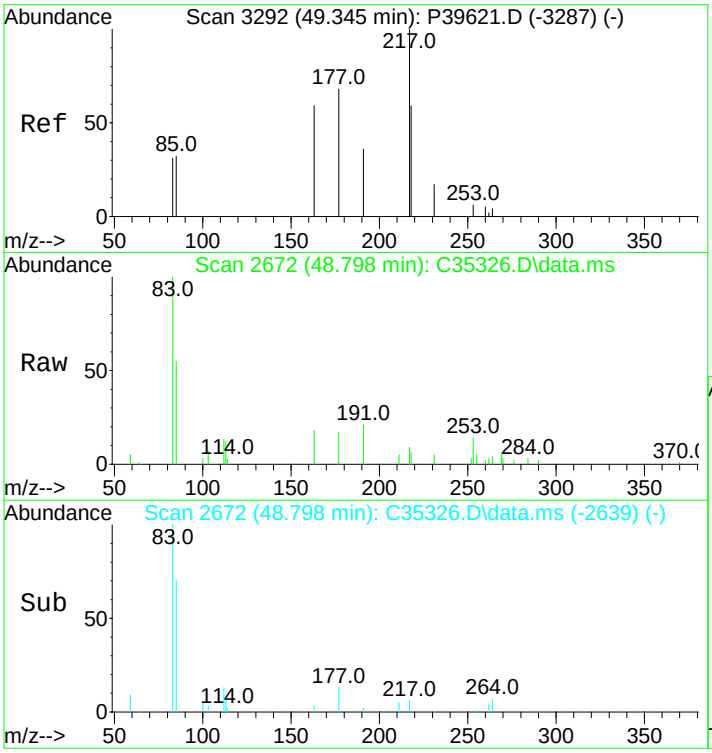




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 129.99 ng/ml m
RT: 48.106 min Scan# 2626
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

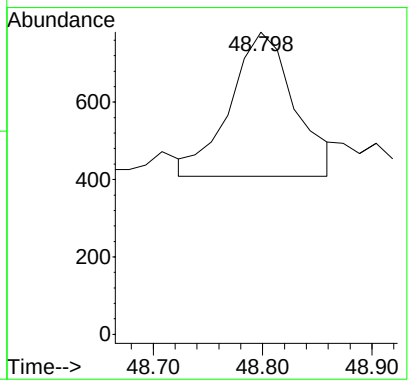
Tgt Ion:217 Resp: 1517

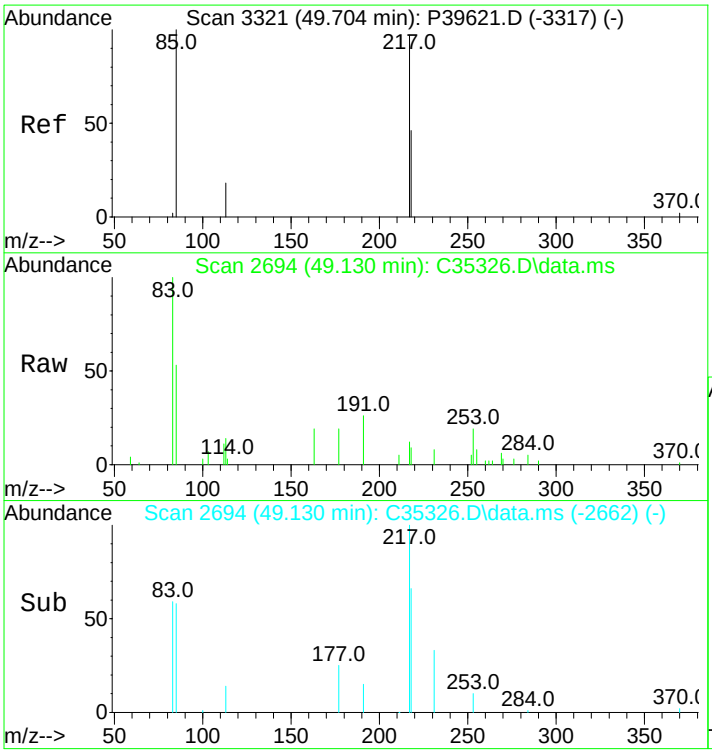




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 130.76 ng/ml m
RT: 48.798 min Scan# 2672
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

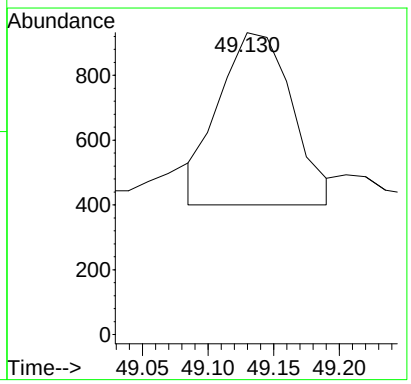
Tgt Ion:217 Resp: 1526

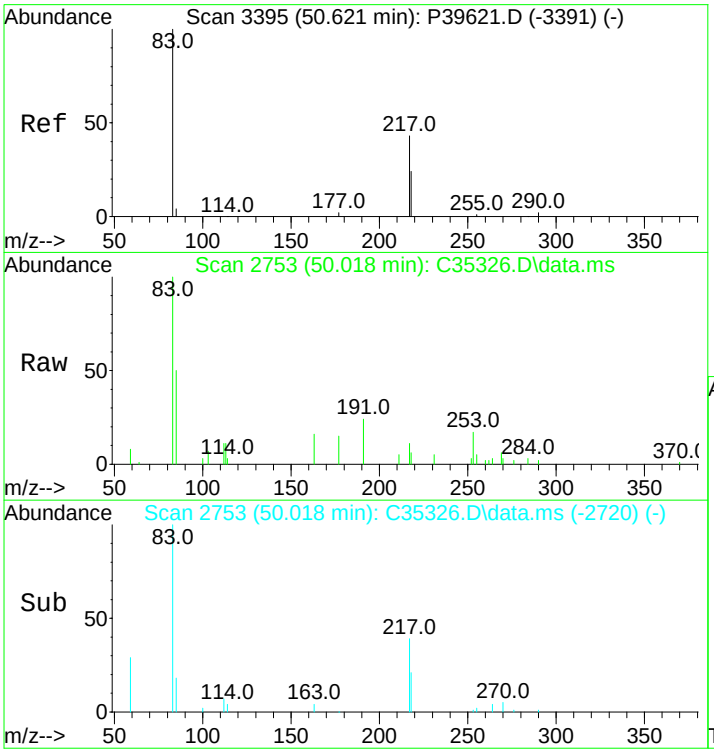




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 176.35 ng/ml m
RT: 49.130 min Scan# 2694
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

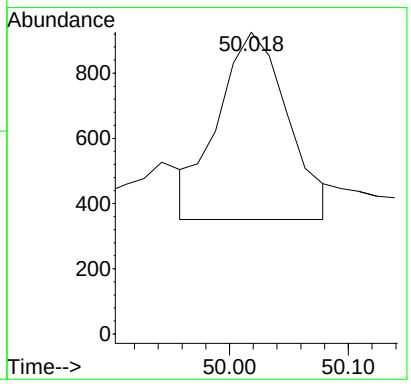
Tgt Ion:217 Resp: 2058

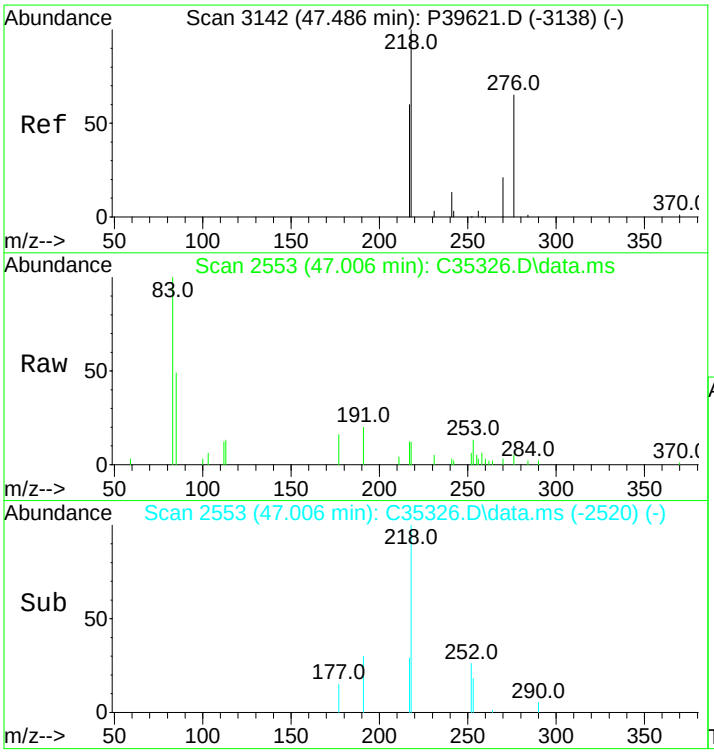




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 200.51 ng/ml m
RT: 50.018 min Scan# 2753
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

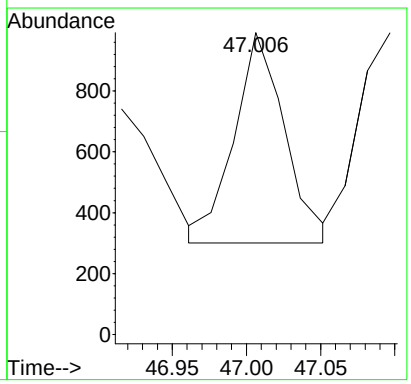
Tgt Ion:217 Resp: 2340

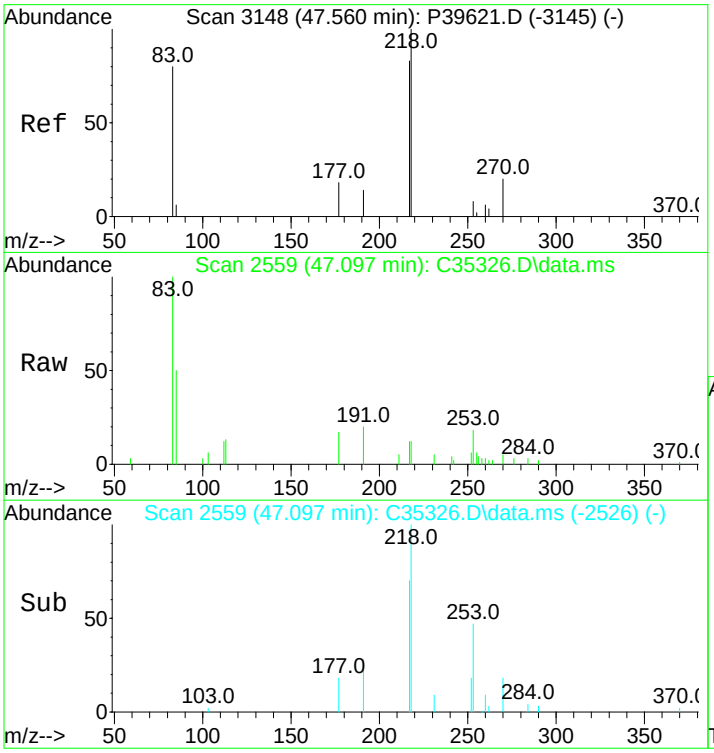




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 139.85 ng/ml m
RT: 47.006 min Scan# 2553
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

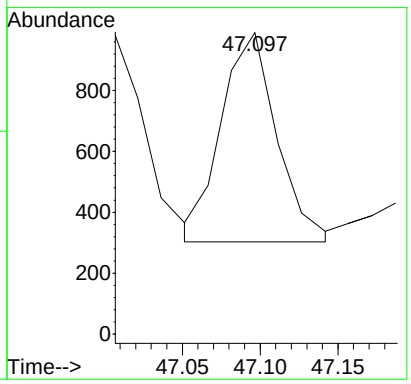
Tgt Ion:218 Resp: 1632

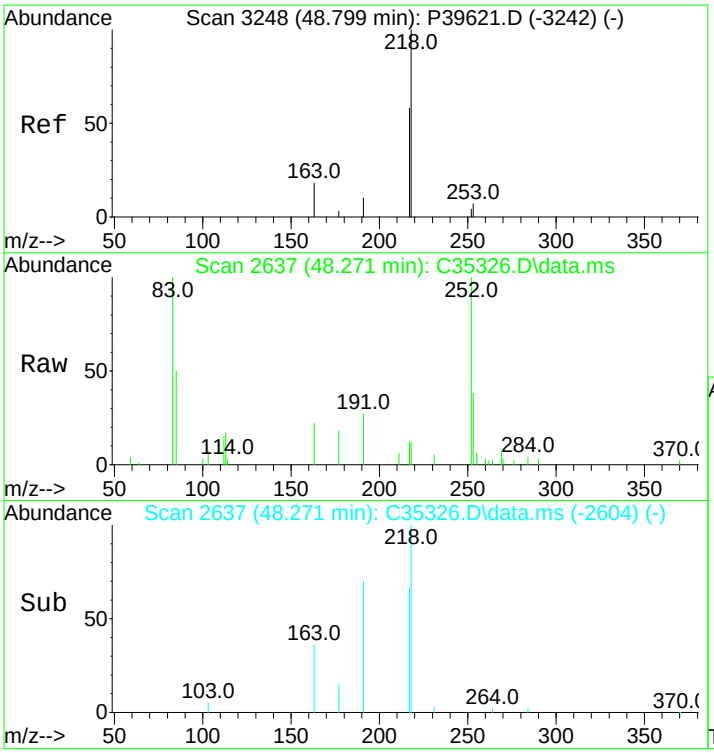




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 146.02 ng/ml m
RT: 47.097 min Scan# 2559
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

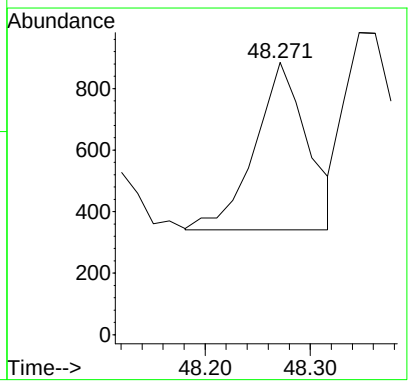
Tgt Ion:218 Resp: 1704

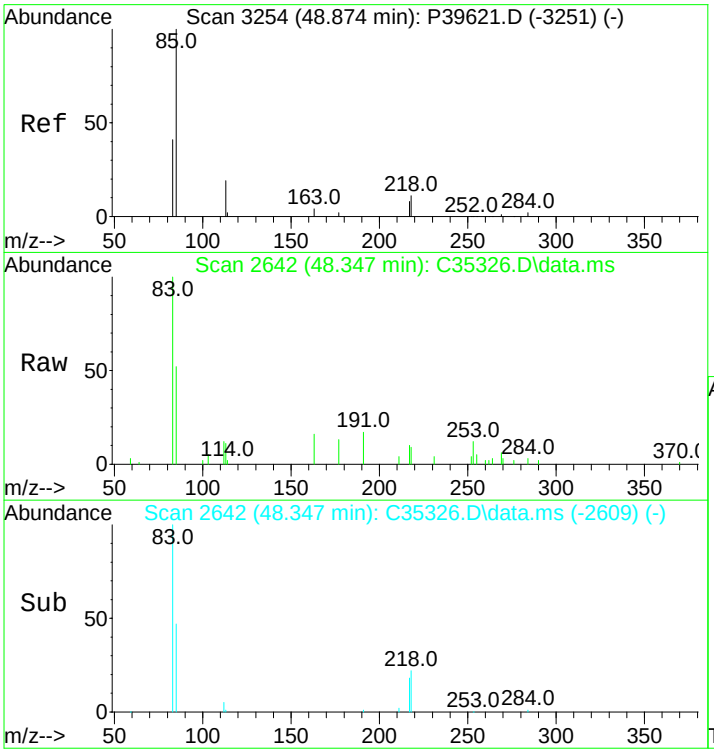




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 163.24 ng/ml m
RT: 48.271 min Scan# 2637
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

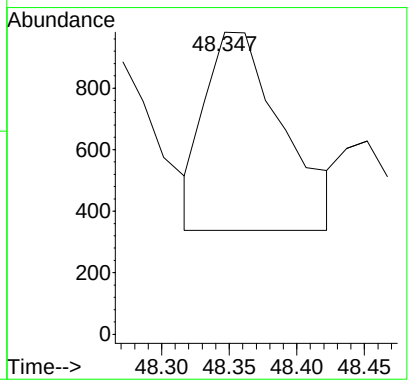
Tgt Ion:218 Resp: 1905

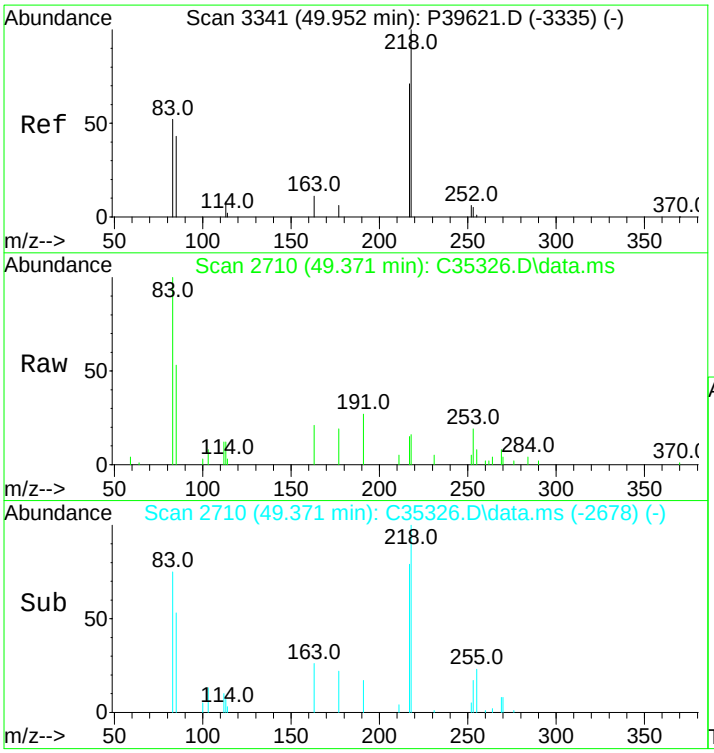




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 220.65 ng/ml m
RT: 48.347 min Scan# 2642
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

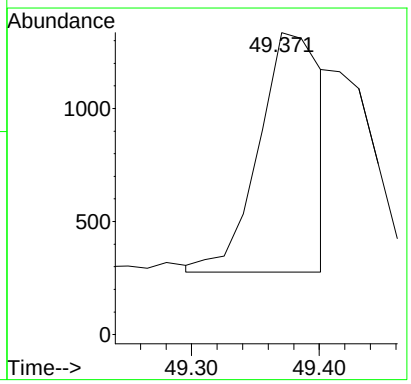
Tgt Ion:218 Resp: 2575

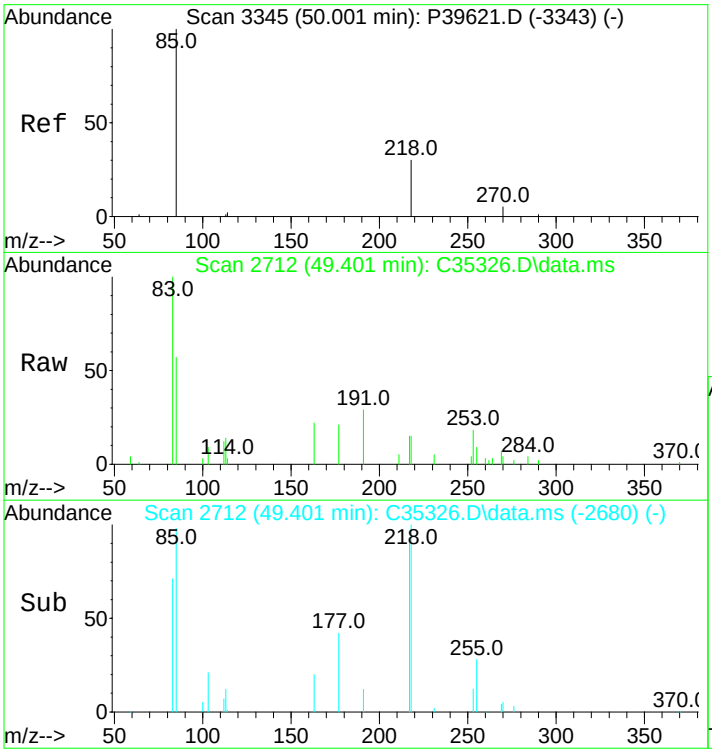




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 310.11 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

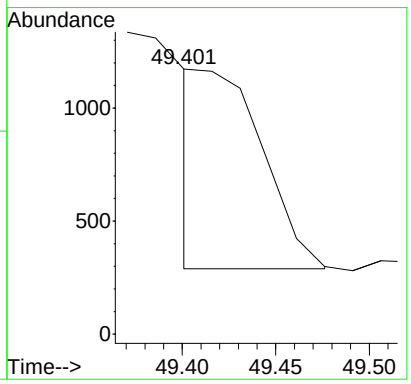
Tgt Ion:218 Resp: 3619

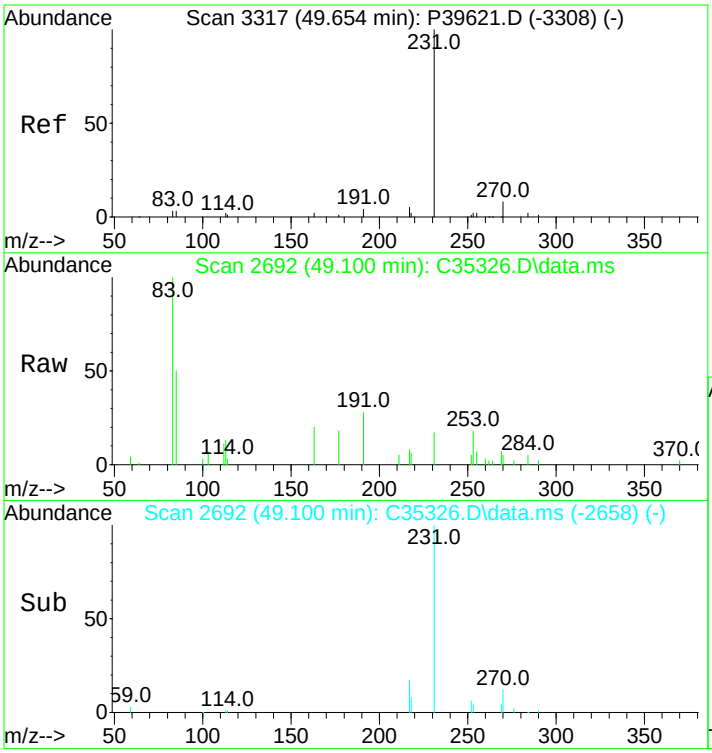




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 177.04 ng/ml m
RT: 49.401 min Scan# 2712
Delta R.T. -0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

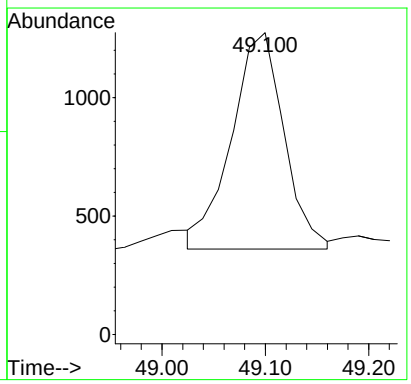
Tgt Ion:218 Resp: 2066

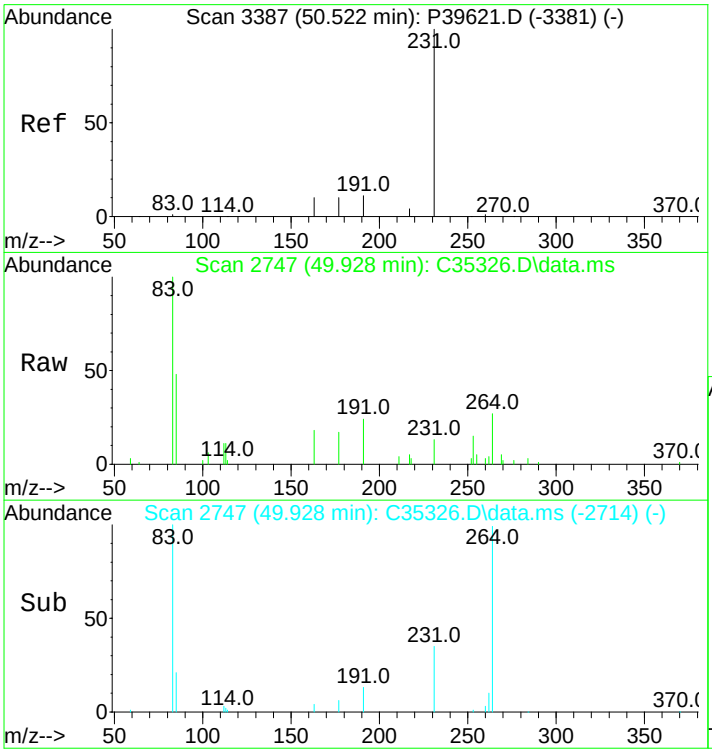




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 275.32 ng/mL m
RT: 49.100 min Scan# 2692
Delta R.T. 0.015 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

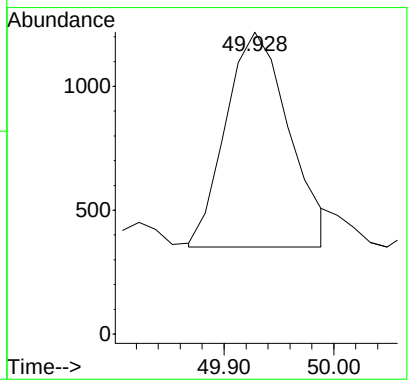
Tgt Ion:231 Resp: 3213

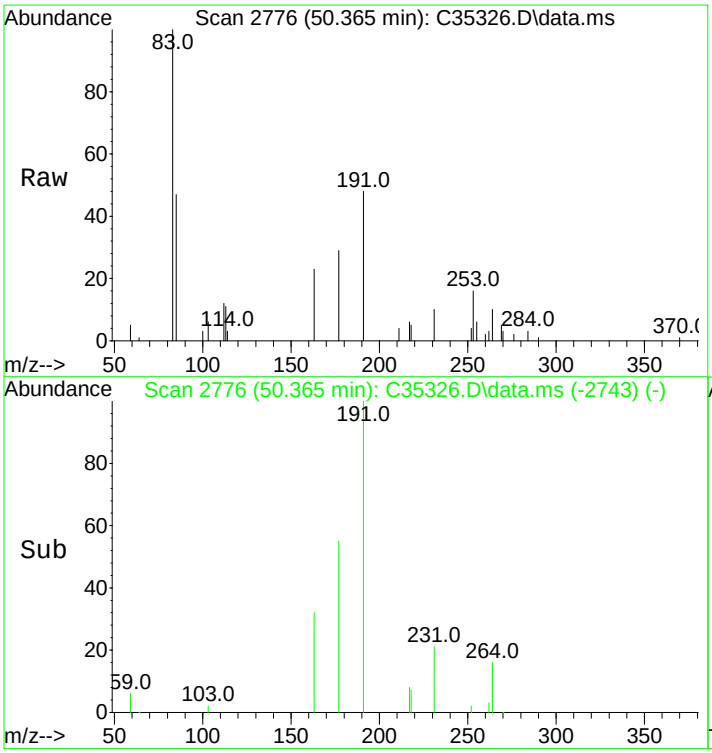




#146
C28,20S-triaromatic steroid
Concen: 297.60 ng/mL m
RT: 49.928 min Scan# 2747
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

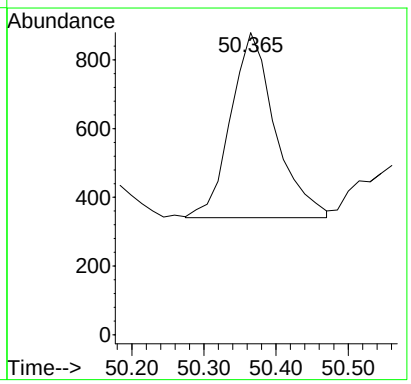
Tgt Ion:231 Resp: 3473

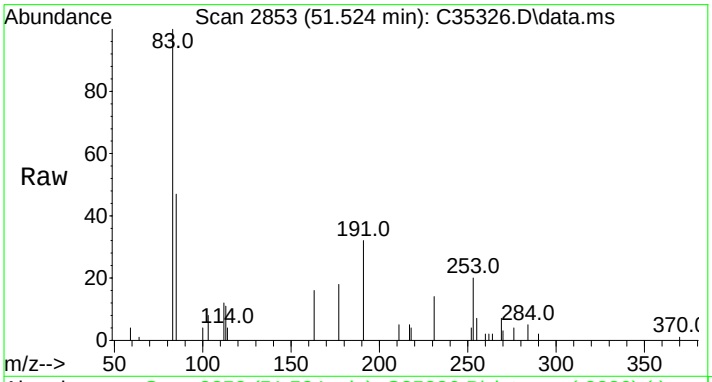




#147
C27,20R-triaromatic steroid
Concen: 198.11 ng/mL m
RT: 50.365 min Scan# 2776
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

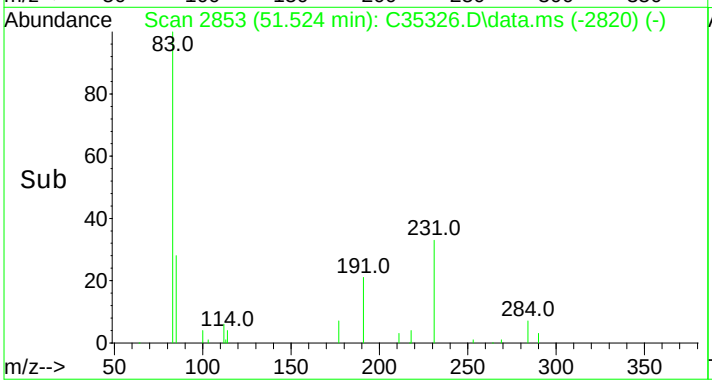
Tgt Ion:231 Resp: 2312

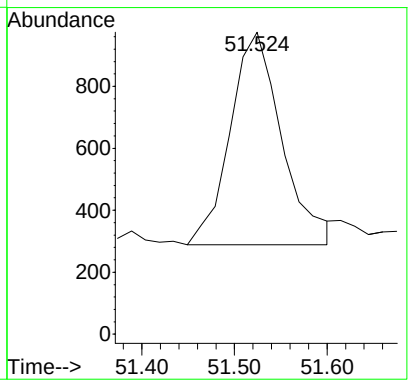




#148
C28,20R-triaromatic steroid
Concen: 228.02 ng/mL m
RT: 51.524 min Scan# 2853
Delta R.T. 0.000 min
Lab File: C35326.D
Acq: 26 May 2012 8:09 am

Tgt Ion:231 Resp: 2661





Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	11662	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	24311	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	32084	633.870	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 63.39%			
42) Phenanthrene-d10	32.221	188	34066	851.486	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.15%			
86) Benzo[a]pyrene-d12	47.850	264	40647	806.766	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 80.68%			
127) 5B(H)Cholane - Surr	43.422	217	6842	900.162	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 90.02%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	54M2	5.866	ng/mL	
10) Naphthalene	19.485	128	1733	23.316	ng/mL#	100
11) C1-Naphthalenes	22.180	142	2849M5	38.330	ng/mL	
12) C2-Naphthalenes	24.679	156	4140M5	55.700	ng/mL	
13) C3-Naphthalenes	27.750	170	2908M5	39.124	ng/mL	
14) C4-Naphthalenes	30.113	184	2016M5	27.123	ng/mL	
16) 2-Methylnaphthalene	22.180	142	1984M3	45.144	ng/mL	
17) 1-Methylnaphthalene	22.601	142	787	18.269	ng/mL#	100
19) C1-Benzo(b)thiophenes	21.758	148	524M5	7.834	ng/mL	
20) C2-Benzo(b)thiophenes	25.175	162	503M5	7.520	ng/mL	
23) Biphenyl	24.061	154	510M3	9.174	ng/mL	
24) 2,6-Dimethylnaphthalene	24.679	156	1235M3	34.203	ng/mL	
25) Dibenzofuran	27.133	168	2451	38.394	ng/mL	89
26) Acenaphthylene	25.763	152	233M3	3.158	ng/mL	
27) Acenaphthene	26.485	153	524M3	12.062	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.036	170	172M3	5.909	ng/mL	
29) Fluorene	28.502	166	940M3	19.619	ng/mL	
30) C1-Fluorenes	30.866	180	535M5	11.166	ng/mL	
31) C2-Fluorenes	33.199	194	913M5	19.055	ng/mL	
33) Dibenzothiophene	31.814	184	457	5.950	ng/mL#	74
34) 4-Methyldibenzothiophene(	33.591	198	194	2.526	ng/mL#	100
35) 2/3-Methyldibenzothiophen	33.922	198	68M3	0.885	ng/mL	
36) 1-Methyldibenzothiophene(	34.344	198	71M3	0.924	ng/mL	
37) OTP	33.997	198	8187M3	106.596	ng/mL	
38) C1-Dibenzothiophenes	33.997	198	8736M5	113.745	ng/mL	
38) C1-Dibenzothiophenes BS	33.997	198	549m	7.148	ng/mL	
39) C2-Dibenzothiophenes	35.638	212	848M5	11.041	ng/mL	
43) Phenanthrene	32.311	178	5202	77.091	ng/mL	99
44) 3-Methylphenanthrene(3MP)	34.268	192	359	5.320	ng/mL	99
45) 2-Methylphenanthrene(2MP)	34.389	192	397	5.883	ng/mL	90
46) 2-Methylanthracene(2MA)	34.539	192	84M3	1.245	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.735	192	266	3.942	ng/mL	93
48) 1-Methylphenanthrene(1MP)	34.810	192	194M3	2.875	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.389	192	1381M5	20.466	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.286	206	2630M5	38.975	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.286	206	1042m	15.442	ng/mL	
51) 5AA IS BKGD	36.286	206	1588	23.533	ng/mL	100
55) Anthracene	32.492	178	482	7.313	ng/mL	96
56) Carbazole	33.169	167	134M3	2.013	ng/mL	
57) 1-Methylphenanthrene	34.810	192	200M3	4.677	ng/mL	
58) Fluoranthene	37.084	202	2079	31.022	ng/mL#	73
59) Benzo(b)fluorene	39.598	216	90M3	2.315	ng/mL	
60) Pyrene	37.957	202	1692	24.837	ng/mL#	73
61) C1-Fluoranthenes/Pyrenes	40.125	216	1792M5	26.305	ng/mL	
66) Naphthobenzothiophene	41.811	234	305M3	4.159	ng/ml	
67) Naphthobenzothiophene-2,1	41.811	234	312M3	4.254	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
68)	Naphthobenzothiophene-1,2	42.158	234	125	1.704	ng/mL#	9
69)	Naphthobenzothiophene-2,3	42.459	234	309M3	4.213	ng/mL	
70)	C1-Naphthobenzothiophenes	43.543	248	765M5	10.430	ng/ml	
75)	Benz[a]anthracene	42.730	228	3230M3	41.860	ng/mL	
77)	Chrysene/Triphenylene	42.895	228	1749M3	22.451	ng/mL	
78)	C1-Chrysenes	44.386	242	1008M5	12.939	ng/mL	
82)	Benzo[b]fluoranthene	46.795	252	1977M3	23.317	ng/mL	
83)	Benzo[j]+[k]fluoranthene	46.856	252	1399	15.155	ng/mL#	49
85)	Benzo[e]pyrene	47.759	252	1279M3	15.251	ng/mL	
87)	Benzo[a]pyrene	47.940	252	720M3	8.917	ng/mL	
88)	Perylene	48.241	252	453	5.250	ng/mL#	48
89)	Indeno[1,2,3-cd]pyrene	52.594	276	998M3	10.621	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	52.624	278	406M3	4.542	ng/mL	
91)	Benzo[g,h,i]perylene	53.843	276	1256M3	12.652	ng/mL	
92)	Hopane (T19)	51.690	191	1535M3	95.802	ng/mL	
109)	17a(H),21b(H)-25-Norhopan	49.521	191G	6732	420.155	ng/ml	100
110)	30-Norhopane (T15)	50.380	191	1407	87.813	ng/ml	100
111)	18a(H)-30-Norneohopane-C2	50.470	191	508M3	31.705	ng/ml	
116)	30-Homohopane-22S (T21)	53.422	191	906M3	56.545	ng/ml	
117)	30-Homohopane-22R (T22)	53.633	191	1377M3	85.941	ng/ml	
121)	30,31-Trishomohopane-22S	56.991	191	1586M3	98.985	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	44.943	217	63M3	8.289	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	46.901	217	133	17.498	ng/ml	100
133)	Unknown Sterane (S18)	47.729	217G	176M3	23.155	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.371	218	234M3	30.786	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	49.401	218	191M3	25.129	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.085	231	131	17.235	ng/mL	100
146)	C28,20S-triaromatic stero	49.898	231	241	31.707	ng/mL	100

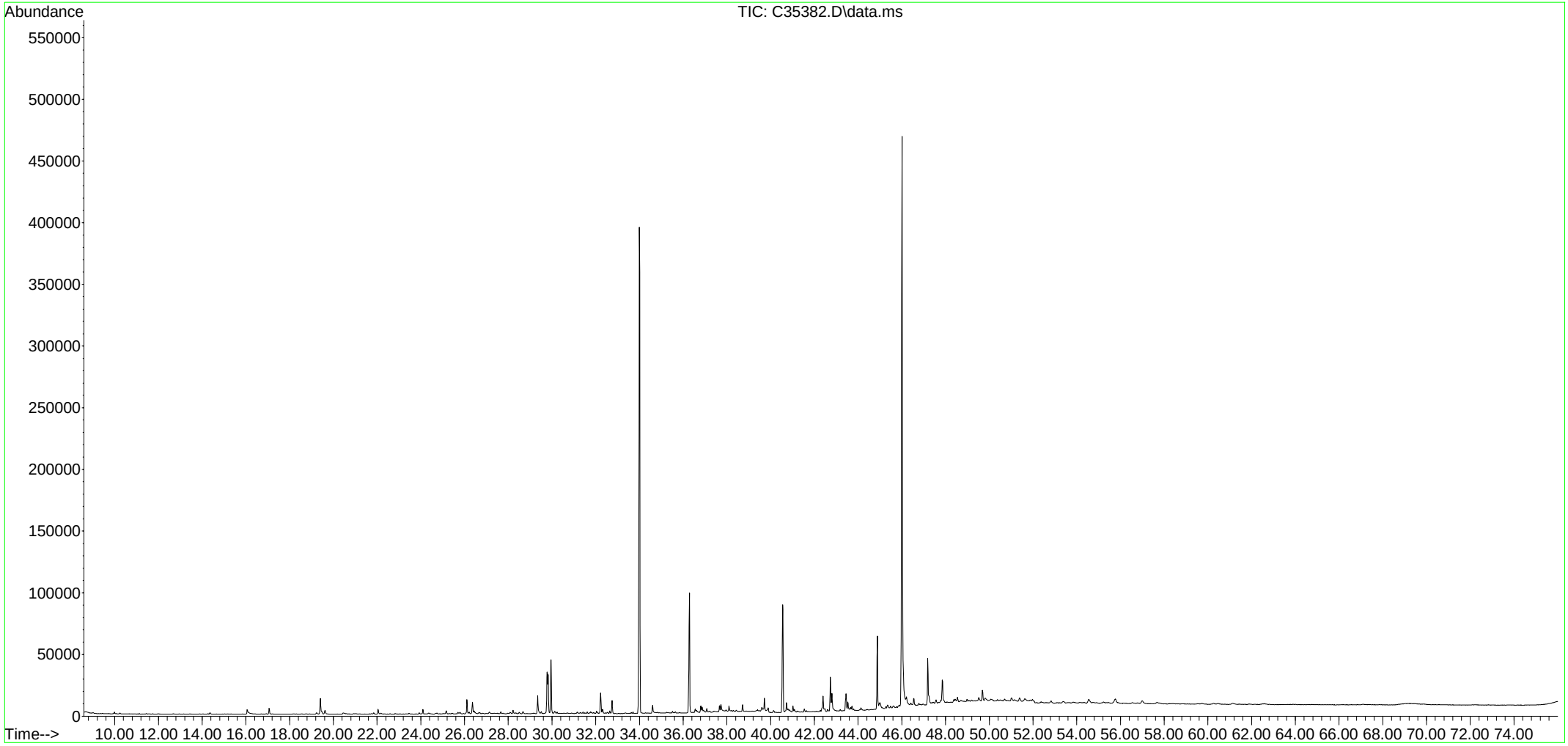
(#) = qualifier out of range (m) = manual integration (+) = signals summed

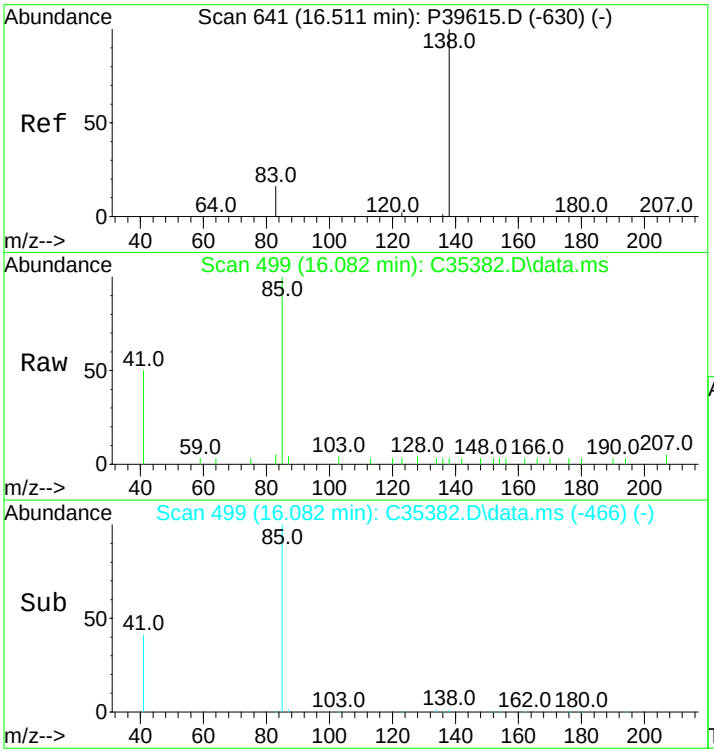
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35382.D
Acq On : 28 May 2012 5:13 am
Operator : AC
Sample : 1205027-04
Misc : CU CLEANED
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 12:05:00 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

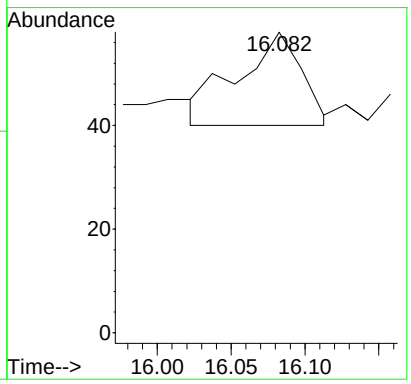
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

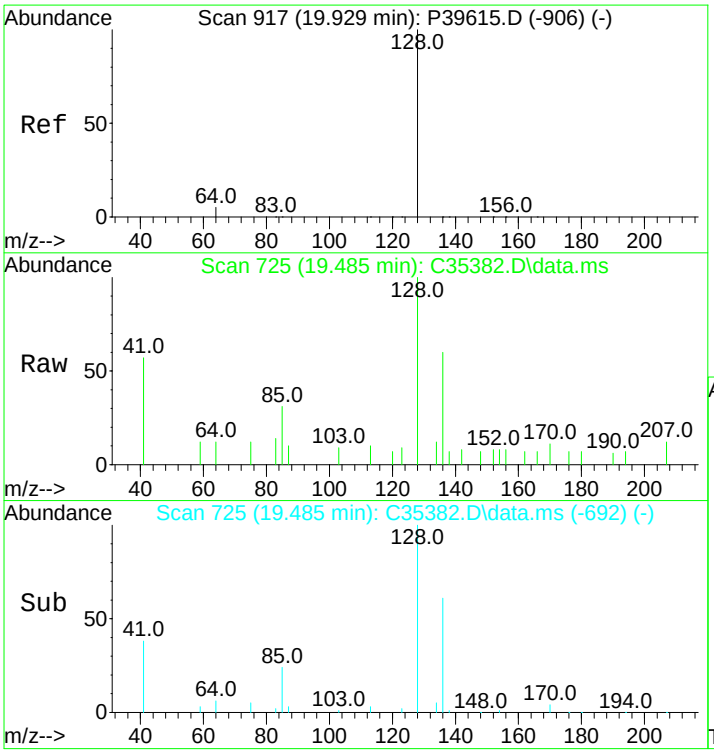




#3
trans-Decalin
Concen: 5.87 ng/mL m
RT: 16.082 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:138 Resp: 54

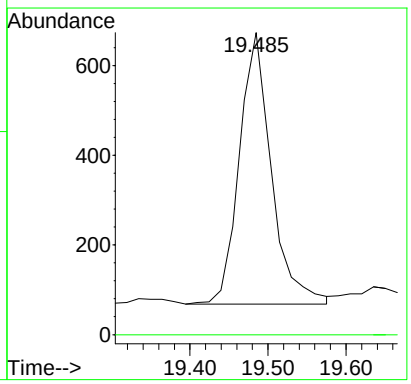


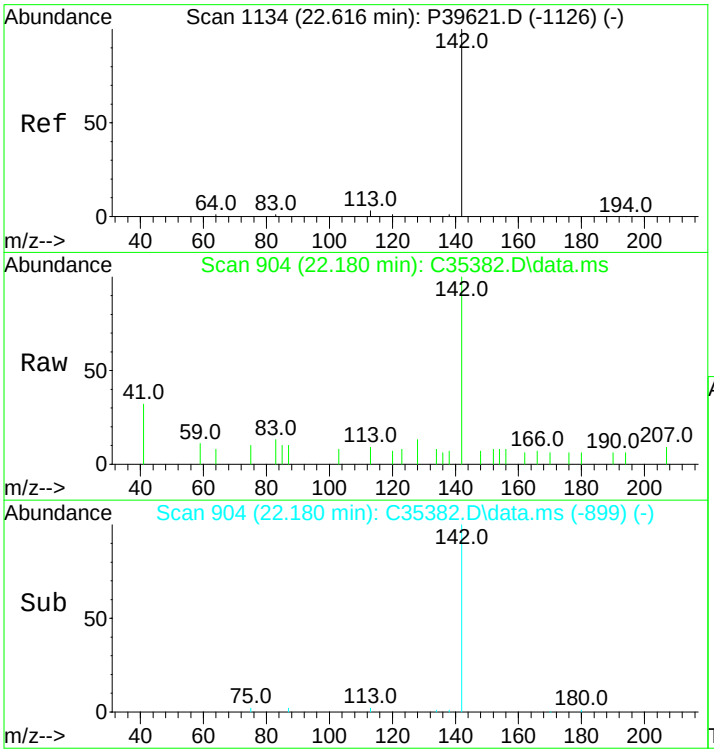


#10
Naphthalene
Concen: 23.32 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:128 Resp: 1733

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

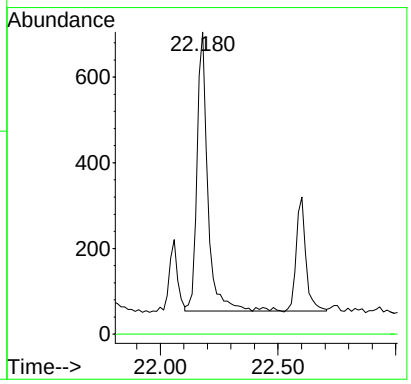


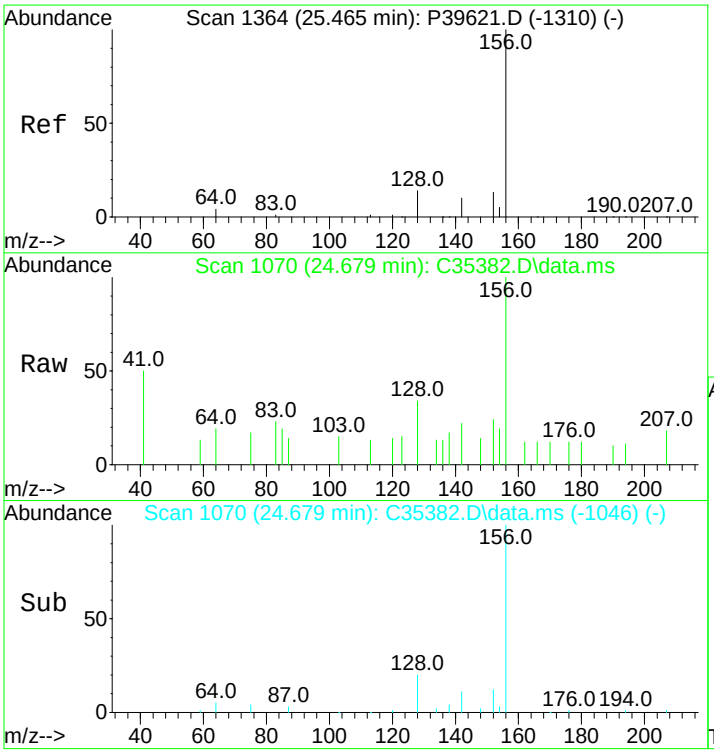


#11
C1-Naphthalenes
Concen: 38.33 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. -0.056 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:142 Resp: 2849

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

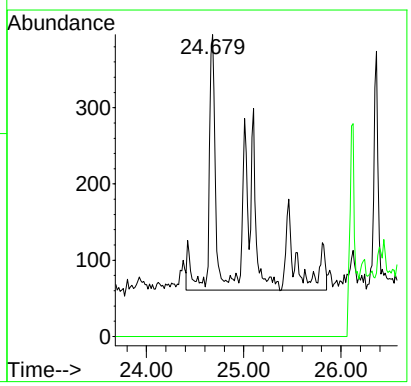


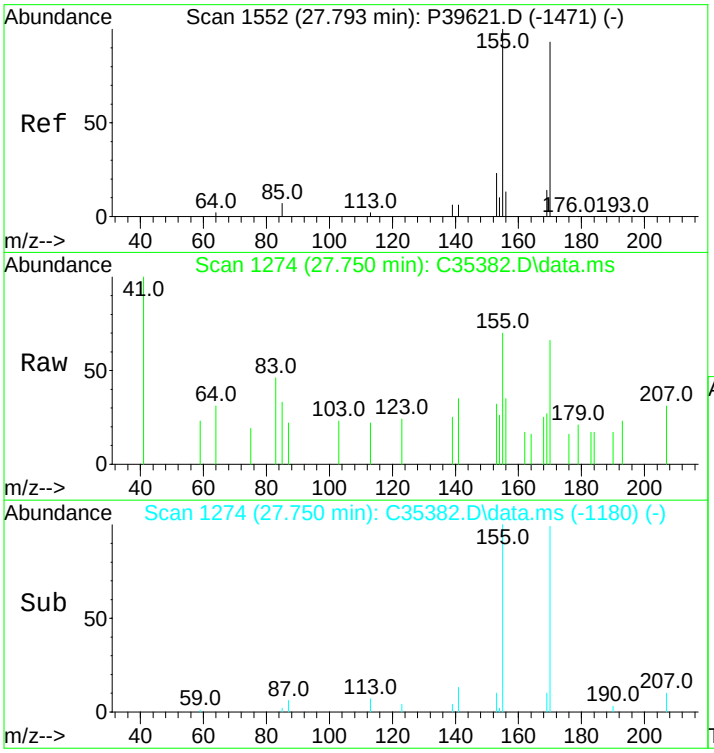


#12
C2-Naphthalenes
Concen: 55.70 ng/mL m
RT: 24.679 min Scan# 1070
Delta R.T. -0.354 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:156 Resp: 4140

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

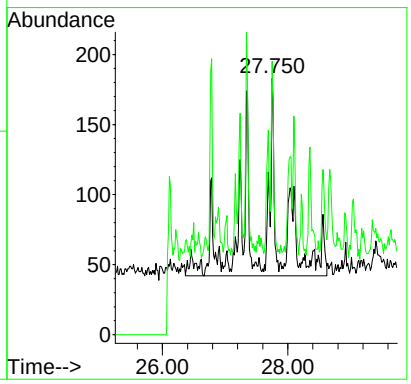


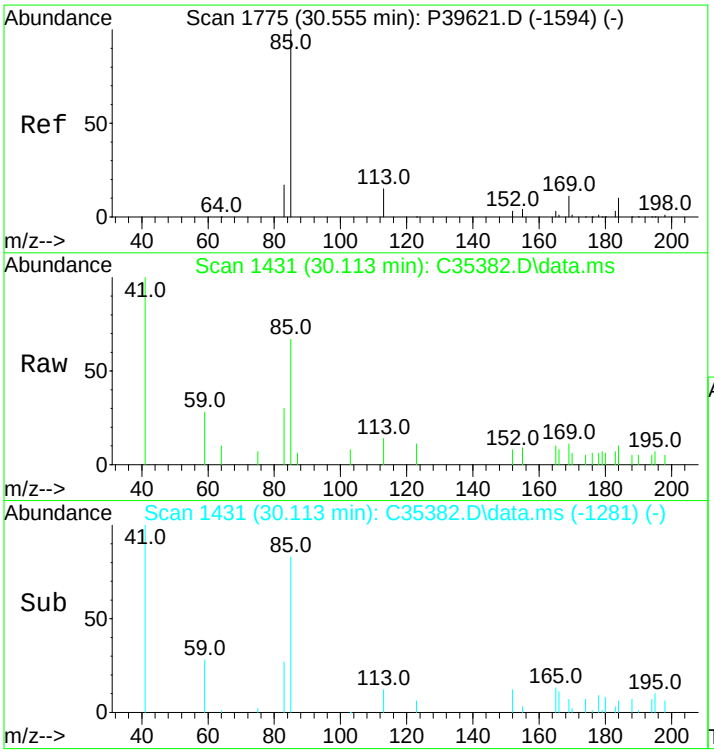


#13
C3-Naphthalenes
Concen: 39.12 ng/mL m
RT: 27.750 min Scan# 1274
Delta R.T. 0.422 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:170 Resp: 2908

Ion	Ratio	Lower	Upper
170	100		
155	14.6	86.3	129.5#

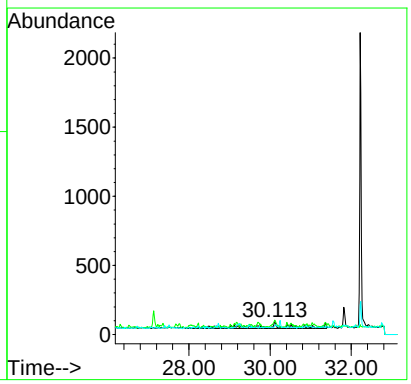


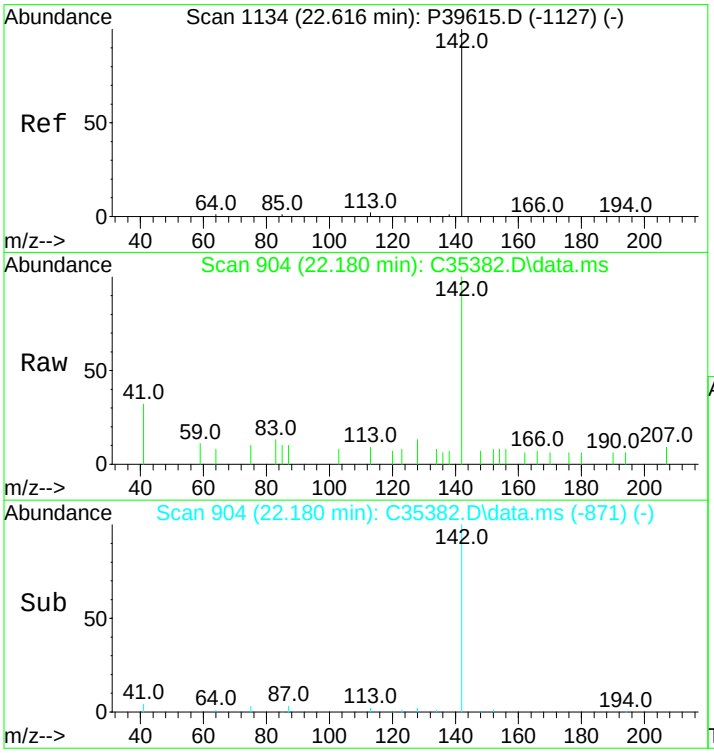


#14
C4-Naphthalenes
Concen: 27.12 ng/mL m
RT: 30.113 min Scan# 1431
Delta R.T. 0.078 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:184 Resp: 2016

Ion	Ratio	Lower	Upper
184	100		
169	14.9	100.6	150.8#
183	0.0	26.6	40.0#

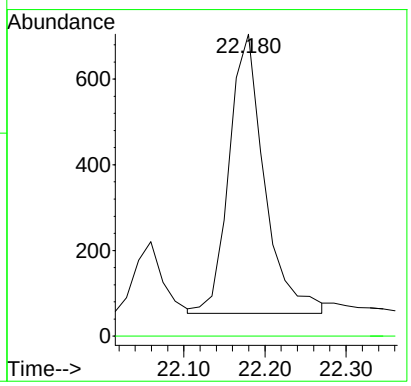


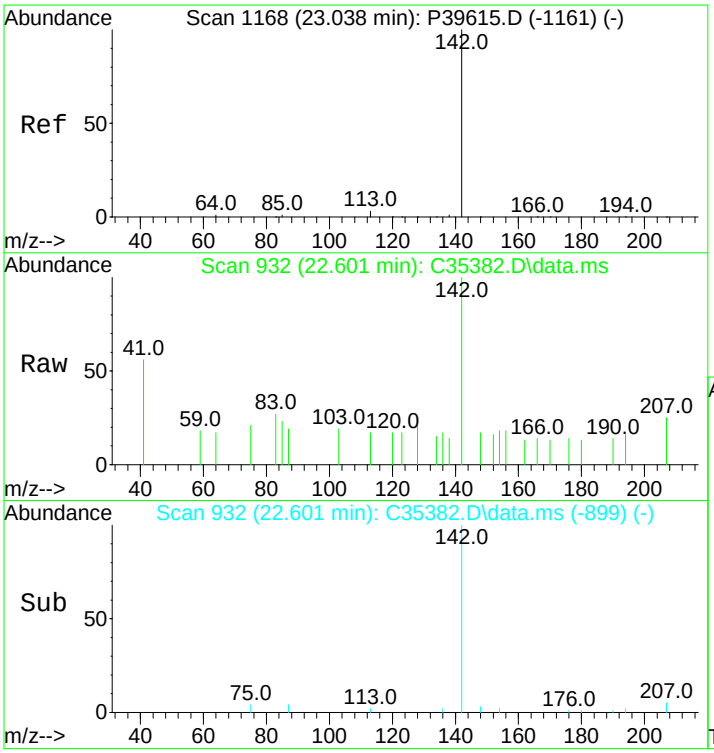


#16
2-Methylnaphthalene
Concen: 45.14 ng/mL m
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:142 Resp: 1984

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

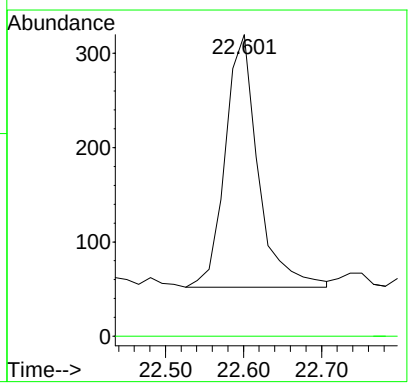


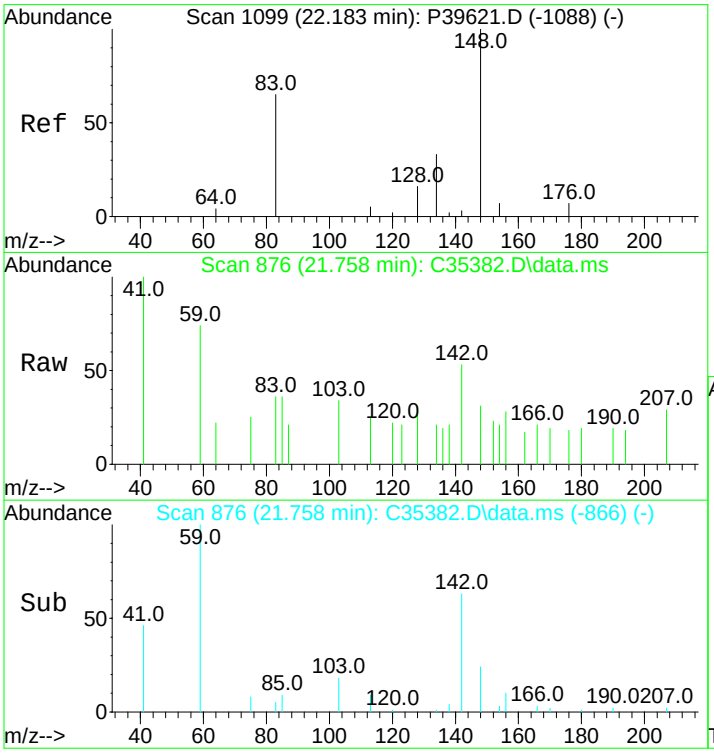


#17
1-Methylnaphthalene
Concen: 18.27 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:142 Resp: 787

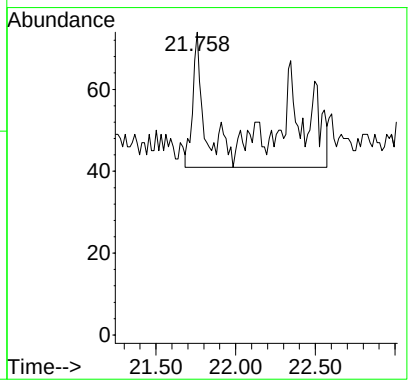
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

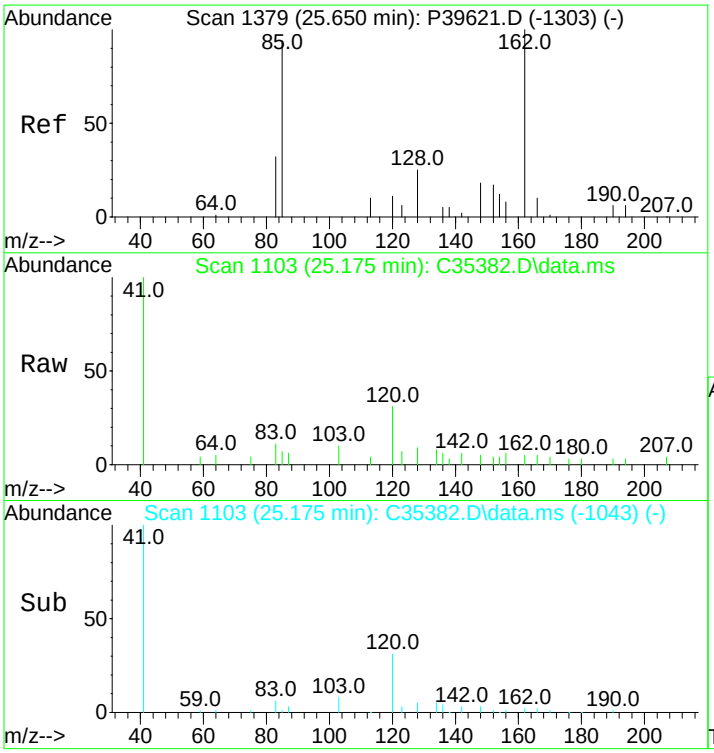




#19
C1-Benzo(b)thiophenes
Concen: 7.83 ng/mL m
RT: 21.758 min Scan# 876
Delta R.T. -0.048 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

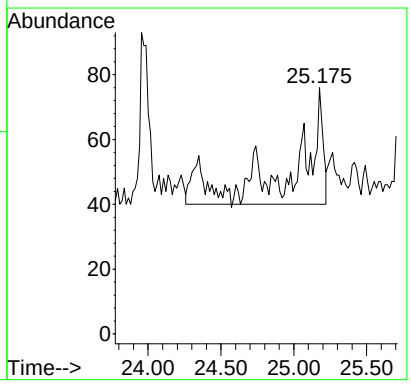
Tgt Ion:148 Resp: 524

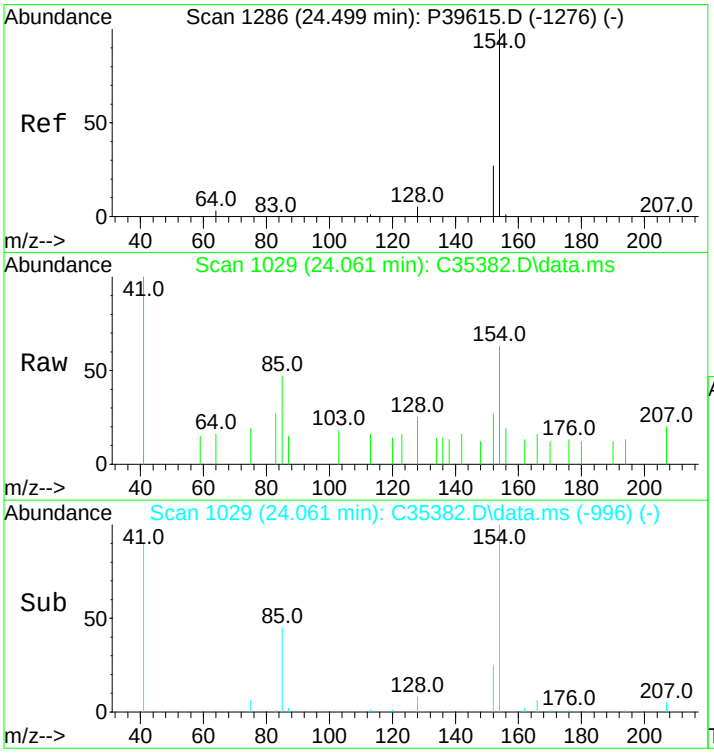




#20
C2-Benzo(b)thiophenes
Concen: 7.52 ng/mL m
RT: 25.175 min Scan# 1103
Delta R.T. -0.050 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:162 Resp: 503

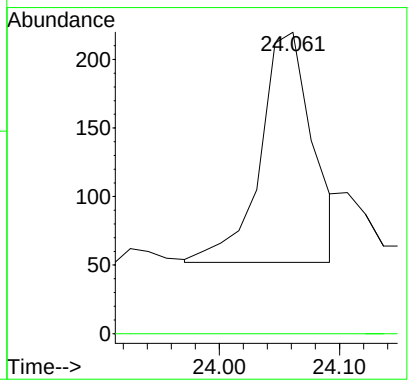


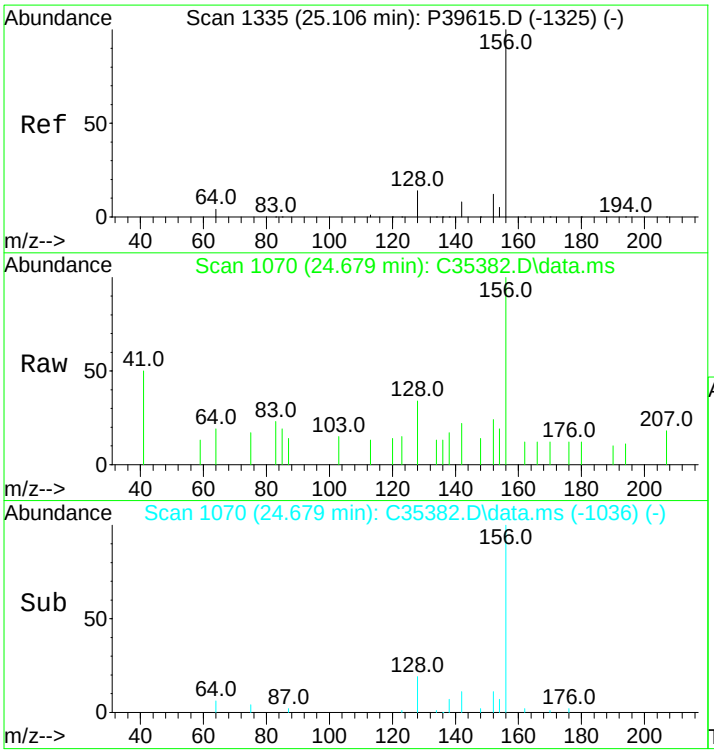


#23
Biphenyl
Concen: 9.17 ng/mL m
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:154 Resp: 510

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

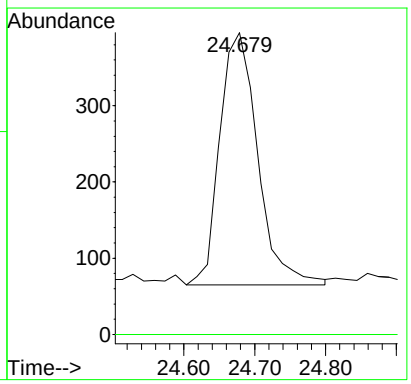


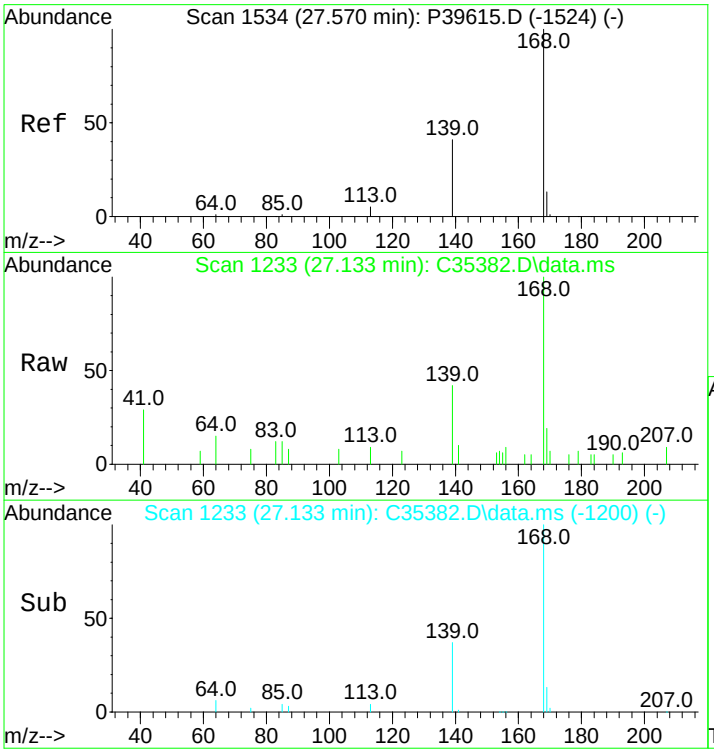


#24
2,6-Dimethylnaphthalene
Concen: 34.20 ng/mL m
RT: 24.679 min Scan# 1070
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:156 Resp: 1235

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

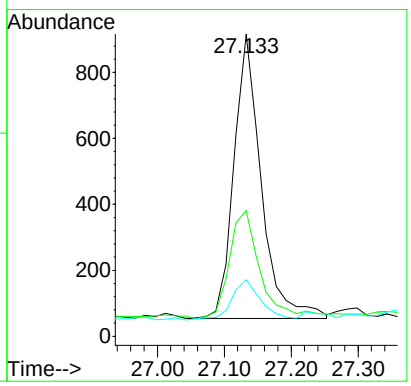


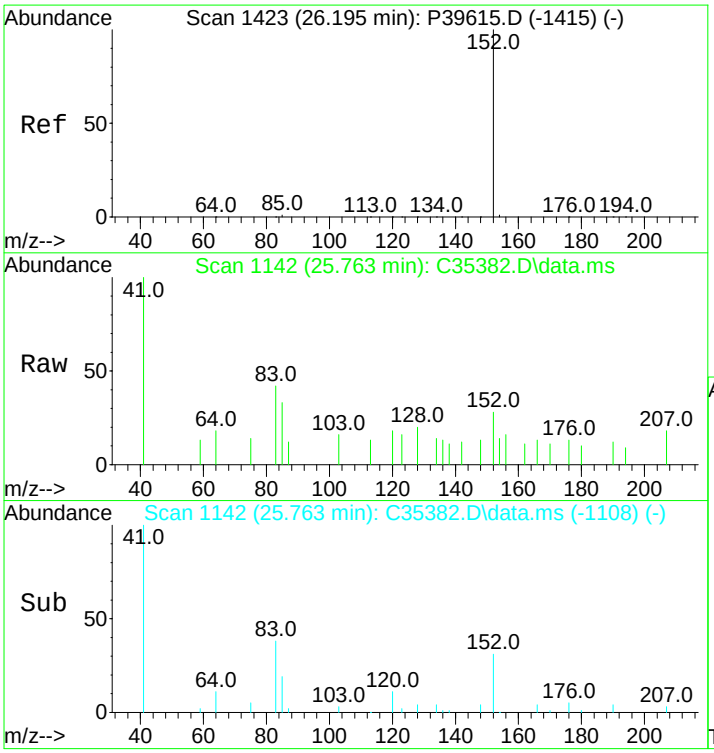


#25
Dibenzofuran
Concen: 38.39 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:168 Resp: 2451

Ion	Ratio	Lower	Upper
168	100		
139	44.7	29.9	44.9
169	15.4	10.3	15.5

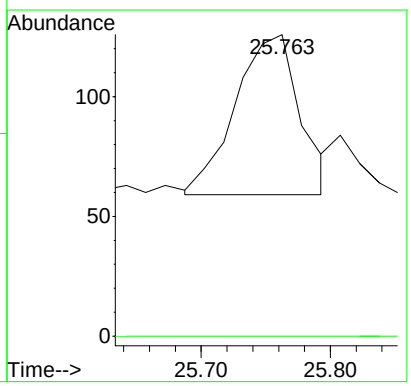


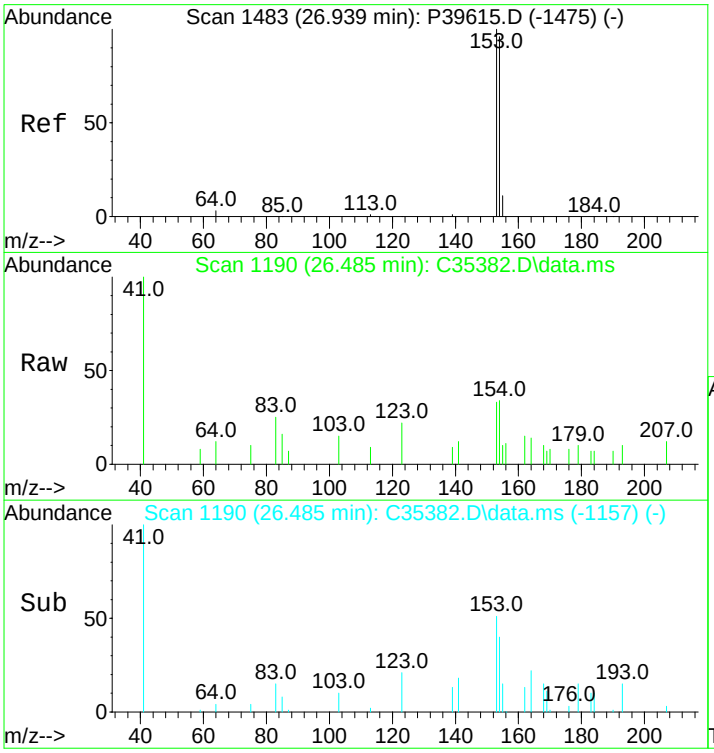


#26
Acenaphthylene
Concen: 3.16 ng/mL m
RT: 25.763 min Scan# 1142
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:152 Resp: 233

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

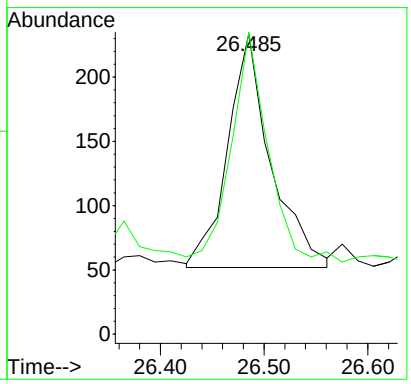


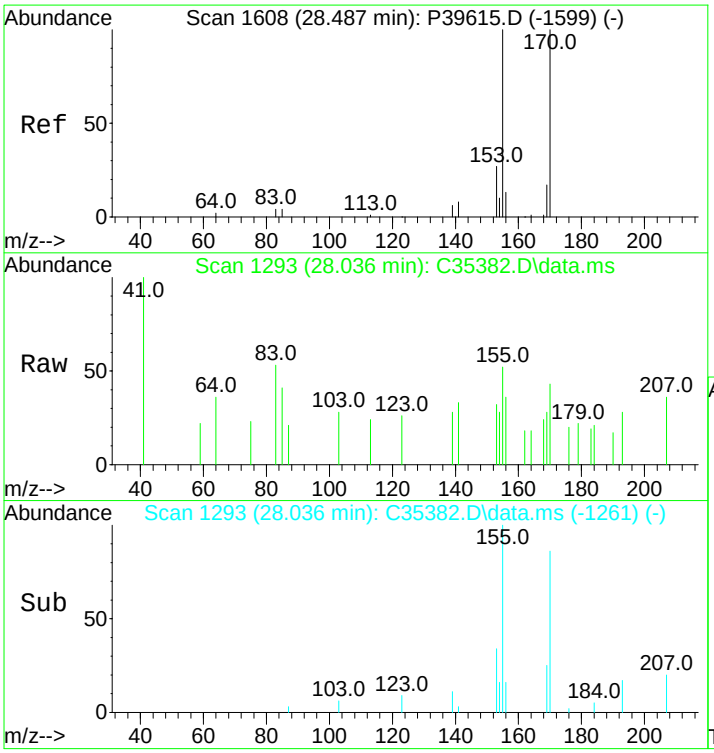


#27
Acenaphthene
Concen: 12.06 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:153 Resp: 524

Ion	Ratio	Lower	Upper
153	100		
154	83.8	73.3	109.9

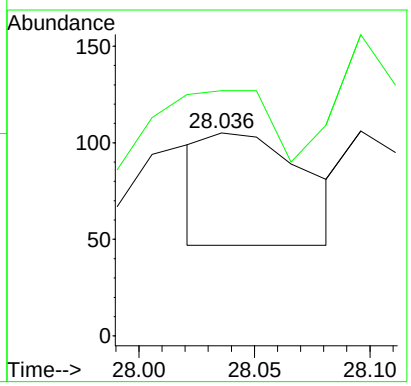


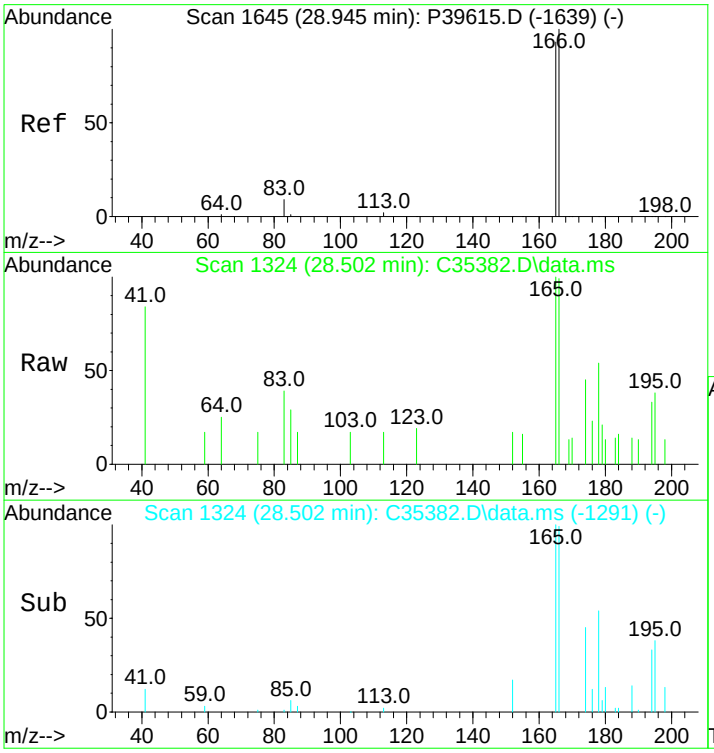


#28
2,3,5-Trimethylnaphthalene
Concen: 5.91 ng/mL m
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:170 Resp: 172

Ion	Ratio	Lower	Upper
170	100		
155	172.1	78.4	117.6#

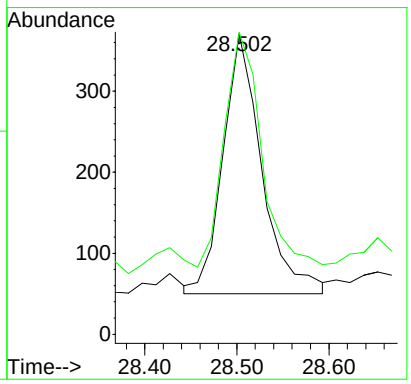


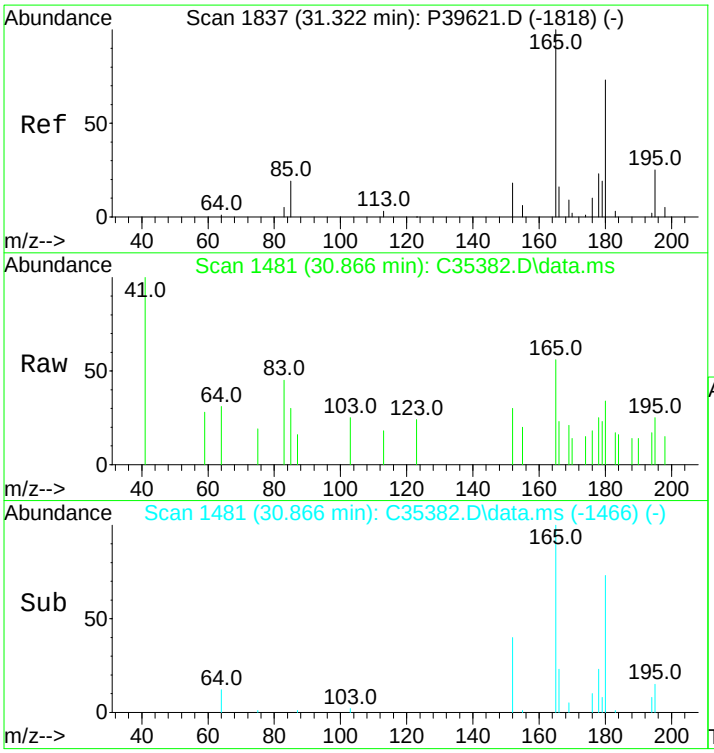


#29
Fluorene
Concen: 19.62 ng/mL m
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:166 Resp: 940

Ion	Ratio	Lower	Upper
166	100		
165	87.2	77.1	115.7

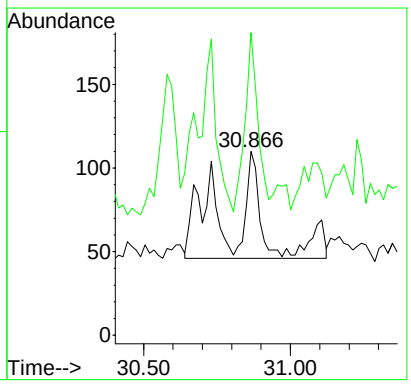


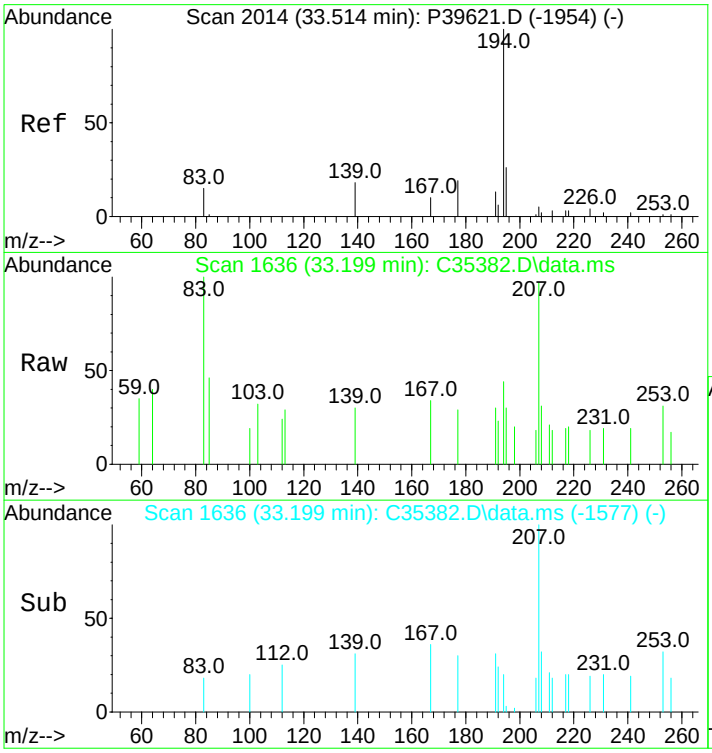


#30
C1-Fluorenes
Concen: 11.17 ng/mL m
RT: 30.866 min Scan# 1481
Delta R.T. 0.075 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:180 Resp: 535

Ion	Ratio	Lower	Upper
180	100		
165	61.1	121.9	182.9#

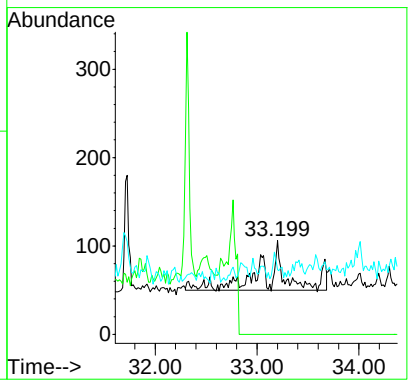


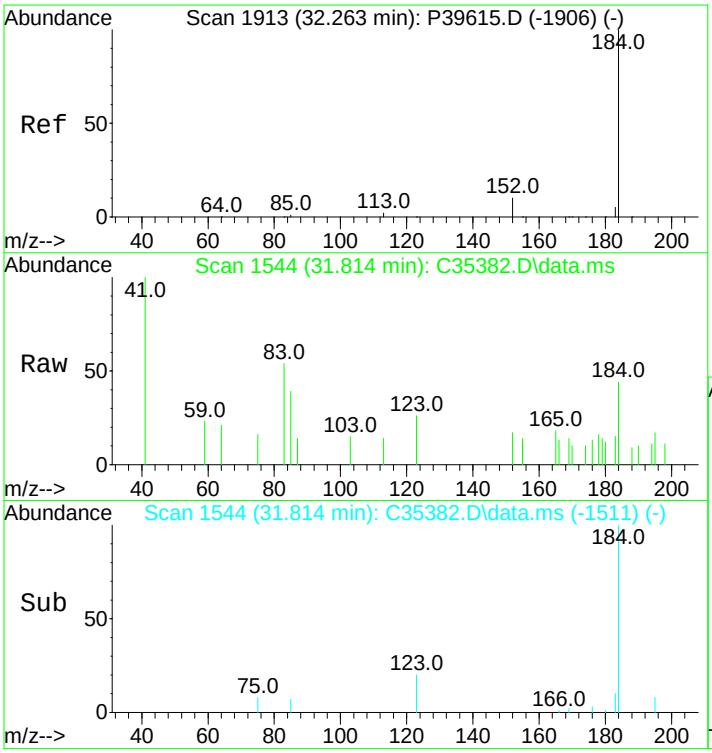


#31
C2-Fluorenes
Concen: 19.06 ng/mL m
RT: 33.199 min Scan# 1636
Delta R.T. 0.263 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:194 Resp: 913

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	30.5	45.7#

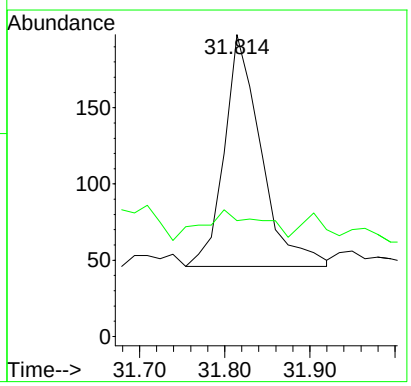


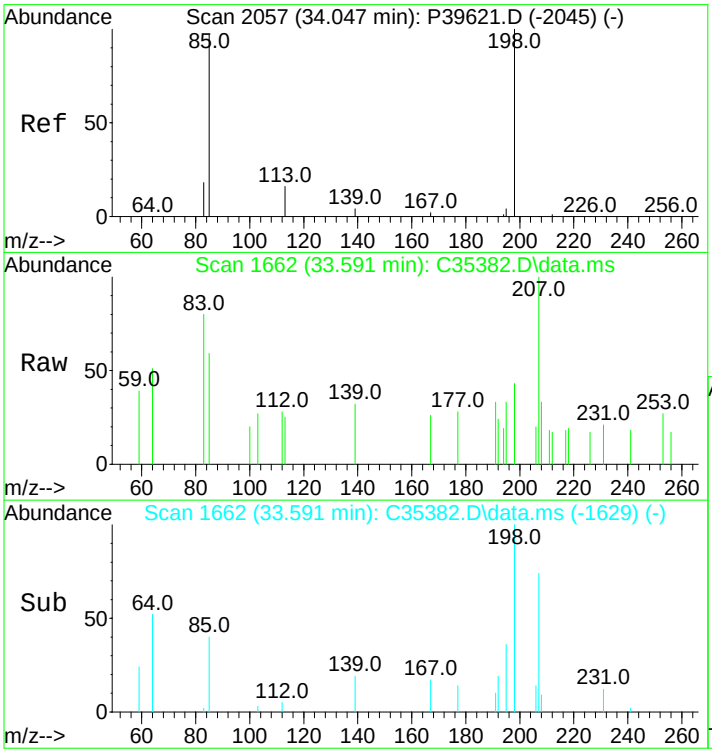


#33
Dibenzothiophene
Concen: 5.95 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:184 Resp: 457

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.5	11.3#

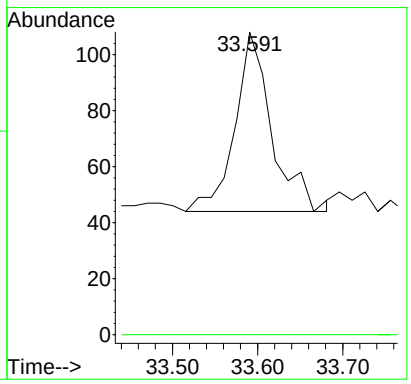


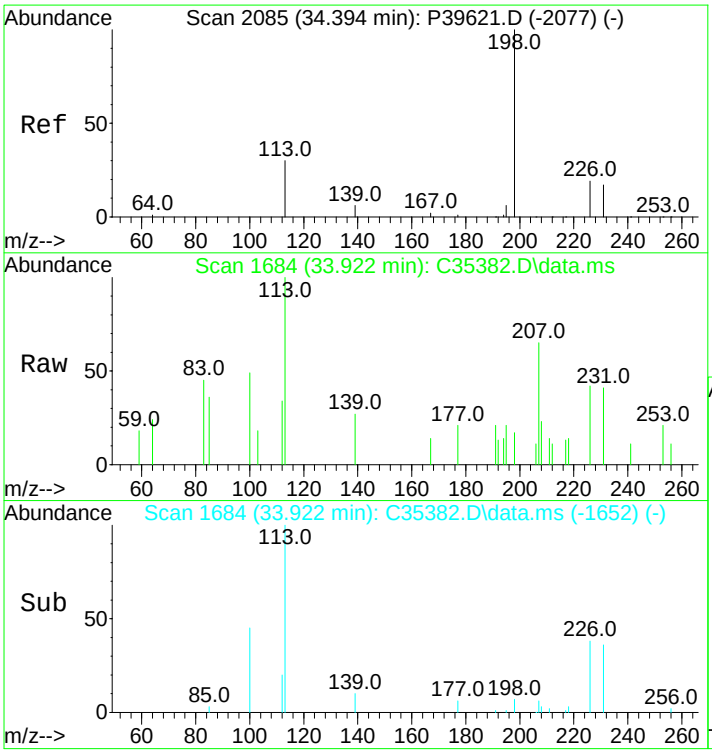


#34
4-Methyldibenzothiophene(4MDT)
Concen: 2.53 ng/mL
RT: 33.591 min Scan# 1662
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:198 Resp: 194

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

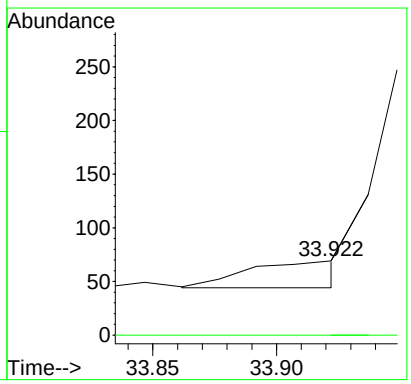


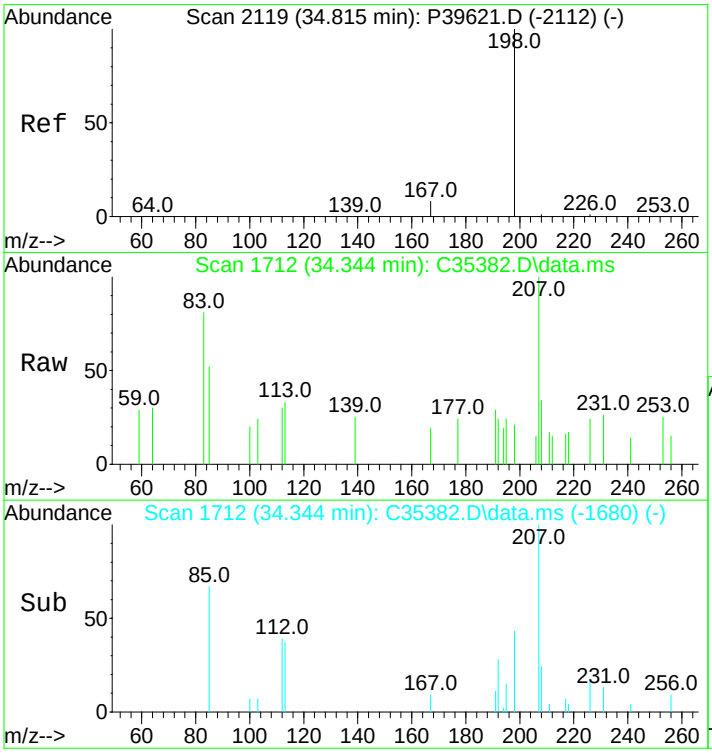


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 0.89 ng/mL m
RT: 33.922 min Scan# 1684
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:198 Resp: 68

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

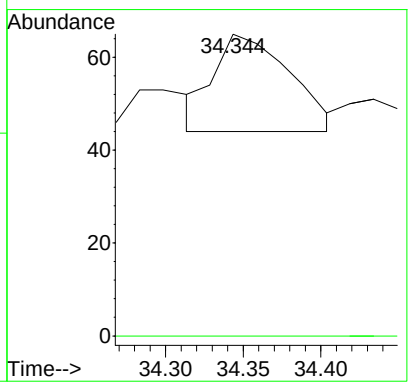


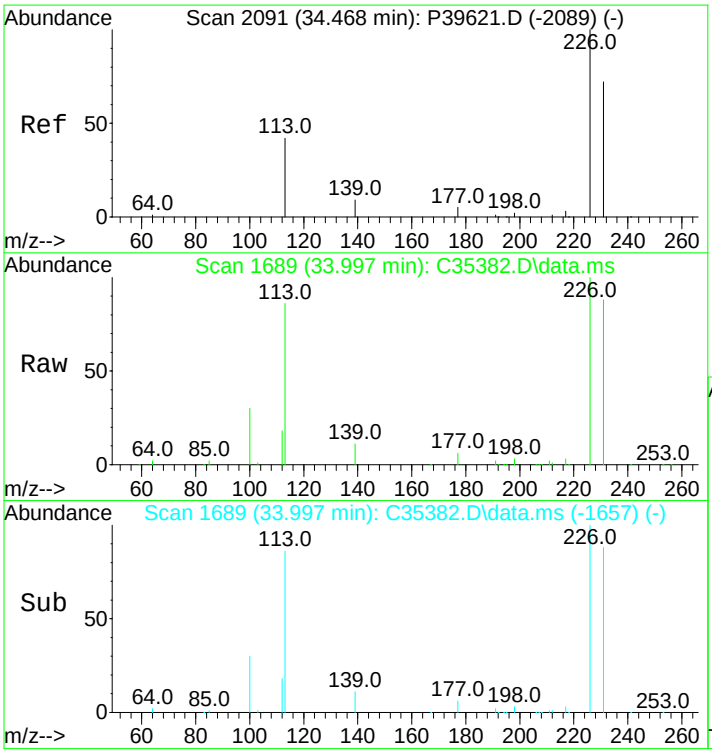


#36
1-Methyldibenzothiophene(1MDT)
Concen: 0.92 ng/mL m
RT: 34.344 min Scan# 1712
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:198 Resp: 71

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

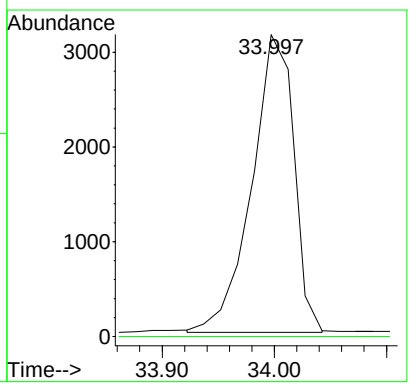


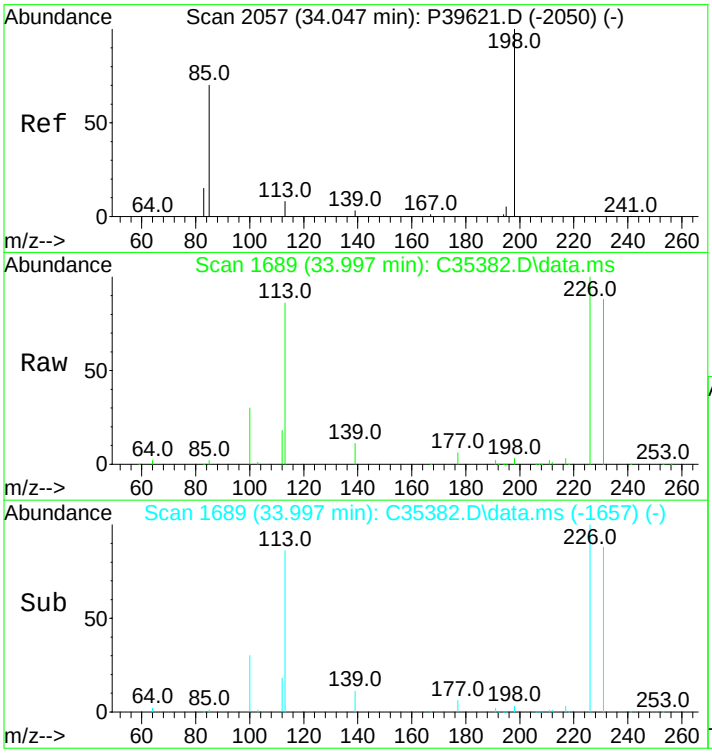


#37
OTP
Concen: 106.60 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:198 Resp: 8187

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

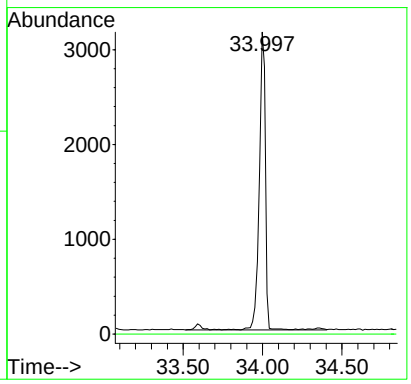


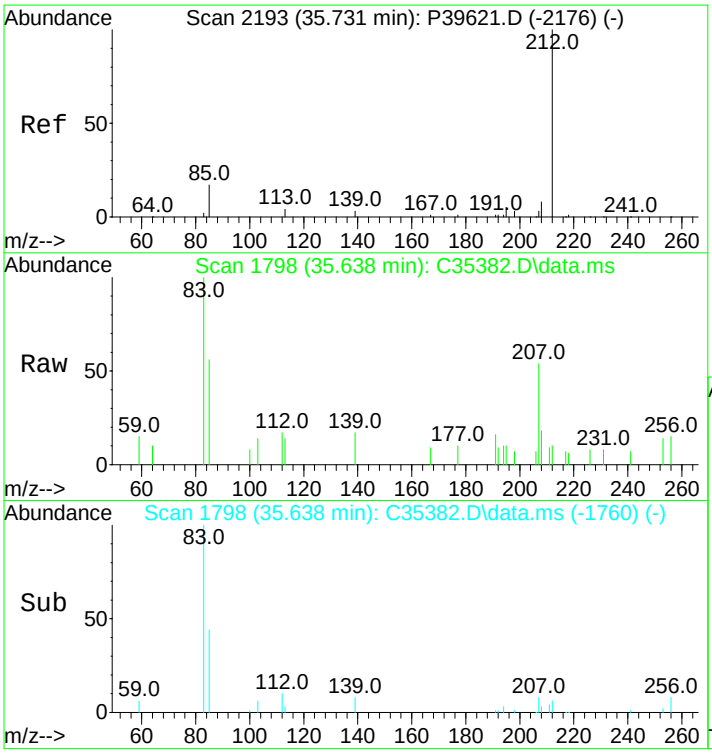


#38
C1-Dibenzothiophenes
Concen: 113.74 ng/mL m
RT: 33.997 min Scan# 1689
Delta R.T. 0.047 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:198 Resp: 8736

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

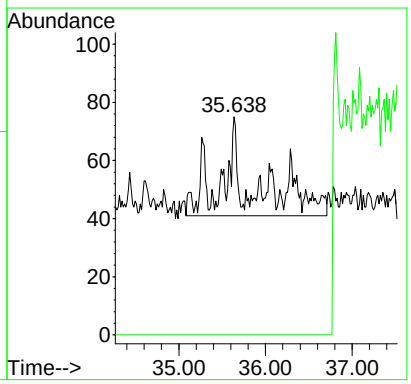


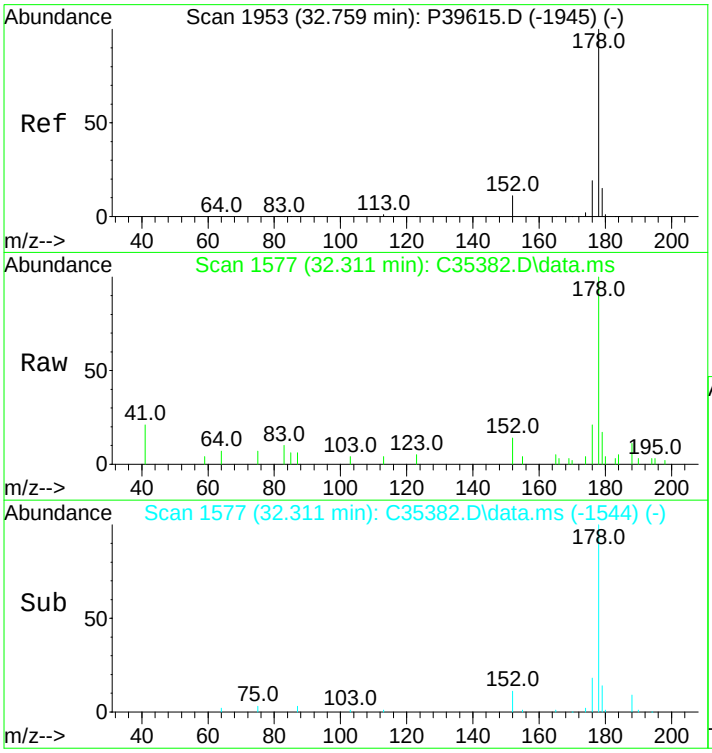


#39
C2-Dibenzothiophenes
Concen: 11.04 ng/mL m
RT: 35.638 min Scan# 1798
Delta R.T. 0.170 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:212 Resp: 848

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

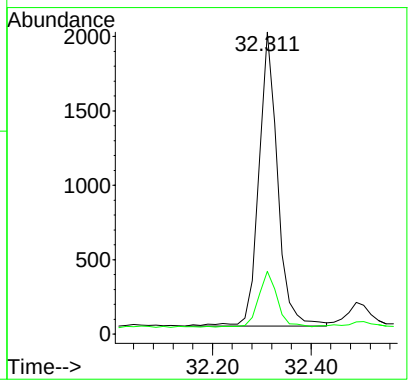


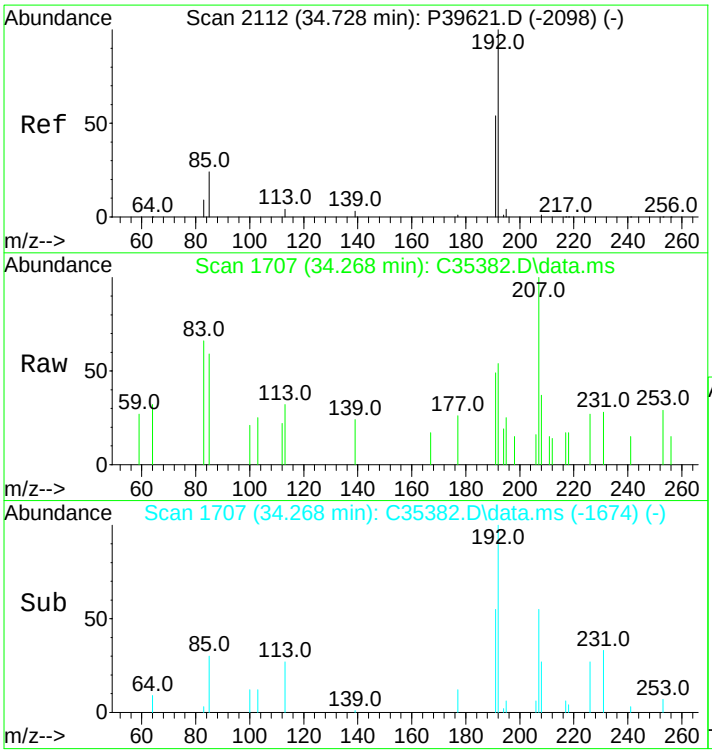


#43
Phenanthrene
Concen: 77.09 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:178 Resp: 5202

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.8	23.6

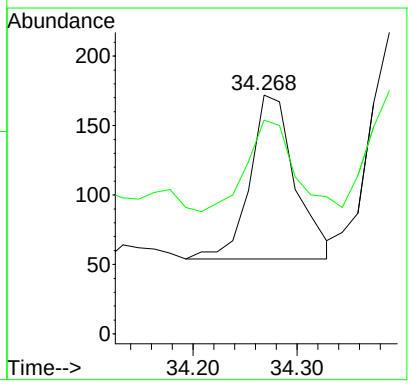


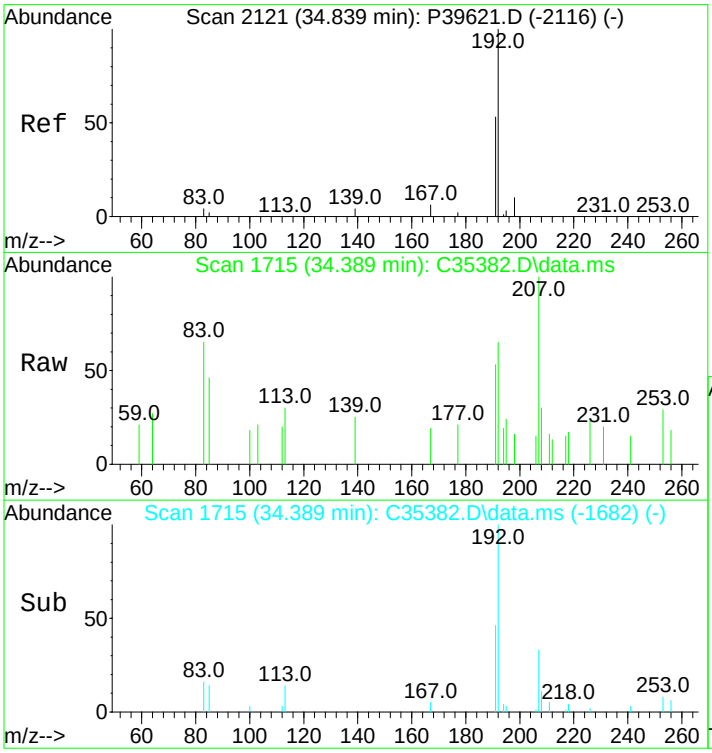


#44
3-Methylphenanthrene(3MP)
Concen: 5.32 ng/mL
RT: 34.268 min Scan# 1707
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 359

Ion	Ratio	Lower	Upper
192	100		
191	58.5	47.4	71.0

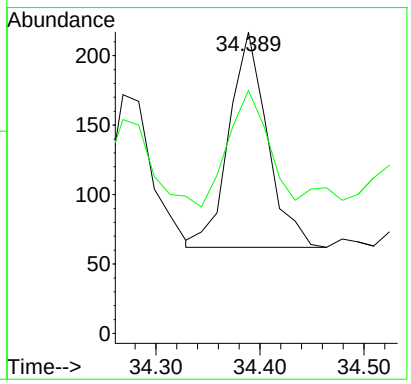


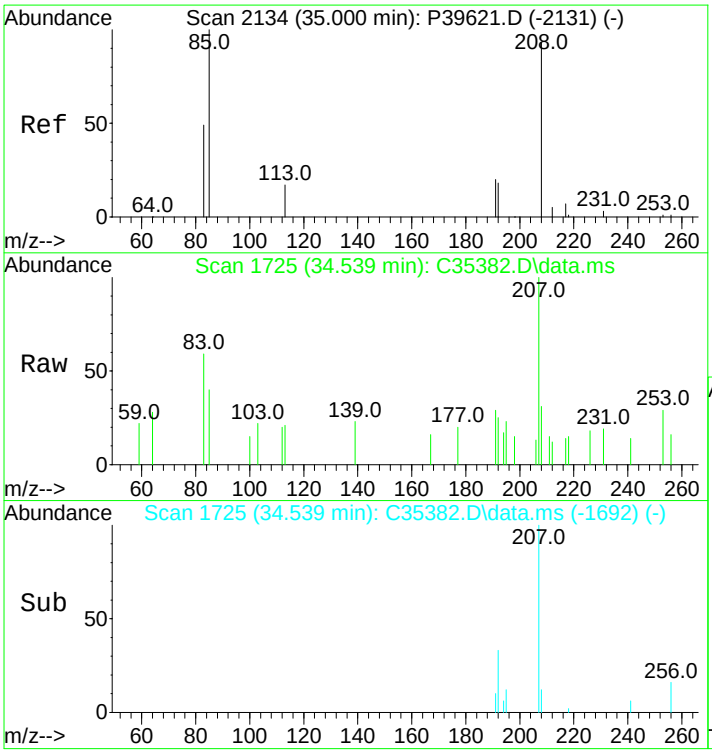


#45
2-Methylphenanthrene(2MP)
Concen: 5.88 ng/mL
RT: 34.389 min Scan# 1715
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 397

Ion	Ratio	Lower	Upper
192	100		
191	64.0	45.0	67.6

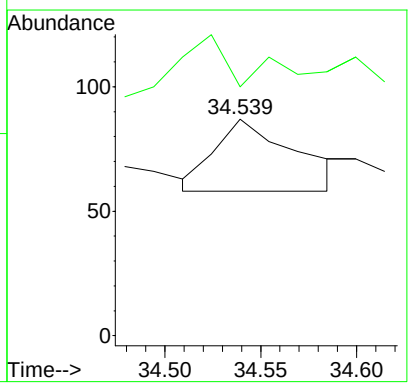


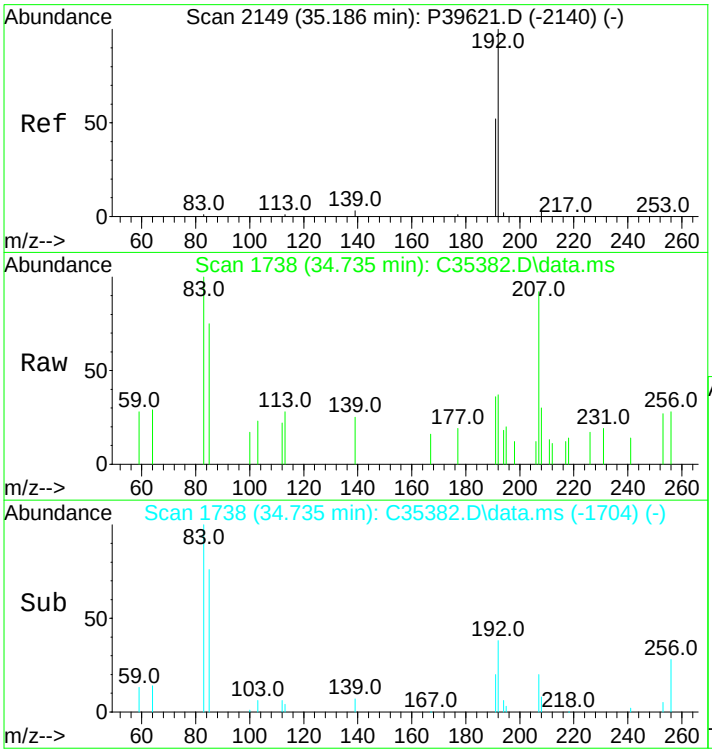


#46
2-Methylanthracene(2MA)
Concen: 1.24 ng/mL m
RT: 34.539 min Scan# 1725
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 84

Ion	Ratio	Lower	Upper
192	100		
191	0.0	95.5	143.3#

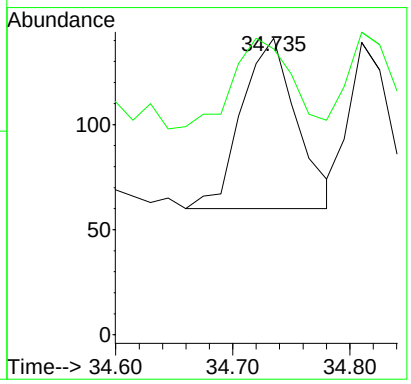


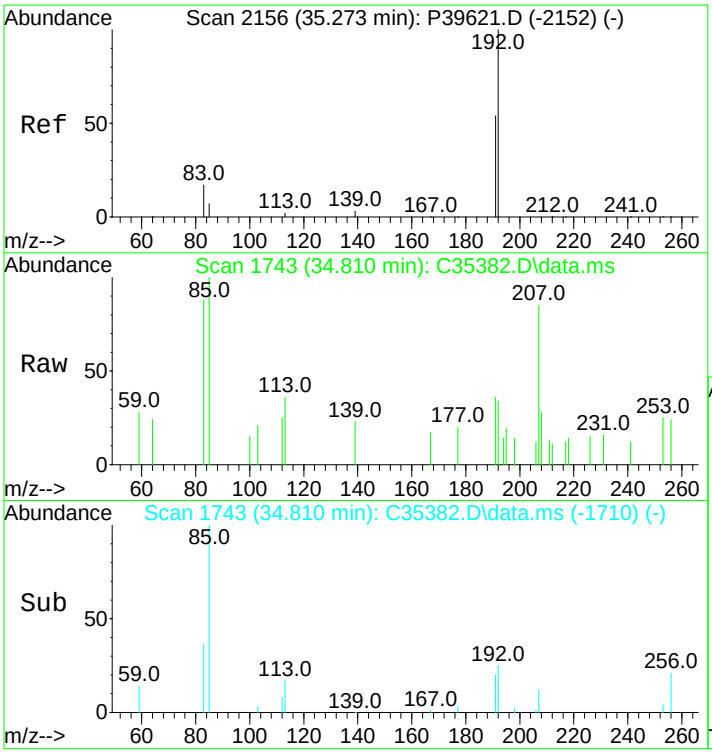


#47
9/4-Methylphenanthrene(9MP)
Concen: 3.94 ng/mL
RT: 34.735 min Scan# 1738
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 266

Ion	Ratio	Lower	Upper
192	100		
191	52.6	46.5	69.7

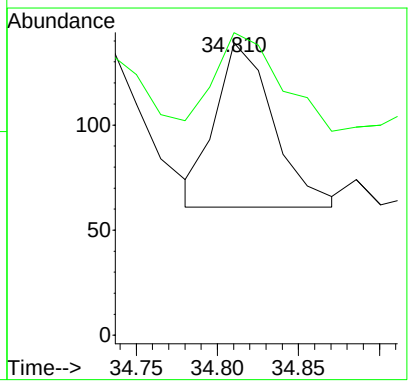


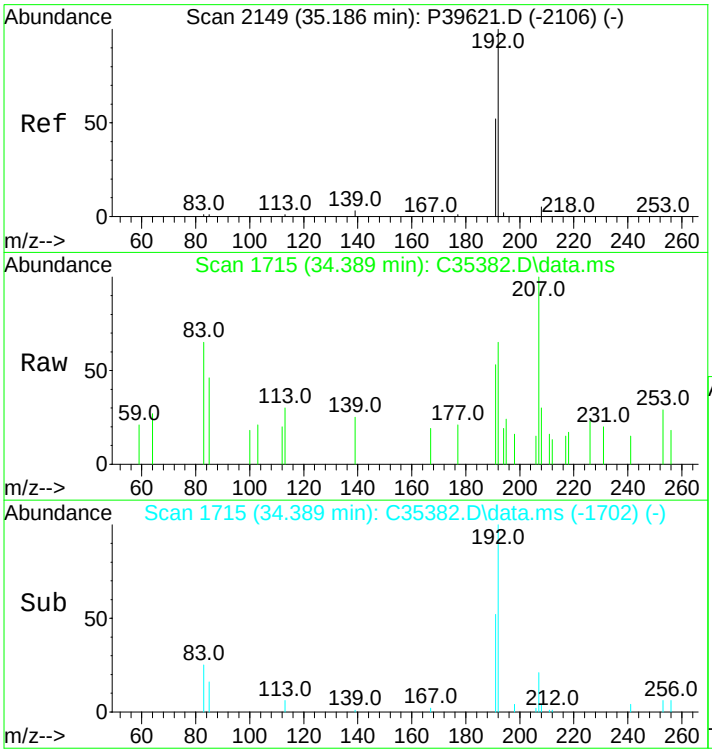


#48
1-Methylphenanthrene(1MP)
Concen: 2.87 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 194

Ion	Ratio	Lower	Upper
192	100		
191	61.3	47.4	71.2

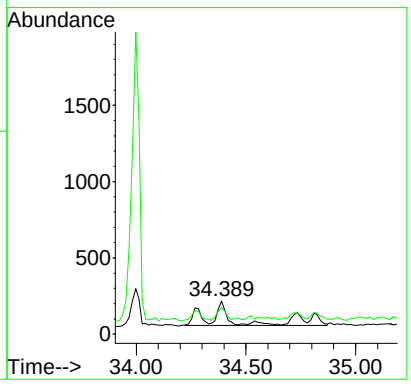


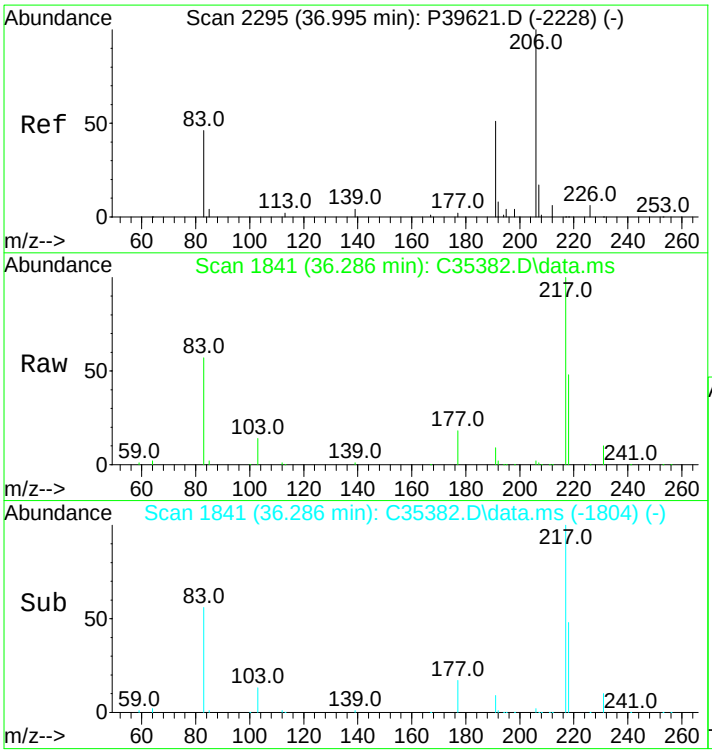


#49
C1-Phenanthrenes/Anthracenes
Concen: 20.47 ng/mL m
RT: 34.389 min Scan# 1715
Delta R.T. -0.191 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 1381

Ion	Ratio	Lower	Upper
192	100		
191	10.1	45.3	67.9#

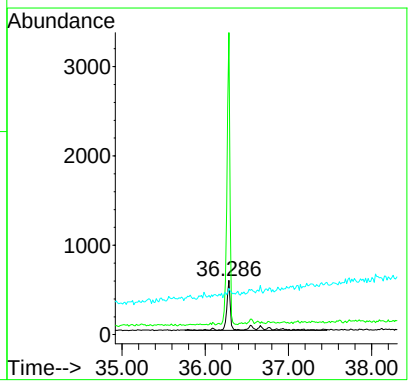


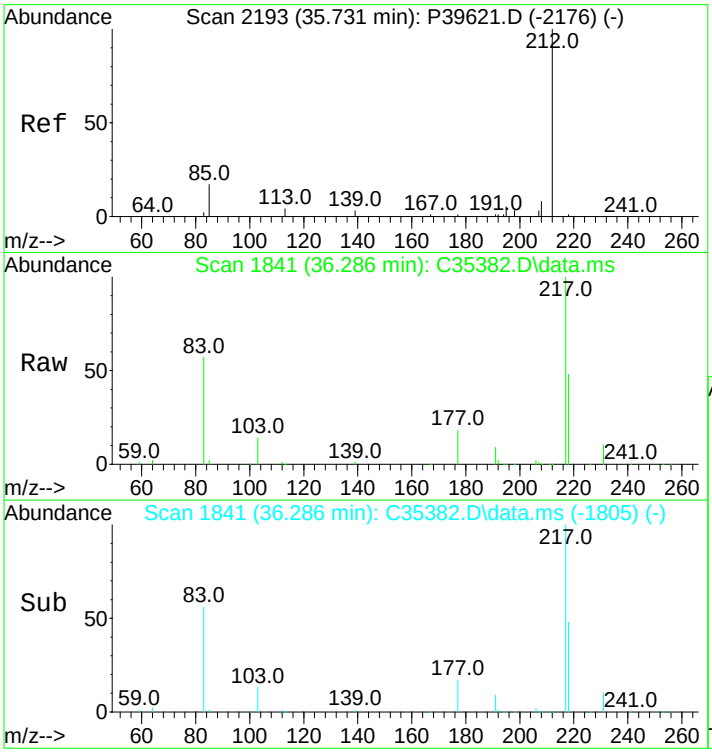


#50
C2-Phenanthrenes/Anthracenes
Concen: 38.98 ng/mL m
RT: 36.286 min Scan# 1841
Delta R.T. -0.070 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:206 Resp: 2630

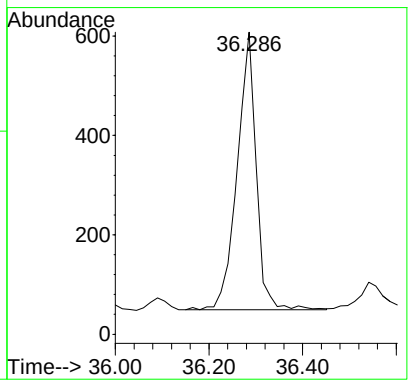
Ion	Ratio	Lower	Upper
206	100		
191	317.1	42.0	63.0#
207	19.0	15.4	23.2

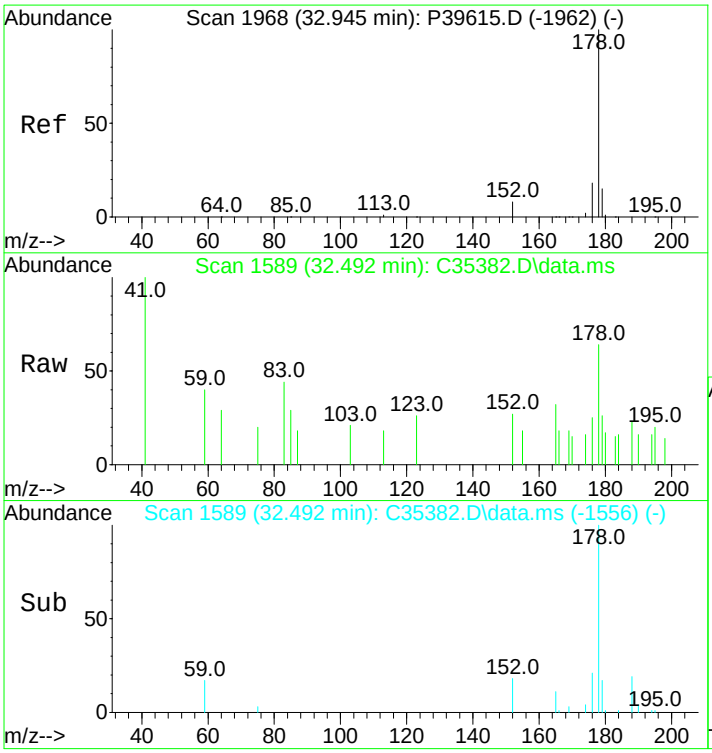




#51
5AA IS BKGD
Concen: 23.53 ng/mL
RT: 36.286 min Scan# 1841
Delta R.T. 0.045 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:206 Resp: 1588

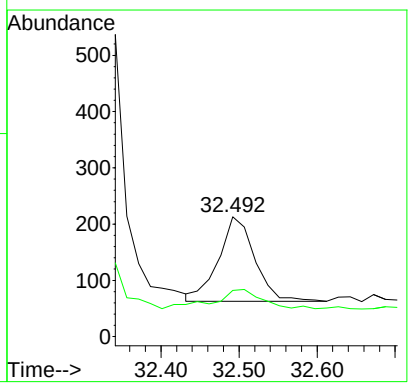


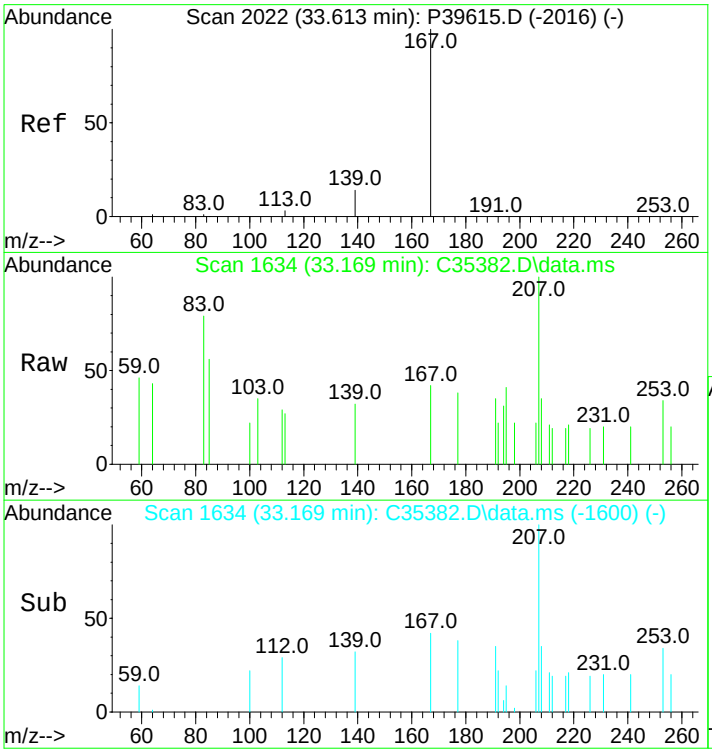


#55
Anthracene
Concen: 7.31 ng/mL
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:178 Resp: 482

Ion	Ratio	Lower	Upper
178	100		
176	21.2	15.6	23.4

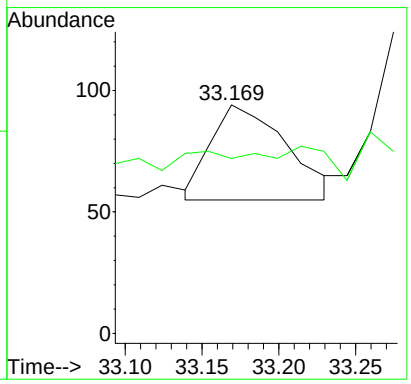


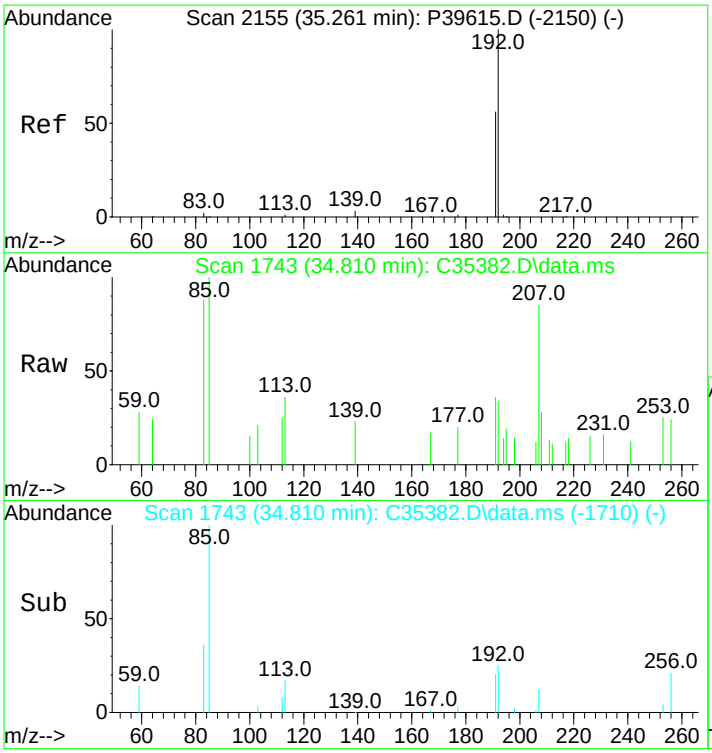


#56
Carbazole
Concen: 2.01 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:167 Resp: 134

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.9	17.9#

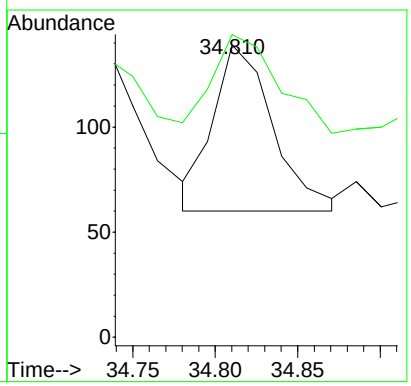


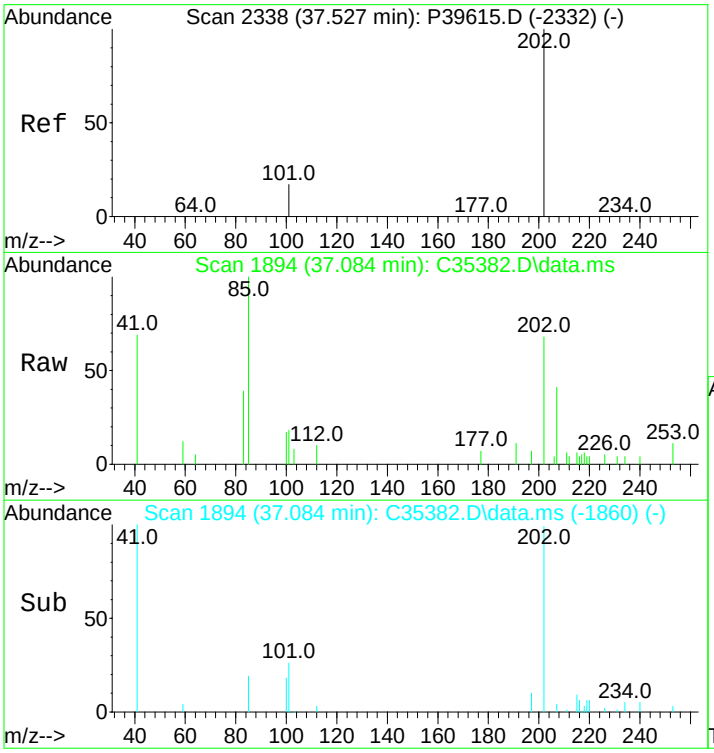


#57
1-Methylphenanthrene
Concen: 4.68 ng/mL m
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:192 Resp: 200

Ion	Ratio	Lower	Upper
192	100		
191	59.5	46.8	70.2

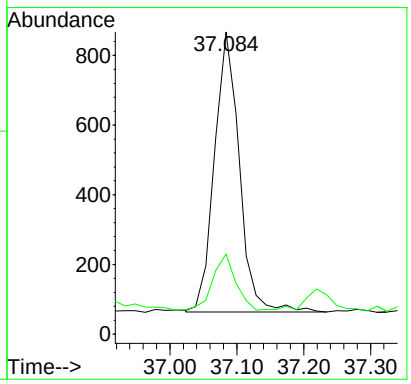


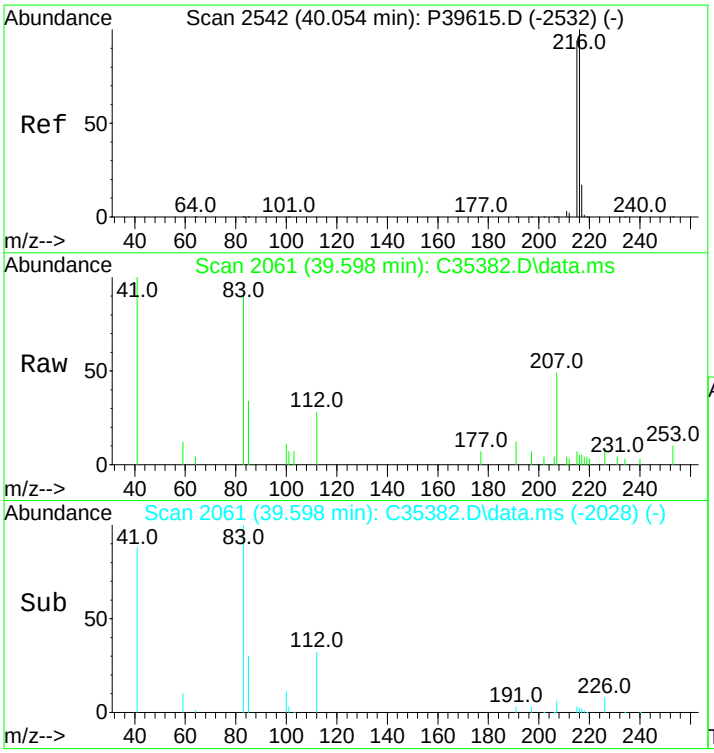


#58
Fluoranthene
Concen: 31.02 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:202 Resp: 2079

Ion	Ratio	Lower	Upper
202	100		
101	28.2	13.2	19.8#

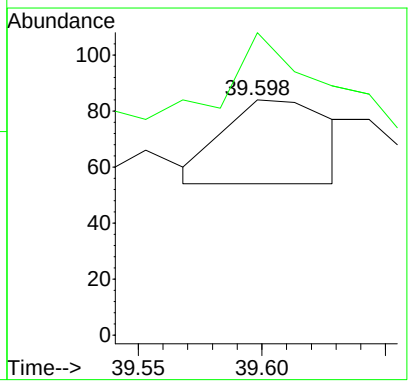


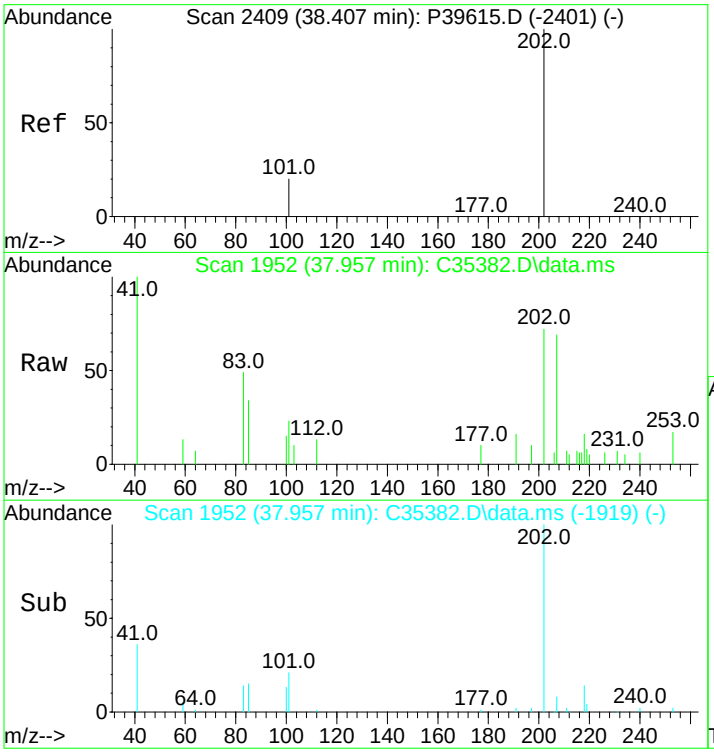


#59
Benzo(b)fluorene
Concen: 2.31 ng/mL m
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:216 Resp: 90

Ion	Ratio	Lower	Upper
216	100		
215	120.0	76.0	114.0#

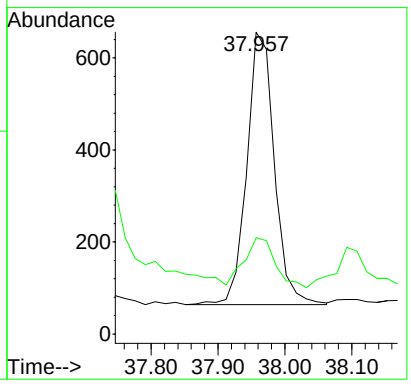


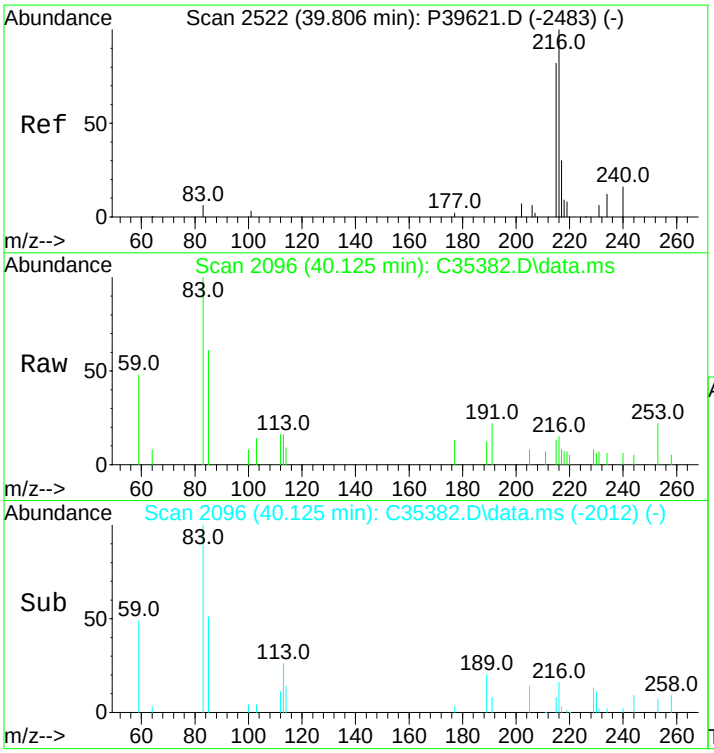


#60
Pyrene
Concen: 24.84 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:202 Resp: 1692

Ion	Ratio	Lower	Upper
202	100		
101	28.4	13.5	20.3#

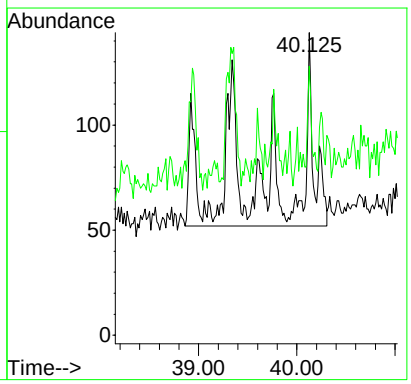


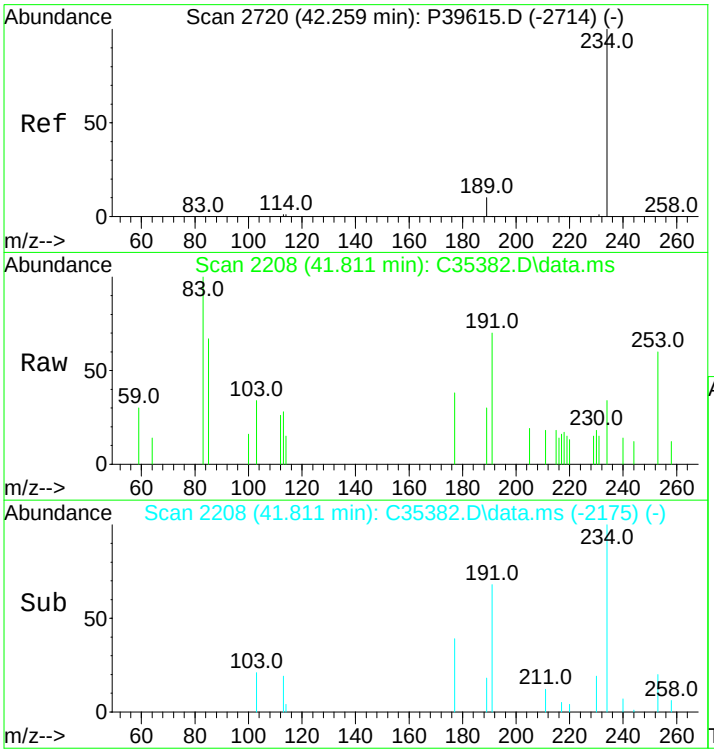


#61
C1-Fluoranthenes/Pyrenes
Concen: 26.30 ng/mL m
RT: 40.125 min Scan# 2096
Delta R.T. 1.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:216 Resp: 1792

Ion	Ratio	Lower	Upper
216	100		
215	0.0	77.7	116.5#

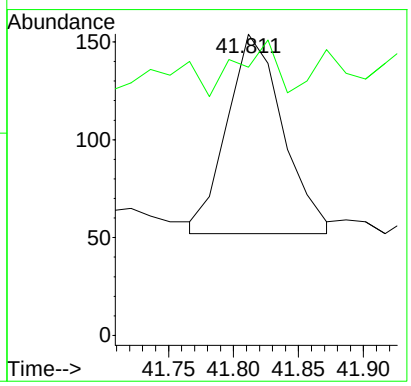


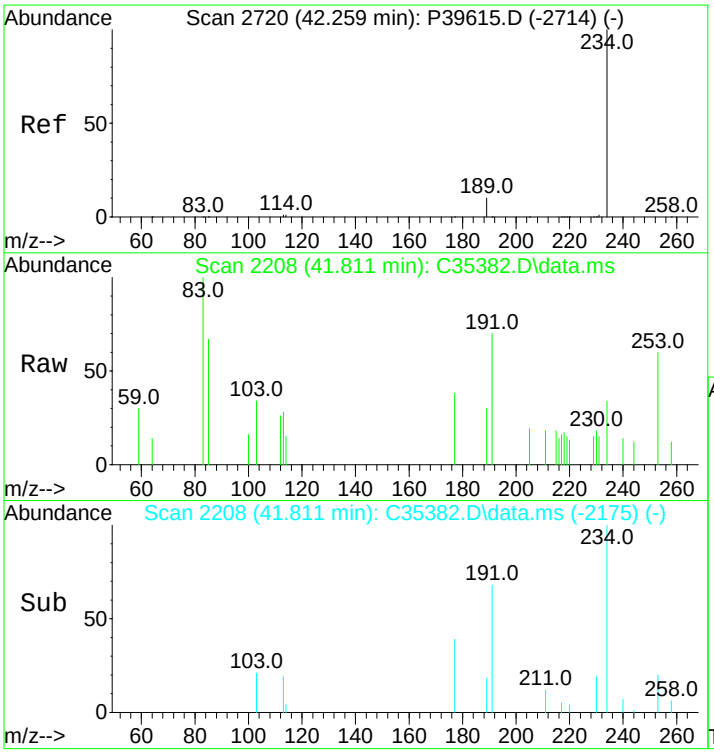


#66
Naphthobenzothiophene
Concen: 4.16 ng/ml m
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:234 Resp: 305

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

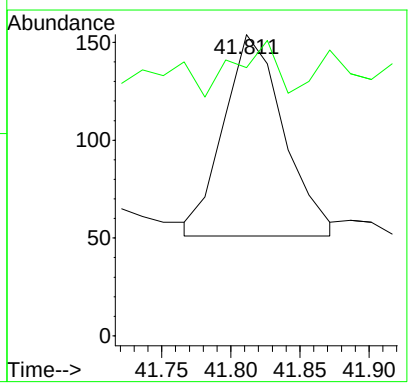


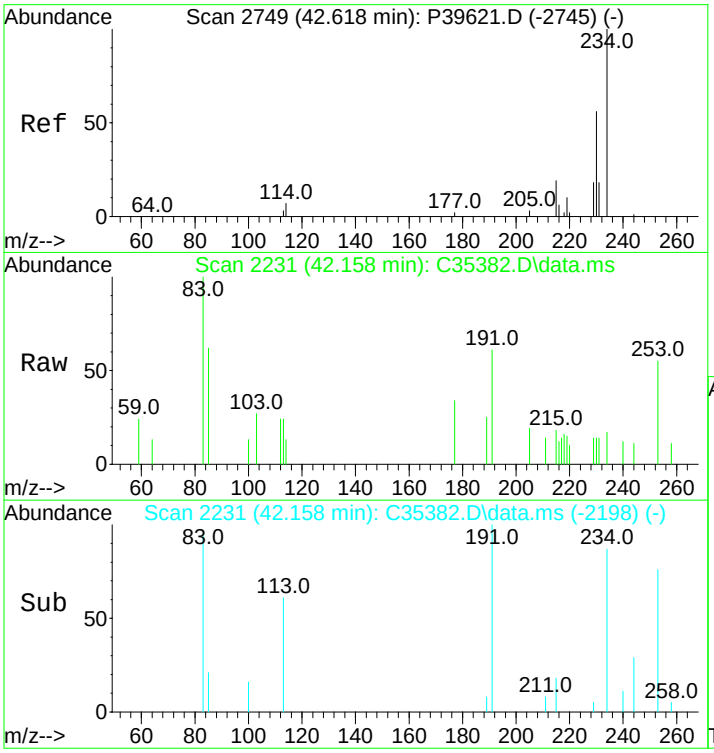


#67
Naphthobenzothiophene-2,1-D
Concen: 4.25 ng/mL m
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:234 Resp: 312

Ion	Ratio	Lower	Upper
234	100		
189	0.0	20.9	31.3#

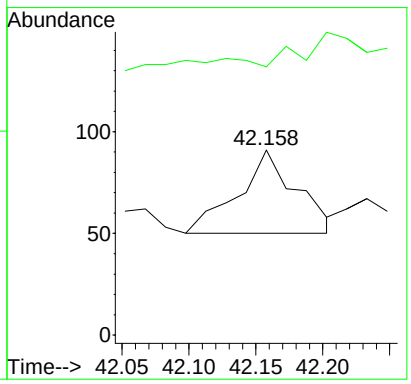


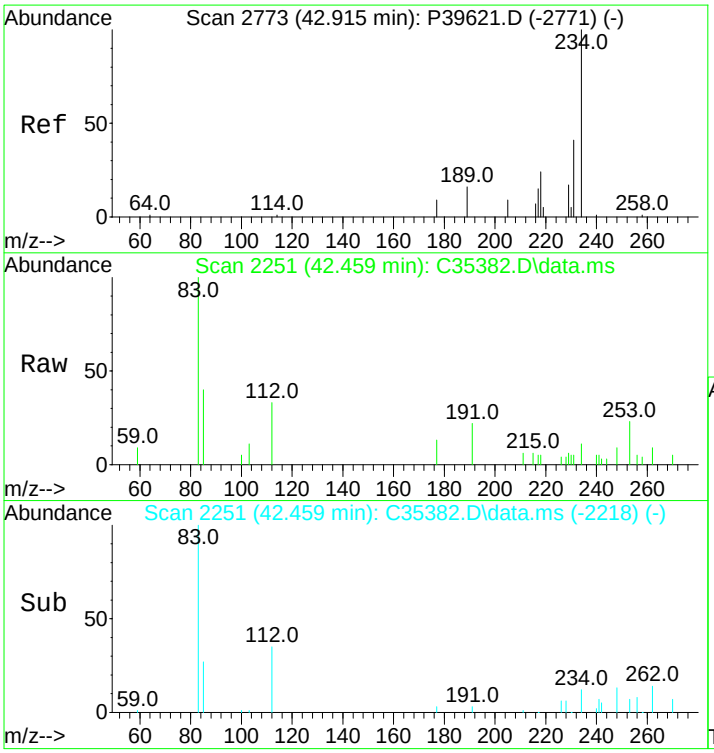


#68
Naphthobenzothiophene-1,2-D
Concen: 1.70 ng/mL
RT: 42.158 min Scan# 2231
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:234 Resp: 125

Ion	Ratio	Lower	Upper
234	100		
189	0.0	64.9	97.3#

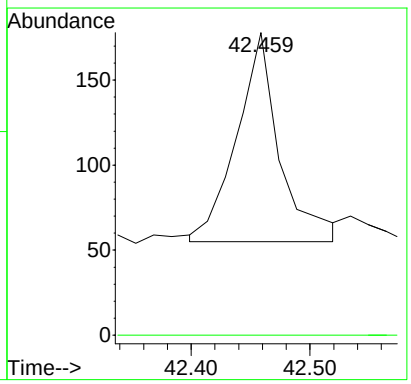


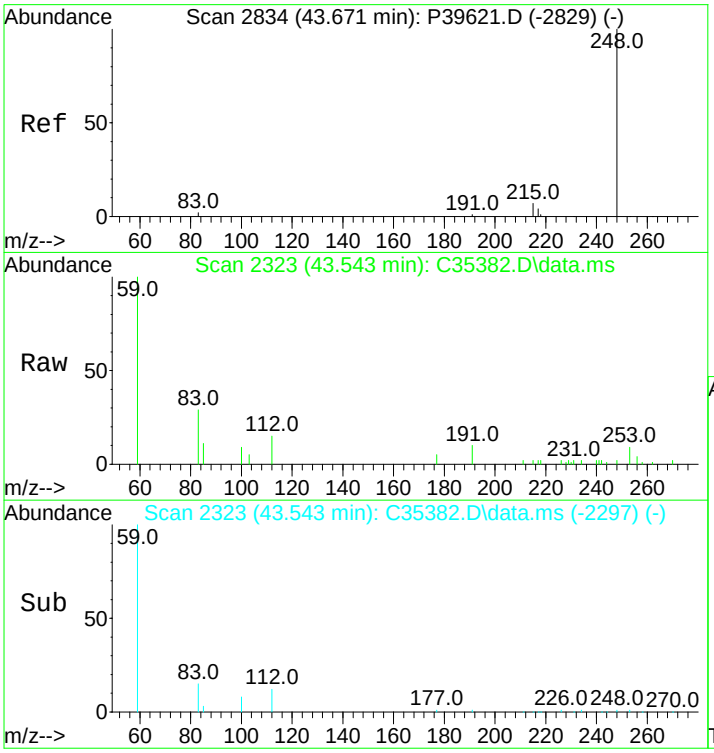


#69
Naphthobenzothiophene-2,3-D
Concen: 4.21 ng/mL m
RT: 42.459 min Scan# 2251
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:234 Resp: 309

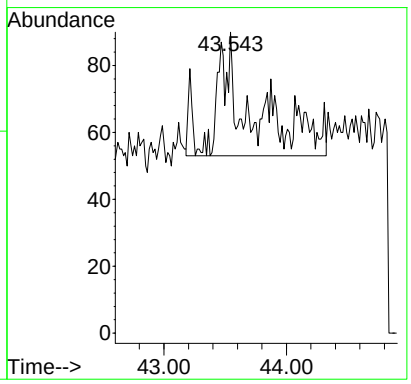
Ion	Ratio	Lower	Upper
234	100		
189	0.0	90.1	135.1#

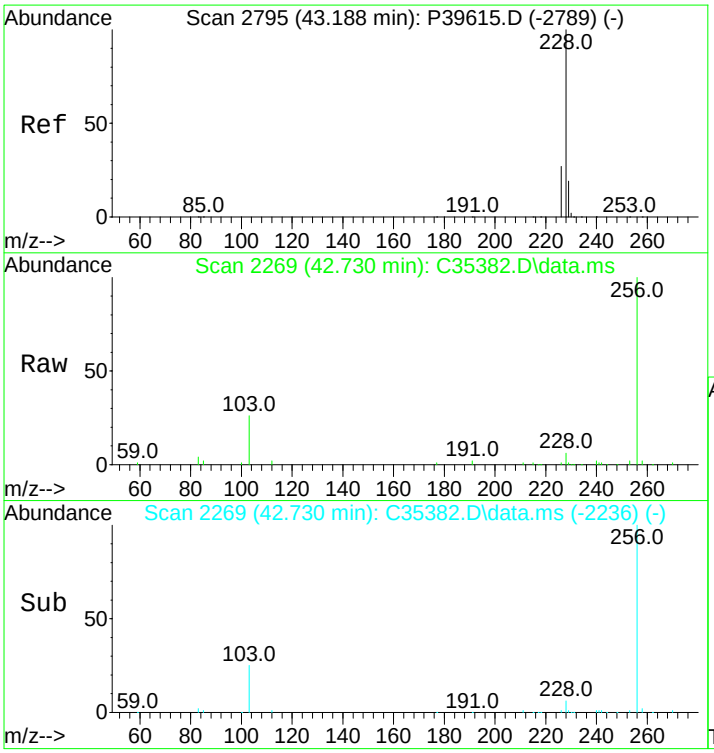




#70
C1-Naphthobenzothiophenes
Concen: 10.43 ng/ml m
RT: 43.543 min Scan# 2323
Delta R.T. -0.037 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:248 Resp: 765

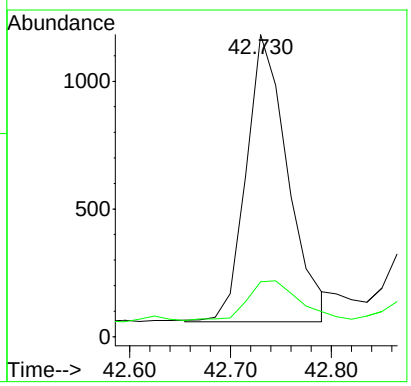


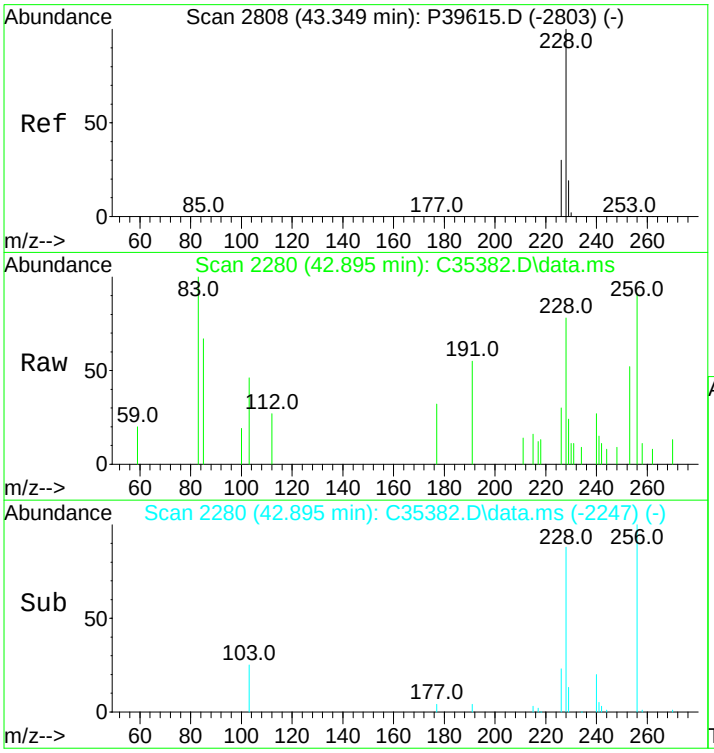


#75
Benz[a]anthracene
Concen: 41.86 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:228 Resp: 3230

Ion	Ratio	Lower	Upper
228	100		
226	15.5	21.5	32.3#

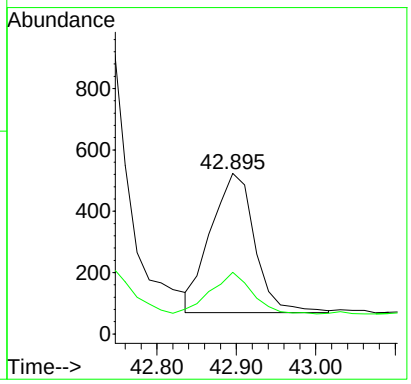


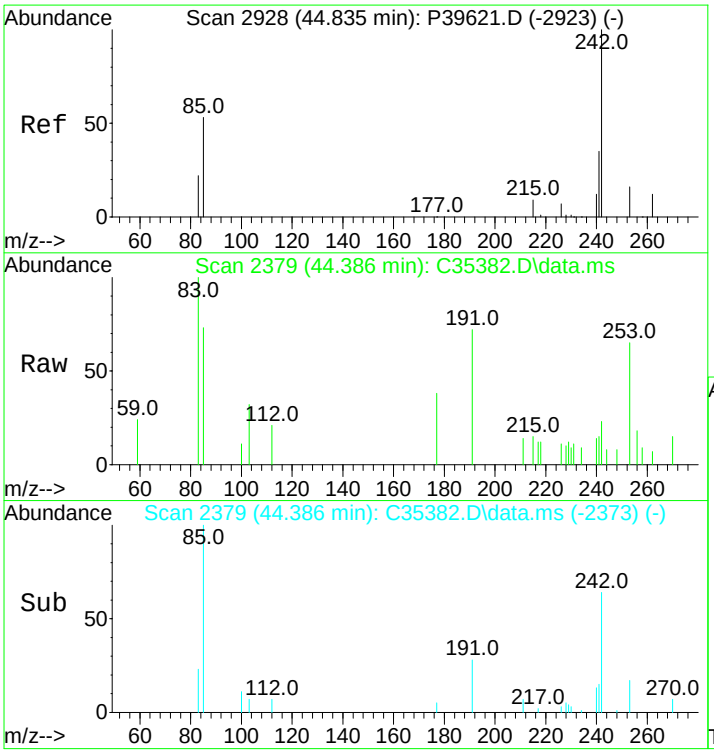


#77
Chrysene/Triphenylene
Concen: 22.45 ng/mL m
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:228 Resp: 1749

Ion	Ratio	Lower	Upper
228	100		
226	28.9	23.5	35.3

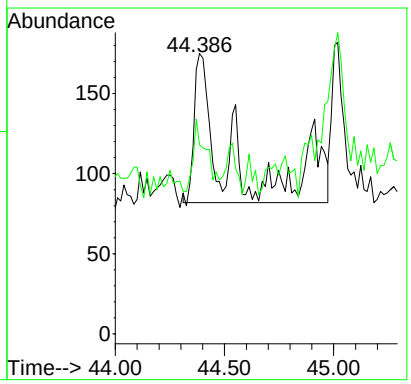


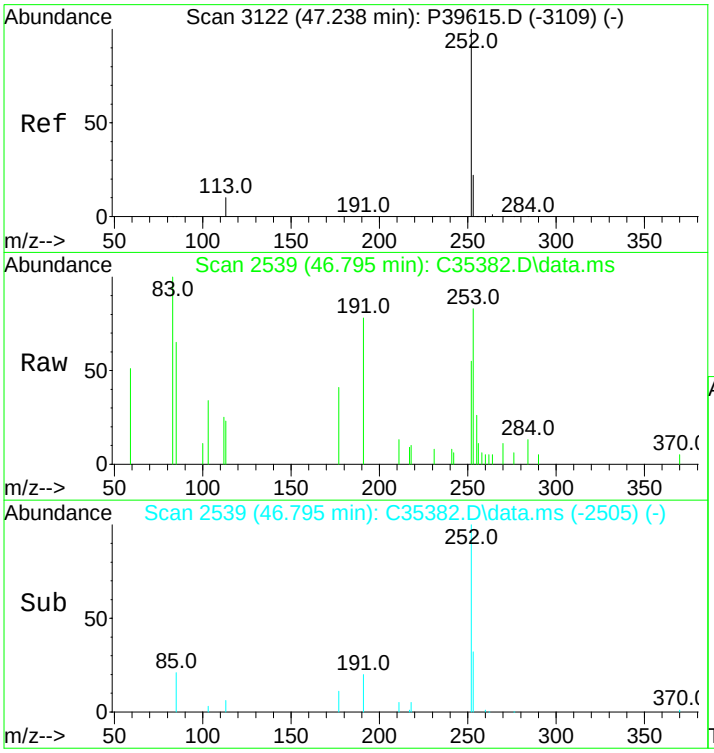


#78
C1-Chrysenes
Concen: 12.94 ng/mL m
RT: 44.386 min Scan# 2379
Delta R.T. 0.046 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:242 Resp: 1008

Ion	Ratio	Lower	Upper
242	100		
241	13.7	32.7	49.1#

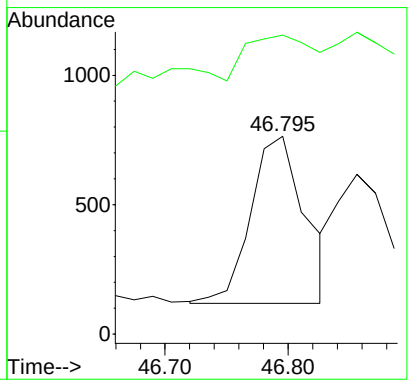


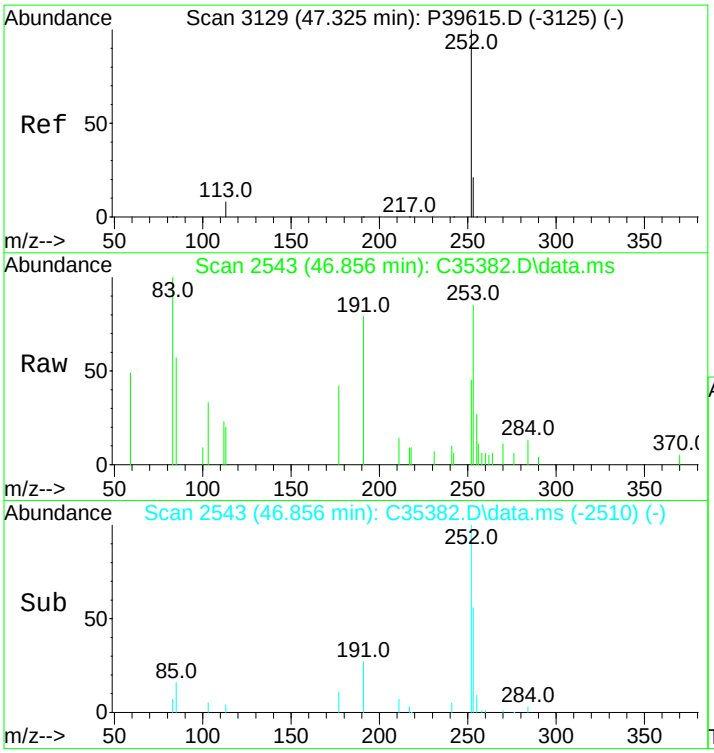


#82
Benzo[b]fluoranthene
Concen: 23.32 ng/mL m
RT: 46.795 min Scan# 2539
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:252 Resp: 1977

Ion	Ratio	Lower	Upper
252	100		
253	7.1	20.4	30.6#

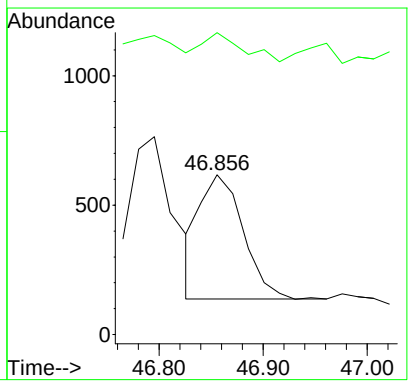


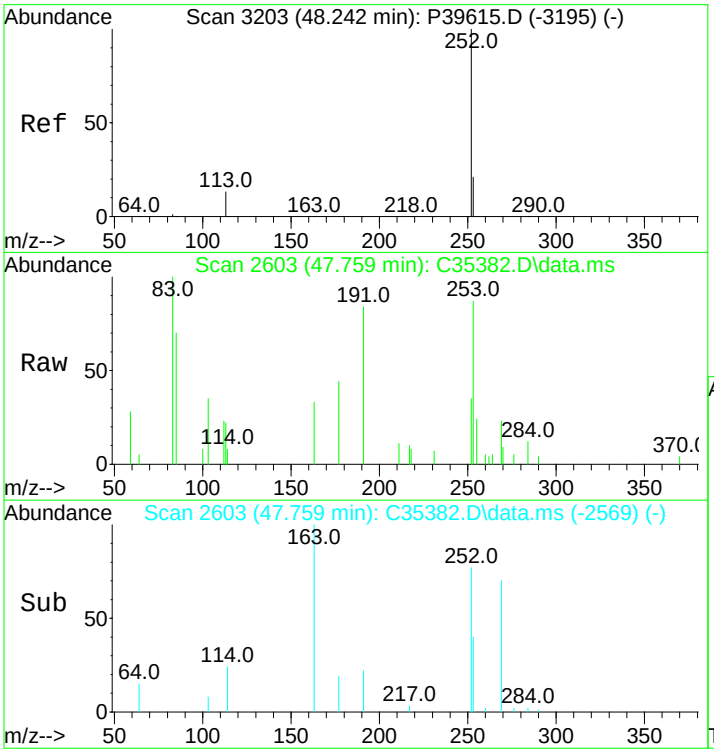


#83
Benzo[j]+[k]fluoranthene
Concen: 15.16 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:252 Resp: 1399

Ion	Ratio	Lower	Upper
252	100		
253	0.0	20.6	31.0#

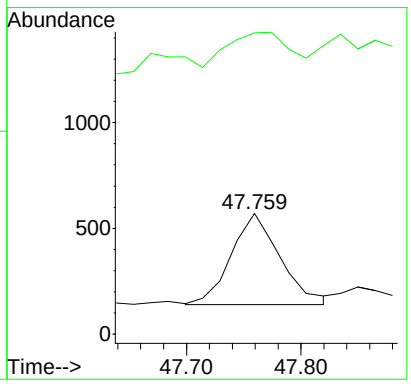


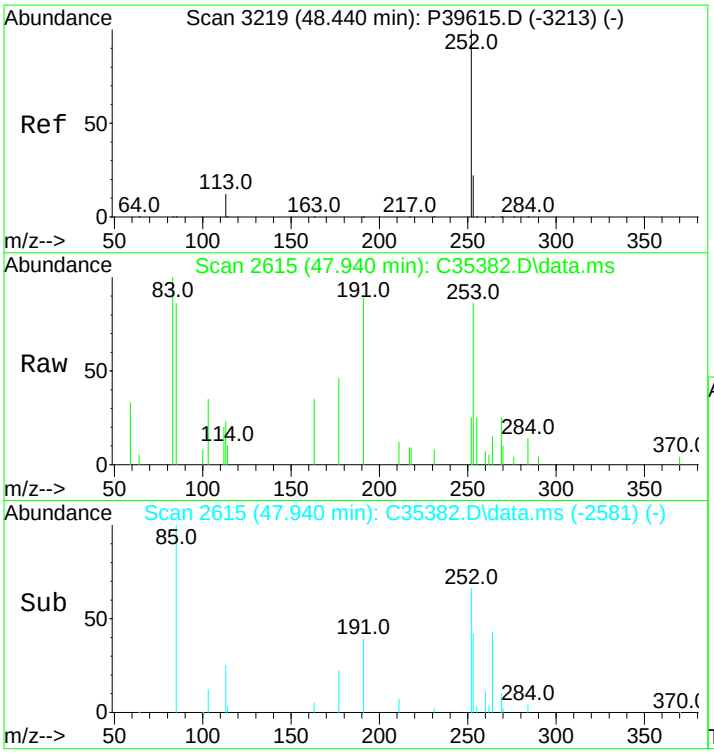


#85
Benzo[e]pyrene
Concen: 15.25 ng/mL m
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:252 Resp: 1279

Ion	Ratio	Lower	Upper
252	100		
253	47.6	21.0	31.6#

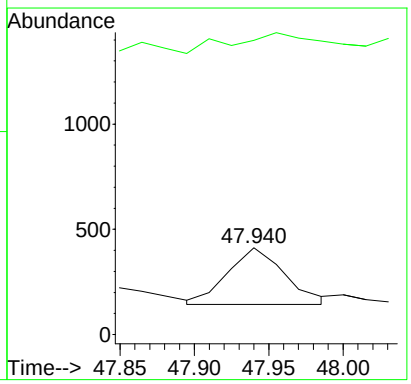


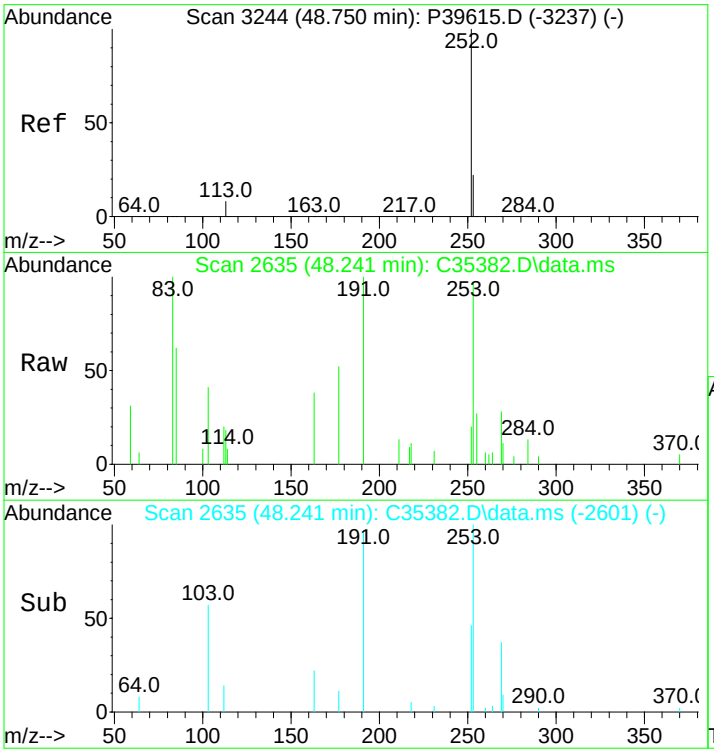


#87
Benzo[a]pyrene
Concen: 8.92 ng/mL m
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:252 Resp: 720

Ion	Ratio	Lower	Upper
252	100		
253	66.3	21.4	32.0#

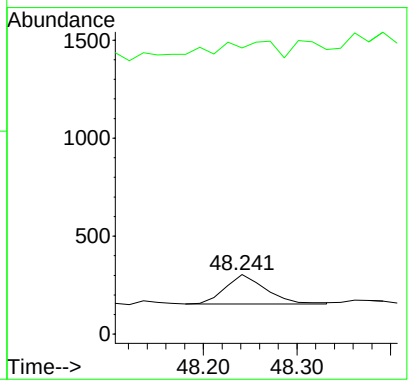


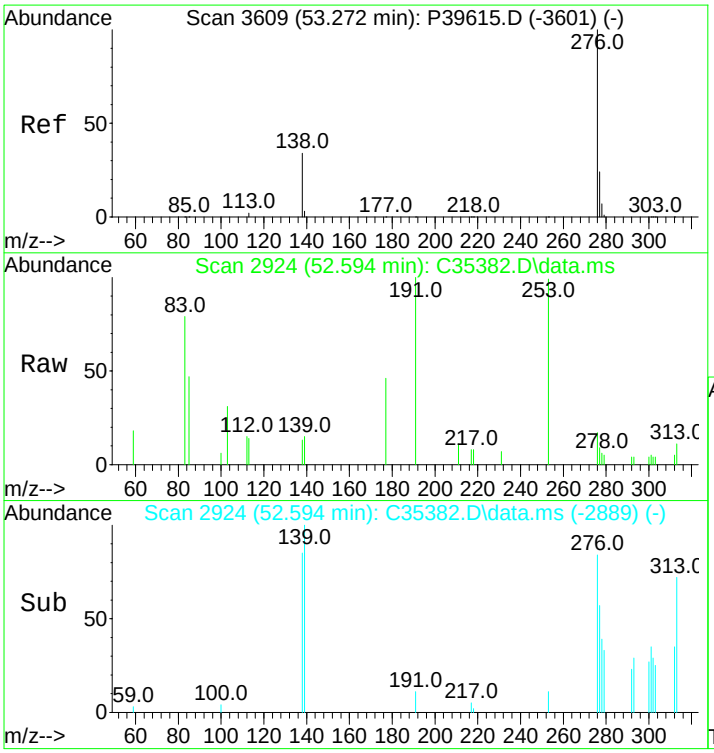


#88
Perylene
Concen: 5.25 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:252 Resp: 453

Ion	Ratio	Lower	Upper
252	100		
253	0.0	21.8	32.6#

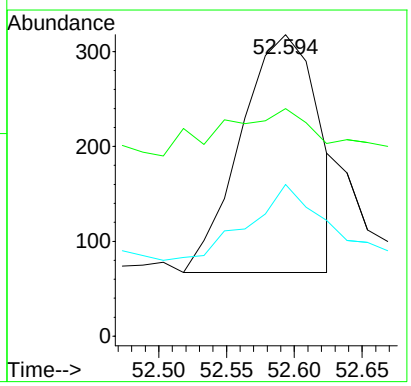


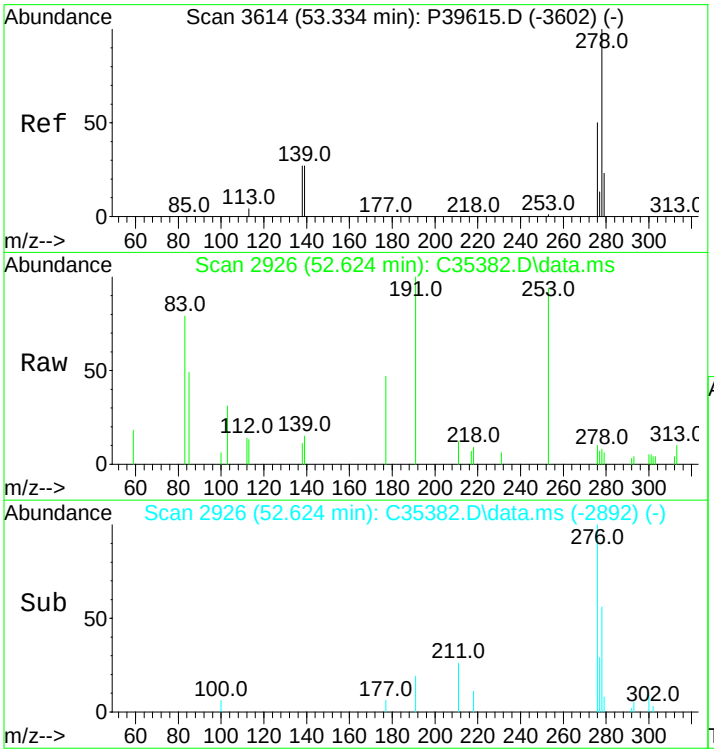


#89
Indeno[1,2,3-cd]pyrene
Concen: 10.62 ng/mL m
RT: 52.594 min Scan# 2924
Delta R.T. 0.030 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:276 Resp: 998

Ion	Ratio	Lower	Upper
276	100		
138	26.2	19.1	28.7
277	32.7	19.5	29.3#

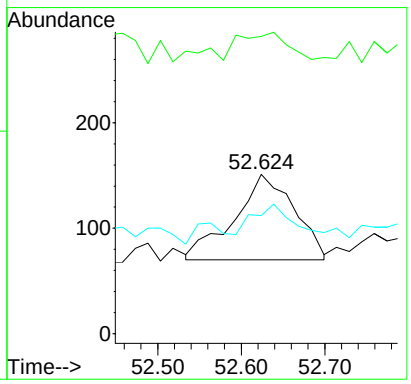


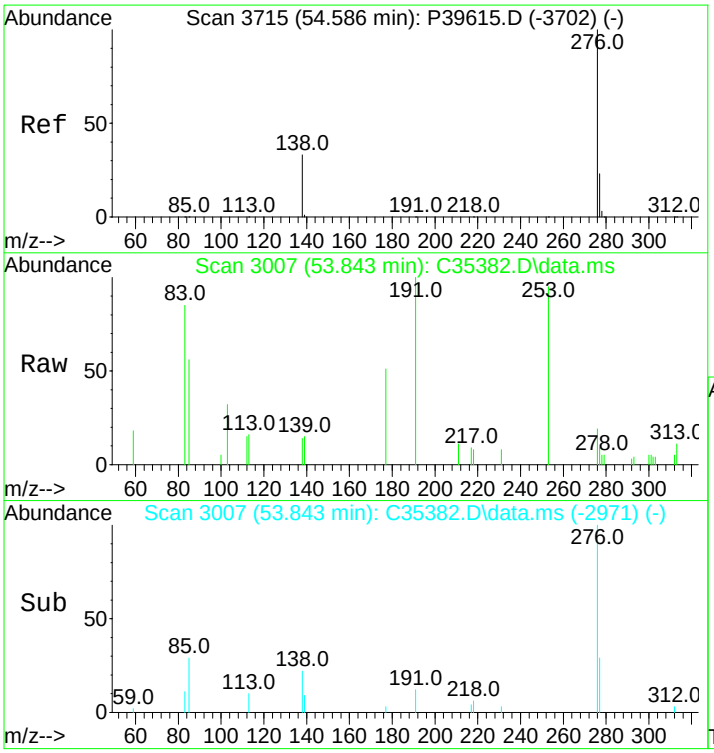


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.54 ng/mL m
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:278 Resp: 406

Ion	Ratio	Lower	Upper
278	100		
139	26.6	16.6	25.0#
279	0.0	20.0	30.0#

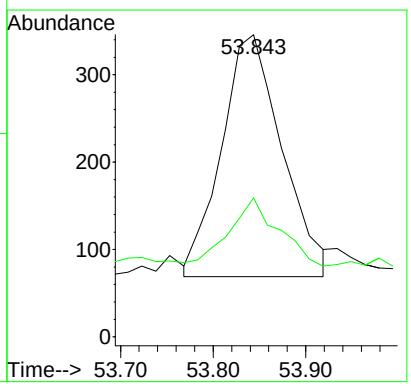


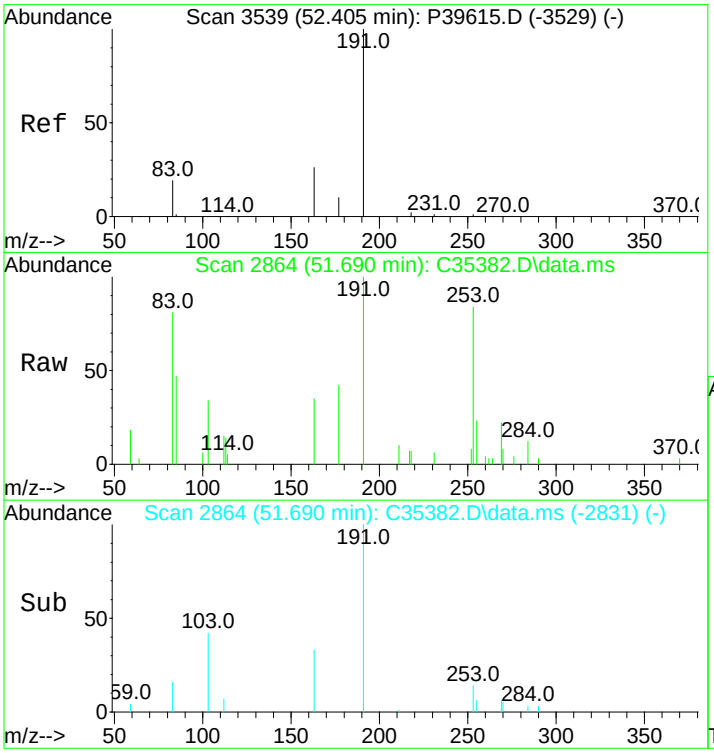


#91
Benzo[g,h,i]perylene
Concen: 12.65 ng/mL m
RT: 53.843 min Scan# 3007
Delta R.T. 0.045 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:276 Resp: 1256

Ion	Ratio	Lower	Upper
276	100		
277	21.5	18.8	28.2

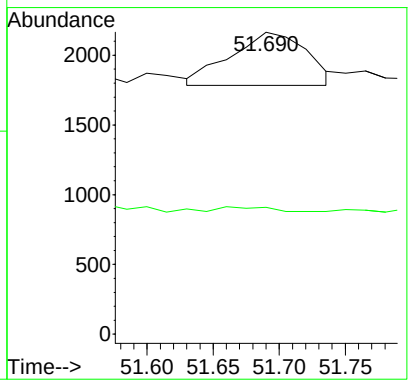


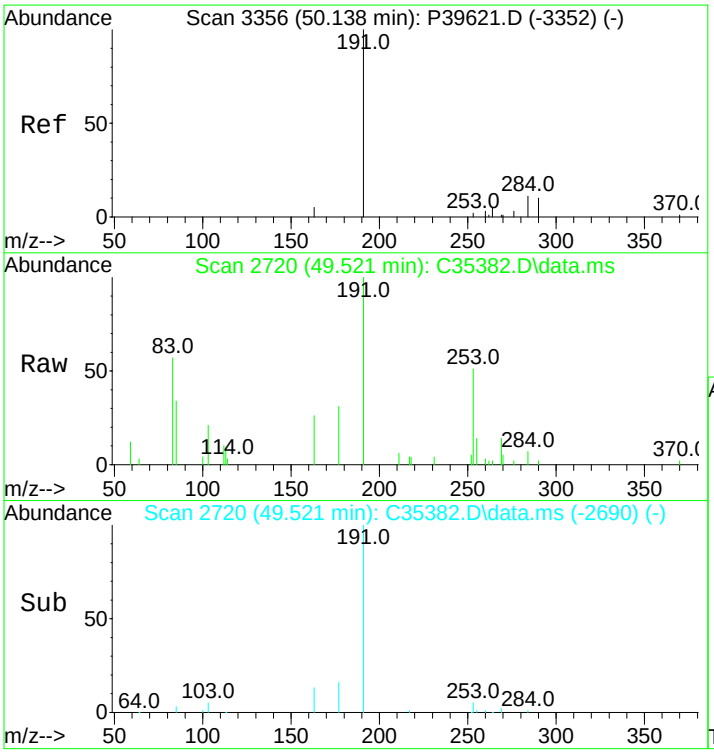


#92
Hopane (T19)
Concen: 95.80 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:191 Resp: 1535

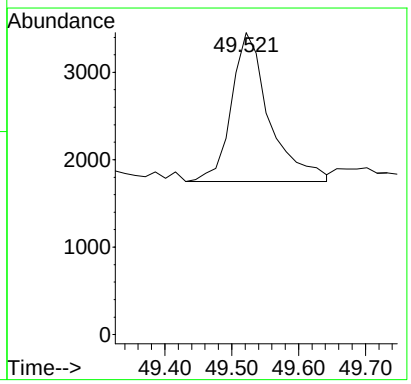
Ion	Ratio	Lower	Upper
191	100		
177	0.0	17.2	25.8#

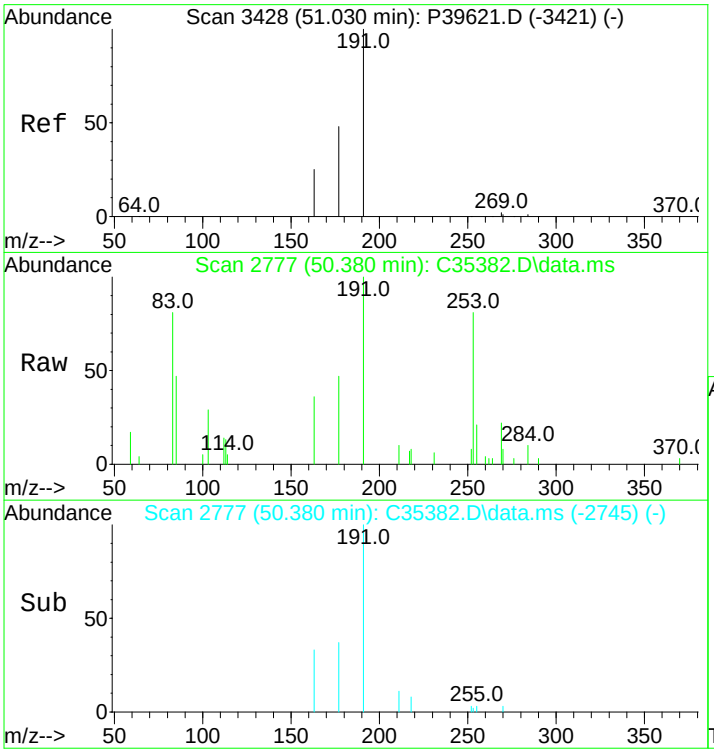




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 420.15 ng/ml
RT: 49.521 min Scan# 2720
Delta R.T. -0.045 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

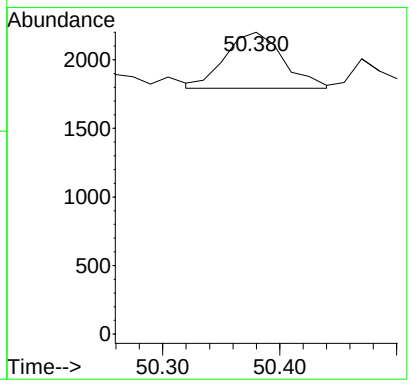
Tgt Ion:191 Resp: 6732

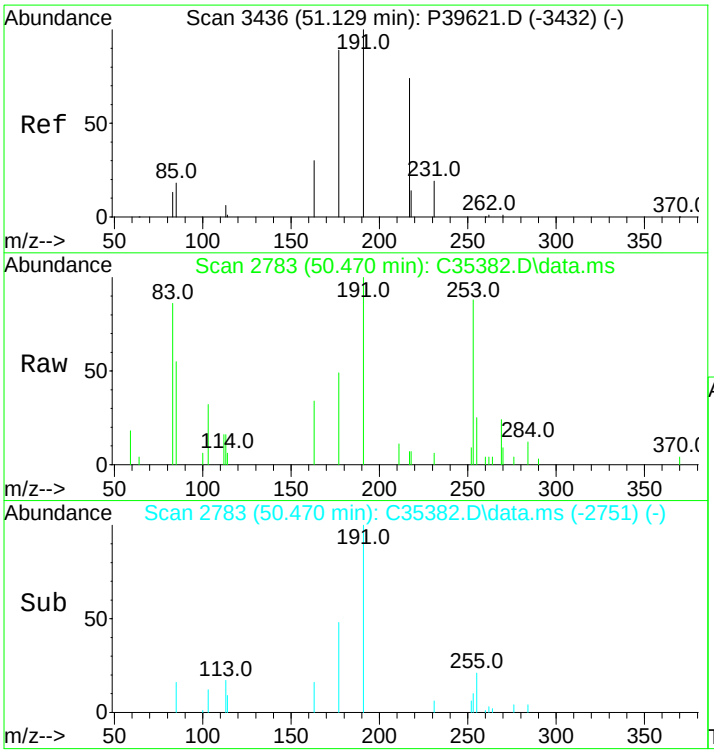




#110
30-Norhopane (T15)
Concen: 87.81 ng/ml
RT: 50.380 min Scan# 2777
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

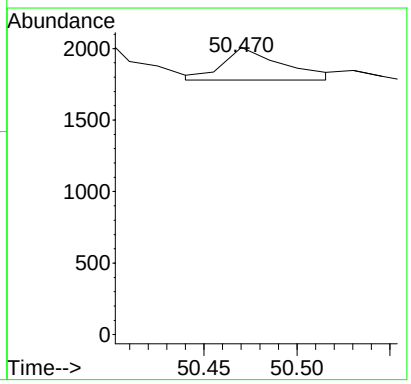
Tgt Ion:191 Resp: 1407

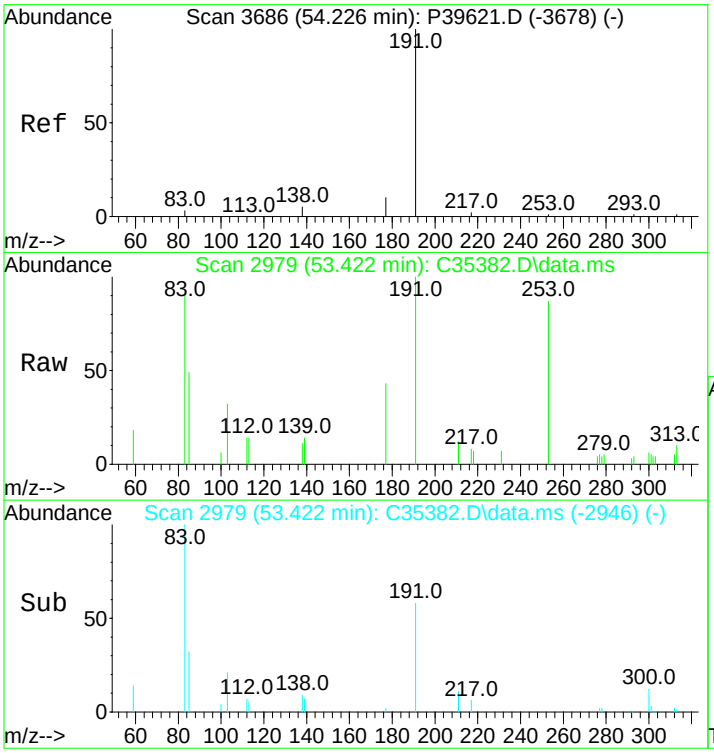




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 31.71 ng/ml m
RT: 50.470 min Scan# 2783
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

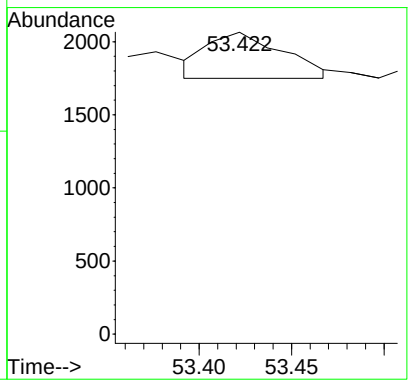
Tgt Ion:191 Resp: 508

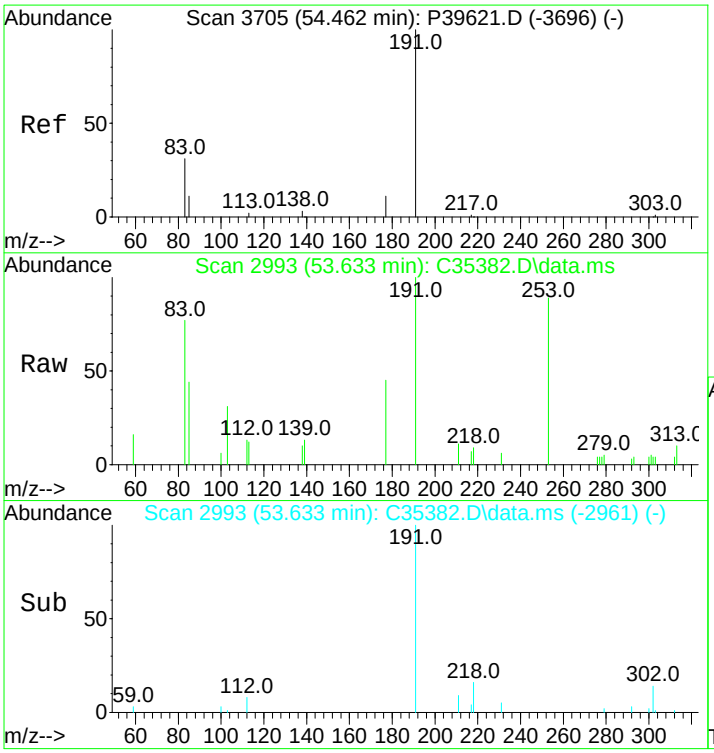




#116
30-Homohopane-22S (T21)
Concen: 56.54 ng/ml m
RT: 53.422 min Scan# 2979
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

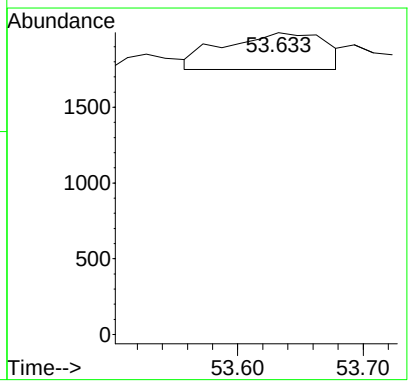
Tgt Ion:191 Resp: 906

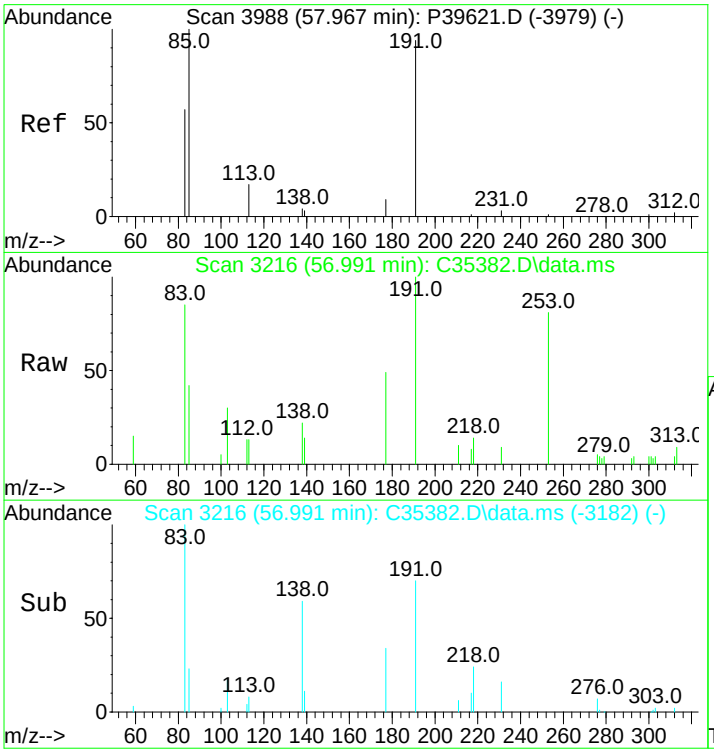




#117
30-Homohopane-22R (T22)
Concen: 85.94 ng/ml m
RT: 53.633 min Scan# 2993
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

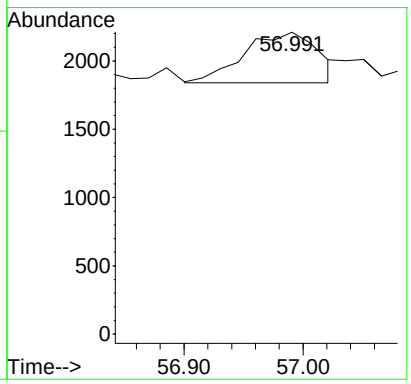
Tgt Ion:191 Resp: 1377

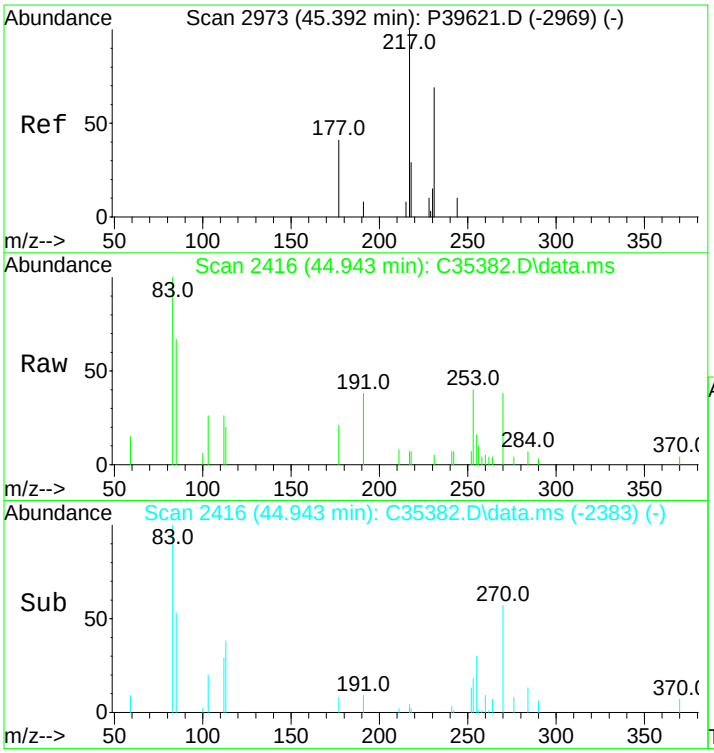




#121
30,31-Trishomohopane-22S (T30)
Concen: 98.98 ng/ml m
RT: 56.991 min Scan# 3216
Delta R.T. 0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

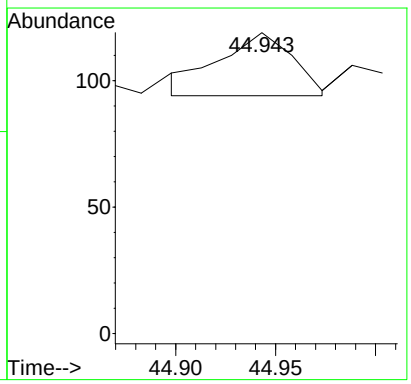
Tgt Ion:191 Resp: 1586

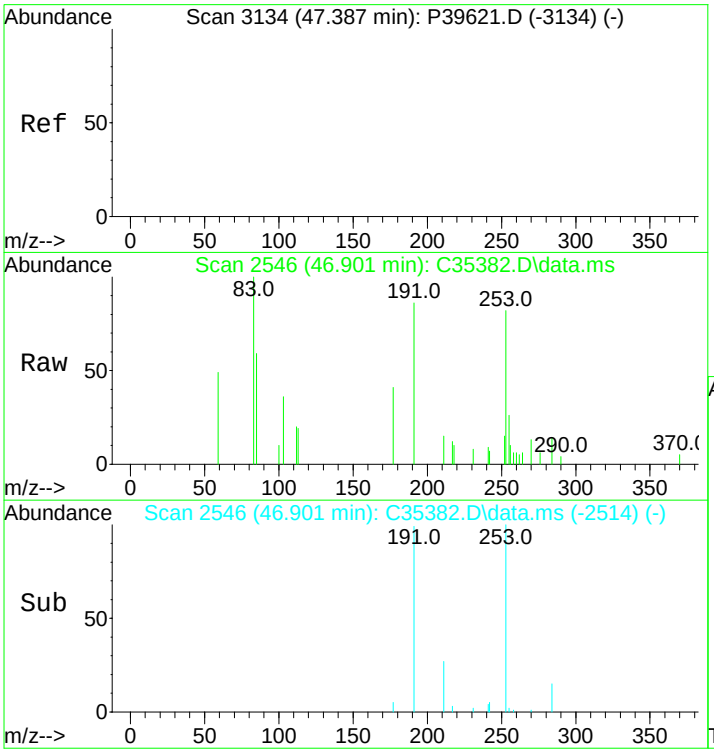




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 8.29 ng/ml m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

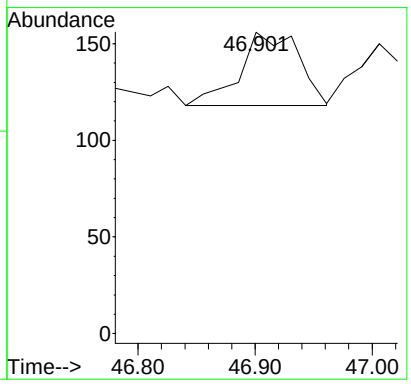
Tgt Ion:217 Resp: 63

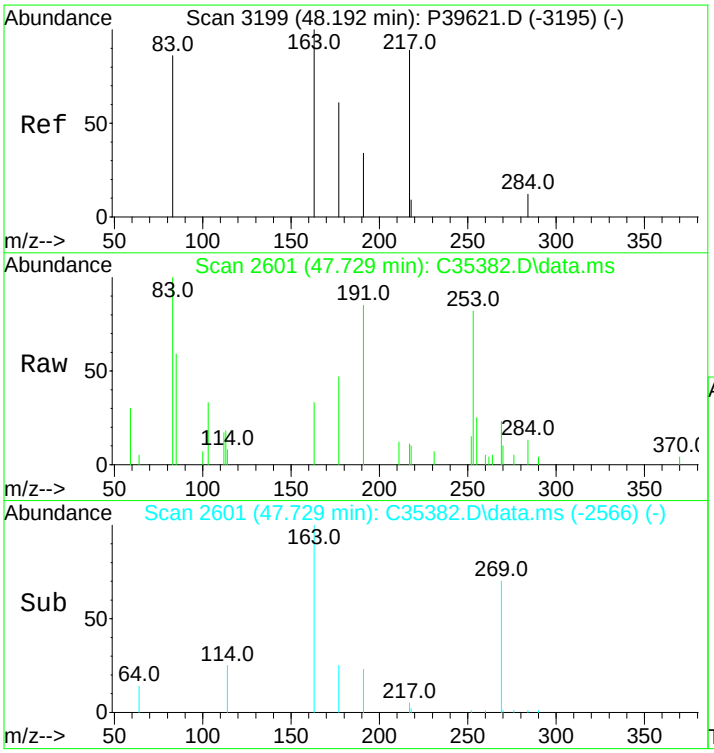




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 17.50 ng/ml
RT: 46.901 min Scan# 2546
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

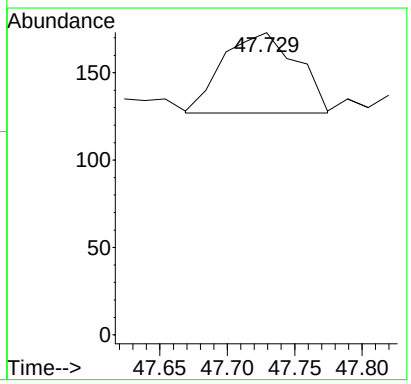
Tgt Ion:217 Resp: 133

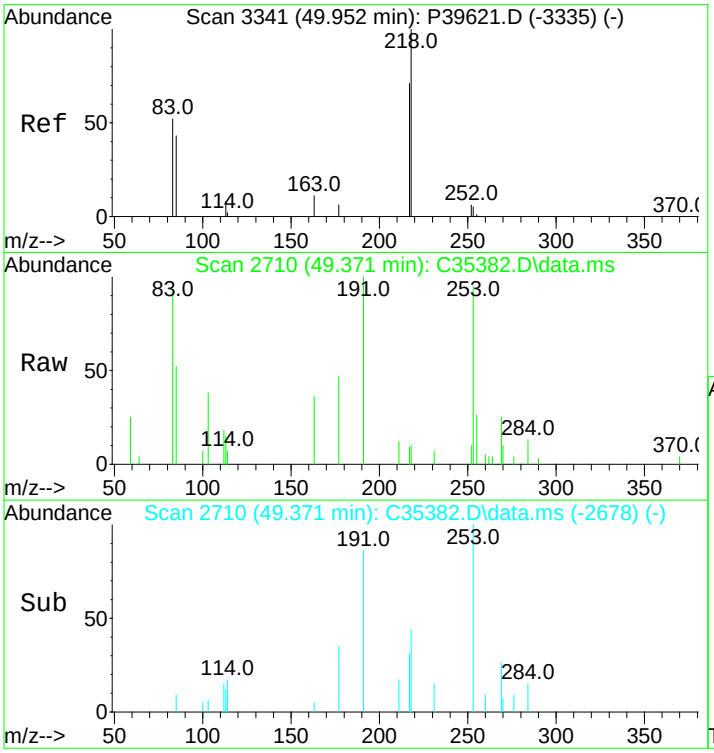




#133
Unknown Sterane (S18)
Concen: 23.16 ng/ml m
RT: 47.729 min Scan# 2601
Delta R.T. 0.030 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

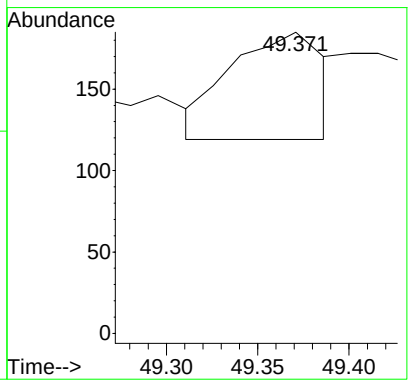
Tgt Ion:217 Resp: 176

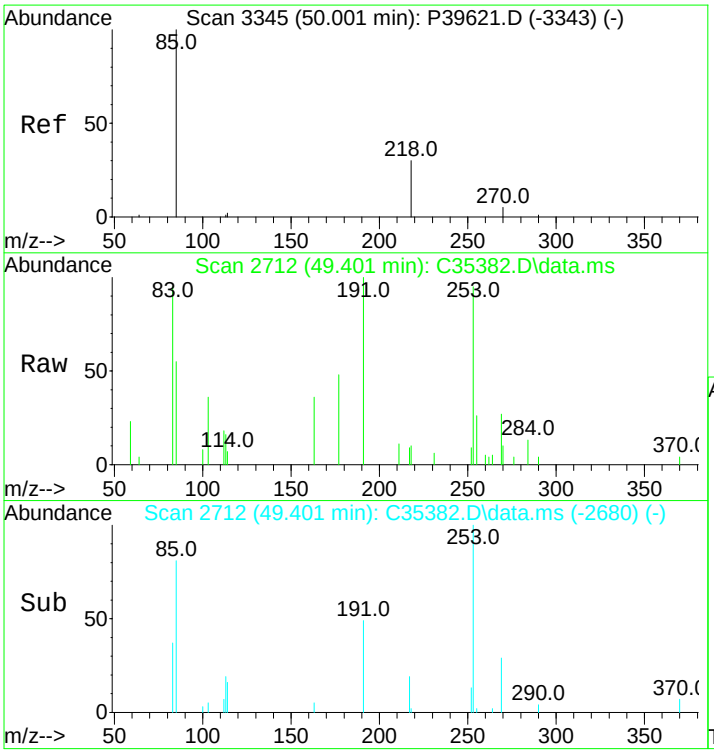




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 30.79 ng/ml m
RT: 49.371 min Scan# 2710
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

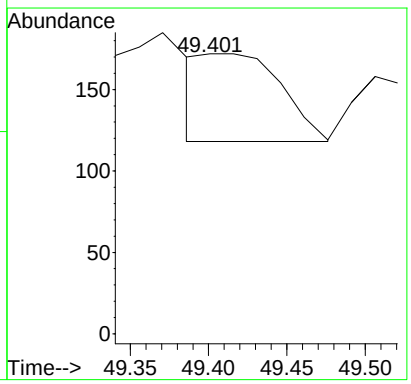
Tgt Ion:218 Resp: 234

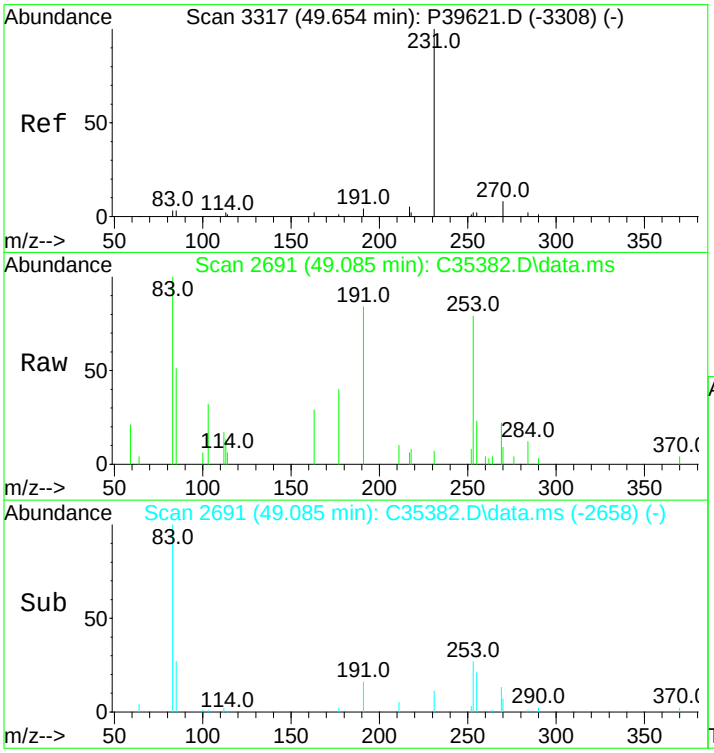




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 25.13 ng/ml m
RT: 49.401 min Scan# 2712
Delta R.T. -0.015 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

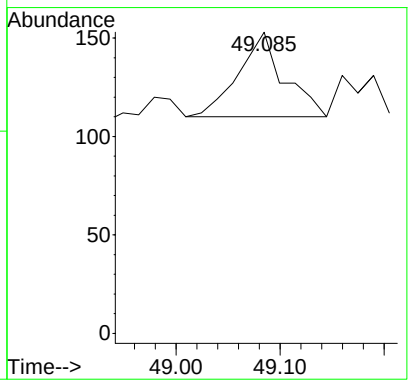
Tgt Ion:218 Resp: 191

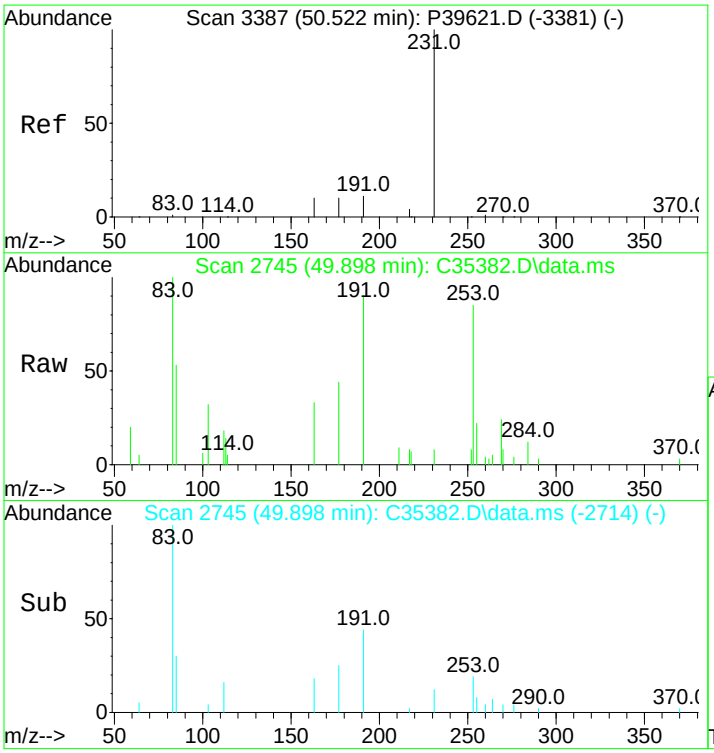




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 17.23 ng/mL
RT: 49.085 min Scan# 2691
Delta R.T. 0.000 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

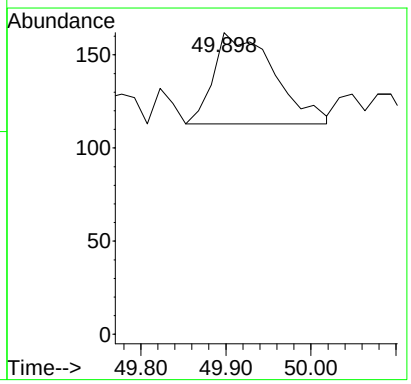
Tgt Ion:231 Resp: 131





#146
C28,20S-triaromatic steroid
Concen: 31.71 ng/mL
RT: 49.898 min Scan# 2745
Delta R.T. -0.030 min
Lab File: C35382.D
Acq: 28 May 2012 5:13 am

Tgt Ion:231 Resp: 241



PAH Ical – PAH3032612.M
EIP's

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15667M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22484M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	742	14.195	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.42%#		
42) Phenanthrene-d10	32.793	188	547	9.023	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.90%#		
86) Benzo[a]pyrene-d12	48.467	264	493M4	10.908	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.09%#		
127) 5B(H)Cholane - Surr	43.995	217	84M4	10.806	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.08%#		
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	70M4	6.464	ng/mL	
4) cis-Decalin	17.844	138	48M2	5.681	ng/mL	
10) Naphthalene	20.042	128	1021M4	18.113	ng/mL	
16) 2-Methylnaphthalene	22.737	142	610M4	15.327	ng/mL	
17) 1-Methylnaphthalene	23.158	142	591M4	15.482	ng/mL	
18) Benzothiophene	20.268	134	928M4	20.074	ng/mL	
23) Biphenyl	24.618	154	768	14.461	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	486M4	12.837	ng/mL	
25) Dibenzofuran	27.705	168	860M4	13.938	ng/mL	
26) Acenaphthylene	26.320	152	979M4	15.394	ng/mL	
27) Acenaphthene	27.057	153	596M4	14.760	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	396	11.213	ng/mL	93
29) Fluorene	29.075	166	632M4	12.577	ng/mL	
33) Dibenzothiophene	32.386	184	1010	13.309	ng/mL#	76
43) Phenanthrene	32.883	178	872M4	11.436	ng/mL	
54) Retene	39.869	234	171M4	7.712	ng/mL	
55) Anthracene	33.064	178	829	11.221	ng/mL	97
56) Carbazole	33.726	167	817M4	12.040	ng/mL	
57) 1-Methylphenanthrene	35.382	192	532M4	9.115	ng/mL	
58) Fluoranthene	37.656	202	846M4	9.176	ng/mL	
59) Benzo(b)fluorene	40.170	216	455M4	7.556	ng/mL	
60) Pyrene	38.529	202	858	9.073	ng/mL	97
66) Naphthobenzothiophene	42.368	234	902M4	9.128	ng/ml	
67) Naphthobenzothiophene-2,1	42.368	234	910	9.209	ng/mL#	75
75) Benz[a]anthracene	43.302	228	705M3	10.573	ng/mL	
76) Chrysene	43.468	228	726M4	11.052	ng/mL	
77) Chrysene/Triphenylene	43.468	228	726M4	11.052	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	808M3	11.013	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.428	252	908M4	11.707	ng/mL	
85) Benzo[e]pyrene	48.361	252	816	11.556	ng/mL#	70
87) Benzo[a]pyrene	48.557	252	776M4	11.694	ng/mL	
88) Perylene	48.858	252	835M4	11.775	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	896M4	11.728	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	838	11.668	ng/mL#	88
91) Benzo[g,h,i]perylene	54.747	276	1009	12.946	ng/mL	96
92) Hopane (T19)	52.548	191	175M3	14.214	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	171M4	13.890	ng/mL	

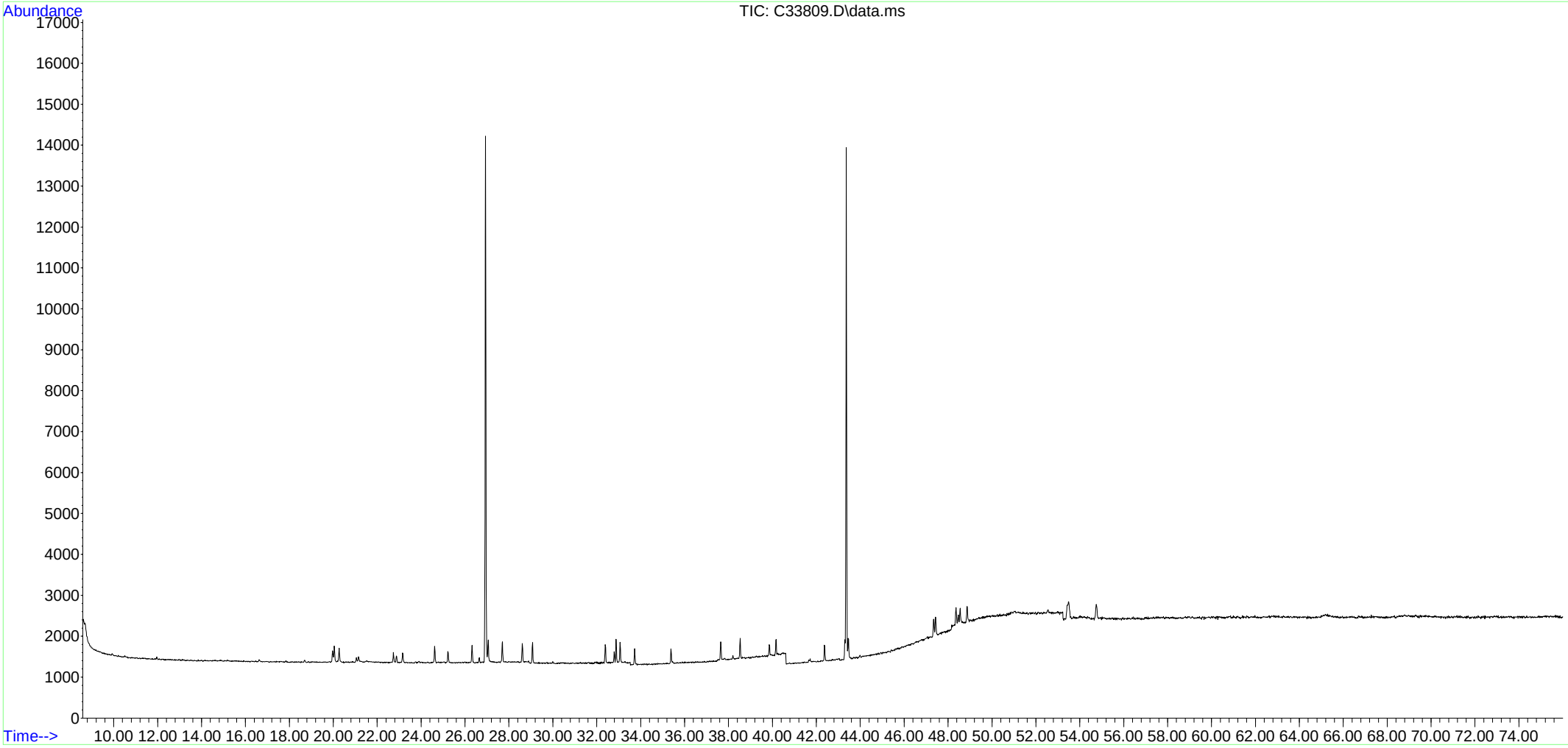
(#) = qualifier out of range (m) = manual integration (+) = signals summed

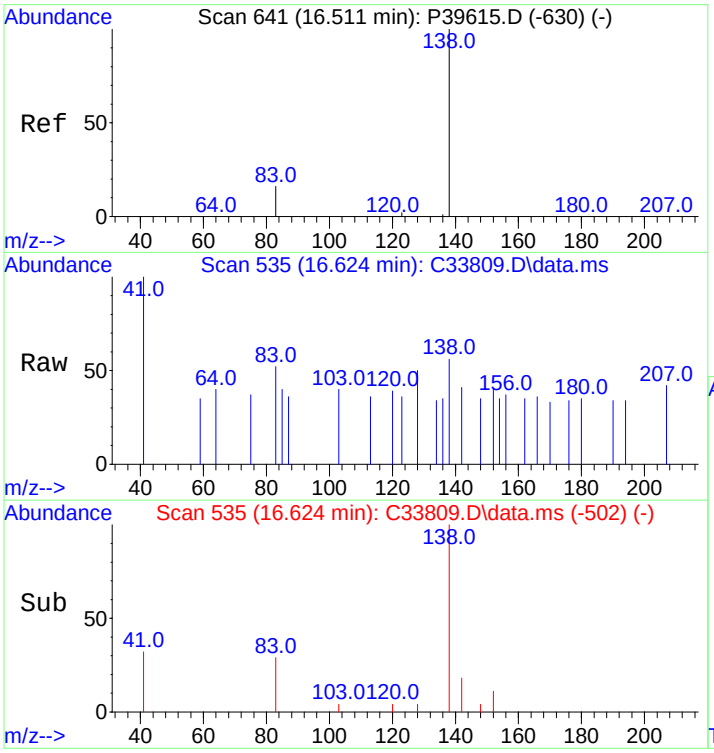
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33809.D
Acq On : 26 Mar 2012 3:53 pm
Operator : PAH3:SR
Sample : I303261201
Misc : WG525925
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 11:05:14 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

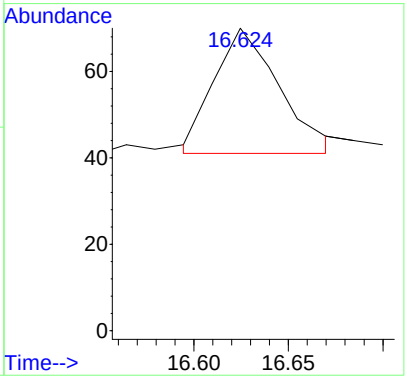
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

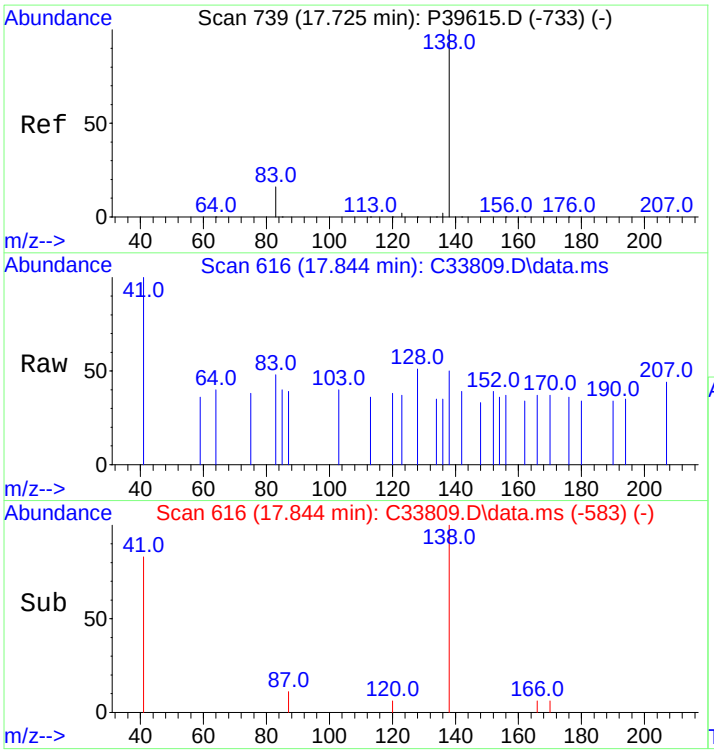




#3
trans-Decalin
Concen: 6.46 ng/mL m
RT: 16.624 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

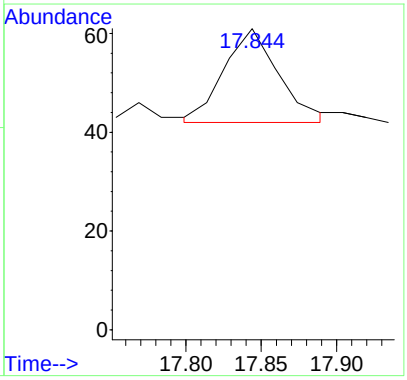
Tgt Ion:138 Resp: 70

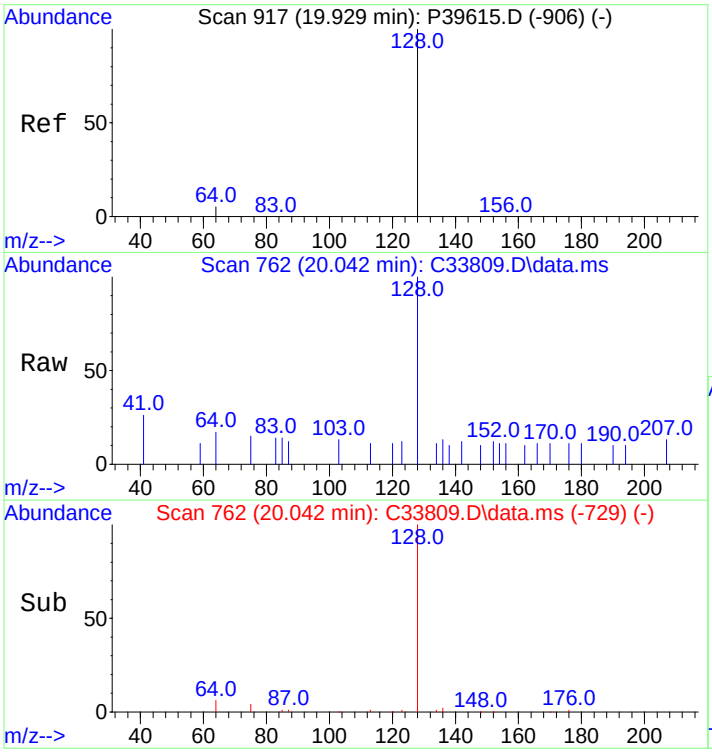




#4
cis-Decalin
Concen: 5.68 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:138 Resp: 48

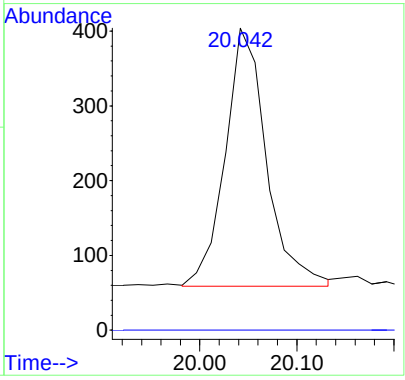


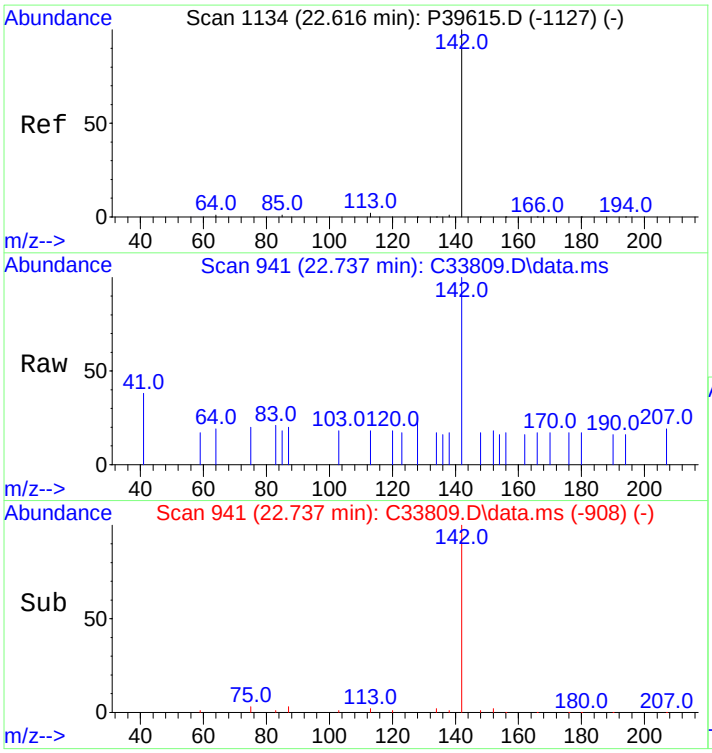


#10
Naphthalene
Concen: 18.11 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:128 Resp: 1021

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

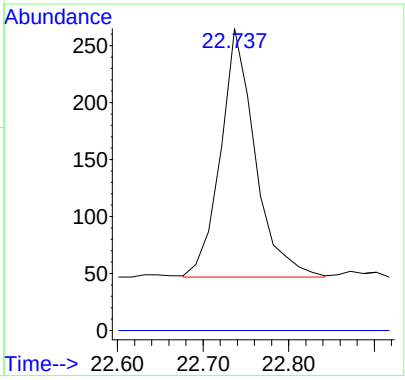


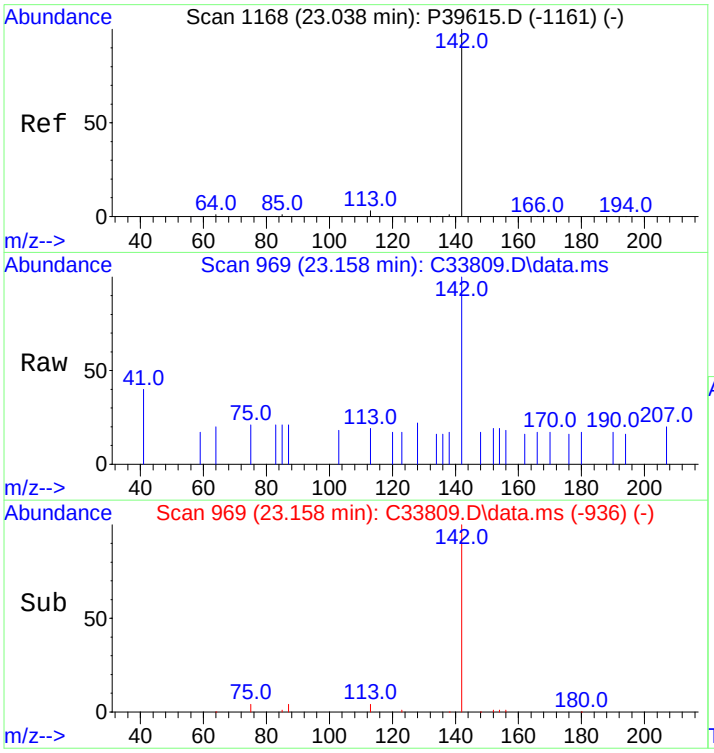


#16
2-Methylnaphthalene
Concen: 15.33 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 610

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

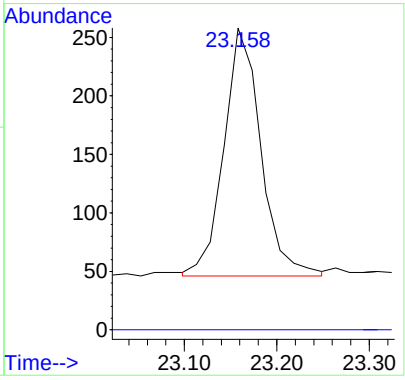


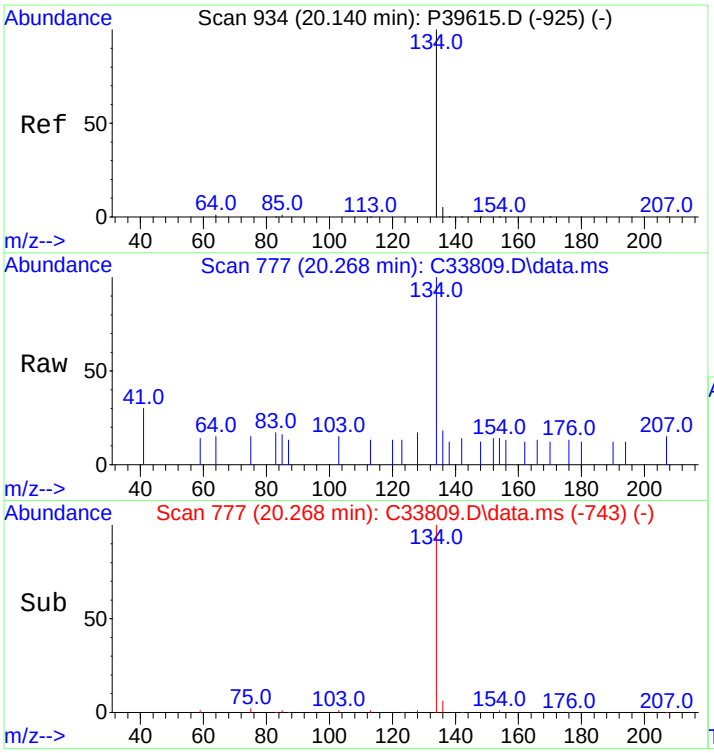


#17
1-Methylnaphthalene
Concen: 15.48 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:142 Resp: 591

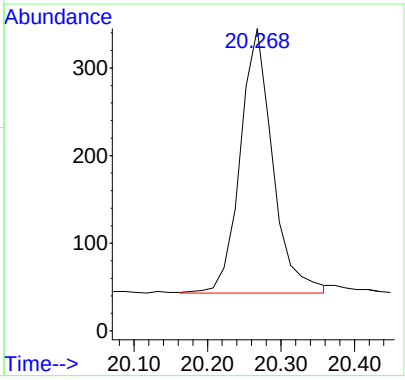
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

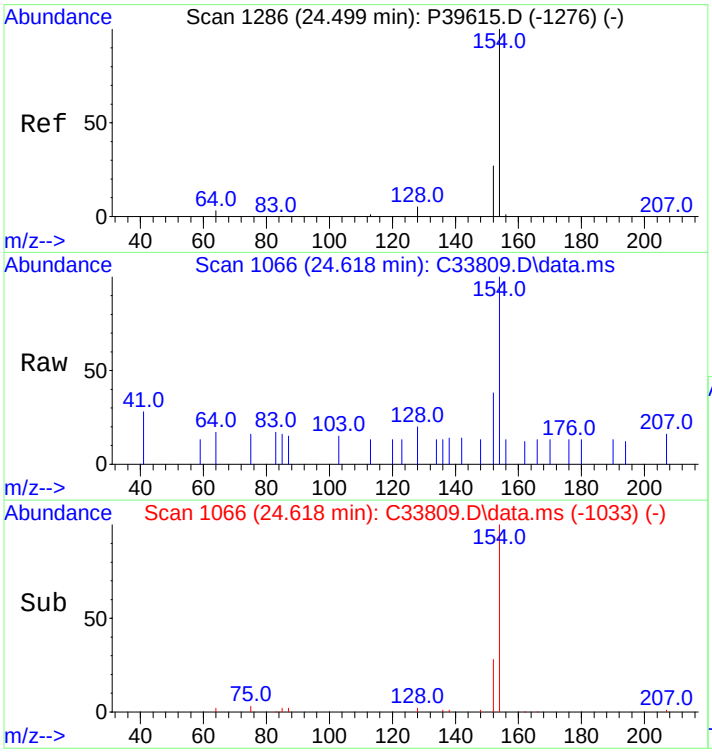




#18
Benzothiophene
Concen: 20.07 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:134 Resp: 928

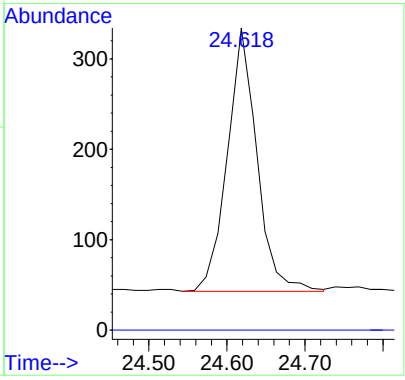


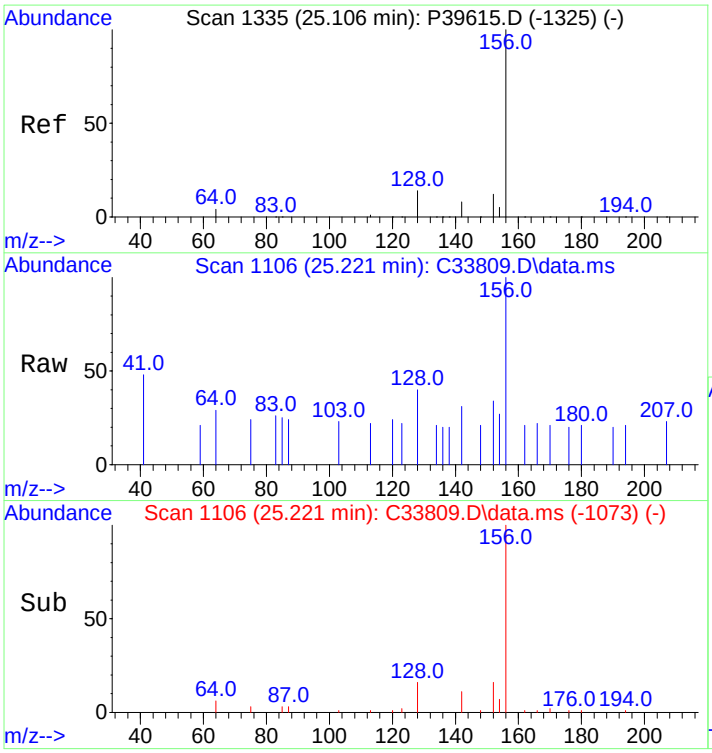


#23
Biphenyl
Concen: 14.46 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:154 Resp: 768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

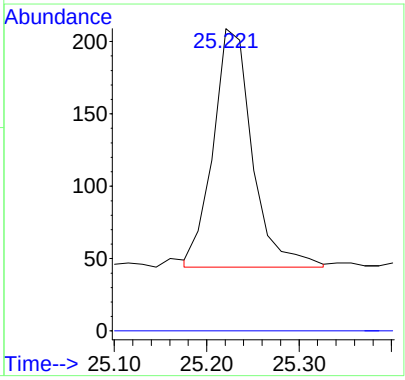


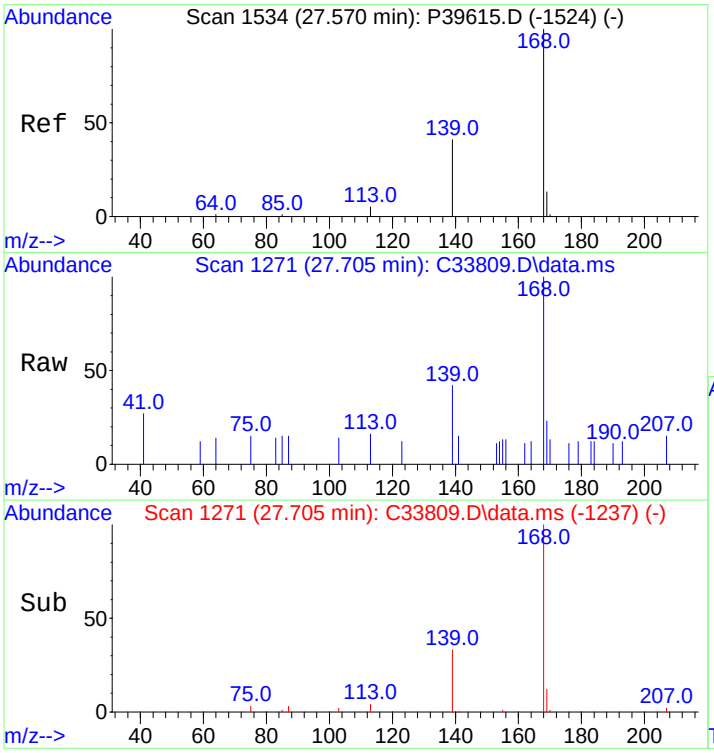


#24
2,6-Dimethylnaphthalene
Concen: 12.84 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:156 Resp: 486

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

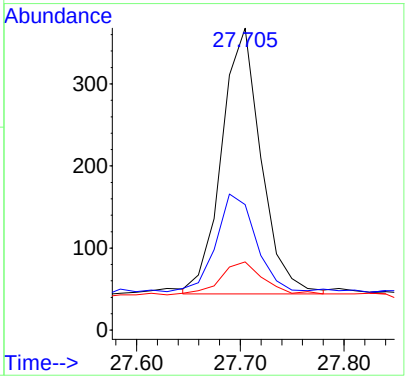


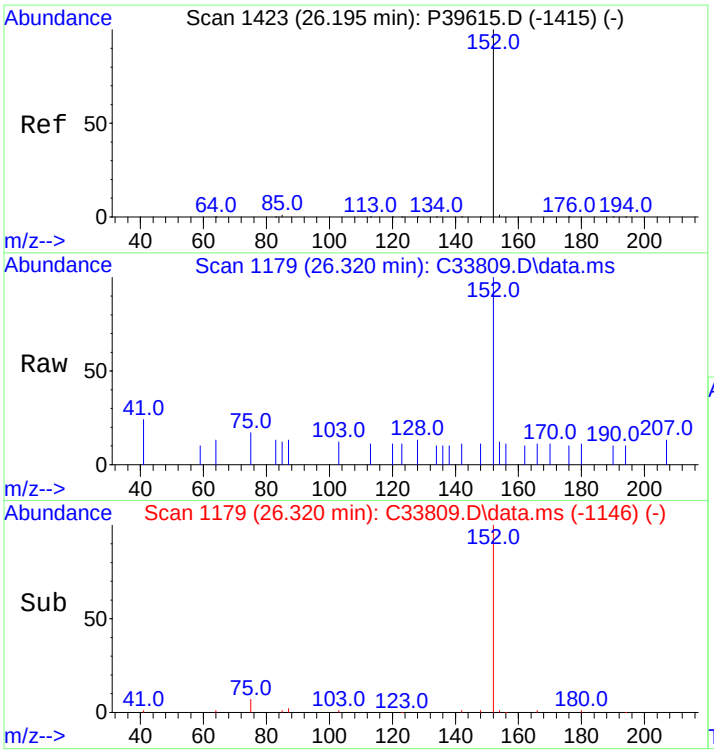


#25
Dibenzofuran
Concen: 13.94 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:168 Resp: 860

Ion	Ratio	Lower	Upper
168	100		
139	36.9	32.9	49.3
169	14.1	10.6	16.0

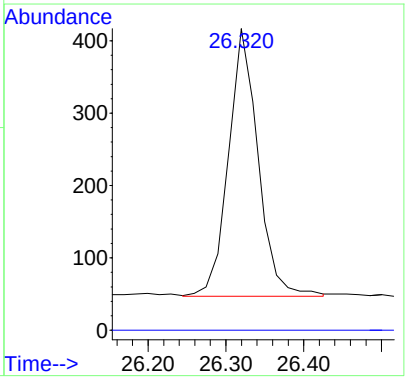


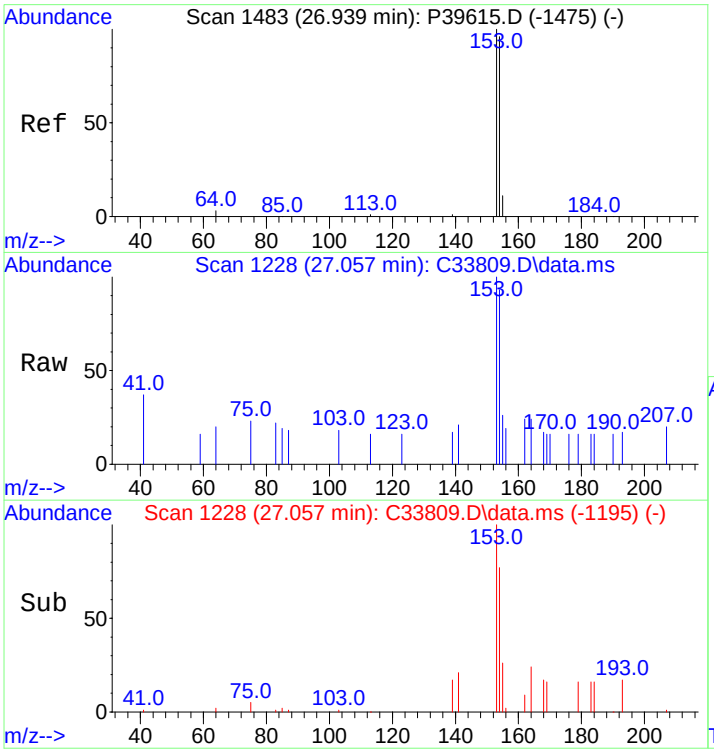


#26
Acenaphthylene
Concen: 15.39 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:152 Resp: 979

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

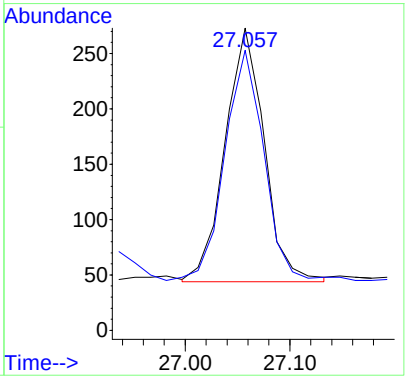


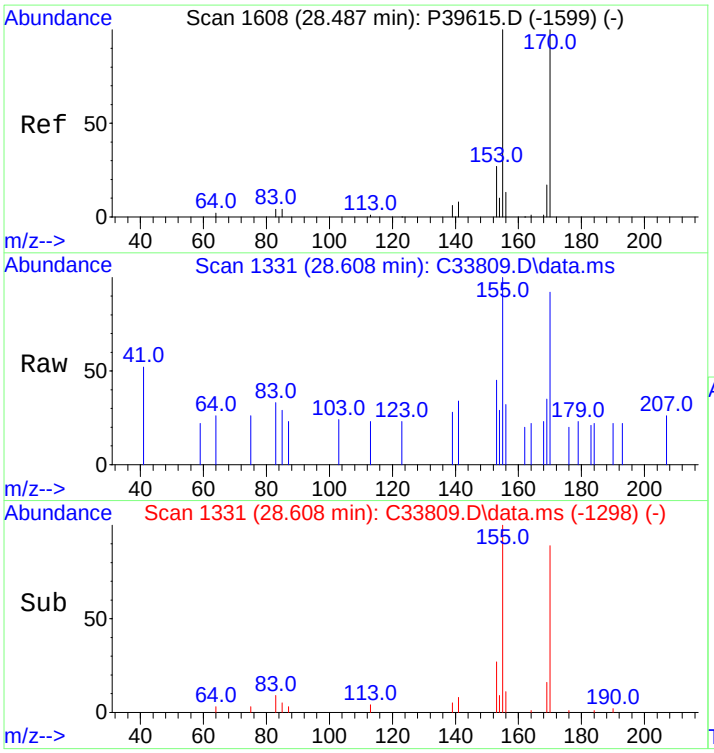


#27
Acenaphthene
Concen: 14.76 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:153 Resp: 596

Ion	Ratio	Lower	Upper
153	100		
154	90.8	75.0	112.6

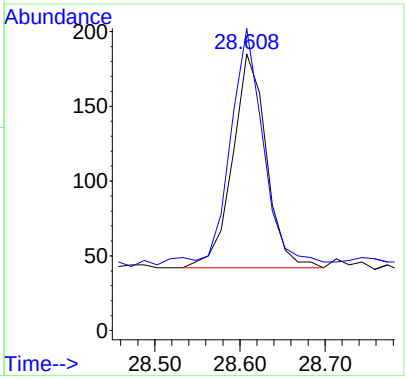


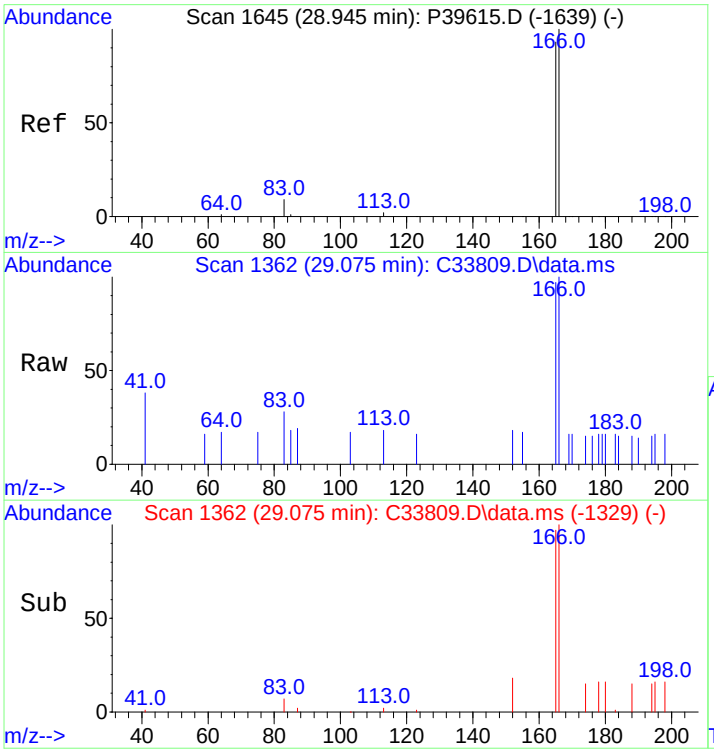


#28
2,3,5-Trimethylnaphthalene
Concen: 11.21 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:170 Resp: 396

Ion	Ratio	Lower	Upper
170	100		
155	113.1	84.7	127.1

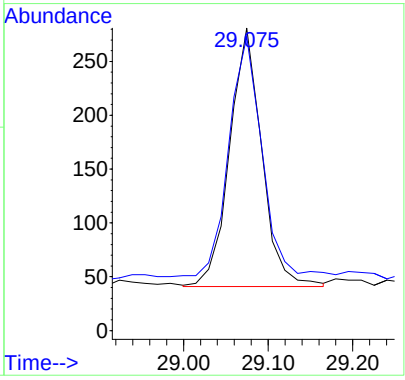


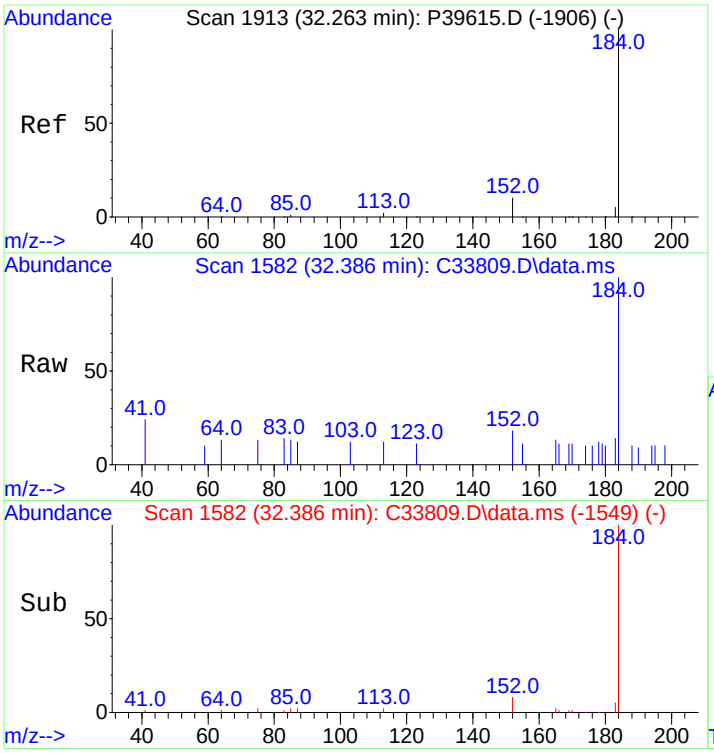


#29
Fluorene
Concen: 12.58 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:166 Resp: 632

Ion	Ratio	Lower	Upper
166	100		
165	115.5	75.3	112.9#

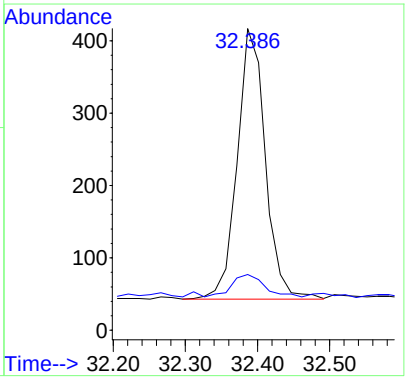


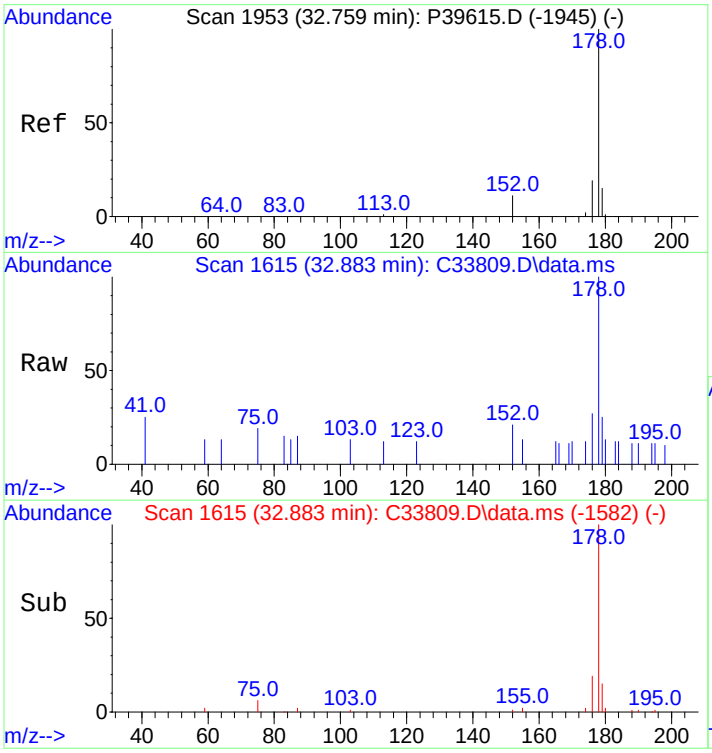


#33
Dibenzothiophene
Concen: 13.31 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:184 Resp: 1010

Ion	Ratio	Lower	Upper
184	100		
152	0.0	6.7	10.1#

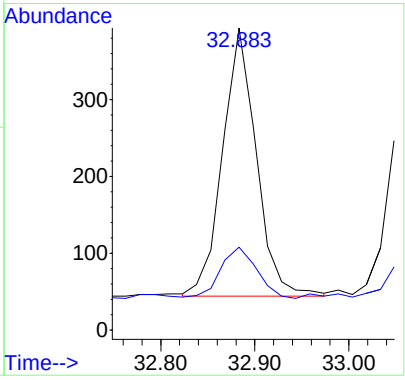


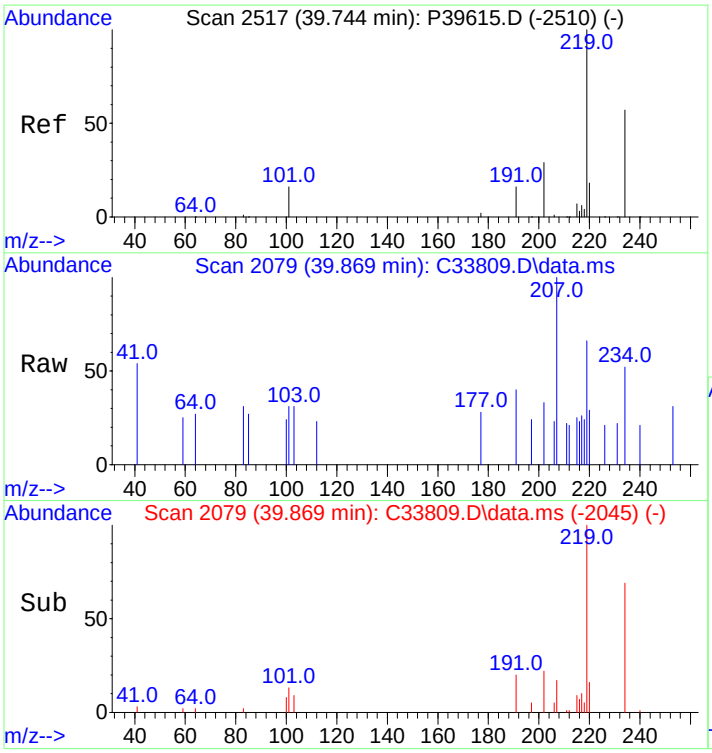


#43
Phenanthrene
Concen: 11.44 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 872

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

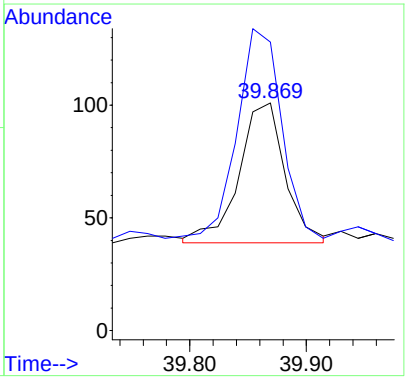


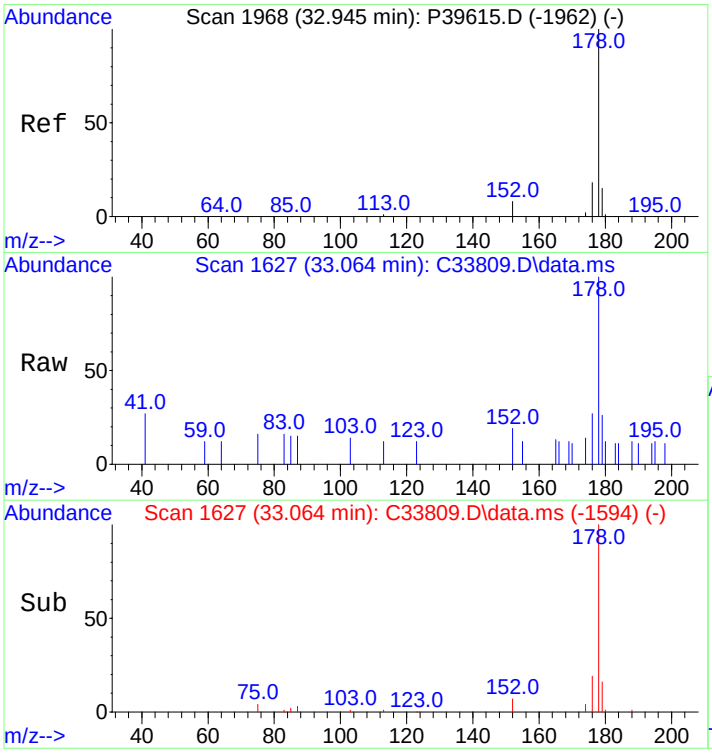


#54
Retene
Concen: 7.71 ng/mL m
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 171

Ion	Ratio	Lower	Upper
234	100		
219	142.7	136.6	204.8

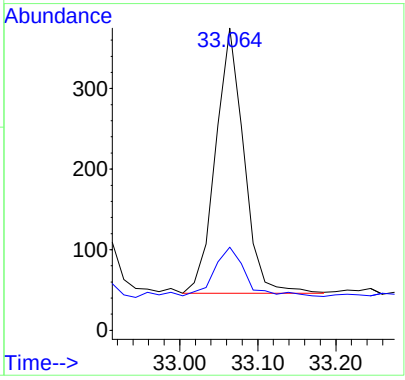


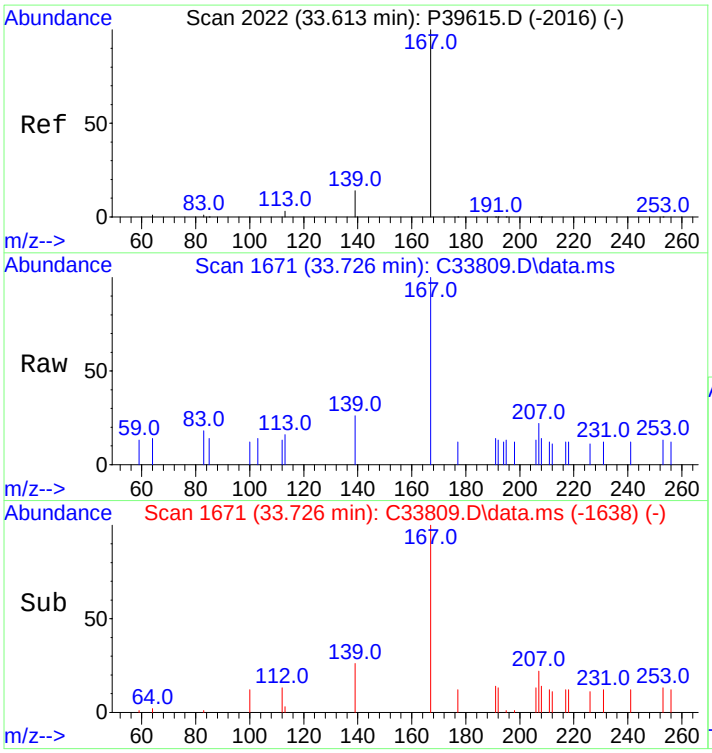


#55
Anthracene
Concen: 11.22 ng/mL
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:178 Resp: 829

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.4	23.0

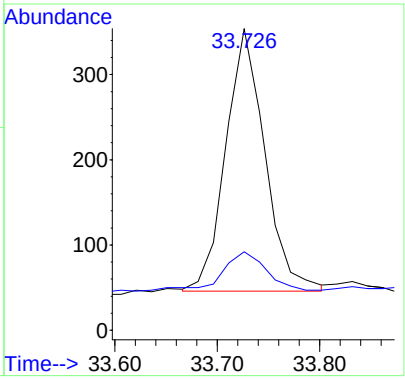


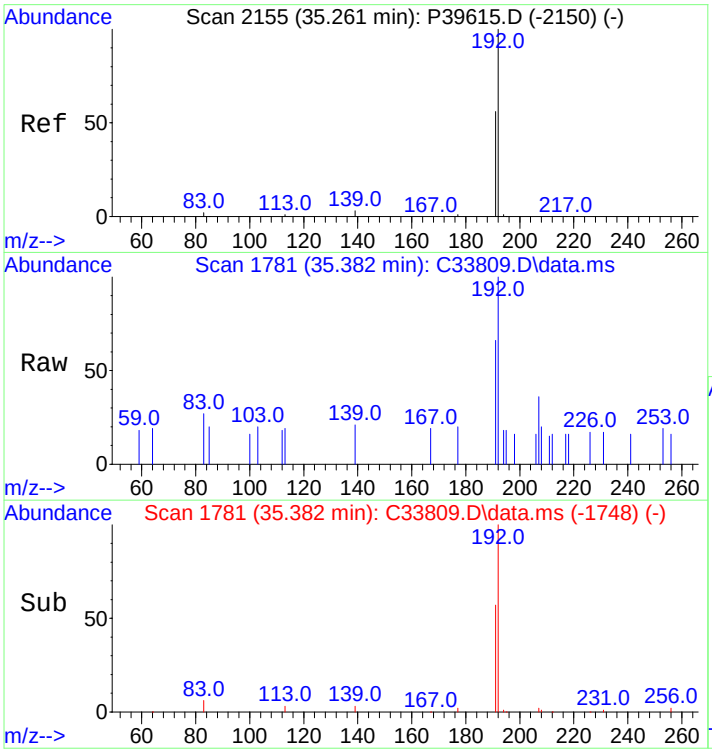


#56
Carbazole
Concen: 12.04 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:167 Resp: 817

Ion	Ratio	Lower	Upper
167	100		
139	23.3	11.6	17.4#

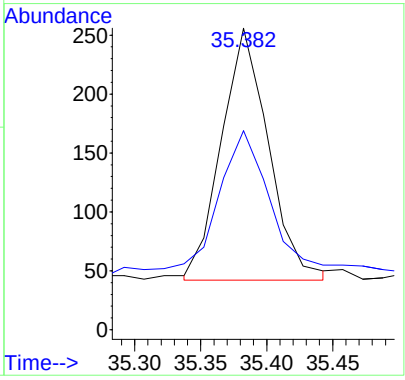


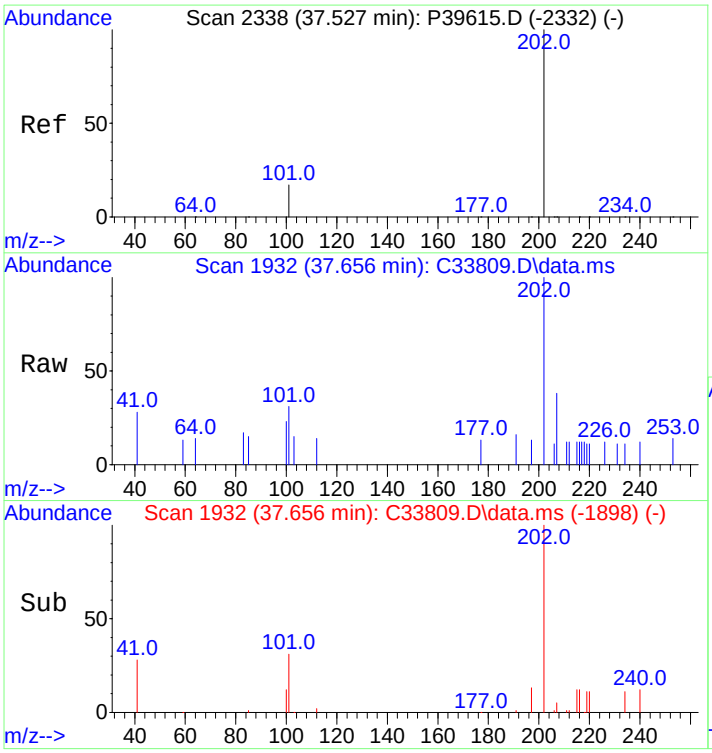


#57
1-Methylphenanthrene
Concen: 9.12 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:192 Resp: 532

Ion	Ratio	Lower	Upper
192	100		
191	66.0	45.3	67.9

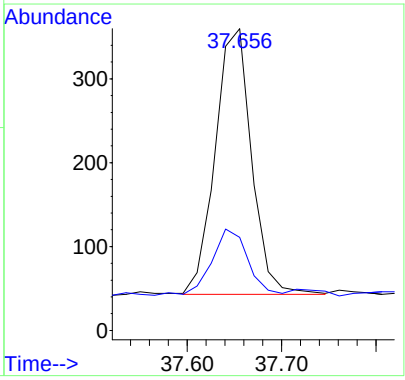


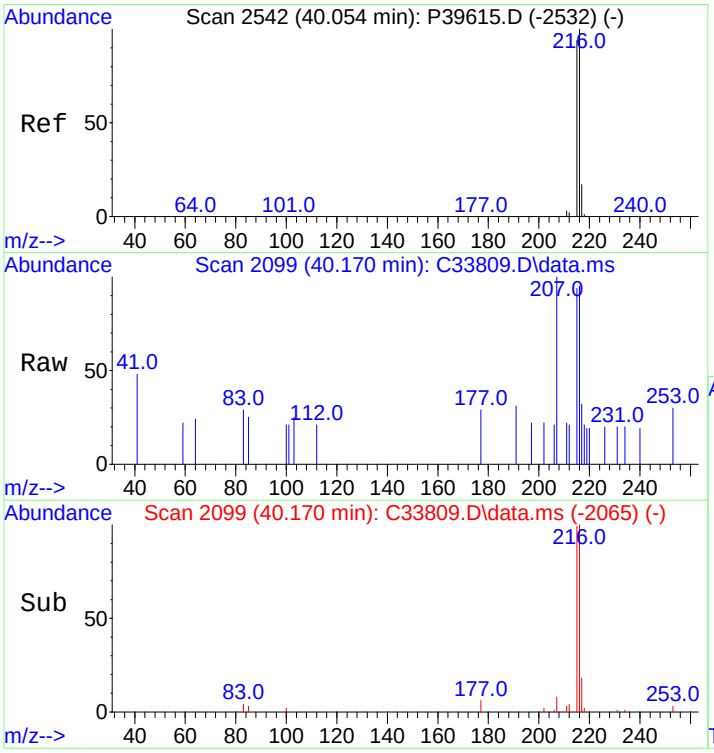


#58
Fluoranthene
Concen: 9.18 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 846

Ion	Ratio	Lower	Upper
202	100		
101	30.4	19.1	28.7#

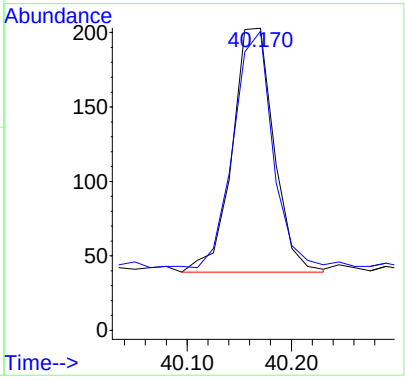


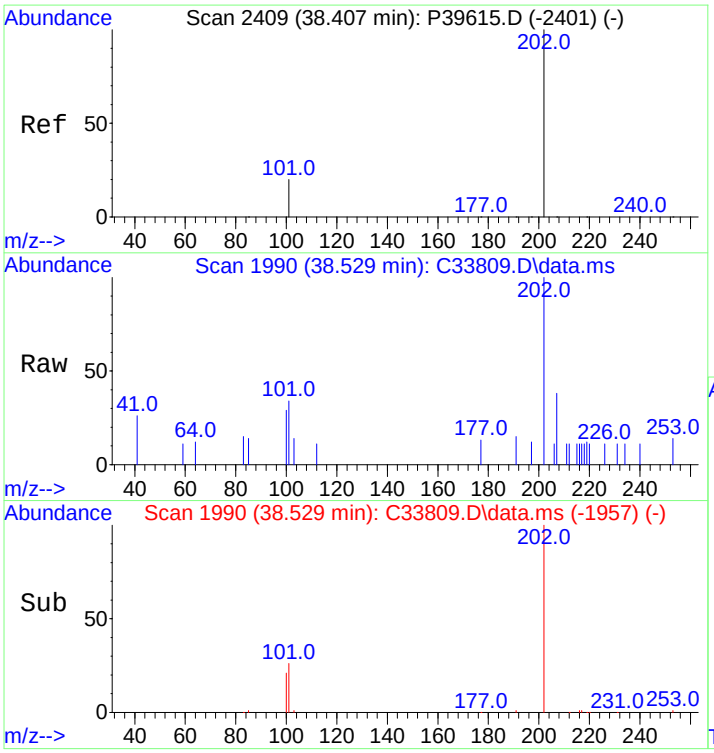


#59
Benzo(b)fluorene
Concen: 7.56 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:216 Resp: 455

Ion	Ratio	Lower	Upper
216	100		
215	89.9	77.4	116.2

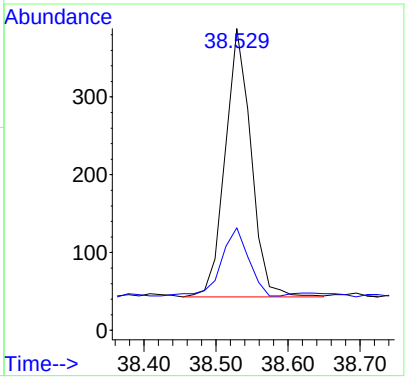


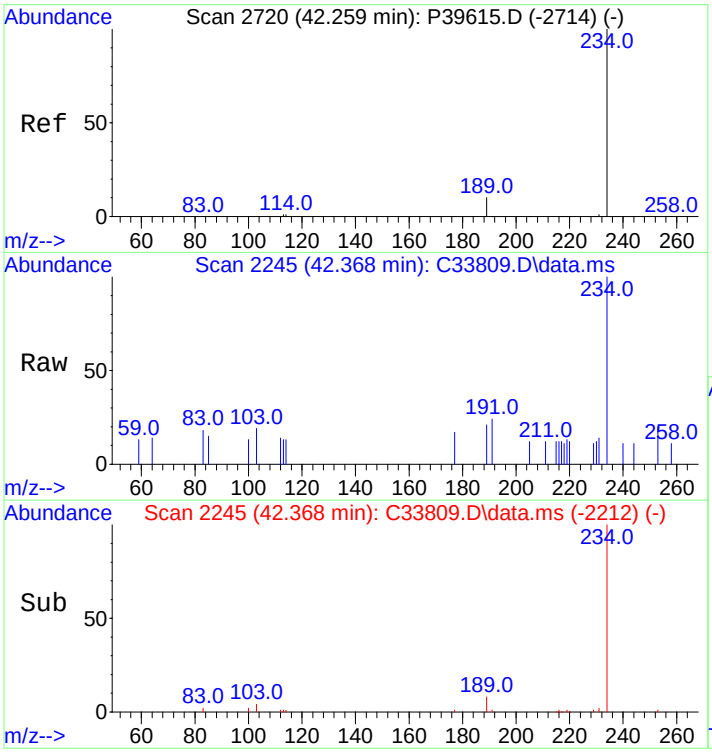


#60
Pyrene
Concen: 9.07 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:202 Resp: 858

Ion	Ratio	Lower	Upper
202	100		
101	26.9	20.4	30.6

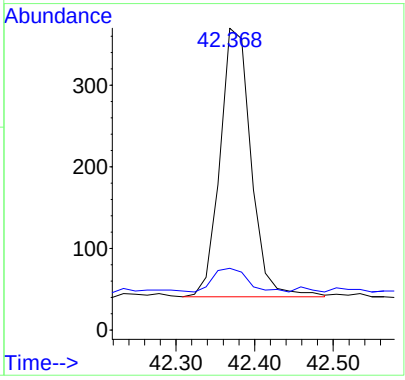


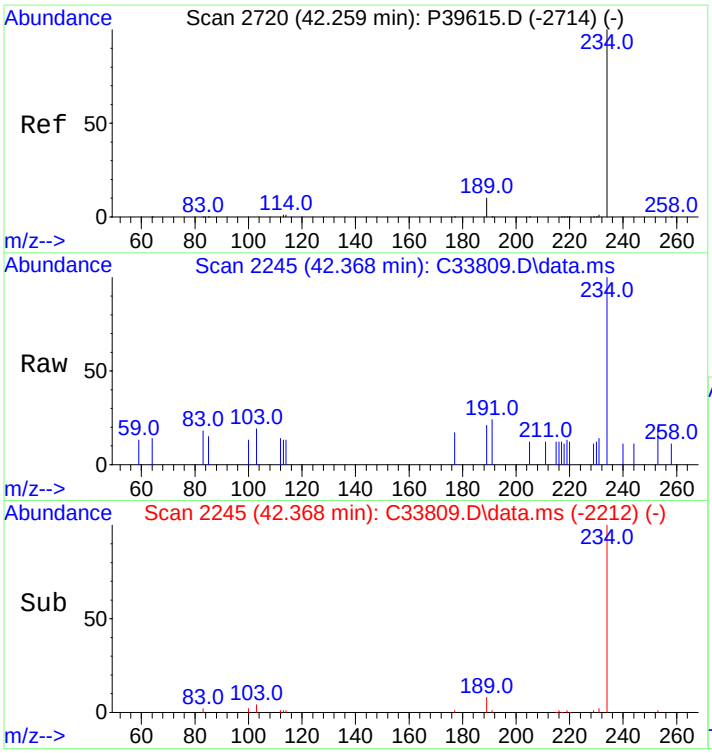


#66
Naphthobenzothiophene
Concen: 9.13 ng/ml m
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 902

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

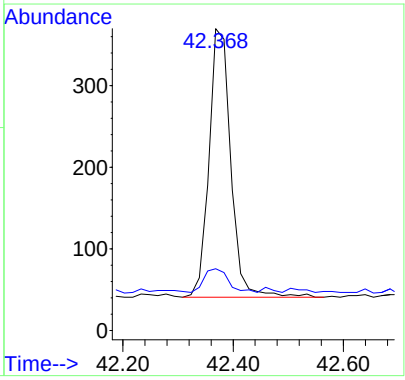


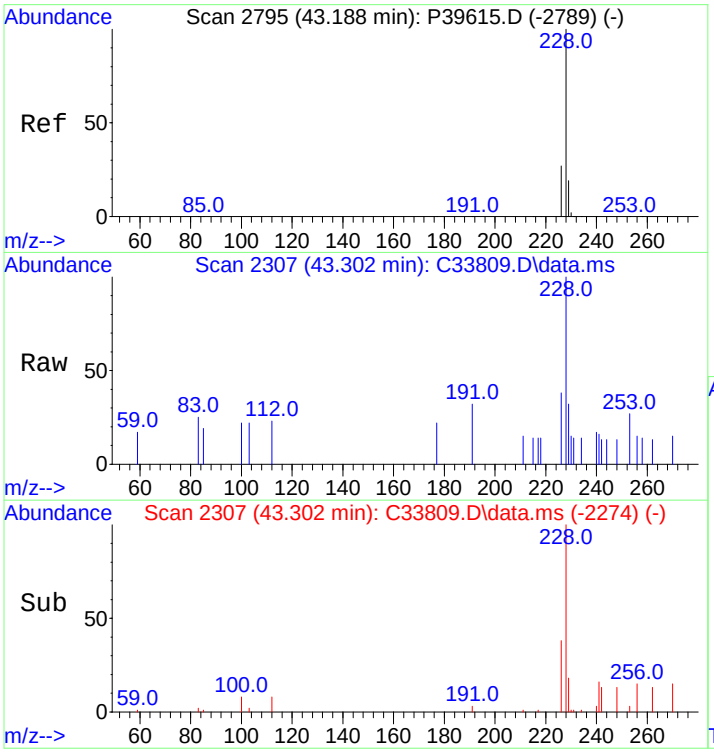


#67
Naphthobenzothiophene-2,1-D
Concen: 9.21 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:234 Resp: 910

Ion	Ratio	Lower	Upper
234	100		
189	0.0	7.4	11.0#

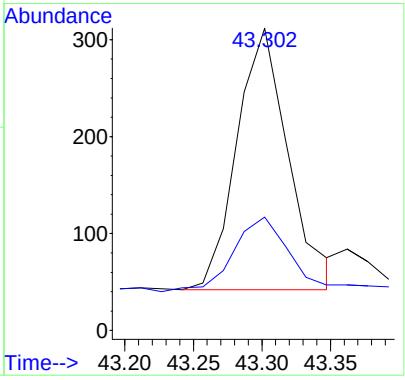


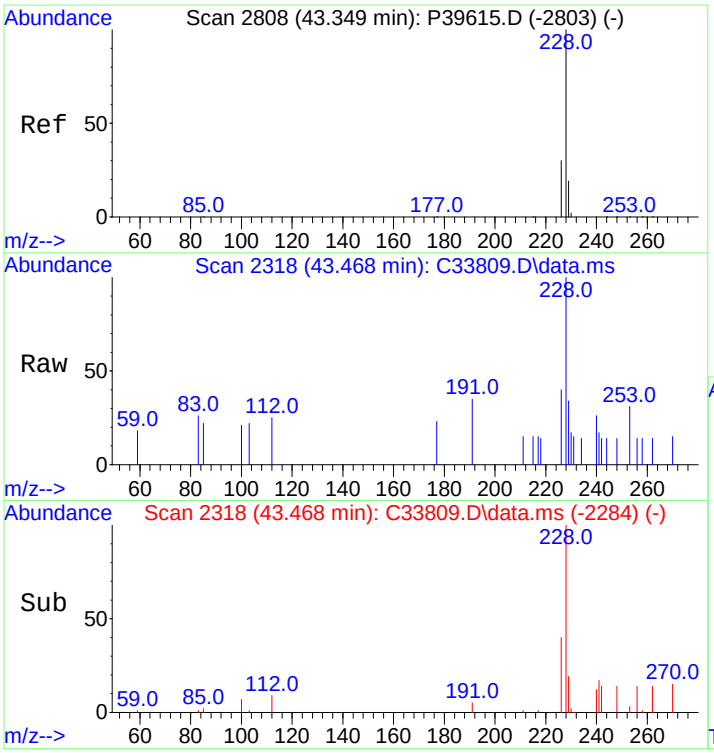


#75
Benz[a]anthracene
Concen: 10.57 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 705

Ion	Ratio	Lower	Upper
228	100		
226	31.2	21.8	32.8

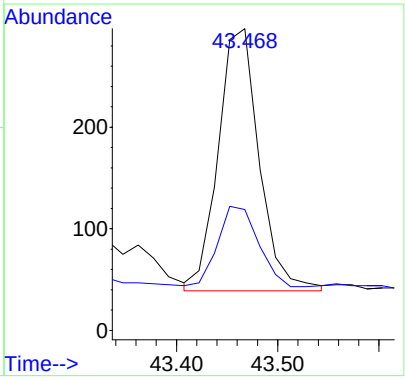


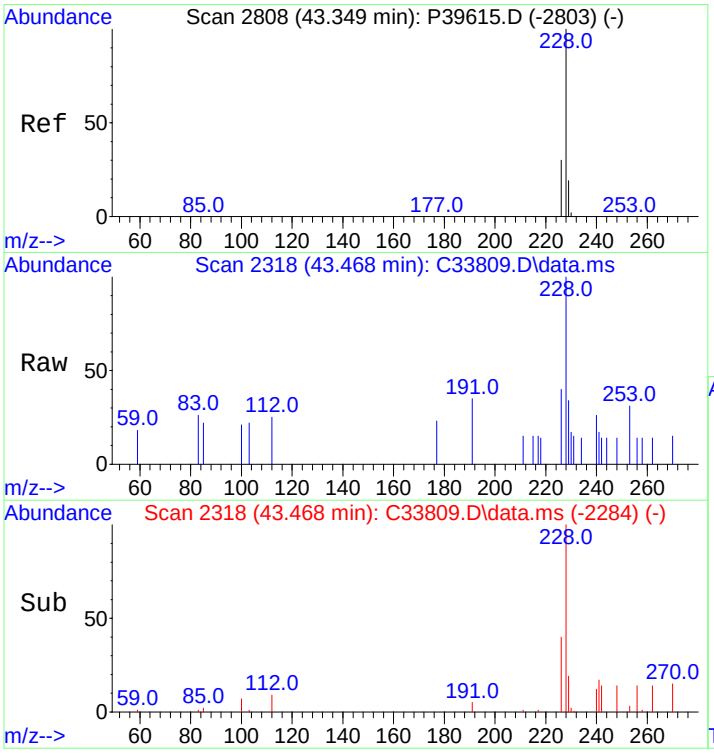


#76
Chrysene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

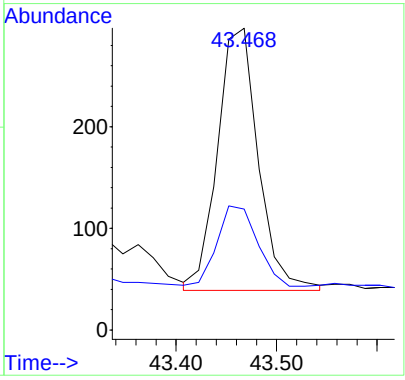


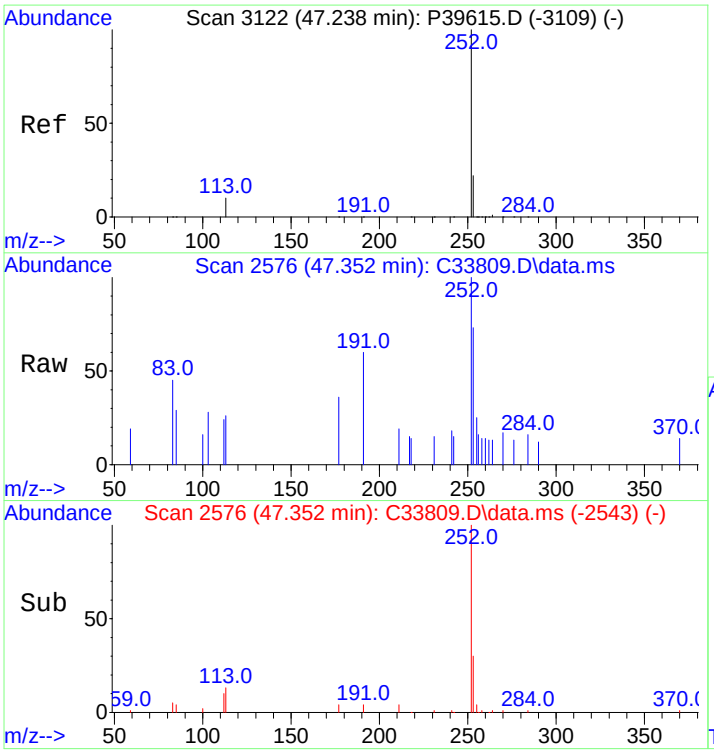


#77
Chrysene/Triphenylene
Concen: 11.05 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:228 Resp: 726

Ion	Ratio	Lower	Upper
228	100		
226	30.3	24.2	36.4

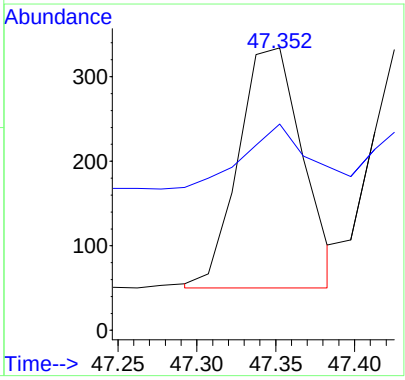


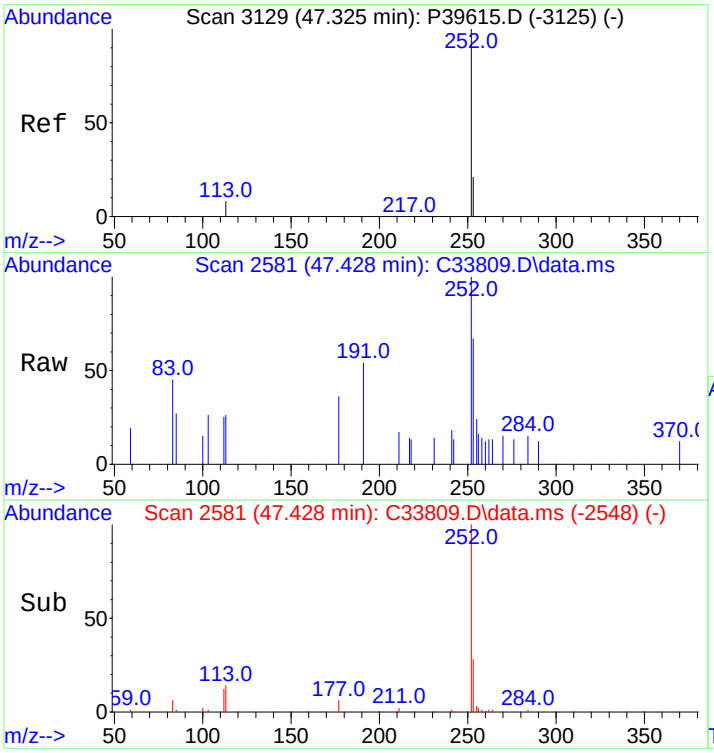


#82
Benzo[b]fluoranthene
Concen: 11.01 ng/mL m
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 808

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.5	27.7

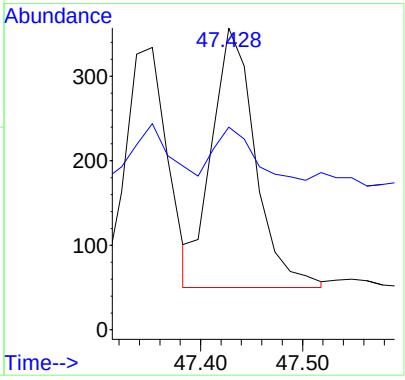


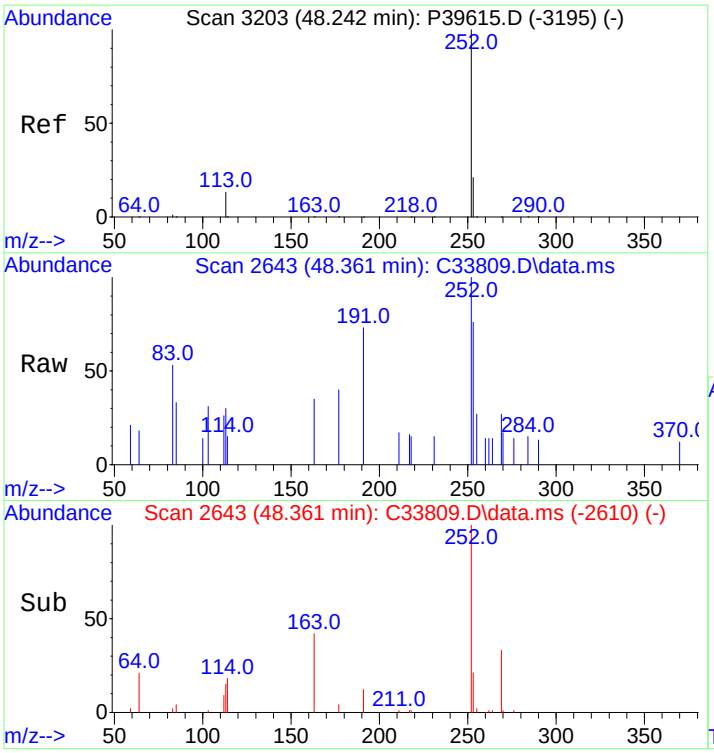


#83
Benzo[j]+[k]fluoranthene
Concen: 11.71 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 908

Ion	Ratio	Lower	Upper
252	100		
253	19.3	18.2	27.4

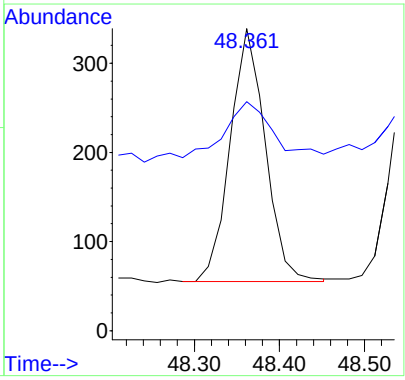


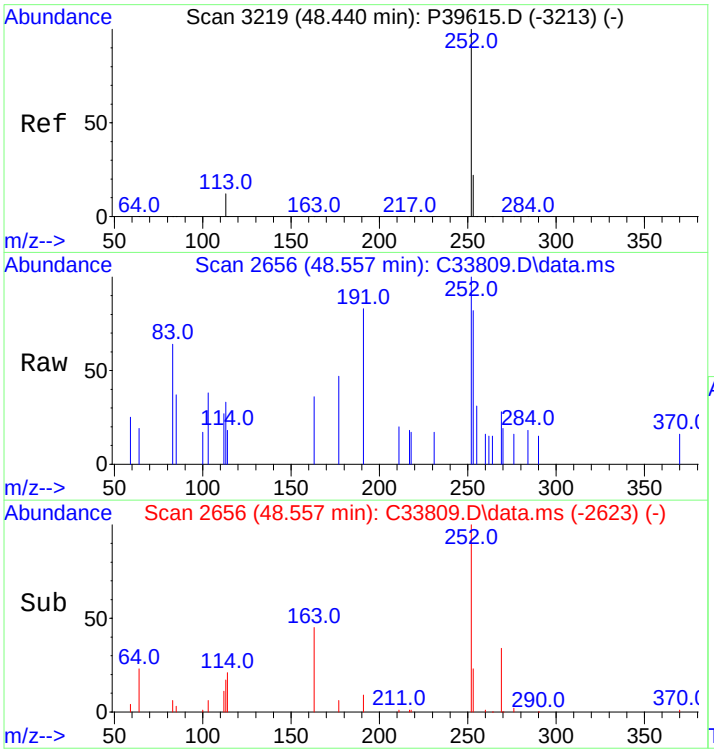


#85
Benzo[e]pyrene
Concen: 11.56 ng/mL
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 816

Ion	Ratio	Lower	Upper
252	100		
253	37.7	18.5	27.7#

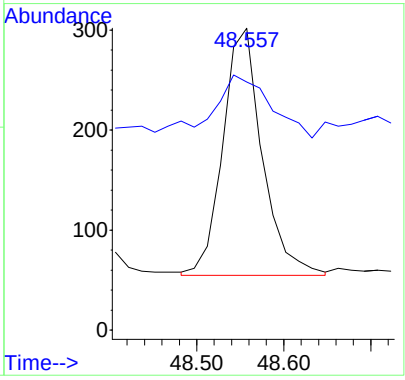


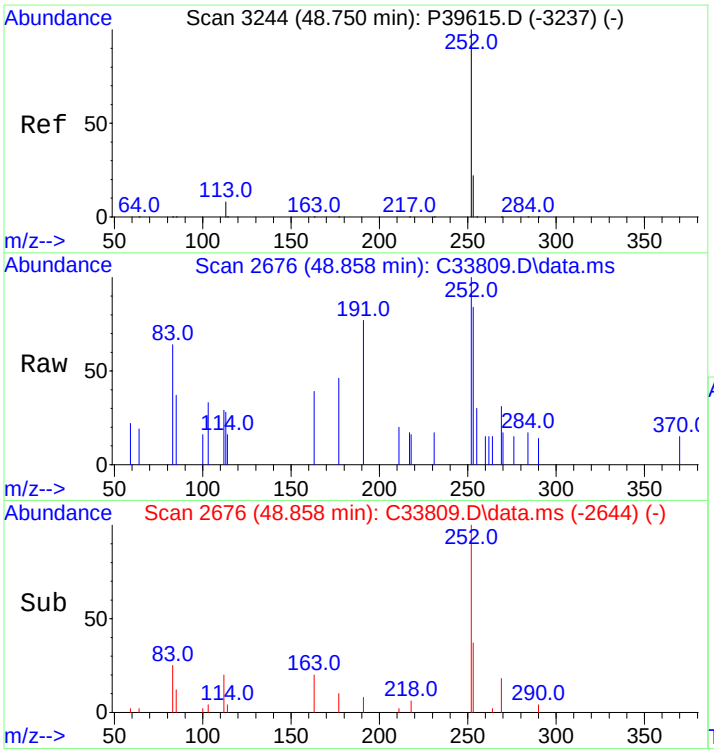


#87
Benzo[a]pyrene
Concen: 11.69 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 776

Ion	Ratio	Lower	Upper
252	100		
253	38.1	18.7	28.1#

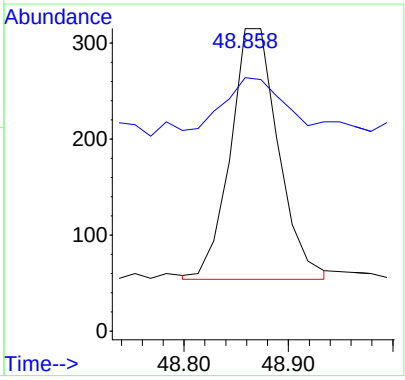


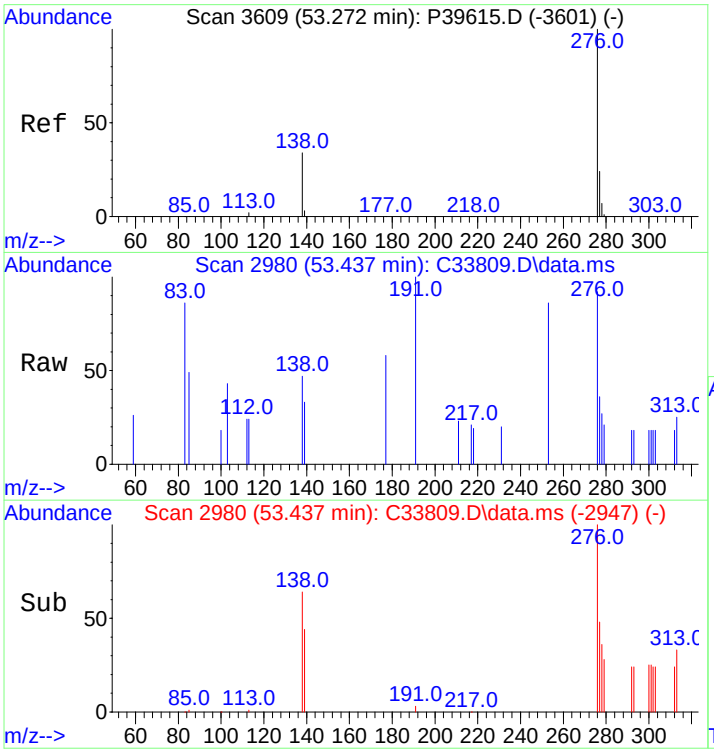


#88
Perylene
Concen: 11.77 ng/mL m
RT: 48.858 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:252 Resp: 835

Ion	Ratio	Lower	Upper
252	100		
253	37.5	18.6	27.8#

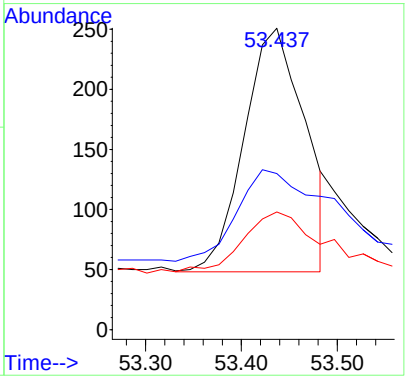


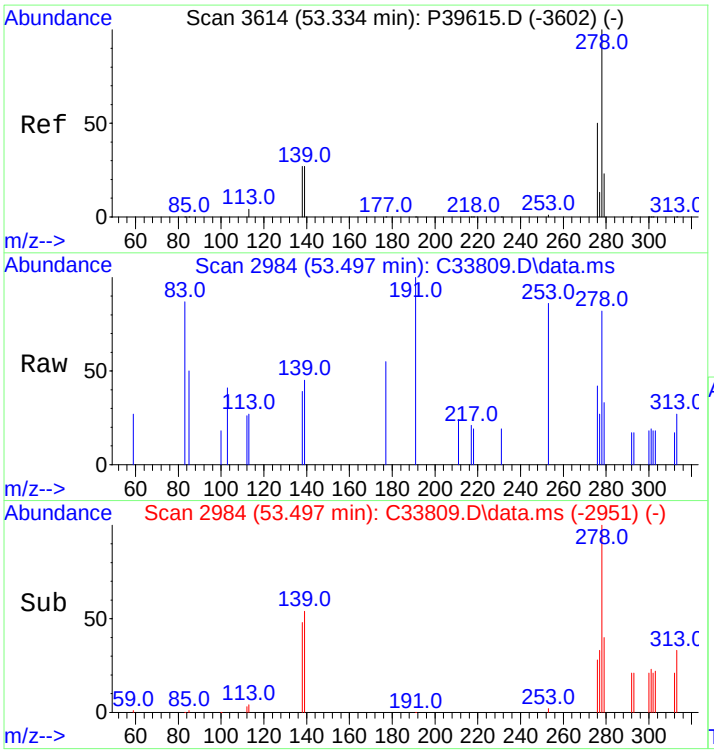


#89
Indeno[1,2,3-cd]pyrene
Concen: 11.73 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 896

Ion	Ratio	Lower	Upper
276	100		
138	93.4	30.3	45.5#
277	48.5	19.2	28.8#

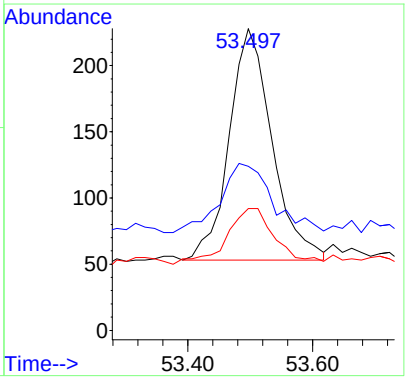


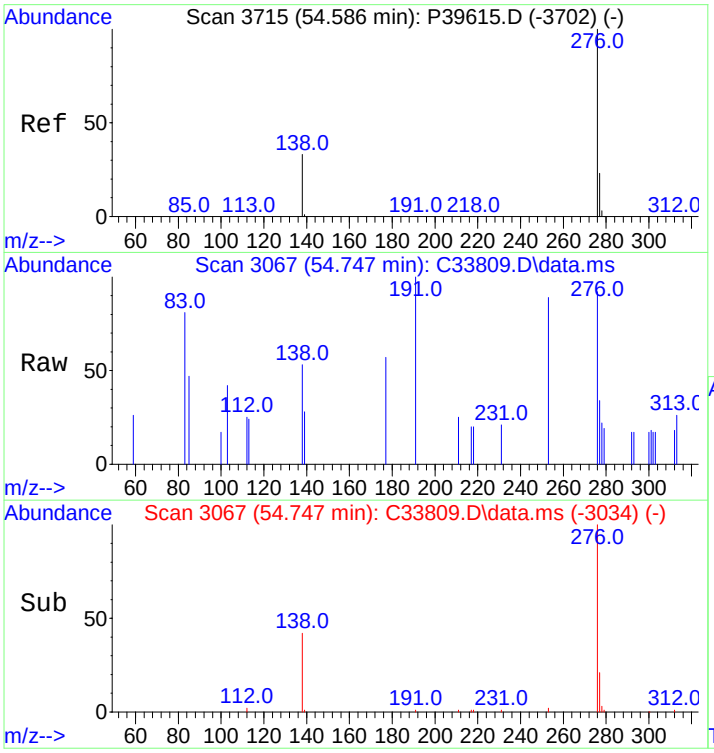


#90
Dibenz[ah]+[ac]anthracene
Concen: 11.67 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:278 Resp: 838

Ion	Ratio	Lower	Upper
278	100		
139	32.5	25.4	38.2
279	37.1	19.0	28.4#

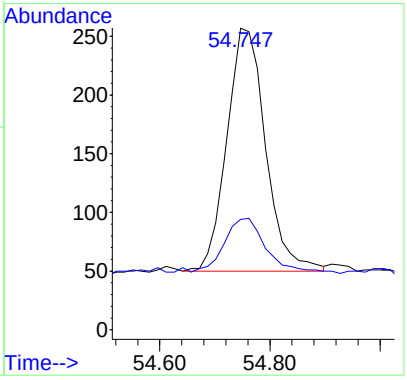


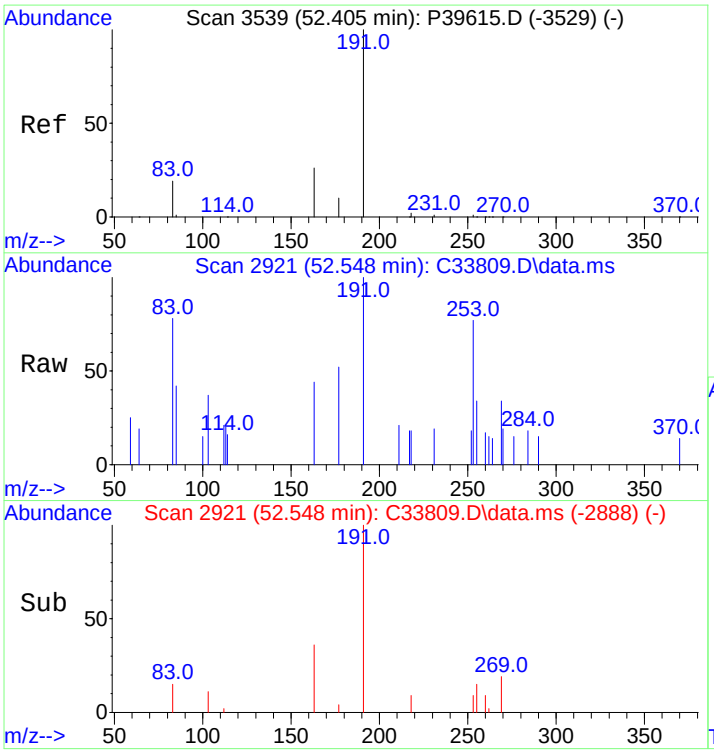


#91
Benzo[g,h,i]perylene
Concen: 12.95 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:276 Resp: 1009

Ion	Ratio	Lower	Upper
276	100		
277	25.5	18.9	28.3

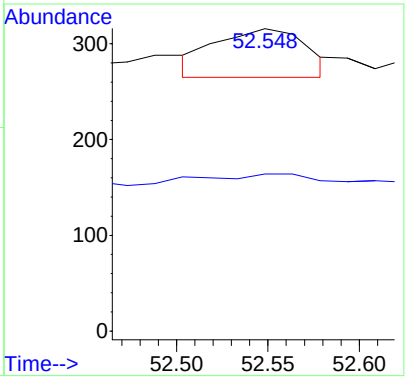


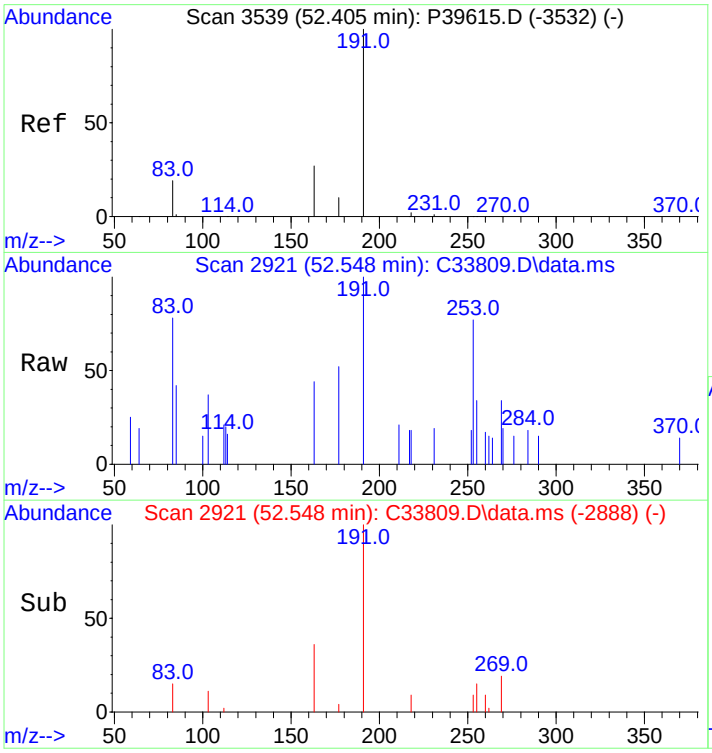


#92
Hopane (T19)
Concen: 14.21 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 175

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

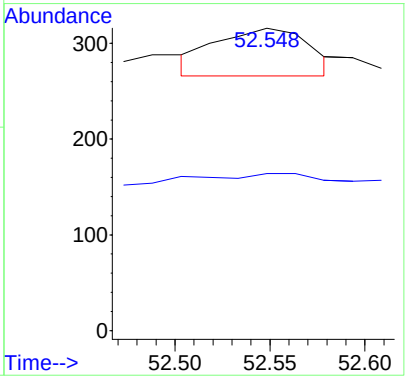




#93
17a(H),21B(H)-hopane - C30H52
Concen: 13.89 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33809.D
Acq: 26 Mar 2012 3:53 pm

Tgt Ion:191 Resp: 171

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15218M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	21888	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	1759M4	34.643	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	3.46%#		
42) Phenanthrene-d10	32.793	188	1224	20.786	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.08%#		
86) Benzo[a]pyrene-d12	48.467	264	1042M4	23.682	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.37%#		
127) 5B(H)Cholane - Surr	43.995	217	161	21.276	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.13%#		
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	159M4	15.117	ng/mL	
4) cis-Decalin	17.844	138	115M4	14.013	ng/mL	
10) Naphthalene	20.042	128	2630	48.035	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	1476	38.180	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	1485M4	40.050	ng/mL	
18) Benzothiophene	20.268	134	2336M4	52.022	ng/mL	
23) Biphenyl	24.619	154	1896M4	36.754	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	1190M4	32.359	ng/mL	
25) Dibenzofuran	27.705	168	2059M4	34.355	ng/mL	
26) Acenaphthylene	26.320	152	2402	38.885	ng/mL#	100
27) Acenaphthene	27.057	153	1380	35.184	ng/mL	98
28) 2,3,5-Trimethylnaphthalen	28.608	170	909M4	26.498	ng/mL	
29) Fluorene	29.075	166	1499M4	30.710	ng/mL	
33) Dibenzothiophene	32.386	184	2440	33.102	ng/mL	98
43) Phenanthrene	32.883	178	2050M4	27.679	ng/mL	
54) Retene	39.869	234	367	17.041	ng/mL	94
55) Anthracene	33.064	178	1981M4	27.606	ng/mL	
56) Carbazole	33.726	167	2025M4	30.723	ng/mL	
57) 1-Methylphenanthrene	35.382	192	1272	22.437	ng/mL	96
58) Fluoranthene	37.656	202	2036M4	22.734	ng/mL	
59) Benzo(b)fluorene	40.170	216	1124	19.217	ng/mL	95
60) Pyrene	38.529	202	2032M4	22.122	ng/mL	
66) Naphthobenzothiophene	42.384	234	2165	22.555	ng/ml	100
67) Naphthobenzothiophene-2,1	42.384	234	2165	22.555	ng/mL	100
75) Benz[a]anthracene	43.302	228	1642M4	25.297	ng/mL	
76) Chrysene	43.468	228	1712M4	26.771	ng/mL	
77) Chrysene/Triphenylene	43.468	228	1721M4	26.911	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	1814	25.399	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.428	252	2006M4	26.567	ng/mL	
85) Benzo[e]pyrene	48.361	252	1839M3	26.754	ng/mL	
87) Benzo[a]pyrene	48.557	252	1738M4	26.903	ng/mL	
88) Perylene	48.874	252	1855M4	26.870	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	1978M4	26.595	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	1974M4	28.233	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	2242	29.549	ng/mL	98
92) Hopane (T19)	52.548	191	418M4	34.877	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	418M4	34.877	ng/mL	

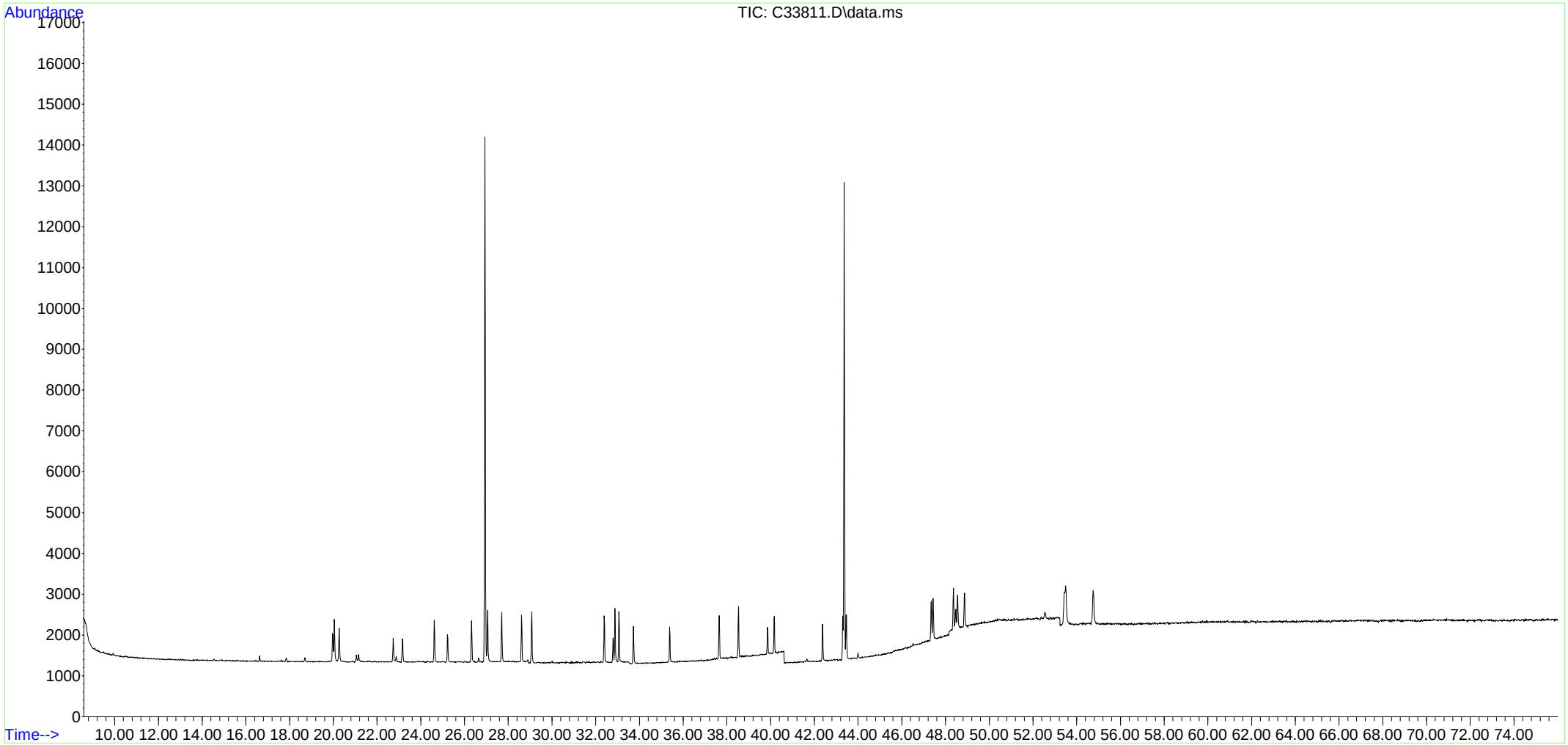
(#) = qualifier out of range (m) = manual integration (+) = signals summed

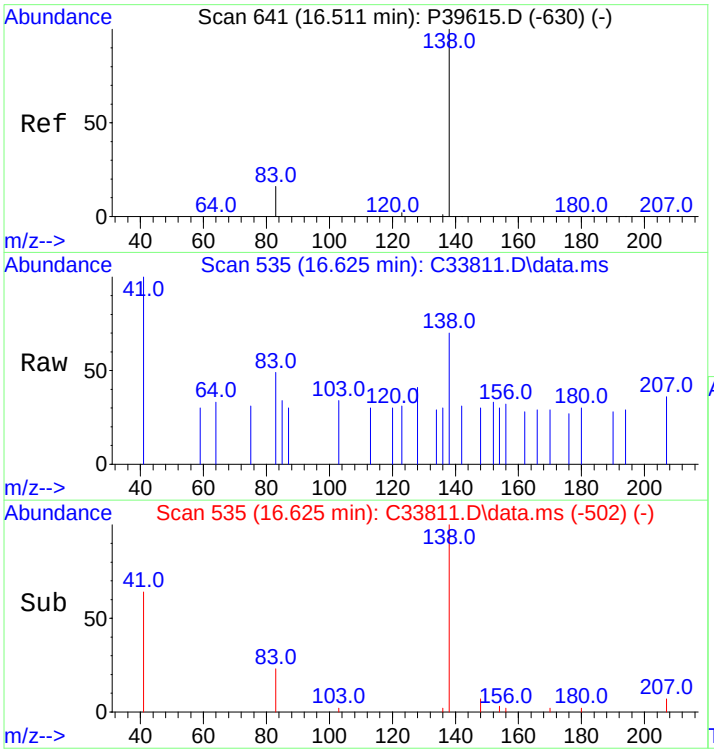
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33811.D
Acq On : 26 Mar 2012 5:27 pm
Operator : PAH3:SR
Sample : I303261202
Misc : WG525925
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 11:05:22 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

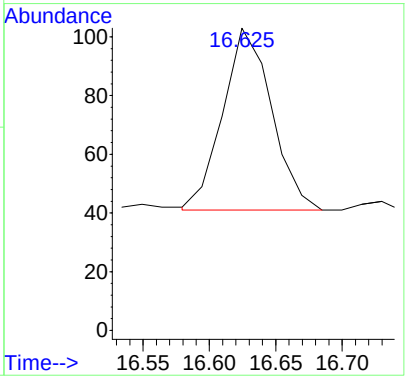
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

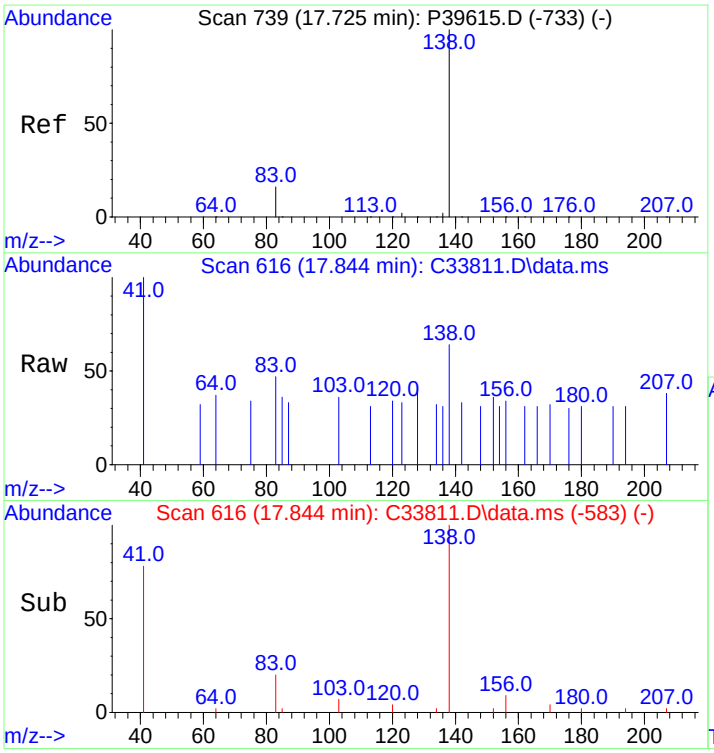




#3
trans-Decalin
Concen: 15.12 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

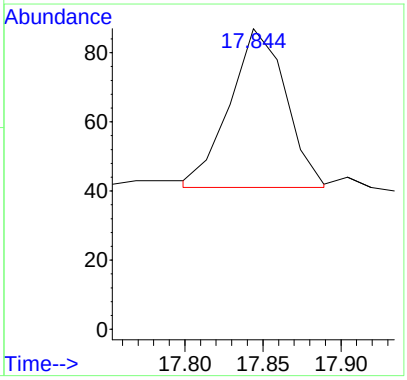
Tgt Ion:138 Resp: 159

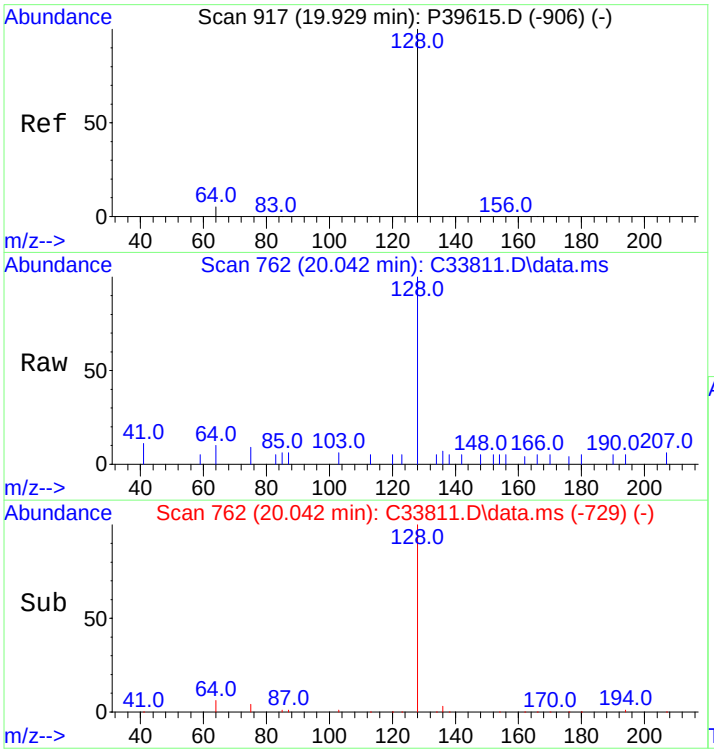




#4
cis-Decalin
Concen: 14.01 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:138 Resp: 115

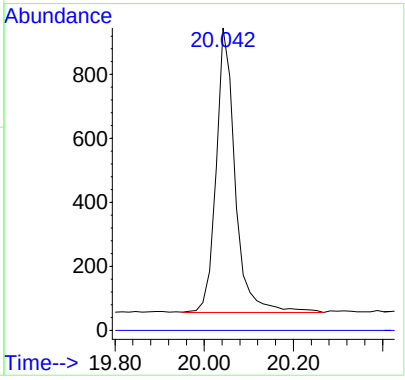


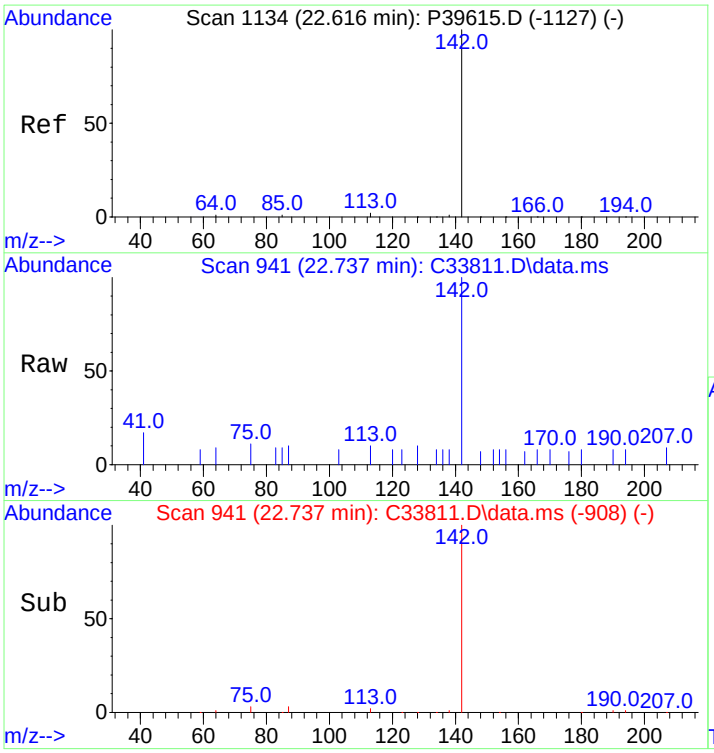


#10
Naphthalene
Concen: 48.03 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:128 Resp: 2630

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

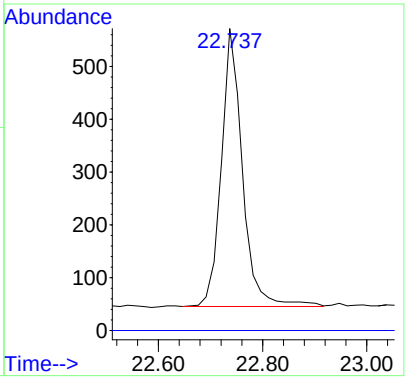


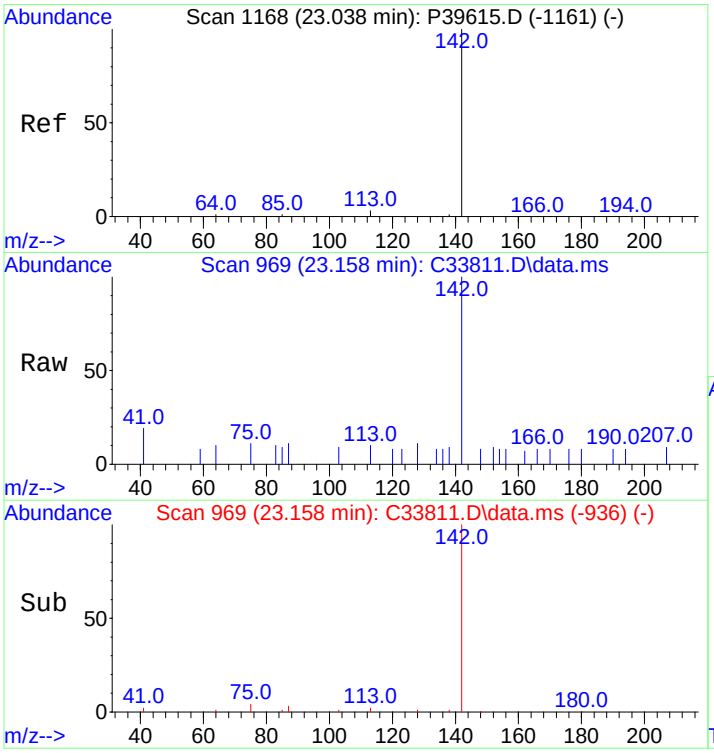


#16
2-Methylnaphthalene
Concen: 38.18 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1476

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

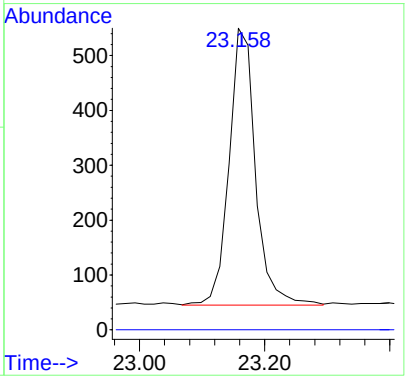


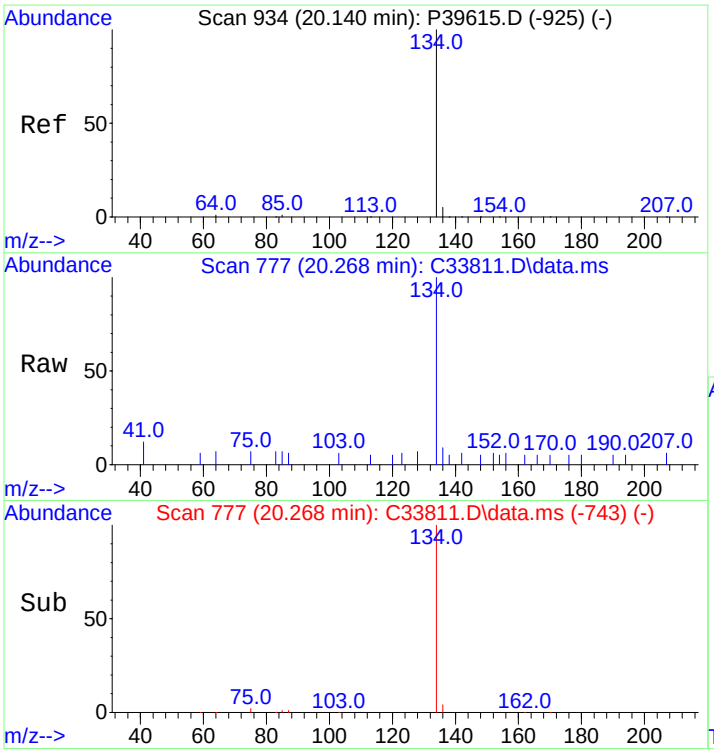


#17
1-Methylnaphthalene
Concen: 40.05 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:142 Resp: 1485

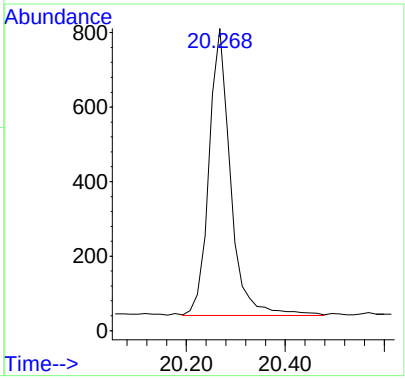
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

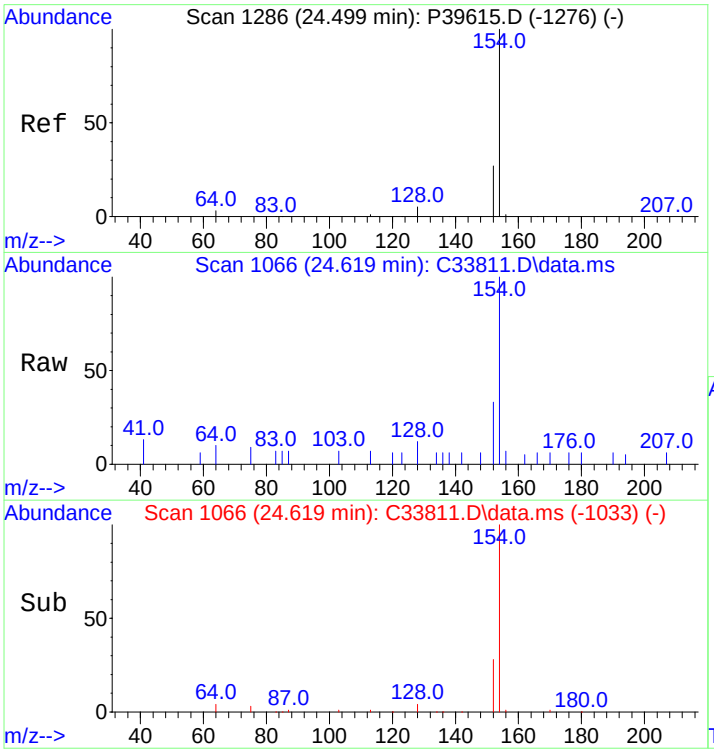




#18
Benzothiophene
Concen: 52.02 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:134 Resp: 2336

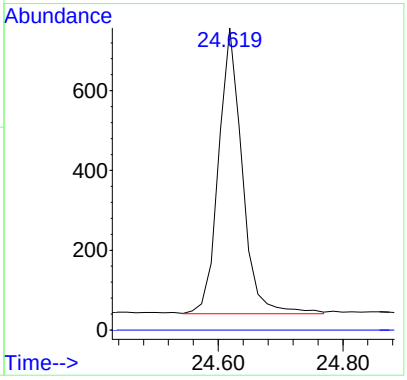


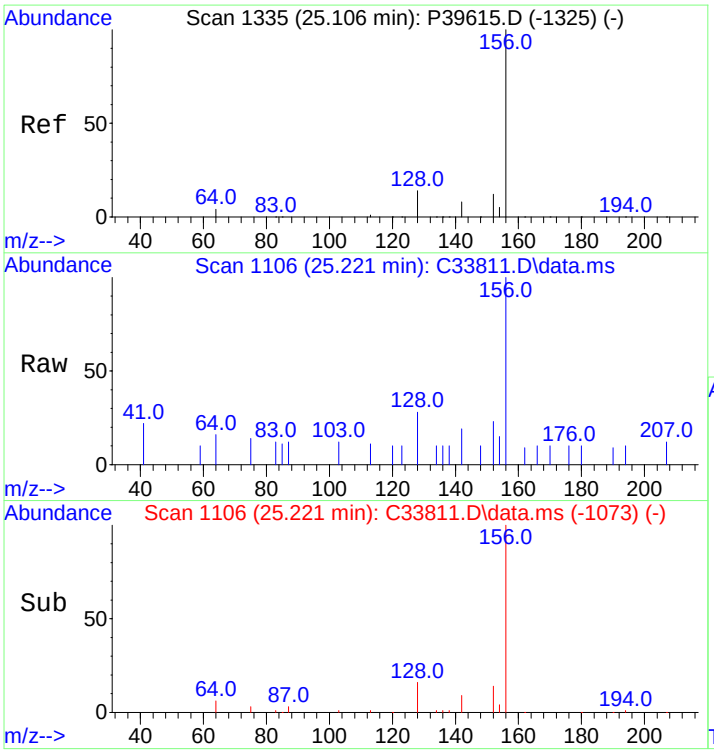


#23
Biphenyl
Concen: 36.75 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:154 Resp: 1896

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

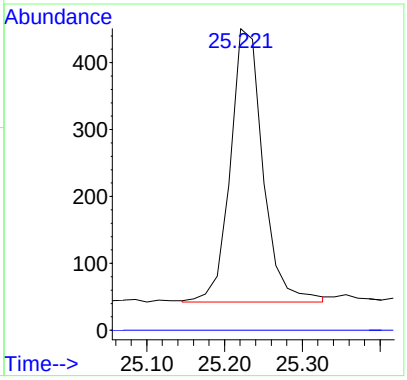


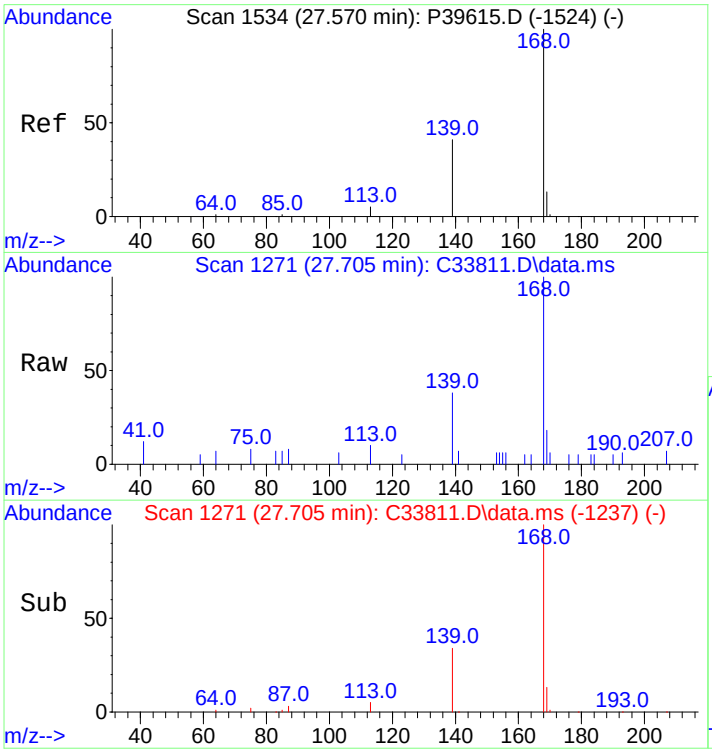


#24
2,6-Dimethylnaphthalene
Concen: 32.36 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:156 Resp: 1190

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

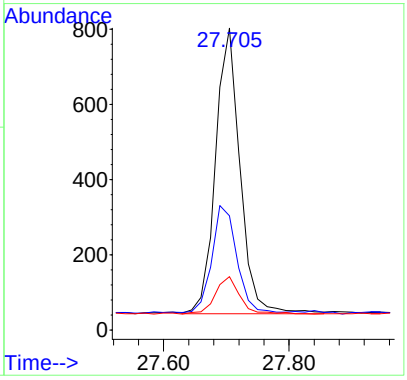


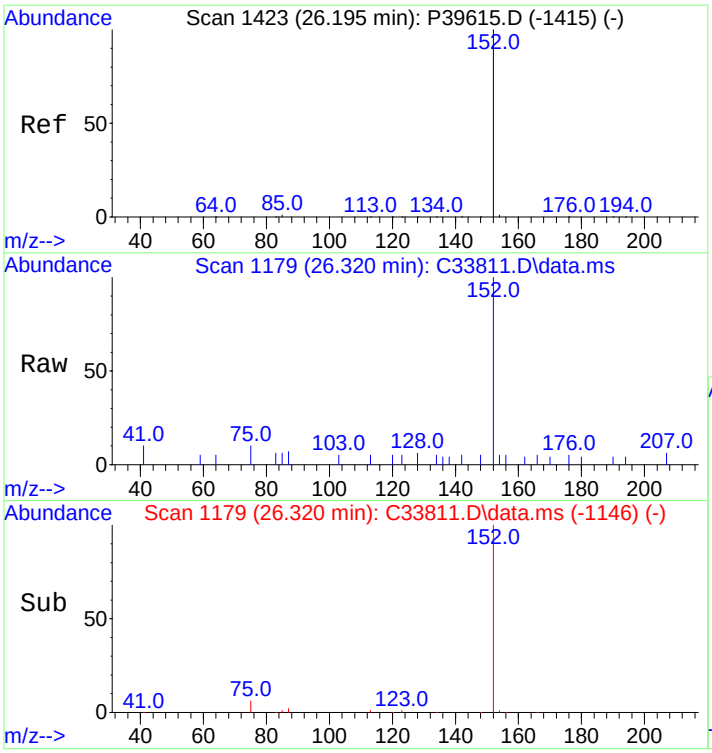


#25
Dibenzofuran
Concen: 34.35 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:168 Resp: 2059

Ion	Ratio	Lower	Upper
168	100		
139	39.0	32.9	49.3
169	13.3	10.6	16.0

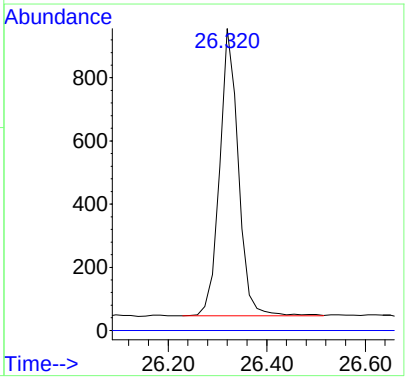


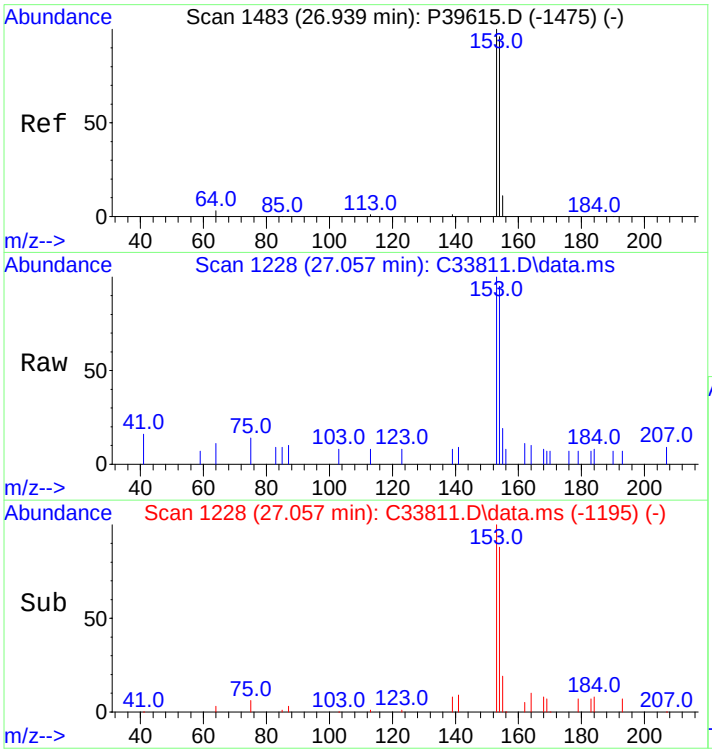


#26
Acenaphthylene
Concen: 38.89 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:152 Resp: 2402

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

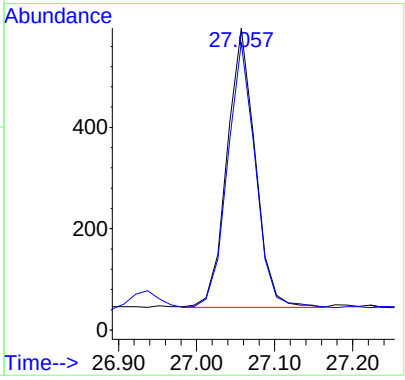


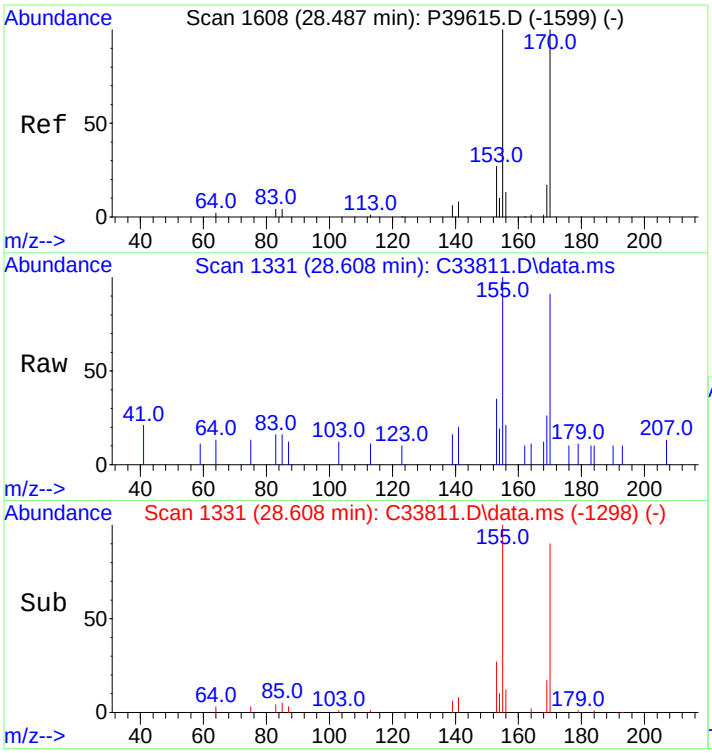


#27
Acenaphthene
Concen: 35.18 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:153 Resp: 1380

Ion	Ratio	Lower	Upper
153	100		
154	95.4	75.0	112.6

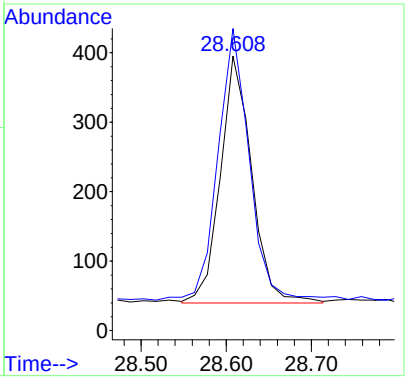


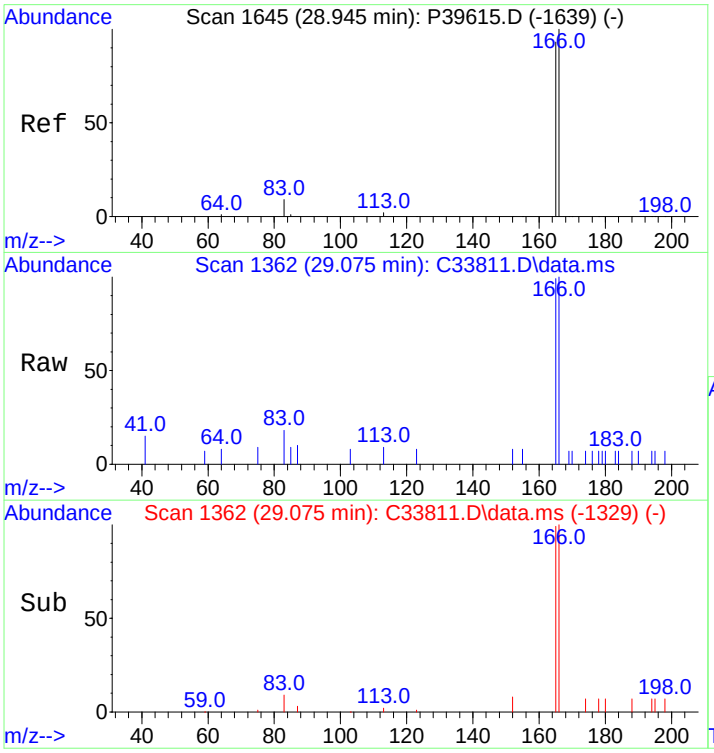


#28
2,3,5-Trimethylnaphthalene
Concen: 26.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:170 Resp: 909

Ion	Ratio	Lower	Upper
170	100		
155	110.5	84.7	127.1

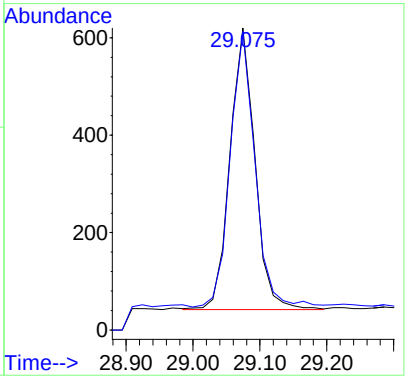


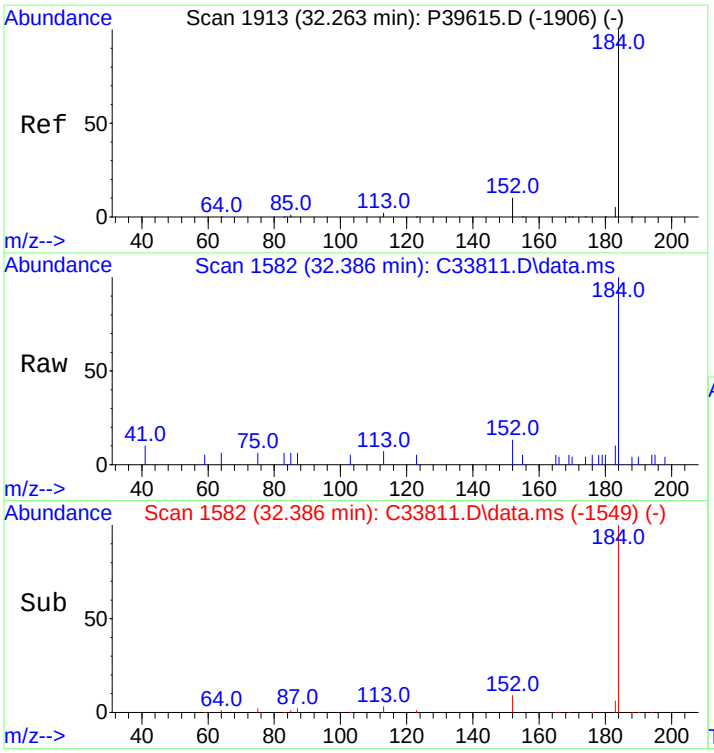


#29
Fluorene
Concen: 30.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:166 Resp: 1499

Ion	Ratio	Lower	Upper
166	100		
165	108.0	75.3	112.9

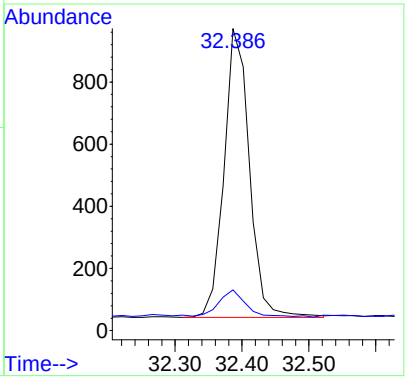


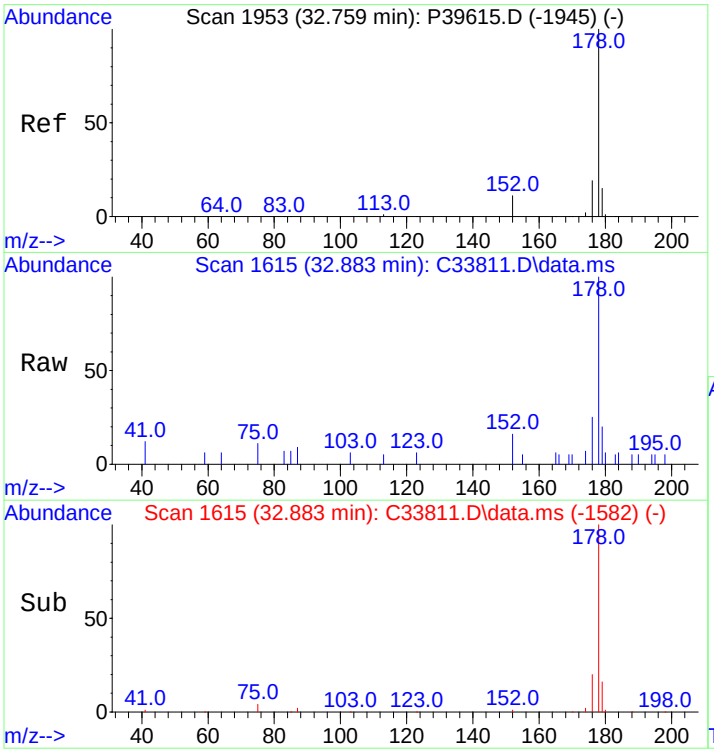


#33
Dibenzothiophene
Concen: 33.10 ng/mL
RT: 32.386 min Scan# 1582
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:184 Resp: 2440

Ion	Ratio	Lower	Upper
184	100		
152	9.2	6.7	10.1

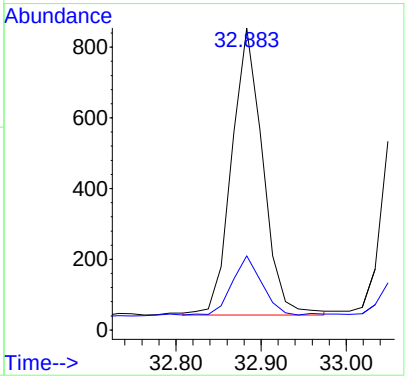


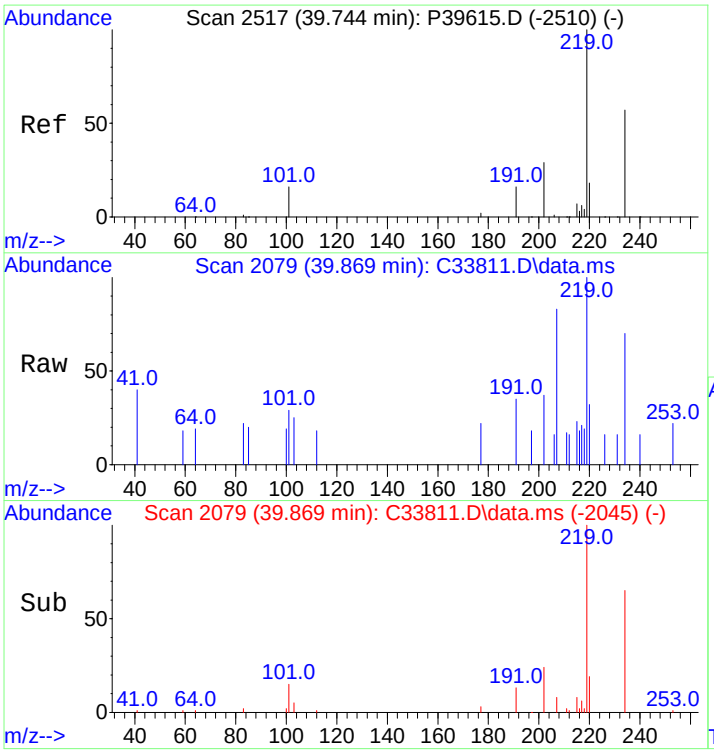


#43
Phenanthrene
Concen: 27.68 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 2050

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.9	23.9

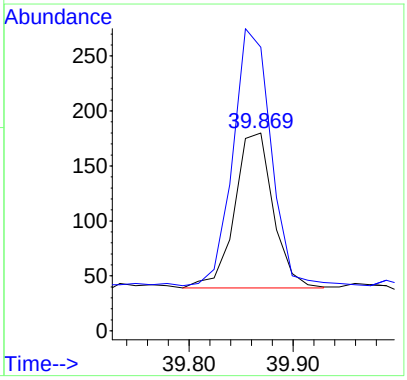


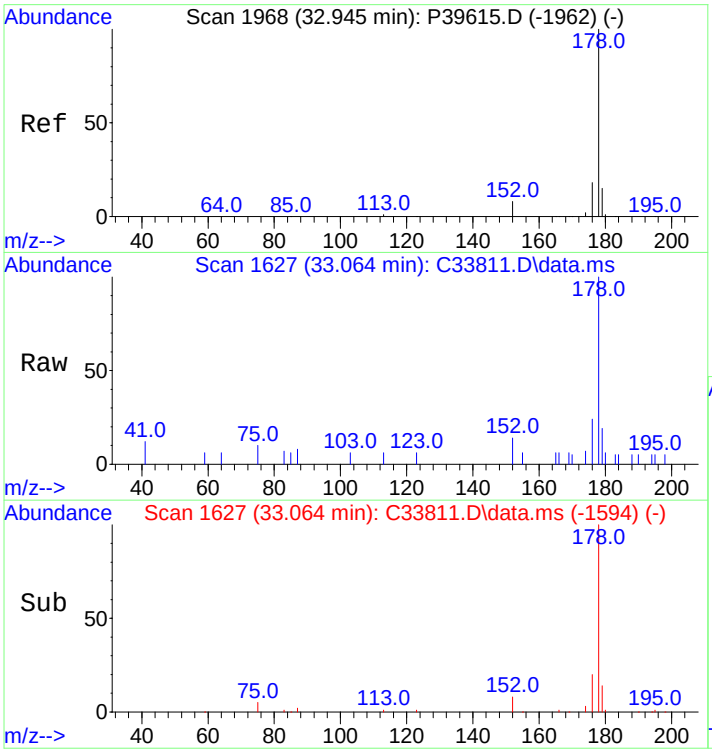


#54
Retene
Concen: 17.04 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 367

Ion	Ratio	Lower	Upper
234	100		
219	162.4	136.6	204.8

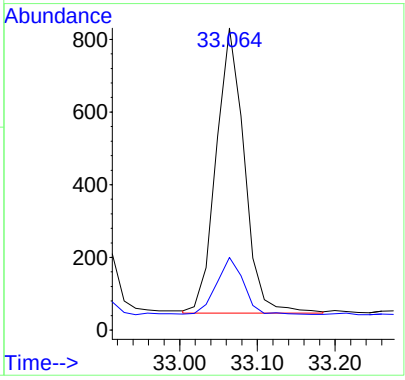


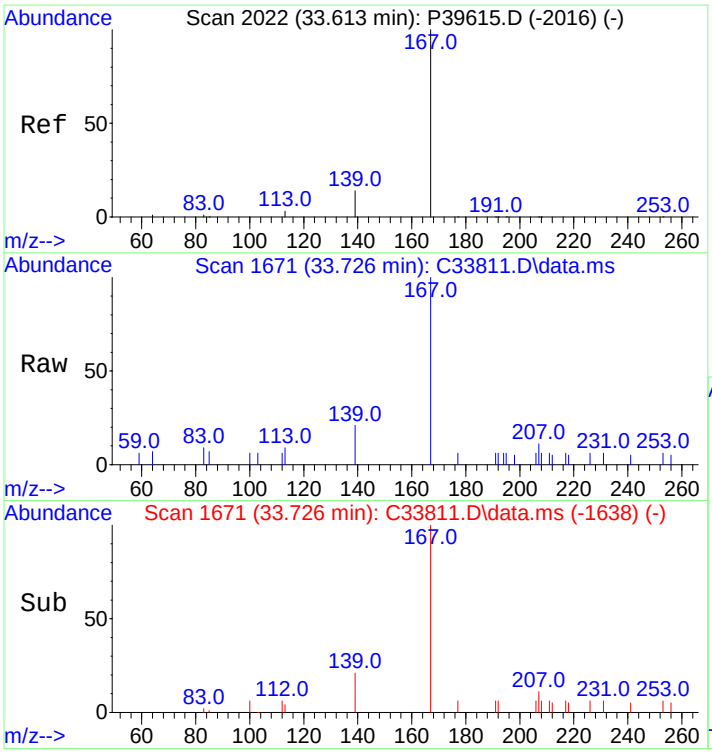


#55
Anthracene
Concen: 27.61 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:178 Resp: 1981

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.4	23.0

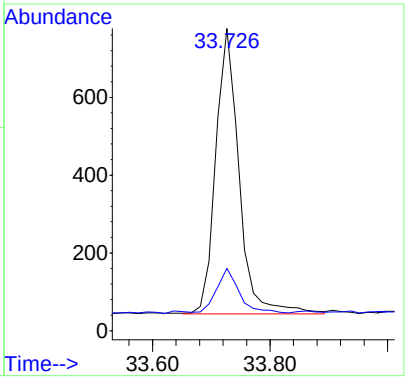


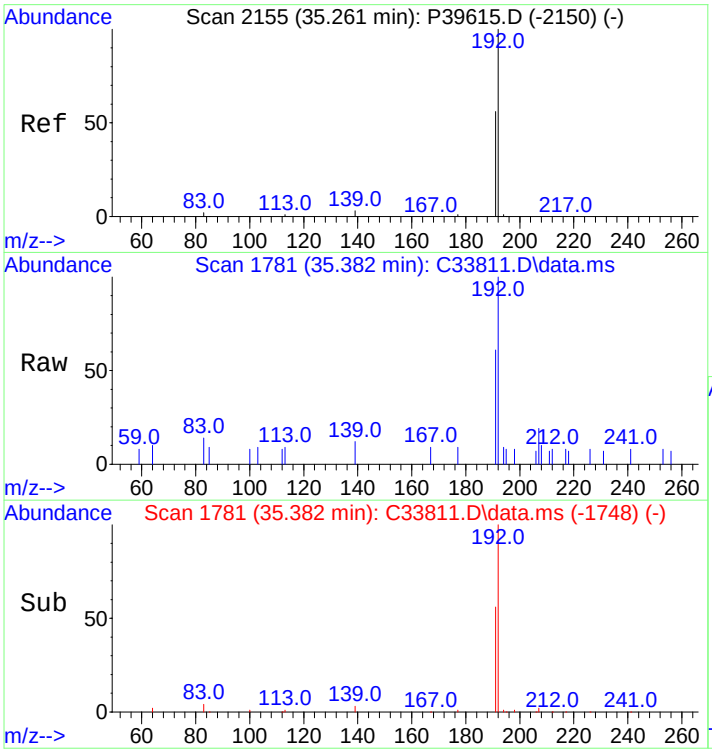


#56
Carbazole
Concen: 30.72 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:167 Resp: 2025

Ion	Ratio	Lower	Upper
167	100		
139	20.3	11.6	17.4#

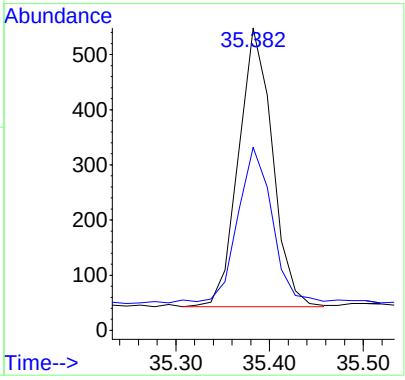


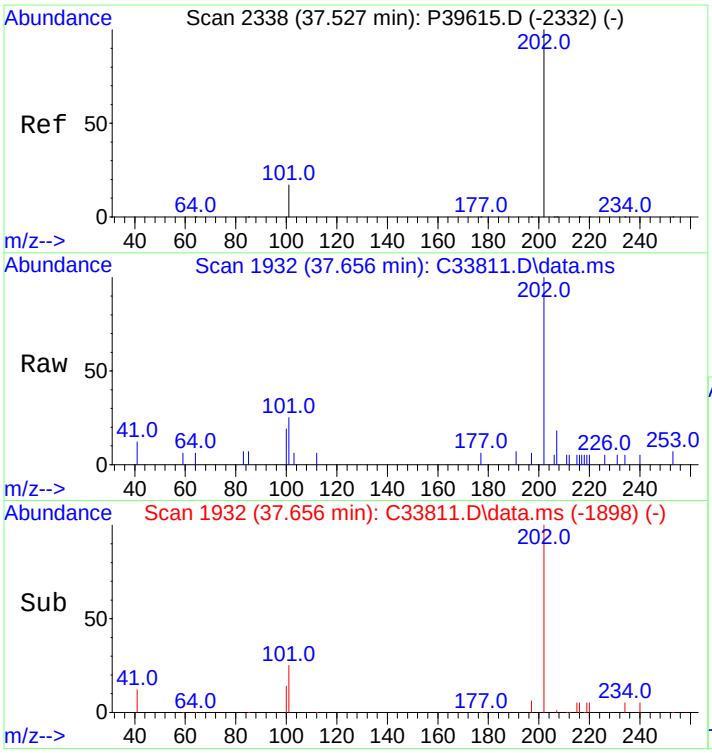


#57
1-Methylphenanthrene
Concen: 22.44 ng/mL
RT: 35.382 min Scan# 1781
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:192 Resp: 1272

Ion	Ratio	Lower	Upper
192	100		
191	59.2	45.3	67.9

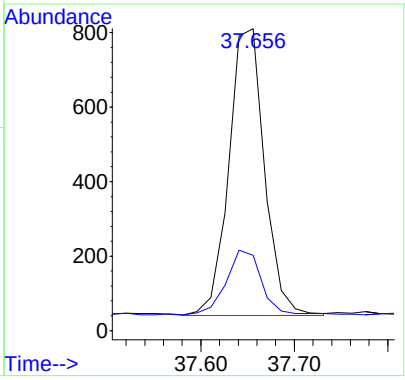


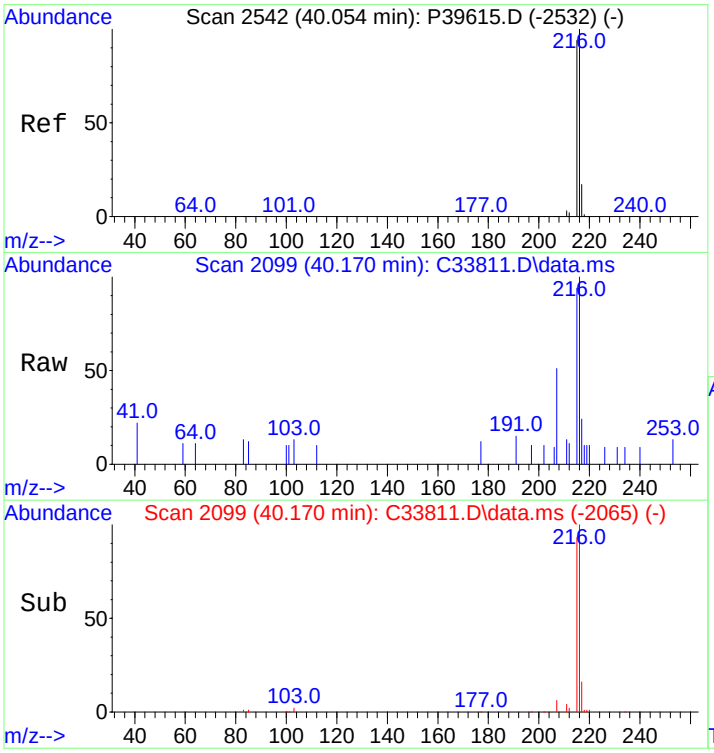


#58
Fluoranthene
Concen: 22.73 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2036

Ion	Ratio	Lower	Upper
202	100		
101	30.1	19.1	28.7#

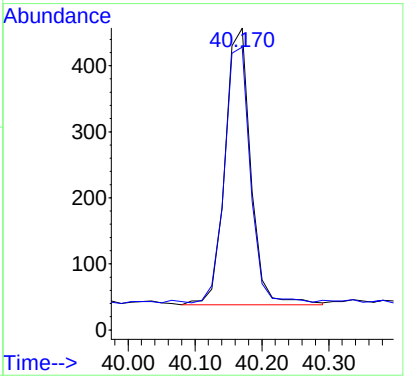


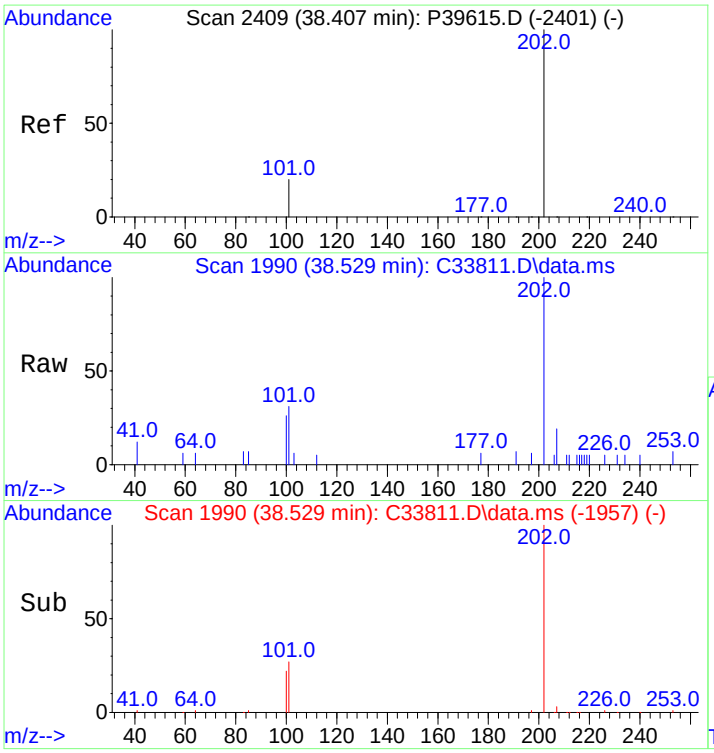


#59
Benzo(b)fluorene
Concen: 19.22 ng/mL
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:216 Resp: 1124

Ion	Ratio	Lower	Upper
216	100		
215	92.1	77.4	116.2

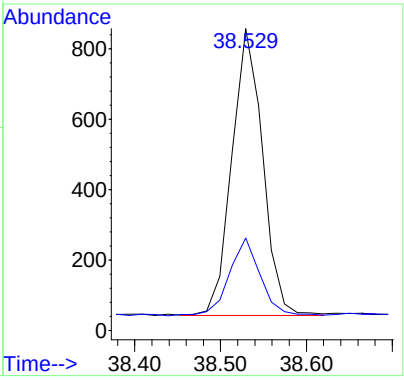


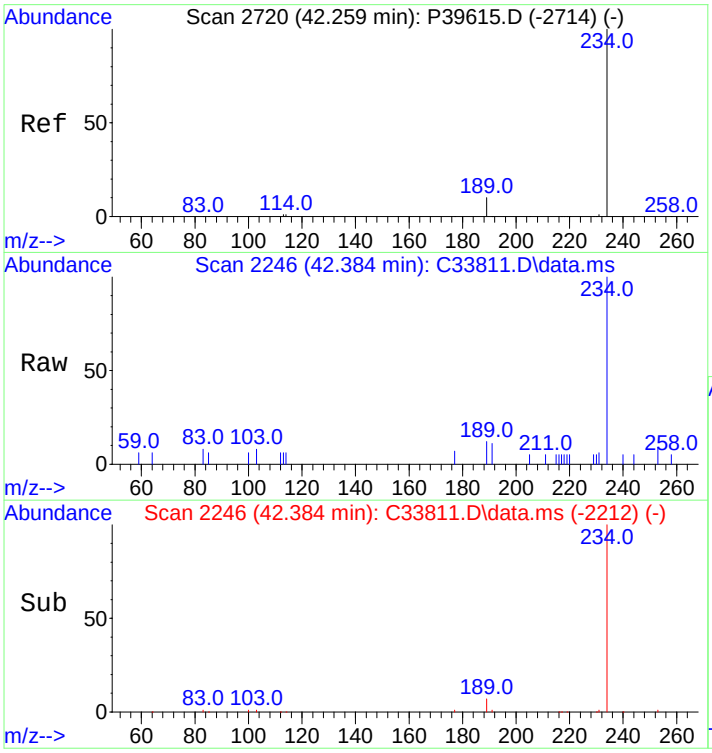


#60
Pyrene
Concen: 22.12 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:202 Resp: 2032

Ion	Ratio	Lower	Upper
202	100		
101	27.4	20.4	30.6

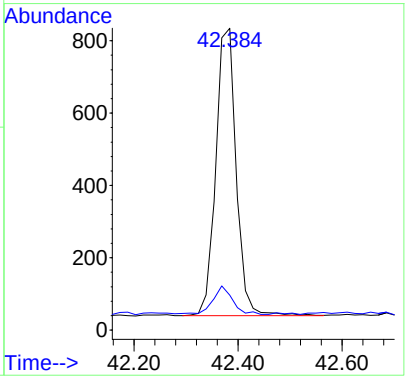


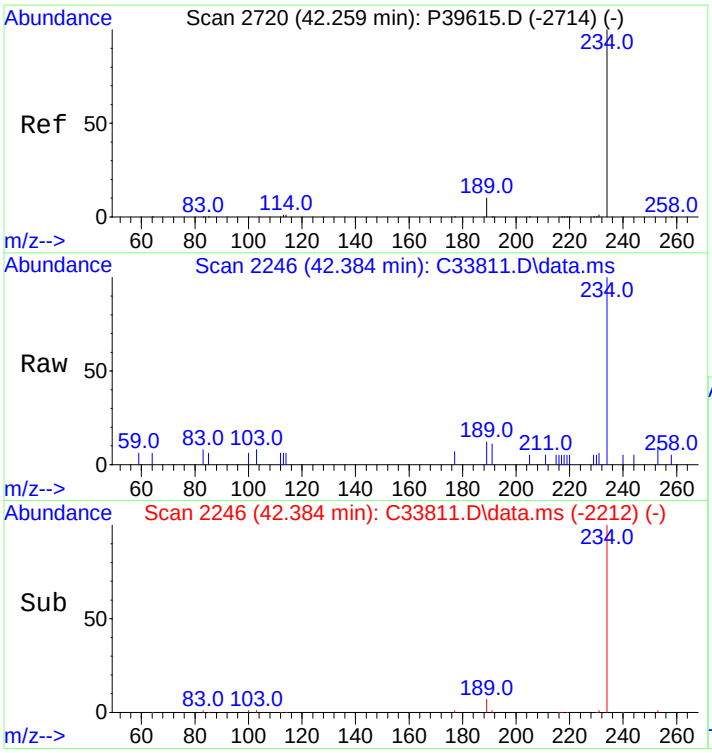


#66
Naphthobenzothiophene
Concen: 22.56 ng/ml
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

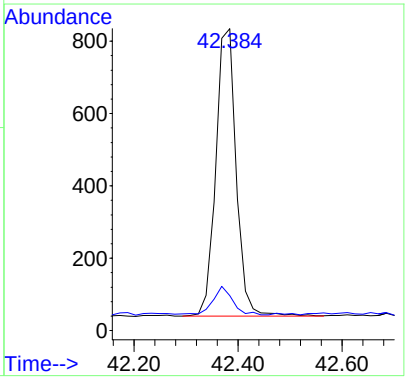


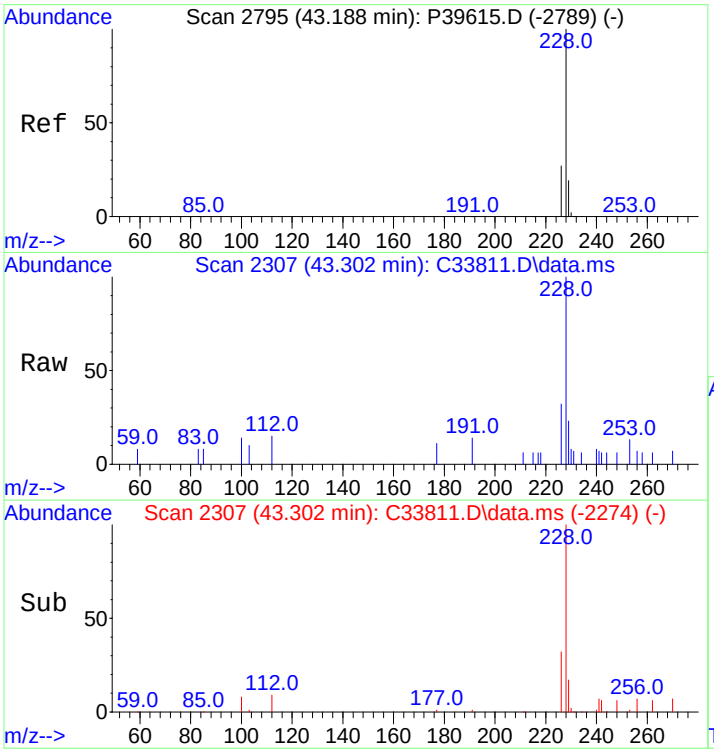


#67
Naphthobenzothiophene-2,1-D
Concen: 22.56 ng/mL
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:234 Resp: 2165

Ion	Ratio	Lower	Upper
234	100		
189	9.3	7.4	11.0

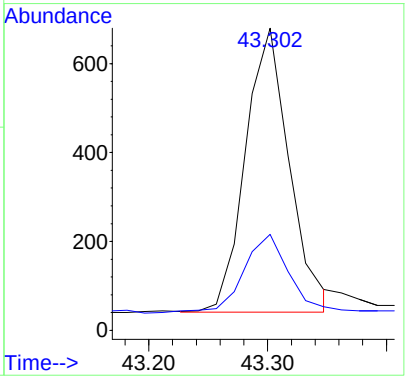


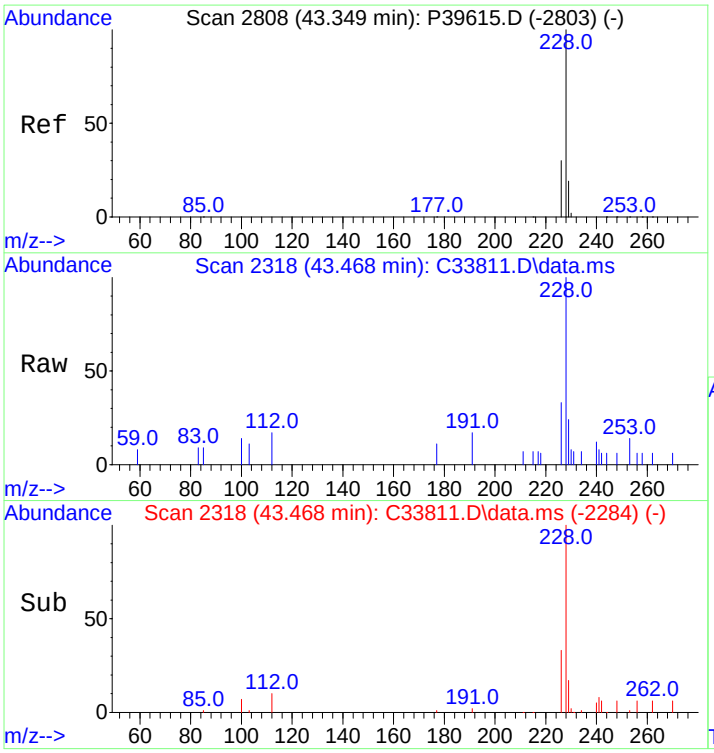


#75
Benz[a]anthracene
Concen: 25.30 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1642

Ion	Ratio	Lower	Upper
228	100		
226	38.9	21.8	32.8#

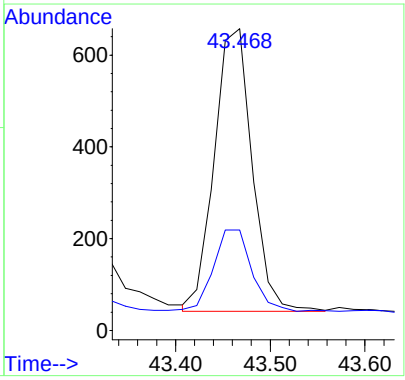


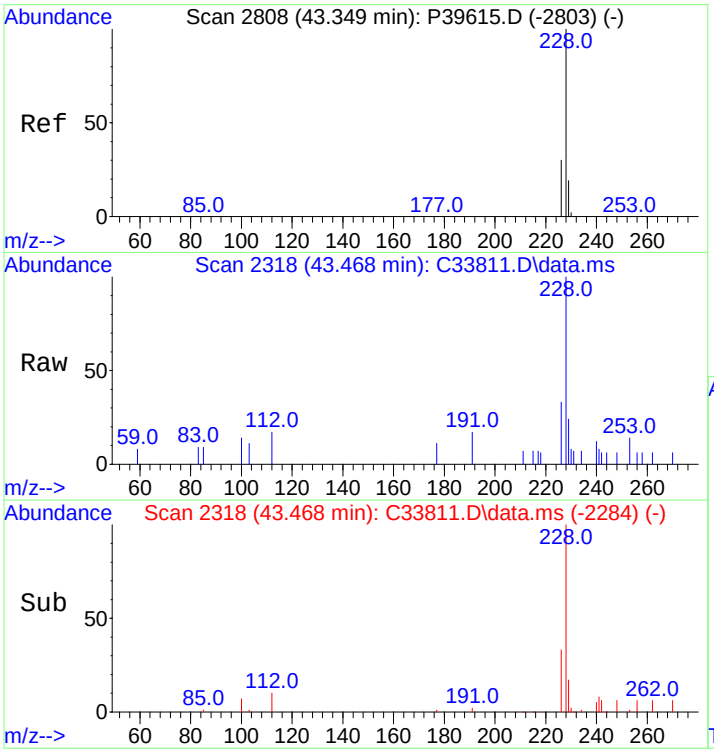


#76
Chrysene
Concen: 26.77 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1712

Ion	Ratio	Lower	Upper
228	100		
226	33.6	24.2	36.4

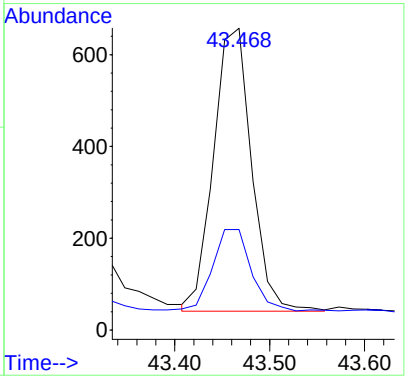


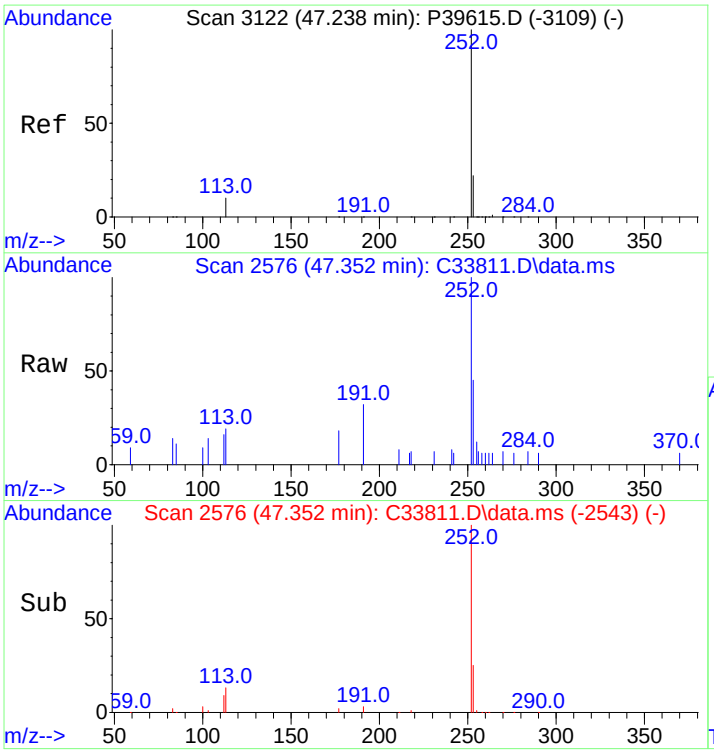


#77
Chrysene/Triphenylene
Concen: 26.91 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:228 Resp: 1721

Ion	Ratio	Lower	Upper
228	100		
226	33.5	24.2	36.4

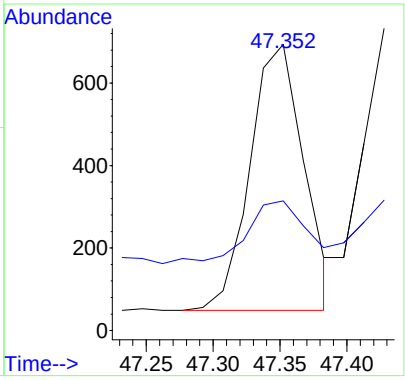


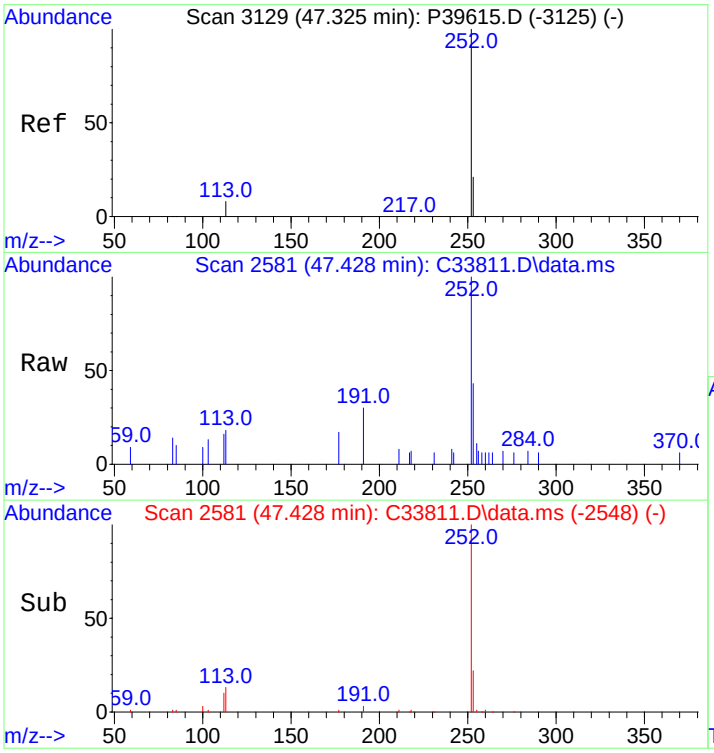


#82
Benzo[b]fluoranthene
Concen: 25.40 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1814

Ion	Ratio	Lower	Upper
252	100		
253	26.0	18.5	27.7

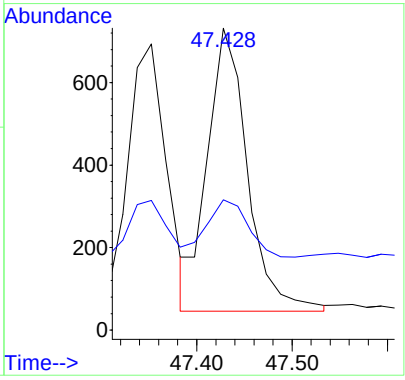


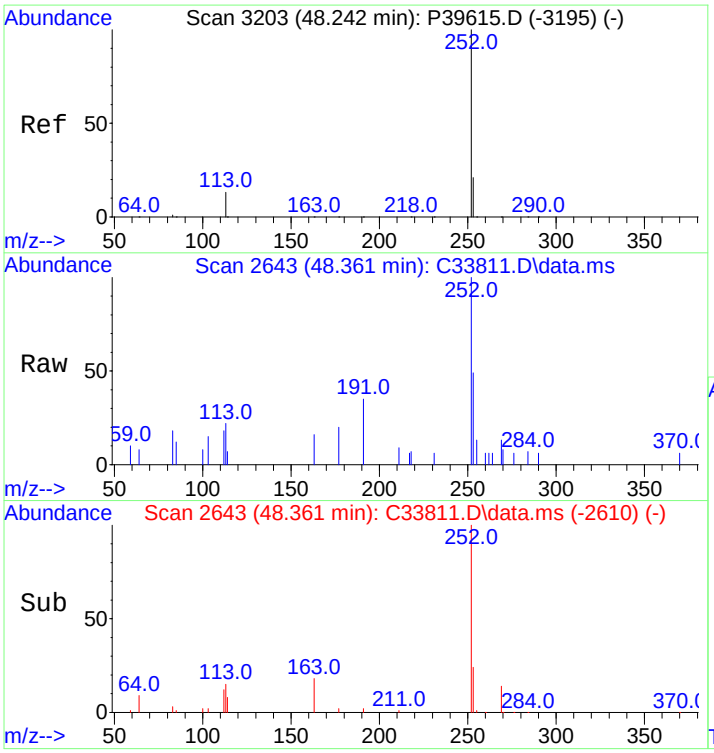


#83
Benzo[j]+[k]fluoranthene
Concen: 26.57 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 2006

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.2	27.4

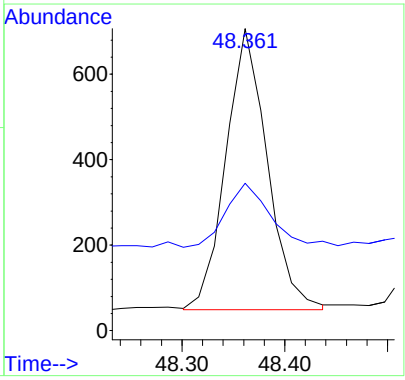


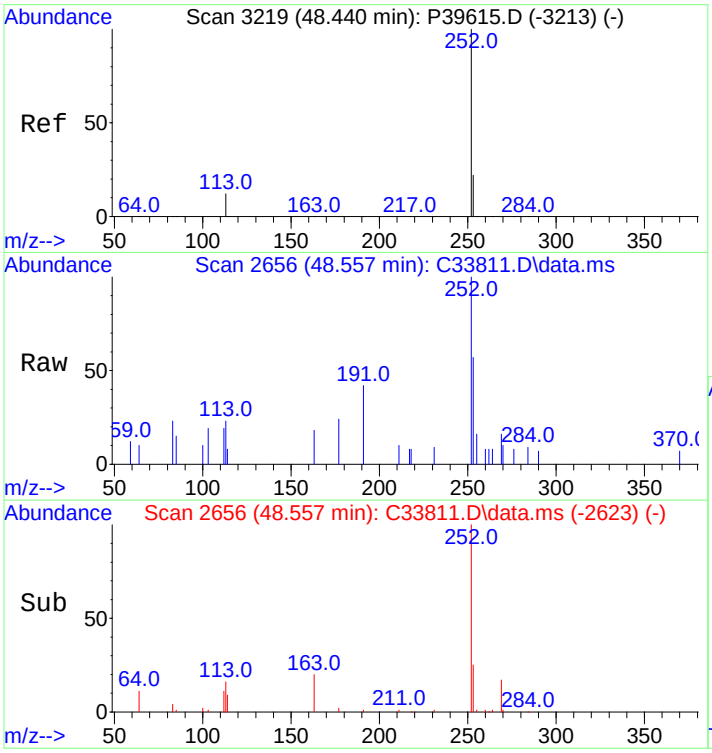


#85
Benzo[e]pyrene
Concen: 26.75 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1839

Ion	Ratio	Lower	Upper
252	100		
253	23.4	18.5	27.7

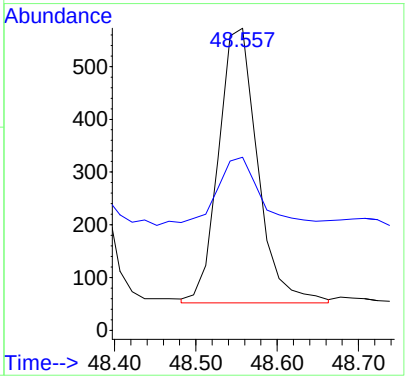


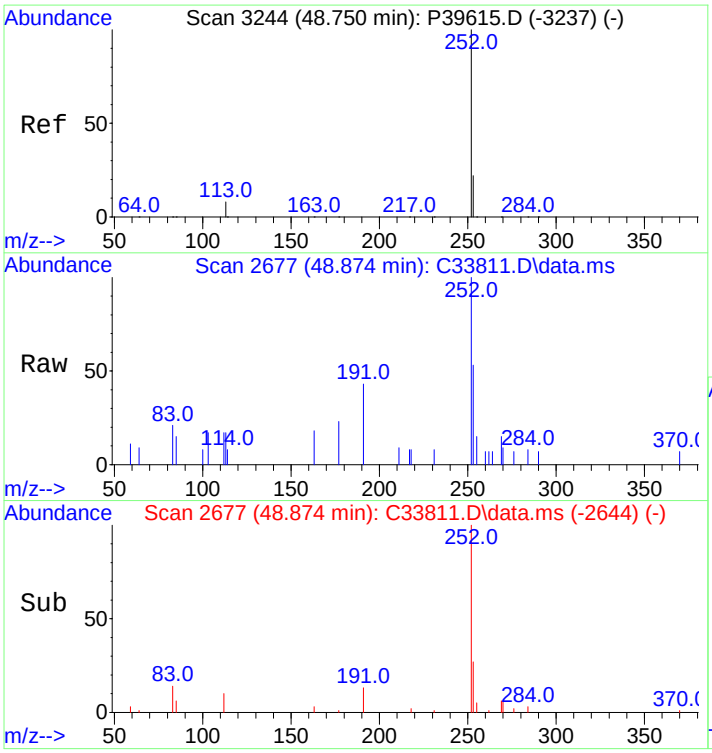


#87
Benzo[a]pyrene
Concen: 26.90 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1738

Ion	Ratio	Lower	Upper
252	100		
253	24.8	18.7	28.1

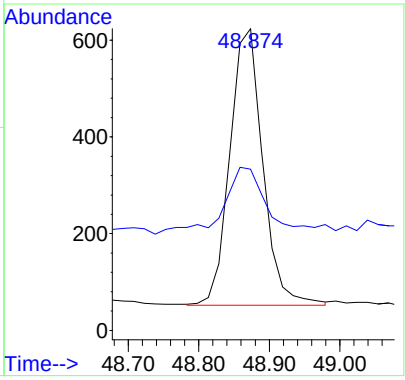


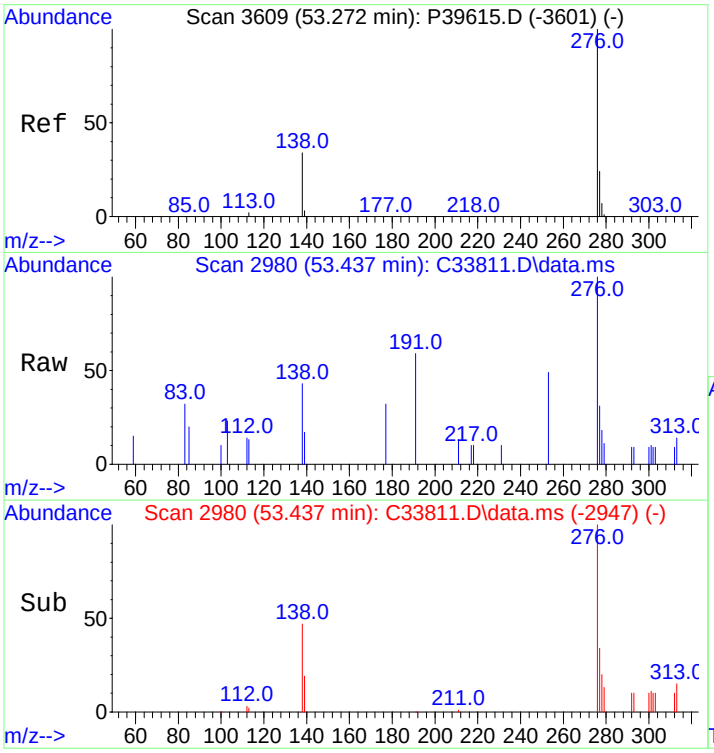


#88
Perylene
Concen: 26.87 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:252 Resp: 1855

Ion	Ratio	Lower	Upper
252	100		
253	32.9	18.6	27.8#

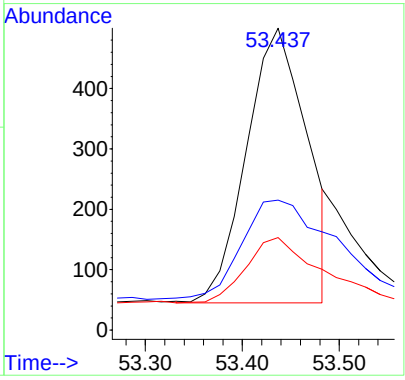


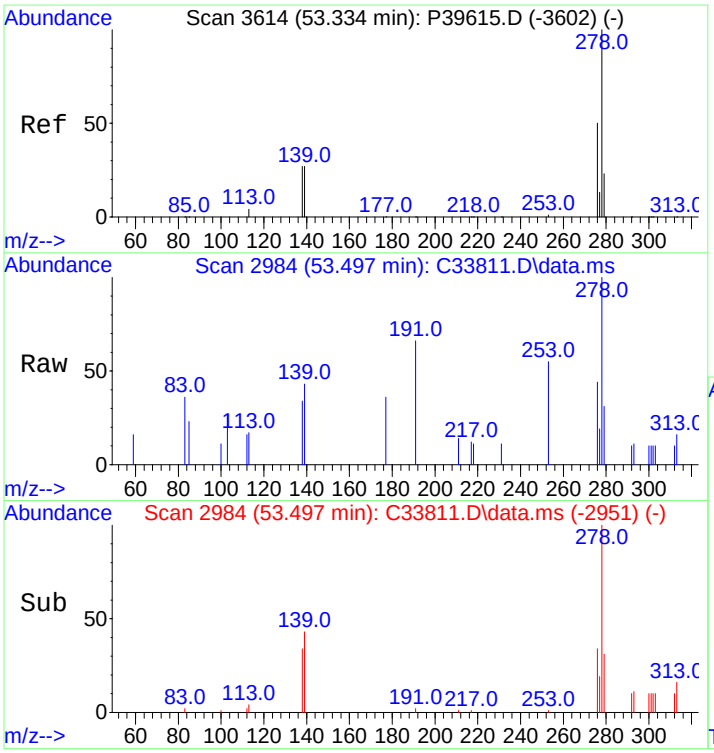


#89
Indeno[1,2,3-cd]pyrene
Concen: 26.59 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 1978

Ion	Ratio	Lower	Upper
276	100		
138	72.9	30.3	45.5#
277	43.5	19.2	28.8#

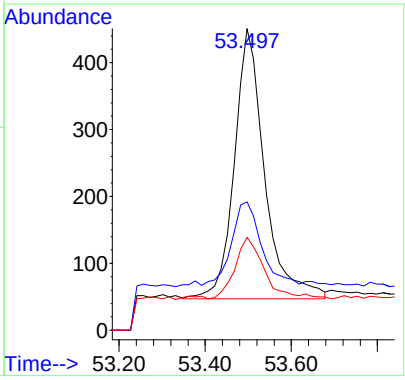


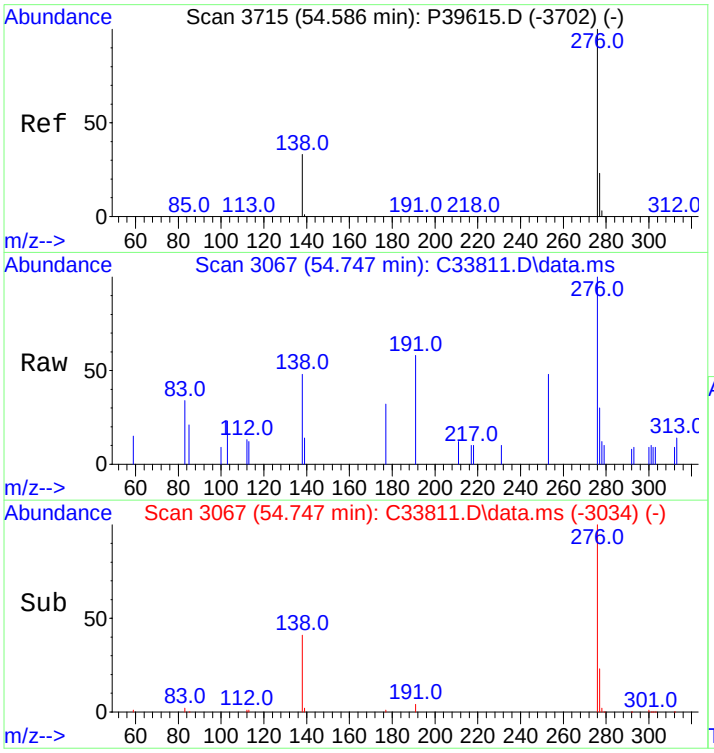


#90
Dibenz[ah]+[ac]anthracene
Concen: 28.23 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:278 Resp: 1974

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	22.0	19.0	28.4

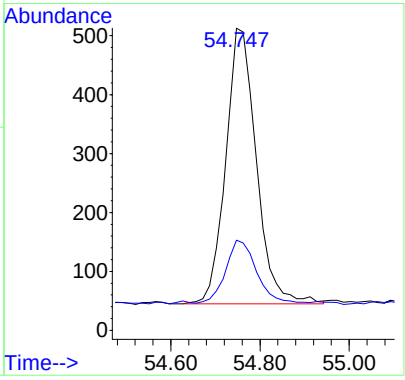


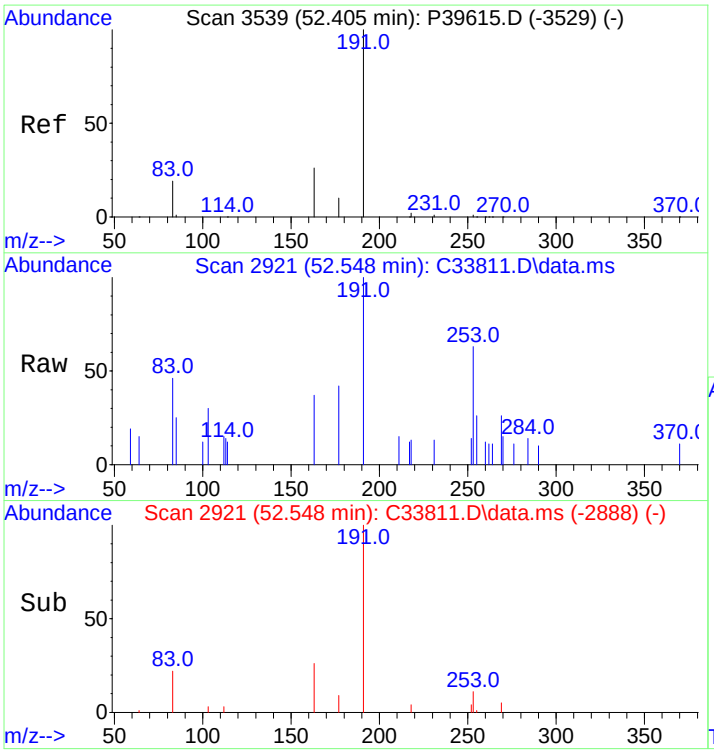


#91
Benzo[g,h,i]perylene
Concen: 29.55 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:276 Resp: 2242

Ion	Ratio	Lower	Upper
276	100		
277	22.8	18.9	28.3

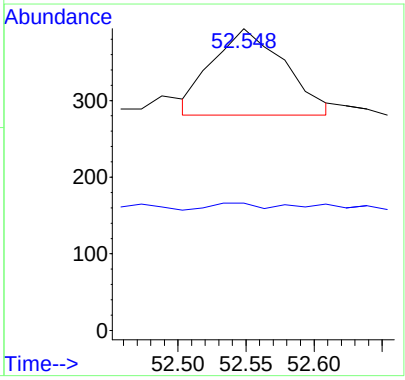


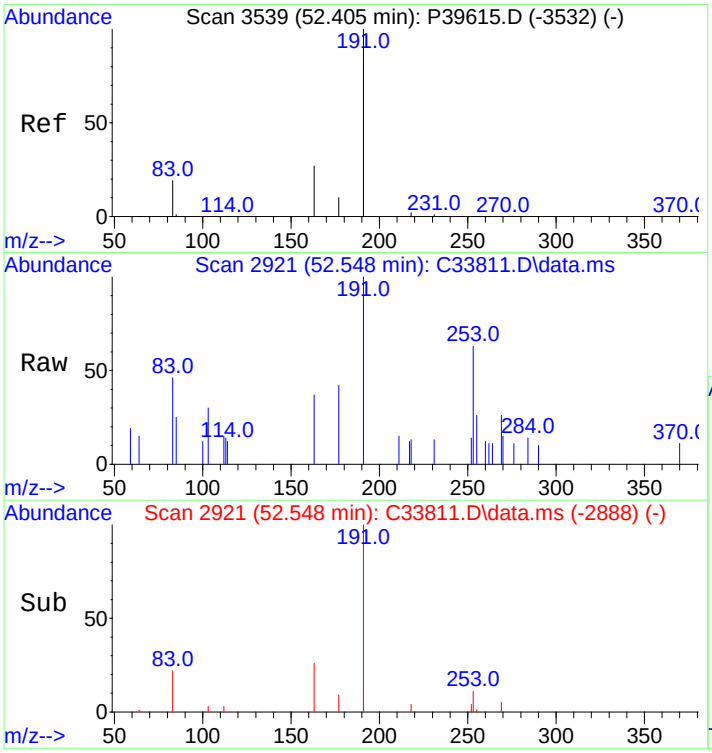


#92
Hopane (T19)
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#

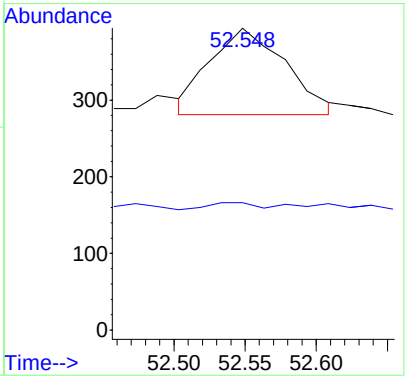




#93
17a(H),21B(H)-hopane - C30H52
Concen: 34.88 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. -0.000 min
Lab File: C33811.D
Acq: 26 Mar 2012 5:27 pm

Tgt Ion:191 Resp: 418

Ion	Ratio	Lower	Upper
191	100		
177	0.0	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15537M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22438	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	7319M4	141.187	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 14.12%#			
42) Phenanthrene-d10	32.793	188	5062	84.198	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.42%#			
86) Benzo[a]pyrene-d12	48.467	264	4202	93.161	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.32%#			
127) 5B(H)Cholane - Surr	43.995	217	631M4	81.342	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 8.13%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	620M4	57.735	ng/mL	
4) cis-Decalin	17.844	138	504M4	60.153	ng/mL	
10) Naphthalene	20.042	128	10404	186.118	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	6007	152.196	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	5841	154.295	ng/mL#	100
18) Benzothiophene	20.268	134	9155	199.694	ng/mL	100
23) Biphenyl	24.619	154	7515M4	142.687	ng/mL	
24) 2,6-Dimethylnaphthalene	25.221	156	4739M4	126.219	ng/mL	
25) Dibenzofuran	27.705	168	8558	139.860	ng/mL	97
26) Acenaphthylene	26.320	152	9725	154.202	ng/mL#	100
27) Acenaphthene	27.057	153	5791	144.616	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.608	170	3646	104.103	ng/mL	95
29) Fluorene	29.075	166	6206M4	124.533	ng/mL	
33) Dibenzothiophene	32.387	184	10032	133.305	ng/mL	99
43) Phenanthrene	32.883	178	8659M4	114.513	ng/mL	
54) Retene	39.854	234	1461	66.445	ng/mL	100
55) Anthracene	33.064	178	8493M4	115.924	ng/mL	
56) Carbazole	33.726	167	8375M4	124.456	ng/mL	
57) 1-Methylphenanthrene	35.383	192	5460M4	94.334	ng/mL	
58) Fluoranthene	37.641	202	8404M4	91.914	ng/mL	
59) Benzo(b)fluorene	40.155	216	4529	75.841	ng/mL	100
60) Pyrene	38.529	202	8523M4	90.883	ng/mL	
66) Naphthobenzothiophene	42.369	234	8820M4	90.002	ng/ml	
67) Naphthobenzothiophene-2,1	42.369	234	8849M4	90.298	ng/mL	
75) Benz[a]anthracene	43.302	228	6862	103.126	ng/mL	100
76) Chrysene	43.453	228	7256M4	110.681	ng/mL	
77) Chrysene/Triphenylene	43.453	228	7279M4	111.032	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	7216	98.558	ng/mL	97
83) Benzo[j]+[k]fluoranthene	47.428	252	8178M4	105.654	ng/mL	
85) Benzo[e]pyrene	48.362	252	7398	104.988	ng/mL	99
87) Benzo[a]pyrene	48.557	252	6940M4	104.793	ng/mL	
88) Perylene	48.859	252	7398M4	104.535	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	7852M3	102.985	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	7692	107.318	ng/mL	95
91) Benzo[g,h,i]perylene	54.747	276	8732	112.266	ng/mL	99
92) Hopane (T19)	52.548	191	1398	113.786	ng/mL	99
93) 17a(H),21B(H)-hopane - C3	52.548	191	1398	113.786	ng/mL	99

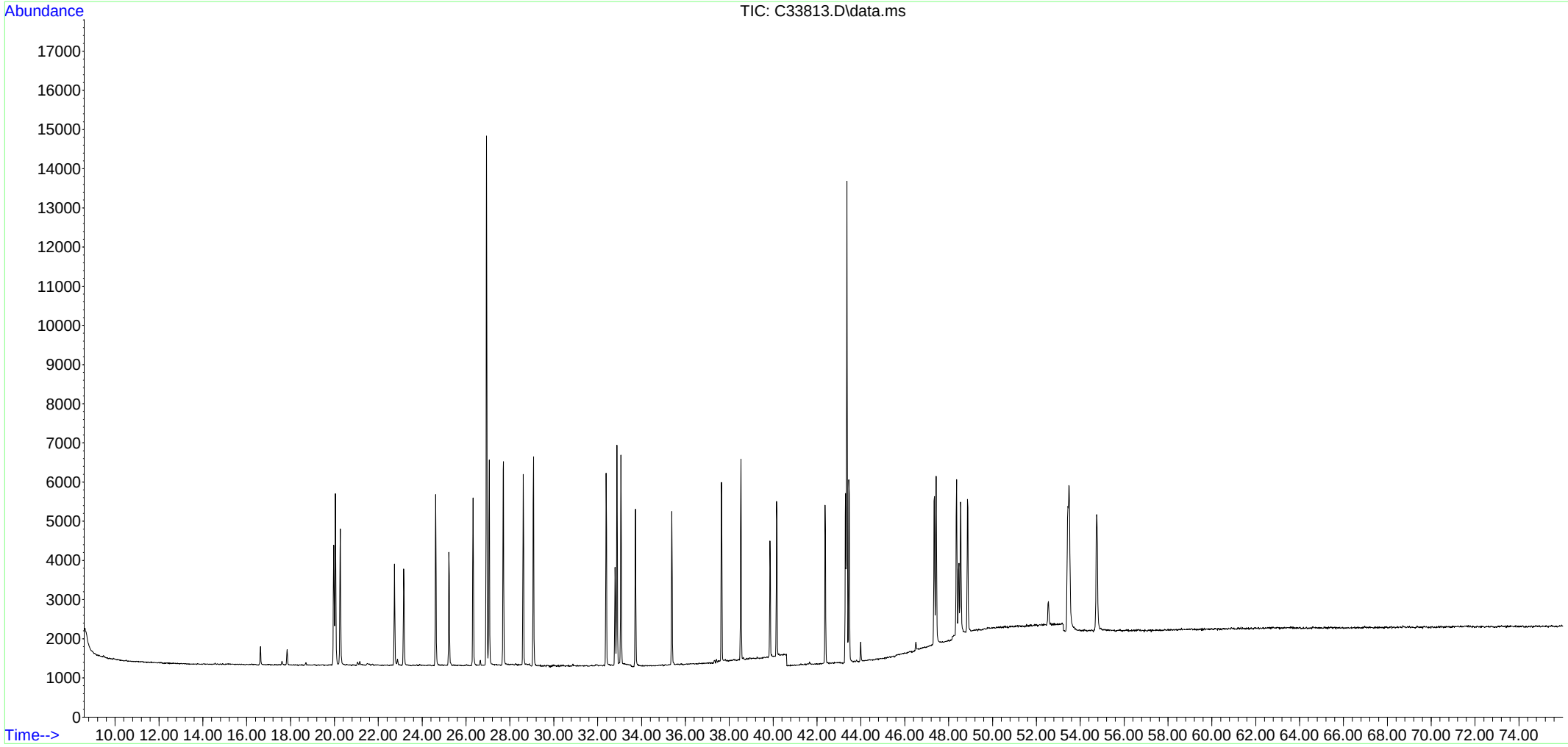
(#) = qualifier out of range (m) = manual integration (+) = signals summed

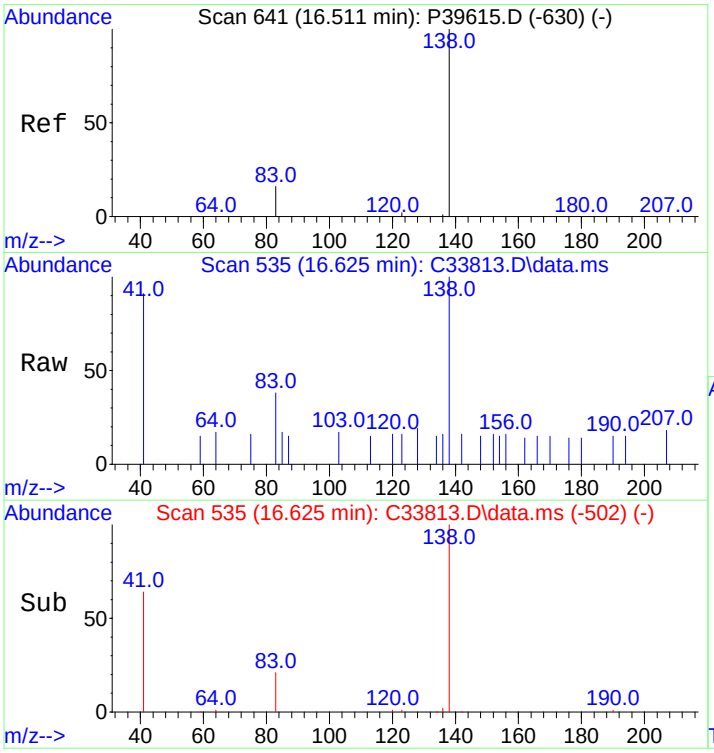
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33813.D
Acq On : 26 Mar 2012 7:01 pm
Operator : PAH3:SR
Sample : I303261203
Misc : WG525925
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 11:05:27 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

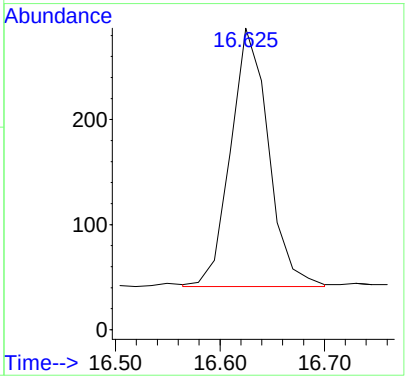
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

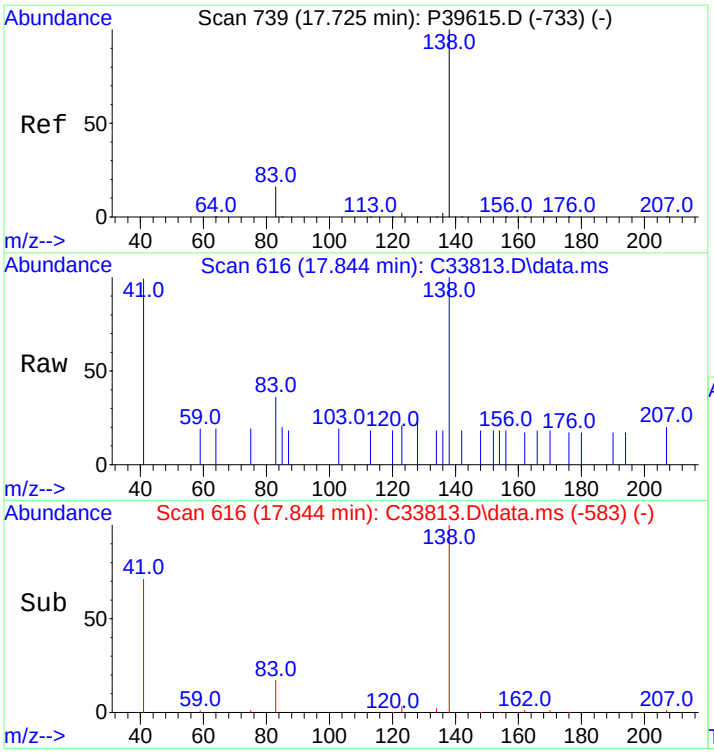




#3
trans-Decalin
Concen: 57.73 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

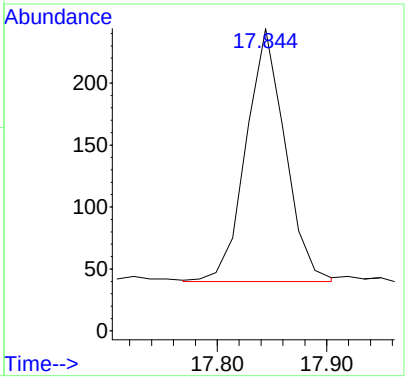
Tgt Ion:138 Resp: 620

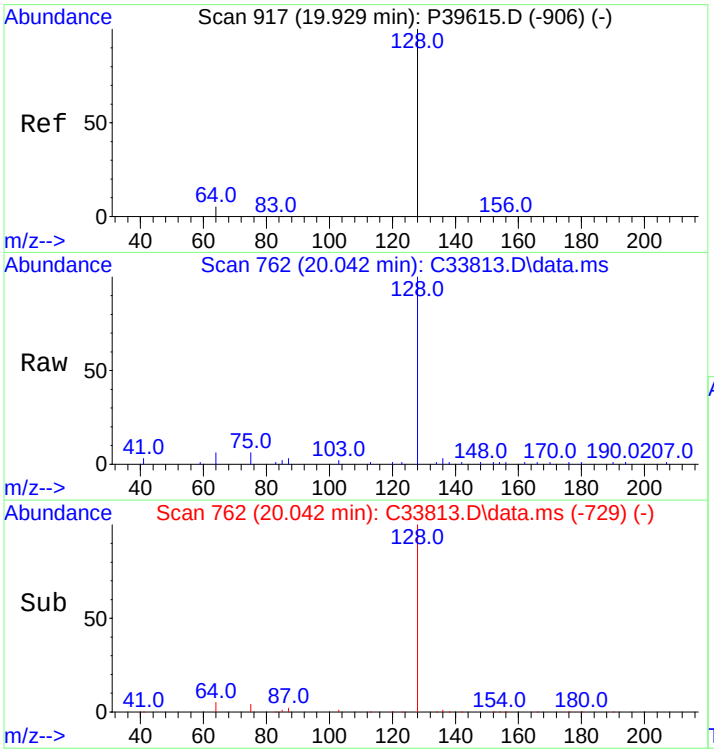




#4
cis-Decalin
Concen: 60.15 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:138 Resp: 504

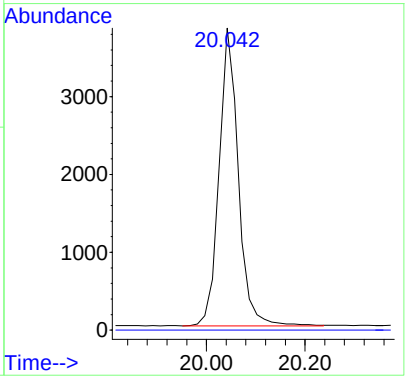


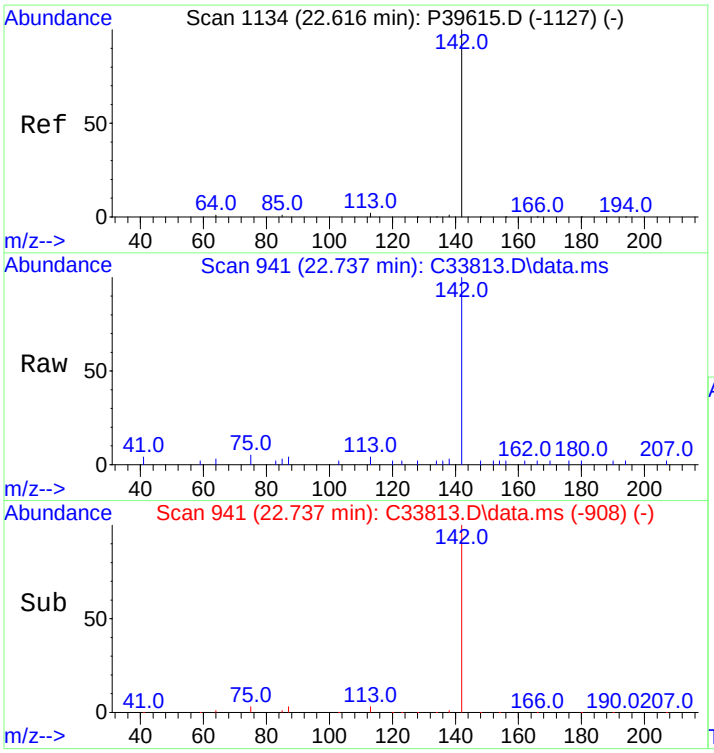


#10
Naphthalene
Concen: 186.12 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:128 Resp: 10404

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

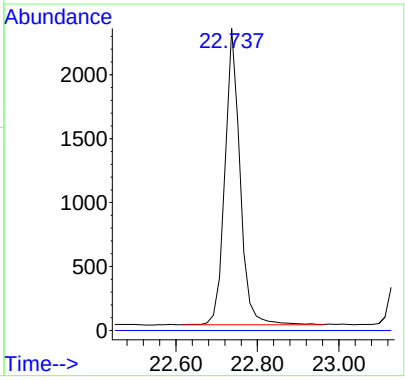


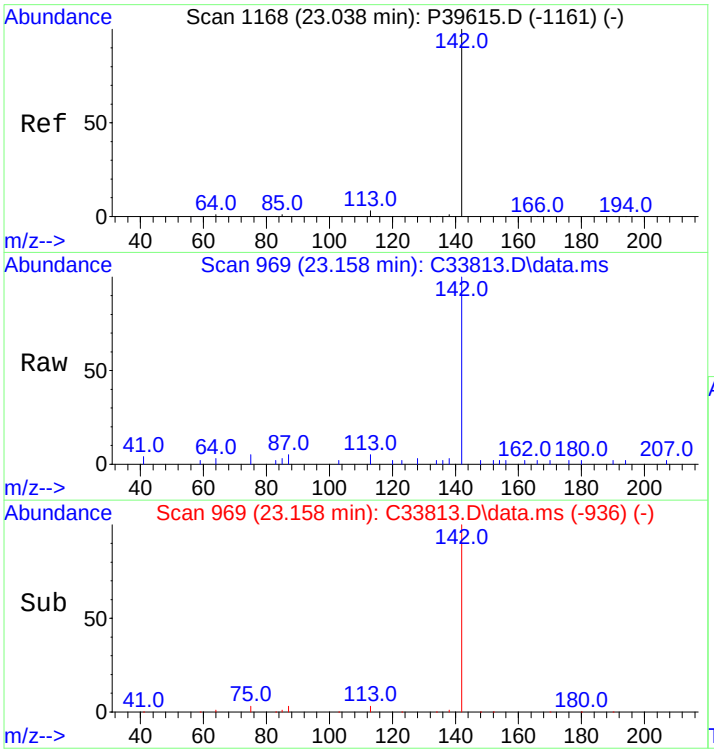


#16
2-Methylnaphthalene
Concen: 152.20 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 6007

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

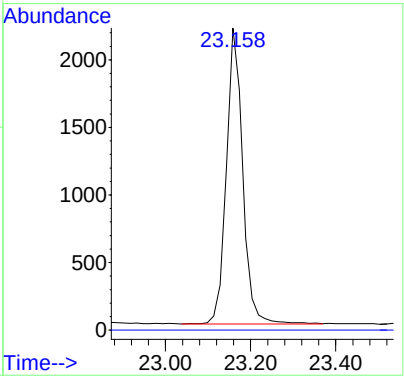


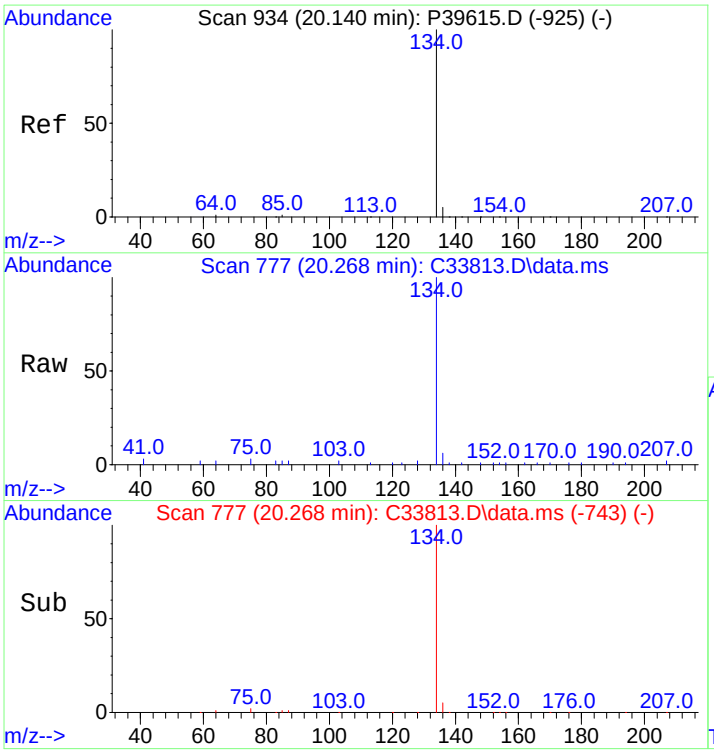


#17
1-Methylnaphthalene
Concen: 154.29 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:142 Resp: 5841

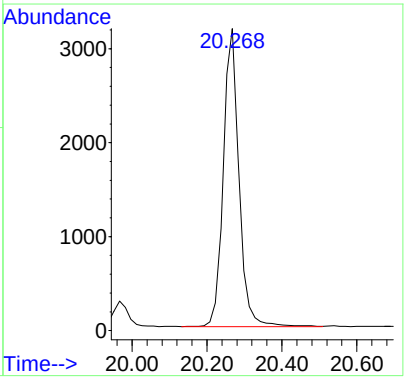
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

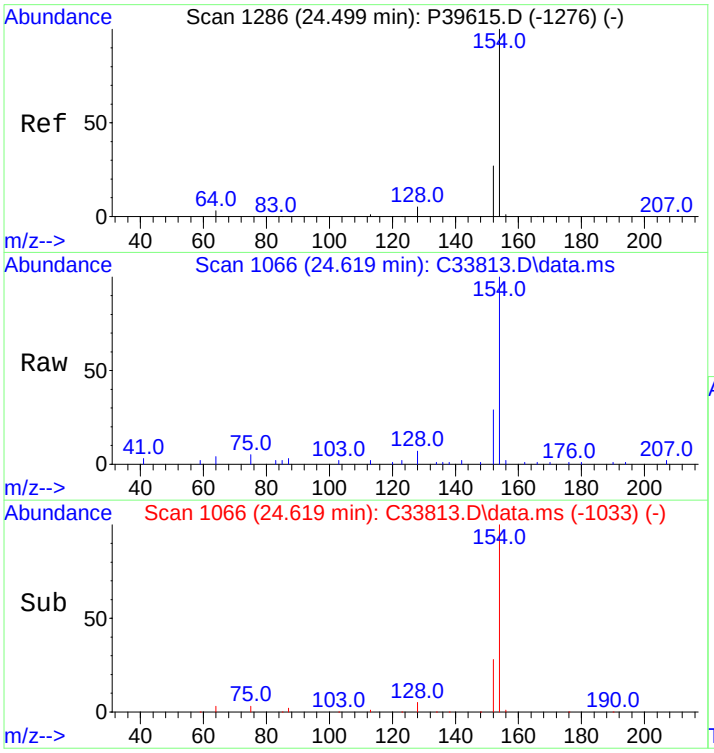




#18
Benzothiophene
Concen: 199.69 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:134 Resp: 9155

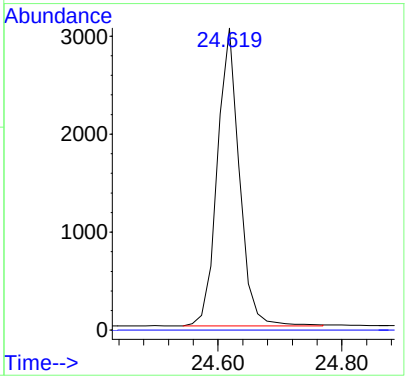


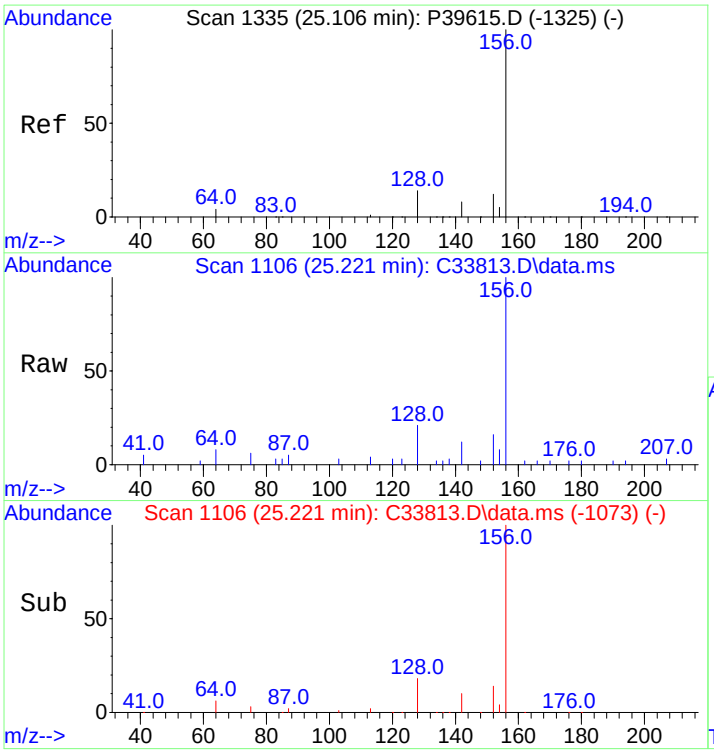


#23
Biphenyl
Concen: 142.69 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:154 Resp: 7515

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

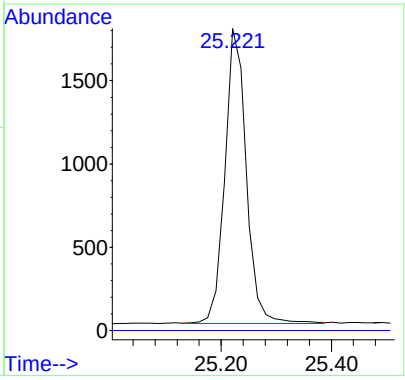


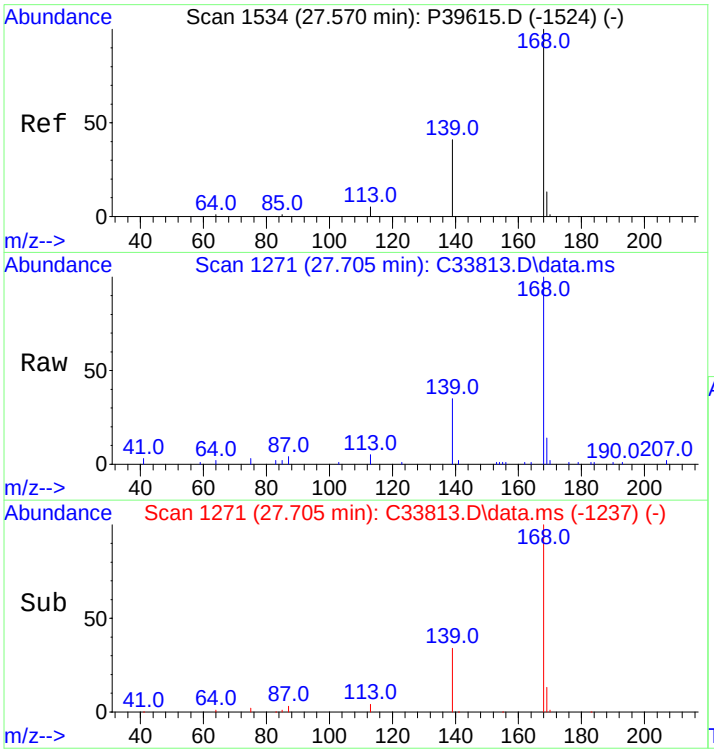


#24
2,6-Dimethylnaphthalene
Concen: 126.22 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:156 Resp: 4739

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

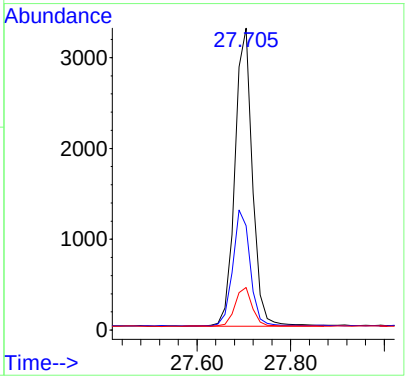


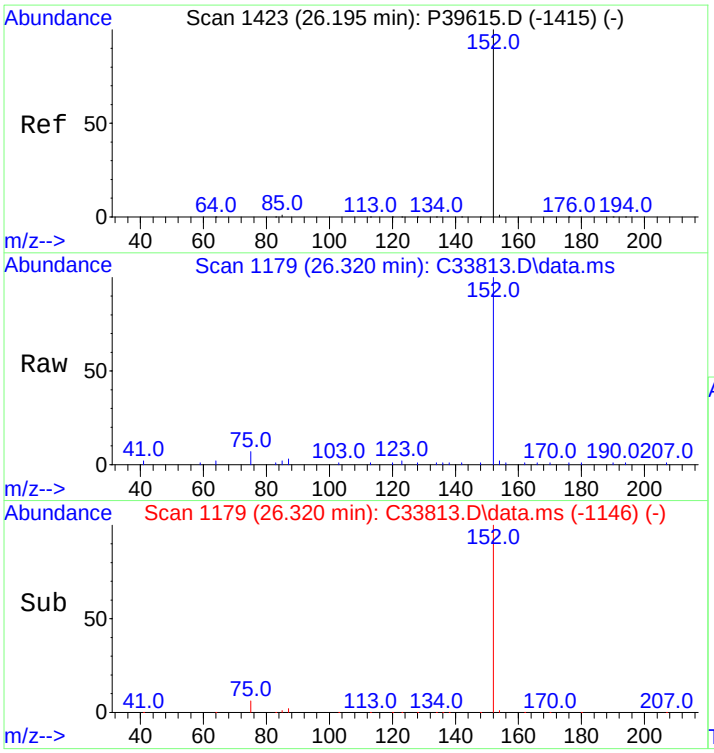


#25
Dibenzofuran
Concen: 139.86 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:168 Resp: 8558

Ion	Ratio	Lower	Upper
168	100		
139	38.6	32.9	49.3
169	12.9	10.6	16.0

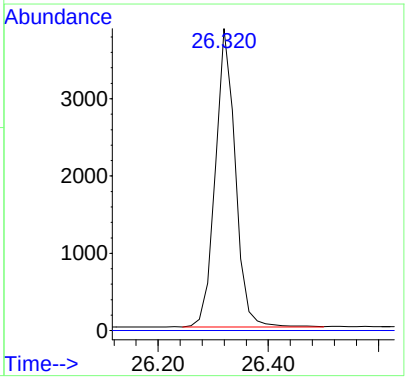


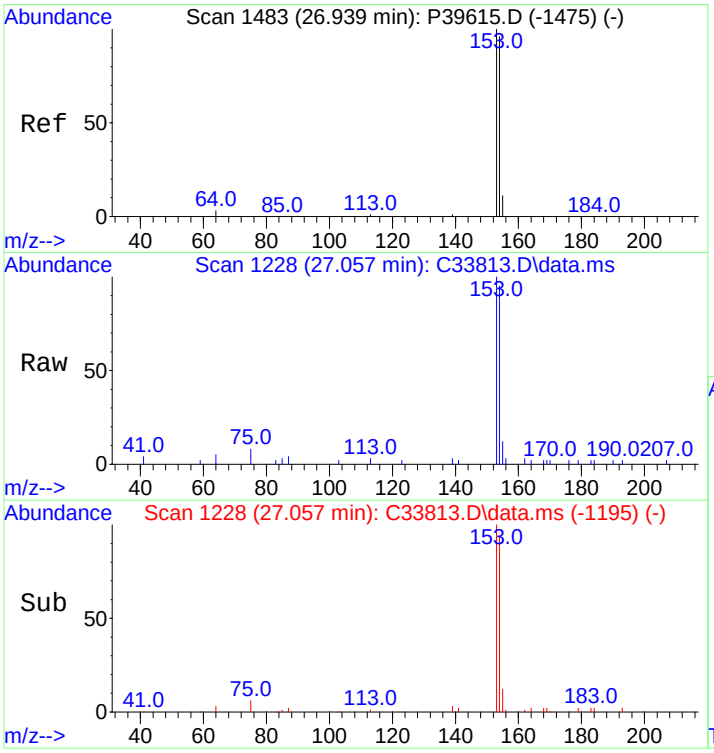


#26
Acenaphthylene
Concen: 154.20 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:152 Resp: 9725

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

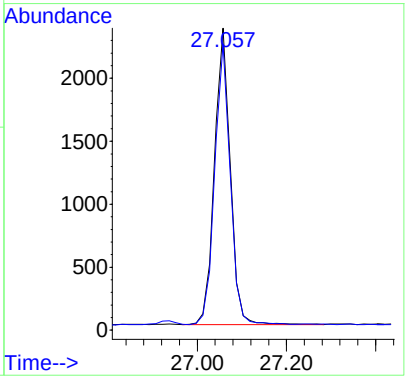


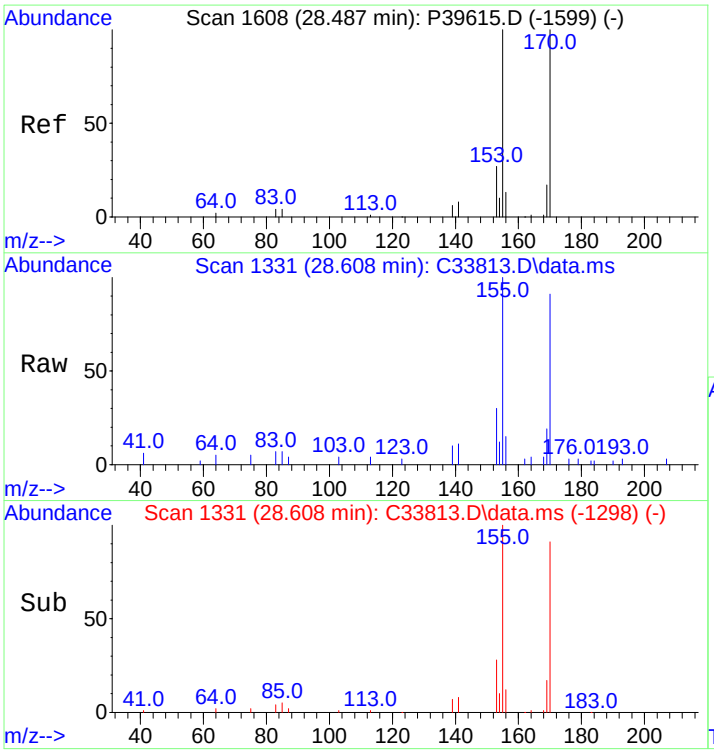


#27
Acenaphthene
Concen: 144.62 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:153 Resp: 5791

Ion	Ratio	Lower	Upper
153	100		
154	93.4	75.0	112.6

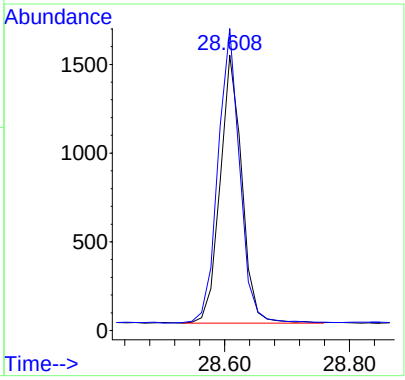


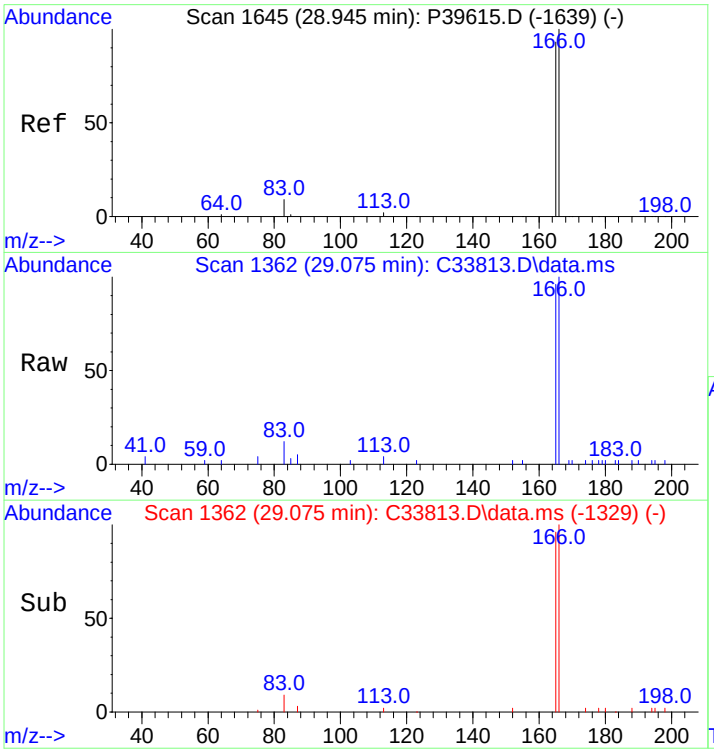


#28
2,3,5-Trimethylnaphthalene
Concen: 104.10 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:170 Resp: 3646

Ion	Ratio	Lower	Upper
170	100		
155	111.0	84.7	127.1

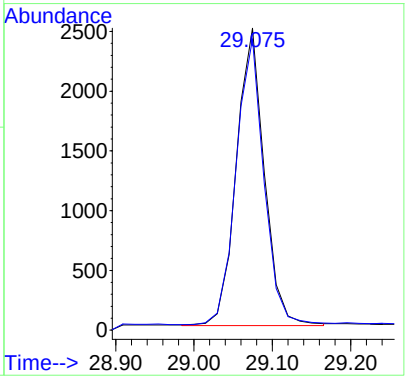


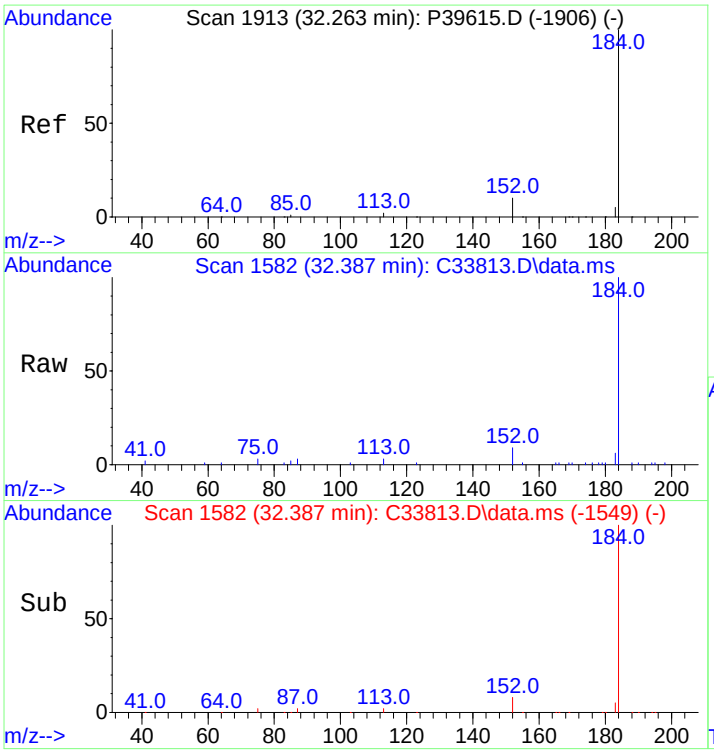


#29
Fluorene
Concen: 124.53 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:166 Resp: 6206

Ion	Ratio	Lower	Upper
166	100		
165	102.0	75.3	112.9

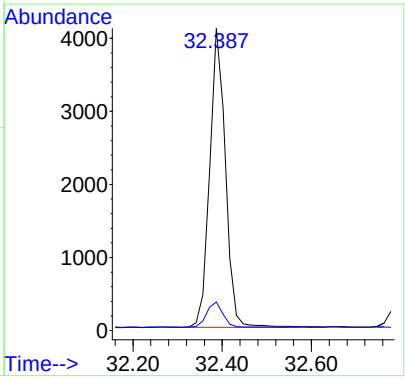


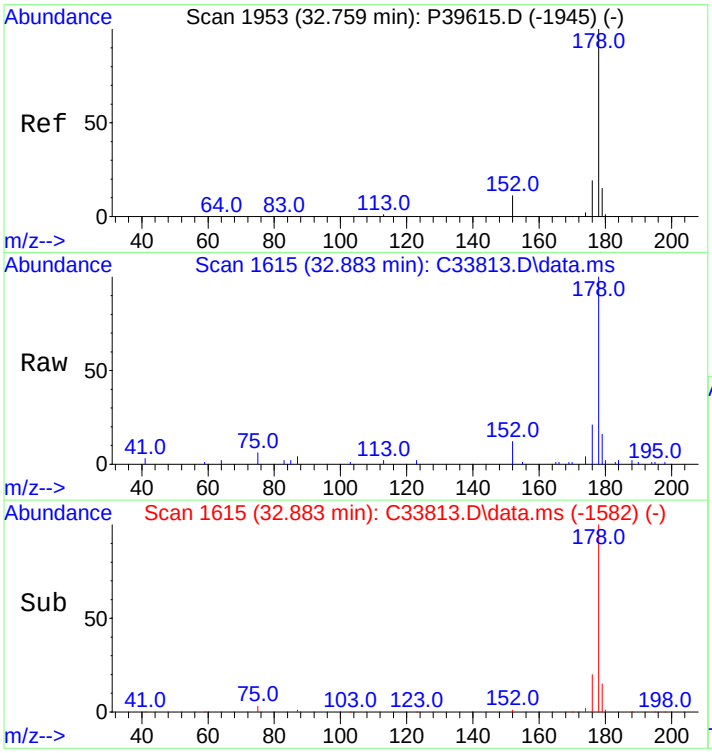


#33
Dibenzothiophene
Concen: 133.30 ng/mL
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:184 Resp: 10032

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

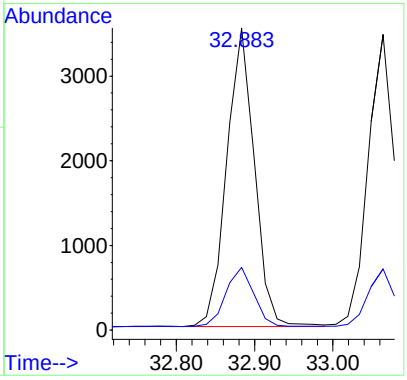


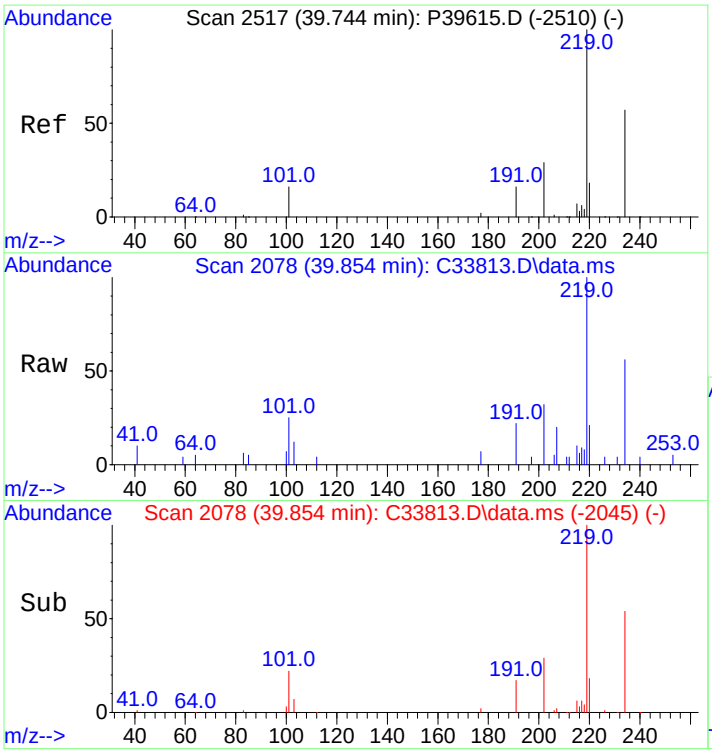


#43
Phenanthrene
Concen: 114.51 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8659

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

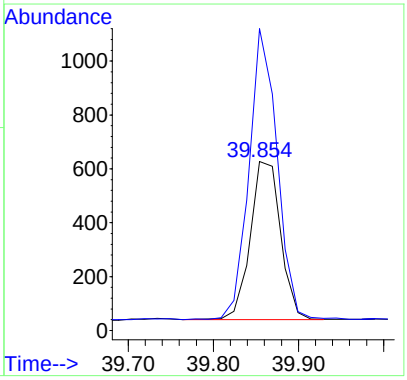


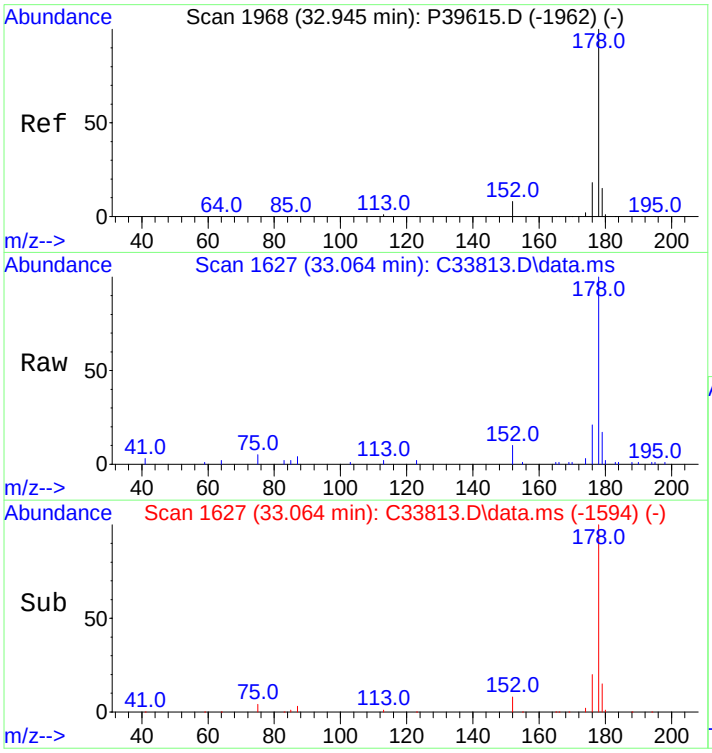


#54
Retene
Concen: 66.45 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 1461

Ion	Ratio	Lower	Upper
234	100		
219	170.7	136.6	204.8

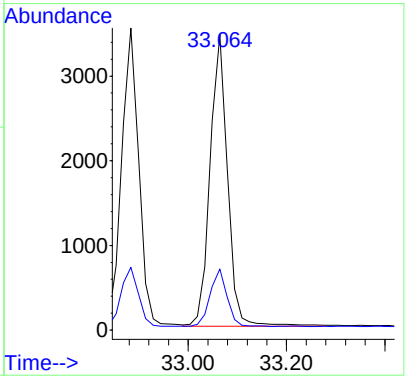


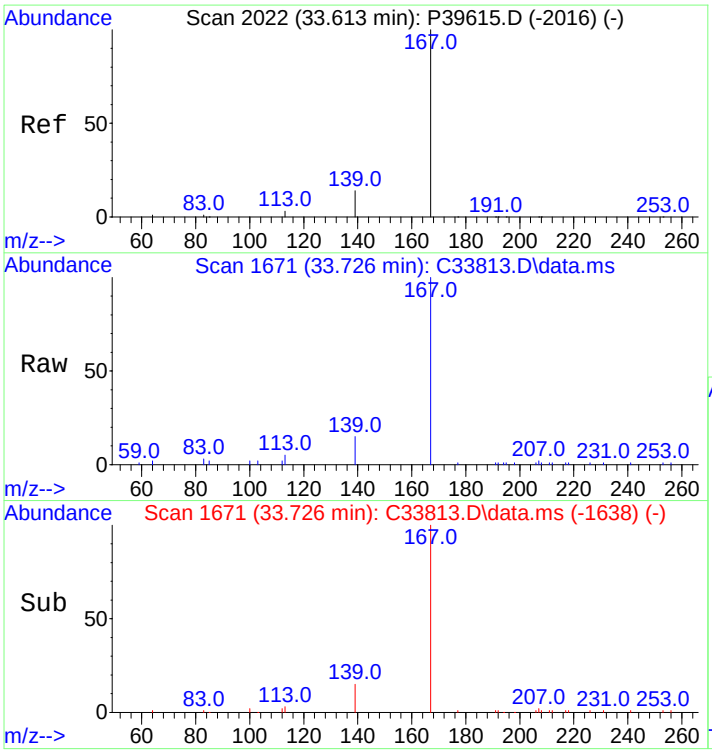


#55
Anthracene
Concen: 115.92 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:178 Resp: 8493

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

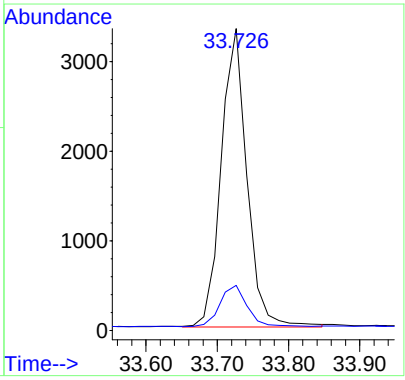


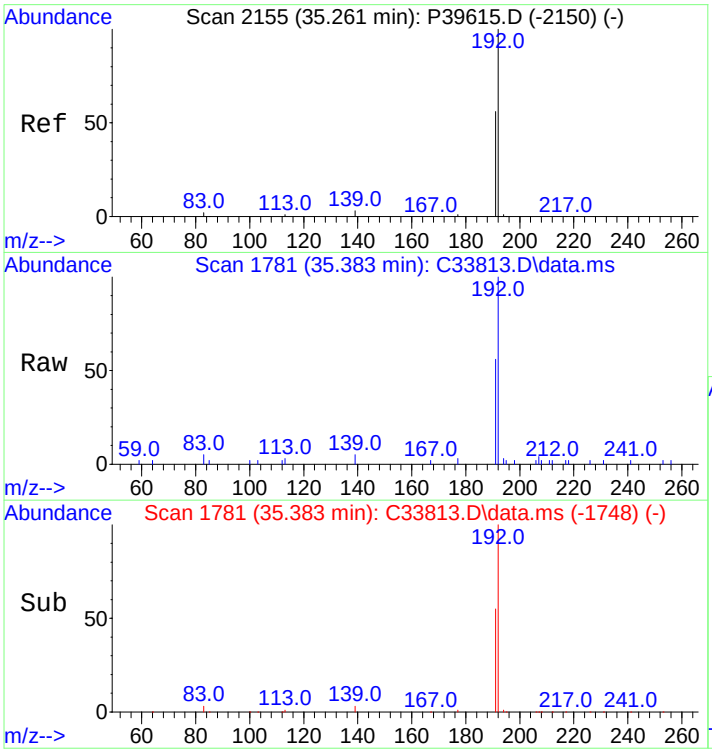


#56
Carbazole
Concen: 124.46 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:167 Resp: 8375

Ion	Ratio	Lower	Upper
167	100		
139	16.0	11.6	17.4

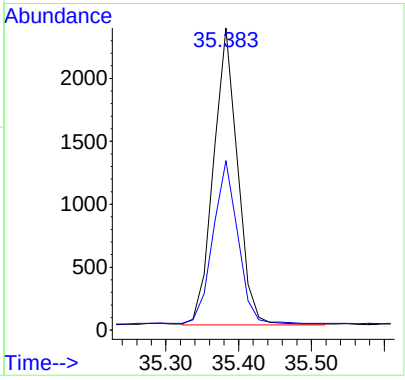


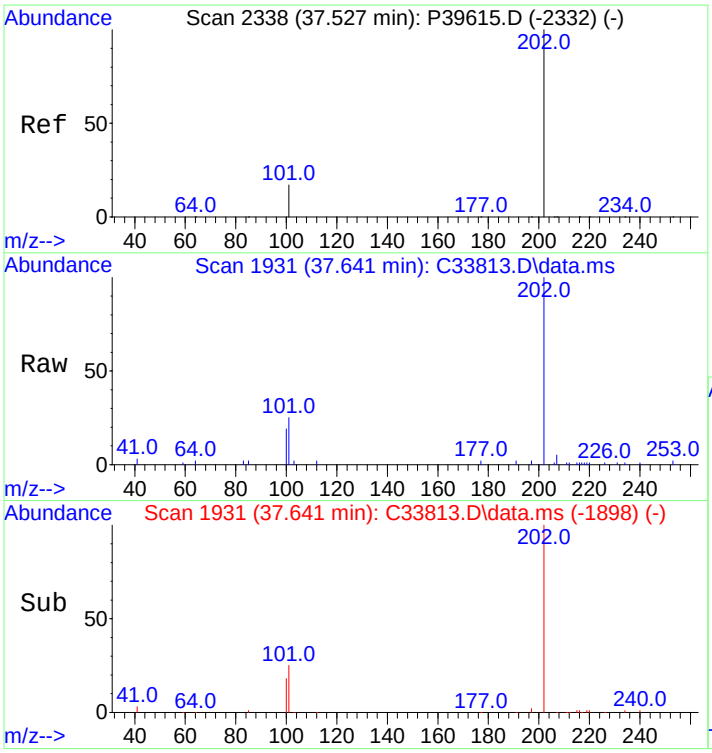


#57
1-Methylphenanthrene
Concen: 94.33 ng/mL m
RT: 35.383 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:192 Resp: 5460

Ion	Ratio	Lower	Upper
192	100		
191	56.4	45.3	67.9

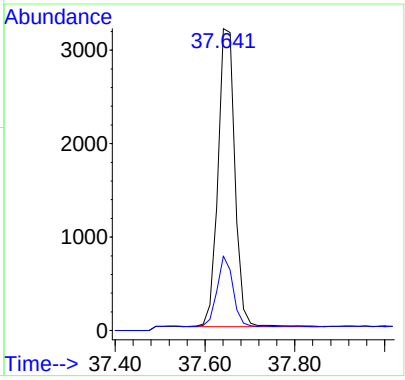


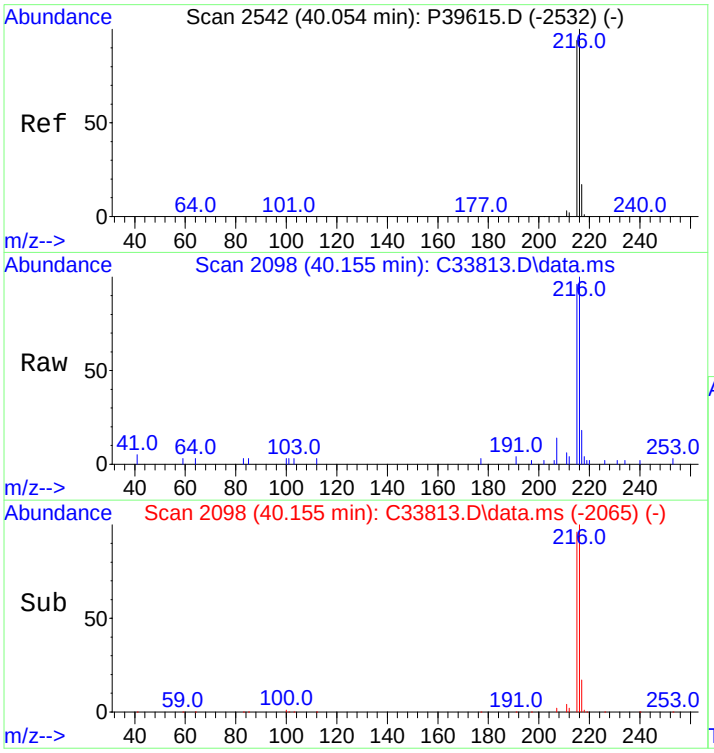


#58
Fluoranthene
Concen: 91.91 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8404

Ion	Ratio	Lower	Upper
202	100		
101	24.0	19.1	28.7

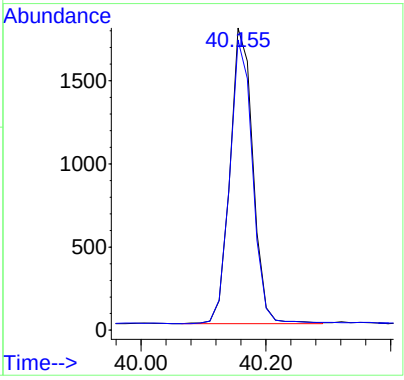


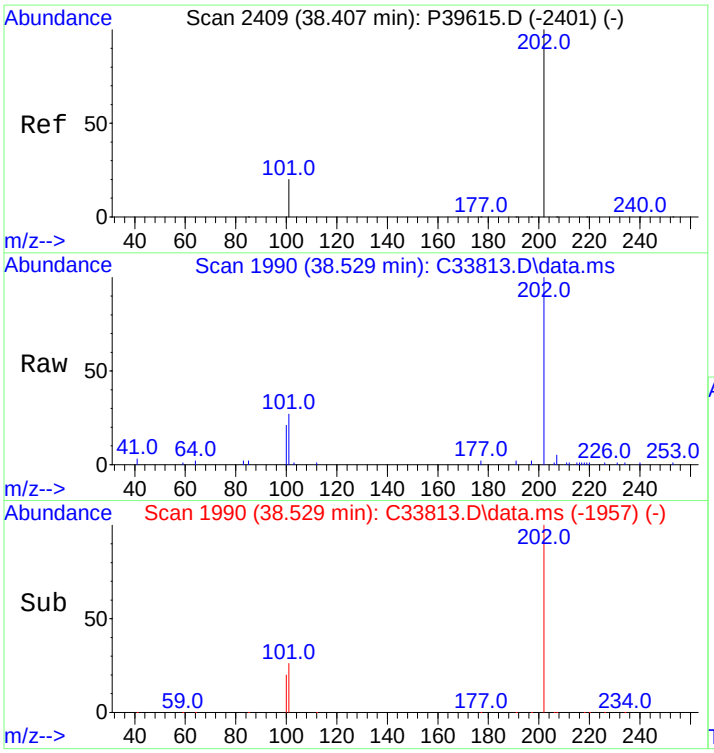


#59
Benzo(b)fluorene
Concen: 75.84 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:216 Resp: 4529

Ion	Ratio	Lower	Upper
216	100		
215	96.4	77.4	116.2

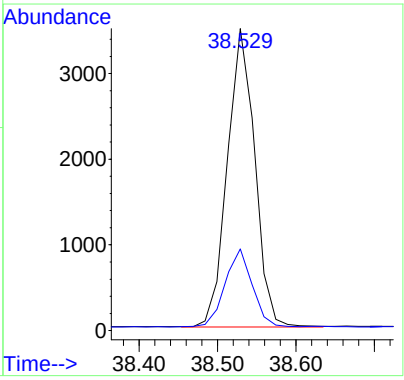


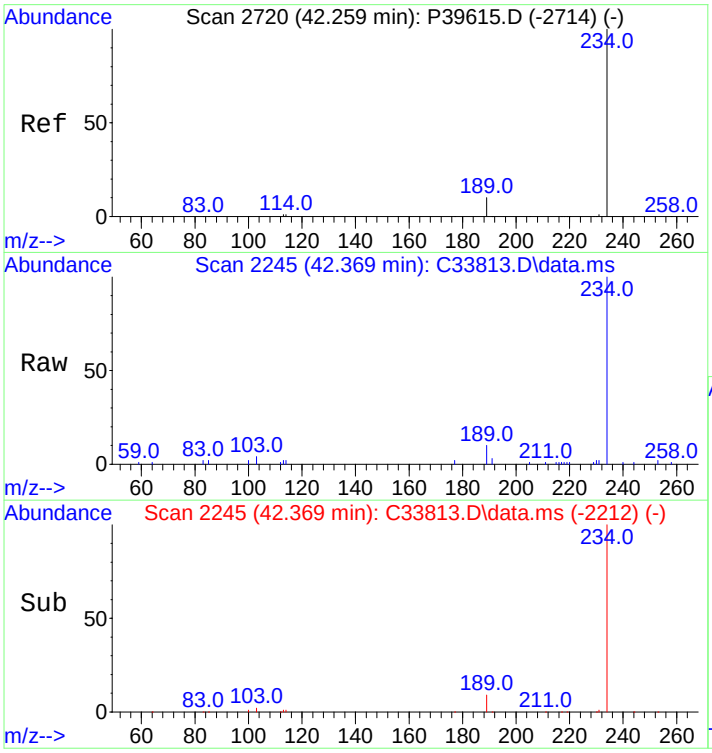


#60
Pyrene
Concen: 90.88 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:202 Resp: 8523

Ion	Ratio	Lower	Upper
202	100		
101	26.0	20.4	30.6

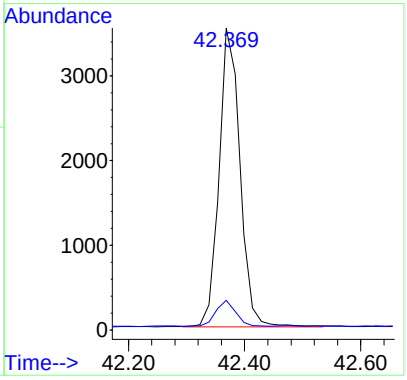


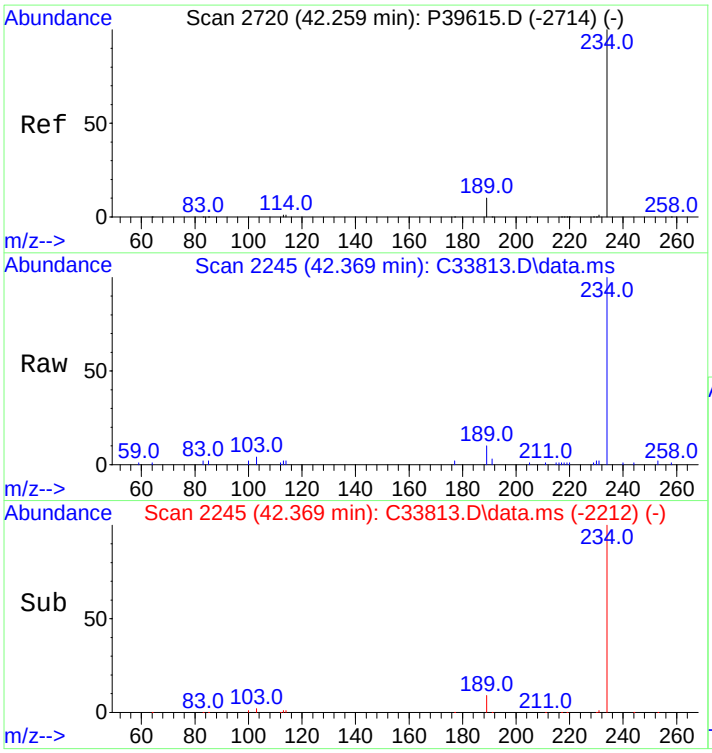


#66
Naphthobenzothiophene
Concen: 90.00 ng/ml m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8820

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

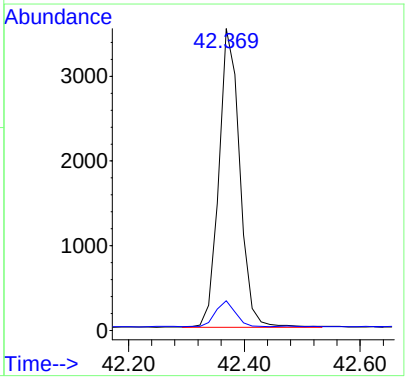


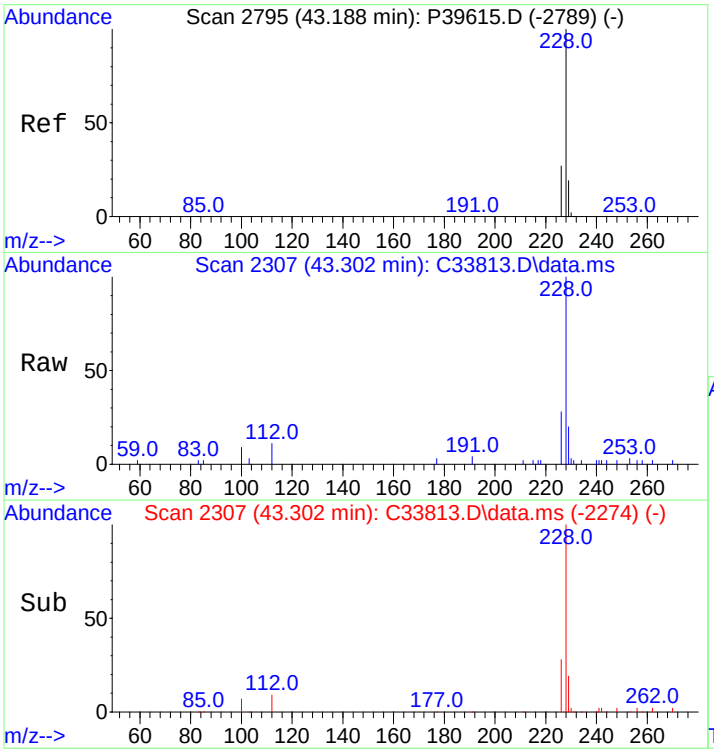


#67
Naphthobenzothiophene-2,1-D
Concen: 90.30 ng/mL m
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:234 Resp: 8849

Ion	Ratio	Lower	Upper
234	100		
189	8.0	7.4	11.0

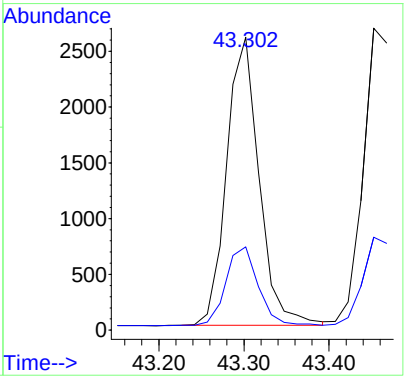


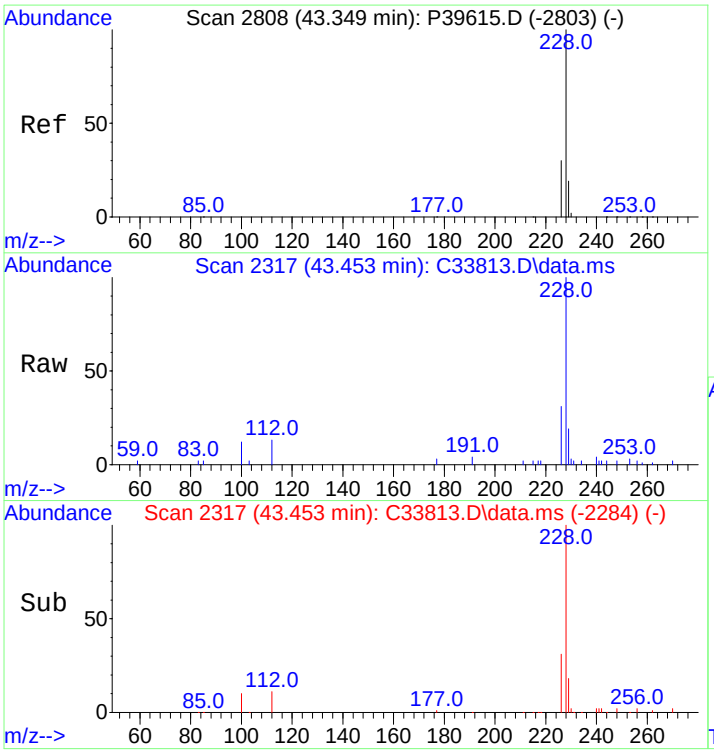


#75
Benz[a]anthracene
Concen: 103.13 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 6862

Ion	Ratio	Lower	Upper
228	100		
226	27.4	21.8	32.8

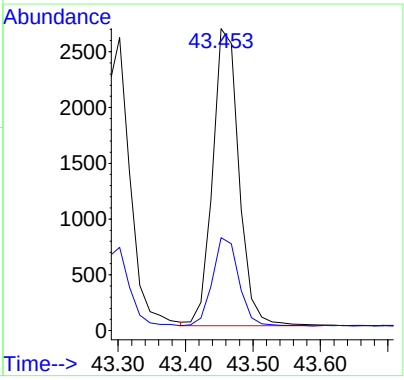


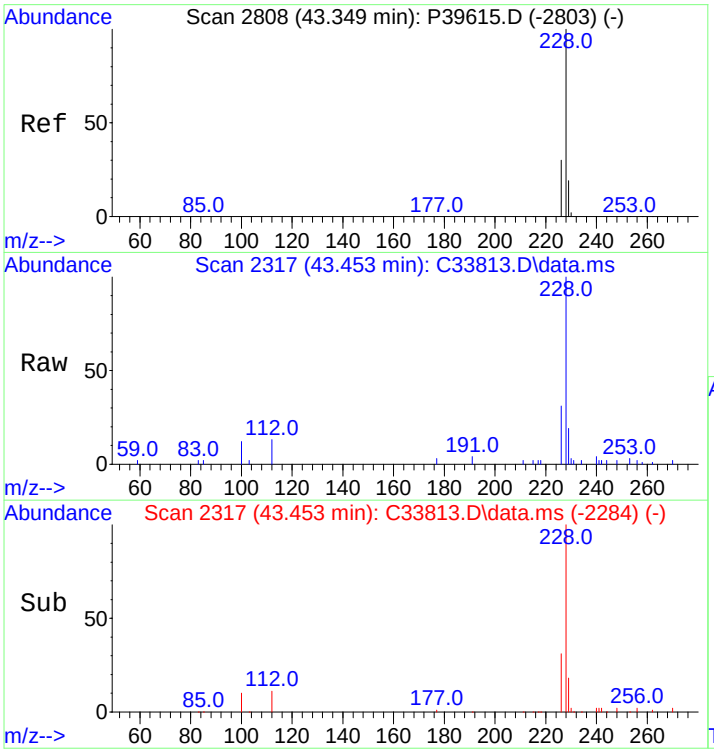


#76
Chrysene
Concen: 110.68 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7256

Ion	Ratio	Lower	Upper
228	100		
226	30.0	24.2	36.4

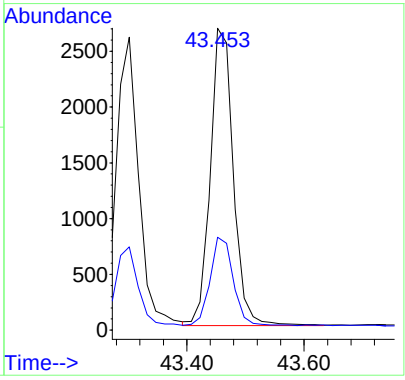


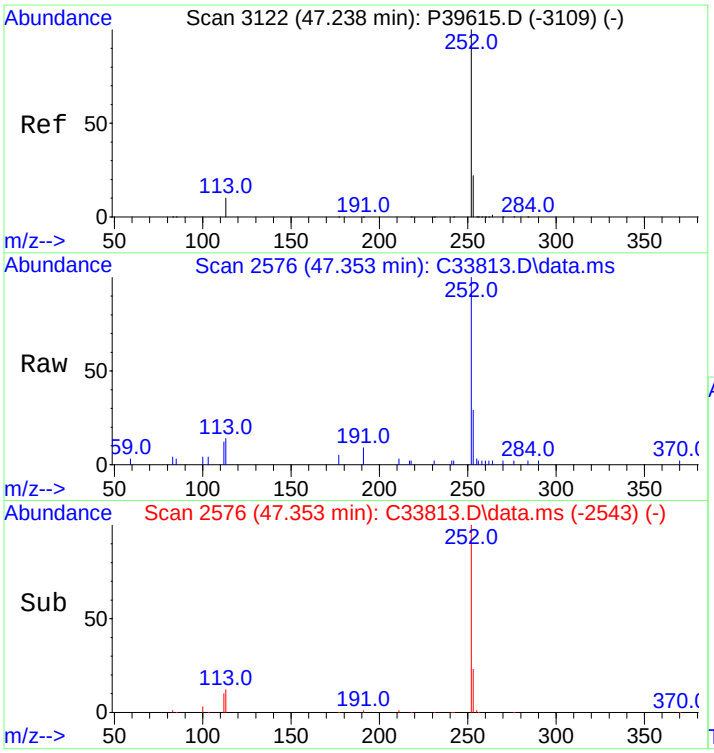


#77
Chrysene/Triphenylene
Concen: 111.03 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:228 Resp: 7279

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

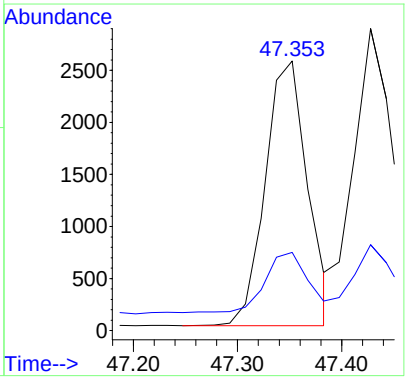


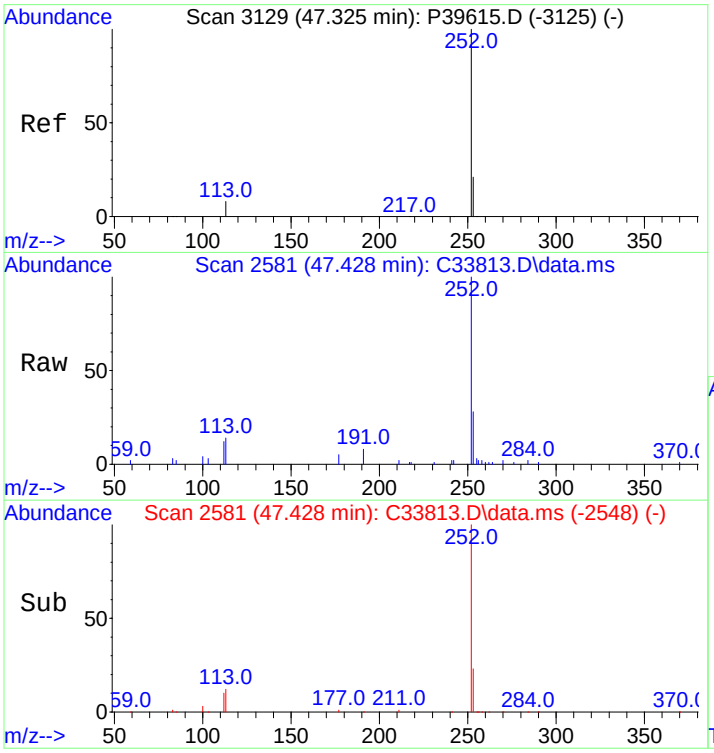


#82
Benzo[b]fluoranthene
Concen: 98.56 ng/mL
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7216

Ion	Ratio	Lower	Upper
252	100		
253	24.7	18.5	27.7

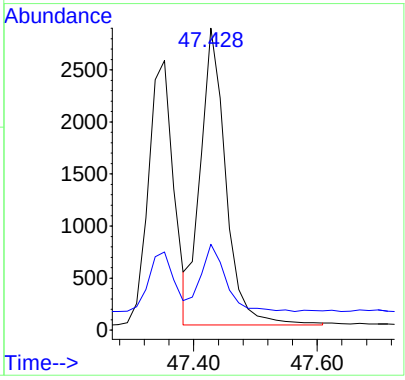


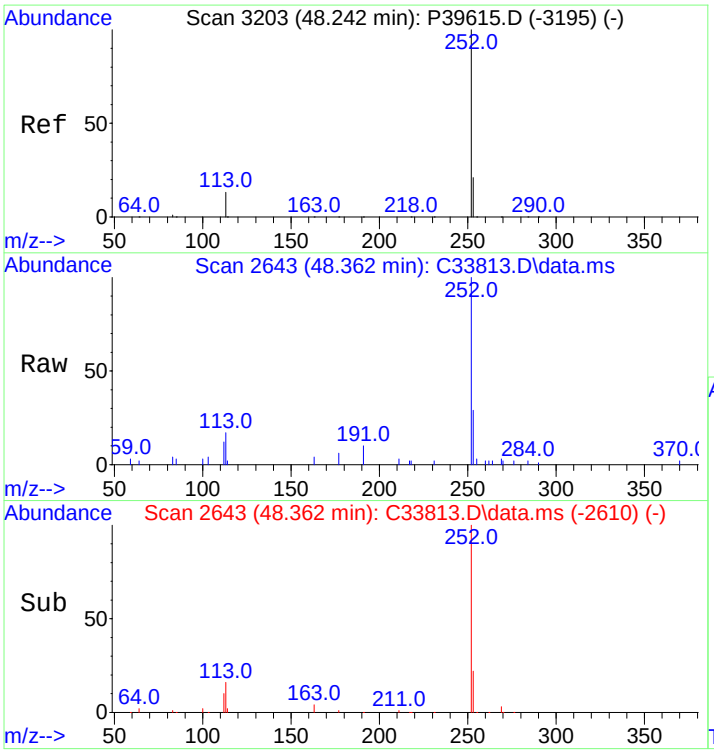


#83
Benzo[j]+[k]fluoranthene
Concen: 105.65 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 8178

Ion	Ratio	Lower	Upper
252	100		
253	22.8	18.2	27.4

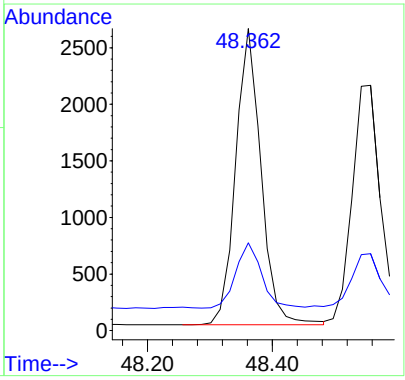


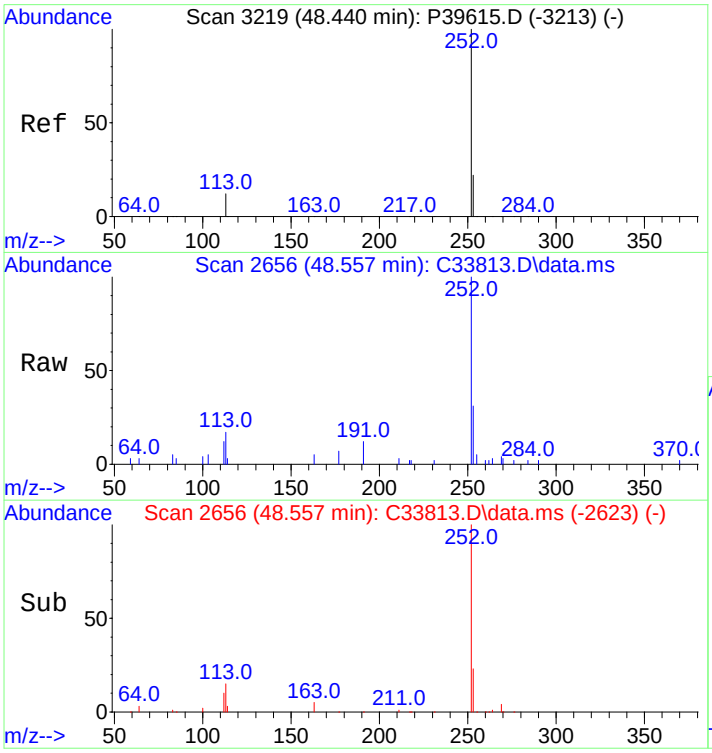


#85
Benzo[e]pyrene
Concen: 104.99 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	22.6	18.5	27.7

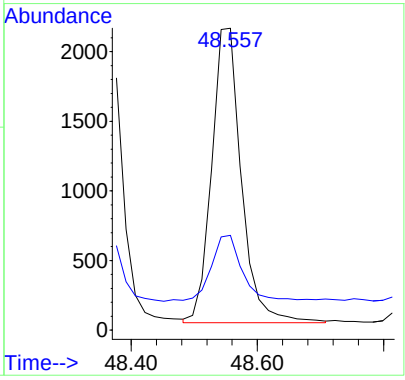


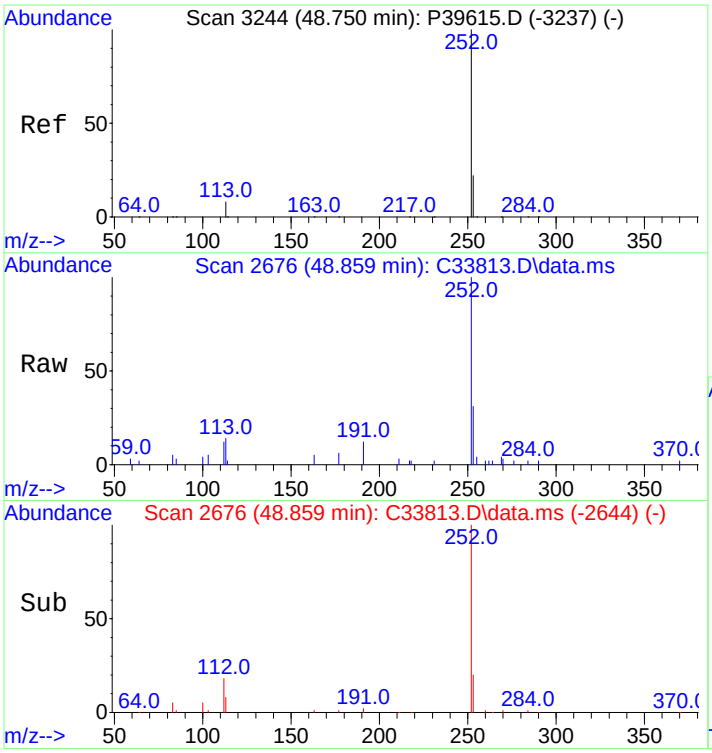


#87
Benzo[a]pyrene
Concen: 104.79 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 6940

Ion	Ratio	Lower	Upper
252	100		
253	24.5	18.7	28.1

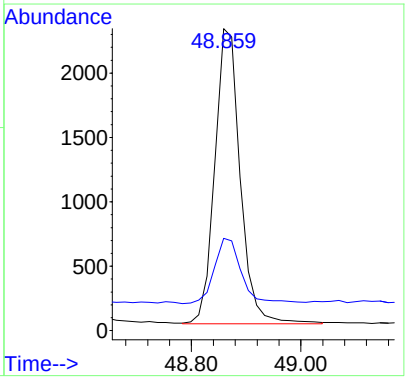


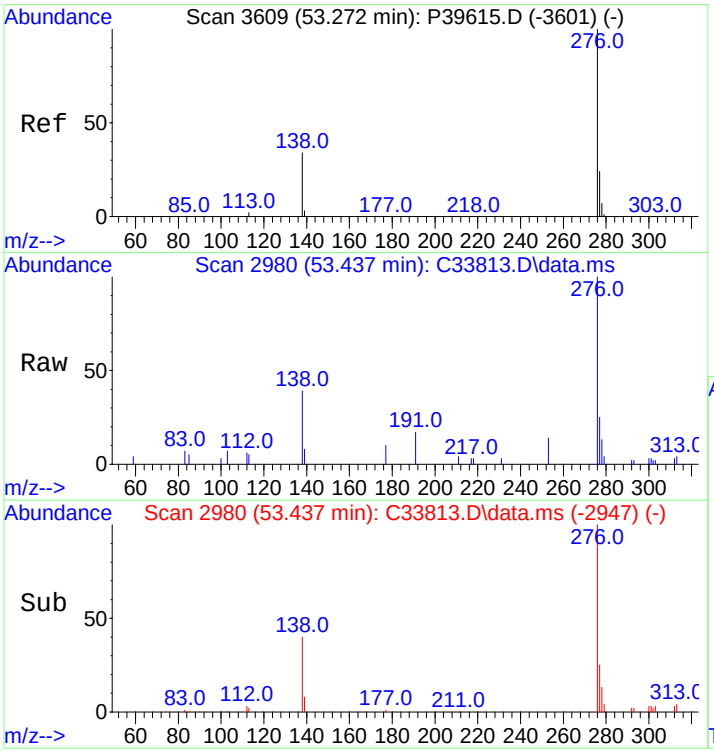


#88
Perylene
Concen: 104.54 ng/mL m
RT: 48.859 min Scan# 2676
Delta R.T. -0.015 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:252 Resp: 7398

Ion	Ratio	Lower	Upper
252	100		
253	23.7	18.6	27.8

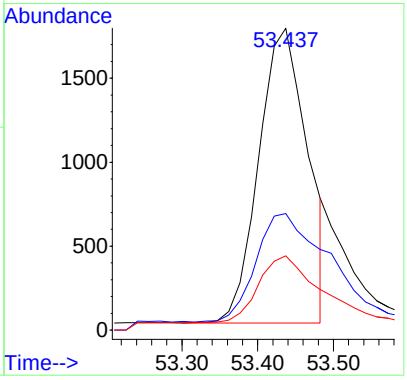


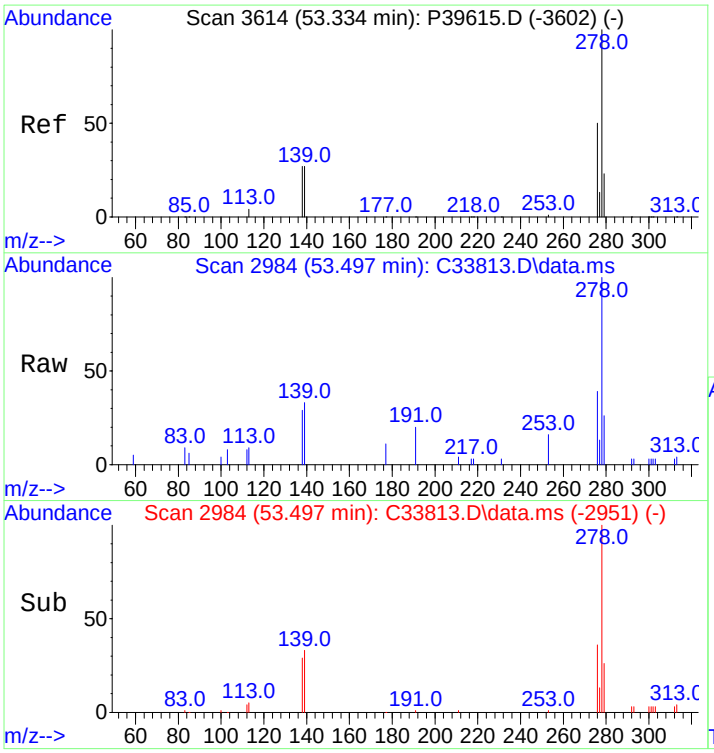


#89
Indeno[1,2,3-cd]pyrene
Concen: 102.99 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 7852

Ion	Ratio	Lower	Upper
276	100		
138	65.2	30.3	45.5#
277	48.7	19.2	28.8#

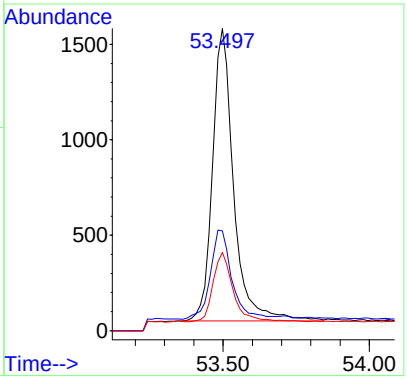


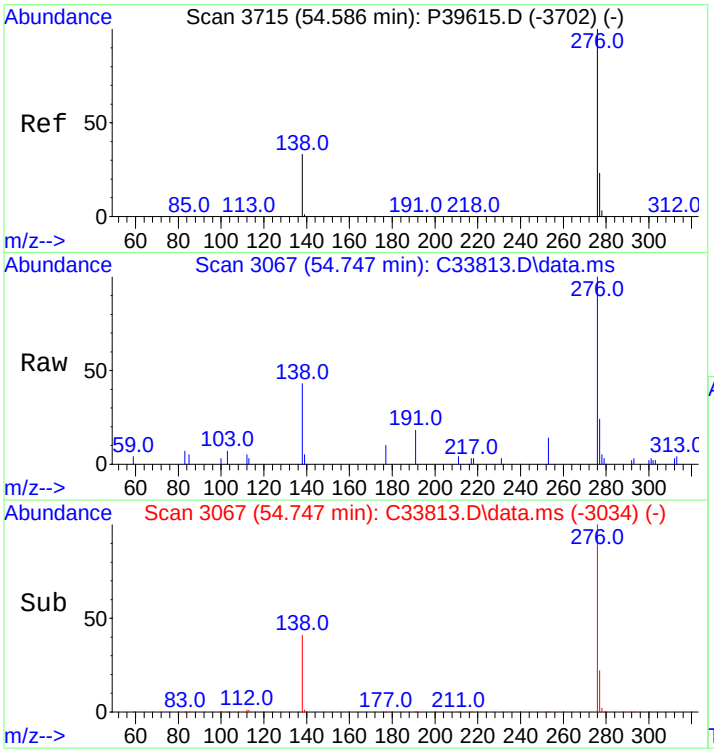


#90
Dibenz[ah]+[ac]anthracene
Concen: 107.32 ng/mL
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:278 Resp: 7692

Ion	Ratio	Lower	Upper
278	100		
139	35.6	25.4	38.2
279	22.1	19.0	28.4

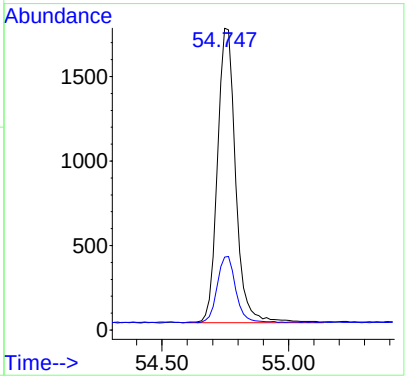


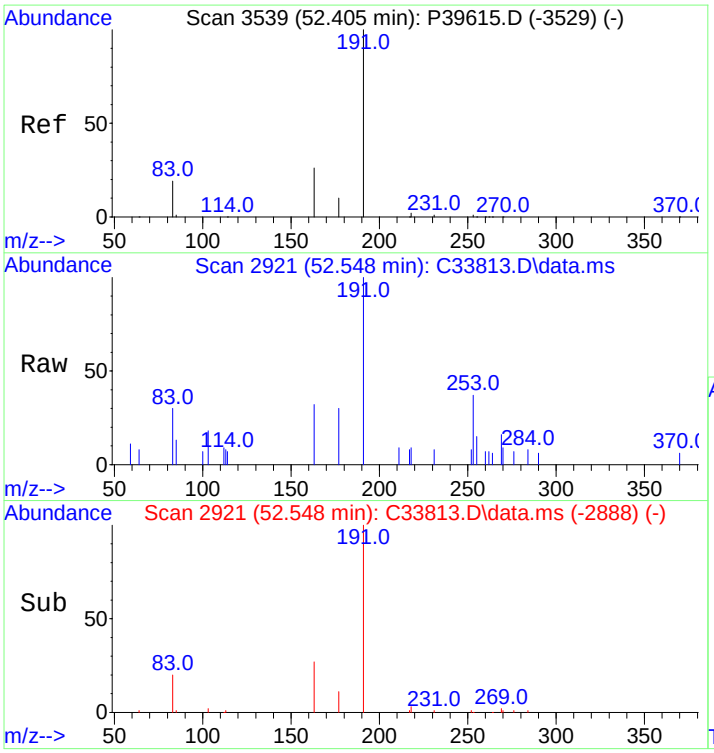


#91
Benzo[g,h,i]perylene
Concen: 112.27 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:276 Resp: 8732

Ion	Ratio	Lower	Upper
276	100		
277	23.0	18.9	28.3

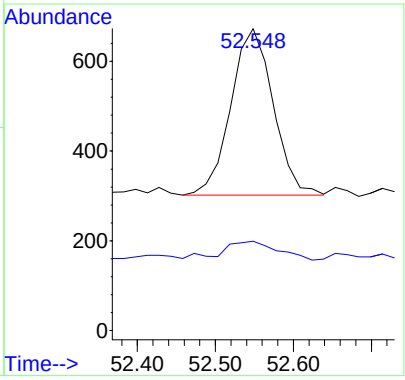


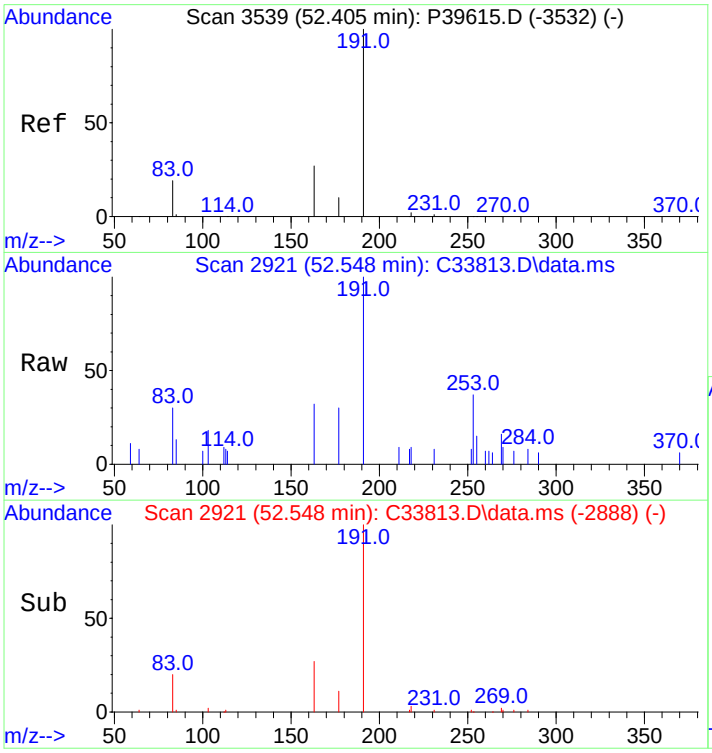


#92
Hopane (T19)
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3

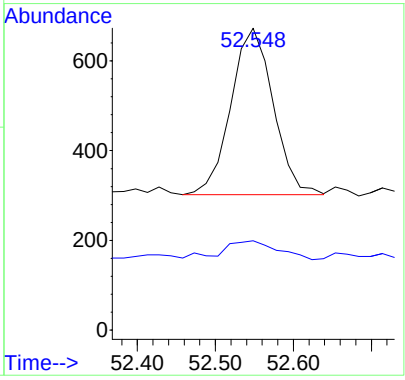




#93
17a(H),21B(H)-hopane - C30H52
Concen: 113.79 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33813.D
Acq: 26 Mar 2012 7:01 pm

Tgt Ion:191 Resp: 1398

Ion	Ratio	Lower	Upper
191	100		
177	14.9	11.5	17.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	17441M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	26949	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	40169	690.288	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 69.03%			
42) Phenanthrene-d10	32.793	188	30011	444.688	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.47%#			
86) Benzo[a]pyrene-d12	48.467	264	26218	483.971	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.40%#			
127) 5B(H)Cholane - Surr	43.995	217	4007	430.078	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.01%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	3640M4	301.956	ng/mL	
4) cis-Decalin	17.844	138	2748	292.174	ng/mL	100
10) Naphthalene	20.042	128	60651M4	966.547	ng/mL	
16) 2-Methylnaphthalene	22.737	142	35465M4	800.461	ng/mL	
17) 1-Methylnaphthalene	23.158	142	34410M4	809.738	ng/mL	
18) Benzothiophene	20.253	134	54196	1053.098	ng/mL	100
23) Biphenyl	24.619	154	44061	745.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	28243M4	670.105	ng/mL	
25) Dibenzofuran	27.690	168	50514	735.407	ng/mL	96
26) Acenaphthylene	26.320	152	57590M4	813.474	ng/mL	
27) Acenaphthene	27.057	153	34314	763.360	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	22365M4	568.869	ng/mL	
29) Fluorene	29.075	166	37446M3	669.384	ng/mL	
33) Dibenzothiophene	32.386	184	60794M4	719.639	ng/mL	
43) Phenanthrene	32.883	178	53364	628.681	ng/mL	100
54) Retene	39.854	234	9623M4	389.871	ng/mL	
55) Anthracene	33.064	178	52019M4	632.516	ng/mL	
56) Carbazole	33.726	167	51702M4	684.436	ng/mL	
57) 1-Methylphenanthrene	35.382	192	33399M4	514.047	ng/mL	
58) Fluoranthene	37.641	202	52587M3	512.355	ng/mL	
59) Benzo(b)fluorene	40.155	216	29747	443.755	ng/mL	98
60) Pyrene	38.529	202	53499	508.197	ng/mL	99
66) Naphthobenzothiophene	42.369	234	55752	506.802	ng/ml	98
67) Naphthobenzothiophene-2,1	42.369	234	55752	506.802	ng/mL	98
75) Benz[a]anthracene	43.302	228	44238M4	553.548	ng/mL	
76) Chrysene	43.453	228	45764M4	581.223	ng/mL	
77) Chrysene/Triphenylene	43.453	228	45818M4	581.909	ng/mL	
82) Benzo[b]fluoranthene	47.352	252	46556	529.436	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	52521M4	564.954	ng/mL	
85) Benzo[e]pyrene	48.362	252	45904	542.397	ng/mL	99
87) Benzo[a]pyrene	48.557	252	43695M4	549.348	ng/mL	
88) Perylene	48.874	252	46371	545.553	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	48761M3	532.487	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	47935M4	556.838	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	52408	561.014	ng/mL	99
92) Hopane (T19)	52.548	191	7873	533.536	ng/mL#	89
93) 17a(H),21B(H)-hopane - C3	52.548	191	7873	533.536	ng/mL#	89

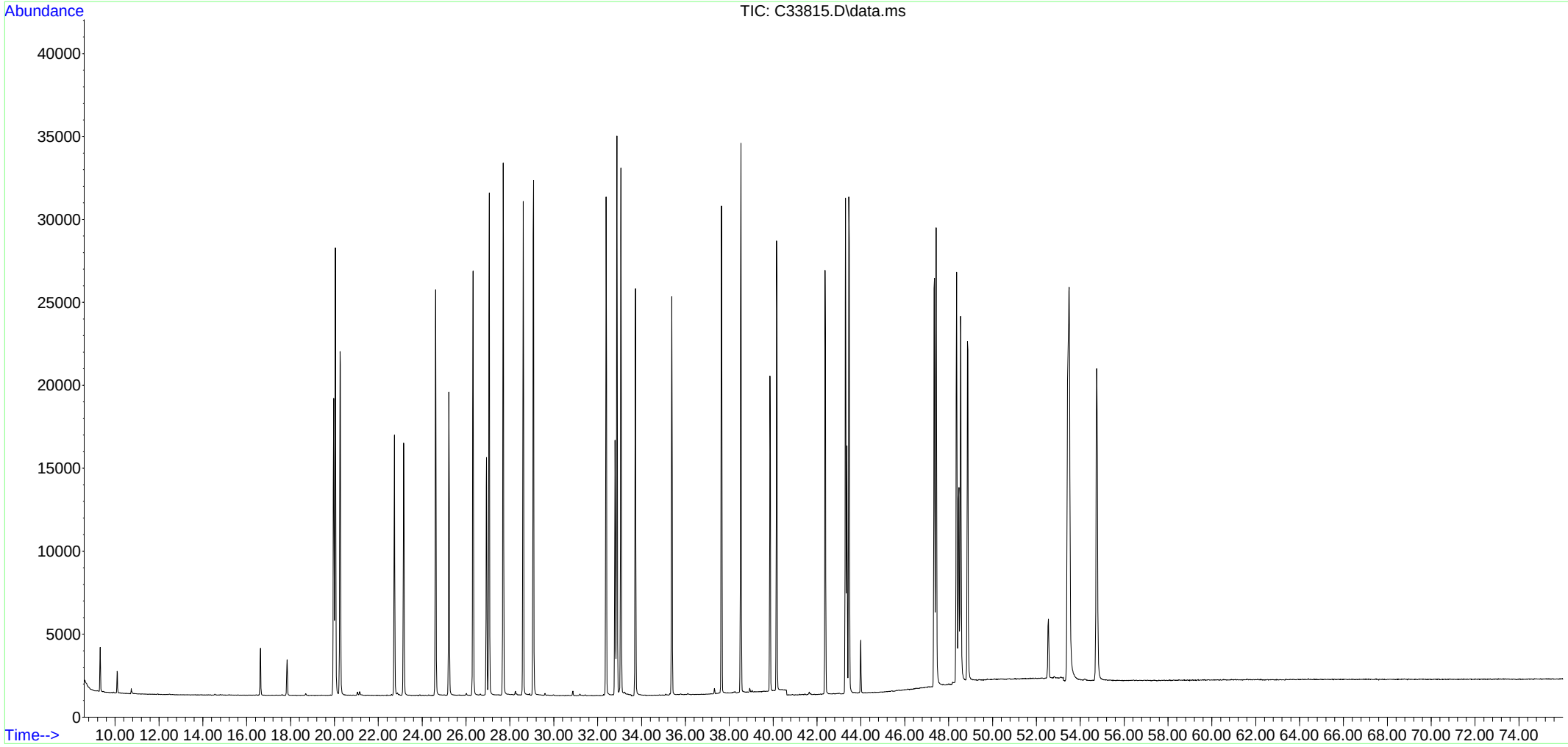
(#) = qualifier out of range (m) = manual integration (+) = signals summed

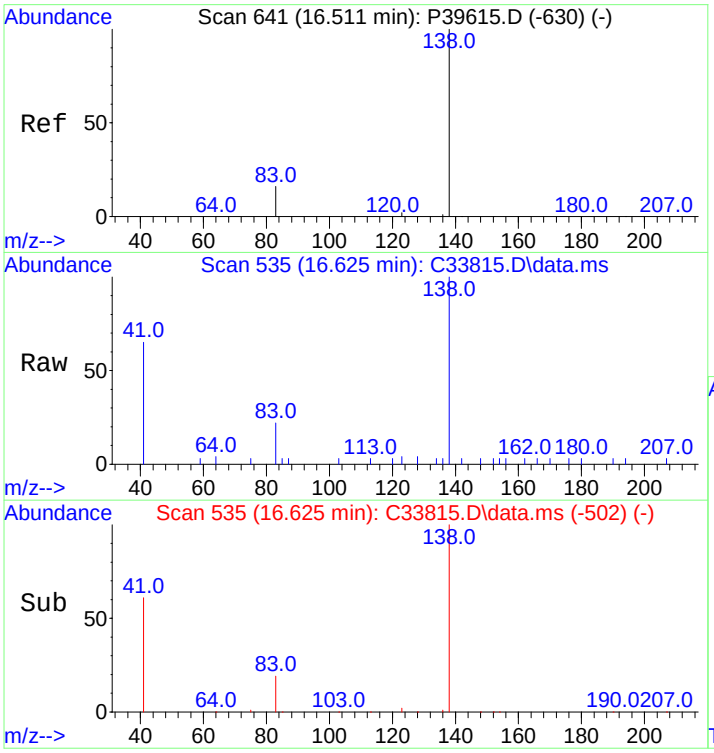
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33815.D
Acq On : 26 Mar 2012 8:34 pm
Operator : PAH3:SR
Sample : I303261204
Misc : WG525925
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 11:05:33 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

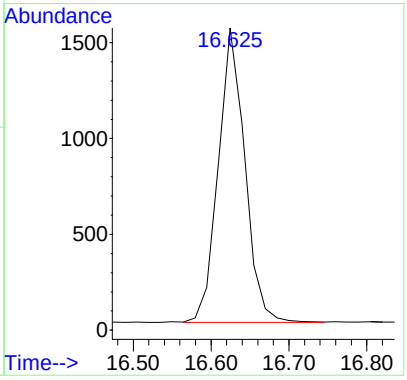
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

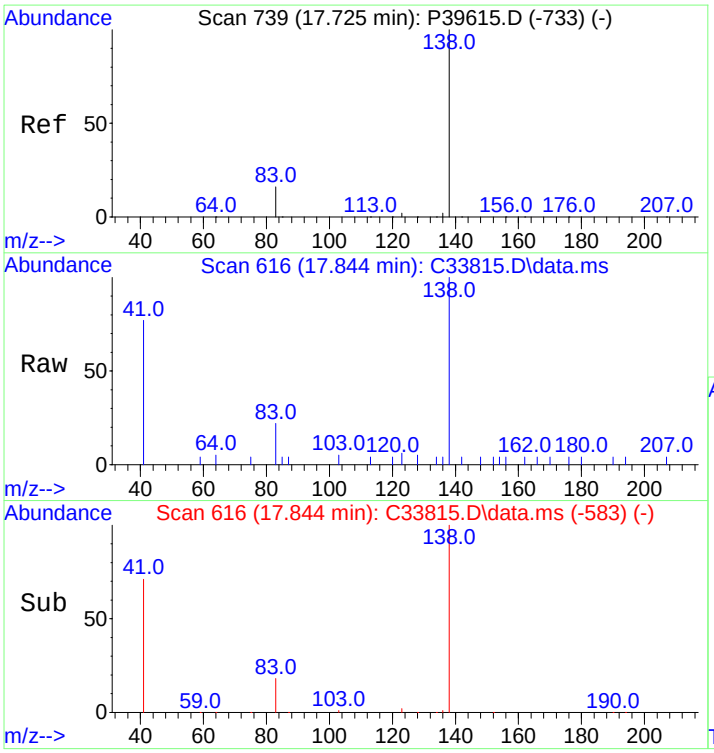




#3
trans-Decalin
Concen: 301.96 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

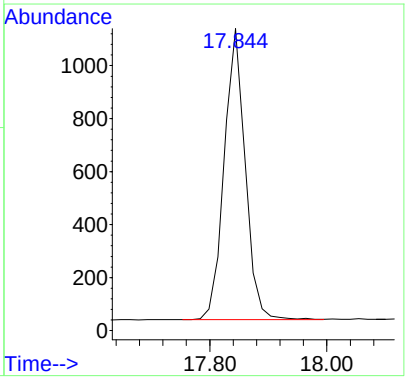
Tgt Ion:138 Resp: 3640

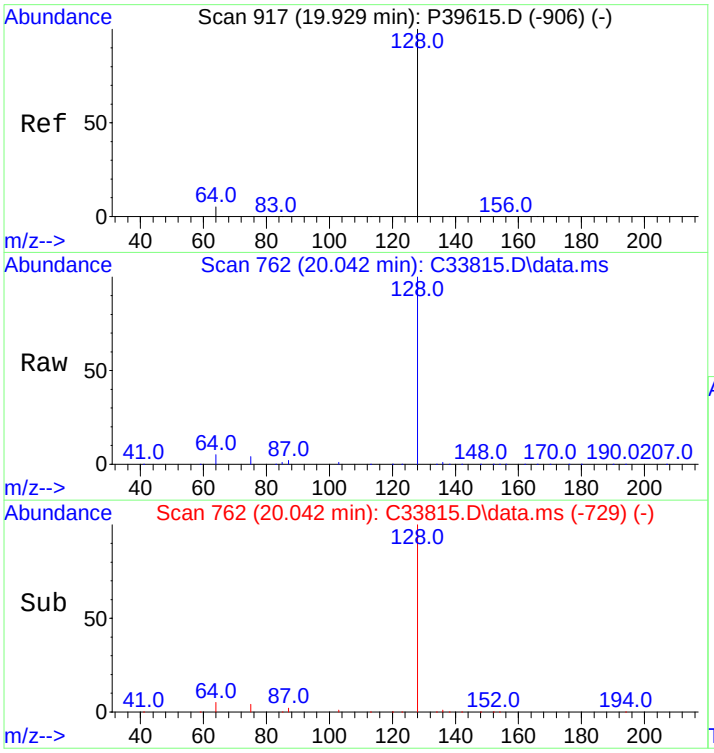




#4
cis-Decalin
Concen: 292.17 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:138 Resp: 2748

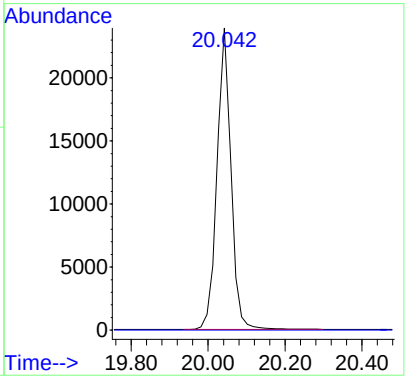


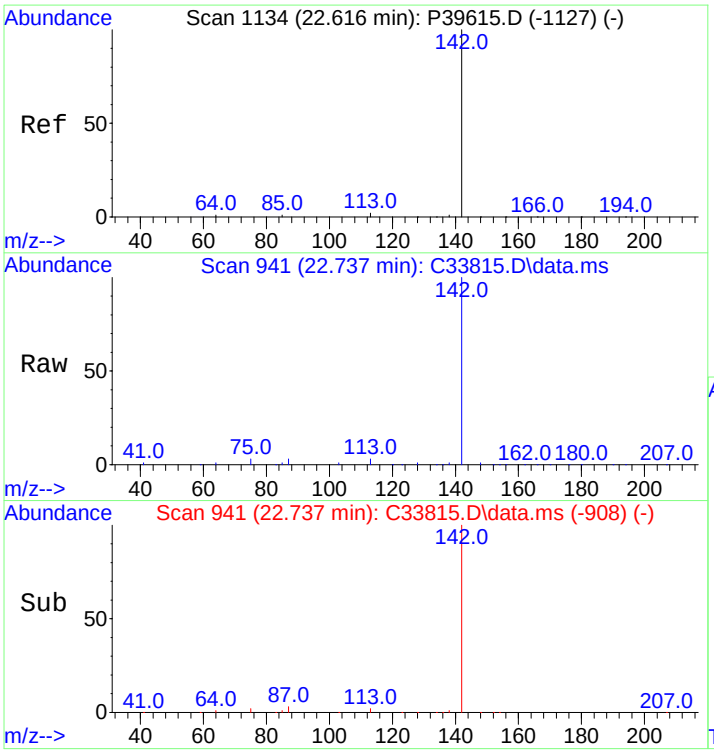


#10
Naphthalene
Concen: 966.55 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:128 Resp: 60651

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

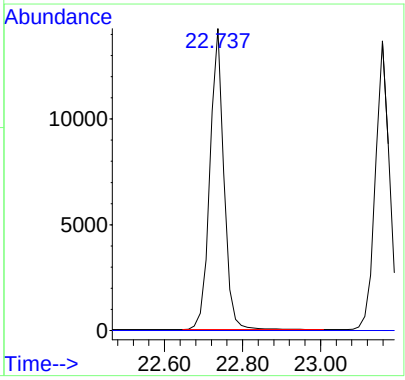


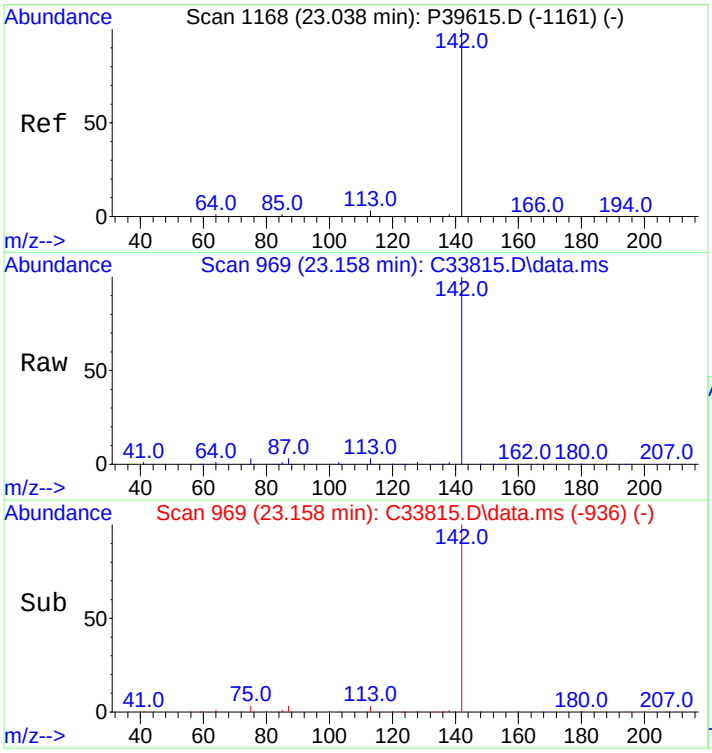


#16
2-Methylnaphthalene
Concen: 800.46 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 35465

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

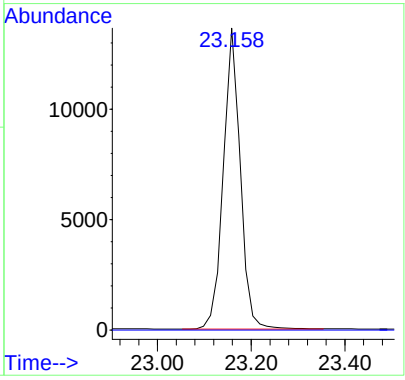


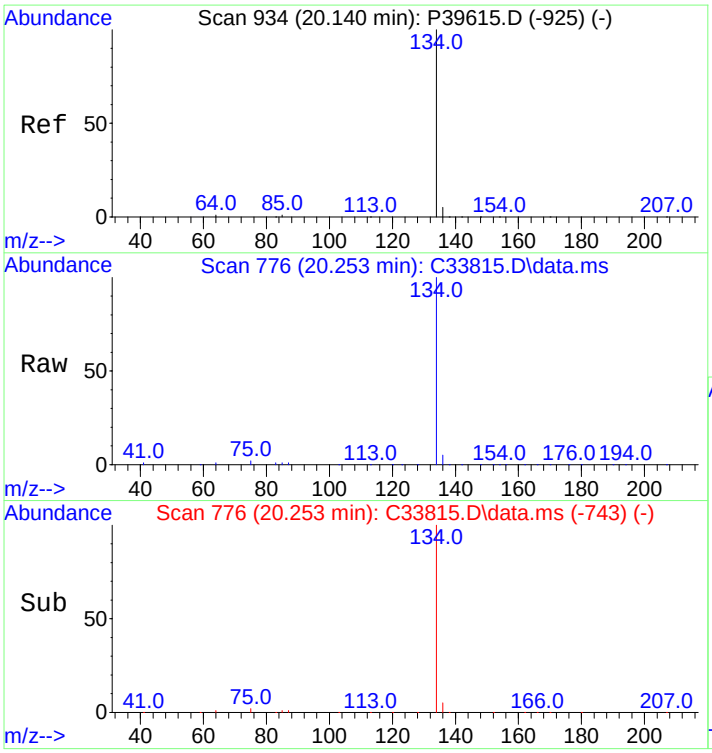


#17
1-Methylnaphthalene
Concen: 809.74 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:142 Resp: 34410

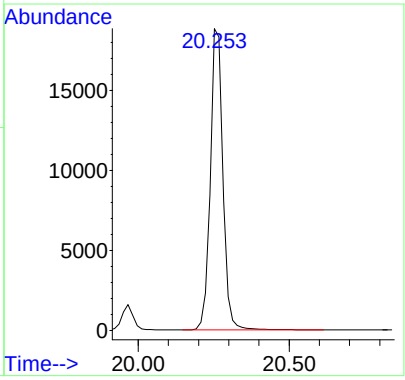
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

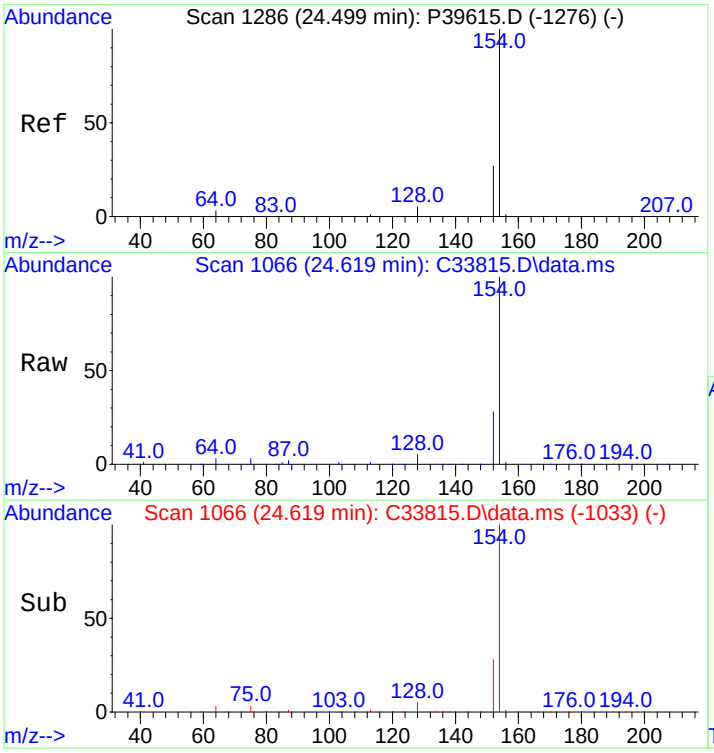




#18
Benzothiophene
Concen: 1053.10 ng/mL
RT: 20.253 min Scan# 776
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:134 Resp: 54196

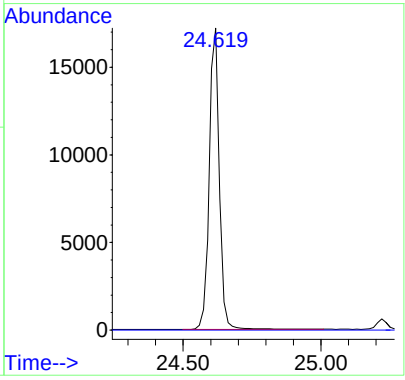


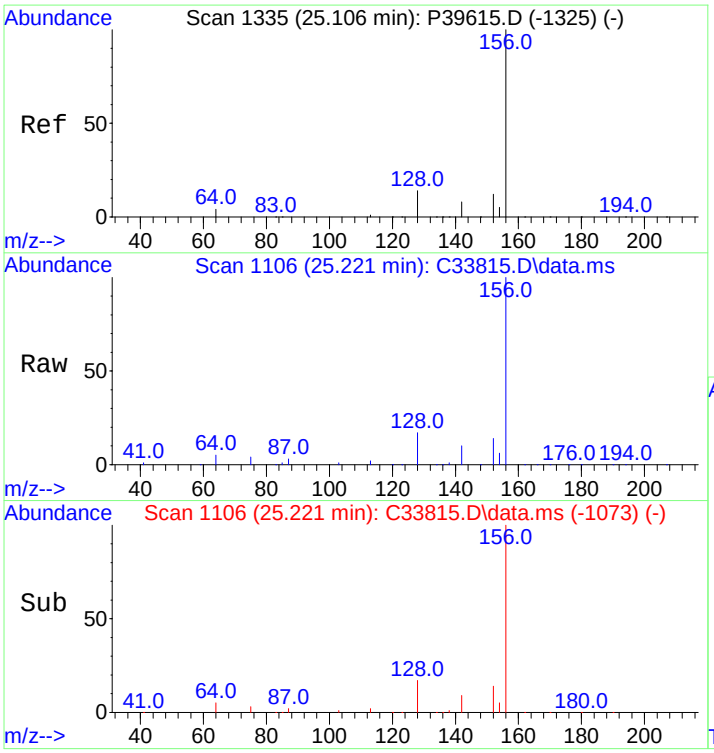


#23
Biphenyl
Concen: 745.26 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:154 Resp: 44061

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

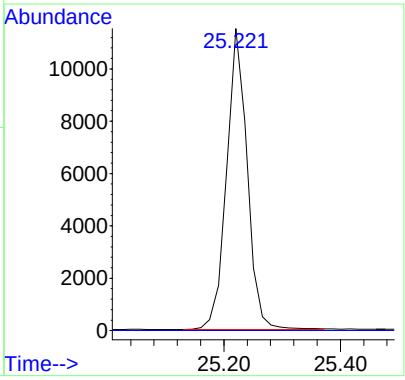


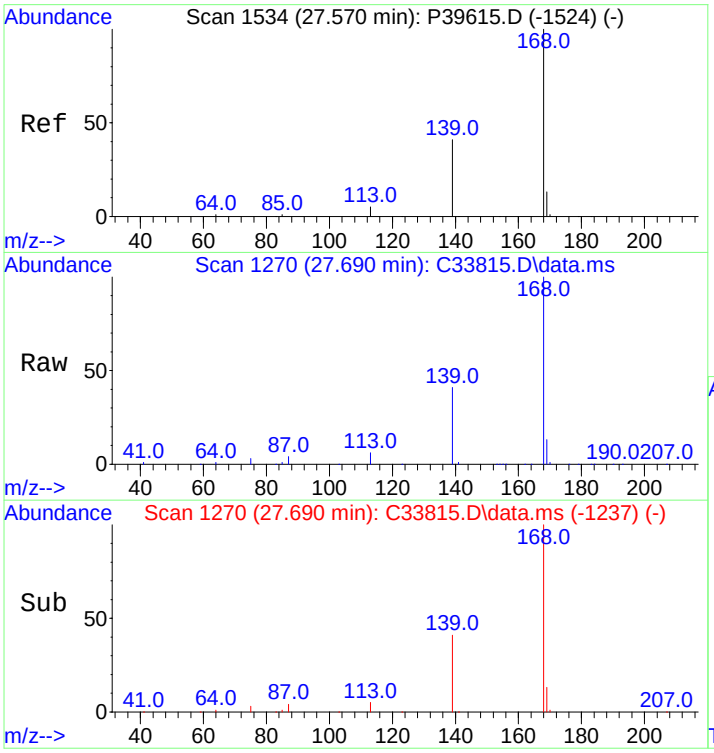


#24
2,6-Dimethylnaphthalene
Concen: 670.11 ng/mL m
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:156 Resp: 28243

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

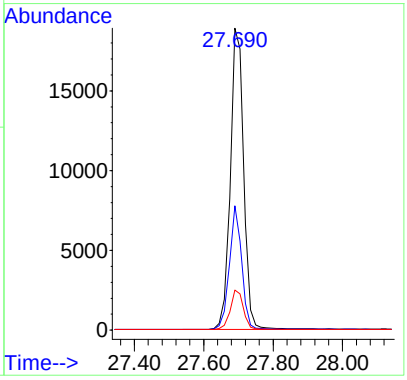


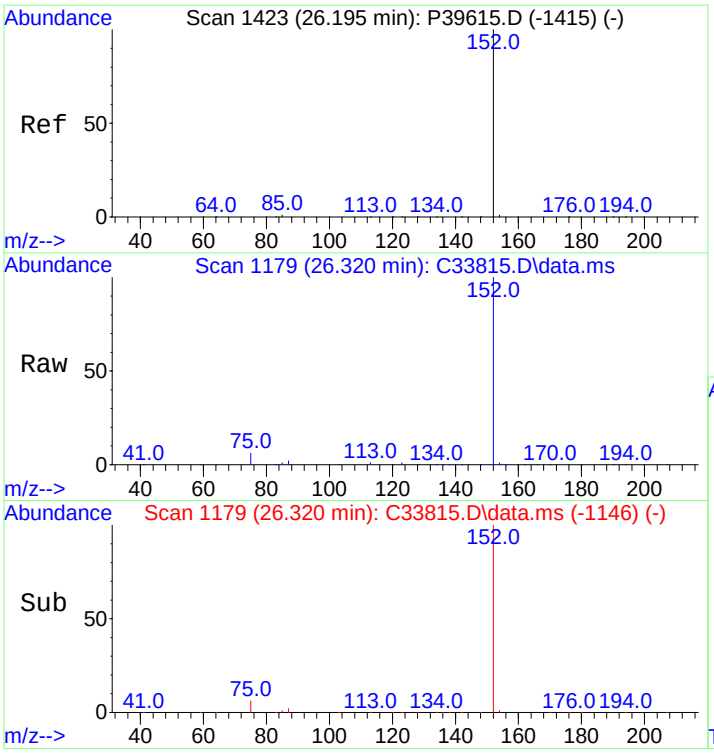


#25
Dibenzofuran
Concen: 735.41 ng/mL
RT: 27.690 min Scan# 1270
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:168 Resp: 50514

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	12.8	10.6	16.0

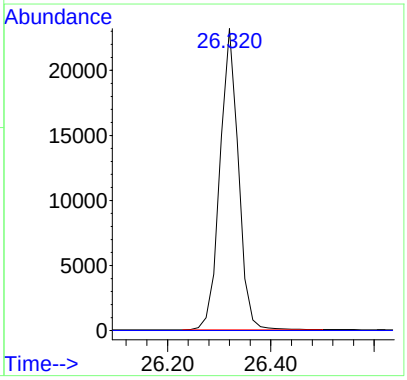


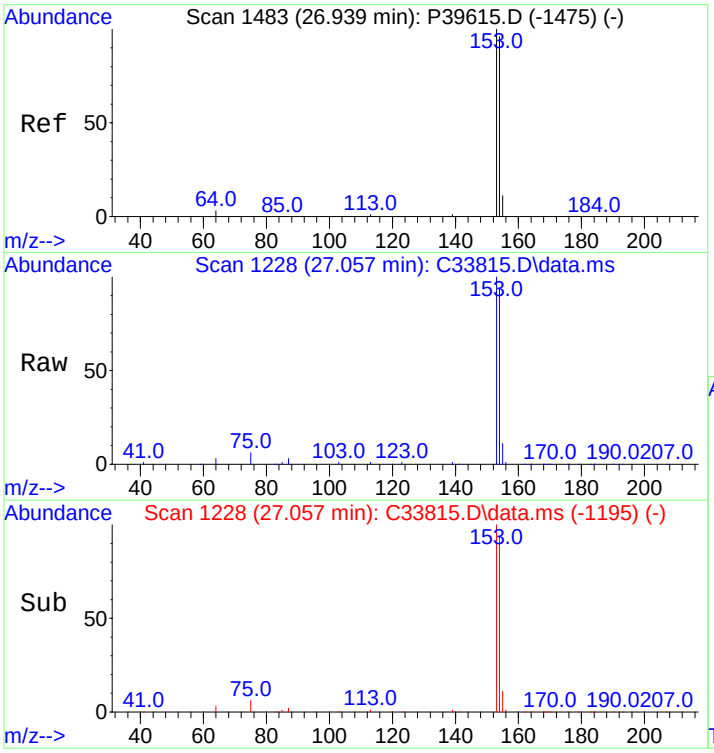


#26
Acenaphthylene
Concen: 813.47 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:152 Resp: 57590

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

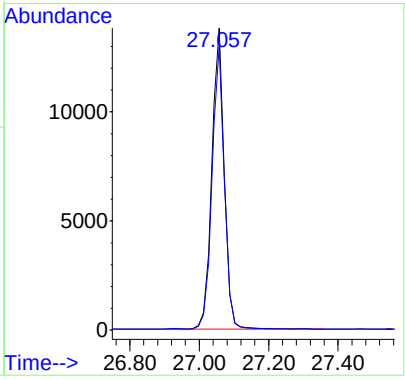


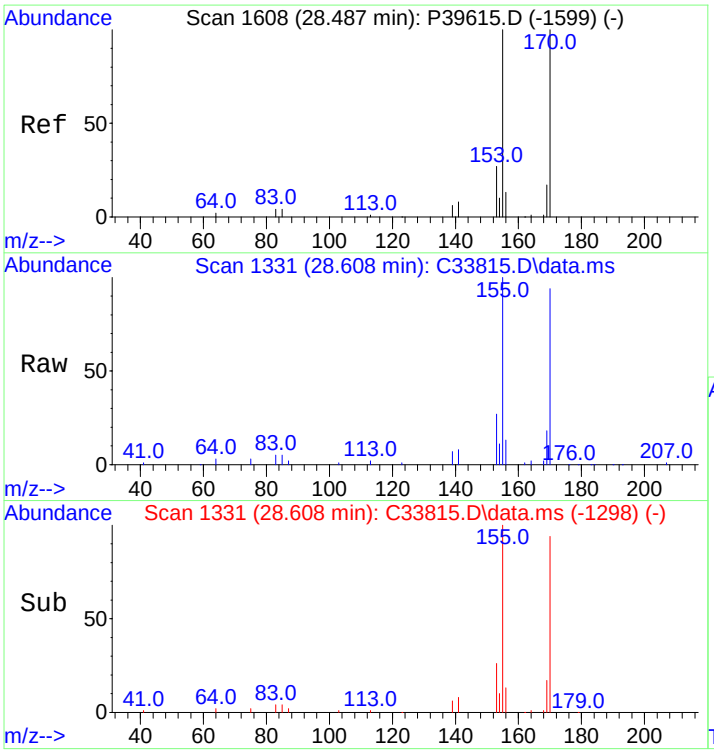


#27
Acenaphthene
Concen: 763.36 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:153 Resp: 34314

Ion	Ratio	Lower	Upper
153	100		
154	92.8	75.0	112.6

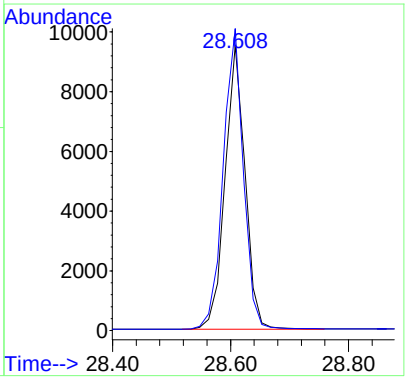


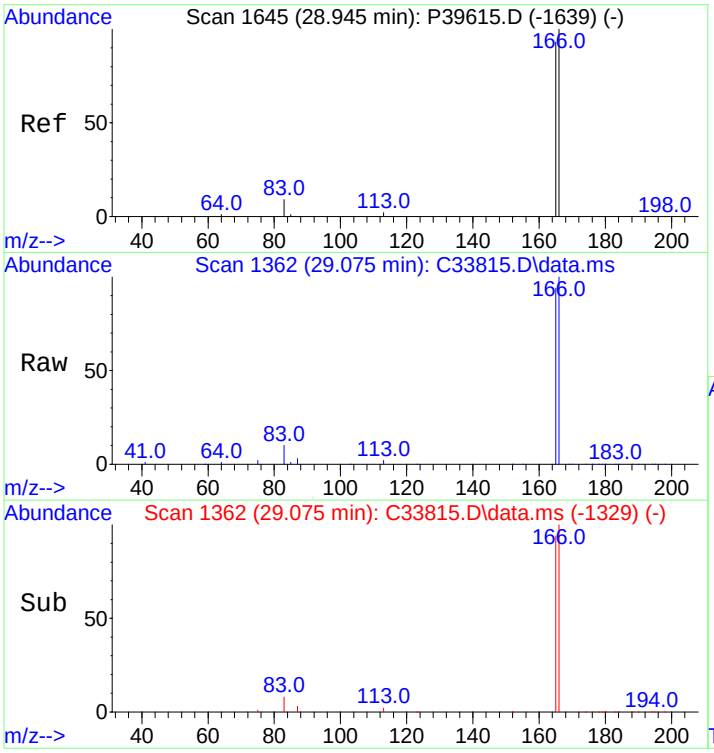


#28
2,3,5-Trimethylnaphthalene
Concen: 568.87 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:170 Resp: 22365

Ion	Ratio	Lower	Upper
170	100		
155	107.2	84.7	127.1

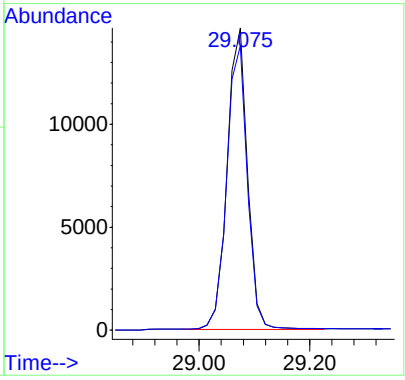


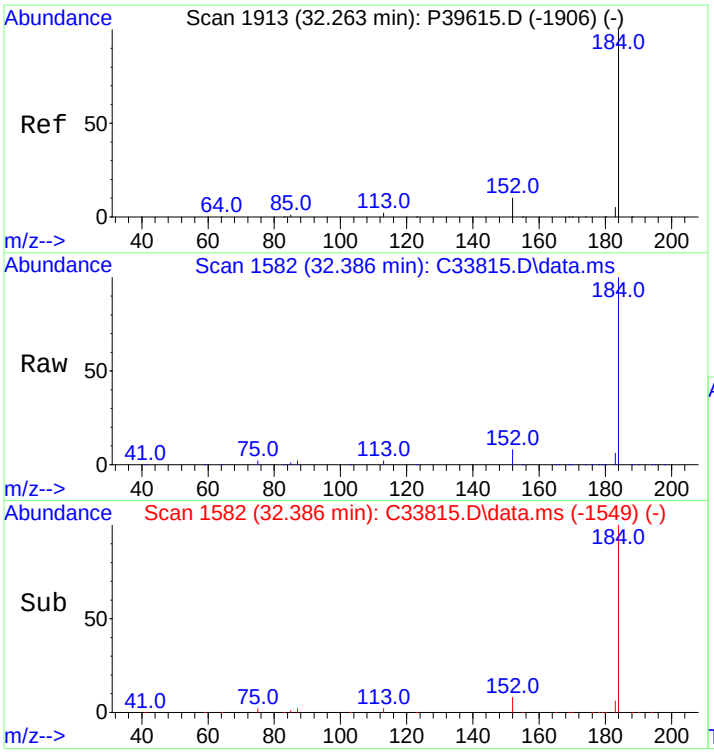


#29
Fluorene
Concen: 669.38 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:166 Resp: 37446

Ion	Ratio	Lower	Upper
166	100		
165	95.8	75.3	112.9

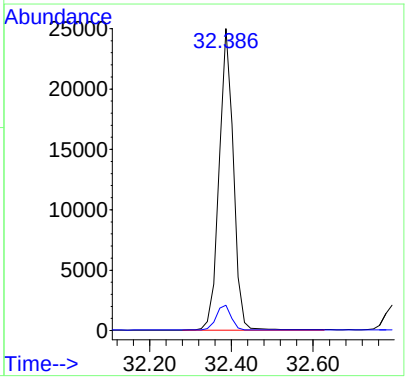


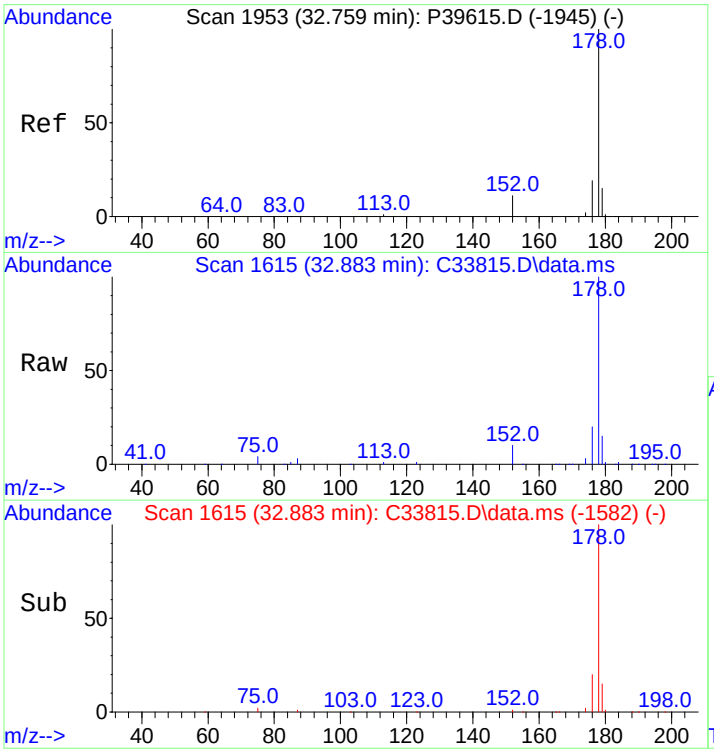


#33
Dibenzothiophene
Concen: 719.64 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:184 Resp: 60794

Ion	Ratio	Lower	Upper
184	100		
152	8.6	6.7	10.1

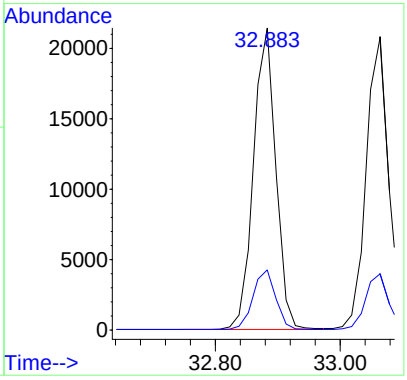


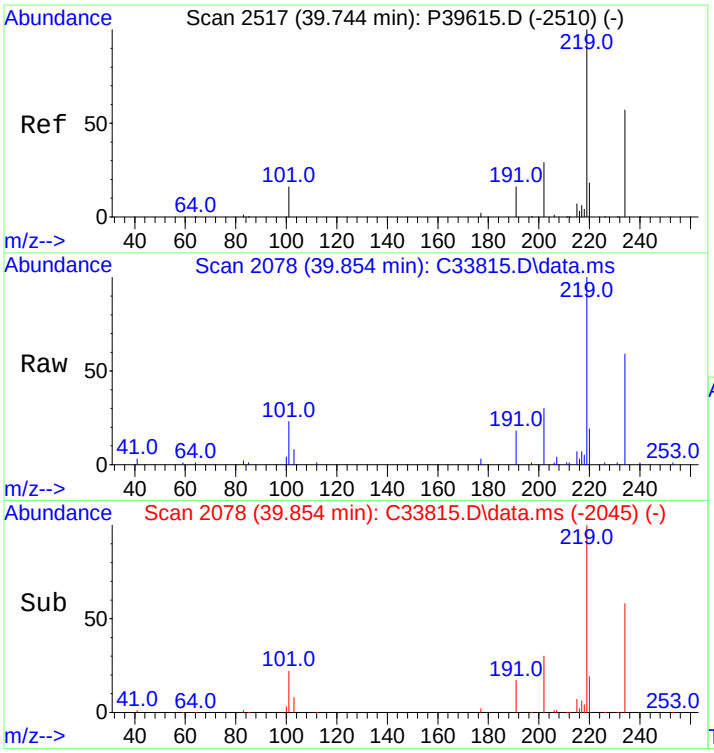


#43
Phenanthrene
Concen: 628.68 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 53364

Ion	Ratio	Lower	Upper
178	100		
176	20.1	15.9	23.9

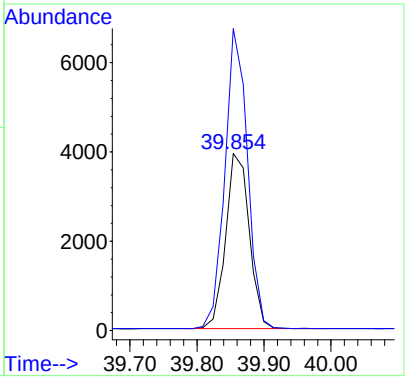


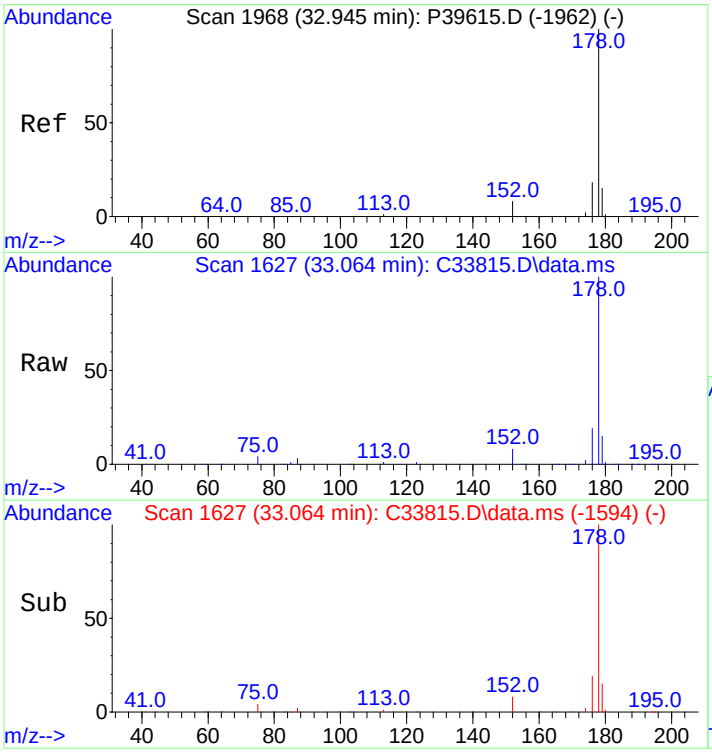


#54
Retene
Concen: 389.87 ng/mL m
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 9623

Ion	Ratio	Lower	Upper
234	100		
219	163.4	136.6	204.8

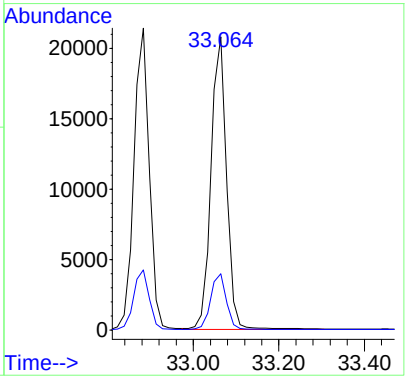


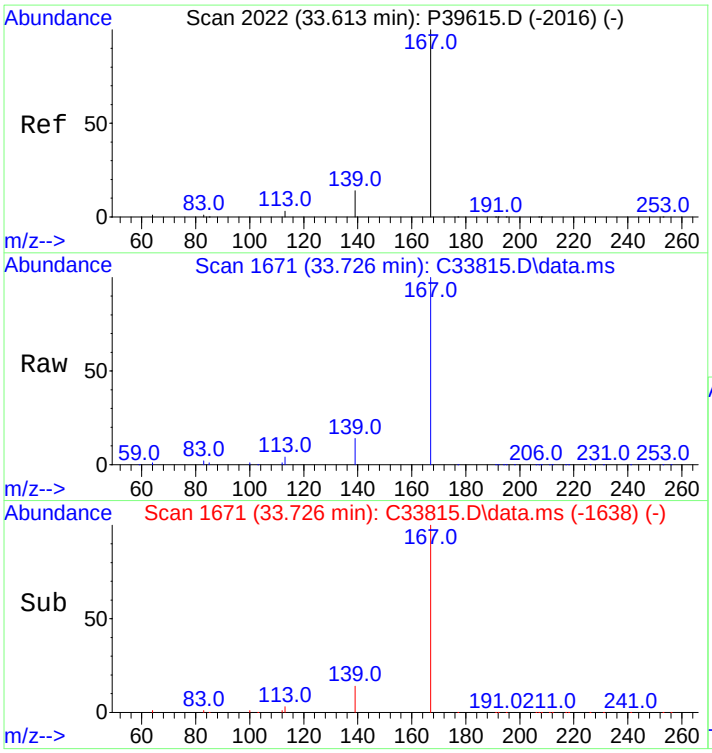


#55
Anthracene
Concen: 632.52 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:178 Resp: 52019

Ion	Ratio	Lower	Upper
178	100		
176	19.3	15.4	23.0

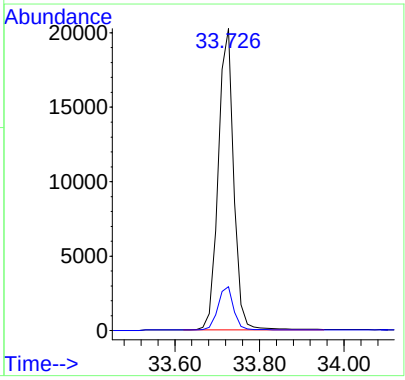


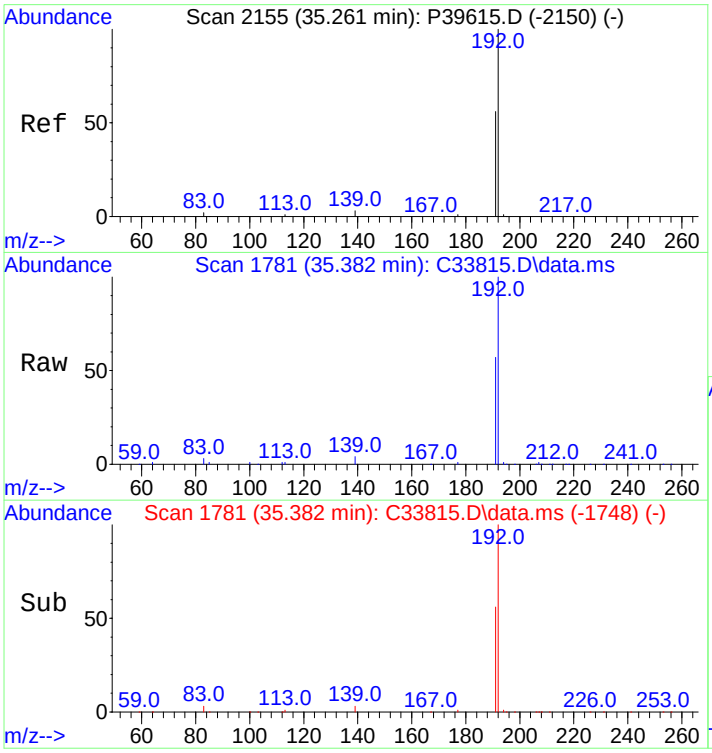


#56
Carbazole
Concen: 684.44 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:167 Resp: 51702

Ion	Ratio	Lower	Upper
167	100		
139	14.8	11.6	17.4

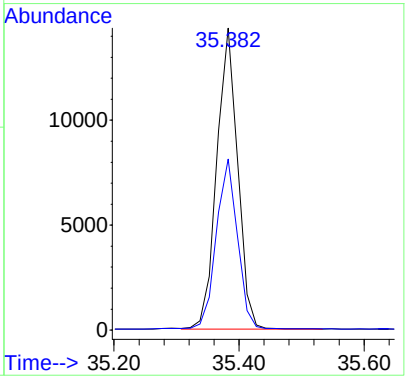


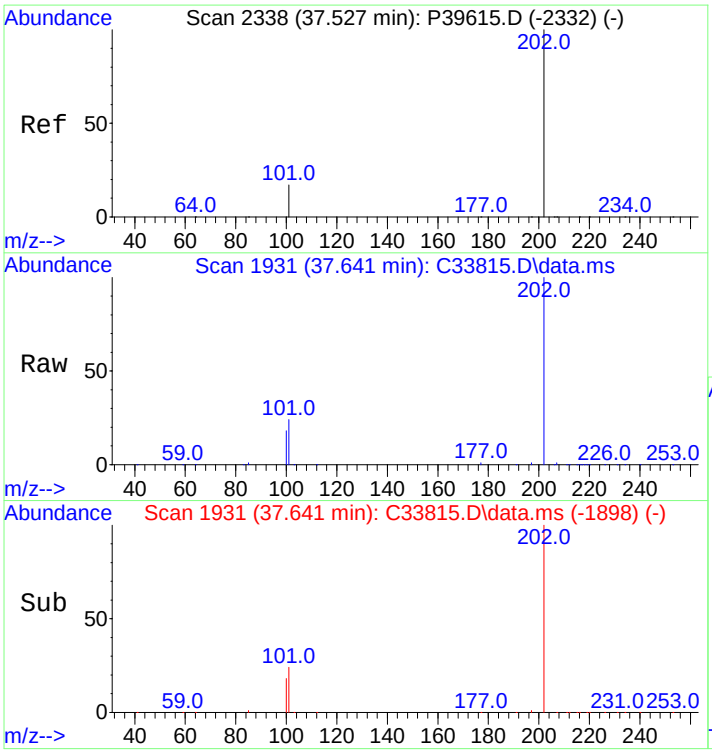


#57
1-Methylphenanthrene
Concen: 514.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:192 Resp: 33399

Ion	Ratio	Lower	Upper
192	100		
191	57.2	45.3	67.9

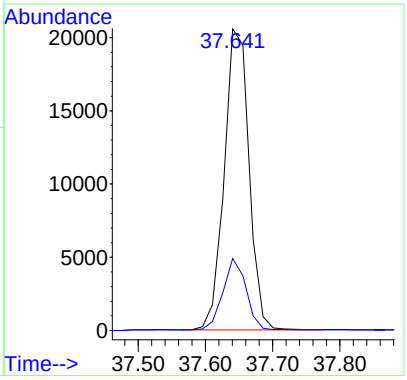


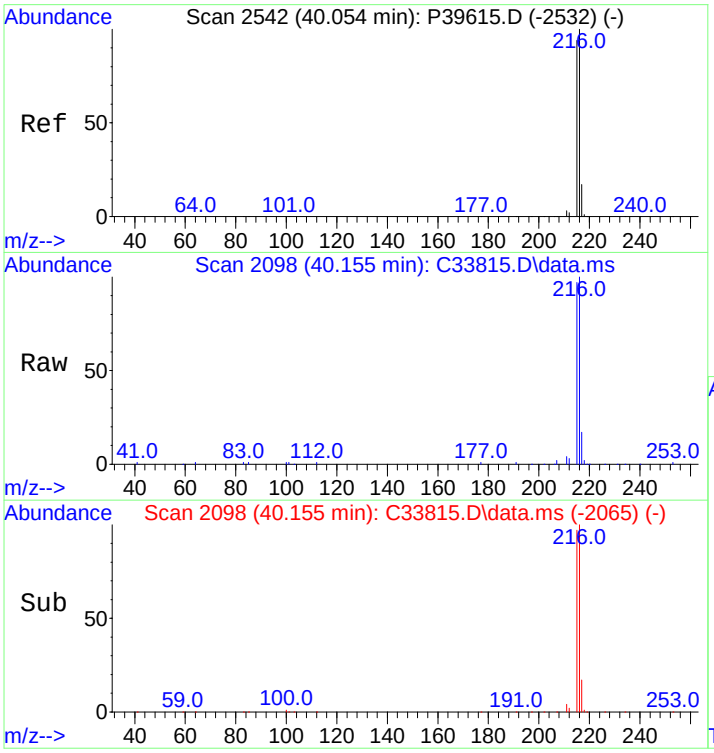


#58
Fluoranthene
Concen: 512.35 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 52587

Ion	Ratio	Lower	Upper
202	100		
101	22.7	19.1	28.7

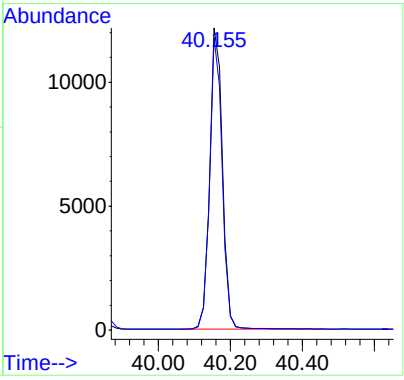


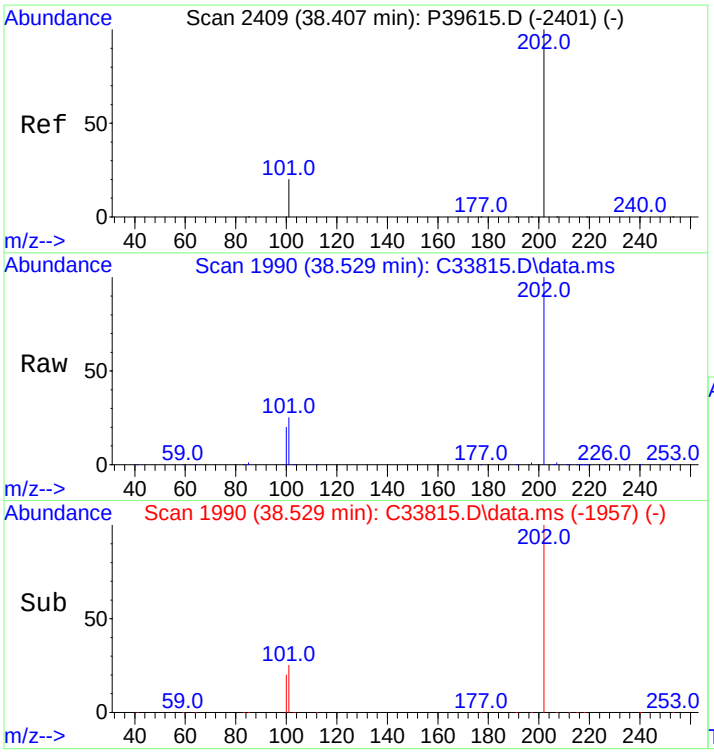


#59
Benzo(b)fluorene
Concen: 443.75 ng/mL
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:216 Resp: 29747

Ion	Ratio	Lower	Upper
216	100		
215	95.1	77.4	116.2

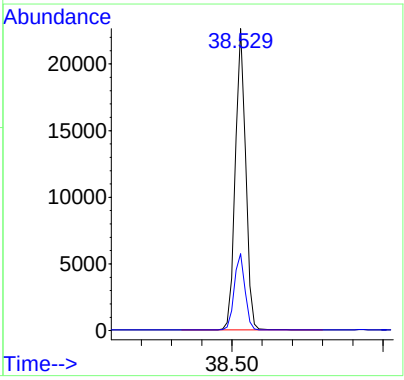


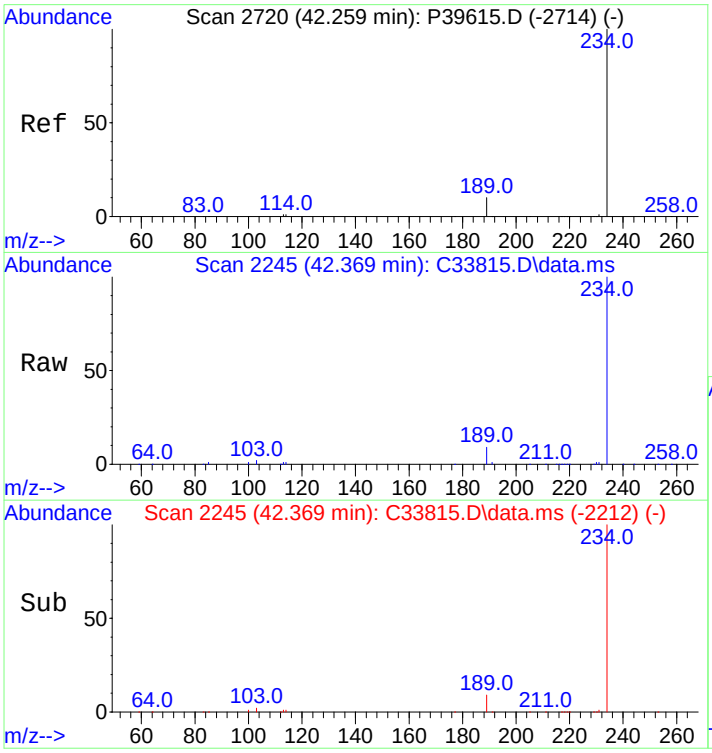


#60
Pyrene
Concen: 508.20 ng/mL
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:202 Resp: 53499

Ion	Ratio	Lower	Upper
202	100		
101	26.2	20.4	30.6

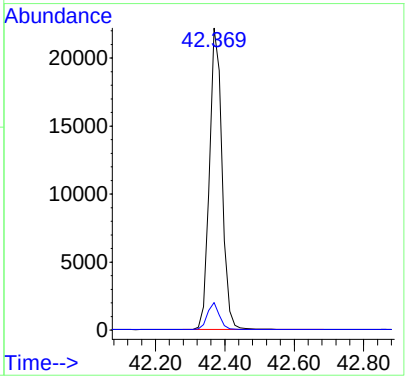


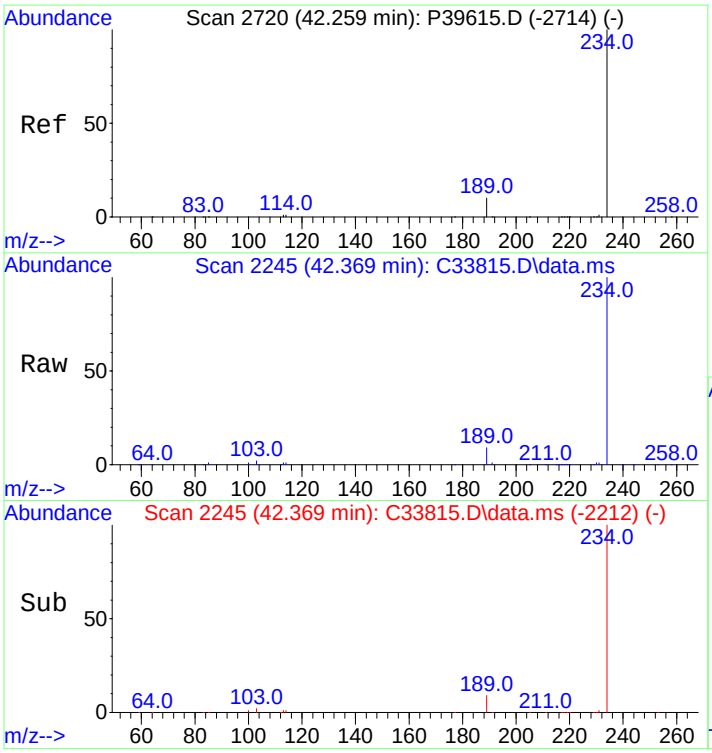


#66
Naphthobenzothiophene
Concen: 506.80 ng/ml
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

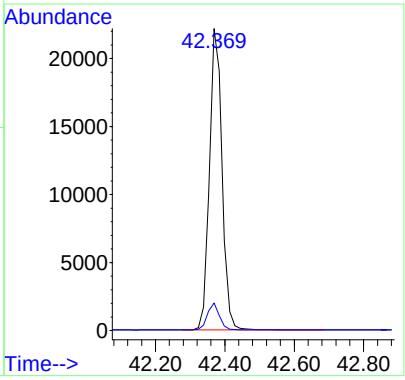


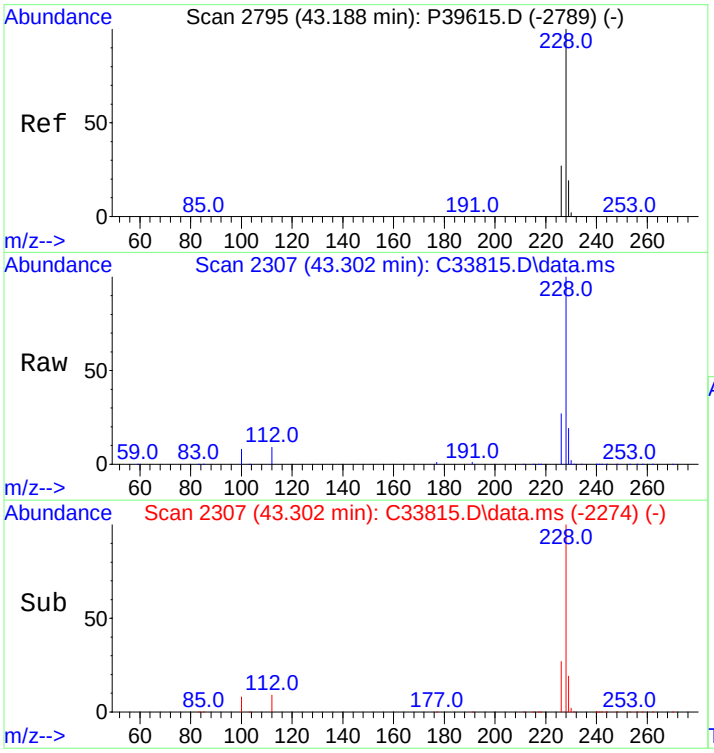


#67
Naphthobenzothiophene-2,1-D
Concen: 506.80 ng/mL
RT: 42.369 min Scan# 2245
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:234 Resp: 55752

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

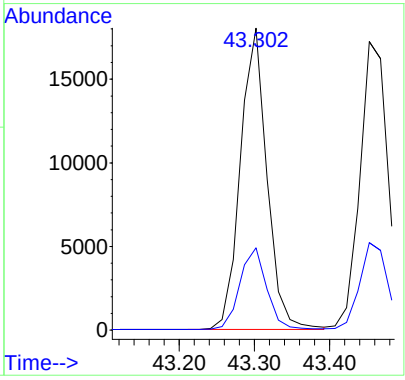


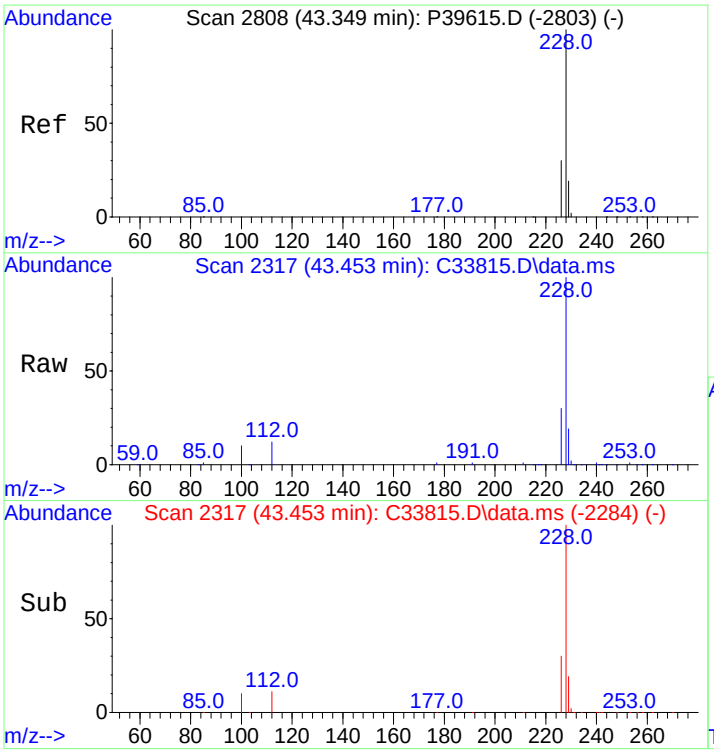


#75
Benz[a]anthracene
Concen: 553.55 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 44238

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.8	32.8

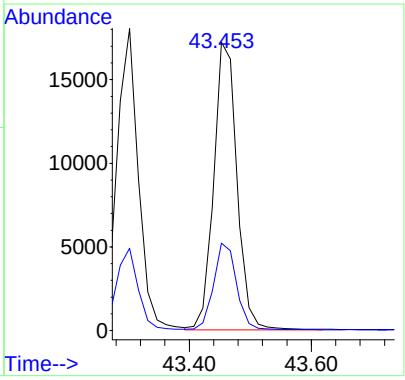


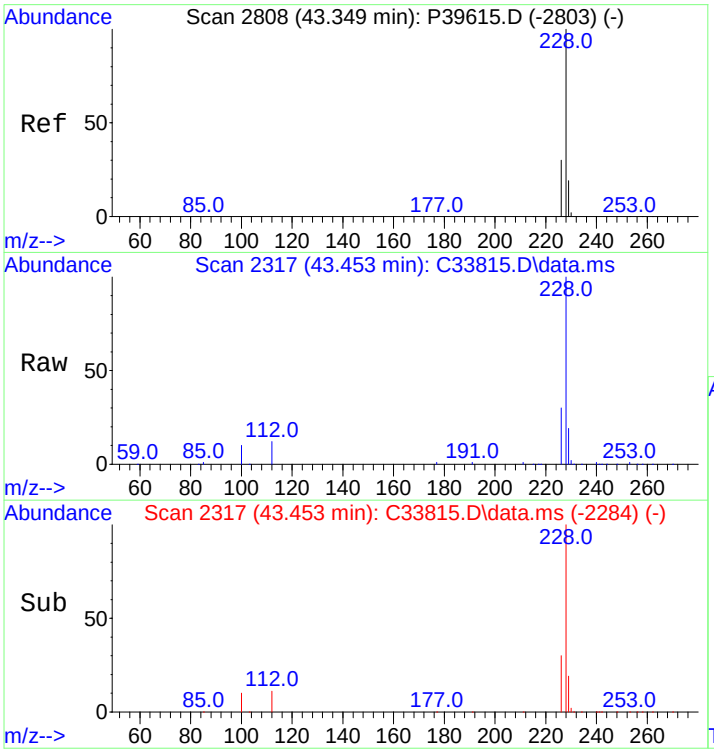


#76
Chrysene
Concen: 581.22 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45764

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

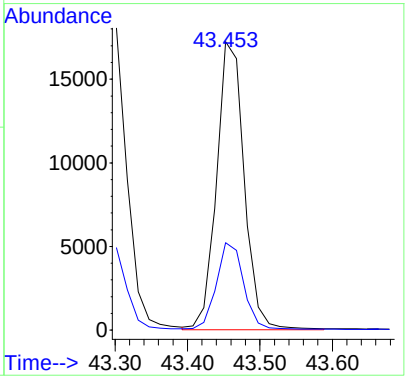


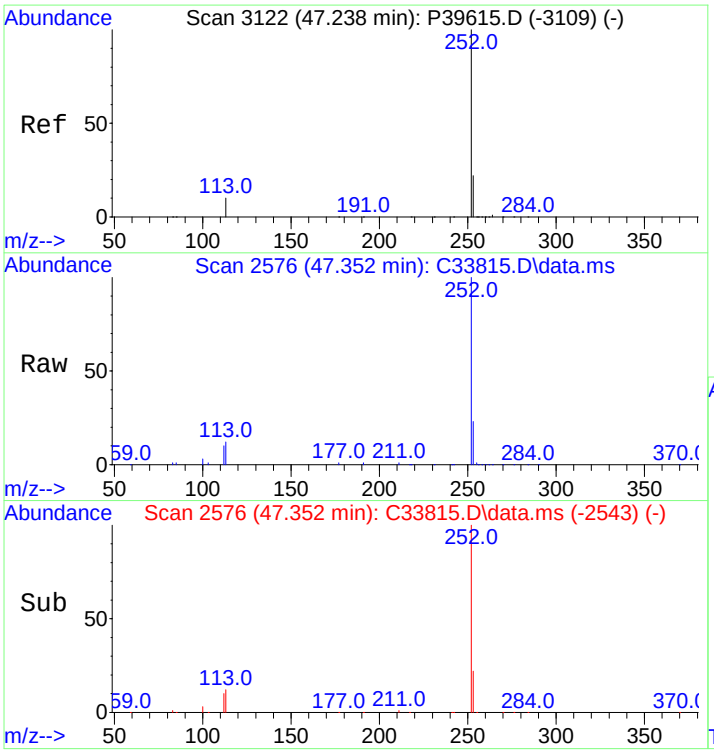


#77
Chrysene/Triphenylene
Concen: 581.91 ng/mL m
RT: 43.453 min Scan# 2317
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:228 Resp: 45818

Ion	Ratio	Lower	Upper
228	100		
226	29.8	24.2	36.4

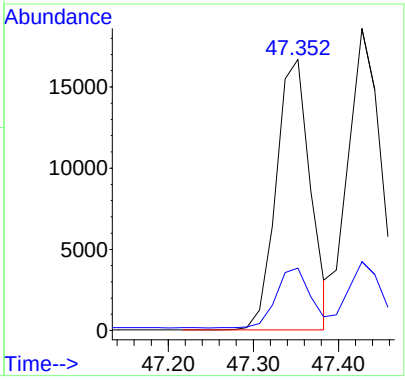


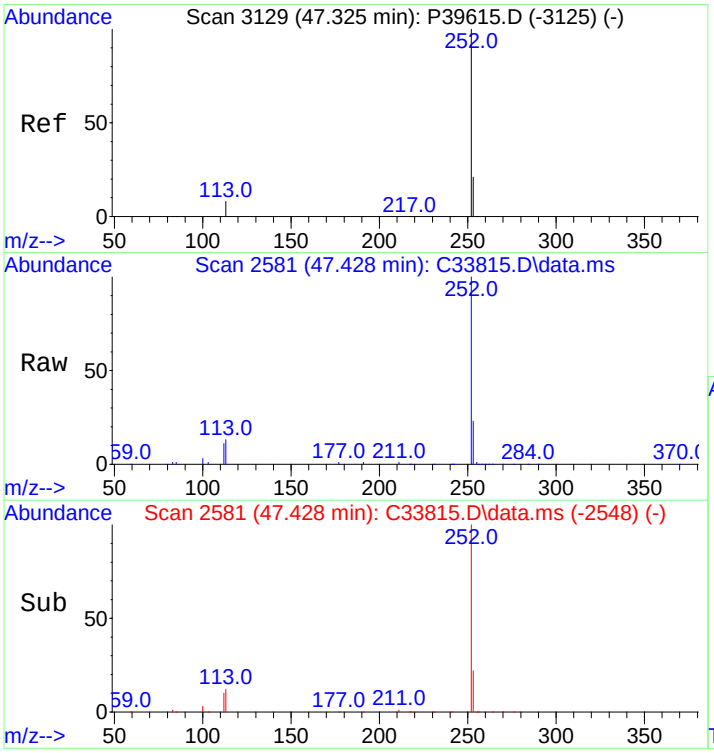


#82
Benzo[b]fluoranthene
Concen: 529.44 ng/mL
RT: 47.352 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46556

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

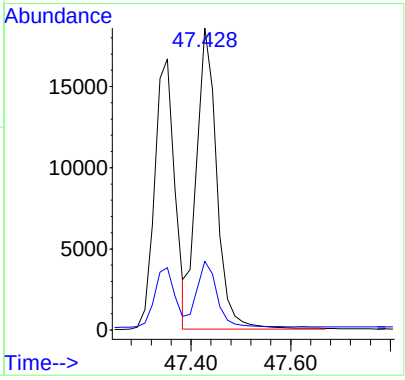


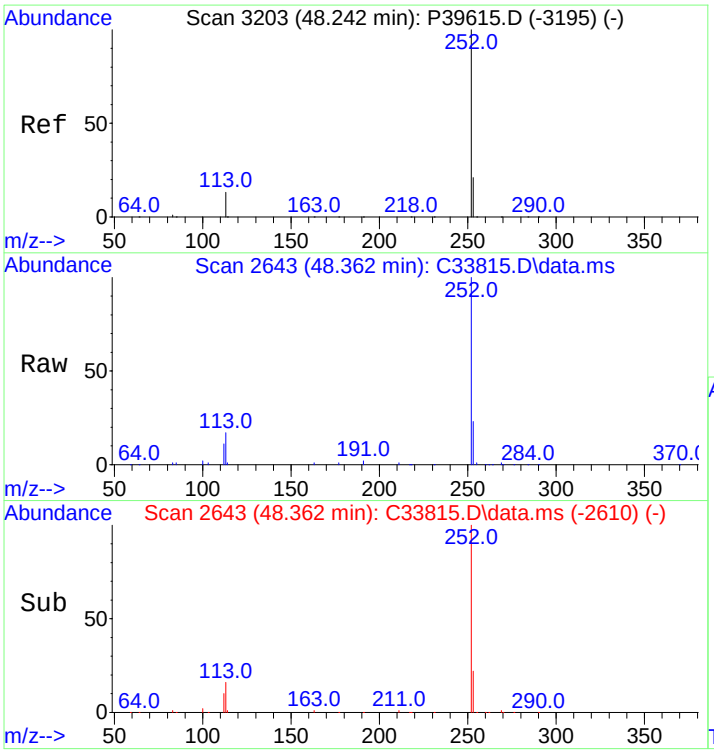


#83
Benzo[j]+[k]fluoranthene
Concen: 564.95 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 52521

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.2	27.4

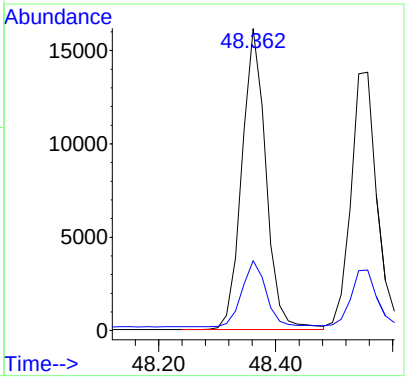


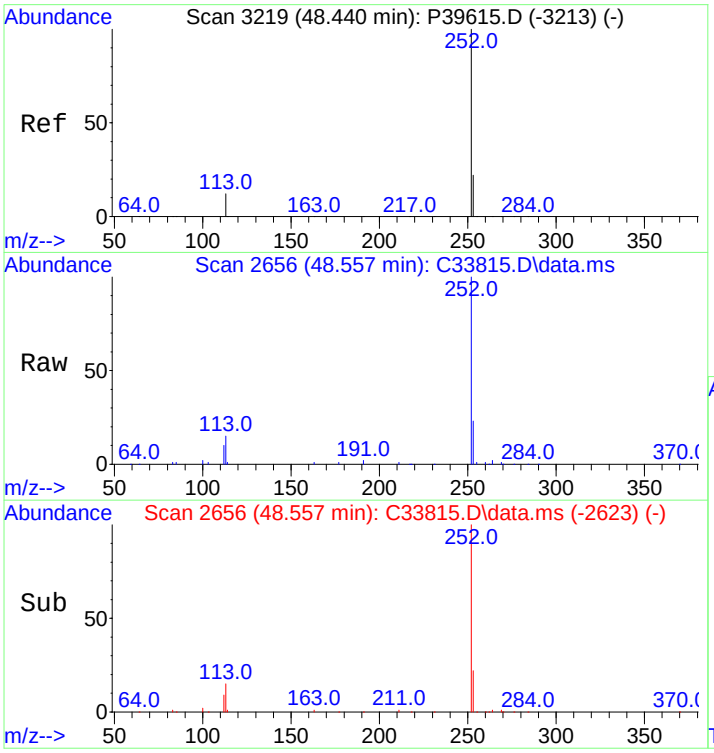


#85
Benzo[e]pyrene
Concen: 542.40 ng/mL
RT: 48.362 min Scan# 2643
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 45904

Ion	Ratio	Lower	Upper
252	100		
253	22.4	18.5	27.7

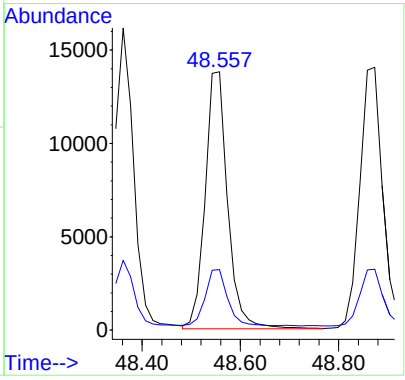


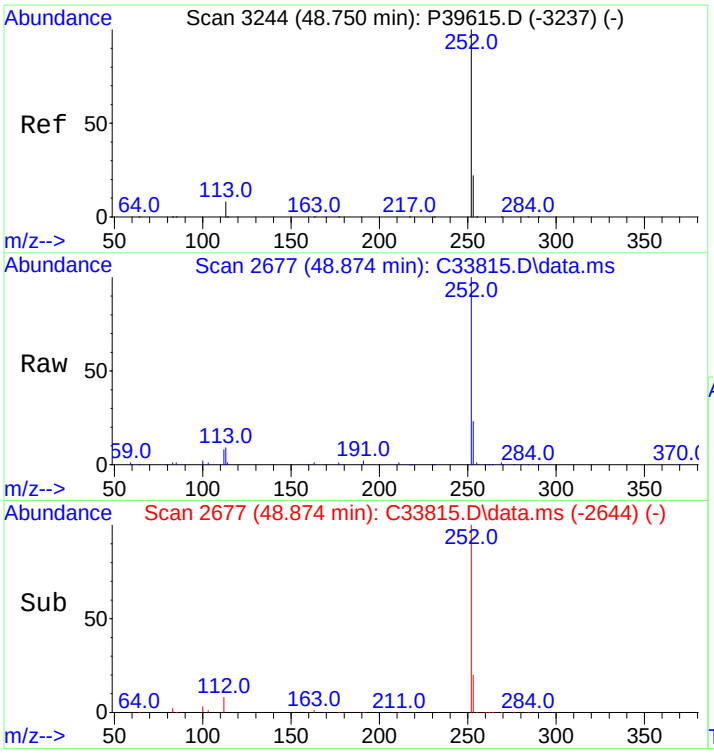


#87
Benzo[a]pyrene
Concen: 549.35 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 43695

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

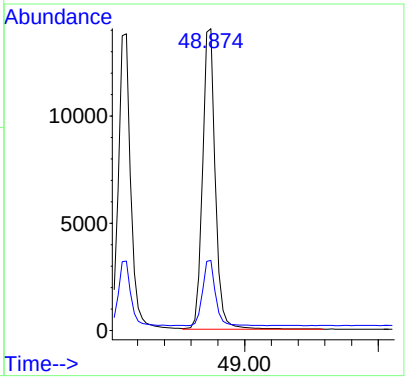


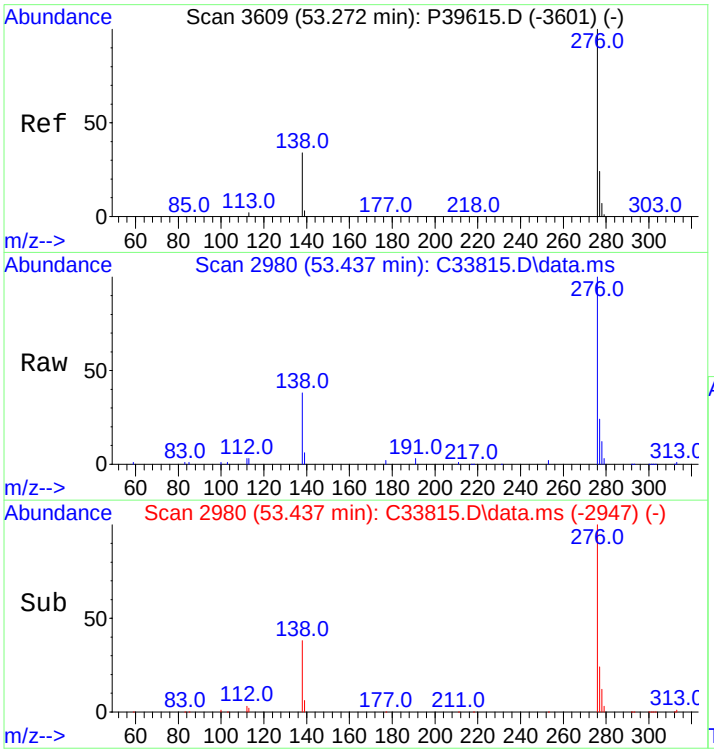


#88
Perylene
Concen: 545.55 ng/mL
RT: 48.874 min Scan# 2677
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:252 Resp: 46371

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

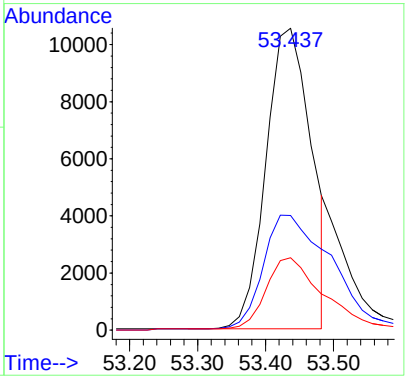


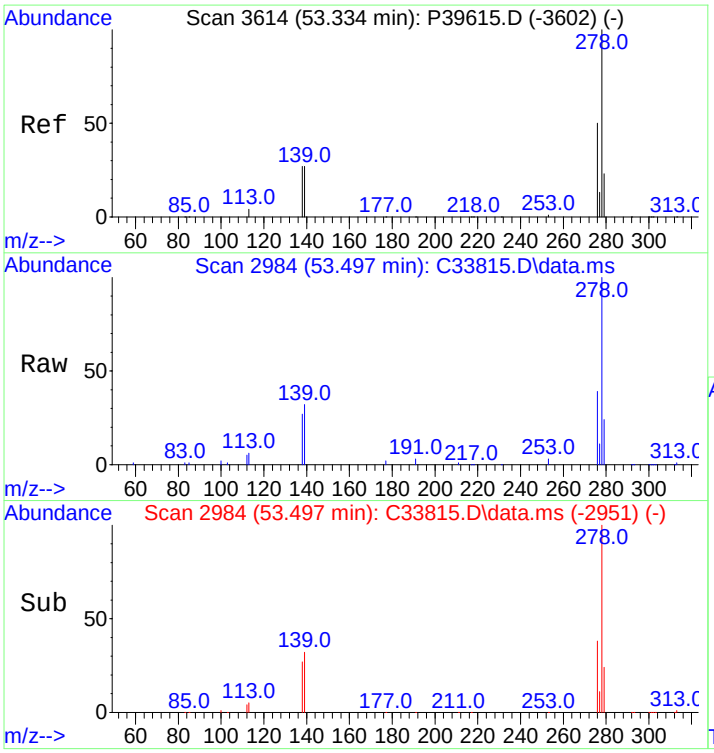


#89
Indeno[1,2,3-cd]pyrene
Concen: 532.49 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 48761

Ion	Ratio	Lower	Upper
276	100		
138	61.5	30.3	45.5#
277	31.4	19.2	28.8#

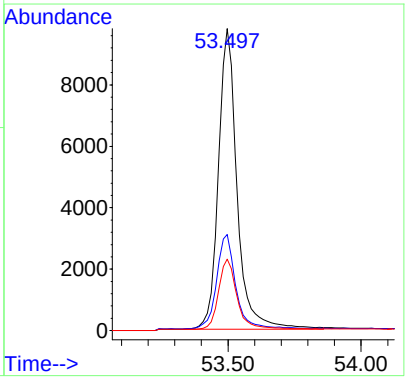


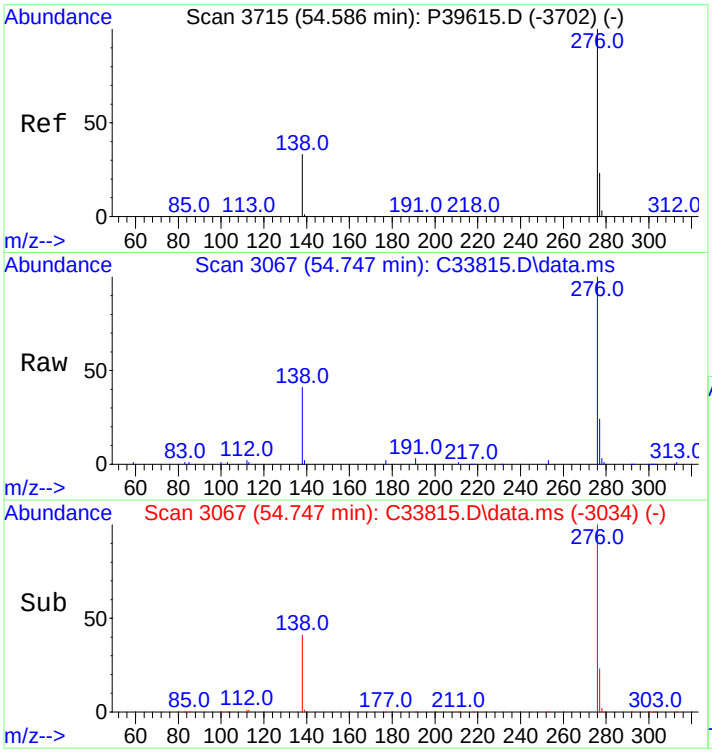


#90
Dibenz[ah]+[ac]anthracene
Concen: 556.84 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:278 Resp: 47935

Ion	Ratio	Lower	Upper
278	100		
139	33.4	25.4	38.2
279	24.0	19.0	28.4

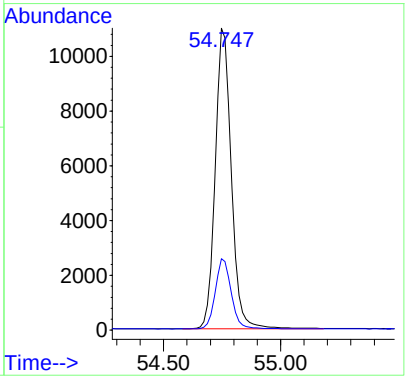


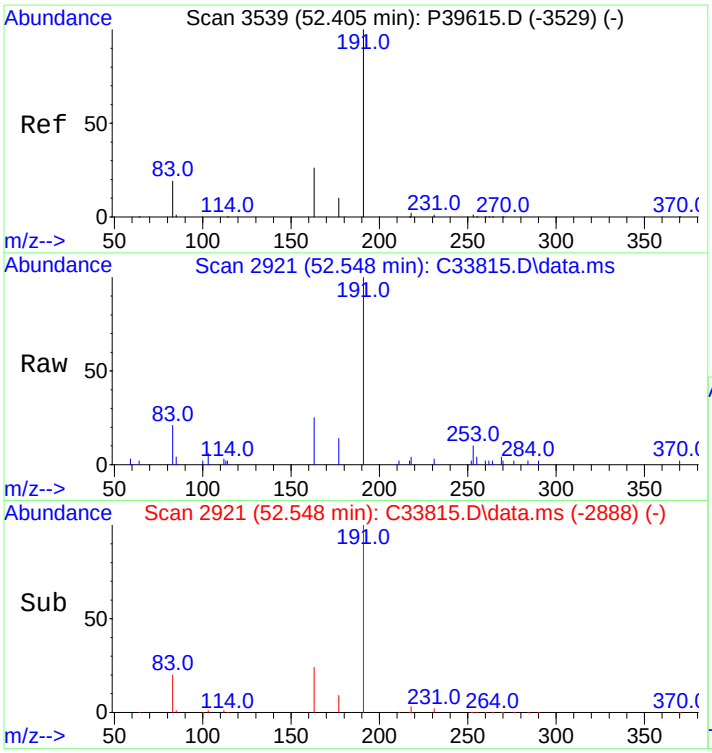


#91
Benzo[g,h,i]perylene
Concen: 561.01 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:276 Resp: 52408

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3

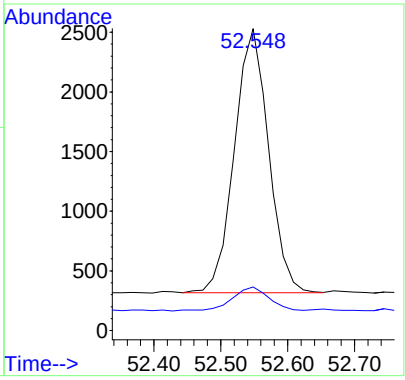


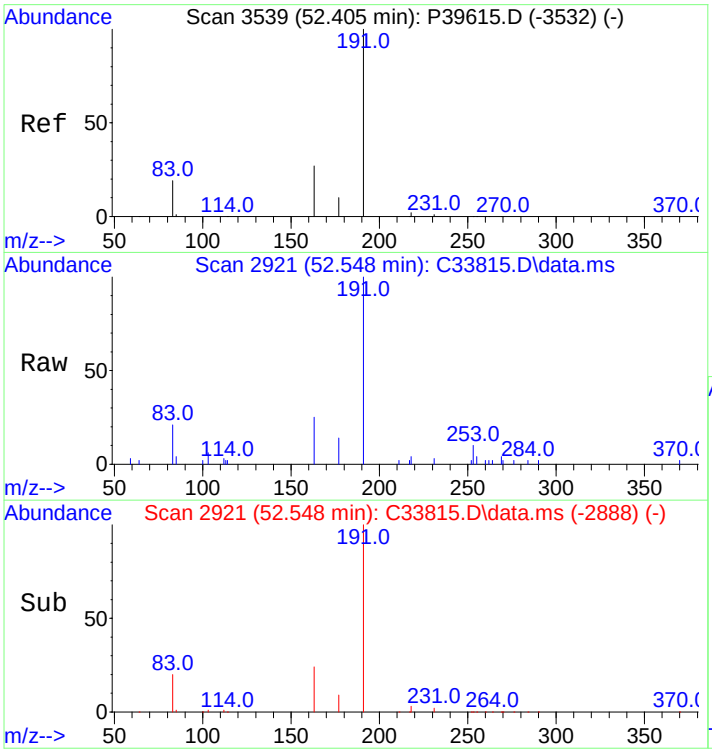


#92
Hopane (T19)
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#

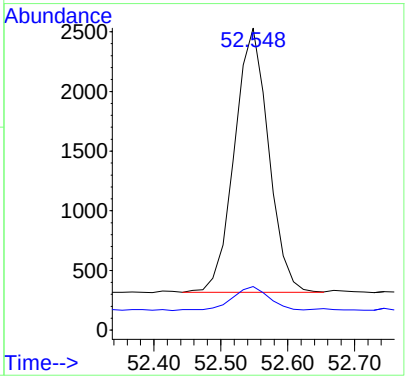




#93
17a(H),21B(H)-hopane - C30H52
Concen: 533.54 ng/mL
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33815.D
Acq: 26 Mar 2012 8:34 pm

Tgt Ion:191 Resp: 7873

Ion	Ratio	Lower	Upper
191	100		
177	9.8	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	22551M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	39747	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	478162	6355.066	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 635.51%#			
42) Phenanthrene-d10	32.793	188	412777	4730.380	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 473.04%#			
86) Benzo[a]pyrene-d12	48.482	264	443076	5545.446	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 554.54%#			
127) 5B(H)Cholane - Surr	43.995	217	64588M4	4700.223	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 470.02%#			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	43356	2781.614	ng/mL	100
4) cis-Decalin	17.844	138	33472	2752.401	ng/mL	100
10) Naphthalene	20.042	128	717522M4	8843.529	ng/mL	
16) 2-Methylnaphthalene	22.737	142	430330	7511.855	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	421519	7671.541	ng/mL#	100
18) Benzothiophene	20.268	134	651957	9797.743	ng/mL	100
23) Biphenyl	24.619	154	543936	7115.490	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	363362	6667.718	ng/mL#	100
25) Dibenzofuran	27.705	168	643601	7246.670	ng/mL	97
26) Acenaphthylene	26.320	152	752161M4	8216.990	ng/mL	
27) Acenaphthene	27.057	153	436514M4	7510.380	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	298218	5866.548	ng/mL	98
29) Fluorene	29.075	166	496059M4	6858.178	ng/mL	
33) Dibenzothiophene	32.387	184	793951M4	7268.637	ng/mL	
43) Phenanthrene	32.883	178	705493M4	6428.067	ng/mL	
54) Retene	39.869	234	149798	4693.772	ng/mL	94
55) Anthracene	33.064	178	710151M4	6678.295	ng/mL	
56) Carbazole	33.726	167	724874M3	7421.536	ng/mL	
57) 1-Methylphenanthrene	35.382	192	466229M4	5549.758	ng/mL	
58) Fluoranthene	37.656	202	730627M3	5505.463	ng/mL	
59) Benzo(b)fluorene	40.170	216	444745M4	5131.170	ng/mL	
60) Pyrene	38.544	202	747539M4	5491.938	ng/mL	
66) Naphthobenzothiophene	42.384	234	821666M4	5776.683	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	821825M4	5777.801	ng/mL	
75) Benz[a]anthracene	43.302	228	684713	5809.075	ng/mL	99
76) Chrysene	43.468	228	665554M4	5731.133	ng/mL	
77) Chrysene/Triphenylene	43.468	228	665450M4	5730.238	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	740558M4	5709.986	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.443	252	796417M4	5808.435	ng/mL	
85) Benzo[e]pyrene	48.377	252	718635	5757.223	ng/mL	98
87) Benzo[a]pyrene	48.572	252	702840M4	5991.154	ng/mL	
88) Perylene	48.889	252	752672	6003.913	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.467	276	838781M3	6210.458	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.527	278	785236	6184.645	ng/mL	96
91) Benzo[g,h,i]perylene	54.792	276	838517	6085.922	ng/mL	100
92) Hopane (T19)	52.548	191	122788M3	5641.802	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.548	191	122720M3	5638.678	ng/mL	

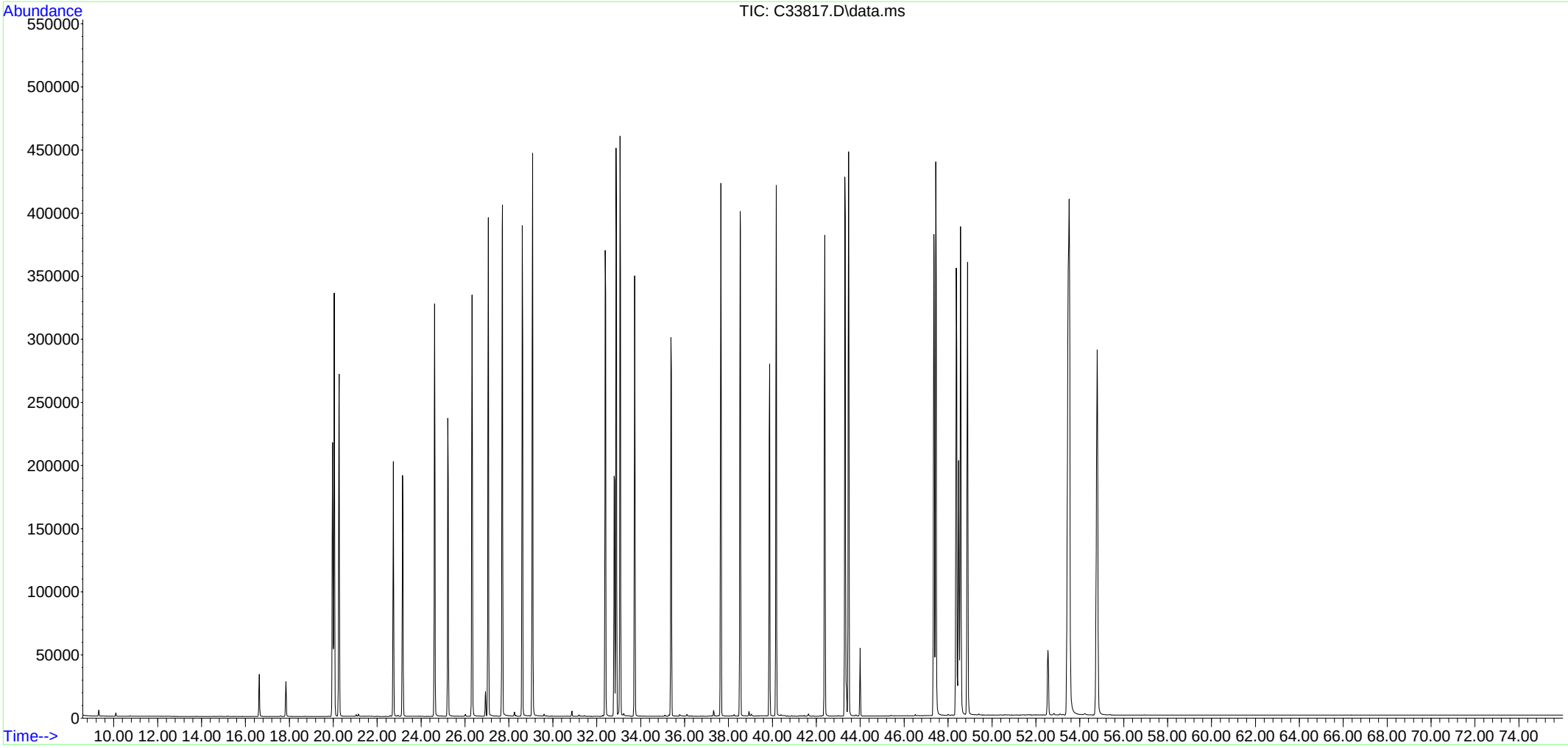
(#) = qualifier out of range (m) = manual integration (+) = signals summed

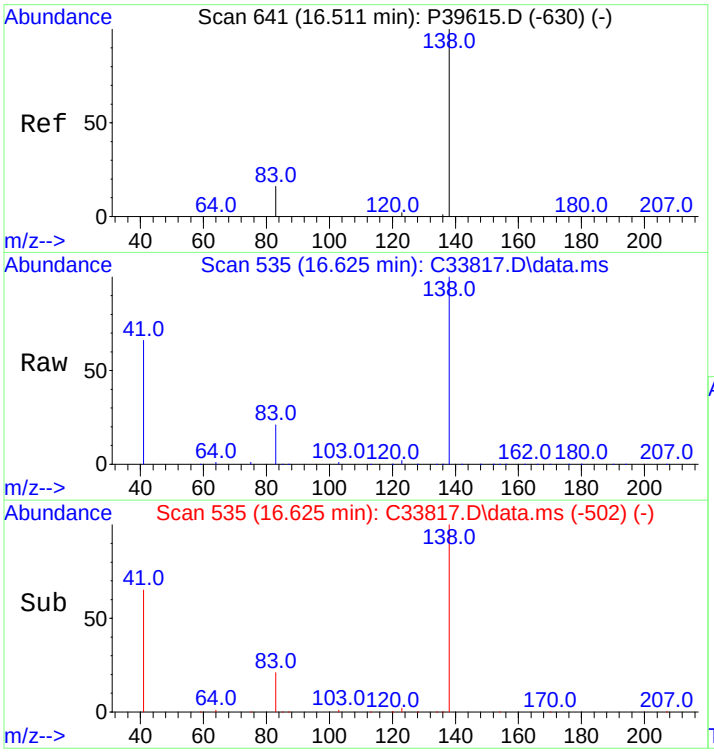
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33817.D
Acq On : 26 Mar 2012 10:06 pm
Operator : PAH3:SR
Sample : I303261205
Misc : WG525925
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 11:05:41 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

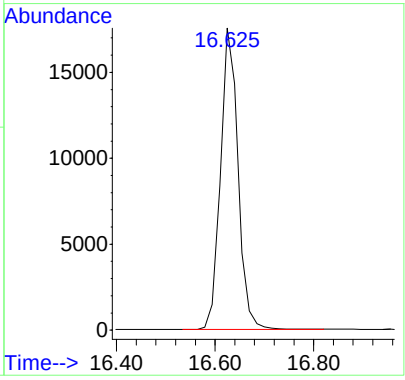
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

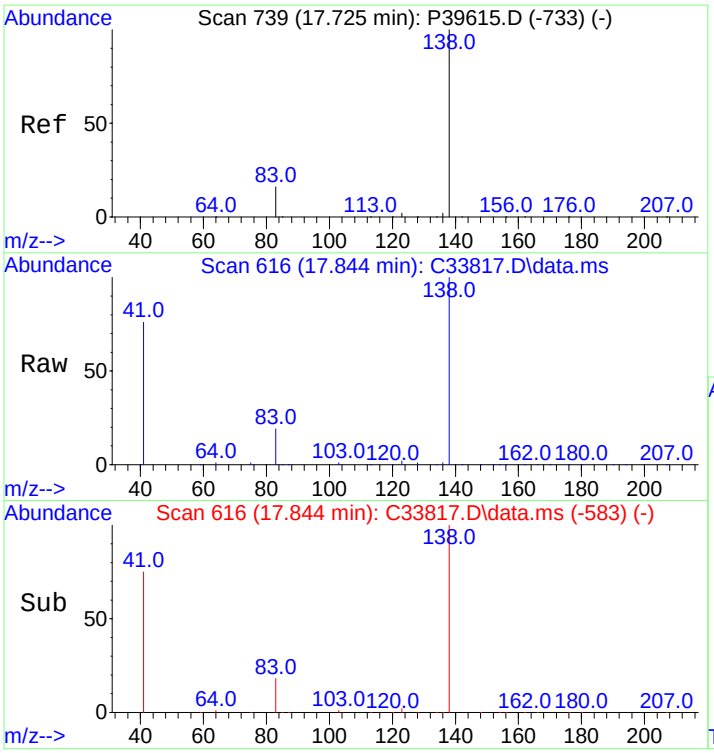




#3
trans-Decalin
Concen: 2781.61 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

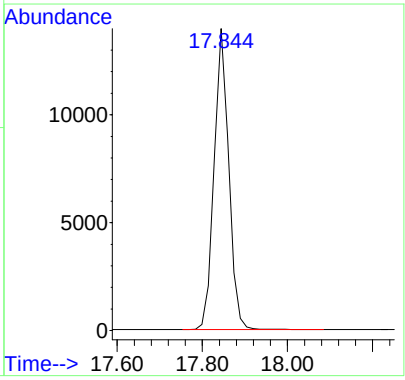
Tgt Ion:138 Resp: 43356

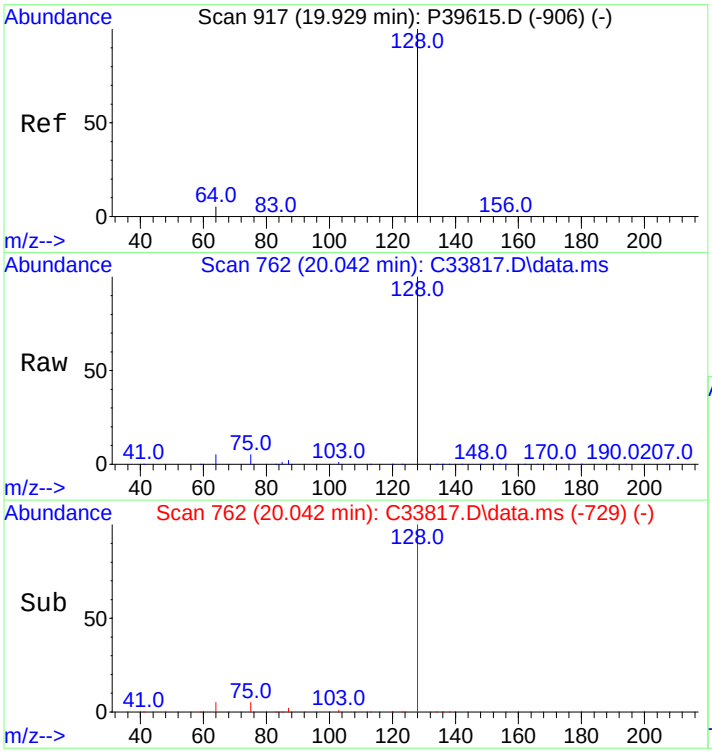




#4
cis-Decalin
Concen: 2752.40 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:138 Resp: 33472

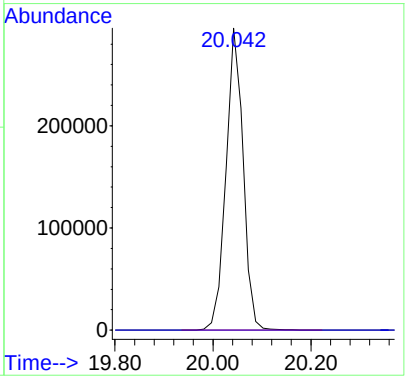


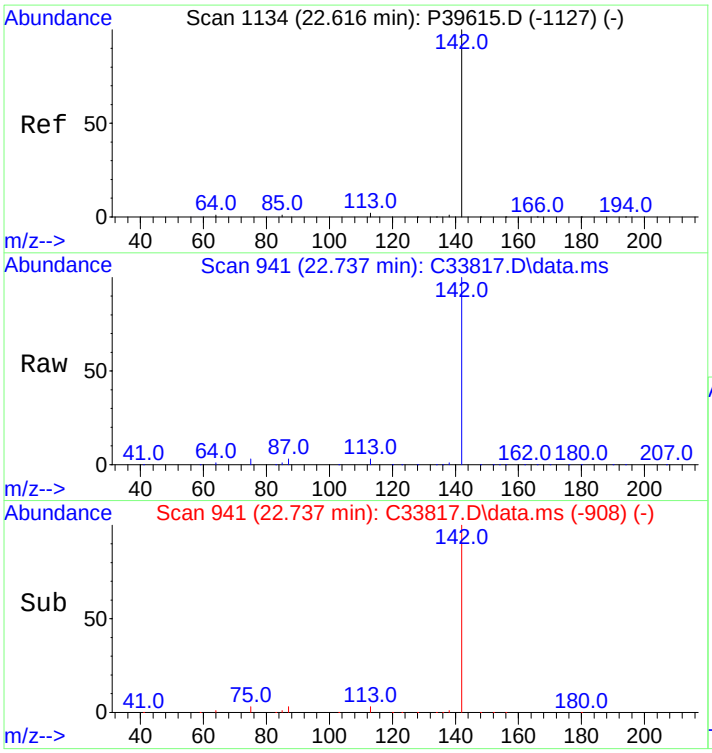


#10
Naphthalene
Concen: 8843.53 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:128 Resp: 717522

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

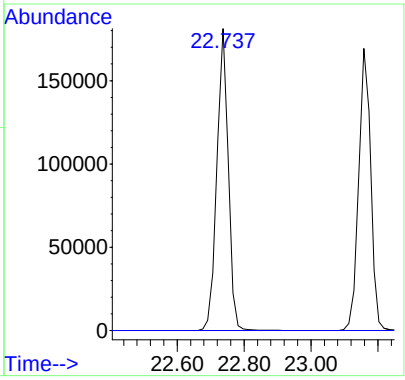


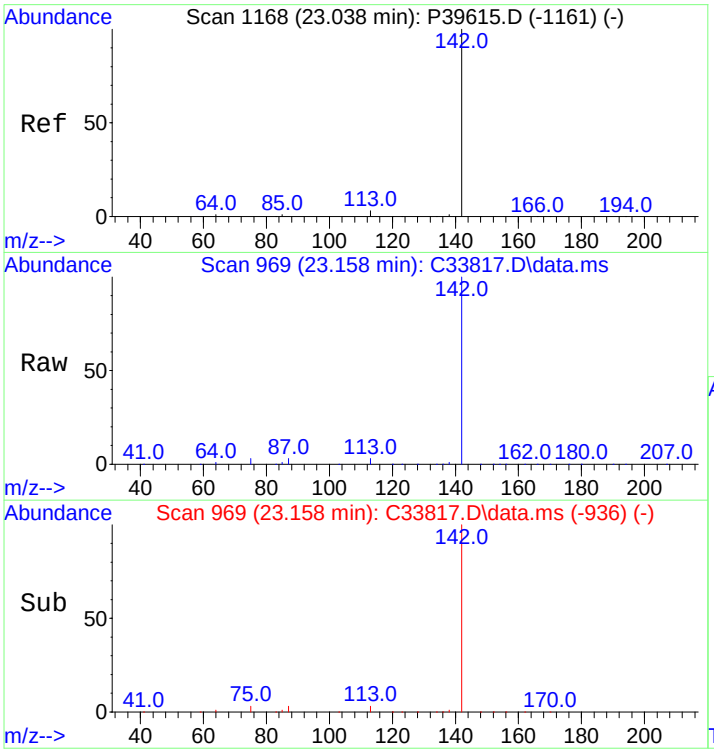


#16
2-Methylnaphthalene
Concen: 7511.86 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 430330

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

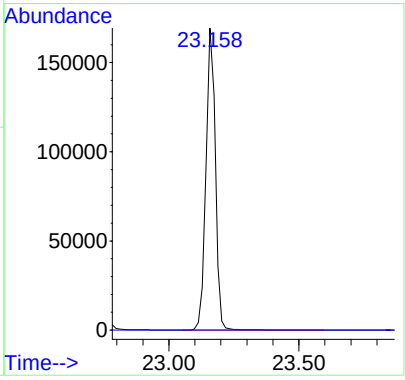


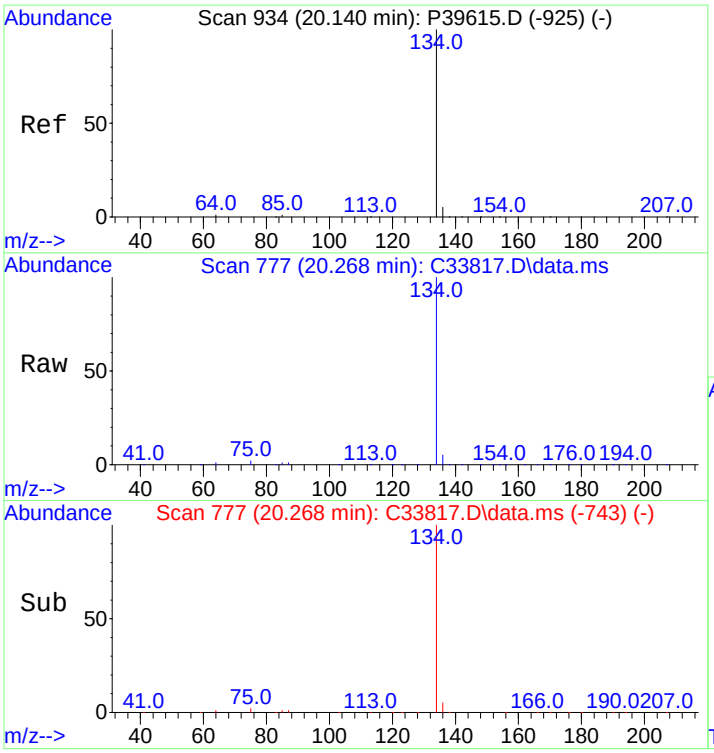


#17
1-Methylnaphthalene
Concen: 7671.54 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:142 Resp: 421519

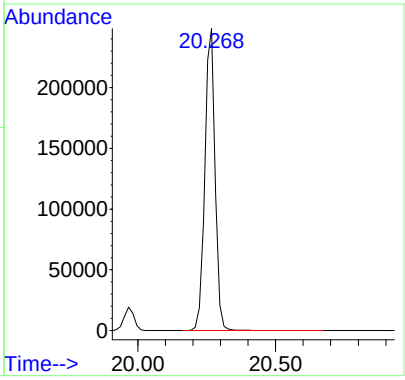
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

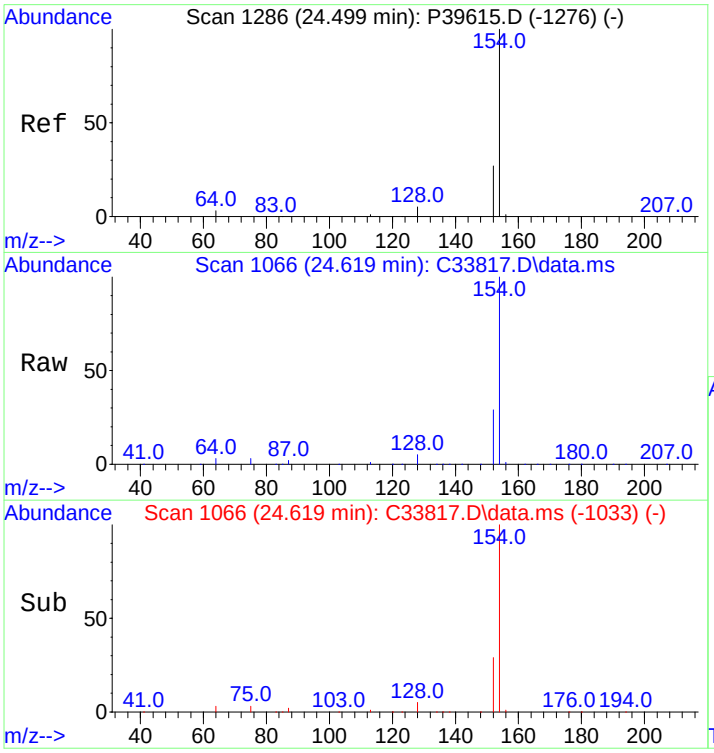




#18
Benzothiophene
Concen: 9797.74 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:134 Resp: 651957

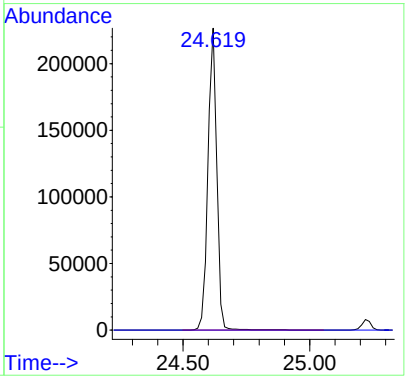


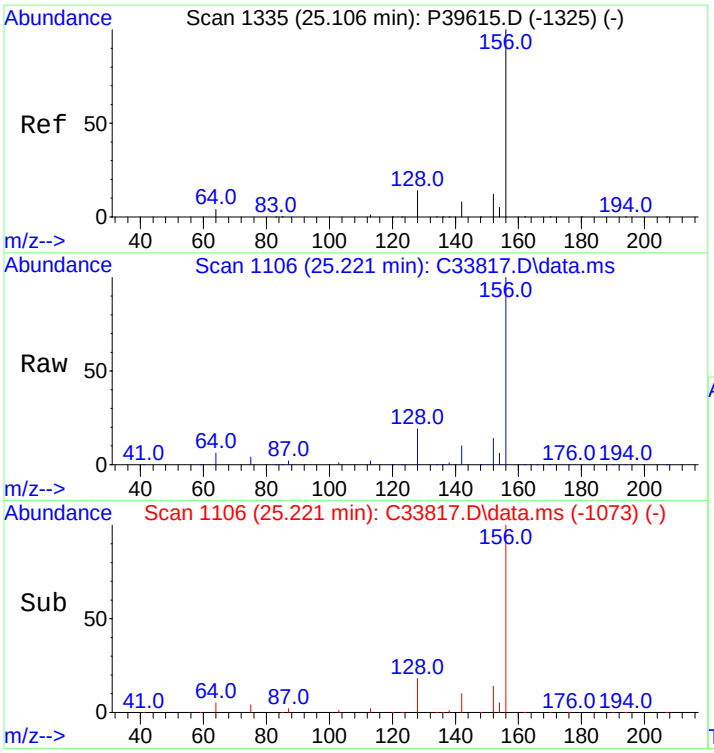


#23
Biphenyl
Concen: 7115.49 ng/mL
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:154 Resp: 543936

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

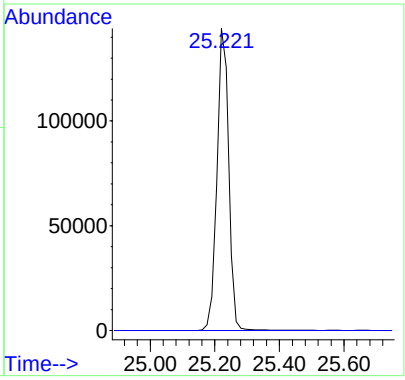


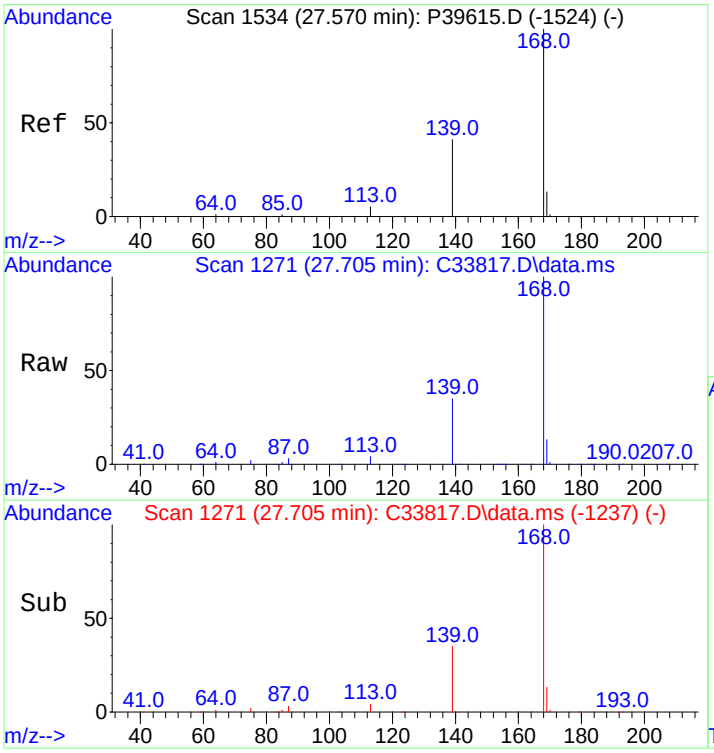


#24
2,6-Dimethylnaphthalene
Concen: 6667.72 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:156 Resp: 363362

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

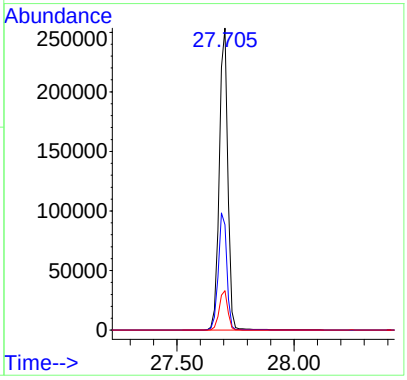


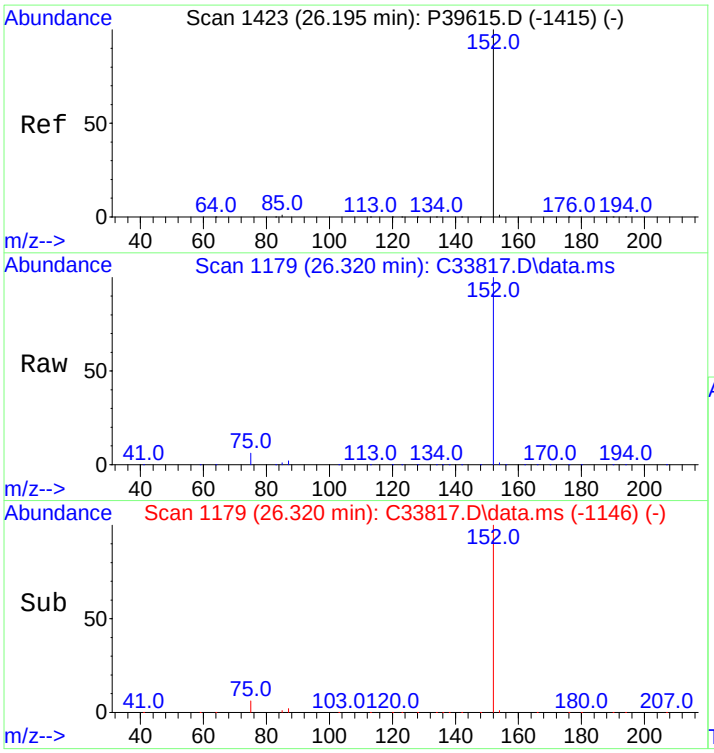


#25
Dibenzofuran
Concen: 7246.67 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:168 Resp: 643601

Ion	Ratio	Lower	Upper
168	100		
139	38.8	32.9	49.3
169	13.1	10.6	16.0

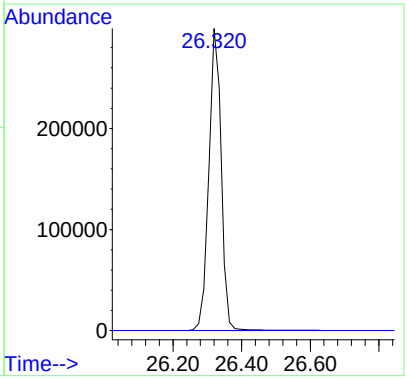


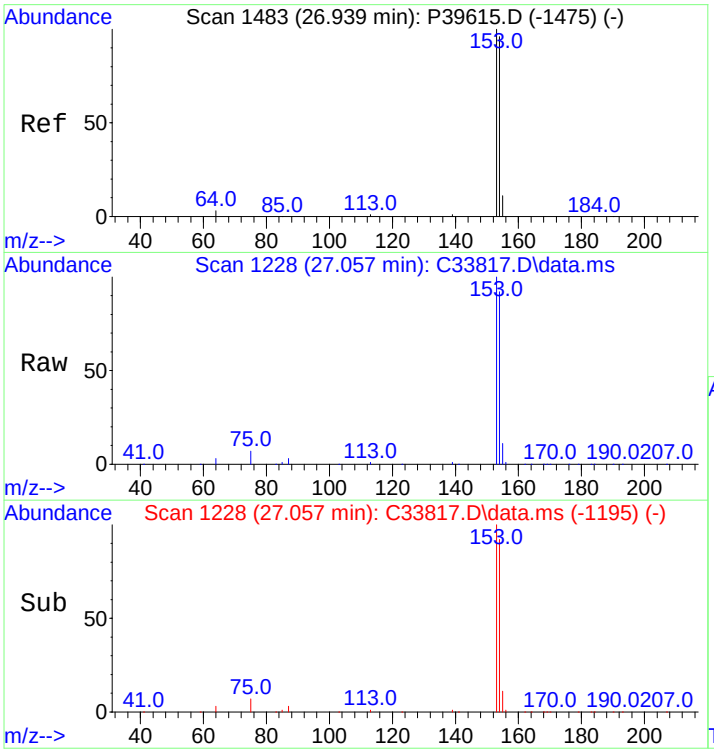


#26
Acenaphthylene
Concen: 8216.99 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:152 Resp: 752161

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

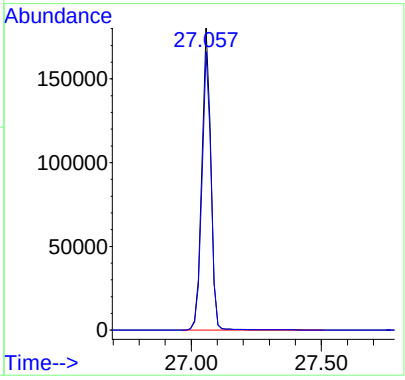


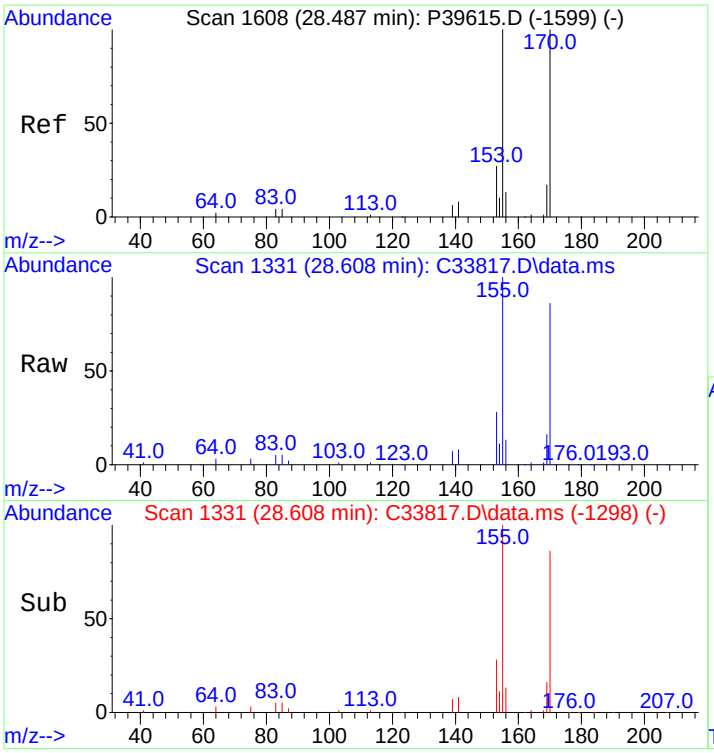


#27
Acenaphthene
Concen: 7510.38 ng/mL m
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:153 Resp: 436514

Ion	Ratio	Lower	Upper
153	100		
154	92.5	75.0	112.6

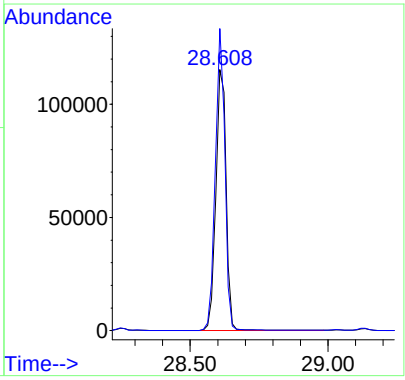


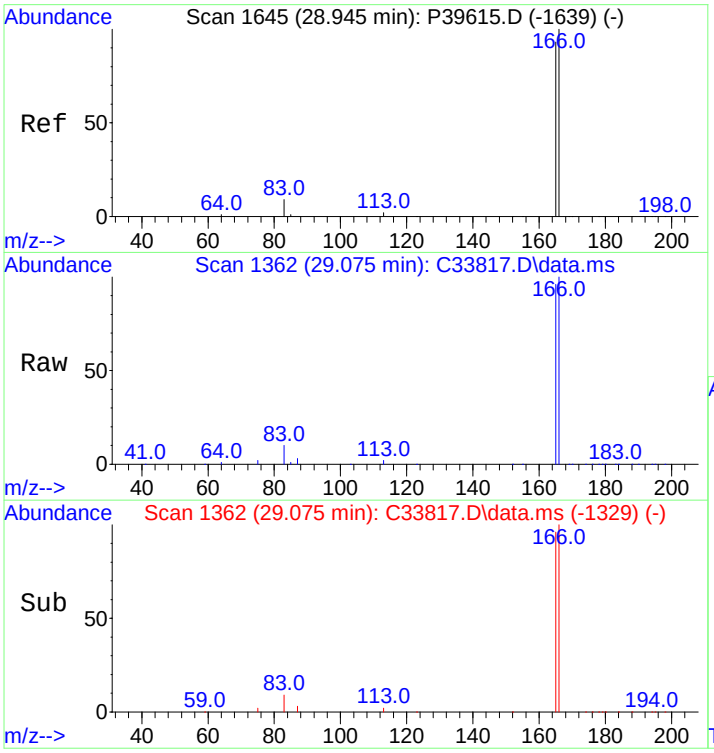


#28
2,3,5-Trimethylnaphthalene
Concen: 5866.55 ng/mL
RT: 28.608 min Scan# 1331
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:170 Resp: 298218

Ion	Ratio	Lower	Upper
170	100		
155	107.7	84.7	127.1

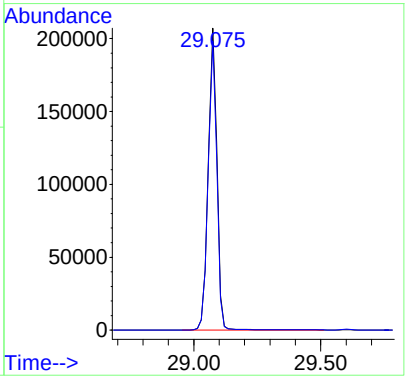


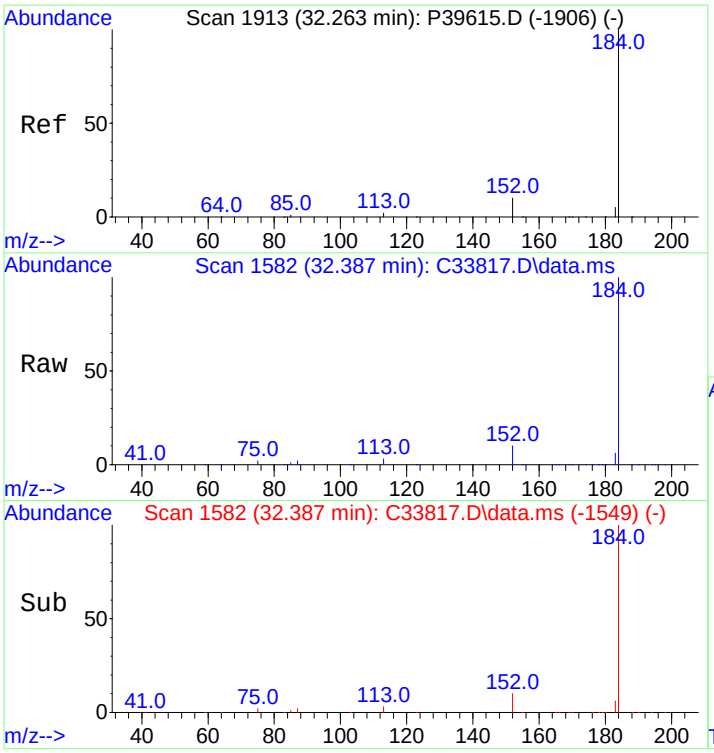


#29
Fluorene
Concen: 6858.18 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:166 Resp: 496059

Ion	Ratio	Lower	Upper
166	100		
165	95.5	75.3	112.9

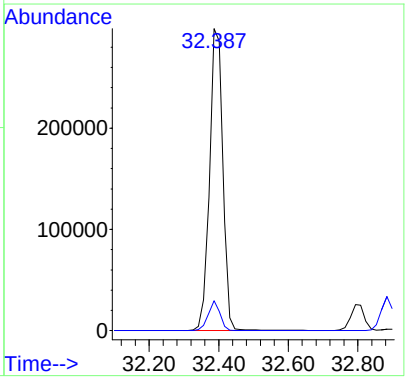


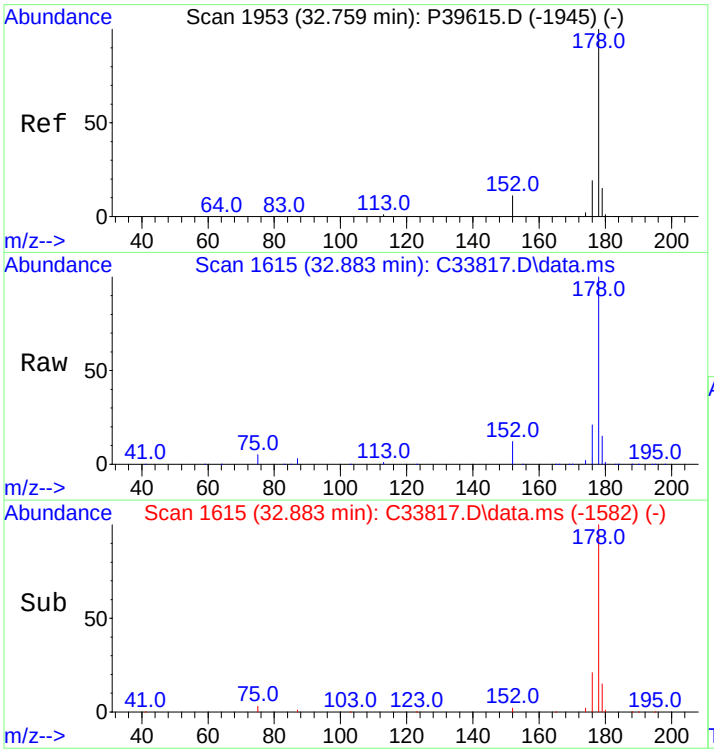


#33
Dibenzothiophene
Concen: 7268.64 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:184 Resp: 793951

Ion	Ratio	Lower	Upper
184	100		
152	8.7	6.7	10.1

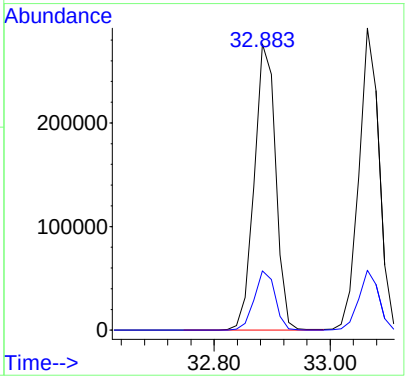


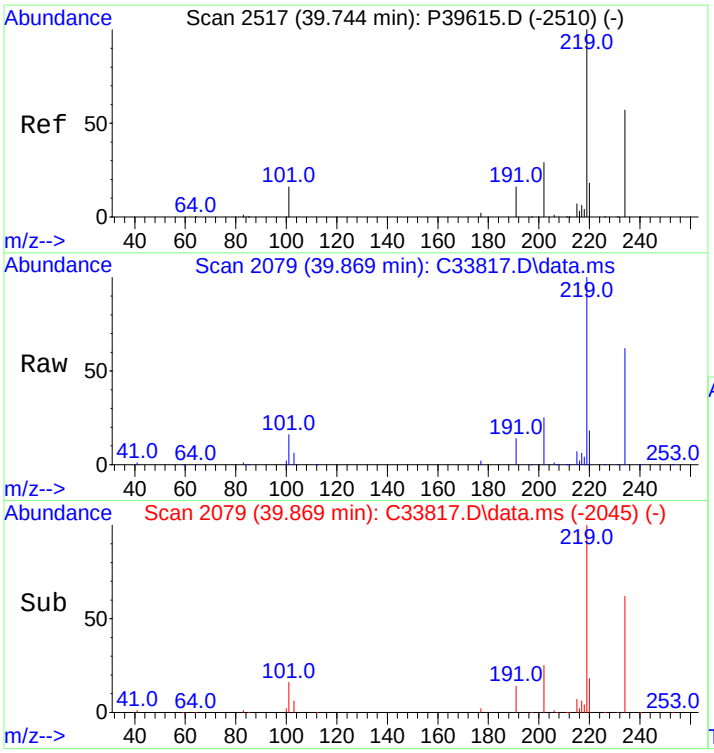


#43
Phenanthrene
Concen: 6428.07 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 705493

Ion	Ratio	Lower	Upper
178	100		
176	20.2	15.9	23.9

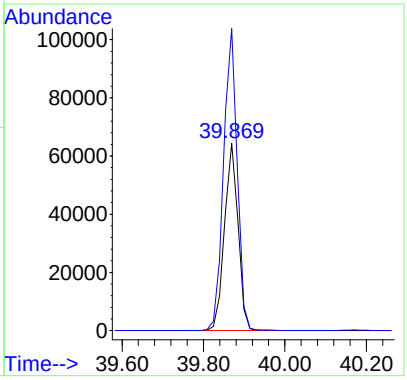


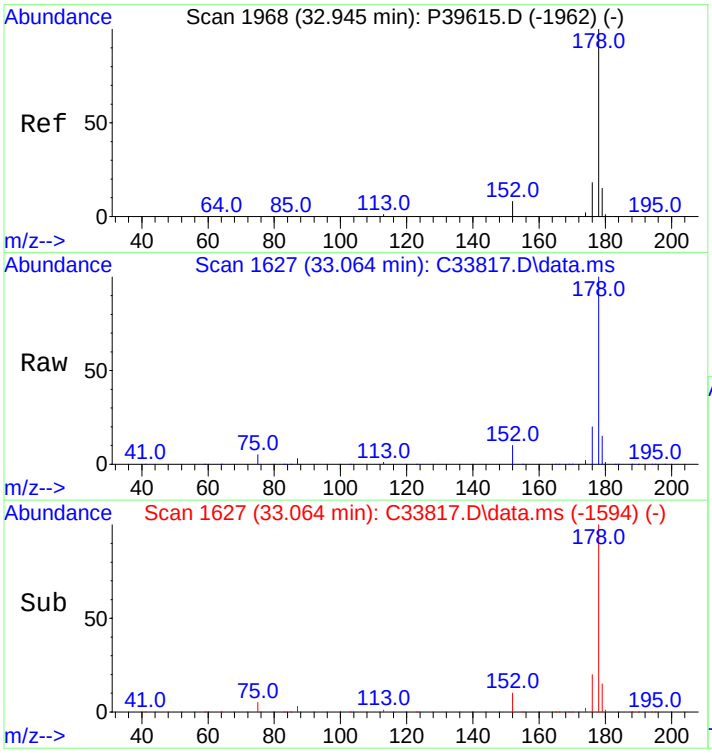


#54
Retene
Concen: 4693.77 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 149798

Ion	Ratio	Lower	Upper
234	100		
219	162.3	136.6	204.8

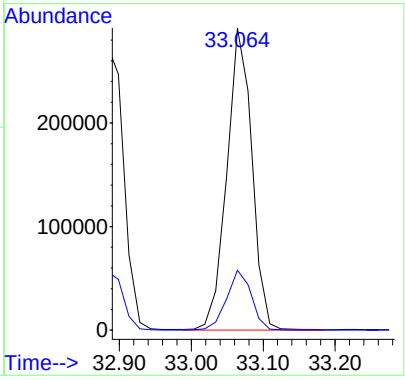


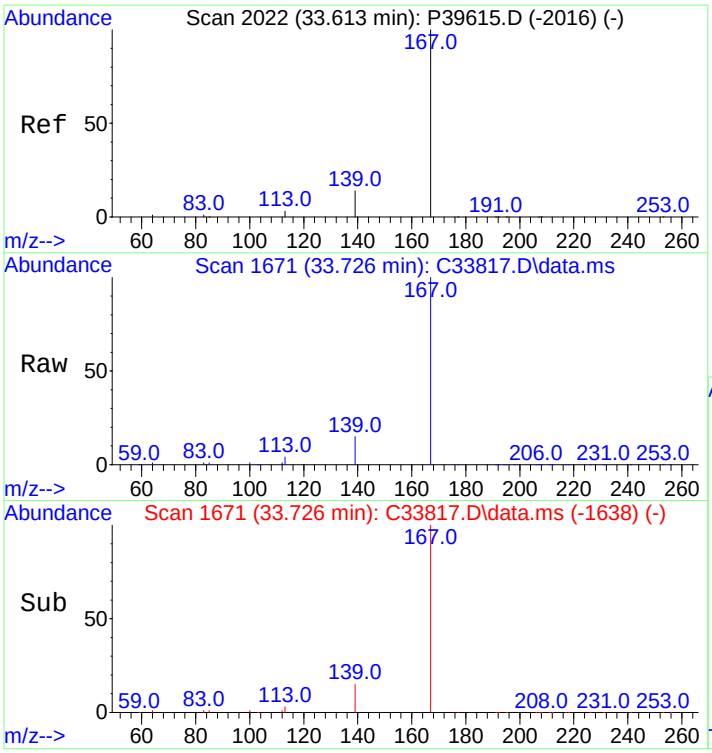


#55
Anthracene
Concen: 6678.30 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:178 Resp: 710151

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.4	23.0

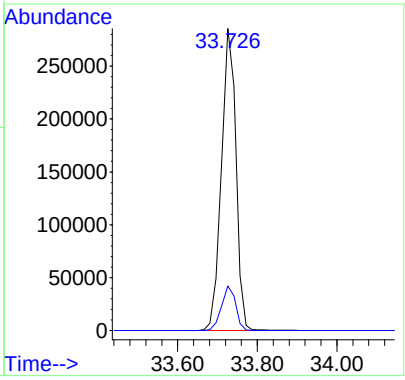


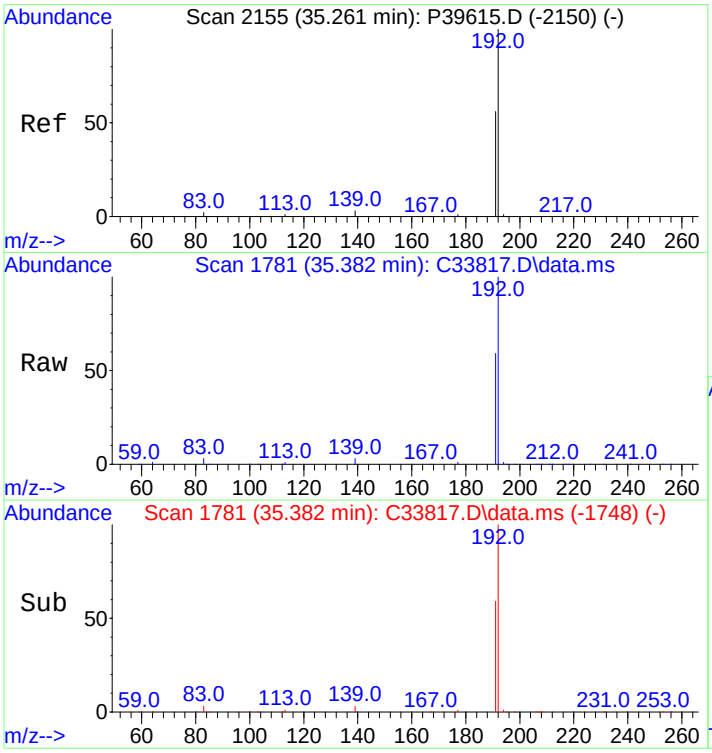


#56
Carbazole
Concen: 7421.54 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:167 Resp: 724874

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

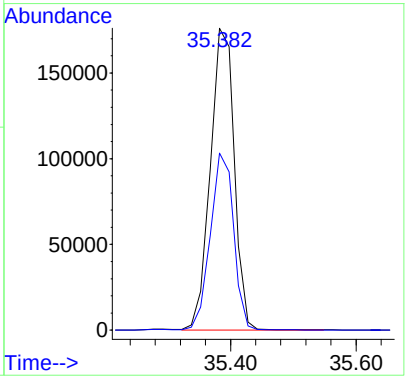


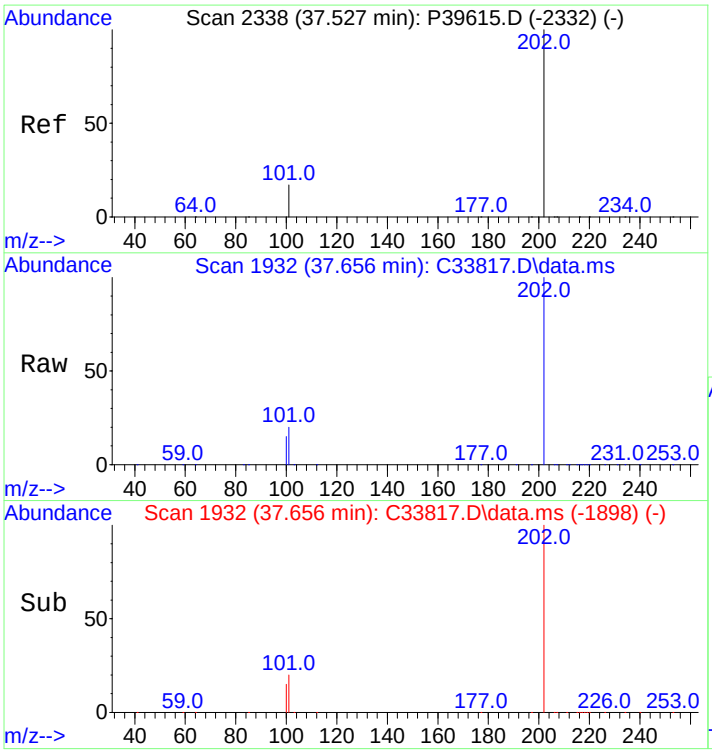


#57
1-Methylphenanthrene
Concen: 5549.76 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:192 Resp: 466229

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

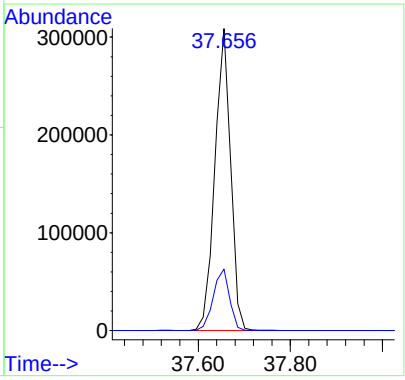


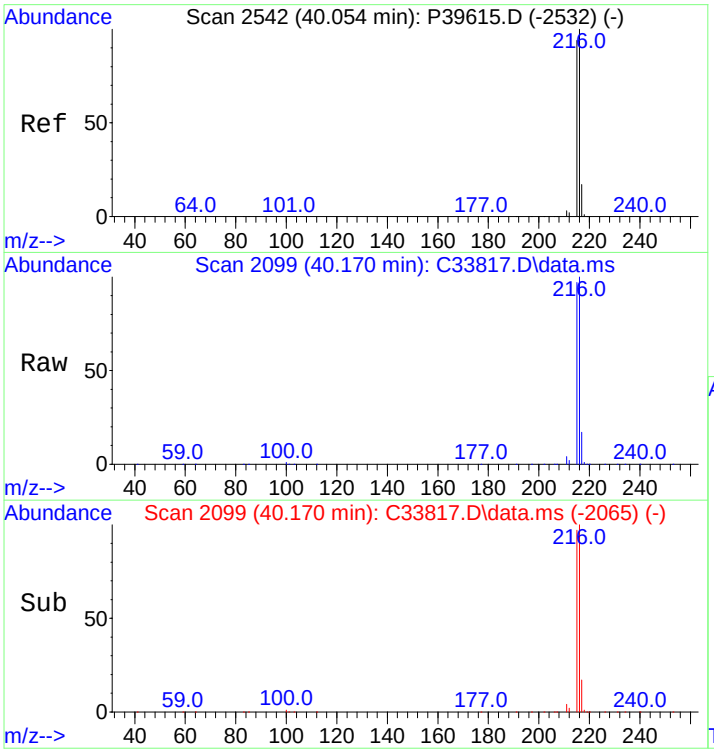


#58
Fluoranthene
Concen: 5505.46 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 730627

Ion	Ratio	Lower	Upper
202	100		
101	21.1	19.1	28.7

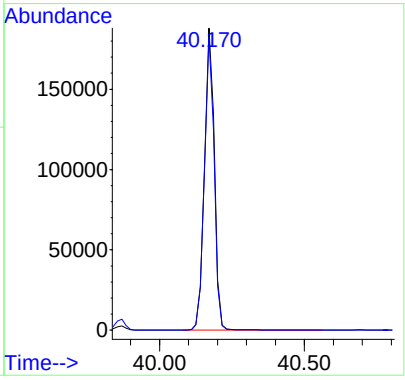


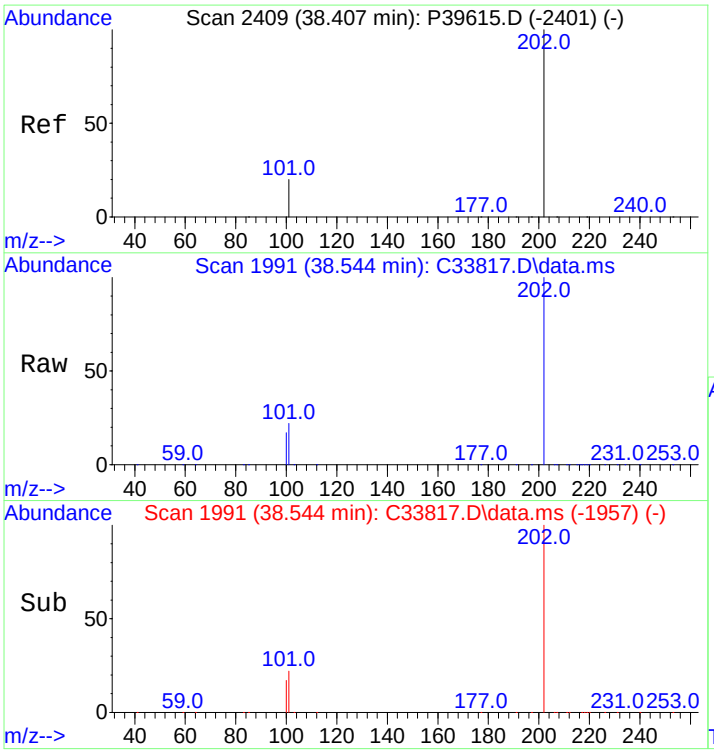


#59
Benzo(b)fluorene
Concen: 5131.17 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:216 Resp: 444745

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

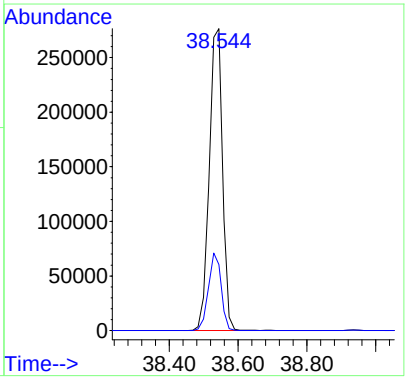


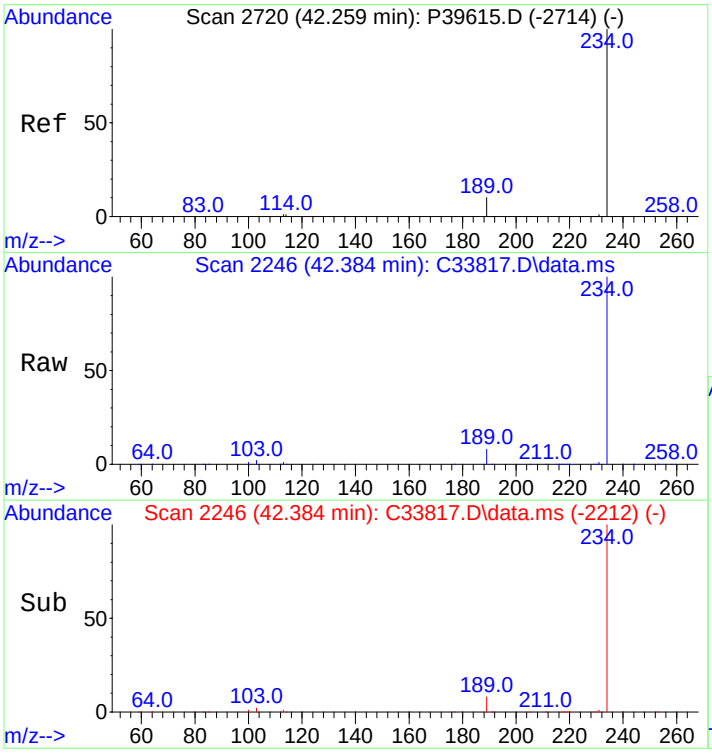


#60
Pyrene
Concen: 5491.94 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:202 Resp: 747539

Ion	Ratio	Lower	Upper
202	100		
101	24.6	20.4	30.6

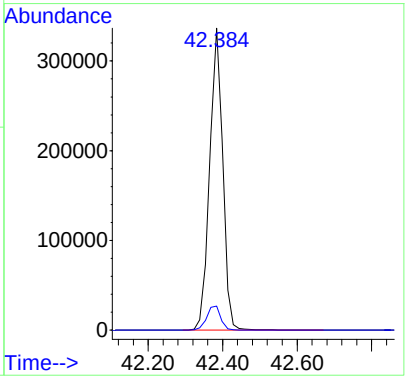


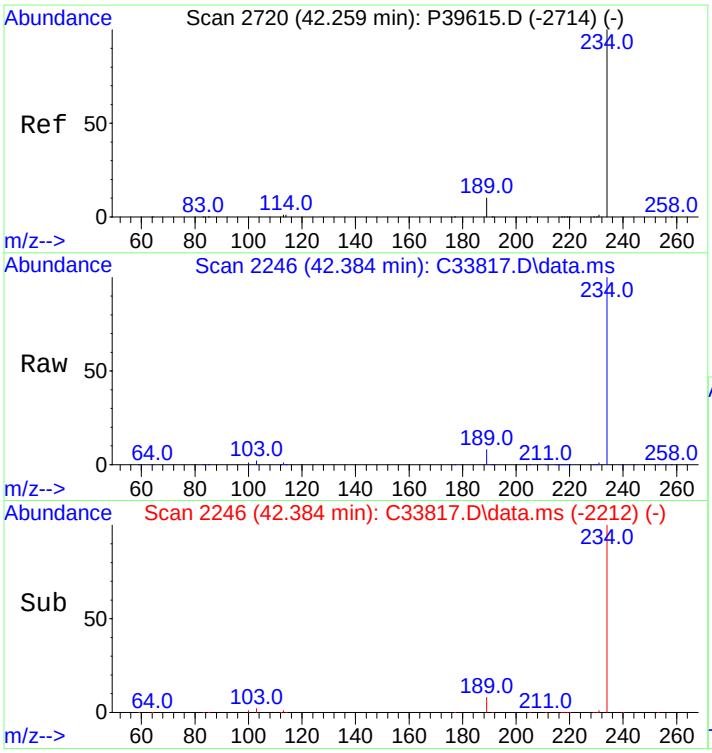


#66
Naphthobenzothiophene
Concen: 5776.68 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821666

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

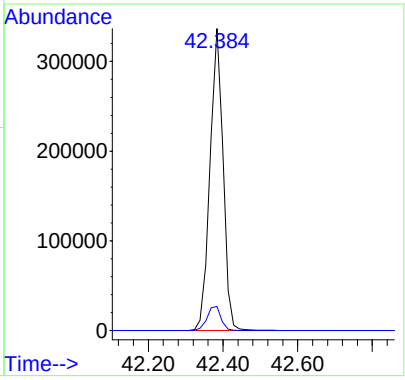


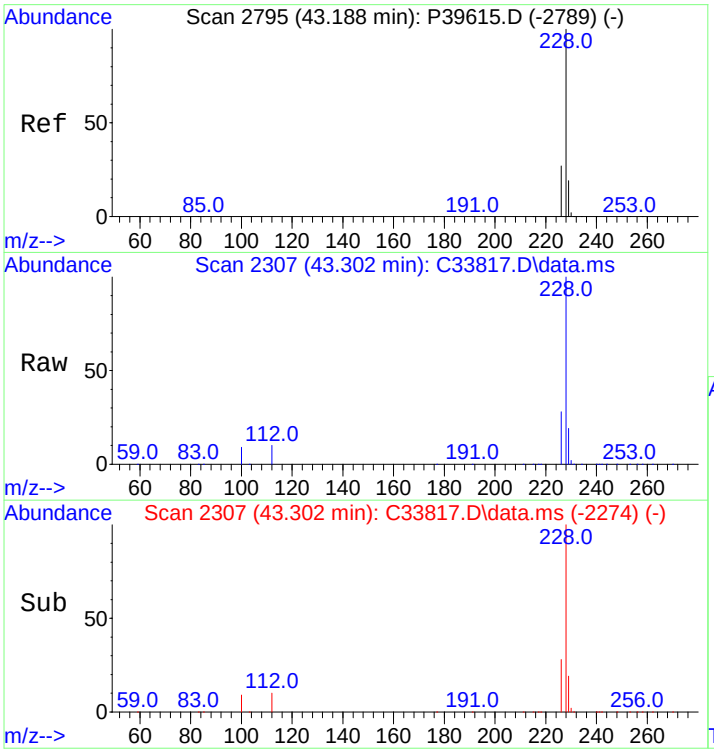


#67
Naphthobenzothiophene-2,1-D
Concen: 5777.80 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:234 Resp: 821825

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

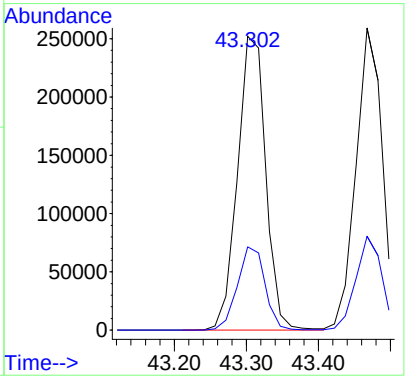


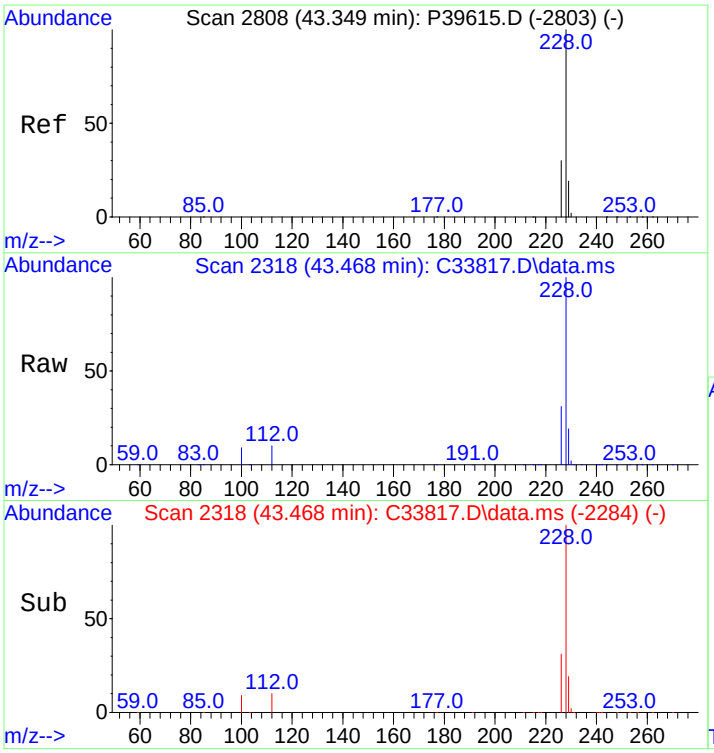


#75
Benz[a]anthracene
Concen: 5809.08 ng/mL
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 684713

Ion	Ratio	Lower	Upper
228	100		
226	27.7	21.8	32.8

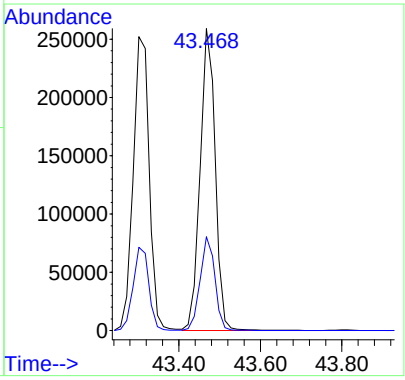


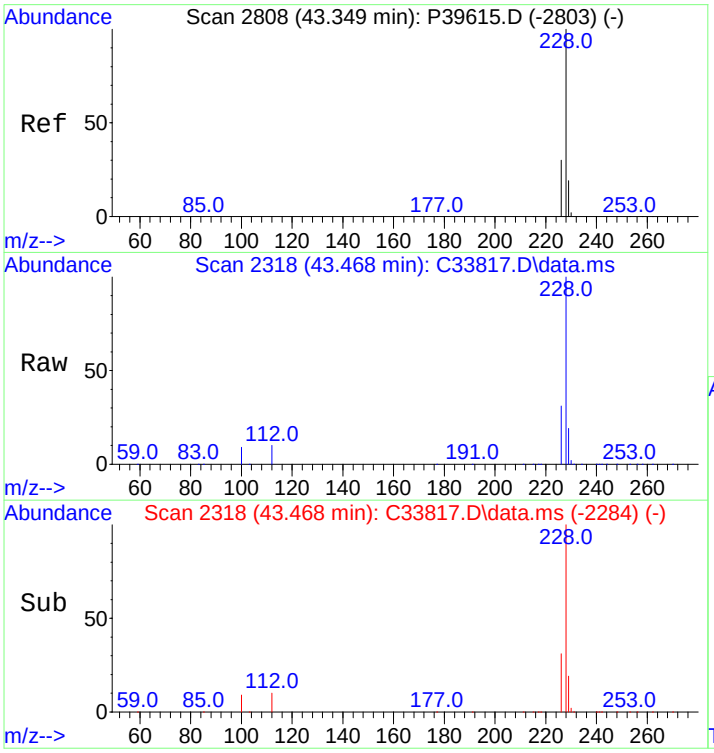


#76
Chrysene
Concen: 5731.13 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665554

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

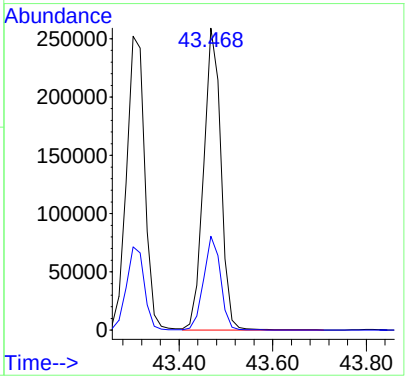


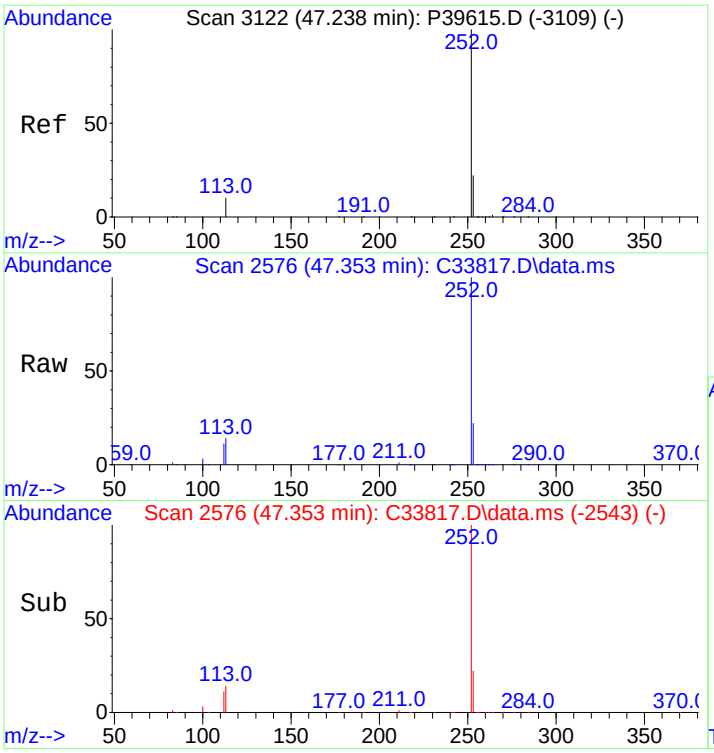


#77
Chrysene/Triphenylene
Concen: 5730.24 ng/mL m
RT: 43.468 min Scan# 2318
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:228 Resp: 665450

Ion	Ratio	Lower	Upper
228	100		
226	30.5	24.2	36.4

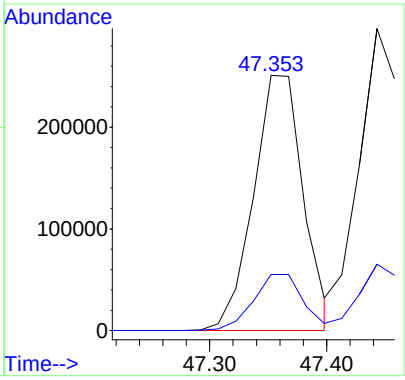


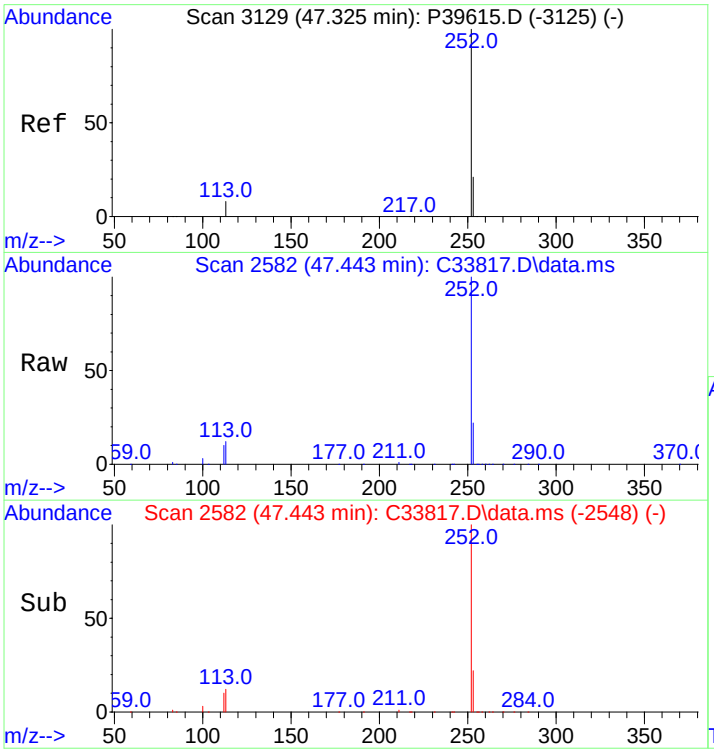


#82
Benzo[b]fluoranthene
Concen: 5709.99 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 740558

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

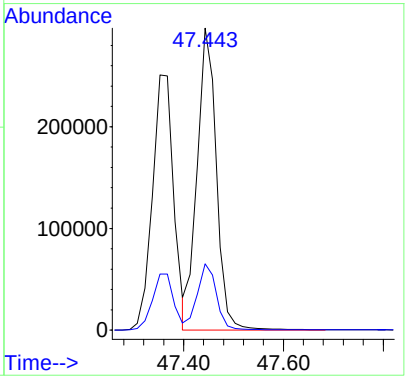


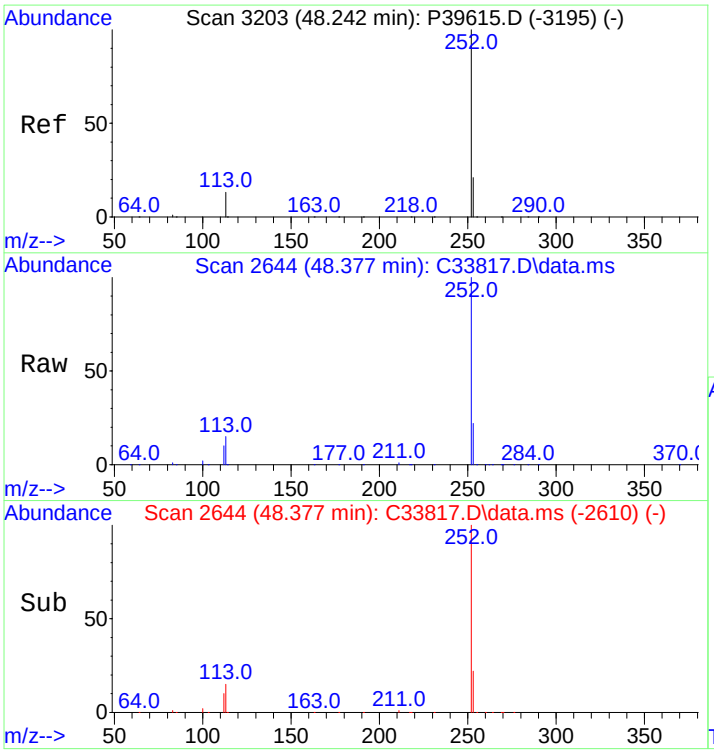


#83
Benzo[j]+[k]fluoranthene
Concen: 5808.43 ng/mL m
RT: 47.443 min Scan# 2582
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 796417

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.2	27.4

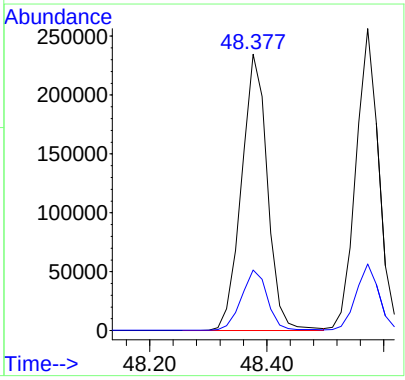


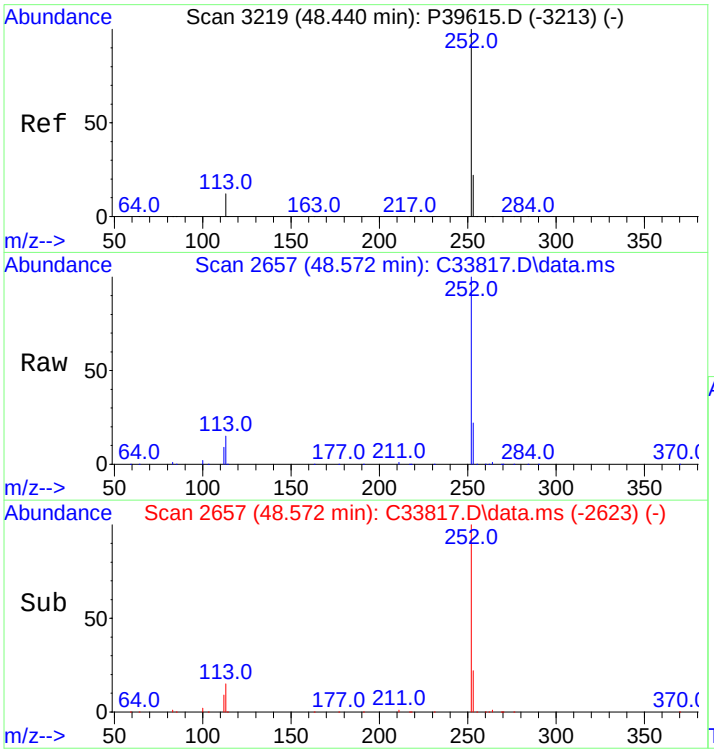


#85
Benzo[e]pyrene
Concen: 5757.22 ng/mL
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 718635

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

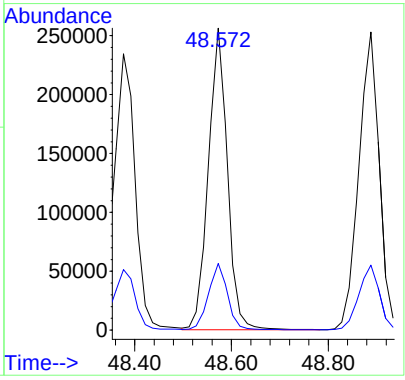


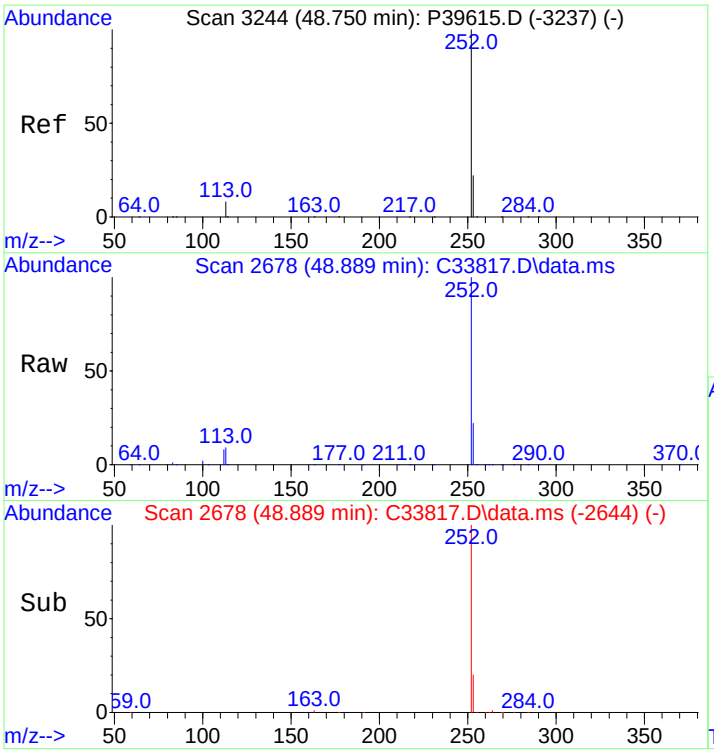


#87
Benzo[a]pyrene
Concen: 5991.15 ng/mL m
RT: 48.572 min Scan# 2657
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 702840

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.7	28.1

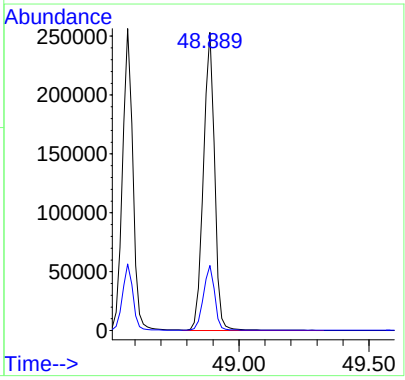


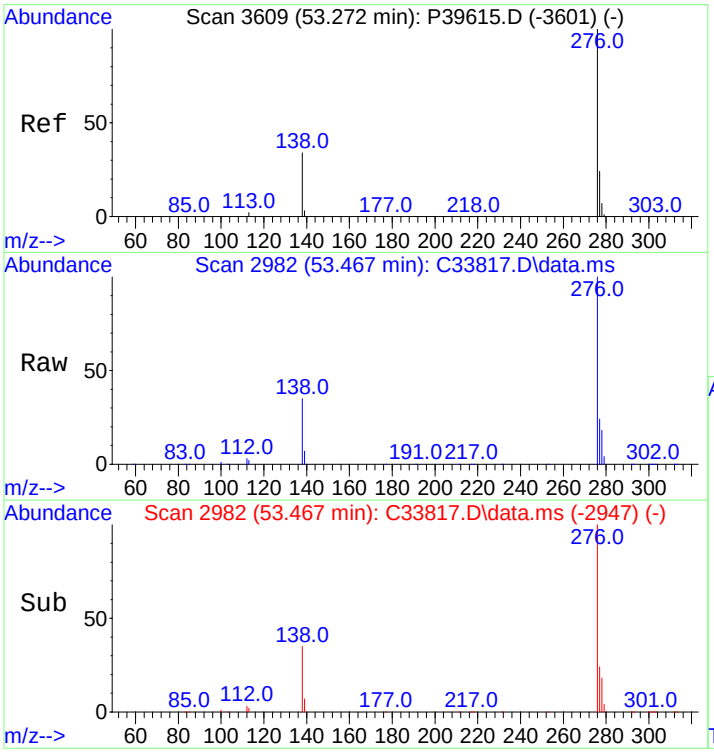


#88
Perylene
Concen: 6003.91 ng/mL
RT: 48.889 min Scan# 2678
Delta R.T. 0.015 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:252 Resp: 752672

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.6	27.8

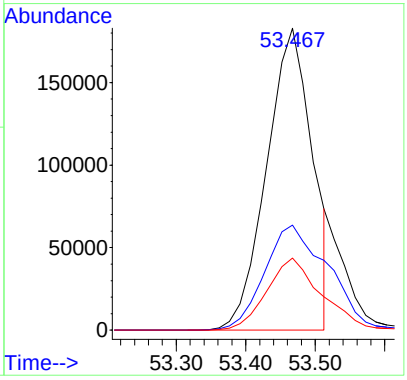


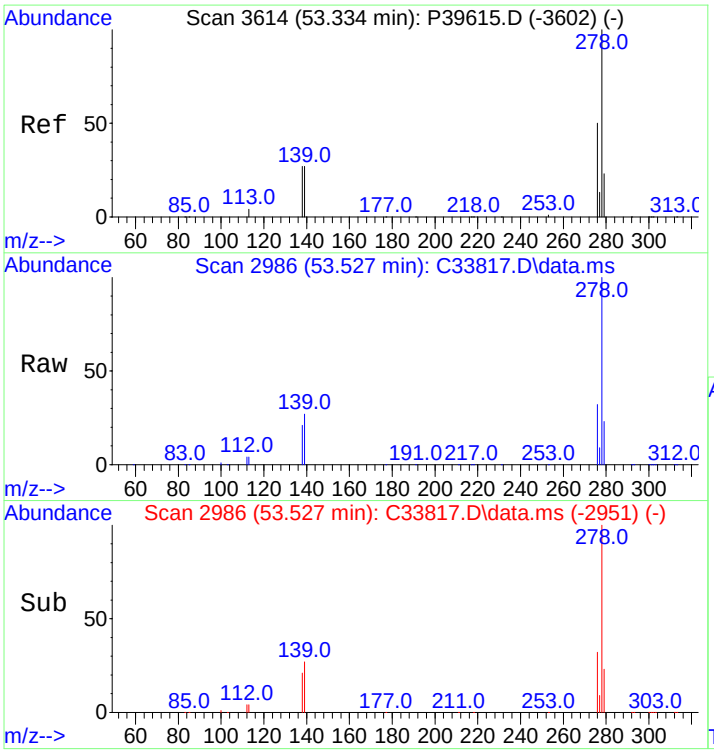


#89
Indeno[1,2,3-cd]pyrene
Concen: 6210.46 ng/mL m
RT: 53.467 min Scan# 2982
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838781

Ion	Ratio	Lower	Upper
276	100		
138	48.9	30.3	45.5#
277	28.9	19.2	28.8#

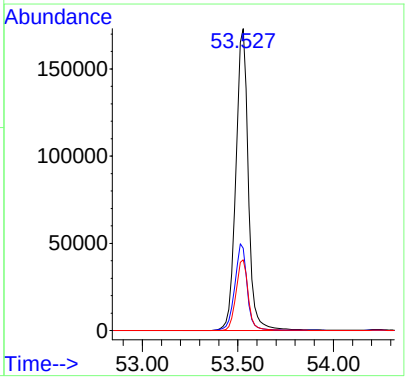


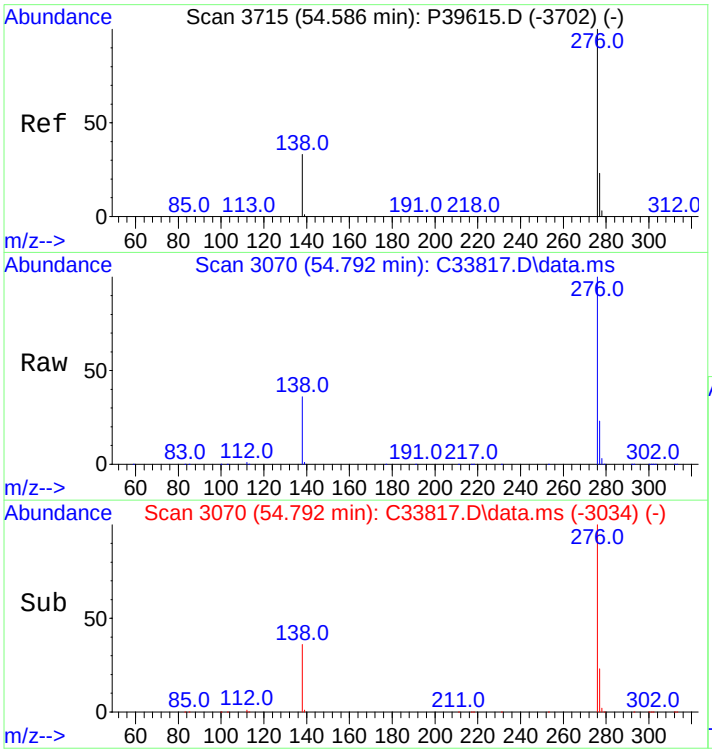


#90
Dibenz[ah]+[ac]anthracene
Concen: 6184.65 ng/mL
RT: 53.527 min Scan# 2986
Delta R.T. 0.030 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:278 Resp: 785236

Ion	Ratio	Lower	Upper
278	100		
139	28.6	25.4	38.2
279	23.2	19.0	28.4

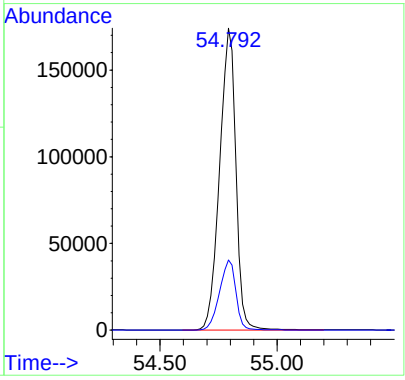


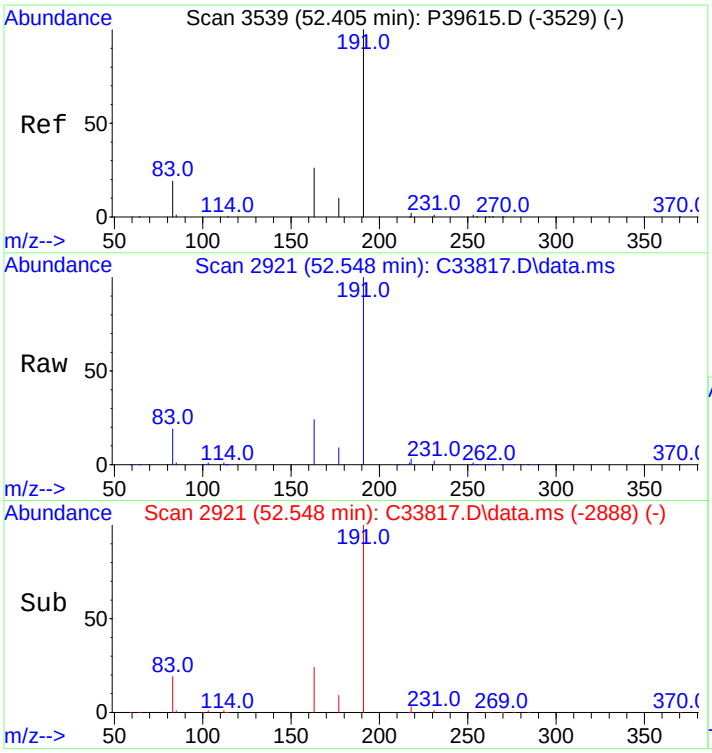


#91
Benzo[g,h,i]perylene
Concen: 6085.92 ng/mL
RT: 54.792 min Scan# 3070
Delta R.T. 0.045 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:276 Resp: 838517

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.9	28.3

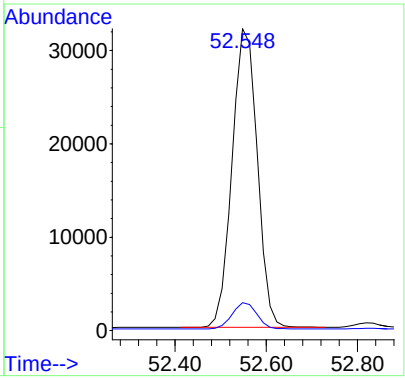


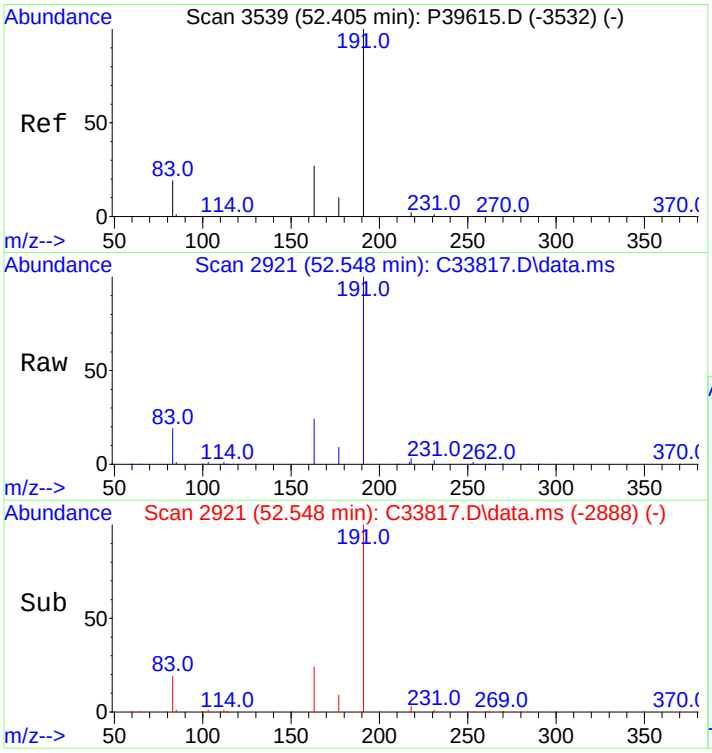


#92
Hopane (T19)
Concen: 5641.80 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122788

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

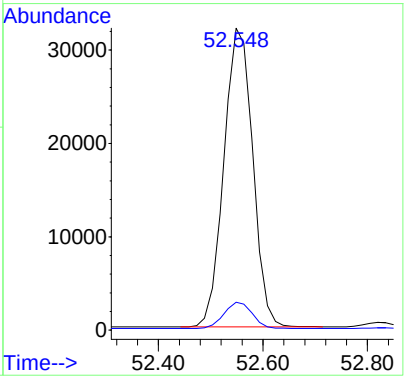




#93
17a(H),21B(H)-hopane - C30H52
Concen: 5638.68 ng/mL m
RT: 52.548 min Scan# 2921
Delta R.T. 0.000 min
Lab File: C33817.D
Acq: 26 Mar 2012 10:06 pm

Tgt Ion:191 Resp: 122720

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	20041M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	34041	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.967	136	791075	11830.663 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1183.07%#		
42) Phenanthrene-d10	32.808	188	710873M4	9166.827 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 916.68%#		
86) Benzo[a]pyrene-d12	48.497	264	755272	11037.321 ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1103.73%#		
127) 5B(H)Cholane - Surr	43.995	217	107458	9130.770 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 913.08%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	72570	5239.034 ng/mL	100
4) cis-Decalin	17.844	138	55394	5125.536 ng/mL	100
10) Naphthalene	20.042	128	1183724	16416.753 ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	715989M4	14063.659 ng/mL	
17) 1-Methylnaphthalene	23.158	142	700663M4	14348.981 ng/mL	
18) Benzothiophene	20.268	134	1064574	18002.356 ng/mL	100
23) Biphenyl	24.619	154	906757M4	13347.329 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	612216	12641.215 ng/mL#	100
25) Dibenzofuran	27.705	168	1071347	13573.702 ng/mL	97
26) Acenaphthylene	26.320	152	1263508M4	15531.963 ng/mL	
27) Acenaphthene	27.057	153	736224	14253.453 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	512344	11341.143 ng/mL	99
29) Fluorene	29.075	166	837178M3	13023.858 ng/mL	
33) Dibenzothiophene	32.402	184	1322475M4	13623.641 ng/mL	
43) Phenanthrene	32.898	178	1195572	12257.724 ng/mL	99
54) Retene	39.869	234	251265	8859.198 ng/mL	93
55) Anthracene	33.079	178	1181250M4	12499.803 ng/mL	
56) Carbazole	33.741	167	1210095m	13941.104 ng/mL	
57) 1-Methylphenanthrene	35.398	192	774174M4	10369.547 ng/mL	
58) Fluoranthene	37.656	202	1195399M3	10135.785 ng/mL	
59) Benzo(b)fluorene	40.185	216	739083	9595.000 ng/mL	99
60) Pyrene	38.544	202	1228730M4	10157.684 ng/mL	
66) Naphthobenzothiophene	42.399	234	1356661M4	10732.503 ng/ml	
67) Naphthobenzothiophene-2,1	42.399	234	1356294M4	10729.599 ng/mL	
75) Benz[a]anthracene	43.317	228	1122402	11118.569 ng/mL	99
76) Chrysene	43.483	228	1085655M4	10915.688 ng/mL	
77) Chrysene/Triphenylene	43.483	228	1085135M4	10910.460 ng/mL	
82) Benzo[b]fluoranthene	47.368	252	1268344M4	11418.659 ng/mL	
83) Benzo[j]+[k]fluoranthene	47.458	252	1277406	10878.013 ng/mL	99
85) Benzo[e]pyrene	48.392	252	1195408	11182.087 ng/mL	98
87) Benzo[a]pyrene	48.587	252	1184374M4	11788.129 ng/mL	
88) Perylene	48.904	252	1266913	11799.877 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.482	276	1408473M3	12176.588 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.542	278	1311872M4	12064.466 ng/mL	
91) Benzo[g,h,i]perylene	54.822	276	1404966	11906.453 ng/mL	100
92) Hopane (T19)	52.563	191	199827M3	10720.577 ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.563	191	199673M3	10712.315 ng/mL	

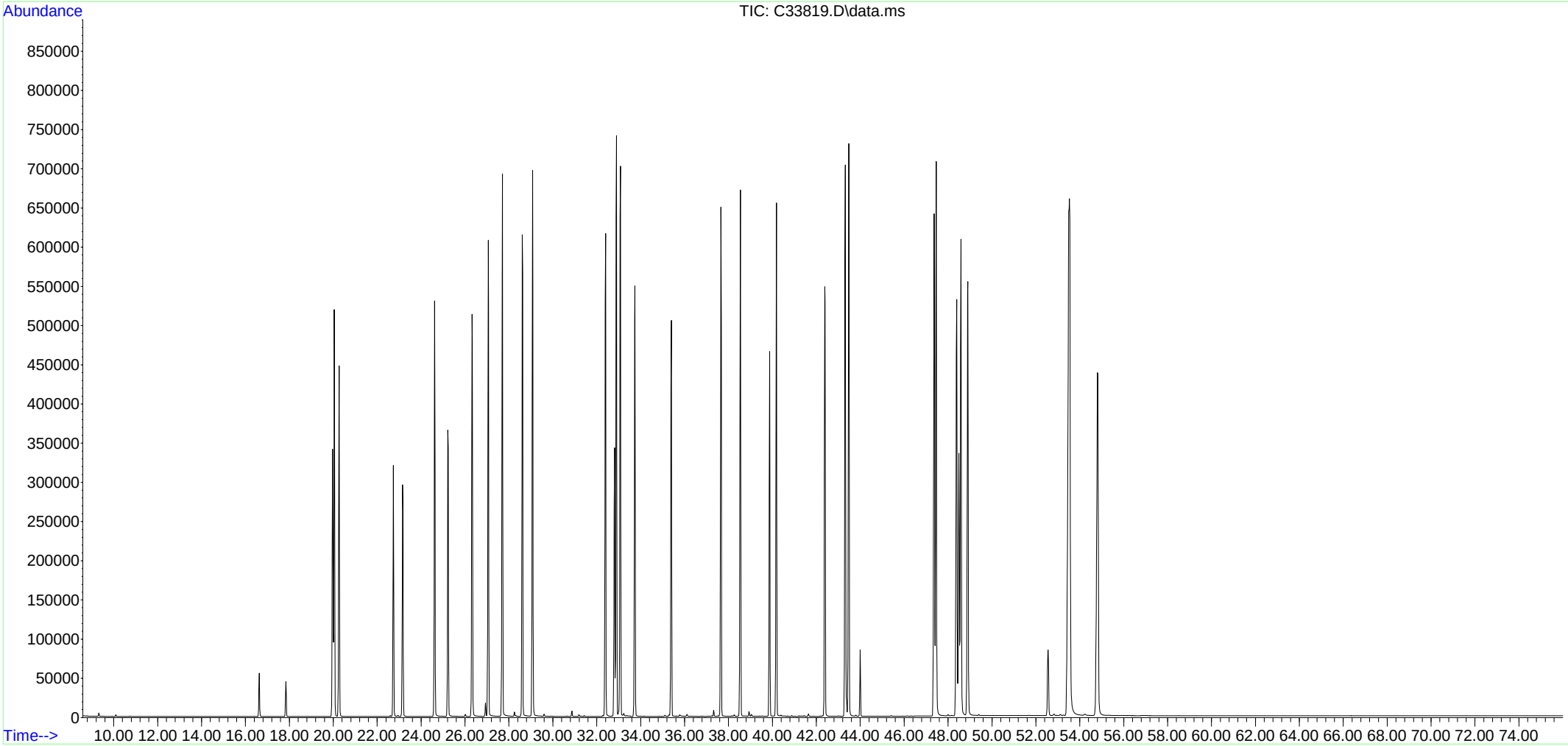
(#) = qualifier out of range (m) = manual integration (+) = signals summed

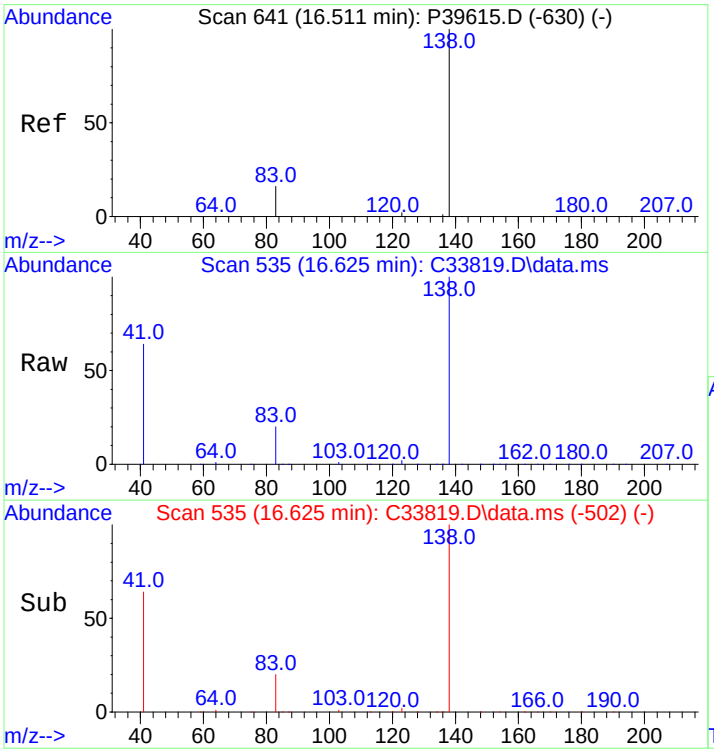
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33819.D
Acq On : 26 Mar 2012 11:37 pm
Operator : PAH3:SR
Sample : I303261206
Misc : WG525925
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 29 11:05:47 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

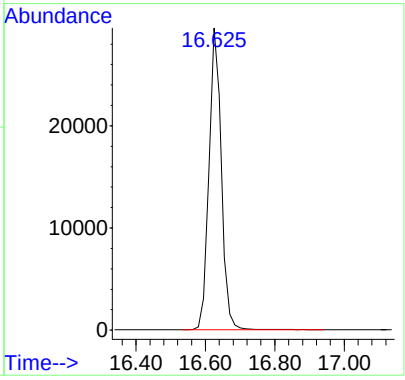
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

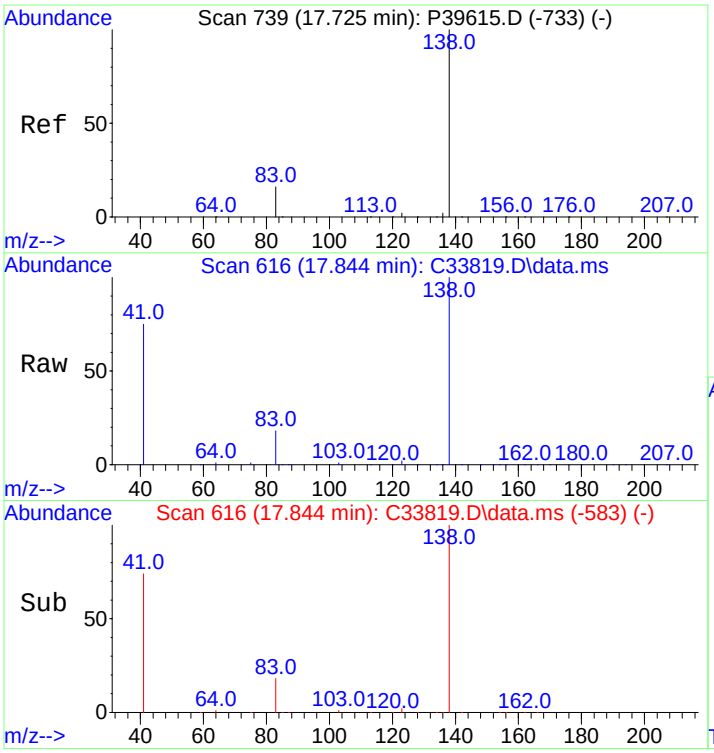




#3
trans-Decalin
Concen: 5239.03 ng/mL
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

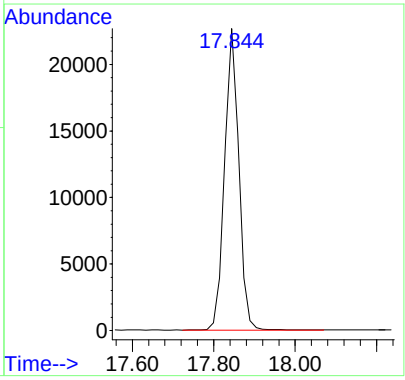
Tgt Ion:138 Resp: 72570

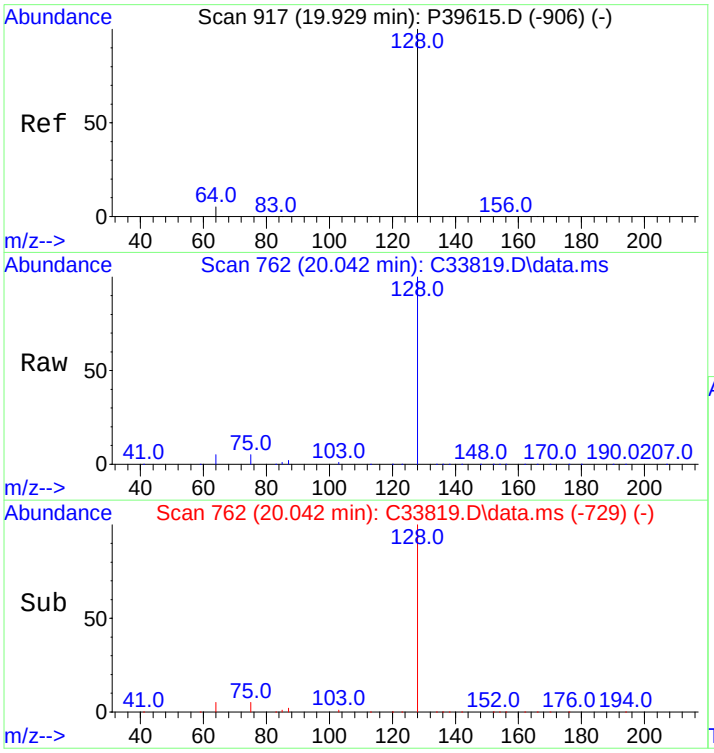




#4
cis-Decalin
Concen: 5125.54 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:138 Resp: 55394

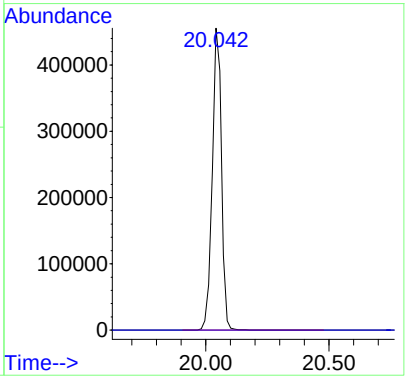


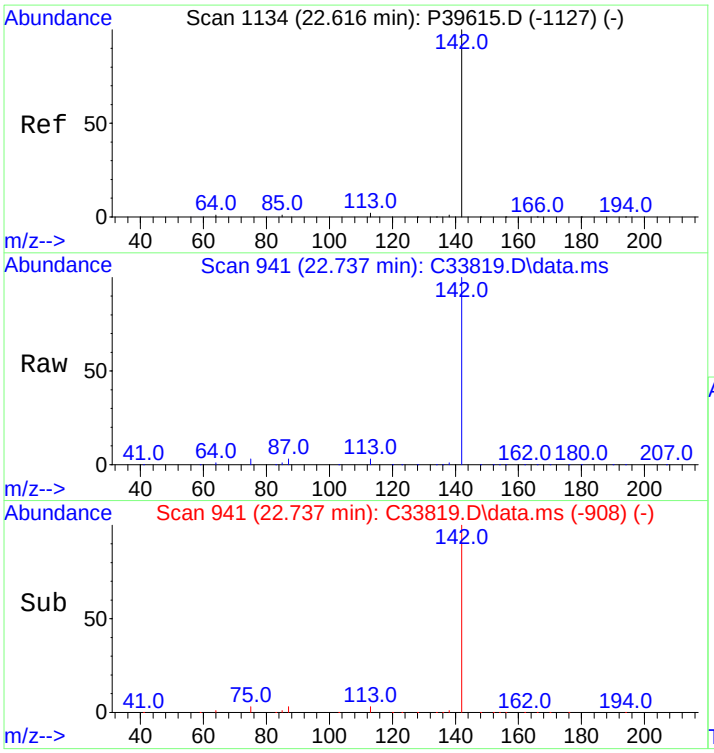


#10
Naphthalene
Concen: 16416.75 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:128 Resp: 1183724

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

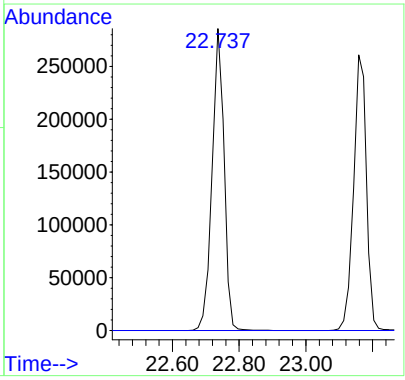


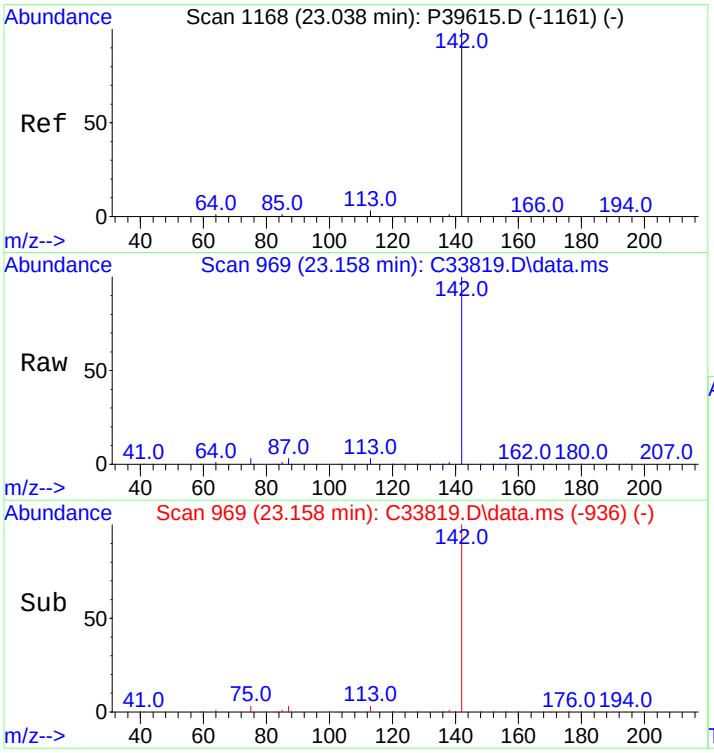


#16
2-Methylnaphthalene
Concen: 14063.66 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 715989

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

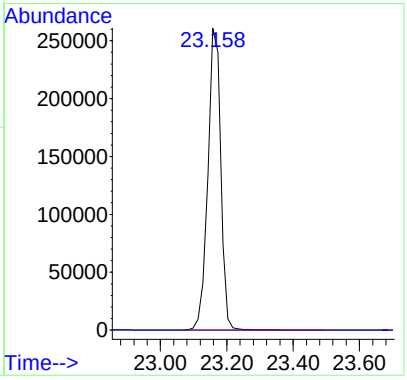


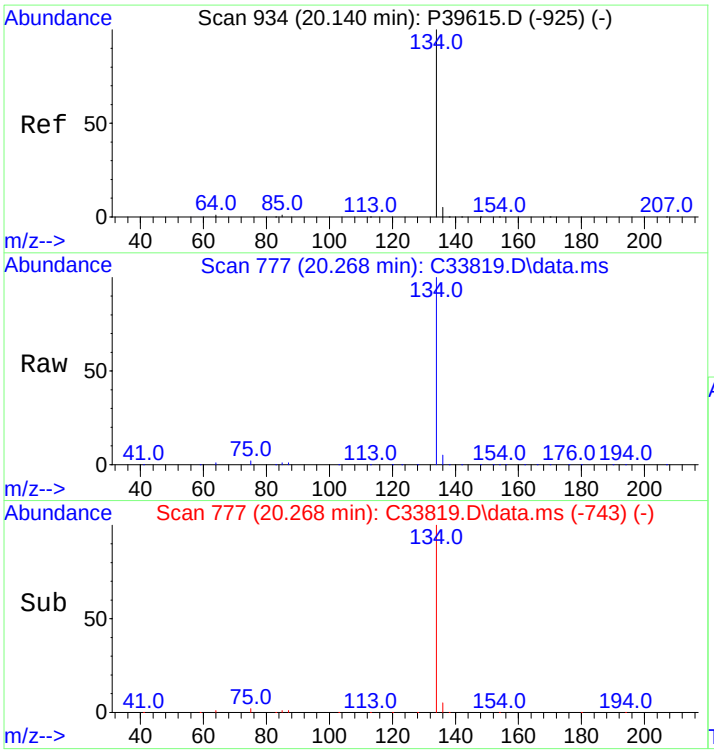


#17
1-Methylnaphthalene
Concen: 14348.98 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:142 Resp: 700663

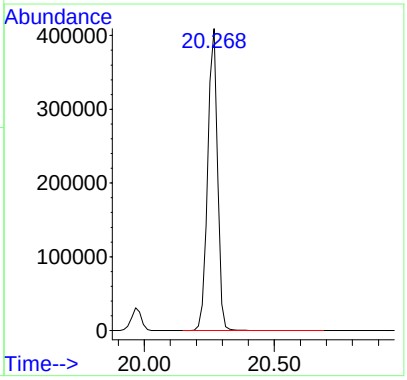
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

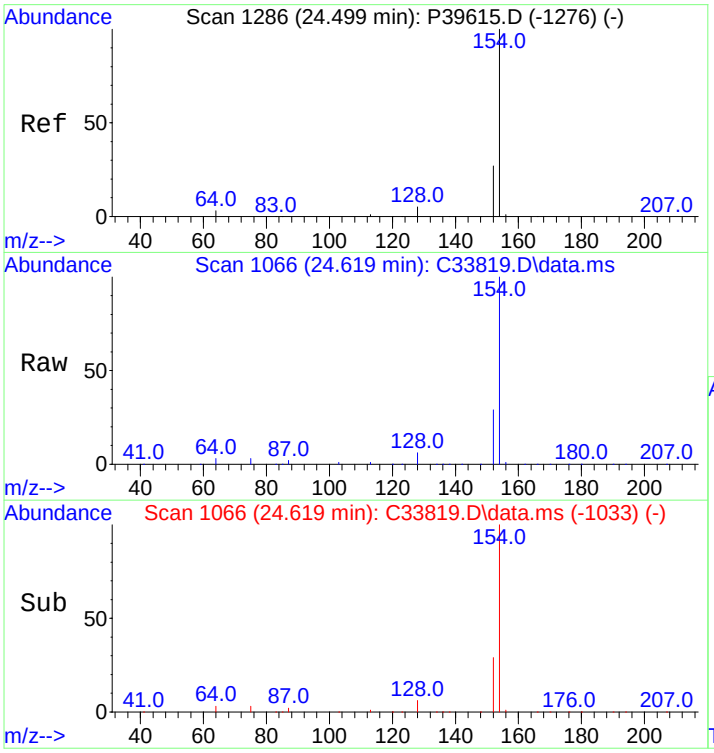




#18
Benzothiophene
Concen: 18002.36 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:134 Resp: 1064574

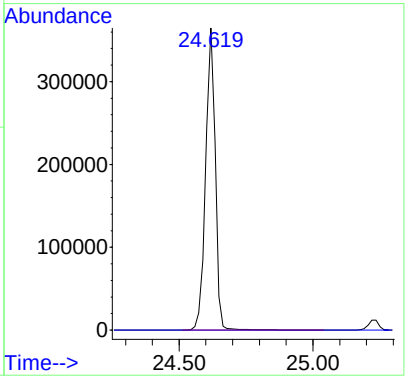


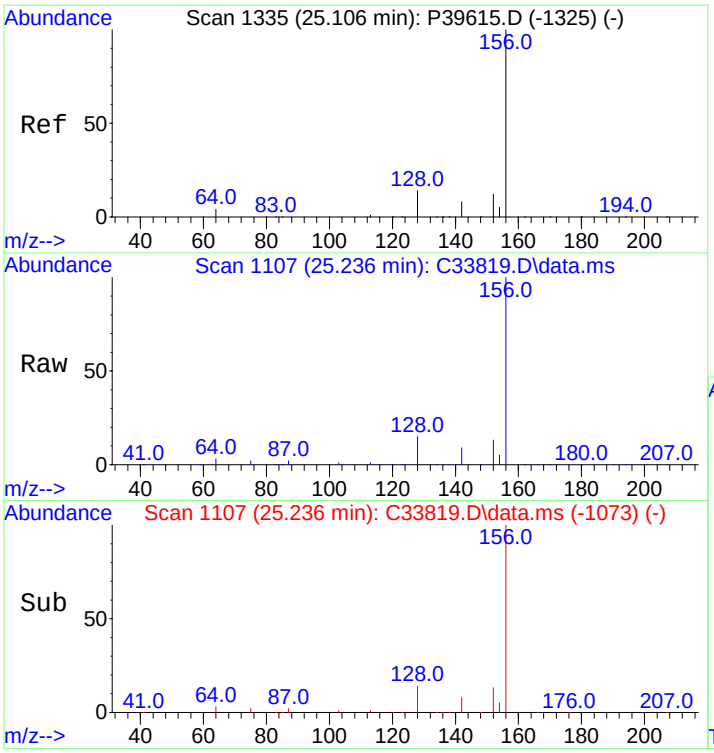


#23
Biphenyl
Concen: 13347.33 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:154 Resp: 906757

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

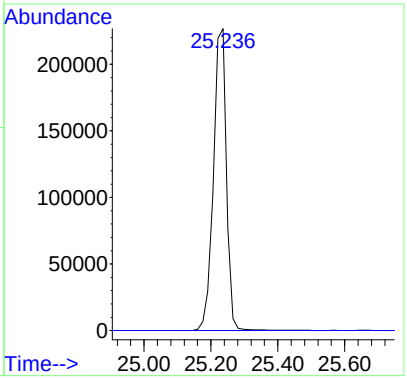


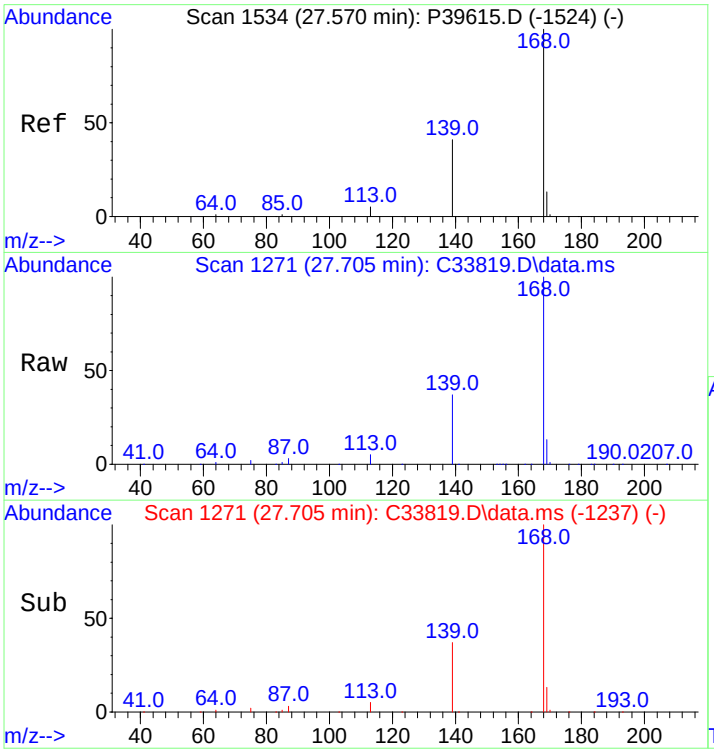


#24
2,6-Dimethylnaphthalene
Concen: 12641.22 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:156 Resp: 612216

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

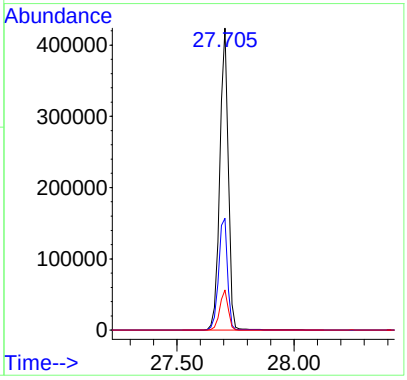


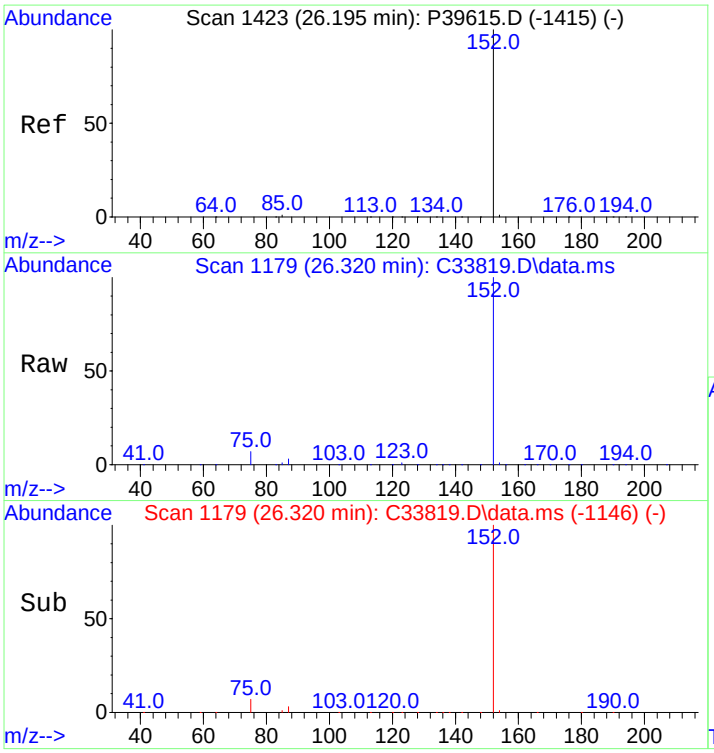


#25
Dibenzofuran
Concen: 13573.70 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:168 Resp: 1071347

Ion	Ratio	Lower	Upper
168	100		
139	38.9	32.9	49.3
169	13.2	10.6	16.0

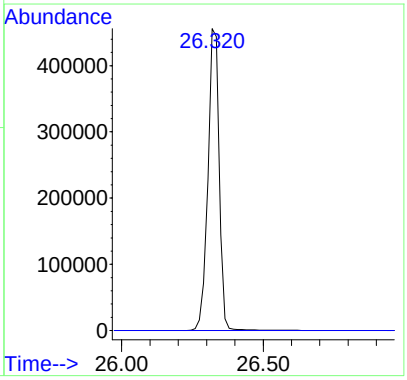


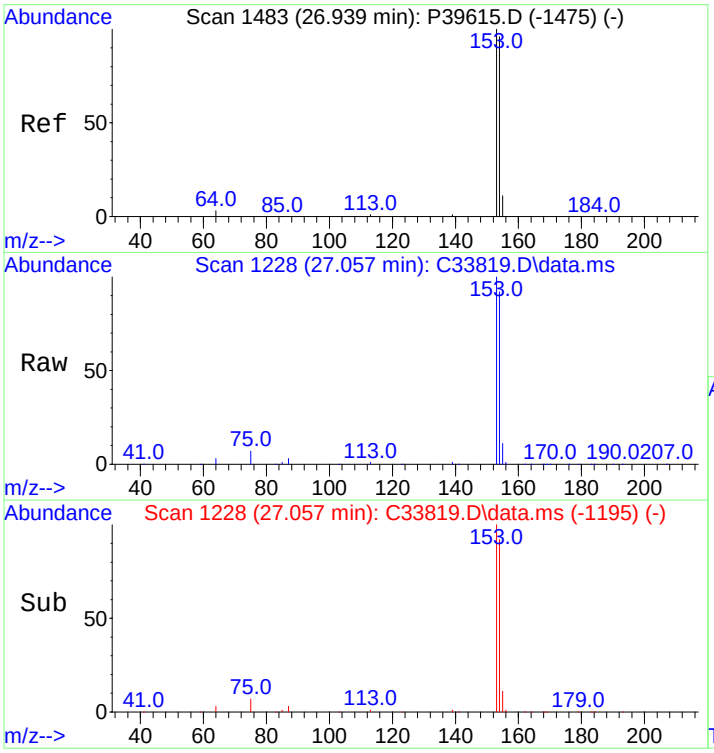


#26
Acenaphthylene
Concen: 15531.96 ng/mL m
RT: 26.320 min Scan# 1179
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:152 Resp: 1263508

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

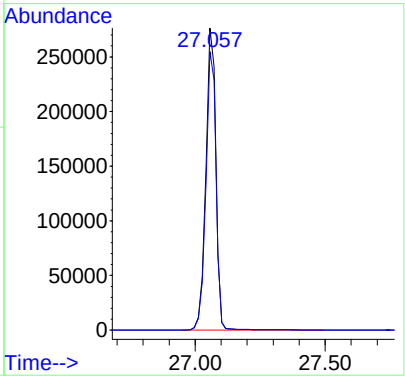


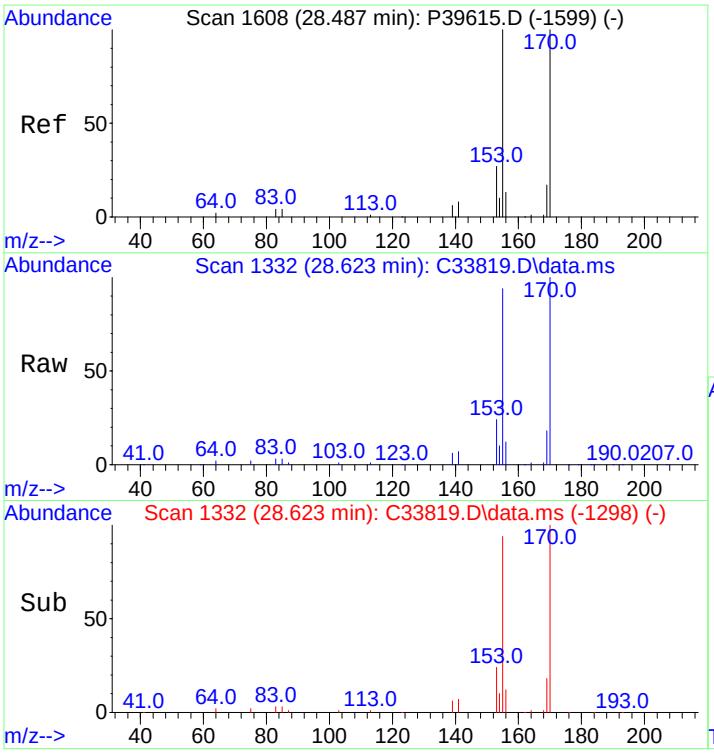


#27
Acenaphthene
Concen: 14253.45 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:153 Resp: 736224

Ion	Ratio	Lower	Upper
153	100		
154	93.0	75.0	112.6

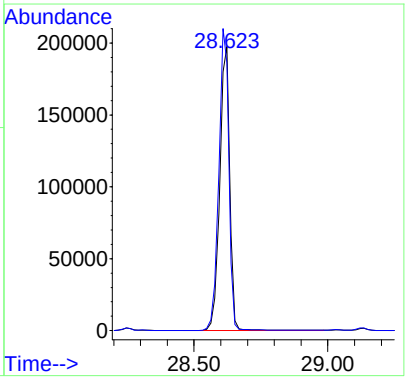


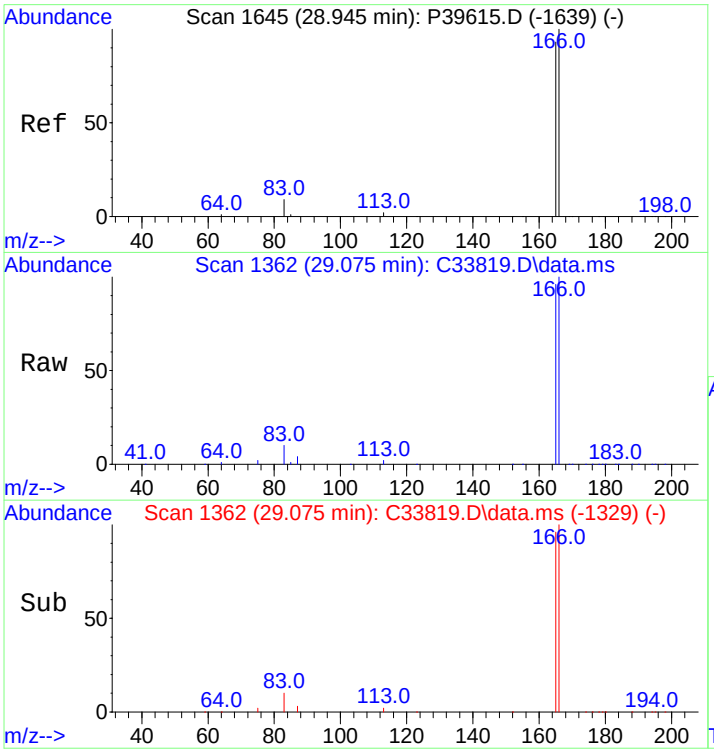


#28
2,3,5-Trimethylnaphthalene
Concen: 11341.14 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:170 Resp: 512344

Ion	Ratio	Lower	Upper
170	100		
155	106.6	84.7	127.1

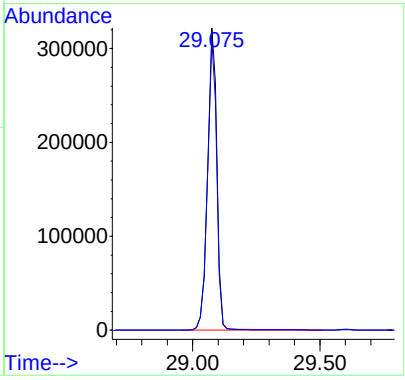


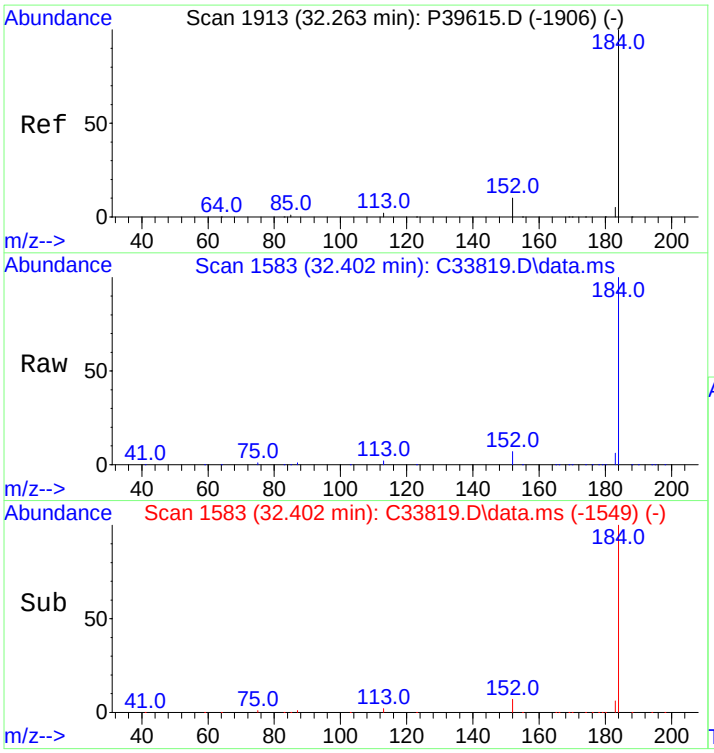


#29
Fluorene
Concen: 13023.86 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. 0.000 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:166 Resp: 837178

Ion	Ratio	Lower	Upper
166	100		
165	95.4	75.3	112.9

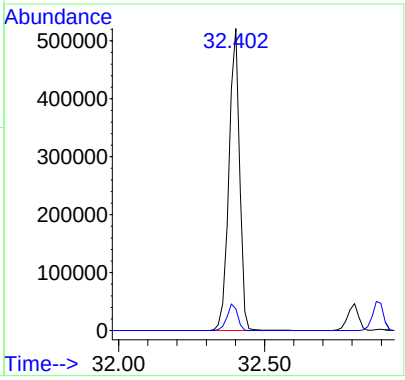


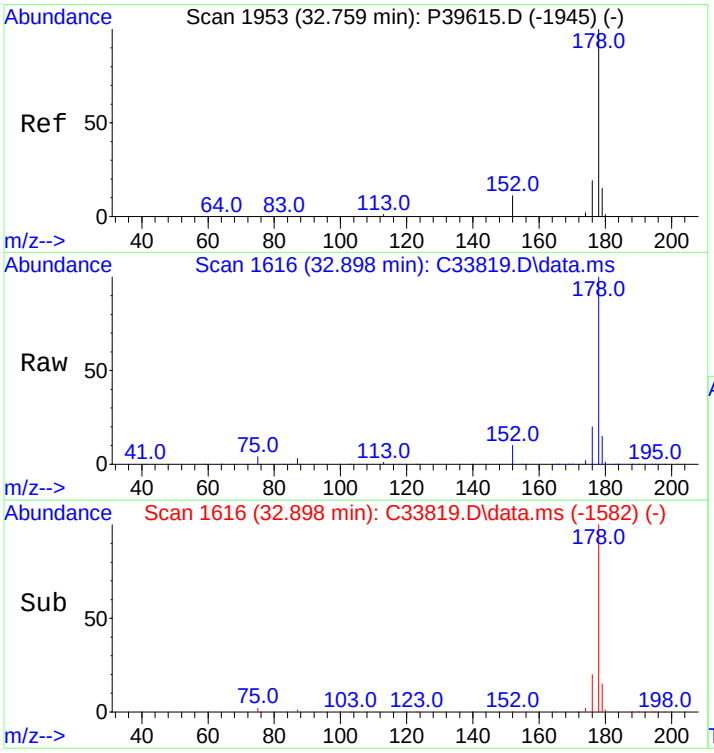


#33
Dibenzothiophene
Concen: 13623.64 ng/mL m
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:184 Resp: 1322475

Ion	Ratio	Lower	Upper
184	100		
152	8.8	6.7	10.1

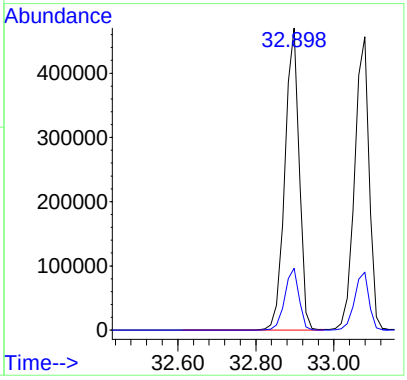


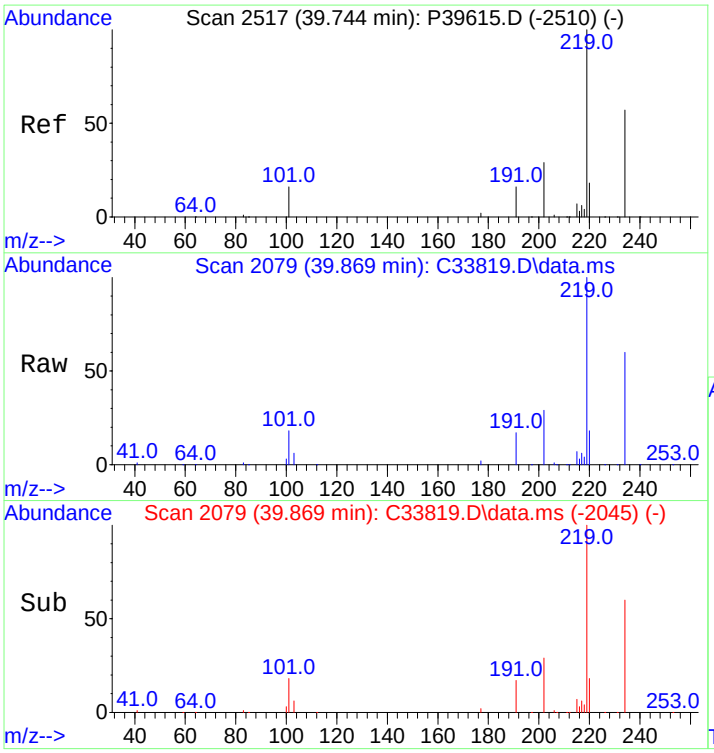


#43
Phenanthrene
Concen: 12257.72 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1195572

Ion	Ratio	Lower	Upper
178	100		
176	20.3	15.9	23.9

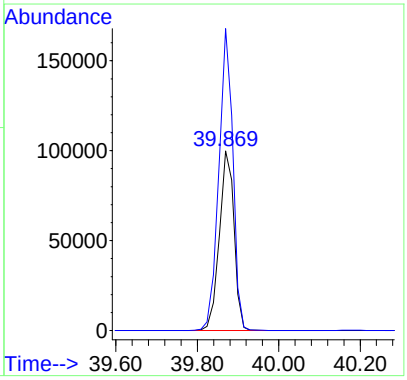


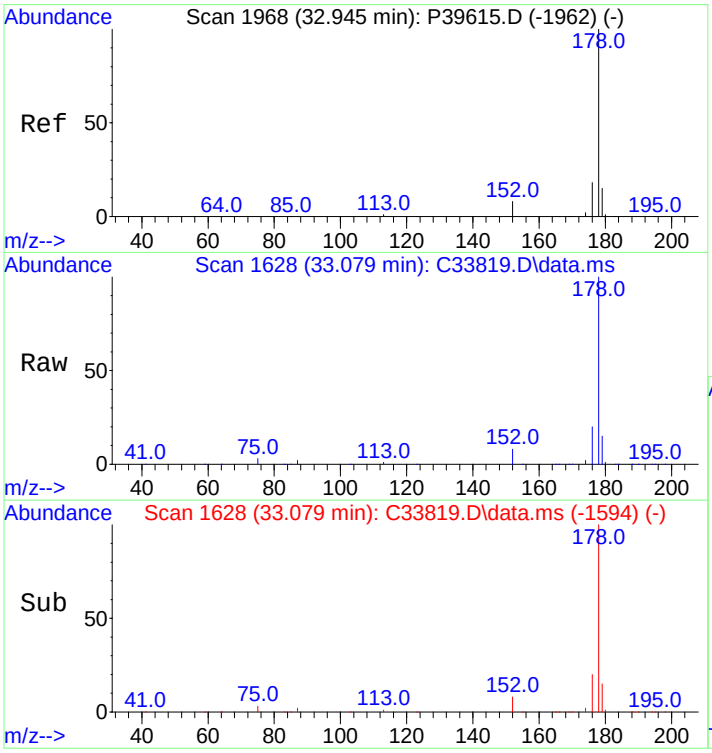


#54
Retene
Concen: 8859.20 ng/mL
RT: 39.869 min Scan# 2079
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 251265

Ion	Ratio	Lower	Upper
234	100		
219	160.8	136.6	204.8

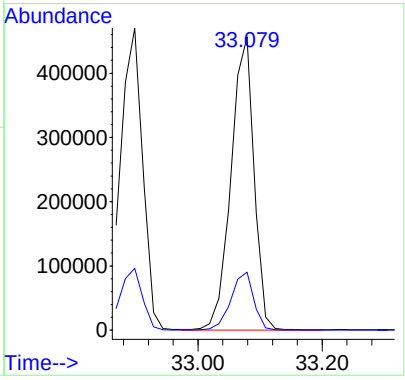


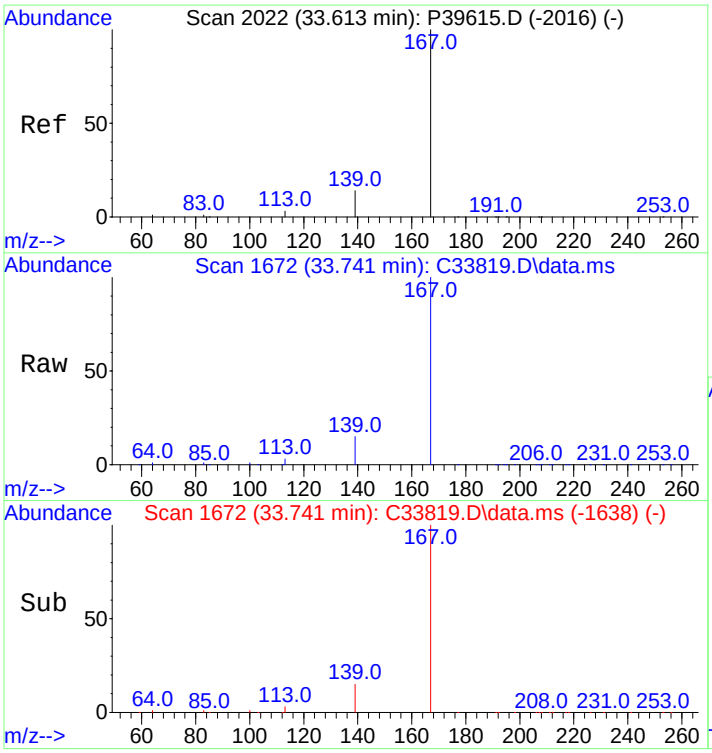


#55
Anthracene
Concen: 12499.80 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:178 Resp: 1181250

Ion	Ratio	Lower	Upper
178	100		
176	19.5	15.4	23.0

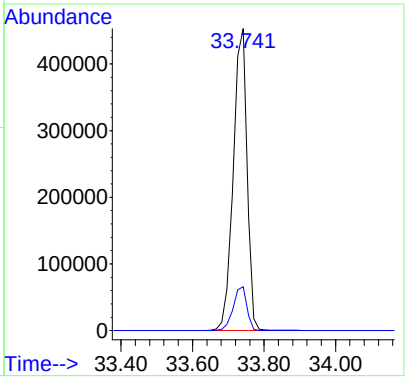


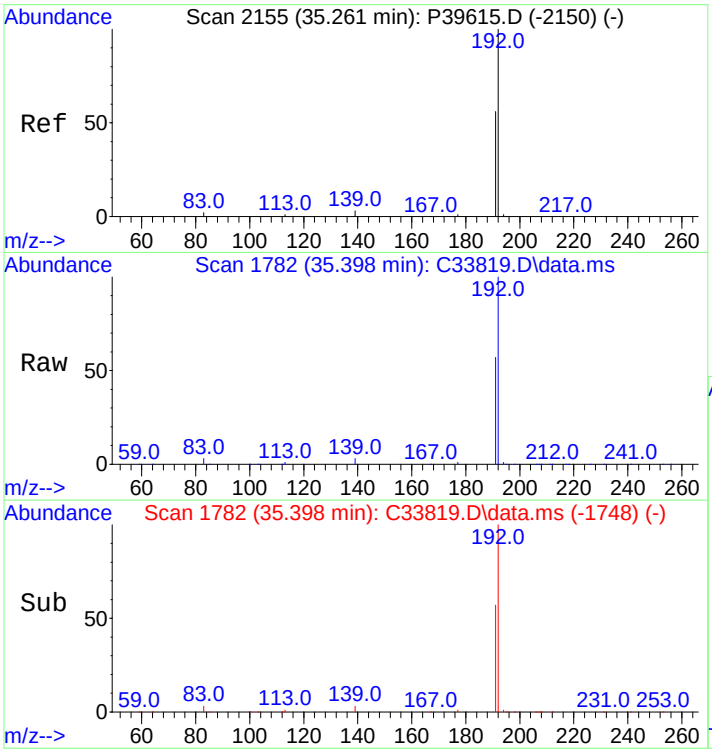


#56
Carbazole
Concen: 13941.10 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:167 Resp: 1210095

Ion	Ratio	Lower	Upper
167	100		
139	14.6	11.6	17.4

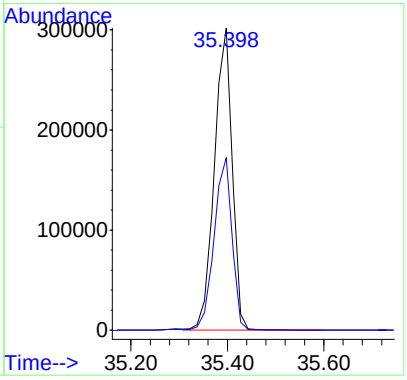


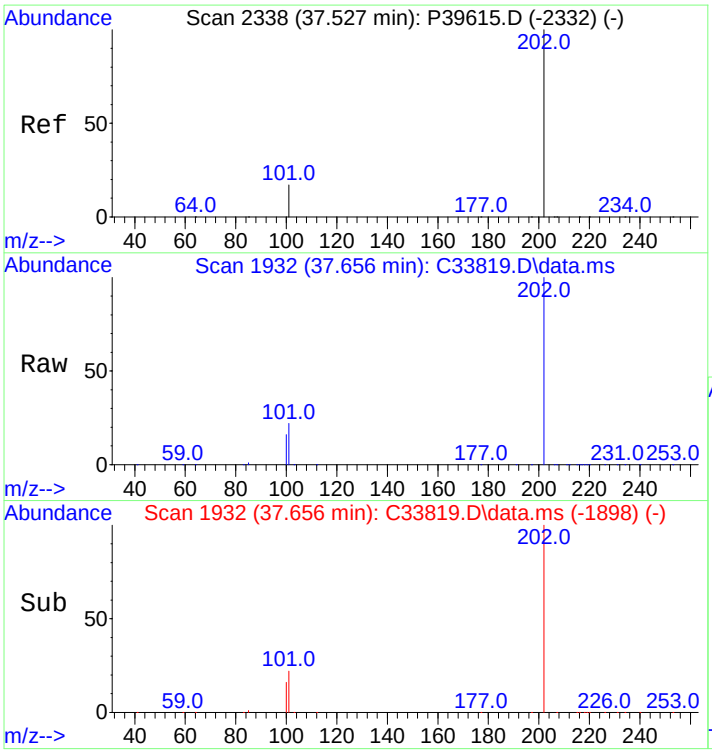


#57
1-Methylphenanthrene
Concen: 10369.55 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:192 Resp: 774174

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.3	67.9

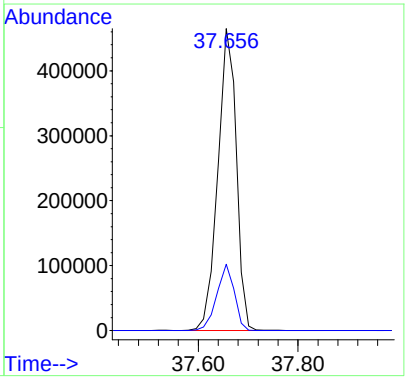


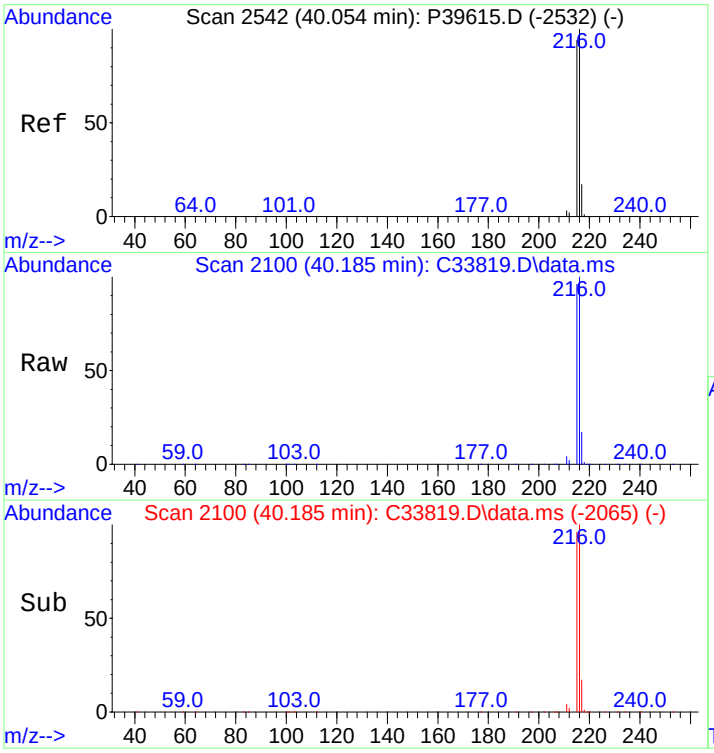


#58
Fluoranthene
Concen: 10135.79 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1195399

Ion	Ratio	Lower	Upper
202	100		
101	20.8	19.1	28.7

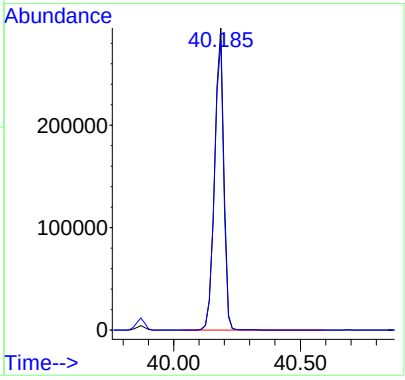


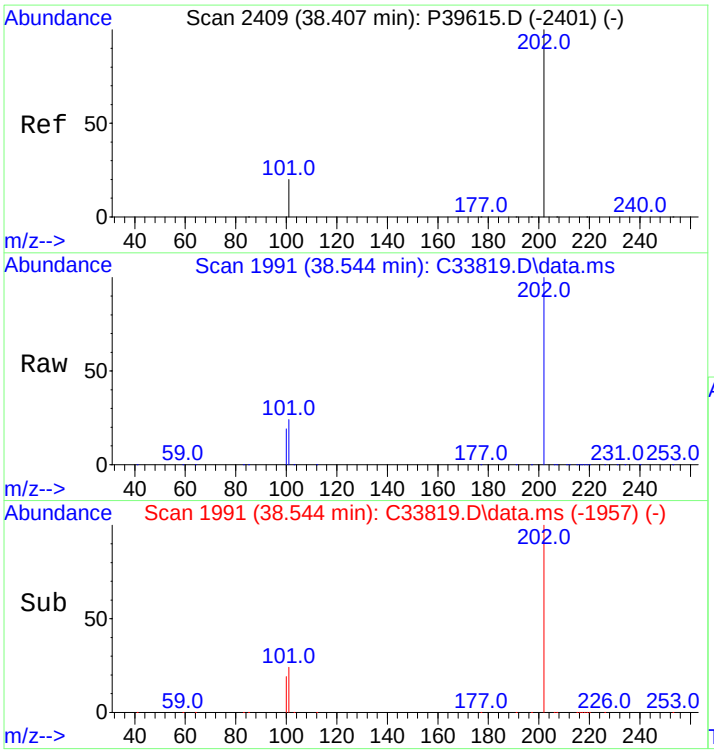


#59
Benzo(b)fluorene
Concen: 9595.00 ng/mL
RT: 40.185 min Scan# 2100
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:216 Resp: 739083

Ion	Ratio	Lower	Upper
216	100		
215	95.7	77.4	116.2

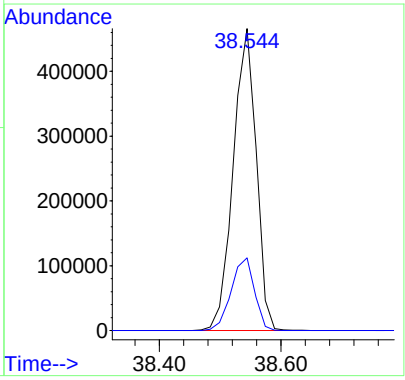


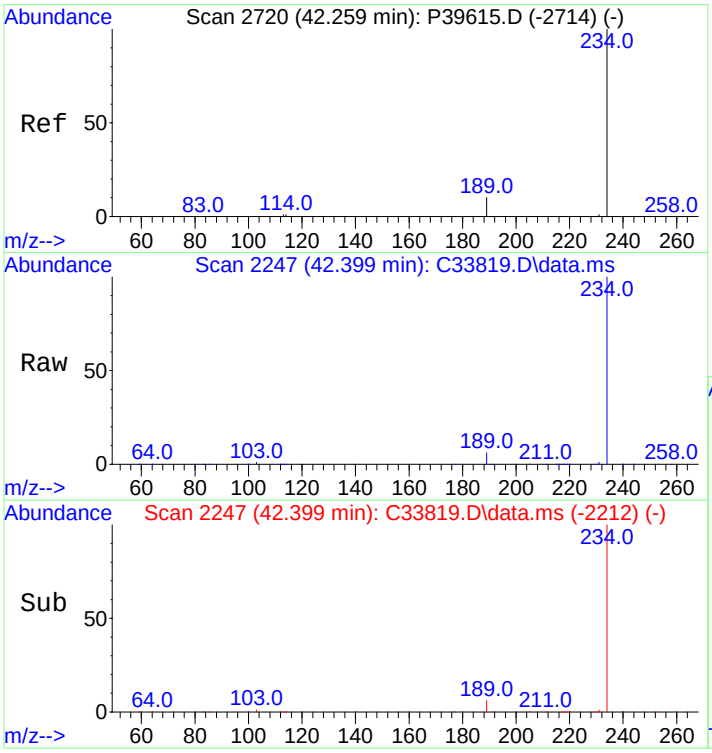


#60
Pyrene
Concen: 10157.68 ng/mL m
RT: 38.544 min Scan# 1991
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:202 Resp: 1228730

Ion	Ratio	Lower	Upper
202	100		
101	24.4	20.4	30.6

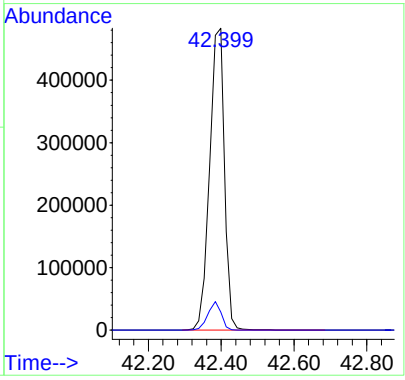


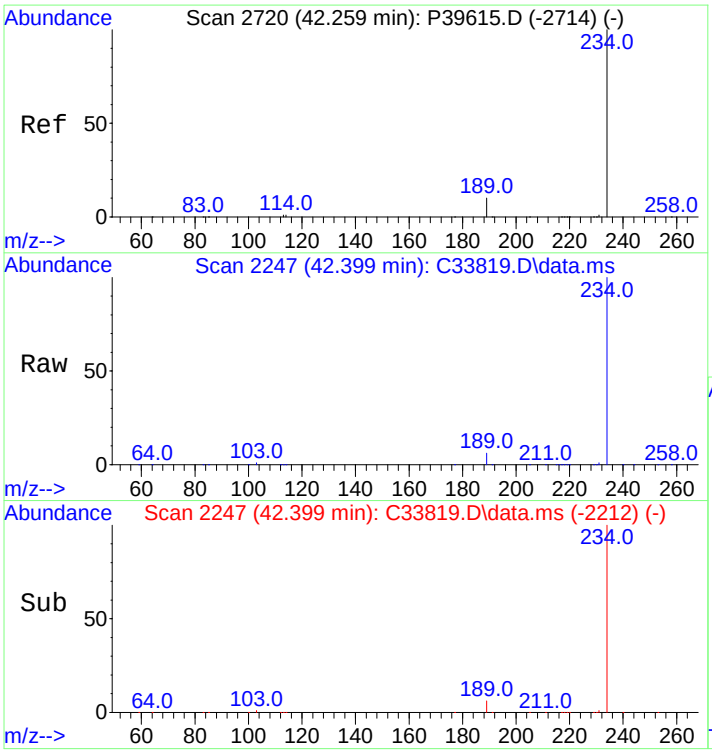


#66
Naphthobenzothiophene
Concen: 10732.50 ng/ml m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356661

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

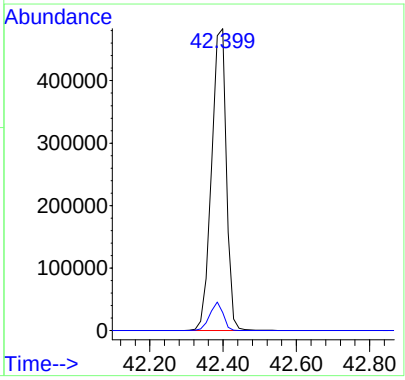


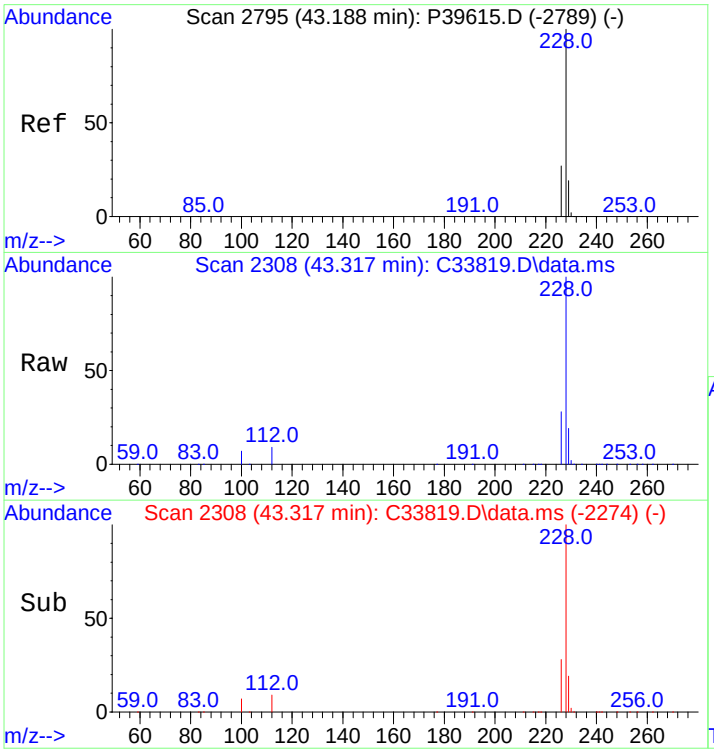


#67
Naphthobenzothiophene-2,1-D
Concen: 10729.60 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:234 Resp: 1356294

Ion	Ratio	Lower	Upper
234	100		
189	8.5	7.4	11.0

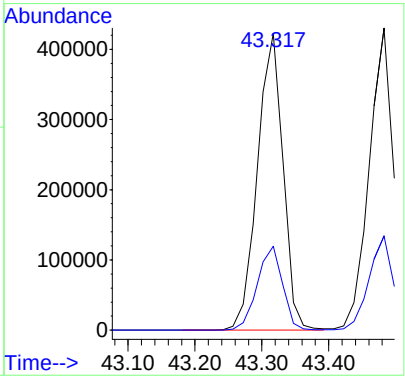


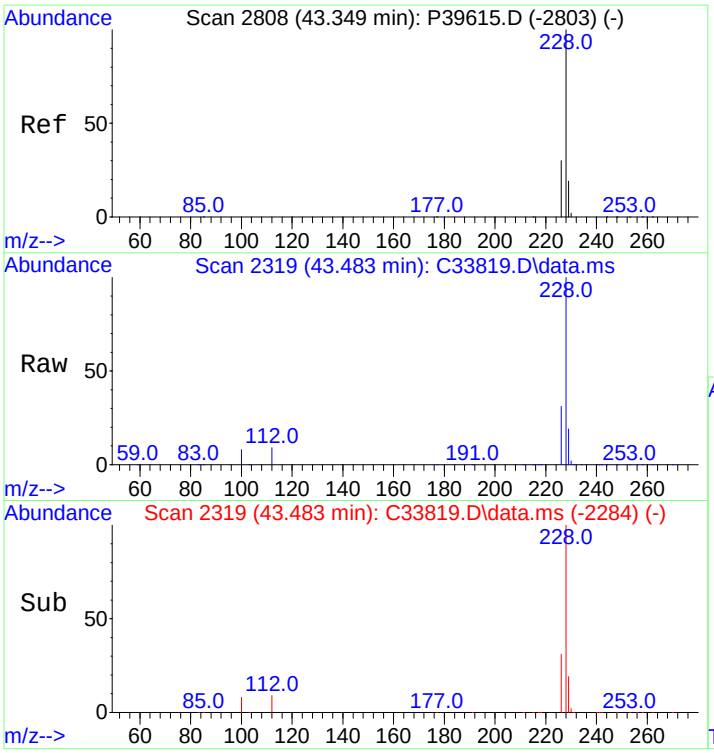


#75
Benz[a]anthracene
Concen: 11118.57 ng/mL
RT: 43.317 min Scan# 2308
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1122402

Ion	Ratio	Lower	Upper
228	100		
226	28.0	21.8	32.8

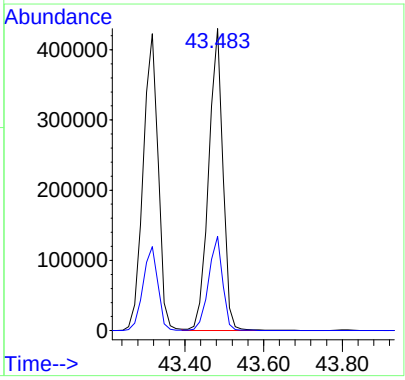


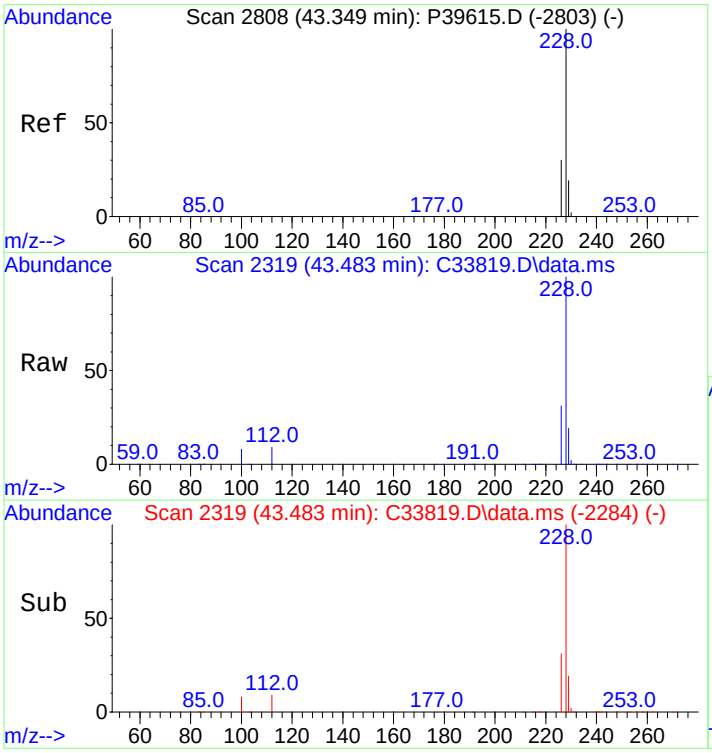


#76
Chrysene
Concen: 10915.69 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085655

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

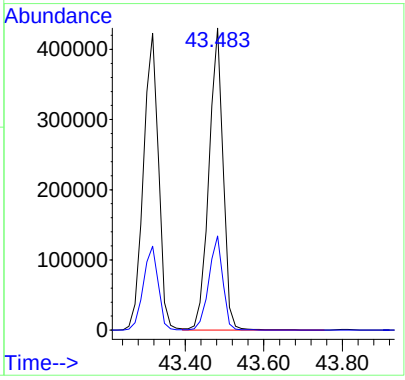


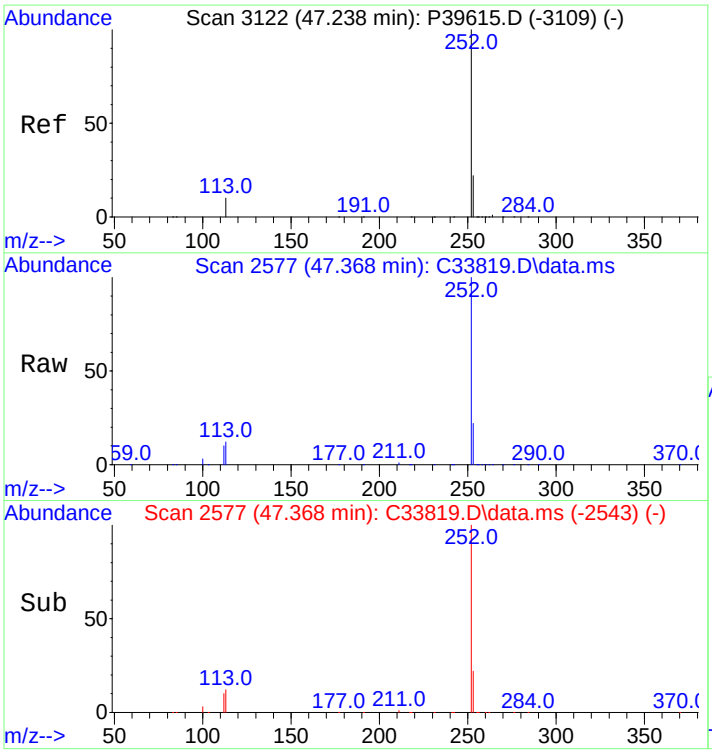


#77
Chrysene/Triphenylene
Concen: 10910.46 ng/mL m
RT: 43.483 min Scan# 2319
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:228 Resp: 1085135

Ion	Ratio	Lower	Upper
228	100		
226	30.8	24.2	36.4

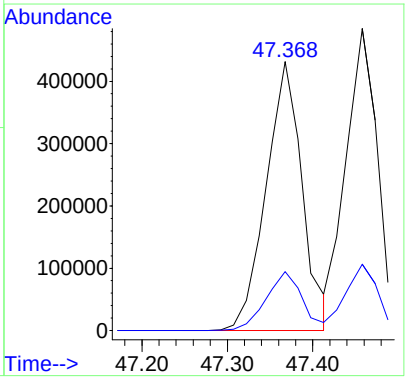


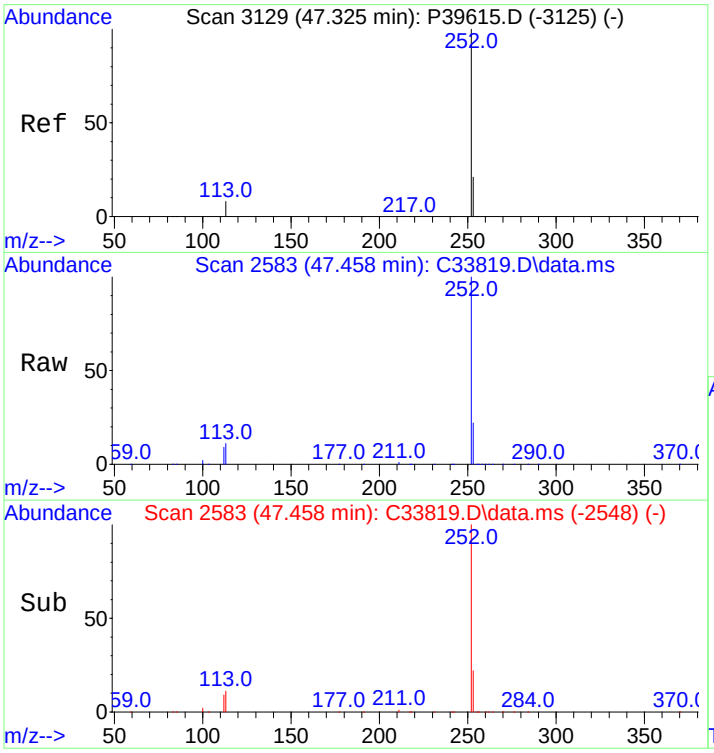


#82
Benzo[b]fluoranthene
Concen: 11418.66 ng/mL m
RT: 47.368 min Scan# 2577
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1268344

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

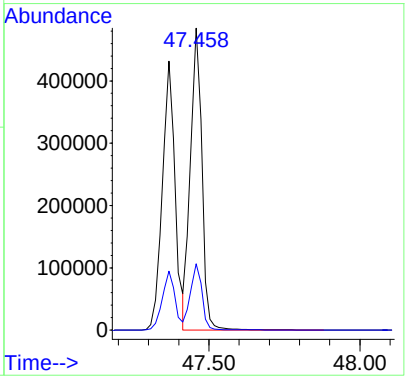


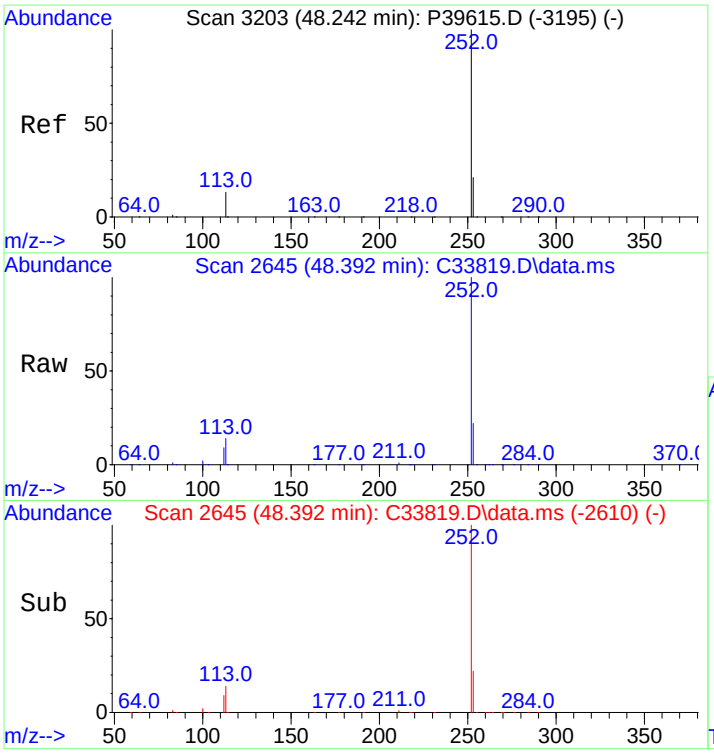


#83
Benzo[j]+[k]fluoranthene
Concen: 10878.01 ng/mL
RT: 47.458 min Scan# 2583
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1277406

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.2	27.4

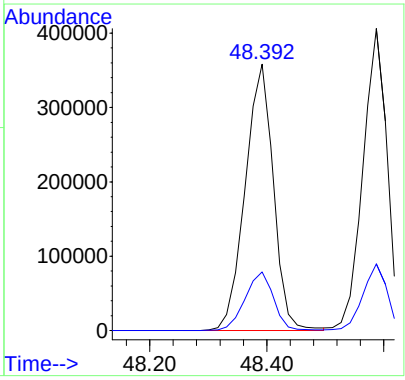


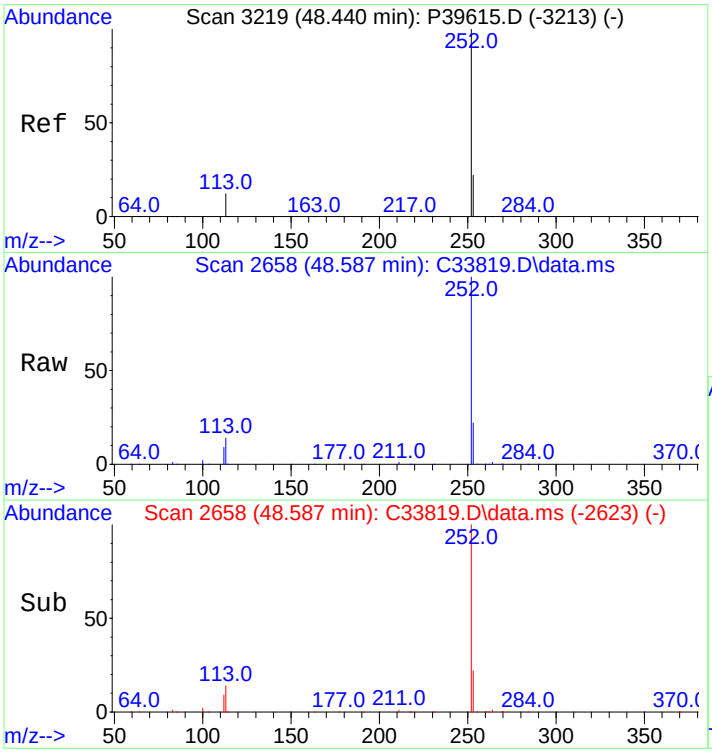


#85
Benzo[e]pyrene
Concen: 11182.09 ng/mL
RT: 48.392 min Scan# 2645
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1195408

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

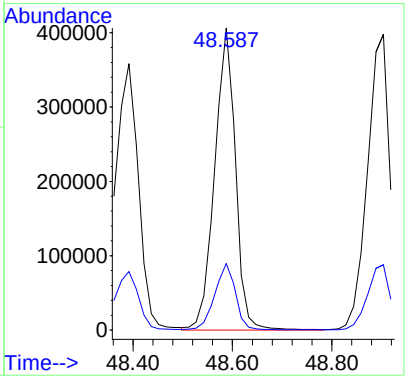


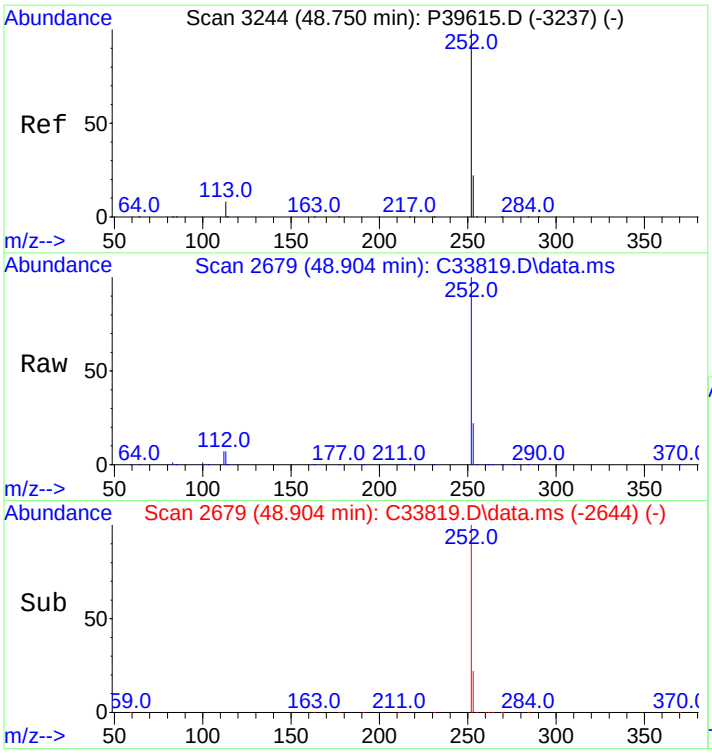


#87
Benzo[a]pyrene
Concen: 11788.13 ng/mL m
RT: 48.587 min Scan# 2658
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1184374

Ion	Ratio	Lower	Upper
252	100		
253	21.8	18.7	28.1

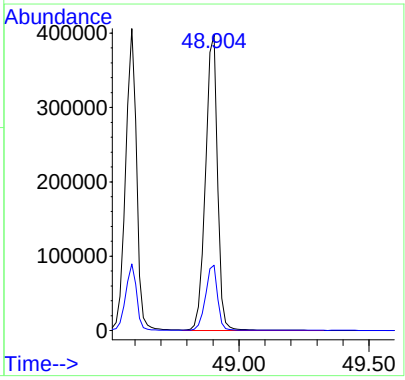


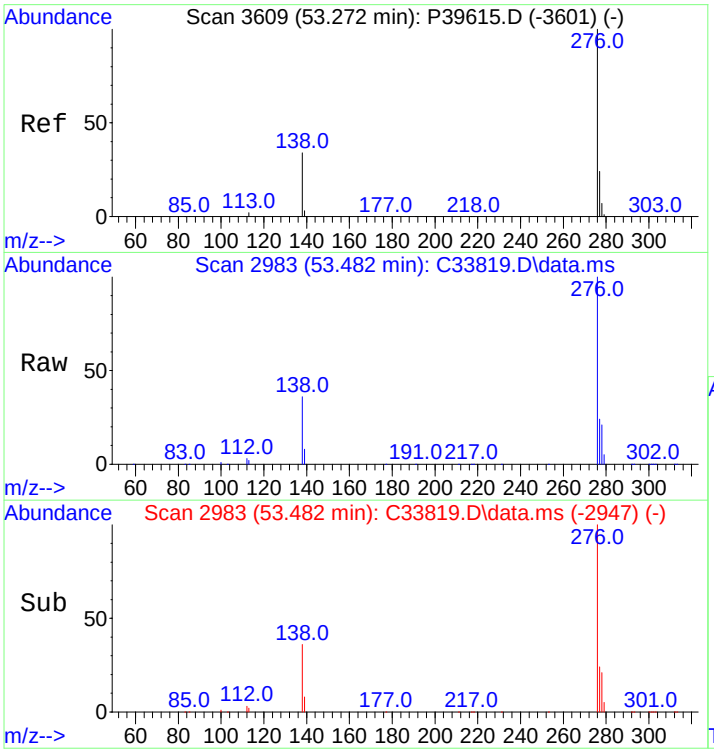


#88
Perylene
Concen: 11799.88 ng/mL
RT: 48.904 min Scan# 2679
Delta R.T. 0.030 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:252 Resp: 1266913

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.6	27.8

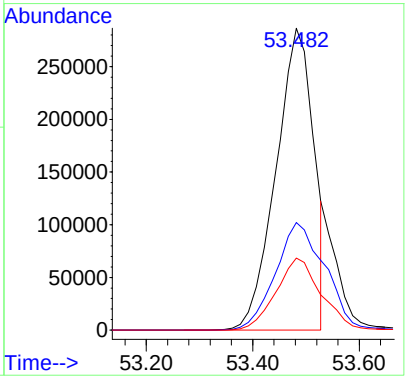


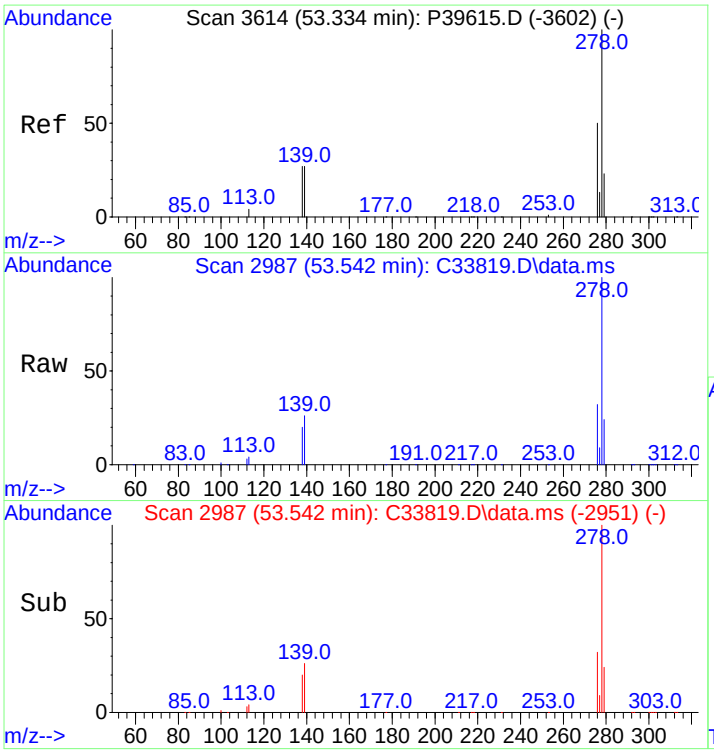


#89
Indeno[1,2,3-cd]pyrene
Concen: 12176.59 ng/mL m
RT: 53.482 min Scan# 2983
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1408473

Ion	Ratio	Lower	Upper
276	100		
138	47.0	30.3	45.5#
277	28.8	19.2	28.8#

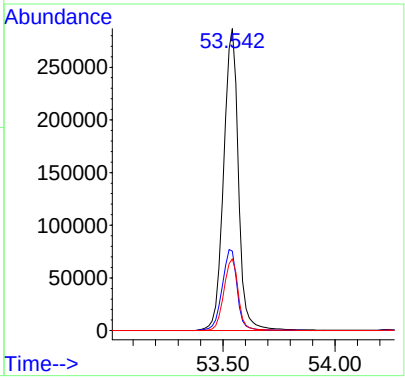


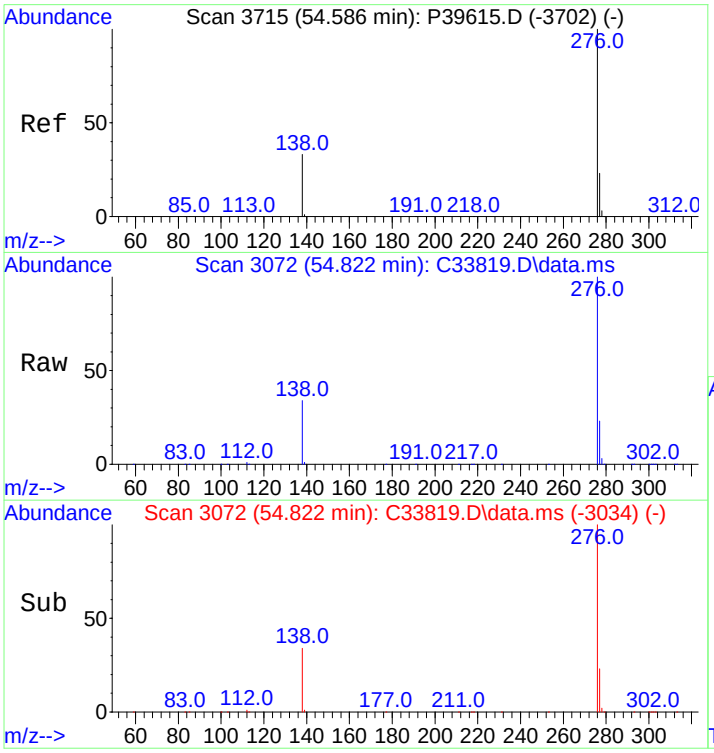


#90
Dibenz[ah]+[ac]anthracene
Concen: 12064.47 ng/mL m
RT: 53.542 min Scan# 2987
Delta R.T. 0.045 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:278 Resp: 1311872

Ion	Ratio	Lower	Upper
278	100		
139	27.5	25.4	38.2
279	23.5	19.0	28.4

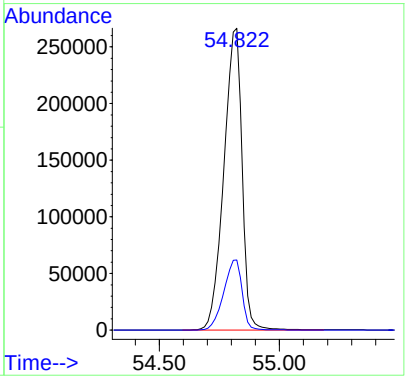


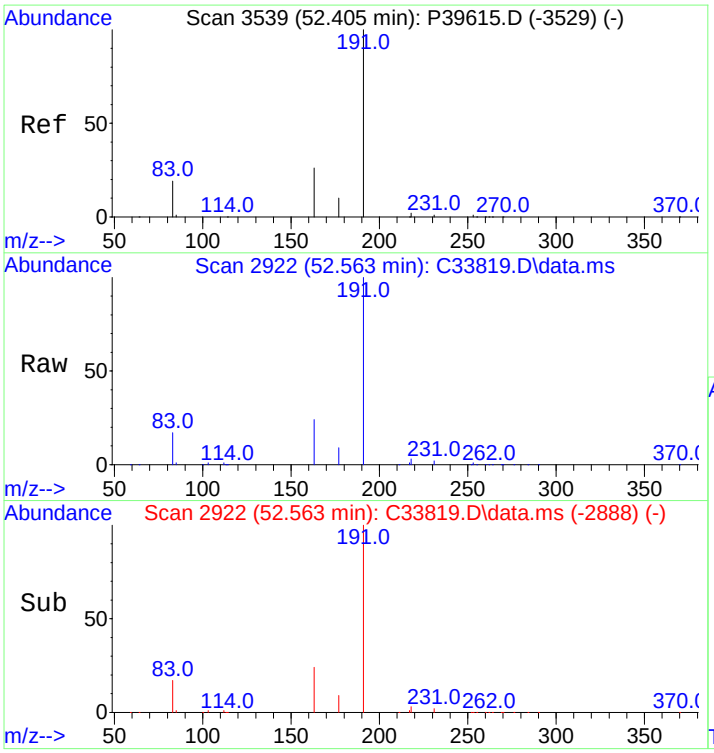


#91
Benzo[g,h,i]perylene
Concen: 11906.45 ng/mL
RT: 54.822 min Scan# 3072
Delta R.T. 0.075 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:276 Resp: 1404966

Ion	Ratio	Lower	Upper
276	100		
277	23.5	18.9	28.3

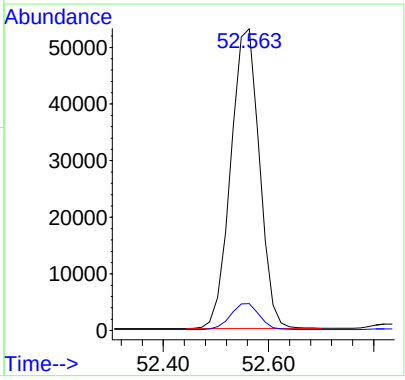


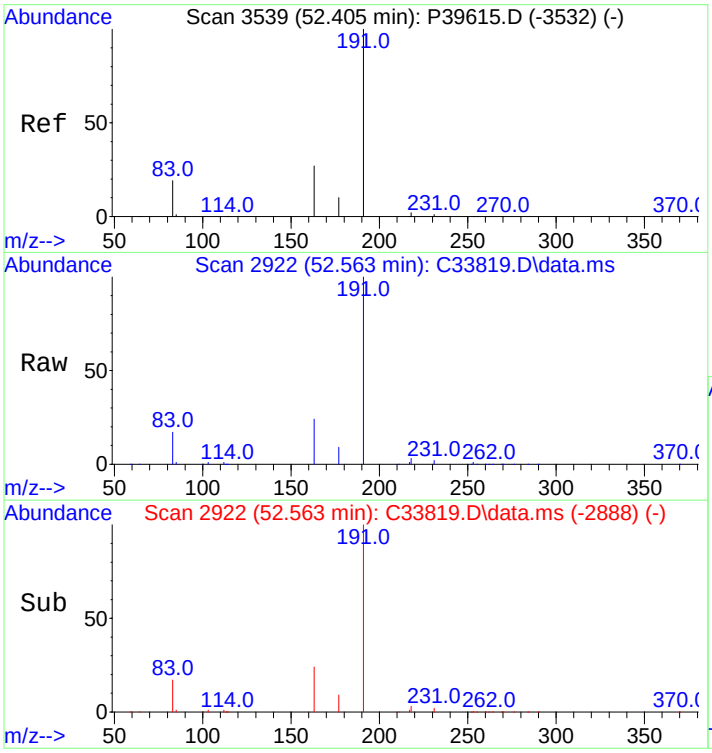


#92
Hopane (T19)
Concen: 10720.58 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199827

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#

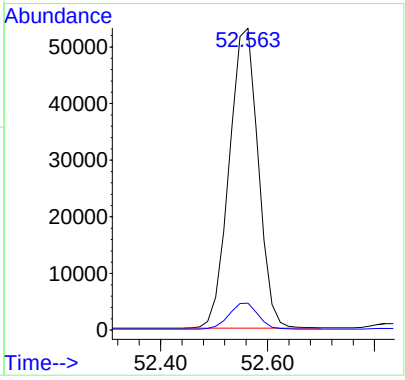




#93
17a(H),21B(H)-hopane - C30H52
Concen: 10712.31 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33819.D
Acq: 26 Mar 2012 11:37 pm

Tgt Ion:191 Resp: 199673

Ion	Ratio	Lower	Upper
191	100		
177	0.2	11.5	17.3#



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.937	164	18516M4	500.000 ng/mL	0.00
74) Chrysene-d12	43.377	240	32498M4	500.000 ng/mL	0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.982	136	1302520	21083.759 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2108.38%#		
42) Phenanthrene-d10	32.808	188	1258411	17563.931 ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1756.39%#		
86) Benzo[a]pyrene-d12	48.512	264	1393115	21325.190 ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2132.52%#		
127) 5B(H)Cholane - Surr	44.010	217	195942M4	17439.814 ng/ml	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1743.98%#		
Target Compounds					Qvalue
3) trans-Decalin	16.625	138	124104M4	9697.328 ng/mL	
4) cis-Decalin	17.844	138	96625M4	9676.944 ng/mL	
10) Naphthalene	20.057	128	1949049	29257.134 ng/mL#	100
16) 2-Methylnaphthalene	22.752	142	1216123M4	25854.831 ng/mL	
17) 1-Methylnaphthalene	23.173	142	1200476	26609.552 ng/mL#	100
18) Benzothiophene	20.268	134	1808135	33094.557 ng/mL	100
23) Biphenyl	24.619	154	1572275M4	25049.794 ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	1065395	23810.418 ng/mL#	100
25) Dibenzofuran	27.705	168	1874849	25710.272 ng/mL	98
26) Acenaphthylene	26.335	152	2179843M4	29003.190 ng/mL	
27) Acenaphthene	27.072	153	1273128	26678.070 ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.623	170	904177	21663.113 ng/mL	100
29) Fluorene	29.090	166	1451673M4	24443.469 ng/mL	
33) Dibenzothiophene	32.402	184	2285641	25485.077 ng/mL	99
43) Phenanthrene	32.898	178	2086430	23153.152 ng/mL	98
54) Retene	39.884	234	451319	17223.374 ng/mL	92
55) Anthracene	33.079	178	2014742M4	23075.600 ng/mL	
56) Carbazole	33.741	167	2088328M4	26040.459 ng/mL	
57) 1-Methylphenanthrene	35.398	192	1328204M4	19255.650 ng/mL	
58) Fluoranthene	37.671	202	2070581M3	19002.422 ng/mL	
59) Benzo(b)fluorene	40.200	216	1303874M4	18321.441 ng/mL	
60) Pyrene	38.559	202	2108058M4	18862.228 ng/mL	
66) Naphthobenzothiophene	42.399	234	2388137	20448.484 ng/ml	98
67) Naphthobenzothiophene-2,1	42.399	234	2387636M4	20444.194 ng/mL	
75) Benz[a]anthracene	43.332	228	1948399M4	20217.341 ng/mL	
76) Chrysene	43.498	228	1888024M4	19884.398 ng/mL	
77) Chrysene/Triphenylene	43.498	228	1888315M4	19887.463 ng/mL	
82) Benzo[b]fluoranthene	47.383	252	2197460	20722.621 ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.473	252	2322040M4	20712.666 ng/mL	
85) Benzo[e]pyrene	48.407	252	2161751	21181.566 ng/mL	98
87) Benzo[a]pyrene	48.603	252	2125328M4	22157.852 ng/mL	
88) Perylene	48.919	252	2271920	22165.085 ng/mL	98
89) Indeno[1,2,3-cd]pyrene	53.512	276	2586428M3	23421.956 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.572	278	2347772	22616.127 ng/mL	95
91) Benzo[g,h,i]perylene	54.852	276	2516558	22339.282 ng/mL	100

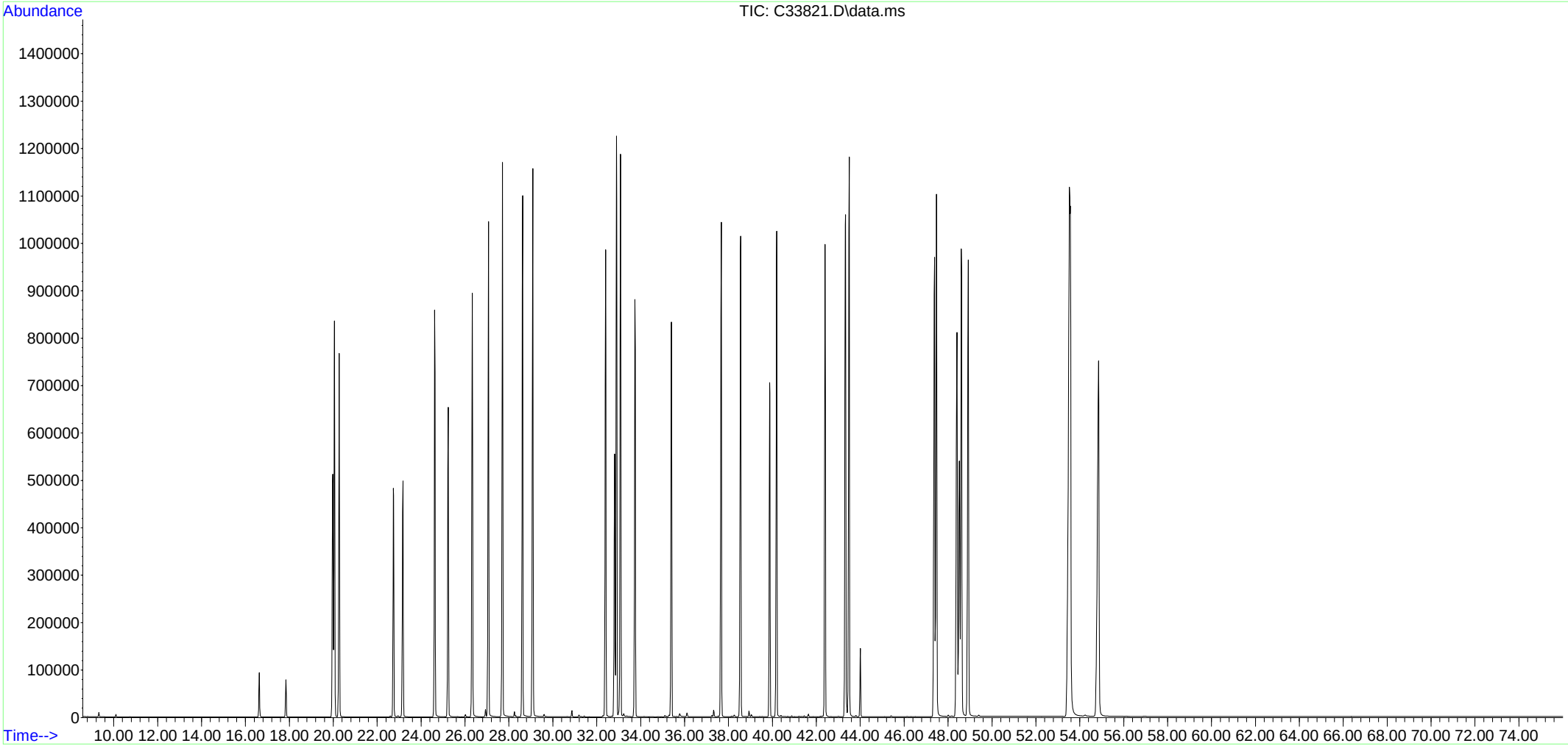
(#) = qualifier out of range (m) = manual integration (+) = signals summed

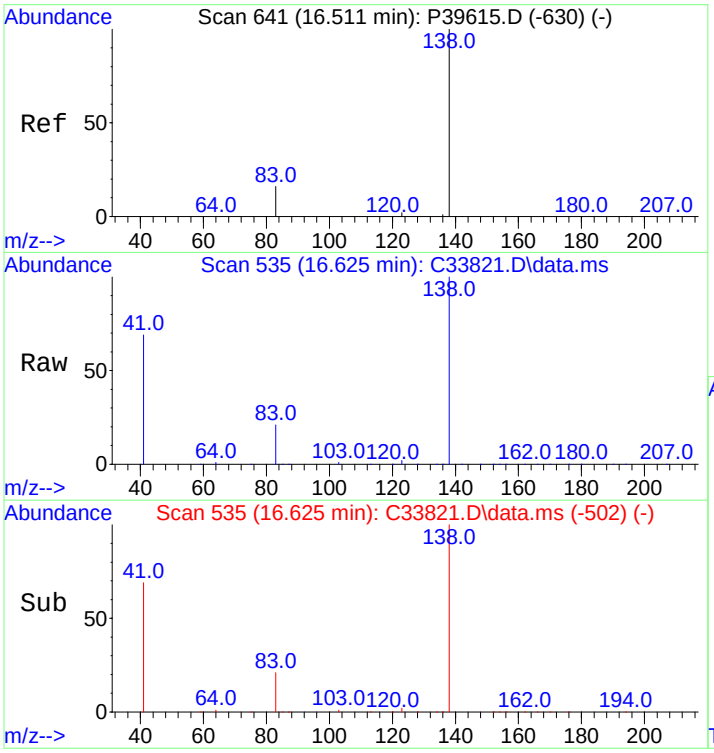
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33821.D
Acq On : 27 Mar 2012 1:09 am
Operator : PAH3:SR
Sample : I303261207
Misc : WG525925
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 29 11:05:54 2012
Quant Method : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 08:51:59 2012
Response via : Initial Calibration

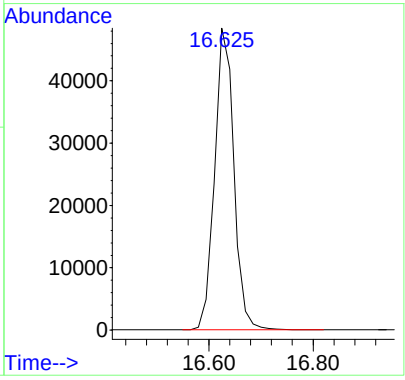
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

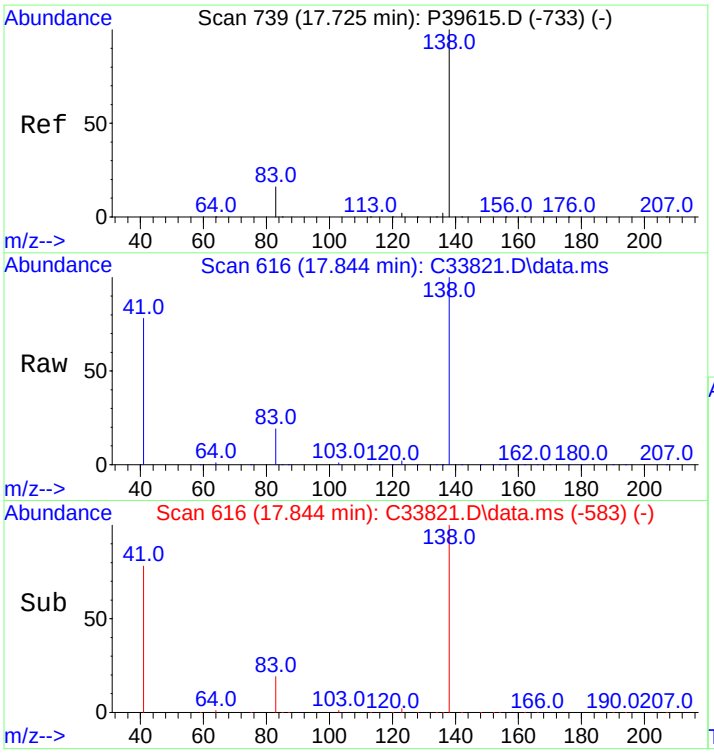




#3
trans-Decalin
Concen: 9697.33 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

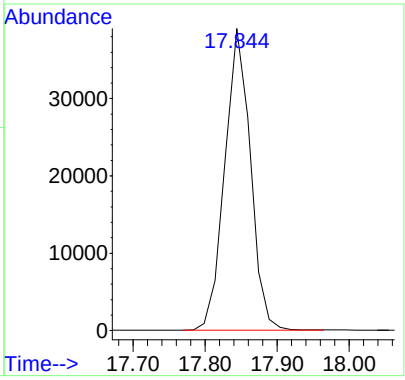
Tgt Ion:138 Resp: 124104

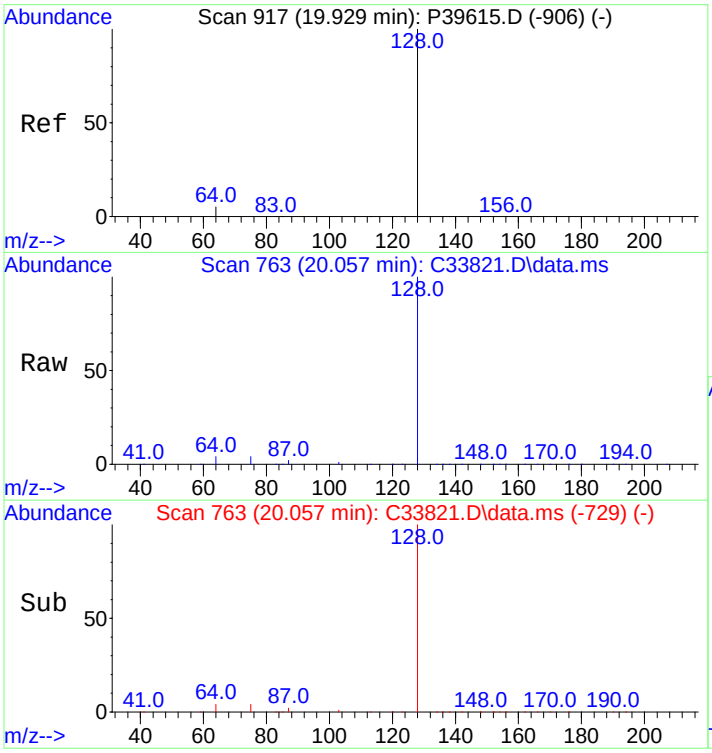




#4
cis-Decalin
Concen: 9676.94 ng/mL m
RT: 17.844 min Scan# 616
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:138 Resp: 96625

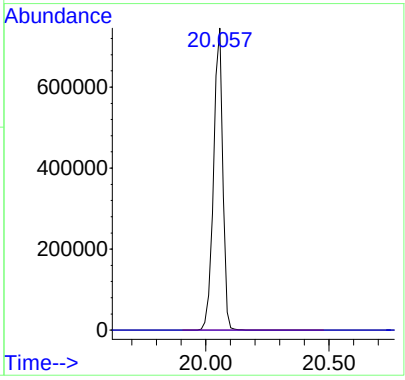


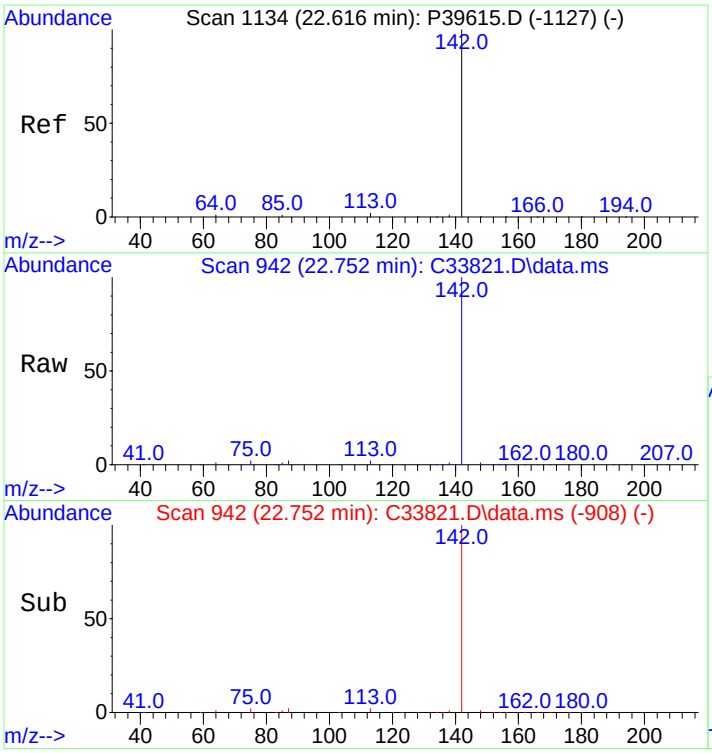


#10
Naphthalene
Concen: 29257.13 ng/mL
RT: 20.057 min Scan# 763
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:128 Resp: 1949049

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

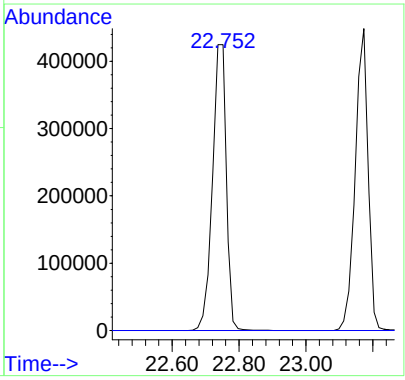


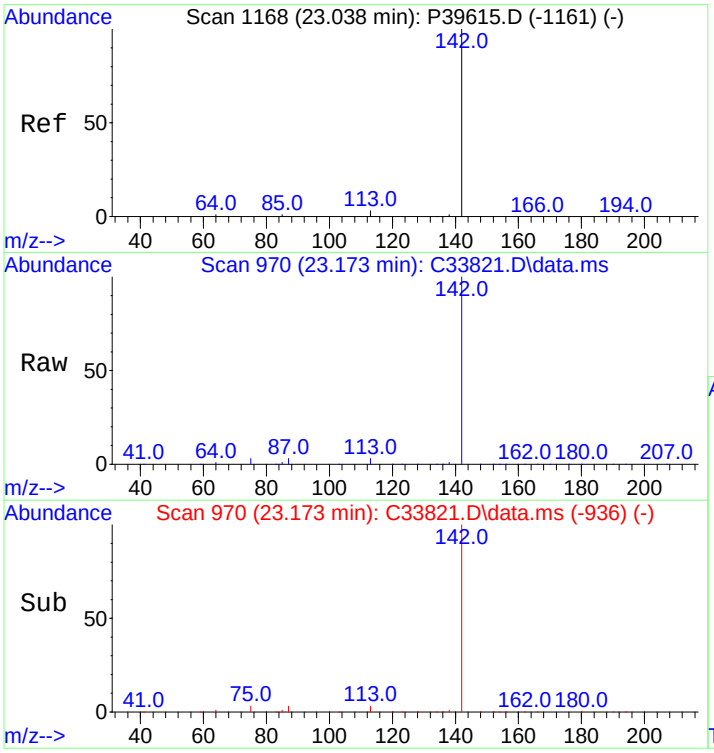


#16
2-Methylnaphthalene
Concen: 25854.83 ng/mL m
RT: 22.752 min Scan# 942
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1216123

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

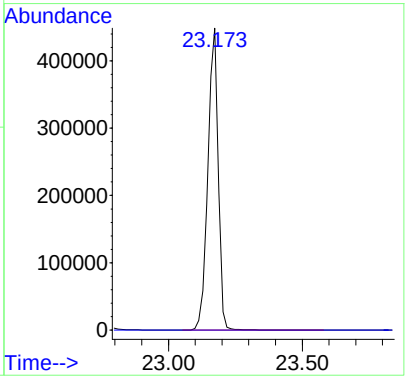


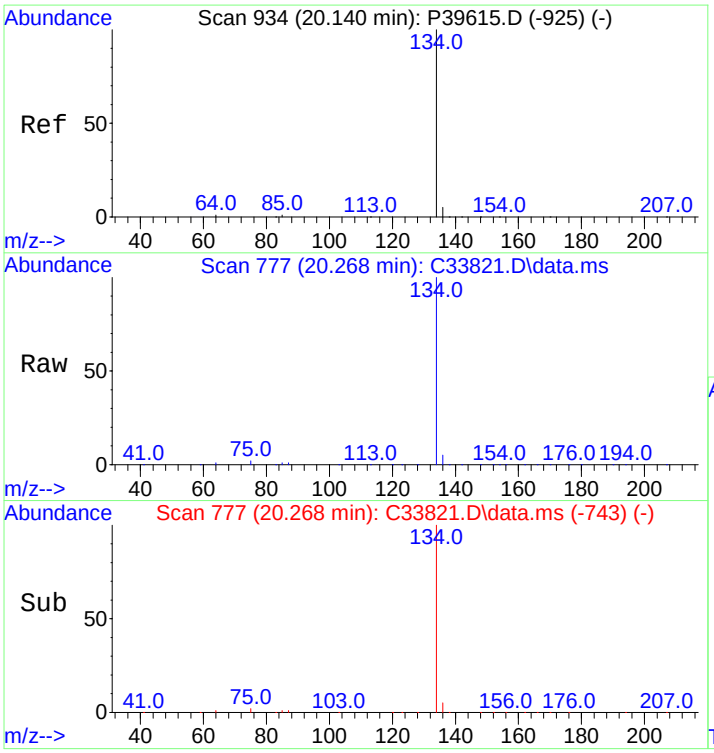


#17
1-Methylnaphthalene
Concen: 26609.55 ng/mL
RT: 23.173 min Scan# 970
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:142 Resp: 1200476

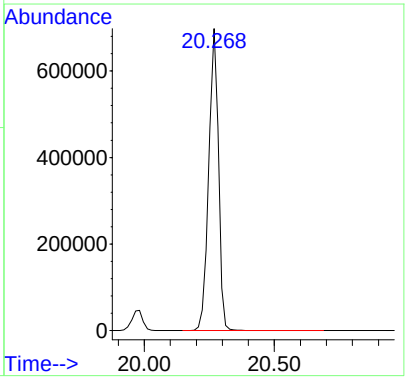
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

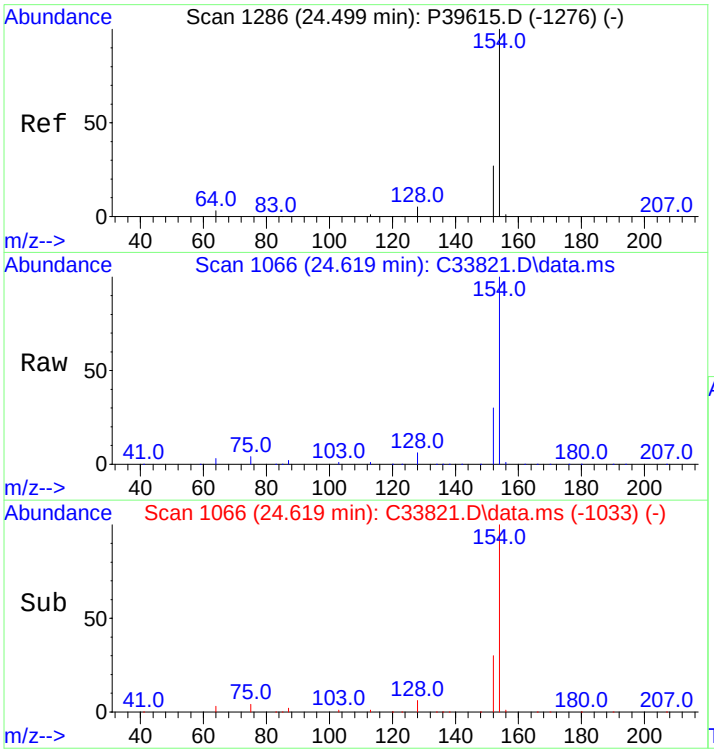




#18
Benzothiophene
Concen: 33094.56 ng/mL
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:134 Resp: 1808135

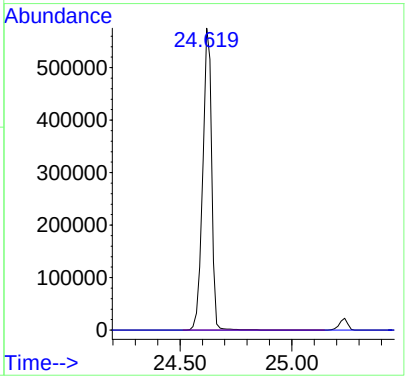


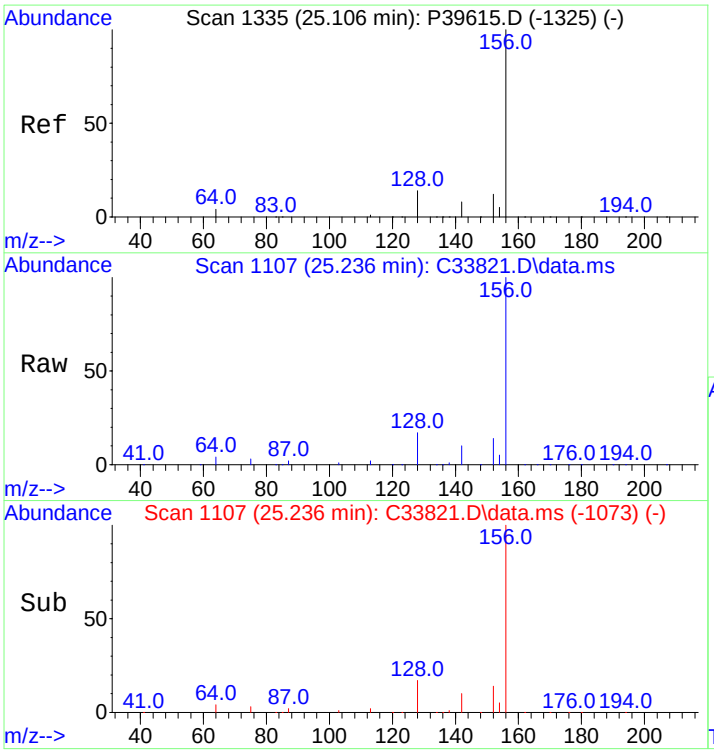


#23
Biphenyl
Concen: 25049.79 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. 0.000 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:154 Resp: 1572275

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

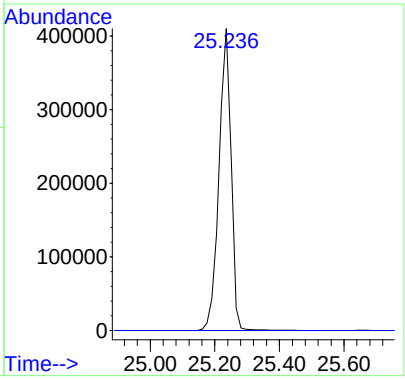


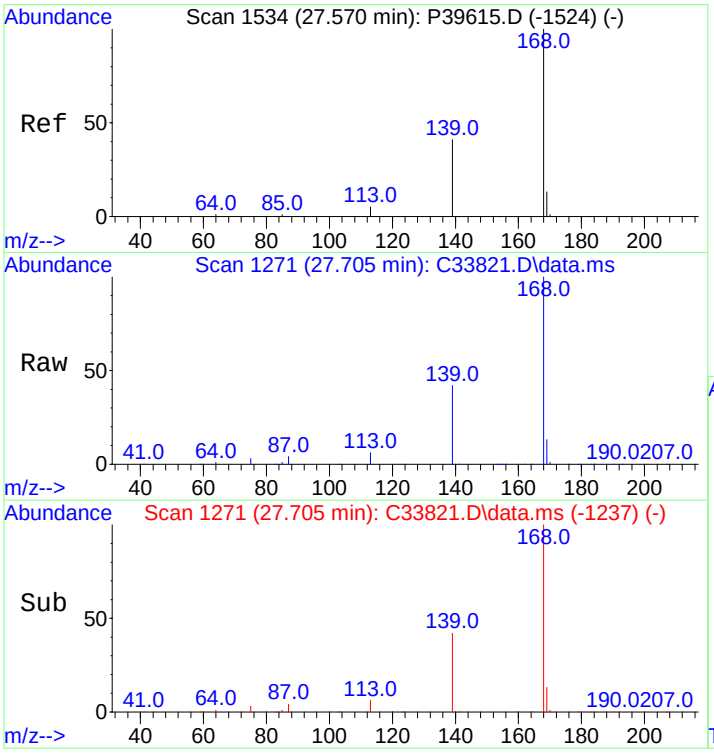


#24
2,6-Dimethylnaphthalene
Concen: 23810.42 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:156 Resp: 1065395

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

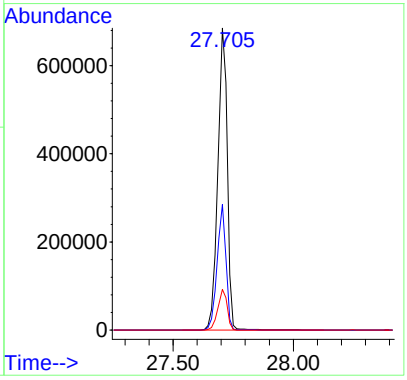


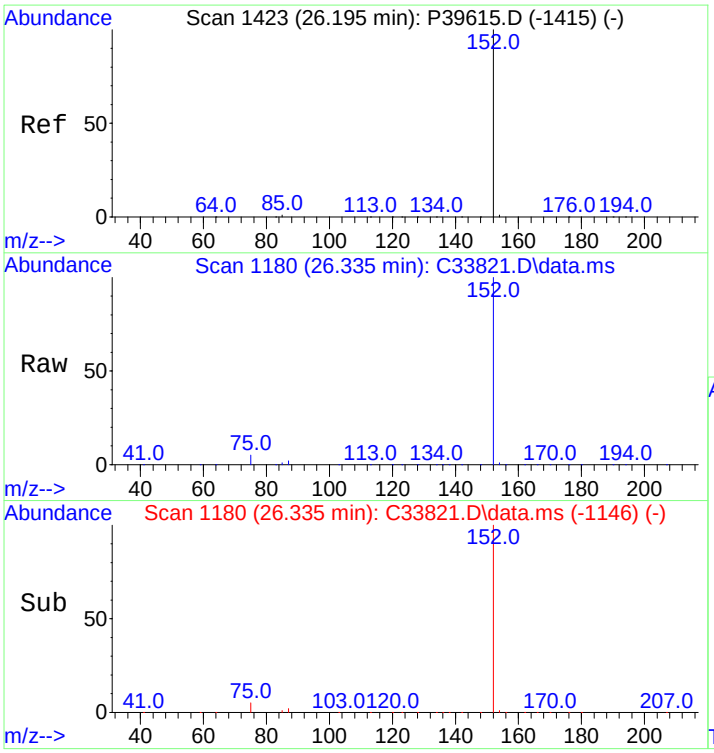


#25
Dibenzofuran
Concen: 25710.27 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:168 Resp: 1874849

Ion	Ratio	Lower	Upper
168	100		
139	39.3	32.9	49.3
169	13.3	10.6	16.0

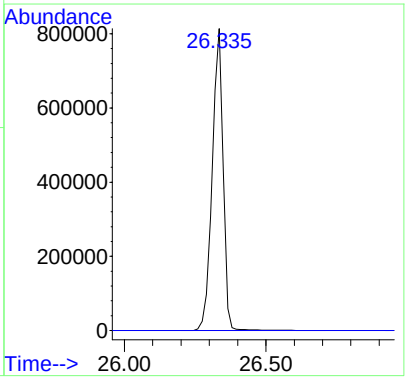


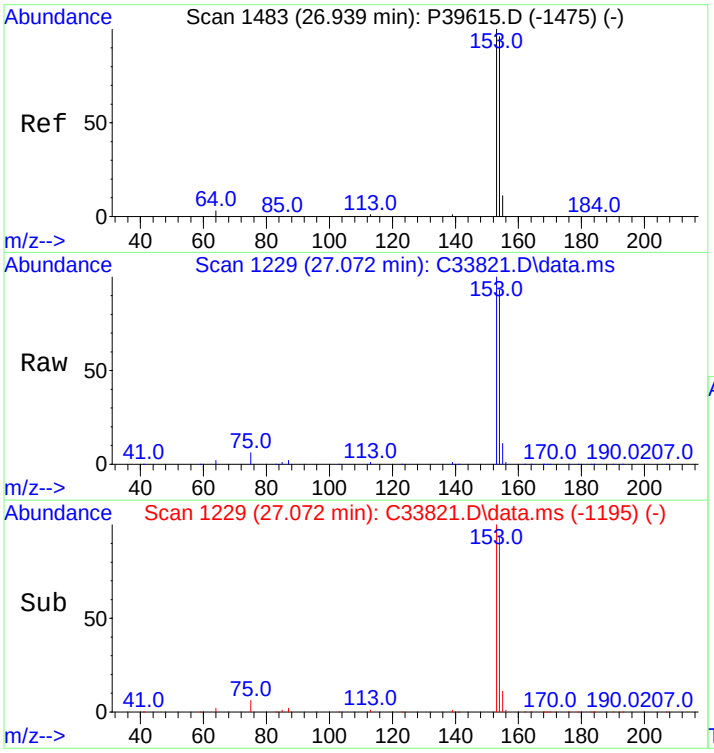


#26
Acenaphthylene
Concen: 29003.19 ng/mL m
RT: 26.335 min Scan# 1180
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:152 Resp: 2179843

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

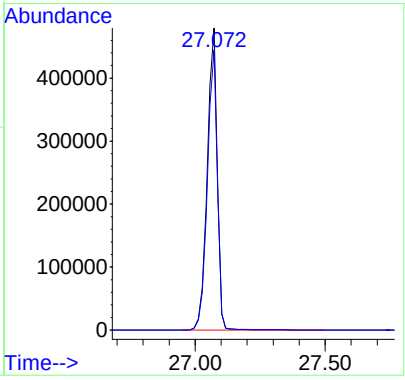


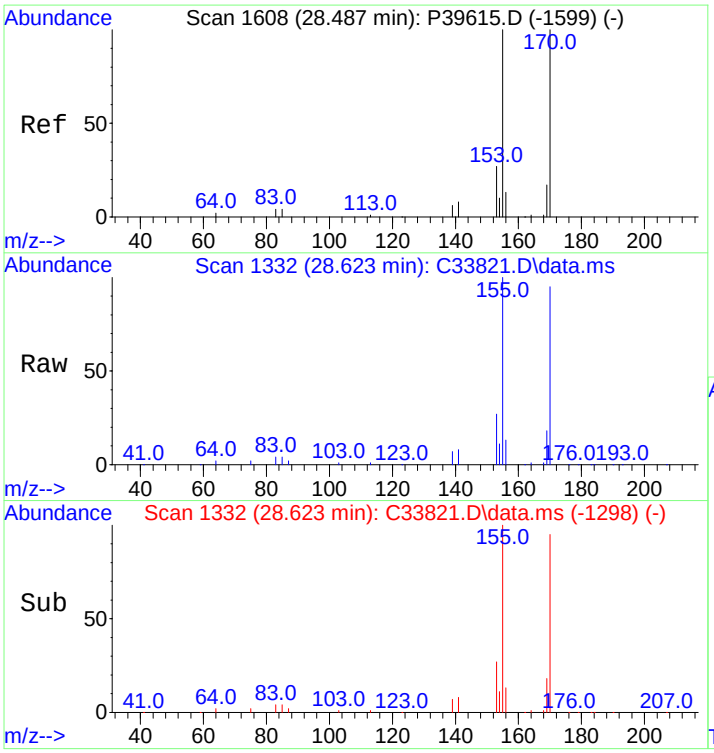


#27
Acenaphthene
Concen: 26678.07 ng/mL
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:153 Resp: 1273128

Ion	Ratio	Lower	Upper
153	100		
154	92.9	75.0	112.6

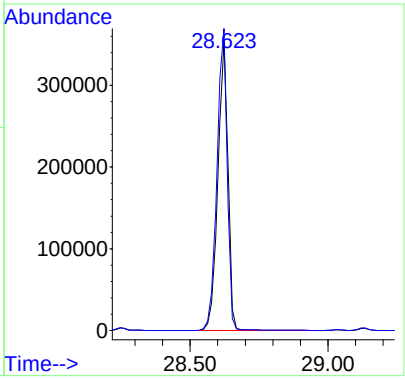


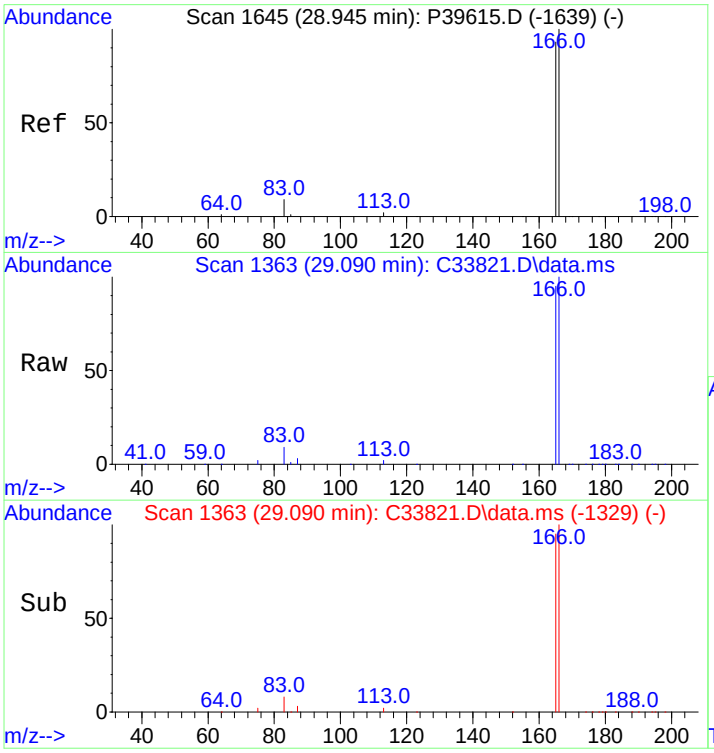


#28
2,3,5-Trimethylnaphthalene
Concen: 21663.11 ng/mL
RT: 28.623 min Scan# 1332
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:170 Resp: 904177

Ion	Ratio	Lower	Upper
170	100		
155	105.9	84.7	127.1

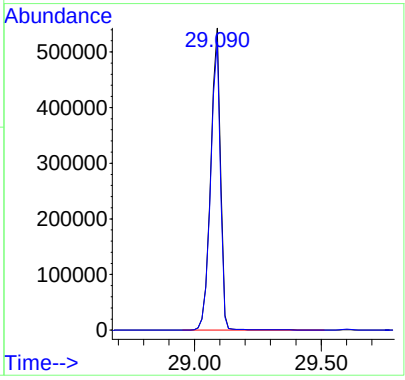


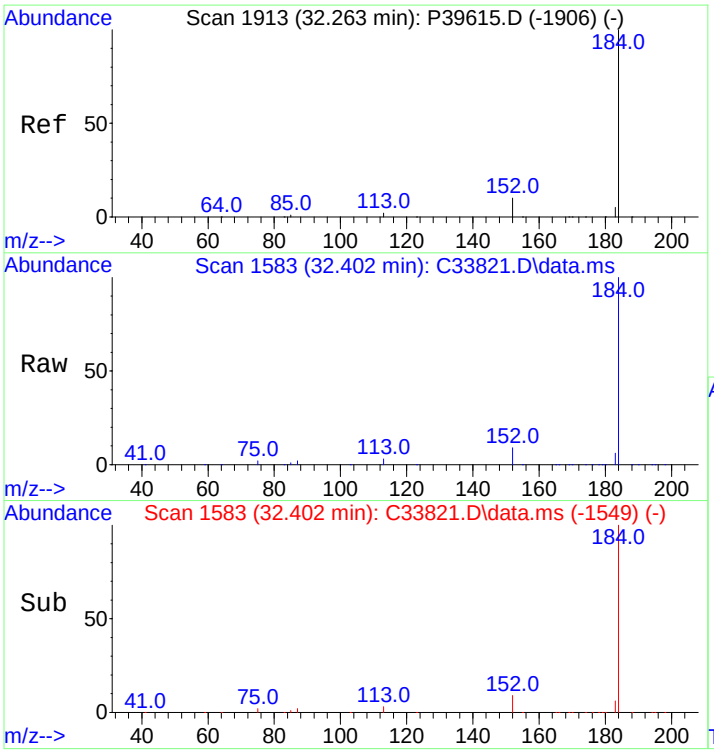


#29
Fluorene
Concen: 24443.47 ng/mL m
RT: 29.090 min Scan# 1363
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:166 Resp: 1451673

Ion	Ratio	Lower	Upper
166	100		
165	95.3	75.3	112.9

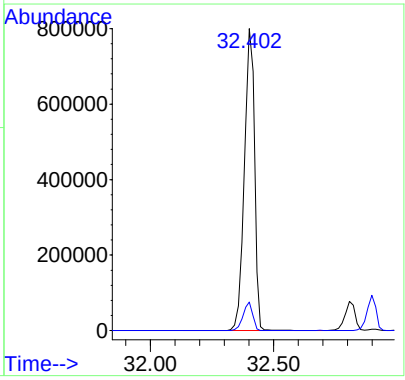


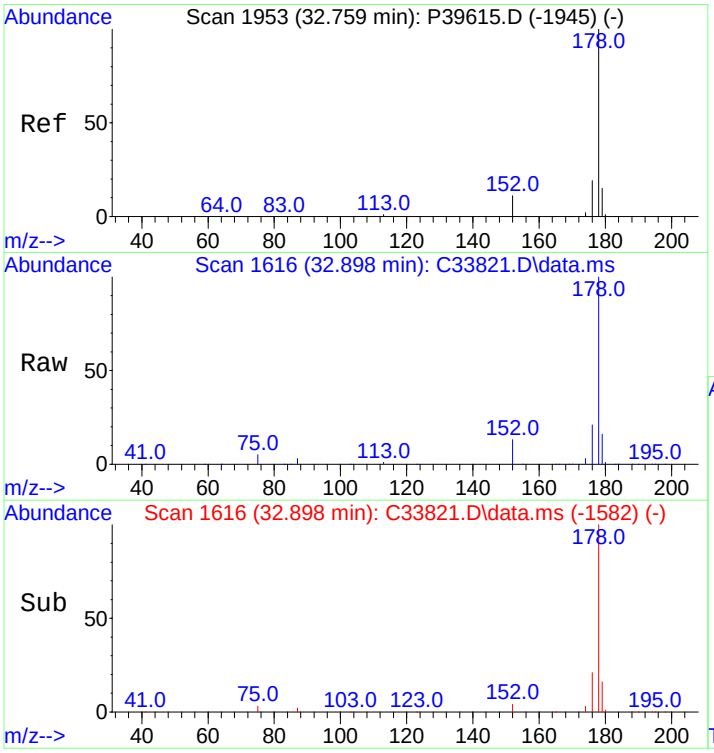


#33
Dibenzothiophene
Concen: 25485.08 ng/mL
RT: 32.402 min Scan# 1583
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:184 Resp: 2285641

Ion	Ratio	Lower	Upper
184	100		
152	8.9	6.7	10.1

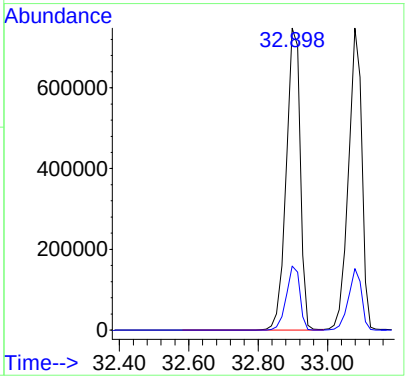


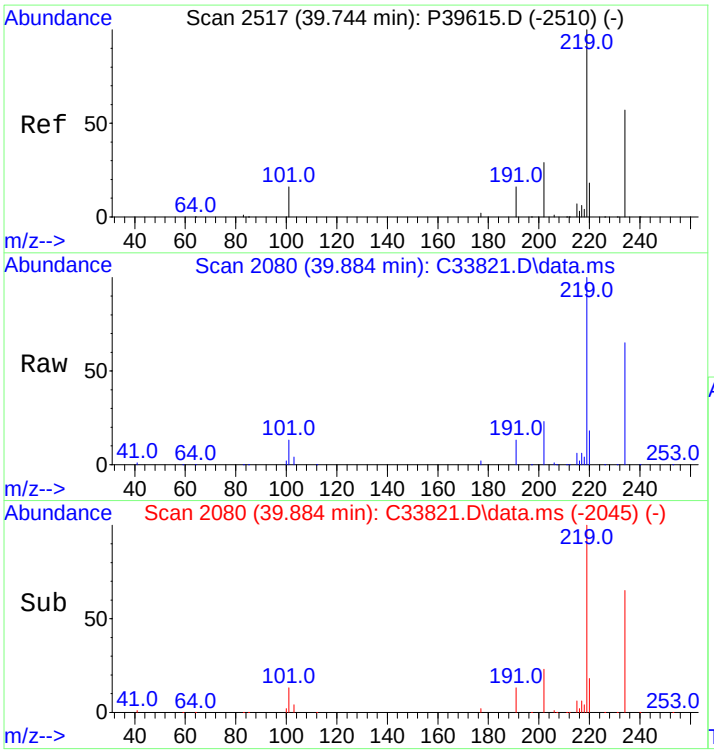


#43
Phenanthrene
Concen: 23153.15 ng/mL
RT: 32.898 min Scan# 1616
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2086430

Ion	Ratio	Lower	Upper
178	100		
176	20.6	15.9	23.9

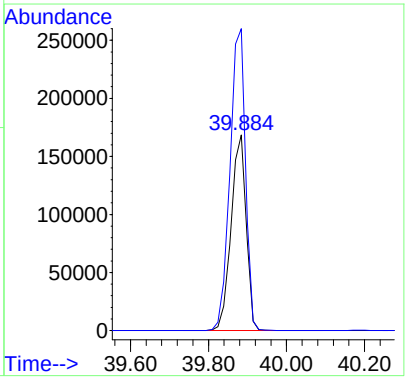


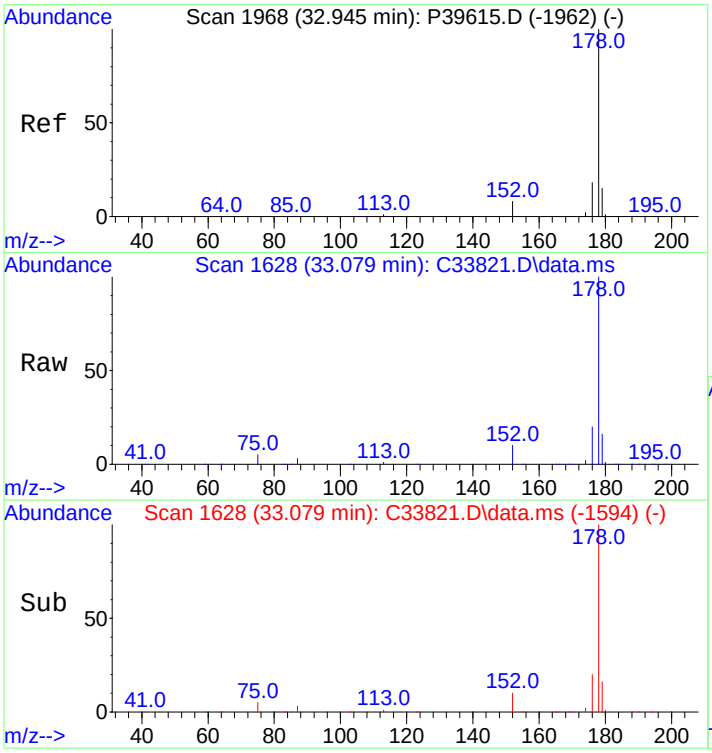


#54
Retene
Concen: 17223.37 ng/mL
RT: 39.884 min Scan# 2080
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 451319

Ion	Ratio	Lower	Upper
234	100		
219	159.0	136.6	204.8

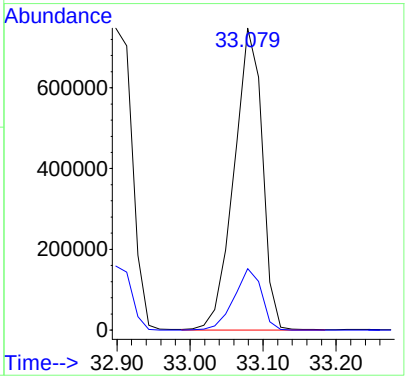


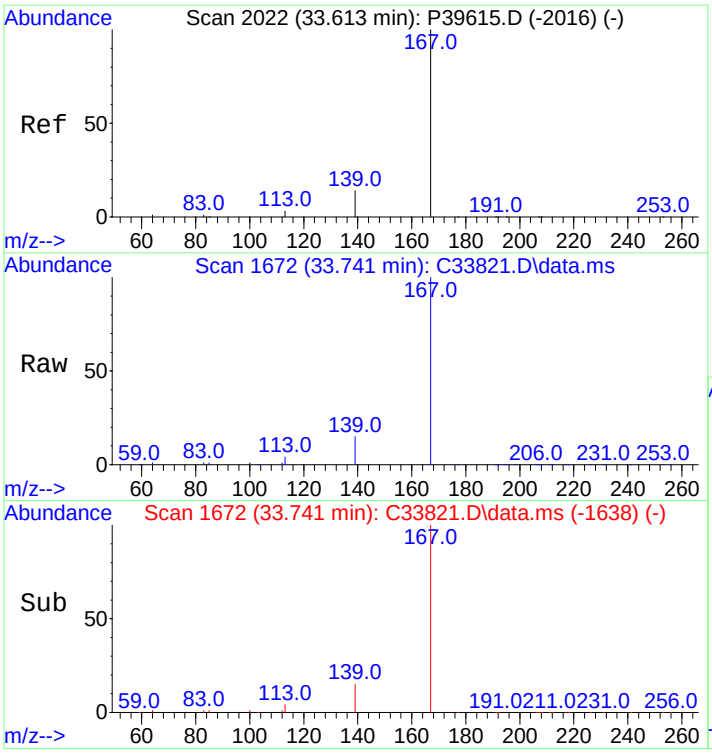


#55
Anthracene
Concen: 23075.60 ng/mL m
RT: 33.079 min Scan# 1628
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:178 Resp: 2014742

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.4	23.0

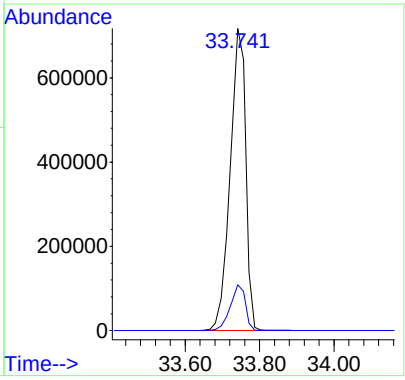


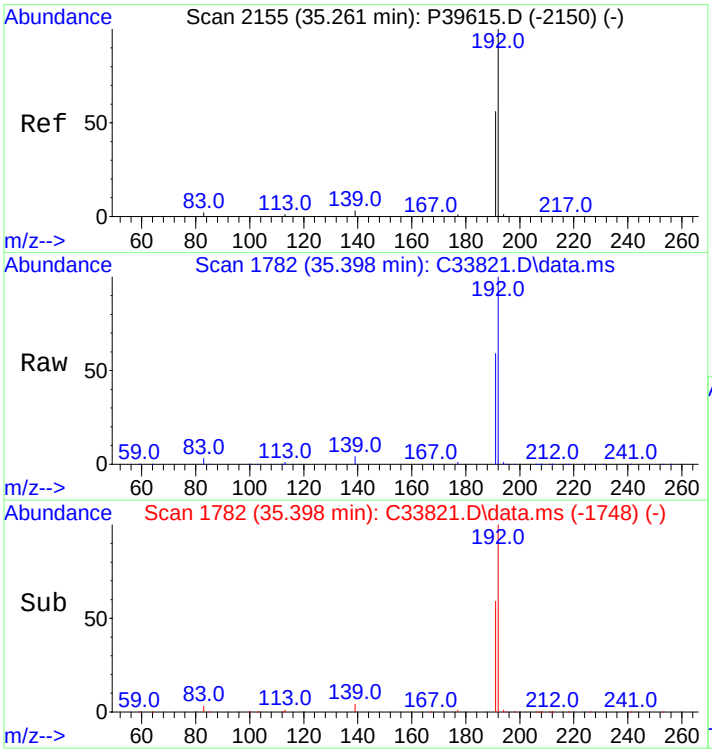


#56
Carbazole
Concen: 26040.46 ng/mL m
RT: 33.741 min Scan# 1672
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:167 Resp: 2088328

Ion	Ratio	Lower	Upper
167	100		
139	14.7	11.6	17.4

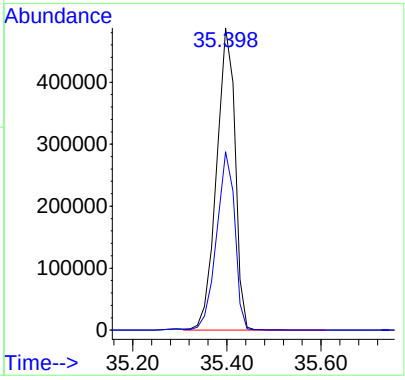


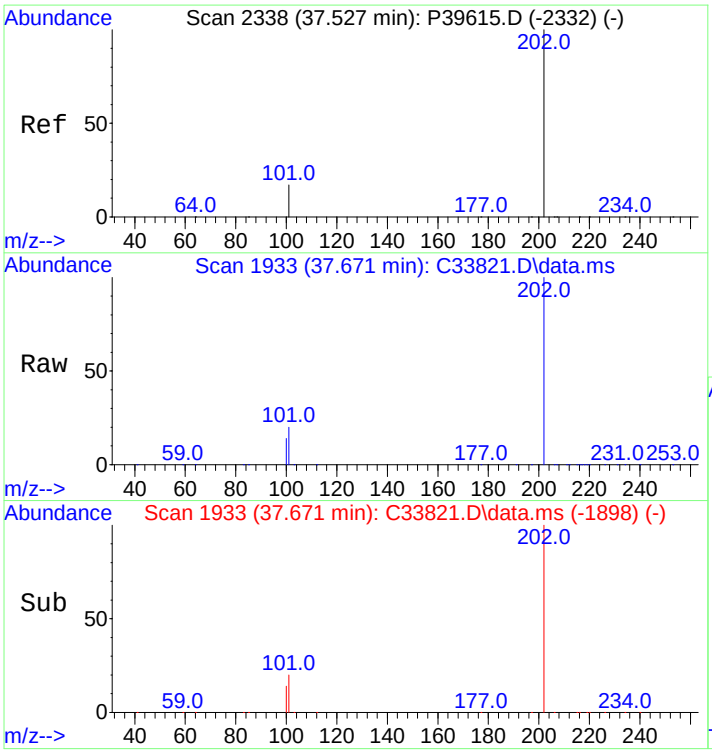


#57
1-Methylphenanthrene
Concen: 19255.65 ng/mL m
RT: 35.398 min Scan# 1782
Delta R.T. 0.015 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:192 Resp: 1328204

Ion	Ratio	Lower	Upper
192	100		
191	57.9	45.3	67.9

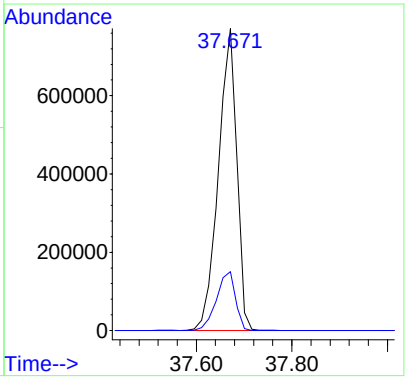


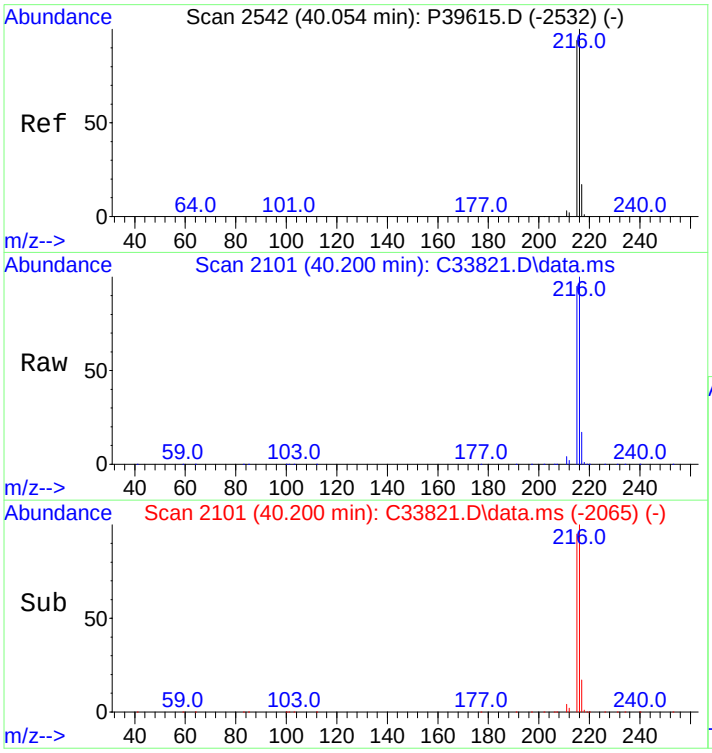


#58
Fluoranthene
Concen: 19002.42 ng/mL m
RT: 37.671 min Scan# 1933
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2070581

Ion	Ratio	Lower	Upper
202	100		
101	20.2	19.1	28.7

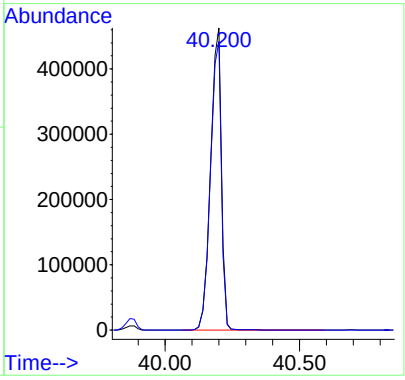


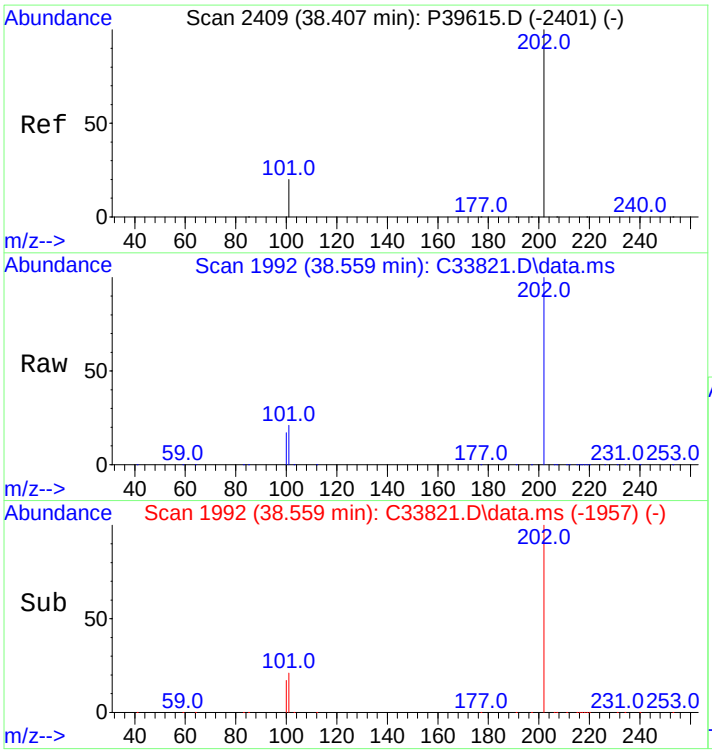


#59
Benzo(b)fluorene
Concen: 18321.44 ng/mL m
RT: 40.200 min Scan# 2101
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:216 Resp: 1303874

Ion	Ratio	Lower	Upper
216	100		
215	95.9	77.4	116.2

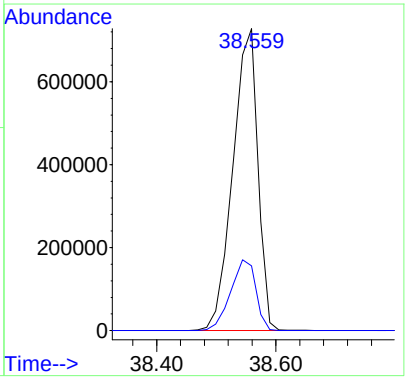


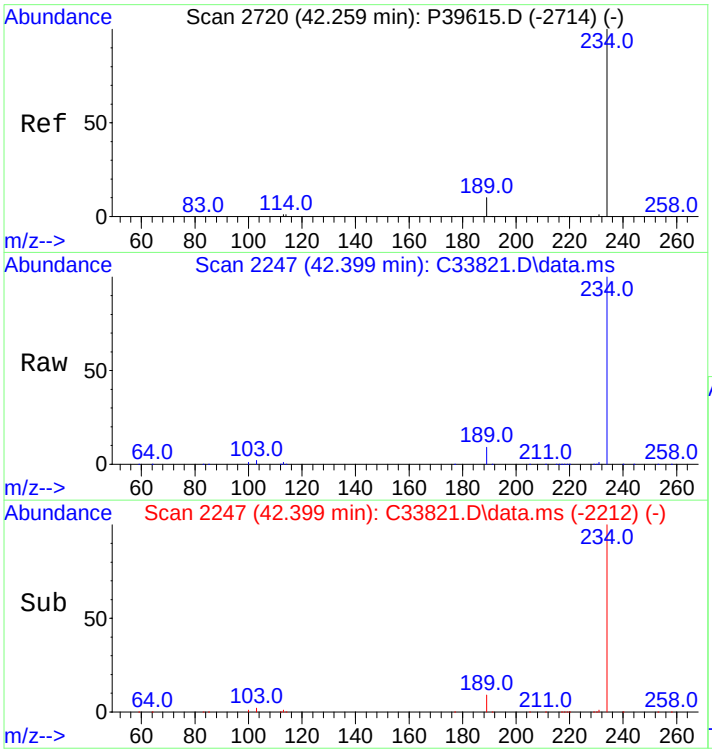


#60
Pyrene
Concen: 18862.23 ng/mL m
RT: 38.559 min Scan# 1992
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:202 Resp: 2108058

Ion	Ratio	Lower	Upper
202	100		
101	23.7	20.4	30.6

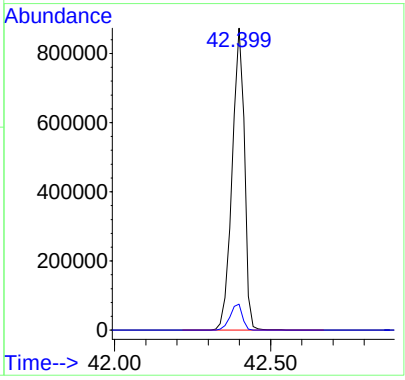


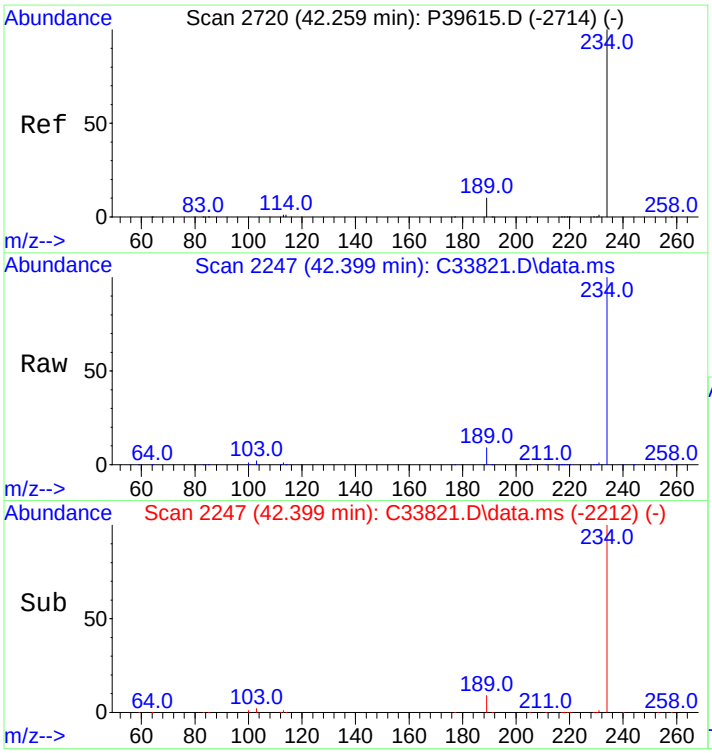


#66
Naphthobenzothiophene
Concen: 20448.48 ng/ml
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2388137

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

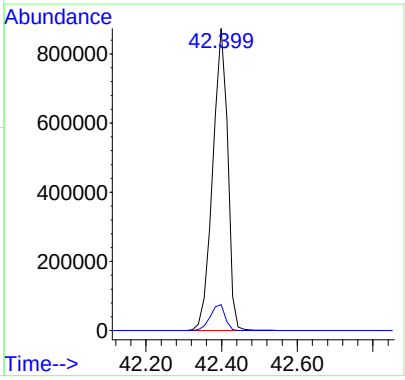


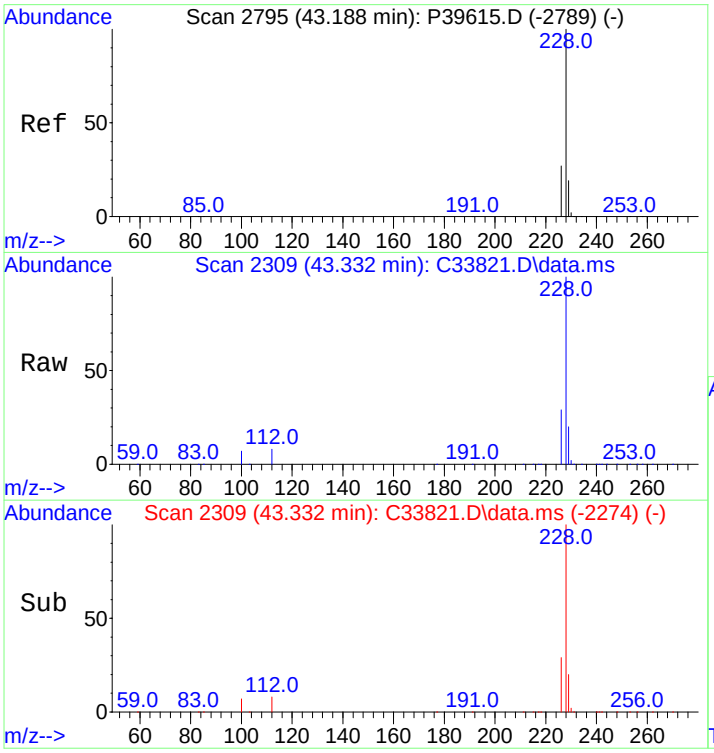


#67
Naphthobenzothiophene-2,1-D
Concen: 20444.19 ng/mL m
RT: 42.399 min Scan# 2247
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:234 Resp: 2387636

Ion	Ratio	Lower	Upper
234	100		
189	8.6	7.4	11.0

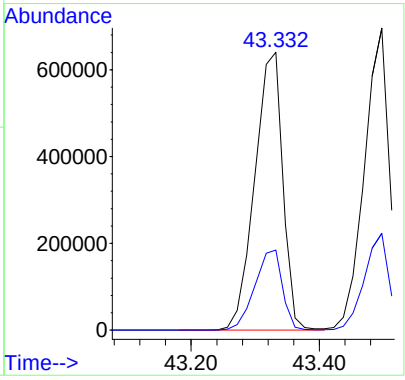


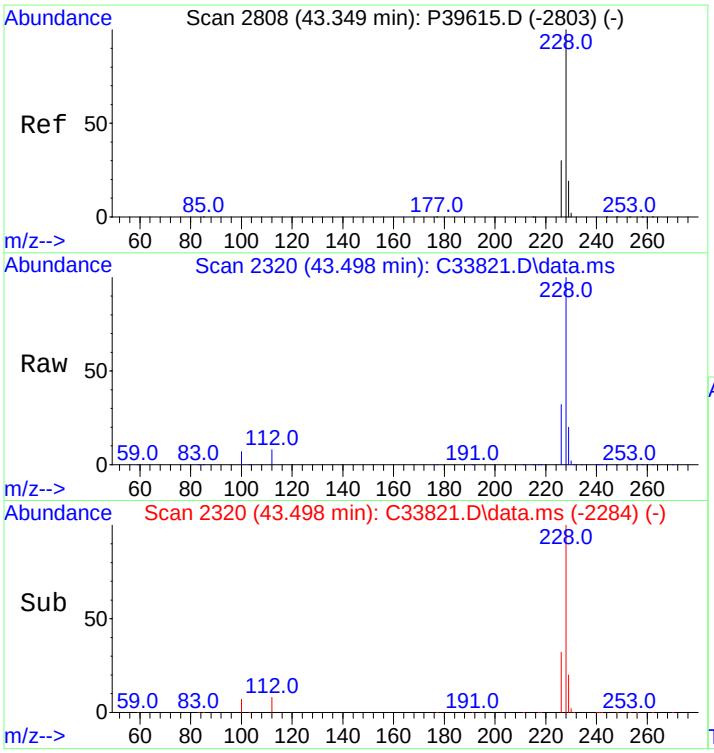


#75
Benz[a]anthracene
Concen: 20217.34 ng/mL m
RT: 43.332 min Scan# 2309
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1948399

Ion	Ratio	Lower	Upper
228	100		
226	28.4	21.8	32.8

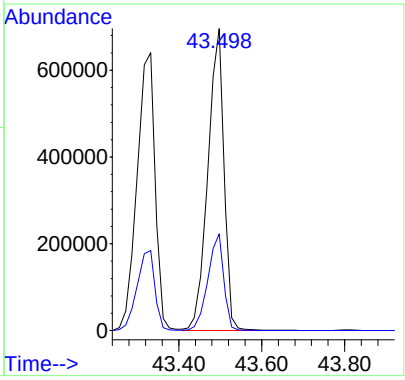


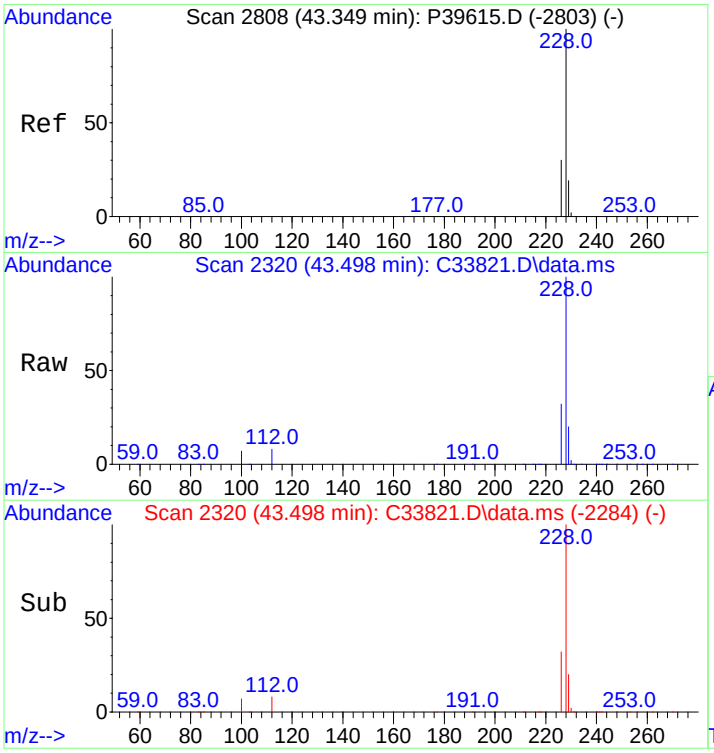


#76
Chrysene
Concen: 19884.40 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888024

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

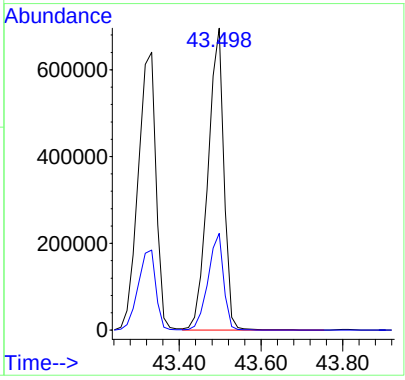


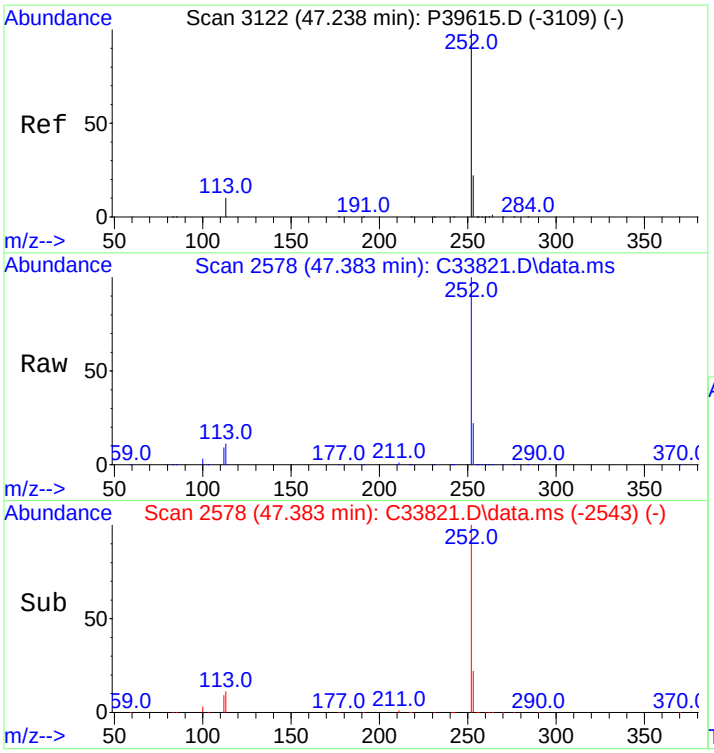


#77
Chrysene/Triphenylene
Concen: 19887.46 ng/mL m
RT: 43.498 min Scan# 2320
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:228 Resp: 1888315

Ion	Ratio	Lower	Upper
228	100		
226	31.4	24.2	36.4

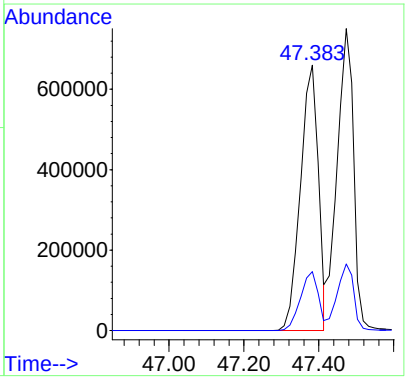


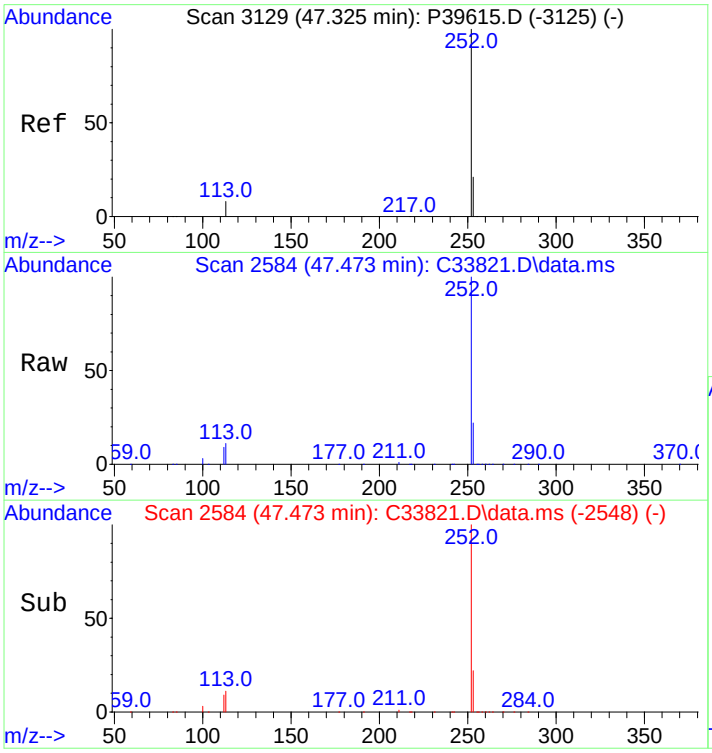


#82
Benzo[b]fluoranthene
Concen: 20722.62 ng/mL
RT: 47.383 min Scan# 2578
Delta R.T. 0.030 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2197460

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.5	27.7

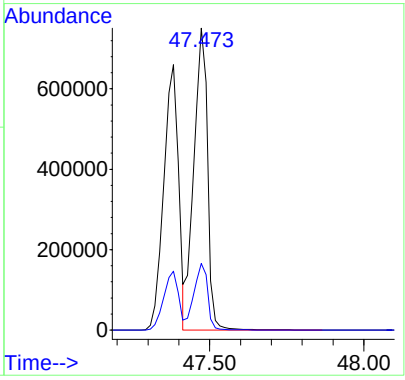


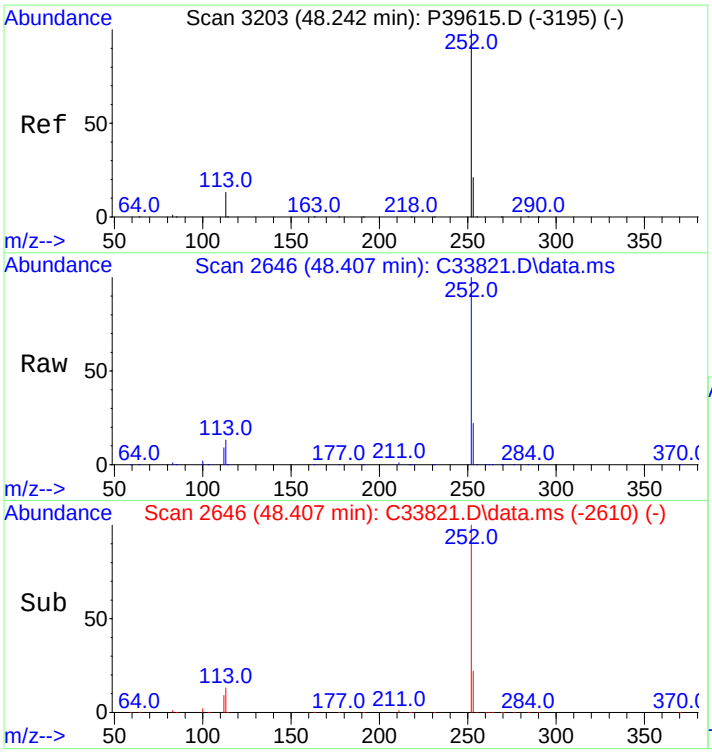


#83
Benzo[j]+[k]fluoranthene
Concen: 20712.67 ng/mL m
RT: 47.473 min Scan# 2584
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2322040

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.2	27.4

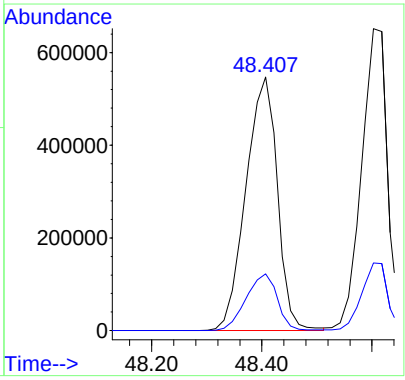


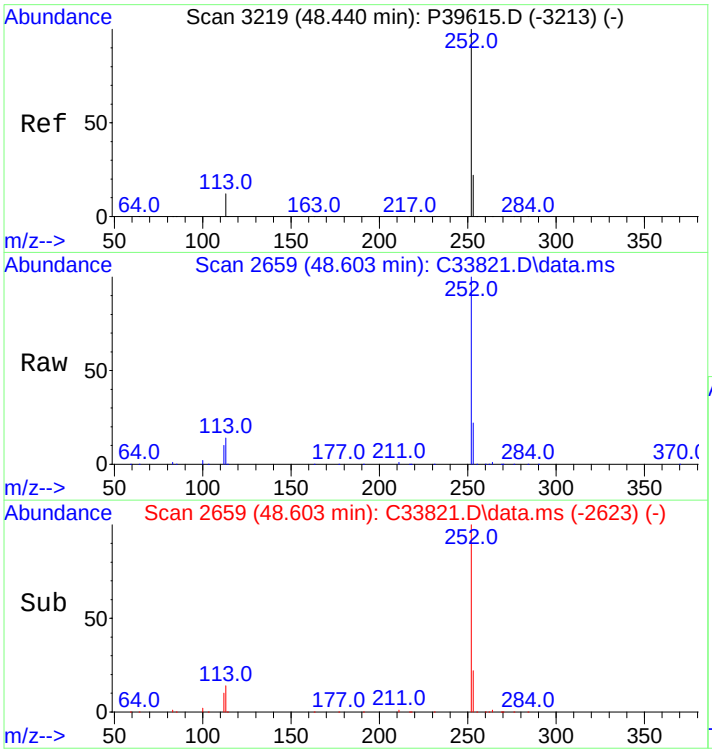


#85
Benzo[e]pyrene
Concen: 21181.57 ng/mL
RT: 48.407 min Scan# 2646
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2161751

Ion	Ratio	Lower	Upper
252	100		
253	22.1	18.5	27.7

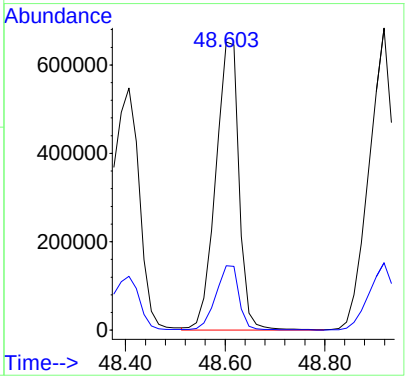


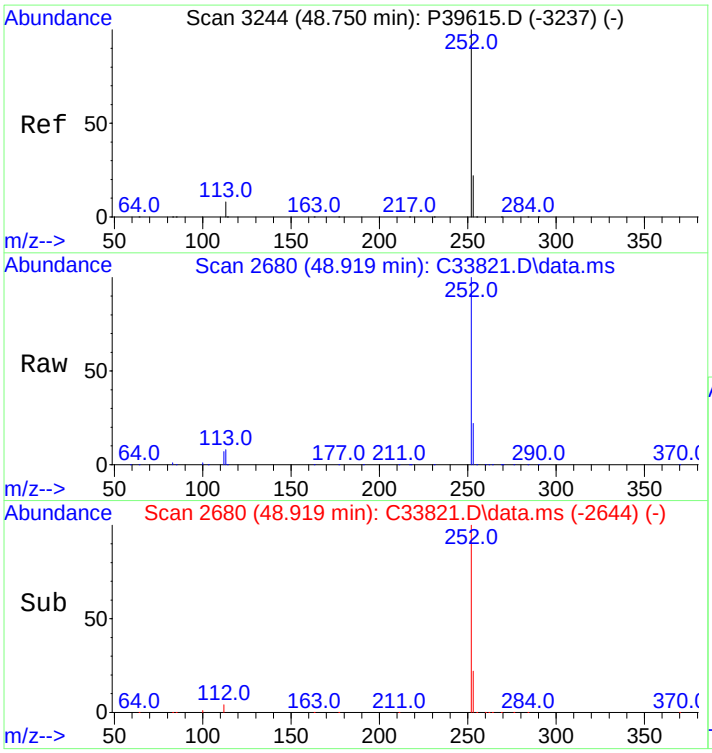


#87
Benzo[a]pyrene
Concen: 22157.85 ng/mL m
RT: 48.603 min Scan# 2659
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2125328

Ion	Ratio	Lower	Upper
252	100		
253	22.2	18.7	28.1

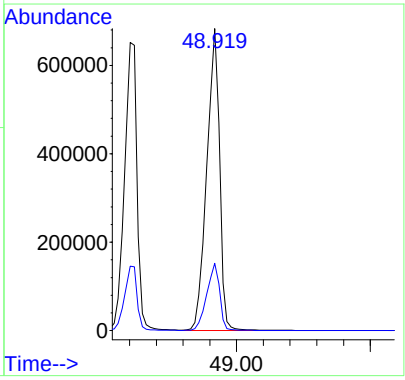


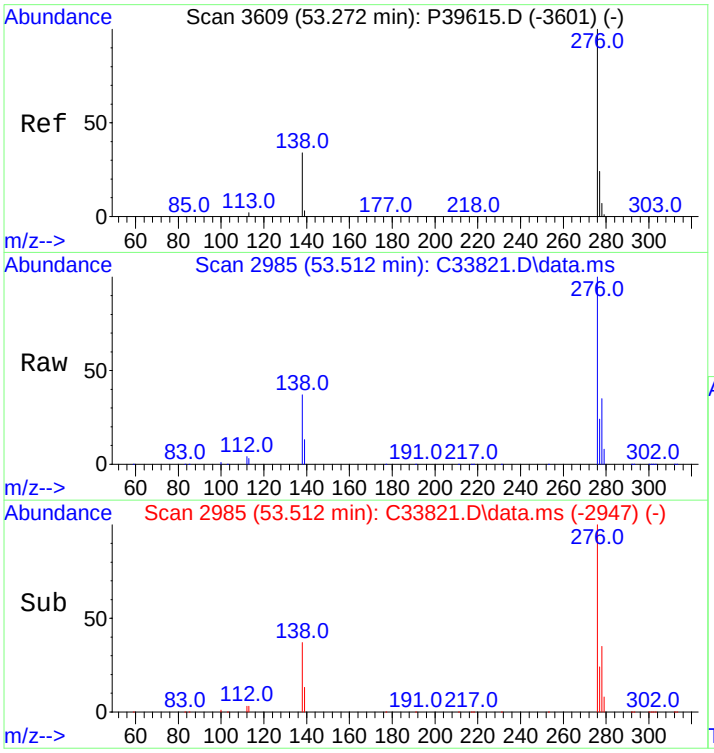


#88
Perylene
Concen: 22165.08 ng/mL
RT: 48.919 min Scan# 2680
Delta R.T. 0.045 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:252 Resp: 2271920

Ion	Ratio	Lower	Upper
252	100		
253	22.3	18.6	27.8

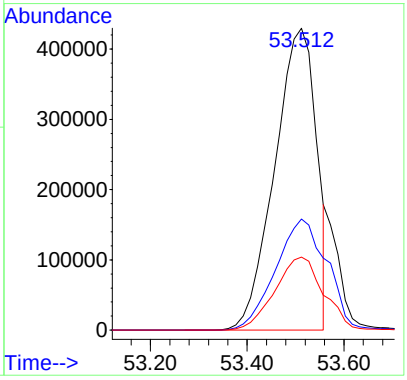


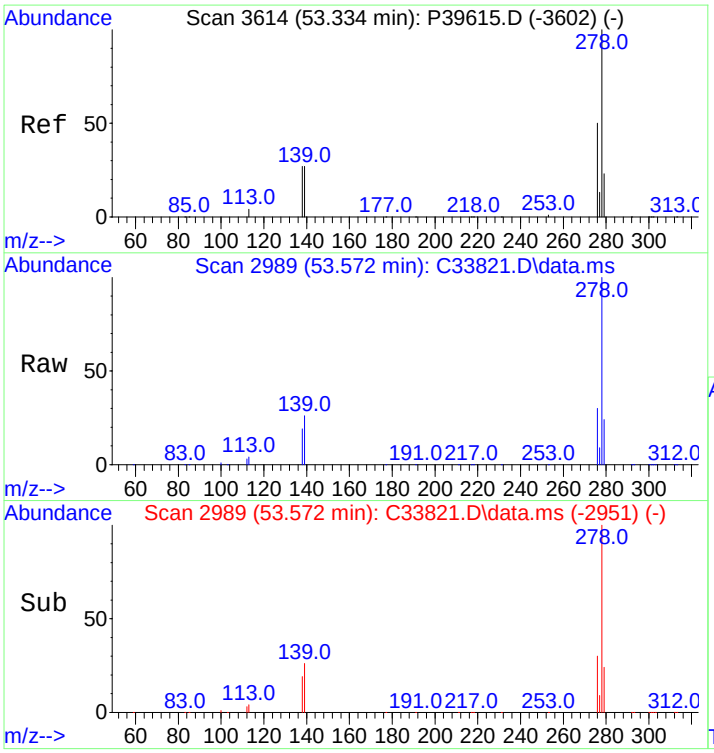


#89
Indeno[1,2,3-cd]pyrene
Concen: 23421.96 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2586428

Ion	Ratio	Lower	Upper
276	100		
138	45.4	30.3	45.5
277	28.2	19.2	28.8

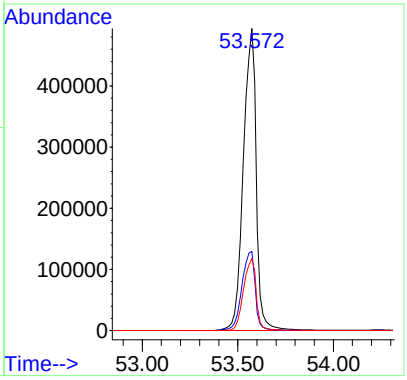


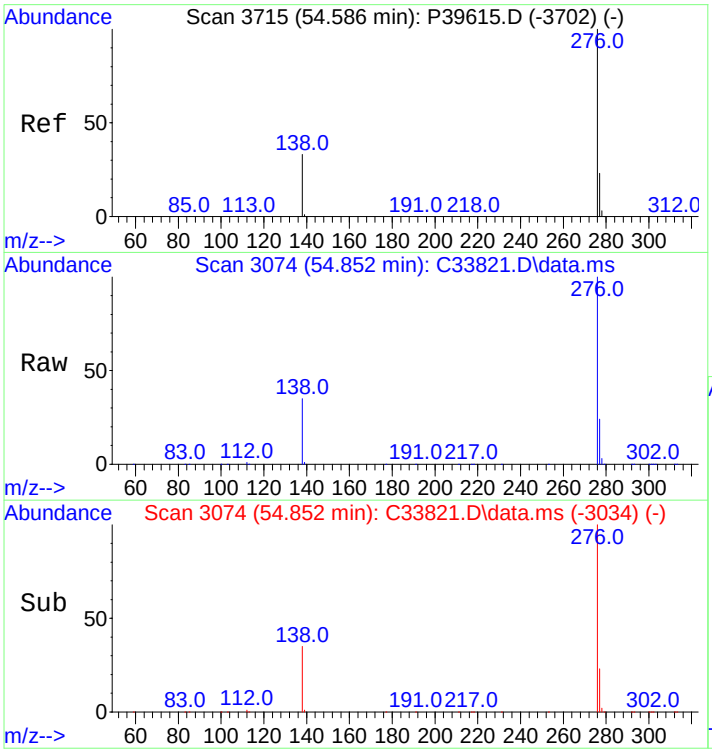


#90
Dibenz[ah]+[ac]anthracene
Concen: 22616.13 ng/mL
RT: 53.572 min Scan# 2989
Delta R.T. 0.075 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:278 Resp: 2347772

Ion	Ratio	Lower	Upper
278	100		
139	27.2	25.4	38.2
279	23.5	19.0	28.4

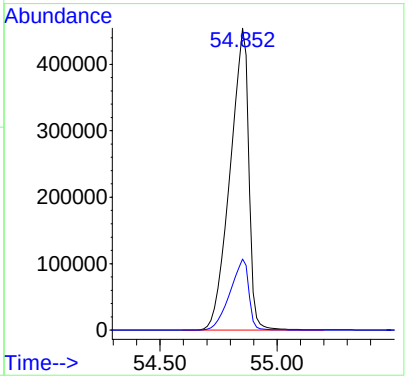




#91
Benzo[g,h,i]perylene
Concen: 22339.28 ng/mL
RT: 54.852 min Scan# 3074
Delta R.T. 0.105 min
Lab File: C33821.D
Acq: 27 Mar 2012 1:09 am

Tgt Ion:276 Resp: 2516558

Ion	Ratio	Lower	Upper
276	100		
277	23.6	18.9	28.3



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	16662M3	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	29082M4	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	69136M4	956.009	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 95.60%			
42) Phenanthrene-d10	32.793	188	60729M4	1062.426	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 106.24%			
86) Benzo[a]pyrene-d12	48.467	264	61854	1026.279	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 102.63%			
127) 5B(H)Cholane - Surr	43.995	217	9985M4	1098.156	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 109.82%			
Target Compounds						Qvalue
3) trans-Decalin	16.625	138	31493M4	2394.337	ng/mL	
4) cis-Decalin	17.844	138	1522	153.534	ng/mL	100
5) C1-Decalins	18.567	152	47525M5	3613.211	ng/mL	
6) C2-Decalins	19.891	166	39620M5	3012.213	ng/mL	
7) C3-Decalins	22.360	180	19577M5	1488.392	ng/mL	
8) C4-Decalins	25.748	194	19057M5	1448.858	ng/mL	
10) Naphthalene	20.042	128	304002M4	2862.688	ng/mL	
11) C1-Naphthalenes	22.737	142	620492M5	5842.971	ng/mL	
12) C2-Naphthalenes	25.582	156	734411M5	6915.710	ng/mL	
13) C3-Naphthalenes	27.915	170	505854M5	4763.463	ng/mL	
14) C4-Naphthalenes	30.670	184	258021M5	2429.700	ng/mL	
16) 2-Methylnaphthalene	22.737	142	363350M4	5786.711	ng/mL	
17) 1-Methylnaphthalene	23.158	142	255827	4156.600	ng/mL#	100
18) Benzothiophene	20.253	134	2250M4	23.545	ng/mL	
19) C1-Benzo(b)thiophenes	22.300	148	11287M5	118.112	ng/mL	
20) C2-Benzo(b)thiophenes	25.778	162	22511M5	235.565	ng/mL	
21) C3-Benzo(b)thiophenes	27.750	176	44430M5	464.934	ng/mL	
22) C4-Benzo(b)thiophenes	29.481	190	37730M5	394.823	ng/mL	
23) Biphenyl	24.619	154	59912M4	754.289	ng/mL	
24) 2,6-Dimethylnaphthalene	25.236	156	180797	3504.618	ng/mL#	100
25) Dibenzofuran	27.705	168	23811M4	261.060	ng/mL	
26) Acenaphthylene	26.320	152	3537	33.553	ng/mL#	100
27) Acenaphthene	27.072	153	5998M4	96.634	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.608	170	40982M4	985.471	ng/mL	
29) Fluorene	29.075	166	25536M4	373.033	ng/mL	
30) C1-Fluorenes	31.438	180	57246M5	836.256	ng/mL	
31) C2-Fluorenes	33.621	194	81338M5	1188.195	ng/mL	
32) C3-Fluorenes	35.458	208	72133M5	1053.727	ng/mL	
33) Dibenzothiophene	32.387	184	77367M4	705.049	ng/mL	
34) 4-Methyldibenzothiophene(	34.163	198	68953	628.372	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.509	198	48258	439.778	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.931	198	23171	211.158	ng/mL#	100
38) C1-Dibenzothiophenes	34.163	198	143563M5	1308.297	ng/mL	
38) C1-Dibenzothiophenes BS	34.163	198	143563m	1308.297	ng/mL	
39) C2-Dibenzothiophenes	35.849	212	193502M5	1763.393	ng/mL	
40) C3-Dibenzothiophenes	37.641	226	170116M5	1550.276	ng/mL	
41) C4-Dibenzothiophenes	39.327	240	88891M5	810.068	ng/mL	
43) Phenanthrene	32.883	178	107144M4	1111.342	ng/mL	
44) 3-Methylphenanthrene(3MP)	34.840	192	41220M4	427.551	ng/mL	
45) 2/4-Methylphenanthrene(2M	34.946	192	46400M4	481.280	ng/mL	
46) 2-Methylanthracene(2MA)	35.111	192	1486M4	15.413	ng/mL	
47) 9-Methylphenanthrene(9MP)	35.292	192	64818	672.319	ng/mL	98
48) 1-Methylphenanthrene(1MP)	35.382	192	46564M4	482.981	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.292	192	201383M5	2088.829	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.114	206	206170M5	2138.482	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.114	206	206170m	2138.482	ng/mL	

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) C3-Phenanthrenes/Anthrace	38.951	220	142970M5	1482.945	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.119	234	56758M5	588.718	ng/mL	
56) Carbazole	33.726	167	2583M3	27.154	ng/mL	
57) 1-Methylphenanthrene	35.382	192	46375M4	759.046	ng/mL	
58) Fluoranthene	37.656	202	2001M4	20.898	ng/mL	
59) Benzo(b)fluorene	40.170	216	1822M3	32.799	ng/mL	
60) Pyrene	38.529	202	6787M4	69.730	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.929	216	32133M5	330.134	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.721	230	50323M5	517.018	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.739	244	56406M5	579.515	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.094	258	52780M5	542.261	ng/mL	
66) Naphthobenzothiophene	42.384	234	17624M4	168.187	ng/ml	
67) Naphthobenzothiophene-2,1	42.384	234	17633M4	168.273	ng/mL	
68) Naphthobenzothiophene-1,2	42.715	234	4098M3	39.107	ng/mL	
69) Naphthobenzothiophene-2,3	43.016	234	2060M3	19.659	ng/mL	
70) C1-Naphthobenzothiophenes	44.461	248	61698M5	588.787	ng/ml	
71) C2-Naphthobenzothiophenes	45.816	262	84543M5	806.798	ng/ml	
72) C3-Naphthobenzothiophenes	47.383	276	64616M5	616.634	ng/ml	
73) C4-Naphthobenzothiophenes	48.467	290	42145M5	402.192	ng/mL	
75) Benz[a]anthracene	43.302	228	851M3	9.219	ng/mL	
76) Chrysene	43.438	228	16140M3	173.194	ng/mL	
77) Chrysene/Triphenylene	43.438	228	16062M3	172.357	ng/mL	
78) C1-Chrysenes	44.943	242	29733M5	319.057	ng/mL	
79) C2-Chrysenes	46.374	256	38848M5	416.867	ng/mL	
79) C2-Chrysenes BS	46.374	256	38848m	416.867	ng/mL	
80) C3-Chrysenes	49.747	270	41578M5	446.162	ng/mL	
81) C4-Chrysenes	49.340	284	25902M5	277.947	ng/mL	
82) Benzo[b]fluoranthene	47.353	252	2774M4	27.350	ng/mL	
85) Benzo[e]pyrene	48.377	252	5023M4	50.069	ng/mL	
87) Benzo[a]pyrene	48.557	252	989M4	10.239	ng/mL	
88) Perylene	48.874	252	1440M4	13.950	ng/mL	
89) Indeno[1,2,3-cd]pyrene	53.437	276	401M3	3.567	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.512	278	473M4	4.424	ng/mL	
91) Benzo[g,h,i]perylene	54.777	276	1907M4	16.058	ng/mL	
92) Hopane (T19)	52.563	191	16554	863.667	ng/mL#	86
93) 17a(H),21B(H)-hopane - C3	52.563	191	16554	863.667	ng/mL#	86
94) C23 Tricyclic Terpane (T4	41.029	191	6502M4	339.227	ng/ml	
95) C24 Tricyclic Terpane (T5	41.751	191	4139M4	215.943	ng/ml	
96) C25 Tricyclic Terpane (T6	43.227	191	4129M4	215.421	ng/ml	
97) C24 Tetracyclic Terpane (	44.552	191	1450M4	75.650	ng/ml	
98) C26 Tricyclic Terpane-22S	44.281	191	1750M4	91.302	ng/ml	
99) C26 Tricyclic Terpane-22R	44.386	191	1497M4	78.103	ng/ml	
100) C28 Tricyclic Terpane-22S	46.660	191	1435M3	74.868	ng/ml	
101) C28 Tricyclic Terpane-22R	46.825	191	1847M4	96.363	ng/ml	
102) C29 Tricyclic Terpane-22S	47.353	191	2038	106.328	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.548	191	2078M3	108.415	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.693	191	2672	139.406	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.783	191	1659M4	86.555	ng/mL	
106) C30 Tricyclic Terpane-22R	49.039	191	1687M3	88.015	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.265	191	3608M4	188.239	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	50.470	191	676	35.269	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	50.259	191	706	36.834	ng/ml	100
110) 30-Norhopane (T15)	51.148	191	9612	501.484	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	51.268	191	2216M4	115.615	ng/ml	
112) 17a(H)-Diahopane (X)	51.389	191	1420M4	74.085	ng/ml	
113) 30-Normoretane (T17)	51.961	191	1203M4	62.764	ng/ml	
115) Moretane (T20)	53.256	191	1606M4	83.789	ng/ml	
116) 30-Homohopane-22S (T21)	54.386	191	6637M4	346.270	ng/ml	
117) 30-Homohopane-22R (T22)	54.626	191	5680	296.341	ng/ml	100
118) Gammacerane/C32-diahopane	55.184	191	1181	61.616	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.982	191	4694	244.899	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 30,31-Bishomohopane-22R (	56.373	191	3491	182.135	ng/ml	100
121) 30,31-Trishomohopane-22S	58.165	191	3665M4	191.213	ng/ml	
122) 30,31-Trishomohopane-22R	58.798	191	2393	124.849	ng/ml	100
123) Tetrakishomohopane-22S (T	60.876	191	2570M4	134.084	ng/ml	
124) Tetrakishomohopane-22R (T	61.794	191	1937	101.059	ng/ml	100
125) Pentakishomohopane-22S (T	64.113	191	2766M4	144.310	ng/ml	
126) Pentakishomohopane-22R (T	65.438	191	2094M3	109.250	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.500	217	2576	283.310	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.922	217	1196M4	131.537	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.615	217	980M3	107.781	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.488	217	2887M4	317.514	ng/ml	
132) 14a,17a-20R-Chol/13b,17a-	48.015	217	3473M4	381.963	ng/ml	
133) Unknown Sterane (S18)	48.301	217	892	98.103	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.572	217	165	18.147	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.723	217	1727M4	189.937	ng/ml	
136) 14a,17a-20R-Methylcholest	49.461	217	1621M4	178.279	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.822	217	2536M3	278.911	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.741	217	1685M3	185.317	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.578	218	1834M4	201.704	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.669	218	1908M4	209.843	ng/ml	
141) 14b,17b-20R-Methylcholest	48.904	218	1957	215.232	ng/ml	100
142) 14b,17b-20S-Methylcholest	48.994	218	2495M4	274.402	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.078	218	2739M4	301.237	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.109	218	1737M4	191.036	ng/ml	
145) C26,20R- +C27,20S- triaro	49.762	231	18549M4	2040.031	ng/mL	
146) C28,20S-triaromatic stero	50.651	231	11360M4	1249.380	ng/mL	
147) C27,20R-triaromatic stero	51.103	231	10549	1160.186	ng/mL	100
148) C28,20R-triaromatic stero	52.337	231	8986M4	988.286	ng/mL	

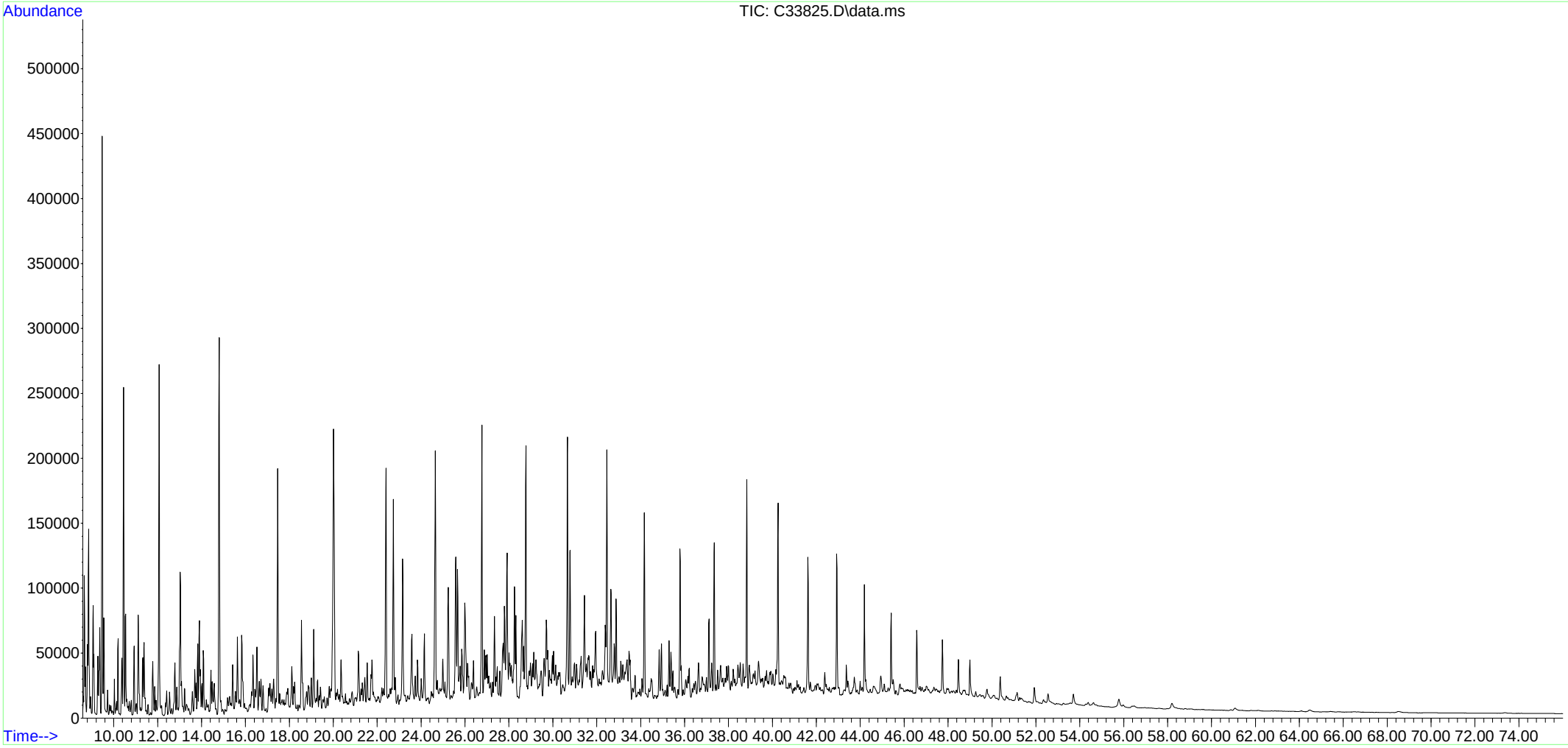
(#) = qualifier out of range (m) = manual integration (+) = signals summed

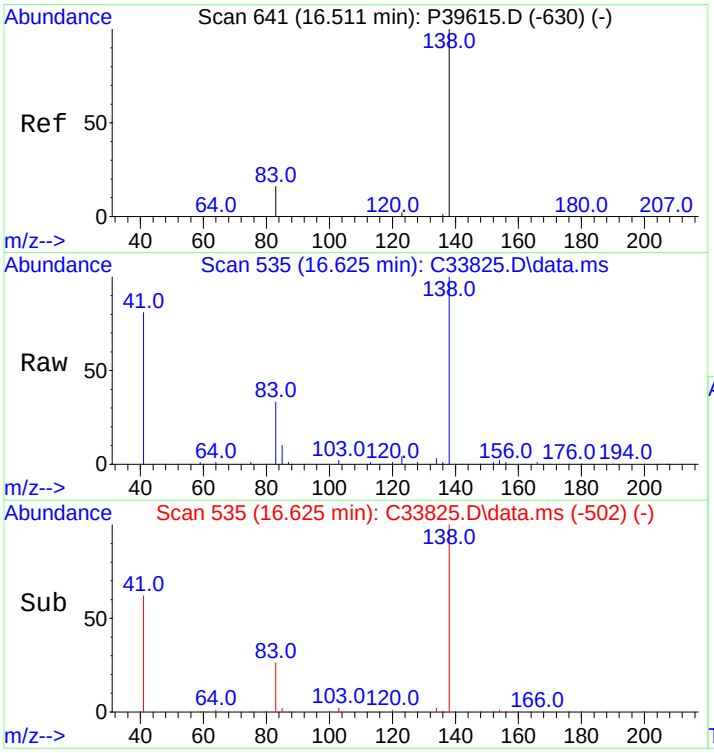
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33825.D
Acq On : 27 Mar 2012 4:11 am
Operator : PAH3:SR
Sample : WG525925-1
Misc : WG525925
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 29 11:05:59 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:46:00 2012
Response via : Initial Calibration

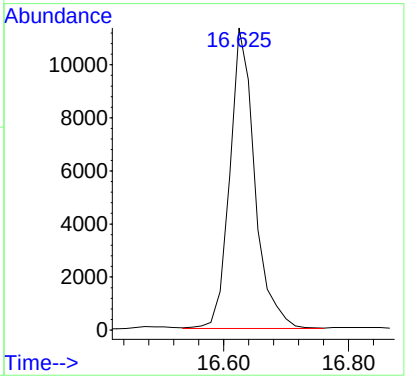
Sub List : Default - All compounds listed

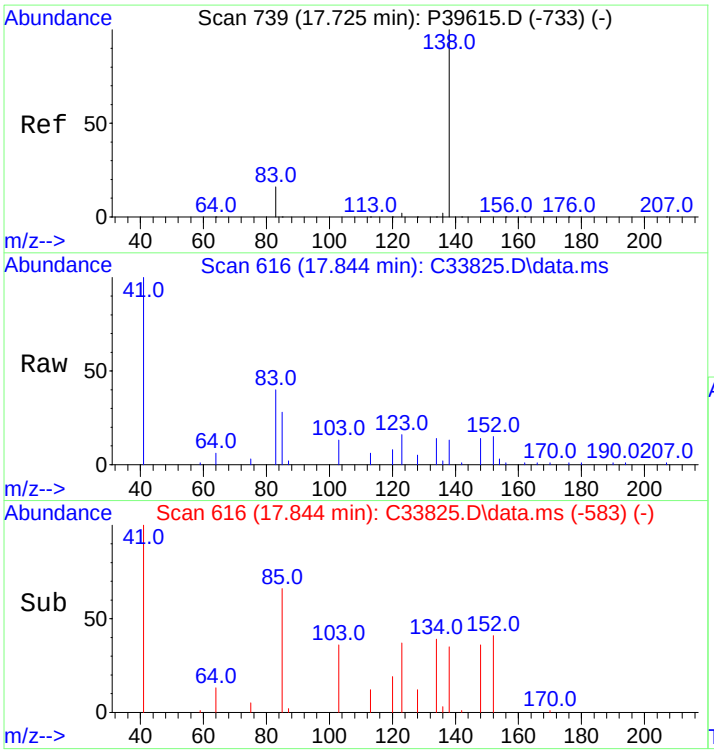




#3
trans-Decalin
Concen: 2394.34 ng/mL m
RT: 16.625 min Scan# 535
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

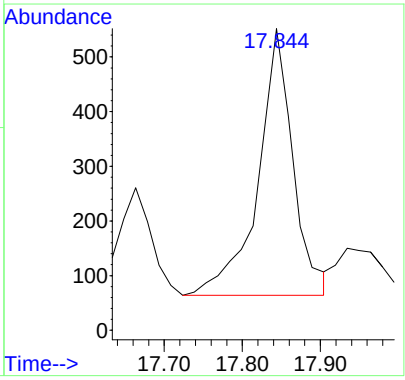
Tgt Ion:138 Resp: 31493

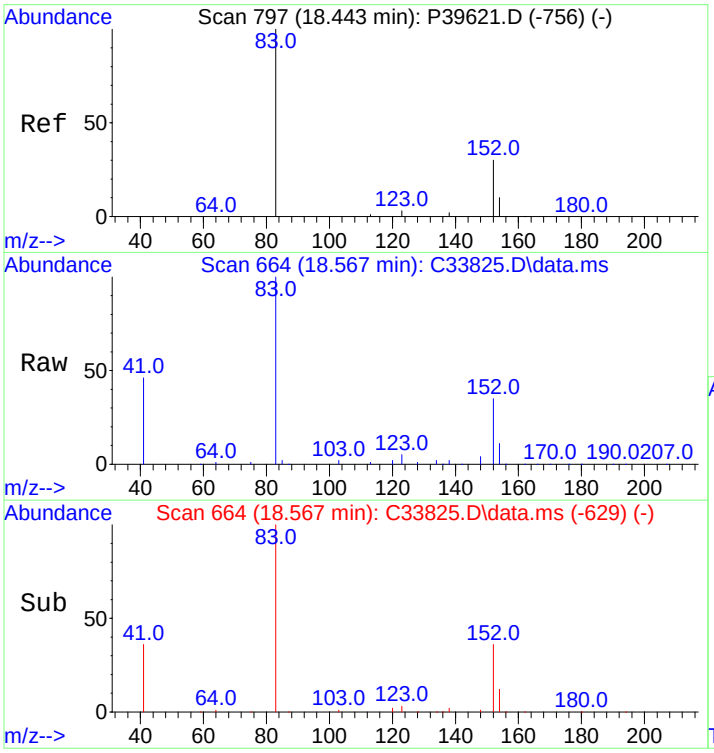




#4
cis-Decalin
Concen: 153.53 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

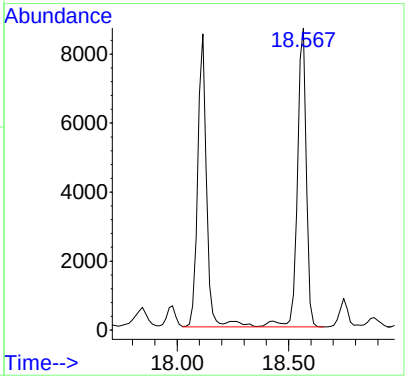
Tgt Ion:138 Resp: 1522

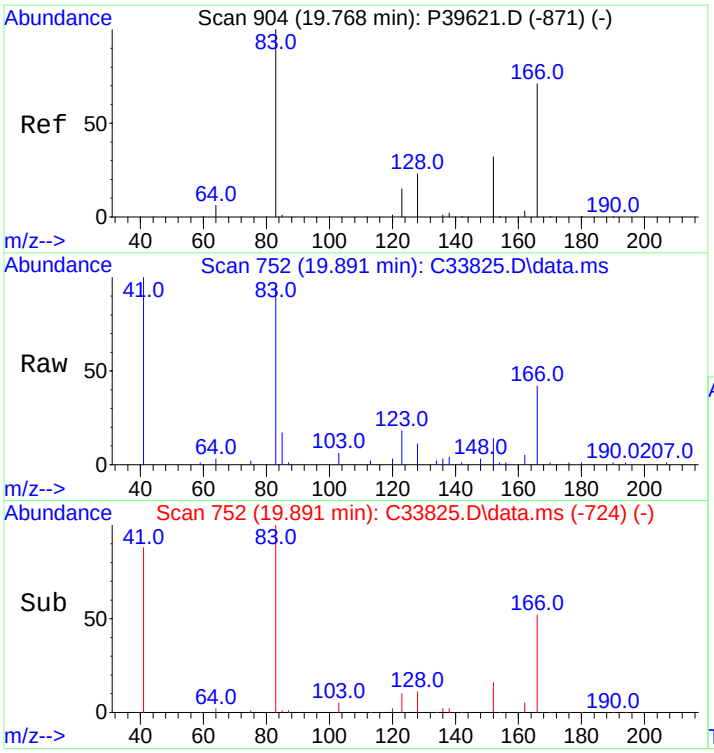




#5
C1-Decalins
Concen: 3613.21 ng/mL m
RT: 18.567 min Scan# 664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

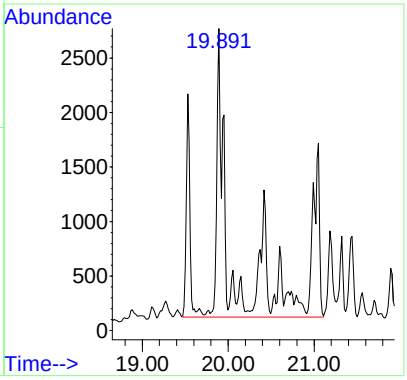
Tgt Ion:152 Resp: 47525

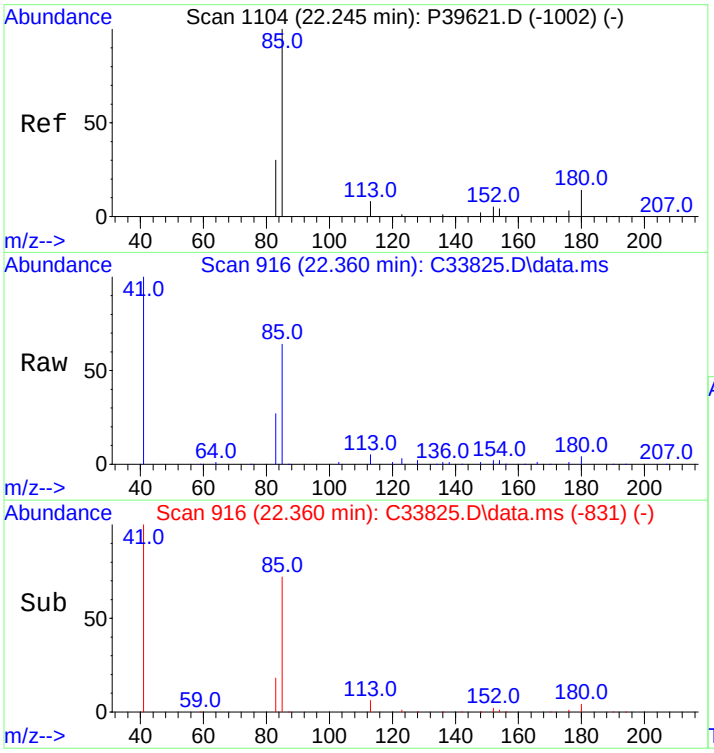




#6
C2-Decalins
Concen: 3012.21 ng/mL m
RT: 19.891 min Scan# 752
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

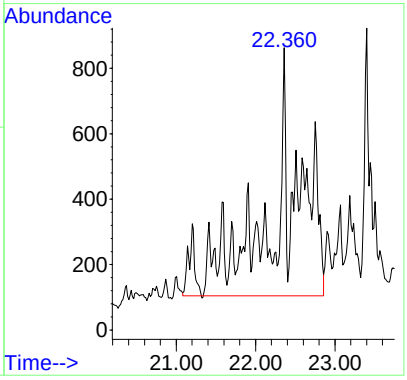
Tgt Ion:166 Resp: 39620

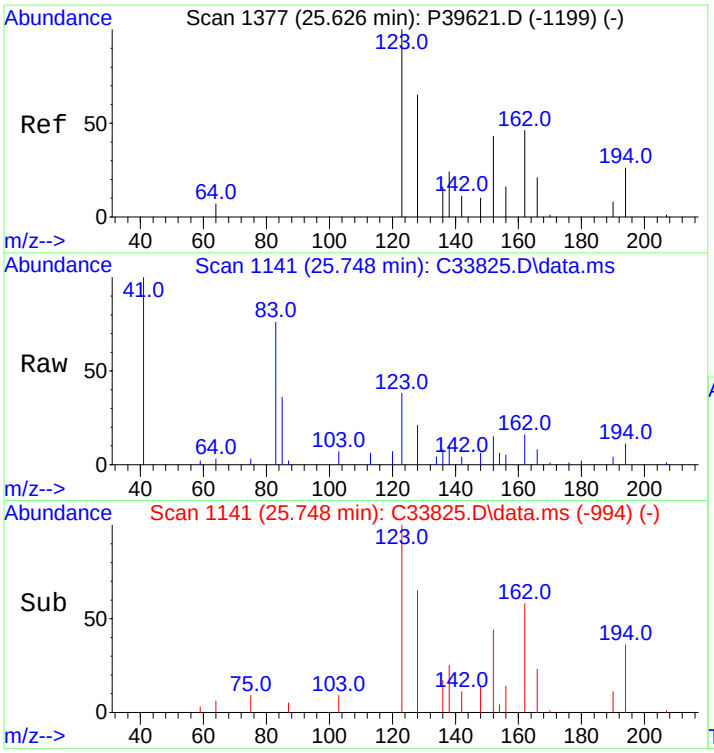




#7
C3-Decalins
Concen: 1488.39 ng/mL m
RT: 22.360 min Scan# 916
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

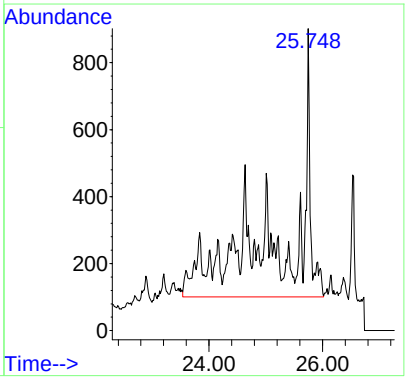
Tgt Ion:180 Resp: 19577

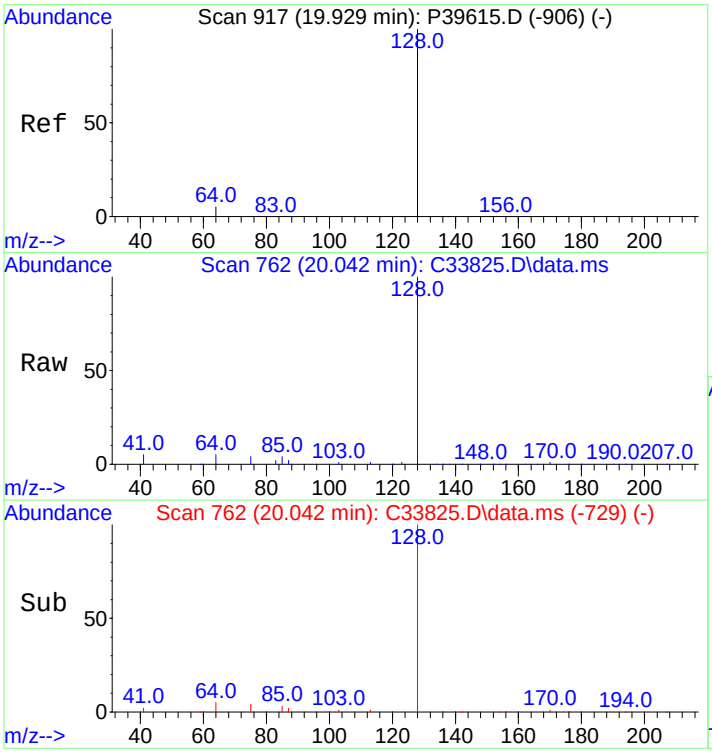




#8
C4-Decalins
Concen: 1448.86 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 19057

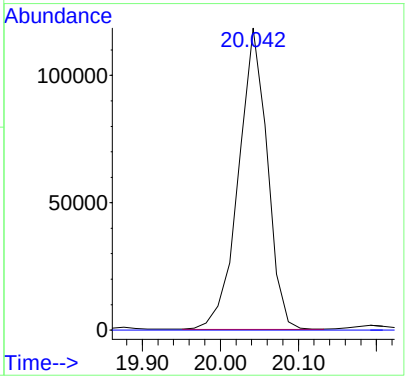


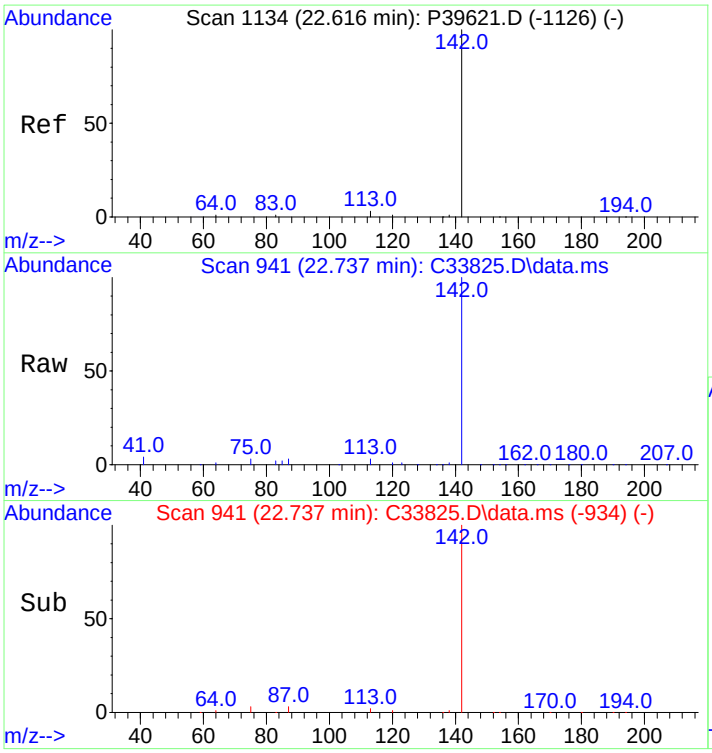


#10
Naphthalene
Concen: 2862.69 ng/mL m
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:128 Resp: 304002

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

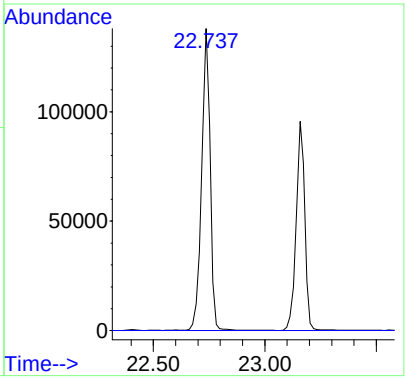


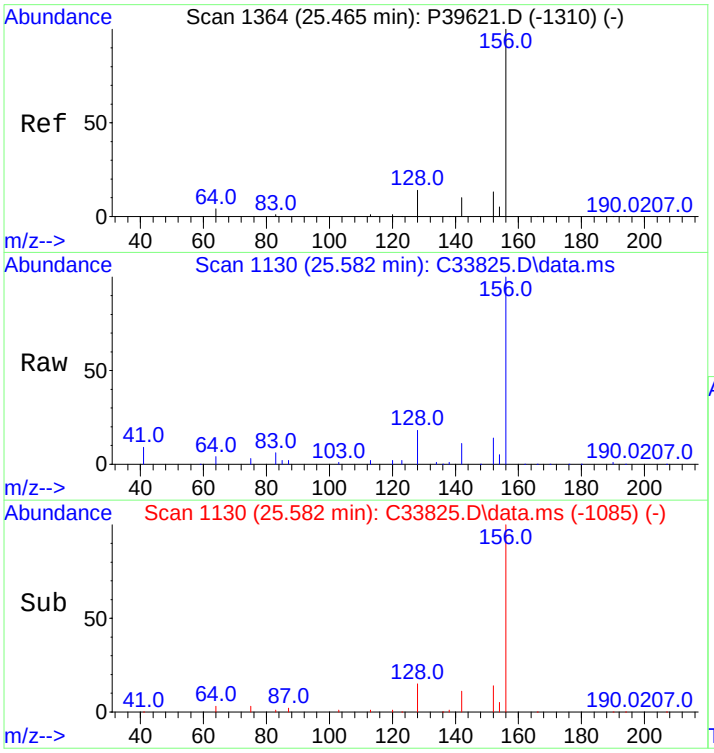


#11
C1-Naphthalenes
Concen: 5842.97 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 620492

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

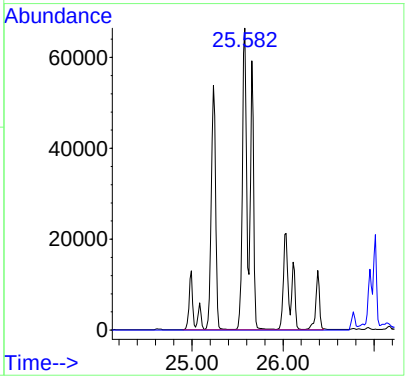


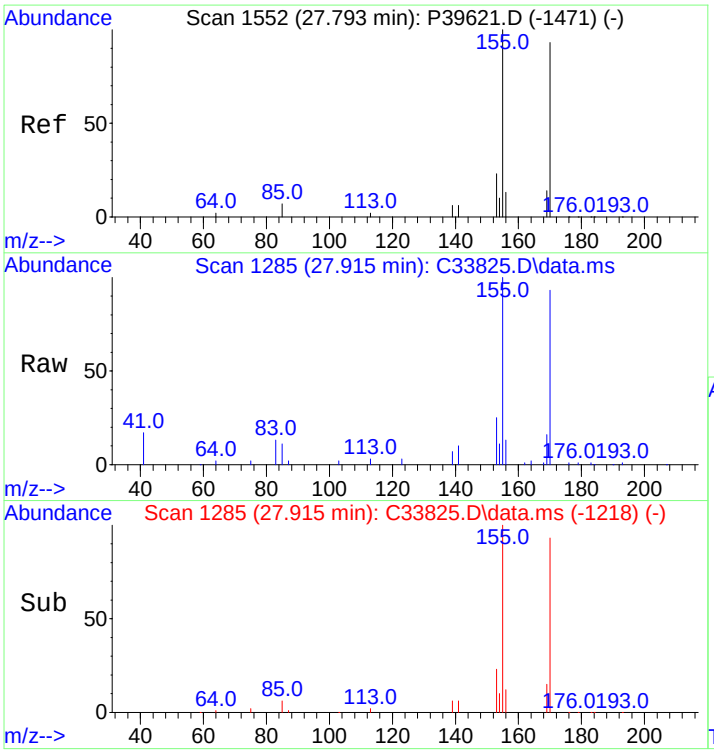


#12
C2-Naphthalenes
Concen: 6915.71 ng/mL m
RT: 25.582 min Scan# 1130
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 734411

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

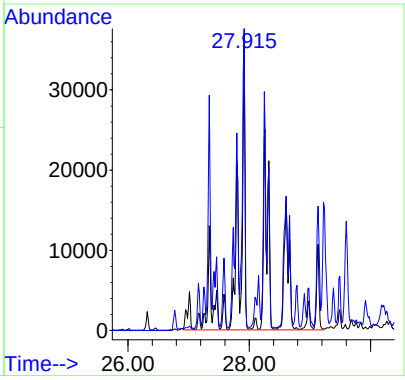


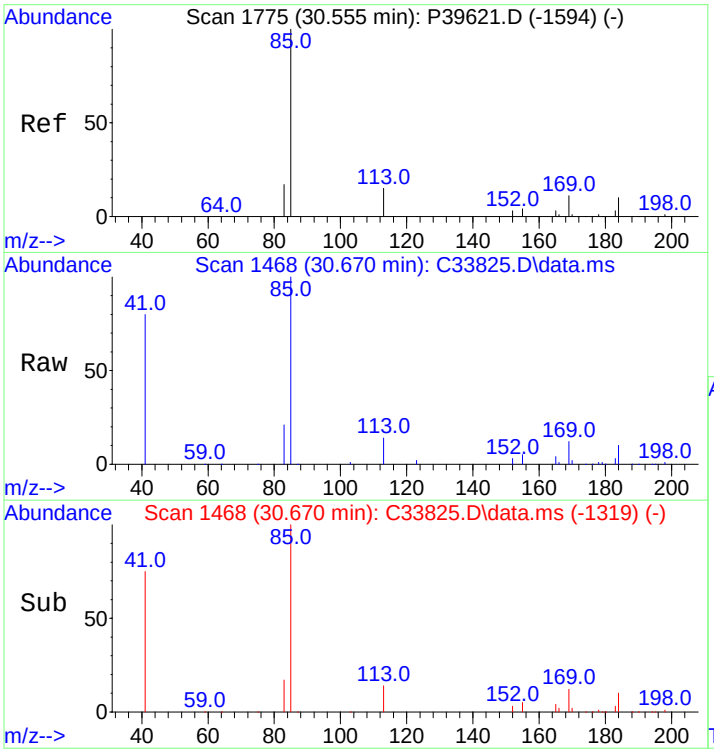


#13
C3-Naphthalenes
Concen: 4763.46 ng/mL m
RT: 27.915 min Scan# 1285
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 505854

Ion	Ratio	Lower	Upper
170	100		
155	21.0	86.3	129.5#

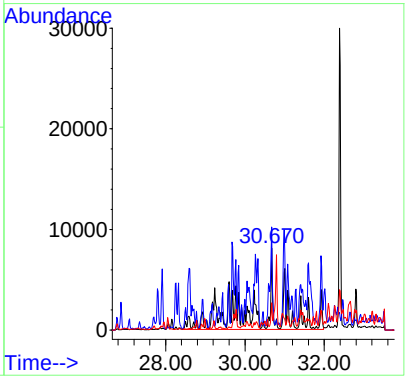


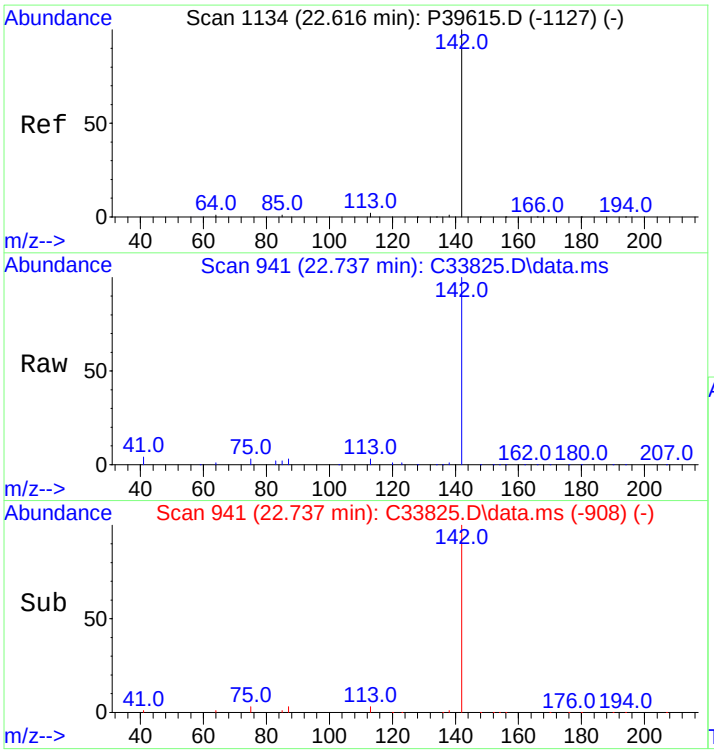


#14
C4-Naphthalenes
Concen: 2429.70 ng/mL m
RT: 30.670 min Scan# 1468
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 258021

Ion	Ratio	Lower	Upper
184	100		
169	17.4	100.6	150.8#
183	2.2	26.6	40.0#

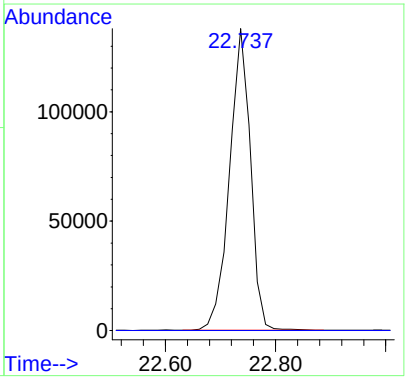


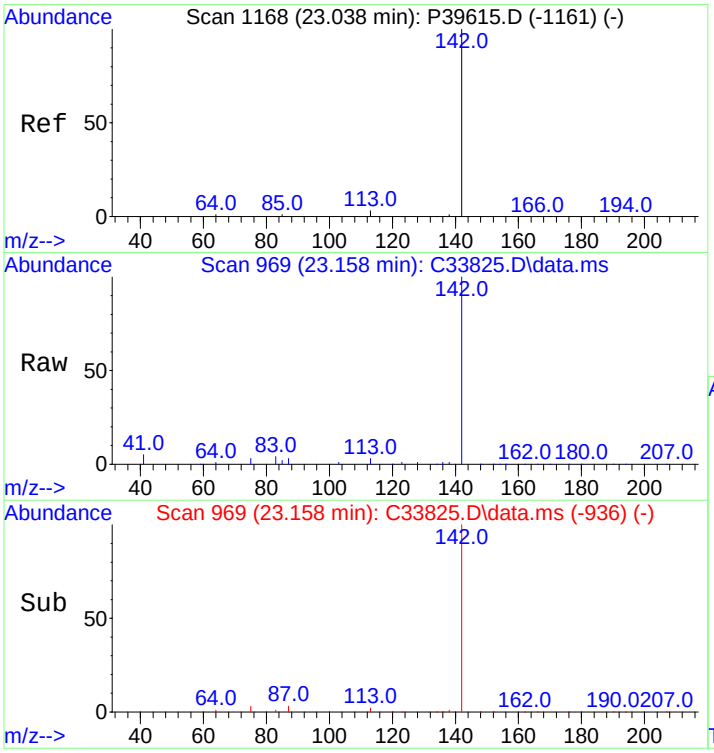


#16
2-Methylnaphthalene
Concen: 5786.71 ng/mL m
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 363350

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

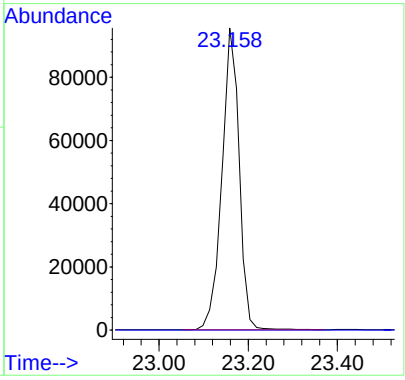


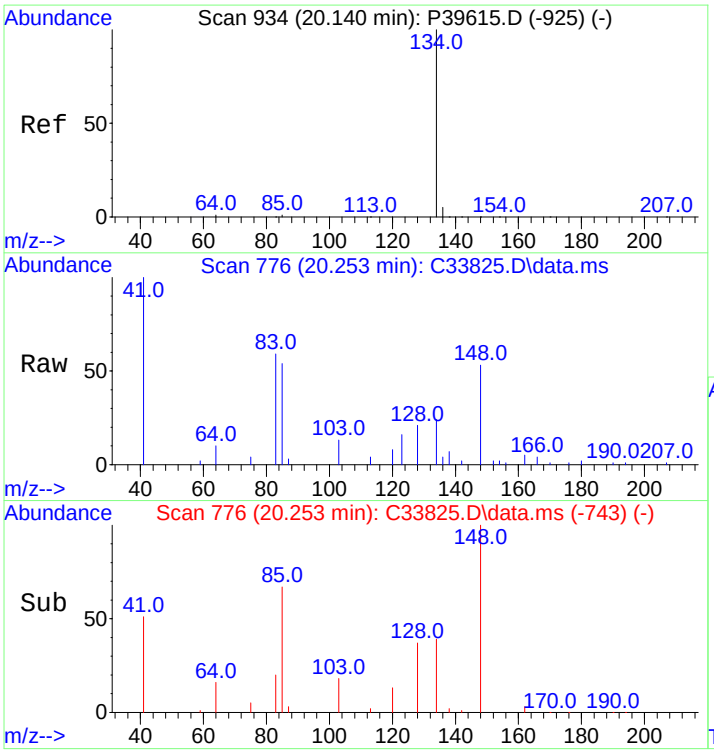


#17
1-Methylnaphthalene
Concen: 4156.60 ng/mL
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:142 Resp: 255827

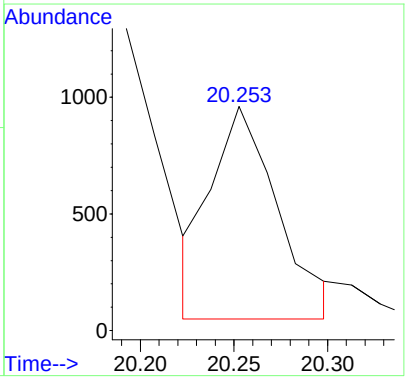
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

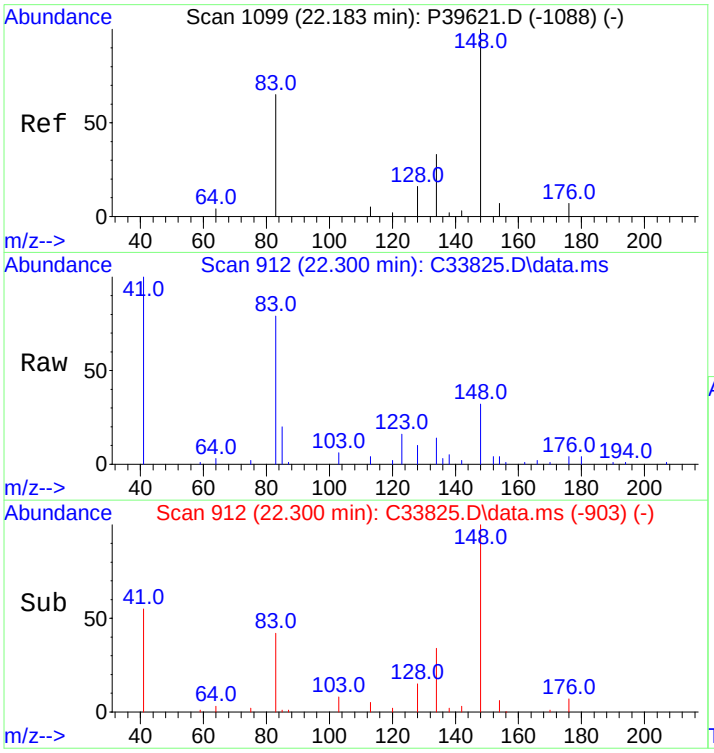




#18
Benzothiophene
Concen: 23.54 ng/mL m
RT: 20.253 min Scan# 776
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

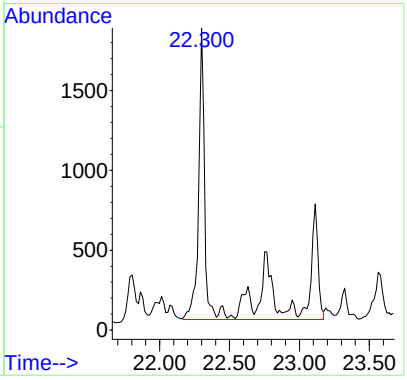
Tgt Ion:134 Resp: 2250

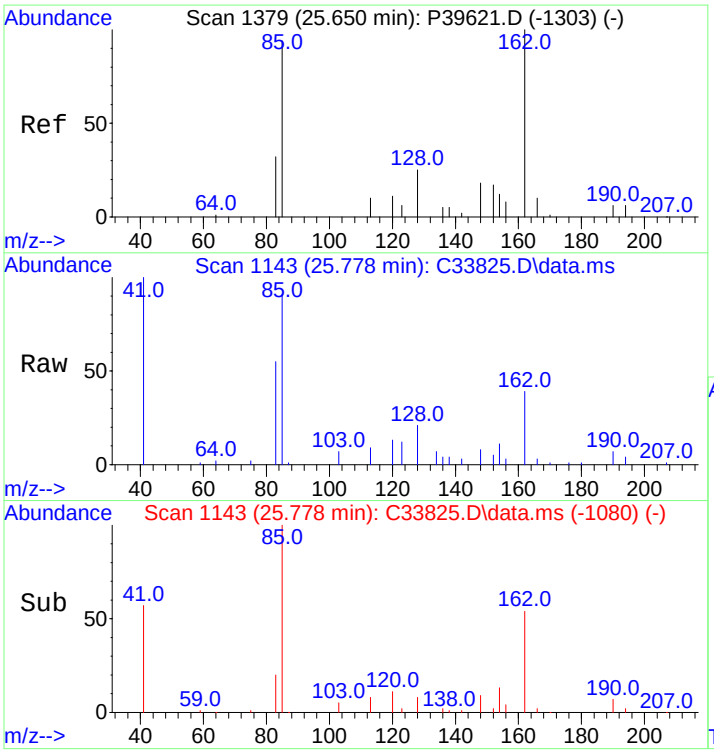




#19
C1-Benzo(b)thiophenes
Concen: 118.11 ng/mL m
RT: 22.300 min Scan# 912
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

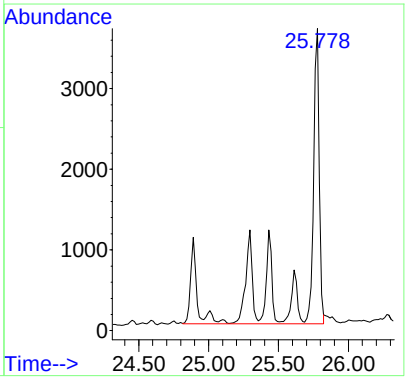
Tgt Ion:148 Resp: 11287

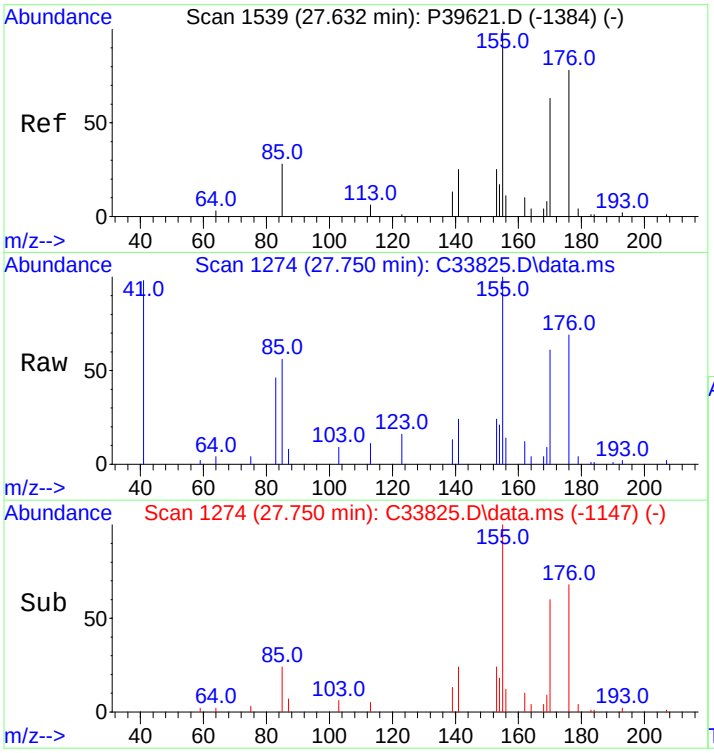




#20
C2-Benzo(b)thiophenes
Concen: 235.56 ng/mL m
RT: 25.778 min Scan# 1143
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

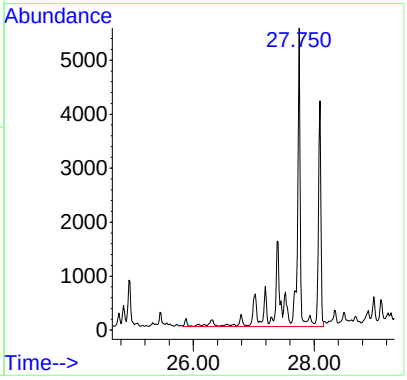
Tgt Ion:162 Resp: 22511

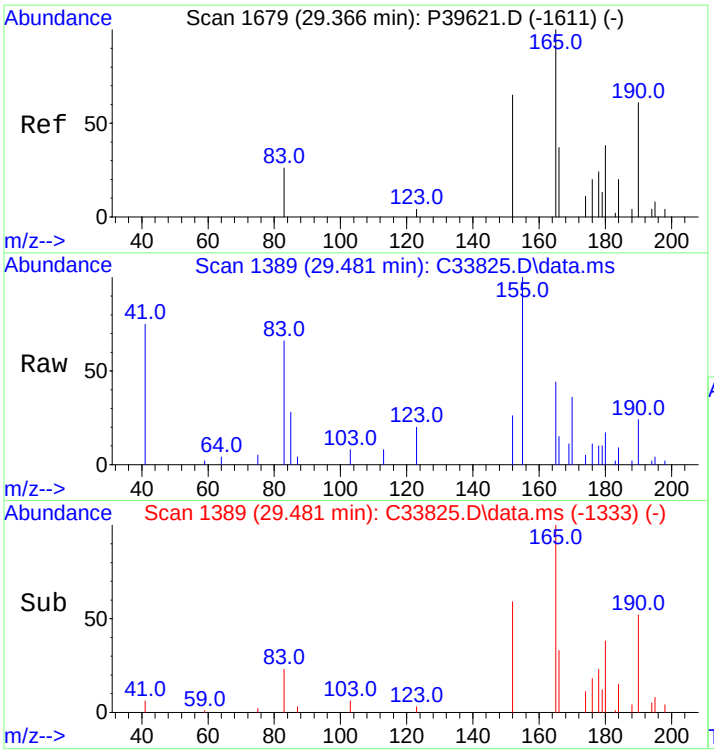




#21
C3-Benzo(b)thiophenes
Concen: 464.93 ng/mL m
RT: 27.750 min Scan# 1274
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

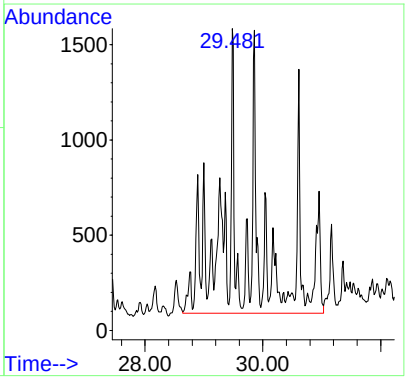
Tgt Ion:176 Resp: 44430

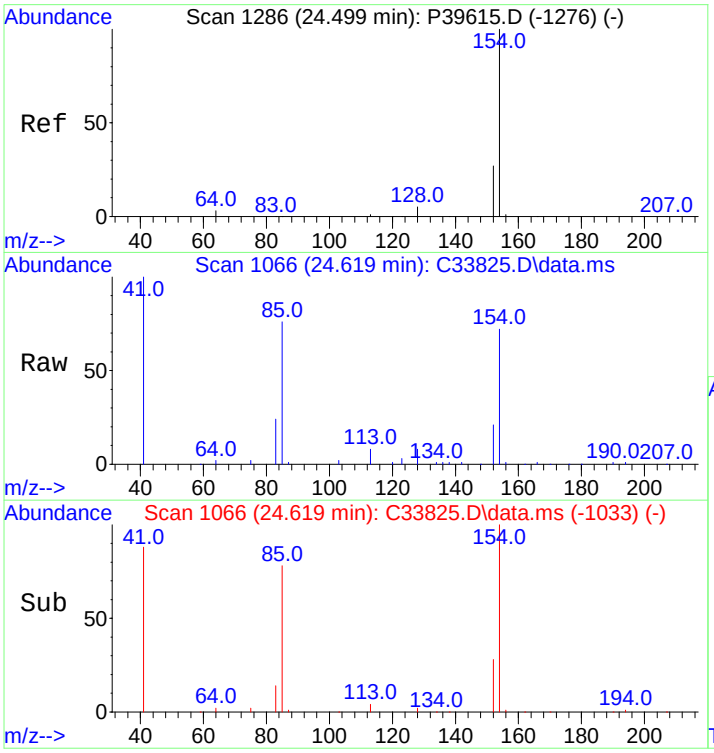




#22
C4-Benzo(b)thiophenes
Concen: 394.82 ng/mL m
RT: 29.481 min Scan# 1389
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:190 Resp: 37730

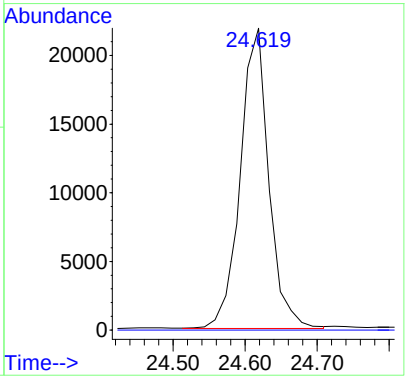


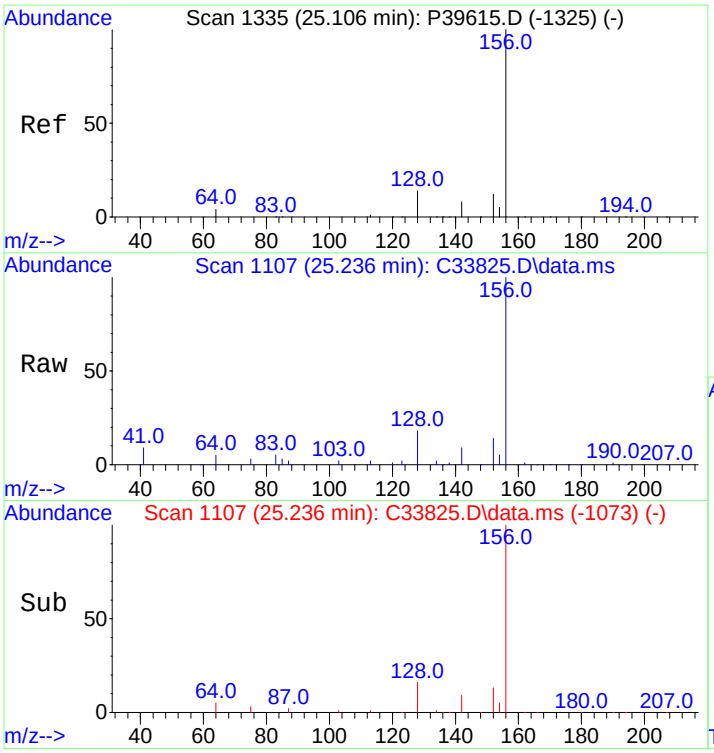


#23
Biphenyl
Concen: 754.29 ng/mL m
RT: 24.619 min Scan# 1066
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:154 Resp: 59912

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

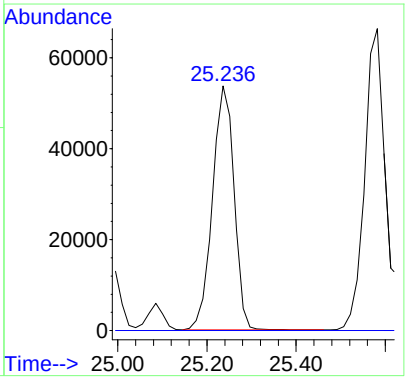


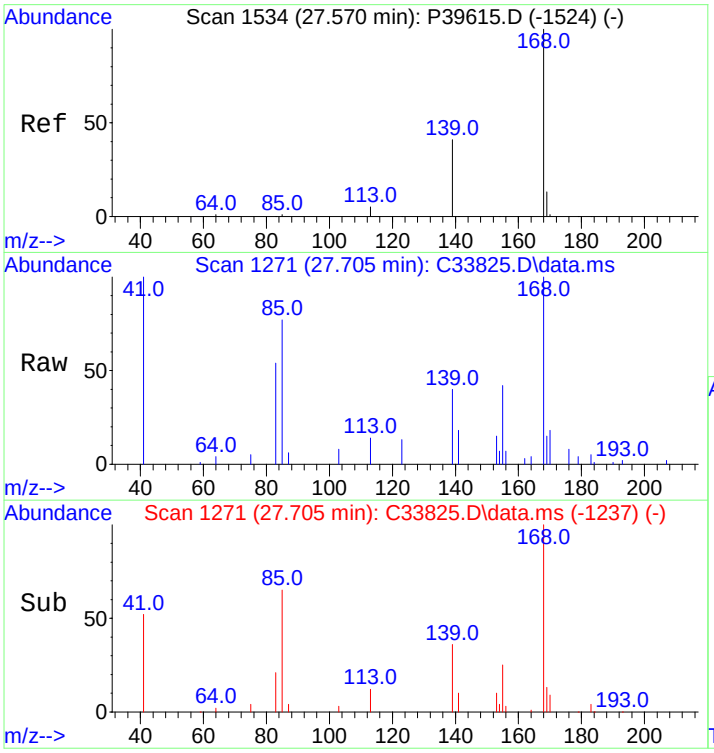


#24
2,6-Dimethylnaphthalene
Concen: 3504.62 ng/mL
RT: 25.236 min Scan# 1107
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:156 Resp: 180797

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

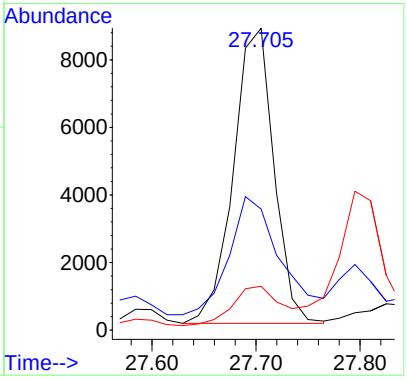


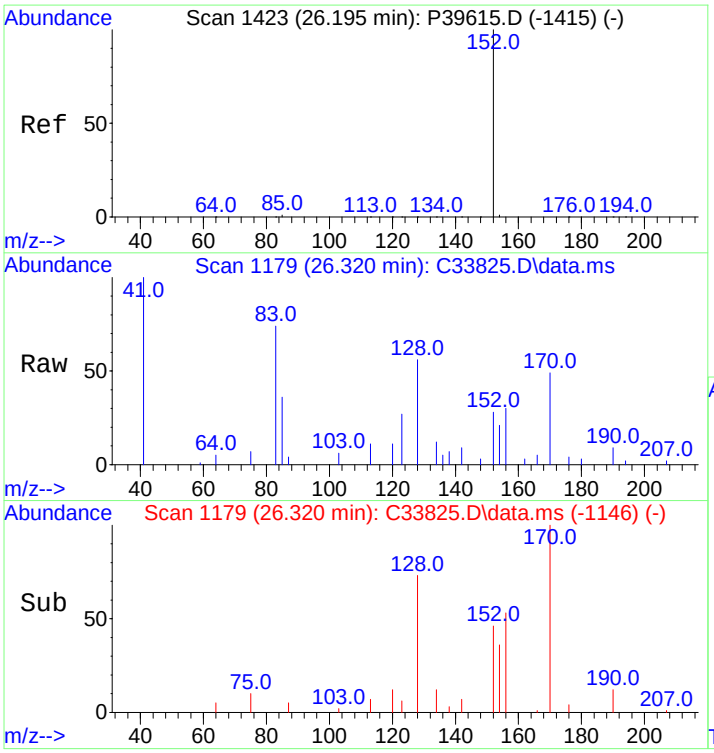


#25
Dibenzofuran
Concen: 261.06 ng/mL m
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:168 Resp: 23811

Ion	Ratio	Lower	Upper
168	100		
139	50.0	32.9	49.3#
169	15.9	10.6	16.0

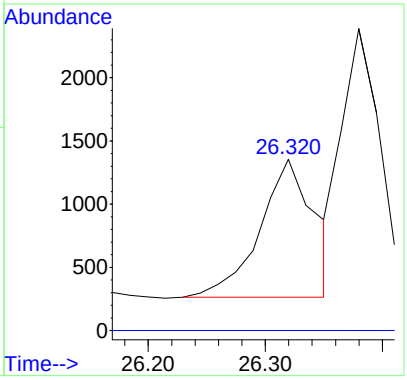


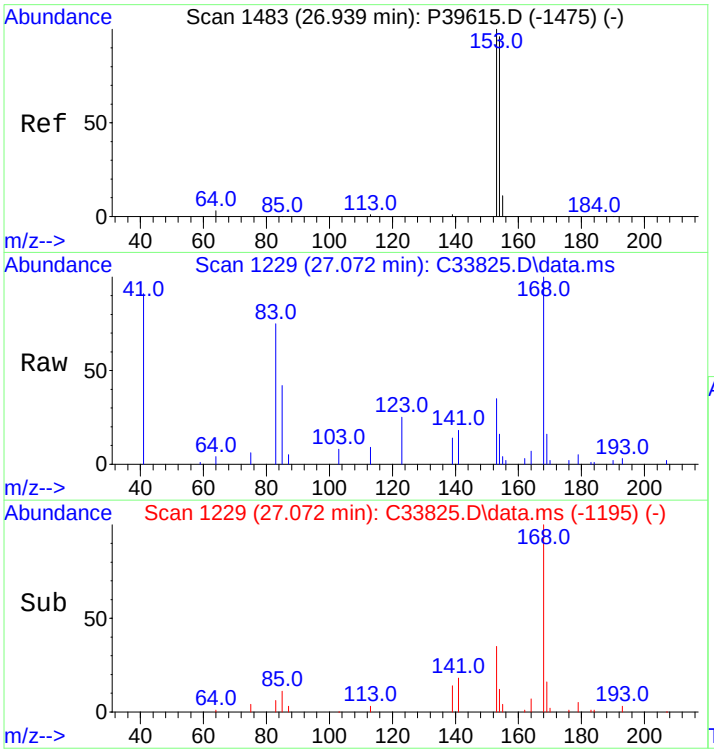


#26
Acenaphthylene
Concen: 33.55 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:152 Resp: 3537

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

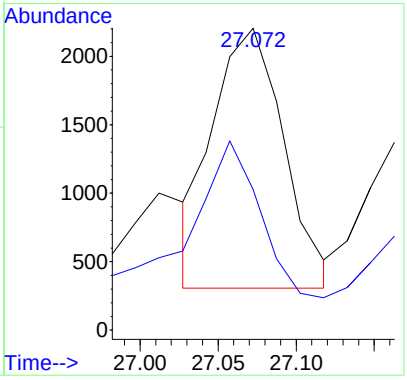


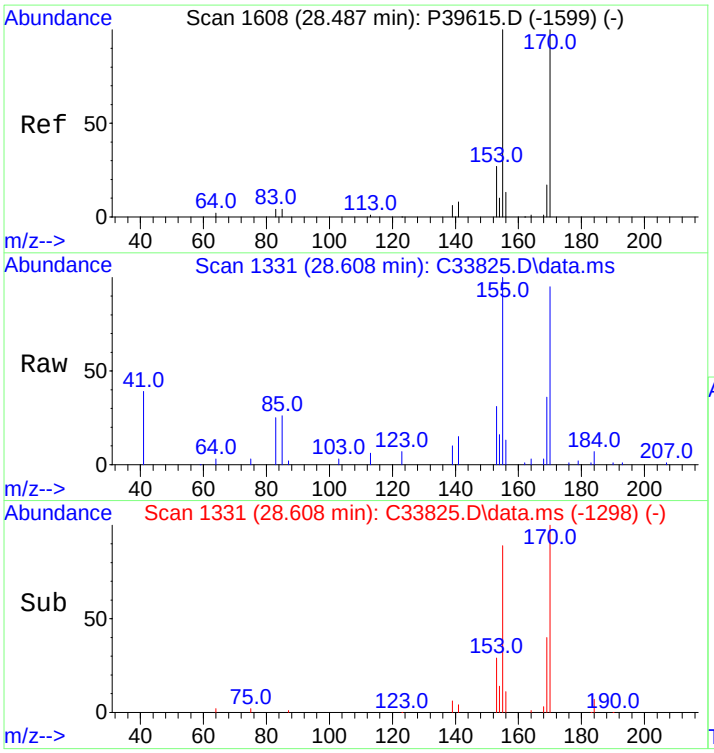


#27
Acenaphthene
Concen: 96.63 ng/mL m
RT: 27.072 min Scan# 1229
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:153 Resp: 5998

Ion	Ratio	Lower	Upper
153	100		
154	68.4	75.0	112.6#

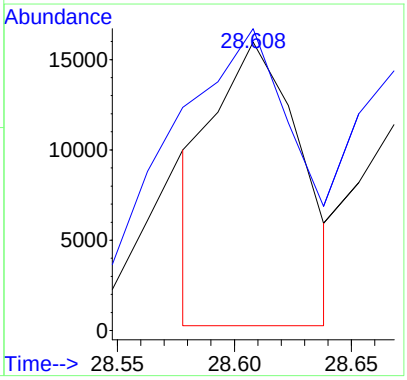


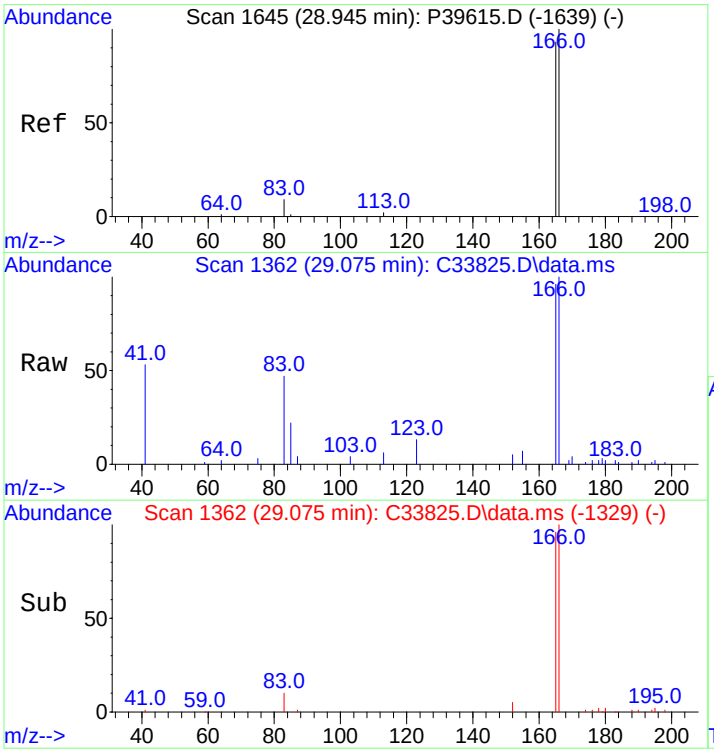


#28
2,3,5-Trimethylnaphthalene
Concen: 985.47 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:170 Resp: 40982

Ion	Ratio	Lower	Upper
170	100		
155	160.1	84.7	127.1#

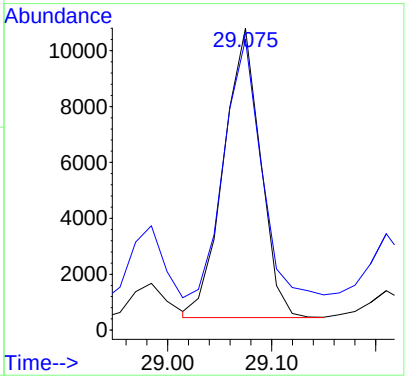


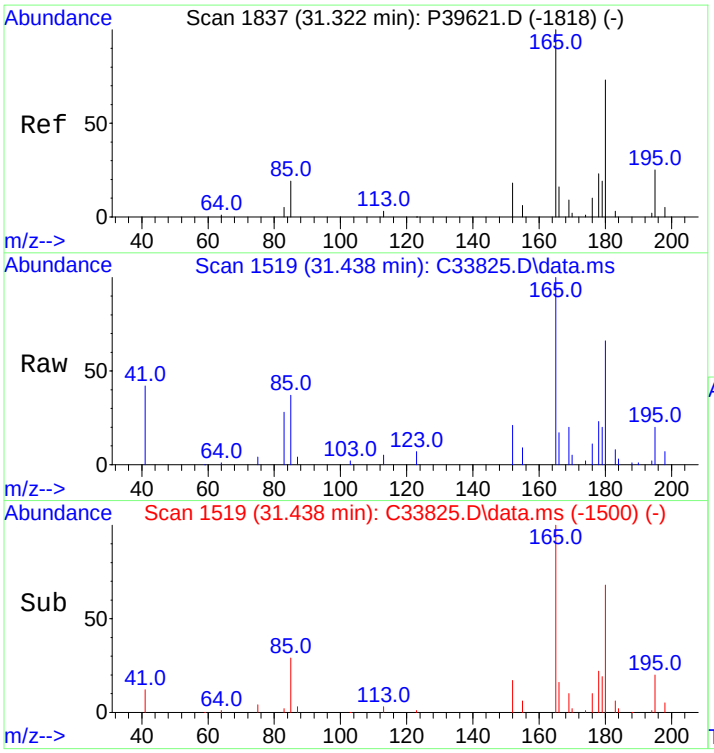


#29
Fluorene
Concen: 373.03 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:166 Resp: 25536

Ion	Ratio	Lower	Upper
166	100		
165	118.5	75.3	112.9#

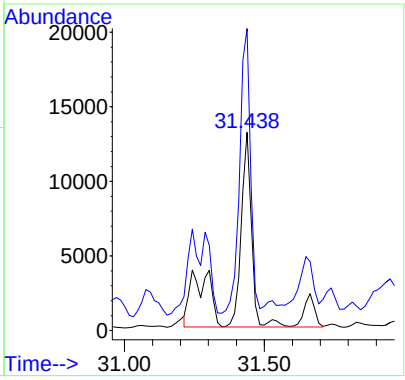


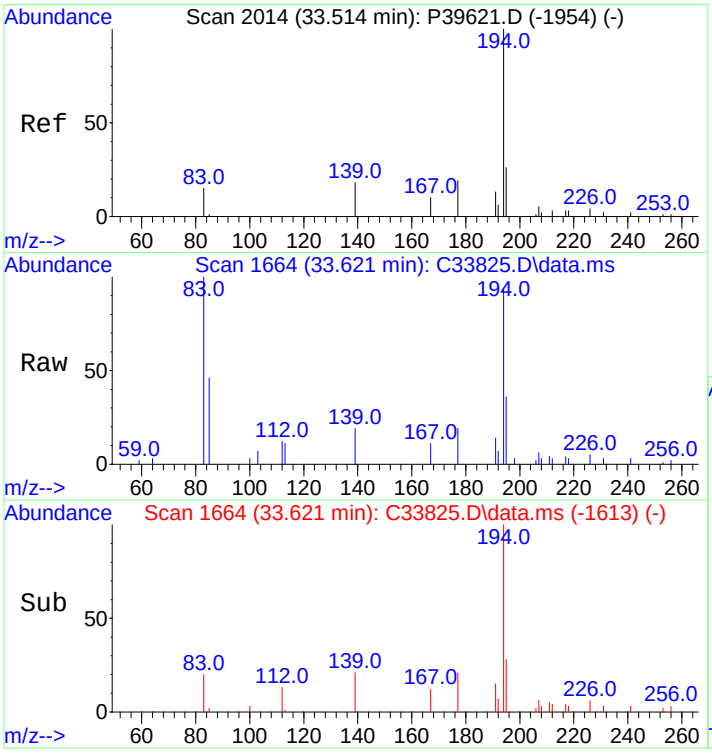


#30
C1-Fluorenes
Concen: 836.26 ng/mL m
RT: 31.438 min Scan# 1519
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:180 Resp: 57246

Ion	Ratio	Lower	Upper
180	100		
165	90.8	121.9	182.9#

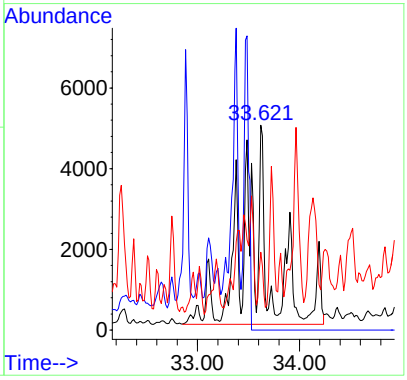


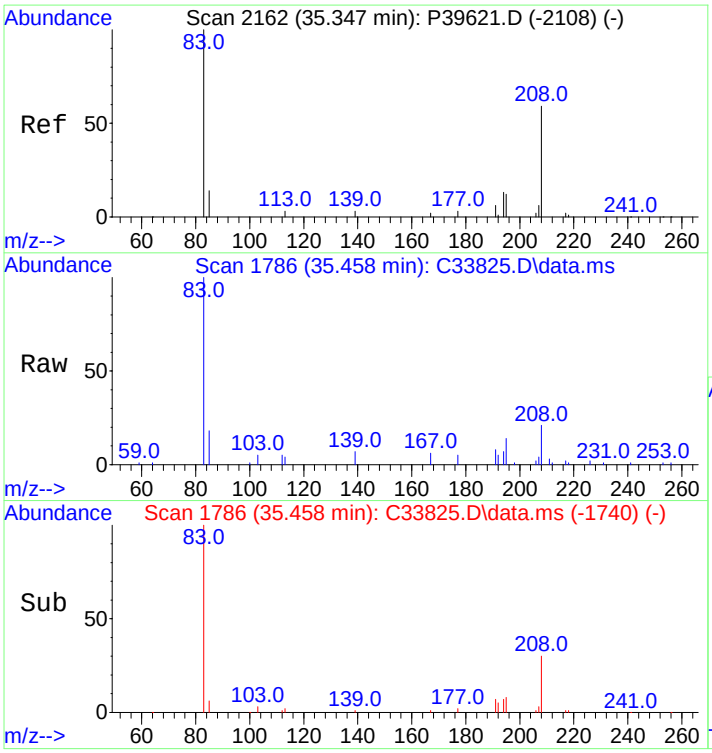


#31
C2-Fluorenes
Concen: 1188.19 ng/mL m
RT: 33.621 min Scan# 1664
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:194 Resp: 81338

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	4.2	30.5	45.7#

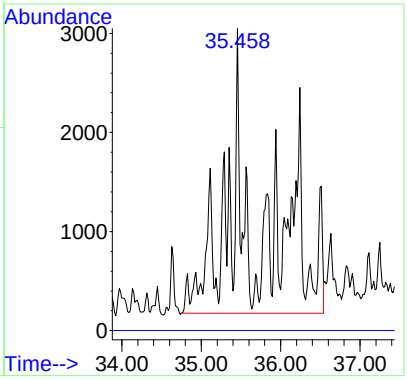


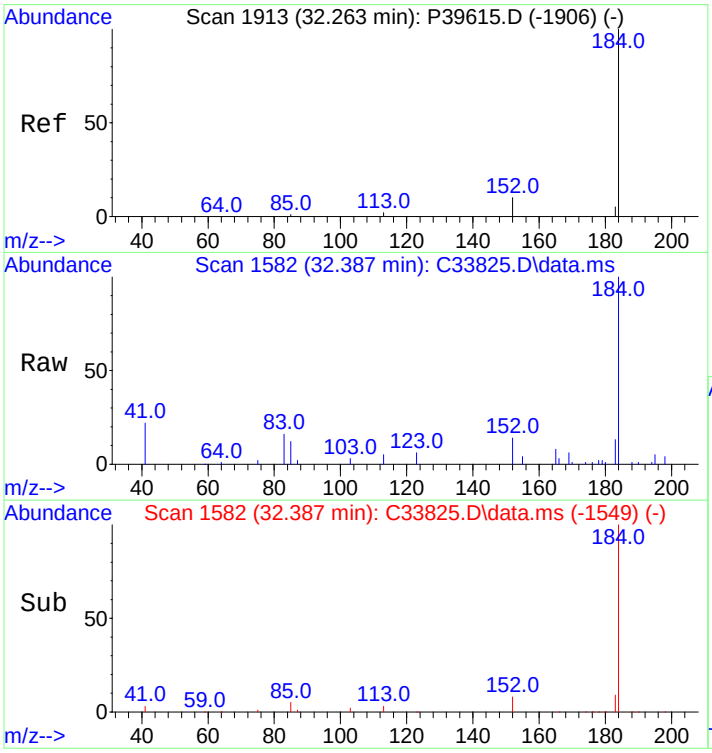


#32
C3-Fluorenes
Concen: 1053.73 ng/mL m
RT: 35.458 min Scan# 1786
Delta R.T. -0.063 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:208 Resp: 72133

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

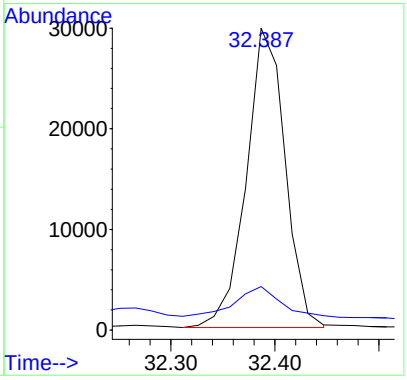


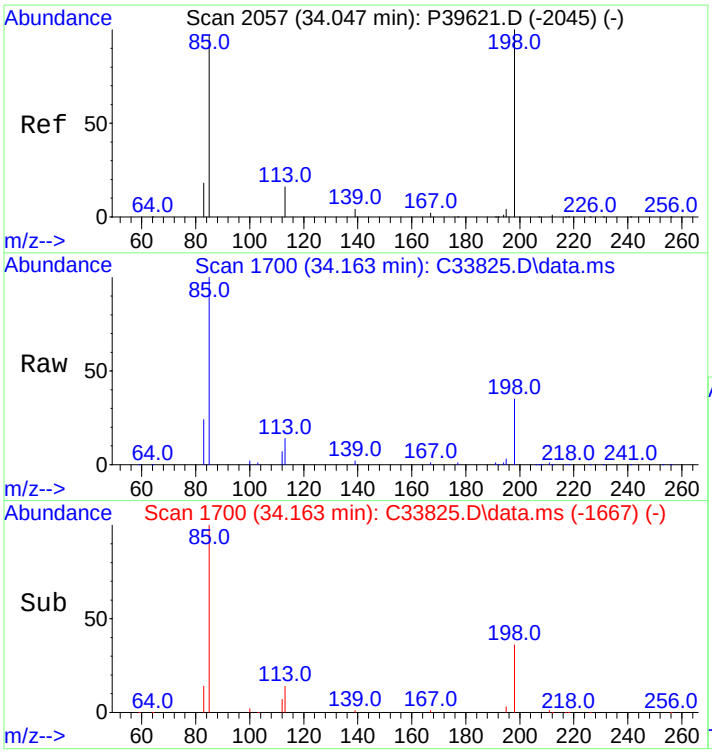


#33
Dibenzothiophene
Concen: 705.05 ng/mL m
RT: 32.387 min Scan# 1582
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:184 Resp: 77367

Ion	Ratio	Lower	Upper
184	100		
152	16.4	6.7	10.1#

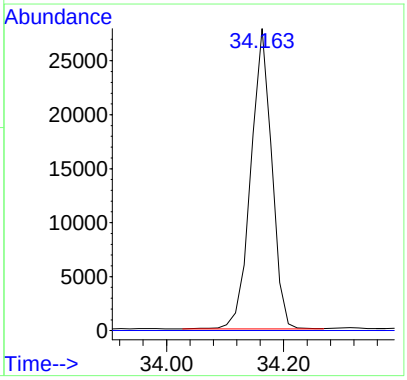


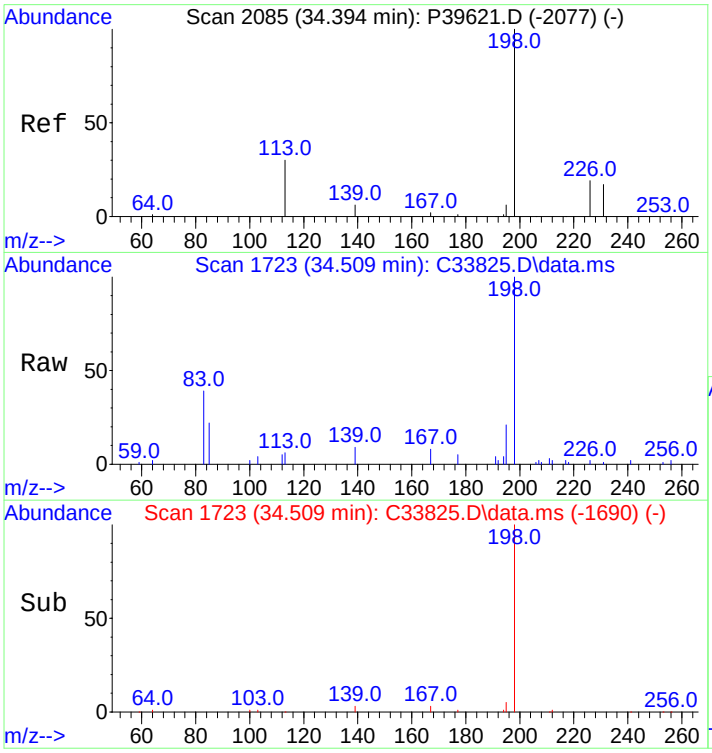


#34
4-Methyldibenzothiophene(4MDT)
Concen: 628.37 ng/mL
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 68953

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

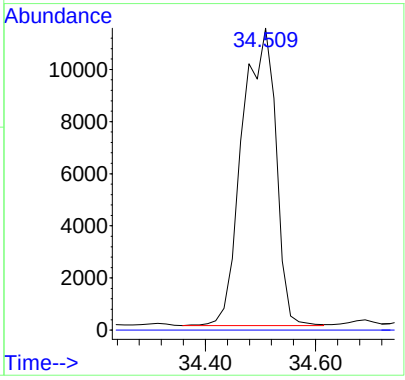


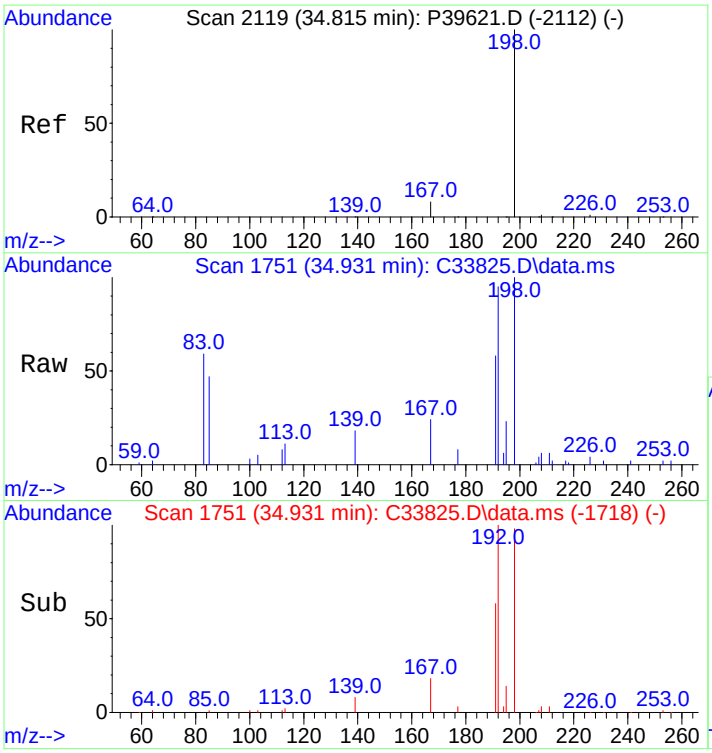


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 439.78 ng/mL
RT: 34.509 min Scan# 1723
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 48258

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

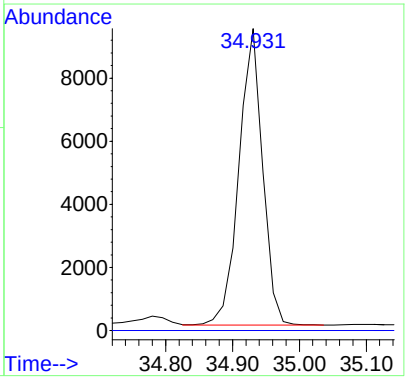


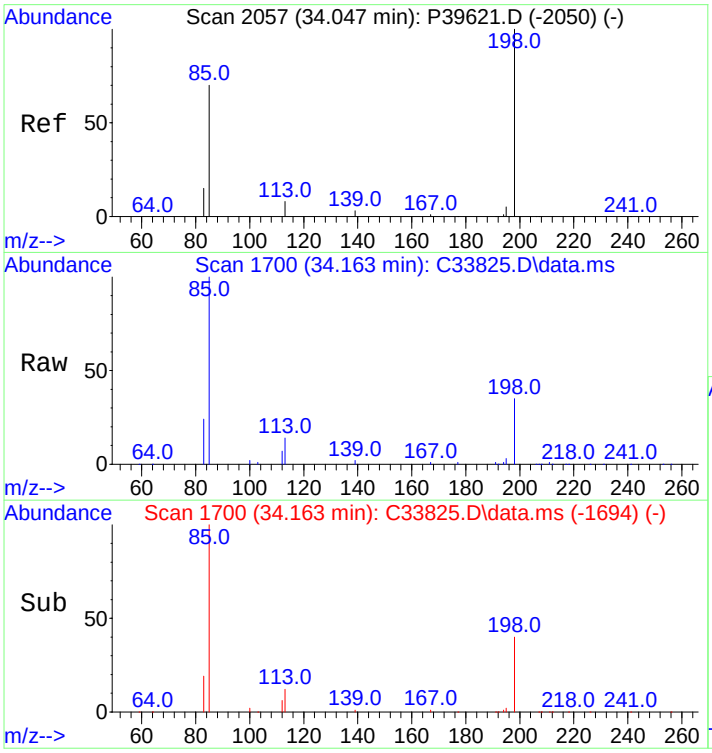


#36
1-Methyldibenzothiophene(1MDT)
Concen: 211.16 ng/mL
RT: 34.931 min Scan# 1751
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 23171

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

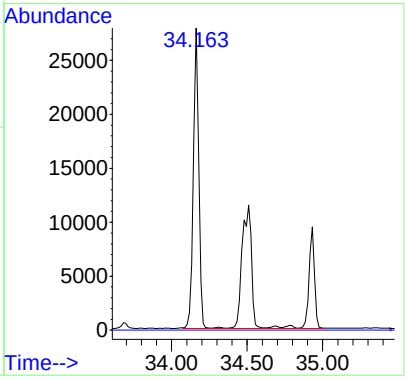


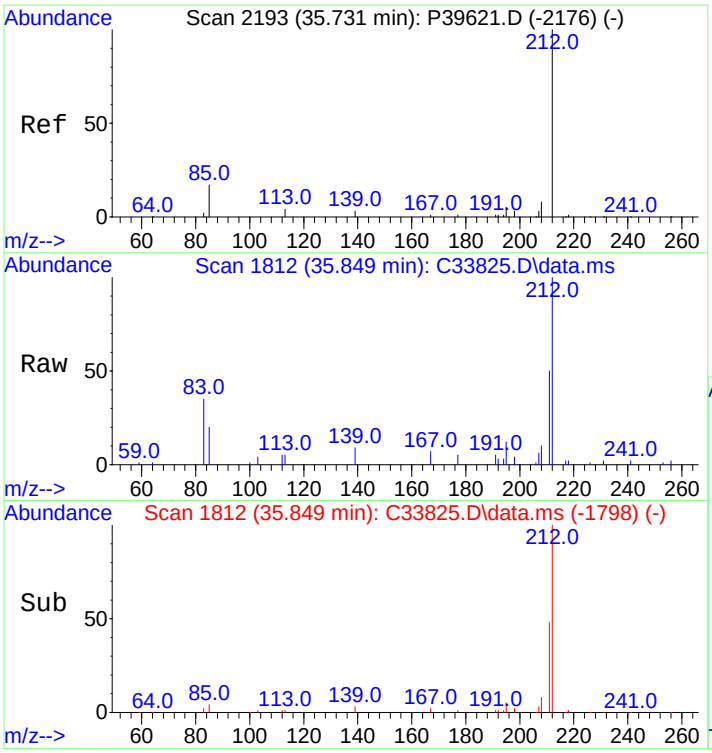


#38
C1-Dibenzothiophenes
Concen: 1308.30 ng/mL m
RT: 34.163 min Scan# 1700
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:198 Resp: 143563

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

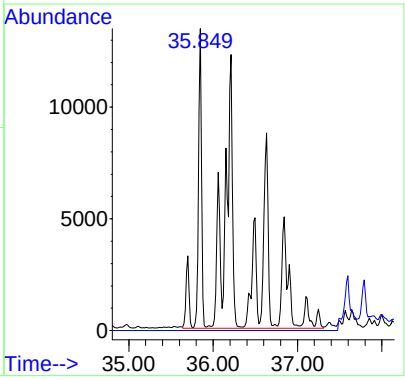


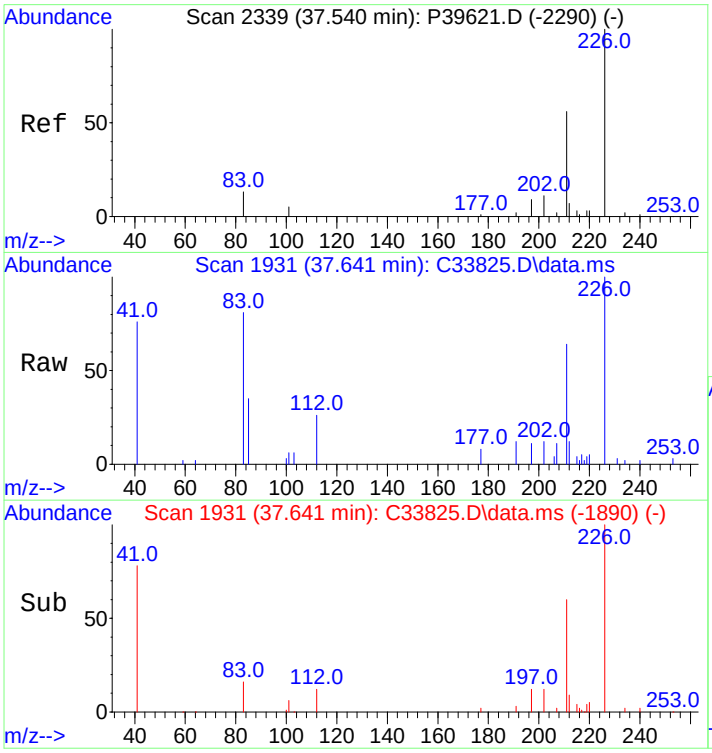


#39
C2-Dibenzothiophenes
Concen: 1763.39 ng/mL m
RT: 35.849 min Scan# 1812
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:212 Resp: 193502

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

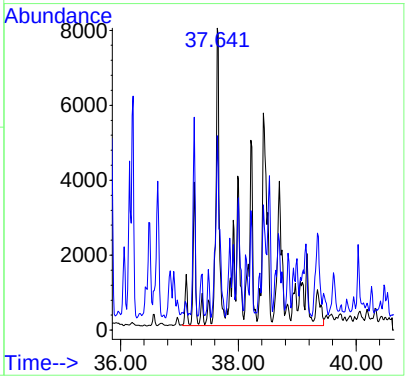


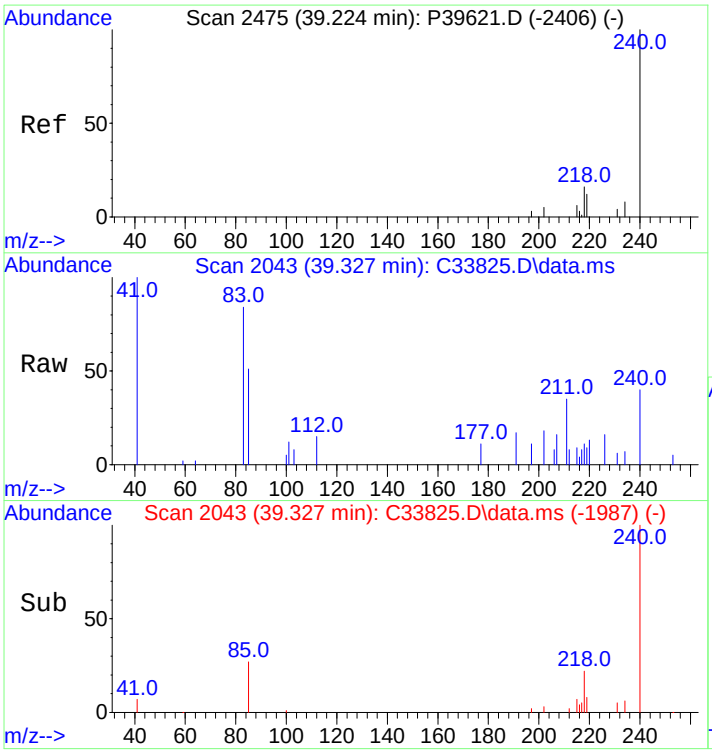


#40
C3-Dibenzothiophenes
Concen: 1550.28 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:226 Resp: 170116

Ion	Ratio	Lower	Upper
226	100		
211	13.4	51.4	77.2#

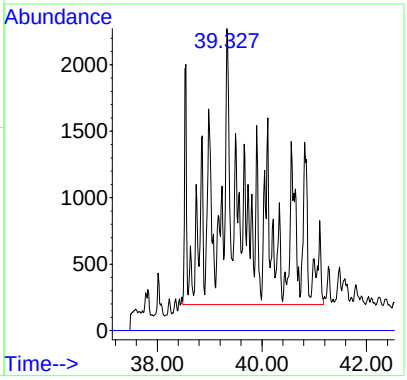


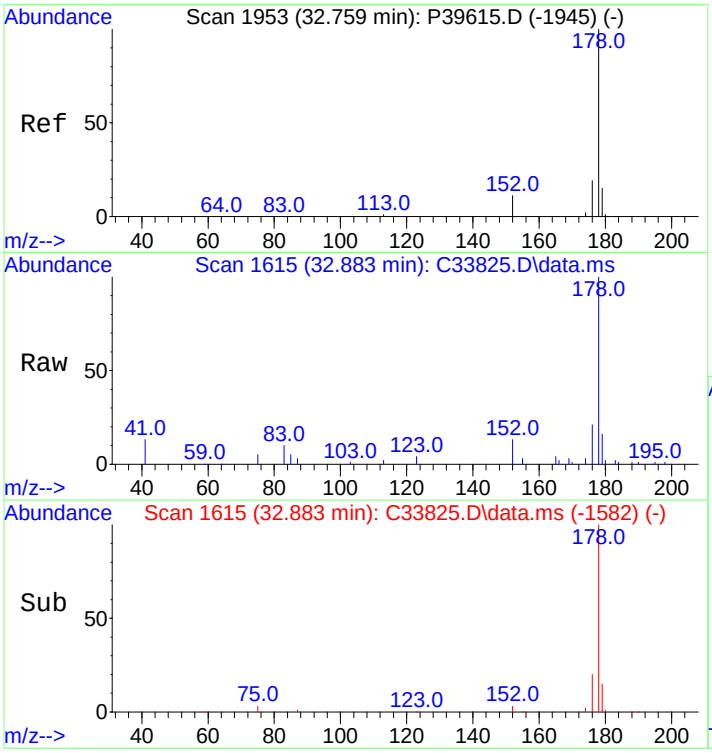


#41
C4-Dibenzothiophenes
Concen: 810.07 ng/mL m
RT: 39.327 min Scan# 2043
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:240 Resp: 88891

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

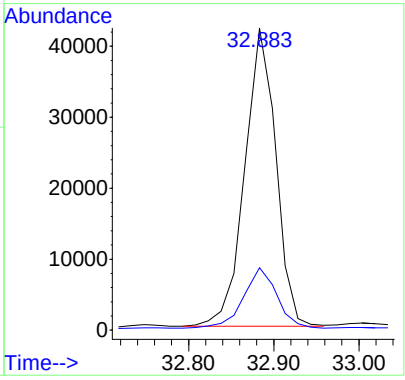


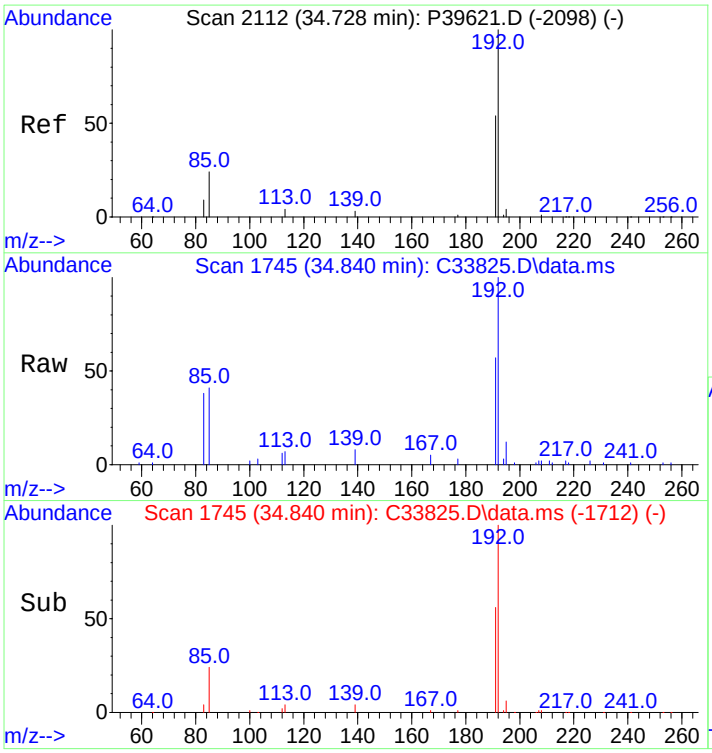


#43
Phenanthrene
Concen: 1111.34 ng/mL m
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:178 Resp: 107144

Ion	Ratio	Lower	Upper
178	100		
176	21.7	15.9	23.9

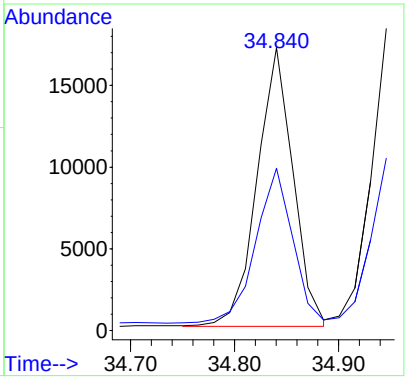


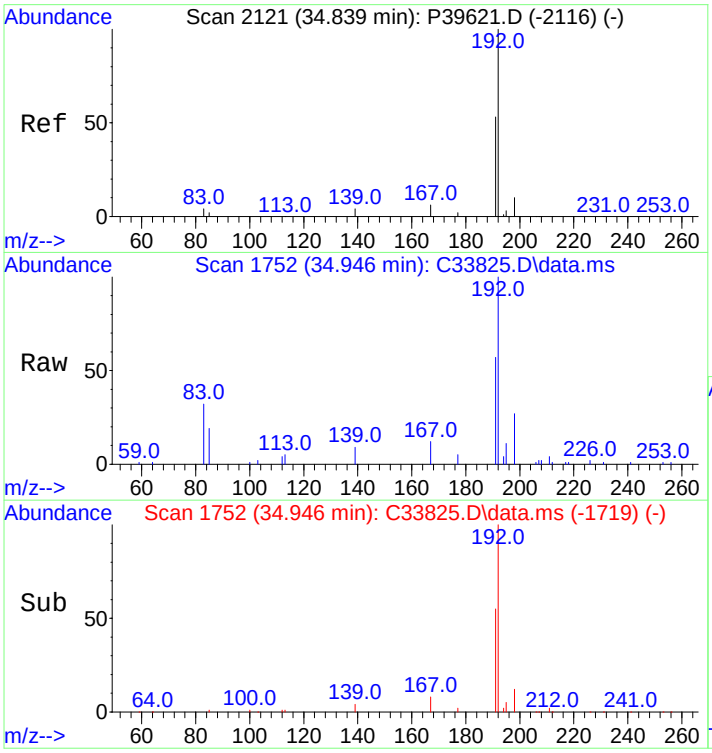


#44
3-Methylphenanthrene(3MP)
Concen: 427.55 ng/mL m
RT: 34.840 min Scan# 1745
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 41220

Ion	Ratio	Lower	Upper
192	100		
191	57.5	45.9	68.9

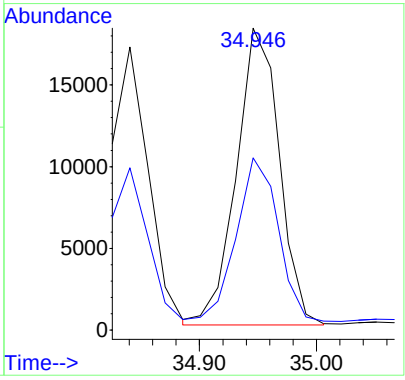


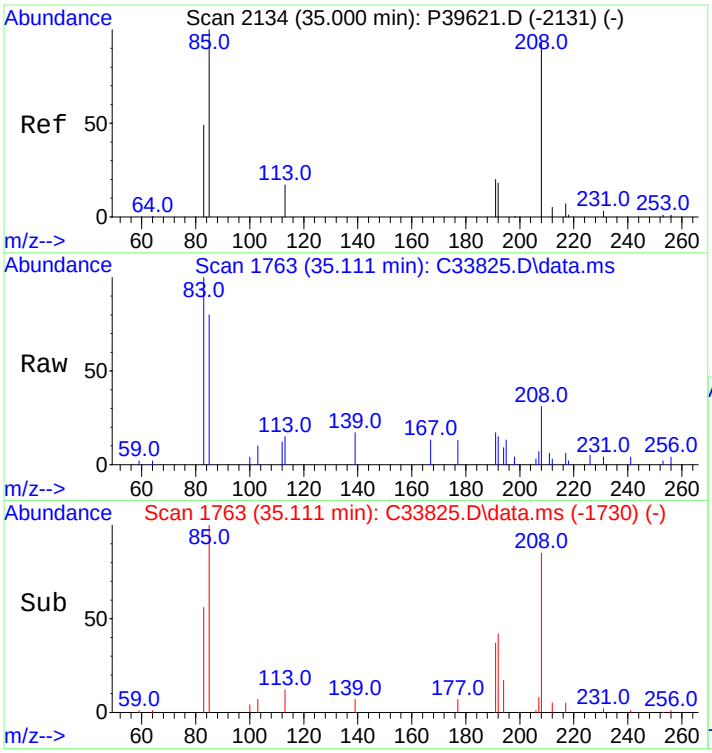


#45
2/4-Methylphenanthrene(2MP)
Concen: 481.28 ng/mL m
RT: 34.946 min Scan# 1752
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46400

Ion	Ratio	Lower	Upper
192	100		
191	53.5	45.6	68.4

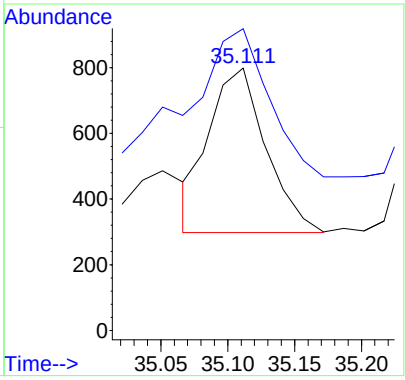


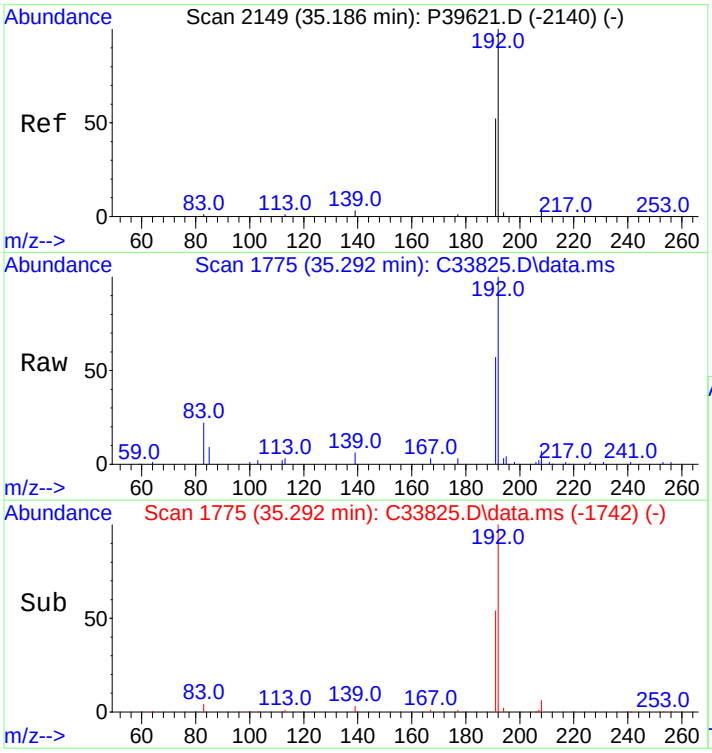


#46
2-Methylanthracene(2MA)
Concen: 15.41 ng/mL m
RT: 35.111 min Scan# 1763
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 1486

Ion	Ratio	Lower	Upper
192	100		
191	129.0	92.0	138.0

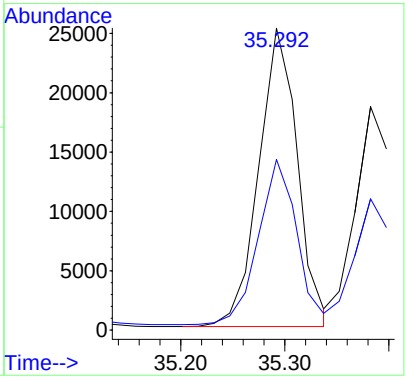


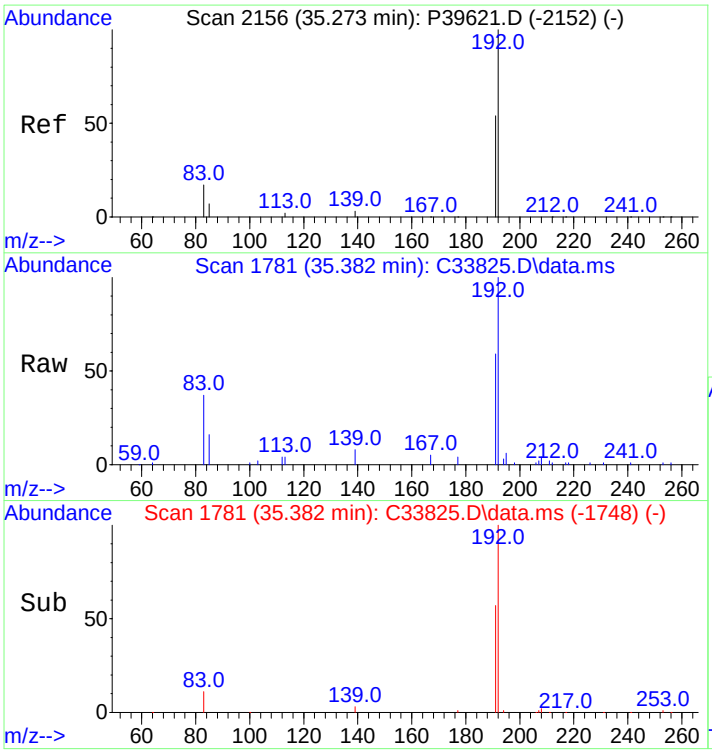


#47
9-Methylphenanthrene(9MP)
Concen: 672.32 ng/mL
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 64818

Ion	Ratio	Lower	Upper
192	100		
191	55.3	45.3	67.9

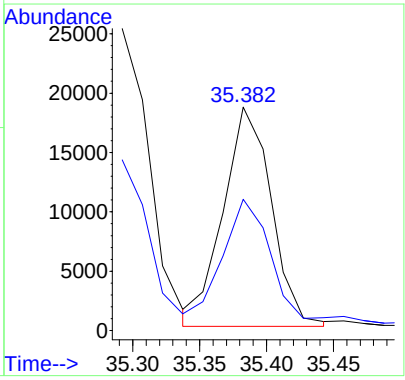


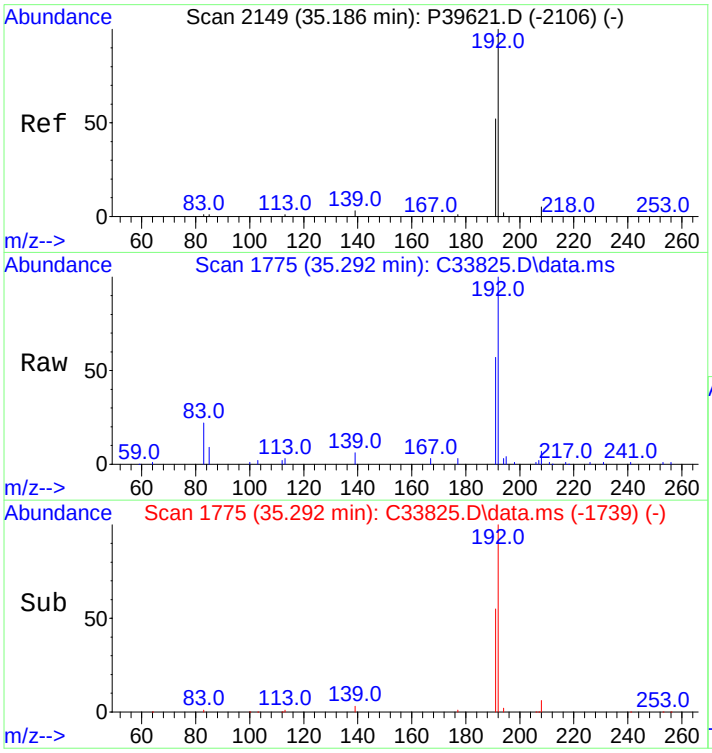


#48
1-Methylphenanthrene(1MP)
Concen: 482.98 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46564

Ion	Ratio	Lower	Upper
192	100		
191	57.1	47.0	70.6

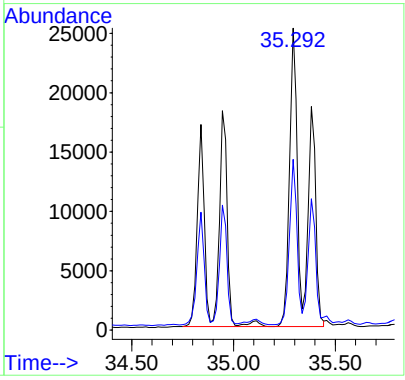


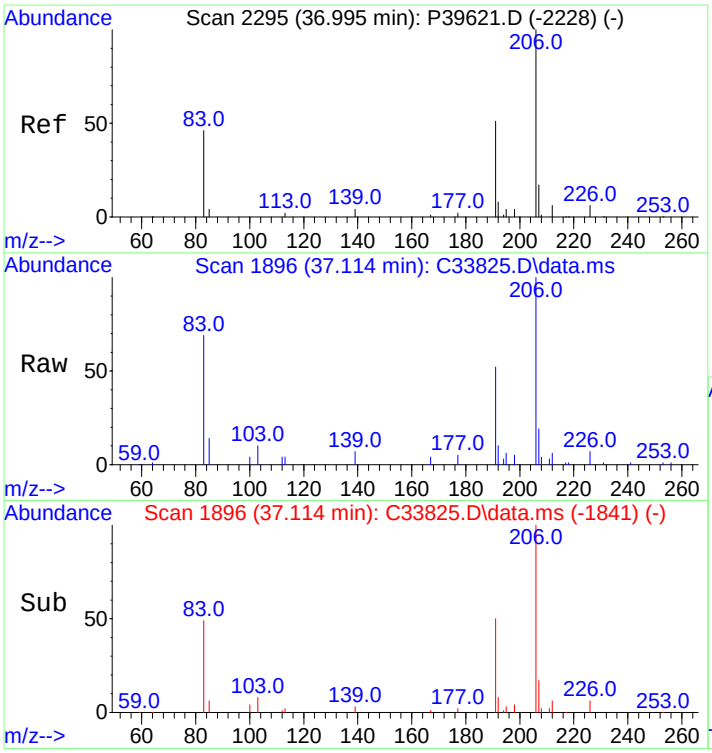


#49
C1-Phenanthrenes/Anthracenes
Concen: 2088.83 ng/mL m
RT: 35.292 min Scan# 1775
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 201383

Ion	Ratio	Lower	Upper
192	100		
191	17.8	45.3	67.9#

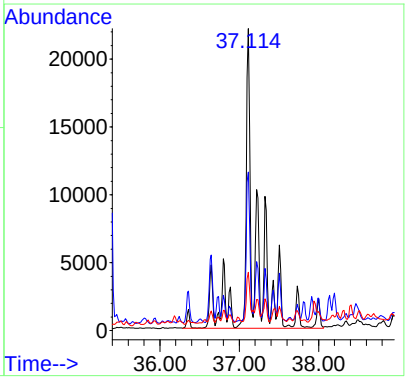


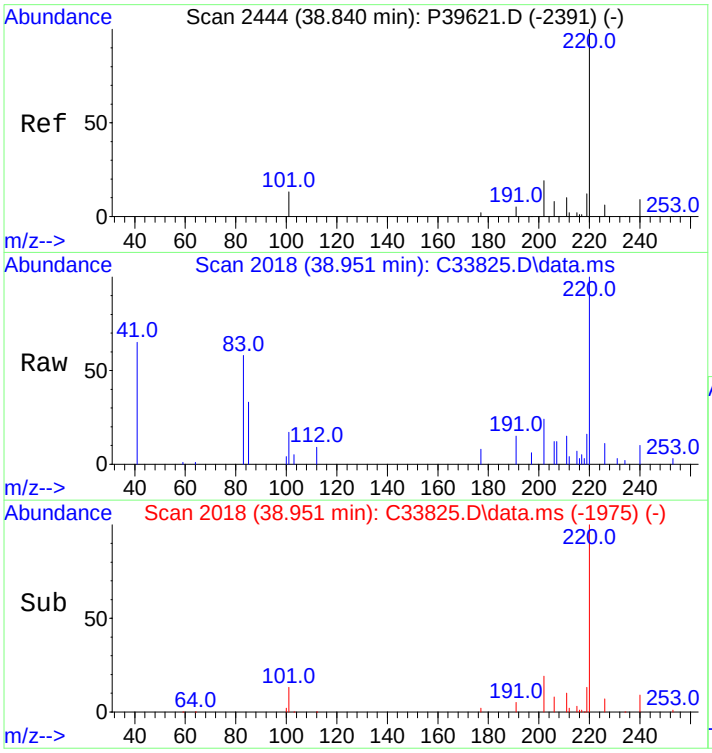


#50
C2-Phenanthrenes/Anthracenes
Concen: 2138.48 ng/mL m
RT: 37.114 min Scan# 1896
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:206 Resp: 206170

Ion	Ratio	Lower	Upper
206	100		
191	17.0	42.0	63.0#
207	5.7	15.4	23.2#

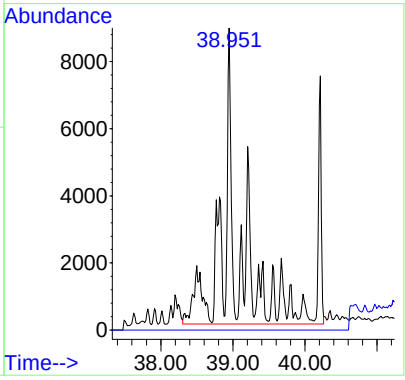


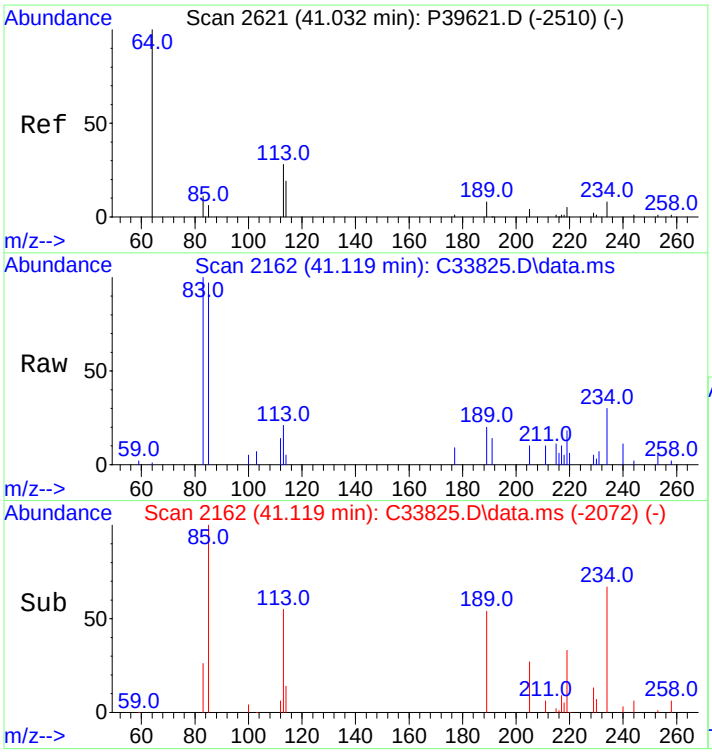


#52
C3-Phenanthrenes/Anthracenes
Concen: 1482.94 ng/mL m
RT: 38.951 min Scan# 2018
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:220 Resp: 142970

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

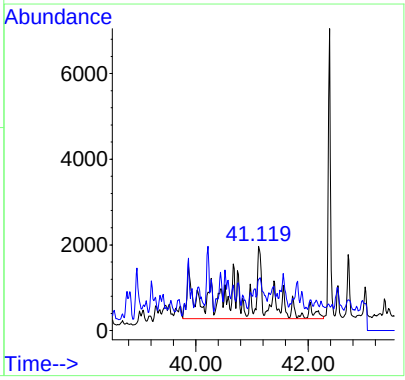


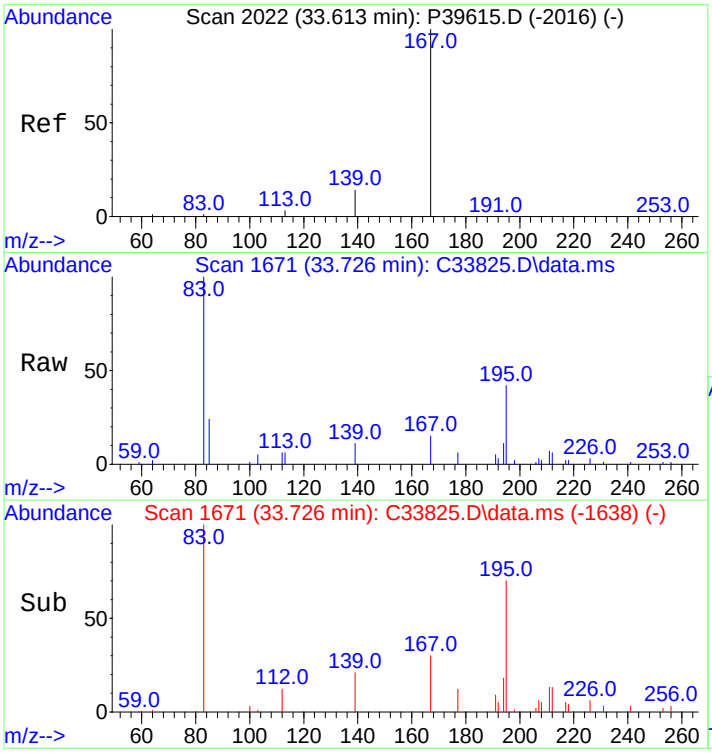


#53
C4-Phenanthrenes/Anthracenes
Concen: 588.72 ng/mL m
RT: 41.119 min Scan# 2162
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 56758

Ion	Ratio	Lower	Upper
234	100		
219	3.4	48.6	73.0#

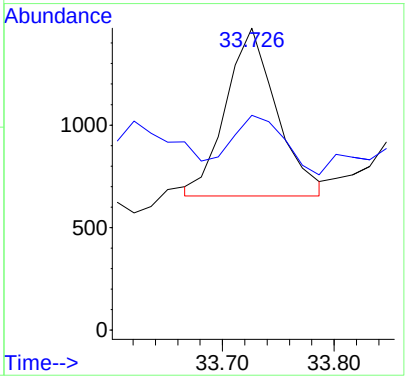


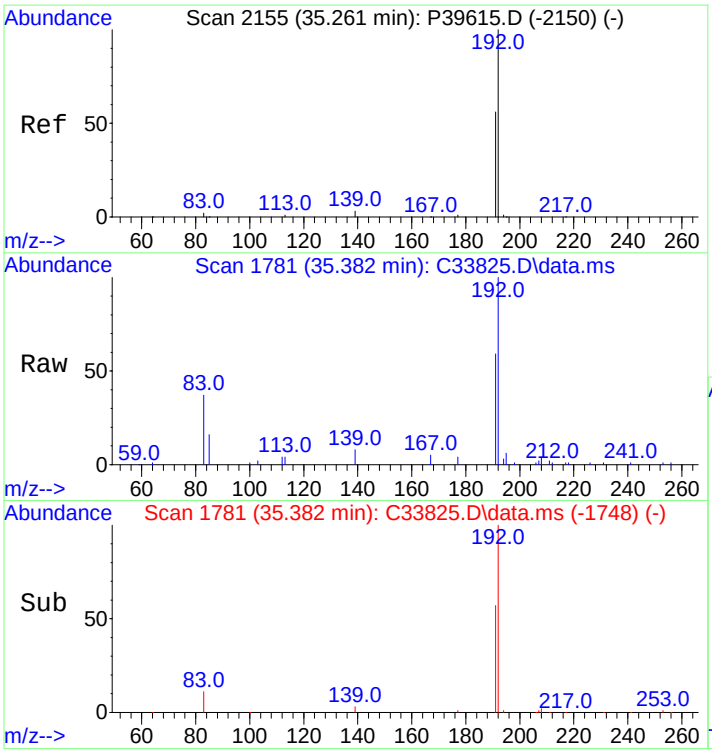


#56
Carbazole
Concen: 27.15 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:167 Resp: 2583

Ion	Ratio	Lower	Upper
167	100		
139	87.4	11.6	17.4#

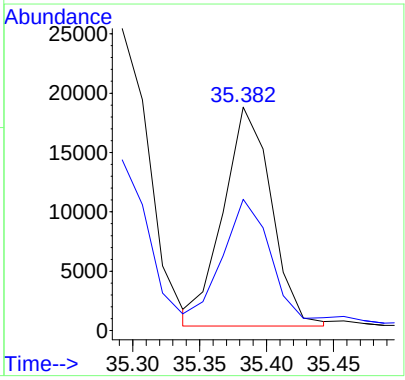


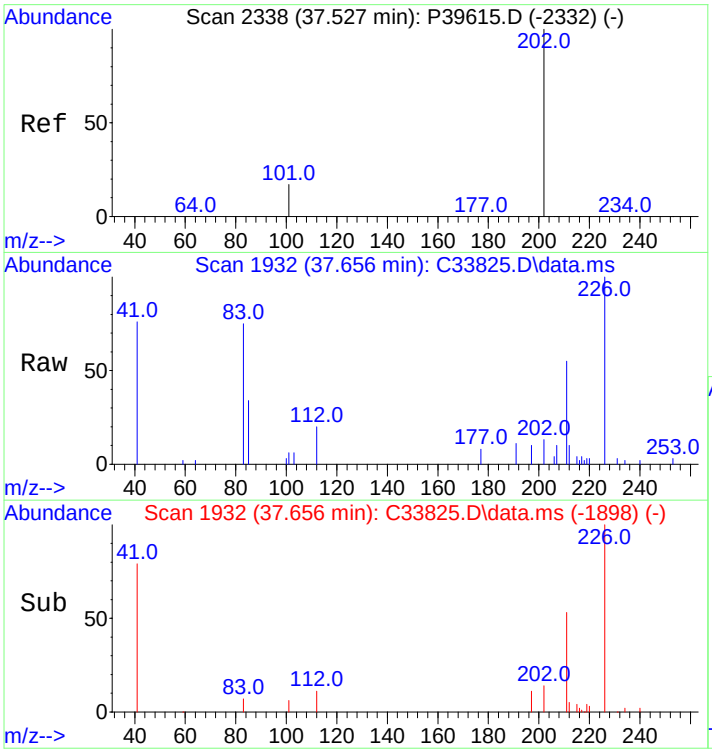


#57
1-Methylphenanthrene
Concen: 759.05 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:192 Resp: 46375

Ion	Ratio	Lower	Upper
192	100		
191	57.4	45.3	67.9

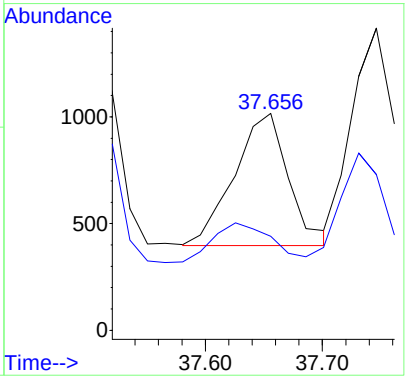


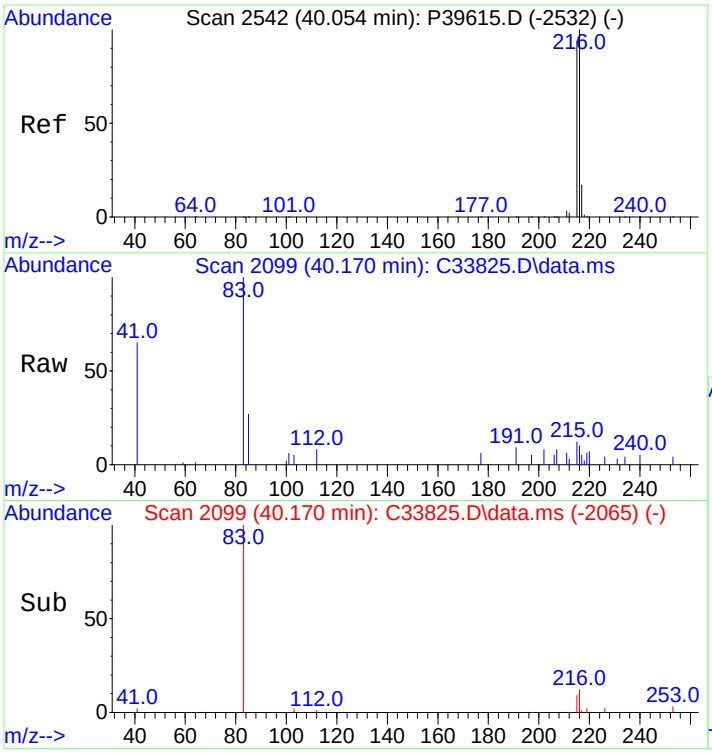


#58
Fluoranthene
Concen: 20.90 ng/mL m
RT: 37.656 min Scan# 1932
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 2001

Ion	Ratio	Lower	Upper
202	100		
101	0.0	19.1	28.7#

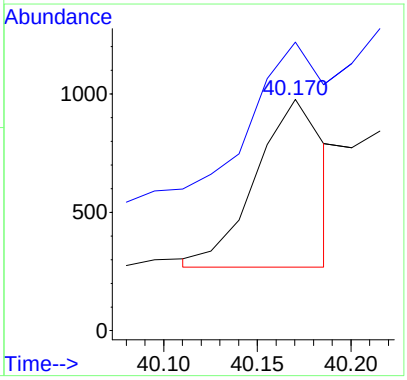


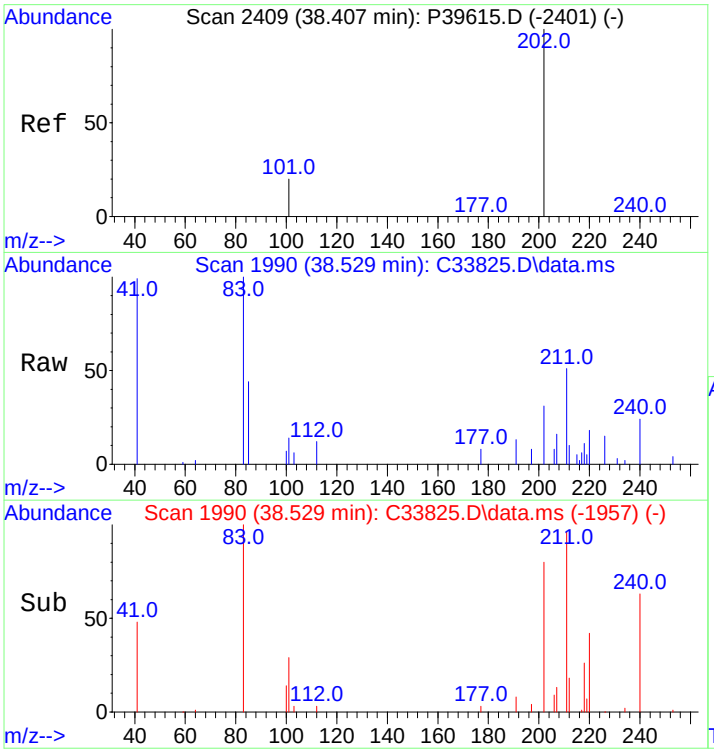


#59
Benzo(b)fluorene
Concen: 32.80 ng/mL m
RT: 40.170 min Scan# 2099
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 1822

Ion	Ratio	Lower	Upper
216	100		
215	16.2	77.4	116.2#

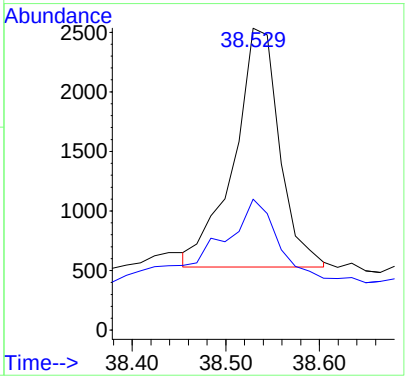


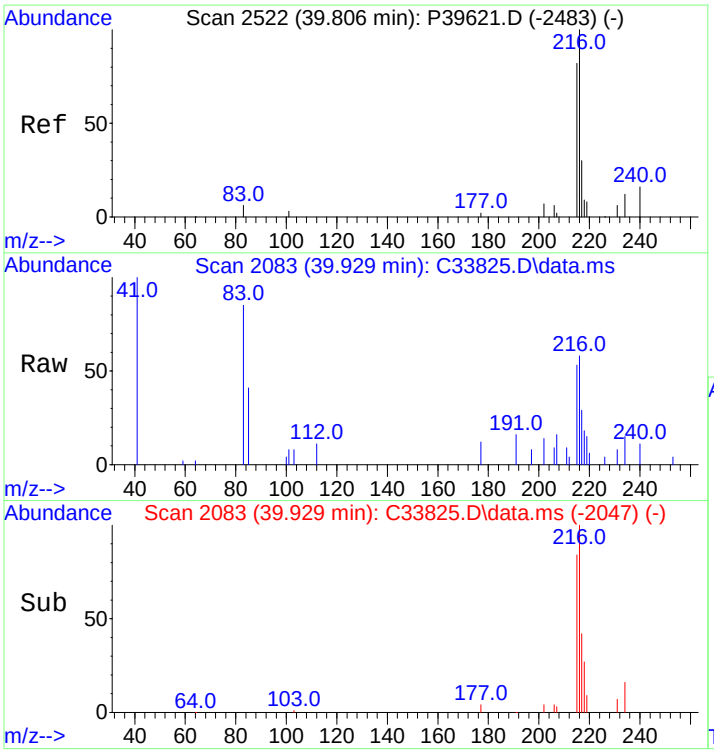


#60
Pyrene
Concen: 69.73 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:202 Resp: 6787

Ion	Ratio	Lower	Upper
202	100		
101	64.2	20.4	30.6#

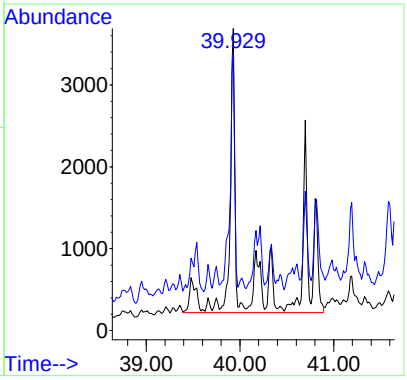


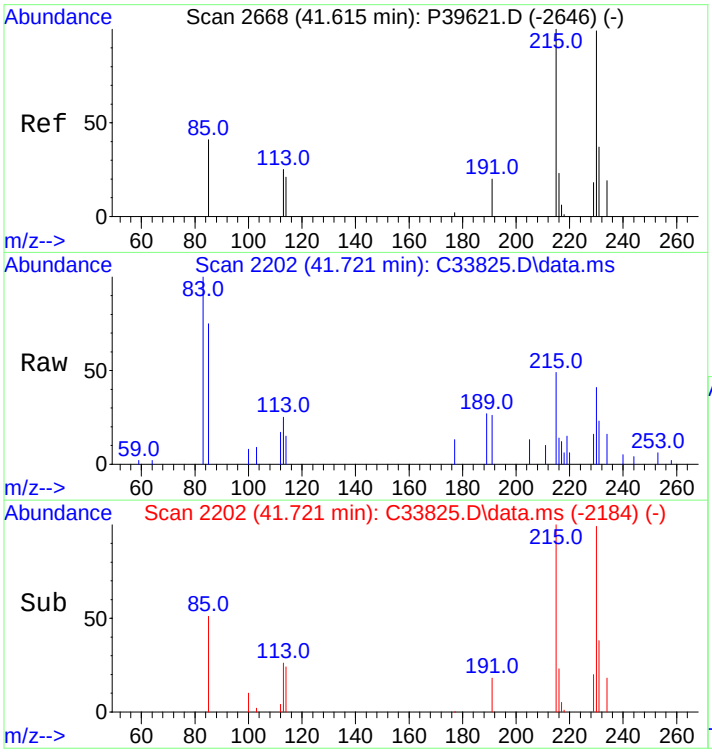


#61
C1-Fluoranthenes/Pyrenes
Concen: 330.13 ng/mL m
RT: 39.929 min Scan# 2083
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:216 Resp: 32133

Ion	Ratio	Lower	Upper
216	100		
215	28.8	73.5	110.3#

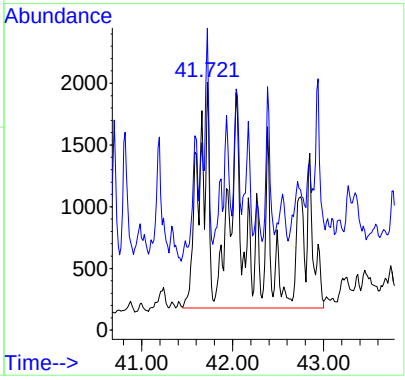


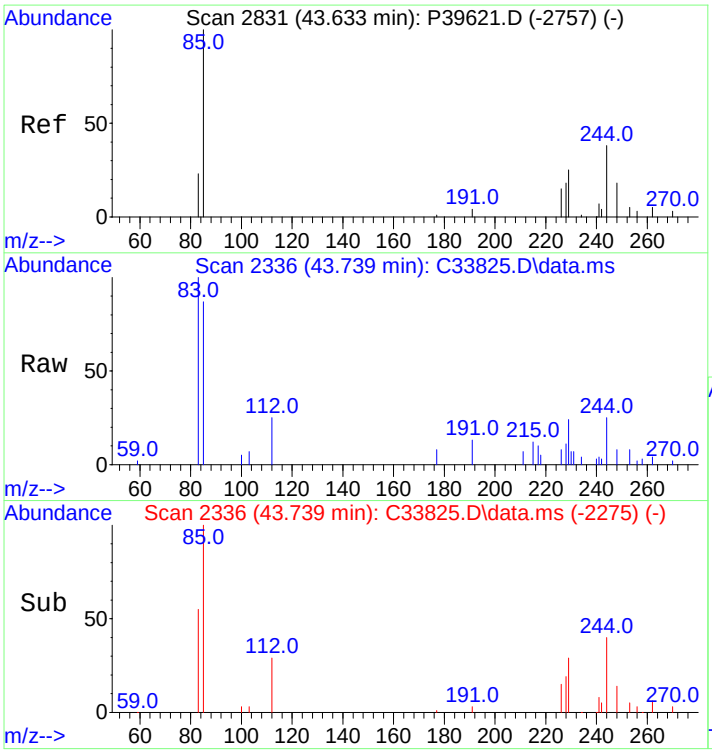


#62
C2-Fluoranthenes/Pyrenes
Concen: 517.02 ng/mL m
RT: 41.721 min Scan# 2202
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:230 Resp: 50323

Ion	Ratio	Lower	Upper
230	100		
215	3.3	97.5	146.3#

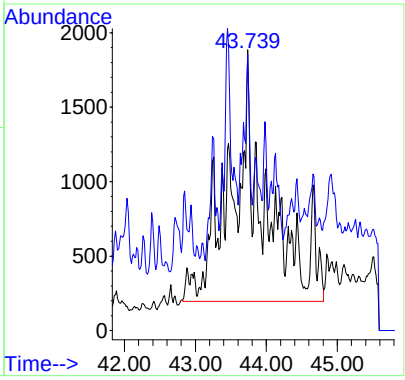


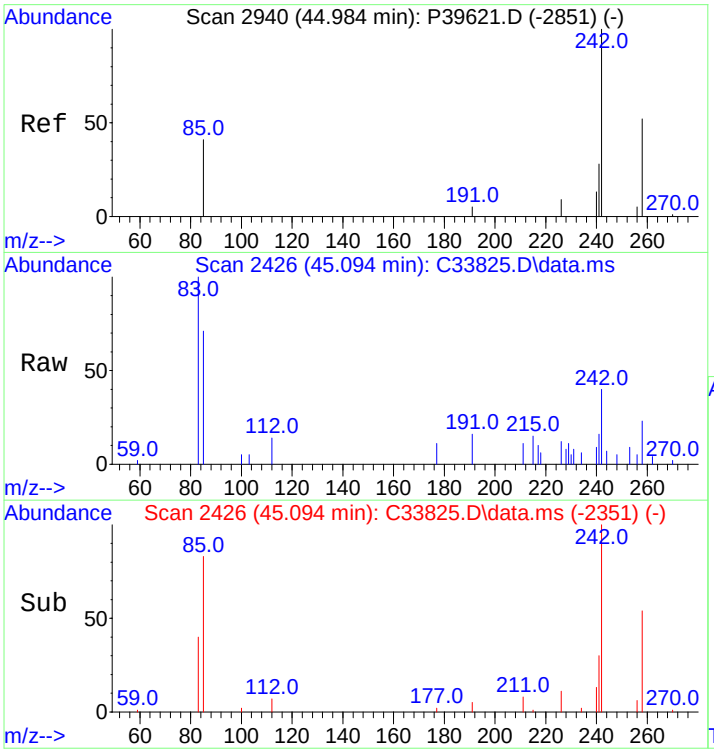


#63
C3-Fluoranthenes/Pyrenes
Concen: 579.51 ng/mL m
RT: 43.739 min Scan# 2336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:244 Resp: 56406

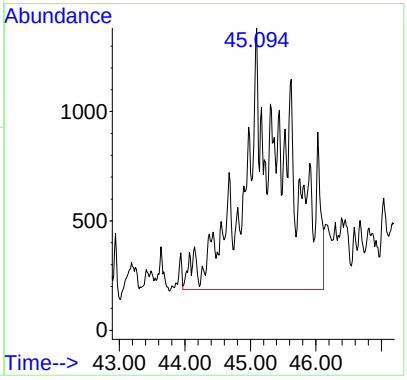
Ion	Ratio	Lower	Upper
244	100		
229	13.5	78.7	118.1#

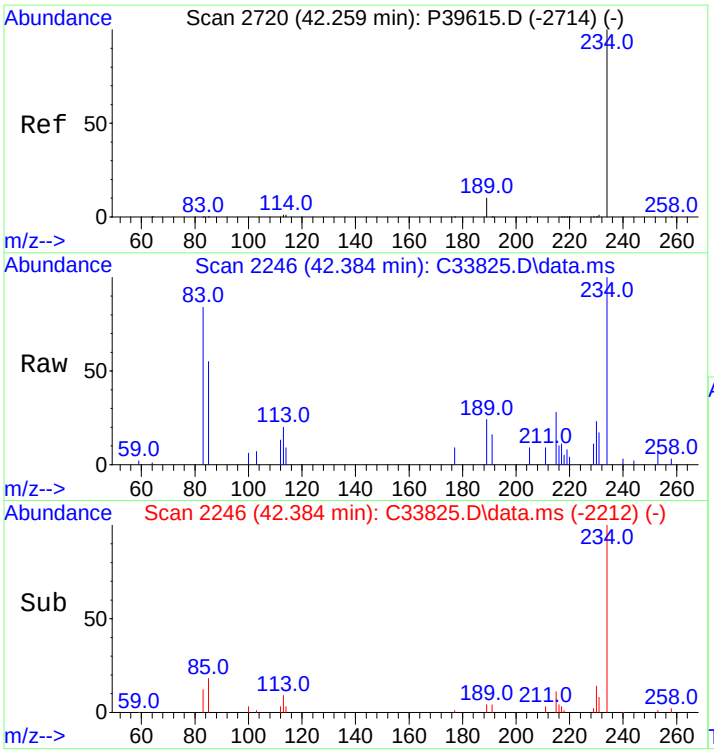




#64
C4-Fluoranthenes/Pyrenes
Concen: 542.26 ng/mL m
RT: 45.094 min Scan# 2426
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:258 Resp: 52780

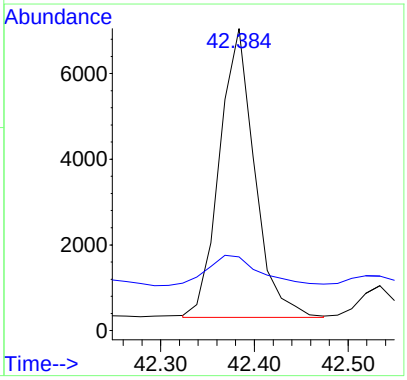


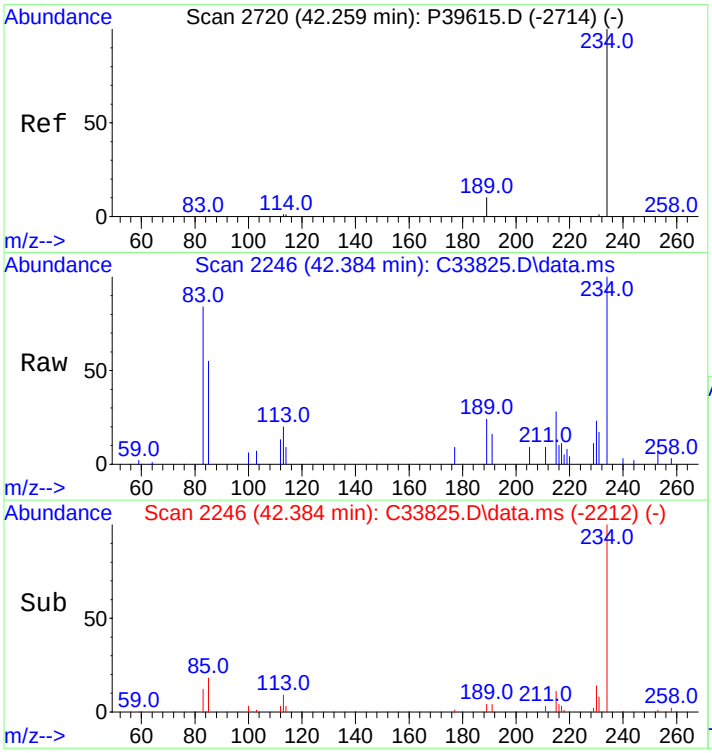


#66
Naphthobenzothiophene
Concen: 168.19 ng/ml m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17624

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

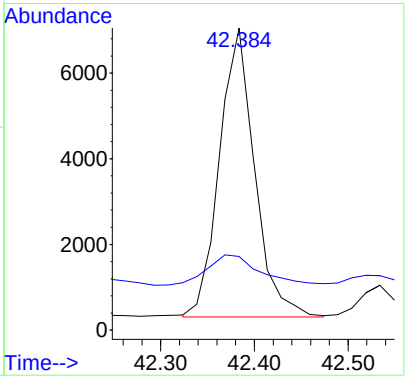


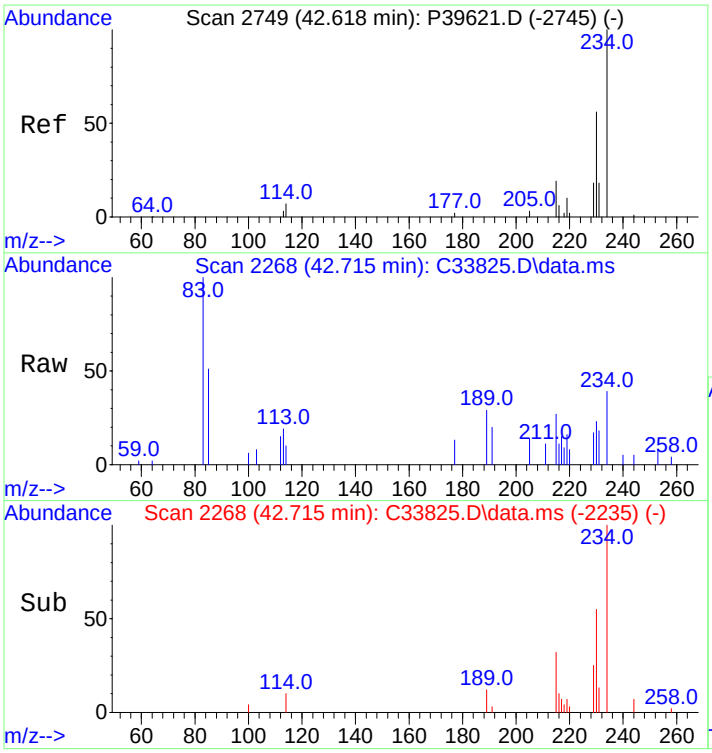


#67
Naphthobenzothiophene-2,1-D
Concen: 168.27 ng/mL m
RT: 42.384 min Scan# 2246
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 17633

Ion	Ratio	Lower	Upper
234	100		
189	15.6	7.4	11.0#

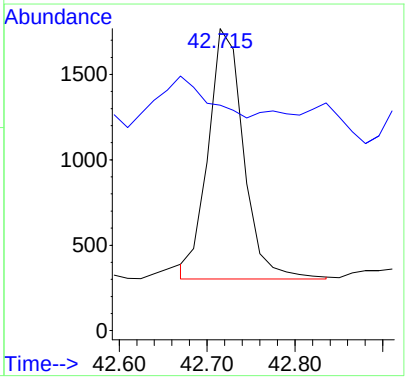


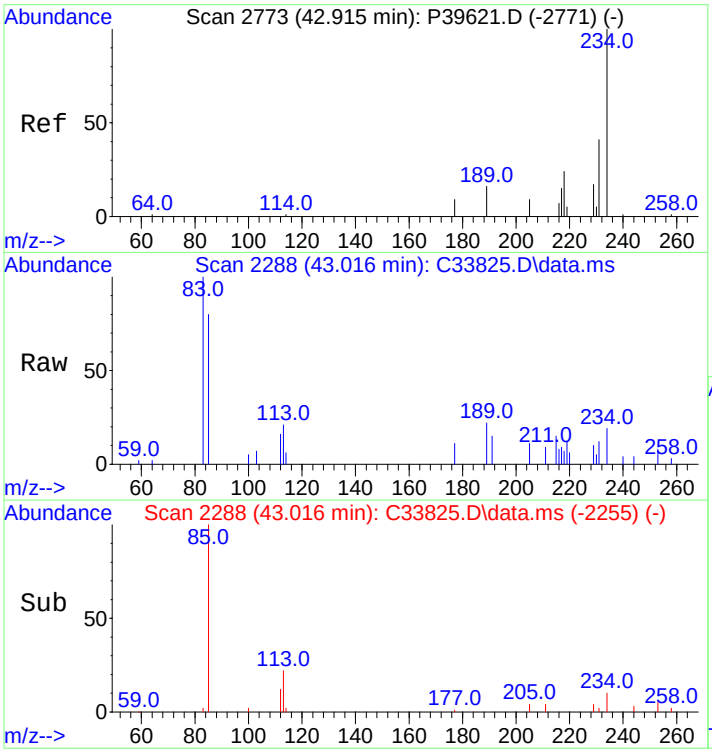


#68
Naphthobenzothiophene-1,2-D
Concen: 39.11 ng/mL m
RT: 42.715 min Scan# 2268
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 4098

Ion	Ratio	Lower	Upper
234	100		
189	0.0	59.7	89.5#

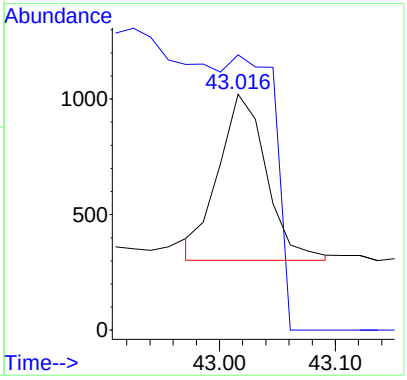


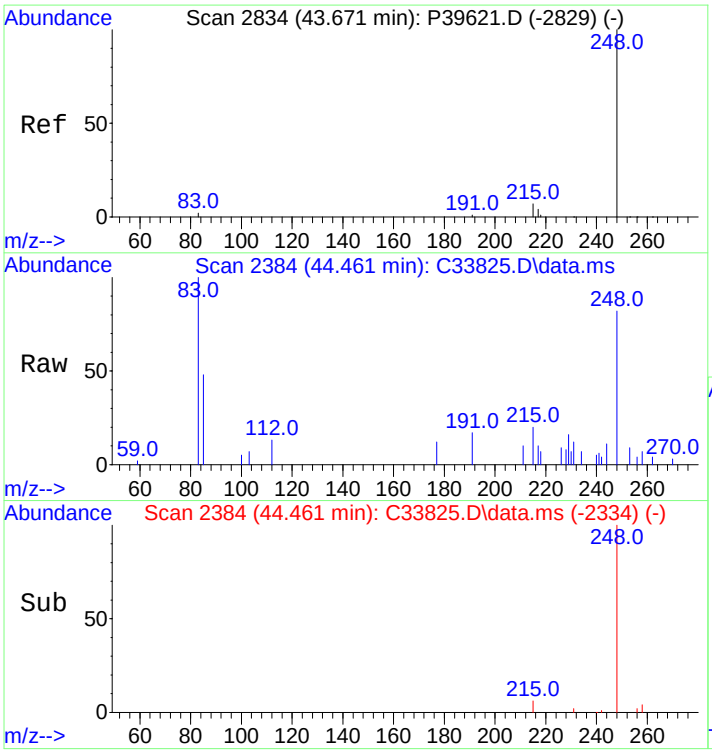


#69
Naphthobenzothiophene-2,3-D
Concen: 19.66 ng/mL m
RT: 43.016 min Scan# 2288
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:234 Resp: 2060

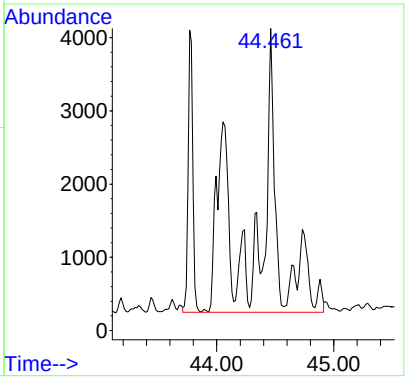
Ion	Ratio	Lower	Upper
234	100		
189	0.0	93.4	140.0#

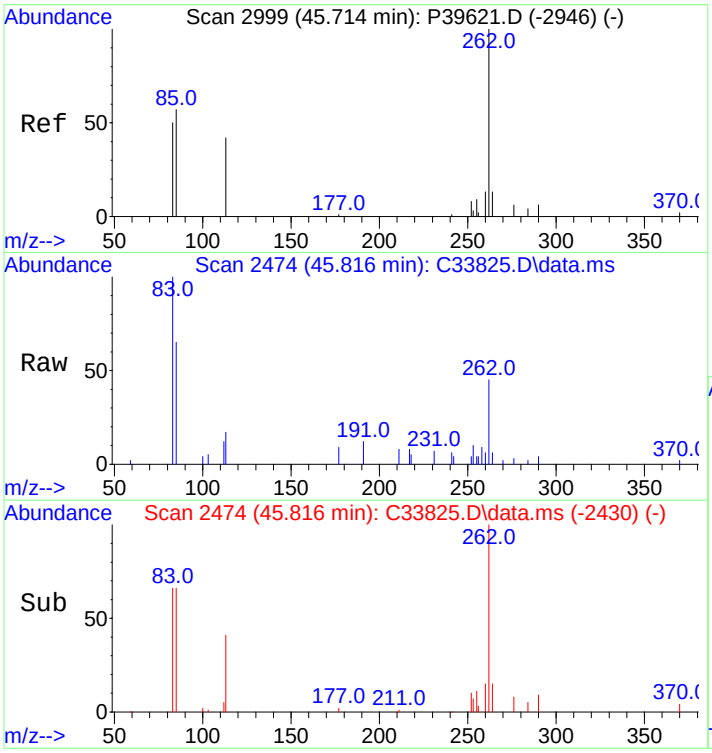




#70
C1-Naphthobenzothiophenes
Concen: 588.79 ng/ml m
RT: 44.461 min Scan# 2384
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

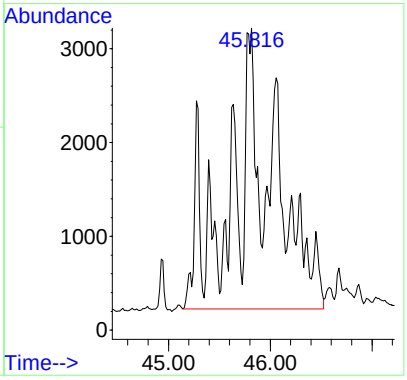
Tgt Ion:248 Resp: 61698

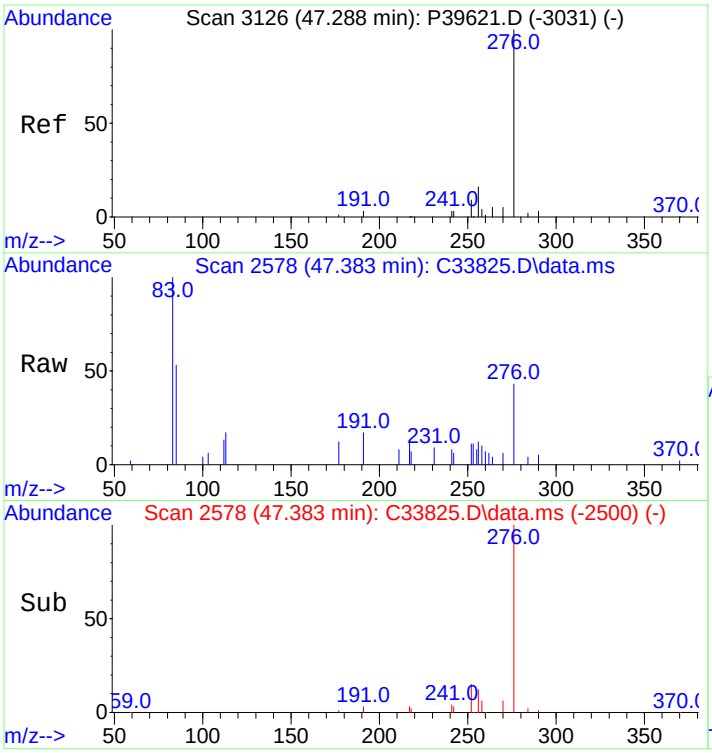




#71
C2-Naphthobenzothiophenes
Concen: 806.80 ng/ml m
RT: 45.816 min Scan# 2474
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

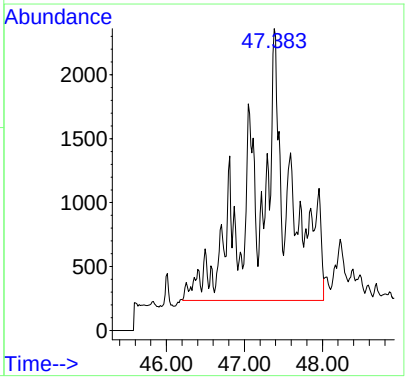
Tgt Ion:262 Resp: 84543

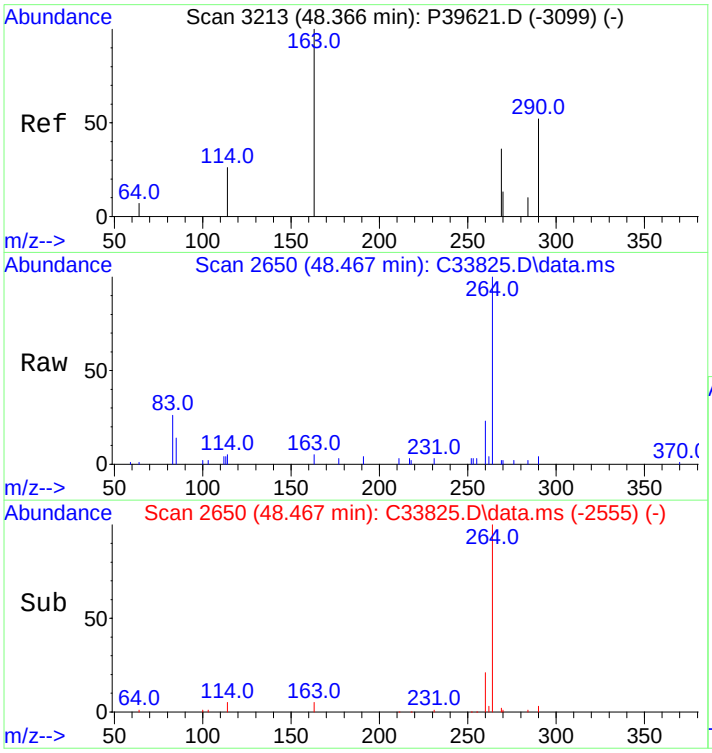




#72
C3-Naphthobenzothiophenes
Concen: 616.63 ng/ml m
RT: 47.383 min Scan# 2578
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

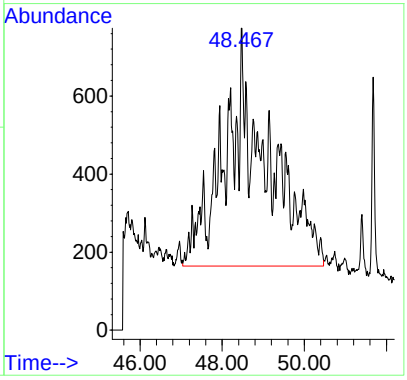
Tgt Ion:276 Resp: 64616

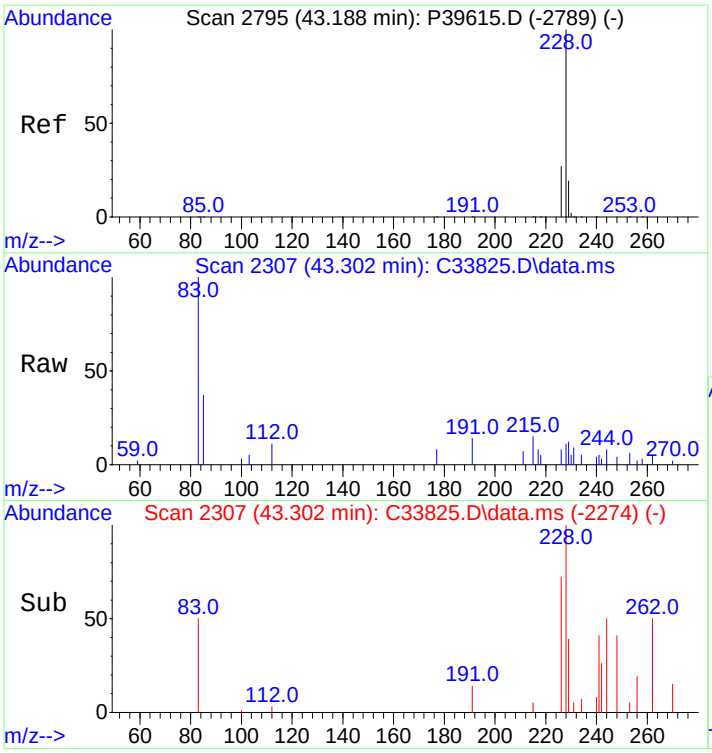




#73
C4-Naphthobenzothiophenes
Concen: 402.19 ng/mL m
RT: 48.467 min Scan# 2650
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:290 Resp: 42145

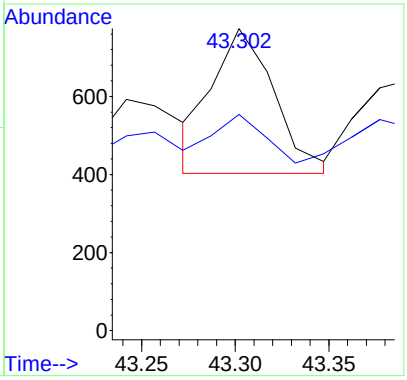


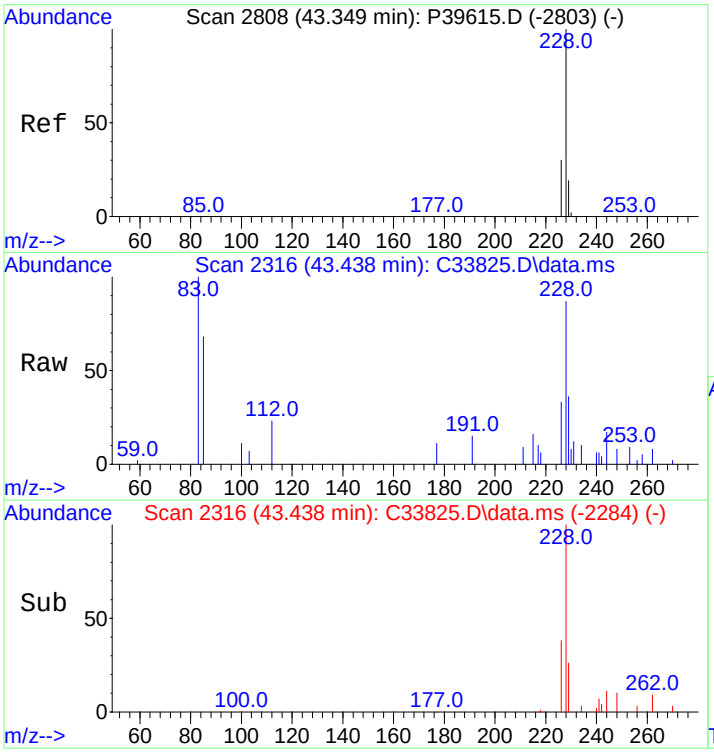


#75
Benz[a]anthracene
Concen: 9.22 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 851

Ion	Ratio	Lower	Upper
228	100		
226	665.2	21.8	32.8#

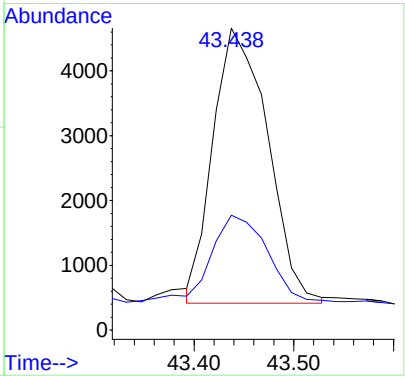


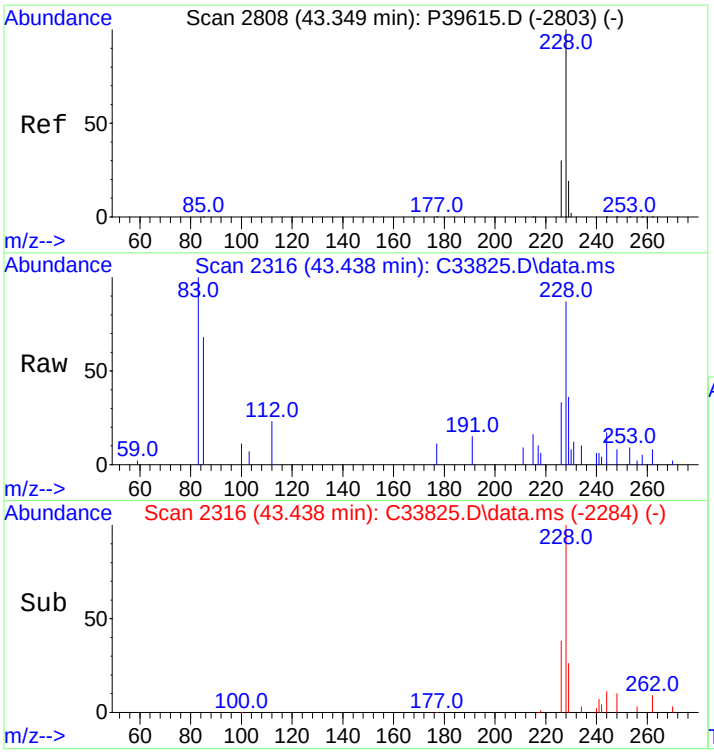


#76
Chrysene
Concen: 173.19 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16140

Ion	Ratio	Lower	Upper
228	100		
226	35.1	24.2	36.4

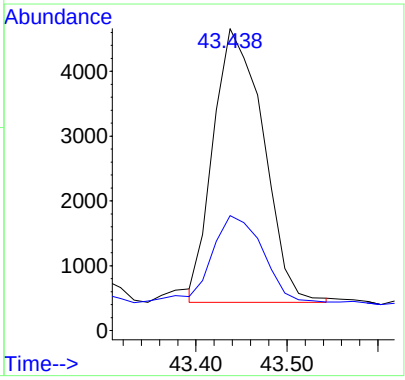


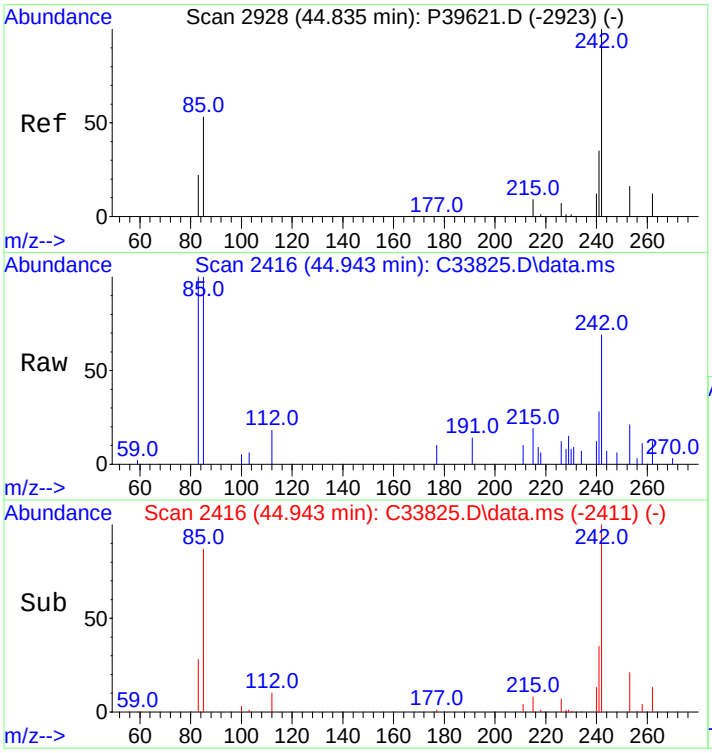


#77
Chrysene/Triphenylene
Concen: 172.36 ng/mL m
RT: 43.438 min Scan# 2316
Delta R.T. -0.016 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:228 Resp: 16062

Ion	Ratio	Lower	Upper
228	100		
226	35.2	24.2	36.4

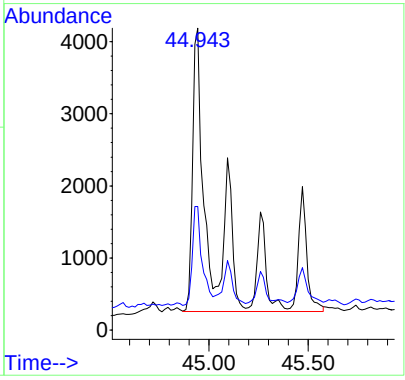


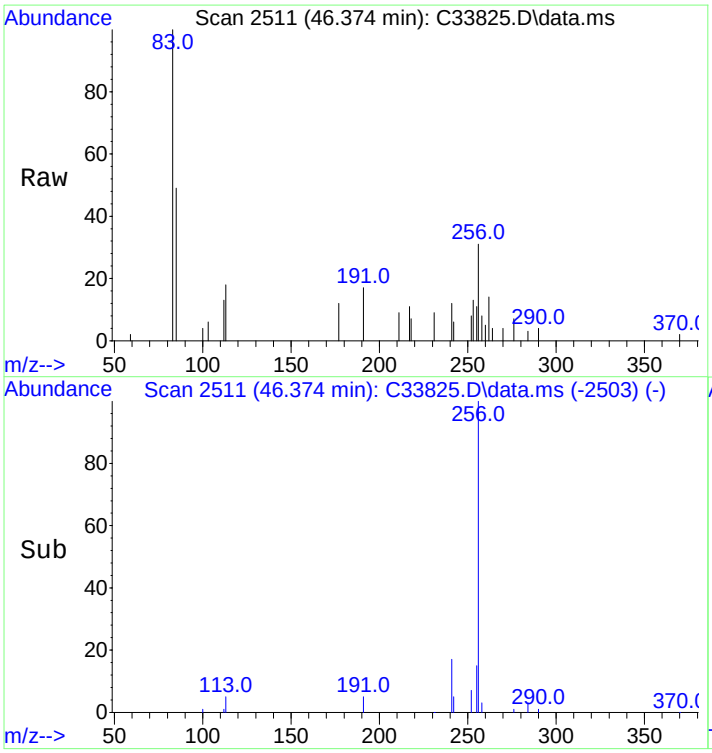


#78
C1-Chrysenes
Concen: 319.06 ng/mL m
RT: 44.943 min Scan# 2416
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:242 Resp: 29733

Ion	Ratio	Lower	Upper
242	100		
241	13.2	32.7	49.1#

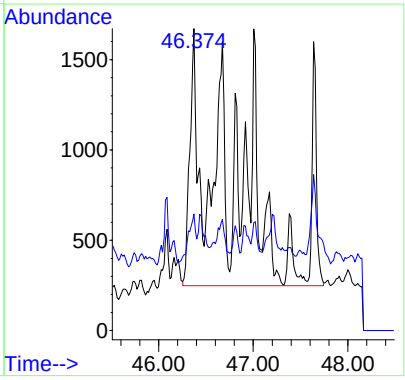


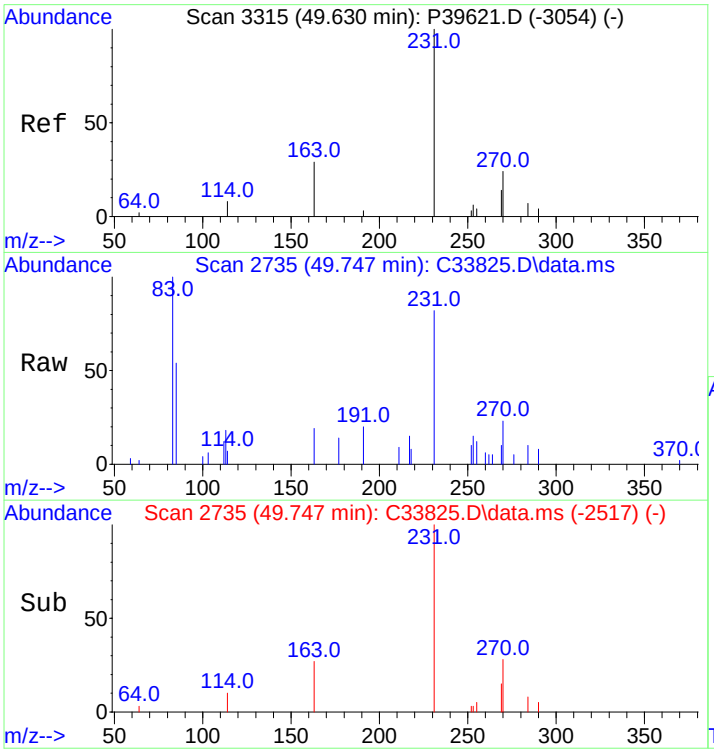


#79
C2-Chrysenes
Concen: 416.87 ng/mL m
RT: 46.374 min Scan# 2511
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:256 Resp: 38848

Ion	Ratio	Lower	Upper
256	100		
241	2.5	30.9	46.3#

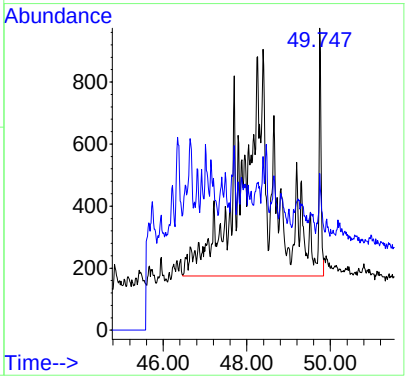


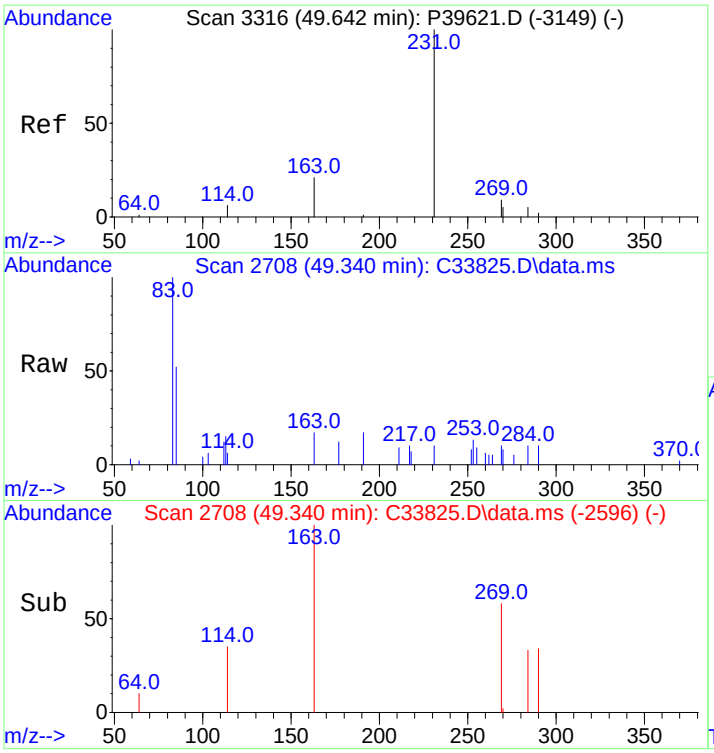


#80
C3-Chrysenes
Concen: 446.16 ng/mL m
RT: 49.747 min Scan# 2735
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:270 Resp: 41578

Ion	Ratio	Lower	Upper
270	100		
255	1.5	41.4	62.2#

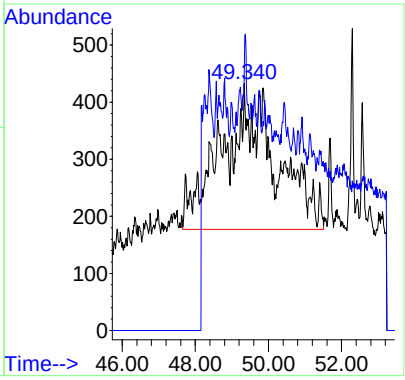


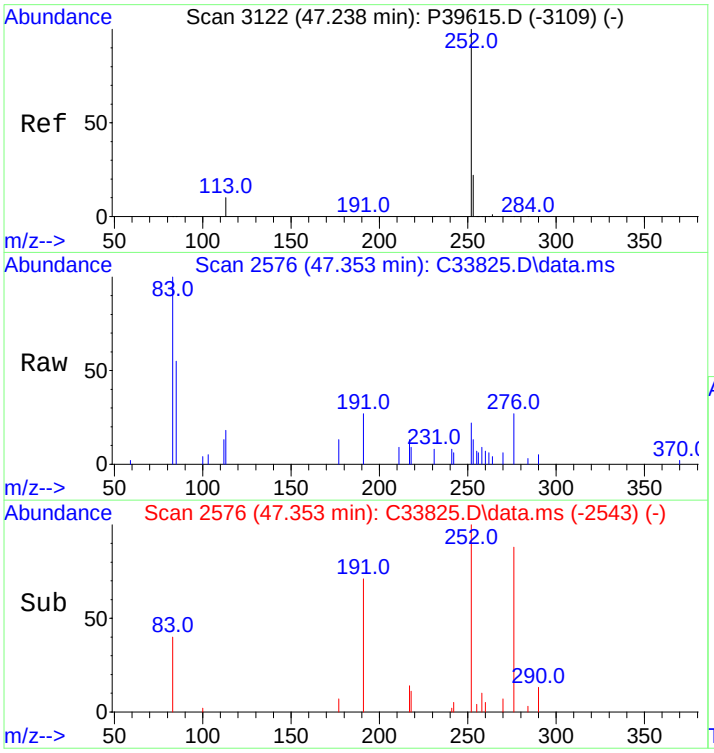


#81
C4-Chrysenes
Concen: 277.95 ng/mL m
RT: 49.340 min Scan# 2708
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:284 Resp: 25902

Ion	Ratio	Lower	Upper
284	100		
269	0.0	82.2	123.4#

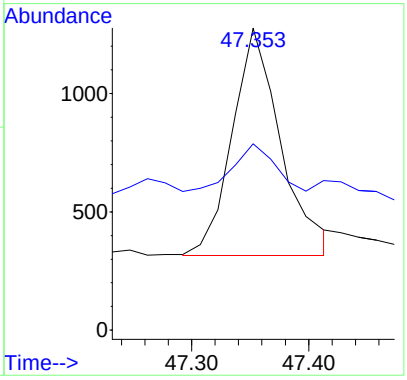


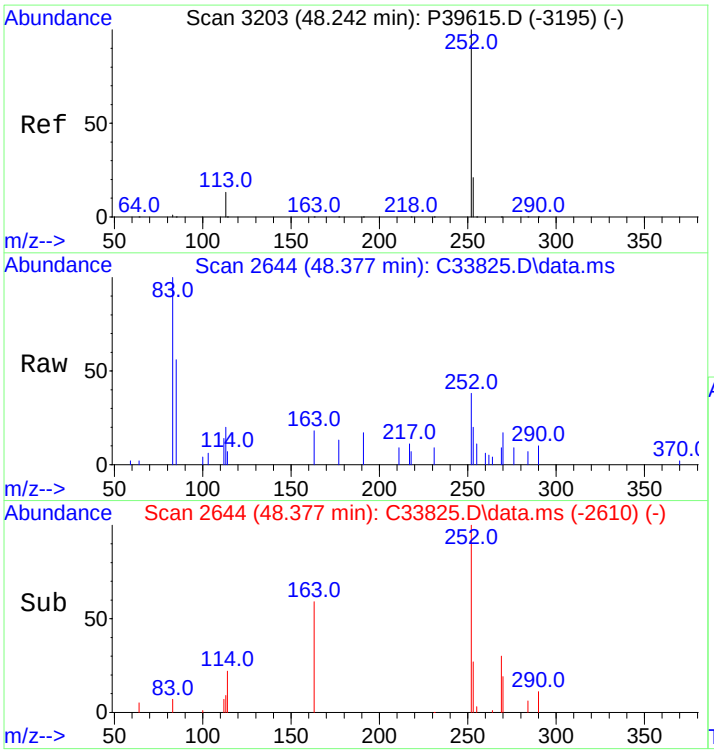


#82
Benzo[b]fluoranthene
Concen: 27.35 ng/mL m
RT: 47.353 min Scan# 2576
Delta R.T. 0.001 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 2774

Ion	Ratio	Lower	Upper
252	100		
253	17.7	18.5	27.7#

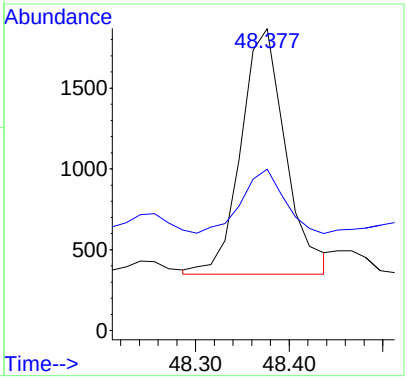


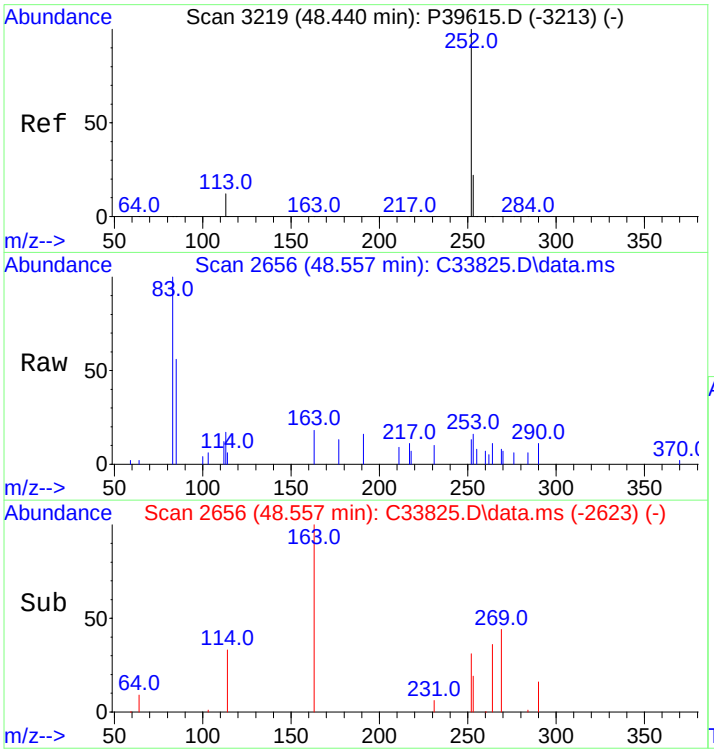


#85
Benzo[e]pyrene
Concen: 50.07 ng/mL m
RT: 48.377 min Scan# 2644
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 5023

Ion	Ratio	Lower	Upper
252	100		
253	27.1	18.5	27.7

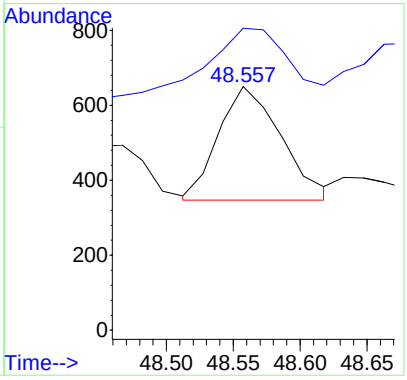


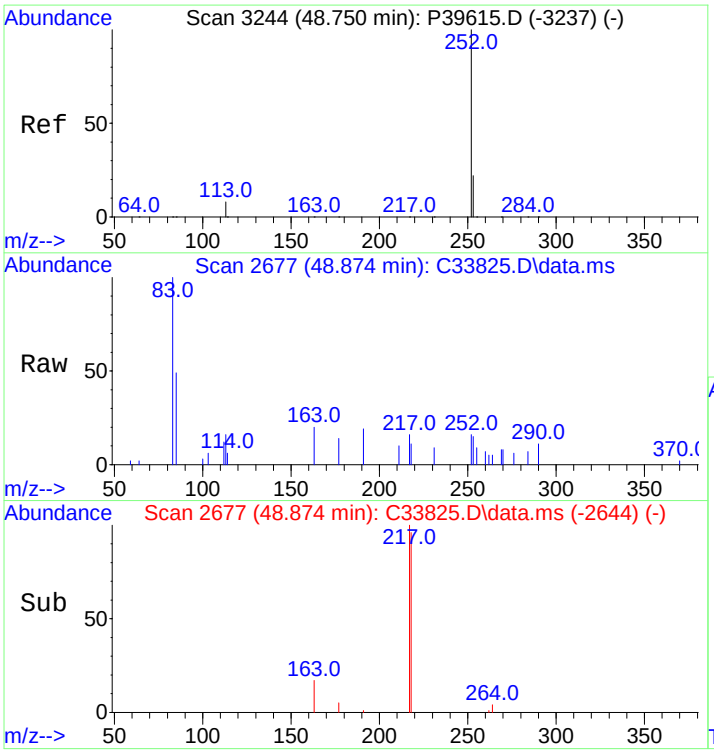


#87
Benzo[a]pyrene
Concen: 10.24 ng/mL m
RT: 48.557 min Scan# 2656
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 989

Ion	Ratio	Lower	Upper
252	100		
253	135.0	18.7	28.1#

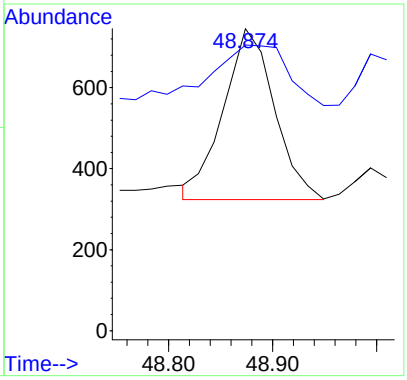


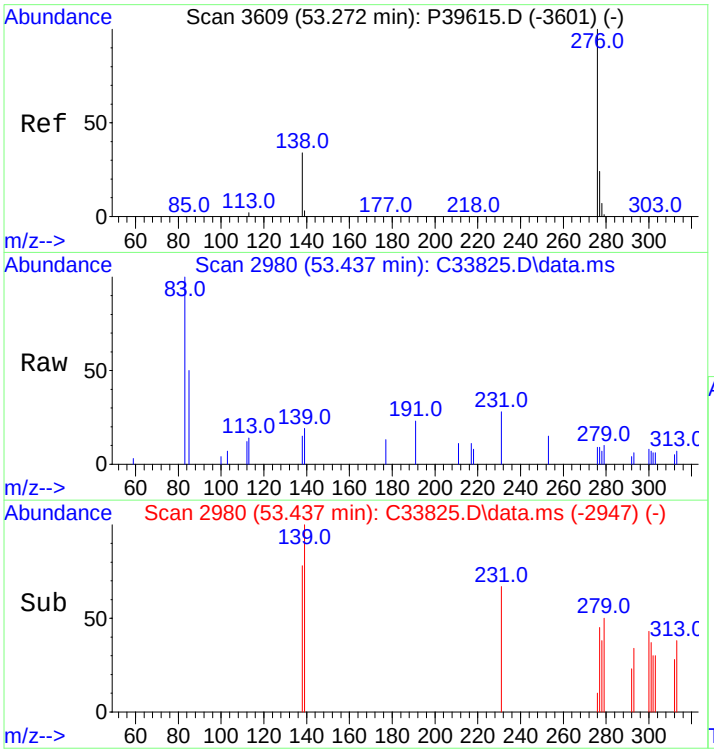


#88
Perylene
Concen: 13.95 ng/mL m
RT: 48.874 min Scan# 2677
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:252 Resp: 1440

Ion	Ratio	Lower	Upper
252	100		
253	55.6	18.6	27.8#

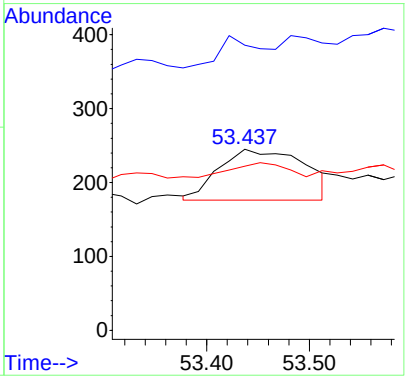


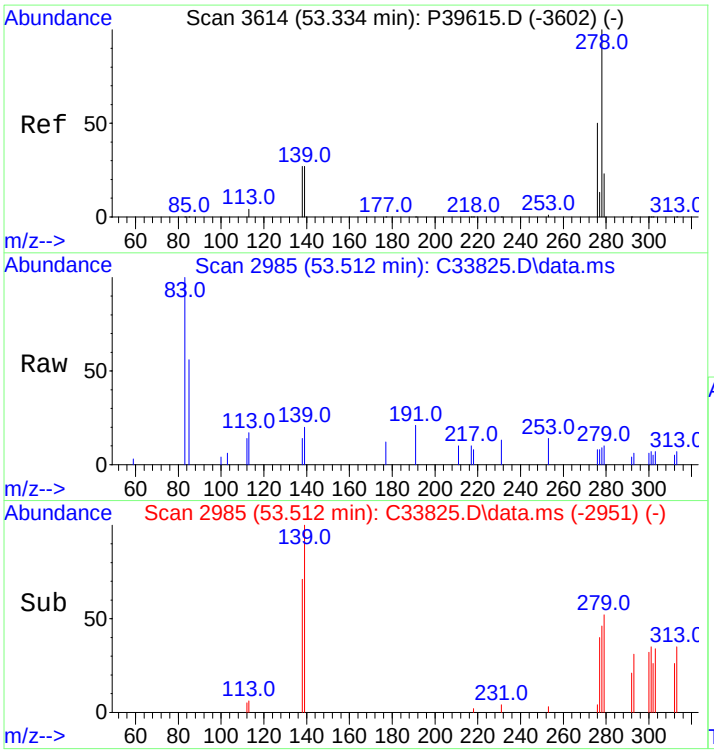


#89
Indeno[1,2,3-cd]pyrene
Concen: 3.57 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 401

Ion	Ratio	Lower	Upper
276	100		
138	0.0	30.3	45.5#
277	0.0	19.2	28.8#

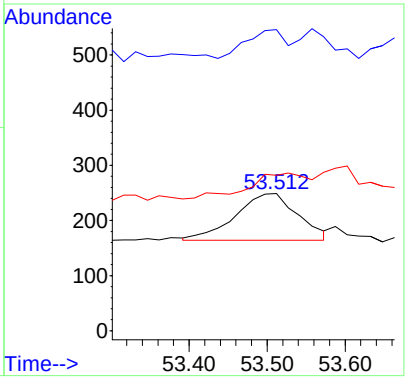


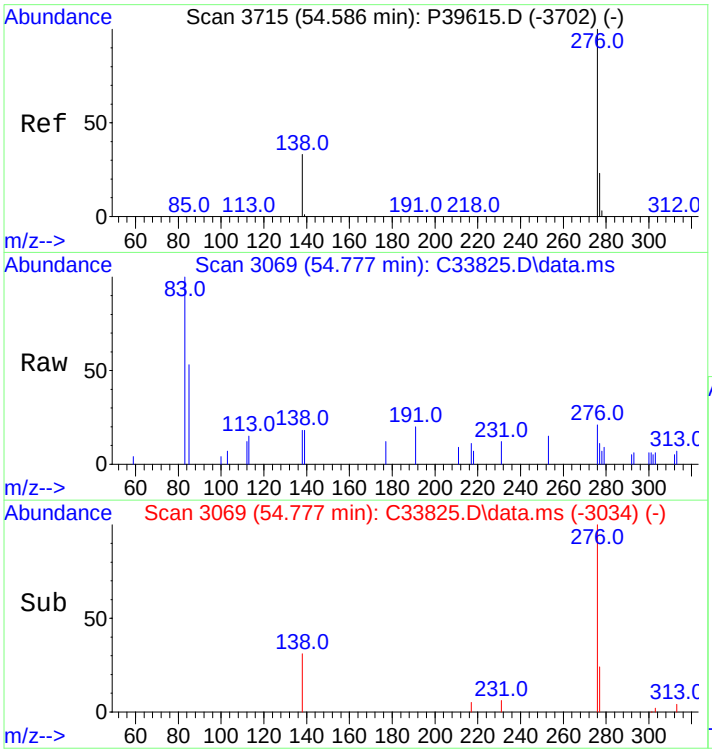


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.42 ng/mL m
RT: 53.512 min Scan# 2985
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:278 Resp: 473

Ion	Ratio	Lower	Upper
278	100		
139	0.0	25.4	38.2#
279	0.0	19.0	28.4#

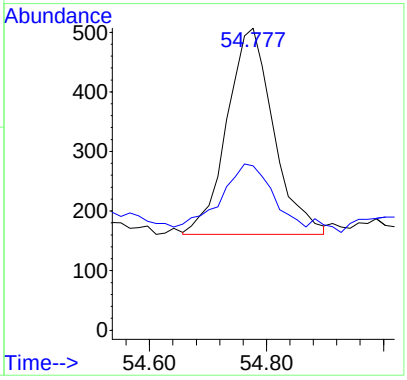


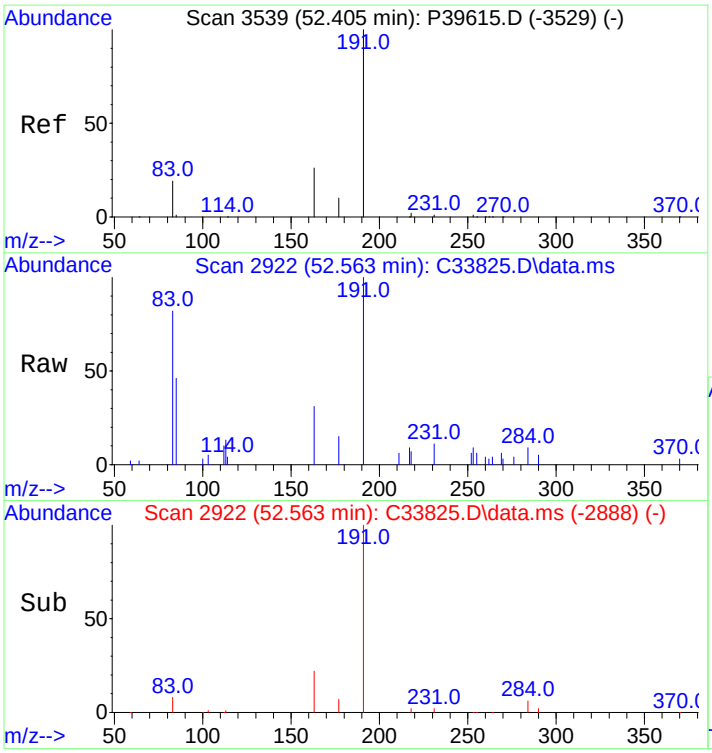


#91
Benzo[g,h,i]perylene
Concen: 16.06 ng/mL m
RT: 54.777 min Scan# 3069
Delta R.T. 0.030 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:276 Resp: 1907

Ion	Ratio	Lower	Upper
276	100		
277	32.1	18.9	28.3#

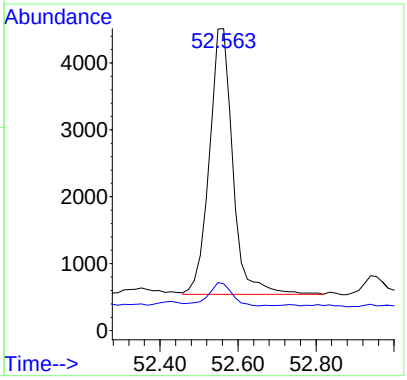


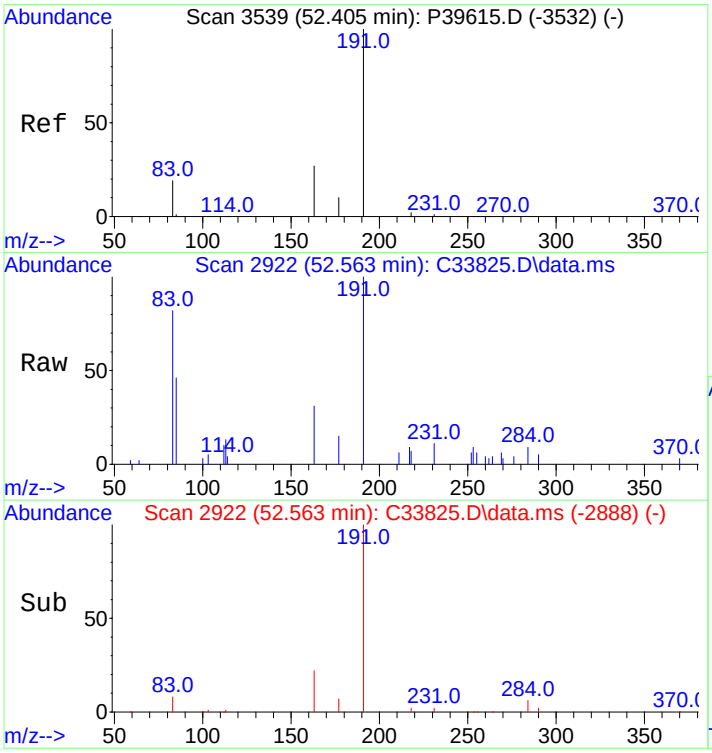


#92
Hopane (T19)
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

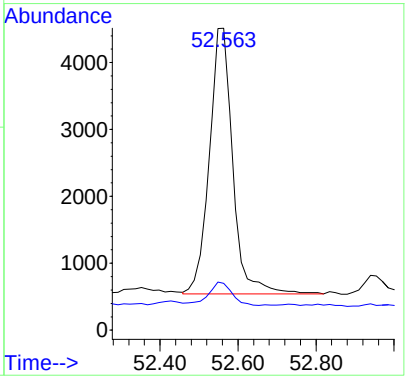


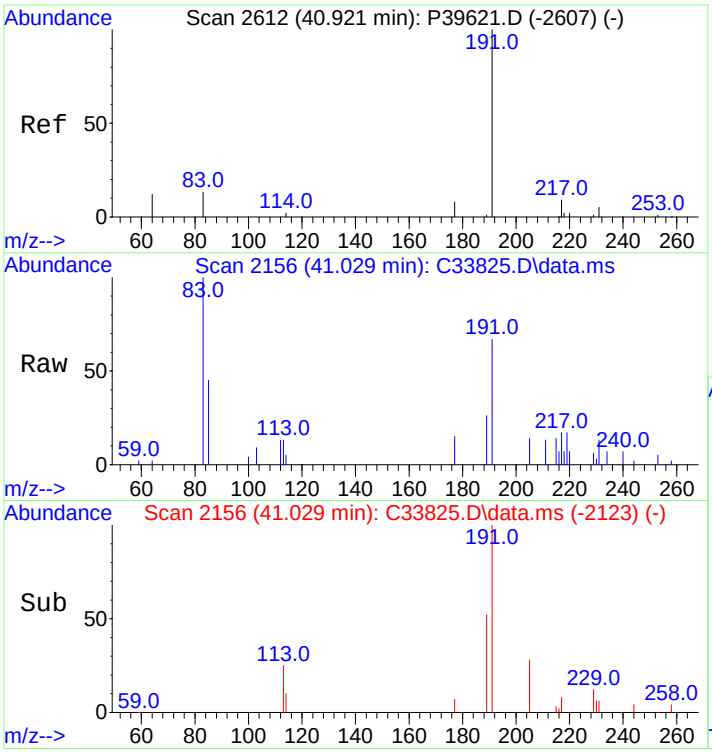


#93
17a(H),21B(H)-hopane - C30H52
Concen: 863.67 ng/mL
RT: 52.563 min Scan# 2922
Delta R.T. 0.015 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 16554

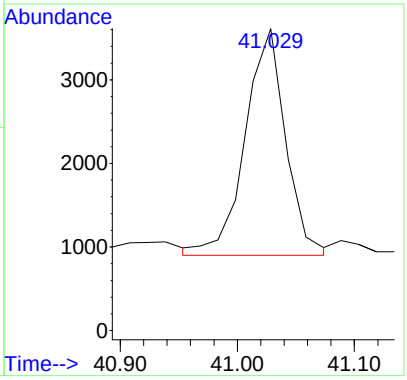
Ion	Ratio	Lower	Upper
191	100		
177	8.6	11.5	17.3#

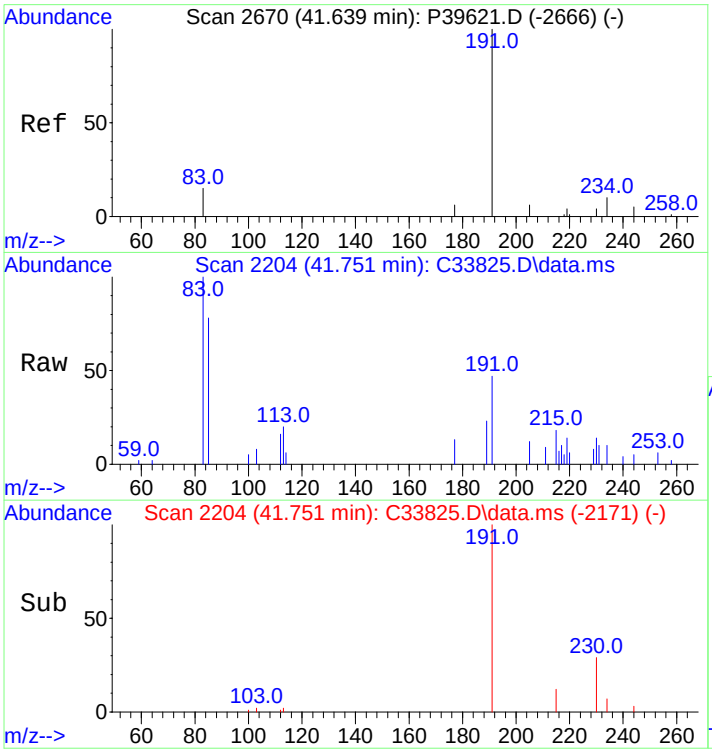




#94
C23 Tricyclic Terpane (T4)
Concen: 339.23 ng/ml m
RT: 41.029 min Scan# 2156
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

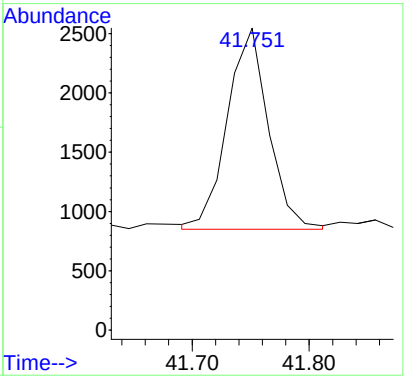
Tgt Ion:191 Resp: 6502

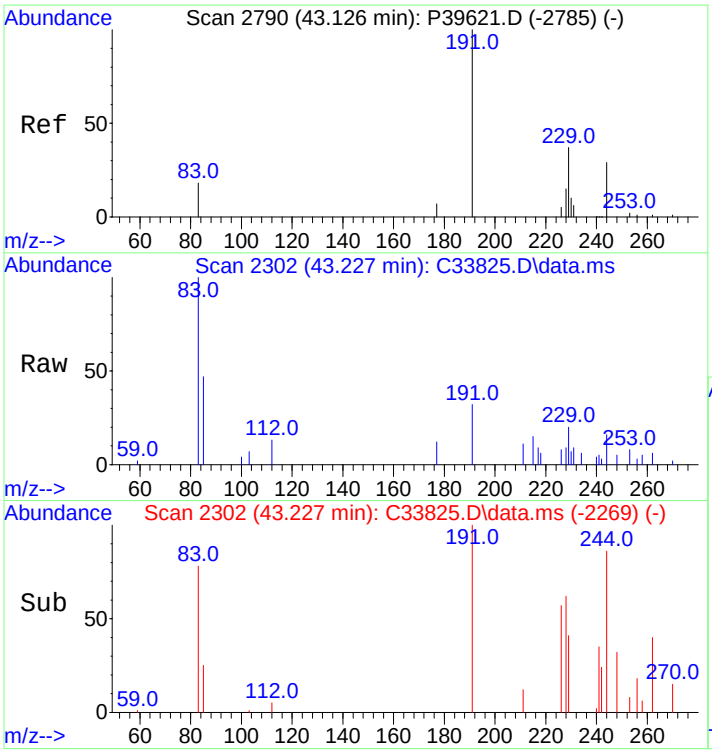




#95
C24 Tricyclic Terpane (T5)
Concen: 215.94 ng/ml m
RT: 41.751 min Scan# 2204
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

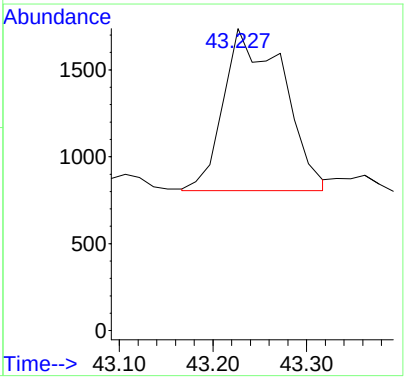
Tgt Ion:191 Resp: 4139

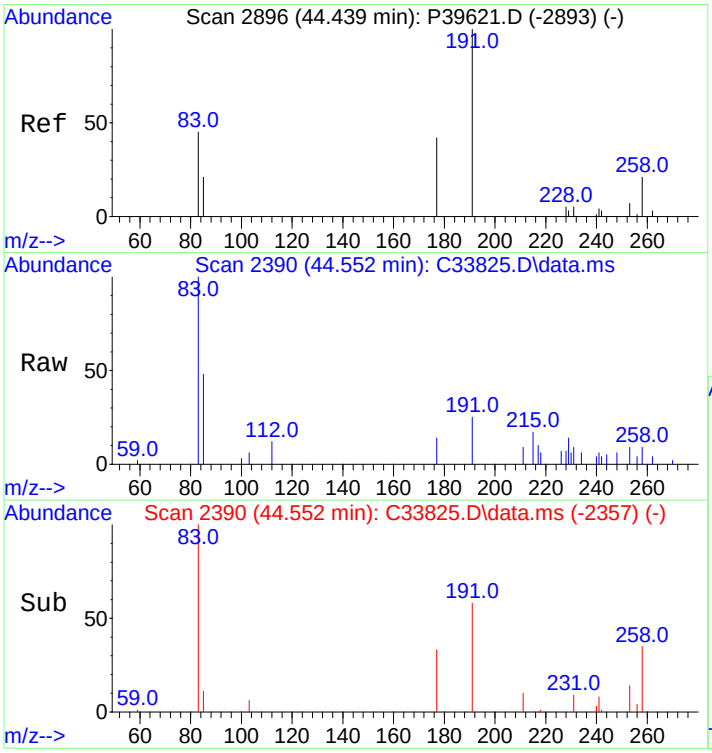




#96
C25 Tricyclic Terpane (T6)
Concen: 215.42 ng/ml m
RT: 43.227 min Scan# 2302
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

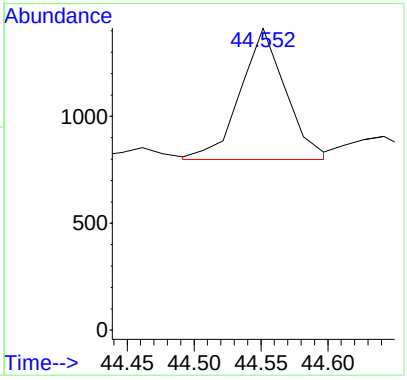
Tgt Ion:191 Resp: 4129

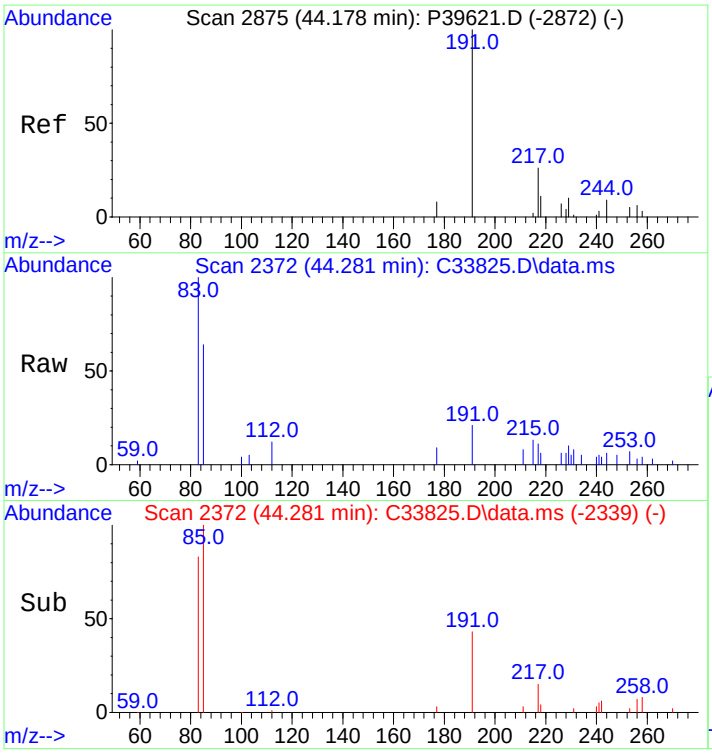




#97
C24 Tetracyclic Terpane (T6a)
Concen: 75.65 ng/ml m
RT: 44.552 min Scan# 2390
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

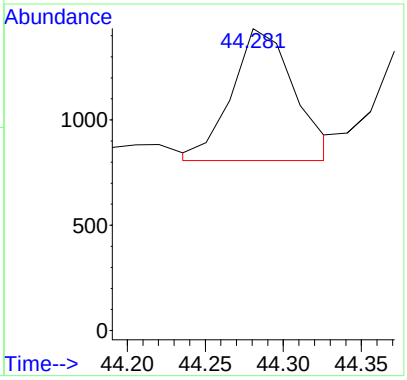
Tgt Ion:191 Resp: 1450

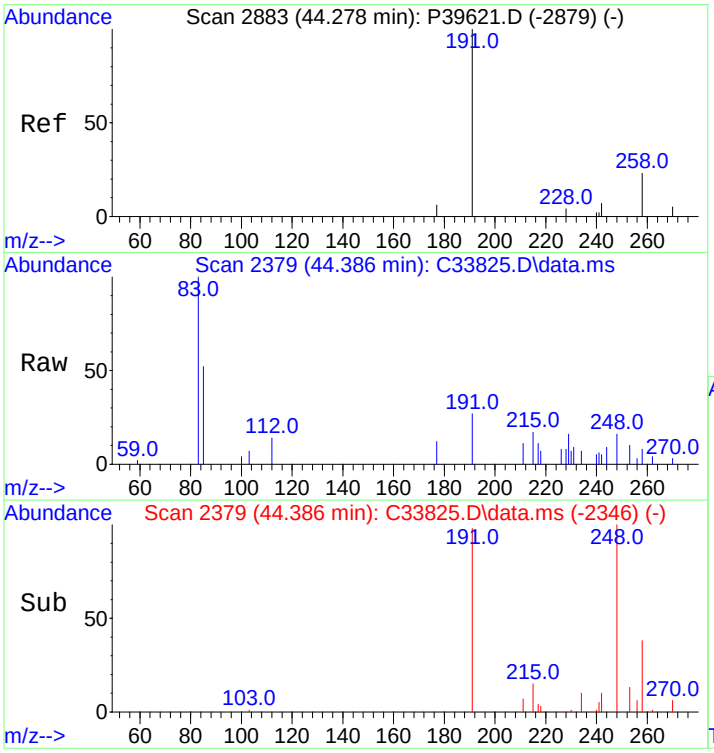




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 91.30 ng/ml m
RT: 44.281 min Scan# 2372
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

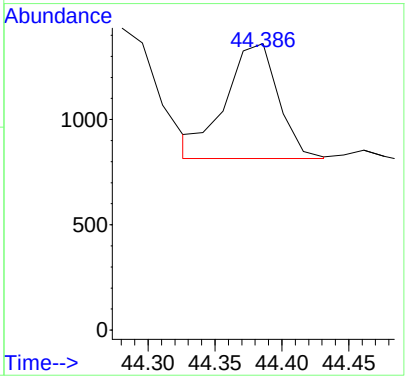
Tgt Ion:191 Resp: 1750

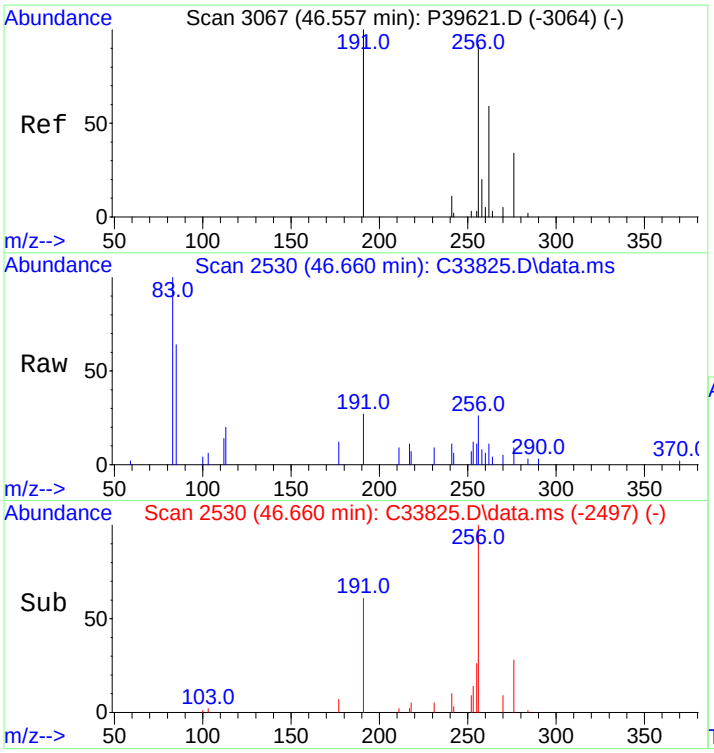




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 78.10 ng/ml m
RT: 44.386 min Scan# 2379
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

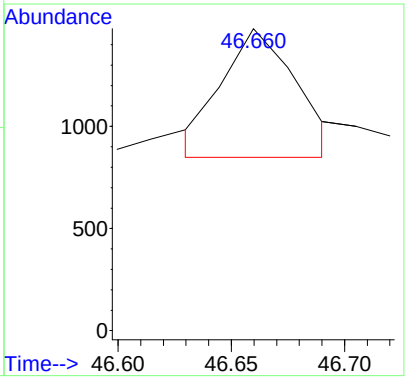
Tgt Ion:191 Resp: 1497

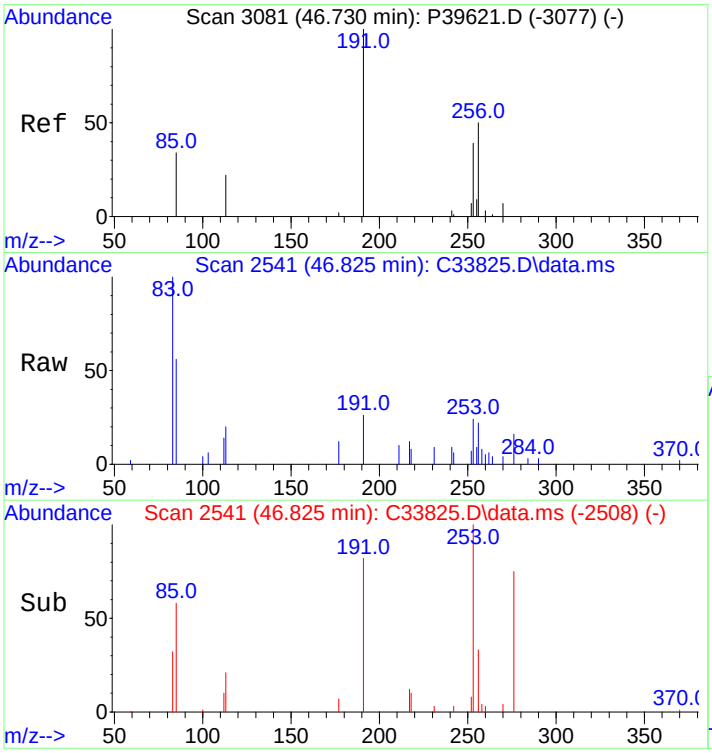




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 74.87 ng/ml m
RT: 46.660 min Scan# 2530
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

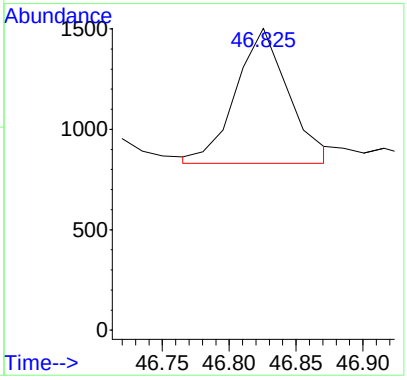
Tgt Ion:191 Resp: 1435

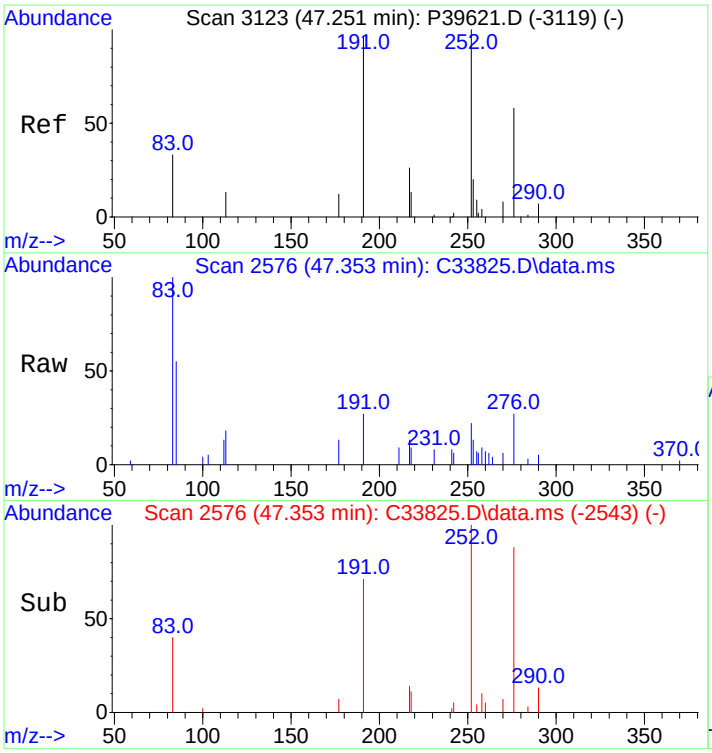




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 96.36 ng/ml m
RT: 46.825 min Scan# 2541
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

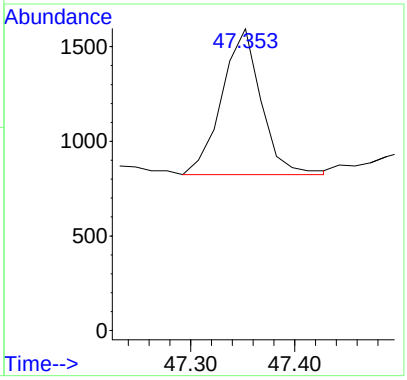
Tgt Ion:191 Resp: 1847

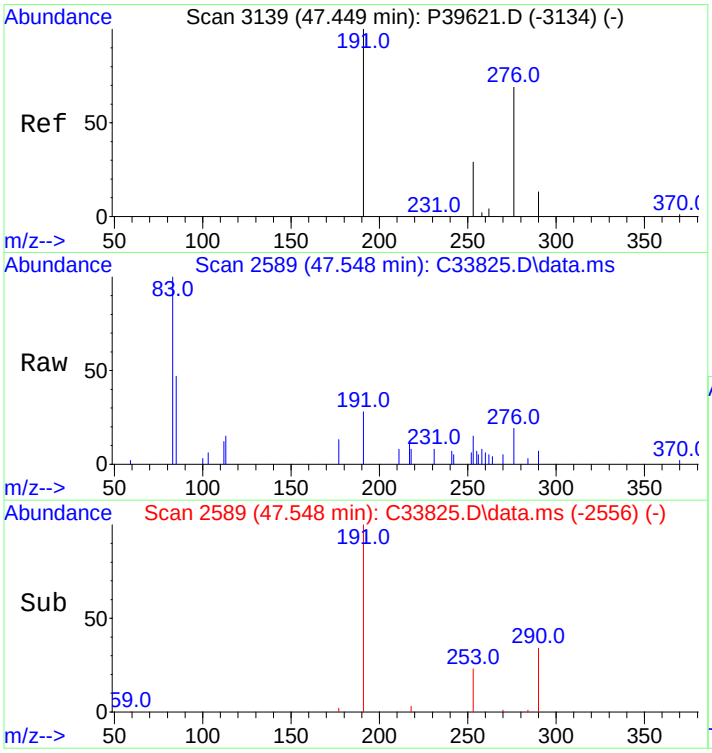




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 106.33 ng/ml
RT: 47.353 min Scan# 2576
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

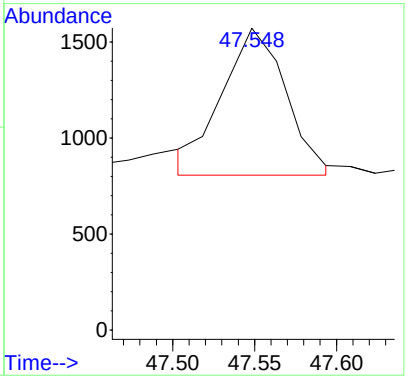
Tgt Ion:191 Resp: 2038

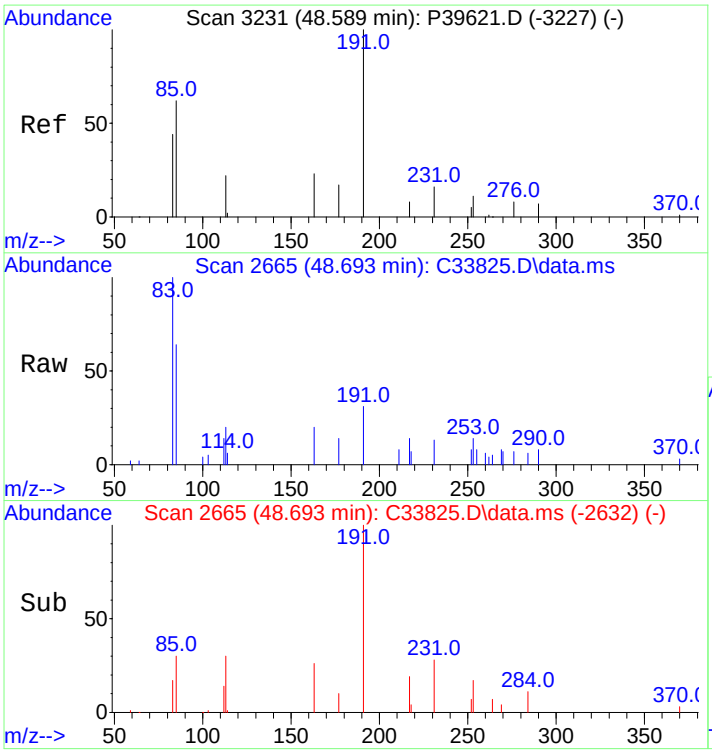




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 108.41 ng/ml m
RT: 47.548 min Scan# 2589
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

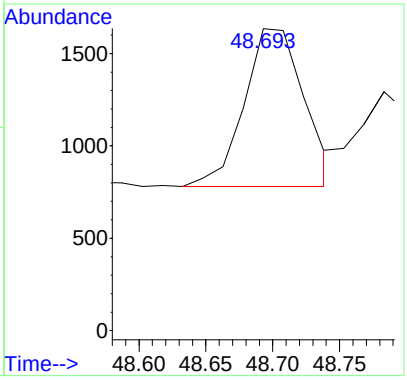
Tgt Ion:191 Resp: 2078

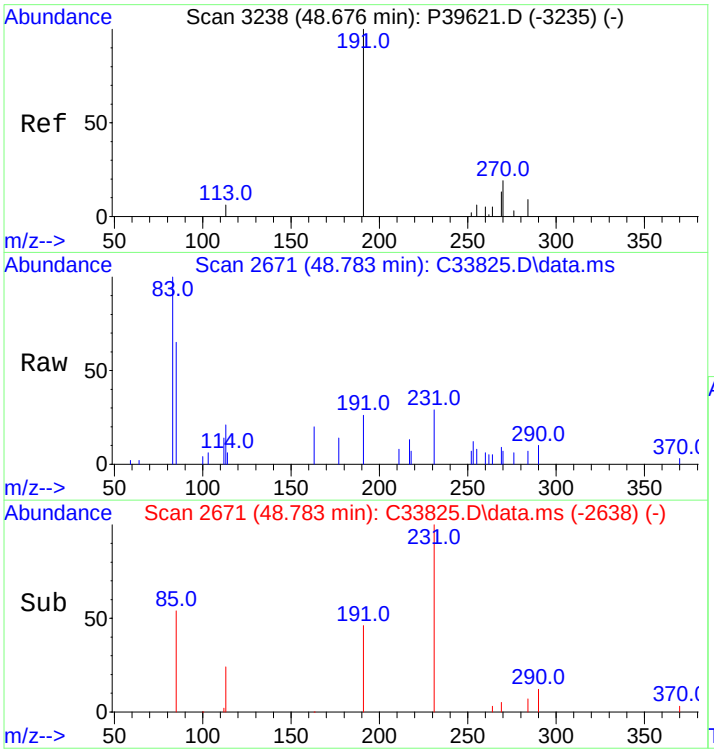




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 139.41 ng/ml
RT: 48.693 min Scan# 2665
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

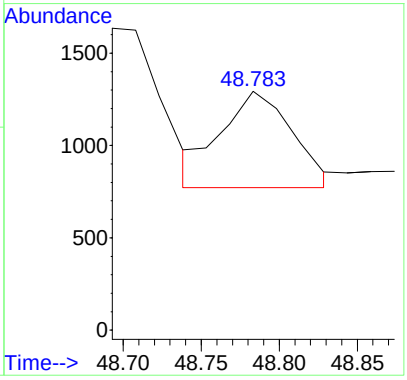
Tgt Ion:191 Resp: 2672

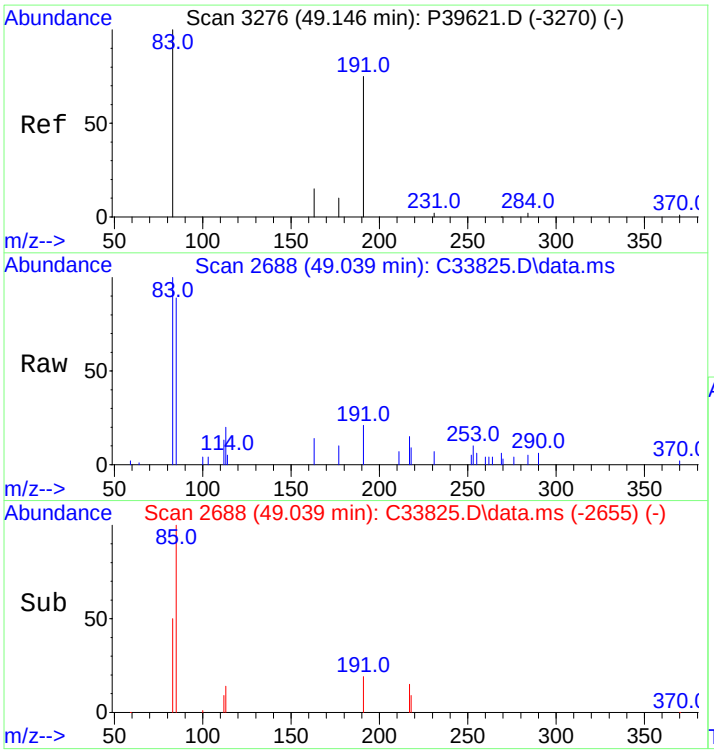




#105
C30 Tricyclic Terpane-22S
Concen: 86.55 ng/mL m
RT: 48.783 min Scan# 2671
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

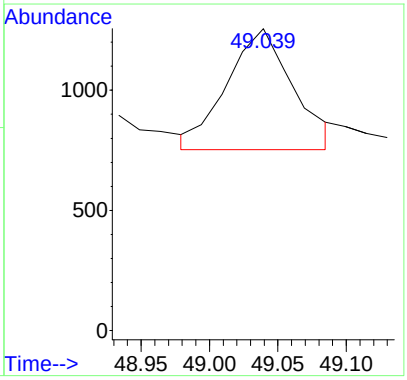
Tgt Ion:191 Resp: 1659

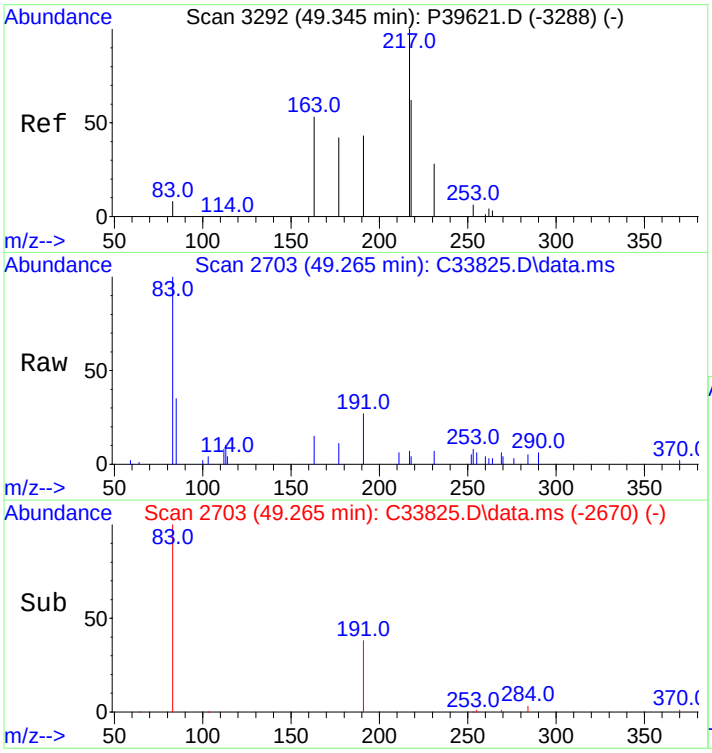




#106
C30 Tricyclic Terpane-22R
Concen: 88.02 ng/mL m
RT: 49.039 min Scan# 2688
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

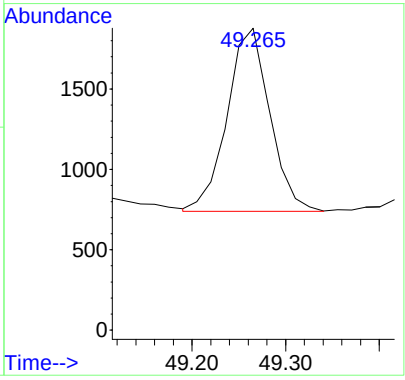
Tgt Ion:191 Resp: 1687

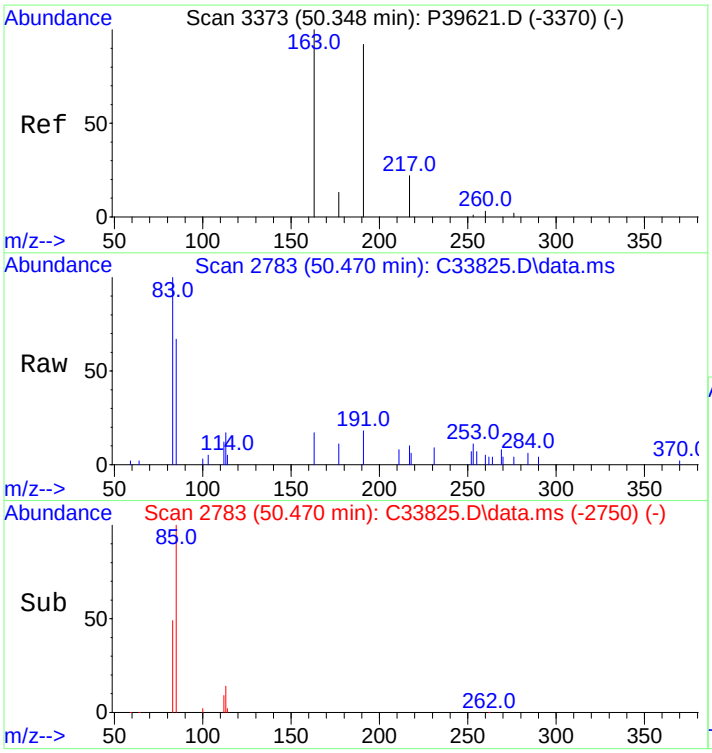




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 188.24 ng/ml m
RT: 49.265 min Scan# 2703
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

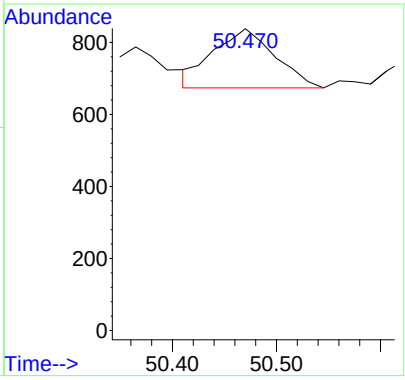
Tgt Ion:191 Resp: 3608

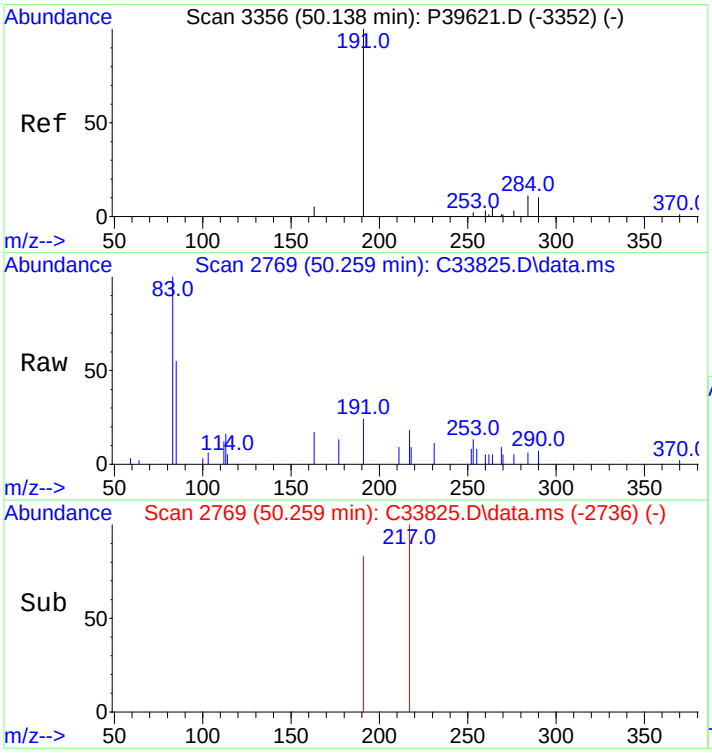




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 35.27 ng/ml
RT: 50.470 min Scan# 2783
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

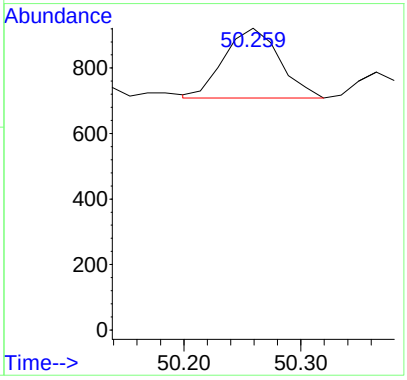
Tgt Ion:191 Resp: 676

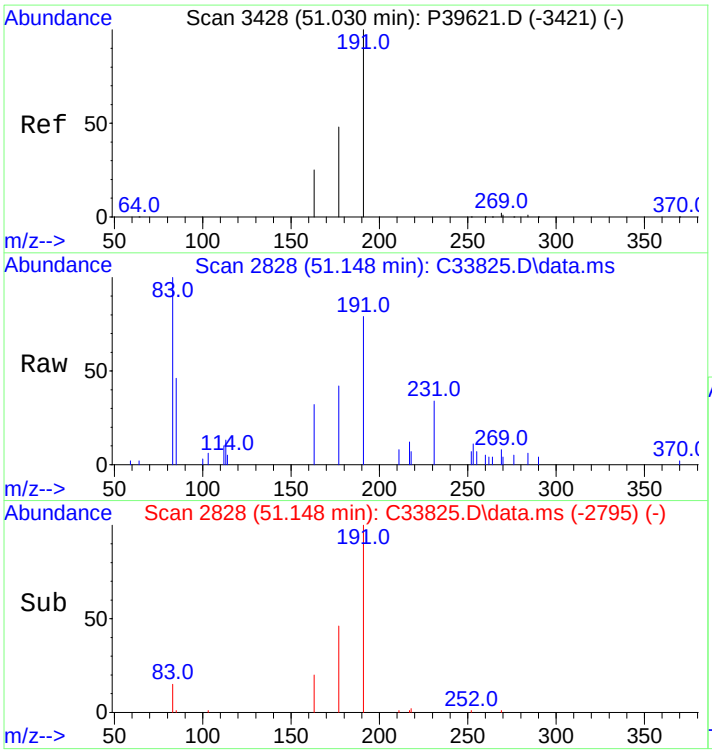




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 36.83 ng/ml
RT: 50.259 min Scan# 2769
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

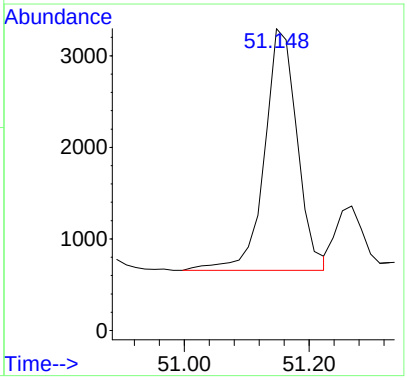
Tgt Ion:191 Resp: 706

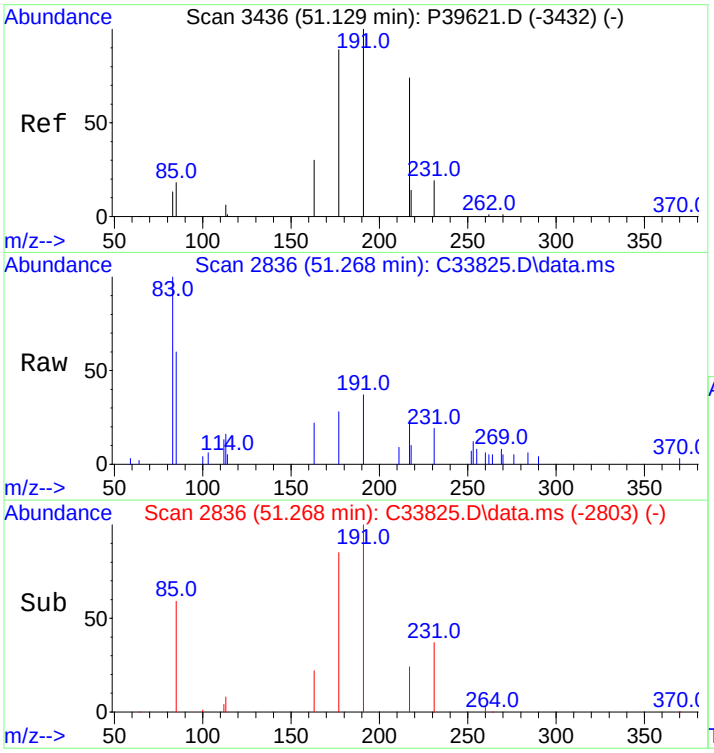




#110
30-Norhopane (T15)
Concen: 501.48 ng/ml
RT: 51.148 min Scan# 2828
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

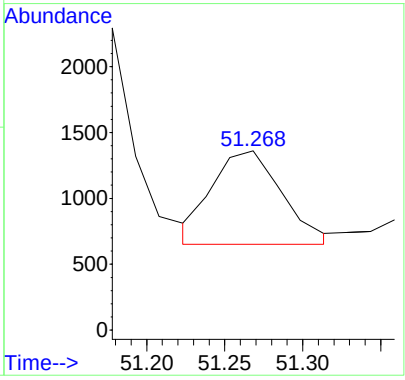
Tgt Ion:191 Resp: 9612

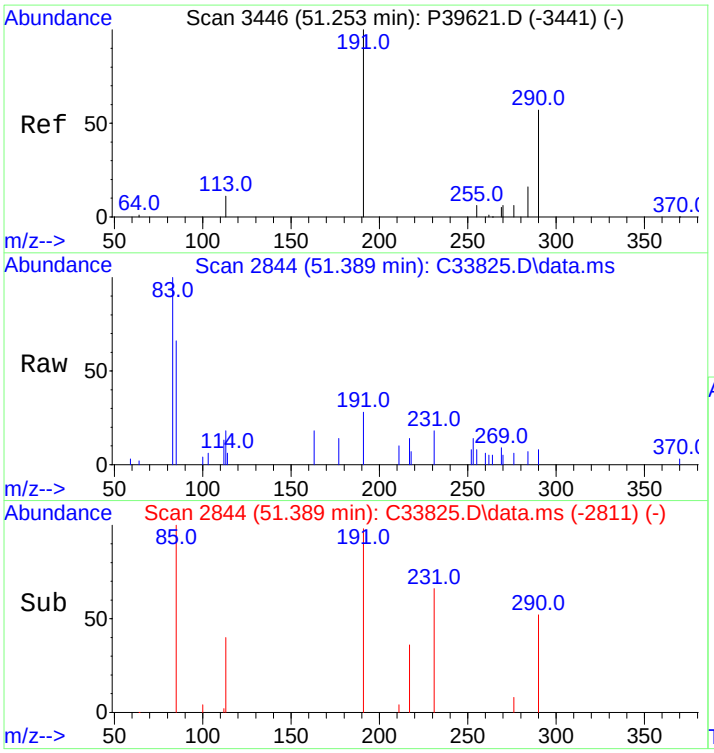




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 115.61 ng/ml m
RT: 51.268 min Scan# 2836
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

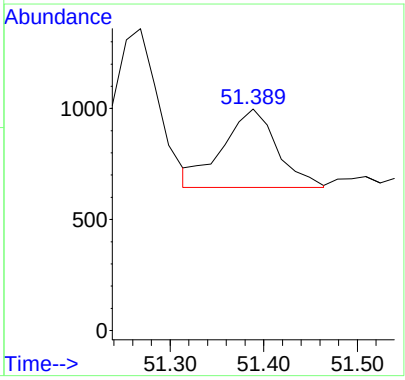
Tgt Ion:191 Resp: 2216

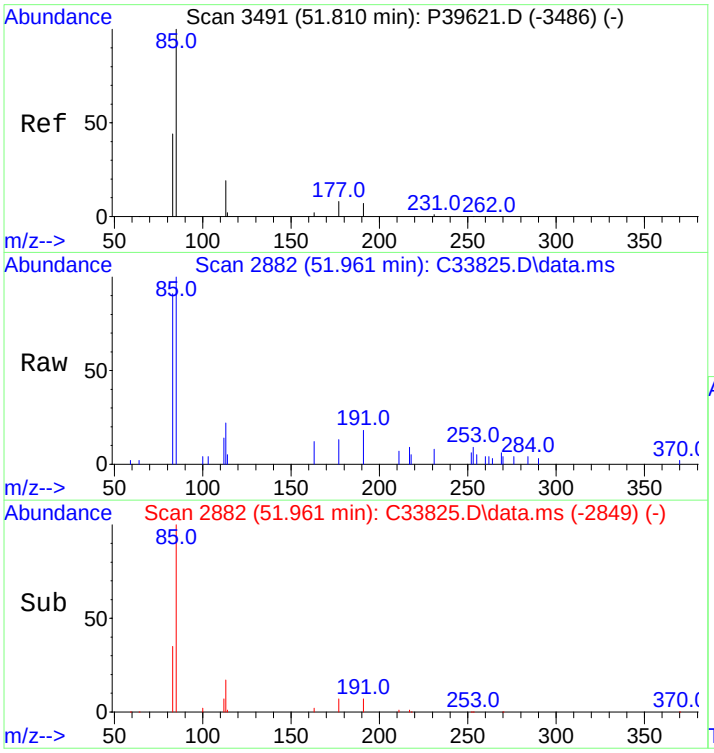




#112
17a(H)-Diahopane (X)
Concen: 74.09 ng/ml m
RT: 51.389 min Scan# 2844
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

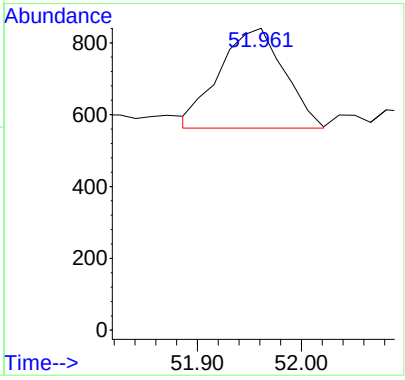
Tgt Ion:191 Resp: 1420

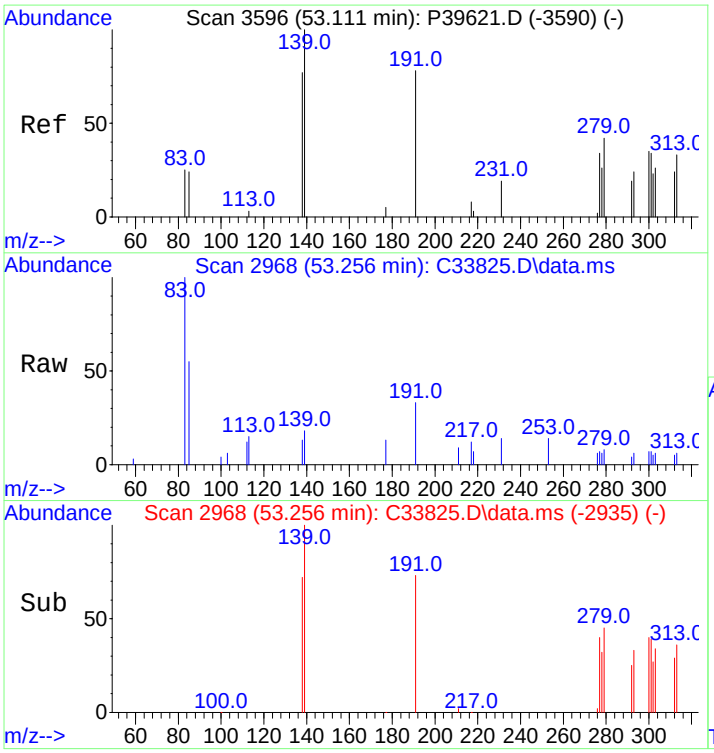




#113
30-Normoretane (T17)
Concen: 62.76 ng/ml m
RT: 51.961 min Scan# 2882
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

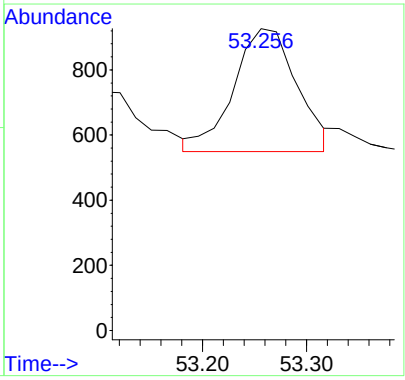
Tgt Ion:191 Resp: 1203

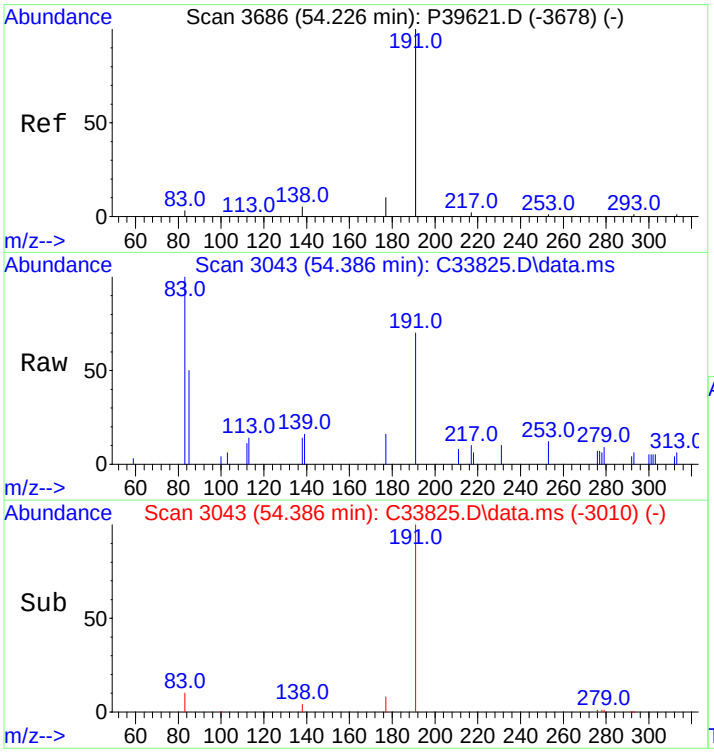




#115
Moretane (T20)
Concen: 83.79 ng/ml m
RT: 53.256 min Scan# 2968
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

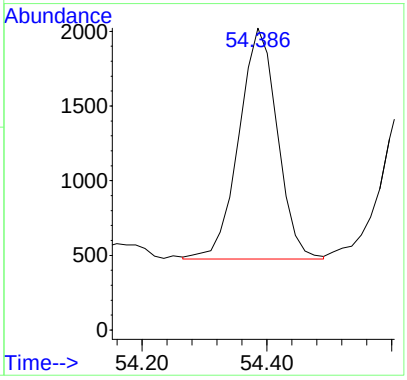
Tgt Ion:191 Resp: 1606

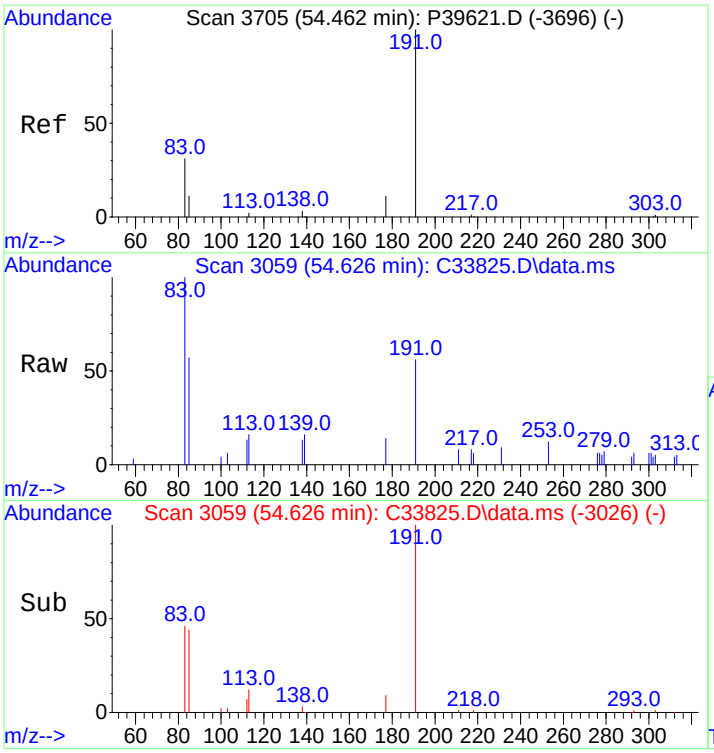




#116
30-Homohopane-22S (T21)
Concen: 346.27 ng/ml m
RT: 54.386 min Scan# 3043
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

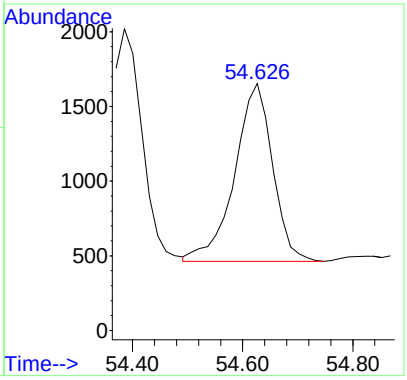
Tgt Ion:191 Resp: 6637

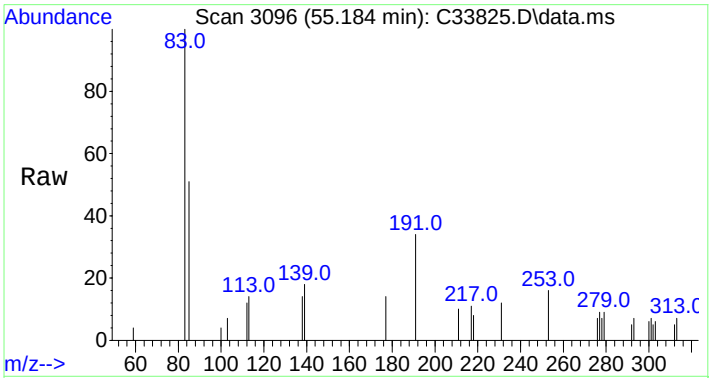




#117
30-Homohopane-22R (T22)
Concen: 296.34 ng/ml
RT: 54.626 min Scan# 3059
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

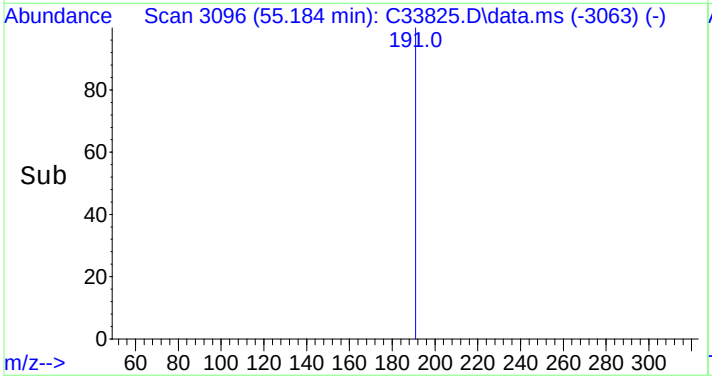
Tgt Ion:191 Resp: 5680

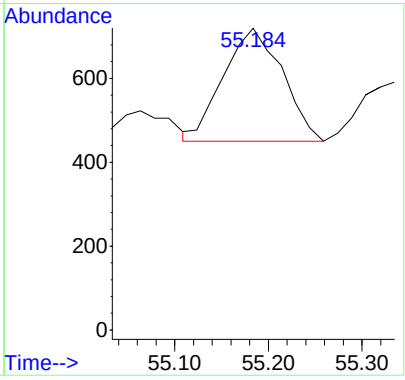


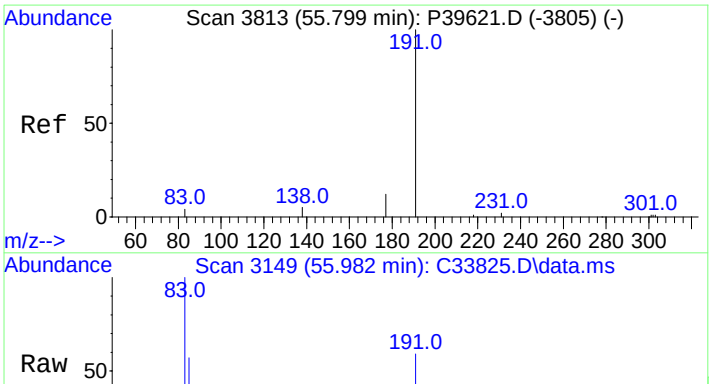


#118
Gammacerane/C32-diahopane
Concen: 61.62 ng/mL
RT: 55.184 min Scan# 3096
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 1181

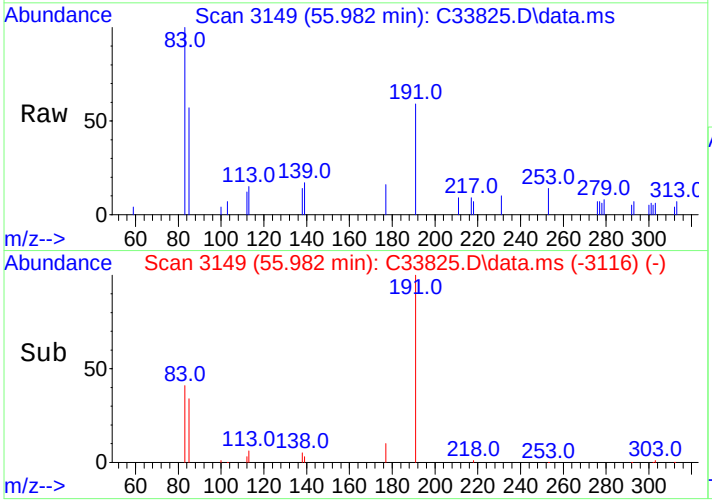


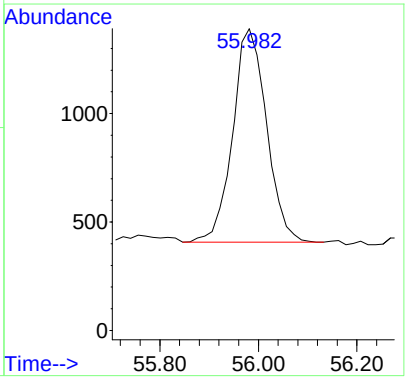


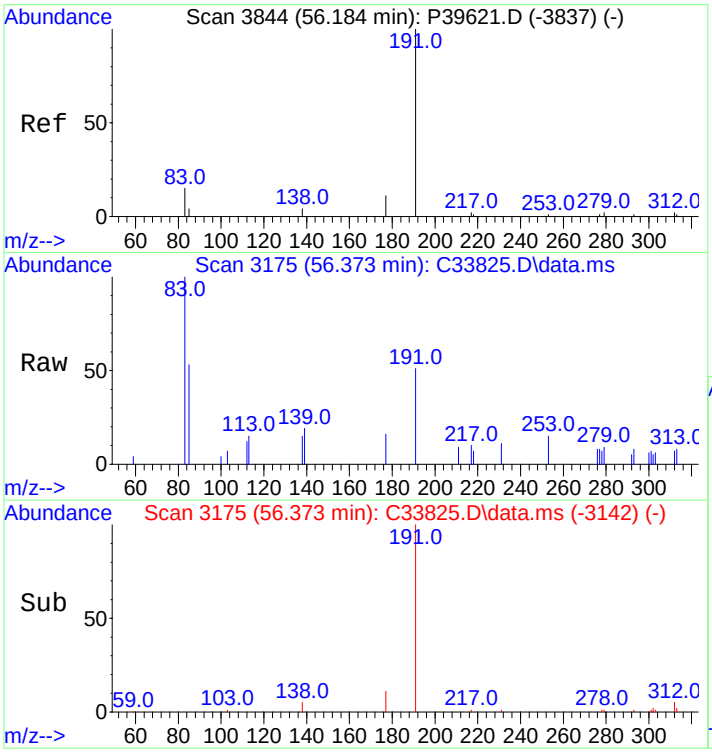


#119
30,31-Bishomohopane-22S (T26)
Concen: 244.90 ng/ml
RT: 55.982 min Scan# 3149
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:191 Resp: 4694

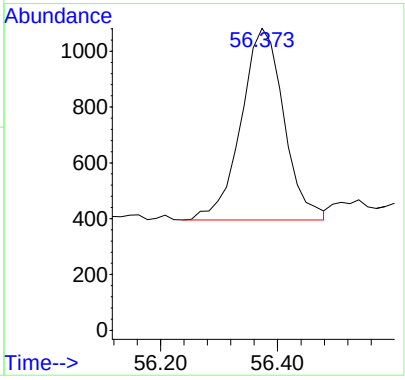


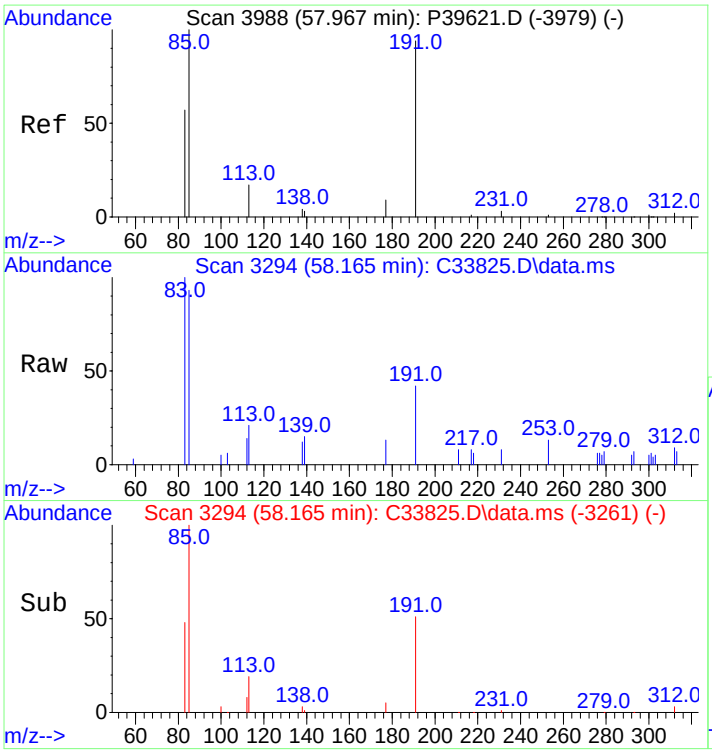




#120
30,31-Bishomohopane-22R (T27)
Concen: 182.14 ng/ml
RT: 56.373 min Scan# 3175
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

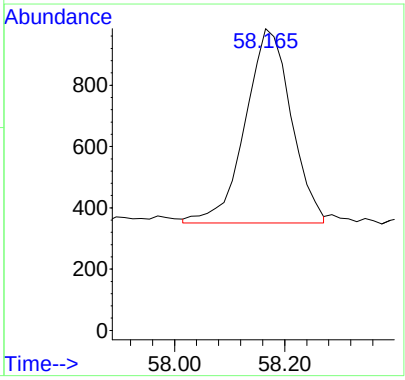
Tgt Ion:191 Resp: 3491

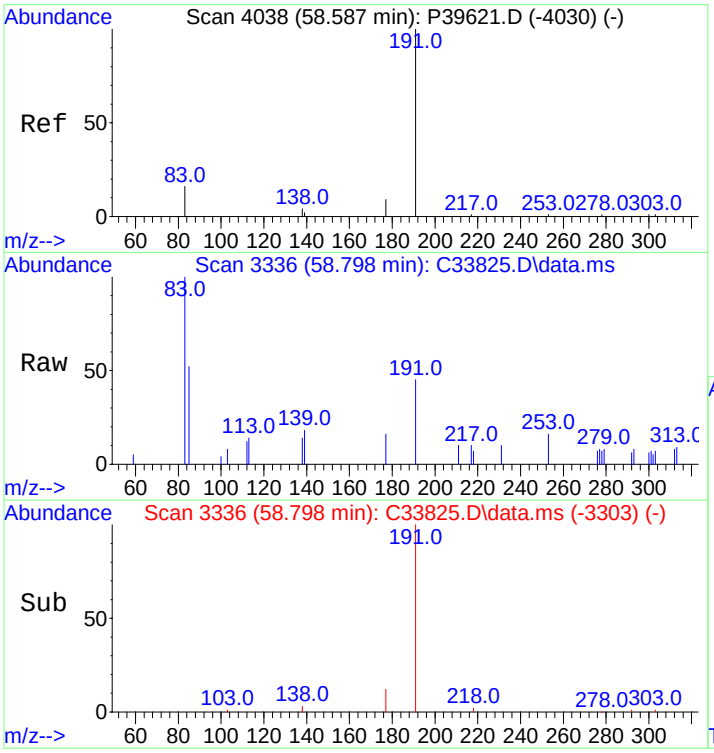




#121
30,31-Trishomohopane-22S (T30)
Concen: 191.21 ng/ml m
RT: 58.165 min Scan# 3294
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

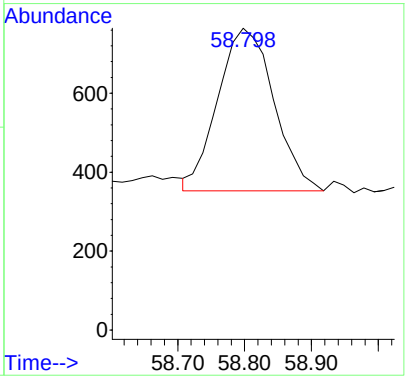
Tgt Ion:191 Resp: 3665

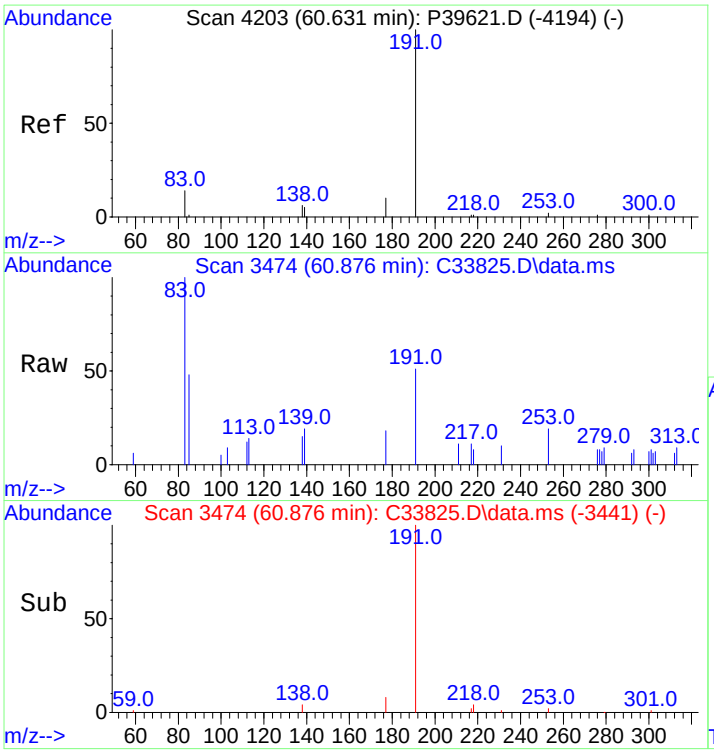




#122
30,31-Trishomohopane-22R (T31)
Concen: 124.85 ng/ml
RT: 58.798 min Scan# 3336
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

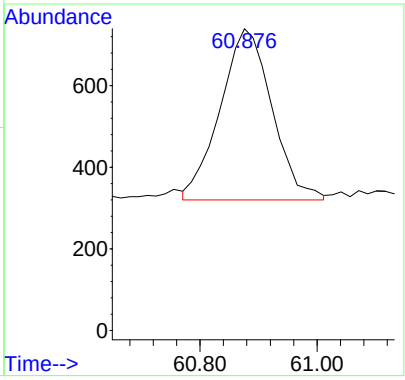
Tgt Ion:191 Resp: 2393

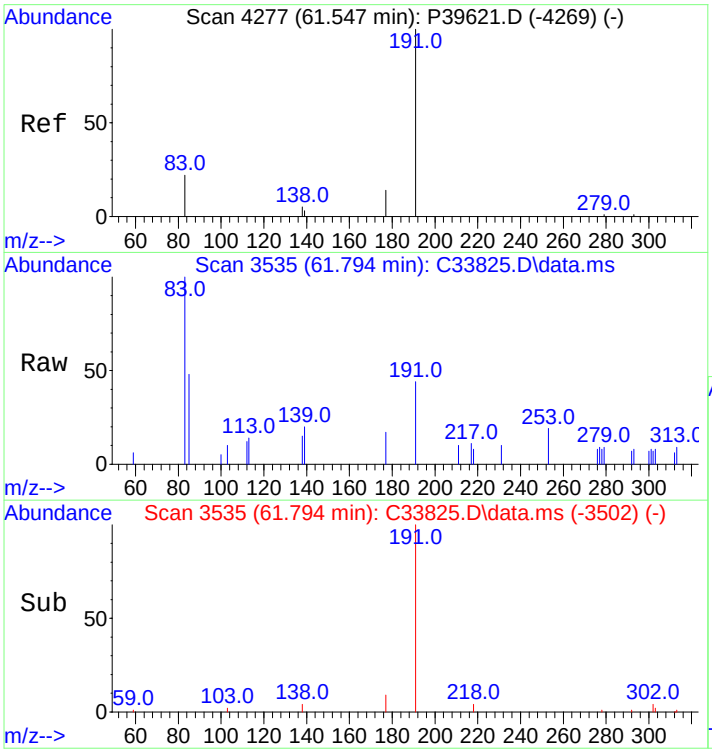




#123
Tetrakishomohopane-22S (T32)
Concen: 134.08 ng/ml m
RT: 60.876 min Scan# 3474
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

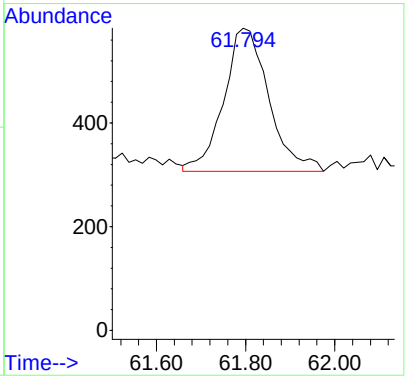
Tgt Ion:191 Resp: 2570

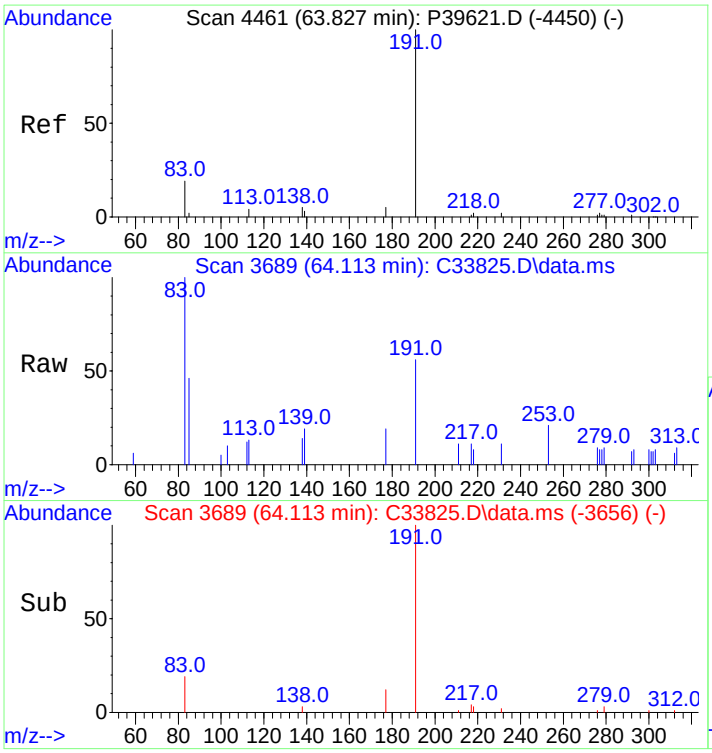




#124
Tetrakishomohopane-22R (T33)
Concen: 101.06 ng/ml
RT: 61.794 min Scan# 3535
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

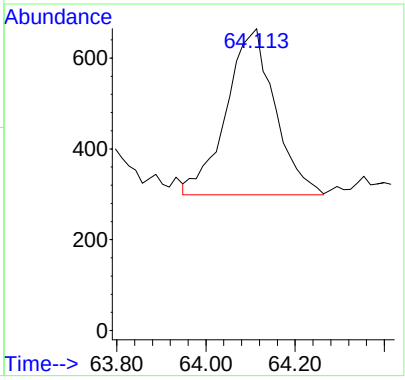
Tgt Ion:191 Resp: 1937

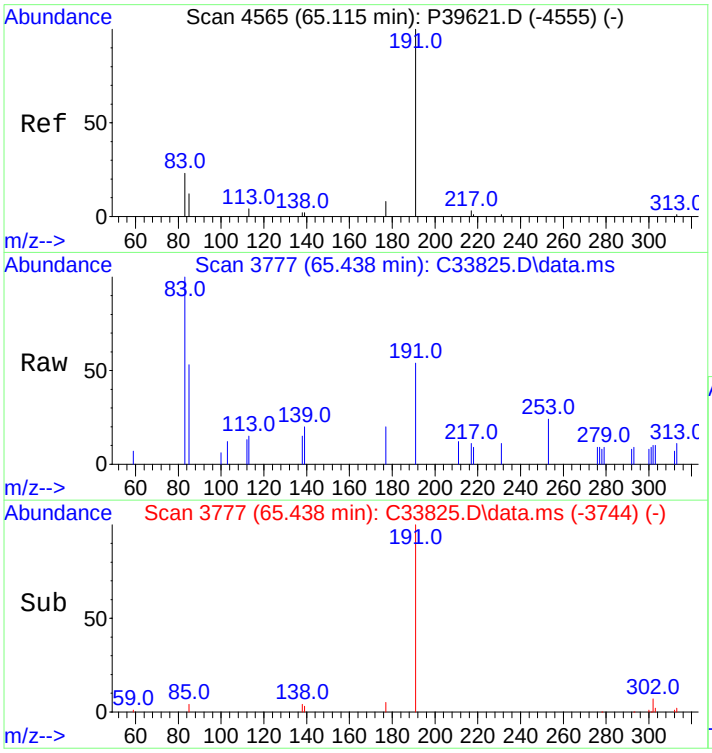




#125
Pentakishomohopane-22S (T34)
Concen: 144.31 ng/ml m
RT: 64.113 min Scan# 3689
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

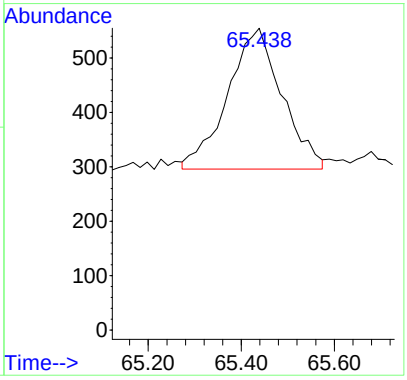
Tgt Ion:191 Resp: 2766

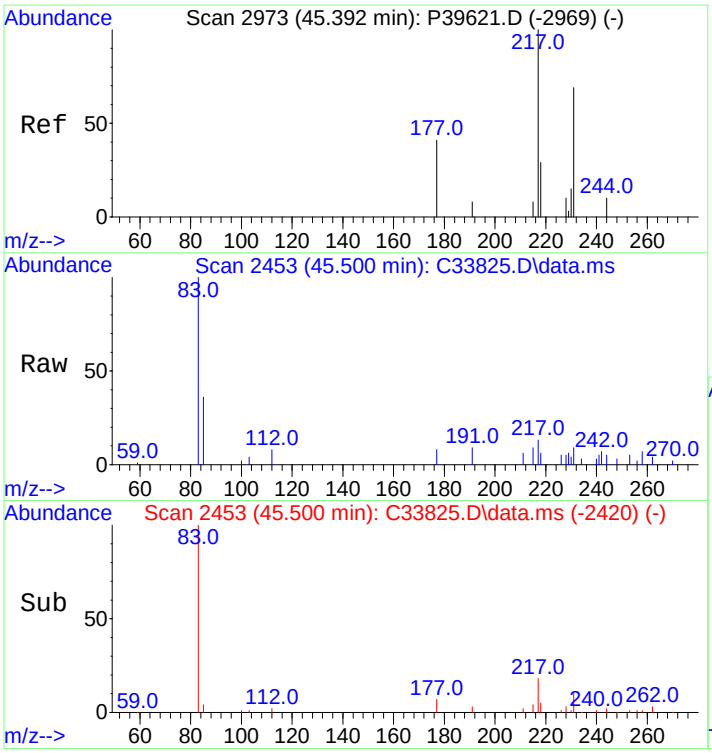




#126
Pentakishomohopane-22R (T35)
Concen: 109.25 ng/ml m
RT: 65.438 min Scan# 3777
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

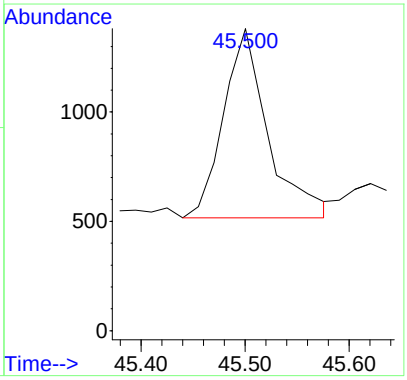
Tgt Ion:191 Resp: 2094

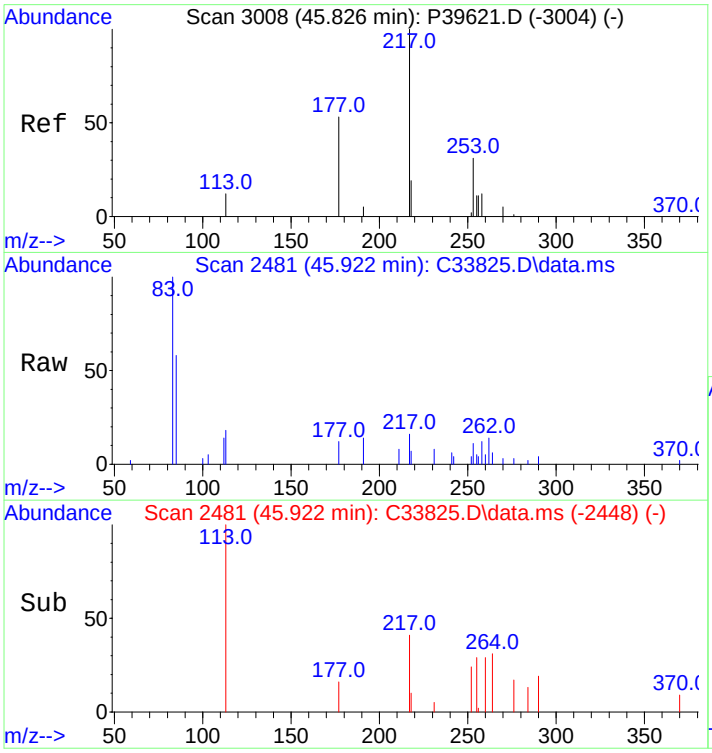




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 283.31 ng/ml
RT: 45.500 min Scan# 2453
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

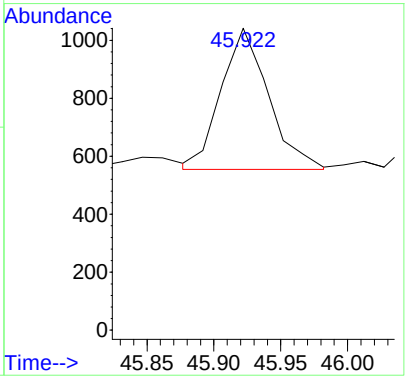
Tgt Ion:217 Resp: 2576

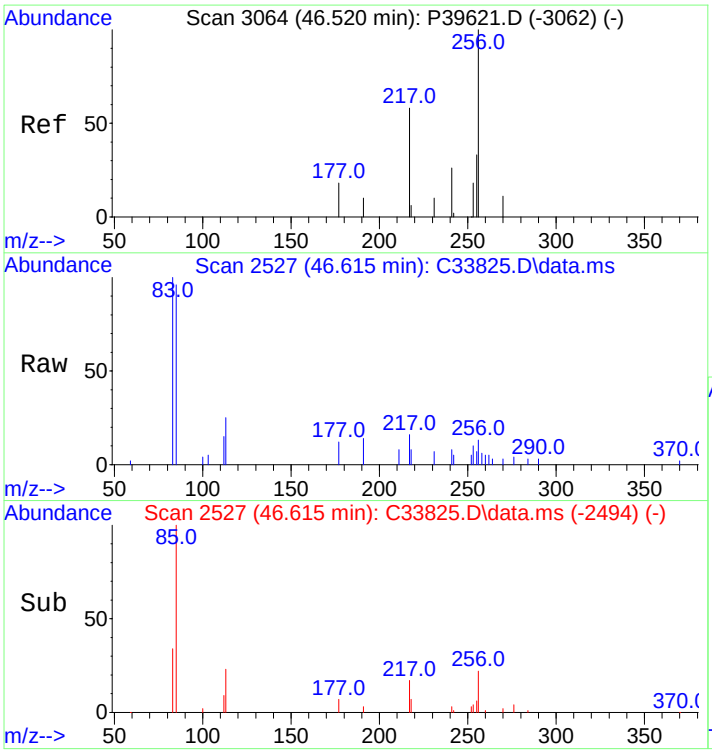




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 131.54 ng/ml m
RT: 45.922 min Scan# 2481
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

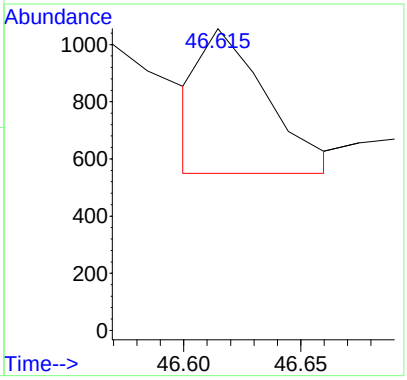
Tgt Ion:217 Resp: 1196

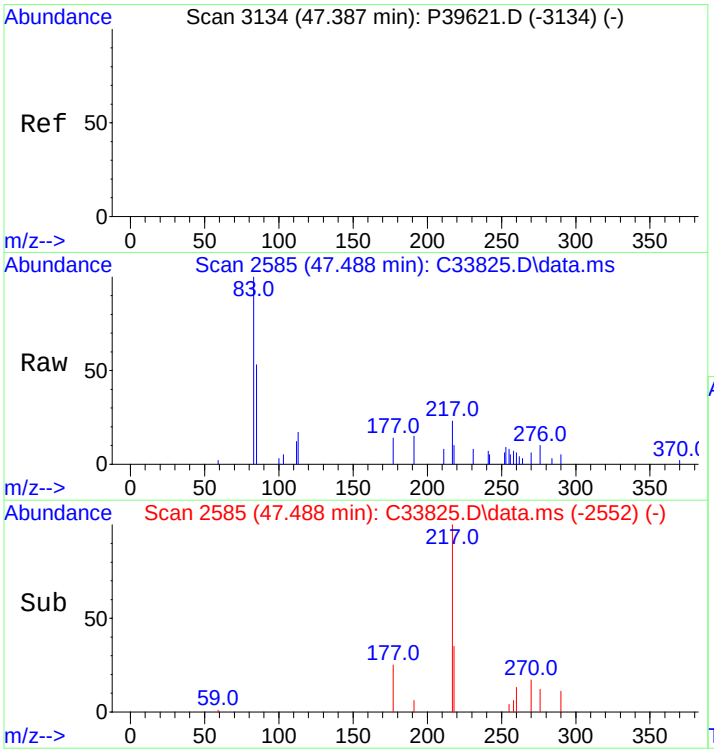




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 107.78 ng/ml m
RT: 46.615 min Scan# 2527
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

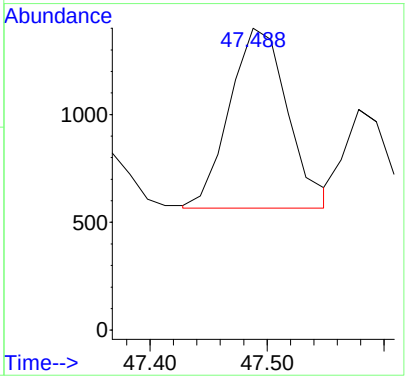
Tgt Ion:217 Resp: 980

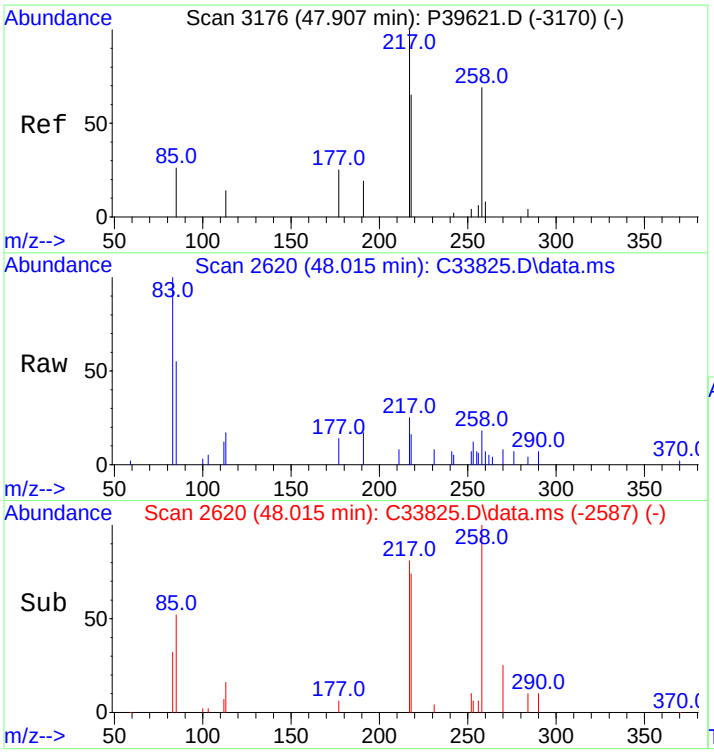




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 317.51 ng/ml m
RT: 47.488 min Scan# 2585
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

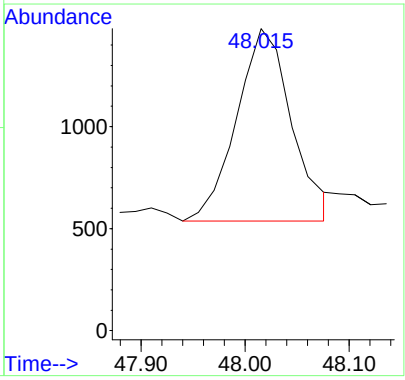
Tgt Ion:217 Resp: 2887

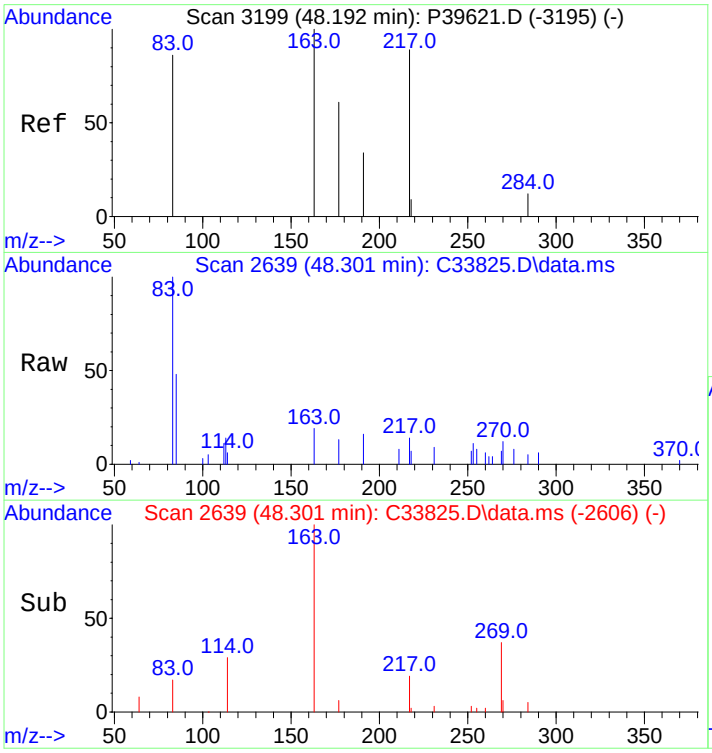




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 381.96 ng/ml m
RT: 48.015 min Scan# 2620
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

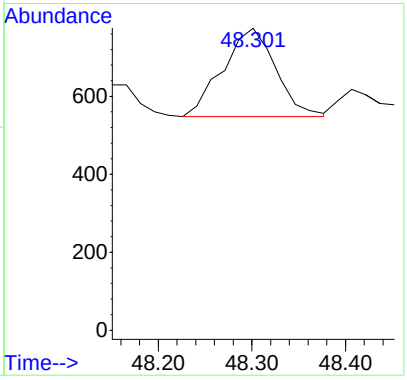
Tgt Ion:217 Resp: 3473

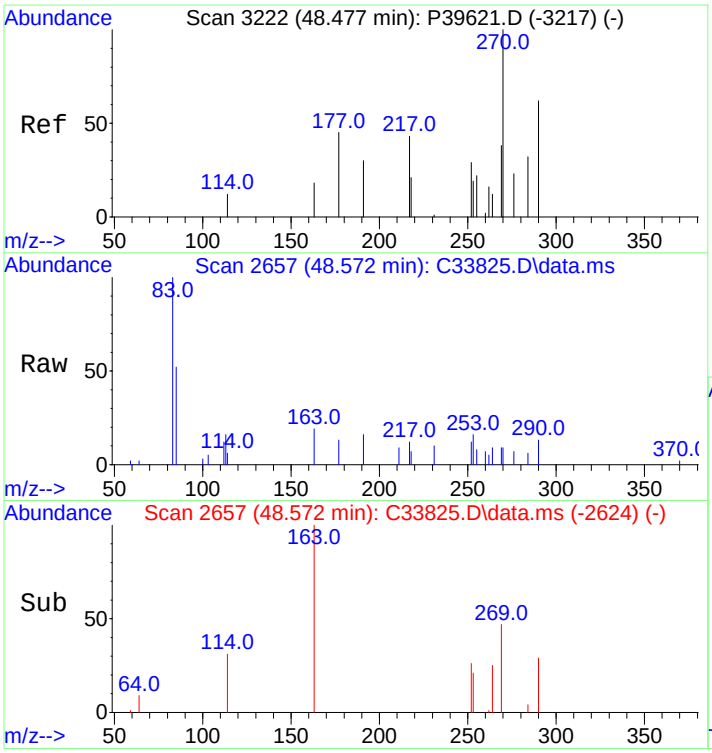




#133
Unknown Sterane (S18)
Concen: 98.10 ng/ml
RT: 48.301 min Scan# 2639
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

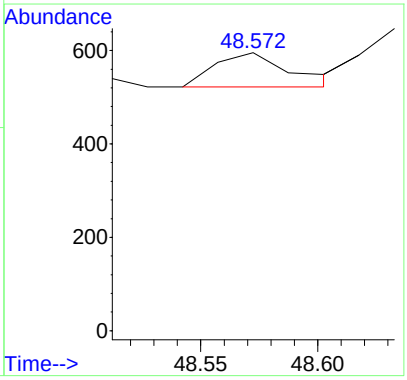
Tgt Ion:217 Resp: 892

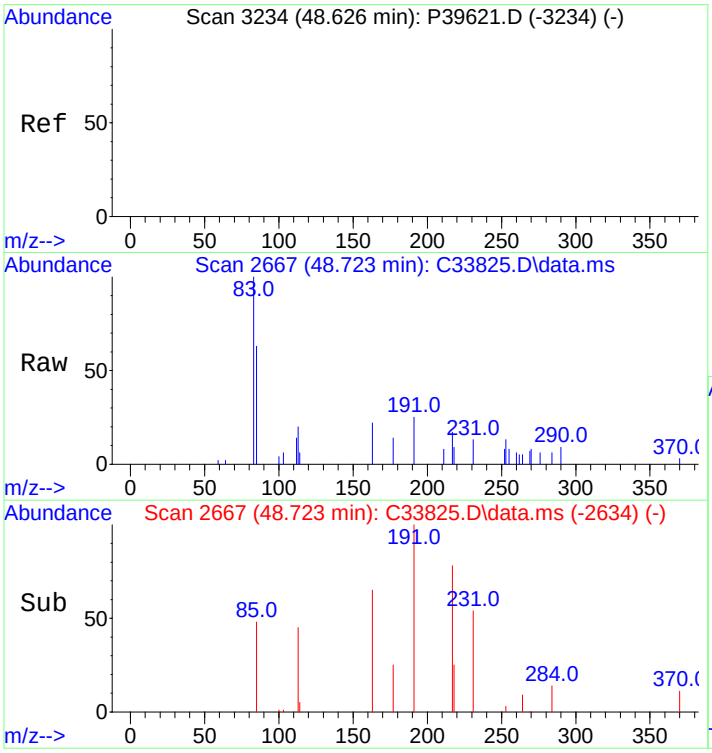




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 18.15 ng/ml
RT: 48.572 min Scan# 2657
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

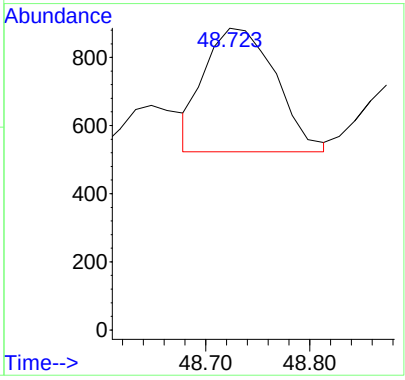
Tgt Ion:217 Resp: 165

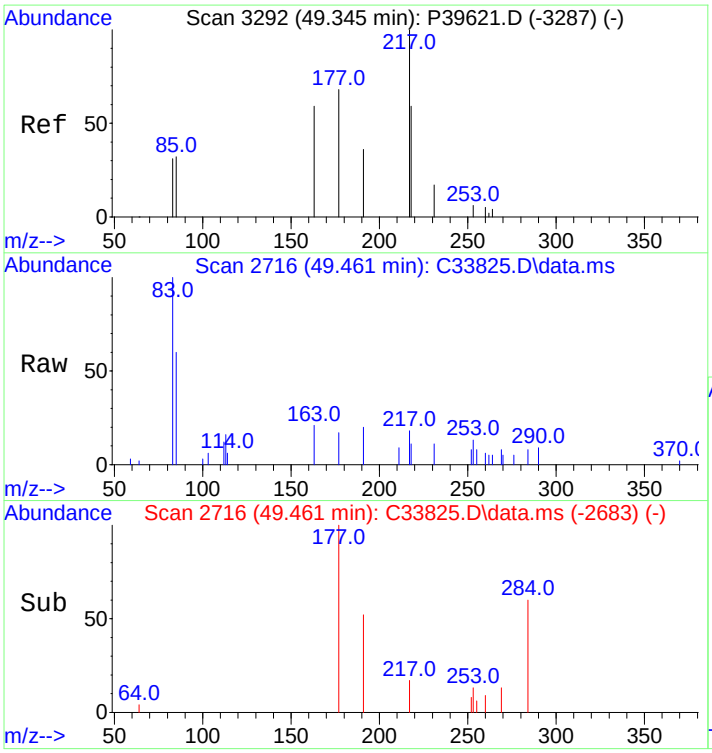




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 189.94 ng/ml m
RT: 48.723 min Scan# 2667
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

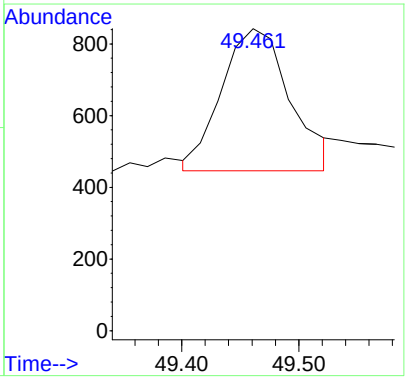
Tgt Ion:217 Resp: 1727

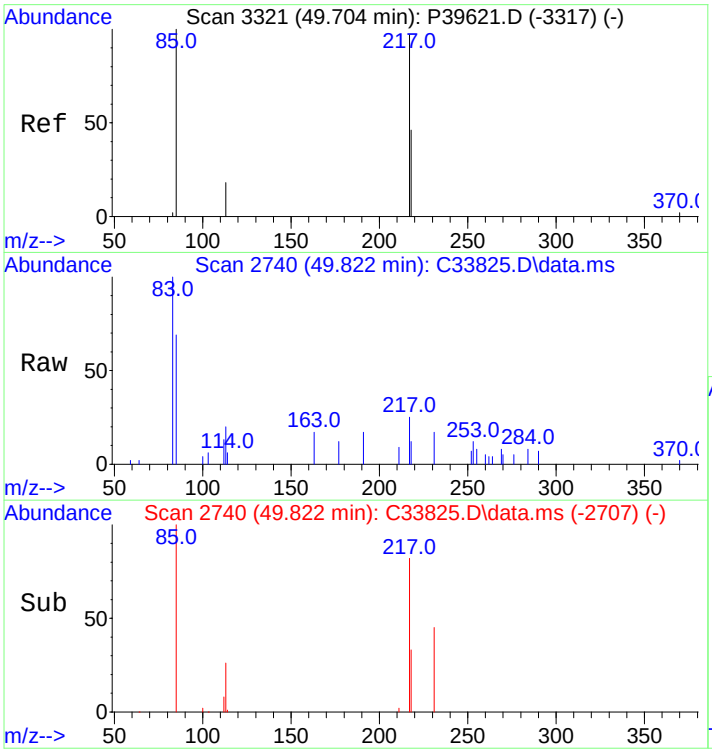




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 178.28 ng/ml m
RT: 49.461 min Scan# 2716
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

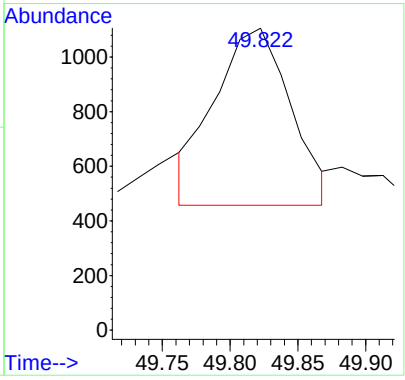
Tgt Ion:217 Resp: 1621

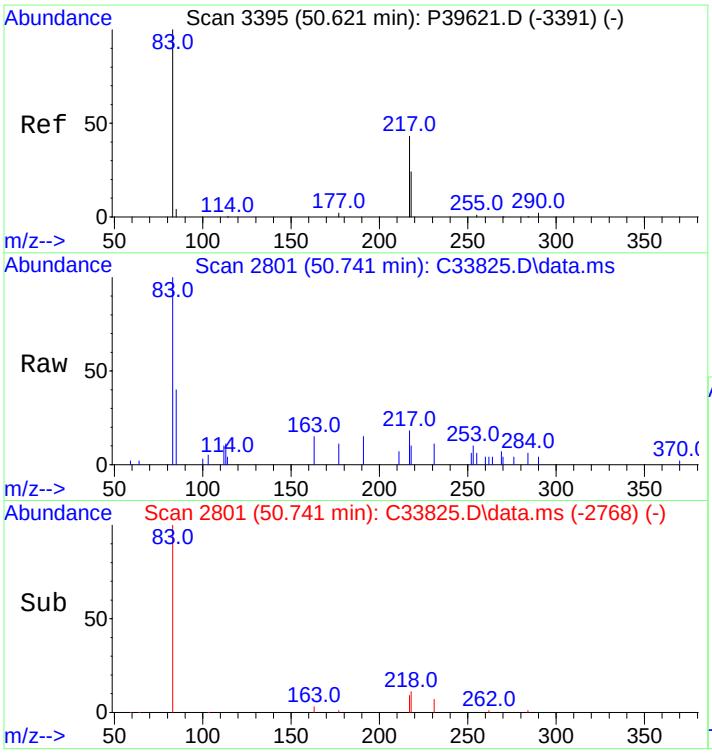




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 278.91 ng/ml m
RT: 49.822 min Scan# 2740
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

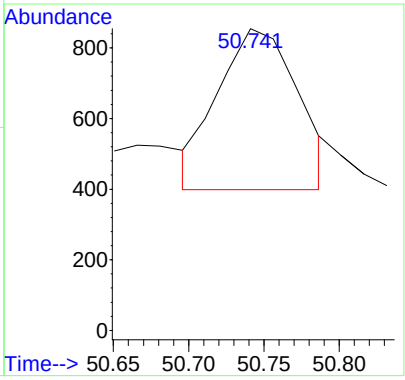
Tgt Ion:217 Resp: 2536

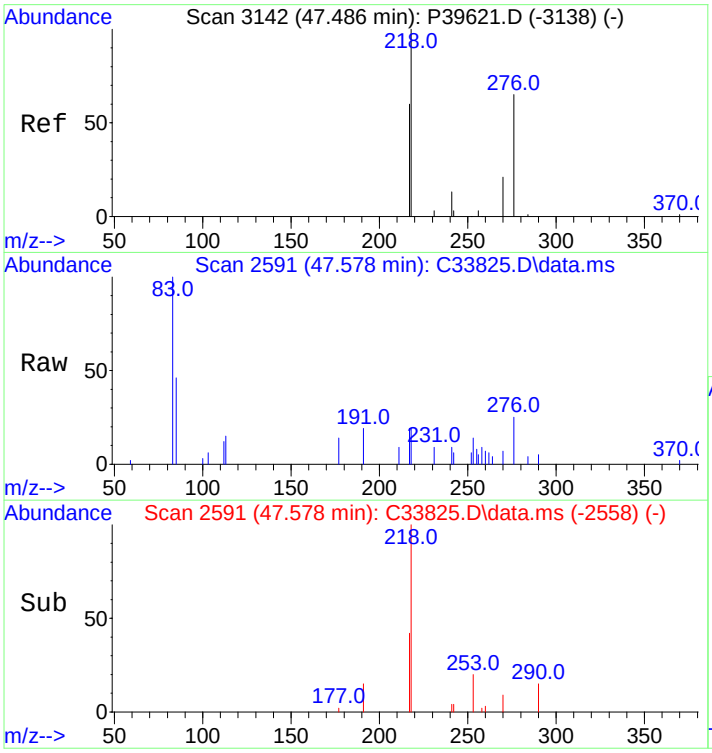




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 185.32 ng/ml m
RT: 50.741 min Scan# 2801
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

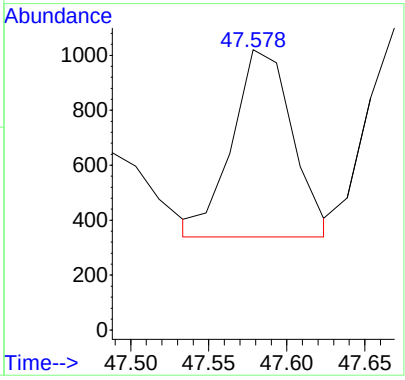
Tgt Ion:217 Resp: 1685

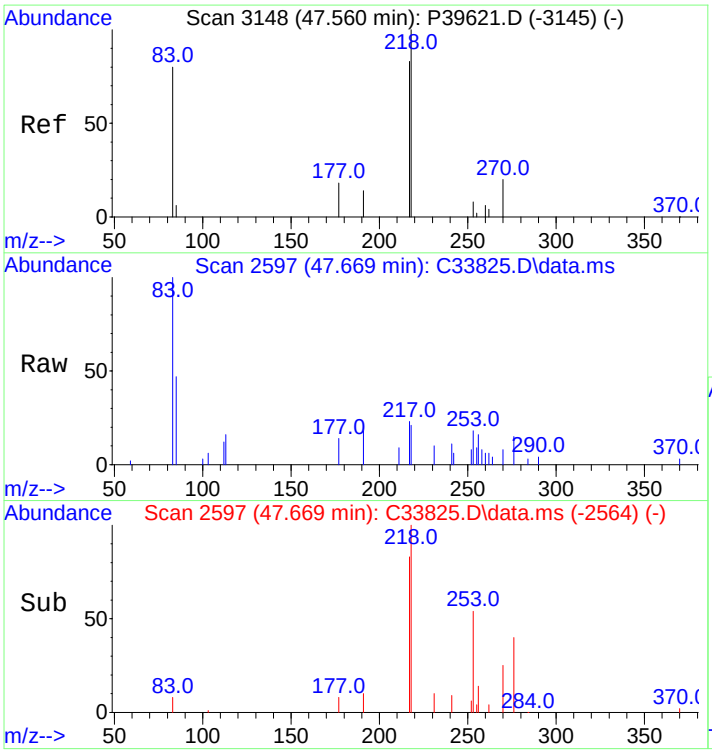




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 201.70 ng/ml m
RT: 47.578 min Scan# 2591
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

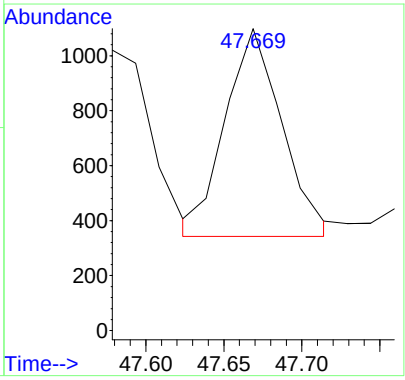
Tgt Ion:218 Resp: 1834

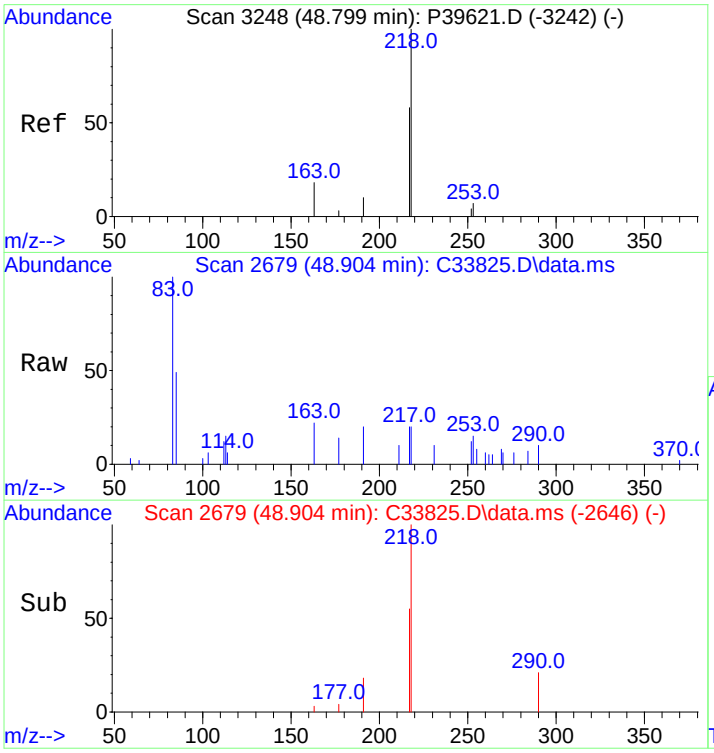




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 209.84 ng/ml m
RT: 47.669 min Scan# 2597
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

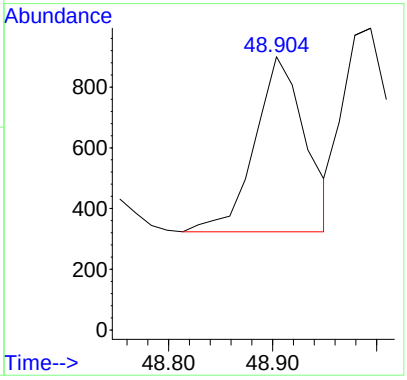
Tgt Ion:218 Resp: 1908

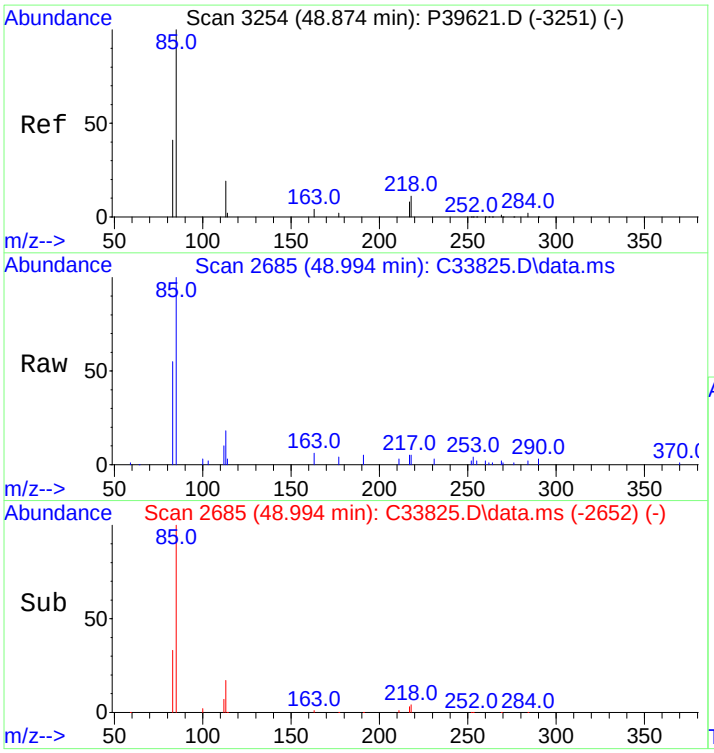




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 215.23 ng/ml
RT: 48.904 min Scan# 2679
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

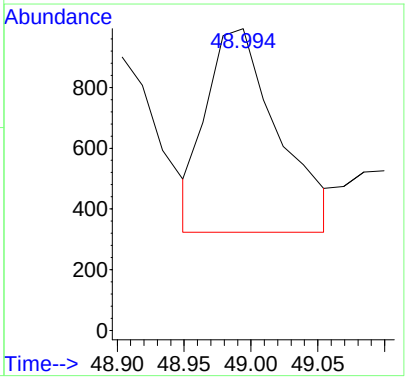
Tgt Ion:218 Resp: 1957

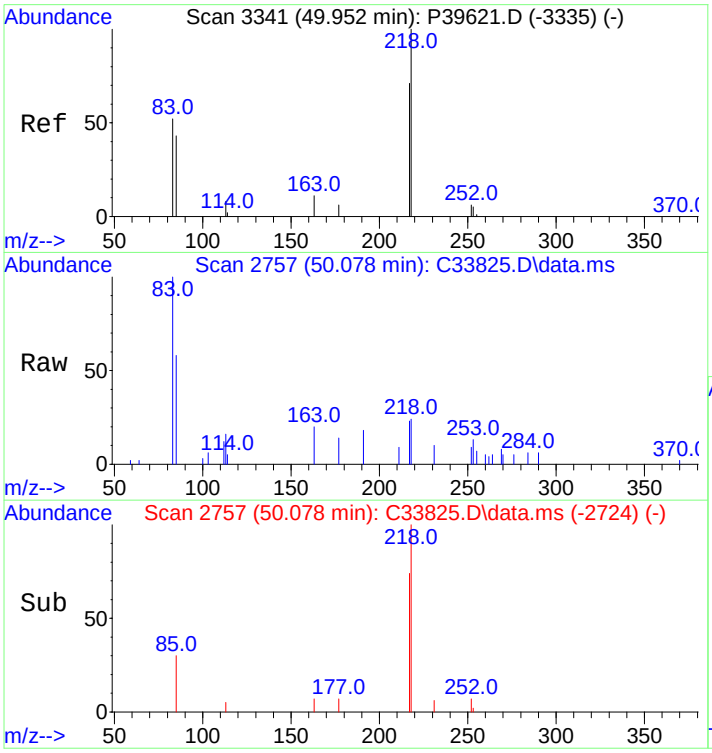




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 274.40 ng/ml m
RT: 48.994 min Scan# 2685
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

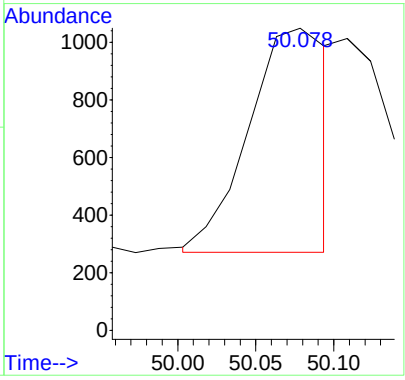
Tgt Ion:218 Resp: 2495

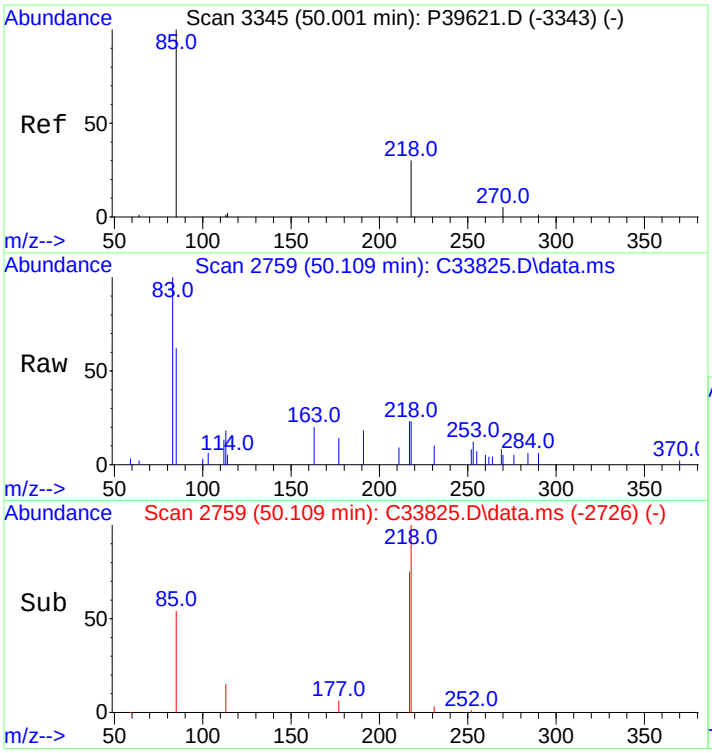




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 301.24 ng/ml m
RT: 50.078 min Scan# 2757
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

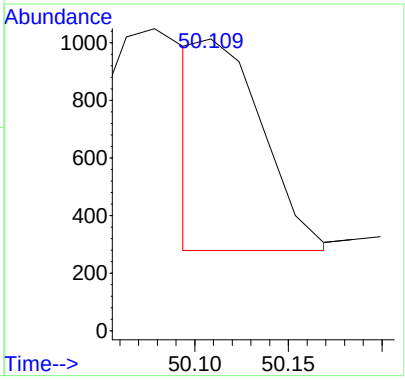
Tgt Ion:218 Resp: 2739

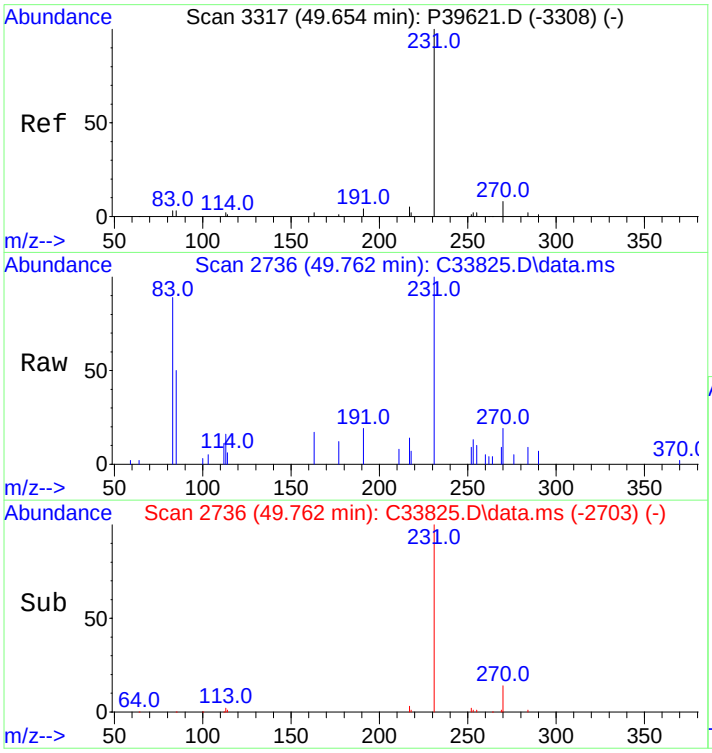




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 191.04 ng/ml m
RT: 50.109 min Scan# 2759
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

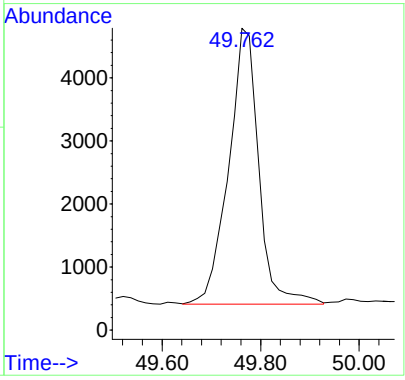
Tgt Ion:218 Resp: 1737

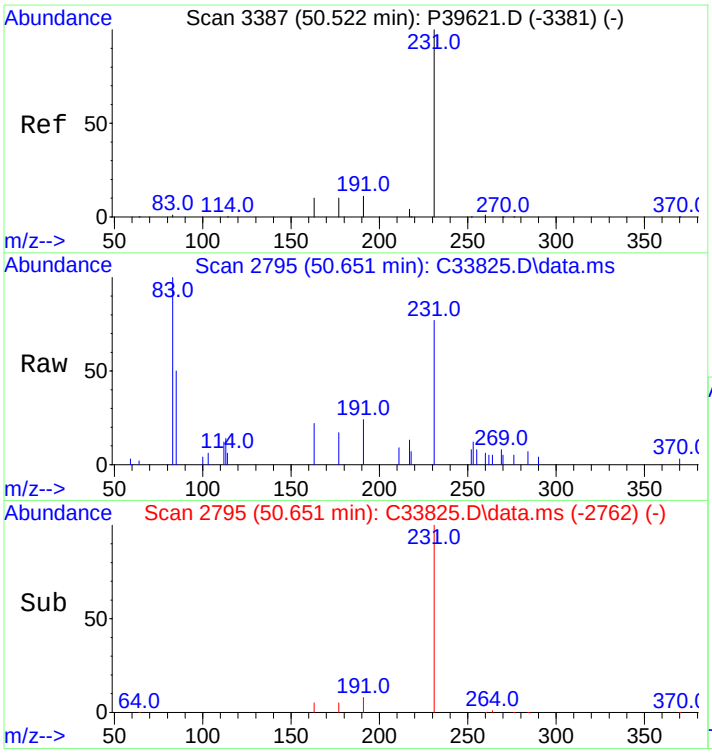




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 2040.03 ng/mL m
RT: 49.762 min Scan# 2736
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

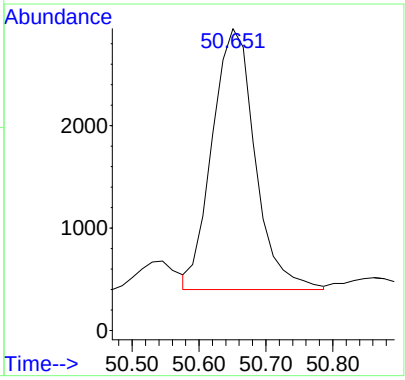
Tgt Ion:231 Resp: 18549

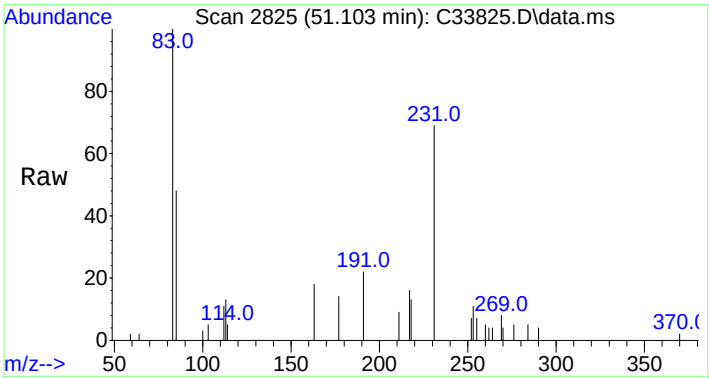




#146
C28,20S-triaromatic steroid
Concen: 1249.38 ng/mL m
RT: 50.651 min Scan# 2795
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

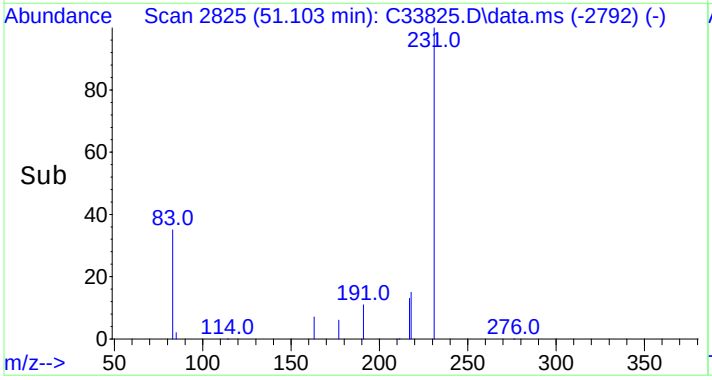
Tgt Ion:231 Resp: 11360

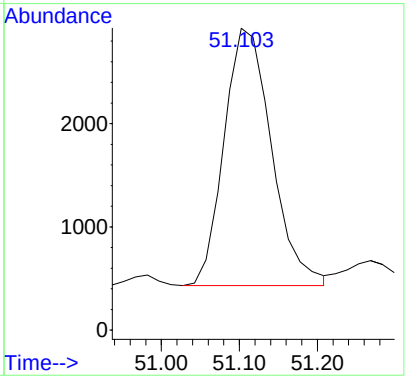


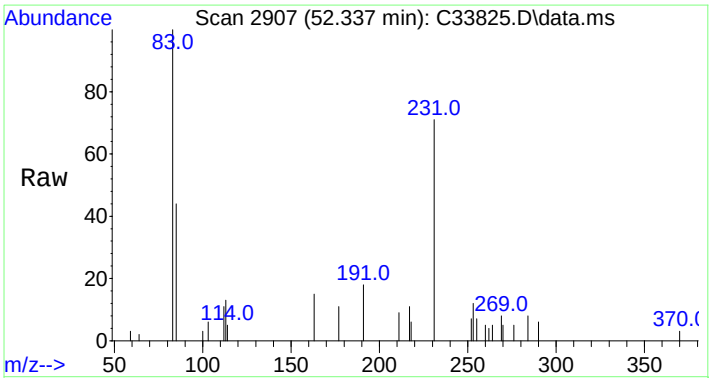


#147
C27,20R-triaromatic steroid
Concen: 1160.19 ng/mL
RT: 51.103 min Scan# 2825
Delta R.T. -0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 10549

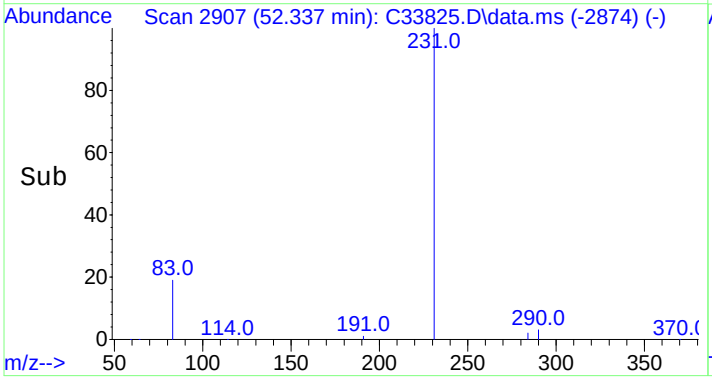


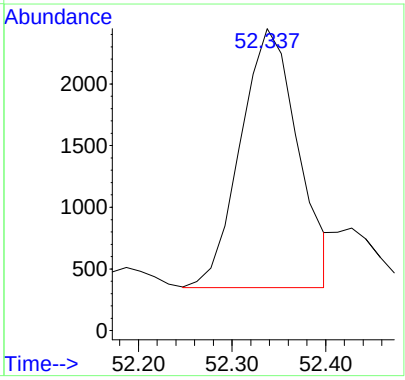




#148
C28,20R-triaromatic steroid
Concen: 988.29 ng/mL m
RT: 52.337 min Scan# 2907
Delta R.T. 0.000 min
Lab File: C33825.D
Acq: 27 Mar 2012 4:11 am

Tgt Ion:231 Resp: 8986





Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.937	164	15052M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.362	240	22784	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.967	136	35074	536.878	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.793	188	26097M4	505.389	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.54%			
86) Benzo[a]pyrene-d12	48.467	264	20387	431.763	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.18%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.624	138	3130	263.420	ng/mL	100
4) cis-Decalin	17.844	138	2376	265.319	ng/mL	100
10) Naphthalene	20.042	128	52309	545.264	ng/mL#	100
16) 2-Methylnaphthalene	22.737	142	30932	545.315	ng/mL#	100
17) 1-Methylnaphthalene	23.158	142	30015M4	539.838	ng/mL	
18) Benzothiophene	20.268	134	46185M4	534.994	ng/mL	
23) Biphenyl	24.618	154	38768	540.294	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.221	156	25010	536.656	ng/mL#	100
25) Dibenzofuran	27.705	168	44557	540.769	ng/mL	96
26) Acenaphthylene	26.320	152	51471	540.489	ng/mL#	100
27) Acenaphthene	27.057	153	30403	542.216	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	19817M4	527.499	ng/mL	
29) Fluorene	29.075	166	32696M4	528.715	ng/mL	
33) Dibenzothiophene	32.386	184	53391M4	538.598	ng/mL	
43) Phenanthrene	32.883	178	46516	534.091	ng/mL	100
54) Retene	39.854	234	8385	493.546	ng/mL	95
55) Anthracene	33.064	178	45423M4	533.942	ng/mL	
56) Carbazole	33.726	167	45283M4	526.968	ng/mL	
57) 1-Methylphenanthrene	35.382	192	29407M4	532.804	ng/mL	
58) Fluoranthene	37.641	202	46119M4	533.176	ng/mL	
59) Benzo(b)fluorene	40.155	216	25878M4	515.672	ng/mL	
60) Pyrene	38.529	202	46681M4	530.900	ng/mL	
66) Naphthobenzothiophene	42.368	234	49317	520.975	ng/ml	97
67) Naphthobenzothiophene-2,1	42.368	234	49317	520.975	ng/mL	97
75) Benz[a]anthracene	43.302	228	39712M4	549.145	ng/mL	
76) Chrysene	43.452	228	40148M4	549.904	ng/mL	
77) Chrysene/Triphenylene	43.452	228	40111M4	549.398	ng/mL	
82) Benzo[b]fluoranthene	47.337	252	42627	536.453	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.428	252	47222M4	545.841	ng/mL	
85) Benzo[e]pyrene	48.361	252	41766M4	531.397	ng/mL	
87) Benzo[a]pyrene	48.542	252	40189M4	531.093	ng/mL	
88) Perylene	48.858	252	42809	529.339	ng/mL	97
89) Indeno[1,2,3-cd]pyrene	53.437	276	44489M3	505.201	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.497	278	43582M4	520.251	ng/mL	
91) Benzo[g,h,i]perylene	54.747	276	47507	510.620	ng/mL	99

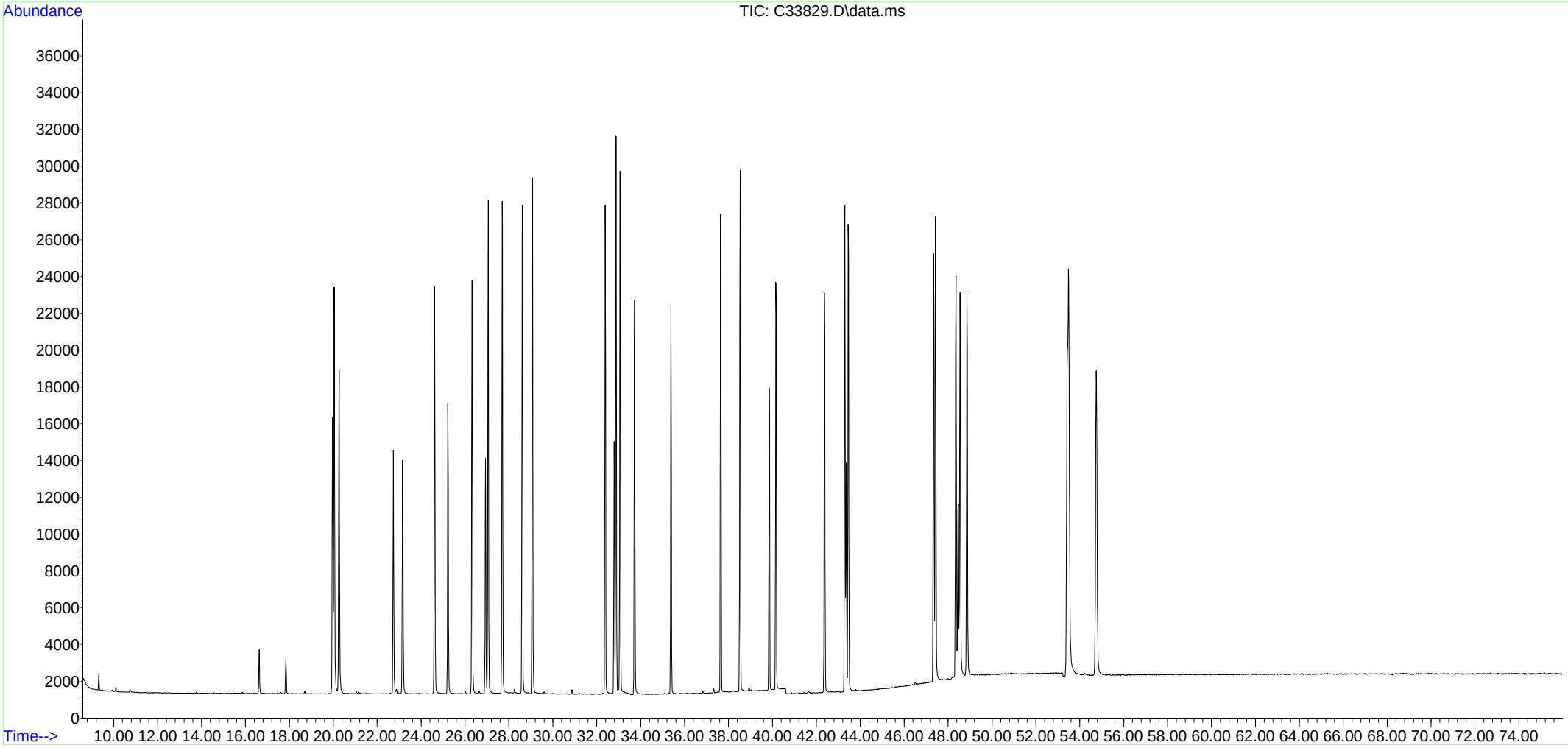
(#) = qualifier out of range (m) = manual integration (+) = signals summed

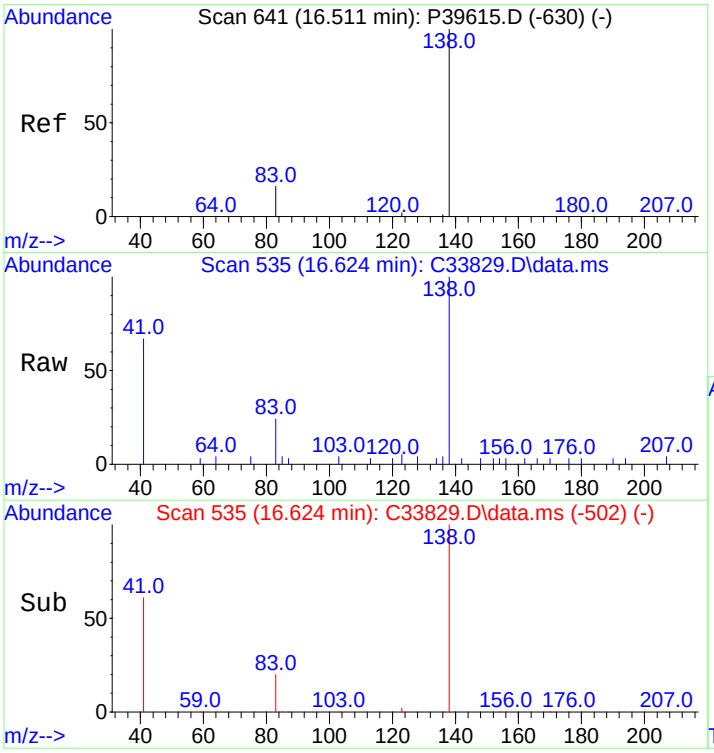
Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH3\2012\MARCH12\MARCH26\
Data File : C33829.D
Acq On : 27 Mar 2012 7:13 am
Operator : PAH3:SR
Sample : CQ303261201
Misc : WG525925
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 29 11:06:08 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:53:52 2012
Response via : Initial Calibration

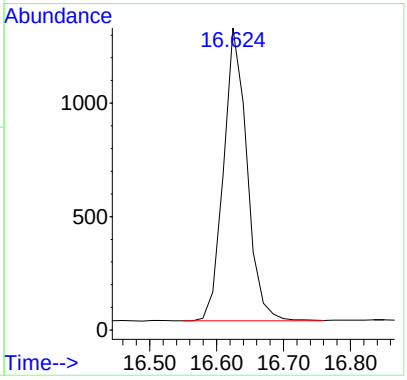
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

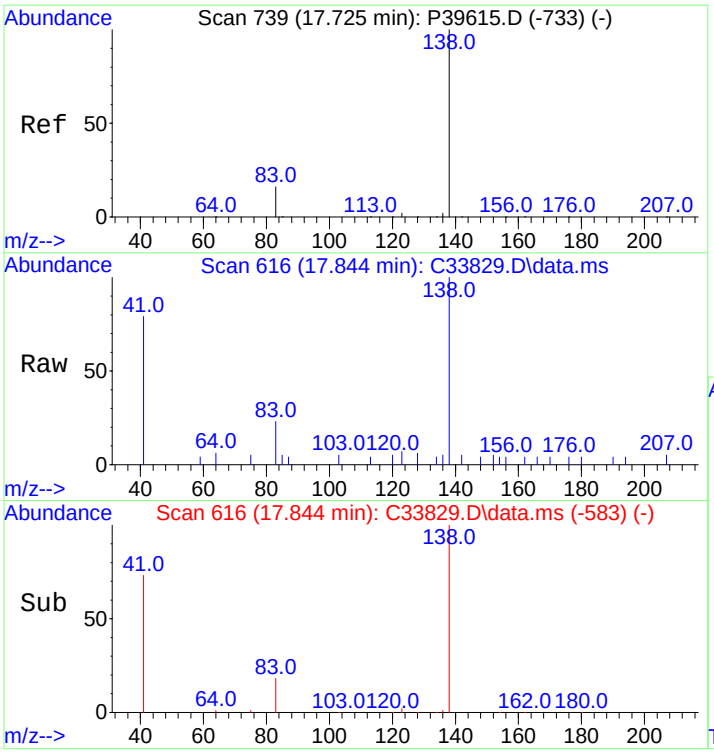




#3
trans-Decalin
Concen: 263.42 ng/mL
RT: 16.624 min Scan# 535
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

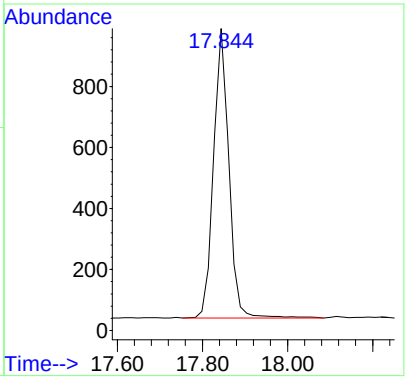
Tgt Ion:138 Resp: 3130

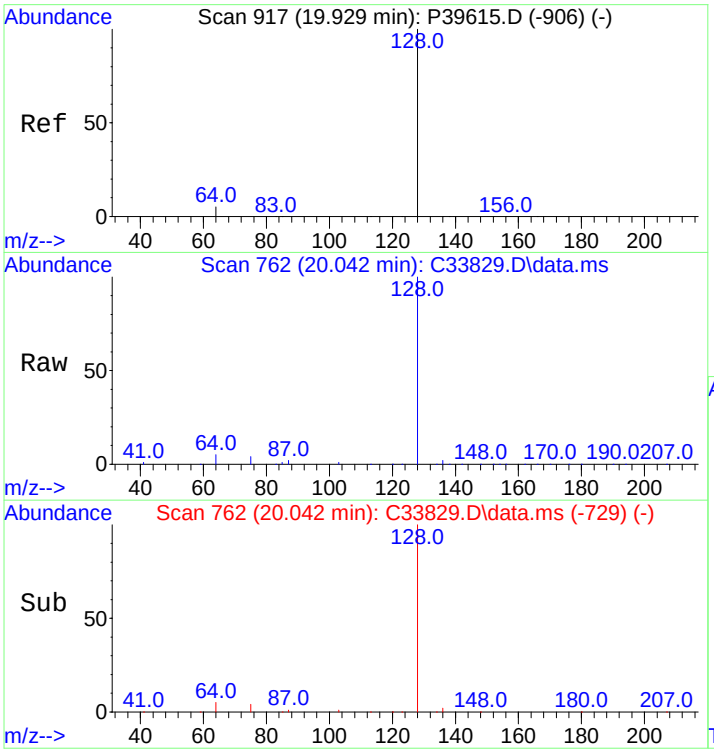




#4
cis-Decalin
Concen: 265.32 ng/mL
RT: 17.844 min Scan# 616
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:138 Resp: 2376

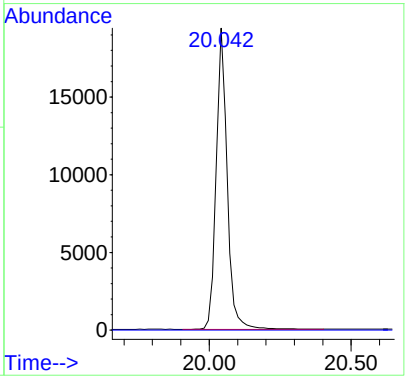


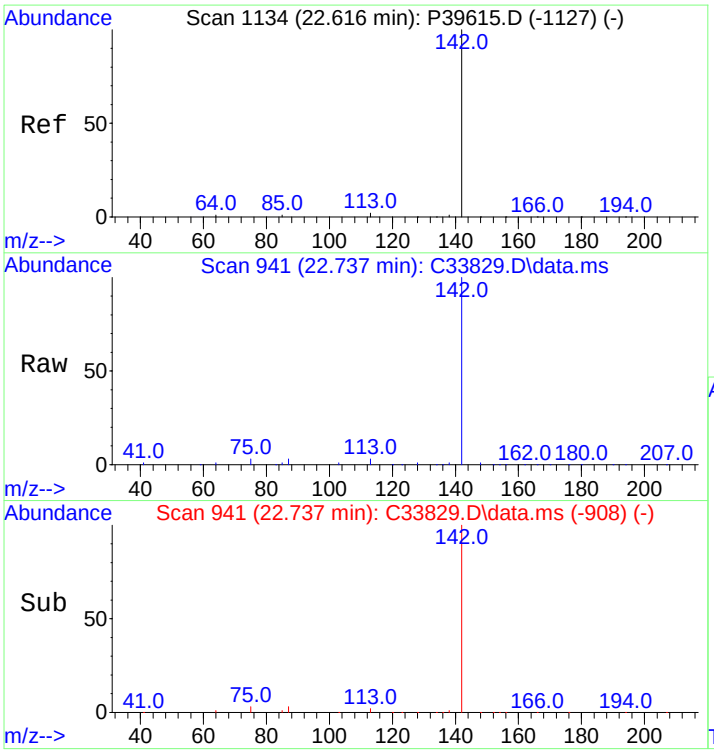


#10
Naphthalene
Concen: 545.26 ng/mL
RT: 20.042 min Scan# 762
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:128 Resp: 52309

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

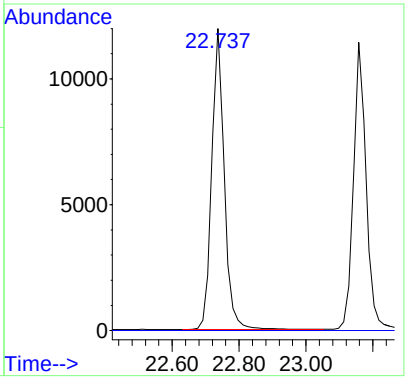


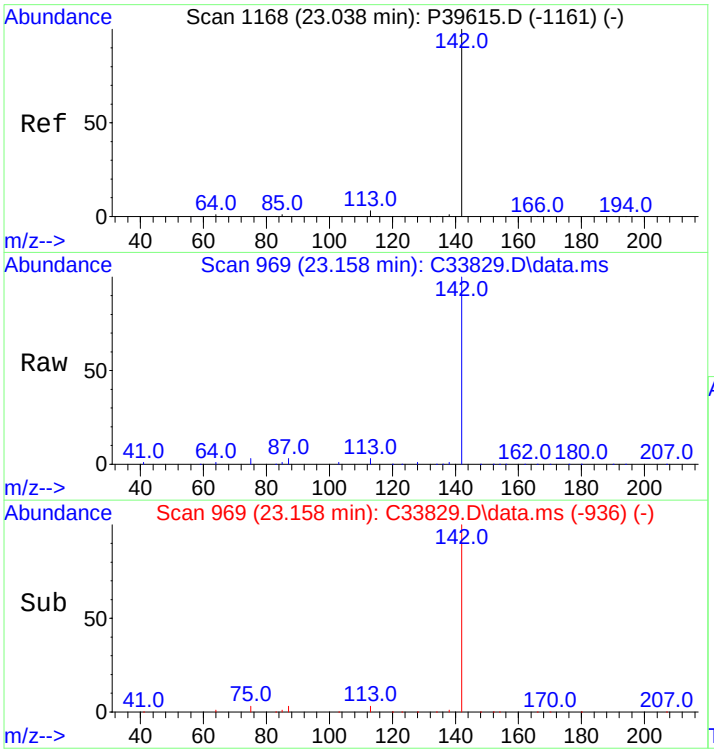


#16
2-Methylnaphthalene
Concen: 545.32 ng/mL
RT: 22.737 min Scan# 941
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30932

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

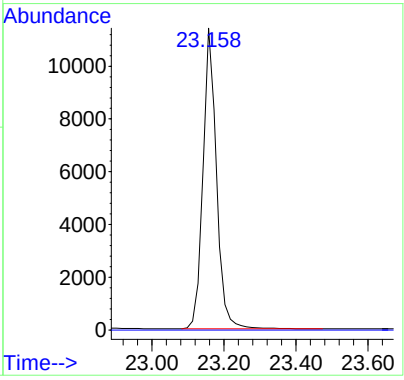


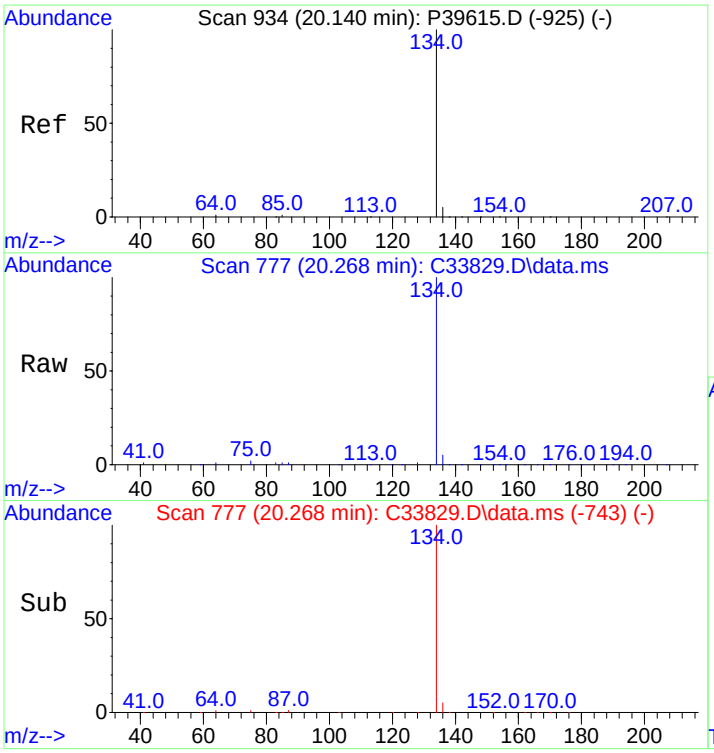


#17
1-Methylnaphthalene
Concen: 539.84 ng/mL m
RT: 23.158 min Scan# 969
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:142 Resp: 30015

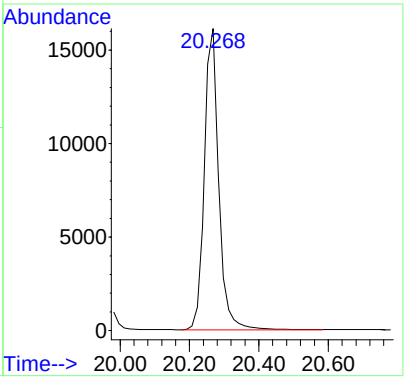
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

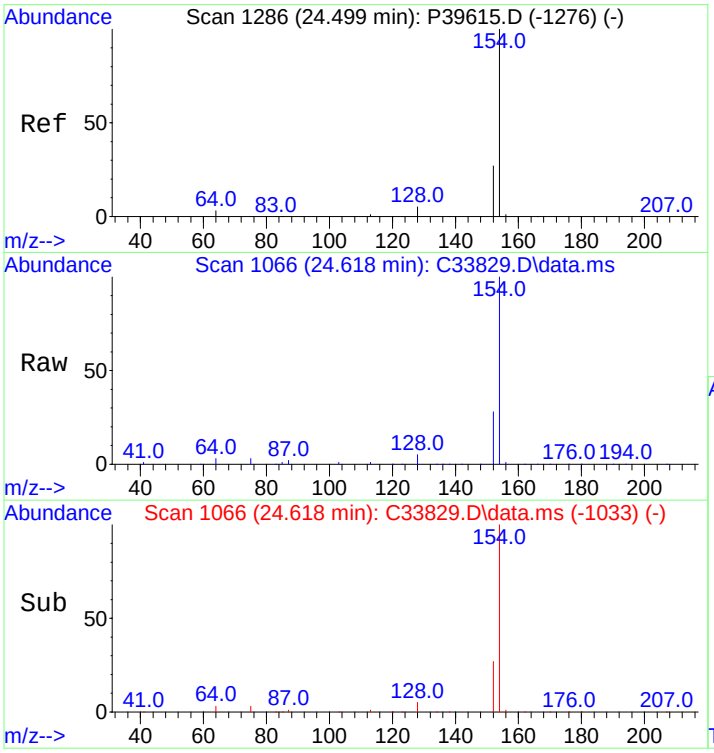




#18
Benzothiophene
Concen: 534.99 ng/mL m
RT: 20.268 min Scan# 777
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:134 Resp: 46185

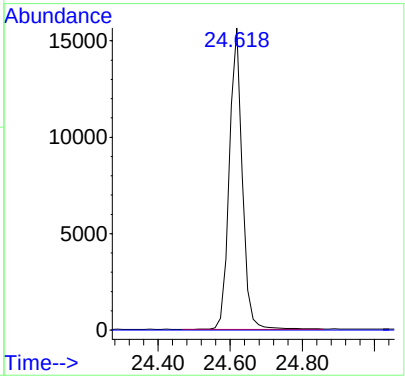


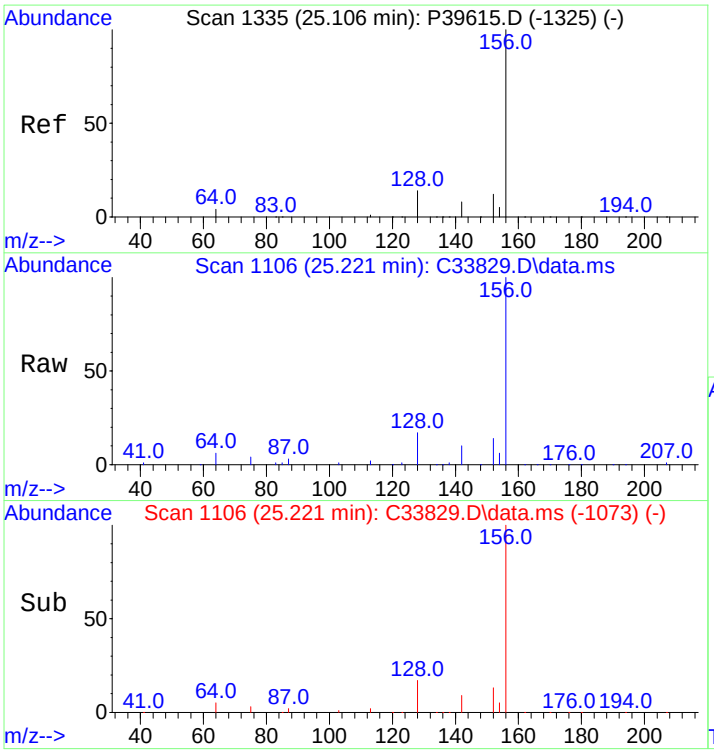


#23
Biphenyl
Concen: 540.29 ng/mL
RT: 24.618 min Scan# 1066
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:154 Resp: 38768

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

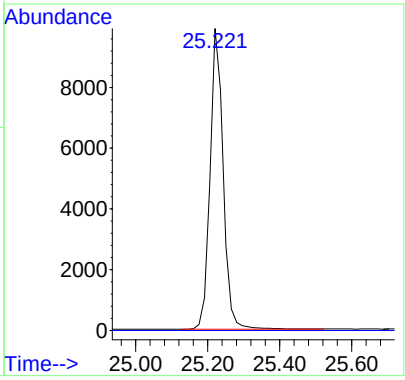


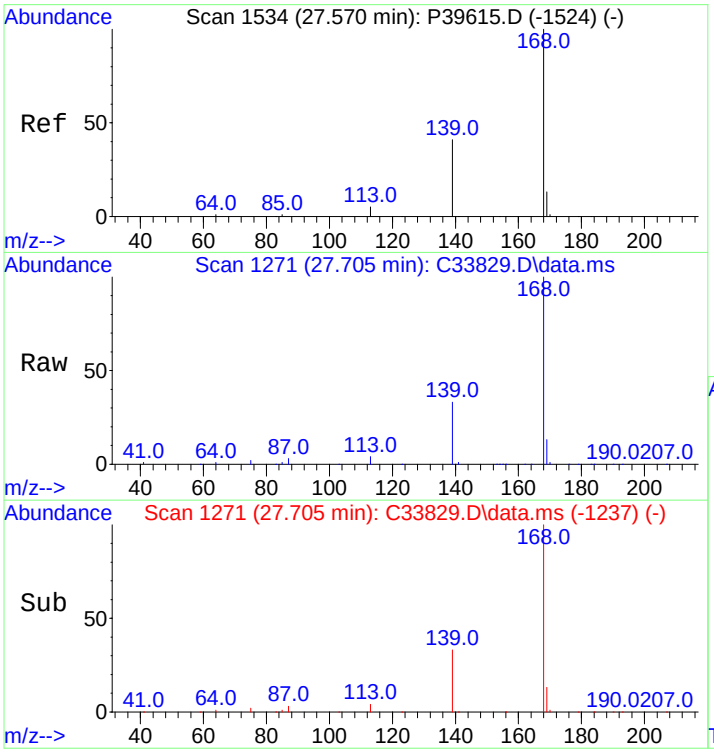


#24
2,6-Dimethylnaphthalene
Concen: 536.66 ng/mL
RT: 25.221 min Scan# 1106
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:156 Resp: 25010

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

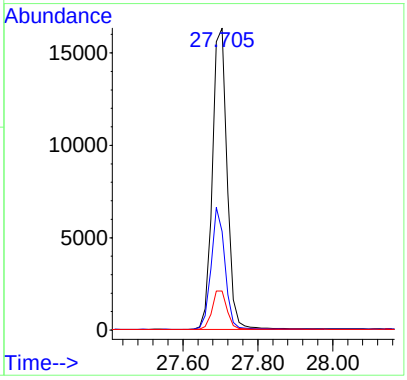


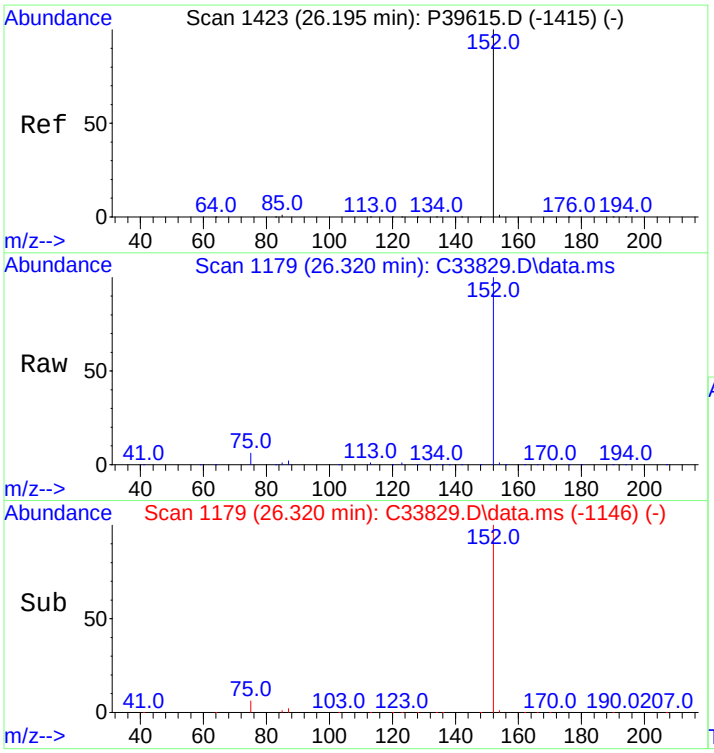


#25
Dibenzofuran
Concen: 540.77 ng/mL
RT: 27.705 min Scan# 1271
Delta R.T. 0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:168 Resp: 44557

Ion	Ratio	Lower	Upper
168	100		
139	37.9	32.9	49.3
169	13.0	10.6	16.0

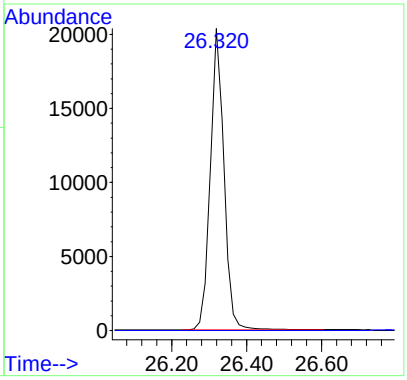


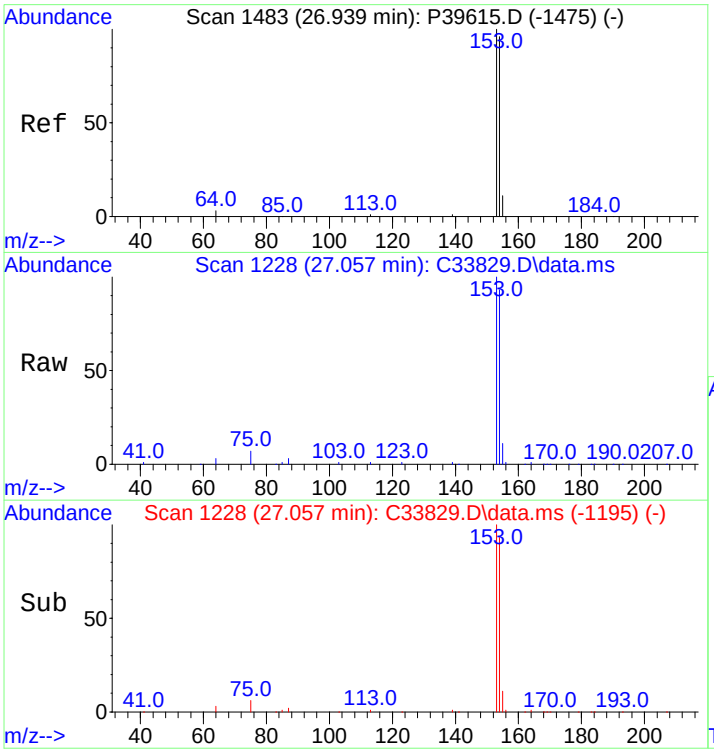


#26
Acenaphthylene
Concen: 540.49 ng/mL
RT: 26.320 min Scan# 1179
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:152 Resp: 51471

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

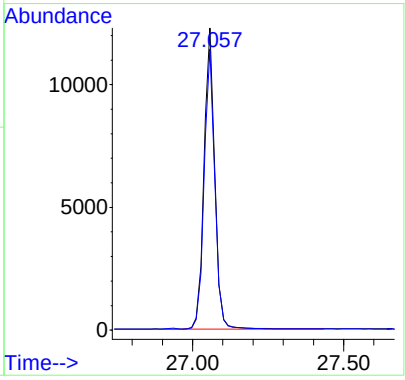


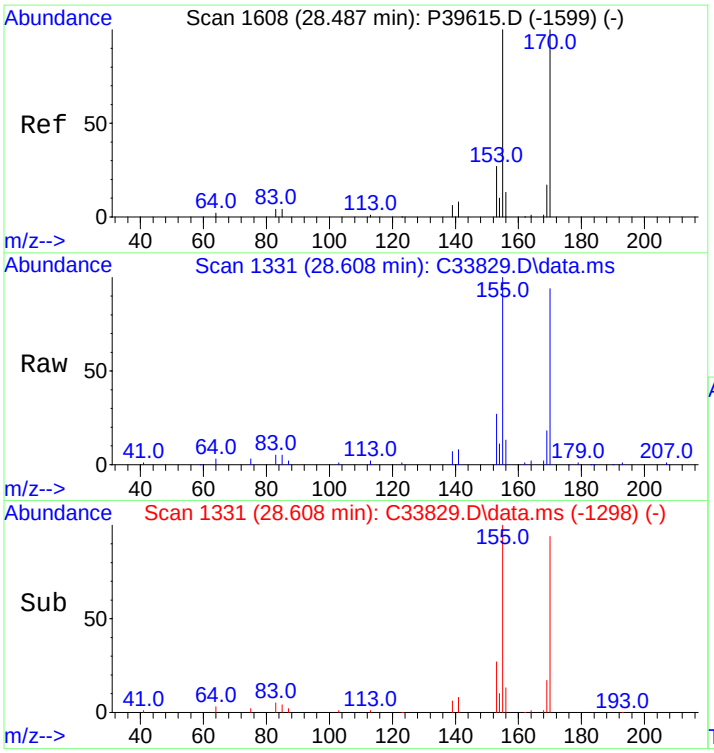


#27
Acenaphthene
Concen: 542.22 ng/mL
RT: 27.057 min Scan# 1228
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:153 Resp: 30403

Ion	Ratio	Lower	Upper
153	100		
154	92.4	75.0	112.6

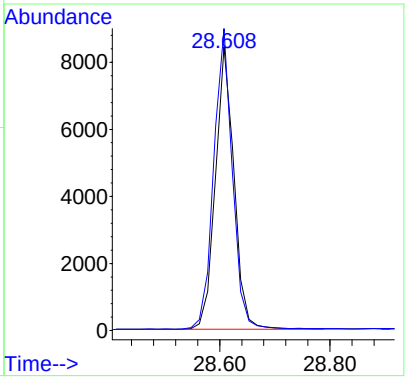


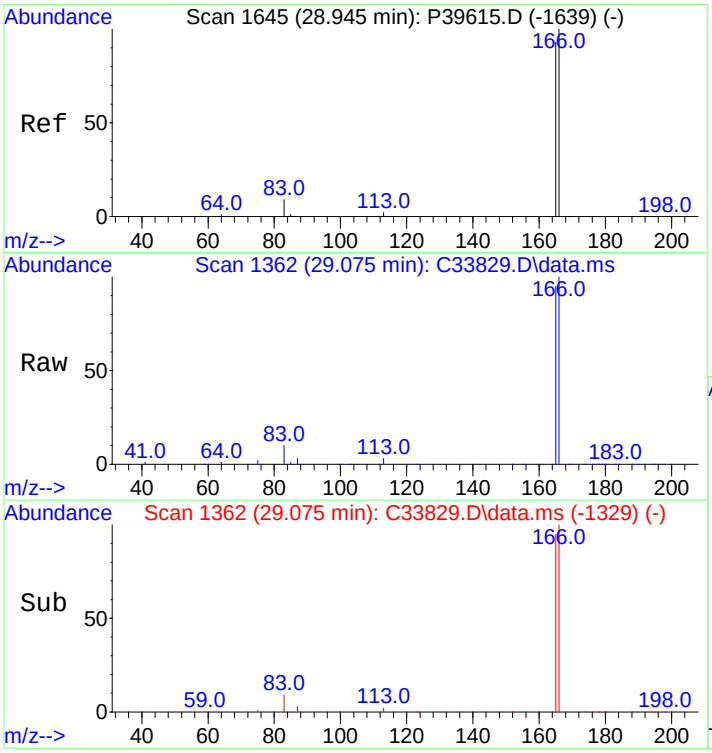


#28
2,3,5-Trimethylnaphthalene
Concen: 527.50 ng/mL m
RT: 28.608 min Scan# 1331
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:170 Resp: 19817

Ion	Ratio	Lower	Upper
170	100		
155	106.7	84.7	127.1

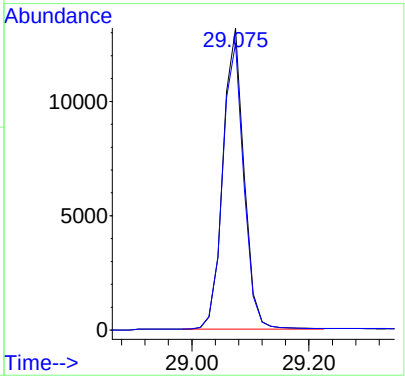


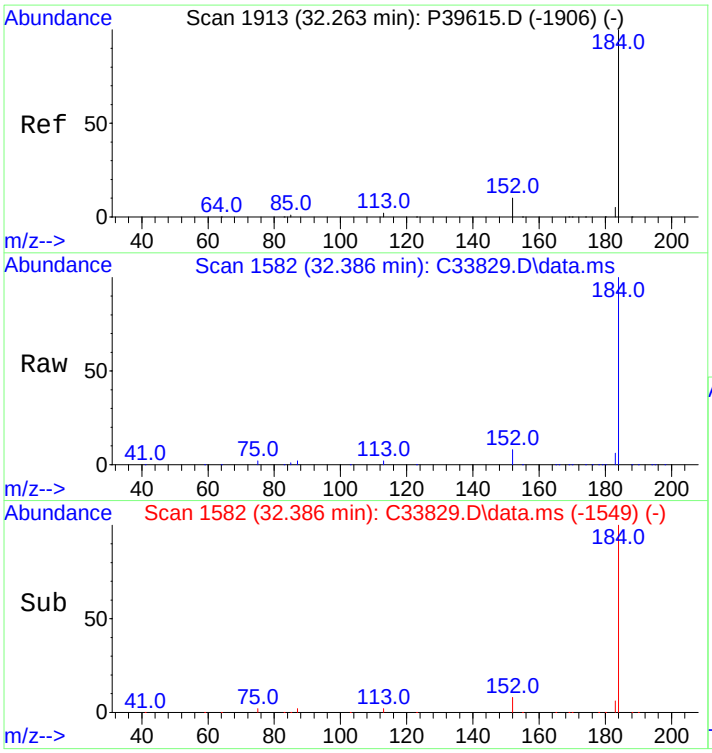


#29
Fluorene
Concen: 528.71 ng/mL m
RT: 29.075 min Scan# 1362
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:166 Resp: 32696

Ion	Ratio	Lower	Upper
166	100		
165	96.7	75.3	112.9

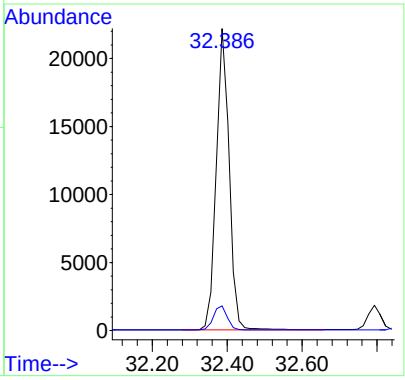


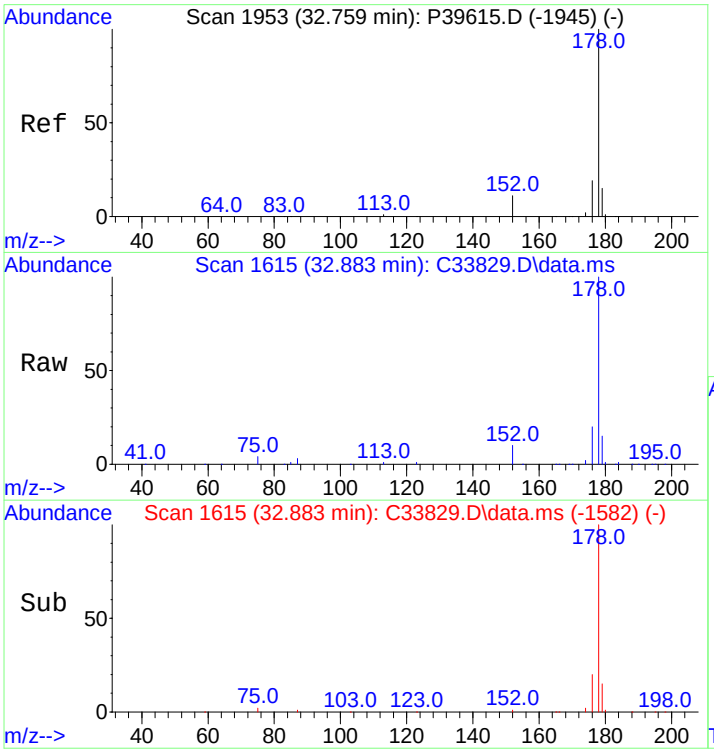


#33
Dibenzothiophene
Concen: 538.60 ng/mL m
RT: 32.386 min Scan# 1582
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:184 Resp: 53391

Ion	Ratio	Lower	Upper
184	100		
152	8.4	6.7	10.1

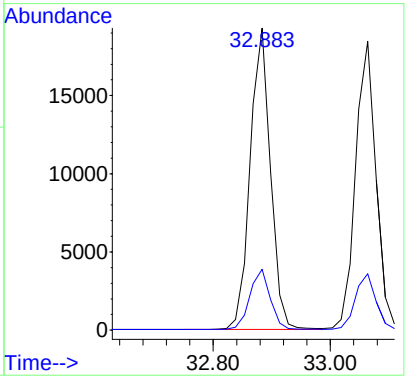


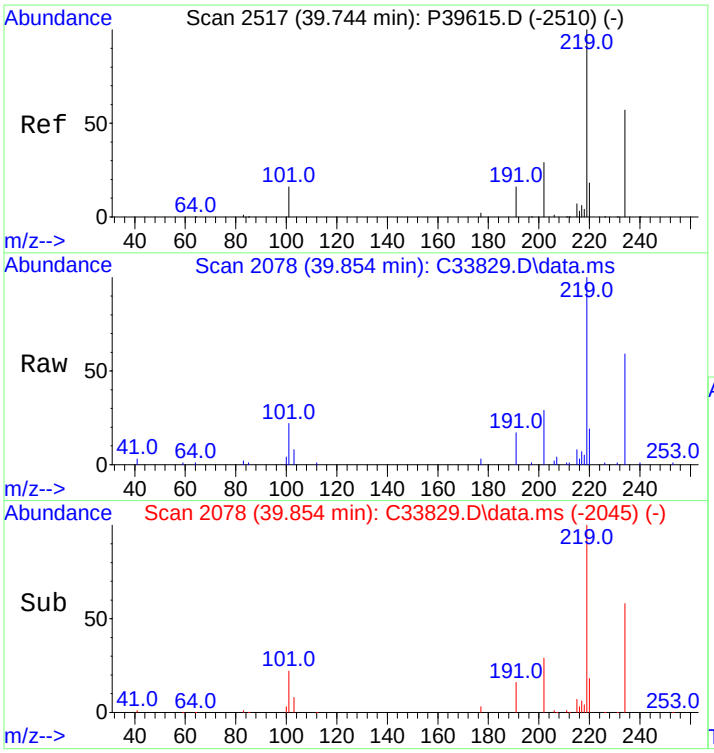


#43
Phenanthrene
Concen: 534.09 ng/mL
RT: 32.883 min Scan# 1615
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 46516

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.9	23.9

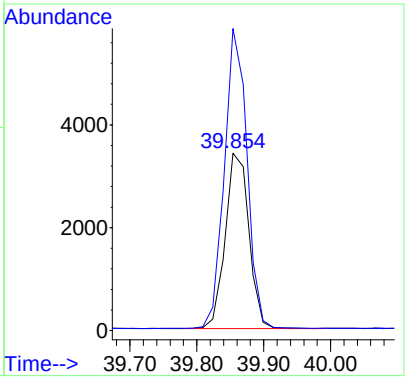


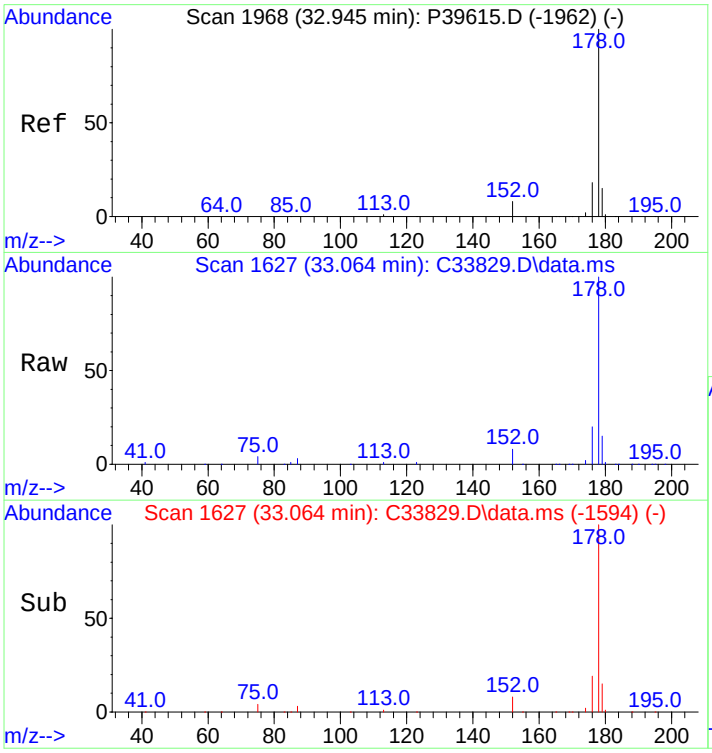


#54
Retene
Concen: 493.55 ng/mL
RT: 39.854 min Scan# 2078
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 8385

Ion	Ratio	Lower	Upper
234	100		
219	163.6	136.6	204.8

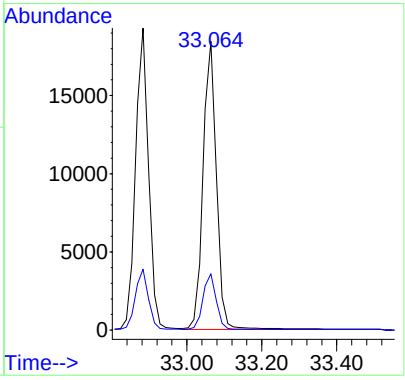


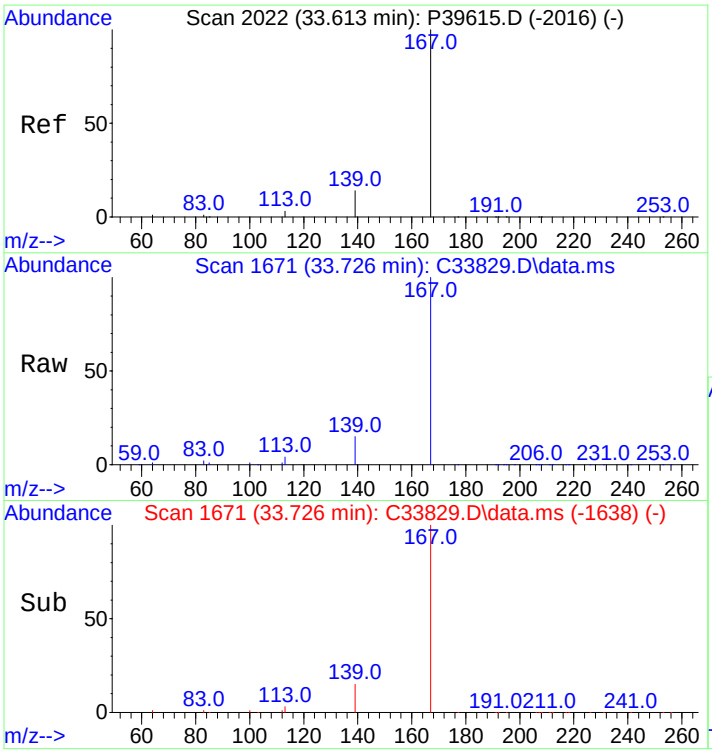


#55
Anthracene
Concen: 533.94 ng/mL m
RT: 33.064 min Scan# 1627
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:178 Resp: 45423

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.4	23.0

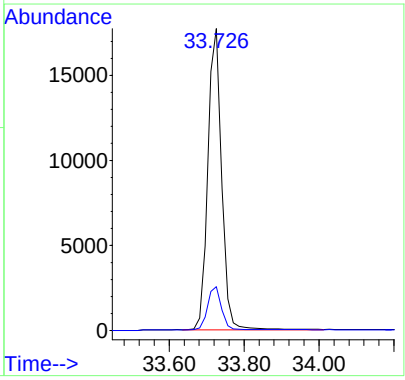


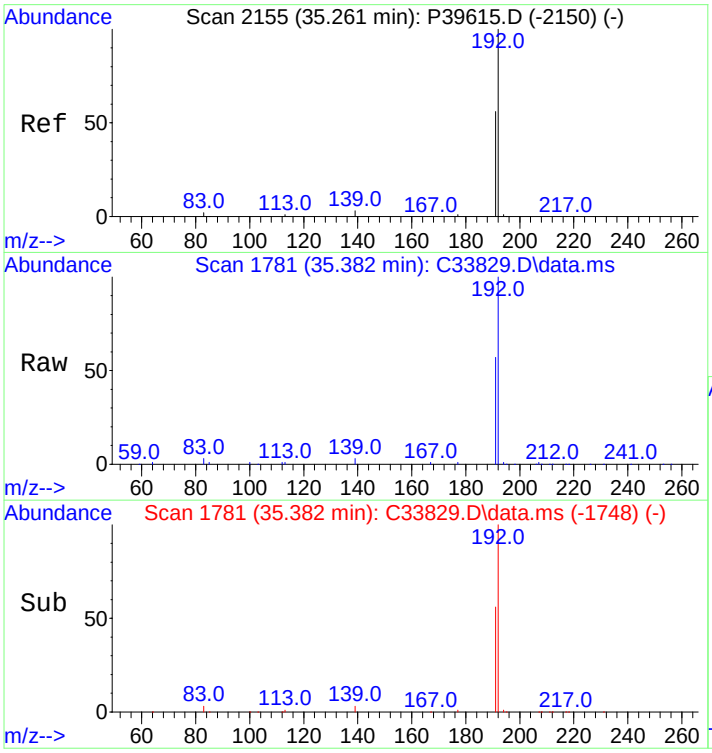


#56
Carbazole
Concen: 526.97 ng/mL m
RT: 33.726 min Scan# 1671
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:167 Resp: 45283

Ion	Ratio	Lower	Upper
167	100		
139	15.0	11.6	17.4

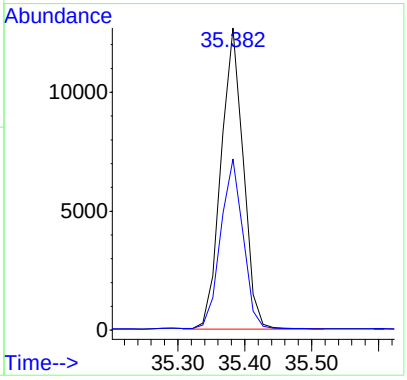


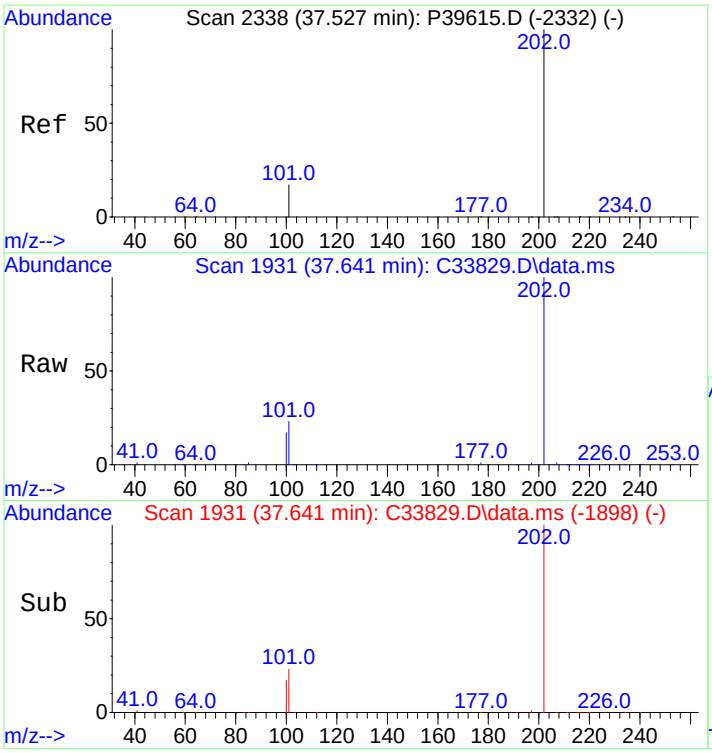


#57
1-Methylphenanthrene
Concen: 532.80 ng/mL m
RT: 35.382 min Scan# 1781
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:192 Resp: 29407

Ion	Ratio	Lower	Upper
192	100		
191	57.0	45.3	67.9

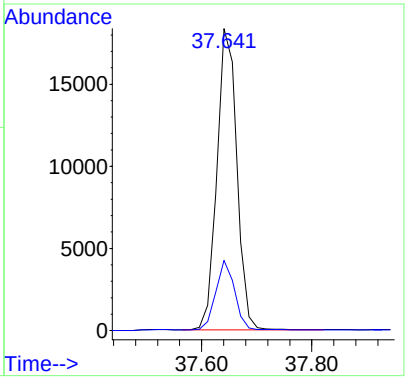


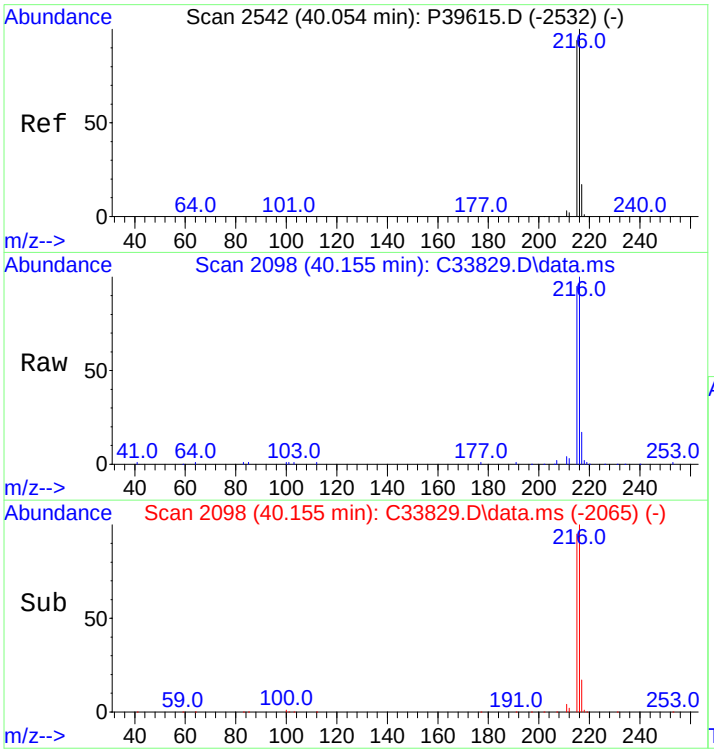


#58
Fluoranthene
Concen: 533.18 ng/mL m
RT: 37.641 min Scan# 1931
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46119

Ion	Ratio	Lower	Upper
202	100		
101	22.2	19.1	28.7

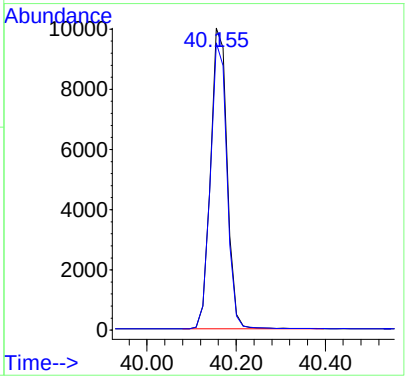


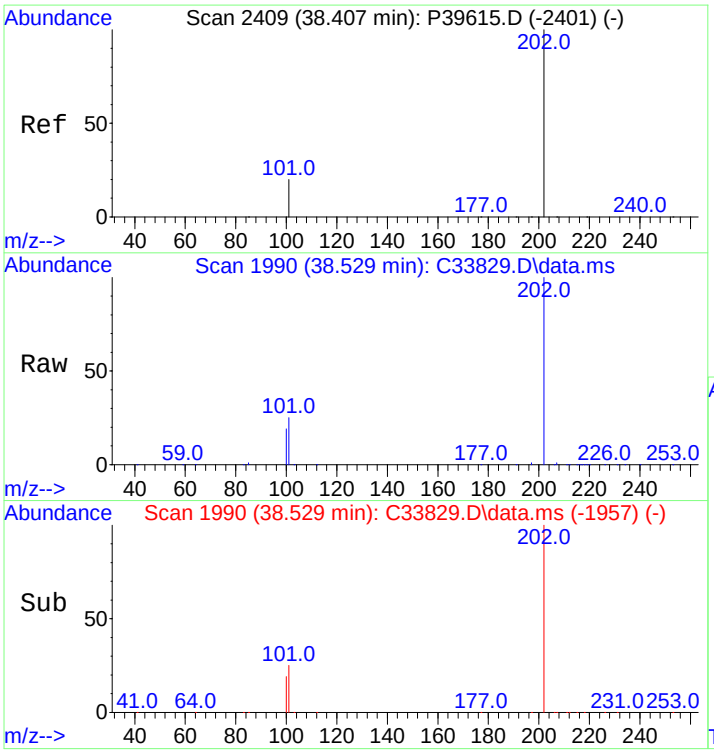


#59
Benzo(b)fluorene
Concen: 515.67 ng/mL m
RT: 40.155 min Scan# 2098
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:216 Resp: 25878

Ion	Ratio	Lower	Upper
216	100		
215	95.0	77.4	116.2

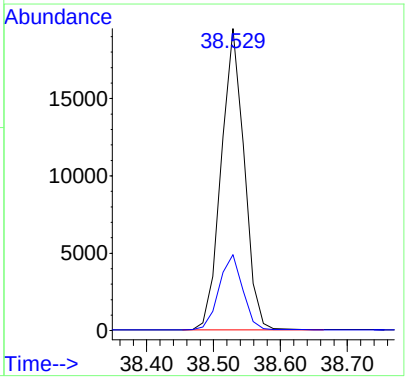


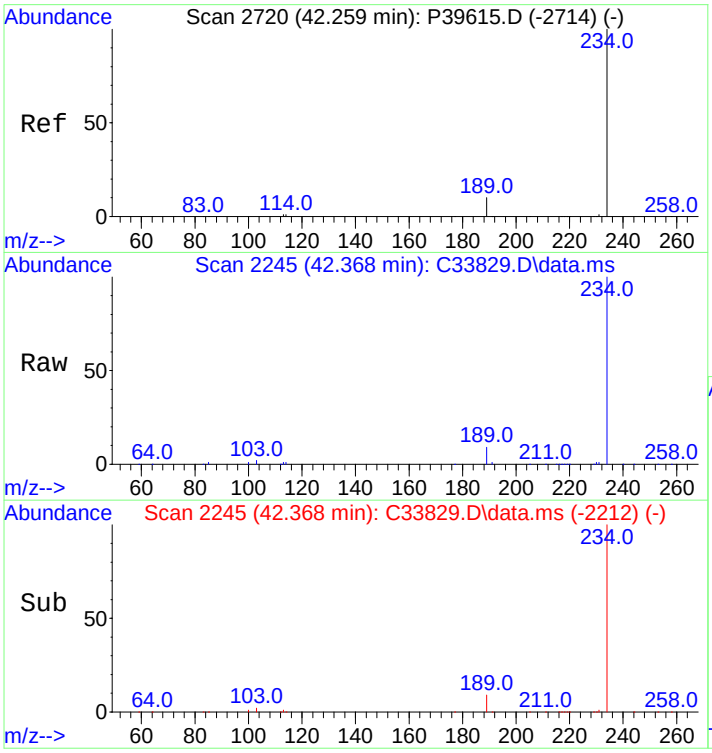


#60
Pyrene
Concen: 530.90 ng/mL m
RT: 38.529 min Scan# 1990
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:202 Resp: 46681

Ion	Ratio	Lower	Upper
202	100		
101	25.6	20.4	30.6

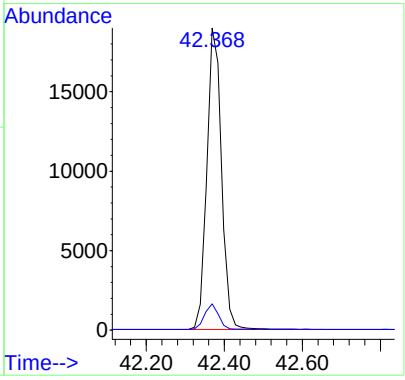


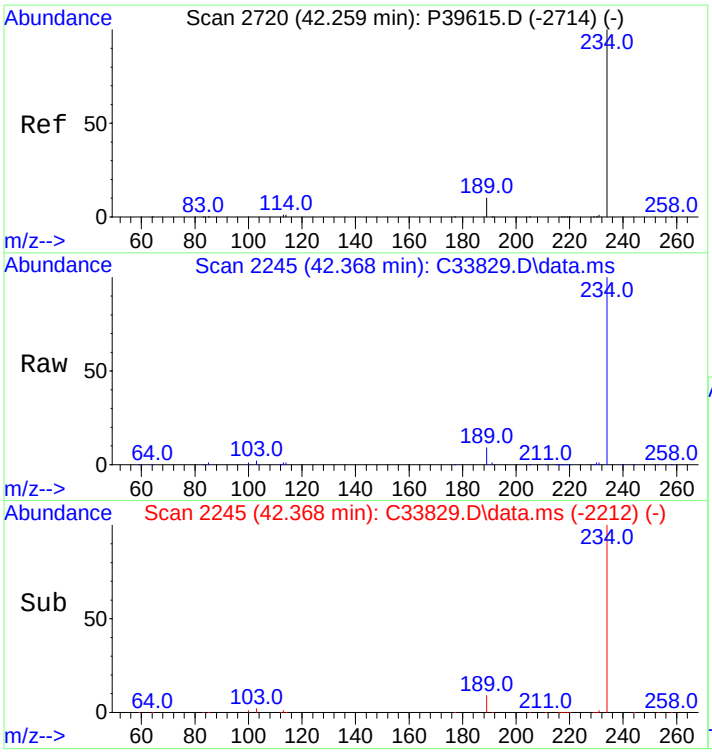


#66
Naphthobenzothiophene
Concen: 520.98 ng/ml
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

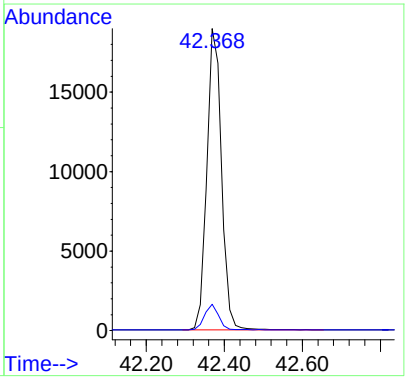


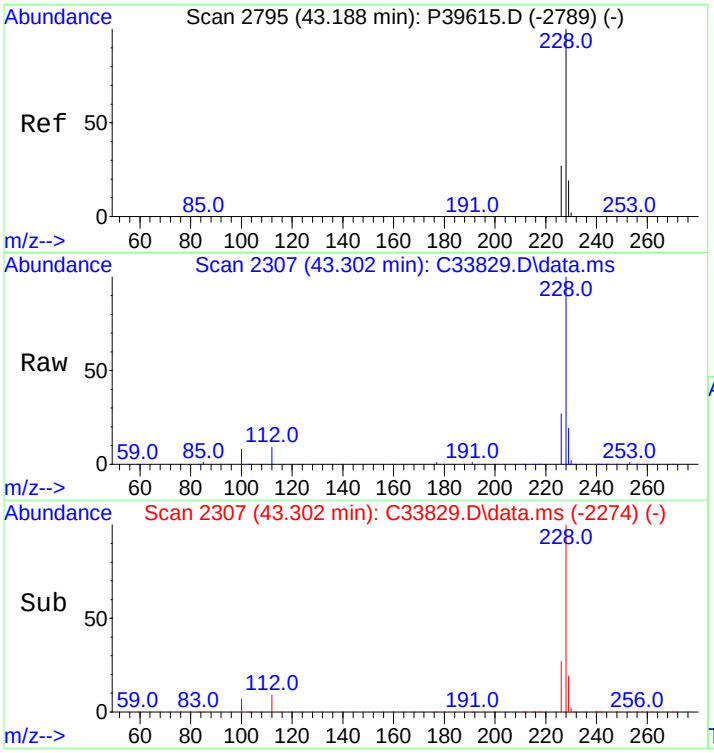


#67
Naphthobenzothiophene-2,1-D
Concen: 520.98 ng/mL
RT: 42.368 min Scan# 2245
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:234 Resp: 49317

Ion	Ratio	Lower	Upper
234	100		
189	8.1	7.4	11.0

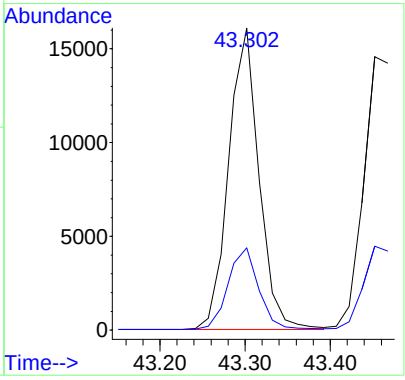


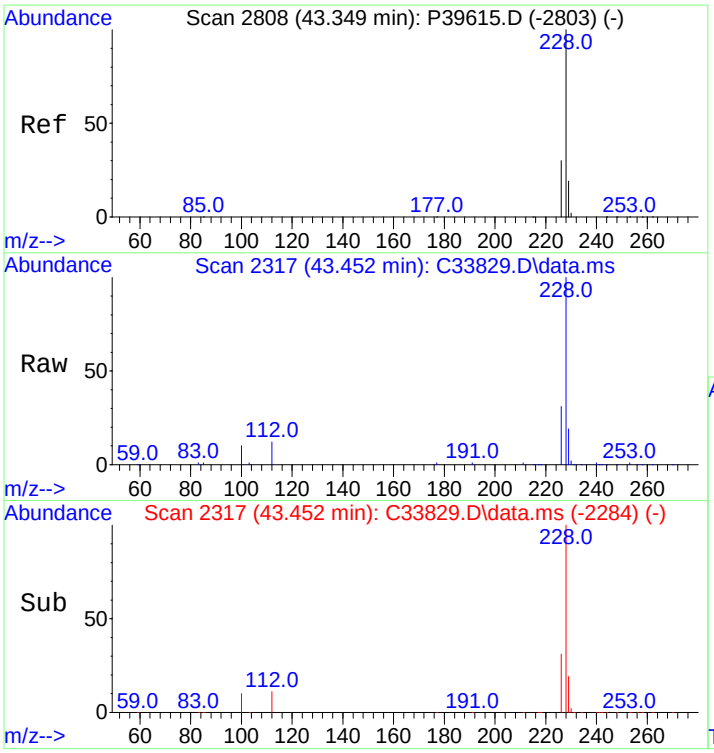


#75
Benz[a]anthracene
Concen: 549.15 ng/mL m
RT: 43.302 min Scan# 2307
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 39712

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.8	32.8

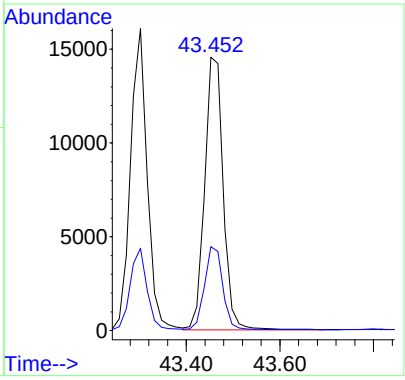


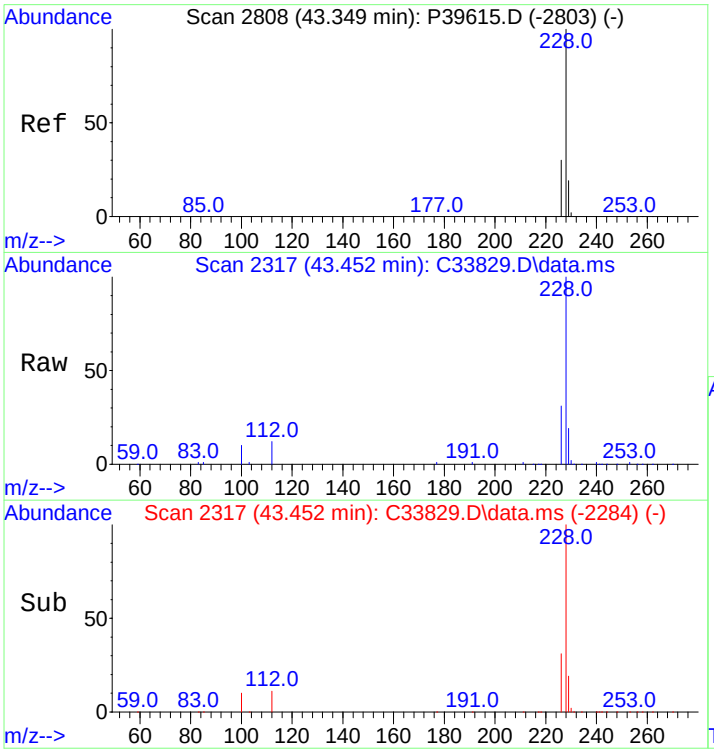


#76
Chrysene
Concen: 549.90 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40148

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

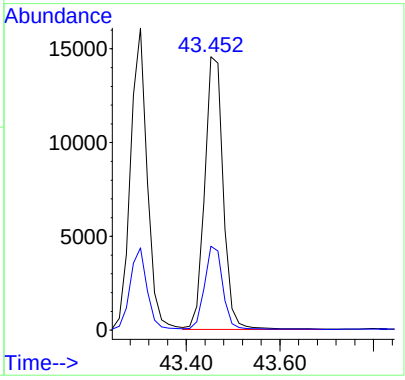


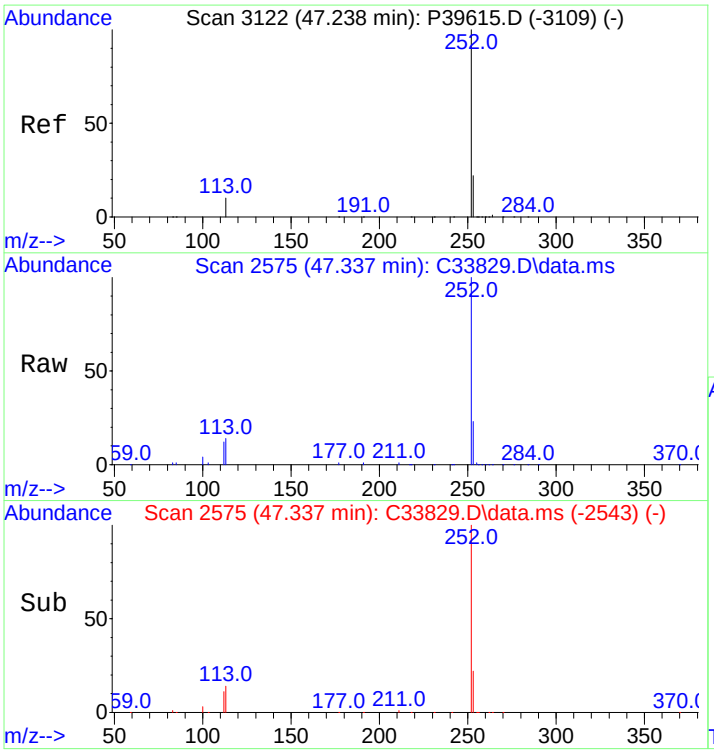


#77
Chrysene/Triphenylene
Concen: 549.40 ng/mL m
RT: 43.452 min Scan# 2317
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:228 Resp: 40111

Ion	Ratio	Lower	Upper
228	100		
226	29.9	24.2	36.4

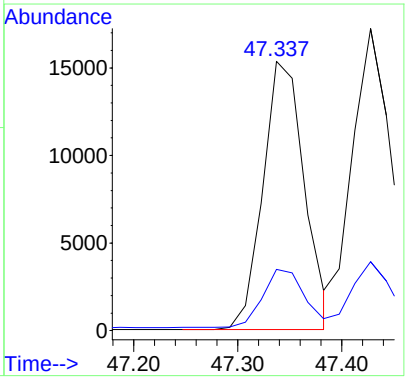


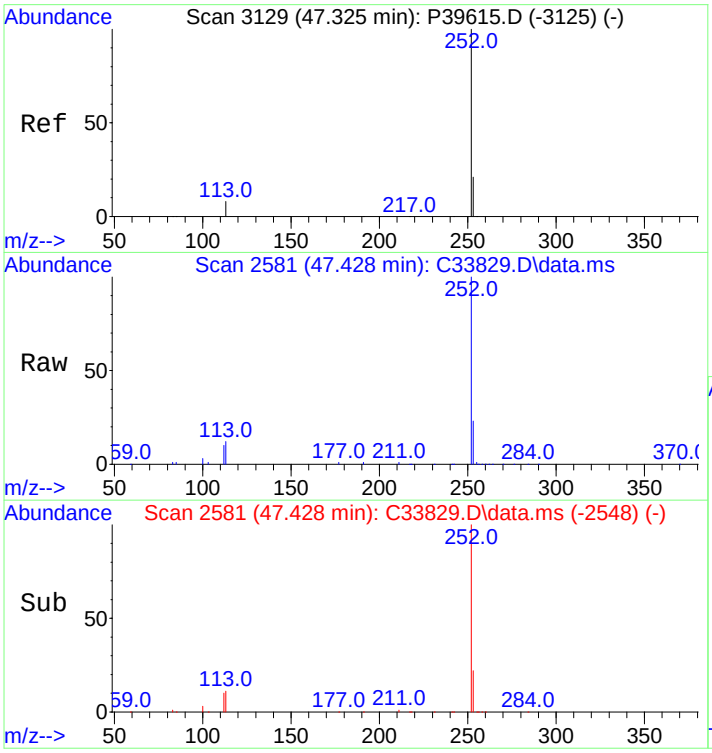


#82
Benzo[b]fluoranthene
Concen: 536.45 ng/mL
RT: 47.337 min Scan# 2575
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42627

Ion	Ratio	Lower	Upper
252	100		
253	22.0	18.5	27.7

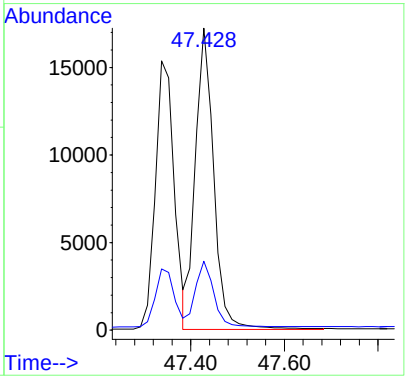


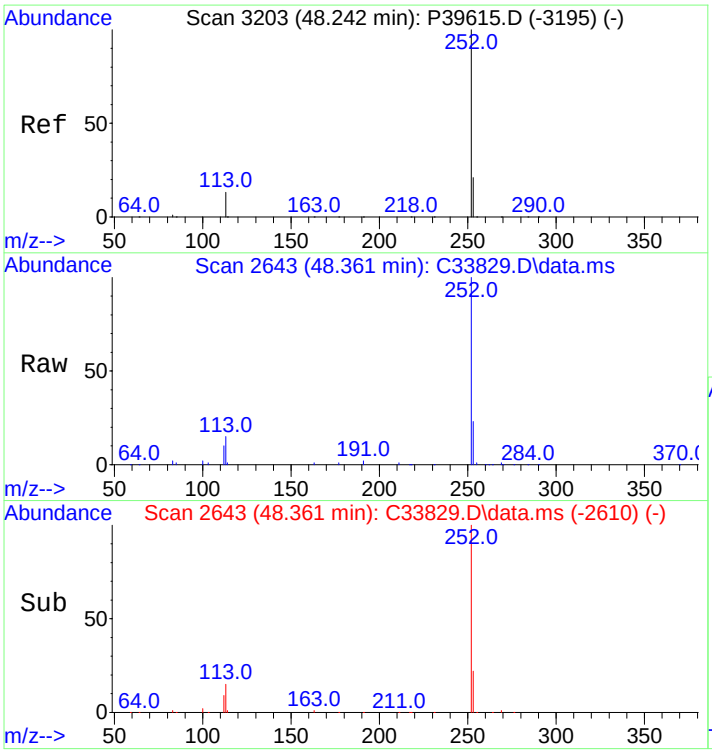


#83
Benzo[j]+[k]fluoranthene
Concen: 545.84 ng/mL m
RT: 47.428 min Scan# 2581
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 47222

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.2	27.4

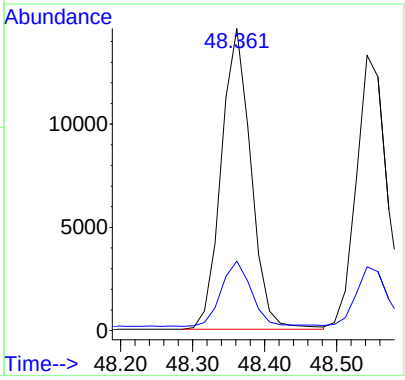


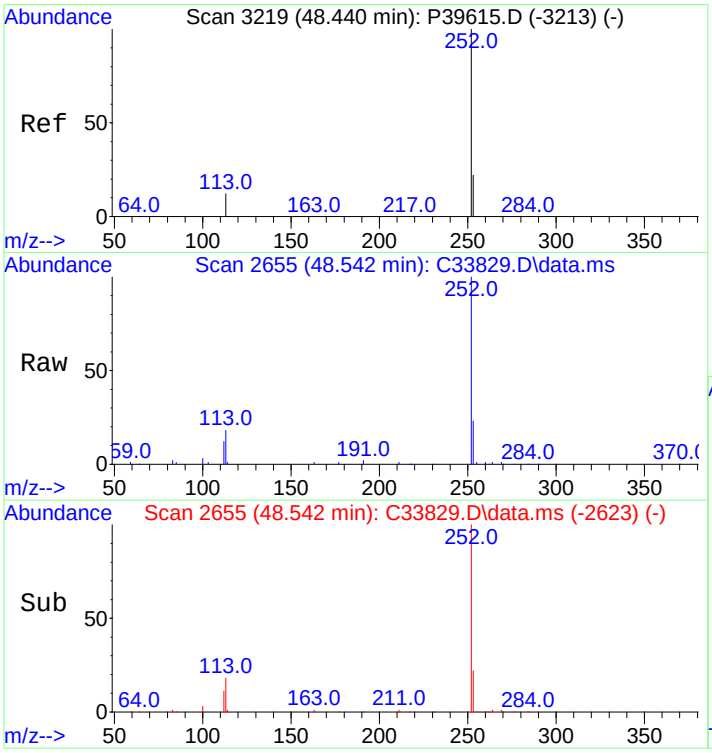


#85
Benzo[e]pyrene
Concen: 531.40 ng/mL m
RT: 48.361 min Scan# 2643
Delta R.T. -0.001 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 41766

Ion	Ratio	Lower	Upper
252	100		
253	21.9	18.5	27.7

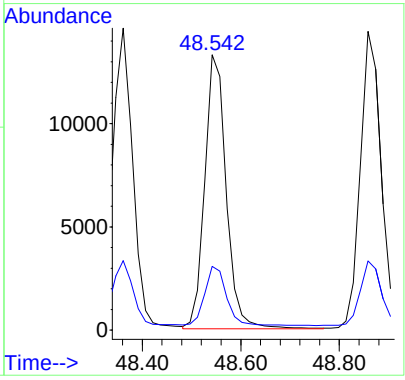


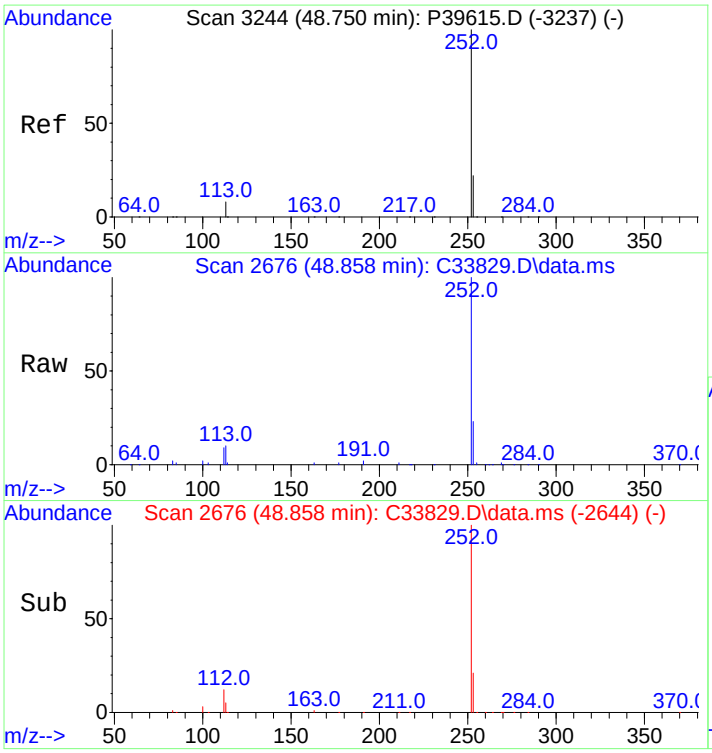


#87
Benzo[a]pyrene
Concen: 531.09 ng/mL m
RT: 48.542 min Scan# 2655
Delta R.T. -0.015 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 40189

Ion	Ratio	Lower	Upper
252	100		
253	21.7	18.7	28.1

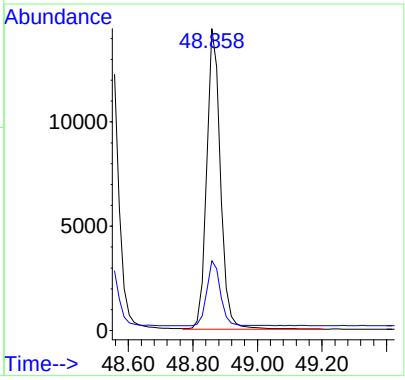


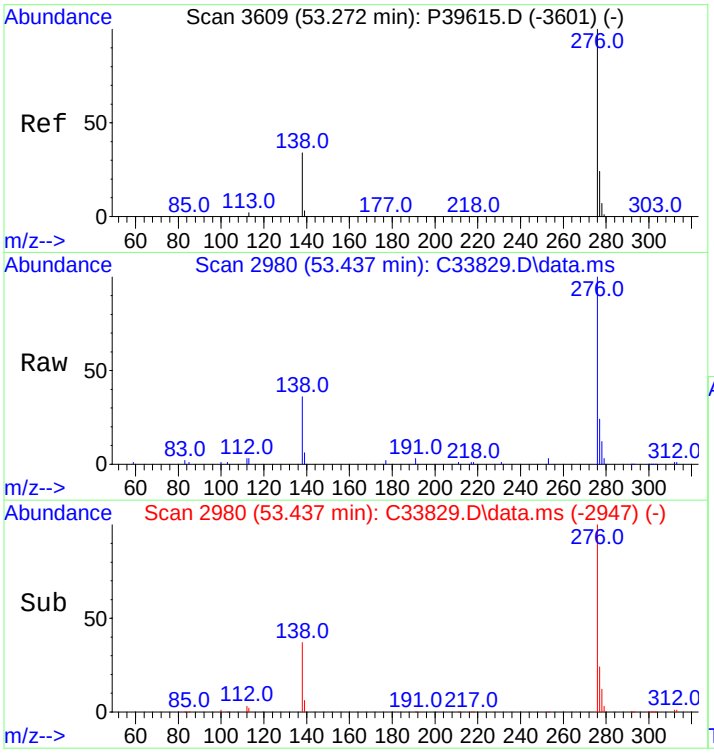


#88
Perylene
Concen: 529.34 ng/mL
RT: 48.858 min Scan# 2676
Delta R.T. -0.016 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:252 Resp: 42809

Ion	Ratio	Lower	Upper
252	100		
253	21.6	18.6	27.8

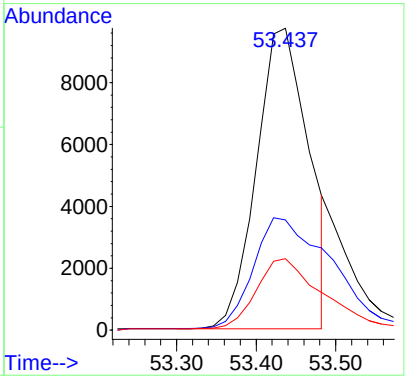


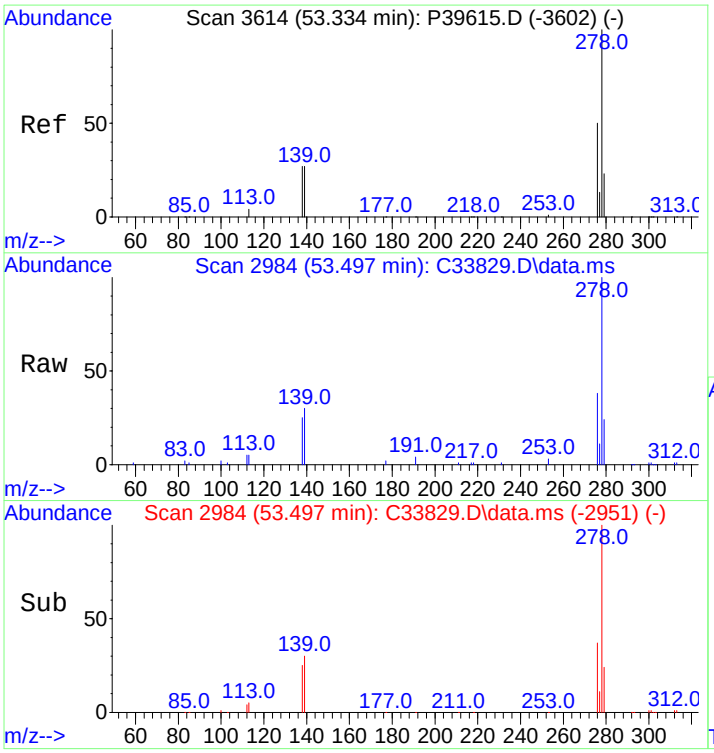


#89
Indeno[1,2,3-cd]pyrene
Concen: 505.20 ng/mL m
RT: 53.437 min Scan# 2980
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 44489

Ion	Ratio	Lower	Upper
276	100		
138	57.7	30.3	45.5#
277	31.4	19.2	28.8#

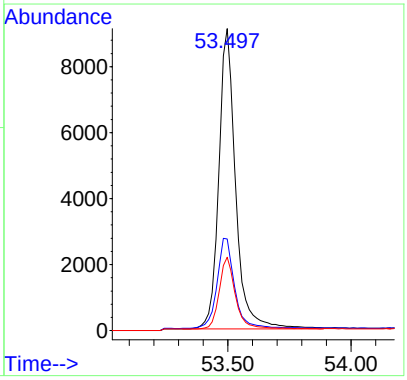


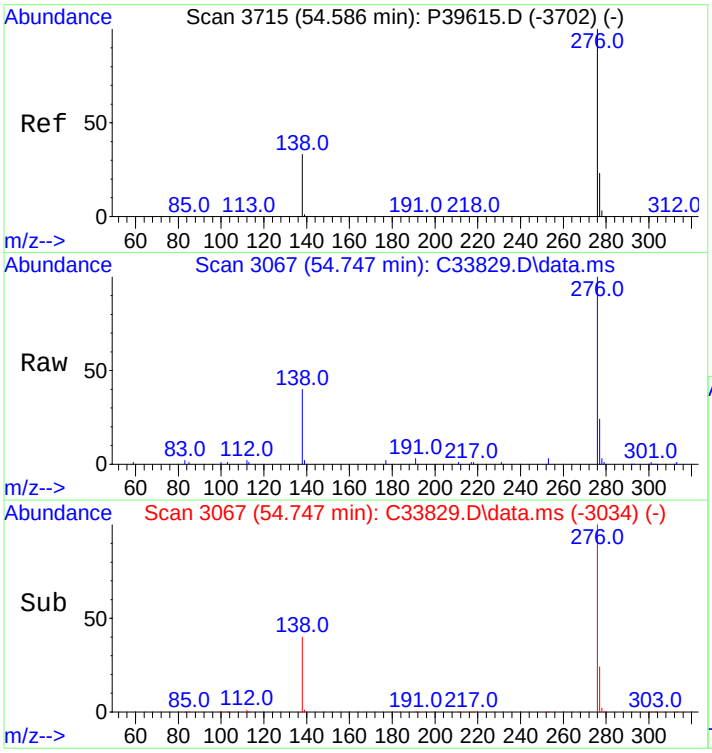


#90
Dibenz[ah]+[ac]anthracene
Concen: 520.25 ng/mL m
RT: 53.497 min Scan# 2984
Delta R.T. 0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:278 Resp: 43582

Ion	Ratio	Lower	Upper
278	100		
139	33.2	25.4	38.2
279	24.2	19.0	28.4

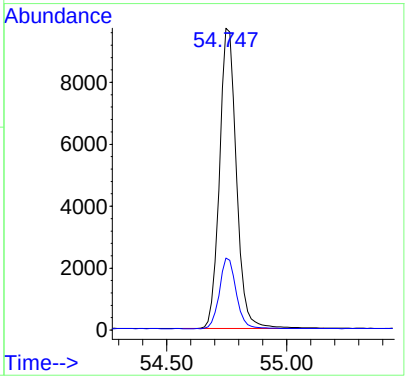




#91
Benzo[g,h,i]perylene
Concen: 510.62 ng/mL
RT: 54.747 min Scan# 3067
Delta R.T. -0.000 min
Lab File: C33829.D
Acq: 27 Mar 2012 7:13 am

Tgt Ion:276 Resp: 47507

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.9	28.3



PAH Ccal – 1205027
EIP’s

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

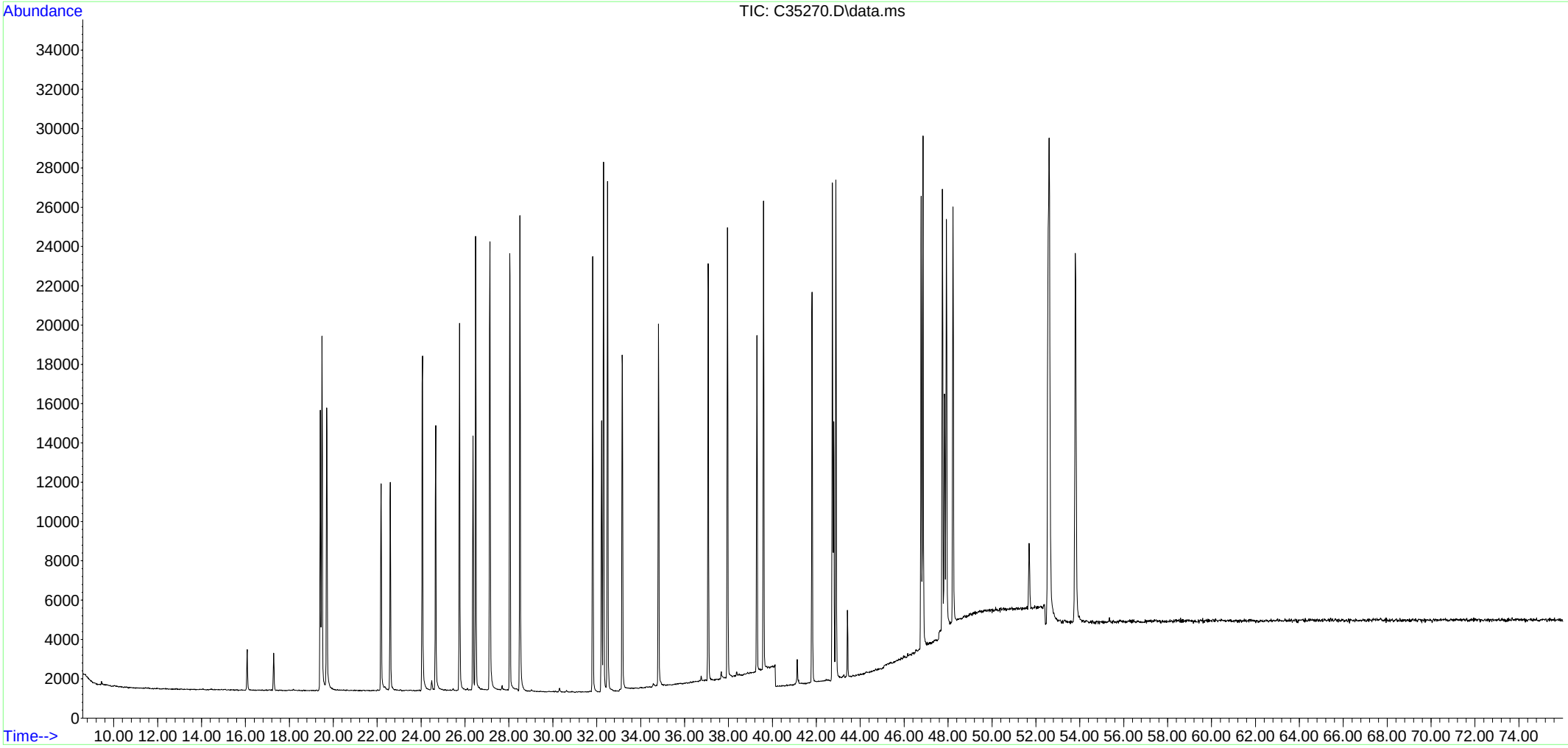
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	14097M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	24364	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	32287	527.698	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.77%			
42) Phenanthrene-d10	32.221	188	26547	548.932	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.89%			
86) Benzo[a]pyrene-d12	47.834	264	26568	526.177	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.62%			
127) 5B(H)Cholane - Surr	43.422	217	4184	549.267	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.93%			
Target Compounds						Qvalue
3) trans-Decalin	16.082	138	3009	270.392	ng/mL	100
4) cis-Decalin	17.287	138	2255	268.866	ng/mL	100
10) Naphthalene	19.485	128	42382	471.715	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	26234	493.823	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	24877	477.739	ng/mL#	100
18) Benzothiophene	19.695	134	37592	464.955	ng/mL	100
23) Biphenyl	24.061	154	33483	498.252	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.663	156	21994	503.911	ng/mL#	100
25) Dibenzofuran	27.132	168	38025	492.757	ng/mL	98
26) Acenaphthylene	25.747	152	42396	475.353	ng/mL#	100
27) Acenaphthene	26.485	153	25358M4	482.879	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.051	170	18077	513.780	ng/mL	88
29) Fluorene	28.502	166	28829M3	497.765	ng/mL	
33) Dibenzothiophene	31.814	184	45147	486.287	ng/mL	100
43) Phenanthrene	32.311	178	41286	506.155	ng/mL	100
54) Retene	39.297	234	8987	564.816	ng/mL	98
55) Anthracene	32.492	178	40904M3	513.394	ng/mL	
56) Carbazole	33.154	167	37979M3	471.911	ng/mL	
57) 1-Methylphenanthrene	34.810	192	27446	530.962	ng/mL	100
58) Fluoranthene	37.069	202	42652M3	526.499	ng/mL	
59) Benzo(b)fluorene	39.598	216	25249	537.223	ng/mL	99
60) Pyrene	37.957	202	42855	520.405	ng/mL	98
66) Naphthobenzothiophene	41.811	234	46382	523.163	ng/ml#	66
67) Naphthobenzothiophene-...	41.811	234	46382	523.163	ng/mL#	66
75) Benz[a]anthracene	42.730	228	38664	499.981	ng/mL	99
76) Chrysene	42.895	228	39459	505.418	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	39459	505.418	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	42216	496.827	ng/mL	95
83) Benzo[j]+[k]fluoranthene	46.856	252	47265	510.908	ng/mL	94
85) Benzo[e]pyrene	47.744	252	41880	498.292	ng/mL	91
87) Benzo[a]pyrene	47.925	252	39702M4	490.633	ng/mL	
88) Perylene	48.226	252	42939	496.515	ng/mL	94
89) Indeno[1,2,3-cd]pyrene	52.563	276	50575M2	537.068	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	49067M3	547.742	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	54143	544.207	ng/mL	100
92) Hopane (T19)	51.690	191	7591	472.736	ng/mL#	78
93) 17a(H),21B(H)-hopane -...	51.690	191	7591	472.736	ng/mL#	78

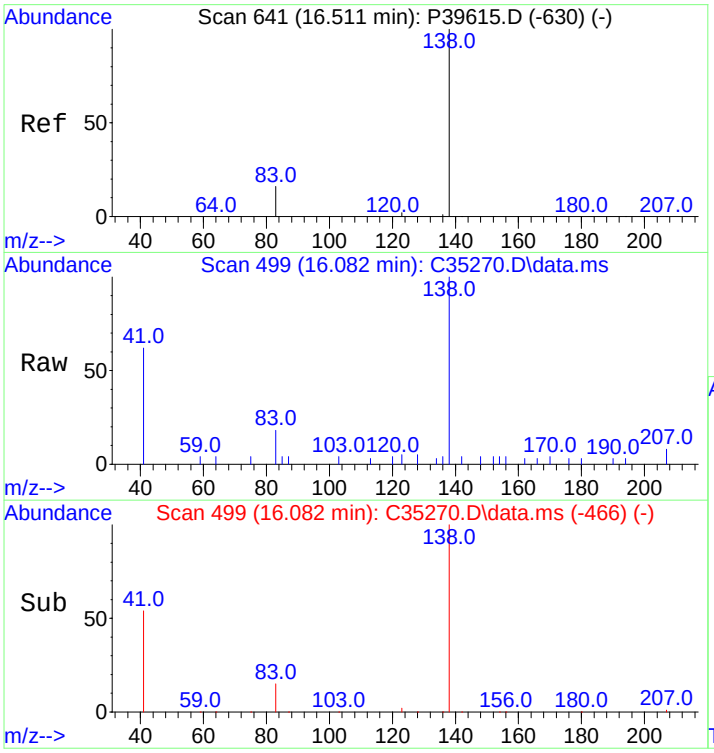
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35270.D
Acq On : 24 May 2012 12:38 pm
Operator : AC
Sample : C305241201
Misc : CC WHAP59 500NG/ML
ALS Vial : 2 Sample Multiplier: 1

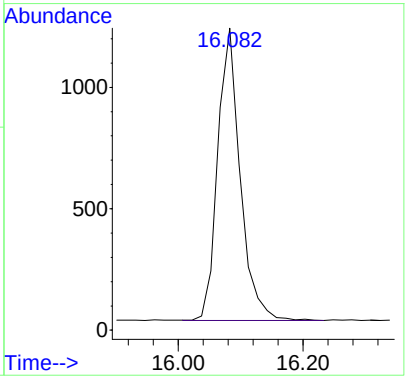
Quant Time: May 29 10:19:04 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Tue Mar 27 15:43:52 2012
Response via : Initial Calibration

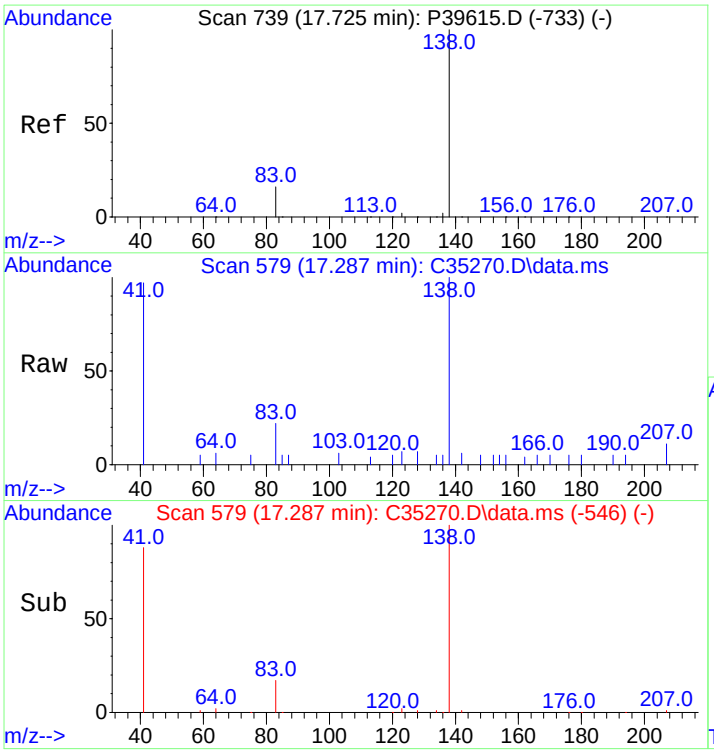




#3
trans-Decalin
Concen: 270.39 ng/mL
RT: 16.082 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

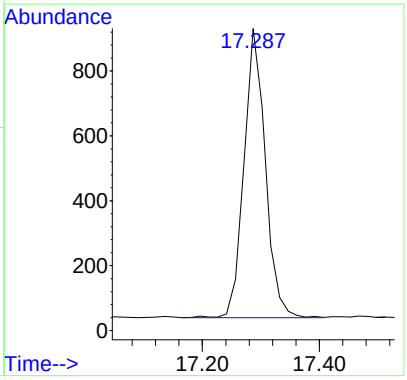
Tgt Ion:138 Resp: 3009

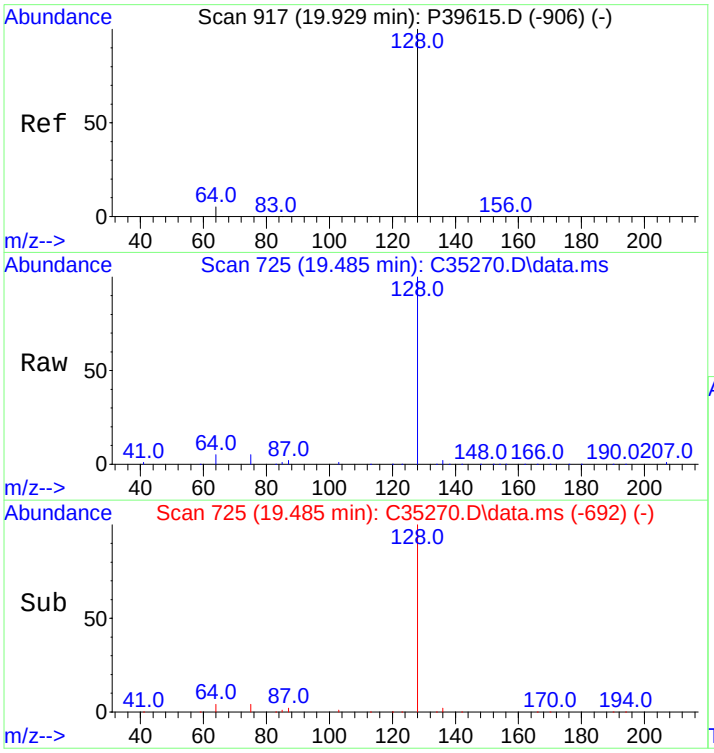




#4
cis-Decalin
Concen: 268.87 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:138 Resp: 2255

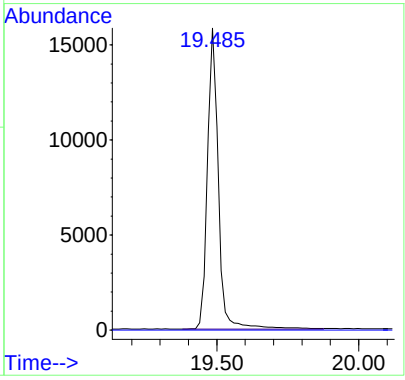


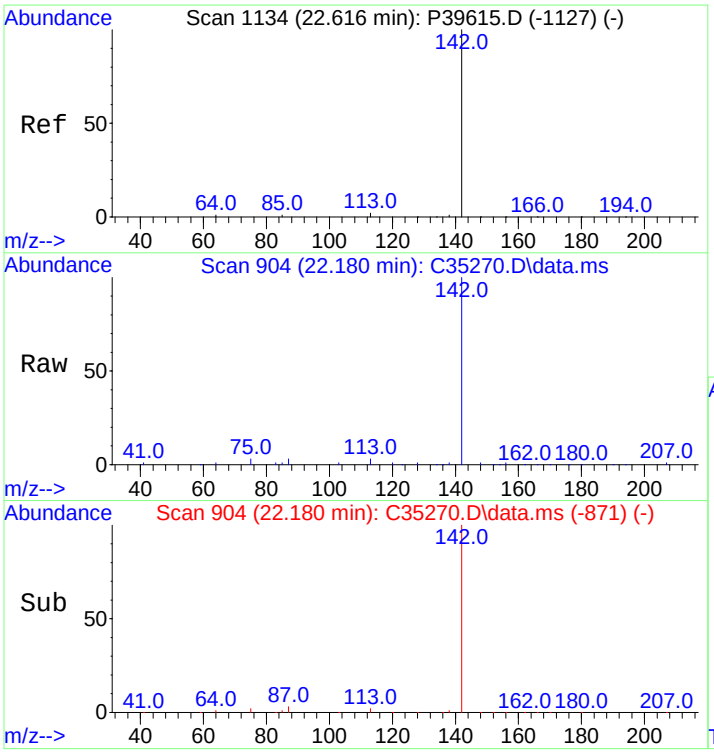


#10
Naphthalene
Concen: 471.71 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:128 Resp: 42382

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

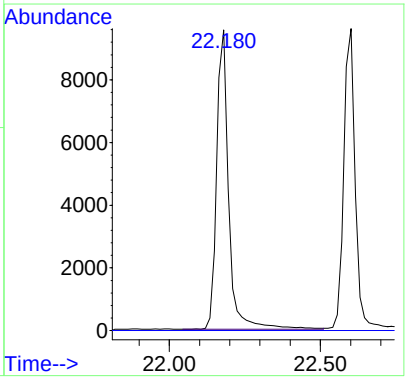


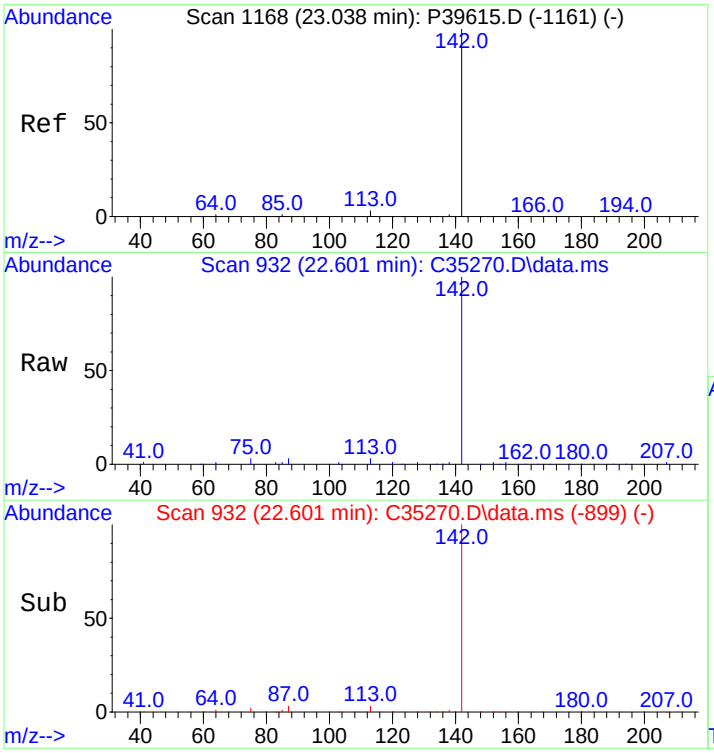


#16
2-Methylnaphthalene
Concen: 493.82 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:142 Resp: 26234

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

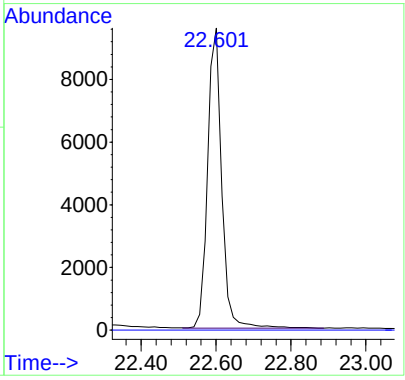


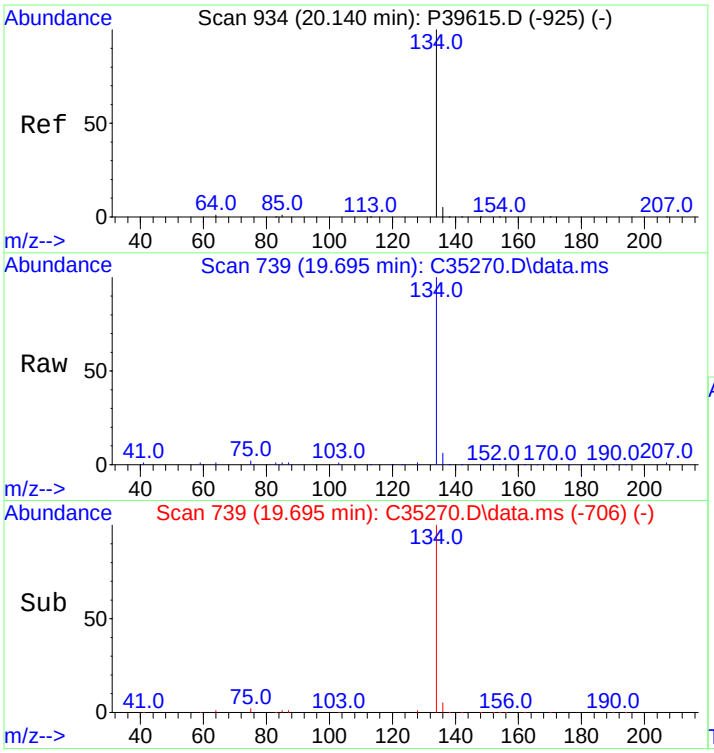


#17
1-Methylnaphthalene
Concen: 477.74 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:142 Resp: 24877

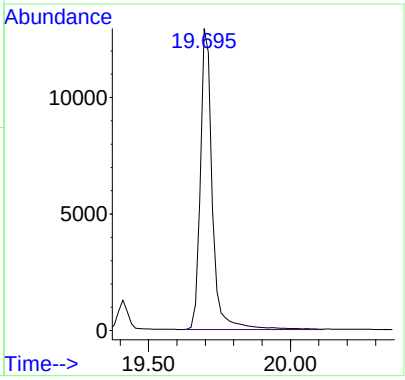
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

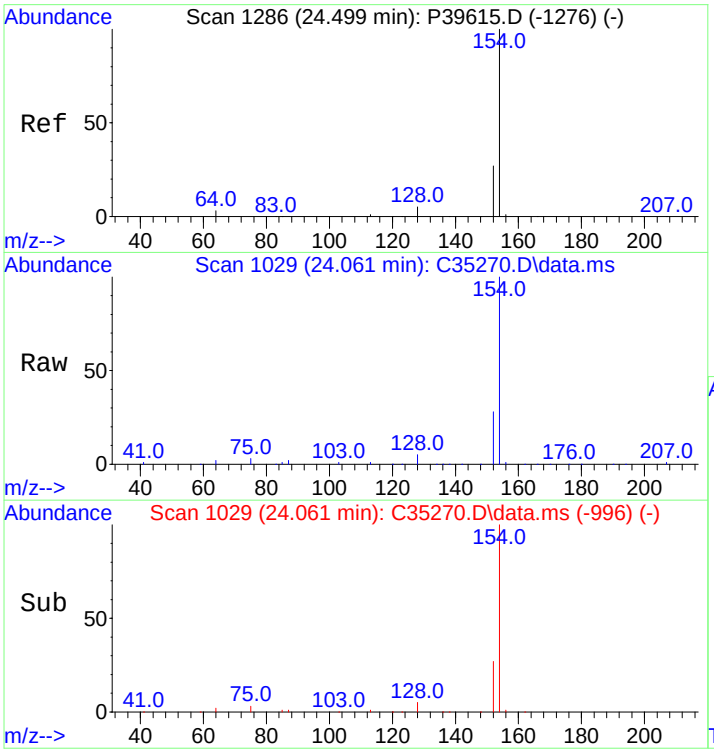




#18
Benzothiophene
Concen: 464.96 ng/mL
RT: 19.695 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:134 Resp: 37592

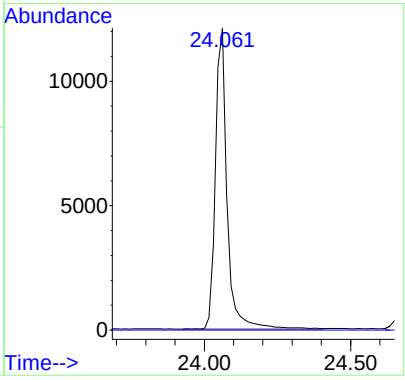


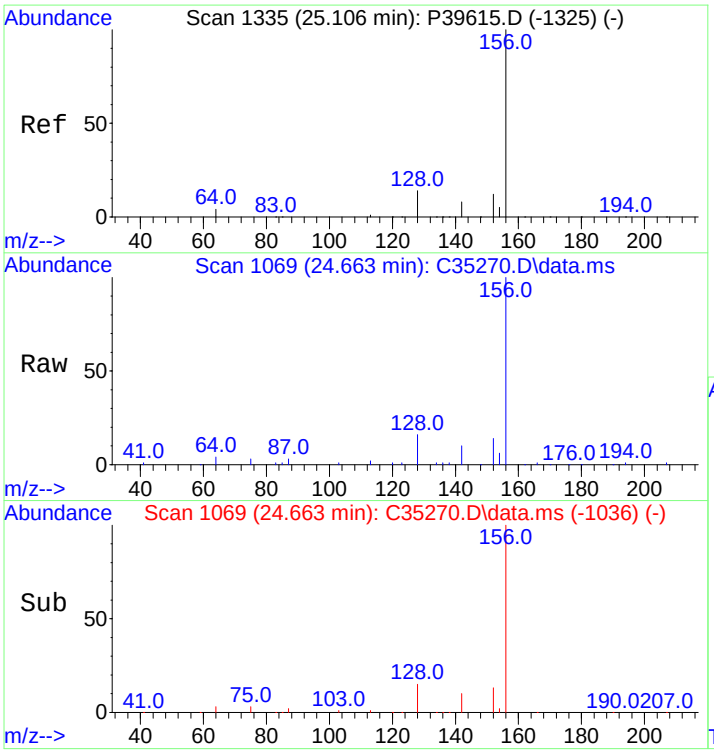


#23
Biphenyl
Concen: 498.25 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:154 Resp: 33483

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

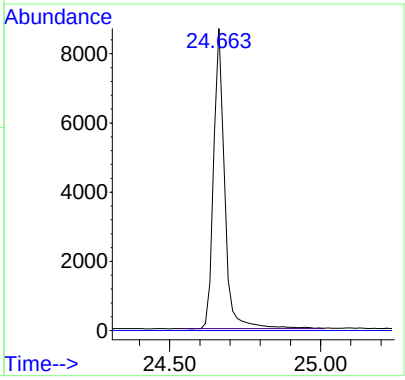


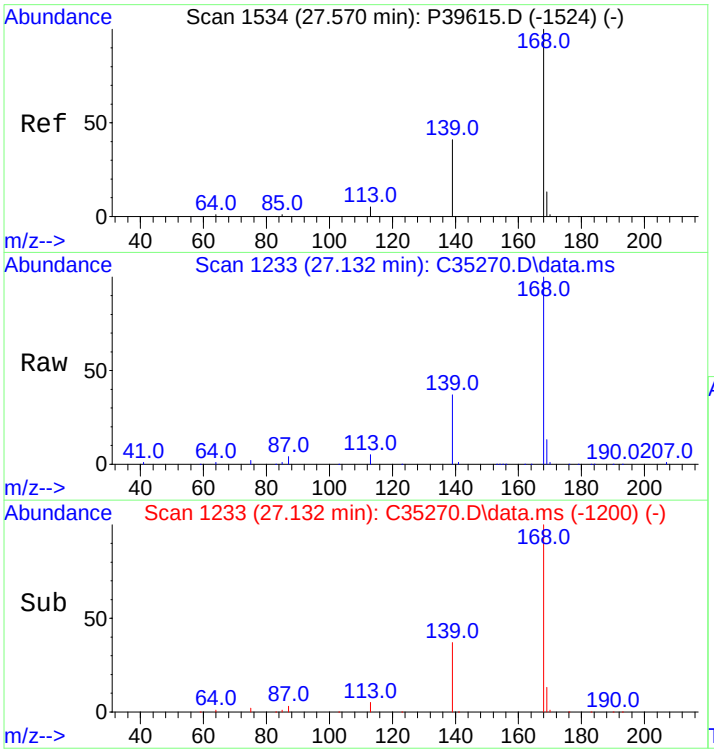


#24
2,6-Dimethylnaphthalene
Concen: 503.91 ng/mL
RT: 24.663 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:156 Resp: 21994

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

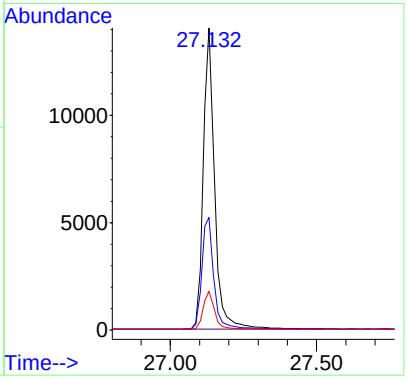


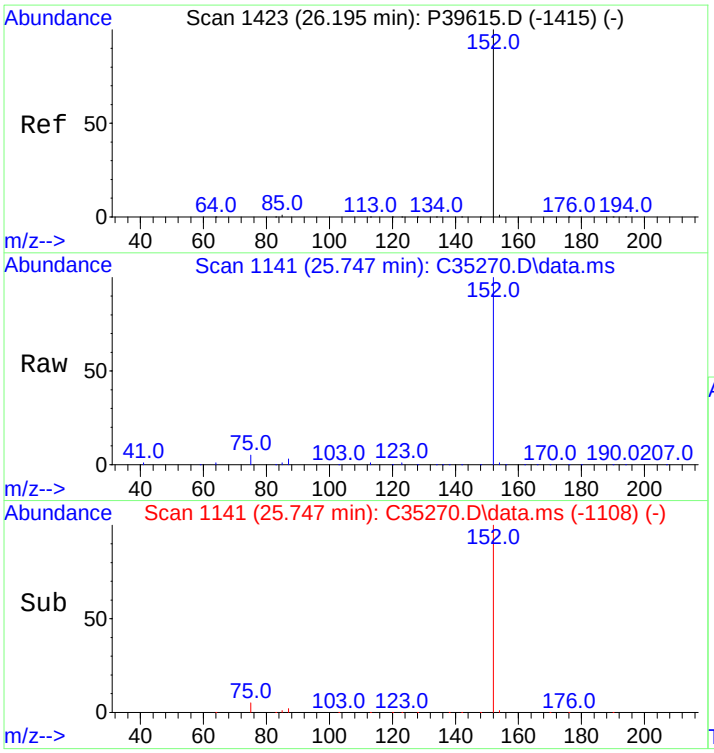


#25
Dibenzofuran
Concen: 492.76 ng/mL
RT: 27.132 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:168 Resp: 38025

Ion	Ratio	Lower	Upper
168	100		
139	39.4	29.9	44.9
169	12.9	10.3	15.5

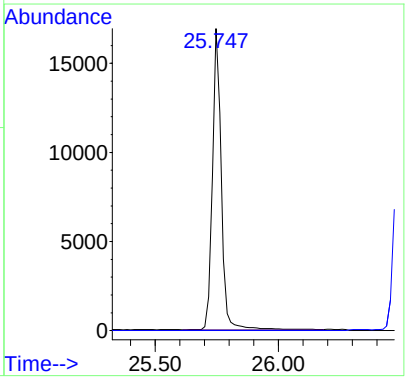


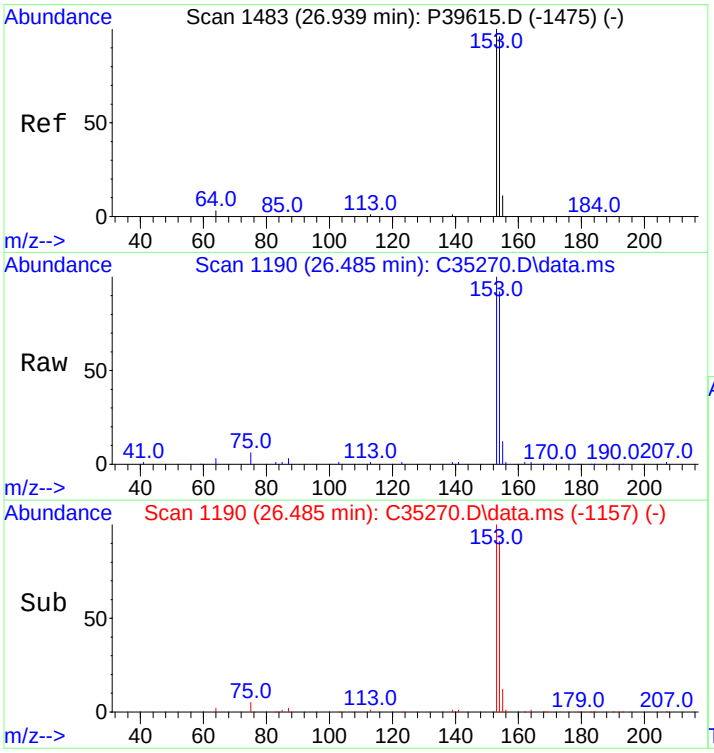


#26
Acenaphthylene
Concen: 475.35 ng/mL
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:152 Resp: 42396

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

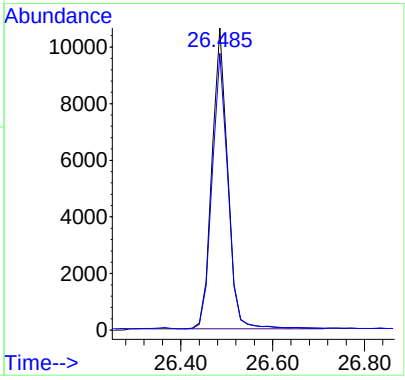


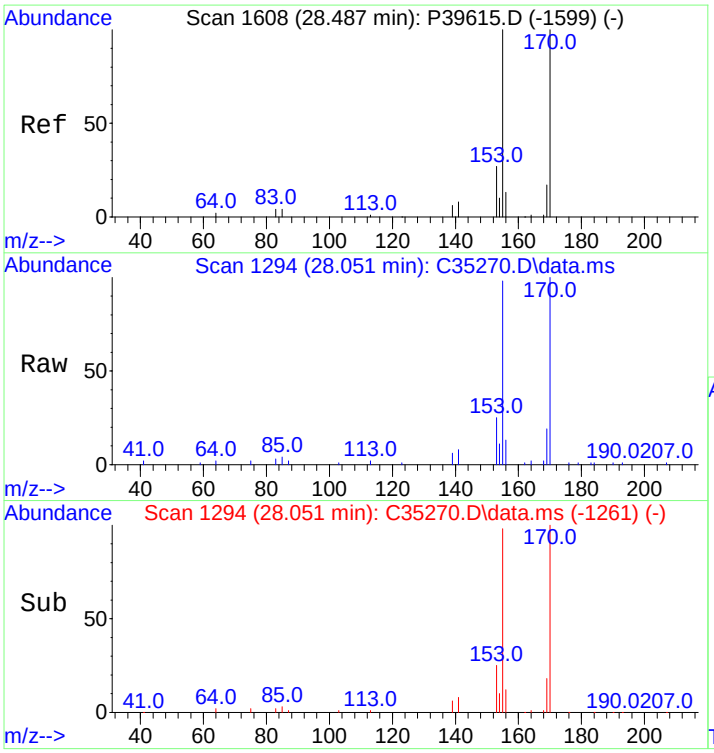


#27
Acenaphthene
Concen: 482.88 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:153 Resp: 25358

Ion	Ratio	Lower	Upper
153	100		
154	92.6	73.3	109.9

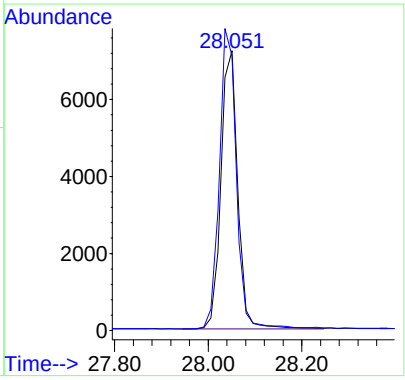


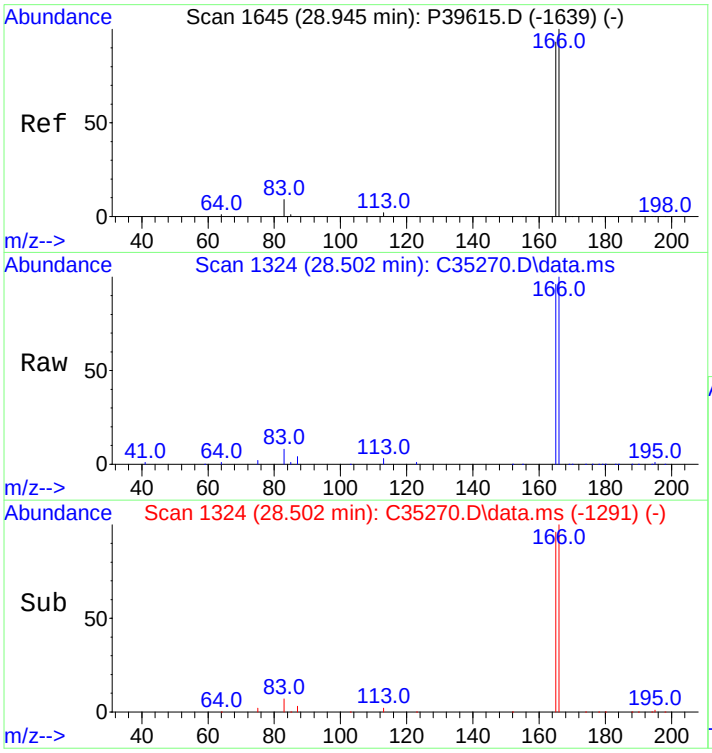


#28
2,3,5-Trimethylnaphthalene
Concen: 513.78 ng/mL
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:170 Resp: 18077

Ion	Ratio	Lower	Upper
170	100		
155	109.5	78.4	117.6

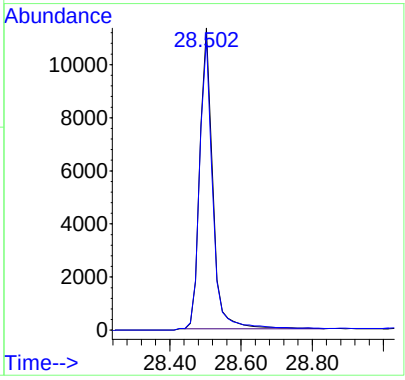


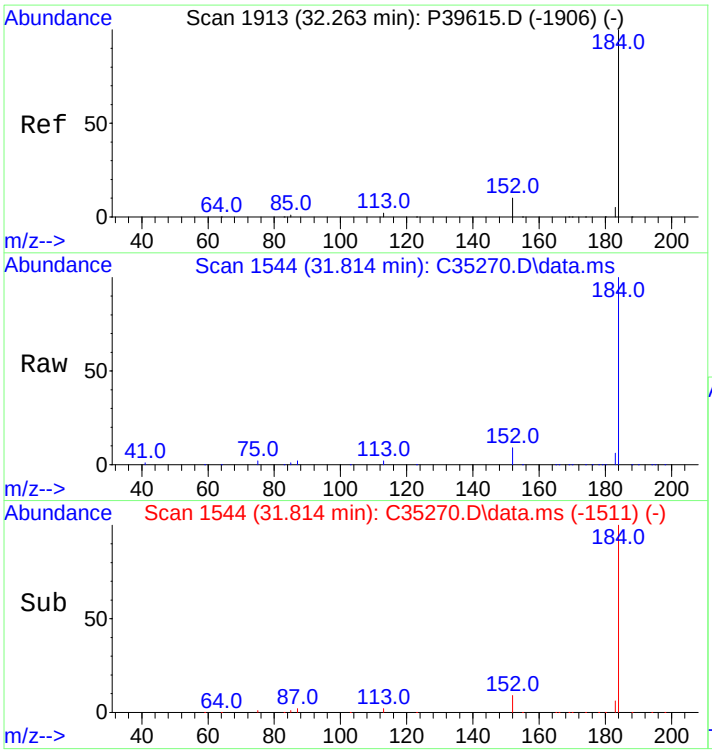


#29
Fluorene
Concen: 497.76 ng/mL m
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:166 Resp: 28829

Ion	Ratio	Lower	Upper
166	100		
165	100.3	77.1	115.7

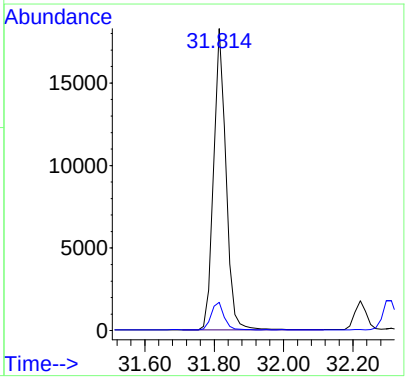


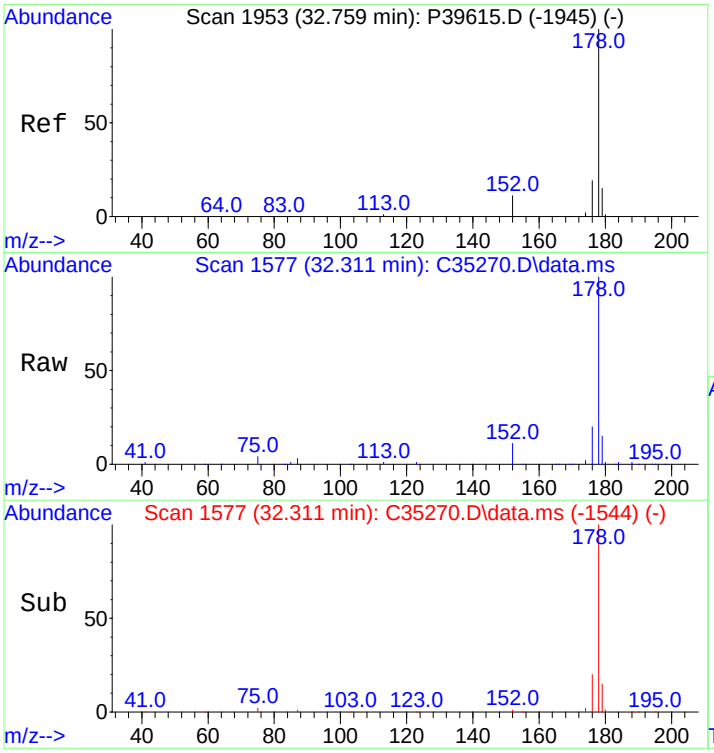


#33
Dibenzothiophene
Concen: 486.29 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:184 Resp: 45147

Ion	Ratio	Lower	Upper
184	100		
152	9.6	7.5	11.3

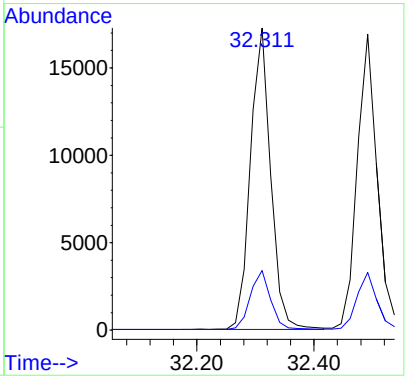


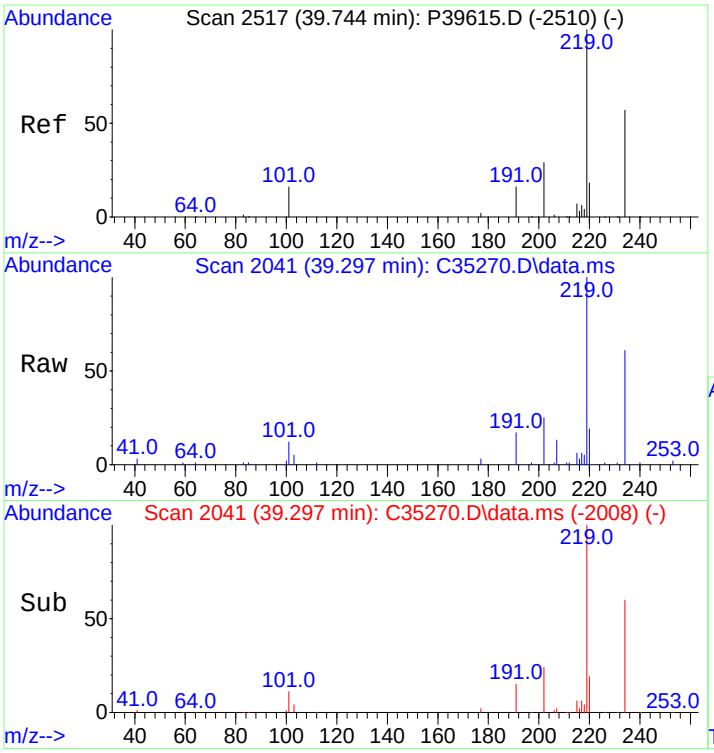


#43
Phenanthrene
Concen: 506.15 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:178 Resp: 41286

Ion	Ratio	Lower	Upper
178	100		
176	19.6	15.8	23.6

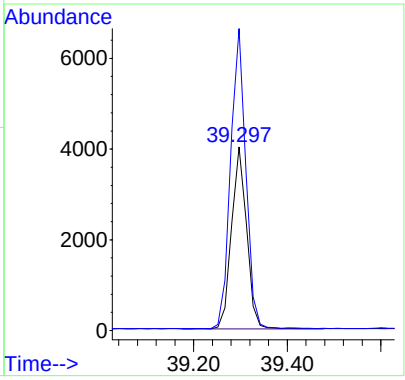


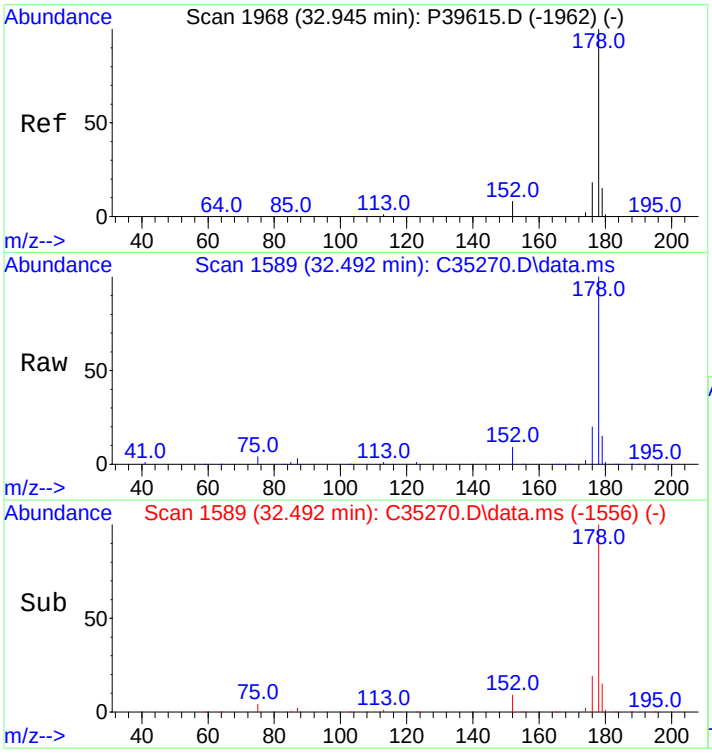


#54
Retene
Concen: 564.82 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:234 Resp: 8987

Ion	Ratio	Lower	Upper
234	100		
219	166.8	131.8	197.8

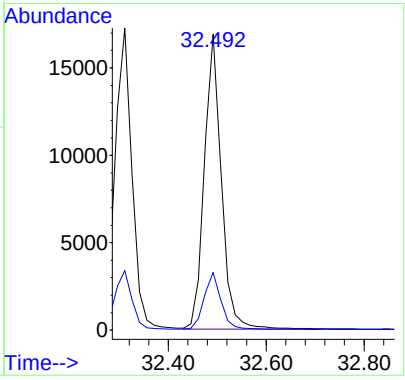


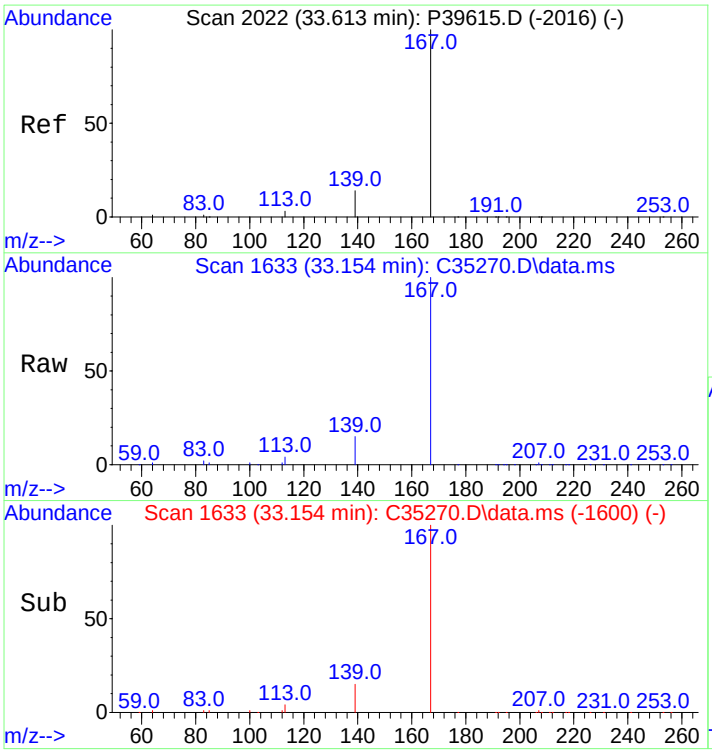


#55
Anthracene
Concen: 513.39 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:178 Resp: 40904

Ion	Ratio	Lower	Upper
178	100		
176	19.3	15.6	23.4

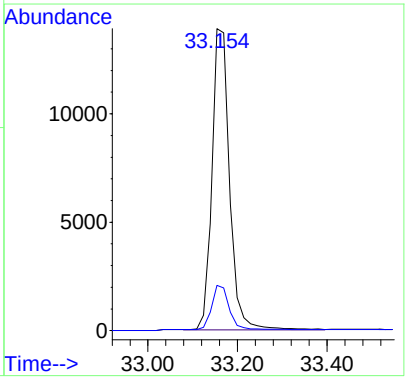


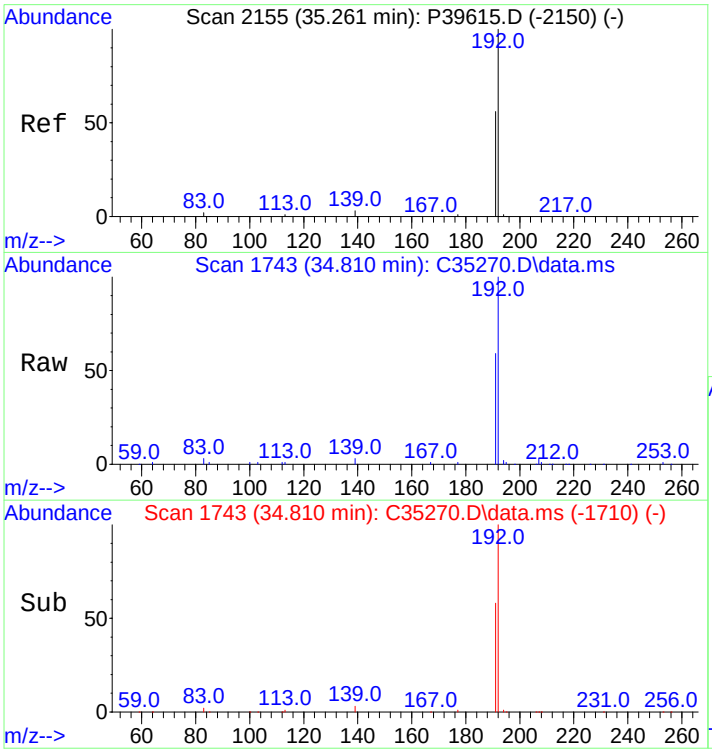


#56
Carbazole
Concen: 471.91 ng/mL m
RT: 33.154 min Scan# 1633
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:167 Resp: 37979

Ion	Ratio	Lower	Upper
167	100		
139	15.3	11.9	17.9

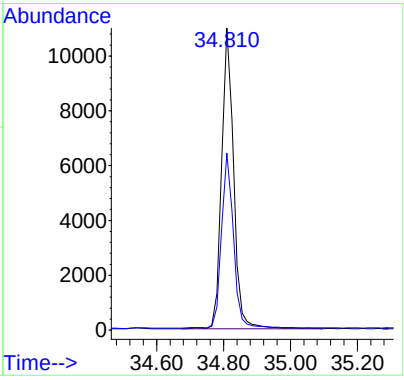


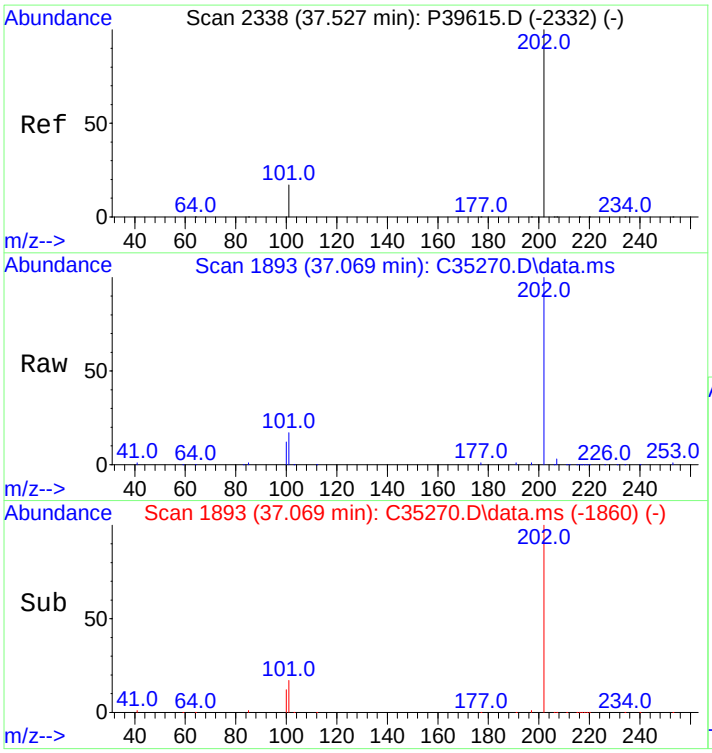


#57
1-Methylphenanthrene
Concen: 530.96 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:192 Resp: 27446

Ion	Ratio	Lower	Upper
192	100		
191	58.3	46.8	70.2

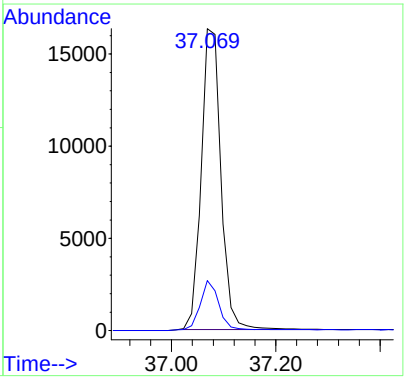


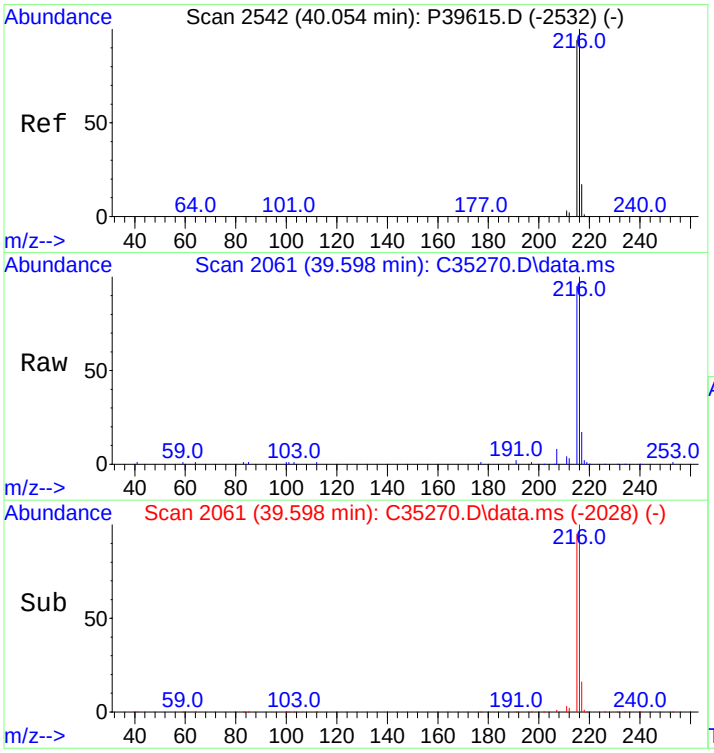


#58
Fluoranthene
Concen: 526.50 ng/mL m
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:202 Resp: 42652

Ion	Ratio	Lower	Upper
202	100		
101	16.5	13.2	19.8

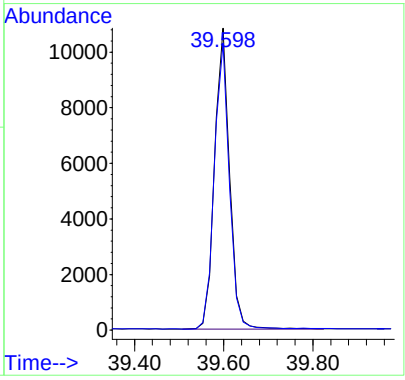


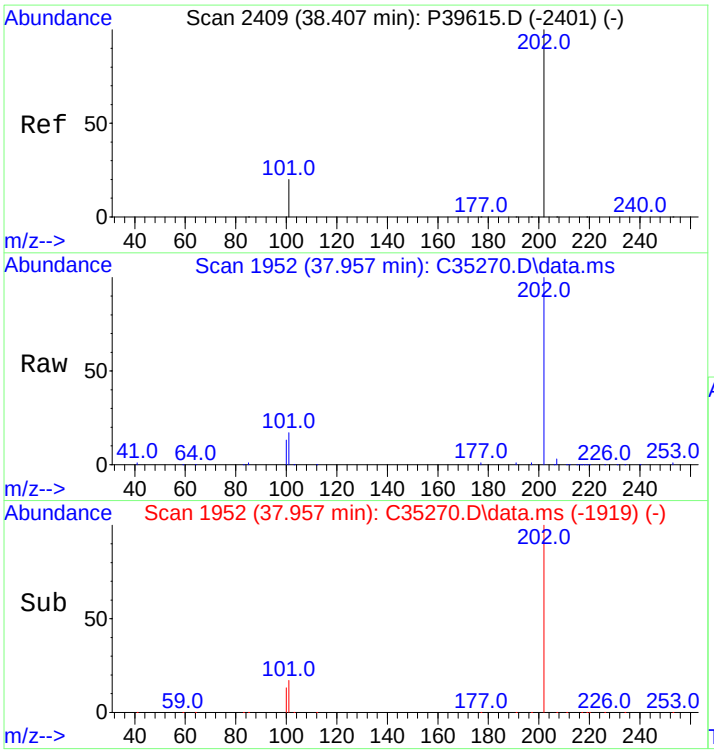


#59
Benzo(b)fluorene
Concen: 537.22 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:216 Resp: 25249

Ion	Ratio	Lower	Upper
216	100		
215	96.0	76.0	114.0

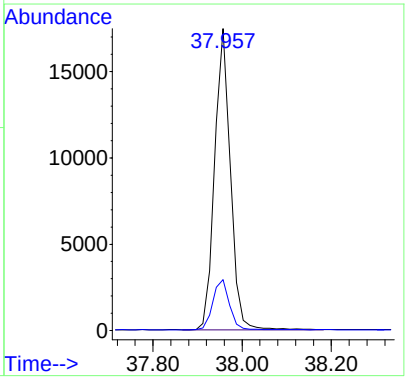


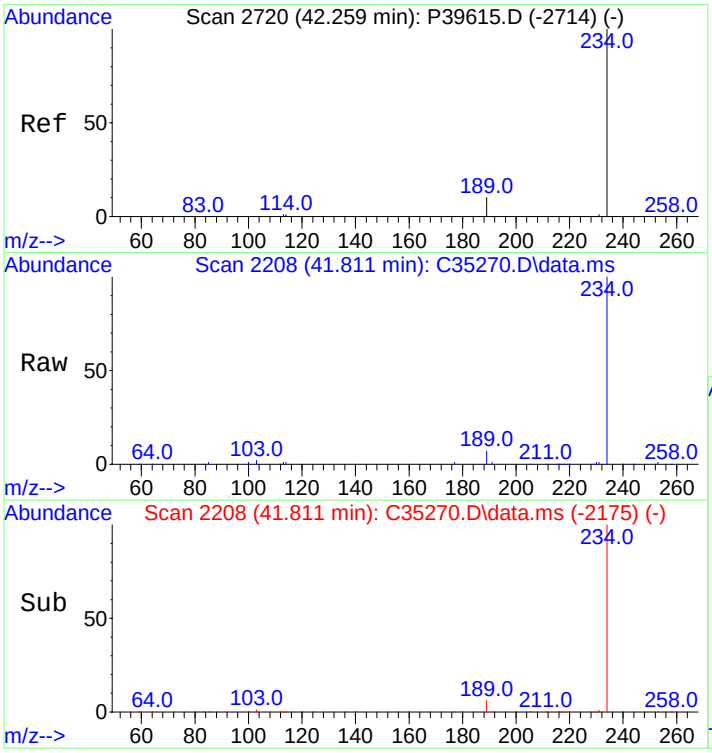


#60
Pyrene
Concen: 520.40 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:202 Resp: 42855

Ion	Ratio	Lower	Upper
202	100		
101	17.6	13.5	20.3

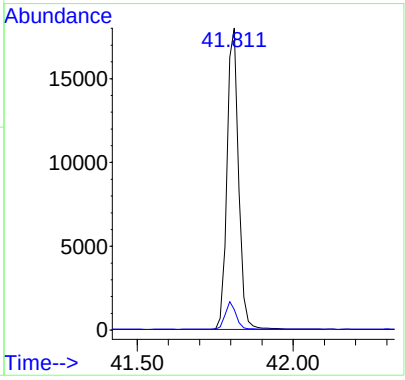


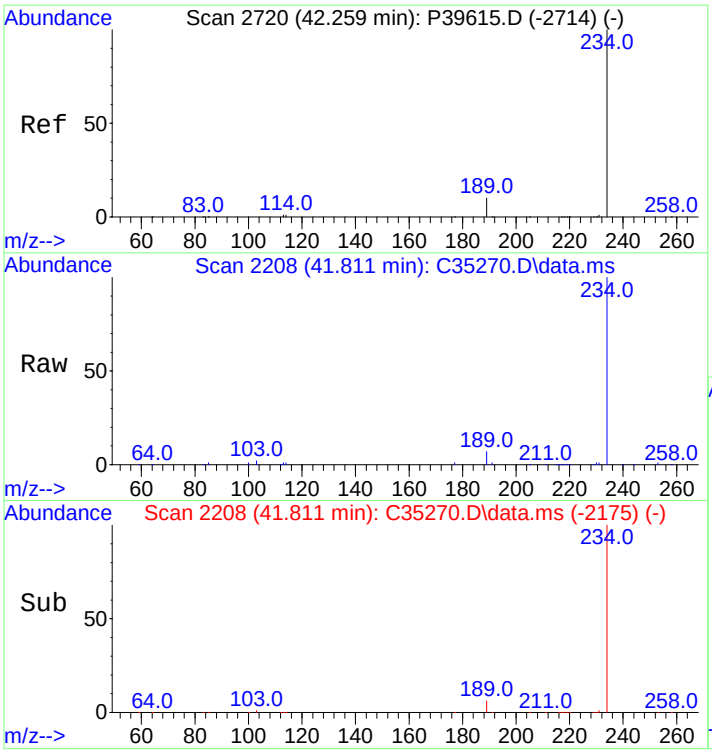


#66
Naphthobenzothiophene
Concen: 523.16 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:234 Resp: 46382

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

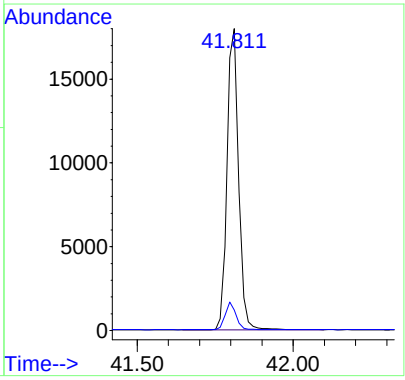


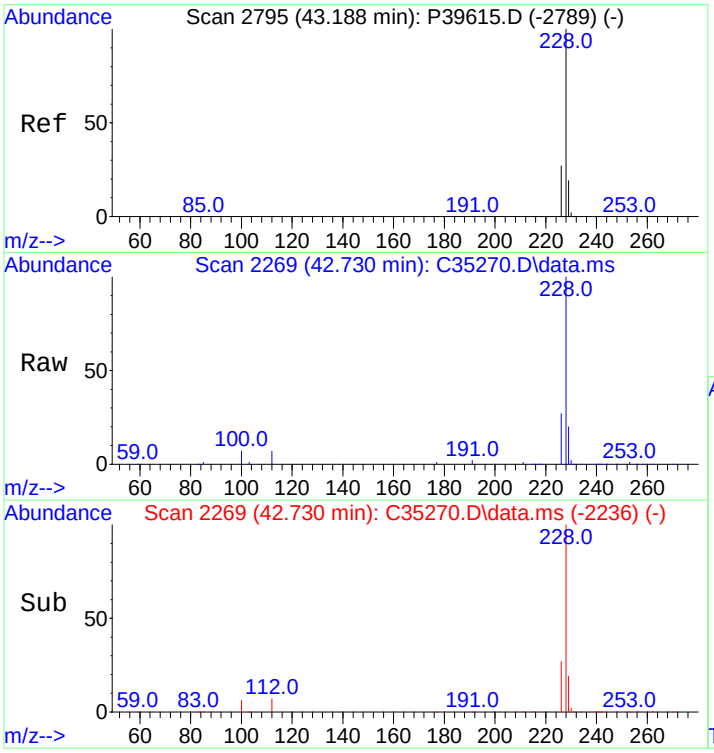


#67
Naphthobenzothiophene-2,1-D
Concen: 523.16 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:234 Resp: 46382

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

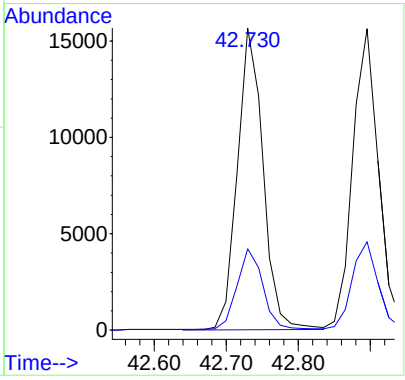


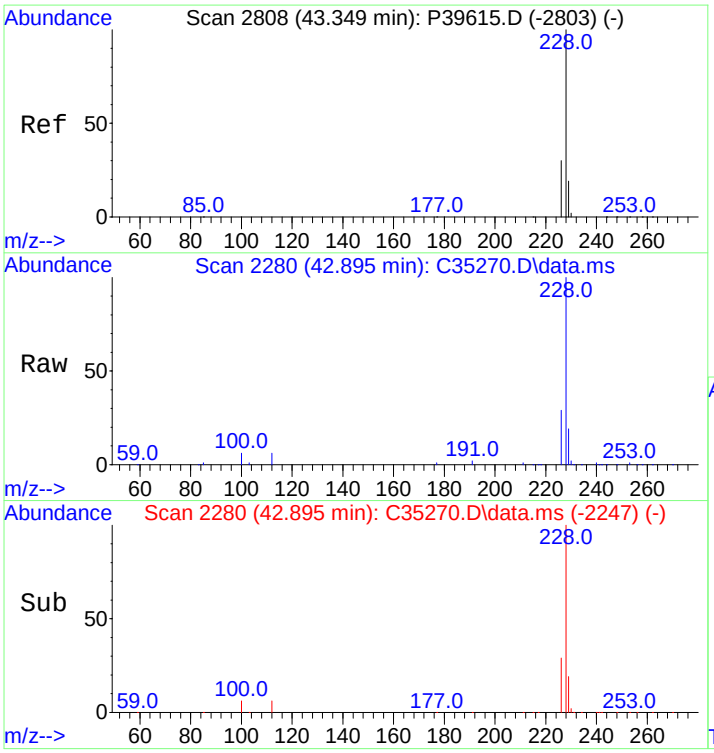


#75
Benz[a]anthracene
Concen: 499.98 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:228 Resp: 38664

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.5	32.3

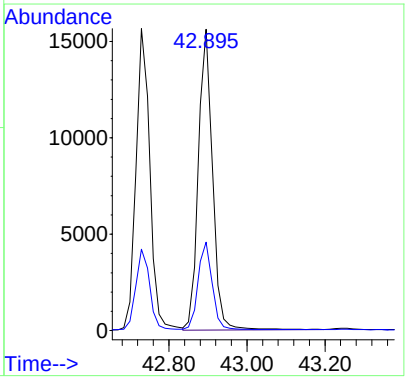


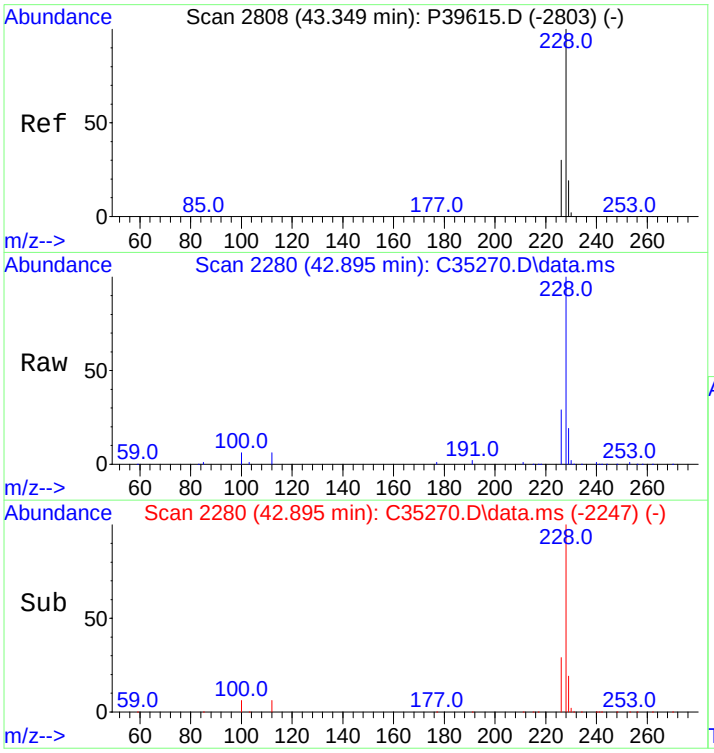


#76
Chrysene
Concen: 505.42 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:228 Resp: 39459

Ion	Ratio	Lower	Upper
228	100		
226	29.2	23.5	35.3

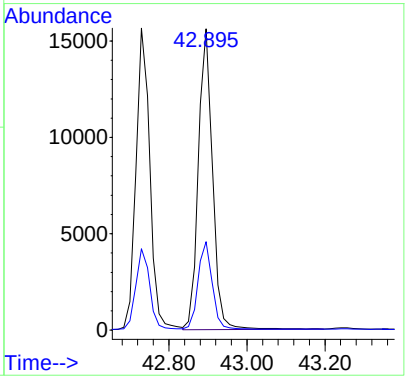


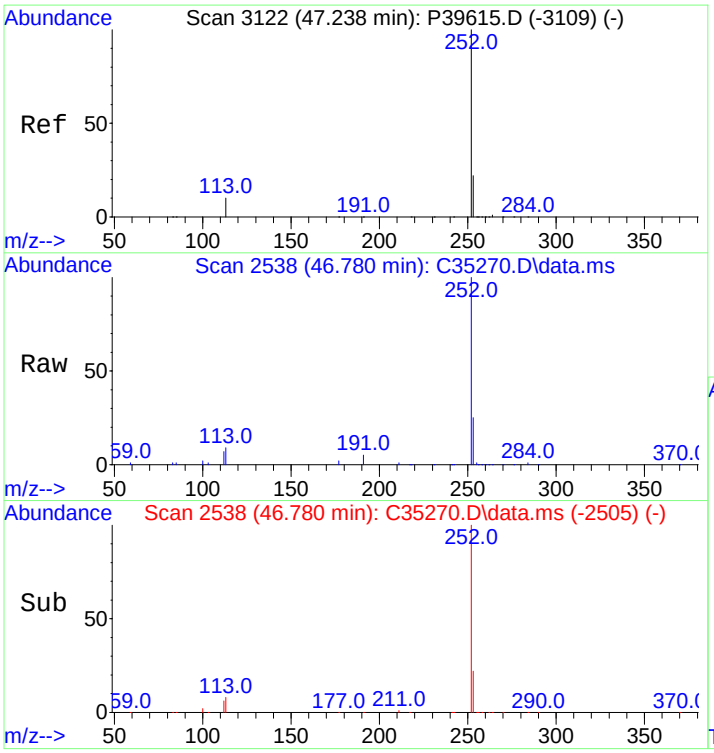


#77
Chrysene/Triphenylene
Concen: 505.42 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:228 Resp: 39459

Ion	Ratio	Lower	Upper
228	100		
226	29.2	23.5	35.3

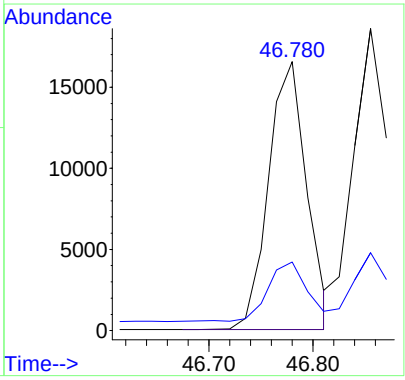


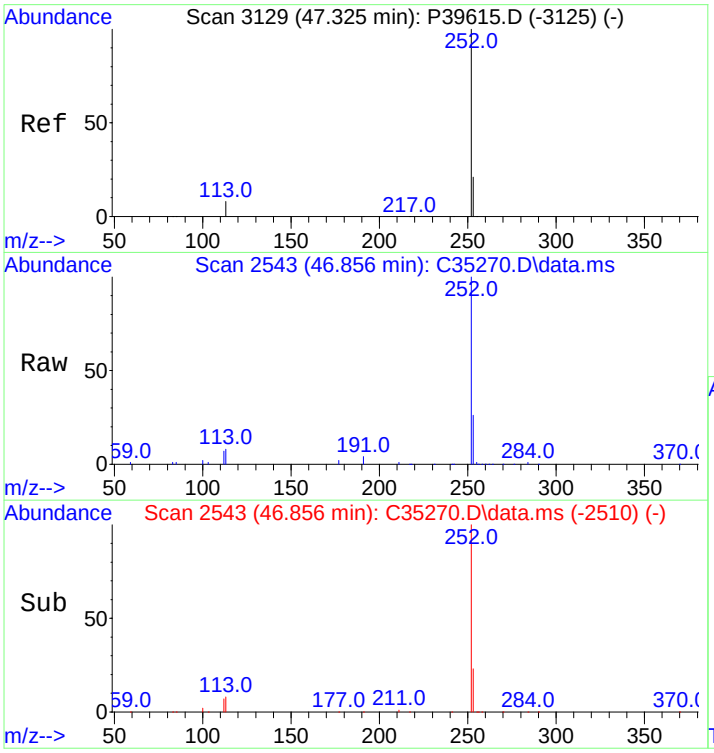


#82
Benzo[b]fluoranthene
Concen: 496.83 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:252 Resp: 42216

Ion	Ratio	Lower	Upper
252	100		
253	23.0	20.4	30.6

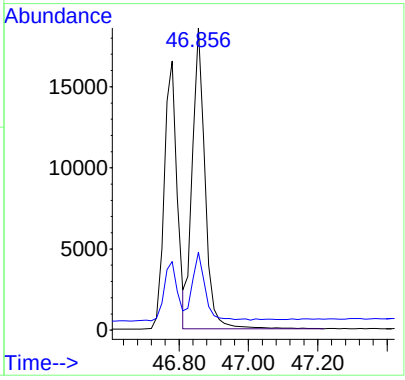


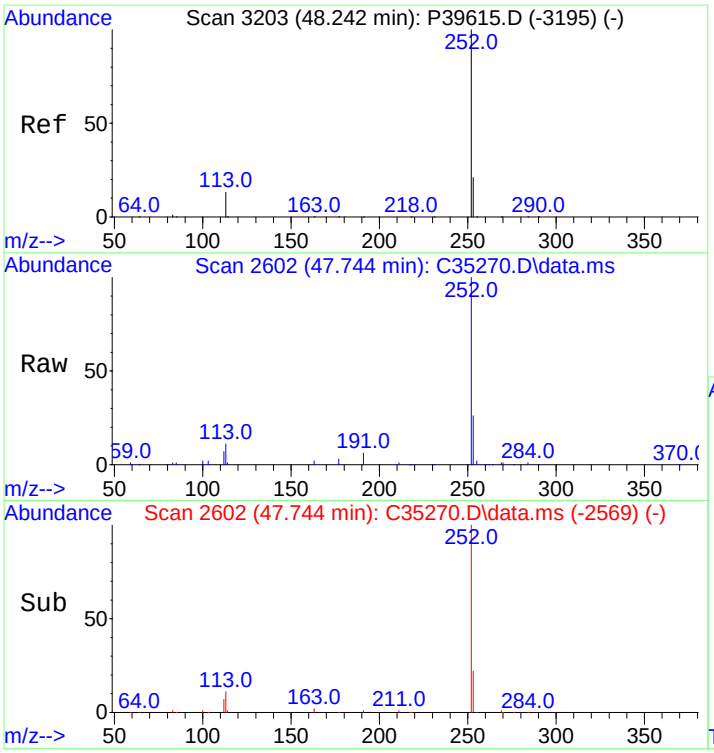


#83
Benzo[j]+[k]fluoranthene
Concen: 510.91 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:252 Resp: 47265

Ion	Ratio	Lower	Upper
252	100		
253	22.5	20.6	31.0

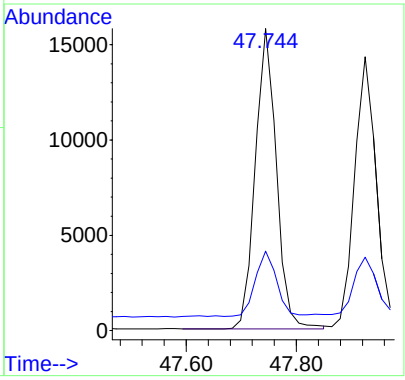


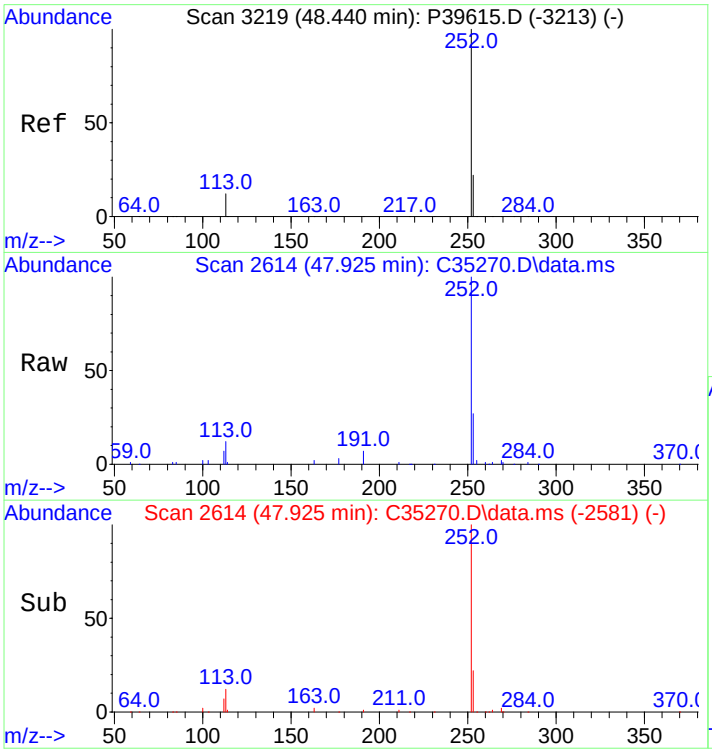


#85
Benzo[e]pyrene
Concen: 498.29 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:252 Resp: 41880

Ion	Ratio	Lower	Upper
252	100		
253	21.8	21.0	31.6

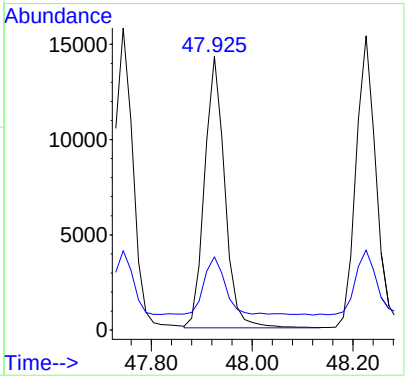


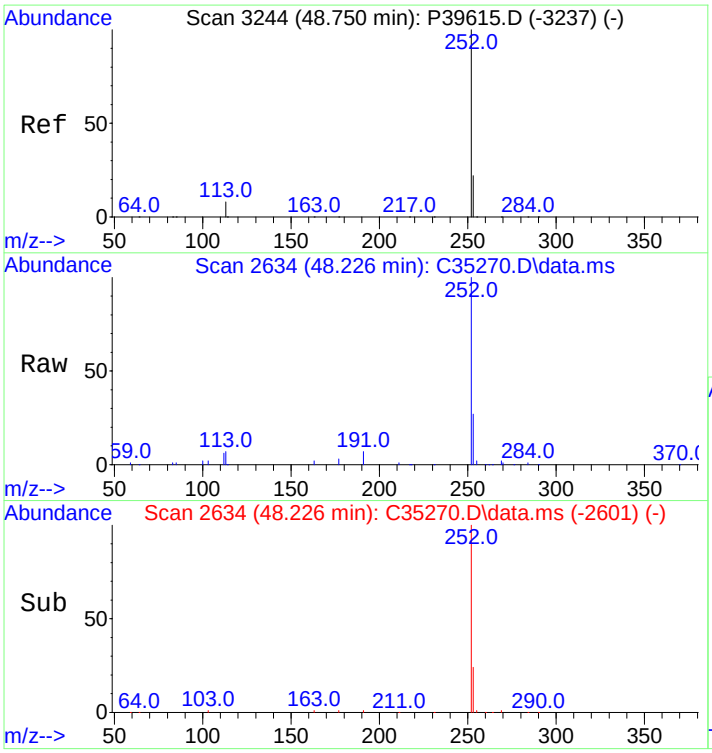


#87
Benzo[a]pyrene
Concen: 490.63 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:252 Resp: 39702

Ion	Ratio	Lower	Upper
252	100		
253	23.0	21.4	32.0

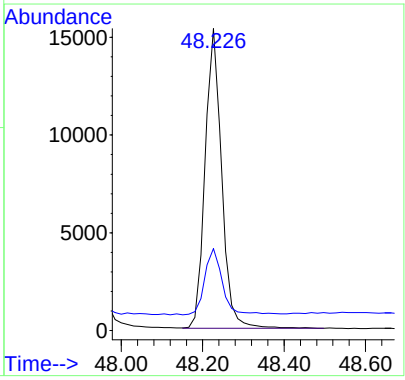


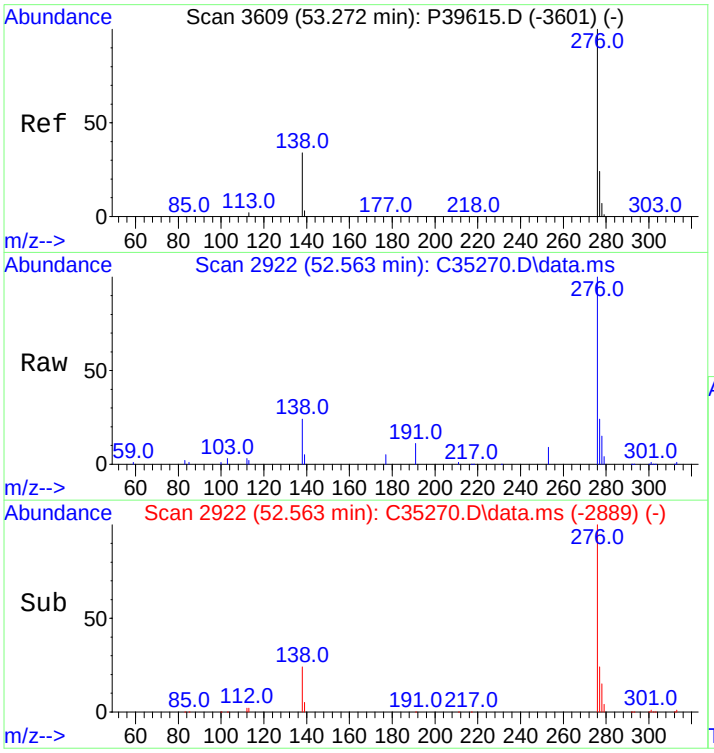


#88
Perylene
Concen: 496.51 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:252 Resp: 42939

Ion	Ratio	Lower	Upper
252	100		
253	24.0	21.8	32.6

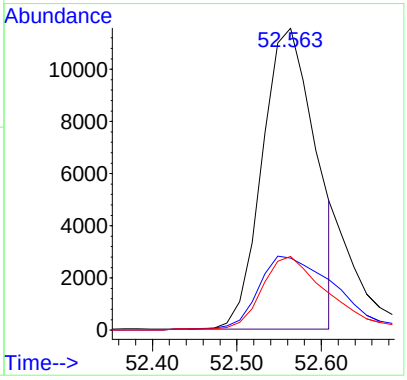


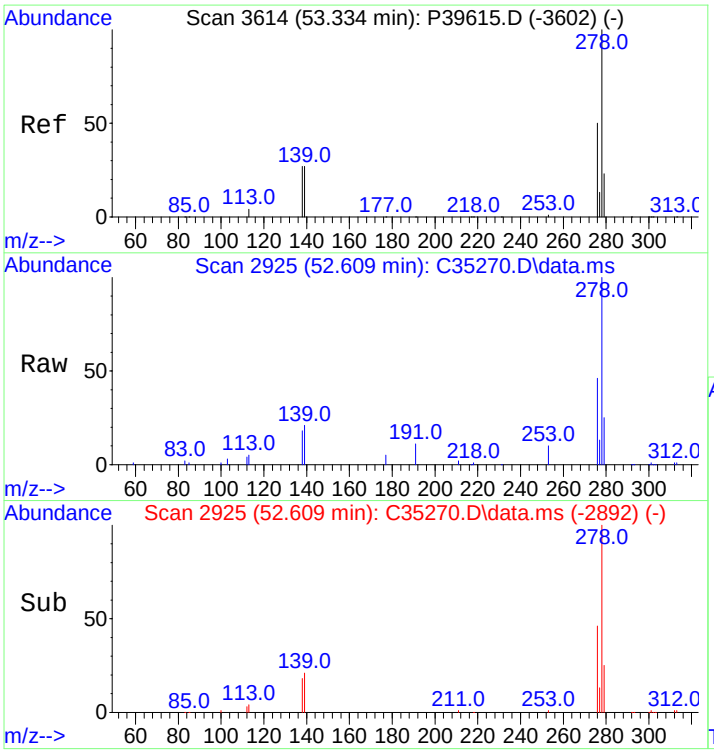


#89
Indeno[1,2,3-cd]pyrene
Concen: 537.07 ng/mL m
RT: 52.563 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:276 Resp: 50575

Ion	Ratio	Lower	Upper
276	100		
138	39.0	19.1	28.7#
277	32.4	19.5	29.3#

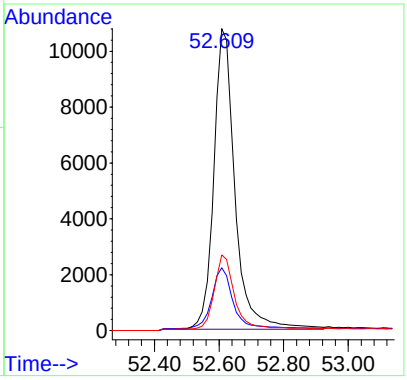


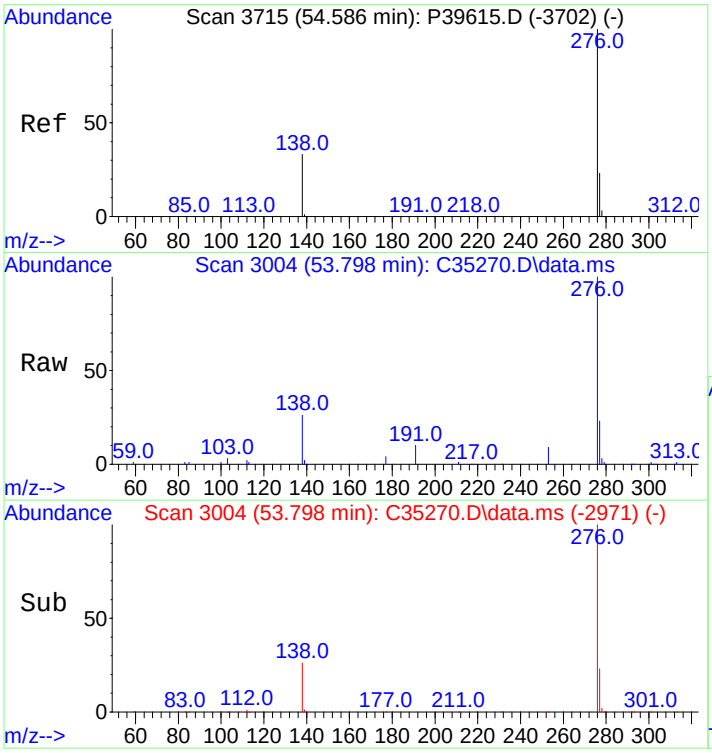


#90
Dibenz[ah]+[ac]anthracene
Concen: 547.74 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:278 Resp: 49067

Ion	Ratio	Lower	Upper
278	100		
139	24.6	16.6	25.0
279	26.1	20.0	30.0

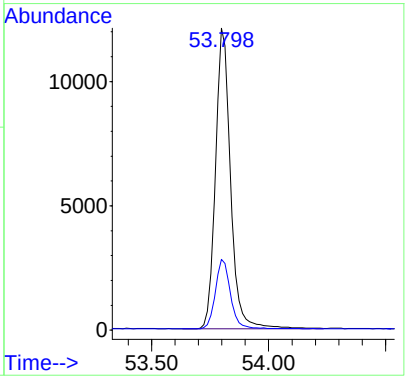


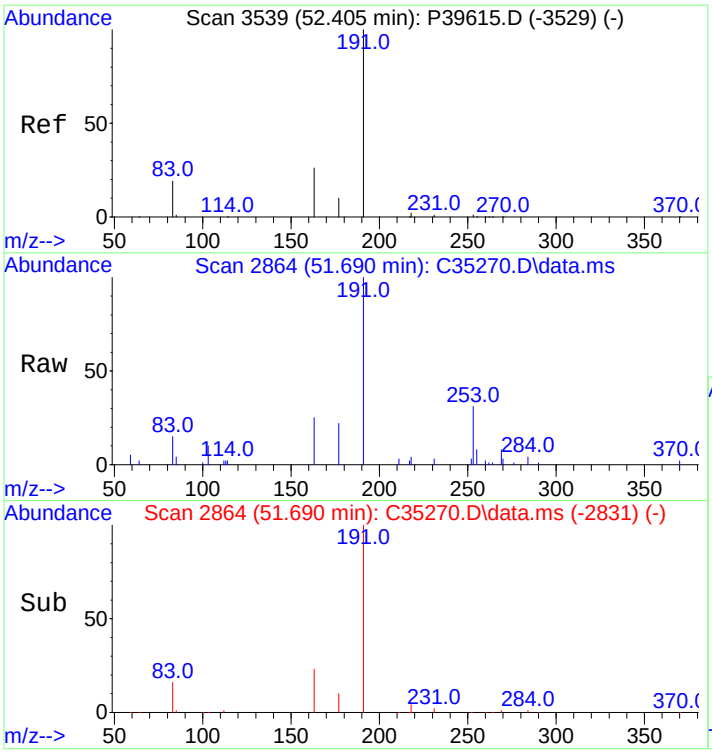


#91
Benzo[g,h,i]perylene
Concen: 544.21 ng/mL
RT: 53.798 min Scan# 3004
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:276 Resp: 54143

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.8	28.2

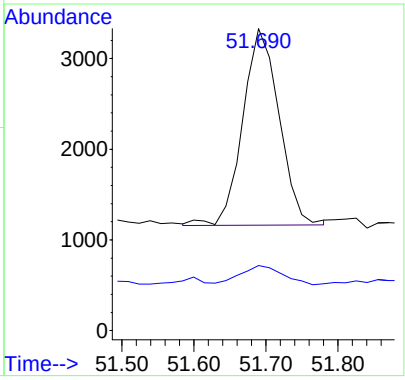


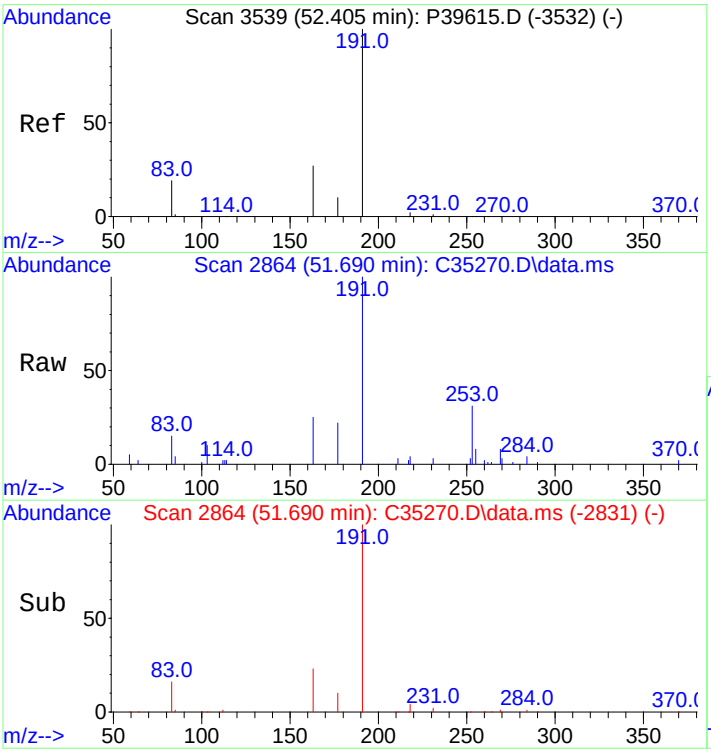


#92
Hopane (T19)
Concen: 472.74 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:191 Resp: 7591

Ion	Ratio	Lower	Upper
191	100		
177	11.1	17.2	25.8#

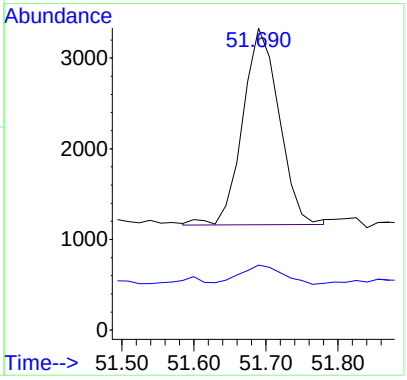




#93
17a(H),21B(H)-hopane - C30H52
Concen: 472.74 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35270.D
Acq: 24 May 2012 12:38 pm

Tgt Ion:191 Resp: 7591

Ion	Ratio	Lower	Upper
191	100		
177	11.1	17.2	25.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

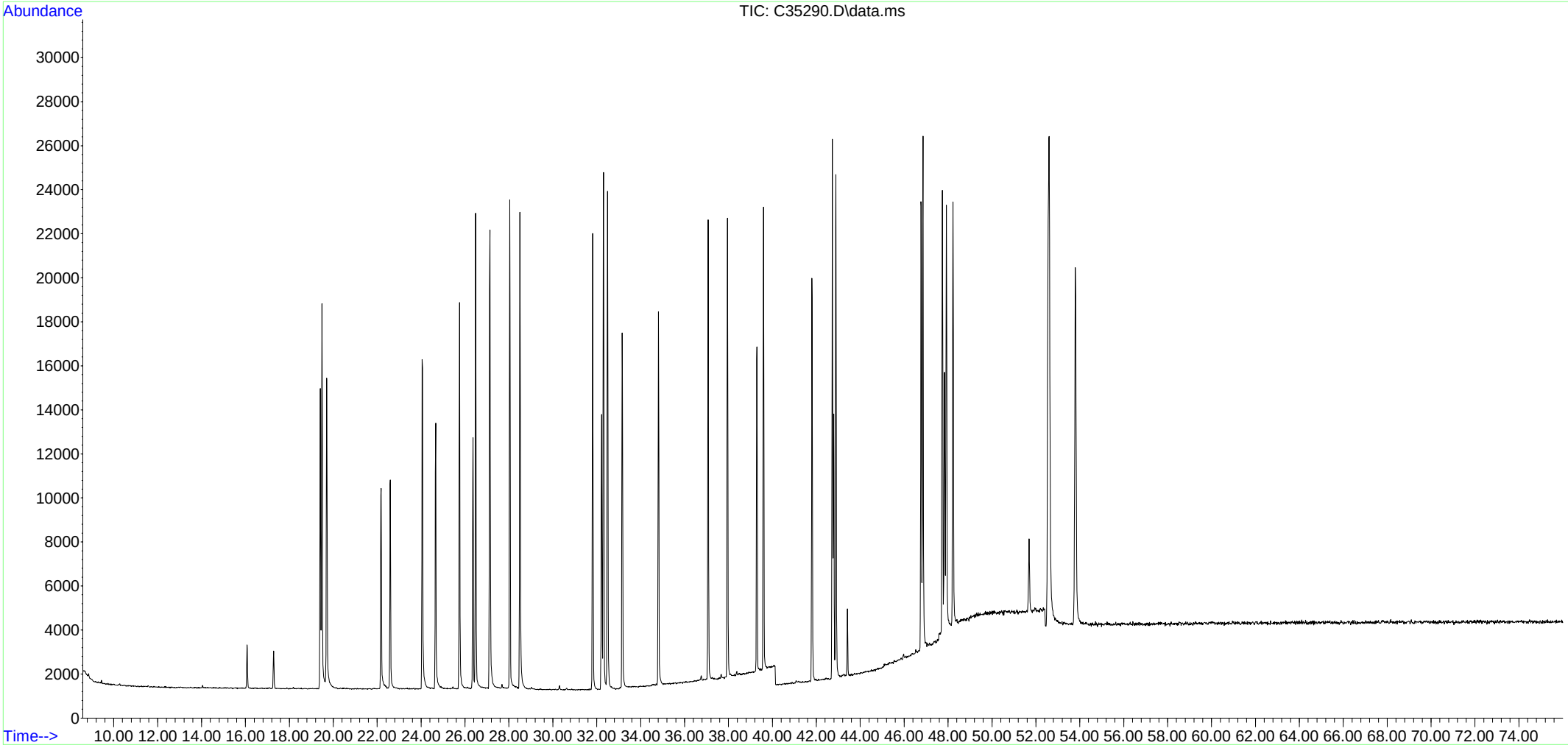
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13090M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	22584	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	30502	536.875	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.69%			
42) Phenanthrene-d10	32.221	188	24623	548.316	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.83%			
86) Benzo[a]pyrene-d12	47.835	264	24497	523.400	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.34%			
127) 5B(H)Cholane - Surr	43.423	217	3714	525.995	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.60%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	2766	267.677	ng/mL	100
4) cis-Decalin	17.287	138	2059	264.383	ng/mL	100
10) Naphthalene	19.485	128	40597	486.608	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	24407	494.776	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	23298	481.835	ng/mL#	100
18) Benzothiophene	19.696	134	35552	473.551	ng/mL	100
23) Biphenyl	24.062	154	31429	503.665	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	21002	518.200	ng/mL#	100
25) Dibenzofuran	27.133	168	36006	502.487	ng/mL	97
26) Acenaphthylene	25.748	152	39856	481.252	ng/mL#	100
27) Acenaphthene	26.485	153	24237M4	497.038	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.036	170	17186	526.033	ng/mL	89
29) Fluorene	28.503	166	26800M3	498.329	ng/mL	
33) Dibenzothiophene	31.814	184	43182	500.903	ng/mL	100
43) Phenanthrene	32.311	178	38812	512.429	ng/mL	99
54) Retene	39.297	234	8318	562.987	ng/mL	97
55) Anthracene	32.492	178	38495M3	520.327	ng/mL	
56) Carbazole	33.154	167	35991M3	481.612	ng/mL	
57) 1-Methylphenanthrene	34.810	192	25773	536.953	ng/mL	99
58) Fluoranthene	37.069	202	39980M3	531.481	ng/mL	
59) Benzo(b)fluorene	39.598	216	23579	540.285	ng/mL	99
60) Pyrene	37.957	202	40517	529.864	ng/mL	98
66) Naphthobenzothiophene	41.796	234	43833	532.447	ng/ml#	66
67) Naphthobenzothiophene-...	41.796	234	43833	532.447	ng/mL#	66
75) Benz[a]anthracene	42.730	228	36536	509.701	ng/mL	99
76) Chrysene	42.896	228	36768	508.069	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	36768	508.069	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	39601	502.784	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	43874	511.633	ng/mL	91
85) Benzo[e]pyrene	47.744	252	38897	499.276	ng/mL	95
87) Benzo[a]pyrene	47.925	252	37070	494.214	ng/mL	92
88) Perylene	48.226	252	39982	498.761	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.564	276	45659M3	523.079	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	45002M3	541.959	ng/mL	
91) Benzo[g,h,i]perylene	53.798	276	48813	529.304	ng/mL	99
92) Hopane (T19)	51.690	191	7204M3	483.995	ng/mL	
93) 17a(H),21B(H)-hopane -...	51.690	191	7241M3	486.481	ng/mL	

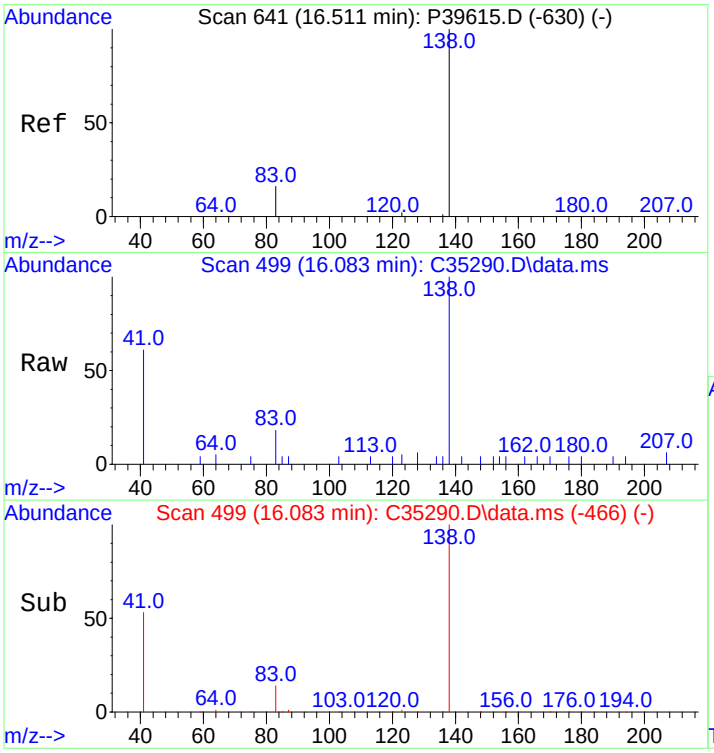
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35290.D
Acq On : 25 May 2012 3:59 am
Operator : AC
Sample : C305241202
Misc : CC WHAP59 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

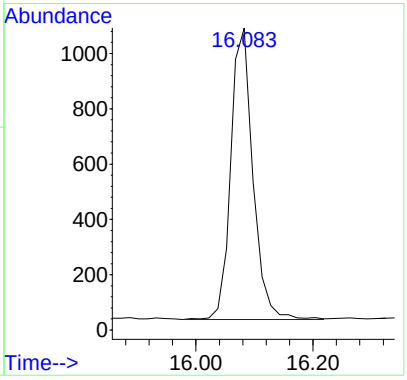
Quant Time: May 29 10:56:23 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

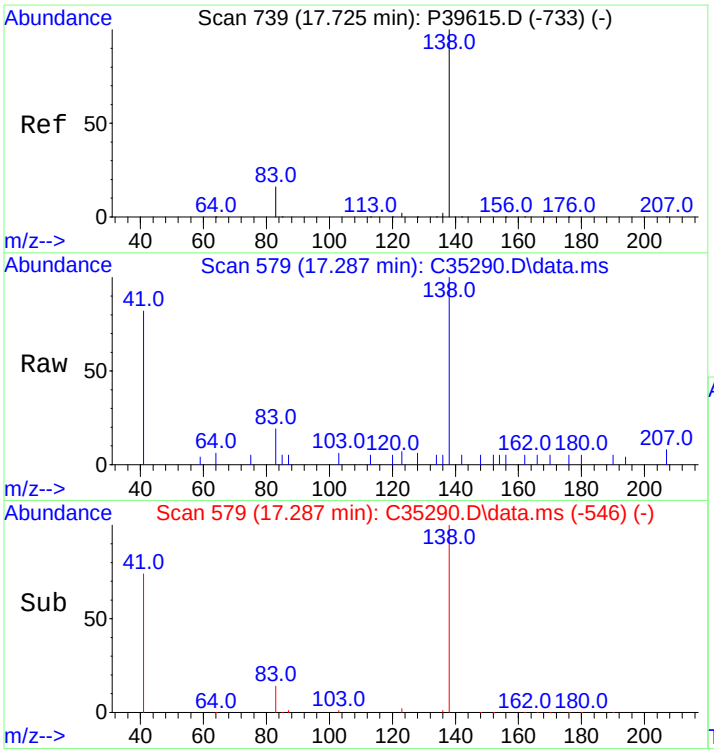




#3
trans-Decalin
Concen: 267.68 ng/mL
RT: 16.083 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

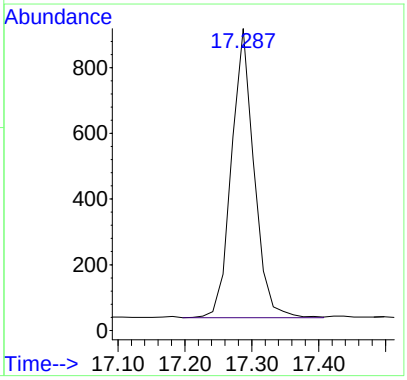
Tgt Ion:138 Resp: 2766

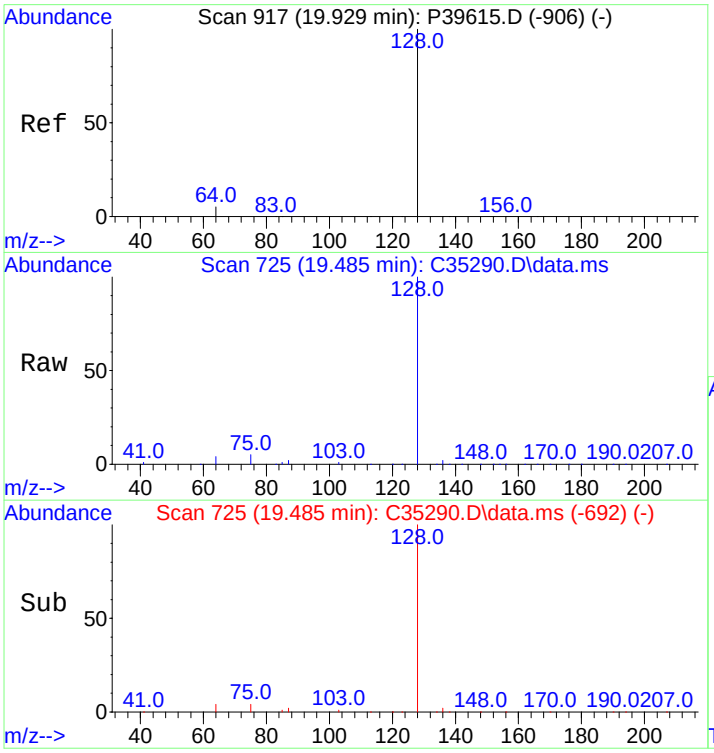




#4
cis-Decalin
Concen: 264.38 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:138 Resp: 2059

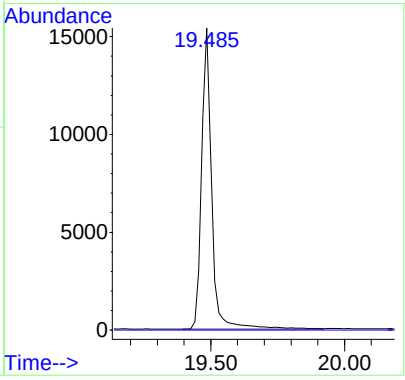


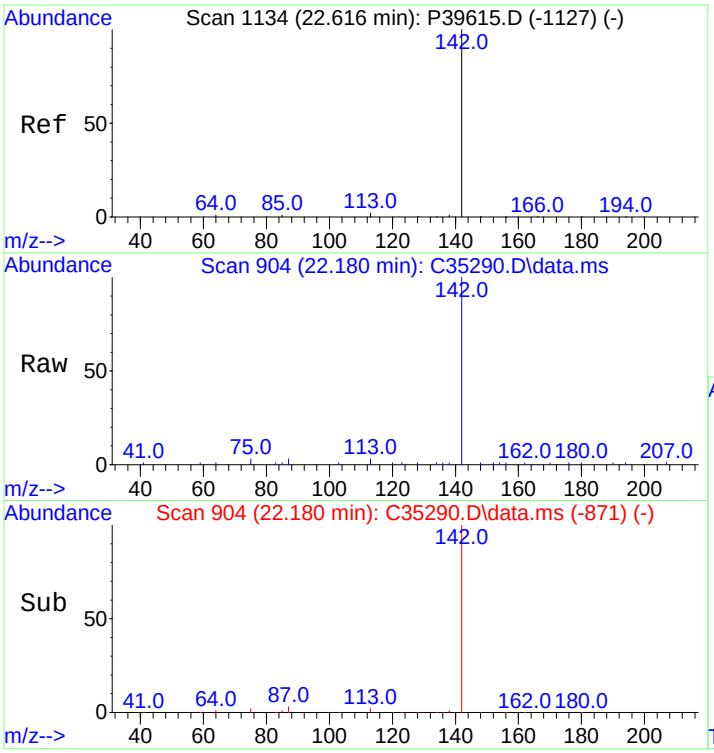


#10
Naphthalene
Concen: 486.61 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:128 Resp: 40597

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

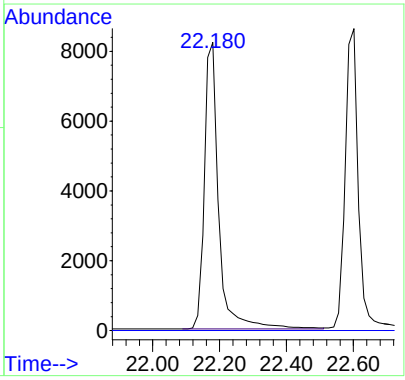


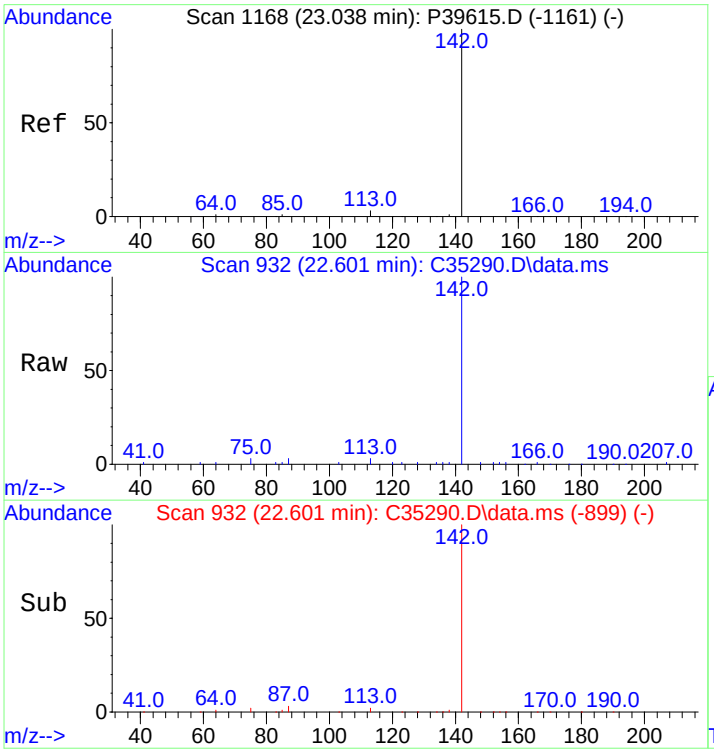


#16
2-Methylnaphthalene
Concen: 494.78 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:142 Resp: 24407

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

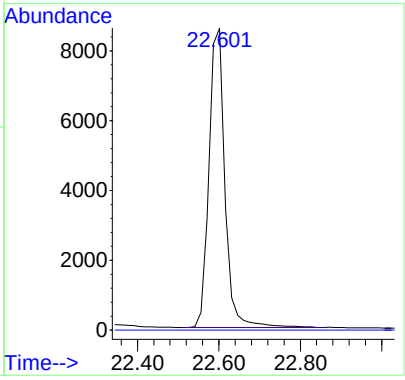


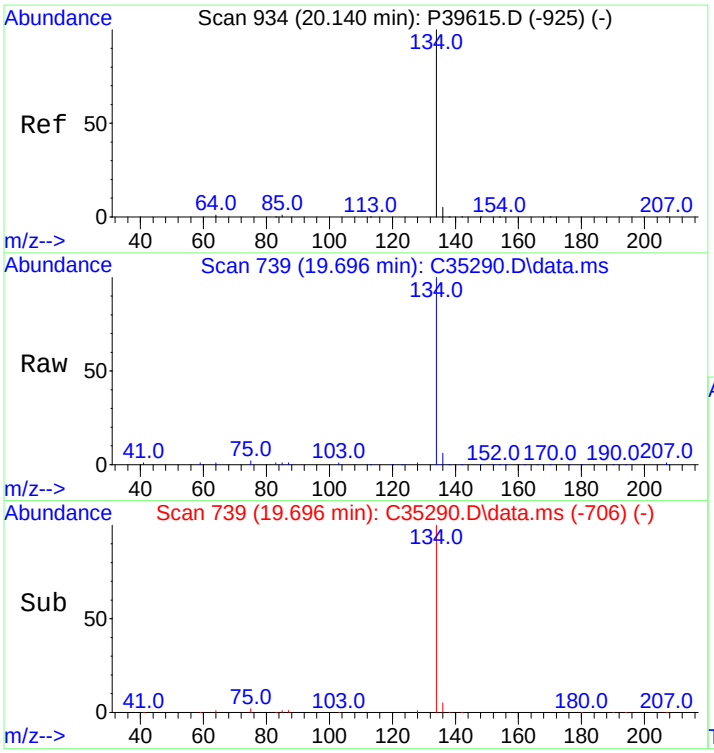


#17
1-Methylnaphthalene
Concen: 481.83 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:142 Resp: 23298

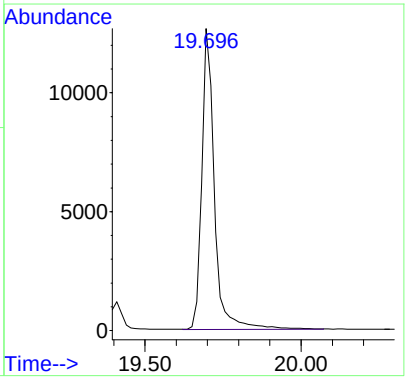
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

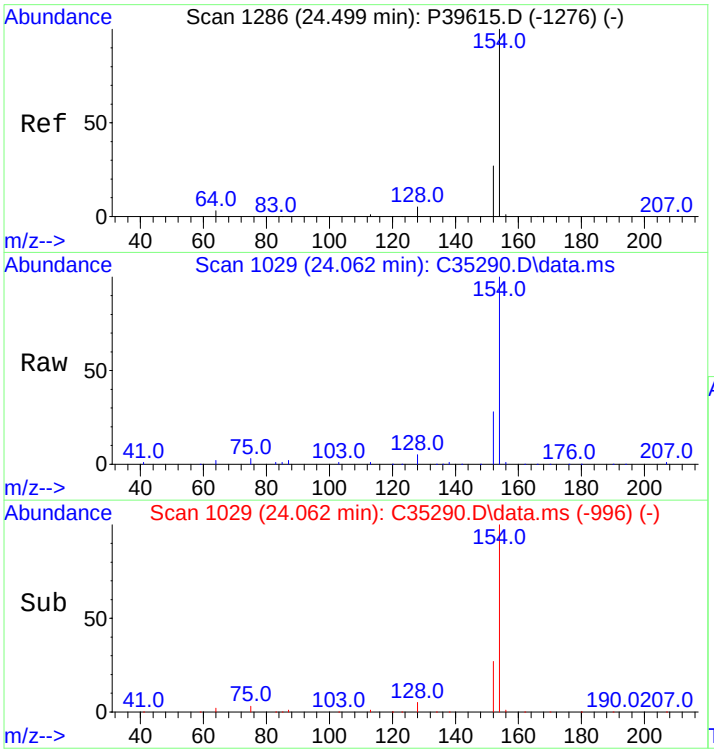




#18
Benzothiophene
Concen: 473.55 ng/mL
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:134 Resp: 35552

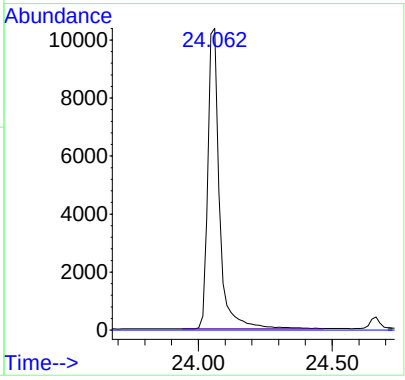


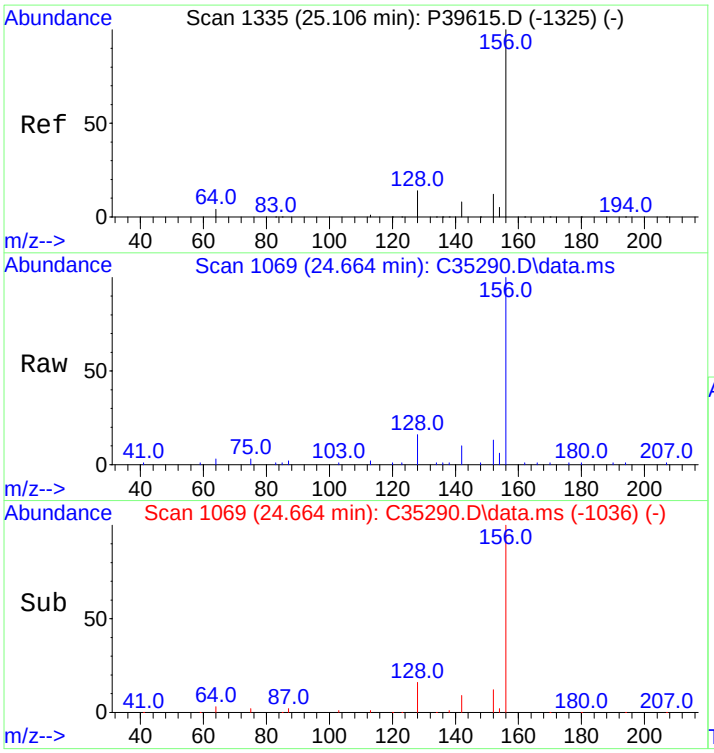


#23
Biphenyl
Concen: 503.67 ng/mL
RT: 24.062 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:154 Resp: 31429

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

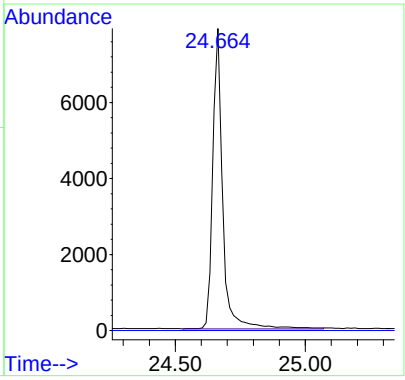


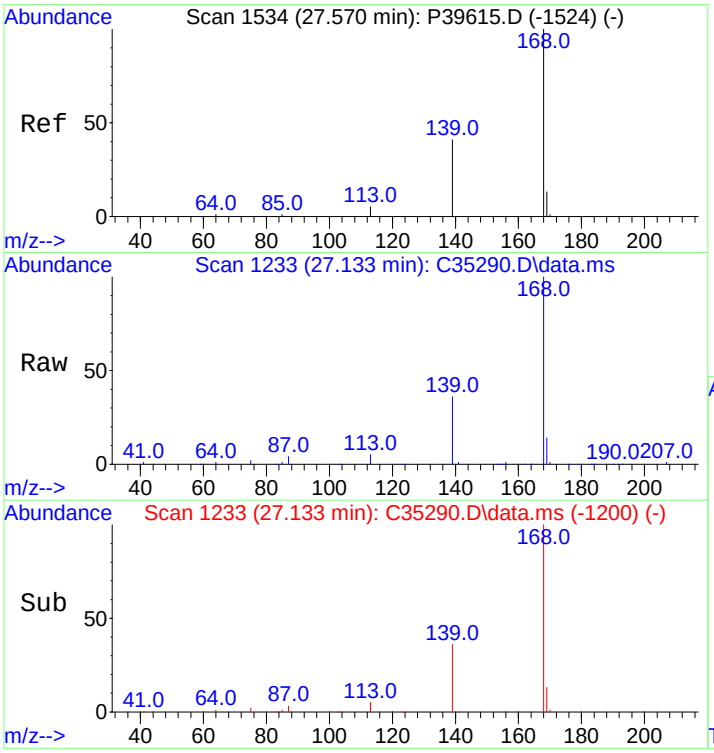


#24
2,6-Dimethylnaphthalene
Concen: 518.20 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:156 Resp: 21002

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

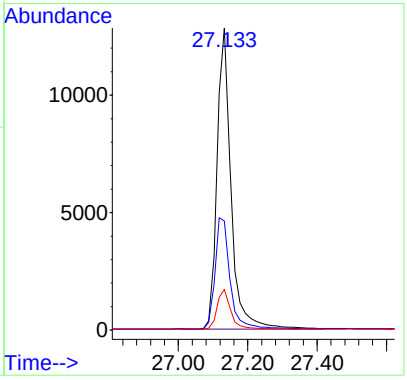


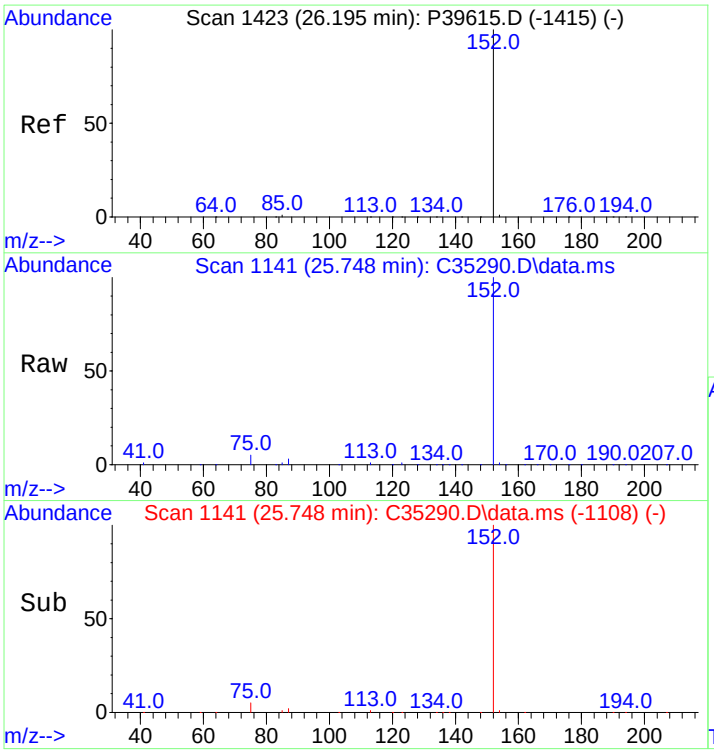


#25
Dibenzofuran
Concen: 502.49 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:168 Resp: 36006

Ion	Ratio	Lower	Upper
168	100		
139	39.6	29.9	44.9
169	13.0	10.3	15.5

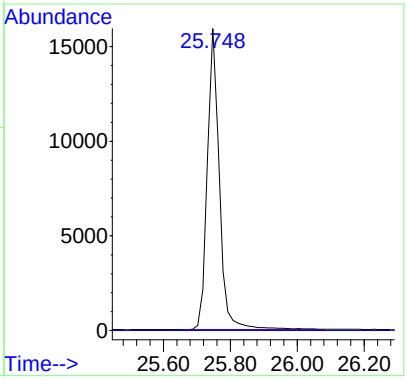


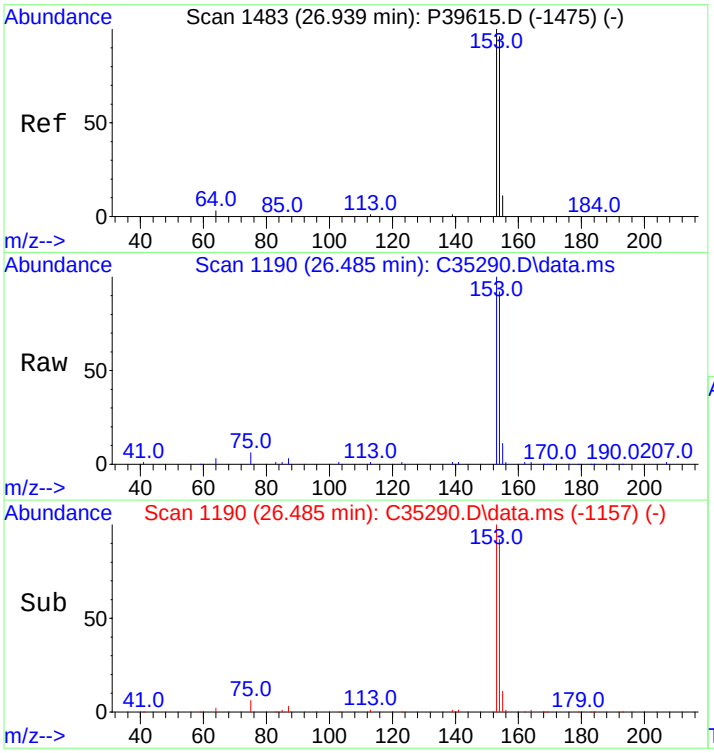


#26
Acenaphthylene
Concen: 481.25 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:152 Resp: 39856

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

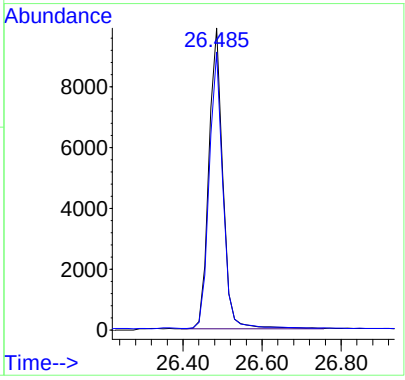


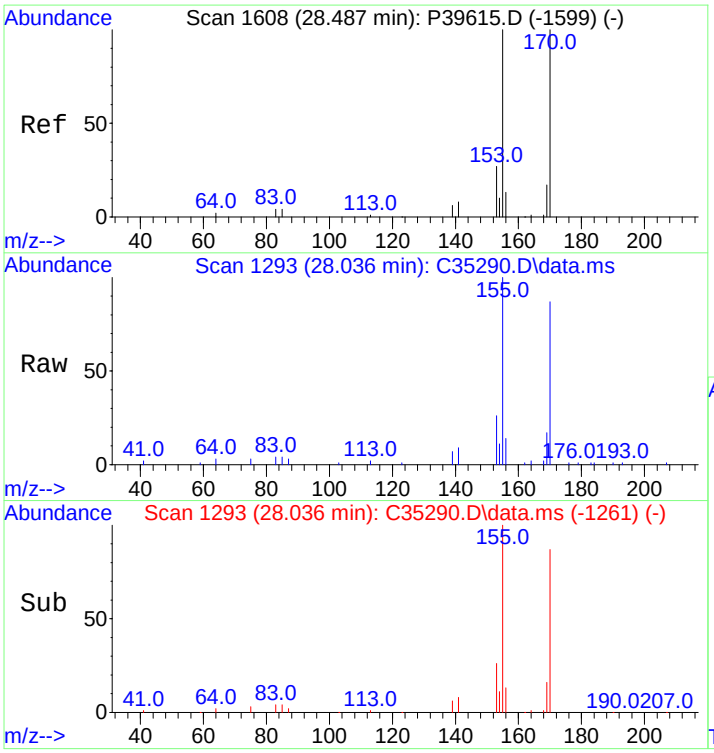


#27
Acenaphthene
Concen: 497.04 ng/mL m
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:153 Resp: 24237

Ion	Ratio	Lower	Upper
153	100		
154	91.1	73.3	109.9

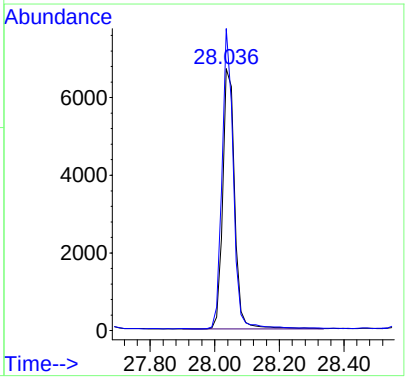


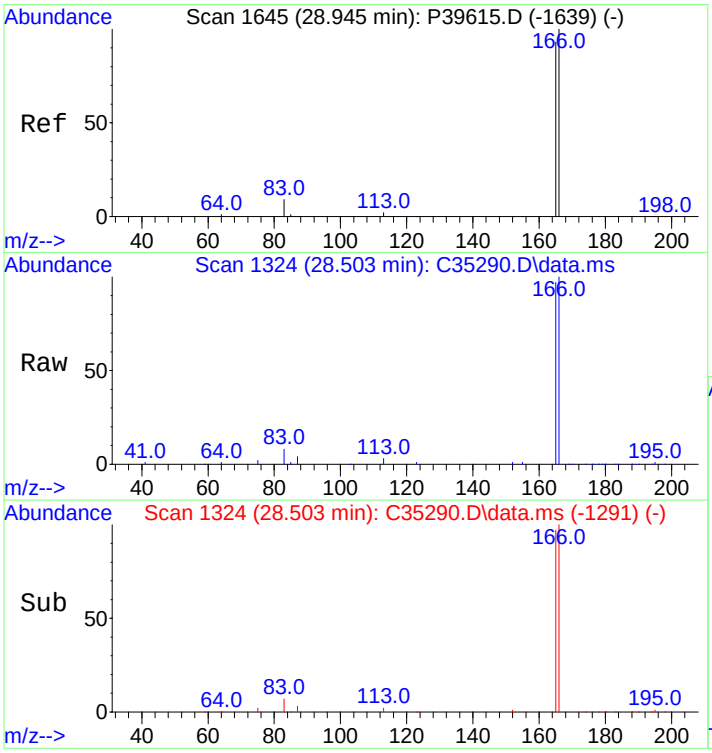


#28
2,3,5-Trimethylnaphthalene
Concen: 526.03 ng/mL
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:170 Resp: 17186

Ion	Ratio	Lower	Upper
170	100		
155	109.3	78.4	117.6

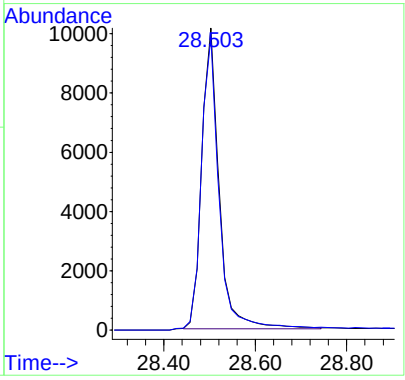


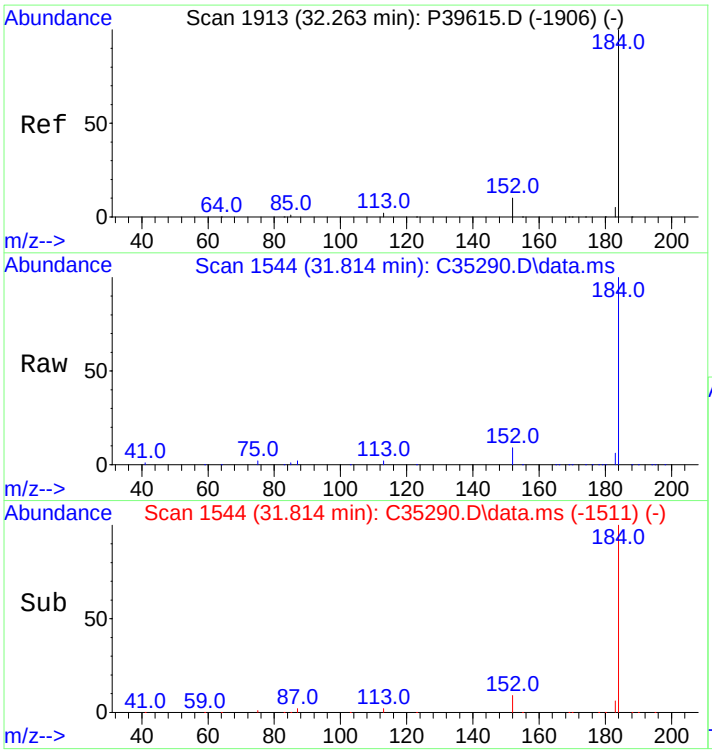


#29
Fluorene
Concen: 498.33 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:166 Resp: 26800

Ion	Ratio	Lower	Upper
166	100		
165	102.4	77.1	115.7

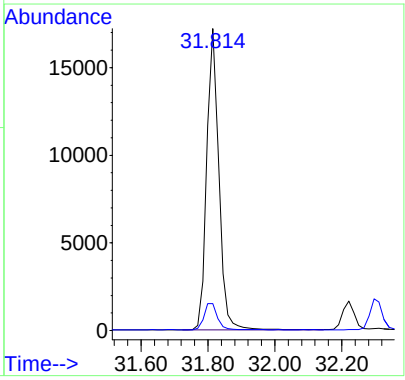


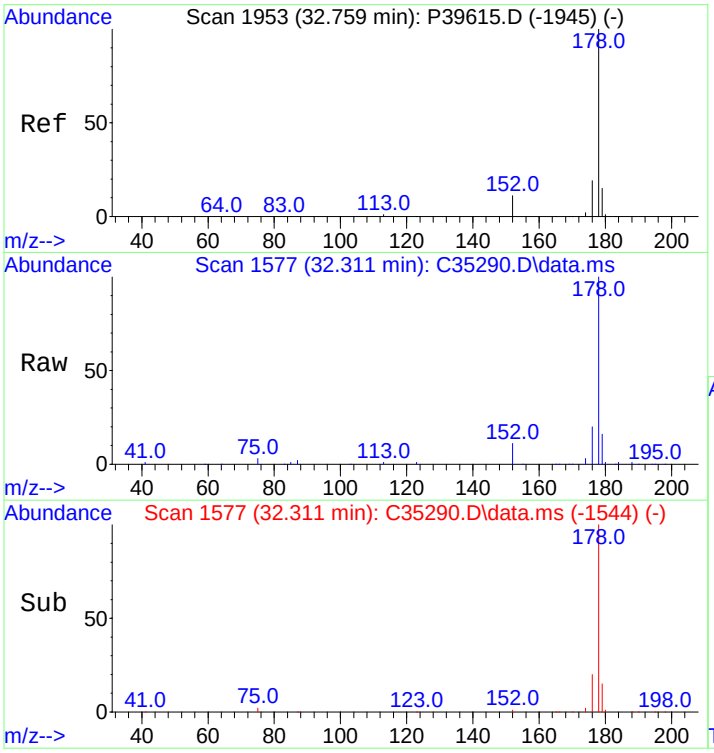


#33
Dibenzothiophene
Concen: 500.90 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:184 Resp: 43182

Ion	Ratio	Lower	Upper
184	100		
152	9.6	7.5	11.3

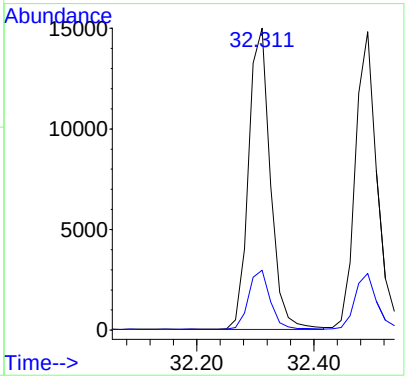


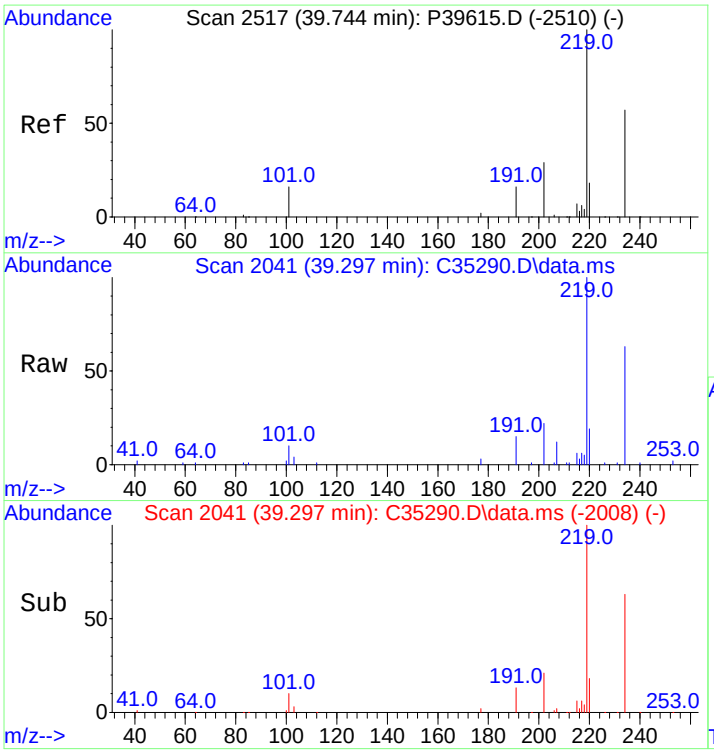


#43
Phenanthrene
Concen: 512.43 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:178 Resp: 38812

Ion	Ratio	Lower	Upper
178	100		
176	19.4	15.8	23.6

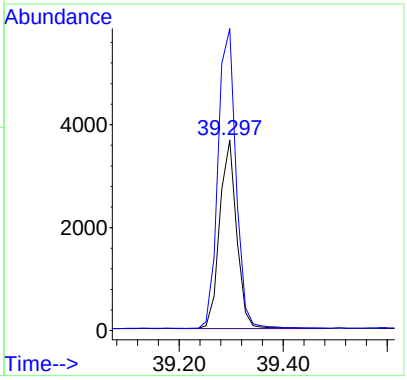


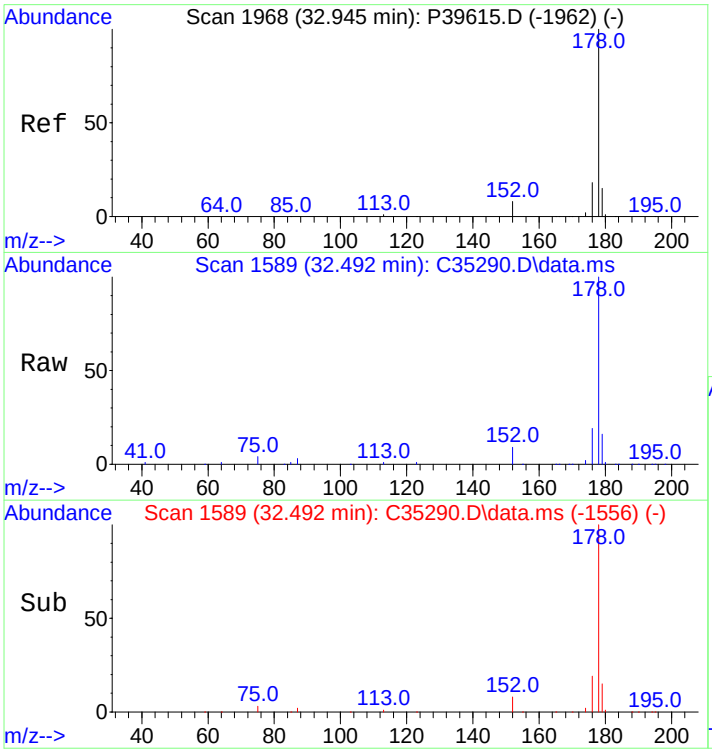


#54
Retene
Concen: 562.99 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:234 Resp: 8318

Ion	Ratio	Lower	Upper
234	100		
219	168.9	131.8	197.8

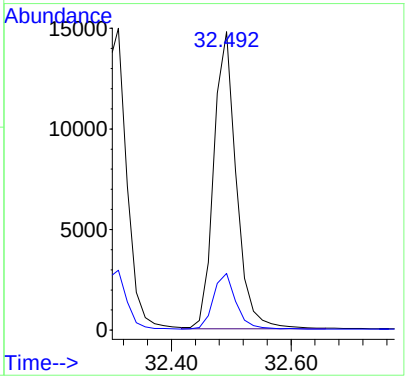


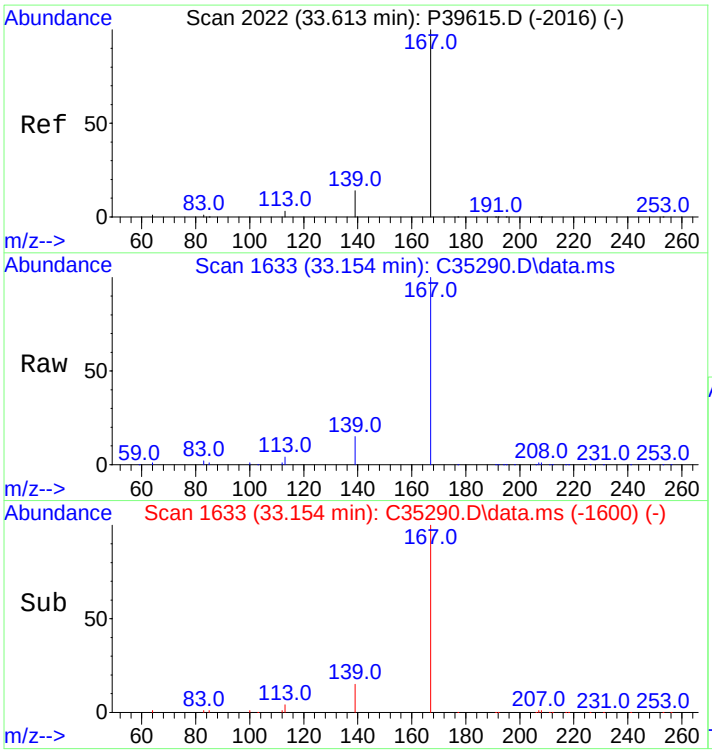


#55
Anthracene
Concen: 520.33 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:178 Resp: 38495

Ion	Ratio	Lower	Upper
178	100		
176	19.1	15.6	23.4

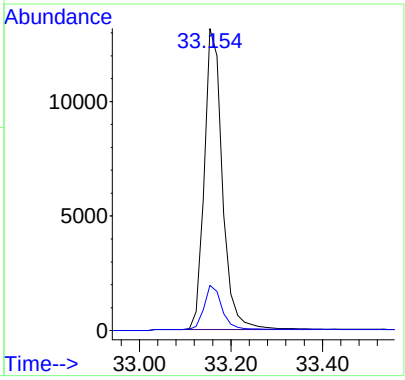


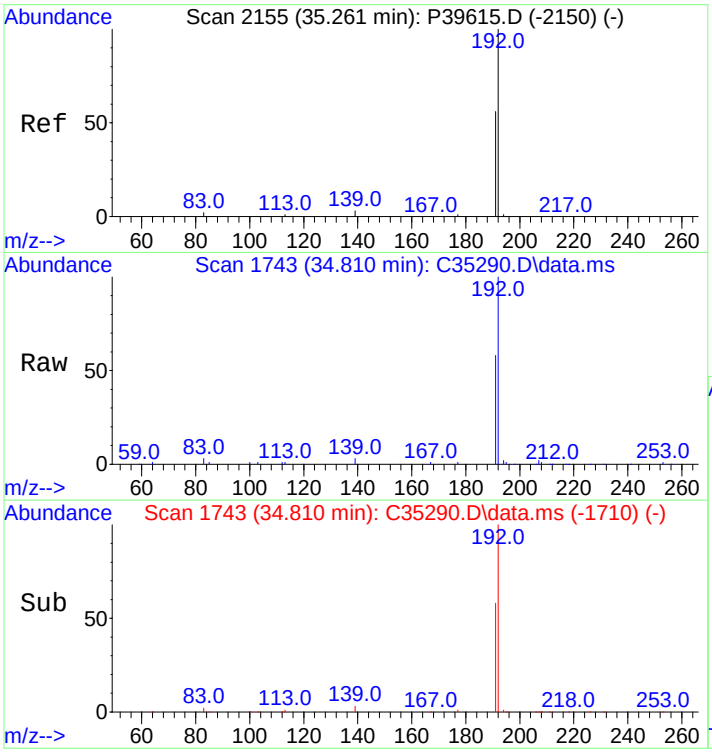


#56
Carbazole
Concen: 481.61 ng/mL m
RT: 33.154 min Scan# 1633
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:167 Resp: 35991

Ion	Ratio	Lower	Upper
167	100		
139	17.9	11.9	17.9#

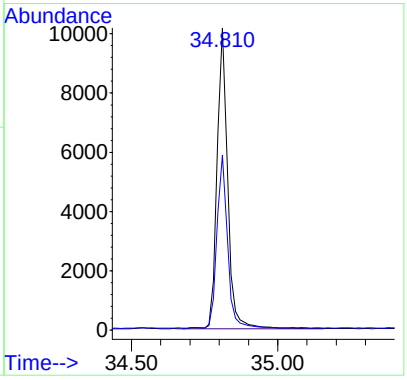


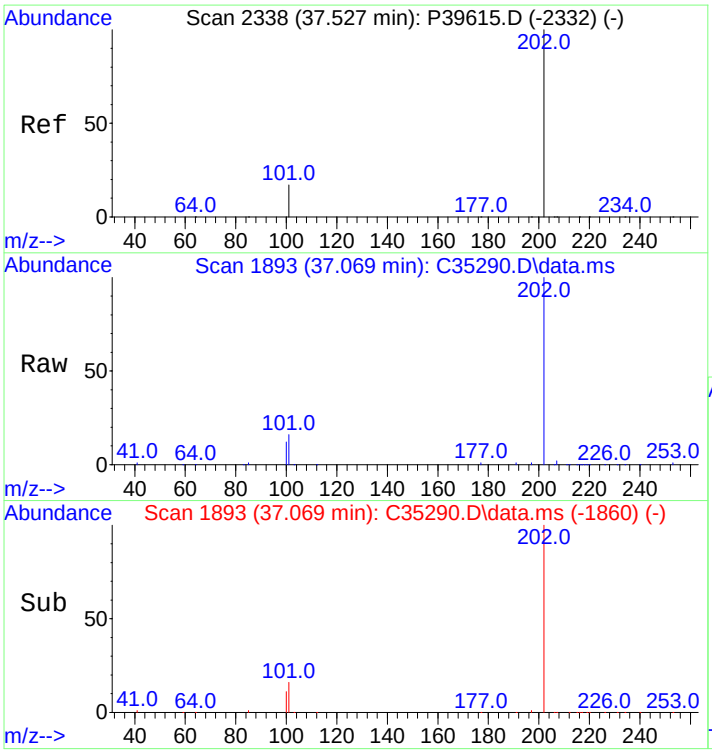


#57
1-Methylphenanthrene
Concen: 536.95 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:192 Resp: 25773

Ion	Ratio	Lower	Upper
192	100		
191	57.8	46.8	70.2

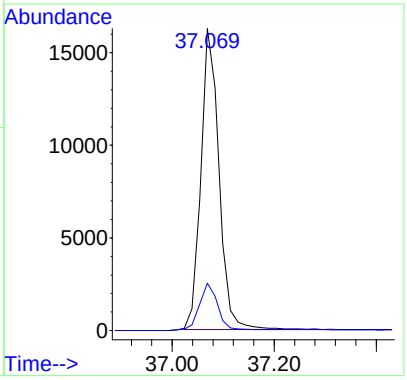


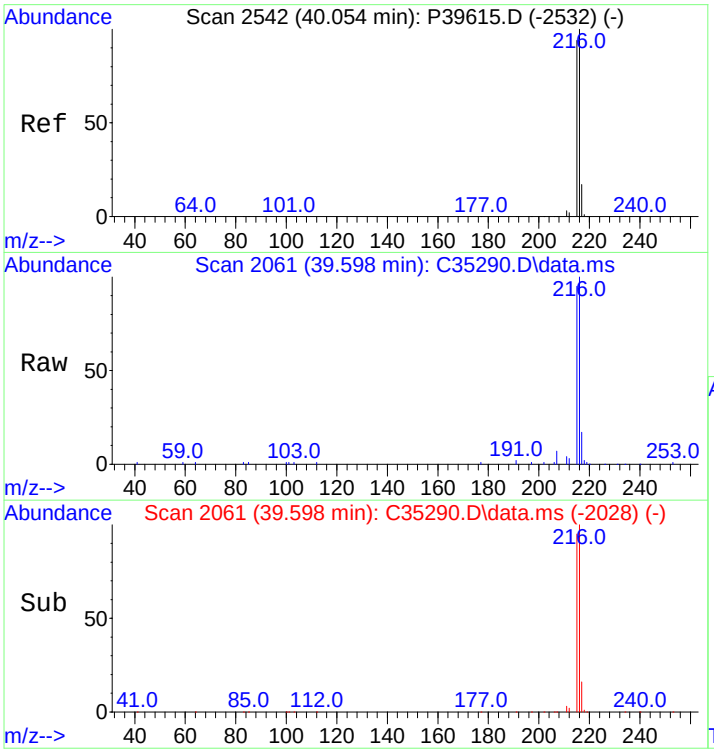


#58
Fluoranthene
Concen: 531.48 ng/mL m
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:202 Resp: 39980

Ion	Ratio	Lower	Upper
202	100		
101	16.9	13.2	19.8

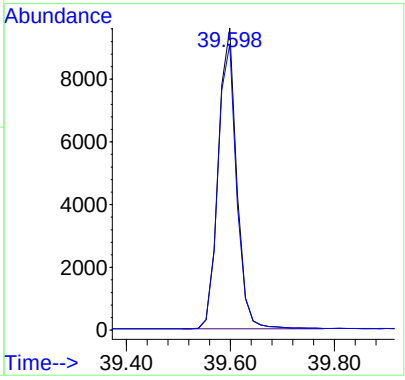


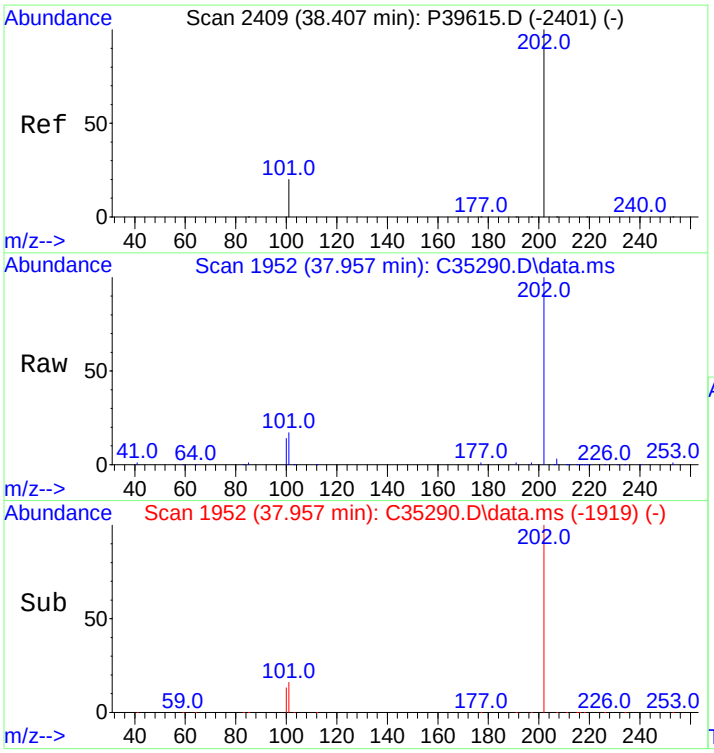


#59
Benzo(b)fluorene
Concen: 540.28 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:216 Resp: 23579

Ion	Ratio	Lower	Upper
216	100		
215	96.2	76.0	114.0

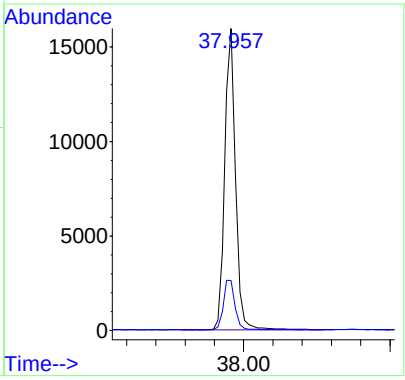


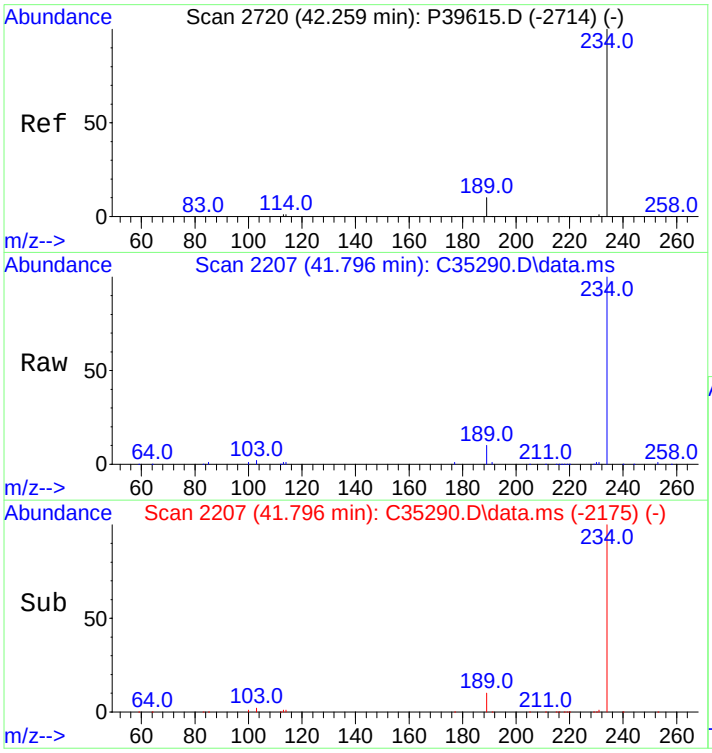


#60
Pyrene
Concen: 529.86 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:202 Resp: 40517

Ion	Ratio	Lower	Upper
202	100		
101	17.6	13.5	20.3

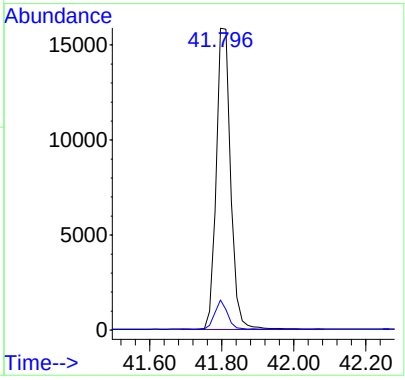


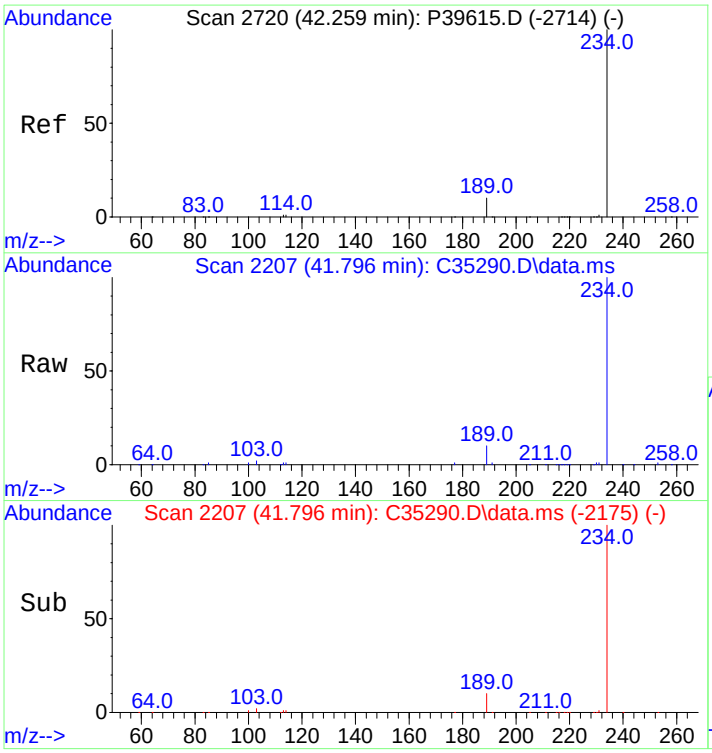


#66
Naphthobenzothiophene
Concen: 532.45 ng/ml
RT: 41.796 min Scan# 2207
Delta R.T. -0.015 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:234 Resp: 43833

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

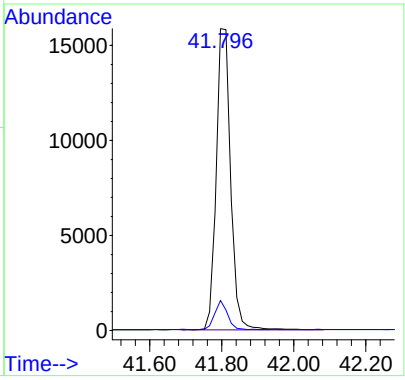


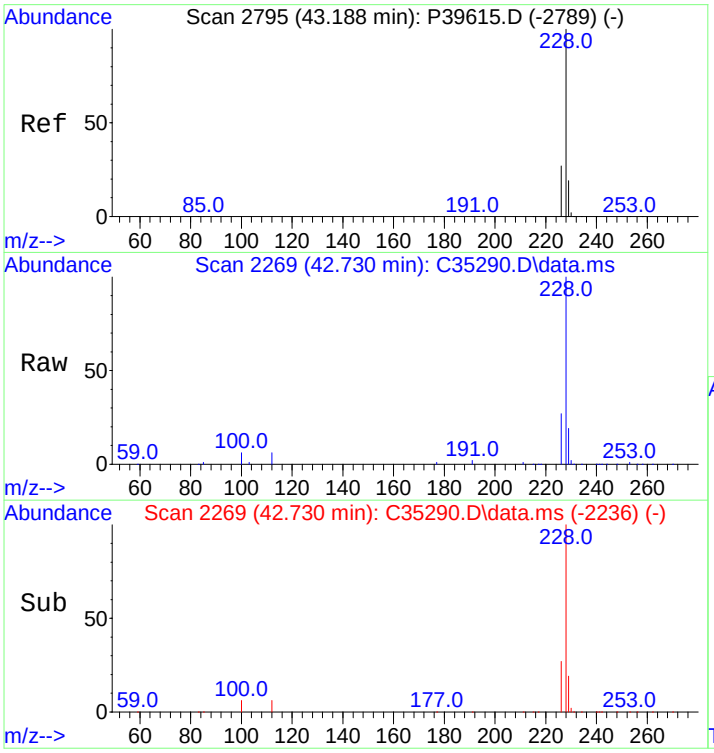


#67
Naphthobenzothiophene-2,1-D
Concen: 532.45 ng/mL
RT: 41.796 min Scan# 2207
Delta R.T. -0.015 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:234 Resp: 43833

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

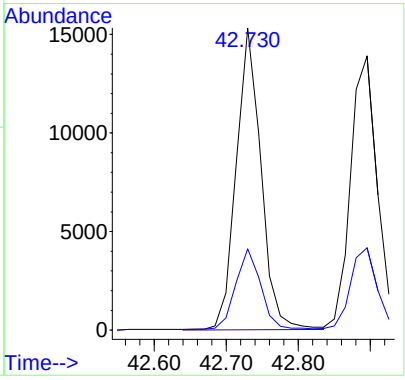


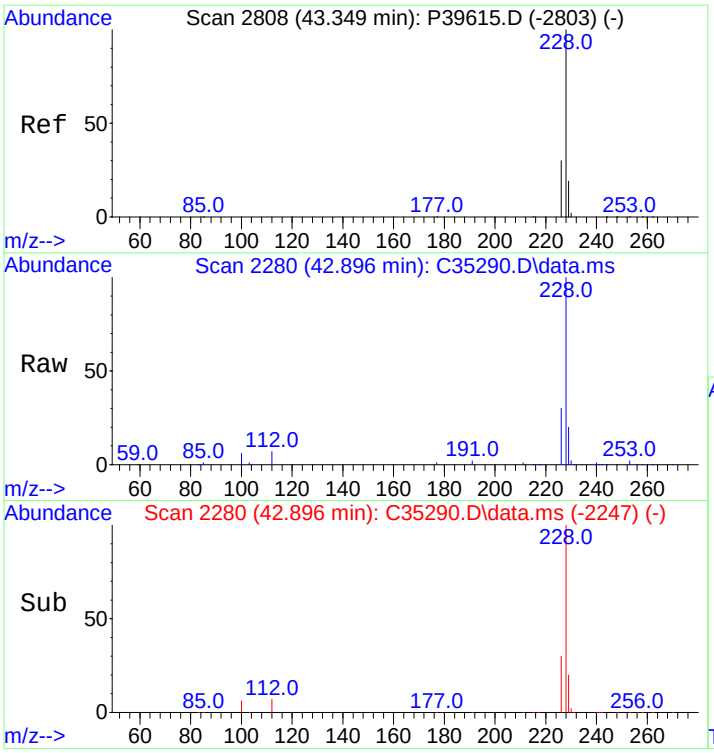


#75
Benz[a]anthracene
Concen: 509.70 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:228 Resp: 36536

Ion	Ratio	Lower	Upper
228	100		
226	27.5	21.5	32.3

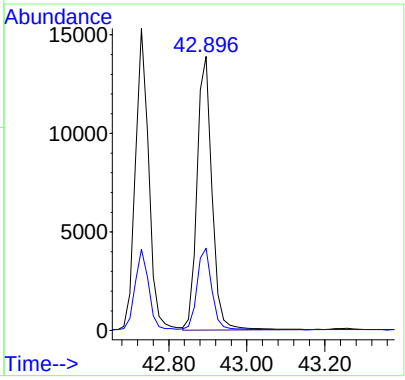


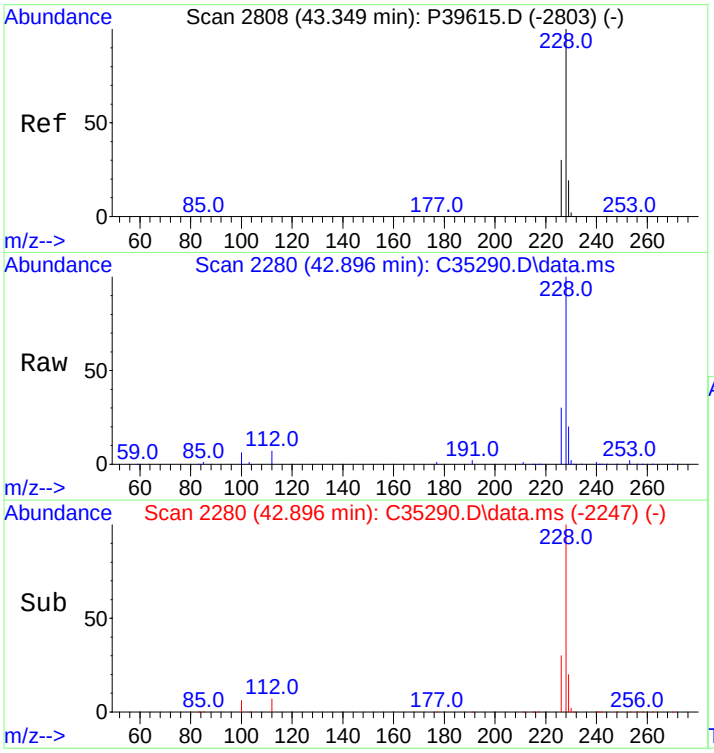


#76
Chrysene
Concen: 508.07 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:228 Resp: 36768

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.5	35.3

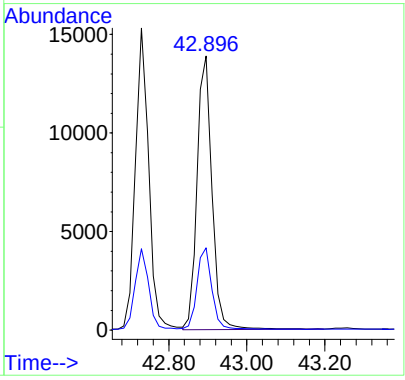


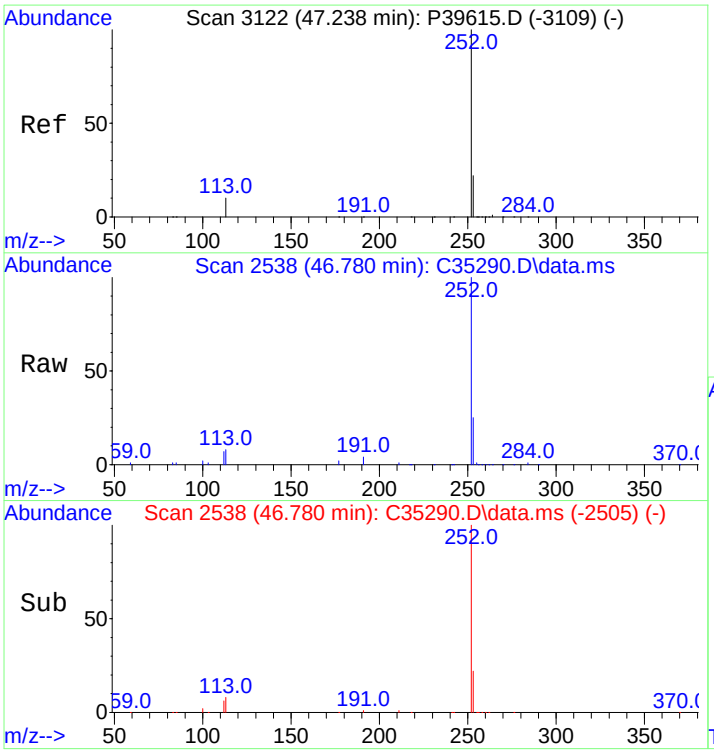


#77
Chrysene/Triphenylene
Concen: 508.07 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:228 Resp: 36768

Ion	Ratio	Lower	Upper
228	100		
226	29.6	23.5	35.3

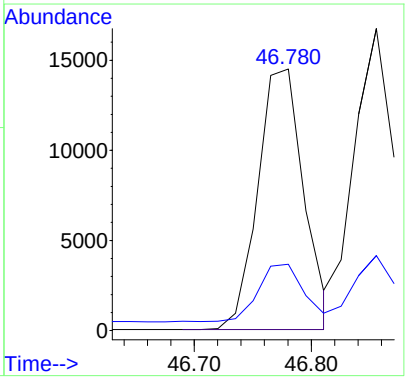


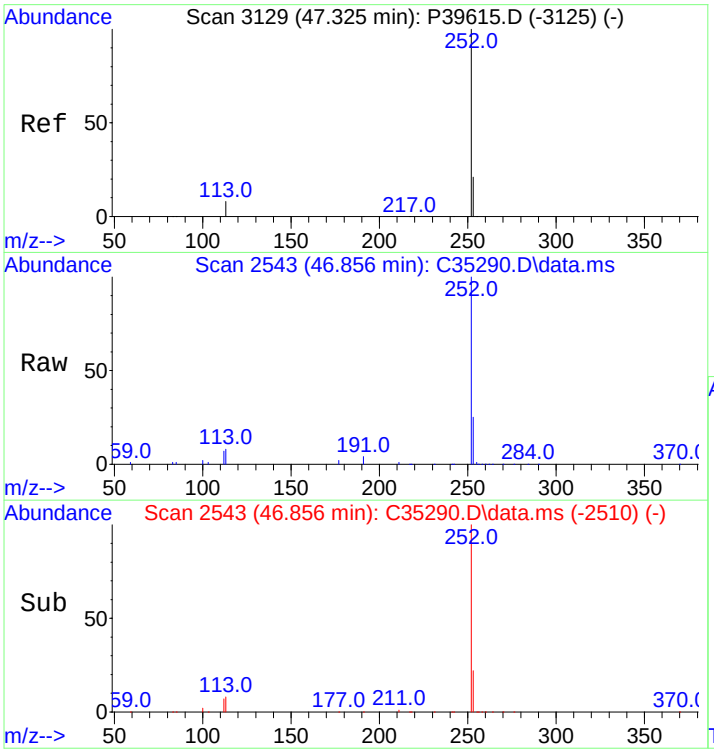


#82
Benzo[b]fluoranthene
Concen: 502.78 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:252 Resp: 39601

Ion	Ratio	Lower	Upper
252	100		
253	22.0	20.4	30.6

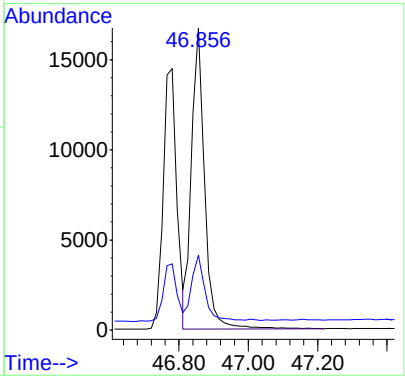


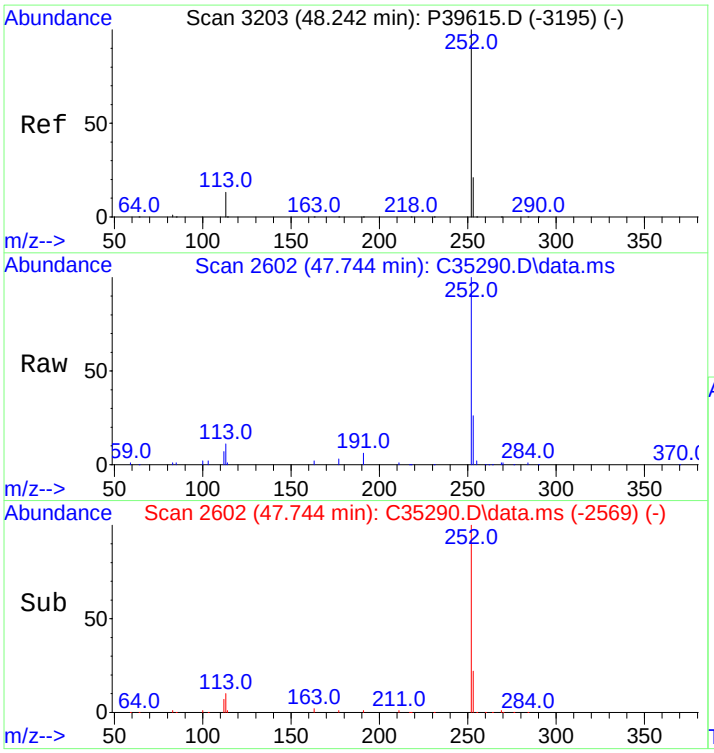


#83
Benzo[j]+[k]fluoranthene
Concen: 511.63 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:252 Resp: 43874

Ion	Ratio	Lower	Upper
252	100		
253	21.4	20.6	31.0

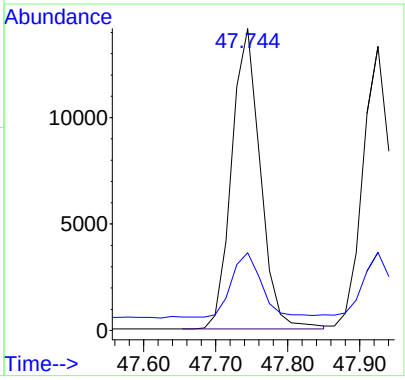


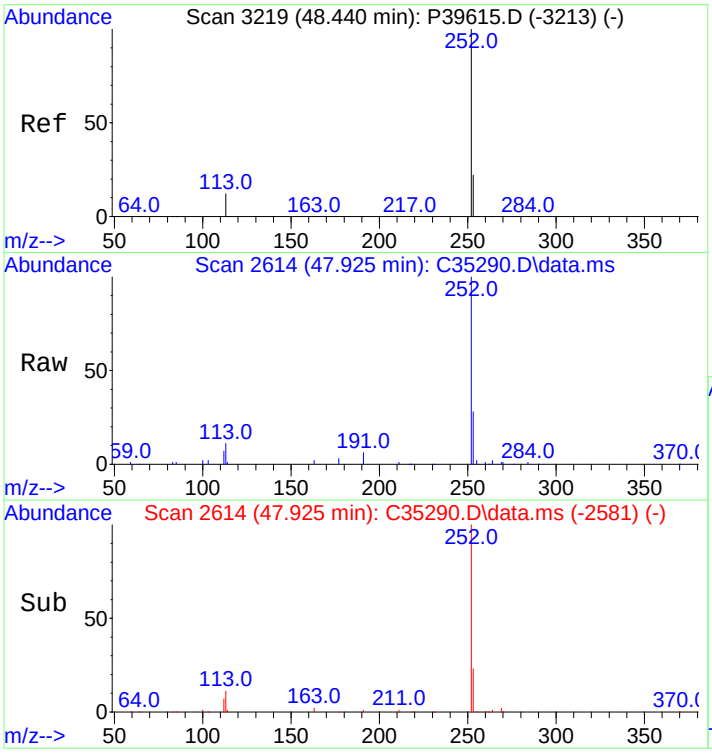


#85
Benzo[e]pyrene
Concen: 499.28 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:252 Resp: 38897

Ion	Ratio	Lower	Upper
252	100		
253	23.7	21.0	31.6

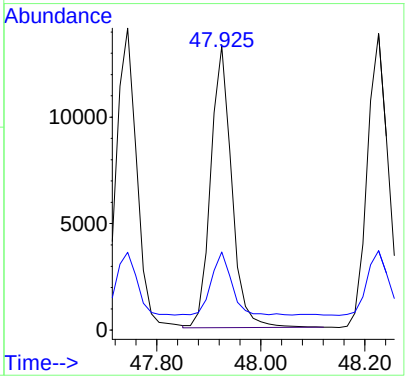


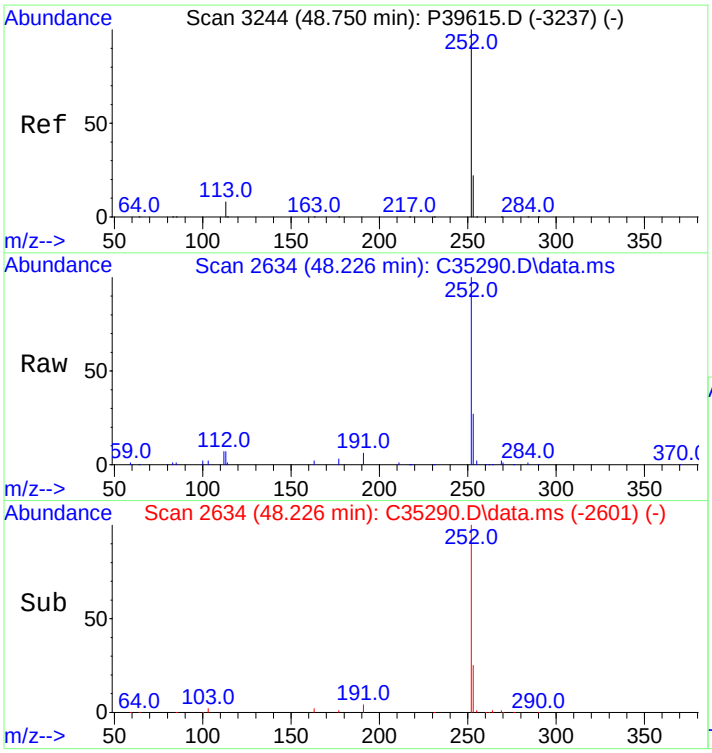


#87
Benzo[a]pyrene
Concen: 494.21 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:252 Resp: 37070

Ion	Ratio	Lower	Upper
252	100		
253	22.4	21.4	32.0

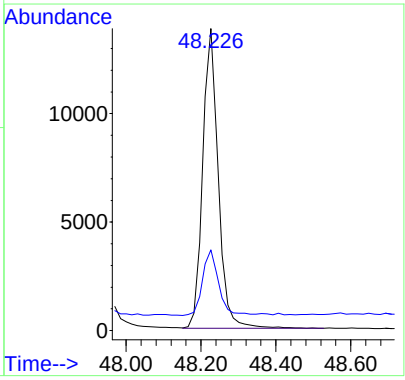


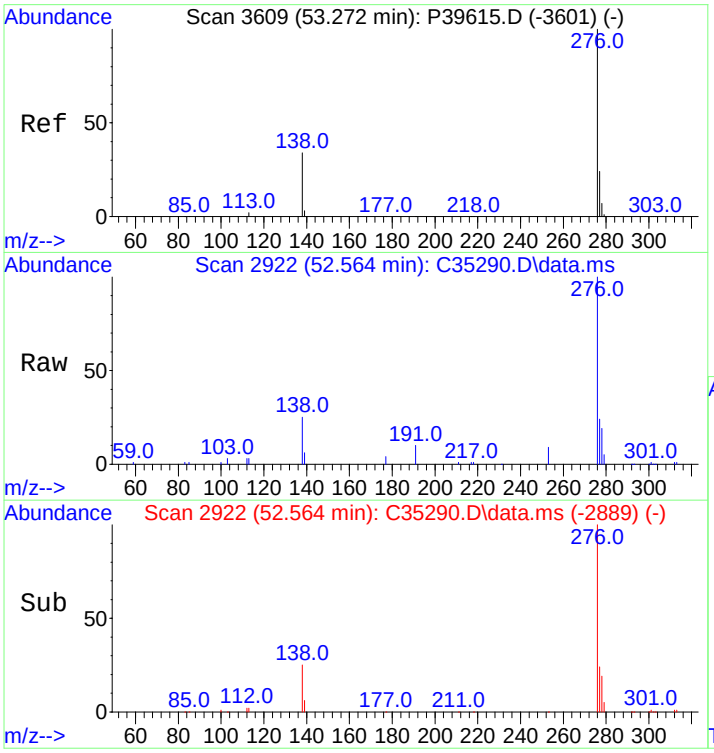


#88
Perylene
Concen: 498.76 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:252 Resp: 39982

Ion	Ratio	Lower	Upper
252	100		
253	22.6	21.8	32.6

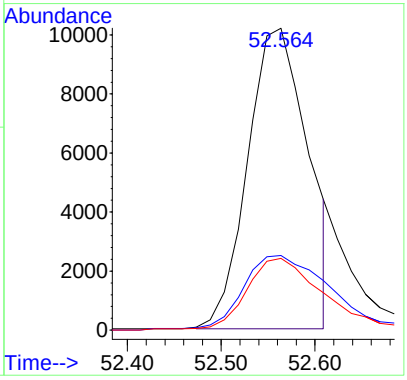


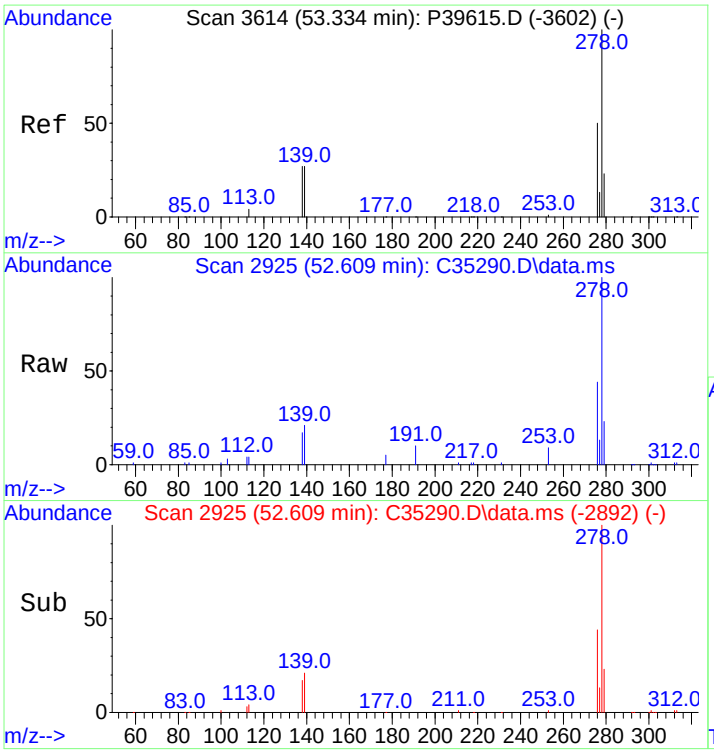


#89
Indeno[1,2,3-cd]pyrene
Concen: 523.08 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:276 Resp: 45659

Ion	Ratio	Lower	Upper
276	100		
138	38.5	19.1	28.7#
277	32.5	19.5	29.3#

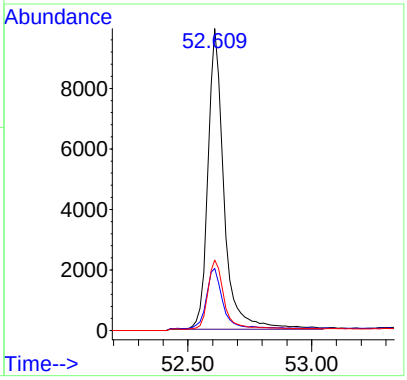


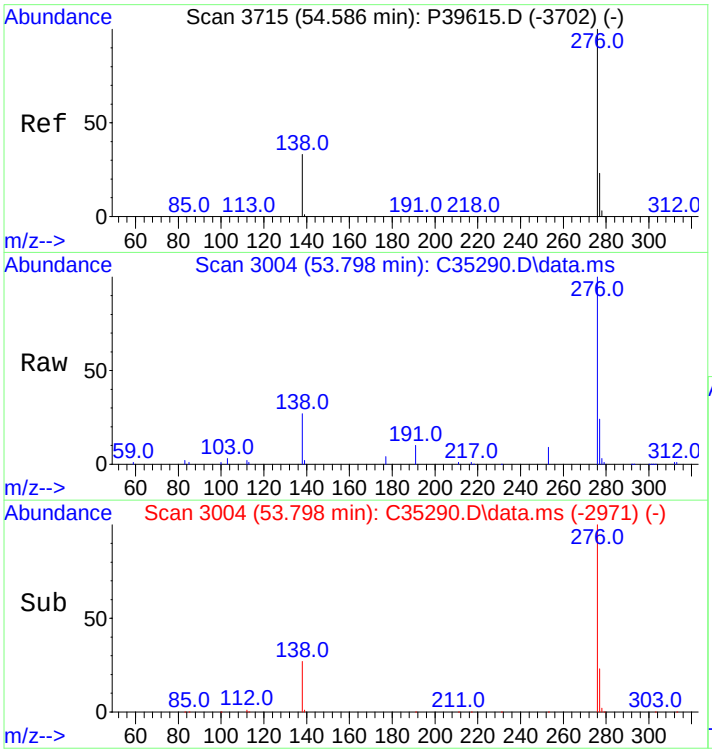


#90
Dibenz[ah]+[ac]anthracene
Concen: 541.96 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:278 Resp: 45002

Ion	Ratio	Lower	Upper
278	100		
139	20.3	16.6	25.0
279	24.5	20.0	30.0

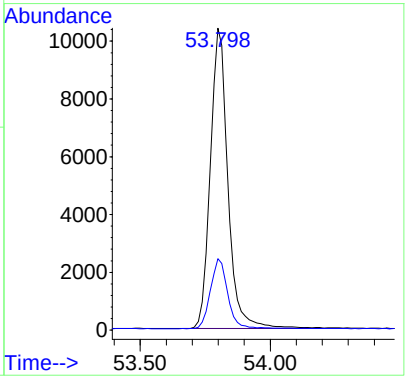


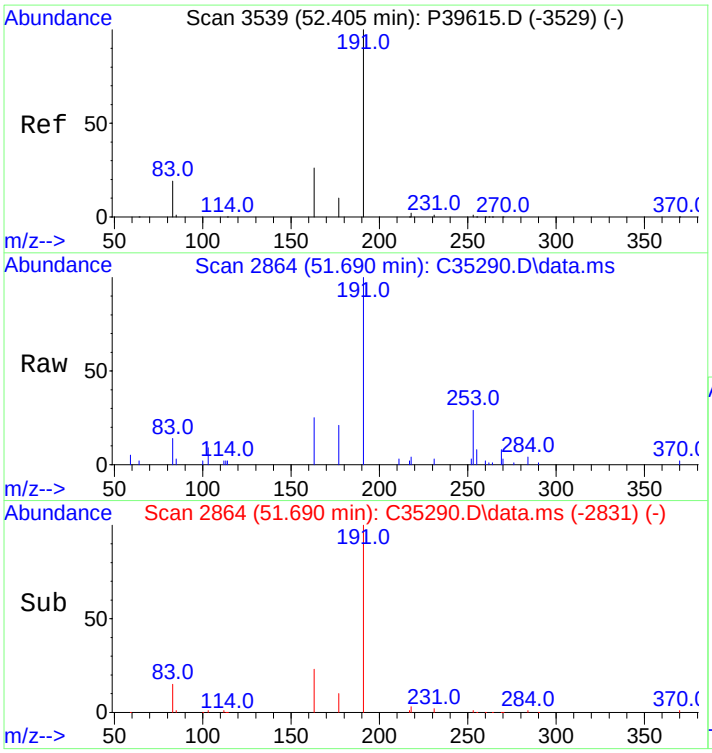


#91
Benzo[g,h,i]perylene
Concen: 529.30 ng/mL
RT: 53.798 min Scan# 3004
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:276 Resp: 48813

Ion	Ratio	Lower	Upper
276	100		
277	23.1	18.8	28.2

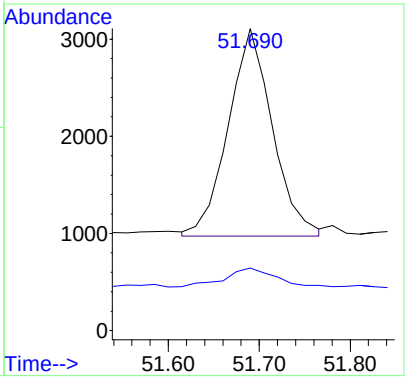


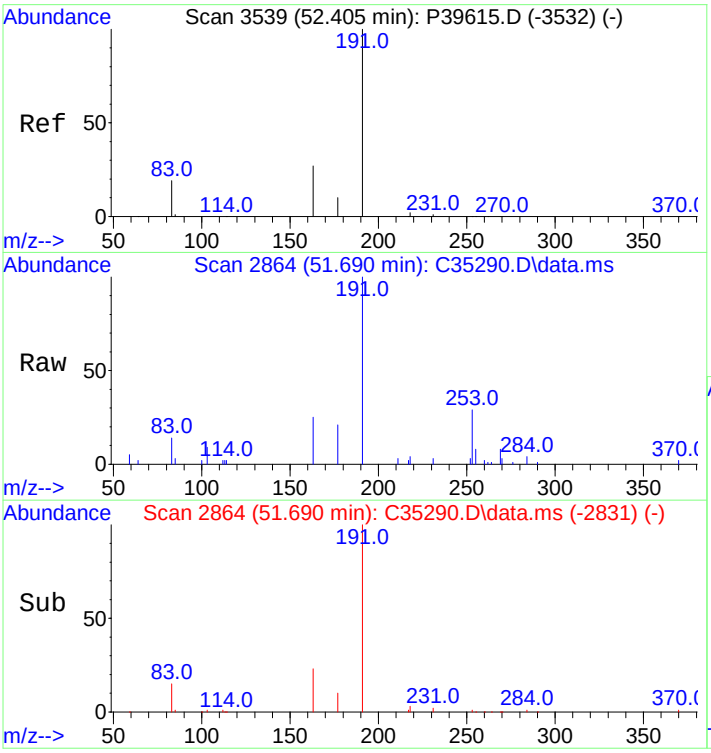


#92
Hopane (T19)
Concen: 483.99 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:191 Resp: 7204

Ion	Ratio	Lower	Upper
191	100		
177	13.1	17.2	25.8#

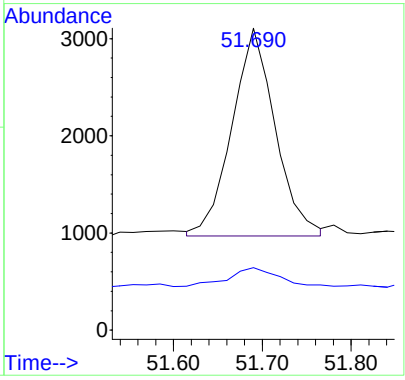




#93
17a(H),21B(H)-hopane - C30H52
Concen: 486.48 ng/mL m
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35290.D
Acq: 25 May 2012 3:59 am

Tgt Ion:191 Resp: 7241

Ion	Ratio	Lower	Upper
191	100		
177	13.0	17.2	25.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

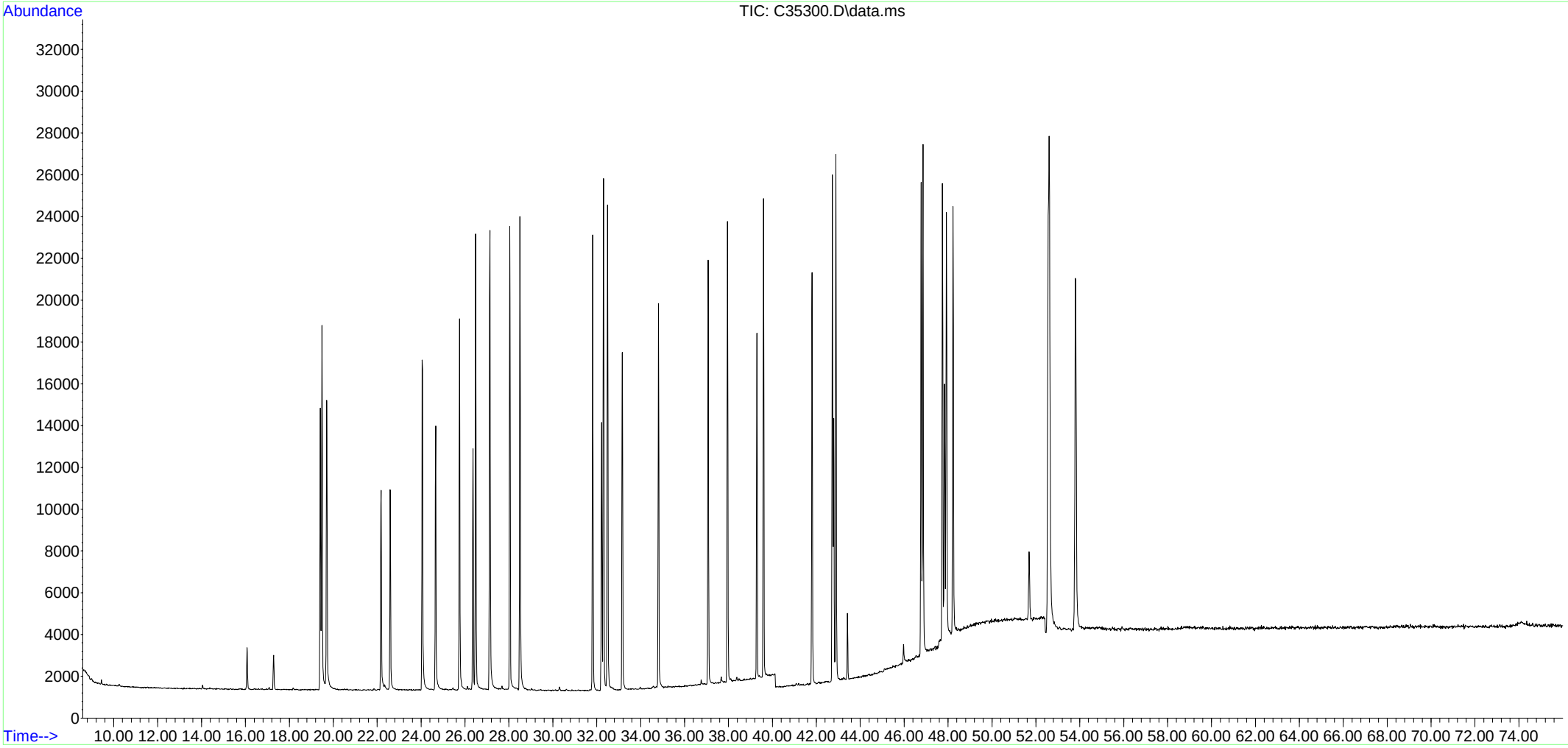
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	13224M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.790	240	23234	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	30611	533.334	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.33%			
42) Phenanthrene-d10	32.221	188	24863	548.050	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.80%			
86) Benzo[a]pyrene-d12	47.835	264	25569	531.021	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.10%			
127) 5B(H)Cholane - Surr	43.422	217	3896	536.334	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.63%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	2772	265.539	ng/mL	100
4) cis-Decalin	17.287	138	2081	264.500	ng/mL	100
10) Naphthalene	19.485	128	40479	480.277	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	25019	502.043	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	23871	488.682	ng/mL#	100
18) Benzothiophene	19.696	134	36117	476.202	ng/mL	100
23) Biphenyl	24.061	154	32030	508.095	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	21019	513.364	ng/mL#	100
25) Dibenzofuran	27.133	168	36644	506.209	ng/mL	97
26) Acenaphthylene	25.748	152	40661	485.997	ng/mL#	100
27) Acenaphthene	26.485	153	24619	499.756	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.036	170	17759	538.063	ng/mL	90
29) Fluorene	28.503	166	27637M3	508.685	ng/mL	
33) Dibenzothiophene	31.814	184	43519	499.697	ng/mL	100
43) Phenanthrene	32.311	178	39333	514.045	ng/mL	100
54) Retene	39.297	234	8680	581.535	ng/mL	97
55) Anthracene	32.492	178	39141M3	523.698	ng/mL	
56) Carbazole	33.169	167	36755M3	486.852	ng/mL	
57) 1-Methylphenanthrene	34.810	192	26499	546.485	ng/mL	99
58) Fluoranthene	37.069	202	40649M3	534.899	ng/mL	
59) Benzo(b)fluorene	39.598	216	24600	557.968	ng/mL	99
60) Pyrene	37.957	202	41727	540.158	ng/mL	98
66) Naphthobenzothiophene	41.811	234	45820	550.943	ng/ml#	66
67) Naphthobenzothiophene-...	41.811	234	45820	550.943	ng/mL#	66
75) Benz[a]anthracene	42.730	228	37961M3	514.765	ng/mL	
76) Chrysene	42.896	228	37955M3	509.798	ng/mL	
77) Chrysene/Triphenylene	42.896	228	38467	516.675	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	41739	515.104	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.856	252	45708	518.108	ng/mL	92
85) Benzo[e]pyrene	47.744	252	40703	507.842	ng/mL	93
87) Benzo[a]pyrene	47.925	252	39022M4	505.683	ng/mL	
88) Perylene	48.226	252	41931	508.440	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.564	276	47729M3	531.496	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.609	278	47147M3	551.907	ng/mL	
91) Benzo[g,h,i]perylene	53.813	276	50719	534.585	ng/mL	100
92) Hopane (T19)	51.690	191	7320	478.030	ng/mL#	80
93) 17a(H),21B(H)-hopane -...	51.690	191	7320	478.030	ng/mL#	80

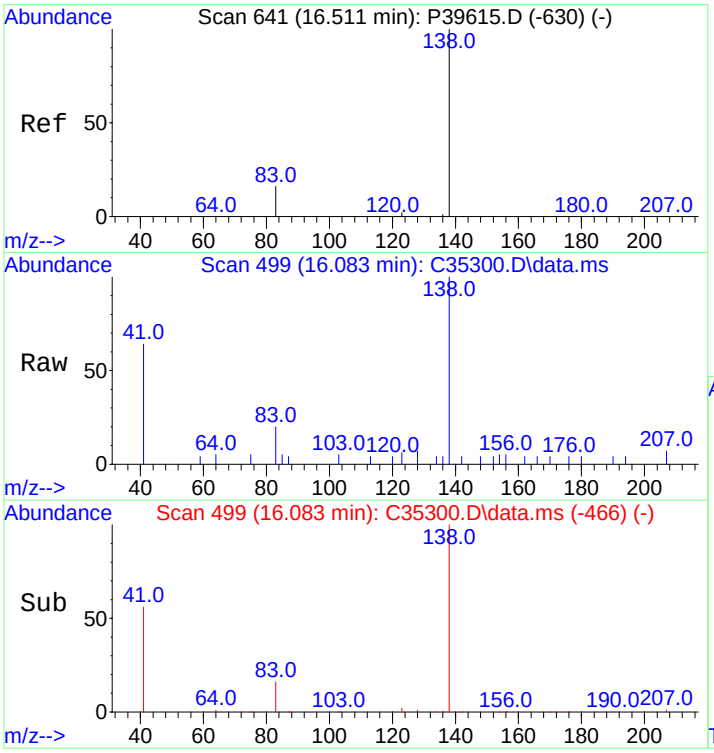
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35300.D
Acq On : 25 May 2012 11:46 am
Operator : AC
Sample : C305241203
Misc : CC WHAP59 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

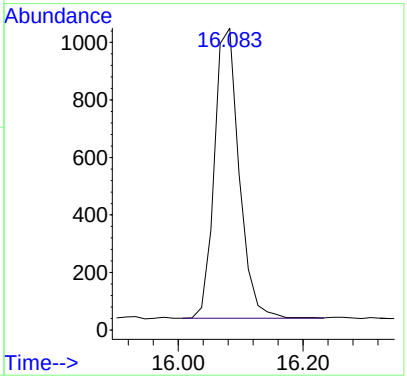
Quant Time: May 29 11:01:36 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

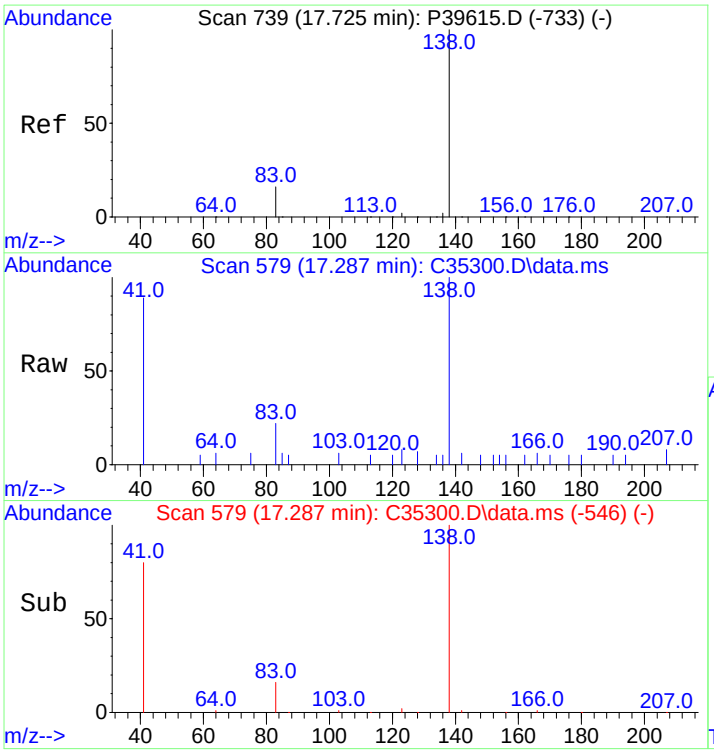




#3
trans-Decalin
Concen: 265.54 ng/mL
RT: 16.083 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

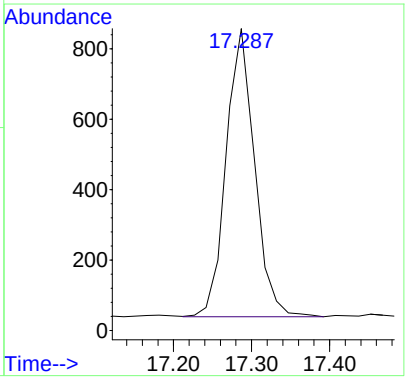
Tgt Ion:138 Resp: 2772

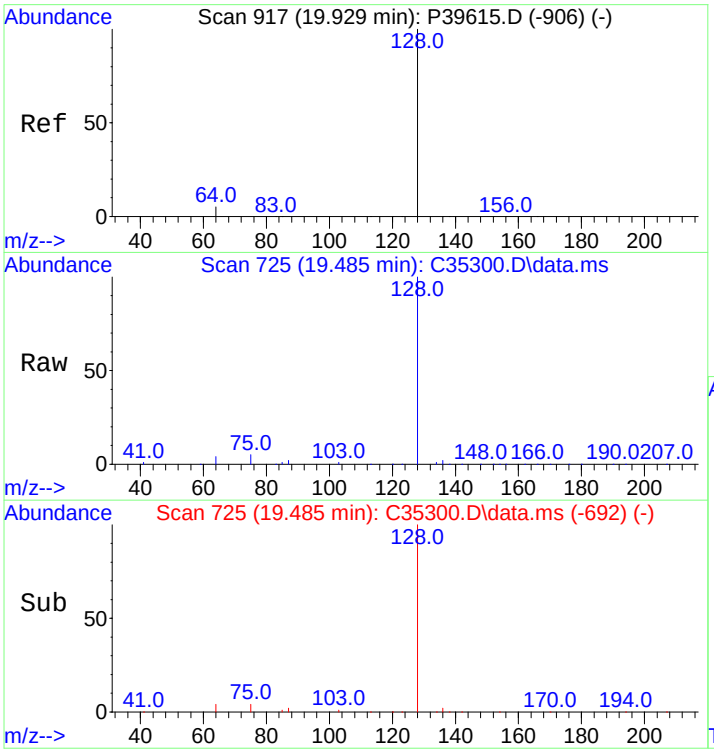




#4
cis-Decalin
Concen: 264.50 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:138 Resp: 2081

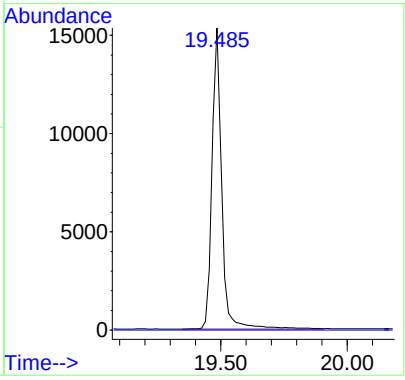


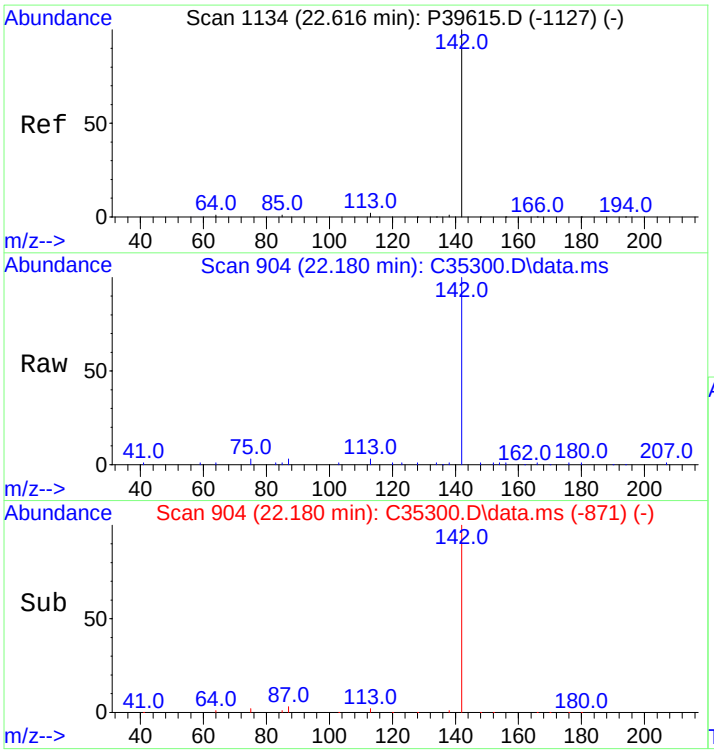


#10
Naphthalene
Concen: 480.28 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:128 Resp: 40479

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

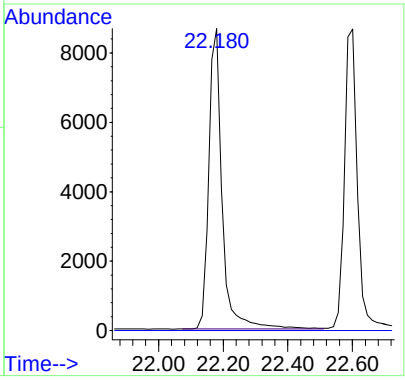


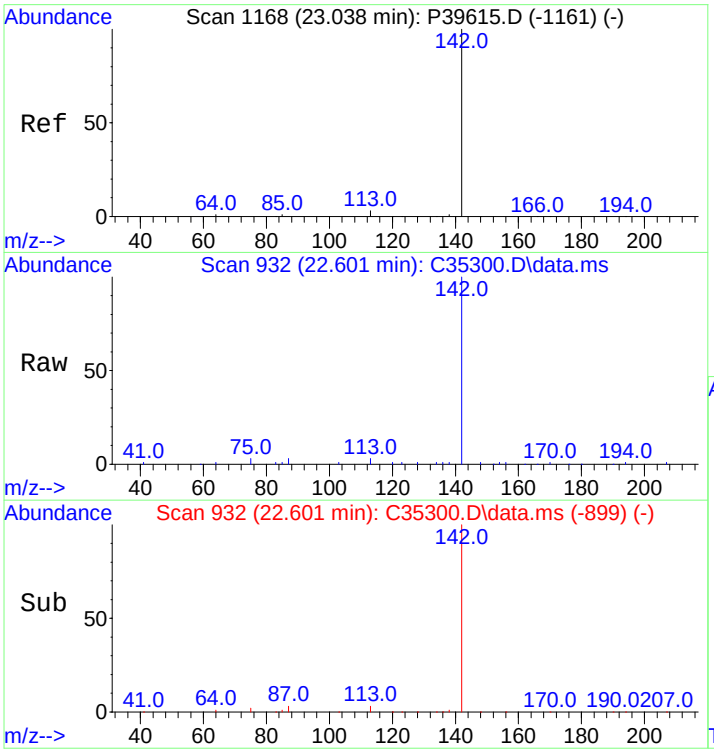


#16
2-Methylnaphthalene
Concen: 502.04 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:142 Resp: 25019

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

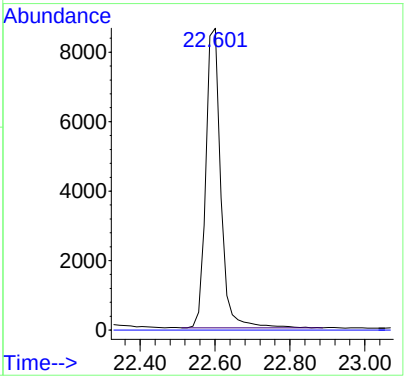


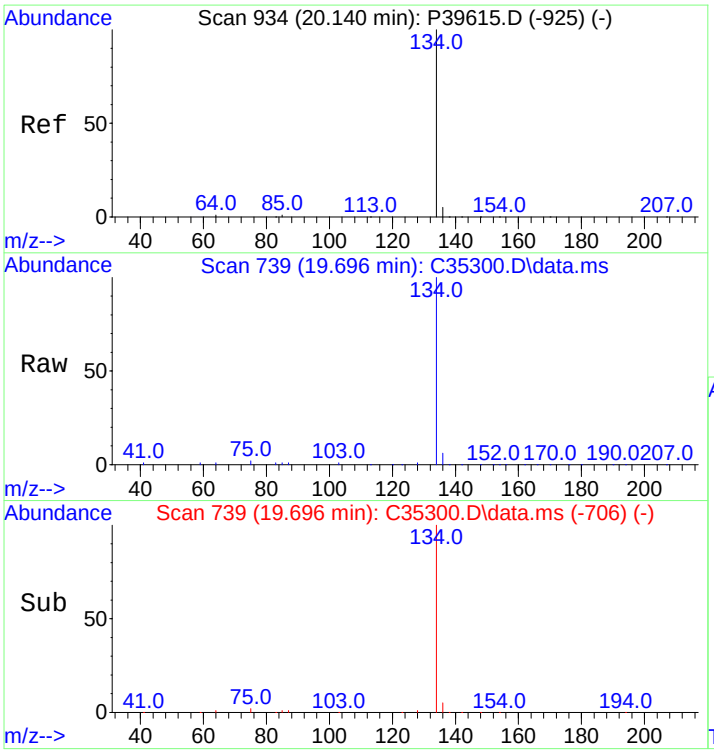


#17
1-Methylnaphthalene
Concen: 488.68 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:142 Resp: 23871

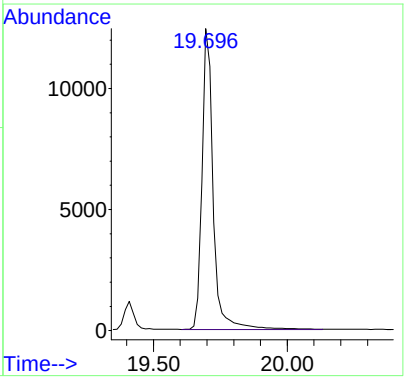
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

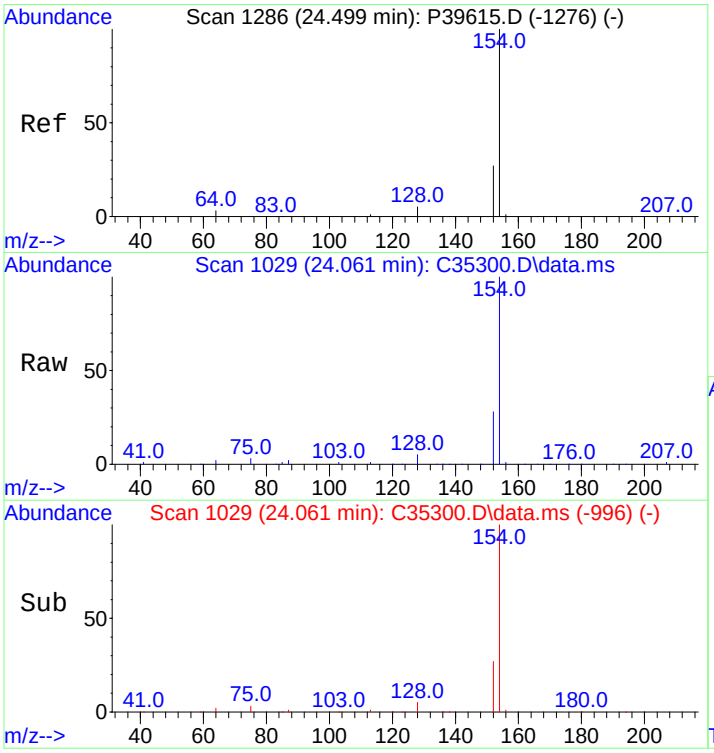




#18
Benzothiophene
Concen: 476.20 ng/mL
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:134 Resp: 36117

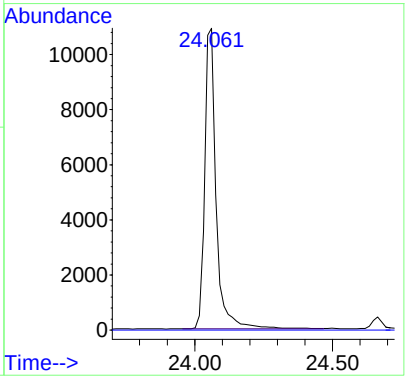


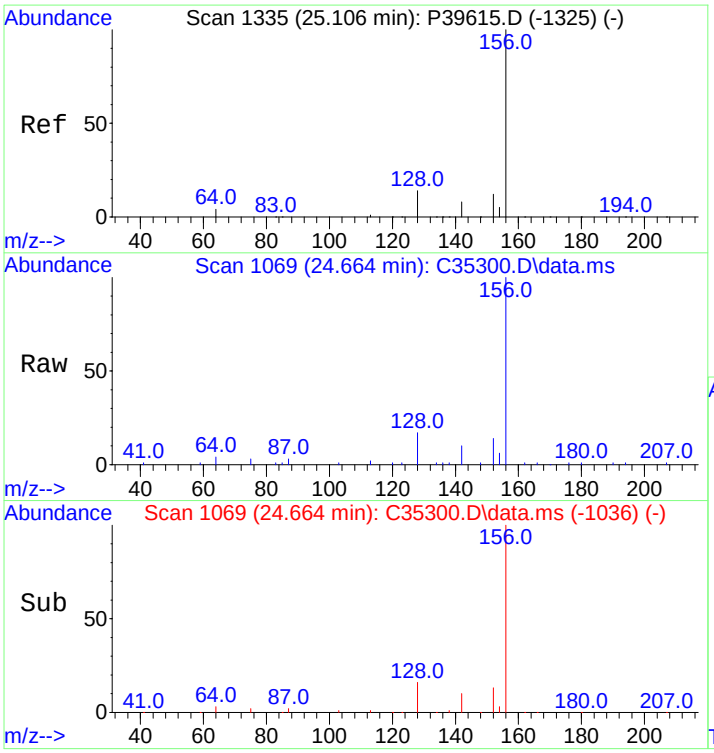


#23
Biphenyl
Concen: 508.10 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:154 Resp: 32030

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

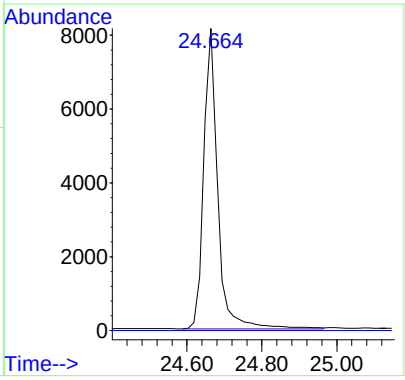


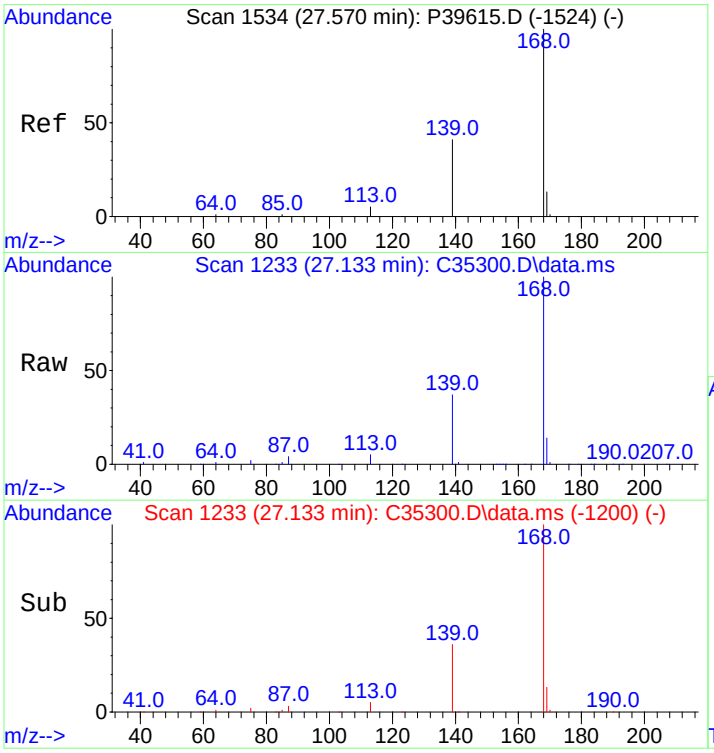


#24
2,6-Dimethylnaphthalene
Concen: 513.36 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:156 Resp: 21019

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

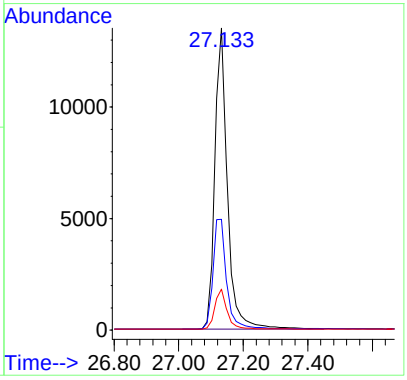


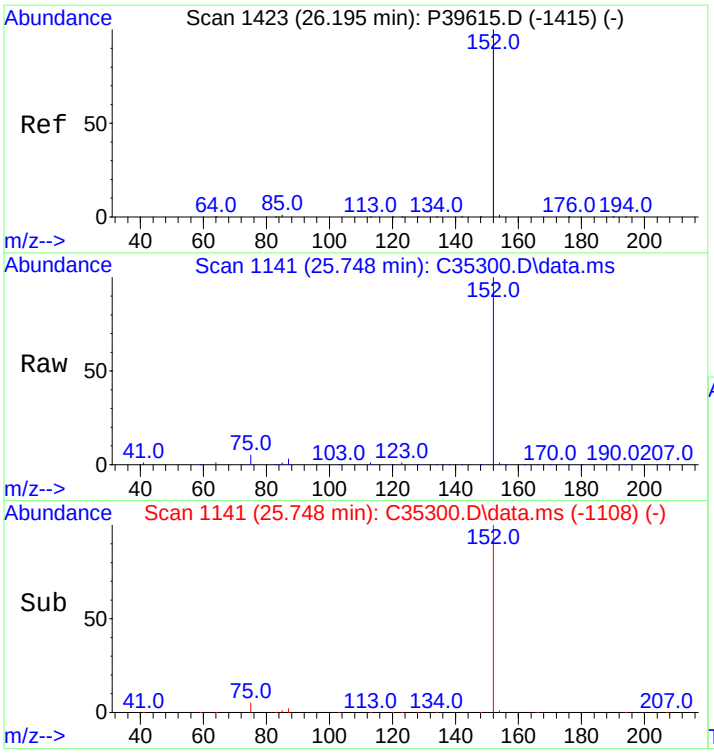


#25
Dibenzofuran
Concen: 506.21 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:168 Resp: 36644

Ion	Ratio	Lower	Upper
168	100		
139	39.6	29.9	44.9
169	13.2	10.3	15.5

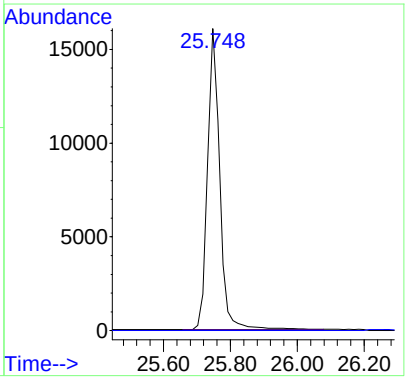


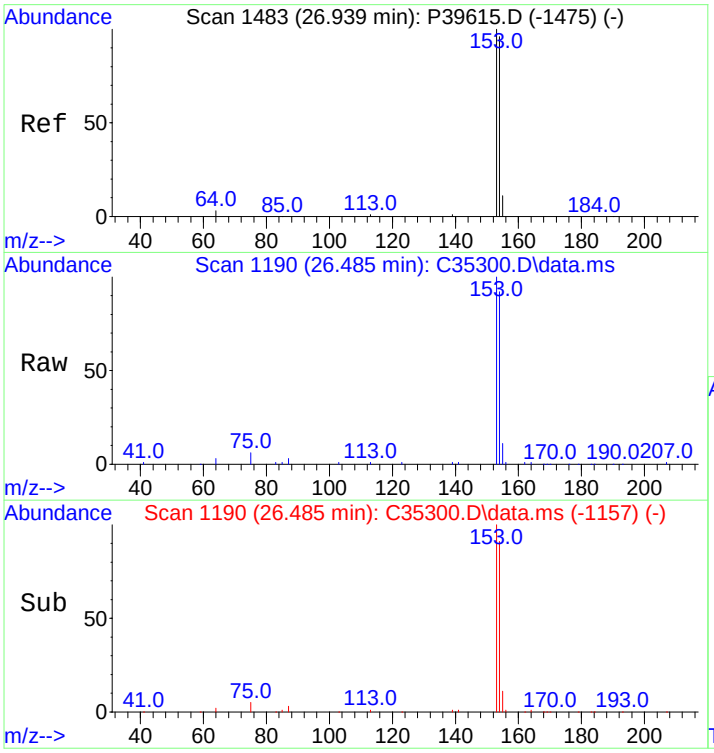


#26
Acenaphthylene
Concen: 486.00 ng/mL
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:152 Resp: 40661

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

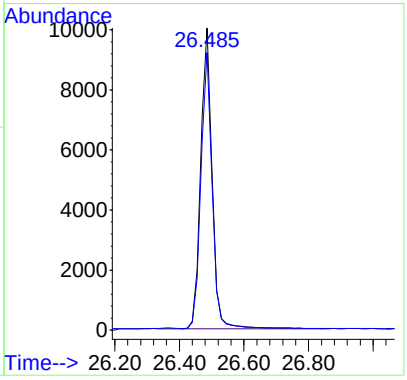


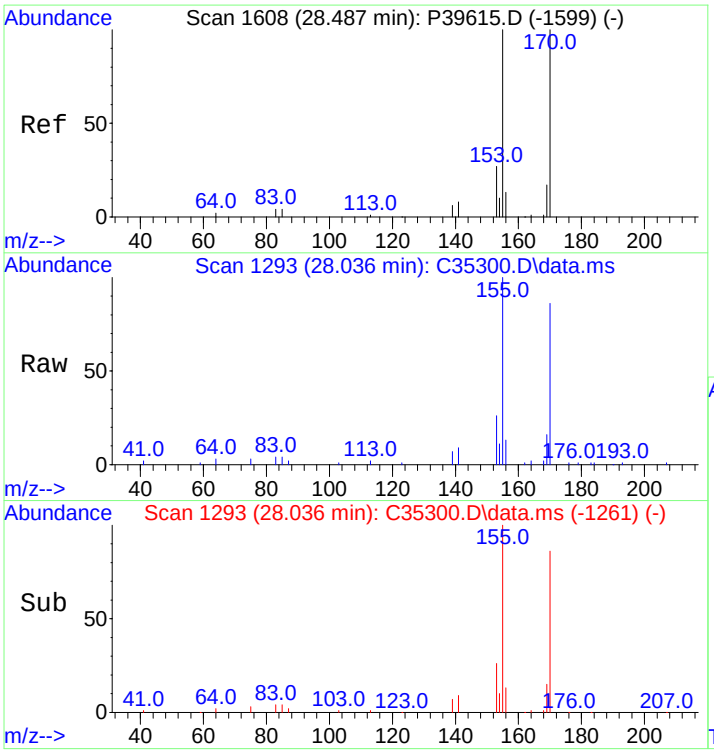


#27
Acenaphthene
Concen: 499.76 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:153 Resp: 24619

Ion	Ratio	Lower	Upper
153	100		
154	91.2	73.3	109.9

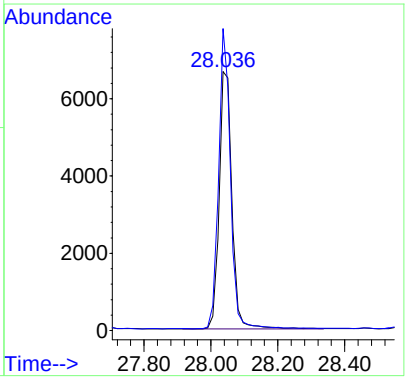


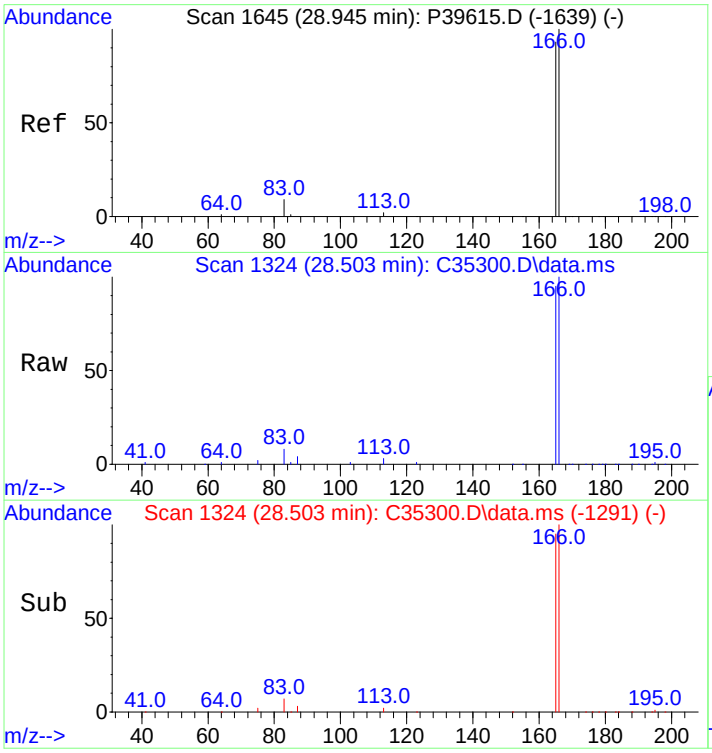


#28
2,3,5-Trimethylnaphthalene
Concen: 538.06 ng/mL
RT: 28.036 min Scan# 1293
Delta R.T. -0.015 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:170 Resp: 17759

Ion	Ratio	Lower	Upper
170	100		
155	107.8	78.4	117.6

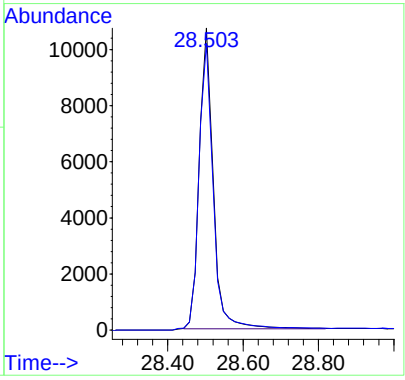


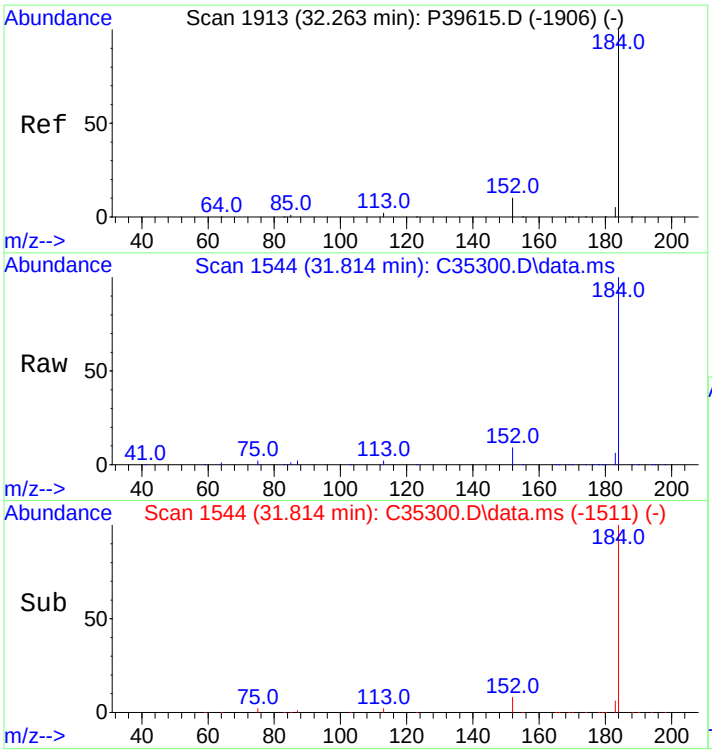


#29
Fluorene
Concen: 508.69 ng/mL m
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:166 Resp: 27637

Ion	Ratio	Lower	Upper
166	100		
165	101.4	77.1	115.7

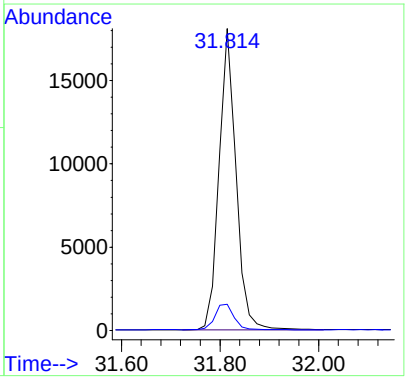


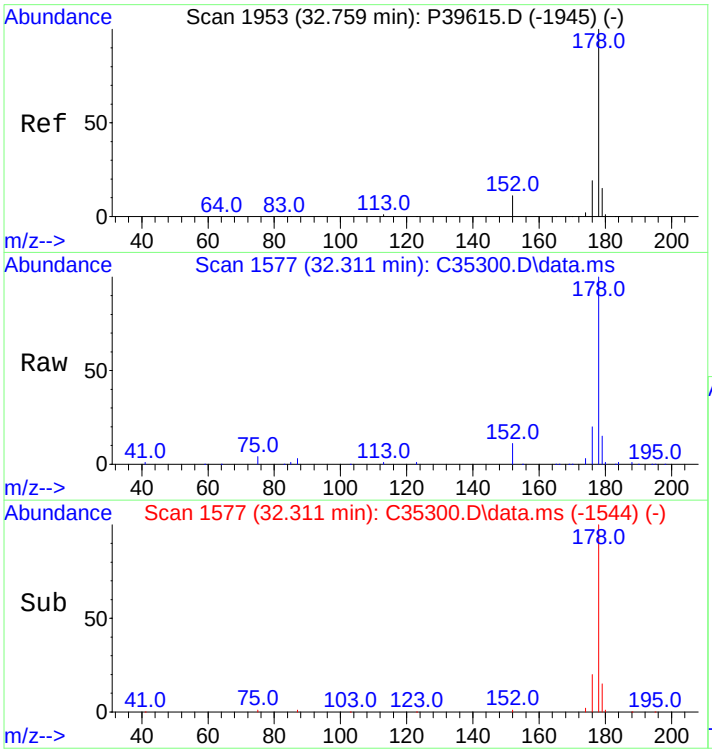


#33
Dibenzothiophene
Concen: 499.70 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:184 Resp: 43519

Ion	Ratio	Lower	Upper
184	100		
152	9.5	7.5	11.3

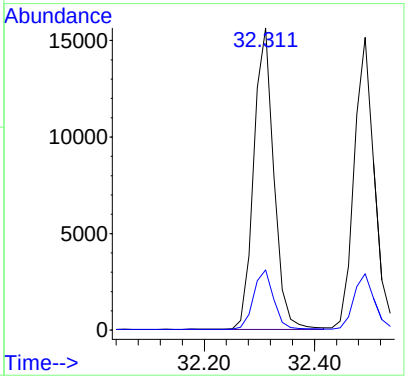


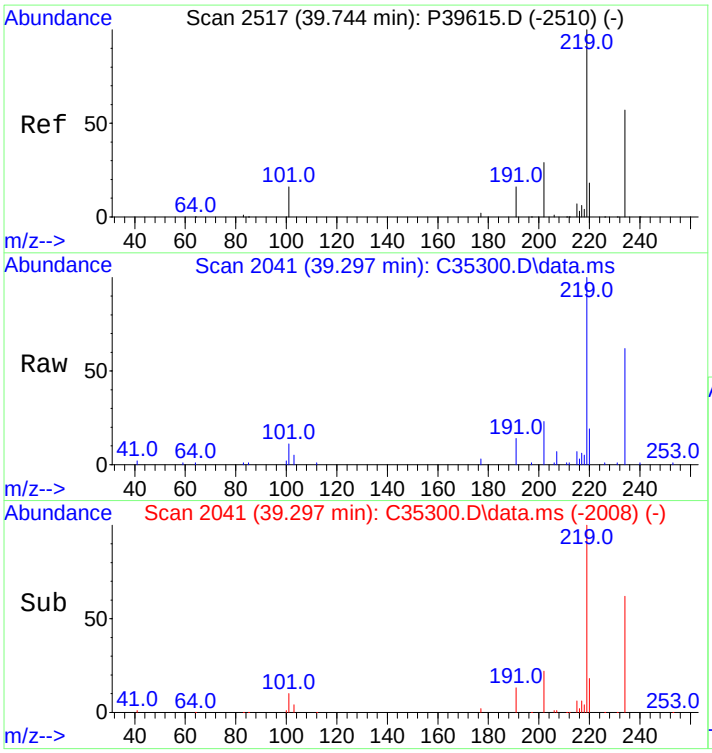


#43
Phenanthrene
Concen: 514.05 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:178 Resp: 39333

Ion	Ratio	Lower	Upper
178	100		
176	19.7	15.8	23.6

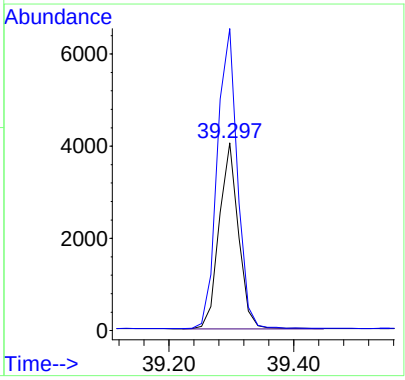


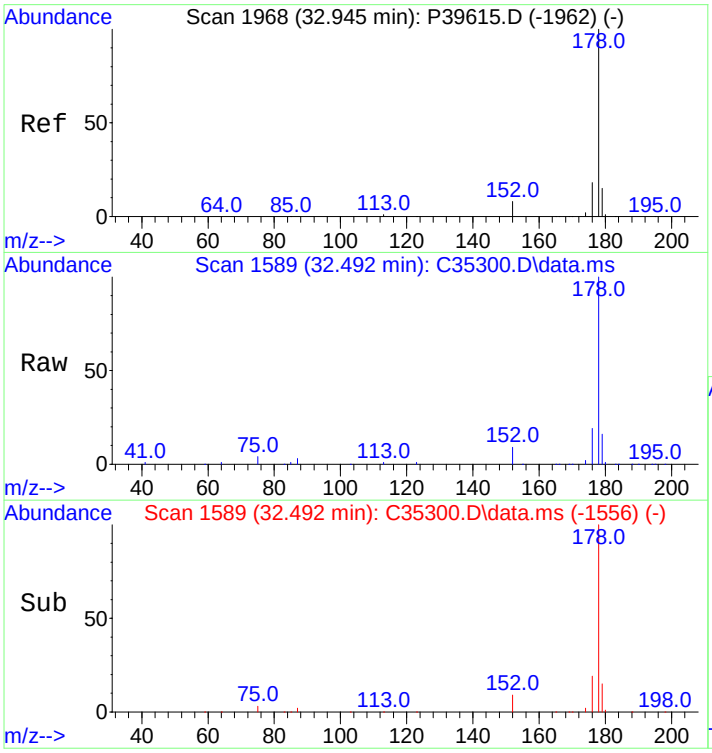


#54
Retene
Concen: 581.53 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:234 Resp: 8680

Ion	Ratio	Lower	Upper
234	100		
219	168.9	131.8	197.8

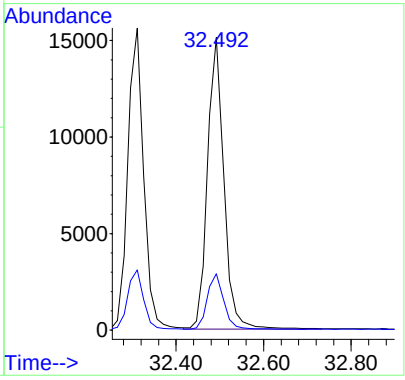


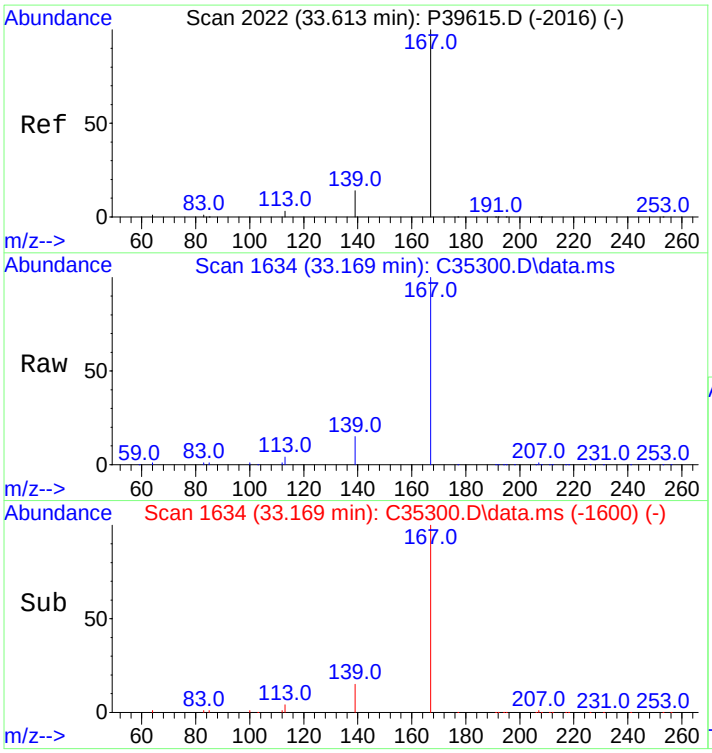


#55
Anthracene
Concen: 523.70 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:178 Resp: 39141

Ion	Ratio	Lower	Upper
178	100		
176	19.2	15.6	23.4

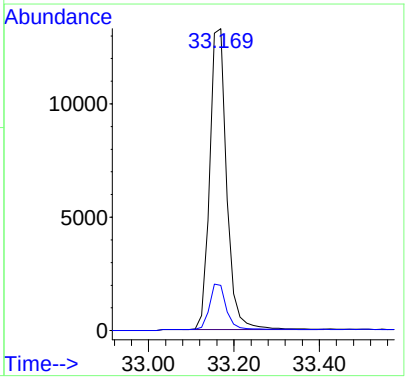


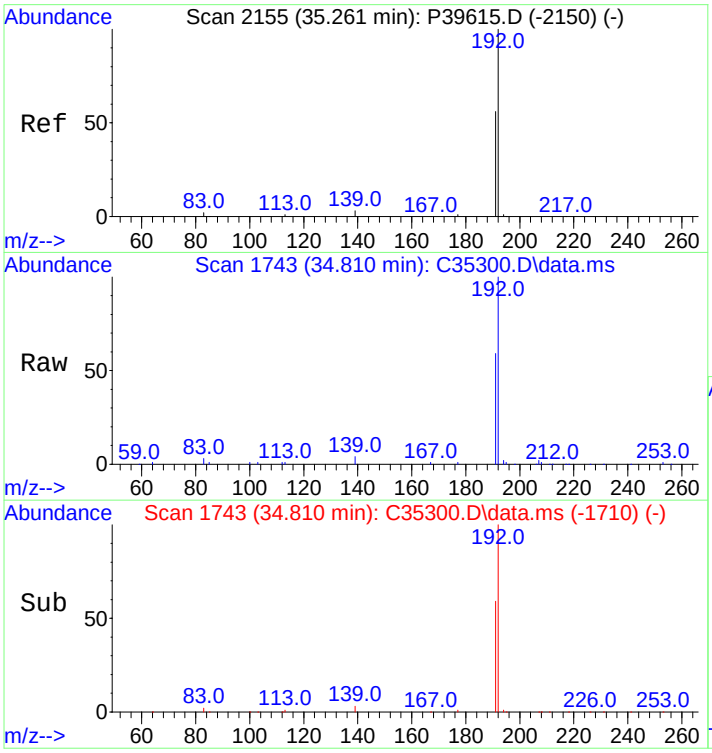


#56
Carbazole
Concen: 486.85 ng/mL m
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:167 Resp: 36755

Ion	Ratio	Lower	Upper
167	100		
139	15.3	11.9	17.9

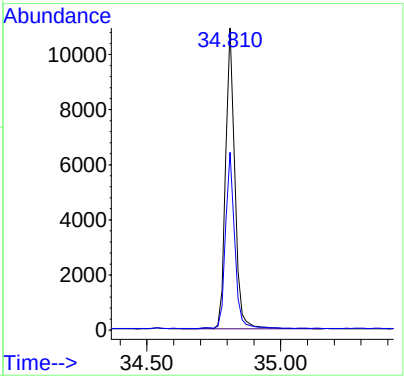


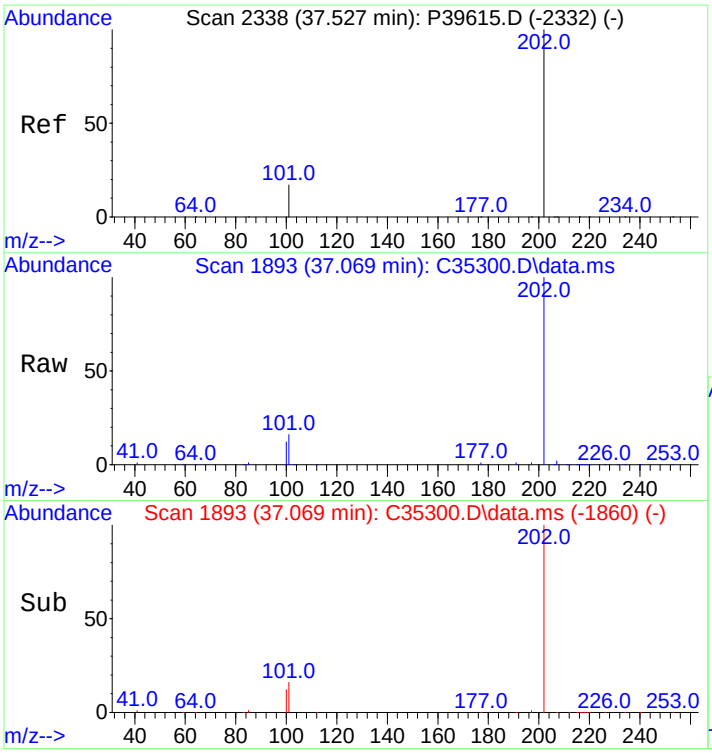


#57
1-Methylphenanthrene
Concen: 546.48 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:192 Resp: 26499

Ion	Ratio	Lower	Upper
192	100		
191	58.1	46.8	70.2

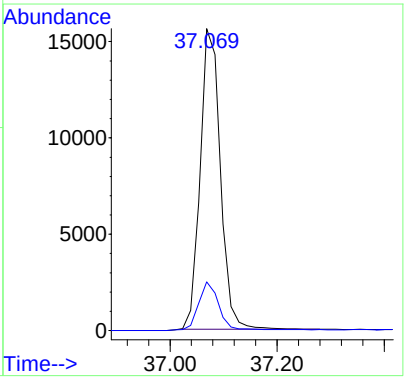


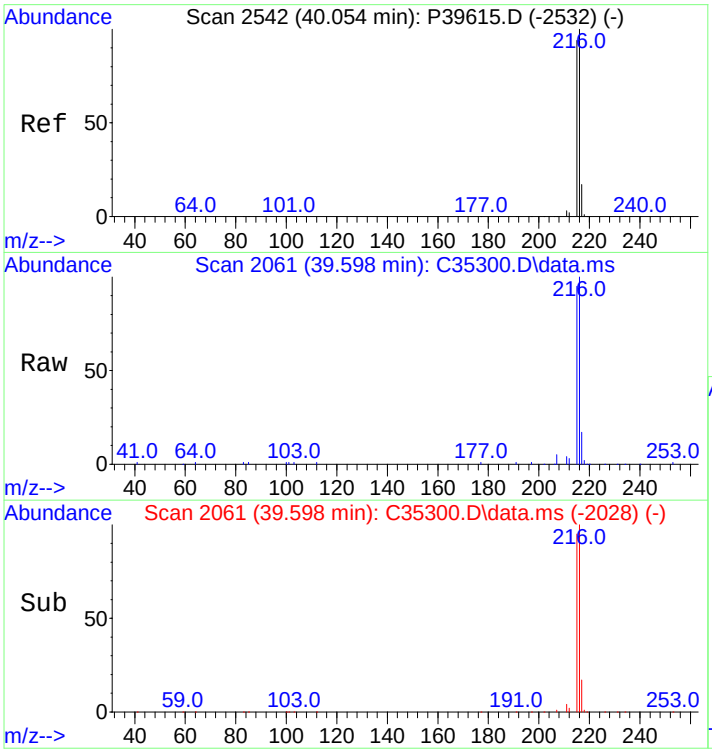


#58
Fluoranthene
Concen: 534.90 ng/mL m
RT: 37.069 min Scan# 1893
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:202 Resp: 40649

Ion	Ratio	Lower	Upper
202	100		
101	16.8	13.2	19.8

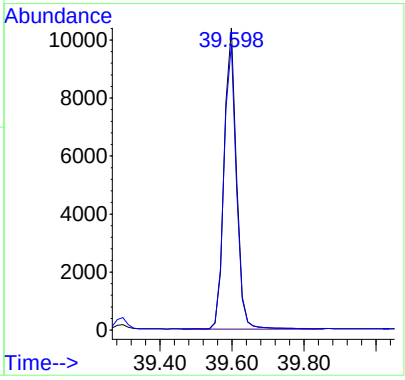


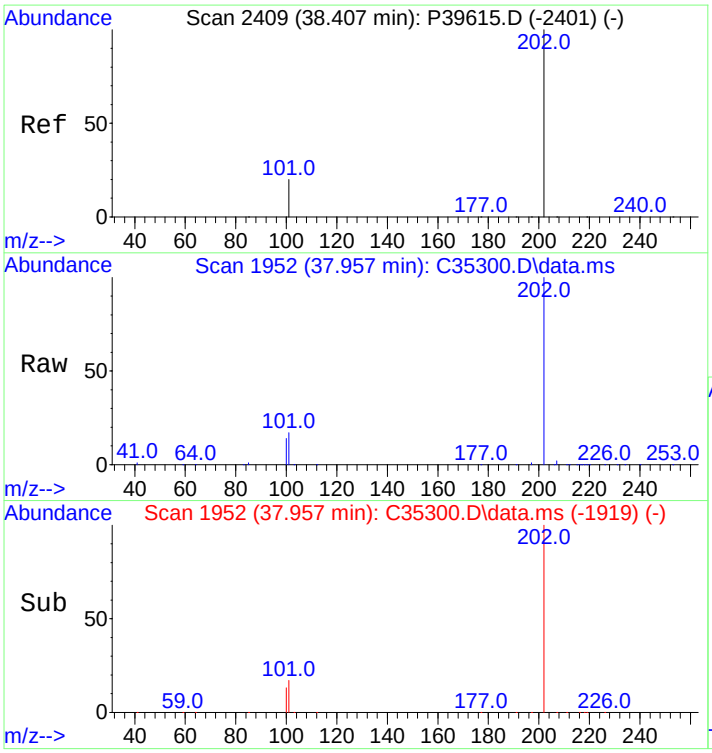


#59
Benzo(b)fluorene
Concen: 557.97 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:216 Resp: 24600

Ion	Ratio	Lower	Upper
216	100		
215	95.7	76.0	114.0

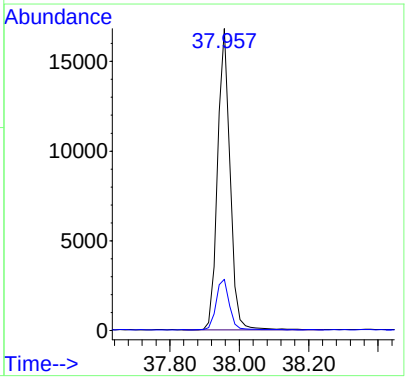


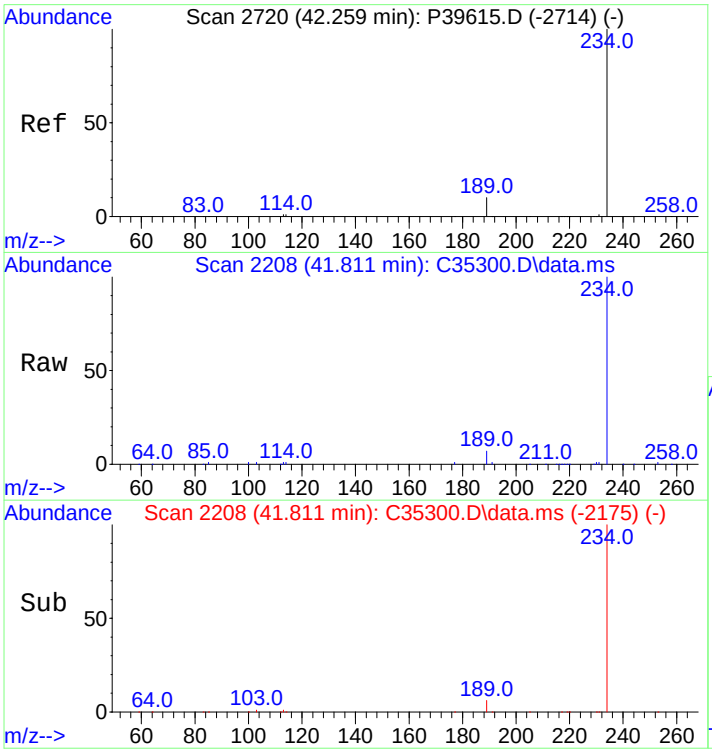


#60
Pyrene
Concen: 540.16 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:202 Resp: 41727

Ion	Ratio	Lower	Upper
202	100		
101	17.7	13.5	20.3

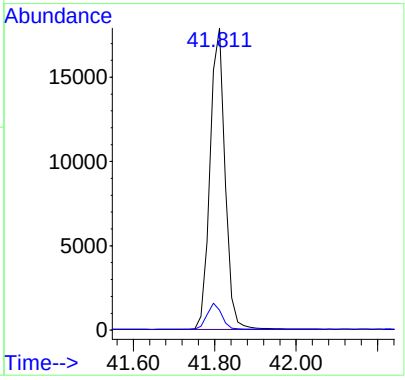


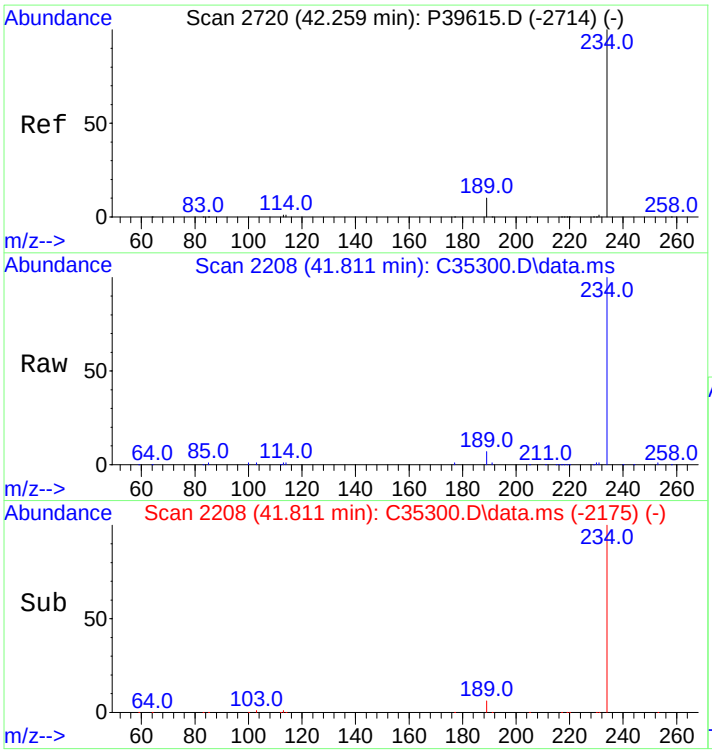


#66
Naphthobenzothiophene
Concen: 550.94 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:234 Resp: 45820

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

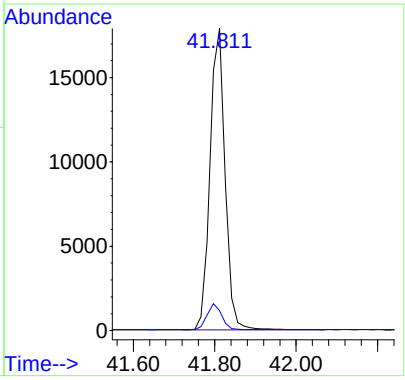


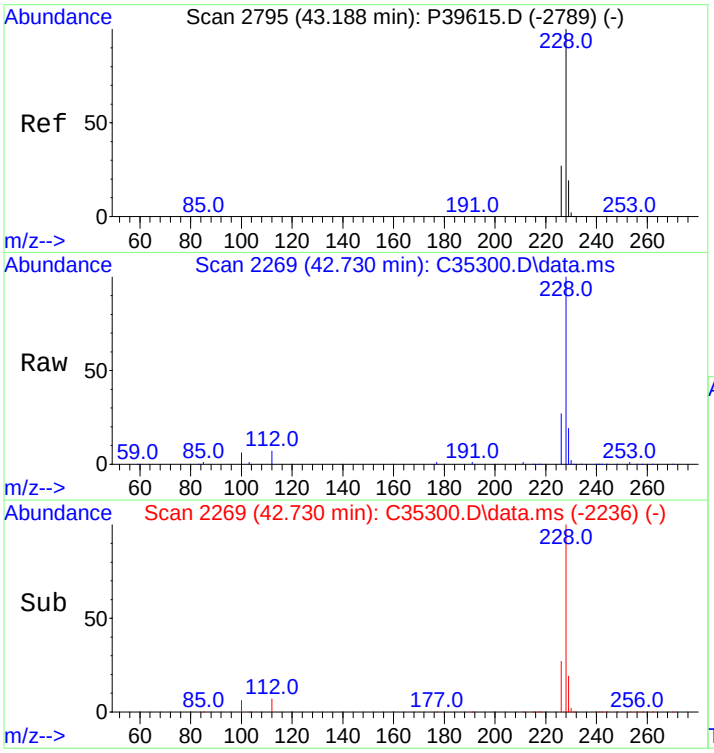


#67
Naphthobenzothiophene-2,1-D
Concen: 550.94 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:234 Resp: 45820

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

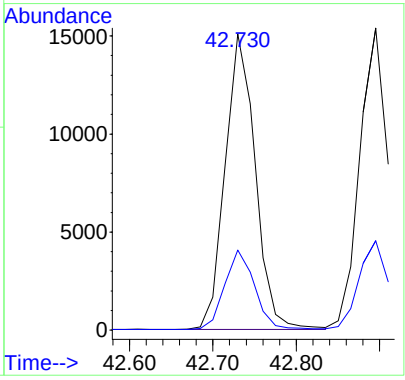


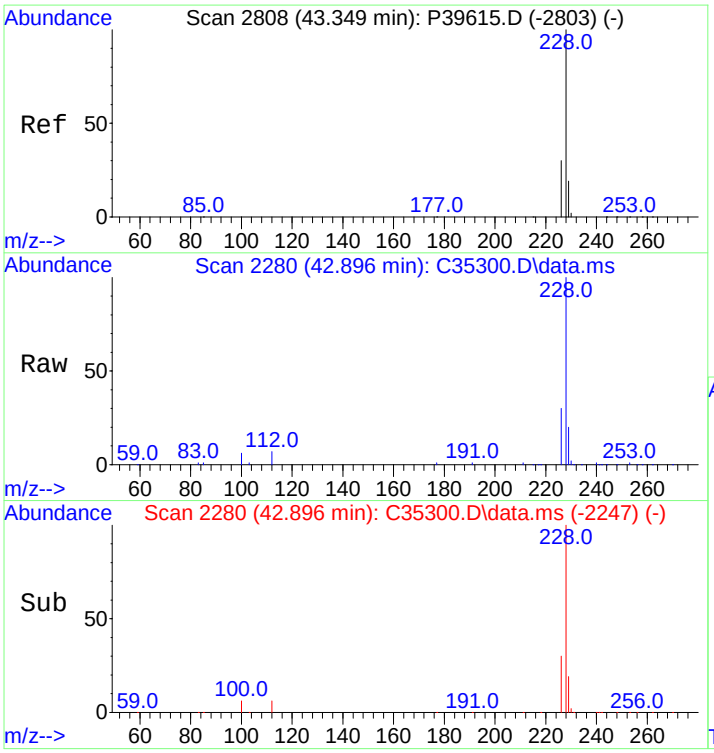


#75
Benz[a]anthracene
Concen: 514.77 ng/mL m
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:228 Resp: 37961

Ion	Ratio	Lower	Upper
228	100		
226	27.1	21.5	32.3

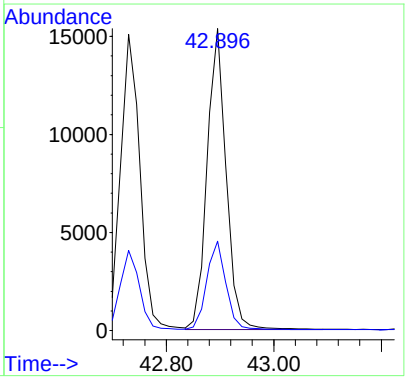


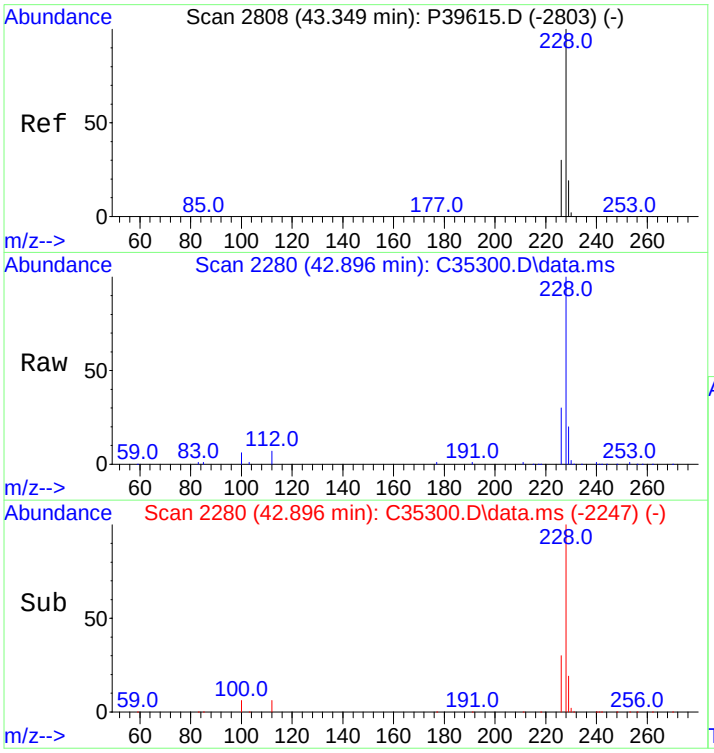


#76
Chrysene
Concen: 509.80 ng/mL m
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:228 Resp: 37955

Ion	Ratio	Lower	Upper
228	100		
226	29.8	23.5	35.3

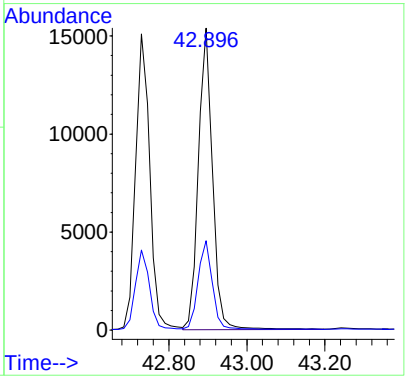


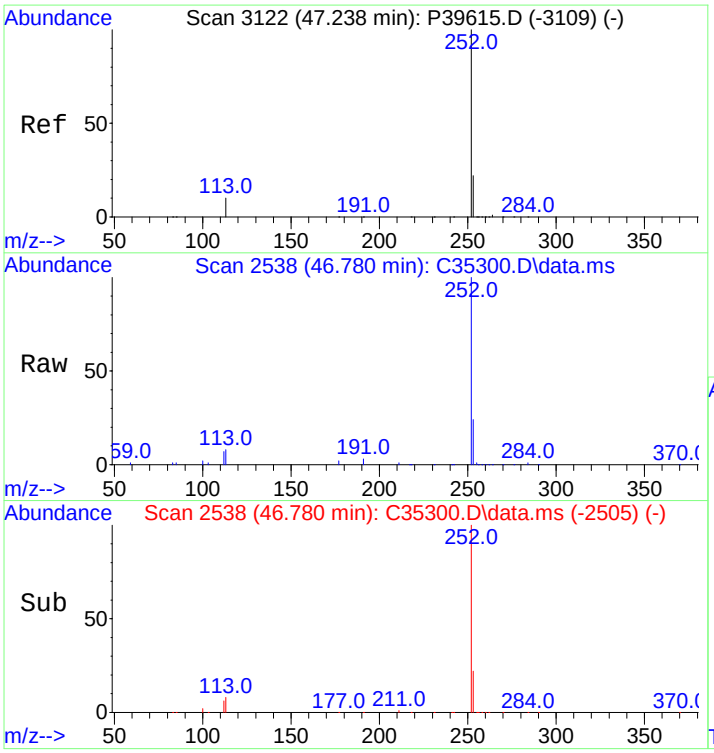


#77
Chrysene/Triphenylene
Concen: 516.68 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:228 Resp: 38467

Ion	Ratio	Lower	Upper
228	100		
226	29.4	23.5	35.3

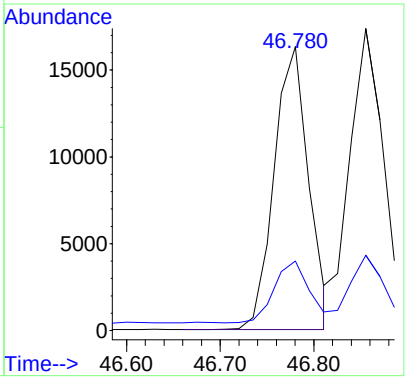


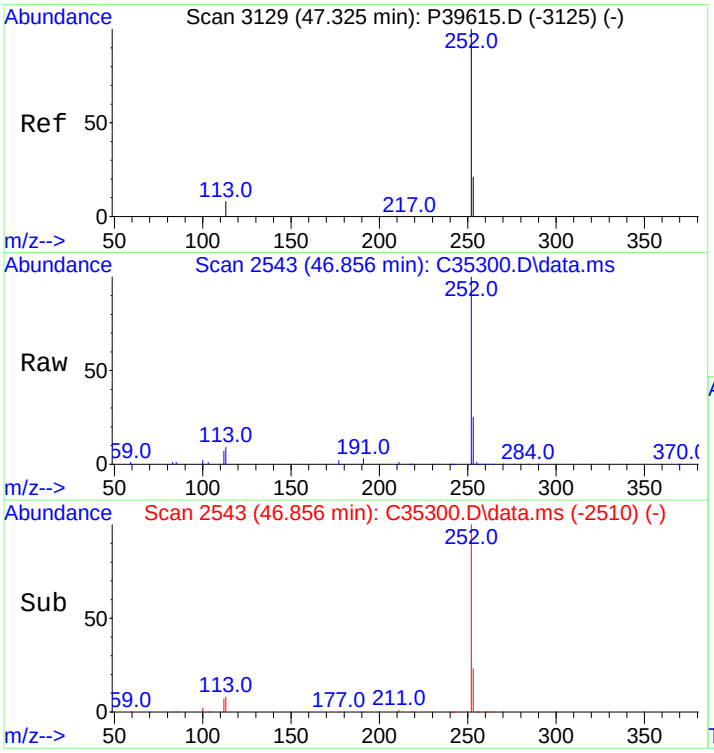


#82
Benzo[b]fluoranthene
Concen: 515.10 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:252 Resp: 41739

Ion	Ratio	Lower	Upper
252	100		
253	22.1	20.4	30.6

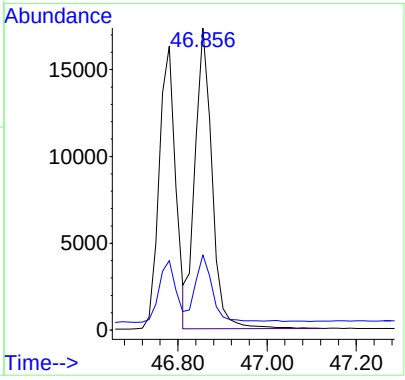


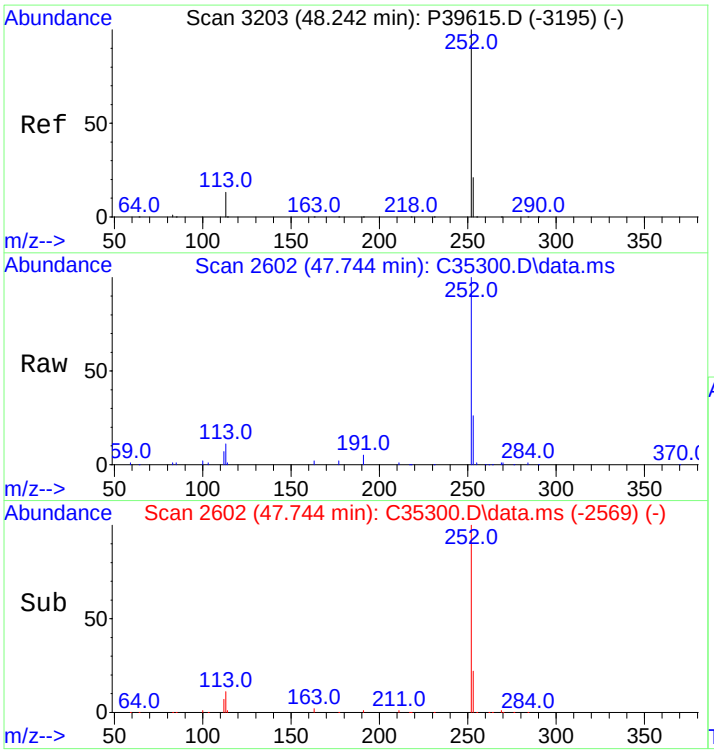


#83
Benzo[j]+[k]fluoranthene
Concen: 518.11 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:252 Resp: 45708

Ion	Ratio	Lower	Upper
252	100		
253	21.7	20.6	31.0

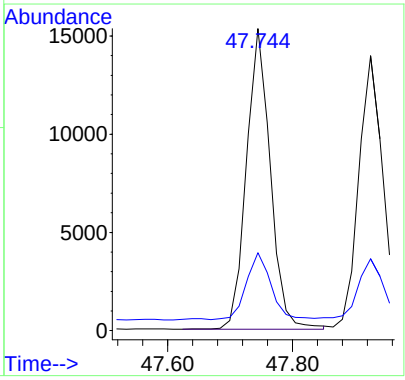


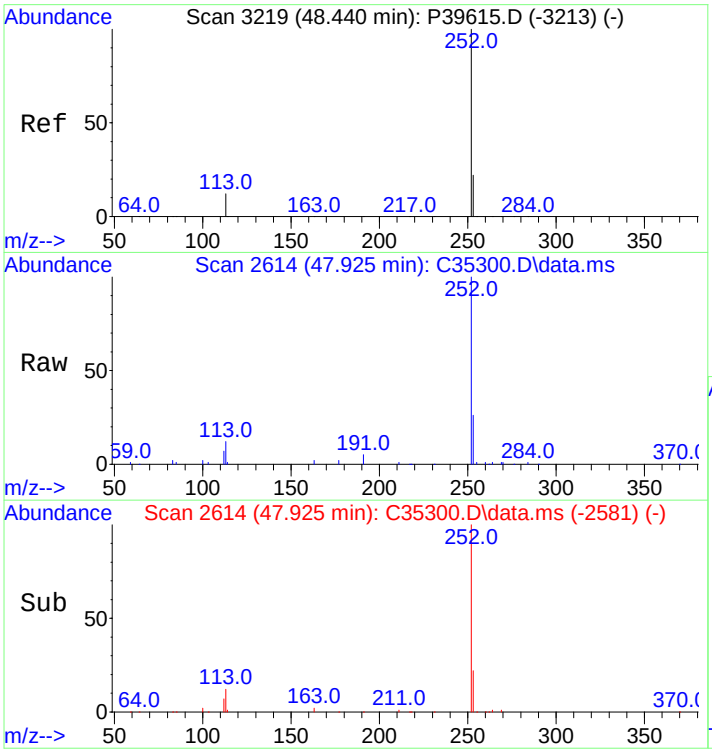


#85
Benzo[e]pyrene
Concen: 507.84 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:252 Resp: 40703

Ion	Ratio	Lower	Upper
252	100		
253	22.8	21.0	31.6

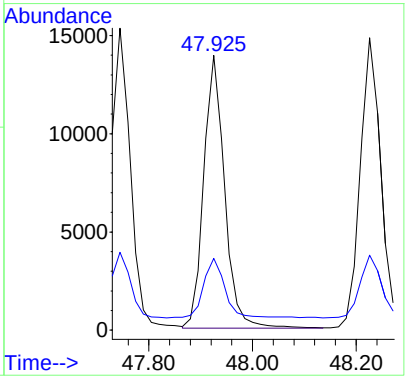


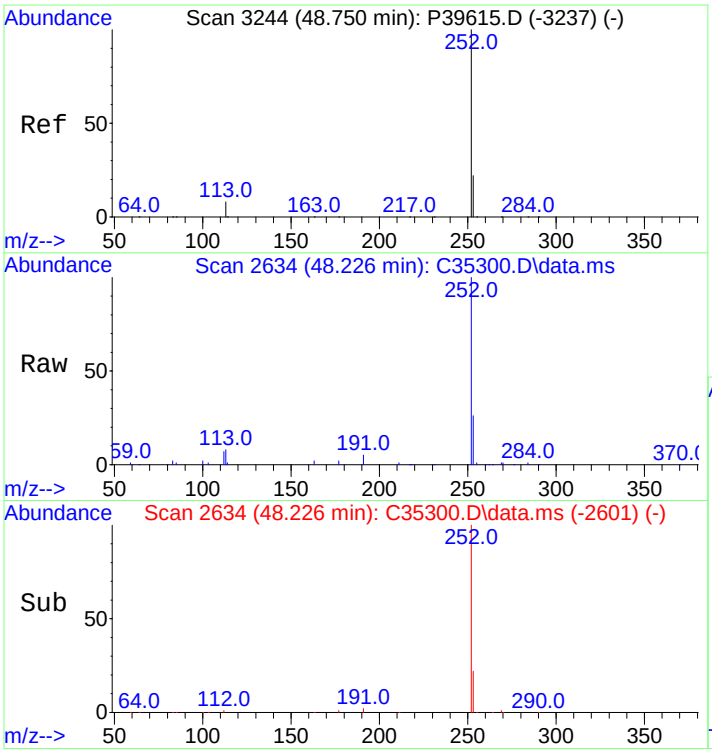


#87
Benzo[a]pyrene
Concen: 505.68 ng/mL m
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:252 Resp: 39022

Ion	Ratio	Lower	Upper
252	100		
253	22.0	21.4	32.0

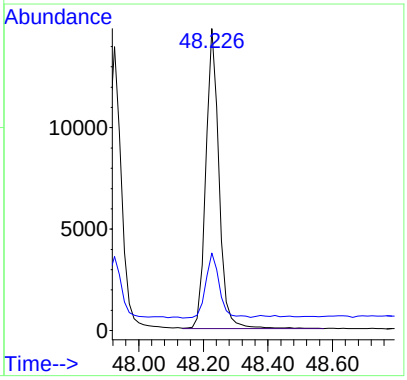


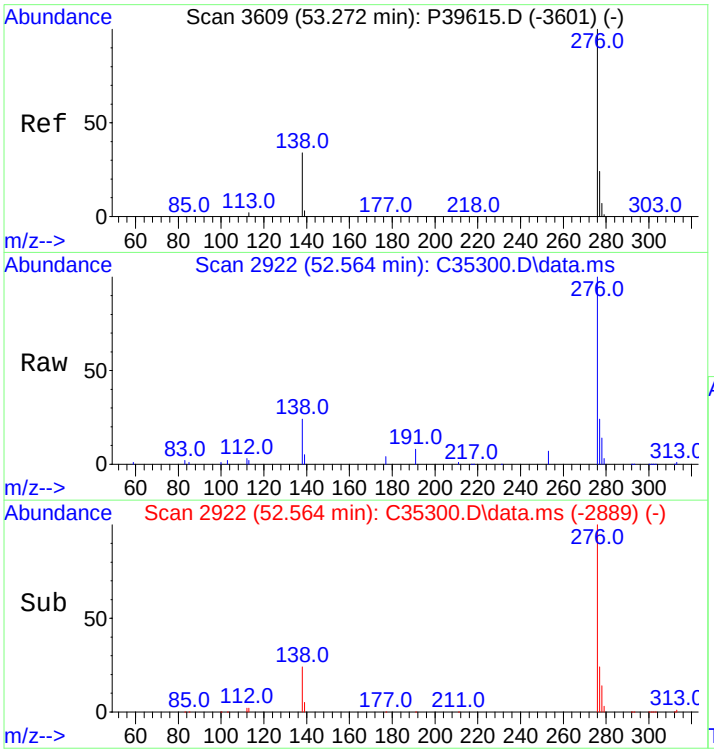


#88
Perylene
Concen: 508.44 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:252 Resp: 41931

Ion	Ratio	Lower	Upper
252	100		
253	22.4	21.8	32.6

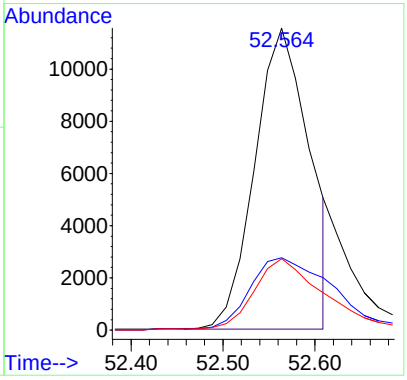


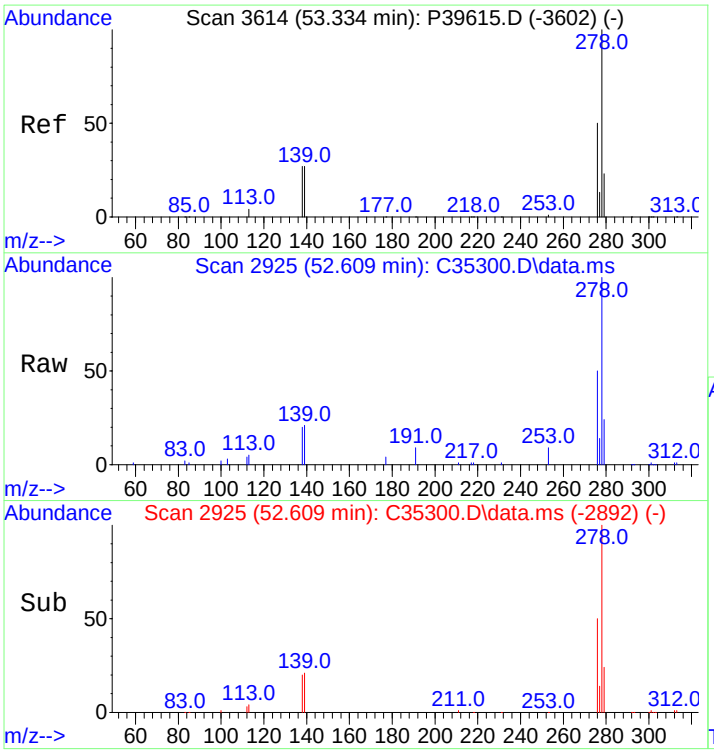


#89
Indeno[1,2,3-cd]pyrene
Concen: 531.50 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:276 Resp: 47729

Ion	Ratio	Lower	Upper
276	100		
138	39.5	19.1	28.7#
277	33.4	19.5	29.3#

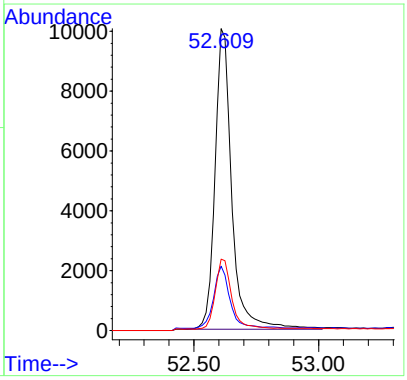


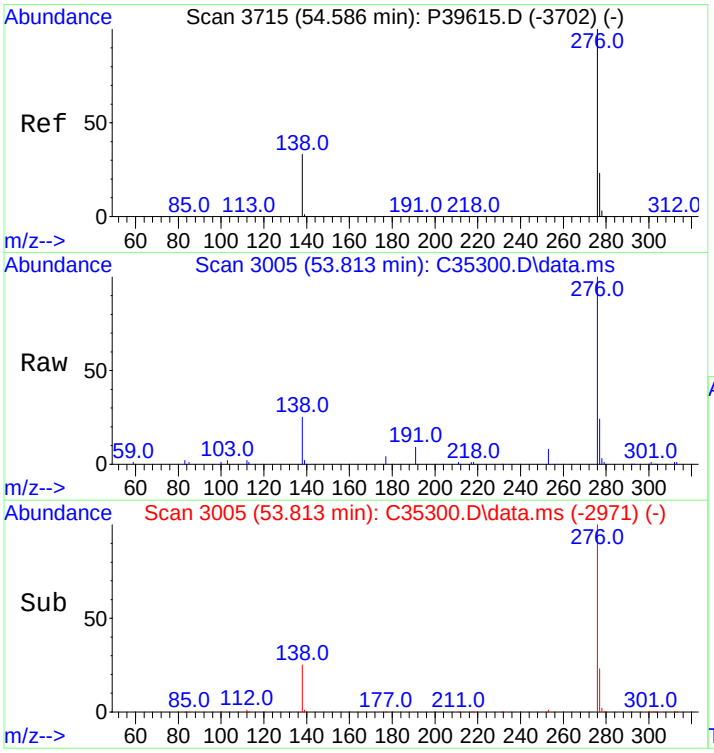


#90
Dibenz[ah]+[ac]anthracene
Concen: 551.91 ng/mL m
RT: 52.609 min Scan# 2925
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:278 Resp: 47147

Ion	Ratio	Lower	Upper
278	100		
139	20.9	16.6	25.0
279	23.7	20.0	30.0

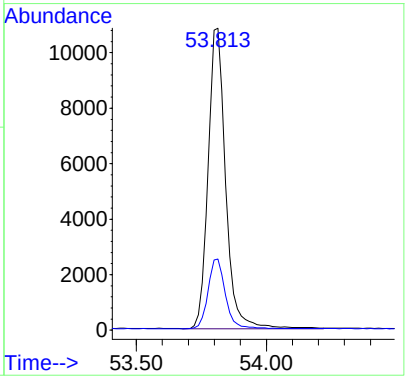


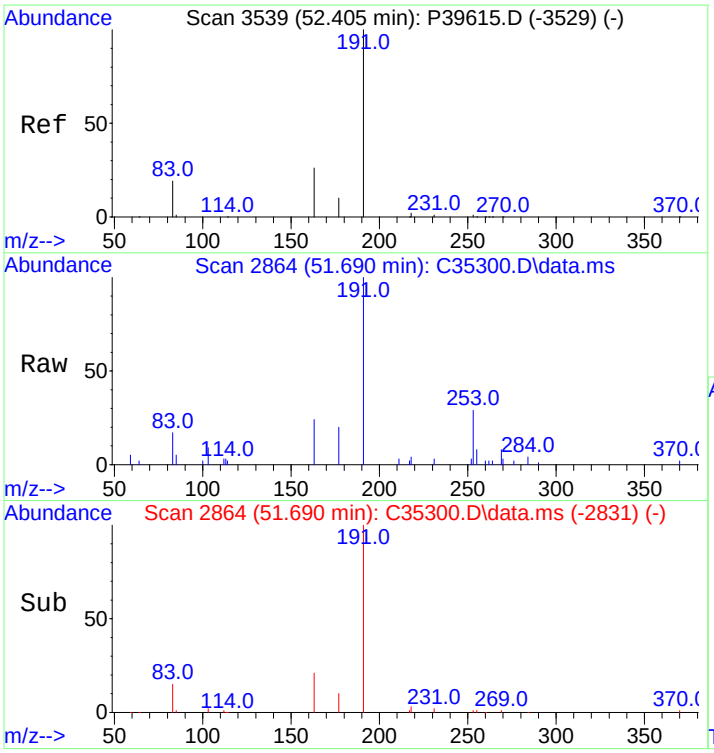


#91
Benzo[g,h,i]perylene
Concen: 534.59 ng/mL
RT: 53.813 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:276 Resp: 50719

Ion	Ratio	Lower	Upper
276	100		
277	23.3	18.8	28.2

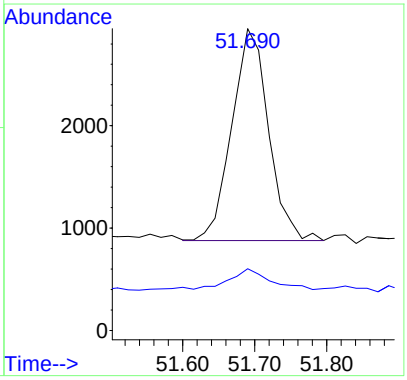


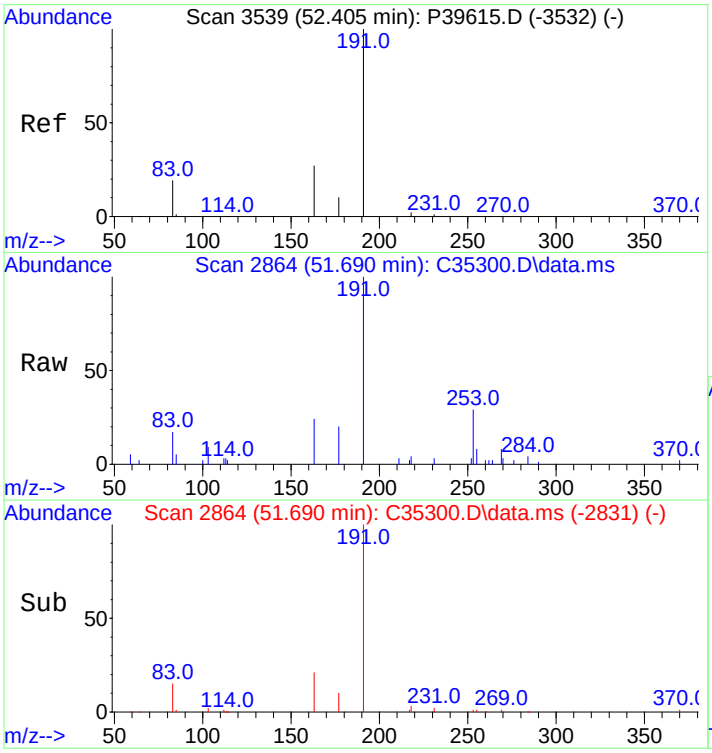


#92
Hopane (T19)
Concen: 478.03 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:191 Resp: 7320

Ion	Ratio	Lower	Upper
191	100		
177	12.0	17.2	25.8#

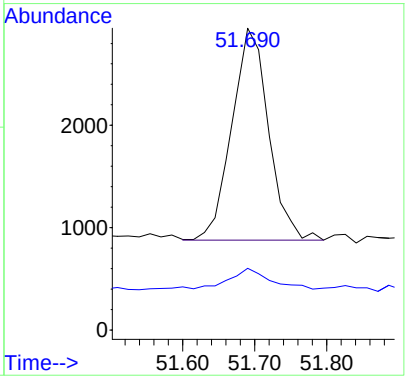




#93
17a(H),21B(H)-hopane - C30H52
Concen: 478.03 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35300.D
Acq: 25 May 2012 11:46 am

Tgt Ion:191 Resp: 7320

Ion	Ratio	Lower	Upper
191	100		
177	12.0	17.2	25.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : PAH3:NS
Sample : C305241204
Misc : WG538343,WHAP59
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 29 15:11:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

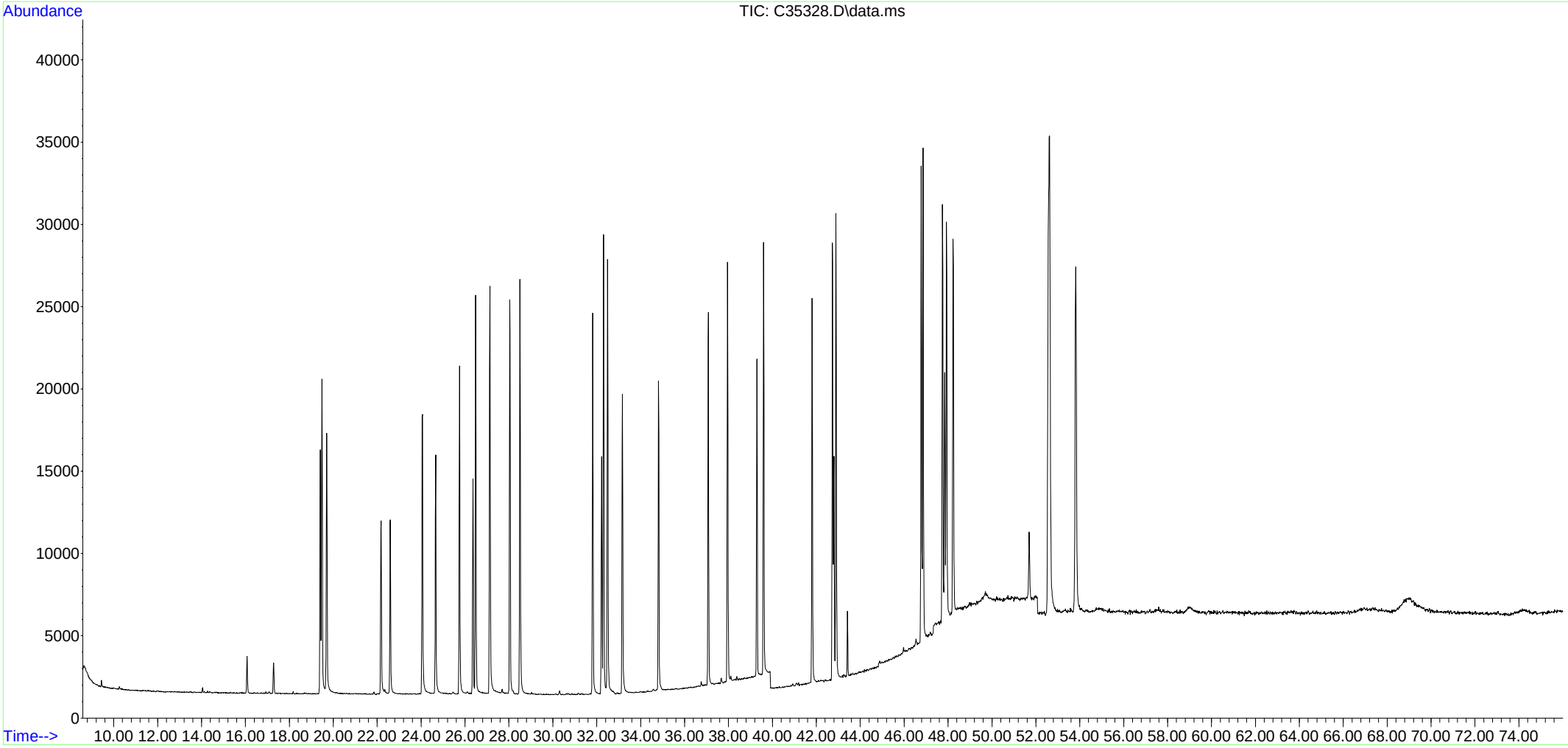
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	15226	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	27494	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	34520	522.360	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 52.24%			
42) Phenanthrene-d10	32.221	188	28403	543.761	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.38%			
86) Benzo[a]pyrene-d12	47.850	264	32098	563.329	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.33%			
127) 5B(H)Cholane - Surr	43.423	217	4820	560.725	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.07%			
Target Compounds						Qvalue
3) trans-Decalin	16.083	138	3198	266.067	ng/mL	100
4) cis-Decalin	17.287	138	2454	270.898	ng/mL	100
10) Naphthalene	19.485	128	45441	468.260	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	28055	488.943	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	27012	480.275	ng/mL#	100
18) Benzothiophene	19.696	134	40042	458.535	ng/mL	100
23) Biphenyl	24.062	154	35651	491.176	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	24096	511.135	ng/mL#	100
25) Dibenzofuran	27.133	168	41599	499.099	ng/mL	98
26) Acenaphthylene	25.748	152	46003M3	477.550	ng/mL	
27) Acenaphthene	26.485	153	27806	490.233	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.051	170	20018	526.760	ng/mL	89
29) Fluorene	28.503	166	31263	499.765	ng/mL	99
33) Dibenzothiophene	31.814	184	49067	489.322	ng/mL	99
43) Phenanthrene	32.311	178	43852	497.749	ng/mL	99
54) Retene	39.297	234	10390	604.573	ng/mL	99
55) Anthracene	32.492	178	44684M3	519.252	ng/mL	
56) Carbazole	33.169	167	41920	482.257	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	30309	542.872	ng/mL	99
58) Fluoranthene	37.084	202	47653	544.614	ng/mL	96
59) Benzo(b)fluorene	39.598	216	29160	574.432	ng/mL	99
60) Pyrene	37.957	202	47731	536.638	ng/mL	99
66) Naphthobenzothiophene	41.812	234	53333	556.961	ng/ml#	66
67) Naphthobenzothiophene-...	41.812	234	53333	556.961	ng/mL#	66
75) Benz[a]anthracene	42.730	228	45355	519.736	ng/mL	100
76) Chrysene	42.896	228	44701	507.379	ng/mL	99
77) Chrysene/Triphenylene	42.896	228	44701	507.379	ng/mL	99
82) Benzo[b]fluoranthene	46.781	252	52687	549.468	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.856	252	54241	519.567	ng/mL	92
85) Benzo[e]pyrene	47.744	252	49728	524.311	ng/mL	95
87) Benzo[a]pyrene	47.925	252	48104	526.789	ng/mL	92
88) Perylene	48.226	252	51508	527.795	ng/mL	92
89) Indeno[1,2,3-cd]pyrene	52.564	276	62172M3	585.058	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.624	278	60149	595.012	ng/mL	96
91) Benzo[g,h,i]perylene	53.814	276	63115	562.167	ng/mL	100
92) Hopane (T19)	51.690	191	9109	502.690	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	51.690	191	9109	502.690	ng/mL#	79

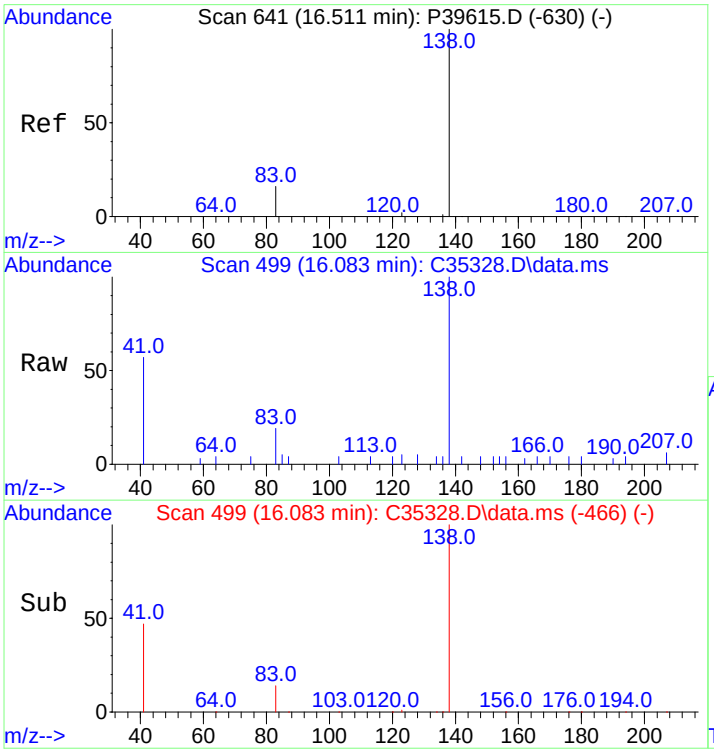
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35328.D
Acq On : 26 May 2012 9:43 am
Operator : PAH3:NS
Sample : C305241204
Misc : WG538343,WHAP59
ALS Vial : 31 Sample Multiplier: 1

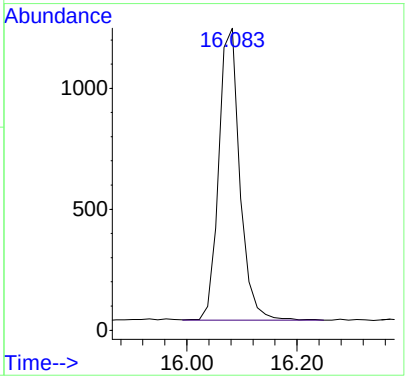
Quant Time: May 29 15:11:43 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

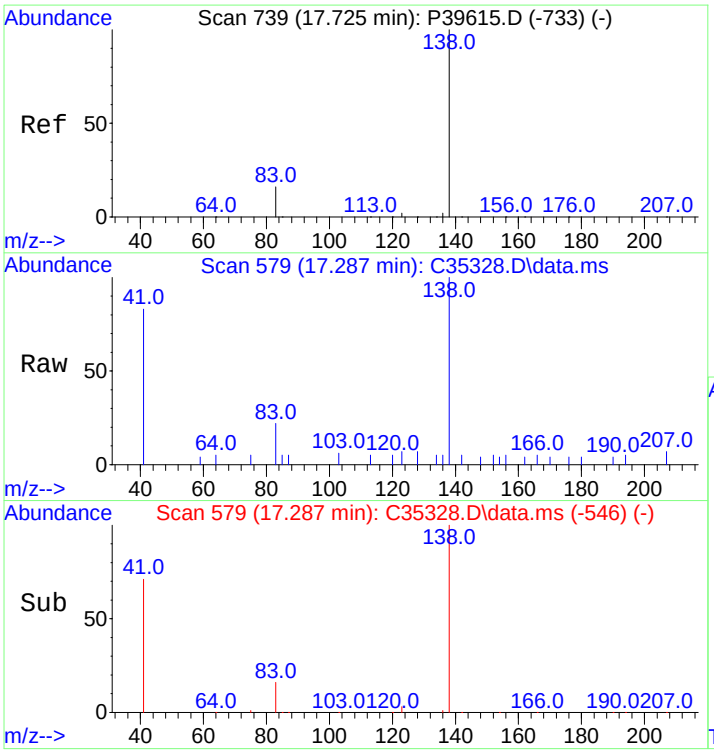




#3
trans-Decalin
Concen: 266.07 ng/mL
RT: 16.083 min Scan# 499
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

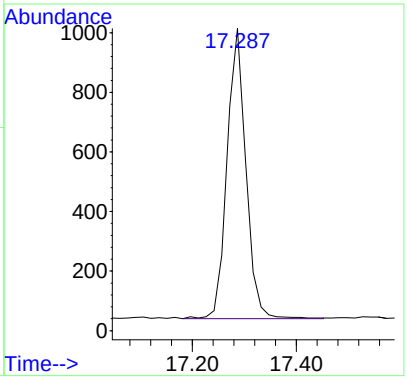
Tgt Ion:138 Resp: 3198

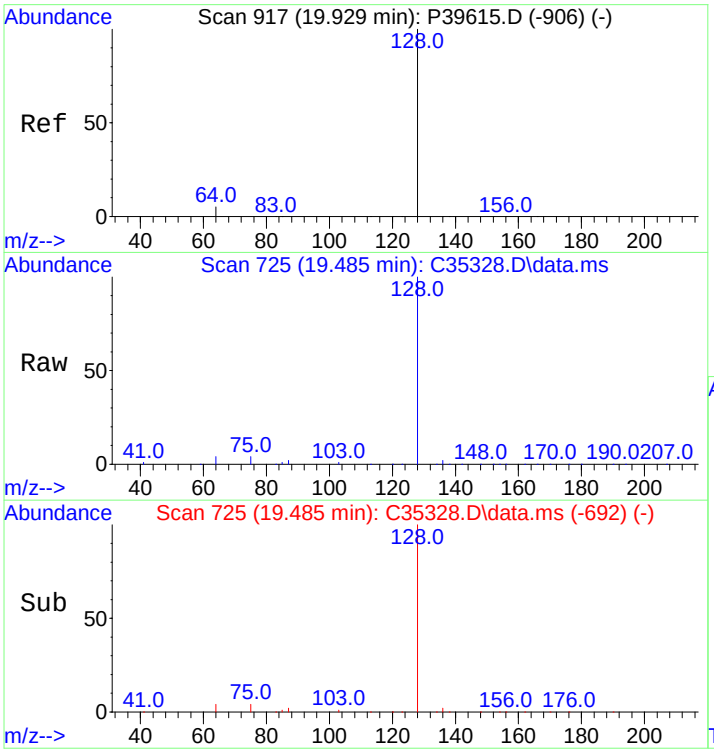




#4
cis-Decalin
Concen: 270.90 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:138 Resp: 2454

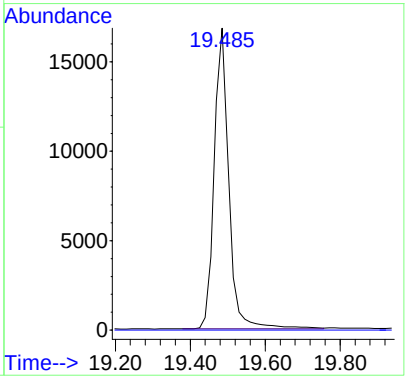


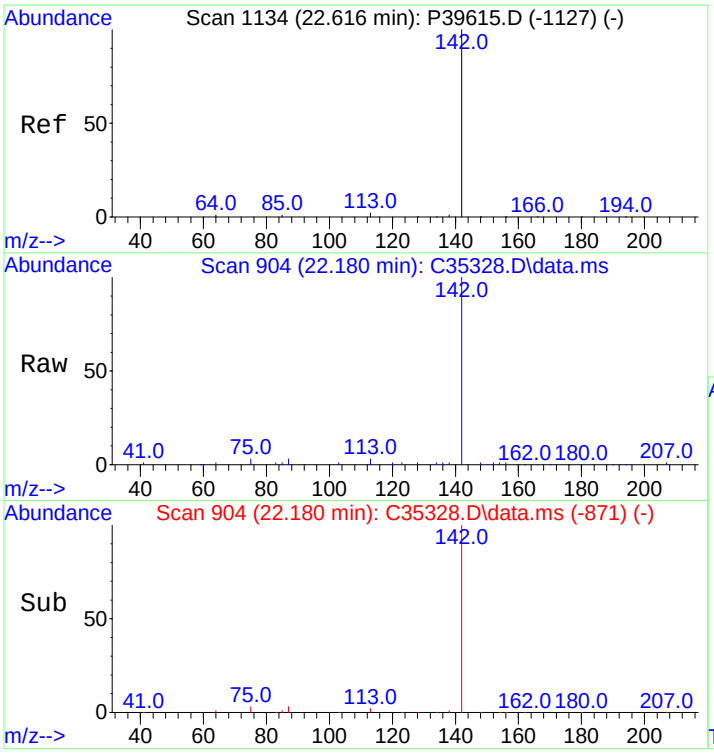


#10
Naphthalene
Concen: 468.26 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:128 Resp: 45441

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

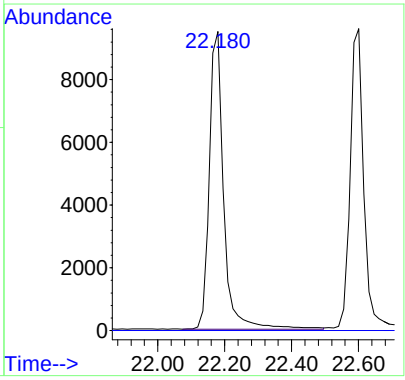


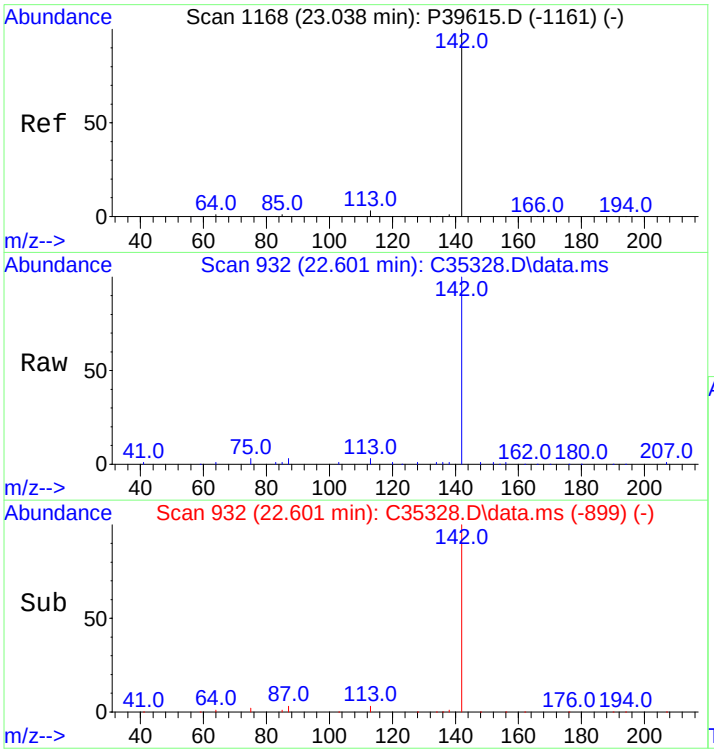


#16
2-Methylnaphthalene
Concen: 488.94 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:142 Resp: 28055

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

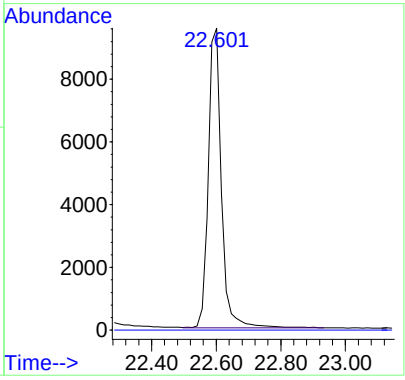


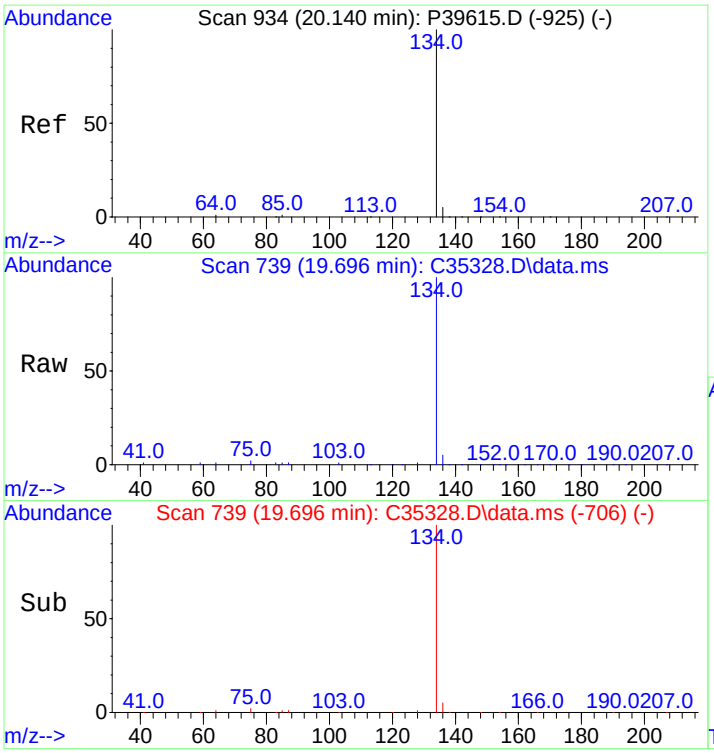


#17
1-Methylnaphthalene
Concen: 480.27 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:142 Resp: 27012

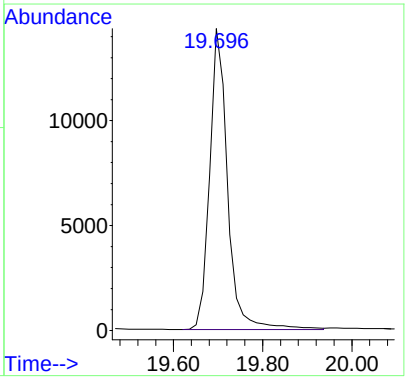
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

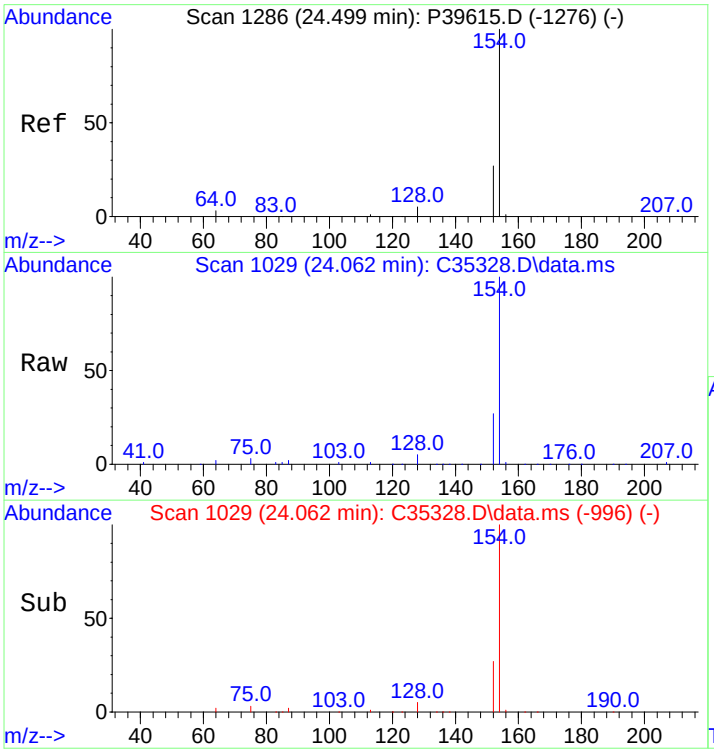




#18
Benzothiophene
Concen: 458.54 ng/mL
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:134 Resp: 40042

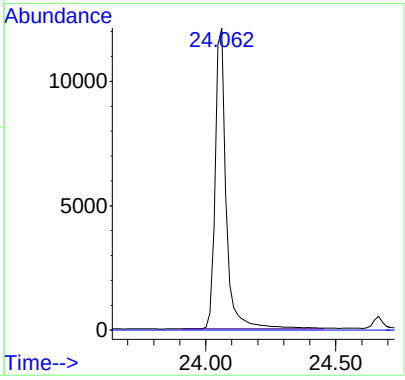


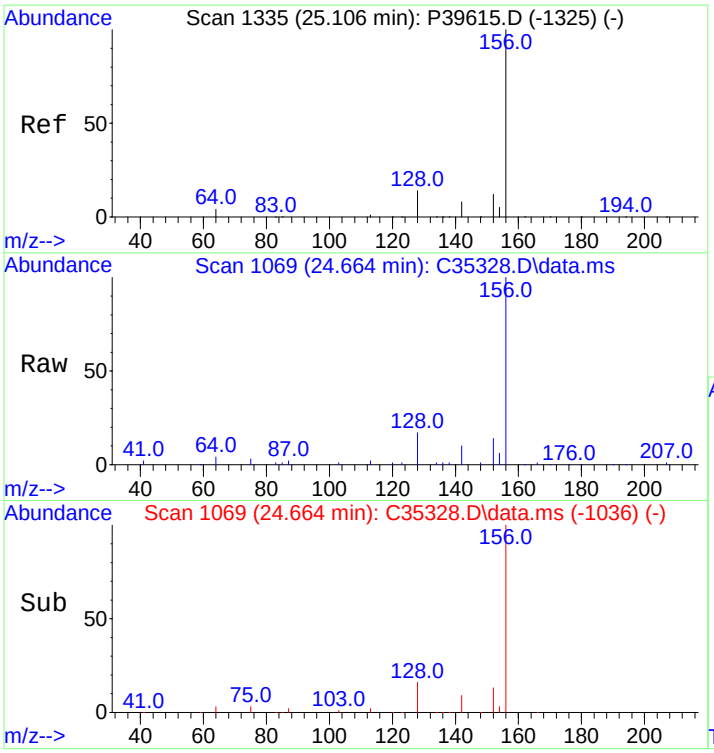


#23
Biphenyl
Concen: 491.18 ng/mL
RT: 24.062 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:154 Resp: 35651

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

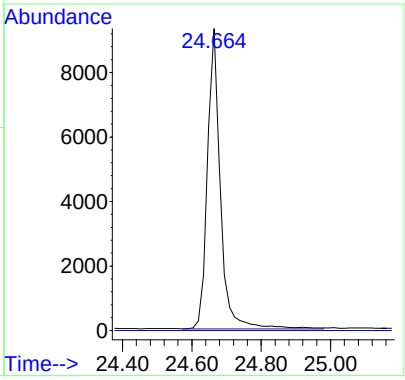


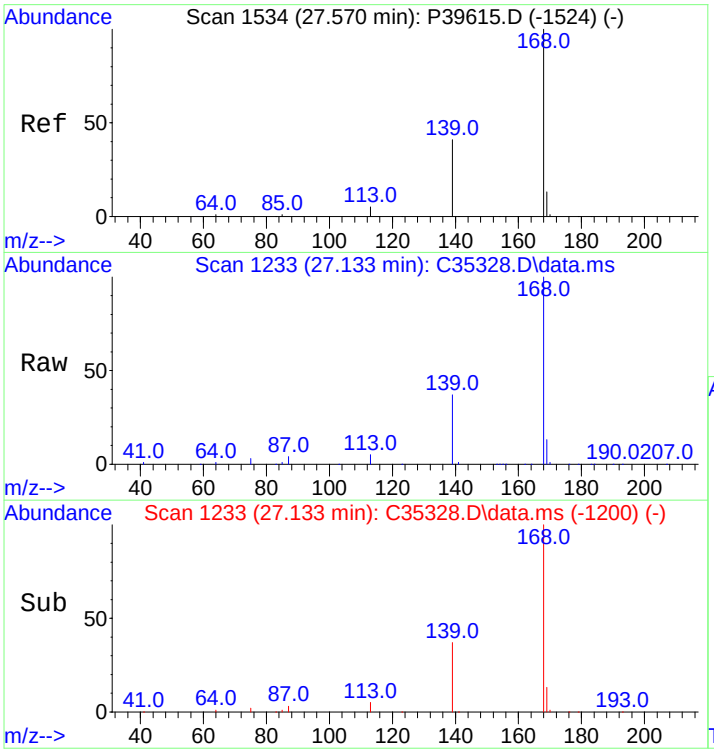


#24
2,6-Dimethylnaphthalene
Concen: 511.14 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:156 Resp: 24096

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

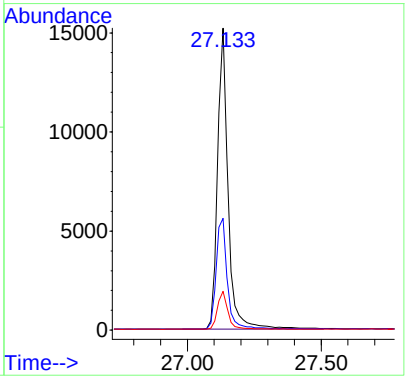


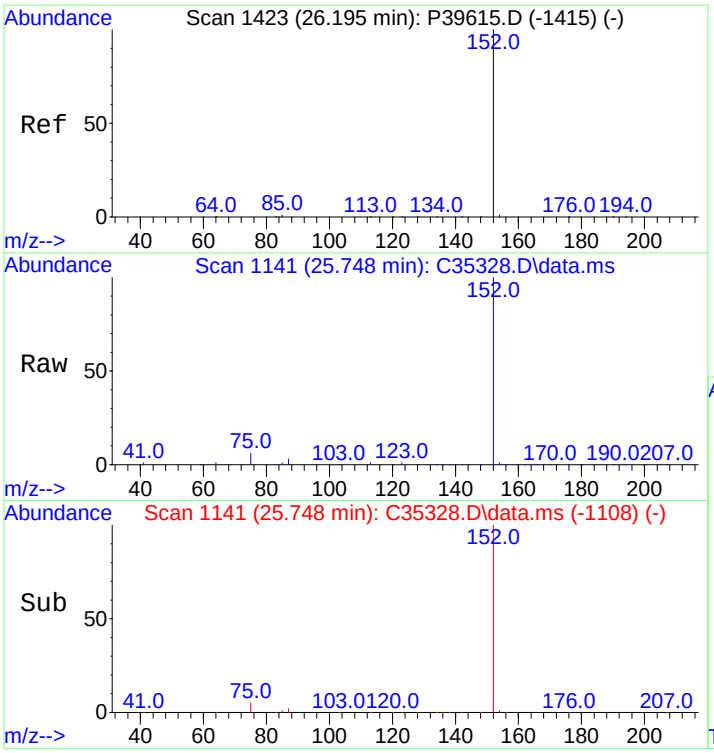


#25
Dibenzofuran
Concen: 499.10 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:168 Resp: 41599

Ion	Ratio	Lower	Upper
168	100		
139	38.8	29.9	44.9
169	12.5	10.3	15.5

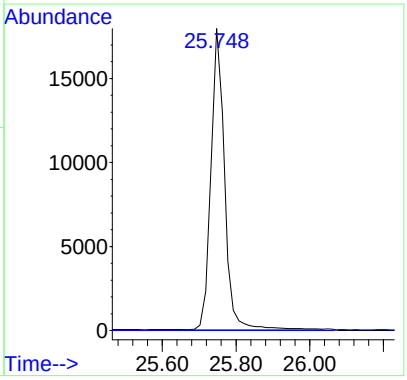


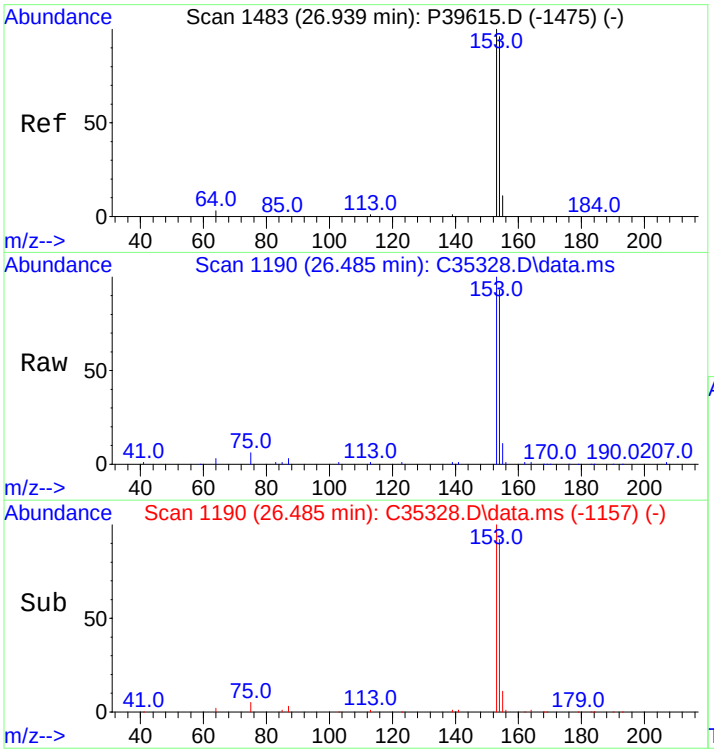


#26
Acenaphthylene
Concen: 477.55 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:152 Resp: 46003

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

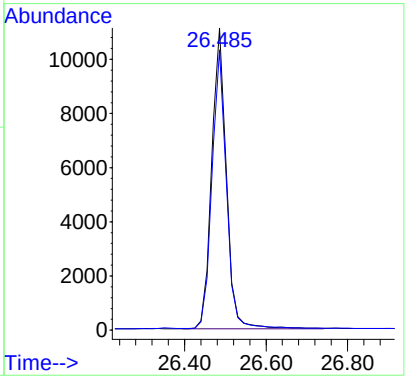


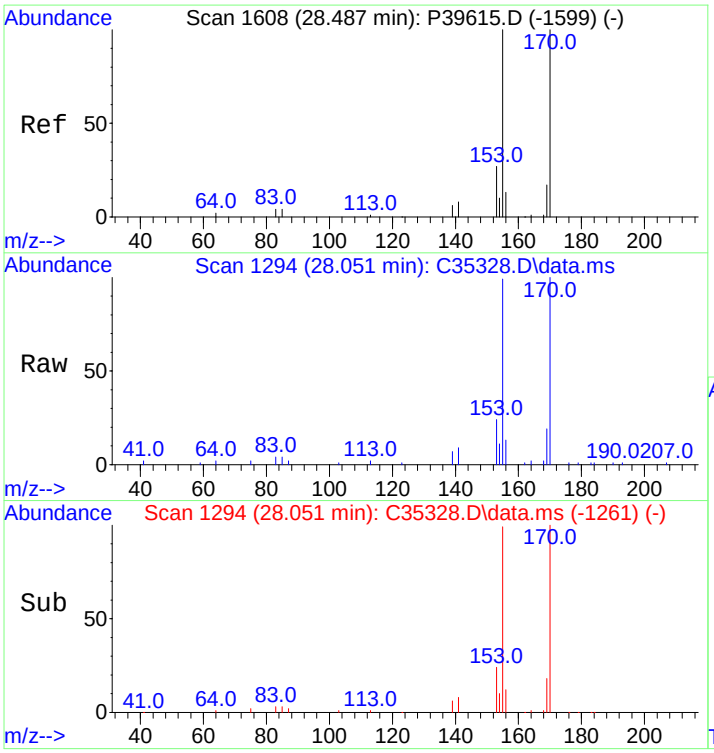


#27
Acenaphthene
Concen: 490.23 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:153 Resp: 27806

Ion	Ratio	Lower	Upper
153	100		
154	91.2	73.3	109.9

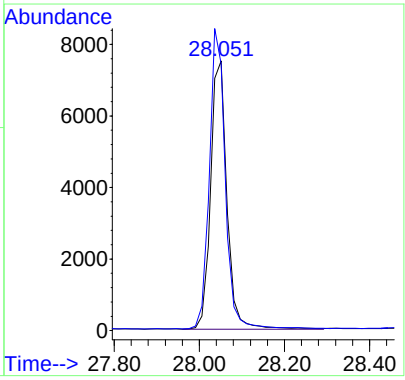


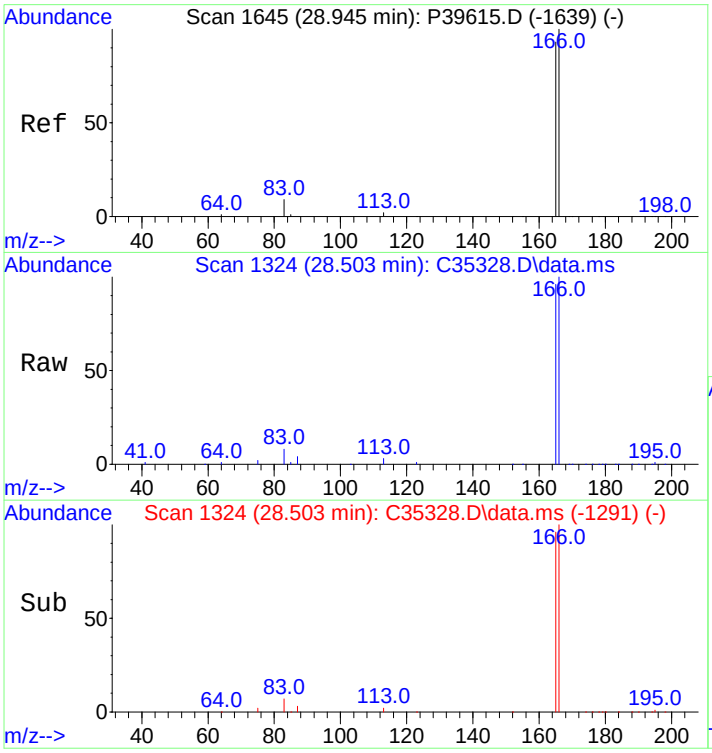


#28
2,3,5-Trimethylnaphthalene
Concen: 526.76 ng/mL
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:170 Resp: 20018

Ion	Ratio	Lower	Upper
170	100		
155	109.1	78.4	117.6

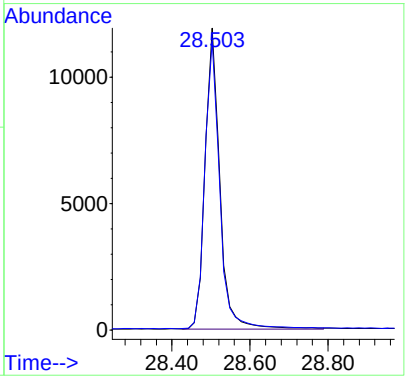


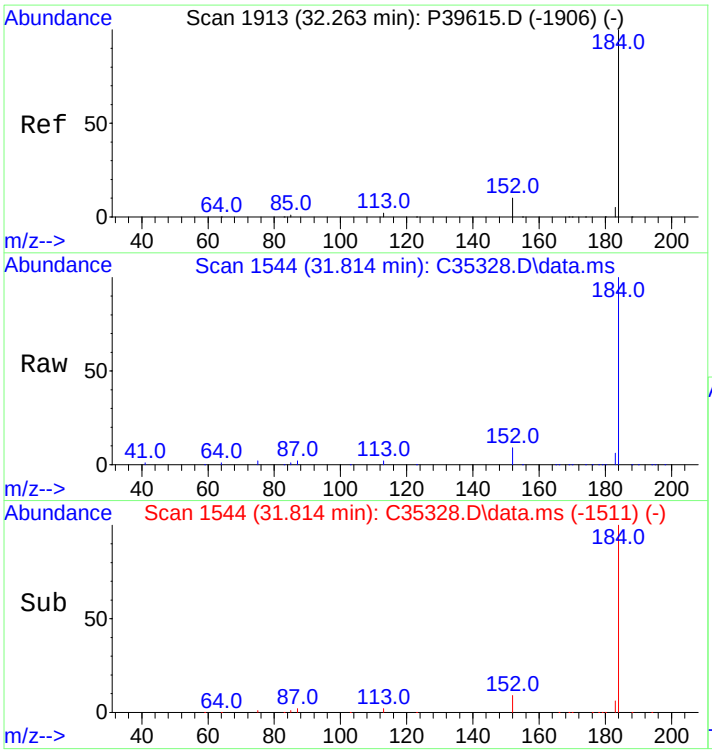


#29
Fluorene
Concen: 499.77 ng/mL
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:166 Resp: 31263

Ion	Ratio	Lower	Upper
166	100		
165	97.2	77.1	115.7

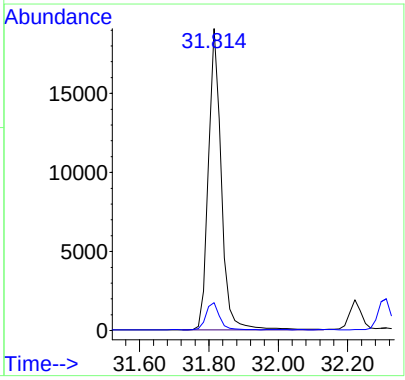


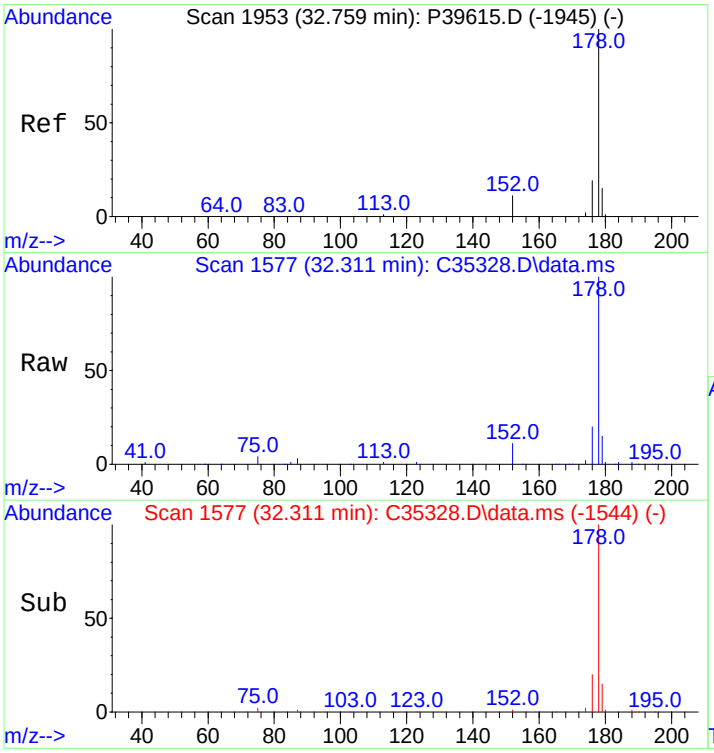


#33
Dibenzothiophene
Concen: 489.32 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:184 Resp: 49067

Ion	Ratio	Lower	Upper
184	100		
152	9.6	7.5	11.3

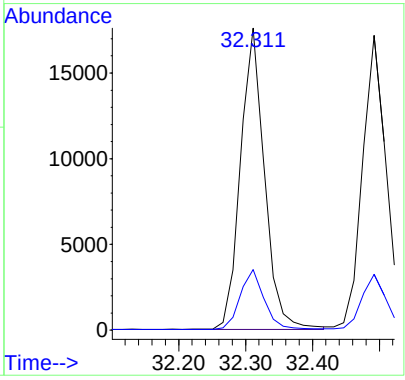


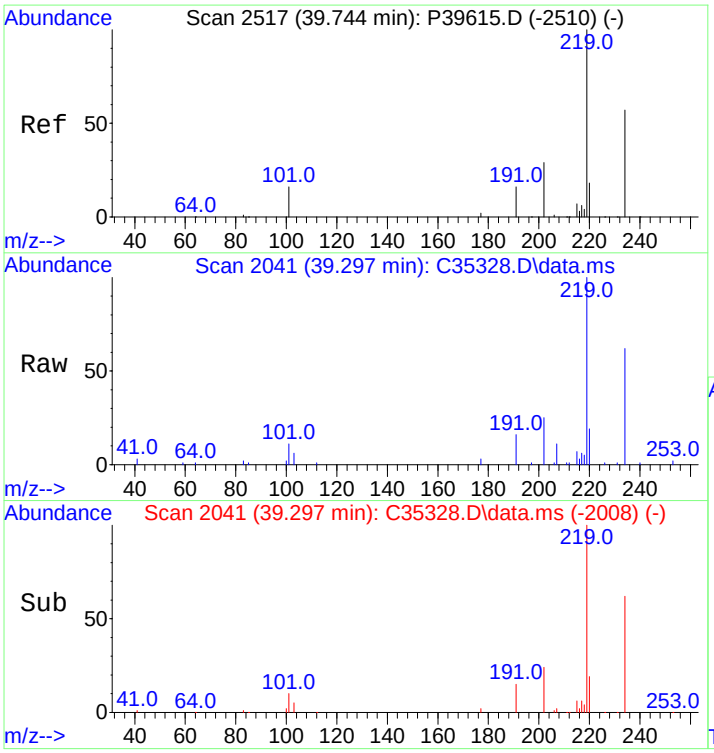


#43
Phenanthrene
Concen: 497.75 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:178 Resp: 43852

Ion	Ratio	Lower	Upper
178	100		
176	20.0	15.8	23.6

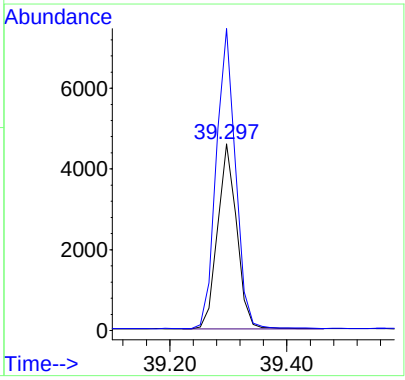


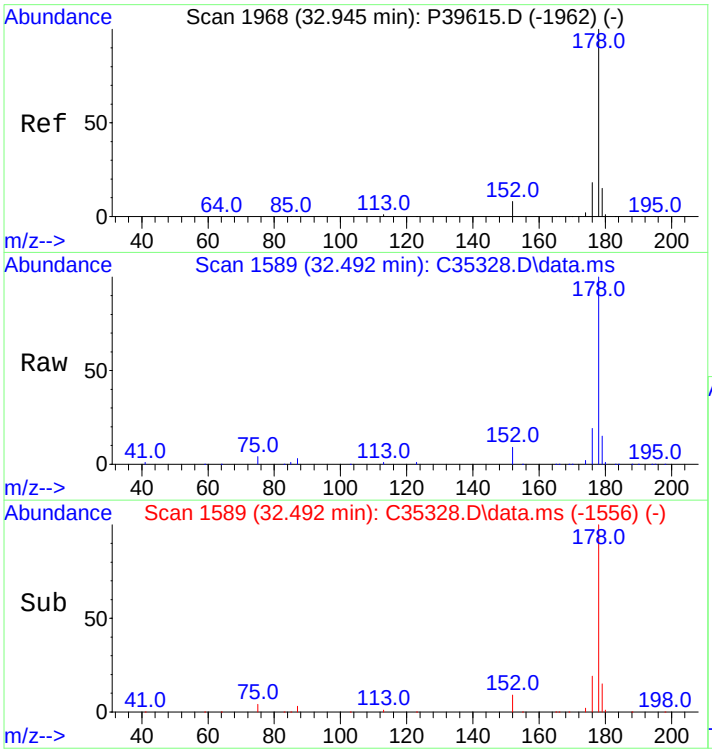


#54
Retene
Concen: 604.57 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:234 Resp: 10390

Ion	Ratio	Lower	Upper
234	100		
219	164.0	131.8	197.8

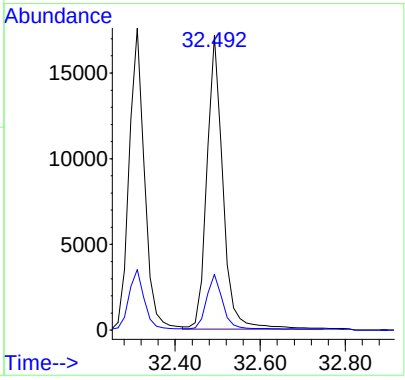


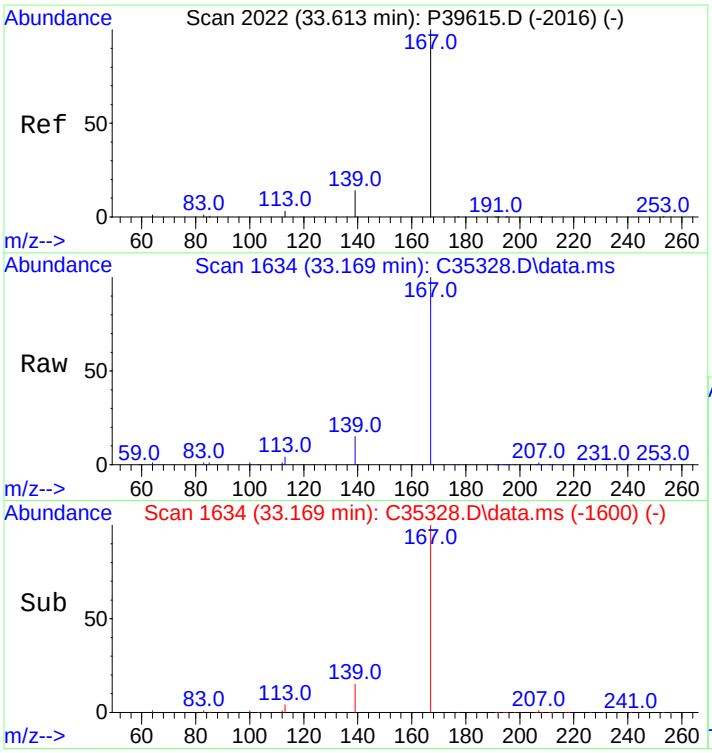


#55
Anthracene
Concen: 519.25 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:178 Resp: 44684

Ion	Ratio	Lower	Upper
178	100		
176	21.7	15.6	23.4

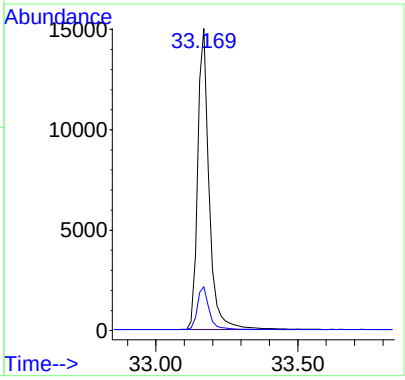


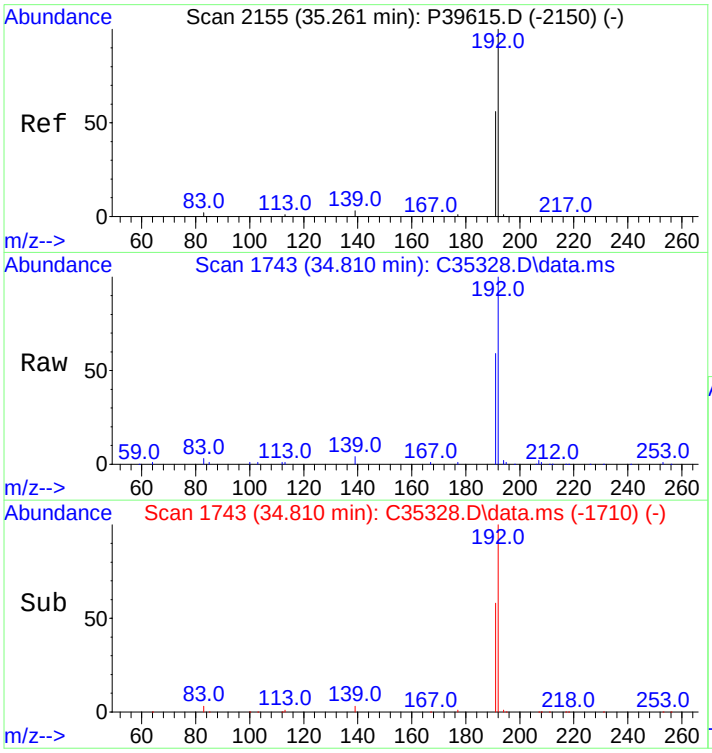


#56
Carbazole
Concen: 482.26 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:167 Resp: 41920

Ion	Ratio	Lower	Upper
167	100		
139	14.5	11.9	17.9

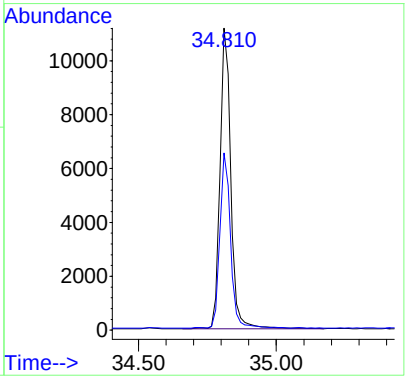


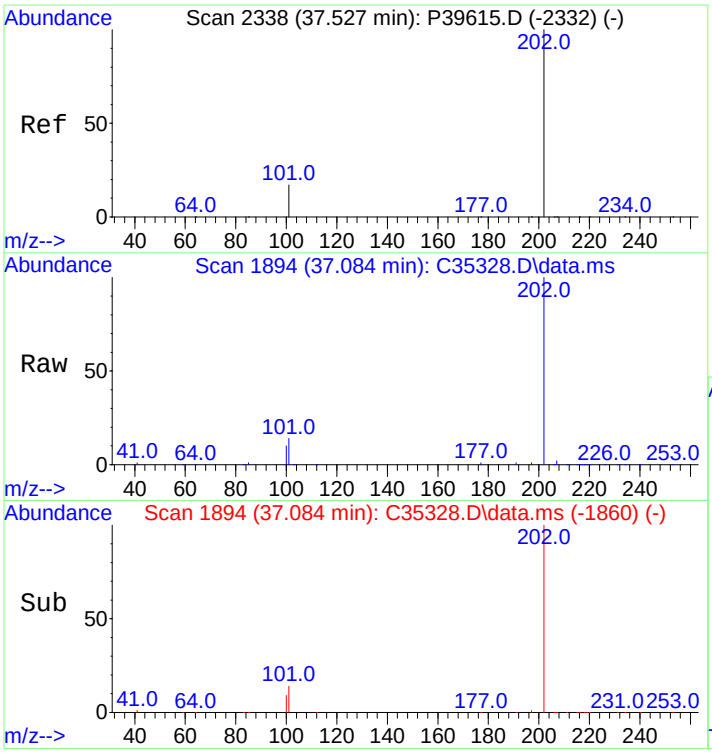


#57
1-Methylphenanthrene
Concen: 542.87 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:192 Resp: 30309

Ion	Ratio	Lower	Upper
192	100		
191	57.4	46.8	70.2

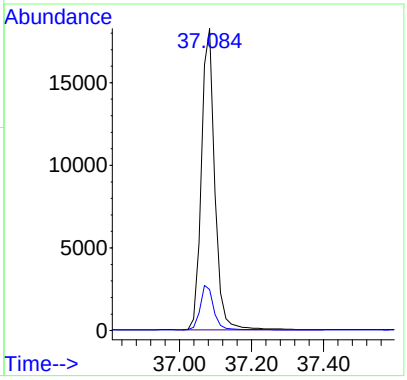


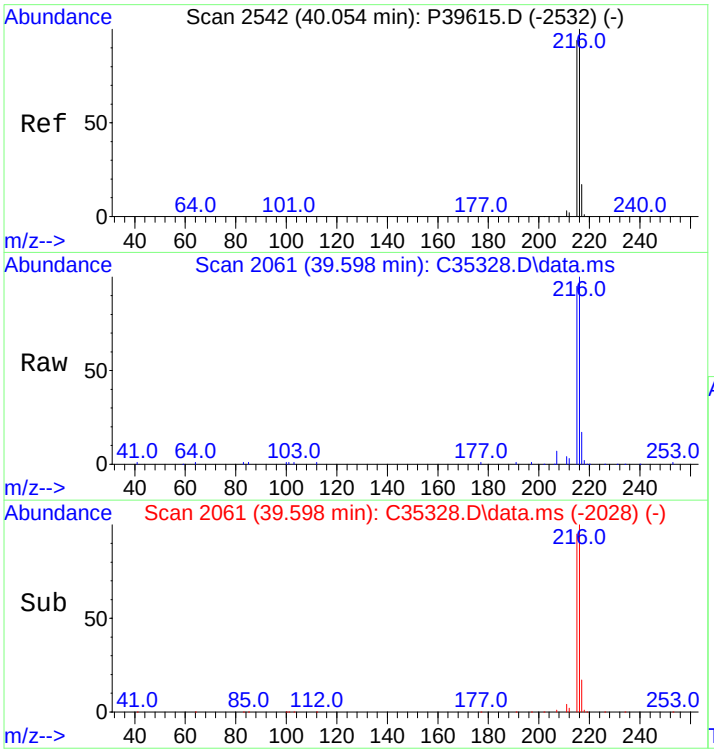


#58
Fluoranthene
Concen: 544.61 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:202 Resp: 47653

Ion	Ratio	Lower	Upper
202	100		
101	14.8	13.2	19.8

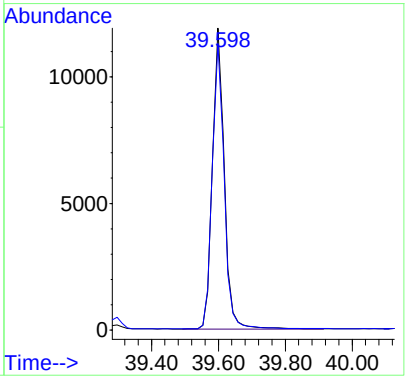


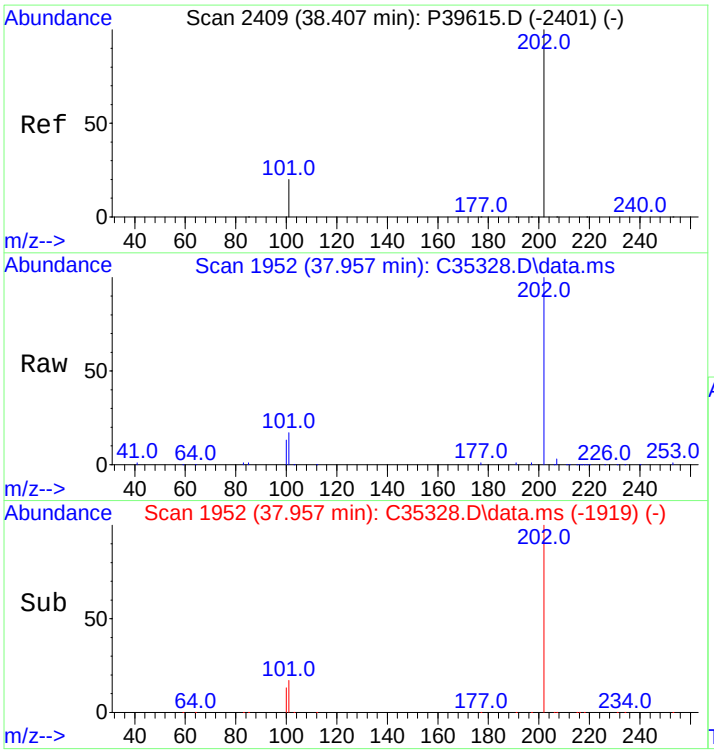


#59
Benzo(b)fluorene
Concen: 574.43 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:216 Resp: 29160

Ion	Ratio	Lower	Upper
216	100		
215	95.5	76.0	114.0

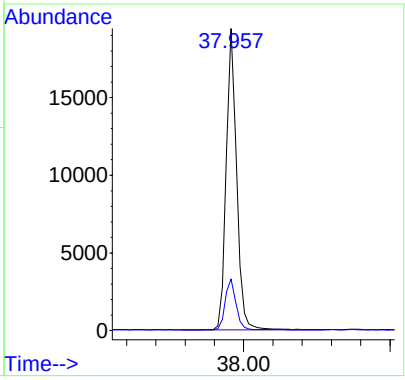


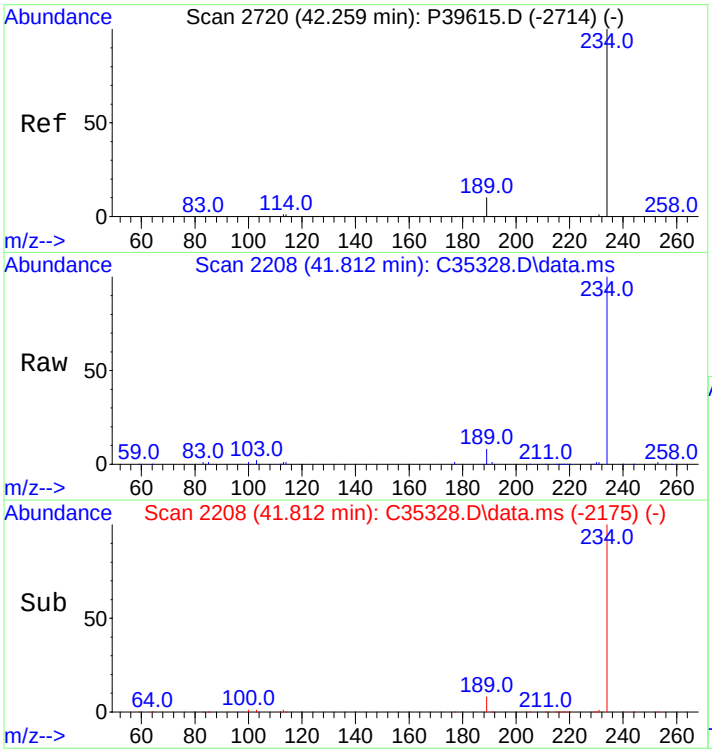


#60
Pyrene
Concen: 536.64 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:202 Resp: 47731

Ion	Ratio	Lower	Upper
202	100		
101	17.4	13.5	20.3

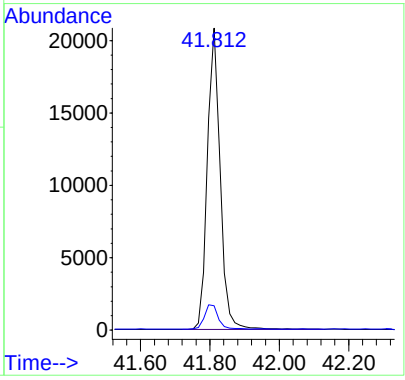


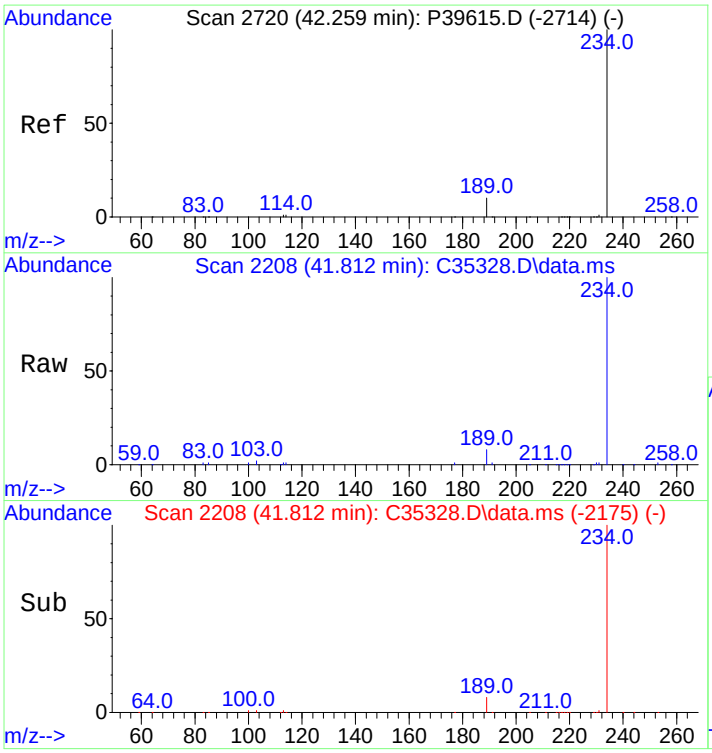


#66
Naphthobenzothiophene
Concen: 556.96 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:234 Resp: 53333

Ion	Ratio	Lower	Upper
234	100		
189	8.6	20.9	31.3#

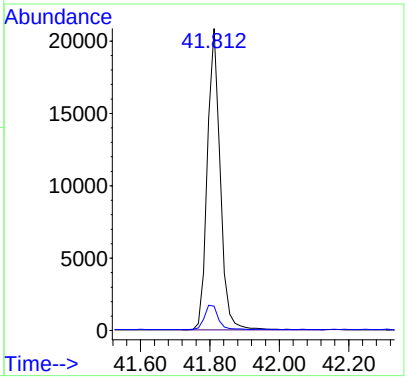


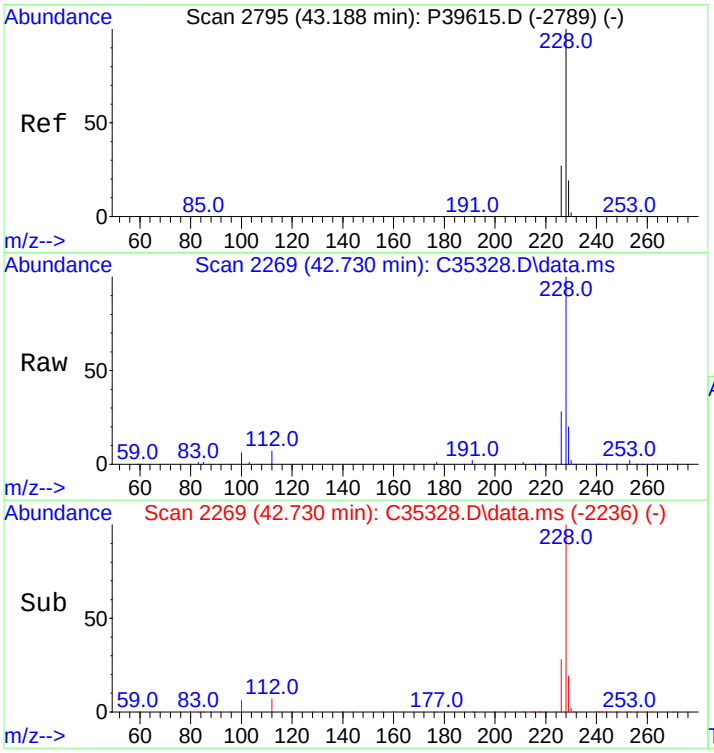


#67
Naphthobenzothiophene-2,1-D
Concen: 556.96 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:234 Resp: 53333

Ion	Ratio	Lower	Upper
234	100		
189	8.6	20.9	31.3#

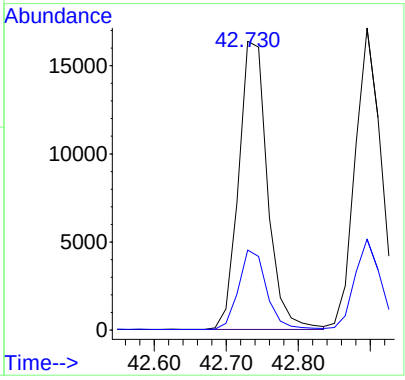


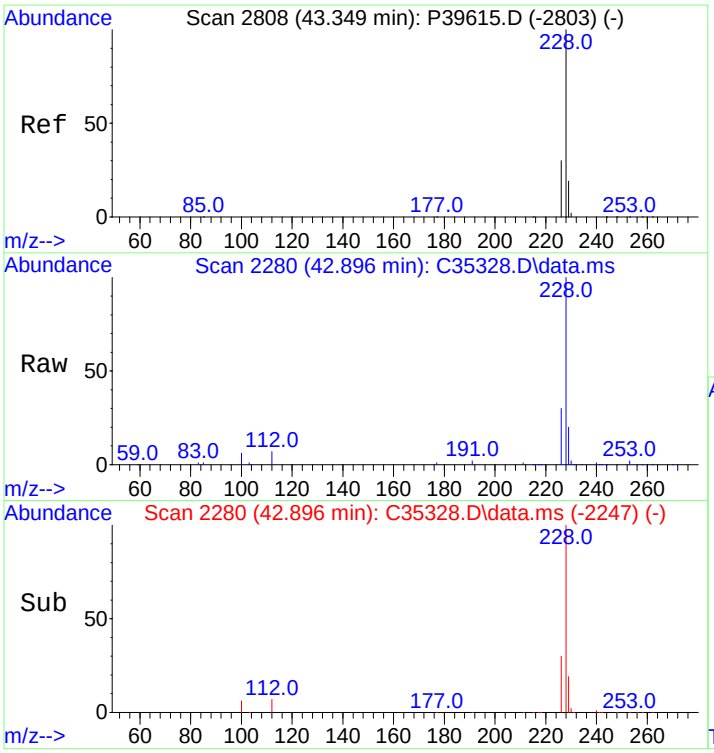


#75
Benz[a]anthracene
Concen: 519.74 ng/mL
RT: 42.730 min Scan# 2269
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:228 Resp: 45355

Ion	Ratio	Lower	Upper
228	100		
226	26.7	21.5	32.3

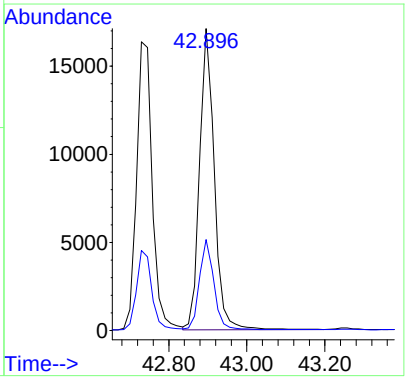


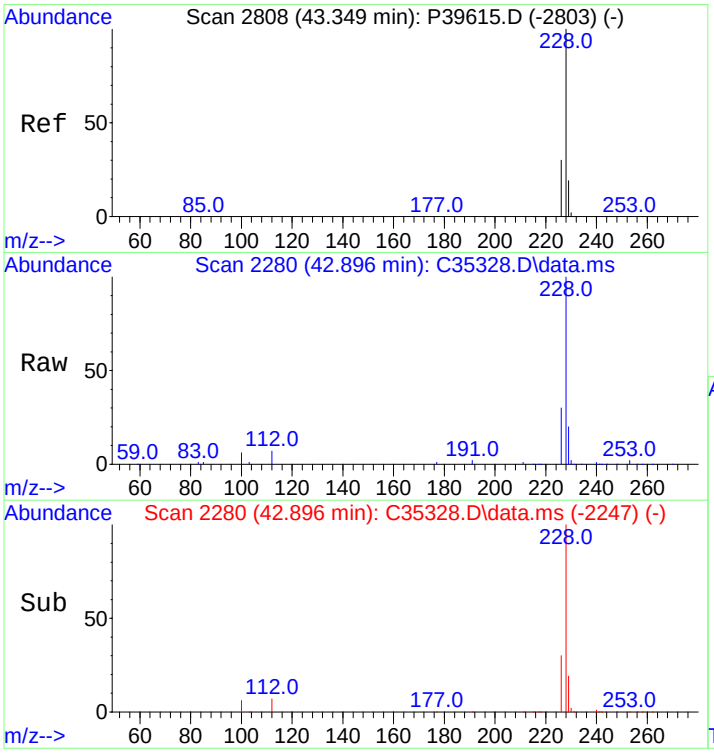


#76
Chrysene
Concen: 507.38 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:228 Resp: 44701

Ion	Ratio	Lower	Upper
228	100		
226	29.1	23.5	35.3

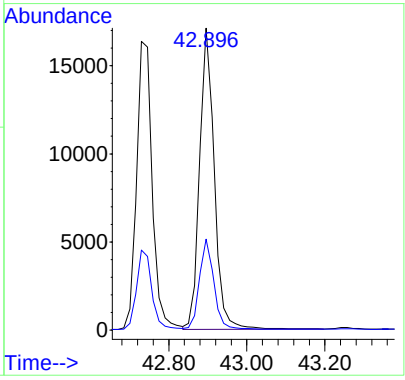


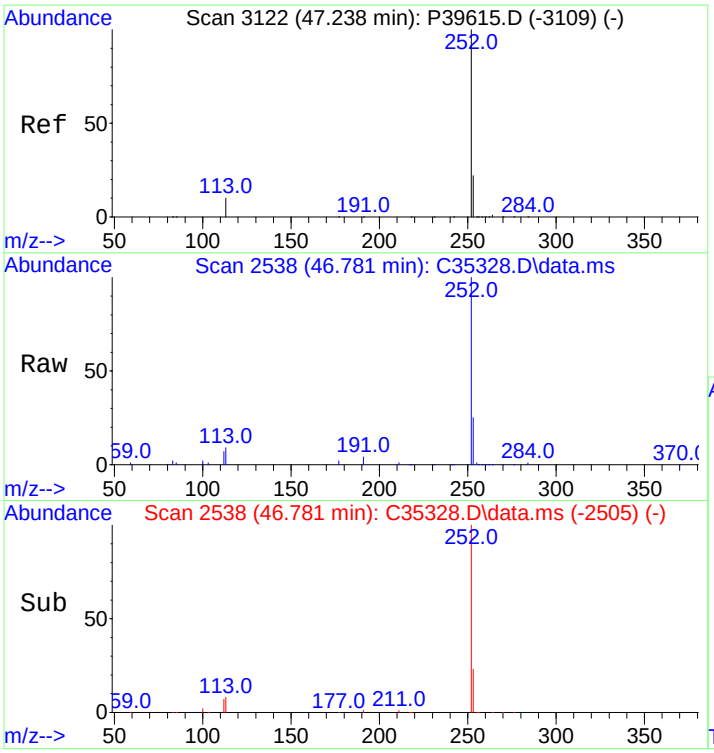


#77
Chrysene/Triphenylene
Concen: 507.38 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:228 Resp: 44701

Ion	Ratio	Lower	Upper
228	100		
226	29.1	23.5	35.3

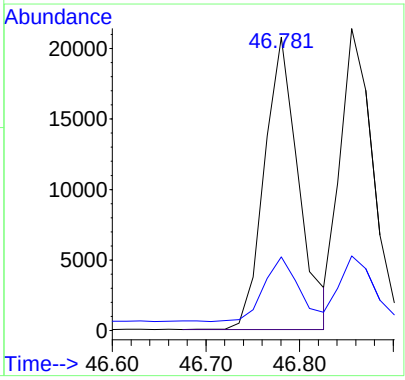


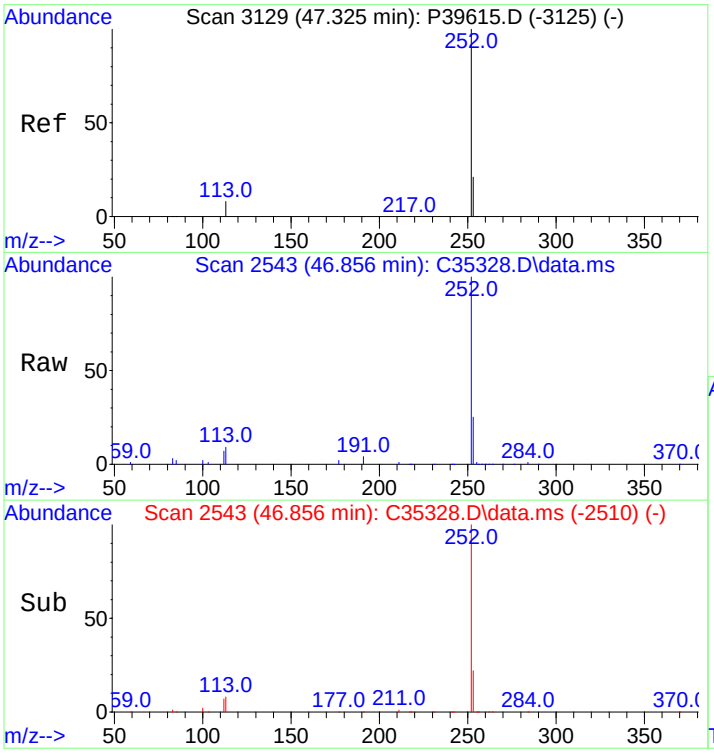


#82
Benzo[b]fluoranthene
Concen: 549.47 ng/mL
RT: 46.781 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:252 Resp: 52687

Ion	Ratio	Lower	Upper
252	100		
253	22.5	20.4	30.6

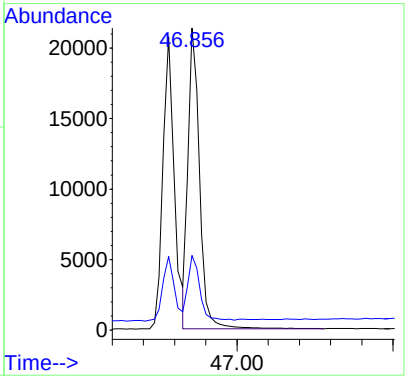


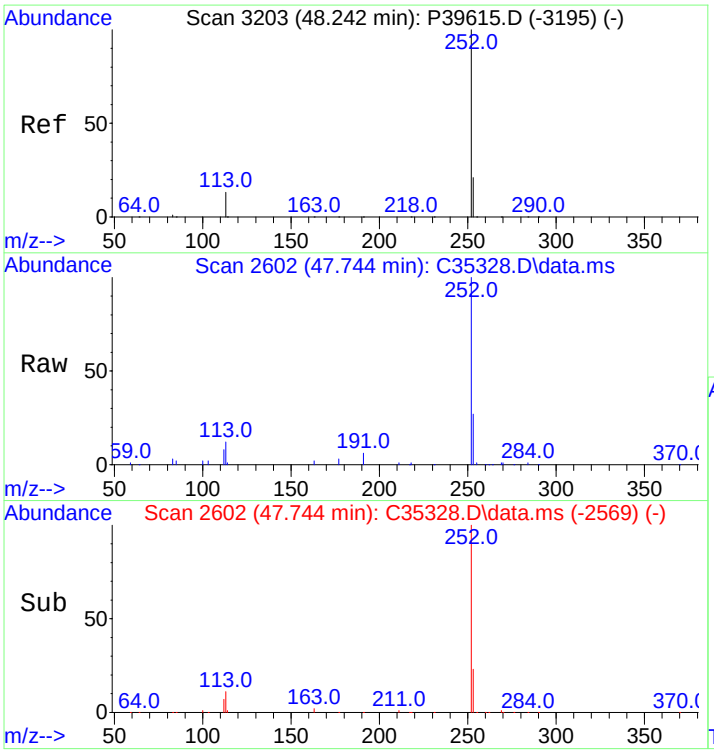


#83
Benzo[j]+[k]fluoranthene
Concen: 519.57 ng/mL
RT: 46.856 min Scan# 2543
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:252 Resp: 54241

Ion	Ratio	Lower	Upper
252	100		
253	21.6	20.6	31.0

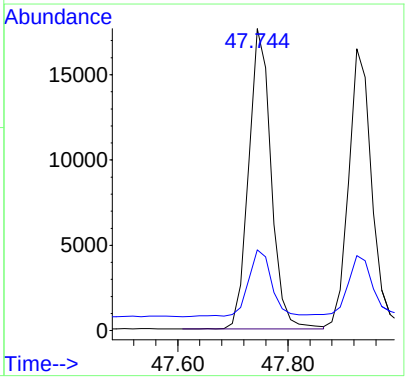


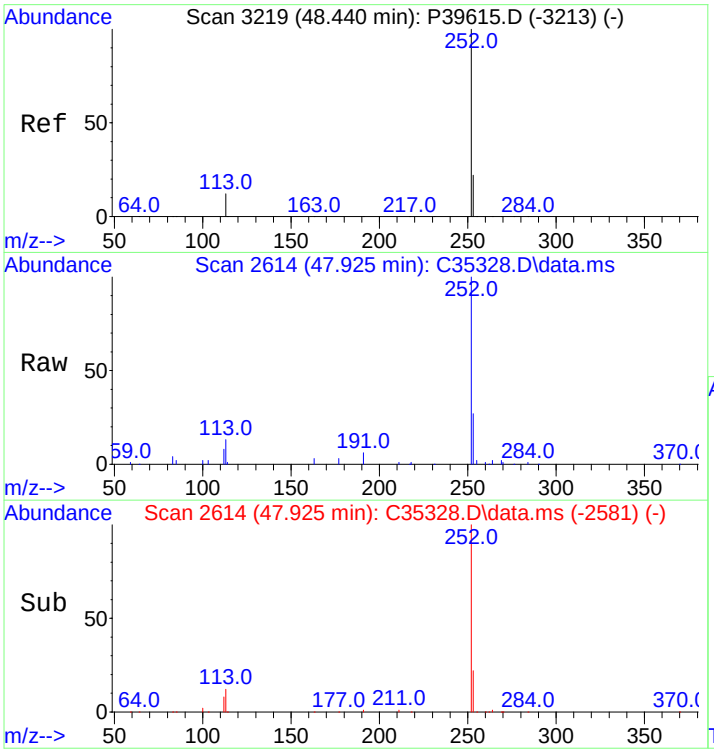


#85
Benzo[e]pyrene
Concen: 524.31 ng/mL
RT: 47.744 min Scan# 2602
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:252 Resp: 49728

Ion	Ratio	Lower	Upper
252	100		
253	23.5	21.0	31.6

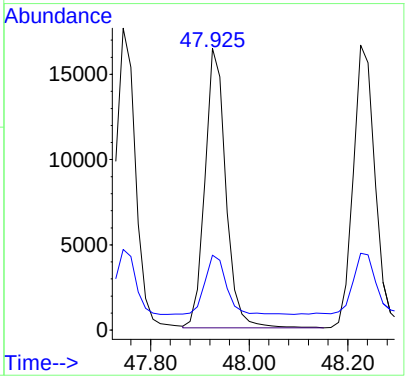


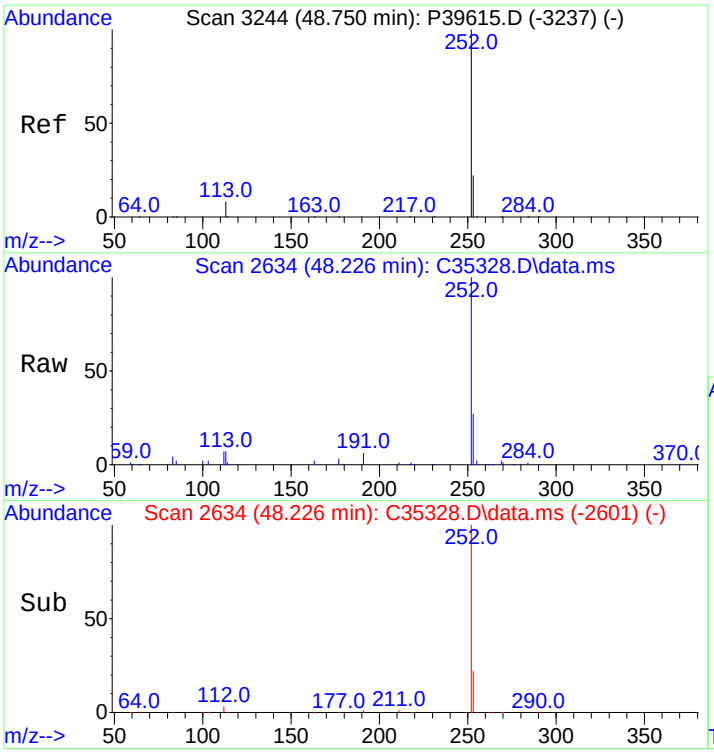


#87
Benzo[a]pyrene
Concen: 526.79 ng/mL
RT: 47.925 min Scan# 2614
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:252 Resp: 48104

Ion	Ratio	Lower	Upper
252	100		
253	22.5	21.4	32.0

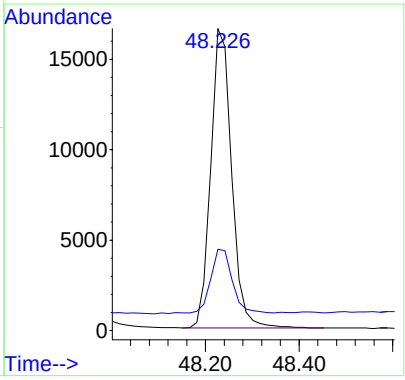


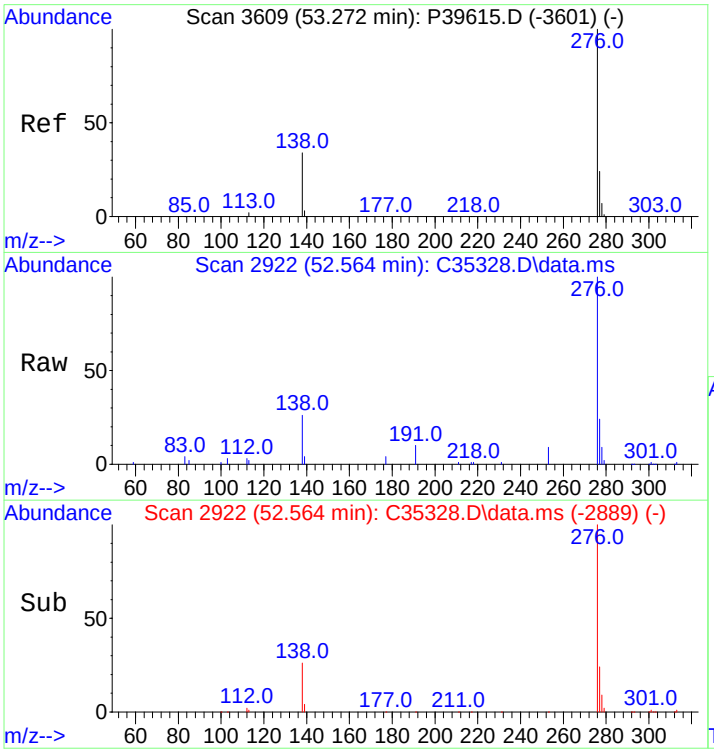


#88
Perylene
Concen: 527.80 ng/mL
RT: 48.226 min Scan# 2634
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:252 Resp: 51508

Ion	Ratio	Lower	Upper
252	100		
253	22.9	21.8	32.6

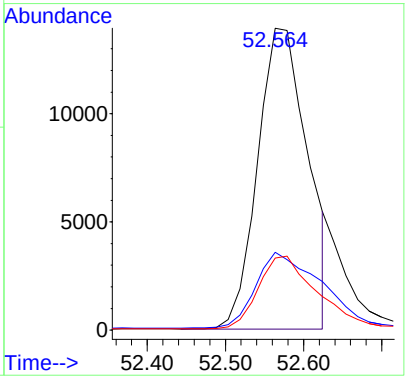


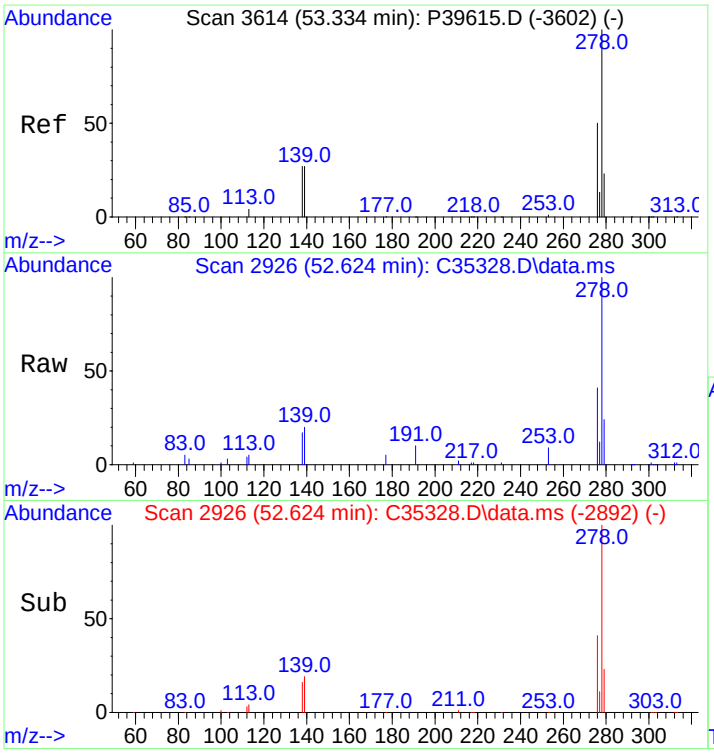


#89
Indeno[1,2,3-cd]pyrene
Concen: 585.06 ng/mL m
RT: 52.564 min Scan# 2922
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:276 Resp: 62172

Ion	Ratio	Lower	Upper
276	100		
138	34.1	19.1	28.7#
277	29.2	19.5	29.3

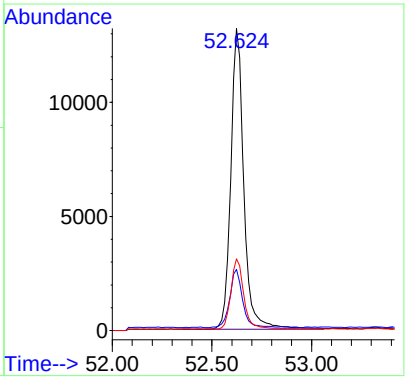


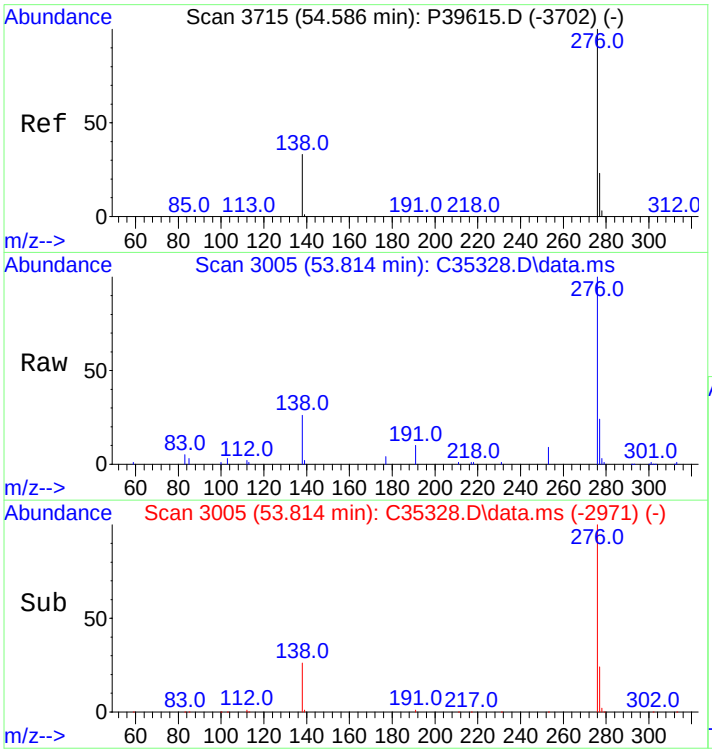


#90
Dibenz[ah]+[ac]anthracene
Concen: 595.01 ng/mL
RT: 52.624 min Scan# 2926
Delta R.T. 0.015 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:278 Resp: 60149

Ion	Ratio	Lower	Upper
278	100		
139	18.9	16.6	25.0
279	22.9	20.0	30.0

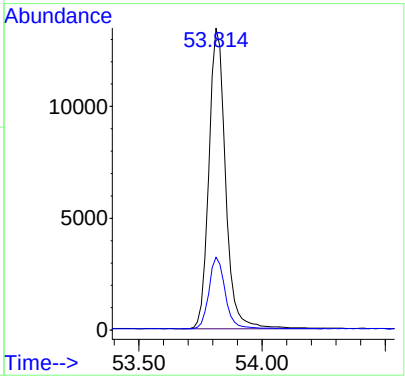


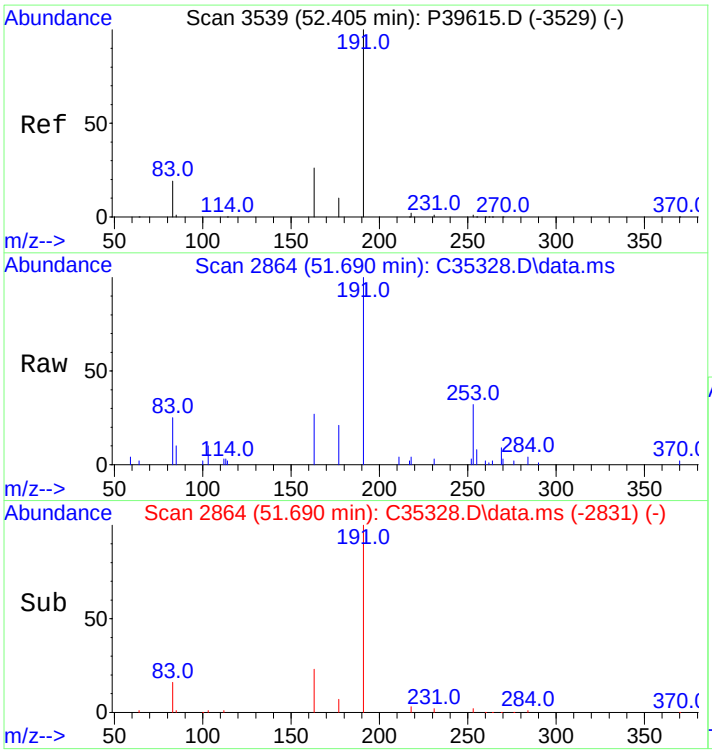


#91
Benzo[g,h,i]perylene
Concen: 562.17 ng/mL
RT: 53.814 min Scan# 3005
Delta R.T. 0.015 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:276 Resp: 63115

Ion	Ratio	Lower	Upper
276	100		
277	23.4	18.8	28.2

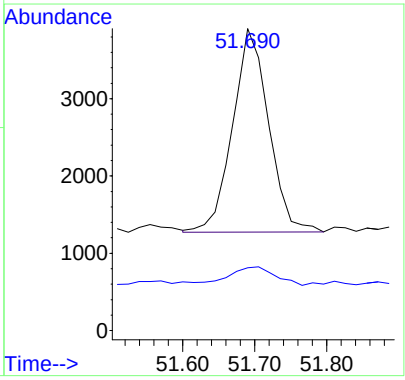


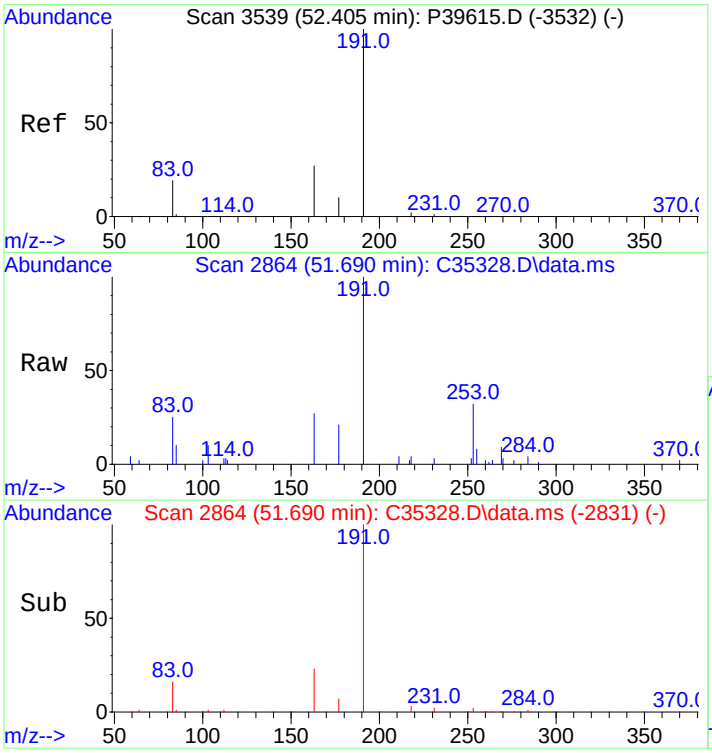


#92
Hopane (T19)
Concen: 502.69 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:191 Resp: 9109

Ion	Ratio	Lower	Upper
191	100		
177	11.8	17.2	25.8#

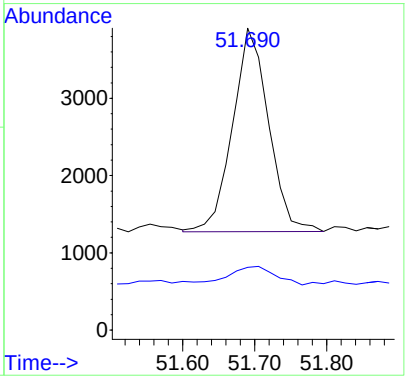




#93
17a(H),21B(H)-hopane - C30H52
Concen: 502.69 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35328.D
Acq: 26 May 2012 9:43 am

Tgt Ion:191 Resp: 9109

Ion	Ratio	Lower	Upper
191	100		
177	11.8	17.2	25.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

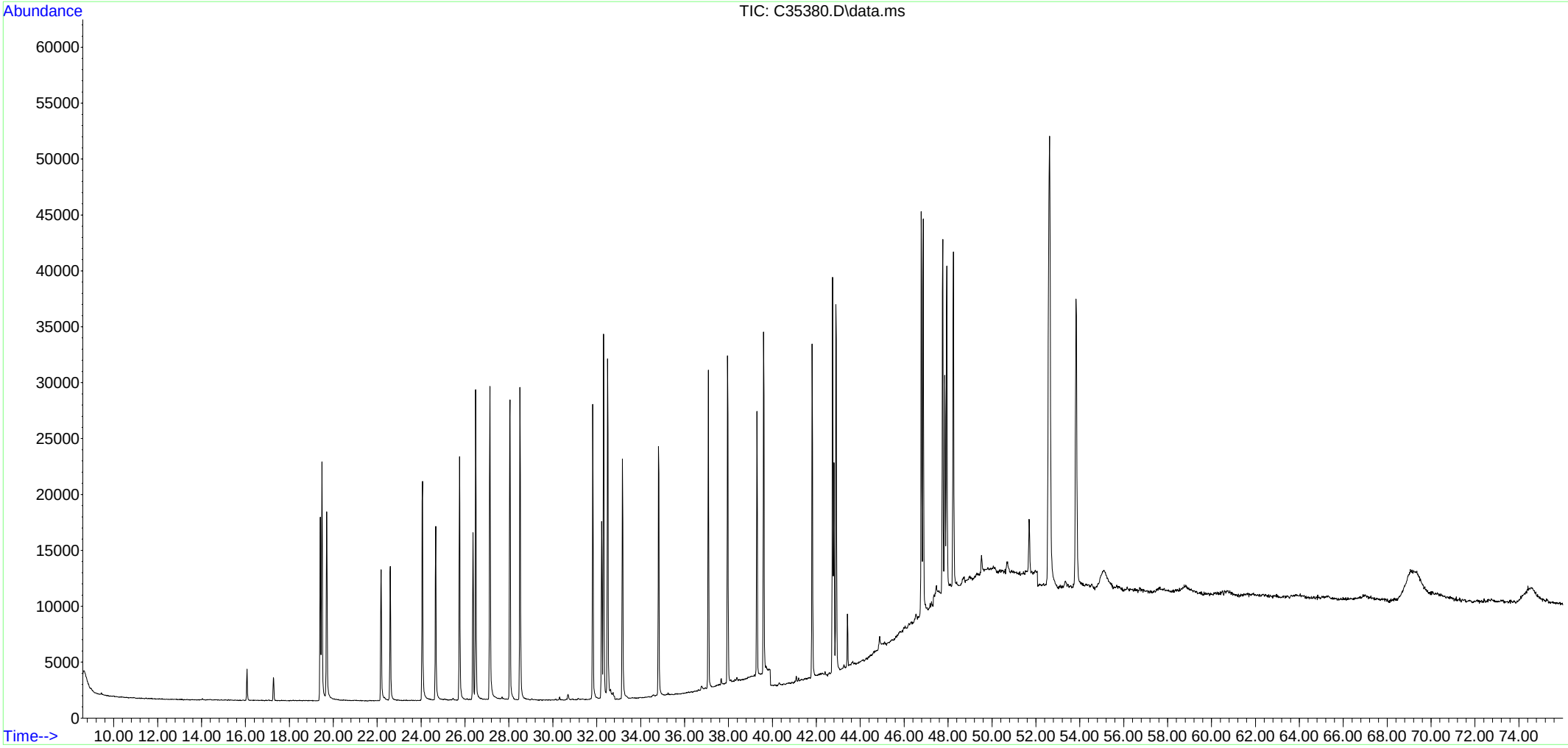
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	18294	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	34859	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.409	136	39560	498.233	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.82%#			
42) Phenanthrene-d10	32.221	188	33812	538.756	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.88%			
86) Benzo[a]pyrene-d12	47.850	264	40289	557.691	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 55.77%			
127) 5B(H)Cholane - Surr	43.422	217	6374	584.841	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 58.48%			
Target Compounds						Qvalue
3) trans-Decalin	16.067	138	3804	263.409	ng/mL	100
4) cis-Decalin	17.287	138	2769	254.408	ng/mL	100
10) Naphthalene	19.485	128	52929	453.952	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	32623	473.205	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31726	469.489	ng/mL#	100
18) Benzothiophene	19.695	134	45971	438.145	ng/mL	100
23) Biphenyl	24.061	154	41909	480.562	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	27896	492.504	ng/mL#	100
25) Dibenzofuran	27.132	168	48441	483.720	ng/mL	97
26) Acenaphthylene	25.747	152	54765M3	473.165	ng/mL	
27) Acenaphthene	26.485	153	32879	482.459	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.051	170	23651	517.987	ng/mL	89
29) Fluorene	28.502	166	37532	499.361	ng/mL	99
33) Dibenzothiophene	31.814	184	58492	485.488	ng/mL	99
43) Phenanthrene	32.311	178	52203	493.167	ng/mL	99
54) Retene	39.297	234	13168	637.720	ng/mL	96
55) Anthracene	32.492	178	54097M3	523.211	ng/mL	
56) Carbazole	33.169	167	50506	483.591	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	36841	549.204	ng/mL	100
58) Fluoranthene	37.084	202	57763	549.447	ng/mL	95
59) Benzo(b)fluorene	39.598	216	36188	593.325	ng/mL	98
60) Pyrene	37.957	202	58289	545.437	ng/mL	99
66) Naphthobenzothiophene	41.811	234	66688	579.634	ng/ml#	65
67) Naphthobenzothiophene-...	41.811	234	66688	579.634	ng/mL#	65
75) Benz[a]anthracene	42.745	228	56613	511.678	ng/mL	99
76) Chrysene	42.895	228	55577	497.546	ng/mL	100
77) Chrysene/Triphenylene	42.895	228	55577	497.546	ng/mL	100
82) Benzo[b]fluoranthene	46.780	252	65121	535.652	ng/mL	94
83) Benzo[j]+[k]fluoranthene	46.871	252	68992	521.238	ng/mL	91
85) Benzo[e]pyrene	47.759	252	62569	520.320	ng/mL	94
87) Benzo[a]pyrene	47.940	252	59813	516.623	ng/mL	91
88) Perylene	48.241	252	65154	526.569	ng/mL	93
89) Indeno[1,2,3-cd]pyrene	52.579	276	80522M3	597.642	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	75047	585.536	ng/mL	97
91) Benzo[g,h,i]perylene	53.828	276	78950	554.635	ng/mL	99
92) Hopane (T19)	51.690	191	11617	505.646	ng/mL#	74
93) 17a(H),21B(H)-hopane -...	51.690	191	11617	505.646	ng/mL#	74

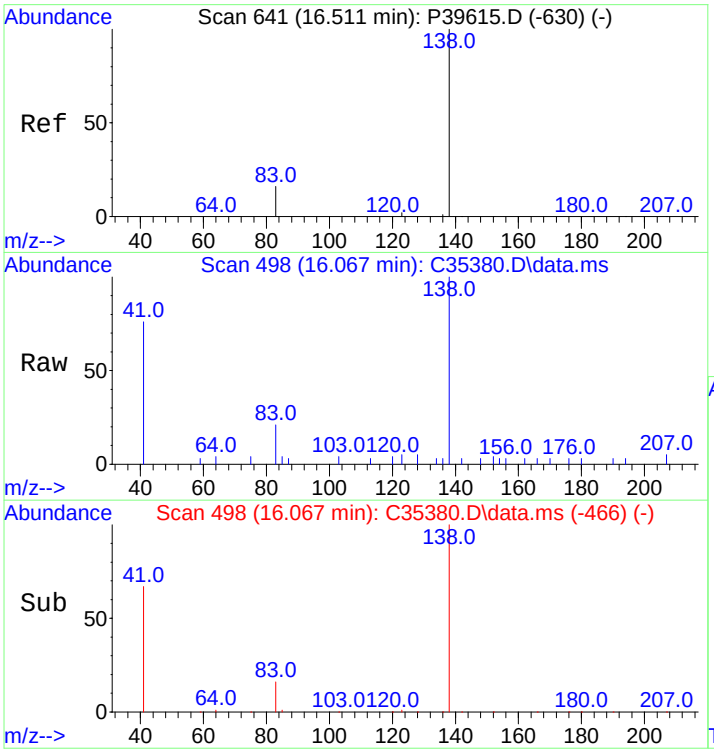
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35380.D
Acq On : 28 May 2012 3:38 am
Operator : AC
Sample : C305241208
Misc : WHAP59
ALS Vial : 10 Sample Multiplier: 1

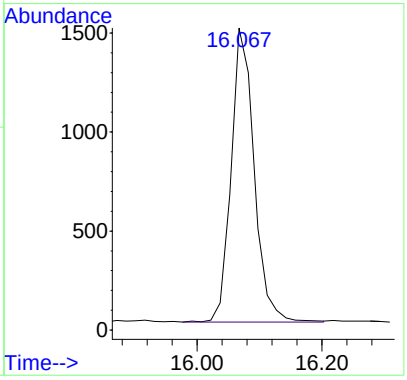
Quant Time: May 29 08:53:09 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

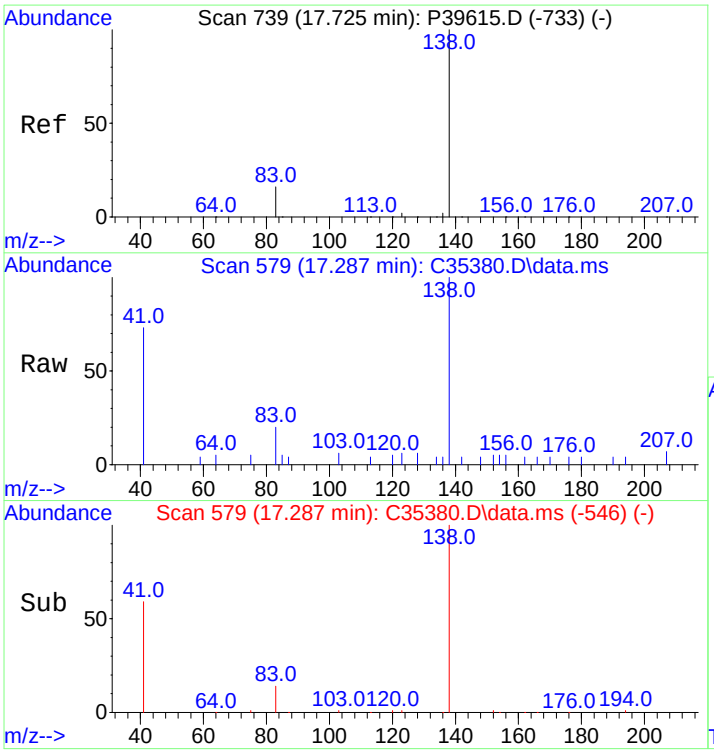




#3
trans-Decalin
Concen: 263.41 ng/mL
RT: 16.067 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

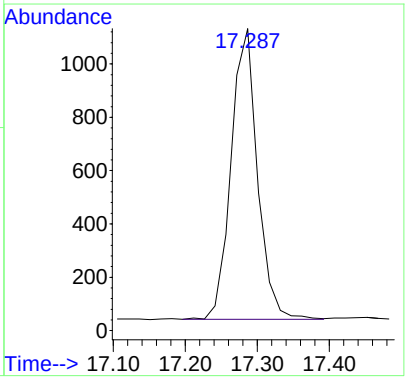
Tgt Ion:138 Resp: 3804

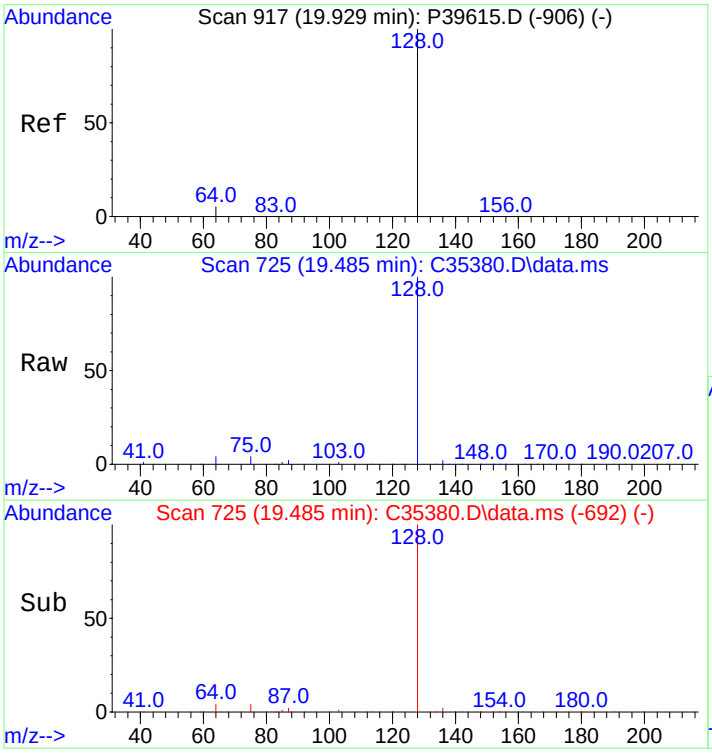




#4
cis-Decalin
Concen: 254.41 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:138 Resp: 2769

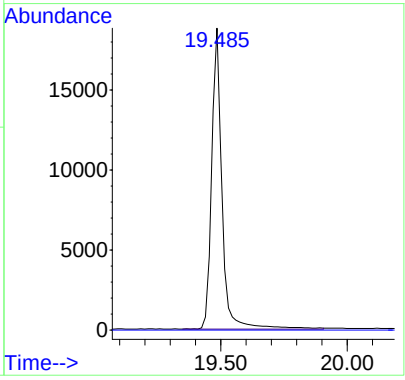


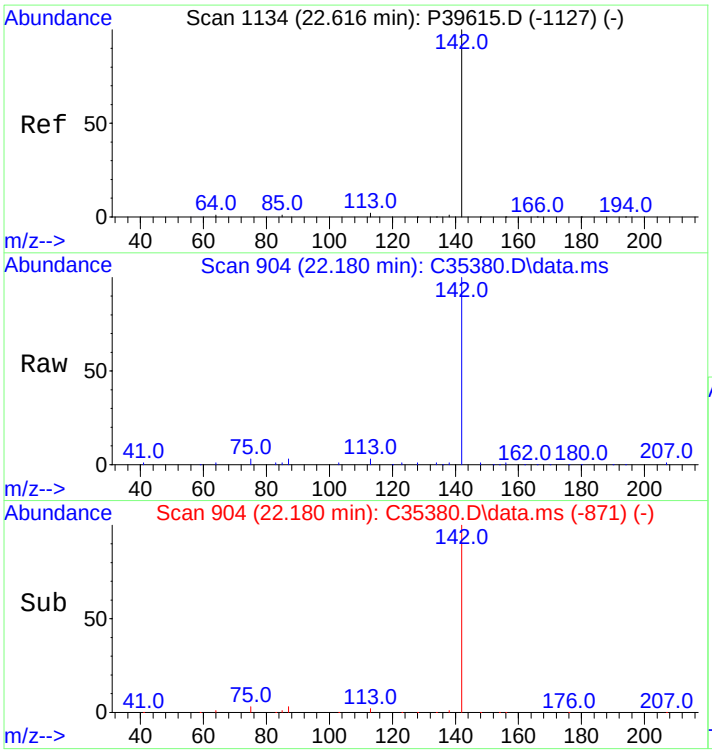


#10
Naphthalene
Concen: 453.95 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:128 Resp: 52929

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

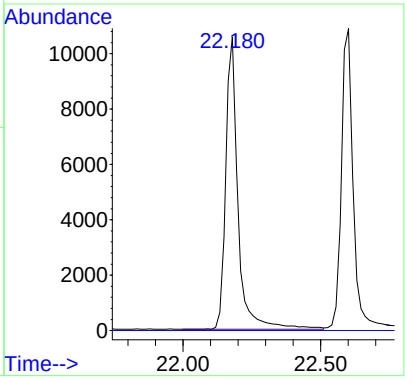


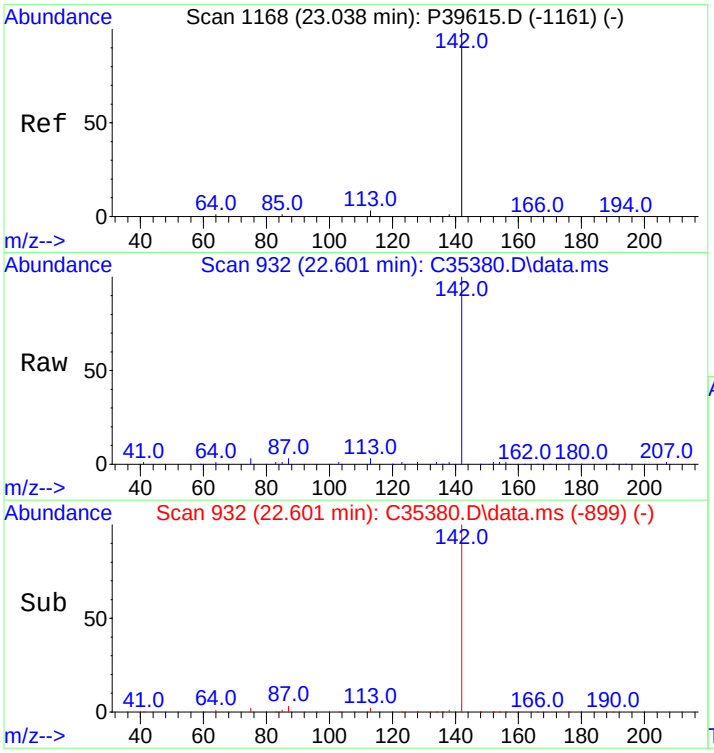


#16
2-Methylnaphthalene
Concen: 473.20 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:142 Resp: 32623

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

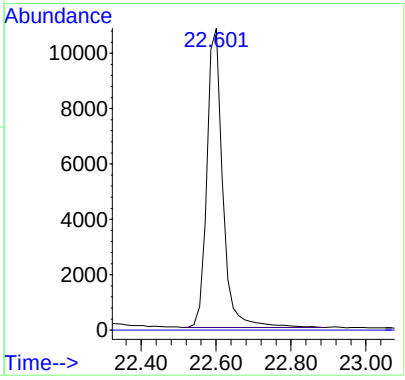


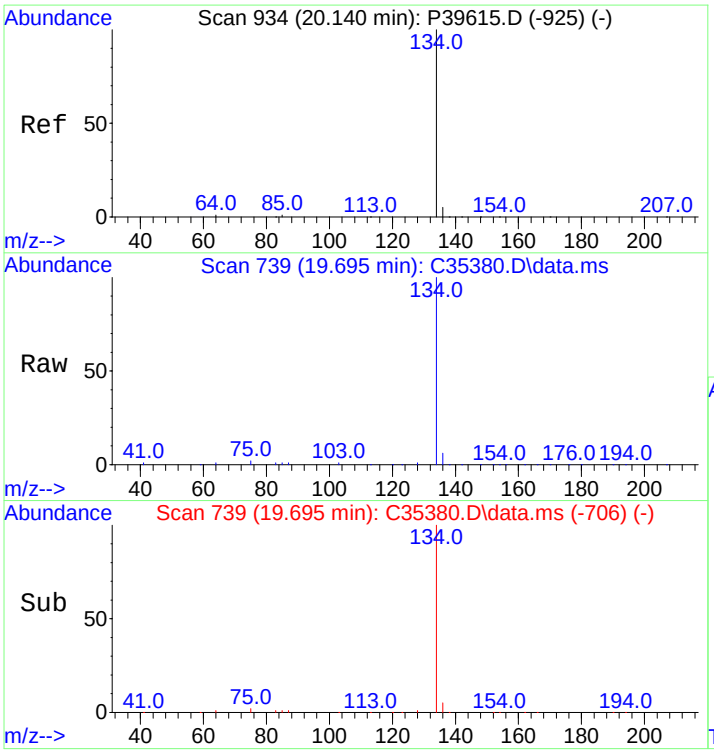


#17
1-Methylnaphthalene
Concen: 469.49 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:142 Resp: 31726

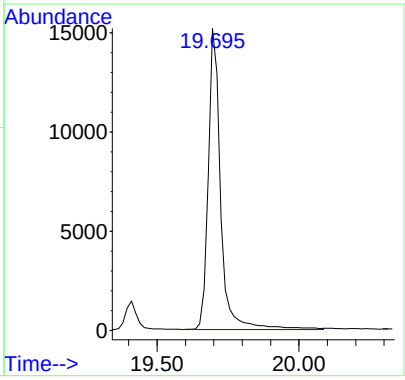
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

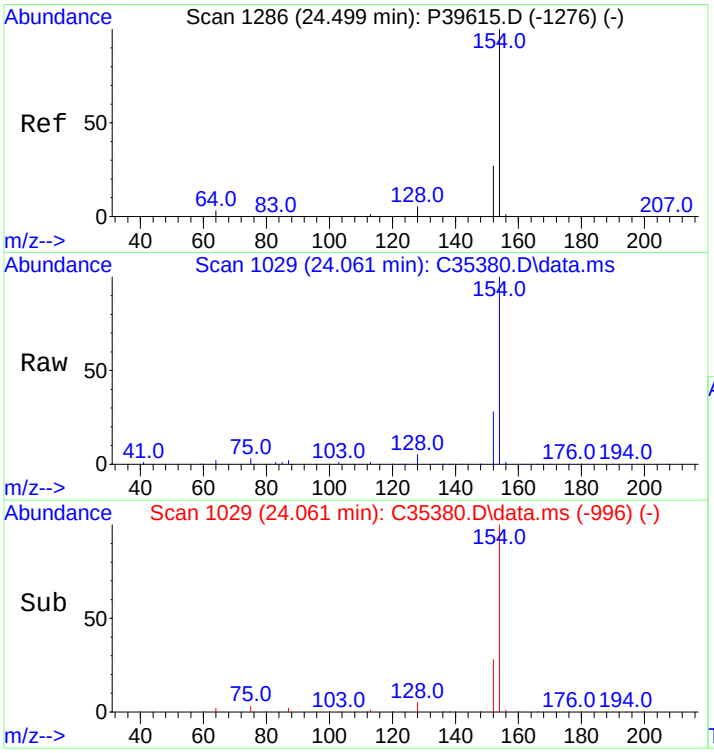




#18
Benzothiophene
Concen: 438.14 ng/mL
RT: 19.695 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:134 Resp: 45971

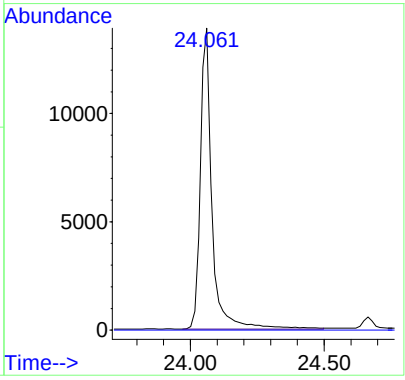


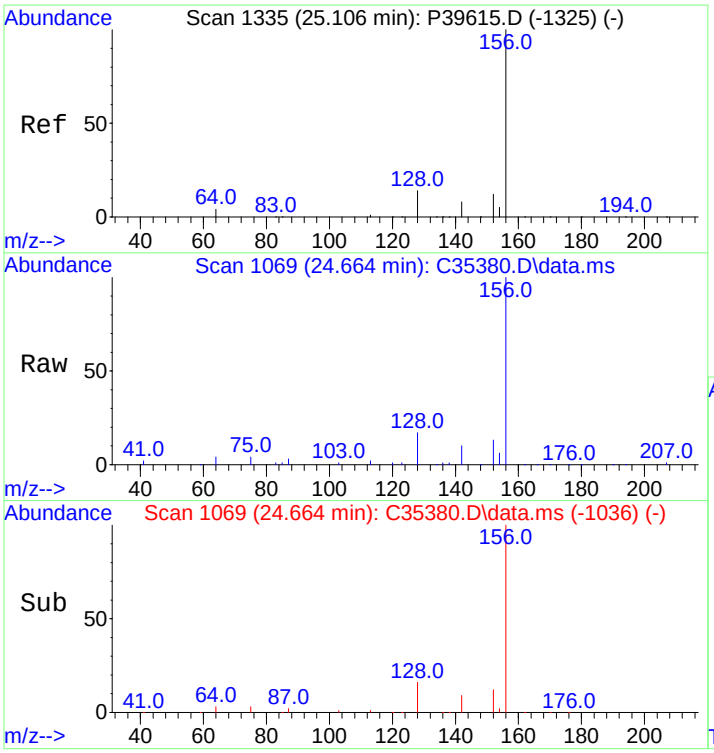


#23
Biphenyl
Concen: 480.56 ng/mL
RT: 24.061 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:154 Resp: 41909

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

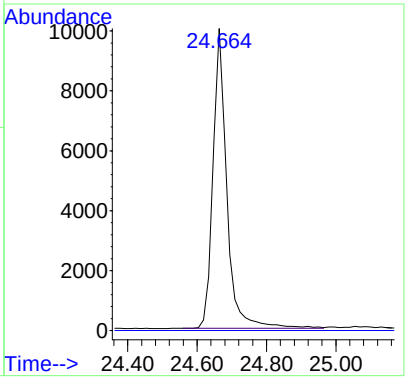


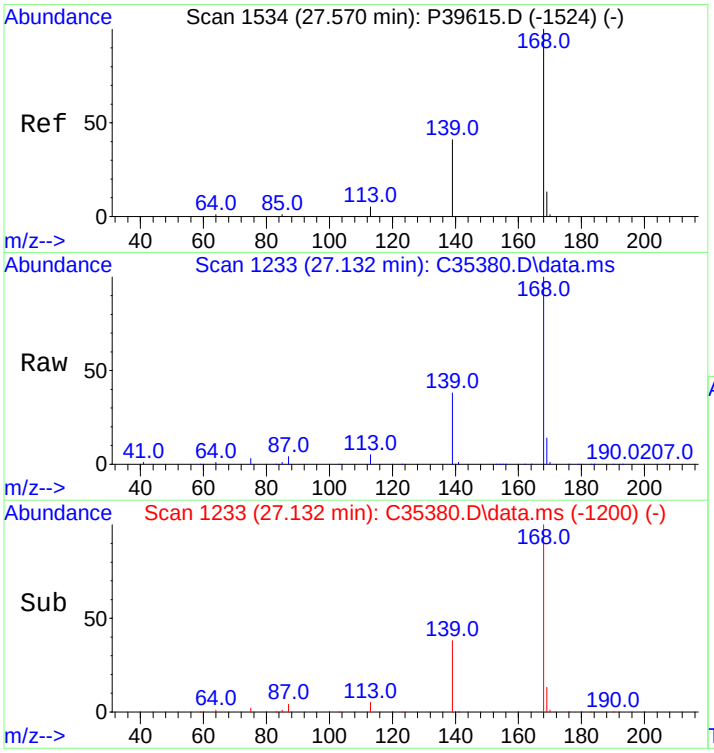


#24
2,6-Dimethylnaphthalene
Concen: 492.50 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:156 Resp: 27896

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

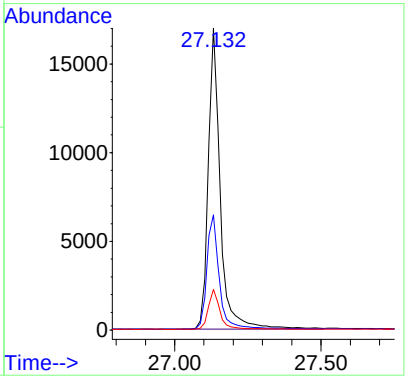


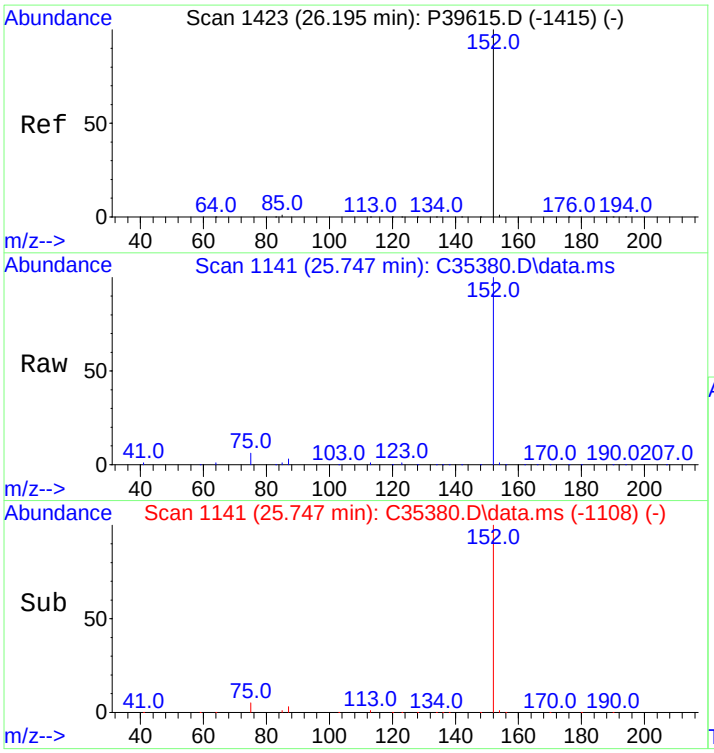


#25
Dibenzofuran
Concen: 483.72 ng/mL
RT: 27.132 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:168 Resp: 48441

Ion	Ratio	Lower	Upper
168	100		
139	39.6	29.9	44.9
169	13.2	10.3	15.5

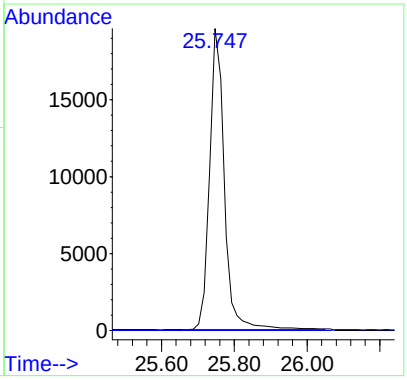


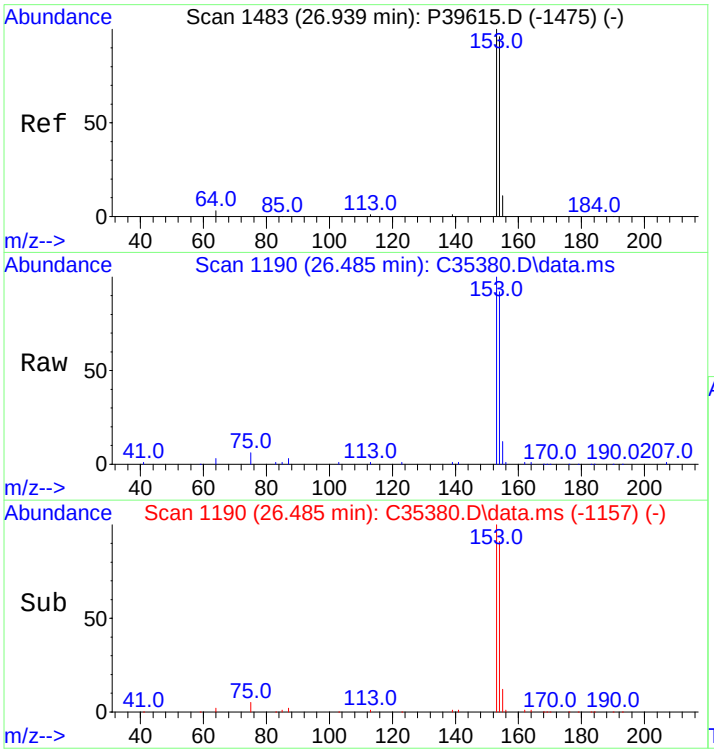


#26
Acenaphthylene
Concen: 473.17 ng/mL m
RT: 25.747 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:152 Resp: 54765

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

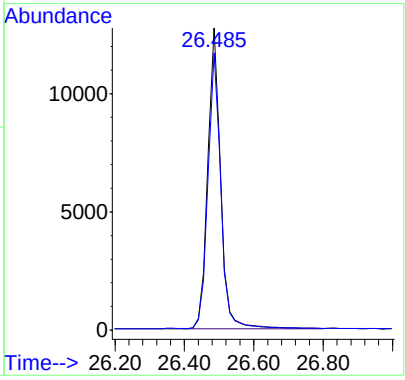


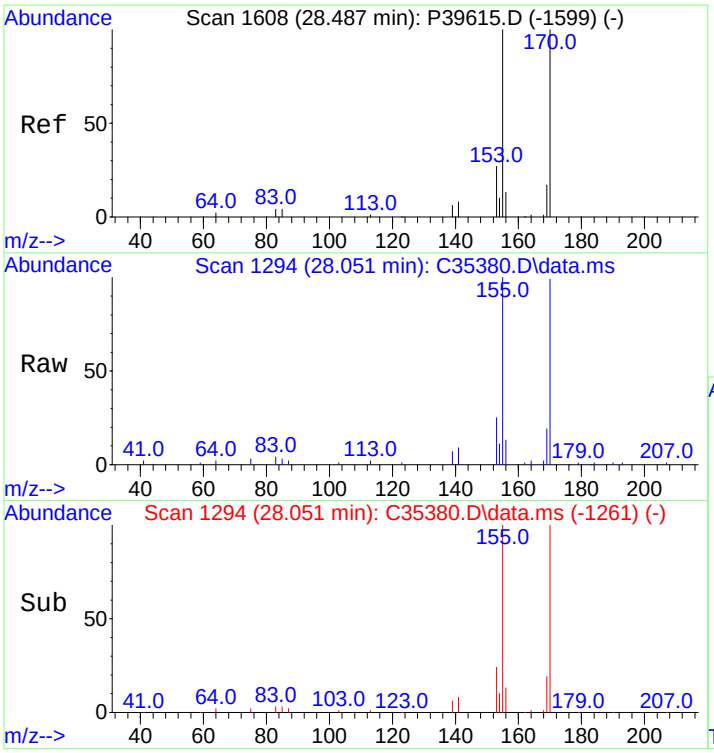


#27
Acenaphthene
Concen: 482.46 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:153 Resp: 32879

Ion	Ratio	Lower	Upper
153	100		
154	92.0	73.3	109.9

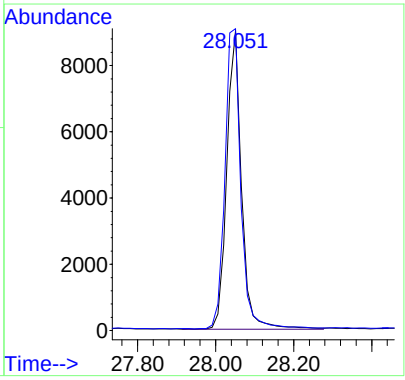


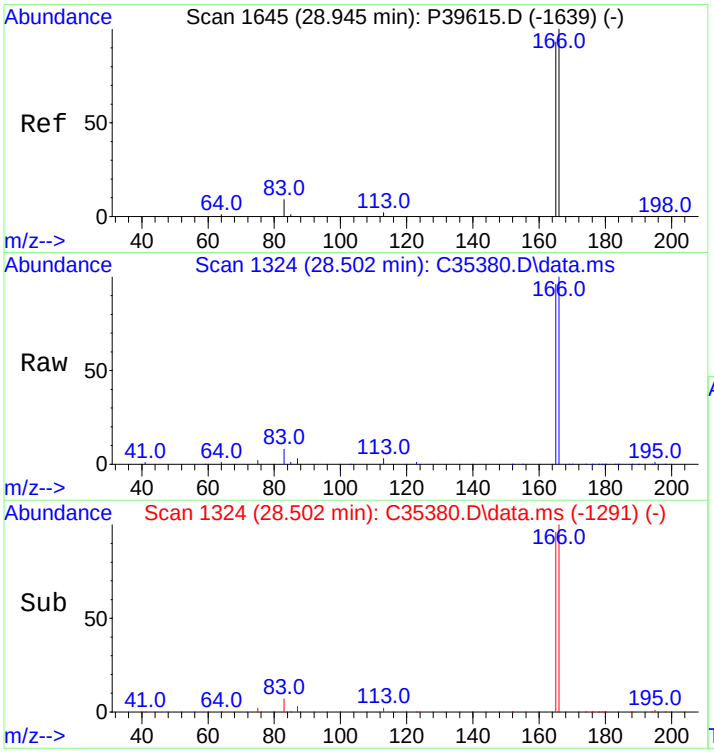


#28
2,3,5-Trimethylnaphthalene
Concen: 517.99 ng/mL
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:170 Resp: 23651

Ion	Ratio	Lower	Upper
170	100		
155	108.7	78.4	117.6

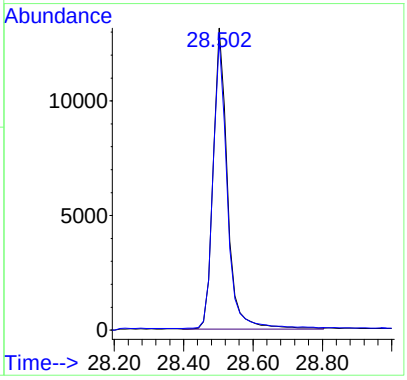


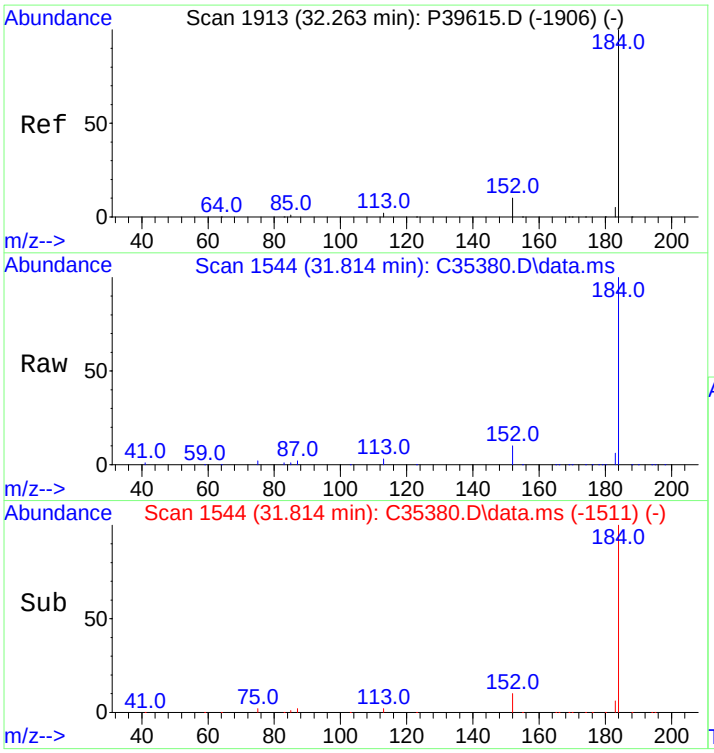


#29
Fluorene
Concen: 499.36 ng/mL
RT: 28.502 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:166 Resp: 37532

Ion	Ratio	Lower	Upper
166	100		
165	95.1	77.1	115.7

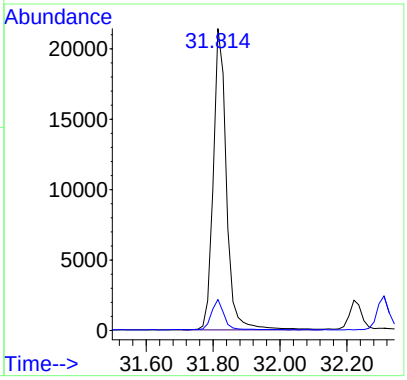


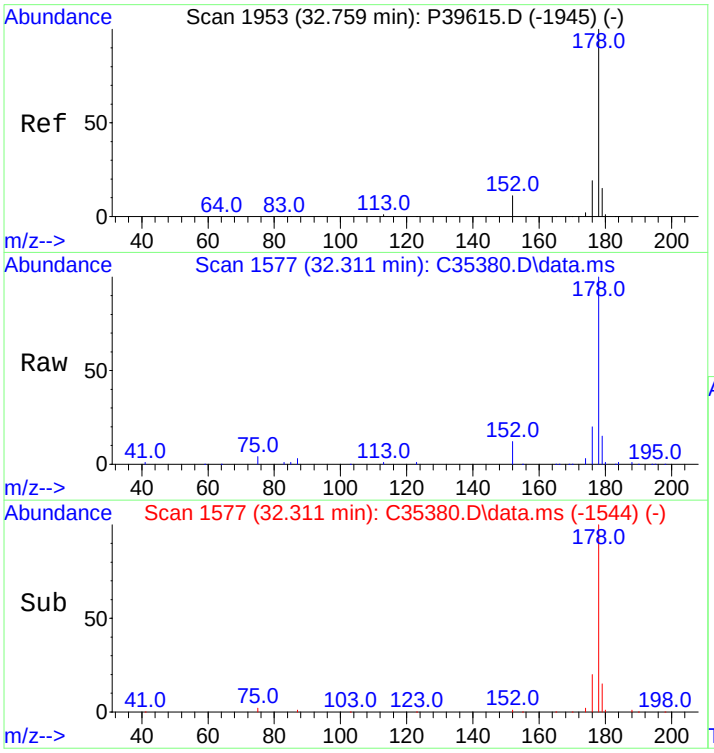


#33
Dibenzothiophene
Concen: 485.49 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:184 Resp: 58492

Ion	Ratio	Lower	Upper
184	100		
152	9.6	7.5	11.3

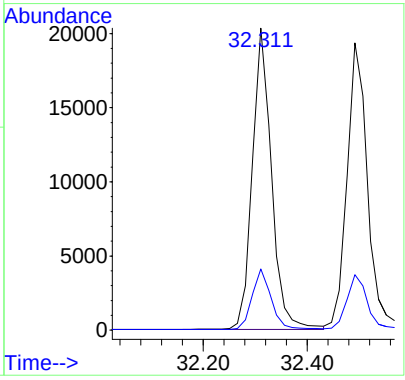


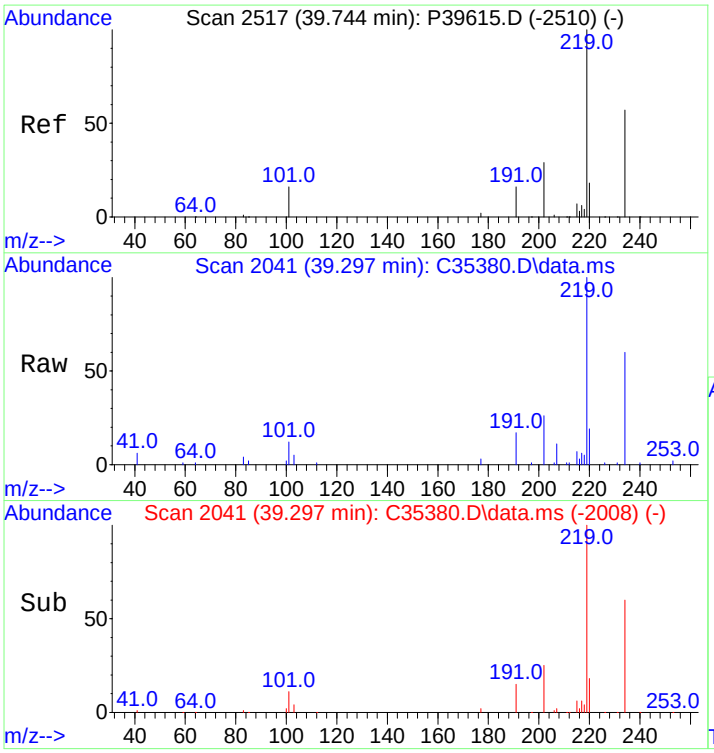


#43
Phenanthrene
Concen: 493.17 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:178 Resp: 52203

Ion	Ratio	Lower	Upper
178	100		
176	20.1	15.8	23.6

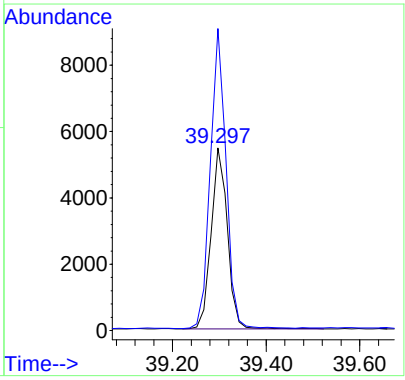


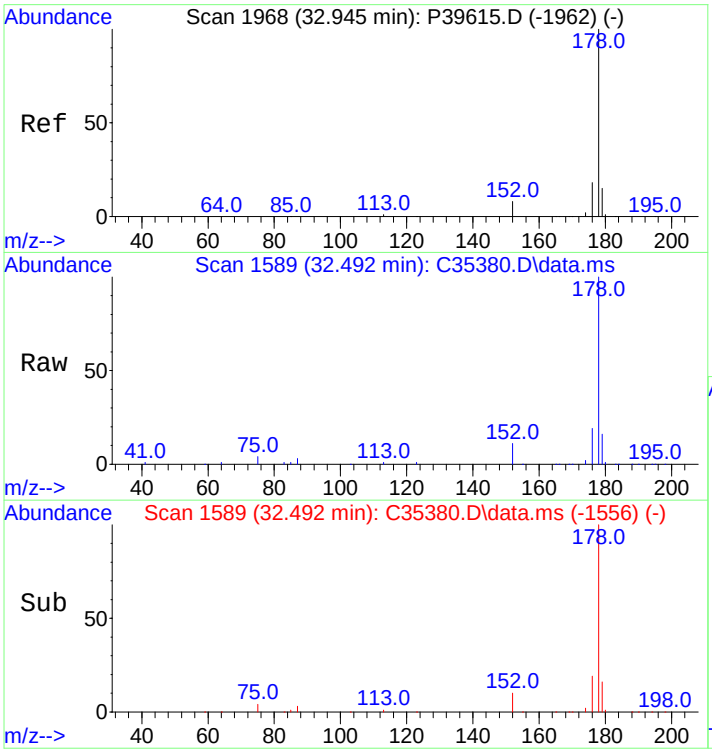


#54
Retene
Concen: 637.72 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:234 Resp: 13168

Ion	Ratio	Lower	Upper
234	100		
219	159.5	131.8	197.8

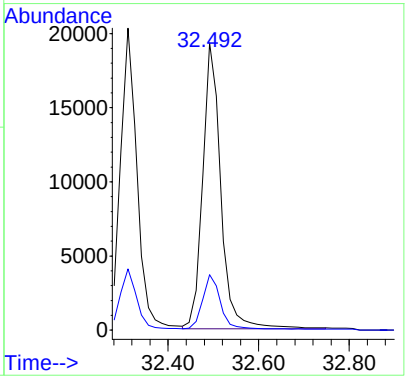


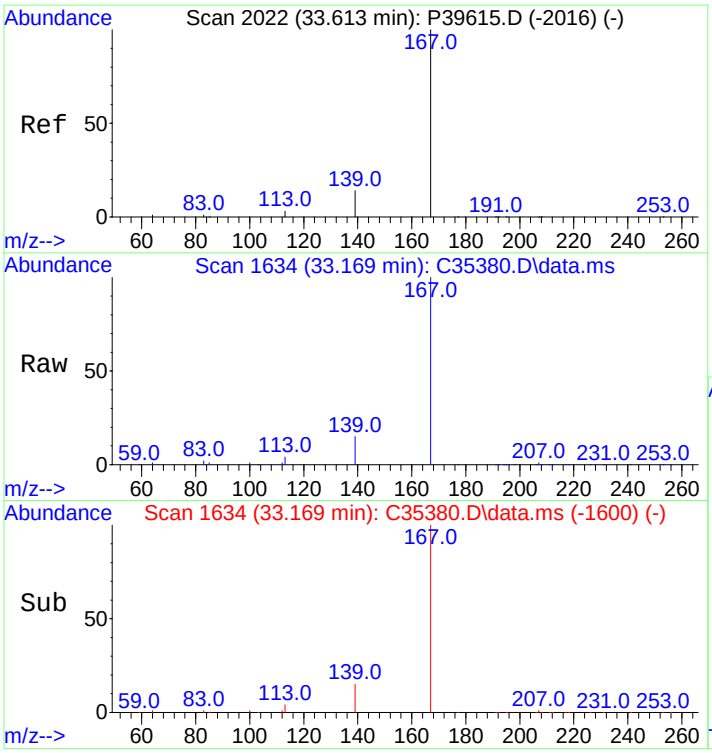


#55
Anthracene
Concen: 523.21 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:178 Resp: 54097

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.6	23.4

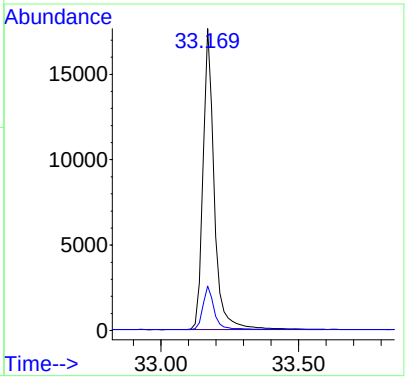


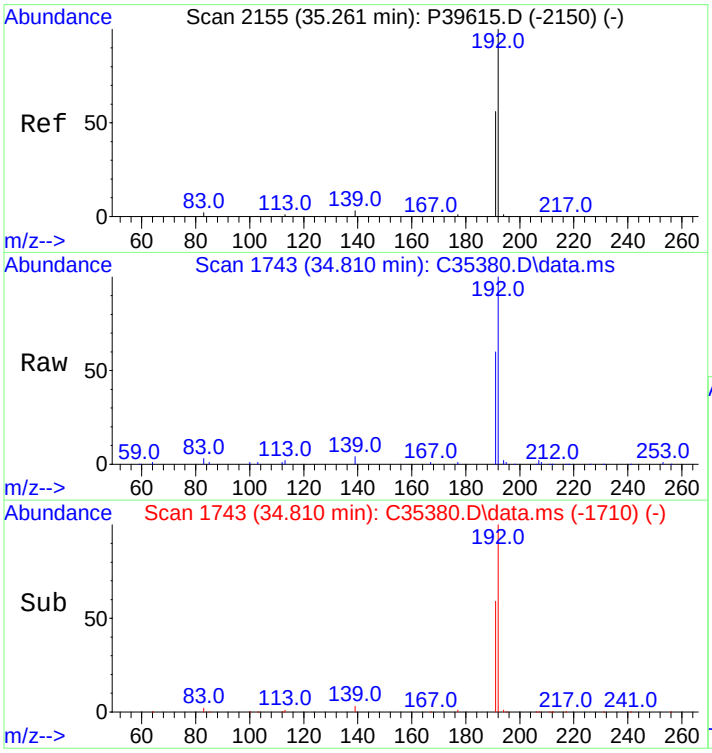


#56
Carbazole
Concen: 483.59 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:167 Resp: 50506

Ion	Ratio	Lower	Upper
167	100		
139	14.3	11.9	17.9

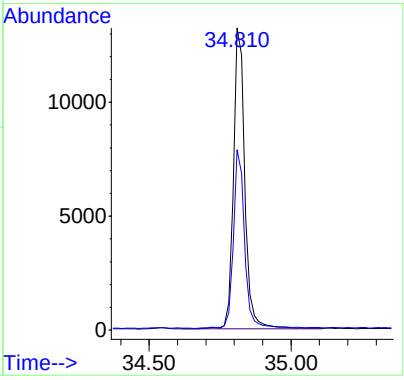


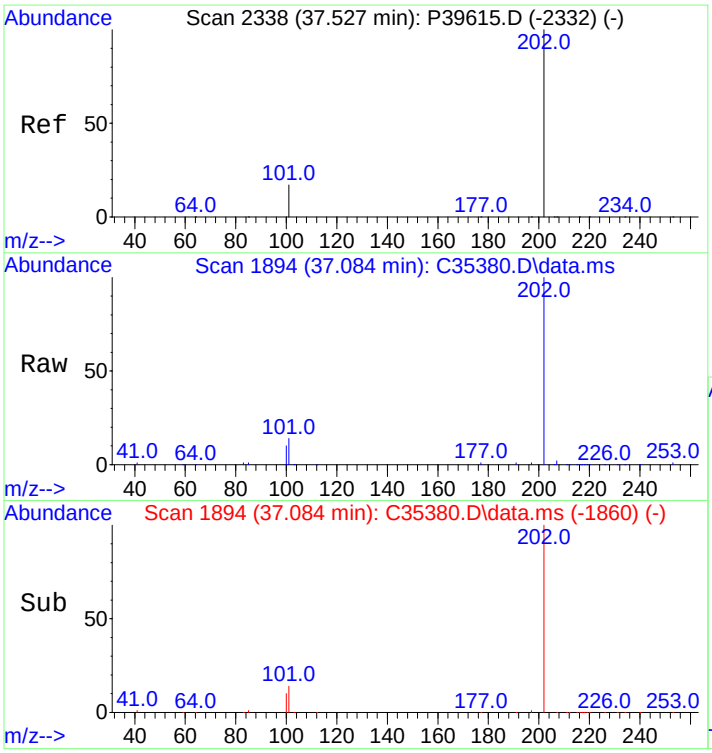


#57
1-Methylphenanthrene
Concen: 549.20 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:192 Resp: 36841

Ion	Ratio	Lower	Upper
192	100		
191	58.4	46.8	70.2

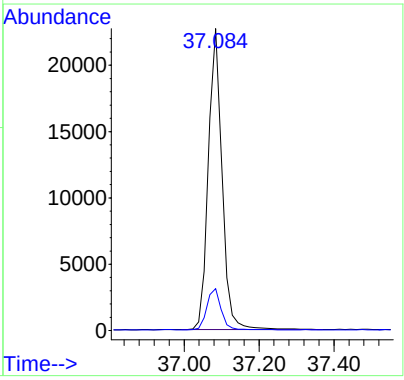


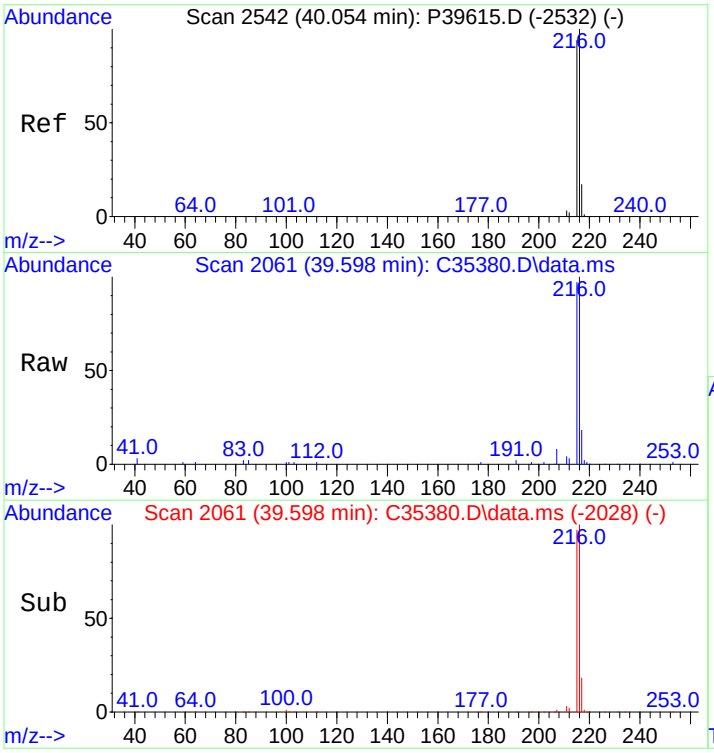


#58
Fluoranthene
Concen: 549.45 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:202 Resp: 57763

Ion	Ratio	Lower	Upper
202	100		
101	14.3	13.2	19.8

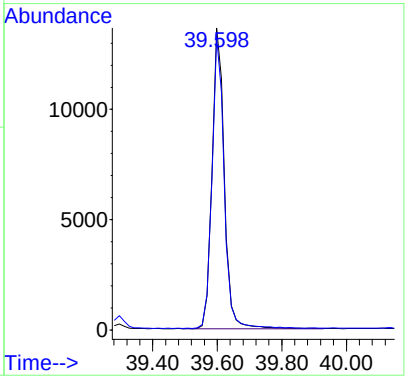


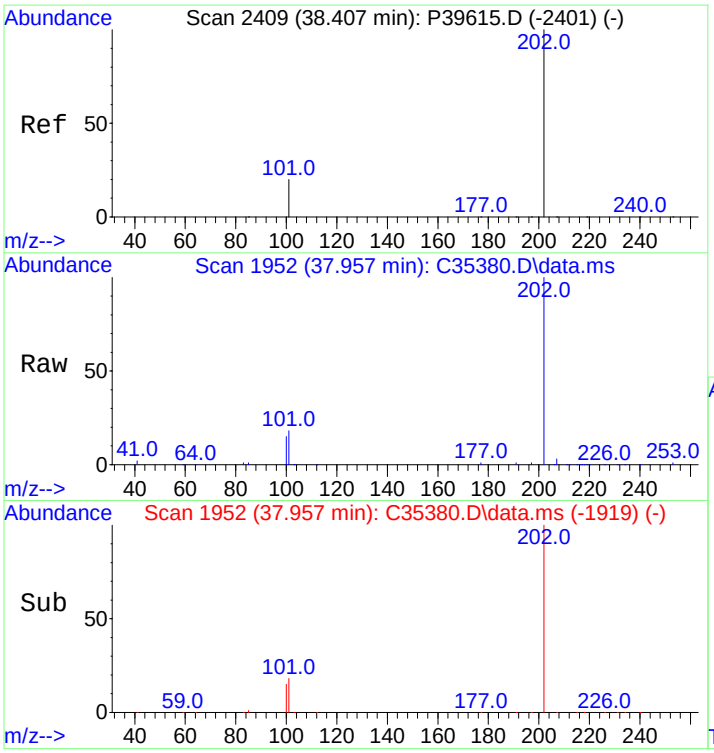


#59
Benzo(b)fluorene
Concen: 593.33 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:216 Resp: 36188

Ion	Ratio	Lower	Upper
216	100		
215	96.5	76.0	114.0

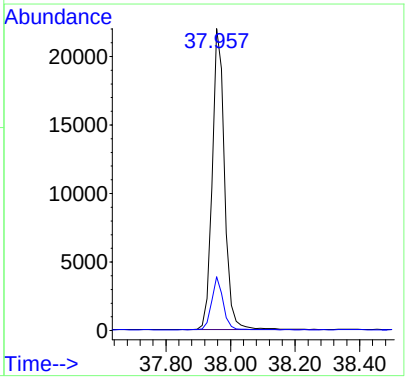


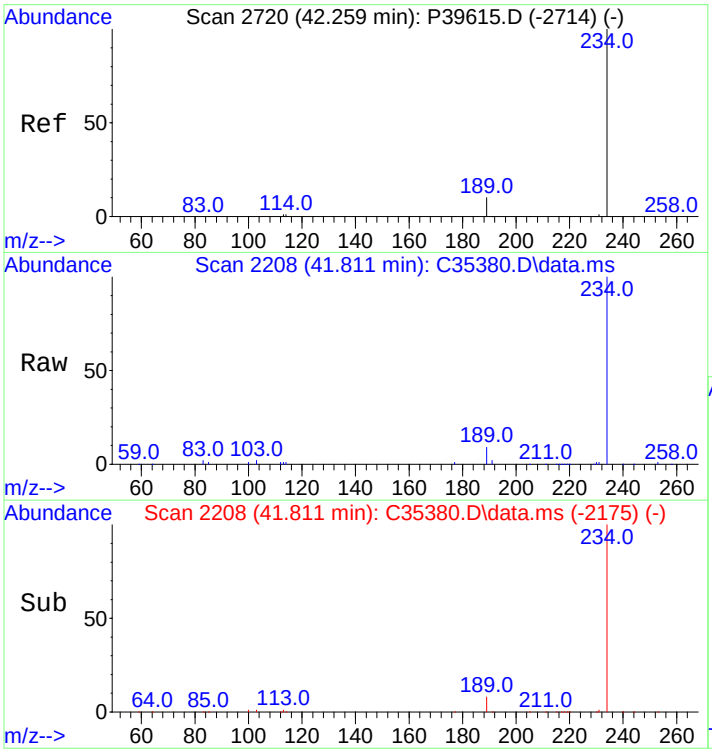


#60
Pyrene
Concen: 545.44 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:202 Resp: 58289

Ion	Ratio	Lower	Upper
202	100		
101	16.4	13.5	20.3

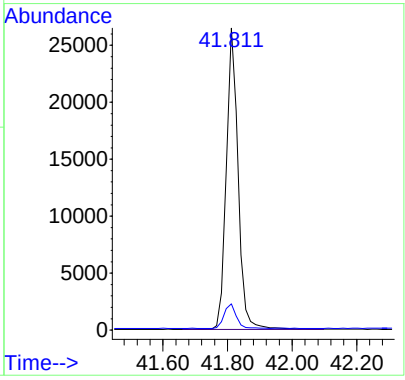


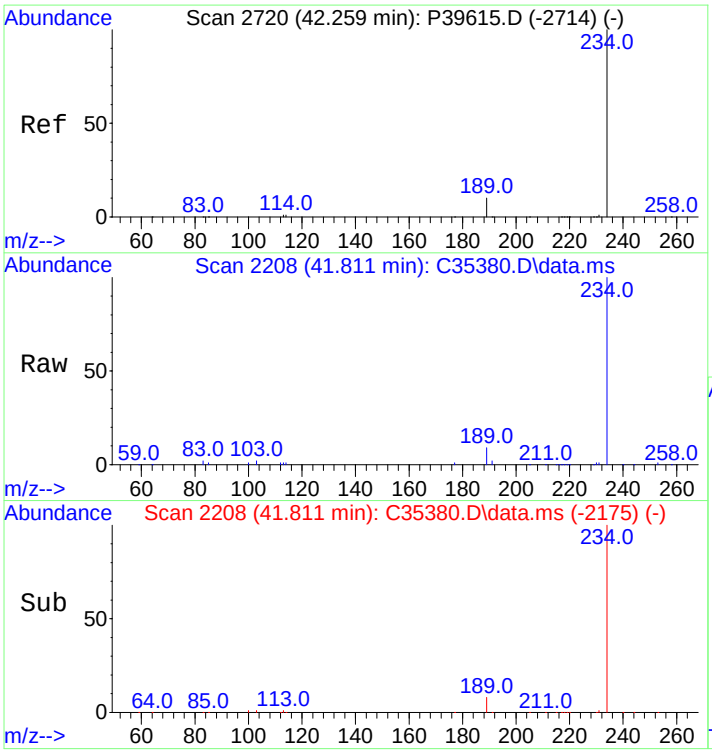


#66
Naphthobenzothiophene
Concen: 579.63 ng/ml
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:234 Resp: 66688

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.9	31.3#

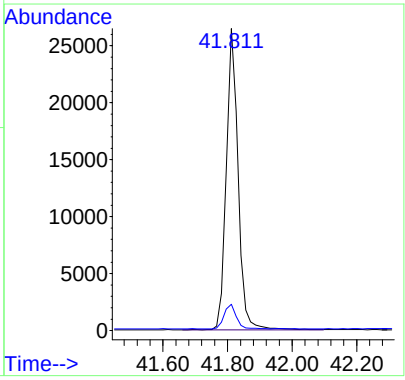


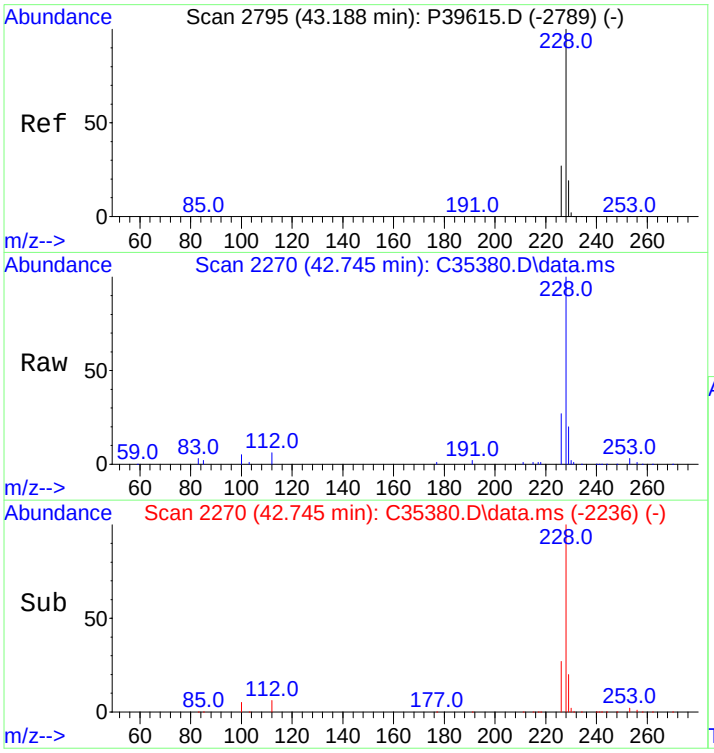


#67
Naphthobenzothiophene-2,1-D
Concen: 579.63 ng/mL
RT: 41.811 min Scan# 2208
Delta R.T. -0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:234 Resp: 66688

Ion	Ratio	Lower	Upper
234	100		
189	8.4	20.9	31.3#

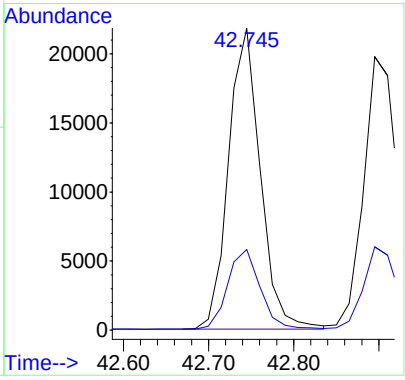


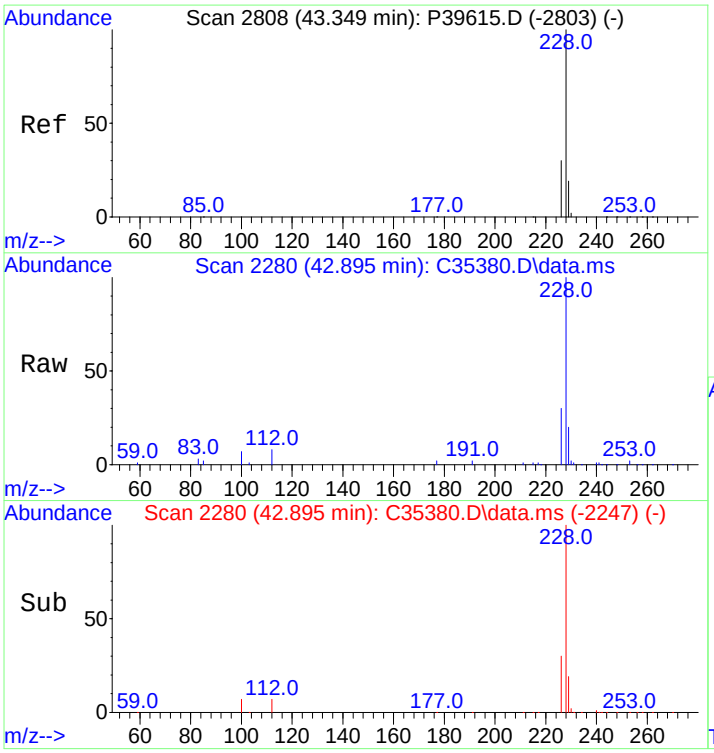


#75
Benz[a]anthracene
Concen: 511.68 ng/mL
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:228 Resp: 56613

Ion	Ratio	Lower	Upper
228	100		
226	27.2	21.5	32.3

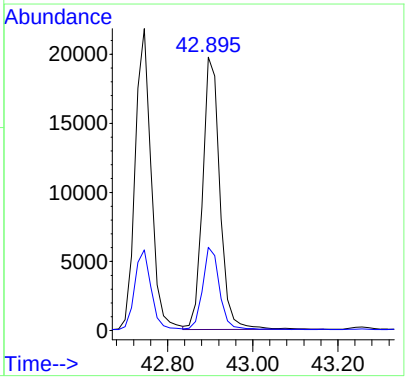


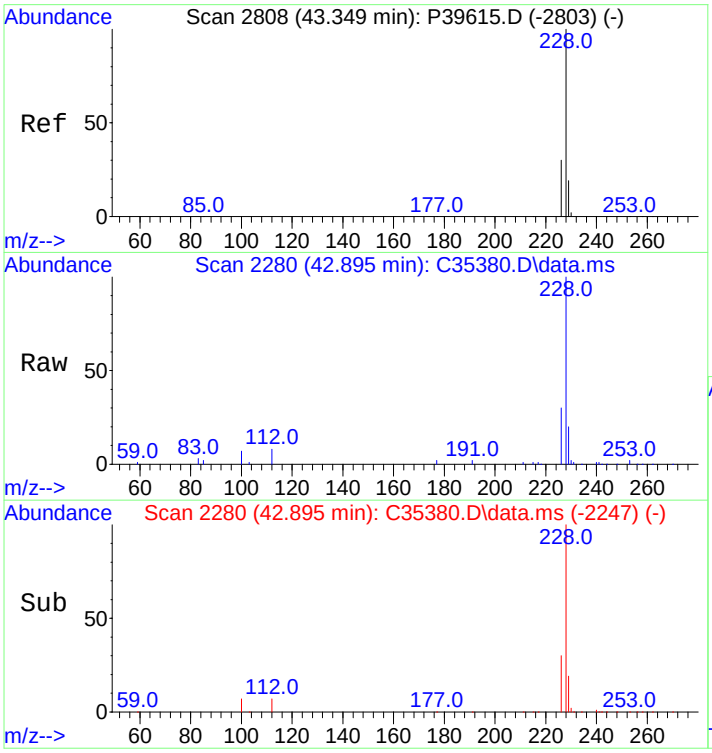


#76
Chrysene
Concen: 497.55 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:228 Resp: 55577

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.5	35.3

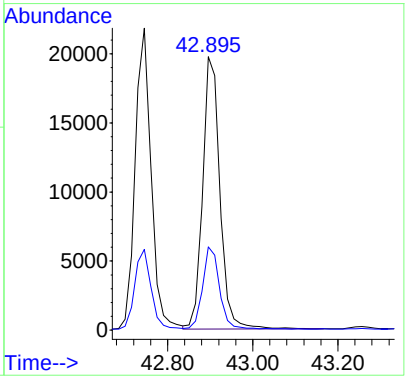


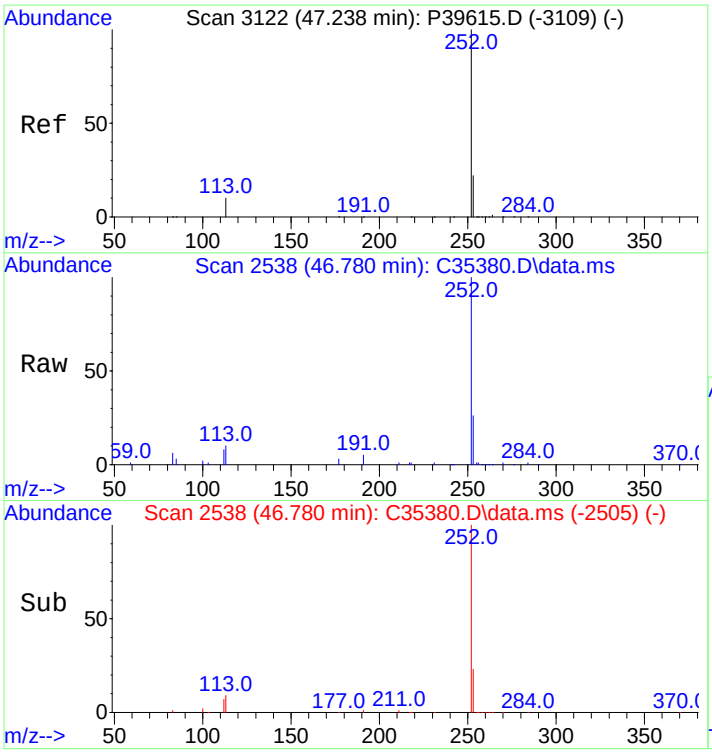


#77
Chrysene/Triphenylene
Concen: 497.55 ng/mL
RT: 42.895 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:228 Resp: 55577

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.5	35.3

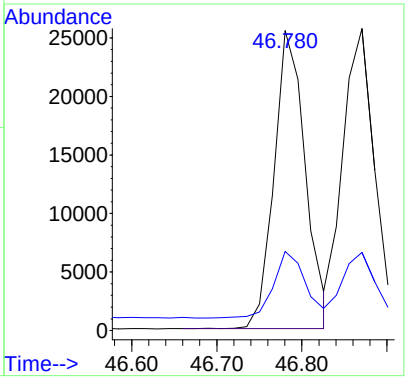


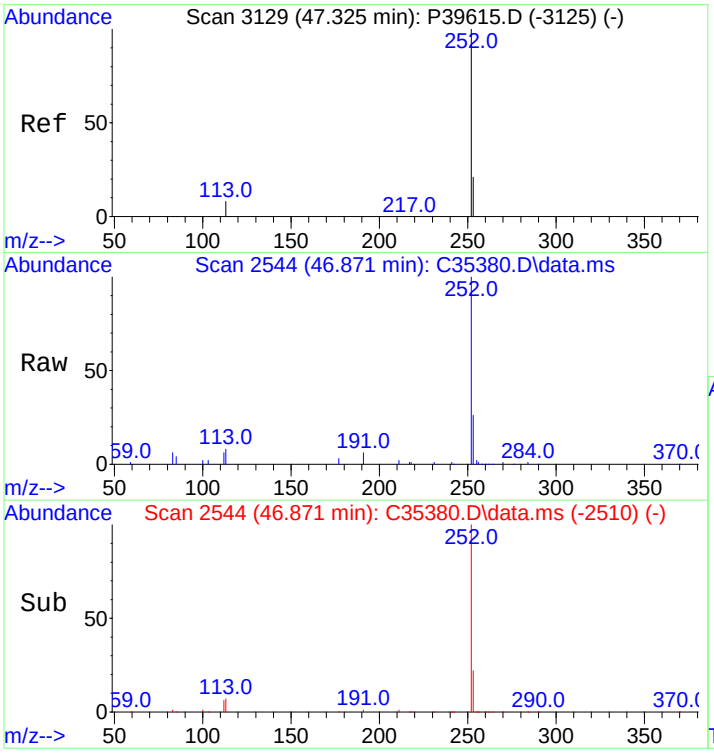


#82
Benzo[b]fluoranthene
Concen: 535.65 ng/mL
RT: 46.780 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:252 Resp: 65121

Ion	Ratio	Lower	Upper
252	100		
253	22.4	20.4	30.6

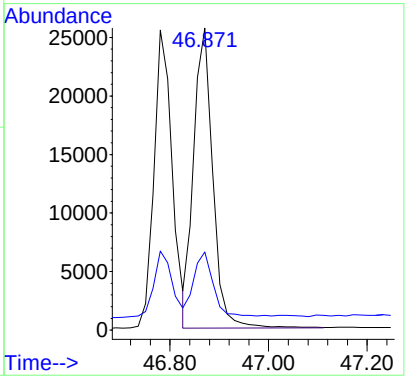


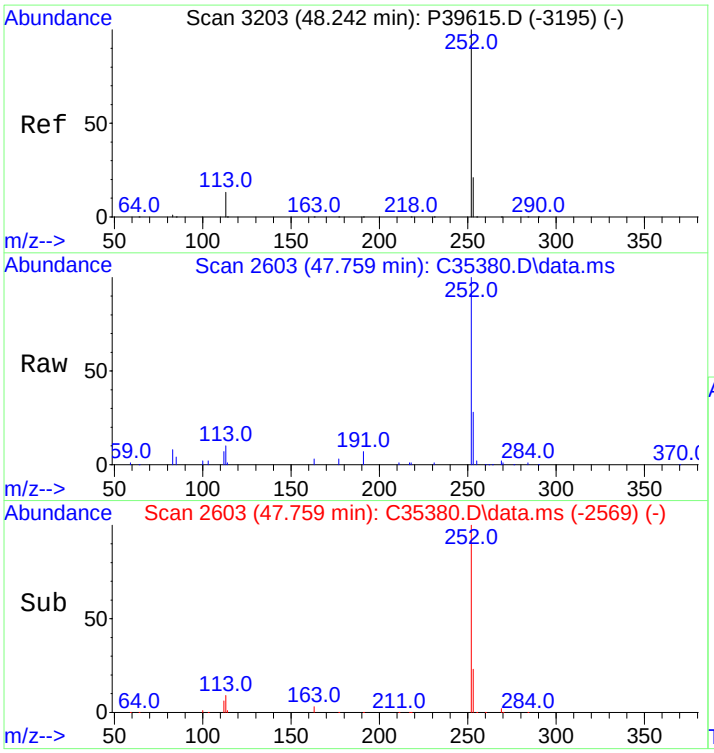


#83
Benzo[j]+[k]fluoranthene
Concen: 521.24 ng/mL
RT: 46.871 min Scan# 2544
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:252 Resp: 68992

Ion	Ratio	Lower	Upper
252	100		
253	21.2	20.6	31.0

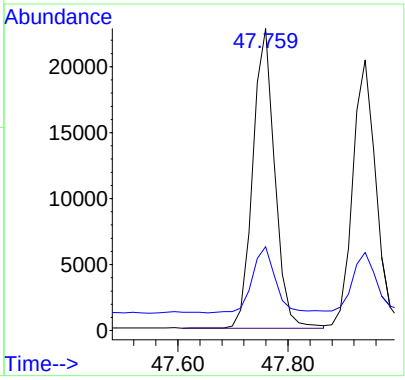


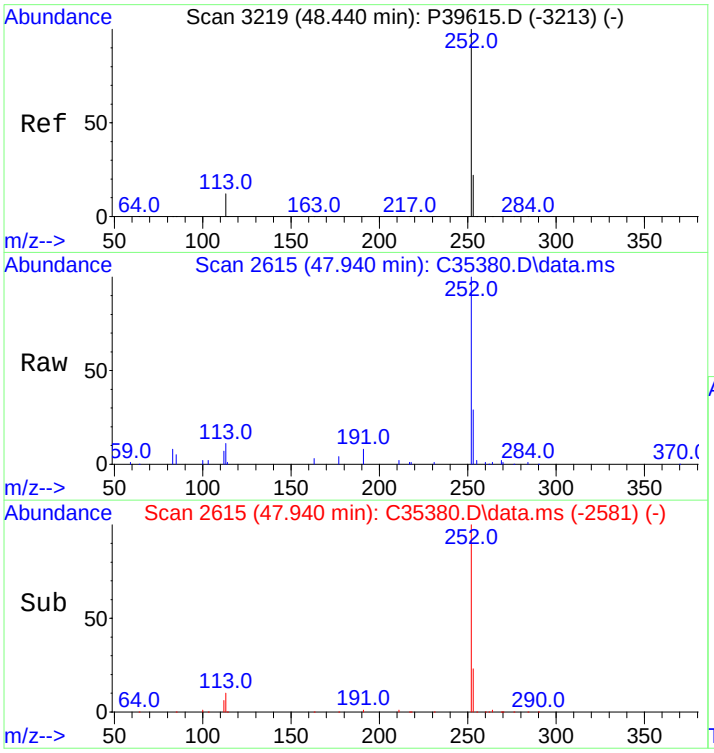


#85
Benzo[e]pyrene
Concen: 520.32 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:252 Resp: 62569

Ion	Ratio	Lower	Upper
252	100		
253	23.5	21.0	31.6

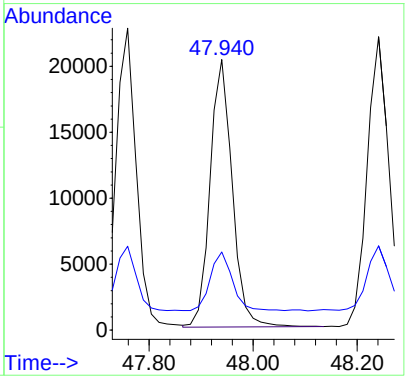


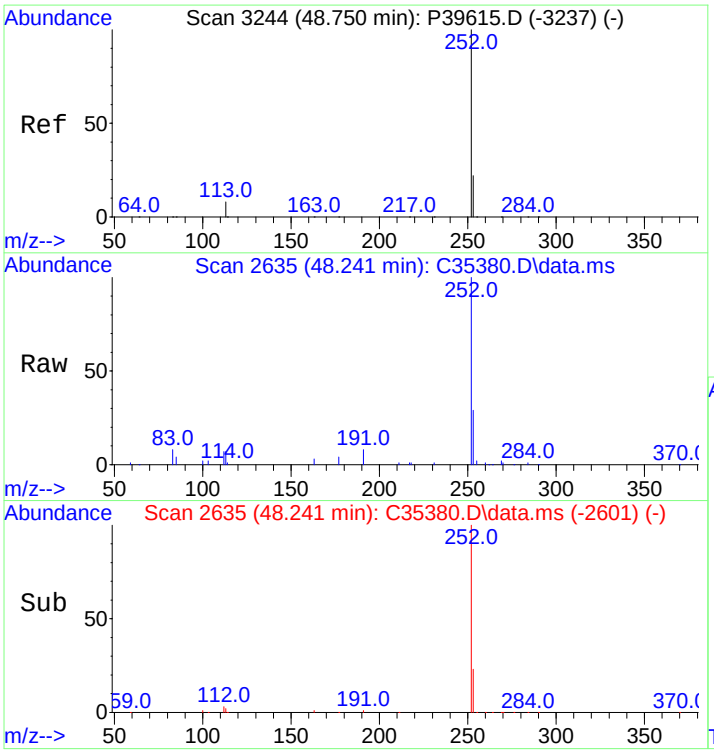


#87
Benzo[a]pyrene
Concen: 516.62 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:252 Resp: 59813

Ion	Ratio	Lower	Upper
252	100		
253	22.1	21.4	32.0

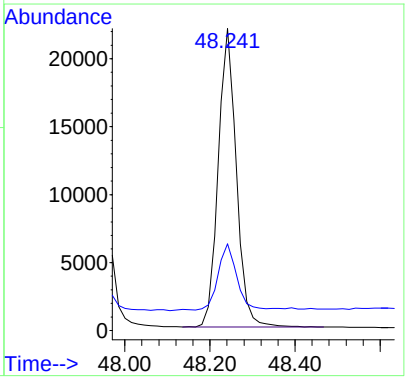


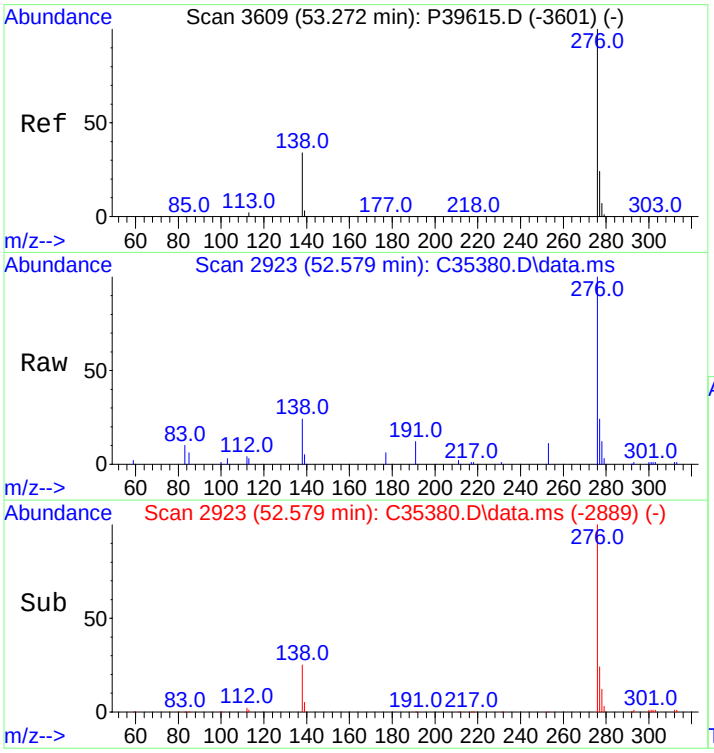


#88
Perylene
Concen: 526.57 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:252 Resp: 65154

Ion	Ratio	Lower	Upper
252	100		
253	23.6	21.8	32.6

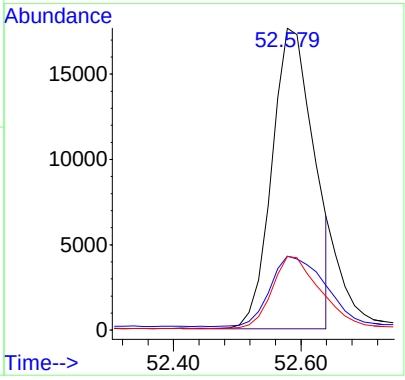


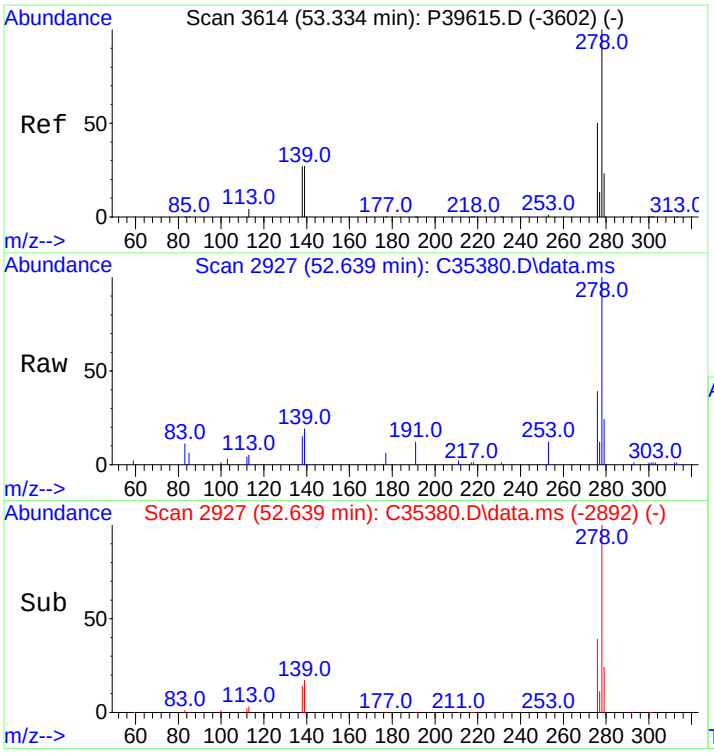


#89
Indeno[1,2,3-cd]pyrene
Concen: 597.64 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:276 Resp: 80522

Ion	Ratio	Lower	Upper
276	100		
138	31.9	19.1	28.7#
277	28.2	19.5	29.3

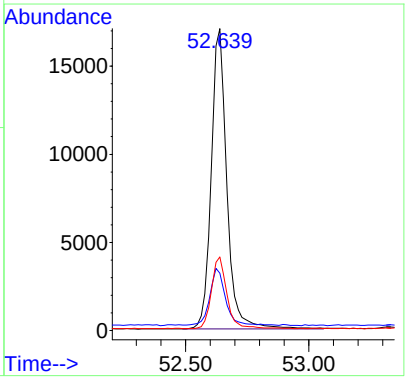


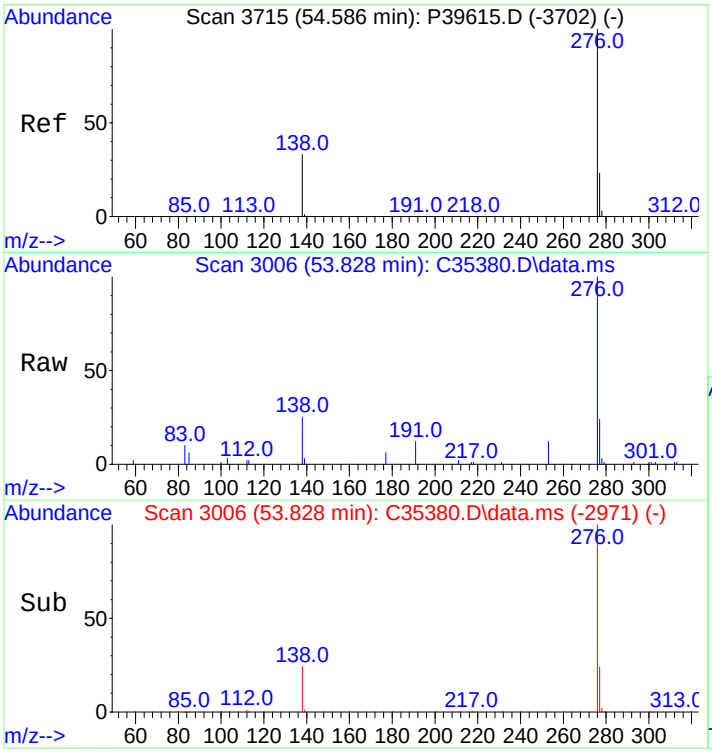


#90
Dibenz[ah]+[ac]anthracene
Concen: 585.54 ng/mL
RT: 52.639 min Scan# 2927
Delta R.T. 0.030 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:278 Resp: 75047

Ion	Ratio	Lower	Upper
278	100		
139	19.1	16.6	25.0
279	23.5	20.0	30.0

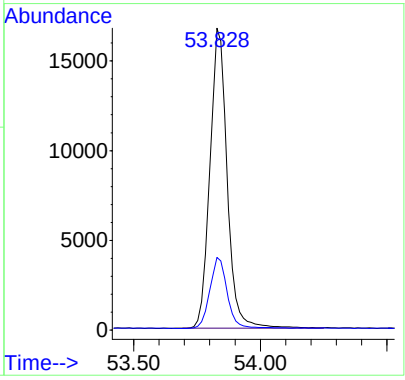


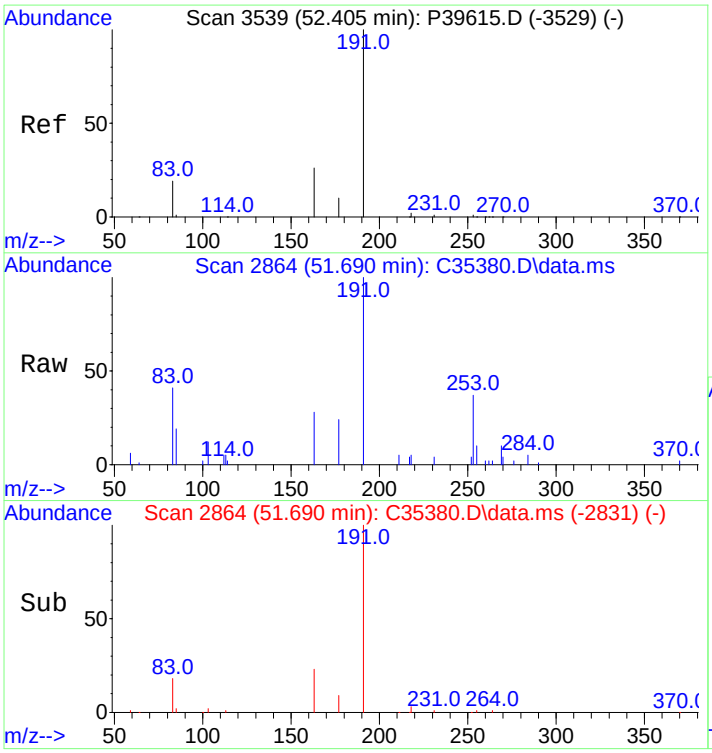


#91
Benzo[g,h,i]perylene
Concen: 554.64 ng/mL
RT: 53.828 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:276 Resp: 78950

Ion	Ratio	Lower	Upper
276	100		
277	23.9	18.8	28.2

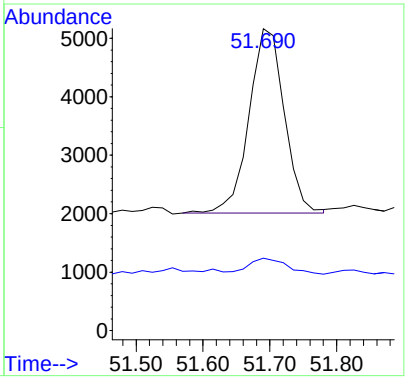


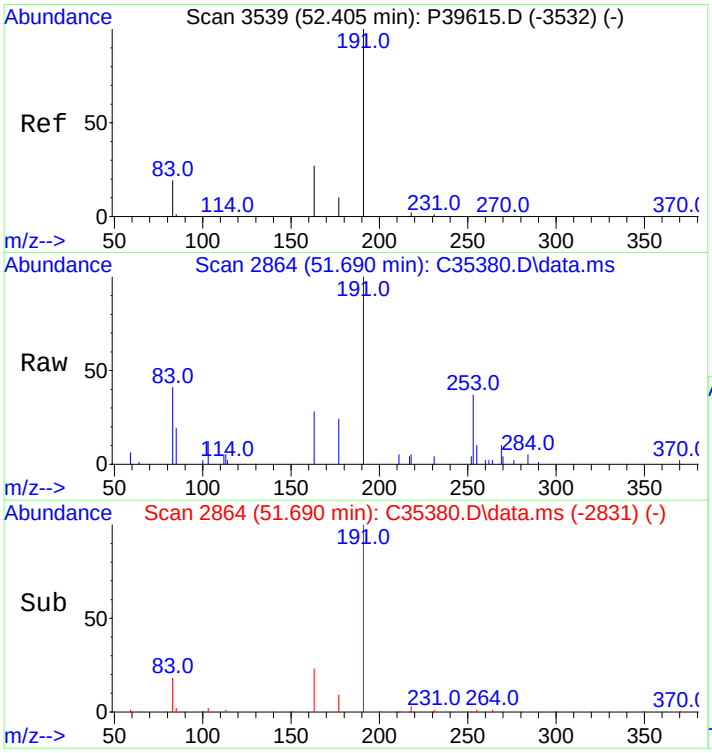


#92
Hopane (T19)
Concen: 505.65 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:191 Resp: 11617

Ion	Ratio	Lower	Upper
191	100		
177	9.4	17.2	25.8#

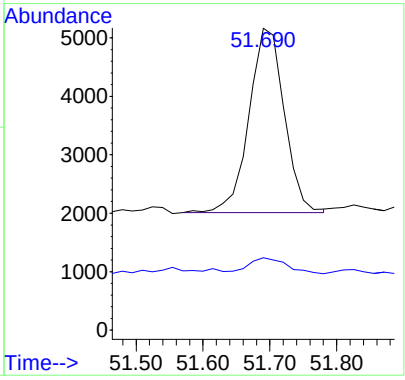




#93
17a(H),21B(H)-hopane - C30H52
Concen: 505.65 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35380.D
Acq: 28 May 2012 3:38 am

Tgt Ion:191 Resp: 11617

Ion	Ratio	Lower	Upper
191	100		
177	9.4	17.2	25.8#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

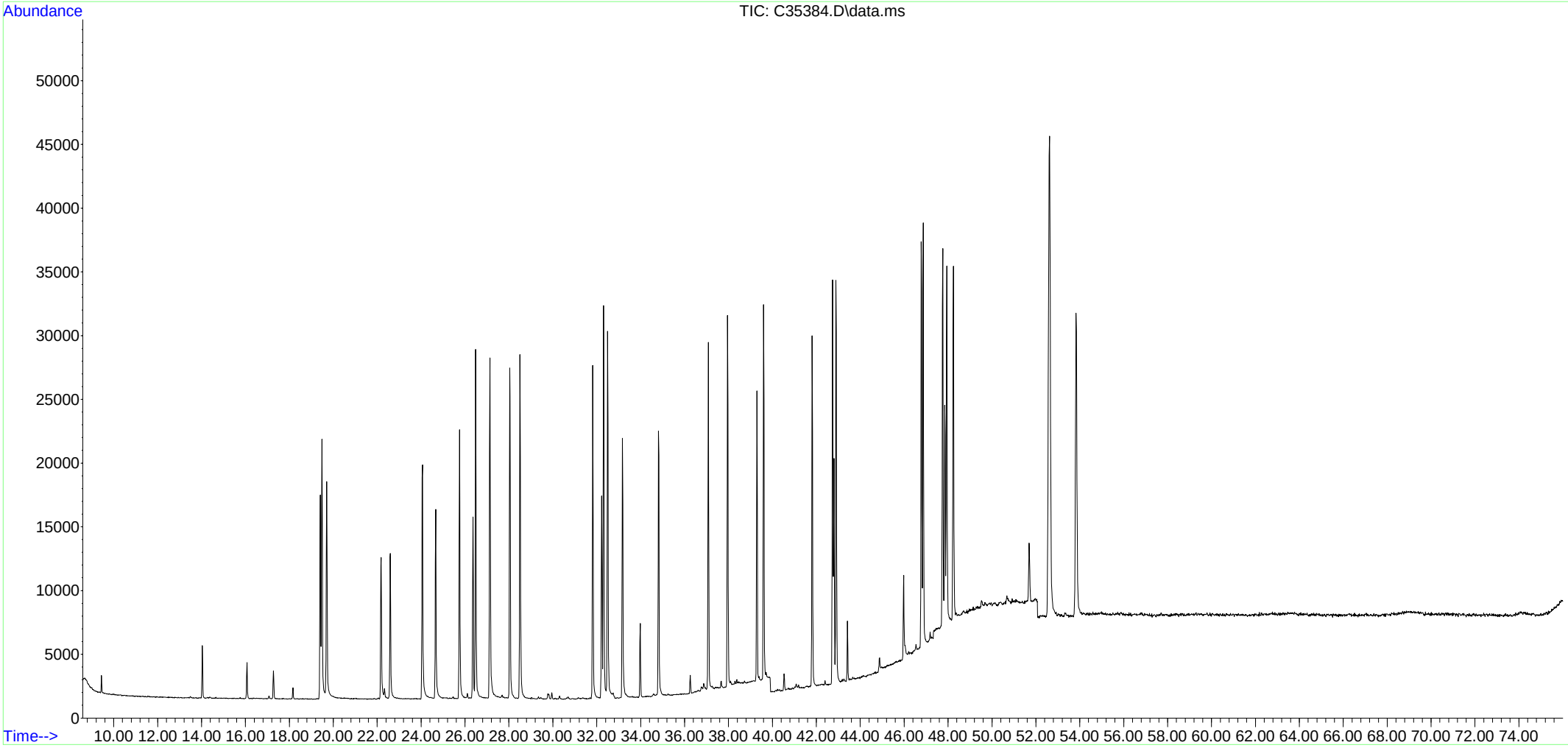
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.365	164	17987	500.000	ng/mL	0.00
74) Chrysene-d12	42.805	240	33009	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.410	136	39669	508.133	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.81%			
42) Phenanthrene-d10	32.221	188	33622	544.872	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 54.49%			
86) Benzo[a]pyrene-d12	47.850	264	37845	553.220	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 55.32%			
127) 5B(H)Cholane - Surr	43.423	217	5811	563.066	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.31%			
Target Compounds						Qvalue
3) trans-Decalin	16.068	138	3682	259.312	ng/mL	100
4) cis-Decalin	17.287	138	2661	248.658	ng/mL	100
10) Naphthalene	19.485	128	52404	457.120	ng/mL#	100
16) 2-Methylnaphthalene	22.180	142	32398	477.962	ng/mL#	100
17) 1-Methylnaphthalene	22.601	142	31408	472.716	ng/mL#	100
18) Benzothiophene	19.696	134	46381	449.598	ng/mL	100
23) Biphenyl	24.062	154	41481	483.773	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.664	156	27676	496.960	ng/mL#	100
25) Dibenzofuran	27.133	168	48513	492.708	ng/mL	97
26) Acenaphthylene	25.748	152	52900M3	464.853	ng/mL	
27) Acenaphthene	26.485	153	32644	487.186	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.051	170	23104	514.643	ng/mL	89
29) Fluorene	28.503	166	36479	493.634	ng/mL	98
33) Dibenzothiophene	31.814	184	57876	488.574	ng/mL	100
43) Phenanthrene	32.311	178	51568	495.483	ng/mL	99
54) Retene	39.297	234	12516	616.489	ng/mL	99
55) Anthracene	32.492	178	53390M3	525.186	ng/mL	
56) Carbazole	33.169	167	49397	481.045	ng/mL	99
57) 1-Methylphenanthrene	34.810	192	35635	540.293	ng/mL	99
58) Fluoranthene	37.084	202	55794	539.776	ng/mL	97
59) Benzo(b)fluorene	39.598	216	34740	579.306	ng/mL	99
60) Pyrene	37.957	202	57525	547.475	ng/mL	100
66) Naphthobenzothiophene	41.812	234	63619	562.397	ng/ml#	65
67) Naphthobenzothiophene-...	41.812	234	63619	562.397	ng/mL#	65
75) Benz[a]anthracene	42.745	228	53603	511.626	ng/mL	100
76) Chrysene	42.896	228	53006	501.125	ng/mL	100
77) Chrysene/Triphenylene	42.896	228	53006	501.125	ng/mL	100
82) Benzo[b]fluoranthene	46.781	252	60967	529.589	ng/mL	93
83) Benzo[j]+[k]fluoranthene	46.871	252	64990	518.521	ng/mL	93
85) Benzo[e]pyrene	47.759	252	58144	510.621	ng/mL	94
87) Benzo[a]pyrene	47.940	252	56392	514.373	ng/mL	91
88) Perylene	48.241	252	60105	512.988	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.579	276	74252M3	581.993	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.639	278	69445	572.195	ng/mL	97
91) Benzo[g,h,i]perylene	53.829	276	74148	550.095	ng/mL	99
92) Hopane (T19)	51.690	191	10858	499.097	ng/mL#	76
93) 17a(H),21B(H)-hopane -...	51.690	191	10858	499.097	ng/mL#	76

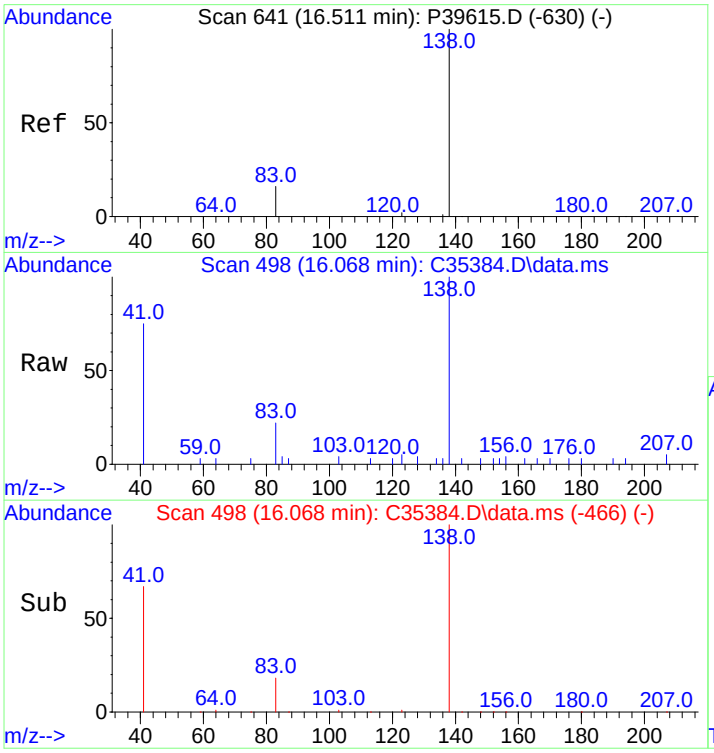
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH3\2012\MAY12\MAY24\
Data File : C35384.D
Acq On : 28 May 2012 6:46 am
Operator : AC
Sample : C305241209
Misc : CC WHAP59 500NG/ML
ALS Vial : 10 Sample Multiplier: 1

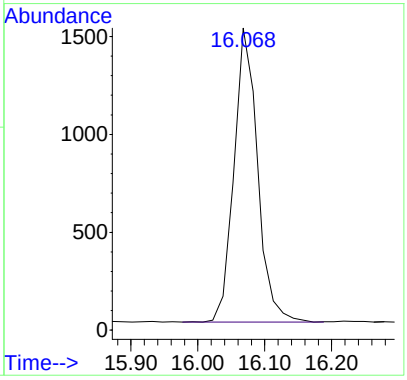
Quant Time: May 29 08:53:22 2012
Quant Method : C:\MSDCHEM\1\METHODS\PAH3\2012\PAH3032612NEW.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri May 25 06:55:25 2012
Response via : Initial Calibration

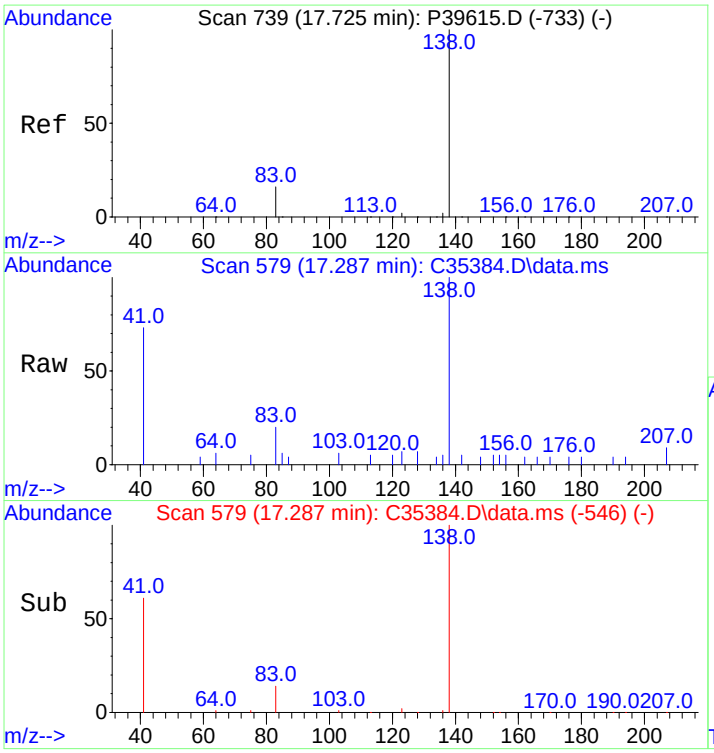




#3
trans-Decalin
Concen: 259.31 ng/mL
RT: 16.068 min Scan# 498
Delta R.T. -0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

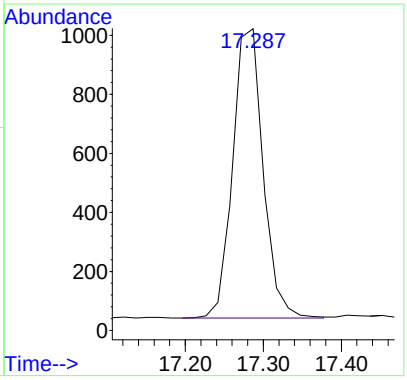
Tgt Ion:138 Resp: 3682

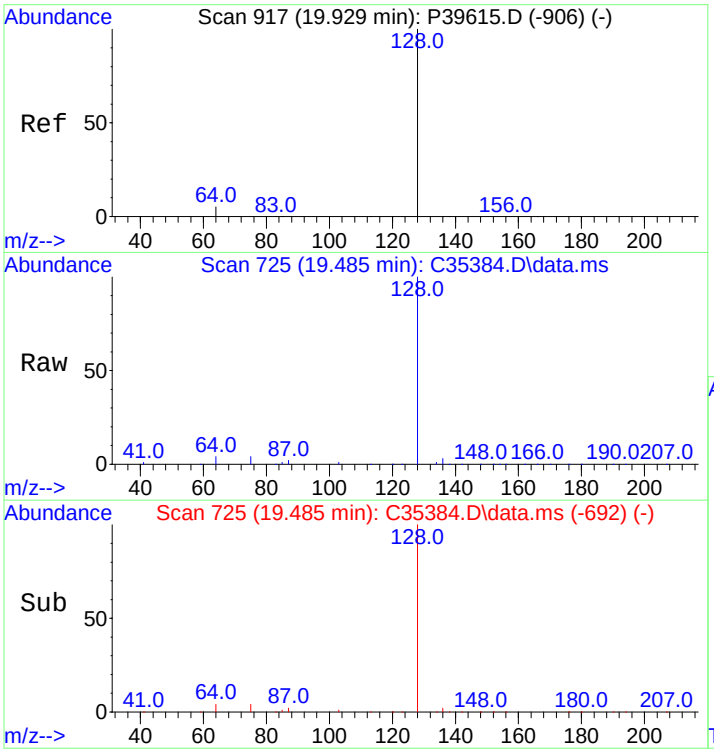




#4
cis-Decalin
Concen: 248.66 ng/mL
RT: 17.287 min Scan# 579
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:138 Resp: 2661

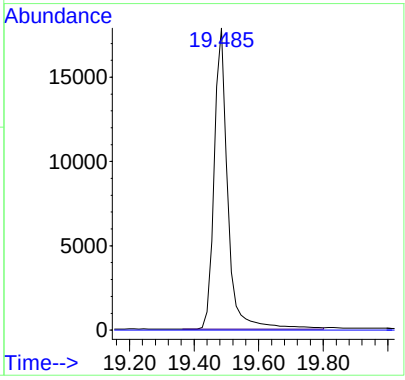


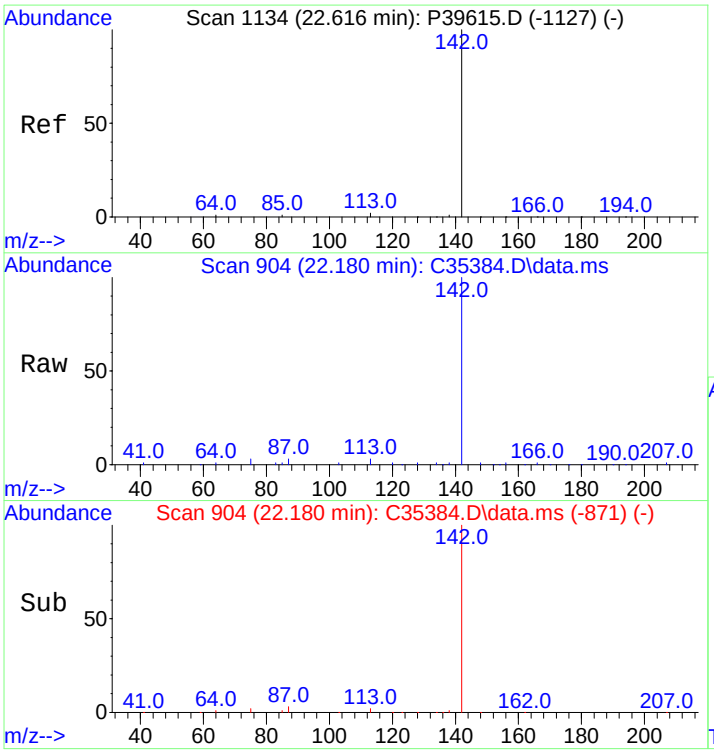


#10
Naphthalene
Concen: 457.12 ng/mL
RT: 19.485 min Scan# 725
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:128 Resp: 52404

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

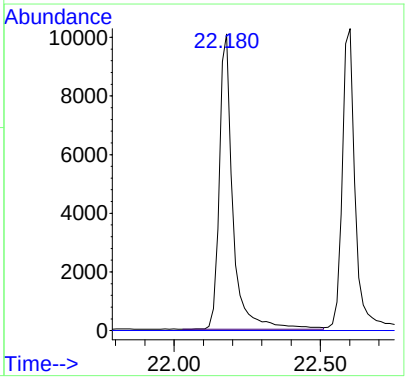


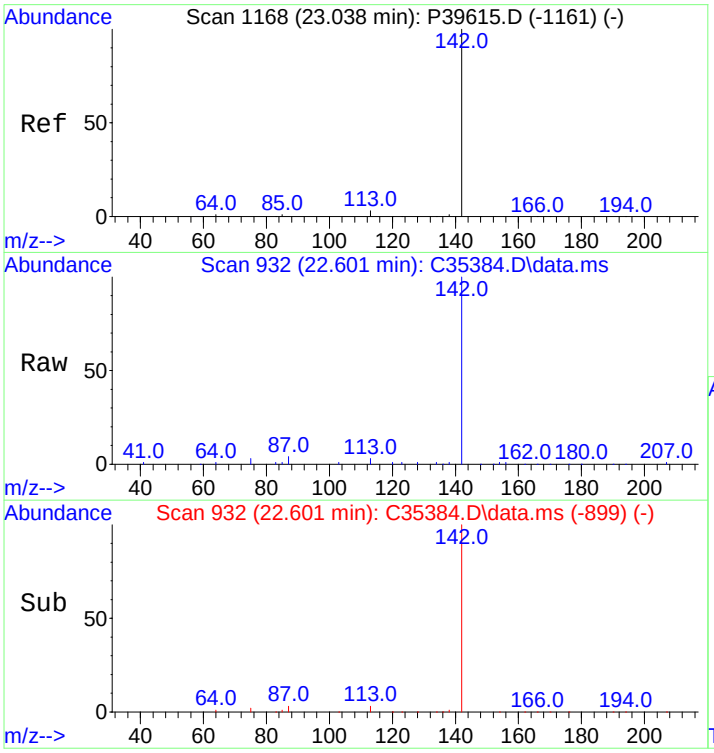


#16
2-Methylnaphthalene
Concen: 477.96 ng/mL
RT: 22.180 min Scan# 904
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:142 Resp: 32398

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

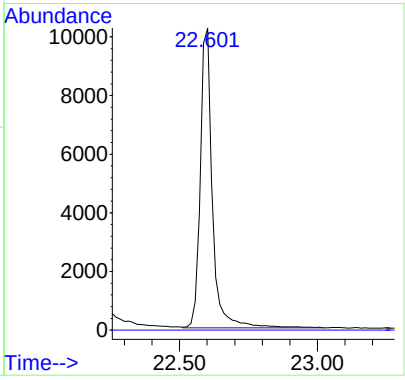


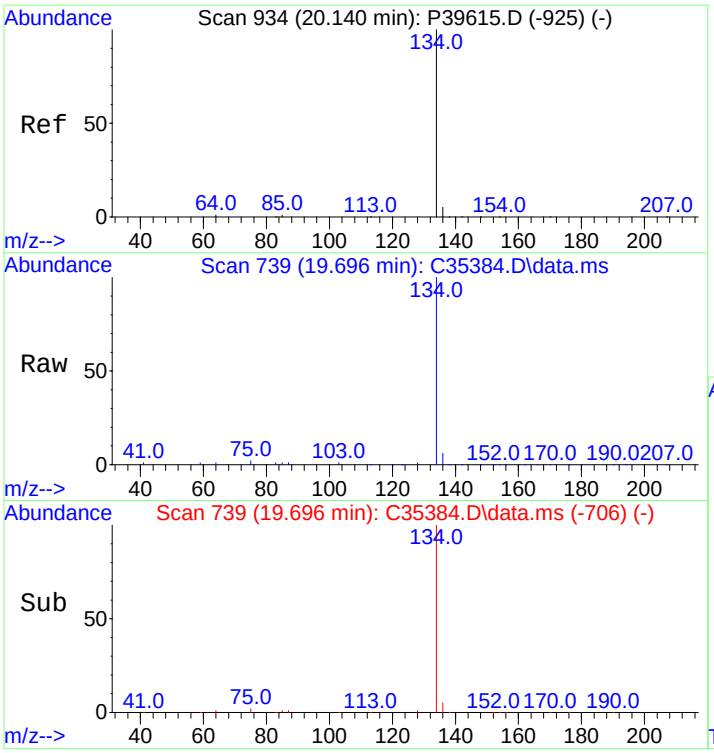


#17
1-Methylnaphthalene
Concen: 472.72 ng/mL
RT: 22.601 min Scan# 932
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:142 Resp: 31408

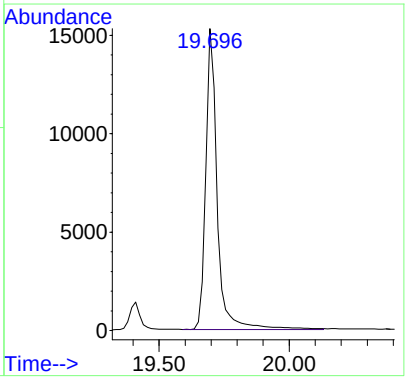
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

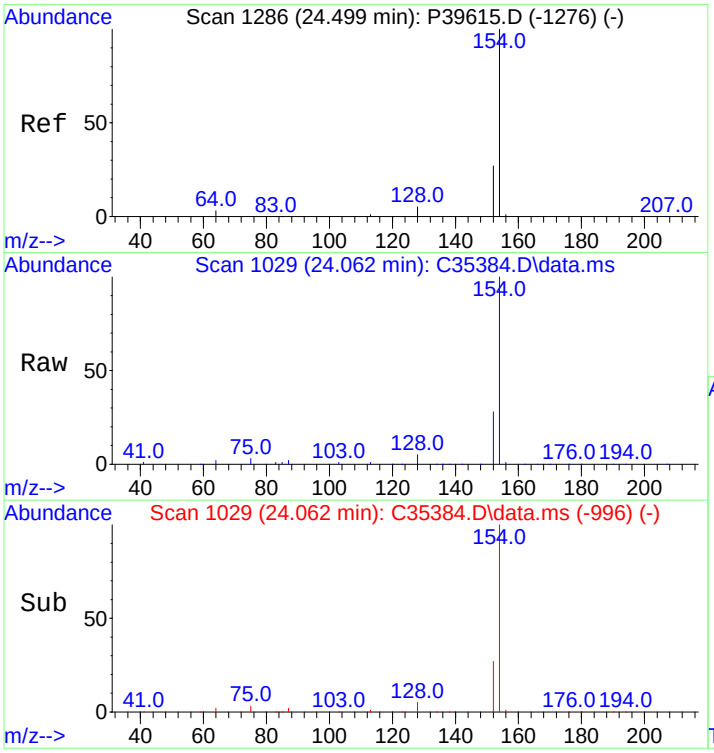




#18
Benzothiophene
Concen: 449.60 ng/mL
RT: 19.696 min Scan# 739
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:134 Resp: 46381

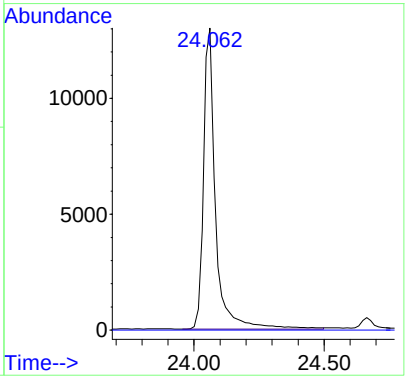


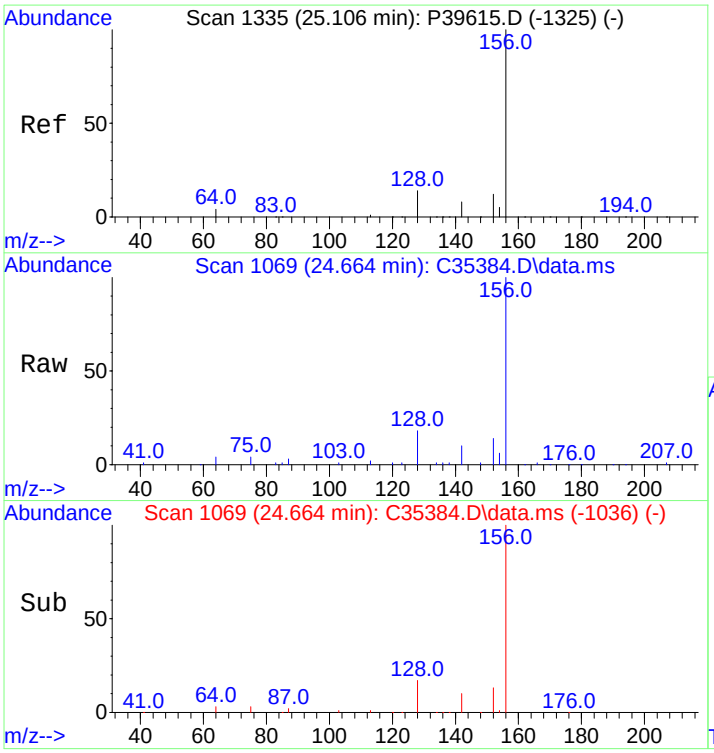


#23
Biphenyl
Concen: 483.77 ng/mL
RT: 24.062 min Scan# 1029
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:154 Resp: 41481

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

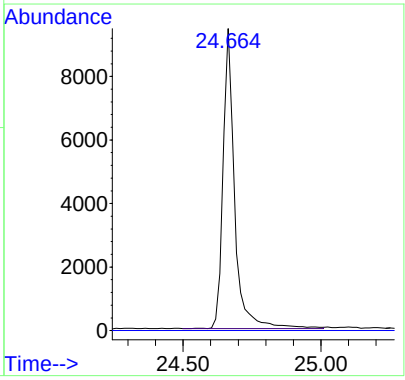


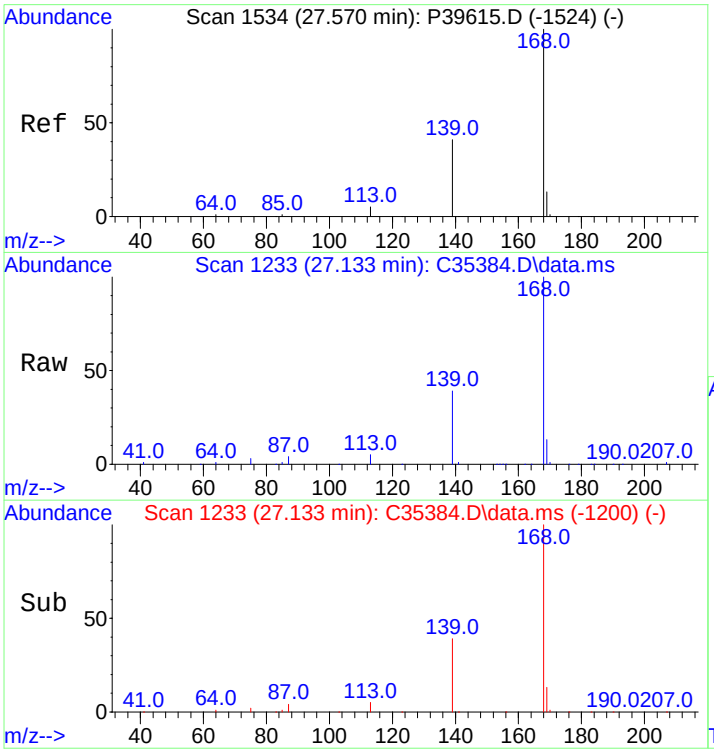


#24
2,6-Dimethylnaphthalene
Concen: 496.96 ng/mL
RT: 24.664 min Scan# 1069
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:156 Resp: 27676

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

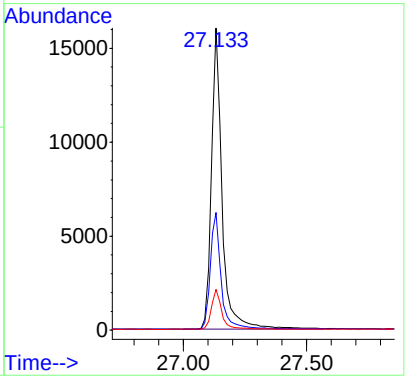


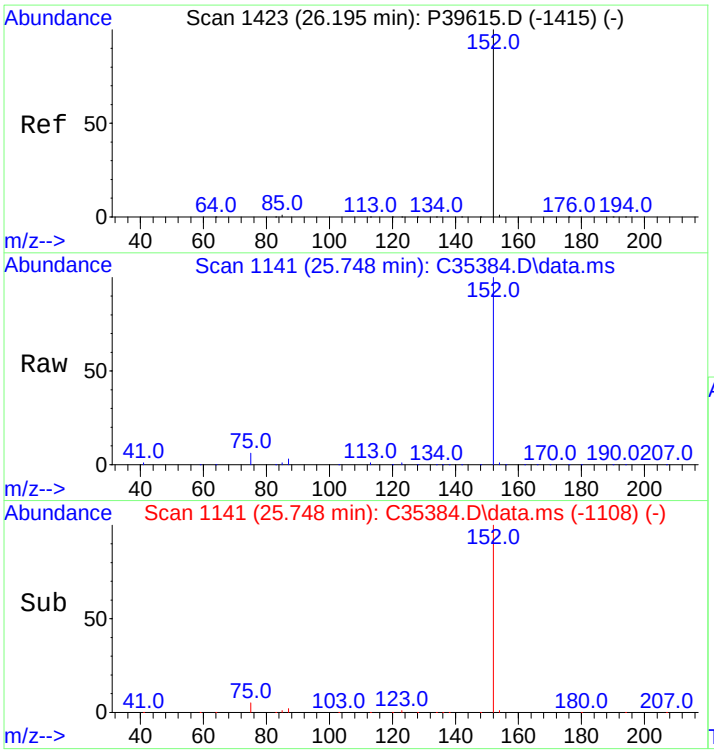


#25
Dibenzofuran
Concen: 492.71 ng/mL
RT: 27.133 min Scan# 1233
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:168 Resp: 48513

Ion	Ratio	Lower	Upper
168	100		
139	39.6	29.9	44.9
169	12.9	10.3	15.5

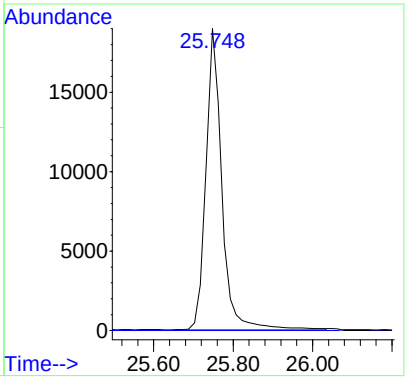


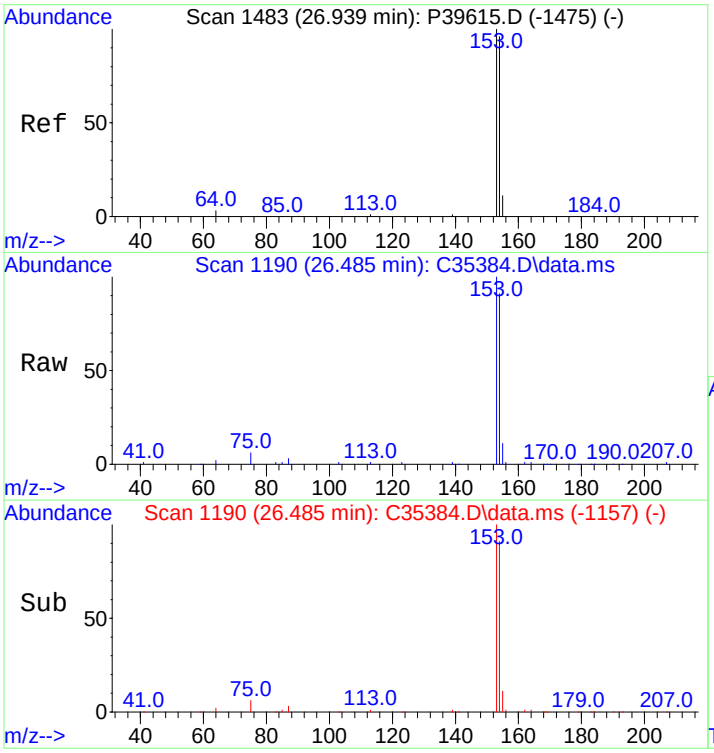


#26
Acenaphthylene
Concen: 464.85 ng/mL m
RT: 25.748 min Scan# 1141
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:152 Resp: 52900

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

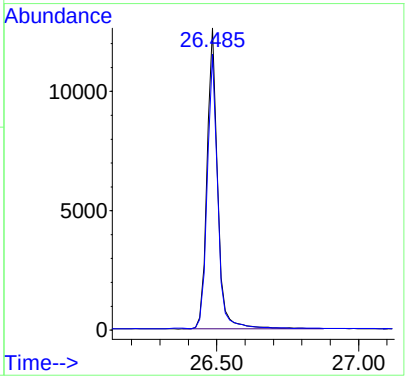


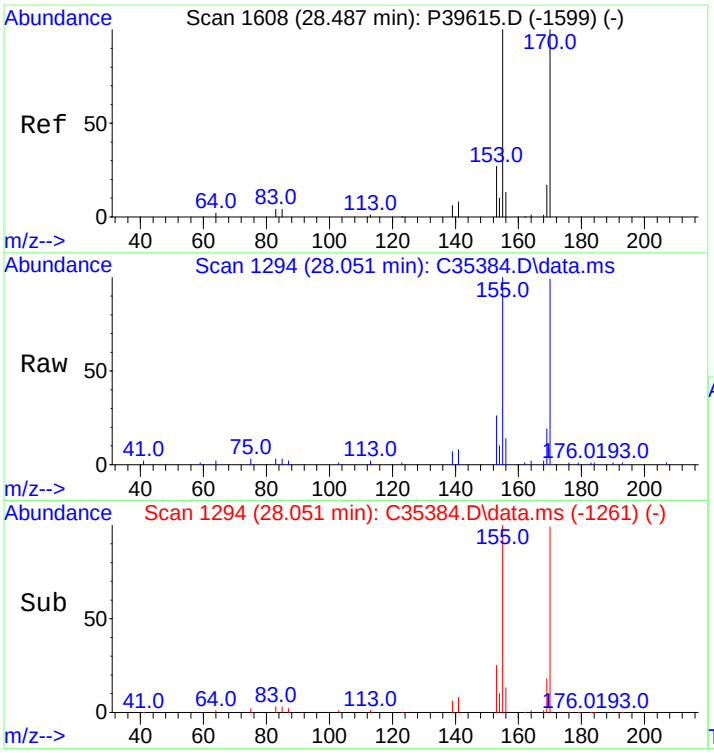


#27
Acenaphthene
Concen: 487.19 ng/mL
RT: 26.485 min Scan# 1190
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:153 Resp: 32644

Ion	Ratio	Lower	Upper
153	100		
154	90.7	73.3	109.9

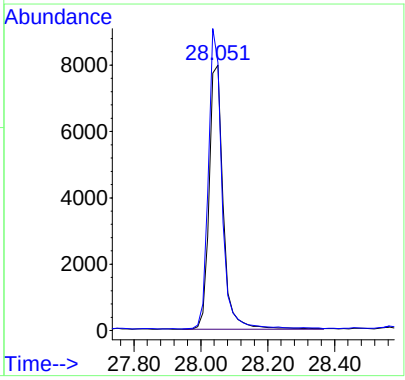


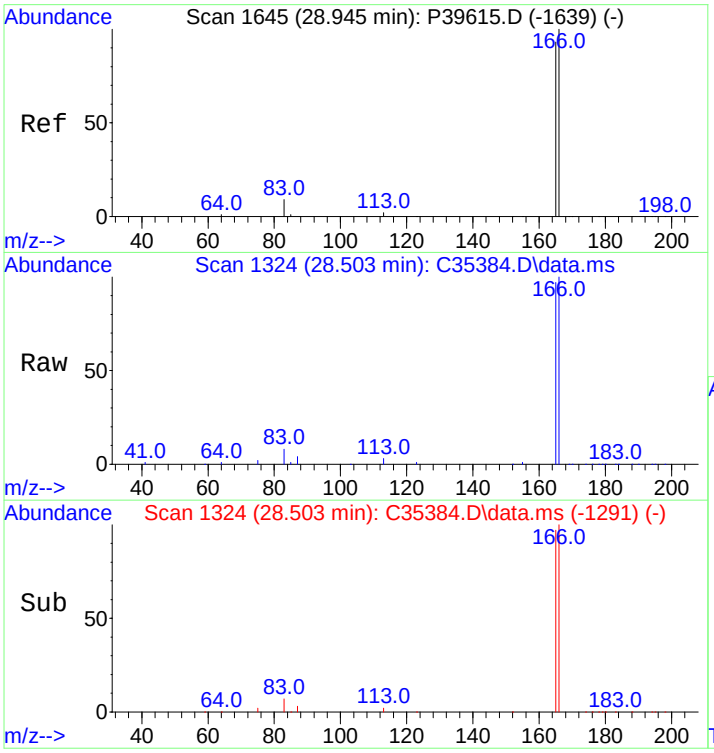


#28
2,3,5-Trimethylnaphthalene
Concen: 514.64 ng/mL
RT: 28.051 min Scan# 1294
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:170 Resp: 23104

Ion	Ratio	Lower	Upper
170	100		
155	109.2	78.4	117.6

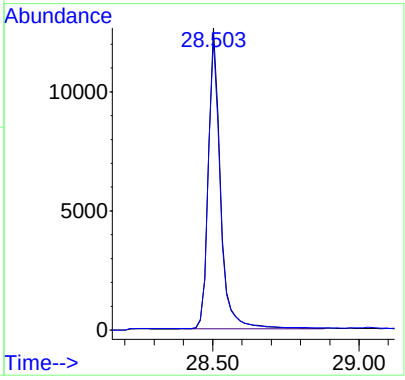


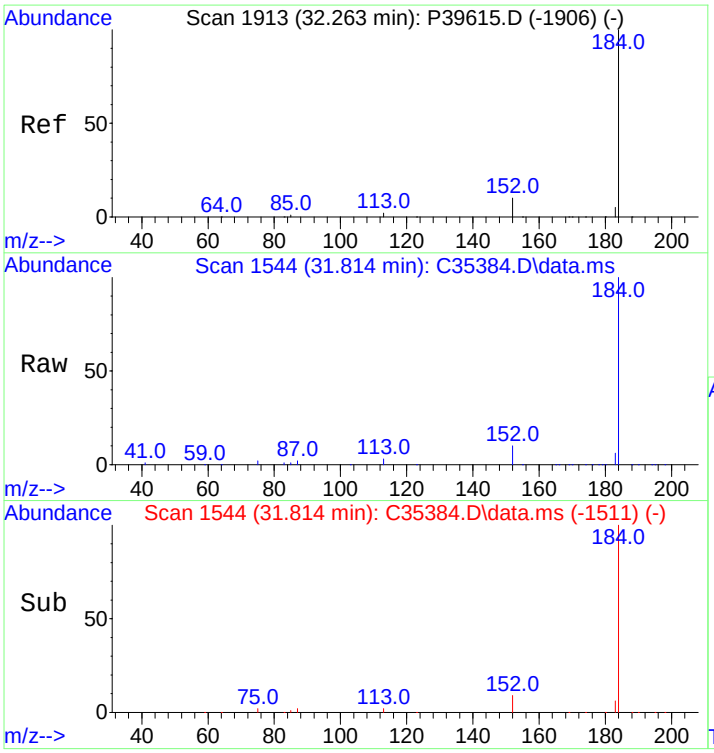


#29
Fluorene
Concen: 493.63 ng/mL
RT: 28.503 min Scan# 1324
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:166 Resp: 36479

Ion	Ratio	Lower	Upper
166	100		
165	98.5	77.1	115.7

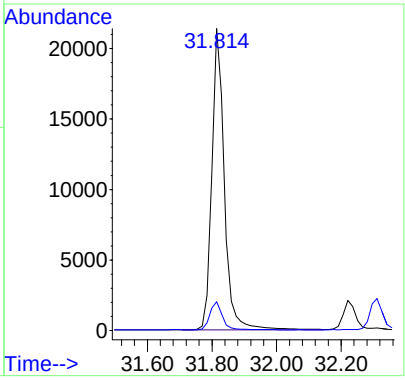


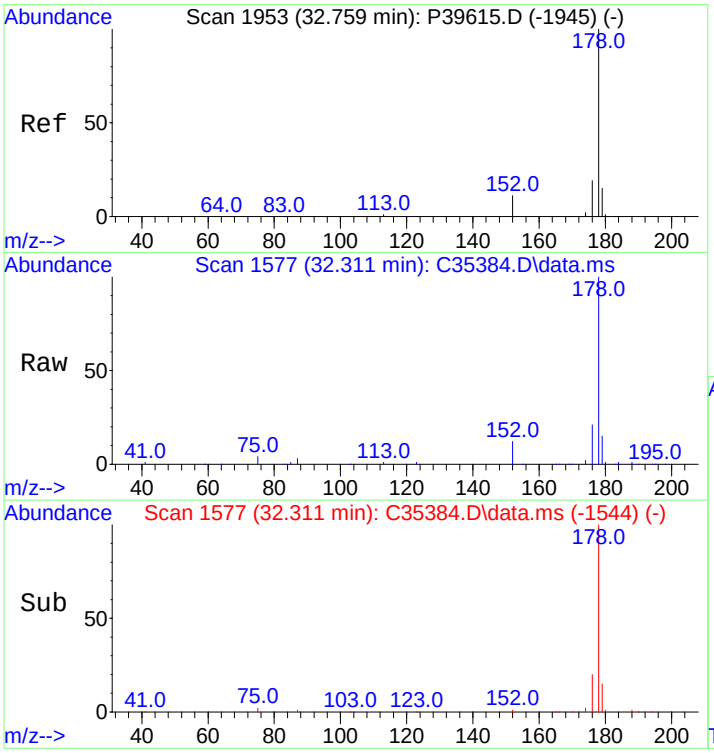


#33
Dibenzothiophene
Concen: 488.57 ng/mL
RT: 31.814 min Scan# 1544
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:184 Resp: 57876

Ion	Ratio	Lower	Upper
184	100		
152	9.5	7.5	11.3

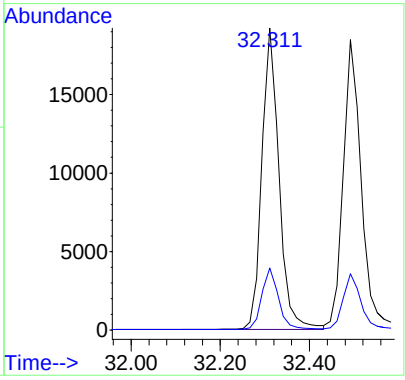


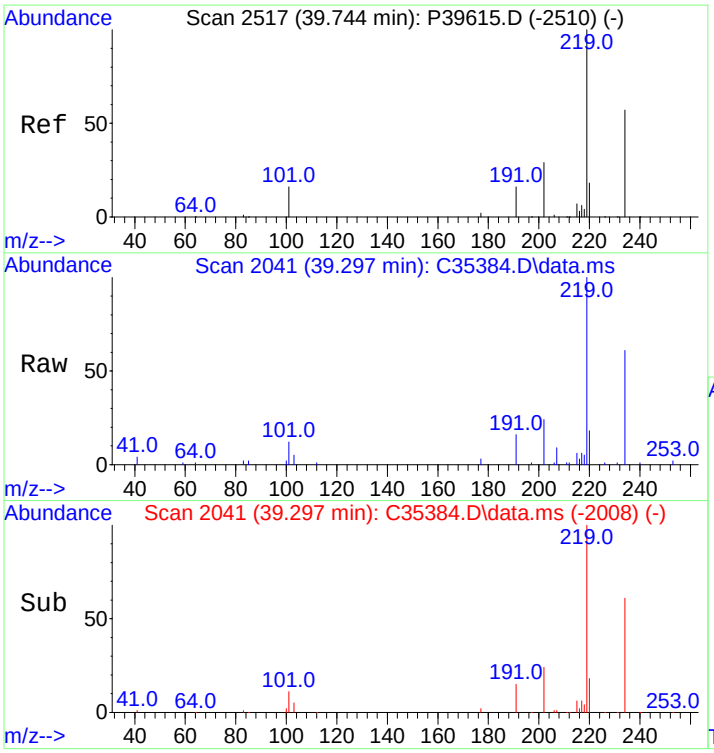


#43
Phenanthrene
Concen: 495.48 ng/mL
RT: 32.311 min Scan# 1577
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:178 Resp: 51568

Ion	Ratio	Lower	Upper
178	100		
176	19.9	15.8	23.6

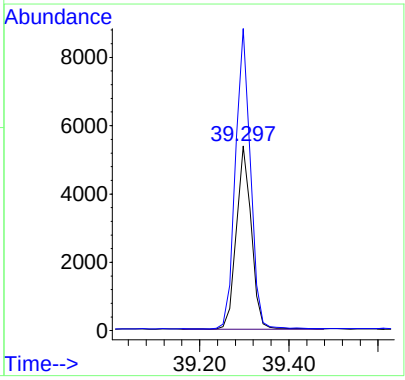


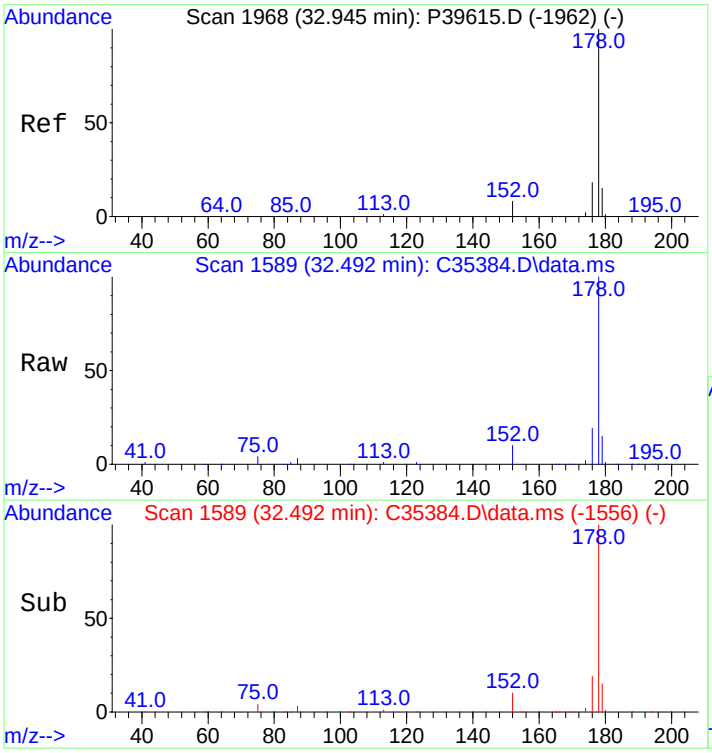


#54
Retene
Concen: 616.49 ng/mL
RT: 39.297 min Scan# 2041
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:234 Resp: 12516

Ion	Ratio	Lower	Upper
234	100		
219	163.9	131.8	197.8

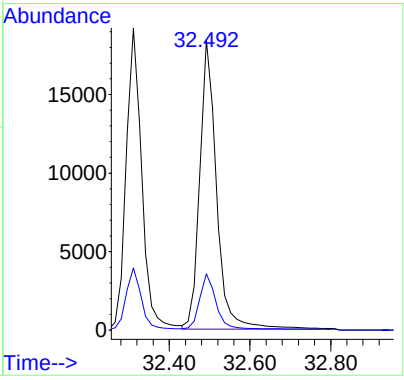


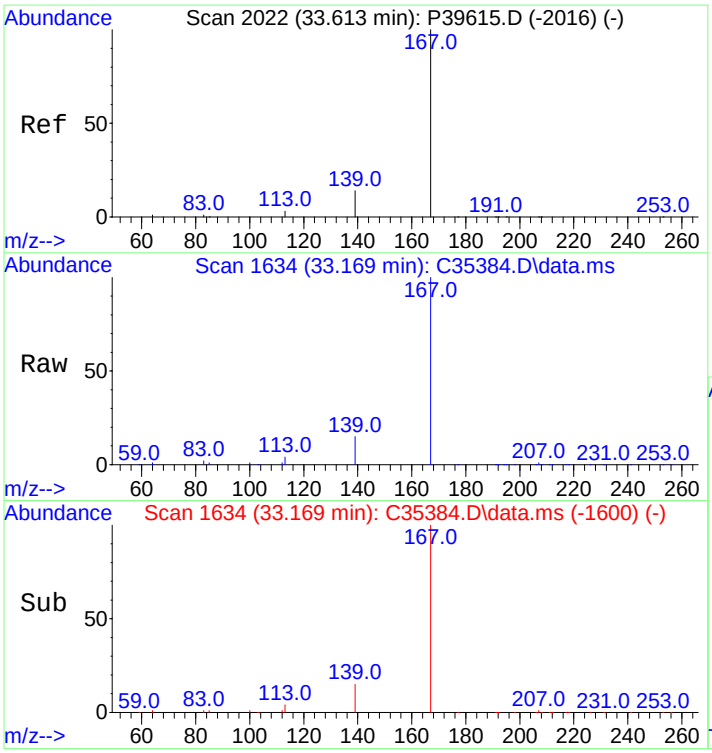


#55
Anthracene
Concen: 525.19 ng/mL m
RT: 32.492 min Scan# 1589
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:178 Resp: 53390

Ion	Ratio	Lower	Upper
178	100		
176	21.0	15.6	23.4

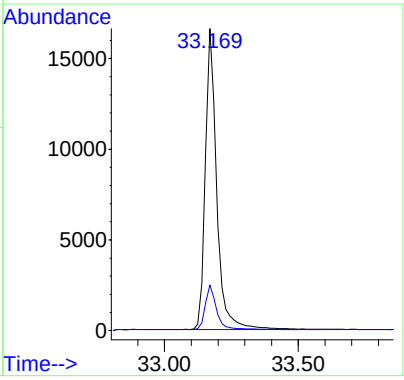


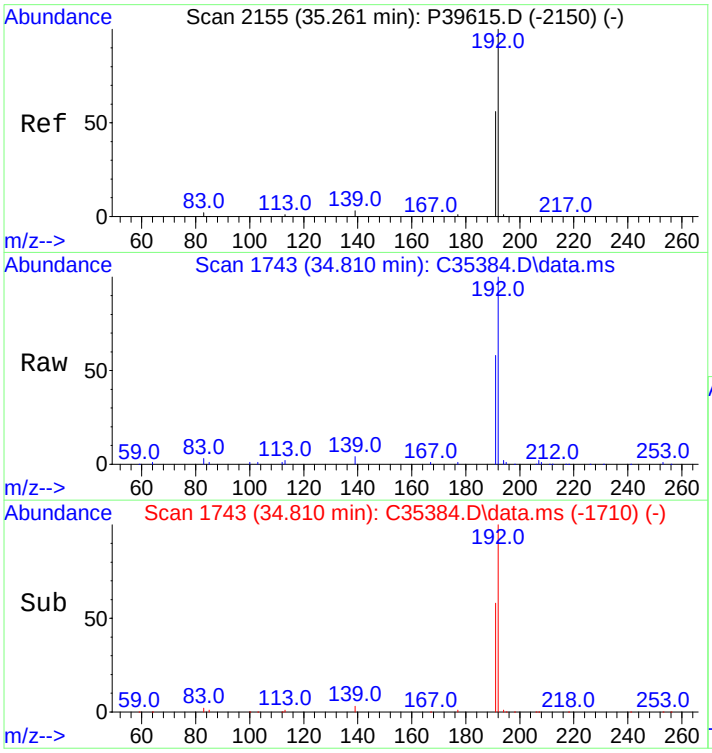


#56
Carbazole
Concen: 481.04 ng/mL
RT: 33.169 min Scan# 1634
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:167 Resp: 49397

Ion	Ratio	Lower	Upper
167	100		
139	14.5	11.9	17.9

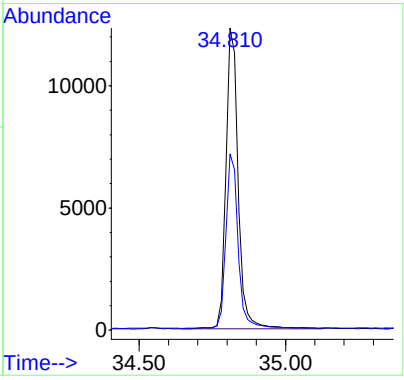


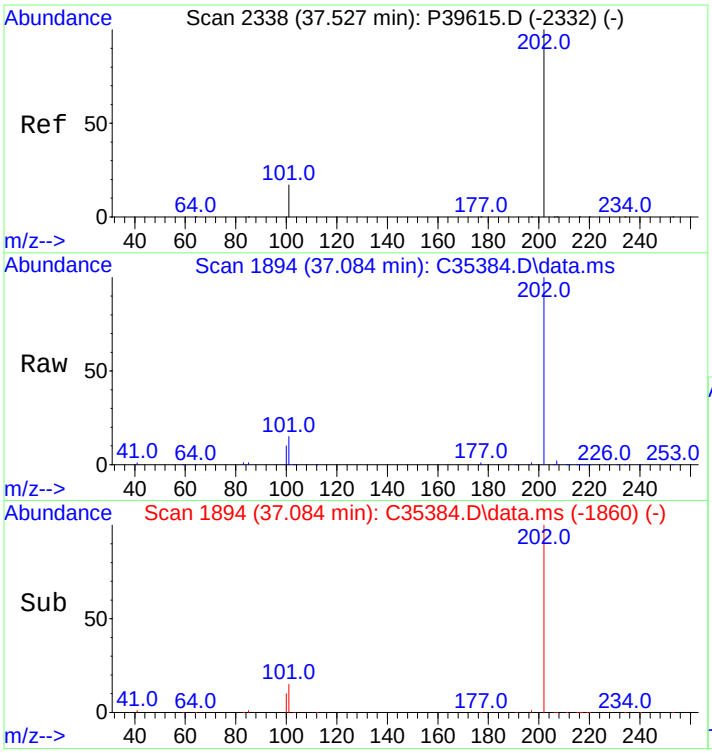


#57
1-Methylphenanthrene
Concen: 540.29 ng/mL
RT: 34.810 min Scan# 1743
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:192 Resp: 35635

Ion	Ratio	Lower	Upper
192	100		
191	58.0	46.8	70.2

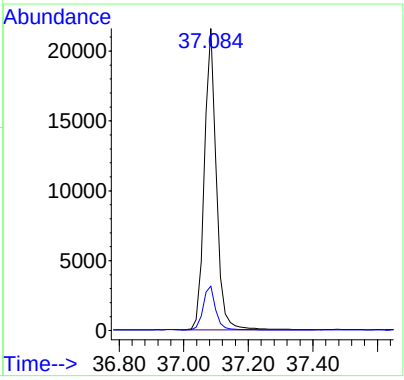


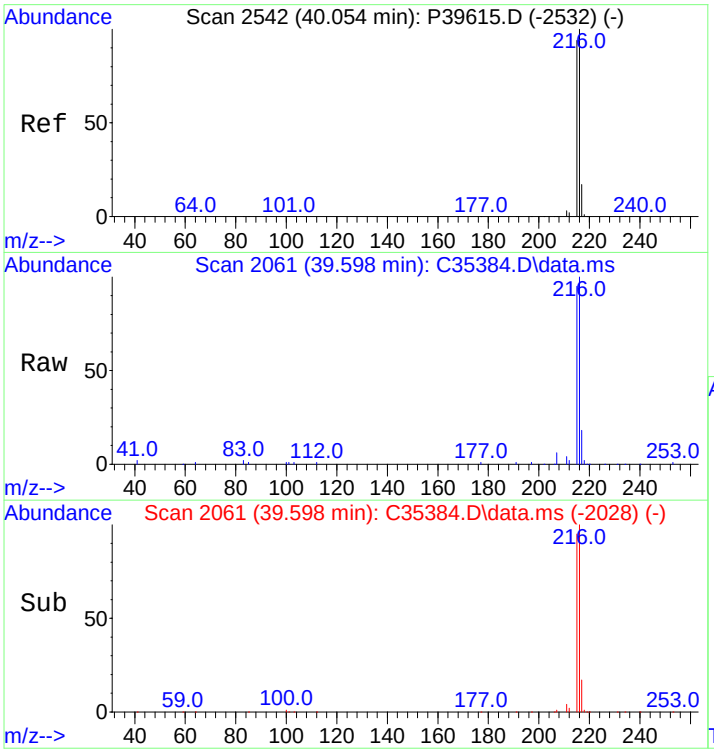


#58
Fluoranthene
Concen: 539.78 ng/mL
RT: 37.084 min Scan# 1894
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:202 Resp: 55794

Ion	Ratio	Lower	Upper
202	100		
101	15.1	13.2	19.8

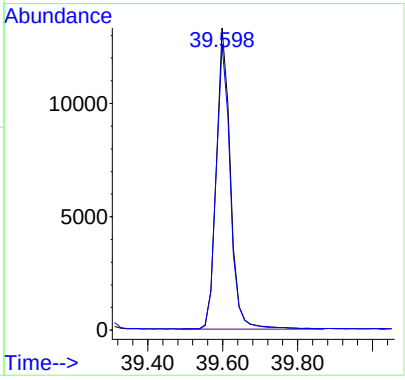


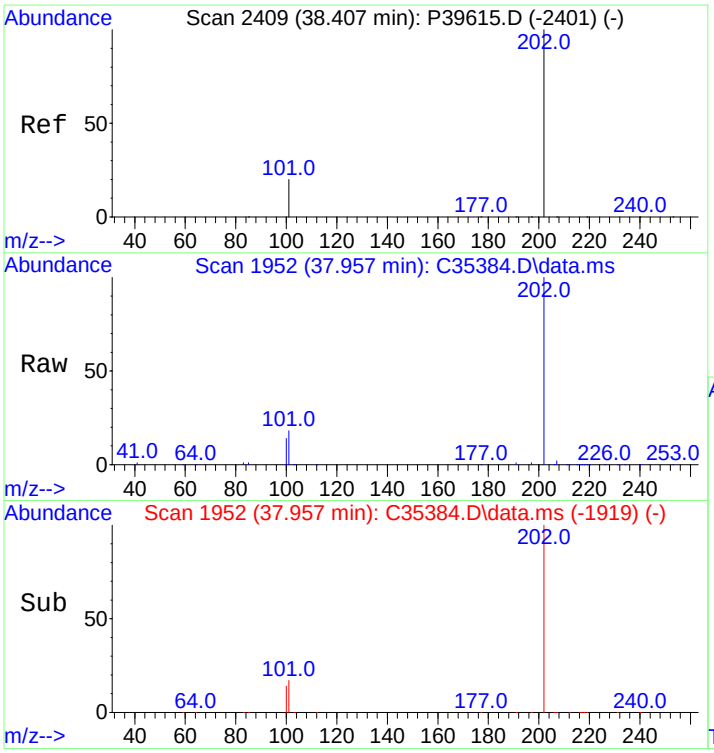


#59
Benzo(b)fluorene
Concen: 579.31 ng/mL
RT: 39.598 min Scan# 2061
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:216 Resp: 34740

Ion	Ratio	Lower	Upper
216	100		
215	95.7	76.0	114.0

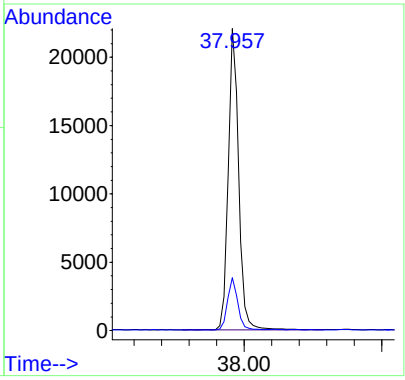


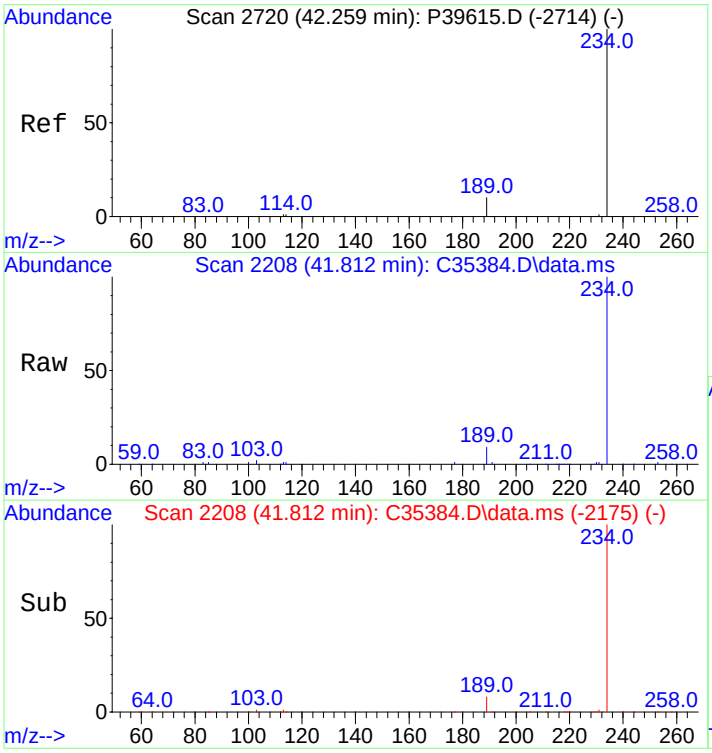


#60
Pyrene
Concen: 547.47 ng/mL
RT: 37.957 min Scan# 1952
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:202 Resp: 57525

Ion	Ratio	Lower	Upper
202	100		
101	17.0	13.5	20.3

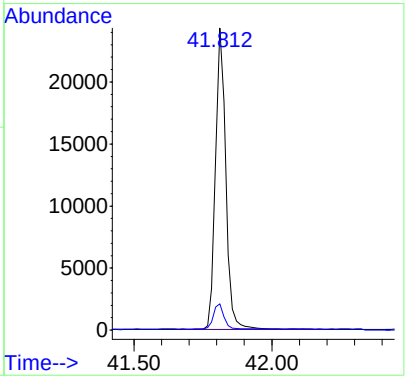


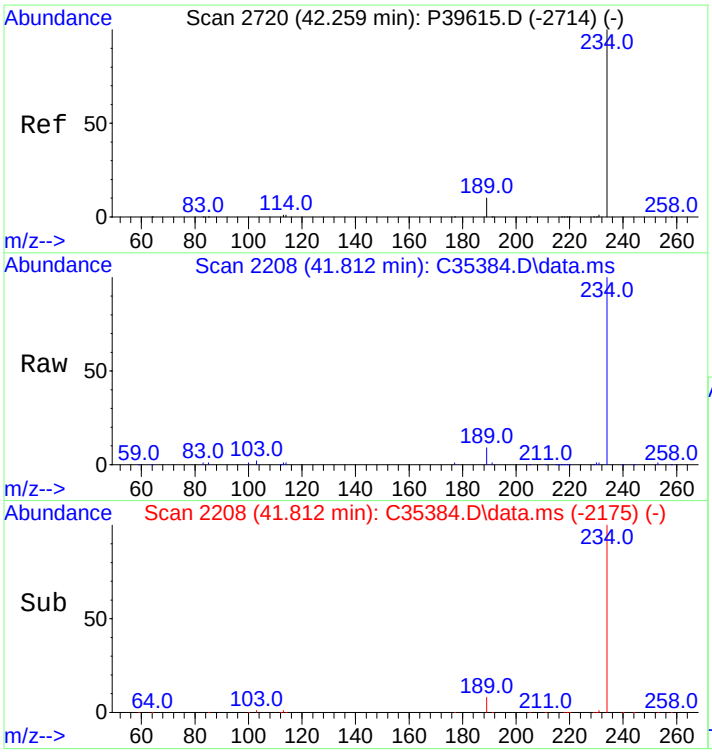


#66
Naphthobenzothiophene
Concen: 562.40 ng/ml
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:234 Resp: 63619

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

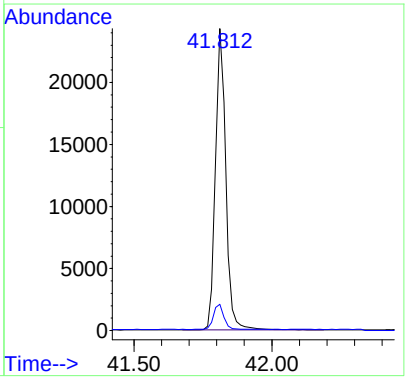


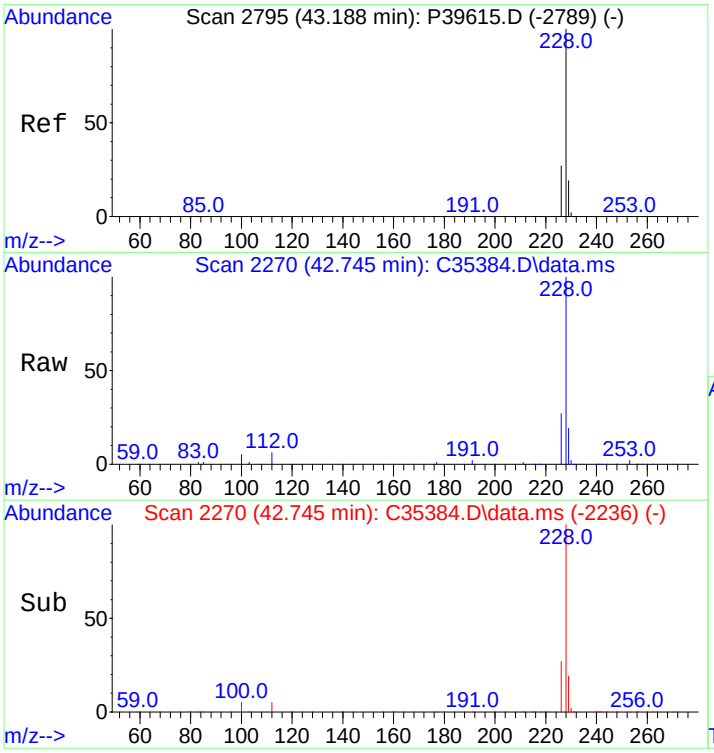


#67
Naphthobenzothiophene-2,1-D
Concen: 562.40 ng/mL
RT: 41.812 min Scan# 2208
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:234 Resp: 63619

Ion	Ratio	Lower	Upper
234	100		
189	8.5	20.9	31.3#

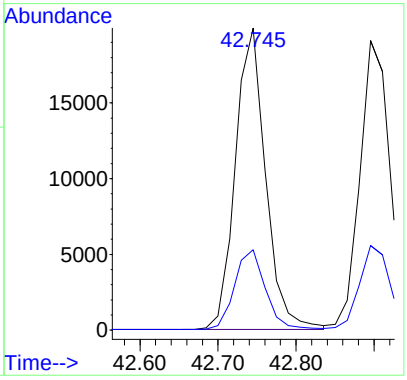


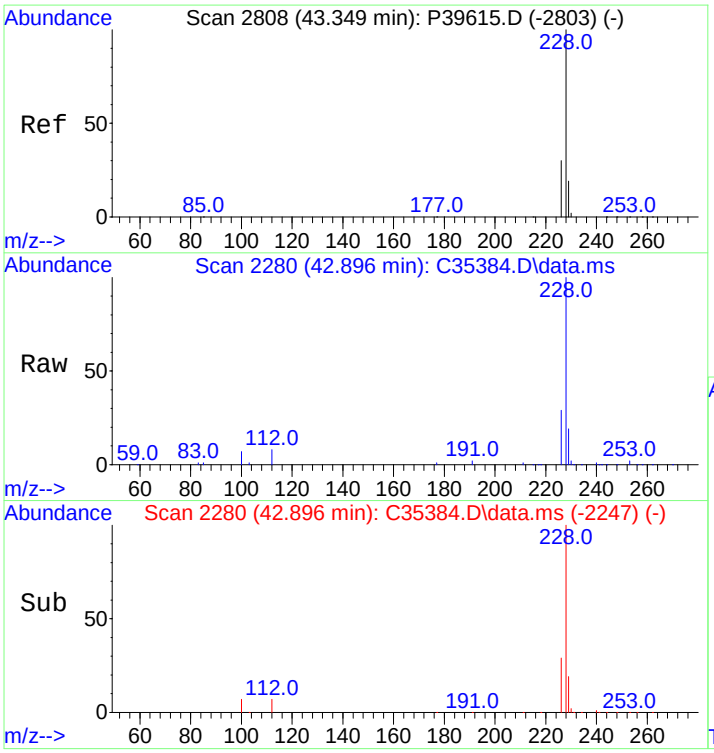


#75
Benz[a]anthracene
Concen: 511.63 ng/mL
RT: 42.745 min Scan# 2270
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:228 Resp: 53603

Ion	Ratio	Lower	Upper
228	100		
226	26.9	21.5	32.3

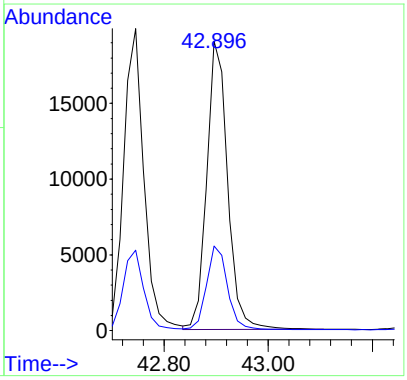


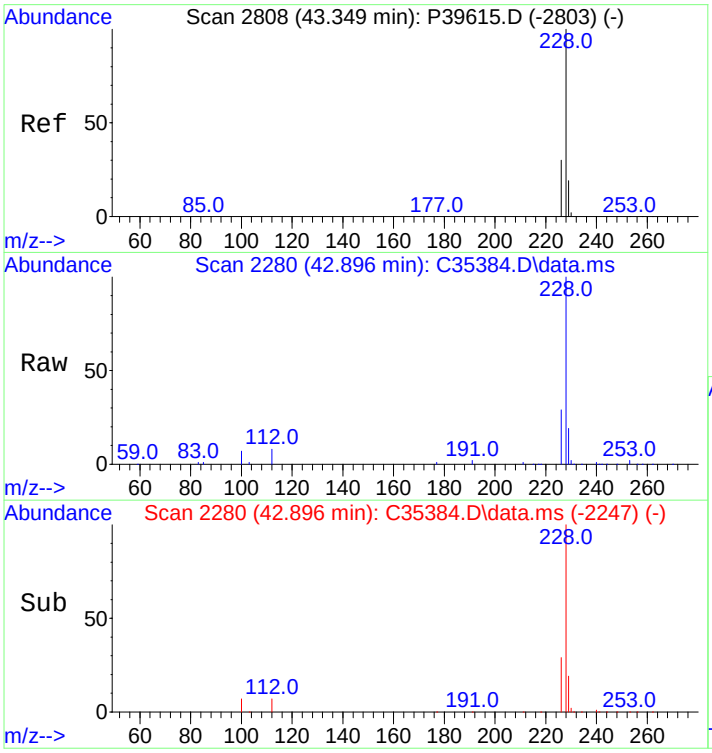


#76
Chrysene
Concen: 501.12 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:228 Resp: 53006

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.5	35.3

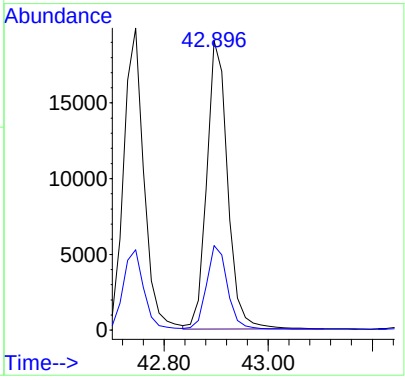


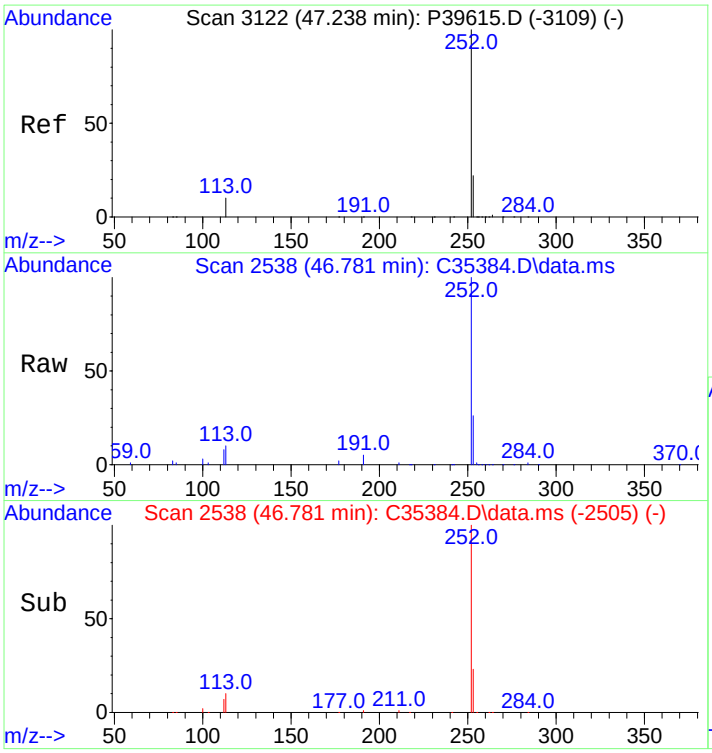


#77
Chrysene/Triphenylene
Concen: 501.12 ng/mL
RT: 42.896 min Scan# 2280
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:228 Resp: 53006

Ion	Ratio	Lower	Upper
228	100		
226	29.5	23.5	35.3

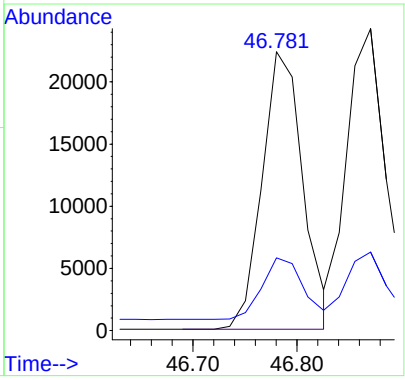


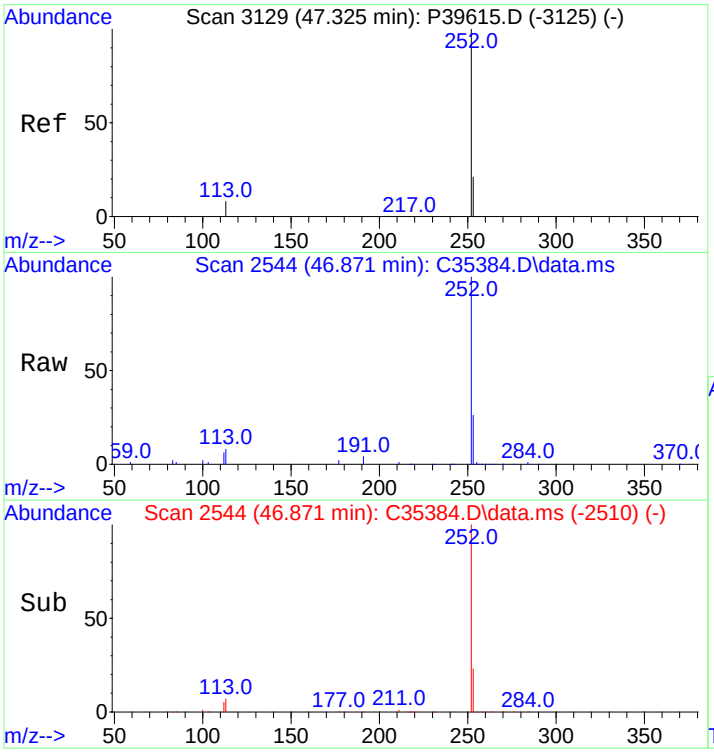


#82
Benzo[b]fluoranthene
Concen: 529.59 ng/mL
RT: 46.781 min Scan# 2538
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:252 Resp: 60967

Ion	Ratio	Lower	Upper
252	100		
253	22.2	20.4	30.6

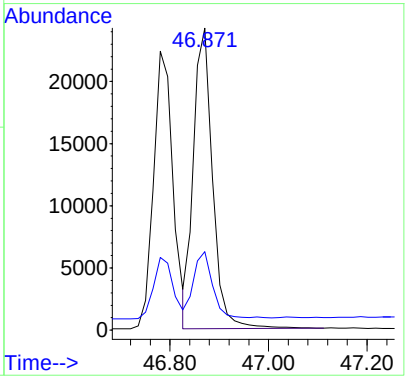


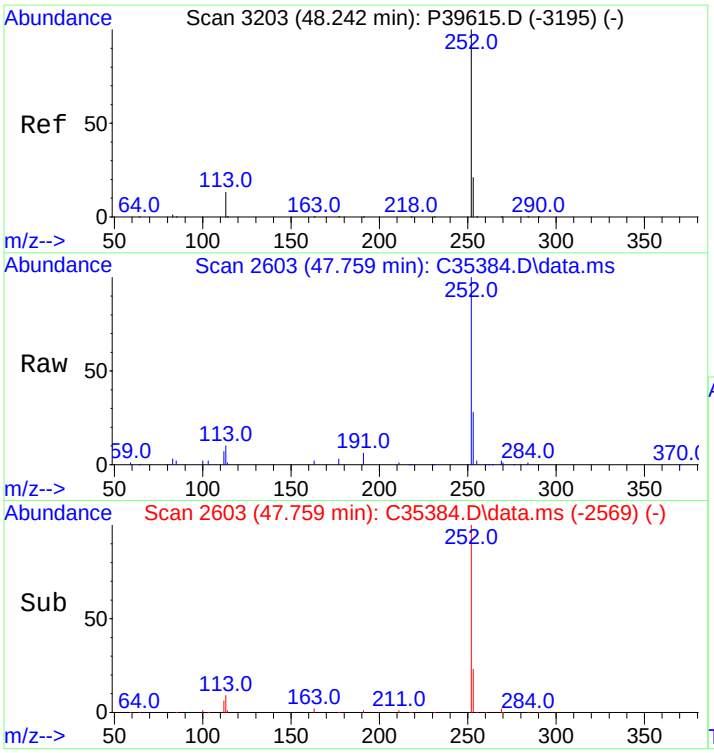


#83
Benzo[j]+[k]fluoranthene
Concen: 518.52 ng/mL
RT: 46.871 min Scan# 2544
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:252 Resp: 64990

Ion	Ratio	Lower	Upper
252	100		
253	22.0	20.6	31.0

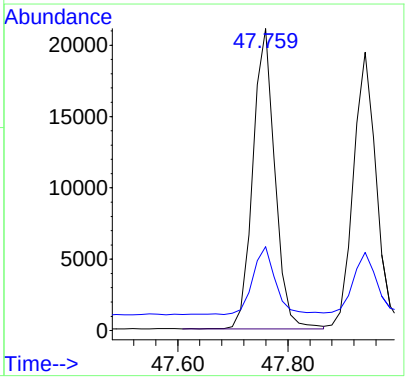


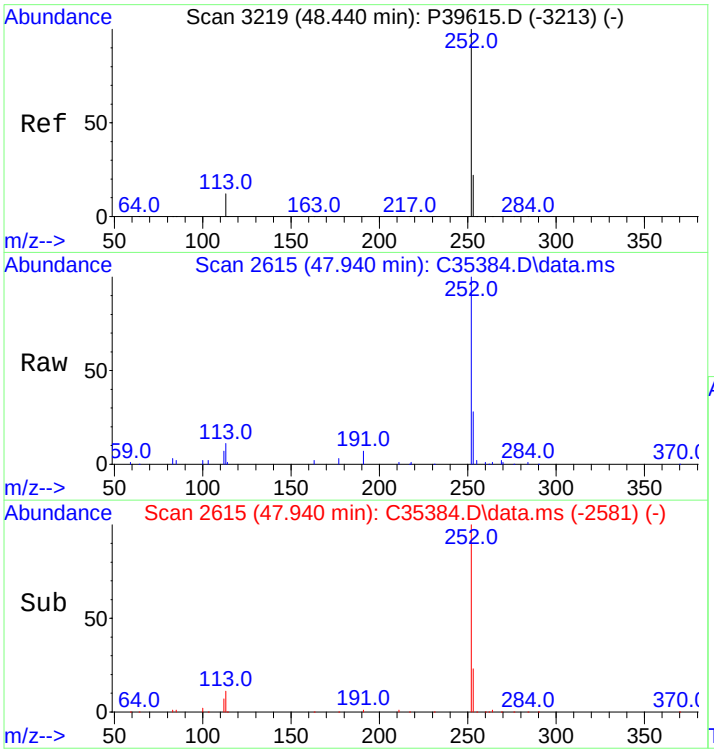


#85
Benzo[e]pyrene
Concen: 510.62 ng/mL
RT: 47.759 min Scan# 2603
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:252 Resp: 58144

Ion	Ratio	Lower	Upper
252	100		
253	23.3	21.0	31.6

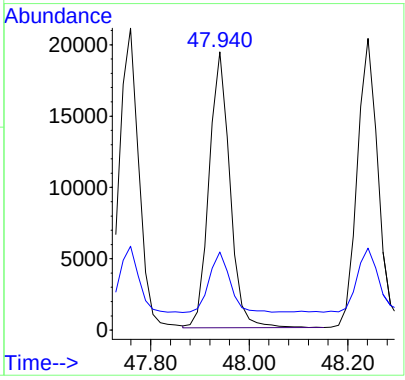


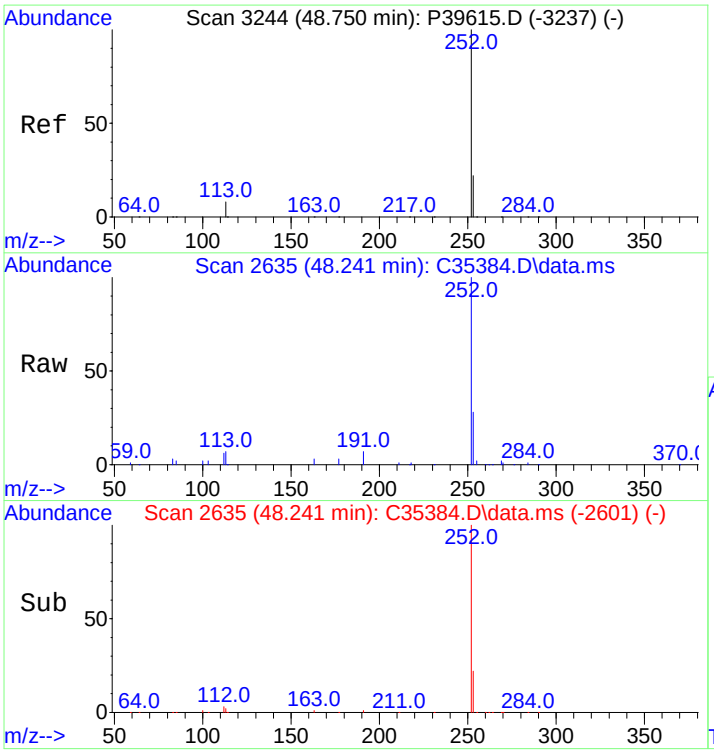


#87
Benzo[a]pyrene
Concen: 514.37 ng/mL
RT: 47.940 min Scan# 2615
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:252 Resp: 56392

Ion	Ratio	Lower	Upper
252	100		
253	22.3	21.4	32.0

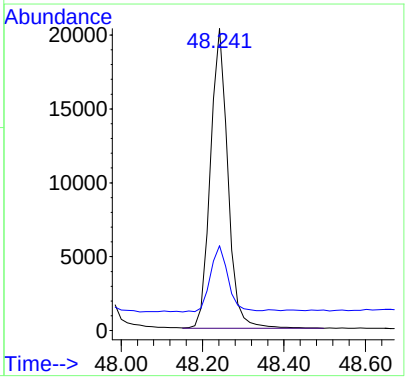


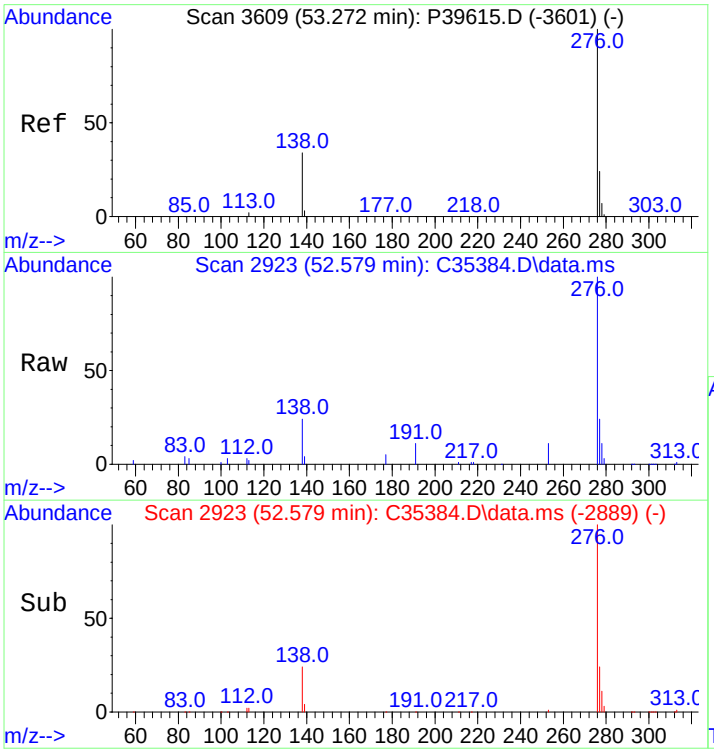


#88
Perylene
Concen: 512.99 ng/mL
RT: 48.241 min Scan# 2635
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:252 Resp: 60105

Ion	Ratio	Lower	Upper
252	100		
253	22.7	21.8	32.6

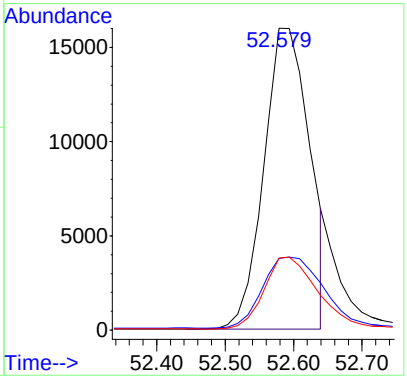


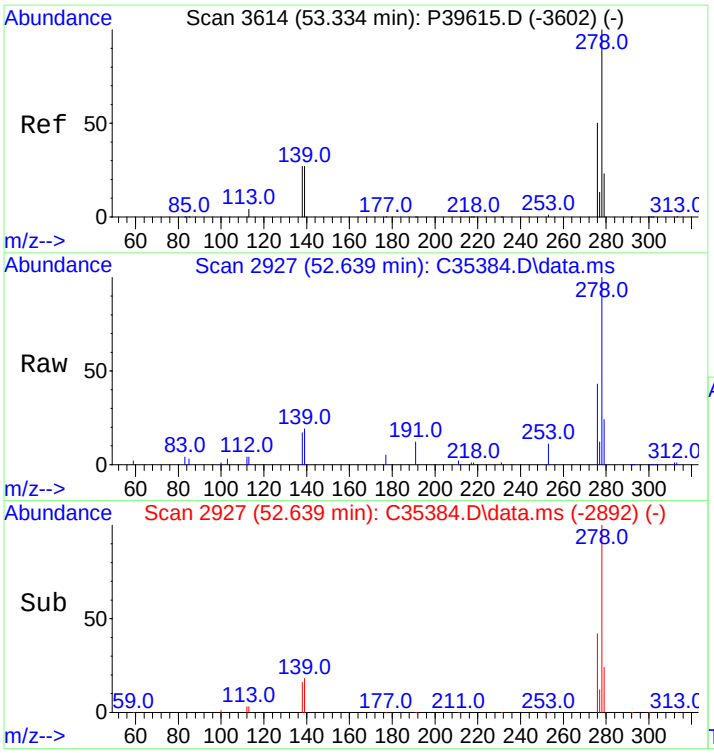


#89
Indeno[1,2,3-cd]pyrene
Concen: 581.99 ng/mL m
RT: 52.579 min Scan# 2923
Delta R.T. 0.015 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:276 Resp: 74252

Ion	Ratio	Lower	Upper
276	100		
138	32.2	19.1	28.7#
277	28.5	19.5	29.3

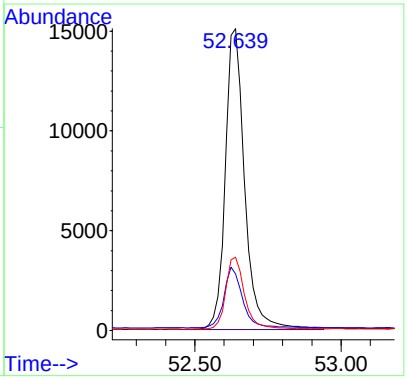


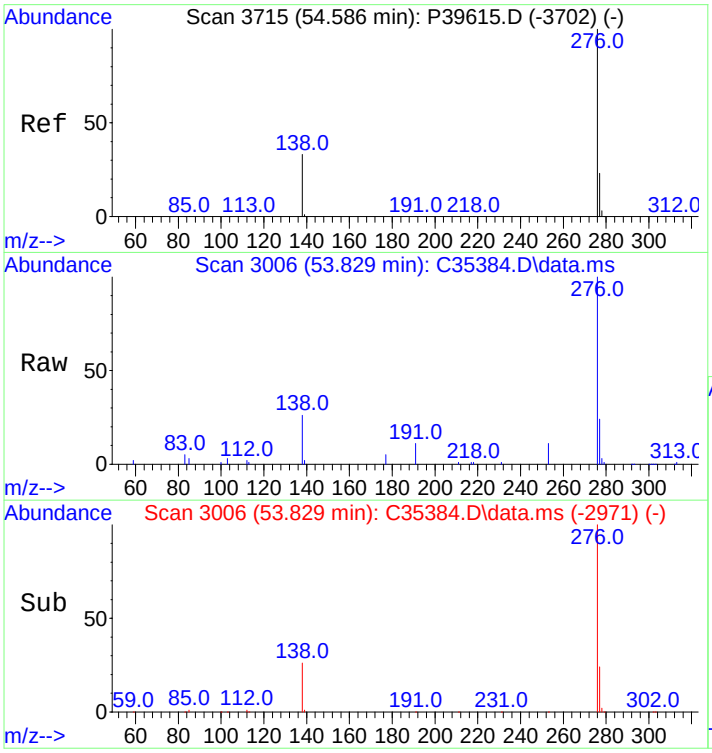


#90
Dibenz[ah]+[ac]anthracene
Concen: 572.20 ng/mL
RT: 52.639 min Scan# 2927
Delta R.T. 0.030 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:278 Resp: 69445

Ion	Ratio	Lower	Upper
278	100		
139	19.8	16.6	25.0
279	23.3	20.0	30.0

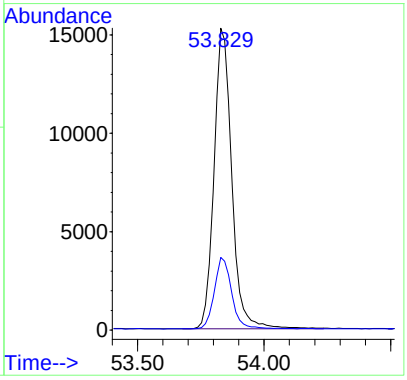


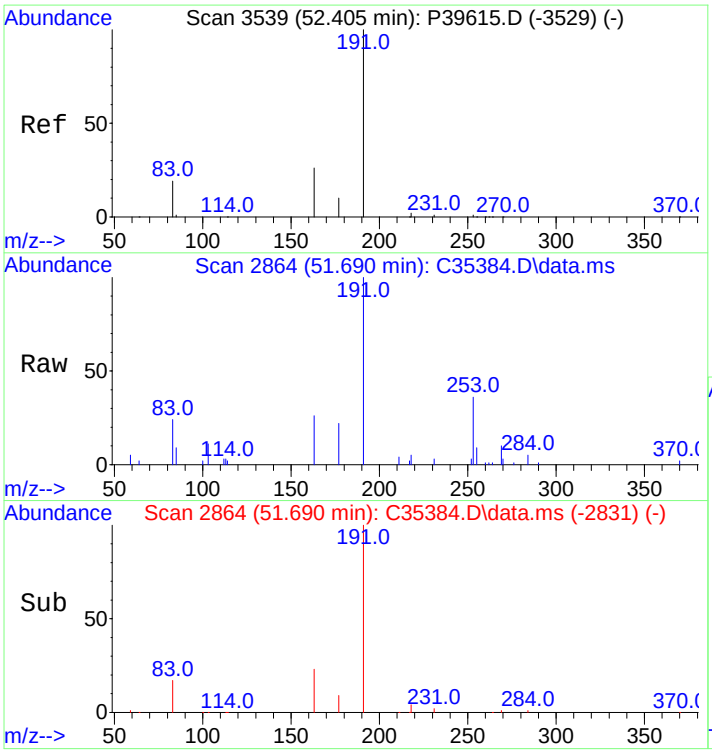


#91
Benzo[g,h,i]perylene
Concen: 550.09 ng/mL
RT: 53.829 min Scan# 3006
Delta R.T. 0.030 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:276 Resp: 74148

Ion	Ratio	Lower	Upper
276	100		
277	23.2	18.8	28.2

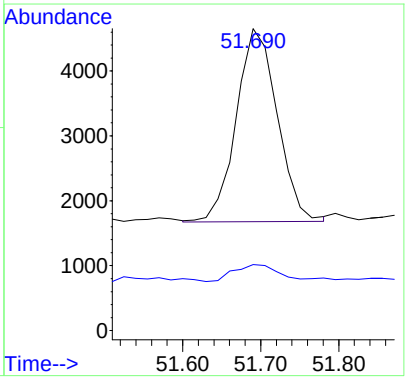


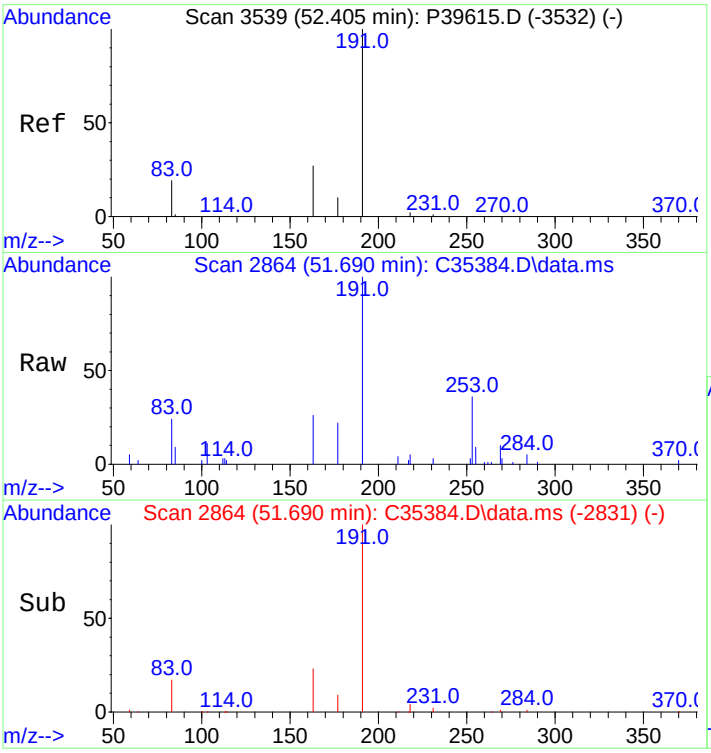


#92
Hopane (T19)
Concen: 499.10 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:191 Resp: 10858

Ion	Ratio	Lower	Upper
191	100		
177	10.4	17.2	25.8#

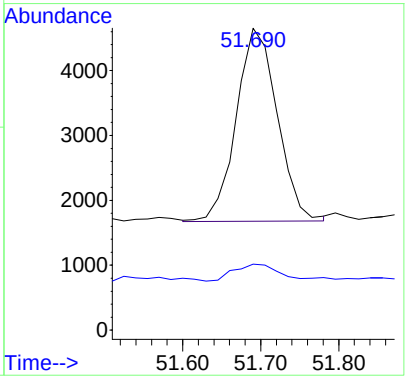




#93
17a(H),21B(H)-hopane - C30H52
Concen: 499.10 ng/mL
RT: 51.690 min Scan# 2864
Delta R.T. 0.000 min
Lab File: C35384.D
Acq: 28 May 2012 6:46 am

Tgt Ion:191 Resp: 10858

Ion	Ratio	Lower	Upper
191	100		
177	10.4	17.2	25.8#



ANALYTICAL REPORT

Prepared for:
AECOM
250 Apollo Drive
Chelmsford, MA 01824

Project:	Enbridge Line 6B MP 608
ETR:	1206028
Report Date:	June 22, 2012

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

Sample ID Cross Reference

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**

Lab Sample ID	Client Sample ID
1206028-01	SWKR3800C001S061512HX
1206028-02	SWKR3800C001T061512HX

Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID: E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID: MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID: 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID: LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

CASE NARRATIVE
Alpha Analytical

ETR: 1206028
Project: Enbridge Line 6B MP 608

All analyses were performed according to the Alpha Analytical quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Analytical certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Sample Receipt

Samples (1206028-01 and -02) were received in good condition, between 2° and 6°C, and without discrepancies.

Samples were released for analysis on 6-18-2012. Samples were frozen until scheduled for analysis. Per the customer's request, all samples (1206028-01 and -02) were analyzed for PAH/BIO and SHC.

Sample Preparation and Extraction

Samples were extracted on 6-20-2012 (prep batch 1206028). The extraction and preparation procedure was performed according to the Alpha Analytical SOP (stated below) with no significant deviation. No anomaly or observation was noted on the *Forensic Preparation Checklist* for samples in this ETR.

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids - Sheen

Polynuclear aromatic hydrocarbons and geochemical biomarkers were analyzed following Alpha Analytical SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons, Selected Heterocyclic Compounds, Steranes, Triterpanes, and Triaromatic Steroids by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SOP O-008, Issue No. 7, 07/07/2011).* Sheen samples are spiked with surrogate compounds and extracted by *Shaker Table Extraction (SOP OP-013, Issue No. 5, 07/14/2011).* Solvent extracts are dried over sodium sulfate and concentrated to an appropriate volume based on *Gravimetric Determination (SOP OP-017, Revision No. 3, 07/06/2011).* The total extract oil weight as determined by gravimetric weighing is used as the weight for the sheen samples. The average weight of all samples included in the extraction batch is used as the weight for the blank, laboratory control sample, and laboratory control sample duplicate. The final value is rounded accordingly. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound. Target triterpane biomarker concentrations are quantified using the response factor of Hopane and the steranes and steroids are quantified using the response factor of 5β(H)Cholane. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific reporting limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

1. The method blank SO062012B01 contained low-level target compounds. The single component compounds were detected at less than the sample specific reporting limit (RL), the multi-component compounds were detected at less than 2x the RL of the associated single component compound. The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are

flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. Concentrations for compounds flagged with "G" qualifiers may be biased high due to matrix interference included in the quantitation.

3. Sheen samples are reported, using an initial amount of one, as ng (per sample).

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID - Sheen

Samples for total saturated hydrocarbons and total petroleum hydrocarbons were analyzed following the procedures in Alpha Analytical SOP *Total Petroleum and Saturated Hydrocarbons by Gas Chromatography/Flame Ionization Detector (SOP O-003, Issue No.7, 08/15/2011)* Method 8100/8015mod. Samples were prepared as stated above for the PAH analysis. A portion of the final extract was analyzed for GC/FID (gas chromatography with flame ionization detection). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis. All enclosed data was evaluated below the reporting limits to three times signal to noise. The sample specific method detection limit is the value reported for all compounds which are not detected ("U" qualified). Any sample preparation method deviations can be found in the "Sample Preparation and Extraction" section of this document or noted on the *Forensics Preparation Checklist* located in the sample preparation document.

The following compounds co-elute with PAH surrogates and/or internal standards which potentially bias the results high: n-Octadecane (C18) - Phenanthrene-d10 and n-Pentacosane (C25) - Chrysene-d12. If a positive bias is determined to be present the compounds will be reported with a "C" qualifier.

1. The method blank SO062012B01 contained low-level target compounds detected at less than the sample specific reporting limit (RL). The method blank met the acceptance criteria (with no more than two compounds outside criteria) therefore no corrective action was required. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 10x the concentration in the blank.

2. The following continuing calibrations verifications (CCV) had the percent deviation above the 15% acceptance criteria as follows:

   CCV C1606191201F: ortho-terphenyl (17.2%D)

   CCV C1606191202F: ortho-terphenyl (16.9%D)

   CCV C1606191203F: ortho-terphenyl (17.1%D)

   CCV C1606191204F: ortho-terphenyl (17.4%D)

   In each case the value is below 25%D and represents less than 10% of all compounds; therefore the calibration is accepted. No corrective action was taken.

3. Sheen samples are reported, using an initial amount of one, as µg (per sample).

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Analytical makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Analytical. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: _____ Title: **Technical Representative** Date: 6-22-2012

Ruddy Ligonde

Alkylated Polynuclear Aromatic Hydrocarbons, Steranes, Triterpanes, and Triaromatic Steroids By GC/MS-SIM

Form II
Surrogate Recovery
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Naphthalene-d8	Phenanthrene-d10	Benzo[a]pyrene-d12	5B(H)Cholane
Blank	SO062012B01	86	86	88	100
LCS	SO062012LCS01	91	94	86	95
LCSD	SO062012LCSD01	93	97	88	95
SWKR3800C001S061512HX	1206028-01	74	95	93	114
SWKR3800C001T061512HX	1206028-02	71	91	98	96

N/A - Not Applicable

Surrogate	QC Limit
Naphthalene-d8	40-120
Phenanthrene-d10	40-120
Benzo[a]pyrene-d12	40-120
5B(H)Cholane	50-130

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **See Below**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	06/20/12	100	AC

Lab ID:		SO062012B01	SO062012LCS01		SO062012LCSD01				
Parameter	**Blank Conc.**		**LCS Conc.**	**LCS % Recovery**	**LCSD Conc.**	**LCSD % Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
Naphthalene	20.0	U	995	100	1010	101	1	30	50-130
Acenaphthylene	20.0	U	845	85	853	85	1	30	50-130
Acenaphthene	20.0	U	942	94	957	96	2	30	50-130
Fluorene	20.0	U	974	97	986	99	1	30	50-130
Anthracene	20.0	U	829	83	846	85	2	30	50-130
Phenanthrene	20.0	U	986	99	1000	100	2	30	50-130
Fluoranthene	20.0	U	987	99	1010	101	2	30	50-130
Pyrene	20.0	U	1010	101	1020	102	1	30	50-130
Benz[a]anthracene	20.0	U	828	83	833	83	1	30	50-130
Chrysene/Triphenylene	20.0	U	1000	100	1010	101	1	30	50-130
Benzo[b]fluoranthene	20.0	U	952	95	951	95	0	30	50-130
Benzo[j]fluoranthene/ Benzo[k]fluoranthene	20.0	U	1090	109	1090	109	0	30	50-130
Benzo[a]pyrene	20.0	U	1050	105	1040	104	0	30	50-130
Indeno[1,2,3-cd]pyrene	20.0	U	868	87	878	88	1	30	50-130
Dibenz[ah]anthracene/ Dibenz[ac]anthracene	20.0	U	898	90	896	90	0	30	50-130
Benzo[g,h,i]perylene	20.0	U	907	91	904	90	0	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
Naphthalene-d8	91	93	40-120
Phenanthrene-d10	94	97	40-120
Benzo[a]pyrene-d12	86	88	40-120
5B(H)Cholane	95	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	510	100	65-135
C1-Decalins	761.1	833	109	65-135
C2-Decalins	641.9	771	120	65-135
C3-Decalins	338.2	385	114	65-135
C4-Decalins	300.9	399	133	65-135
Benzothiophene	5.3	5.91	111	65-135
C1-Benzo(b)thiophenes	29.8	36.5	122	65-135
C2-Benzo(b)thiophenes	50.1	59.8	119	65-135
C3-Benzo(b)thiophenes	103.3	113	110	65-135
C4-Benzo(b)thiophenes	84.9	102	120	65-135
Naphthalene	577.6	598	104	65-135
C1-Naphthalenes	1242	1310	106	65-135
C2-Naphthalenes	1472	1570	107	65-135
C3-Naphthalenes	1053.4	1180	112	65-135
C4-Naphthalenes	552.7	654	118	65-135
Biphenyl	152.5	157	103	65-135
Dibenzofuran	53.5	51.9	97	65-135
Acenaphthylene	7.1	6.78	96	65-135
Acenaphthene	18.7	20.2	108	65-135
Fluorene	79.4	77.3	97	65-135
C1-Fluorenes	175.1	167	96	65-135
C2-Fluorenes	256.5	266	104	65-135
C3-Fluorenes	238.7	256	107	65-135
Phenanthrene	222	208	94	65-135
C1-Phenanthrenes/Anthracenes	440.5	462	105	65-135
C2-Phenanthrenes/Anthracenes	464.9	516	111	65-135
C3-Phenanthrenes/Anthracenes	307.7	372	121	65-135
C4-Phenanthrenes/Anthracenes	122.9	137	111	65-135
Dibenzothiophene	146.1	140	96	65-135
C1-Dibenzothiophenes	299	310	104	65-135
C2-Dibenzothiophenes	392.9	413	105	65-135
C3-Dibenzothiophenes	350.5	365	104	65-135
C4-Dibenzothiophenes	189.2	206	109	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	3.61	88	65-135
Pyrene	13.3	10.5	79	65-135
C1-Fluoranthenes/Pyrenes	66.1	64.7	98	65-135
C2-Fluoranthenes/Pyrenes	100.9	107	106	65-135
C3-Fluoranthenes/Pyrenes	120.8	135	112	65-135
C4-Fluoranthenes/Pyrenes	105.6	111	105	65-135
Naphthobenzothiophenes	45.1	44.4	99	65-135
C1-Naphthobenzothiophenes	124.1	129	104	65-135
C2-Naphthobenzothiophenes	168.9	180	107	65-135
C3-Naphthobenzothiophenes	136.1	139	102	65-135
C4-Naphthobenzothiophenes	93.9	92.9	99	65-135
Benz[a]anthracene	2.00	1.92	96	65-135
Chrysene/Triphenylene	37.4	35.1	94	65-135
C1-Chrysenes	63.9	65.2	102	65-135
C2-Chrysenes	86.6	85.1	98	65-135
C3-Chrysenes	99.6	103	103	65-135
C4-Chrysenes	62.2	61.4	99	65-135
Benzo[b]fluoranthene	5.3	5.18	98	65-135
Benzo[e]pyrene	9.6	10.4	108	65-135
Benzo[a]pyrene	2.00	2.45	122	65-135
Perylene	2.7	2.94	109	65-135
Benzo[g,h,i]perylene	3.1	2.77	89	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	5.24	81	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	137	96	65-135
2/3-Methyldibenzothiophene	103.1	121	118	65-135
1-Methyldibenzothiophene	46.8	44.3	95	65-135
3-Methylphenanthrene	91.8	92.6	101	65-135
2-Methylphenanthrene	99.6	103	103	65-135
2-Methylanthracene	3.1	3.74	121	65-135
9/4-Methylphenanthrene	145.9	146	100	65-135
1-Methylphenanthrene	97.6	107	110	65-135
2-Methylnaphthalene	1162.6	1160	100	65-135
1-Methylnaphthalene	831.9	831	100	65-135
2,6-Dimethylnaphthalene	696.1	659	95	65-135
2,3,5-Trimethylnaphthalene	162.2	148	91	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	73.3	109	65-135
C24 Tricyclic Terpane	42.3	42.4	100	65-135
C25 Tricyclic Terpane	40.9	41.4	101	65-135
C24 Tetracyclic Terpane	14.3	14.8	104	65-135
C26 Tricyclic Terpane-22S	17.0	17.1	101	65-135
C26 Tricyclic Terpane-22R	15.0	16.4	109	65-135
C28 Tricyclic Terpane-22S	16.3	14.7	90	65-135
C28 Tricyclic Terpane-22R	17.7	17.7	100	65-135
C29 Tricyclic Terpane-22S	20.7	22.0	106	65-135
C29 Tricyclic Terpane-22R	21.1	20.2	96	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	30.7	100	65-135
C30 Tricyclic Terpane-22S	15.8	16.9	107	65-135
C30 Tricyclic Terpane-22R	15.8	15.6	99	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	37.6	103	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	8.12	113	65-135
17a(H),21b(H)-25-Norhopane	8.6	8.10	94	65-135
30-Norhopane	97.5	103	106	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	25.0	102	65-135
17a(H)-Diahopane	14.3	13.3	93	65-135
30-Normoretane	11.5	13.1	114	65-135
Hopane	171.1	175	102	65-135
Moretane	16.6	17.7	106	65-135
30-Homohopane-22S	73.8	75.3	102	65-135
30-Homohopane-22R	63.4	63.7	100	65-135
30,31-Bishomohopane-22S	52.5	53.3	101	65-135
30,31-Bishomohopane-22R	38.4	39.1	102	65-135
30,31-Trishomohopane-22S	41.1	41.0	100	65-135
30,31-Trishomohopane-22R	27.4	27.7	101	65-135
Tetrakishomohopane-22S	30.0	28.8	96	65-135
Tetrakishomohopane-22R	20.7	20.4	99	65-135
Pentakishomohopane-22S	30.2	30.1	100	65-135
Pentakishomohopane-22R	23.2	23.8	103	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	45.2	92	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	26.2	103	65-135
13b,17a-20S-Methyldiacholestane	23.3	24.3	104	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	67.4	105	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	71.7	95	65-135
Unknown Sterane (S18)	20.7	20.6	100	65-135
13a,17b-20S-Ethyldiacholestane	4.2	4.80	114	65-135
14a,17a-20S-Methylcholestane	36.7	36.6	100	65-135
14a,17a-20R-Methylcholestane	33.0	34.2	104	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	55.4	107	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	40.8	103	65-135
14b(H),17b(H)-20R-Cholestane	40.1	43.2	108	65-135
14b(H),17b(H)-20S-Cholestane	40.7	45.1	111	65-135
14b,17b-20R-Methylcholestane	44.8	45.8	102	65-135
14b,17b-20S-Methylcholestane	54.0	56.0	104	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	56.8	96	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	47.0	116	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	244	80	65-135
C28,20S-triaromatic steroid	191.8	151	78	65-135
C27,20R-triaromatic steroid	186.4	147	79	65-135
C28,20R-triaromatic steroid	158.3	121	77	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
cis/trans-Decalin	508.7	503	99	65-135
C1-Decalins	761.1	823	108	65-135
C2-Decalins	641.9	765	119	65-135
C3-Decalins	338.2	389	115	65-135
C4-Decalins	300.9	395	131	65-135
Benzothiophene	5.3	6.22	117	65-135
C1-Benzo(b)thiophenes	29.8	33.6	113	65-135
C2-Benzo(b)thiophenes	50.1	55.9	112	65-135
C3-Benzo(b)thiophenes	103.3	105	102	65-135
C4-Benzo(b)thiophenes	84.9	98.0	115	65-135
Naphthalene	577.6	574	99	65-135
C1-Naphthalenes	1242	1240	99	65-135
C2-Naphthalenes	1472	1480	101	65-135
C3-Naphthalenes	1053.4	1140	108	65-135
C4-Naphthalenes	552.7	624	113	65-135
Biphenyl	152.5	145	95	65-135
Dibenzofuran	53.5	49.9	93	65-135
Acenaphthylene	7.1	6.79	96	65-135
Acenaphthene	18.7	18.5	99	65-135
Fluorene	79.4	70.2	88	65-135
C1-Fluorenes	175.1	159	91	65-135
C2-Fluorenes	256.5	248	97	65-135
C3-Fluorenes	238.7	237	99	65-135
Phenanthrene	222	192	86	65-135
C1-Phenanthrenes/Anthracenes	440.5	416	95	65-135
C2-Phenanthrenes/Anthracenes	464.9	453	97	65-135
C3-Phenanthrenes/Anthracenes	307.7	326	106	65-135
C4-Phenanthrenes/Anthracenes	122.9	134	109	65-135
Dibenzothiophene	146.1	127	87	65-135
C1-Dibenzothiophenes	299	251	84	65-135
C2-Dibenzothiophenes	392.9	359	91	65-135
C3-Dibenzothiophenes	350.5	328	93	65-135
C4-Dibenzothiophenes	189.2	187	99	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Fluoranthene	4.1	3.15	77	65-135
Pyrene	13.3	10.1	76	65-135
C1-Fluoranthenes/Pyrenes	66.1	56.4	85	65-135
C2-Fluoranthenes/Pyrenes	100.9	95.0	94	65-135
C3-Fluoranthenes/Pyrenes	120.8	117	97	65-135
C4-Fluoranthenes/Pyrenes	105.6	99.8	95	65-135
Naphthobenzothiophenes	45.1	38.9	86	65-135
C1-Naphthobenzothiophenes	124.1	107	86	65-135
C2-Naphthobenzothiophenes	168.9	156	92	65-135
C3-Naphthobenzothiophenes	136.1	125	92	65-135
C4-Naphthobenzothiophenes	93.9	88.6	94	65-135
Benz[a]anthracene	2.00	2.02	101	65-135
Chrysene/Triphenylene	37.4	33.4	89	65-135
C1-Chrysenes	63.9	61.1	96	65-135
C2-Chrysenes	86.6	87.8	101	65-135
C3-Chrysenes	99.6	107	108	65-135
C4-Chrysenes	62.2	62.3	100	65-135
Benzo[b]fluoranthene	5.3	5.19	98	65-135
Benzo[e]pyrene	9.6	9.97	104	65-135
Benzo[a]pyrene	2.00	2.23	112	65-135
Perylene	2.7	2.96	110	65-135
Benzo[g,h,i]perylene	3.1	2.91	94	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Carbazole	6.5	5.34	82	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
4-Methyldibenzothiophene	143.5	120	84	65-135
2/3-Methyldibenzothiophene	103.1	84.4	82	65-135
1-Methyldibenzothiophene	46.8	39.6	85	65-135
3-Methylphenanthrene	91.8	85.0	93	65-135
2-Methylphenanthrene	99.6	94.4	95	65-135
2-Methylanthracene	3.1	2.53	82	65-135
9/4-Methylphenanthrene	145.9	136	93	65-135
1-Methylphenanthrene	97.6	91.8	94	65-135
2-Methylnaphthalene	1162.6	1100	95	65-135
1-Methylnaphthalene	831.9	790	95	65-135
2,6-Dimethylnaphthalene	696.1	624	90	65-135
2,3,5-Trimethylnaphthalene	162.2	143	88	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form III
Spike Recovery Summary
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
C23 Tricyclic Terpane	67.1	68.4	102	65-135
C24 Tricyclic Terpane	42.3	43.2	102	65-135
C25 Tricyclic Terpane	40.9	41.8	102	65-135
C24 Tetracyclic Terpane	14.3	14.0	98	65-135
C26 Tricyclic Terpane-22S	17.0	16.0	94	65-135
C26 Tricyclic Terpane-22R	15.0	15.4	103	65-135
C28 Tricyclic Terpane-22S	16.3	15.4	95	65-135
C28 Tricyclic Terpane-22R	17.7	17.3	98	65-135
C29 Tricyclic Terpane-22S	20.7	21.0	102	65-135
C29 Tricyclic Terpane-22R	21.1	20.2	96	65-135
18a-22,29,30-Trisnorneohopane-TS	30.6	31.3	102	65-135
C30 Tricyclic Terpane-22S	15.8	17.9	113	65-135
C30 Tricyclic Terpane-22R	15.8	15.7	100	65-135
17a(H)-22,29,30-Trisnorhopane-TM	36.7	37.6	103	65-135
17a/b,21b/a 28,30-Bisnorhopane	7.2	6.78	94	65-135
17a(H),21b(H)-25-Norhopane	8.6	7.25	84	65-135
30-Norhopane	97.5	97.6	100	65-135
18a(H)-30-Norneohopane-C29Ts	24.4	24.1	99	65-135
17a(H)-Diahopane	14.3	14.2	99	65-135
30-Normoretane	11.5	11.0	96	65-135
Hopane	171.1	170	99	65-135
Moretane	16.6	16.2	98	65-135
30-Homohopane-22S	73.8	73.2	99	65-135
30-Homohopane-22R	63.4	63.3	100	65-135
30,31-Bishomohopane-22S	52.5	52.5	100	65-135
30,31-Bishomohopane-22R	38.4	38.0	99	65-135
30,31-Trishomohopane-22S	41.1	41.8	102	65-135
30,31-Trishomohopane-22R	27.4	27.6	101	65-135
Tetrakishomohopane-22S	30.0	28.6	95	65-135
Tetrakishomohopane-22R	20.7	20.9	101	65-135
Pentakishomohopane-22S	30.2	30.8	102	65-135
Pentakishomohopane-22R	23.2	21.7	94	65-135
13b(H),17a(H)-20S-Diacholestane	49.2	45.2	92	65-135

Form III
Spike Recovery Summary
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
13b(H),17a(H)-20R-Diacholestane	25.3	24.2	96	65-135
13b,17a-20S-Methyldiacholestane	23.3	24.6	105	65-135
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	64.2	61.8	96	65-135
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	75.5	76.5	101	65-135
Unknown Sterane (S18)	20.7	18.6	90	65-135
13a,17b-20S-Ethyldiacholestane	4.2	4.01	96	65-135
14a,17a-20S-Methylcholestane	36.7	35.9	98	65-135
14a,17a-20R-Methylcholestane	33.0	34.4	104	65-135
14a(H),17a(H)-20S-Ethylcholestane	51.9	48.9	94	65-135
14a(H),17a(H)-20R-Ethylcholestane	39.7	39.7	100	65-135
14b(H),17b(H)-20R-Cholestane	40.1	43.6	109	65-135
14b(H),17b(H)-20S-Cholestane	40.7	43.5	107	65-135
14b,17b-20R-Methylcholestane	44.8	45.8	102	65-135
14b,17b-20S-Methylcholestane	54.0	56.6	105	65-135
14b(H),17b(H)-20R-Ethylcholestane	59.2	69.3	117	65-135
14b(H),17b(H)-20S-Ethylcholestane	40.6	35.9	88	65-135
C26,20R- +C27,20S- triaromatic steroid	304.2	230	76	65-135
C28,20S-triaromatic steroid	191.8	142	74	65-135
C27,20R-triaromatic steroid	186.4	140	75	65-135
C28,20R-triaromatic steroid	158.3	115	73	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Date Analyzed: **06/21/12 09:47**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO062012LCS01	06/21/12 11:13
LCSD	SO062012LCSD01	06/21/12 12:39
SWKR3800C001S061512HX	1206028-01	06/21/12 14:06
SWKR3800C001T061512HX	1206028-02	06/21/12 15:33

N/A - Not Applicable

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **C1406191204**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		105691	42.95	56092	26.46
Upper Limit:		211382	43.45	112184	26.95
Lower Limit:		52846	42.45	28046	25.95
Client ID	**Lab ID**				
CCV	C1406191205	129552	42.93	71915	26.45

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **C1406191205**

Case: **N/A** SDG: **N/A**

		Chrysene-d12		Acenaphthene-d10	
		Area	RT	Area	RT
Standard:		129552	42.93	71915	26.45
Upper Limit:		259104	43.43	143830	26.95
Lower Limit:		64776	42.43	35958	25.95
Client ID	**Lab ID**				
Blank	SO062012B01	86936	42.95	46583	26.46
LCS	SO062012LCS01	100848	42.93	51979	26.45
LCSD	SO062012LCSD01	100961	42.93	51274	26.45
SWKR3800C001S061512HX	1206028-01	111279	42.93	59660	26.45
SWKR3800C001T061512HX	1206028-02	105170	42.94	53561	26.45
CCV	C1406191206	131895	42.93	69085	26.45

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001S061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	4.44	1	AC

Parameter	Result		Parameter	Result
cis/trans-Decalin	**5.82**	J	C3-Dibenzothiophenes	**5330**
C1-Decalins	**44.0**	J	C4-Dibenzothiophenes	**4660**
C2-Decalins	**245**		Benzo(b)fluorene	**117**
C3-Decalins	**398**		Fluoranthene	**464**
C4-Decalins	**1070**		Pyrene	**576**
Benzothiophene	44.4	U	C1-Fluoranthenes/Pyrenes	**1080**
C1-Benzo(b)thiophenes	44.4	U	C2-Fluoranthenes/Pyrenes	**1450**
C2-Benzo(b)thiophenes	**44.5**		C3-Fluoranthenes/Pyrenes	**2210**
C3-Benzo(b)thiophenes	**158**		C4-Fluoranthenes/Pyrenes	**2290**
C4-Benzo(b)thiophenes	**479**	G	Naphthobenzothiophenes	**528**
Naphthalene	**13.9**	J	C1-Naphthobenzothiophenes	**2320**
C1-Naphthalenes	**22.9**	J	C2-Naphthobenzothiophenes	**4050**
C2-Naphthalenes	**62.7**		C3-Naphthobenzothiophenes	**3890**
C3-Naphthalenes	**163**		C4-Naphthobenzothiophenes	**2880**
C4-Naphthalenes	**891**		Benz[a]anthracene	**301**
Biphenyl	**5.31**	J	Chrysene/Triphenylene	**557**
Dibenzofuran	**9.77**	J	C1-Chrysenes	**1030**
Acenaphthylene	**52.0**		C2-Chrysenes	**1660**
Acenaphthene	**18.2**	J	C3-Chrysenes	**2280**
Fluorene	**18.9**	J	C4-Chrysenes	**1440**
C1-Fluorenes	**65.2**		Benzo[b]fluoranthene	**381**
C2-Fluorenes	**674**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**291**
C3-Fluorenes	**2010**		Benzo[a]fluoranthene	**54.6**
Anthracene	**59.0**		Benzo[e]pyrene	**422**
Phenanthrene	**124**		Benzo[a]pyrene	**446**
C1-Phenanthrenes/Anthracenes	**475**		Perylene	**227**
C2-Phenanthrenes/Anthracenes	**2590**		Indeno[1,2,3-cd]pyrene	**208**
C3-Phenanthrenes/Anthracenes	**4060**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**71.6**
C4-Phenanthrenes/Anthracenes	**2580**		Benzo[g,h,i]perylene	**346**
Retene	**819**			
Dibenzothiophene	**28.9**	J		
C1-Dibenzothiophenes	**268**			
C2-Dibenzothiophenes	**2530**			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
G - Matrix Interference

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001S061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	4.44	1	AC

Parameter	Result
Carbazole	**78.4**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001S061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	4.44	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**118**	
2/3-Methyldibenzothiophene	44.4	U
1-Methyldibenzothiophene	**62.0**	
3-Methylphenanthrene	**63.0**	
2-Methylphenanthrene	**91.0**	
2-Methylanthracene	**42.4**	J
9/4-Methylphenanthrene	**164**	
1-Methylphenanthrene	**74.0**	
2-Methylnaphthalene	**22.3**	J
1-Methylnaphthalene	**10.0**	J
2,6-Dimethylnaphthalene	**28.7**	J
2,3,5-Trimethylnaphthalene	**8.26**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	74	40-120
Phenanthrene-d10	95	40-120
Benzo[a]pyrene-d12	93	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001S061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	4.44	1	AC

Parameter	Result
C23 Tricyclic Terpane	**2780**
C24 Tricyclic Terpane	**1480**
C25 Tricyclic Terpane	**1450**
C24 Tetracyclic Terpane	**535**
C26 Tricyclic Terpane-22S	**527**
C26 Tricyclic Terpane-22R	**511**
C28 Tricyclic Terpane-22S	**562**
C28 Tricyclic Terpane-22R	**680**
C29 Tricyclic Terpane-22S	**783**
C29 Tricyclic Terpane-22R	**712**
18a-22,29,30-Trisnorneohopane-TS	**832**
C30 Tricyclic Terpane-22S	**609**
C30 Tricyclic Terpane-22R	**549**
17a(H)-22,29,30-Trisnorhopane-TM	**1850**
17a/b,21b/a 28,30-Bisnorhopane	**1200**
17a(H),21b(H)-25-Norhopane	**329**
30-Norhopane	**4920**
18a(H)-30-Norneohopane-C29Ts	**696**
17a(H)-Diahopane	**223**
30-Normoretane	**514**
18a(H)&18b(H)-Oleananes	**88.1**
Hopane	**6880**
Moretane	**718**
30-Homohopane-22S	**3030**
30-Homohopane-22R	**2460**
T22a-Gammacerane/C32-diahopane	**1100**
30,31-Bishomohopane-22S	**2010**
30,31-Bishomohopane-22R	**1330**

Parameter	Result
30,31-Trishomohopane-22S	**1500**
30,31-Trishomohopane-22R	**978**
Tetrakishomohopane-22S	**1010**
Tetrakishomohopane-22R	**1080**
Pentakishomohopane-22S	**1210**
Pentakishomohopane-22R	**829**
13b(H),17a(H)-20S-Diacholestane	**802**
13b(H),17a(H)-20R-Diacholestane	**403**
13b,17a-20S-Methyldiacholestane	**393**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**1540**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**1800**
Unknown Sterane (S18)	**301**
13a,17b-20S-Ethyldiacholestane	**137**
14a,17a-20S-Methylcholestane	**708**
14a,17a-20R-Methylcholestane	**672**
14a(H),17a(H)-20S-Ethylcholestane	**1420**
14a(H),17a(H)-20R-Ethylcholestane	**1170**
14b(H),17b(H)-20R-Cholestane	**1240**
14b(H),17b(H)-20S-Cholestane	**1250**
14b,17b-20R-Methylcholestane	**1010**
14b,17b-20S-Methylcholestane	**1310**
14b(H),17b(H)-20R-Ethylcholestane	**1950**
14b(H),17b(H)-20S-Ethylcholestane	**1220**
C26,20R- +C27,20S- triaromatic steroid	**5310**
C28,20S-triaromatic steroid	**4340**
C27,20R-triaromatic steroid	**3460**
C28,20R-triaromatic steroid	**3620**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	114	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	59660	500.000	ng/mL	0.00
74) Chrysene-d12	42.930	240	111279	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	35371	167.076	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 16.71%#			
42) Phenanthrene-d10	32.331	188	42880	214.925	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 21.49%#			
86) Benzo[a]pyrene-d12	48.030	264	45474	209.111	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 20.91%#			
127) 5B(H)Cholane - Surr	43.487	217	11308M3	256.714	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.67%#			
Target Compounds						Qvalue
3) trans-Decalin	16.152	138	63M2	1.311	ng/mL	
5) C1-Decalins	18.041	152	476M5	9.907	ng/mL	
6) C2-Decalins	20.532	166	2650M5	55.157	ng/mL	
7) C3-Decalins	21.846	180	4309M5	89.687	ng/mL	
8) C4-Decalins	25.214	194	11572M5	240.858	ng/mL	
10) Naphthalene	19.592	128	727	3.140	ng/mL#	100
11) C1-Naphthalenes	22.321	142	1196M5	5.165	ng/mL	
12) C2-Naphthalenes	24.794	156	3268M5	14.114	ng/mL	
13) C3-Naphthalenes	27.769	170	8515M5	36.774	ng/mL	
14) C4-Naphthalenes	30.187	184	46493M5	200.792	ng/mL	
16) 2-Methylnaphthalene	22.321	142	766M3	5.028	ng/mL	
17) 1-Methylnaphthalene	22.713	142	337	2.253	ng/mL#	100
20) C2-Benzo(b)thiophenes	25.305	162	1790M5	10.024	ng/mL	
21) C3-Benzo(b)thiophenes	27.267	176	6337M5	35.487	ng/mL	
22) C4-Benzo(b)thiophenes	28.207	190G	19248M5	107.788	ng/mL	
23) Biphenyl	24.173	154	223M3	1.196	ng/mL	
24) 2,6-Dimethylnaphthalene	24.794	156	881	6.464	ng/mL#	100
25) Dibenzofuran	27.285	168	434M2	2.201	ng/mL	
26) Acenaphthylene	25.862	152	2820M3	11.708	ng/mL	
27) Acenaphthene	26.573	153	610	4.098	ng/mL	92
28) 2,3,5-Trimethylnaphthalen	28.125	170	230M3	1.861	ng/mL	
29) Fluorene	28.608	166	707M3	4.265	ng/mL	
30) C1-Fluorenes	31.099	180	2434M5	14.682	ng/mL	
31) C2-Fluorenes	33.152	194	25155M5	151.735	ng/mL	
32) C3-Fluorenes	34.977	208	75020M5	452.522	ng/mL	
33) Dibenzothiophene	31.938	184	1401M3	6.507	ng/mL	
34) 4-Methyldibenzothiophene(	33.699	198	5706	26.501	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.457	198	3004	13.952	ng/mL#	100
37) OTP	34.055	198	10352M3	48.080	ng/mL	
38) C1-Dibenzothiophenes	34.055	198	23369M5	108.537	ng/mL	
38) C1-Dibenzothiophenes BS	34.055	198	13017m	60.457	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	122833M5	570.496	ng/mL	
40) C3-Dibenzothiophenes	37.168	226	258621M5	1201.162	ng/mL	
41) C4-Dibenzothiophenes	38.858	240	225744M5	1048.465	ng/mL	
43) Phenanthrene	32.422	178	6374	27.878	ng/mL#	55
44) 3-Methylphenanthrene(3MP)	34.375	192	3246M3	14.197	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.503	192	4685M3	20.491	ng/mL	
46) 2-Methylanthracene(2MA)	34.667	192	2182M3	9.544	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.831	192	8425M3	36.849	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
48) 1-Methylphenanthrene(1MP)	34.923	192	3811M3	16.668	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.831	192	24475M5	107.048	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.639	206	133301M5	583.027	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	133301m	583.027	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	209009M5	914.156	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.378	234	133138M5	582.314	ng/mL	
54) Retene	39.378	234	13211M3	184.532	ng/mL	
55) Anthracene	32.632	178	3021M3	13.281	ng/mL	
56) Carbazole	33.380	167	3748M2	17.668	ng/mL	
57) 1-Methylphenanthrene	34.923	192	3911M3	22.803	ng/mL	
58) Fluoranthene	37.205	202	24361M3	104.438	ng/mL	
59) Benzo(b)fluorene	39.725	216	4087M3	26.292	ng/mL	
60) Pyrene	38.081	202	31433M3	129.655	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.245	216	59057M5	243.599	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.943	230	78953M5	325.667	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	120683M5	497.795	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	125099M5	516.011	ng/mL	
66) Naphthobenzothiophene	41.943	234	17228	81.961	ng/ml#	63
67) Naphthobenzothiophene-2,1	41.943	234	17228	81.961	ng/mL#	63
68) Naphthobenzothiophene-1,2	42.281	234	3905	18.578	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.592	234	3850M3	18.316	ng/mL	
70) C1-Naphthobenzothiophenes	43.331	248	109688M5	521.835	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	191863M5	912.779	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	184028M5	875.504	ng/ml	
73) C4-Naphthobenzothiophenes	47.984	290	136281M5	648.350	ng/mL	
75) Benz[a]anthracene	42.866	228	16506M3	67.809	ng/mL	
77) Chrysene/Triphenylene	43.030	228	30134M3	125.381	ng/mL	
78) C1-Chrysenes	44.509	242	55804M5	232.189	ng/mL	
79) C2-Chrysenes	46.237	256	89589M5	372.761	ng/mL	
79) C2-Chrysenes BS	46.237	256	89589m	372.761	ng/mL	
80) C3-Chrysenes	47.911	270	123275M5	512.921	ng/mL	
81) C4-Chrysenes	49.237	284	78019M5	324.621	ng/mL	
82) Benzo[b]fluoranthene	46.942	252	20645	85.753	ng/mL#	86
83) Benzo[j]+[k]fluoranthene	46.996	252	17427M3	65.537	ng/mL	
84) Benzo[a]fluoranthene	47.326	252	3272M3	12.305	ng/mL	
85) Benzo[e]pyrene	47.929	252	22662	94.939	ng/mL	94
87) Benzo[a]pyrene	48.121	252	22396M3	100.334	ng/mL	
88) Perylene	48.432	252	12375M3	51.137	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.886	276	13077M3	46.835	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.895	278	4232M3	16.131	ng/mL	
91) Benzo[g,h,i]perylene	54.165	276	20892	78.013	ng/mL	99
92) Hopane (T19)	51.816	191	123089M3	1548.430	ng/mL	
94) C23 Tricyclic Terpane (T4	40.510	191	49727	625.554	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	26519	333.603	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.729	191	25889M3	325.677	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	9577	120.476	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.788	191	9433M3	118.665	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	9151	115.117	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.173	191	10063	126.590	ng/ml	100
101) C28 Tricyclic Terpane-22R	46.338	191	12178M3	153.196	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	14023	176.406	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	12738M3	160.241	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	14893	187.350	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.240	191	10901M3	137.132	ng/mL	

6-22-12

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
106) C30 Tricyclic Terpane-22R	48.478	191	9824M3	123.584	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.670	191	33176	417.346	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	21396M3	269.157	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.640	191	5894	74.145	ng/ml	100
110) 30-Norhopane (T15)	50.481	191	88092	1108.176	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.591	191	12467	156.832	ng/ml	100
112) 17a(H)-Diahopane (X)	50.710	191	3991	50.206	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	9208	115.834	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.633	191	1577M3	19.838	ng/ml	
115) Moretane (T20)	52.484	191	12853M3	161.688	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	54301	683.094	ng/ml	100
117) 30-Homohopane-22R (T22)	53.772	191	44029	553.874	ng/ml	100
118) Gammacerane/C32-diahopane	54.302	191	19680M3	247.570	ng/mL	
119) 30,31-Bishomohopane-22S (	55.052	191	36027	453.211	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.426	191	23872	300.304	ng/ml	100
121) 30,31-Trishomohopane-22S	57.117	191	26869	338.006	ng/ml	100
122) 30,31-Trishomohopane-22R	57.702	191	17508	220.246	ng/ml	100
123) Tetrakishomohopane-22S (T	59.648	191	18026	226.763	ng/ml	100
124) Tetrakishomohopane-22R (T	60.498	191	19375	243.733	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	21616	271.924	ng/ml	100
126) Pentakishomohopane-22R (T	63.925	191	14847	186.772	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.002	217	7960	180.708	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.423	217	3993	90.649	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.118	217	3895	88.424	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.978	217	15258	346.387	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.499	217	17819M3	404.527	ng/ml	
133) Unknown Sterane (S18)	47.765	217	2989	67.856	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.030	217	1355	30.761	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.167	217	7023	159.436	ng/ml	100
136) 14a,17a-20R-Methylcholest	48.881	217	6669M3	151.400	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	14086M3	319.780	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.106	217	11579	262.866	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.079	218	12280M3	278.780	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.161	218	12422M3	282.004	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	10048M3	228.110	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	12973M3	294.513	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	19307	438.307	ng/ml	100
144) 14b(H),17b(H)-20S-Ethylch	49.502	218	12076M3	274.149	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	52649	1195.237	ng/mL	100
146) C28,20S-triaromatic stero	50.024	231	43014M3	976.503	ng/mL	
147) C27,20R-triaromatic stero	50.463	231	34311	778.928	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	35926M3	815.591	ng/mL	

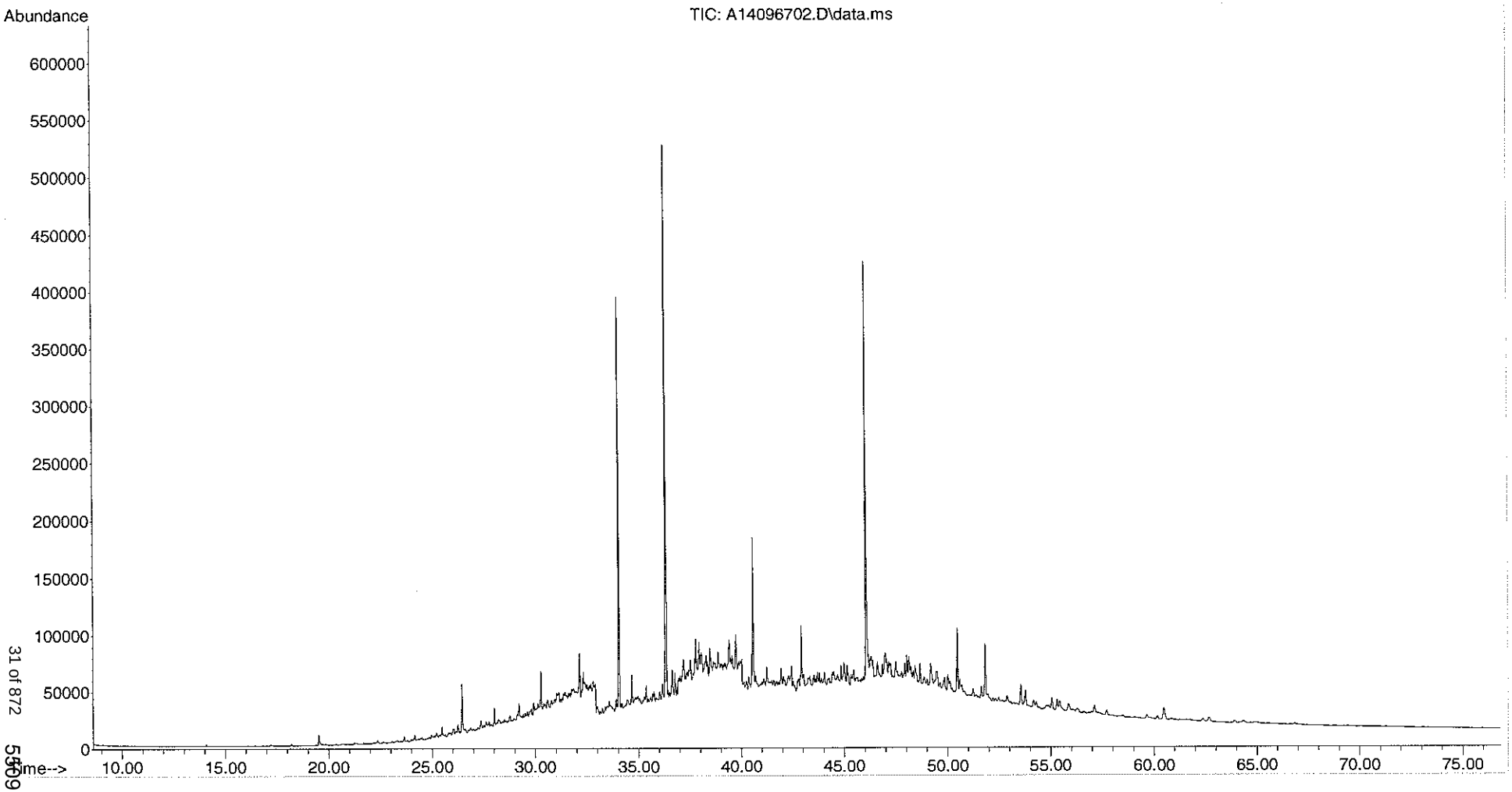
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



31 of 872

5509

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001T061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-02**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**6.53**	J
C4-Decalins	20.0	U	Pyrene	**2.53**	J
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	**1.47**	JB
Naphthalene	**9.33**	J	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	**13.3**	J	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	**22.7**		C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	**20.1**		C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	20.0	U
Biphenyl	**1.96**	J	Chrysene/Triphenylene	**1.07**	J
Dibenzofuran	**8.76**	J	C1-Chrysenes	20.0	U
Acenaphthylene	20.0	U	C2-Chrysenes	20.0	U
Acenaphthene	**2.96**	J	C3-Chrysenes	20.0	U
Fluorene	**6.48**	J	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	20.0	U
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	20.0	U
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	20.0	U	Benzo[e]pyrene	20.0	U
Phenanthrene	**29.9**		Benzo[a]pyrene	20.0	U
C1-Phenanthrenes/Anthracenes	**7.29**	J	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	20.0	U
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	20.0	U
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	20.0	U
Retene	20.0	U			
Dibenzothiophene	**3.44**	J			
C1-Dibenzothiophenes	**7.60**	J			
C2-Dibenzothiophenes	**15.4**	J			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	71	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	98	40-120

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001T061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-02**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	1.74 J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	71	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	98	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001T061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-02**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result	
4-Methyldibenzothiophene	**1.58**	J
2/3-Methyldibenzothiophene	20.0	U
1-Methyldibenzothiophene	**3.20**	J
3-Methylphenanthrene	**1.37**	J
2-Methylphenanthrene	**1.99**	J
2-Methylanthracene	20.0	U
9/4-Methylphenanthrene	**0.798**	J
1-Methylphenanthrene	**1.21**	J
2-Methylnaphthalene	**11.5**	J
1-Methylnaphthalene	**5.81**	J
2,6-Dimethylnaphthalene	**8.30**	J
2,3,5-Trimethylnaphthalene	**2.00**	J

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	71	40-120
Phenanthrene-d10	91	40-120
Benzo[a]pyrene-d12	98	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001T061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-02**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	**18.4**	JB
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	96	50-130

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096703.D
Acq On : 21 Jun 2012 3:33 pm
Operator : AC
Sample : 1206028-02
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 22 13:34:42 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	53561	500.000	ng/mL	0.00
74) Chrysene-d12	42.939	240	105170	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	67716	356.281	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 35.63%#			
42) Phenanthrene-d10	32.330	188	81763	456.481	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.65%#			
86) Benzo[a]pyrene-d12	48.030	264	101136	492.086	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.21%#			
127) 5B(H)Cholane - Surr	43.486	217	20069M3	482.071	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.21%#			
Target Compounds						Qvalue
10) Naphthalene	19.592	128	970	4.666	ng/mL#	100
11) C1-Naphthalenes	22.330	142	1384M5	6.658	ng/mL	
12) C2-Naphthalenes	25.113	156	2359M5	11.348	ng/mL	
13) C3-Naphthalenes	27.449	170	2091M5	10.059	ng/mL	
16) 2-Methylnaphthalene	22.330	142	785	5.739	ng/mL#	100
17) 1-Methylnaphthalene	22.722	142	390M3	2.905	ng/mL	
23) Biphenyl	24.219	154	164M2	0.979	ng/mL	
24) 2,6-Dimethylnaphthalene	24.821	156	508	4.152	ng/mL#	100
25) Dibenzofuran	27.322	168	775M3	4.378	ng/mL	
27) Acenaphthene	26.573	153	198M3	1.482	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.143	170	111M3	1.000	ng/mL	
29) Fluorene	28.645	166	482M3	3.238	ng/mL	
33) Dibenzothiophene	31.966	184	332	1.718	ng/mL#	71
34) 4-Methyldibenzothiophene(	33.727	198	153M3	0.792	ng/mL	
36) 1-Methyldibenzothiophene(	34.475	198	309	1.599	ng/mL#	100
37) OTP	34.055	198	14075	72.815	ng/mL#	100
38) C1-Dibenzothiophenes	34.055	198	14810M5	76.617	ng/mL	
38) C1-Dibenzothiophenes BS	34.055	198	735m	3.802	ng/mL	
39) C2-Dibenzothiophenes	36.191	212	1486M5	7.688	ng/mL	
43) Phenanthrene	32.422	178	3071	14.961	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.421	192	141M3	0.687	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.557	192	204M3	0.994	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.859	192	82M3	0.399	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.959	192	124M3	0.604	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.557	192	748M5	3.644	ng/mL	
56) Carbazole	33.343	167	166M3	0.872	ng/mL	
57) 1-Methylphenanthrene	34.959	192	130M3	0.844	ng/mL	
58) Fluoranthene	37.241	202	684	3.266	ng/mL#	64
60) Pyrene	38.127	202	275	1.263	ng/mL#	60
66) Naphthobenzothiophene	41.989	234	139M4	0.737	ng/ml	
67) Naphthobenzothiophene-2,1	41.989	234	139M4	0.737	ng/mL	
77) Chrysene/Triphenylene	43.066	228	121M3	0.533	ng/mL	
133) Unknown Sterane (S18)	47.801	217	382M3	9.176	ng/ml	

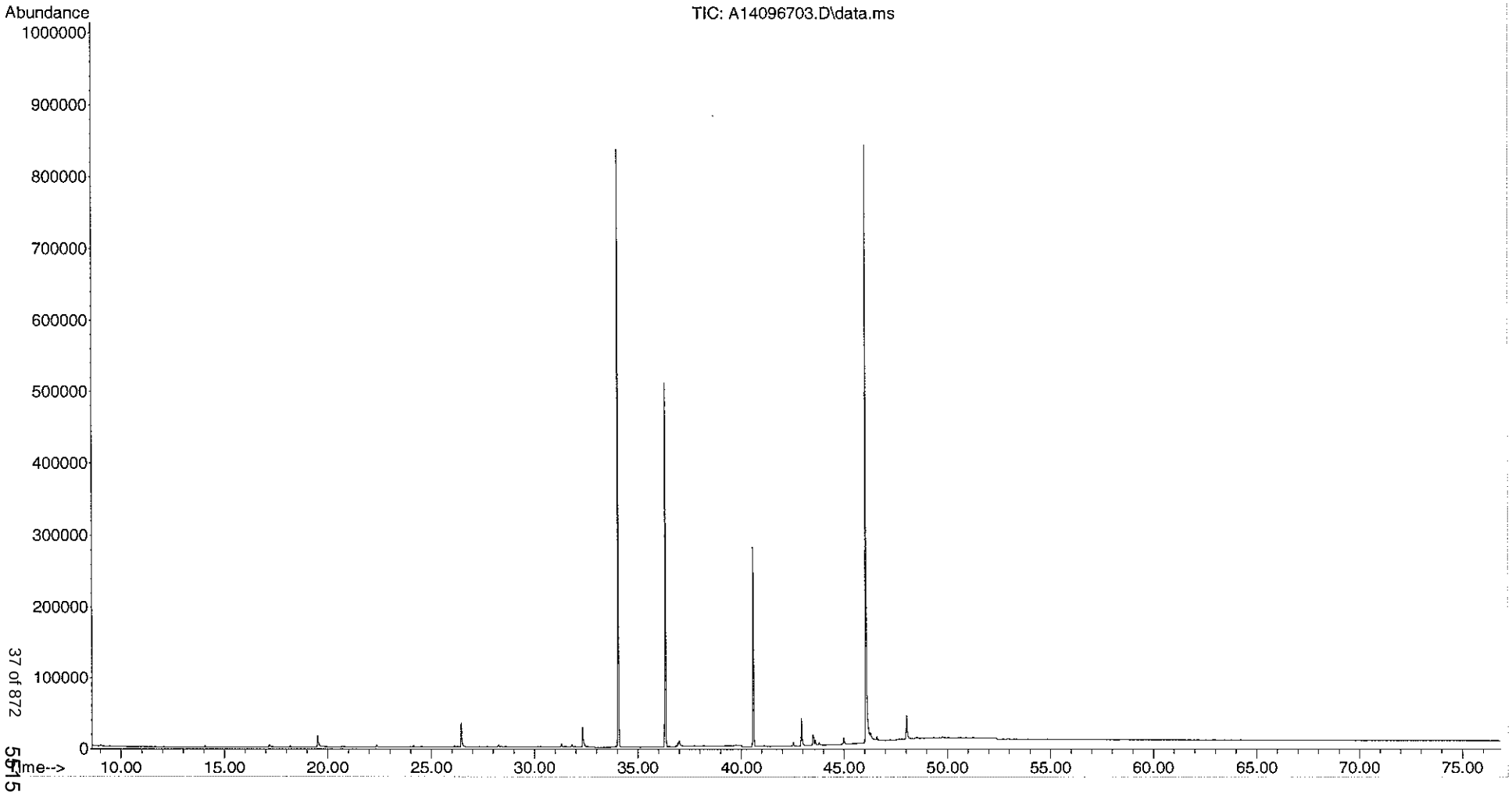
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096703.D
Acq On : 21 Jun 2012 3:33 pm
Operator : AC
Sample : 1206028-02
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 22 13:34:42 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Response Factor Report PAH 14

Method Path : O:\Forensics\Data\PAH14\May12\may18\
Method File : PAH14051812.M
Title : Decalins & Alkylated PAH's
Last Update : Sat May 19 13:46:55 2012
Response Via : Initial Calibration

Calibration Files
10 =A14096371.D 25 =A14096372.D 100 =A14096373.D 500 =A14096374.D 5000=A14096375.D 1e

		Compound	10	25	100	500	5000	1e4	2e4	Avg	%RSD
1)	i	Acenaphthene-d10	----------ISTD----------								
2)	t	2-butoxyethanol	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
3)	A1	trans-Decalin	0.425	0.383	0.398	0.412	0.414	0.387	0.400	0.403	3.74
4)	t	cis-Decalin	0.320	0.296	0.294	0.317	0.324	0.305	0.317	0.311	3.85
5)	A2	C1-Decalins	0.425	0.383	0.398	0.412	0.414	0.387	0.400	0.403	3.74
6)	A2	C2-Decalins	0.425	0.383	0.398	0.412	0.414	0.387	0.400	0.403	3.74
7)	A2	C3-Decalins	0.425	0.383	0.398	0.412	0.414	0.387	0.400	0.403	3.74
8)	A2	C4-Decalins	0.425	0.383	0.398	0.412	0.414	0.387	0.400	0.403	3.74
9)	s	Naphthalene-d8	1.635	1.574	1.669	1.929	1.992	1.795	1.826	1.774	8.77
10)	A1	Naphthalene	1.822	1.756	1.879	2.145	2.134	1.933	1.915	1.941	7.63
11)	A2	C1-Naphthalenes	1.822	1.756	1.879	2.145	2.134	1.933	1.915	1.941	7.63
12)	A2	C2-Naphthalenes	1.822	1.756	1.879	2.145	2.134	1.933	1.915	1.941	7.63
13)	A2	C3-Naphthalenes	1.822	1.756	1.879	2.145	2.134	1.933	1.915	1.941	7.63
14)	A2	C4-Naphthalenes	1.822	1.756	1.879	2.145	2.134	1.933	1.915	1.941	7.63
15)	t	Glycol Ether I...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
16)	t	2-Methylnaphth...	1.114	1.206	1.201	1.373	1.435	1.308	1.300	1.277	8.66
17)	t	1-Methylnaphth...	1.074	1.217	1.226	1.354	1.386	1.264	1.253	1.253	8.11
18)	A1	Benzothiophene	1.257	1.287	1.438	1.680	1.711	1.561	1.541	1.497	11.90
19)	A2	C1-Benzo(b)thi...	1.257	1.287	1.438	1.680	1.711	1.561	1.541	1.497	11.90
20)	A2	C2-Benzo(b)thi...	1.257	1.287	1.438	1.680	1.711	1.561	1.541	1.497	11.90
21)	A2	C3-Benzo(b)thi...	1.257	1.287	1.438	1.680	1.711	1.561	1.541	1.497	11.90
22)	A2	C4-Benzo(b)thi...	1.257	1.287	1.438	1.680	1.711	1.561	1.541	1.497	11.90
23)	t	Biphenyl	1.508	1.460	1.494	1.682	1.712	1.554	1.531	1.563	6.17
24)	t	2,6-Dimethylna...	1.154	1.029	1.063	1.222	1.257	1.140	1.130	1.142	7.05
25)	t	Dibenzofuran	1.429	1.544	1.626	1.834	1.842	1.661	1.632	1.652	8.96
26)	t	Acenaphthylene	1.938	1.859	1.878	2.160	2.252	2.032	2.011	2.019	7.19
27)	t	Acenaphthene	1.224	1.180	1.199	1.362	1.349	1.220	1.200	1.248	6.03
28)	t	2,3,5-Trimethy...	1.010	0.972	0.994	1.116	1.130	1.020	1.009	1.036	5.95
29)	A1	Fluorene	1.332	1.224	1.329	1.539	1.541	1.392	1.368	1.389	8.32
30)	A2	C1-Fluorenes	1.332	1.224	1.329	1.539	1.541	1.392	1.368	1.389	8.32
31)	A2	C2-Fluorenes	1.332	1.224	1.329	1.539	1.541	1.392	1.368	1.389	8.32
32)	A2	C3-Fluorenes	1.332	1.224	1.329	1.539	1.541	1.392	1.368	1.389	8.32
33)	A1	Dibenzothiophene	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
34)	A2	4-Methyldibenz...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
35)	A2	2/3-Methyldibe...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
36)	A2	1-Methyldibenz...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
37)	A2	OTP	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
38)	A2	C1-Dibenzothio...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
39)	A2	C2-Dibenzothio...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
40)	A2	C3-Dibenzothio...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
41)	A2	C4-Dibenzothio...	1.826	1.663	1.711	1.950	1.956	1.778	1.747	1.804	6.28
42)	s	Phenanthrene-d10	1.529	1.484	1.618	1.864	1.867	1.661	1.682	1.672	8.93
43)	A1	Phenanthrene	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
44)	A2	3-Methylphenan...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
45)	A2	2-Methylphenan...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
46)	A2	2-Methylanthra...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
47)	A2	9/4-Methylphen...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
48)	A2	1-Methylphenan...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
49)	A2	C1-Phenanthren...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
50)	A2	C2-Phenanthren...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
51)	A2	5AA IS BKGD	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
52)	A2	C3-Phenanthren...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
53)	A2	C4-Phenanthren...	1.943	1.759	1.832	2.107	2.075	1.866	1.831	1.916	6.86
54)	t	Retene	0.788	0.611	0.543	0.580	0.592	0.543	0.543	0.600	14.54

55)	t	Anthracene	1.938	1.727	1.805	2.123	2.082	1.873	1.797	1.906	7.84
56)	t	Carbazole	1.447	1.536	1.690	1.995	2.070	1.870	1.837	1.778	12.99
57)	t	1-Methylphenan...	1.514	1.295	1.371	1.535	1.559	1.413	1.374	1.437	6.92
58)	A1	Fluoranthene	1.888	1.789	1.867	2.118	2.160	1.949	1.913	1.955	6.93
59)	t	Benzo(b)fluorene	1.340	1.181	1.223	1.392	1.415	1.291	1.277	1.303	6.58
60)	A1	Pyrene	2.071	1.944	1.917	2.176	2.188	1.981	1.947	2.032	5.59
61)	A2	C1-Fluoranthen...	2.071	1.944	1.917	2.176	2.188	1.981	1.947	2.032	5.59
62)	A2	C2-Fluoranthen...	2.071	1.944	1.917	2.176	2.188	1.981	1.947	2.032	5.59
63)	A2	C3-Fluoranthen...	2.071	1.944	1.917	2.176	2.188	1.981	1.947	2.032	5.59
64)	A2	C4-Fluoranthen...	2.071	1.944	1.917	2.176	2.188	1.981	1.947	2.032	5.59
65)	t	Bis-(2-ethylhe...	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.00
66)	A1	Naphthobenzoth...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
67)	A2	Naphthobenzoth...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
68)	A2	Naphthobenzoth...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
69)	A2	Naphthobenzoth...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
70)	A2	C1-Naphthobenz...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
71)	A2	C2-Naphthobenz...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
72)	A2	C3-Naphthobenz...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
73)	A2	C4-Naphthobenz...	1.756	1.627	1.661	1.894	1.918	1.749	1.727	1.762	6.20
74)	i	Chrysene-d12	----------ISTD----------								
75)	t	Benz[a]anthracene	1.195	1.043	1.012	1.136	1.178	1.058	1.033	1.094	6.80
76)	A1	Chrysene	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
77)	A2	Chrysene/Triph...	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
78)	A2	C1-Chrysenes	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
79)	A2	C2-Chrysenes	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
80)	A2	C3-Chrysenes	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
81)	A2	C4-Chrysenes	1.153	1.052	1.053	1.149	1.134	1.021	0.997	1.080	5.95
82)	t	Benzo[b]fluora...	1.046	1.004	1.025	1.145	1.183	1.092	1.078	1.082	5.96
83)	A1	Benzo[j]+[k]fl...	1.270	1.124	1.174	1.285	1.264	1.131	1.115	1.195	6.34
84)	A2	Benzo[a]fluora...	1.270	1.124	1.174	1.285	1.264	1.131	1.115	1.195	6.34
85)	t	Benzo[e]pyrene	1.142	1.023	1.036	1.124	1.132	1.033	1.017	1.073	5.29
86)	s	Benzo[a]pyrene...	0.963	0.918	0.934	1.037	1.050	0.960	0.977	0.977	5.09
87)	t	Benzo[a]pyrene	0.965	0.950	0.964	1.073	1.085	0.997	0.987	1.003	5.42
88)	t	Perylene	1.099	1.026	1.022	1.154	1.175	1.073	1.063	1.087	5.45
89)	t	Indeno[1,2,3-c...	1.245	1.170	1.200	1.309	1.343	1.254	1.260	1.255	4.74
90)	t	Dibenz[ah]+[ac...	1.173	1.129	1.137	1.240	1.260	1.162	1.150	1.179	4.34
91)	t	Benzo[g,h,i]pe...	1.209	1.159	1.165	1.248	1.280	1.181	1.181	1.203	3.77
92)	A1	Hopane (T19)	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
93)	A2	17a(H),21B(H)-...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
94)	A2	C23 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
95)	A2	C24 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
96)	A2	C25 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
97)	A2	C24 Tetracycli...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
98)	A2	C26 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
99)	A2	C26 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
100)	A2	C28 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
101)	A2	C28 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
102)	A2	C29 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
103)	A2	C29 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
104)	A2	18a-22,29,30-T...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
105)	A2	C30 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
106)	A2	C30 Tricyclic ...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
107)	A2	17a(H)-22,29,3...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
108)	A2	17a/b,21b/a 28...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
109)	A2	17a(H),21b(H)-...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
110)	A2	30-Norhopane (...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
111)	A2	18a(H)-30-Norn...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
112)	A2	17a(H)-Diahopa...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
113)	A2	30-Normoretane...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
114)	A2	18a(H)&18b(H)-...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
115)	A2	Moretane (T20)	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
116)	A2	30-Homohopane-...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
117)	A2	30-Homohopane-...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
118)	A2	Gammacerane/C3...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
119)	A2	30,31-Bishomoh...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
120)	A2	30,31-Bishomoh...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
121)	A2	30,31-Trishomo...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86

122)	A2	30,31-Trishomo...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
123)	A2	Tetrakishomoho...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
124)	A2	Tetrakishomoho...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
125)	A2	Pentakishomoho...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
126)	A2	Pentakishomoho...	0.407	0.391	0.359	0.336	0.331	0.319		0.357	9.86
127)	SA1	5B(H)Cholane -...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
128)	A2	13b(H),17a(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
129)	A2	13b(H),17a(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
130)	A2	13b,17a-20S-Me...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
131)	A2	14a,17a-20S-Ch...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
132)	A2	14a,17a-20R-Ch...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
133)	A2	Unknown Steran...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
134)	A2	13a,17b-20S-Et...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
135)	A2	14a,17a-20S-Me...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
136)	A2	14a,17a-20R-Me...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
137)	A2	14a(H),17a(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
138)	A2	14a(H),17a(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
139)	A2	14b(H),17b(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
140)	A2	14b(H),17b(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
141)	A2	14b,17b-20R-Me...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
142)	A2	14b,17b-20S-Me...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
143)	A2	14b(H),17b(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
144)	A2	14b(H),17b(H)-...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
145)	A2	C26,20R- +C27,...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
146)	A2	C28,20S-triaro...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
147)	A2	C27,20R-triaro...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11
148)	A2	C28,20R-triaro...	0.204	0.194	0.185	0.203	0.209	0.195	0.195	0.198	4.11

(#) = Out of Range

PAH14051812.M Wed May 30 11:22:36 2012

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096371.D
Acq On : 18 May 2012 1:35 pm
Operator : AC
Sample : I1405181201
Misc : L1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:15:57 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sun Mar 04 12:52:10 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.948	164	65221	500.000	ng/mL	0.04
74) Chrysene-d12	43.413	240	114297	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	20.030	136	2133M1	7.731	ng/mL	0.10
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.77%#			
42) Phenanthrene-d10	32.869	188	1994M4	9.200	ng/mL	0.07
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.92%#			
86) Benzo[a]pyrene-d12	48.587	264	2201	9.450	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.95%#			
127) 5B(H)Cholane - Surr	43.970	217	467M4	11.666	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1.17%#			
Target Compounds						Qvalue
3) trans-Decalin	16.545	138	277	4.418	ng/mL	100
4) cis-Decalin	17.758	138	209	4.370	ng/mL	100
10) Naphthalene	20.122	128	2377	7.667	ng/mL#	100
16) 2-Methylnaphthalene	22.859	142	1453M4	7.468	ng/mL	
17) 1-Methylnaphthalene	23.243	142	1401M4	7.452	ng/mL	
18) Benzothiophene	20.332	134	1640M4	6.481	ng/mL	
23) Biphenyl	24.712	154	1967M4	8.248	ng/mL	
24) 2,6-Dimethylnaphthalene	25.342	156	1505	9.189	ng/mL#	100
25) Dibenzofuran	27.814	168	1864M4	7.630	ng/mL	
26) Acenaphthylene	26.354	152	2528M4	9.095	ng/mL	
27) Acenaphthene	27.066	153	1596M4	8.958	ng/mL	
28) 2,3,5-Trimethylnaphtha...	28.690	170	1318	9.615	ng/mL	97
29) Fluorene	29.174	166	1738M4	9.120	ng/mL	
33) Dibenzothiophene	32.468	184	2382	9.195	ng/mL	96
43) Phenanthrene	32.960	178	2534M4	9.524	ng/mL	
54) Retene	39.880	234	1028	17.282	ng/mL	96
55) Anthracene	33.161	178	2528M4	10.209	ng/mL	
56) Carbazole	33.845	167	1888	7.407	ng/mL#	66
57) 1-Methylphenanthrene	35.461	192	1975	11.408	ng/mL	92
58) Fluoranthene	37.716	202	2463	9.694	ng/mL	94
59) Benzo(b)fluorene	40.227	216	1748	11.948	ng/mL	97
60) Pyrene	38.593	202	2701	10.344	ng/mL	94
66) Naphthobenzothiophene	42.427	234	2291M4	10.179	ng/ml	

5/22/12.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096371.D
Acq On : 18 May 2012 1:35 pm
Operator : AC
Sample : I1405181201
Misc : L1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:15:57 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sun Mar 04 12:52:10 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

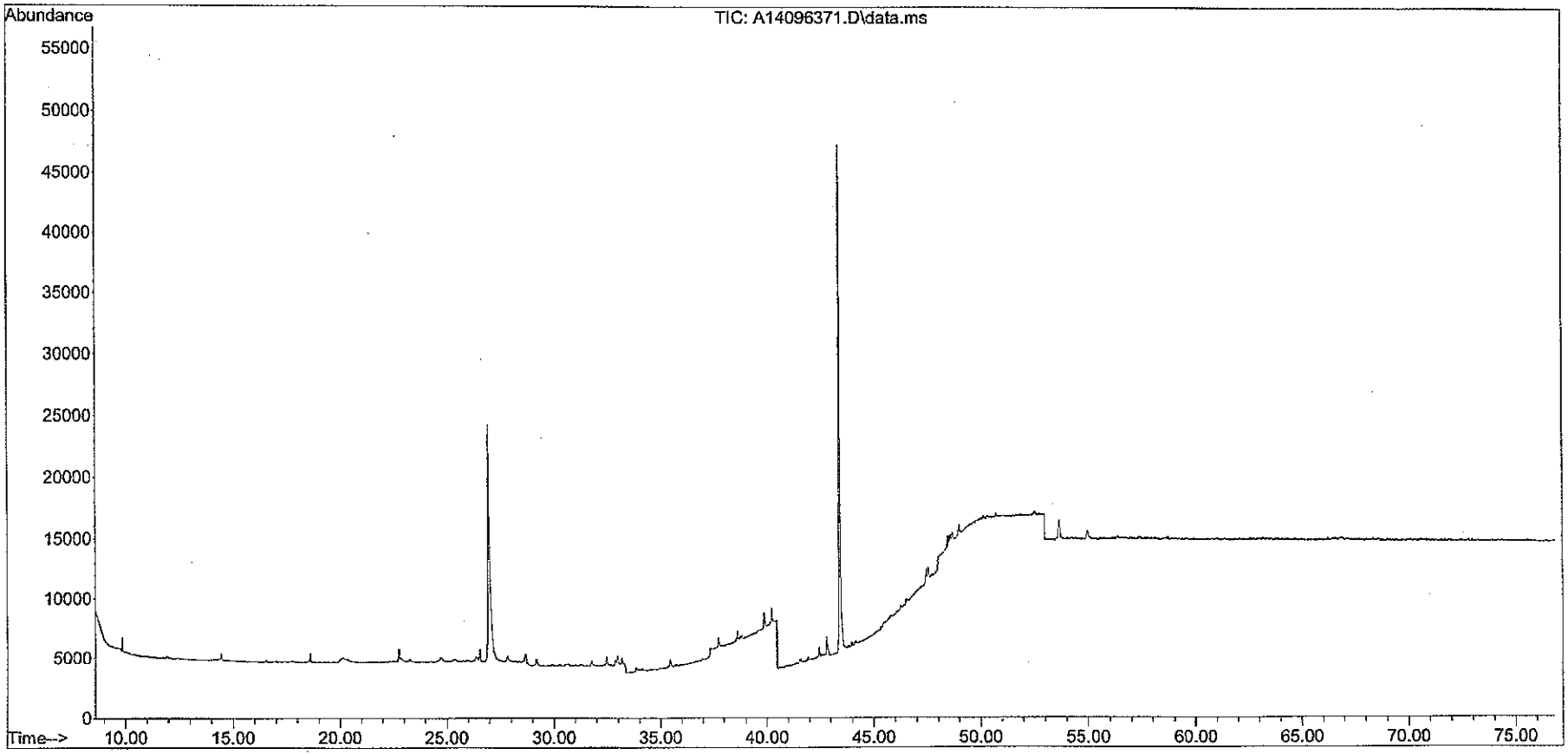
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
67)	Naphthobenzothiophene-...	42.427	234	2301M4	10.224	ng/mL	
75)	Benz[a]anthracene	43.358	228	2732	11.151	ng/mL	96
76)	Chrysene	43.514	228	2635	9.987	ng/mL	98
77)	Chrysene/Triphenylene	43.514	228	2635	9.987	ng/mL	98
82)	Benzo[b]fluoranthene	47.453	252	2390M4	8.607	ng/mL	
83)	Benzo[j]+[k]fluoranthene	47.535	252	2903	9.668	ng/mL	93
85)	Benzo[e]pyrene	48.468	252	2610	9.291	ng/mL	98
87)	Benzo[a]pyrene	48.678	252	2206	8.418	ng/mL	96
88)	Perylene	48.989	252	2512	9.093	ng/mL	99
89)	Indeno[1,2,3-cd]pyrene	53.662	276	2845M3	10.163	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.672	278	2681	9.353	ng/mL	96
91)	Benzo[g,h,i]perylene	54.997	276	2764	8.704	ng/mL	98
92)	Hopane (T19)	52.520	191	930M4	12.579	ng/mL	
93)	17a(H),21B(H)-hopane -...	52.520	191	936M4	12.660	ng/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096371.D
Acq On : 18 May 2012 1:35 pm
Operator : AC
Sample : I1405181201
Misc : L1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:15:57 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sun Mar 04 12:52:10 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096372.D
Acq On : 18 May 2012 3:00 pm
Operator : AC
Sample : I1405181202
Misc : L2
ALS Vial : 5 Sample Multiplier: 1

5/22/12

Quant Time: May 22 09:16:02 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.957	164	66968	500.000	ng/mL	0.05
74) Chrysene-d12	43.413	240	117326	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	20.030	136	5271	18.607	ng/mL	0.10
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1.86%#			
42) Phenanthrene-d10	32.860	188	4969	22.327	ng/mL	0.06
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2.23%#			
86) Benzo[a]pyrene-d12	48.578	264	5383	22.516	ng/mL	0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2.25%#			
127) 5B(H)Cholane - Surr	43.970	217	1137	27.670	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2.77%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	641	9.958	ng/mL	100
4) cis-Decalin	17.758	138	496	10.100	ng/mL	100
10) Naphthalene	20.113	128	5880	18.470	ng/mL#	100
16) 2-Methylnaphthalene	22.859	142	4037	20.208	ng/mL#	100
17) 1-Methylnaphthalene	23.233	142	4076M4	21.114	ng/mL	
18) Benzothiophene	20.322	134	4310	16.588	ng/mL	100
23) Biphenyl	24.712	154	4889	19.965	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.323	156	3445	20.485	ng/mL#	100
25) Dibenzofuran	27.805	168	5171	20.614	ng/mL#	95
26) Acenaphthylene	26.364	152	6226M4	21.814	ng/mL	
27) Acenaphthene	27.084	153	3952	21.602	ng/mL	96
28) 2,3,5-Trimethylnaphtha...	28.672	170	3255	23.127	ng/mL	98
29) Fluorene	29.156	166	4097	20.938	ng/mL	93
33) Dibenzothiophene	32.458	184	5570	20.939	ng/mL	95
43) Phenanthrene	32.951	178	5890M4	21.560	ng/mL	
54) Retene	39.880	234	2046	33.499	ng/mL	98
55) Anthracene	33.152	178	5783M4	22.745	ng/mL	
56) Carbazole	33.827	167	5142	19.647	ng/mL#	89
57) 1-Methylphenanthrene	35.452	192	4337M4	24.397	ng/mL	
58) Fluoranthene	37.716	202	5991	22.965	ng/mL	96
59) Benzo(b)fluorene	40.227	216	3954	26.322	ng/mL	100
60) Pyrene	38.592	202	6508	24.273	ng/mL	97
66) Naphthobenzothiophene	42.427	234	5447M4	23.570	ng/ml	
67) Naphthobenzothiophene-...	42.427	234	5474M4	23.687	ng/mL	
75) Benz[a]anthracene	43.358	228	6121	24.339	ng/mL	99
76) Chrysene	43.514	228	6171	22.786	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096372.D
Acq On : 18 May 2012 3:00 pm
Operator : AC
Sample : I1405181202
Misc : L2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:16:02 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

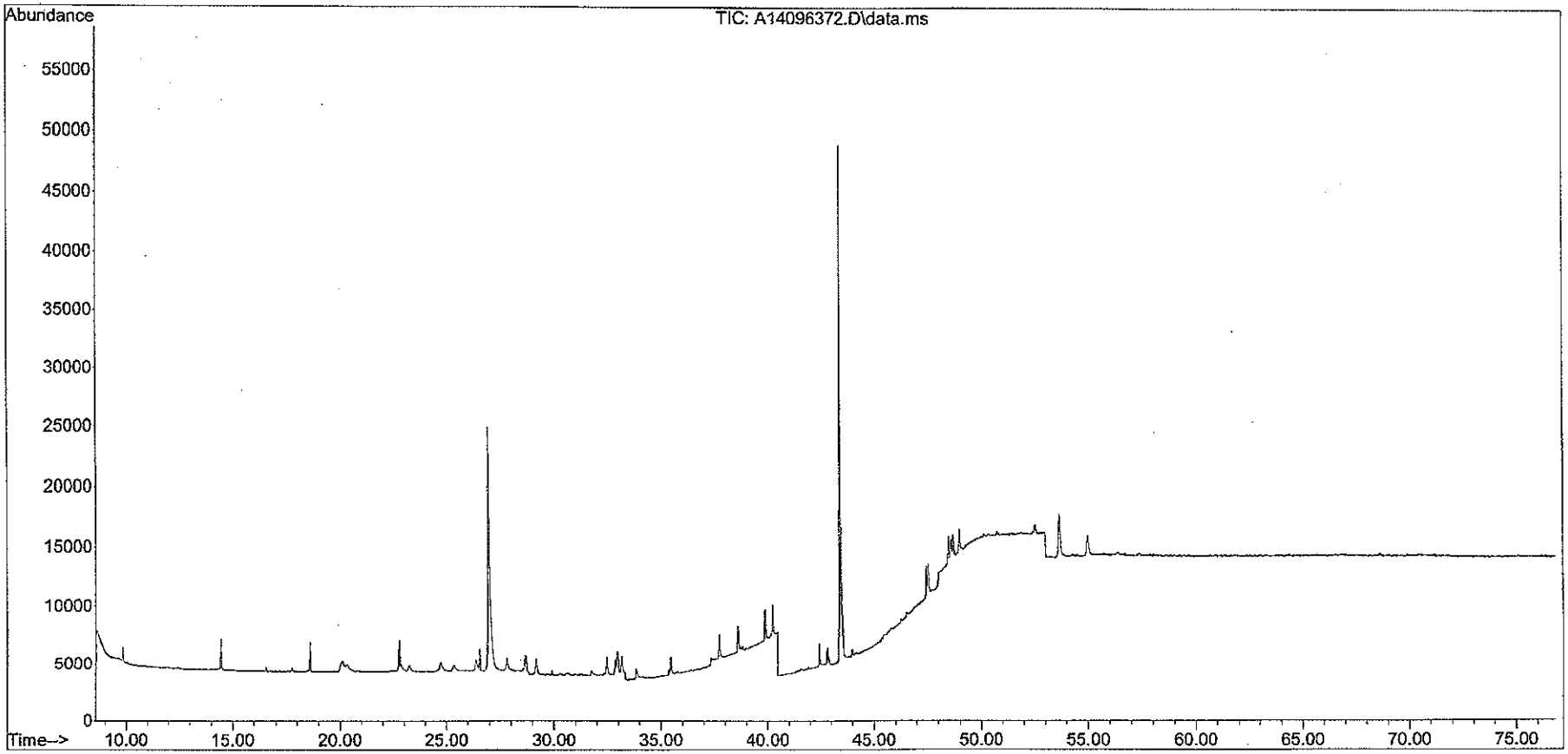
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.514	228	6171	22.786	ng/mL	99
82) Benzo[b]fluoranthene	47.444	252	5891	20.668	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.526	252	6592	21.387	ng/mL	93
85) Benzo[e]pyrene	48.459	252	6002	20.813	ng/mL	99
87) Benzo[a]pyrene	48.678	252	5573	20.718	ng/mL#	89
88) Perylene	48.980	252	6019	21.224	ng/mL	99
89) Indeno[1,2,3-cd]pyrene	53.644	276	6862M3	23.879	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.662	278	6624	22.513	ng/mL	98
91) Benzo[g,h,i]perylene	54.987	276	6799	20.858	ng/mL	97
92) Hopane (T19)	52.529	191	2294	30.227	ng/mL#	83
93) 17a(H),21B(H)-hopane -...	52.529	191	2294	30.227	ng/mL#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096372.D
Acq On : 18 May 2012 3:00 pm
Operator : AC
Sample : I1405181202
Misc : L2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:16:02 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



46 of 872 5524

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096373.D
Acq On : 18 May 2012 4:25 pm
Operator : AC
Sample : I1405181203
Misc : L3
ALS Vial : 6 Sample Multiplier: 1

5/22/12.

Quant Time: May 22 09:16:09 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.938	164	66781	500.000	ng/mL	0.03
74) Chrysene-d12	43.413	240	116853	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.976	136	22285	78.887	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 7.89%#			
42) Phenanthrene-d10	32.842	188	21612	97.381	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.74%#			
86) Benzo[a]pyrene-d12	48.569	264	21827	91.668	ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 9.17%#			
127) 5B(H)Cholane - Surr	43.961	217	4323	105.630	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 10.56%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	2659M4	41.422	ng/mL	
4) cis-Decalin	17.758	138	1965	40.124	ng/mL	100
10) Naphthalene	20.058	128	25097	79.055	ng/mL#	100
16) 2-Methylnaphthalene	22.823	142	16043	80.532	ng/mL#	100
17) 1-Methylnaphthalene	23.215	142	16371	85.039	ng/mL#	100
18) Benzothiophene	20.277	134	19209	74.138	ng/mL	100
23) Biphenyl	24.675	154	19957	81.725	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.305	156	14203	84.690	ng/mL#	100
25) Dibenzofuran	27.769	168	21712	86.794	ng/mL	99
26) Acenaphthylene	26.345	152	25082M4	88.127	ng/mL	
27) Acenaphthene	27.066	153	16018	87.802	ng/mL	97
28) 2,3,5-Trimethylnaphtha...	28.654	170	13277	94.597	ng/mL	100
29) Fluorene	29.128	166	17754	90.985	ng/mL	100
33) Dibenzothiophene	32.431	184	22855	86.160	ng/mL	99
43) Phenanthrene	32.933	178	24475	89.841	ng/mL	99
54) Retene	39.871	234	7256	119.133	ng/mL	100
55) Anthracene	33.124	178	24113M4	95.105	ng/mL	
56) Carbazole	33.809	167	22571	86.484	ng/mL	96
57) 1-Methylphenanthrene	35.443	192	18318	103.333	ng/mL	99
58) Fluoranthene	37.698	202	24934	95.848	ng/mL	98
59) Benzo(b)fluorene	40.218	216	16328	108.999	ng/mL	100
60) Pyrene	38.583	202	25599	95.743	ng/mL	97
66) Naphthobenzothiophene	42.418	234	22184M4	96.263	ng/ml	
67) Naphthobenzothiophene-...	42.418	234	22313M4	96.823	ng/mL	
75) Benz[a]anthracene	43.349	228	23662	94.470	ng/mL	100
76) Chrysene	43.514	228	24617	91.265	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096373.D
Acq On : 18 May 2012 4:25 pm
Operator : AC
Sample : I1405181203
Misc : L3
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:16:09 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

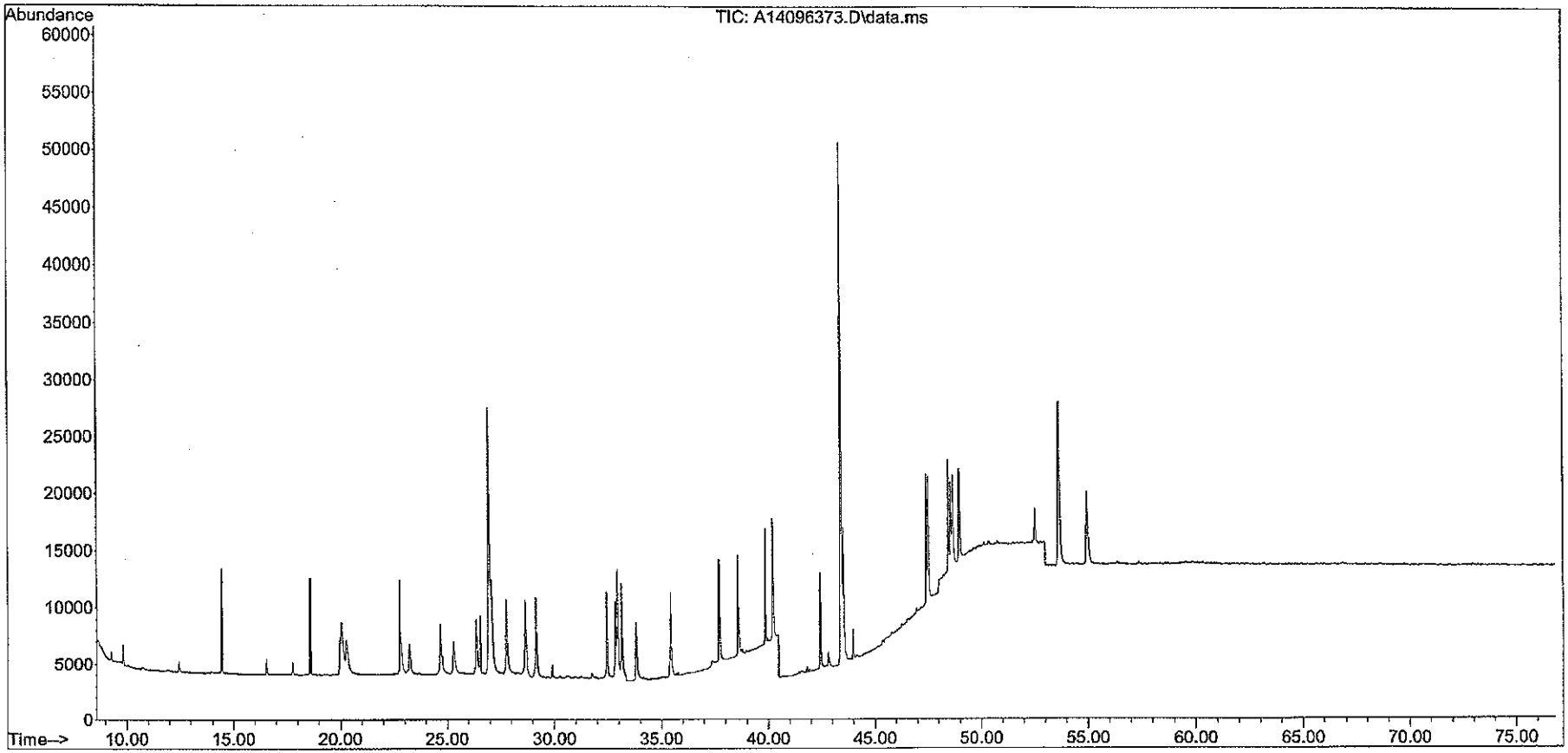
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.514	228	24617	91.265	ng/mL	99
82) Benzo[b]fluoranthene	47.425	252	23944	84.346	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.517	252	27447	89.411	ng/mL	93
85) Benzo[e]pyrene	48.450	252	24217	84.318	ng/mL	96
87) Benzo[a]pyrene	48.660	252	22531	84.099	ng/mL	93
88) Perylene	48.971	252	23876	84.533	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.626	276	28047M3	97.995	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.644	278	26584	90.715	ng/mL	98
91) Benzo[g,h,i]perylene	54.969	276	27219	83.841	ng/mL	99
92) Hopane (T19)	52.529	191	8394	111.050	ng/mL#	88
93) 17a(H),21B(H)-hopane -...	52.529	191	8394	111.050	ng/mL#	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096373.D
Acq On : 18 May 2012 4:25 pm
Operator : AC
Sample : I1405181203
Misc : L3
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:16:09 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096374.D
Acq On : 18 May 2012 5:50 pm
Operator : AC
Sample : I1405181204
Misc : L4
ALS Vial : 7 Sample Multiplier: 1

5/22

5/22/12.

Quant Time: May 22 09:16:17 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.911	164	68046	500.000	ng/mL	0.00
74) Chrysene-d12	43.395	240	120993	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.930	136	131282	456.090	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	45.61%#		
42) Phenanthrene-d10	32.796	188	126824	560.832	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	56.08%		
86) Benzo[a]pyrene-d12	48.541	264	125512	509.084	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	50.91%		
127) 5B(H)Cholane - Surr	43.961	217	24598	580.470	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	58.05%		
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	14010	214.190	ng/mL	100
4) cis-Decalin	17.758	138	10800	216.429	ng/mL	100
10) Naphthalene	20.012	128	145941	451.163	ng/mL#	100
16) 2-Methylnaphthalene	22.741	142	93452	460.386	ng/mL#	100
17) 1-Methylnaphthalene	23.151	142	92153	469.787	ng/mL#	100
18) Benzothiophene	20.231	134	114317	433.006	ng/mL	100
23) Biphenyl	24.611	154	114473	460.060	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.232	156	83161	486.656	ng/mL#	100
25) Dibenzofuran	27.705	168	124775	489.519	ng/mL	100
26) Acenaphthylene	26.309	152	147013M4	506.933	ng/mL	
27) Acenaphthene	27.039	153	92684	498.597	ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.608	170	75972	531.230	ng/mL	100
29) Fluorene	29.083	166	104744	526.809	ng/mL	99
33) Dibenzothiophene	32.385	184	132672	490.857	ng/mL	100
43) Phenanthrene	32.887	178	143357	516.443	ng/mL	100
54) Retene	39.852	234	39439	635.495	ng/mL	99
55) Anthracene	33.079	178	144459M4	559.174	ng/mL	
56) Carbazole	33.754	167	135777	510.579	ng/mL	99
57) 1-Methylphenanthrene	35.406	192	104460	578.310	ng/mL	100
58) Fluoranthene	37.670	202	144131	543.749	ng/mL	99
59) Benzo(b)fluorene	40.190	216	94728	620.610	ng/mL	100
60) Pyrene	38.556	202	148058	543.458	ng/mL	100
66) Naphthobenzothiophene	42.409	234	128866	548.794	ng/ml	99
67) Naphthobenzothiophene-...	42.409	234	128866	548.794	ng/mL	99
75) Benz[a]anthracene	43.340	228	137482	530.113	ng/mL	100
76) Chrysene	43.504	228	139016	497.751	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096374.D
Acq On : 18 May 2012 5:50 pm
Operator : AC
Sample : I1405181204
Misc : L4
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 09:16:17 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

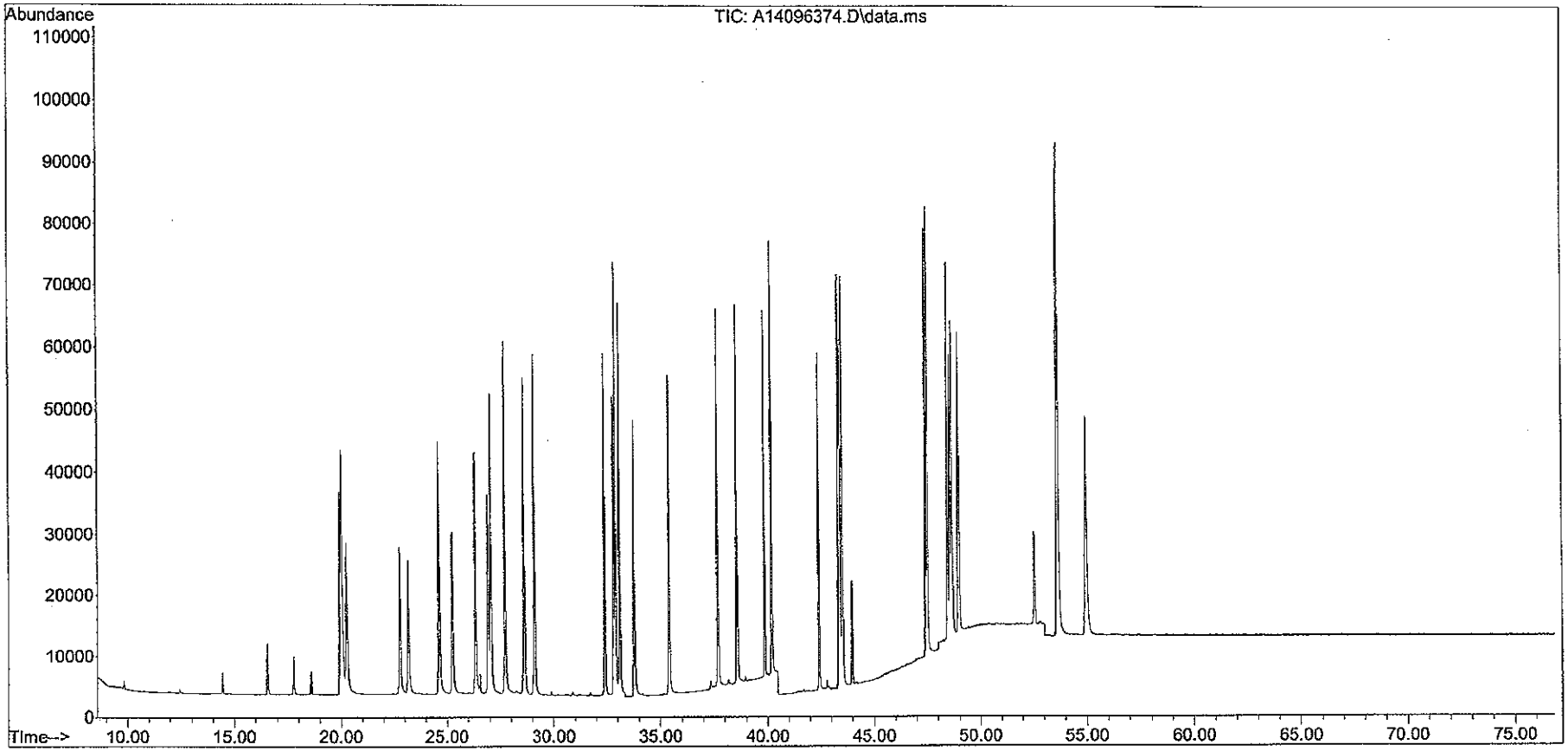
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.504	228	139016	497.751	ng/mL	99
82) Benzo[b]fluoranthene	47.398	252	138543	471.337	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.489	252	155491	489.194	ng/mL	95
85) Benzo[e]pyrene	48.431	252	135986	457.273	ng/mL	93
87) Benzo[a]pyrene	48.632	252	129844	468.070	ng/mL	90
88) Perylene	48.953	252	139648	477.508	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.589	276	158432M3	534.616	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.617	278	150022	494.418	ng/mL	99
91) Benzo[g,h,i]perylene	54.942	276	150974	449.125	ng/mL	100
92) Hopane (T19)	52.529	191	40666	519.589	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	52.529	191	40666	519.589	ng/mL#	79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096374.D
Acq On : 18 May 2012 5:50 pm
Operator : AC
Sample : I1405181204
Misc : L4
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 09:16:17 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096375.D
Acq On : 18 May 2012 7:14 pm
Operator : AC
Sample : I1405181205
Misc : L5
ALS Vial : 8 Sample Multiplier: 1

5/22/12.

Quant Time: May 22 09:16:24 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.884	164	69665	500.000 ng/mL	-0.03
74) Chrysene-d12	43.377	240	122734	500.000 ng/mL	-0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.903	136	1388034	4710.140 ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 471.01%#		
42) Phenanthrene-d10	32.759	188	1300609	5617.802 ng/mL	-0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery = 561.78%#		
86) Benzo[a]pyrene-d12	48.514	264	1289018	5154.165 ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 515.42%#		
127) 5B(H)Cholane - Surr	43.961	217	256689	5971.490 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 597.15%#		
Target Compounds					Qvalue
3) trans-Decalin	16.544	138	144225	2153.721 ng/mL	100
4) cis-Decalin	17.758	138	112744	2206.848 ng/mL	100
10) Naphthalene	19.985	128	1486740	4489.306 ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	1000036	4812.123 ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	965423	4807.254 ng/mL#	100
18) Benzothiophene	20.204	134	1192249	4411.015 ng/mL	100
23) Biphenyl	24.557	154	1192589	4681.554 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.177	156	875769	5005.874 ng/mL#	100
25) Dibenzofuran	27.659	168	1283070	4916.777 ng/mL	100
26) Acenaphthylene	26.272	152	1568802M4	5283.855 ng/mL	
27) Acenaphthene	27.011	153	939735	4937.851 ng/mL	100
28) 2,3,5-Trimethylnaphtha...	28.563	170	787231	5376.737 ng/mL	99
29) Fluorene	29.037	166	1073305	5272.723 ng/mL	99
33) Dibenzothiophene	32.358	184	1362691	4924.484 ng/mL	100
43) Phenanthrene	32.851	178	1445708	5087.119 ng/mL	100
54) Retene	39.834	234	412149	6486.766 ng/mL	99
55) Anthracene	33.042	178	1450159	5482.844 ng/mL	100
56) Carbazole	33.718	167	1441820	5295.855 ng/mL	99
57) 1-Methylphenanthrene	35.370	192	1085909	5872.080 ng/mL	99
58) Fluoranthene	37.643	202	1504772M4	5544.972 ng/mL	
59) Benzo(b)fluorene	40.163	216	985877	6308.865 ng/mL	100
60) Pyrene	38.529	202	1524205	5464.688 ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096375.D
Acq On : 18 May 2012 7:14 pm
Operator : AC
Sample : I1405181205
Misc : L5
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:16:24 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

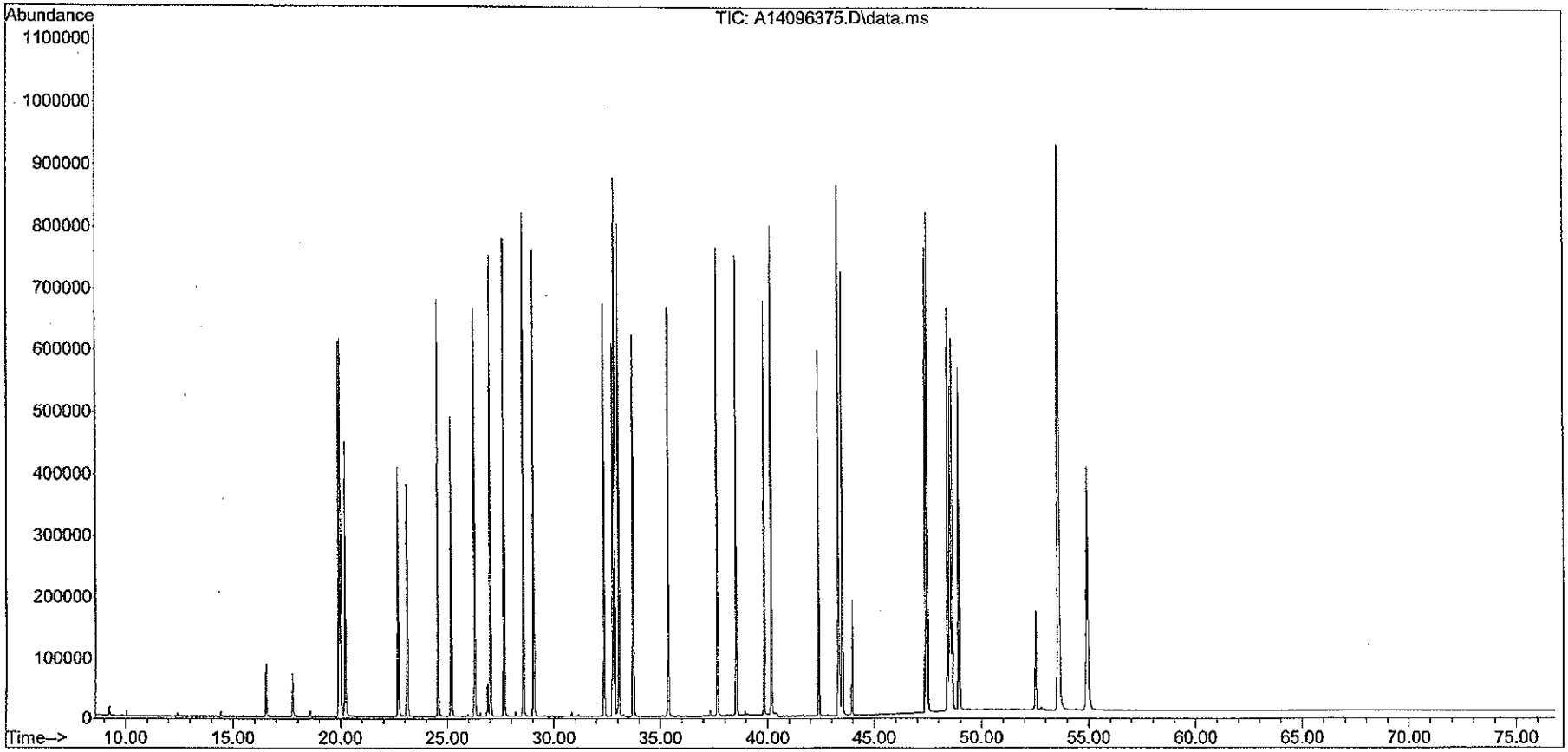
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
66) Naphthobenzothiophene	42.381	234	1336193	5558.121	ng/ml	99
67) Naphthobenzothiophene-...	42.381	234	1336193	5558.121	ng/mL	99
75) Benz[a]anthracene	43.313	228	1445408	5494.247	ng/mL	100
76) Chrysene	43.486	228	1391949	4913.220	ng/mL	100
77) Chrysene/Triphenylene	43.486	228	1391949	4913.220	ng/mL	100
82) Benzo[b]fluoranthene	47.389	252	1451693	4868.748	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.471	252	1551294	4811.332	ng/mL	95
85) Benzo[e]pyrene	48.413	252	1389429	4605.885	ng/mL	93
87) Benzo[a]pyrene	48.614	252	1331526	4731.887	ng/mL	90
88) Perylene	48.934	252	1441616	4859.493	ng/mL#	89
89) Indeno[1,2,3-cd]pyrene	53.553	276	1648795M3	5484.799	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.589	278	1546832	5025.480	ng/mL	99
91) Benzo[g,h,i]perylene	54.914	276	1570974	4607.118	ng/mL	99
92) Hopane (T19)	52.529	191	405695	5110.034	ng/mL#	79
93) 17a(H),21B(H)-hopane -...	52.529	191	405695	5110.034	ng/mL#	79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096375.D
Acq On : 18 May 2012 7:14 pm
Operator : AC
Sample : I1405181205
Misc : L5
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:16:24 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096376.D
Acq On : 18 May 2012 8:39 pm
Operator : AC
Sample : I1405181206
Misc : L6
ALS Vial : 9 Sample Multiplier: 1

5/22/12.

Quant Time: May 22 09:16:29 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.875	164	70124	500.000 ng/mL	-0.04
74) Chrysene-d12	43.377	240	124729	500.000 ng/mL	-0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.903	136	2516983	8485.198 ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 848.52%#		
42) Phenanthrene-d10	32.759	188	2328918	9993.597 ng/mL	-0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery = 999.36%#		
86) Benzo[a]pyrene-d12	48.532	264	2396038	9427.369 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 942.74%#		
127) 5B(H)Cholane - Surr	43.961	217	486224	11130.361 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1113.04%#		
Target Compounds					Qvalue
3) trans-Decalin	16.544	138	271545	4028.456 ng/mL	100
4) cis-Decalin	17.758	138	213879	4159.059 ng/mL	100
10) Naphthalene	19.976	128	2710786	8131.812 ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	1835142	8772.809 ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	1772538	8768.452 ng/mL#	100
18) Benzothiophene	20.195	134	2189777	8048.582 ng/mL	100
23) Biphenyl	24.557	154	2178871	8497.257 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.168	156	1598886	9079.372 ng/mL#	100
25) Dibenzofuran	27.650	168	2329640	8868.842 ng/mL	100
26) Acenaphthylene	26.272	152	2850414M4	9537.591 ng/mL	
27) Acenaphthene	27.002	153	1710480	8928.913 ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.563	170	1430428	9705.783 ng/mL	99
29) Fluorene	29.037	166	1952602	9529.574 ng/mL	98
33) Dibenzothiophene	32.358	184	2493342	8951.445 ng/mL	100
43) Phenanthrene	32.851	178	2616406	9146.279 ng/mL	100
54) Retene	39.834	234	761928	11913.404 ng/mL	98
55) Anthracene	33.042	178	2626848	9866.729 ng/mL	100
56) Carbazole	33.708	167	2622452	9569.308 ng/mL	99
57) 1-Methylphenanthrene	35.370	192	1981508	10644.918 ng/mL	99
58) Fluoranthene	37.643	202	2733837	10008.045 ng/mL	99
59) Benzo(b)fluorene	40.163	216	1811255	11514.791 ng/mL	100
60) Pyrene	38.528	202	2778916	9897.952 ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096376.D
Acq On : 18 May 2012 8:39 pm
Operator : AC
Sample : I1405181206
Misc : L6
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:16:29 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

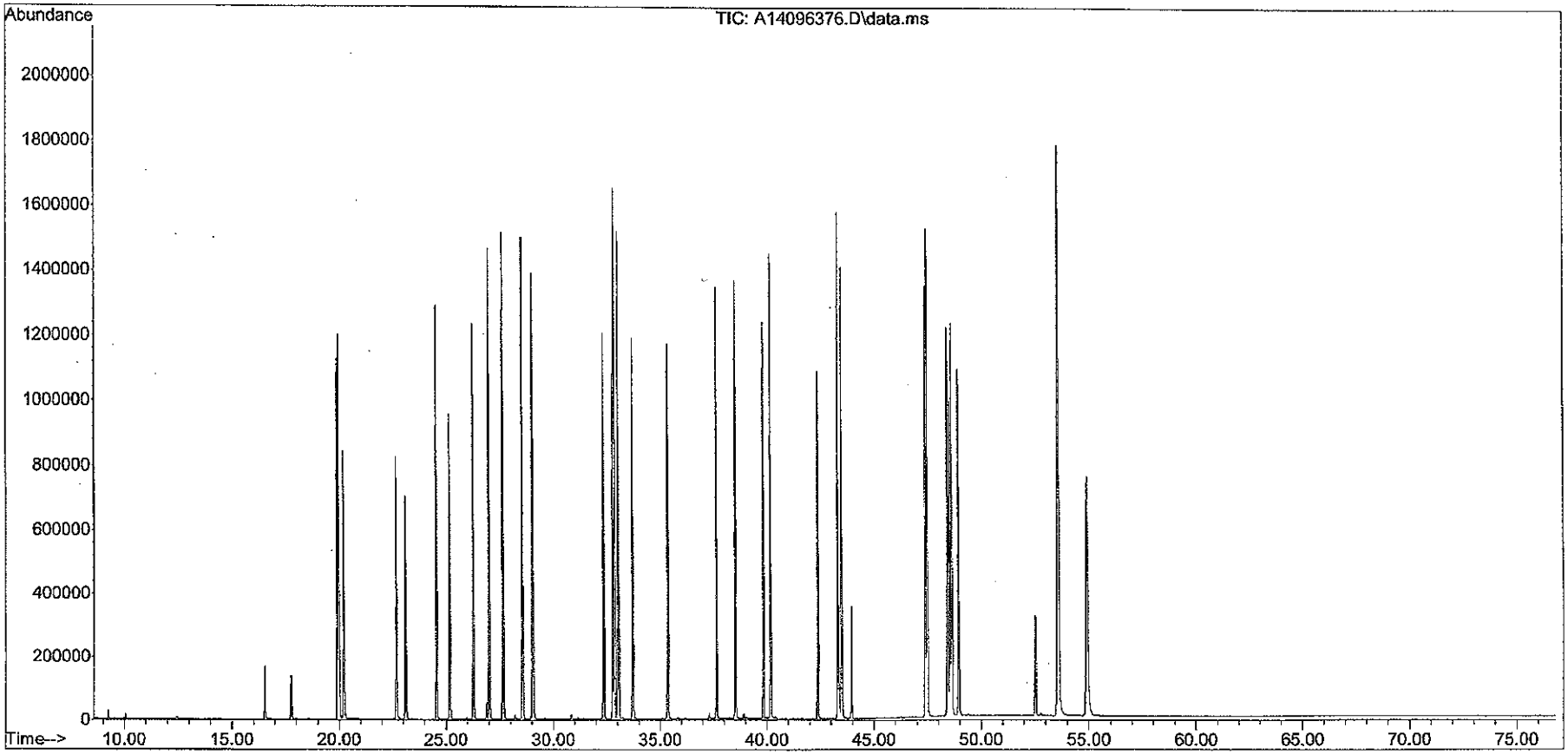
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
66) Naphthobenzothiophene	42.391	234	2452832	10136.185 ng/ml	98
67) Naphthobenzothiophene-...	42.391	234	2452832	10136.185 ng/mL	98
75) Benz[a]anthracene	43.322	228	2639773	9873.741 ng/mL	100
76) Chrysene	43.486	228	2546871	8846.007 ng/mL	100
77) Chrysene/Triphenylene	43.486	228	2546871	8846.007 ng/mL	100
82) Benzo[b]fluoranthene	47.398	252	2724668	8991.943 ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.480	252	2822483	8613.903 ng/mL	95
85) Benzo[e]pyrene	48.422	252	2577797	8408.584 ng/mL	93
87) Benzo[a]pyrene	48.614	252	2486724	8695.804 ng/mL	91
88) Perylene	48.934	252	2677793	8882.103 ng/mL	89
89) Indeno[1,2,3-cd]pyrene	53.571	276	3128681M3	10241.246 ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.598	278	2899029	9267.966 ng/mL	99
91) Benzo[g,h,i]perylene	54.923	276	2946968	8504.196 ng/mL	100
92) Hopane (T19)	52.529	191	796681M3	9874.294 ng/mL	
93) 17a(H),21B(H)-hopane -...	52.529	191	797009M3	9878.359 ng/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096376.D
Acq On : 18 May 2012 8:39 pm
Operator : AC
Sample : I1405181206
Misc : L6
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:16:29 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096377.D
Acq On : 18 May 2012 10:05 pm
Operator : AC
Sample : I1405181207
Misc : L7
ALS Vial : 10 Sample Multiplier: 1

5/22/12.

Quant Time: May 22 09:16:36 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Acenaphthene-d10	26.874	164	67867	500.000 ng/mL	-0.04
74) Chrysene-d12	43.377	240	122166	500.000 ng/mL	-0.02
System Monitoring Compounds					
9) Naphthalene-d8	19.903	136	4955862	17262.707 ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1726.27%#	
42) Phenanthrene-d10	32.768	188	4567245	20250.231 ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 2025.02%#	
86) Benzo[a]pyrene-d12	48.550	264	4775518	19183.789 ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 1918.38%#	
127) 5B(H)Cholane - Surr	43.970	217	952932	22271.623 ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery	= 2227.16%#	
Target Compounds					Qvalue
3) trans-Decalin	16.535	138	542629	8317.787 ng/mL	100
4) cis-Decalin	17.758	138	430089	8641.583 ng/mL	100
10) Naphthalene	19.985	128	5198277	16112.375 ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	3529605	17434.245 ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	3401845	17388.012 ng/mL#	100
18) Benzothiophene	20.195	134	4182483	15884.067 ng/mL	100
23) Biphenyl	24.557	154	4157001	16750.794 ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.168	156	3068617	18004.831 ng/mL#	100
25) Dibenzofuran	27.650	168	4429520	17423.796 ng/mL	99
26) Acenaphthylene	26.272	152	5458307M4	18871.079 ng/mL	
27) Acenaphthene	27.011	153	3256442	17564.345 ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.563	170	2738622	19200.153 ng/mL	100
29) Fluorene	29.028	166	3714438	18730.997 ng/mL	98
33) Dibenzothiophene	32.358	184	4742239	17591.496 ng/mL	100
43) Phenanthrene	32.860	178	4971676	17957.676 ng/mL	100
54) Retene	39.843	234	1474414	23820.419 ng/mL	97
55) Anthracene	33.042	178	4876979	18927.670 ng/mL	100
56) Carbazole	33.717	167	4987000	18802.707 ng/mL	100
57) 1-Methylphenanthrene	35.370	192	3730728M4	20708.475 ng/mL	
58) Fluoranthene	37.652	202	5191974	19638.900 ng/mL	100
59) Benzo(b)fluorene	40.172	216	3467640	22778.153 ng/mL	99
60) Pyrene	38.538	202	5284229	19447.312 ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096377.D
Acq On : 18 May 2012 10:05 pm
Operator : AC
Sample : I1405181207
Misc : L7
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:16:36 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

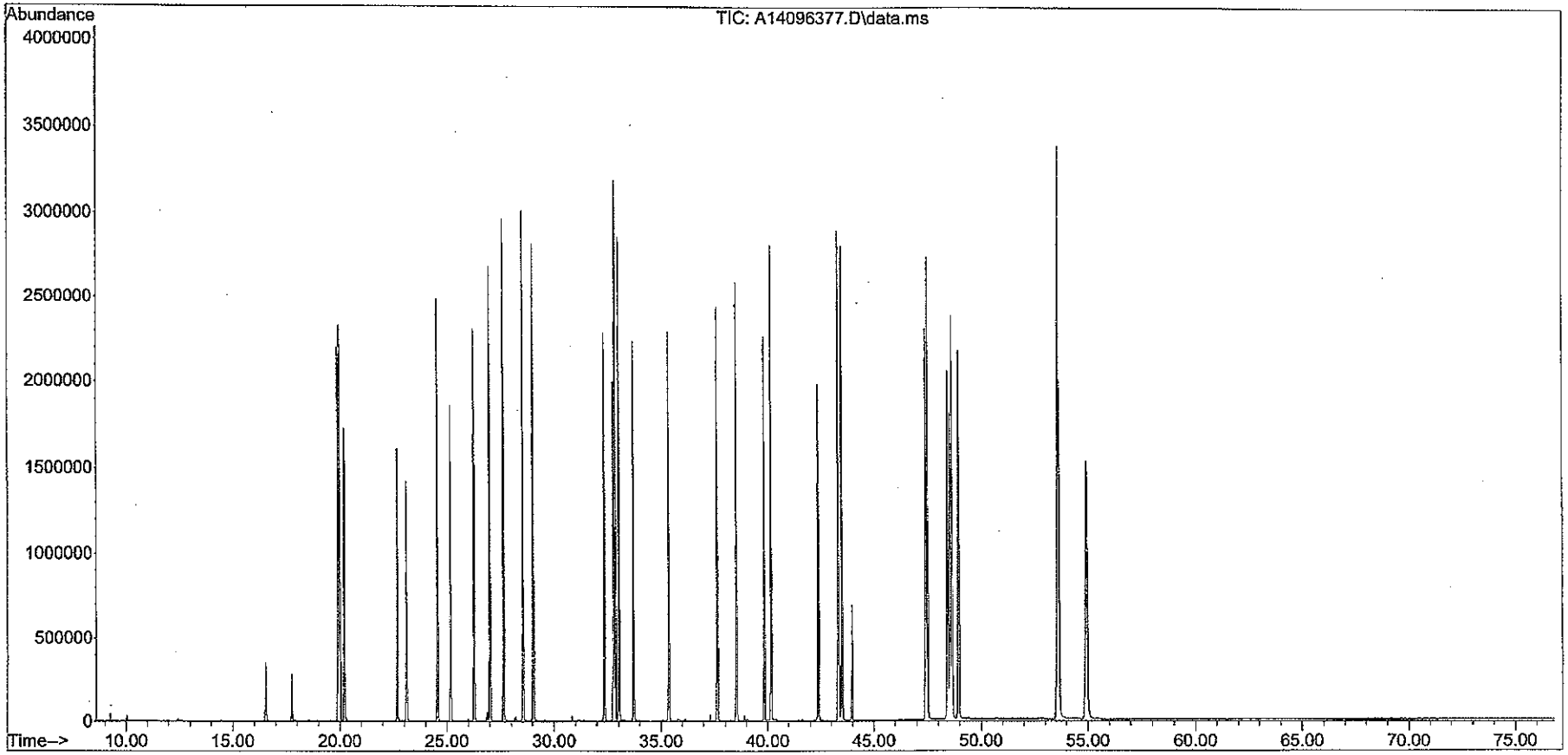
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
66) Naphthobenzothiophene	42.391	234	4687033	20013.026	ng/ml	98
67) Naphthobenzothiophene-...	42.391	234	4687033	20013.026	ng/mL	98
75) Benz[a]anthracene	43.331	228	5047759	19276.618	ng/mL	100
76) Chrysene	43.495	228	4873171	17281.008	ng/mL	100
77) Chrysene/Triphenylene	43.495	228	4873171	17281.008	ng/mL	100
82) Benzo[b]fluoranthene	47.407	252	5267099	17747.145	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.498	252	5448565	16977.270	ng/mL	96
85) Benzo[e]pyrene	48.440	252	4970993	16555.198	ng/mL	93
87) Benzo[a]pyrene	48.642	252	4821407	17213.652	ng/mL	91
88) Perylene	48.953	252	5192988	17586.248	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.598	276	6159520M3	20585.218	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.635	278	5619672	18342.559	ng/mL	99
91) Benzo[g,h,i]perylene	54.951	276	5771776	17005.303	ng/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096377.D
Acq On : 18 May 2012 10:05 pm
Operator : AC
Sample : I1405181207
Misc : L7
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:16:36 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : AC
Sample : Q1405181201
Misc : ICC
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	104	0.04
3	A1	trans-Decalin	0.403	0.410	-1.7	104	0.00
4	t	cis-Decalin	0.311	0.312	-0.3	102	0.00
9	s	Naphthalene-d8	1.774	1.836	-3.5	99	0.00
10	A1	Naphthalene	1.941	2.134	-9.9	103	0.00
16	t	2-Methylnaphthalene	1.277	1.347	-5.5	102	0.00
17	t	1-Methylnaphthalene	1.253	1.346	-7.4	103	0.00
18	A1	Benzothiophene	1.497	1.682	-12.4	104	0.00
23	t	Biphenyl	1.563	1.665	-6.5	103	0.00
24	t	2,6-Dimethylnaphthalene	1.142	1.218	-6.7	104	0.00
25	t	Dibenzofuran	1.652	1.833	-11.0	104	0.00
26	t	Acenaphthylene	2.019	2.121	-5.1	102	0.00
27	t	Acenaphthene	1.248	1.361	-9.1	104	0.00
28	t	2,3,5-Trimethylnaphthalene	1.036	1.111	-7.2	103	0.00
29	A1	Fluorene	1.389	1.537	-10.7	104	0.00
33	A1	Dibenzothiophene	1.804	1.937	-7.4	103	0.00
42	s	Phenanthrene-d10	1.672	1.787	-6.9	100	0.00
43	A1	Phenanthrene	1.916	2.109	-10.1	104	0.00
54	t	Retene	0.600	0.583	2.8	105	0.00
55	t	Anthracene	1.906	2.082	-9.2	102	0.00
56	t	Carbazole	1.778	1.958	-10.1	102	0.00
57	t	1-Methylphenanthrene	1.437	1.516	-5.5	103	0.00
58	A1	Fluoranthene	1.955	2.095	-7.2	103	0.00
59	t	Benzo(b)fluorene	1.303	1.374	-5.4	103	0.00
60	A1	Pyrene	2.032	2.160	-6.3	103	0.00
66	A1	Naphthobenzothiophene	1.762	1.885	-7.0	104	0.00
67	A2	Naphthobenzothiophene-2,1-D	1.762	1.885	-7.0	104	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	104	0.03
75	t	Benz[a]anthracene	1.094	1.118	-2.2	103	0.00
76	A1	Chrysene	1.080	1.146	-6.1	104	0.00
77	A2	Chrysene/Triphenylene	1.080	1.146	-6.1	104	0.00
82	t	Benzo[b]fluoranthene	1.082	1.143	-5.6	104	0.00
83	A1	Benzo[j]+[k]fluoranthene	1.195	1.313	-9.9	107	0.00
85	t	Benzo[e]pyrene	1.073	1.133	-5.6	105	0.00
86	s	Benzo[a]pyrene-d12	0.977	0.877	10.2	88	0.00
87	t	Benzo[a]pyrene	1.003	1.078	-7.5	105	0.00
88	t	Perylene	1.087	1.150	-5.8	104	0.00
89	t	Indeno[1,2,3-cd]pyrene	1.255	1.317	-4.9	105	0.00
90	t	Dibenz[ah]+[ac]anthracene	1.179	1.256	-6.5	106	0.00
91	t	Benzo[g,h,i]perylene	1.203	1.264	-5.1	106	0.00
92	A1	Hopane (T19)	0.357	0.000#	100.0#	0#	-52.52#
93	A2	17a(H),21B(H)-hopane - C30H	0.357	0.000#	100.0#	0#	-52.52#
127	SA1	5B(H)Cholane - Surr	0.198	0.000#	100.0#	0#	-43.96#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.95	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : AC
Sample : Q1405181201
Misc : ICC
ALS Vial : 14 Sample Multiplier: 1

5/22/12

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.920	164	70766	500.000	ng/mL	0.00
74) Chrysene-d12	43.404	240	126392	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.930	136	129951	517.493	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.75%			
42) Phenanthrene-d10	32.805	188	126430	534.245	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.42%			
86) Benzo[a]pyrene-d12	48.541	264	110842	448.757	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.88%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	14524	255.414	ng/mL	100
4) cis-Decalin	17.758	138	11023	250.783	ng/mL	100
10) Naphthalene	20.012	128	151027	549.884	ng/mL#	100
16) 2-Methylnaphthalene	22.750	142	95305	527.358	ng/mL#	100
17) 1-Methylnaphthalene	23.160	142	95247	536.896	ng/mL#	100
18) Benzothiophene	20.231	134	119054	562.066	ng/mL	100
23) Biphenyl	24.621	154	117802	532.508	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.241	156	86177	533.064	ng/mL#	100
25) Dibenzofuran	27.714	168	129680	554.485	ng/mL	99
26) Acenaphthylene	26.309	152	150072M4	525.261	ng/mL	
27) Acenaphthene	27.048	153	96305	545.400	ng/mL	99
28) 2,3,5-Trimethylnaphtha...	28.608	170	78607	536.113	ng/mL	100
29) Fluorene	29.092	166	108793	553.250	ng/mL	99
33) Dibenzothiophene	32.394	184	137090	536.787	ng/mL	99
43) Phenanthrene	32.896	178	149254	550.351	ng/mL	100
54) Retene	39.852	234	41243	485.673	ng/mL	98
55) Anthracene	33.088	178	147351M4	546.124	ng/mL	
56) Carbazole	33.763	167	138562	550.676	ng/mL	99
57) 1-Methylphenanthrene	35.406	192	107249	527.179	ng/mL	100
58) Fluoranthene	37.679	202	148220	535.709	ng/mL	99
59) Benzo(b)fluorene	40.190	216	97211	527.213	ng/mL	99
60) Pyrene	38.556	202	152885	531.653	ng/mL	100
66) Naphthobenzothiophene	42.409	234	133407	530.908	ng/ml	100
67) Naphthobenzothiophene-...	42.409	234	133407	530.908	ng/mL	100
75) Benz[a]anthracene	43.340	228	141332	511.186	ng/mL	100
76) Chrysene	43.504	228	144878	530.728	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : AC
Sample : Q1405181201
Misc : ICC
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

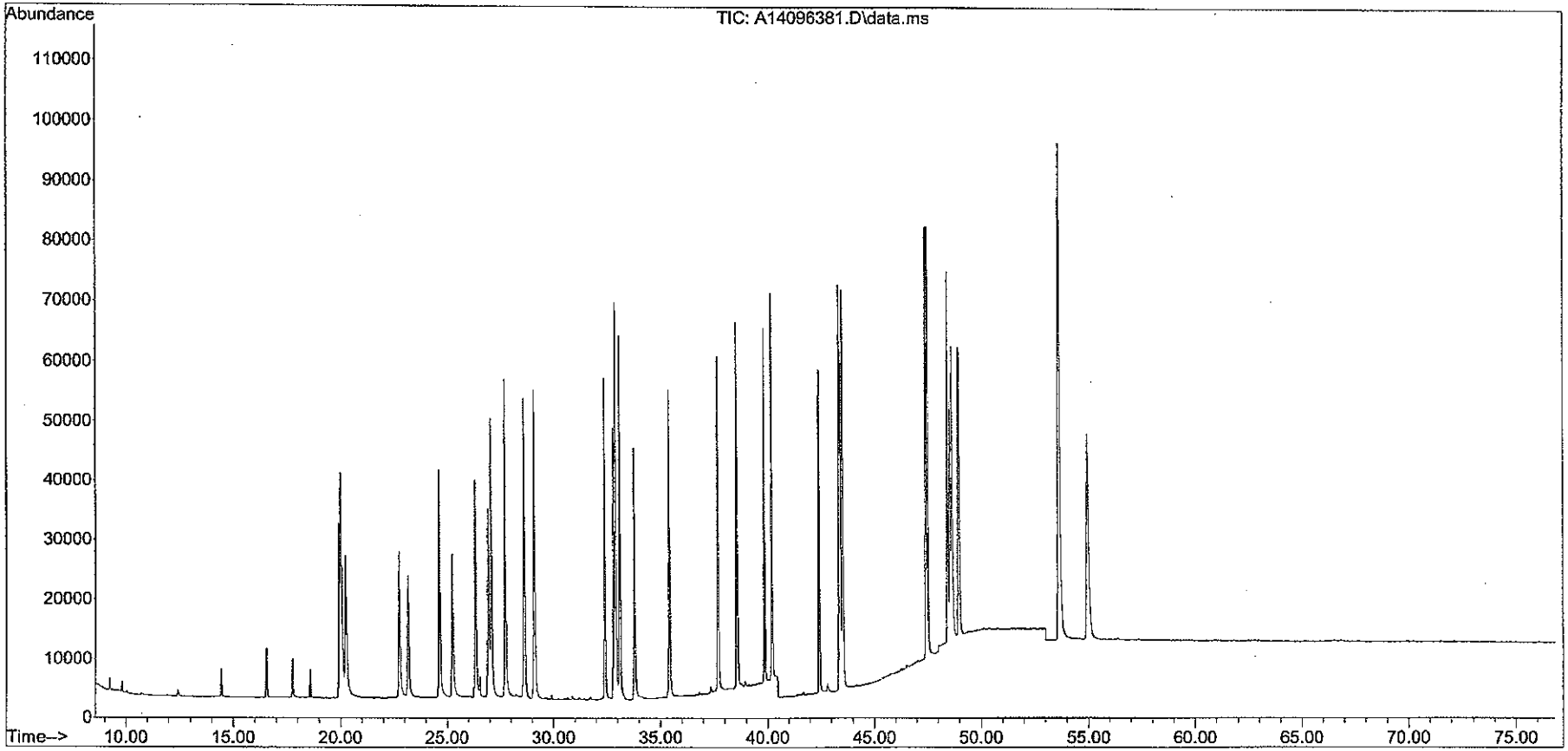
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
77) Chrysene/Triphenylene	43.504	228	144878	530.728	ng/mL	100
82) Benzo[b]fluoranthene	47.407	252	144435	528.200	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.489	252	165896	549.278	ng/mL	94
85) Benzo[e]pyrene	48.431	252	143155	528.016	ng/mL	93
87) Benzo[a]pyrene	48.633	252	136281	537.535	ng/mL	91
88) Perylene	48.953	252	145343	528.780	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.598	276	166514M3	525.063	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.617	278	158784	532.848	ng/mL	98
91) Benzo[g,h,i]perylene	54.951	276	159736	525.148	ng/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\may18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : AC
Sample : Q1405181201
Misc : ICC
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

AG for SK 6/22/12

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	82	0.00
3	A1	trans-Decalin	0.403	0.405	-0.5	81	0.00
4	t	cis-Decalin	0.311	0.316	-1.6	82	0.00
9	s	Naphthalene-d8	1.774	1.822	-2.7	78	0.00
10	A1	Naphthalene	1.941	2.087	-7.5	80	0.02
16	t	2-Methylnaphthalene	1.277	1.274	0.2	76	0.02
17	t	1-Methylnaphthalene	1.253	1.318	-5.2	80	0.02
18	A1	Benzothiophene	1.497	1.641	-9.6	81	0.02
23	t	Biphenyl	1.563	1.592	-1.9	78	0.02
24	t	2,6-Dimethylnaphthalene	1.142	1.132	0.9	76	0.02
25	t	Dibenzofuran	1.652	1.776	-7.5	80	0.03
26	t	Acenaphthylene	2.019	1.865	7.6	71	0.00
27	t	Acenaphthene	1.248	1.330	-6.6	80	0.00
28	t	2,3,5-Trimethylnaphthalene	1.036	1.059	-2.2	78	0.00
29	A1	Fluorene	1.389	1.461	-5.2	78	0.02
33	A1	Dibenzothiophene	1.804	1.865	-3.4	79	0.00
42	s	Phenanthrene-d10	1.672	1.775	-6.2	79	0.00
43	A1	Phenanthrene	1.916	2.088	-9.0	82	0.02
54	t	Retene	0.600	0.516	14.0	73	0.00
55	t	Anthracene	1.906	1.925	-1.0	75	0.03
56	t	Carbazole	1.778	1.807	-1.6	75	0.04
57	t	1-Methylphenanthrene	1.437	1.453	-1.1	78	0.02
58	A1	Fluoranthene	1.955	2.041	-4.4	79	0.00
59	t	Benzo(b)fluorene	1.303	1.220	6.4	72	0.02
60	A1	Pyrene	2.032	2.090	-2.9	79	0.02
66	A1	Naphthobenzothiophene	1.762	1.849	-4.9	80	0.02
67	A2	Naphthobenzothiophene-2,1-D	1.762	1.849	-4.9	80	0.02
74	i	Chrysene-d12	1.000	1.000	0.0	87	0.00
75	t	Benz[a]anthracene	1.094	0.921	15.8	71	0.00
76	A1	Chrysene	1.080	1.209	-11.9	92	0.00
77	A2	Chrysene/Triphenylene	1.080	1.209	-11.9	92	0.00
82	t	Benzo[b]fluoranthene	1.082	0.966	10.7	74	0.00
83	A1	Benzo[j]+[k]fluoranthene	1.195	1.342	-12.3	91	0.00
85	t	Benzo[e]pyrene	1.073	1.113	-3.7	86	0.00
86	s	Benzo[a]pyrene-d12	0.977	0.905	7.4	76	0.00
87	t	Benzo[a]pyrene	1.003	0.932	7.1	76	0.00
88	t	Perylene	1.087	1.056	2.9	80	0.02
89	t	Indeno[1,2,3-cd]pyrene	1.255	1.061	15.5	71	0.03
90	t	Dibenz[ah]+[ac]anthracene	1.179	1.066	9.6	75	0.03
91	t	Benzo[g,h,i]perylene	1.203	1.119	7.0	78	0.02
92	A1	Hopane (T19)	0.357	0.311	12.9	81	0.00
93	A2	17a(H),21B(H)-hopane - C30H	0.357	0.311	12.9	81	0.00
127	SA1	5B(H)Cholane - Surr	0.198	0.198	0.0	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.85	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	56092	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	105691	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	102195	513.427	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.34%			
42) Phenanthrene-d10	32.340	188	99558	530.750	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.08%			
86) Benzo[a]pyrene-d12	48.039	264	95696	463.321	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.33%#			
127) 5B(H)Cholane - Surr	43.487	217	20921	500.059	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.01%			
Target Compounds						Qvalue
3) trans-Decalin	16.134	138	11354	251.353	ng/mL	100
4) cis-Decalin	17.338	138	8856	254.191	ng/mL	100
10) Naphthalene	19.592	128	117036	537.600	ng/mL#	100
16) 2-Methylnaphthalene	22.294	142	71459	498.851	ng/mL#	100
17) 1-Methylnaphthalene	22.704	142	73923	525.705	ng/mL#	100
18) Benzothiophene	19.821	134	92063	548.343	ng/mL	100
23) Biphenyl	24.164	154	89283	509.173	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.776	156	63500	495.547	ng/mL#	100
25) Dibenzofuran	27.267	168	99647	537.533	ng/mL	100
26) Acenaphthylene	25.862	152	104586M3	461.820	ng/mL	
27) Acenaphthene	26.583	153	74603	533.023	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.143	170	59416	511.237	ng/mL	100
29) Fluorene	28.626	166	81930	525.639	ng/mL	100
33) Dibenzothiophene	31.938	184	104626	516.844	ng/mL	98
43) Phenanthrene	32.440	178	117147	544.965	ng/mL	100
54) Retene	39.396	234	28930	429.800	ng/mL	98
55) Anthracene	32.641	178	107951M3	504.764	ng/mL	
56) Carbazole	33.353	167	101361M3	508.214	ng/mL	
57) 1-Methylphenanthrene	34.950	192	81495	505.382	ng/mL	99
58) Fluoranthene	37.223	202	114468	521.952	ng/mL	99
59) Benzo(b)fluorene	39.752	216	68451	468.354	ng/mL	100
60) Pyrene	38.109	202	117235	514.333	ng/mL	100
66) Naphthobenzothiophene	41.971	234	103687	524.664	ng/ml#	55
67) Naphthobenzothiophene-2,1	41.971	234	103687	524.664	ng/mL#	55
75) Benz[a]anthracene	42.884	228	97347	421.058	ng/mL	98
76) Chrysene	43.057	228	127775	559.754	ng/mL	100
77) Chrysene/Triphenylene	43.057	228	127775	559.754	ng/mL	100
82) Benzo[b]fluoranthene	46.951	252	102067	446.368	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.042	252	141789	561.410	ng/mL	93
85) Benzo[e]pyrene	47.929	252	117583	518.641	ng/mL	96
87) Benzo[a]pyrene	48.140	252	98546	464.827	ng/mL	91
88) Perylene	48.460	252	111585	485.477	ng/mL#	88
89) Indeno[1,2,3-cd]pyrene	52.904	276	112182M3	423.024	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.932	278	112689	452.231	ng/mL	99
91) Benzo[g,h,i]perylene	54.193	276	118296	465.083	ng/mL	99
92) Hopane (T19)	51.807	191	32847	435.054	ng/mL#	83
93) 17a(H),21B(H)-hopane - C3	51.807	191	32847	435.054	ng/mL#	83

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

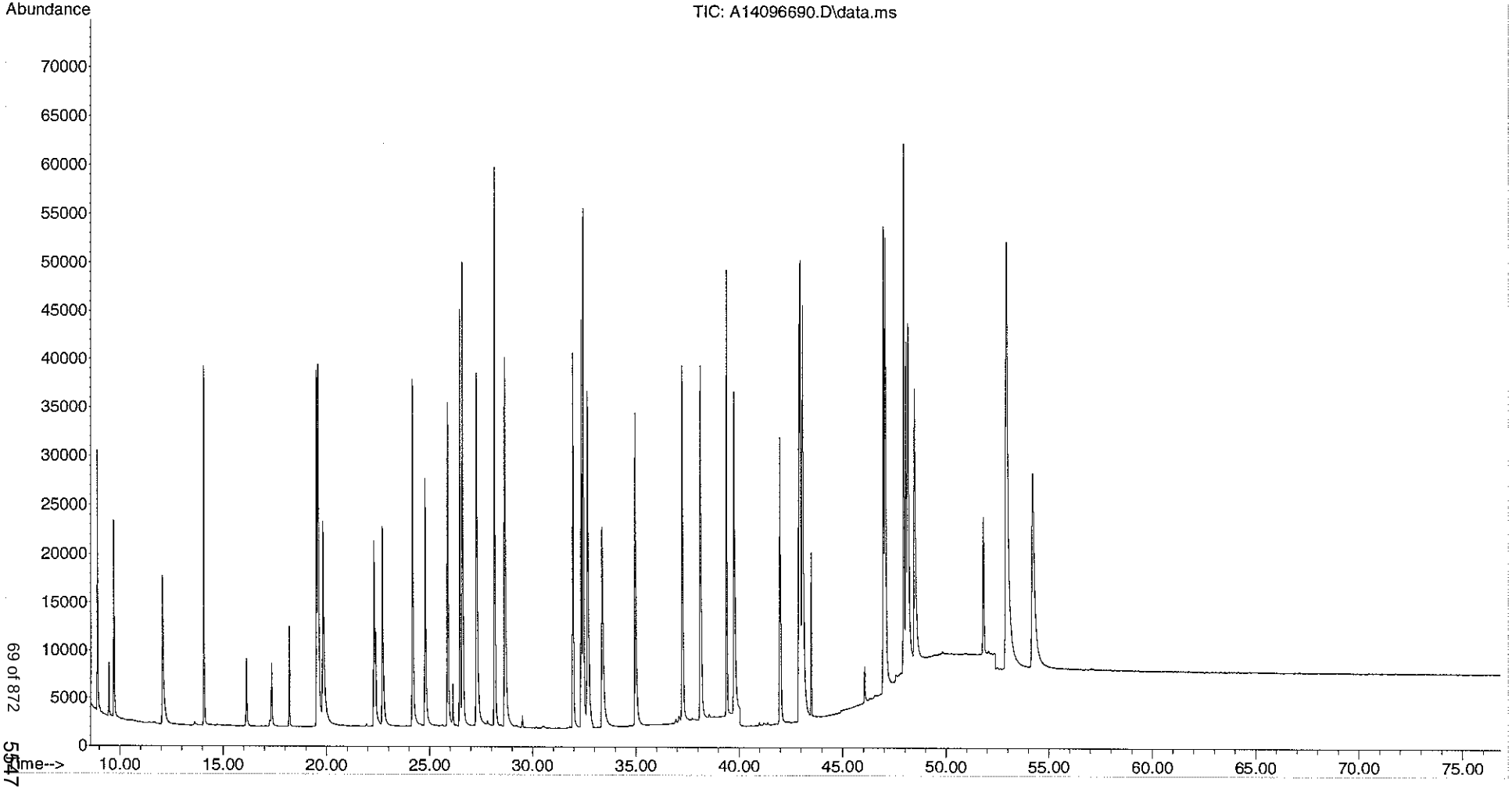
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

KS for SR 6/22/12

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	106	0.00
3	A1	trans-Decalin	0.403	0.405	-0.5	104	0.00
4	t	cis-Decalin	0.311	0.317	-1.9	105	0.00
9	s	Naphthalene-d8	1.774	1.796	-1.2	98	0.00
10	A1	Naphthalene	1.941	2.058	-6.0	101	0.00
16	t	2-Methylnaphthalene	1.277	1.287	-0.8	99	0.00
17	t	1-Methylnaphthalene	1.253	1.310	-4.5	102	0.00
18	A1	Benzothiophene	1.497	1.629	-8.8	102	0.00
23	t	Biphenyl	1.563	1.577	-0.9	99	0.00
24	t	2,6-Dimethylnaphthalene	1.142	1.148	-0.5	99	0.00
25	t	Dibenzofuran	1.652	1.730	-4.7	100	0.00
26	t	Acenaphthylene	2.019	1.993	1.3	97	0.00
27	t	Acenaphthene	1.248	1.306	-4.6	101	0.00
28	t	2,3,5-Trimethylnaphthalene	1.036	1.044	-0.8	99	0.00
29	A1	Fluorene	1.389	1.436	-3.4	99	0.00
33	A1	Dibenzothiophene	1.804	1.788	0.9	97	0.00
42	s	Phenanthrene-d10	1.672	1.700	-1.7	96	0.00
43	A1	Phenanthrene	1.916	1.991	-3.9	100	0.00
54	t	Retene	0.600	0.535	10.8	98	0.00
55	t	Anthracene	1.906	1.952	-2.4	97	0.00
56	t	Carbazole	1.778	1.846	-3.8	98	0.00
57	t	1-Methylphenanthrene	1.437	1.419	1.3	98	0.00
58	A1	Fluoranthene	1.955	2.001	-2.4	100	-0.02
59	t	Benzo(b)fluorene	1.303	1.319	-1.2	100	-0.02
60	A1	Pyrene	2.032	2.079	-2.3	101	0.00
66	A1	Naphthobenzothiophene	1.762	1.784	-1.2	100	0.00
67	A2	Naphthobenzothiophene-2,1-D	1.762	1.784	-1.2	100	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	107	0.00
75	t	Benz[a]anthracene	1.094	1.062	2.9	100	0.00
76	A1	Chrysene	1.080	1.149	-6.4	107	-0.02
77	A2	Chrysene/Triphenylene	1.080	1.149	-6.4	107	-0.02
82	t	Benzo[b]fluoranthene	1.082	1.071	1.0	100	0.00
83	A1	Benzo[j]+[k]fluoranthene	1.195	1.319	-10.4	110	-0.02
85	t	Benzo[e]pyrene	1.073	1.097	-2.2	105	0.00
86	s	Benzo[a]pyrene-d12	0.977	0.956	2.1	99	0.00
87	t	Benzo[a]pyrene	1.003	1.064	-6.1	106	-0.02
88	t	Perylene	1.087	1.129	-3.9	105	-0.03
89	t	Indeno[1,2,3-cd]pyrene	1.255	1.218	2.9	100	-0.02
90	t	Dibenz[ah]+[ac]anthracene	1.179	1.179	0.0	102	-0.03
91	t	Benzo[g,h,i]perylene	1.203	1.216	-1.1	104	-0.04
92	A1	Hopane (T19)	0.357	0.319	10.6	102	0.00
93	A2	17a(H),21B(H)-hopane - C30H	0.357	0.319	10.6	102	0.00
127	SA1	5B(H)Cholane - Surr	0.198	0.197	0.5	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	0.97	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

Kfor SK 6/26/12

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	71915	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	129552	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	129167	506.153	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.62%			
42) Phenanthrene-d10	32.331	188	122290	508.495	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.85%			
86) Benzo[a]pyrene-d12	48.021	264	123843	489.163	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.92%#			
127) 5B(H)Cholane - Surr	43.486	217	25515	497.541	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.75%#			
Target Compounds						Qvalue
3) trans-Decalin	16.134	138	14578	251.718	ng/mL	100
4) cis-Decalin	17.338	138	11389	254.970	ng/mL	100
10) Naphthalene	19.574	128	148015	530.307	ng/mL#	100
16) 2-Methylnaphthalene	22.275	142	92577	504.079	ng/mL#	100
17) 1-Methylnaphthalene	22.686	142	94210	522.566	ng/mL#	100
18) Benzothiophene	19.802	134	117157	544.273	ng/mL	100
23) Biphenyl	24.146	154	113377	504.317	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.757	156	82563	502.549	ng/mL#	100
25) Dibenzofuran	27.240	168	124437	523.566	ng/mL	97
26) Acenaphthylene	25.843	152	143298M3	493.538	ng/mL	
27) Acenaphthene	26.573	153	93945	523.534	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.125	170	75073	503.830	ng/mL	100
29) Fluorene	28.599	166	103284	516.843	ng/mL	100
33) Dibenzothiophene	31.920	184	128599	495.495	ng/mL	98
43) Phenanthrene	32.413	178	143179	519.515	ng/mL	100
54) Retene	39.378	234	38476	445.850	ng/mL	98
55) Anthracene	32.604	178	140401M3	512.051	ng/mL	
56) Carbazole	33.316	167	132760	519.187	ng/mL	98
57) 1-Methylphenanthrene	34.923	192	102059M3	493.653	ng/mL	
58) Fluoranthene	37.196	202	143897	511.775	ng/mL	99
59) Benzo(b)fluorene	39.716	216	94870	506.296	ng/mL	100
60) Pyrene	38.081	202	149511	511.613	ng/mL	99
66) Naphthobenzothiophene	41.943	234	128307	506.394	ng/ml#	55
67) Naphthobenzothiophene-2,1	41.943	234	128307	506.394	ng/mL#	55
75) Benz[a]anthracene	42.866	228	137635	485.671	ng/mL	99
76) Chrysene	43.030	228	148810	531.835	ng/mL	99
77) Chrysene/Triphenylene	43.030	228	148810	531.835	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	138806	495.233	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.015	252	170941	552.177	ng/mL	93
85) Benzo[e]pyrene	47.911	252	142169	511.589	ng/mL	96
87) Benzo[a]pyrene	48.112	252	137898M3	530.646	ng/mL	
88) Perylene	48.414	252	146288	519.236	ng/mL	89
89) Indeno[1,2,3-cd]pyrene	52.859	276	157741M3	485.267	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.877	278	152790	500.227	ng/mL	99
91) Benzo[g,h,i]perylene	54.138	276	157585	505.440	ng/mL	99
92) Hopane (T19)	51.807	191	41324	446.523	ng/mL#	82
93) 17a(H),21B(H)-hopane - C3	51.807	191	41324	446.523	ng/mL#	82

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

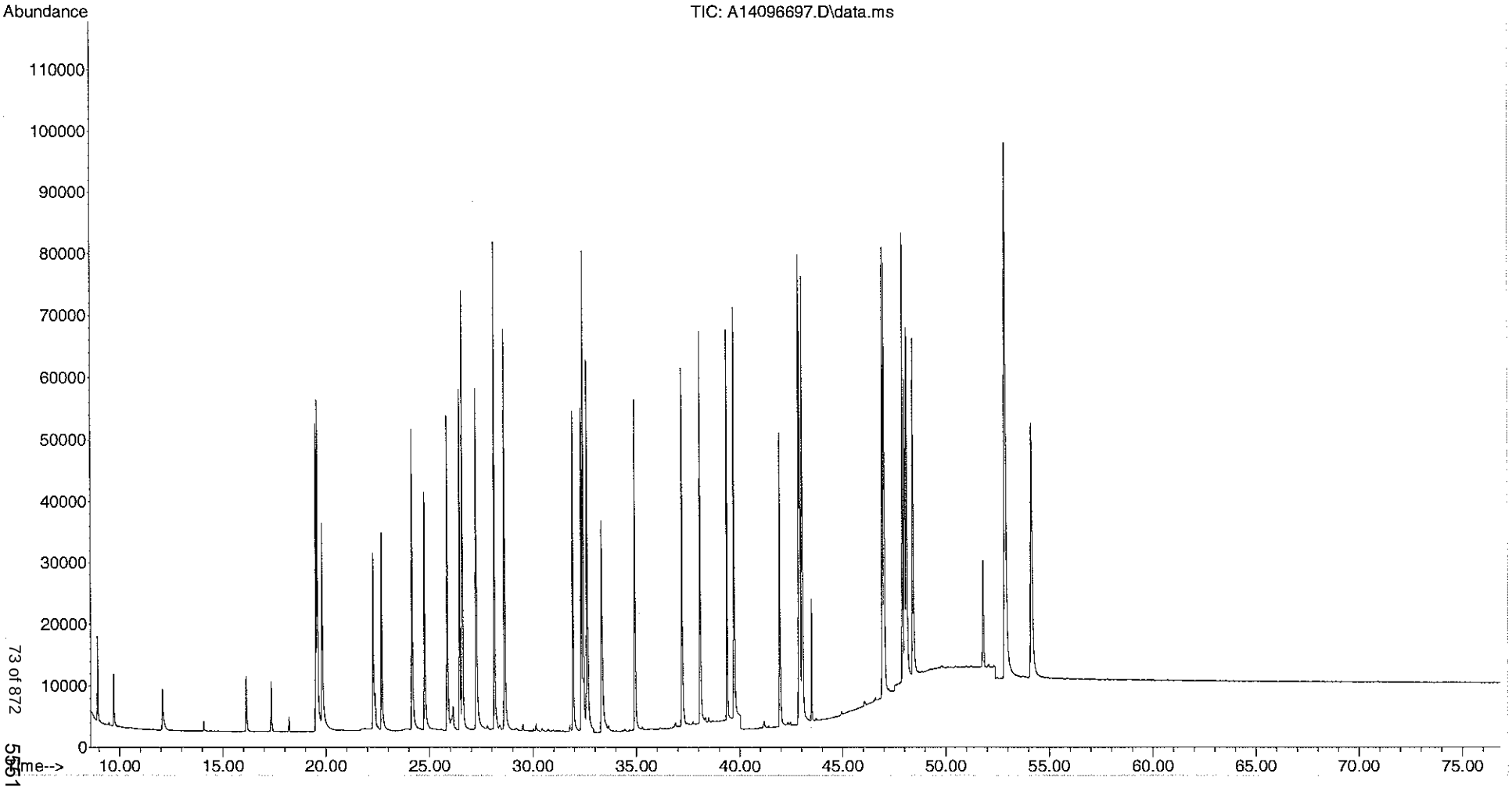
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



Evaluate Continuing Calibration Report

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

6/22/12

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	102	0.00
3	A1	trans-Decalin	0.403	0.392	2.7	97	0.00
4	t	cis-Decalin	0.311	0.310	0.3	99	0.00
9	s	Naphthalene-d8	1.774	1.721	3.0	91	0.00
10	A1	Naphthalene	1.941	1.971	-1.5	93	0.00
16	t	2-Methylnaphthalene	1.277	1.228	3.8	91	0.00
17	t	1-Methylnaphthalene	1.253	1.272	-1.5	95	0.00
18	A1	Benzothiophene	1.497	1.561	-4.3	94	0.00
23	t	Biphenyl	1.563	1.529	2.2	92	0.00
24	t	2,6-Dimethylnaphthalene	1.142	1.107	3.1	92	0.00
25	t	Dibenzofuran	1.652	1.740	-5.3	96	0.00
26	t	Acenaphthylene	2.019	1.939	4.0	91	0.00
27	t	Acenaphthene	1.248	1.311	-5.0	98	0.00
28	t	2,3,5-Trimethylnaphthalene	1.036	1.071	-3.4	97	0.00
29	A1	Fluorene	1.389	1.484	-6.8	98	0.00
33	A1	Dibenzothiophene	1.804	1.792	0.7	93	0.00
42	s	Phenanthrene-d10	1.672	1.729	-3.4	94	0.00
43	A1	Phenanthrene	1.916	1.982	-3.4	96	0.00
54	t	Retene	0.600	0.547	8.8	96	0.00
55	t	Anthracene	1.906	2.032	-6.6	97	0.00
56	t	Carbazole	1.778	1.887	-6.1	96	0.00
57	t	1-Methylphenanthrene	1.437	1.438	-0.1	95	0.00
58	A1	Fluoranthene	1.955	2.015	-3.1	97	-0.02
59	t	Benzo(b)fluorene	1.303	1.335	-2.5	97	-0.02
60	A1	Pyrene	2.032	2.088	-2.8	97	0.00
66	A1	Naphthobenzothiophene	1.762	1.838	-4.3	99	0.00
67	A2	Naphthobenzothiophene-2,1-D	1.762	1.838	-4.3	99	0.00
74	i	Chrysene-d12	1.000	1.000	0.0	109	0.00
75	t	Benz[a]anthracene	1.094	1.020	6.8	98	0.00
76	A1	Chrysene	1.080	1.160	-7.4	110	-0.02
77	A2	Chrysene/Triphenylene	1.080	1.160	-7.4	110	-0.02
82	t	Benzo[b]fluoranthene	1.082	1.085	-0.3	103	-0.02
83	A1	Benzo[j]+[k]fluoranthene	1.195	1.349	-12.9	114	-0.03
85	t	Benzo[e]pyrene	1.073	1.131	-5.4	110	0.00
86	s	Benzo[a]pyrene-d12	0.977	1.011	-3.5	106	-0.02
87	t	Benzo[a]pyrene	1.003	1.075	-7.2	109	-0.02
88	t	Perylene	1.087	1.164	-7.1	110	-0.03
89	t	Indeno[1,2,3-cd]pyrene	1.255	1.231	1.9	102	-0.02
90	t	Dibenz[ah]+[ac]anthracene	1.179	1.232	-4.5	108	-0.03
91	t	Benzo[g,h,i]perylene	1.203	1.266	-5.2	111	-0.04
92	A1	Hopane (T19)	0.357	0.336	5.9	109	0.00
93	A2	17a(H),21B(H)-hopane - C30H	0.357	0.336	5.9	109	0.00
127	SA1	5B(H)Cholane - Surr	0.198	0.205	-3.5	110	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Concentration)	Ratio	Range Limits
Benzo[g,h,i]perylene to Phenanthrene	1.02	0.70 - 1.30

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	69085	500.000	ng/mL	0.00
74) Chrysene-d12	42.930	240	131895	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	118892	484.974	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.50%#			
42) Phenanthrene-d10	32.321	188	119439	516.984	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.70%			
86) Benzo[a]pyrene-d12	48.012	264	133407	517.579	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.76%			
127) 5B(H)Cholane - Surr	43.487	217	27069	518.467	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.85%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	13534	243.264	ng/mL	100
4) cis-Decalin	17.338	138	10718	249.778	ng/mL	100
10) Naphthalene	19.574	128	136158	507.809	ng/mL#	100
16) 2-Methylnaphthalene	22.275	142	84827	480.801	ng/mL#	100
17) 1-Methylnaphthalene	22.686	142	87873	507.383	ng/mL#	100
18) Benzothiophene	19.802	134	107808	521.357	ng/mL	100
23) Biphenyl	24.146	154	105628	489.095	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.758	156	76497	484.700	ng/mL#	100
25) Dibenzofuran	27.240	168	120229	526.583	ng/mL	98
26) Acenaphthylene	25.843	152	133982M3	480.355	ng/mL	
27) Acenaphthene	26.564	153	90568	525.390	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.125	170	73979	516.826	ng/mL	95
29) Fluorene	28.608	166	102535	534.114	ng/mL	100
33) Dibenzothiophene	31.920	184	123820	496.624	ng/mL	100
43) Phenanthrene	32.413	178	136920	517.156	ng/mL	99
54) Retene	39.378	234	37774	455.646	ng/mL	96
55) Anthracene	32.613	178	140360M3	532.871	ng/mL	
56) Carbazole	33.316	167	130343	530.616	ng/mL	99
57) 1-Methylphenanthrene	34.923	192	99335	500.159	ng/mL	100
58) Fluoranthene	37.196	202	139239	515.495	ng/mL	100
59) Benzo(b)fluorene	39.716	216	92205	512.231	ng/mL	99
60) Pyrene	38.081	202	144252	513.838	ng/mL	99
66) Naphthobenzothiophene	41.944	234	126956	521.587	ng/ml	100
67) Naphthobenzothiophene-2,1	41.944	234	126956	521.587	ng/mL	100
75) Benz[a]anthracene	42.866	228	134564	466.400	ng/mL	99
76) Chrysene	43.030	228	152990	537.061	ng/mL	100
77) Chrysene/Triphenylene	43.030	228	152990	537.061	ng/mL	100
82) Benzo[b]fluoranthene	46.923	252	143143	501.635	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.006	252	177958	564.632	ng/mL	91
85) Benzo[e]pyrene	47.911	252	149161	527.214	ng/mL	93
87) Benzo[a]pyrene	48.112	252	141819M3	536.040	ng/mL	
88) Perylene	48.414	252	153485	535.104	ng/mL#	85
89) Indeno[1,2,3-cd]pyrene	52.859	276	162375M3	490.649	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.877	278	162548	522.721	ng/mL	100
91) Benzo[g,h,i]perylene	54.138	276	166932	525.908	ng/mL	99
92) Hopane (T19)	51.807	191	44254	469.688	ng/mL#	78
93) 17a(H),21B(H)-hopane - C3	51.807	191	44254	469.688	ng/mL#	78

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

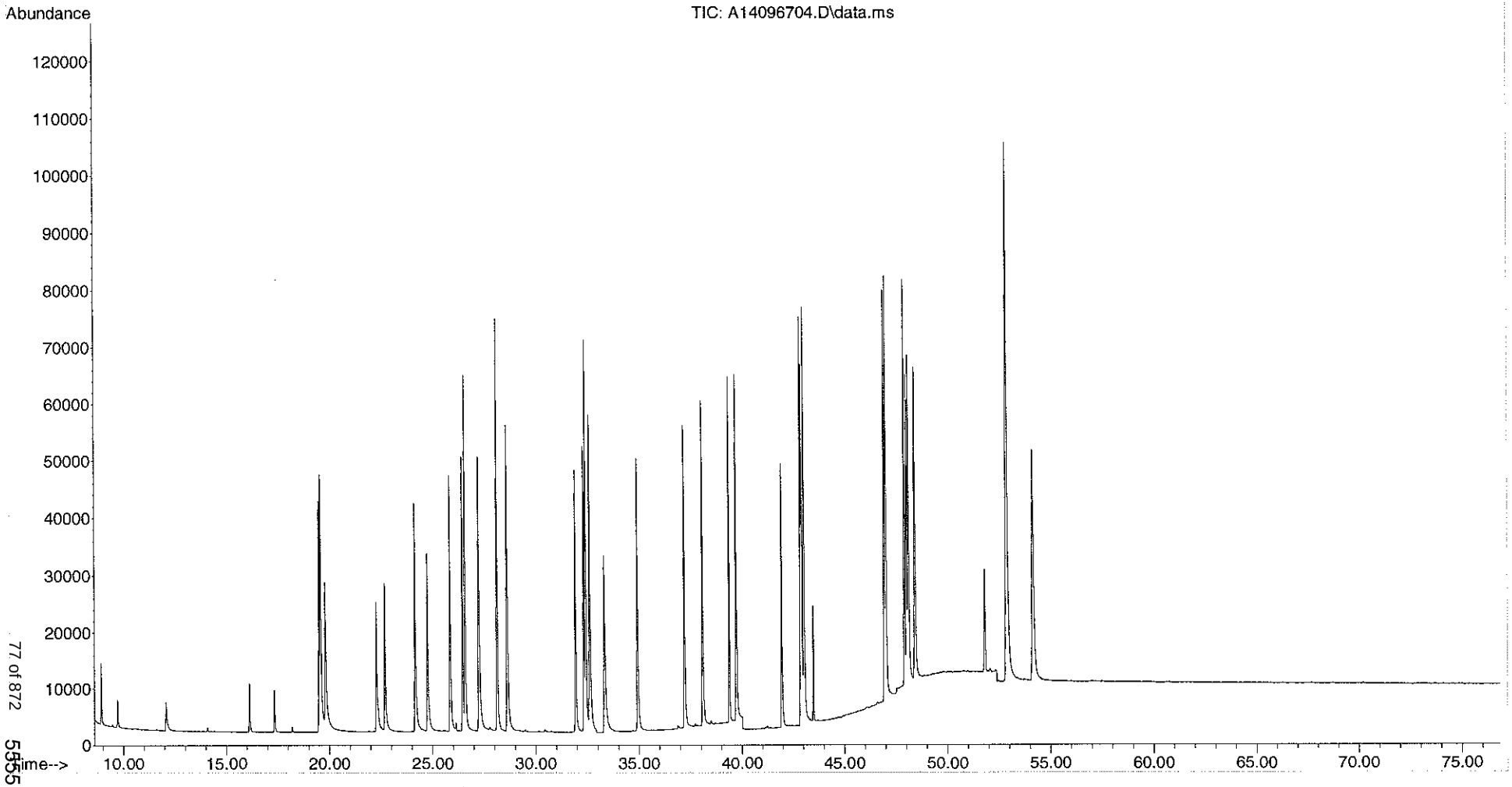
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

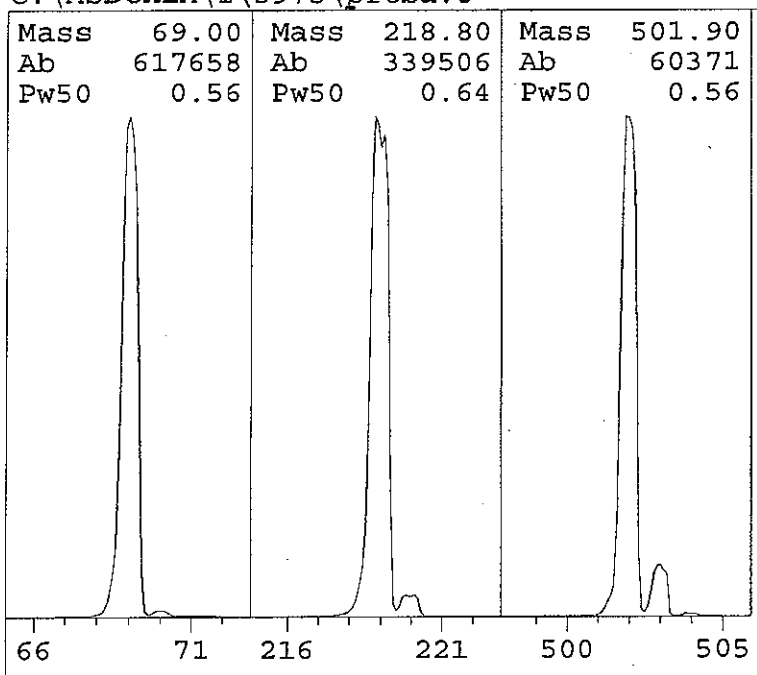
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates



5975 Tune

5/18/12.

Fri May 18 10:34:18 2012 Instrument: PAH 14
C:\MSDCHEM\1\5975\pftba.U US10223404

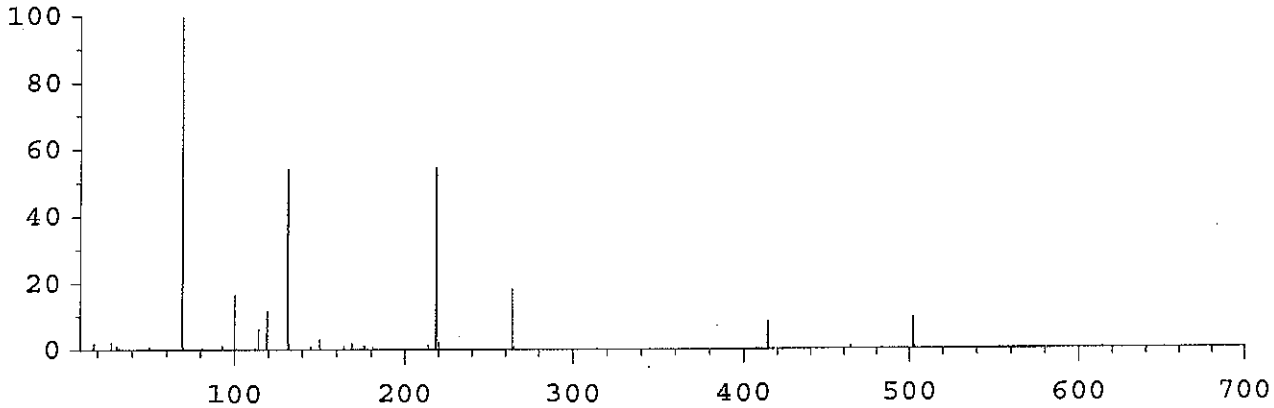


Ion Pol	Pos	MassGain	-1074
		MassOffs	-37
Emission	34.6	AmuGain	1201
EIEnrgy	69.9	AmuOffs	123.19
Filament	1	Wid219	0.003
		DC Pol	Pos
Repeller	26.94		
IonFcus	90.2	HEDEnab	On
EntLens	0.0	EMVolts	1847
EntOffs	Var		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	1.00e10

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
177 peaks Base: 69.00 Abundance: 595648



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	595648	100.00	70.00	6747	1.13
218.90	325568	54.66	220.00	14182	4.36
502.00	58256	9.78	503.00	5472	9.39

Air/Water Check: H2O~2.14% N2~2.53% O2~0.79% CO2~0.43% N2/H2O~117.91%

Ramp Criteria:
Ion Focus Maximum 90 volts using ion 502; EM Gain 60755
Repeller Maximum 30 volts using ion 219; Gain Factor 0.61

MassGain Values(Samples): -1067(3) -1060(2) -1045(1) -1018(0) -931(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	123.2	123.2	123.2	123.2	123.2	123.2	123.2
Entrance Lens Offset:	19.3	17.1	17.3	16.3	22.1	23.6	23.6
Target Abund(%):	1.0	100.0	54.0	55.0	8.0	9.0	
Actual Tune Abund(%):	1.0	100.0	54.2	54.7	8.4	9.8	

PAH14051812.M

[targets]
base=69
masses=5
mass1=50
mass2=131
mass3=219
mass4=414
mass5=502
target1=1
target2=45
target3=55
target4=2.5
target5=2
[atune.cnorm]
masses=5
69=407936
50=4204
131=118576
219=124440
414=10414
502=11204
[target.cnorm]
masses=5
69=562304
50=5674
131=307776
219=303936
414=50632
502=59664
[pftba.cnorm]
masses=5
69=595648✓
50=6131
131=323136
219=325568 - 54.66%
414=49872
502=58256 - 9.78%
[dftpp.cnorm]
masses=5
69=543488
50=5567
131=256384
219=313280
414=14102
502=12459

MAL
6/24/12

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	20.0	U
C4-Decalins	20.0	U	Pyrene	20.0	U
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	**0.902**	J
Naphthalene	20.0	U	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	20.0	U
Biphenyl	20.0	U	Chrysene/Triphenylene	20.0	U
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	20.0	U	C2-Chrysenes	20.0	U
Acenaphthene	20.0	U	C3-Chrysenes	20.0	U
Fluorene	20.0	U	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	20.0	U
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	20.0	U
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	20.0	U	Benzo[e]pyrene	20.0	U
Phenanthrene	20.0	U	Benzo[a]pyrene	20.0	U
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	20.0	U
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	20.0	U
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	20.0	U
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9/4-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	20.0 U
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	86	40-120
Phenanthrene-d10	86	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Associated Blank: **N/A**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U			
C30 Tricyclic Terpane-22S	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U			
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	Unknown Sterane (S18)	**15.9**	J
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
30-Norhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
17a(H)-Diahopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
30-Normoretane	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
Hopane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
Moretane	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
30-Homohopane-22S	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
30-Homohopane-22R	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20S-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U	C27,20R-triaromatic steroid	20.0	U
			C28,20R-triaromatic steroid	20.0	U

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	100	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096699.D
Acq On : 21 Jun 2012 9:47 am
Operator : AC
Sample : SO062012B01
Misc : 1X ETR1206028
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 22 13:18:28 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	46583	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	86936	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.528	136	70760M3	428.065	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.81%#			
42) Phenanthrene-d10	32.349	188	66772	428.629	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.86%#			
86) Benzo[a]pyrene-d12	48.039	264	75005	441.486	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.15%#			
127) 5B(H)Cholane - Surr	43.486	217	17209	500.073	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.01%			
Target Compounds						Qvalue
66) Naphthobenzothiophene	41.989	234	68M2	0.414	ng/ml	
67) Naphthobenzothiophene-2,1	41.989	234	74M2	0.451	ng/mL	
133) Unknown Sterane (S18)	47.801	217	273	7.933	ng/ml	100

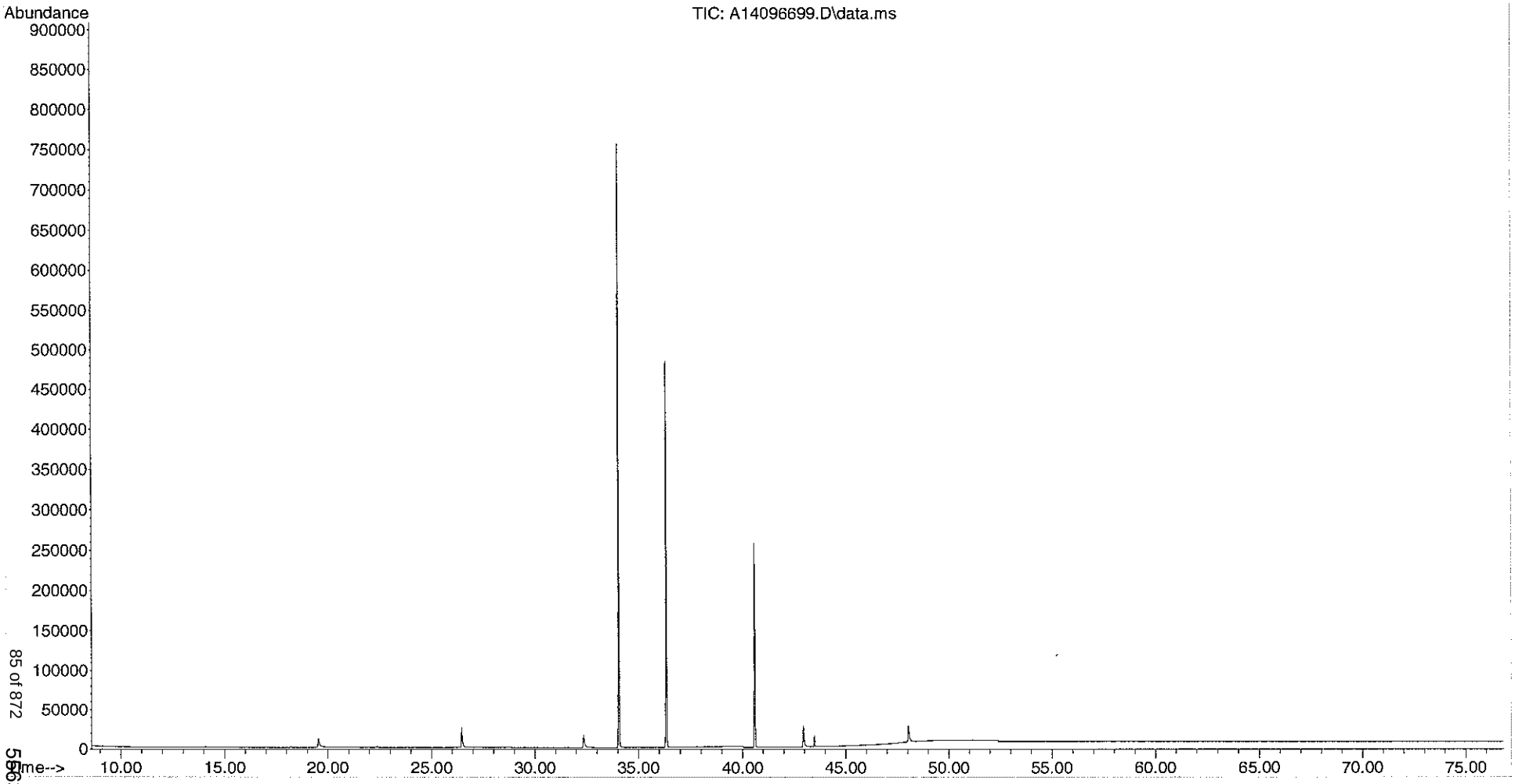
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096699.D
Acq On : 21 Jun 2012 9:47 am
Operator : AC
Sample : SO062012B01
Misc : 1X ETR1206028
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 22 13:18:28 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCS01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**987**	S
C4-Decalins	20.0	U	Pyrene	**1010**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**995**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**828**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**1000**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**845**	S	C2-Chrysenes	20.0	U
Acenaphthene	**942**	S	C3-Chrysenes	20.0	U
Fluorene	**974**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**952**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**1090**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**829**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**986**	S	Benzo[a]pyrene	**1050**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**868**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**898**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**907**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCS01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCS01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9/4-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**839**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	91	40-120
Phenanthrene-d10	94	40-120
Benzo[a]pyrene-d12	86	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCS01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096700.D
Acq On : 21 Jun 2012 11:13 am
Operator : AC
Sample : SO062012LCS01
Misc : 1X ETR1206028
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jun 22 11:31:07 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	51979	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	100848	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	83779	454.210	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.42%#			
42) Phenanthrene-d10	32.330	188	81375	468.142	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.81%#			
86) Benzo[a]pyrene-d12	48.030	264	85128	431.948	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.19%#			
127) 5B(H)Cholane - Surr	43.486	217	18959	474.925	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.49%#			
Target Compounds						Qvalue
10) Naphthalene	19.583	128	100398	497.666	ng/mL#	100
16) 2-Methylnaphthalene	22.284	142	55704	419.636	ng/mL#	100
26) Acenaphthylene	25.852	152	88708M3	422.703	ng/mL	
27) Acenaphthene	26.573	153	61075	470.897	ng/mL	100
29) Fluorene	28.608	166	70370	487.198	ng/mL	99
43) Phenanthrene	32.422	178	98184	492.891	ng/mL	100
55) Anthracene	32.613	178	82119M3	414.360	ng/mL	
58) Fluoranthene	37.205	202	100248	493.281	ng/mL	98
60) Pyrene	38.090	202	106926	506.225	ng/mL	98
75) Benz[a]anthracene	42.865	228	91314	413.931	ng/mL	99
77) Chrysene/Triphenylene	43.030	228	108879	499.880	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	103901	476.210	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.015	252	130909	543.223	ng/mL	93
87) Benzo[a]pyrene	48.121	252	105994	523.968	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.868	276	109869M3	434.198	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.886	278	106791	449.142	ng/mL	98
91) Benzo[g,h,i]perylene	54.147	276	110013	453.289	ng/mL	99

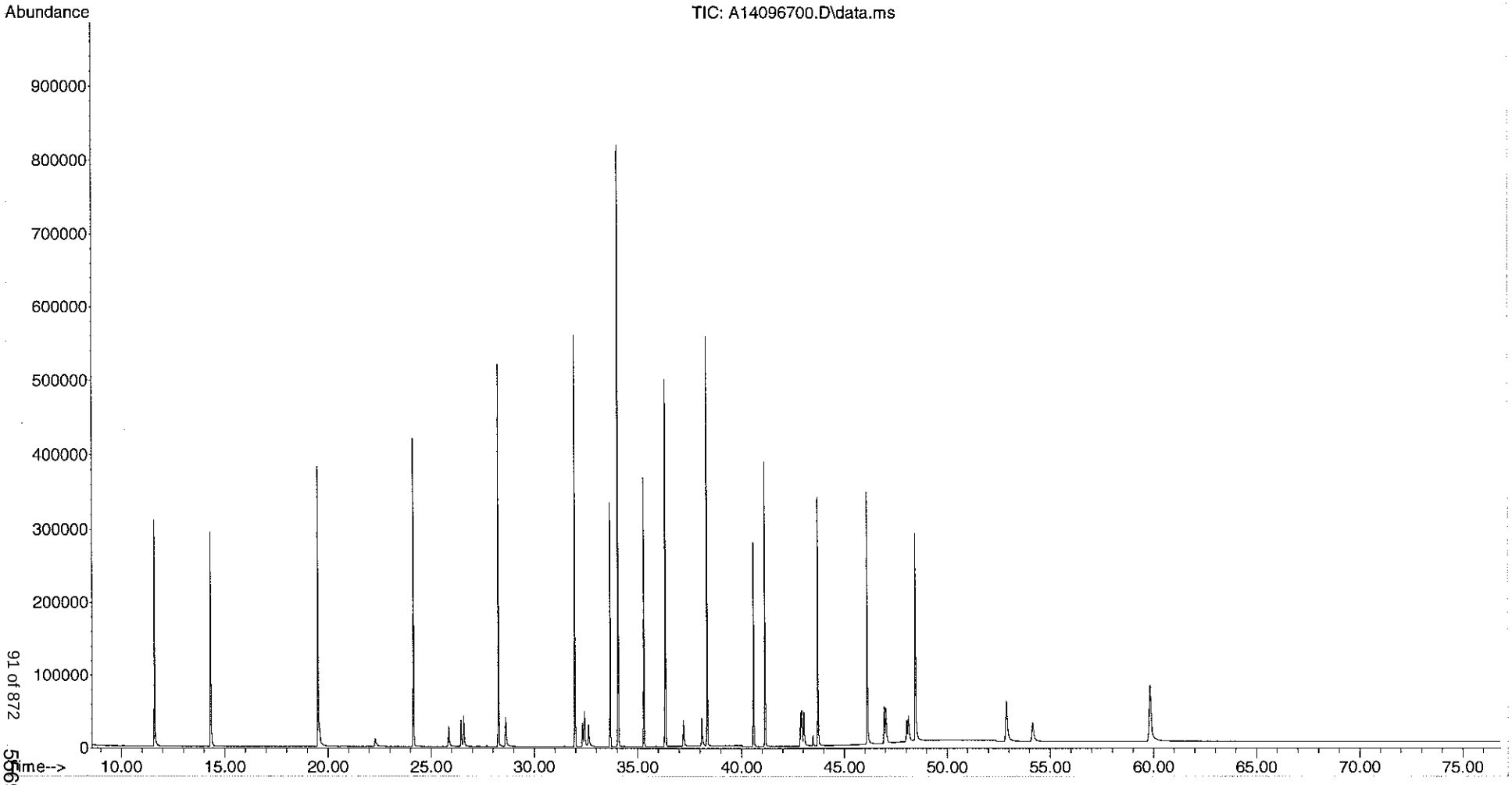
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096700.D
Acq On : 21 Jun 2012 11:13 am
Operator : AC
Sample : SO062012LCS01
Misc : 1X ETR1206028
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jun 22 11:31:07 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCSD01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	20.0	U	C3-Dibenzothiophenes	20.0	U
C1-Decalins	20.0	U	C4-Dibenzothiophenes	20.0	U
C2-Decalins	20.0	U	Benzo(b)fluorene	20.0	U
C3-Decalins	20.0	U	Fluoranthene	**1010**	S
C4-Decalins	20.0	U	Pyrene	**1020**	S
Benzothiophene	20.0	U	C1-Fluoranthenes/Pyrenes	20.0	U
C1-Benzo(b)thiophenes	20.0	U	C2-Fluoranthenes/Pyrenes	20.0	U
C2-Benzo(b)thiophenes	20.0	U	C3-Fluoranthenes/Pyrenes	20.0	U
C3-Benzo(b)thiophenes	20.0	U	C4-Fluoranthenes/Pyrenes	20.0	U
C4-Benzo(b)thiophenes	20.0	U	Naphthobenzothiophenes	20.0	U
Naphthalene	**1010**	S	C1-Naphthobenzothiophenes	20.0	U
C1-Naphthalenes	20.0	U	C2-Naphthobenzothiophenes	20.0	U
C2-Naphthalenes	20.0	U	C3-Naphthobenzothiophenes	20.0	U
C3-Naphthalenes	20.0	U	C4-Naphthobenzothiophenes	20.0	U
C4-Naphthalenes	20.0	U	Benz[a]anthracene	**833**	S
Biphenyl	20.0	U	Chrysene/Triphenylene	**1010**	S
Dibenzofuran	20.0	U	C1-Chrysenes	20.0	U
Acenaphthylene	**853**	S	C2-Chrysenes	20.0	U
Acenaphthene	**957**	S	C3-Chrysenes	20.0	U
Fluorene	**986**	S	C4-Chrysenes	20.0	U
C1-Fluorenes	20.0	U	Benzo[b]fluoranthene	**951**	S
C2-Fluorenes	20.0	U	Benzo[j]fluoranthene/Benzo[k]fluoranthene	**1090**	S
C3-Fluorenes	20.0	U	Benzo[a]fluoranthene	20.0	U
Anthracene	**846**	S	Benzo[e]pyrene	20.0	U
Phenanthrene	**1000**	S	Benzo[a]pyrene	**1040**	S
C1-Phenanthrenes/Anthracenes	20.0	U	Perylene	20.0	U
C2-Phenanthrenes/Anthracenes	20.0	U	Indeno[1,2,3-cd]pyrene	**878**	S
C3-Phenanthrenes/Anthracenes	20.0	U	Dibenz[ah]anthracene/Dibenz[ac]anthracene	**896**	S
C4-Phenanthrenes/Anthracenes	20.0	U	Benzo[g,h,i]perylene	**904**	S
Retene	20.0	U			
Dibenzothiophene	20.0	U			
C1-Dibenzothiophenes	20.0	U			
C2-Dibenzothiophenes	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	93	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Form I
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCSD01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
Carbazole	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	93	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCSD01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result
4-Methyldibenzothiophene	20.0 U
2/3-Methyldibenzothiophene	20.0 U
1-Methyldibenzothiophene	20.0 U
3-Methylphenanthrene	20.0 U
2-Methylphenanthrene	20.0 U
2-Methylanthracene	20.0 U
9/4-Methylphenanthrene	20.0 U
1-Methylphenanthrene	20.0 U
2-Methylnaphthalene	**855**
1-Methylnaphthalene	20.0 U
2,6-Dimethylnaphthalene	20.0 U
2,3,5-Trimethylnaphthalene	20.0 U

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	93	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	88	40-120

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Steranes and Triterpanes

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCSD01**
Associated Blank: **SO062012B01**
Concentration Units: **ng**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/21/12	100	1.00	2	1	AC

Parameter	Result		Parameter	Result	
C23 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22S	20.0	U
C24 Tricyclic Terpane	20.0	U	30,31-Trishomohopane-22R	20.0	U
C25 Tricyclic Terpane	20.0	U	Tetrakishomohopane-22S	20.0	U
C24 Tetracyclic Terpane	20.0	U	Tetrakishomohopane-22R	20.0	U
C26 Tricyclic Terpane-22S	20.0	U	Pentakishomohopane-22S	20.0	U
C26 Tricyclic Terpane-22R	20.0	U	Pentakishomohopane-22R	20.0	U
C28 Tricyclic Terpane-22S	20.0	U	13b(H),17a(H)-20S-Diacholestane	20.0	U
C28 Tricyclic Terpane-22R	20.0	U	13b(H),17a(H)-20R-Diacholestane	20.0	U
C29 Tricyclic Terpane-22S	20.0	U	13b,17a-20S-Methyldiacholestane	20.0	U
C29 Tricyclic Terpane-22R	20.0	U	14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	20.0	U
18a-22,29,30-Trisnorneohopane-TS	20.0	U	14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	20.0	U
C30 Tricyclic Terpane-22S	20.0	U	Unknown Sterane (S18)	20.0	U
C30 Tricyclic Terpane-22R	20.0	U	13a,17b-20S-Ethyldiacholestane	20.0	U
17a(H)-22,29,30-Trisnorhopane-TM	20.0	U	14a,17a-20S-Methylcholestane	20.0	U
17a/b,21b/a 28,30-Bisnorhopane	20.0	U	14a,17a-20R-Methylcholestane	20.0	U
17a(H),21b(H)-25-Norhopane	20.0	U	14a(H),17a(H)-20S-Ethylcholestane	20.0	U
30-Norhopane	20.0	U	14a(H),17a(H)-20R-Ethylcholestane	20.0	U
18a(H)-30-Norneohopane-C29Ts	20.0	U	14b(H),17b(H)-20R-Cholestane	20.0	U
17a(H)-Diahopane	20.0	U	14b(H),17b(H)-20S-Cholestane	20.0	U
30-Normoretane	20.0	U	14b,17b-20R-Methylcholestane	20.0	U
18a(H)&18b(H)-Oleananes	20.0	U	14b,17b-20S-Methylcholestane	20.0	U
Hopane	20.0	U	14b(H),17b(H)-20R-Ethylcholestane	20.0	U
Moretane	20.0	U	14b(H),17b(H)-20S-Ethylcholestane	20.0	U
30-Homohopane-22S	20.0	U	C26,20R- +C27,20S- triaromatic steroid	20.0	U
30-Homohopane-22R	20.0	U	C28,20S-triaromatic steroid	20.0	U
T22a-Gammacerane/C32-diahopane	20.0	U	C27,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22S	20.0	U	C28,20R-triaromatic steroid	20.0	U
30,31-Bishomohopane-22R	20.0	U			

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	95	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096701.D
Acq On : 21 Jun 2012 12:39 pm
Operator : AC
Sample : SO062012LCSD01
Misc : 1X ETR1206028
ALS Vial : 27 Sample Multiplier: 1

KG for SR 6/20/12

Quant Time: Jun 22 11:31:14 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	51274	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	100961	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	84286	463.242	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.32%#			
42) Phenanthrene-d10	32.330	188	83175	485.077	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.51%#			
86) Benzo[a]pyrene-d12	48.030	264	86535	438.596	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.86%#			
127) 5B(H)Cholane - Surr	43.486	217	19007	475.595	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.56%#			
Target Compounds						Qvalue
10) Naphthalene	19.583	128	100467	504.856	ng/mL#	100
16) 2-Methylnaphthalene	22.284	142	55974	427.468	ng/mL#	100
26) Acenaphthylene	25.852	152	88295M3	426.520	ng/mL	
27) Acenaphthene	26.573	153	61245	478.701	ng/mL	100
29) Fluorene	28.608	166	70272	493.209	ng/mL	100
43) Phenanthrene	32.422	178	98740	502.498	ng/mL	100
55) Anthracene	32.613	178	82717M3	423.117	ng/mL	
58) Fluoranthene	37.205	202	100826	502.947	ng/mL	98
60) Pyrene	38.090	202	106758	512.379	ng/mL	98
75) Benz[a]anthracene	42.865	228	91992	416.537	ng/mL	99
77) Chrysene/Triphenylene	43.039	228	109881	503.916	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	103867	475.521	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.015	252	131537	545.218	ng/mL	93
87) Benzo[a]pyrene	48.121	252	105806	522.453	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.868	276	111222M3	439.053	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.886	278	106583	447.766	ng/mL	99
91) Benzo[g,h,i]perylene	54.147	276	109807	451.934	ng/mL	99

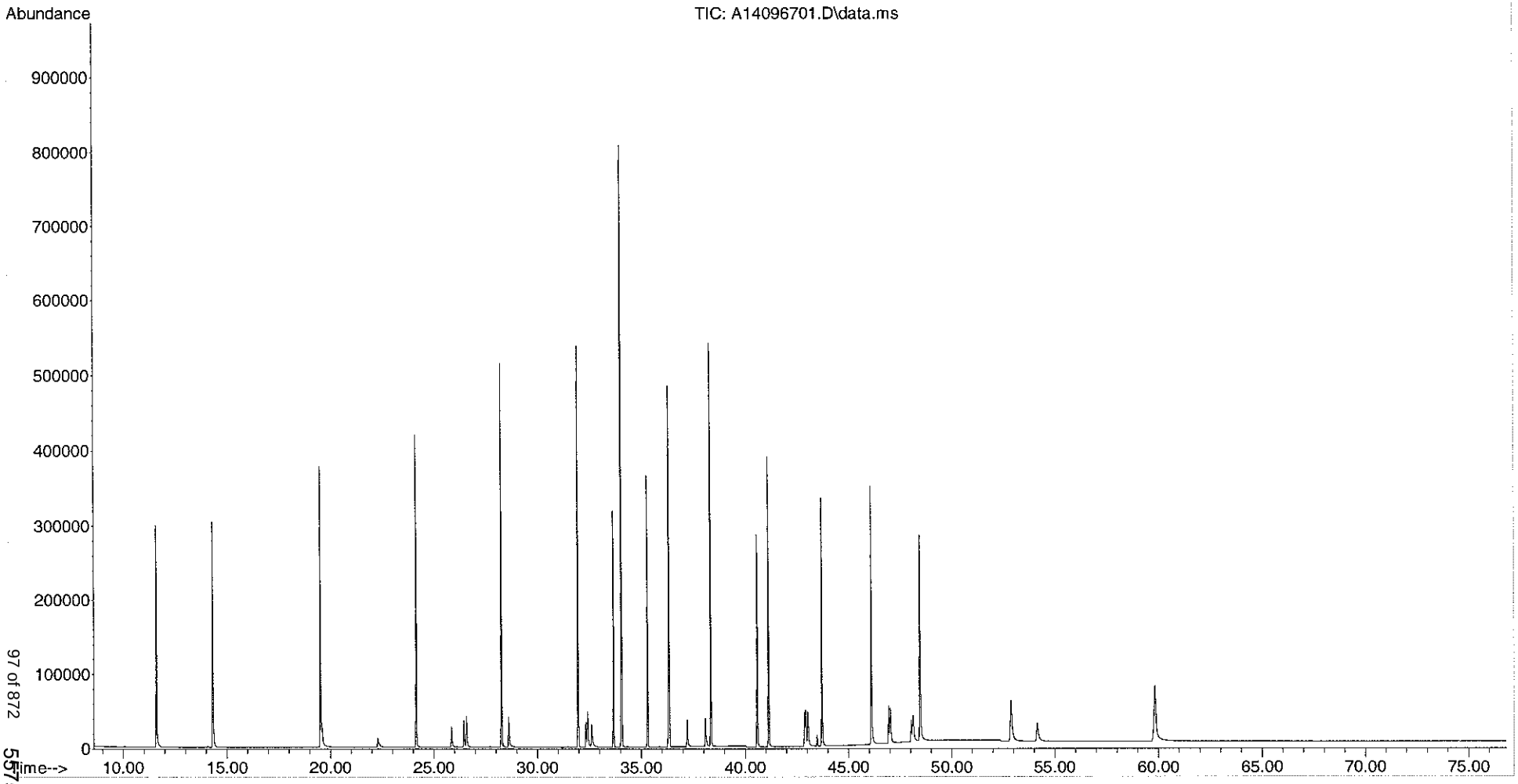
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096701.D
Acq On : 21 Jun 2012 12:39 pm
Operator : AC
Sample : SO062012LCSD01
Misc : 1X ETR1206028
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jun 22 11:31:14 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Cold Lake Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05422	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**145**		C3-Dibenzothiophenes	**401**	
C1-Decalins	**312**		C4-Dibenzothiophenes	**282**	
C2-Decalins	**487**		Benzo(b)fluorene	1.84	U
C3-Decalins	**326**		Fluoranthene	**4.92**	
C4-Decalins	**376**		Pyrene	**15.0**	
Benzothiophene	**9.60**		C1-Fluoranthenes/Pyrenes	**62.6**	
C1-Benzo(b)thiophenes	**56.5**		C2-Fluoranthenes/Pyrenes	**89.0**	
C2-Benzo(b)thiophenes	**94.0**		C3-Fluoranthenes/Pyrenes	**112**	
C3-Benzo(b)thiophenes	**155**		C4-Fluoranthenes/Pyrenes	**104**	
C4-Benzo(b)thiophenes	**162**		Naphthobenzothiophenes	**37.8**	
Naphthalene	**63.0**		C1-Naphthobenzothiophenes	**132**	
C1-Naphthalenes	**195**		C2-Naphthobenzothiophenes	**201**	
C2-Naphthalenes	**398**		C3-Naphthobenzothiophenes	**176**	
C3-Naphthalenes	**485**		C4-Naphthobenzothiophenes	**135**	
C4-Naphthalenes	**388**		Benz[a]anthracene	**3.53**	
Biphenyl	**19.2**		Chrysene/Triphenylene	**19.7**	
Dibenzofuran	**7.93**		C1-Chrysenes	**53.0**	
Acenaphthylene	**2.58**		C2-Chrysenes	**84.9**	
Acenaphthene	**11.1**		C3-Chrysenes	**104**	
Fluorene	**28.0**		C4-Chrysenes	**64.8**	
C1-Fluorenes	**73.7**		Benzo[b]fluoranthene	**5.70**	
C2-Fluorenes	**166**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	**1.72**	J
C3-Fluorenes	**200**		Benzo[a]fluoranthene	1.84	U
Anthracene	1.84	U	Benzo[e]pyrene	**9.09**	
Phenanthrene	**72.4**		Benzo[a]pyrene	**5.06**	
C1-Phenanthrenes/Anthracenes	**212**		Perylene	**8.79**	
C2-Phenanthrenes/Anthracenes	**313**		Indeno[1,2,3-cd]pyrene	**2.01**	
C3-Phenanthrenes/Anthracenes	**284**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.18**	J
C4-Phenanthrenes/Anthracenes	**132**		Benzo[g,h,i]perylene	**5.65**	
Retene	1.84	U			
Dibenzothiophene	**62.0**				
C1-Dibenzothiophenes	**213**				
C2-Dibenzothiophenes	**382**				

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	100	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	87	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Cold Lake Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05422	10	1	AC

Parameter	Result
Carbazole	**4.14**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	100	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	87	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05422	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**82.5**
2/3-Methyldibenzothiophene	**72.1**
1-Methyldibenzothiophene	**43.5**
3-Methylphenanthrene	**40.4**
2-Methylphenanthrene	**48.2**
2-Methylanthracene	**4.18**
9/4-Methylphenanthrene	**70.9**
1-Methylphenanthrene	**43.9**
2-Methylnaphthalene	**175**
1-Methylnaphthalene	**119**
2,6-Dimethylnaphthalene	**165**
2,3,5-Trimethylnaphthalene	**57.6**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	100	40-120
Phenanthrene-d10	97	40-120
Benzo[a]pyrene-d12	87	40-120

N/A - Not Applicable

Form I
Cold Lake Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212CL01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05422	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**117**
C24 Tricyclic Terpane	**62.9**
C25 Tricyclic Terpane	**56.2**
C24 Tetracyclic Terpane	**20.7**
C26 Tricyclic Terpane-22S	**21.3**
C26 Tricyclic Terpane-22R	**21.4**
C28 Tricyclic Terpane-22S	**23.8**
C28 Tricyclic Terpane-22R	**26.3**
C29 Tricyclic Terpane-22S	**31.7**
C29 Tricyclic Terpane-22R	**28.8**
18a-22,29,30-Trisnorneohopane-TS	**32.1**
C30 Tricyclic Terpane-22S	**24.3**
C30 Tricyclic Terpane-22R	**23.7**
17a(H)-22,29,30-Trisnorhopane-TM	**77.2**
17a/b,21b/a 28,30-Bisnorhopane	**53.4**
17a(H),21b(H)-25-Norhopane	**12.8**
30-Norhopane	**205**
18a(H)-30-Norneohopane-C29Ts	**28.2**
17a(H)-Diahopane	**9.37**
30-Normoretane	**19.5**
18a(H)&18b(H)-Oleananes	**2.72**
Hopane	**291**
Moretane	**21.7**
30-Homohopane-22S	**127**
30-Homohopane-22R	**105**
T22a-Gammacerane/C32-diahopane	**45.0**
30,31-Bishomohopane-22S	**79.3**
30,31-Bishomohopane-22R	**57.2**

Parameter	Result
30,31-Trishomohopane-22S	**61.5**
30,31-Trishomohopane-22R	**39.3**
Tetrakishomohopane-22S	**41.7**
Tetrakishomohopane-22R	**28.5**
Pentakishomohopane-22S	**49.9**
Pentakishomohopane-22R	**33.0**
13b(H),17a(H)-20S-Diacholestane	**31.9**
13b(H),17a(H)-20R-Diacholestane	**15.6**
13b,17a-20S-Methyldiacholestane	**15.9**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**63.6**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**72.1**
Unknown Sterane (S18)	**13.6**
13a,17b-20S-Ethyldiacholestane	**7.91**
14a,17a-20S-Methylcholestane	**27.1**
14a,17a-20R-Methylcholestane	**27.4**
14a(H),17a(H)-20S-Ethylcholestane	**63.3**
14a(H),17a(H)-20R-Ethylcholestane	**52.0**
14b(H),17b(H)-20R-Cholestane	**50.4**
14b(H),17b(H)-20S-Cholestane	**50.7**
14b,17b-20R-Methylcholestane	**41.2**
14b,17b-20S-Methylcholestane	**53.1**
14b(H),17b(H)-20R-Ethylcholestane	**79.6**
14b(H),17b(H)-20S-Ethylcholestane	**47.8**
C26,20R- +C27,20S- triaromatic steroid	**228**
C28,20S-triaromatic steroid	**184**
C27,20R-triaromatic steroid	**149**
C28,20R-triaromatic steroid	**160**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	109	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.437	164	59390	500.000	ng/mL	-0.02
74) Chrysene-d12	42.930	240	104191	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	210047	996.673	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.67%			
42) Phenanthrene-d10	32.321	188	192440	968.940	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.89%			
86) Benzo[a]pyrene-d12	48.021	264	178022	874.319	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 87.43%			
127) 5B(H)Cholane - Surr	43.496	217	44940	1089.632	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 108.96%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	35331	738.718	ng/mL	100
4) cis-Decalin	17.329	138	1782M3	48.308	ng/mL	
5) C1-Decalins	17.603	152	80963M5	1692.815	ng/mL	
6) C2-Decalins	19.027	166	126212M5	2638.904	ng/mL	
7) C3-Decalins	21.846	180	84627M5	1769.424	ng/mL	
8) C4-Decalins	24.493	194	97477M5	2038.098	ng/mL	
10) Naphthalene	19.565	128	78742M3	341.613	ng/mL	
11) C1-Naphthalenes	22.257	142	243729M5	1057.389	ng/mL	
12) C2-Naphthalenes	25.086	156	497157M5	2156.857	ng/mL	
13) C3-Naphthalenes	27.760	170	605687M5	2627.702	ng/mL	
14) C4-Naphthalenes	30.187	184	485056M5	2104.358	ng/mL	
16) 2-Methylnaphthalene	22.257	142	144020	949.564	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	96085	645.366	ng/mL#	100
18) Benzothiophene	19.802	134	9250	52.035	ng/mL	100
19) C1-Benzo(b)thiophenes	21.810	148	54481M5	306.478	ng/mL	
20) C2-Benzo(b)thiophenes	25.278	162	90641M5	509.894	ng/mL	
21) C3-Benzo(b)thiophenes	27.258	176	149190M5	839.256	ng/mL	
22) C4-Benzo(b)thiophenes	29.356	190	156576M5	880.806	ng/mL	
23) Biphenyl	24.146	154	19273	103.809	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.748	156	121606	896.301	ng/mL#	100
25) Dibenzofuran	27.230	168	8442	43.010	ng/mL#	69
26) Acenaphthylene	25.825	152	3348M3	13.963	ng/mL	
27) Acenaphthene	26.564	153	8928	60.246	ng/mL	92
28) 2,3,5-Trimethylnaphthalen	28.116	170	38460M3	312.547	ng/mL	
29) Fluorene	28.590	166	25103M3	152.110	ng/mL	
30) C1-Fluorenes	30.953	180	65949M5	399.614	ng/mL	
31) C2-Fluorenes	33.152	194	148532M5	900.020	ng/mL	
32) C3-Fluorenes	34.977	208	179197M5	1085.833	ng/mL	
33) Dibenzothiophene	31.911	184	72012	335.979	ng/mL#	60
34) 4-Methyldibenzothiophene(	33.681	198	95892	447.394	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.046	198	83823M3	391.085	ng/mL	
36) 1-Methyldibenzothiophene(	34.448	198	50604	236.098	ng/mL#	100
37) OTP	34.065	198	17114M3	79.847	ng/mL	
38) C1-Dibenzothiophenes	33.681	198	264967M5	1236.231	ng/mL	
38) C1-Dibenzothiophenes BS	33.681	198	247853m	1156.384	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	443300M5	2068.262	ng/mL	
40) C3-Dibenzothiophenes	37.168	226	465979M5	2174.073	ng/mL	
41) C4-Dibenzothiophenes	38.858	240	327363M5	1527.346	ng/mL	
43) Phenanthrene	32.413	178	89403	392.805	ng/mL#	79

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 3-Methylphenanthrene(3MP)	34.375	192	49794	218.777	ng/mL	89
45) 2-Methylphenanthrene(2MP)	34.485	192	59543M3	261.611	ng/mL	
46) 2-Methylanthracene(2MA)	34.649	192	5158M3	22.662	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.822	192	87518	384.523	ng/mL	98
48) 1-Methylphenanthrene(1MP)	34.914	192	54235M4	238.289	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.822	192	261605M5	1149.400	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.630	206	386612M5	1698.637	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.630	206	386612m	1698.637	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	350900M5	1541.731	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.647	234	163328M5	717.606	ng/mL	
56) Carbazole	33.380	167	4742M4	22.456	ng/mL	
57) 1-Methylphenanthrene	34.914	192	53979M4	316.156	ng/mL	
58) Fluoranthene	37.205	202	6198M3	26.692	ng/mL	
60) Pyrene	38.081	202	19562M3	81.057	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.478	216	81923M5	339.454	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.277	230	116461M5	482.564	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	146164M5	605.641	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	136310M5	564.810	ng/mL	
66) Naphthobenzothiophene	41.944	234	30020M3	143.468	ng/ml	
67) Naphthobenzothiophene-2,1	41.944	234	30128M3	143.984	ng/mL	
68) Naphthobenzothiophene-1,2	42.281	234	7389	35.313	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.592	234	5416M3	25.883	ng/mL	
70) C1-Naphthobenzothiophenes	44.025	248	150142M5	717.541	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	227763M5	1088.498	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	199269M5	952.323	ng/ml	
73) C4-Naphthobenzothiophenes	47.975	290	153470M5	733.445	ng/mL	
75) Benz[a]anthracene	42.875	228	4363M3	19.143	ng/mL	
77) Chrysene/Triphenylene	43.003	228	24082M3	107.017	ng/mL	
78) C1-Chrysenes	44.500	242	64600M5	287.072	ng/mL	
79) C2-Chrysenes	46.594	256	103541M5	460.120	ng/mL	
79) C2-Chrysenes BS	46.594	256	103541m	460.120	ng/mL	
80) C3-Chrysenes	47.911	270	126828M5	563.604	ng/mL	
81) C4-Chrysenes	49.329	284	79031M5	351.201	ng/mL	
82) Benzo[b]fluoranthene	46.942	252	6963	30.890	ng/mL#	48
83) Benzo[j]+[k]fluoranthene	47.024	252	2328M3	9.350	ng/mL	
85) Benzo[e]pyrene	47.920	252	11009	49.258	ng/mL	93
87) Benzo[a]pyrene	48.121	252	5737M3	27.450	ng/mL	
88) Perylene	48.432	252	10797	47.651	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.895	276	2845M3	10.883	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.895	278	1565M3	6.371	ng/mL	
91) Benzo[g,h,i]perylene	54.175	276	7685	30.649	ng/mL	91
92) Hopane (T19)	51.816	191	117395	1577.266	ng/mL#	81
94) C23 Tricyclic Terpane (T4	40.519	191	47370M3	636.442	ng/ml	
95) C24 Tricyclic Terpane (T5	41.241	191	25382	341.021	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.729	191	22700M3	304.987	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	8336M3	111.999	ng/ml	
98) C26 Tricyclic Terpane-22S	43.788	191	8590M3	115.411	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	8633M3	115.989	ng/ml	
100) C28 Tricyclic Terpane-22S	46.173	191	9599M3	128.968	ng/ml	
101) C28 Tricyclic Terpane-22R	46.338	191	10631M3	142.833	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	12793	171.881	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	11627M3	156.215	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	12943	173.896	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.231	191	9816M3	131.883	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
106)	C30 Tricyclic Terpane-22R	48.469	191	9560M3	128.444	ng/mL	
107)	17a(H)-22,29,30-Trisnorho	48.670	191	31161	418.665	ng/ml	100
108)	17a/b,21b/a 28,30-Bisnorh	49.841	191	21537	289.361	ng/ml	100
109)	17a(H),21b(H)-25-Norhopan	49.640	191	5183	69.636	ng/ml	100
110)	30-Norhopane (T15)	50.481	191	82805M3	1112.531	ng/ml	
111)	18a(H)-30-Norneohopane-C2	50.591	191	11386M3	152.977	ng/ml	
112)	17a(H)-Diahopane (X)	50.710	191	3781M3	50.800	ng/ml	
113)	30-Normoretane (T17)	51.249	191	7852	105.496	ng/ml	100
114)	18a(H)&18b(H)-Oleananes (	51.634	191	1096M3	14.725	ng/ml	
115)	Moretane (T20)	52.484	191	8774M3	117.884	ng/ml	
116)	30-Homohopane-22S (T21)	53.544	191	51398	690.560	ng/ml	100
117)	30-Homohopane-22R (T22)	53.773	191	42242	567.545	ng/ml	100
118)	Gammacerane/C32-diahopane	54.303	191	18152M3	243.882	ng/mL	
119)	30,31-Bishomohopane-22S (	55.052	191	31986	429.750	ng/ml	100
120)	30,31-Bishomohopane-22R (	55.417	191	23086M3	310.173	ng/ml	
121)	30,31-Trishomohopane-22S	57.108	191	24801M3	333.215	ng/ml	
122)	30,31-Trishomohopane-22R	57.702	191	15862	213.115	ng/ml	100
123)	Tetrakishomohopane-22S (T	59.639	191	16825	226.053	ng/ml	100
124)	Tetrakishomohopane-22R (T	60.516	191	11500	154.509	ng/ml	100
125)	Pentakishomohopane-22S (T	62.664	191	20129M3	270.444	ng/ml	
126)	Pentakishomohopane-22R (T	63.916	191	13302	178.720	ng/ml	100
128)	13b(H),17a(H)-20S-Diachol	45.002	217	7138	173.071	ng/ml	100
129)	13b(H),17a(H)-20R-Diachol	45.423	217	3485	84.499	ng/ml	100
130)	13b,17a-20S-Methyldiachol	46.127	217	3565	86.438	ng/ml	100
131)	14a,17a-20S-Chol/13b,17a-	46.978	217	14232	345.074	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.500	217	16118M3	390.803	ng/ml	
133)	Unknown Sterane (S18)	47.765	217	3035	73.588	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	48.021	217	1769	42.892	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.176	217	6063	147.006	ng/ml	100
136)	14a,17a-20R-Methylcholest	48.881	217	6139M3	148.848	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.219	217	14151M3	343.110	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.115	217	11637M3	282.155	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.070	218	11260M3	273.014	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.161	218	11335M3	274.833	ng/ml	
141)	14b,17b-20R-Methylcholest	48.341	218	9225M3	223.673	ng/ml	
142)	14b,17b-20S-Methylcholest	48.423	218	11878M3	287.998	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	49.457	218	17793	431.416	ng/ml	100
144)	14b(H),17b(H)-20S-Ethylch	49.503	218	10679M3	258.927	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.182	231	50899	1234.116	ng/mL	100
146)	C28,20S-triaromatic stero	50.024	231	41252M3	1000.211	ng/mL	
147)	C27,20R-triaromatic stero	50.463	231	33419	810.290	ng/mL	100
148)	C28,20R-triaromatic stero	51.634	231	35745	866.687	ng/mL	100

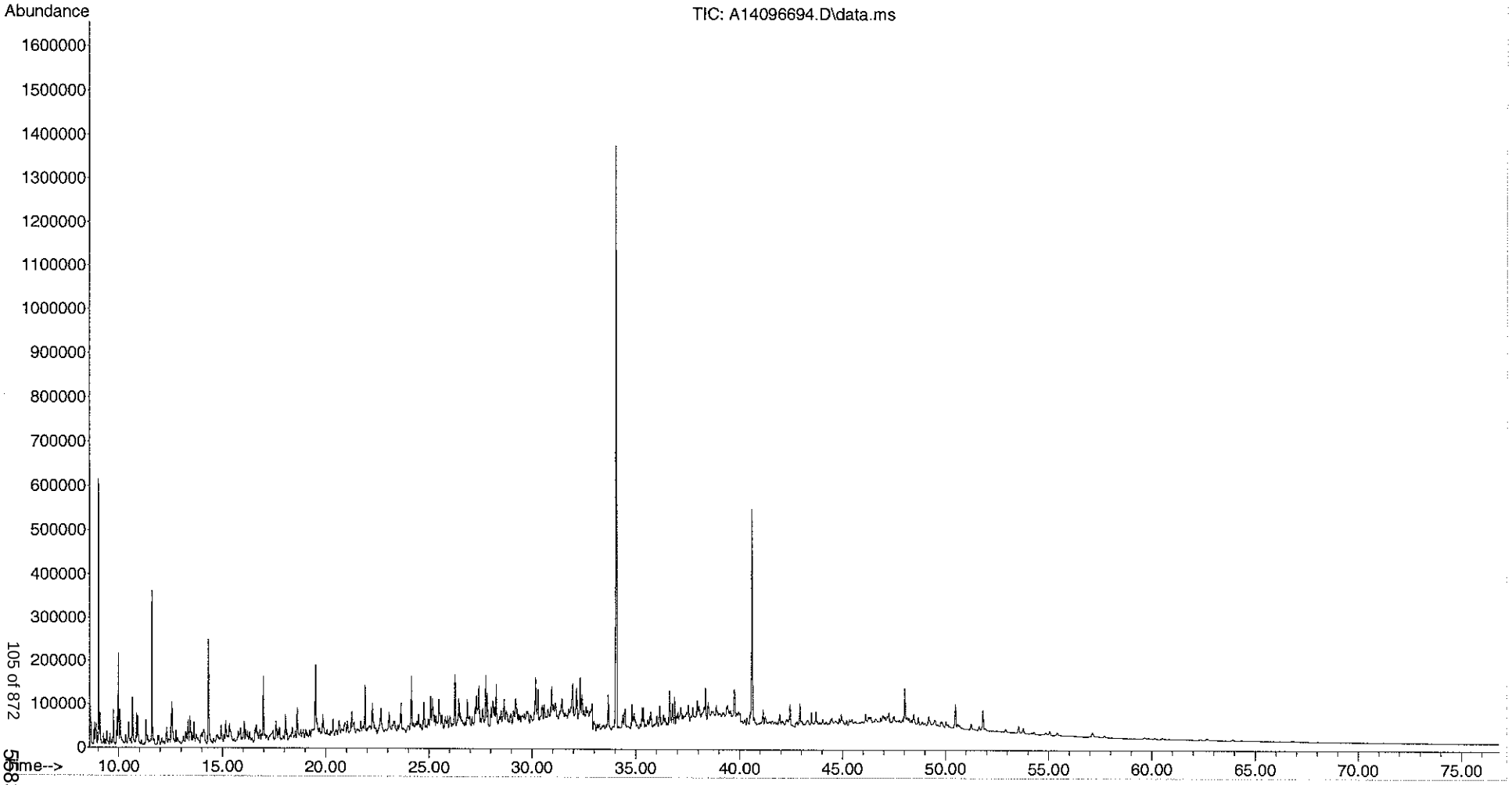
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Western Canadian Select
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05019	10	1	AC

Parameter	Result
cis/trans-Decalin	**179**
C1-Decalins	**362**
C2-Decalins	**513**
C3-Decalins	**348**
C4-Decalins	**416**
Benzothiophene	**4.68**
C1-Benzo(b)thiophenes	**44.4**
C2-Benzo(b)thiophenes	**68.8**
C3-Benzo(b)thiophenes	**133**
C4-Benzo(b)thiophenes	**138**
Naphthalene	**68.4**
C1-Naphthalenes	**216**
C2-Naphthalenes	**507**
C3-Naphthalenes	**588**
C4-Naphthalenes	**444**
Biphenyl	**19.9**
Dibenzofuran	**7.94**
Acenaphthylene	**4.02**
Acenaphthene	**10.9**
Fluorene	**32.0**
C1-Fluorenes	**82.7**
C2-Fluorenes	**185**
C3-Fluorenes	**217**
Anthracene	1.99 U
Phenanthrene	**75.4**
C1-Phenanthrenes/Anthracenes	**223**
C2-Phenanthrenes/Anthracenes	**333**
C3-Phenanthrenes/Anthracenes	**295**
C4-Phenanthrenes/Anthracenes	**144**
Retene	**48.3**
Dibenzothiophene	**59.5**
C1-Dibenzothiophenes	**201**
C2-Dibenzothiophenes	**352**
C3-Dibenzothiophenes	**375**
C4-Dibenzothiophenes	**262**
Benzo(b)fluorene	1.99 U
Fluoranthene	**6.02**
Pyrene	**18.7**
C1-Fluoranthenes/Pyrenes	**71.4**
C2-Fluoranthenes/Pyrenes	**94.9**
C3-Fluoranthenes/Pyrenes	**120**
C4-Fluoranthenes/Pyrenes	**118**
Naphthobenzothiophenes	**32.5**
C1-Naphthobenzothiophenes	**122**
C2-Naphthobenzothiophenes	**194**
C3-Naphthobenzothiophenes	**175**
C4-Naphthobenzothiophenes	**124**
Benz[a]anthracene	**4.10**
Chrysene/Triphenylene	**20.5**
C1-Chrysenes	**56.8**
C2-Chrysenes	**91.3**
C3-Chrysenes	**114**
C4-Chrysenes	**69.7**
Benzo[b]fluoranthene	**6.80**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**2.03**
Benzo[a]fluoranthene	1.99 U
Benzo[e]pyrene	**10.7**
Benzo[a]pyrene	**5.58**
Perylene	**9.07**
Indeno[1,2,3-cd]pyrene	**2.47**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.36** J
Benzo[g,h,i]perylene	**7.50**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	102	40-120
Phenanthrene-d10	99	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Western Canadian Select
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05019	10	1	AC

Parameter	Result
Carbazole	**4.09**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	102	40-120
Phenanthrene-d10	99	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05019	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**74.0**
2/3-Methyldibenzothiophene	**72.6**
1-Methyldibenzothiophene	**39.3**
3-Methylphenanthrene	**44.1**
2-Methylphenanthrene	**50.1**
2-Methylanthracene	**3.06**
9/4-Methylphenanthrene	**73.5**
1-Methylphenanthrene	**45.2**
2-Methylnaphthalene	**199**
1-Methylnaphthalene	**126**
2,6-Dimethylnaphthalene	**216**
2,3,5-Trimethylnaphthalene	**74.1**

Surrogate	% Recovery	Acceptance Range (%)
Naphthalene-d8	102	40-120
Phenanthrene-d10	99	40-120
Benzo[a]pyrene-d12	85	40-120

N/A - Not Applicable

Form I
Western Canadian Select
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212WCS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.05019	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**123**
C24 Tricyclic Terpane	**63.2**
C25 Tricyclic Terpane	**58.3**
C24 Tetracyclic Terpane	**22.5**
C26 Tricyclic Terpane-22S	**23.1**
C26 Tricyclic Terpane-22R	**22.8**
C28 Tricyclic Terpane-22S	**25.5**
C28 Tricyclic Terpane-22R	**26.9**
C29 Tricyclic Terpane-22S	**34.4**
C29 Tricyclic Terpane-22R	**32.0**
18a-22,29,30-Trisnorneohopane-TS	**33.5**
C30 Tricyclic Terpane-22S	**24.0**
C30 Tricyclic Terpane-22R	**25.5**
17a(H)-22,29,30-Trisnorhopane-TM	**79.5**
17a/b,21b/a 28,30-Bisnorhopane	**51.6**
17a(H),21b(H)-25-Norhopane	**13.2**
30-Norhopane	**205**
18a(H)-30-Norneohopane-C29Ts	**30.9**
17a(H)-Diahopane	**9.32**
30-Normoretane	**20.1**
18a(H)&18b(H)-Oleananes	**2.67**
Hopane	**290**
Moretane	**22.0**
30-Homohopane-22S	**126**
30-Homohopane-22R	**103**
T22a-Gammacerane/C32-diahopane	**48.9**
30,31-Bishomohopane-22S	**81.4**
30,31-Bishomohopane-22R	**58.0**

Parameter	Result
30,31-Trishomohopane-22S	**62.2**
30,31-Trishomohopane-22R	**38.7**
Tetrakishomohopane-22S	**39.4**
Tetrakishomohopane-22R	**26.9**
Pentakishomohopane-22S	**51.2**
Pentakishomohopane-22R	**33.6**
13b(H),17a(H)-20S-Diacholestane	**33.9**
13b(H),17a(H)-20R-Diacholestane	**16.7**
13b,17a-20S-Methyldiacholestane	**15.4**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**64.0**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**72.3**
Unknown Sterane (S18)	**11.6**
13a,17b-20S-Ethyldiacholestane	**6.37**
14a,17a-20S-Methylcholestane	**30.2**
14a,17a-20R-Methylcholestane	**25.5**
14a(H),17a(H)-20S-Ethylcholestane	**59.7**
14a(H),17a(H)-20R-Ethylcholestane	**51.7**
14b(H),17b(H)-20R-Cholestane	**49.2**
14b(H),17b(H)-20S-Cholestane	**50.2**
14b,17b-20R-Methylcholestane	**39.2**
14b,17b-20S-Methylcholestane	**55.3**
14b(H),17b(H)-20R-Ethylcholestane	**68.5**
14b(H),17b(H)-20S-Ethylcholestane	**57.1**
C26,20R- +C27,20S- triaromatic steroid	**235**
C28,20S-triaromatic steroid	**193**
C27,20R-triaromatic steroid	**154**
C28,20R-triaromatic steroid	**168**

Surrogate	% Recovery	Acceptance Range (%)
5B(H)Cholane	112	50-130

N/A - Not Applicable

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

KF for ch 6/22/12

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	55495	500.000	ng/mL	0.00
74) Chrysene-d12	42.939	240	97215	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	200189	1016.567	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.66%			
42) Phenanthrene-d10	32.321	188	183848	990.649	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.06%			
86) Benzo[a]pyrene-d12	48.021	264	162086	853.177	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.32%			
127) 5B(H)Cholane - Surr	43.496	217	43206	1122.762	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 112.28%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	37161	831.515	ng/mL	100
4) cis-Decalin	17.329	138	2307M3	66.929	ng/mL	
5) C1-Decalins	17.603	152	81116M5	1815.052	ng/mL	
6) C2-Decalins	19.027	166	115045M5	2574.247	ng/mL	
7) C3-Decalins	21.846	180	78035M5	1746.111	ng/mL	
8) C4-Decalins	25.214	194	93222M5	2085.935	ng/mL	
10) Naphthalene	19.574	128	73917M3	343.188	ng/mL	
11) C1-Naphthalenes	22.257	142	233866M5	1085.811	ng/mL	
12) C2-Naphthalenes	25.086	156	548023M5	2544.404	ng/mL	
13) C3-Naphthalenes	27.760	170	636142M5	2953.530	ng/mL	
14) C4-Naphthalenes	30.187	184	479554M5	2226.511	ng/mL	
16) 2-Methylnaphthalene	22.257	142	141703	999.862	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	87733	630.628	ng/mL#	100
18) Benzothiophene	19.811	134	3898M3	23.467	ng/mL	
19) C1-Benzo(b)thiophenes	21.810	148	37054M5	223.074	ng/mL	
20) C2-Benzo(b)thiophenes	25.287	162	57399M5	345.556	ng/mL	
21) C3-Benzo(b)thiophenes	27.258	176	110955M5	667.977	ng/mL	
22) C4-Benzo(b)thiophenes	29.356	190	114827M5	691.287	ng/mL	
23) Biphenyl	24.146	154	17310	99.779	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.748	156	137394	1083.743	ng/mL#	100
25) Dibenzofuran	27.240	168	7307	39.841	ng/mL#	53
26) Acenaphthylene	25.825	152	4517M3	20.160	ng/mL	
27) Acenaphthene	26.573	153	7561M3	54.603	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.116	170	42747M3	371.768	ng/mL	
29) Fluorene	28.599	166	24742M3	160.445	ng/mL	
30) C1-Fluorenes	30.962	180	64009M5	415.081	ng/mL	
31) C2-Fluorenes	33.152	194	142882M5	926.551	ng/mL	
32) C3-Fluorenes	34.987	208	168064M5	1089.849	ng/mL	
33) Dibenzothiophene	31.920	184	59814	298.655	ng/mL#	51
34) 4-Methyldibenzothiophene(	33.690	198	74429	371.629	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.046	198	72975M3	364.369	ng/mL	
36) 1-Methyldibenzothiophene(	34.448	198	39518	197.316	ng/mL#	100
37) OTP	34.074	198	9712M3	48.493	ng/mL	
38) C1-Dibenzothiophenes	33.690	198	211498M5	1056.023	ng/mL	
38) C1-Dibenzothiophenes BS	33.690	198	201786m	1007.531	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	353833M5	1766.711	ng/mL	
40) C3-Dibenzothiophenes	37.177	226	377233M5	1883.549	ng/mL	
41) C4-Dibenzothiophenes	38.867	240	263311M5	1314.729	ng/mL	
43) Phenanthrene	32.413	178	80440	378.231	ng/mL#	82

JM 6-22-12

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 3-Methylphenanthrene(3MP)	34.375	192	47113M3	221.526	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.494	192	53446	251.304	ng/mL	96
46) 2-Methylanthracene(2MA)	34.658	192	3266	15.357	ng/mL	100
47) 9/4-Methylphenanthrene(9M	34.822	192	78423	368.747	ng/mL	97
48) 1-Methylphenanthrene(1MP)	34.923	192	48230M3	226.779	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.822	192	238307M5	1120.525	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.639	206	355311M5	1670.680	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	355311m	1670.680	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	314477M5	1478.678	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.378	234	154185M5	724.981	ng/mL	
54) Retene	39.378	234	16151M3	242.529	ng/mL	
56) Carbazole	33.380	167	4049M3	20.520	ng/mL	
57) 1-Methylphenanthrene	34.923	192	48192M3	302.072	ng/mL	
58) Fluoranthene	37.205	202	6556M3	30.216	ng/mL	
60) Pyrene	38.091	202	21195M3	93.987	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.478	216	80837M5	358.463	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.286	230	107380M5	476.165	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	136378M5	604.754	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	133653M5	592.670	ng/mL	
66) Naphthobenzothiophene	41.944	234	22761	116.411	ng/ml#	64
67) Naphthobenzothiophene-2,1	41.944	234	22761	116.411	ng/mL#	64
68) Naphthobenzothiophene-1,2	42.281	234	5684	29.071	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.601	234	3489M3	17.845	ng/mL	
70) C1-Naphthobenzothiophenes	44.034	248	119868M5	613.066	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	190400M5	973.802	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	171874M5	879.051	ng/ml	
73) C4-Naphthobenzothiophenes	47.984	290	121417M5	620.988	ng/mL	
75) Benz[a]anthracene	42.875	228	4377M3	20.583	ng/mL	
77) Chrysene/Triphenylene	43.003	228	21577M3	102.765	ng/mL	
78) C1-Chrysenes	44.509	242	59880M5	285.192	ng/mL	
79) C2-Chrysenes	46.237	256	96255M5	458.436	ng/mL	
79) C2-Chrysenes BS	46.237	256	96255m	458.436	ng/mL	
80) C3-Chrysenes	47.911	270	120170M5	572.337	ng/mL	
81) C4-Chrysenes	49.320	284	73456M5	349.851	ng/mL	
82) Benzo[b]fluoranthene	46.951	252	7174	34.109	ng/mL#	60
83) Benzo[j]+[k]fluoranthene	47.033	252	2362M3	10.168	ng/mL	
85) Benzo[e]pyrene	47.920	252	11240	53.901	ng/mL#	80
87) Benzo[a]pyrene	48.131	252	5457M3	27.984	ng/mL	
88) Perylene	48.442	252	9628M3	45.541	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.914	276	3026M3	12.406	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.914	278	1564M3	6.824	ng/mL	
91) Benzo[g,h,i]perylene	54.193	276	8801	37.618	ng/mL	99
92) Hopane (T19)	51.807	191	100980	1454.078	ng/mL#	83
94) C23 Tricyclic Terpane (T4	40.510	191	42749	615.571	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	22030M3	317.225	ng/ml	
96) C25 Tricyclic Terpane (T6	42.729	191	20311M3	292.472	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	7834	112.807	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.788	191	8040M3	115.773	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	7942M3	114.362	ng/ml	
100) C28 Tricyclic Terpane-22S	46.173	191	8899	128.143	ng/ml	100
101) C28 Tricyclic Terpane-22R	46.329	191	9378	135.040	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.850	191	11988	172.623	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	11155M3	160.628	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	11668	168.015	ng/ml	100

✓ ✓ 60 RL 6-22-12

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
105) C30 Tricyclic Terpane-22S	48.231	191	8373M3	120.568	ng/mL	
106) C30 Tricyclic Terpane-22R	48.469	191	8880M3	127.869	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.670	191	27710M3	399.015	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	17968	258.733	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.640	191	4591	66.109	ng/ml	100
110) 30-Norhopane (T15)	50.481	191	71415M3	1028.352	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.582	191	10756M3	154.883	ng/ml	
112) 17a(H)-Diahopane (X)	50.710	191	3250	46.799	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	7020	101.086	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.643	191	930M2	13.392	ng/ml	
115) Moretane (T20)	52.484	191	7657M3	110.258	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	43905	632.217	ng/ml	100
117) 30-Homohopane-22R (T22)	53.763	191	35953	517.711	ng/ml	100
118) Gammacerane/C32-diahopane	54.303	191	17030	245.226	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.052	191	28379	408.648	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.417	191	20219	291.147	ng/ml	100
121) 30,31-Trishomohopane-22S	57.108	191	21680M4	312.185	ng/ml	
122) 30,31-Trishomohopane-22R	57.711	191	13479M3	194.093	ng/ml	
123) Tetrakishomohopane-22S (T	59.639	191	13743M3	197.895	ng/ml	
124) Tetrakishomohopane-22R (T	60.516	191	9376	135.011	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	17827M3	256.703	ng/ml	
126) Pentakishomohopane-22R (T	63.925	191	11693M3	168.375	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.002	217	6545M3	170.080	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.423	217	3232M3	83.988	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.118	217	2972M3	77.231	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.978	217	12371	321.476	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.490	217	13956	362.664	ng/ml	100
133) Unknown Sterane (S18)	47.765	217	2249	58.443	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.021	217	1231	31.989	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.176	217	5823M3	151.318	ng/ml	
136) 14a,17a-20R-Methylcholest	48.871	217	4925	127.982	ng/ml	100
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	11535M3	299.751	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.106	217	9985M3	259.473	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.070	218	9510M3	247.129	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.152	218	9694M3	251.911	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	7572M3	196.768	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	10689M3	277.767	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	13234	343.902	ng/ml	100
144) 14b(H),17b(H)-20S-Ethylch	49.493	218	11022M3	286.421	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	45408	1179.984	ng/mL	100
146) C28,20S-triaromatic stero	50.024	231	37248M3	967.936	ng/mL	
147) C27,20R-triaromatic stero	50.463	231	29822	774.962	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	32385M3	841.565	ng/mL	

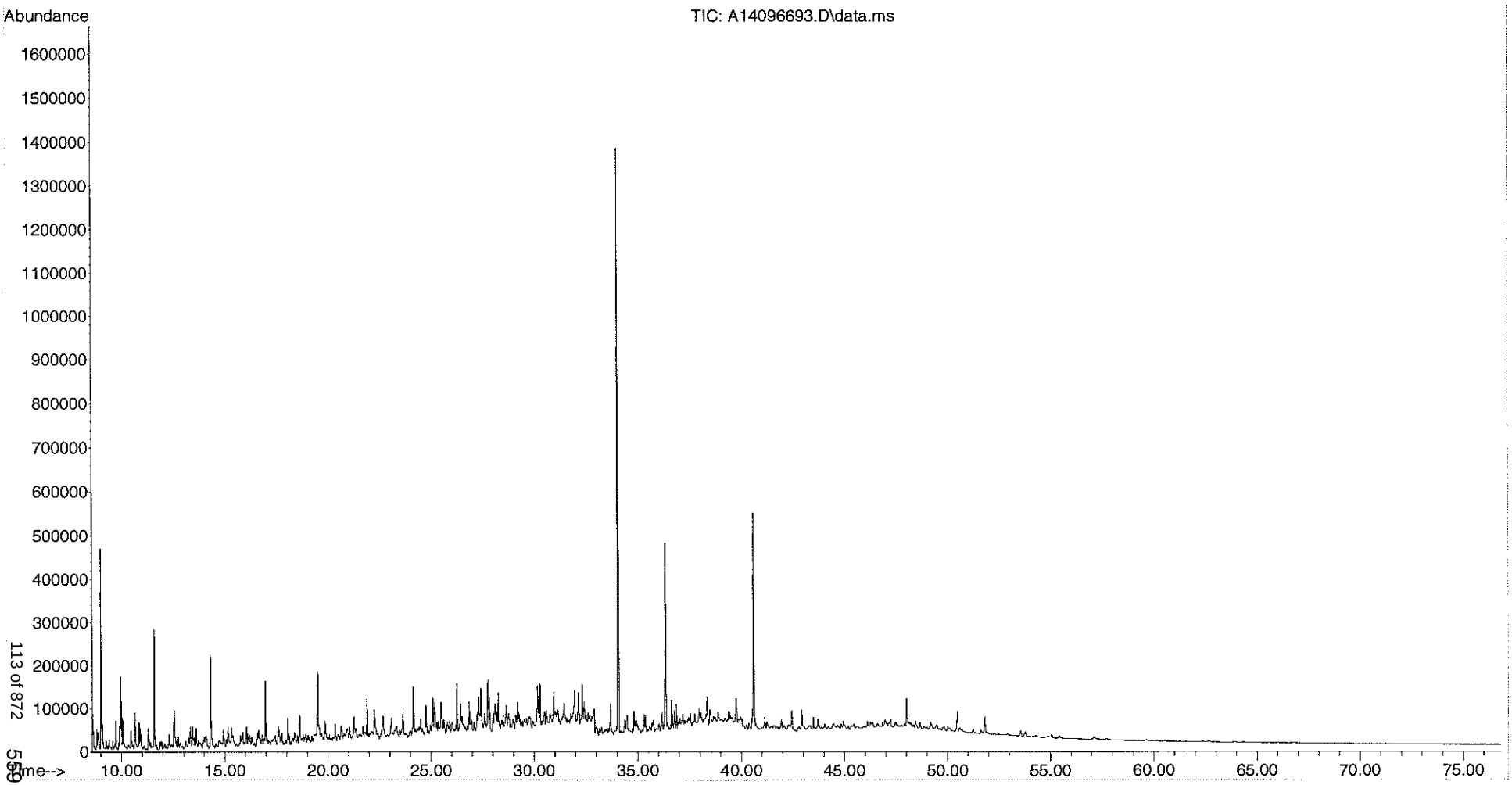
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.0521	10	1	AC

Parameter	Result	
cis/trans-Decalin	**510**	
C1-Decalins	**833**	
C2-Decalins	**771**	
C3-Decalins	**385**	
C4-Decalins	**399**	
Benzothiophene	**5.91**	
C1-Benzo(b)thiophenes	**36.5**	
C2-Benzo(b)thiophenes	**59.8**	
C3-Benzo(b)thiophenes	**113**	
C4-Benzo(b)thiophenes	**102**	
Naphthalene	**598**	
C1-Naphthalenes	**1310**	
C2-Naphthalenes	**1570**	
C3-Naphthalenes	**1180**	
C4-Naphthalenes	**654**	
Biphenyl	**157**	
Dibenzofuran	**51.9**	
Acenaphthylene	**6.78**	
Acenaphthene	**20.2**	
Fluorene	**77.3**	
C1-Fluorenes	**167**	
C2-Fluorenes	**266**	
C3-Fluorenes	**256**	
Anthracene	1.92	U
Phenanthrene	**208**	
C1-Phenanthrenes/Anthracenes	**462**	
C2-Phenanthrenes/Anthracenes	**516**	
C3-Phenanthrenes/Anthracenes	**372**	
C4-Phenanthrenes/Anthracenes	**137**	
Retene	1.92	U
Dibenzothiophene	**140**	
C1-Dibenzothiophenes	**310**	
C2-Dibenzothiophenes	**413**	

Parameter	Result	
C3-Dibenzothiophenes	**365**	
C4-Dibenzothiophenes	**206**	
Benzo(b)fluorene	1.92	U
Fluoranthene	**3.61**	
Pyrene	**10.5**	
C1-Fluoranthenes/Pyrenes	**64.7**	
C2-Fluoranthenes/Pyrenes	**107**	
C3-Fluoranthenes/Pyrenes	**135**	
C4-Fluoranthenes/Pyrenes	**111**	
Naphthobenzothiophenes	**44.4**	
C1-Naphthobenzothiophenes	**129**	
C2-Naphthobenzothiophenes	**180**	
C3-Naphthobenzothiophenes	**139**	
C4-Naphthobenzothiophenes	**92.9**	
Benz[a]anthracene	**1.92**	
Chrysene/Triphenylene	**35.1**	
C1-Chrysenes	**65.2**	
C2-Chrysenes	**85.1**	
C3-Chrysenes	**103**	
C4-Chrysenes	**61.4**	
Benzo[b]fluoranthene	**5.18**	
Benzo[j]fluoranthene/Benzo[k]fluoranthene	**0.545**	J
Benzo[a]fluoranthene	1.92	U
Benzo[e]pyrene	**10.4**	
Benzo[a]pyrene	**2.45**	
Perylene	**2.94**	
Indeno[1,2,3-cd]pyrene	**0.821**	J
Dibenz[ah]anthracene/Dibenz[ac]anthracene	**0.883**	J
Benzo[g,h,i]perylene	**2.77**	

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	5.24

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**137**
2/3-Methyldibenzothiophene	**121**
1-Methyldibenzothiophene	**44.3**
3-Methylphenanthrene	**92.6**
2-Methylphenanthrene	**103**
2-Methylanthracene	**3.74**
9/4-Methylphenanthrene	**146**
1-Methylphenanthrene	**107**
2-Methylnaphthalene	**1160**
1-Methylnaphthalene	**831**
2,6-Dimethylnaphthalene	**659**
2,3,5-Trimethylnaphthalene	**148**

N/A - Not Applicable

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Form I
Alaska North Slope Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.0521	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**73.3**
C24 Tricyclic Terpane	**42.4**
C25 Tricyclic Terpane	**41.4**
C24 Tetracyclic Terpane	**14.8**
C26 Tricyclic Terpane-22S	**17.1**
C26 Tricyclic Terpane-22R	**16.4**
C28 Tricyclic Terpane-22S	**14.7**
C28 Tricyclic Terpane-22R	**17.7**
C29 Tricyclic Terpane-22S	**22.0**
C29 Tricyclic Terpane-22R	**20.2**
18a-22,29,30-Trisnorneohopane-TS	**30.7**
C30 Tricyclic Terpane-22S	**16.9**
C30 Tricyclic Terpane-22R	**15.6**
17a(H)-22,29,30-Trisnorhopane-TM	**37.6**
17a/b,21b/a 28,30-Bisnorhopane	**8.12**
17a(H),21b(H)-25-Norhopane	**8.10**
30-Norhopane	**103**
18a(H)-30-Norneohopane-C29Ts	**25.0**
17a(H)-Diahopane	**13.3**
30-Normoretane	**13.1**
18a(H)&18b(H)-Oleananes	1.92 U
Hopane	**175**
Moretane	**17.7**
30-Homohopane-22S	**75.3**
30-Homohopane-22R	**63.7**
T22a-Gammacerane/C32-diahopane	**13.2**
30,31-Bishomohopane-22S	**53.3**
30,31-Bishomohopane-22R	**39.1**

Parameter	Result
30,31-Trishomohopane-22S	**41.0**
30,31-Trishomohopane-22R	**27.7**
Tetrakishomohopane-22S	**28.8**
Tetrakishomohopane-22R	**20.4**
Pentakishomohopane-22S	**30.1**
Pentakishomohopane-22R	**23.8**
13b(H),17a(H)-20S-Diacholestane	**45.2**
13b(H),17a(H)-20R-Diacholestane	**26.2**
13b,17a-20S-Methyldiacholestane	**24.3**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**67.4**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**71.7**
Unknown Sterane (S18)	**20.6**
13a,17b-20S-Ethyldiacholestane	**4.80**
14a,17a-20S-Methylcholestane	**36.6**
14a,17a-20R-Methylcholestane	**34.2**
14a(H),17a(H)-20S-Ethylcholestane	**55.4**
14a(H),17a(H)-20R-Ethylcholestane	**40.8**
14b(H),17b(H)-20R-Cholestane	**43.2**
14b(H),17b(H)-20S-Cholestane	**45.1**
14b,17b-20R-Methylcholestane	**45.8**
14b,17b-20S-Methylcholestane	**56.0**
14b(H),17b(H)-20R-Ethylcholestane	**56.8**
14b(H),17b(H)-20S-Ethylcholestane	**47.0**
C26,20R- +C27,20S- triaromatic steroid	**244**
C28,20S-triaromatic steroid	**151**
C27,20R-triaromatic steroid	**147**
C28,20R-triaromatic steroid	**121**

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHA085
ALS Vial : 18 Sample Multiplier: 1

KG for SLC 6/22/12

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	58049M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	107846M3	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	205802	999.090	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.91%			
42) Phenanthrene-d10	32.321	188	188610	971.594	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.16%			
86) Benzo[a]pyrene-d12	48.039	264	179636	852.346	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.23%			
127) 5B(H)Cholane - Surr	43.496	217	47115	1103.652	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 110.37%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	118004	2524.284	ng/mL	100
4) cis-Decalin	17.338	138	4859M3	134.765	ng/mL	
5) C1-Decalins	18.050	152	202806M5	4338.328	ng/mL	
6) C2-Decalins	19.383	166	187870M5	4018.824	ng/mL	
7) C3-Decalins	21.856	180	93745M5	2005.348	ng/mL	
8) C4-Decalins	25.223	194	97137M5	2077.908	ng/mL	
10) Naphthalene	19.565	128	702367	3117.529	ng/mL#	100
11) C1-Naphthalenes	22.248	142	1540517M5	6837.744	ng/mL	
12) C2-Naphthalenes	25.086	156	1842532M5	8178.269	ng/mL	
13) C3-Naphthalenes	27.431	170	1386713M5	6155.069	ng/mL	
14) C4-Naphthalenes	30.196	184	767569M5	3406.935	ng/mL	
16) 2-Methylnaphthalene	22.248	142	899047	6064.602	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	630151	4330.257	ng/mL#	100
18) Benzothiophene	19.775	134	5349M3	30.785	ng/mL	
19) C1-Benzo(b)thiophenes	21.819	148	33012M5	189.996	ng/mL	
20) C2-Benzo(b)thiophenes	25.287	162	54155M5	311.682	ng/mL	
21) C3-Benzo(b)thiophenes	27.267	176	102488M5	589.857	ng/mL	
22) C4-Benzo(b)thiophenes	29.366	190	92107M5	530.110	ng/mL	
23) Biphenyl	24.146	154	148808	820.029	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.758	156	455105	3431.857	ng/mL#	100
25) Dibenzofuran	27.240	168	51869	270.368	ng/mL#	86
26) Acenaphthylene	25.825	152	8280M3	35.329	ng/mL	
27) Acenaphthene	26.601	153	15242M3	105.230	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.125	170	92901M3	772.406	ng/mL	
29) Fluorene	28.599	166	64941M3	402.596	ng/mL	
30) C1-Fluorenes	30.962	180	140575M5	871.483	ng/mL	
31) C2-Fluorenes	33.161	194	223368M5	1384.751	ng/mL	
32) C3-Fluorenes	34.996	208	215602M5	1336.606	ng/mL	
33) Dibenzothiophene	31.920	184	153039	730.514	ng/mL#	68
34) 4-Methyldibenzothiophene(	33.700	198	149590	714.050	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.056	198	132475	632.354	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.457	198	48366	230.869	ng/mL#	100
38) C1-Dibenzothiophenes	33.700	198	338838M5	1617.404	ng/mL	
38) C1-Dibenzothiophenes BS	33.700	198	338838m	1617.404	ng/mL	
39) C2-Dibenzothiophenes	35.379	212	451030M5	2152.939	ng/mL	
40) C3-Dibenzothiophenes	37.187	226	398376M4	1901.601	ng/mL	
41) C4-Dibenzothiophenes	38.876	240	224305M5	1070.694	ng/mL	
43) Phenanthrene	32.422	178	240880	1082.791	ng/mL	94
44) 3-Methylphenanthrene(3MP)	34.375	192	107315	482.397	ng/mL	95

J
JW 6-22-12

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHA085
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45) 2-Methylphenanthrene(2MP)	34.494	192	119151	535.601	ng/mL	96
46) 2-Methylanthracene(2MA)	34.667	192	4334M3	19.482	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.831	192	169153	760.367	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.923	192	123907M3	556.980	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.831	192	535149M5	2405.572	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.639	206	597553M5	2686.088	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	597553m	2686.088	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.483	220	431285M5	1938.689	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.675	234	158778M5	713.730	ng/mL	
56) Carbazole	33.380	167	5638M3	27.315	ng/mL	
57) 1-Methylphenanthrene	34.923	192	124670M3	747.062	ng/mL	
58) Fluoranthene	37.223	202	4273M3	18.827	ng/mL	
60) Pyrene	38.100	202	12951M3	54.903	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.497	216	79536M5	337.176	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.295	230	131269M5	556.488	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.313	244	165613M5	702.082	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.655	258	136861M5	580.194	ng/mL	
66) Naphthobenzothiophene	41.962	234	35804M3	175.063	ng/ml	
67) Naphthobenzothiophene-2,1	41.962	234	35758M3	174.838	ng/mL	
68) Naphthobenzothiophene-1,2	42.300	234	7821	38.241	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.619	234	3790	18.531	ng/mL#	100
70) C1-Naphthobenzothiophenes	43.350	248	137257M5	671.116	ng/ml	
71) C2-Naphthobenzothiophenes	45.387	262	192319M5	940.340	ng/ml	
72) C3-Naphthobenzothiophenes	46.951	276	148319M5	725.203	ng/ml	
73) C4-Naphthobenzothiophenes	48.003	290	98988M5	484.000	ng/mL	
75) Benz[a]anthracene	42.893	228	2363M3	10.017	ng/mL	
77) Chrysene/Triphenylene	43.012	228	42569M3	182.759	ng/mL	
78) C1-Chrysenes	44.518	242	79182M5	339.947	ng/mL	
79) C2-Chrysenes	46.256	256	103282M5	443.414	ng/mL	
79) C2-Chrysenes BS	46.256	256	103282m	443.414	ng/mL	
80) C3-Chrysenes	47.929	270	124726M5	535.478	ng/mL	
81) C4-Chrysenes	49.338	284	74566M5	320.130	ng/mL	
82) Benzo[b]fluoranthene	46.969	252	6297M3	26.988	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.033	252	731M3	2.837	ng/mL	
85) Benzo[e]pyrene	47.939	252	12501M3	54.038	ng/mL	
87) Benzo[a]pyrene	48.140	252	2761M3	12.763	ng/mL	
88) Perylene	48.460	252	3598	15.341	ng/mL#	1
89) Indeno[1,2,3-cd]pyrene	52.950	276	1157	4.276	ng/mL#	1
90) Dibenz[ah]+[ac]anthracene	52.932	278	1170M3	4.601	ng/mL	
91) Benzo[g,h,i]perylene	54.239	276	3751	14.452	ng/mL#	85
92) Hopane (T19)	51.816	191	70119M3	910.159	ng/mL	
94) C23 Tricyclic Terpane (T4	40.519	191	29423	381.917	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	17029M3	221.040	ng/ml	
96) C25 Tricyclic Terpane (T6	42.774	191	16609M3	215.588	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	5946M3	77.180	ng/ml	
98) C26 Tricyclic Terpane-22S	43.788	191	6860M3	89.044	ng/ml	
99) C26 Tricyclic Terpane-22R	43.888	191	6573	85.319	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.173	191	5904M3	76.635	ng/ml	
101) C28 Tricyclic Terpane-22R	46.338	191	7121M3	92.432	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	8844M3	114.797	ng/ml	
103) C29 Tricyclic Terpane-22R	47.042	191	8115M3	105.334	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	12312	159.812	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.231	191	6794M3	88.188	ng/mL	
106) C30 Tricyclic Terpane-22R	48.469	191	6280	81.516	ng/mL	100

6-22-12

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHAO85
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107) 17a(H)-22,29,30-Trisnorho	48.670	191	15103	196.040	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	3261M3	42.328	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.640	191	3250	42.186	ng/ml	100
110) 30-Norhopane (T15)	50.481	191	41314M3	536.264	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.591	191	10026M3	130.140	ng/ml	
112) 17a(H)-Diahopane (X)	50.710	191	5352	69.470	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	5252	68.172	ng/ml	100
115) Moretane (T20)	52.475	191	7089M3	92.017	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	30223	392.301	ng/ml	100
117) 30-Homohopane-22R (T22)	53.763	191	25572	331.930	ng/ml	100
118) Gammacerane/C32-diahopane	54.293	191	5314M3	68.977	ng/mL	
119) 30,31-Bishomohopane-22S (	55.052	191	21378	277.491	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.427	191	15701	203.802	ng/ml	100
121) 30,31-Trishomohopane-22S	57.108	191	16453M3	213.563	ng/ml	
122) 30,31-Trishomohopane-22R	57.711	191	11112	144.236	ng/ml	100
123) Tetrakishomohopane-22S (T	59.657	191	11560	150.051	ng/ml	100
124) Tetrakishomohopane-22R (T	60.507	191	8185	106.243	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	12097M3	157.022	ng/ml	
126) Pentakishomohopane-22R (T	63.925	191	9548	123.935	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.002	217	10048	235.371	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.423	217	5820M3	136.331	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.127	217	5395M3	126.376	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.987	217	14989	351.112	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.490	217	15945M3	373.506	ng/ml	
133) Unknown Sterane (S18)	47.765	217	4582	107.332	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.021	217	1068	25.018	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.176	217	8138M3	190.630	ng/ml	
136) 14a,17a-20R-Methylcholest	48.881	217	7603	178.098	ng/ml	100
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	12326M3	288.732	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.115	217	9064	212.321	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.079	218	9614M3	225.205	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.161	218	10029M3	234.926	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	10198M3	238.884	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	12457M3	291.801	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	12632M3	295.900	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.493	218	10448M3	244.741	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	54298M3	1271.911	ng/mL	
146) C28,20S-triaromatic stero	50.024	231	33485	784.374	ng/mL	100
147) C27,20R-triaromatic stero	50.463	231	32745	767.040	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	26981M3	632.020	ng/mL	

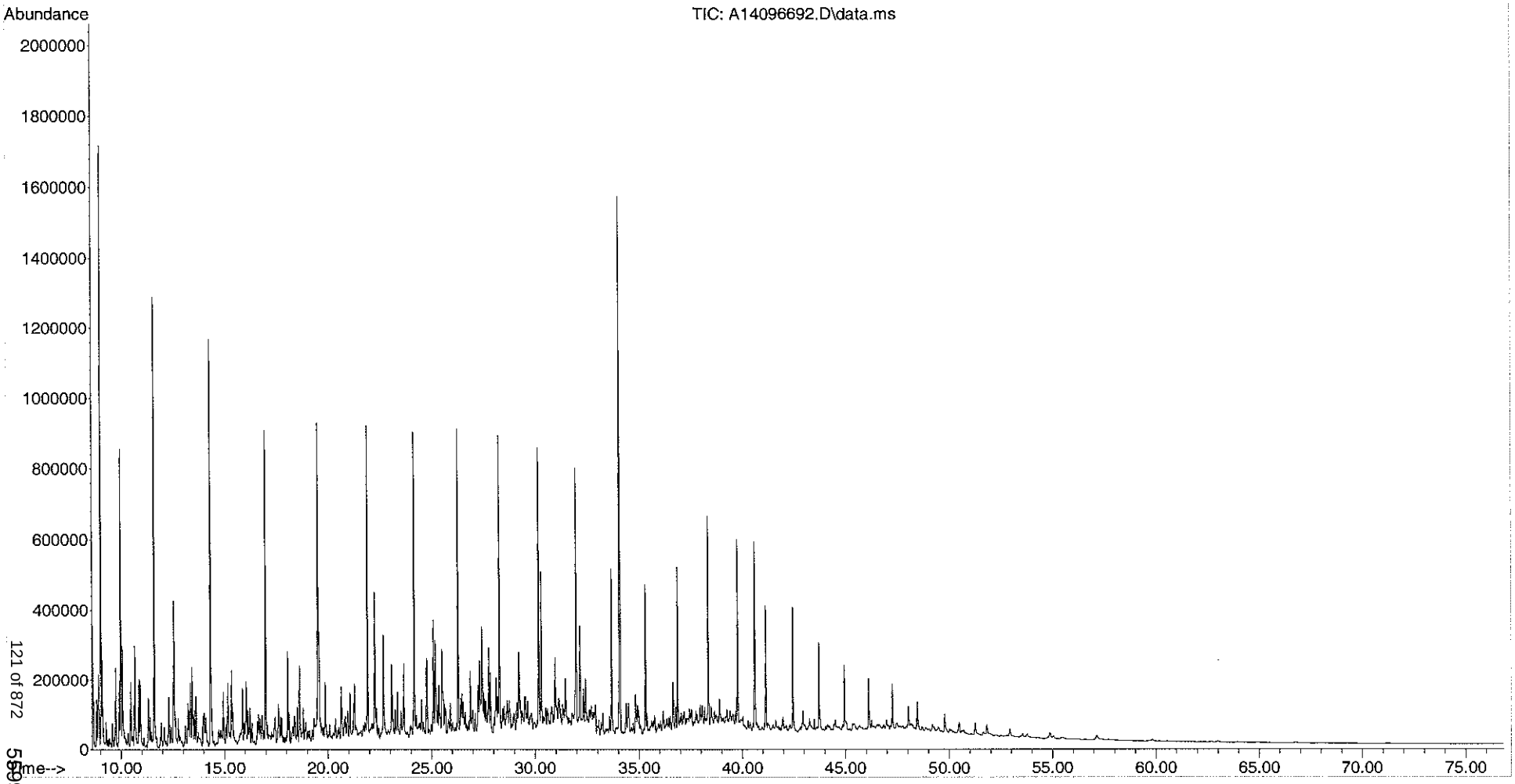
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHA085
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers



Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/19/12	100	0.0521	10	1	AC

Parameter	Result		Parameter	Result	
cis/trans-Decalin	**503**		C3-Dibenzothiophenes	**328**	
C1-Decalins	**823**		C4-Dibenzothiophenes	**187**	
C2-Decalins	**765**		Benzo(b)fluorene	**5.69**	
C3-Decalins	**389**		Fluoranthene	**3.15**	
C4-Decalins	**395**		Pyrene	**10.1**	
Benzothiophene	**6.22**		C1-Fluoranthenes/Pyrenes	**56.4**	
C1-Benzo(b)thiophenes	**33.6**		C2-Fluoranthenes/Pyrenes	**95.0**	
C2-Benzo(b)thiophenes	**55.9**		C3-Fluoranthenes/Pyrenes	**117**	
C3-Benzo(b)thiophenes	**105**		C4-Fluoranthenes/Pyrenes	**99.8**	
C4-Benzo(b)thiophenes	**98.0**		Naphthobenzothiophenes	**38.9**	
Naphthalene	**574**		C1-Naphthobenzothiophenes	**107**	
C1-Naphthalenes	**1240**		C2-Naphthobenzothiophenes	**156**	
C2-Naphthalenes	**1480**		C3-Naphthobenzothiophenes	**125**	
C3-Naphthalenes	**1140**		C4-Naphthobenzothiophenes	**88.6**	
C4-Naphthalenes	**624**		Benz[a]anthracene	**2.02**	
Biphenyl	**145**		Chrysene/Triphenylene	**33.4**	
Dibenzofuran	**49.9**		C1-Chrysenes	**61.1**	
Acenaphthylene	**6.79**		C2-Chrysenes	**87.8**	
Acenaphthene	**18.5**		C3-Chrysenes	**107**	
Fluorene	**70.2**		C4-Chrysenes	**62.3**	
C1-Fluorenes	**159**		Benzo[b]fluoranthene	**5.19**	
C2-Fluorenes	**248**		Benzo[j]fluoranthene/Benzo[k]fluoranthene	1.92	U
C3-Fluorenes	**237**		Benzo[a]fluoranthene	1.92	U
Anthracene	1.92	U	Benzo[e]pyrene	**9.97**	
Phenanthrene	**192**		Benzo[a]pyrene	**2.23**	
C1-Phenanthrenes/Anthracenes	**416**		Perylene	**2.96**	
C2-Phenanthrenes/Anthracenes	**453**		Indeno[1,2,3-cd]pyrene	**0.891**	J
C3-Phenanthrenes/Anthracenes	**326**		Dibenz[ah]anthracene/Dibenz[ac]anthracene	**1.32**	J
C4-Phenanthrenes/Anthracenes	**134**		Benzo[g,h,i]perylene	**2.91**	
Retene	1.92	U			
Dibenzothiophene	**127**				
C1-Dibenzothiophenes	**251**				
C2-Dibenzothiophenes	**359**				

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Alaska North Slope Crude
Carbazole

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/19/12	100	0.0521	10	1	AC

Parameter	Result
Carbazole	5.34

N/A - Not Applicable

Form I
Alaska North Slope Crude
Polynuclear Aromatic Hydrocarbons Isomers

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/19/12	100	0.0521	10	1	AC

Parameter	Result
4-Methyldibenzothiophene	**120**
2/3-Methyldibenzothiophene	**84.4**
1-Methyldibenzothiophene	**39.6**
3-Methylphenanthrene	**85.0**
2-Methylphenanthrene	**94.4**
2-Methylanthracene	**2.53**
9/4-Methylphenanthrene	**136**
1-Methylphenanthrene	**91.8**
2-Methylnaphthalene	**1100**
1-Methylnaphthalene	**790**
2,6-Dimethylnaphthalene	**624**
2,3,5-Trimethylnaphthalene	**143**

N/A - Not Applicable

Form I
Alaska North Slope Crude
Steranes and Triterpanes

ALPHA ANALYTICAL

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO053012ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	05/19/12	100	0.0521	10	1	AC

Parameter	Result
C23 Tricyclic Terpane	**68.4**
C24 Tricyclic Terpane	**43.2**
C25 Tricyclic Terpane	**41.8**
C24 Tetracyclic Terpane	**14.0**
C26 Tricyclic Terpane-22S	**16.0**
C26 Tricyclic Terpane-22R	**15.4**
C28 Tricyclic Terpane-22S	**15.4**
C28 Tricyclic Terpane-22R	**17.3**
C29 Tricyclic Terpane-22S	**21.0**
C29 Tricyclic Terpane-22R	**20.2**
18a-22,29,30-Trisnorneohopane-TS	**31.3**
C30 Tricyclic Terpane-22S	**17.9**
C30 Tricyclic Terpane-22R	**15.7**
17a(H)-22,29,30-Trisnorhopane-TM	**37.6**
17a/b,21b/a 28,30-Bisnorhopane	**6.78**
17a(H),21b(H)-25-Norhopane	**7.25**
30-Norhopane	**97.6**
18a(H)-30-Norneohopane-C29Ts	**24.1**
17a(H)-Diahopane	**14.2**
30-Normoretane	**11.0**
18a(H)&18b(H)-Oleananes	**3.22**
Hopane	**170**
Moretane	**16.2**
30-Homohopane-22S	**73.2**
30-Homohopane-22R	**63.3**
T22a-Gammacerane/C32-diahopane	**14.5**
30,31-Bishomohopane-22S	**52.5**
30,31-Bishomohopane-22R	**38.0**

Parameter	Result
30,31-Trishomohopane-22S	**41.8**
30,31-Trishomohopane-22R	**27.6**
Tetrakishomohopane-22S	**28.6**
Tetrakishomohopane-22R	**20.9**
Pentakishomohopane-22S	**30.8**
Pentakishomohopane-22R	**21.7**
13b(H),17a(H)-20S-Diacholestane	**45.2**
13b(H),17a(H)-20R-Diacholestane	**24.2**
13b,17a-20S-Methyldiacholestane	**24.6**
14a(H),17a(H)-20S-Cholestane/ 13b(H),17a(H)-20S-Ethyldiacholestane (S12)	**61.8**
14a(H),17a(H)-20R-Cholestane/ 13b(H),17a(H)-20R-Ethyldiacholestane (S17)	**76.5**
Unknown Sterane (S18)	**18.6**
13a,17b-20S-Ethyldiacholestane	**4.01**
14a,17a-20S-Methylcholestane	**35.9**
14a,17a-20R-Methylcholestane	**34.4**
14a(H),17a(H)-20S-Ethylcholestane	**48.9**
14a(H),17a(H)-20R-Ethylcholestane	**39.7**
14b(H),17b(H)-20R-Cholestane	**43.6**
14b(H),17b(H)-20S-Cholestane	**43.5**
14b,17b-20R-Methylcholestane	**45.8**
14b,17b-20S-Methylcholestane	**56.6**
14b(H),17b(H)-20R-Ethylcholestane	**69.3**
14b(H),17b(H)-20S-Ethylcholestane	**35.9**
C26,20R- +C27,20S- triaromatic steroid	**230**
C28,20S-triaromatic steroid	**142**
C27,20R-triaromatic steroid	**140**
C28,20R-triaromatic steroid	**115**

N/A - Not Applicable

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH14\May12\may18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : AC
Sample : SO053012ANS01
Misc : WHAO85: 5.210mg/kg
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.884	164	81519M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	137067	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.903	136	277876	960.599	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.06%			
42) Phenanthrene-d10	32.759	188	252048	924.569	ng/mL	-0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.46%			
86) Benzo[a]pyrene-d12	48.523	264	272457	1017.166	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.72%			
127) 5B(H)Cholane - Surr	43.961	217	58521	1078.589	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 107.86%			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	163305	2487.579	ng/mL	100
4) cis-Decalin	17.758	138	6688M4	132.087	ng/mL	
5) C1-Decalins	18.470	152	281379M5	4286.168	ng/mL	
6) C2-Decalins	19.802	166	261628M5	3985.306	ng/mL	
7) C3-Decalins	22.284	180	133105M5	2027.551	ng/mL	
8) C4-Decalins	25.670	194	135201M5	2059.479	ng/mL	
10) Naphthalene	19.976	128	946595	2991.896	ng/mL#	100
11) C1-Naphthalenes	22.677	142	2036563M5	6436.950	ng/mL	
12) C2-Naphthalenes	25.515	156	2444314M5	7725.725	ng/mL	
13) C3-Naphthalenes	27.860	170	1873479M5	5921.491	ng/mL	
14) C4-Naphthalenes	30.624	184	1028994M5	3252.334	ng/mL	
16) 2-Methylnaphthalene	22.677	142	1194499	5737.750	ng/mL#	100
17) 1-Methylnaphthalene	23.096	142	841448	4117.487	ng/mL#	100
18) Benzothiophene	20.176	134	7902M4	32.385	ng/mL	
19) C1-Benzo(b)thiophenes	22.230	148	42646M5	174.778	ng/mL	
20) C2-Benzo(b)thiophenes	25.706	162	71032M5	291.114	ng/mL	
21) C3-Benzo(b)thiophenes	27.696	176	133471M5	547.011	ng/mL	
22) C4-Benzo(b)thiophenes	29.429	190	124596M5	510.638	ng/mL	
23) Biphenyl	24.557	154	192576	755.686	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.177	156	605469	3251.213	ng/mL#	100
25) Dibenzofuran	27.650	168	70030M3	259.936	ng/mL	
26) Acenaphthylene	26.254	152	11639M4	35.364	ng/mL	
27) Acenaphthene	27.011	153	19576M3	96.240	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.553	170	125613M3	743.696	ng/mL	
29) Fluorene	29.028	166	82876M4	365.860	ng/mL	
30) C1-Fluorenes	31.400	180	187818M5	829.132	ng/mL	
31) C2-Fluorenes	33.590	194	292428M5	1290.939	ng/mL	
32) C3-Fluorenes	35.424	208	279129M5	1232.229	ng/mL	
33) Dibenzothiophene	32.358	184	194695	661.785	ng/mL#	75
34) 4-Methyldibenzothiophene(	34.128	198	184760	628.015	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.484	198	129334	439.617	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.895	198	60662	206.195	ng/mL#	100
38) C1-Dibenzothiophenes	34.128	198	384498M5	1306.942	ng/mL	
38) C1-Dibenzothiophenes BS	34.128	198	384498m	1306.942	ng/mL	
39) C2-Dibenzothiophenes	35.817	212	550664M5	1871.755	ng/mL	
40) C3-Dibenzothiophenes	37.624	226	502115M5	1706.732	ng/mL	
41) C4-Dibenzothiophenes	39.314	240	286312M5	973.199	ng/mL	
43) Phenanthrene	32.850	178	312095	999.002	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.813	192	138399	443.009	ng/mL	99

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH14\May12\may18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : AC
Sample : SO053012ANS01
Misc : WHA085: 5.210mg/kg
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
45)	2-Methylphenanthrene(2MP)	34.922	192	153633M4	491.772	ng/mL	
46)	2-Methylanthracene(2MA)	35.087	192	4120	13.188	ng/mL	94
47)	9/4-Methylphenanthrene(9M	35.269	192	221676	709.575	ng/mL	100
48)	1-Methylphenanthrene(1MP)	35.360	192	149465M4	478.431	ng/mL	
49)	C1-Phenanthrenes/Anthrace	35.269	192	677746M5	2169.435	ng/mL	
50)	C2-Phenanthrenes/Anthrace	37.086	206	737000M5	2359.104	ng/mL	
50)	C2-Phenanthrenes/Anthr BS	37.086	206	737000m	2359.104	ng/mL	
52)	C3-Phenanthrenes/Anthrace	38.921	220	530218M5	1697.204	ng/mL	
53)	C4-Phenanthrenes/Anthrace	41.103	234	218778M5	700.299	ng/mL	
56)	Carbazole	33.672	167	8069M4	27.838	ng/mL	
57)	1-Methylphenanthrene	35.360	192	149005M4	635.816	ng/mL	
58)	Fluoranthene	37.643	202	5225M4	16.394	ng/mL	
59)	Benzo(b)fluorene	40.163	216	6293M3	29.627	ng/mL	
60)	Pyrene	38.528	202	17519M4	52.886	ng/mL	
61)	C1-Fluoranthenes/Pyrenes	39.925	216	97315M5	293.771	ng/mL	
62)	C2-Fluoranthenes/Pyrenes	41.724	230	163929M5	494.863	ng/mL	
63)	C3-Fluoranthenes/Pyrenes	43.742	244	202440M5	611.119	ng/mL	
64)	C4-Fluoranthenes/Pyrenes	45.093	258	172249M5	519.979	ng/mL	
66)	Naphthobenzothiophene	42.390	234	44403M4	154.601	ng/ml	
67)	Naphthobenzothiophene-2,1	42.390	234	44438M4	154.722	ng/mL	
68)	Naphthobenzothiophene-1,2	42.728	234	9340	32.520	ng/mL#	3
69)	Naphthobenzothiophene-2,3	43.030	234	4433M4	15.435	ng/mL	
70)	C1-Naphthobenzothiophenes	43.787	248	160206M5	557.799	ng/ml	
71)	C2-Naphthobenzothiophenes	45.788	262	233570M5	813.235	ng/ml	
72)	C3-Naphthobenzothiophenes	47.407	276	187047M5	651.253	ng/ml	
73)	C4-Naphthobenzothiophenes	48.486	290	132628M5	461.779	ng/mL	
75)	Benz[a]anthracene	43.313	228	3148M4	10.499	ng/mL	
76)	Chrysene	43.450	228	51255M4	173.138	ng/mL	
77)	Chrysene/Triphenylene	43.450	228	51436M4	173.749	ng/mL	
78)	C1-Chrysenes	44.947	242	94192M5	318.178	ng/mL	
79)	C2-Chrysenes	47.672	256	135484M5	457.661	ng/mL	
79)	C2-Chrysenes BS	47.672	256	135484m	457.661	ng/mL	
80)	C3-Chrysenes	49.785	270	165389M5	558.680	ng/mL	
81)	C4-Chrysenes	49.885	284	96100M5	324.623	ng/mL	
82)	Benzo[b]fluoranthene	47.398	252	8014M3	27.025	ng/mL	
85)	Benzo[e]pyrene	48.413	252	15270	51.936	ng/mL	95
87)	Benzo[a]pyrene	48.614	252	3196M3	11.624	ng/mL	
88)	Perylene	48.943	252	4592	15.405	ng/mL#	1
89)	Indeno[1,2,3-cd]pyrene	53.589	276	1597M4	4.644	ng/mL	
90)	Dibenz[ah]+[ac]anthracene	53.589	278	2225	6.885	ng/mL#	43
91)	Benzo[g,h,i]perylene	54.923	276	4996	15.146	ng/mL	99
92)	Hopane (T19)	52.529	191	86733M4	885.803	ng/mL	
93)	17a(H),21B(H)-hopane - C3	52.529	191	85867M4	876.958	ng/mL	
94)	C23 Tricyclic Terpane (T4	40.985	191	34909M4	356.525	ng/ml	
95)	C24 Tricyclic Terpane (T5	41.706	191	22032	225.013	ng/ml	100
96)	C25 Tricyclic Terpane (T6	43.194	191	21313M1	217.669	ng/ml	
97)	C24 Tetracyclic Terpane (	44.518	191	7167M4	73.196	ng/ml	
98)	C26 Tricyclic Terpane-22S	44.244	191	8159M4	83.328	ng/ml	
99)	C26 Tricyclic Terpane-22R	44.344	191	7848	80.152	ng/ml	100
100)	C28 Tricyclic Terpane-22S	46.629	191	7859M4	80.264	ng/ml	
101)	C28 Tricyclic Terpane-22R	46.794	191	8830M4	90.181	ng/ml	
102)	C29 Tricyclic Terpane-22S	47.324	191	10731	109.596	ng/ml	100
103)	C29 Tricyclic Terpane-22R	47.517	191	10315M4	105.347	ng/ml	
104)	18a-22,29,30-Trisnorneoho	48.678	191	15958	162.979	ng/ml	100

RL 6-22-12

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH14\May12\may18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : AC
Sample : SO053012ANS01
Misc : WHAO85: 5.210mg/kg
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
105) C30 Tricyclic Terpane-22S	48.760	191	9113M4	93.071	ng/mL	
106) C30 Tricyclic Terpane-22R	49.007	191	8026M4	81.969	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	49.236	191	19203	196.120	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.453	191	3460M4	35.337	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	50.224	191	3699	37.778	ng/ml	100
110) 30-Norhopane (T15)	51.129	191	49769M4	508.290	ng/ml	
111) 18a(H)-30-Norneohopane-C2	51.239	191	12297M4	125.589	ng/ml	
112) 17a(H)-Diahopane (X)	51.358	191	7247M4	74.014	ng/ml	
113) 30-Normoretane (T17)	51.925	191	5606	57.254	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.337	191	1640M4	16.749	ng/ml	
115) Moretane (T20)	53.233	191	8280M4	84.564	ng/ml	
116) 30-Homohopane-22S (T21)	54.357	191	37346	381.414	ng/ml	100
117) 30-Homohopane-22R (T22)	54.585	191	32269	329.563	ng/ml	100
118) Gammacerane/C32-diahopane	55.152	191	7403	75.607	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.947	191	26790	273.606	ng/ml	100
120) 30,31-Bishomohopane-22R (	56.331	191	19372	197.846	ng/ml	100
121) 30,31-Trishomohopane-22S	58.122	191	21345	217.996	ng/ml	100
122) 30,31-Trishomohopane-22R	58.752	191	14058	143.574	ng/ml	100
123) Tetrakishomohopane-22S (T	60.817	191	14564	148.742	ng/ml	100
124) Tetrakishomohopane-22R (T	61.740	191	10659	108.860	ng/ml	100
125) Pentakishomohopane-22S (T	64.025	191	15714	160.487	ng/ml	100
126) Pentakishomohopane-22R (T	65.341	191	11066M4	113.017	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.459	217	12786	235.656	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.888	217	6844M4	126.140	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.584	217	6945M4	128.002	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	47.462	217	17481	322.189	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.992	217	21617M4	398.419	ng/ml	
133) Unknown Sterane (S18)	48.267	217	5264	97.020	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.541	217	1135	20.919	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.696	217	10141M4	186.907	ng/ml	
136) 14a,17a-20R-Methylcholest	49.437	217	9728M4	179.295	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.794	217	13816M4	254.640	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.718	217	11233M4	207.033	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.553	218	12330M4	227.252	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.645	218	12286M4	226.441	ng/ml	
141) 14b,17b-20R-Methylcholest	48.879	218	12942M4	238.531	ng/ml	
142) 14b,17b-20S-Methylcholest	48.962	218	16000M4	294.893	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	50.041	218	19581M3	360.893	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	50.087	218	10138M3	186.851	ng/ml	
145) C26,20R- +C27,20S- triaro	49.748	231	65128	1200.361	ng/mL	100
146) C28,20S-triaromatic stero	50.626	231	39995	737.140	ng/mL	100
147) C27,20R-triaromatic stero	51.084	231	39498	727.980	ng/mL	100
148) C28,20R-triaromatic stero	52.318	231	32467	598.393	ng/mL	100

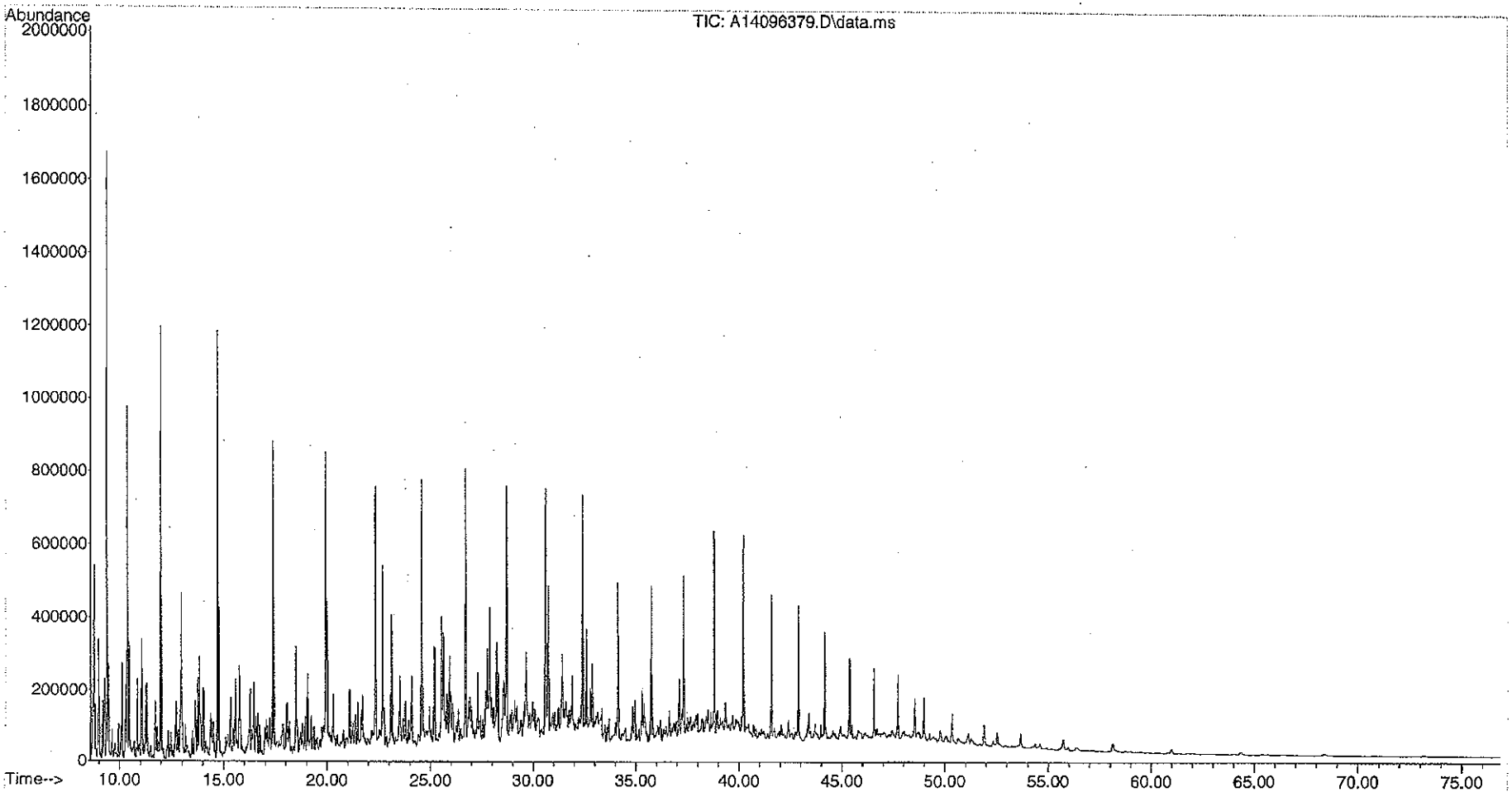
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\PAH14\May12\may18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : AC
Sample : SO053012ANS01
Misc : WHAO85: 5.210mg/kg
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed



Alpha Woods Hole Lab
Batch Prep Report

06/20/2012 1206028 - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1206028-01	SAM	Shaker	BA	6/20/2012	6/20/2012		1	4.44	1	4.44	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
1206028-02	SAM	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012B01	B	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012LCS01	LCS	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012LCSD01	LCSD	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012

Alpha Woods Hole Lab
Batch Prep Report
06/20/2012 1206028 - OP NEWFIE

Lab ID	Notes
1206028-01	1st Prep
1206028-02	1st Prep
SO062012B01	1st Prep
SO062012LCS01	1st Prep
SO062012LCSD01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

06/20/2012 1206028 - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1206028-01	SAM	WHAP72	100	µl				WHAP57	100	µl
1206028-02	SAM	WHAP72	100	µl				WHAP57	100	µl
SO062012B01	B	WHAP72	100	µl				WHAP57	100	µl
SO062012LCS01	LCS	WHAP72	100	µl	WHAP71	100	µl	WHAP57	100	µl
SO062012LCSD01	LCSD	WHAP72	100	µl	WHAP71	100	µl	WHAP57	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP57	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L08E15
WHAP72	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	K51E15
WHAP71	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K51E15

Alpha Woods Hole Lab
Batch Prep Spike Report

06/20/2012 1206028 - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1206028-01	SAM	WHAP72	100	µl				WHAP68	100	µl
1206028-02	SAM	WHAP72	100	µl				WHAP68	100	µl
SO062012B01	B	WHAP72	100	µl				WHAP68	100	µl
SO062012LCS01	LCS	WHAP72	100	µl	WHAP71	100	µl	WHAP68	100	µl
SO062012LCSD01	LCSD	WHAP72	100	µl	WHAP71	100	µl	WHAP68	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP68	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L011E21
WHAP72	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	K51E15
WHAP71	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K51E15

Alpha Woods Hole Lab
Batch Weight Report

06/20/2012

Total extract oil weight. BA 6/20/12

Lab ID	QC Type	1206028 - Sample
1206028-01	SAM	0.0184
1206028-02	SAM	0.00024
SO062012B01	B	0.009
SO062012LCS01LCS	OP NEWFIE	0.009
SO062012LCS01LCS	OP SHC	0.009
SO062012LCS01LCS	OP Steranes/Triterpanes	0.009
SO062012LCSD01LCSD	OP NEWFIE	0.009
SO062012LCSD01LCSD	OP SHC	0.009
SO062012LCSD01LCSD	OP Steranes/Triterpanes	0.009

ETR 1206028

Analyst BA

Date 06/20/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.251	50.20	N/A	N/A	N/A	98%
1206028	1		4000	50	0.230	18.40	900	4.14	4.44	
1206028	2		4000	50	0.003	0.24	2000	0.12	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: RA

Date: 6/20/12

ETR 1206028

Analyst BA

Date 06/20/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.251		N/A	N/A	N/A	0%
1206028	1		4000	↓	0.230					
1206028	2		4000	↓	0.003					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 6/20/12

Forensic Preparation Checklist

Batch ID: 1206028 Client: AECOM Project: ENBridge Line 6B MP 608

Test(s) Spiked for:
Choose from the following:
F1B, POIB, POIH, POIHX, POITAS, TPH+A

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	6/20/12	BA
1st Extraction:		
2nd Extraction:		
3rd Extraction:		

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	BA 6/20/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	6/20/12 BA	WHAP68 100.4L
RIS Spike Witness:	PW 6/20/12	

Prep Process Notes

REAGENT	LOT #
DCM	L14E25
SODIUM SULFATE	K33598
SILICA GEL	MA N/A
ALUMINA	

REAGENT	LOT #
COPPER	N/A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	BA	Date:	6/20/12
BATCH REVIEWED Analyst:	BLS	Date:	6/21/12

Analysis log File

5/30/12

Total Files Reported in Log : 21
Log Generated From Directory: O:\Forensics\Data\PAH14\May12\may18\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A14096368.D	PRIME	CC WHAP59 500NG/ML	5/18/2012 9:13 am
2	A14096369.D	DCM		5/18/2012 10:45 am
3	A14096370.D	DCM		5/18/2012 12:10 pm
4	A14096371.D	I1405181201	L1	5/18/2012 1:35 pm
5	A14096372.D	I1405181202	L2	5/18/2012 3:00 pm
6	A14096373.D	I1405181203	L3	5/18/2012 4:25 pm
7	A14096374.D	I1405181204	L4	5/18/2012 5:50 pm
8	A14096375.D	I1405181205	L5	5/18/2012 7:14 pm
9	A14096376.D	I1405181206	L6	5/18/2012 8:39 pm
10	A14096377.D	I1405181207	L7	5/18/2012 10:05 pm
11	A14096378.D	DCM	DCM	5/18/2012 11:31 pm
12	A14096379.D	SO053012ANS01	WHAO85: 5.210mg/kg	5/19/2012 12:57 am
13	A14096380.D	DCM	DCM	5/19/2012 2:22 am
14	A14096381.D	Q1405181201	ICC	5/19/2012 3:47 am
15	A14096382.D	MC2521405181201	MC252	5/19/2012 5:12 am
16	A14096383.D	SRM1582	SRM1582	5/19/2012 6:38 am
17	A14096384.D	COREX	SRM1582	5/19/2012 8:04 am
18	A14096385.D	C1405181201	CC WHAP	5/19/2012 9:29 am
19	A14096386.D	DCM	DCM	5/19/2012 10:54 am
20	A14096387.D	SILICA CHK	BCBG5711	5/19/2012 12:19 pm
21	A14096388.D	ALUMINA CHECK	LOT 12	5/19/2012 1:44 pm

PAH14052812M

pass

pass

pass

Printed: 05/30/12 Page: 1

Analysis log File

Total Files Reported in Log : 39
Log Generated From Directory: O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	a14096672.D	PRIME		6/19/2012 1:09 pm
2	a14096673.D	PRIME		6/19/2012 2:35 pm
3	a14096674.D	C1406191201 PASS	CC WHAP67 500UG/ML	6/19/2012 4:00 pm
4	a14096675.D	DCM	DCM	6/19/2012 5:25 pm
5	a14096676.D	DCM	DCM	6/19/2012 6:51 pm
6	a14096677.D	ST061112B01	1X ETR1206012	6/19/2012 8:16 pm
7	a14096678.D	ST061112LCS01	1X ETR1206012	6/19/2012 9:41 pm
8	a14096679.D	ST061112LCSD01	1X ETR1206012	6/19/2012 11:07 pm
9	a14096680.D	ST061112C74BN01	1X ETR1206012	6/20/2012 12:33 am
10	a14096681.D	1206012-01	1X	6/20/2012 2:01 am
11	a14096682.D	1206012-02	1X	6/20/2012 3:28 am
12	a14096683.D	C1406191202 PASS	CC WHAP67 500UG/ML	6/20/2012 8:03 am
13	A14096684.D	C1406191203 PASS	CC WHAP67 500UG/ML	6/20/2012 9:29 am
14	A14096685.D	1206012-03	1X	6/20/2012 10:56 am
15	A14096686.D	1206012-03MS	1X	6/20/2012 12:24 pm
16	A14096687.D	1206012-03MSD	1X	6/20/2012 1:52 pm
17	A14096688.D	1206012-04	1X	6/20/2012 3:21 pm
18	A14096689.D	1206012-05	1X	6/20/2012 4:50 pm
19	A14096690.D	C1406191204 PASS	CC WHAP67 500UG/ML	6/20/2012 6:18 pm
20	A14096692.D	SO062212ANS01	WHAO85	6/20/2012 7:47 pm
21	A14096693.D	SO062212WCS01	WHAP10	6/20/2012 9:13 pm
22	A14096694.D	SO062212CL01	WHAP12	6/20/2012 10:40 pm
23	A14096695.D	DCM	DCM	6/21/2012 12:06 am
24	A14096696.D	DCM	DCM	6/21/2012 1:35 am
25	A14096697.D	C1406191205 PASS	CC WHAP67 500UG/ML	6/21/2012 6:55 am
26	A14096698.D	DCM		6/21/2012 8:21 am
27	A14096699.D	SO062012B01	1X ETR1206028	6/21/2012 9:47 am
28	A14096700.D	SO062012LCS01	1X ETR1206028	6/21/2012 11:13 am
29	A14096701.D	SO062012LCSD01	1X ETR1206028	6/21/2012 12:39 pm
30	A14096702.D	1206028-01	1X	6/21/2012 2:06 pm
31	A14096703.D	1206028-02	1X	6/21/2012 3:33 pm
32	A14096704.D	C1406191206 PASS	CC WHAP67 500UG/ML	6/21/2012 5:00 pm
33	A14096705.D	DCM	DCM	6/21/2012 6:27 pm
34	A14096706.D	DCM	DCM	6/21/2012 7:54 pm
35	A14096707.D	WG543360-1,32	WG,BLK	6/21/2012 9:20 pm
36	A14096708.D	WG543360-2,32	WG,BLK	6/21/2012 10:46 pm
37	A14096709.D	WG543360-3,32	WG,	6/22/2012 12:12 am
38	A14096710.D	L1210577-15	WG,	6/22/2012 1:39 am
39	A14096711.D	L1210674-18		6/22/2012 3:06 am

PAH14051812.m
CCV = WHAP67 @ 500ng/mL
KG 6/22/12

Total Saturated Hydrocarbons By GC/FID

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**
Matrix: **Oil**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Alaska North Slope Crude	TO062112ANS02	100	100
Western Canadian Select	TO062112WCS03	110	100
Cold Lake Crude	TO062112CL03	101	94

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form II
Surrogate Recovery
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Lab Code: **MA00030**
ETR: **1206028**
Matrix: **Sheen**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	ortho-Terphenyl	d50-Tetracosane
Blank	SO062012B01	102	97
LCS	SO062012LCS01	103	98
LCSD	SO062012LCSD01	105	100
SWKR3800C001S061512HX	1206028-01	106	99
SWKR3800C001T061512HX	1206028-02	104	100

N/A - Not Applicable

Surrogate	QC Limit
ortho-Terphenyl	40-125
d50-Tetracosane	40-125

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **See Below**
Associated Blank: **SO062012B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	06/20/12	100	JT

Lab ID:		SO062012B01	SO062012LCS01		SO062012LCSD01				
Parameter	**Blank Conc.**		**LCS Conc.**	**% Recovery**	**LCSD Conc.**	**% Recovery**	**% RPD**	**RPD Limit**	**% Recovery Limits**
n-Nonane (C9)	2.00	U	17.5	88	17.7	88	1	30	50-125
n-Decane (C10)	2.00	U	17.4	87	17.7	88	2	30	50-125
n-Dodecane (C12)	2.00	U	17.6	88	17.9	90	2	30	50-125
n-Tetradecane (C14)	2.00	U	19.2	96	19.3	97	1	30	50-125
n-Hexadecane (C16)	2.00	U	20.5	103	20.6	103	1	30	50-125
n-Octadecane (C18)	0.926		20.8	104	21.0	105	1	30	50-125
n-Nonadecane (C19)	2.00	U	19.2	96	19.4	97	1	30	50-125
n-Eicosane (C20)	2.00	U	19.6	98	19.8	99	1	30	50-125
n-Docosane (C22)	2.00	U	19.4	97	19.6	98	1	30	50-125
n-Tetracosane (C24)	2.00	U	19.1	95	19.2	96	0	30	50-125
n-Hexacosane (C26)	2.00	U	19.1	95	19.2	96	1	30	50-125
n-Octacosane (C28)	2.00	U	19.0	95	19.1	96	1	30	50-125
n-Triacontane (C30)	2.00	U	18.8	94	19.0	95	1	30	50-125
n-Hexatriacontane (C36)	2.00	U	18.3	91	18.4	92	1	30	50-125

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	103	105	40-125
d50-Tetracosane	98	100	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

06/21/12 16:02

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TO062112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	JT

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	6960	112	65-135
n-Decane (C10)	5060	5650	112	65-135
n-Undecane (C11)	4640	5360	116	65-135
n-Dodecane (C12)	4121	4890	119	65-135
n-Tridecane (C13)	3859	4880	126	65-135
2,6,10 Trimethyldodecane (1380)	914	926	101	65-135
n-Tetradecane (C14)	3500	4180	119	65-135
2,6,10 Trimethyltridecane (1470)	1316	1640	125	65-135
n-Pentadecane (C15)	3836	4290	112	65-135
n-Hexadecane (C16)	3174	3920	124	65-135
Norpristane (1650)	1030	1130	110	65-135
n-Heptadecane (C17)	2818	3590	127	65-135
Pristane	2093	2370	113	65-135
n-Octadecane (C18)	2460	3120	127	65-135
Phytane	1213	1390	115	65-135
n-Nonadecane (C19)	2354	2630	112	65-135
n-Eicosane (C20)	2305	2570	111	65-135
n-Heneicosane (C21)	2077	2280	110	65-135
n-Docosane (C22)	2010	2210	110	65-135
n-Tricosane (C23)	1735	1930	111	65-135
n-Tetracosane (C24)	1629	1790	110	65-135
n-Pentacosane (C25)	1607	1720	107	65-135
n-Hexacosane (C26)	1333	1500	112	65-135
n-Heptacosane (C27)	1085	1140	105	65-135
n-Octacosane (C28)	770	826	107	65-135
n-Nonacosane (C29)	774	773	100	65-135
n-Triacontane (C30)	595	644	108	65-135
n-Hentriacontane (C31)	534	658	123	65-135
n-Dotriacontane (C32)	501	401	80	65-135
n-Tritriacontane (C33)	322	347	108	65-135
n-Tetratriacontane (C34)	289	315	109	65-135
n-Pentatriacontane (C35)	271	334	123	65-135
n-Hexatriacontane (C36)	166	168	101	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TO062112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	JT

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	151	104	65-135
n-Octatriacontane (C38)	136	147	108	65-135
n-Nonatriacontane (C39)	94.3	78.4	83	65-135
n-Tetracontane (C40)	86.5	83.6	97	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	617000	113	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

06/21/12 16:02

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TW040212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Nonane (C9)	6204	5840	94	65-135
n-Decane (C10)	5060	4750	94	65-135
n-Undecane (C11)	4640	4390	95	65-135
n-Dodecane (C12)	4121	3930	95	65-135
n-Tridecane (C13)	3859	3980	103	65-135
2,6,10 Trimethyldodecane (1380)	914	799	87	65-135
n-Tetradecane (C14)	3500	3500	100	65-135
2,6,10 Trimethyltridecane (1470)	1316	1290	98	65-135
n-Pentadecane (C15)	3836	3420	89	65-135
n-Hexadecane (C16)	3174	3210	101	65-135
Norpristane (1650)	1030	943	92	65-135
n-Heptadecane (C17)	2818	2890	103	65-135
Pristane	2093	1980	94	65-135
n-Octadecane (C18)	2460	2580	105	65-135
Phytane	1213	1150	95	65-135
n-Nonadecane (C19)	2354	2130	90	65-135
n-Eicosane (C20)	2305	2220	96	65-135
n-Heneicosane (C21)	2077	1910	92	65-135
n-Docosane (C22)	2010	1870	93	65-135
n-Tricosane (C23)	1735	1610	93	65-135
n-Tetracosane (C24)	1629	1500	92	65-135
n-Pentacosane (C25)	1607	1540	96	65-135
n-Hexacosane (C26)	1333	1290	97	65-135
n-Heptacosane (C27)	1085	995	92	65-135
n-Octacosane (C28)	770	723	94	65-135
n-Nonacosane (C29)	774	672	87	65-135
n-Triacontane (C30)	595	610	103	65-135
n-Hentriacontane (C31)	534	551	103	65-135
n-Dotriacontane (C32)	501	373	74	65-135
n-Tritriacontane (C33)	322	420	130	65-135
n-Tetratriacontane (C34)	289	382	132	65-135
n-Pentatriacontane (C35)	271	299	110	65-135
n-Hexatriacontane (C36)	166	154	93	65-135

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TW040212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	BAL

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
n-Heptatriacontane (C37)	145	147	101	65-135
n-Octatriacontane (C38)	136	138	102	65-135
n-Nonatriacontane (C39)	94.3	89.5	95	65-135
n-Tetracontane (C40)	86.5	96.0	111	65-135
Total Petroleum Hydrocarbons (C9-C44)	544000	512000	94	65-135

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Date Analyzed: **06/20/12 10:37**

Client ID	Lab ID	Date/Time Analyzed
LCS	SO062012LCS01	06/20/12 12:17
LCSD	SO062012LCSD01	06/20/12 13:59
SWKR3800C001S061512HX	1206028-01	06/20/12 17:19
SWKR3800C001T061512HX	1206028-02	06/20/12 18:57

N/A - Not Applicable

GC QA-QC Check Report

Daily Calibration File : O:\FORENSICS\DATA\FID16\2012\JUN2012\JUN19\SREV\A1611340.D
Time Acquired : 20 Jun 2012 5:44 am

C1606181202F 55623900

File	Sample	Internal Standard Responses
A1611346.d	SO062012B01	52386498
A1611348.d	SO062012LCS01	55338859
A1611350.d	SO062012LCSD01	55073459
A1611354.d	1206028-01	58787174
A1611356.d	1206028-02	55470379
A1611358.d	C1606191203F	54783989

(fails) - fails 24hr time check * - fails criteria

Created: Sun Jun 24 18:00:36 2012 FID16

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001S061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-01**
Associated Blank: **SO062012B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/20/12	100	1.00	4.44	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**0.0266**	J	n-Docosane (C22)	4.44	U
n-Decane (C10)	**0.0488**	J	n-Tricosane (C23)	4.44	U
n-Undecane (C11)	**0.0666**	J	n-Tetracosane (C24)	4.44	U
n-Dodecane (C12)	**0.111**	J	n-Pentacosane (C25)	**2.90**	CJB
n-Tridecane (C13)	**0.142**	J	n-Hexacosane (C26)	**0.910**	J
2,6,10 Trimethyldodecane (1380)	**0.386**	J	n-Heptacosane (C27)	4.44	U
n-Tetradecane (C14)	**0.417**	J	n-Octacosane (C28)	4.44	U
2,6,10 Trimethyltridecane (1470)	**1.61**	J	n-Nonacosane (C29)	4.44	U
n-Pentadecane (C15)	**0.666**	J	n-Triacontane (C30)	**1.45**	J
n-Hexadecane (C16)	**0.542**	J	n-Hentriacontane (C31)	**6.25**	
Norpristane (1650)	**1.66**	J	n-Dotriacontane (C32)	4.44	U
n-Heptadecane (C17)	**0.493**	J	n-Tritriacontane (C33)	4.44	U
Pristane	**4.22**	J	n-Tetratriacontane (C34)	4.44	U
n-Octadecane (C18)	**0.724**	CJB	n-Pentatriacontane (C35)	**1.32**	J
Phytane	**3.99**	J	n-Hexatriacontane (C36)	**4.83**	
n-Nonadecane (C19)	**1.85**	J	n-Heptatriacontane (C37)	4.44	U
n-Eicosane (C20)	4.44	U	n-Octatriacontane (C38)	4.44	U
n-Heneicosane (C21)	**0.848**	J	n-Nonatriacontane (C39)	4.44	U
			n-Tetracontane (C40)	4.44	U
Total Petroleum Hydrocarbons (C9-C44)	**7400**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	106	40-125
d50-Tetracosane	99	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611354.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 5:19 pm
Operator : JT
Sample : 1206028-01
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:13:18 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

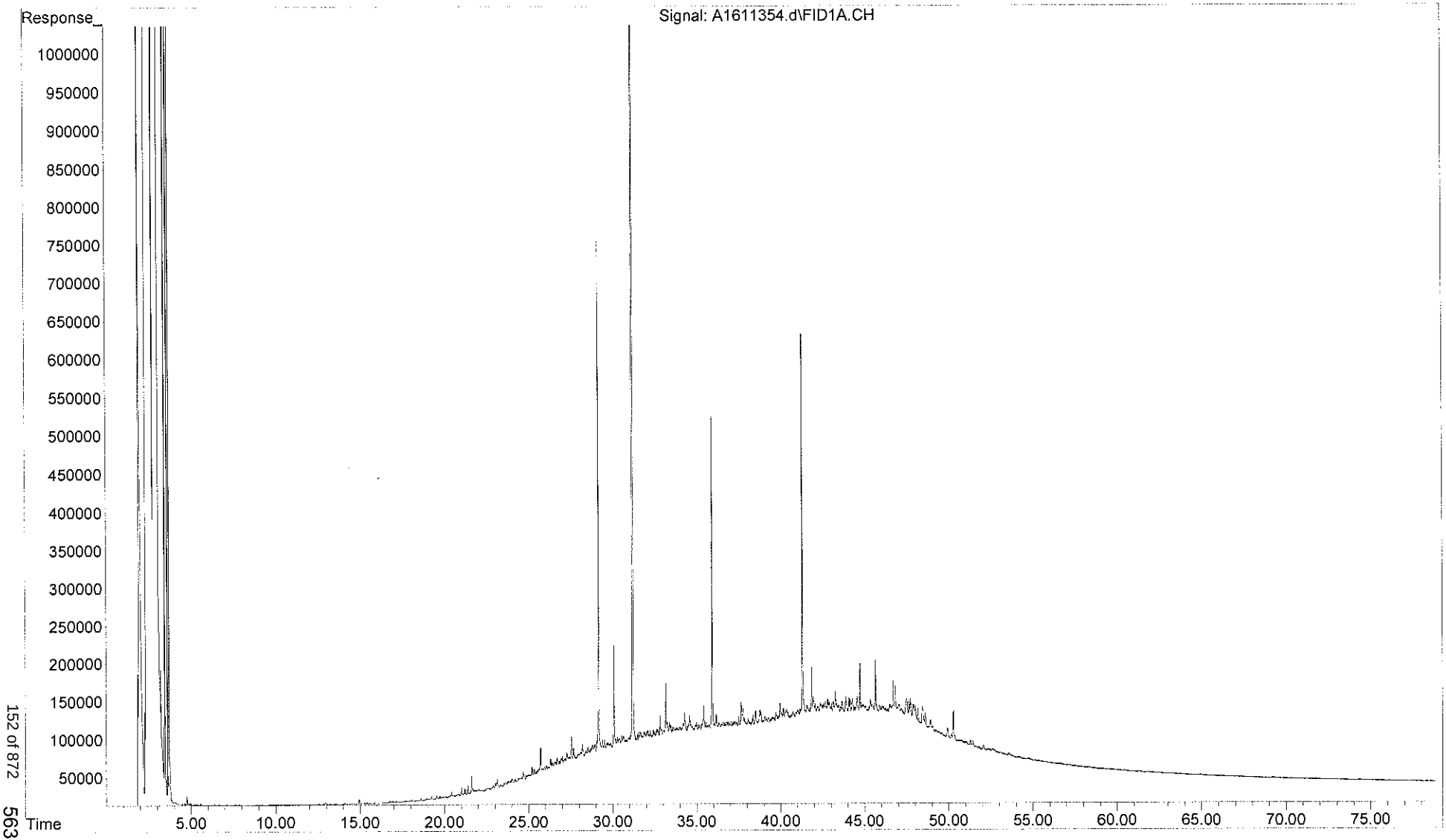
6/22/12

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	5-alpha-androstane	31.228	58787174	50.000	ug/mL	M4
	System Monitoring Compounds					
19) s	ortho-terphenyl	29.189	13944596	11.927	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	23.85%#		
24) s	d50-Tetracosane	35.937	10808141	11.113	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	22.23%#		
	Target Compounds					
2) t	n-Octane (C8)	5.532	11847	0.012	ug/mL	M4
3) t	n-Nonane (C9)	7.779	6472	0.006	ug/mL	M4
4) t	n-Decane (C10)	10.297	11580	0.011	ug/mL	M4
5) t	n-Undecane (C11)	12.817	15375	0.015	ug/mL	M4
6) t	n-Dodecane (C12)	15.246	26519	0.025	ug/mL	M4
7) t	n-Tridecane (C13)	17.551	33501	0.032	ug/mL	M4
8) t	1380	19.236	92617	0.087	ug/mL	M4
9) t	n-Tetradecane (C14)	19.734	99596	0.094	ug/mL	M4
10) t	1470	21.028	386223	0.363	ug/mL	M4
11) t	n-Pentadecane (C15)	21.793	159429	0.150	ug/mL	M4
12) t	n-Hexadecane (C16)	23.807	131844	0.122	ug/mL	M4
13) t	1650	24.678	402650	0.374	ug/mL	M4
14) t	n-Heptadecane (C17)	25.625	118898	0.111	ug/mL	M4
15) t	Pristane	25.719	1040542	0.950	ug/mL	M4
16) t	n-Octadecane (C18)	27.402	178915C	0.163	ug/mL	M4
17) t	Phytane	27.550	974308	0.898	ug/mL	M4
18) t	n-Nonadecane (C19)	29.081	458016	0.417	ug/mL	M4
21) t	n-Heneicosane (C21)	32.236	211668	0.191	ug/mL	M4
26) t	n-Pentacosane (C25)	37.772	745209C	0.652	ug/mL	M4
27) t	n-Hexacosane (C26)	39.075	233323	0.205	ug/mL	M4
31) t	n-Triacontane (C30)	43.668	369156	0.327	ug/mL	M4
32) t	n-Hentriacontane (C31)	44.734	1591998	1.407	ug/mL	M4
36) t	n-Pentatriacontane (C35)	48.922	338141	0.297	ug/mL	M4
37) t	n-Hexatriacontane (C36)	50.286	1264977	1.088	ug/mL	M4
42) h	C9-C44 Total Petroleu...	41.094	2321233489	2107.795	ug/mL	M4
45) h	Total Resolved Hydroc...	41.094	118860402	107.931	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611354.d
Operator : JT
Acquired : 20 Jun 2012 5:19 pm using AcqMethod FID16.M
Instrument : FID16
Sample : 1206028-01
Misc Info : 1X
ALS Vial : 18



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **SWKR3800C001T061512HX**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **1206028-02**
Associated Blank: **SO062012B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/15/12	06/18/12	06/20/12	06/20/12	100	1.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2.00	U	n-Docosane (C22)	**0.0300**	J
n-Decane (C10)	2.00	U	n-Tricosane (C23)	**0.104**	J
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	2.00	U
n-Dodecane (C12)	2.00	U	n-Pentacosane (C25)	**0.858**	CJB
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**0.310**	J
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	**0.0760**	J
n-Tetradecane (C14)	**0.0620**	J	n-Octacosane (C28)	2.00	U
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	**0.794**	J
n-Pentadecane (C15)	**0.180**	J	n-Triacontane (C30)	**0.476**	J
n-Hexadecane (C16)	2.00	U	n-Hentriacontane (C31)	**0.140**	J
Norpristane (1650)	**0.0760**	J	n-Dotriacontane (C32)	**0.118**	J
n-Heptadecane (C17)	**0.0700**	J	n-Tritriacontane (C33)	**0.100**	J
Pristane	**0.0640**	J	n-Tetratriacontane (C34)	**0.0960**	J
n-Octadecane (C18)	**0.138**	CJB	n-Pentatriacontane (C35)	**0.0760**	J
Phytane	**0.0340**	J	n-Hexatriacontane (C36)	2.00	U
n-Nonadecane (C19)	**0.190**	J	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**0.0340**	J	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	**0.582**	J	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	104	40-125
d50-Tetracosane	100	40-125

N/A - Not Applicable
B - Found in associated blank as well as sample.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611356.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 6:57 pm
Operator : JT
Sample : 1206028-02
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:13:19 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

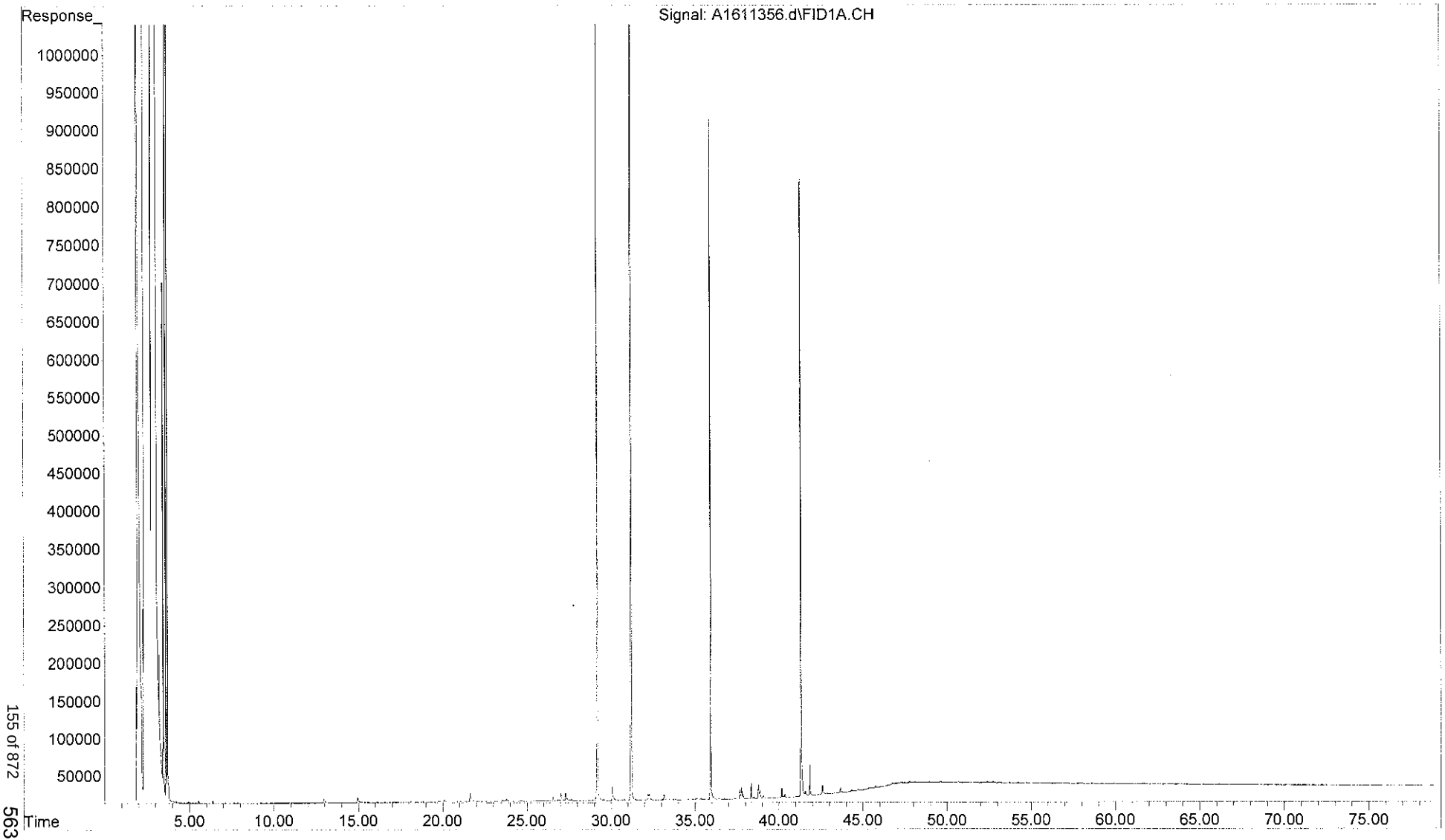
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.224	55470379	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.197	28768406	26.078 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	52.16%
24) s	d50-Tetracosane	35.939	22987290	25.049 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	50.10%
	Target Compounds			
2) t	n-Octane (C8)	5.531	48110	0.052 ug/mL M4
9) t	n-Tetradecane (C14)	19.751	31114	0.031 ug/mL M4
11) t	n-Pentadecane (C15)	21.813	90406	0.090 ug/mL M4
13) t	1650	24.675	38397	0.038 ug/mL M4
14) t	n-Heptadecane (C17)	25.649	35856	0.035 ug/mL M4
15) t	Pristane	25.721	33523	0.032 ug/mL M4
16) t	n-Octadecane (C18)	27.385	71787C	0.069 ug/mL M4
17) t	Phytane	27.554	17145	0.017 ug/mL M4
18) t	n-Nonadecane (C19)	29.078	98475	0.095 ug/mL M4
20) t	n-Eicosane (C20)	30.685	17264	0.017 ug/mL M4
21) t	n-Heneicosane (C21)	32.210	304951	0.291 ug/mL M4
22) t	n-Docosane (C22)	33.701	15743	0.015 ug/mL M4
23) t	n-Tricosane (C23)	35.108	55514	0.052 ug/mL M4
26) t	n-Pentacosane (C25)	37.785	462763C	0.429 ug/mL M4
27) t	n-Hexacosane (C26)	39.090	166167	0.155 ug/mL M4
28) t	n-Heptacosane (C27)	40.255	40006	0.038 ug/mL M4
30) t	n-Nonacosane (C29)	42.594	422926	0.397 ug/mL M4
31) t	n-Triacontane (C30)	43.673	253542	0.238 ug/mL M4
32) t	n-Hentriacontane (C31)	44.729	74833	0.070 ug/mL M4
33) t	n-Dotriacontane (C32)	45.758	63233	0.059 ug/mL M4
34) t	n-Tritriacontane (C33)	46.755	51685	0.050 ug/mL M4
35) t	n-tetratriacontane (C34)	47.775	51065	0.048 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.929	40639	0.038 ug/mL M4
42) h	C9-C44 Total Petroleu...	41.094	586298238	564.222 ug/mL M4
45) h	Total Resolved Hydroc...	41.094	39379542	37.897 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611356.d
Operator : JT
Acquired : 20 Jun 2012 6:57 pm using AcqMethod FID16.M
Instrument : FID16
Sample : 1206028-02
Misc Info : 1X
ALS Vial : 19



Response Factor Report FID16

Method Path : O:\Forensics\Methods\FID16\
Method File : HC16032812F.M
Title : FID Forensics
Last Update : Wed Apr 11 10:29:04 2012
Response Via : Initia1 Calibration

Calibration Files
1 =A1609884.d 10 =A1609886.d 50 =A1609888.d 100 =A1609890.d 200 =A1609892.d 500 =A1609894.d

		Compound	1	10	50	100	200	500	Avg	%RSD
1)	I	5-alpha-androstane	ISTD							
2)	t	n-Octane (C8)	0.873	0.833	0.878	0.834	0.793		0.842	4.13
3)	t	n-Nonane (C9)	0.852	0.837	0.908	0.843	0.810		0.850	4.21
4)	t	n-Decane (C10)	0.878	0.863	0.941	0.873	0.835		0.878	4.43
5)	t	n-Undecane (C11)	0.866	0.865	0.946	0.880	0.841		0.879	4.52
6)	t	n-Dodecane (C12)	0.877	0.878	0.959	0.895	0.855		0.893	4.46
7)	t	n-Tridecane (...	0.879	0.878	0.965	0.897	0.857		0.895	4.67
8)	t	1380	0.879	0.885	0.977	0.905	0.864		0.902	4.93
9)	t	n-Tetradecane...	0.879	0.885	0.977	0.905	0.864		0.902	4.93
10)	t	1470	0.891	0.889	0.973	0.905	0.863		0.904	4.58
11)	t	n-Pentadecane...	0.891	0.889	0.973	0.905	0.863		0.904	4.58
12)	t	n-Hexadecane ...	0.911	0.905	0.987	0.917	0.875		0.919	4.51
13)	t	1650	0.896	0.895	0.995	0.912	0.876		0.915	5.10
14)	t	n-Heptadecane...	0.896	0.895	0.995	0.912	0.876		0.915	5.10
15)	t	Pristane	0.923	0.923	1.005	0.927	0.879		0.931	4.91
16)	t	n-Octadecane ...	0.921	0.920	1.002	0.931	0.889		0.933	4.48
17)	t	Phytane	0.914	0.913	0.990	0.919	0.877		0.923	4.50
18)	t	n-Nonadecane ...	0.923	0.922	1.000	0.933	0.899		0.935	4.07
19)	s	ortho-terphenyl	1.056	1.003	1.124	1.012	0.963	0.806	0.994	10.77
20)	t	n-Eicosane (C20)	0.936	0.933	1.008	0.936	0.894		0.941	4.38
21)	t	n-Heneicosane...	0.953	0.936	1.005	0.936	0.894		0.944	4.25
22)	t	n-Docosane (C22)	0.952	0.944	1.012	0.943	0.900		0.950	4.20
23)	t	n-Tricosane (...	1.023	0.953	1.012	0.945	0.901		0.967	5.20
24)	s	d50-Tetracosane	0.863	0.817	0.905	0.825	0.792	0.761	0.827	6.20
25)	t	n-Tetracosane...	1.028	0.952	1.013	0.943	0.898		0.967	5.53
26)	t	n-Pentacosane...	0.972	0.967	1.035	0.965	0.918		0.971	4.31
27)	t	n-Hexacosane ...	0.966	0.960	1.033	0.960	0.912		0.966	4.48
28)	t	n-Heptacosane...	0.951	0.942	1.030	0.940	0.893		0.951	5.19
29)	t	n-Octacosane ...	0.975	0.953	1.026	0.951	0.902		0.961	4.64
30)	t	n-Nonacosane ...	0.963	0.957	1.026	0.955	0.905		0.961	4.50
31)	t	n-Triacontane...	0.966	0.946	1.049	0.944	0.894		0.960	5.88
32)	t	n-Hentriacont...	0.963	0.957	1.034	0.954	0.903		0.962	4.85
33)	t	n-Dotriaconta...	0.968	0.955	1.024	0.952	0.903		0.960	4.51
34)	t	n-Tritriacont...	0.928	0.914	1.037	0.910	0.864		0.931	6.89
35)	t	n-tetratriaco...	0.962	0.946	1.024	0.941	0.894		0.953	4.90
36)	t	n-Pentatriaco...	0.974	0.962	1.033	0.958	0.913		0.968	4.47
37)	t	n-Hexatriacon...	0.993	0.981	1.058	0.979	0.933		0.989	4.55
38)	t	n-Heptatriaco...	0.972	0.961	1.034	0.961	0.917		0.969	4.36
39)	t	n-Octatriacon...	0.966	0.957	1.028	0.958	0.914		0.965	4.23
40)	t	n-Nonatriacon...	0.919	0.909	0.949	0.916	0.873		0.913	3.01

Response Factor Report FID16

Method Path : O:\Forensics\Methods\FID16\
Method File : HC16032812F.M
Title : FID Forensics
Last Update : Wed Apr 11 10:29:04 2012
Response Via : Initial Calibration

Calibration Files
1 =A1609884.d 10 =A1609886.d 50 =A1609888.d 100 =A1609890.d 200 =A1609892.d 500 =A1609894.d

		Compound	1	10	50	100	200	500	Avg	%RSD
41)	t	n-Tetracontan...	0.919	0.909	0.949	0.916	0.873		0.913	3.01
42)	h	C9-C44 Total ...	0.938✓	0.926	1.004	0.930✓	0.886		0.937	4.53✓
43)	h	C10-C28 DRO	0.938	0.926✓	1.004	0.930	0.886✓		0.937	4.53
44)	h	Total Resolve...	0.938	0.926	1.004✓	0.930	0.886		0.937✓	4.53

(#) = Out of Range

RSF Update Summary Report

Method Path.....: O:\Forensics\Methods\FID16\
Method File.....: HC16032812F.M
Method Title.....: FID Forensics
Last Update.....: Wed Apr 11 10:25:33 2012

Generating Average Response Factor For: C9-C44 Total Petroleum Hydrocar

No	Compound	Level	Conc	Response
1	n-Nonane (C9)	1	1.00000	854780.603
2	n-Decane (C10)	1	1.00000	880996.396
3	n-Undecane (C11)	1	1.00000	868721.113
4	n-Dodecane (C12)	1	1.00000	880231.327
5	n-Tridecane (C13)	1	1.00000	881757.050
6	n-Tetradecane (C14)	1	1.00000	881592.242
7	n-Pentadecane (C15)	1	1.00000	893961.148
8	n-Hexadecane (C16)	1	1.00000	914177.914
9	n-Heptadecane (C17)	1	1.00000	898738.716
10	Pristane	1	1.00000	926035.196
11	n-Octadecane (C18)	1	1.00000	924225.448
12	Phytane	1	1.00000	916925.715
13	n-Nonadecane (C19)	1	1.00000	926363.002
14	n-Eicosane (C20)	1	1.00000	938553.551
15	n-Heneicosane (C21)	1	1.00000	955992.612
16	n-Docosane (C22)	1	1.00000	954833.804
17	n-Tricosane (C23)	1	1.00000	1025836.130
18	n-Tetracosane (C24)	1	1.00000	1031520.580
19	n-Pentacosane (C25)	1	1.00000	975033.612
20	n-Hexacosane (C26)	1	1.00000	969003.548
21	n-Heptacosane (C27)	1	1.00000	954114.589
22	n-Octacosane (C28)	1	1.00000	977701.982
23	n-Nonacosane (C29)	1	1.00000	966000.022
24	n-Triacontane (C30)	1	1.00000	969272.726
25	n-Hentriacontane (C31)	1	1.00000	966585.379
26	n-Dotriacontane (C32)	1	1.00000	971315.544
27	n-Tritriacontane (C33)	1	1.00000	930671.942
28	n-tetratriacontane (C34)	1	1.00000	965153.419
29	n-Pentatriacontane (C35)	1	1.00000	977467.134
30	n-Hexatriacontane (C36)	1	1.00000	996341.282
31	n-Heptatriacontane (C37)	1	1.00000	975533.034
32	n-Octatriacontane (C38)	1	1.00000	969609.630
33	n-Tetracontane (C40)	1	1.00000	922279.081
Avg RSF For: C9-C44 Total Petroleum			1.00000	940646.226
1	n-Nonane (C9)	2	10.00000	8846762.790
2	n-Decane (C10)	2	10.00000	9114119.810
3	n-Undecane (C11)	2	10.00000	9135243.845
4	n-Dodecane (C12)	2	10.00000	9281515.240
5	n-Tridecane (C13)	2	10.00000	9278885.184
6	n-Tetradecane (C14)	2	10.00000	9346243.718
7	n-Pentadecane (C15)	2	10.00000	9391983.395
8	n-Hexadecane (C16)	2	10.00000	9558873.063
9	n-Heptadecane (C17)	2	10.00000	9453104.228
10	Pristane	2	10.00000	9753426.478
11	n-Octadecane (C18)	2	10.00000	9724174.733

12	Phytane	2	10.00000	9641908.576
13	n-Nonadecane (C19)	2	10.00000	9736855.208
14	n-Eicosane (C20)	2	10.00000	9859354.672
15	n-Heneicosane (C21)	2	10.00000	9884713.251
16	n-Docosane (C22)	2	10.00000	9978562.697
17	n-Tricosane (C23)	2	10.00000	10073973.982
18	n-Tetracosane (C24)	2	10.00000	10061593.565
19	n-Pentacosane (C25)	2	10.00000	10219097.408
20	n-Hexacosane (C26)	2	10.00000	10142131.865
21	n-Heptacosane (C27)	2	10.00000	9954747.901
22	n-Octacosane (C28)	2	10.00000	10069027.492
23	n-Nonacosane (C29)	2	10.00000	10108256.622
24	n-Triacontane (C30)	2	10.00000	9996628.944
25	n-Hentriacontane (C31)	2	10.00000	10105907.060
26	n-Dotriacontane (C32)	2	10.00000	10092009.280
27	n-Tritriacontane (C33)	2	10.00000	9660111.036 ✓
28	n-tetratriacontane (C34)	2	10.00000	9989966.534
29	n-Pentatriacontane (C35)	2	10.00000	10163831.884
30	n-Hexatriacontane (C36)	2	10.00000	10364344.662
31	n-Heptatriacontane (C37)	2	10.00000	10155413.954
32	n-Octatriacontane (C38)	2	10.00000	10108471.438
33	n-Tetracontane (C40)	2	10.00000	9605788.296
Avg RSF For: C9-C44 Total Petroleum			10.00000	9783546.328 ✓

1	n-Nonane (C9)	3	50.00000	51101957.486
2	n-Decane (C10)	3	50.00000	52978799.338
3	n-Undecane (C11)	3	50.00000	53250097.614
4	n-Dodecane (C12)	3	50.00000	54021329.960
5	n-Tridecane (C13)	3	50.00000	54359609.240
6	n-Tetradecane (C14)	3	50.00000	55011874.486
7	n-Pentadecane (C15)	3	50.00000	54797213.133
8	n-Hexadecane (C16)	3	50.00000	55572936.165
9	n-Heptadecane (C17)	3	50.00000	56023643.715
10	Pristane	3	50.00000	56583221.454
11	n-Octadecane (C18)	3	50.00000	56412453.112
12	Phytane	3	50.00000	55759385.903
13	n-Nonadecane (C19)	3	50.00000	56282247.463
14	n-Eicosane (C20)	3	50.00000	56758972.102
15	n-Heneicosane (C21)	3	50.00000	56564987.994
16	n-Docosane (C22)	3	50.00000	56974077.526
17	n-Tricosane (C23)	3	50.00000	57005983.938
18	n-Tetracosane (C24)	3	50.00000	57053635.803 ✓
19	n-Pentacosane (C25)	3	50.00000	58297352.145
20	n-Hexacosane (C26)	3	50.00000	58160284.169
21	n-Heptacosane (C27)	3	50.00000	57982852.452
22	n-Octacosane (C28)	3	50.00000	57747395.838
23	n-Nonacosane (C29)	3	50.00000	57789742.228
24	n-Triacontane (C30)	3	50.00000	59039923.707
25	n-Hentriacontane (C31)	3	50.00000	58213109.773
26	n-Dotriacontane (C32)	3	50.00000	57657333.550
27	n-Tritriacontane (C33)	3	50.00000	58377012.887
28	n-tetratriacontane (C34)	3	50.00000	57642885.712
29	n-Pentatriacontane (C35)	3	50.00000	58173488.684
30	n-Hexatriacontane (C36)	3	50.00000	59594957.202 ✓
31	n-Heptatriacontane (C37)	3	50.00000	58227326.351
32	n-Octatriacontane (C38)	3	50.00000	57887815.570
33	n-Tetracontane (C40)	3	50.00000	53452455.318
Avg RSF For: C9-C44 Total Petroleum			50.00000	56507768.546 ✓

1	n-Nonane (C9)	4	100.00000	89555443.520
2	n-Decane (C10)	4	100.00000	92746700.296
3	n-Undecane (C11)	4	100.00000	93512816.421
4	n-Dodecane (C12)	4	100.00000	95134073.249
5	n-Tridecane (C13)	4	100.00000	95323126.994
6	n-Tetradecane (C14)	4	100.00000	96221850.371
7	n-Pentadecane (C15)	4	100.00000	96132780.168
8	n-Hexadecane (C16)	4	100.00000	97397408.257
9	n-Heptadecane (C17)	4	100.00000	96947578.817
10	Pristane	4	100.00000	98461194.404
11	n-Octadecane (C18)	4	100.00000	98981202.910
12	Phytane	4	100.00000	97674045.129
13	n-Nonadecane (C19)	4	100.00000	99112387.746
14	n-Eicosane (C20)	4	100.00000	99483332.404
15	n-Heneicosane (C21)	4	100.00000	99434339.513
16	n-Docosane (C22)	4	100.00000	100258793.203
17	n-Tricosane (C23)	4	100.00000	100475056.081
18	n-Tetracosane (C24)	4	100.00000	100218489.880
19	n-Pentacosane (C25)	4	100.00000	102537158.692
20	n-Hexacosane (C26)	4	100.00000	101980840.803
21	n-Heptacosane (C27)	4	100.00000	99931030.814
22	n-Octacosane (C28)	4	100.00000	101107545.000
23	n-Nonacosane (C29)	4	100.00000	101476702.601
24	n-Triacontane (C30)	4	100.00000	100306232.066
25	n-Hentriacontane (C31)	4	100.00000	101369293.408
26	n-Dotriacontane (C32)	4	100.00000	101194092.287
27	n-Tritriacontane (C33)	4	100.00000	96723506.308
28	n-tetratriacontane (C34)	4	100.00000	99987229.014
29	n-Pentatriacontane (C35)	4	100.00000	101856331.169
30	n-Hexatriacontane (C36)	4	100.00000	104024719.678
31	n-Heptatriacontane (C37)	4	100.00000	102105811.870
32	n-Octatriacontane (C38)	4	100.00000	101779479.203
33	n-Tetracontane (C40)	4	100.00000	97307207.868
Avg RSF For: C9-C44 Total Petroleum			100.00000	98810842.429

1	n-Nonane (C9)	5	200.00000	183572822.389
2	n-Decane (C10)	5	200.00000	189314428.997
3	n-Undecane (C11)	5	200.00000	190490436.742
4	n-Dodecane (C12)	5	200.00000	193690588.187
5	n-Tridecane (C13)	5	200.00000	194128598.035
6	n-Tetradecane (C14)	5	200.00000	195894827.694
7	n-Pentadecane (C15)	5	200.00000	195630531.301
8	n-Hexadecane (C16)	5	200.00000	198204817.553
9	n-Heptadecane (C17)	5	200.00000	198571356.938
10	Pristane	5	200.00000	199119339.096
11	n-Octadecane (C18)	5	200.00000	201455667.069
12	Phytane	5	200.00000	198673004.607
13	n-Nonadecane (C19)	5	200.00000	203740525.360
14	n-Eicosane (C20)	5	200.00000	202662249.006
15	n-Heneicosane (C21)	5	200.00000	202504857.414
16	n-Docosane (C22)	5	200.00000	204052176.471
17	n-Tricosane (C23)	5	200.00000	204249079.244
18	n-Tetracosane (C24)	5	200.00000	203528469.402
19	n-Pentacosane (C25)	5	200.00000	208040289.675
20	n-Hexacosane (C26)	5	200.00000	206667898.811
21	n-Heptacosane (C27)	5	200.00000	202375339.735
22	n-Octacosane (C28)	5	200.00000	204509856.529
23	n-Nonacosane (C29)	5	200.00000	205072869.535
24	n-Triacontane (C30)	5	200.00000	202528540.682
25	n-Hentriacontane (C31)	5	200.00000	204715430.815
26	n-Dotriacontane (C32)	5	200.00000	204596592.122

27	n-Tritriacontane (C33)	5	200.00000	195745472.233
28	n-tetratriacontane (C34)	5	200.00000	202662167.312
29	n-Pentatriacontane (C35)	5	200.00000	206822451.972
30	n-Hexatriacontane (C36)	5	200.00000	211505058.663
31	n-Heptatriacontane (C37)	5	200.00000	207728581.917
32	n-Octatriacontane (C38)	5	200.00000	207243937.777
33	n-Tetracontane (C40)	5	200.00000	197744754.676
Avg RSF For: C9-C44 Total Petroleum			200.00000	200831606.605 ✓

Generating Reference Response Factors

No	Compound	No	Refrence Compound
8	1380	✓ 9	n-Tetradecane (C14)
10	1470	✓11	n-Pentadecane (C15)
13	1650	✓14	n-Heptadecane (C17)
40	n-Nonatriacontane (C39)	✓41	n-Tetracontane (C40)
43	C10-C28 DRO	✓42	C9-C44 Total Petroleum Hydro
44	Total Resolved Hydrocarbons	✓42	C9-C44 Total Petroleum Hydro

Abacus Response Factor Update Macro Ver. 1.0

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609884.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 3:44 pm
Operator : BAL
Sample : I1603281201F
Misc : WHAO93
ALS Vial : 5 Sample Multiplier: 1

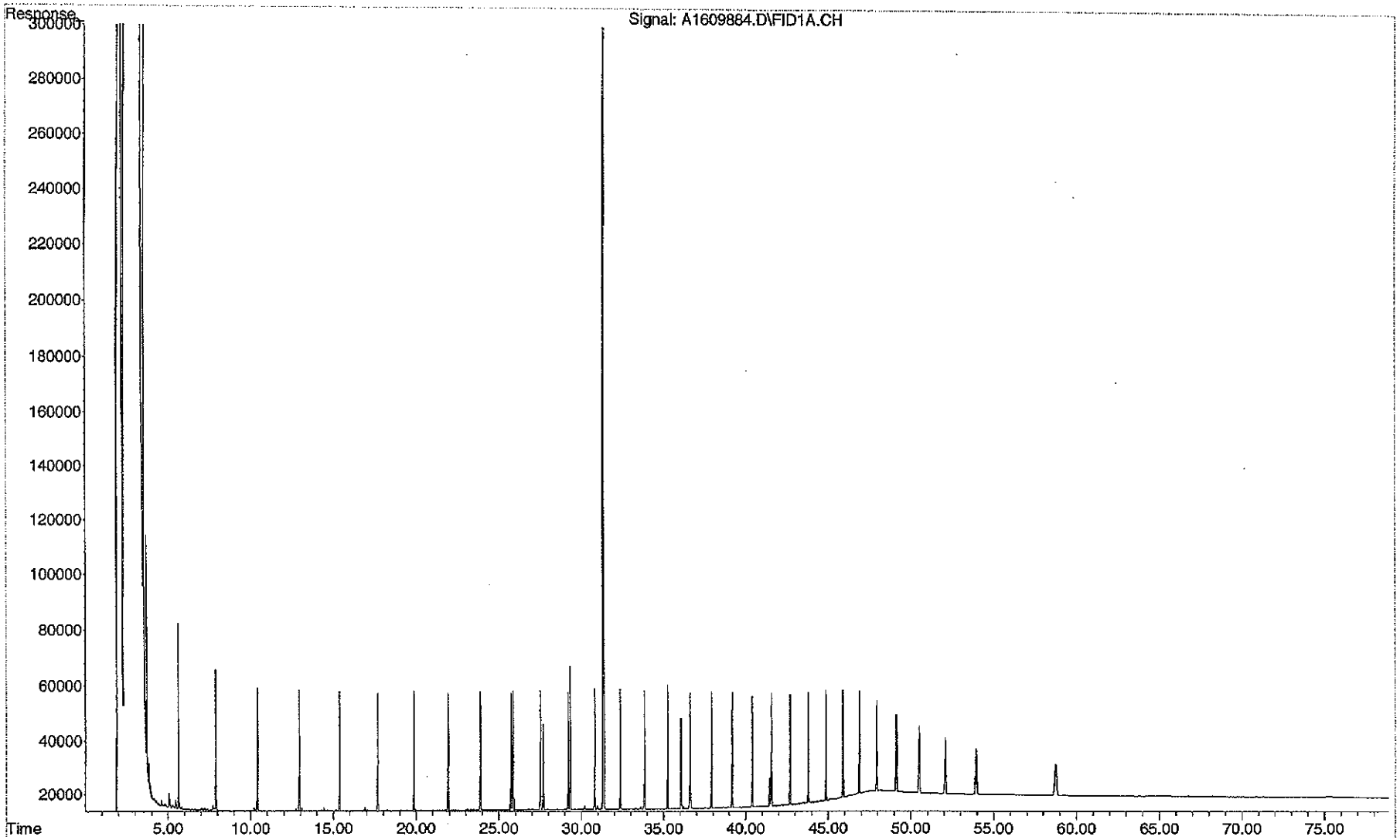
Integration File: SHCINT2.E
Quant Time: Apr 02 08:41:46 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.364	50162118	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terpheny1	29.328	1059786	1.041 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.08%#
24) s	d50-Tetracosane	36.061	866038	1.058 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	2.12%#
	Target Compounds			
2) t	n-Octane (C8)	5.627	875954	1.173 ug/mL M4
3) t	n-Nonane (C9)	7.880	854781	1.106 ug/mL M4
4) t	n-Decane (C10)	10.399	880996	1.065 ug/mL M4
5) t	n-Undecane (C11)	12.925	868721	1.026 ug/mL M4
6) t	n-Dodecane (C12)	15.360	880231	0.997 ug/mL M4
7) t	n-Tridecane (C13)	17.672	881757	0.987 ug/mL M4
9) t	n-Tetradecane (C14)	19.856	881592	0.976 ug/mL M4
11) t	n-Pentadecane (C15)	21.924	893961	0.989 ug/mL M4
12) t	n-Hexadecane (C16)	23.883	914178	0.991 ug/mL M4
14) t	n-Heptadecane (C17)	25.744	898739	0.997 ug/mL M4
15) t	Pristane	25.856	926035	0.980 ug/mL M4
16) t	n-Octadecane (C18)	27.514	924225	0.994 ug/mL M4
17) t	Phytane	27.678	916926	0.987 ug/mL M4
18) t	n-Nonadecane (C19)	29.203	926363	0.996 ug/mL M4
20) t	n-Eicosane (C20)	30.811	938554	1.000 ug/mL M4
21) t	n-Heneicosane (C21)	32.350	955993	1.014 ug/mL M4
22) t	n-Docosane (C22)	33.827	954834	1.012 ug/mL M4
23) t	n-Tricosane (C23)	35.242	1025836	1.070 ug/mL M4
25) t	n-Tetracosane (C24)	36.604	1031521	1.089 ug/mL M4
26) t	n-Pentacosane (C25)	37.914	975034	1.018 ug/mL M4
27) t	n-Hexacosane (C26)	39.174	969004	1.022 ug/mL M4
28) t	n-Heptacosane (C27)	40.389	954115	1.030 ug/mL M4
29) t	n-Octacosane (C28)	41.565	977702	1.046 ug/mL M4
30) t	n-Nonacosane (C29)	42.699	966000	1.037 ug/mL M4
31) t	n-Triacontane (C30)	43.797	969273	1.056 ug/mL M4
32) t	n-Hentriacontane (C31)	44.859	966585	1.047 ug/mL M4
33) t	n-Dotriacontane (C32)	45.890	971316	1.058 ug/mL M4
34) t	n-Tritriacontane (C33)	46.887	930672	1.065 ug/mL M4
35) t	n-tetratriacontane (C34)	47.936	965153	1.074 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.118	977467	1.073 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.477	996341	1.077 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.066	975533	1.083 ug/mL M4
39) t	n-Octatriacontane (C38)	53.929	969610	1.086 ug/mL M4
41) t	n-Tetracontane (C40)	58.740	922279	1.093 ug/mL M4

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609884.D
Operator : BAL
Acquired : 28 Mar 2012 3:44 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281201F
Misc Info : WHA093
ALS Vial : 5



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609886.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 5:16 pm
Operator : BAL
Sample : I1603281202F
Misc : WHAO94
ALS Vial : 6 Sample Multiplier: 1

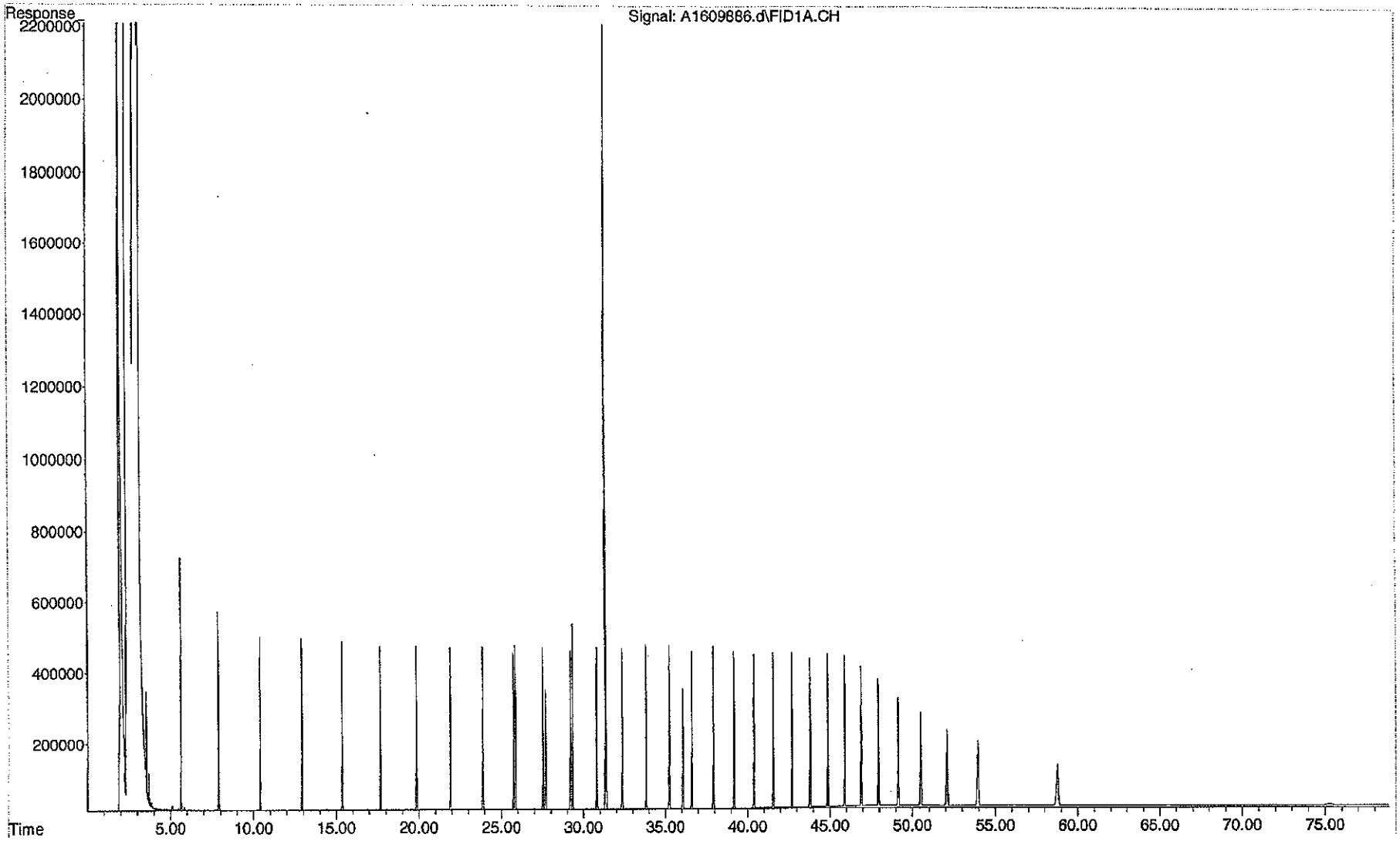
Integration File: SHCINT2.E
Quant Time: Apr 02 12:16:13 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.364	52826311	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.331	10596543	9.883 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	19.77%#
24) s	d50-Tetracosane	36.065	8636297	10.014 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	20.03%#
	Target Compounds			
2) t	n-Octane (C8)	5.630	8796269	11.186 ug/mL M4
3) t	n-Nonane (C9)	7.882	8846763	10.866 ug/mL M4
4) t	n-Decane (C10)	10.400	9114120	10.465 ug/mL M4
5) t	n-Undecane (C11)	12.927	9135244	10.249 ug/mL M4
6) t	n-Dodecane (C12)	15.362	9281515	9.980 ug/mL M4
7) t	n-Tridecane (C13)	17.674	9278885	9.860 ug/mL M4
9) t	n-Tetradecane (C14)	19.860	9346244	9.826 ug/mL M4
11) t	n-Pentadecane (C15)	21.928	9391983	9.863 ug/mL M4
12) t	n-Hexadecane (C16)	23.887	9558873	9.841 ug/mL M4
14) t	n-Heptadecane (C17)	25.747	9453104	9.962 ug/mL M4
15) t	Pristane	25.859	9753426	9.802 ug/mL M4
16) t	n-Octadecane (C18)	27.518	9724175	9.927 ug/mL M4
17) t	Phytane	27.684	9641909	9.858 ug/mL M4
18) t	n-Nonadecane (C19)	29.206	9736855	9.945 ug/mL M4
20) t	n-Eicosane (C20)	30.816	9859355	9.971 ug/mL M4
21) t	n-Heneicosane (C21)	32.355	9884713	9.957 ug/mL M4
22) t	n-Docosane (C22)	33.831	9978563	10.046 ug/mL M4
23) t	n-Tricosane (C23)	35.248	10073974	9.977 ug/mL M4
25) t	n-Tetracosane (C24)	36.610	10061594	10.087 ug/mL M4
26) t	n-Pentacosane (C25)	37.919	10219097	10.135 ug/mL M4
27) t	n-Hexacosane (C26)	39.178	10142132	10.160 ug/mL M4
28) t	n-Heptacosane (C27)	40.395	9954748	10.201 ug/mL M4
29) t	n-Octacosane (C28)	41.570	10069027	10.228 ug/mL M4
30) t	n-Nonacosane (C29)	42.706	10108257	10.303 ug/mL M4
31) t	n-Triacontane (C30)	43.804	9996629	10.344 ug/mL M4
32) t	n-Hentriacontane (C31)	44.866	10105907	10.390 ug/mL M4
33) t	n-Dotriacontane (C32)	45.897	10092009	10.435 ug/mL M4
34) t	n-Tritriacontane (C33)	46.895	9660111	10.493 ug/mL M4
35) t	n-tetratriacontane (C34)	47.943	9989967	10.552 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.129	10163832	10.591 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.494	10364345	10.642 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.081	10155414	10.709 ug/mL M4
39) t	n-Octatriacontane (C38)	53.945	10108471	10.751 ug/mL M4
41) t	n-Tetracontane (C40)	58.763	9605788	10.810 ug/mL M4

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609886.d
Operator : BAL
Acquired : 28 Mar 2012 5:16 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281202F
Misc Info : WHAO94
ALS Vial : 6



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609888.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 6:47 pm
Operator : BAL
Sample : I1603281203F
Misc : WHAP26
ALS Vial : 7 Sample Multiplier: 1

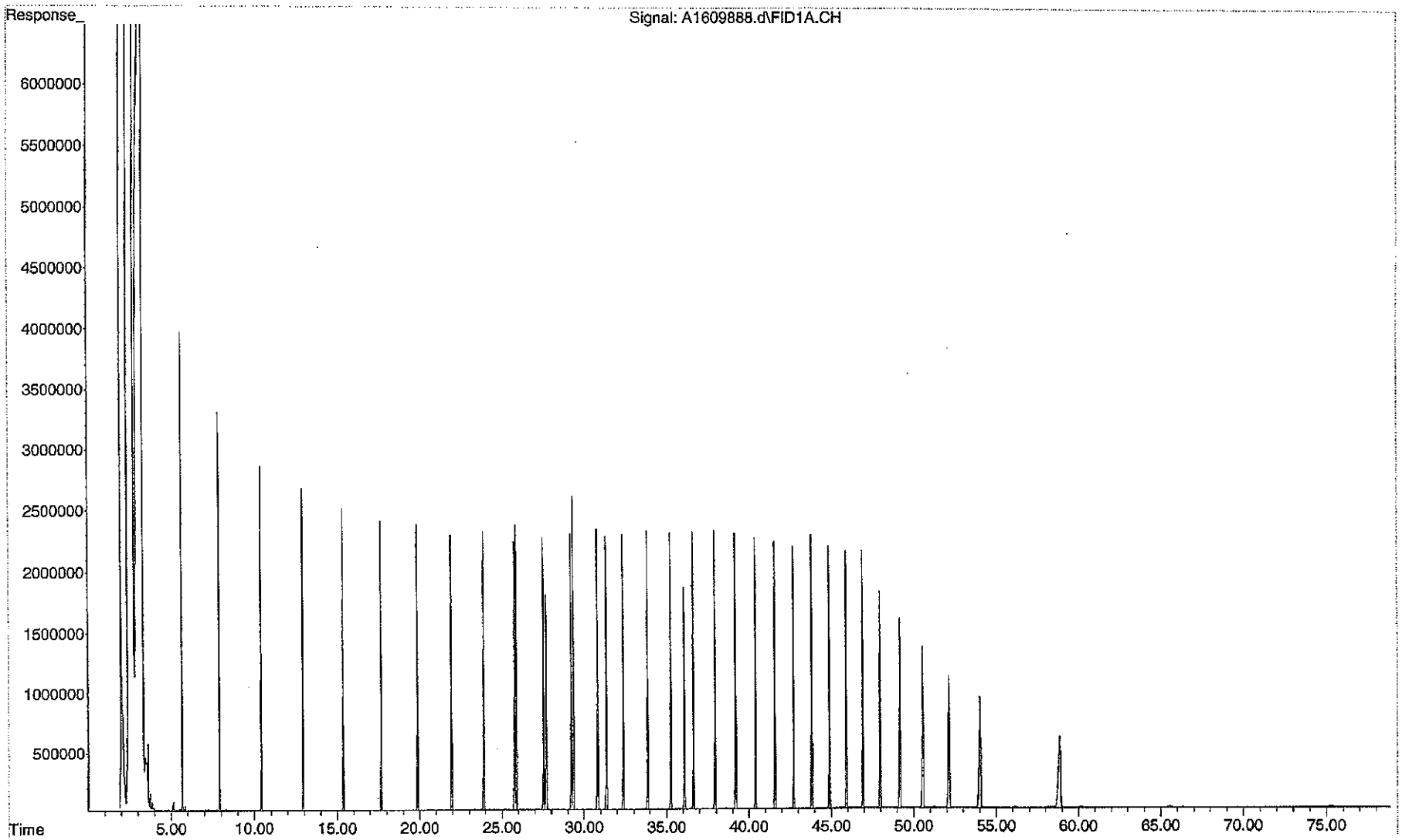
Integration File: SHCINT2.E
Quant Time: Apr 02 12:28:37 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.370	56304017	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.360	63270059	55.368 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	110.74%
24) s	d50-Tetracosane	36.087	50969846	55.450 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	110.90%
	Target Compounds			
2) t	n-Octane (C8)	5.661	49425429	58.970 ug/mL M4
3) t	n-Nonane (C9)	7.907	51101957	58.891 ug/mL M4
4) t	n-Decane (C10)	10.418	52978799	57.075 ug/mL M4
5) t	n-Undecane (C11)	12.943	53250098	56.052 ug/mL M4
6) t	n-Dodecane (C12)	15.378	54021330	54.500 ug/mL M4
7) t	n-Tridecane (C13)	17.691	54359609	54.198 ug/mL M4
9) t	n-Tetradecane (C14)	19.878	55011874	54.262 ug/mL M4
11) t	n-Pentadecane (C15)	21.946	54797213	53.989 ug/mL M4
12) t	n-Hexadecane (C16)	23.907	55572936	53.682 ug/mL M4
14) t	n-Heptadecane (C17)	25.771	56023644	55.395 ug/mL M4
15) t	Pristane	25.884	56583221	53.354 ug/mL M4
16) t	n-Octadecane (C18)	27.541	56412453	54.031 ug/mL M4
17) t	Phytane	27.706	55759386	53.490 ug/mL M4
18) t	n-Nonadecane (C19)	29.231	56282247	53.936 ug/mL M4
20) t	n-Eicosane (C20)	30.839	56758972	53.858 ug/mL M4
21) t	n-Heneicosane (C21)	32.380	56564988	53.461 ug/mL M4
22) t	n-Docosane (C22)	33.858	56974078	53.817 ug/mL M4
23) t	n-Tricosane (C23)	35.275	57005984	52.972 ug/mL M4
25) t	n-Tetracosane (C24)	36.637	57053636	53.662 ug/mL M4
26) t	n-Pentacosane (C25)	37.947	58297352	54.248 ug/mL M4
27) t	n-Hexacosane (C26)	39.207	58160284	54.664 ug/mL M4
28) t	n-Heptacosane (C27)	40.424	57982852	55.748 ug/mL M4
29) t	n-Octacosane (C28)	41.599	57747396	55.033 ug/mL M4
30) t	n-Nonacosane (C29)	42.734	57789742	55.267 ug/mL M4
31) t	n-Triacontane (C30)	43.833	59039924	57.318 ug/mL M4
32) t	n-Hentriacontane (C31)	44.897	58213110	56.155 ug/mL M4
33) t	n-Dotriacontane (C32)	45.925	57657334	55.935 ug/mL M4
34) t	n-Tritriacontane (C33)	46.928	58377013	59.491 ug/mL M4
35) t	n-tetratriacontane (C34)	47.979	57642886	57.126 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.171	58173489	56.873 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.544	59594957	57.411 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.137	58227326	57.609 ug/mL M4
39) t	n-Octatriacontane (C38)	54.020	57887816	57.764 ug/mL M4
41) t	n-Tetracontane (C40)	58.863	53452455	56.439 ug/mL M4

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609888.d
Operator : BAL
Acquired : 28 Mar 2012 6:47 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281203F
Misc Info : WHAP26
ALS Vial : 7



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609890.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 8:19 pm
Operator : BAL
Sample : I1603281204F
Misc : WHAO95
ALS Vial : 8 Sample Multiplier: 1

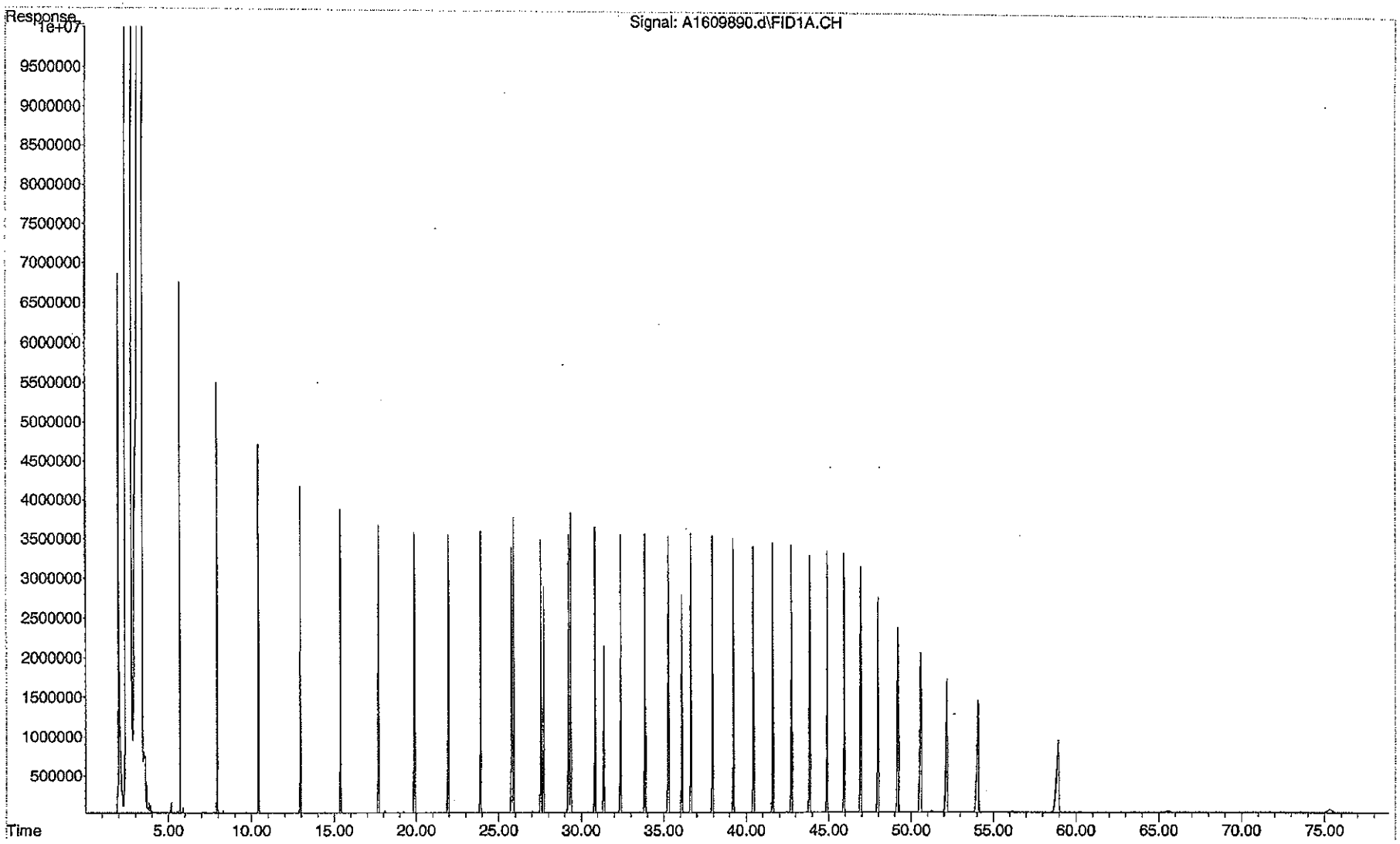
Integration File: SHCINT2.E
Quant Time: Apr 11 10:15:21 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.370	53134897	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.377	107520998	99.703 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 199.41%#
24) s	d50-Tetracosane	36.104	87632029	101.021 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 202.04%#
	Target Compounds			
2) t	n-Octane (C8)	5.695	88608010	112.024 ug/mL M4
3) t	n-Nonane (C9)	7.931	89555444	109.362 ug/mL M4
4) t	n-Decane (C10)	10.431	92746700	105.877 ug/mL M4
5) t	n-Undecane (C11)	12.955	93512816	104.303 ug/mL M4
6) t	n-Dodecane (C12)	15.389	95134073	101.701 ug/mL M4
7) t	n-Tridecane (C13)	17.702	95323127	100.709 ug/mL M4
9) t	n-Tetradecane (C14)	19.890	96221850	100.572 ug/mL M4
11) t	n-Pentadecane (C15)	21.960	96132780	100.365 ug/mL M4
12) t	n-Hexadecane (C16)	23.921	97397408	99.694 ug/mL M4
14) t	n-Heptadecane (C17)	25.785	96947579	101.577 ug/mL M4
15) t	Pristane	25.900	98461194	98.379 ug/mL M4
16) t	n-Octadecane (C18)	27.557	98981203	100.457 ug/mL M4
17) t	Phytane	27.725	97674045	99.288 ug/mL M4
18) t	n-Nonadecane (C19)	29.246	99112388	100.646 ug/mL M4
20) t	n-Eicosane (C20)	30.856	99483332	100.029 ug/mL M4
21) t	n-Heneicosane (C21)	32.396	99434340	99.583 ug/mL M4
22) t	n-Docosane (C22)	33.874	100258793	100.352 ug/mL M4
23) t	n-Tricosane (C23)	35.293	100475056	98.934 ug/mL M4
25) t	n-Tetracosane (C24)	36.654	100218490	99.884 ug/mL M4
26) t	n-Pentacosane (C25)	37.966	102537159	101.106 ug/mL M4
27) t	n-Hexacosane (C26)	39.225	101980841	101.567 ug/mL M4
28) t	n-Heptacosane (C27)	40.443	99931031	101.809 ug/mL M4
29) t	n-Octacosane (C28)	41.618	101107545	102.102 ug/mL M4
30) t	n-Nonacosane (C29)	42.751	101476703	102.835 ug/mL M4
31) t	n-Triacontane (C30)	43.850	100306232	103.189 ug/mL M4
32) t	n-Hentriacontane (C31)	44.916	101369293	103.618 ug/mL M4
33) t	n-Dotriacontane (C32)	45.947	101194092	104.027 ug/mL M4
34) t	n-Tritriacontane (C33)	46.947	96723506	104.449 ug/mL M4
35) t	n-tetratriacontane (C34)	48.001	99987229	105.002 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.201	101856331	105.519 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.579	104024720	106.189 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.185	102105812	107.047 ug/mL M4
39) t	n-Octatriacontane (C38)	54.068	101779479	107.619 ug/mL M4
41) t	n-Tetracontane (C40)	58.934	97307208	108.872 ug/mL M4

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609890.d
Operator : BAL
Acquired : 28 Mar 2012 8:19 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281204F
Misc Info : WHAO95
ALS Vial : 8



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609892.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 9:51 pm
Operator : BAL
Sample : I1603281205F
Misc : WHA096
ALS Vial : 9 Sample Multiplier: 1

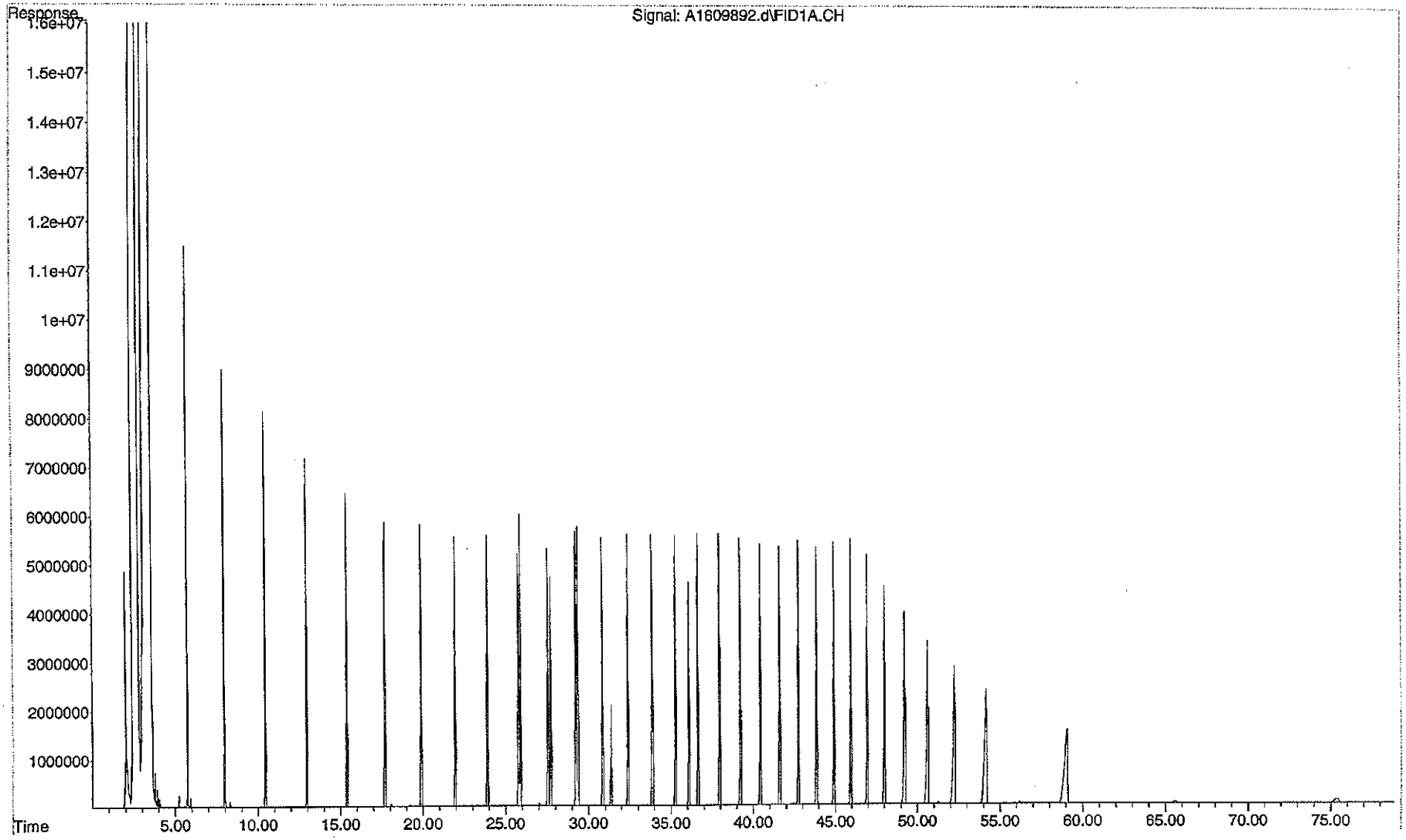
Integration File: SHCINT2.E
Quant Time: Apr 11 10:21:11 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.376	56655277	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.406	218136147	189.707 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 379.41%#
24) s	d50-Tetracosane	36.132	179479036	194.044 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery	= 388.09%#
	Target Compounds			
2) t	n-Octane (C8)	5.756	179664155	213.029 ug/mL M4
3) t	n-Nonane (C9)	7.976	183572822	210.243 ug/mL M4
4) t	n-Decane (C10)	10.463	189314429	202.687 ug/mL M4
5) t	n-Undecane (C11)	12.977	190490437	199.269 ug/mL M4
6) t	n-Dodecane (C12)	15.409	193690588	194.195 ug/mL M4
7) t	n-Tridecane (C13)	17.721	194128598	192.352 ug/mL M4
9) t	n-Tetradecane (C14)	19.910	195894828	192.028 ug/mL M4
11) t	n-Pentadecane (C15)	21.980	195630531	191.552 ug/mL M4
12) t	n-Hexadecane (C16)	23.942	198204818	190.272 ug/mL M4
14) t	n-Heptadecane (C17)	25.812	198571357	195.126 ug/mL M4
15) t	Pristane	25.927	199119339	186.591 ug/mL M4
16) t	n-Octadecane (C18)	27.584	201455667	191.755 ug/mL M4
17) t	Phytane	27.751	198673005	189.407 ug/mL M4
18) t	n-Nonadecane (C19)	29.273	203740525	194.038 ug/mL M4
20) t	n-Eicosane (C20)	30.882	202662249	191.113 ug/mL M4
21) t	n-Heneicosane (C21)	32.424	202504857	190.206 ug/mL M4
22) t	n-Docosane (C22)	33.902	204052176	191.550 ug/mL M4
23) t	n-Tricosane (C23)	35.321	204249079	188.619 ug/mL M4
25) t	n-Tetracosane (C24)	36.688	203528469	190.244 ug/mL M4
26) t	n-Pentacosane (C25)	37.995	208040290	192.391 ug/mL M4
27) t	n-Hexacosane (C26)	39.257	206667899	193.040 ug/mL M4
28) t	n-Heptacosane (C27)	40.474	202375340	193.368 ug/mL M4
29) t	n-Octacosane (C28)	41.649	204509857	193.690 ug/mL M4
30) t	n-Nonacosane (C29)	42.785	205072870	194.905 ug/mL M4
31) t	n-Triacontane (C30)	43.884	202528541	195.403 ug/mL M4
32) t	n-Hentriacontane (C31)	44.951	204715431	196.254 ug/mL M4
33) t	n-Dotriacontane (C32)	45.984	204596592	197.255 ug/mL M4
34) t	n-Tritriacontane (C33)	46.983	195745472	198.245 ug/mL M4
35) t	n-tetratriacontane (C34)	48.045	202662167	199.601 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.253	206822452	200.945 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.645f	211505059	202.490 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.269	207728582	204.248 ug/mL M4
39) t	n-Octatriacontane (C38)	54.175	207243938	205.517 ug/mL M4
41) t	n-Tetracontane (C40)	59.060	197744755	207.499 ug/mL M4

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609892.d
Operator : BAL
Acquired : 28 Mar 2012 9:51 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281205F
Misc Info : WHAO96
ALS Vial : 9



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609894.d
Signal(s) : FID1A.CH
Acq On : 28 Mar 2012 11:23 pm
Operator : BAL
Sample : I1603281206F
Misc : WHAO97
ALS Vial : 10 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 11 10:23:51 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Thu Mar 29 09:58:28 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

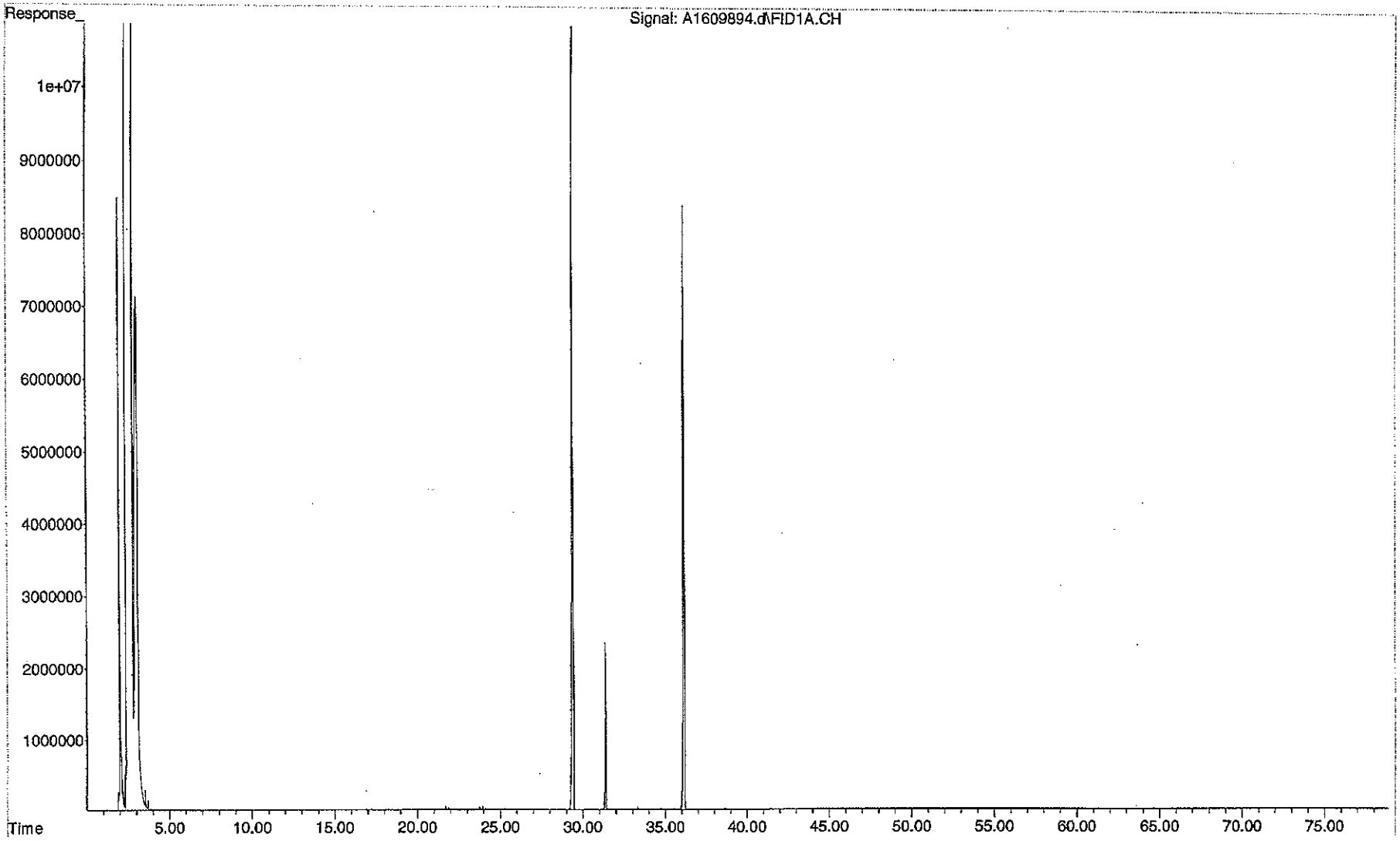
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.372	58320128	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.453	470283218	397.317 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 794.63%#	
24) s d50-Tetracosane	36.178	443609686	465.919 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 931.84%#	
Target Compounds			
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609894.d
Operator : BAL
Acquired : 28 Mar 2012 11:23 pm using AcqMethod FID16.M
Instrument : FID16
Sample : I1603281206F
Misc Info : WHAO97
ALS Vial : 10



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609898.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 2:27 am
Operator : BAL
Sample : CQ1603281207F
Misc : WHA098
ALS Vial : 12 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 11 12:17:00 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Apr 11 10:26:44 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	112	0.00
2	t	n-Octane (C8)	50.000	41.387	17.2	89	0.00
3	t	n-Nonane (C9)	50.000	41.918	16.2	88	0.00
4	t	n-Decane (C10)	50.000	42.257	15.5	88	0.00
5	t	n-Undecane (C11)	50.000	42.443	15.1	88	0.00
6	t	n-Dodecane (C12)	50.000	42.408	15.2	88	0.00
7	t	n-Tridecane (C13)	50.000	42.343	15.3	88	0.00
9	t	n-Tetradecane (C14)	50.000	42.434	15.1	88	0.00
11	t	n-Pentadecane (C15)	50.000	42.332	15.3	88	0.00
12	t	n-Hexadecane (C16)	50.000	42.218	15.6	88	0.00
14	t	n-Heptadecane (C17)	50.000	42.133	15.7	87	0.00
15	t	Pristane	50.000	42.256	15.5	87	0.00
16	t	n-Octadecane (C18)	50.000	42.306	15.4	88	0.00
17	t	Phytane	50.000	42.254	15.5	88	0.00
18	t	n-Nonadecane (C19)	50.000	42.289	15.4	88	0.00
19	s	ortho-terpheny1	50.000	43.543	12.9	86	0.00
20	t	n-Eicosane (C20)	50.000	42.161	15.7	88	0.00
21	t	n-Heneicosane (C21)	50.000	41.979	16.0	88	0.00
22	t	n-Docosane (C22)	50.000	42.072	15.9	88	0.00
23	t	n-Tricosane (C23)	50.000	41.457	17.1	88	0.00
24	s	d50-Tetracosane	50.000	42.564	14.9	87	0.00
25	t	n-Tetracosane (C24)	50.000	41.362	17.3	88	0.00
26	t	n-Pentacosane (C25)	50.000	42.078	15.8	88	0.00
27	t	n-Hexacosane (C26)	50.000	42.082	15.8	88	0.00
28	t	n-Heptacosane (C27)	50.000	41.915	16.2	87	0.00
29	t	n-Octacosane (C28)	50.000	41.955	16.1	88	0.00
30	t	n-Nonacosane (C29)	50.000	42.153	15.7	88	0.00
31	t	n-Triacontane (C30)	50.000	41.752	16.5	85	0.00
32	t	n-Hentriacontane (C31)	50.000	42.080	15.8	88	0.00
33	t	n-Dotriacontane (C32)	50.000	42.145	15.7	88	0.00
34	t	n-Tritriacontane (C33)	50.000	41.591	16.8	83	0.00
35	t	n-tetratriacontane (C34)	50.000	41.956	16.1	87	0.00
36	t	n-Pentatriacontane (C35)	50.000	42.041	15.9	88	0.00
37	t	n-Hexatriacontane (C36)	50.000	41.999	16.0	88	0.00
38	t	n-Heptatriacontane (C37)	50.000	42.002	16.0	88	0.00
39	t	n-Octatriacontane (C38)	50.000	42.005	16.0	88	0.00
41	t	n-Tetracontane (C40)	50.000	42.260	15.5	91	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609898.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 2:27 am
Operator : BAL
Sample : CQ1603281207F
Misc : WHAO98
ALS Vial : 12 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 11 12:17:00 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Apr 11 10:26:44 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area% Dev(Min)

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.05	0.85 - 1.15

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609898.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 2:27 am
Operator : BAL
Sample : CQ1603281207F
Misc : WHA098
ALS Vial : 12 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 11 12:17:00 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Apr 11 10:26:44 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.375	62899665	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.357	54445417	43.543 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	87.09%
24) s	d50-Tetracosane	36.086	44292689	42.564 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	85.13%
	Target Compounds			
2) t	n-Octane (C8)	5.659	43839483	41.387 ug/mL M4
3) t	n-Nonane (C9)	7.906	44819836	41.918 ug/mL M4
4) t	n-Decane (C10)	10.416	46672488	42.257 ug/mL M4
5) t	n-Undecane (C11)	12.942	46952421	42.443 ug/mL M4
6) t	n-Dodecane (C12)	15.377	47643092	42.408 ug/mL M4
7) t	n-Tridecane (C13)	17.690	47687679	42.343 ug/mL M4
9) t	n-Tetradecane (C14)	19.877	48153371	42.434 ug/mL M4
11) t	n-Pentadecane (C15)	21.945	48152994	42.332 ug/mL M4
12) t	n-Hexadecane (C16)	23.906	48798896	42.218 ug/mL M4
14) t	n-Heptadecane (C17)	25.768	48487949	42.133 ug/mL M4
15) t	Pristane	25.882	49503458	42.256 ug/mL M4
16) t	n-Octadecane (C18)	27.540	49643888	42.306 ug/mL M4
17) t	Phytane	27.706	49038093	42.254 ug/mL M4
18) t	n-Nonadecane (C19)	29.230	49754408	42.289 ug/mL M4
20) t	n-Eicosane (C20)	30.838	49932374	42.161 ug/mL M4
21) t	n-Heneicosane (C21)	32.380	49876686	41.979 ug/mL M4
22) t	n-Docosane (C22)	33.856	50300661	42.072 ug/mL M4
23) t	n-Tricosane (C23)	35.272	50434233	41.457 ug/mL M4
25) t	n-Tetracosane (C24)	36.634	50315545	41.362 ug/mL M4
26) t	n-Pentacosane (C25)	37.945	51424298	42.078 ug/mL M4
27) t	n-Hexacosane (C26)	39.205	51142778	42.082 ug/mL M4
28) t	n-Heptacosane (C27)	40.422	50159758	41.915 ug/mL M4
29) t	n-Octacosane (C28)	41.597	50741955	41.955 ug/mL M4
30) t	n-Nonacosane (C29)	42.732	50968261	42.153 ug/mL M4
31) t	n-Triacontane (C30)	43.829	50406685	41.752 ug/mL M4
32) t	n-Hentriacontane (C31)	44.895	50936473	42.080 ug/mL M4
33) t	n-Dotriacontane (C32)	45.924	50923279	42.145 ug/mL M4
34) t	n-Tritriacontane (C33)	46.923	48687123	41.591 ug/mL M4
35) t	n-tetratriacontane (C34)	47.974	50315739	41.956 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.166	51200923	42.041 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.542	52250239	41.999 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.140	51202655	42.002 ug/mL M4
39) t	n-Octatriacontane (C38)	54.010	50977812	42.005 ug/mL M4
41) t	n-Tetracontane (C40)	58.860	48549359	42.260 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609898.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 2:27 am
Operator : BAL
Sample : CQ1603281207F
Misc : WHAO98
ALS Vial : 12 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 11 12:17:00 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Apr 11 10:26:44 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

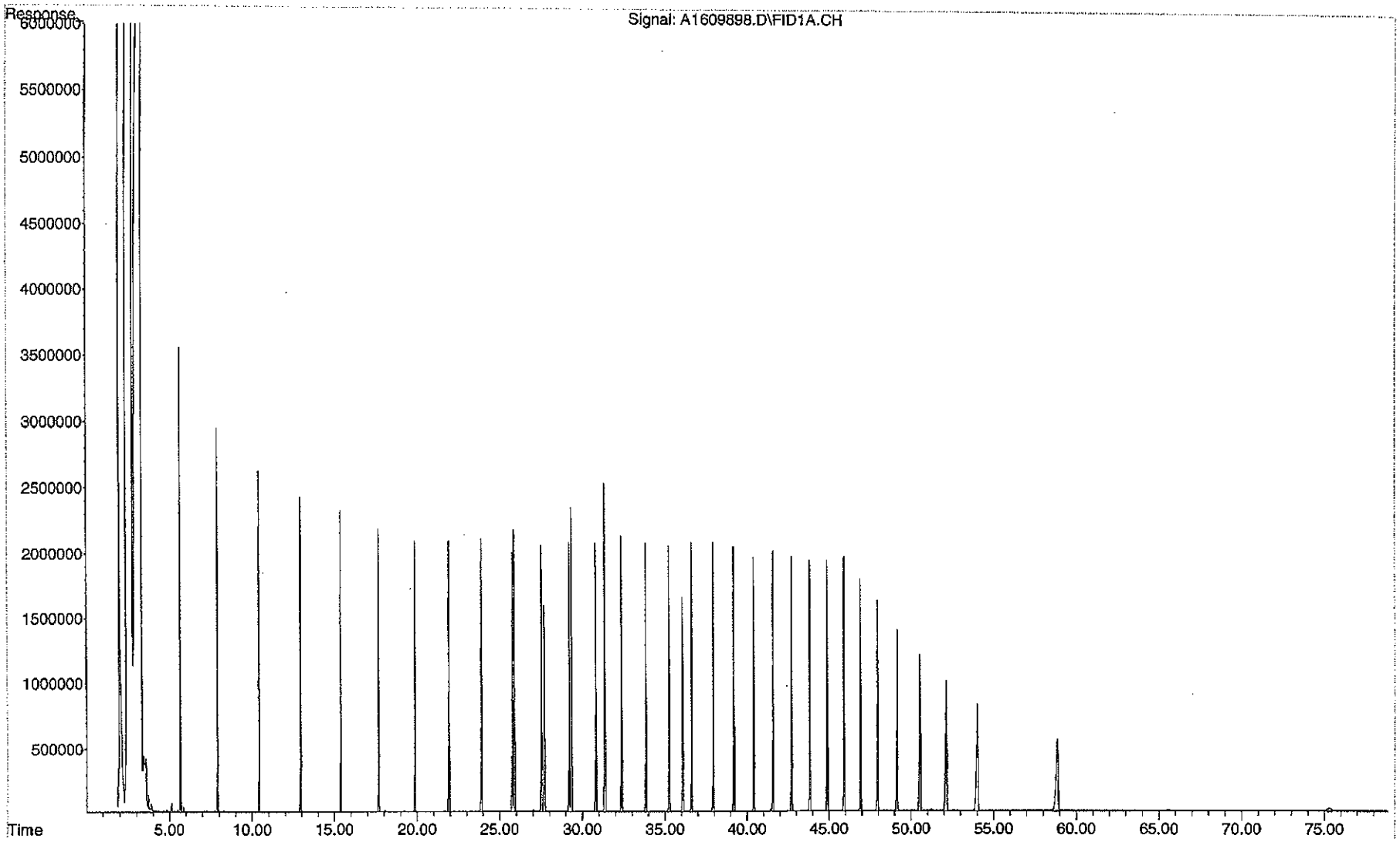
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : CCAL - CCAL

Compound	R.T.	Response	Conc Units
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609898.D
Operator : BAL
Acquired : 29 Mar 2012 2:27 am using AcqMethod FID16.M
Instrument : FID16
Sample : CQ1603281207F
Misc Info : WHA098
ALS Vial : 12



Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611322.d
Signal(s) : FID1A.CH
Acq On : 19 Jun 2012 3:14 pm
Operator : JT
Sample : C1606191201F
Misc : WHAP85
ALS Vial : 2 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 10:17:51 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:10:17 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	107	0.00
2	t	n-Octane (C8)	50.000	49.032	1.9	101	0.00
3	t	n-Nonane (C9)	50.000	51.081	-2.2	102	0.00
4	t	n-Decane (C10)	50.000	52.559	-5.1	105	0.00
5	t	n-Undecane (C11)	50.000	53.302	-6.6	106	0.00
6	t	n-Dodecane (C12)	50.000	53.748	-7.5	107	0.00
7	t	n-Tridecane (C13)	50.000	53.850	-7.7	107	0.00
9	t	n-Tetradecane (C14)	50.000	54.062	-8.1	107	0.00
11	t	n-Pentadecane (C15)	50.000	53.883	-7.8	107	0.00
12	t	n-Hexadecane (C16)	50.000	53.659	-7.3	107	0.00
14	t	n-Heptadecane (C17)	50.000	52.995	-6.0	104	0.00
15	t	Pristane	50.000	53.885	-7.8	107	0.00
16	t	n-Octadecane (C18)	50.000	53.344	-6.7	106	0.00
17	t	Phytane	50.000	53.663	-7.3	107	0.00
18	t	n-Nonadecane (C19)	50.000	53.465	-6.9	107	0.00
19	s	ortho-terphenyl	50.000	58.581	-17.2	111	0.00
20	t	n-Eicosane (C20)	50.000	53.238	-6.5	106	0.00
21	t	n-Heneicosane (C21)	50.000	52.886	-5.8	106	0.00
22	t	n-Docosane (C22)	50.000	52.726	-5.5	106	0.00
23	t	n-Tricosane (C23)	50.000	51.607	-3.2	106	0.00
24	s	d50-Tetracosane	50.000	55.981	-12.0	109	0.00
25	t	n-Tetracosane (C24)	50.000	51.305	-2.6	105	0.00
26	t	n-Pentacosane (C25)	50.000	52.092	-4.2	105	0.00
27	t	n-Hexacosane (C26)	50.000	51.887	-3.8	104	0.00
28	t	n-Heptacosane (C27)	50.000	51.491	-3.0	102	0.00
29	t	n-Octacosane (C28)	50.000	51.456	-2.9	103	0.00
30	t	n-Nonacosane (C29)	50.000	51.554	-3.1	103	0.00
31	t	n-Triacontane (C30)	50.000	50.992	-2.0	100	0.00
32	t	n-Hentriacontane (C31)	50.000	51.446	-2.9	102	0.00
33	t	n-Dotriacontane (C32)	50.000	51.486	-3.0	103	0.00
34	t	n-Tritriacontane (C33)	50.000	50.851	-1.7	98	0.00
35	t	n-tetratriacontane (C34)	50.000	51.237	-2.5	102	0.00
36	t	n-Pentatriacontane (C35)	50.000	51.361	-2.7	103	0.00
37	t	n-Hexatriacontane (C36)	50.000	51.229	-2.5	102	0.00
38	t	n-Heptatriacontane (C37)	50.000	51.152	-2.3	103	0.00
39	t	n-Octatriacontane (C38)	50.000	51.027	-2.1	102	0.00
41	t	n-Tetracontane (C40)	50.000	50.858	-1.7	105	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC16032812F.M Thu Jun 21 13:28:32 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611322.d
Signal(s) : FID1A.CH
Acq On : 19 Jun 2012 3:14 pm
Operator : JT
Sample : C1606191201F
Misc : WHAP85
ALS Vial : 2 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 10:17:51 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:10:17 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

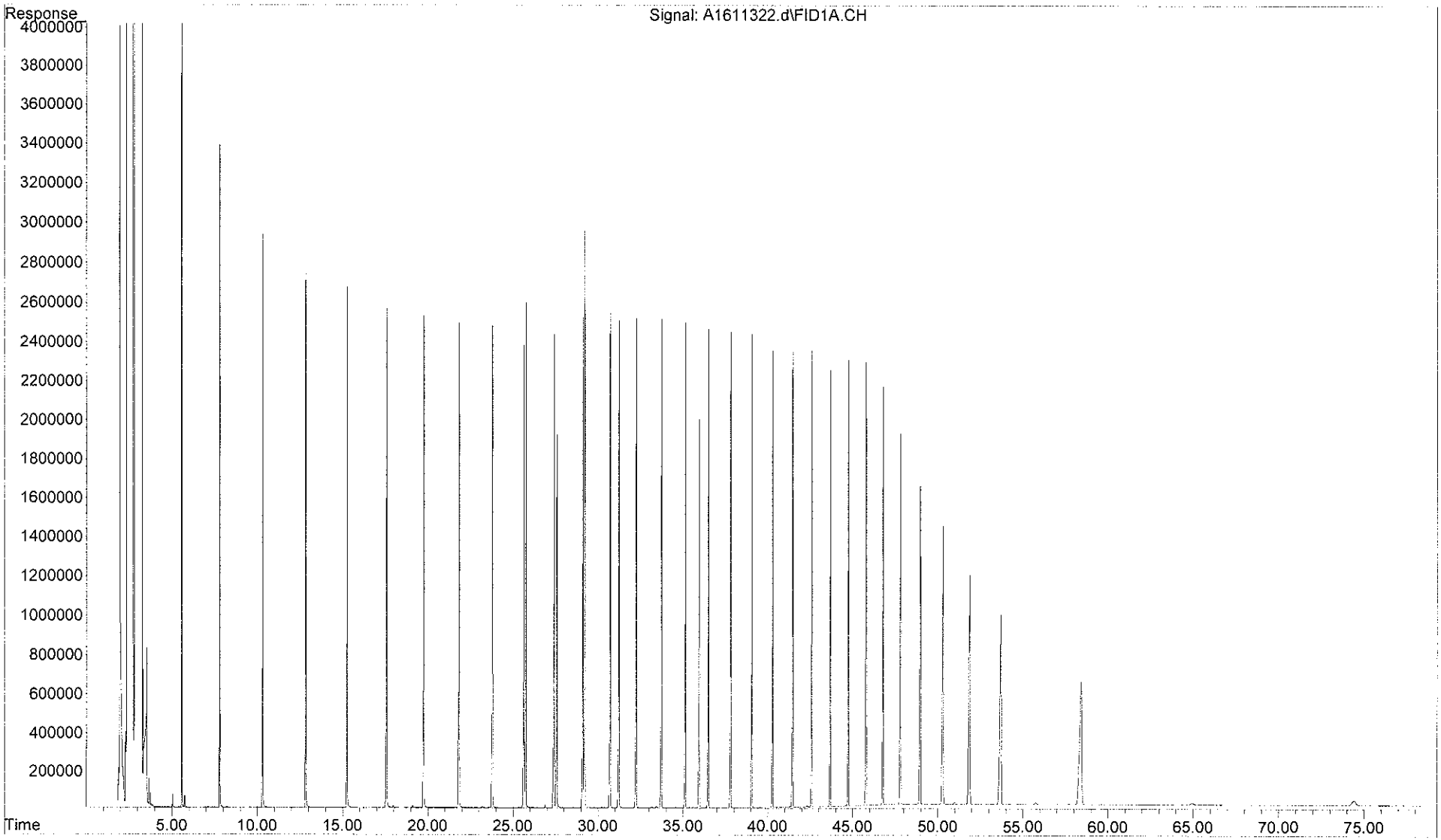
Sub List : CCAL - CCAL

6/21/12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.230	60262005	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.219	70207991	58.581 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	117.16%
24) s	d50-Tetracosane	35.958	55811190	55.981 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	111.96%
	Target Compounds			
2) t	n-Octane (C8)	5.567	49760774	49.032 ug/mL M4
3) t	n-Nonane (C9)	7.800	52325462	51.081 ug/mL M4
4) t	n-Decane (C10)	10.307	55616248	52.559 ug/mL M4
5) t	n-Undecane (C11)	12.830	56491697	53.302 ug/mL M4
6) t	n-Dodecane (C12)	15.264	57850526	53.748 ug/mL M4
7) t	n-Tridecane (C13)	17.573	58103783	53.850 ug/mL M4
9) t	n-Tetradecane (C14)	19.759	58776106	54.062 ug/mL M4
11) t	n-Pentadecane (C15)	21.827	58722259	53.883 ug/mL M4
12) t	n-Hexadecane (C16)	23.786	59421722	53.659 ug/mL M4
14) t	n-Heptadecane (C17)	25.648	58436725	52.995 ug/mL M4
15) t	Pristane	25.761	60488986	53.885 ug/mL M4
16) t	n-Octadecane (C18)	27.418	59970855	53.344 ug/mL M4
17) t	Phytane	27.580	59666474	53.663 ug/mL M4
18) t	n-Nonadecane (C19)	29.106	60265663	53.465 ug/mL M4
20) t	n-Eicosane (C20)	30.714	60405919	53.238 ug/mL M4
21) t	n-Heneicosane (C21)	32.253	60196904	52.886 ug/mL M4
22) t	n-Docosane (C22)	33.729	60391898	52.726 ug/mL M4
23) t	n-Tricosane (C23)	35.145	60148846	51.607 ug/mL M4
25) t	n-Tetracosane (C24)	36.505	59794489	51.305 ug/mL M4
26) t	n-Pentacosane (C25)	37.812	60992755	52.092 ug/mL M4
27) t	n-Hexacosane (C26)	39.074	60414465	51.887 ug/mL M4
28) t	n-Heptacosane (C27)	40.288	59036033	51.491 ug/mL M4
29) t	n-Octacosane (C28)	41.462	59624176	51.456 ug/mL M4
30) t	n-Nonacosane (C29)	42.593	59722058	51.554 ug/mL M4
31) t	n-Triacontane (C30)	43.690	58980915	50.992 ug/mL M4
32) t	n-Hentriacontane (C31)	44.754	59662653	51.446 ug/mL M4
33) t	n-Dotriacontane (C32)	45.784	59601484	51.486 ug/mL M4
34) t	n-Tritriacontane (C33)	46.780	57031270	50.851 ug/mL M4
35) t	n-tetratriacontane (C34)	47.812	58869619	51.237 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.977	59929082	51.361 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.316	61060620	51.229 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.874	59741892	51.152 ug/mL M4
39) t	n-Octatriacontane (C38)	53.700	59329910	51.027 ug/mL M4
41) t	n-Tetracontane (C40)	58.415	55976425	50.858 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611322.d
Operator : JT
Acquired : 19 Jun 2012 3:14 pm using AcqMethod FID16.M
Instrument : FID16
Sample : C1606191201F
Misc Info : WHAP85
ALS Vial : 2



Evaluate Continuing Calibration Report

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611340.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 5:44 am
Operator : JT
Sample : C1606181202F
Misc : WHAP85
ALS Vial : 11 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 12:06:01 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

6/21/16

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	99	0.00
2	t	n-Octane (C8)	50.000	48.817	2.4	93	0.00
3	t	n-Nonane (C9)	50.000	50.171	-0.3	93	0.00
4	t	n-Decane (C10)	50.000	51.427	-2.9	95	0.00
5	t	n-Undecane (C11)	50.000	52.518	-5.0	96	0.00
6	t	n-Dodecane (C12)	50.000	52.886	-5.8	97	0.00
7	t	n-Tridecane (C13)	50.000	53.053	-6.1	97	0.00
9	t	n-Tetradecane (C14)	50.000	53.394	-6.8	97	0.00
11	t	n-Pentadecane (C15)	50.000	53.290	-6.6	98	0.00
12	t	n-Hexadecane (C16)	50.000	53.141	-6.3	98	0.00
14	t	n-Heptadecane (C17)	50.000	52.487	-5.0	95	0.00
15	t	Pristane	50.000	53.465	-6.9	98	0.00
16	t	n-Octadecane (C18)	50.000	52.986	-6.0	97	0.00
17	t	Phytane	50.000	53.252	-6.5	98	0.00
18	t	n-Nonadecane (C19)	50.000	53.005	-6.0	98	0.00
19	s	ortho-terphenyl	50.000	58.469	-16.9	102	0.00
20	t	n-Eicosane (C20)	50.000	52.919	-5.8	98	0.00
21	t	n-Heneicosane (C21)	50.000	52.596	-5.2	98	0.00
22	t	n-Docosane (C22)	50.000	52.413	-4.8	97	0.00
23	t	n-Tricosane (C23)	50.000	51.253	-2.5	97	0.00
24	s	d50-Tetracosane	50.000	55.587	-11.2	100	0.00
25	t	n-Tetracosane (C24)	50.000	50.966	-1.9	96	0.00
26	t	n-Pentacosane (C25)	50.000	51.805	-3.6	96	0.00
27	t	n-Hexacosane (C26)	50.000	51.578	-3.2	95	0.00
28	t	n-Heptacosane (C27)	50.000	51.222	-2.4	93	0.00
29	t	n-Octacosane (C28)	50.000	51.175	-2.3	95	0.00
30	t	n-Nonacosane (C29)	50.000	51.247	-2.5	95	0.00
31	t	n-Triacontane (C30)	50.000	50.688	-1.4	92	0.00
32	t	n-Hentriacontane (C31)	50.000	51.107	-2.2	94	0.00
33	t	n-Dotriacontane (C32)	50.000	51.139	-2.3	95	0.00
34	t	n-Tritriacontane (C33)	50.000	50.484	-1.0	90	0.00
35	t	n-tetratriacontane (C34)	50.000	50.898	-1.8	94	0.00
36	t	n-Pentatriacontane (C35)	50.000	51.006	-2.0	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	50.866	-1.7	94	-0.01
38	t	n-Heptatriacontane (C37)	50.000	50.862	-1.7	94	0.00
39	t	n-Octatriacontane (C38)	50.000	50.772	-1.5	94	0.00
41	t	n-Tetracontane (C40)	50.000	50.511	-1.0	96	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC16032812F.M Thu Jun 21 13:29:26 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611340.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 5:44 am
Operator : JT
Sample : C1606181202F
Misc : WHAP85
ALS Vial : 11 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 12:06:01 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

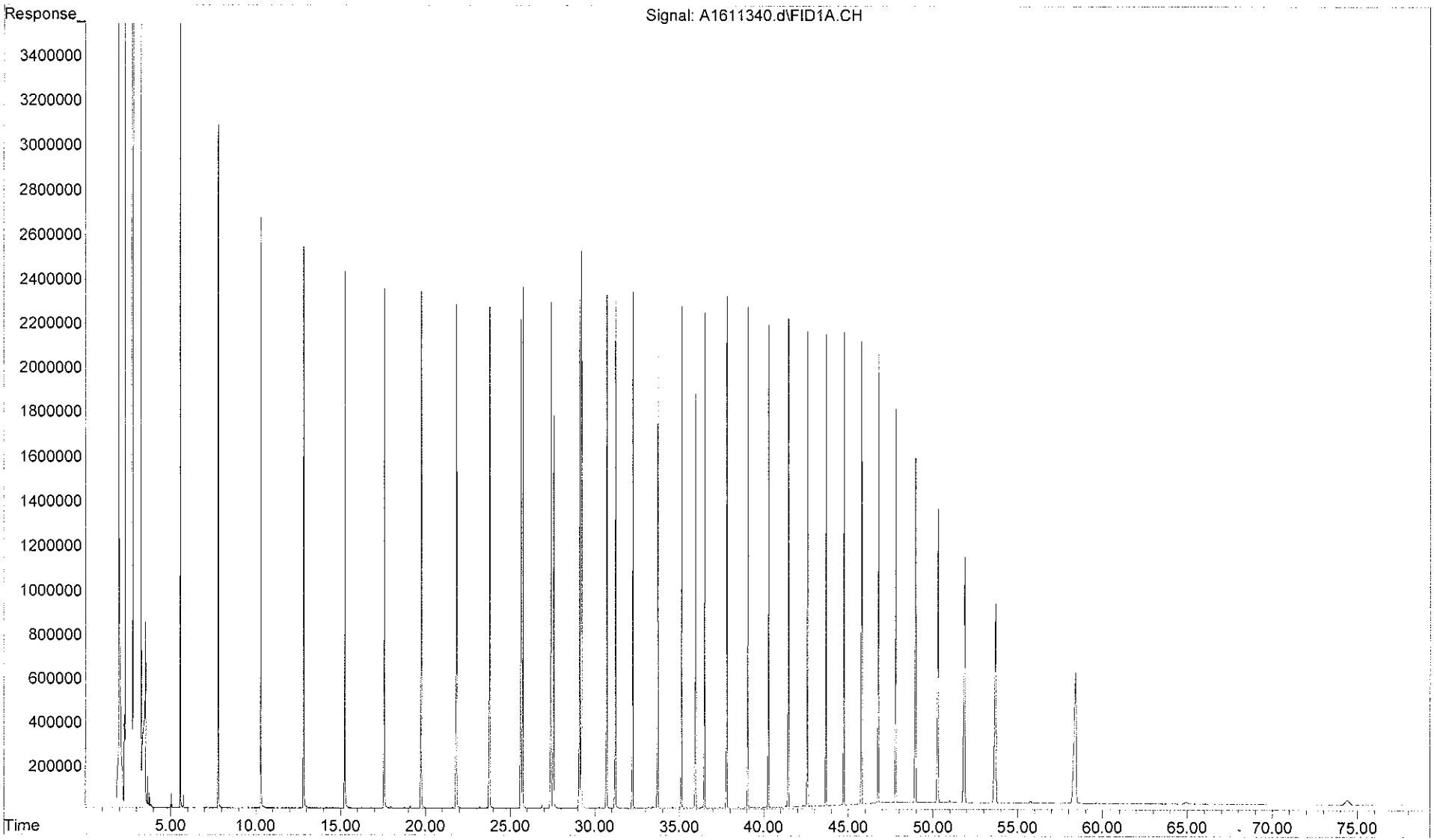
Sub List : CCAL - CCAL

6-21-12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.226	55623911	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.216	64680500	58.469 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	116.94%
24) s	d50-Tetracosane	35.954	51153040	55.587 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.17%
	Target Compounds			
2) t	n-Octane (C8)	5.565	45729545	48.817 ug/mL M4
3) t	n-Nonane (C9)	7.797	47438388	50.171 ug/mL M4
4) t	n-Decane (C10)	10.305	50229912	51.427 ug/mL M4
5) t	n-Undecane (C11)	12.828	51377173	52.518 ug/mL M4
6) t	n-Dodecane (C12)	15.261	52542053	52.886 ug/mL M4
7) t	n-Tridecane (C13)	17.571	52837776	53.053 ug/mL M4
9) t	n-Tetradecane (C14)	19.757	53582300	53.394 ug/mL M4
11) t	n-Pentadecane (C15)	21.825	53605488	53.290 ug/mL M4
12) t	n-Hexadecane (C16)	23.784	54318759	53.141 ug/mL M4
14) t	n-Heptadecane (C17)	25.646	53421761	52.487 ug/mL M4
15) t	Pristane	25.758	55398112	53.465 ug/mL M4
16) t	n-Octadecane (C18)	27.416	54983532	52.986 ug/mL M4
17) t	Phytane	27.580	54652368	53.252 ug/mL M4
18) t	n-Nonadecane (C19)	29.103	55149220	53.005 ug/mL M4
20) t	n-Eicosane (C20)	30.712	55422881	52.919 ug/mL M4
21) t	n-Heneicosane (C21)	32.250	55259148	52.596 ug/mL M4
22) t	n-Docosane (C22)	33.727	55412459	52.413 ug/mL M4
23) t	n-Tricosane (C23)	35.141	55138668	51.253 ug/mL M4
25) t	n-Tetracosane (C24)	36.503	54827625	50.966 ug/mL M4
26) t	n-Pentacosane (C25)	37.811	55988650	51.805 ug/mL M4
27) t	n-Hexacosane (C26)	39.070	55432792	51.578 ug/mL M4
28) t	n-Heptacosane (C27)	40.284	54207406	51.222 ug/mL M4
29) t	n-Octacosane (C28)	41.458	54733777	51.175 ug/mL M4
30) t	n-Nonacosane (C29)	42.592	54796822	51.247 ug/mL M4
31) t	n-Triacontane (C30)	43.688	54117124	50.688 ug/mL M4
32) t	n-Hentriacontane (C31)	44.750	54707975	51.107 ug/mL M4
33) t	n-Dotriacontane (C32)	45.781	54643450	51.139 ug/mL M4
34) t	n-Tritriacontane (C33)	46.777	52261703	50.484 ug/mL M4
35) t	n-tetratriacontane (C34)	47.808	53979068	50.898 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.974	54934117	51.006 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.306	55961647	50.866 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.869	54830745	50.862 ug/mL M4
39) t	n-Octatriacontane (C38)	53.695	54490130	50.772 ug/mL M4
41) t	n-Tetracontane (C40)	58.396	51315979	50.511 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611340.d
Operator : JT
Acquired : 20 Jun 2012 5:44 am using AcqMethod FID16.M
Instrument : FID16
Sample : C1606181202F
Misc Info : WHAP85
ALS Vial : 11



Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611358.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 8:35 pm
Operator : JT
Sample : C1606191203F
Misc : WHAP85
ALS Vial : 20 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 07:42:19 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	97	0.00
2	t	n-Octane (C8)	50.000	48.949	2.1	91	0.00
3	t	n-Nonane (C9)	50.000	50.267	-0.5	92	0.00
4	t	n-Decane (C10)	50.000	51.396	-2.8	93	0.00
5	t	n-Undecane (C11)	50.000	52.453	-4.9	95	0.00
6	t	n-Dodecane (C12)	50.000	52.923	-5.8	96	0.00
7	t	n-Tridecane (C13)	50.000	53.152	-6.3	96	0.00
9	t	n-Tetradecane (C14)	50.000	53.558	-7.1	96	0.00
11	t	n-Pentadecane (C15)	50.000	53.499	-7.0	97	0.00
12	t	n-Hexadecane (C16)	50.000	53.398	-6.8	97	0.00
14	t	n-Heptadecane (C17)	50.000	52.774	-5.5	94	0.00
15	t	Pristane	50.000	53.746	-7.5	97	0.00
16	t	n-Octadecane (C18)	50.000	53.240	-6.5	96	0.00
17	t	Phytane	50.000	53.517	-7.0	97	0.00
18	t	n-Nonadecane (C19)	50.000	53.371	-6.7	97	0.00
19	s	ortho-terphenyl	50.000	58.528	-17.1	101	0.00
20	t	n-Eicosane (C20)	50.000	53.253	-6.5	97	0.00
21	t	n-Heneicosane (C21)	50.000	52.891	-5.8	97	0.00
22	t	n-Docosane (C22)	50.000	52.742	-5.5	96	0.00
23	t	n-Tricosane (C23)	50.000	51.584	-3.2	96	0.00
24	s	d50-Tetracosane	50.000	55.942	-11.9	99	0.00
25	t	n-Tetracosane (C24)	50.000	51.279	-2.6	95	0.00
26	t	n-Pentacosane (C25)	50.000	52.153	-4.3	95	0.00
27	t	n-Hexacosane (C26)	50.000	51.907	-3.8	94	0.00
28	t	n-Heptacosane (C27)	50.000	51.547	-3.1	93	0.00
29	t	n-Octacosane (C28)	50.000	51.504	-3.0	94	0.00
30	t	n-Nonacosane (C29)	50.000	51.559	-3.1	94	0.00
31	t	n-Triacontane (C30)	50.000	50.972	-1.9	91	0.00
32	t	n-Hentriacontane (C31)	50.000	51.372	-2.7	93	0.00
33	t	n-Dotriacontane (C32)	50.000	51.406	-2.8	94	0.00
34	t	n-Tritriacontane (C33)	50.000	50.802	-1.6	89	0.00
35	t	n-tetratriacontane (C34)	50.000	51.198	-2.4	93	0.00
36	t	n-Pentatriacontane (C35)	50.000	51.297	-2.6	94	0.00
37	t	n-Hexatriacontane (C36)	50.000	51.169	-2.3	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	51.131	-2.3	93	0.00
39	t	n-Octatriacontane (C38)	50.000	50.949	-1.9	93	0.00
41	t	n-Tetracontane (C40)	50.000	50.720	-1.4	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC16032812F.M Thu Jun 21 13:29:49 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611358.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 8:35 pm
Operator : JT
Sample : C1606191203F
Misc : WHAP85
ALS Vial : 20 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 07:42:19 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

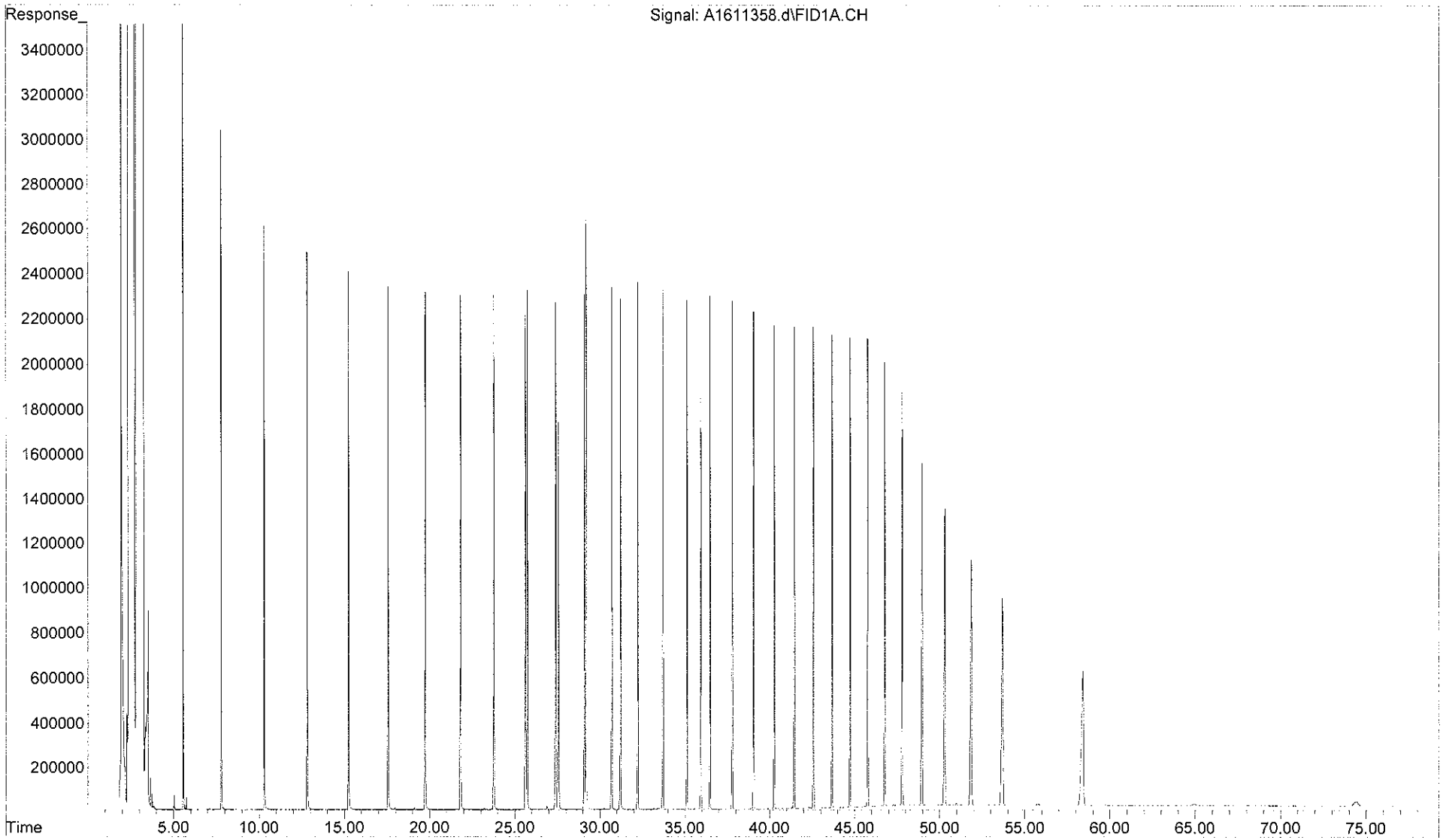
Sub List : CCAL - CCAL

6-21-12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.225	54783989	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.215	63768405	58.528 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	117.06%
24) s	d50-Tetracosane	35.956	50702498	55.942 ug/mL M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	111.88%
	Target Compounds			
2) t	n-Octane (C8)	5.562	45160633	48.949 ug/mL M4
3) t	n-Nonane (C9)	7.795	46810878	50.267 ug/mL M4
4) t	n-Decane (C10)	10.303	49441895	51.396 ug/mL M4
5) t	n-Undecane (C11)	12.826	50538452	52.453 ug/mL M4
6) t	n-Dodecane (C12)	15.259	51784718	52.923 ug/mL M4
7) t	n-Tridecane (C13)	17.569	52136686	53.152 ug/mL M4
9) t	n-Tetradecane (C14)	19.755	52935252	53.558 ug/mL M4
11) t	n-Pentadecane (C15)	21.823	53004026	53.499 ug/mL M4
12) t	n-Hexadecane (C16)	23.782	53757319	53.398 ug/mL M4
14) t	n-Heptadecane (C17)	25.644	52902897	52.774 ug/mL M4
15) t	Pristane	25.755	54847930	53.746 ug/mL M4
16) t	n-Octadecane (C18)	27.415	54412676	53.240 ug/mL M4
17) t	Phytane	27.579	54095586	53.517 ug/mL M4
18) t	n-Nonadecane (C19)	29.102	54691204	53.371 ug/mL M4
20) t	n-Eicosane (C20)	30.711	54930342	53.253 ug/mL M4
21) t	n-Heneicosane (C21)	32.250	54730119	52.891 ug/mL M4
22) t	n-Docosane (C22)	33.726	54918750	52.742 ug/mL M4
23) t	n-Tricosane (C23)	35.140	54657470	51.584 ug/mL M4
25) t	n-Tetracosane (C24)	36.502	54330662	51.279 ug/mL M4
26) t	n-Pentacosane (C25)	37.809	55513307	52.153 ug/mL M4
27) t	n-Hexacosane (C26)	39.068	54943775	51.907 ug/mL M4
28) t	n-Heptacosane (C27)	40.284	53727849	51.547 ug/mL M4
29) t	n-Octacosane (C28)	41.457	54254695	51.504 ug/mL M4
30) t	n-Nonacosane (C29)	42.591	54298580	51.559 ug/mL M4
31) t	n-Triacontane (C30)	43.688	53598401	50.972 ug/mL M4
32) t	n-Hentriacontane (C31)	44.749	54161110	51.372 ug/mL M4
33) t	n-Dotriacontane (C32)	45.781	54098978	51.406 ug/mL M4
34) t	n-Tritriacontane (C33)	46.779	51796803	50.802 ug/mL M4
35) t	n-tetratriacontane (C34)	47.807	53476691	51.198 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.972	54413478	51.297 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.310	55445214	51.169 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.870	54288754	51.131 ug/mL M4
39) t	n-Octatriacontane (C38)	53.693	53854516	50.949 ug/mL M4
41) t	n-Tetracontane (C40)	58.408	50749941	50.720 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611358.d
Operator : JT
Acquired : 20 Jun 2012 8:35 pm using AcqMethod FID16.M
Instrument : FID16
Sample : C1606191203F
Misc Info : WHAP85
ALS Vial : 20



Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611370.d
Signal(s) : FID1A.CH
Acq On : 21 Jun 2012 6:21 am
Operator : JT
Sample : C1606191204F
Misc : WHAP85
ALS Vial : 26 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 07:53:20 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

6.21.12

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	I	5-alpha-androstane	50.000	50.000	0.0	97	0.00
2	t	n-Octane (C8)	50.000	50.004	-0.0	93	0.00
3	t	n-Nonane (C9)	50.000	50.863	-1.7	93	0.00
4	t	n-Decane (C10)	50.000	52.251	-4.5	95	0.00
5	t	n-Undecane (C11)	50.000	53.092	-6.2	96	0.00
6	t	n-Dodecane (C12)	50.000	53.502	-7.0	97	0.00
7	t	n-Tridecane (C13)	50.000	53.592	-7.2	97	0.00
9	t	n-Tetradecane (C14)	50.000	53.950	-7.9	97	0.00
11	t	n-Pentadecane (C15)	50.000	53.771	-7.5	97	0.00
12	t	n-Hexadecane (C16)	50.000	53.626	-7.3	97	0.00
14	t	n-Heptadecane (C17)	50.000	52.963	-5.9	95	0.00
15	t	Pristane	50.000	53.756	-7.5	97	0.00
16	t	n-Octadecane (C18)	50.000	53.371	-6.7	97	0.00
17	t	Phytane	50.000	53.606	-7.2	97	0.00
18	t	n-Nonadecane (C19)	50.000	53.371	-6.7	97	0.00
19	s	ortho-terphenyl	50.000	58.720	-17.4	101	0.00
20	t	n-Eicosane (C20)	50.000	53.339	-6.7	97	0.00
21	t	n-Heneicosane (C21)	50.000	52.947	-5.9	97	0.00
22	t	n-Docosane (C22)	50.000	52.754	-5.5	96	0.00
23	t	n-Tricosane (C23)	50.000	51.615	-3.2	96	0.00
24	s	d50-Tetracosane	50.000	55.936	-11.9	99	0.00
25	t	n-Tetracosane (C24)	50.000	51.285	-2.6	95	0.00
26	t	n-Pentacosane (C25)	50.000	52.128	-4.3	95	0.00
27	t	n-Hexacosane (C26)	50.000	51.932	-3.9	94	0.00
28	t	n-Heptacosane (C27)	50.000	51.506	-3.0	92	0.00
29	t	n-Octacosane (C28)	50.000	51.472	-2.9	94	0.00
30	t	n-Nonacosane (C29)	50.000	51.535	-3.1	94	0.00
31	t	n-Triacontane (C30)	50.000	50.947	-1.9	91	0.00
32	t	n-Hentriacontane (C31)	50.000	51.363	-2.7	93	0.00
33	t	n-Dotriacontane (C32)	50.000	51.344	-2.7	94	0.00
34	t	n-Tritriacontane (C33)	50.000	50.750	-1.5	89	0.00
35	t	n-tetratriacontane (C34)	50.000	51.137	-2.3	93	0.00
36	t	n-Pentatriacontane (C35)	50.000	51.313	-2.6	93	0.00
37	t	n-Hexatriacontane (C36)	50.000	51.119	-2.2	93	0.00
38	t	n-Heptatriacontane (C37)	50.000	51.108	-2.2	93	0.00
39	t	n-Octatriacontane (C38)	50.000	50.867	-1.7	93	0.00
41	t	n-Tetracontane (C40)	50.000	50.772	-1.5	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Mass Discrimination (Response)	Ratio	Range Limits
n-Hexatriacontane (C36) to n-Eicosane (C20)	1.01	0.85 - 1.15

HC16032812F.M Thu Jun 21 13:30:12 2012

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611370.d
Signal(s) : FID1A.CH
Acq On : 21 Jun 2012 6:21 am
Operator : JT
Sample : C1606191204F
Misc : WHAP85
ALS Vial : 26 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 07:53:20 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

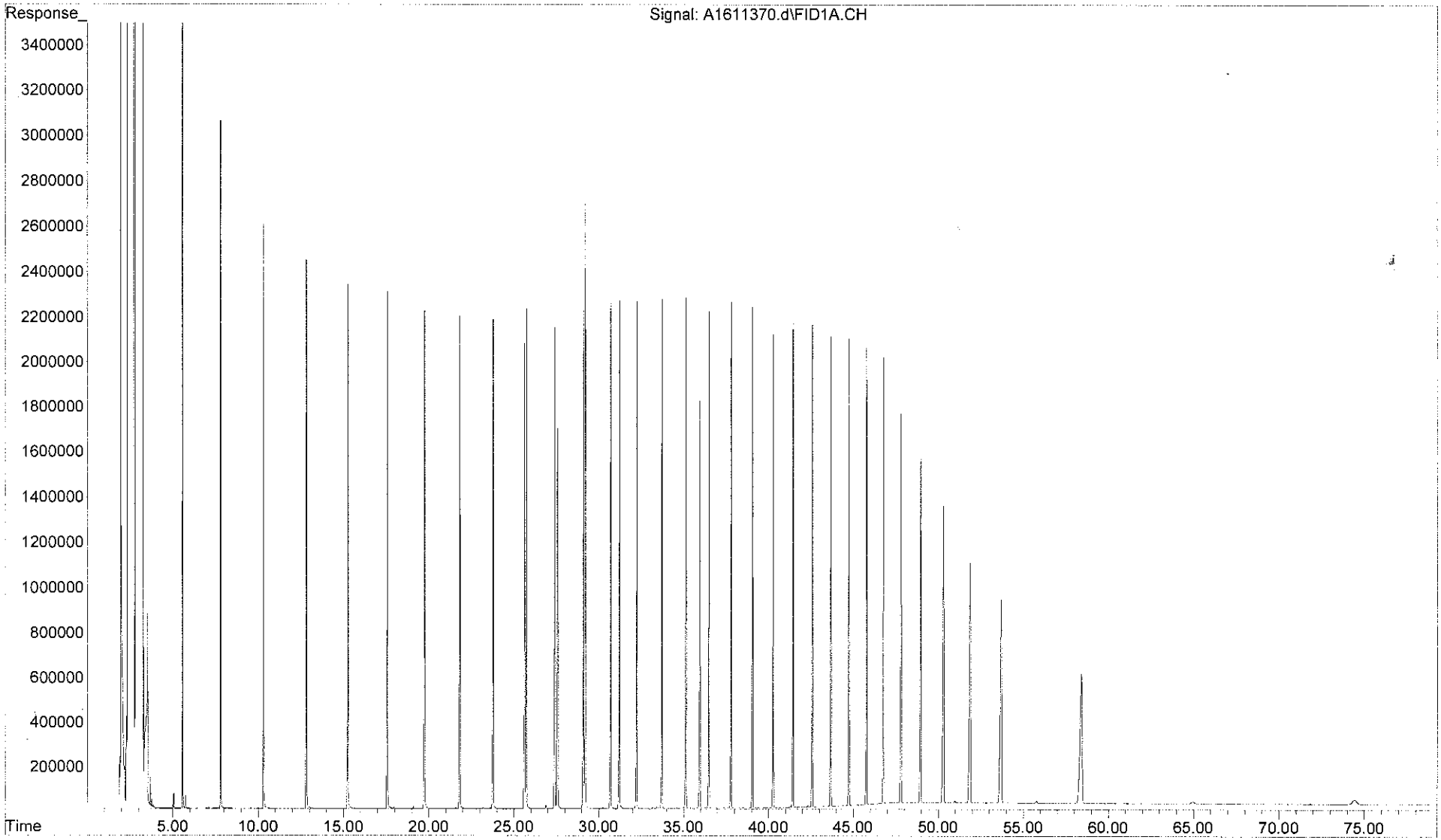
Sub List : CCAL - CCAL

6-22-12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.228	54714665	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.217	63897026	58.720 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	117.44%
24) s	d50-Tetracosane	35.956	50633031	55.936 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	111.87%
	Target Compounds			
2) t	n-Octane (C8)	5.564	46075554	50.004 ug/mL M4
3) t	n-Nonane (C9)	7.796	47306585	50.863 ug/mL M4
4) t	n-Decane (C10)	10.303	50200771	52.251 ug/mL M4
5) t	n-Undecane (C11)	12.826	51090073	53.092 ug/mL M4
6) t	n-Dodecane (C12)	15.260	52285472	53.502 ug/mL M4
7) t	n-Tridecane (C13)	17.570	52502109	53.592 ug/mL M4
9) t	n-Tetradecane (C14)	19.757	53254736	53.950 ug/mL M4
11) t	n-Pentadecane (C15)	21.824	53206100	53.771 ug/mL M4
12) t	n-Hexadecane (C16)	23.783	53918498	53.626 ug/mL M4
14) t	n-Heptadecane (C17)	25.646	53025332	52.963 ug/mL M4
15) t	Pristane	25.758	54788879	53.756 ug/mL M4
16) t	n-Octadecane (C18)	27.416	54477958	53.371 ug/mL M4
17) t	Phytane	27.580	54116249	53.606 ug/mL M4
18) t	n-Nonadecane (C19)	29.103	54622603	53.371 ug/mL M4
20) t	n-Eicosane (C20)	30.712	54949413	53.339 ug/mL M4
21) t	n-Heneicosane (C21)	32.252	54718879	52.947 ug/mL M4
22) t	n-Docosane (C22)	33.728	54861517	52.754 ug/mL M4
23) t	n-Tricosane (C23)	35.143	54620320	51.615 ug/mL M4
25) t	n-Tetracosane (C24)	36.503	54268924	51.285 ug/mL M4
26) t	n-Pentacosane (C25)	37.813	55416991	52.128 ug/mL M4
27) t	n-Hexacosane (C26)	39.071	54901160	51.932 ug/mL M4
28) t	n-Heptacosane (C27)	40.286	53616821	51.506 ug/mL M4
29) t	n-Octacosane (C28)	41.461	54152254	51.472 ug/mL M4
30) t	n-Nonacosane (C29)	42.595	54203901	51.535 ug/mL M4
31) t	n-Triacontane (C30)	43.690	53503519	50.947 ug/mL M4
32) t	n-Hentriacontane (C31)	44.755	54083028	51.363 ug/mL M4
33) t	n-Dotriacontane (C32)	45.782	53965244	51.344 ug/mL M4
34) t	n-Tritriacontane (C33)	46.781	51678693	50.750 ug/mL M4
35) t	n-tetratriacontane (C34)	47.811	53346059	51.137 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.979	54361345	51.313 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.315	55320455	51.119 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.872	54195152	51.108 ug/mL M4
39) t	n-Octatriacontane (C38)	53.703	53699804	50.867 ug/mL M4
41) t	n-Tetracontane (C40)	58.421	50737924	50.772 ug/mL M4

SemiQuant Compounds - Not Calibrated on this Instrument

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611370.d
Operator : JT
Acquired : 21 Jun 2012 6:21 am using AcqMethod FID16.M
Instrument : FID16
Sample : C1606191204F
Misc Info : WHAP85
ALS Vial : 26



Instrument Blank Association

ETR: 1206028

Project: Enbridge Line 6B MP 608

6-21-12

	Associated Instrument Blank	
Sample ID	**Laboratory ID**	**File ID**
1206028-01	IB1606191203F	A1611344
1206028-02	IB1606191203F	A1611344
SO062112B01	IB1606191203F	A1611344
SO062112LCS01	IB1606191203F	A1611344
SO062112LCSD01	IB1606191203F	A1611344
TO062112ANS02	IB1606191203F	A1611344
TO062112WCS03	IB1606191205F	A1611362
TO062112CL03	IB1606191205F	A1611362
TW040212ANS01	IB1603281202F	A1609908

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\
Data File : A1609908.D
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 10:08 am
Operator : BAL
Sample : IB1603281202F
Misc : DCM
ALS Vial : 17 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 02 13:31:29 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Mon Apr 02 13:25:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

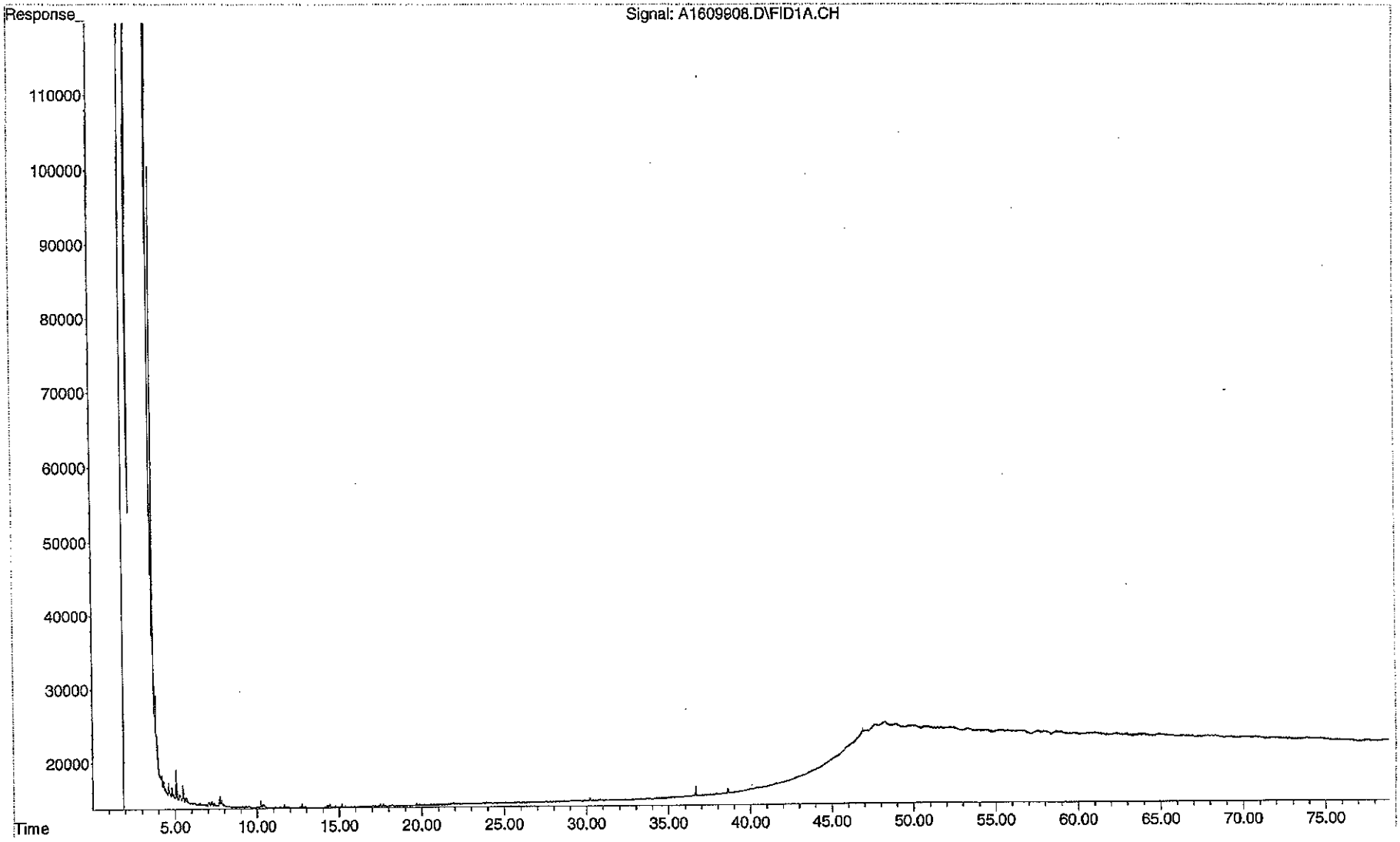
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : TPH - TPH

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.364	1384	50.000 ug/mL M4
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	41.646	201342712	7763330.892 ug/mL M5
44) h Total Resolved Hydroc...	41.645	2457153	94742.419 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609908.D
Operator : BAL
Acquired : 29 Mar 2012 10:08 am using AcqMethod FID16.M
Instrument : FID16
Sample : IB1603281202F
Misc Info : DCM
ALS Vial : 17



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\SREV\
Data File : A1611344.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 8:58 am
Operator : JT
Sample : IB1606191203F
Misc : DCM
ALS Vial : 13 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:12:49 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

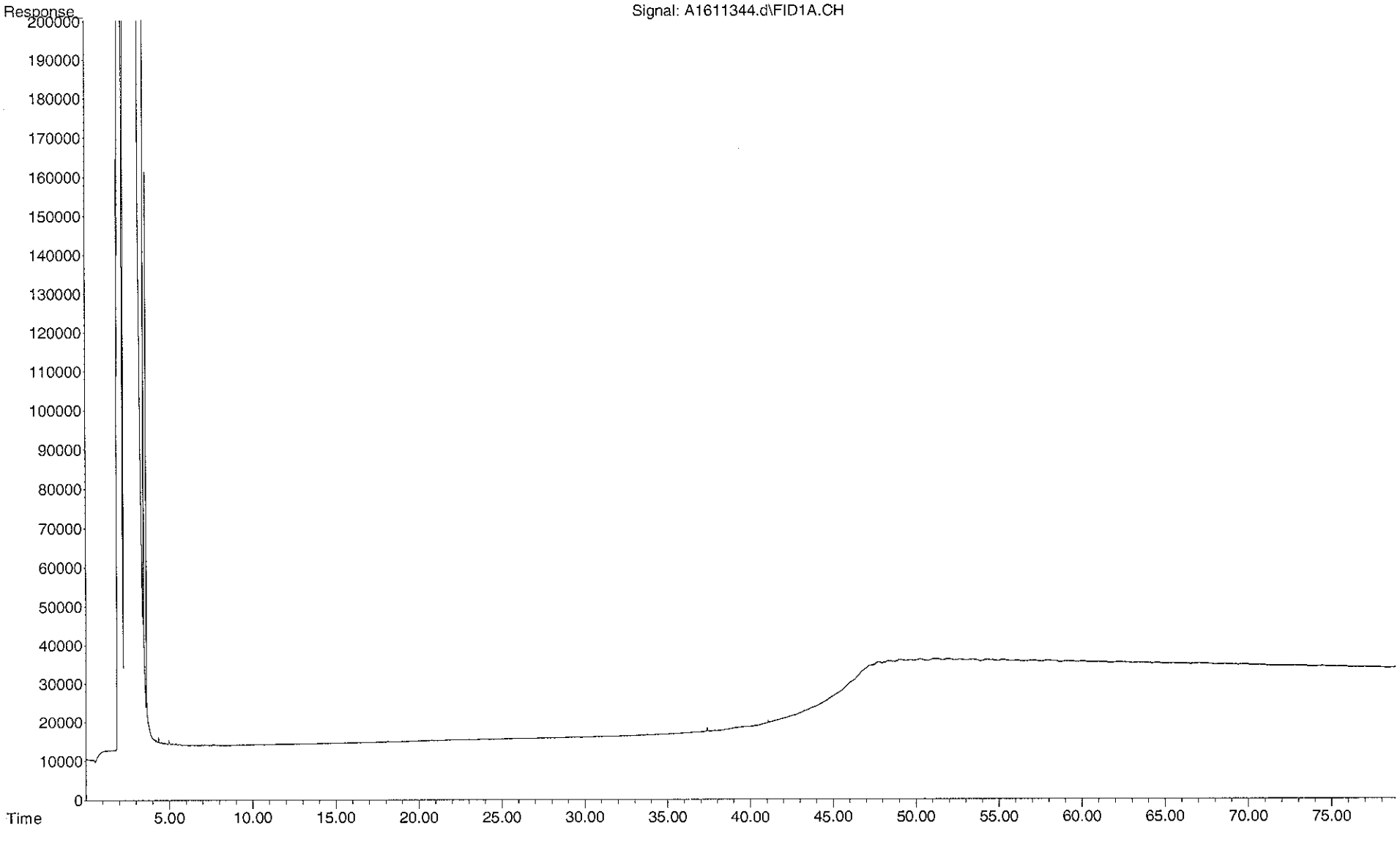
Sub List : TPH - TPH

6.21.12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.230	1528	50.000 ug/mL m
System Monitoring Compounds			
Target Compounds			
42) h C9-C44 Total Petroleu...	41.094	485375889	16960531.419 ug/mL M5
45) h Total Resolved Hydroc...	41.094	2972128	103855.308 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\SREV\A1611344.d
Operator : JT
Acquired : 20 Jun 2012 8:58 am using AcqMethod FID16.M
Instrument : FID16
Sample : IB1606191203F
Misc Info : DCM
ALS Vial : 13



Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611362.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 11:49 pm
Operator : JT
Sample : IB1606191205F
Misc : DCM
ALS Vial : 22 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:14:39 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

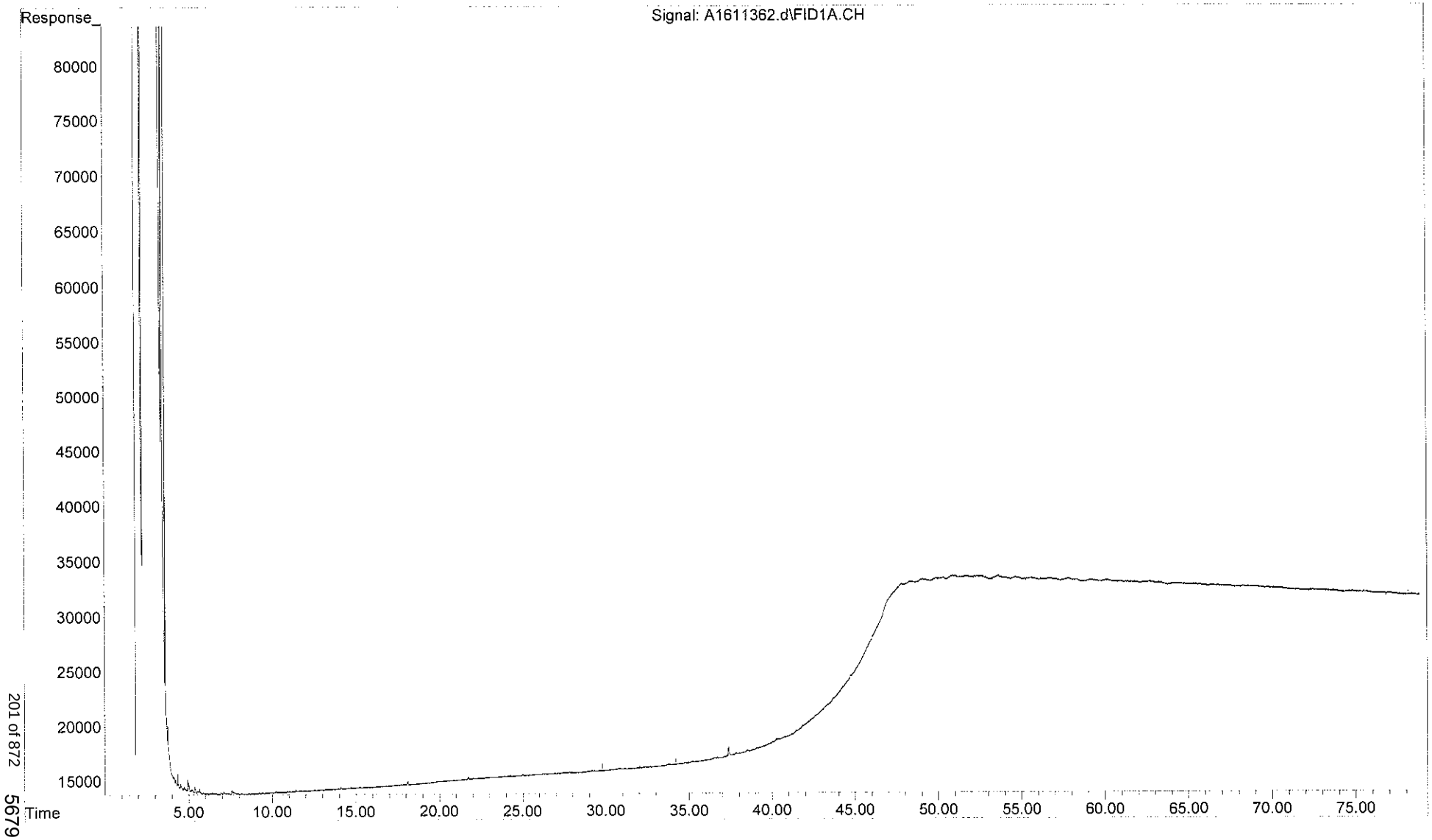
Sub List : TPH - TPH

6/21/12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.210	1222	50.000 ug/mL M2
	System Monitoring Compounds			
	Target Compounds			
42) h	C9-C44 Total Petroleu...	41.094	438359160	19144677.126 ug/mL M4
45) h	Total Resolved Hydroc...	41.094	1771501	77367.632 ug/mL m
	SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611362.d
Operator : JT
Acquired : 20 Jun 2012 11:49 pm using AcqMethod FID16.M
Instrument : FID16
Sample : IB1606191205F
Misc Info : DCM
ALS Vial : 22



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012B01**
Associated Blank: **N/A**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/20/12	100	1.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	2.00	U	n-Docosane (C22)	2.00	U
n-Decane (C10)	2.00	U	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	2.00	U
n-Dodecane (C12)	2.00	U	n-Pentacosane (C25)	**1.03**	CJ
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	2.00	U
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	2.00	U	n-Octacosane (C28)	2.00	U
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	2.00	U
n-Hexadecane (C16)	2.00	U	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**0.926**	CJ	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	2.00	U
n-Nonadecane (C19)	2.00	U	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	2.00	U	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	102	40-125
d50-Tetracosane	97	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
C - Co-elution

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611346.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 10:37 am
Operator : JT
Sample : SO062012B01
Misc : 1X
ALS Vial : 14 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 13:05:39 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

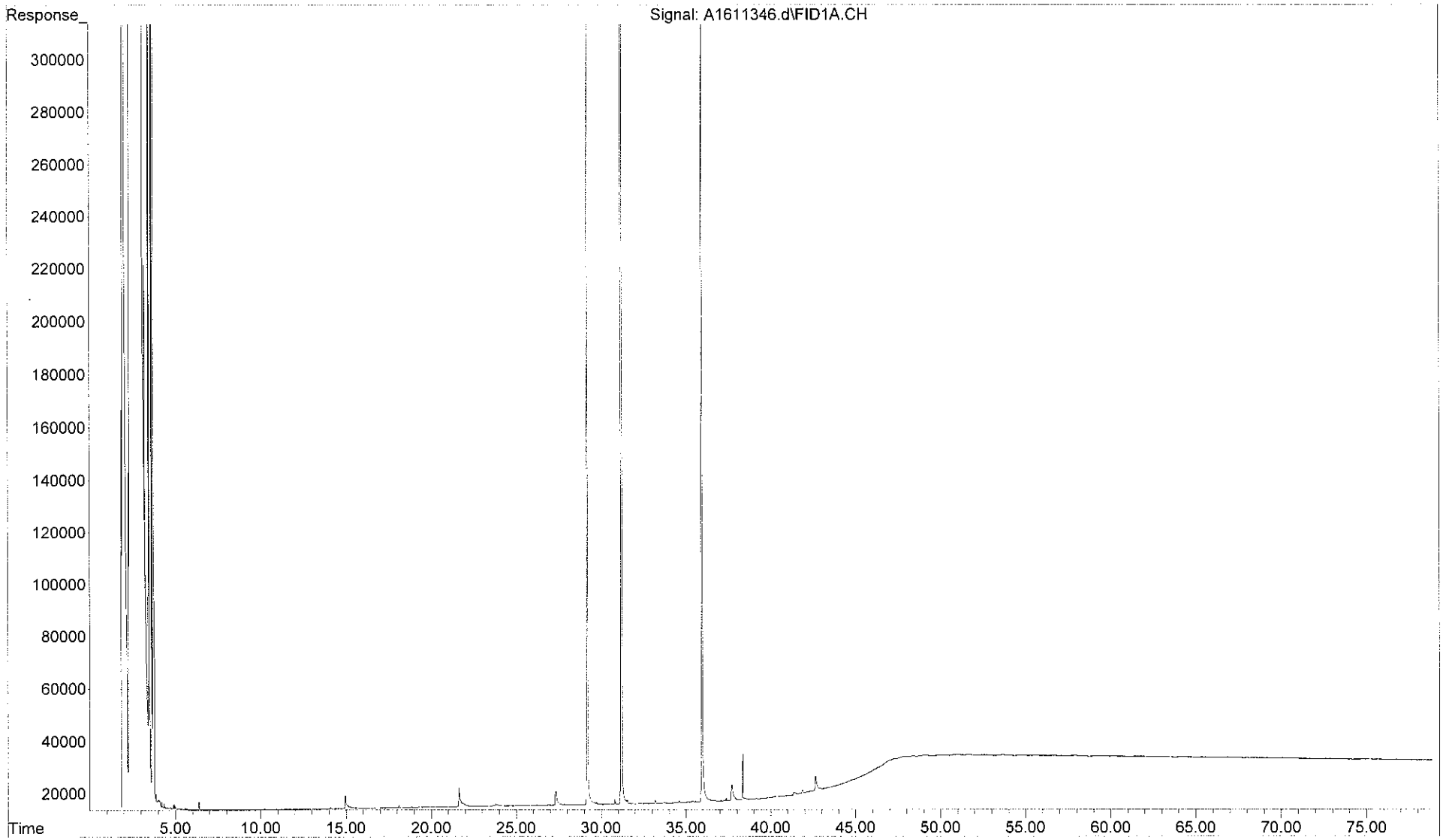
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.223	52386498	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.194	26481094	25.417 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	50.83%
24) s d50-Tetracosane	35.937	20969900	24.196 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery =	48.39%#
Target Compounds			
16) t n-Octadecane (C18)	27.329	452178C	0.463 ug/mL M4
26) t n-Pentacosane (C25)	37.701f	525433C	0.516 ug/mL M4
42) h C9-C44 Total Petroleu...	41.094	462322079	471.105 ug/mL M4
45) h Total Resolved Hydroc...	41.094	6035303	6.150 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611346.d
Operator : JT
Acquired : 20 Jun 2012 10:37 am using AcqMethod FID16.M
Instrument : FID16
Sample : SO062012B01
Misc Info : 1X
ALS Vial : 14



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCS01**
Associated Blank: **SO062012B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/20/12	100	1.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**17.5**	S	n-Docosane (C22)	**19.4**	S
n-Decane (C10)	**17.4**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**19.1**	S
n-Dodecane (C12)	**17.6**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**19.1**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**19.2**	S	n-Octacosane (C28)	**19.0**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**18.8**	S
n-Hexadecane (C16)	**20.5**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**20.8**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**18.3**	S
n-Nonadecane (C19)	**19.2**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**19.6**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	103	40-125
d50-Tetracosane	98	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611348.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 12:17 pm
Operator : JT
Sample : SO062012LCS01
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:13:15 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

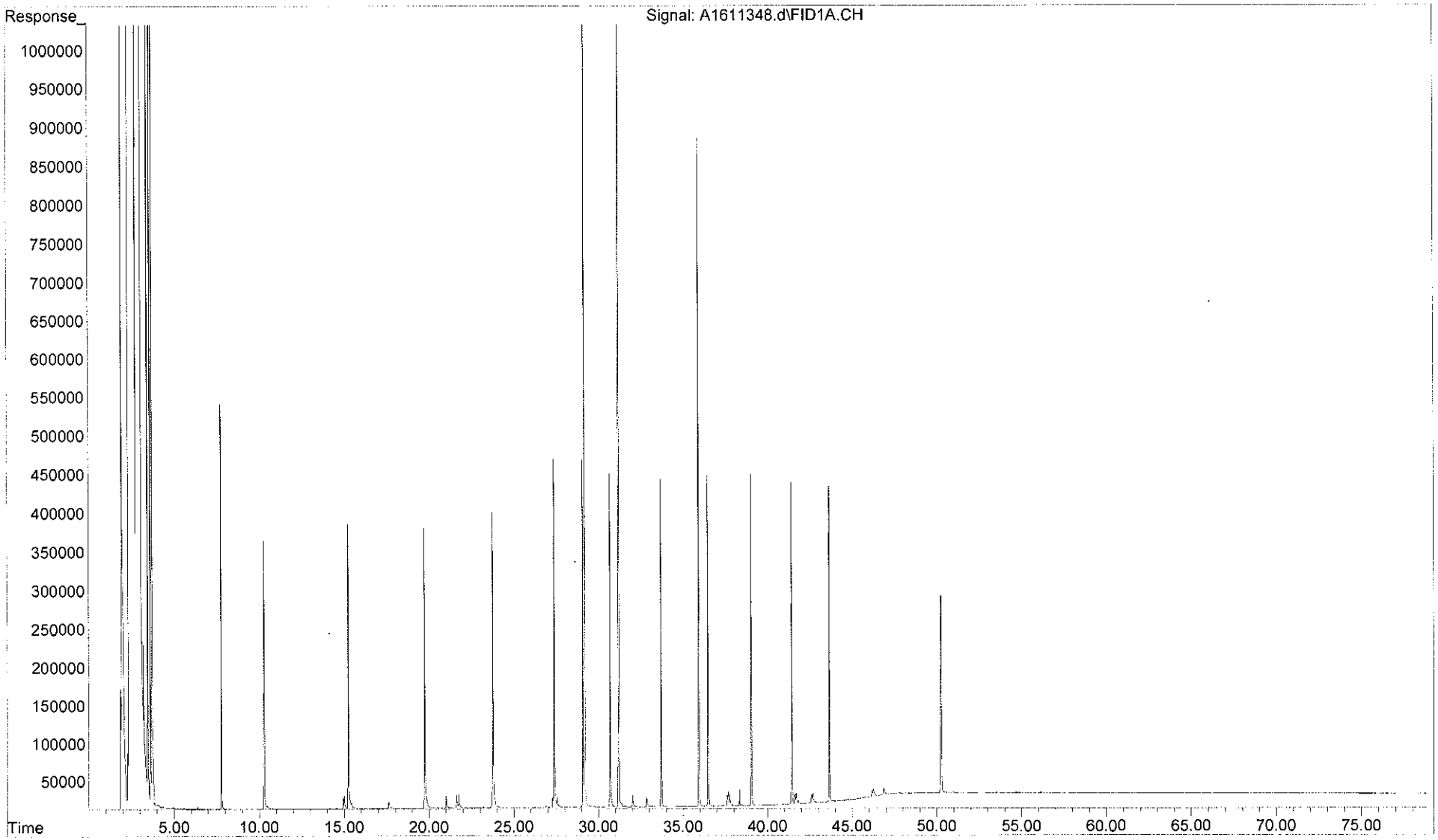
Sub List : SHC - SHC

6.21.12

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane	31.222	55338859	50.000 ug/mL M4
System Monitoring Compounds			
19) s ortho-terphenyl	29.195	28335449	25.746 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 51.49%	
24) s d50-Tetracosane	35.939	22440085	24.511 ug/mL M4
Spiked Amount 50.000	Range 50 - 130	Recovery = 49.02%#	
Target Compounds			
3) t n-Nonane (C9)	7.773	8243238	8.763 ug/mL M4
4) t n-Decane (C10)	10.288	8442790	8.688 ug/mL M4
6) t n-Dodecane (C12)	15.246	8721147	8.823 ug/mL M4
9) t n-Tetradecane (C14)	19.741	9579568	9.595 ug/mL M4
12) t n-Hexadecane (C16)	23.765	10426266	10.253 ug/mL M4
16) t n-Octadecane (C18)	27.393	10728297	10.392 ug/mL M4
18) t n-Nonadecane (C19)	29.080	9939380	9.602 ug/mL M4
20) t n-Eicosane (C20)	30.689	10238990	9.827 ug/mL M4
22) t n-Docosane (C22)	33.703	10203828	9.701 ug/mL M4
25) t n-Tetracosane (C24)	36.476	10207972	9.538 ug/mL M4
27) t n-Hexacosane (C26)	39.043	10192277	9.532 ug/mL M4
29) t n-Octacosane (C28)	41.430	10082468	9.475 ug/mL M4
31) t n-Triacontane (C30)	43.659	9976199	9.392 ug/mL M4
37) t n-Hexatriacontane (C36)	50.261	9993306	9.130 ug/mL M4
42) h C9-C44 Total Petroleu...	41.094	591945390	571.010 ug/mL M4
45) h Total Resolved Hydroc...	41.094	146801324	141.609 ug/mL m
SemiQuant Compounds - Not Calibrated on this Instrument			

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611348.d
Operator : JT
Acquired : 20 Jun 2012 12:17 pm using AcqMethod FID16.M
Instrument : FID16
Sample : SO062012LCS01
Misc Info : 1X
ALS Vial : 15



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sheen**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **SO062012LCSD01**
Associated Blank: **SO062012B01**
Concentration Units: **µg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/20/12	06/20/12	100	1.00	2	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**17.7**	S	n-Docosane (C22)	**19.6**	S
n-Decane (C10)	**17.7**	S	n-Tricosane (C23)	2.00	U
n-Undecane (C11)	2.00	U	n-Tetracosane (C24)	**19.2**	S
n-Dodecane (C12)	**17.9**	S	n-Pentacosane (C25)	2.00	U
n-Tridecane (C13)	2.00	U	n-Hexacosane (C26)	**19.2**	S
2,6,10 Trimethyldodecane (1380)	2.00	U	n-Heptacosane (C27)	2.00	U
n-Tetradecane (C14)	**19.3**	S	n-Octacosane (C28)	**19.1**	S
2,6,10 Trimethyltridecane (1470)	2.00	U	n-Nonacosane (C29)	2.00	U
n-Pentadecane (C15)	2.00	U	n-Triacontane (C30)	**19.0**	S
n-Hexadecane (C16)	**20.6**	S	n-Hentriacontane (C31)	2.00	U
Norpristane (1650)	2.00	U	n-Dotriacontane (C32)	2.00	U
n-Heptadecane (C17)	2.00	U	n-Tritriacontane (C33)	2.00	U
Pristane	2.00	U	n-Tetratriacontane (C34)	2.00	U
n-Octadecane (C18)	**21.0**	S	n-Pentatriacontane (C35)	2.00	U
Phytane	2.00	U	n-Hexatriacontane (C36)	**18.4**	S
n-Nonadecane (C19)	**19.4**	S	n-Heptatriacontane (C37)	2.00	U
n-Eicosane (C20)	**19.8**	S	n-Octatriacontane (C38)	2.00	U
n-Heneicosane (C21)	2.00	U	n-Nonatriacontane (C39)	2.00	U
			n-Tetracontane (C40)	2.00	U
Total Petroleum Hydrocarbons (C9-C44)	400	U			

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	105	40-125
d50-Tetracosane	100	40-125

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611350.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 1:59 pm
Operator : JT
Sample : SO062012LCSD01
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:13:16 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

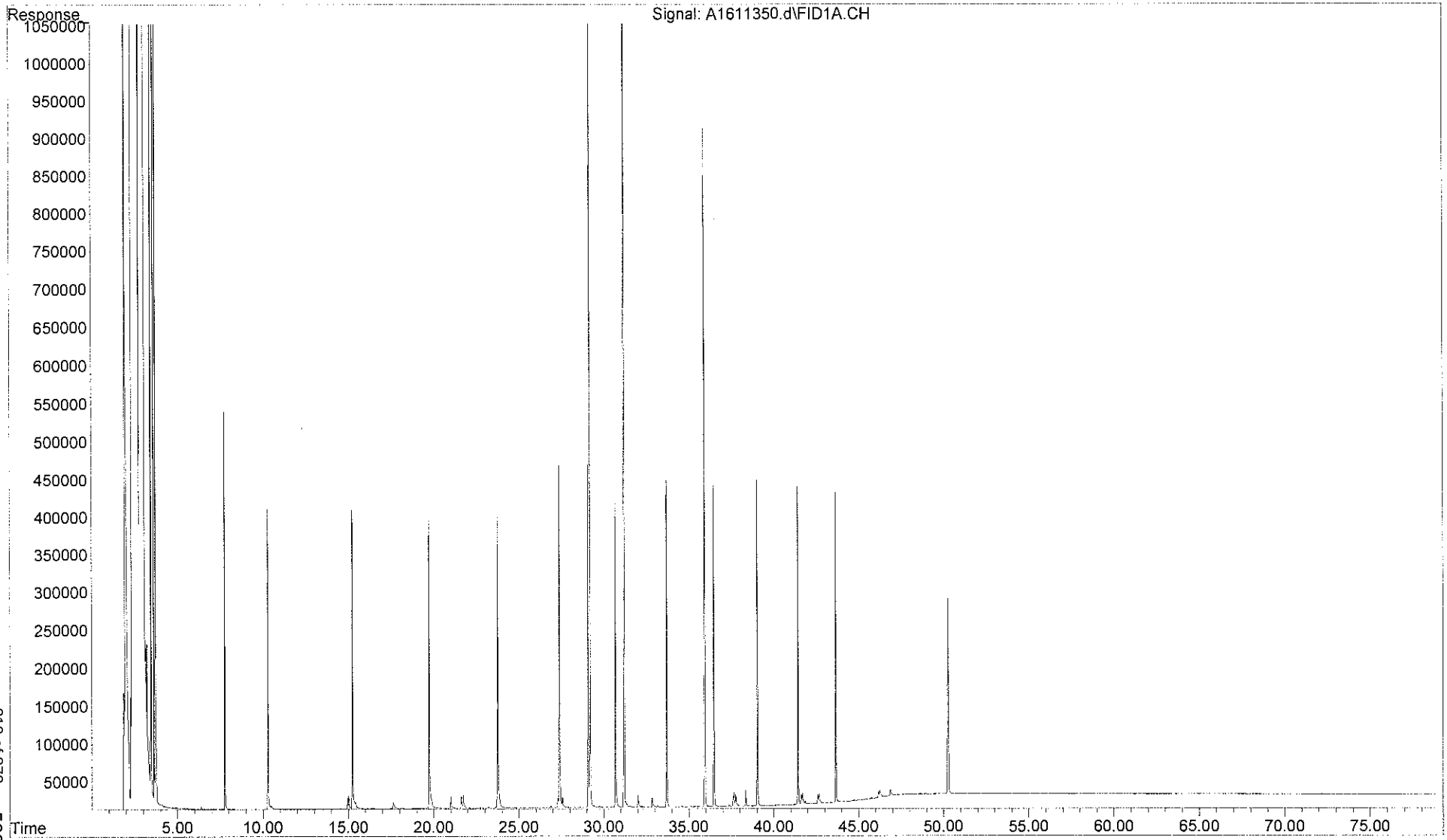
Sub List : SHC - SHC

6.21.12

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	5-alpha-androstane	31.222	55073459	50.000	ug/mL	M4
	System Monitoring Compounds					
19) s	ortho-terphenyl	29.196	28717725	26.219	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	52.44%		
24) s	d50-Tetracosane	35.940	22796681	25.020	ug/mL	M4
Spiked Amount	50.000	Range 50 - 130	Recovery =	50.04%		
	Target Compounds					
3) t	n-Nonane (C9)	7.773	8269127	8.833	ug/mL	M4
4) t	n-Decane (C10)	10.289	8552098	8.843	ug/mL	M4
6) t	n-Dodecane (C12)	15.245	8820852	8.967	ug/mL	M4
9) t	n-Tetradecane (C14)	19.741	9597119	9.659	ug/mL	M4
12) t	n-Hexadecane (C16)	23.766	10450114	10.326	ug/mL	M4
16) t	n-Octadecane (C18)	27.393	10779102	10.491	ug/mL	M4
18) t	n-Nonadecane (C19)	29.081	9988697	9.696	ug/mL	M4
20) t	n-Eicosane (C20)	30.689	10287933	9.921	ug/mL	M4
22) t	n-Docosane (C22)	33.701	10234952	9.778	ug/mL	M4
25) t	n-Tetracosane (C24)	36.475	10201132	9.577	ug/mL	M4
27) t	n-Hexacosane (C26)	39.043	10220998	9.605	ug/mL	M4
29) t	n-Octacosane (C28)	41.432	10136572	9.572	ug/mL	M4
31) t	n-Triacontane (C30)	43.659	10023080	9.482	ug/mL	M4
37) t	n-Hexatriacontane (C36)	50.263	10011003	9.190	ug/mL	M4
42) h	C9-C44 Total Petroleu...	41.094	584689176	566.728	ug/mL	M4
45) h	Total Resolved Hydroc...	41.094	149254398	144.670	ug/mL	m
	SemiQuant Compounds - Not Calibrated on this Instrument					

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611350.d
Operator : JT
Acquired : 20 Jun 2012 1:59 pm using AcqMethod FID16.M
Instrument : FID16
Sample : SO062012LCSD01
Misc Info : 1X
ALS Vial : 16



Form I
Cold Lake Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Cold Lake Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TO062112CL03**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/21/12	100	0.10018	10	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1800**		n-Docosane (C22)	**206**	
n-Decane (C10)	**981**		n-Tricosane (C23)	**198**	
n-Undecane (C11)	**869**		n-Tetracosane (C24)	**166**	
n-Dodecane (C12)	**727**		n-Pentacosane (C25)	**225**	
n-Tridecane (C13)	**727**		n-Hexacosane (C26)	**186**	
2,6,10 Trimethyldodecane (1380)	**229**		n-Heptacosane (C27)	**116**	
n-Tetradecane (C14)	**666**		n-Octacosane (C28)	**108**	
2,6,10 Trimethyltridecane (1470)	**446**		n-Nonacosane (C29)	**89.8**	J
n-Pentadecane (C15)	**621**		n-Triacontane (C30)	**121**	
n-Hexadecane (C16)	**639**		n-Hentriacontane (C31)	**312**	
Norpristane (1650)	**236**		n-Dotriacontane (C32)	**112**	
n-Heptadecane (C17)	**407**		n-Tritriacontane (C33)	**78.9**	J
Pristane	**402**		n-Tetratriacontane (C34)	**78.1**	J
n-Octadecane (C18)	**414**		n-Pentatriacontane (C35)	**101**	
Phytane	**353**		n-Hexatriacontane (C36)	**42.8**	J
n-Nonadecane (C19)	**302**		n-Heptatriacontane (C37)	**55.0**	J
n-Eicosane (C20)	**274**		n-Octatriacontane (C38)	**61.7**	J
n-Heneicosane (C21)	**215**		n-Nonatriacontane (C39)	**30.2**	J
			n-Tetracontane (C40)	**31.7**	J
Total Petroleum Hydrocarbons (C9-C44)	**454000**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	101	40-125
d50-Tetracosane	94	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611366.d
Signal(s) : FID1A.CH
Acq On : 21 Jun 2012 3:06 am
Operator : JT
Sample : TO062112CL03
Misc : WHAP16
ALS Vial : 24 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:15:42 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.238	61468960	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.221	61703532	50.474 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	100.95%
24) s	d50-Tetracosane	35.962	47652831	46.859 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery =	93.72%
	Target Compounds			
2) t	n-Octane (C8)	5.530	32289808	31.192 ug/mL M4
3) t	n-Nonane (C9)	7.776	18818188	18.010 ug/mL
4) t	n-Decane (C10)	10.291	10611760	9.832 ug/mL M4
5) t	n-Undecane (C11)	12.815	9411697	8.706 ug/mL M4
6) t	n-Dodecane (C12)	15.248	7999597	7.286 ug/mL M4
7) t	n-Tridecane (C13)	17.558	8017688	7.285 ug/mL M4
8) t	1380	19.243	2543080	2.293 ug/mL M4
9) t	n-Tetradecane (C14)	19.743	7396903	6.670 ug/mL M4
10) t	1470	21.035	4971865	4.473 ug/mL M4
11) t	n-Pentadecane (C15)	21.810	6919352	6.224 ug/mL M4
12) t	n-Hexadecane (C16)	23.771	7226413	6.397 ug/mL M4
13) t	1650	24.681	2662961	2.368 ug/mL M4
14) t	n-Heptadecane (C17)	25.632	4580703	4.073 ug/mL M4
15) t	Pristane	25.727	4614736	4.030 ug/mL M4
16) t	n-Octadecane (C18)	27.399	4757920	4.149 ug/mL M4
17) t	Phytane	27.563	4011479	3.537 ug/mL M4
18) t	n-Nonadecane (C19)	29.089	3474468	3.022 ug/mL M4
20) t	n-Eicosane (C20)	30.696	3175442	2.744 ug/mL M4
21) t	n-Heneicosane (C21)	32.233	2497223	2.151 ug/mL M4
22) t	n-Docosane (C22)	33.709	2412009	2.064 ug/mL M4
23) t	n-Tricosane (C23)	35.124	2363868	1.988 ug/mL M4
25) t	n-Tetracosane (C24)	36.483	1976613	1.663 ug/mL M4
26) t	n-Pentacosane (C25)	37.789	2691544	2.254 ug/mL M4
27) t	n-Hexacosane (C26)	39.054	2211791	1.862 ug/mL M4
28) t	n-Heptacosane (C27)	40.268	1360238	1.163 ug/mL M4
29) t	n-Octacosane (C28)	41.441	1282087	1.085 ug/mL M4
30) t	n-Nonacosane (C29)	42.573	1063356	0.900 ug/mL M4
31) t	n-Triacontane (C30)	43.672	1432596	1.214 ug/mL M4
32) t	n-Hentriacontane (C31)	44.742	3700968	3.129 ug/mL M4
33) t	n-Dotriacontane (C32)	45.755	1323421	1.121 ug/mL M4
34) t	n-Tritriacontane (C33)	46.757	903888	0.790 ug/mL M4
35) t	n-tetratriacontane (C34)	47.778	916065	0.782 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.937	1206268	1.014 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.272	521553	0.429 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.821	656411	0.551 ug/mL M4
39) t	n-Octatriacontane (C38)	53.618	733253	0.618 ug/mL M4
40) t	n-Nonatriacontane (C39)	55.780	339404	0.302 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611366.d
Signal(s) : FID1A.CH
Acq On : 21 Jun 2012 3:06 am
Operator : JT
Sample : TO062112CL03
Misc : WHAP16
ALS Vial : 24 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 09:15:42 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

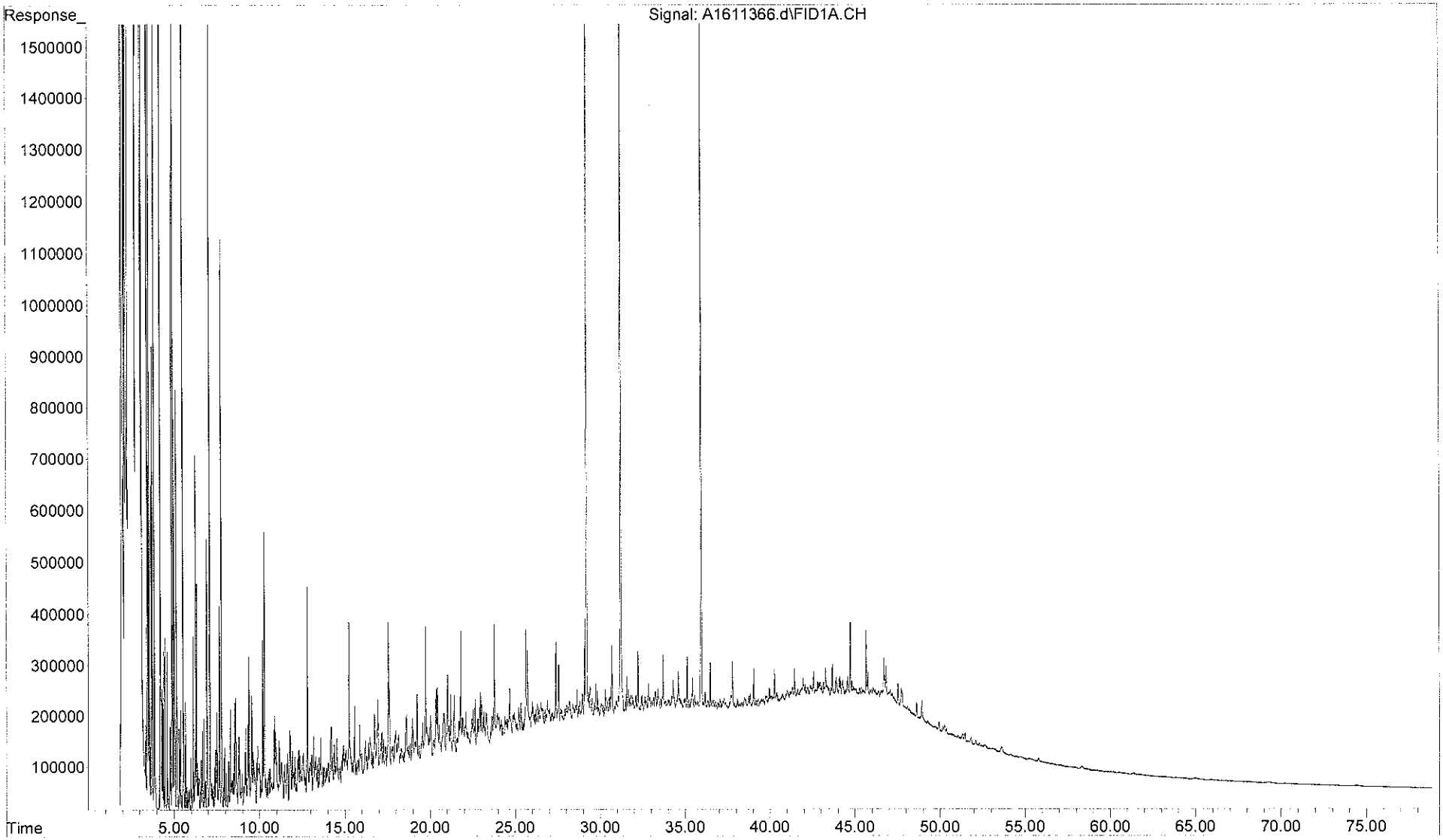
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	58.345	357241	0.318	ug/mL	M4
42) h	C9-C44 Total Petroleu...	41.094	5679279637	4932.074	ug/mL	M4
45) h	Total Resolved Hydroc...	41.094	770722036	669.321	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611366.d
Operator : JT
Acquired : 21 Jun 2012 3:06 am using AcqMethod FID16.M
Instrument : FID16
Sample : TO062112CL03
Misc Info : WHAP16
ALS Vial : 24



Form I
Western Canadian Select
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Western Canadian Select**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TO062112WCS03**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/21/12	100	0.10119	10	1	JT

Parameter	Result		Parameter	Result	
n-Nonane (C9)	**1720**		n-Docosane (C22)	**207**	
n-Decane (C10)	**1120**		n-Tricosane (C23)	**205**	
n-Undecane (C11)	**965**		n-Tetracosane (C24)	**189**	
n-Dodecane (C12)	**689**		n-Pentacosane (C25)	**237**	
n-Tridecane (C13)	**729**		n-Hexacosane (C26)	**154**	
2,6,10 Trimethyldodecane (1380)	**309**		n-Heptacosane (C27)	**141**	
n-Tetradecane (C14)	**710**		n-Octacosane (C28)	**100**	
2,6,10 Trimethyltridecane (1470)	**556**		n-Nonacosane (C29)	**75.7**	J
n-Pentadecane (C15)	**646**		n-Triacontane (C30)	**116**	
n-Hexadecane (C16)	**685**		n-Hentriacontane (C31)	**301**	
Norpristane (1650)	**277**		n-Dotriacontane (C32)	**53.8**	J
n-Heptadecane (C17)	**439**		n-Tritriacontane (C33)	**54.8**	J
Pristane	**578**		n-Tetratriacontane (C34)	98.8	U
n-Octadecane (C18)	**424**		n-Pentatriacontane (C35)	**87.6**	J
Phytane	**372**		n-Hexatriacontane (C36)	**28.5**	J
n-Nonadecane (C19)	**336**		n-Heptatriacontane (C37)	**37.6**	J
n-Eicosane (C20)	**242**		n-Octatriacontane (C38)	**56.5**	J
n-Heneicosane (C21)	**230**		n-Nonatriacontane (C39)	98.8	U
			n-Tetracontane (C40)	98.8	U
Total Petroleum Hydrocarbons (C9-C44)	**476000**				

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	110	40-125
d50-Tetracosane	100	40-125

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611364.d
Signal(s) : FID1A.CH
Acq On : 21 Jun 2012 1:27 am
Operator : JT
Sample : TO062112WCS03
Misc : WHAP15
ALS Vial : 23 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 12:50:54 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

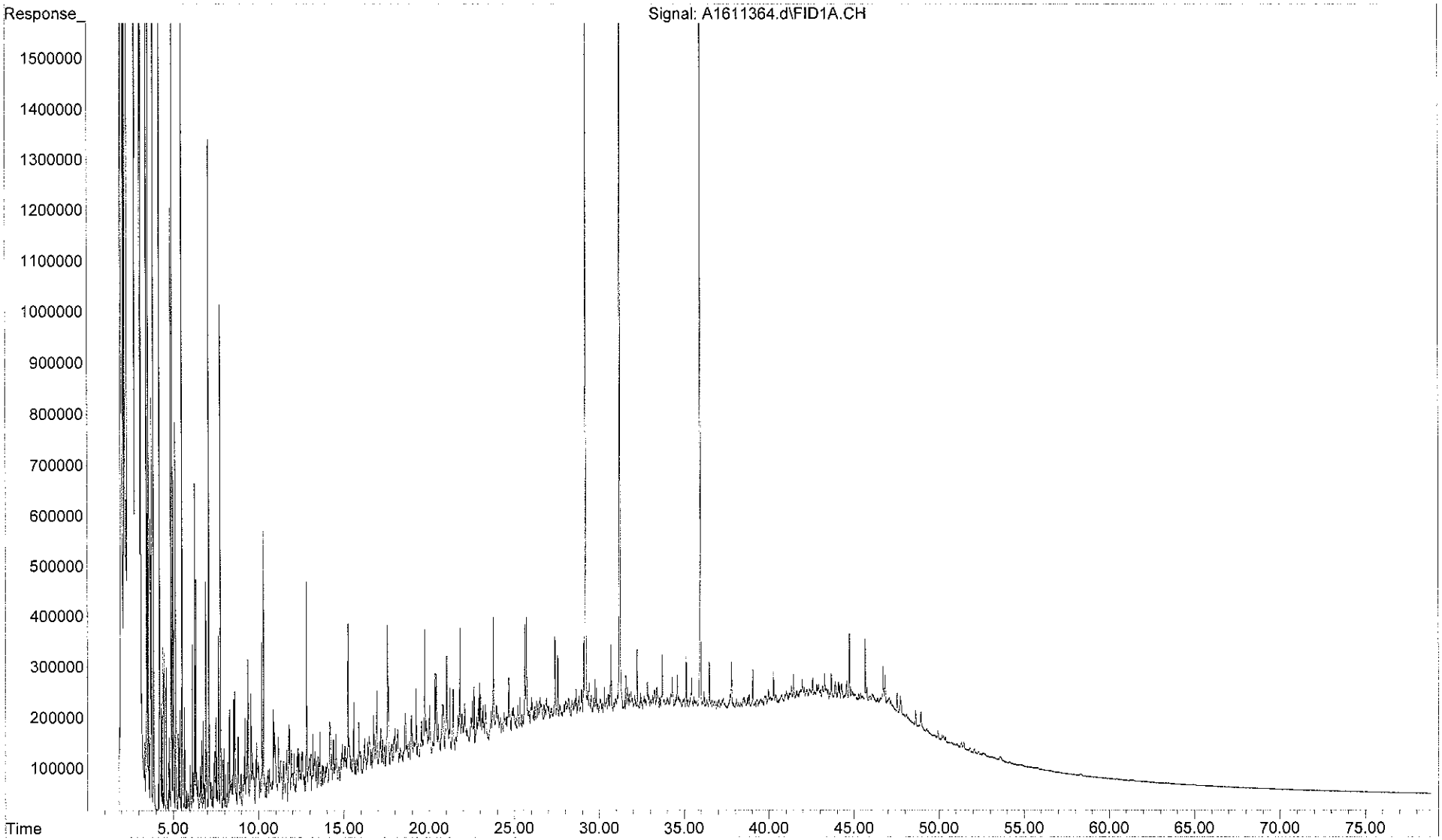
Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

6.27.12

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.233	57386907	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.218	62590620	54.841 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	109.68%
24) s	d50-Tetracosane	35.957	47703263	50.246 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	100.49%
	Target Compounds			
2) t	n-Octane (C8)	5.527	28235420	29.216 ug/mL M4
3) t	n-Nonane (C9)	7.773	16975233	17.402 ug/mL M4
4) t	n-Decane (C10)	10.287	11402762	11.316 ug/mL M4
5) t	n-Undecane (C11)	12.813	9857104	9.766 ug/mL M4
6) t	n-Dodecane (C12)	15.246	7143662	6.970 ug/mL M4
7) t	n-Tridecane (C13)	17.556	7581968	7.379 ug/mL M4
8) t	1380	19.242	3234931	3.125 ug/mL M4
9) t	n-Tetradecane (C14)	19.742	7441756	7.188 ug/mL M4
10) t	1470	21.032	5841415	5.629 ug/mL M4
11) t	n-Pentadecane (C15)	21.808	6784910	6.538 ug/mL M4
12) t	n-Hexadecane (C16)	23.768	7310822	6.933 ug/mL M4
13) t	1650	24.681	2942352	2.802 ug/mL M4
14) t	n-Heptadecane (C17)	25.628	4667235	4.445 ug/mL M4
15) t	Pristane	25.731	6249279	5.846 ug/mL M4
16) t	n-Octadecane (C18)	27.395	4597866	4.295 ug/mL M4
17) t	Phytane	27.562	3990614	3.769 ug/mL M4
18) t	n-Nonadecane (C19)	29.087	3647405	3.398 ug/mL M4
20) t	n-Eicosane (C20)	30.694	2644796	2.448 ug/mL M4
21) t	n-Heneicosane (C21)	32.232	2521303	2.326 ug/mL M4
22) t	n-Docosane (C22)	33.705	2283909	2.094 ug/mL M4
23) t	n-Tricosane (C23)	35.120	2301829	2.074 ug/mL M4
25) t	n-Tetracosane (C24)	36.482	2122288	1.912 ug/mL M4
26) t	n-Pentacosane (C25)	37.786	2678351	2.402 ug/mL M4
27) t	n-Hexacosane (C26)	39.049	1728404	1.559 ug/mL M4
28) t	n-Heptacosane (C27)	40.265	1560334	1.429 ug/mL M4
29) t	n-Octacosane (C28)	41.436	1122682	1.017 ug/mL M4
30) t	n-Nonacosane (C29)	42.572	844548	0.766 ug/mL M4
31) t	n-Triacontane (C30)	43.670	1293602	1.174 ug/mL M4
32) t	n-Hentriacontane (C31)	44.741	3361207	3.044 ug/mL M4
33) t	n-Dotriacontane (C32)	45.755	600168	0.544 ug/mL M4
34) t	n-Tritriacontane (C33)	46.755	591813	0.554 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.928	983969	0.886 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.277	327231	0.288 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.817	423758	0.381 ug/mL M4
39) t	n-Octatriacontane (C38)	53.613	633160	0.572 ug/mL M4
42) h	C9-C44 Total Petroleu...	41.094	5616166829	5224.195 ug/mL M4
45) h	Total Resolved Hydroc...	41.094	798727563	742.982 ug/mL m

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611364.d
Operator : JT
Acquired : 21 Jun 2012 1:27 am using AcqMethod FID16.M
Instrument : FID16
Sample : TO062112WCS03
Misc Info : WHAP15
ALS Vial : 23



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TO062112ANS02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	06/20/12	100	0.10058	10	1	JT

Parameter	Result	Parameter	Result
n-Nonane (C9)	6960	n-Docosane (C22)	2210
n-Decane (C10)	5650	n-Tricosane (C23)	1930
n-Undecane (C11)	5360	n-Tetracosane (C24)	1790
n-Dodecane (C12)	4890	n-Pentacosane (C25)	1720
n-Tridecane (C13)	4880	n-Hexacosane (C26)	1500
2,6,10 Trimethyldodecane (1380)	926	n-Heptacosane (C27)	1140
n-Tetradecane (C14)	4180	n-Octacosane (C28)	826
2,6,10 Trimethyltridecane (1470)	1640	n-Nonacosane (C29)	773
n-Pentadecane (C15)	4290	n-Triacontane (C30)	644
n-Hexadecane (C16)	3920	n-Hentriacontane (C31)	658
Norpristane (1650)	1130	n-Dotriacontane (C32)	401
n-Heptadecane (C17)	3590	n-Tritriacontane (C33)	347
Pristane	2370	n-Tetratriacontane (C34)	315
n-Octadecane (C18)	3120	n-Pentatriacontane (C35)	334
Phytane	1390	n-Hexatriacontane (C36)	168
n-Nonadecane (C19)	2630	n-Heptatriacontane (C37)	151
n-Eicosane (C20)	2570	n-Octatriacontane (C38)	147
n-Heneicosane (C21)	2280	n-Nonatriacontane (C39)	78.4 J
		n-Tetracontane (C40)	83.6 J
Total Petroleum Hydrocarbons (C9-C44)	617000		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611338.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 4:06 am
Operator : JT
Sample : TO062112ANS02
Misc : WHAP13
ALS Vial : 10 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 13:22:51 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.235	55716607	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.219	62844552	56.715 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 113.43%	
24) s	d50-Tetracosane	35.964	51473673	55.842 ug/mL M4
Spiked Amount	50.000 Range 50 - 130		Recovery = 111.68%	
	Target Compounds			
2) t	n-Octane (C8)	5.539	97391263	103.794 ug/mL M4
3) t	n-Nonane (C9)	7.788	66320443	70.025 ug/mL M4
4) t	n-Decane (C10)	10.304	55637493	56.868 ug/mL M4
5) t	n-Undecane (C11)	12.828	52873304	53.957 ug/mL M4
6) t	n-Dodecane (C12)	15.261	48967732	49.206 ug/mL M4
7) t	n-Tridecane (C13)	17.573	48953878	49.072 ug/mL M4
8) t	1380	19.247	9357293	9.309 ug/mL M4
9) t	n-Tetradecane (C14)	19.758	42230992	42.013 ug/mL M4
10) t	1470	21.041	16664788	16.539 ug/mL M4
11) t	n-Pentadecane (C15)	21.825	43501892	43.174 ug/mL M4
12) t	n-Hexadecane (C16)	23.783	40420045	39.478 ug/mL M4
13) t	1650	24.685	11574857	11.353 ug/mL M4
14) t	n-Heptadecane (C17)	25.643	36803185	36.099 ug/mL M4
15) t	Pristane	25.740	24778393	23.874 ug/mL M4
16) t	n-Octadecane (C18)	27.410	32583782	31.348 ug/mL M4
17) t	Phytane	27.567	14379526	13.988 ug/mL M4
18) t	n-Nonadecane (C19)	29.098	27614971	26.497 ug/mL M4
20) t	n-Eicosane (C20)	30.706	27098508	25.831 ug/mL M4
21) t	n-Heneicosane (C21)	32.244	24171992	22.969 ug/mL M4
22) t	n-Docosane (C22)	33.718	23538379	22.227 ug/mL M4
23) t	n-Tricosane (C23)	35.133	20905740	19.400 ug/mL M4
25) t	n-Tetracosane (C24)	36.493	19395095	17.999 ug/mL M4
26) t	n-Pentacosane (C25)	37.798	18675846	17.252 ug/mL M4
27) t	n-Hexacosane (C26)	39.058	16191588	15.041 ug/mL M4
28) t	n-Heptacosane (C27)	40.270	12174200	11.485 ug/mL M4
29) t	n-Octacosane (C28)	41.444	8906215	8.313 ug/mL M4
30) t	n-Nonacosane (C29)	42.573	8323872	7.772 ug/mL M4
31) t	n-Triacontane (C30)	43.670	6923577	6.474 ug/mL M4
32) t	n-Hentriacontane (C31)	44.733	7091397	6.614 ug/mL M4
33) t	n-Dotriacontane (C32)	45.758	4319084	4.035 ug/mL M4
34) t	n-Tritriacontane (C33)	46.755	3615439	3.487 ug/mL M4
35) t	n-tetratriacontane (C34)	47.778	3367866	3.170 ug/mL M4
36) t	n-Pentatriacontane (C35)	48.935	3619649	3.355 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.276	1863880	1.691 ug/mL M4
38) t	n-Heptatriacontane (C37)	51.817	1641399	1.520 ug/mL M4
39) t	n-Octatriacontane (C38)	53.638	1592128	1.481 ug/mL M4
40) t	n-Nonatriacontane (C39)	55.779	802486	0.789 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\
Data File : A1611338.d
Signal(s) : FID1A.CH
Acq On : 20 Jun 2012 4:06 am
Operator : JT
Sample : TO062112ANS02
Misc : WHAP13
ALS Vial : 10 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Jun 21 13:22:51 2012
Quant Method : O:\Forensics\Data\FID16\2012\JUN2012\JUN19\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Wed Jun 20 08:11:57 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

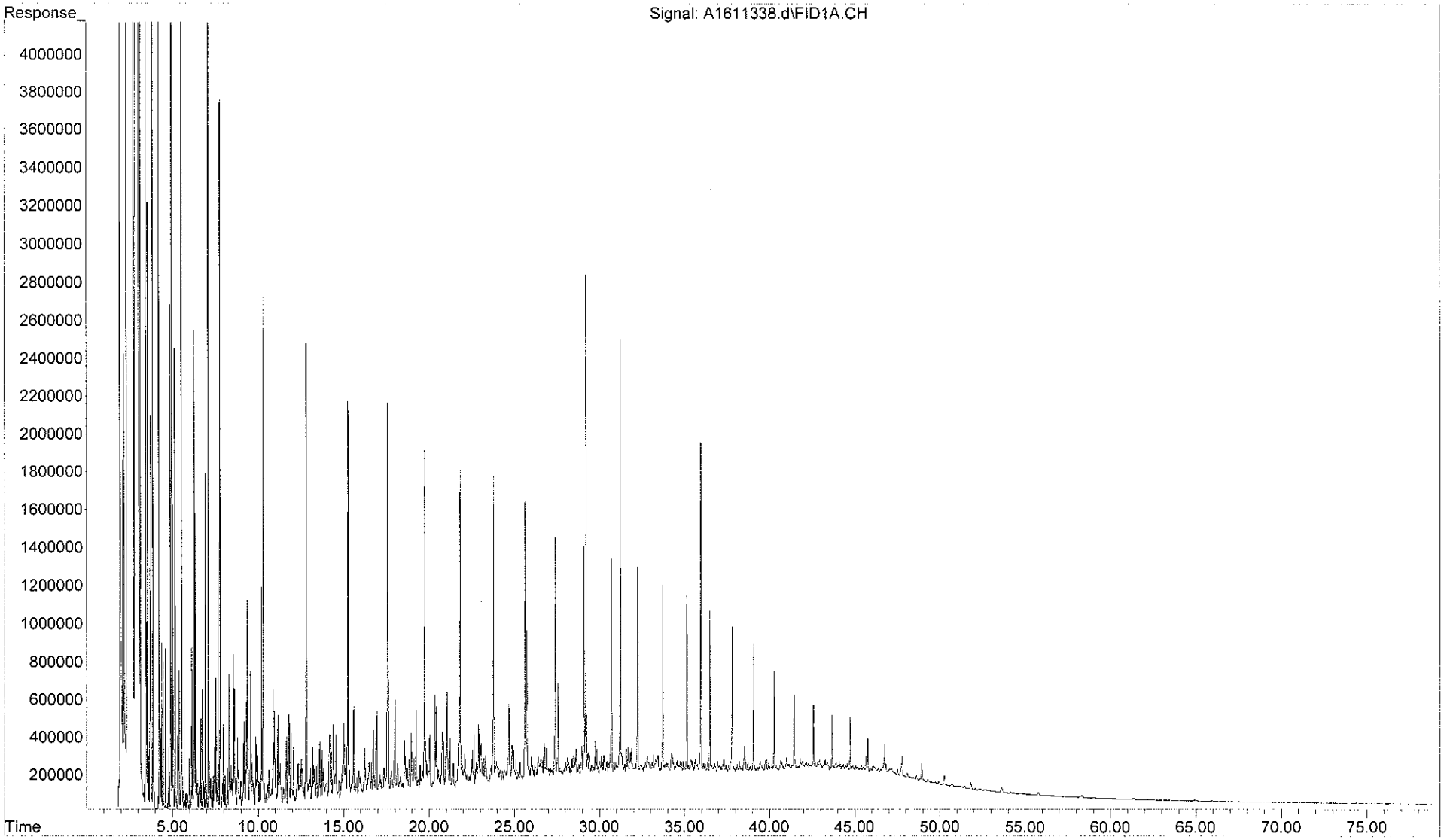
Sub List : SHC - SHC

	Compound	R.T.	Response	Conc	Units	
41) t	n-Tetracontane (C40)	58.307	855475	0.841	ug/mL	M4
42) h	C9-C44 Total Petroleu...	41.094	6963272286	6671.461	ug/mL	M5
45) h	Total Resolved Hydroc...	41.094	2155491422	2065.161	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\Forensics\Data\FID16\2012\JUN2012\JUN19\A1611338.d
Operator : JT
Acquired : 20 Jun 2012 4:06 am using AcqMethod FID16.M
Instrument : FID16
Sample : TO062112ANS02
Misc Info : WHAP13
ALS Vial : 10



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **AECOM**
Project: **Enbridge Line 6B MP 608**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **1206028**
Lab ID: **TW040212ANS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/29/12	100	0.10036	10	1	BAL

Parameter	Result	Parameter	Result
n-Nonane (C9)	**5840**	n-Docosane (C22)	**1870**
n-Decane (C10)	**4750**	n-Tricosane (C23)	**1610**
n-Undecane (C11)	**4390**	n-Tetracosane (C24)	**1500**
n-Dodecane (C12)	**3930**	n-Pentacosane (C25)	**1540**
n-Tridecane (C13)	**3980**	n-Hexacosane (C26)	**1290**
2,6,10 Trimethyldodecane (1380)	**799**	n-Heptacosane (C27)	**995**
n-Tetradecane (C14)	**3500**	n-Octacosane (C28)	**723**
2,6,10 Trimethyltridecane (1470)	**1290**	n-Nonacosane (C29)	**672**
n-Pentadecane (C15)	**3420**	n-Triacontane (C30)	**610**
n-Hexadecane (C16)	**3210**	n-Hentriacontane (C31)	**551**
Norpristane (1650)	**943**	n-Dotriacontane (C32)	**373**
n-Heptadecane (C17)	**2890**	n-Tritriacontane (C33)	**420**
Pristane	**1980**	n-Tetratriacontane (C34)	**382**
n-Octadecane (C18)	**2580**	n-Pentatriacontane (C35)	**299**
Phytane	**1150**	n-Hexatriacontane (C36)	**154**
n-Nonadecane (C19)	**2130**	n-Heptatriacontane (C37)	**147**
n-Eicosane (C20)	**2220**	n-Octatriacontane (C38)	**138**
n-Heneicosane (C21)	**1910**	n-Nonatriacontane (C39)	**89.5** J
		n-Tetracontane (C40)	**96.0** J
Total Petroleum Hydrocarbons (C9-C44)	**512000**		

N/A - Not Applicable
J - Estimated value, below quantitation limit.

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609900.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 3:59 am
Operator : BAL
Sample : TW040212ANS01
Misc : WHAM98
ALS Vial : 13 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 02 13:48:34 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Mon Apr 02 13:25:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

Sub List : SHC - SHC

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	31.383	70015322	50.000 ug/mL M4
	System Monitoring Compounds			
19) s	ortho-terphenyl	29.366	65556393	47.080 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	94.16%
24) s	d50-Tetracosane	36.100	55675599	48.066 ug/mL M4
Spiked Amount	50.000 Range	50 - 130	Recovery =	96.13%
	Target Compounds			
2) t	n-Octane (C8)	5.635	94984002	80.555 ug/mL M4
3) t	n-Nonane (C9)	7.897	69811590	58.657 ug/mL M4
4) t	n-Decane (C10)	10.415	58556452	47.629 ug/mL M4
5) t	n-Undecane (C11)	12.944	54273539	44.075 ug/mL M4
6) t	n-Dodecane (C12)	15.379	49310116	39.431 ug/mL M4
7) t	n-Tridecane (C13)	17.693	50124870	39.984 ug/mL M4
8) t	1380	19.371	10130778	8.020 ug/mL M4
9) t	n-Tetradecane (C14)	19.880	44398309	35.149 ug/mL M4
10) t	1470	21.168	16348938	12.912 ug/mL M4
11) t	n-Pentadecane (C15)	21.948	43482902	34.342 ug/mL M4
12) t	n-Hexadecane (C16)	23.907	41401909	32.179 ug/mL M4
13) t	1650	24.815	12126114	9.465 ug/mL M4
14) t	n-Heptadecane (C17)	25.768	37163072	29.008 ug/mL M4
15) t	Pristane	25.868	25884393	19.846 ug/mL M4
16) t	n-Octadecane (C18)	27.537	33810985	25.885 ug/mL M4
17) t	Phytane	27.699	14868872	11.510 ug/mL M4
18) t	n-Nonadecane (C19)	29.228	27948603	21.341 ug/mL M4
20) t	n-Eicosane (C20)	30.838	29400622	22.302 ug/mL M4
21) t	n-Heneicosane (C21)	32.376	25347452	19.167 ug/mL M4
22) t	n-Docosane (C22)	33.855	24956688	18.754 ug/mL M4
23) t	n-Tricosane (C23)	35.271	21908530	16.179 ug/mL M4
25) t	n-Tetracosane (C24)	36.631	20397420	15.064 ug/mL M4
26) t	n-Pentacosane (C25)	37.939	21088654	15.502 ug/mL M4
27) t	n-Hexacosane (C26)	39.201	17558289	12.979 ug/mL M4
28) t	n-Heptacosane (C27)	40.416	13302693	9.986 ug/mL M4
29) t	n-Octacosane (C28)	41.586	9770285	7.257 ug/mL M4
30) t	n-Nonacosane (C29)	42.723	9079330	6.746 ug/mL M4
31) t	n-Triacontane (C30)	43.820	8231262	6.125 ug/mL M4
32) t	n-Hentriacontane (C31)	44.886	7445158	5.526 ug/mL M4
33) t	n-Dotriacontane (C32)	45.911	5033084	3.742 ug/mL M4
34) t	n-Tritriacontane (C33)	46.910	5488830	4.212 ug/mL M4
35) t	n-tetratriacontane (C34)	47.957	5123641	3.838 ug/mL M4
36) t	n-Pentatriacontane (C35)	49.148	4071637	3.003 ug/mL M4
37) t	n-Hexatriacontane (C36)	50.515	2143072	1.548 ug/mL M4
38) t	n-Heptatriacontane (C37)	52.105	2001317	1.475 ug/mL M4

Quantitation Report (QT Reviewed)

Data Path : O:\Forensics\Data\FID16\2012\MAR2012\MAR28\
Data File : A1609900.d
Signal(s) : FID1A.CH
Acq On : 29 Mar 2012 3:59 am
Operator : BAL
Sample : TW040212ANS01
Misc : WHAM98
ALS Vial : 13 Sample Multiplier: 1

Integration File: SHCINT2.E
Quant Time: Apr 02 13:48:34 2012
Quant Method : O:\Forensics\Methods\FID16\HC16032812F.M
Quant Title : FID Forensics
QLast Update : Mon Apr 02 13:25:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

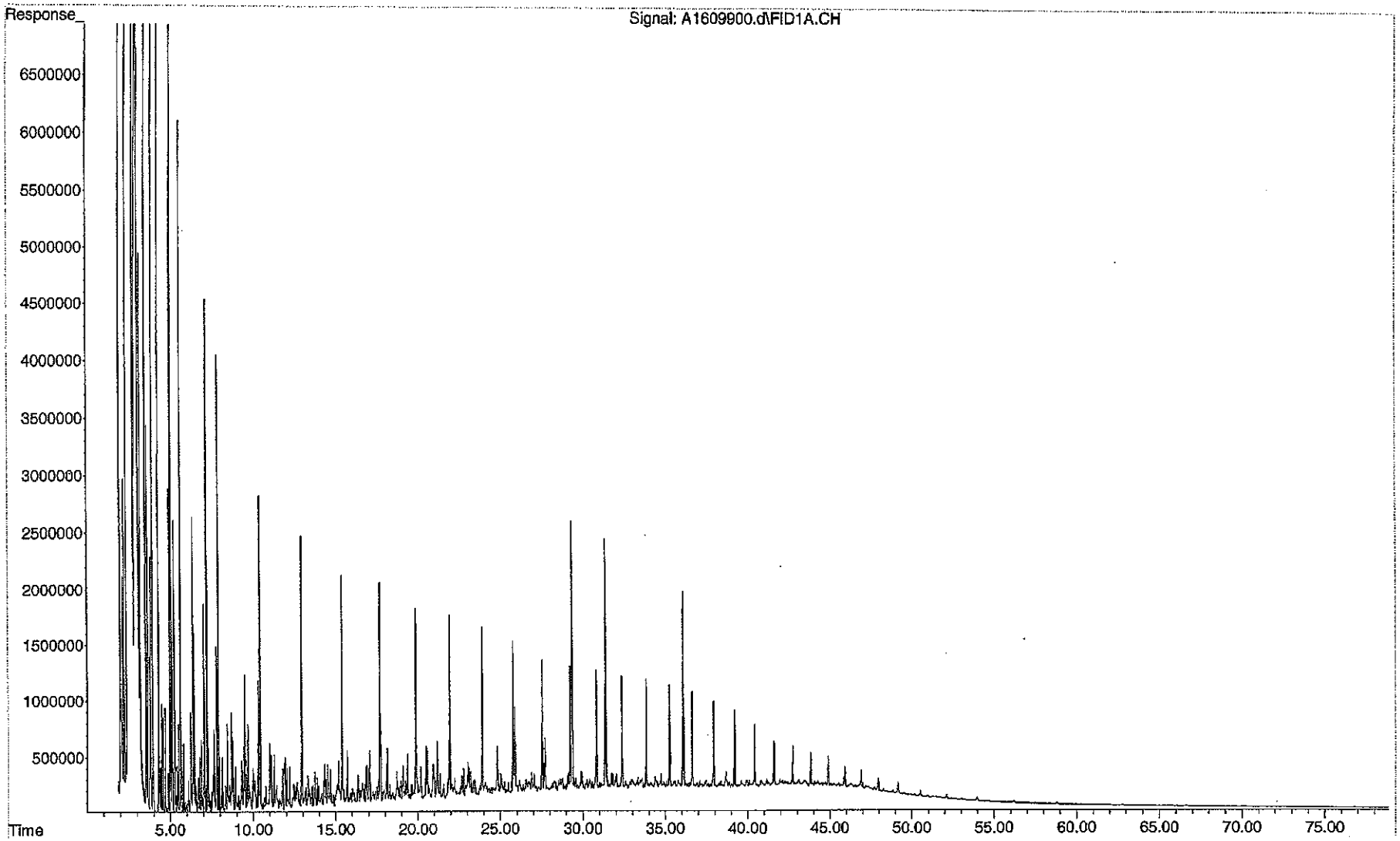
Sub List : SHC - SHC

		Compound	R.T.	Response	Conc	Units	
39)	t	n-Octatriacontane (C38)	53.965	1872048	1.386	ug/mL	M4
40)	t	n-Nonatriacontane (C39)	56.184	1147873	0.898	ug/mL	M4
41)	t	n-Tetracontane (C40)	58.803	1232017	0.963	ug/mL	M4
42)	h	C9-C44 Total Petroleu...	41.646	6936596405	5288.659	ug/mL	M4
44)	h	Total Resolved Hydroc...	41.645	2132570069	1625.932	ug/mL	m

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

File :O:\FORENSICS\DATA\FID16\2012\MAR2012\MAR28\A1609900.d
Operator : BAL
Acquired : 29 Mar 2012 3:59 am using AcqMethod FID16.M
Instrument : FID16
Sample : TW040212ANS01
Misc Info : WHAM98
ALS Vial : 13



Alpha Woods Hole Lab
Batch Prep Report

06/20/2012 1206028 - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed Date	TCLP	Initial Amount (g or ml)	Split	PIV (ml)	Final Volume (ml)	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume (ml)	Vialed By	Vialed Date
1206028-01	SAM	Shaker	BA	6/20/2012	6/20/2012		1	4.44	1	4.44	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
1206028-02	SAM	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012B01	B	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012LCS01	LCS	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012
SO062012LCSD01	LCSD	Shaker	BA	6/20/2012	6/20/2012		1	2	1	2	False	BA	6/20/2012	KD Flask	0.1	BA	6/20/2012

Alpha Woods Hole Lab
Batch Prep Report

06/20/2012 1206028 - OP SHC

Lab ID	Notes
1206028-01	1st Prep
1206028-02	1st Prep
SO062012B01	1st Prep
SO062012LCS01	1st Prep
SO062012LCSD01	1st Prep

Alpha Woods Hole Lab
Batch Prep Spike Report

06/20/2012 1206028 - OP NEWFIE Analyst: BA Witness: NAR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
1206028-01	SAM	WHAP72	100	µl				WHAP57	100	µl
1206028-02	SAM	WHAP72	100	µl				WHAP57	100	µl
SO062012B01	B	WHAP72	100	µl				WHAP57	100	µl
SO062012LCS01	LCS	WHAP72	100	µl	WHAP71	100	µl	WHAP57	100	µl
SO062012LCSD01	LCSD	WHAP72	100	µl	WHAP71	100	µl	WHAP57	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP57	Biomarker Surrogate	5b(H) Cholane = 10 ug/mL	DCM	L08E15
WHAP72	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	K51E15
WHAP71	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K51E15

Alpha Woods Hole Lab
Batch Prep Spike Report

06/20/2012 1206028 - OP SHC Analyst: BA Witness: NAR

Lab ID	QC Type	OP SHC - surr	Vol OP SHC - surr	Units OP SHC - surr	OP SHC - spk 1	Vol OP SHC - spk 1	Units OP SHC - spk 1	OP SHC - spk 2	Vol OP SHC - spk 2	Units OP SHC - spk 2
1206028-01	SAM	WHAP72	100	µl				WHAP68	100	µl
1206028-02	SAM	WHAP72	100	µl				WHAP68	100	µl
SO062012B01	B	WHAP72	100	µl				WHAP68	100	µl
SO062012LCS01	LCS	WHAP72	100	µl	WHAP71	100	µl	WHAP68	100	µl
SO062012LCSD01	LCSD	WHAP72	100	µl	WHAP71	100	µl	WHAP68	100	µl

STD ID	TITLE	CONTENTS	SOLVENT	LOT
WHAP68	PAH/SHC RIS Spiking Solution	5 Alpha Androstane = 500 ug/mL Acenaphthene-d10, Chrysene-d12 = 5 ug/mL	DCM	L011E21
WHAP72	Surrogate PAH/SHC Solution	Custom Deuterated PAH Surrogate = 10 ug/mL n-Tetracosane = 501.6 ug/mL OTP Stock Solution = 500 ug/mL	DCM	K51E15
WHAP71	PAH/SHC LCS Spike Solution	Aromatic Hydrocarbon Std (for LCS) = 10 ug/mL MA EPH Aliphatic Hydrocarbon = 200 ug/mL	DCM	K51E15

Alpha Woods Hole Lab
Batch Weight Report

06/20/2012

Total extract oil weight. BA 6/20/12

Lab ID	QC Type	1206028 - Sample
1206028-01	SAM	0.0184
1206028-02	SAM	0.00024
SO062012B01	B	0.009
SO062012LCS01LCS	OP NEWFIE	0.009
SO062012LCS01LCS	OP SHC	0.009
SO062012LCS01LCS	OP Steranes/Triterpanes	0.009
SO062012LCSD01LCSD	OP NEWFIE	0.009
SO062012LCSD01LCSD	OP SHC	0.009
SO062012LCSD01LCSD	OP Steranes/Triterpanes	0.009

ETR 1206028

Analyst BA

Date 06/20/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.251	50.20	N/A	N/A	N/A	98%
1206028	1		4000	50	0.230	18.40	900	4.14	4.44	
1206028	2		4000	50	0.003	0.24	2000	0.12	2.00	

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: RA

Date: 6/20/12

ETR 1206028

Analyst BA

Date 06/20/2012

Alpha Analytical

- ☐ Pre-Alumina
- ☐ Post-Alumina
- ☐ Pre-Silica
- ☑ Oily Material Prep.
- ☐ Other

ETR	Lab ID	QC	Extract Volume (µL)	Aliquot Removed (µL)	Aliquot Weight (mg)	Total Extract Weight (mg)	Volume Removed for Column (µl)	Extract Weight to Column (mg)	Split Factor	QC (%R)
	WHAP64	Gravimetric Standard	10000	50	0.251		N/A	N/A	N/A	0%
1206028	1		4000	↓	0.230					
1206028	2		4000	↓	0.003					

Note:

Total Extract Weight (mg) = (Extract Volume ÷ Aliquot Removed) (Aliquot Weight)

Gravimetric Standard = 5 mg/mL

LCS Acceptance Criteria: 95% - 105%

Verified by: BA

Date: 6/26/12

Forensic Preparation Checklist

Batch ID: 1206028 Client: AECOM Project: ENBridge Line 6B MP608

Test(s) Spiked for:
Choose from the following:
F1B, POIB, POIH, POIHX, POITAS, TPH+A

Identify Matrix:
Filter • Filter (L) • NAPL • Net • Oil Product • PUF • Sediment • Sheen Soil • Solid • SPMD • Tissue 1L Water • 4L Water • Floc Water

	Date:	Initials:
COC/ETR Check:	6/20/12	RA
1st Extraction:		
2nd Extraction:		
3rd Extraction:		

Extraction HT:
N/A

Cleanup Methods:		Date/Initials:
No Cleanup Required	X	RA 6/20/12
Alumina Column (3610)		
Silica Column (3630)		
Fractionation Column (3630F1)		
GPC (3640)		
Copper (3660B)		
Water pH<2 verified		

	Date/Initials:	ID & Amount:
RIS Spike Analyst:	6/20/12 RA	WHAP68 100uL
RIS Spike Witness:	PW 6/20/12	

Prep Process Notes

REAGENT	LOT #
DCM	L14E25
SODIUM SULFATE	K33598
SILICA GEL	N/A
ALUMINA	N/A

REAGENT	LOT #
COPPER	N/A
GLASS WOOL	19711999

BATCH COMPLETE Analyst:	RA	Date:	6/20/12
BATCH REVIEWED Analyst:	BLS	Date:	6/21/12

Analysis log File

6/4.2.12

Total Files Reported in Log : 17
Log Generated From Directory: O:\Forensics\Data\FID16\2012\MAR2012\MAR28\

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A1609876.d	DCM	DCM	3/28/2012 9:37 am
2	A1609878.d	C1603281201F	WHAP26	3/28/2012 11:09 am
3	A1609880.d	DCM	DCM	3/28/2012 12:41 pm
4	A1609882.d	IB1603281201F	DCM	3/28/2012 2:12 pm
5	A1609884.d	I1603281201F	WHAO93	3/28/2012 3:44 pm
6	A1609886.d	I1603281202F	WHAO94	3/28/2012 5:16 pm
7	A1609888.d	I1603281203F	WHAP26	3/28/2012 6:47 pm
8	A1609890.d	I1603281204F	WHAO95	3/28/2012 8:19 pm
9	A1609892.d	I1603281205F	WHAO96	3/28/2012 9:51 pm
10	A1609894.d	I1603281206F	WHAO97	3/28/2012 11:23 pm
11	A1609896.d	DCM	DCM	3/29/2012 12:55 am
12	A1609898.d	CQ1603281207F	WHAO98	3/29/2012 2:27 am
13	A1609900.d	TW040212ANS01	WHAM98	3/29/2012 3:59 am
14	A1609902.d	TW040212MC202	WHAP35	3/29/2012 5:31 am
15	A1609904.d	C1603281202F	WHAP26	3/29/2012 7:03 am
16	A1609906.d	DCM	DCM	3/29/2012 8:35 am
17	A1609908.d	IB1603281202F	DCM	3/29/2012 10:08 am

ICAL files for method HC160328126.M

CQ1603281207F - ICV ✓PASS
TW040212ANS01 - ANS ✓PASS
TW040212MC202 - MC252 ✓PASS
IB1603281202F - IB for ANS + MC252

processing method: HC160328126.M

Printed: 04/02/12

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Analysis log File

Total Files Reported in Log : 28
Log Generated From Directory: O:\Forensics\Data\FID16\2012\JUN2012\JUN19\SREV\

6.21.12

No.	DATA FILE	SAMPLE NAME	MISC	DATE INJ'D
1	A1611320.d	DCM	1X	6/19/2012 1:37 pm
2	A1611322.d	C1606191201F	WHAP85	6/19/2012 3:14 pm
3	A1611324.d	DCM	DCM	6/19/2012 4:50 pm
4	A1611326.d	IB1606191201F	DCM	6/19/2012 6:25 pm
5	A1611328.d	SS061812B05	1X	6/19/2012 8:01 pm
6	A1611330.d	SS061812LCS04	1X	6/19/2012 9:36 pm
7	A1611332.d	SS061812LCSD04	1X	6/19/2012 11:12 pm
8	A1611334.d	IB1606191202F	DCM	6/20/2012 12:50 am
9	A1611336.d	1206018-21	1X	6/20/2012 2:28 am
10	A1611338.d	TO062112ANS02	WHAP13	6/20/2012 4:06 am
11	A1611340.d	C1606181202F	WHAP85	6/20/2012 5:44 am
12	A1611342.d	DCM	DCM	6/20/2012 7:20 am
13	A1611344.d	IB1606191203F	DCM	6/20/2012 8:58 am
14	A1611346.d	SO062012B01	1X	6/20/2012 10:37 am
15	A1611348.d	SO062012LCS01	1X	6/20/2012 12:17 pm
16	A1611350.d	SO062012LCSD01	1X	6/20/2012 1:59 pm
17	A1611352.d	IB1606191204F	DCM	6/20/2012 3:39 pm
18	A1611354.d	1206028-01	1X	6/20/2012 5:19 pm
19	A1611356.d	1206028-02	1X	6/20/2012 6:57 pm
20	A1611358.d	C1606191203F	WHAP85	6/20/2012 8:35 pm
21	A1611360.d	DCM	DCM	6/20/2012 10:12 pm
22	A1611362.d	IB1606191205F	DCM	6/20/2012 11:49 pm
23	A1611364.d	TO062112WCS03	WHAP15	6/21/2012 1:27 am
24	A1611366.d	TO062112CL03	WHAP16	6/21/2012 3:06 am
25	A1611368.d	DCM	DCM	6/21/2012 4:44 am
26	A1611370.d	C1606191204F	WHAP85	6/21/2012 6:21 am
27	A1611372.d	DCM	DCM	6/21/2012 7:58 am
28	A1611374.d	IB1606191206F	DCM	6/21/2012 9:36 am

METHOD: HC1603281Cf.m

Printed: 06/21/12

CCV = WHAP 85 50 ug/ml

SeqLog 1.0.0.1 - (c) 2009 Abacus Database Applications

Chain of Custody Records

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA TIDAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: 1206028

Client Information

Client: Enbridge

Address: 1601 Pratt Ave
Marshall MI

Phone: 616 97ϕ 97ϕϕ

Fax:

Email: John.Bohrman@enbridge.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Enbridge - Fingerprint

Project Location: Marshall MI

Project #: 6ϕ2462ϕ9

Project Manager: Dave Breham

ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: Misc

Task 1.ϕϕ

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE

MS/MSD (at unit cost) will be omitted unless you check here: ☐

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis: Extended PAH's	Biomarkers	SHC / TEH	Total # Bottles	Sample Specific Comments
-1	SWKR38ϕϕCϕϕ1Sϕ61512HX	6-15-12	1325	sheen	JHS	X	X	X		
-2	SWKR38ϕϕCϕϕ1Tϕ61512HX	6-15-12	—	sheen	JHS	X	X	X		

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	
Preservative	None

Relinquished By:	Date/Time	Received By:	Date/Time
	ϕ6-15-12 1555		ϕ6-15-12 1555
	ϕ6-15-12 1555	FedEx Shipping	ϕ6-15-12 1555
FED EX	6/18/12 0945		6/18/12 0945

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Sample Delivery Group Form

Laboratory Job No: 1206028 **Client:** AECOM

Receipt Date/Time: 6/18/12 **SDG Reviewer:** MW

Samples Delivered By:

[ ] Alpha Courier [ ] Client [ ] UPS [X] FedEx [ ] Other

Bill of Laden: [X] Yes [ ] Unavailable Tracking #: Attached 8762 5964 8370

Chain of Custody: [X] Present [ ] Absent:

Custody Seals: [ ] Absent [X] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:

Is Ice/Blue Ice present? [X] Yes [ ] No [ ] N/A

Temp taken from: Temp Blank:(a) 5.5° (b)____ (c)____ (d)____ (e)____

IR Gun: (a) 5.4° (b)____ (c)____ (d)____ (e)____

IR Gun SN (circle one): 090512810 (100311463)

Was Temp: [X] 2-6 Celsius

[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No

[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [X] Intact

[ ] Broken/Leaking Sample IDs:____

Sample IDs:____

All Containers Accounted For? [X] Yes

[ ] No:____

Extra Samples Received? [X] No

[ ] Yes:____

Do Sample Labels and COC agree? [X] Yes

[ ] No:____

Are Samples in Appropriate Containers? [X] Yes

[ ] No:____

Are samples rec'd within holding time? [X] Yes

[ ] No:____

* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [X] N/A [ ] <2 [ ] >12 and/or [ ]____

Are samples properly preserved? [ ] Yes [ ] No If No then.....

Initial pH= ____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 [ ] NAOH <<Final pH = ____>>

Other Issues:____

Chlorine Check: [ ] N/A [ ] Present [ ] Absent

VOA/VPH vials: [ ] Yes [X] No Preserved? [ ] Yes [ ] No If yes: [ ] HCL, [ ]____

Aqueous: vials contain head space? [ ] No [ ] Yes :____

Soils: MeOH covering soil? [ ] Yes [ ] No :____

Reagent H_2O Preserved vials Frozen @ date/time:____

Frozen by Client? [ ] No [ ] Yes @ date/time:____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [X] N/A

If Yes: Call Tracker #____

FedEx Express **NEW Package US Airbill**

FedEx Tracking Number: 8762 5964 8370

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date: 6/15/12 Sender's FedEx Account Number: 2138-5929-3

Sender's Name: April Modert Phone: 517 227-4710

Company: Superior Environmental Corp

Address: 1680 Marquette Ave. Dept./Floor/Suite/Room:

City: Bay City State: MI ZIP: 48706-4178

2 Your Internal Billing Reference BC3279 TASK 1.00

3 To

Recipient's Name: Sue O'Neil Phone: 508 844-4117

Company: Alpha Woods Hole Labs

Address: 320 Forbes BLVD Dept./Floor/Suite/Room:

We cannot deliver to P.O. boxes or P.O. ZIP codes.

01 ☐ HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

31 ☐ HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address: Use this line for the HOLD location address or for continuation of your shipping address.

City: Mansfield State: MA ZIP: 02048

8762 5964 8370

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs. *For packages over 150 lbs., use the new FedEx Express Freight US Airbill.*

Next Business Day

06 ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

49 ☐ NEW FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☐ FedEx Tube 01 ☒ Other

6 Special Handling and Delivery Signature Options

03 ☒ **SATURDAY DELIVERY**

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods? One box must be checked.

☒ No

04 ☐ Yes — As per attached Shipper's Declaration.

☐ Yes — Shipper's Declaration not required.

06 ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

1 ☐ Sender Acct. No. in Section 1 will be billed

2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

Total Packages: 1 Total Weight: 15 lbs. Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

612

Rev. Date 11/10 • Part #163136 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRY

fedex.com 1.800.GoFedEx 1.800.463.3339

TRK# 8762 5964 8370 0200

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-15-12 Time: 1600

Name: Jon Shut

Company: ACOM

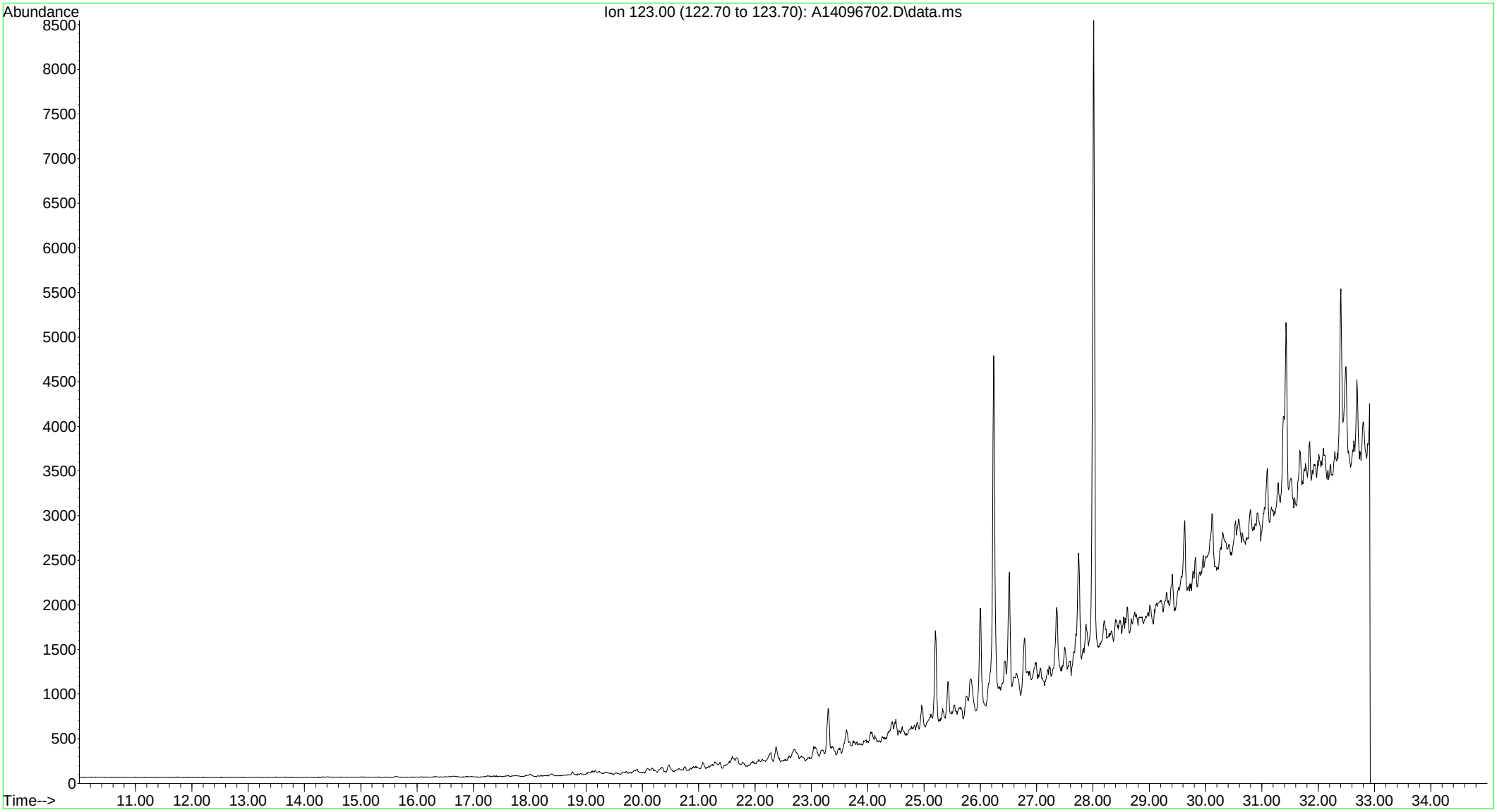
Seal Broken By:

Date:

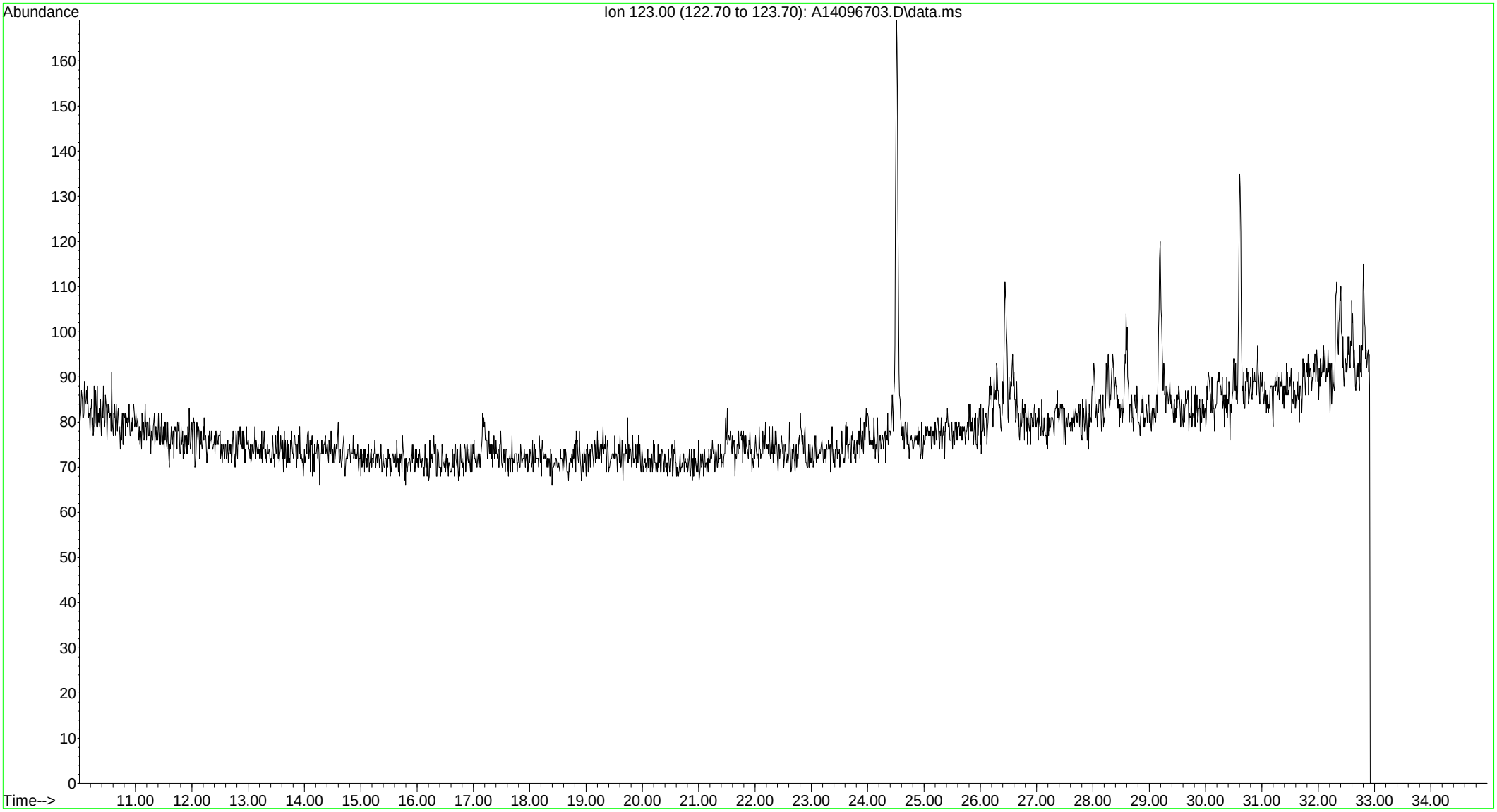
EIP

Ion 123

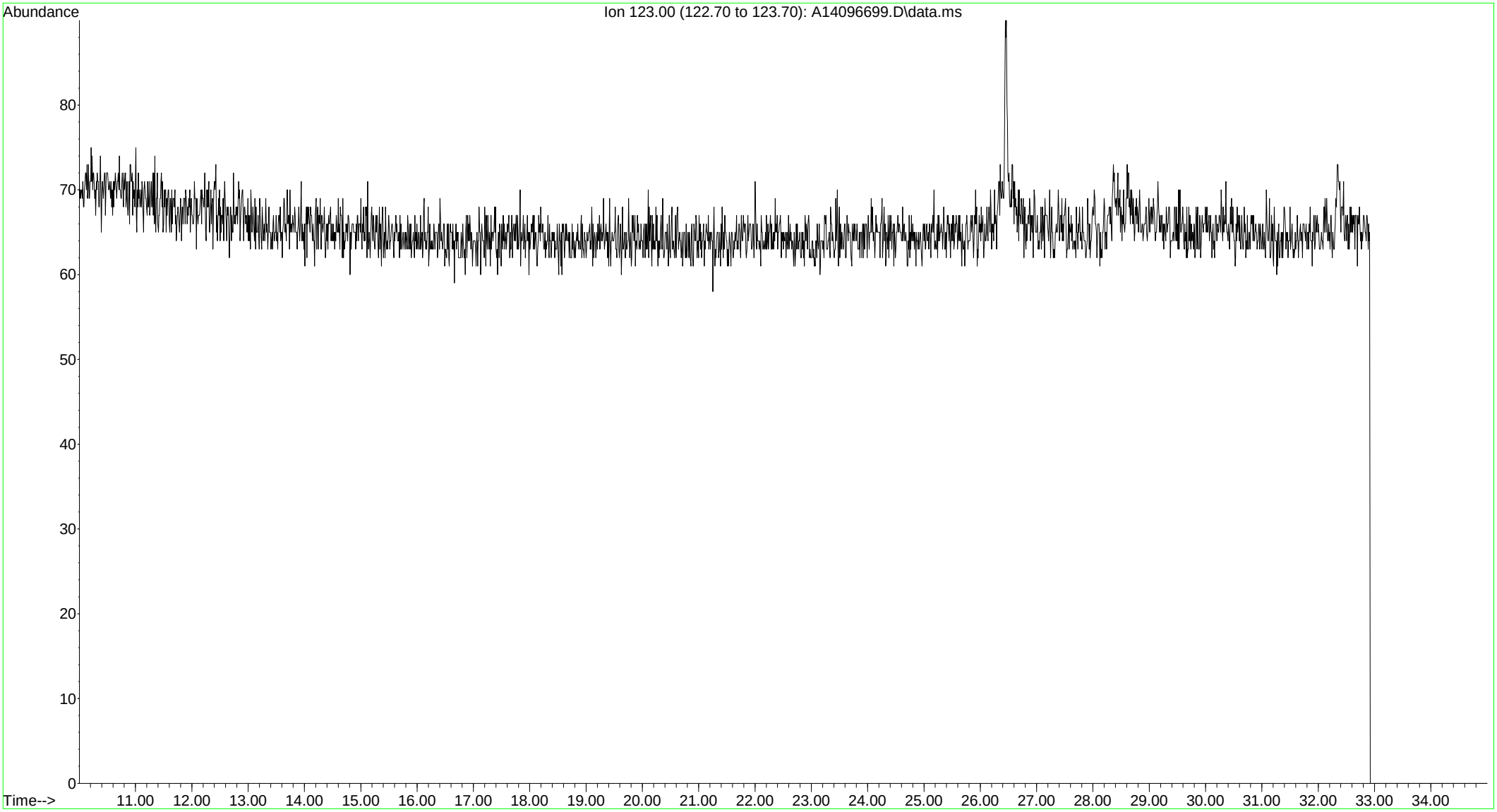
File :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096702.D
Operator : AC
Acquired : 21 Jun 2012 2:06 pm using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : 1206028-01
Misc Info : 1X
ALS Vial : 28



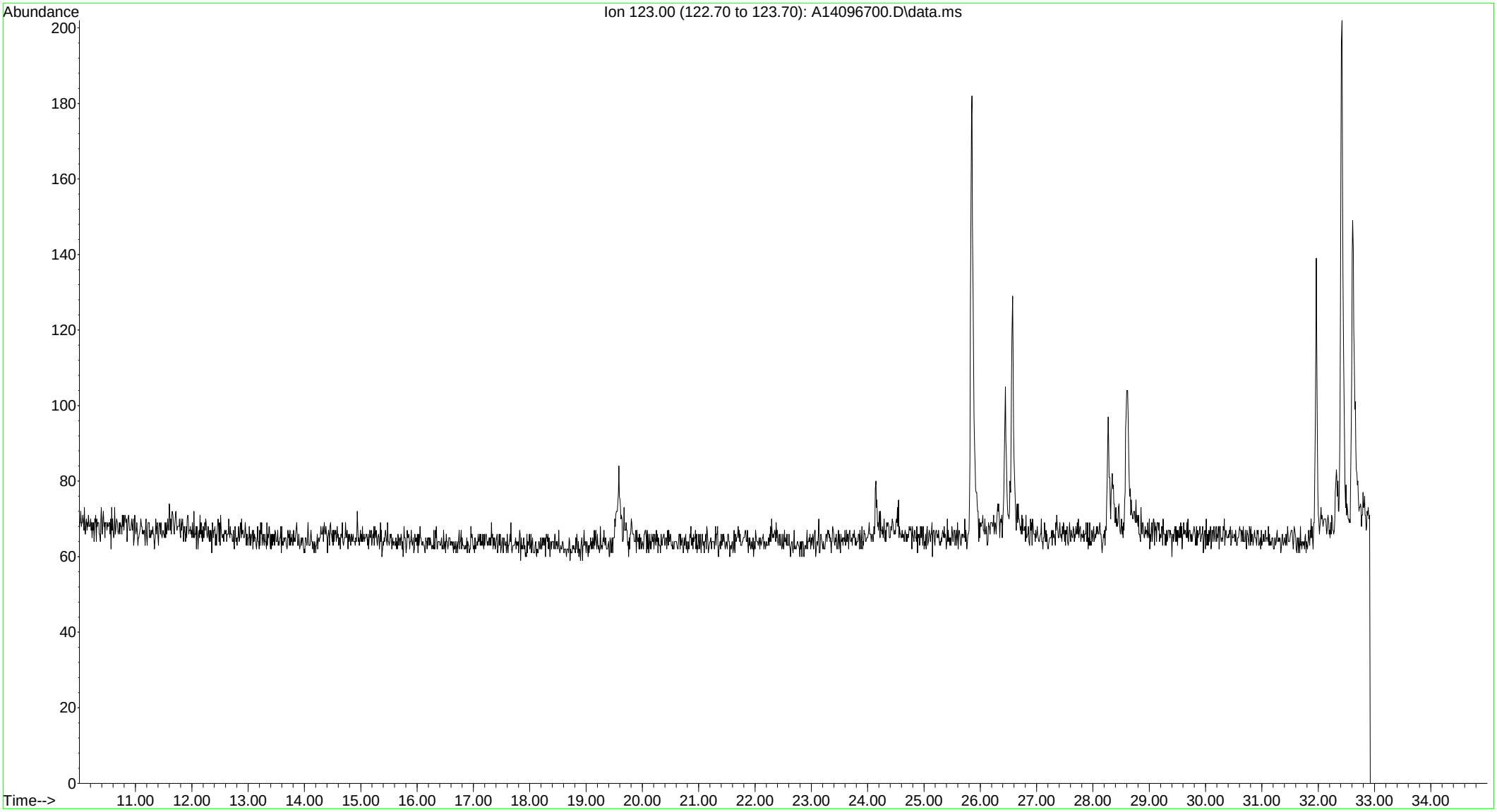
File :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096703.D
Operator : AC
Acquired : 21 Jun 2012 3:33 pm using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : 1206028-02
Misc Info : 1X
ALS Vial : 29



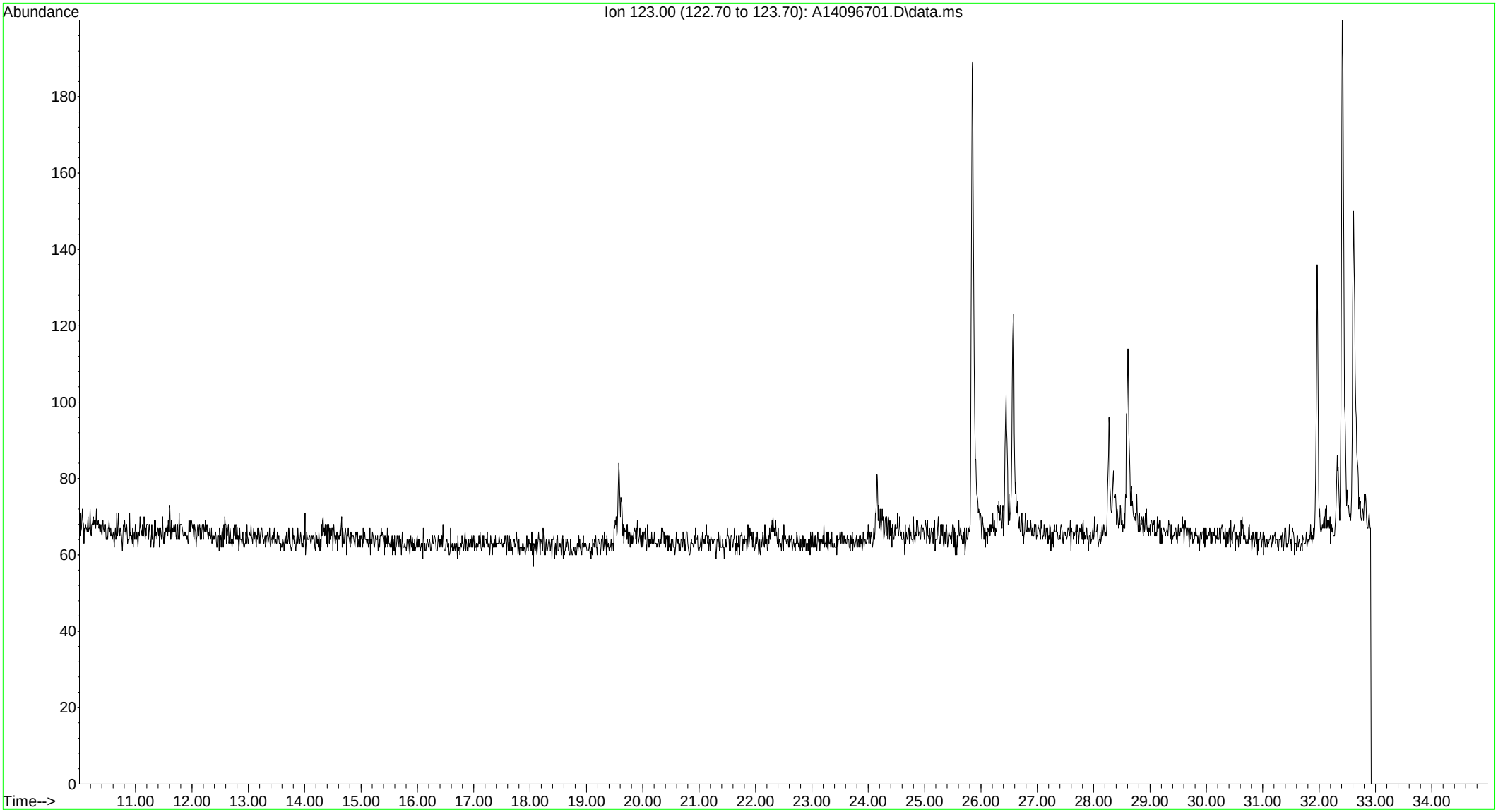
File   :O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\A14096699.D
Operator : AC
Acquired : 21 Jun 2012   9:47 am using AcqMethod FRNC14A.M
Instrument :   PAH 14
Sample   : SO062012B01
Misc Info : 1X ETR1206028
ALS Vial : 25



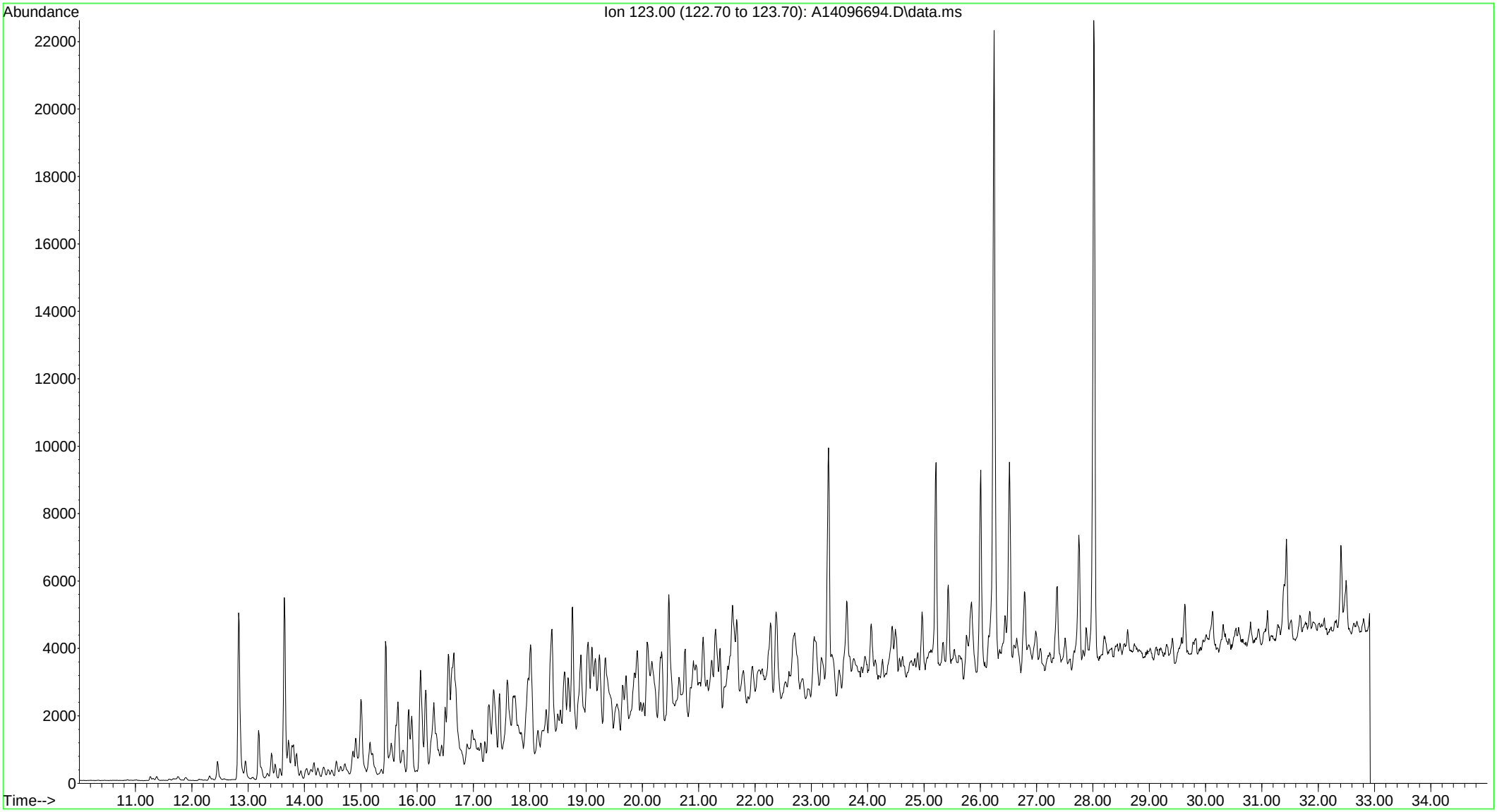
File :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096700.D
Operator : AC
Acquired : 21 Jun 2012 11:13 am using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : SO062012LCS01
Misc Info : 1X ETR1206028
ALS Vial : 26



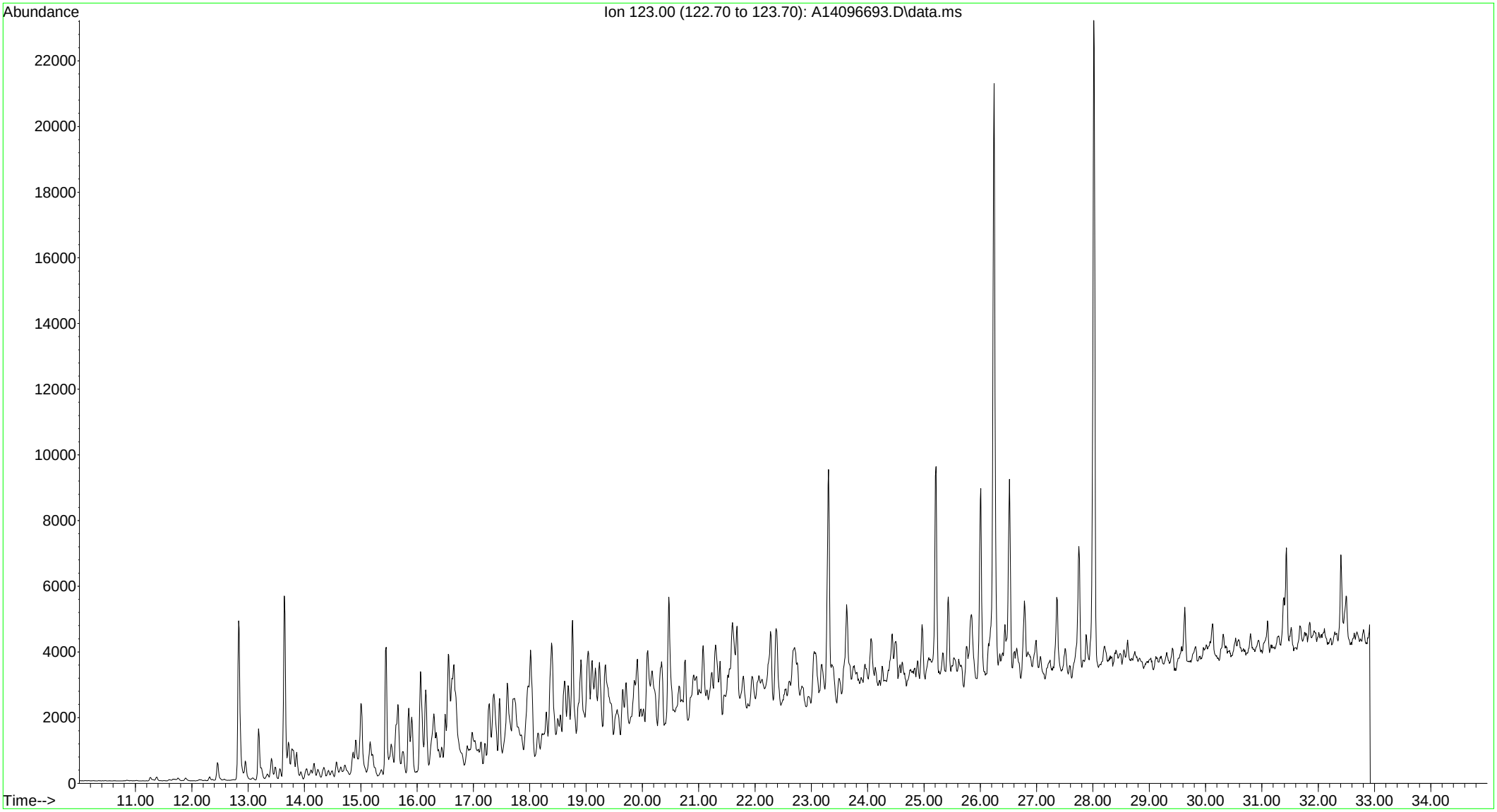
File :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096701.D
Operator : AC
Acquired : 21 Jun 2012 12:39 pm using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : SO062012LCSD01
Misc Info : 1X ETR1206028
ALS Vial : 27



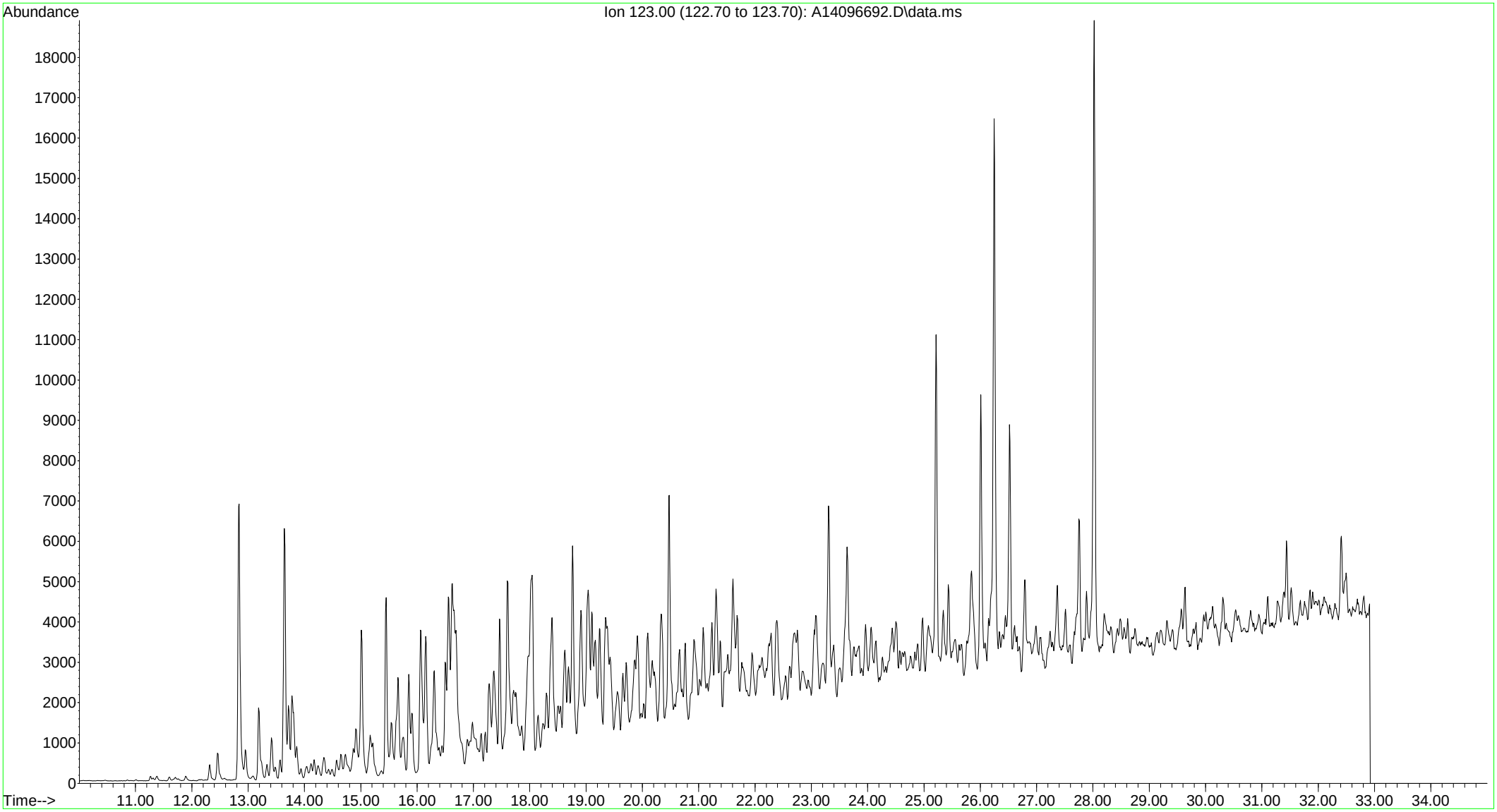
File   :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096694.D
Operator : AC
Acquired : 20 Jun 2012 10:40 pm using AcqMethod FRNC14A.M
Instrument :   PAH 14
Sample   : SO062212CL01
Misc Info : WHAP12
ALS Vial : 20



File :O:\FORENSICS\DATA\PAH14\JUNE12\June19\A14096693.D
Operator : AC
Acquired : 20 Jun 2012 9:13 pm using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : SO062212WCS01
Misc Info : WHAP10
ALS Vial : 19



File :O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\A14096692.D
Operator : AC
Acquired : 20 Jun 2012 7:47 pm using AcqMethod FRNC14A.M
Instrument : PAH 14
Sample : SO062212ANS01
Misc Info : WHAO85
ALS Vial : 18



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHAO85
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	58049M3	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	107846M3	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	205802	999.090	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.91%			
42) Phenanthrene-d10	32.321	188	188610	971.594	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 97.16%			
86) Benzo[a]pyrene-d12	48.039	264	179636	852.346	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.23%			
127) 5B(H)Cholane - Surr	43.496	217	47115	1103.652	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 110.37%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	118004	2524.284	ng/mL	100
4) cis-Decalin	17.338	138	4859M3	134.765	ng/mL	
5) C1-Decalins	18.050	152	202806M5	4338.328	ng/mL	
6) C2-Decalins	19.383	166	187870M5	4018.824	ng/mL	
7) C3-Decalins	21.856	180	93745M5	2005.348	ng/mL	
8) C4-Decalins	25.223	194	97137M5	2077.908	ng/mL	
10) Naphthalene	19.565	128	702367	3117.529	ng/mL#	100
11) C1-Naphthalenes	22.248	142	1540517M5	6837.744	ng/mL	
12) C2-Naphthalenes	25.086	156	1842532M5	8178.269	ng/mL	
13) C3-Naphthalenes	27.431	170	1386713M5	6155.069	ng/mL	
14) C4-Naphthalenes	30.196	184	767569M5	3406.935	ng/mL	
16) 2-Methylnaphthalene	22.248	142	899047	6064.602	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	630151	4330.257	ng/mL#	100
18) Benzothiophene	19.775	134	5349M3	30.785	ng/mL	
19) C1-Benzo(b)thiophenes	21.819	148	33012M5	189.996	ng/mL	
20) C2-Benzo(b)thiophenes	25.287	162	54155M5	311.682	ng/mL	
21) C3-Benzo(b)thiophenes	27.267	176	102488M5	589.857	ng/mL	
22) C4-Benzo(b)thiophenes	29.366	190	92107M5	530.110	ng/mL	
23) Biphenyl	24.146	154	148808	820.029	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.758	156	455105	3431.857	ng/mL#	100
25) Dibenzofuran	27.240	168	51869	270.368	ng/mL#	86
26) Acenaphthylene	25.825	152	8280M3	35.329	ng/mL	
27) Acenaphthene	26.601	153	15242M3	105.230	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.125	170	92901M3	772.406	ng/mL	
29) Fluorene	28.599	166	64941M3	402.596	ng/mL	
30) C1-Fluorenes	30.962	180	140575M5	871.483	ng/mL	
31) C2-Fluorenes	33.161	194	223368M5	1384.751	ng/mL	
32) C3-Fluorenes	34.996	208	215602M5	1336.606	ng/mL	
33) Dibenzothiophene	31.920	184	153039	730.514	ng/mL#	68
34) 4-Methyldibenzothiophene(	33.700	198	149590	714.050	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.056	198	132475	632.354	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.457	198	48366	230.869	ng/mL#	100
38) C1-Dibenzothiophenes	33.700	198	338838M5	1617.404	ng/mL	
38) C1-Dibenzothiophenes BS	33.700	198	338838m	1617.404	ng/mL	
39) C2-Dibenzothiophenes	35.379	212	451030M5	2152.939	ng/mL	
40) C3-Dibenzothiophenes	37.187	226	398376M4	1901.601	ng/mL	
41) C4-Dibenzothiophenes	38.876	240	224305M5	1070.694	ng/mL	
43) Phenanthrene	32.422	178	240880	1082.791	ng/mL	94
44) 3-Methylphenanthrene(3MP)	34.375	192	107315	482.397	ng/mL	95
45) 2-Methylphenanthrene(2MP)	34.494	192	119151	535.601	ng/mL	96
46) 2-Methylanthracene(2MA)	34.667	192	4334M3	19.482	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHAO85
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
47) 9/4-Methylphenanthrene(9M	34.831	192	169153	760.367	ng/mL	99
48) 1-Methylphenanthrene(1MP)	34.923	192	123907M3	556.980	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.831	192	535149M5	2405.572	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.639	206	597553M5	2686.088	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	597553m	2686.088	ng/mL	
52) C3-Phenanthrenes/Anthrace	38.483	220	431285M5	1938.689	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.675	234	158778M5	713.730	ng/mL	
56) Carbazole	33.380	167	5638M3	27.315	ng/mL	
57) 1-Methylphenanthrene	34.923	192	124670M3	747.062	ng/mL	
58) Fluoranthene	37.223	202	4273M3	18.827	ng/mL	
60) Pyrene	38.100	202	12951M3	54.903	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.497	216	79536M5	337.176	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.295	230	131269M5	556.488	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.313	244	165613M5	702.082	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.655	258	136861M5	580.194	ng/mL	
66) Naphthobenzothiophene	41.962	234	35804M3	175.063	ng/ml	
67) Naphthobenzothiophene-2,1	41.962	234	35758M3	174.838	ng/mL	
68) Naphthobenzothiophene-1,2	42.300	234	7821	38.241	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.619	234	3790	18.531	ng/mL#	100
70) C1-Naphthobenzothiophenes	43.350	248	137257M5	671.116	ng/ml	
71) C2-Naphthobenzothiophenes	45.387	262	192319M5	940.340	ng/ml	
72) C3-Naphthobenzothiophenes	46.951	276	148319M5	725.203	ng/ml	
73) C4-Naphthobenzothiophenes	48.003	290	98988M5	484.000	ng/mL	
75) Benz[a]anthracene	42.893	228	2363M3	10.017	ng/mL	
77) Chrysene/Triphenylene	43.012	228	42569M3	182.759	ng/mL	
78) C1-Chrysenes	44.518	242	79182M5	339.947	ng/mL	
79) C2-Chrysenes	46.256	256	103282M5	443.414	ng/mL	
79) C2-Chrysenes BS	46.256	256	103282m	443.414	ng/mL	
80) C3-Chrysenes	47.929	270	124726M5	535.478	ng/mL	
81) C4-Chrysenes	49.338	284	74566M5	320.130	ng/mL	
82) Benzo[b]fluoranthene	46.969	252	6297M3	26.988	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.033	252	731M3	2.837	ng/mL	
85) Benzo[e]pyrene	47.939	252	12501M3	54.038	ng/mL	
87) Benzo[a]pyrene	48.140	252	2761M3	12.763	ng/mL	
88) Perylene	48.460	252	3598	15.341	ng/mL#	1
89) Indeno[1,2,3-cd]pyrene	52.950	276	1157	4.276	ng/mL#	1
90) Dibenz[ah]+[ac]anthracene	52.932	278	1170M3	4.601	ng/mL	
91) Benzo[g,h,i]perylene	54.239	276	3751	14.452	ng/mL#	85
92) Hopane (T19)	51.816	191	70119M3	910.159	ng/mL	
94) C23 Tricyclic Terpane (T4	40.519	191	29423	381.917	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	17029M3	221.040	ng/ml	
96) C25 Tricyclic Terpane (T6	42.774	191	16609M3	215.588	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	5946M3	77.180	ng/ml	
98) C26 Tricyclic Terpane-22S	43.788	191	6860M3	89.044	ng/ml	
99) C26 Tricyclic Terpane-22R	43.888	191	6573	85.319	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.173	191	5904M3	76.635	ng/ml	
101) C28 Tricyclic Terpane-22R	46.338	191	7121M3	92.432	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	8844M3	114.797	ng/ml	
103) C29 Tricyclic Terpane-22R	47.042	191	8115M3	105.334	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	12312	159.812	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.231	191	6794M3	88.188	ng/mL	
106) C30 Tricyclic Terpane-22R	48.469	191	6280	81.516	ng/mL	100
107) 17a(H)-22,29,30-Trisnorho	48.670	191	15103	196.040	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	3261M3	42.328	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.640	191	3250	42.186	ng/ml	100
110) 30-Norhopane (T15)	50.481	191	41314M3	536.264	ng/ml	

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHAO85
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
111) 18a(H)-30-Norneohopane-C2	50.591	191	10026M3	130.140	ng/ml	
112) 17a(H)-Diahopane (X)	50.710	191	5352	69.470	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	5252	68.172	ng/ml	100
115) Moretane (T20)	52.475	191	7089M3	92.017	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	30223	392.301	ng/ml	100
117) 30-Homohopane-22R (T22)	53.763	191	25572	331.930	ng/ml	100
118) Gammacerane/C32-diahopane	54.293	191	5314M3	68.977	ng/mL	
119) 30,31-Bishomohopane-22S (	55.052	191	21378	277.491	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.427	191	15701	203.802	ng/ml	100
121) 30,31-Trishomohopane-22S	57.108	191	16453M3	213.563	ng/ml	
122) 30,31-Trishomohopane-22R	57.711	191	11112	144.236	ng/ml	100
123) Tetrakishomohopane-22S (T	59.657	191	11560	150.051	ng/ml	100
124) Tetrakishomohopane-22R (T	60.507	191	8185	106.243	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	12097M3	157.022	ng/ml	
126) Pentakishomohopane-22R (T	63.925	191	9548	123.935	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.002	217	10048	235.371	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.423	217	5820M3	136.331	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.127	217	5395M3	126.376	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.987	217	14989	351.112	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.490	217	15945M3	373.506	ng/ml	
133) Unknown Sterane (S18)	47.765	217	4582	107.332	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.021	217	1068	25.018	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.176	217	8138M3	190.630	ng/ml	
136) 14a,17a-20R-Methylcholest	48.881	217	7603	178.098	ng/ml	100
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	12326M3	288.732	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.115	217	9064	212.321	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.079	218	9614M3	225.205	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.161	218	10029M3	234.926	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	10198M3	238.884	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	12457M3	291.801	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	12632M3	295.900	ng/ml	
144) 14b(H),17b(H)-20S-Ethylch	49.493	218	10448M3	244.741	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	54298M3	1271.911	ng/mL	
146) C28,20S-triaromatic stero	50.024	231	33485	784.374	ng/mL	100
147) C27,20R-triaromatic stero	50.463	231	32745	767.040	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	26981M3	632.020	ng/mL	

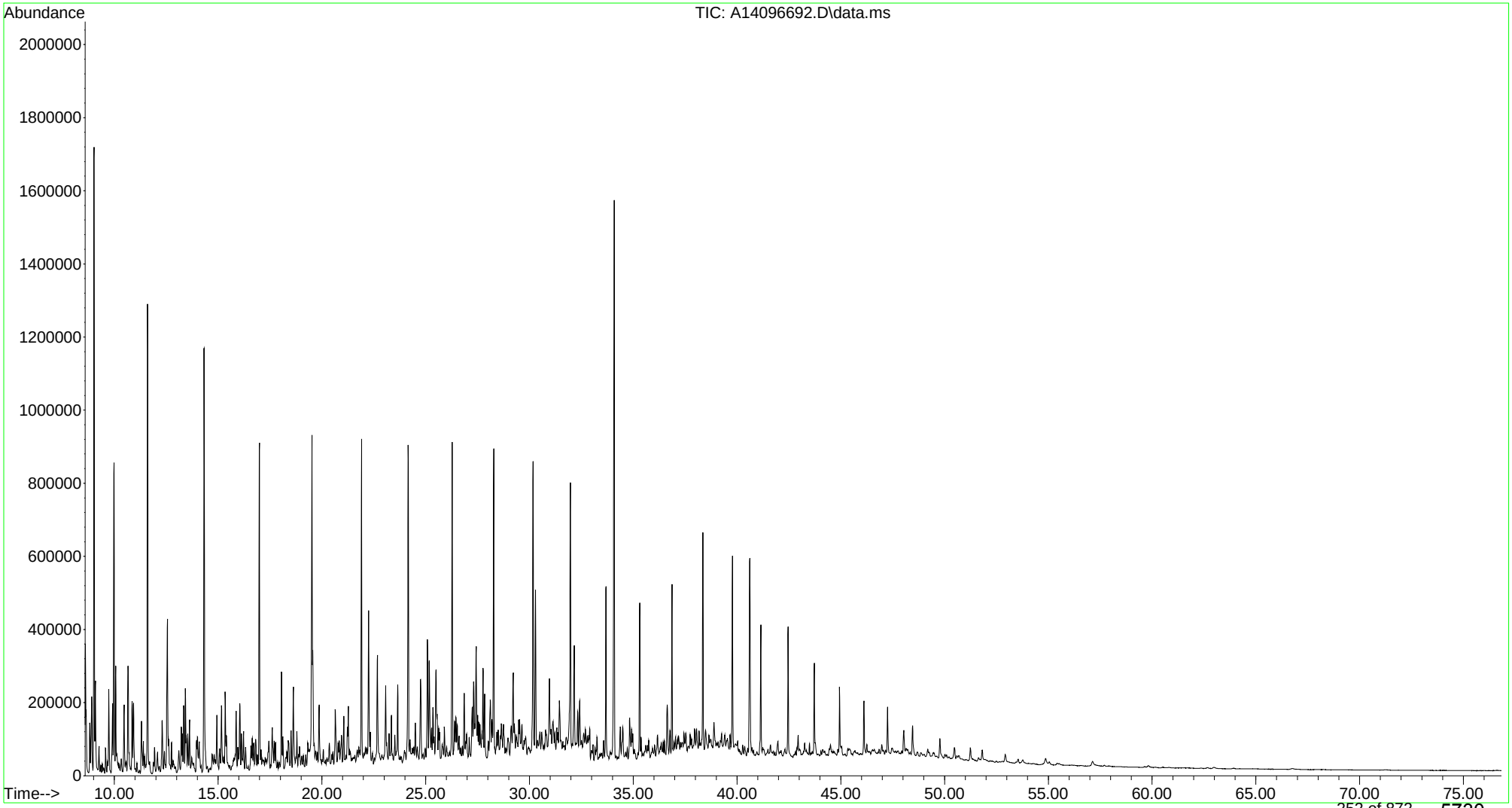
(#) = qualifier out of range (m) = manual integration (+) = signals summed

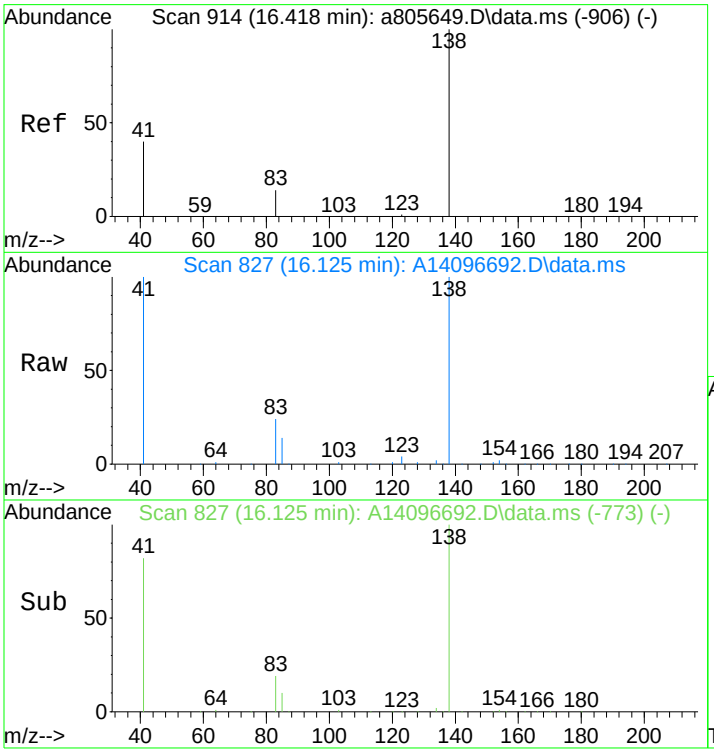
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096692.D
Acq On : 20 Jun 2012 7:47 pm
Operator : AC
Sample : SO062212ANS01
Misc : WHAO85
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 22 12:59:06 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

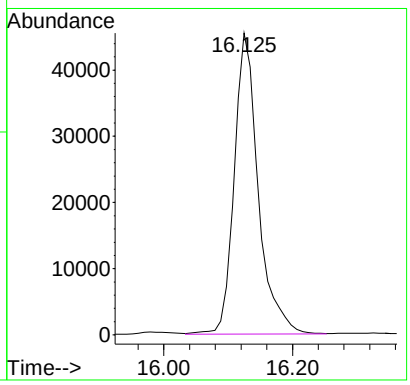
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

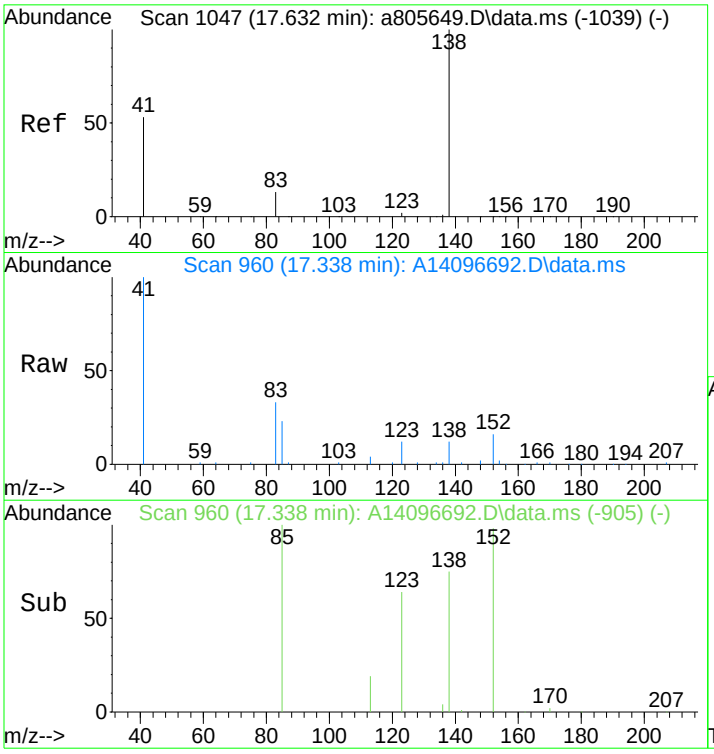




#3
trans-Decalin
Concen: 2524.28 ng/mL
RT: 16.125 min Scan# 827
Delta R.T. -0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

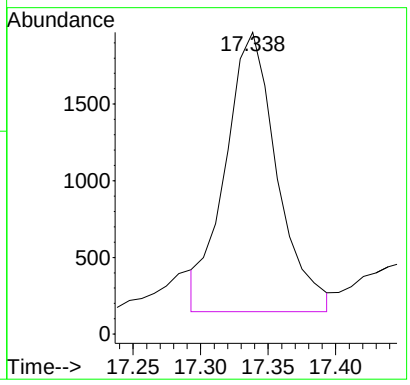
Tgt Ion:138 Resp: 118004

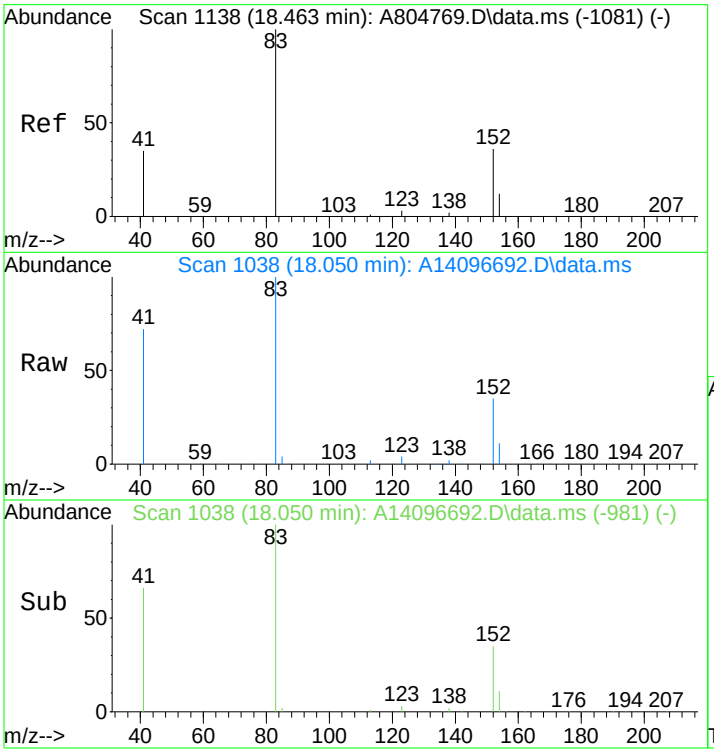




#4
cis-Decalin
Concen: 134.76 ng/mL m
RT: 17.338 min Scan# 960
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

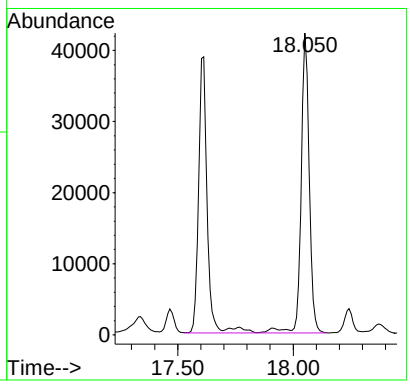
Tgt Ion:138 Resp: 4859

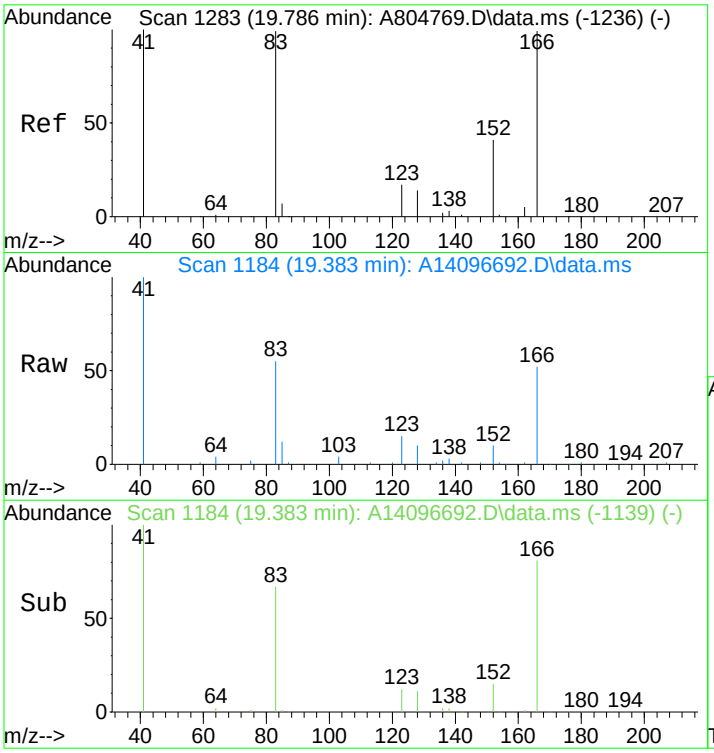




#5
C1-Decalins
Concen: 4338.33 ng/mL m
RT: 18.050 min Scan# 1038
Delta R.T. -0.064 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

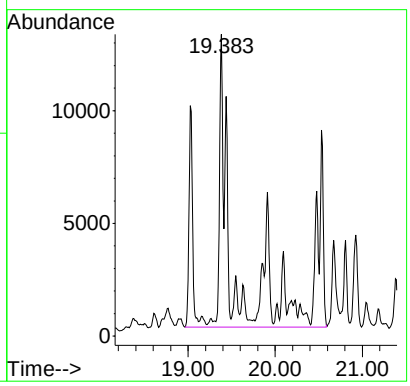
Tgt Ion:152 Resp: 202806

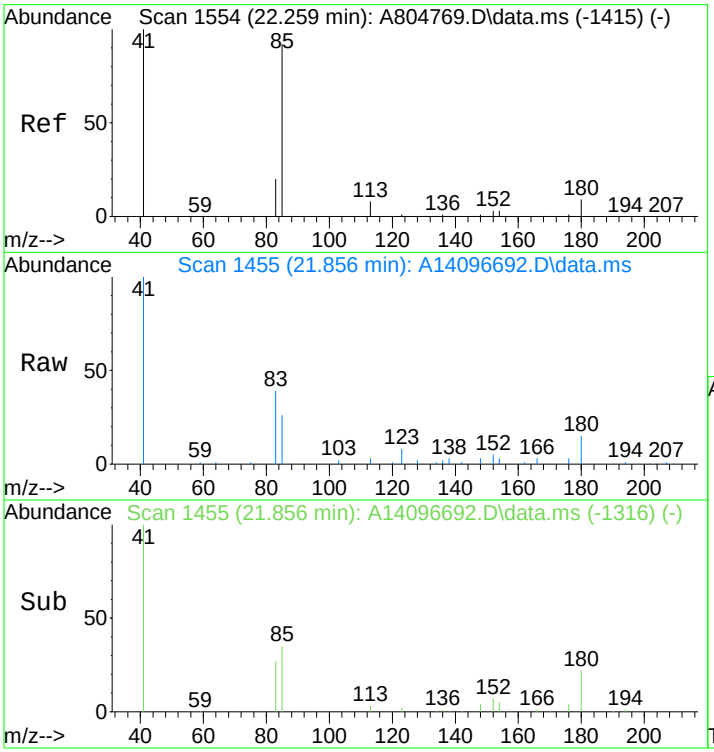




#6
C2-Decalins
Concen: 4018.82 ng/mL m
RT: 19.383 min Scan# 1184
Delta R.T. -0.055 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

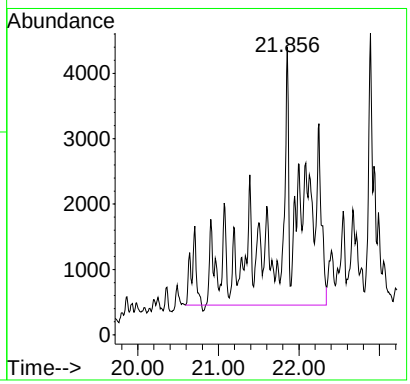
Tgt Ion:166 Resp: 187870

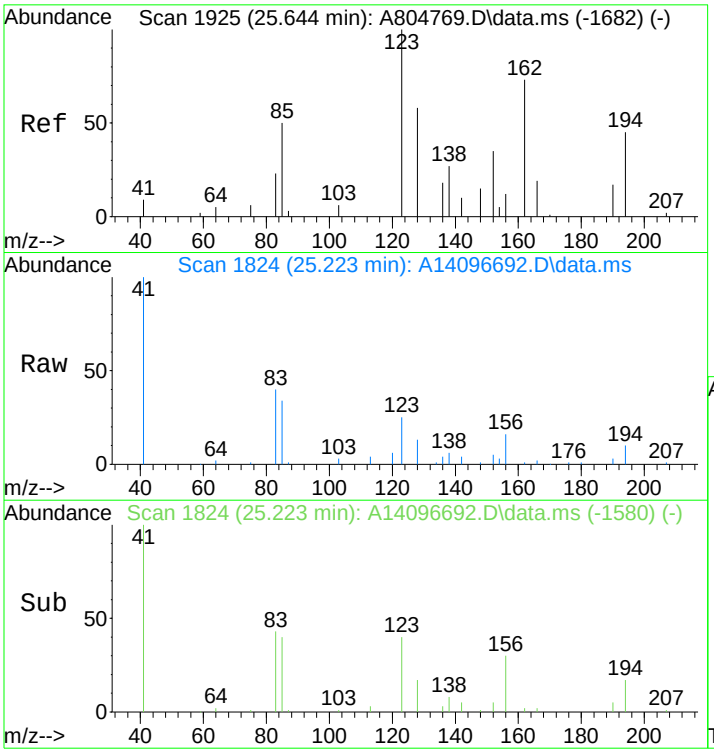




#7
C3-Decalins
Concen: 2005.35 ng/mL m
RT: 21.856 min Scan# 1455
Delta R.T. -0.044 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

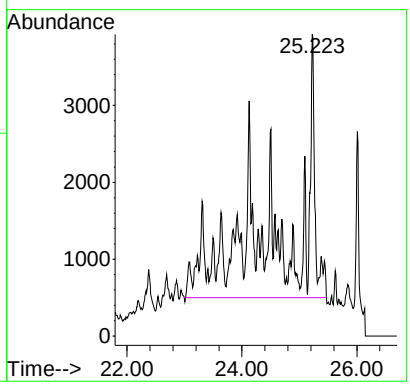
Tgt Ion:180 Resp: 93745

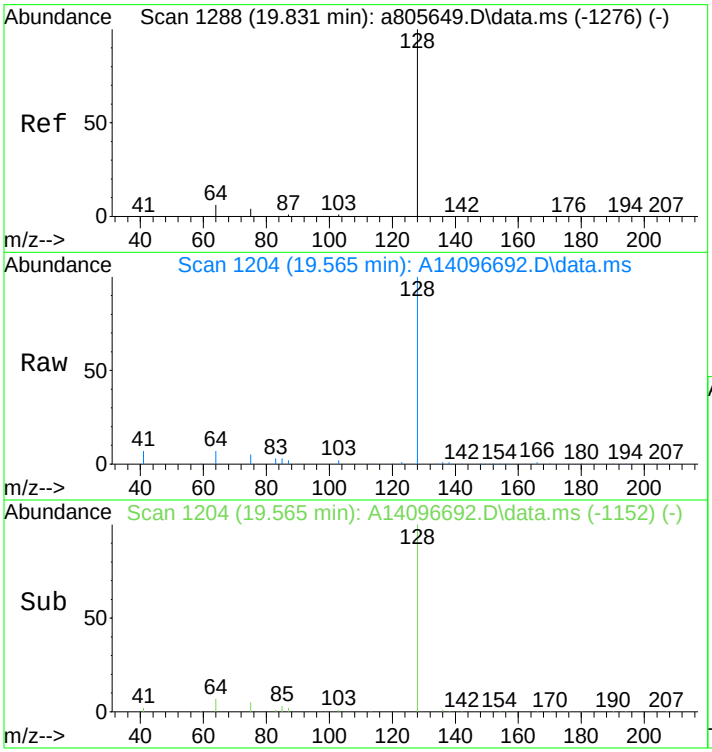




#8
C4-Decalins
Concen: 2077.91 ng/mL m
RT: 25.223 min Scan# 1824
Delta R.T. -0.040 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:194 Resp: 97137

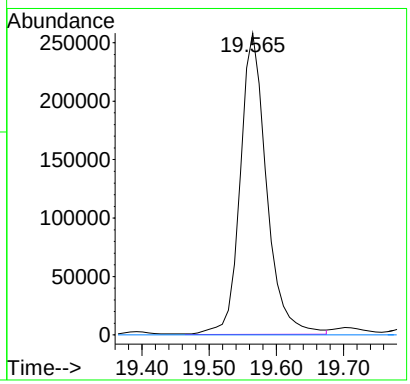


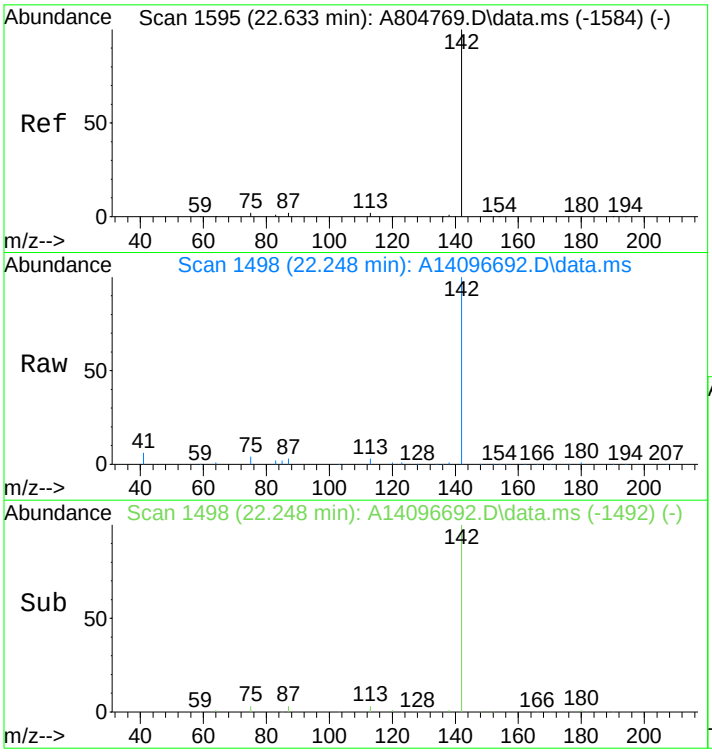


#10
Naphthalene
Concen: 3117.53 ng/mL
RT: 19.565 min Scan# 1204
Delta R.T. -0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:128 Resp: 702367

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

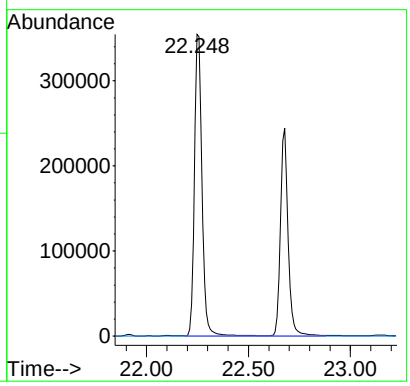


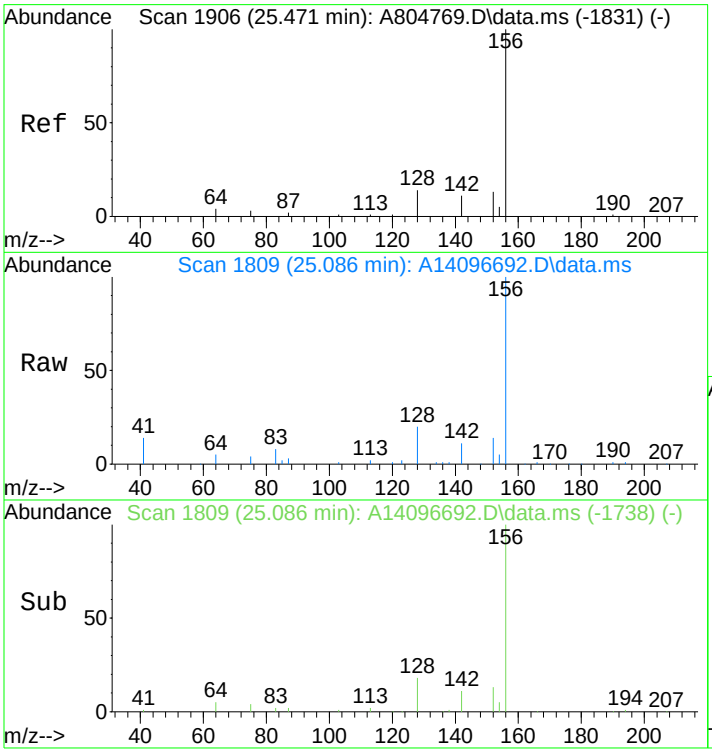


#11
C1-Naphthalenes
Concen: 6837.74 ng/mL m
RT: 22.248 min Scan# 1498
Delta R.T. -0.036 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:142 Resp: 1540517

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

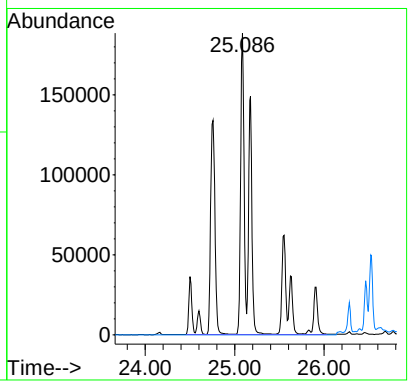


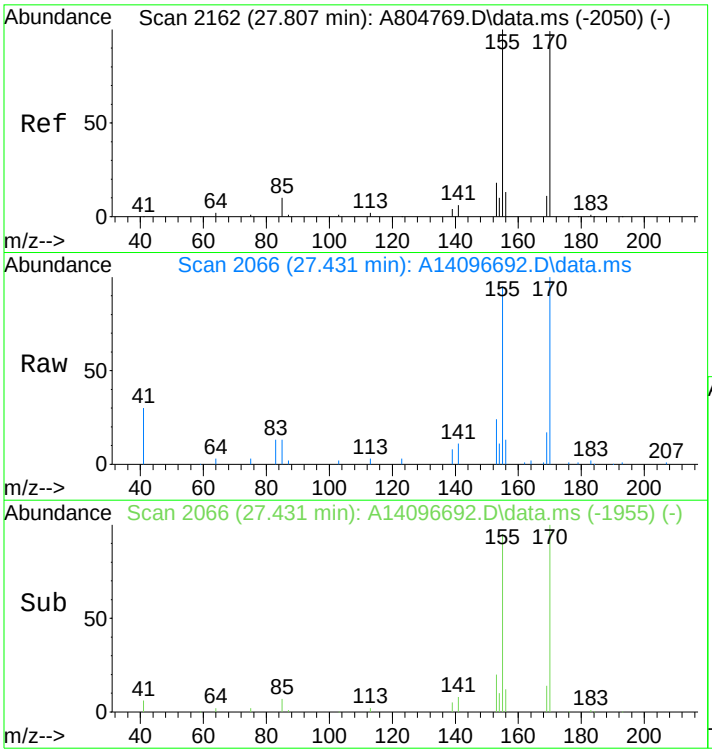


#12
C2-Naphthalenes
Concen: 8178.27 ng/mL m
RT: 25.086 min Scan# 1809
Delta R.T. -0.022 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:156 Resp: 1842532

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

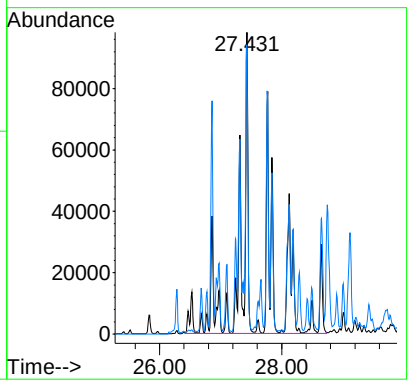


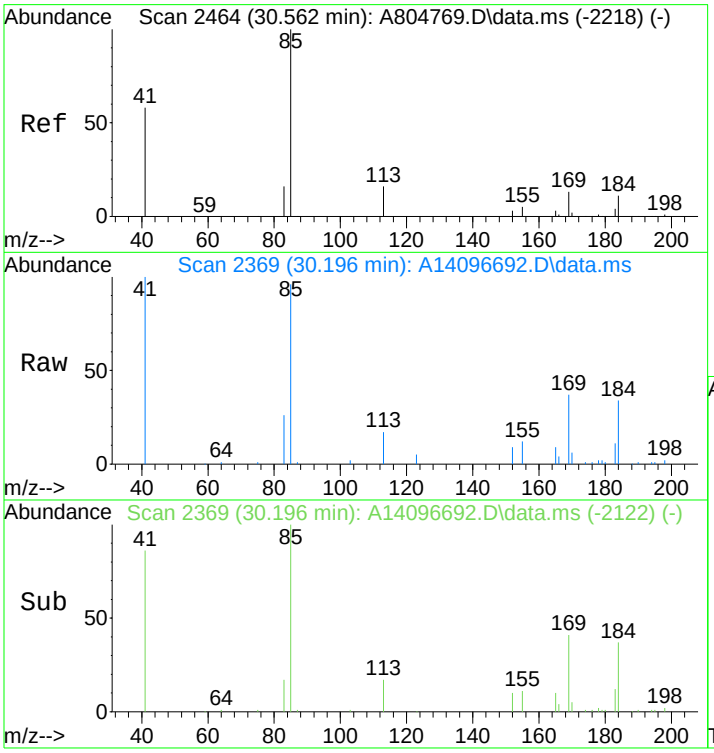


#13
C3-Naphthalenes
Concen: 6155.07 ng/mL m
RT: 27.431 min Scan# 2066
Delta R.T. -0.003 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:170 Resp: 1386713

Ion	Ratio	Lower	Upper
170	100		
155	16.9	74.5	111.7#

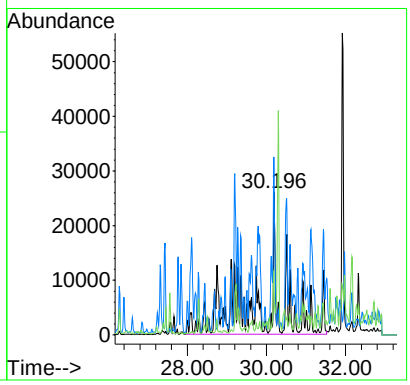


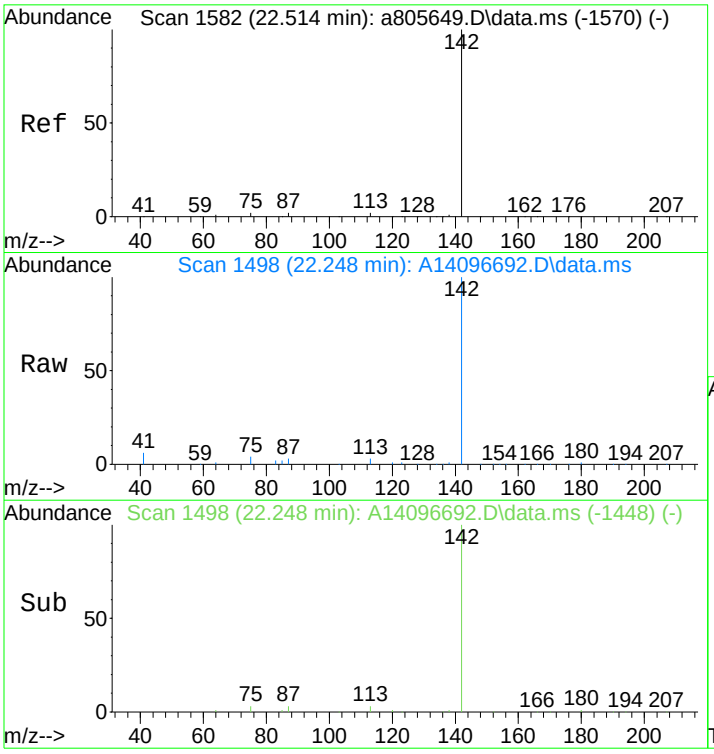


#14
C4-Naphthalenes
Concen: 3406.93 ng/mL m
RT: 30.196 min Scan# 2369
Delta R.T. 0.015 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:184 Resp: 767569

Ion	Ratio	Lower	Upper
184	100		
169	11.1	83.0	124.6#
183	3.4	24.6	36.8#

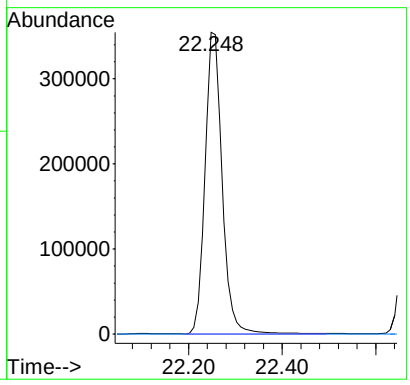


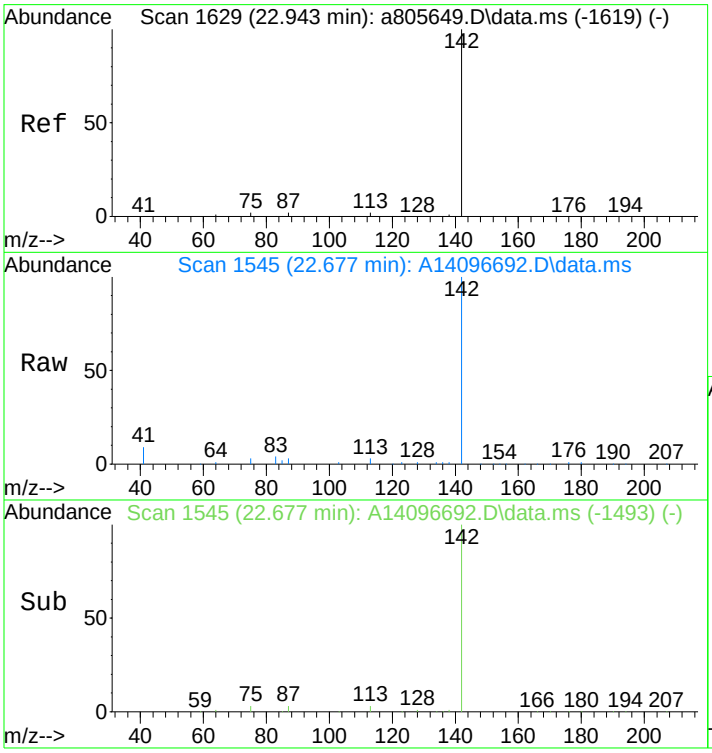


#16
2-Methylnaphthalene
Concen: 6064.60 ng/mL
RT: 22.248 min Scan# 1498
Delta R.T. -0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:142 Resp: 899047

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

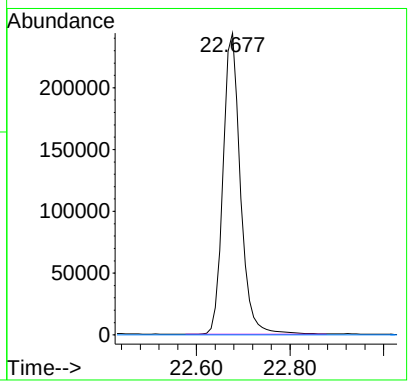


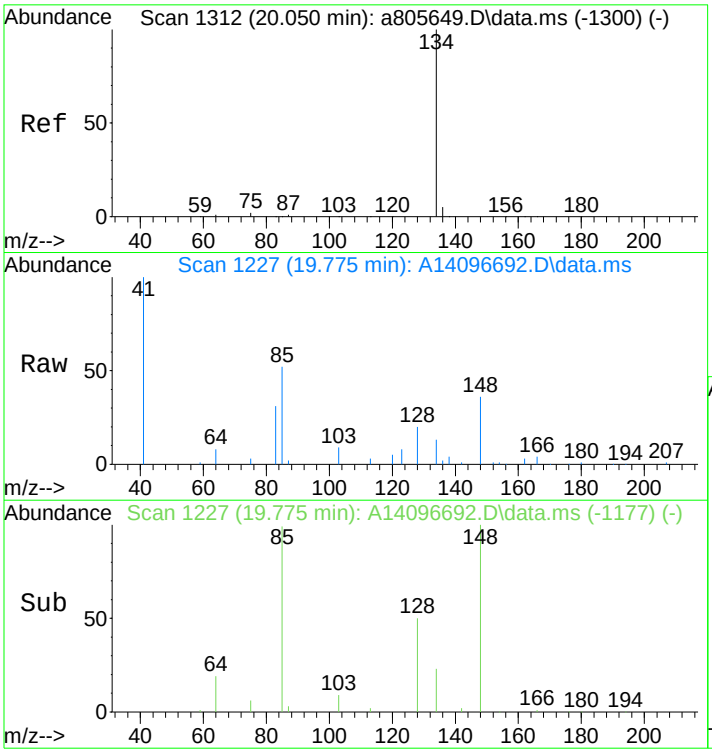


#17
1-Methylnaphthalene
Concen: 4330.26 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:142 Resp: 630151

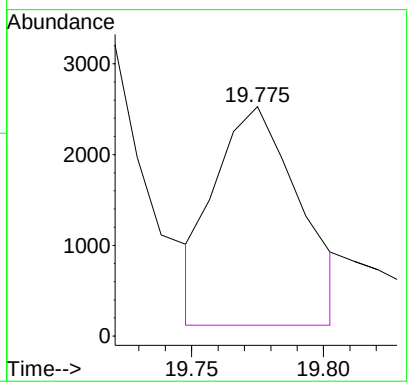
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

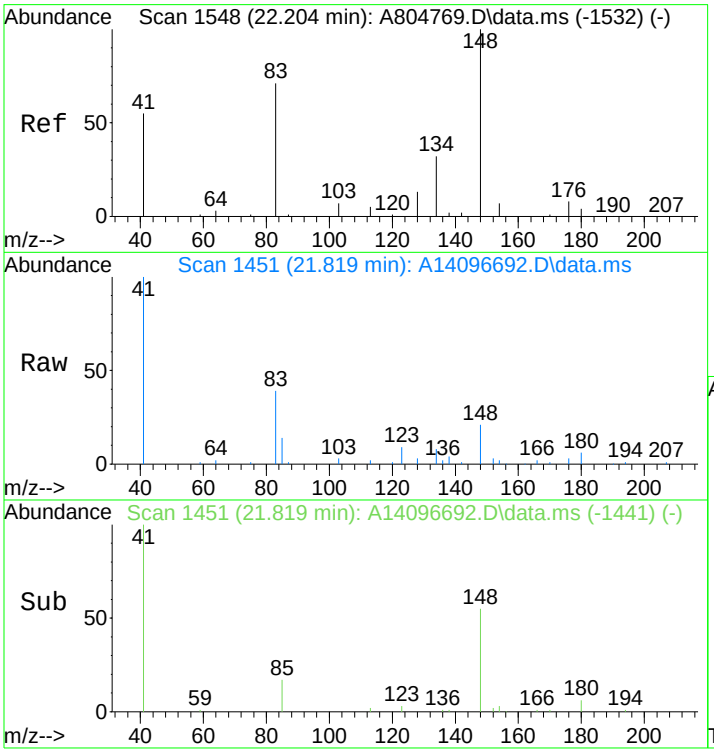




#18
Benzothiophene
Concen: 30.79 ng/mL m
RT: 19.775 min Scan# 1227
Delta R.T. -0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

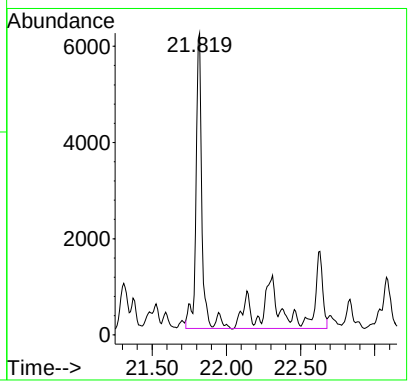
Tgt Ion:134 Resp: 5349

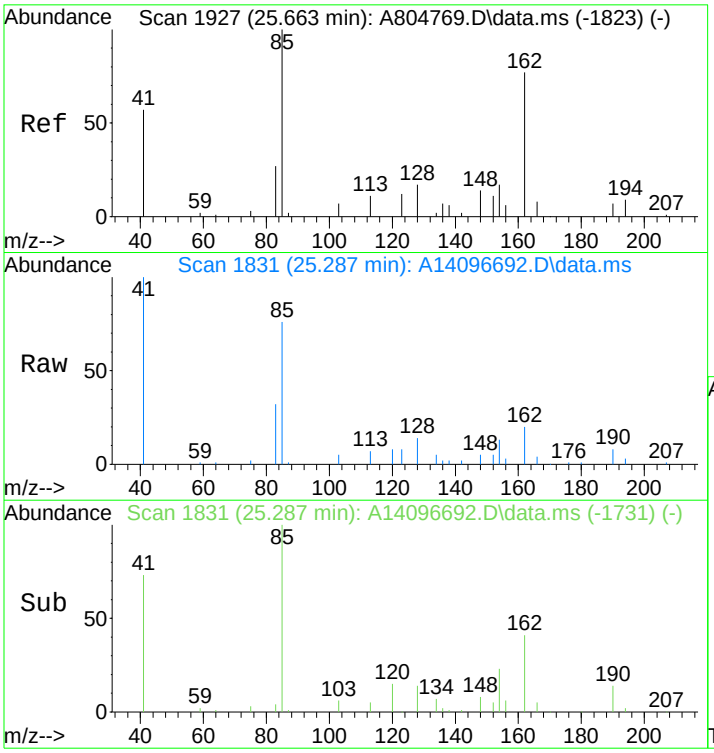




#19
C1-Benzo(b)thiophenes
Concen: 190.00 ng/mL m
RT: 21.819 min Scan# 1451
Delta R.T. -0.030 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

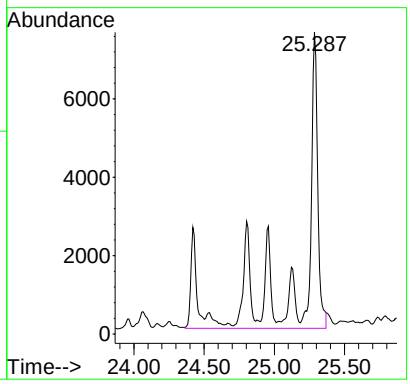
Tgt Ion:148 Resp: 33012

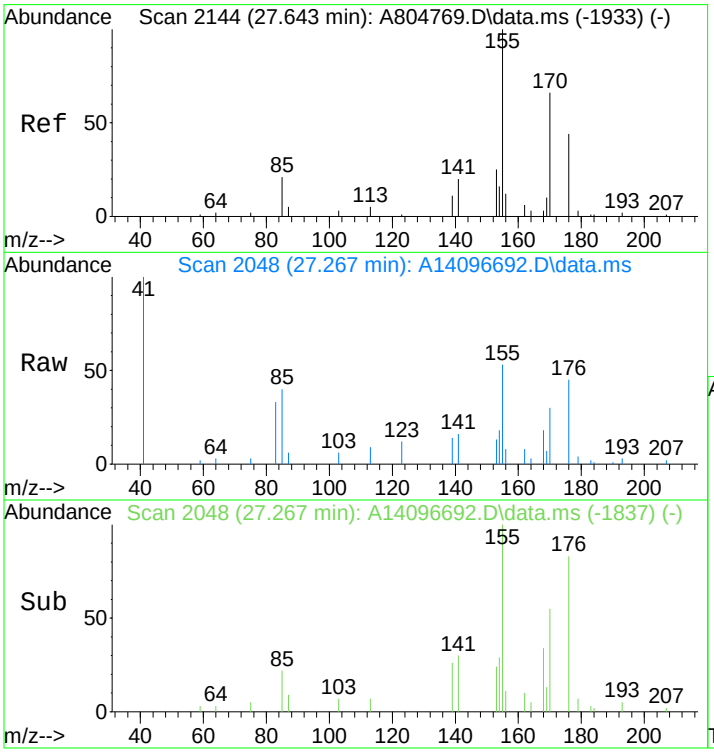




#20
C2-Benzo(b)thiophenes
Concen: 311.68 ng/mL m
RT: 25.287 min Scan# 1831
Delta R.T. -0.017 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

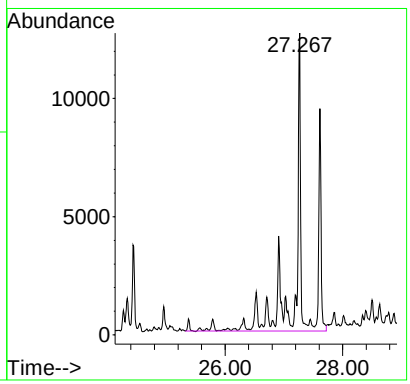
Tgt Ion:162 Resp: 54155

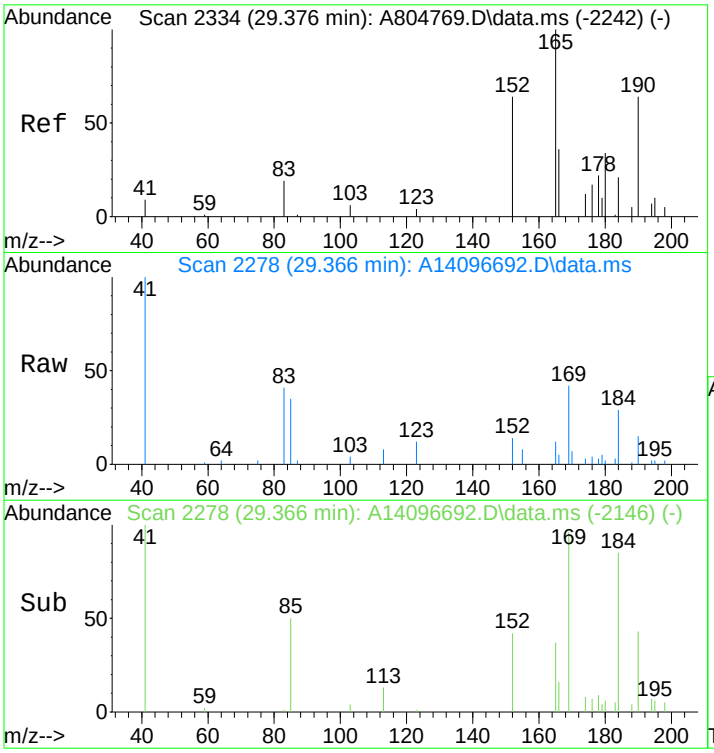




#21
C3-Benzo(b)thiophenes
Concen: 589.86 ng/mL m
RT: 27.267 min Scan# 2048
Delta R.T. 0.008 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

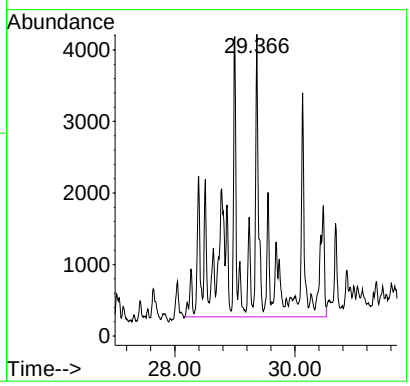
Tgt Ion:176 Resp: 102488

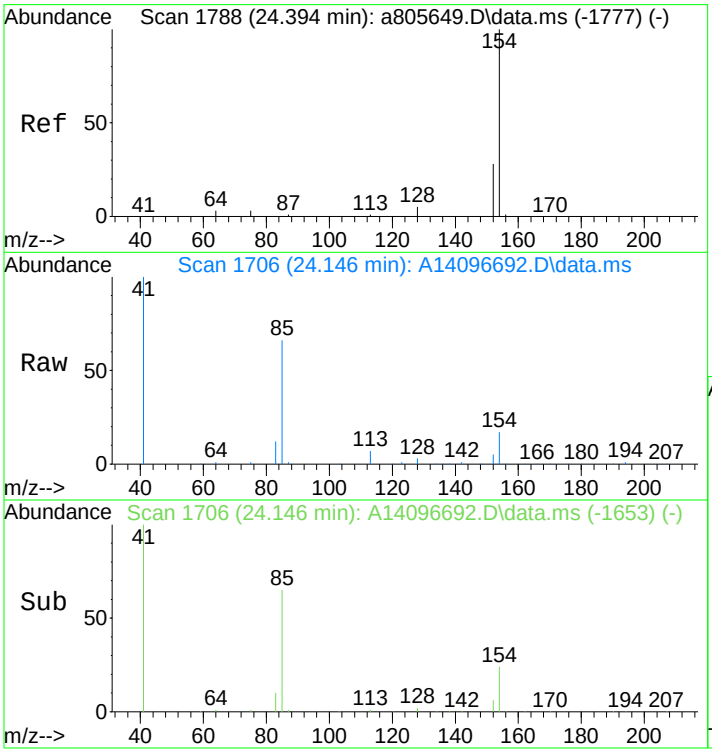




#22
C4-Benzo(b)thiophenes
Concen: 530.11 ng/mL m
RT: 29.366 min Scan# 2278
Delta R.T. 0.372 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:190 Resp: 92107

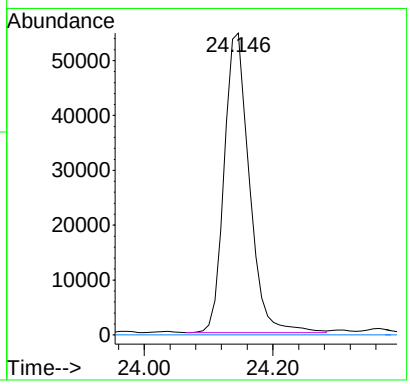


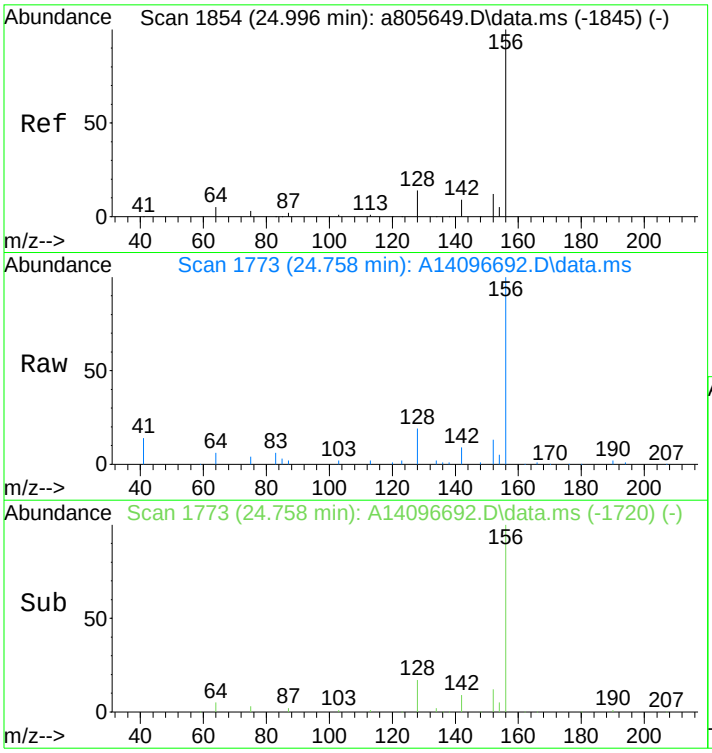


#23
Biphenyl
Concen: 820.03 ng/mL
RT: 24.146 min Scan# 1706
Delta R.T. -0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:154 Resp: 148808

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

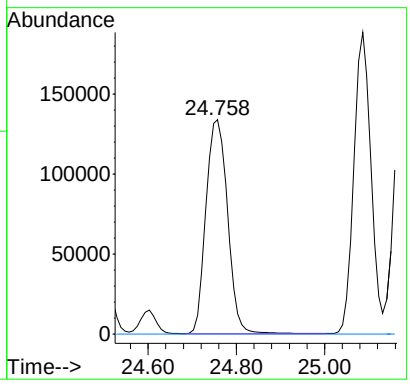


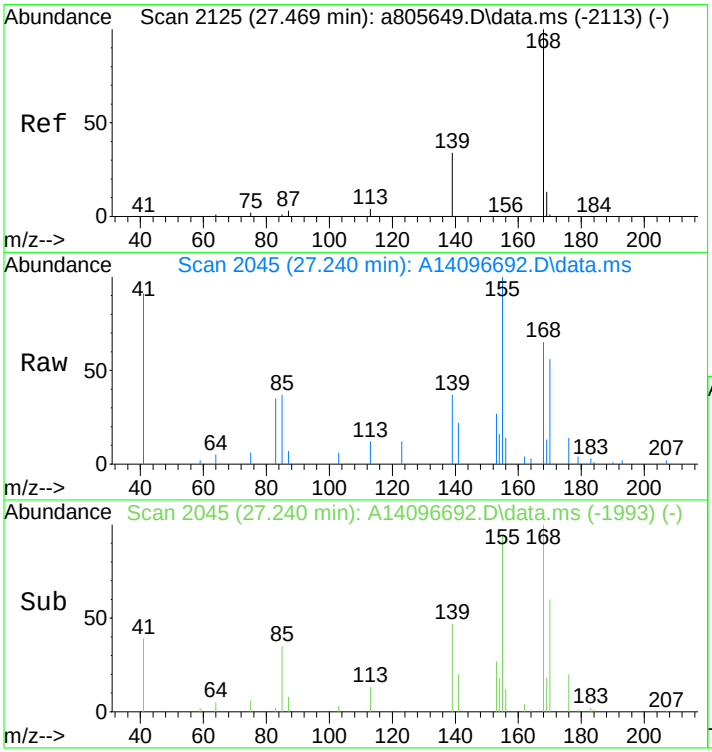


#24
2,6-Dimethylnaphthalene
Concen: 3431.86 ng/mL
RT: 24.758 min Scan# 1773
Delta R.T. -0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:156 Resp: 455105

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

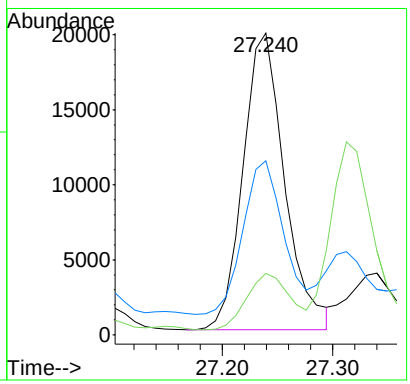


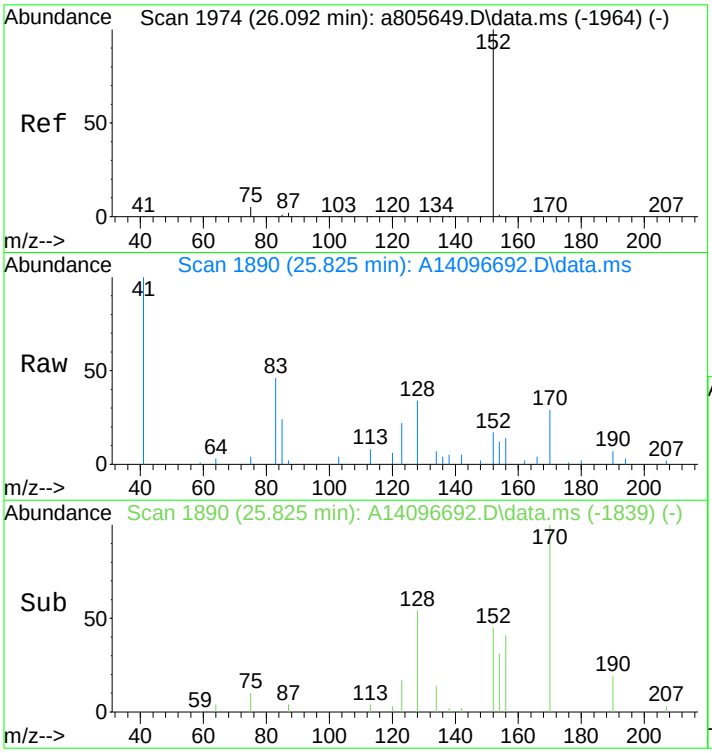


#25
Dibenzofuran
Concen: 270.37 ng/mL
RT: 27.240 min Scan# 2045
Delta R.T. -0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:168 Resp: 51869

Ion	Ratio	Lower	Upper
168	100		
139	50.6	34.0	51.0
169	20.3	10.9	16.3#

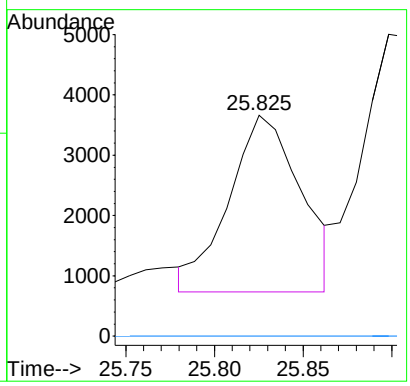


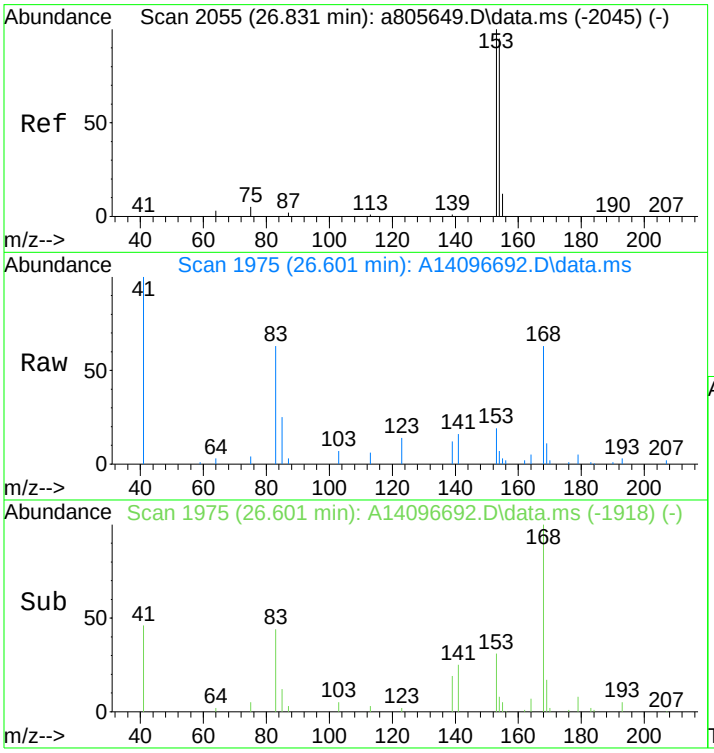


#26
Acenaphthylene
Concen: 35.33 ng/mL m
RT: 25.825 min Scan# 1890
Delta R.T. -0.036 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:152 Resp: 8280

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

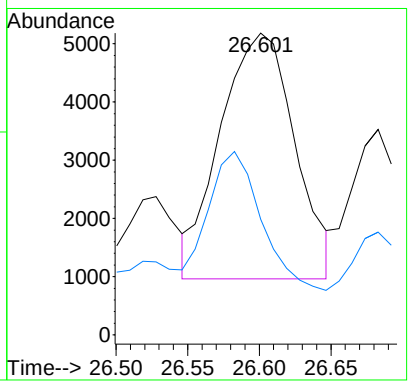


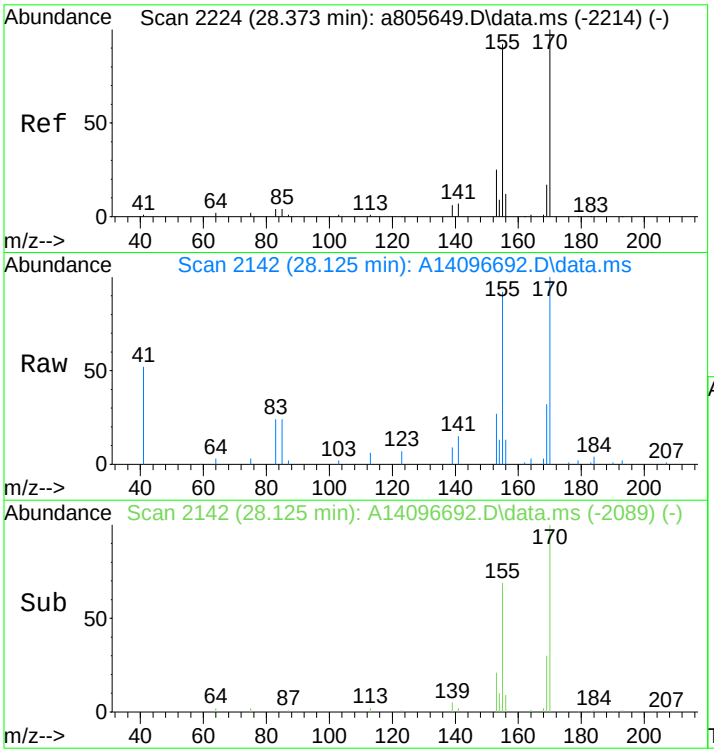


#27
Acenaphthene
Concen: 105.23 ng/mL m
RT: 26.601 min Scan# 1975
Delta R.T. 0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:153 Resp: 15242

Ion	Ratio	Lower	Upper
153	100		
154	48.0	72.8	109.2#

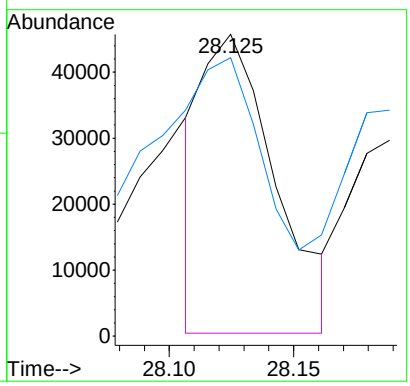


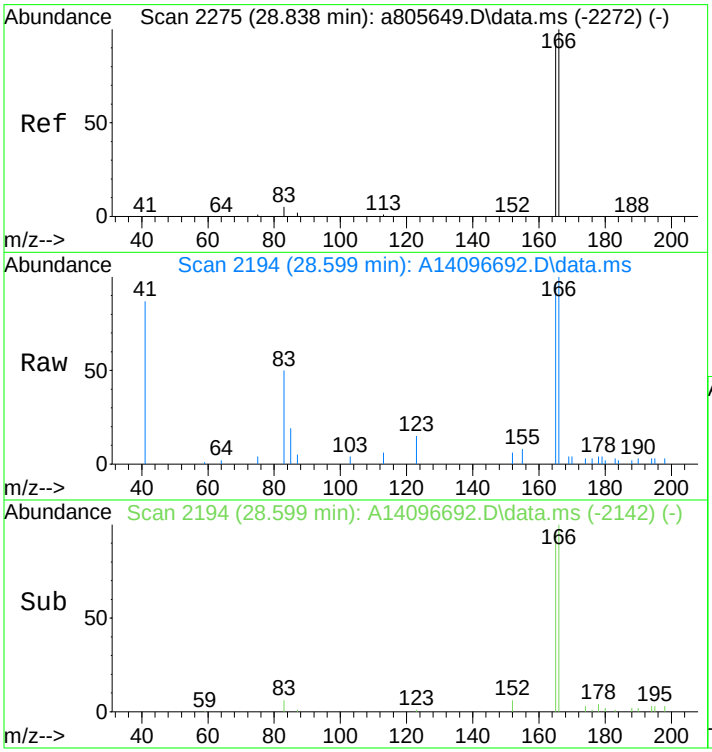


#28
2,3,5-Trimethylnaphthalene
Concen: 772.41 ng/mL m
RT: 28.125 min Scan# 2142
Delta R.T. -0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:170 Resp: 92901

Ion	Ratio	Lower	Upper
170	100		
155	157.7	73.5	110.3#

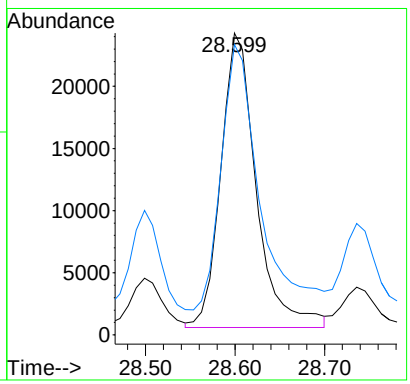


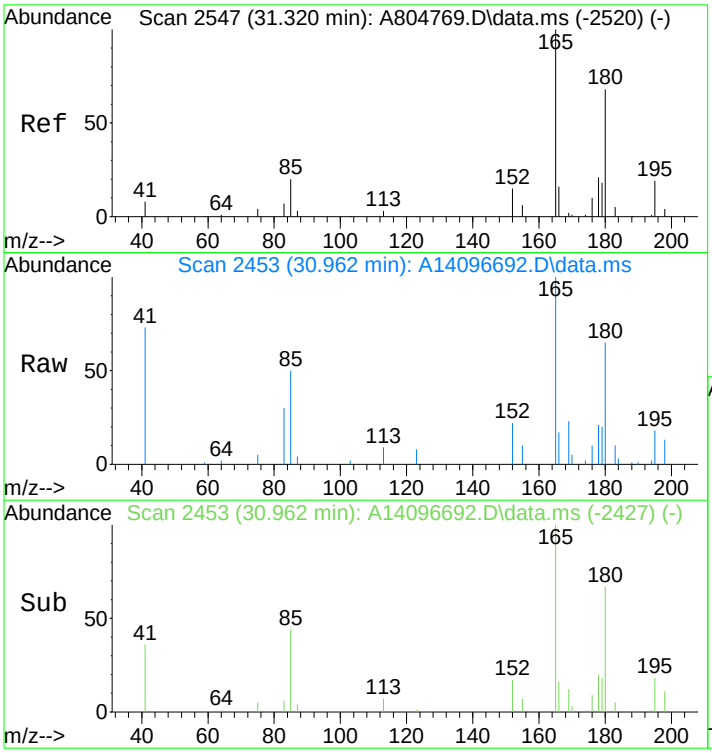


#29
Fluorene
Concen: 402.60 ng/mL m
RT: 28.599 min Scan# 2194
Delta R.T. -0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:166 Resp: 64941

Ion	Ratio	Lower	Upper
166	100		
165	110.0	73.2	109.8#

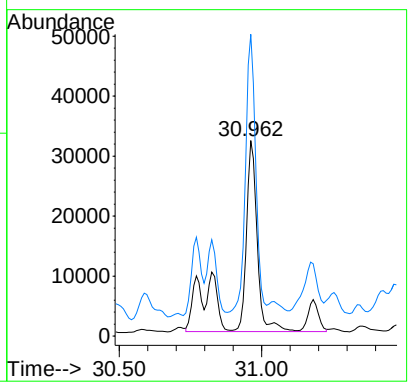


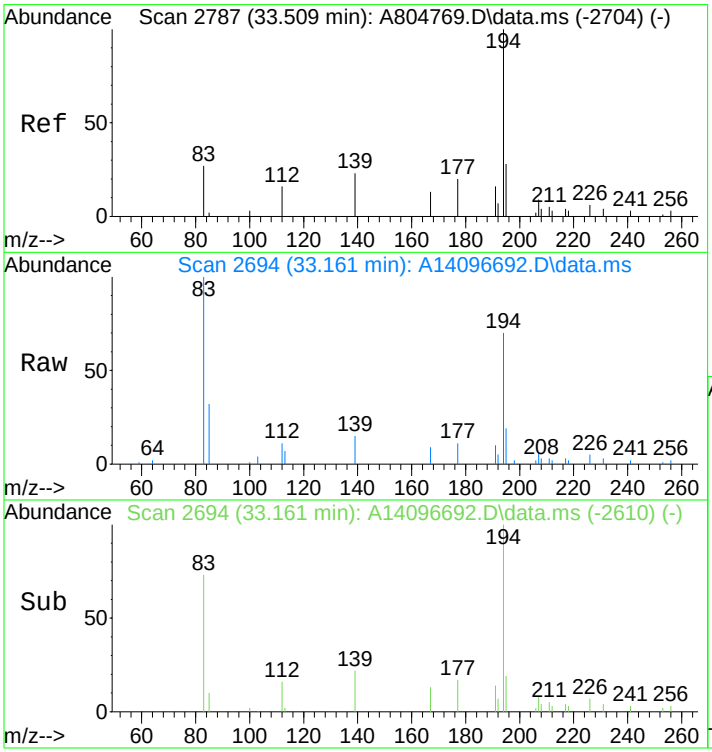


#30
C1-Fluorenes
Concen: 871.48 ng/mL m
RT: 30.962 min Scan# 2453
Delta R.T. 0.020 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:180 Resp: 140575

Ion	Ratio	Lower	Upper
180	100		
165	81.1	123.5	185.3#

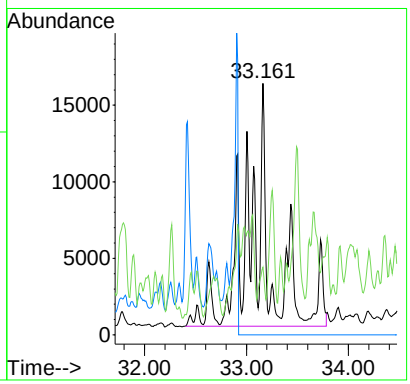


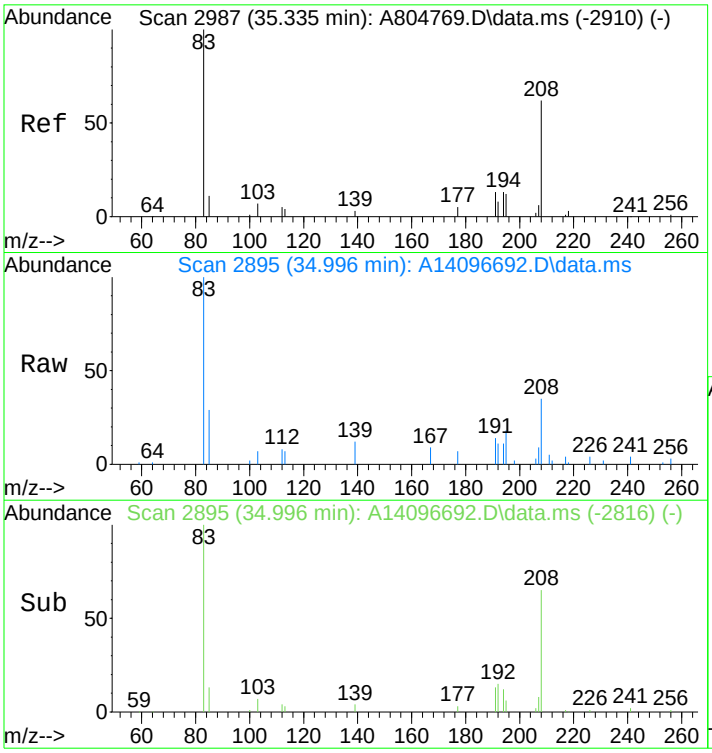


#31
C2-Fluorenes
Concen: 1384.75 ng/mL m
RT: 33.161 min Scan# 2694
Delta R.T. 0.035 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:194 Resp: 223368

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	2.6	22.2	33.4#

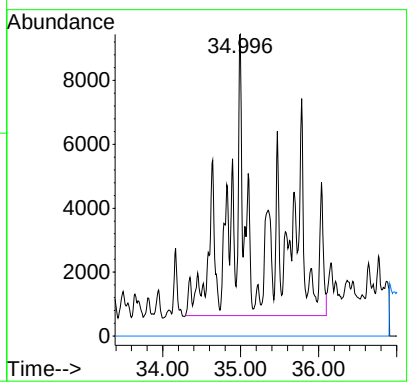


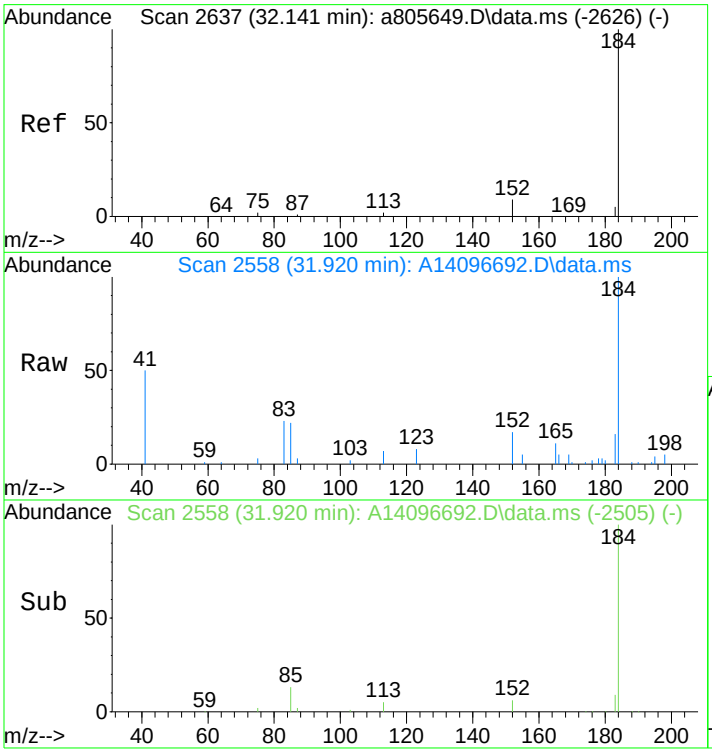


#32
C3-Fluorenes
Concen: 1336.61 ng/mL m
RT: 34.996 min Scan# 2895
Delta R.T. 0.056 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:208 Resp: 215602

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

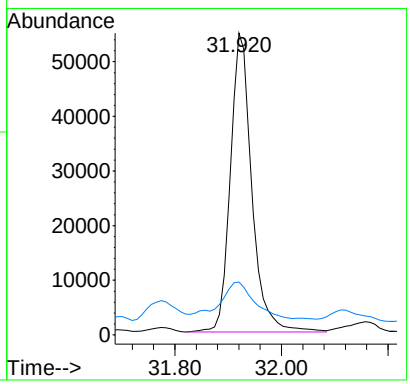


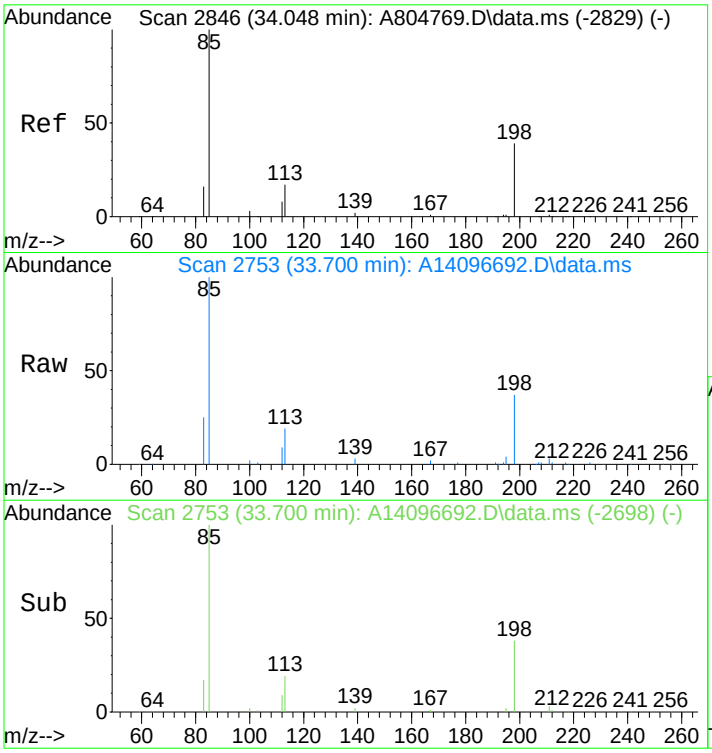


#33
Dibenzothiophene
Concen: 730.51 ng/mL
RT: 31.920 min Scan# 2558
Delta R.T. -0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:184 Resp: 153039

Ion	Ratio	Lower	Upper
184	100		
152	23.2	8.8	13.2#

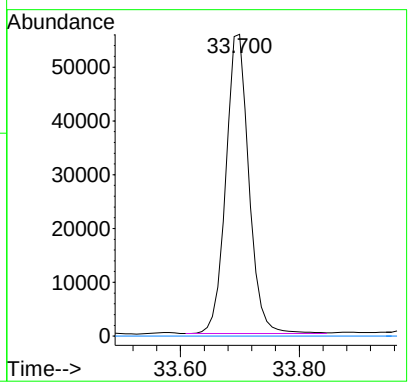


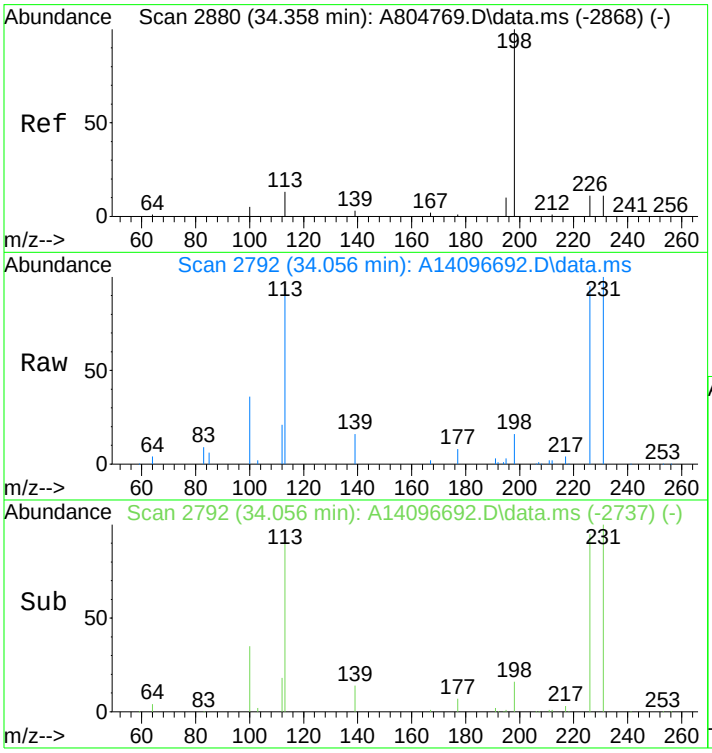


#34
4-Methyldibenzothiophene(4MDT)
Concen: 714.05 ng/mL
RT: 33.700 min Scan# 2753
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:198 Resp: 149590

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

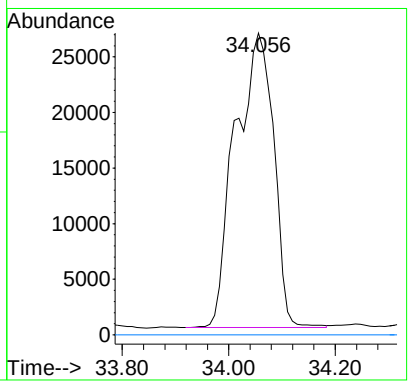


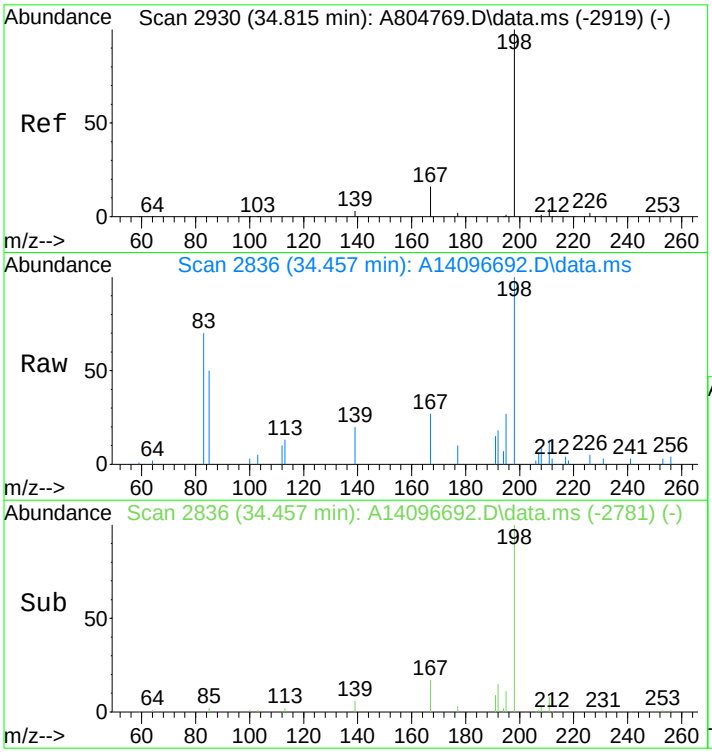


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 632.35 ng/mL
RT: 34.056 min Scan# 2792
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:198 Resp: 132475

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

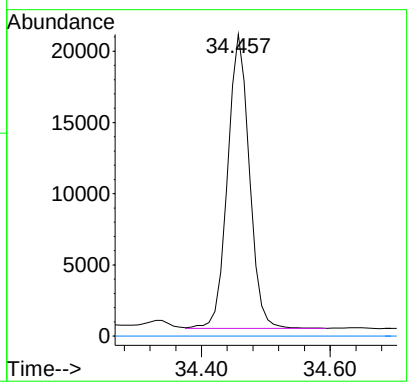


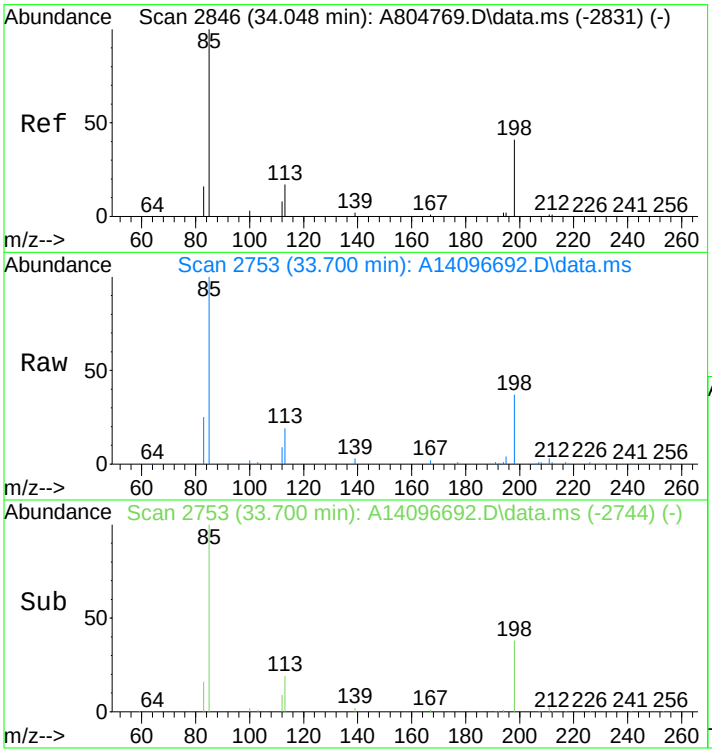


#36
1-Methyldibenzothiophene(1MDT)
Concen: 230.87 ng/mL
RT: 34.457 min Scan# 2836
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:198 Resp: 48366

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

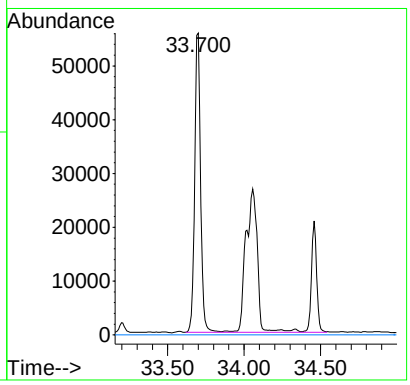


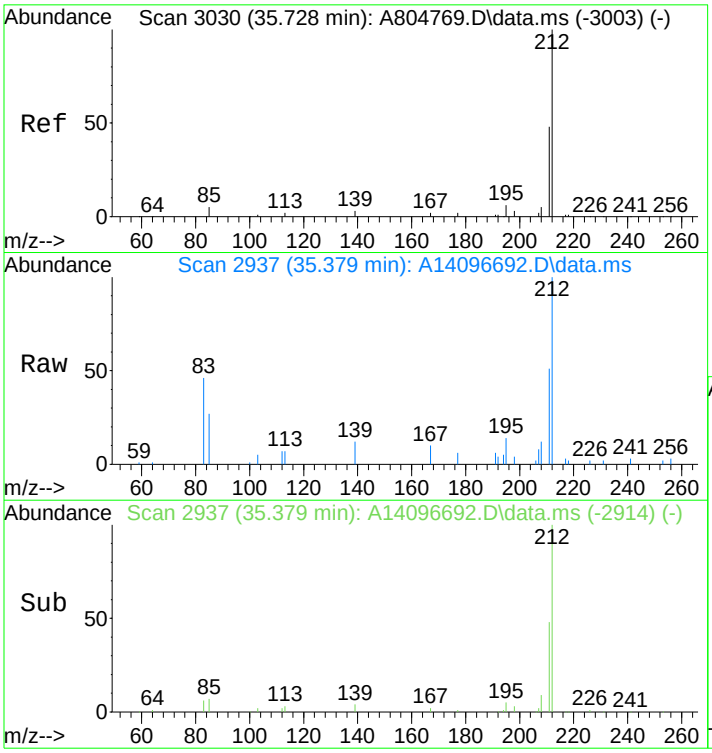


#38
C1-Dibenzothiophenes
Concen: 1617.40 ng/mL m
RT: 33.700 min Scan# 2753
Delta R.T. 0.038 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:198 Resp: 338838

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

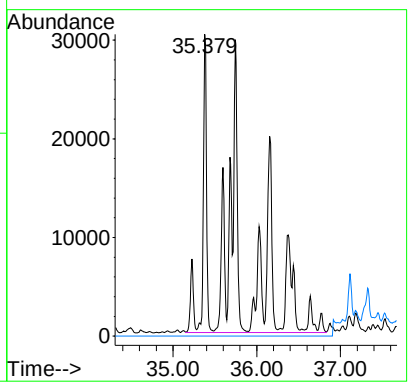


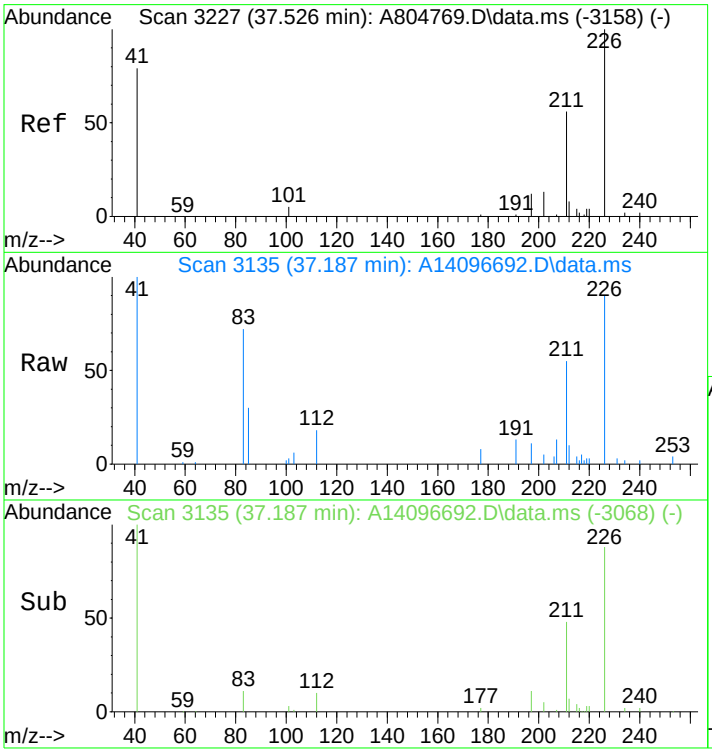


#39
C2-Dibenzothiophenes
Concen: 2152.94 ng/mL m
RT: 35.379 min Scan# 2937
Delta R.T. -0.314 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:212 Resp: 451030

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

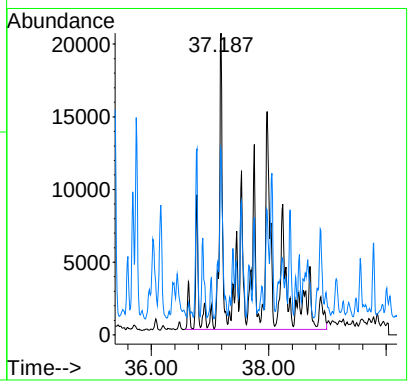


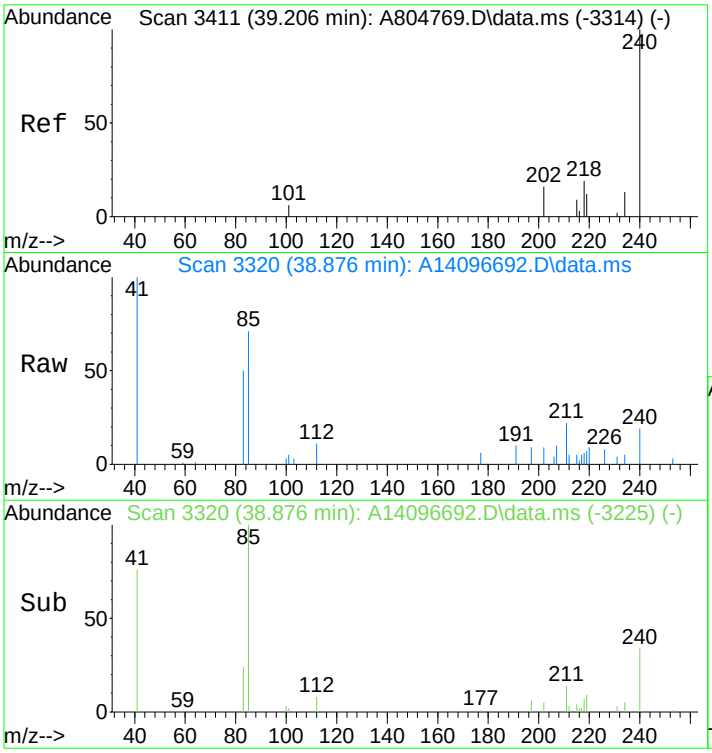


#40
C3-Dibenzothiophenes
Concen: 1901.60 ng/mL m
RT: 37.187 min Scan# 3135
Delta R.T. 0.061 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:226 Resp: 398376

Ion	Ratio	Lower	Upper
226	100		
211	10.0	48.4	72.6#

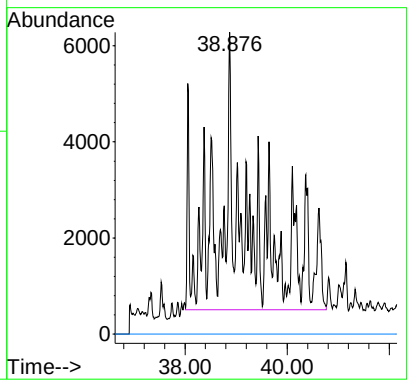


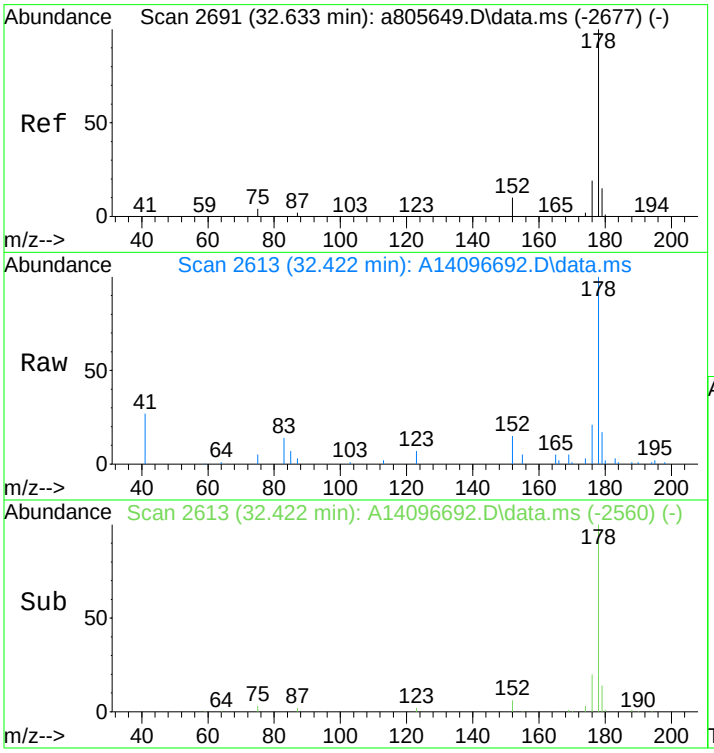


#41
C4-Dibenzothiophenes
Concen: 1070.69 ng/mL m
RT: 38.876 min Scan# 3320
Delta R.T. 0.072 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:240 Resp: 224305

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

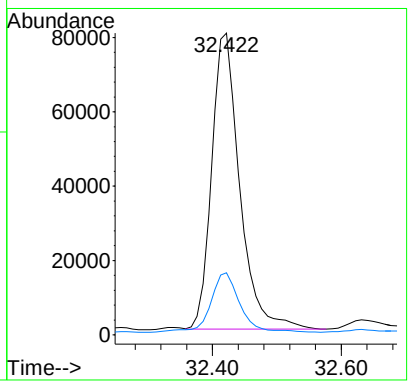


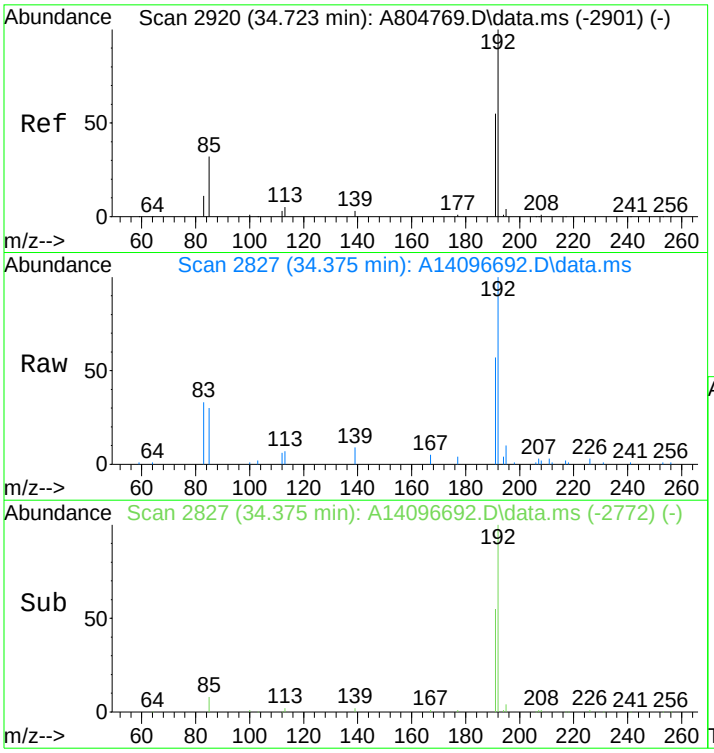


#43
Phenanthrene
Concen: 1082.79 ng/mL
RT: 32.422 min Scan# 2613
Delta R.T. -0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:178 Resp: 240880

Ion	Ratio	Lower	Upper
178	100		
176	21.0	14.8	22.2

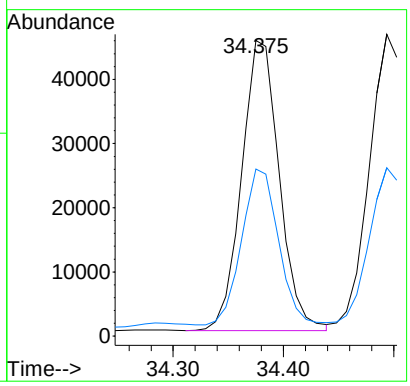


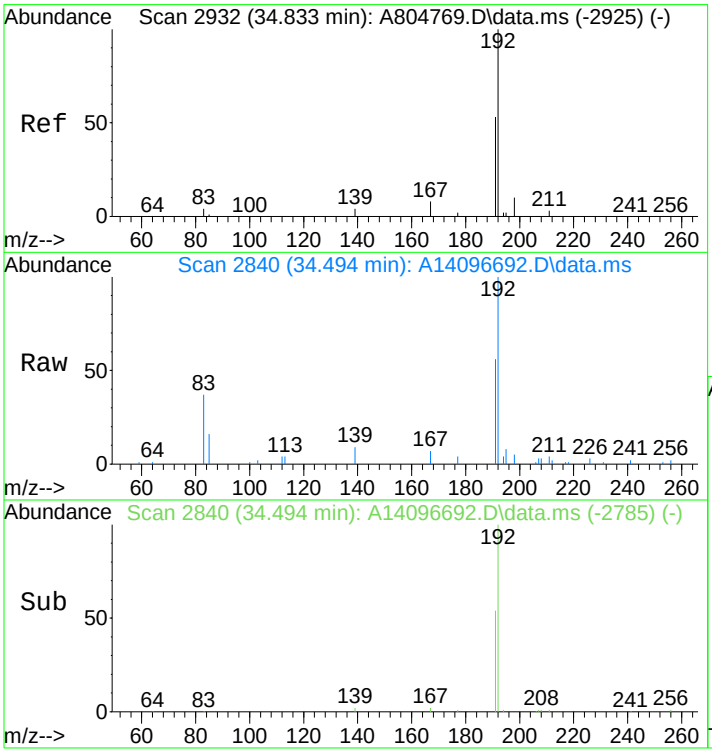


#44
3-Methylphenanthrene(3MP)
Concen: 482.40 ng/mL
RT: 34.375 min Scan# 2827
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 107315

Ion	Ratio	Lower	Upper
192	100		
191	52.8	45.2	67.8

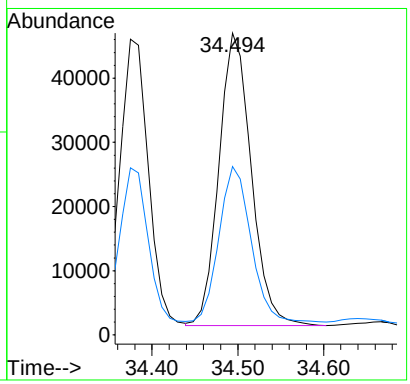


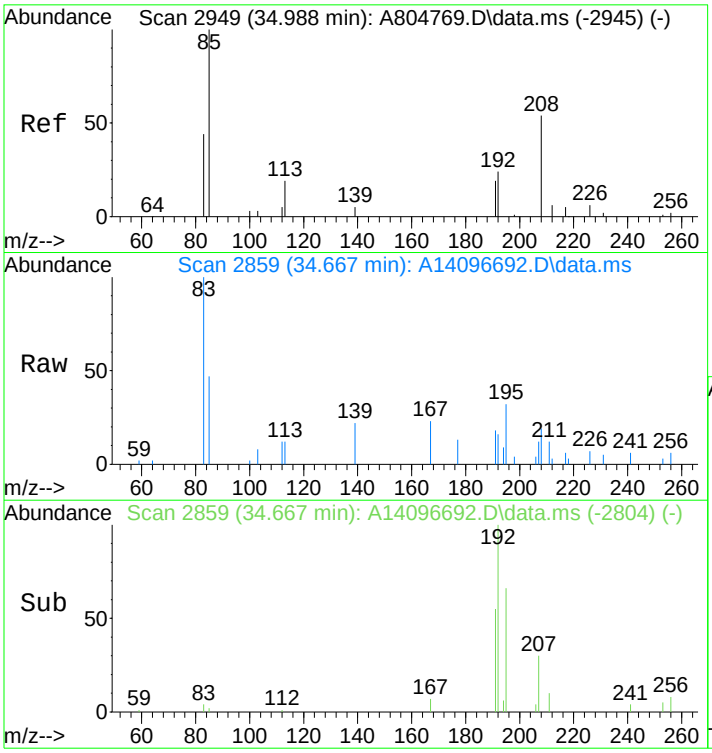


#45
2-Methylphenanthrene(2MP)
Concen: 535.60 ng/mL
RT: 34.494 min Scan# 2840
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 119151

Ion	Ratio	Lower	Upper
192	100		
191	52.5	44.6	66.8

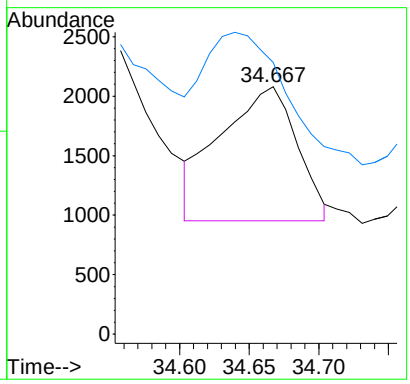


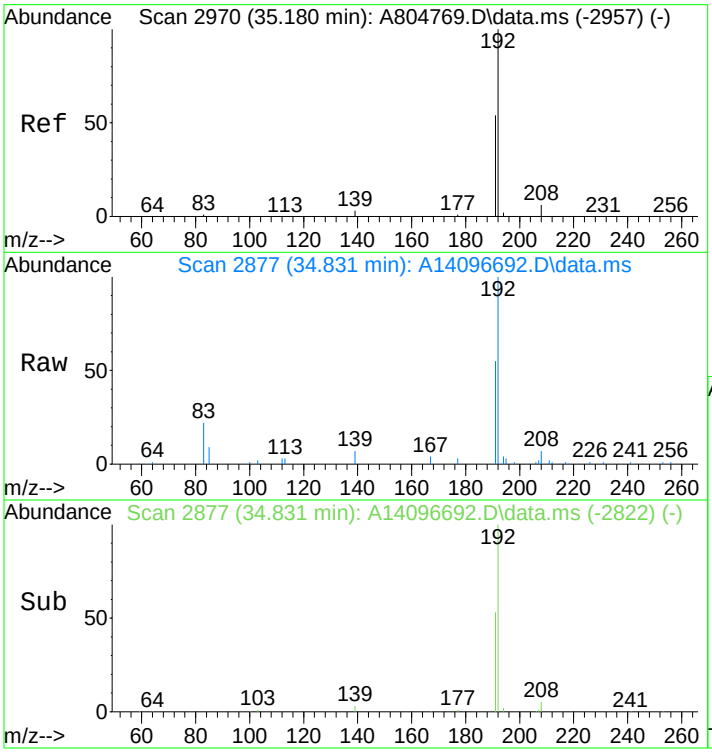


#46
2-Methylanthracene(2MA)
Concen: 19.48 ng/mL m
RT: 34.667 min Scan# 2859
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 4334

Ion	Ratio	Lower	Upper
192	100		
191	41.2	87.9	131.9#

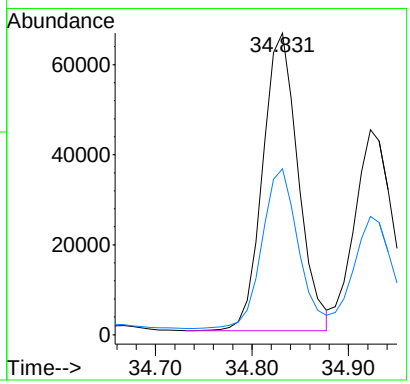


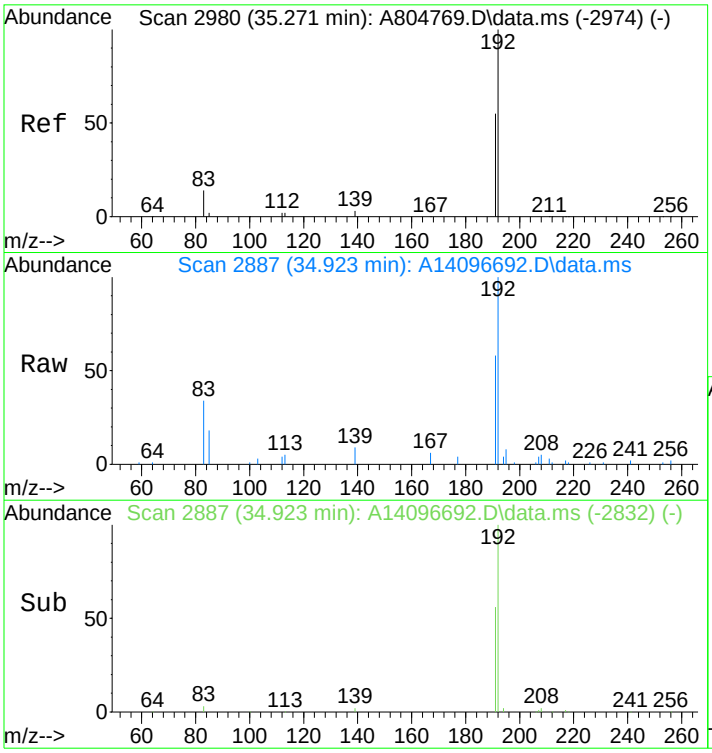


#47
9/4-Methylphenanthrene(9MP)
Concen: 760.37 ng/mL
RT: 34.831 min Scan# 2877
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 169153

Ion	Ratio	Lower	Upper
192	100		
191	54.6	44.1	66.1

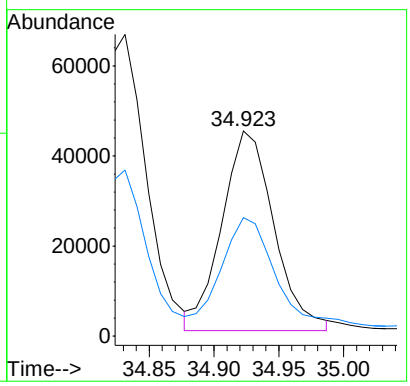


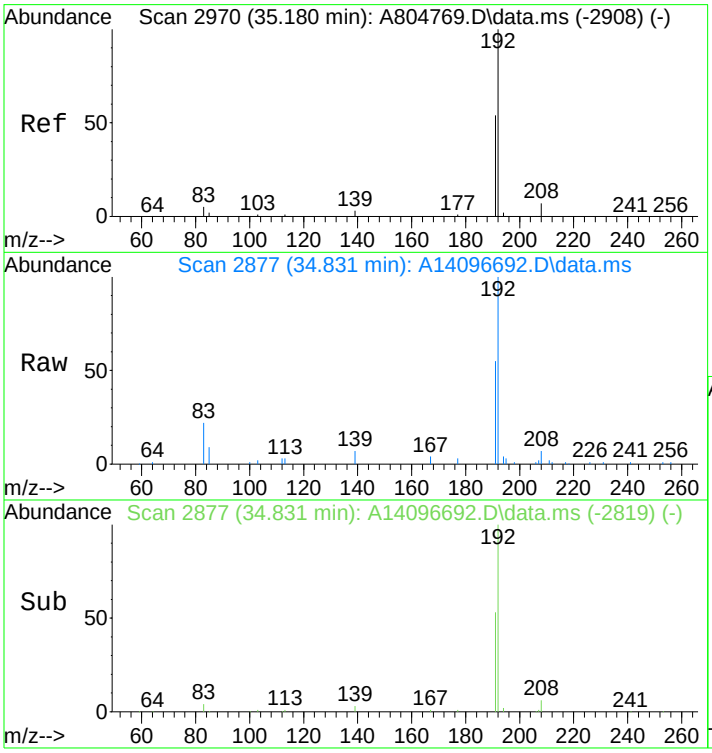


#48
1-Methylphenanthrene(1MP)
Concen: 556.98 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 123907

Ion	Ratio	Lower	Upper
192	100		
191	58.7	46.2	69.4

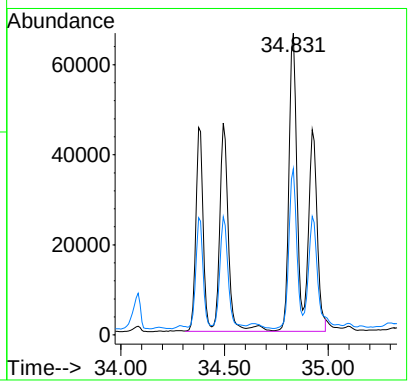


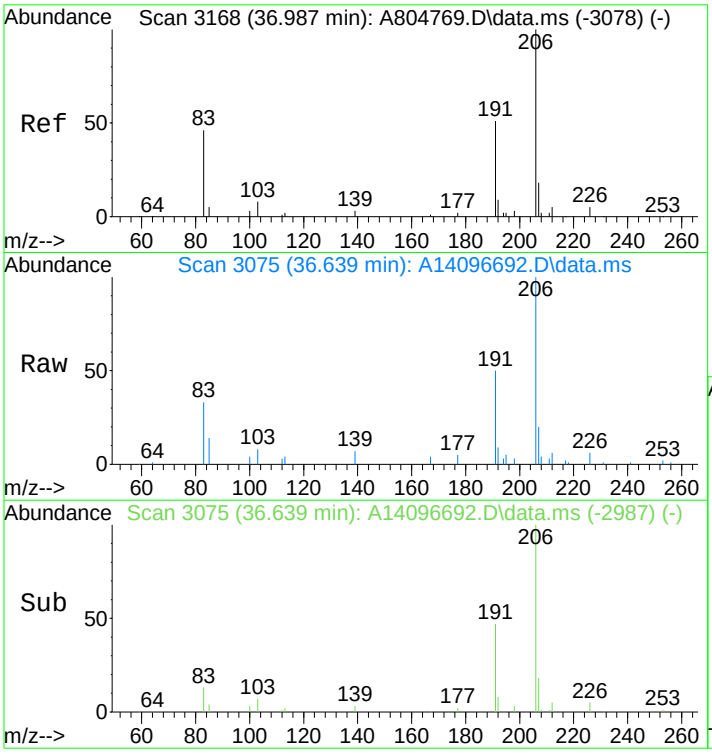


#49
C1-Phenanthrenes/Anthracenes
Concen: 2405.57 ng/mL m
RT: 34.831 min Scan# 2877
Delta R.T. 0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 535149

Ion	Ratio	Lower	Upper
192	100		
191	17.3	43.8	65.8#

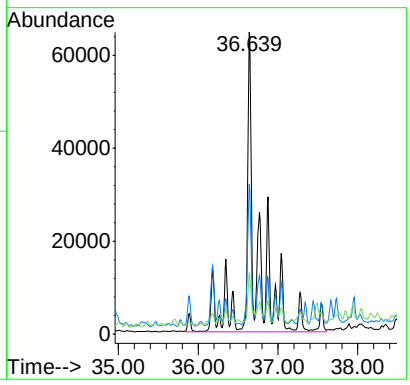


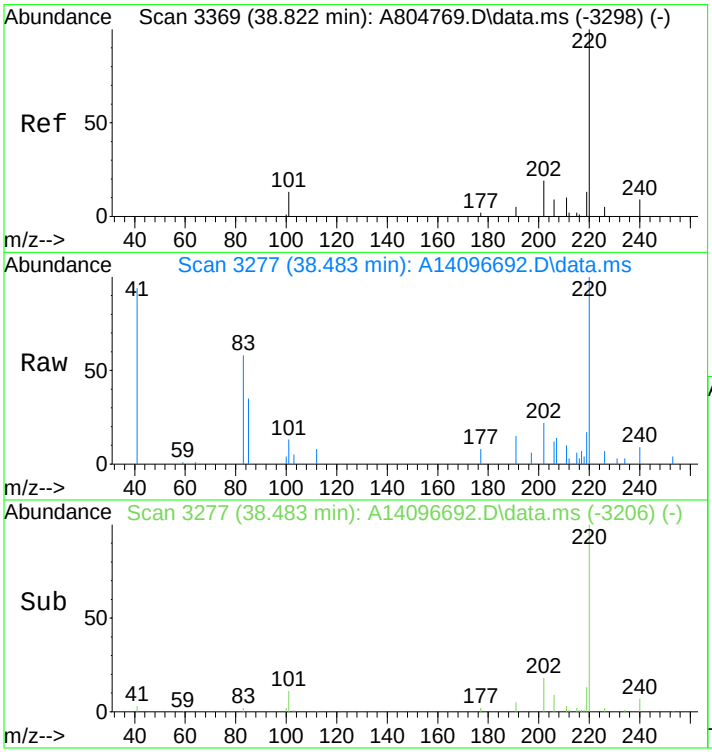


#50
C2-Phenanthrenes/Anthracenes
Concen: 2686.09 ng/mL m
RT: 36.639 min Scan# 3075
Delta R.T. 0.048 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:206 Resp: 597553

Ion	Ratio	Lower	Upper
206	100		
191	2.3	39.2	58.8#
207	1.2	16.8	25.2#

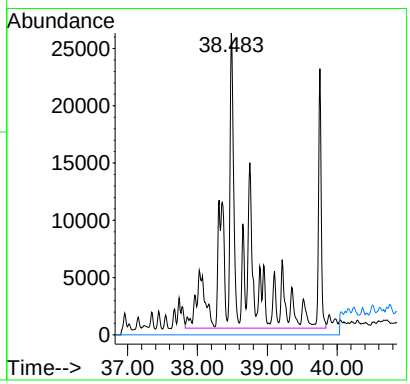


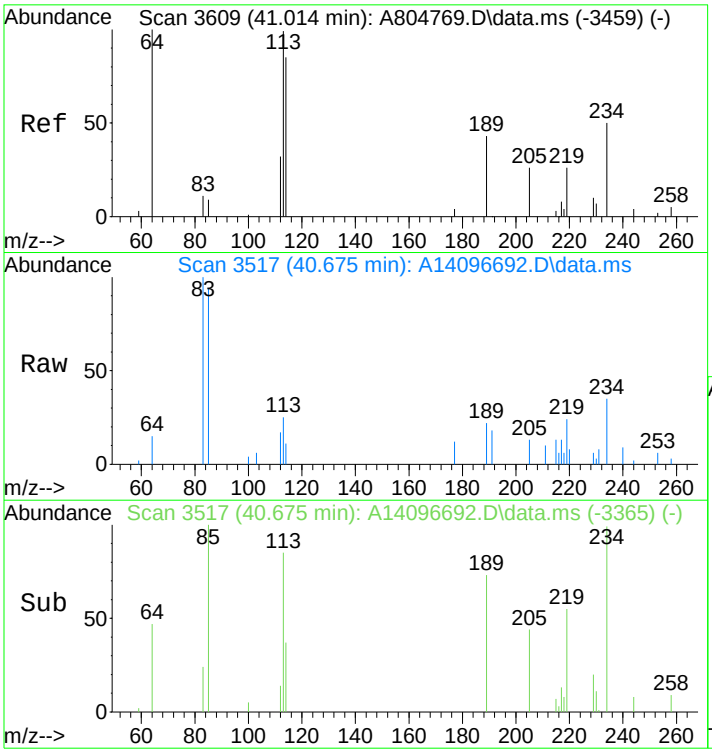


#52
C3-Phenanthrenes/Anthracenes
Concen: 1938.69 ng/mL m
RT: 38.483 min Scan# 3277
Delta R.T. 0.060 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:220 Resp: 431285

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

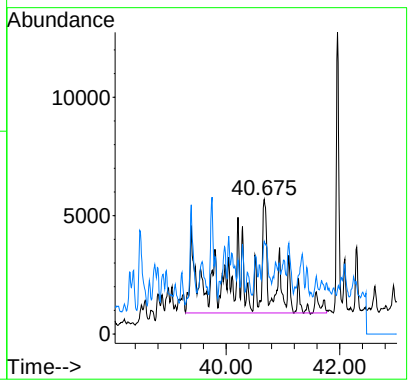


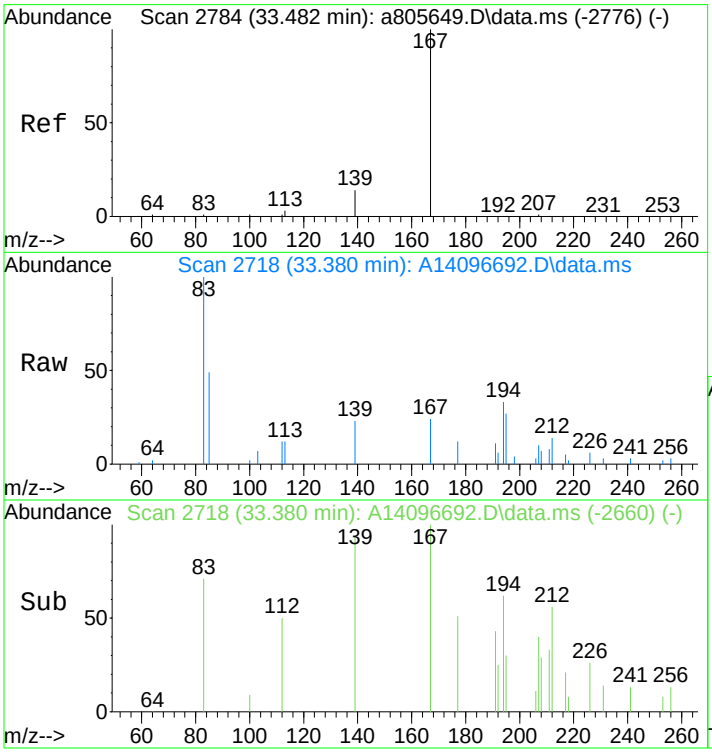


#53
C4-Phenanthrenes/Anthracenes
Concen: 713.73 ng/mL m
RT: 40.675 min Scan# 3517
Delta R.T. 0.093 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:234 Resp: 158778

Ion	Ratio	Lower	Upper
234	100		
219	3.2	49.8	74.8#

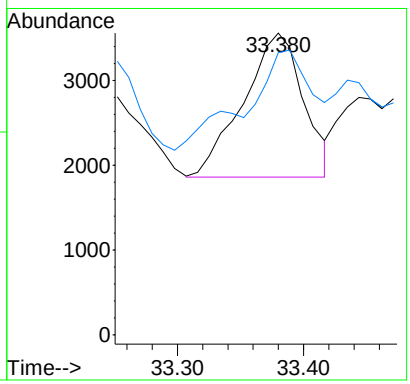


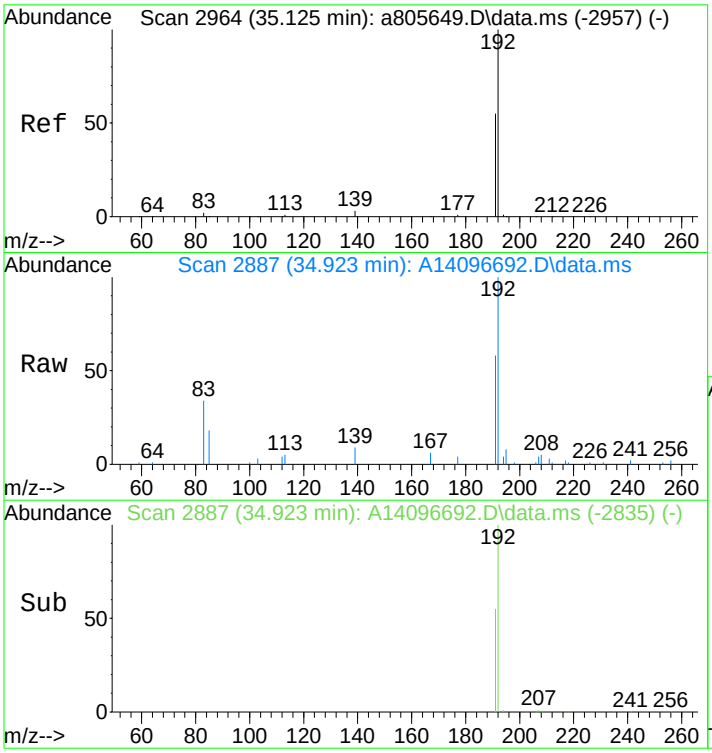


#56
Carbazole
Concen: 27.32 ng/mL m
RT: 33.380 min Scan# 2718
Delta R.T. 0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:167 Resp: 5638

Ion	Ratio	Lower	Upper
167	100		
139	19.5	11.8	17.8#

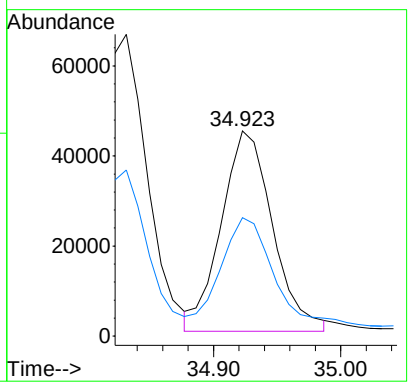


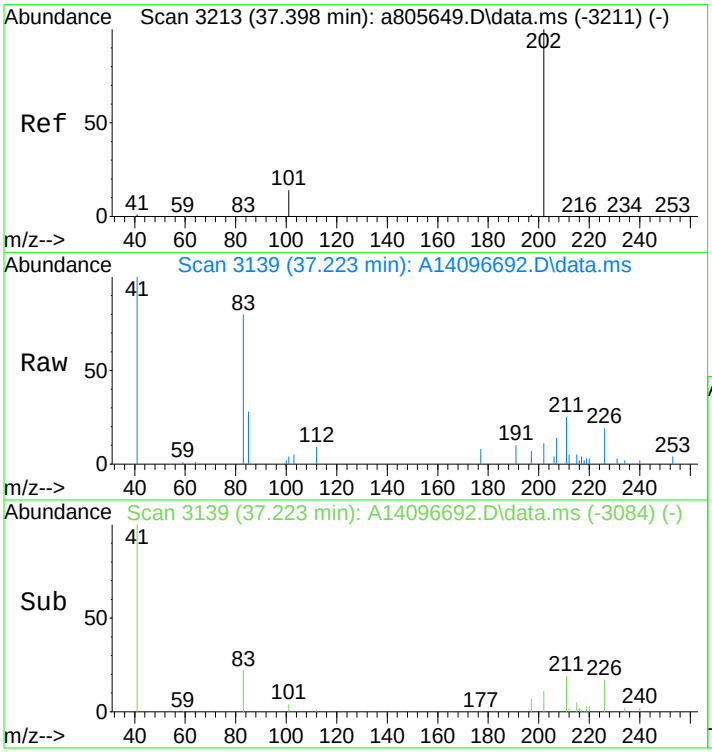


#57
1-Methylphenanthrene
Concen: 747.06 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. -0.027 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:192 Resp: 124670

Ion	Ratio	Lower	Upper
192	100		
191	58.6	45.0	67.4

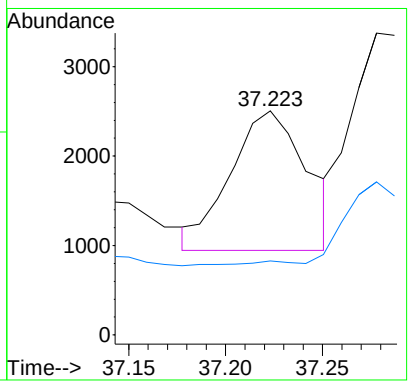


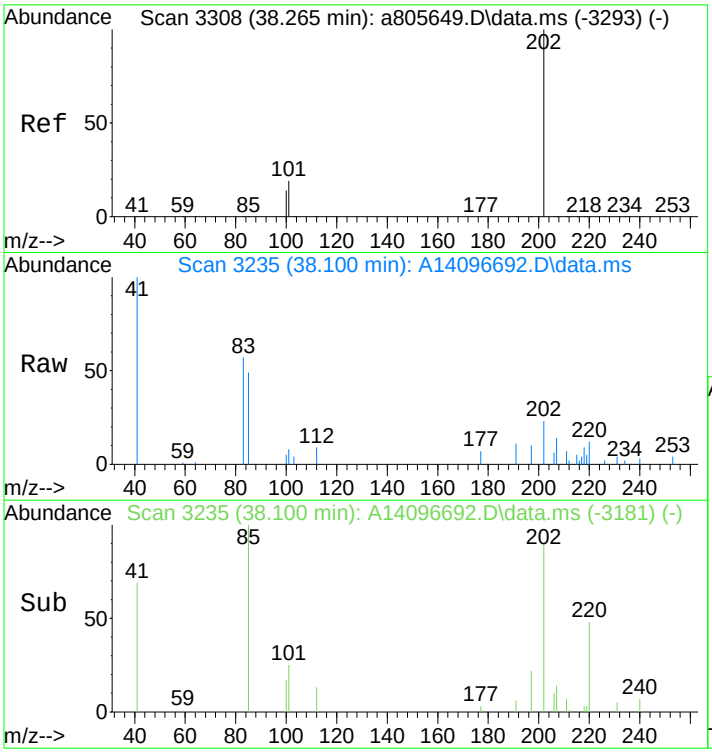


#58
Fluoranthene
Concen: 18.83 ng/mL m
RT: 37.223 min Scan# 3139
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:202 Resp: 4273

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.8	17.8#

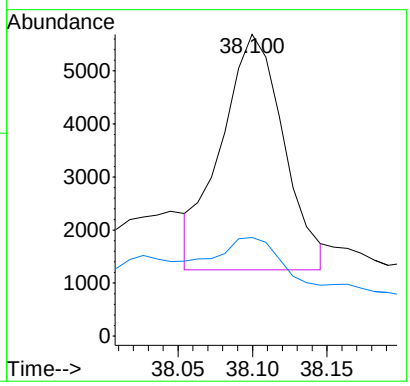


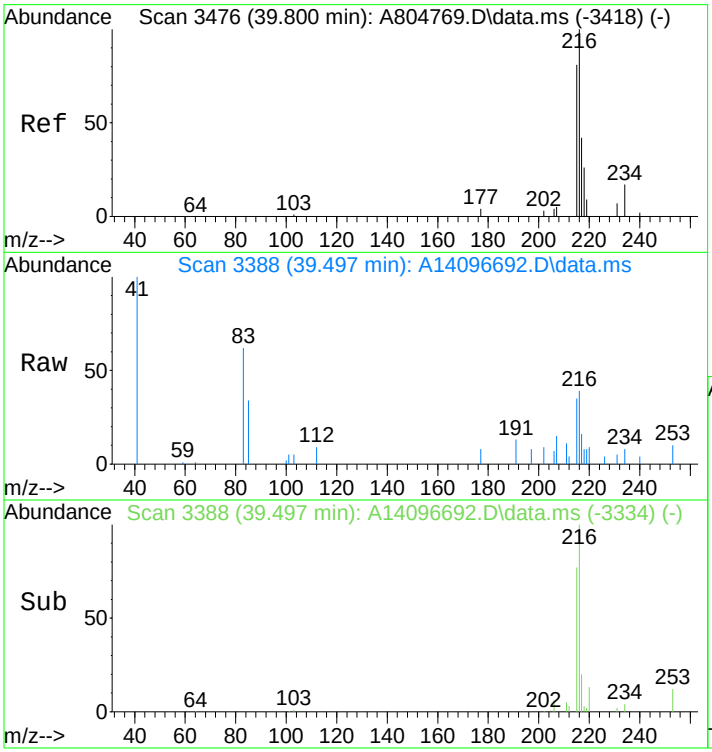


#60
Pyrene
Concen: 54.90 ng/mL m
RT: 38.100 min Scan# 3235
Delta R.T. -0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:202 Resp: 12951

Ion	Ratio	Lower	Upper
202	100		
101	27.2	13.8	20.6#

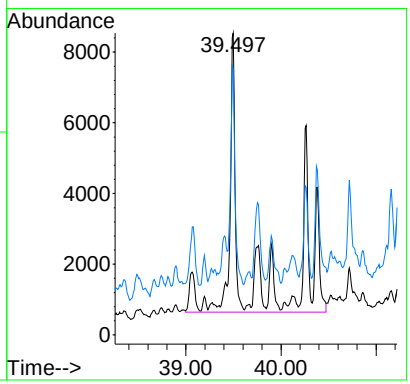


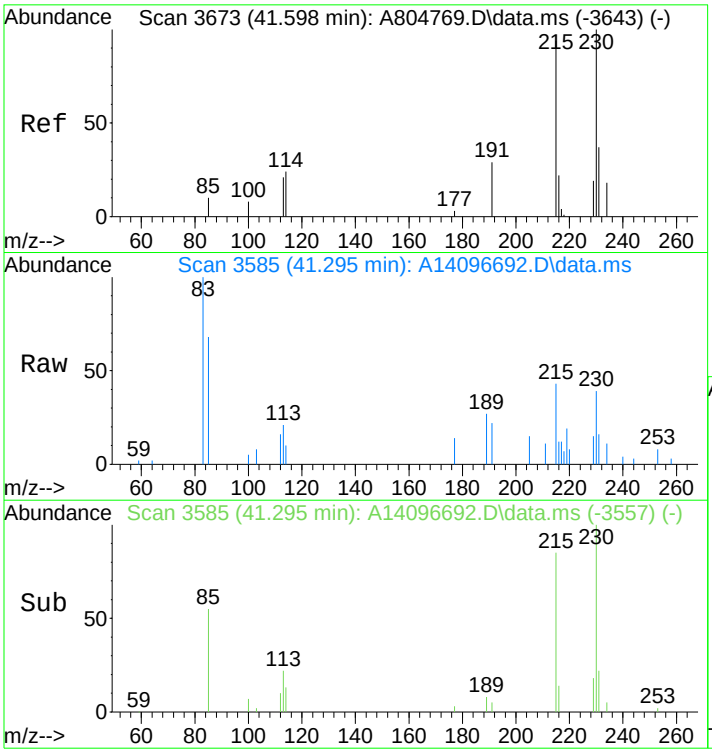


#61
C1-Fluoranthenes/Pyrenes
Concen: 337.18 ng/mL m
RT: 39.497 min Scan# 3388
Delta R.T. -0.146 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:216 Resp: 79536

Ion	Ratio	Lower	Upper
216	100		
215	10.7	82.9	124.3#

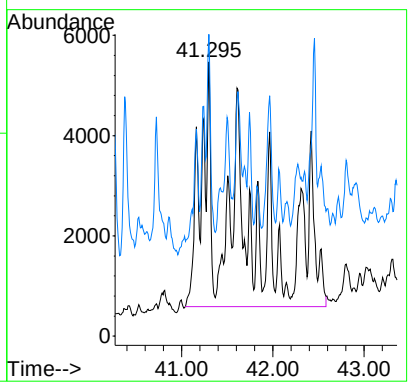


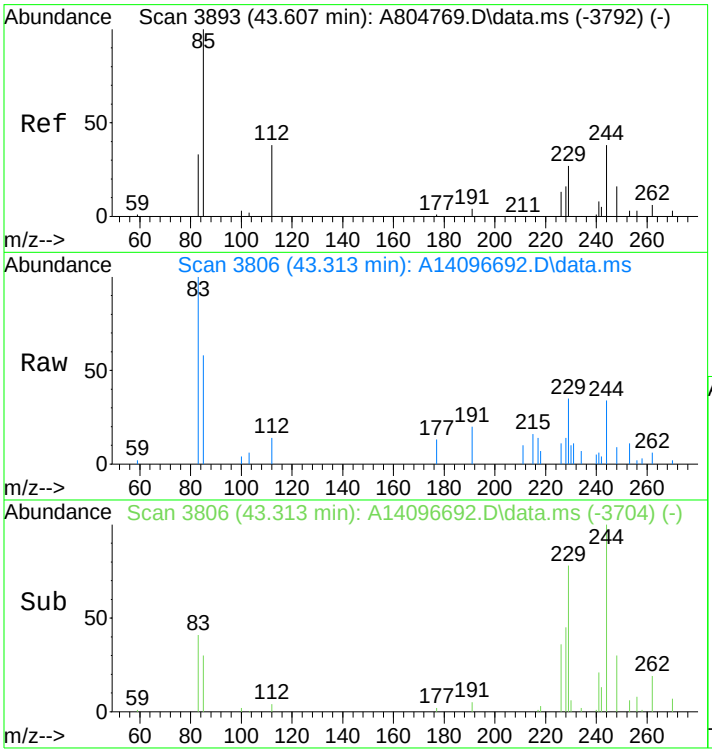


#62
C2-Fluoranthenes/Pyrenes
Concen: 556.49 ng/mL m
RT: 41.295 min Scan# 3585
Delta R.T. 0.097 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:230 Resp: 131269

Ion	Ratio	Lower	Upper
230	100		
215	8.0	88.1	132.1#

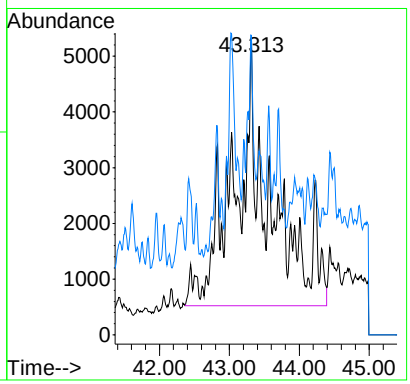


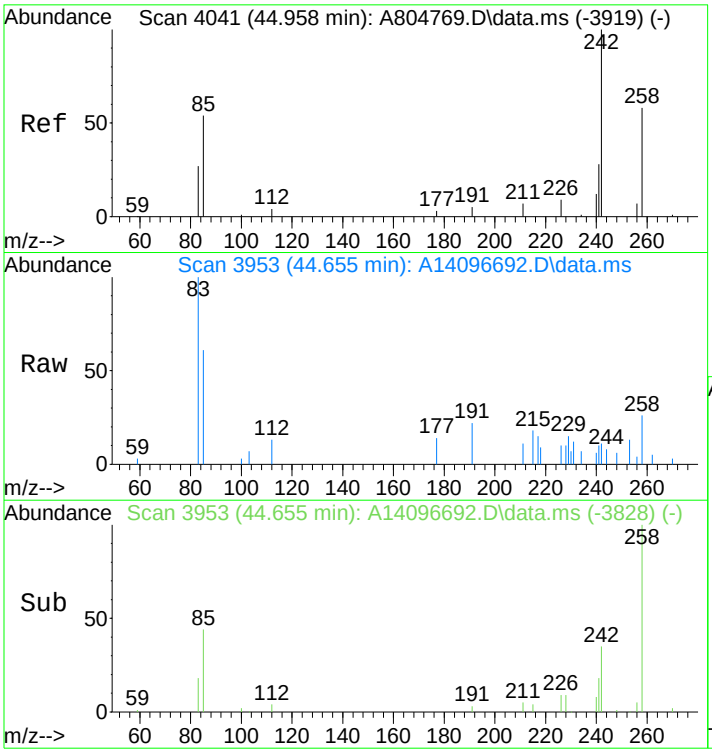


#63
C3-Fluoranthenes/Pyrenes
Concen: 702.08 ng/mL m
RT: 43.313 min Scan# 3806
Delta R.T. 0.110 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:244 Resp: 165613

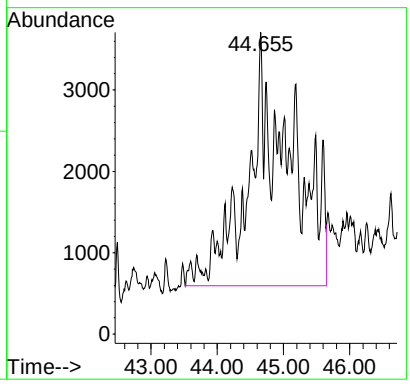
Ion	Ratio	Lower	Upper
244	100		
229	7.9	79.7	119.5#

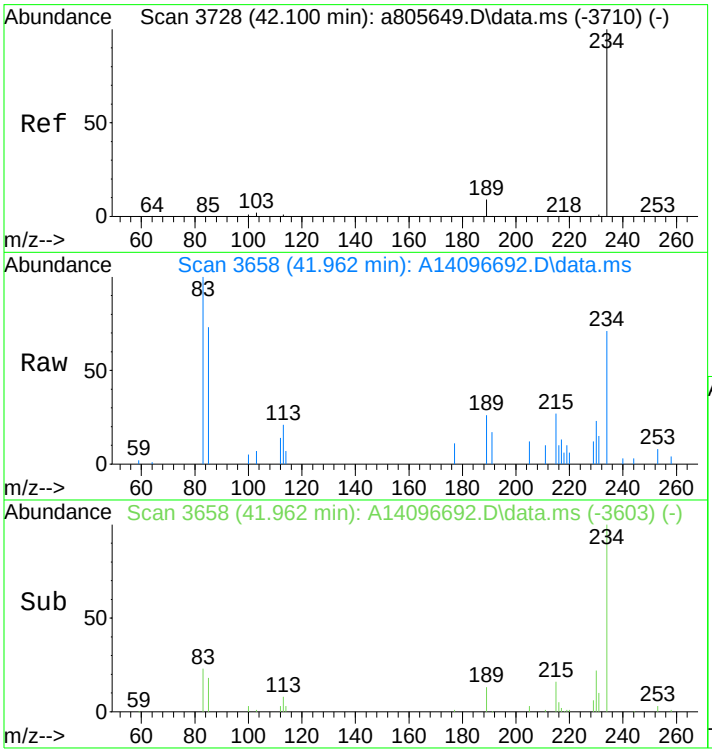




#64
C4-Fluoranthenes/Pyrenes
Concen: 580.19 ng/mL m
RT: 44.655 min Scan# 3953
Delta R.T. 0.110 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:258 Resp: 136861

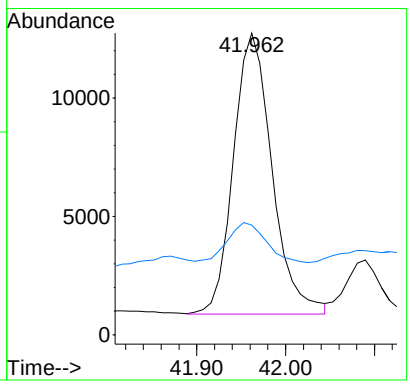


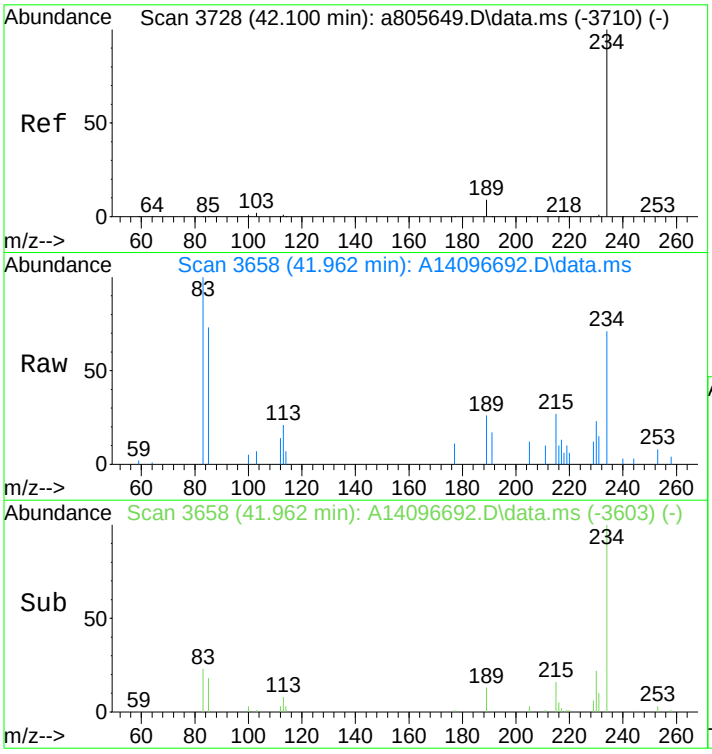


#66
Naphthobenzothiophene
Concen: 175.06 ng/ml m
RT: 41.962 min Scan# 3658
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:234 Resp: 35804

Ion	Ratio	Lower	Upper
234	100		
189	4.9	29.1	43.7#

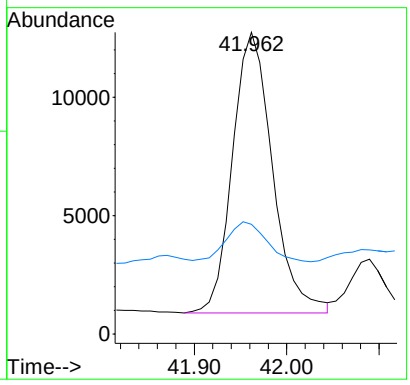


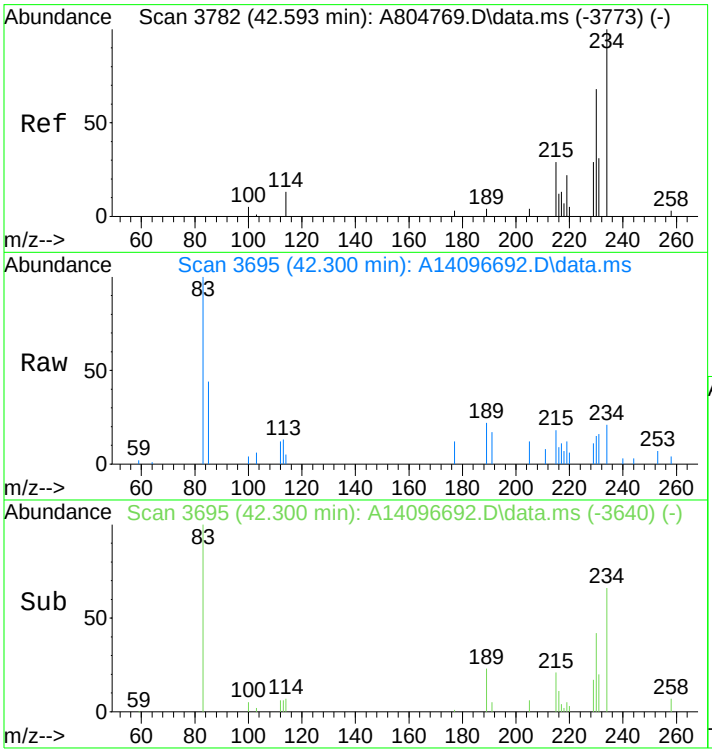


#67
Naphthobenzothiophene-2,1-D
Concen: 174.84 ng/mL m
RT: 41.962 min Scan# 3658
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:234 Resp: 35758

Ion	Ratio	Lower	Upper
234	100		
189	4.9	29.1	43.7#

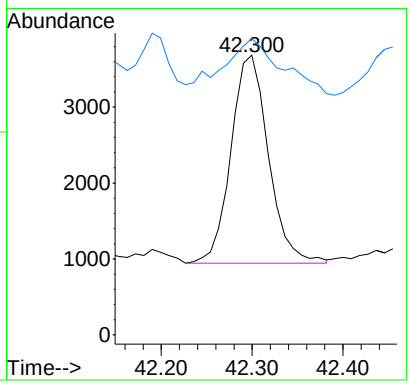


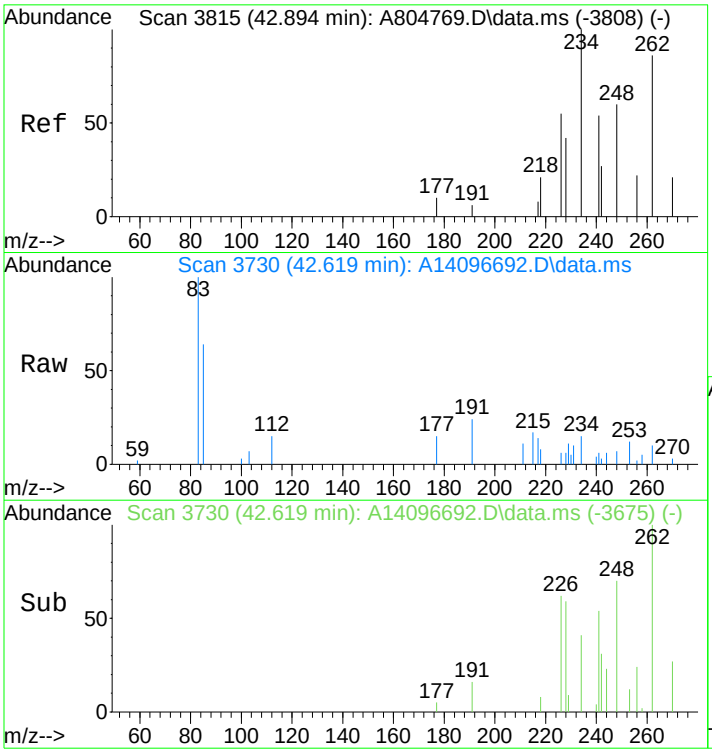


#68
Naphthobenzothiophene-1,2-D
Concen: 38.24 ng/mL
RT: 42.300 min Scan# 3695
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:234 Resp: 7821

Ion	Ratio	Lower	Upper
234	100		
189	0.0	84.7	127.1#

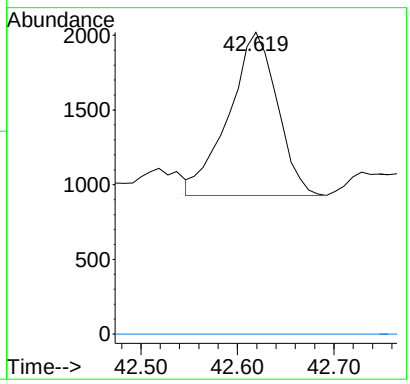


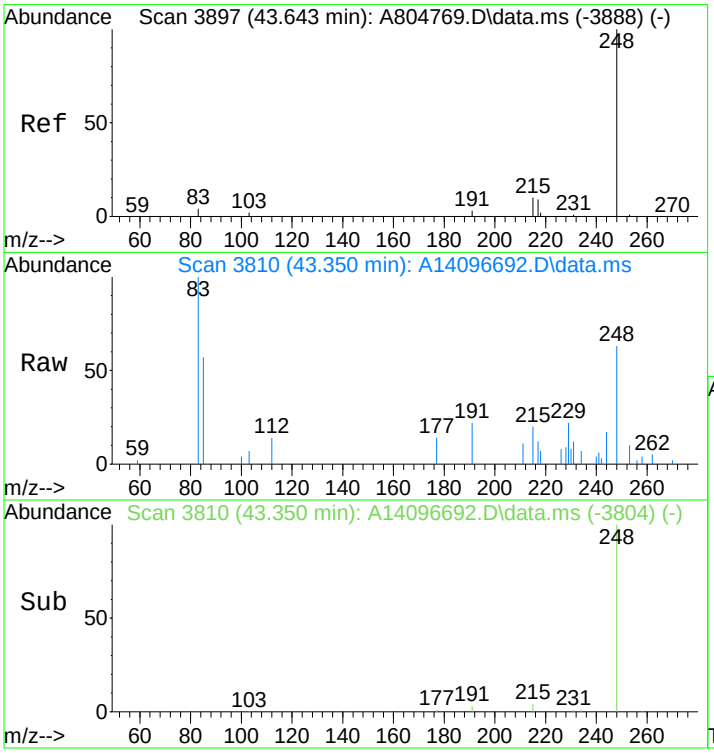


#69
Naphthobenzothiophene-2,3-D
Concen: 18.53 ng/mL
RT: 42.619 min Scan# 3730
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:234 Resp: 3790

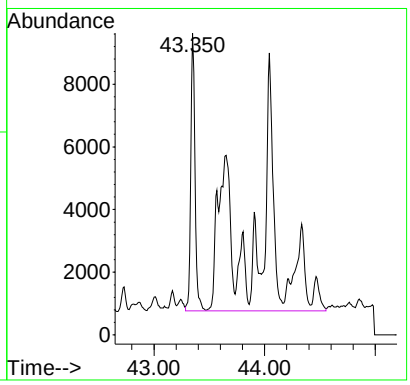
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

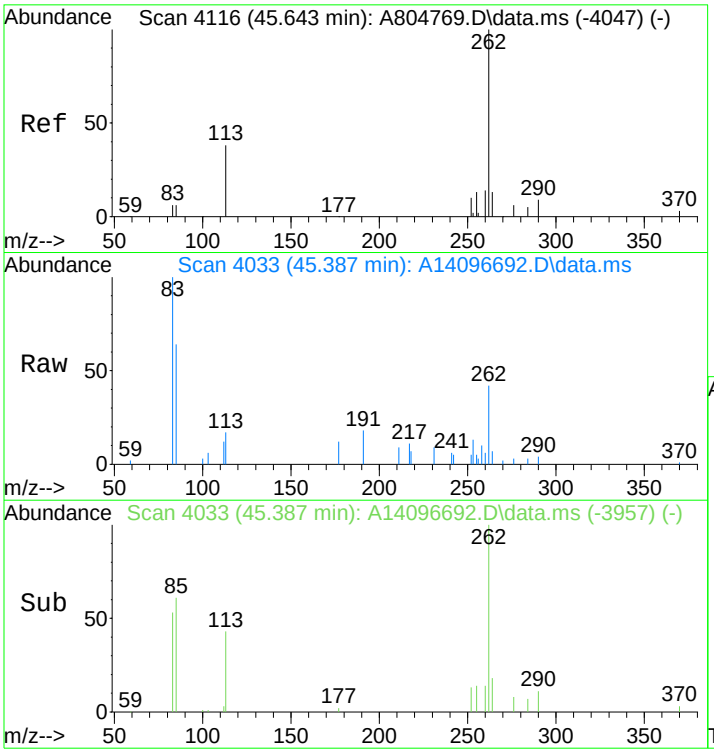




#70
C1-Naphthobenzothiophenes
Concen: 671.12 ng/ml m
RT: 43.350 min Scan# 3810
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

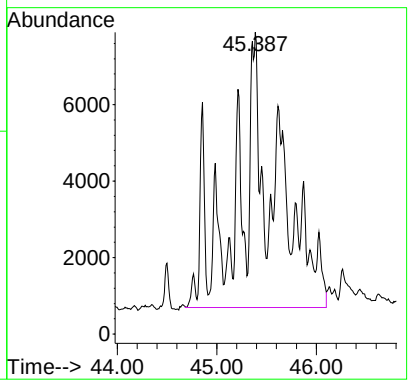
Tgt Ion:248 Resp: 137257

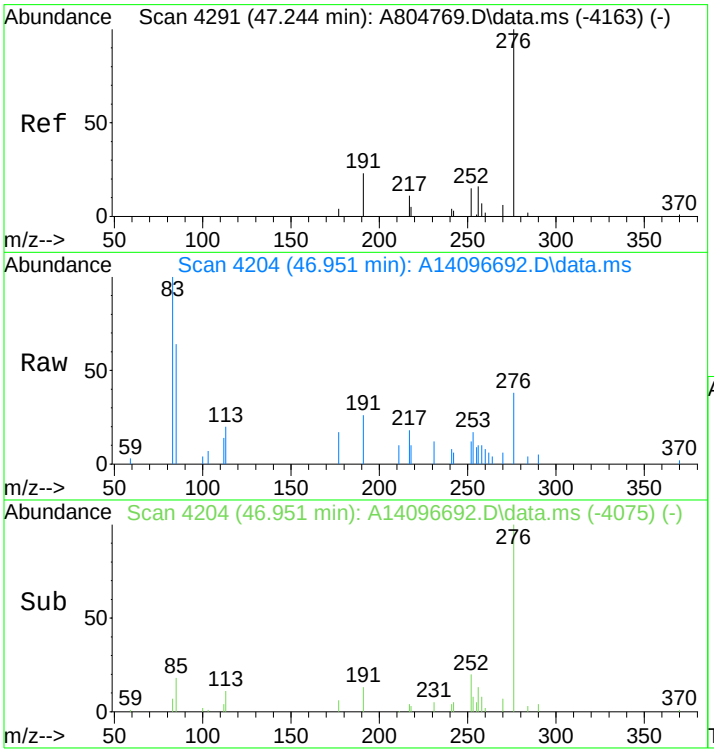




#71
C2-Naphthobenzothiophenes
Concen: 940.34 ng/ml m
RT: 45.387 min Scan# 4033
Delta R.T. 0.151 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

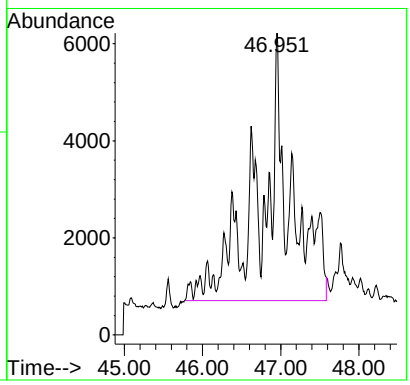
Tgt Ion:262 Resp: 192319

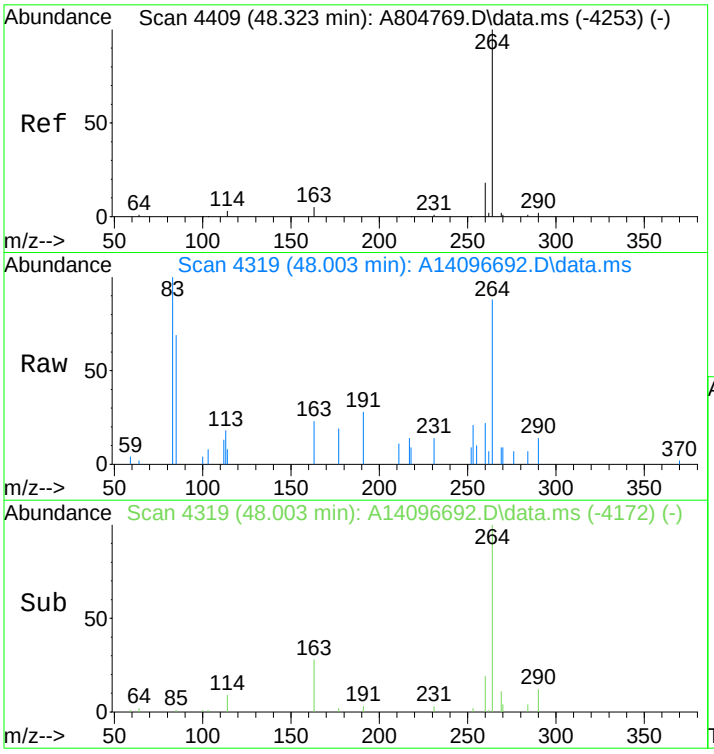




#72
C3-Naphthobenzothiophenes
Concen: 725.20 ng/ml m
RT: 46.951 min Scan# 4204
Delta R.T. 0.124 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

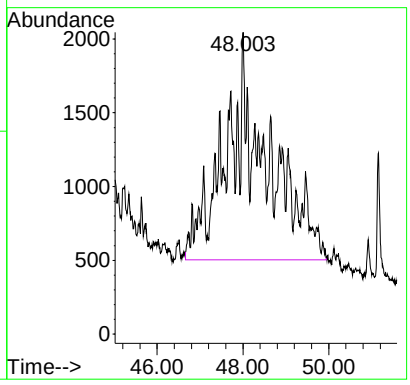
Tgt Ion:276 Resp: 148319

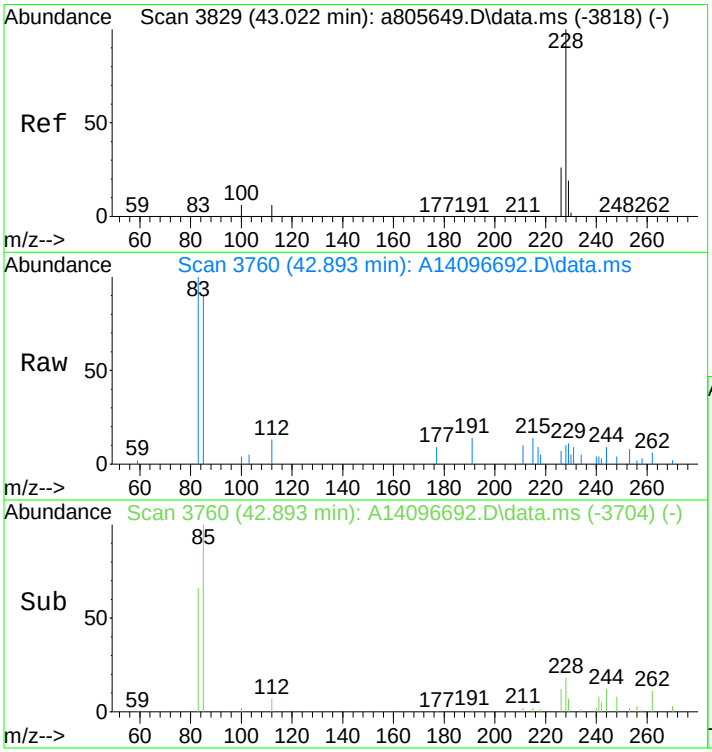




#73
C4-Naphthobenzothiophenes
Concen: 484.00 ng/mL m
RT: 48.003 min Scan# 4319
Delta R.T. 0.113 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:290 Resp: 98988

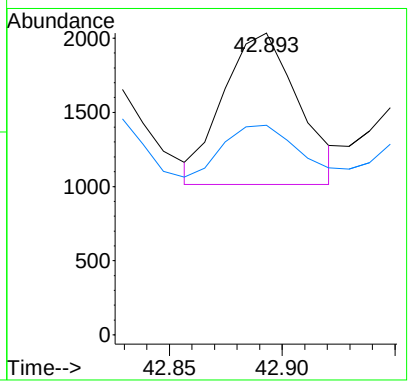


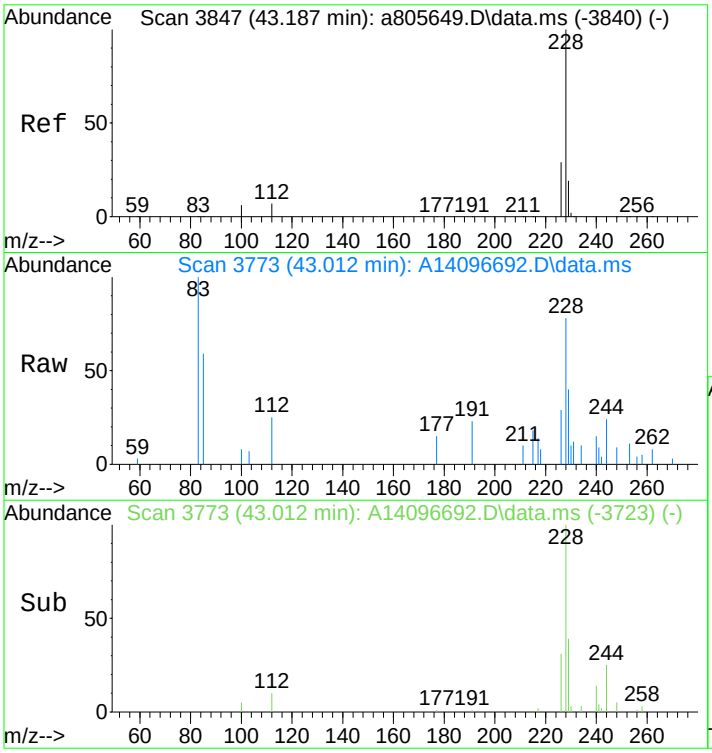


#75
Benz[a]anthracene
Concen: 10.02 ng/mL m
RT: 42.893 min Scan# 3760
Delta R.T. 0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:228 Resp: 2363

Ion	Ratio	Lower	Upper
228	100		
226	547.5	20.3	30.5#

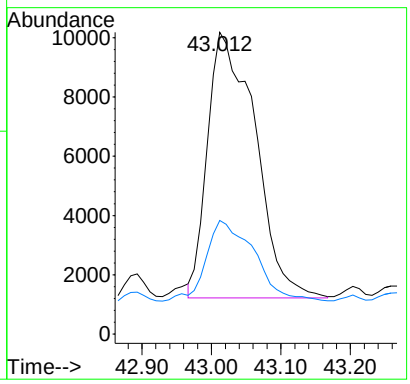


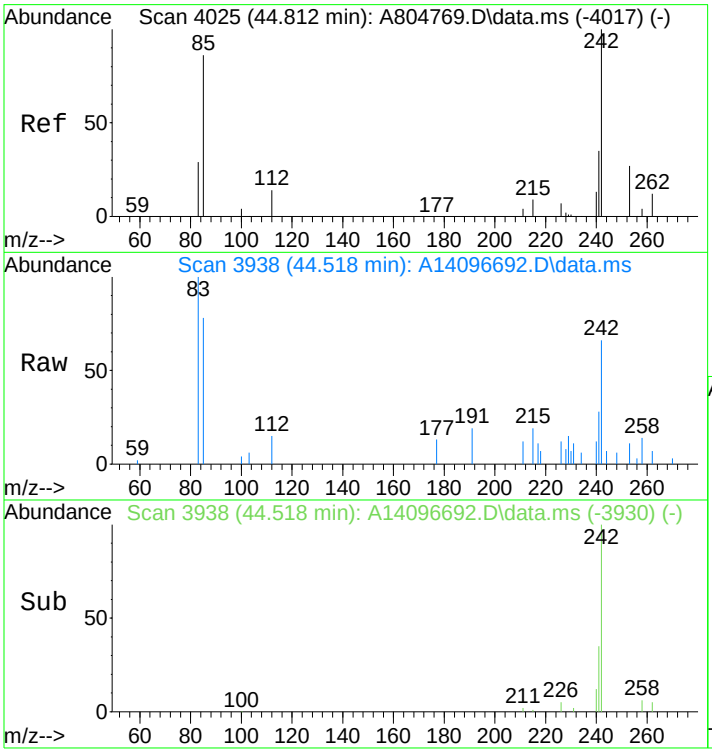


#77
Chrysene/Triphenylene
Concen: 182.76 ng/mL m
RT: 43.012 min Scan# 3773
Delta R.T. -0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:228 Resp: 42569

Ion	Ratio	Lower	Upper
228	100		
226	33.5	22.2	33.2#

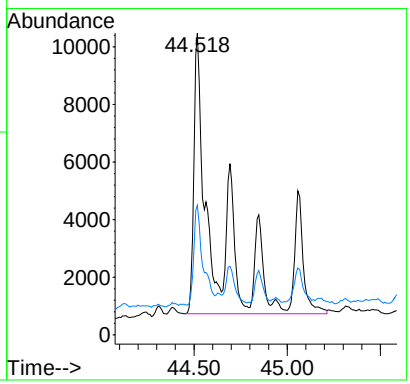


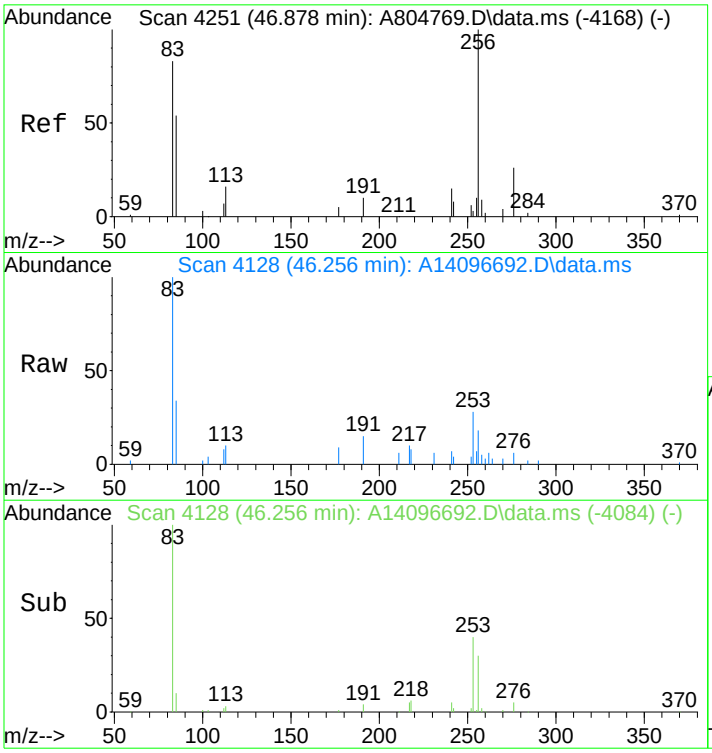


#78
C1-Chrysenes
Concen: 339.95 ng/mL m
RT: 44.518 min Scan# 3938
Delta R.T. 0.010 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:242 Resp: 79182

Ion	Ratio	Lower	Upper
242	100		
241	4.1	33.7	50.5#

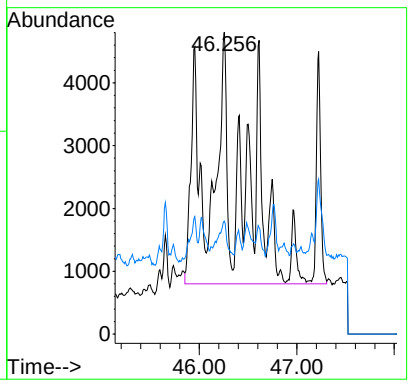


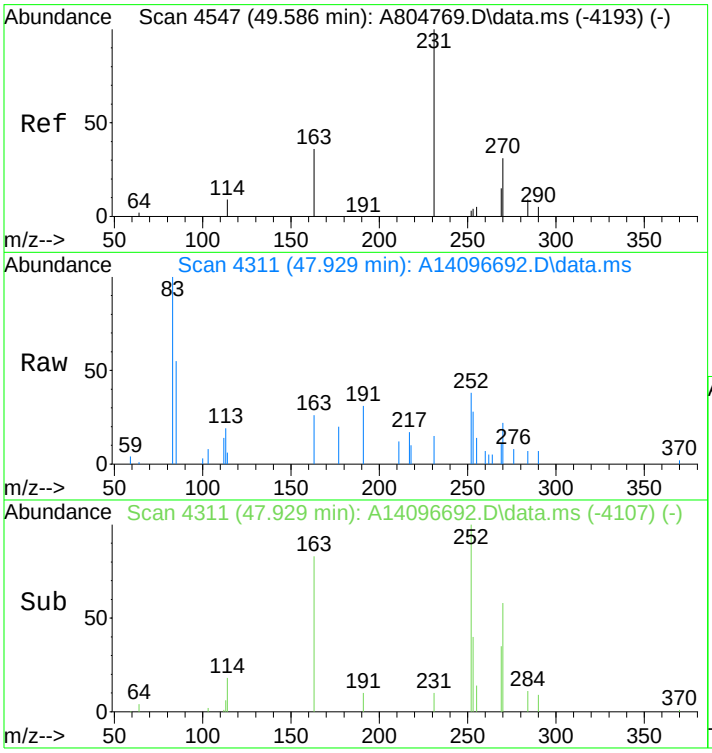


#79
C2-Chrysenes
Concen: 443.41 ng/mL m
RT: 46.256 min Scan# 4128
Delta R.T. -0.342 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:256 Resp: 103282

Ion	Ratio	Lower	Upper
256	100		
241	3.4	28.1	42.1#

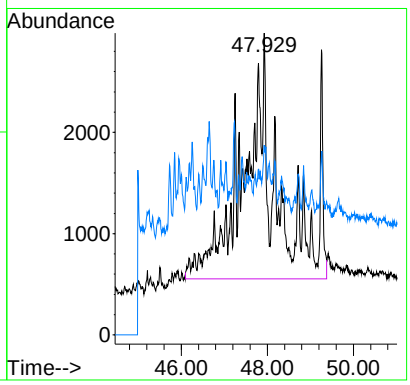


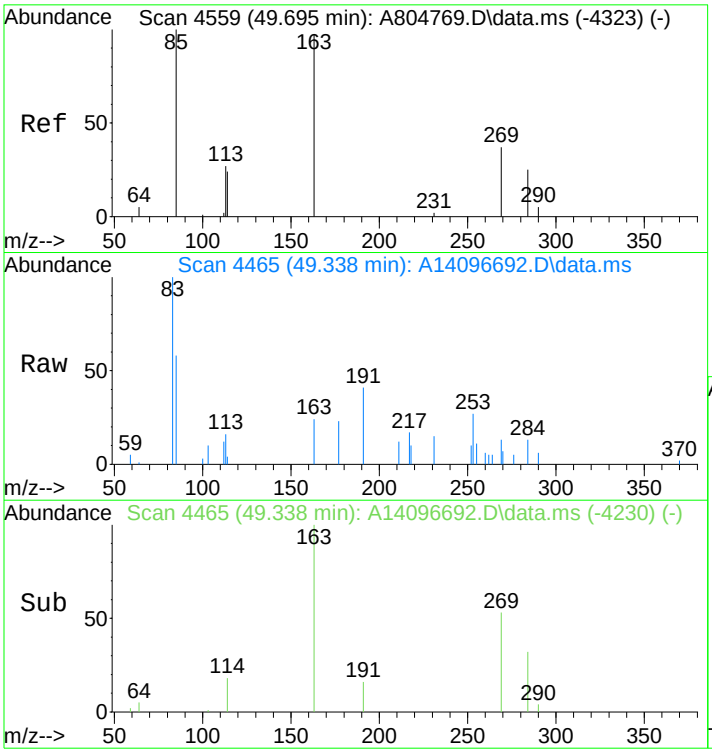


#80
C3-Chrysenes
Concen: 535.48 ng/mL m
RT: 47.929 min Scan# 4311
Delta R.T. -1.346 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:270 Resp: 124726

Ion	Ratio	Lower	Upper
270	100		
255	1.2	52.2	78.4#

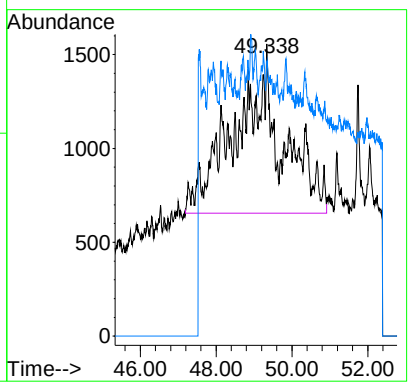


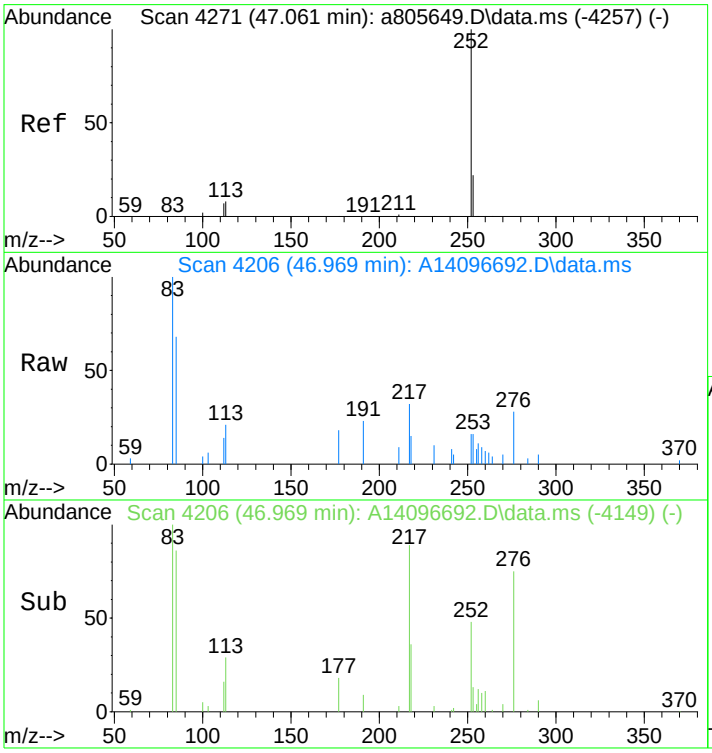


#81
C4-Chrysenes
Concen: 320.13 ng/mL m
RT: 49.338 min Scan# 4465
Delta R.T. -0.023 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:284 Resp: 74566

Ion	Ratio	Lower	Upper
284	100		
269	0.0	72.2	108.2#

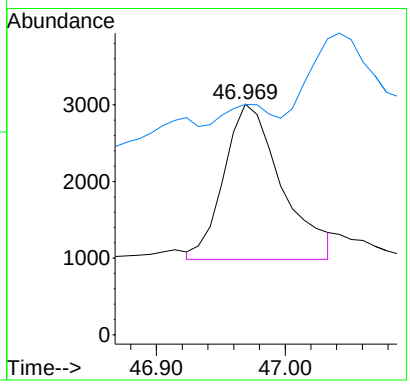


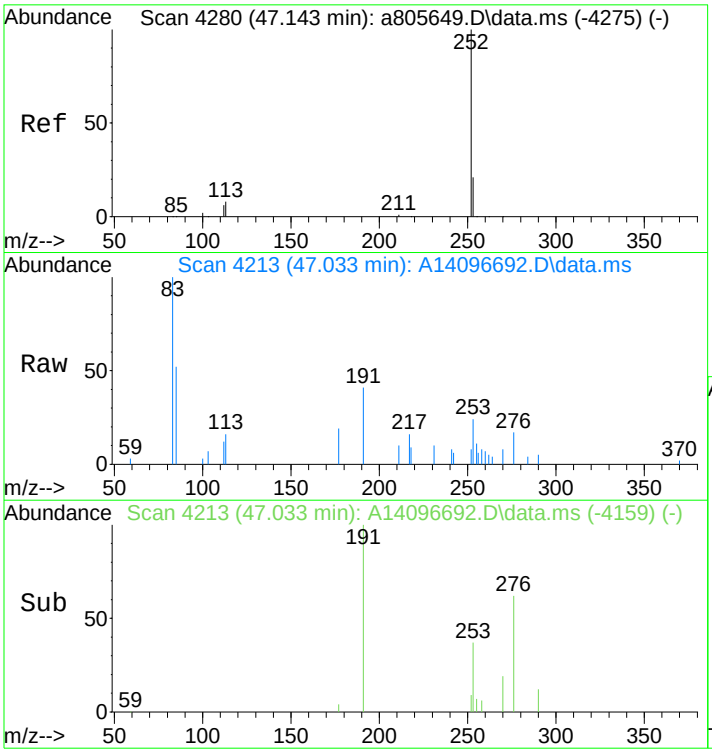


#82
Benzo[b]fluoranthene
Concen: 26.99 ng/mL m
RT: 46.969 min Scan# 4206
Delta R.T. 0.018 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:252 Resp: 6297

Ion	Ratio	Lower	Upper
252	100		
253	19.4	19.9	29.9#

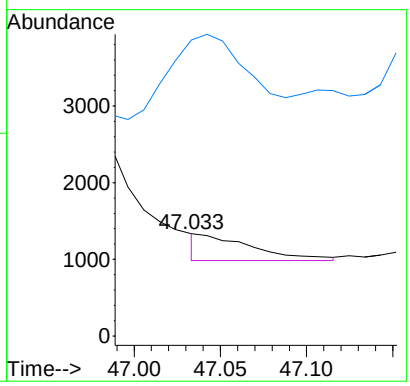


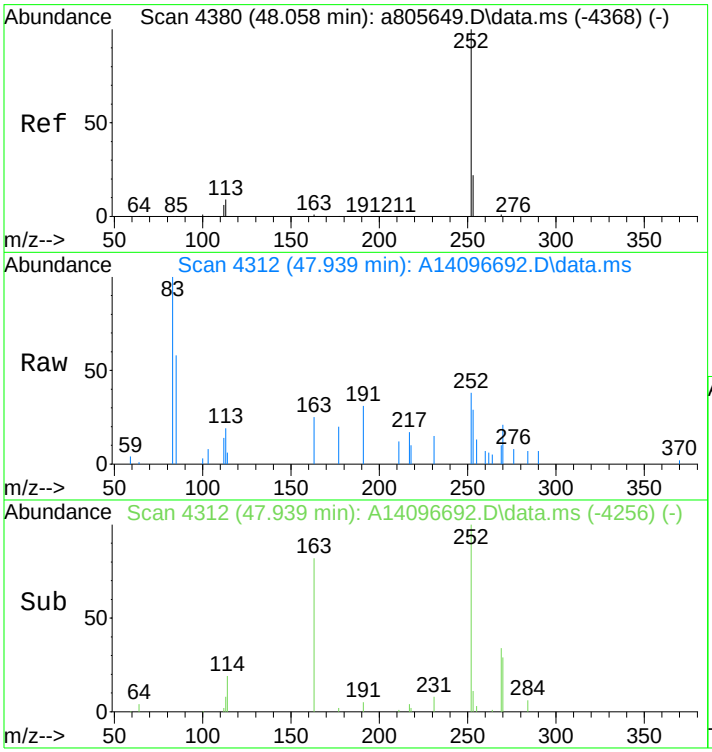


#83
Benzo[j]+[k]fluoranthene
Concen: 2.84 ng/mL m
RT: 47.033 min Scan# 4213
Delta R.T. -0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:252 Resp: 731

Ion	Ratio	Lower	Upper
252	100		
253	94.3	20.1	30.1#

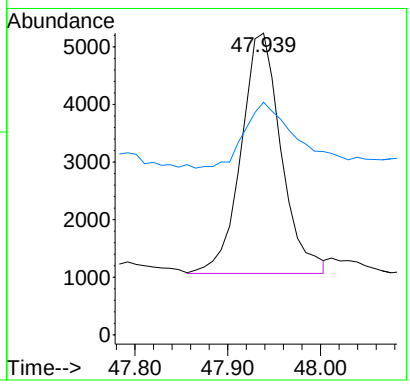


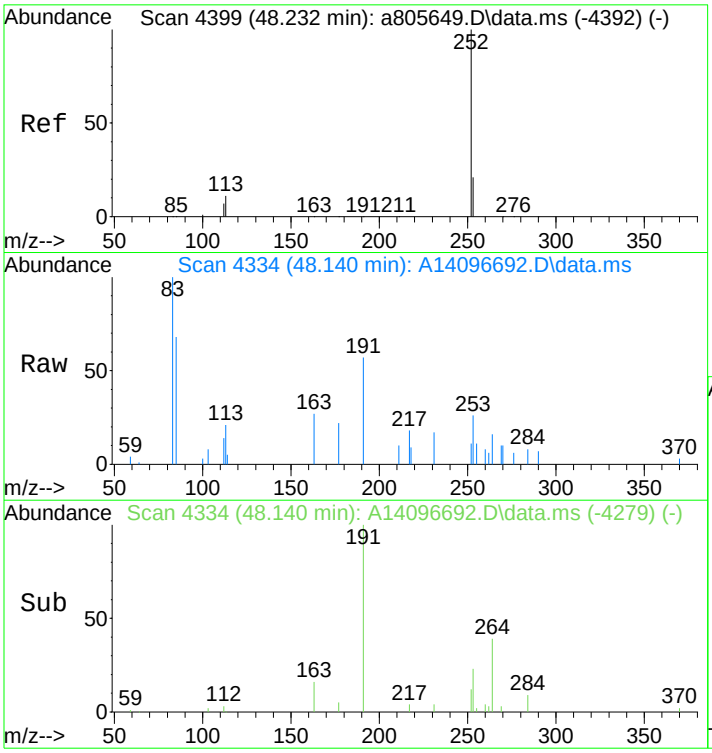


#85
Benzo[e]pyrene
Concen: 54.04 ng/mL m
RT: 47.939 min Scan# 4312
Delta R.T. 0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:252 Resp: 12501

Ion	Ratio	Lower	Upper
252	100		
253	38.7	20.1	30.1#

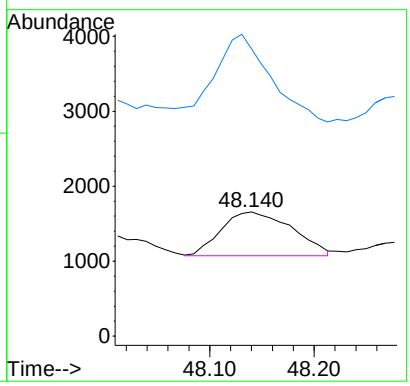


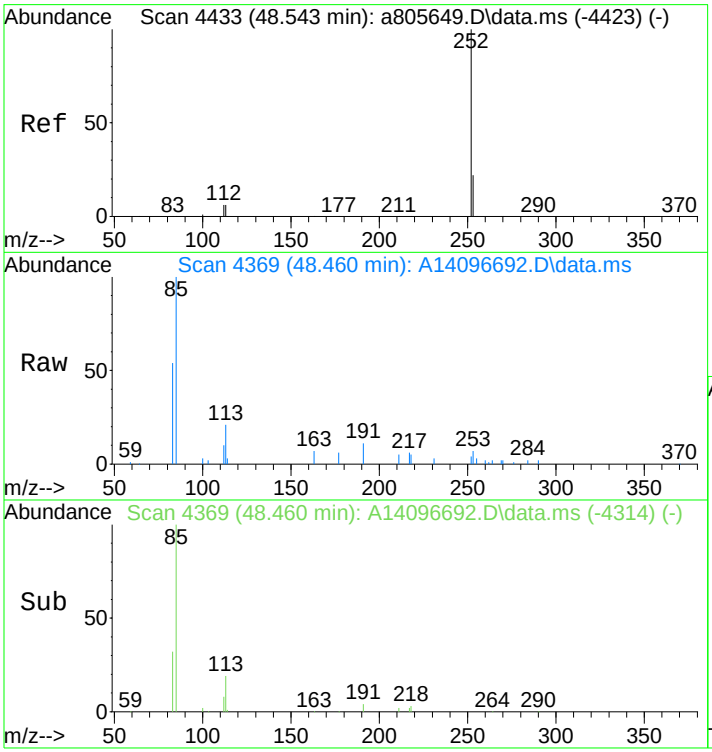


#87
Benzo[a]pyrene
Concen: 12.76 ng/mL m
RT: 48.140 min Scan# 4334
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:252 Resp: 2761

Ion	Ratio	Lower	Upper
252	100		
253	159.1	23.0	34.4#

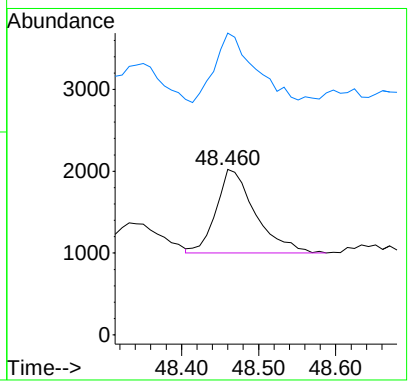


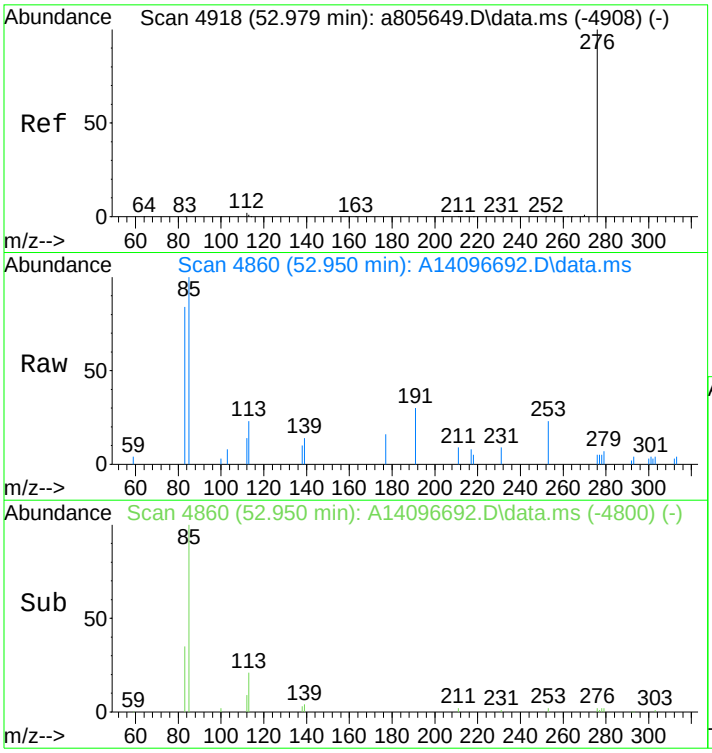


#88
Perylene
Concen: 15.34 ng/mL
RT: 48.460 min Scan# 4369
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:252 Resp: 3598

Ion	Ratio	Lower	Upper
252	100		
253	85.3	23.3	34.9#

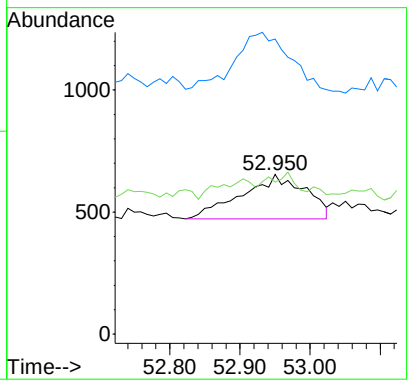


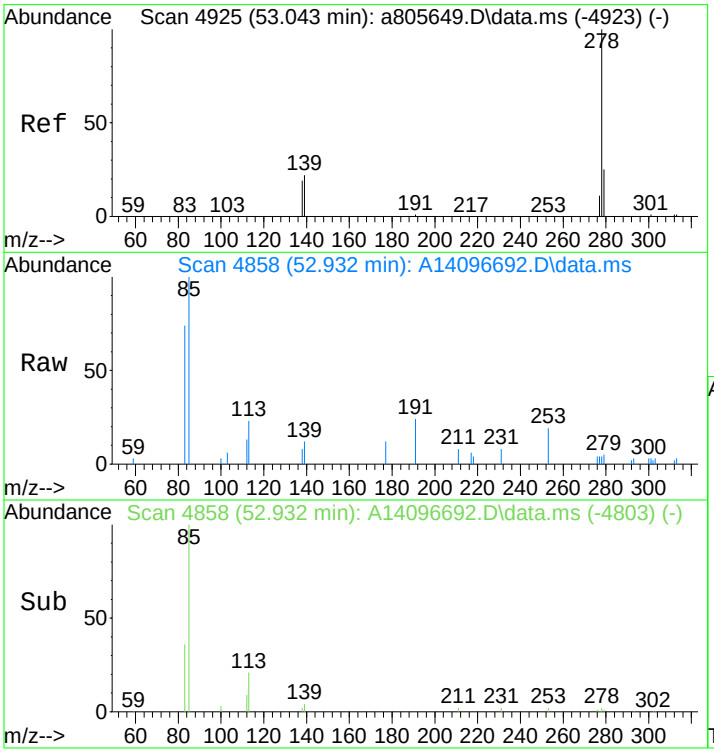


#89
Indeno[1,2,3-cd]pyrene
Concen: 4.28 ng/mL
RT: 52.950 min Scan# 4860
Delta R.T. 0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:276 Resp: 1157

Ion	Ratio	Lower	Upper
276	100		
138	123.8	23.2	34.8#
277	0.0	19.8	29.8#

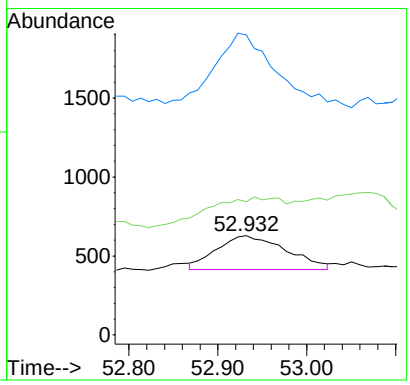


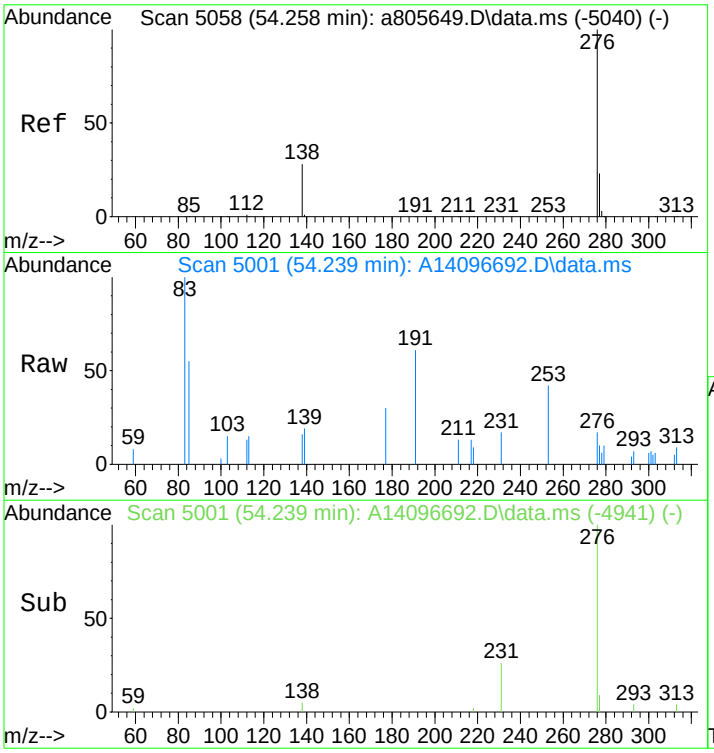


#90
Dibenz[ah]+[ac]anthracene
Concen: 4.60 ng/mL m
RT: 52.932 min Scan# 4858
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:278 Resp: 1170

Ion	Ratio	Lower	Upper
278	100		
139	196.4	16.1	24.1#
279	96.8	19.6	29.4#

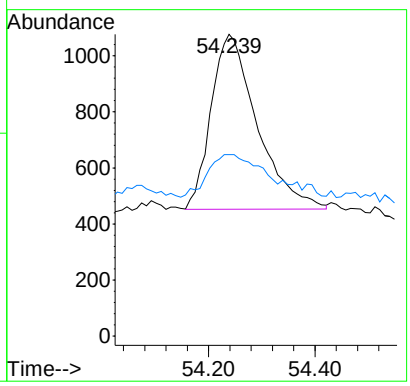


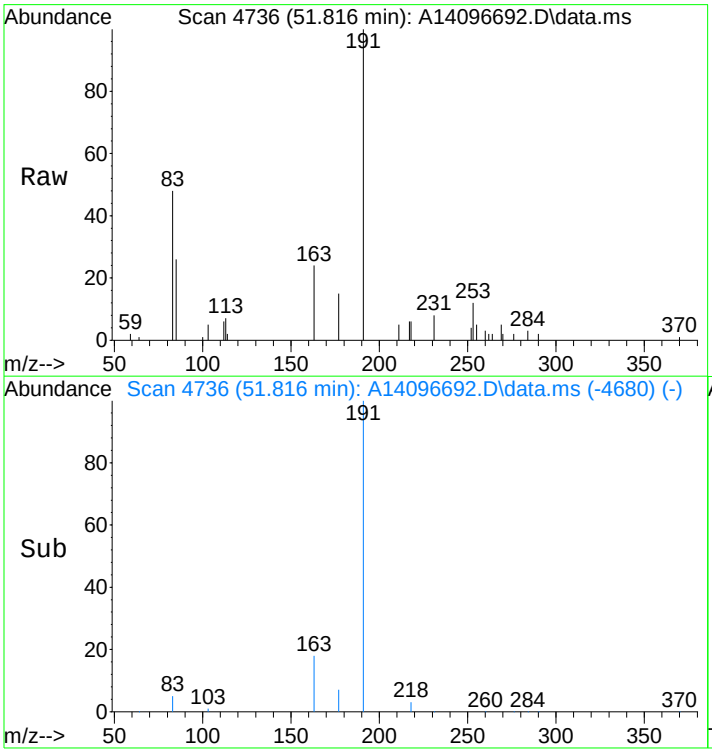


#91
Benzo[g,h,i]perylene
Concen: 14.45 ng/mL
RT: 54.239 min Scan# 5001
Delta R.T. 0.046 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:276 Resp: 3751

Ion	Ratio	Lower	Upper
276	100		
277	31.0	19.0	28.6#

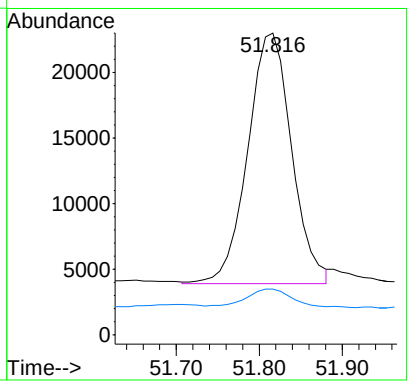


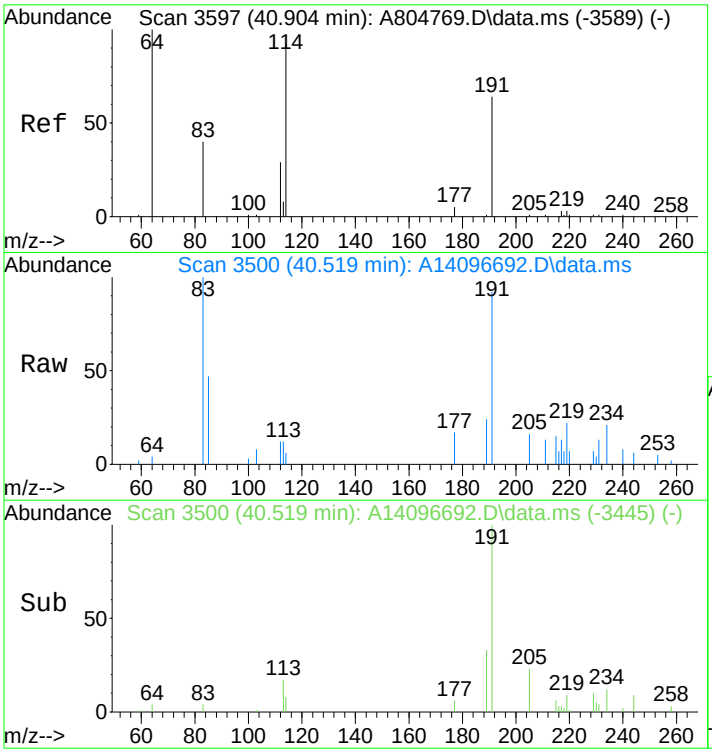


#92
Hopane (T19)
Concen: 910.16 ng/mL m
RT: 51.816 min Scan# 4736
Delta R.T. 0.009 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:191 Resp: 70119

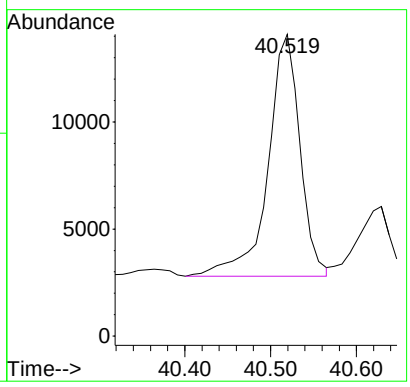
Ion	Ratio	Lower	Upper
191	100		
177	7.8	12.1	18.1#

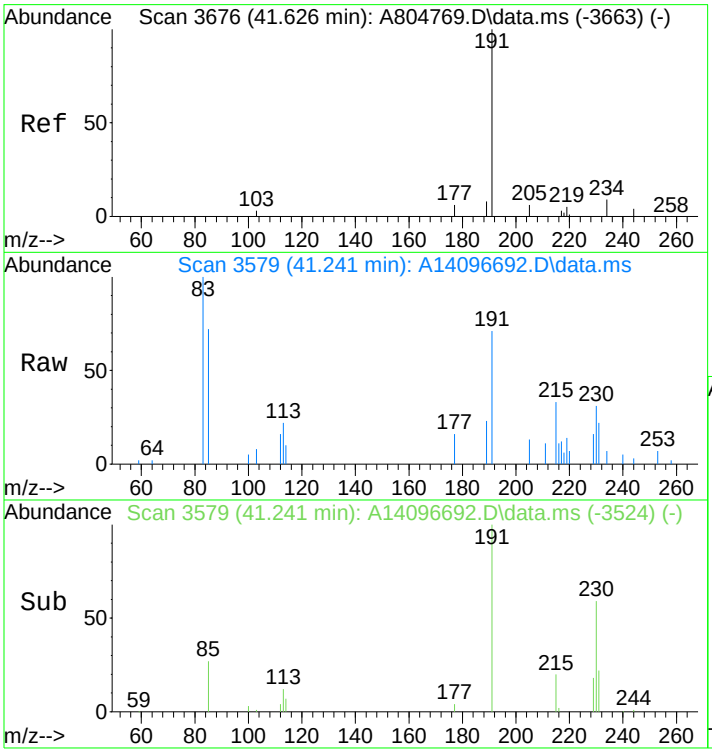




#94
C23 Tricyclic Terpane (T4)
Concen: 381.92 ng/ml
RT: 40.519 min Scan# 3500
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

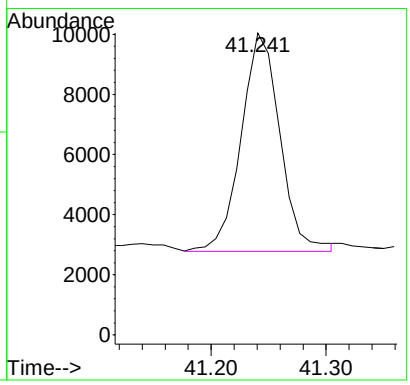
Tgt Ion:191 Resp: 29423

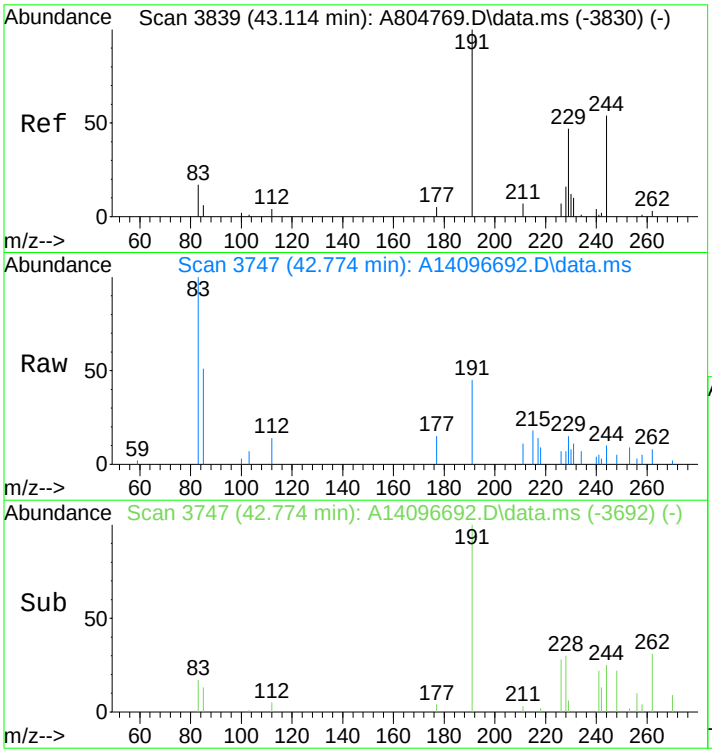




#95
C24 Tricyclic Terpane (T5)
Concen: 221.04 ng/ml m
RT: 41.241 min Scan# 3579
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

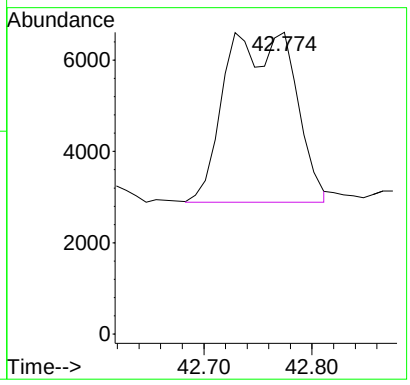
Tgt Ion:191 Resp: 17029

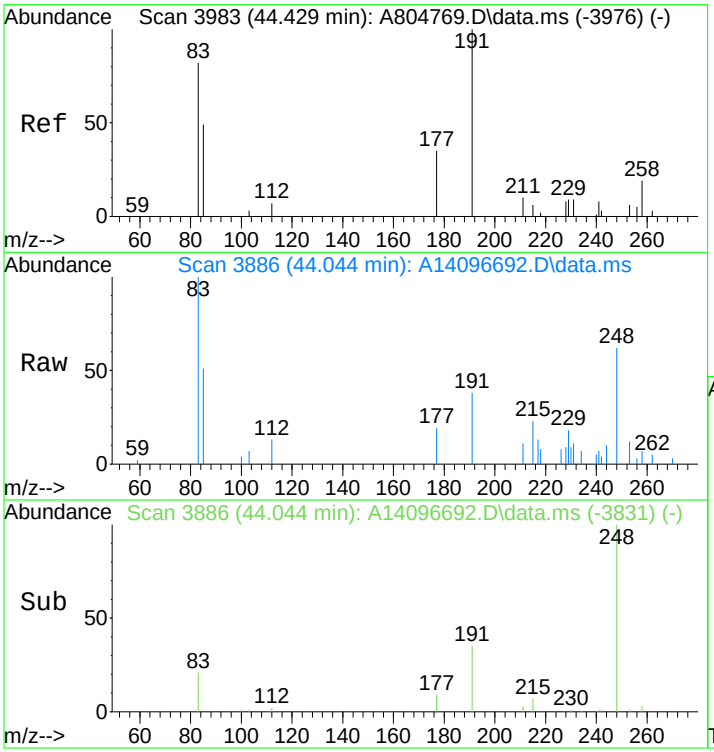




#96
C25 Tricyclic Terpane (T6)
Concen: 215.59 ng/ml m
RT: 42.774 min Scan# 3747
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

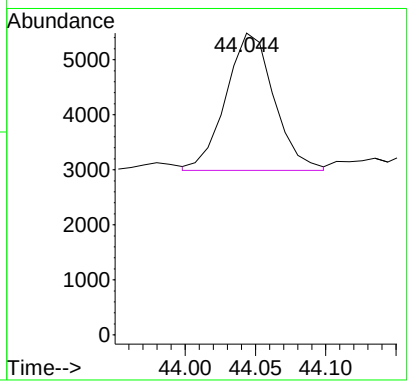
Tgt Ion:191 Resp: 16609

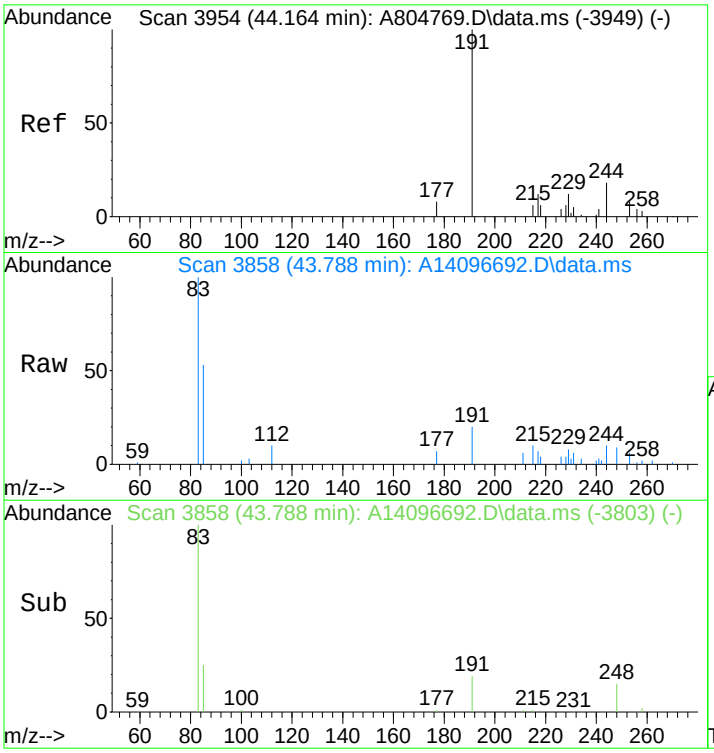




#97
C24 Tetracyclic Terpane (T6a)
Concen: 77.18 ng/ml m
RT: 44.044 min Scan# 3886
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

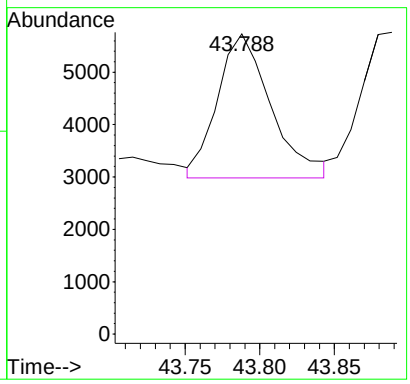
Tgt Ion:191 Resp: 5946

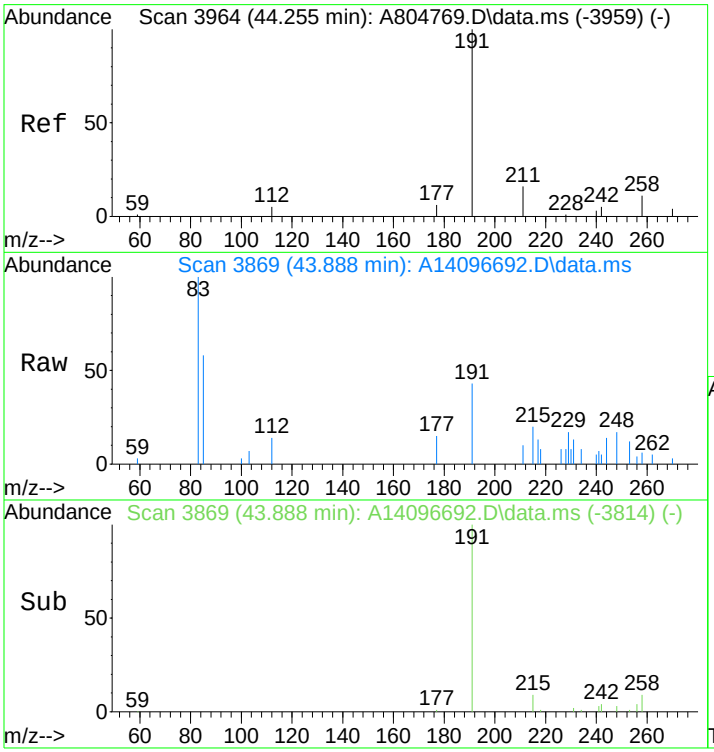




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 89.04 ng/ml m
RT: 43.788 min Scan# 3858
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

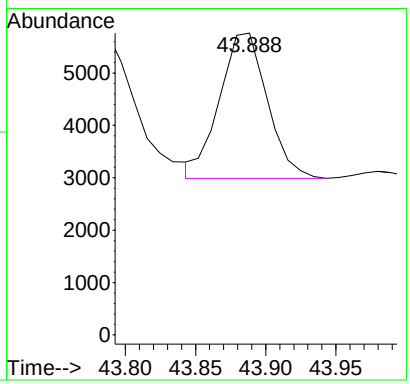
Tgt Ion:191 Resp: 6860

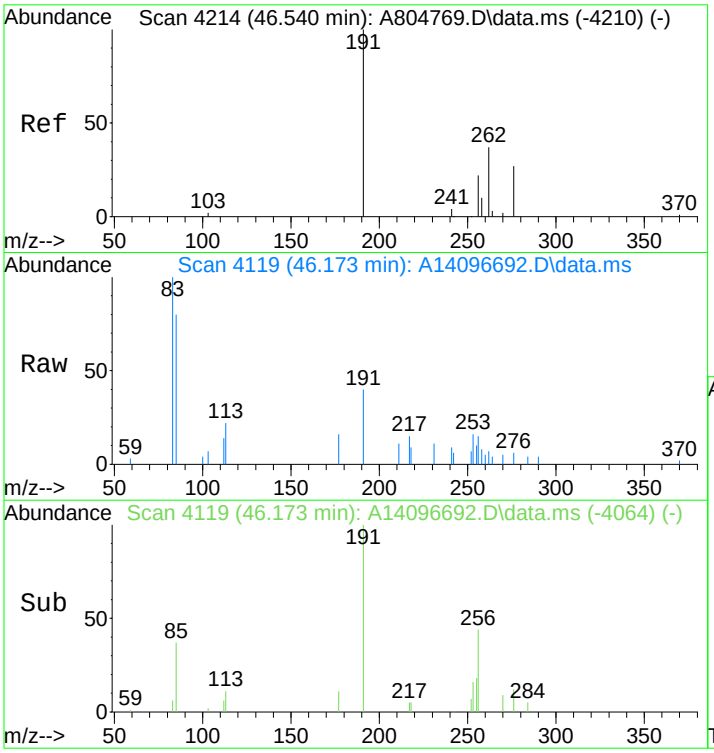




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 85.32 ng/ml
RT: 43.888 min Scan# 3869
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

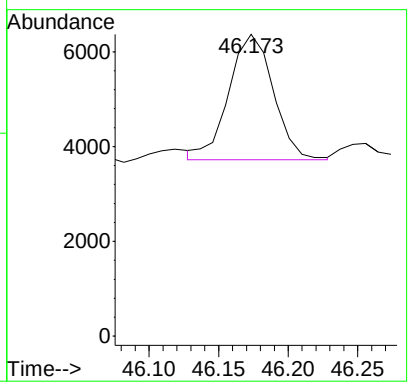
Tgt Ion:191 Resp: 6573

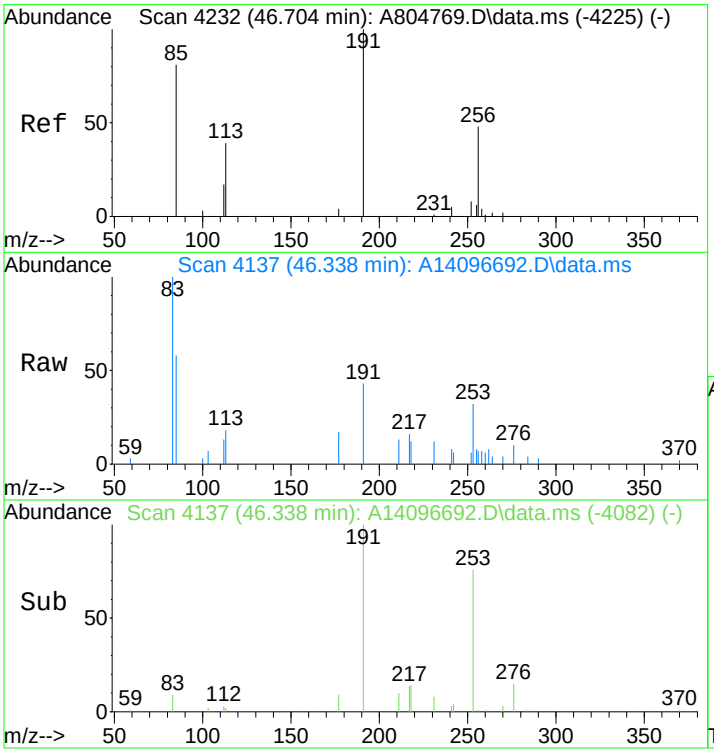




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 76.64 ng/ml m
RT: 46.173 min Scan# 4119
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

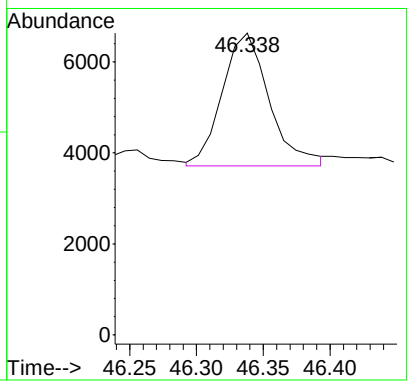
Tgt Ion:191 Resp: 5904

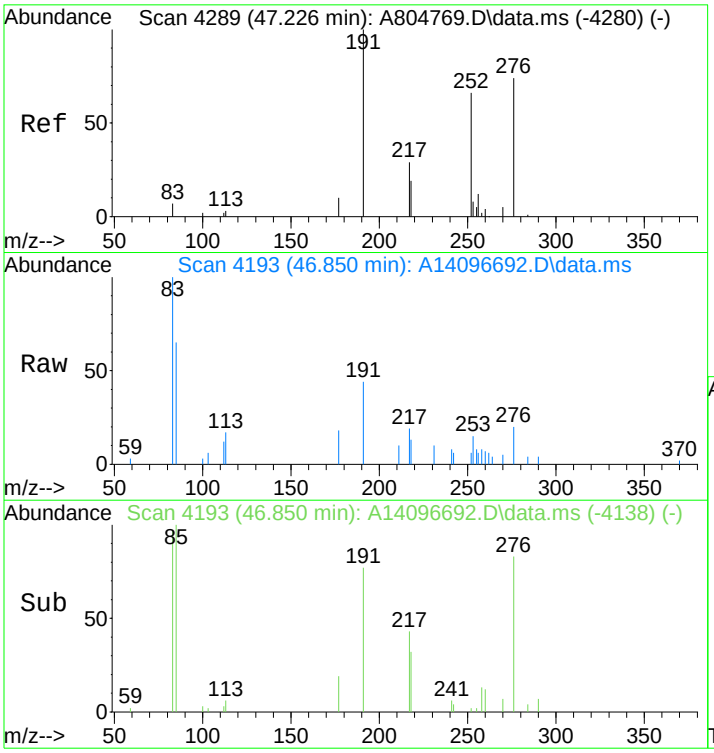




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 92.43 ng/ml m
RT: 46.338 min Scan# 4137
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

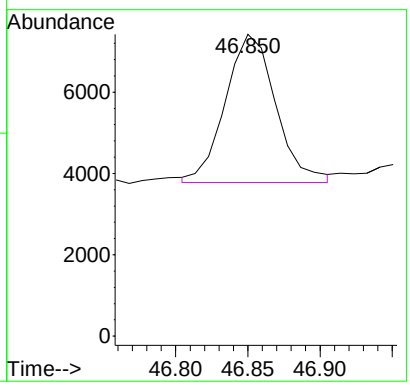
Tgt Ion:191 Resp: 7121

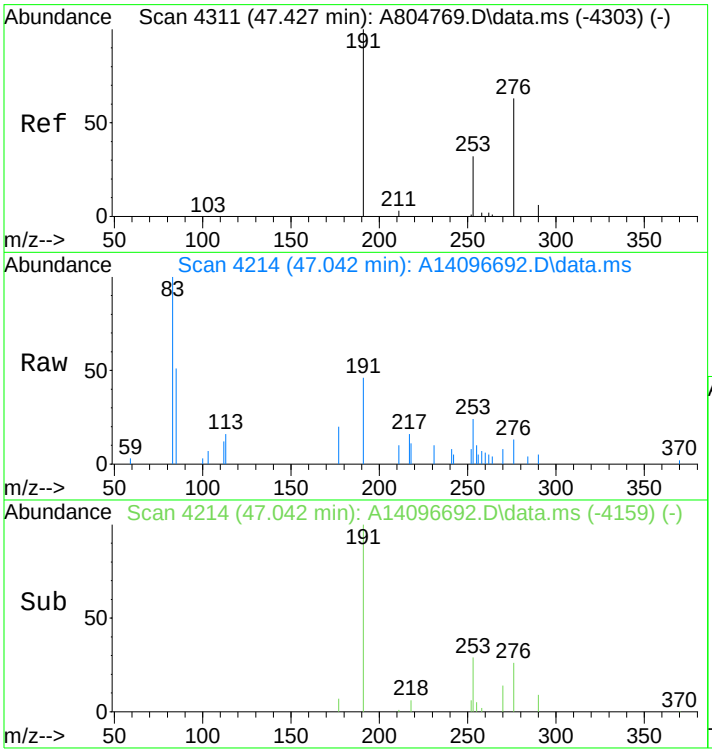




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 114.80 ng/ml m
RT: 46.850 min Scan# 4193
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

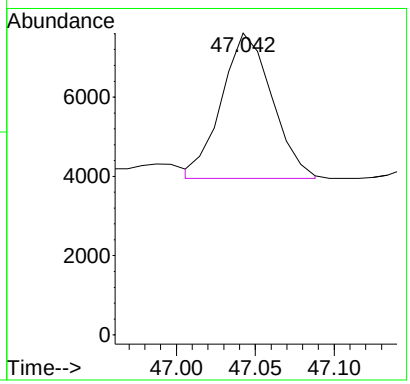
Tgt Ion:191 Resp: 8844

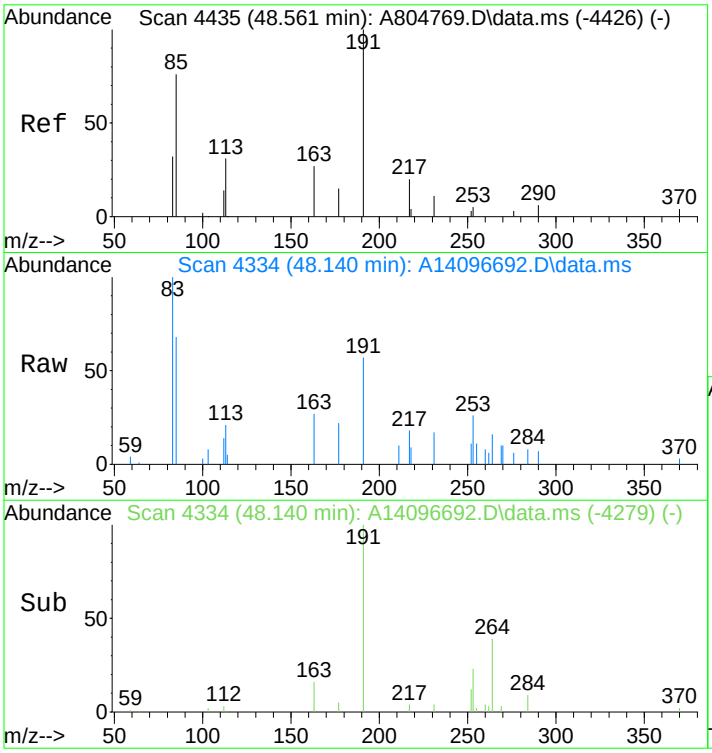




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 105.33 ng/ml m
RT: 47.042 min Scan# 4214
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

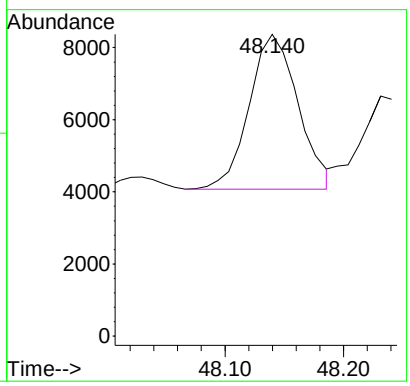
Tgt Ion:191 Resp: 8115

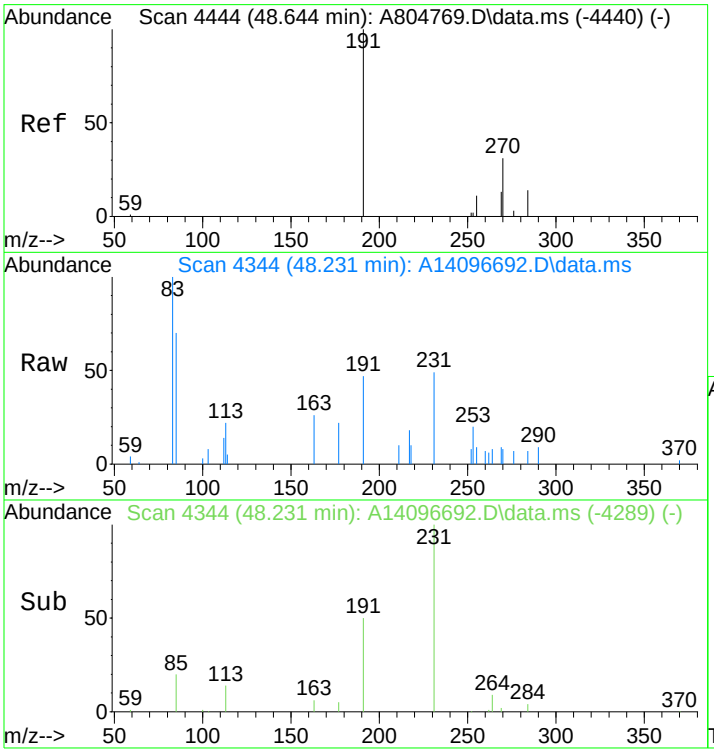




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 159.81 ng/ml
RT: 48.140 min Scan# 4334
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

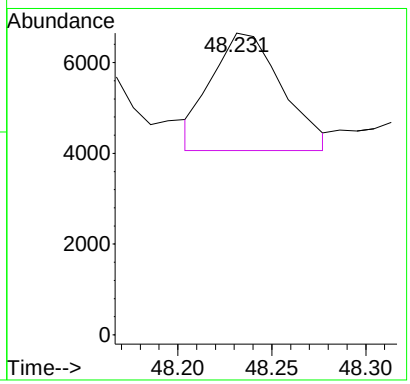
Tgt Ion:191 Resp: 12312

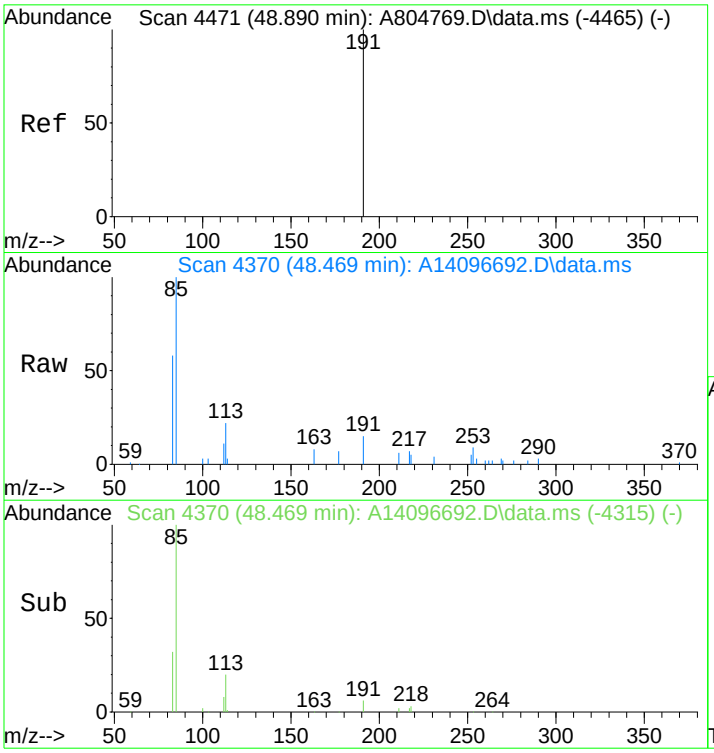




#105
C30 Tricyclic Terpane-22S
Concen: 88.19 ng/mL m
RT: 48.231 min Scan# 4344
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

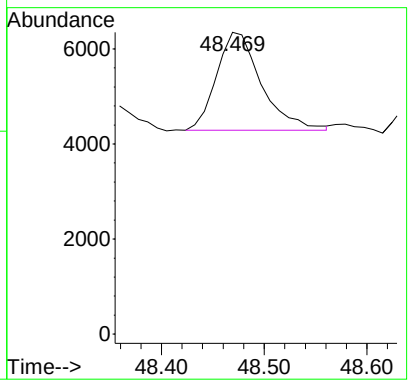
Tgt Ion:191 Resp: 6794

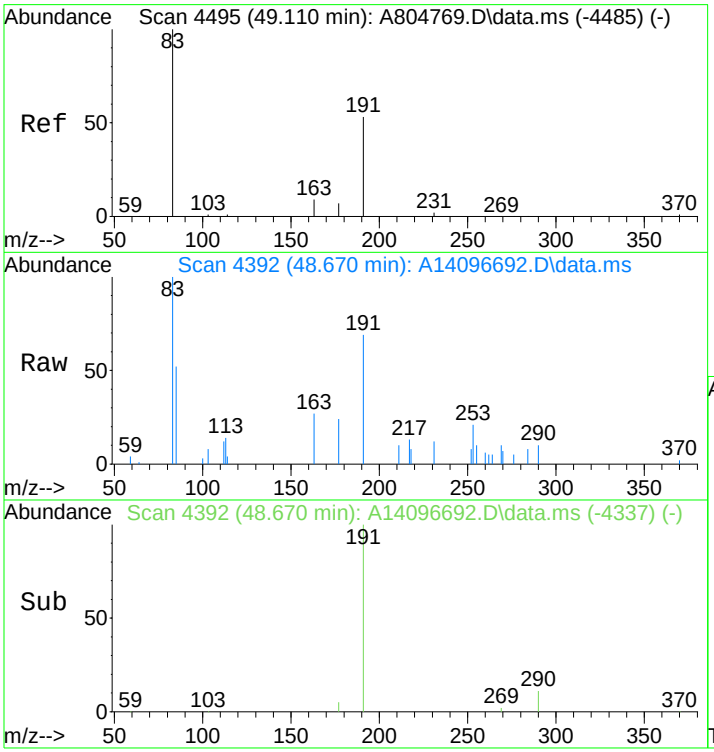




#106
C30 Tricyclic Terpane-22R
Concen: 81.52 ng/mL
RT: 48.469 min Scan# 4370
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

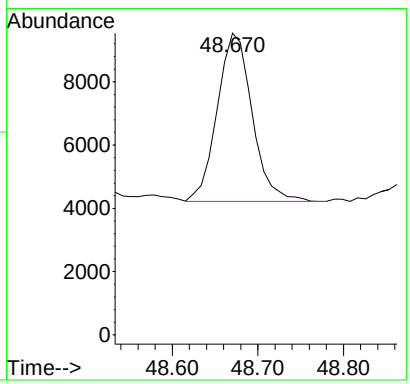
Tgt Ion:191 Resp: 6280

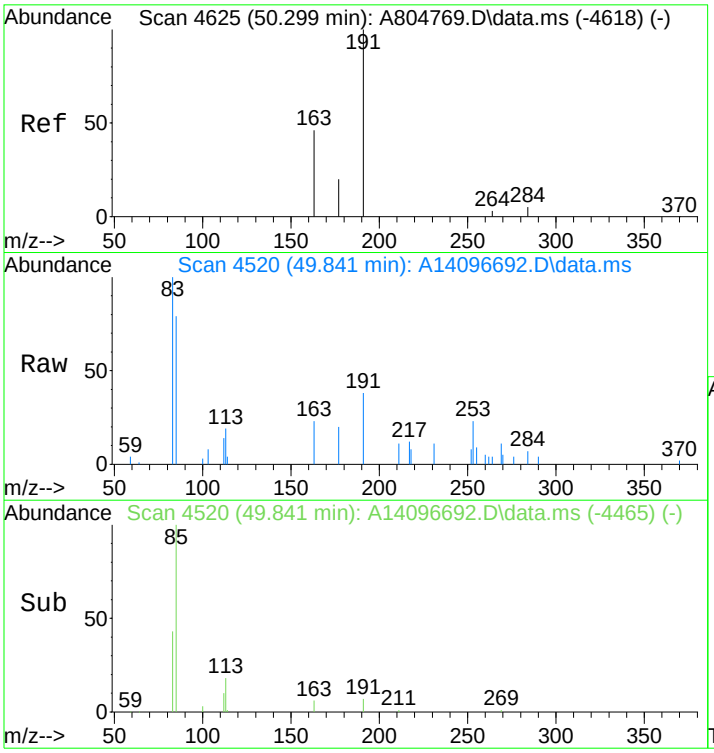




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 196.04 ng/ml
RT: 48.670 min Scan# 4392
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

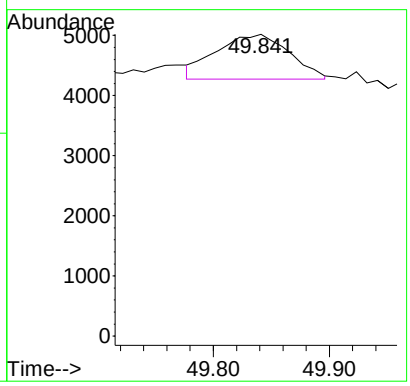
Tgt Ion:191 Resp: 15103

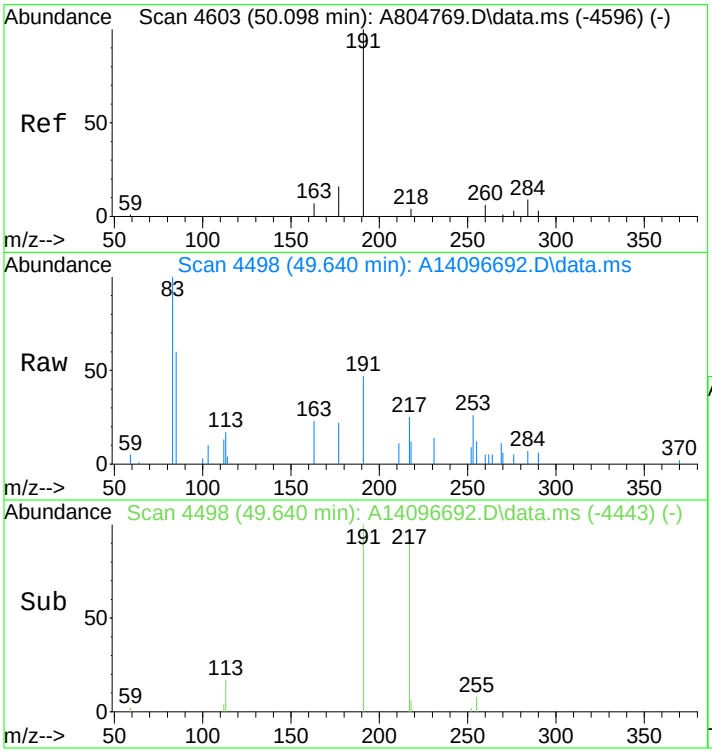




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 42.33 ng/ml m
RT: 49.841 min Scan# 4520
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

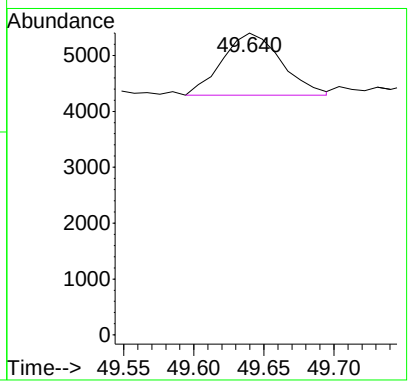
Tgt Ion:191 Resp: 3261

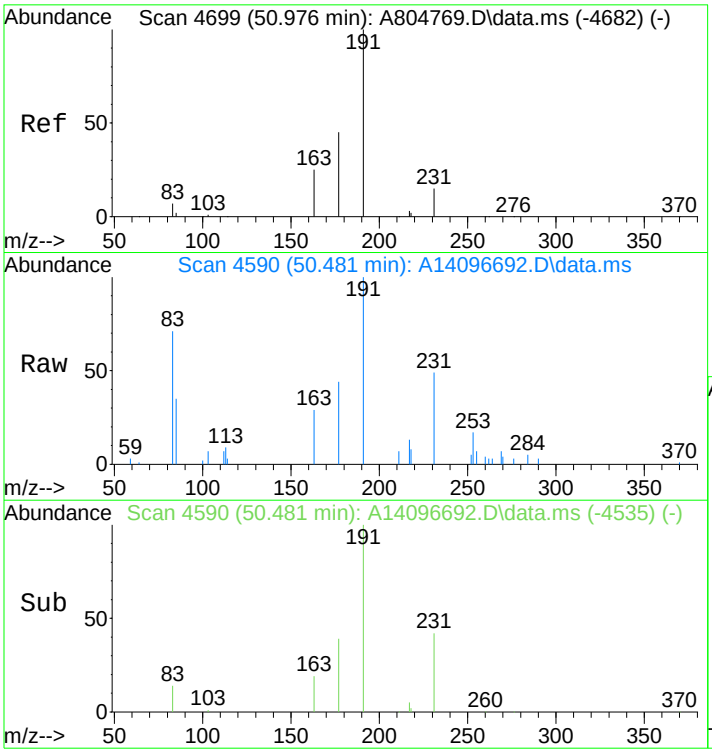




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 42.19 ng/ml
RT: 49.640 min Scan# 4498
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

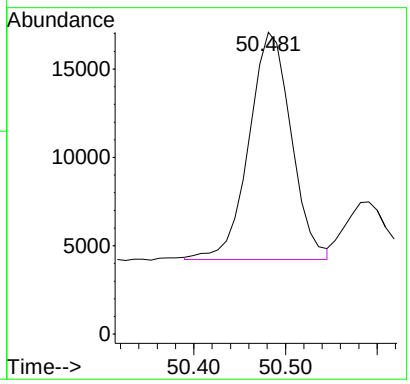
Tgt Ion:191 Resp: 3250

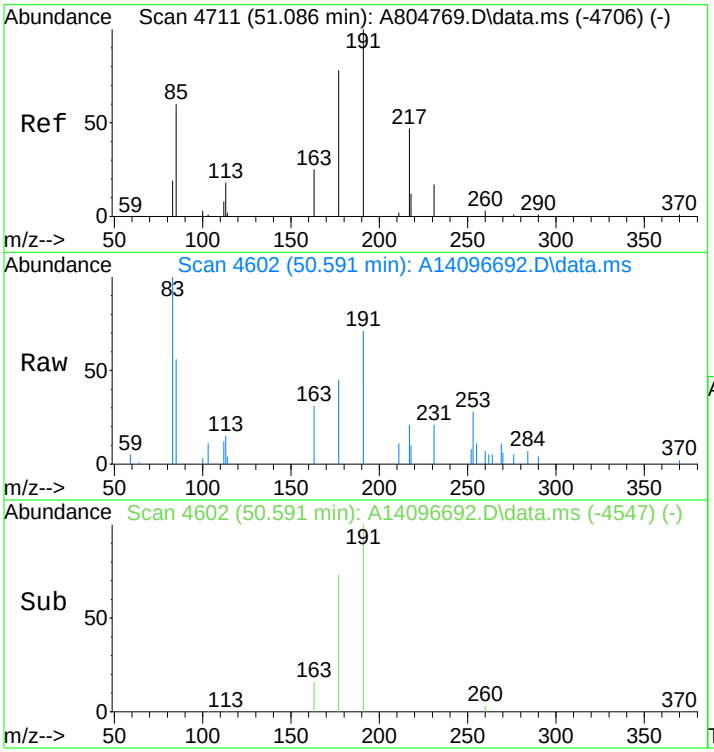




#110
30-Norhopane (T15)
Concen: 536.26 ng/ml m
RT: 50.481 min Scan# 4590
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

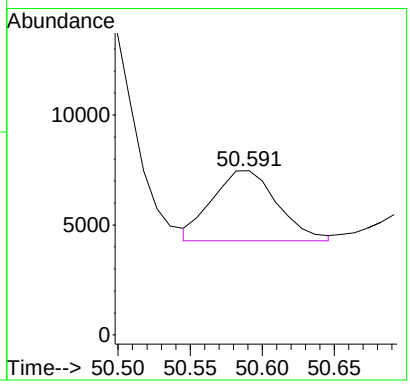
Tgt Ion:191 Resp: 41314

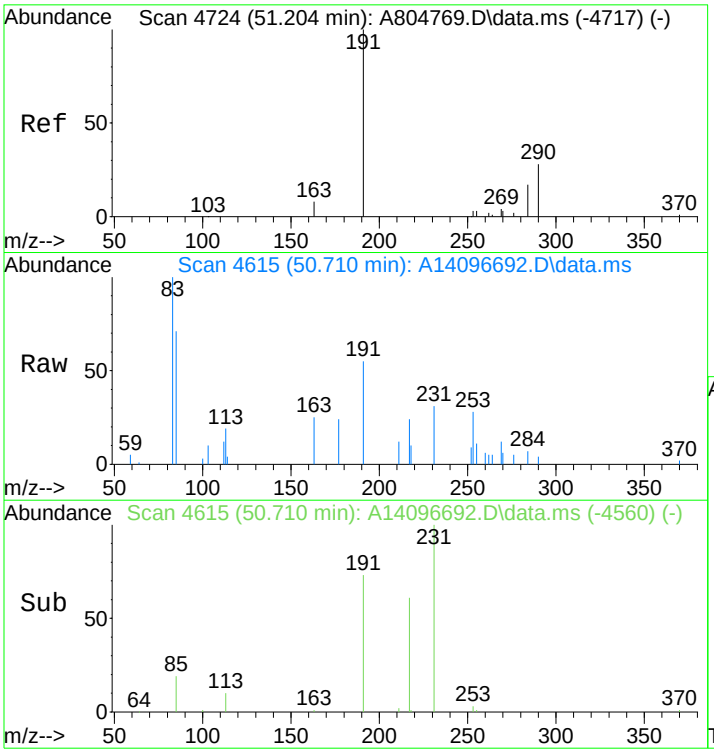




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 130.14 ng/ml m
RT: 50.591 min Scan# 4602
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

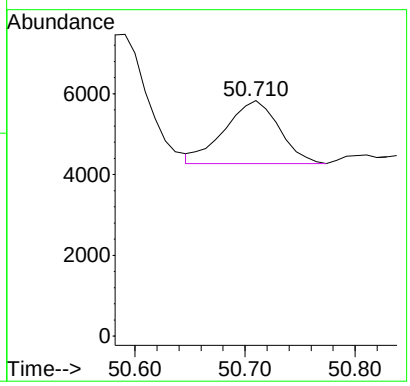
Tgt Ion:191 Resp: 10026

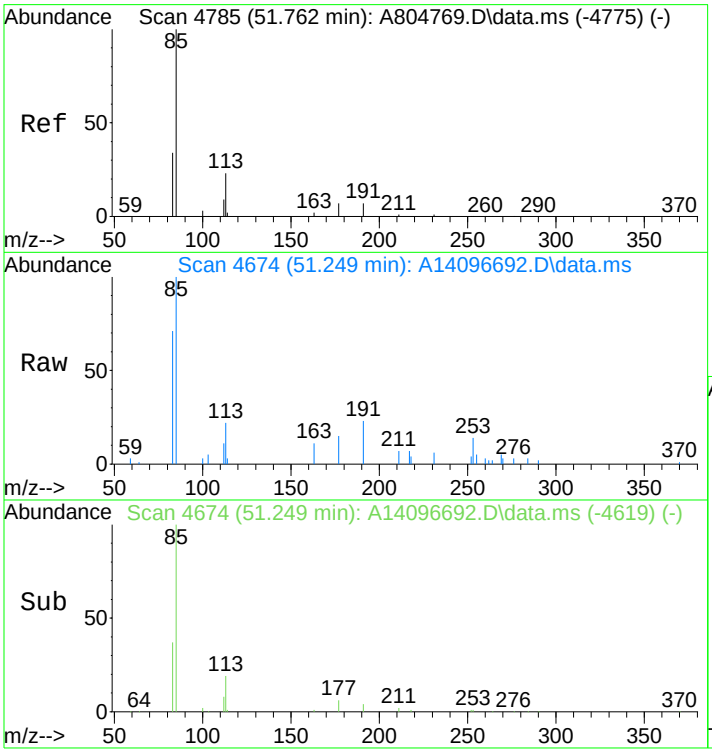




#112
17a(H)-Diahopane (X)
Concen: 69.47 ng/ml
RT: 50.710 min Scan# 4615
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

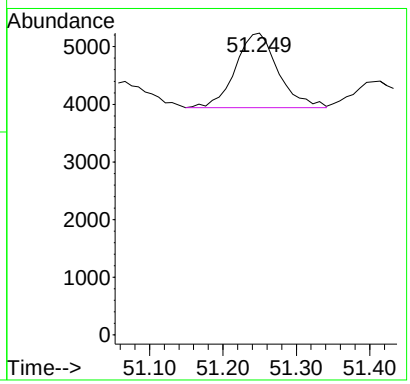
Tgt Ion:191 Resp: 5352

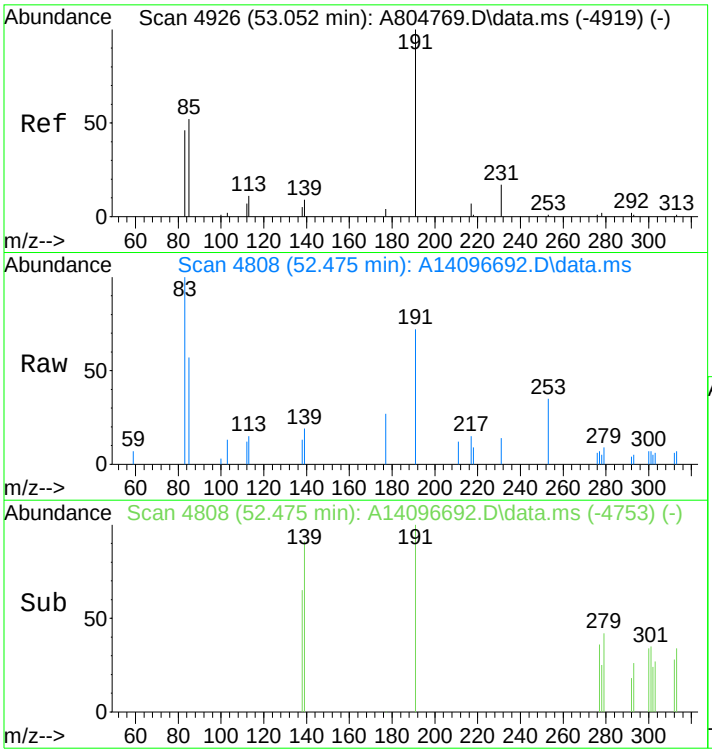




#113
30-Normoretane (T17)
Concen: 68.17 ng/ml
RT: 51.249 min Scan# 4674
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

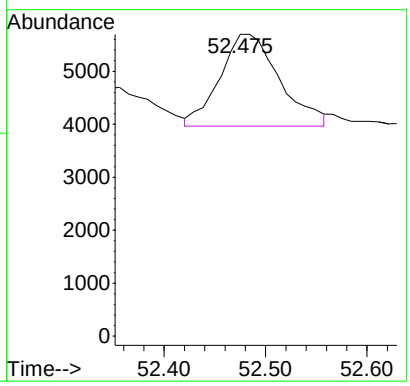
Tgt Ion:191 Resp: 5252

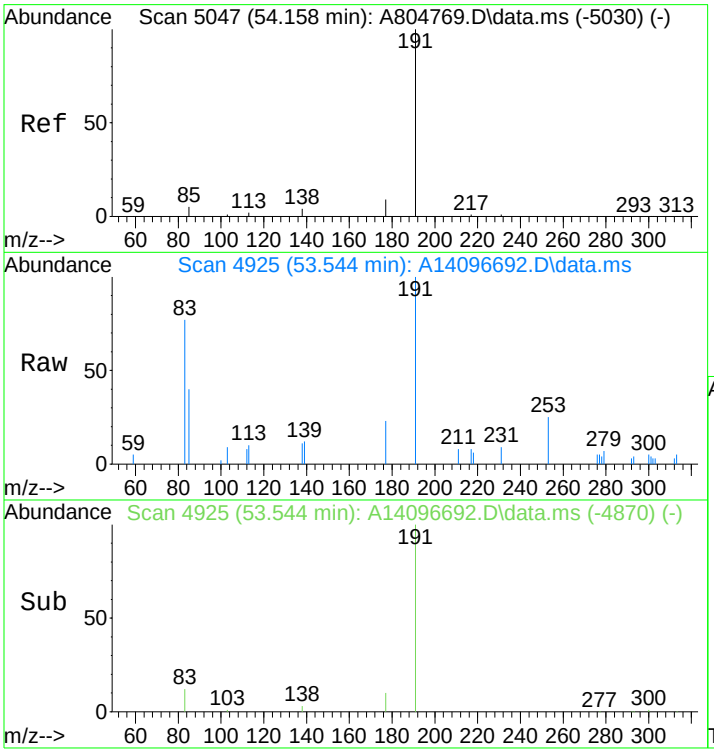




#115
Moretane (T20)
Concen: 92.02 ng/ml m
RT: 52.475 min Scan# 4808
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

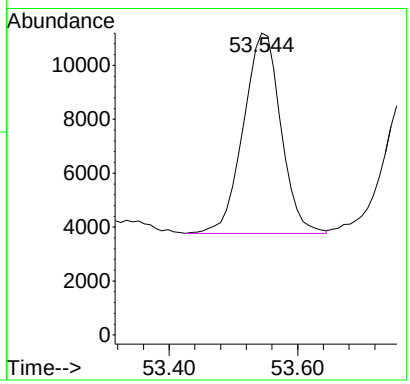
Tgt Ion:191 Resp: 7089

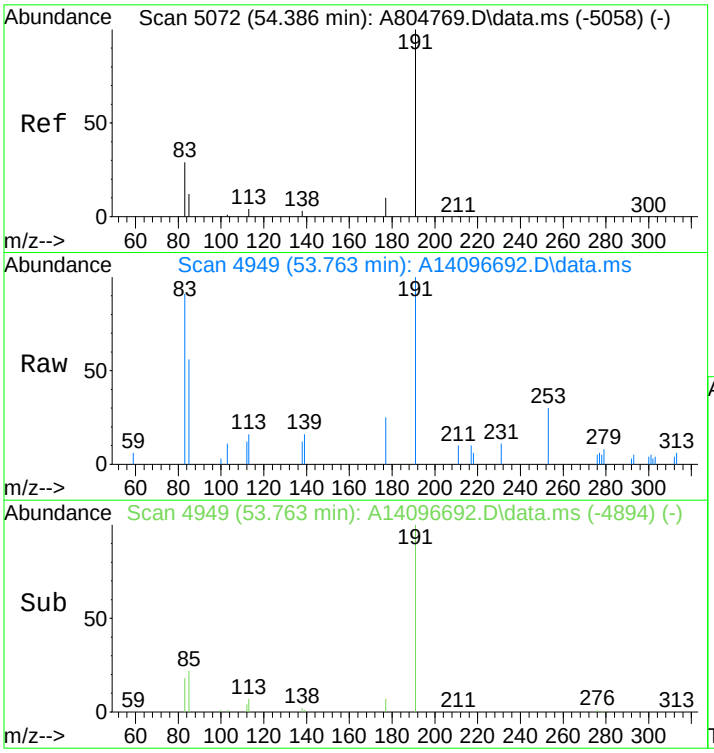




#116
30-Homohopane-22S (T21)
Concen: 392.30 ng/ml
RT: 53.544 min Scan# 4925
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

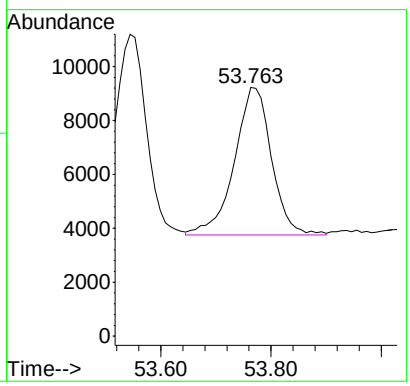
Tgt Ion:191 Resp: 30223

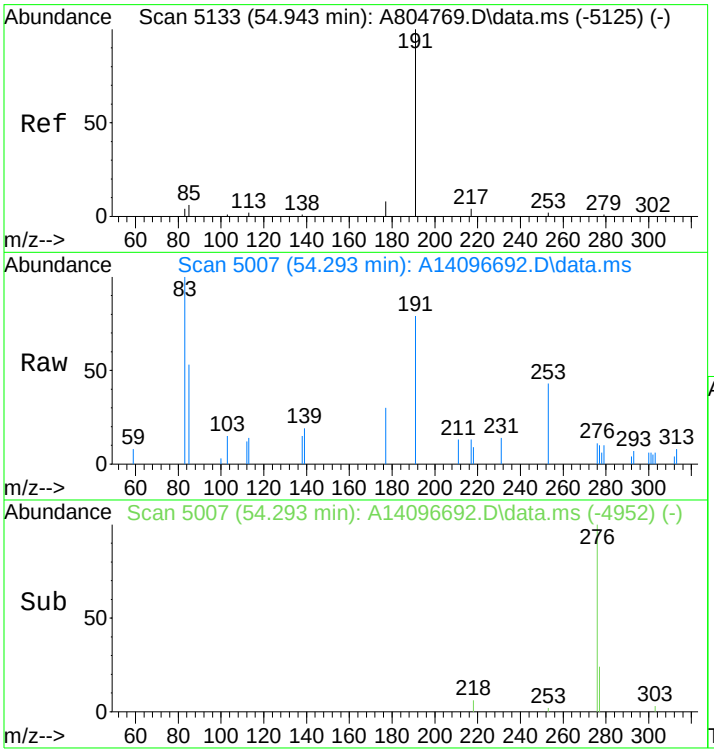




#117
30-Homohopane-22R (T22)
Concen: 331.93 ng/ml
RT: 53.763 min Scan# 4949
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

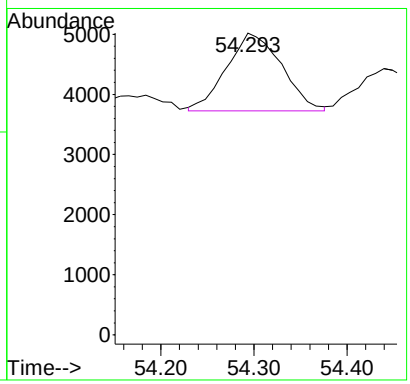
Tgt Ion:191 Resp: 25572

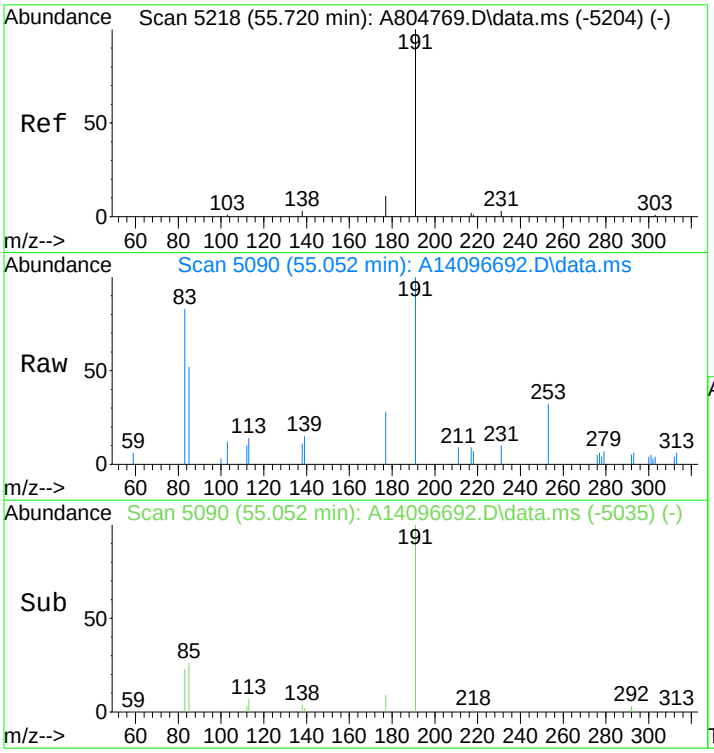




#118
Gammacerane/C32-diahopane
Concen: 68.98 ng/mL m
RT: 54.293 min Scan# 5007
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

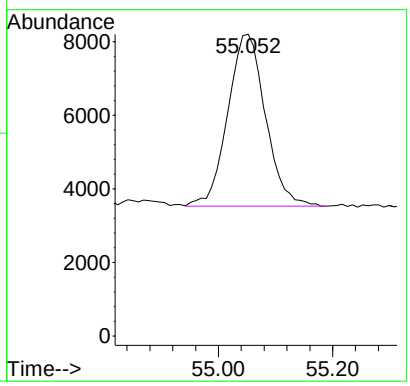
Tgt Ion:191 Resp: 5314

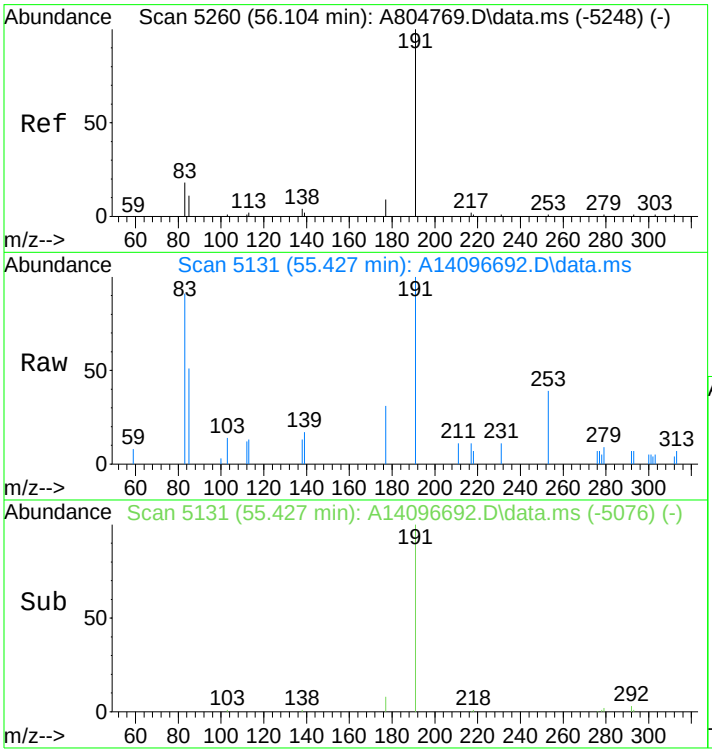




#119
30,31-Bishomohopane-22S (T26)
Concen: 277.49 ng/ml
RT: 55.052 min Scan# 5090
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

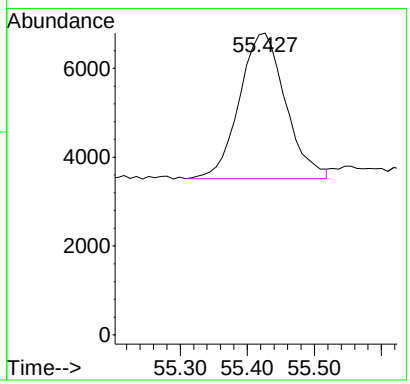
Tgt Ion:191 Resp: 21378

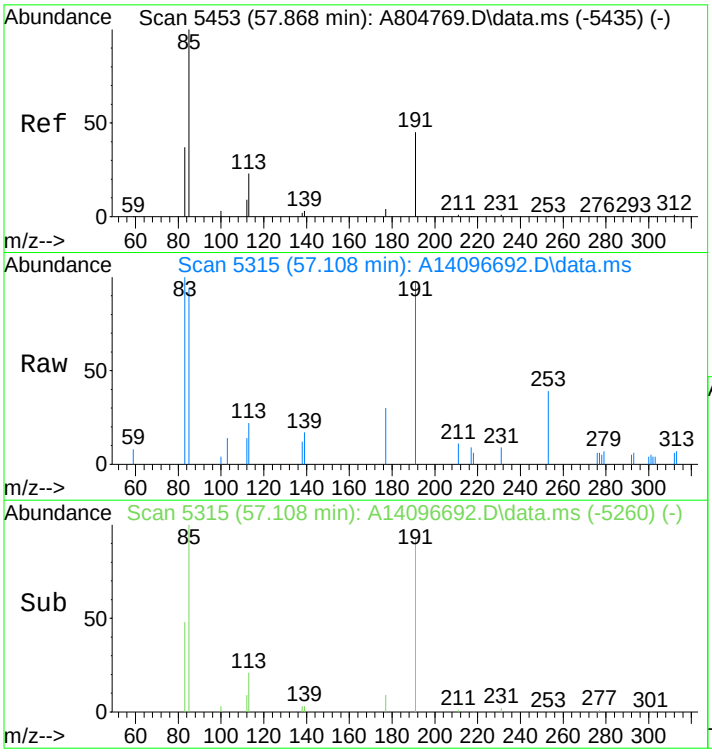




#120
30,31-Bishomohopane-22R (T27)
Concen: 203.80 ng/ml
RT: 55.427 min Scan# 5131
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

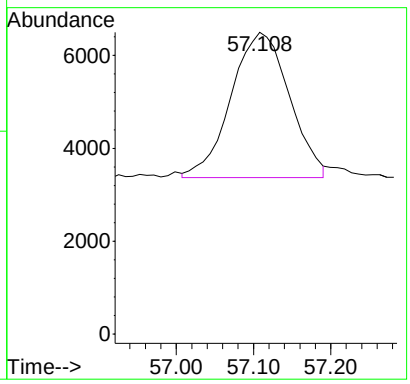
Tgt Ion:191 Resp: 15701

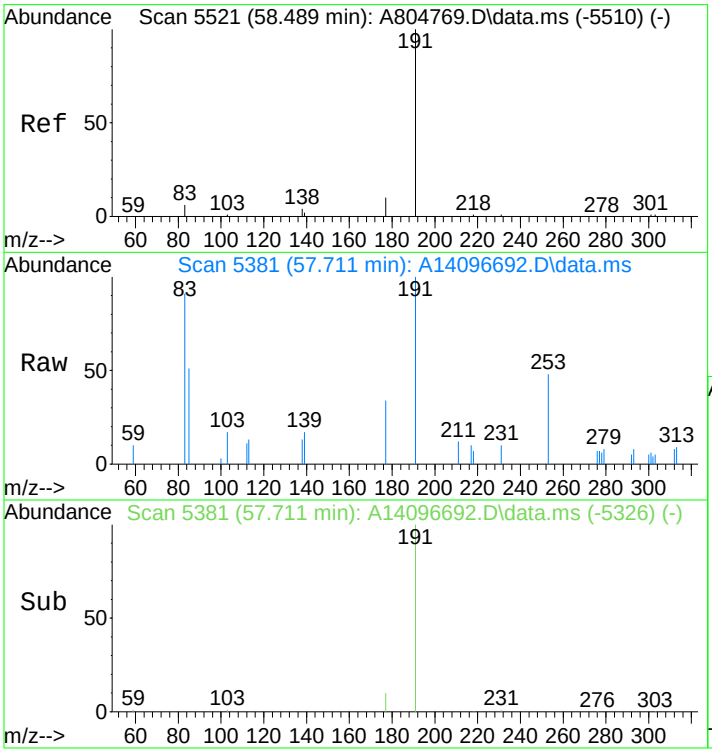




#121
30,31-Trishomohopane-22S (T30)
Concen: 213.56 ng/ml m
RT: 57.108 min Scan# 5315
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

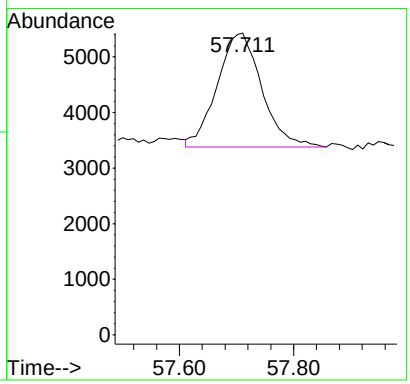
Tgt Ion:191 Resp: 16453

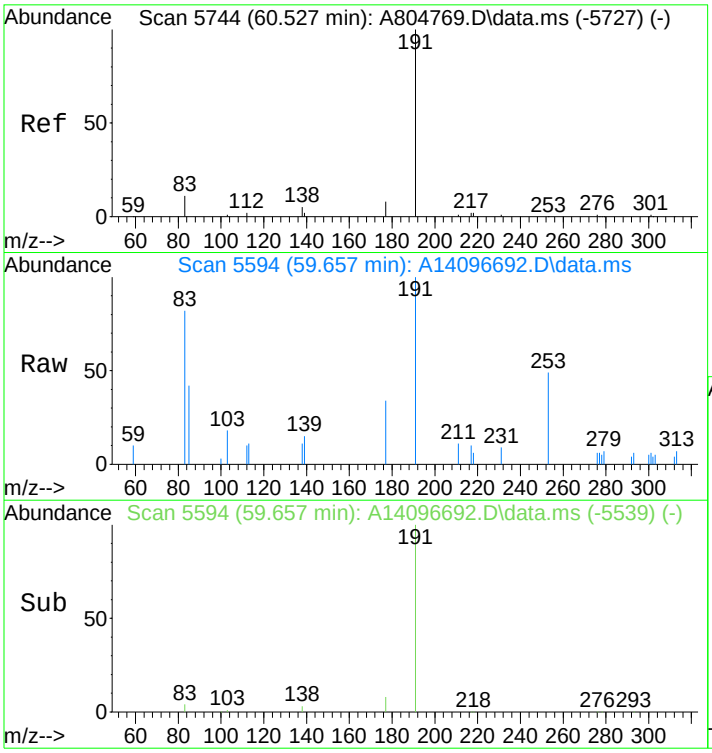




#122
30,31-Trishomohopane-22R (T31)
Concen: 144.24 ng/ml
RT: 57.711 min Scan# 5381
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

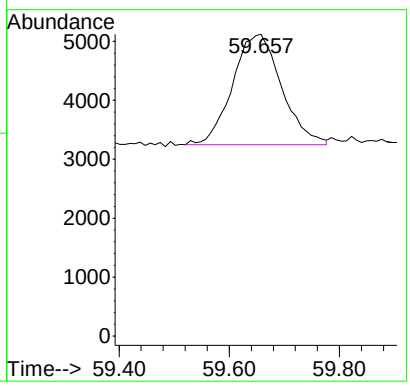
Tgt Ion:191 Resp: 11112

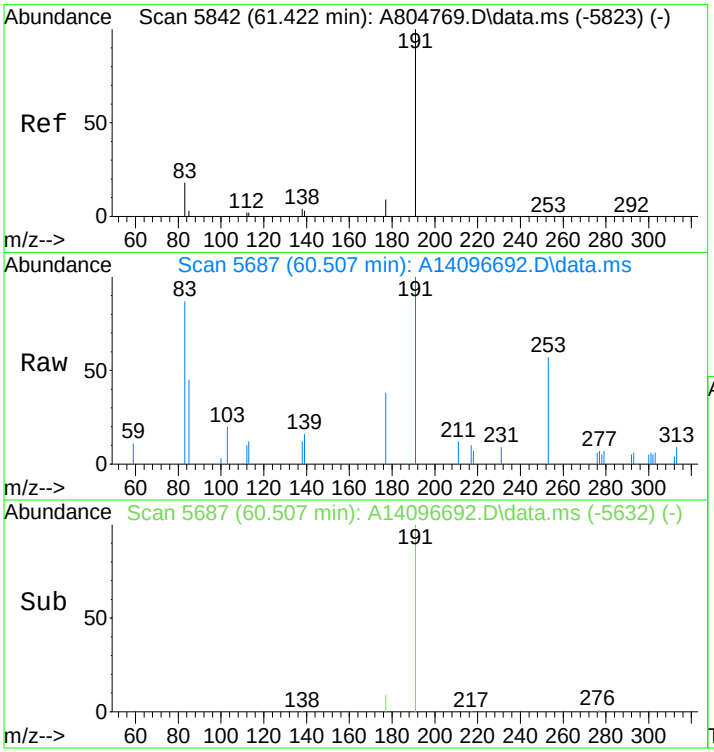




#123
Tetrakishomohopane-22S (T32)
Concen: 150.05 ng/ml
RT: 59.657 min Scan# 5594
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

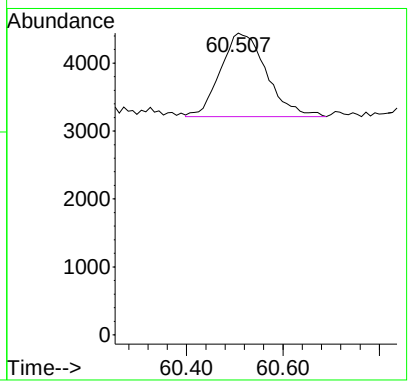
Tgt Ion:191 Resp: 11560

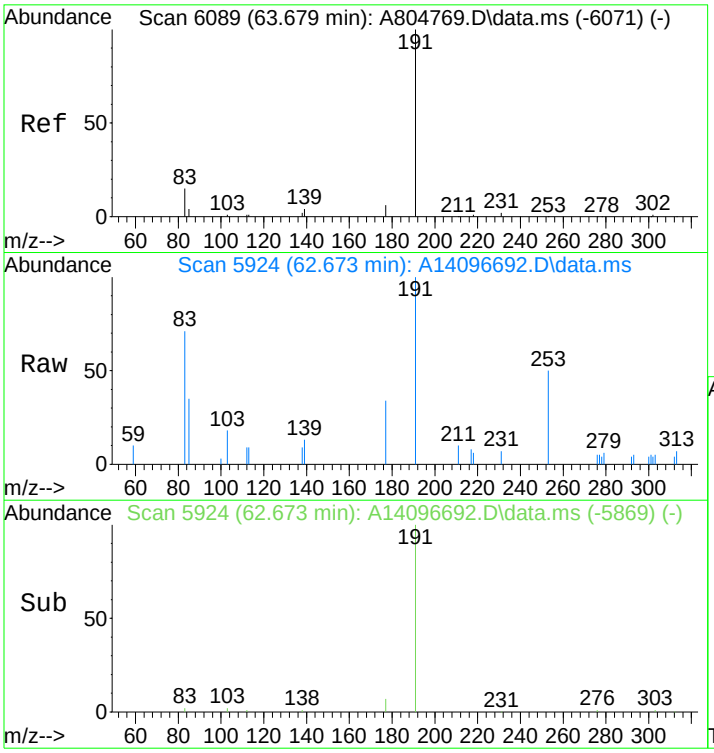




#124
Tetrakishomohopane-22R (T33)
Concen: 106.24 ng/ml
RT: 60.507 min Scan# 5687
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

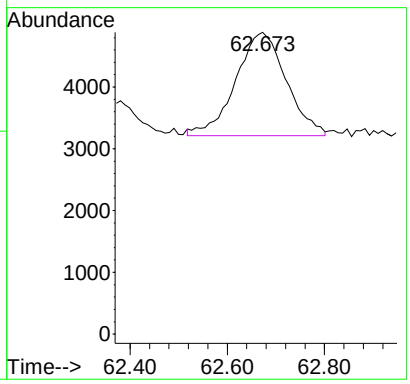
Tgt Ion:191 Resp: 8185

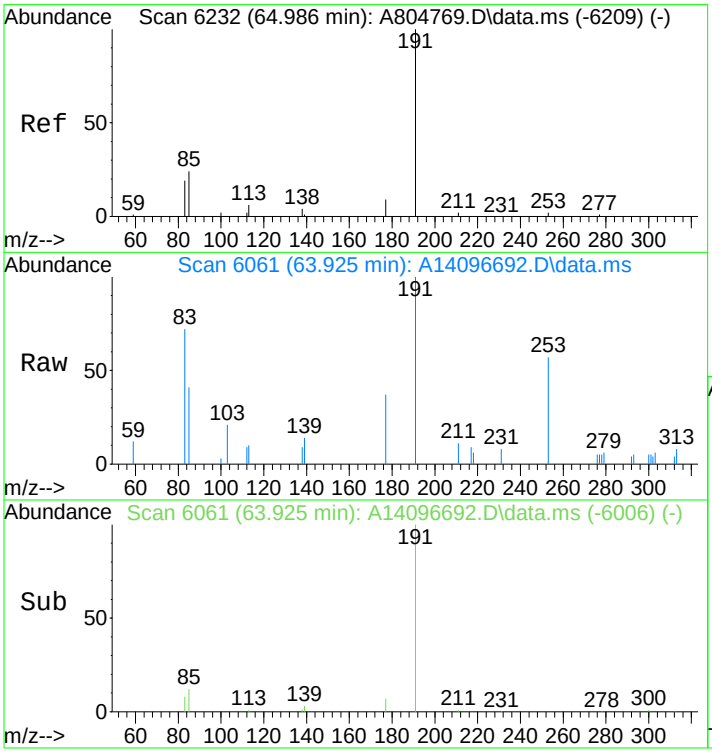




#125
Pentakishomohopane-22S (T34)
Concen: 157.02 ng/ml m
RT: 62.673 min Scan# 5924
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

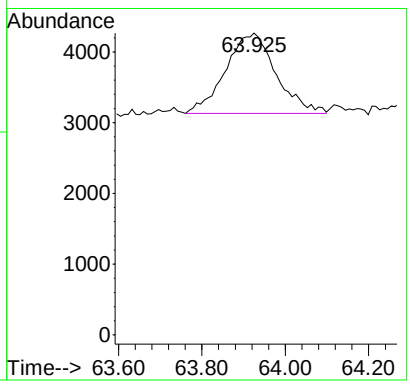
Tgt Ion:191 Resp: 12097

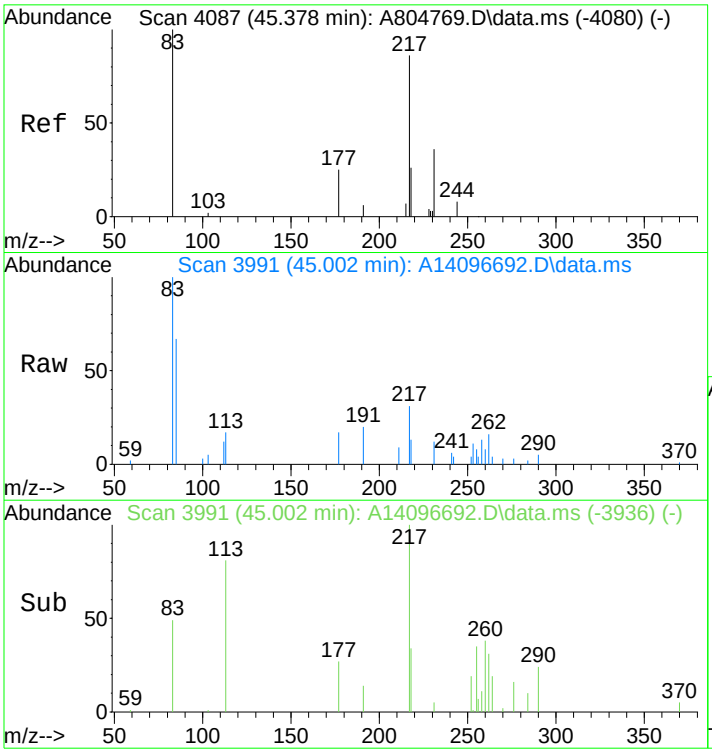




#126
Pentakishomohopane-22R (T35)
Concen: 123.94 ng/ml
RT: 63.925 min Scan# 6061
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

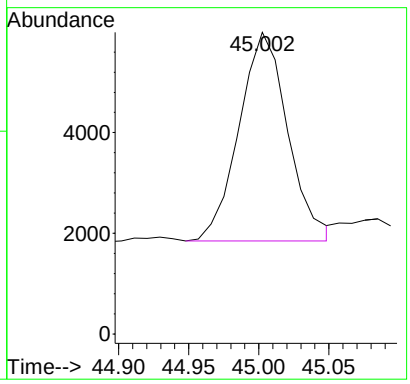
Tgt Ion:191 Resp: 9548

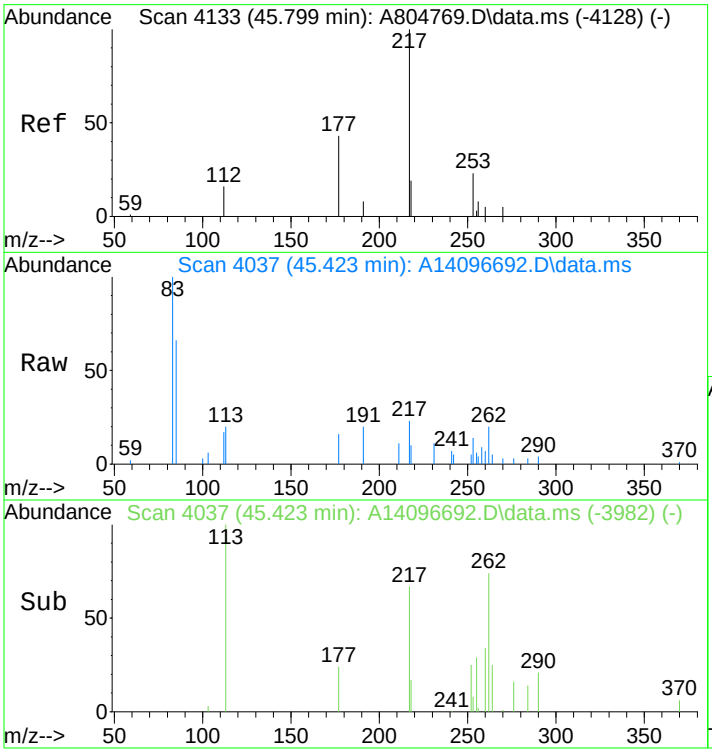




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 235.37 ng/ml
RT: 45.002 min Scan# 3991
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

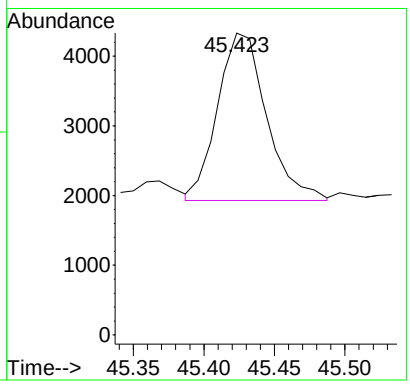
Tgt Ion:217 Resp: 10048

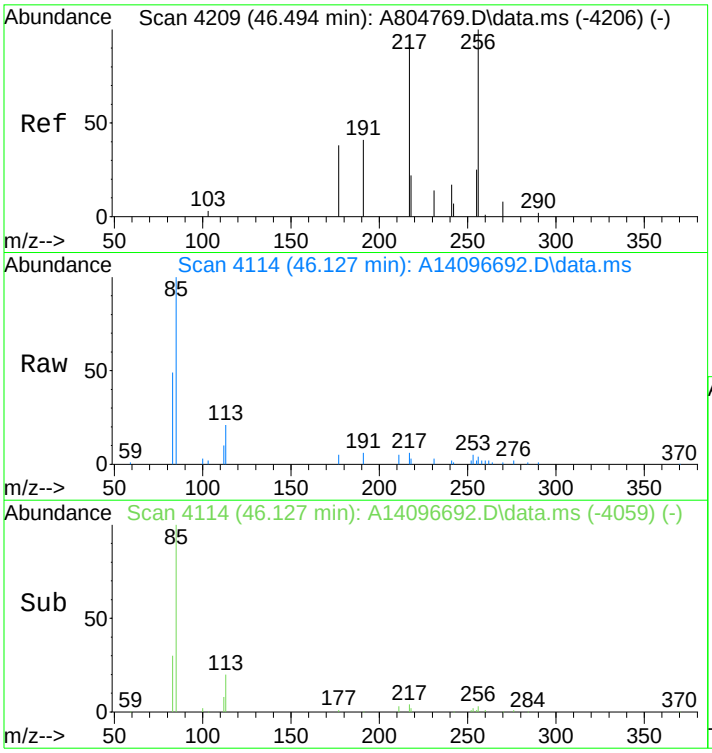




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 136.33 ng/ml m
RT: 45.423 min Scan# 4037
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

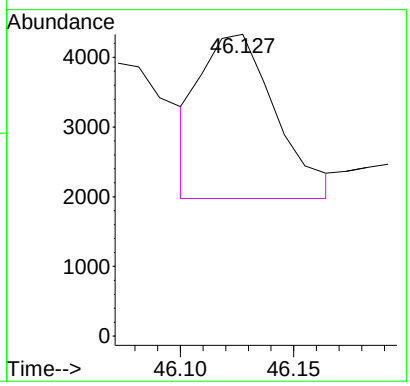
Tgt Ion:217 Resp: 5820

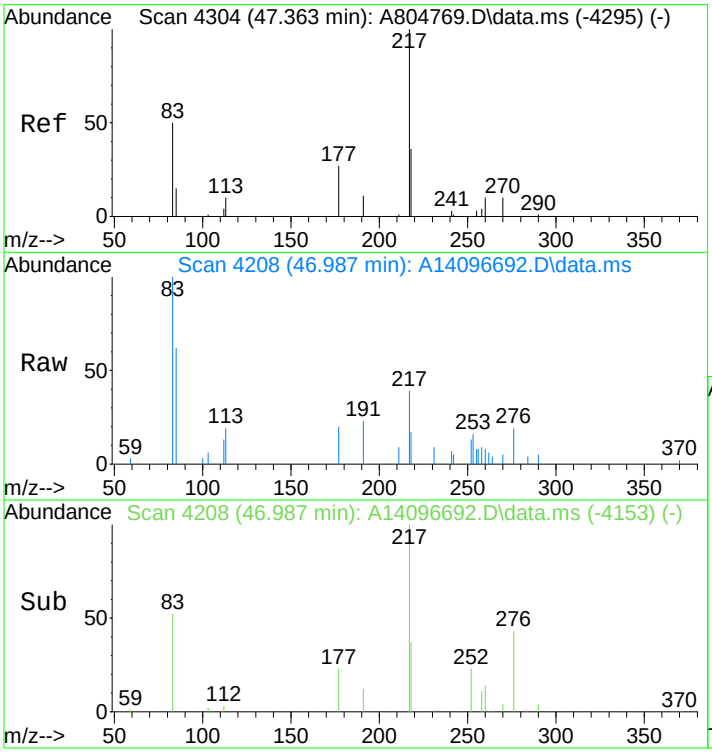




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 126.38 ng/ml m
RT: 46.127 min Scan# 4114
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

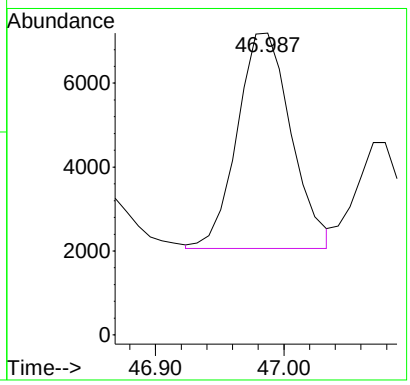
Tgt Ion:217 Resp: 5395

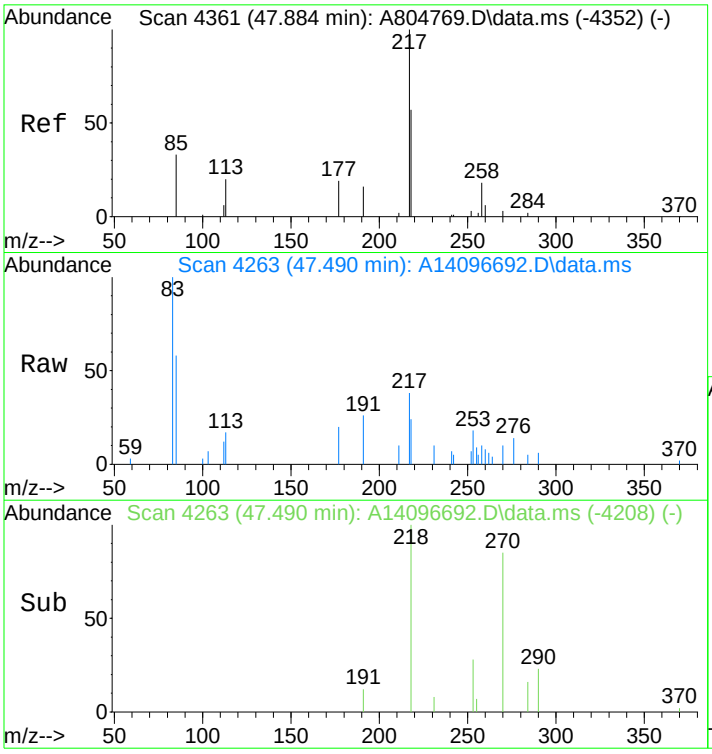




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 351.11 ng/ml
RT: 46.987 min Scan# 4208
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

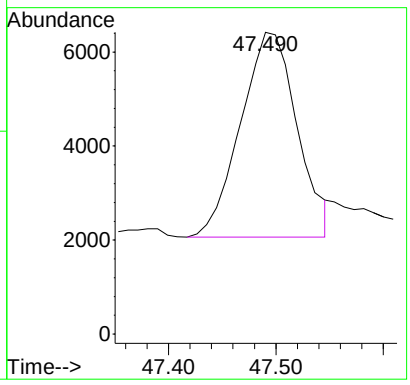
Tgt Ion:217 Resp: 14989

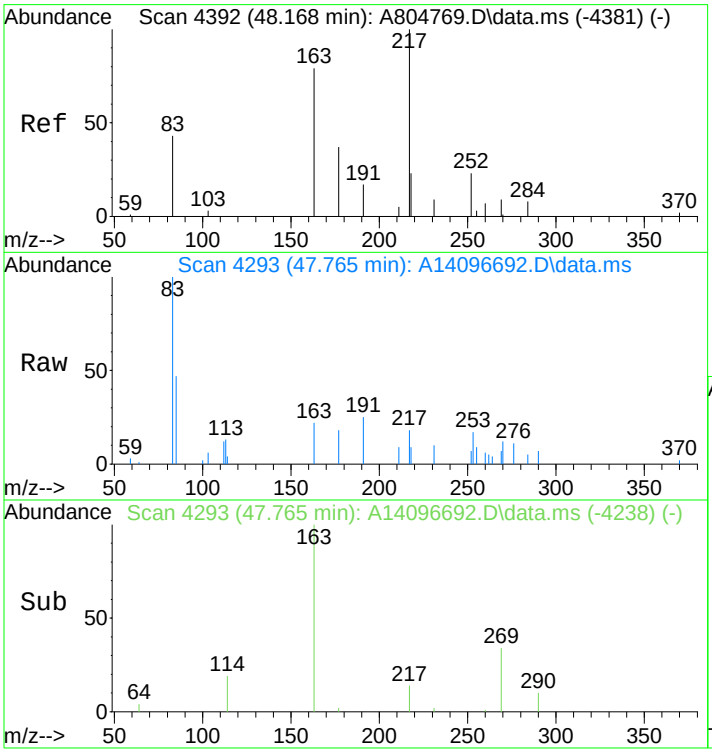




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 373.51 ng/ml m
RT: 47.490 min Scan# 4263
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

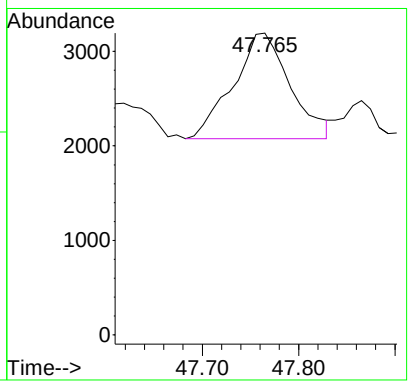
Tgt Ion:217 Resp: 15945

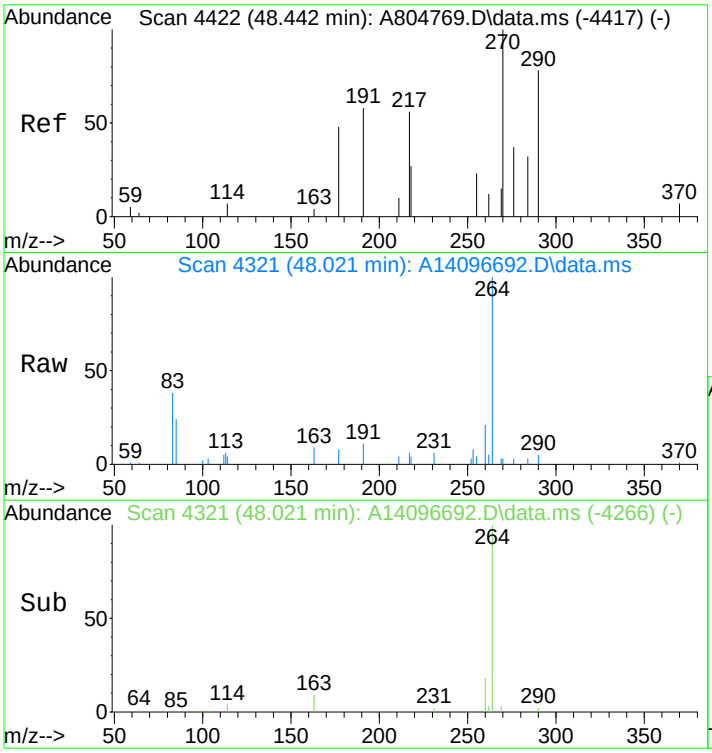




#133
Unknown Sterane (S18)
Concen: 107.33 ng/ml
RT: 47.765 min Scan# 4293
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

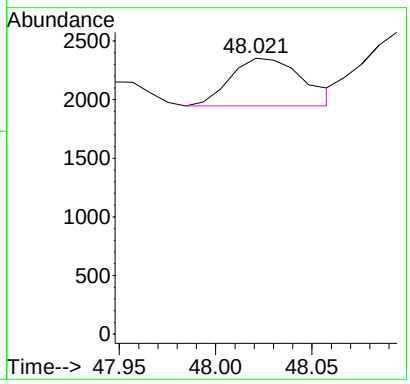
Tgt Ion:217 Resp: 4582

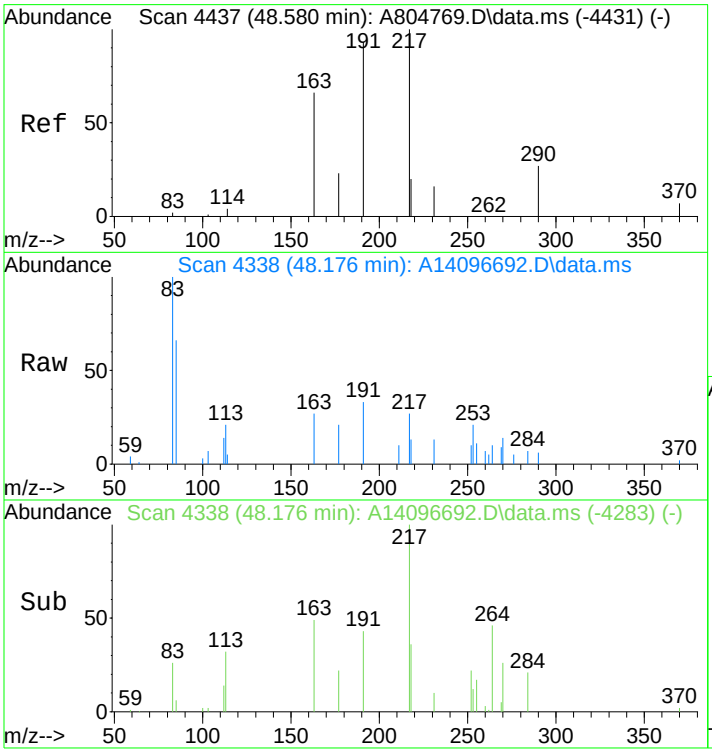




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 25.02 ng/ml
RT: 48.021 min Scan# 4321
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

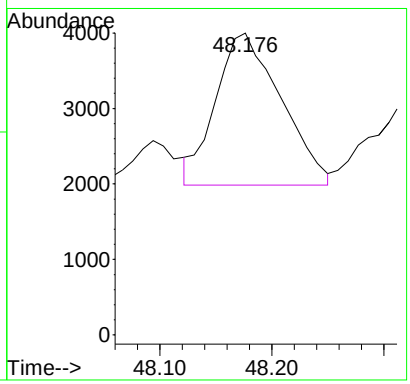
Tgt Ion:217 Resp: 1068

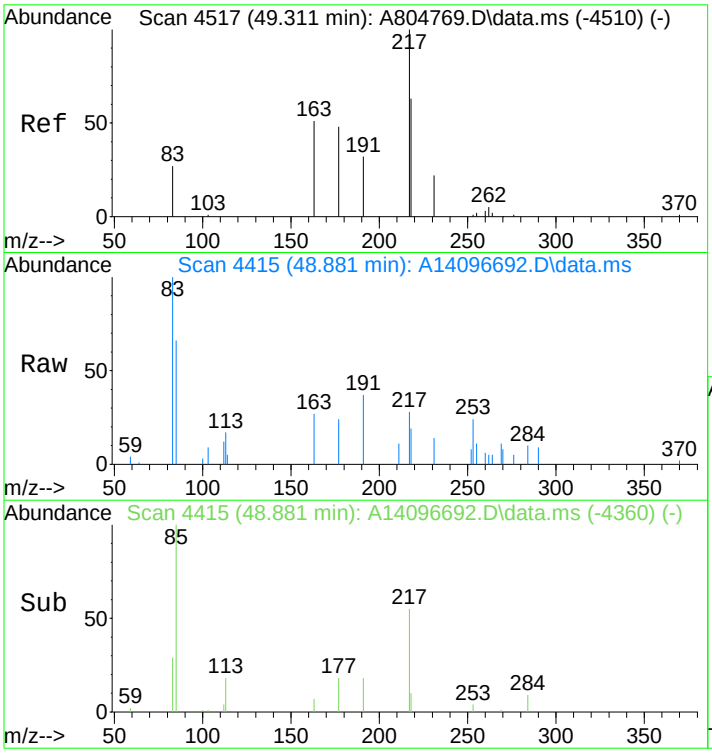




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 190.63 ng/ml m
RT: 48.176 min Scan# 4338
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

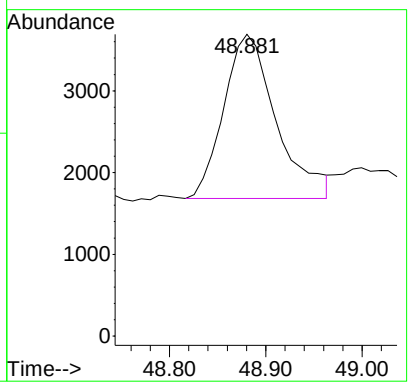
Tgt Ion:217 Resp: 8138

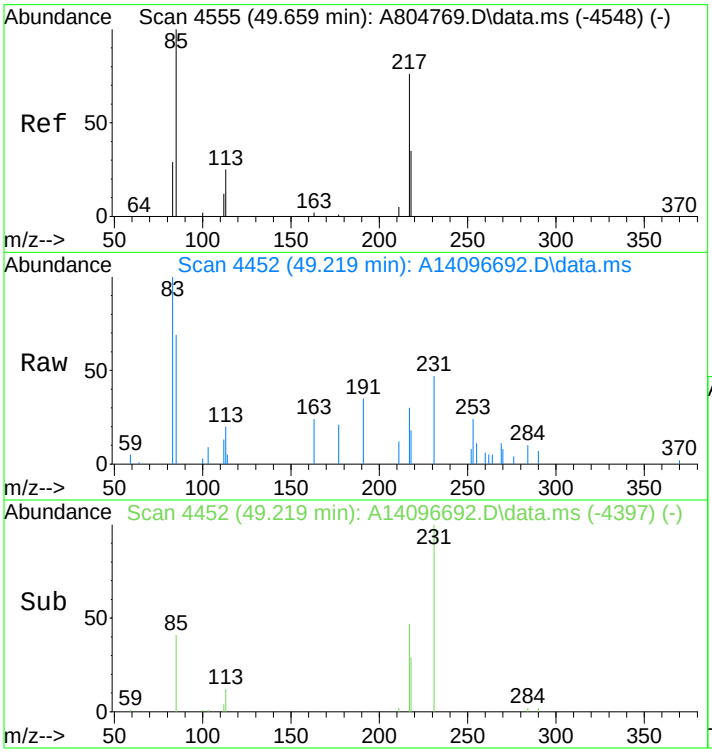




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 178.10 ng/ml
RT: 48.881 min Scan# 4415
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

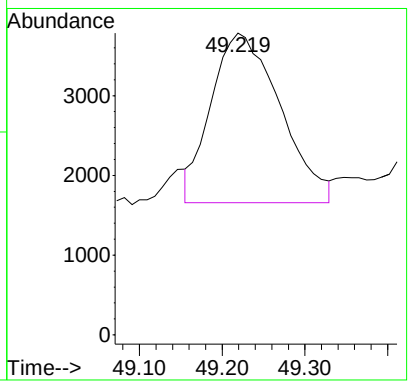
Tgt Ion:217 Resp: 7603

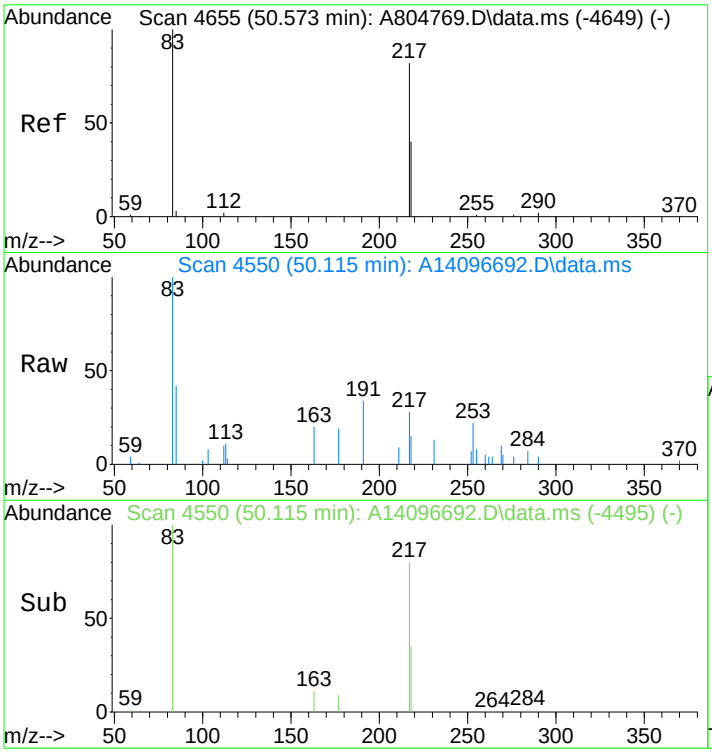




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 288.73 ng/ml m
RT: 49.219 min Scan# 4452
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

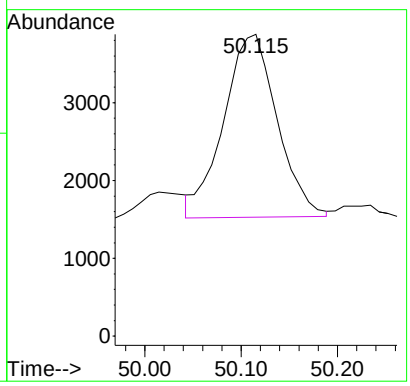
Tgt Ion:217 Resp: 12326

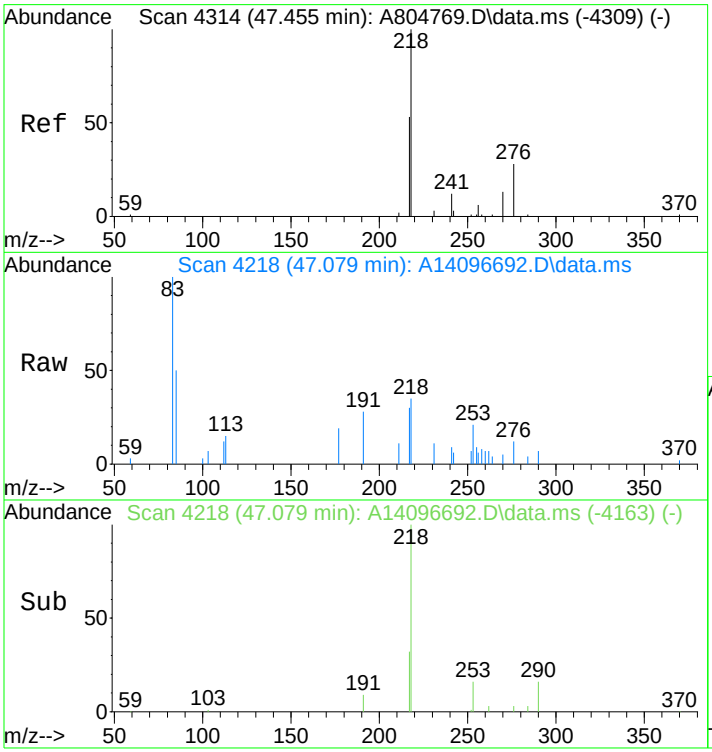




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 212.32 ng/ml
RT: 50.115 min Scan# 4550
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

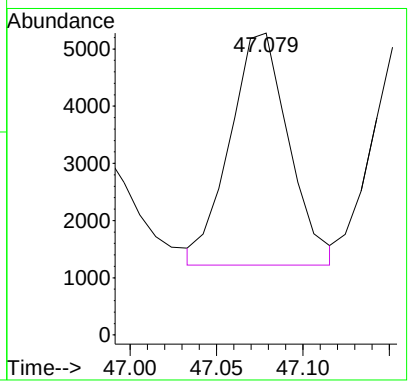
Tgt Ion:217 Resp: 9064

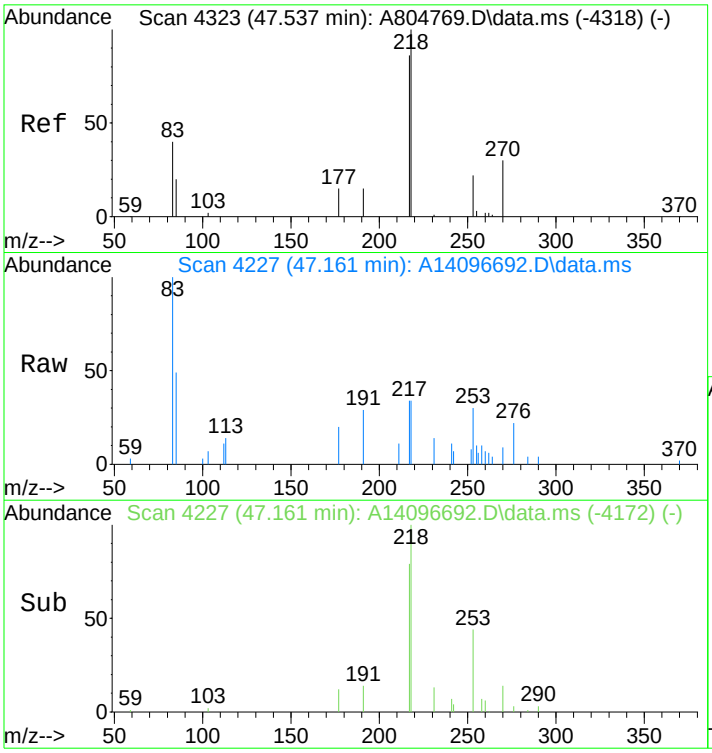




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 225.20 ng/ml m
RT: 47.079 min Scan# 4218
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

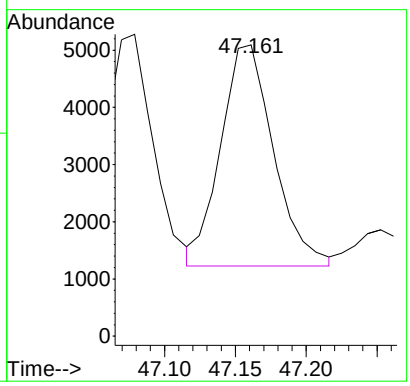
Tgt Ion:218 Resp: 9614

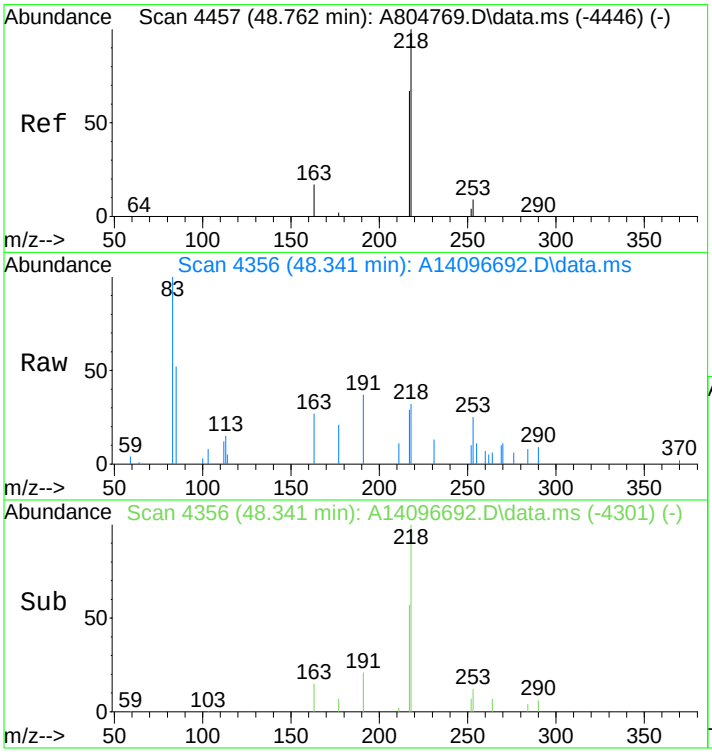




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 234.93 ng/ml m
RT: 47.161 min Scan# 4227
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

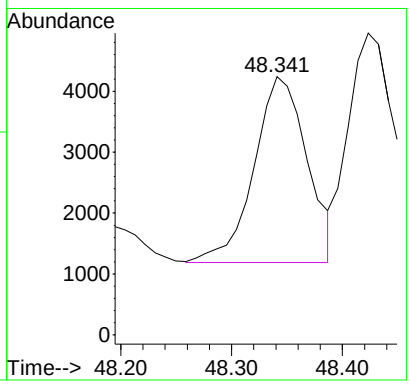
Tgt Ion:218 Resp: 10029

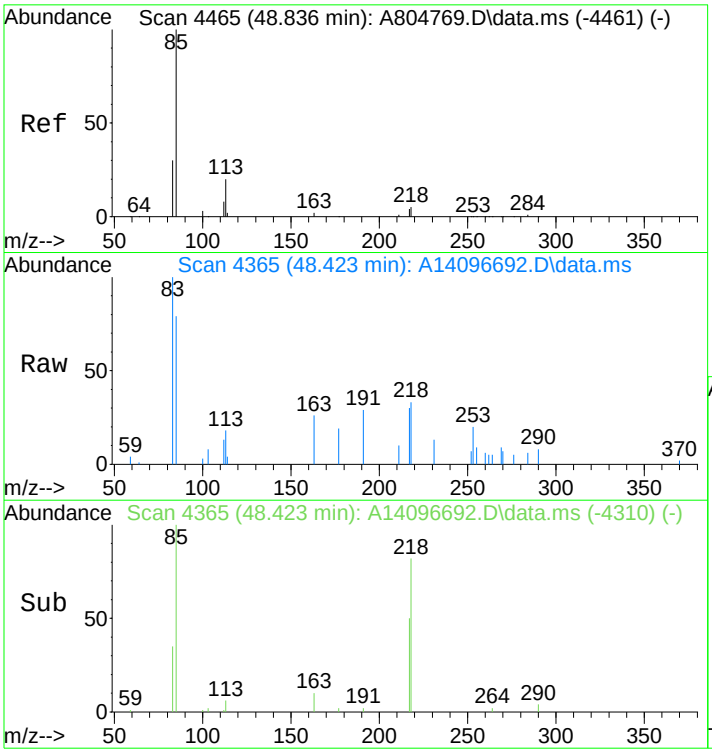




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 238.88 ng/ml m
RT: 48.341 min Scan# 4356
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

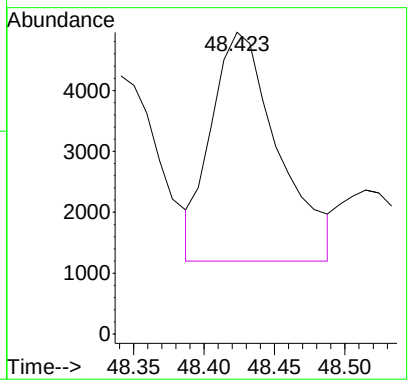
Tgt Ion:218 Resp: 10198

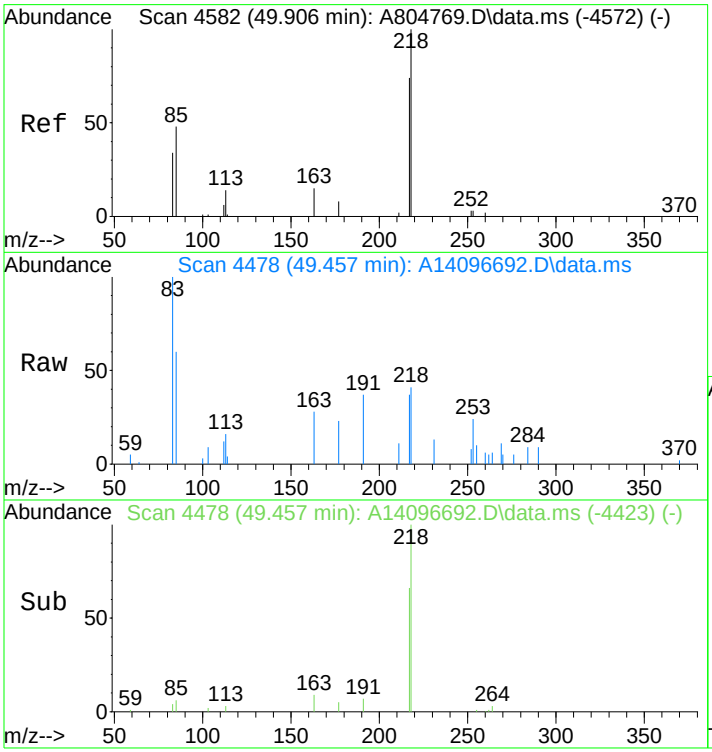




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 291.80 ng/ml m
RT: 48.423 min Scan# 4365
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

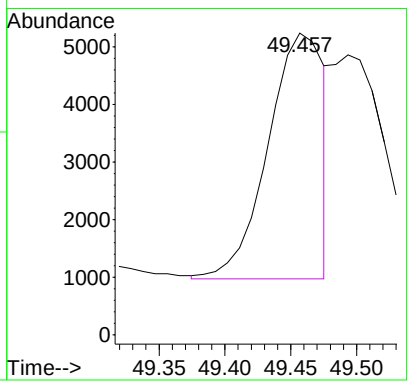
Tgt Ion:218 Resp: 12457

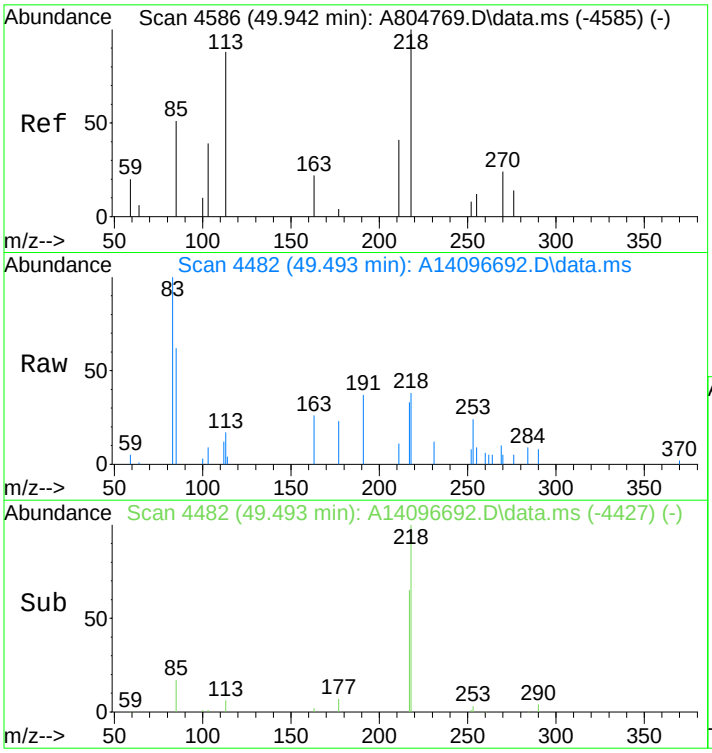




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 295.90 ng/ml m
RT: 49.457 min Scan# 4478
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

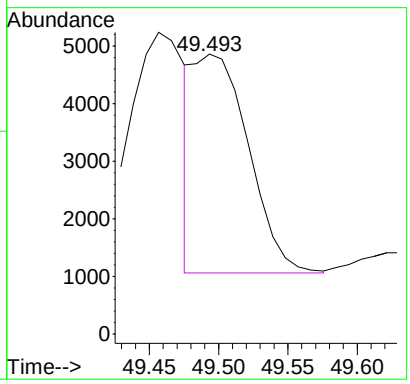
Tgt Ion:218 Resp: 12632

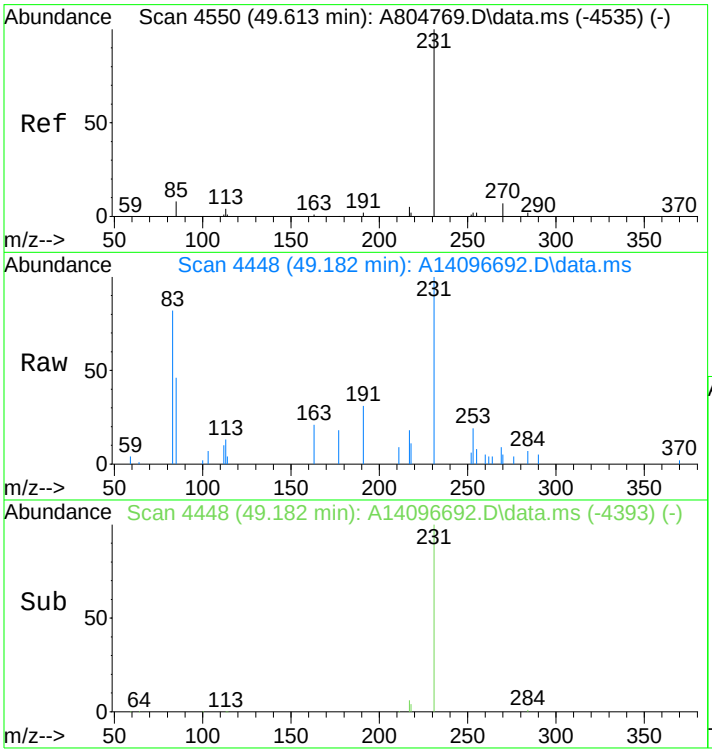




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 244.74 ng/ml m
RT: 49.493 min Scan# 4482
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

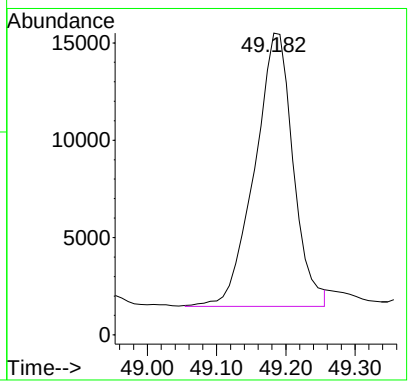
Tgt Ion:218 Resp: 10448

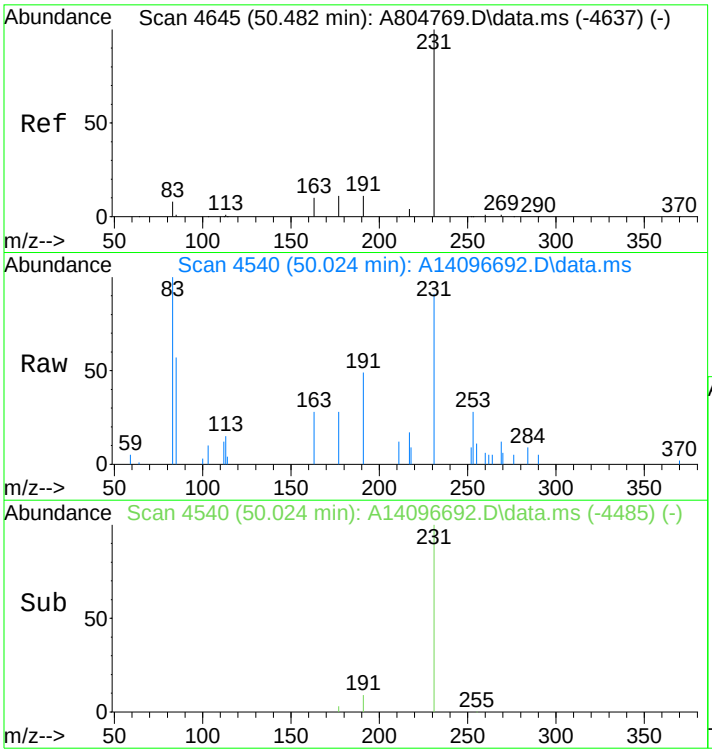




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1271.91 ng/mL m
RT: 49.182 min Scan# 4448
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

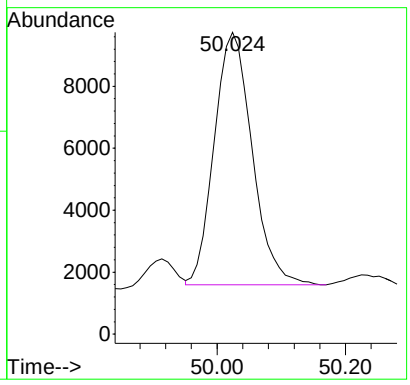
Tgt Ion:231 Resp: 54298

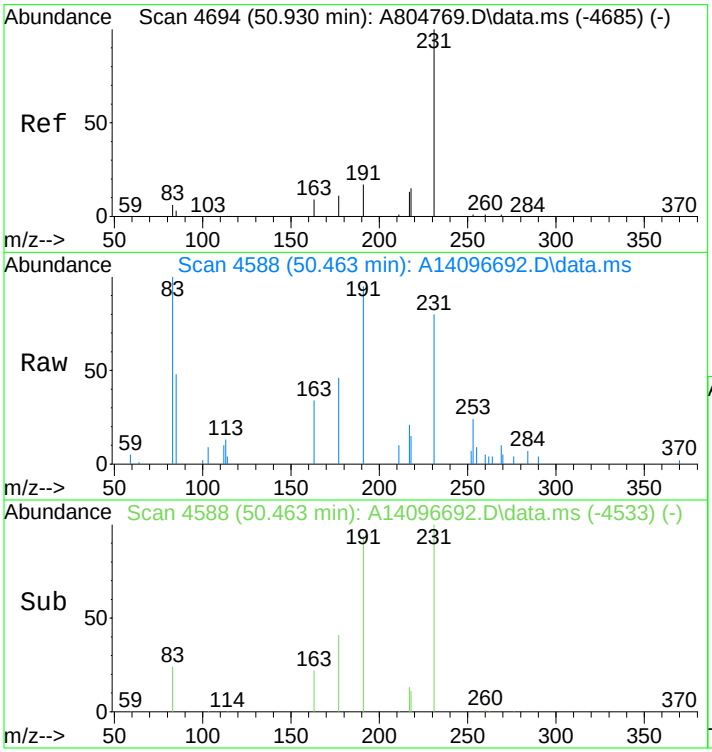




#146
C28,20S-triaromatic steroid
Concen: 784.37 ng/mL
RT: 50.024 min Scan# 4540
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

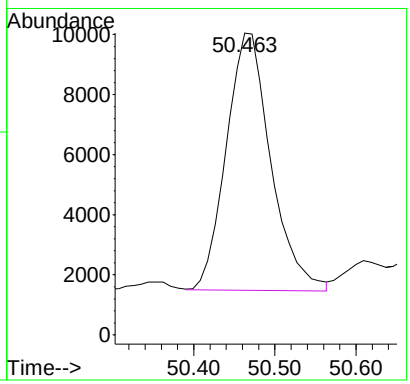
Tgt Ion:231 Resp: 33485

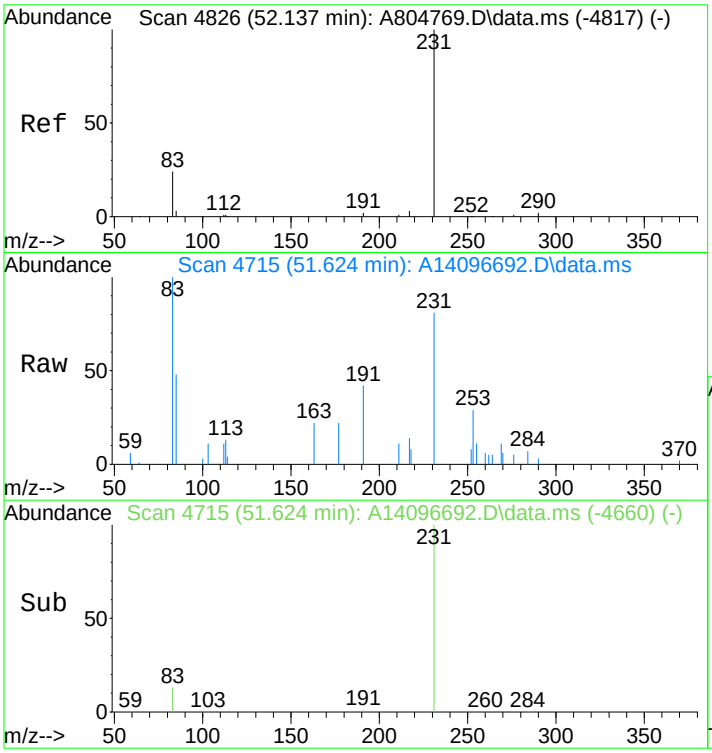




#147
C27,20R-triaromatic steroid
Concen: 767.04 ng/mL
RT: 50.463 min Scan# 4588
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

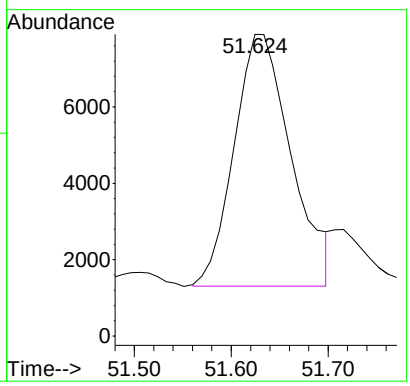
Tgt Ion:231 Resp: 32745





#148
C28,20R-triaromatic steroid
Concen: 632.02 ng/mL m
RT: 51.624 min Scan# 4715
Delta R.T. 0.000 min
Lab File: A14096692.D
Acq: 20 Jun 2012 7:47 pm

Tgt Ion:231 Resp: 26981



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	55495	500.000	ng/mL	0.00
74) Chrysene-d12	42.939	240	97215	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	200189	1016.567	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.66%			
42) Phenanthrene-d10	32.321	188	183848	990.649	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.06%			
86) Benzo[a]pyrene-d12	48.021	264	162086	853.177	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 85.32%			
127) 5B(H)Cholane - Surr	43.496	217	43206	1122.762	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 112.28%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	37161	831.515	ng/mL	100
4) cis-Decalin	17.329	138	2307M3	66.929	ng/mL	
5) C1-Decalins	17.603	152	81116M5	1815.052	ng/mL	
6) C2-Decalins	19.027	166	115045M5	2574.247	ng/mL	
7) C3-Decalins	21.846	180	78035M5	1746.111	ng/mL	
8) C4-Decalins	25.214	194	93222M5	2085.935	ng/mL	
10) Naphthalene	19.574	128	73917M3	343.188	ng/mL	
11) C1-Naphthalenes	22.257	142	233866M5	1085.811	ng/mL	
12) C2-Naphthalenes	25.086	156	548023M5	2544.404	ng/mL	
13) C3-Naphthalenes	27.760	170	636142M5	2953.530	ng/mL	
14) C4-Naphthalenes	30.187	184	479554M5	2226.511	ng/mL	
16) 2-Methylnaphthalene	22.257	142	141703	999.862	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	87733	630.628	ng/mL#	100
18) Benzothiophene	19.811	134	3898M3	23.467	ng/mL	
19) C1-Benzo(b)thiophenes	21.810	148	37054M5	223.074	ng/mL	
20) C2-Benzo(b)thiophenes	25.287	162	57399M5	345.556	ng/mL	
21) C3-Benzo(b)thiophenes	27.258	176	110955M5	667.977	ng/mL	
22) C4-Benzo(b)thiophenes	29.356	190	114827M5	691.287	ng/mL	
23) Biphenyl	24.146	154	17310	99.779	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.748	156	137394	1083.743	ng/mL#	100
25) Dibenzofuran	27.240	168	7307	39.841	ng/mL#	53
26) Acenaphthylene	25.825	152	4517M3	20.160	ng/mL	
27) Acenaphthene	26.573	153	7561M3	54.603	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.116	170	42747M3	371.768	ng/mL	
29) Fluorene	28.599	166	24742M3	160.445	ng/mL	
30) C1-Fluorenes	30.962	180	64009M5	415.081	ng/mL	
31) C2-Fluorenes	33.152	194	142882M5	926.551	ng/mL	
32) C3-Fluorenes	34.987	208	168064M5	1089.849	ng/mL	
33) Dibenzothiophene	31.920	184	59814	298.655	ng/mL#	51
34) 4-Methyldibenzothiophene(	33.690	198	74429	371.629	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.046	198	72975M3	364.369	ng/mL	
36) 1-Methyldibenzothiophene(	34.448	198	39518	197.316	ng/mL#	100
37) OTP	34.074	198	9712M3	48.493	ng/mL	
38) C1-Dibenzothiophenes	33.690	198	211498M5	1056.023	ng/mL	
38) C1-Dibenzothiophenes BS	33.690	198	201786m	1007.531	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	353833M5	1766.711	ng/mL	
40) C3-Dibenzothiophenes	37.177	226	377233M5	1883.549	ng/mL	
41) C4-Dibenzothiophenes	38.867	240	263311M5	1314.729	ng/mL	
43) Phenanthrene	32.413	178	80440	378.231	ng/mL#	82
44) 3-Methylphenanthrene(3MP)	34.375	192	47113M3	221.526	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.494	192	53446	251.304	ng/mL	96

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
46) 2-Methylanthracene(2MA)	34.658	192	3266	15.357	ng/mL	100
47) 9/4-Methylphenanthrene(9M	34.822	192	78423	368.747	ng/mL	97
48) 1-Methylphenanthrene(1MP)	34.923	192	48230M3	226.779	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.822	192	238307M5	1120.525	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.639	206	355311M5	1670.680	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	355311m	1670.680	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	314477M5	1478.678	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.378	234	154185M5	724.981	ng/mL	
54) Retene	39.378	234	16151M3	242.529	ng/mL	
56) Carbazole	33.380	167	4049M3	20.520	ng/mL	
57) 1-Methylphenanthrene	34.923	192	48192M3	302.072	ng/mL	
58) Fluoranthene	37.205	202	6556M3	30.216	ng/mL	
60) Pyrene	38.091	202	21195M3	93.987	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.478	216	80837M5	358.463	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.286	230	107380M5	476.165	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	136378M5	604.754	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	133653M5	592.670	ng/mL	
66) Naphthobenzothiophene	41.944	234	22761	116.411	ng/ml#	64
67) Naphthobenzothiophene-2,1	41.944	234	22761	116.411	ng/mL#	64
68) Naphthobenzothiophene-1,2	42.281	234	5684	29.071	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.601	234	3489M3	17.845	ng/mL	
70) C1-Naphthobenzothiophenes	44.034	248	119868M5	613.066	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	190400M5	973.802	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	171874M5	879.051	ng/ml	
73) C4-Naphthobenzothiophenes	47.984	290	121417M5	620.988	ng/mL	
75) Benz[a]anthracene	42.875	228	4377M3	20.583	ng/mL	
77) Chrysene/Triphenylene	43.003	228	21577M3	102.765	ng/mL	
78) C1-Chrysenes	44.509	242	59880M5	285.192	ng/mL	
79) C2-Chrysenes	46.237	256	96255M5	458.436	ng/mL	
79) C2-Chrysenes BS	46.237	256	96255m	458.436	ng/mL	
80) C3-Chrysenes	47.911	270	120170M5	572.337	ng/mL	
81) C4-Chrysenes	49.320	284	73456M5	349.851	ng/mL	
82) Benzo[b]fluoranthene	46.951	252	7174	34.109	ng/mL#	60
83) Benzo[j]+[k]fluoranthene	47.033	252	2362M3	10.168	ng/mL	
85) Benzo[e]pyrene	47.920	252	11240	53.901	ng/mL#	80
87) Benzo[a]pyrene	48.131	252	5457M3	27.984	ng/mL	
88) Perylene	48.442	252	9628M3	45.541	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.914	276	3026M3	12.406	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.914	278	1564M3	6.824	ng/mL	
91) Benzo[g,h,i]perylene	54.193	276	8801	37.618	ng/mL	99
92) Hopane (T19)	51.807	191	100980	1454.078	ng/mL#	83
94) C23 Tricyclic Terpane (T4	40.510	191	42749	615.571	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	22030M3	317.225	ng/ml	
96) C25 Tricyclic Terpane (T6	42.729	191	20311M3	292.472	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	7834	112.807	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.788	191	8040M3	115.773	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	7942M3	114.362	ng/ml	
100) C28 Tricyclic Terpane-22S	46.173	191	8899	128.143	ng/ml	100
101) C28 Tricyclic Terpane-22R	46.329	191	9378	135.040	ng/ml	100
102) C29 Tricyclic Terpane-22S	46.850	191	11988	172.623	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	11155M3	160.628	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	11668	168.015	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.231	191	8373M3	120.568	ng/mL	
106) C30 Tricyclic Terpane-22R	48.469	191	8880M3	127.869	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.670	191	27710M3	399.015	ng/ml	
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	17968	258.733	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) 17a(H),21b(H)-25-Norhopan	49.640	191	4591	66.109	ng/ml	100
110) 30-Norhopane (T15)	50.481	191	71415M3	1028.352	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.582	191	10756M3	154.883	ng/ml	
112) 17a(H)-Diahopane (X)	50.710	191	3250	46.799	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	7020	101.086	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.643	191	930M2	13.392	ng/ml	
115) Moretane (T20)	52.484	191	7657M3	110.258	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	43905	632.217	ng/ml	100
117) 30-Homohopane-22R (T22)	53.763	191	35953	517.711	ng/ml	100
118) Gammacerane/C32-diahopane	54.303	191	17030	245.226	ng/mL	100
119) 30,31-Bishomohopane-22S (	55.052	191	28379	408.648	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.417	191	20219	291.147	ng/ml	100
121) 30,31-Trishomohopane-22S	57.108	191	21680M4	312.185	ng/ml	
122) 30,31-Trishomohopane-22R	57.711	191	13479M3	194.093	ng/ml	
123) Tetrakishomohopane-22S (T	59.639	191	13743M3	197.895	ng/ml	
124) Tetrakishomohopane-22R (T	60.516	191	9376	135.011	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	17827M3	256.703	ng/ml	
126) Pentakishomohopane-22R (T	63.925	191	11693M3	168.375	ng/ml	
128) 13b(H),17a(H)-20S-Diachol	45.002	217	6545M3	170.080	ng/ml	
129) 13b(H),17a(H)-20R-Diachol	45.423	217	3232M3	83.988	ng/ml	
130) 13b,17a-20S-Methyldiachol	46.118	217	2972M3	77.231	ng/ml	
131) 14a,17a-20S-Chol/13b,17a-	46.978	217	12371	321.476	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.490	217	13956	362.664	ng/ml	100
133) Unknown Sterane (S18)	47.765	217	2249	58.443	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.021	217	1231	31.989	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.176	217	5823M3	151.318	ng/ml	
136) 14a,17a-20R-Methylcholest	48.871	217	4925	127.982	ng/ml	100
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	11535M3	299.751	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.106	217	9985M3	259.473	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.070	218	9510M3	247.129	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.152	218	9694M3	251.911	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	7572M3	196.768	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	10689M3	277.767	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	13234	343.902	ng/ml	100
144) 14b(H),17b(H)-20S-Ethylch	49.493	218	11022M3	286.421	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	45408	1179.984	ng/mL	100
146) C28,20S-triaromatic stero	50.024	231	37248M3	967.936	ng/mL	
147) C27,20R-triaromatic stero	50.463	231	29822	774.962	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	32385M3	841.565	ng/mL	

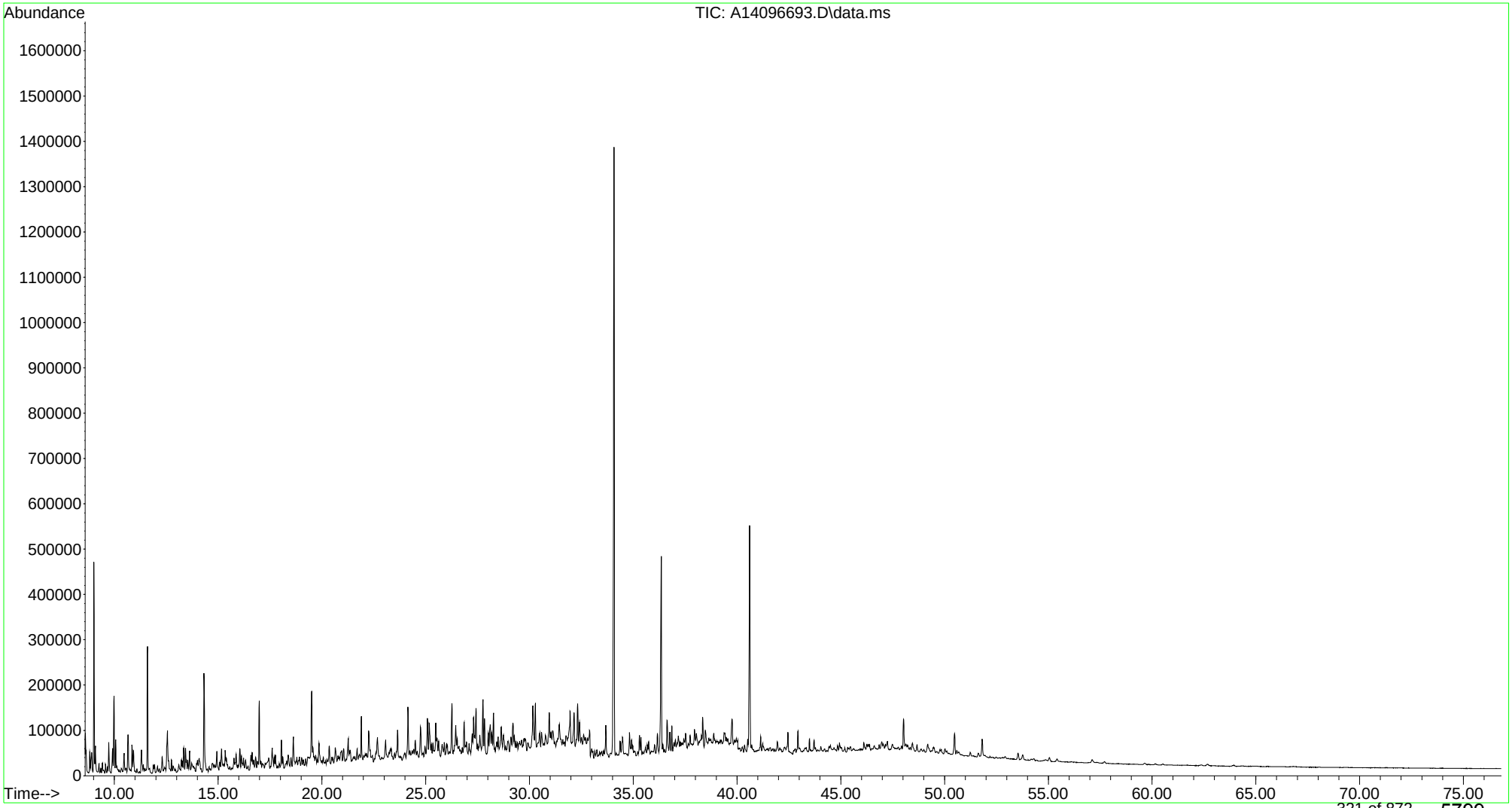
(#) = qualifier out of range (m) = manual integration (+) = signals summed

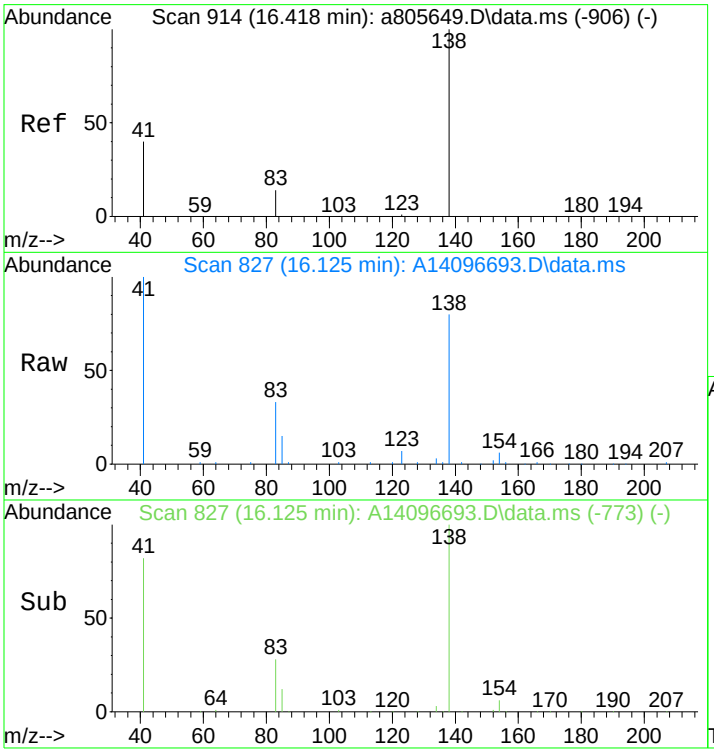
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096693.D
Acq On : 20 Jun 2012 9:13 pm
Operator : AC
Sample : SO062212WCS01
Misc : WHAP10
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 22 13:11:43 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

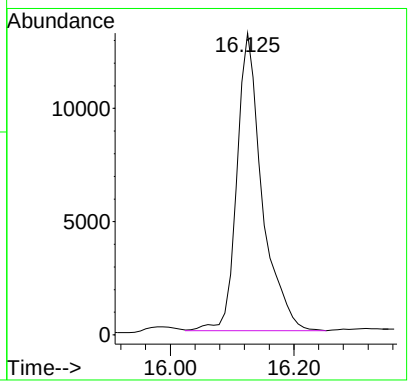
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

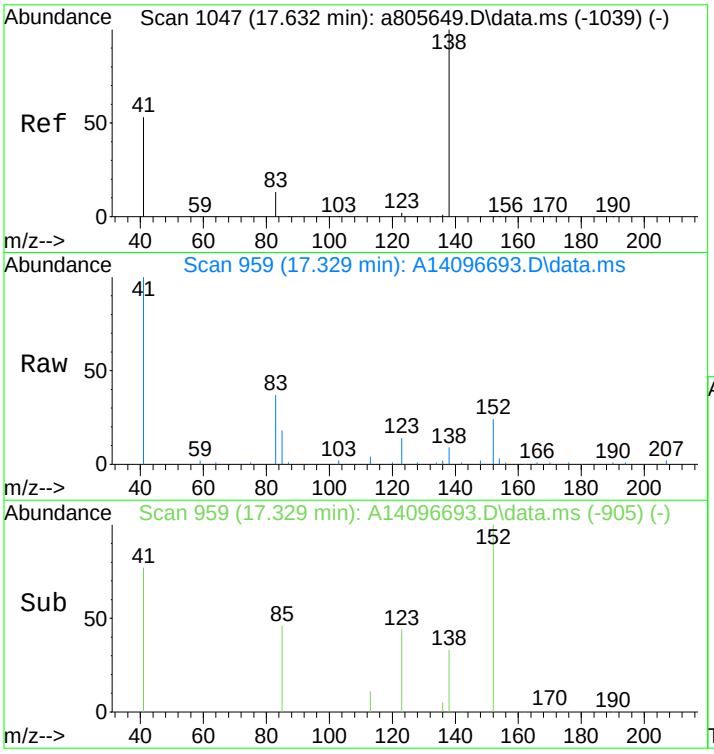




#3
trans-Decalin
Concen: 831.51 ng/mL
RT: 16.125 min Scan# 827
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

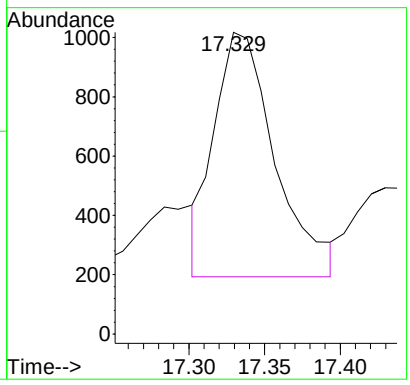
Tgt Ion:138 Resp: 37161

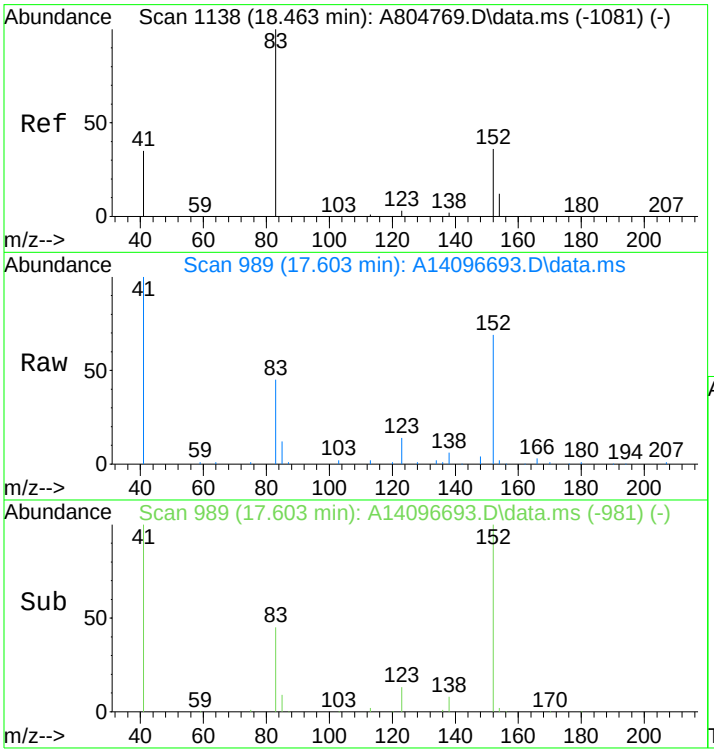




#4
cis-Decalin
Concen: 66.93 ng/mL m
RT: 17.329 min Scan# 959
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

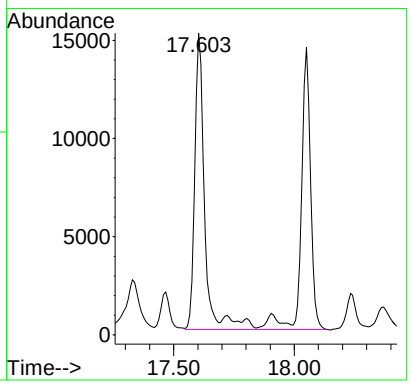
Tgt Ion:138 Resp: 2307

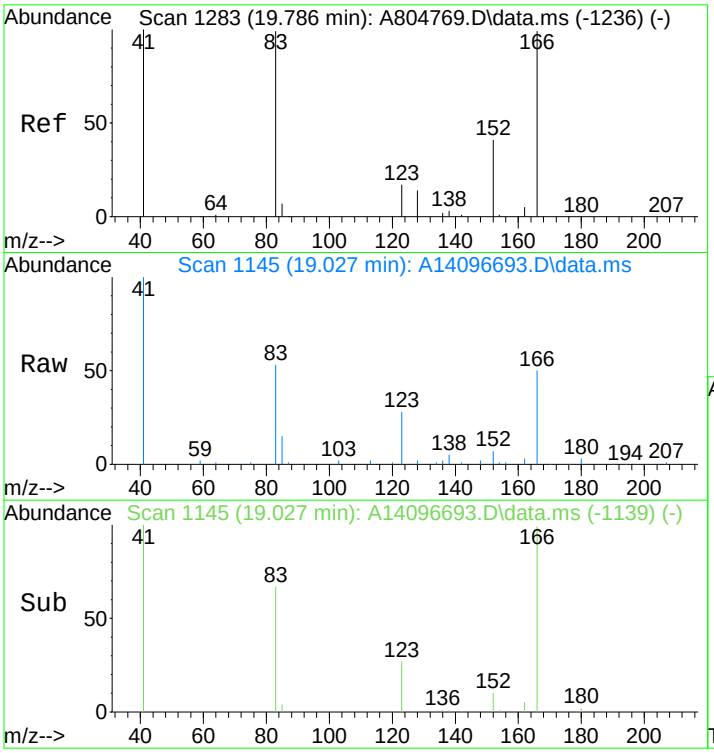




#5
C1-Decalins
Concen: 1815.05 ng/mL m
RT: 17.603 min Scan# 989
Delta R.T. -0.511 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

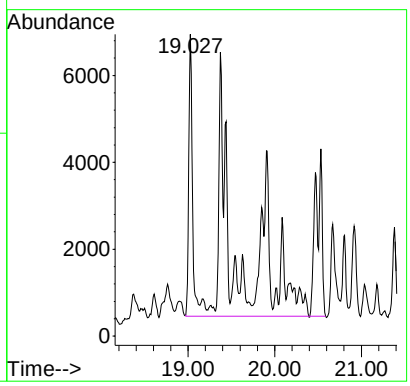
Tgt Ion:152 Resp: 81116

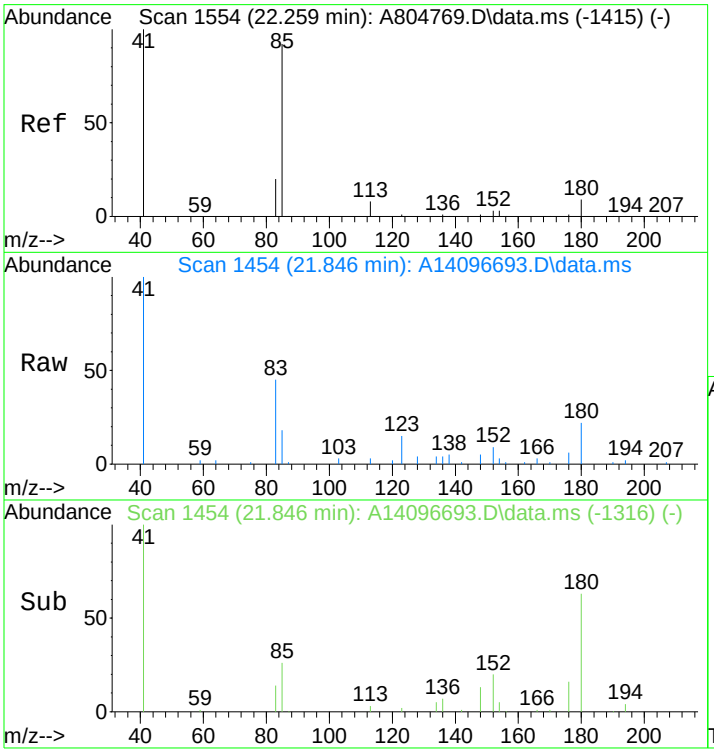




#6
C2-Decalins
Concen: 2574.25 ng/mL m
RT: 19.027 min Scan# 1145
Delta R.T. -0.411 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

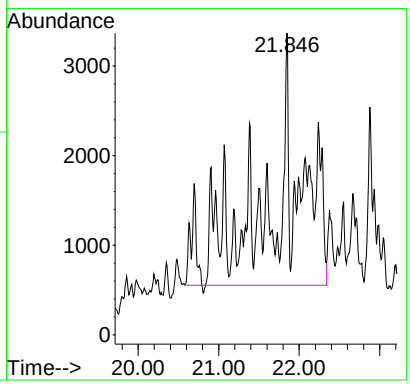
Tgt Ion:166 Resp: 115045

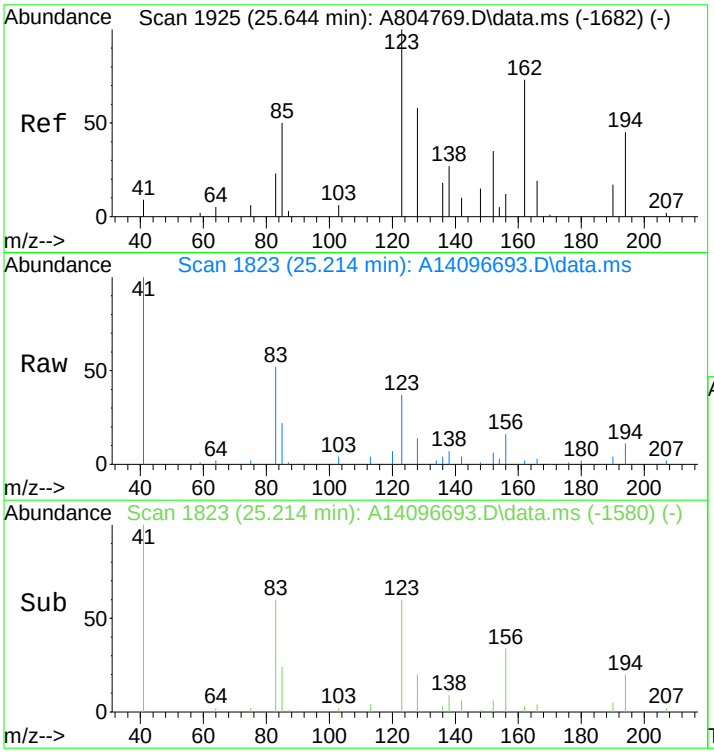




#7
C3-Decalins
Concen: 1746.11 ng/mL m
RT: 21.846 min Scan# 1454
Delta R.T. -0.053 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

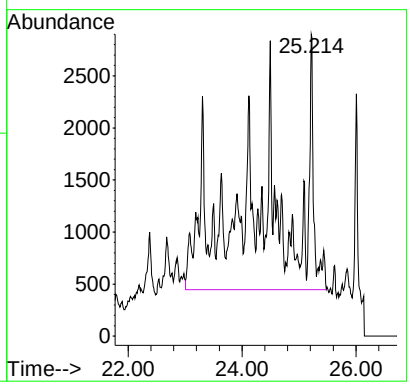
Tgt Ion:180 Resp: 78035

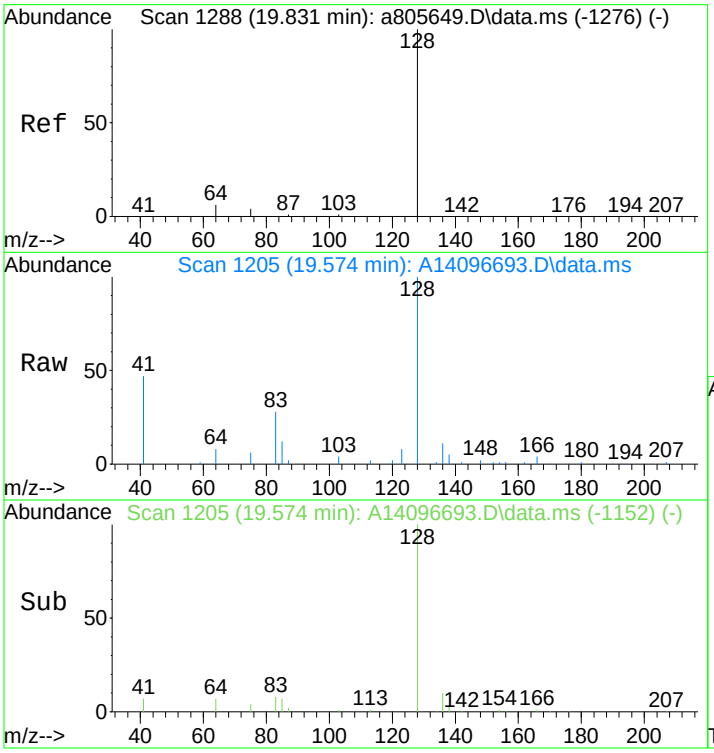




#8
C4-Decalins
Concen: 2085.94 ng/mL m
RT: 25.214 min Scan# 1823
Delta R.T. -0.049 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:194 Resp: 93222

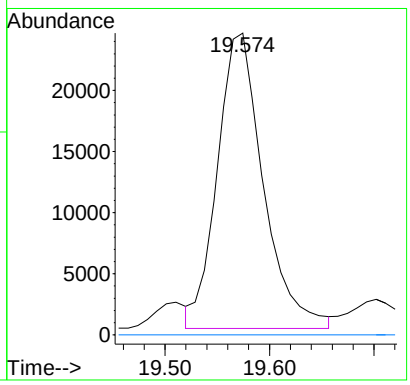


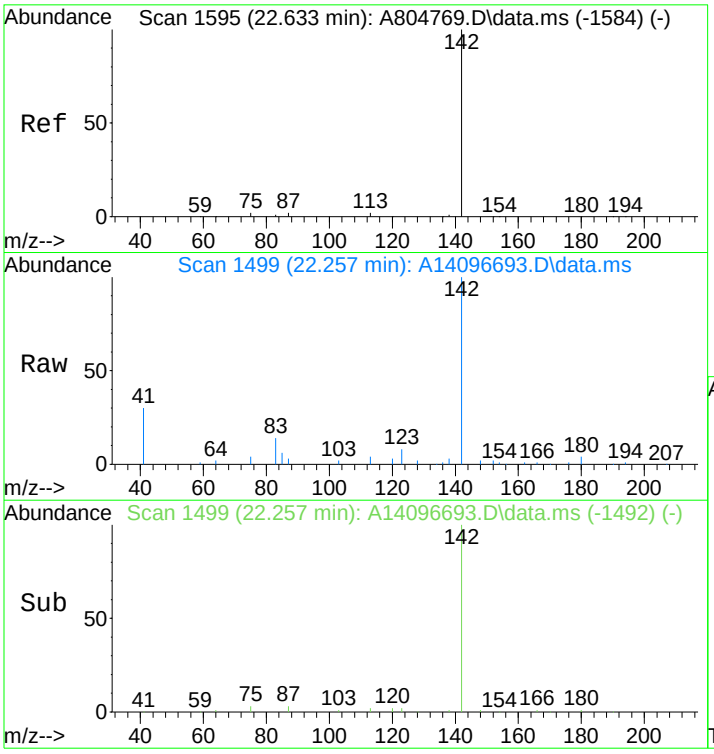


#10
Naphthalene
Concen: 343.19 ng/mL m
RT: 19.574 min Scan# 1205
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:128 Resp: 73917

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

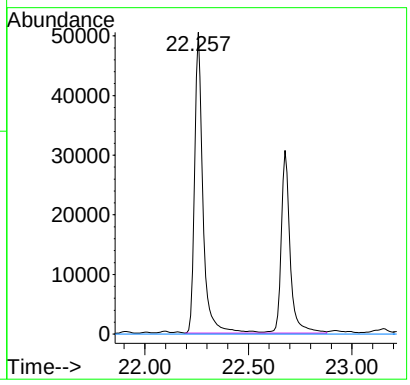


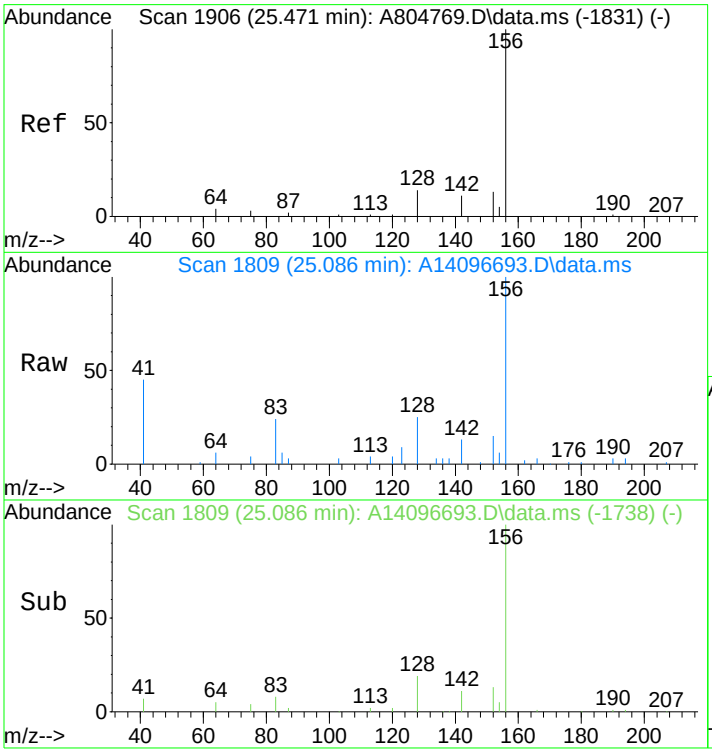


#11
C1-Naphthalenes
Concen: 1085.81 ng/mL m
RT: 22.257 min Scan# 1499
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:142 Resp: 233866

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

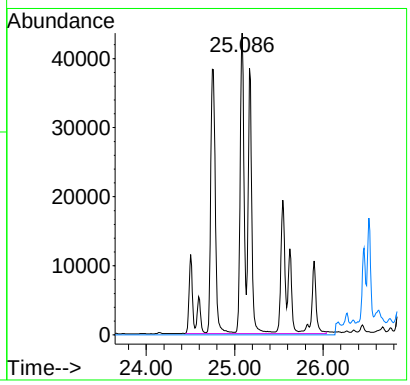


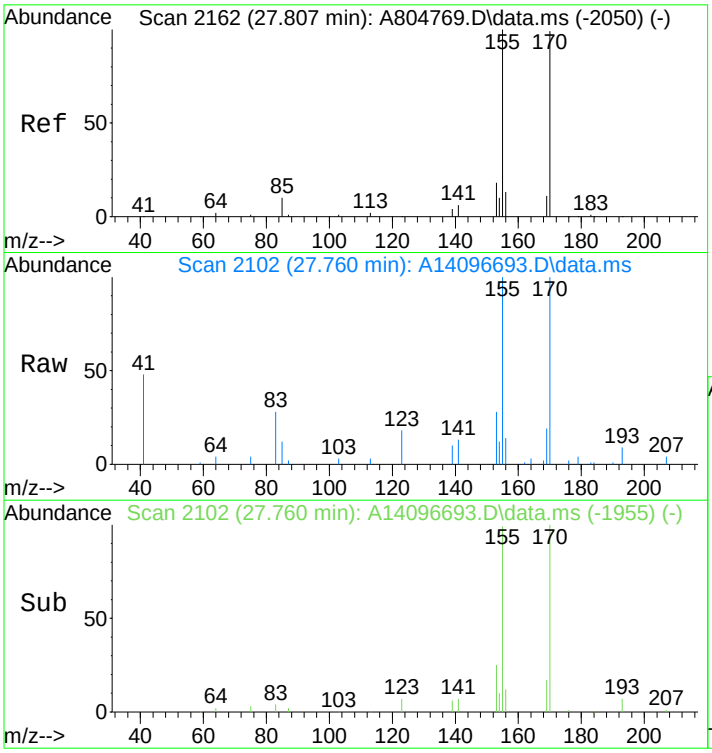


#12
C2-Naphthalenes
Concen: 2544.40 ng/mL m
RT: 25.086 min Scan# 1809
Delta R.T. -0.022 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:156 Resp: 548023

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

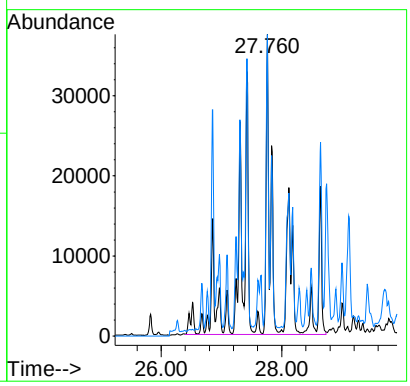


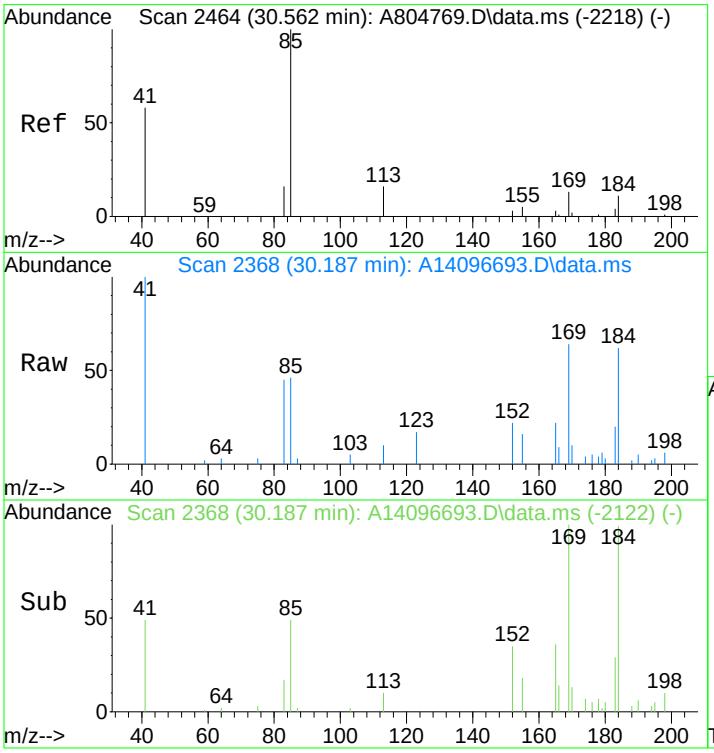


#13
C3-Naphthalenes
Concen: 2953.53 ng/mL m
RT: 27.760 min Scan# 2102
Delta R.T. 0.326 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:170 Resp: 636142

Ion	Ratio	Lower	Upper
170	100		
155	14.3	74.5	111.7#

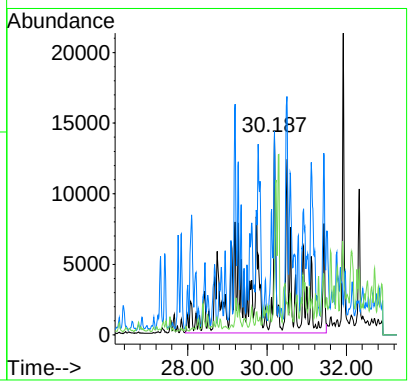


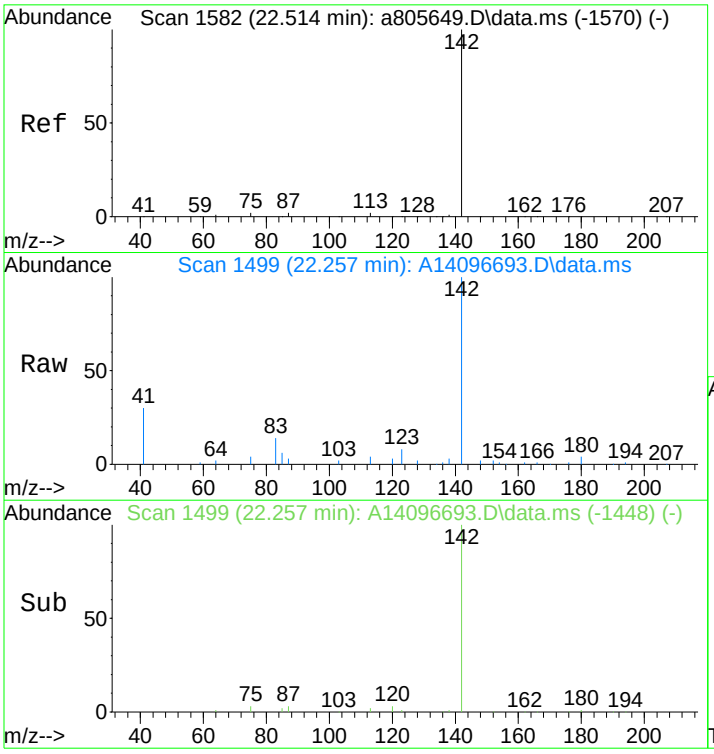


#14
C4-Naphthalenes
Concen: 2226.51 ng/mL m
RT: 30.187 min Scan# 2368
Delta R.T. 0.006 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:184 Resp: 479554

Ion	Ratio	Lower	Upper
184	100		
169	8.2	83.0	124.6#
183	0.0	24.6	36.8#

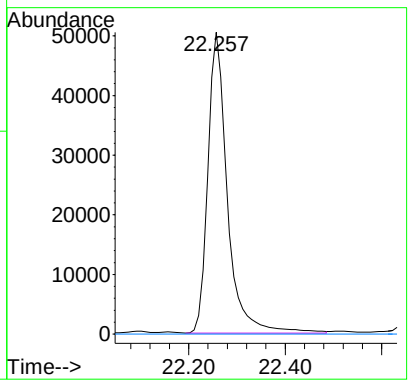


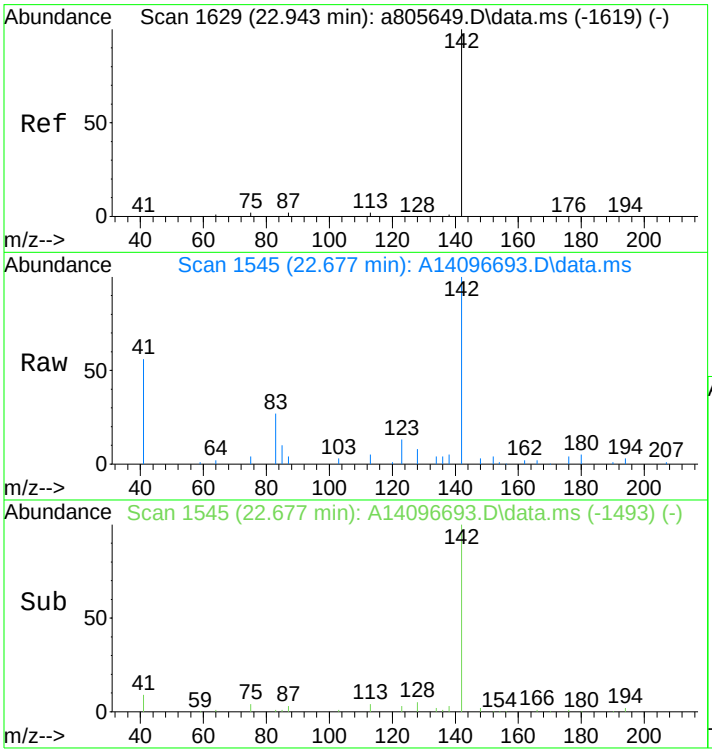


#16
2-Methylnaphthalene
Concen: 999.86 ng/mL
RT: 22.257 min Scan# 1499
Delta R.T. -0.036 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:142 Resp: 141703

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

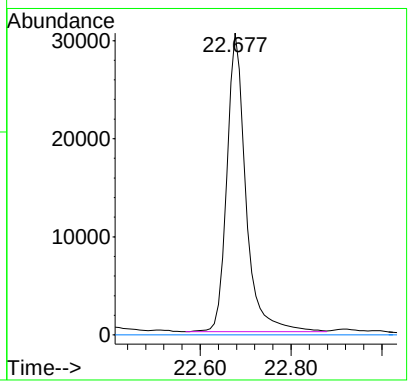


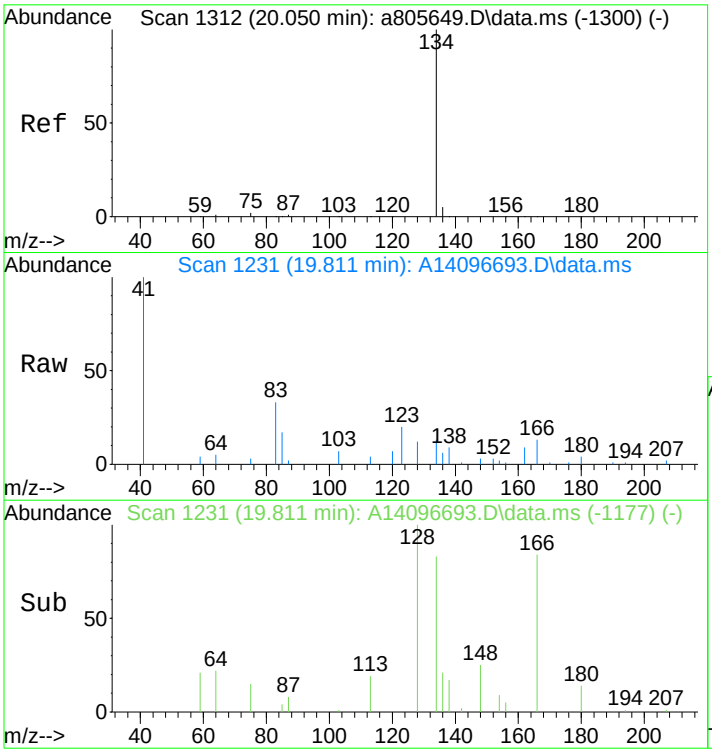


#17
1-Methylnaphthalene
Concen: 630.63 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:142 Resp: 87733

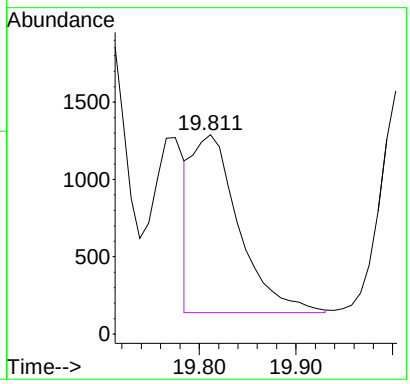
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

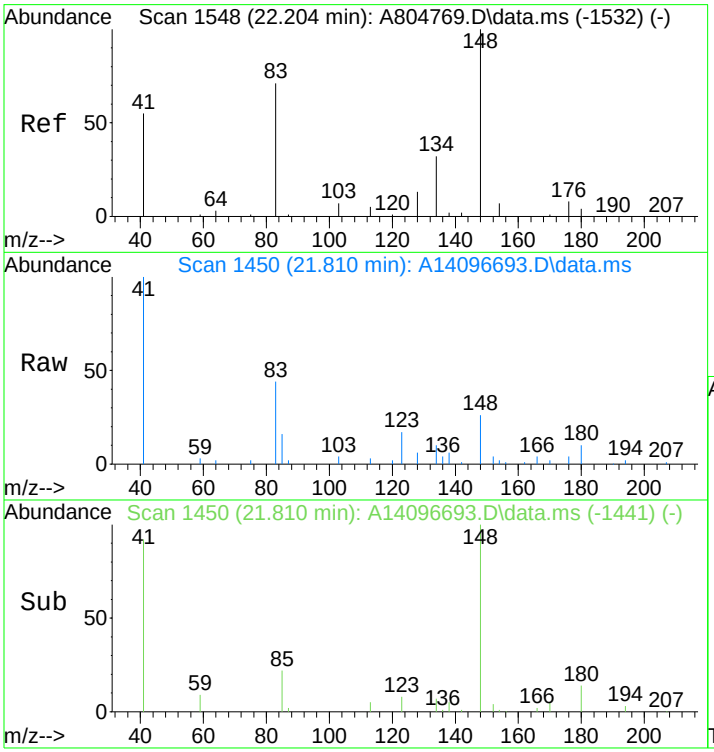




#18
Benzothiophene
Concen: 23.47 ng/mL m
RT: 19.811 min Scan# 1231
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

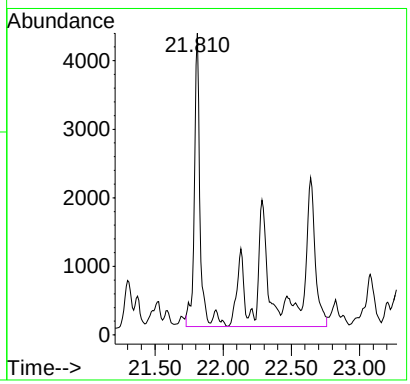
Tgt Ion:134 Resp: 3898

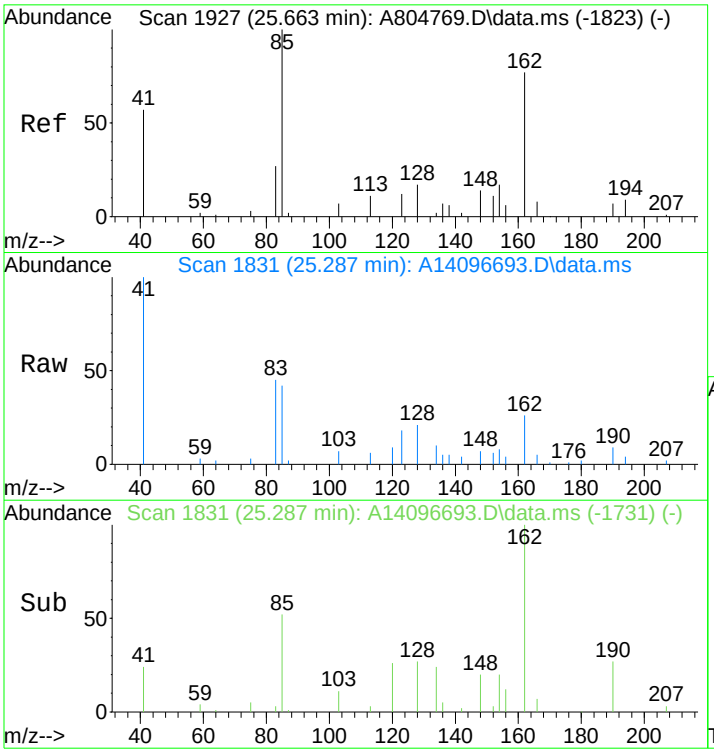




#19
C1-Benzo(b)thiophenes
Concen: 223.07 ng/mL m
RT: 21.810 min Scan# 1450
Delta R.T. -0.039 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

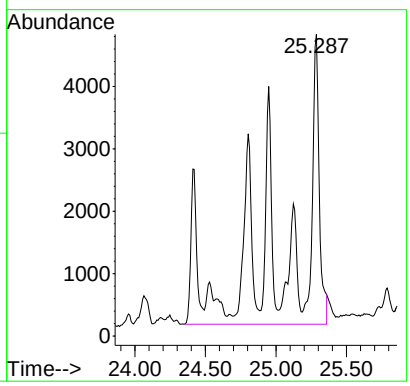
Tgt Ion:148 Resp: 37054

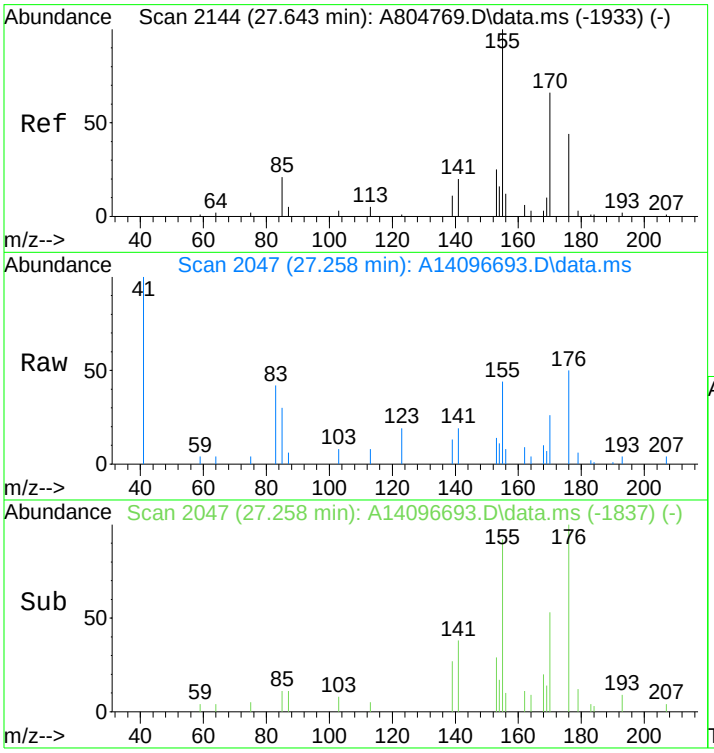




#20
C2-Benzo(b)thiophenes
Concen: 345.56 ng/mL m
RT: 25.287 min Scan# 1831
Delta R.T. -0.017 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

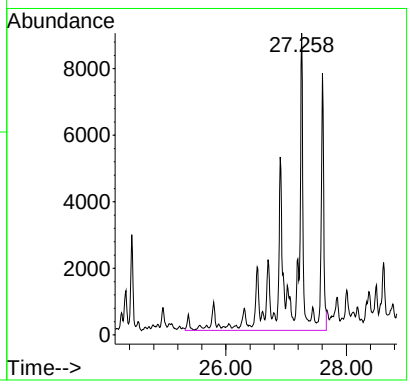
Tgt Ion:162 Resp: 57399

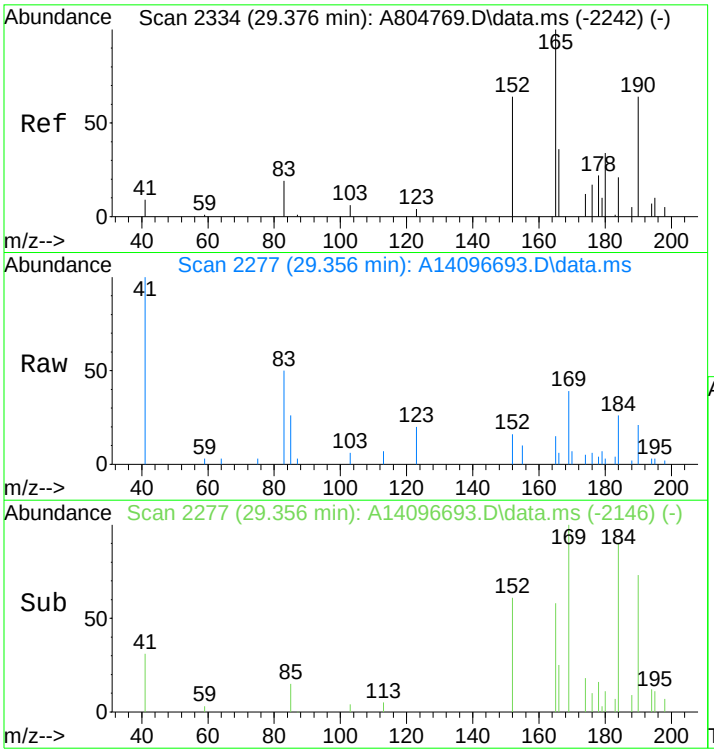




#21
C3-Benzo(b)thiophenes
Concen: 667.98 ng/mL m
RT: 27.258 min Scan# 2047
Delta R.T. -0.001 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

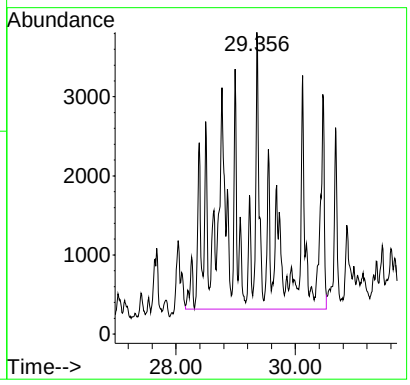
Tgt Ion:176 Resp: 110955

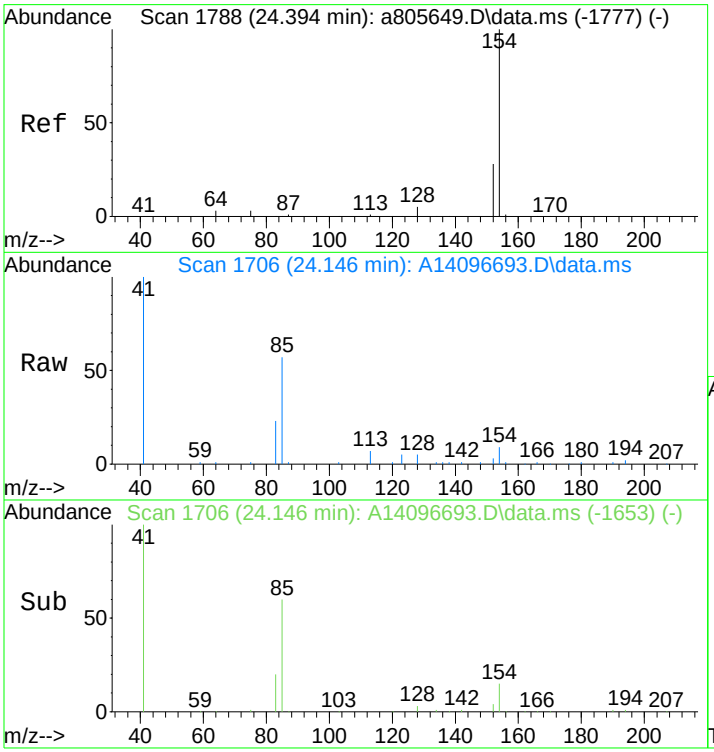




#22
C4-Benzo(b)thiophenes
Concen: 691.29 ng/mL m
RT: 29.356 min Scan# 2277
Delta R.T. 0.363 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:190 Resp: 114827

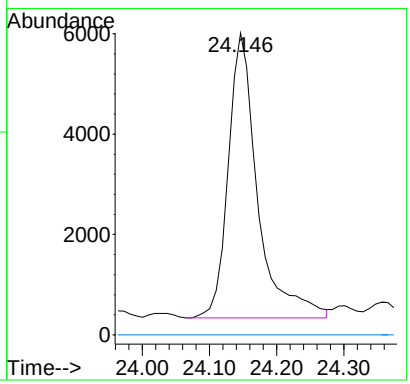


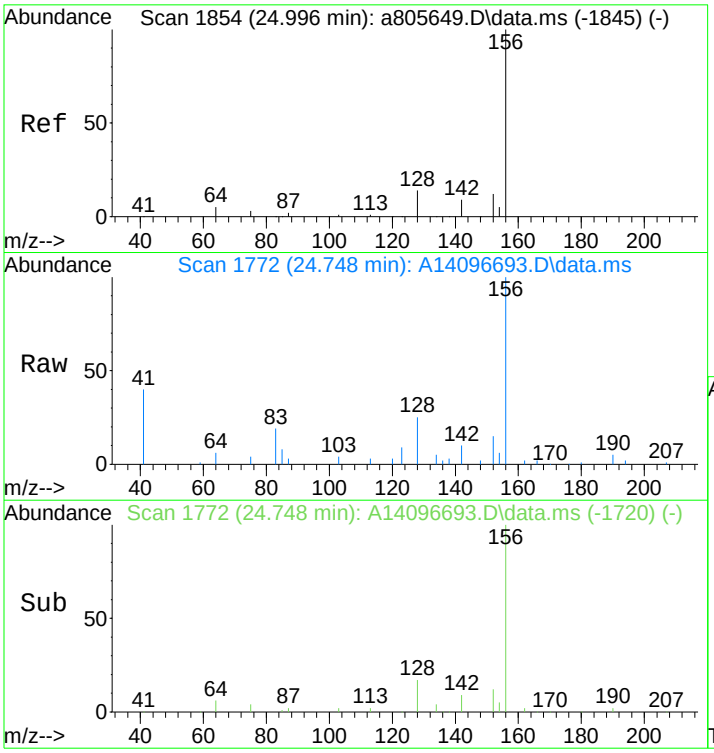


#23
Biphenyl
Concen: 99.78 ng/mL
RT: 24.146 min Scan# 1706
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:154 Resp: 17310

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

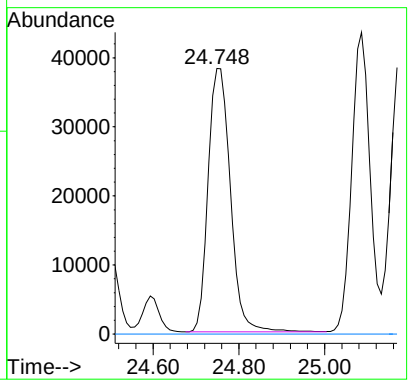


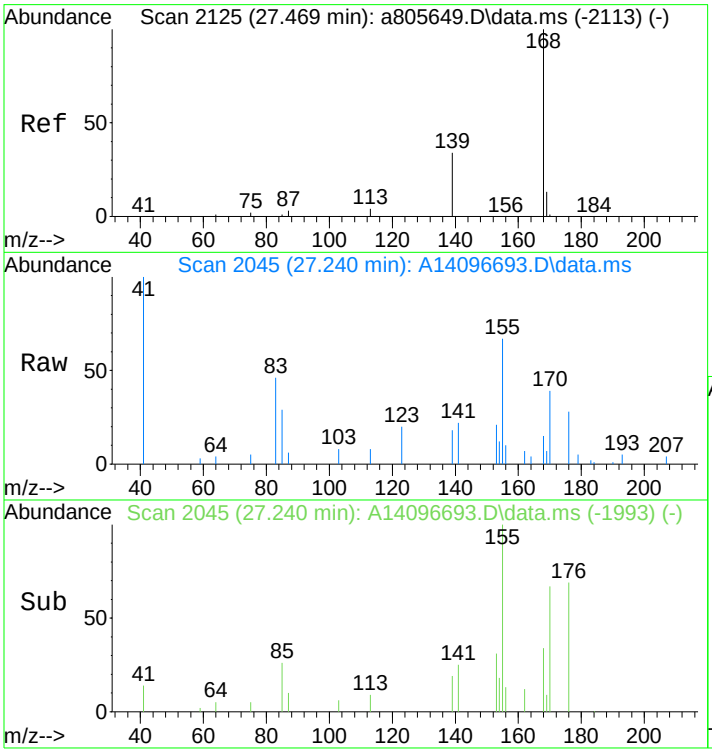


#24
2,6-Dimethylnaphthalene
Concen: 1083.74 ng/mL
RT: 24.748 min Scan# 1772
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:156 Resp: 137394

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

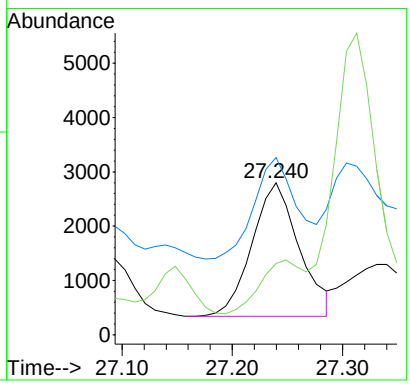


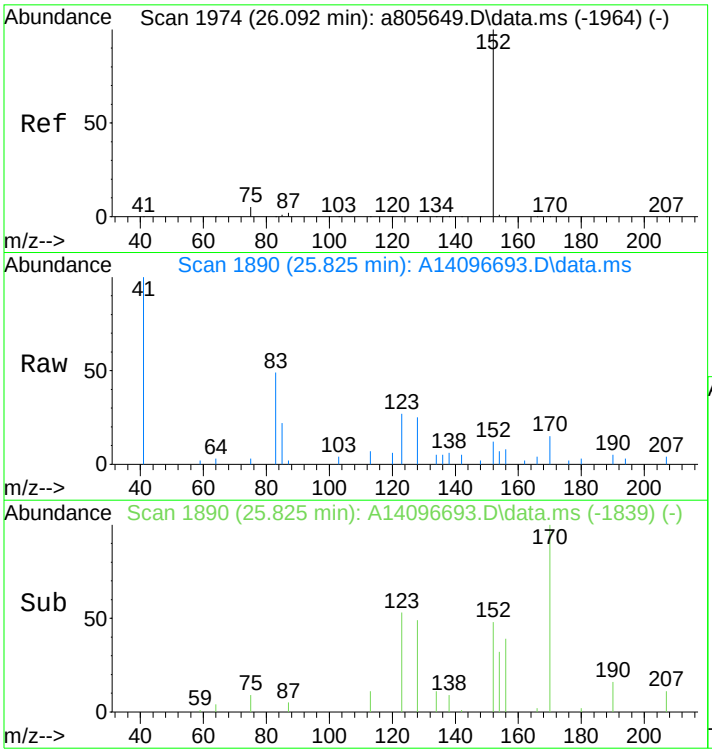


#25
Dibenzofuran
Concen: 39.84 ng/mL
RT: 27.240 min Scan# 2045
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:168 Resp: 7307

Ion	Ratio	Lower	Upper
168	100		
139	69.8	34.0	51.0#
169	37.1	10.9	16.3#

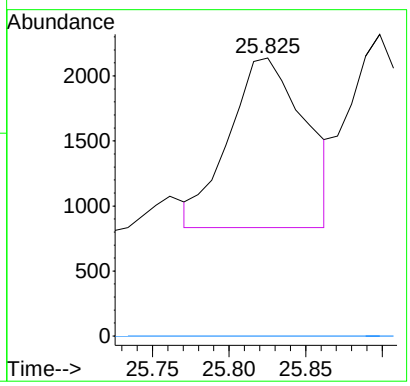


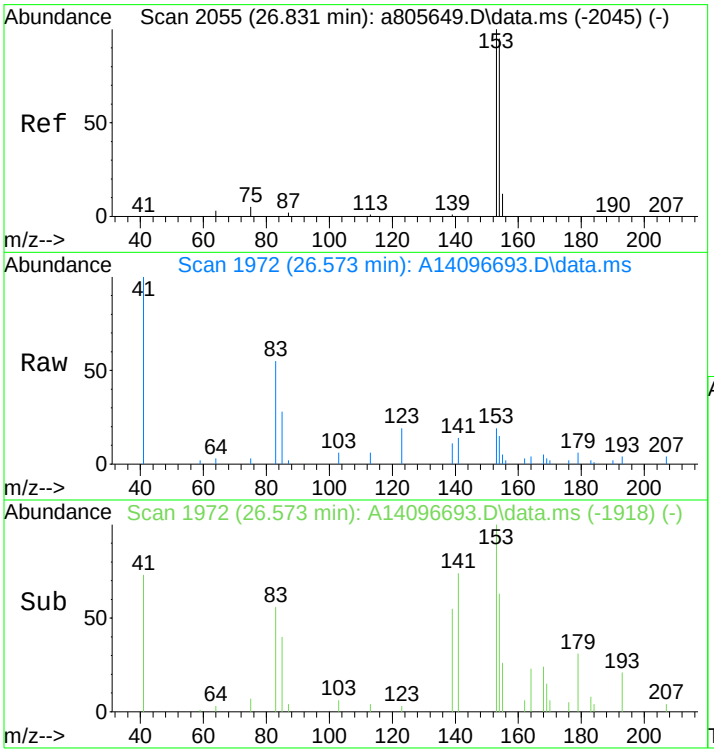


#26
Acenaphthylene
Concen: 20.16 ng/mL m
RT: 25.825 min Scan# 1890
Delta R.T. -0.036 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:152 Resp: 4517

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

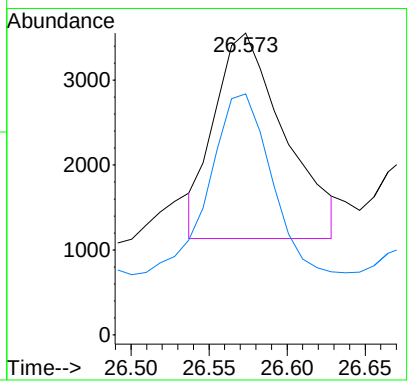


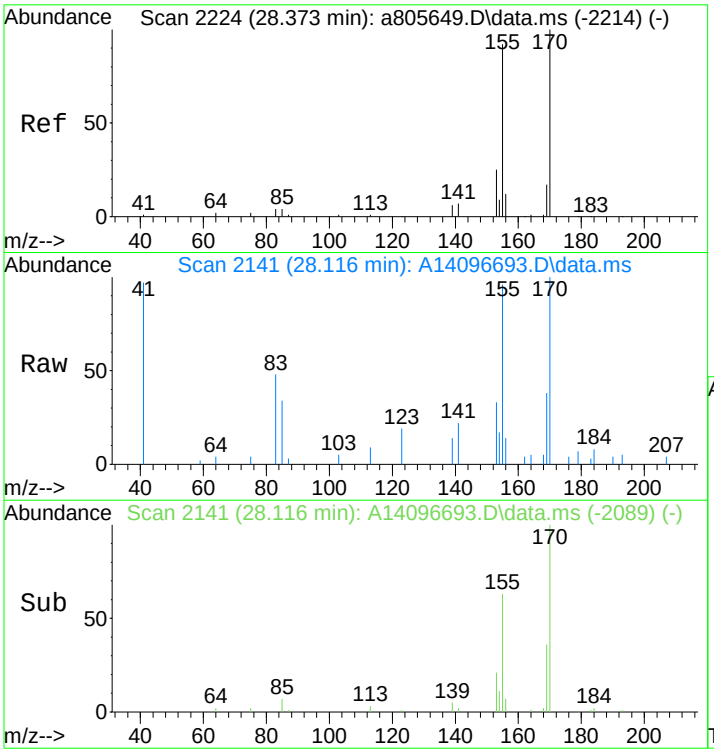


#27
Acenaphthene
Concen: 54.60 ng/mL m
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:153 Resp: 7561

Ion	Ratio	Lower	Upper
153	100		
154	94.3	72.8	109.2

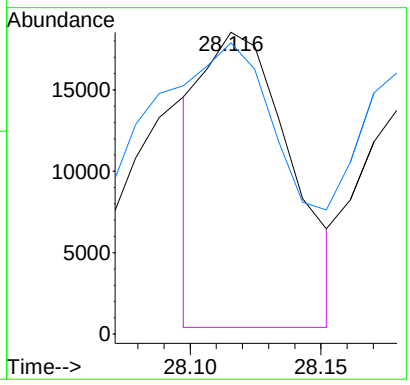


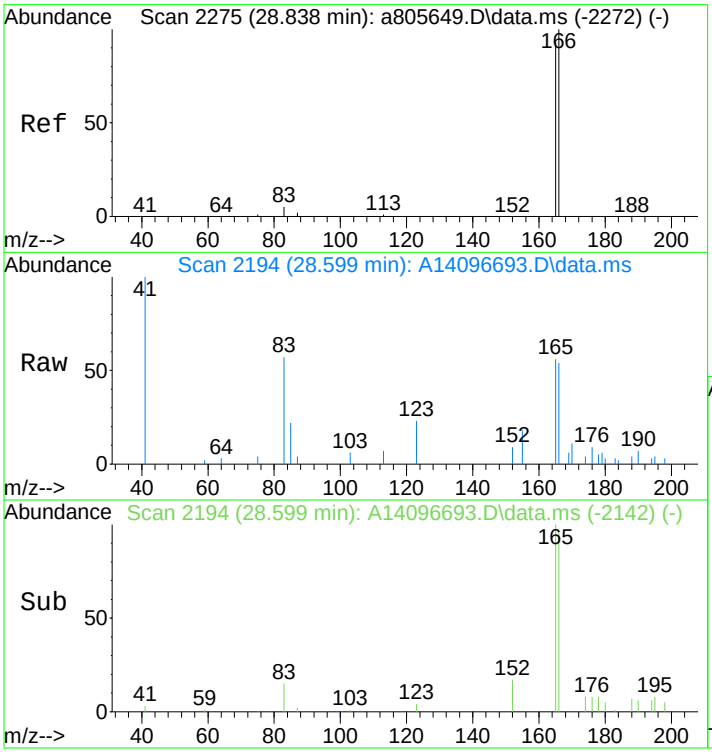


#28
2,3,5-Trimethylnaphthalene
Concen: 371.77 ng/mL m
RT: 28.116 min Scan# 2141
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:170 Resp: 42747

Ion	Ratio	Lower	Upper
170	100		
155	162.1	73.5	110.3#

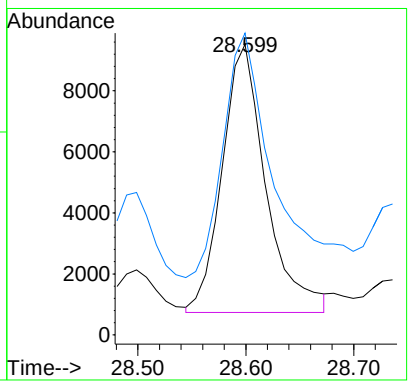


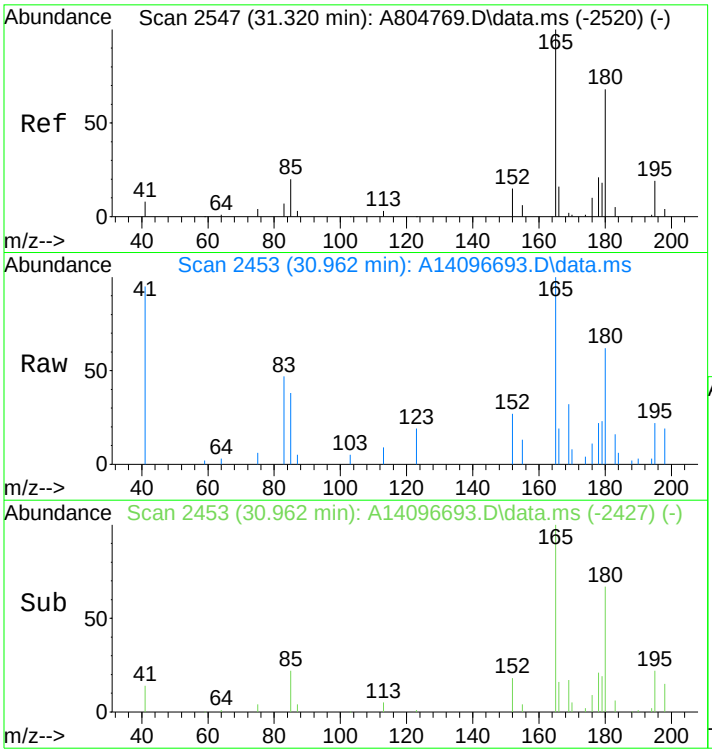


#29
Fluorene
Concen: 160.45 ng/mL m
RT: 28.599 min Scan# 2194
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:166 Resp: 24742

Ion	Ratio	Lower	Upper
166	100		
165	141.7	73.2	109.8#

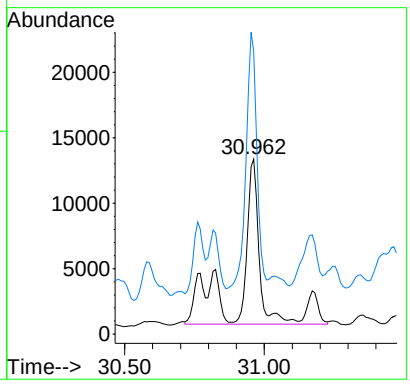


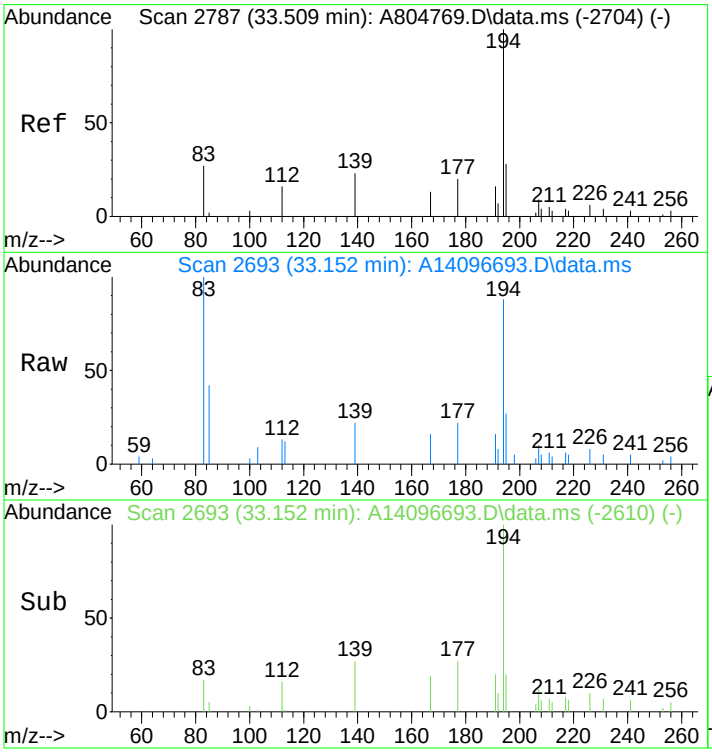


#30
C1-Fluorenes
Concen: 415.08 ng/mL m
RT: 30.962 min Scan# 2453
Delta R.T. 0.020 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:180 Resp: 64009

Ion	Ratio	Lower	Upper
180	100		
165	82.0	123.5	185.3#

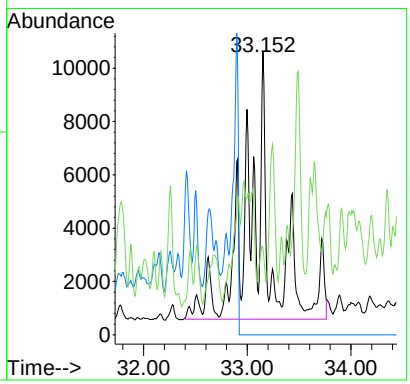


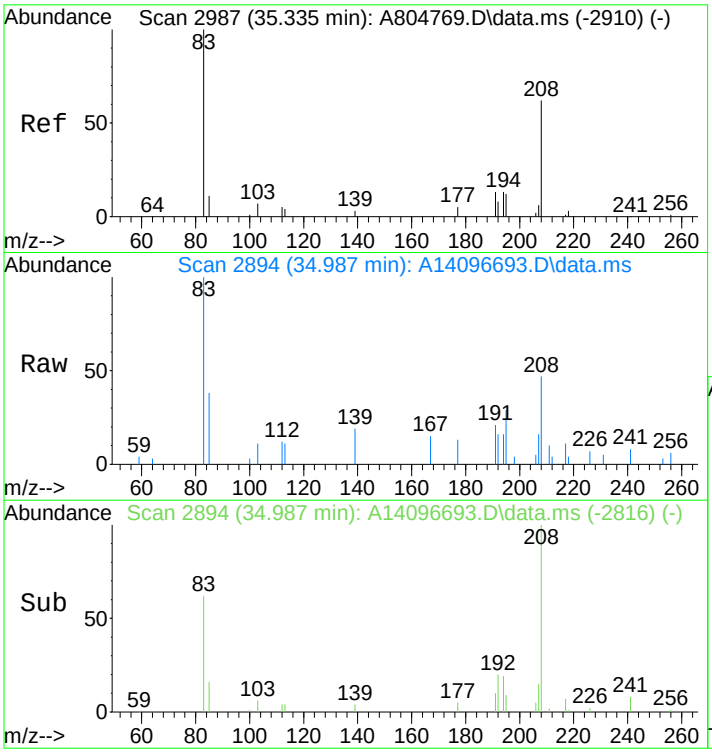


#31
C2-Fluorenes
Concen: 926.55 ng/mL m
RT: 33.152 min Scan# 2693
Delta R.T. 0.026 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:194 Resp: 142882

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	2.6	22.2	33.4#

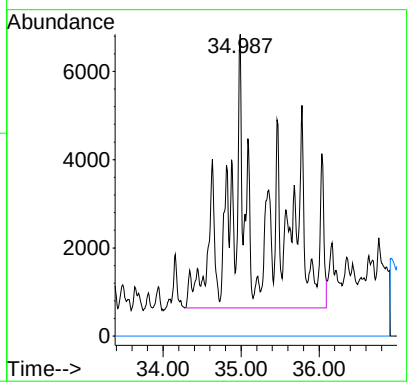


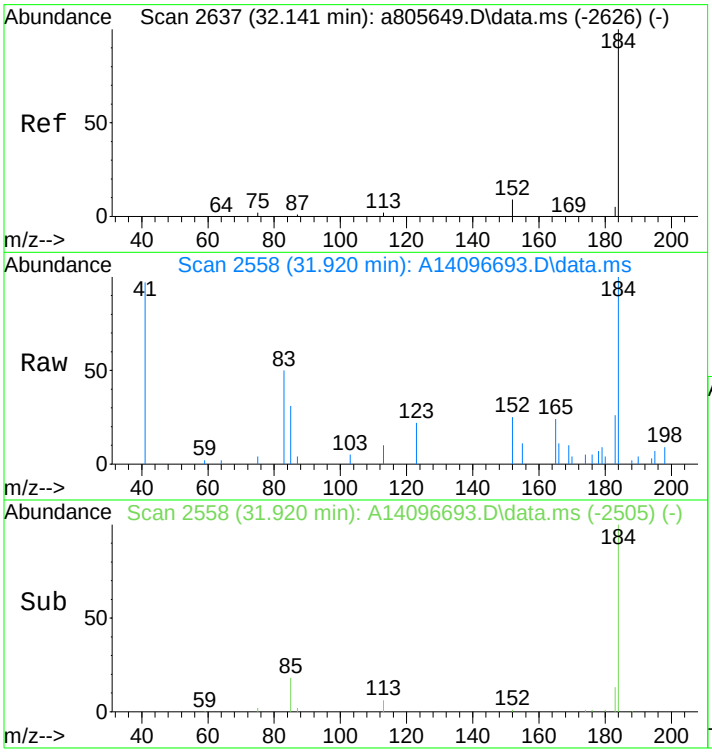


#32
C3-Fluorenes
Concen: 1089.85 ng/mL m
RT: 34.987 min Scan# 2894
Delta R.T. 0.047 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:208 Resp: 168064

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

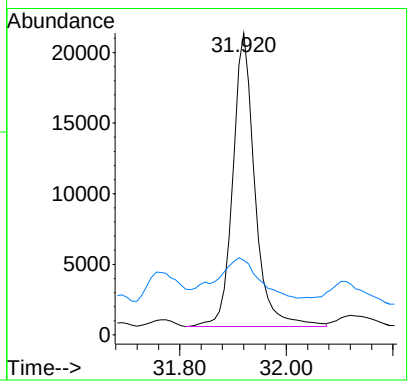


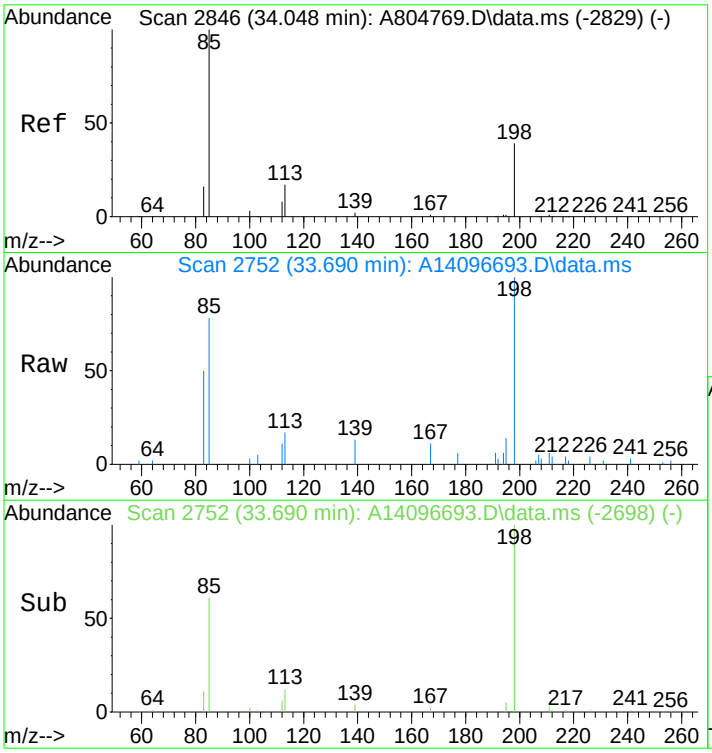


#33
Dibenzothiophene
Concen: 298.66 ng/mL
RT: 31.920 min Scan# 2558
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:184 Resp: 59814

Ion	Ratio	Lower	Upper
184	100		
152	29.7	8.8	13.2#

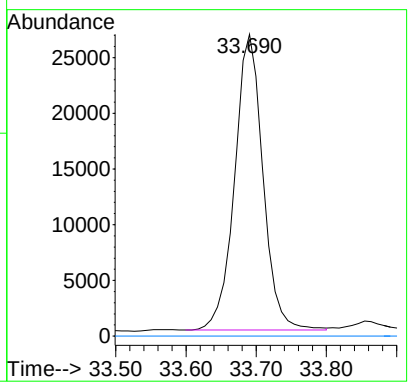


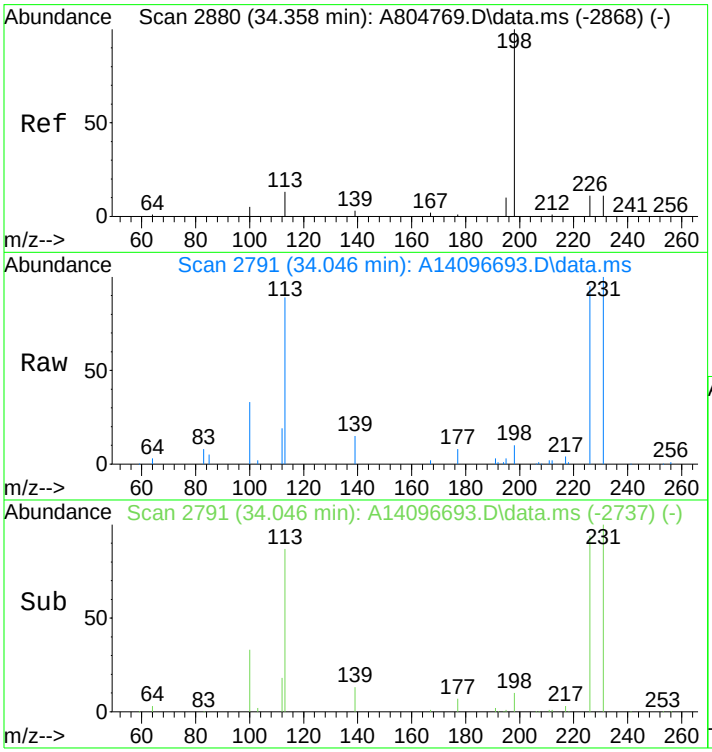


#34
4-Methyldibenzothiophene(4MDT)
Concen: 371.63 ng/mL
RT: 33.690 min Scan# 2752
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:198 Resp: 74429

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

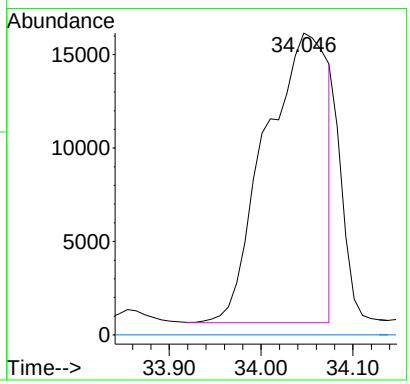


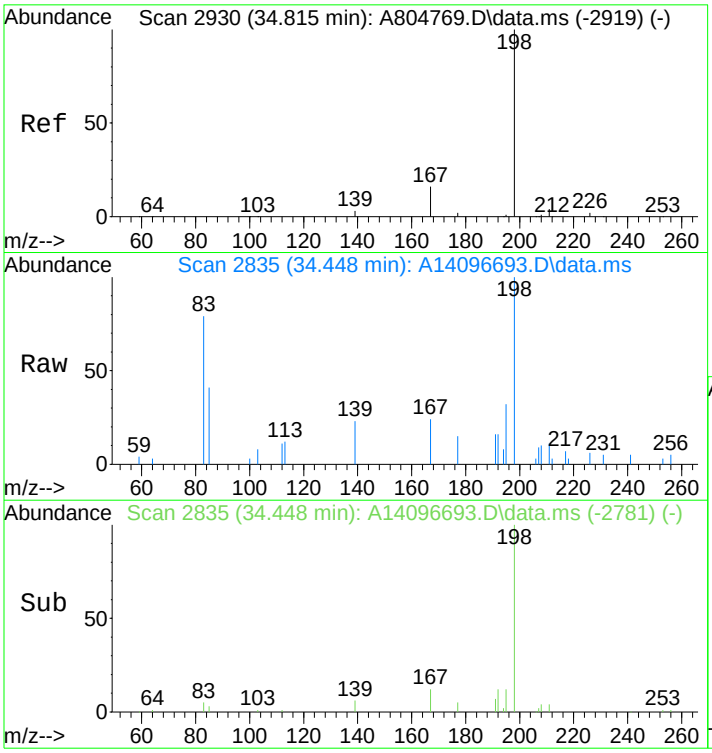


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 364.37 ng/mL m
RT: 34.046 min Scan# 2791
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:198 Resp: 72975

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

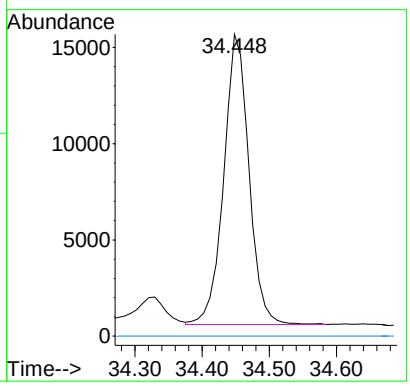


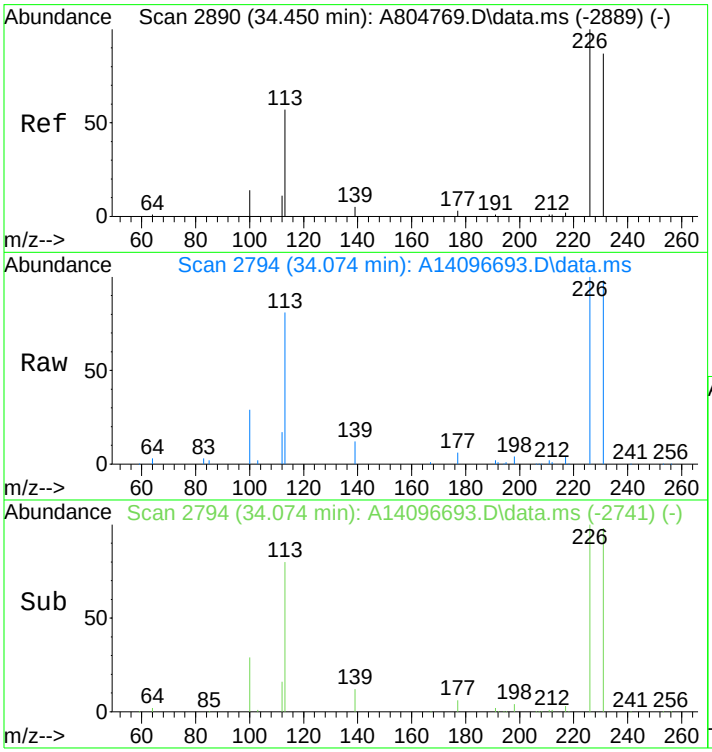


#36
1-Methyldibenzothiophene(1MDT)
Concen: 197.32 ng/mL
RT: 34.448 min Scan# 2835
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:198 Resp: 39518

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

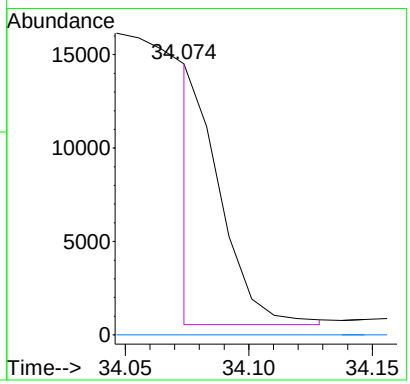


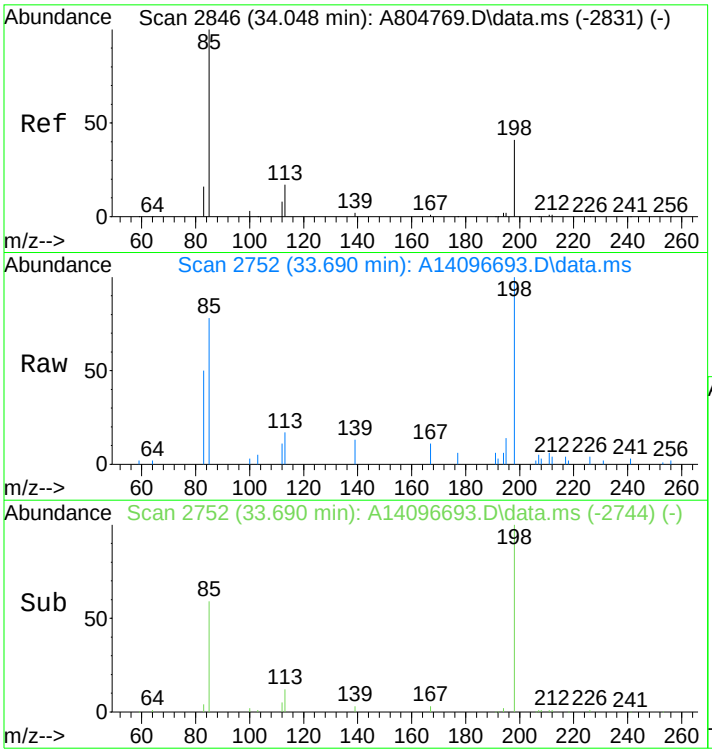


#37
OTP
Concen: 48.49 ng/mL m
RT: 34.074 min Scan# 2794
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:198 Resp: 9712

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

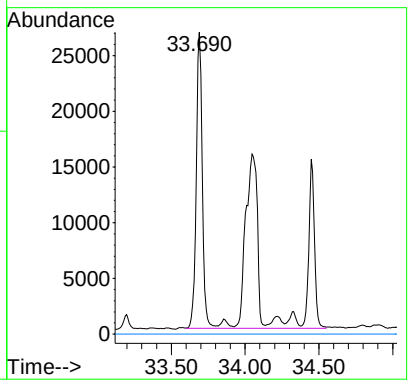


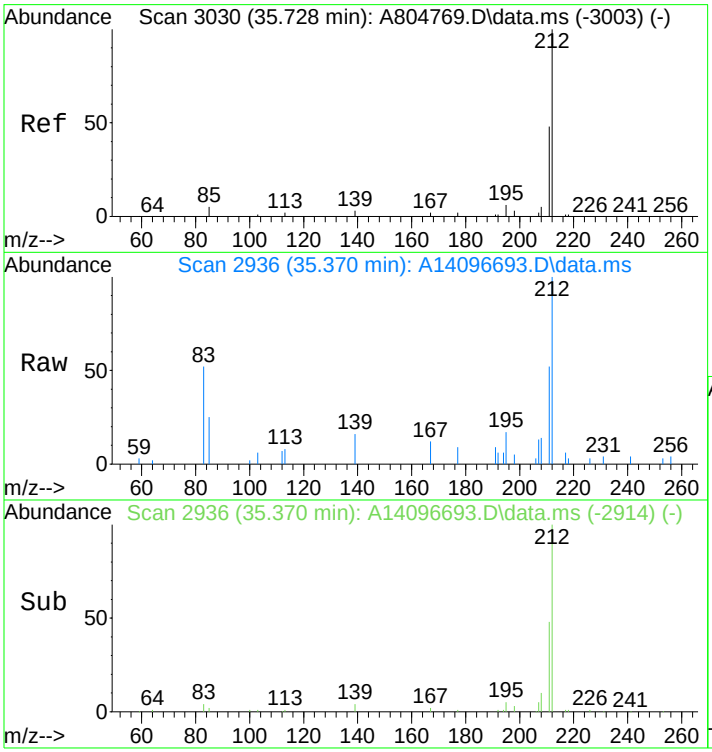


#38
C1-Dibenzothiophenes
Concen: 1056.02 ng/mL m
RT: 33.690 min Scan# 2752
Delta R.T. 0.029 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:198 Resp: 211498

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

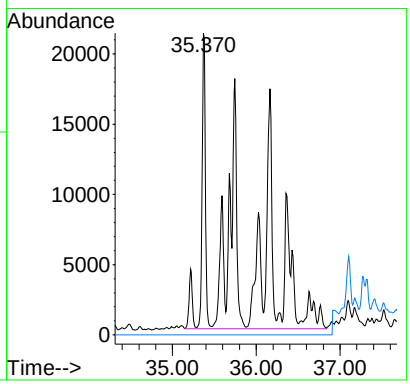


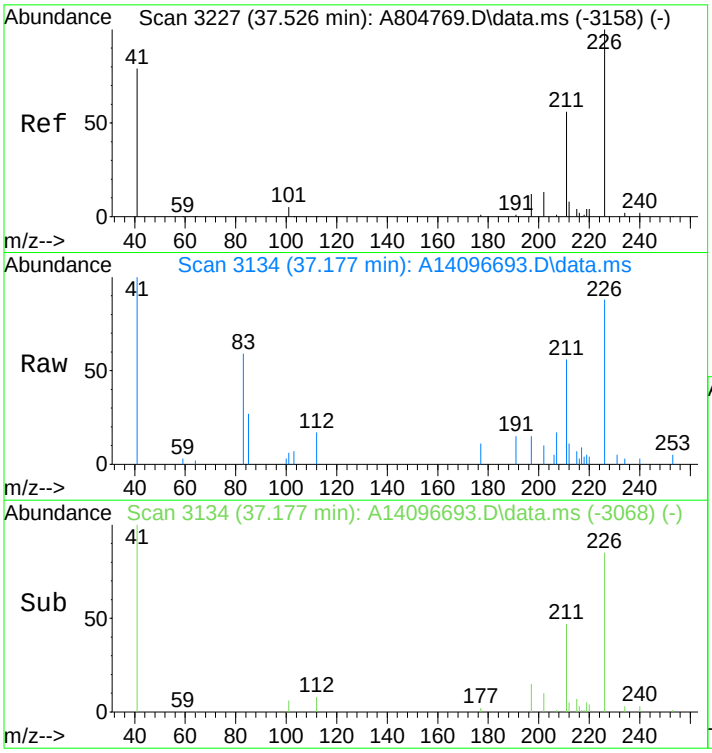


#39
C2-Dibenzothiophenes
Concen: 1766.71 ng/mL m
RT: 35.370 min Scan# 2936
Delta R.T. -0.323 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:212 Resp: 353833

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

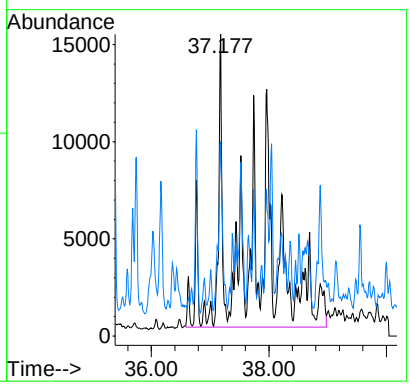


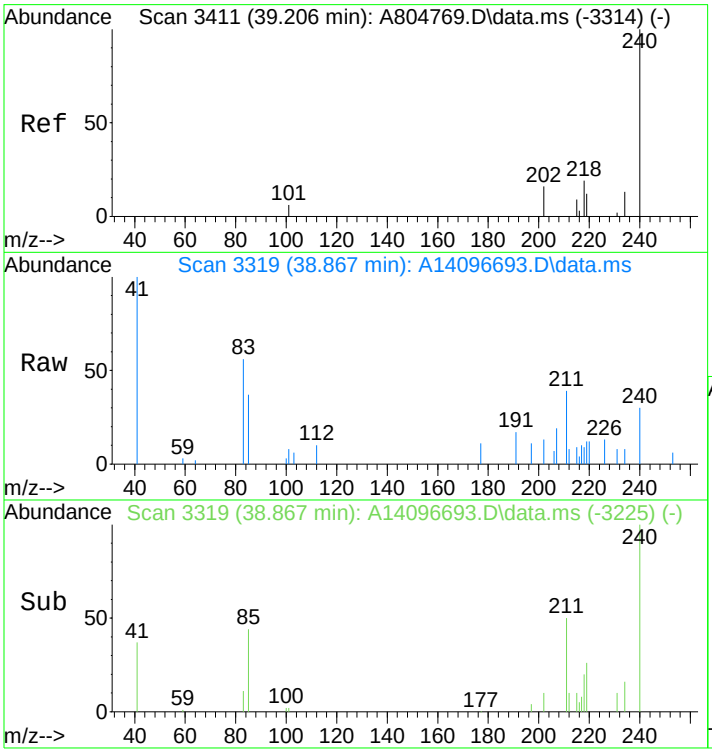


#40
C3-Dibenzothiophenes
Concen: 1883.55 ng/mL m
RT: 37.177 min Scan# 3134
Delta R.T. 0.052 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:226 Resp: 377233

Ion	Ratio	Lower	Upper
226	100		
211	1.4	48.4	72.6#

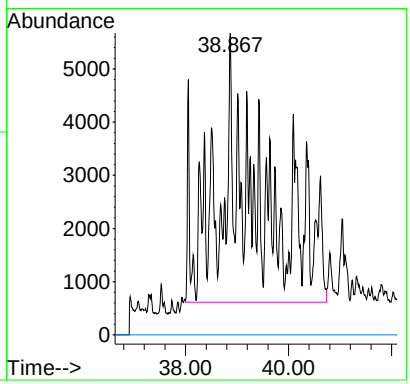


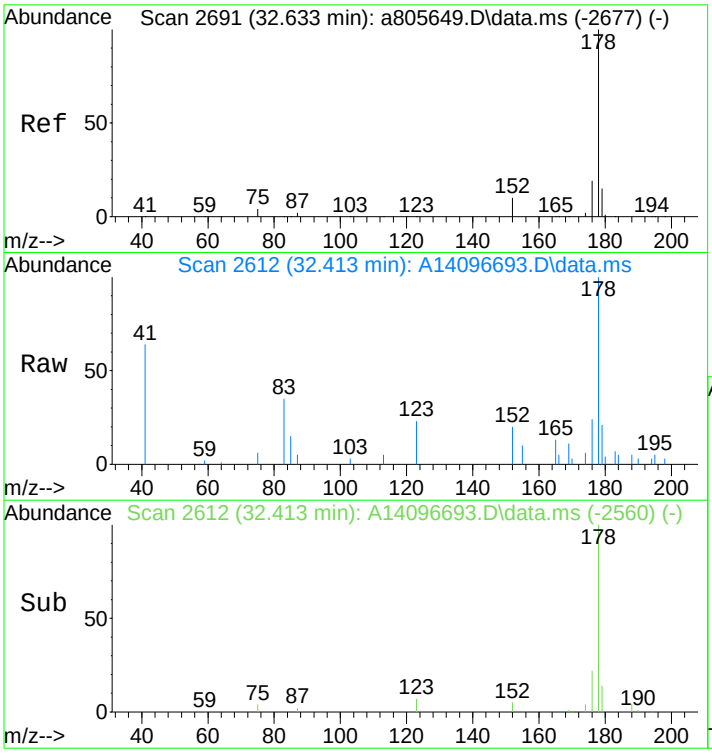


#41
C4-Dibenzothiophenes
Concen: 1314.73 ng/mL m
RT: 38.867 min Scan# 3319
Delta R.T. 0.063 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:240 Resp: 263311

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

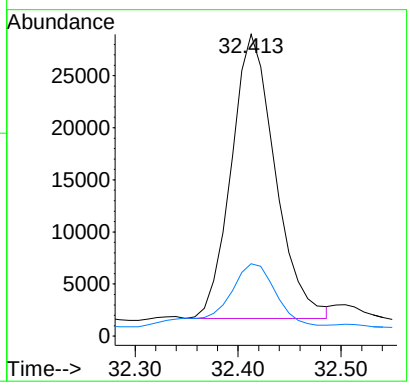


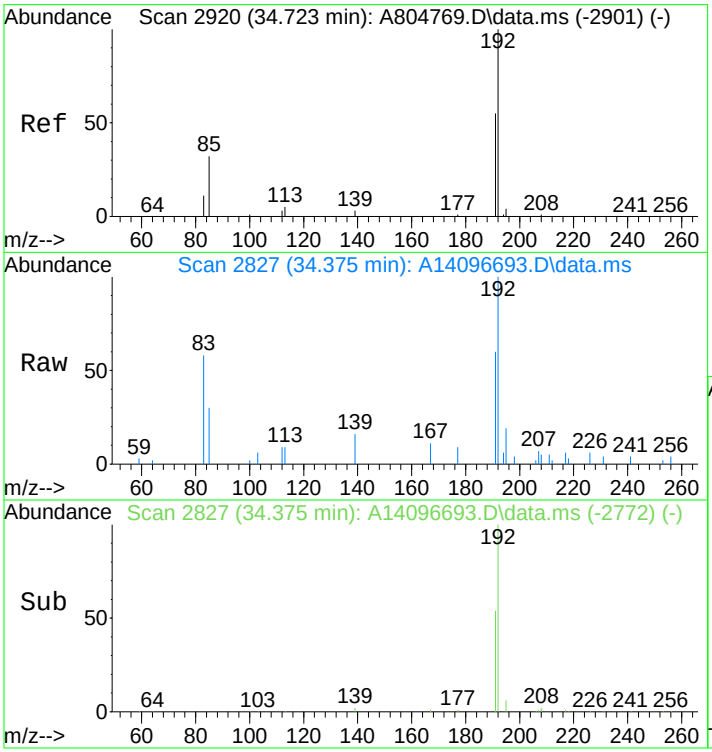


#43
Phenanthrene
Concen: 378.23 ng/mL
RT: 32.413 min Scan# 2612
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:178 Resp: 80440

Ion	Ratio	Lower	Upper
178	100		
176	26.6	14.8	22.2#

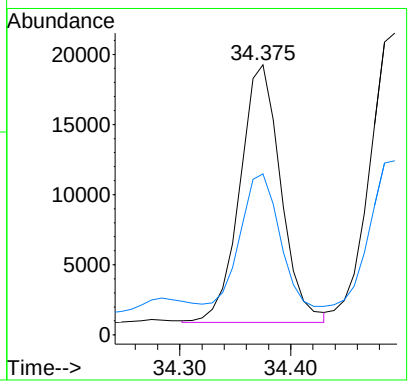


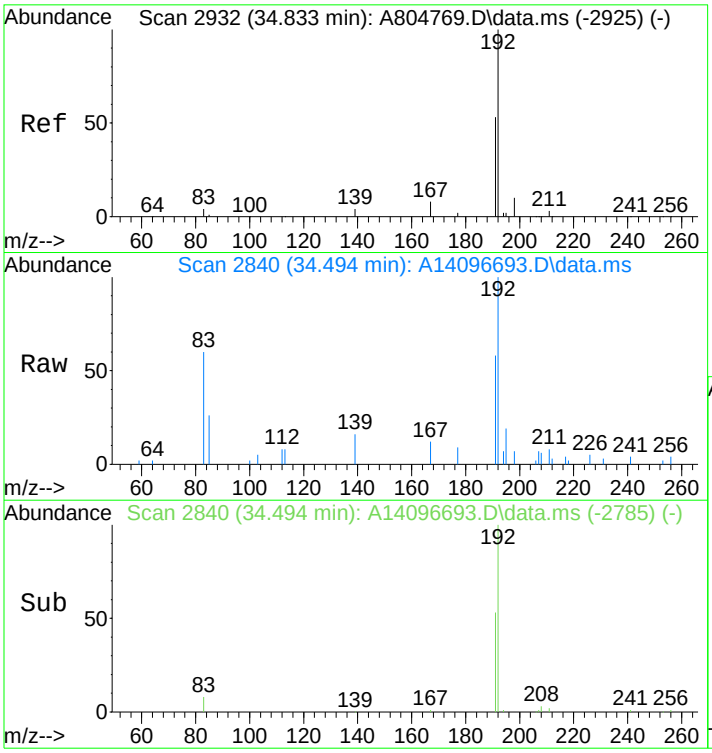


#44
3-Methylphenanthrene(3MP)
Concen: 221.53 ng/mL m
RT: 34.375 min Scan# 2827
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 47113

Ion	Ratio	Lower	Upper
192	100		
191	55.6	45.2	67.8

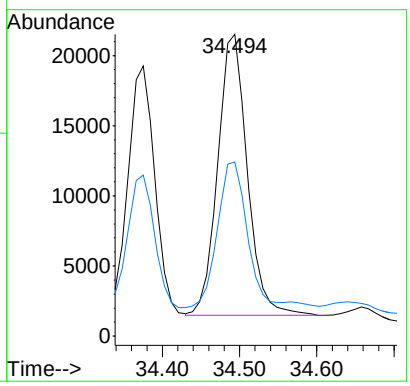


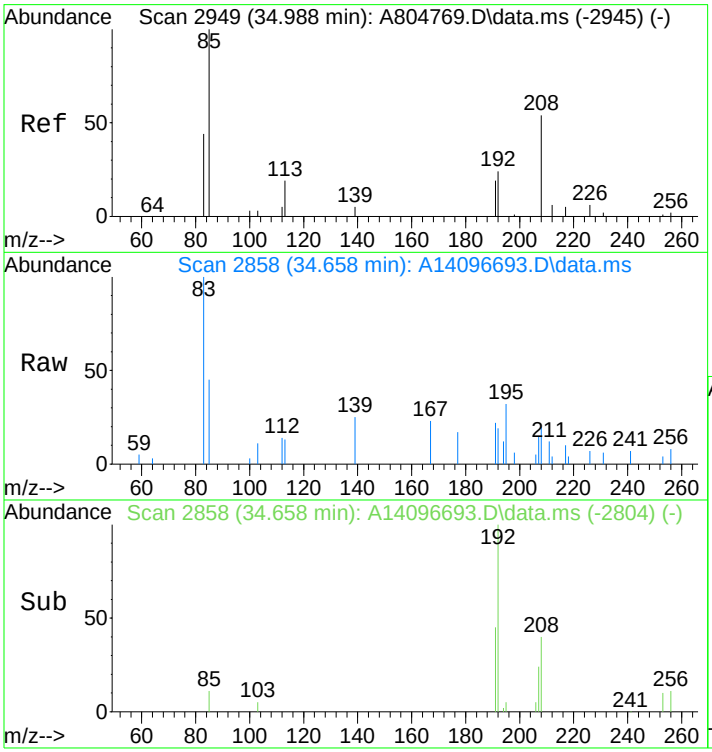


#45
2-Methylphenanthrene(2MP)
Concen: 251.30 ng/mL
RT: 34.494 min Scan# 2840
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 53446

Ion	Ratio	Lower	Upper
192	100		
191	52.9	44.6	66.8

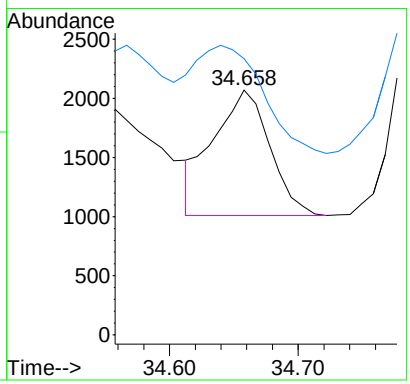


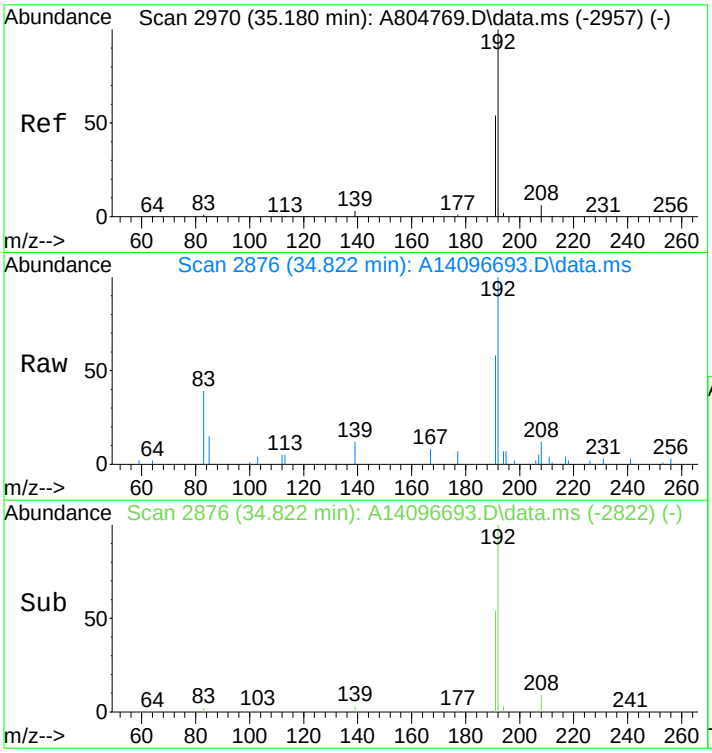


#46
2-Methylanthracene(2MA)
Concen: 15.36 ng/mL
RT: 34.658 min Scan# 2858
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 3266

Ion	Ratio	Lower	Upper
192	100		
191	109.5	87.9	131.9

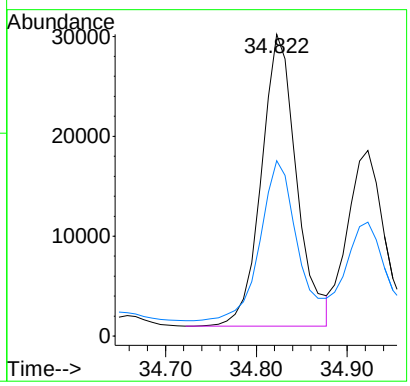


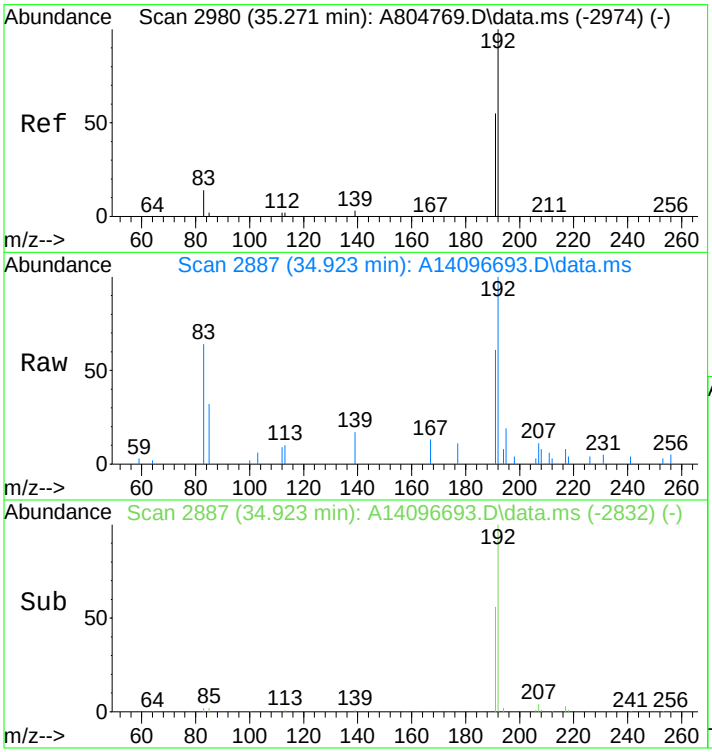


#47
9/4-Methylphenanthrene(9MP)
Concen: 368.75 ng/mL
RT: 34.822 min Scan# 2876
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 78423

Ion	Ratio	Lower	Upper
192	100		
191	57.6	44.1	66.1

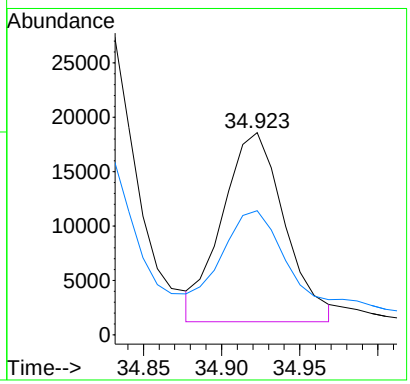


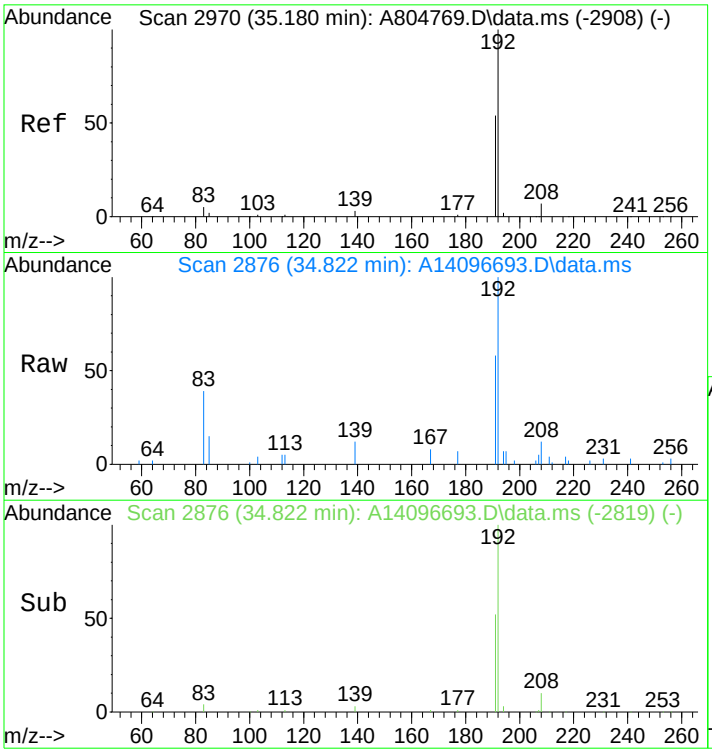


#48
1-Methylphenanthrene(1MP)
Concen: 226.78 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 48230

Ion	Ratio	Lower	Upper
192	100		
191	59.9	46.2	69.4

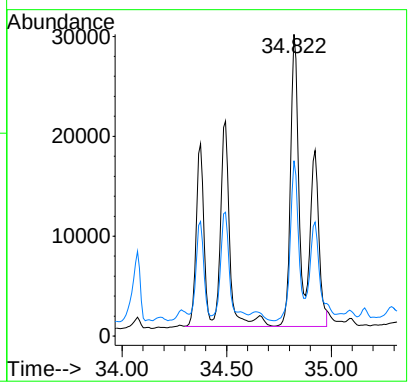


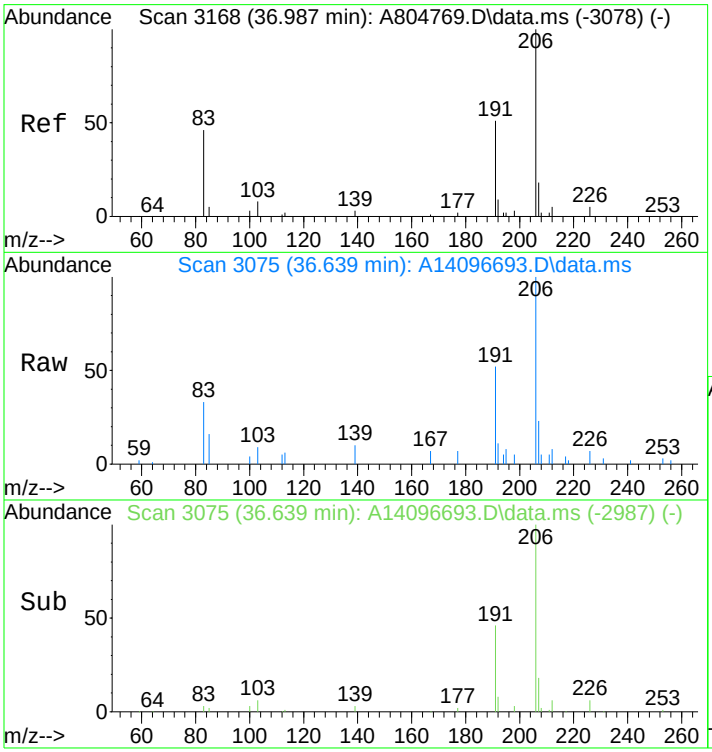


#49
C1-Phenanthrenes/Anthracenes
Concen: 1120.52 ng/mL m
RT: 34.822 min Scan# 2876
Delta R.T. 0.036 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 238307

Ion	Ratio	Lower	Upper
192	100		
191	18.9	43.8	65.8#

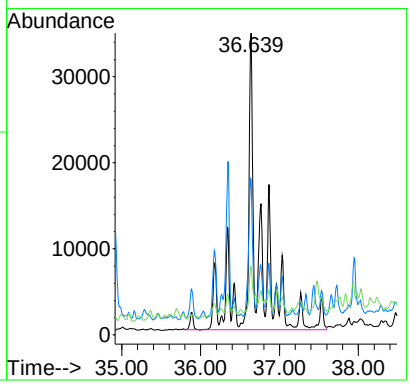


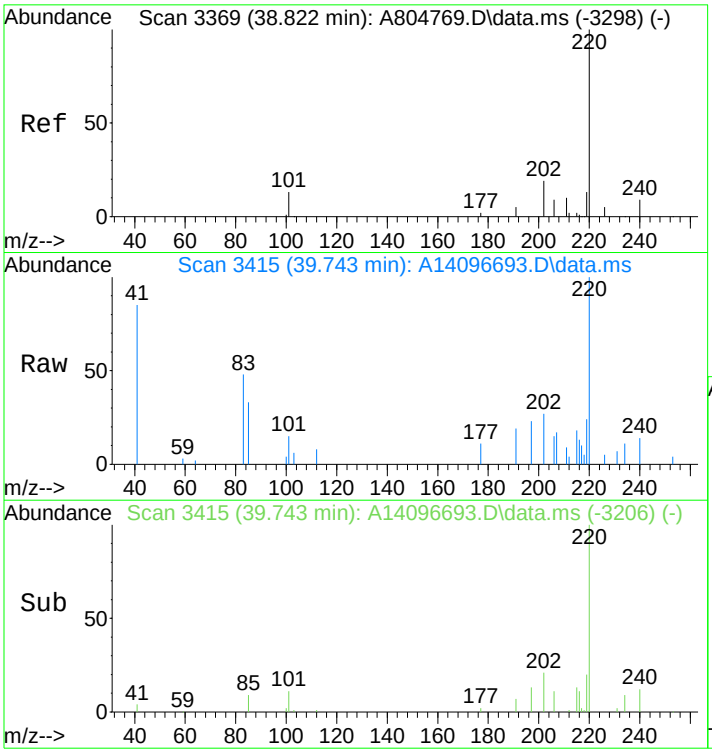


#50
C2-Phenanthrenes/Anthracenes
Concen: 1670.68 ng/mL m
RT: 36.639 min Scan# 3075
Delta R.T. 0.048 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:206 Resp: 355311

Ion	Ratio	Lower	Upper
206	100		
191	3.2	39.2	58.8#
207	1.3	16.8	25.2#

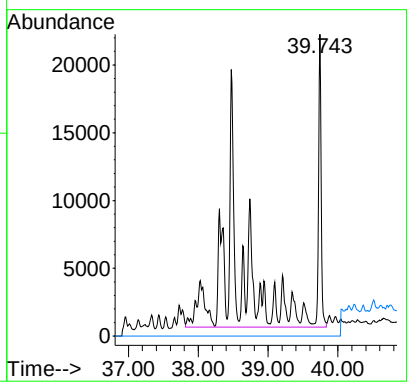


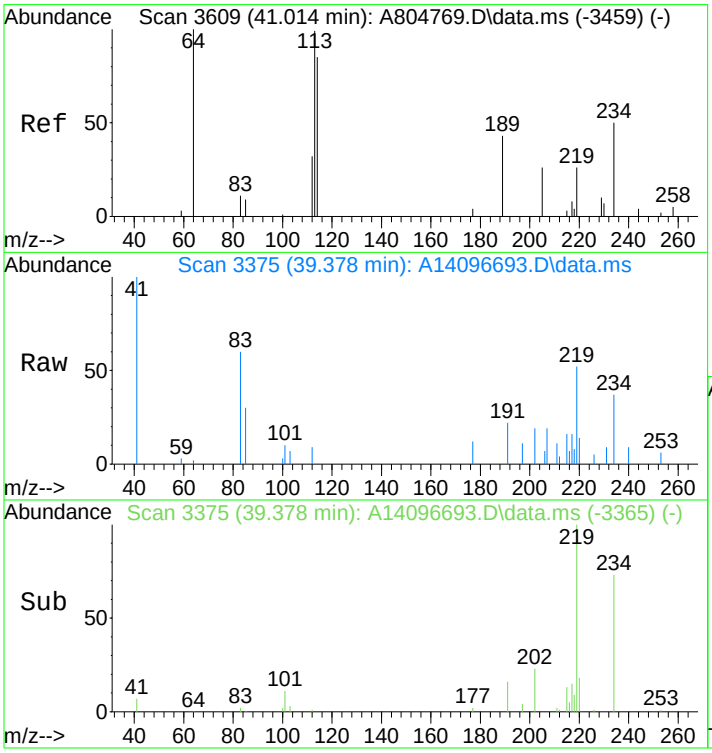


#52
C3-Phenanthrenes/Anthracenes
Concen: 1478.68 ng/mL m
RT: 39.743 min Scan# 3415
Delta R.T. 1.320 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:220 Resp: 314477

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

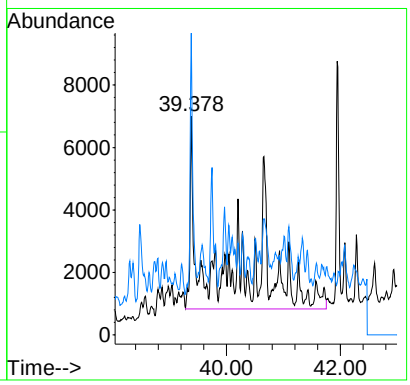


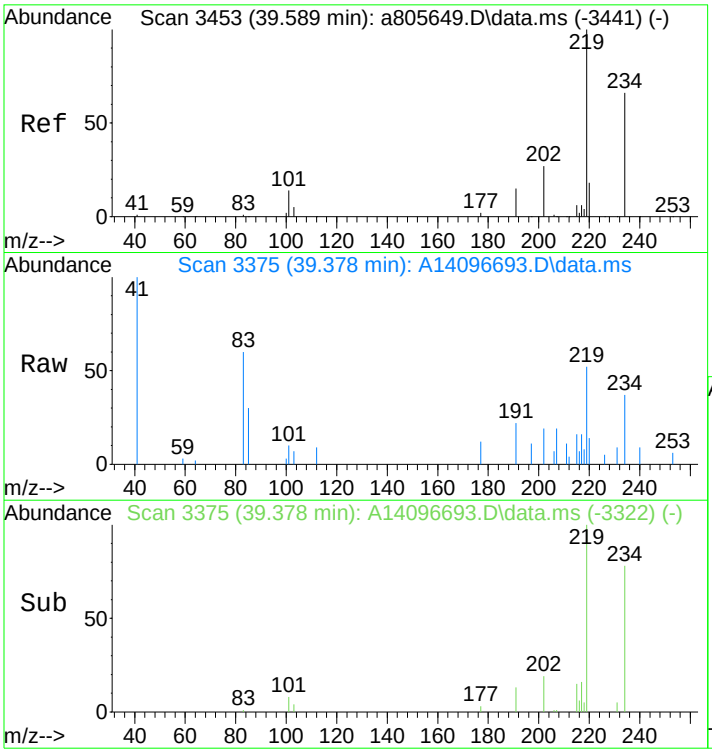


#53
C4-Phenanthrenes/Anthracenes
Concen: 724.98 ng/mL m
RT: 39.378 min Scan# 3375
Delta R.T. -1.204 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 154185

Ion	Ratio	Lower	Upper
234	100		
219	2.4	49.8	74.8#

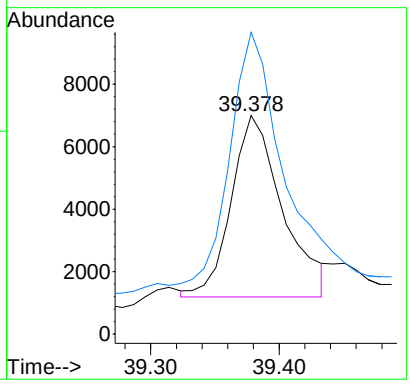


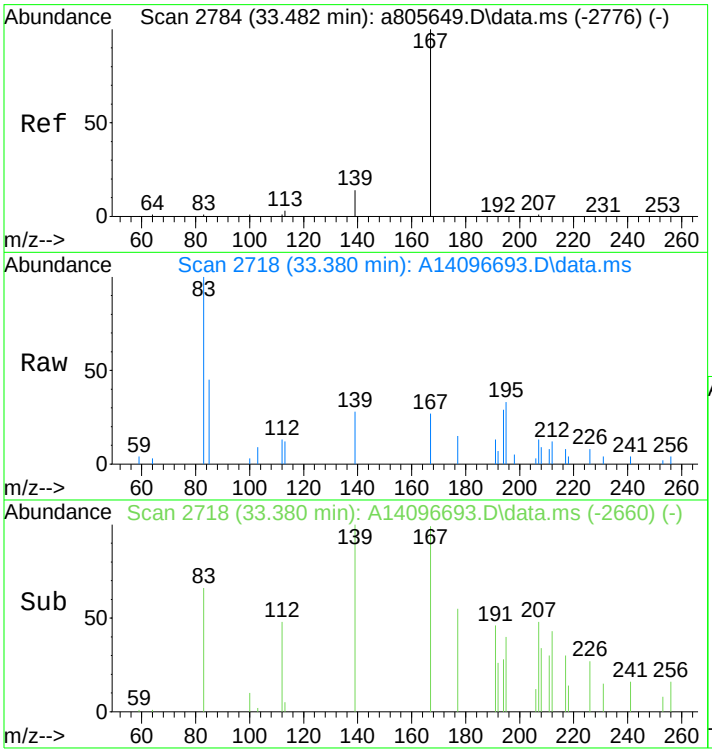


#54
Retene
Concen: 242.53 ng/mL m
RT: 39.378 min Scan# 3375
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 16151

Ion	Ratio	Lower	Upper
234	100		
219	168.9	119.3	178.9

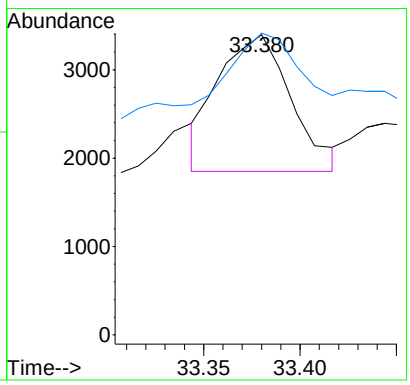


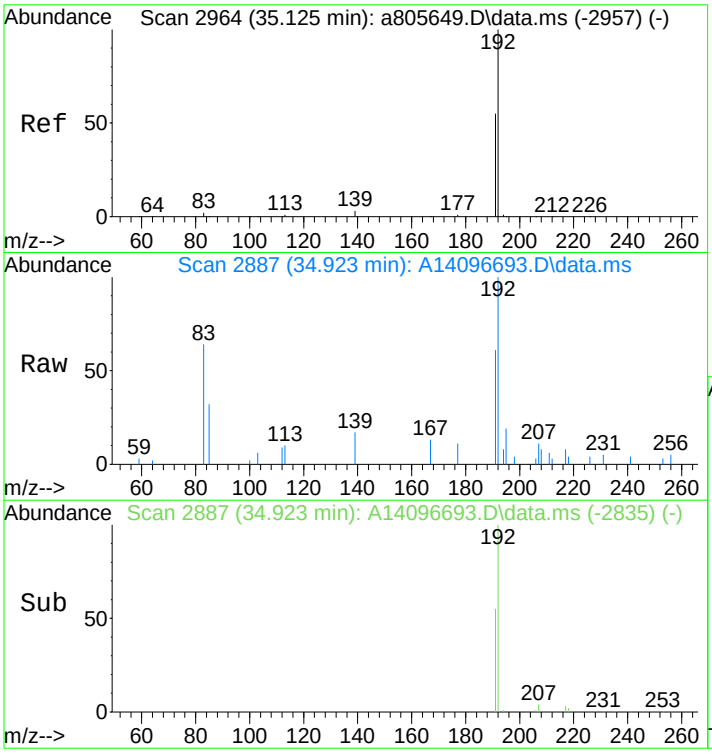


#56
Carbazole
Concen: 20.52 ng/mL m
RT: 33.380 min Scan# 2718
Delta R.T. 0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:167 Resp: 4049

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

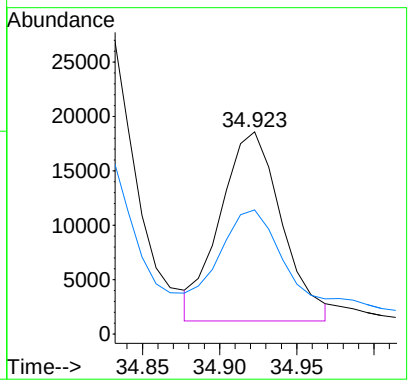


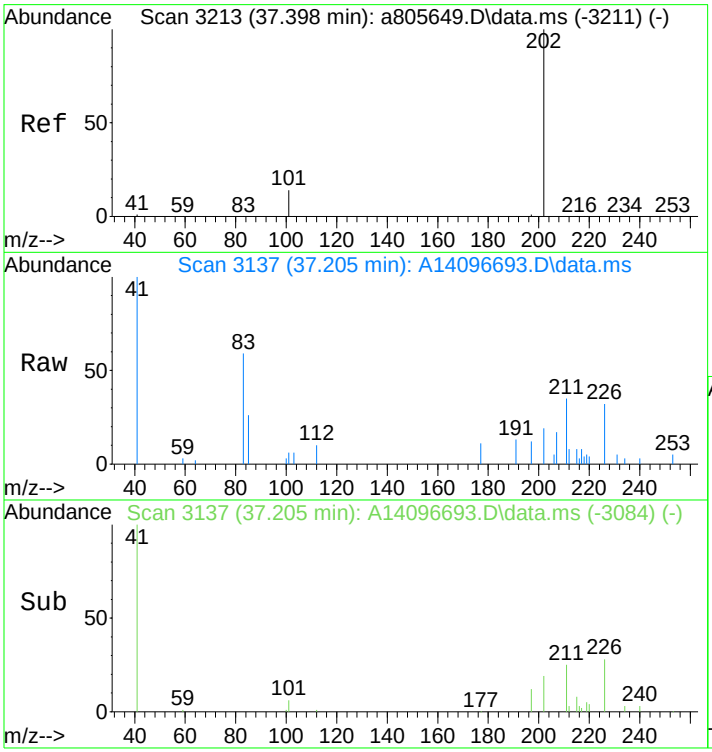


#57
1-Methylphenanthrene
Concen: 302.07 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. -0.027 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:192 Resp: 48192

Ion	Ratio	Lower	Upper
192	100		
191	61.7	45.0	67.4

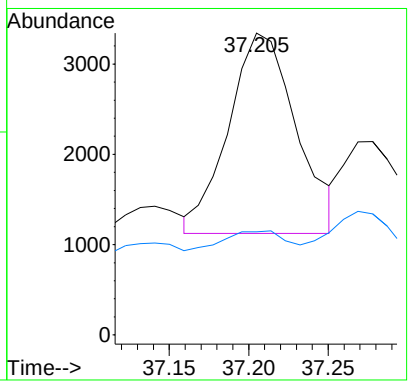


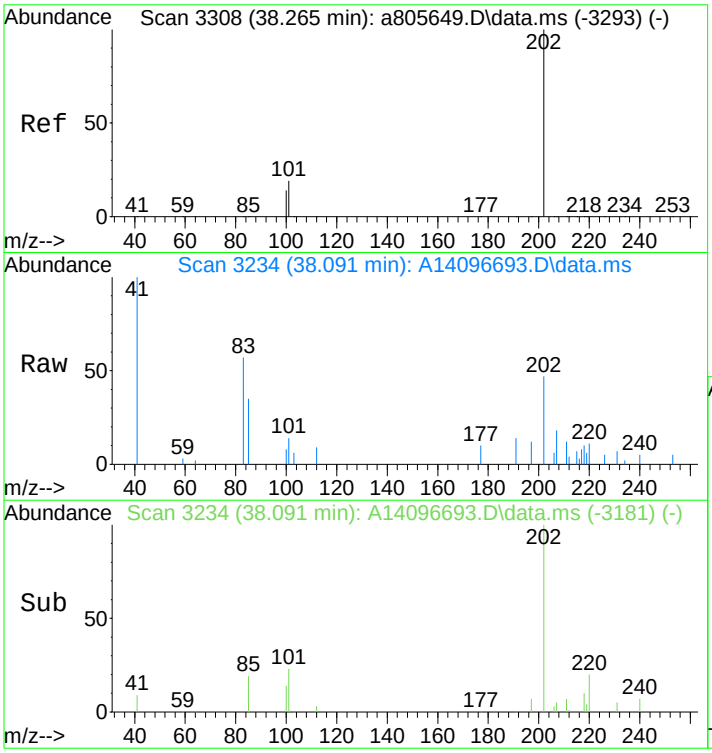


#58
Fluoranthene
Concen: 30.22 ng/mL m
RT: 37.205 min Scan# 3137
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:202 Resp: 6556

Ion	Ratio	Lower	Upper
202	100		
101	10.8	11.8	17.8#

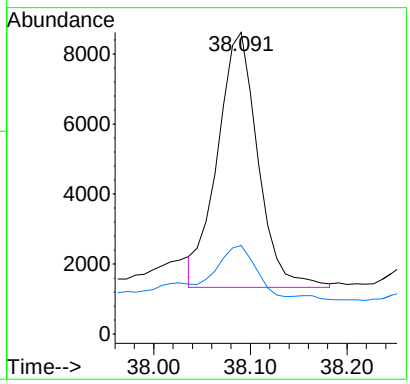


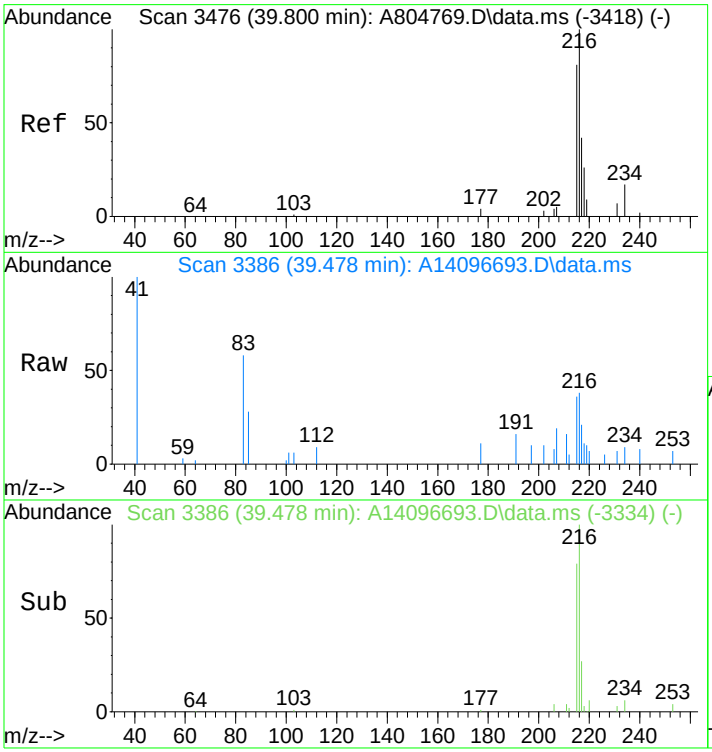


#60
Pyrene
Concen: 93.99 ng/mL m
RT: 38.091 min Scan# 3234
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:202 Resp: 21195

Ion	Ratio	Lower	Upper
202	100		
101	25.8	13.8	20.6#

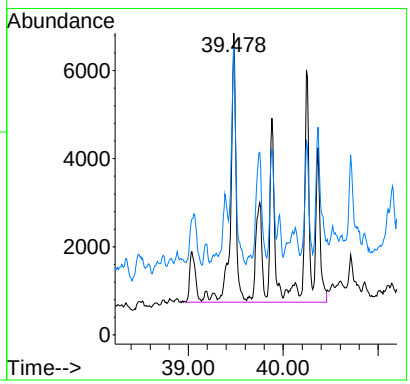


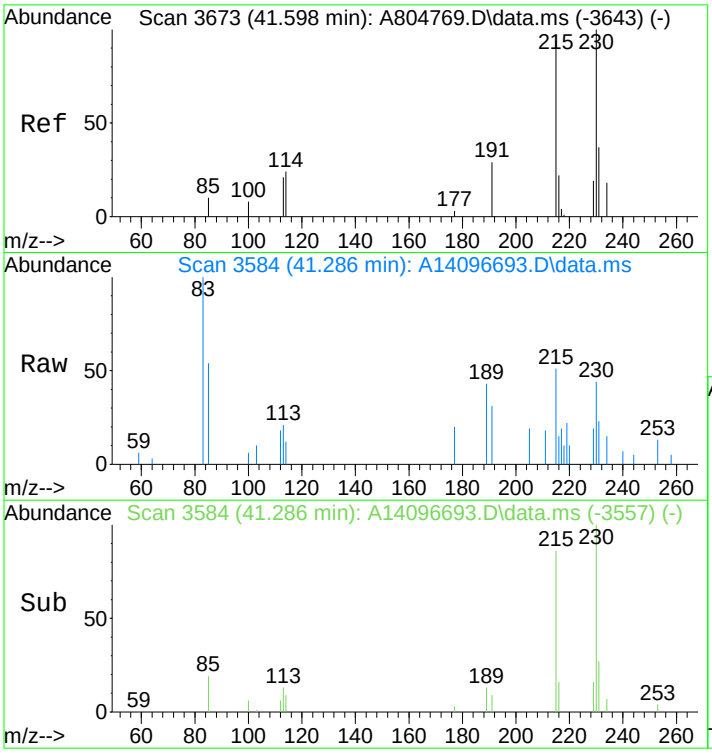


#61
C1-Fluoranthenes/Pyrenes
Concen: 358.46 ng/mL m
RT: 39.478 min Scan# 3386
Delta R.T. -0.164 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:216 Resp: 80837

Ion	Ratio	Lower	Upper
216	100		
215	11.6	82.9	124.3#

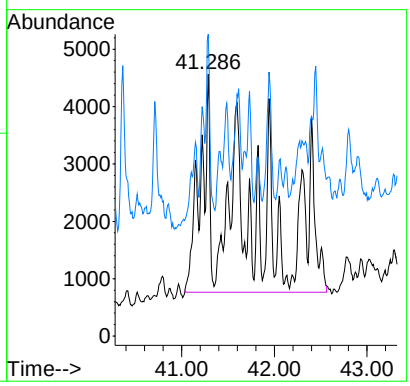


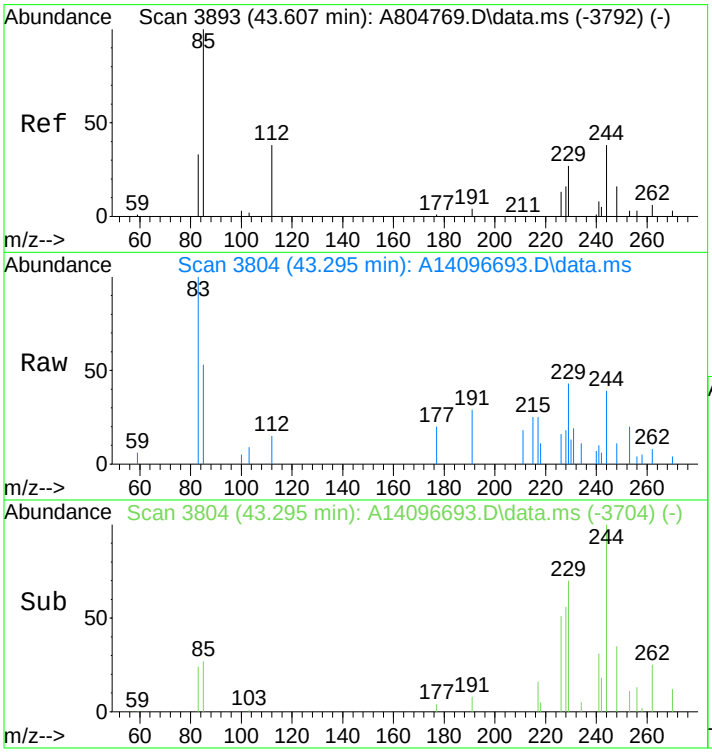


#62
C2-Fluoranthenes/Pyrenes
Concen: 476.17 ng/mL m
RT: 41.286 min Scan# 3584
Delta R.T. 0.088 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:230 Resp: 107380

Ion	Ratio	Lower	Upper
230	100		
215	3.4	88.1	132.1#

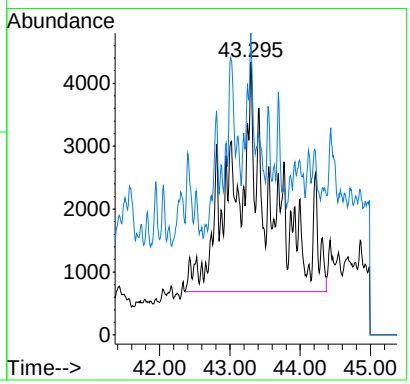


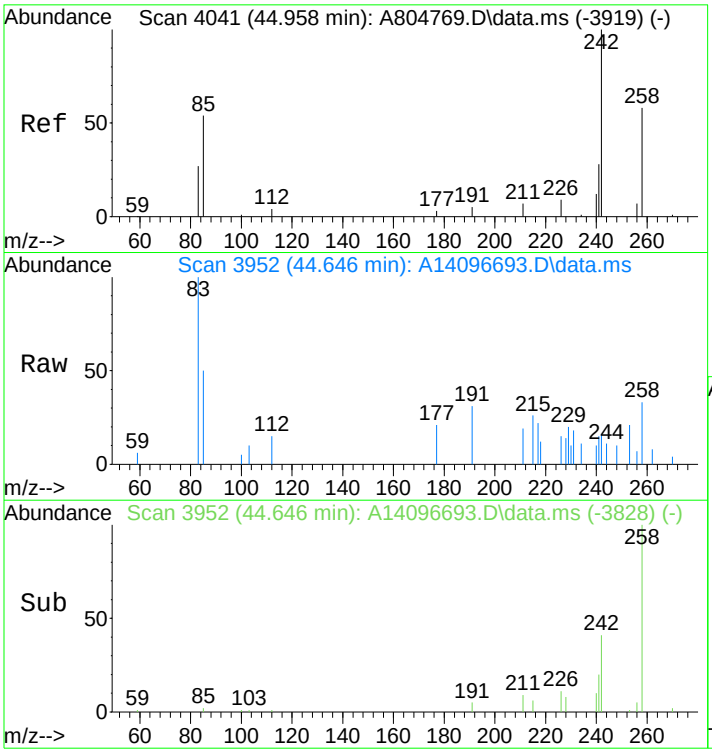


#63
C3-Fluoranthenes/Pyrenes
Concen: 604.75 ng/mL m
RT: 43.295 min Scan# 3804
Delta R.T. 0.092 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:244 Resp: 136378

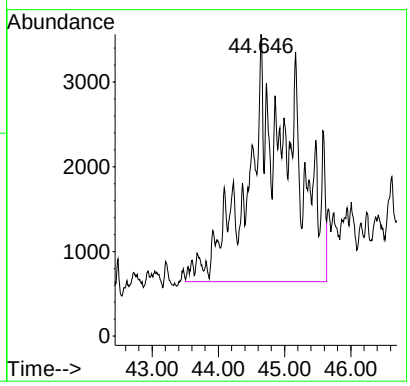
Ion	Ratio	Lower	Upper
244	100		
229	2.5	79.7	119.5#

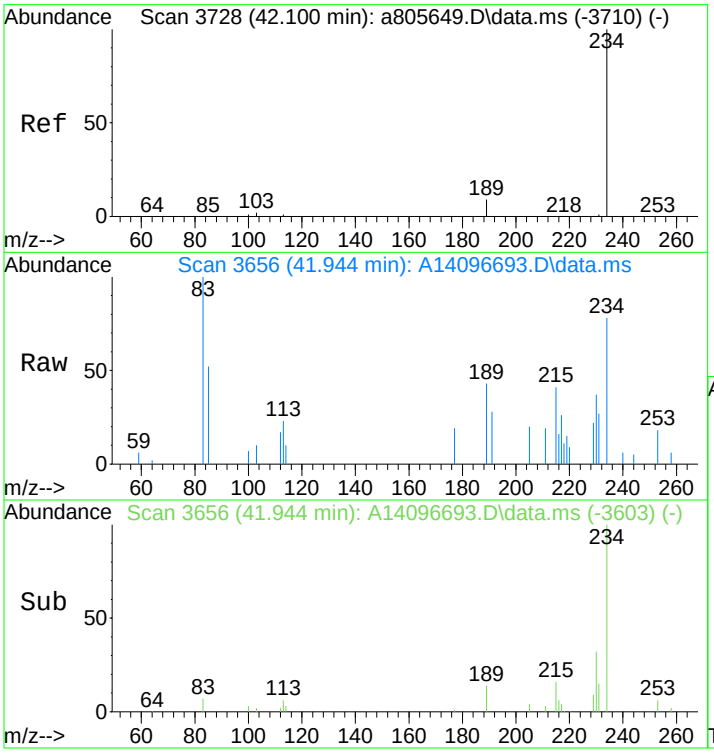




#64
C4-Fluoranthenes/Pyrenes
Concen: 592.67 ng/mL m
RT: 44.646 min Scan# 3952
Delta R.T. 0.100 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:258 Resp: 133653

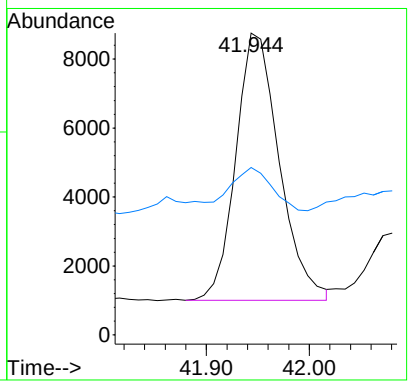


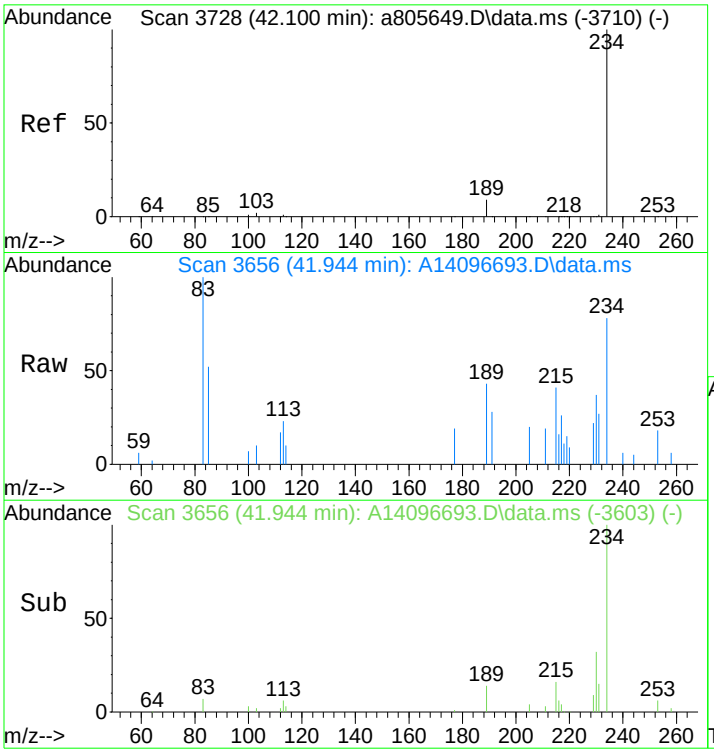


#66
Naphthobenzothiophene
Concen: 116.41 ng/ml
RT: 41.944 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 22761

Ion	Ratio	Lower	Upper
234	100		
189	15.1	29.1	43.7#

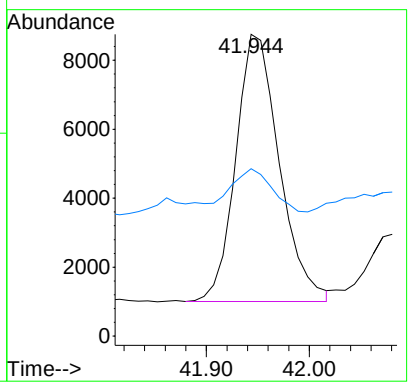


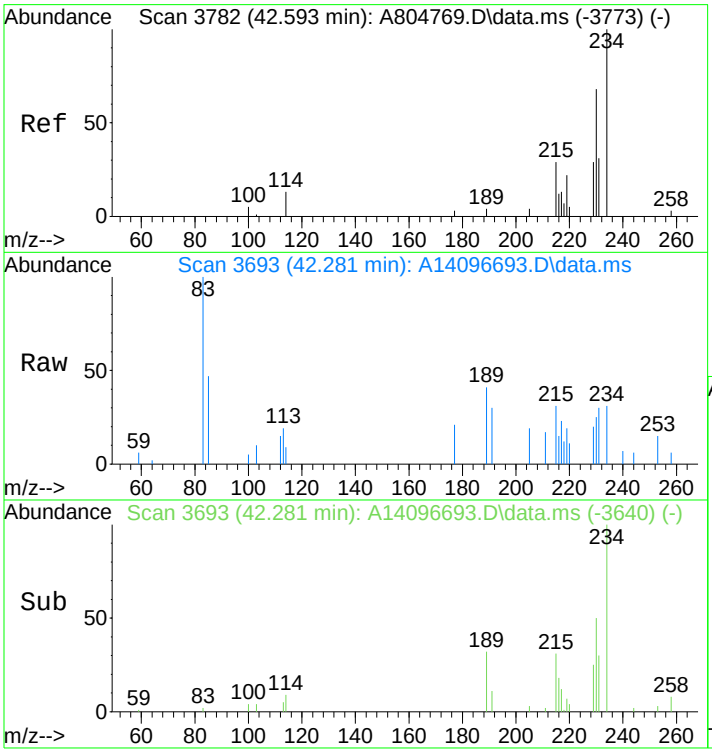


#67
Naphthobenzothiophene-2,1-D
Concen: 116.41 ng/mL
RT: 41.944 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 22761

Ion	Ratio	Lower	Upper
234	100		
189	15.1	29.1	43.7#

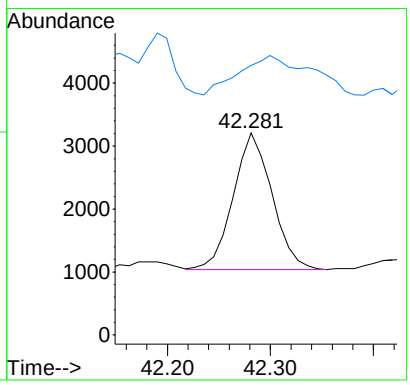


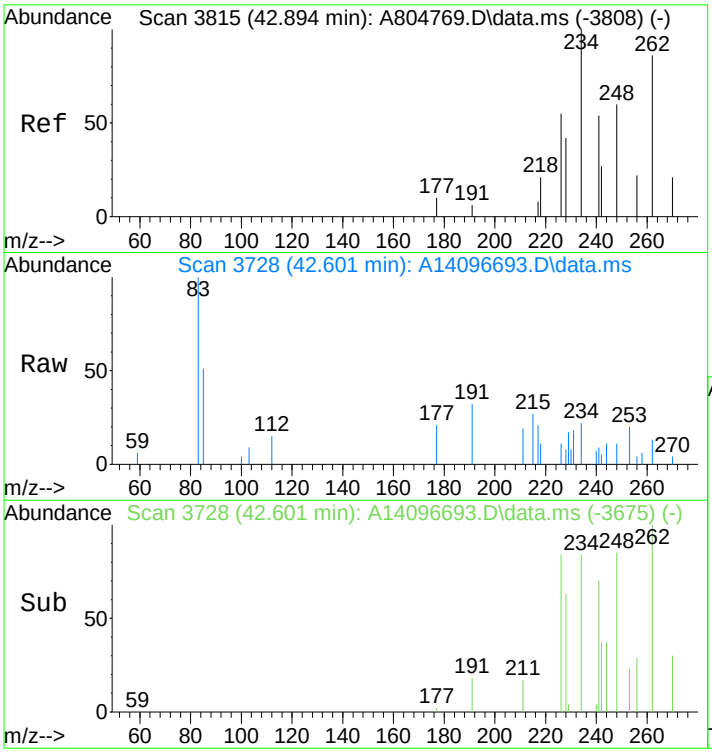


#68
Naphthobenzothiophene-1,2-D
Concen: 29.07 ng/mL
RT: 42.281 min Scan# 3693
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 5684

Ion	Ratio	Lower	Upper
234	100		
189	0.0	84.7	127.1#

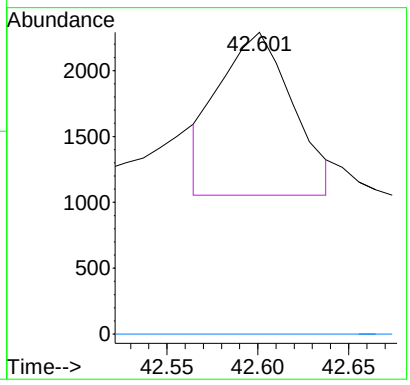


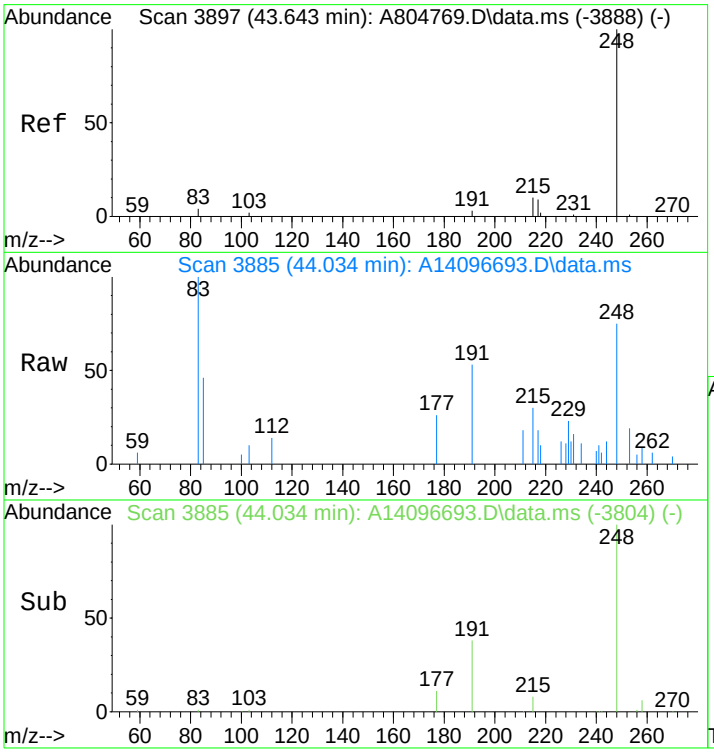


#69
Naphthobenzothiophene-2,3-D
Concen: 17.84 ng/mL m
RT: 42.601 min Scan# 3728
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:234 Resp: 3489

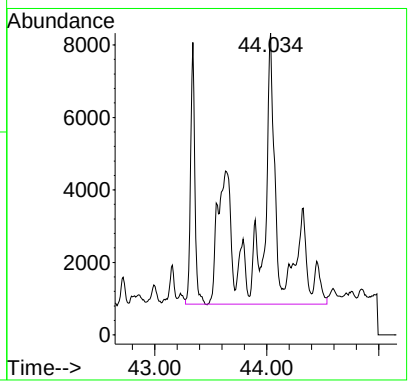
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

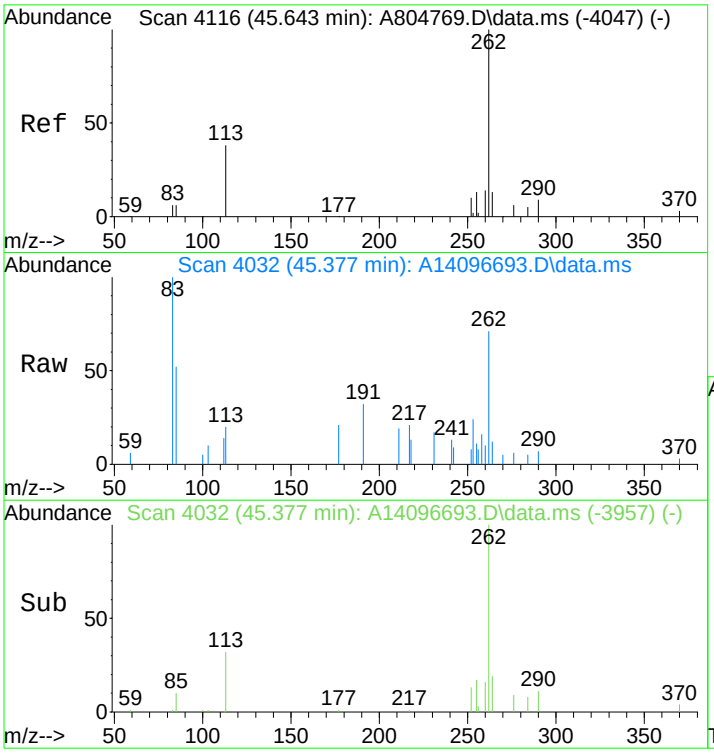




#70
C1-Naphthobenzothiophenes
Concen: 613.07 ng/ml m
RT: 44.034 min Scan# 3885
Delta R.T. 0.685 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

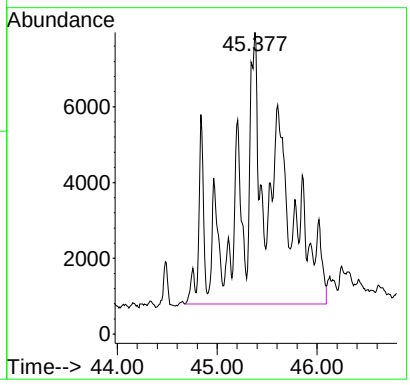
Tgt Ion:248 Resp: 119868

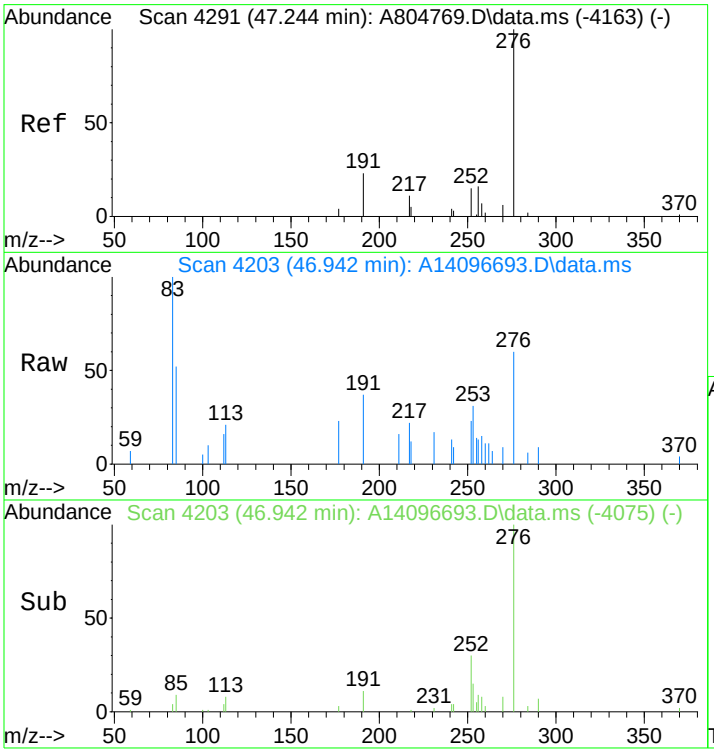




#71
C2-Naphthobenzothiophenes
Concen: 973.80 ng/ml m
RT: 45.377 min Scan# 4032
Delta R.T. 0.141 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

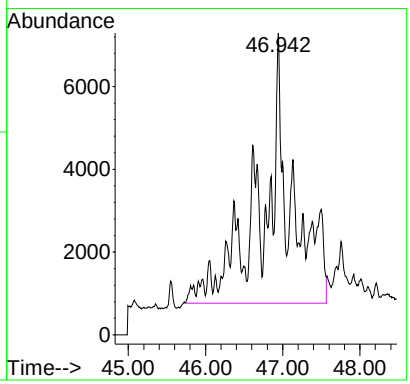
Tgt Ion:262 Resp: 190400

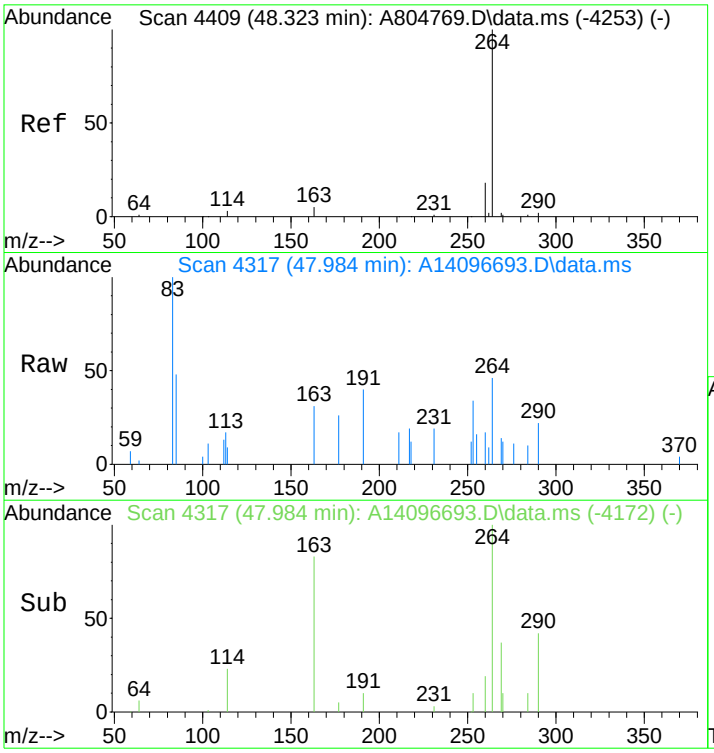




#72
C3-Naphthobenzothiophenes
Concen: 879.05 ng/ml m
RT: 46.942 min Scan# 4203
Delta R.T. 0.115 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

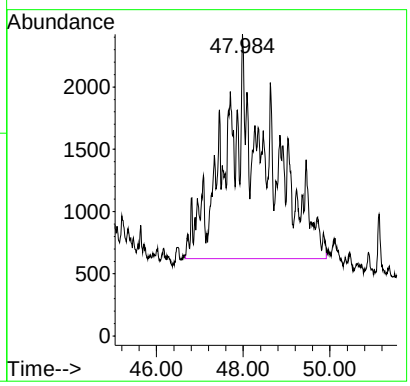
Tgt Ion:276 Resp: 171874

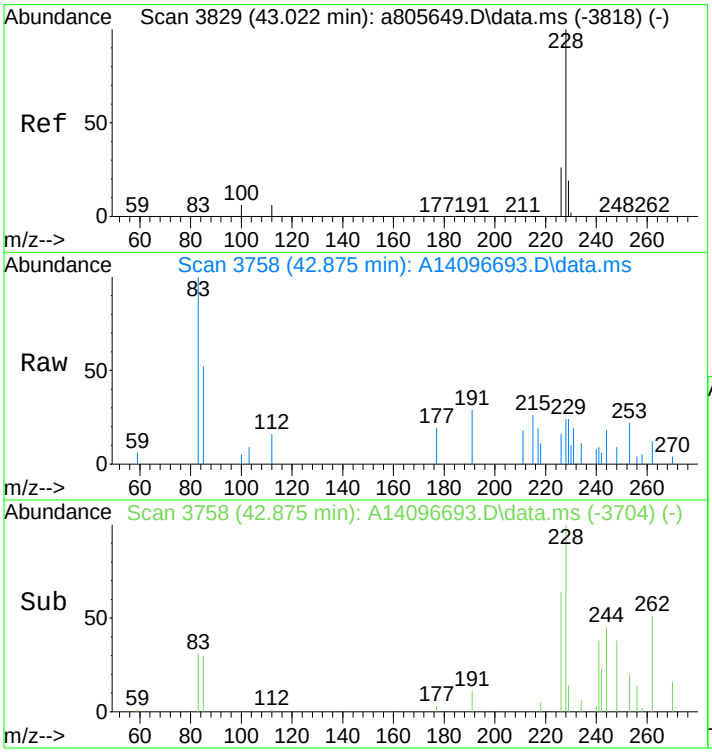




#73
C4-Naphthobenzothiophenes
Concen: 620.99 ng/mL m
RT: 47.984 min Scan# 4317
Delta R.T. 0.095 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:290 Resp: 121417

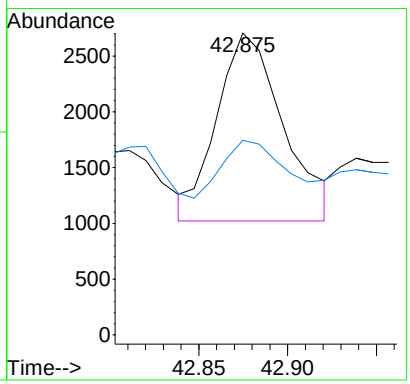


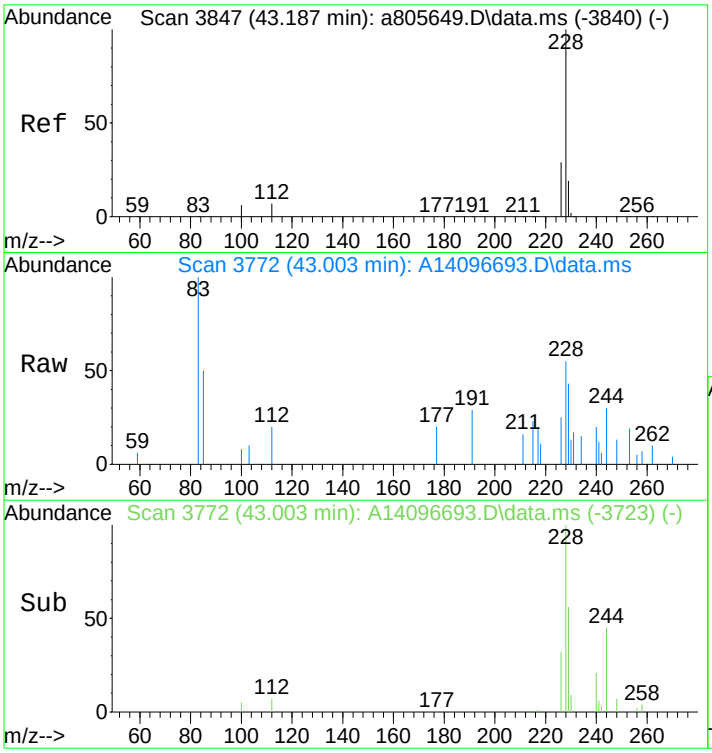


#75
Benz[a]anthracene
Concen: 20.58 ng/mL m
RT: 42.875 min Scan# 3758
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:228 Resp: 4377

Ion	Ratio	Lower	Upper
228	100		
226	27.7	20.3	30.5

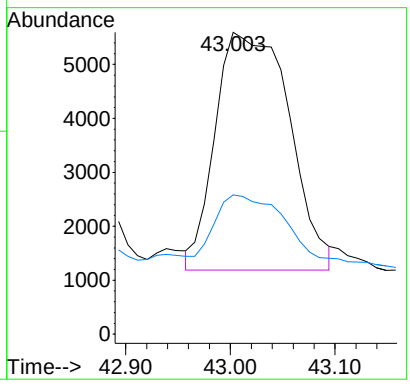


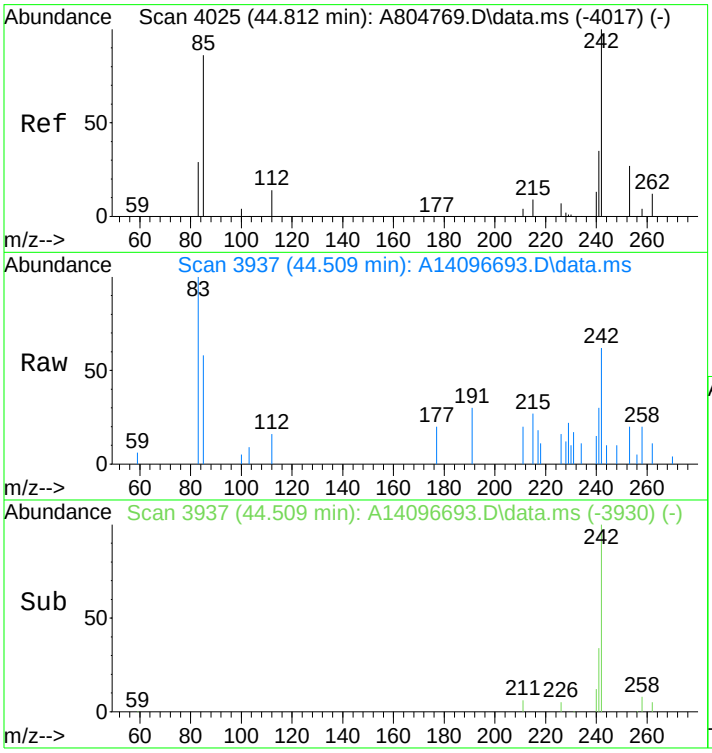


#77
Chrysene/Triphenylene
Concen: 102.77 ng/mL m
RT: 43.003 min Scan# 3772
Delta R.T. -0.055 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:228 Resp: 21577

Ion	Ratio	Lower	Upper
228	100		
226	31.8	22.2	33.2

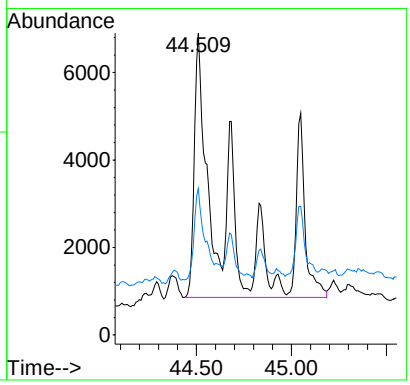


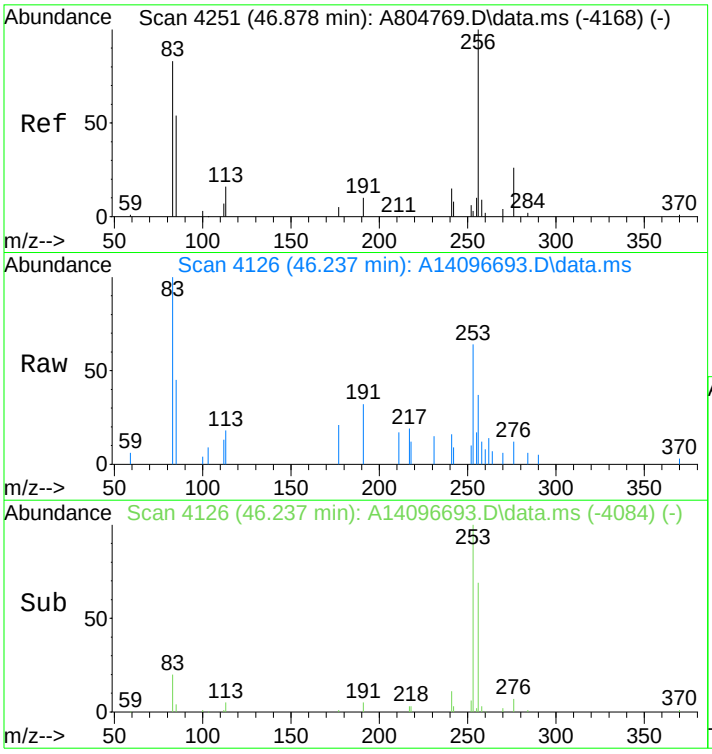


#78
C1-Chrysenes
Concen: 285.19 ng/mL m
RT: 44.509 min Scan# 3937
Delta R.T. 0.001 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:242 Resp: 59880

Ion	Ratio	Lower	Upper
242	100		
241	3.4	33.7	50.5#

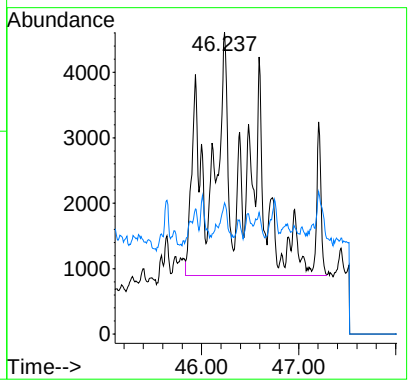


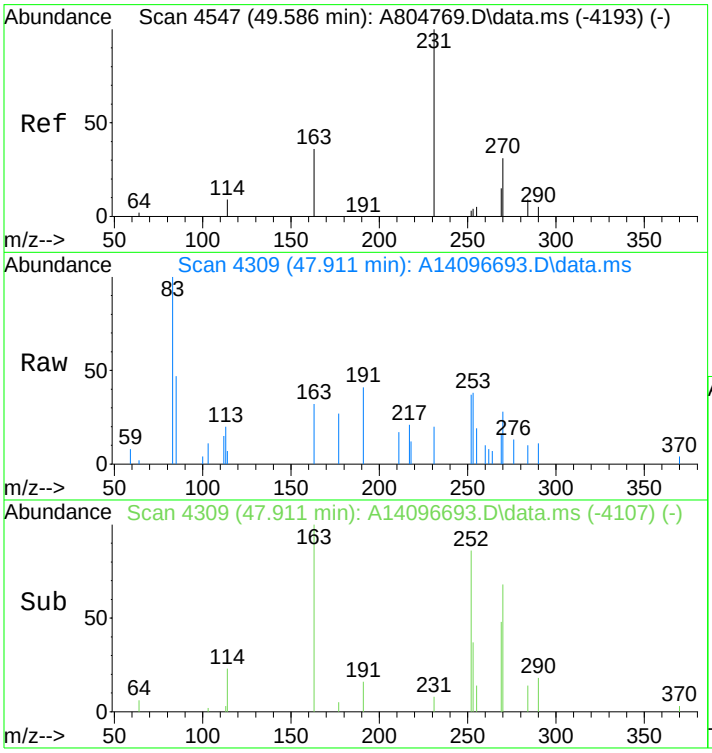


#79
C2-Chrysenes
Concen: 458.44 ng/mL m
RT: 46.237 min Scan# 4126
Delta R.T. -0.360 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:256 Resp: 96255

Ion	Ratio	Lower	Upper
256	100		
241	2.5	28.1	42.1#

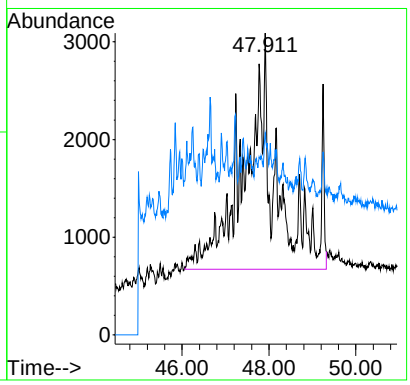


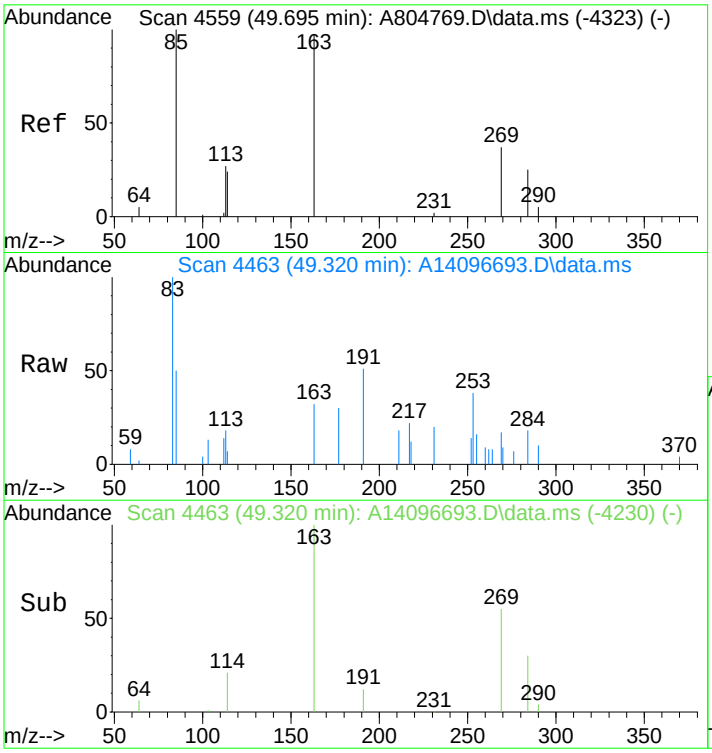


#80
C3-Chrysenes
Concen: 572.34 ng/mL m
RT: 47.911 min Scan# 4309
Delta R.T. -1.365 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:270 Resp: 120170

Ion	Ratio	Lower	Upper
270	100		
255	0.8	52.2	78.4#

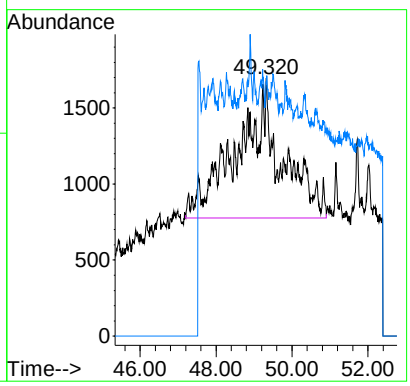


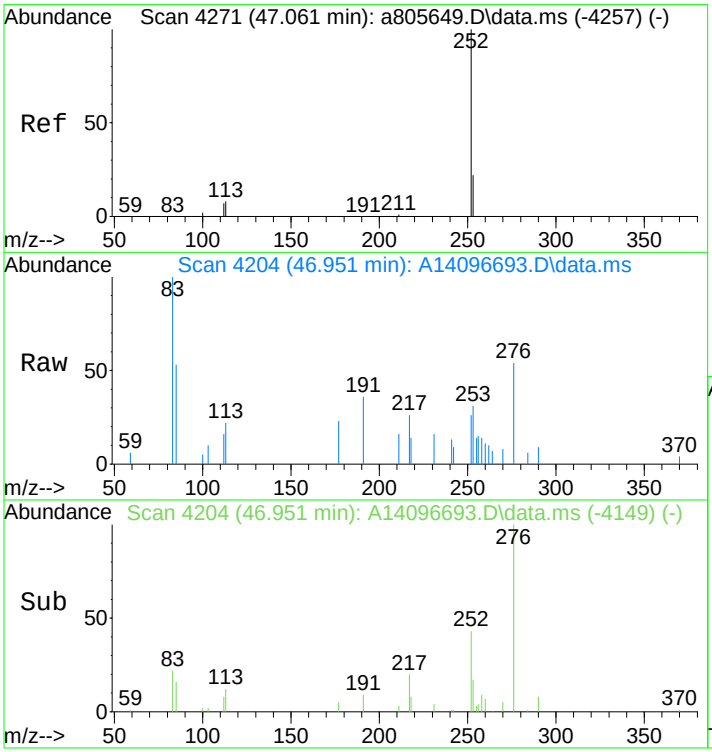


#81
C4-Chrysenes
Concen: 349.85 ng/mL m
RT: 49.320 min Scan# 4463
Delta R.T. -0.041 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:284 Resp: 73456

Ion	Ratio	Lower	Upper
284	100		
269	0.0	72.2	108.2#

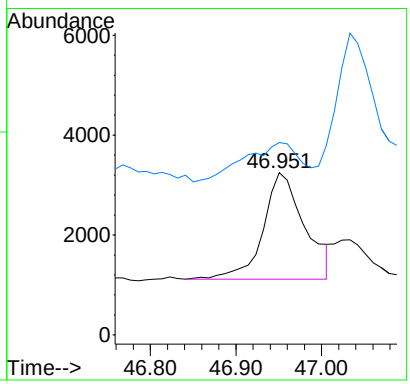


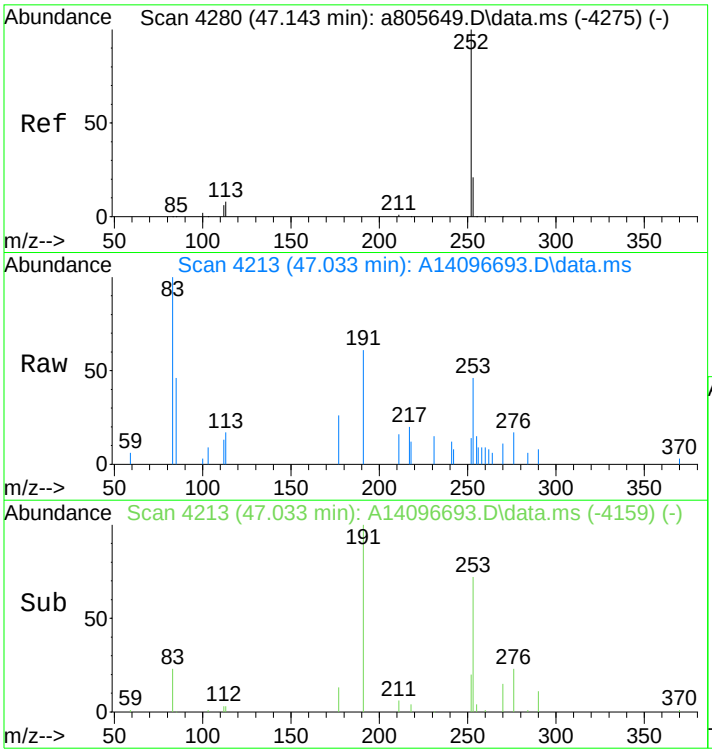


#82
Benzo[b]fluoranthene
Concen: 34.11 ng/mL
RT: 46.951 min Scan# 4204
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:252 Resp: 7174

Ion	Ratio	Lower	Upper
252	100		
253	44.9	19.9	29.9#

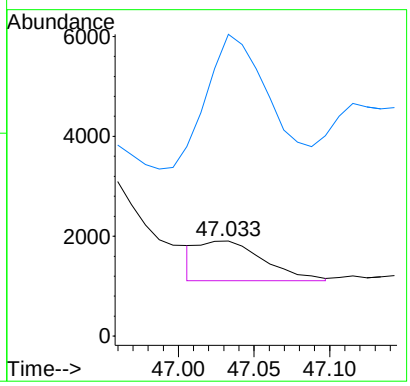


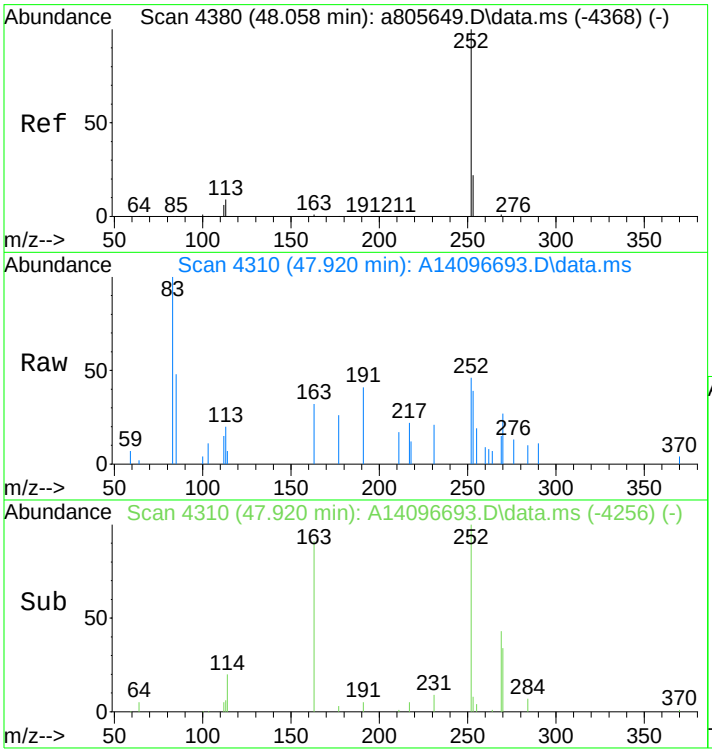


#83
Benzo[j]+[k]fluoranthene
Concen: 10.17 ng/mL m
RT: 47.033 min Scan# 4213
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:252 Resp: 2362

Ion	Ratio	Lower	Upper
252	100		
253	149.2	20.1	30.1#

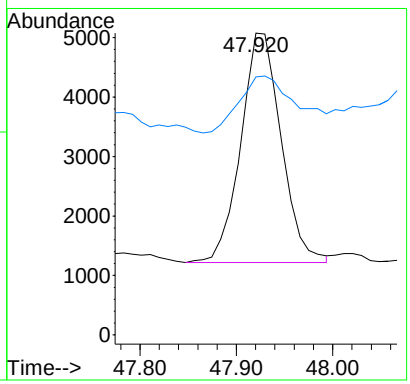


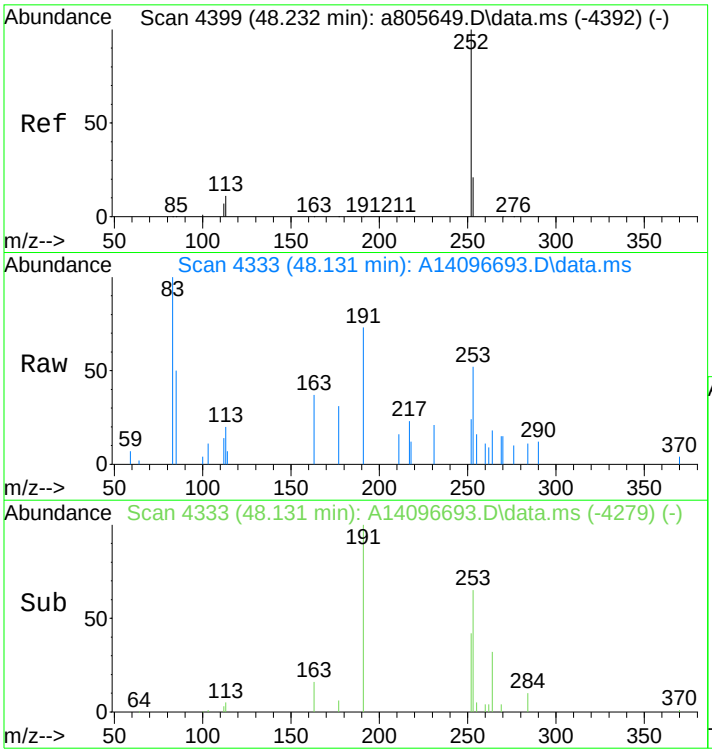


#85
Benzo[e]pyrene
Concen: 53.90 ng/mL
RT: 47.920 min Scan# 4310
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:252 Resp: 11240

Ion	Ratio	Lower	Upper
252	100		
253	35.4	20.1	30.1#

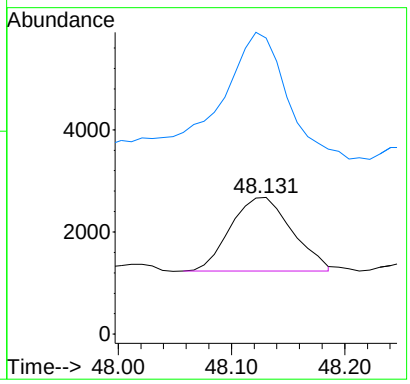


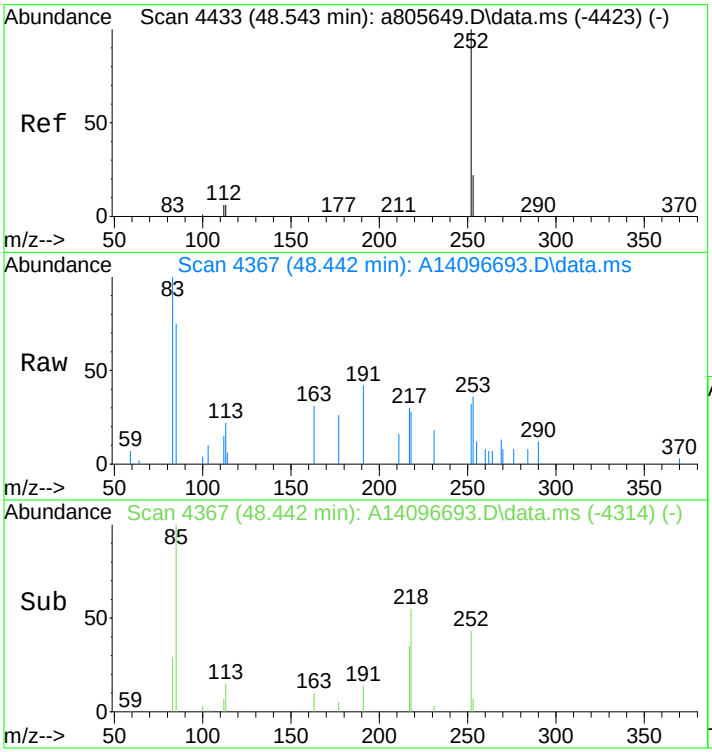


#87
Benzo[a]pyrene
Concen: 27.98 ng/mL m
RT: 48.131 min Scan# 4333
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:252 Resp: 5457

Ion	Ratio	Lower	Upper
252	100		
253	49.6	23.0	34.4#

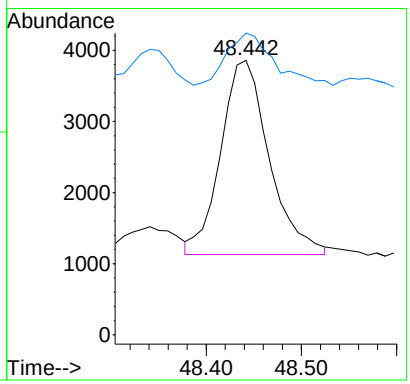


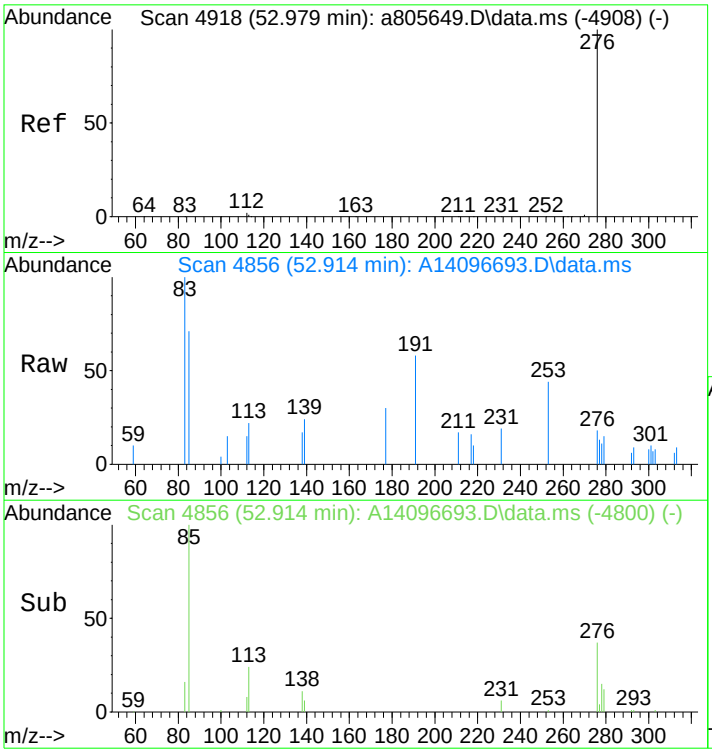


#88
Perylene
Concen: 45.54 ng/mL m
RT: 48.442 min Scan# 4367
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:252 Resp: 9628

Ion	Ratio	Lower	Upper
252	100		
253	27.3	23.3	34.9

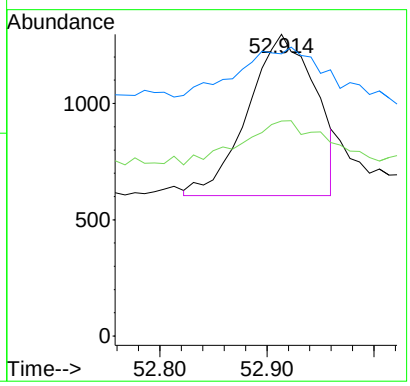


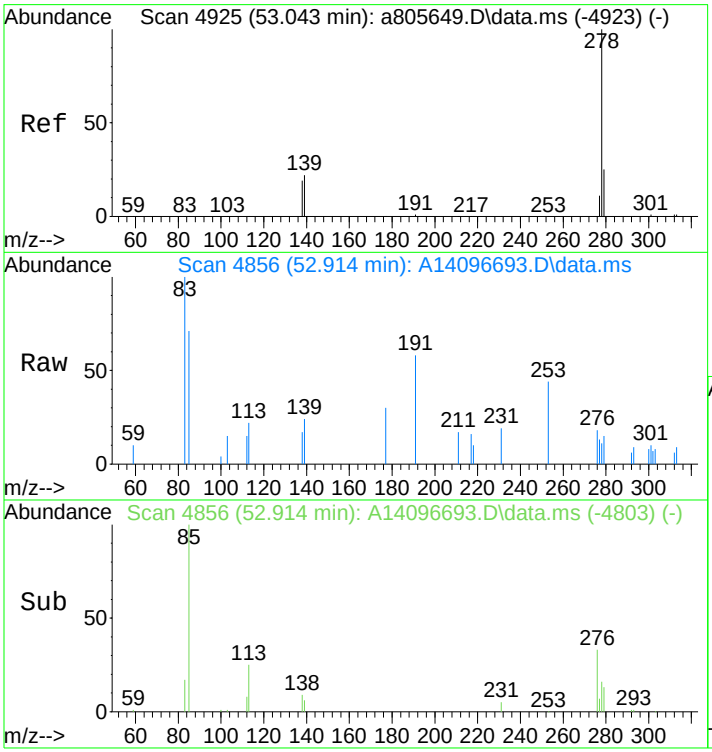


#89
Indeno[1,2,3-cd]pyrene
Concen: 12.41 ng/mL m
RT: 52.914 min Scan# 4856
Delta R.T. 0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:276 Resp: 3026

Ion	Ratio	Lower	Upper
276	100		
138	52.0	23.2	34.8#
277	38.4	19.8	29.8#

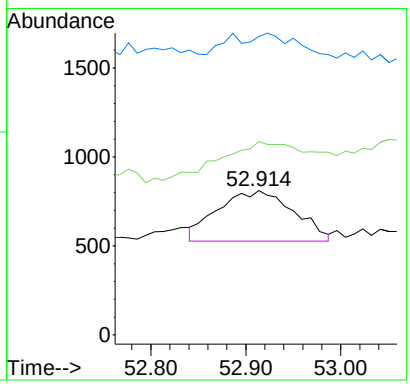


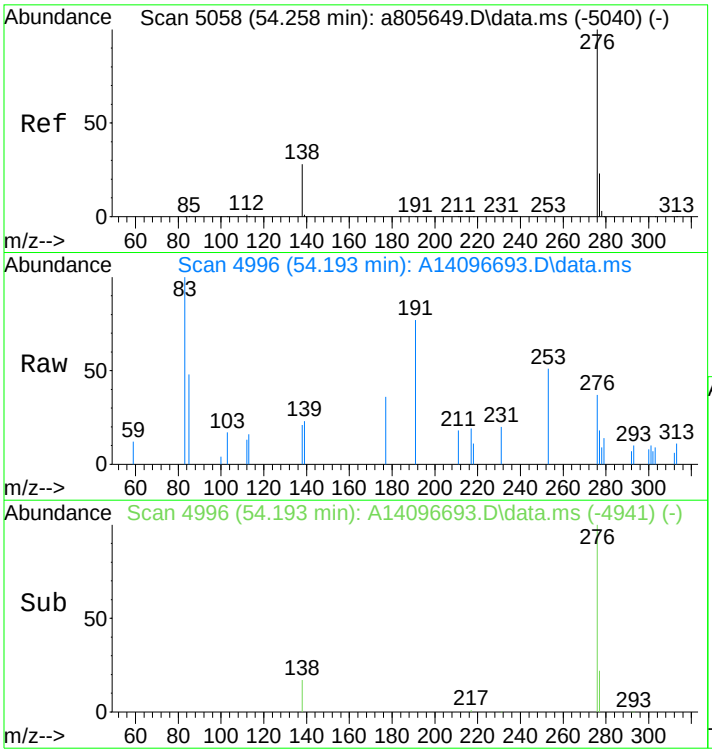


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.82 ng/mL m
RT: 52.914 min Scan# 4856
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:278 Resp: 1564

Ion	Ratio	Lower	Upper
278	100		
139	25.7	16.1	24.1#
279	103.1	19.6	29.4#

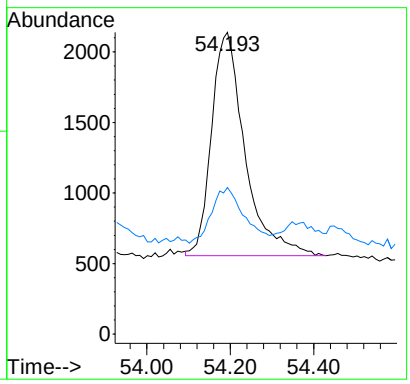


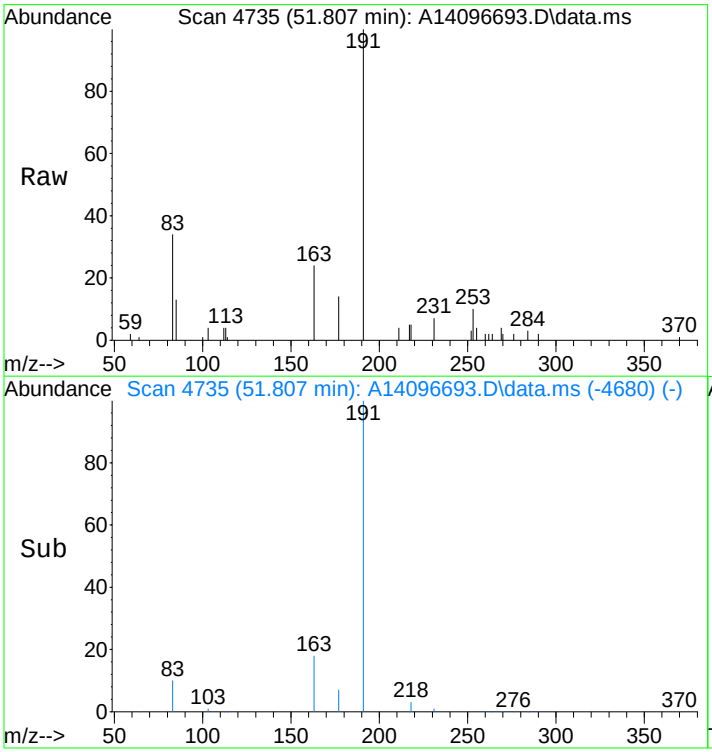


#91
Benzo[g,h,i]perylene
Concen: 37.62 ng/mL
RT: 54.193 min Scan# 4996
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:276 Resp: 8801

Ion	Ratio	Lower	Upper
276	100		
277	24.5	19.0	28.6

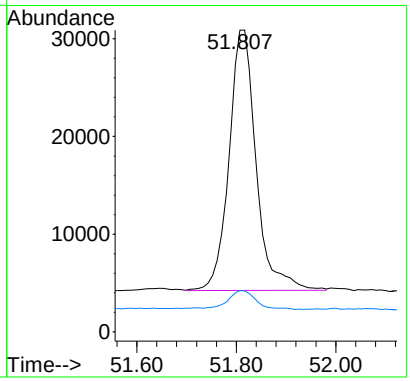


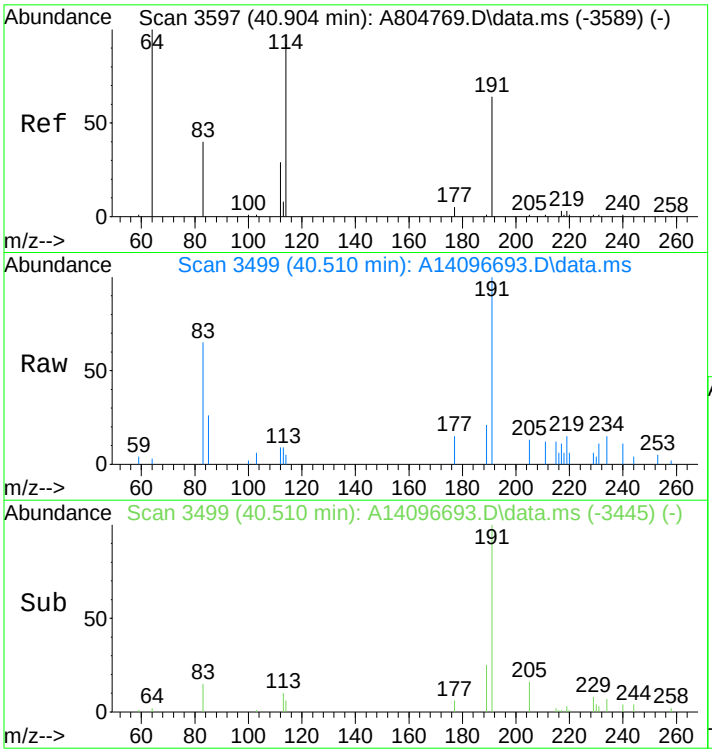


#92
Hopane (T19)
Concen: 1454.08 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:191 Resp: 100980

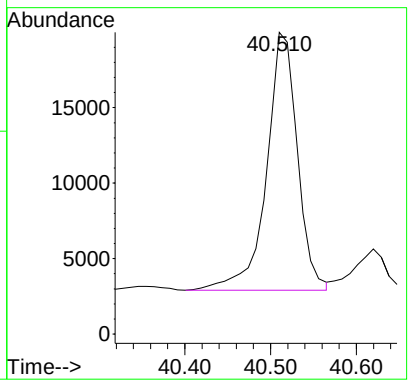
Ion	Ratio	Lower	Upper
191	100		
177	7.8	12.1	18.1#

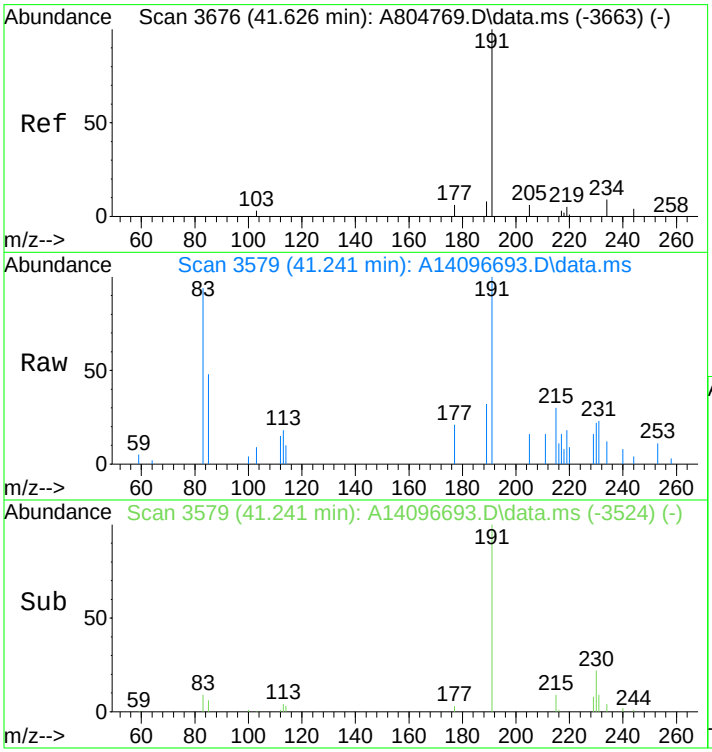




#94
C23 Tricyclic Terpane (T4)
Concen: 615.57 ng/ml
RT: 40.510 min Scan# 3499
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

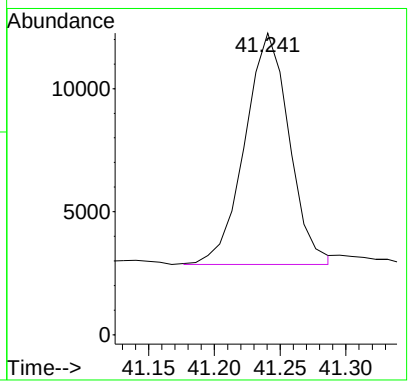
Tgt Ion:191 Resp: 42749

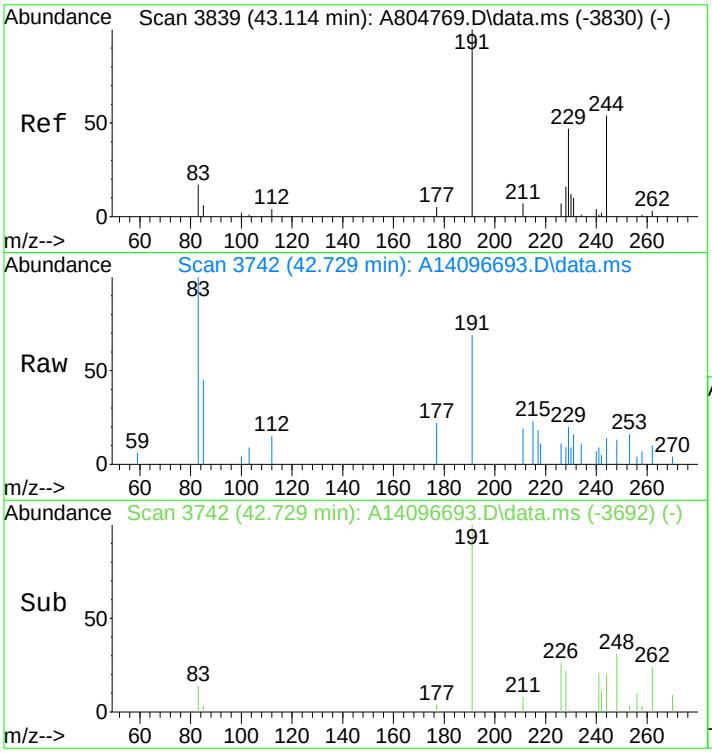




#95
C24 Tricyclic Terpane (T5)
Concen: 317.22 ng/ml m
RT: 41.241 min Scan# 3579
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

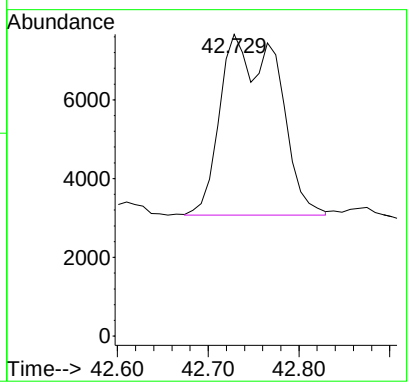
Tgt Ion:191 Resp: 22030

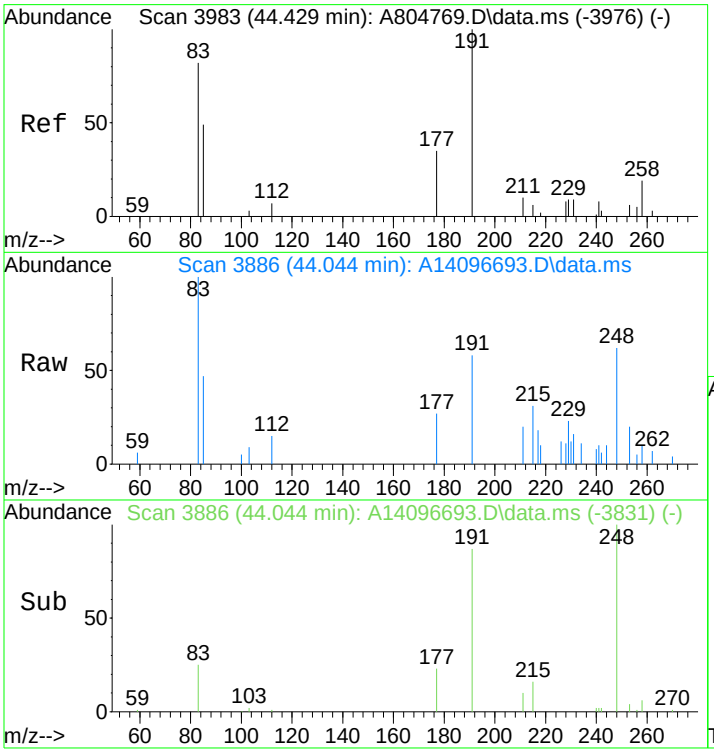




#96
C25 Tricyclic Terpane (T6)
Concen: 292.47 ng/ml m
RT: 42.729 min Scan# 3742
Delta R.T. -0.046 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

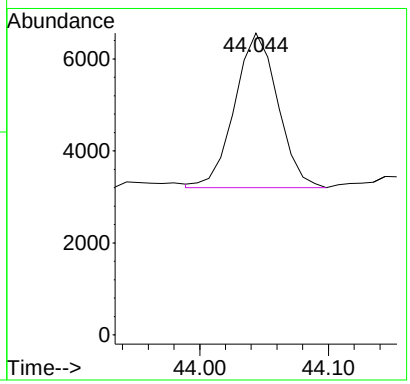
Tgt Ion:191 Resp: 20311

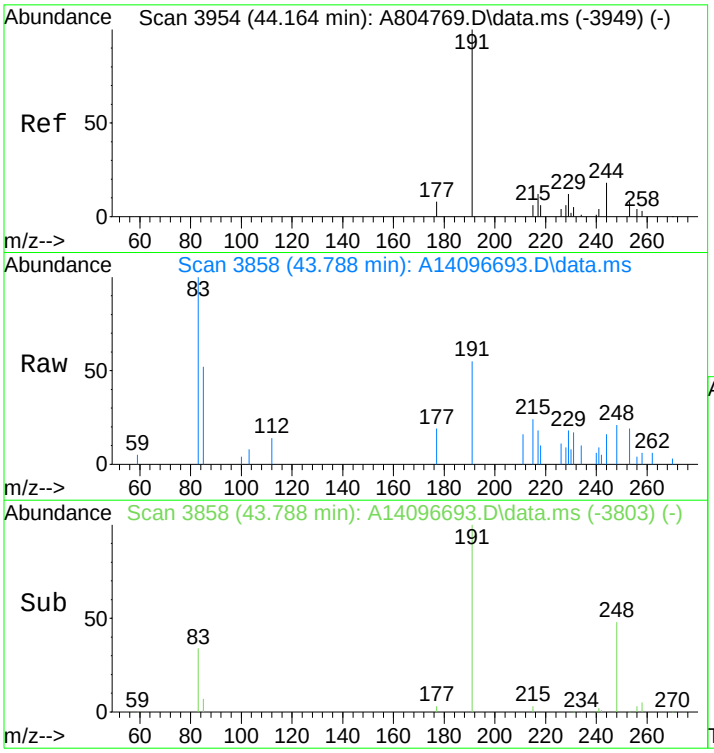




#97
C24 Tetracyclic Terpane (T6a)
Concen: 112.81 ng/ml
RT: 44.044 min Scan# 3886
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

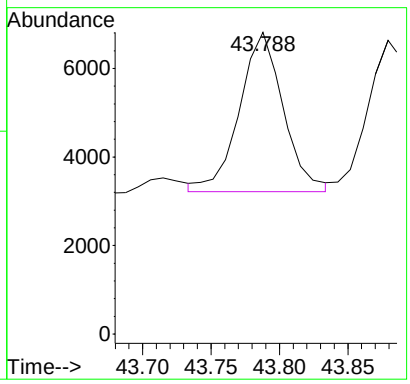
Tgt Ion:191 Resp: 7834

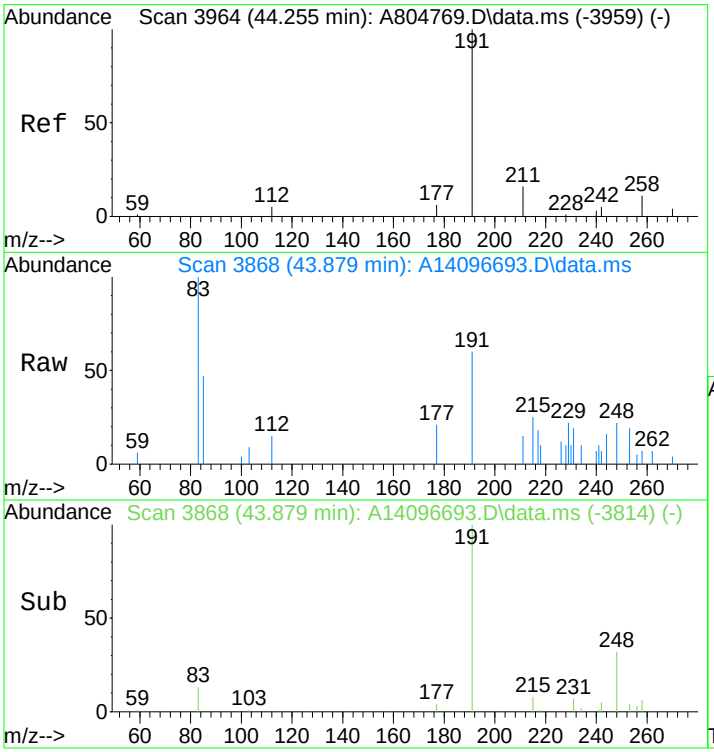




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 115.77 ng/ml m
RT: 43.788 min Scan# 3858
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

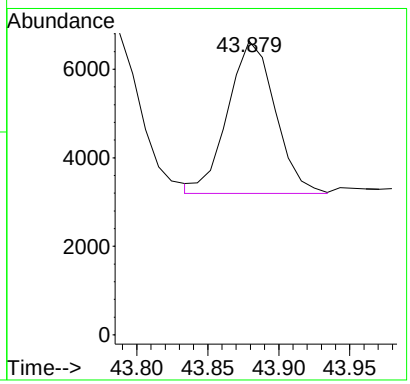
Tgt Ion:191 Resp: 8040

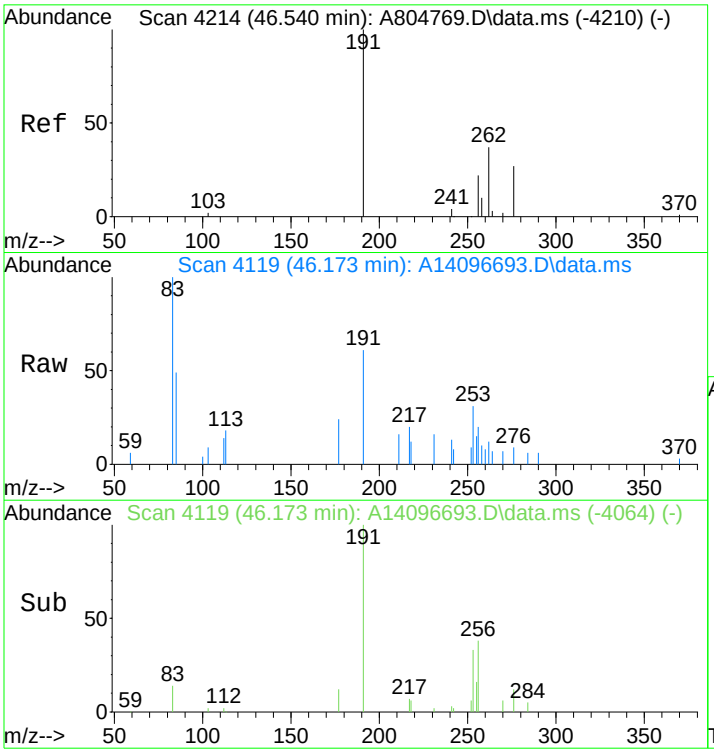




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 114.36 ng/ml m
RT: 43.879 min Scan# 3868
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

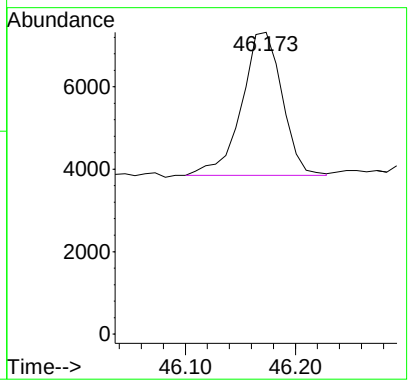
Tgt Ion:191 Resp: 7942

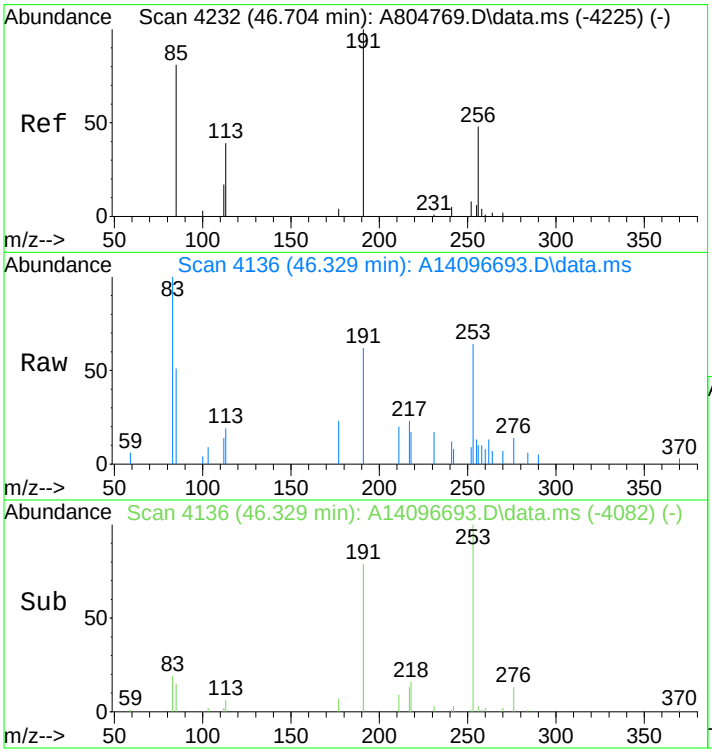




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 128.14 ng/ml
RT: 46.173 min Scan# 4119
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

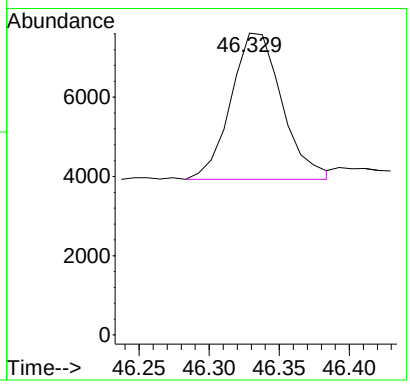
Tgt Ion:191 Resp: 8899

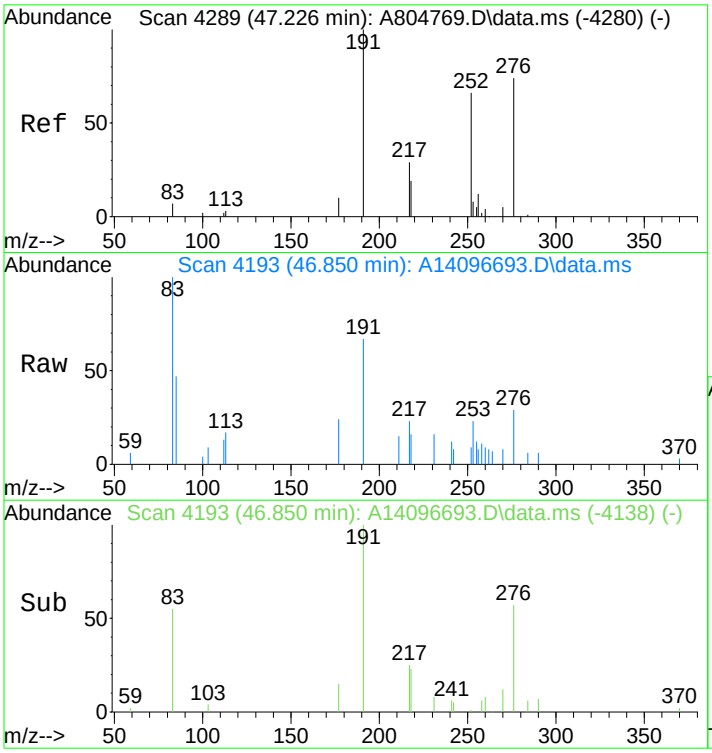




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 135.04 ng/ml
RT: 46.329 min Scan# 4136
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

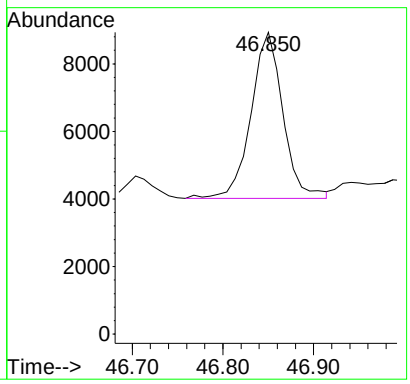
Tgt Ion:191 Resp: 9378

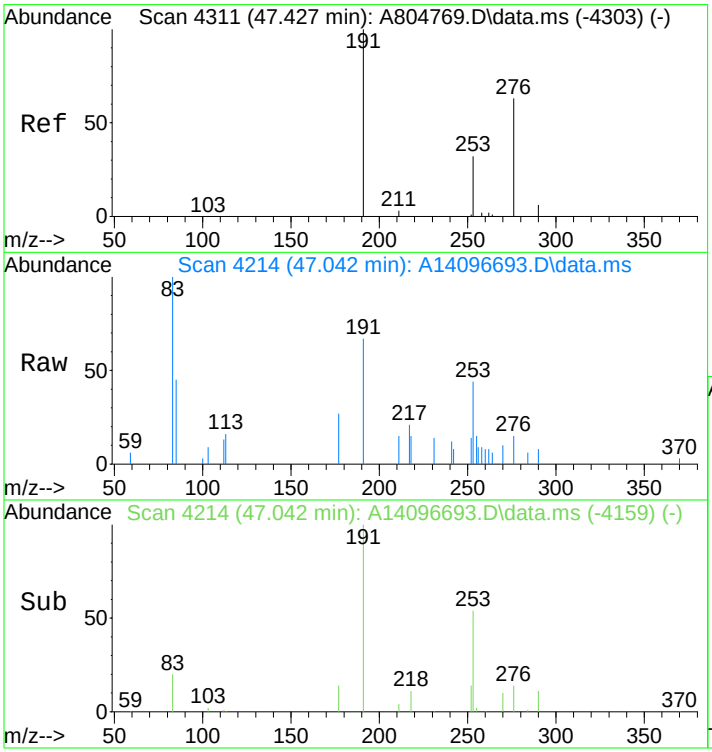




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 172.62 ng/ml
RT: 46.850 min Scan# 4193
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

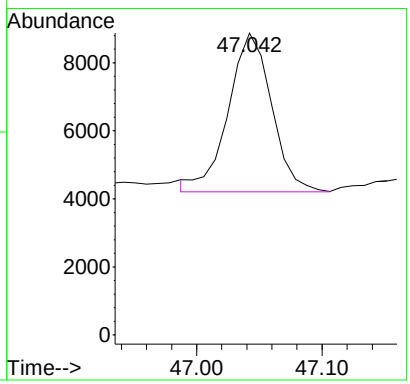
Tgt Ion:191 Resp: 11988

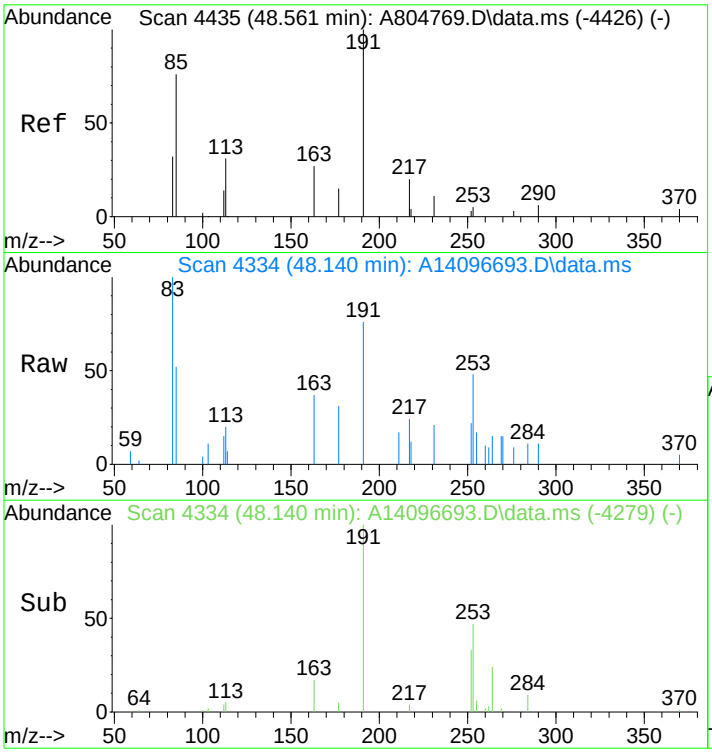




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 160.63 ng/ml m
RT: 47.042 min Scan# 4214
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

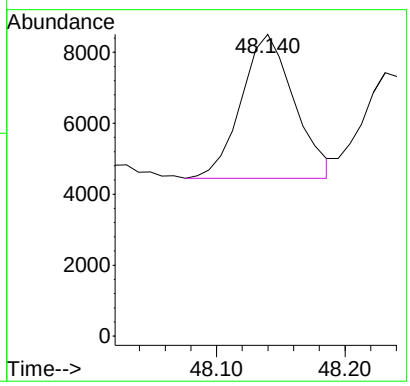
Tgt Ion:191 Resp: 11155

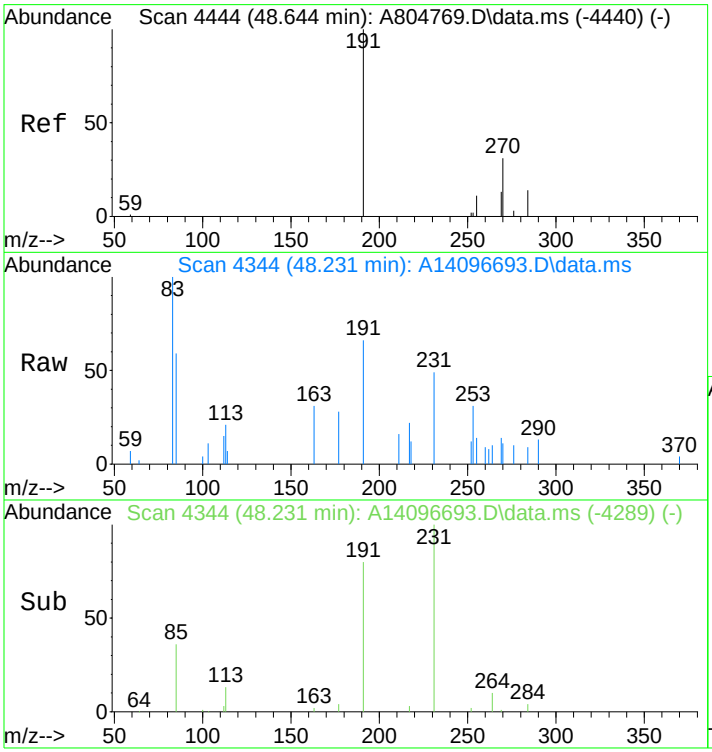




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 168.02 ng/ml
RT: 48.140 min Scan# 4334
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

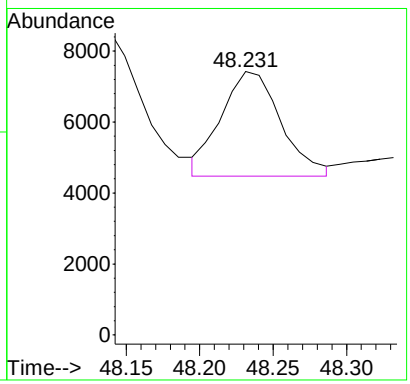
Tgt Ion:191 Resp: 11668

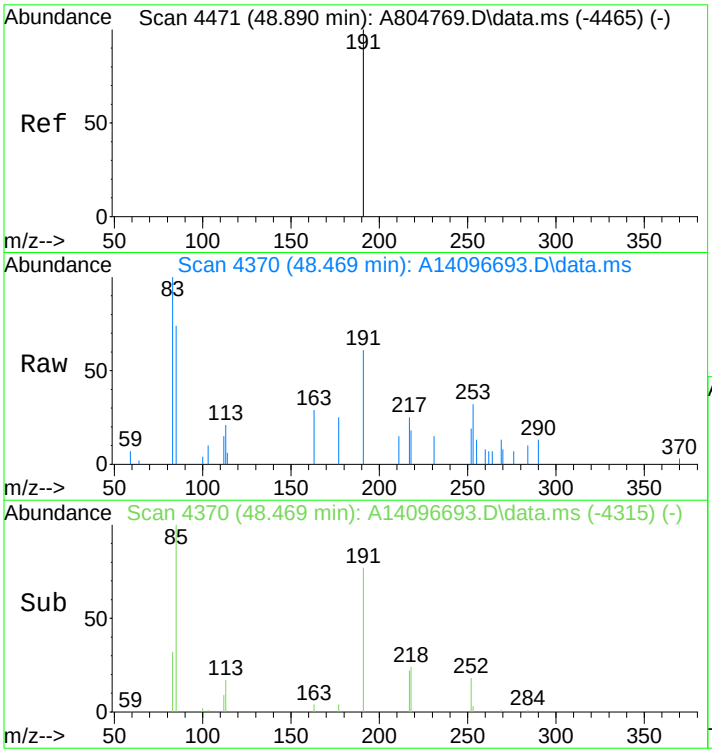




#105
C30 Tricyclic Terpane-22S
Concen: 120.57 ng/mL m
RT: 48.231 min Scan# 4344
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

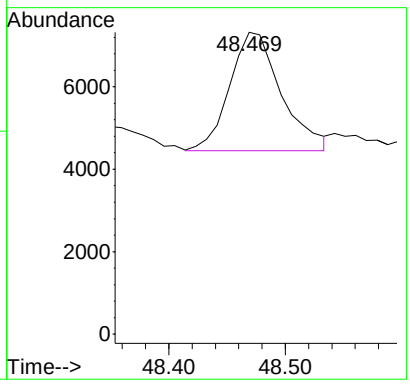
Tgt Ion:191 Resp: 8373

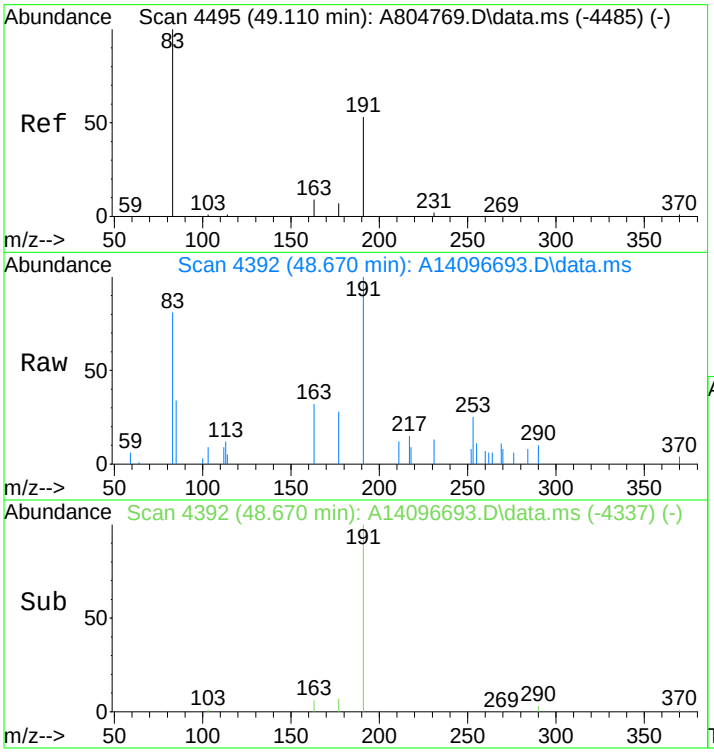




#106
C30 Tricyclic Terpane-22R
Concen: 127.87 ng/mL m
RT: 48.469 min Scan# 4370
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

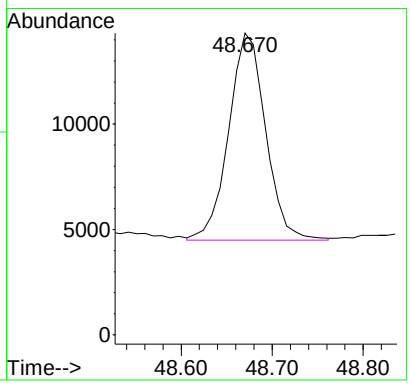
Tgt Ion:191 Resp: 8880

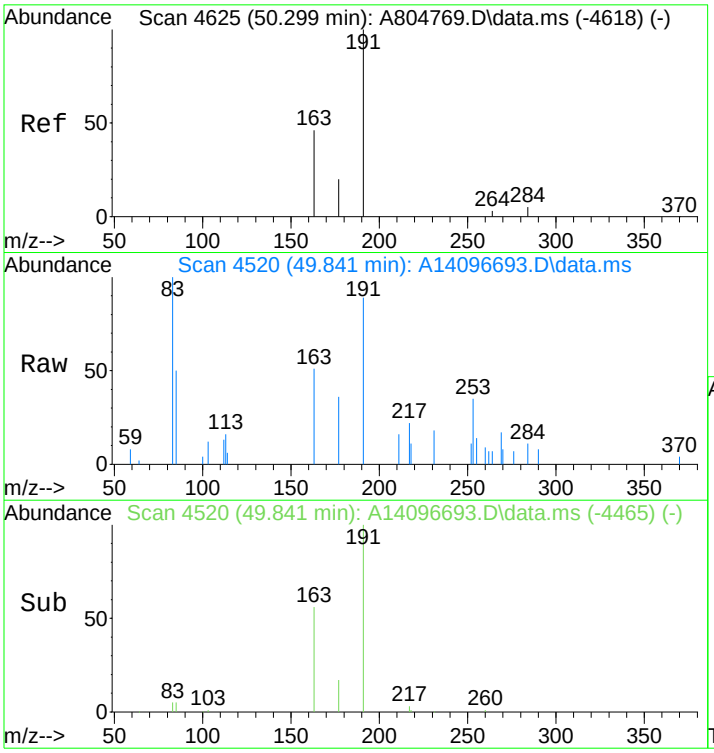




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 399.01 ng/ml m
RT: 48.670 min Scan# 4392
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

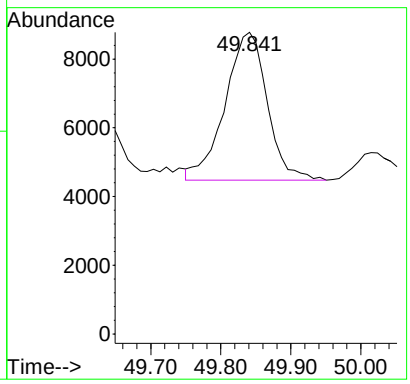
Tgt Ion:191 Resp: 27710

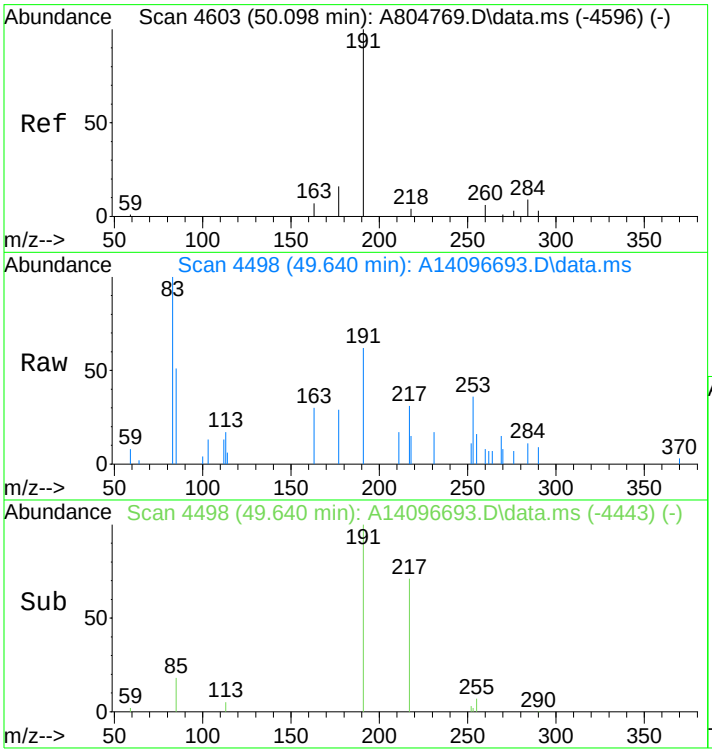




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 258.73 ng/ml
RT: 49.841 min Scan# 4520
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

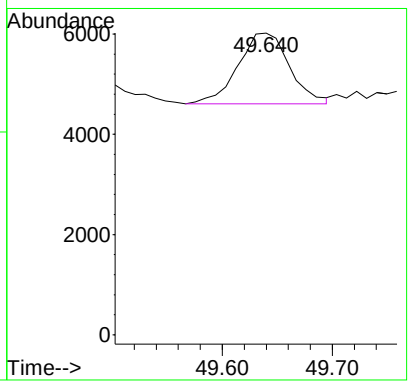
Tgt Ion:191 Resp: 17968

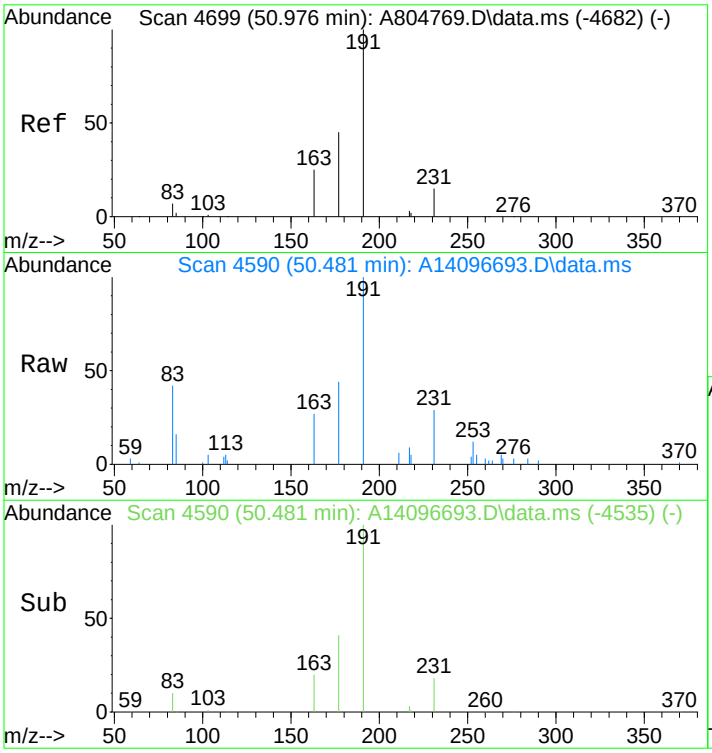




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 66.11 ng/ml
RT: 49.640 min Scan# 4498
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

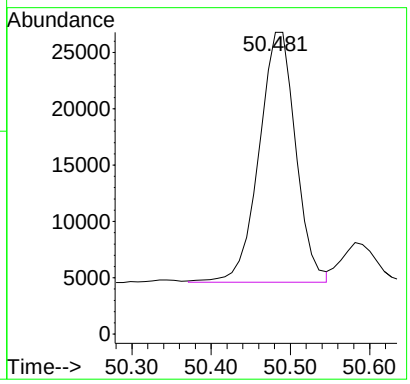
Tgt Ion:191 Resp: 4591

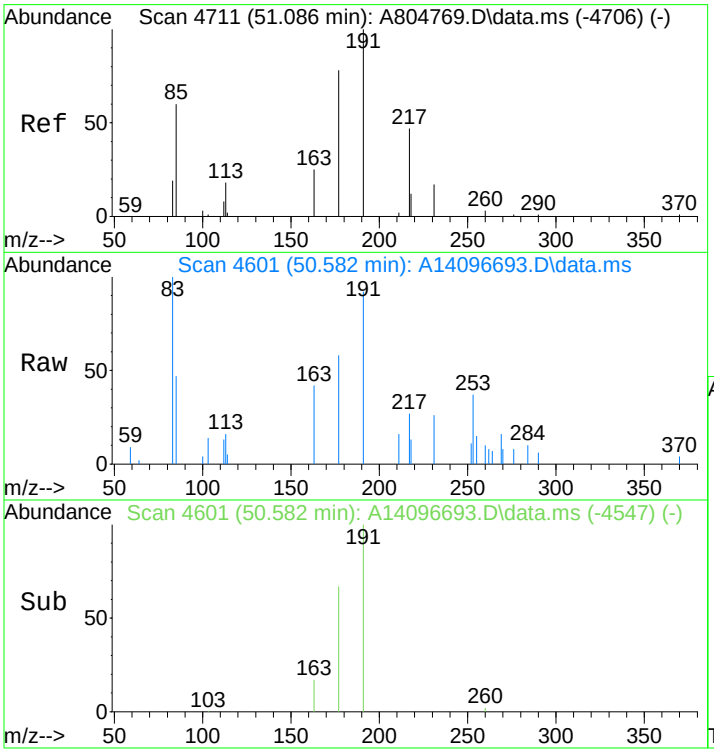




#110
30-Norhopane (T15)
Concen: 1028.35 ng/ml m
RT: 50.481 min Scan# 4590
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

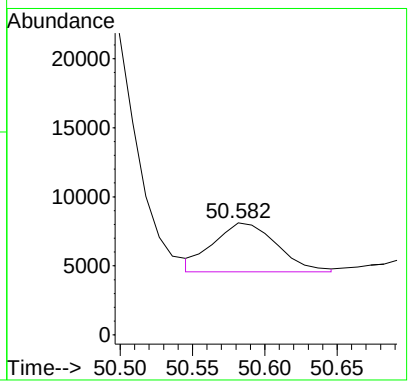
Tgt Ion:191 Resp: 71415

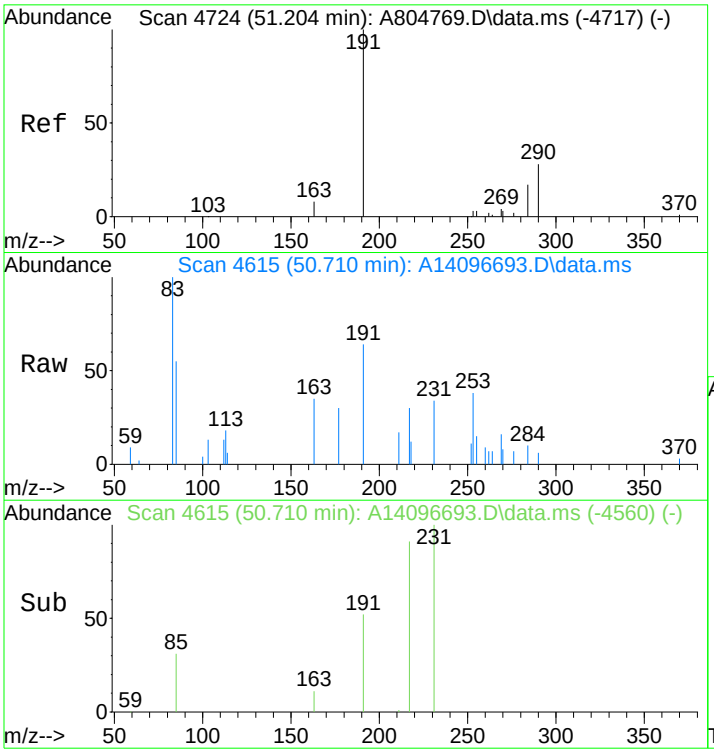




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 154.88 ng/ml m
RT: 50.582 min Scan# 4601
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

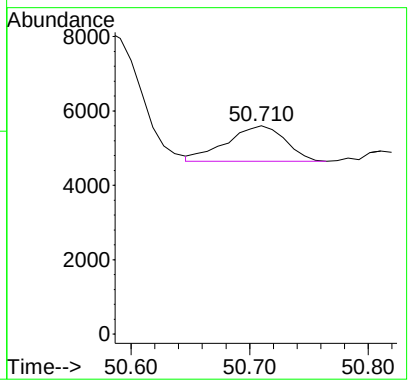
Tgt Ion:191 Resp: 10756

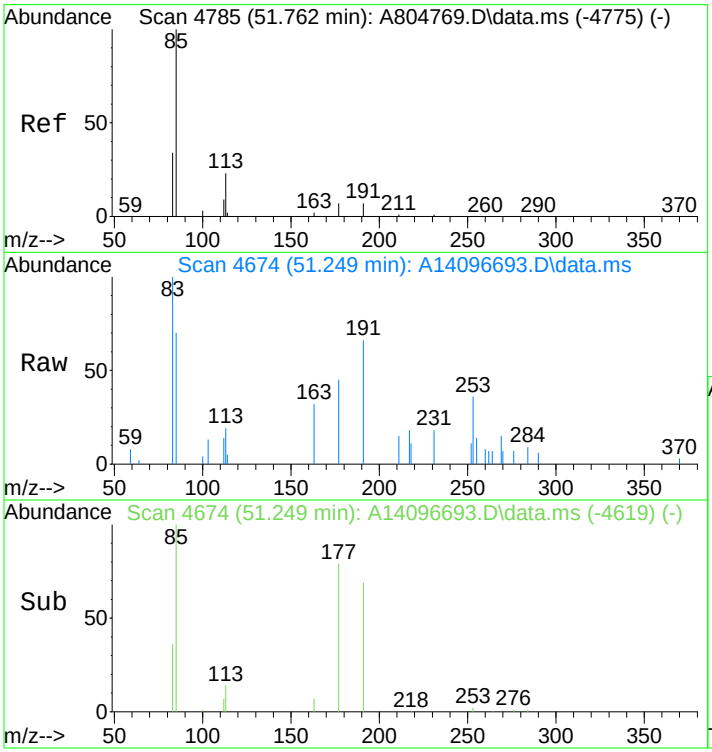




#112
17a(H)-Diahopane (X)
Concen: 46.80 ng/ml
RT: 50.710 min Scan# 4615
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

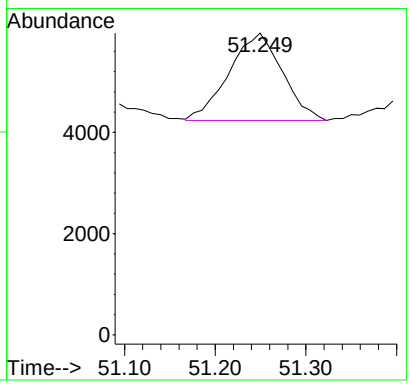
Tgt Ion:191 Resp: 3250

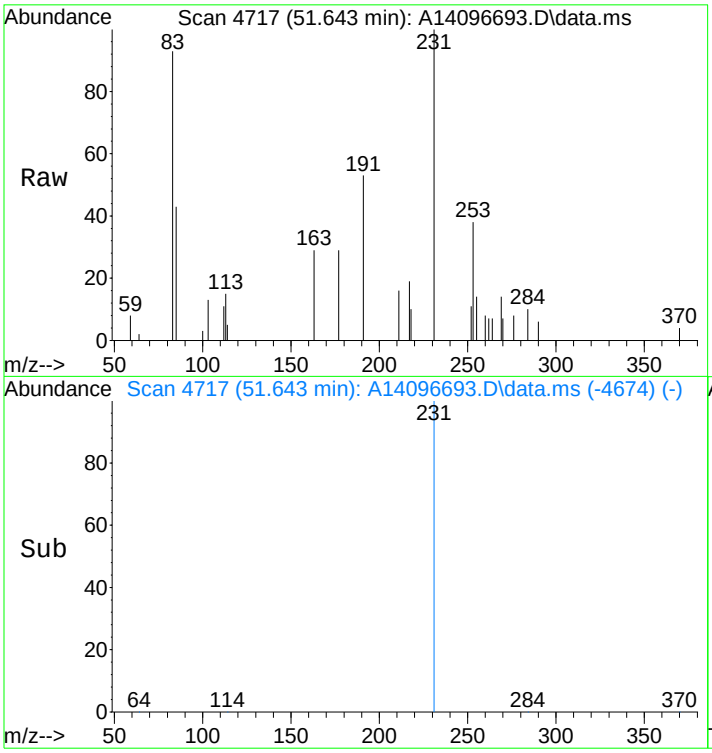




#113
30-Normoretane (T17)
Concen: 101.09 ng/ml
RT: 51.249 min Scan# 4674
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

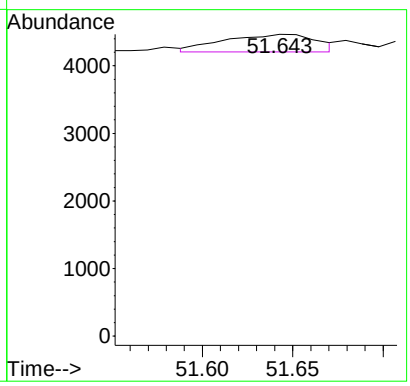
Tgt Ion:191 Resp: 7020

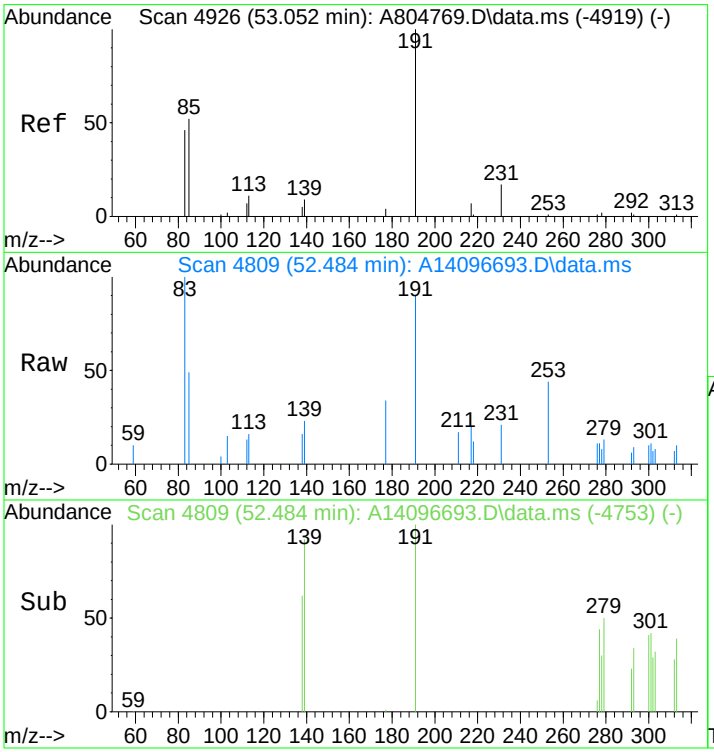




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 13.39 ng/ml m
RT: 51.643 min Scan# 4717
Delta R.T. -0.110 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

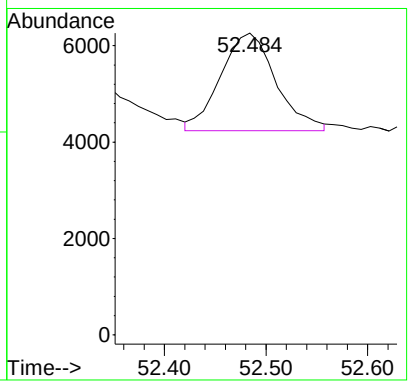
Tgt Ion:191 Resp: 930

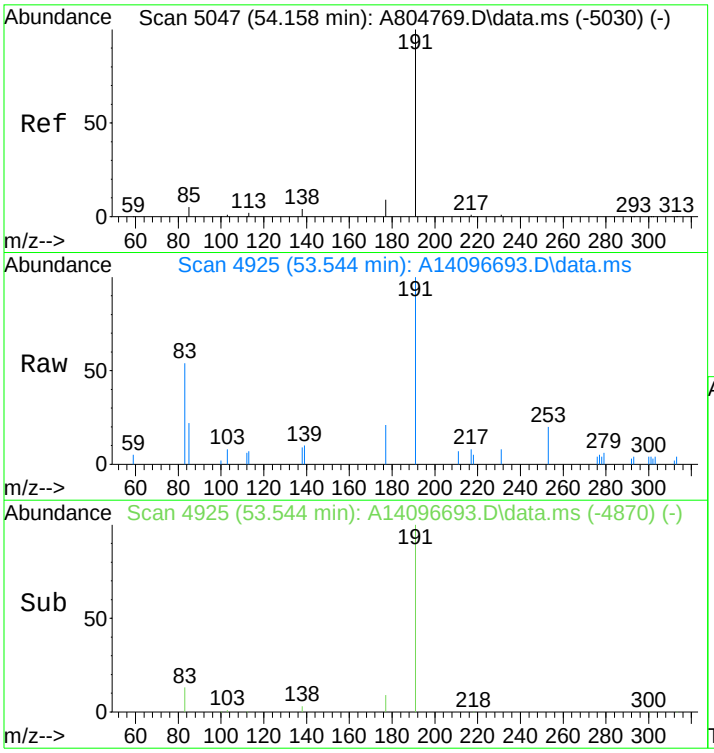




#115
Moretane (T20)
Concen: 110.26 ng/ml m
RT: 52.484 min Scan# 4809
Delta R.T. 0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

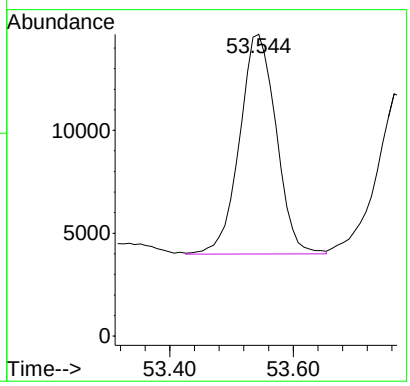
Tgt Ion:191 Resp: 7657

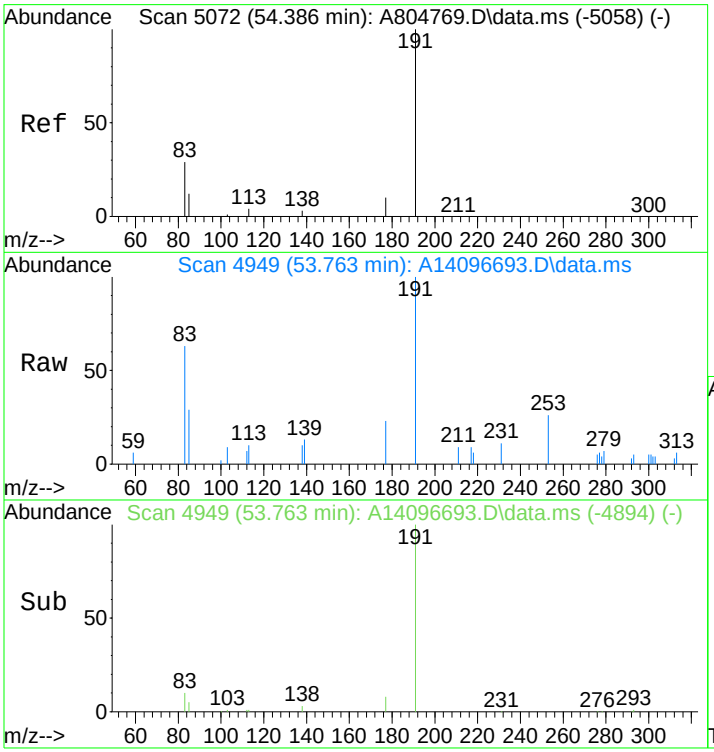




#116
30-Homohopane-22S (T21)
Concen: 632.22 ng/ml
RT: 53.544 min Scan# 4925
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

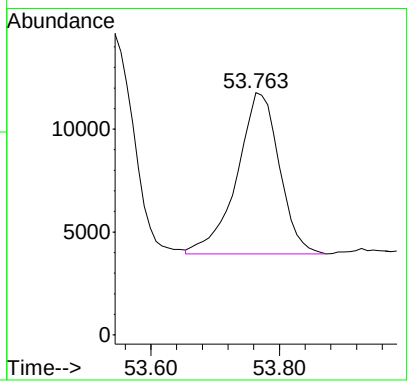
Tgt Ion:191 Resp: 43905

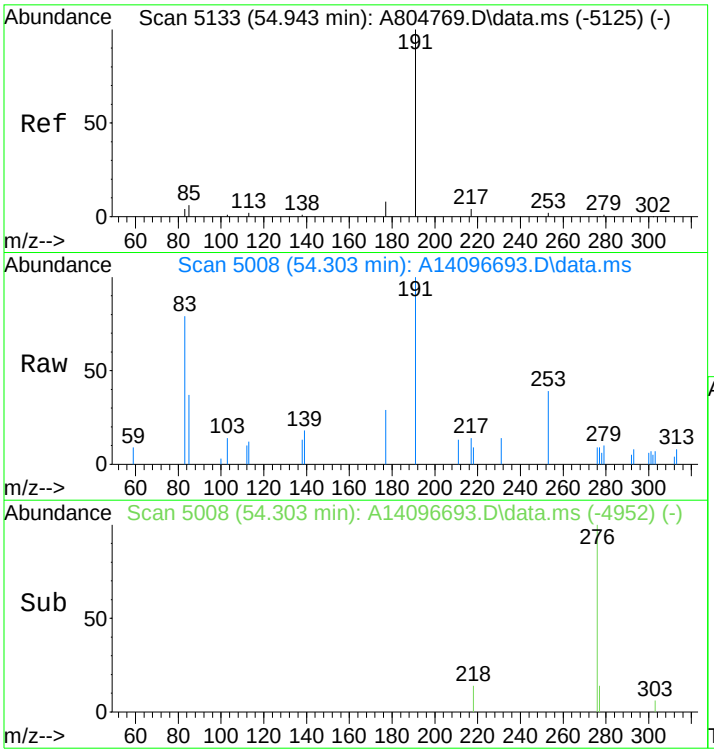




#117
30-Homohopane-22R (T22)
Concen: 517.71 ng/ml
RT: 53.763 min Scan# 4949
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

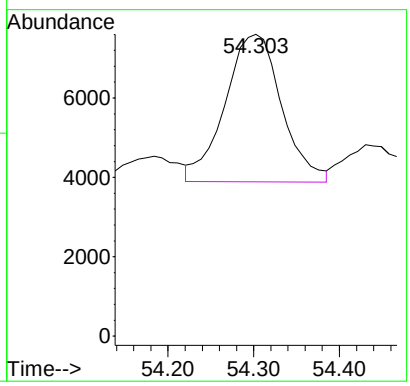
Tgt Ion:191 Resp: 35953

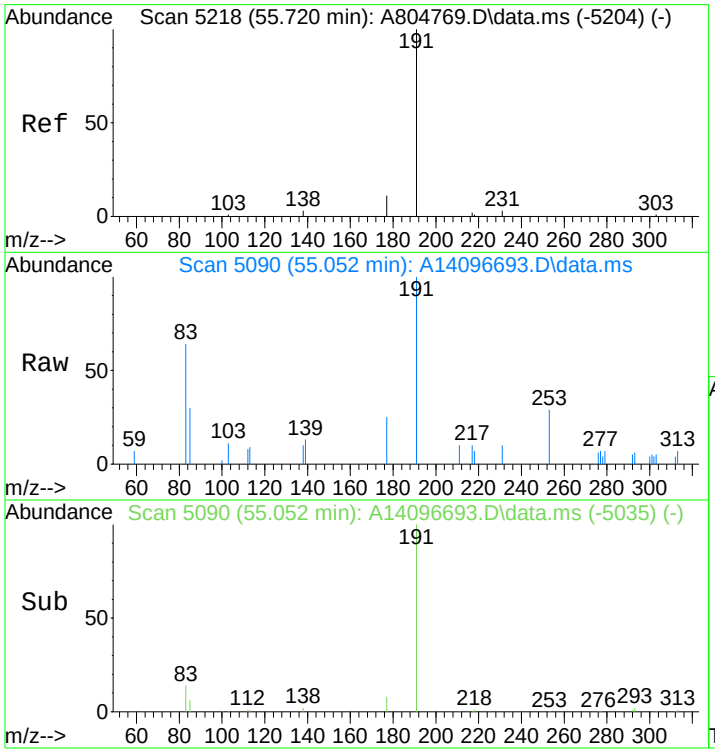




#118
Gammacerane/C32-diahopane
Concen: 245.23 ng/mL
RT: 54.303 min Scan# 5008
Delta R.T. 0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

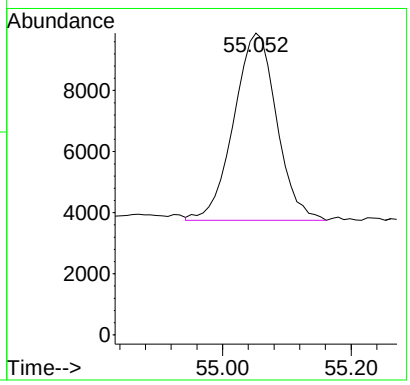
Tgt Ion:191 Resp: 17030

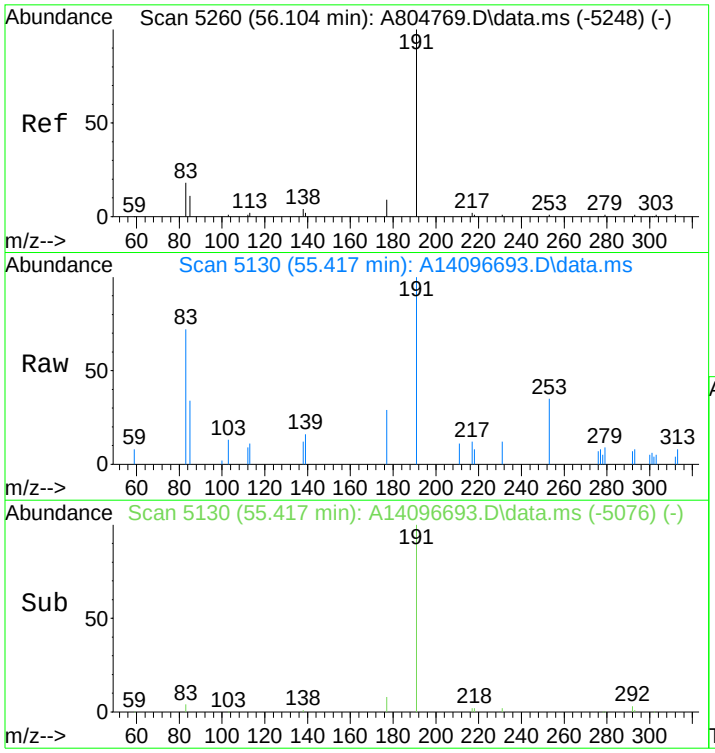




#119
30,31-Bishomohopane-22S (T26)
Concen: 408.65 ng/ml
RT: 55.052 min Scan# 5090
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

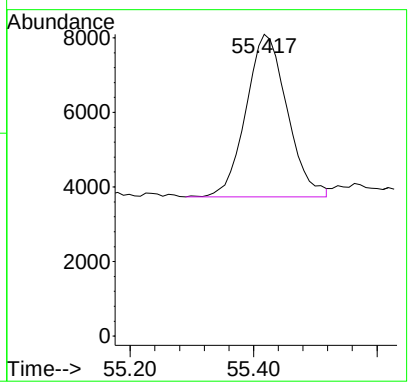
Tgt Ion:191 Resp: 28379

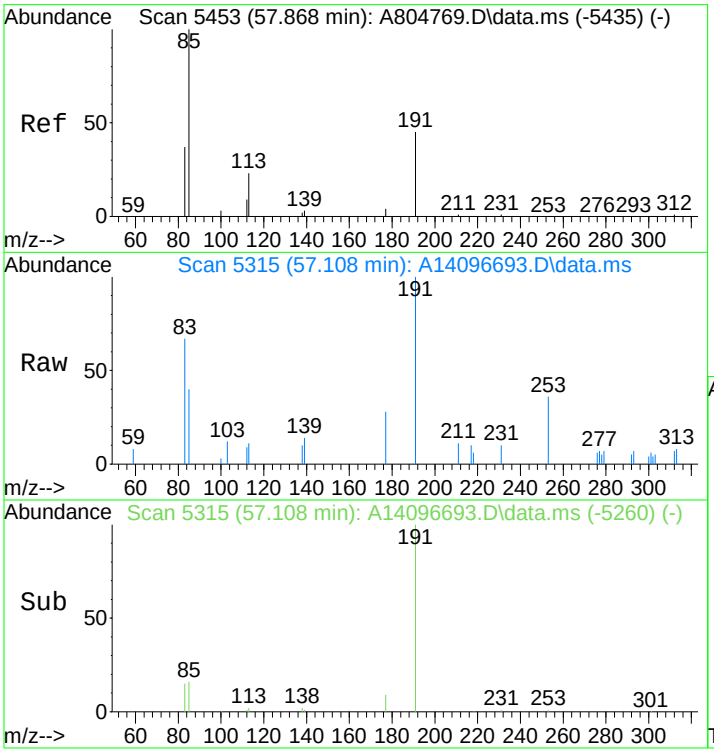




#120
30,31-Bishomohopane-22R (T27)
Concen: 291.15 ng/ml
RT: 55.417 min Scan# 5130
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

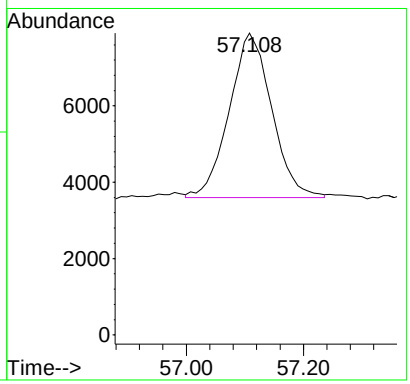
Tgt Ion:191 Resp: 20219

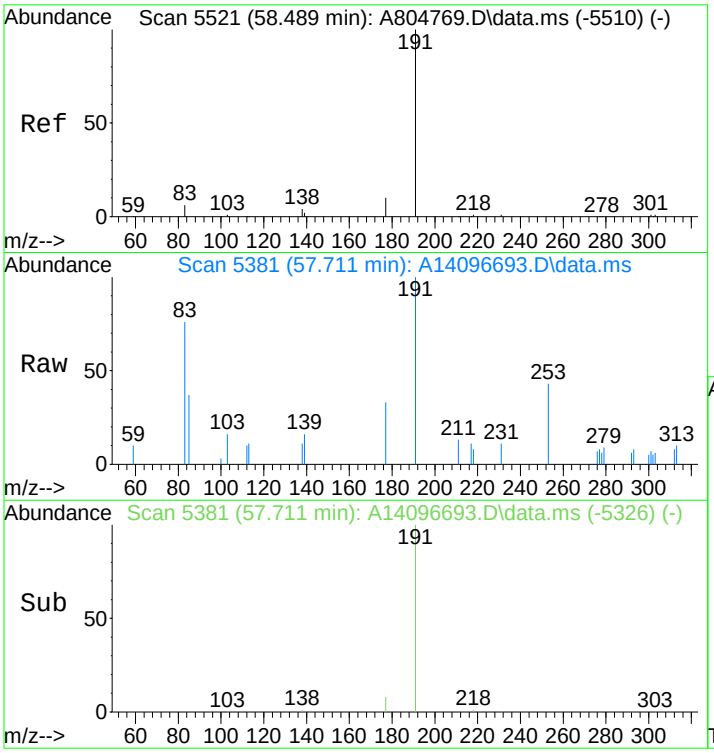




#121
30,31-Trishomohopane-22S (T30)
Concen: 312.18 ng/ml m
RT: 57.108 min Scan# 5315
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

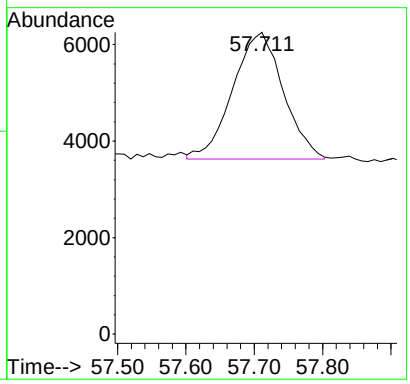
Tgt Ion:191 Resp: 21680

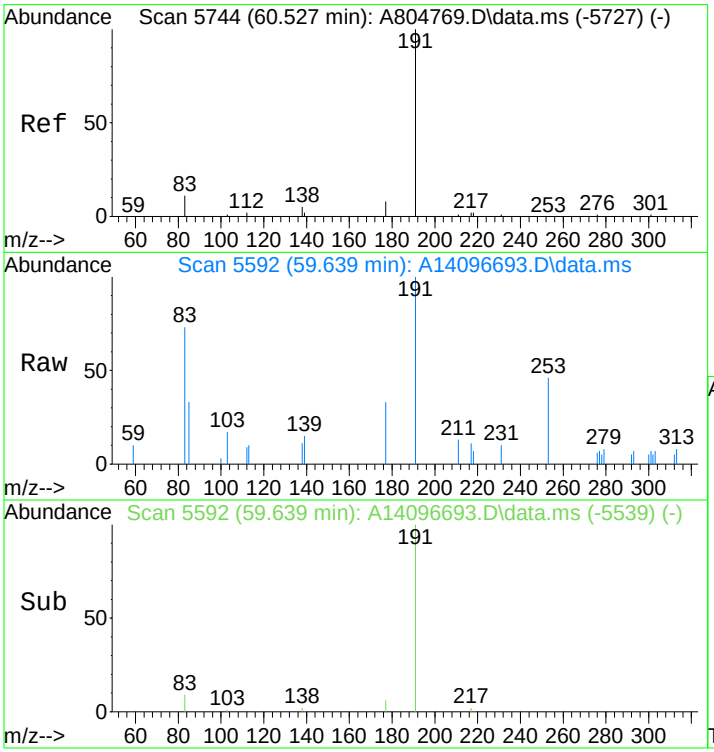




#122
30,31-Trishomohopane-22R (T31)
Concen: 194.09 ng/ml m
RT: 57.711 min Scan# 5381
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

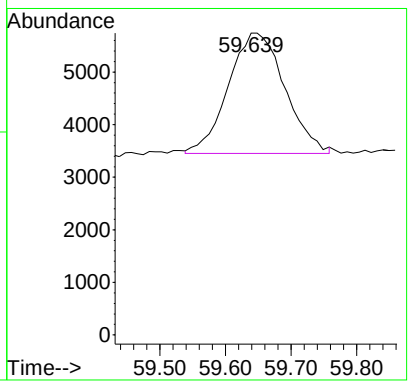
Tgt Ion:191 Resp: 13479

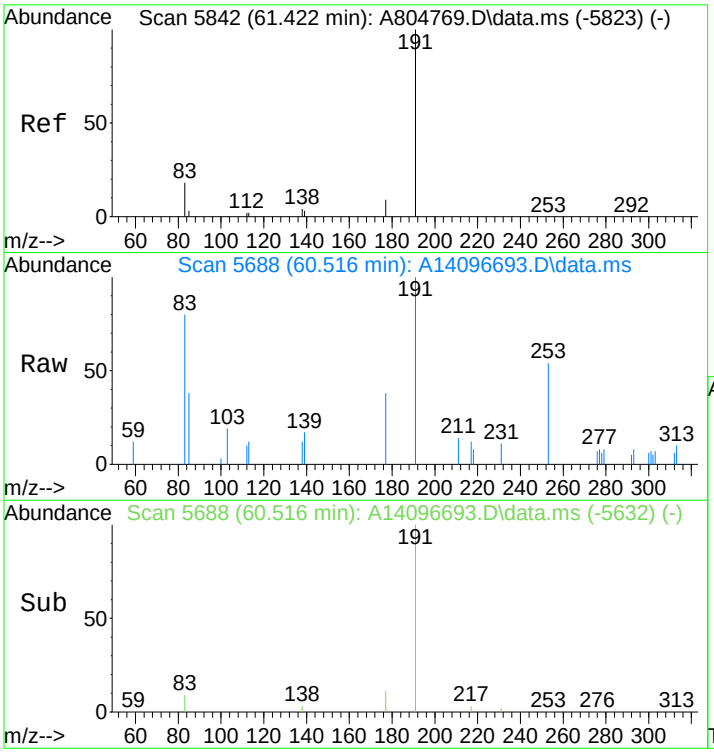




#123
Tetrakishomohopane-22S (T32)
Concen: 197.89 ng/ml m
RT: 59.639 min Scan# 5592
Delta R.T. -0.018 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

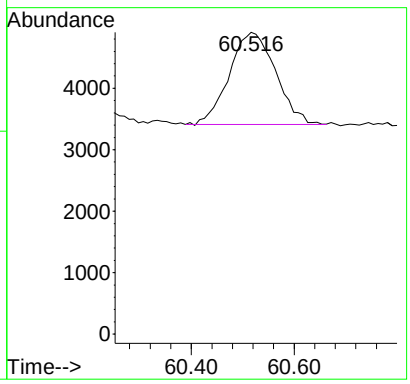
Tgt Ion:191 Resp: 13743

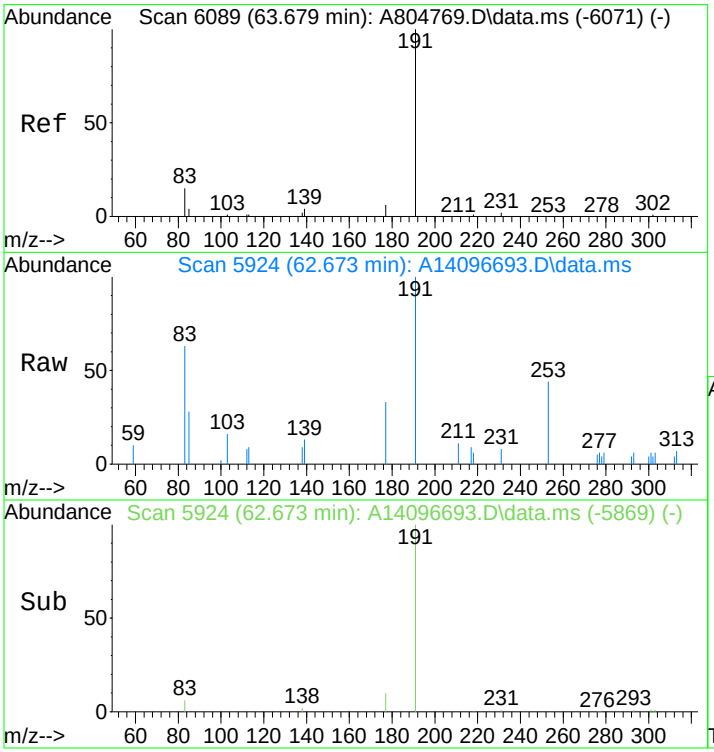




#124
Tetrakishomohopane-22R (T33)
Concen: 135.01 ng/ml
RT: 60.516 min Scan# 5688
Delta R.T. 0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

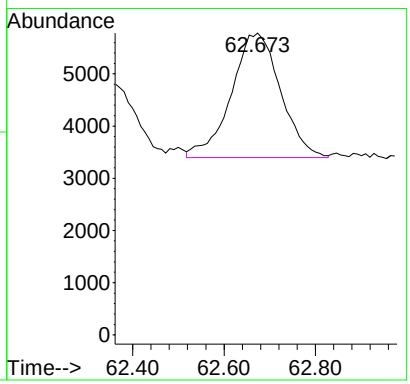
Tgt Ion:191 Resp: 9376

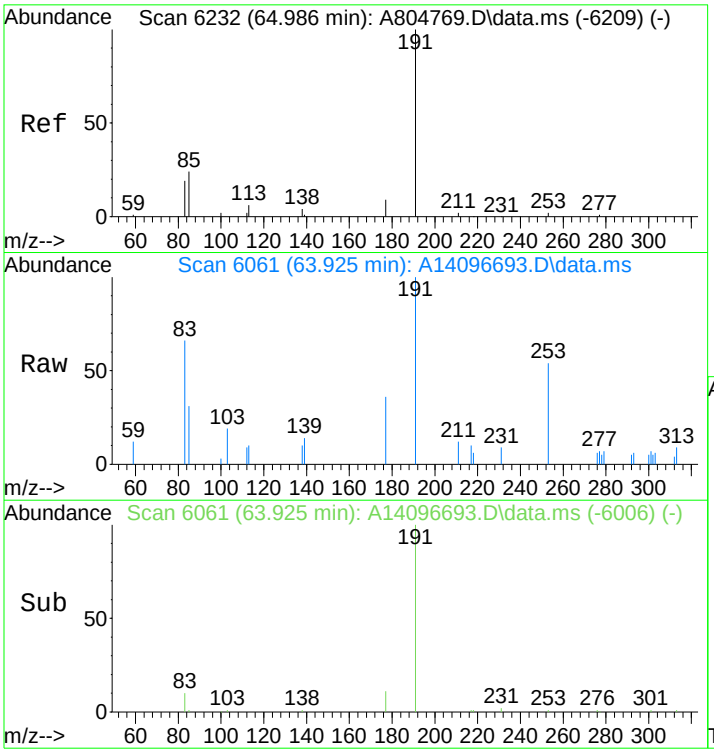




#125
Pentakishomohopane-22S (T34)
Concen: 256.70 ng/ml m
RT: 62.673 min Scan# 5924
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

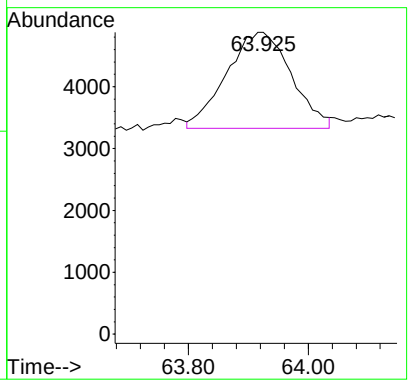
Tgt Ion:191 Resp: 17827

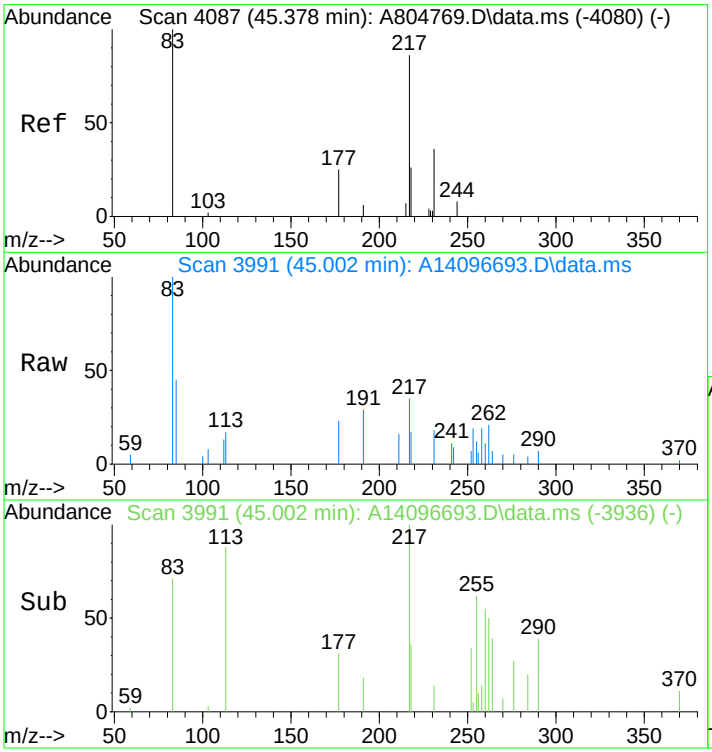




#126
Pentakishomohopane-22R (T35)
Concen: 168.38 ng/ml m
RT: 63.925 min Scan# 6061
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

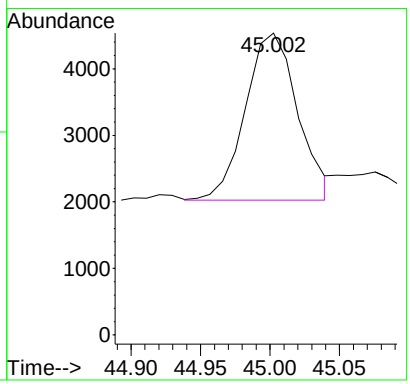
Tgt Ion:191 Resp: 11693

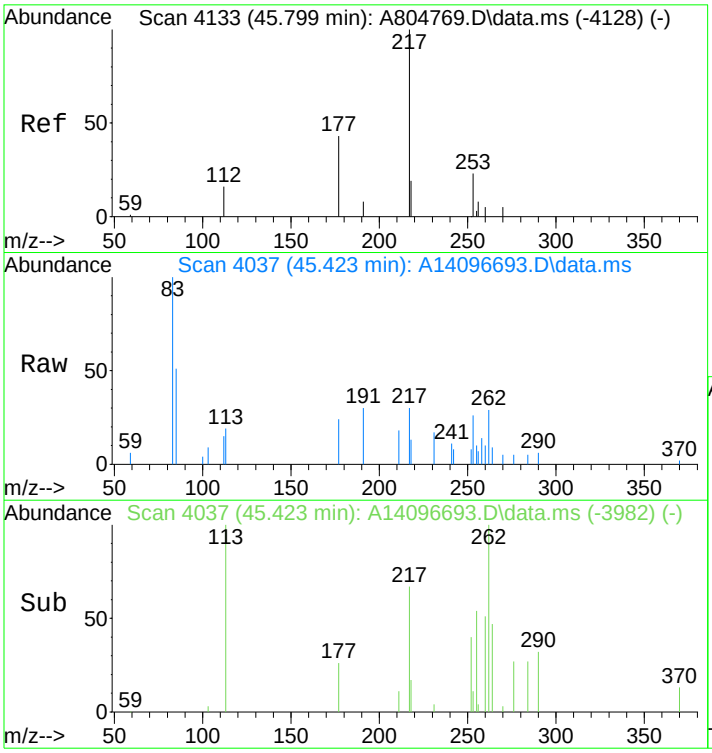




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 170.08 ng/ml m
RT: 45.002 min Scan# 3991
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

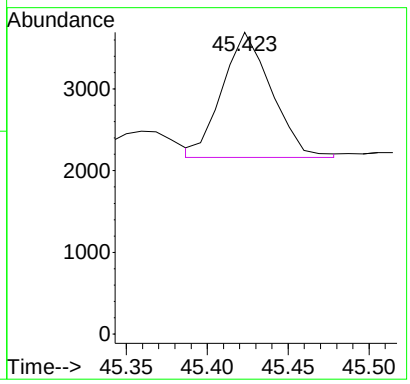
Tgt Ion:217 Resp: 6545

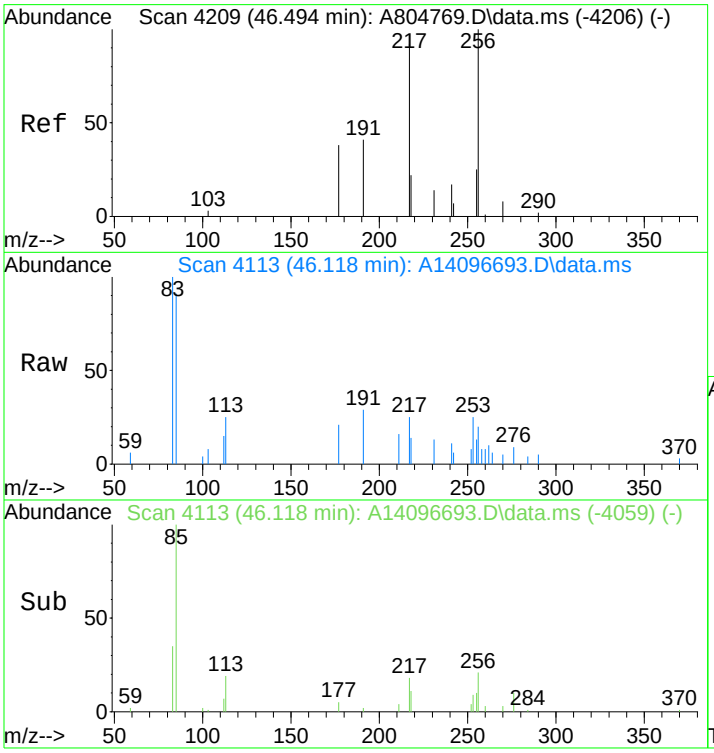




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 83.99 ng/ml m
RT: 45.423 min Scan# 4037
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

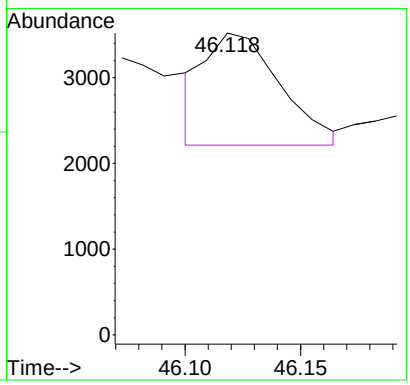
Tgt Ion:217 Resp: 3232

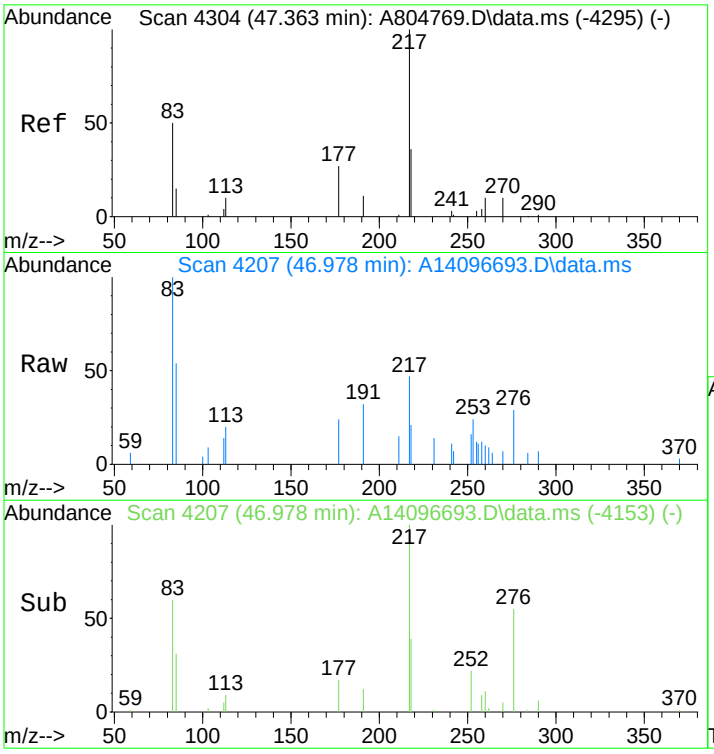




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 77.23 ng/ml m
RT: 46.118 min Scan# 4113
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

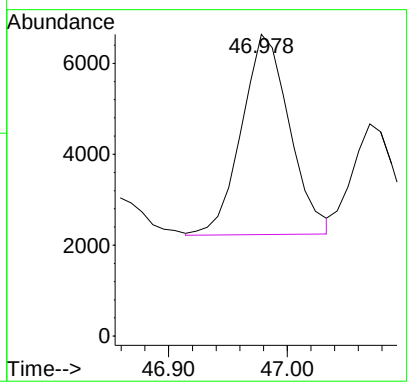
Tgt Ion:217 Resp: 2972

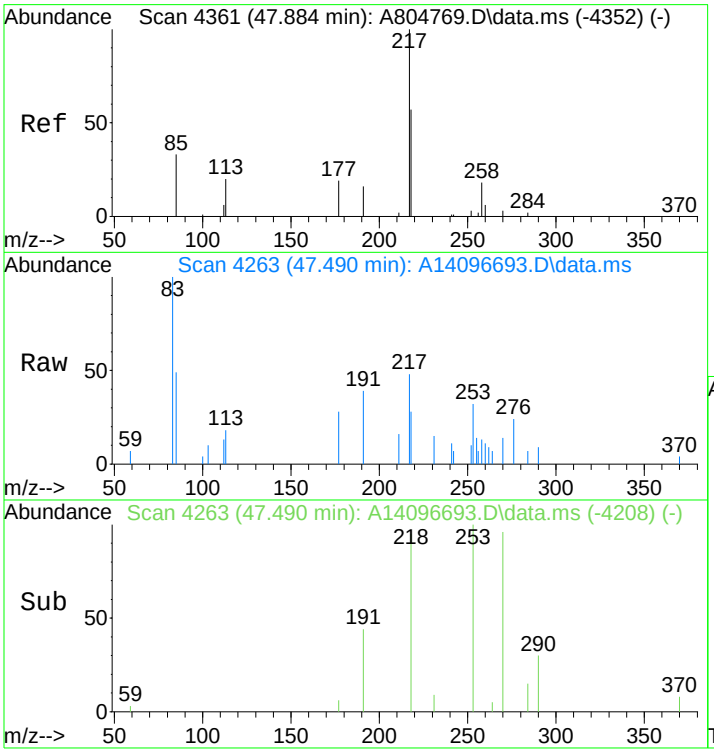




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 321.48 ng/ml
RT: 46.978 min Scan# 4207
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

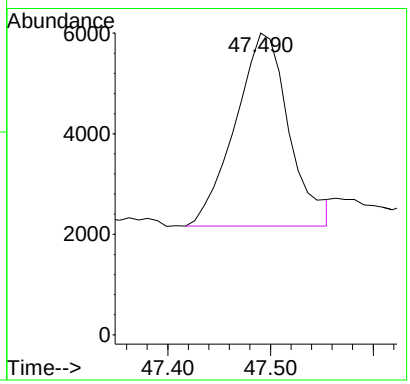
Tgt Ion:217 Resp: 12371

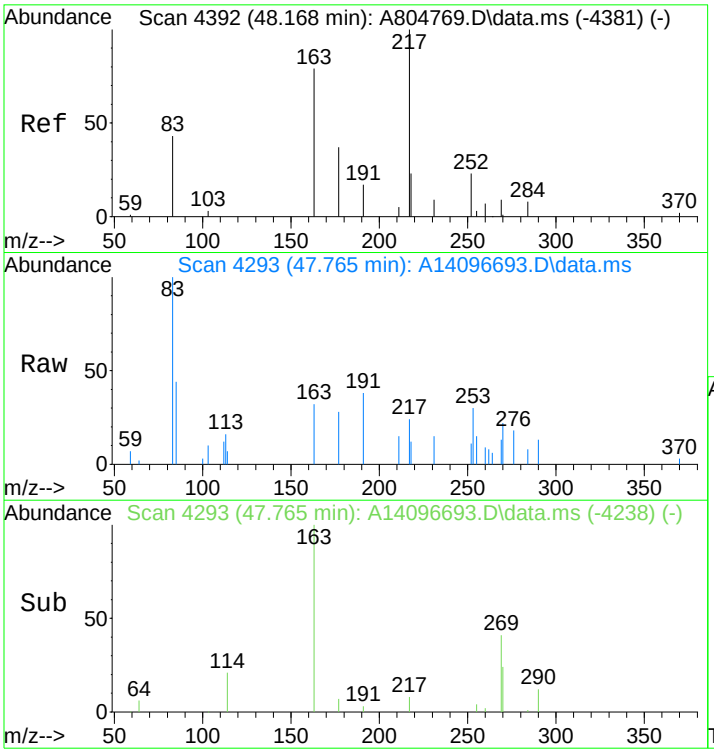




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 362.66 ng/ml
RT: 47.490 min Scan# 4263
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

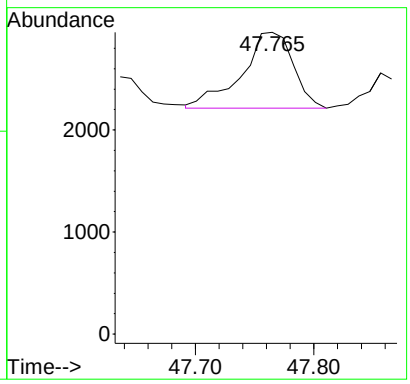
Tgt Ion:217 Resp: 13956

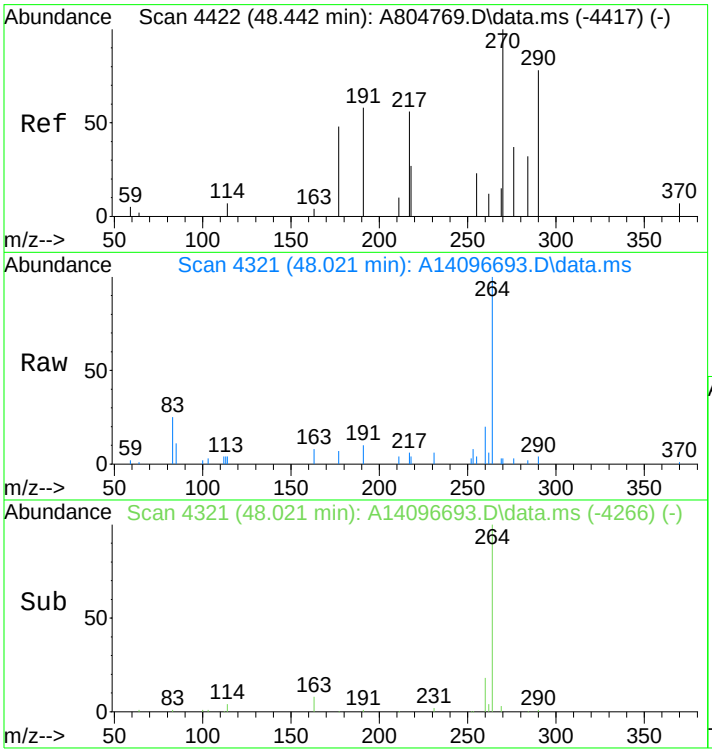




#133
Unknown Sterane (S18)
Concen: 58.44 ng/ml
RT: 47.765 min Scan# 4293
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

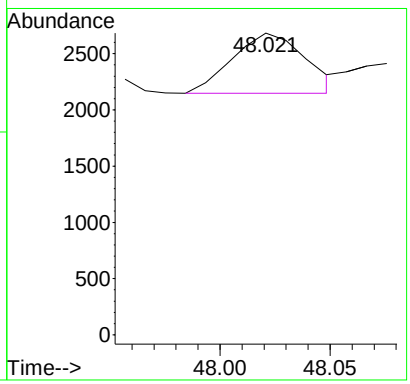
Tgt Ion:217 Resp: 2249

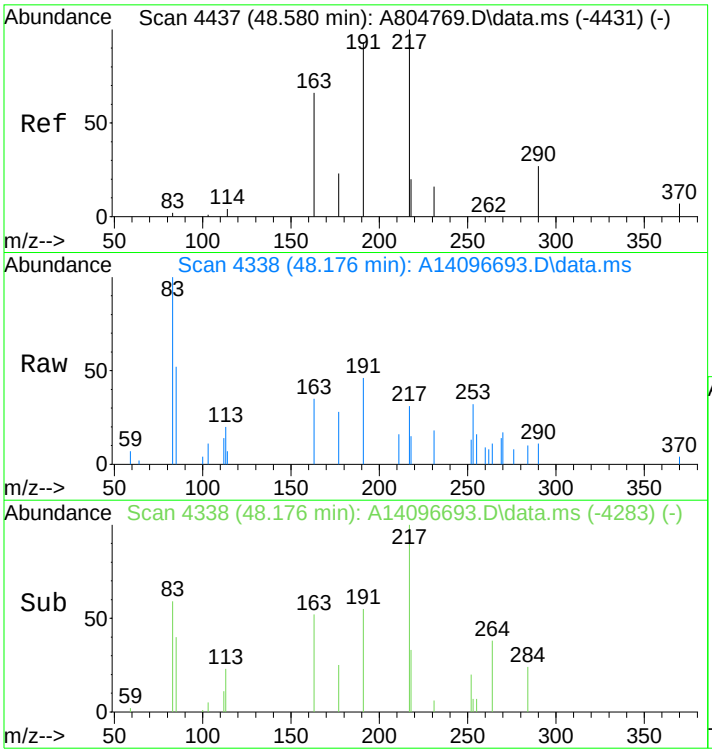




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 31.99 ng/ml
RT: 48.021 min Scan# 4321
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

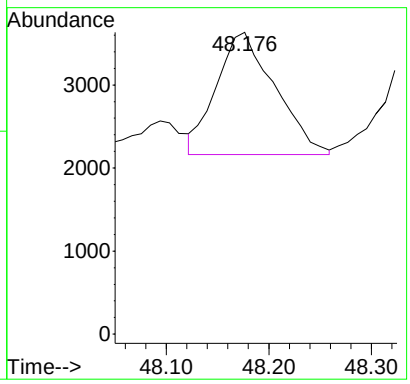
Tgt Ion:217 Resp: 1231

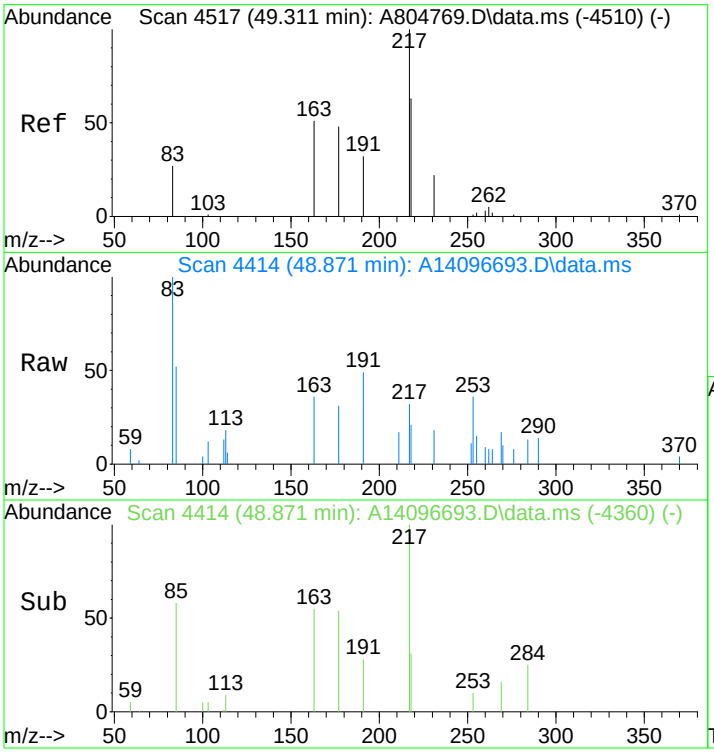




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 151.32 ng/ml m
RT: 48.176 min Scan# 4338
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

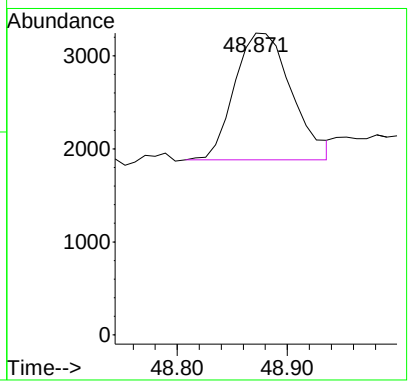
Tgt Ion:217 Resp: 5823

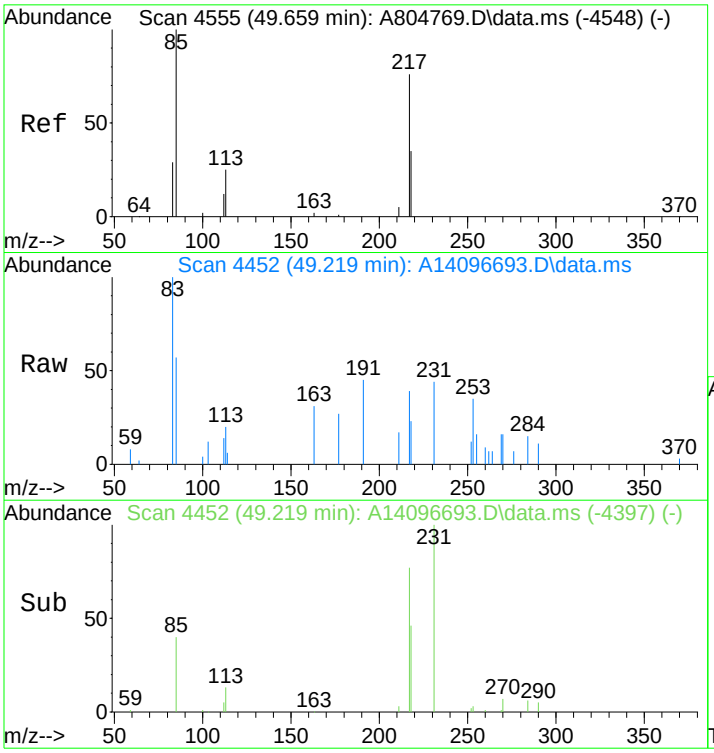




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 127.98 ng/ml
RT: 48.871 min Scan# 4414
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

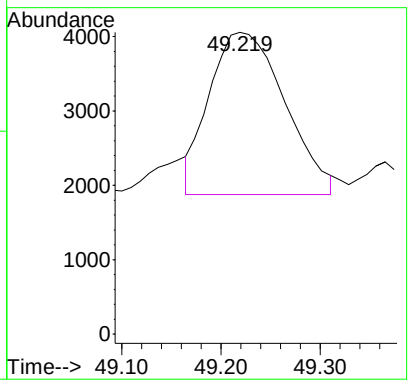
Tgt Ion:217 Resp: 4925

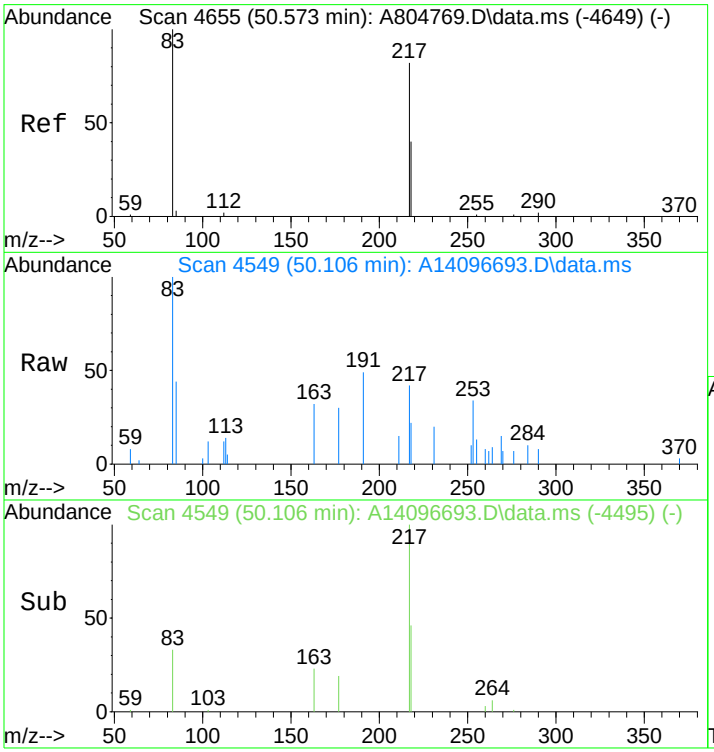




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 299.75 ng/ml m
RT: 49.219 min Scan# 4452
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

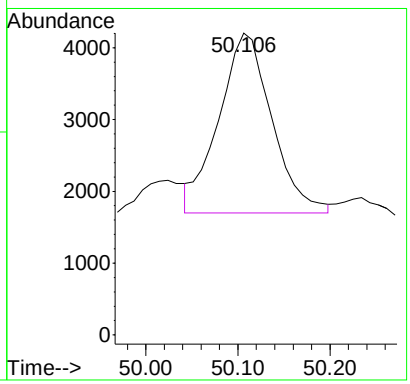
Tgt Ion:217 Resp: 11535

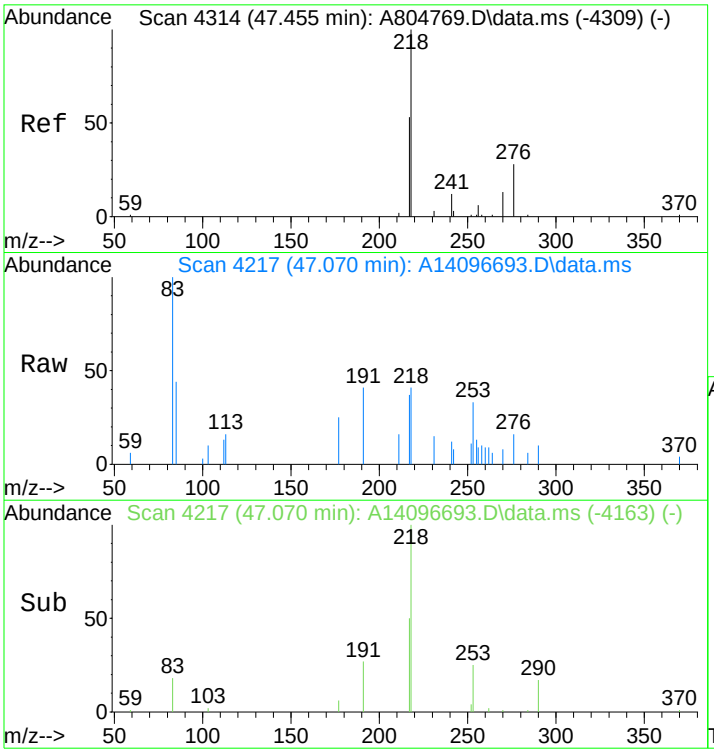




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 259.47 ng/ml m
RT: 50.106 min Scan# 4549
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

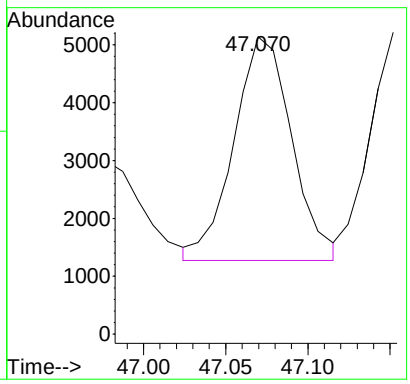
Tgt Ion:217 Resp: 9985

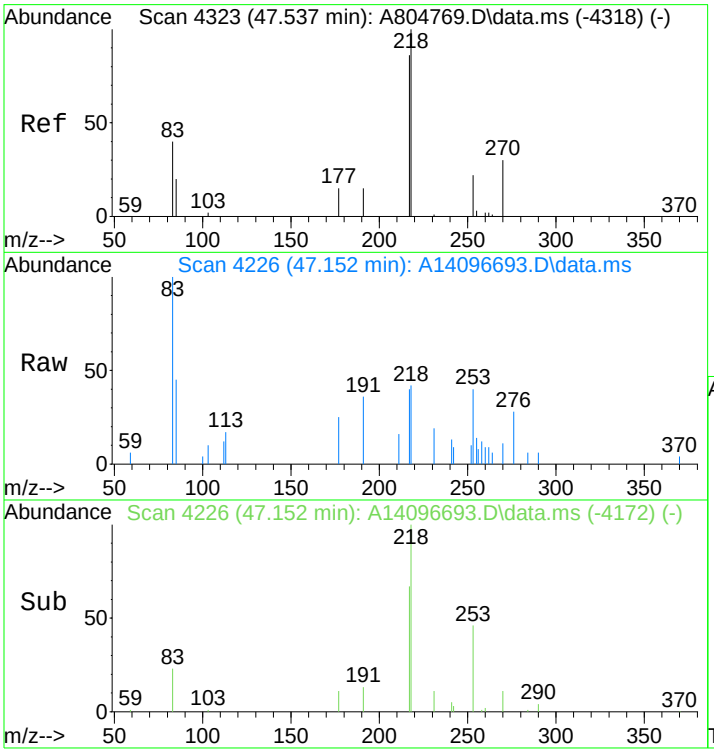




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 247.13 ng/ml m
RT: 47.070 min Scan# 4217
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

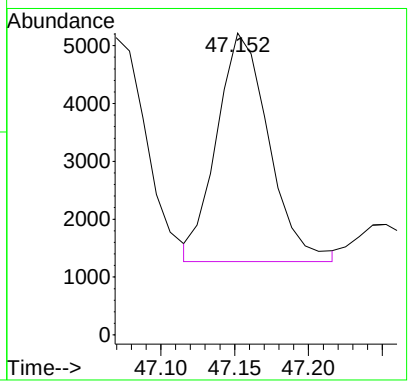
Tgt Ion:218 Resp: 9510

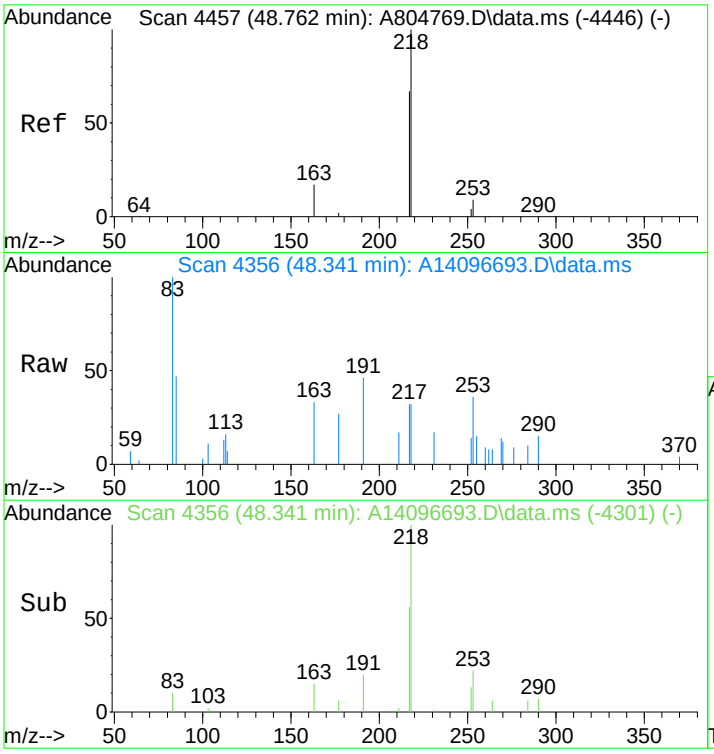




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 251.91 ng/ml m
RT: 47.152 min Scan# 4226
Delta R.T. -0.009 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

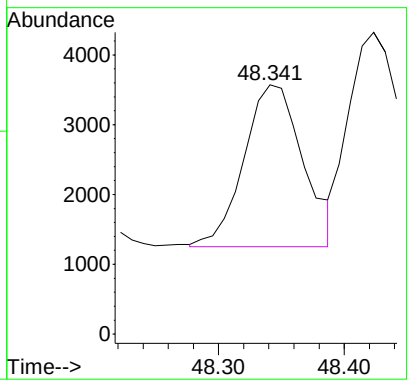
Tgt Ion:218 Resp: 9694

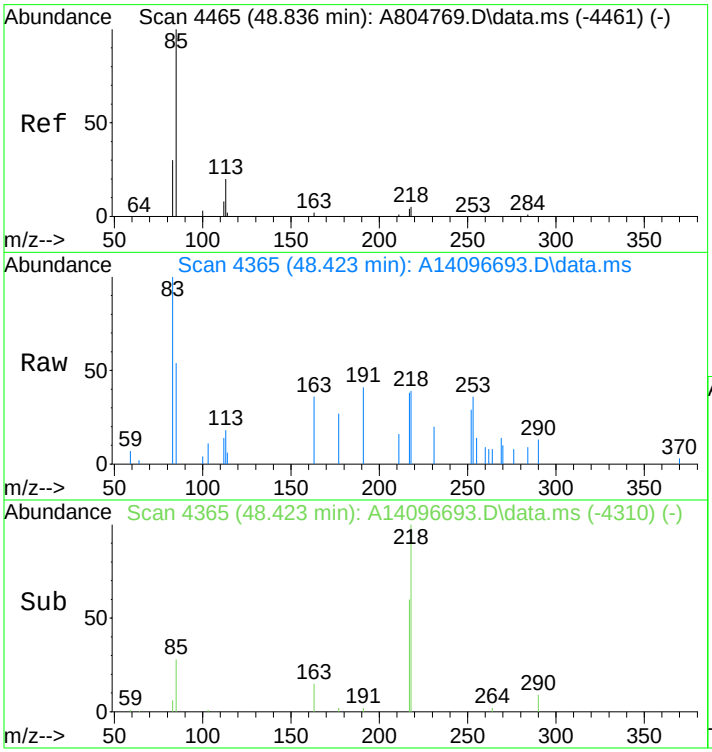




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 196.77 ng/ml m
RT: 48.341 min Scan# 4356
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

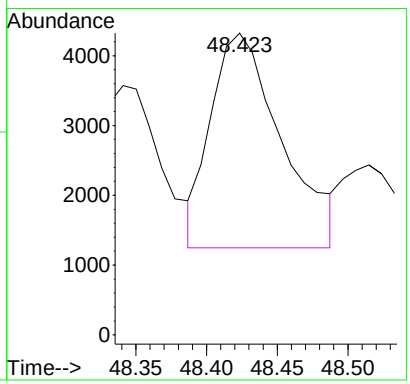
Tgt Ion:218 Resp: 7572

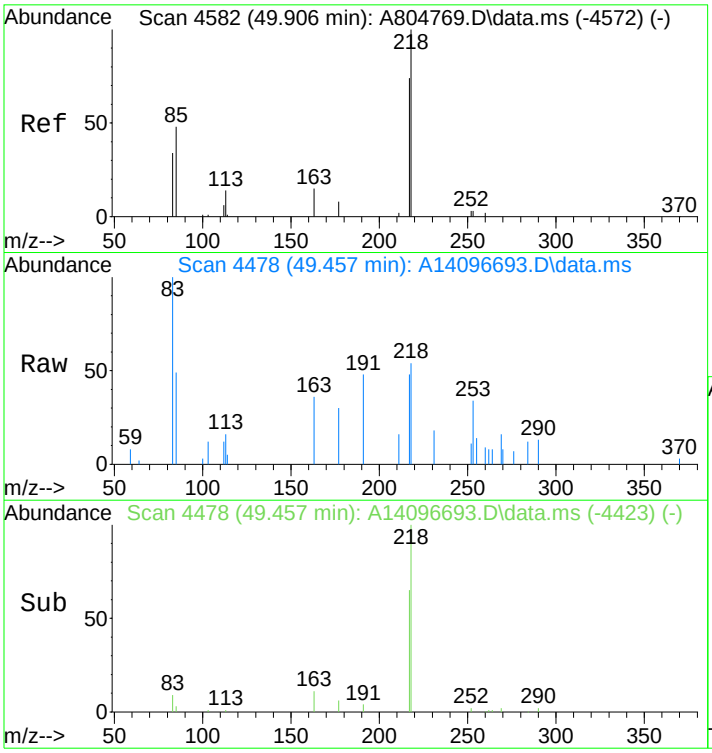




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 277.77 ng/ml m
RT: 48.423 min Scan# 4365
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

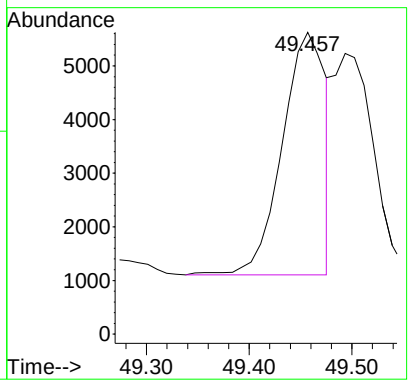
Tgt Ion:218 Resp: 10689

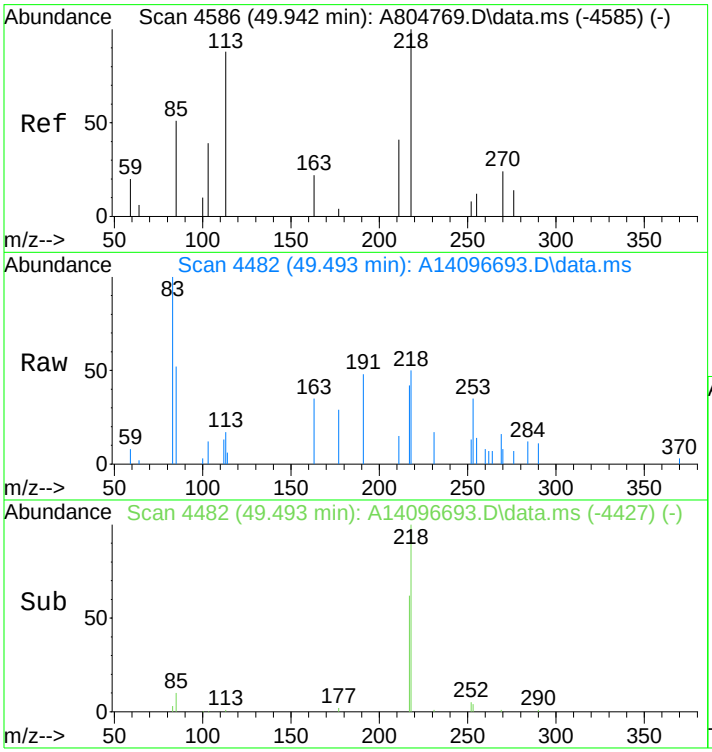




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 343.90 ng/ml
RT: 49.457 min Scan# 4478
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

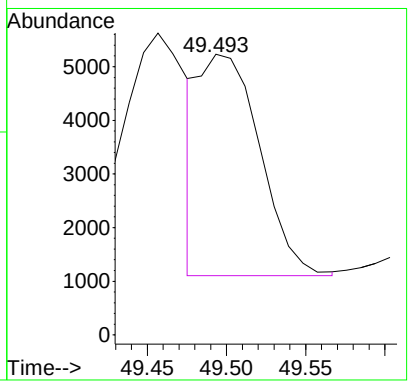
Tgt Ion:218 Resp: 13234

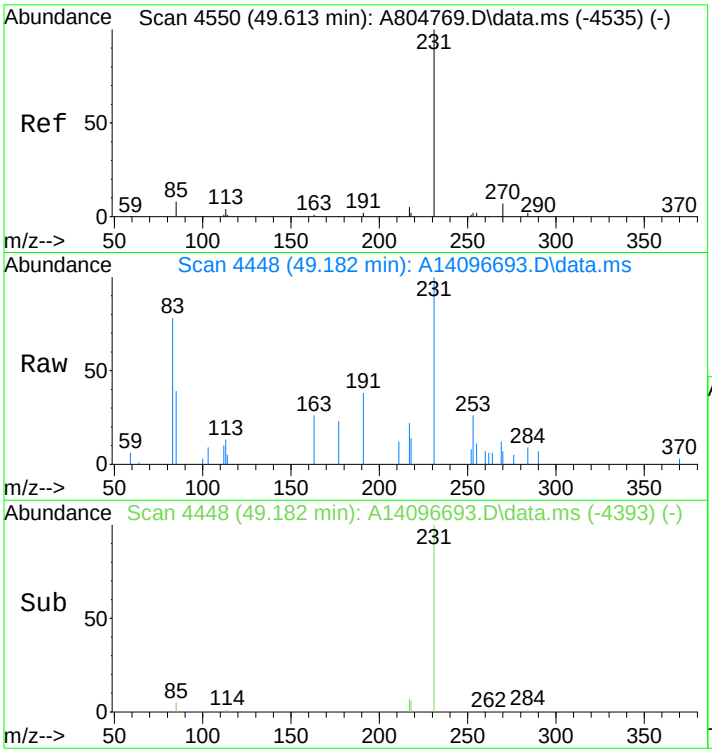




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 286.42 ng/ml m
RT: 49.493 min Scan# 4482
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

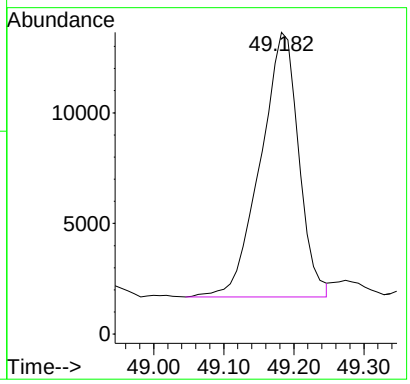
Tgt Ion:218 Resp: 11022

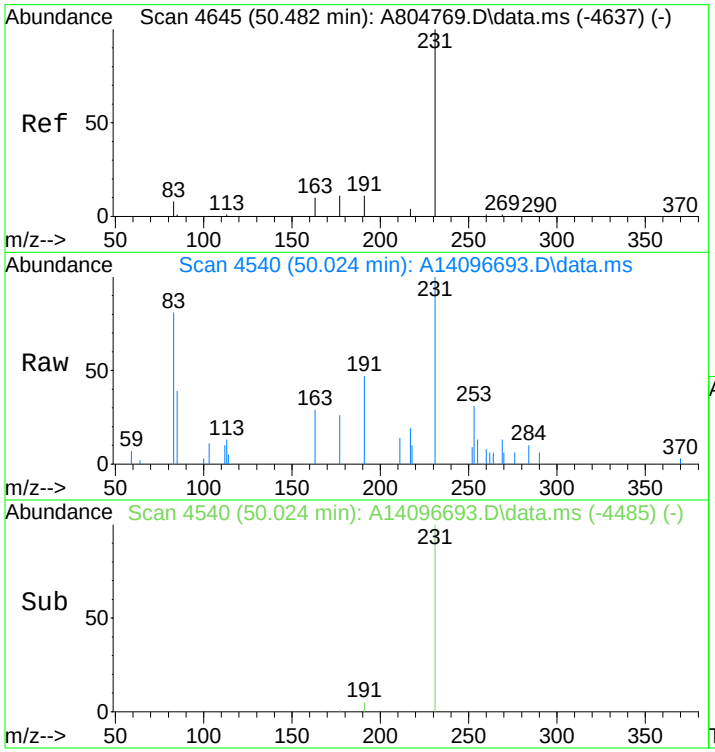




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1179.98 ng/mL
RT: 49.182 min Scan# 4448
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

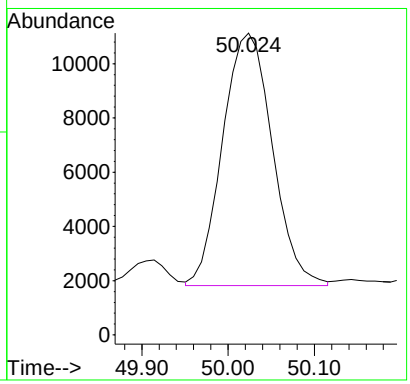
Tgt Ion:231 Resp: 45408

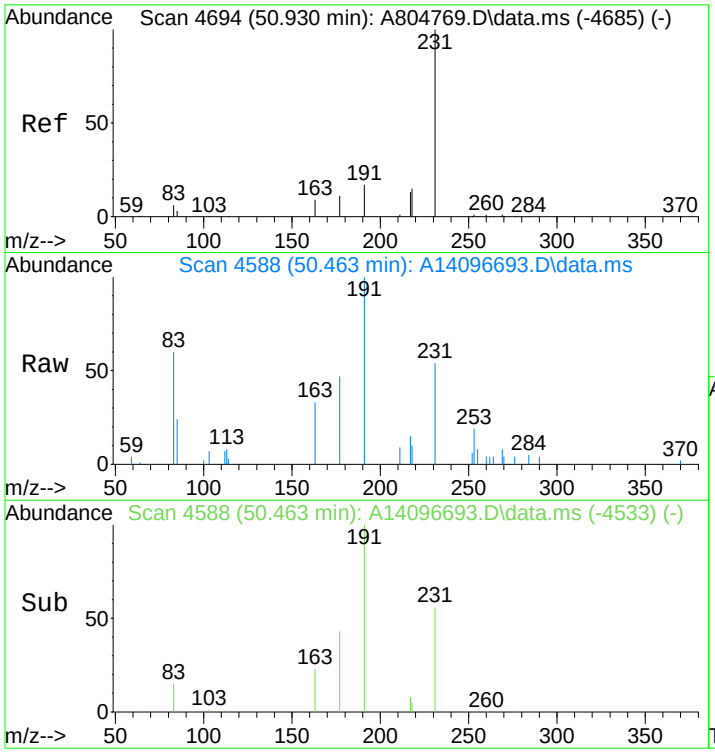




#146
C28,20S-triaromatic steroid
Concen: 967.94 ng/mL m
RT: 50.024 min Scan# 4540
Delta R.T. 0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

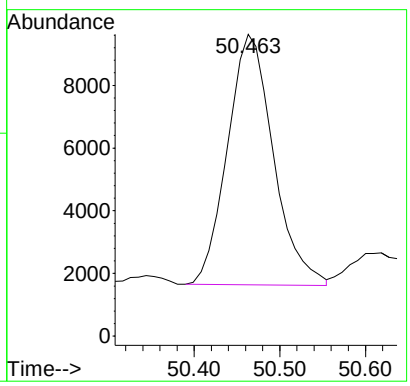
Tgt Ion:231 Resp: 37248

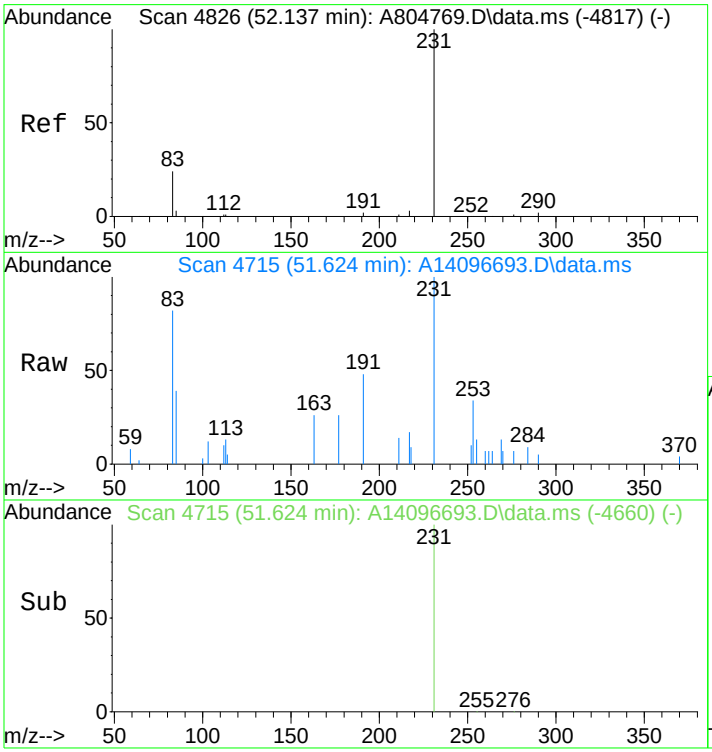




#147
C27,20R-triaromatic steroid
Concen: 774.96 ng/mL
RT: 50.463 min Scan# 4588
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

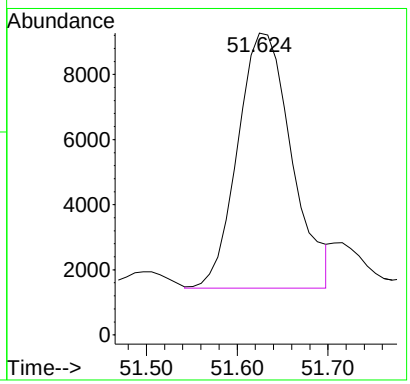
Tgt Ion:231 Resp: 29822





#148
C28,20R-triaromatic steroid
Concen: 841.56 ng/mL m
RT: 51.624 min Scan# 4715
Delta R.T. -0.000 min
Lab File: A14096693.D
Acq: 20 Jun 2012 9:13 pm

Tgt Ion:231 Resp: 32385



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.437	164	59390	500.000	ng/mL	-0.02
74) Chrysene-d12	42.930	240	104191	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.492	136	210047	996.673	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 99.67%			
42) Phenanthrene-d10	32.321	188	192440	968.940	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.89%			
86) Benzo[a]pyrene-d12	48.021	264	178022	874.319	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 87.43%			
127) 5B(H)Cholane - Surr	43.496	217	44940	1089.632	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 108.96%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	35331	738.718	ng/mL	100
4) cis-Decalin	17.329	138	1782M3	48.308	ng/mL	
5) C1-Decalins	17.603	152	80963M5	1692.815	ng/mL	
6) C2-Decalins	19.027	166	126212M5	2638.904	ng/mL	
7) C3-Decalins	21.846	180	84627M5	1769.424	ng/mL	
8) C4-Decalins	24.493	194	97477M5	2038.098	ng/mL	
10) Naphthalene	19.565	128	78742M3	341.613	ng/mL	
11) C1-Naphthalenes	22.257	142	243729M5	1057.389	ng/mL	
12) C2-Naphthalenes	25.086	156	497157M5	2156.857	ng/mL	
13) C3-Naphthalenes	27.760	170	605687M5	2627.702	ng/mL	
14) C4-Naphthalenes	30.187	184	485056M5	2104.358	ng/mL	
16) 2-Methylnaphthalene	22.257	142	144020	949.564	ng/mL#	100
17) 1-Methylnaphthalene	22.677	142	96085	645.366	ng/mL#	100
18) Benzothiophene	19.802	134	9250	52.035	ng/mL	100
19) C1-Benzo(b)thiophenes	21.810	148	54481M5	306.478	ng/mL	
20) C2-Benzo(b)thiophenes	25.278	162	90641M5	509.894	ng/mL	
21) C3-Benzo(b)thiophenes	27.258	176	149190M5	839.256	ng/mL	
22) C4-Benzo(b)thiophenes	29.356	190	156576M5	880.806	ng/mL	
23) Biphenyl	24.146	154	19273	103.809	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.748	156	121606	896.301	ng/mL#	100
25) Dibenzofuran	27.230	168	8442	43.010	ng/mL#	69
26) Acenaphthylene	25.825	152	3348M3	13.963	ng/mL	
27) Acenaphthene	26.564	153	8928	60.246	ng/mL	92
28) 2,3,5-Trimethylnaphthalen	28.116	170	38460M3	312.547	ng/mL	
29) Fluorene	28.590	166	25103M3	152.110	ng/mL	
30) C1-Fluorenes	30.953	180	65949M5	399.614	ng/mL	
31) C2-Fluorenes	33.152	194	148532M5	900.020	ng/mL	
32) C3-Fluorenes	34.977	208	179197M5	1085.833	ng/mL	
33) Dibenzothiophene	31.911	184	72012	335.979	ng/mL#	60
34) 4-Methyldibenzothiophene(	33.681	198	95892	447.394	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.046	198	83823M3	391.085	ng/mL	
36) 1-Methyldibenzothiophene(	34.448	198	50604	236.098	ng/mL#	100
37) OTP	34.065	198	17114M3	79.847	ng/mL	
38) C1-Dibenzothiophenes	33.681	198	264967M5	1236.231	ng/mL	
38) C1-Dibenzothiophenes BS	33.681	198	247853m	1156.384	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	443300M5	2068.262	ng/mL	
40) C3-Dibenzothiophenes	37.168	226	465979M5	2174.073	ng/mL	
41) C4-Dibenzothiophenes	38.858	240	327363M5	1527.346	ng/mL	
43) Phenanthrene	32.413	178	89403	392.805	ng/mL#	79
44) 3-Methylphenanthrene(3MP)	34.375	192	49794	218.777	ng/mL	89
45) 2-Methylphenanthrene(2MP)	34.485	192	59543M3	261.611	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
46) 2-Methylanthracene(2MA)	34.649	192	5158M3	22.662	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.822	192	87518	384.523	ng/mL	98
48) 1-Methylphenanthrene(1MP)	34.914	192	54235M4	238.289	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.822	192	261605M5	1149.400	ng/mL	
50) C2-Phenanthrenes/Anthrace	36.630	206	386612M5	1698.637	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.630	206	386612m	1698.637	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	350900M5	1541.731	ng/mL	
53) C4-Phenanthrenes/Anthrace	40.647	234	163328M5	717.606	ng/mL	
56) Carbazole	33.380	167	4742M4	22.456	ng/mL	
57) 1-Methylphenanthrene	34.914	192	53979M4	316.156	ng/mL	
58) Fluoranthene	37.205	202	6198M3	26.692	ng/mL	
60) Pyrene	38.081	202	19562M3	81.057	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.478	216	81923M5	339.454	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.277	230	116461M5	482.564	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	146164M5	605.641	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	136310M5	564.810	ng/mL	
66) Naphthobenzothiophene	41.944	234	30020M3	143.468	ng/ml	
67) Naphthobenzothiophene-2,1	41.944	234	30128M3	143.984	ng/mL	
68) Naphthobenzothiophene-1,2	42.281	234	7389	35.313	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.592	234	5416M3	25.883	ng/mL	
70) C1-Naphthobenzothiophenes	44.025	248	150142M5	717.541	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	227763M5	1088.498	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	199269M5	952.323	ng/ml	
73) C4-Naphthobenzothiophenes	47.975	290	153470M5	733.445	ng/mL	
75) Benz[a]anthracene	42.875	228	4363M3	19.143	ng/mL	
77) Chrysene/Triphenylene	43.003	228	24082M3	107.017	ng/mL	
78) C1-Chrysenes	44.500	242	64600M5	287.072	ng/mL	
79) C2-Chrysenes	46.594	256	103541M5	460.120	ng/mL	
79) C2-Chrysenes BS	46.594	256	103541m	460.120	ng/mL	
80) C3-Chrysenes	47.911	270	126828M5	563.604	ng/mL	
81) C4-Chrysenes	49.329	284	79031M5	351.201	ng/mL	
82) Benzo[b]fluoranthene	46.942	252	6963	30.890	ng/mL#	48
83) Benzo[j]+[k]fluoranthene	47.024	252	2328M3	9.350	ng/mL	
85) Benzo[e]pyrene	47.920	252	11009	49.258	ng/mL	93
87) Benzo[a]pyrene	48.121	252	5737M3	27.450	ng/mL	
88) Perylene	48.432	252	10797	47.651	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.895	276	2845M3	10.883	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.895	278	1565M3	6.371	ng/mL	
91) Benzo[g,h,i]perylene	54.175	276	7685	30.649	ng/mL	91
92) Hopane (T19)	51.816	191	117395	1577.266	ng/mL#	81
94) C23 Tricyclic Terpane (T4	40.519	191	47370M3	636.442	ng/ml	
95) C24 Tricyclic Terpane (T5	41.241	191	25382	341.021	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.729	191	22700M3	304.987	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	8336M3	111.999	ng/ml	
98) C26 Tricyclic Terpane-22S	43.788	191	8590M3	115.411	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	8633M3	115.989	ng/ml	
100) C28 Tricyclic Terpane-22S	46.173	191	9599M3	128.968	ng/ml	
101) C28 Tricyclic Terpane-22R	46.338	191	10631M3	142.833	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	12793	171.881	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	11627M3	156.215	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	12943	173.896	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.231	191	9816M3	131.883	ng/mL	
106) C30 Tricyclic Terpane-22R	48.469	191	9560M3	128.444	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.670	191	31161	418.665	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	21537	289.361	ng/ml	100
109) 17a(H),21b(H)-25-Norhopan	49.640	191	5183	69.636	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
110) 30-Norhopane (T15)	50.481	191	82805M3	1112.531	ng/ml	
111) 18a(H)-30-Norneohopane-C2	50.591	191	11386M3	152.977	ng/ml	
112) 17a(H)-Diahopane (X)	50.710	191	3781M3	50.800	ng/ml	
113) 30-Normoretane (T17)	51.249	191	7852	105.496	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.634	191	1096M3	14.725	ng/ml	
115) Moretane (T20)	52.484	191	8774M3	117.884	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	51398	690.560	ng/ml	100
117) 30-Homohopane-22R (T22)	53.773	191	42242	567.545	ng/ml	100
118) Gammacerane/C32-diahopane	54.303	191	18152M3	243.882	ng/mL	
119) 30,31-Bishomohopane-22S (	55.052	191	31986	429.750	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.417	191	23086M3	310.173	ng/ml	
121) 30,31-Trishomohopane-22S	57.108	191	24801M3	333.215	ng/ml	
122) 30,31-Trishomohopane-22R	57.702	191	15862	213.115	ng/ml	100
123) Tetrakishomohopane-22S (T	59.639	191	16825	226.053	ng/ml	100
124) Tetrakishomohopane-22R (T	60.516	191	11500	154.509	ng/ml	100
125) Pentakishomohopane-22S (T	62.664	191	20129M3	270.444	ng/ml	
126) Pentakishomohopane-22R (T	63.916	191	13302	178.720	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.002	217	7138	173.071	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.423	217	3485	84.499	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.127	217	3565	86.438	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.978	217	14232	345.074	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.500	217	16118M3	390.803	ng/ml	
133) Unknown Sterane (S18)	47.765	217	3035	73.588	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.021	217	1769	42.892	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.176	217	6063	147.006	ng/ml	100
136) 14a,17a-20R-Methylcholest	48.881	217	6139M3	148.848	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	14151M3	343.110	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.115	217	11637M3	282.155	ng/ml	
139) 14b(H),17b(H)-20R-Cholest	47.070	218	11260M3	273.014	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.161	218	11335M3	274.833	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	9225M3	223.673	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	11878M3	287.998	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	17793	431.416	ng/ml	100
144) 14b(H),17b(H)-20S-Ethylch	49.503	218	10679M3	258.927	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	50899	1234.116	ng/mL	100
146) C28,20S-triaromatic stero	50.024	231	41252M3	1000.211	ng/mL	
147) C27,20R-triaromatic stero	50.463	231	33419	810.290	ng/mL	100
148) C28,20R-triaromatic stero	51.634	231	35745	866.687	ng/mL	100

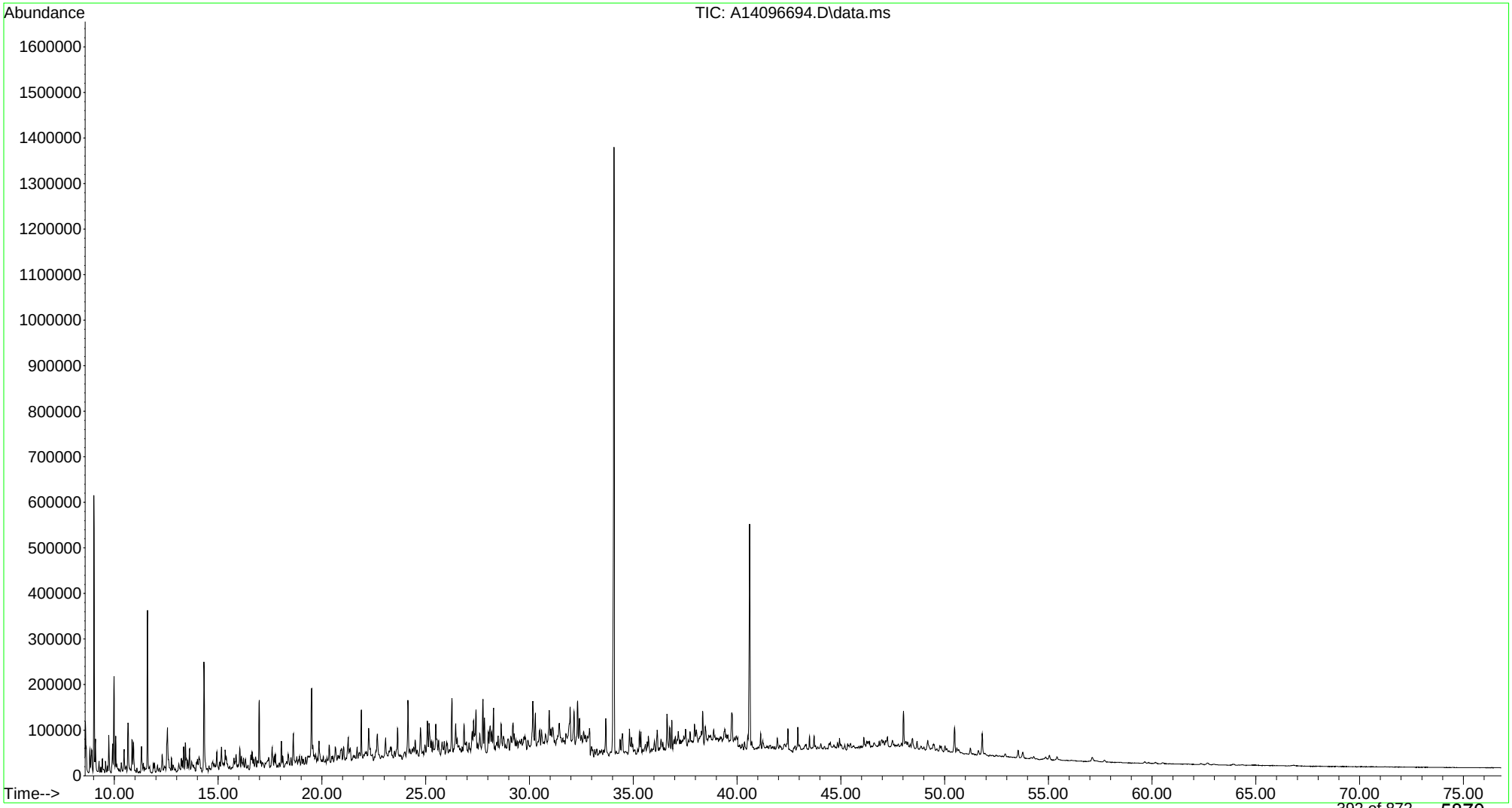
(#) = qualifier out of range (m) = manual integration (+) = signals summed

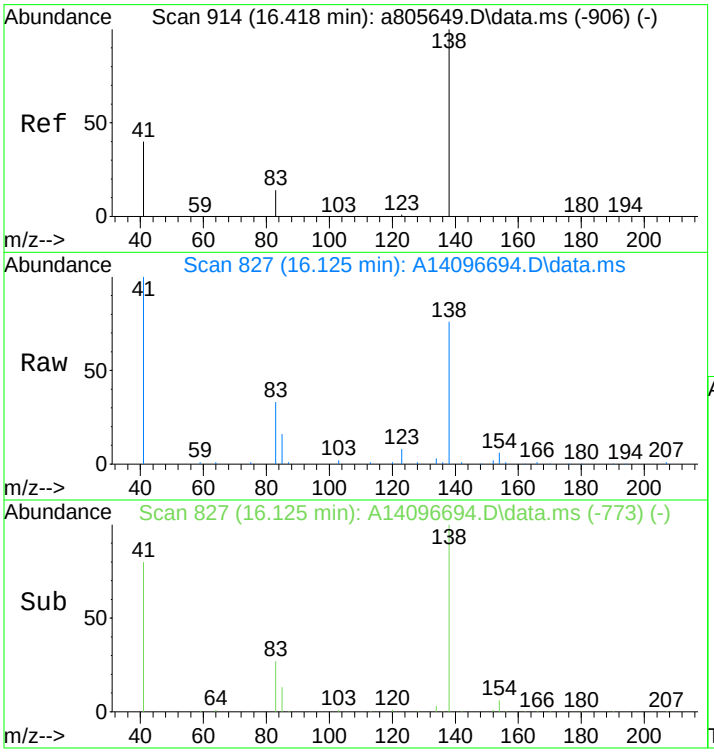
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096694.D
Acq On : 20 Jun 2012 10:40 pm
Operator : AC
Sample : SO062212CL01
Misc : WHAP12
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 22 13:15:02 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

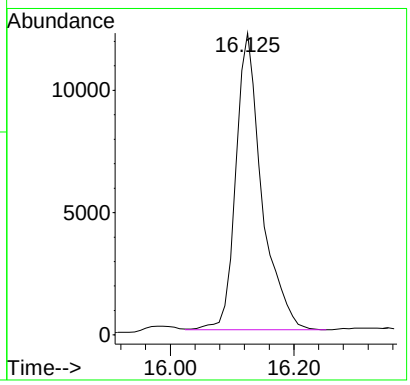
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

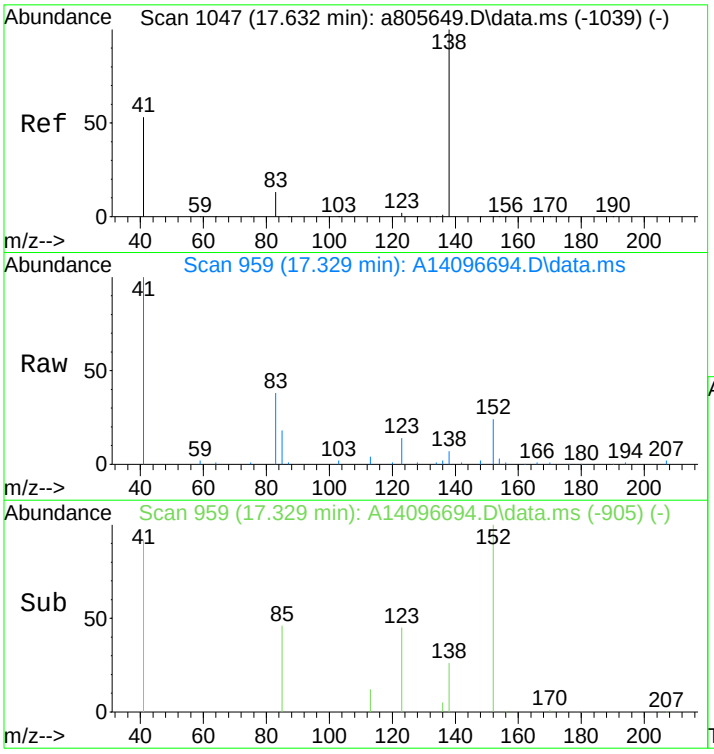




#3
trans-Decalin
Concen: 738.72 ng/mL
RT: 16.125 min Scan# 827
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

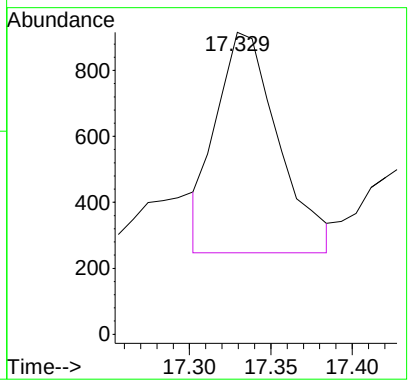
Tgt Ion:138 Resp: 35331

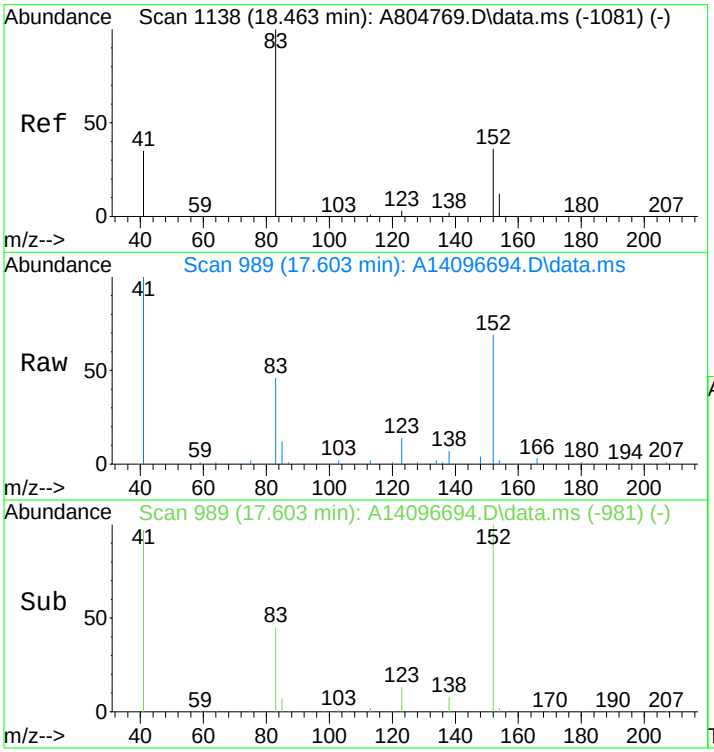




#4
cis-Decalin
Concen: 48.31 ng/mL m
RT: 17.329 min Scan# 959
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

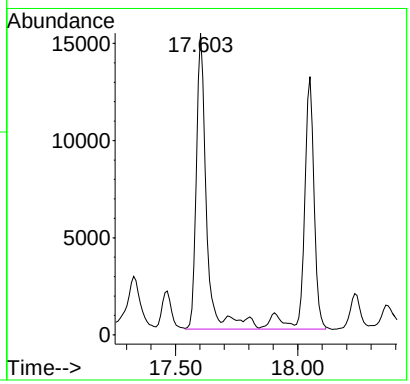
Tgt Ion:138 Resp: 1782

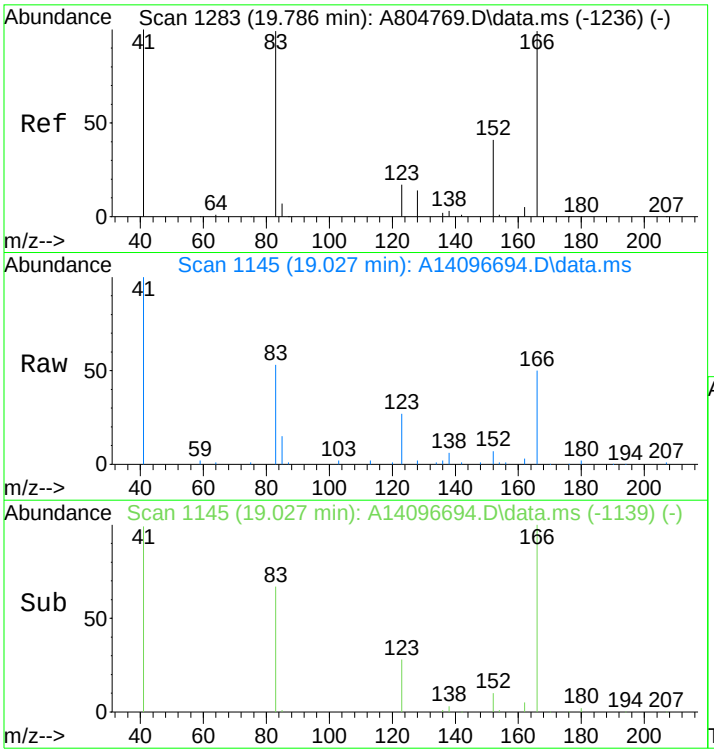




#5
C1-Decalins
Concen: 1692.82 ng/mL m
RT: 17.603 min Scan# 989
Delta R.T. -0.511 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

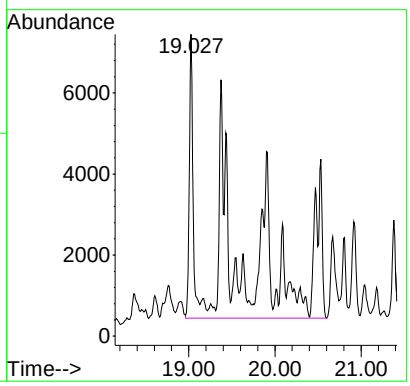
Tgt Ion:152 Resp: 80963

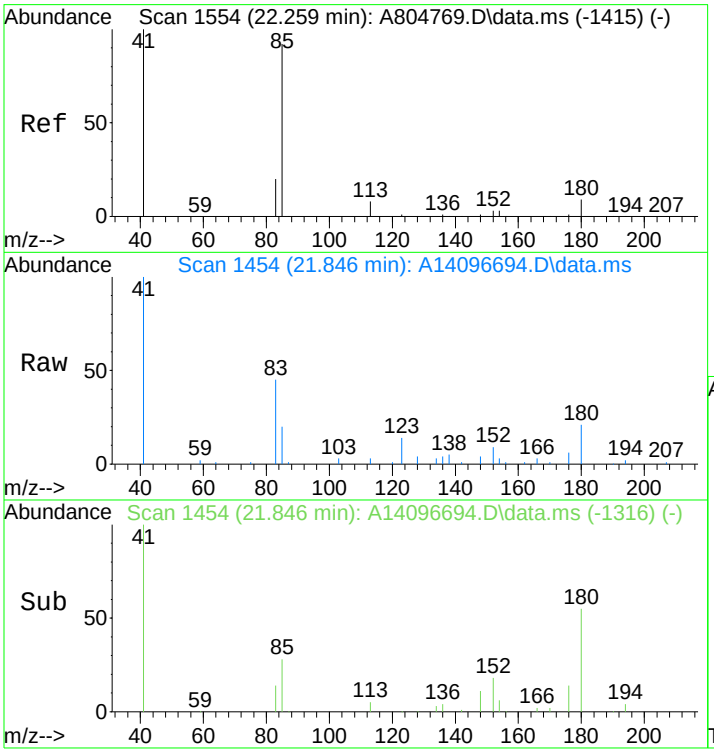




#6
C2-Decalins
Concen: 2638.90 ng/mL m
RT: 19.027 min Scan# 1145
Delta R.T. -0.411 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

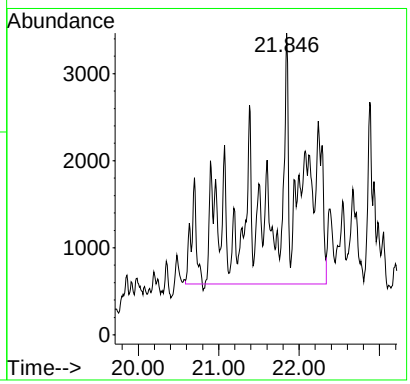
Tgt Ion:166 Resp: 126212

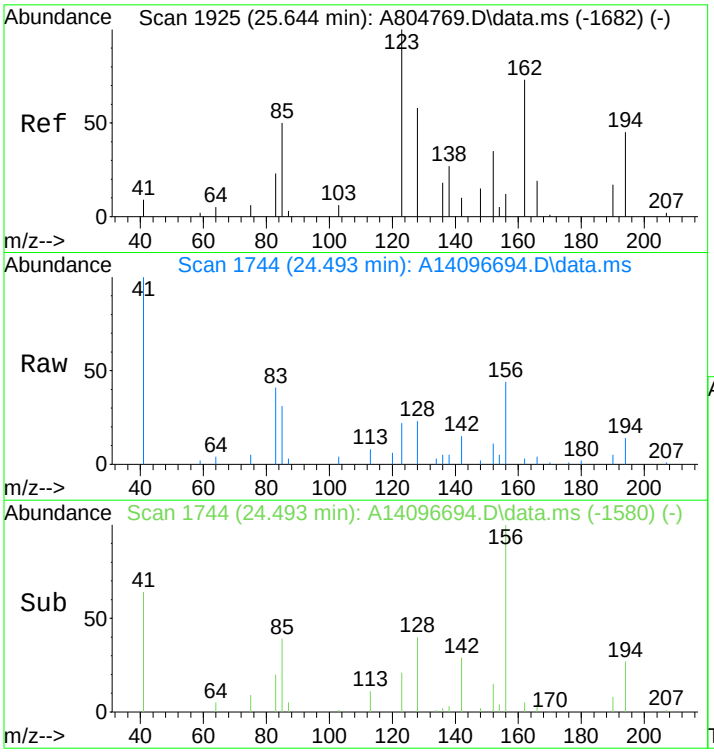




#7
C3-Decalins
Concen: 1769.42 ng/mL m
RT: 21.846 min Scan# 1454
Delta R.T. -0.053 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

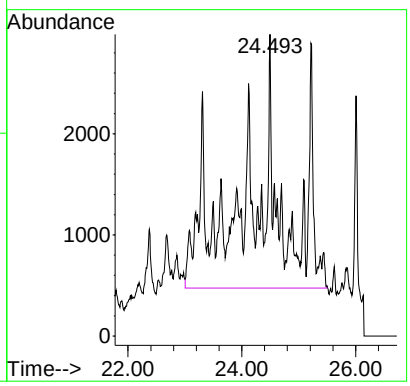
Tgt Ion:180 Resp: 84627

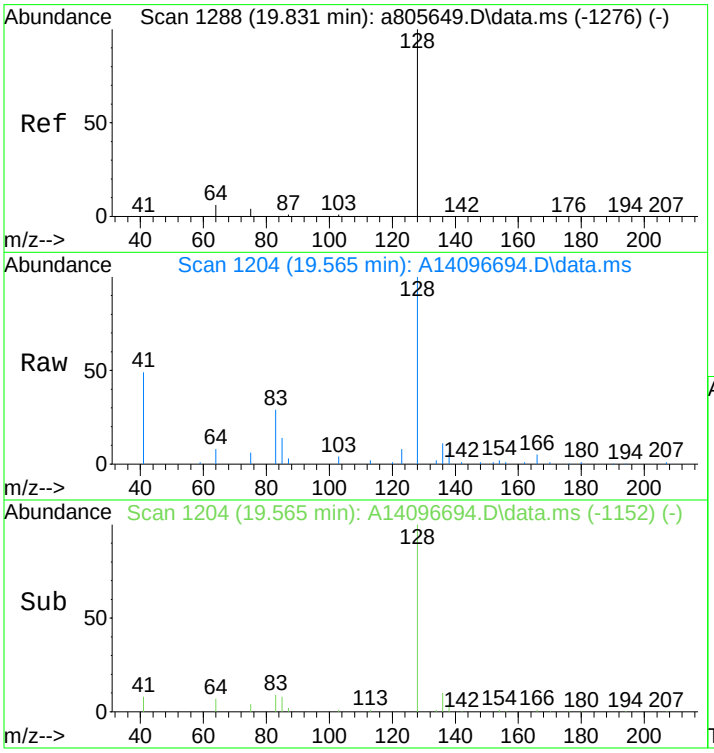




#8
C4-Decalins
Concen: 2038.10 ng/mL m
RT: 24.493 min Scan# 1744
Delta R.T. -0.770 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:194 Resp: 97477

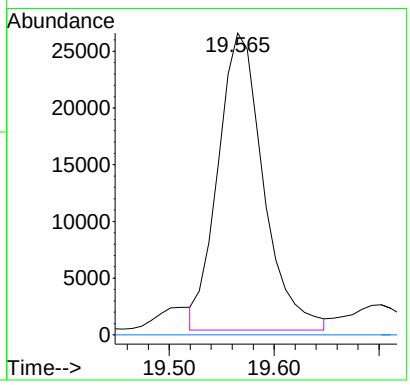


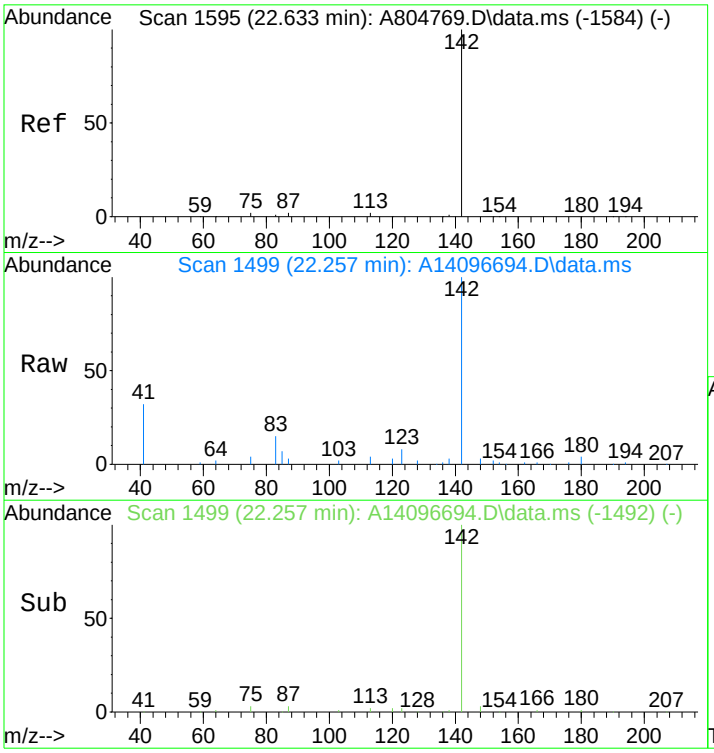


#10
Naphthalene
Concen: 341.61 ng/mL m
RT: 19.565 min Scan# 1204
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:128 Resp: 78742

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

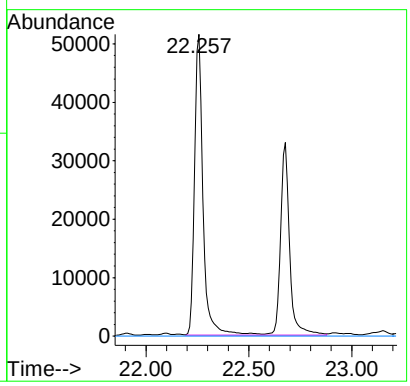


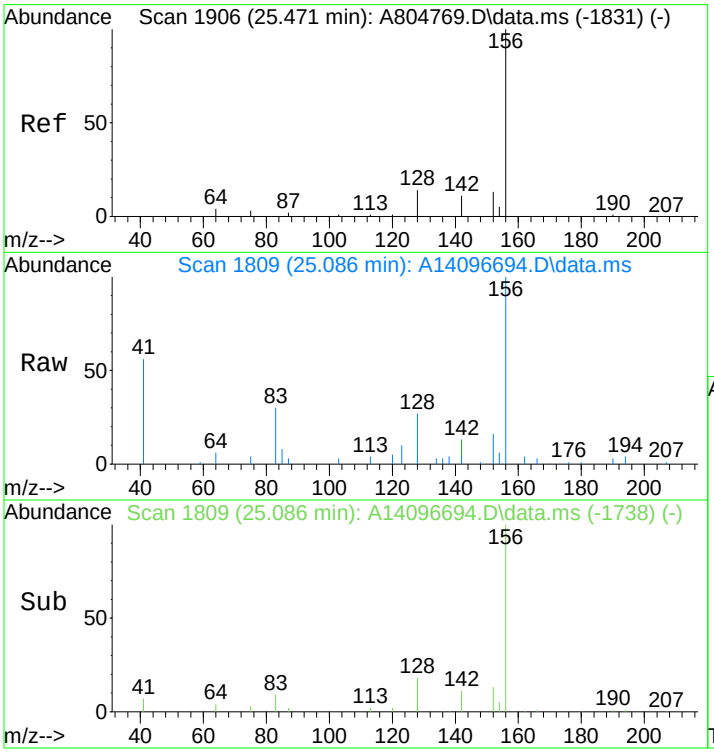


#11
C1-Naphthalenes
Concen: 1057.39 ng/mL m
RT: 22.257 min Scan# 1499
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:142 Resp: 243729

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

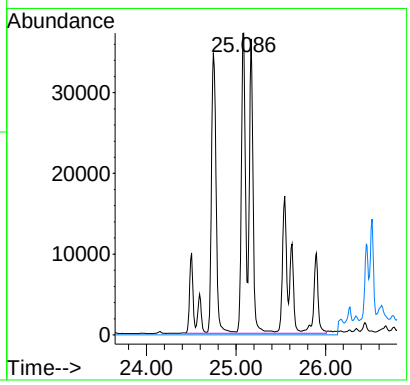


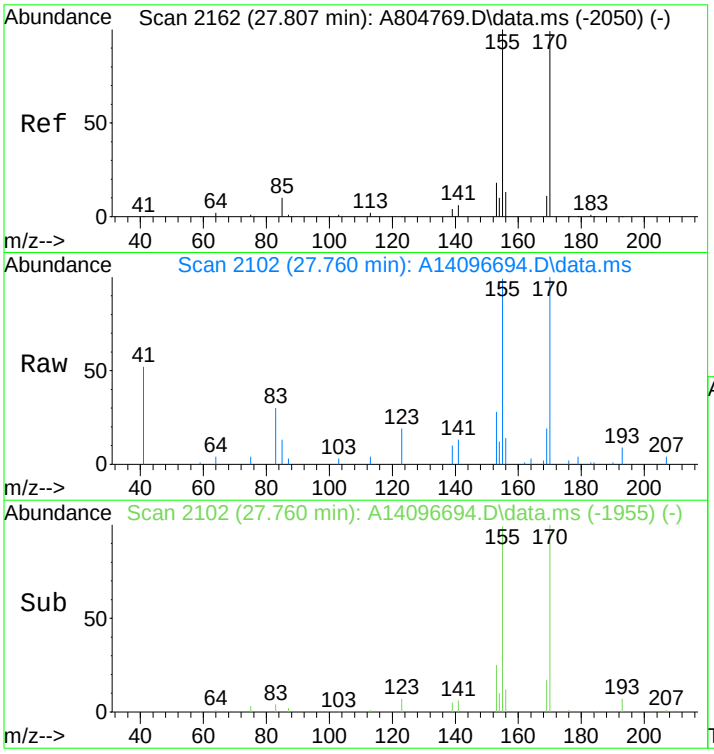


#12
C2-Naphthalenes
Concen: 2156.86 ng/mL m
RT: 25.086 min Scan# 1809
Delta R.T. -0.022 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:156 Resp: 497157

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

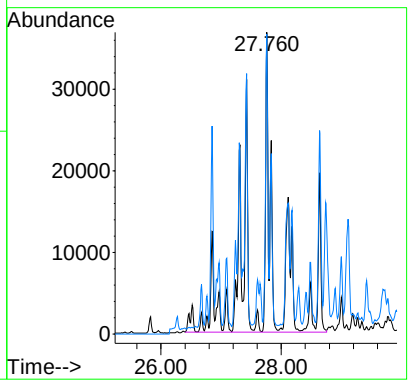


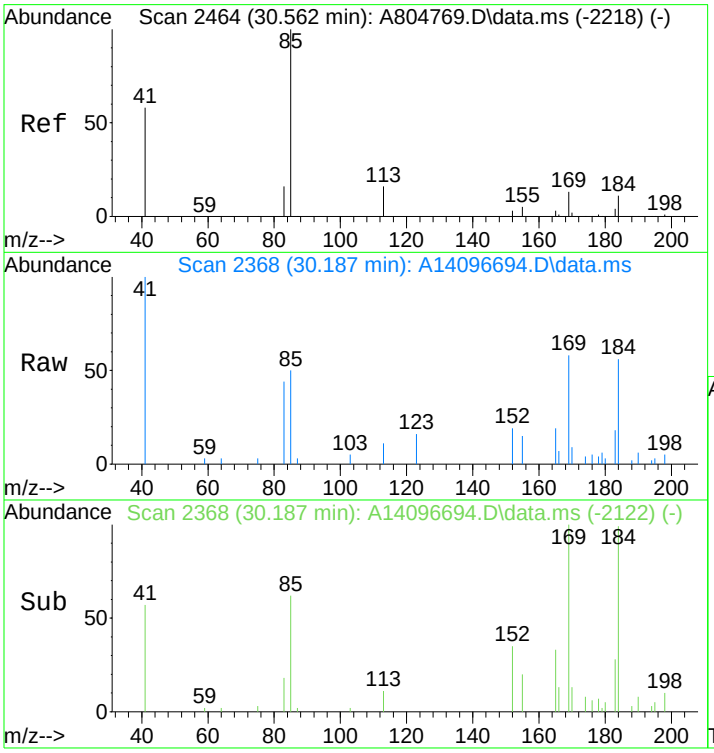


#13
C3-Naphthalenes
Concen: 2627.70 ng/mL m
RT: 27.760 min Scan# 2102
Delta R.T. 0.326 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:170 Resp: 605687

Ion	Ratio	Lower	Upper
170	100		
155	13.5	74.5	111.7#

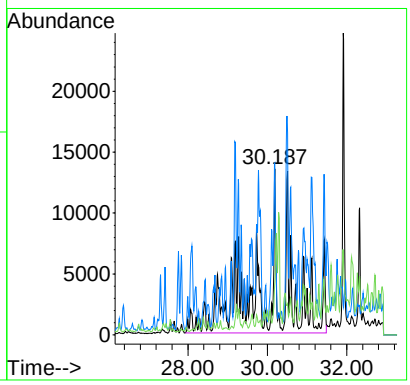


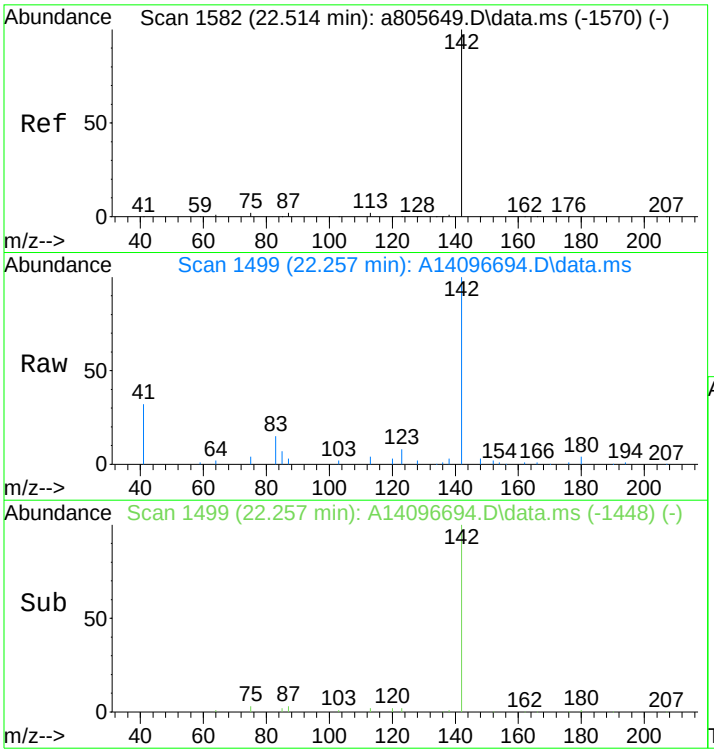


#14
C4-Naphthalenes
Concen: 2104.36 ng/mL m
RT: 30.187 min Scan# 2368
Delta R.T. 0.006 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:184 Resp: 485056

Ion	Ratio	Lower	Upper
184	100		
169	8.7	83.0	124.6#
183	0.0	24.6	36.8#

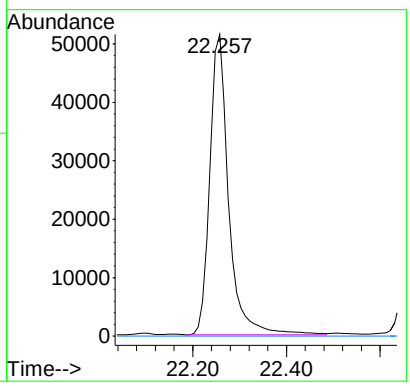


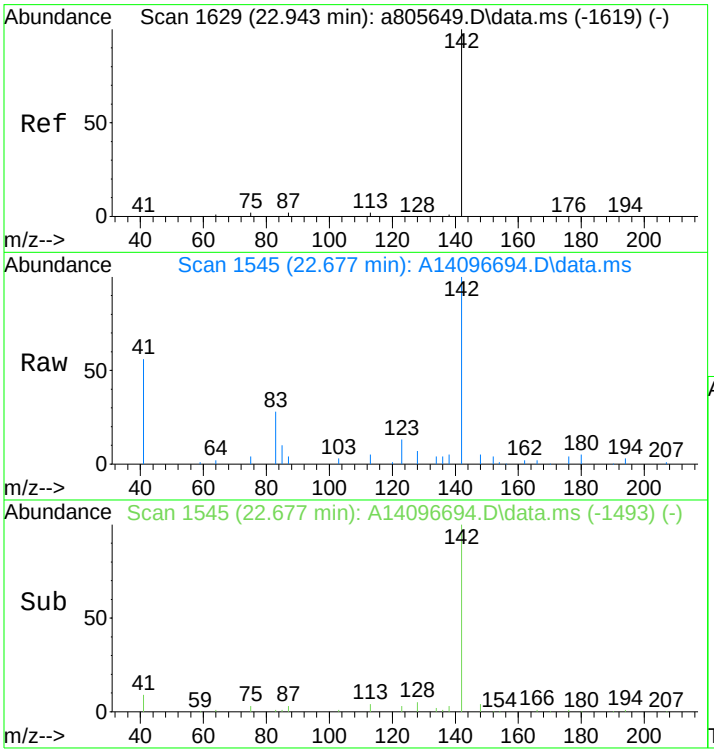


#16
2-Methylnaphthalene
Concen: 949.56 ng/mL
RT: 22.257 min Scan# 1499
Delta R.T. -0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:142 Resp: 144020

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

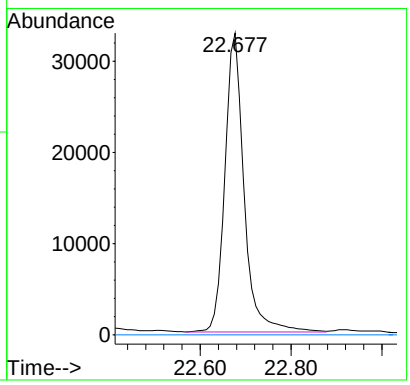


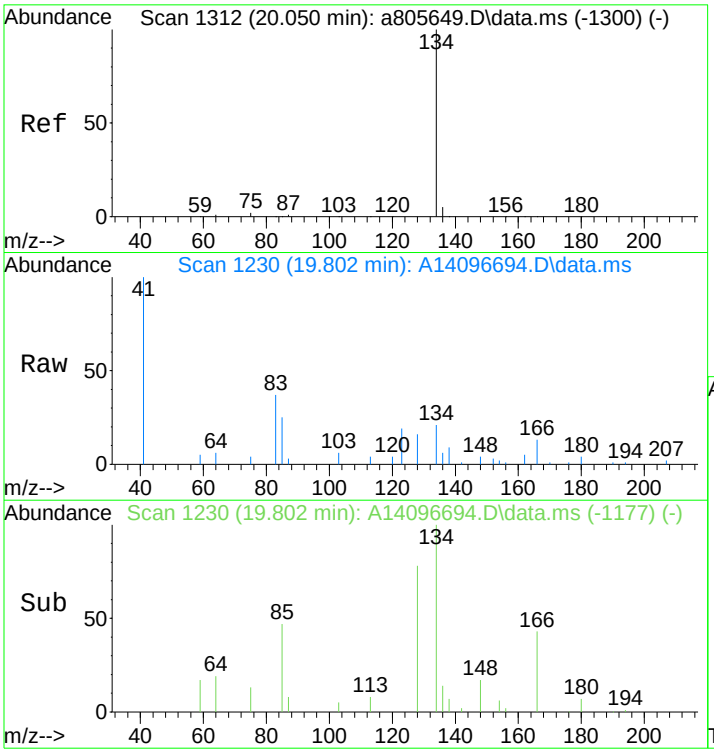


#17
1-Methylnaphthalene
Concen: 645.37 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:142 Resp: 96085

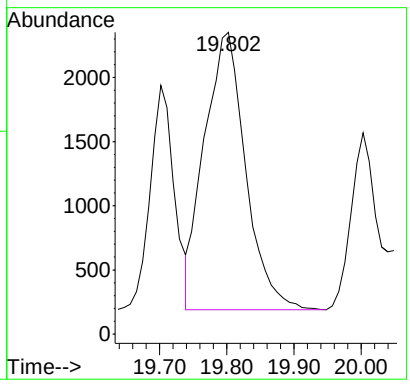
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

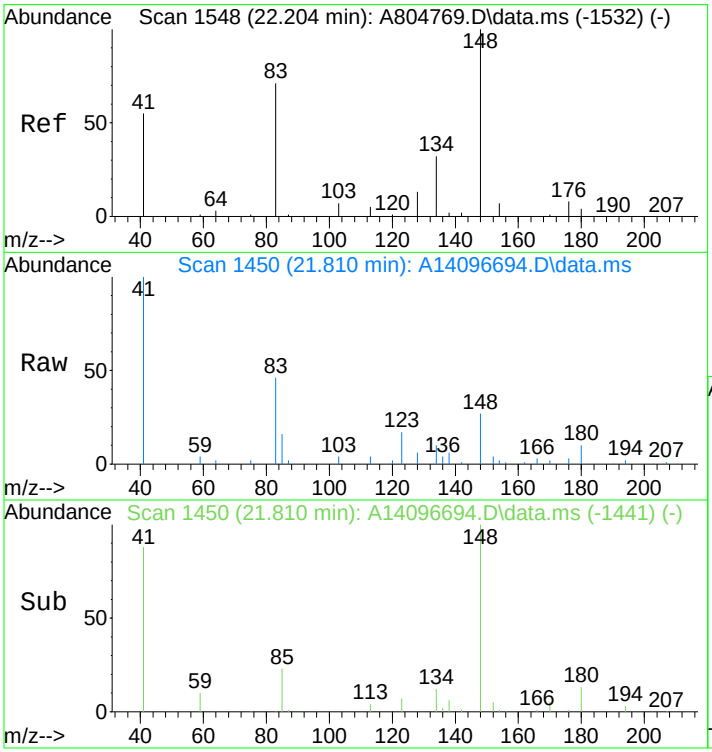




#18
Benzothiophene
Concen: 52.04 ng/mL
RT: 19.802 min Scan# 1230
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

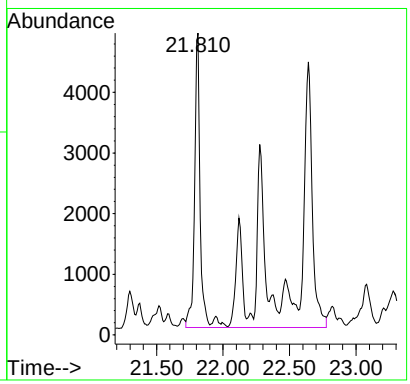
Tgt Ion:134 Resp: 9250

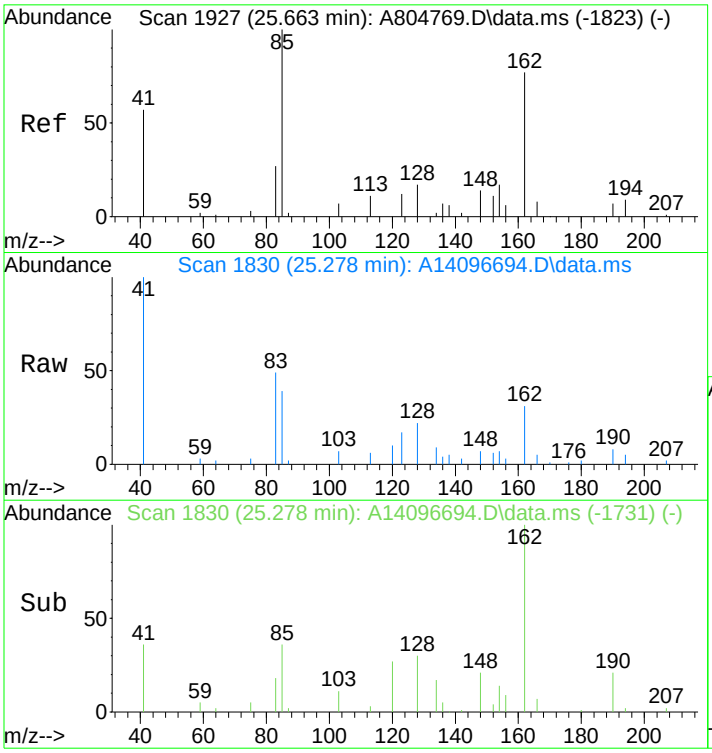




#19
C1-Benzo(b)thiophenes
Concen: 306.48 ng/mL m
RT: 21.810 min Scan# 1450
Delta R.T. -0.039 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

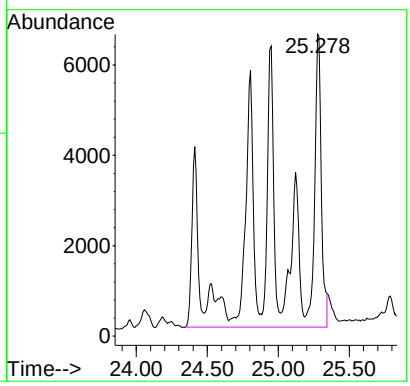
Tgt Ion:148 Resp: 54481

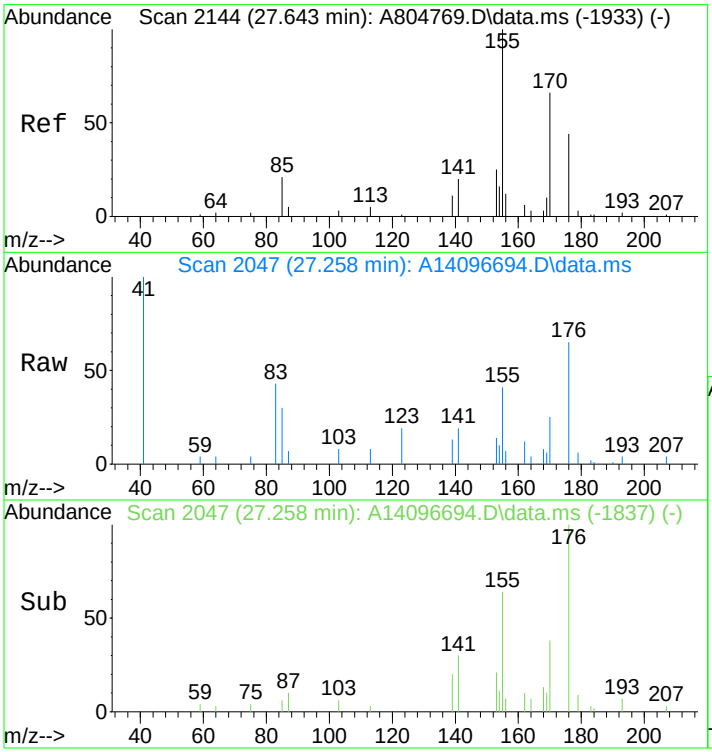




#20
C2-Benzo(b)thiophenes
Concen: 509.89 ng/mL m
RT: 25.278 min Scan# 1830
Delta R.T. -0.026 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

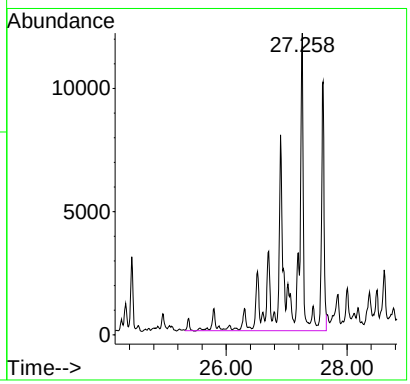
Tgt Ion:162 Resp: 90641

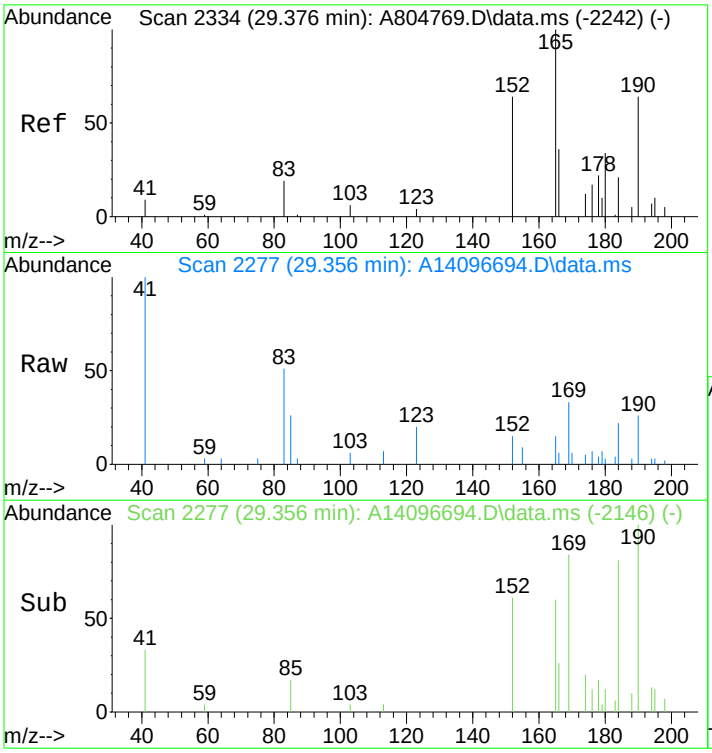




#21
C3-Benzo(b)thiophenes
Concen: 839.26 ng/mL m
RT: 27.258 min Scan# 2047
Delta R.T. -0.001 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

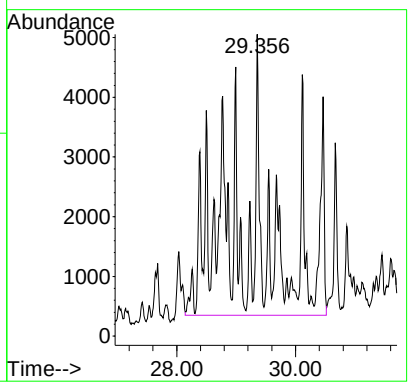
Tgt Ion:176 Resp: 149190

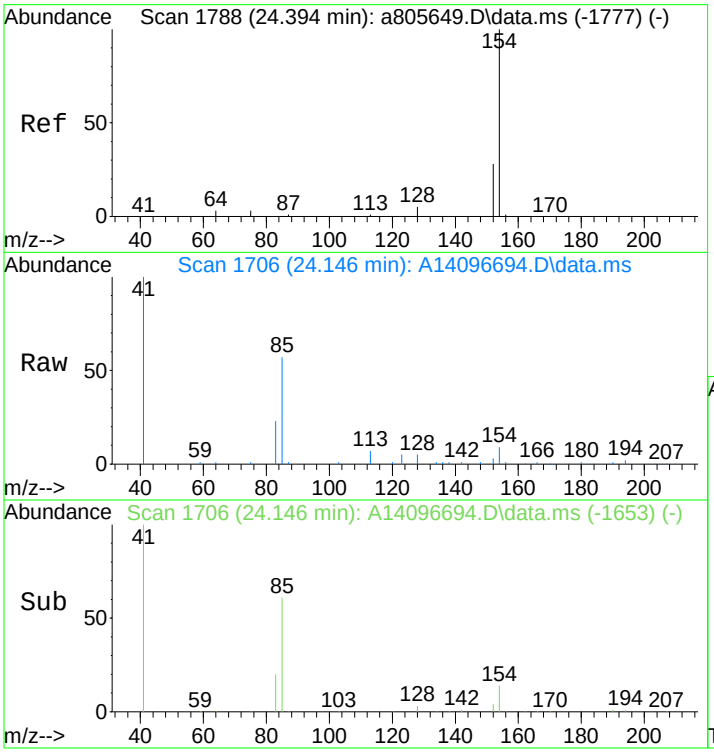




#22
C4-Benzo(b)thiophenes
Concen: 880.81 ng/mL m
RT: 29.356 min Scan# 2277
Delta R.T. 0.363 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:190 Resp: 156576

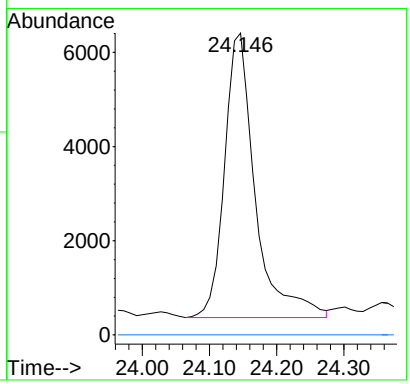


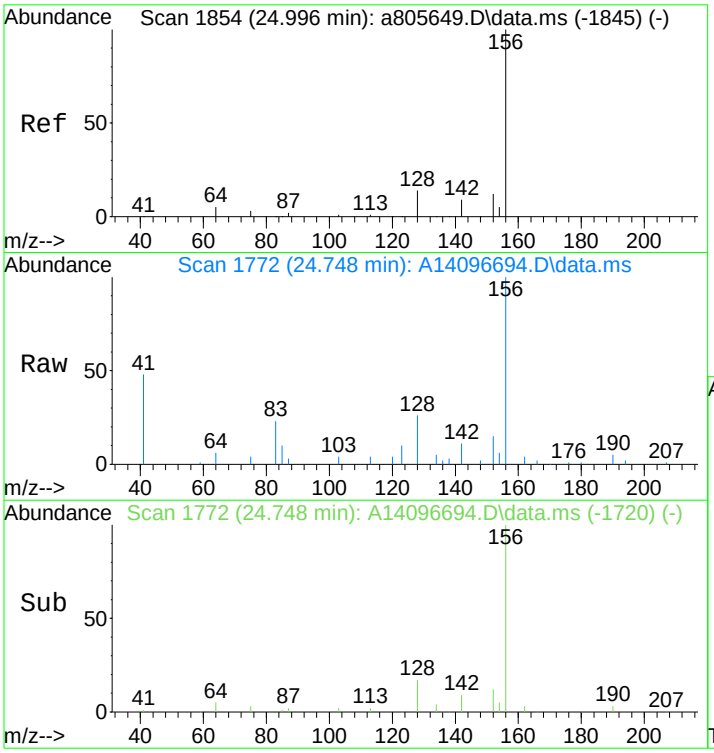


#23
Biphenyl
Concen: 103.81 ng/mL
RT: 24.146 min Scan# 1706
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:154 Resp: 19273

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

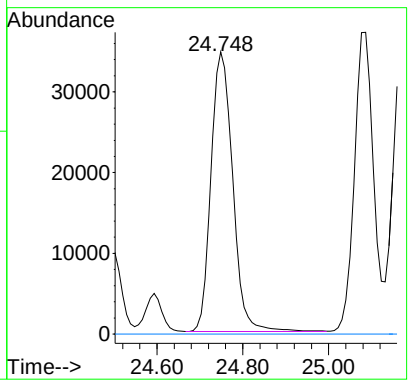


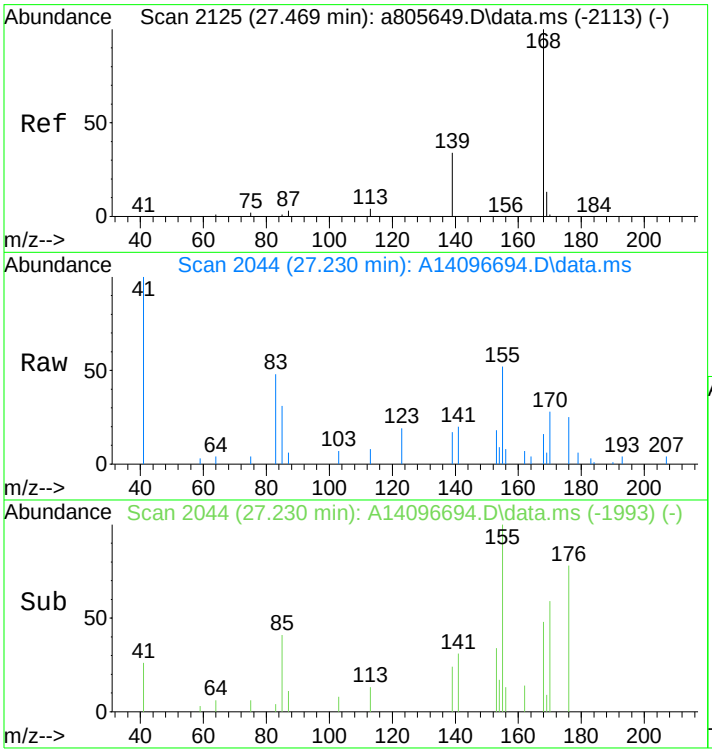


#24
2,6-Dimethylnaphthalene
Concen: 896.30 ng/mL
RT: 24.748 min Scan# 1772
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:156 Resp: 121606

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

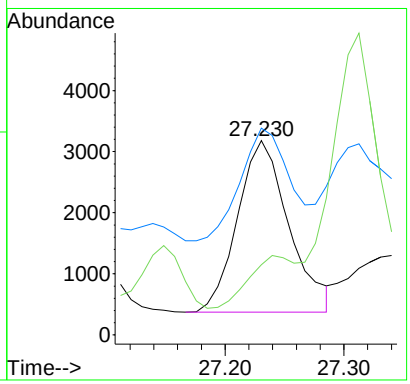


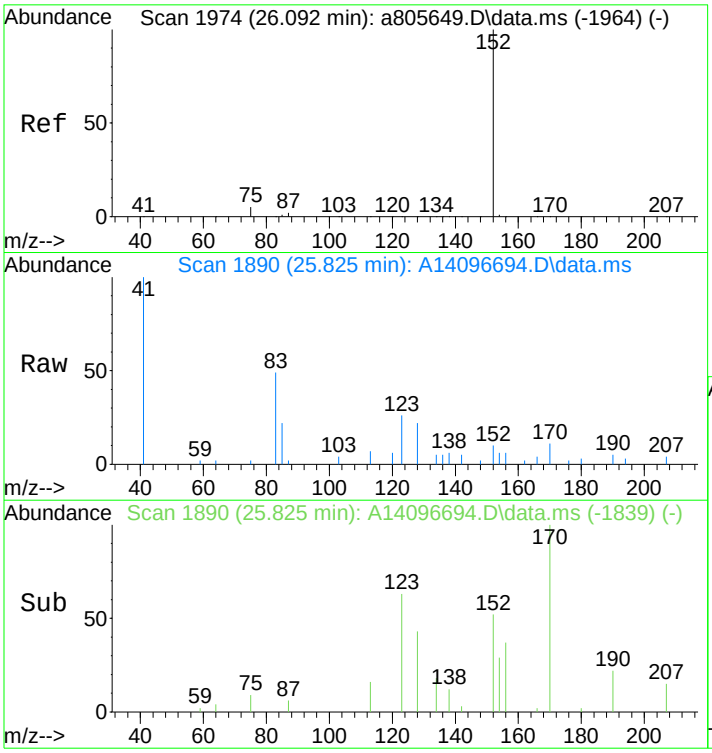


#25
Dibenzofuran
Concen: 43.01 ng/mL
RT: 27.230 min Scan# 2044
Delta R.T. -0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:168 Resp: 8442

Ion	Ratio	Lower	Upper
168	100		
139	61.6	34.0	51.0#
169	26.9	10.9	16.3#

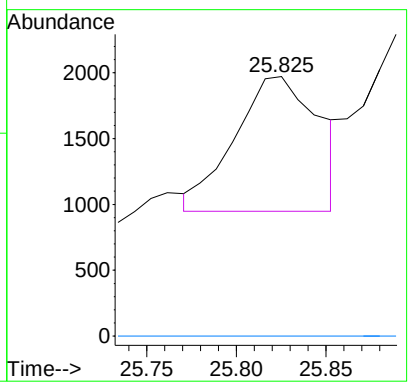


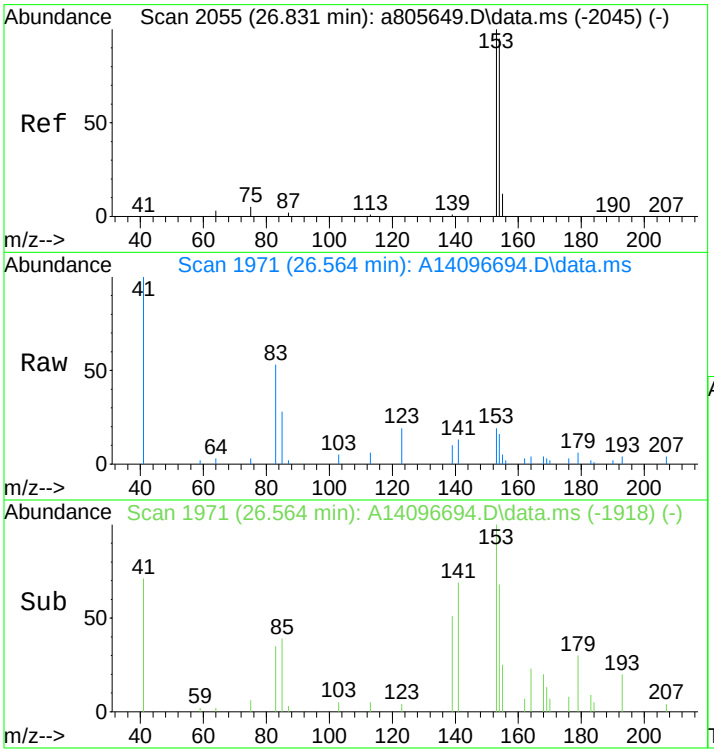


#26
Acenaphthylene
Concen: 13.96 ng/mL m
RT: 25.825 min Scan# 1890
Delta R.T. -0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:152 Resp: 3348

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

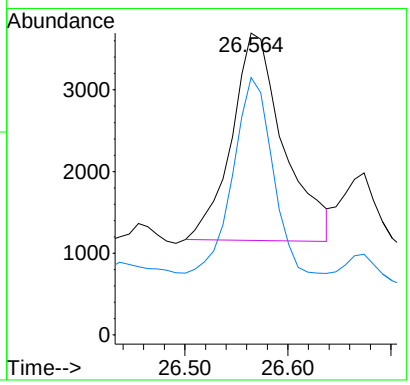


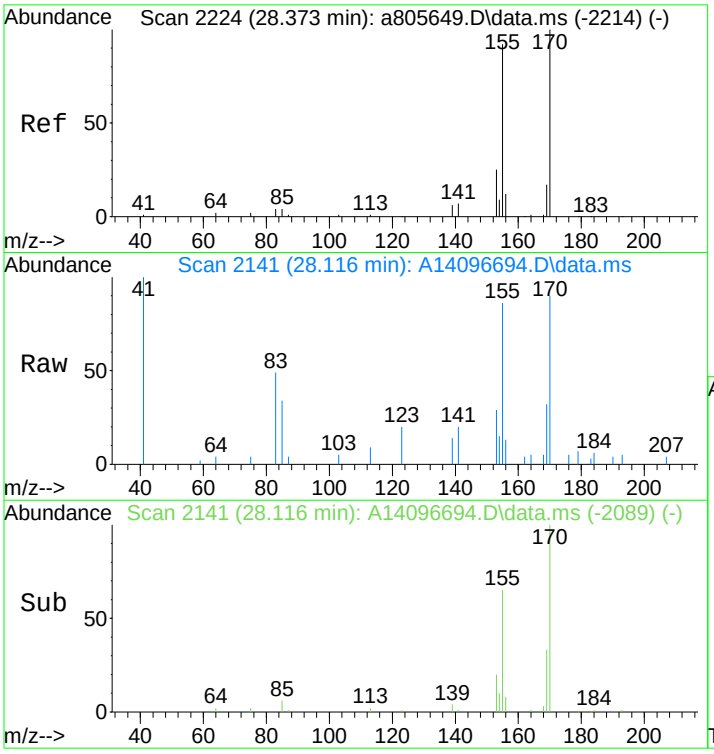


#27
Acenaphthene
Concen: 60.25 ng/mL
RT: 26.564 min Scan# 1971
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:153 Resp: 8928

Ion	Ratio	Lower	Upper
153	100		
154	83.9	72.8	109.2

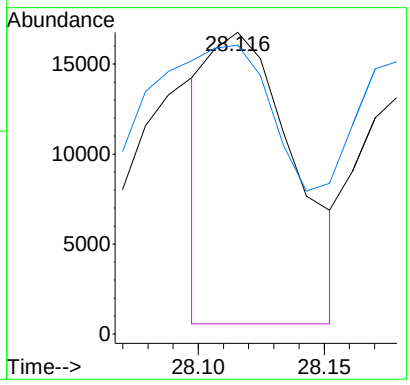


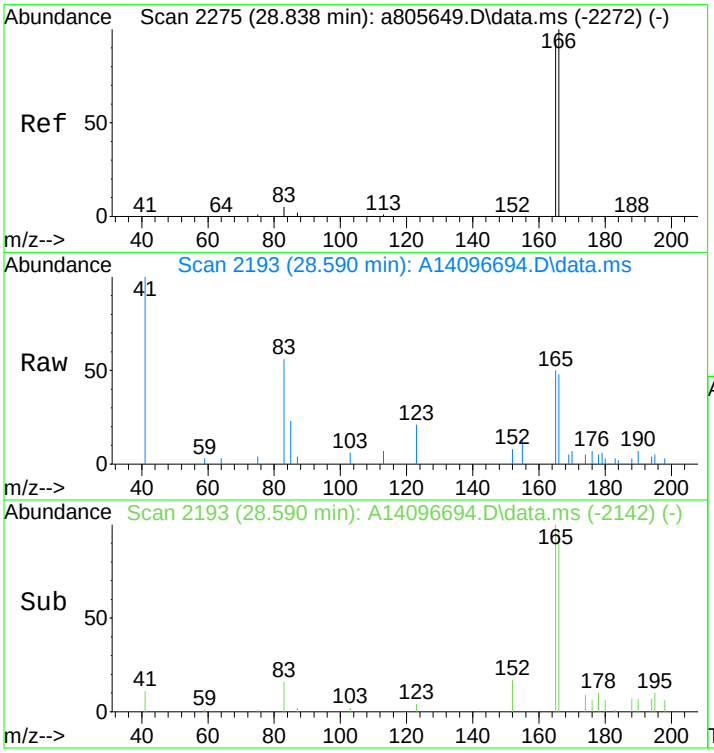


#28
2,3,5-Trimethylnaphthalene
Concen: 312.55 ng/mL m
RT: 28.116 min Scan# 2141
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:170 Resp: 38460

Ion	Ratio	Lower	Upper
170	100		
155	166.9	73.5	110.3#

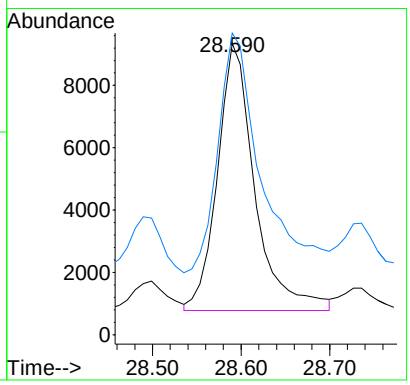


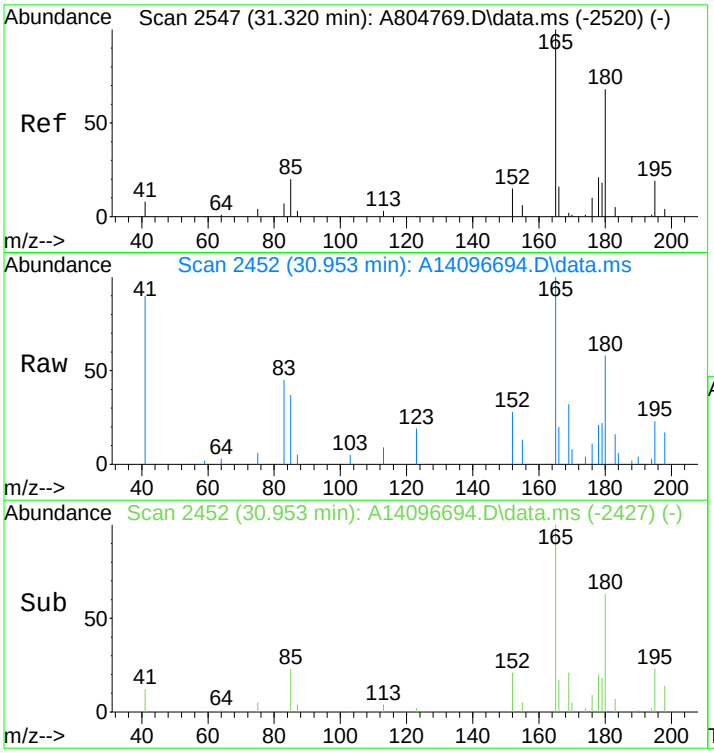


#29
Fluorene
Concen: 152.11 ng/mL m
RT: 28.590 min Scan# 2193
Delta R.T. -0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:166 Resp: 25103

Ion	Ratio	Lower	Upper
166	100		
165	141.4	73.2	109.8#

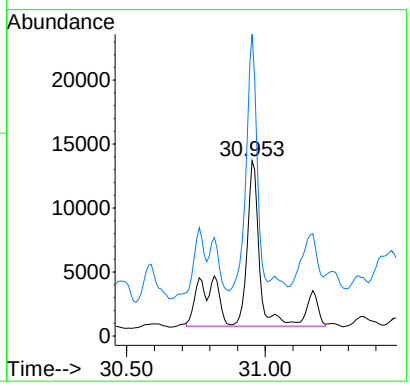


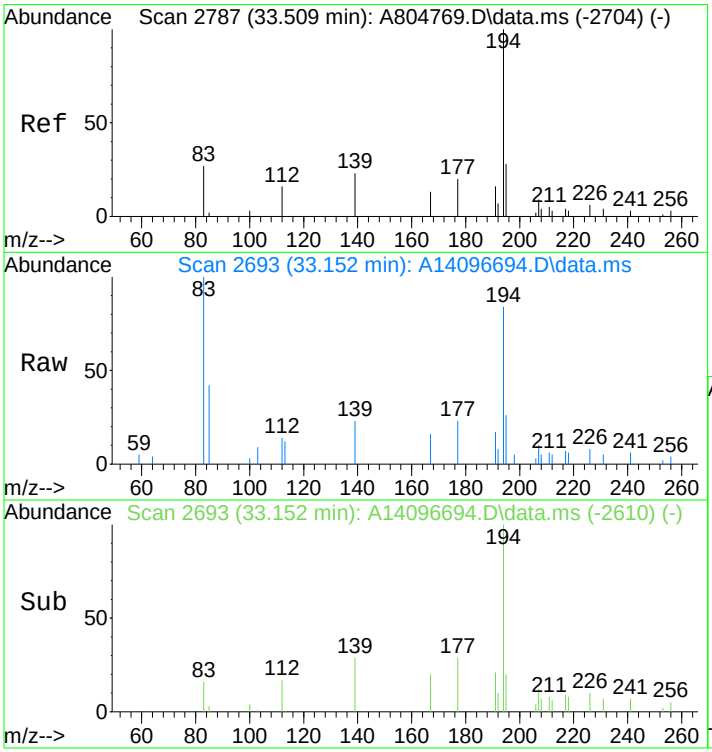


#30
C1-Fluorenes
Concen: 399.61 ng/mL m
RT: 30.953 min Scan# 2452
Delta R.T. 0.011 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:180 Resp: 65949

Ion	Ratio	Lower	Upper
180	100		
165	82.6	123.5	185.3#

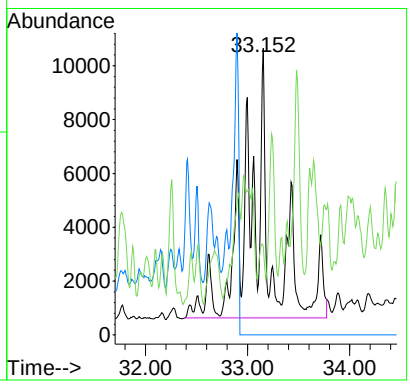


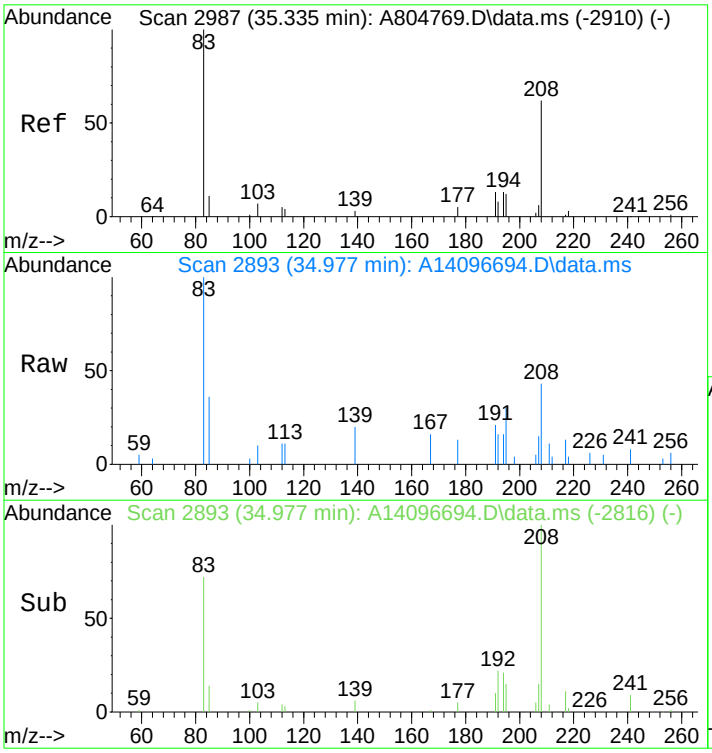


#31
C2-Fluorenes
Concen: 900.02 ng/mL m
RT: 33.152 min Scan# 2693
Delta R.T. 0.026 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:194 Resp: 148532

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	22.2	33.4#

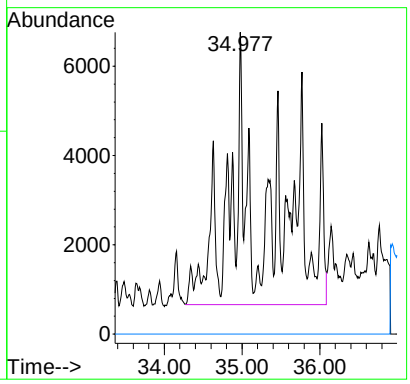


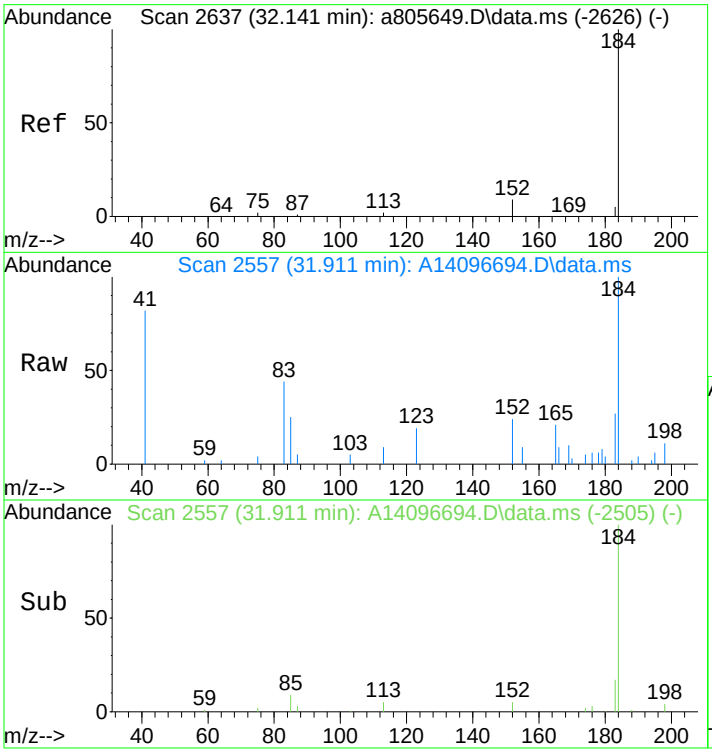


#32
C3-Fluorenes
Concen: 1085.83 ng/mL m
RT: 34.977 min Scan# 2893
Delta R.T. 0.037 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:208 Resp: 179197

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

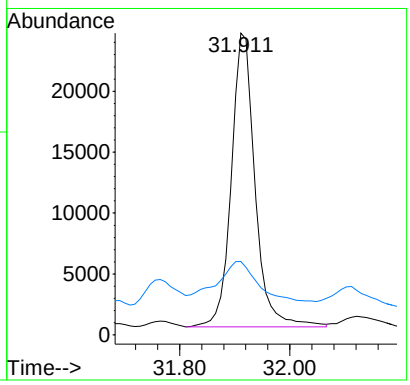


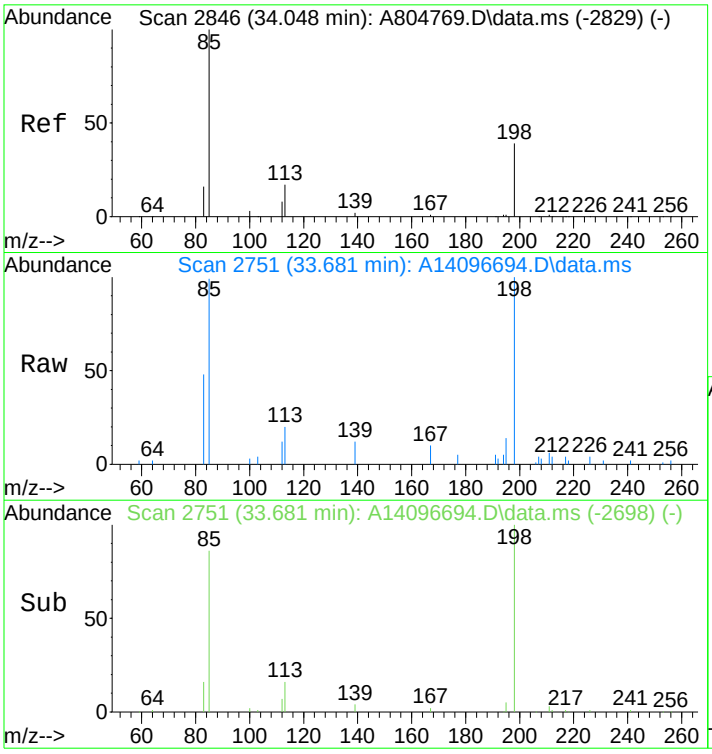


#33
Dibenzothiophene
Concen: 335.98 ng/mL
RT: 31.911 min Scan# 2557
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:184 Resp: 72012

Ion	Ratio	Lower	Upper
184	100		
152	26.0	8.8	13.2#

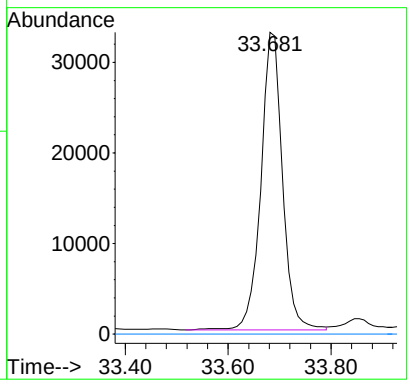


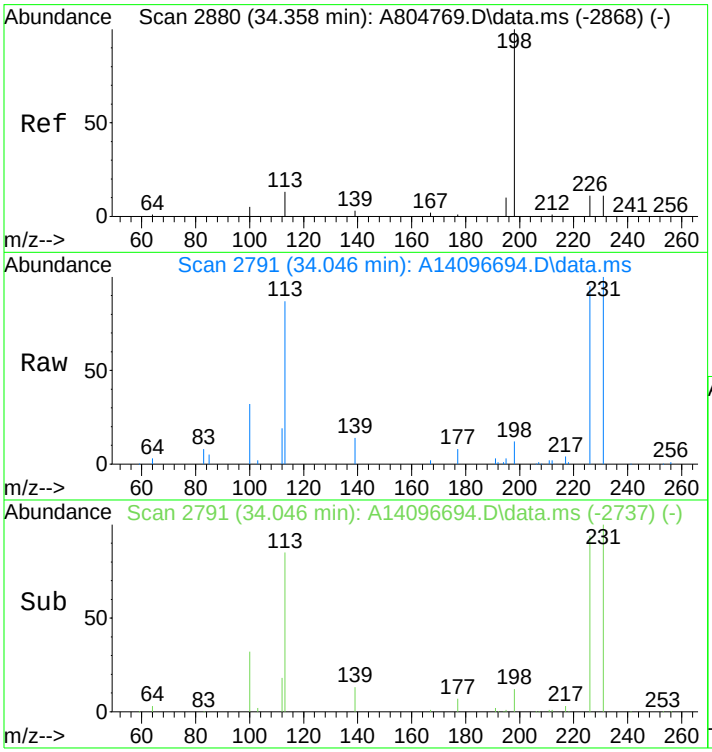


#34
4-Methyldibenzothiophene(4MDT)
Concen: 447.39 ng/mL
RT: 33.681 min Scan# 2751
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:198 Resp: 95892

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

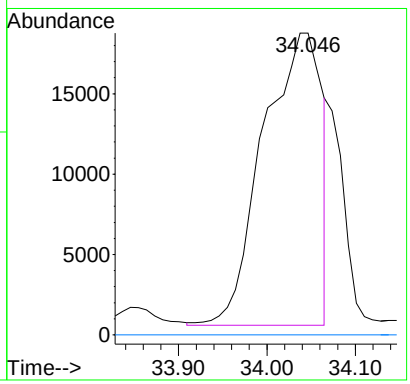


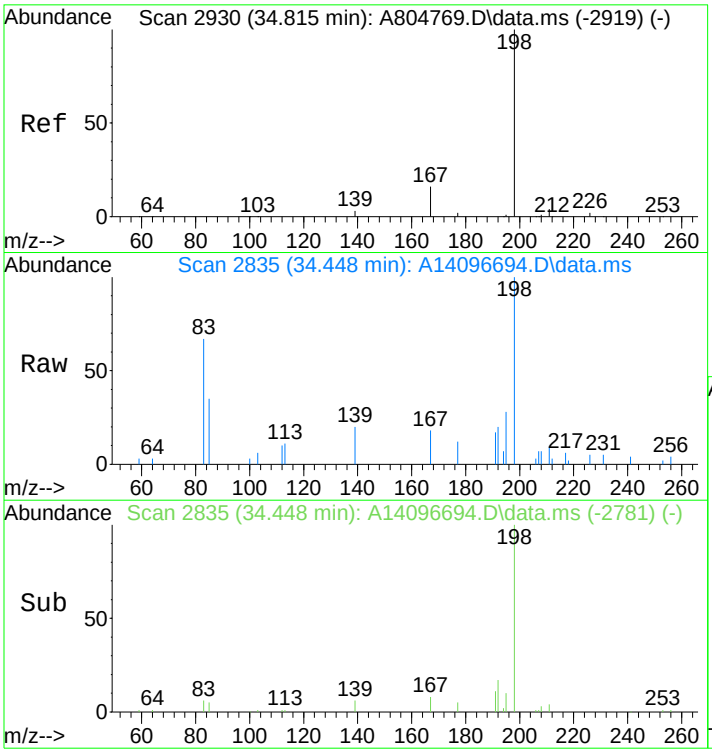


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 391.08 ng/mL m
RT: 34.046 min Scan# 2791
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:198 Resp: 83823

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

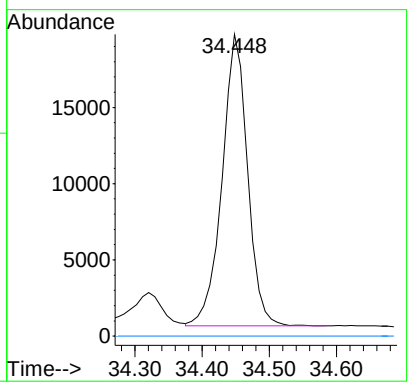


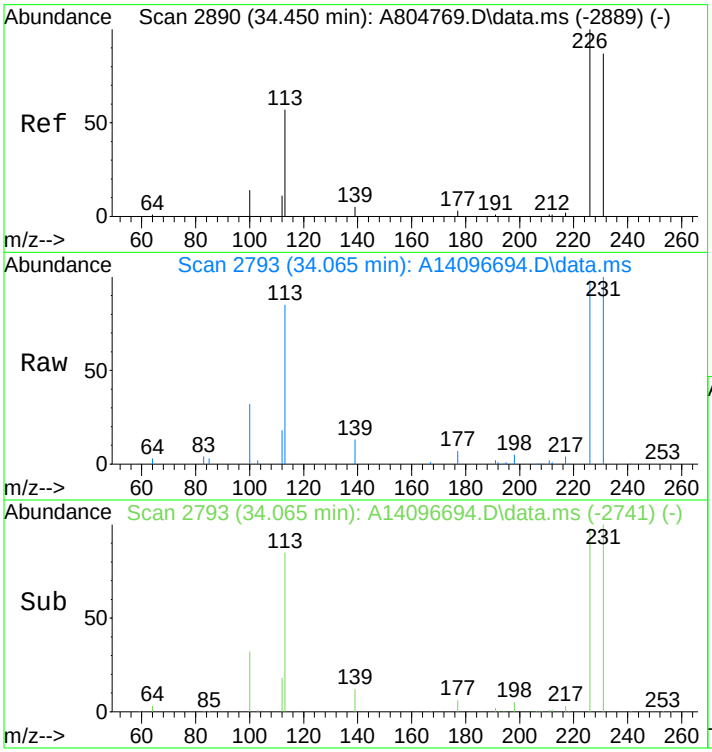


#36
1-Methyldibenzothiophene(1MDT)
Concen: 236.10 ng/mL
RT: 34.448 min Scan# 2835
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:198 Resp: 50604

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

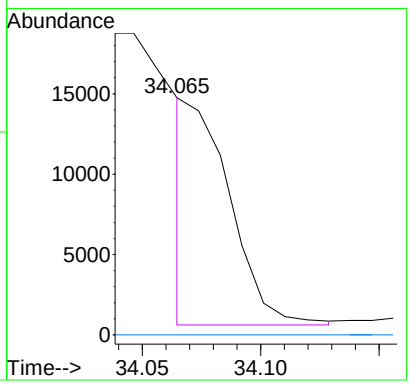


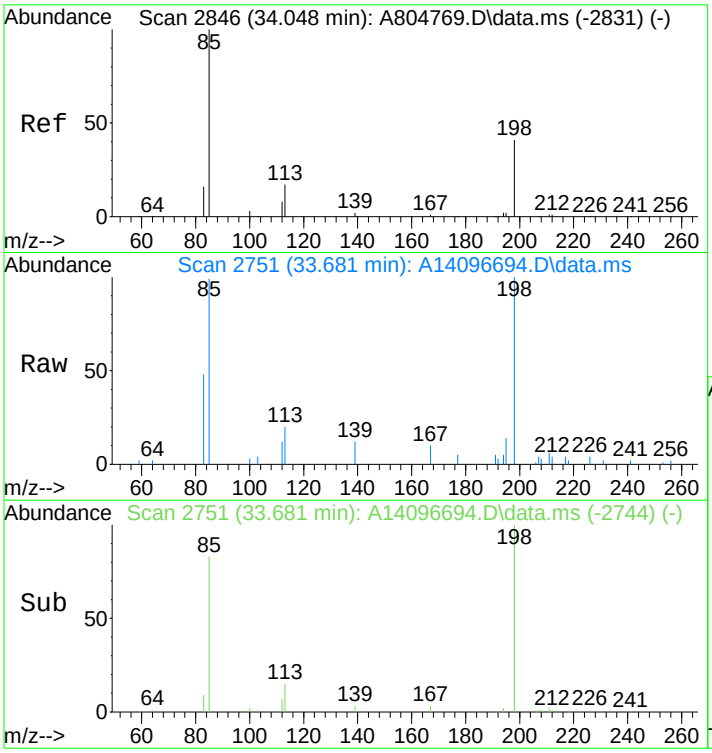


#37
OTP
Concen: 79.85 ng/mL m
RT: 34.065 min Scan# 2793
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:198 Resp: 17114

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

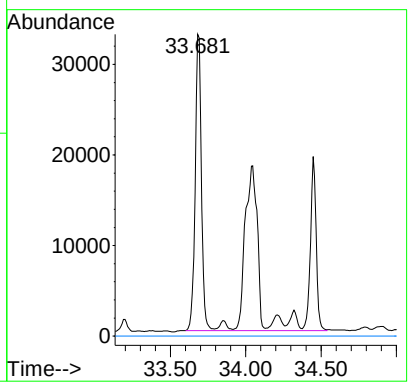


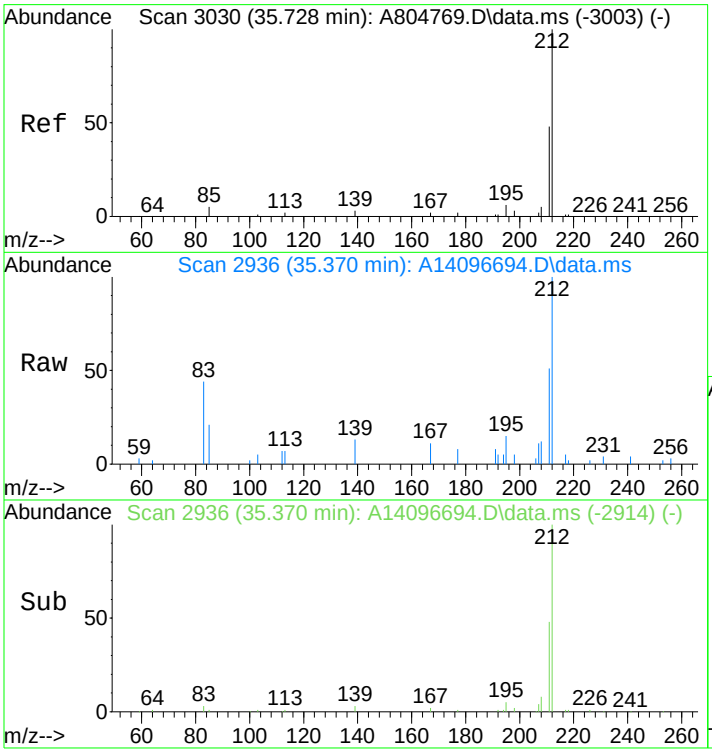


#38
C1-Dibenzothiophenes
Concen: 1236.23 ng/mL m
RT: 33.681 min Scan# 2751
Delta R.T. 0.020 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:198 Resp: 264967

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

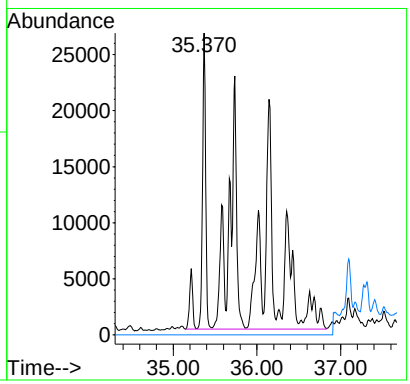


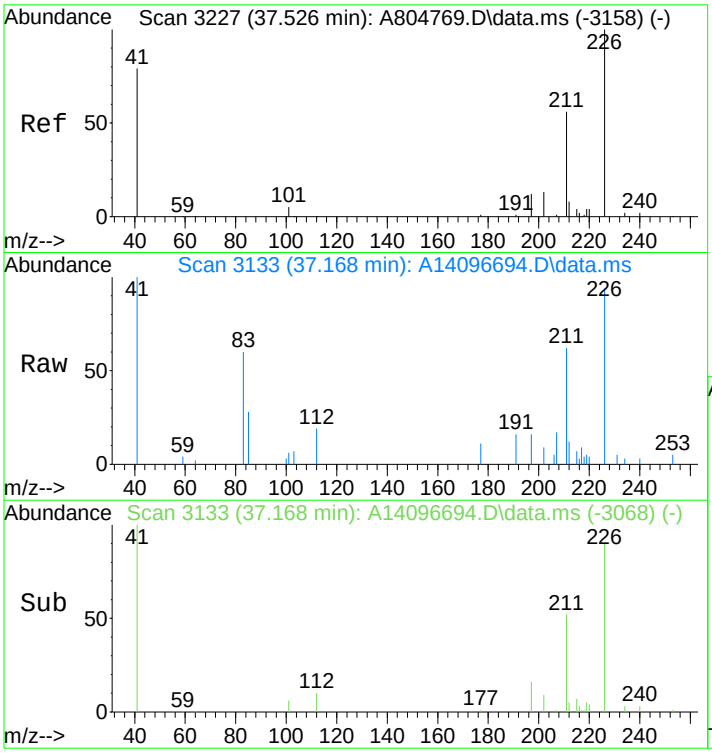


#39
C2-Dibenzothiophenes
Concen: 2068.26 ng/mL m
RT: 35.370 min Scan# 2936
Delta R.T. -0.323 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:212 Resp: 443300

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

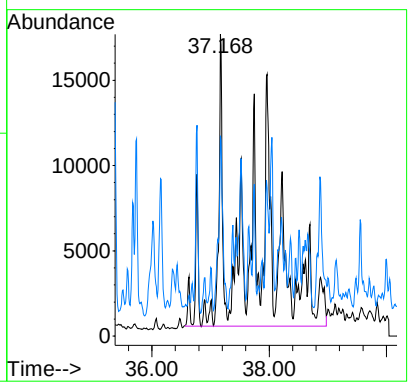


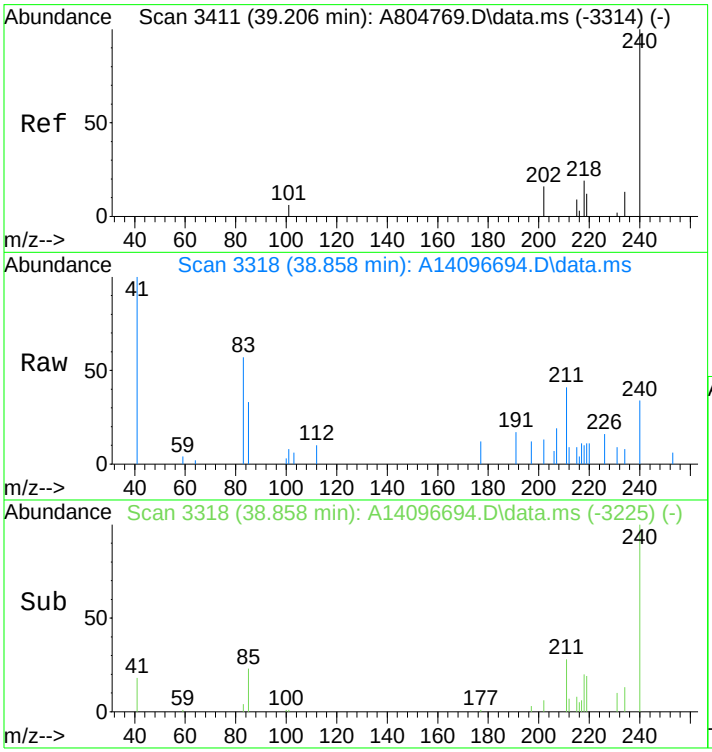


#40
C3-Dibenzothiophenes
Concen: 2174.07 ng/mL m
RT: 37.168 min Scan# 3133
Delta R.T. 0.043 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:226 Resp: 465979

Ion	Ratio	Lower	Upper
226	100		
211	1.2	48.4	72.6#

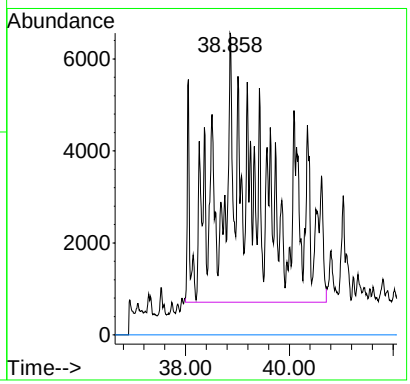


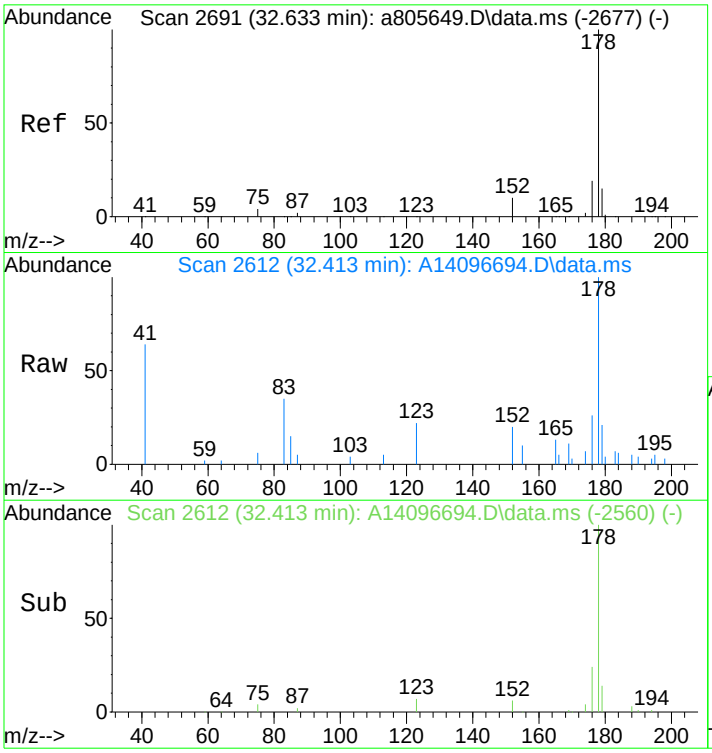


#41
C4-Dibenzothiophenes
Concen: 1527.35 ng/mL m
RT: 38.858 min Scan# 3318
Delta R.T. 0.054 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:240 Resp: 327363

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

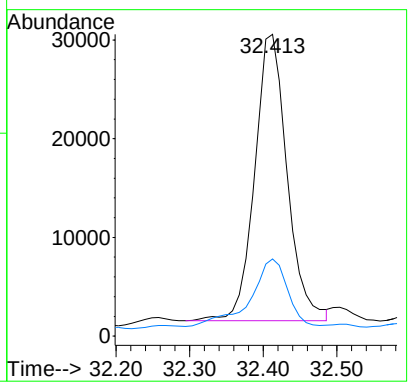


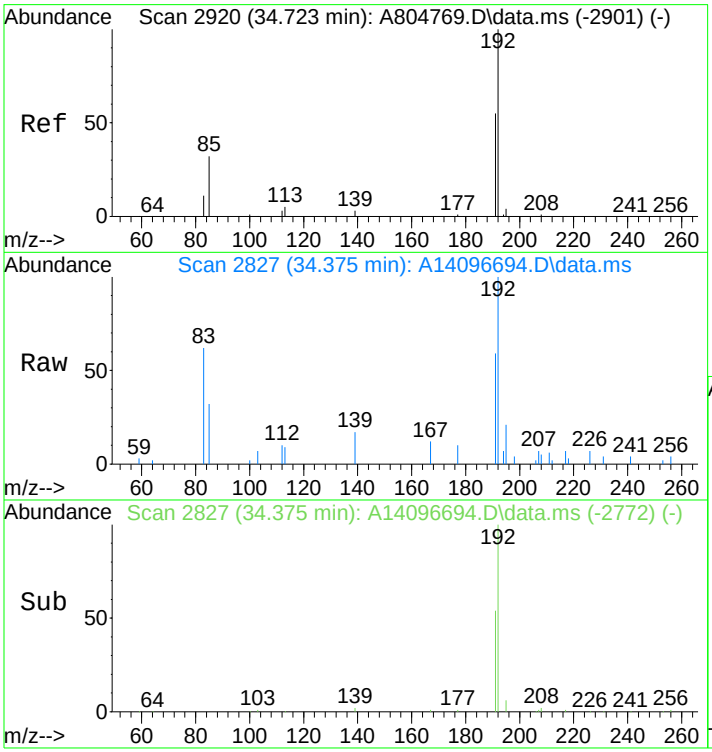


#43
Phenanthrene
Concen: 392.81 ng/mL
RT: 32.413 min Scan# 2612
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:178 Resp: 89403

Ion	Ratio	Lower	Upper
178	100		
176	28.0	14.8	22.2#

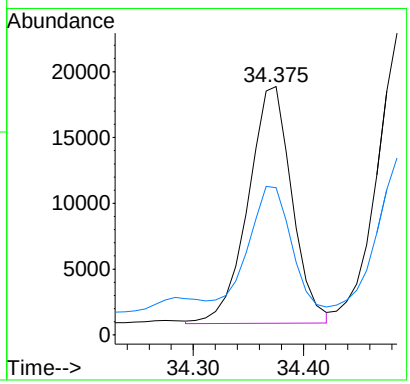


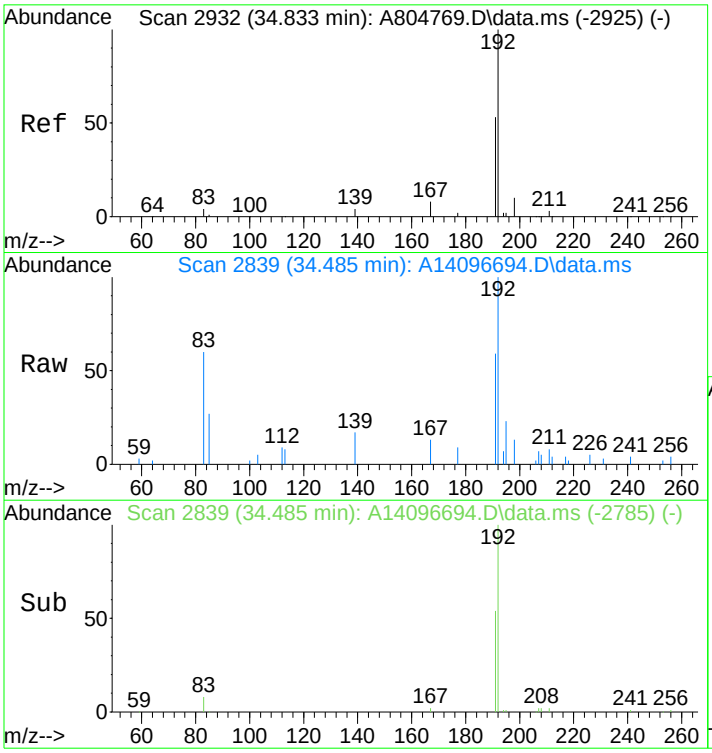


#44
3-Methylphenanthrene(3MP)
Concen: 218.78 ng/mL
RT: 34.375 min Scan# 2827
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 49794

Ion	Ratio	Lower	Upper
192	100		
191	48.2	45.2	67.8

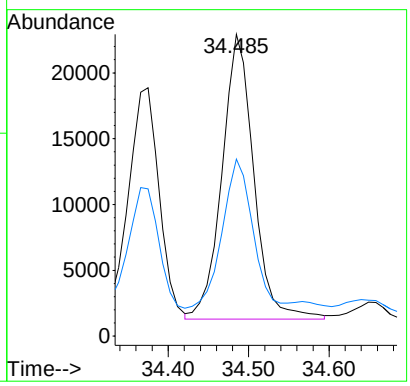


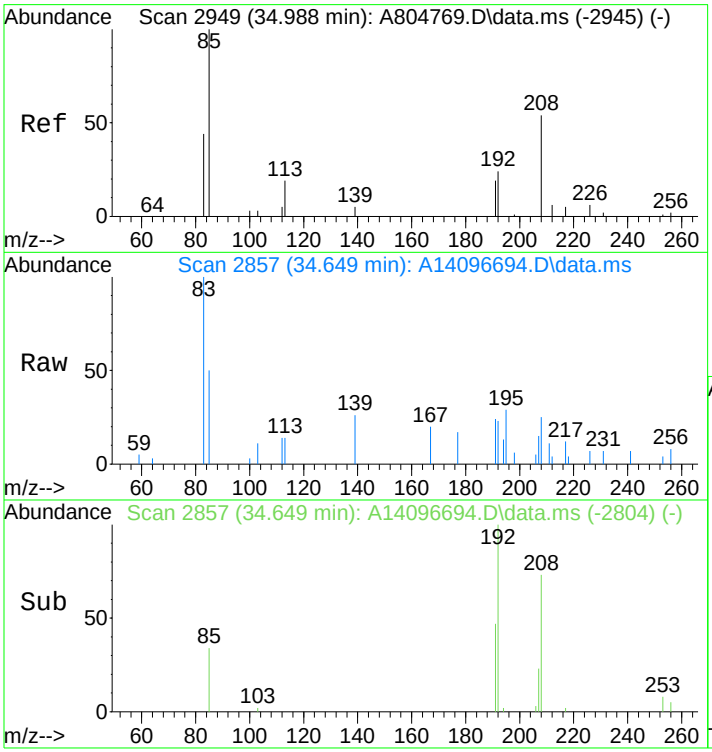


#45
2-Methylphenanthrene(2MP)
Concen: 261.61 ng/mL m
RT: 34.485 min Scan# 2839
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 59543

Ion	Ratio	Lower	Upper
192	100		
191	50.1	44.6	66.8

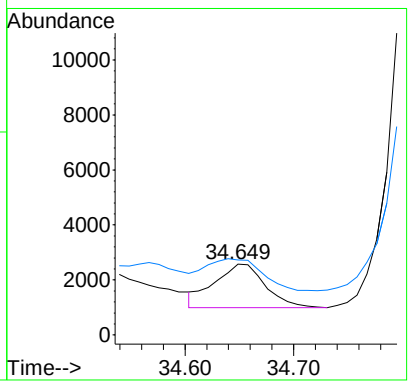


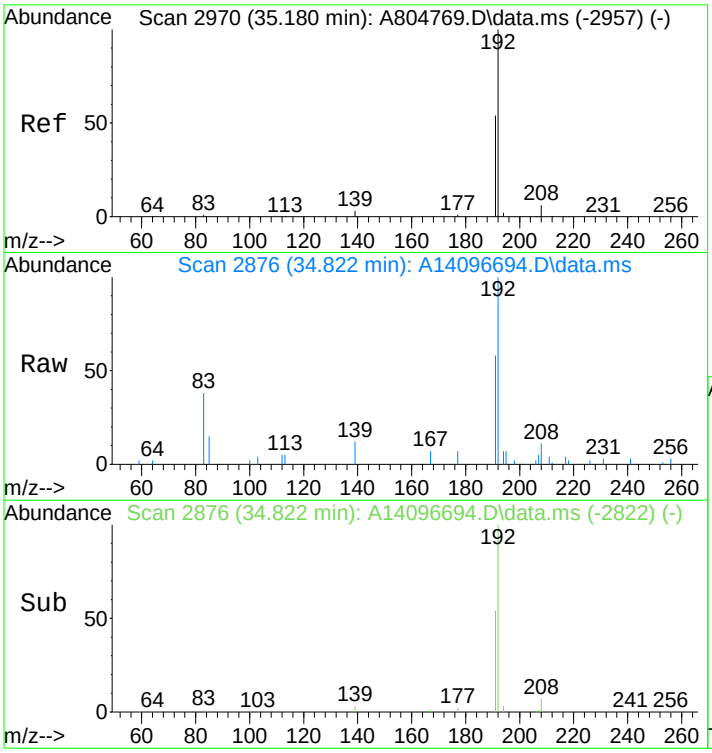


#46
2-Methylanthracene(2MA)
Concen: 22.66 ng/mL m
RT: 34.649 min Scan# 2857
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 5158

Ion	Ratio	Lower	Upper
192	100		
191	14.8	87.9	131.9#

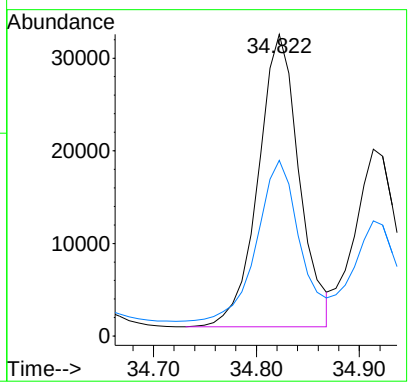


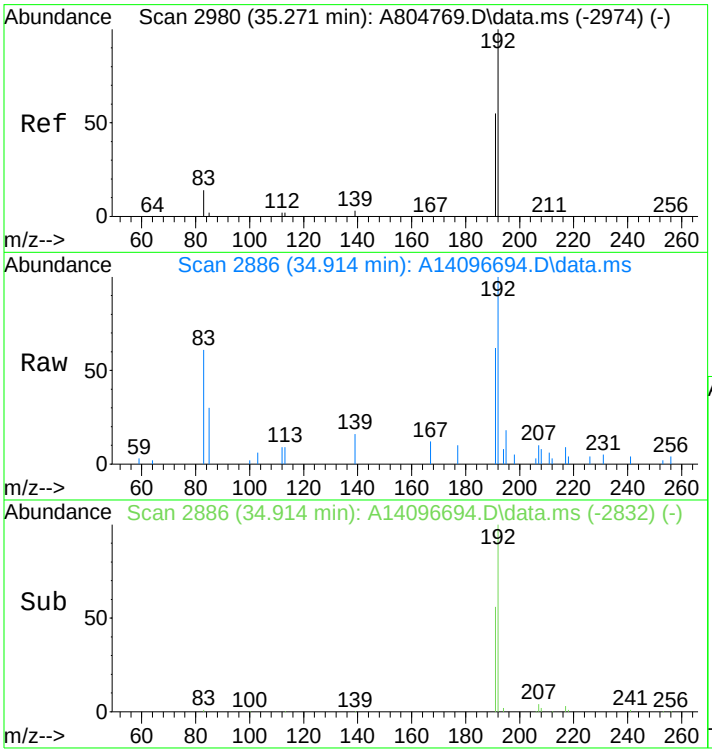


#47
9/4-Methylphenanthrene(9MP)
Concen: 384.52 ng/mL
RT: 34.822 min Scan# 2876
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 87518

Ion	Ratio	Lower	Upper
192	100		
191	56.8	44.1	66.1

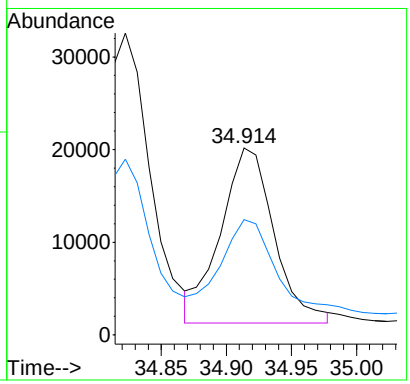


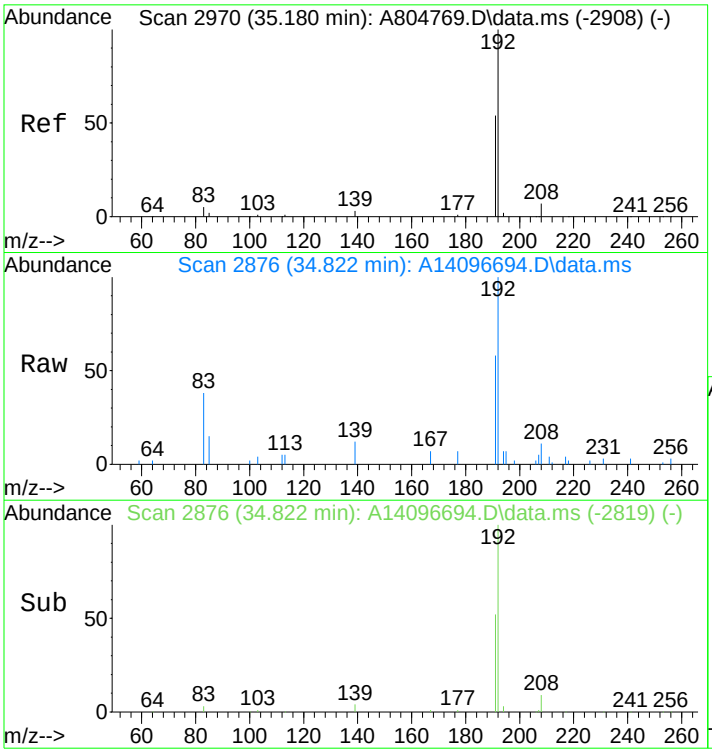


#48
1-Methylphenanthrene(1MP)
Concen: 238.29 ng/mL m
RT: 34.914 min Scan# 2886
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 54235

Ion	Ratio	Lower	Upper
192	100		
191	62.4	46.2	69.4

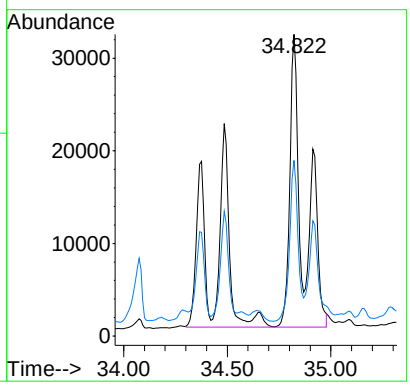


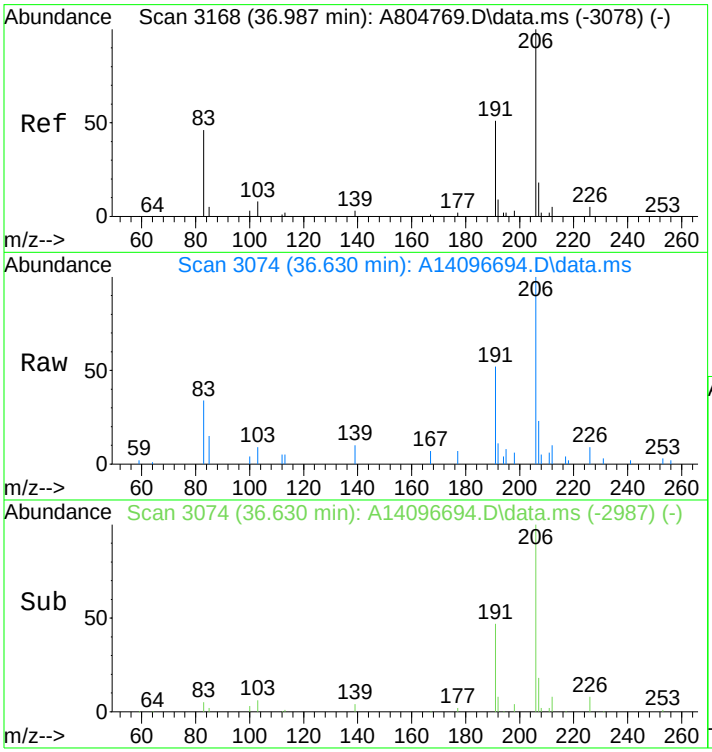


#49
C1-Phenanthrenes/Anthracenes
Concen: 1149.40 ng/mL m
RT: 34.822 min Scan# 2876
Delta R.T. 0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 261605

Ion	Ratio	Lower	Upper
192	100		
191	19.0	43.8	65.8#

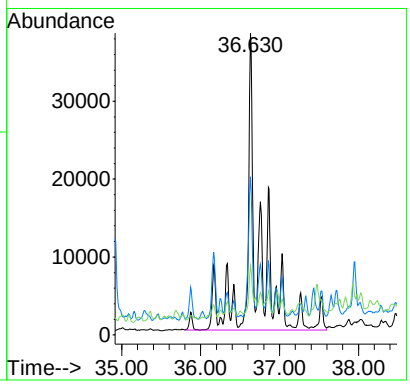


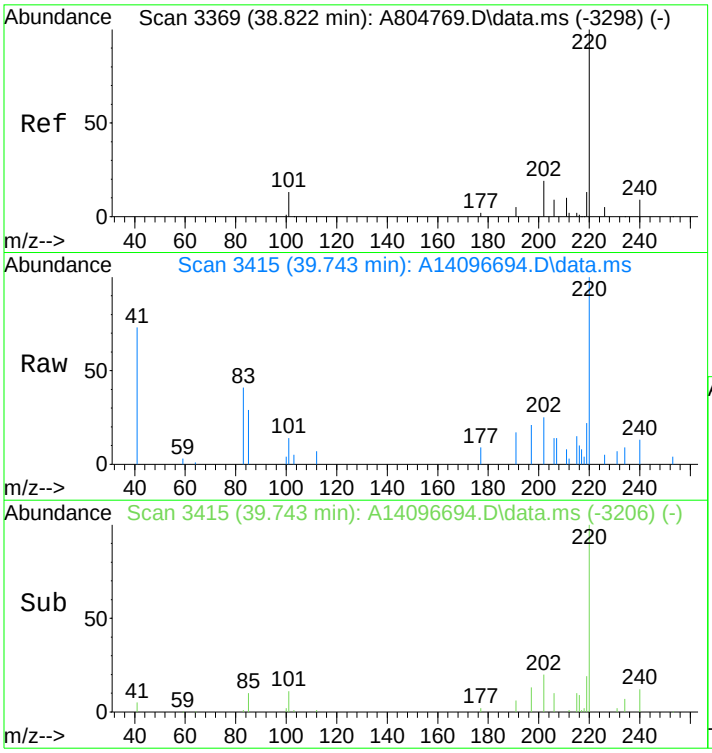


#50
C2-Phenanthrenes/Anthracenes
Concen: 1698.64 ng/mL m
RT: 36.630 min Scan# 3074
Delta R.T. 0.039 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:206 Resp: 386612

Ion	Ratio	Lower	Upper
206	100		
191	1.5	39.2	58.8#
207	0.6	16.8	25.2#

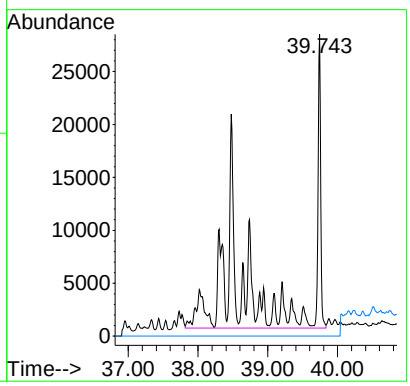


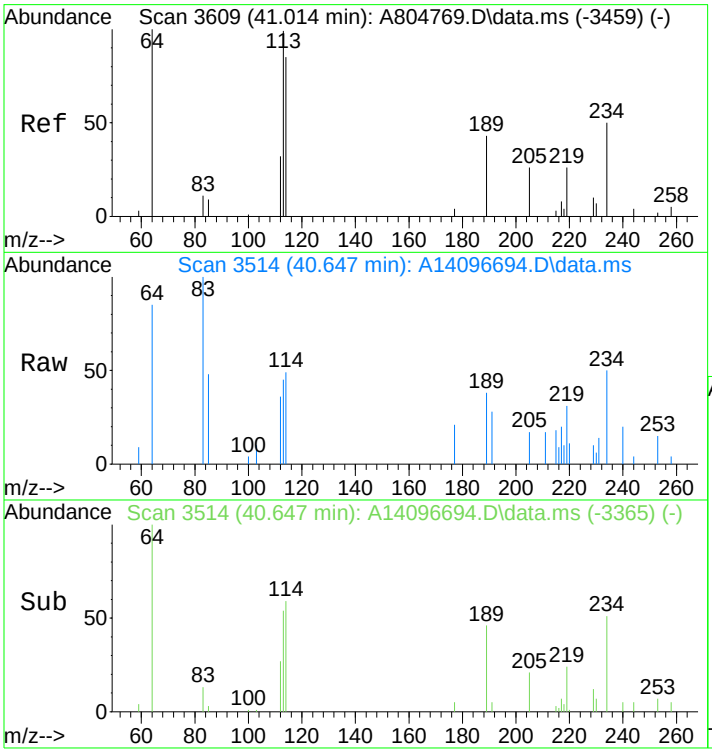


#52
C3-Phenanthrenes/Anthracenes
Concen: 1541.73 ng/mL m
RT: 39.743 min Scan# 3415
Delta R.T. 1.320 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:220 Resp: 350900

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

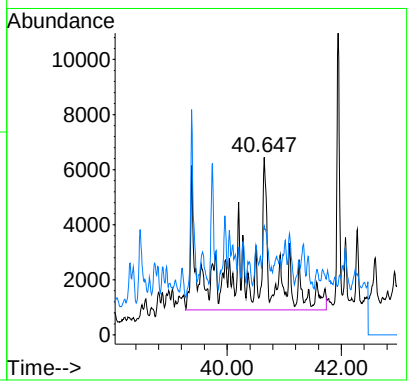


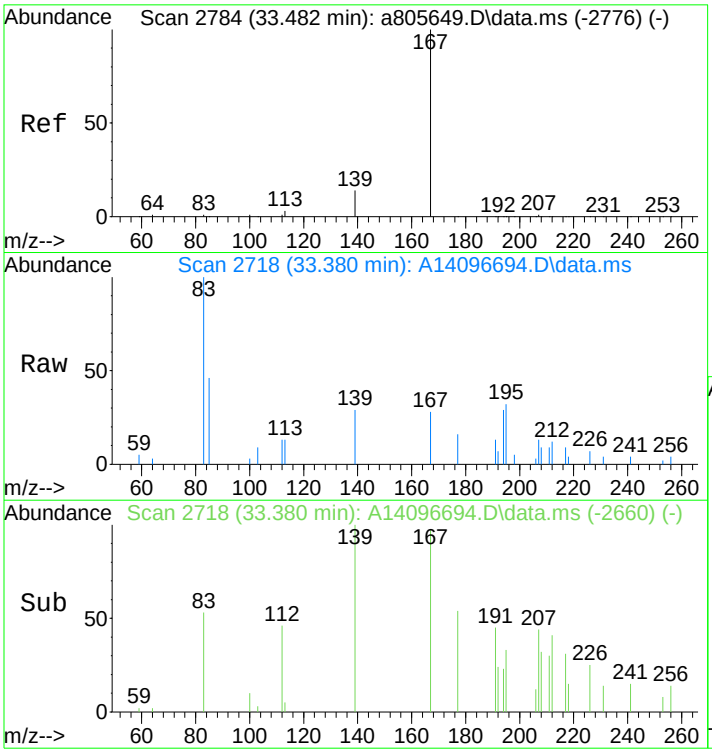


#53
C4-Phenanthrenes/Anthracenes
Concen: 717.61 ng/mL m
RT: 40.647 min Scan# 3514
Delta R.T. 0.065 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:234 Resp: 163328

Ion	Ratio	Lower	Upper
234	100		
219	2.5	49.8	74.8#

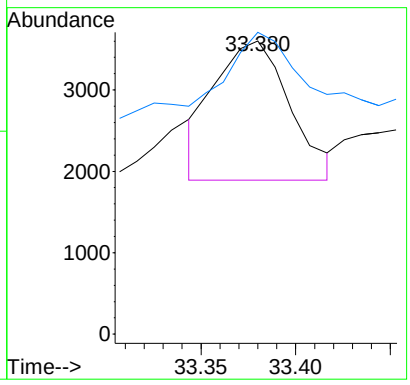


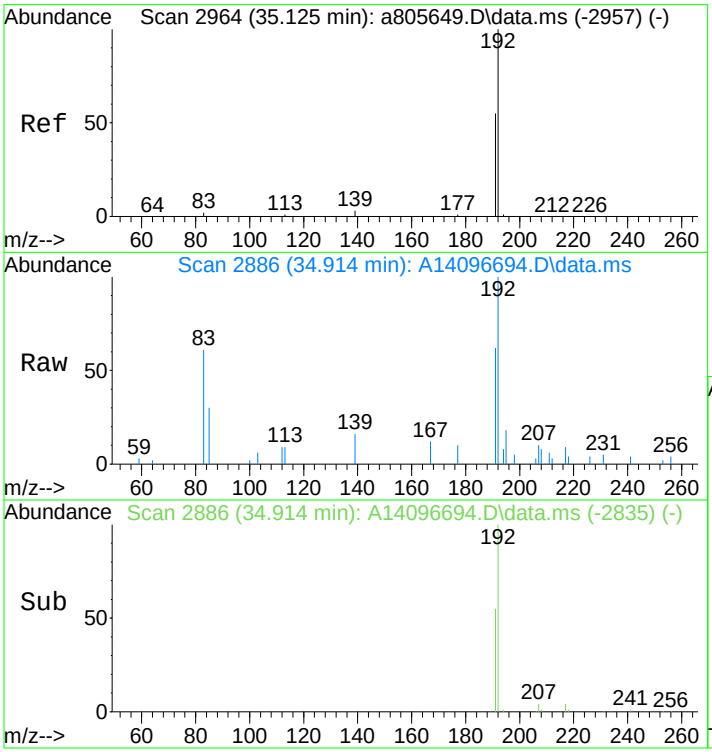


#56
Carbazole
Concen: 22.46 ng/mL m
RT: 33.380 min Scan# 2718
Delta R.T. 0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:167 Resp: 4742

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

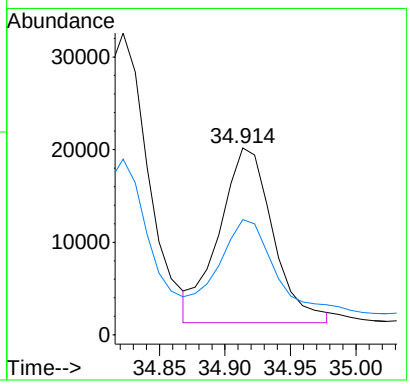


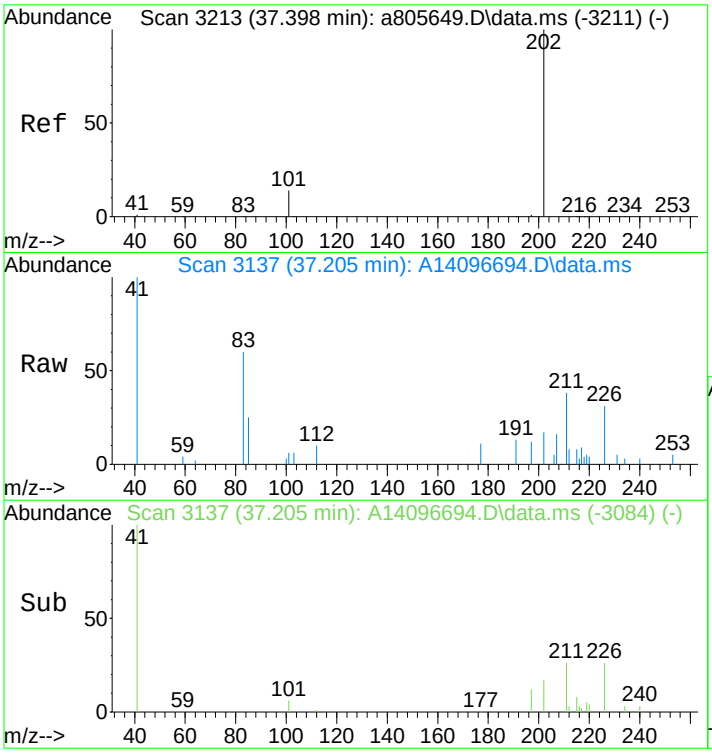


#57
1-Methylphenanthrene
Concen: 316.16 ng/mL m
RT: 34.914 min Scan# 2886
Delta R.T. -0.036 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:192 Resp: 53979

Ion	Ratio	Lower	Upper
192	100		
191	66.1	45.0	67.4

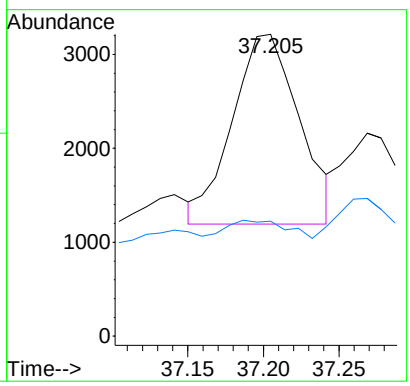


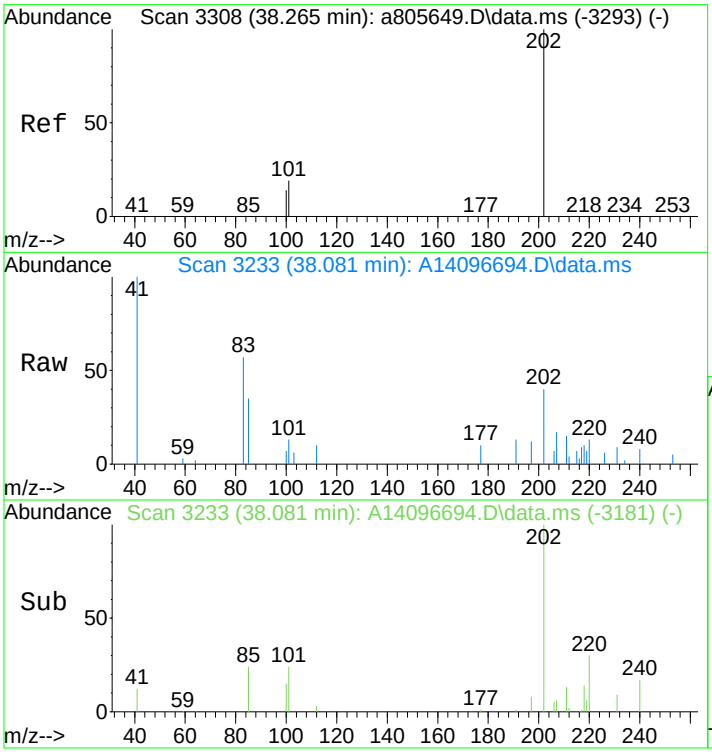


#58
Fluoranthene
Concen: 26.69 ng/mL m
RT: 37.205 min Scan# 3137
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:202 Resp: 6198

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.8	17.8#

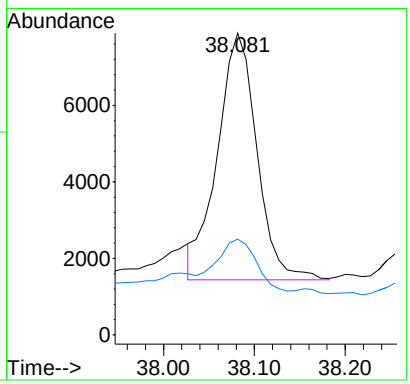


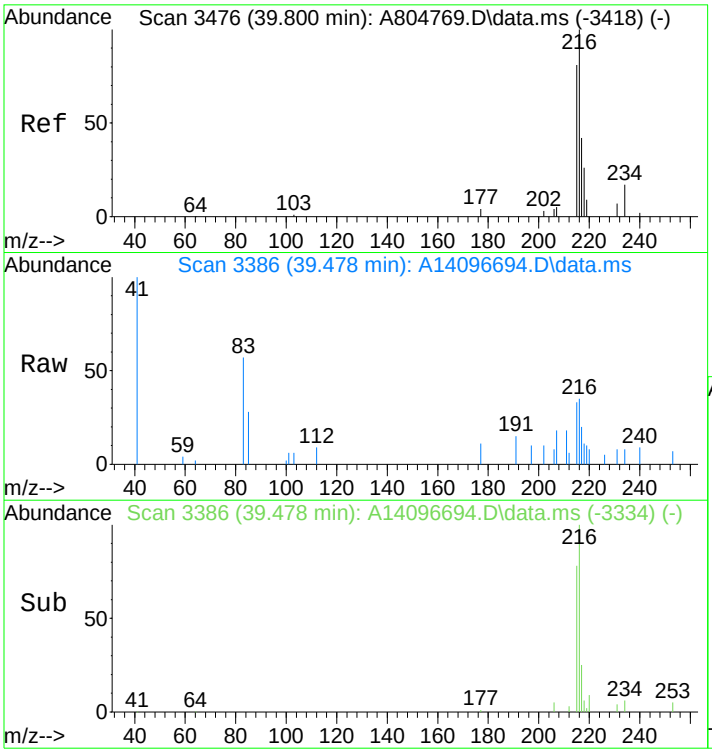


#60
Pyrene
Concen: 81.06 ng/mL m
RT: 38.081 min Scan# 3233
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:202 Resp: 19562

Ion	Ratio	Lower	Upper
202	100		
101	21.6	13.8	20.6#

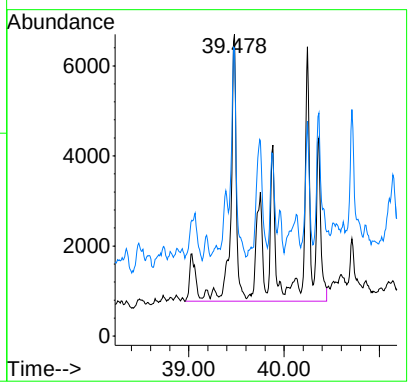


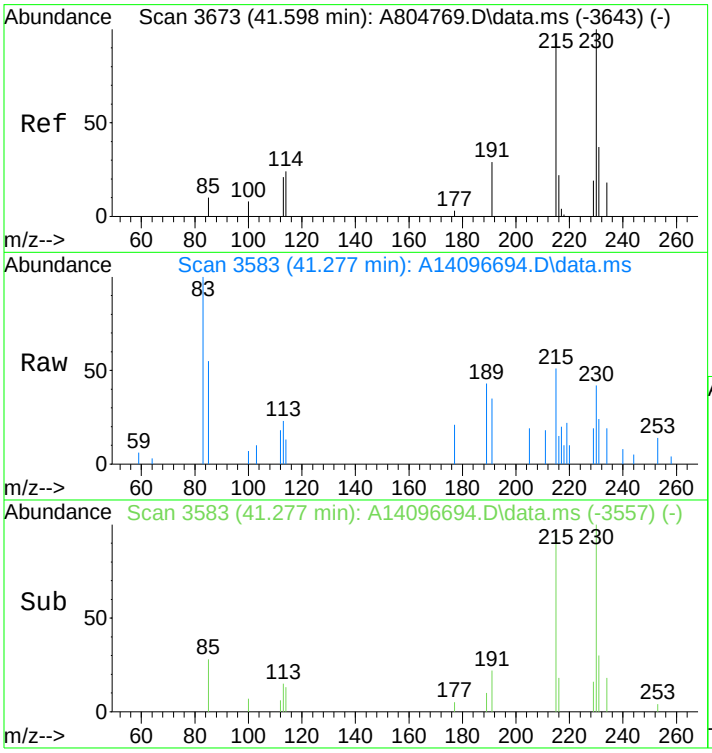


#61
C1-Fluoranthenes/Pyrenes
Concen: 339.45 ng/mL m
RT: 39.478 min Scan# 3386
Delta R.T. -0.164 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:216 Resp: 81923

Ion	Ratio	Lower	Upper
216	100		
215	14.8	82.9	124.3#

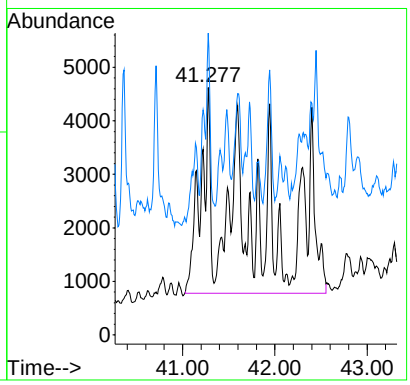


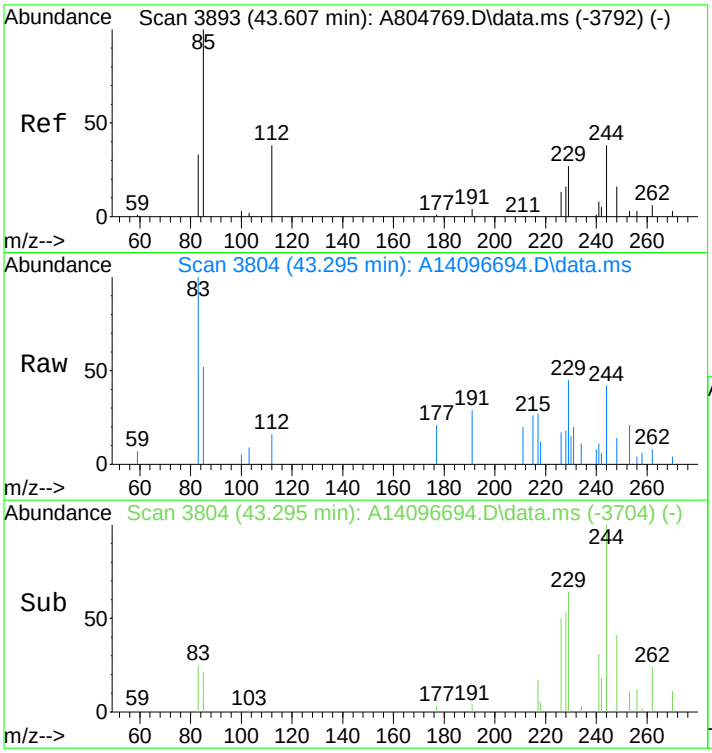


#62
C2-Fluoranthenes/Pyrenes
Concen: 482.56 ng/mL m
RT: 41.277 min Scan# 3583
Delta R.T. 0.078 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:230 Resp: 116461

Ion	Ratio	Lower	Upper
230	100		
215	2.7	88.1	132.1#

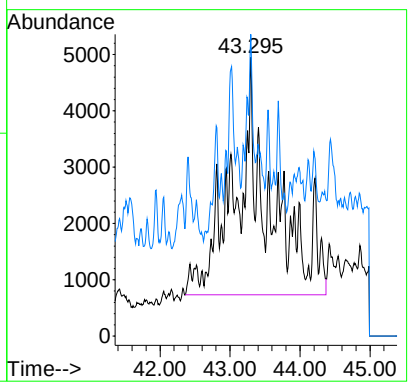


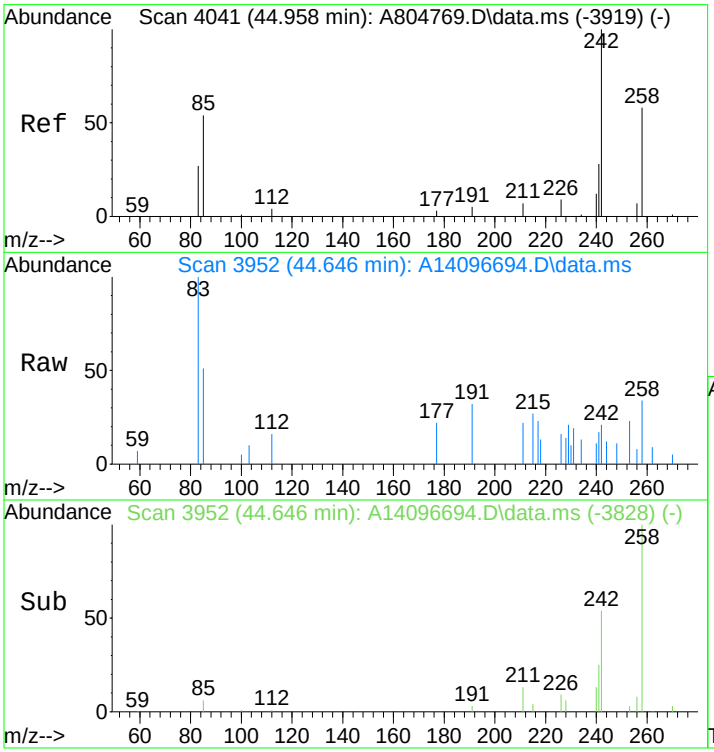


#63
C3-Fluoranthenes/Pyrenes
Concen: 605.64 ng/mL m
RT: 43.295 min Scan# 3804
Delta R.T. 0.092 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:244 Resp: 146164

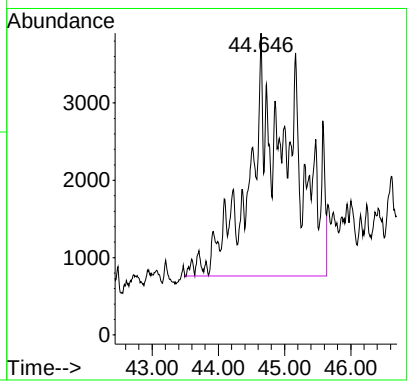
Ion	Ratio	Lower	Upper
244	100		
229	1.2	79.7	119.5#

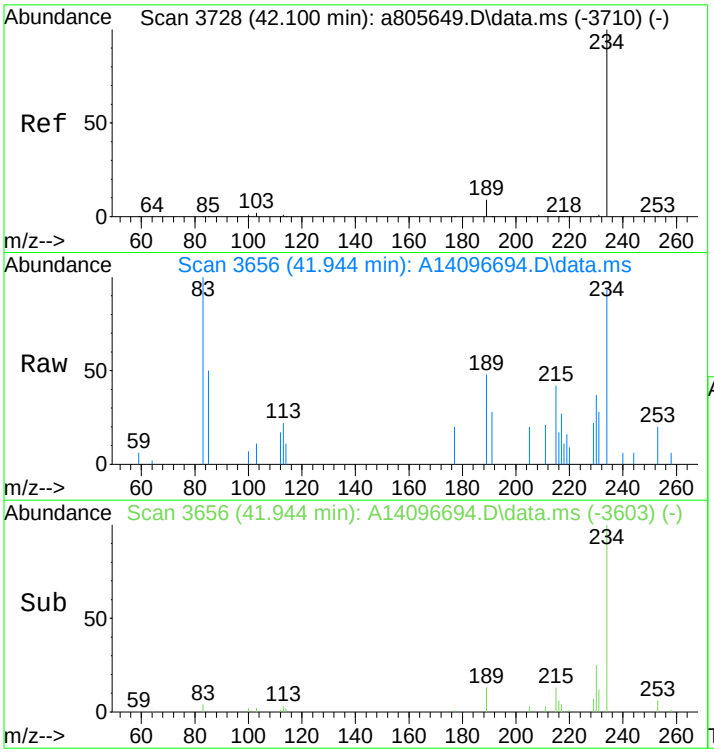




#64
C4-Fluoranthenes/Pyrenes
Concen: 564.81 ng/mL m
RT: 44.646 min Scan# 3952
Delta R.T. 0.100 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:258 Resp: 136310

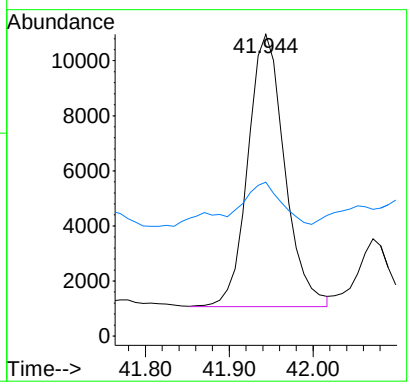


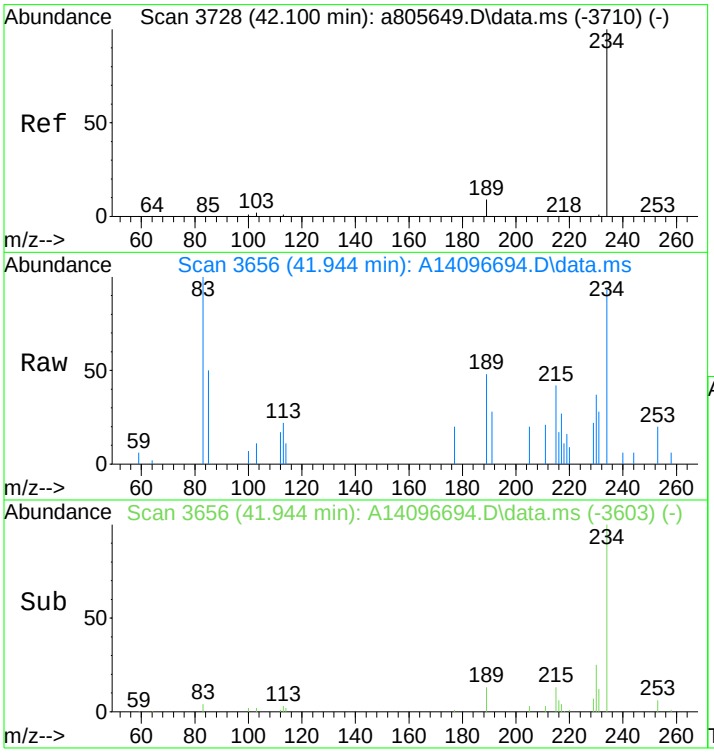


#66
Naphthobenzothiophene
Concen: 143.47 ng/ml m
RT: 41.944 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:234 Resp: 30020

Ion	Ratio	Lower	Upper
234	100		
189	6.9	29.1	43.7#

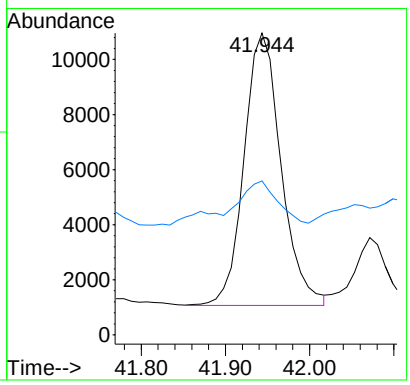


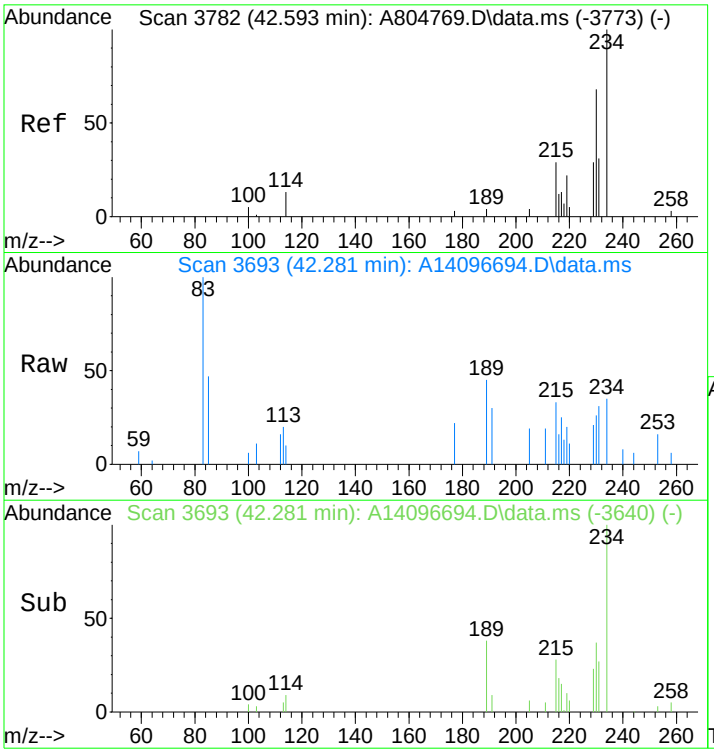


#67
Naphthobenzothiophene-2,1-D
Concen: 143.98 ng/mL m
RT: 41.944 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:234 Resp: 30128

Ion	Ratio	Lower	Upper
234	100		
189	6.9	29.1	43.7#

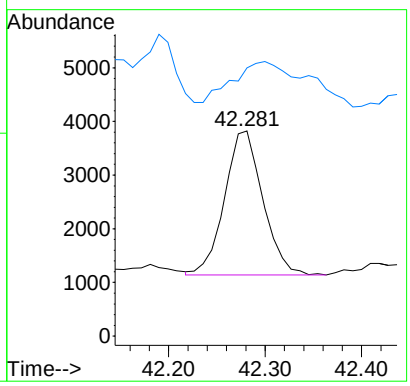


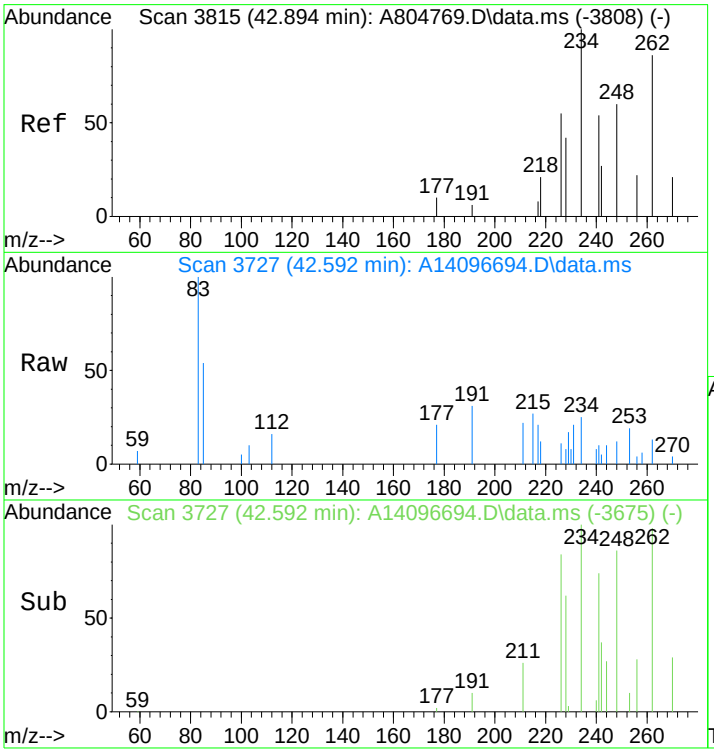


#68
Naphthobenzothiophene-1,2-D
Concen: 35.31 ng/mL
RT: 42.281 min Scan# 3693
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:234 Resp: 7389

Ion	Ratio	Lower	Upper
234	100		
189	0.0	84.7	127.1#

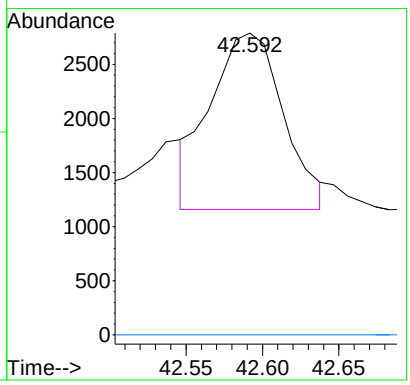


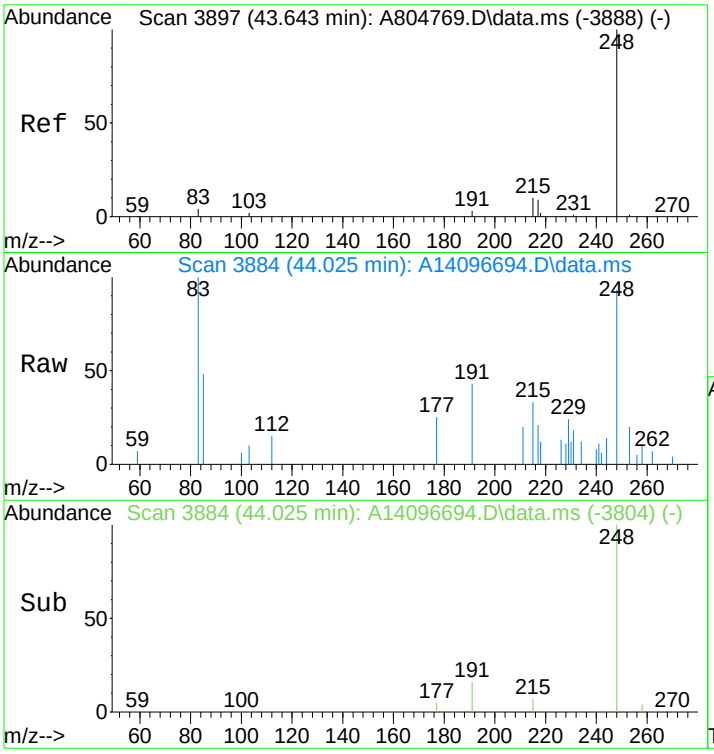


#69
Naphthobenzothiophene-2,3-D
Concen: 25.88 ng/mL m
RT: 42.592 min Scan# 3727
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:234 Resp: 5416

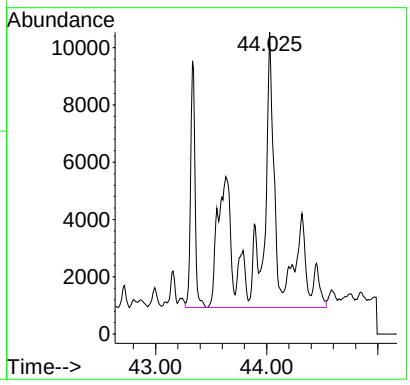
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

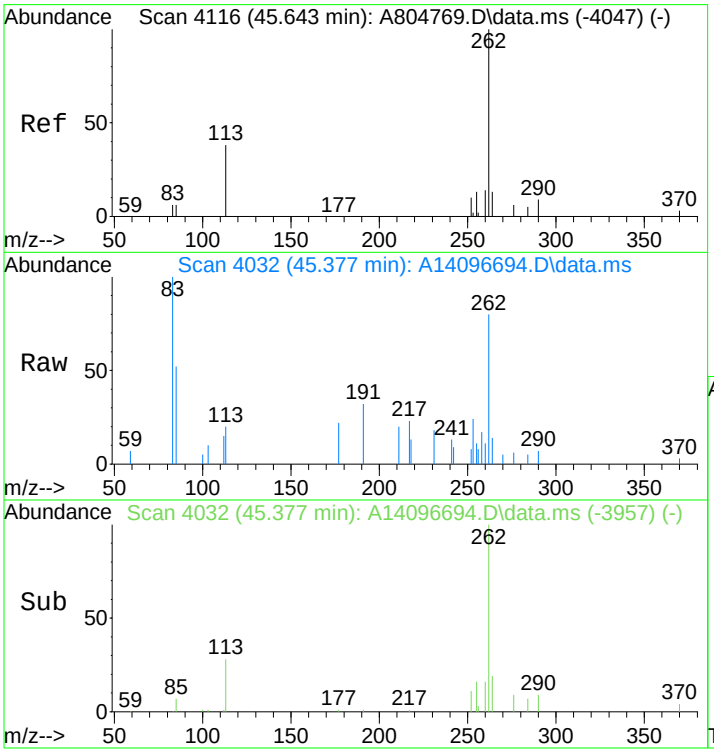




#70
C1-Naphthobenzothiophenes
Concen: 717.54 ng/ml m
RT: 44.025 min Scan# 3884
Delta R.T. 0.676 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

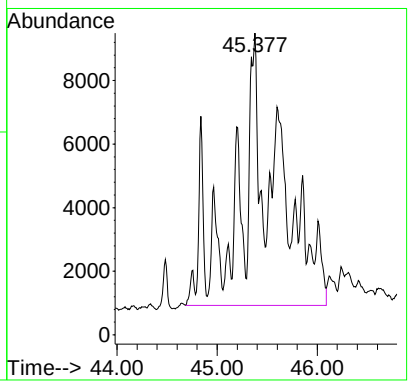
Tgt Ion:248 Resp: 150142

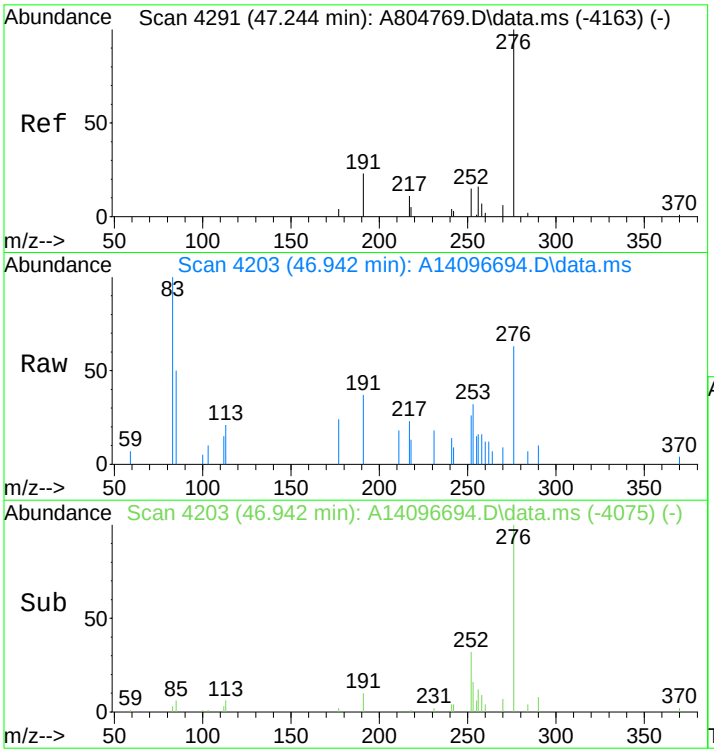




#71
C2-Naphthobenzothiophenes
Concen: 1088.50 ng/ml m
RT: 45.377 min Scan# 4032
Delta R.T. 0.141 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

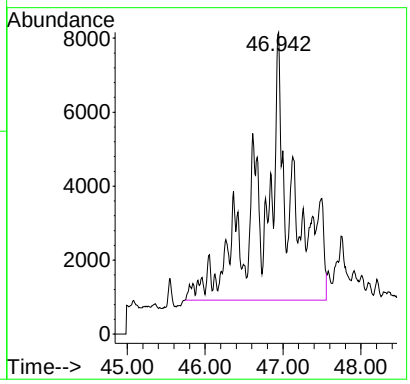
Tgt Ion:262 Resp: 227763

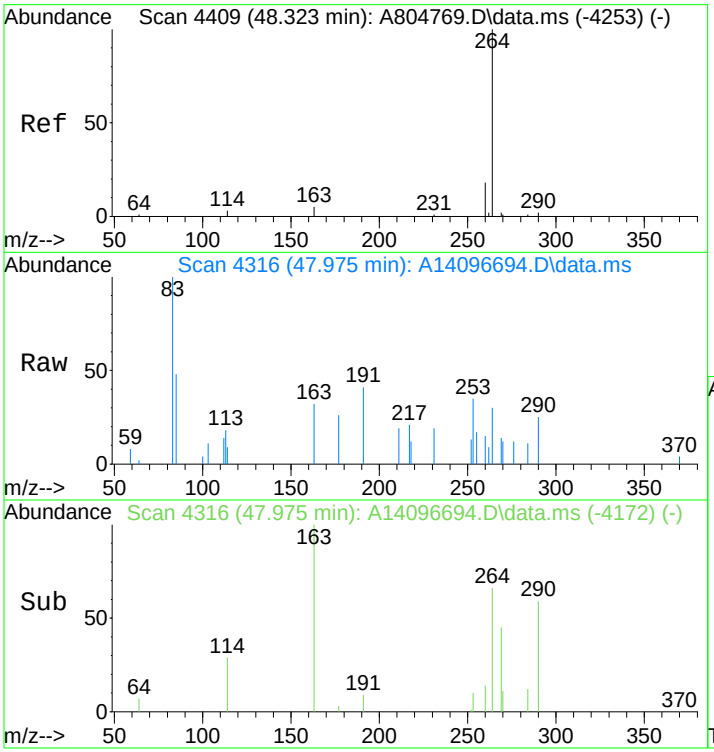




#72
C3-Naphthobenzothiophenes
Concen: 952.32 ng/ml m
RT: 46.942 min Scan# 4203
Delta R.T. 0.115 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

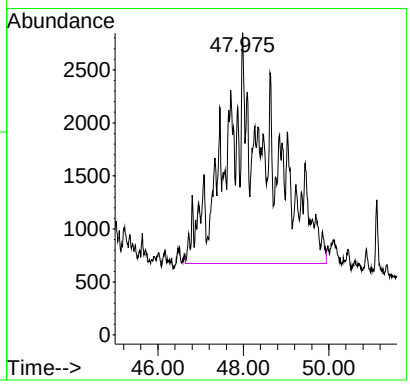
Tgt Ion:276 Resp: 199269

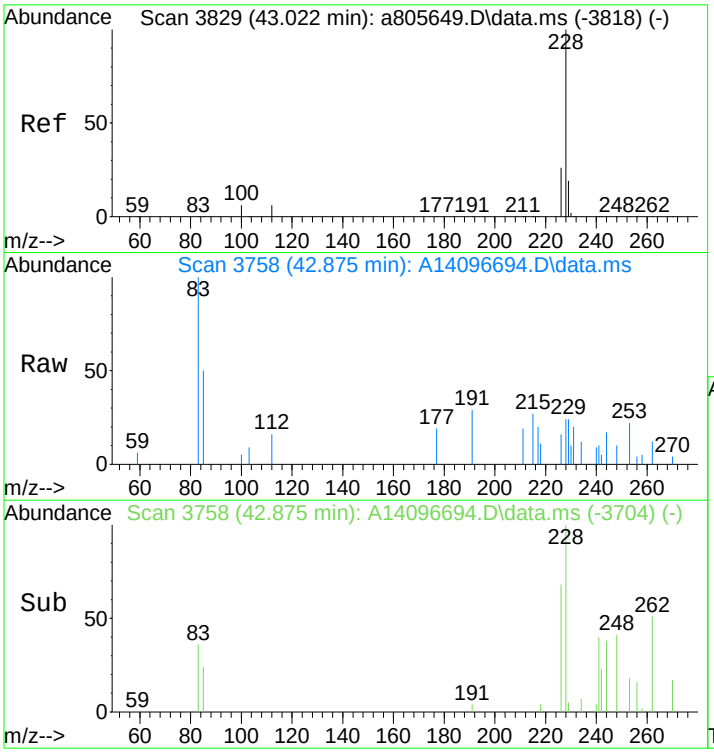




#73
C4-Naphthobenzothiophenes
Concen: 733.45 ng/mL m
RT: 47.975 min Scan# 4316
Delta R.T. 0.086 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:290 Resp: 153470

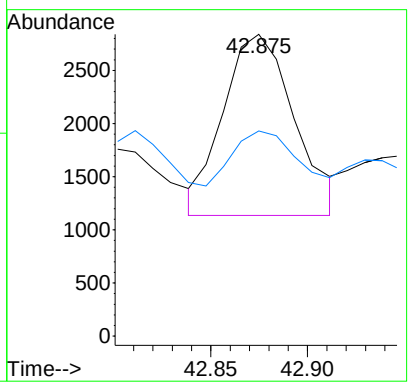


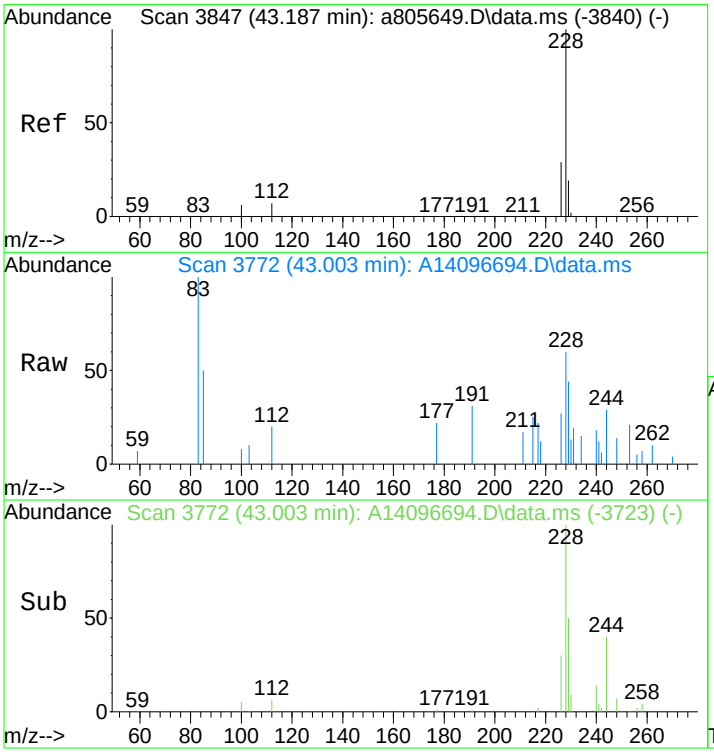


#75
Benz[a]anthracene
Concen: 19.14 ng/mL m
RT: 42.875 min Scan# 3758
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:228 Resp: 4363

Ion	Ratio	Lower	Upper
228	100		
226	26.1	20.3	30.5

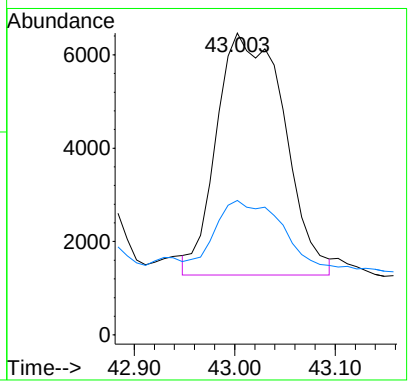


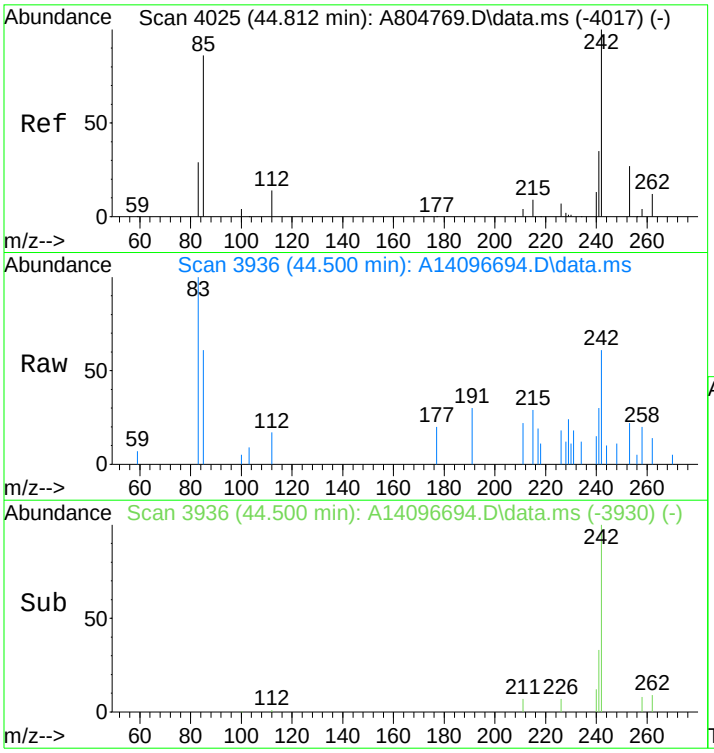


#77
Chrysene/Triphenylene
Concen: 107.02 ng/mL m
RT: 43.003 min Scan# 3772
Delta R.T. -0.055 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:228 Resp: 24082

Ion	Ratio	Lower	Upper
228	100		
226	31.1	22.2	33.2

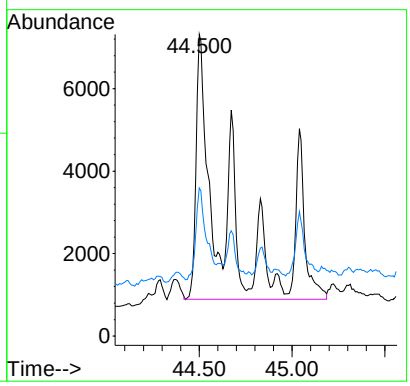


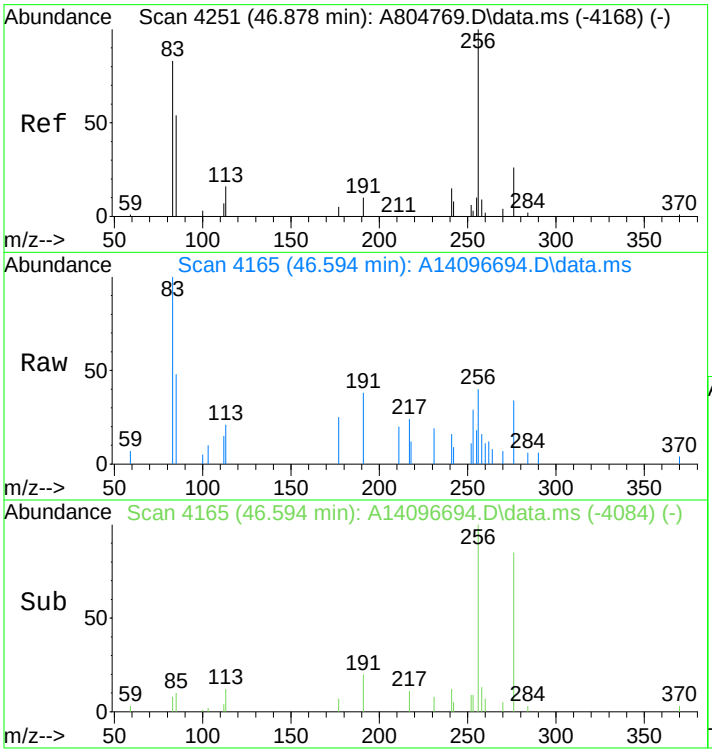


#78
C1-Chrysenes
Concen: 287.07 ng/mL m
RT: 44.500 min Scan# 3936
Delta R.T. -0.008 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:242 Resp: 64600

Ion	Ratio	Lower	Upper
242	100		
241	8.2	33.7	50.5#

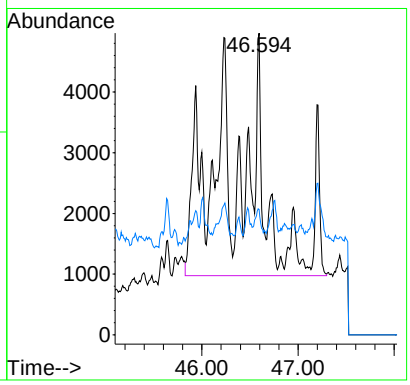


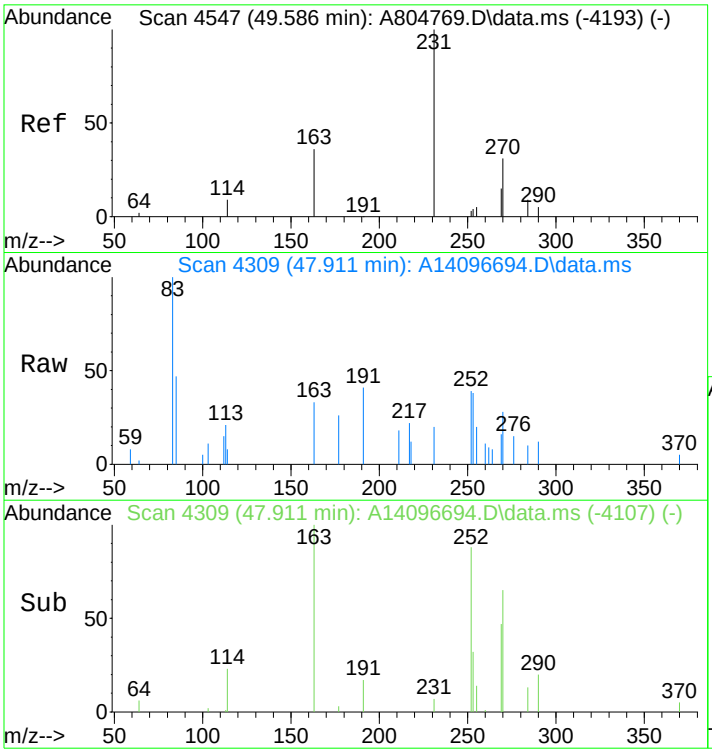


#79
C2-Chrysenes
Concen: 460.12 ng/mL m
RT: 46.594 min Scan# 4165
Delta R.T. -0.004 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:256 Resp: 103541

Ion	Ratio	Lower	Upper
256	100		
241	2.6	28.1	42.1#

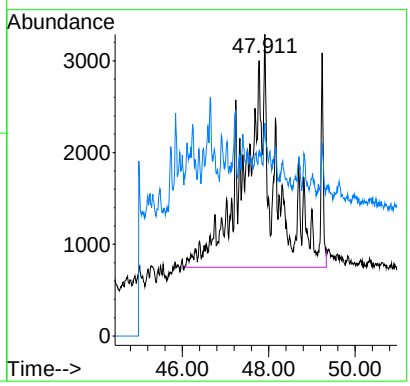


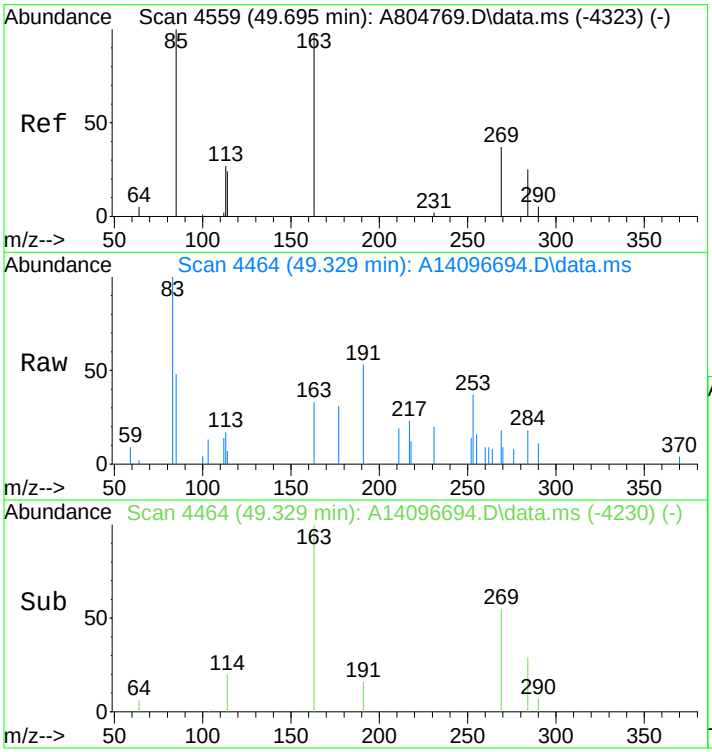


#80
C3-Chrysenes
Concen: 563.60 ng/mL m
RT: 47.911 min Scan# 4309
Delta R.T. -1.365 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:270 Resp: 126828

Ion	Ratio	Lower	Upper
270	100		
255	1.2	52.2	78.4#

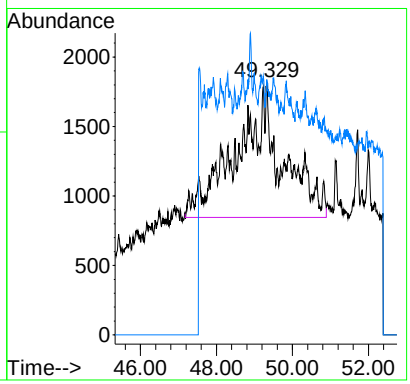


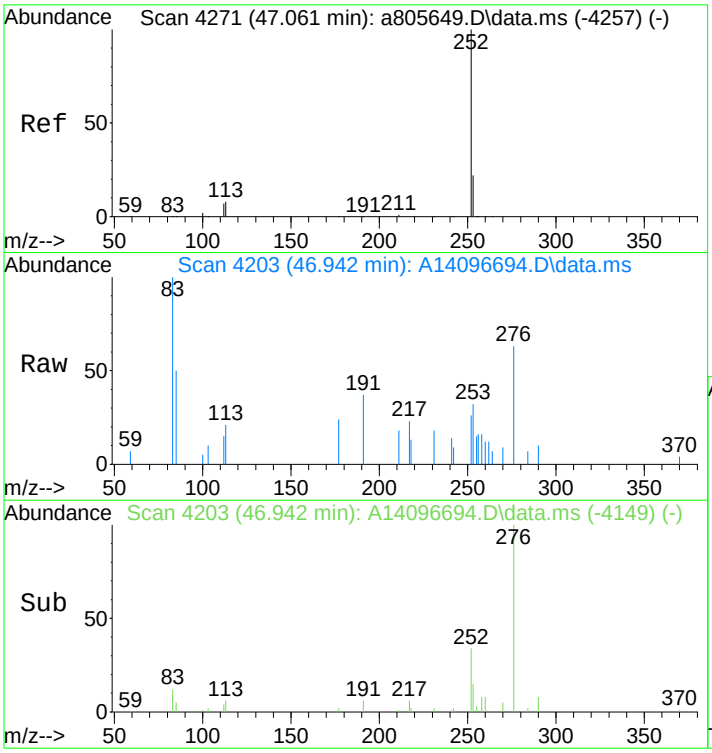


#81
C4-Chrysenes
Concen: 351.20 ng/mL m
RT: 49.329 min Scan# 4464
Delta R.T. -0.032 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:284 Resp: 79031

Ion	Ratio	Lower	Upper
284	100		
269	0.0	72.2	108.2#

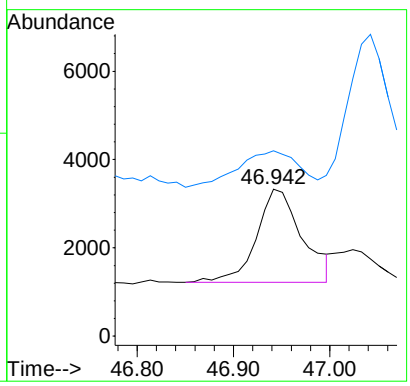


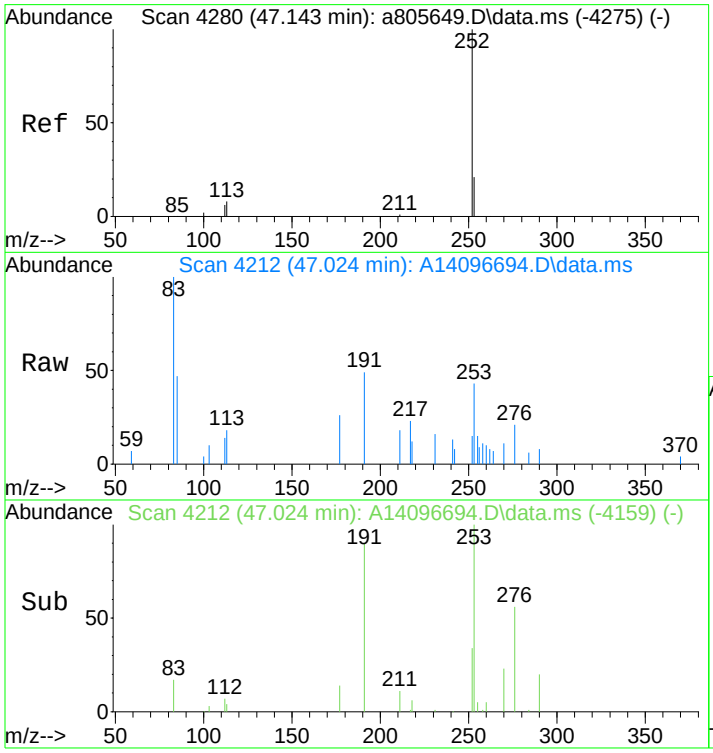


#82
Benzo[b]fluoranthene
Concen: 30.89 ng/mL
RT: 46.942 min Scan# 4203
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:252 Resp: 6963

Ion	Ratio	Lower	Upper
252	100		
253	51.1	19.9	29.9#

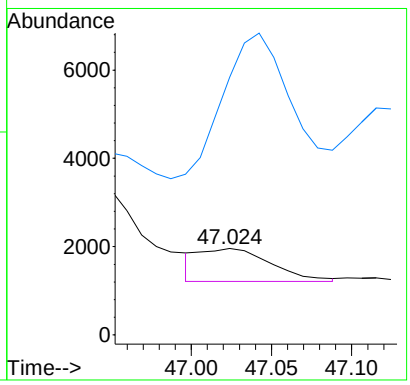


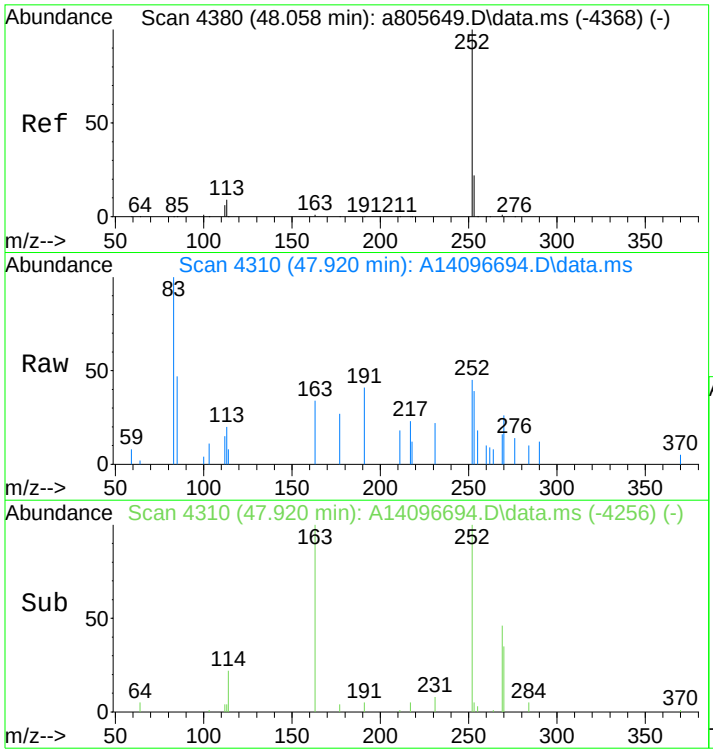


#83
Benzo[j]+[k]fluoranthene
Concen: 9.35 ng/mL m
RT: 47.024 min Scan# 4212
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:252 Resp: 2328

Ion	Ratio	Lower	Upper
252	100		
253	152.7	20.1	30.1#

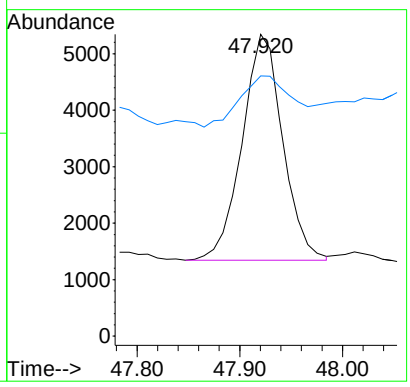


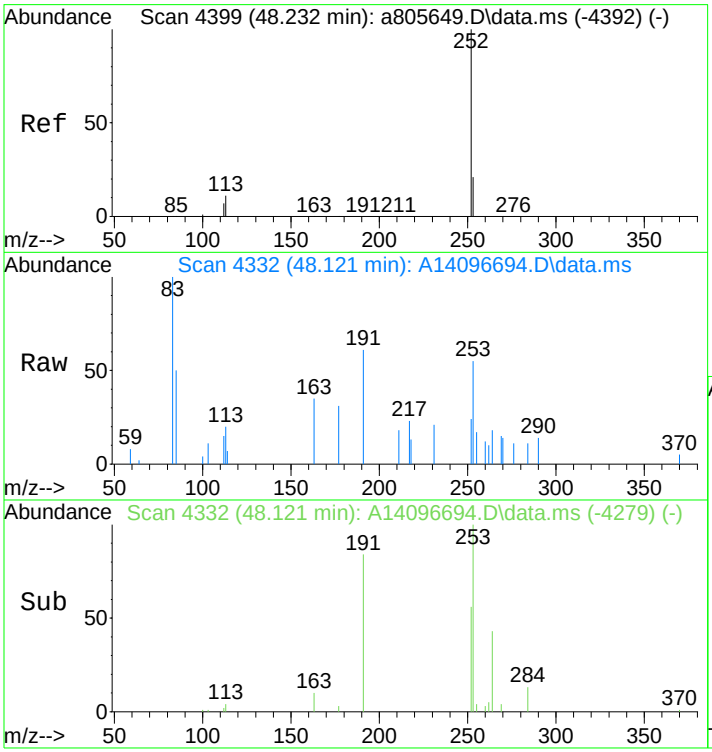


#85
Benzo[e]pyrene
Concen: 49.26 ng/mL
RT: 47.920 min Scan# 4310
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:252 Resp: 11009

Ion	Ratio	Lower	Upper
252	100		
253	28.7	20.1	30.1

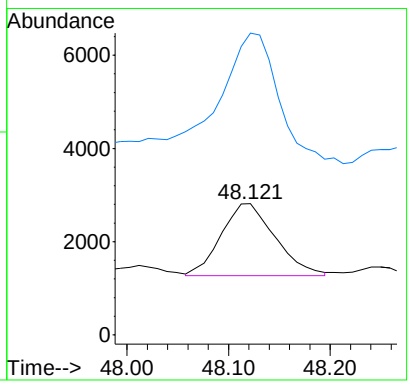


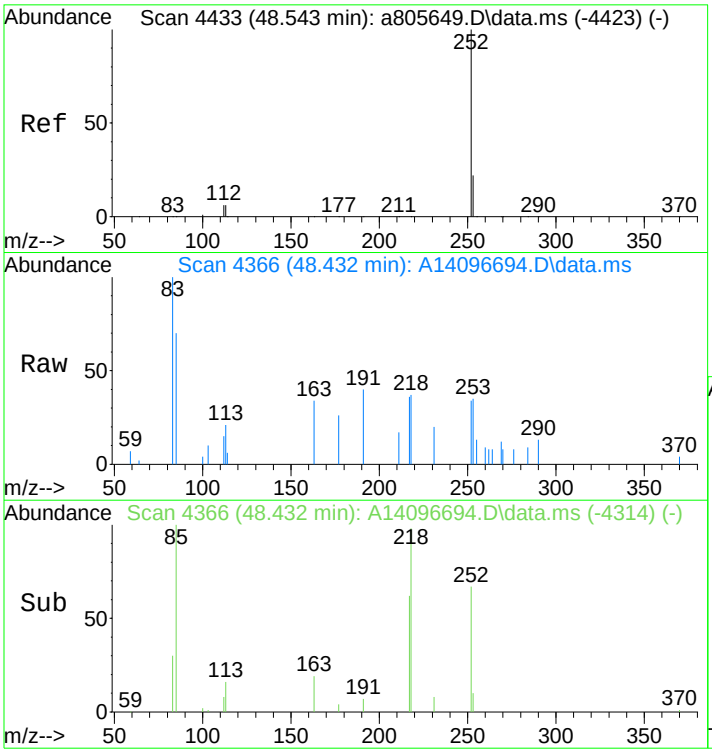


#87
Benzo[a]pyrene
Concen: 27.45 ng/mL m
RT: 48.121 min Scan# 4332
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:252 Resp: 5737

Ion	Ratio	Lower	Upper
252	100		
253	55.1	23.0	34.4#

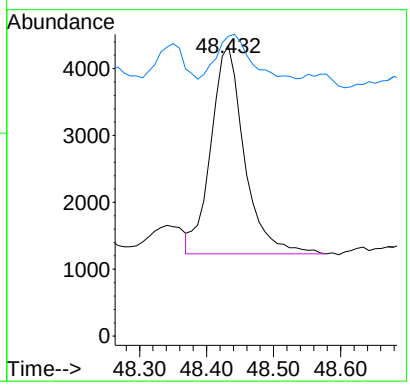


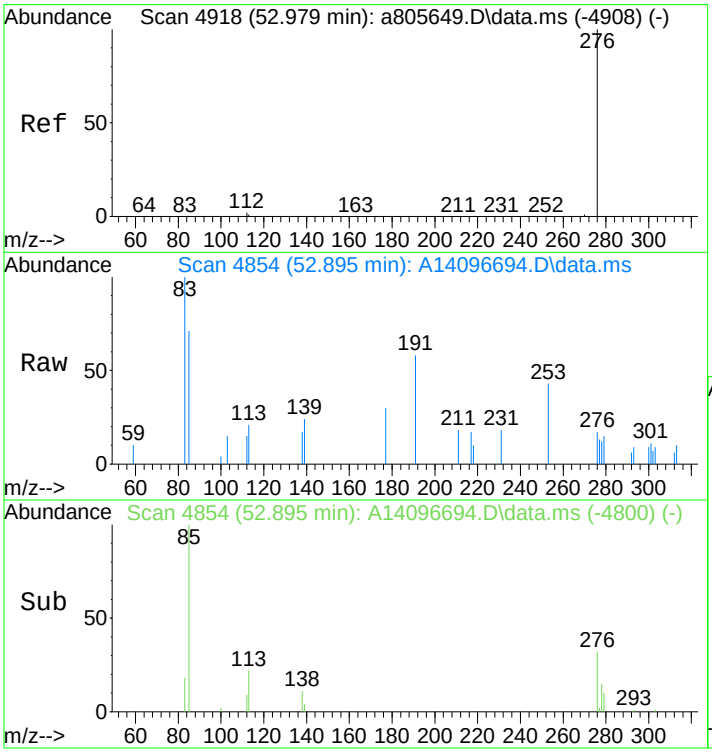


#88
Perylene
Concen: 47.65 ng/mL
RT: 48.432 min Scan# 4366
Delta R.T. -0.027 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:252 Resp: 10797

Ion	Ratio	Lower	Upper
252	100		
253	24.0	23.3	34.9

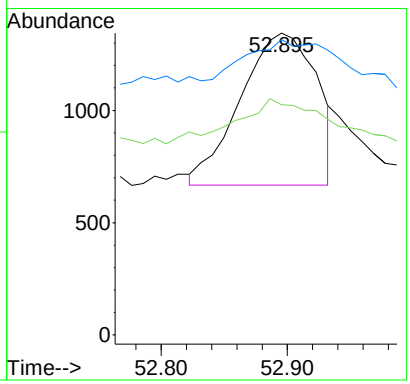


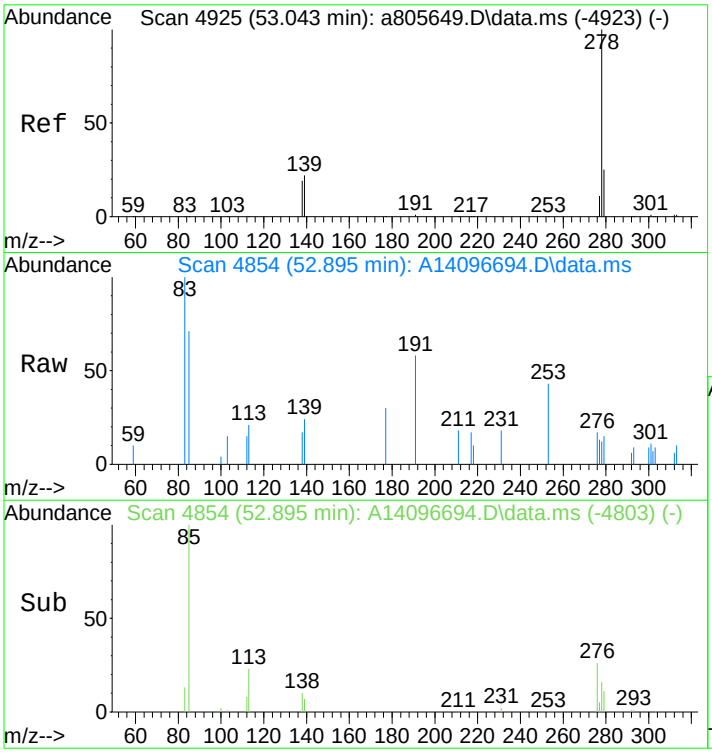


#89
Indeno[1,2,3-cd]pyrene
Concen: 10.88 ng/mL m
RT: 52.895 min Scan# 4854
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:276 Resp: 2845

Ion	Ratio	Lower	Upper
276	100		
138	0.0	23.2	34.8#
277	0.0	19.8	29.8#

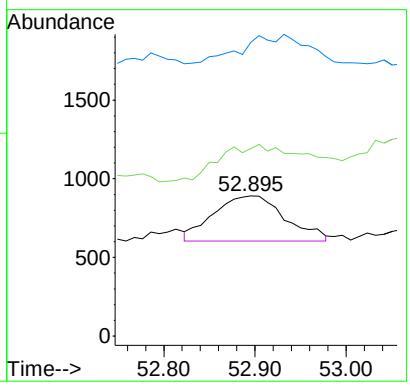


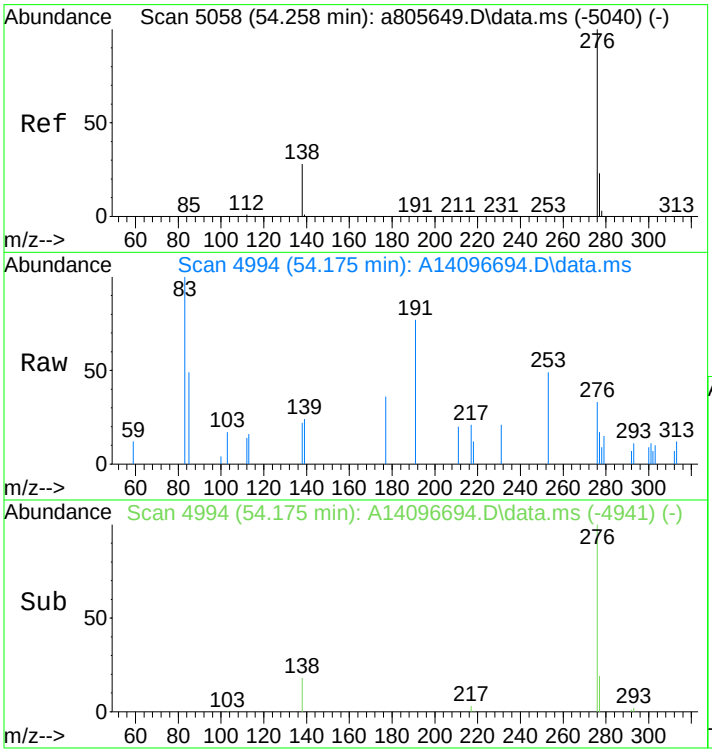


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.37 ng/mL m
RT: 52.895 min Scan# 4854
Delta R.T. -0.037 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:278 Resp: 1565

Ion	Ratio	Lower	Upper
278	100		
139	31.1	16.1	24.1#
279	0.0	19.6	29.4#

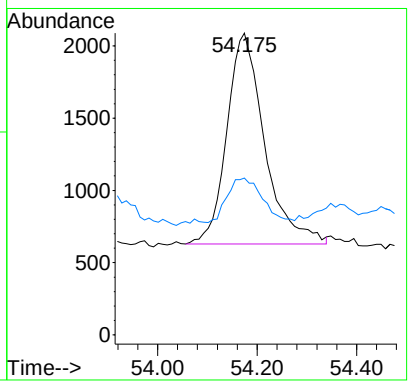


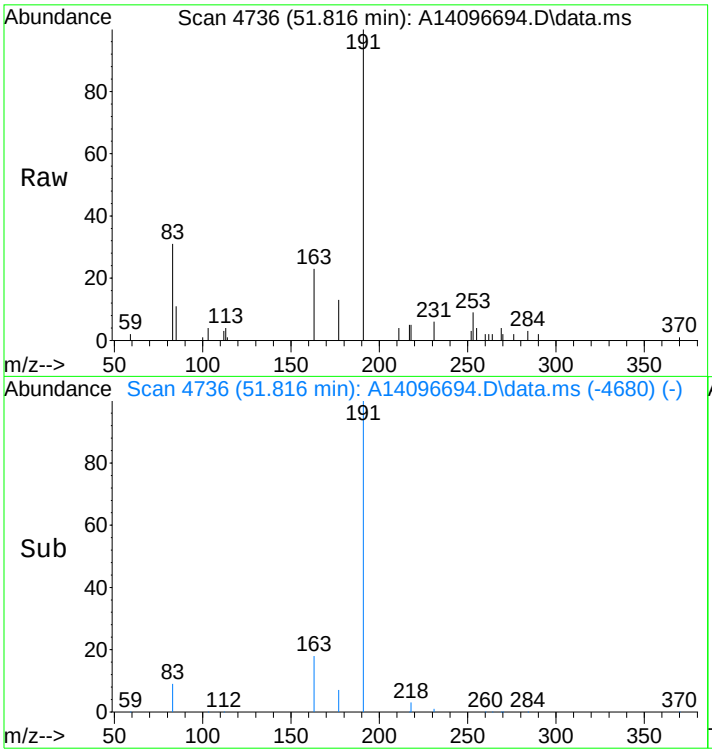


#91
Benzo[g,h,i]perylene
Concen: 30.65 ng/mL
RT: 54.175 min Scan# 4994
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:276 Resp: 7685

Ion	Ratio	Lower	Upper
276	100		
277	19.5	19.0	28.6

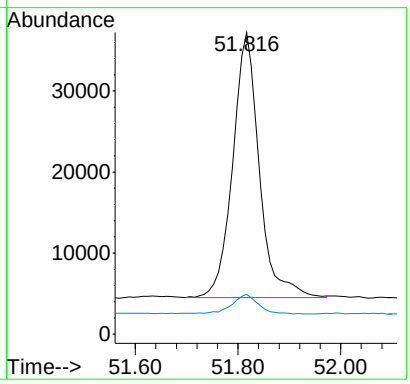


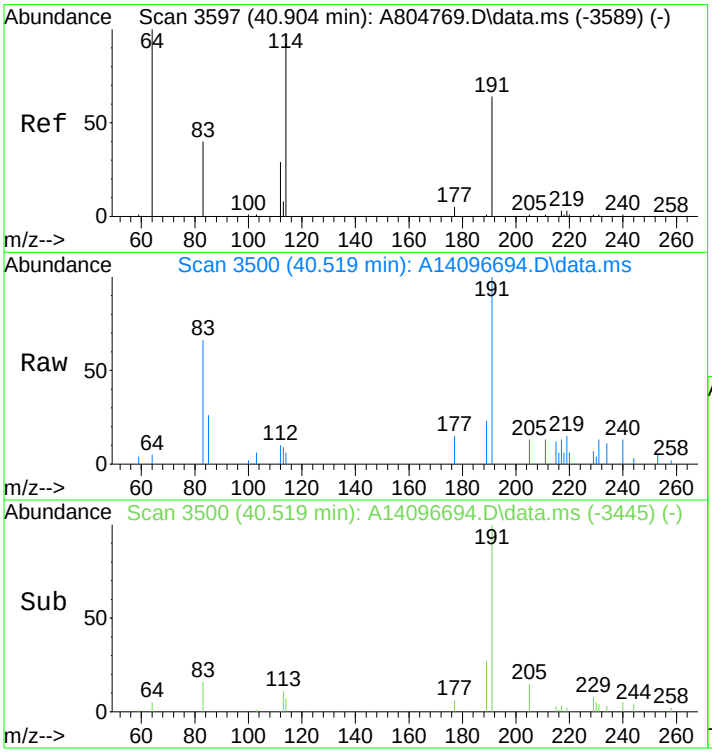


#92
Hopane (T19)
Concen: 1577.27 ng/mL
RT: 51.816 min Scan# 4736
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:191 Resp: 117395

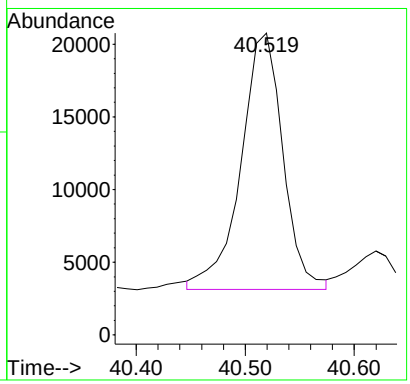
Ion	Ratio	Lower	Upper
191	100		
177	7.3	12.1	18.1#

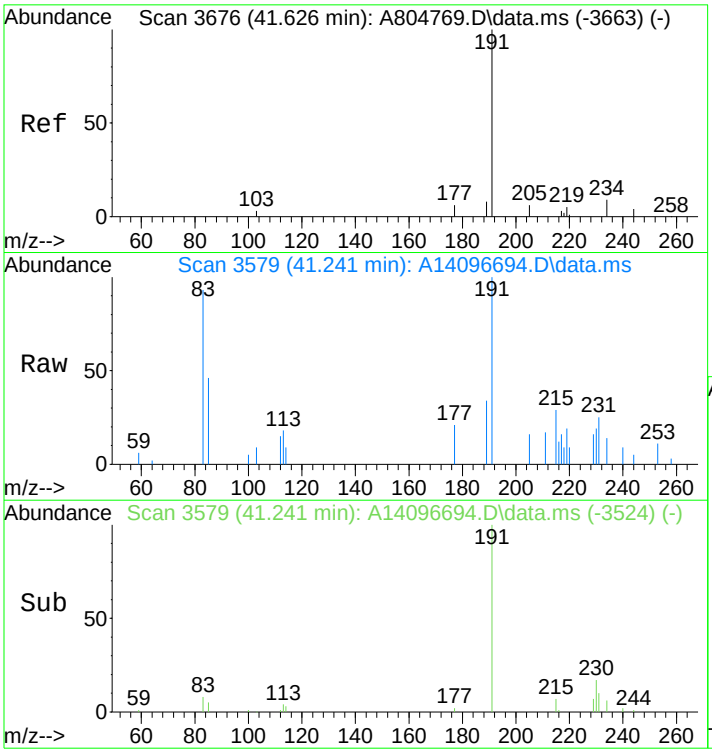




#94
C23 Tricyclic Terpane (T4)
Concen: 636.44 ng/ml m
RT: 40.519 min Scan# 3500
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

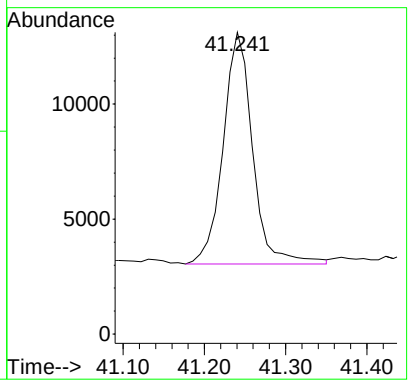
Tgt Ion:191 Resp: 47370

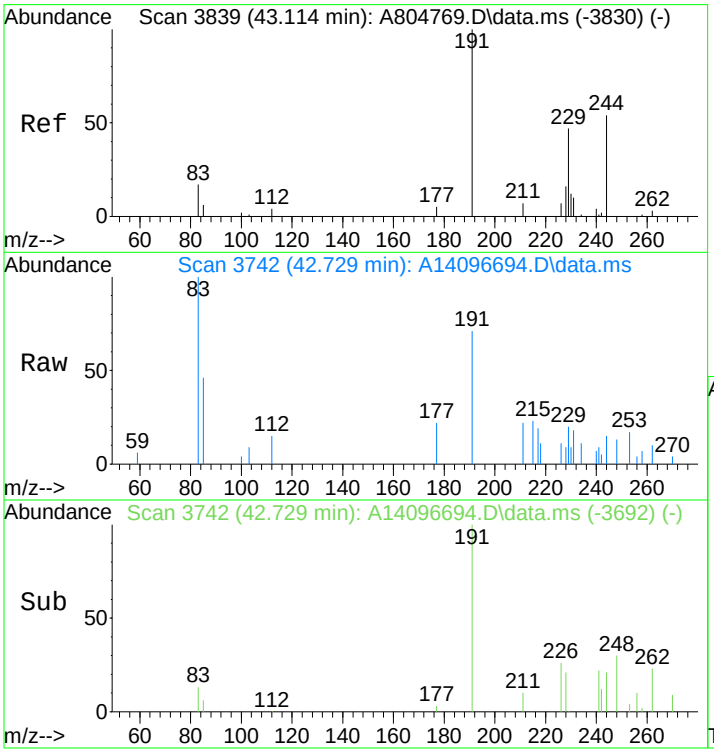




#95
C24 Tricyclic Terpane (T5)
Concen: 341.02 ng/ml
RT: 41.241 min Scan# 3579
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

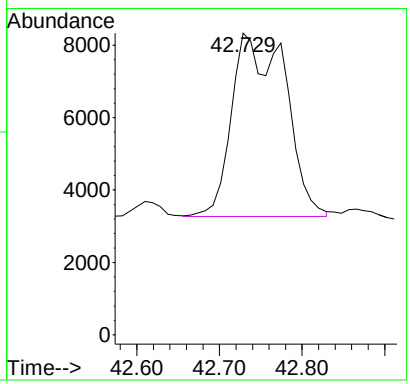
Tgt Ion:191 Resp: 25382

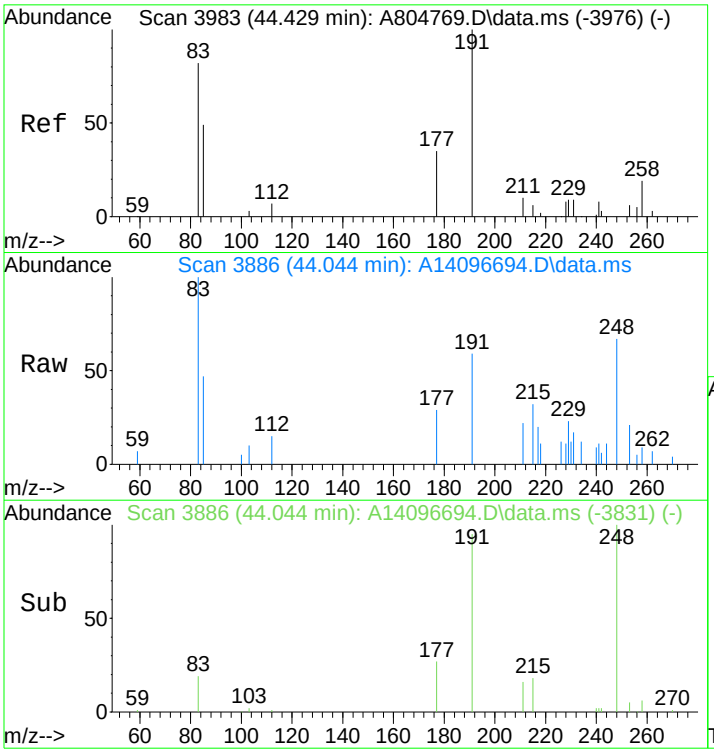




#96
C25 Tricyclic Terpane (T6)
Concen: 304.99 ng/ml m
RT: 42.729 min Scan# 3742
Delta R.T. -0.046 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

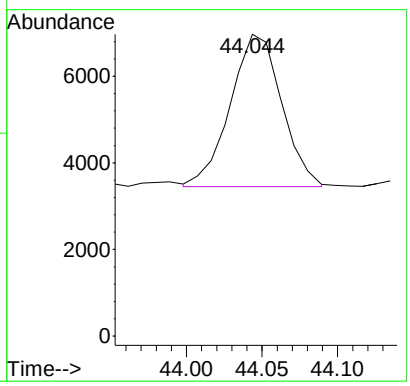
Tgt Ion:191 Resp: 22700

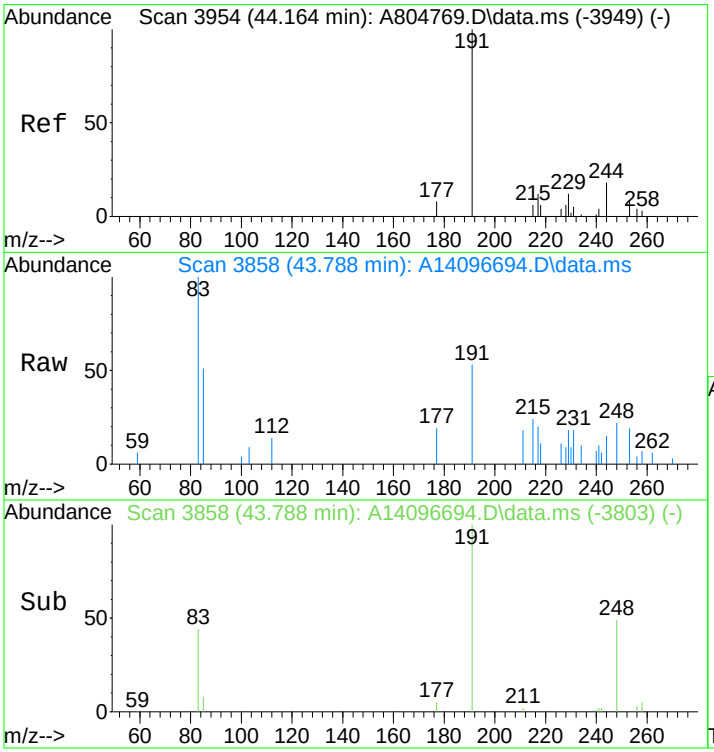




#97
C24 Tetracyclic Terpane (T6a)
Concen: 112.00 ng/ml m
RT: 44.044 min Scan# 3886
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

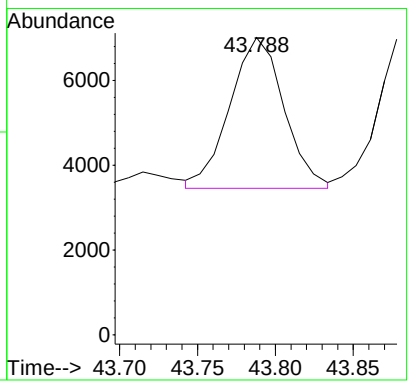
Tgt Ion:191 Resp: 8336

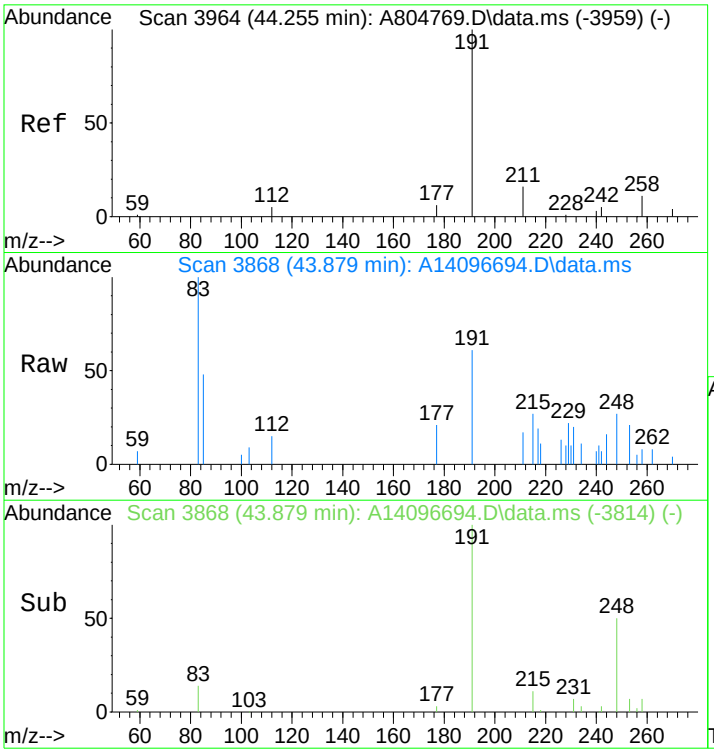




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 115.41 ng/ml m
RT: 43.788 min Scan# 3858
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

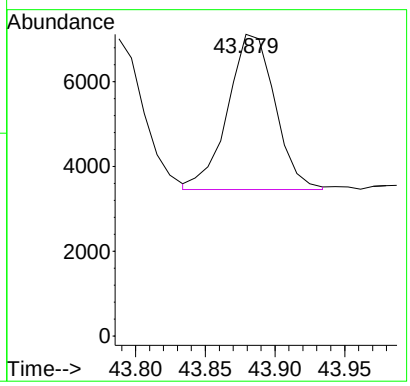
Tgt Ion:191 Resp: 8590

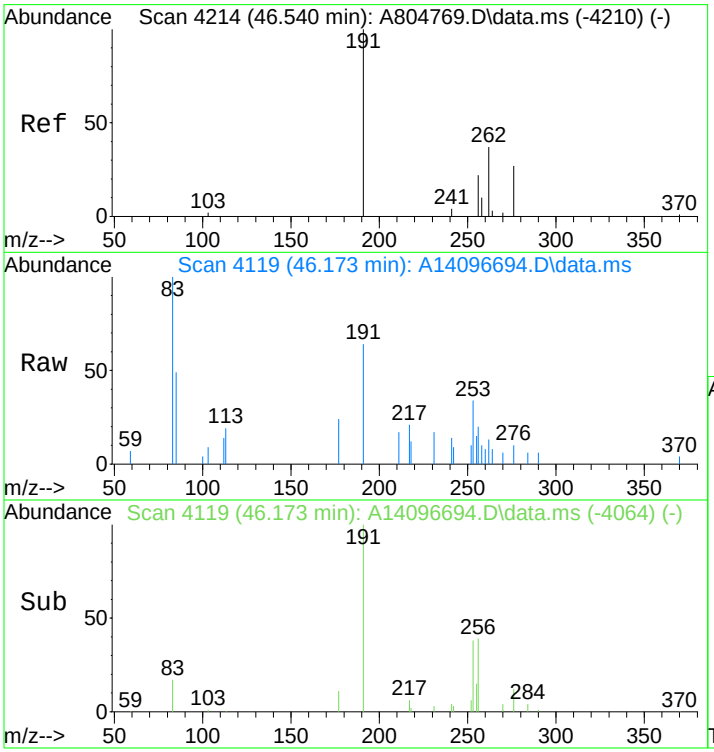




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 115.99 ng/ml m
RT: 43.879 min Scan# 3868
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

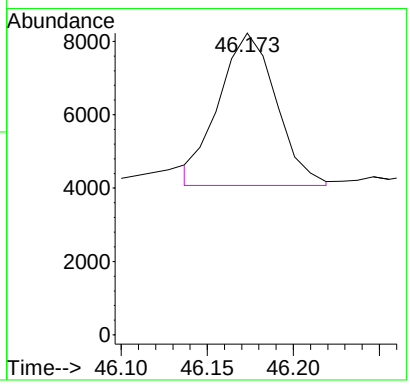
Tgt Ion:191 Resp: 8633

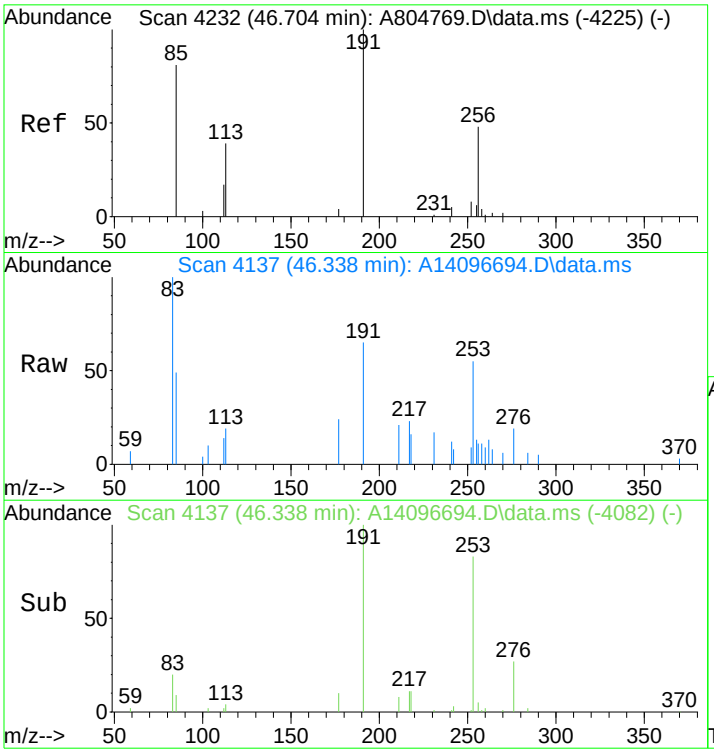




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 128.97 ng/ml m
RT: 46.173 min Scan# 4119
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

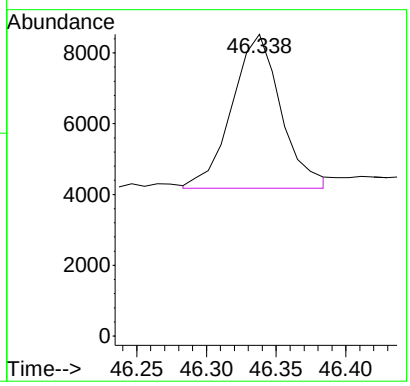
Tgt Ion:191 Resp: 9599

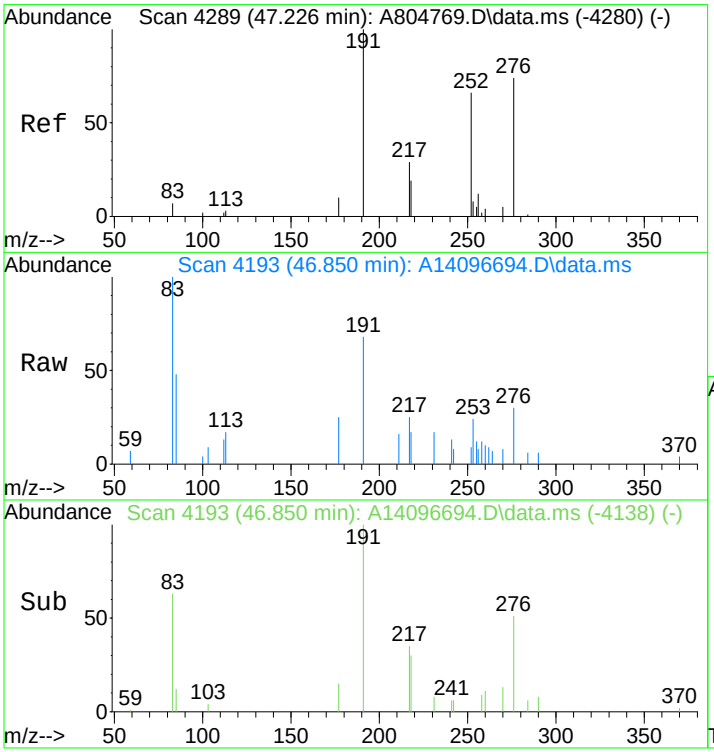




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 142.83 ng/ml m
RT: 46.338 min Scan# 4137
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

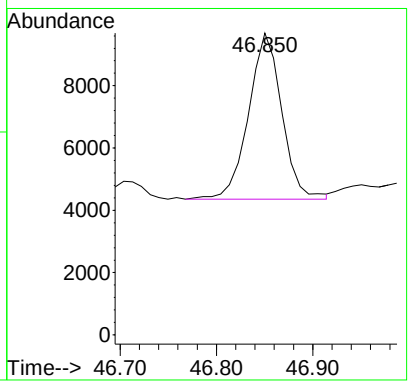
Tgt Ion:191 Resp: 10631

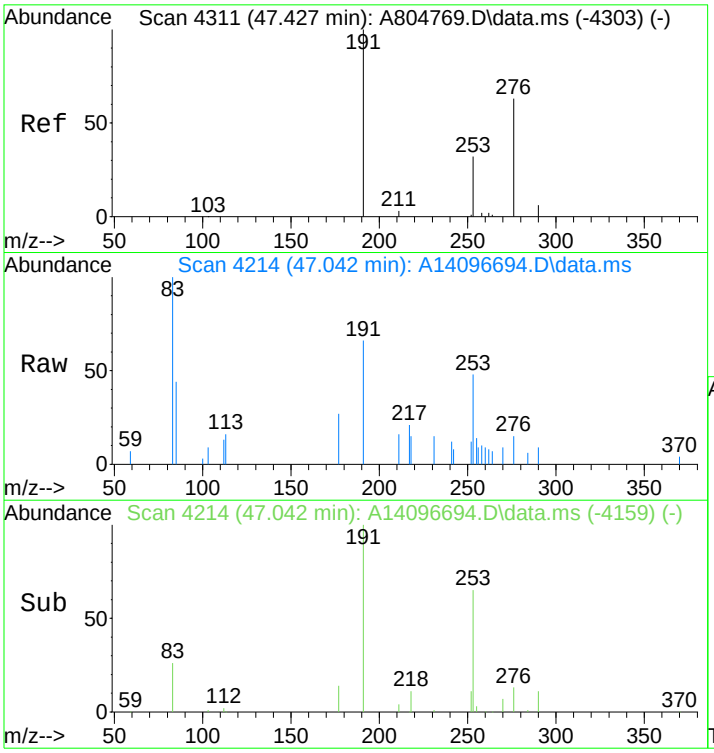




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 171.88 ng/ml
RT: 46.850 min Scan# 4193
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

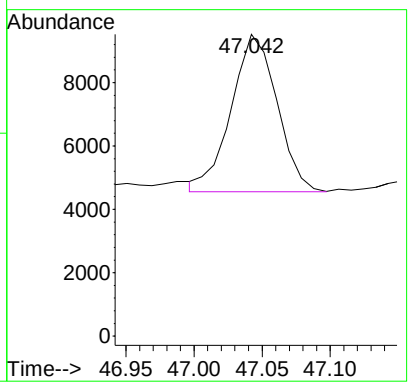
Tgt Ion:191 Resp: 12793

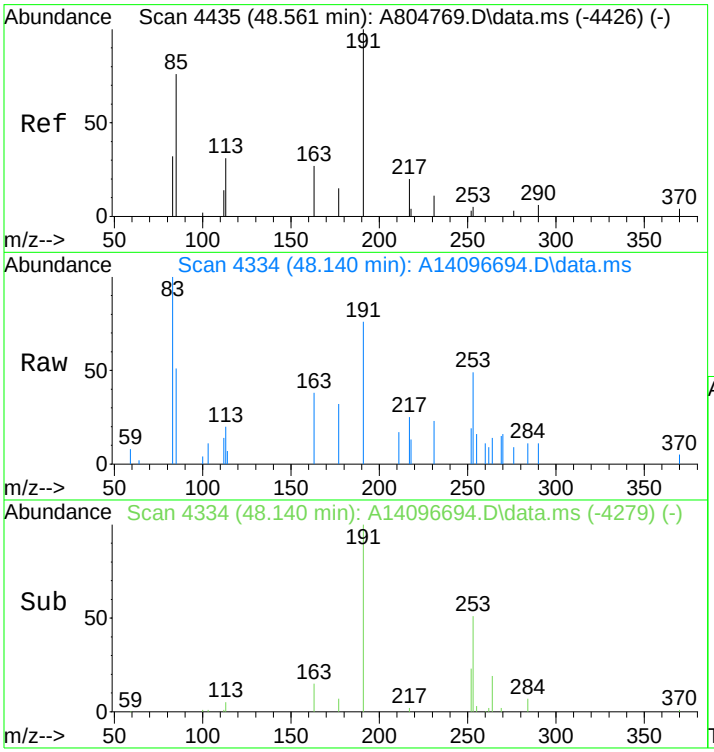




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 156.22 ng/ml m
RT: 47.042 min Scan# 4214
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

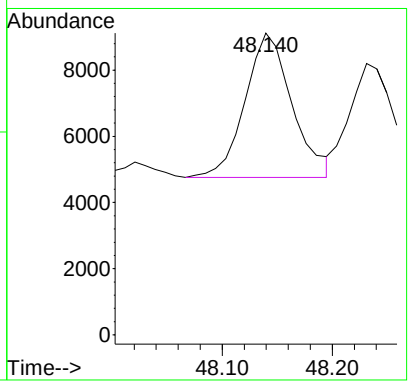
Tgt Ion:191 Resp: 11627

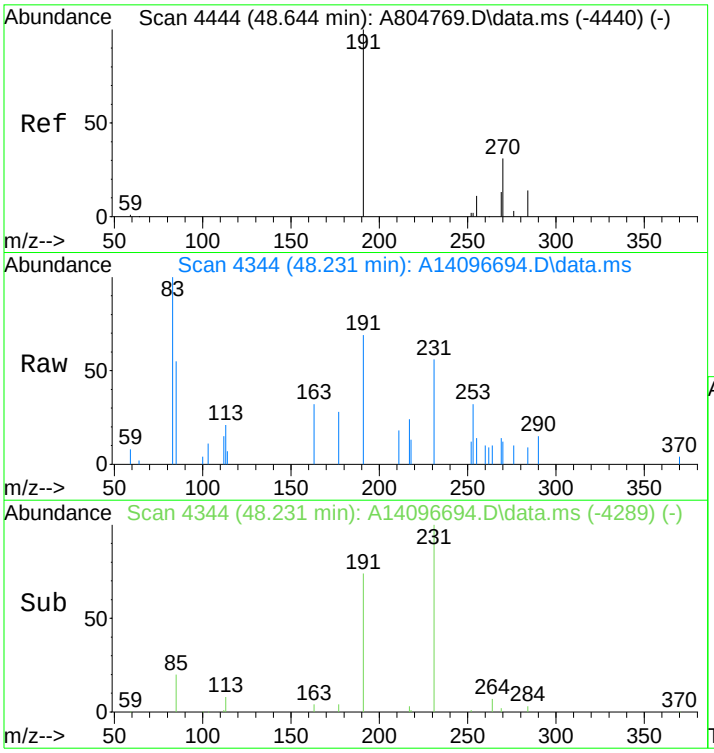




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 173.90 ng/ml
RT: 48.140 min Scan# 4334
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

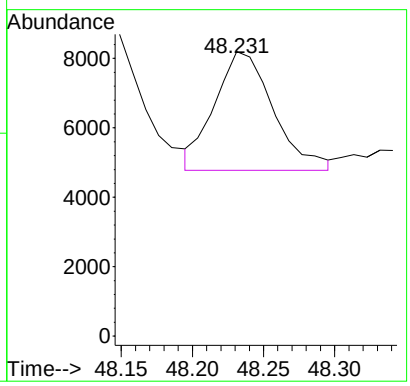
Tgt Ion:191 Resp: 12943

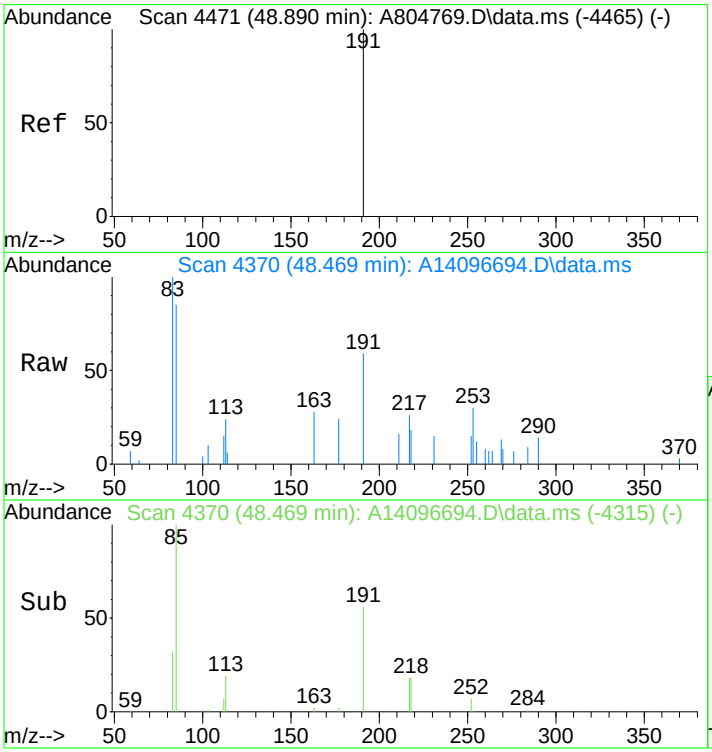




#105
C30 Tricyclic Terpane-22S
Concen: 131.88 ng/mL m
RT: 48.231 min Scan# 4344
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

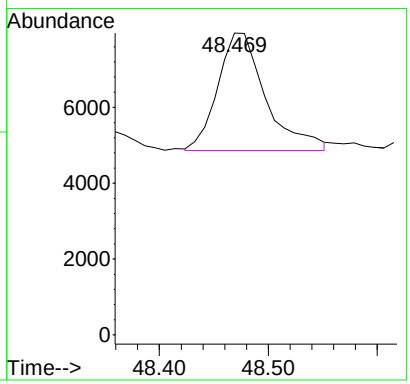
Tgt Ion:191 Resp: 9816

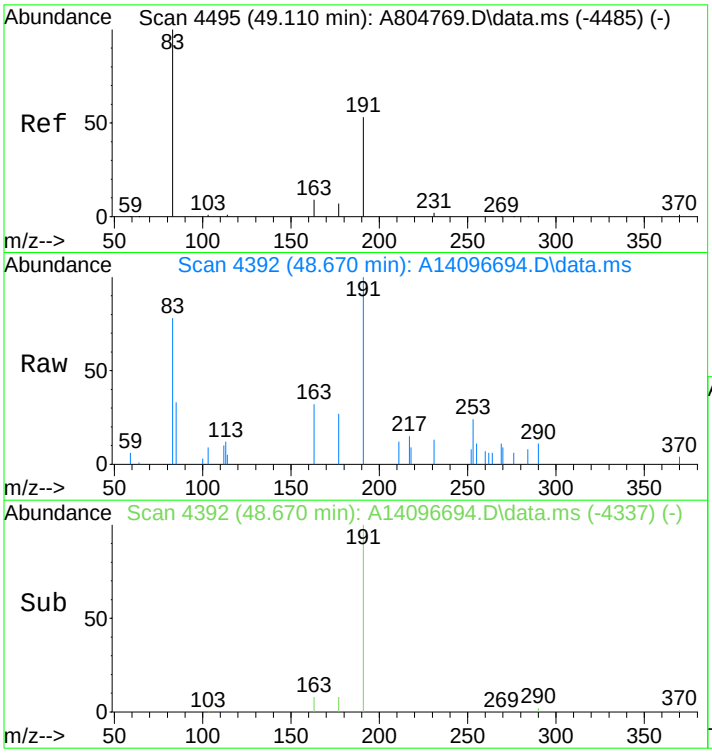




#106
C30 Tricyclic Terpane-22R
Concen: 128.44 ng/mL m
RT: 48.469 min Scan# 4370
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

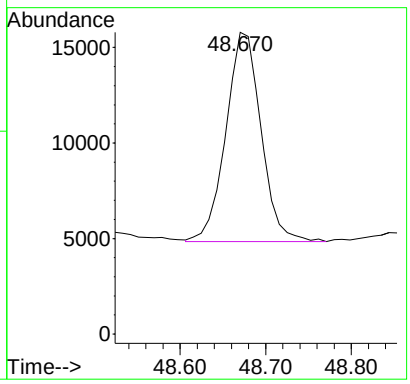
Tgt Ion:191 Resp: 9560

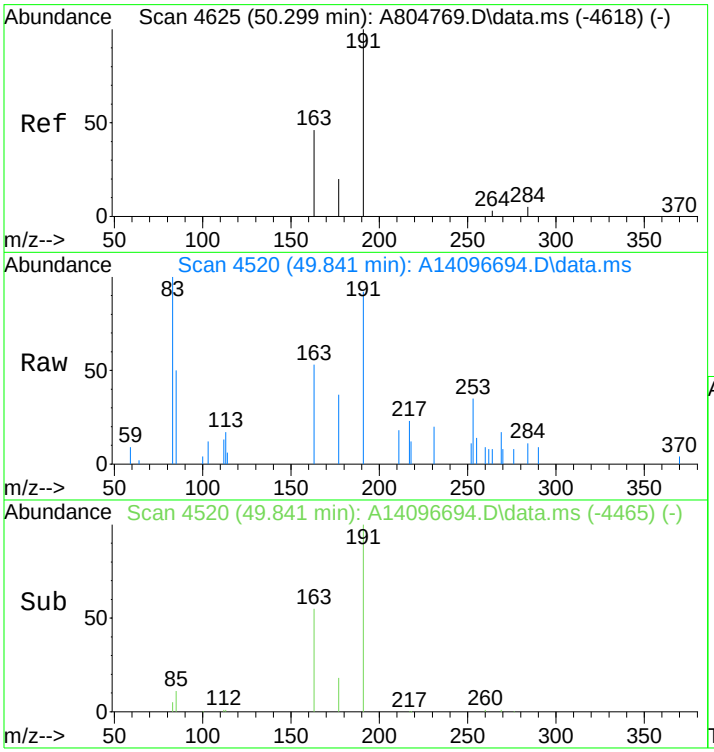




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 418.67 ng/ml
RT: 48.670 min Scan# 4392
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

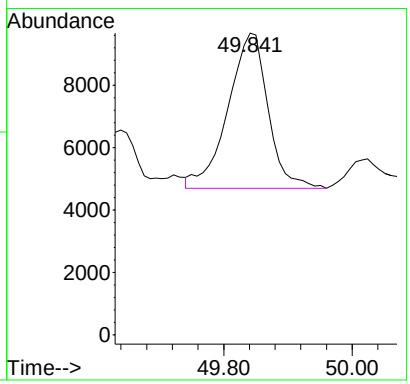
Tgt Ion:191 Resp: 31161

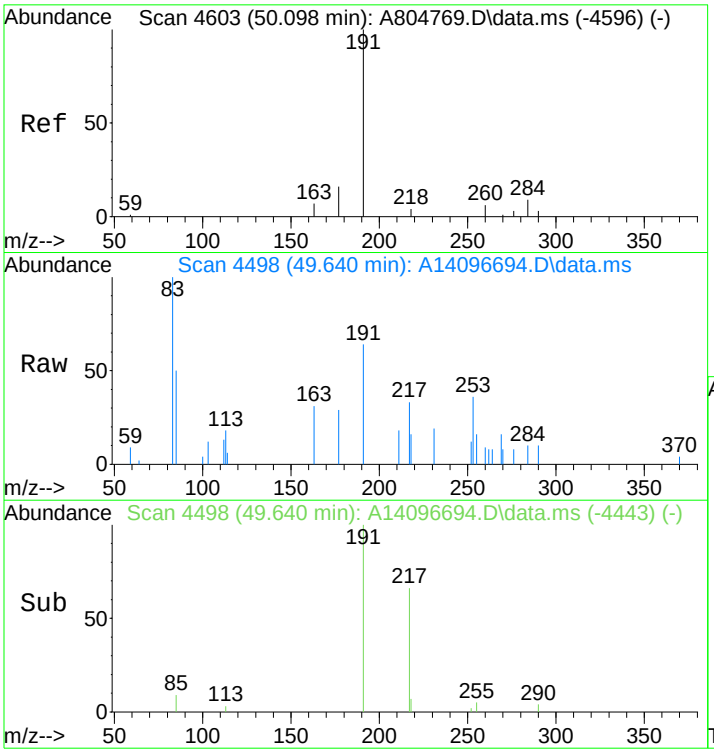




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 289.36 ng/ml
RT: 49.841 min Scan# 4520
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

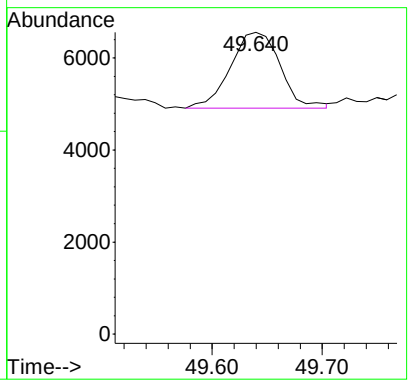
Tgt Ion:191 Resp: 21537

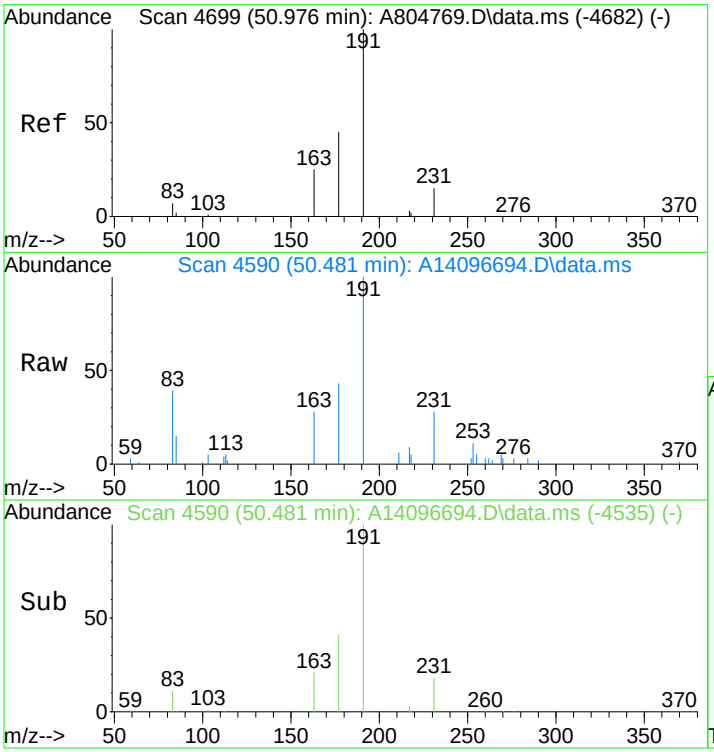




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 69.64 ng/ml
RT: 49.640 min Scan# 4498
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

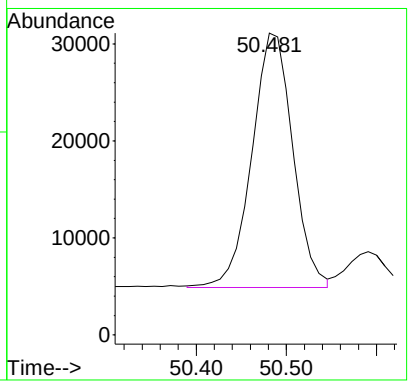
Tgt Ion:191 Resp: 5183

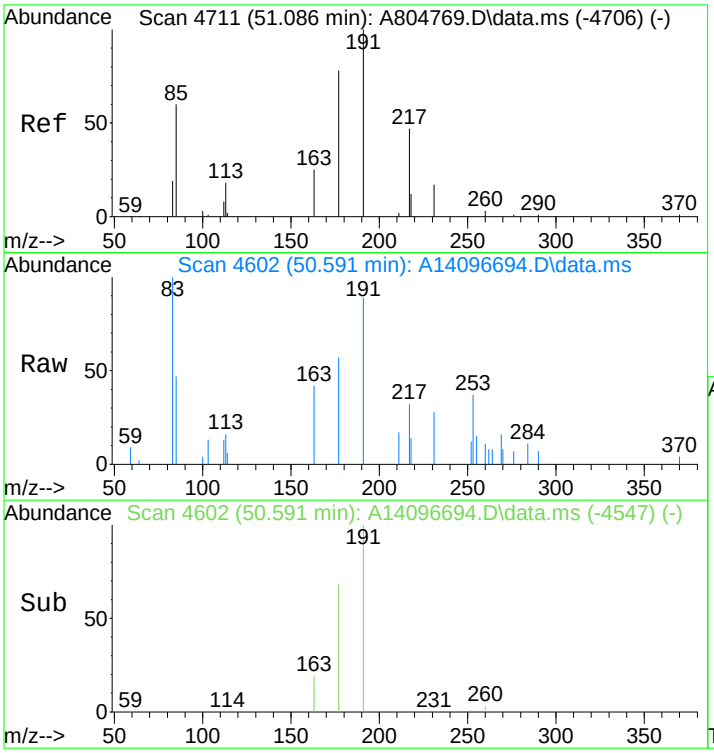




#110
30-Norhopane (T15)
Concen: 1112.53 ng/ml m
RT: 50.481 min Scan# 4590
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

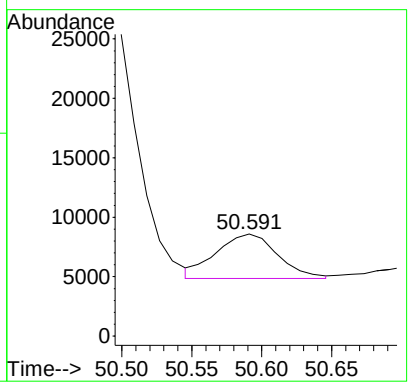
Tgt Ion:191 Resp: 82805

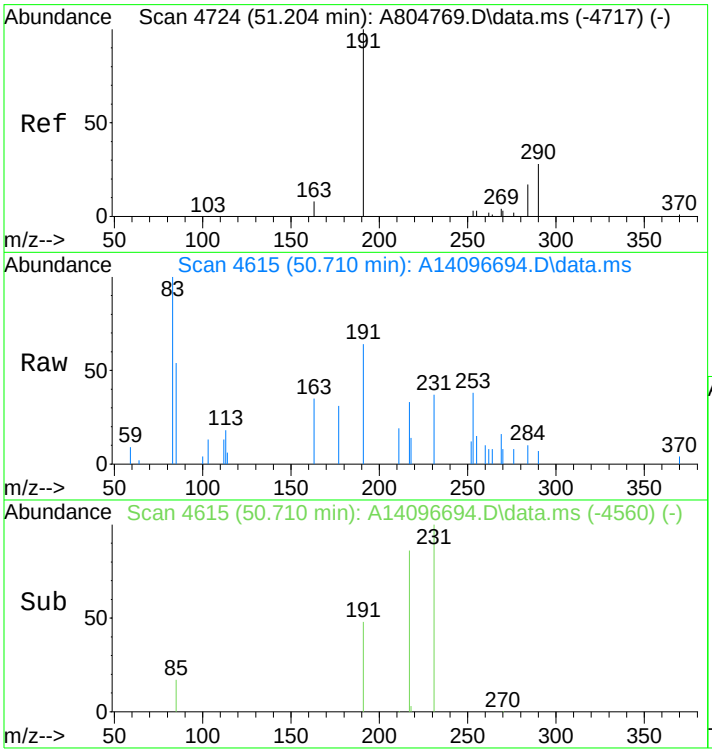




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 152.98 ng/ml m
RT: 50.591 min Scan# 4602
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

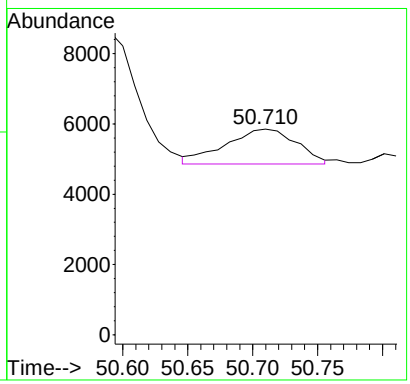
Tgt Ion:191 Resp: 11386

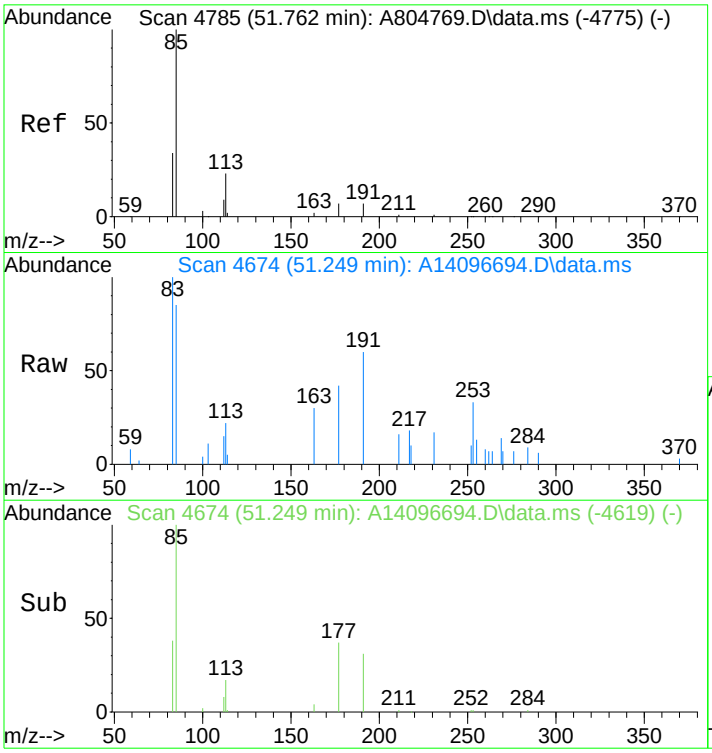




#112
17a(H)-Diahopane (X)
Concen: 50.80 ng/ml m
RT: 50.710 min Scan# 4615
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

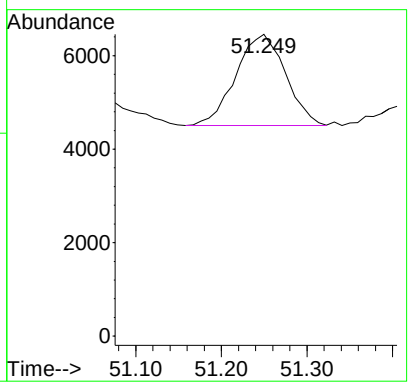
Tgt Ion:191 Resp: 3781

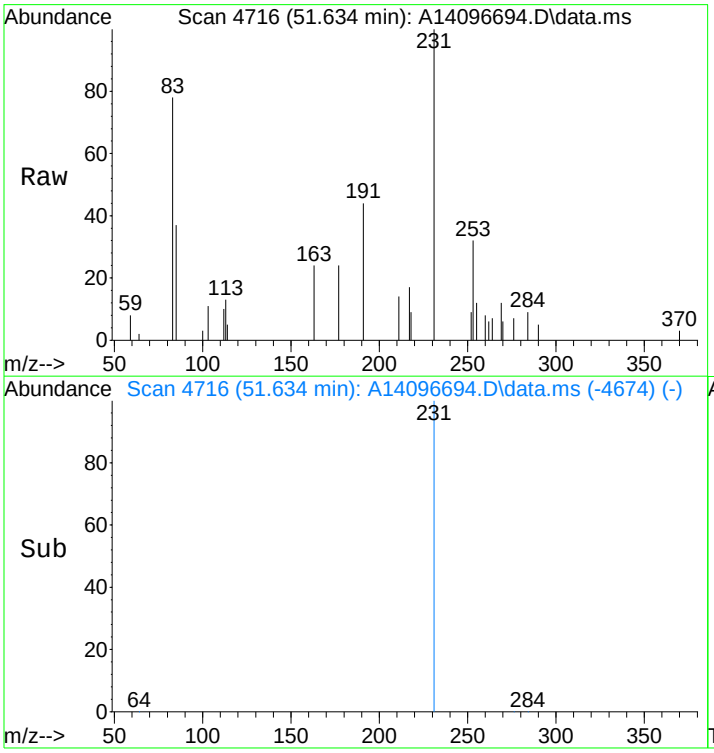




#113
30-Normoretane (T17)
Concen: 105.50 ng/ml
RT: 51.249 min Scan# 4674
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

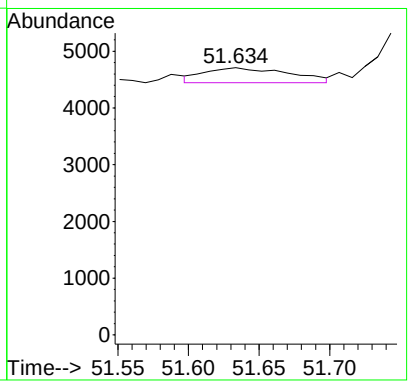
Tgt Ion:191 Resp: 7852

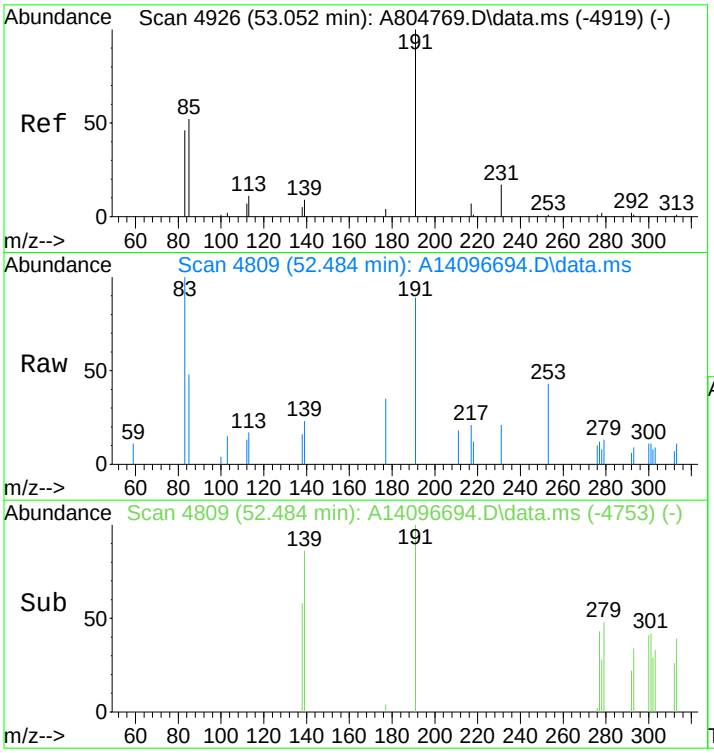




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 14.73 ng/ml m
RT: 51.634 min Scan# 4716
Delta R.T. -0.119 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

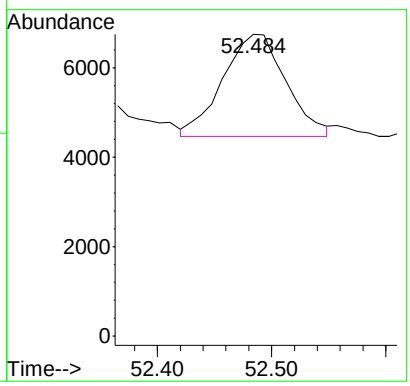
Tgt Ion:191 Resp: 1096

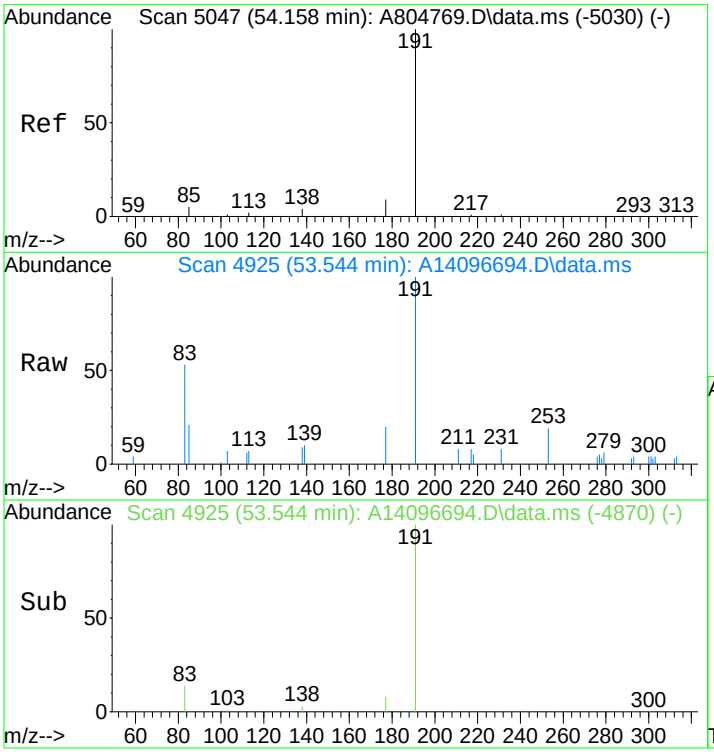




#115
Moretane (T20)
Concen: 117.88 ng/ml m
RT: 52.484 min Scan# 4809
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

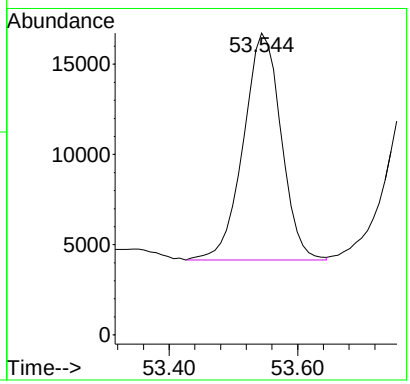
Tgt Ion:191 Resp: 8774

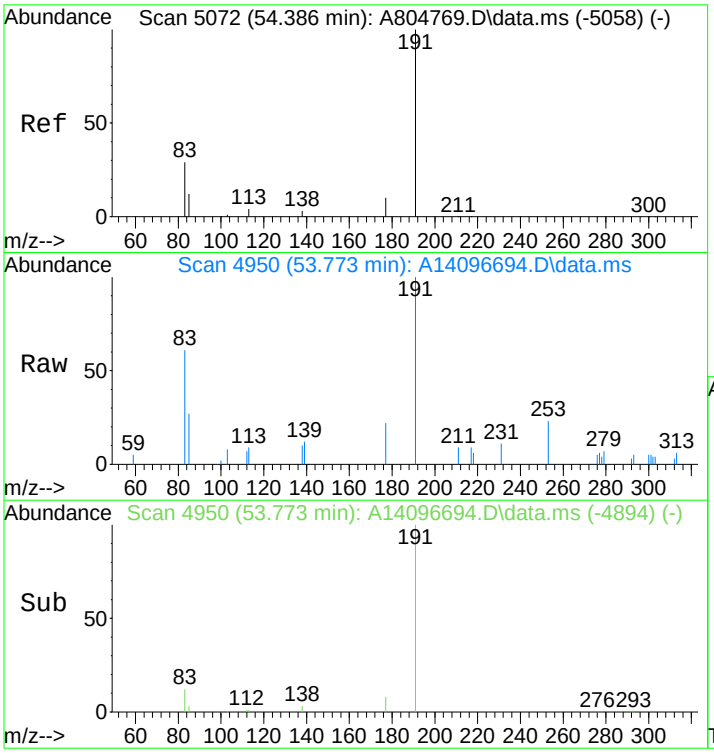




#116
30-Homohopane-22S (T21)
Concen: 690.56 ng/ml
RT: 53.544 min Scan# 4925
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

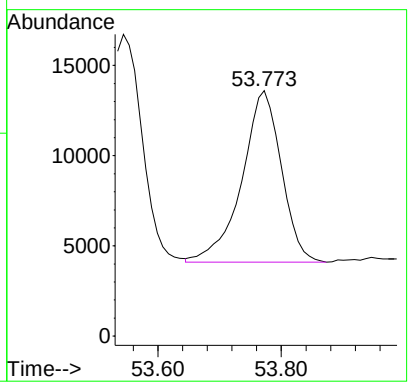
Tgt Ion:191 Resp: 51398

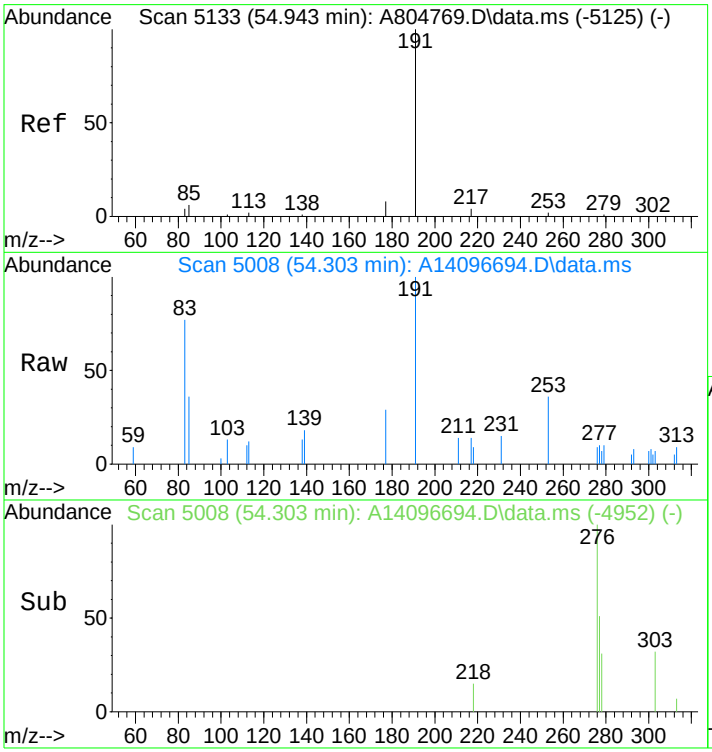




#117
30-Homohopane-22R (T22)
Concen: 567.54 ng/ml
RT: 53.773 min Scan# 4950
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

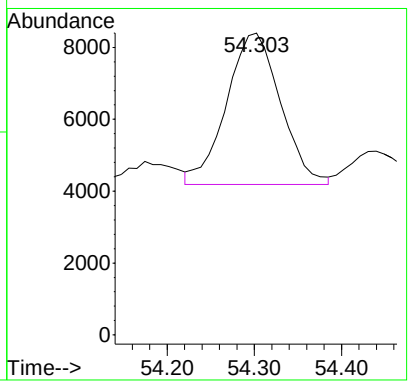
Tgt Ion:191 Resp: 42242

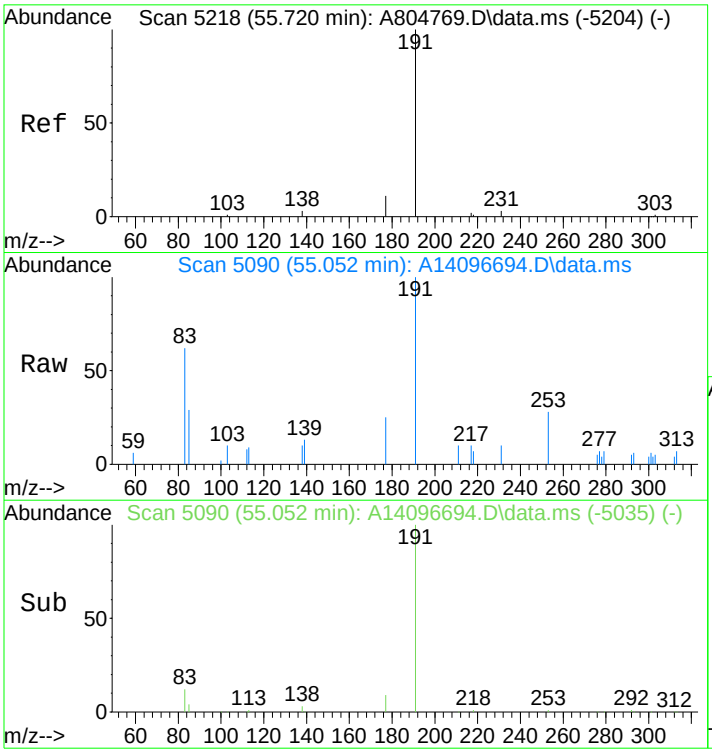




#118
Gammacerane/C32-diahopane
Concen: 243.88 ng/mL m
RT: 54.303 min Scan# 5008
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

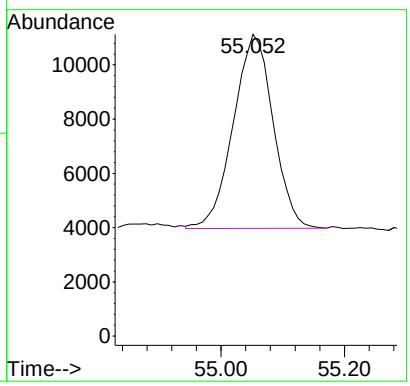
Tgt Ion:191 Resp: 18152

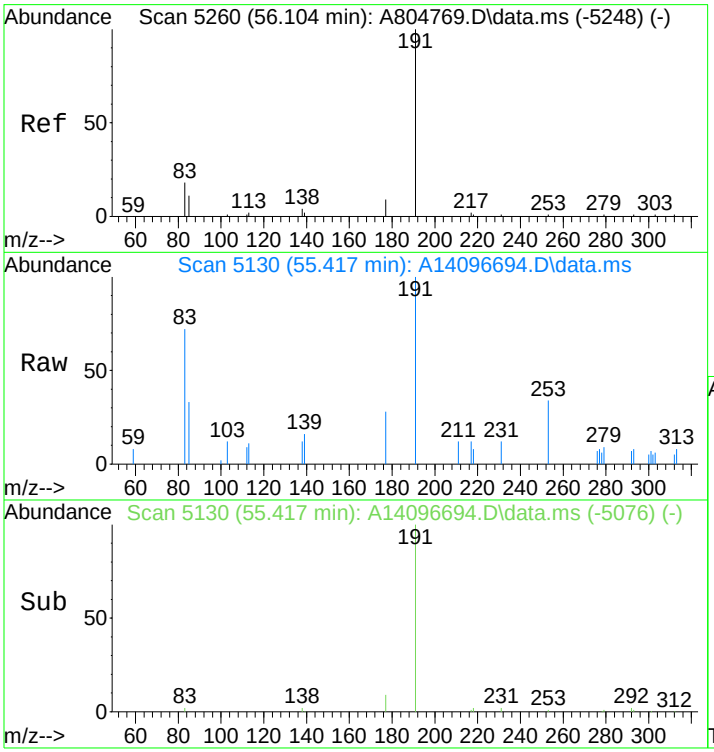




#119
30,31-Bishomohopane-22S (T26)
Concen: 429.75 ng/ml
RT: 55.052 min Scan# 5090
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

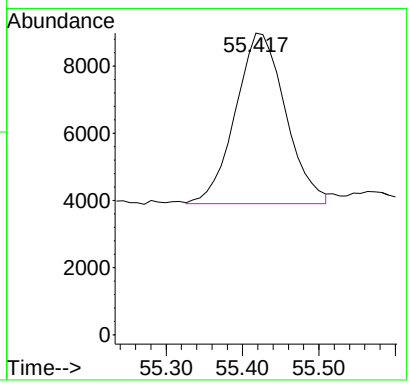
Tgt Ion:191 Resp: 31986

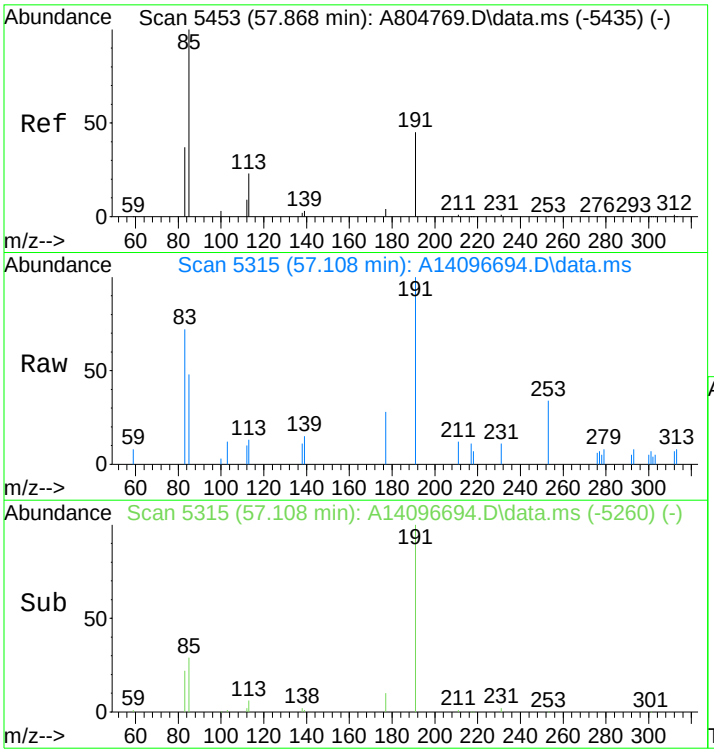




#120
30,31-Bishomohopane-22R (T27)
Concen: 310.17 ng/ml m
RT: 55.417 min Scan# 5130
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

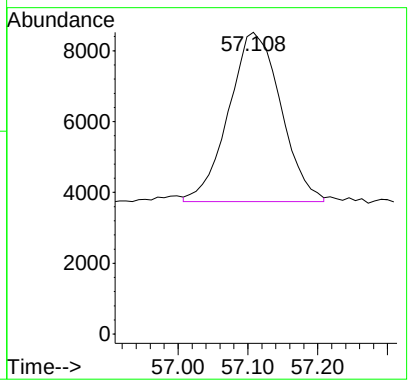
Tgt Ion:191 Resp: 23086

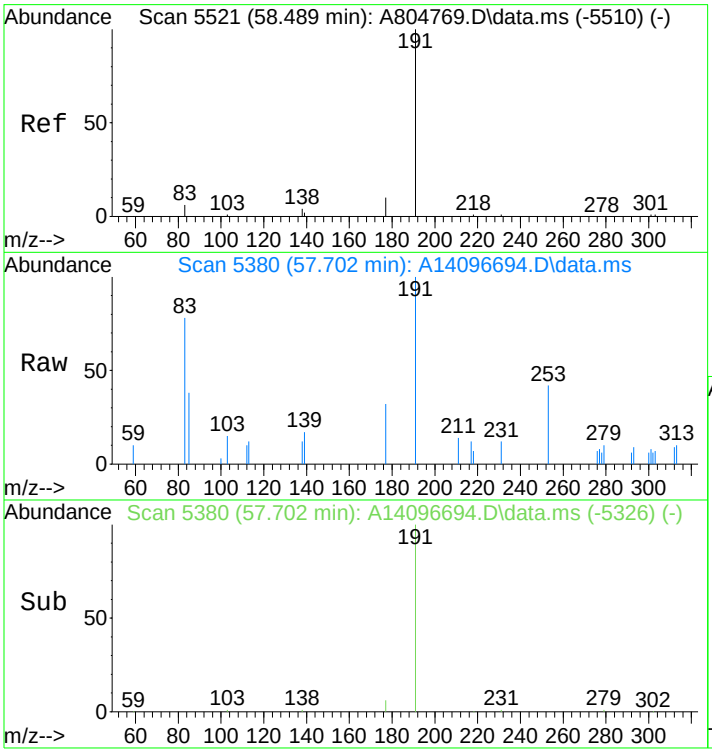




#121
30,31-Trishomohopane-22S (T30)
Concen: 333.22 ng/ml m
RT: 57.108 min Scan# 5315
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

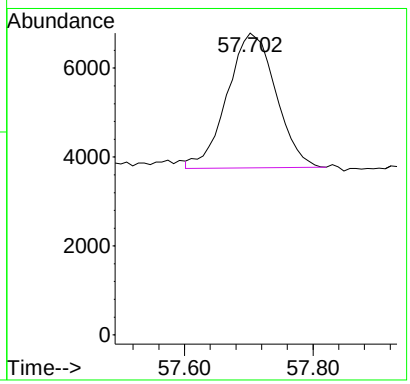
Tgt Ion:191 Resp: 24801

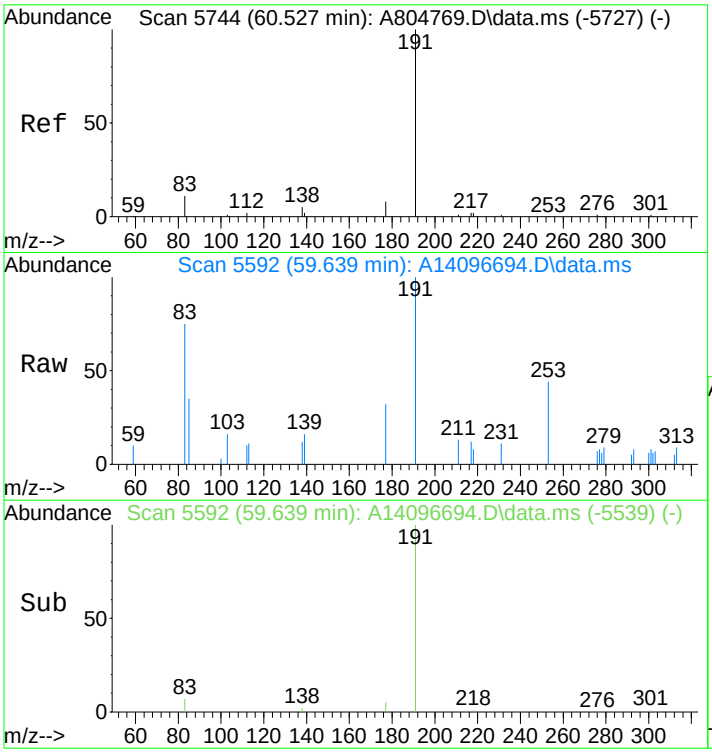




#122
30,31-Trishomohopane-22R (T31)
Concen: 213.11 ng/ml
RT: 57.702 min Scan# 5380
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

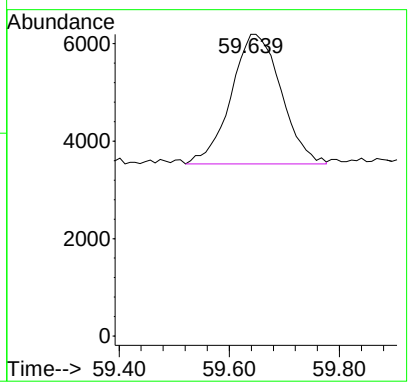
Tgt Ion:191 Resp: 15862

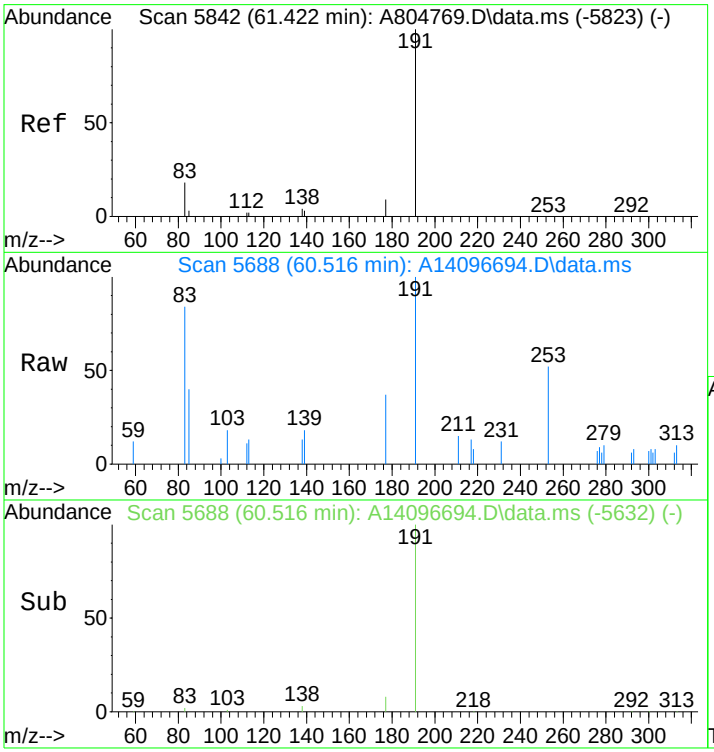




#123
Tetrakishomohopane-22S (T32)
Concen: 226.05 ng/ml
RT: 59.639 min Scan# 5592
Delta R.T. -0.018 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

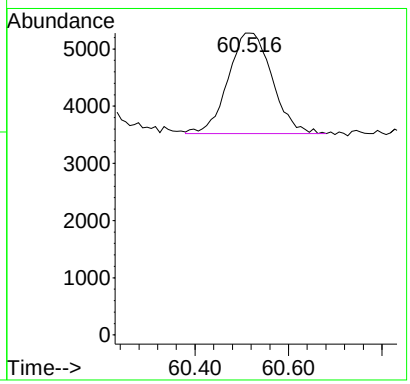
Tgt Ion:191 Resp: 16825

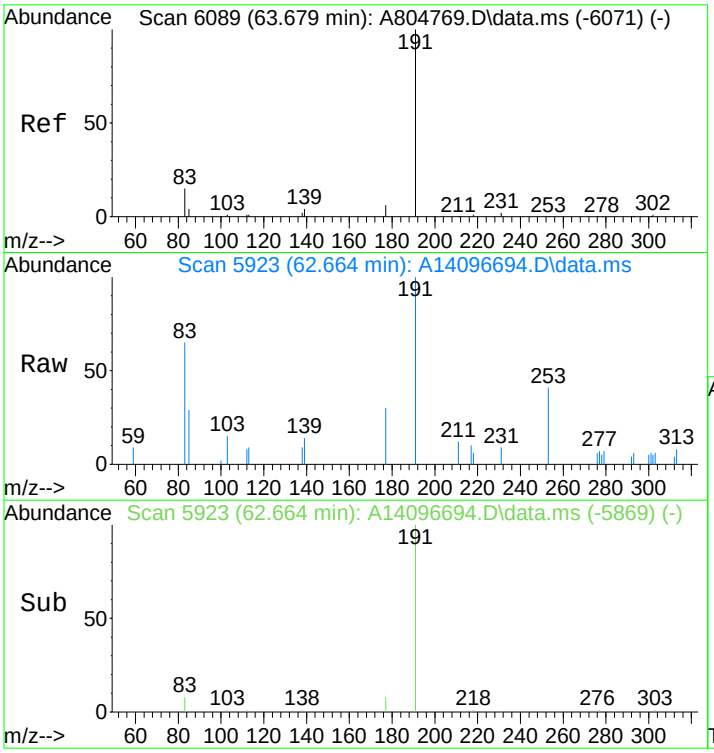




#124
Tetrakishomohopane-22R (T33)
Concen: 154.51 ng/ml
RT: 60.516 min Scan# 5688
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

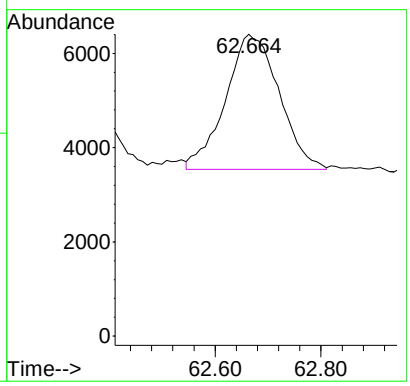
Tgt Ion:191 Resp: 11500

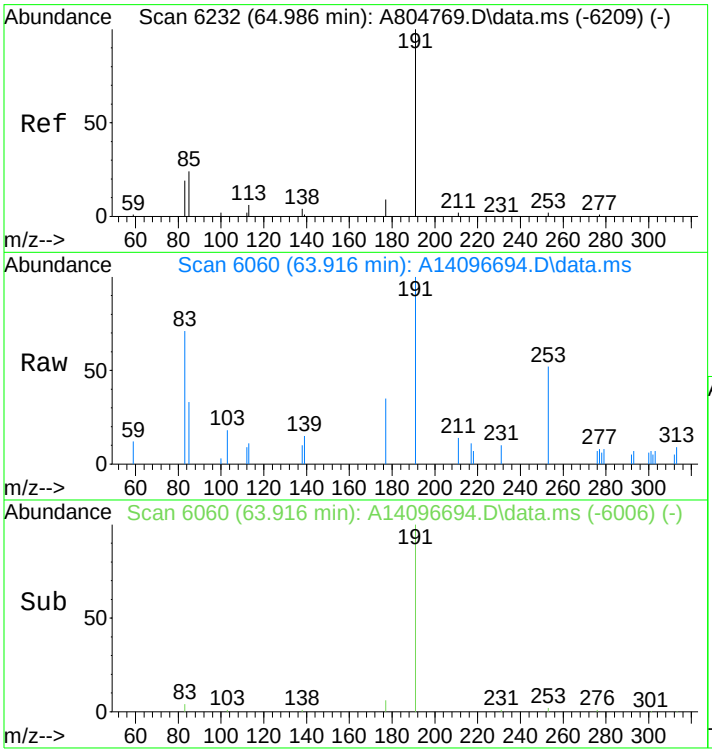




#125
Pentakishomohopane-22S (T34)
Concen: 270.44 ng/ml m
RT: 62.664 min Scan# 5923
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

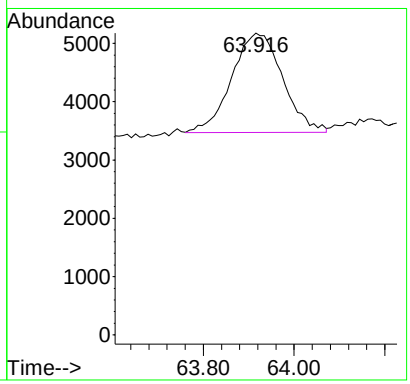
Tgt Ion:191 Resp: 20129

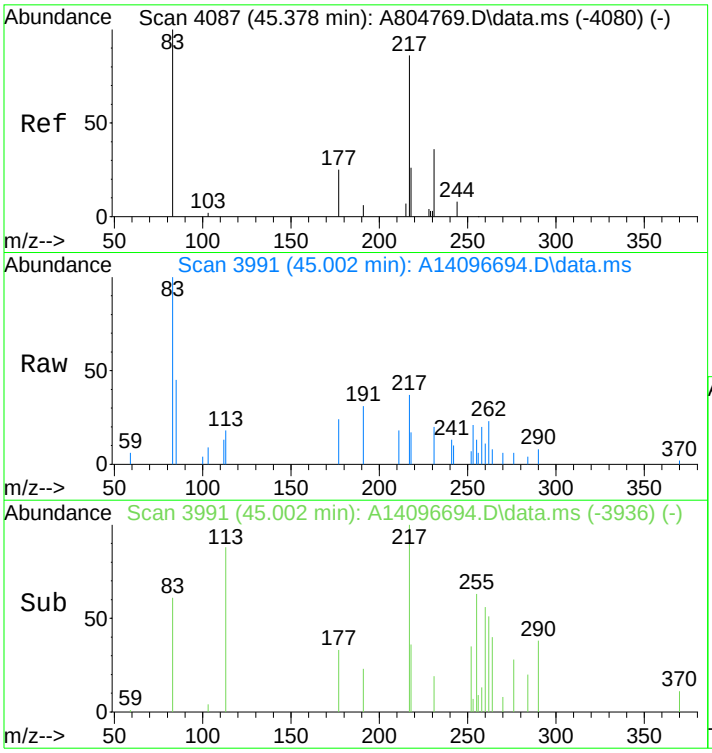




#126
Pentakishomohopane-22R (T35)
Concen: 178.72 ng/ml
RT: 63.916 min Scan# 6060
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

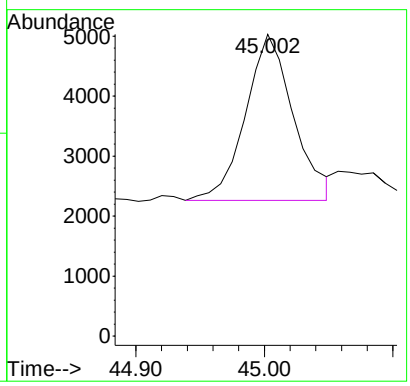
Tgt Ion:191 Resp: 13302

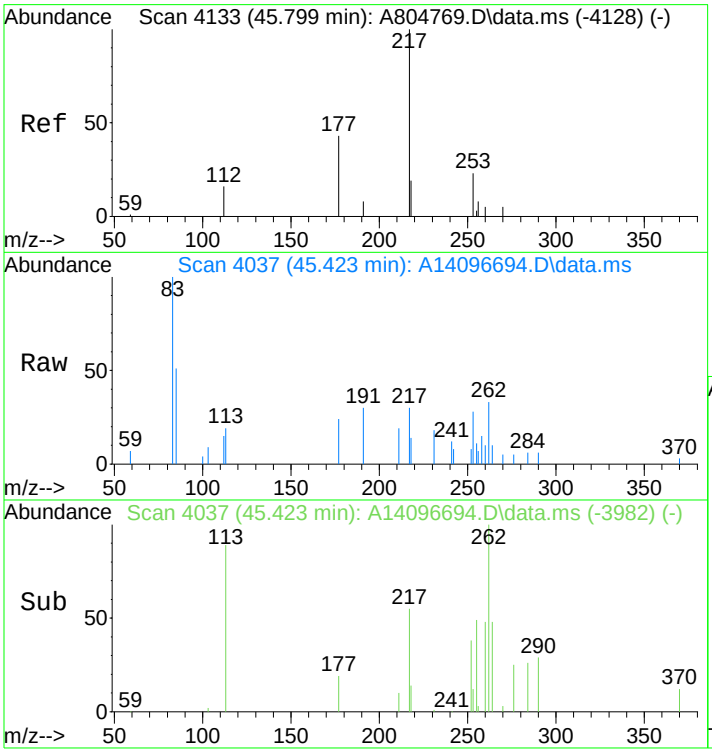




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 173.07 ng/ml
RT: 45.002 min Scan# 3991
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

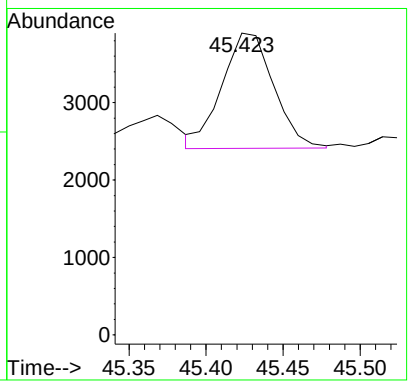
Tgt Ion:217 Resp: 7138

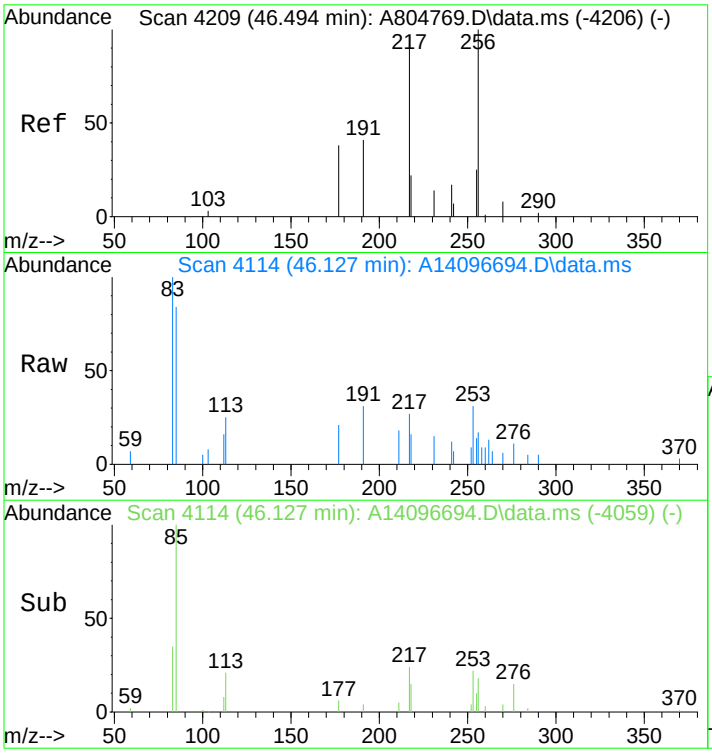




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 84.50 ng/ml
RT: 45.423 min Scan# 4037
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

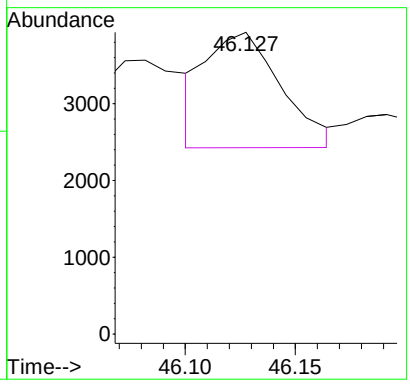
Tgt Ion:217 Resp: 3485

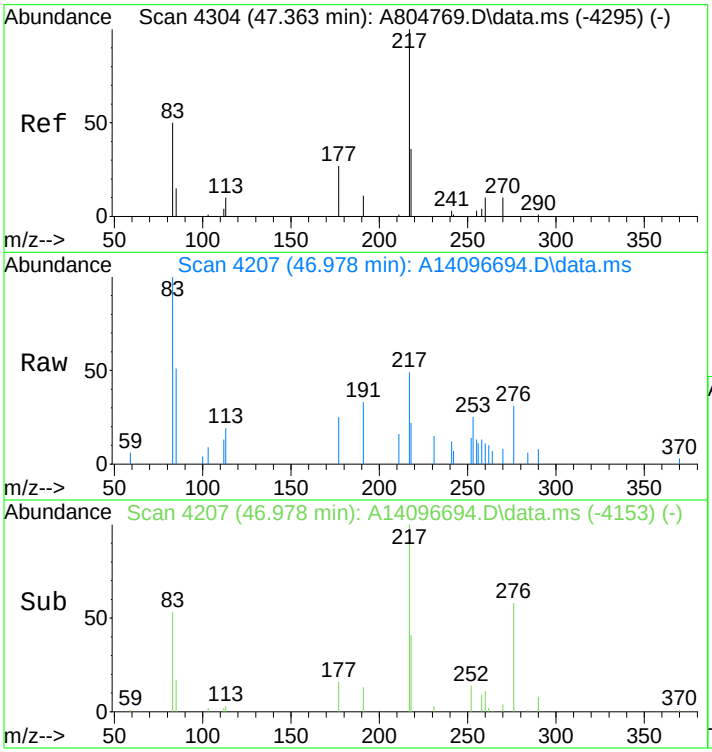




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 86.44 ng/ml
RT: 46.127 min Scan# 4114
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

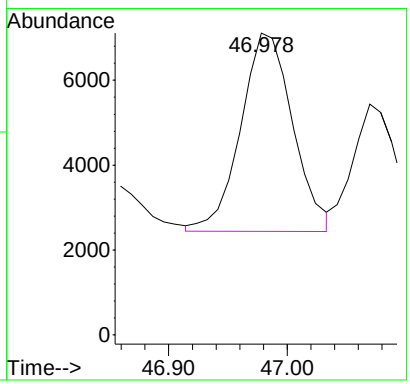
Tgt Ion:217 Resp: 3565

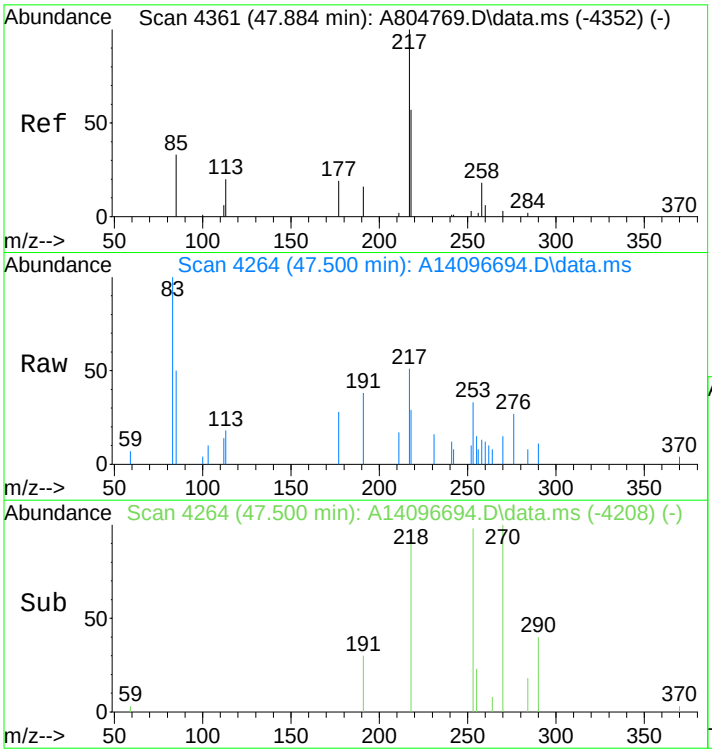




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 345.07 ng/ml
RT: 46.978 min Scan# 4207
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

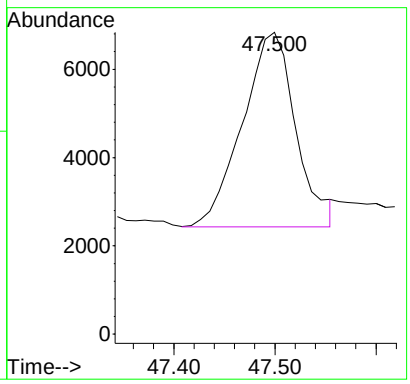
Tgt Ion:217 Resp: 14232

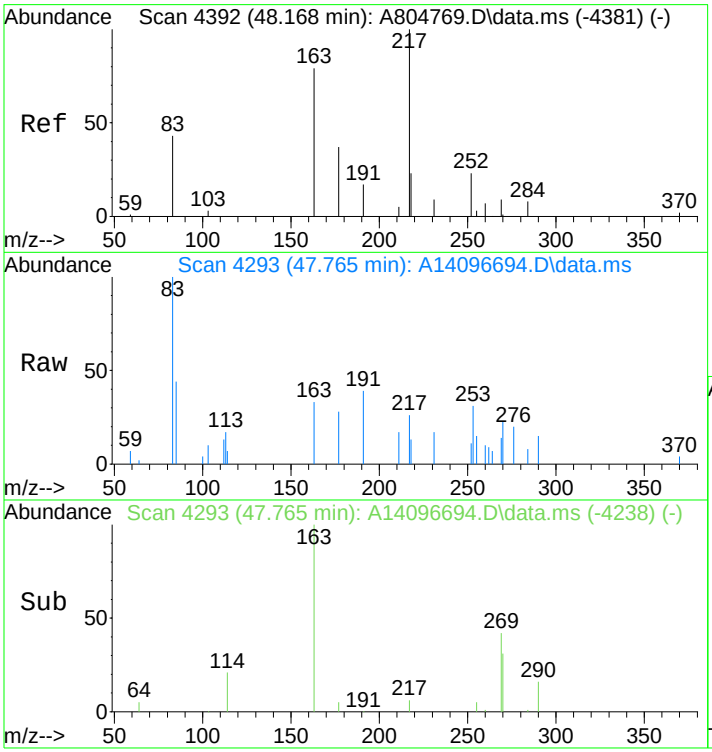




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 390.80 ng/ml m
RT: 47.500 min Scan# 4264
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

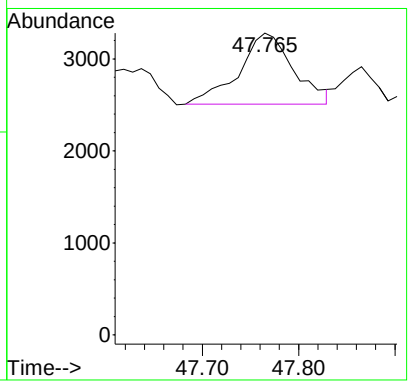
Tgt Ion:217 Resp: 16118

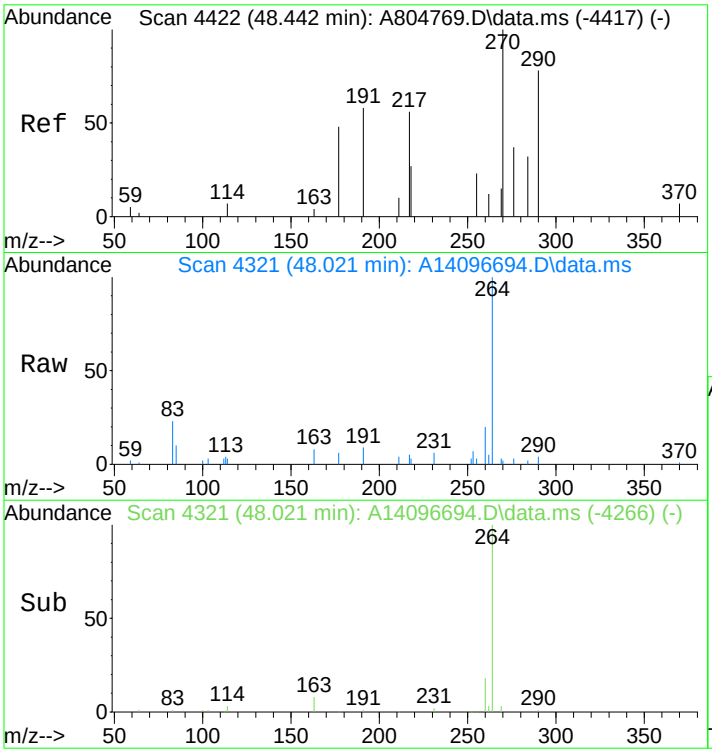




#133
Unknown Sterane (S18)
Concen: 73.59 ng/ml
RT: 47.765 min Scan# 4293
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

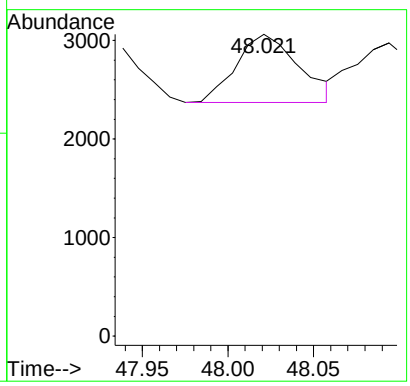
Tgt Ion:217 Resp: 3035

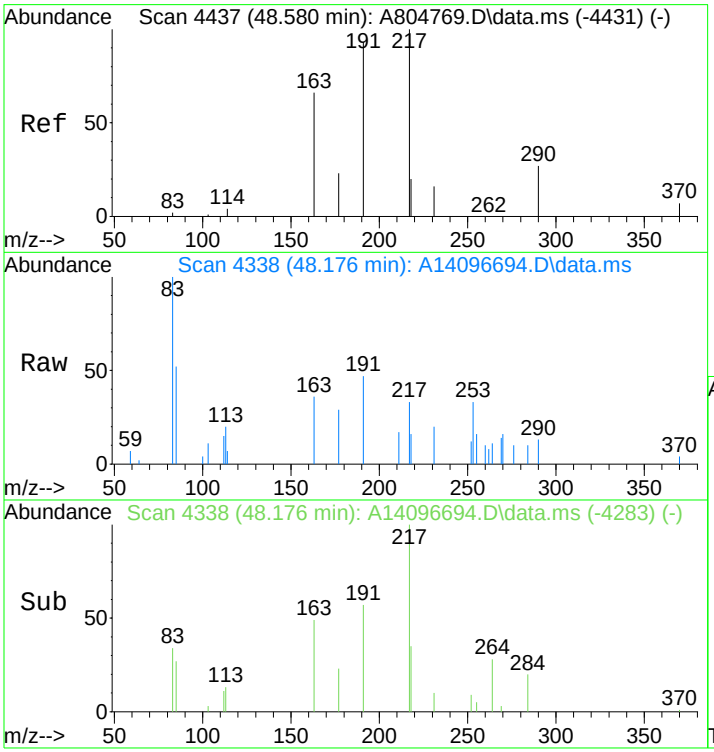




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 42.89 ng/ml
RT: 48.021 min Scan# 4321
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

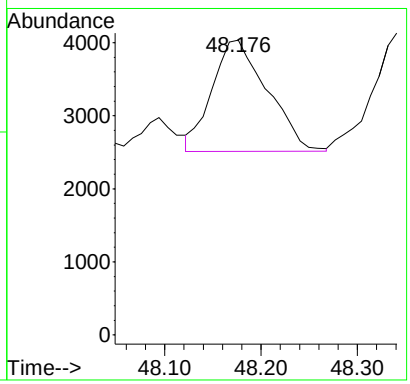
Tgt Ion:217 Resp: 1769

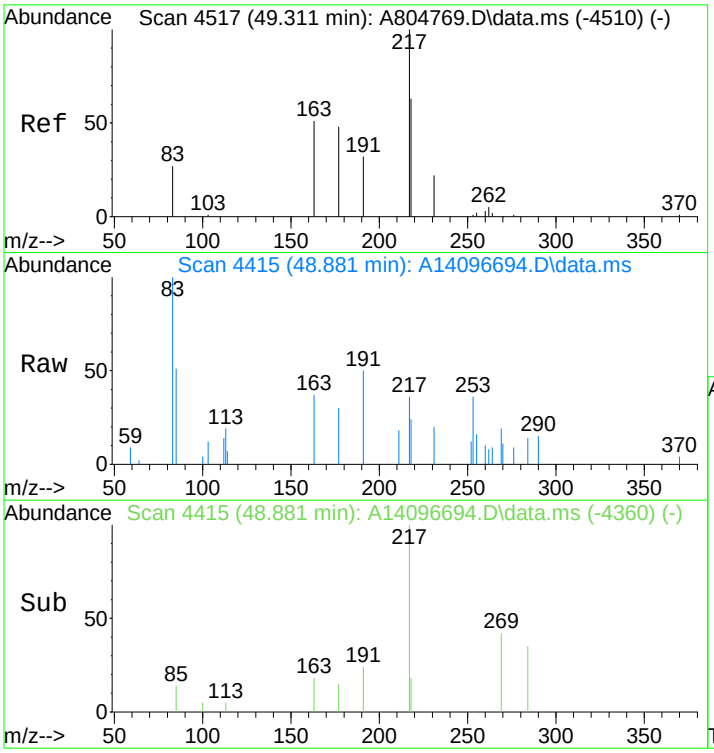




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 147.01 ng/ml
RT: 48.176 min Scan# 4338
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

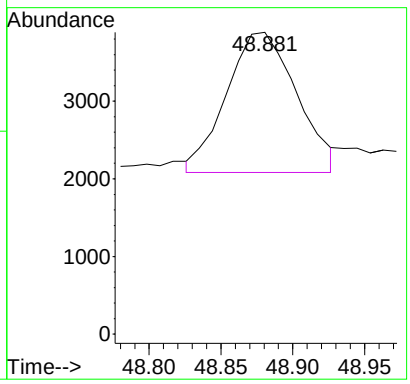
Tgt Ion:217 Resp: 6063

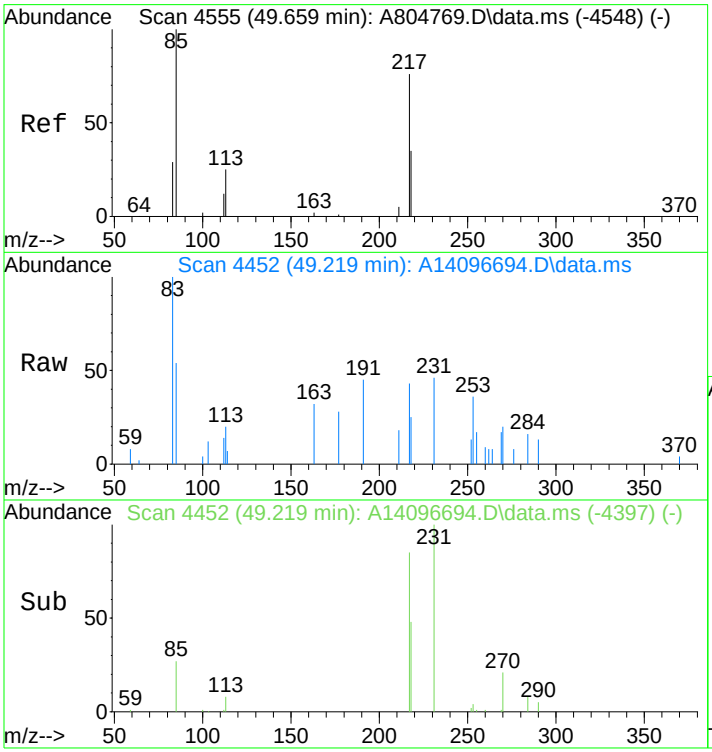




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 148.85 ng/ml m
RT: 48.881 min Scan# 4415
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

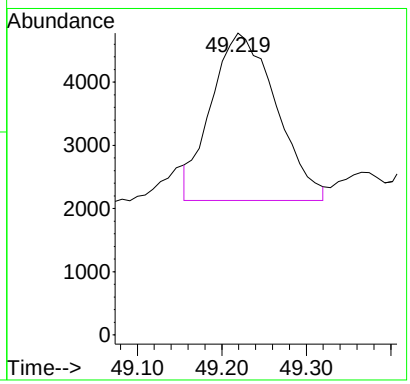
Tgt Ion:217 Resp: 6139

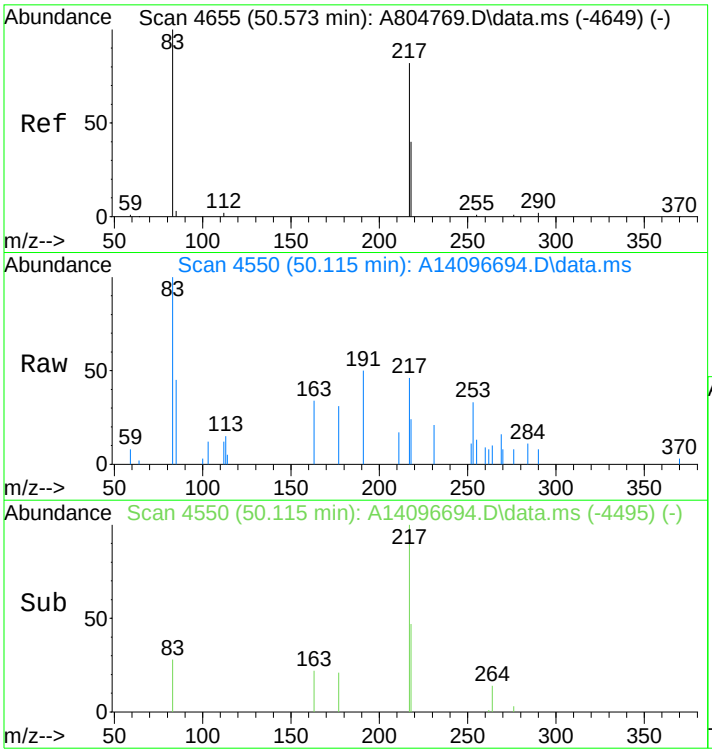




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 343.11 ng/ml m
RT: 49.219 min Scan# 4452
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

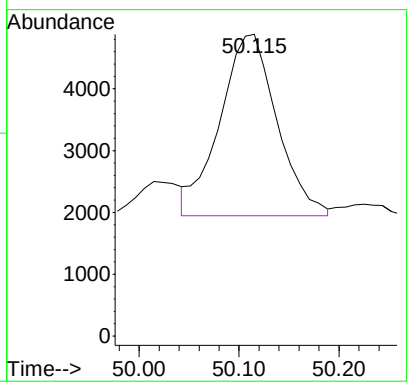
Tgt Ion:217 Resp: 14151

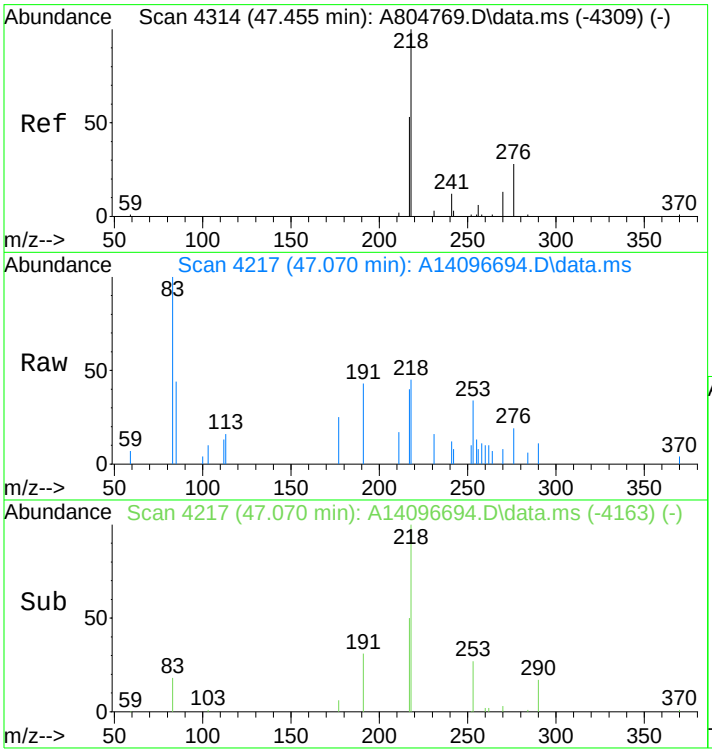




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 282.16 ng/ml m
RT: 50.115 min Scan# 4550
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

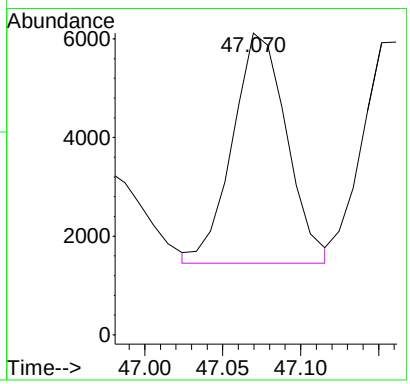
Tgt Ion:217 Resp: 11637

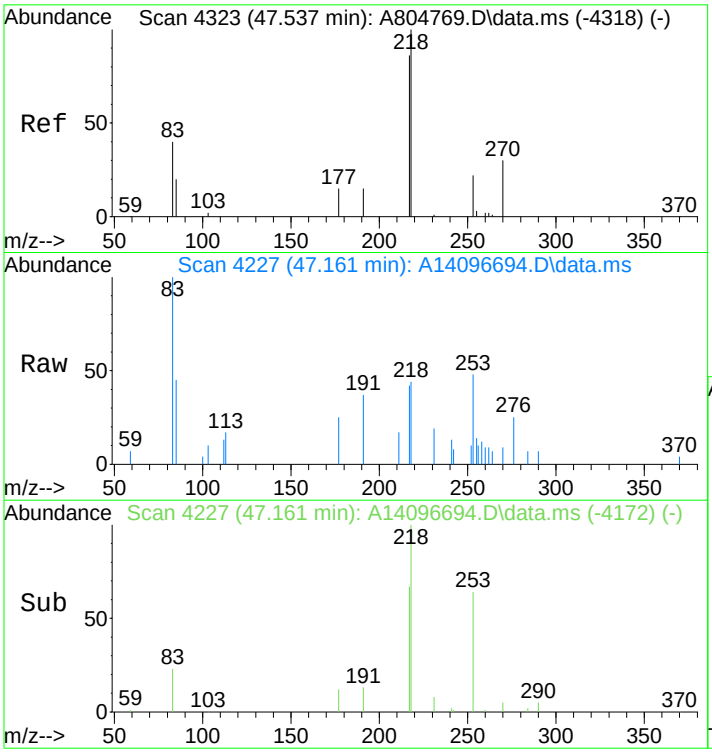




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 273.01 ng/ml m
RT: 47.070 min Scan# 4217
Delta R.T. -0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

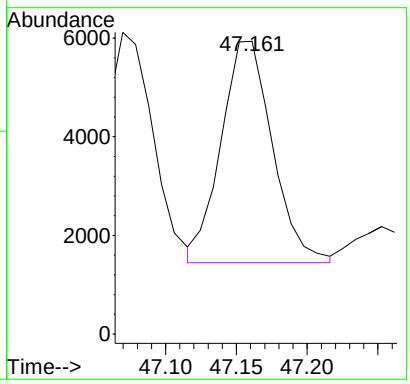
Tgt Ion:218 Resp: 11260

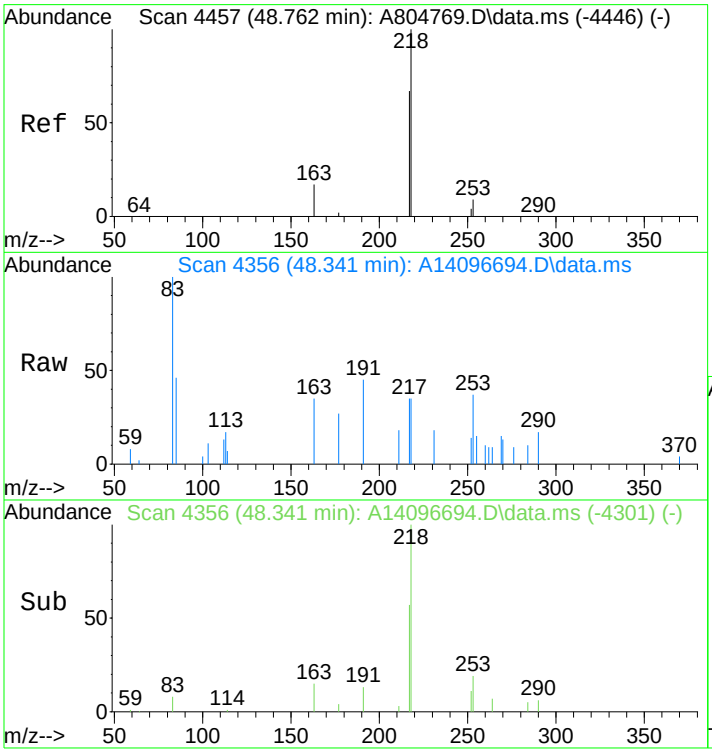




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 274.83 ng/ml m
RT: 47.161 min Scan# 4227
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

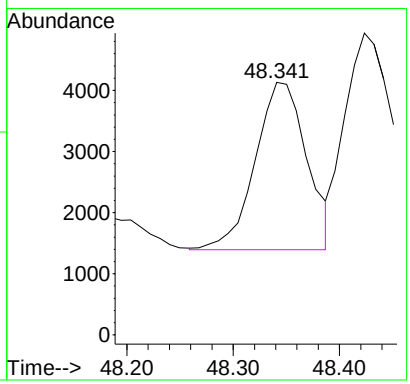
Tgt Ion:218 Resp: 11335

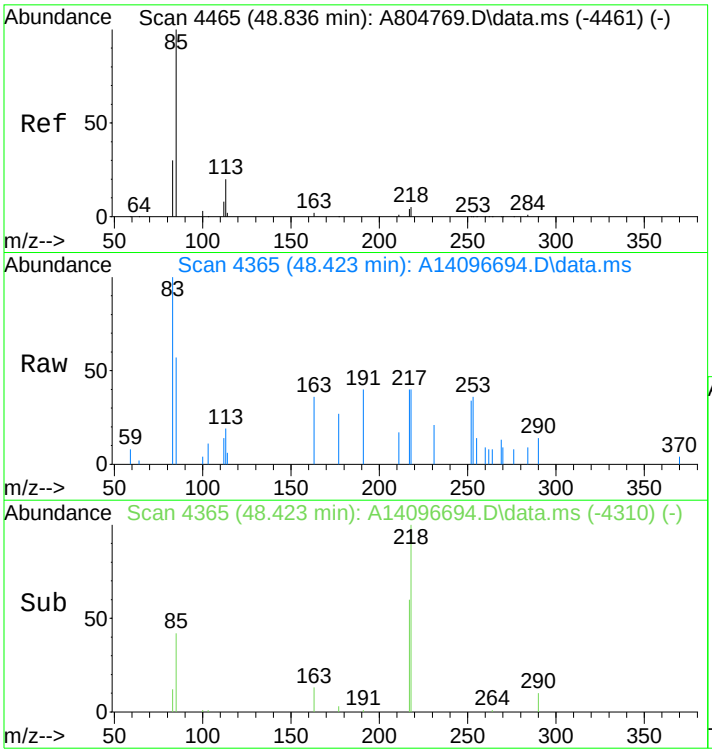




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 223.67 ng/ml m
RT: 48.341 min Scan# 4356
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

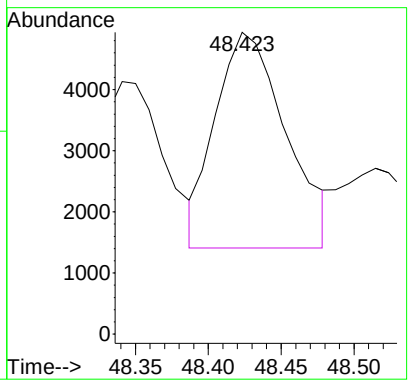
Tgt Ion:218 Resp: 9225

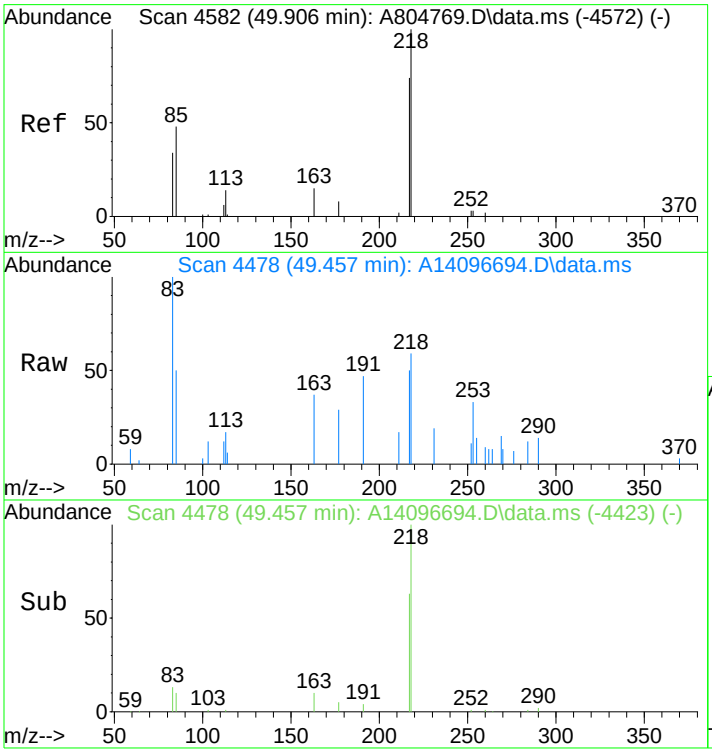




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 288.00 ng/ml m
RT: 48.423 min Scan# 4365
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

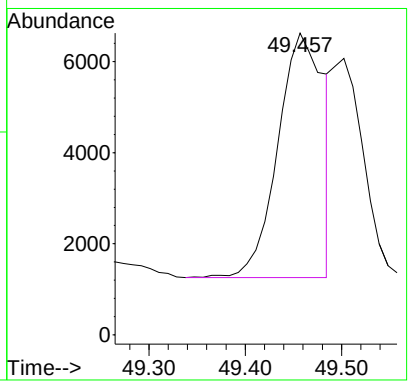
Tgt Ion:218 Resp: 11878

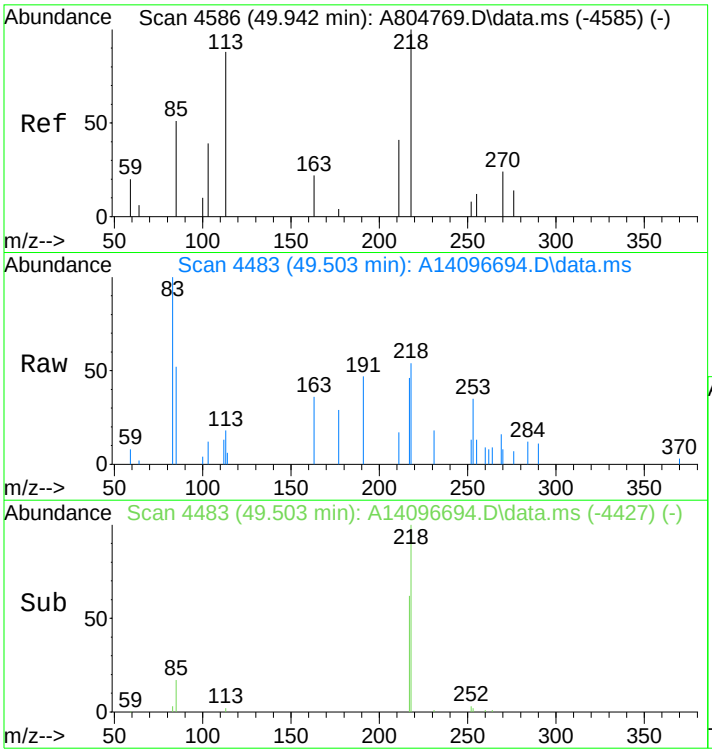




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 431.42 ng/ml
RT: 49.457 min Scan# 4478
Delta R.T. 0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

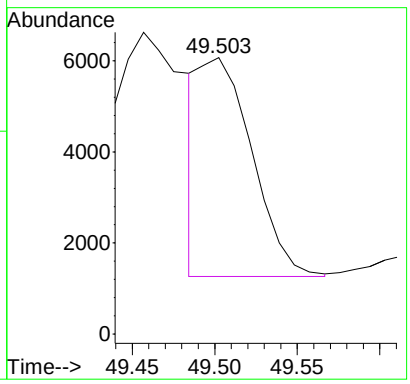
Tgt Ion:218 Resp: 17793

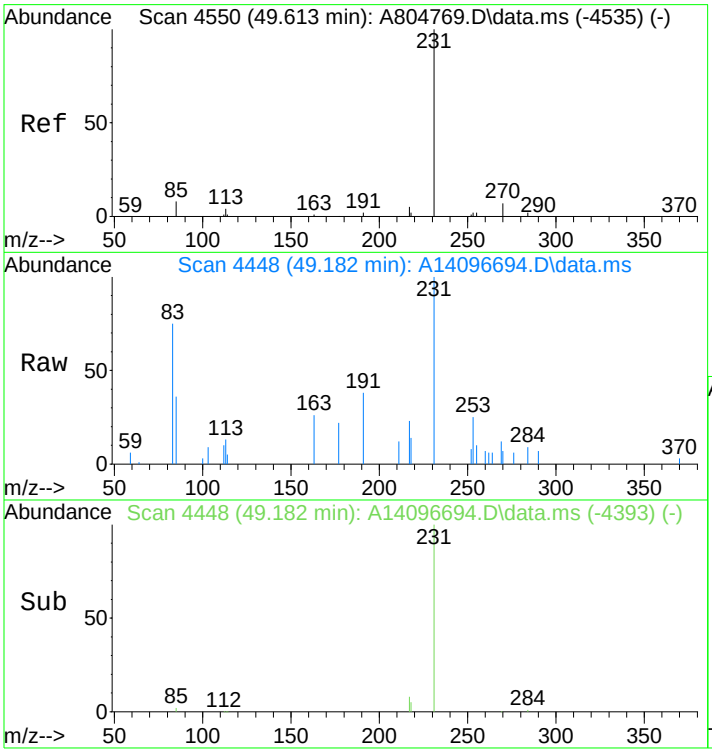




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 258.93 ng/ml m
RT: 49.503 min Scan# 4483
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

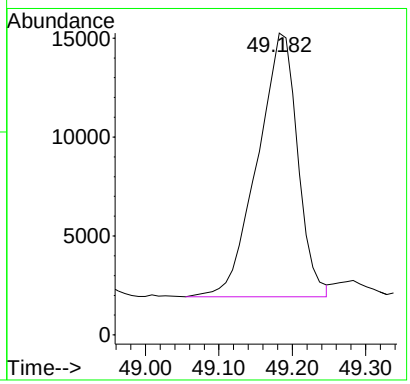
Tgt Ion:218 Resp: 10679

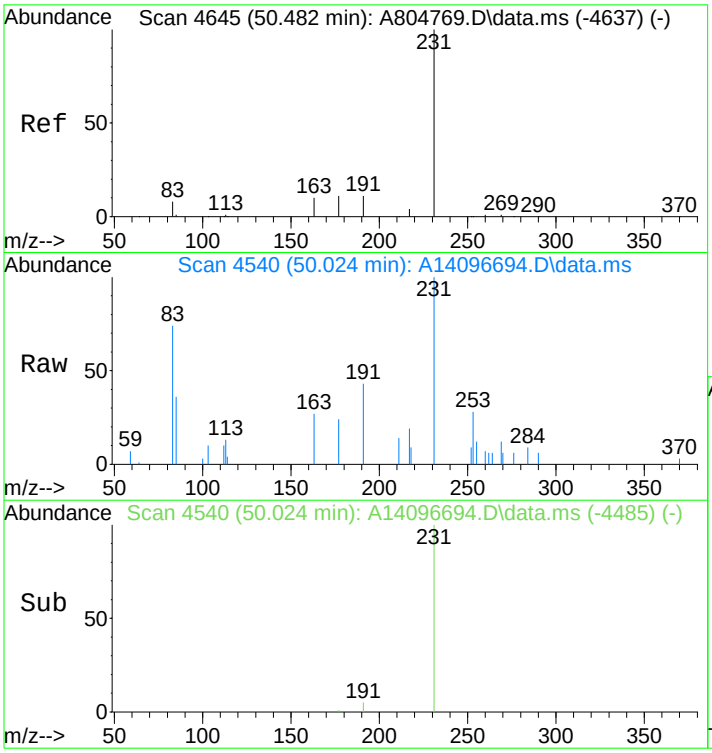




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1234.12 ng/mL
RT: 49.182 min Scan# 4448
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

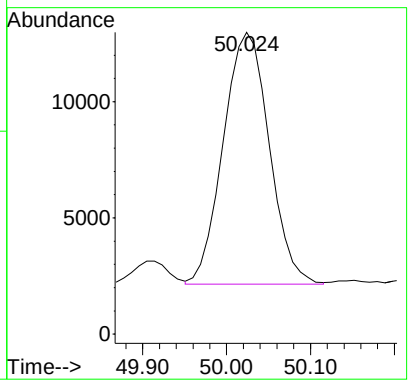
Tgt Ion:231 Resp: 50899

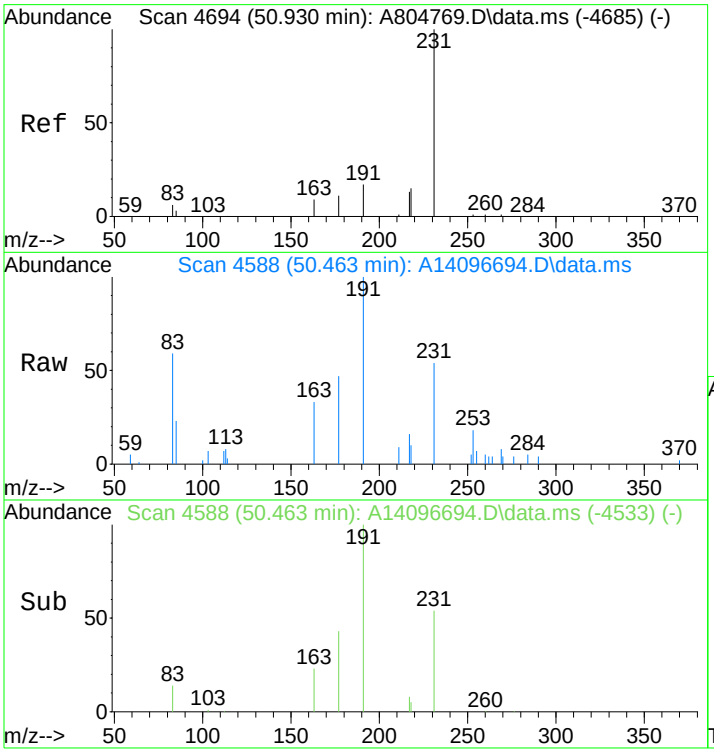




#146
C28,20S-triaromatic steroid
Concen: 1000.21 ng/mL m
RT: 50.024 min Scan# 4540
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

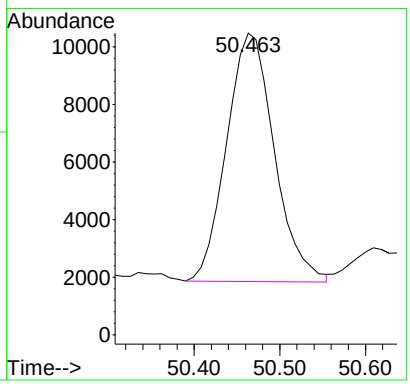
Tgt Ion:231 Resp: 41252

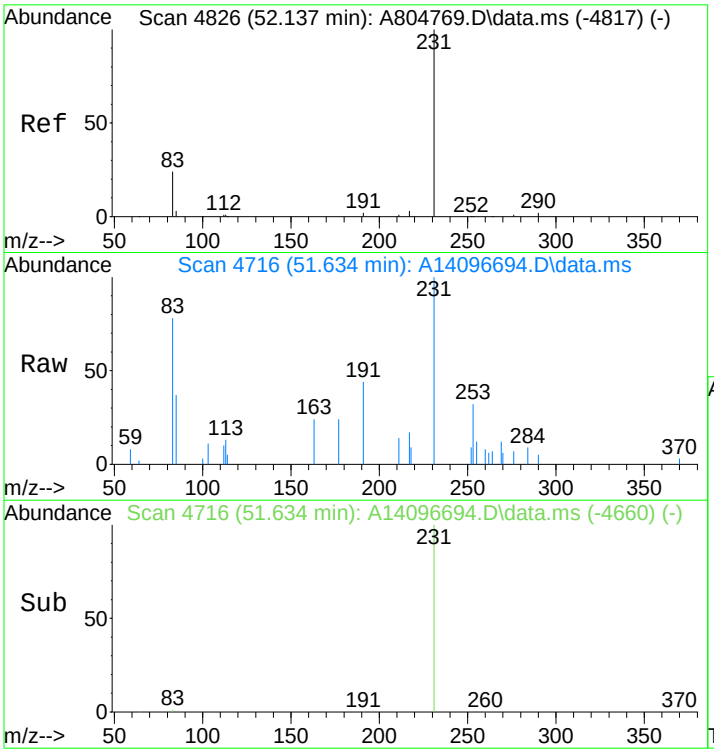




#147
C27,20R-triaromatic steroid
Concen: 810.29 ng/mL
RT: 50.463 min Scan# 4588
Delta R.T. -0.000 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

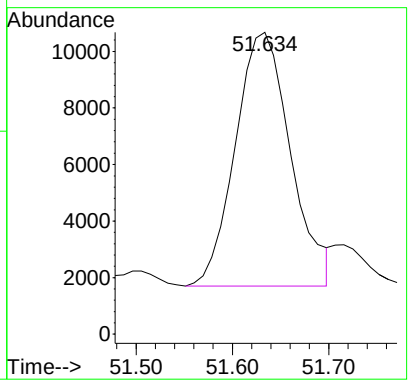
Tgt Ion:231 Resp: 33419





#148
C28,20R-triaromatic steroid
Concen: 866.69 ng/mL
RT: 51.634 min Scan# 4716
Delta R.T. 0.009 min
Lab File: A14096694.D
Acq: 20 Jun 2012 10:40 pm

Tgt Ion:231 Resp: 35745



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096699.D
Acq On : 21 Jun 2012 9:47 am
Operator : AC
Sample : SO062012B01
Misc : 1X ETR1206028
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 22 13:18:28 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	46583	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	86936	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.528	136	70760M3	428.065	ng/mL	0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.81%#			
42) Phenanthrene-d10	32.349	188	66772	428.629	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 42.86%#			
86) Benzo[a]pyrene-d12	48.039	264	75005	441.486	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.15%#			
127) 5B(H)Cholane - Surr	43.486	217	17209	500.073	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.01%			
Target Compounds						Qvalue
66) Naphthobenzothiophene	41.989	234	68M2	0.414	ng/ml	
67) Naphthobenzothiophene-2,1	41.989	234	74M2	0.451	ng/mL	
133) Unknown Sterane (S18)	47.801	217	273	7.933	ng/ml	100

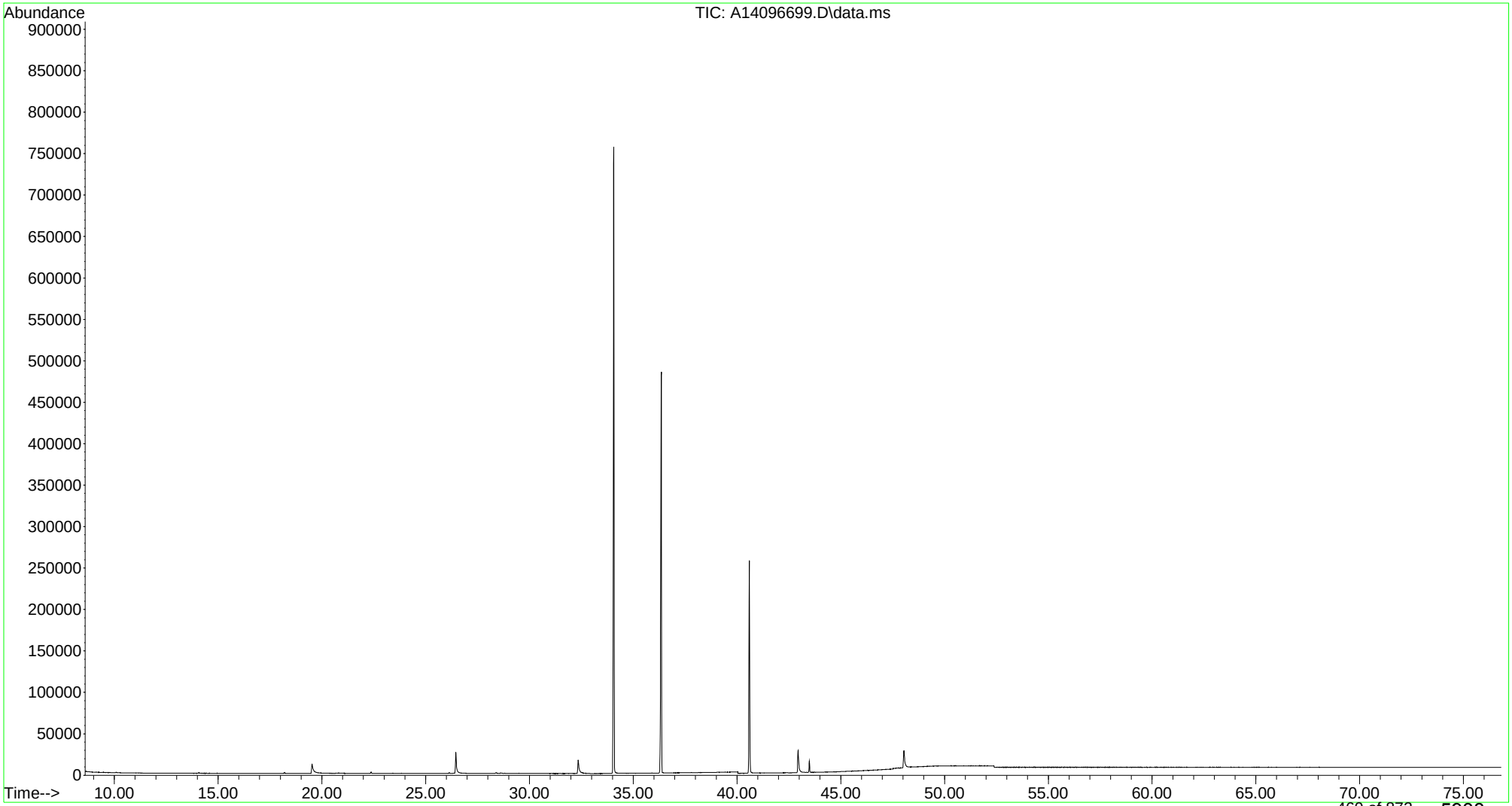
(#) = qualifier out of range (m) = manual integration (+) = signals summed

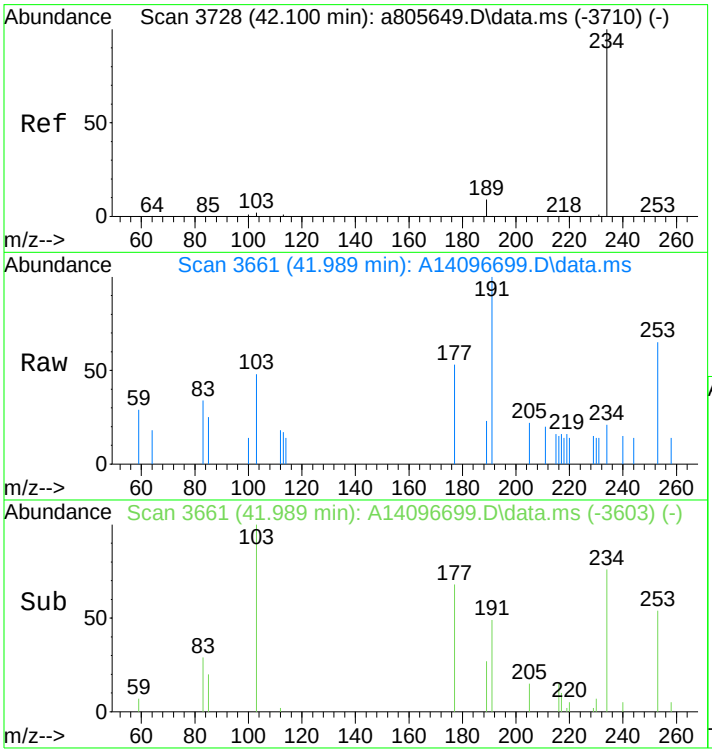
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096699.D
Acq On : 21 Jun 2012 9:47 am
Operator : AC
Sample : SO062012B01
Misc : 1X ETR1206028
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 22 13:18:28 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

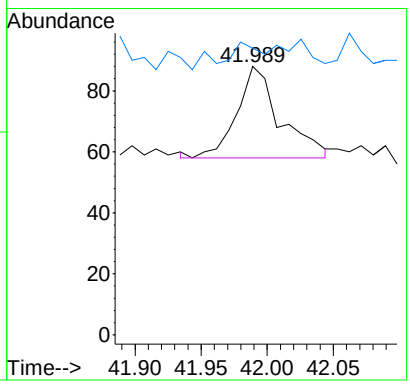


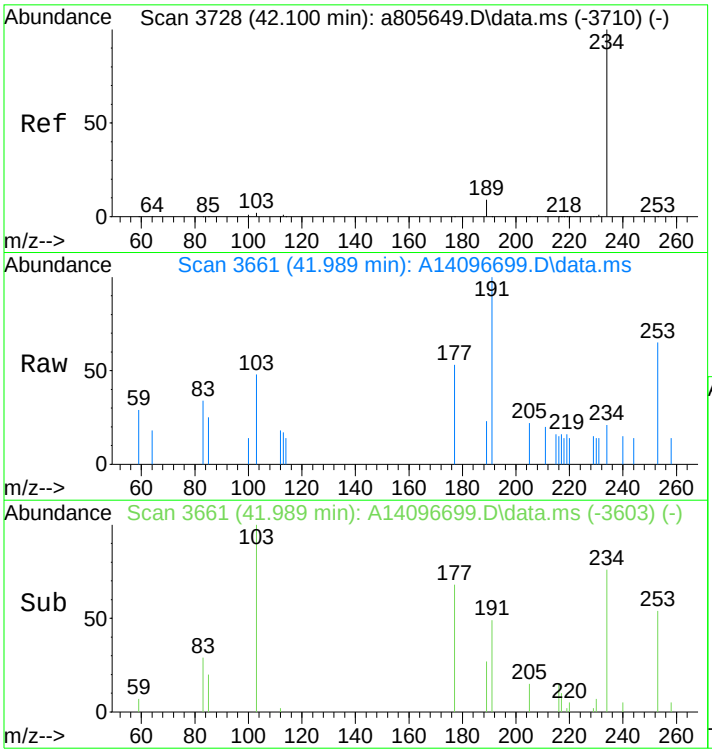


#66
Naphthobenzothiophene
Concen: 0.41 ng/ml m
RT: 41.989 min Scan# 3661
Delta R.T. 0.027 min
Lab File: A14096699.D
Acq: 21 Jun 2012 9:47 am

Tgt Ion:234 Resp: 68

Ion	Ratio	Lower	Upper
234	100		
189	0.0	29.1	43.7#

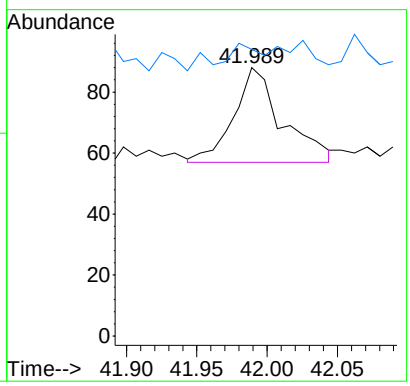


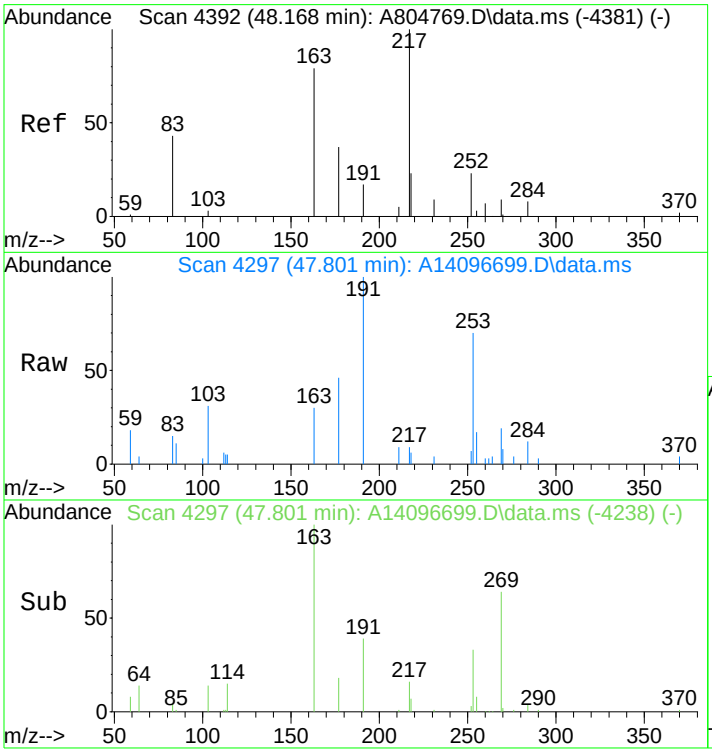


#67
Naphthobenzothiophene-2,1-D
Concen: 0.45 ng/mL m
RT: 41.989 min Scan# 3661
Delta R.T. 0.027 min
Lab File: A14096699.D
Acq: 21 Jun 2012 9:47 am

Tgt Ion:234 Resp: 74

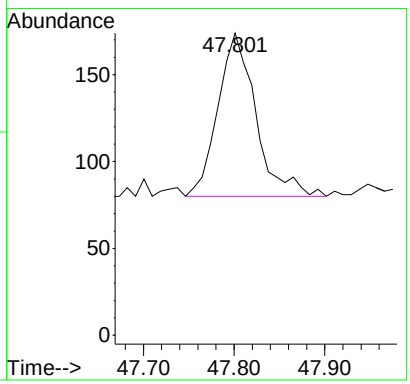
Ion	Ratio	Lower	Upper
234	100		
189	0.0	29.1	43.7#





#133
Unknown Sterane (S18)
Concen: 7.93 ng/ml
RT: 47.801 min Scan# 4297
Delta R.T. 0.036 min
Lab File: A14096699.D
Acq: 21 Jun 2012 9:47 am

Tgt Ion:217 Resp: 273



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096700.D
Acq On : 21 Jun 2012 11:13 am
Operator : AC
Sample : SO062012LCS01
Misc : 1X ETR1206028
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jun 22 11:31:07 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	51979	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	100848	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	83779	454.210	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.42%#			
42) Phenanthrene-d10	32.330	188	81375	468.142	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.81%#			
86) Benzo[a]pyrene-d12	48.030	264	85128	431.948	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.19%#			
127) 5B(H)Cholane - Surr	43.486	217	18959	474.925	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.49%#			
Target Compounds						Qvalue
10) Naphthalene	19.583	128	100398	497.666	ng/mL#	100
16) 2-Methylnaphthalene	22.284	142	55704	419.636	ng/mL#	100
26) Acenaphthylene	25.852	152	88708M3	422.703	ng/mL	
27) Acenaphthene	26.573	153	61075	470.897	ng/mL	100
29) Fluorene	28.608	166	70370	487.198	ng/mL	99
43) Phenanthrene	32.422	178	98184	492.891	ng/mL	100
55) Anthracene	32.613	178	82119M3	414.360	ng/mL	
58) Fluoranthene	37.205	202	100248	493.281	ng/mL	98
60) Pyrene	38.090	202	106926	506.225	ng/mL	98
75) Benz[a]anthracene	42.865	228	91314	413.931	ng/mL	99
77) Chrysene/Triphenylene	43.030	228	108879	499.880	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	103901	476.210	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.015	252	130909	543.223	ng/mL	93
87) Benzo[a]pyrene	48.121	252	105994	523.968	ng/mL	91
89) Indeno[1,2,3-cd]pyrene	52.868	276	109869M3	434.198	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.886	278	106791	449.142	ng/mL	98
91) Benzo[g,h,i]perylene	54.147	276	110013	453.289	ng/mL	99

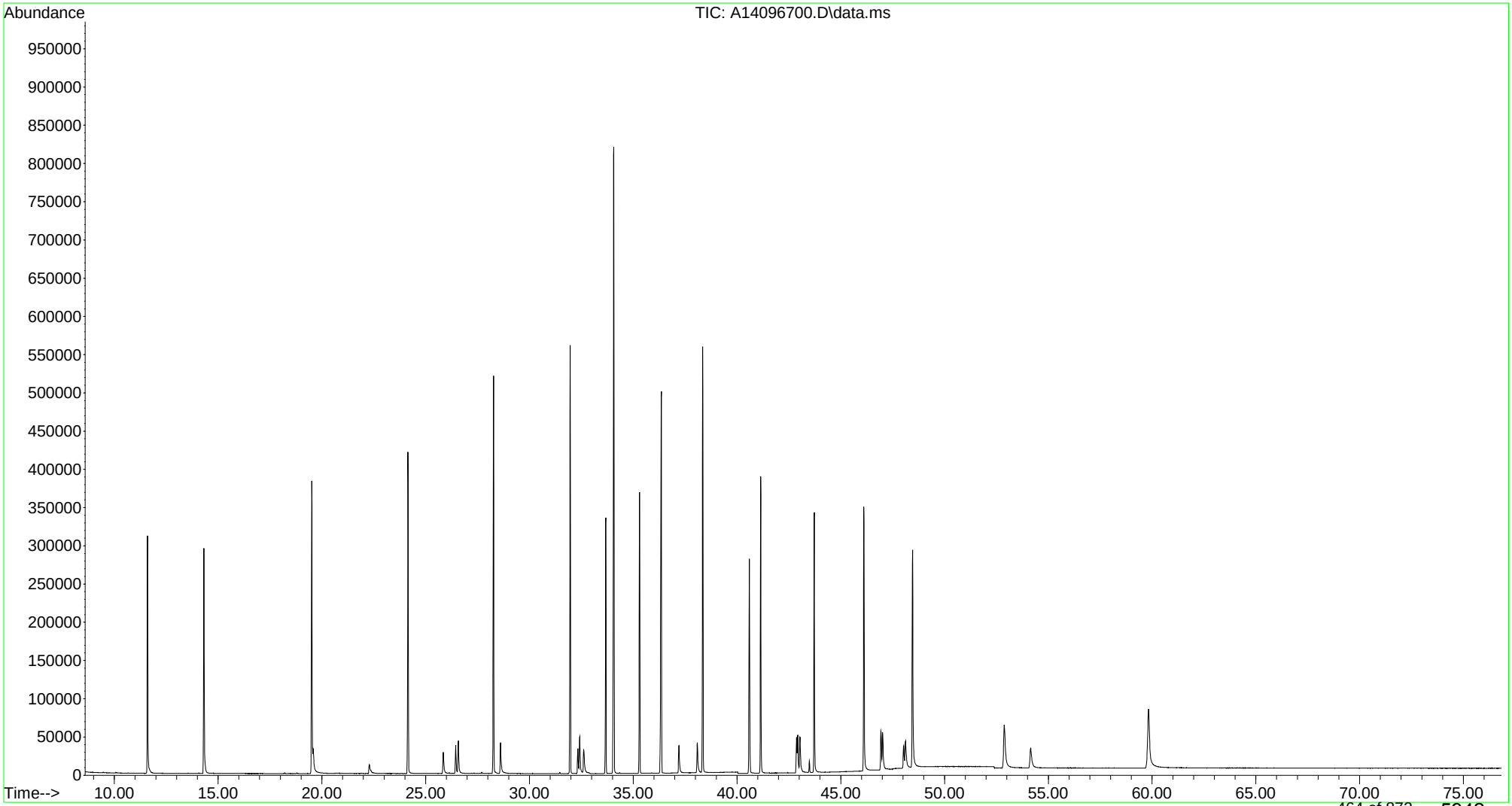
(#) = qualifier out of range (m) = manual integration (+) = signals summed

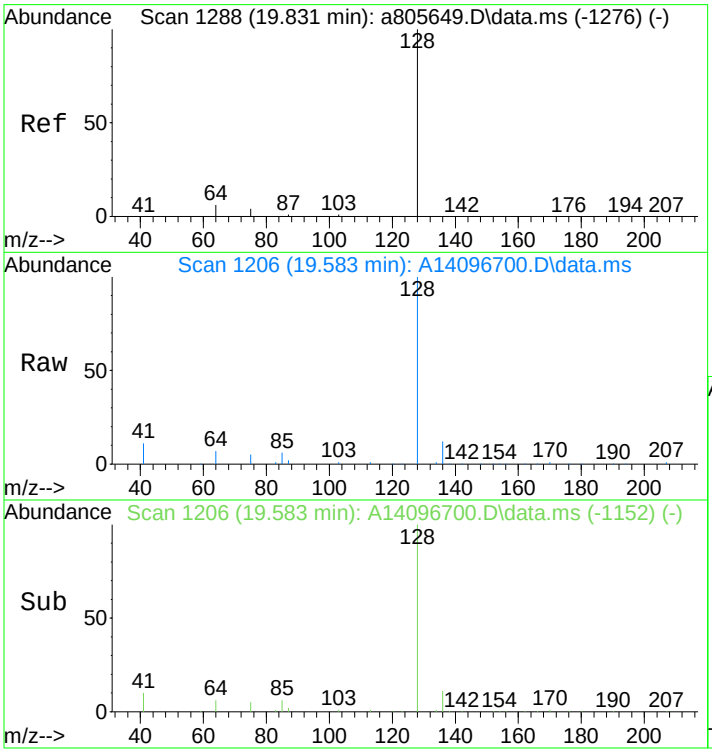
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096700.D
Acq On : 21 Jun 2012 11:13 am
Operator : AC
Sample : SO062012LCS01
Misc : 1X ETR1206028
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jun 22 11:31:07 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

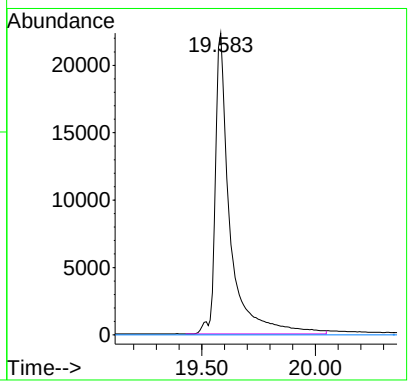


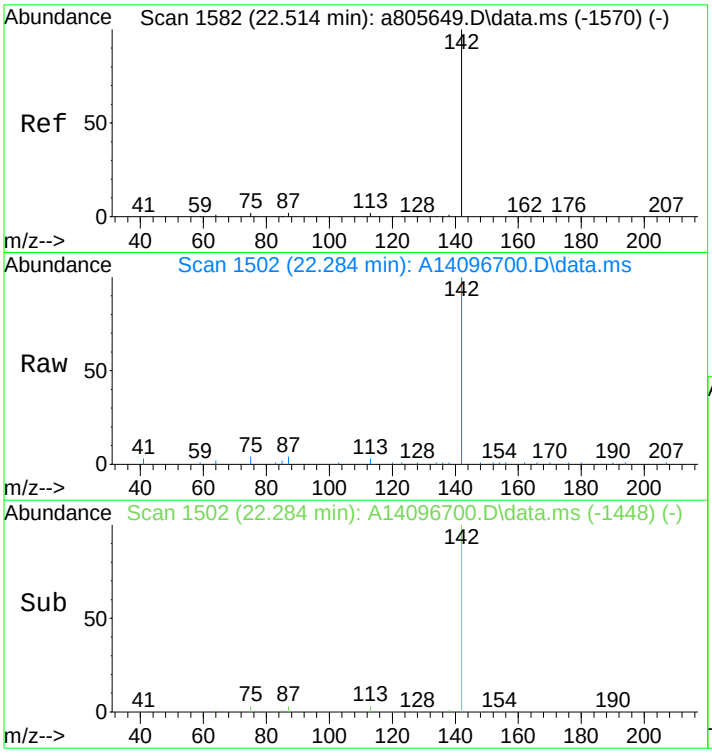


#10
Naphthalene
Concen: 497.67 ng/mL
RT: 19.583 min Scan# 1206
Delta R.T. -0.009 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:128 Resp: 100398

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

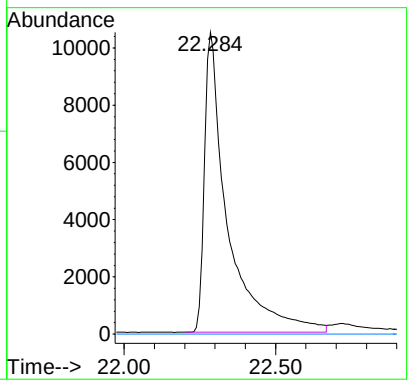


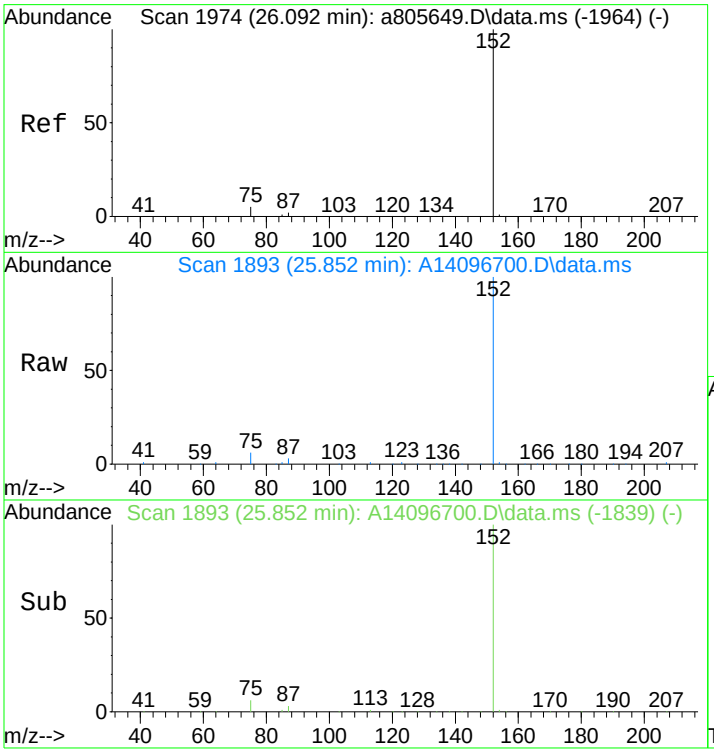


#16
2-Methylnaphthalene
Concen: 419.64 ng/mL
RT: 22.284 min Scan# 1502
Delta R.T. -0.009 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:142 Resp: 55704

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

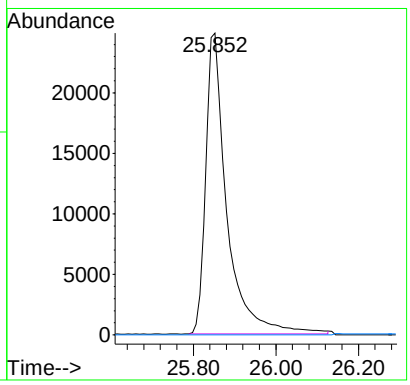


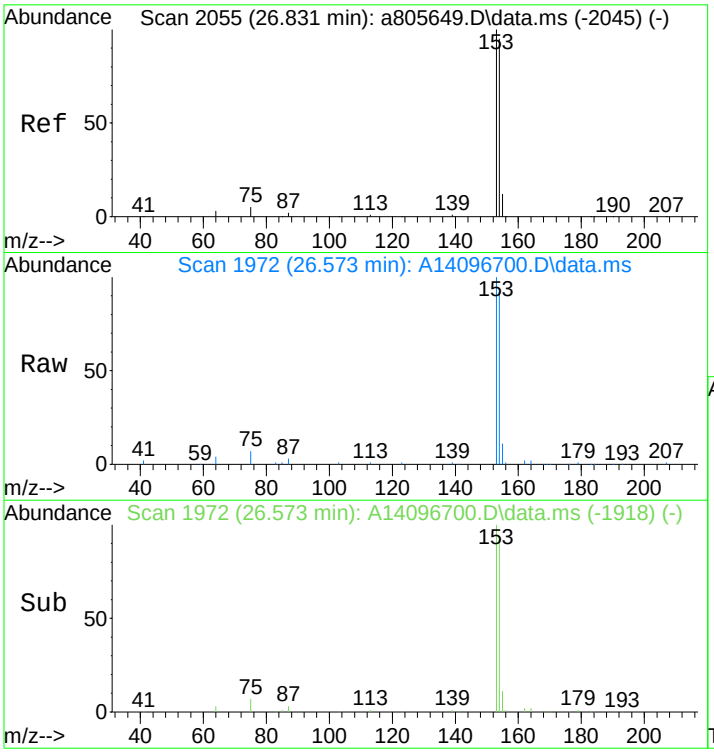


#26
Acenaphthylene
Concen: 422.70 ng/mL m
RT: 25.852 min Scan# 1893
Delta R.T. -0.009 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:152 Resp: 88708

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

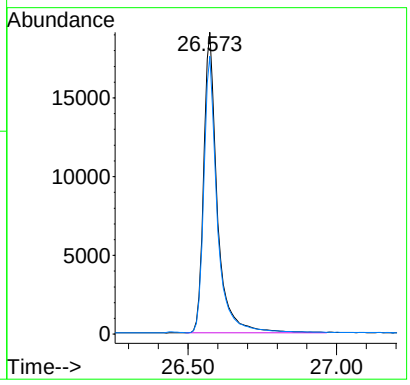


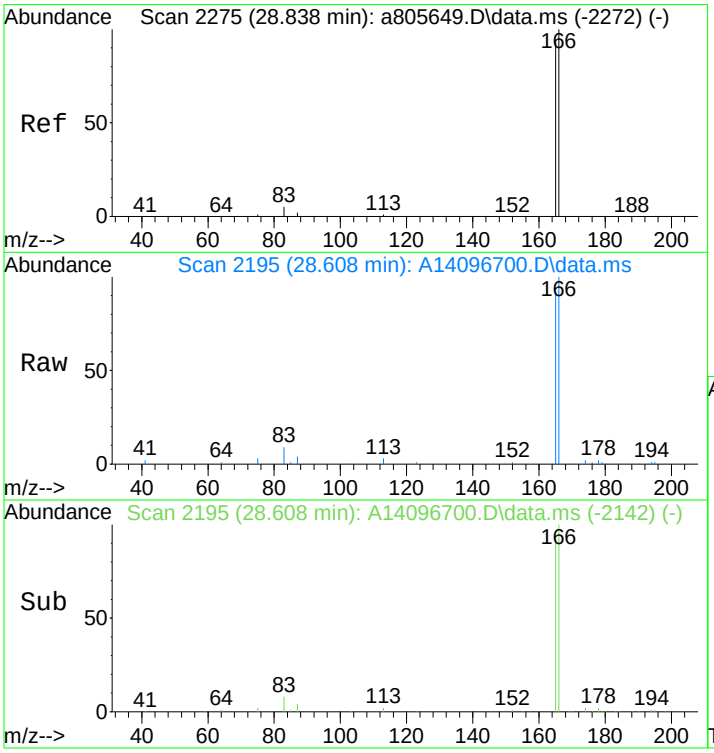


#27
Acenaphthene
Concen: 470.90 ng/mL
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:153 Resp: 61075

Ion	Ratio	Lower	Upper
153	100		
154	91.0	72.8	109.2

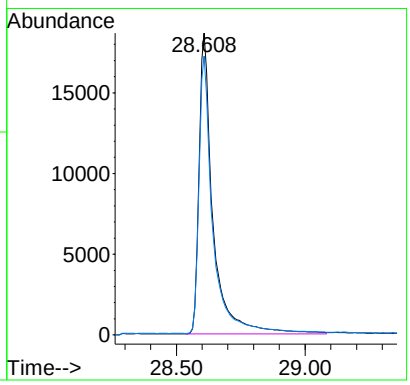


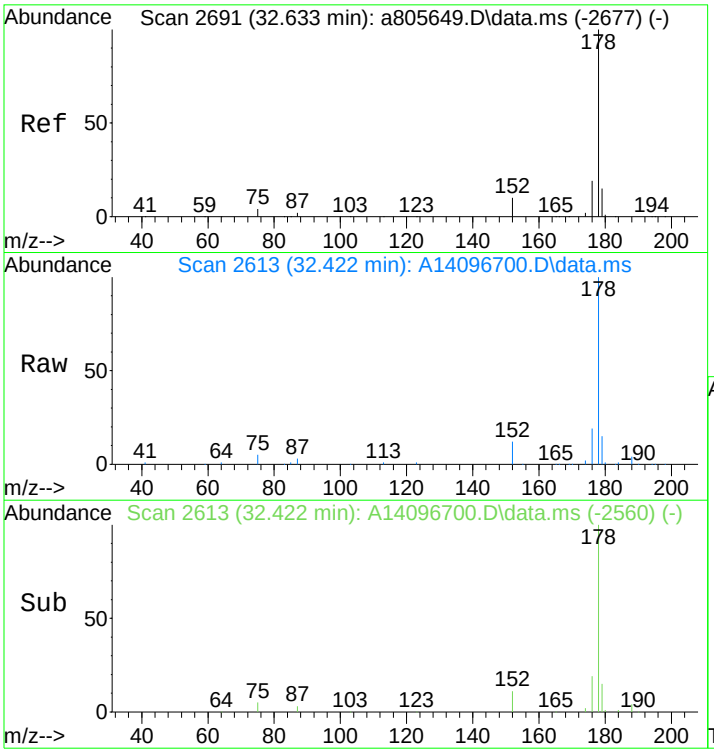


#29
Fluorene
Concen: 487.20 ng/mL
RT: 28.608 min Scan# 2195
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:166 Resp: 70370

Ion	Ratio	Lower	Upper
166	100		
165	90.7	73.2	109.8

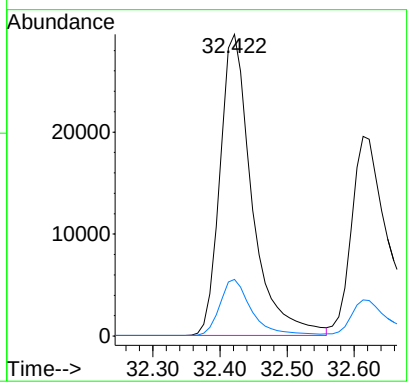


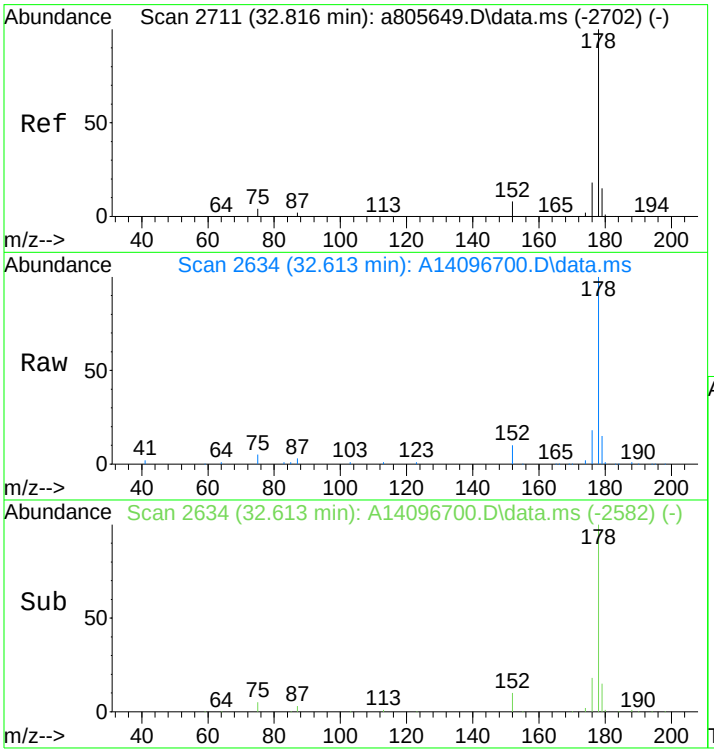


#43
Phenanthrene
Concen: 492.89 ng/mL
RT: 32.422 min Scan# 2613
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:178 Resp: 98184

Ion	Ratio	Lower	Upper
178	100		
176	18.5	14.8	22.2

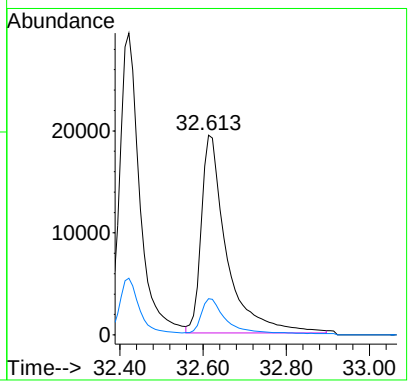


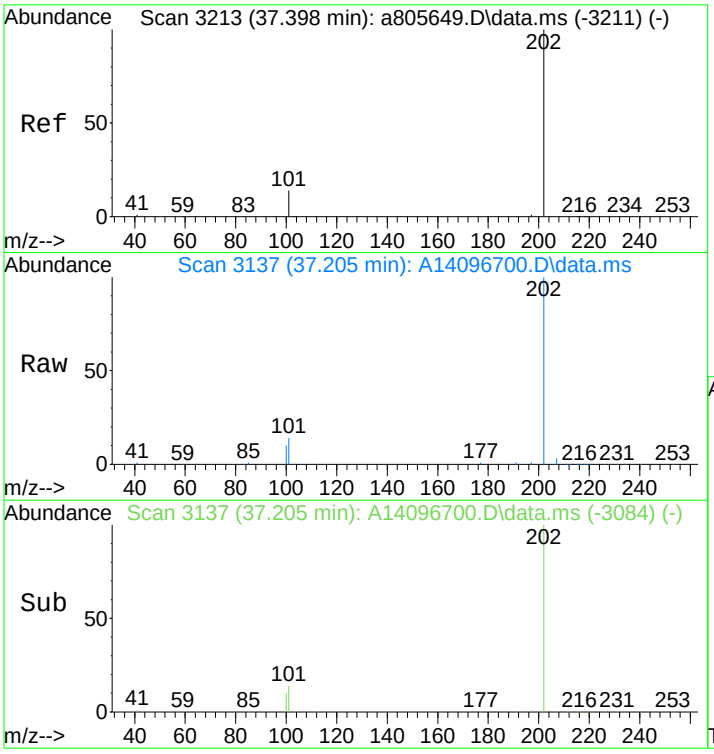


#55
Anthracene
Concen: 414.36 ng/mL m
RT: 32.613 min Scan# 2634
Delta R.T. -0.028 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:178 Resp: 82119

Ion	Ratio	Lower	Upper
178	100		
176	20.4	14.3	21.5

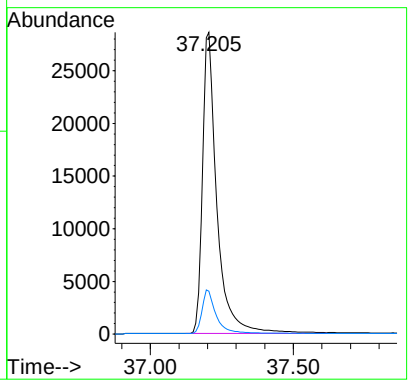


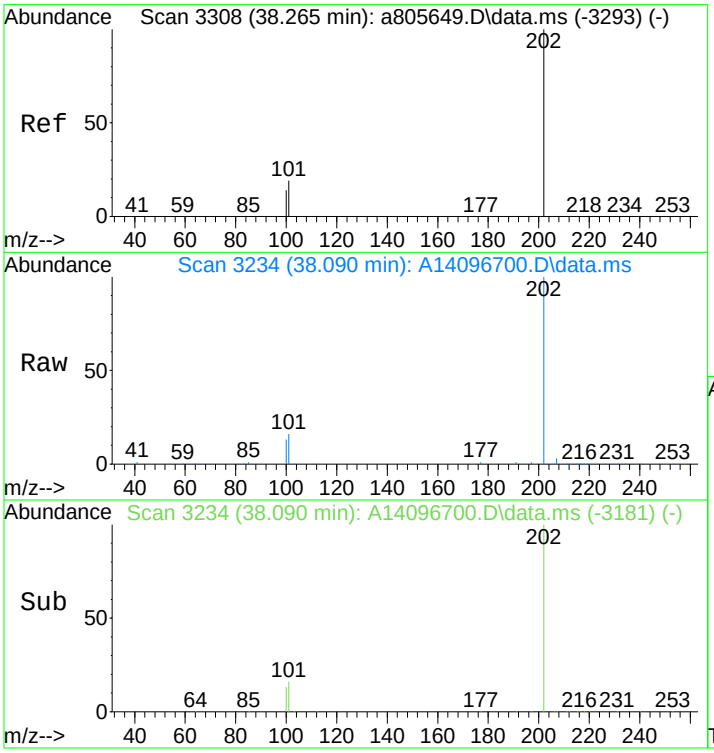


#58
Fluoranthene
Concen: 493.28 ng/mL
RT: 37.205 min Scan# 3137
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:202 Resp: 100248

Ion	Ratio	Lower	Upper
202	100		
101	14.1	11.8	17.8

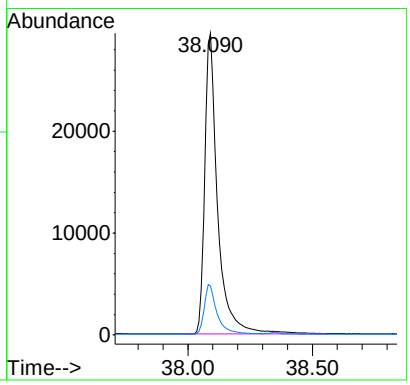


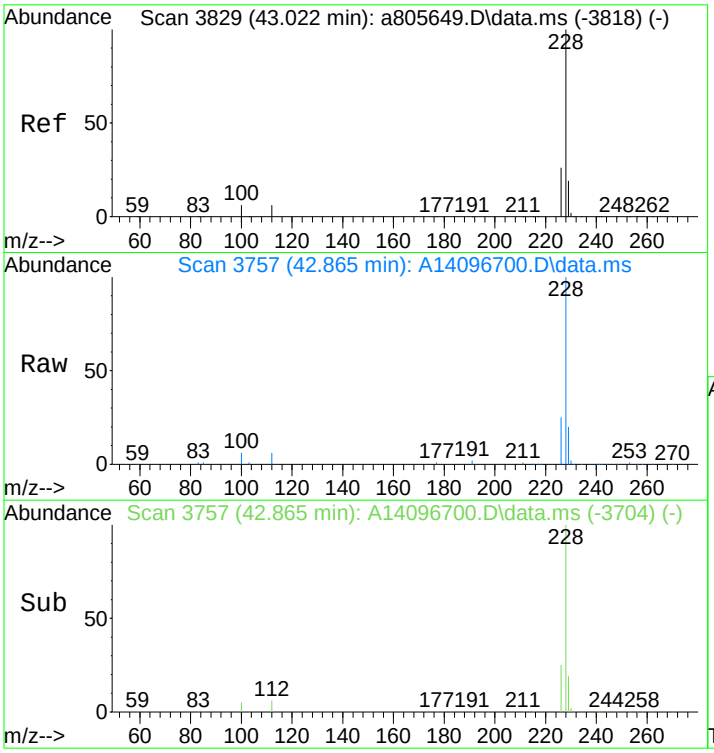


#60
Pyrene
Concen: 506.22 ng/mL
RT: 38.090 min Scan# 3234
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:202 Resp: 106926

Ion	Ratio	Lower	Upper
202	100		
101	16.4	13.8	20.6

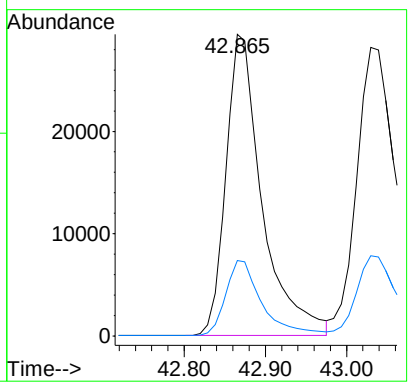


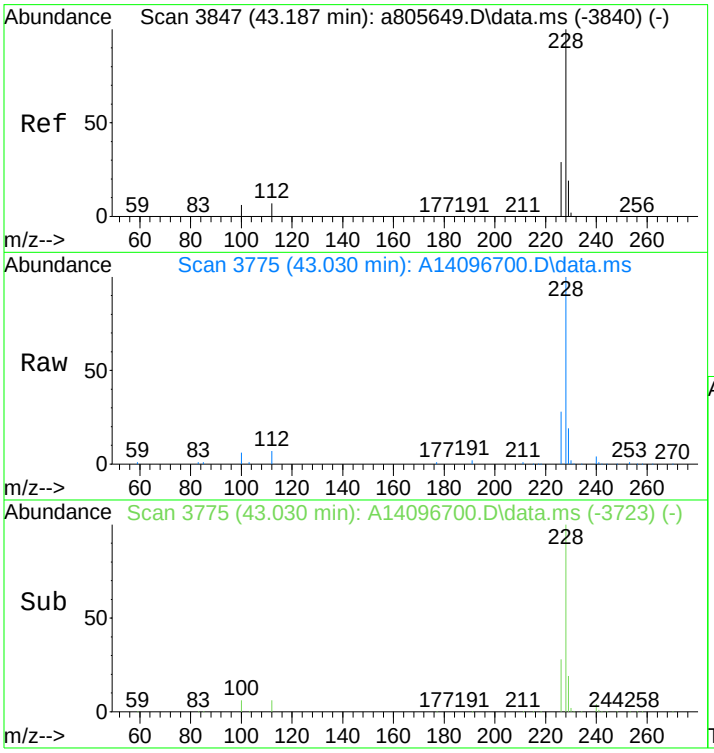


#75
Benz[a]anthracene
Concen: 413.93 ng/mL
RT: 42.865 min Scan# 3757
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:228 Resp: 91314

Ion	Ratio	Lower	Upper
228	100		
226	24.9	20.3	30.5

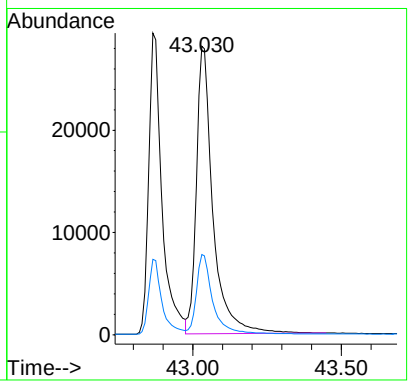


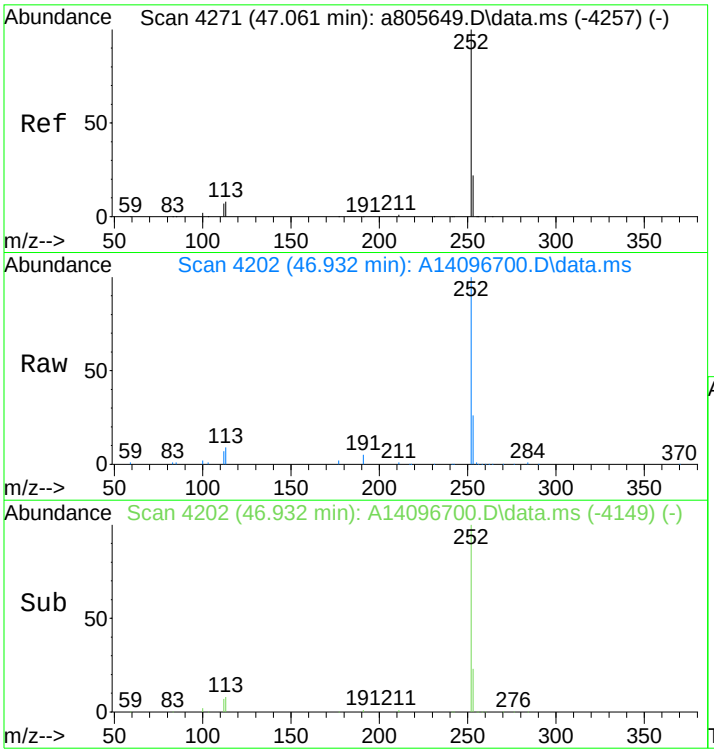


#77
Chrysene/Triphenylene
Concen: 499.88 ng/mL
RT: 43.030 min Scan# 3775
Delta R.T. -0.028 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:228 Resp: 108879

Ion	Ratio	Lower	Upper
228	100		
226	27.3	22.2	33.2

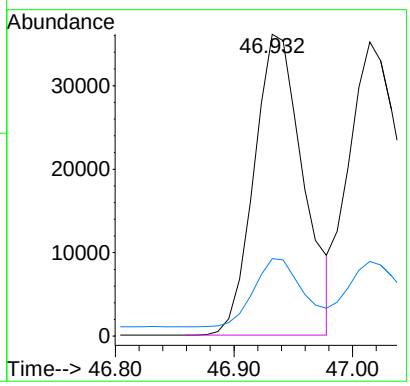


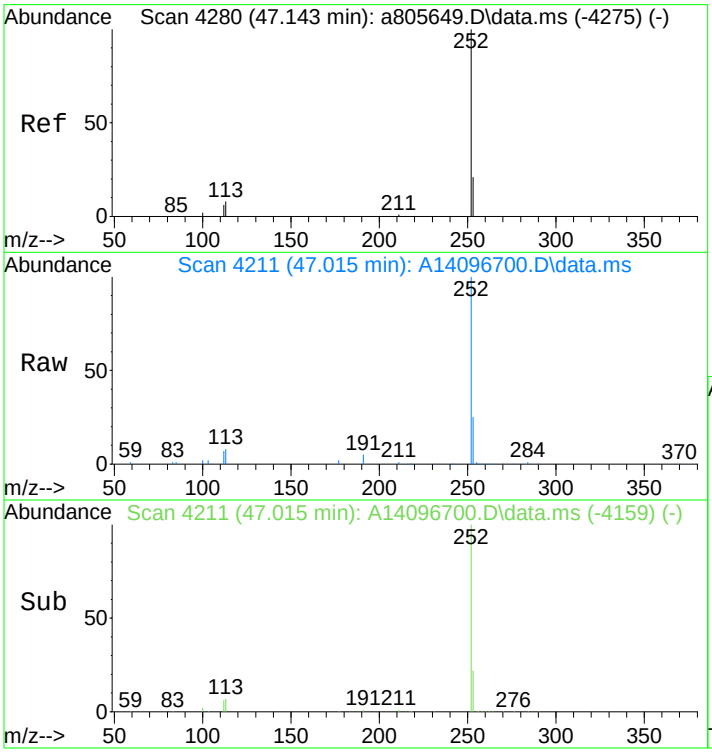


#82
Benzo[b]fluoranthene
Concen: 476.21 ng/mL
RT: 46.932 min Scan# 4202
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:252 Resp: 103901

Ion	Ratio	Lower	Upper
252	100		
253	22.7	19.9	29.9

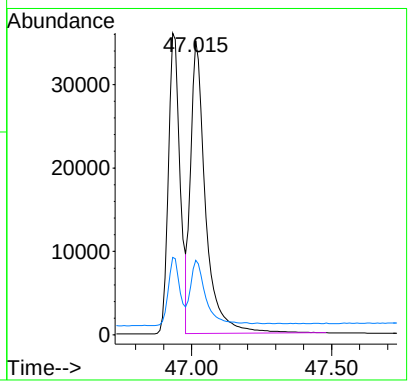


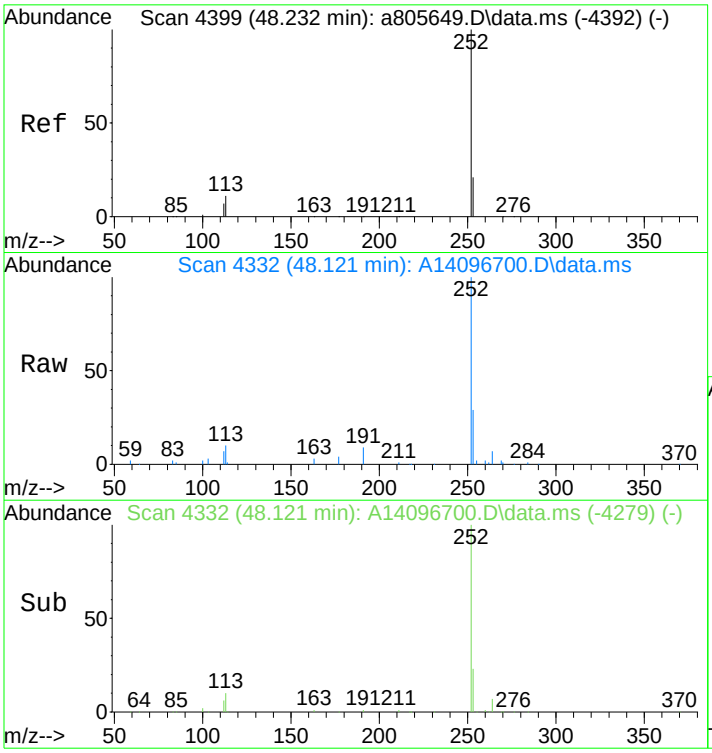


#83
Benzo[j]+[k]fluoranthene
Concen: 543.22 ng/mL
RT: 47.015 min Scan# 4211
Delta R.T. -0.028 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:252 Resp: 130909

Ion	Ratio	Lower	Upper
252	100		
253	21.6	20.1	30.1

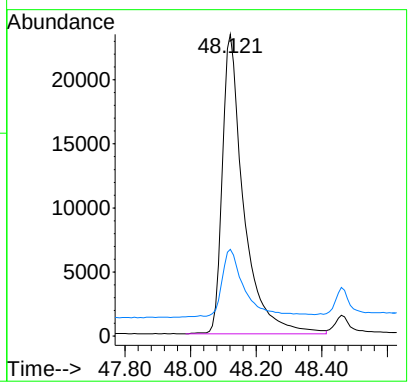


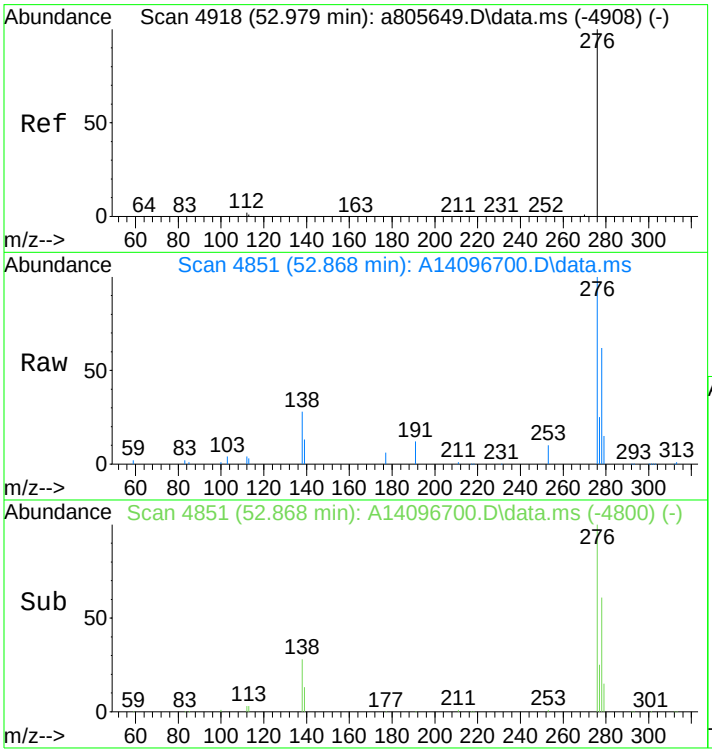


#87
Benzo[a]pyrene
Concen: 523.97 ng/mL
RT: 48.121 min Scan# 4332
Delta R.T. -0.018 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:252 Resp: 105994

Ion	Ratio	Lower	Upper
252	100		
253	23.7	23.0	34.4

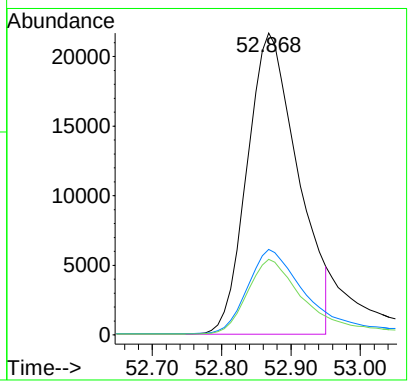


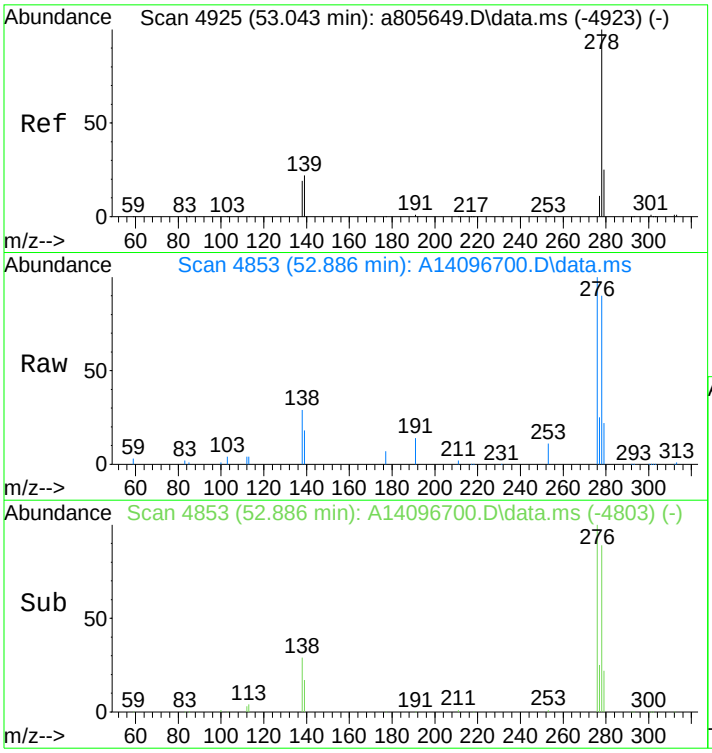


#89
Indeno[1,2,3-cd]pyrene
Concen: 434.20 ng/mL m
RT: 52.868 min Scan# 4851
Delta R.T. -0.037 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:276 Resp: 109869

Ion	Ratio	Lower	Upper
276	100		
138	34.6	23.2	34.8
277	29.7	19.8	29.8

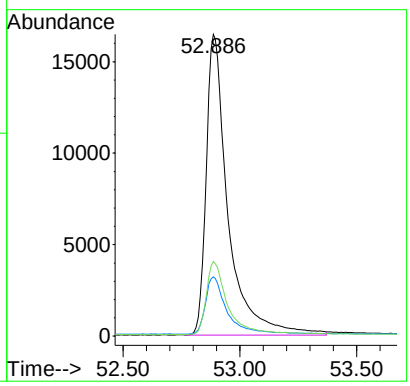


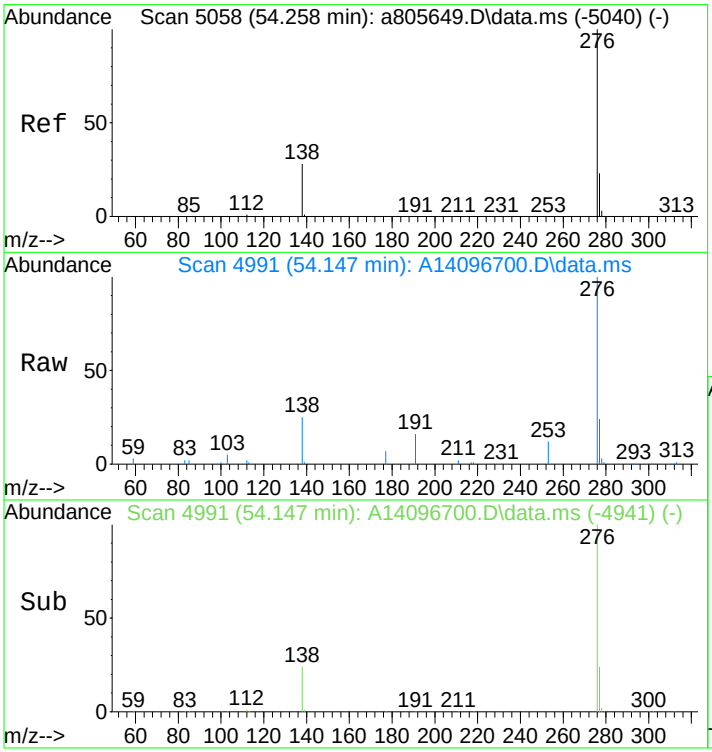


#90
Dibenz[ah]+[ac]anthracene
Concen: 449.14 ng/mL
RT: 52.886 min Scan# 4853
Delta R.T. -0.046 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:278 Resp: 106791

Ion	Ratio	Lower	Upper
278	100		
139	18.7	16.1	24.1
279	23.9	19.6	29.4

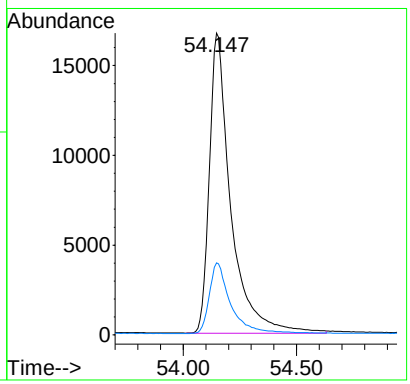




#91
Benzo[g,h,i]perylene
Concen: 453.29 ng/mL
RT: 54.147 min Scan# 4991
Delta R.T. -0.046 min
Lab File: A14096700.D
Acq: 21 Jun 2012 11:13 am

Tgt Ion:276 Resp: 110013

Ion	Ratio	Lower	Upper
276	100		
277	23.5	19.0	28.6



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096701.D
Acq On : 21 Jun 2012 12:39 pm
Operator : AC
Sample : SO062012LCSD01
Misc : 1X ETR1206028
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jun 22 11:31:14 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	51274	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	100961	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	84286	463.242	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.32%#			
42) Phenanthrene-d10	32.330	188	83175	485.077	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.51%#			
86) Benzo[a]pyrene-d12	48.030	264	86535	438.596	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 43.86%#			
127) 5B(H)Cholane - Surr	43.486	217	19007	475.595	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 47.56%#			
Target Compounds						Qvalue
10) Naphthalene	19.583	128	100467	504.856	ng/mL#	100
16) 2-Methylnaphthalene	22.284	142	55974	427.468	ng/mL#	100
26) Acenaphthylene	25.852	152	88295M3	426.520	ng/mL	
27) Acenaphthene	26.573	153	61245	478.701	ng/mL	100
29) Fluorene	28.608	166	70272	493.209	ng/mL	100
43) Phenanthrene	32.422	178	98740	502.498	ng/mL	100
55) Anthracene	32.613	178	82717M3	423.117	ng/mL	
58) Fluoranthene	37.205	202	100826	502.947	ng/mL	98
60) Pyrene	38.090	202	106758	512.379	ng/mL	98
75) Benz[a]anthracene	42.865	228	91992	416.537	ng/mL	99
77) Chrysene/Triphenylene	43.039	228	109881	503.916	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	103867	475.521	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.015	252	131537	545.218	ng/mL	93
87) Benzo[a]pyrene	48.121	252	105806	522.453	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	52.868	276	111222M3	439.053	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.886	278	106583	447.766	ng/mL	99
91) Benzo[g,h,i]perylene	54.147	276	109807	451.934	ng/mL	99

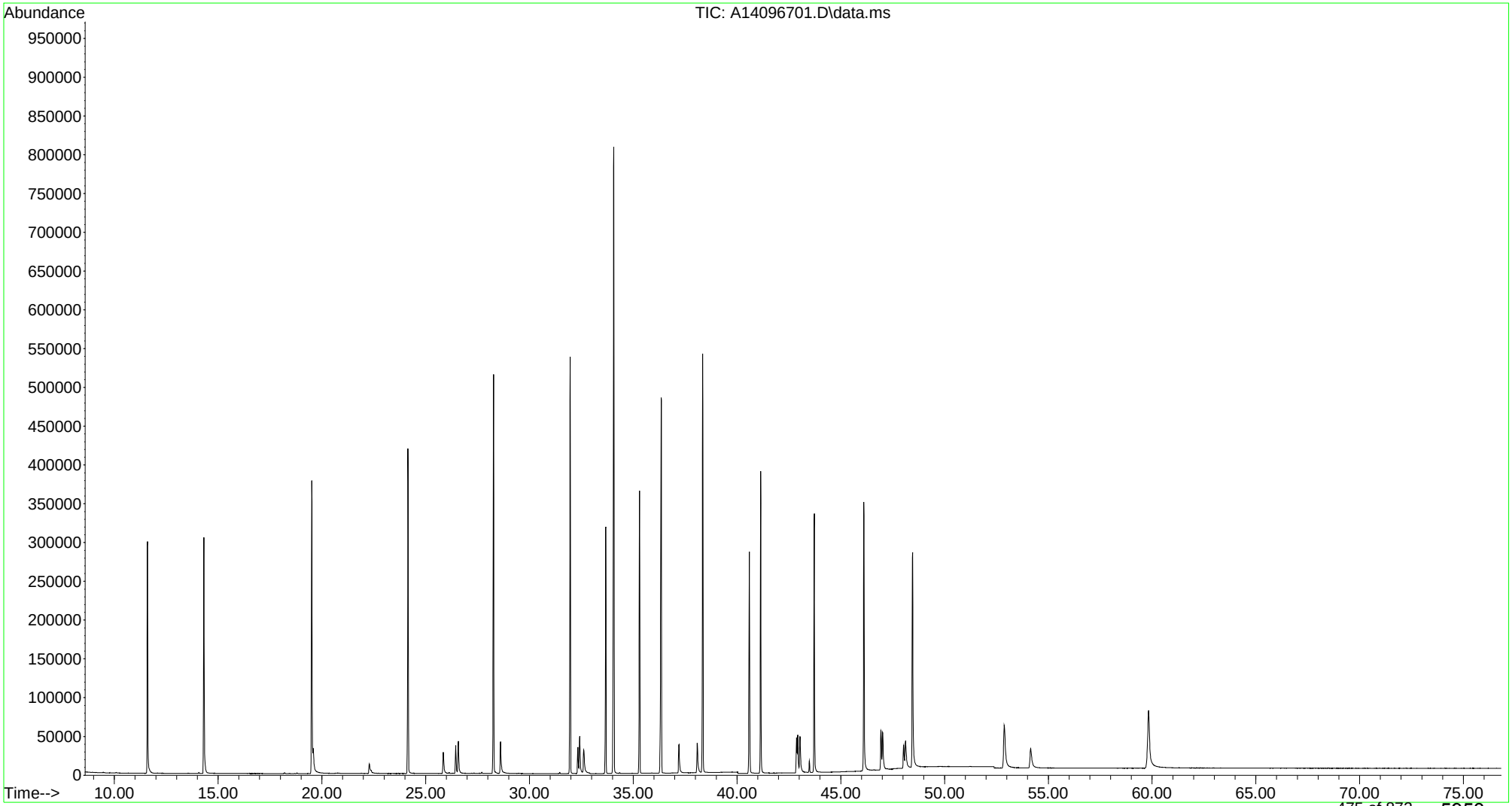
(#) = qualifier out of range (m) = manual integration (+) = signals summed

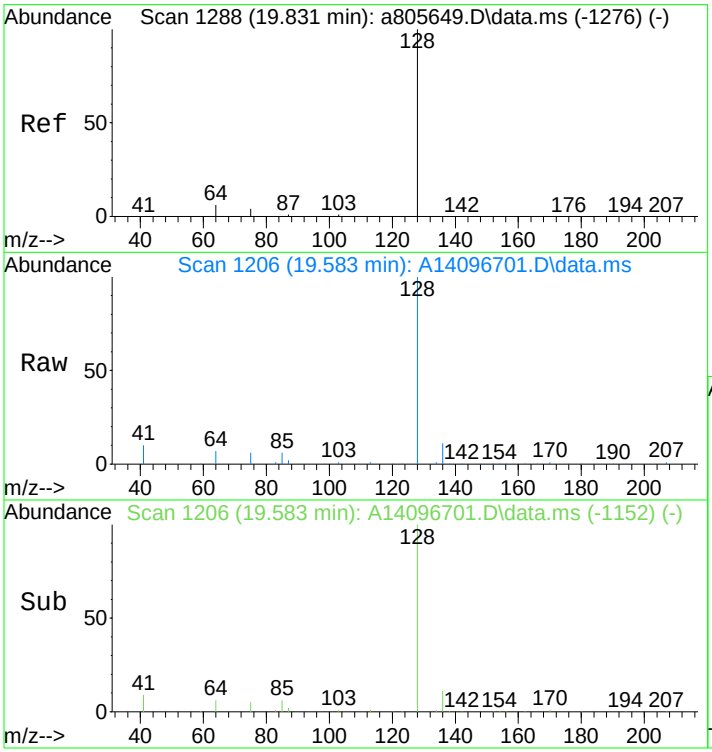
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096701.D
Acq On : 21 Jun 2012 12:39 pm
Operator : AC
Sample : SO062012LCSD01
Misc : 1X ETR1206028
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jun 22 11:31:14 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

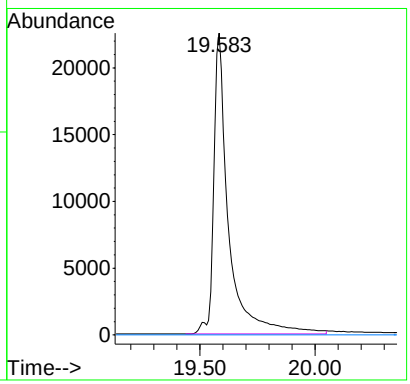


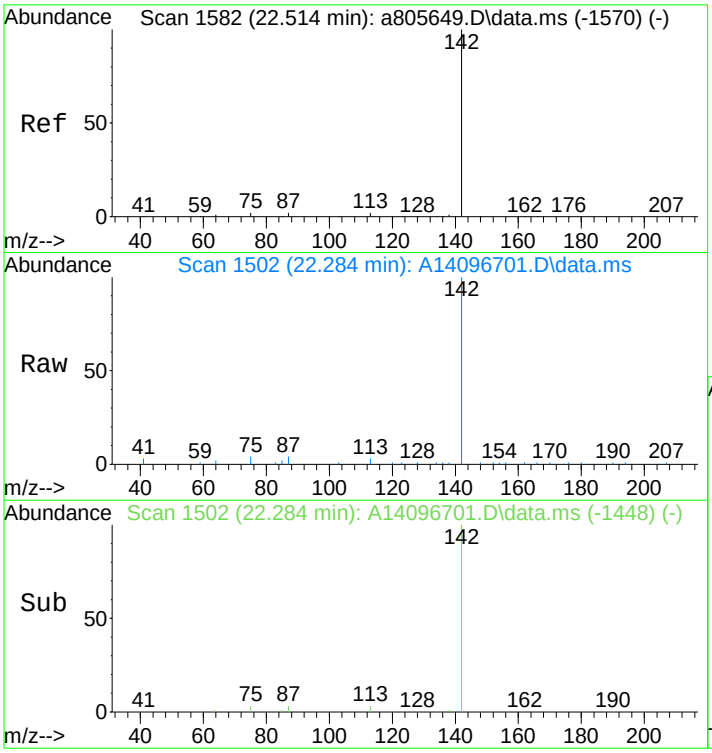


#10
Naphthalene
Concen: 504.86 ng/mL
RT: 19.583 min Scan# 1206
Delta R.T. -0.009 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:128 Resp: 100467

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

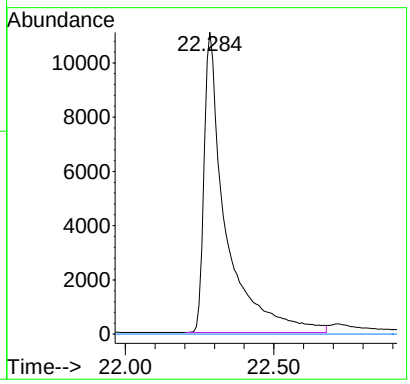


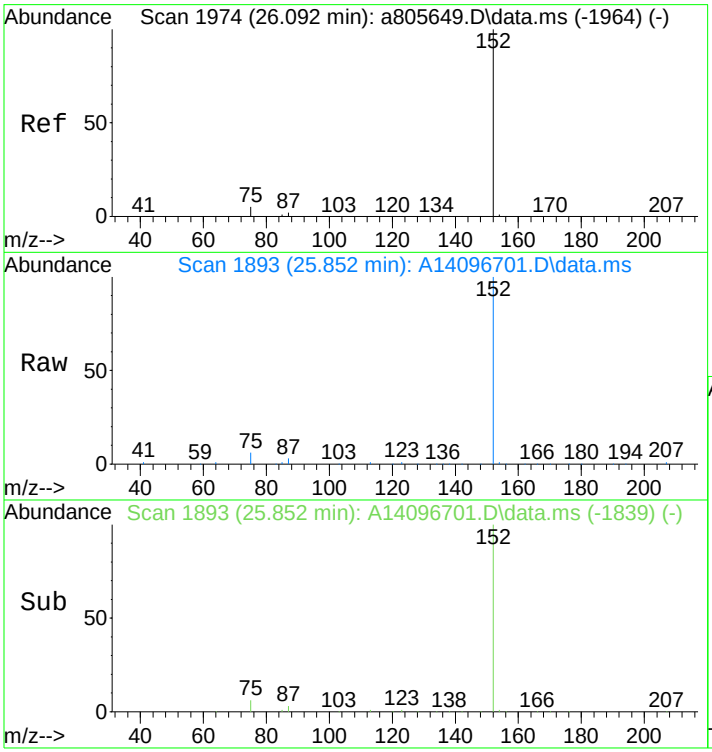


#16
2-Methylnaphthalene
Concen: 427.47 ng/mL
RT: 22.284 min Scan# 1502
Delta R.T. -0.009 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:142 Resp: 55974

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

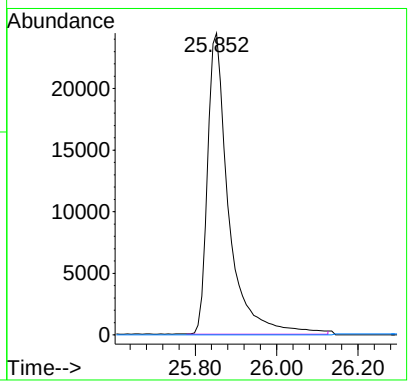


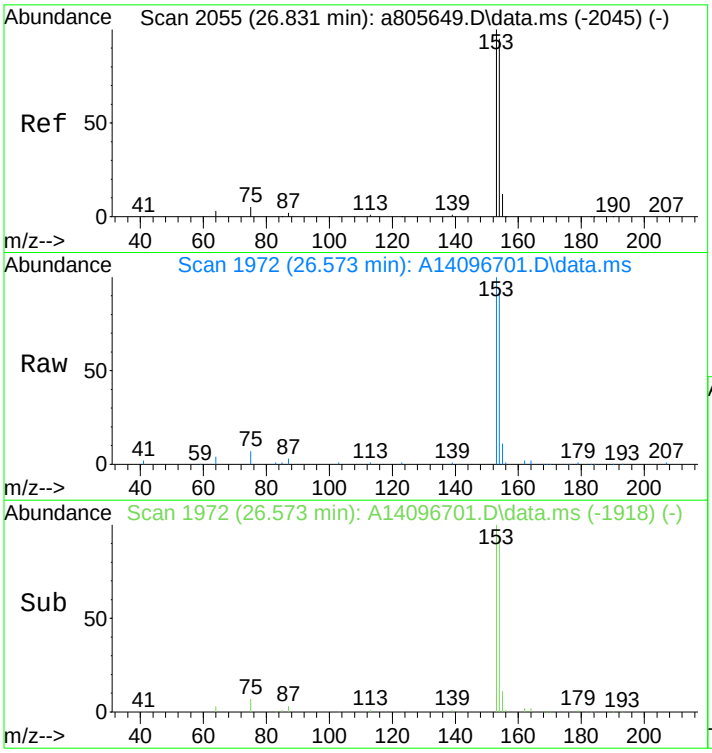


#26
Acenaphthylene
Concen: 426.52 ng/mL m
RT: 25.852 min Scan# 1893
Delta R.T. -0.009 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:152 Resp: 88295

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

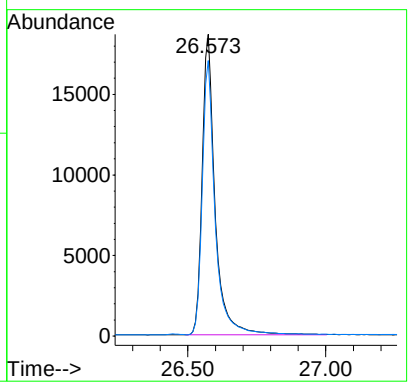


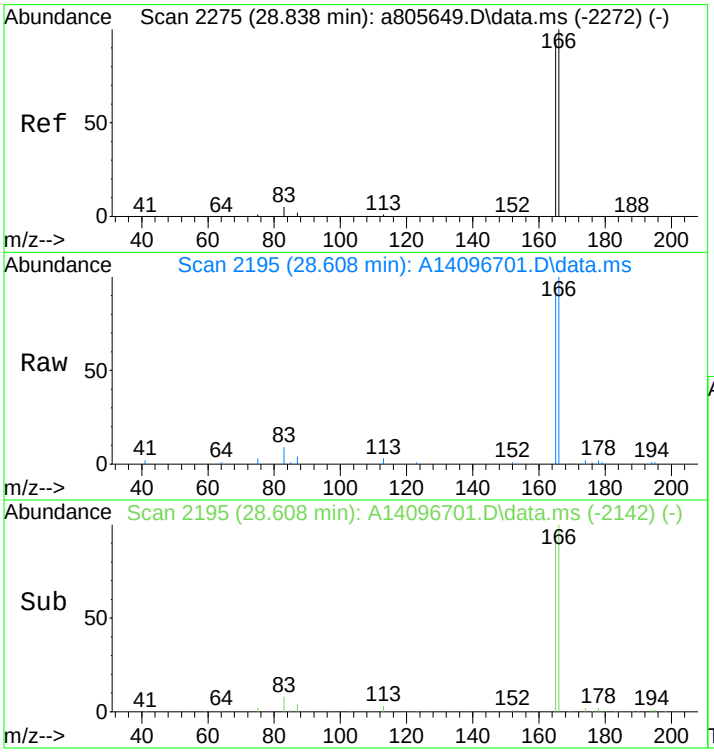


#27
Acenaphthene
Concen: 478.70 ng/mL
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:153 Resp: 61245

Ion	Ratio	Lower	Upper
153	100		
154	90.7	72.8	109.2

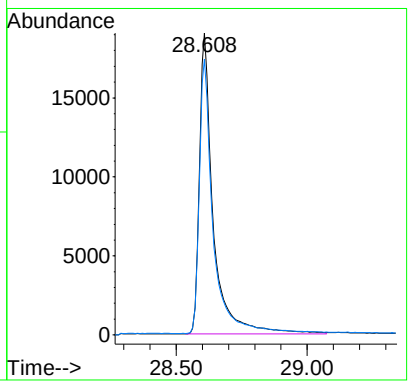


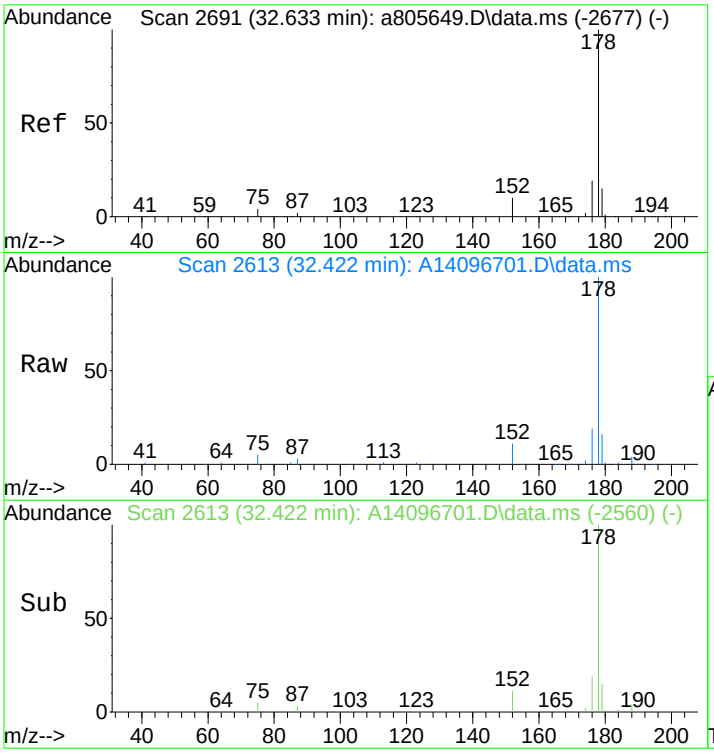


#29
Fluorene
Concen: 493.21 ng/mL
RT: 28.608 min Scan# 2195
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:166 Resp: 70272

Ion	Ratio	Lower	Upper
166	100		
165	91.7	73.2	109.8

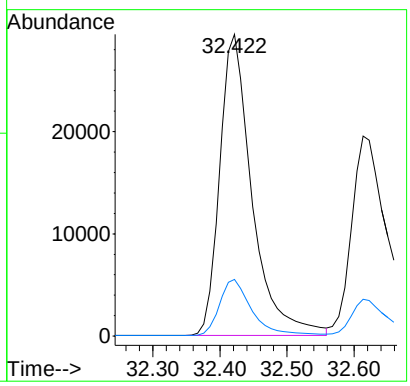


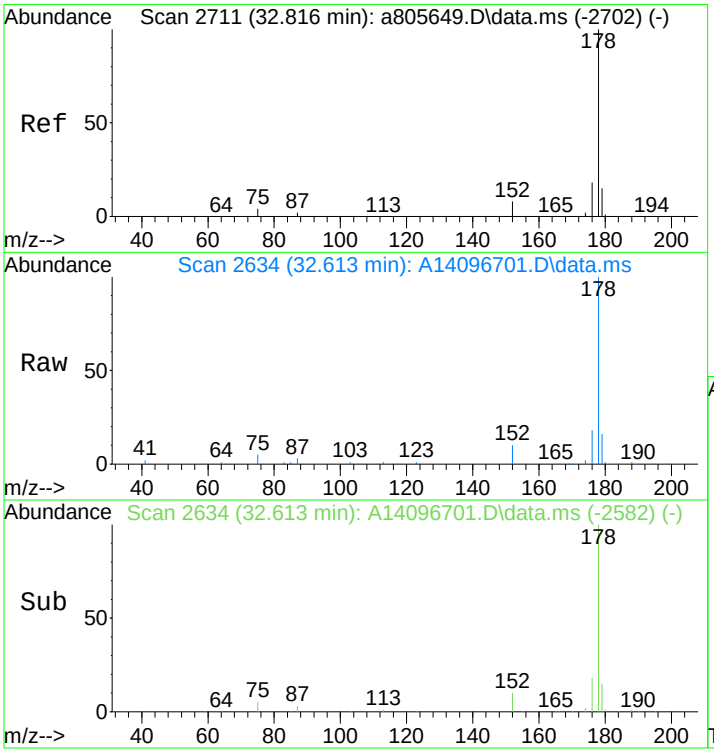


#43
Phenanthrene
Concen: 502.50 ng/mL
RT: 32.422 min Scan# 2613
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:178 Resp: 98740

Ion	Ratio	Lower	Upper
178	100		
176	18.6	14.8	22.2

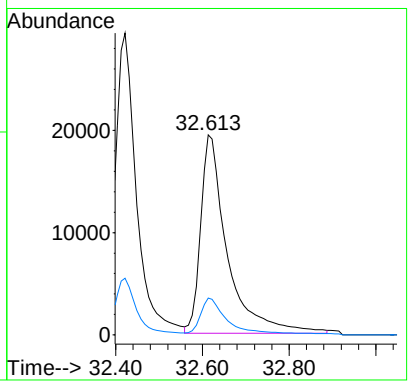


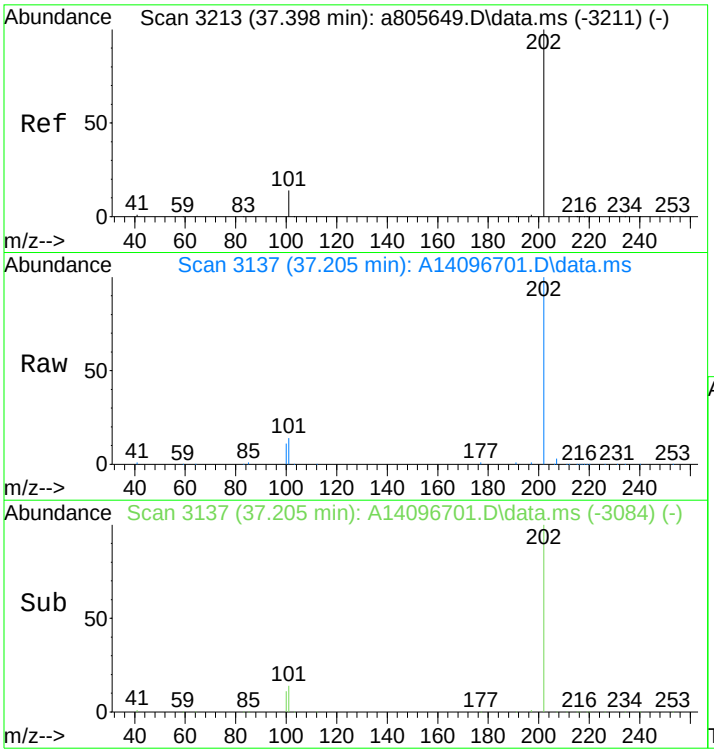


#55
Anthracene
Concen: 423.12 ng/mL m
RT: 32.613 min Scan# 2634
Delta R.T. -0.027 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:178 Resp: 82717

Ion	Ratio	Lower	Upper
178	100		
176	20.1	14.3	21.5

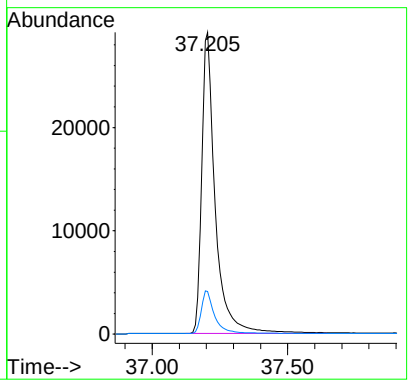


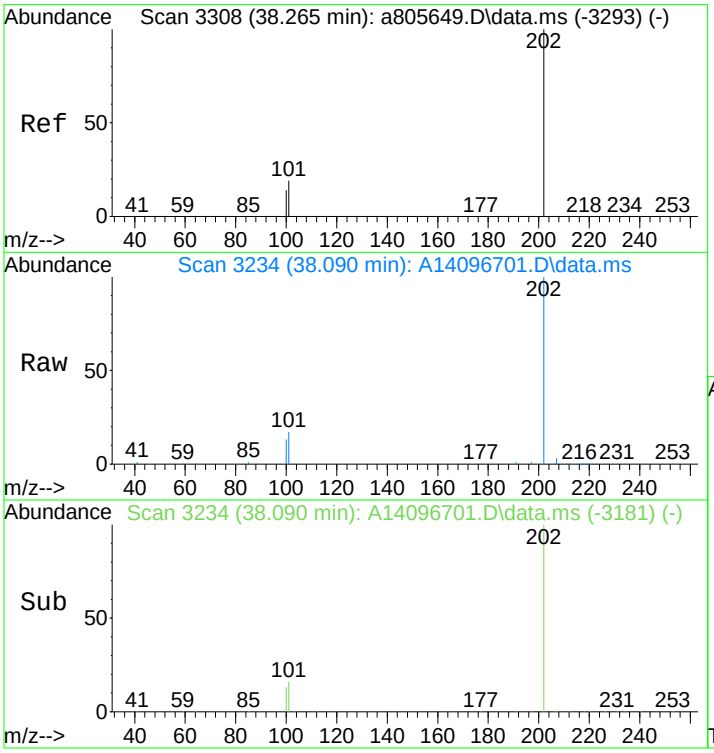


#58
Fluoranthene
Concen: 502.95 ng/mL
RT: 37.205 min Scan# 3137
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:202 Resp: 100826

Ion	Ratio	Lower	Upper
202	100		
101	13.9	11.8	17.8

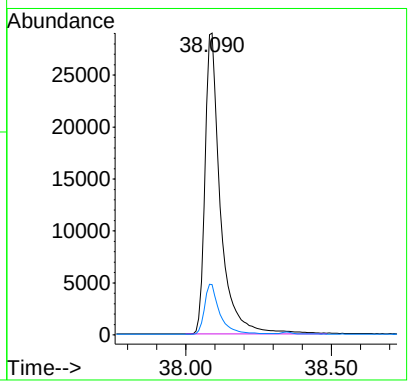


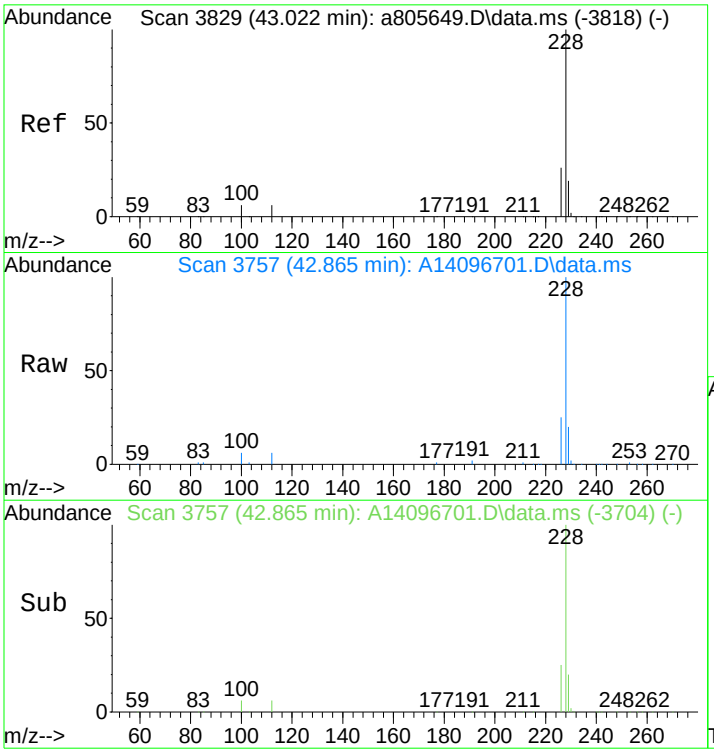


#60
Pyrene
Concen: 512.38 ng/mL
RT: 38.090 min Scan# 3234
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:202 Resp: 106758

Ion	Ratio	Lower	Upper
202	100		
101	16.4	13.8	20.6

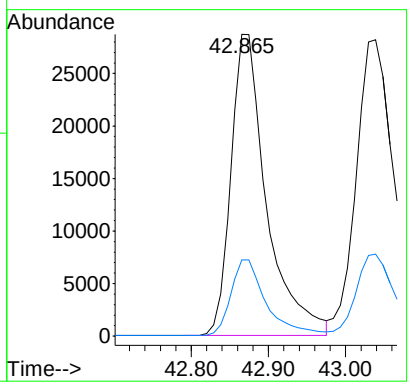


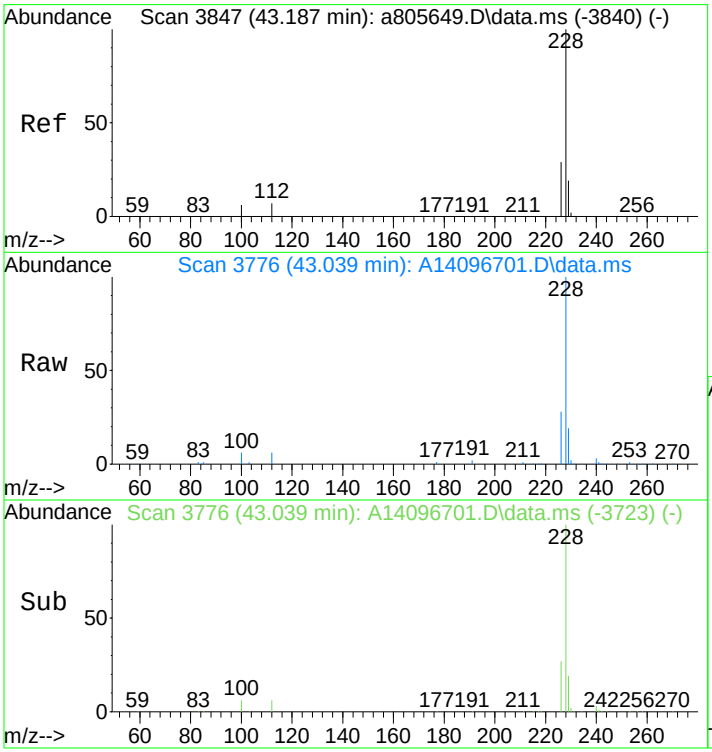


#75
Benz[a]anthracene
Concen: 416.54 ng/mL
RT: 42.865 min Scan# 3757
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:228 Resp: 91992

Ion	Ratio	Lower	Upper
228	100		
226	24.9	20.3	30.5

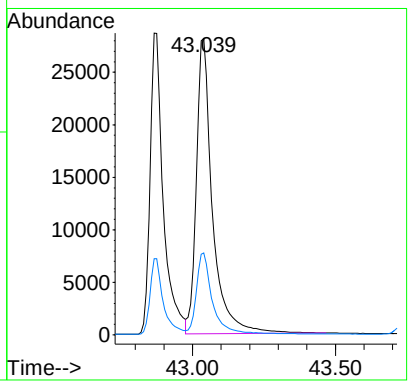


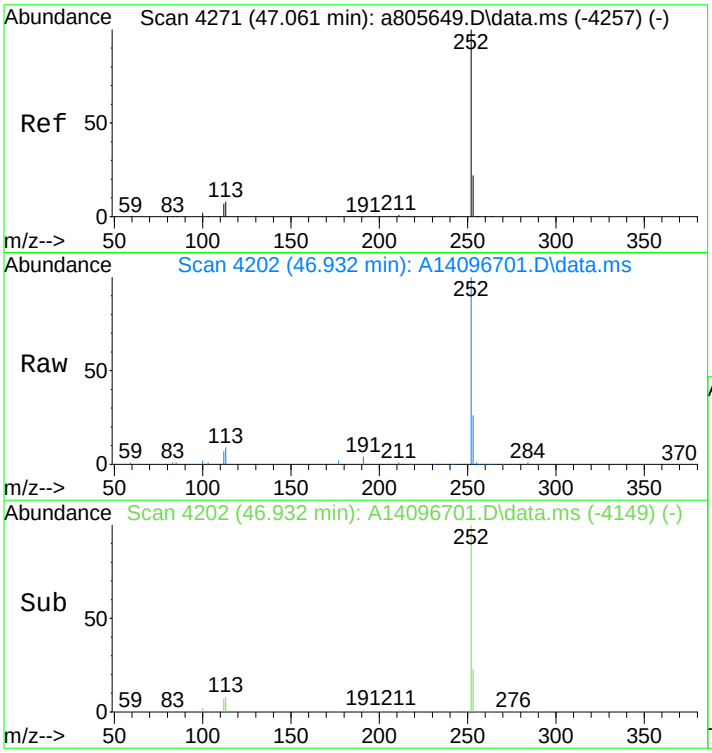


#77
Chrysene/Triphenylene
Concen: 503.92 ng/mL
RT: 43.039 min Scan# 3776
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:228 Resp: 109881

Ion	Ratio	Lower	Upper
228	100		
226	27.2	22.2	33.2

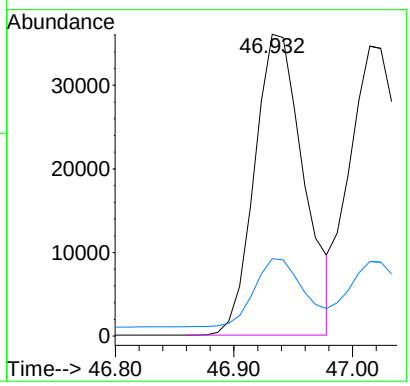


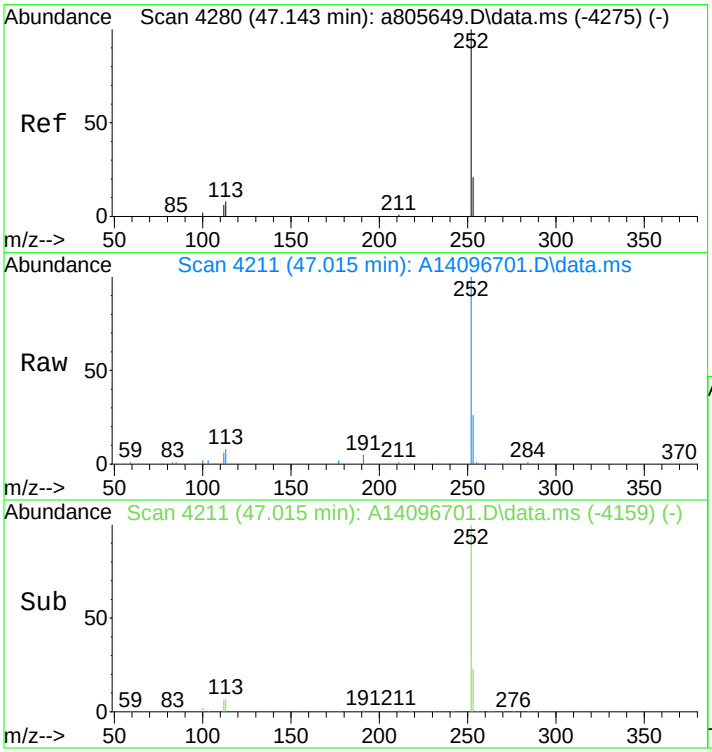


#82
Benzo[b]fluoranthene
Concen: 475.52 ng/mL
RT: 46.932 min Scan# 4202
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:252 Resp: 103867

Ion	Ratio	Lower	Upper
252	100		
253	22.7	19.9	29.9

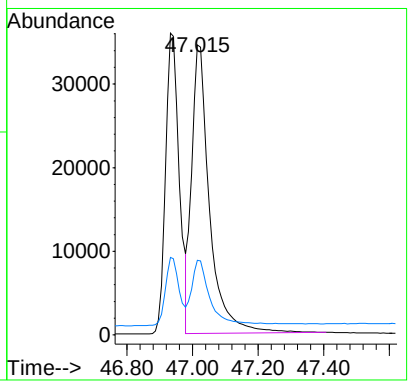


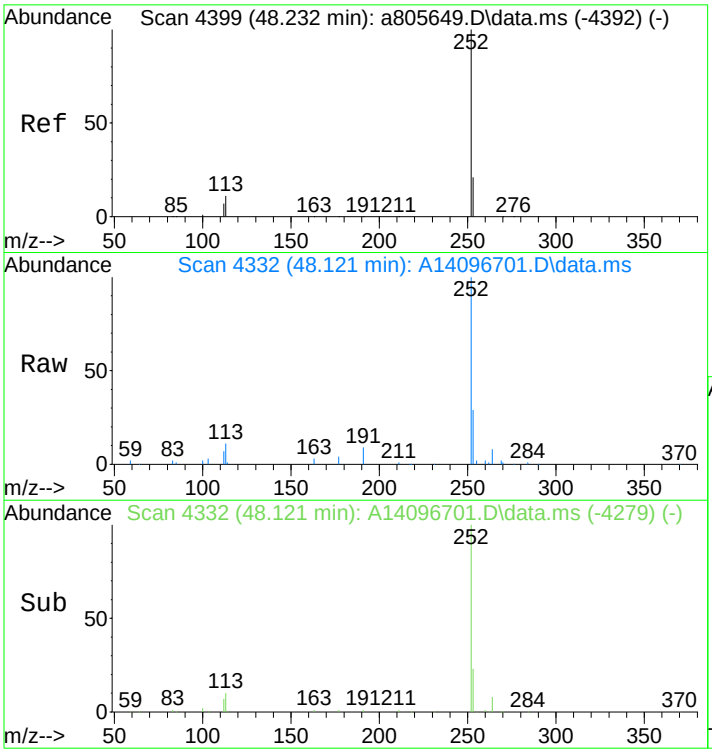


#83
Benzo[j]+[k]fluoranthene
Concen: 545.22 ng/mL
RT: 47.015 min Scan# 4211
Delta R.T. -0.028 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:252 Resp: 131537

Ion	Ratio	Lower	Upper
252	100		
253	21.5	20.1	30.1

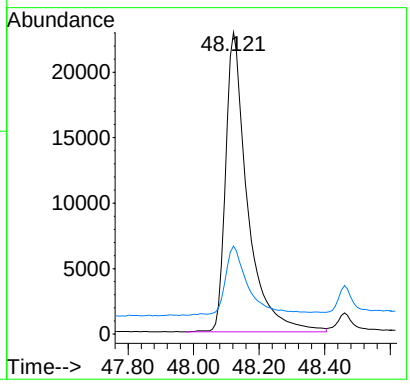


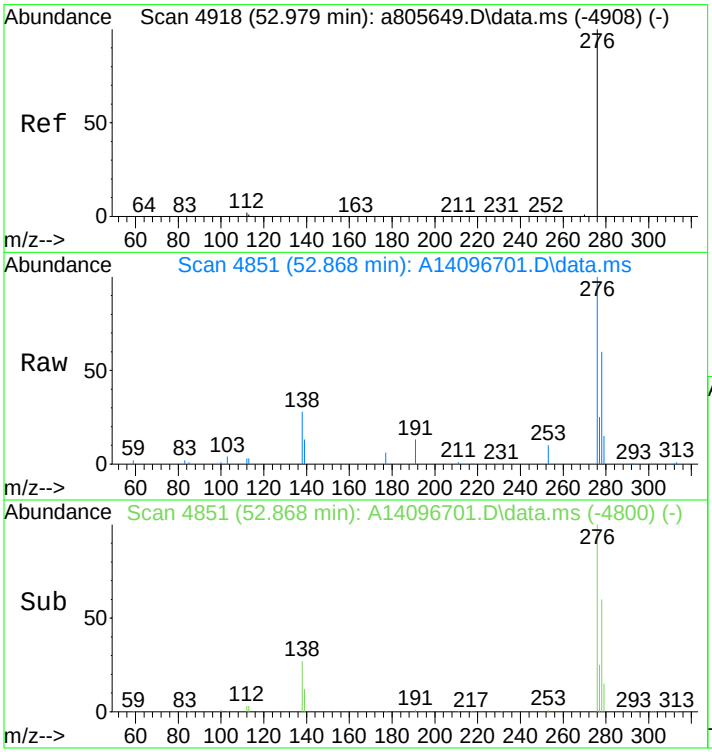


#87
Benzo[a]pyrene
Concen: 522.45 ng/mL
RT: 48.121 min Scan# 4332
Delta R.T. -0.018 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:252 Resp: 105806

Ion	Ratio	Lower	Upper
252	100		
253	23.6	23.0	34.4

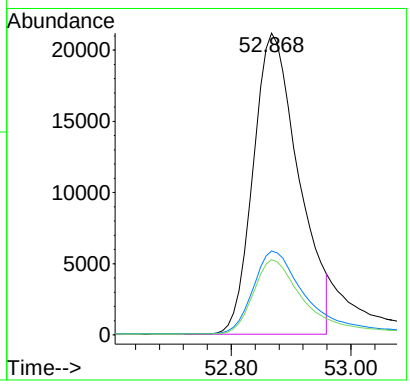


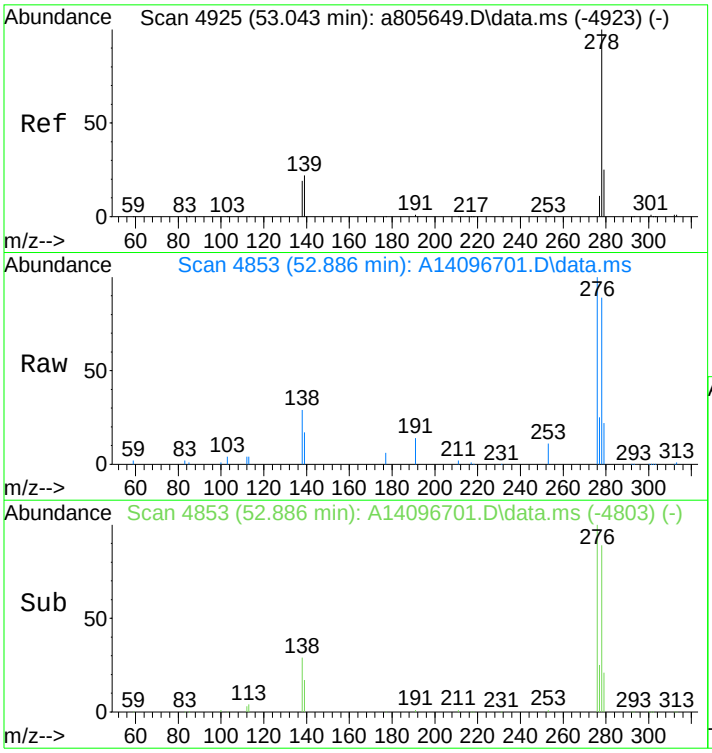


#89
Indeno[1,2,3-cd]pyrene
Concen: 439.05 ng/mL m
RT: 52.868 min Scan# 4851
Delta R.T. -0.037 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:276 Resp: 111222

Ion	Ratio	Lower	Upper
276	100		
138	33.7	23.2	34.8
277	29.4	19.8	29.8

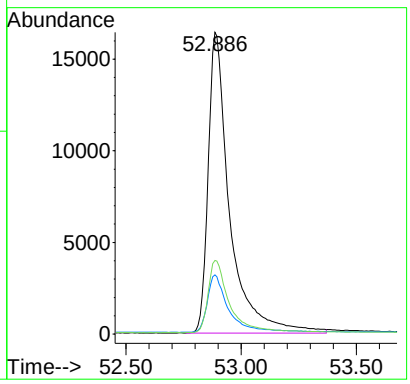


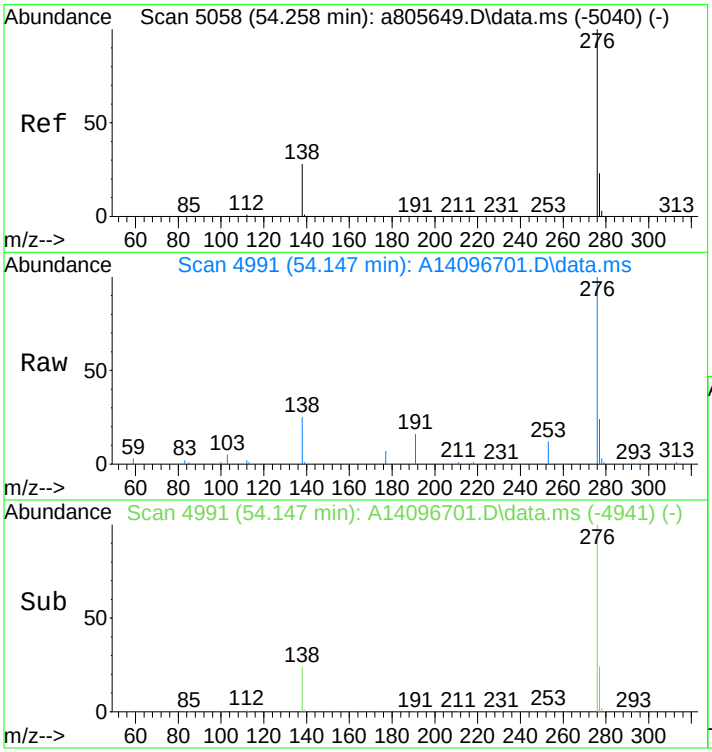


#90
Dibenz[ah]+[ac]anthracene
Concen: 447.77 ng/mL
RT: 52.886 min Scan# 4853
Delta R.T. -0.046 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:278 Resp: 106583

Ion	Ratio	Lower	Upper
278	100		
139	18.8	16.1	24.1
279	24.3	19.6	29.4

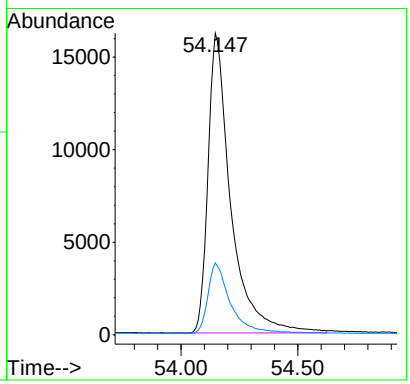




#91
Benzo[g,h,i]perylene
Concen: 451.93 ng/mL
RT: 54.147 min Scan# 4991
Delta R.T. -0.046 min
Lab File: A14096701.D
Acq: 21 Jun 2012 12:39 pm

Tgt Ion:276 Resp: 109807

Ion	Ratio	Lower	Upper
276	100		
277	23.2	19.0	28.6



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	59660	500.000	ng/mL	0.00
74) Chrysene-d12	42.930	240	111279	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	35371	167.076	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 16.71%#			
42) Phenanthrene-d10	32.331	188	42880	214.925	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 21.49%#			
86) Benzo[a]pyrene-d12	48.030	264	45474	209.111	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 20.91%#			
127) 5B(H)Cholane - Surr	43.487	217	11308M3	256.714	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 25.67%#			
Target Compounds						Qvalue
3) trans-Decalin	16.152	138	63M2	1.311	ng/mL	
5) C1-Decalins	18.041	152	476M5	9.907	ng/mL	
6) C2-Decalins	20.532	166	2650M5	55.157	ng/mL	
7) C3-Decalins	21.846	180	4309M5	89.687	ng/mL	
8) C4-Decalins	25.214	194	11572M5	240.858	ng/mL	
10) Naphthalene	19.592	128	727	3.140	ng/mL#	100
11) C1-Naphthalenes	22.321	142	1196M5	5.165	ng/mL	
12) C2-Naphthalenes	24.794	156	3268M5	14.114	ng/mL	
13) C3-Naphthalenes	27.769	170	8515M5	36.774	ng/mL	
14) C4-Naphthalenes	30.187	184	46493M5	200.792	ng/mL	
16) 2-Methylnaphthalene	22.321	142	766M3	5.028	ng/mL	
17) 1-Methylnaphthalene	22.713	142	337	2.253	ng/mL#	100
20) C2-Benzo(b)thiophenes	25.305	162	1790M5	10.024	ng/mL	
21) C3-Benzo(b)thiophenes	27.267	176	6337M5	35.487	ng/mL	
22) C4-Benzo(b)thiophenes	28.207	190G	19248M5	107.788	ng/mL	
23) Biphenyl	24.173	154	223M3	1.196	ng/mL	
24) 2,6-Dimethylnaphthalene	24.794	156	881	6.464	ng/mL#	100
25) Dibenzofuran	27.285	168	434M2	2.201	ng/mL	
26) Acenaphthylene	25.862	152	2820M3	11.708	ng/mL	
27) Acenaphthene	26.573	153	610	4.098	ng/mL	92
28) 2,3,5-Trimethylnaphthalen	28.125	170	230M3	1.861	ng/mL	
29) Fluorene	28.608	166	707M3	4.265	ng/mL	
30) C1-Fluorenes	31.099	180	2434M5	14.682	ng/mL	
31) C2-Fluorenes	33.152	194	25155M5	151.735	ng/mL	
32) C3-Fluorenes	34.977	208	75020M5	452.522	ng/mL	
33) Dibenzothiophene	31.938	184	1401M3	6.507	ng/mL	
34) 4-Methyldibenzothiophene(	33.699	198	5706	26.501	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.457	198	3004	13.952	ng/mL#	100
37) OTP	34.055	198	10352M3	48.080	ng/mL	
38) C1-Dibenzothiophenes	34.055	198	23369M5	108.537	ng/mL	
38) C1-Dibenzothiophenes BS	34.055	198	13017m	60.457	ng/mL	
39) C2-Dibenzothiophenes	35.370	212	122833M5	570.496	ng/mL	
40) C3-Dibenzothiophenes	37.168	226	258621M5	1201.162	ng/mL	
41) C4-Dibenzothiophenes	38.858	240	225744M5	1048.465	ng/mL	
43) Phenanthrene	32.422	178	6374	27.878	ng/mL#	55
44) 3-Methylphenanthrene(3MP)	34.375	192	3246M3	14.197	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.503	192	4685M3	20.491	ng/mL	
46) 2-Methylanthracene(2MA)	34.667	192	2182M3	9.544	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.831	192	8425M3	36.849	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.923	192	3811M3	16.668	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.831	192	24475M5	107.048	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) C2-Phenanthrenes/Anthrace	36.639	206	133301M5	583.027	ng/mL	
50) C2-Phenanthrenes/Anthr BS	36.639	206	133301m	583.027	ng/mL	
52) C3-Phenanthrenes/Anthrace	39.743	220	209009M5	914.156	ng/mL	
53) C4-Phenanthrenes/Anthrace	39.378	234	133138M5	582.314	ng/mL	
54) Retene	39.378	234	13211M3	184.532	ng/mL	
55) Anthracene	32.632	178	3021M3	13.281	ng/mL	
56) Carbazole	33.380	167	3748M2	17.668	ng/mL	
57) 1-Methylphenanthrene	34.923	192	3911M3	22.803	ng/mL	
58) Fluoranthene	37.205	202	24361M3	104.438	ng/mL	
59) Benzo(b)fluorene	39.725	216	4087M3	26.292	ng/mL	
60) Pyrene	38.081	202	31433M3	129.655	ng/mL	
61) C1-Fluoranthenes/Pyrenes	40.245	216	59057M5	243.599	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.943	230	78953M5	325.667	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.295	244	120683M5	497.795	ng/mL	
64) C4-Fluoranthenes/Pyrenes	44.646	258	125099M5	516.011	ng/mL	
66) Naphthobenzothiophene	41.943	234	17228	81.961	ng/ml#	63
67) Naphthobenzothiophene-2,1	41.943	234	17228	81.961	ng/mL#	63
68) Naphthobenzothiophene-1,2	42.281	234	3905	18.578	ng/mL#	1
69) Naphthobenzothiophene-2,3	42.592	234	3850M3	18.316	ng/mL	
70) C1-Naphthobenzothiophenes	43.331	248	109688M5	521.835	ng/ml	
71) C2-Naphthobenzothiophenes	45.377	262	191863M5	912.779	ng/ml	
72) C3-Naphthobenzothiophenes	46.942	276	184028M5	875.504	ng/ml	
73) C4-Naphthobenzothiophenes	47.984	290	136281M5	648.350	ng/mL	
75) Benz[a]anthracene	42.866	228	16506M3	67.809	ng/mL	
77) Chrysene/Triphenylene	43.030	228	30134M3	125.381	ng/mL	
78) C1-Chrysenes	44.509	242	55804M5	232.189	ng/mL	
79) C2-Chrysenes	46.237	256	89589M5	372.761	ng/mL	
79) C2-Chrysenes BS	46.237	256	89589m	372.761	ng/mL	
80) C3-Chrysenes	47.911	270	123275M5	512.921	ng/mL	
81) C4-Chrysenes	49.237	284	78019M5	324.621	ng/mL	
82) Benzo[b]fluoranthene	46.942	252	20645	85.753	ng/mL#	86
83) Benzo[j]+[k]fluoranthene	46.996	252	17427M3	65.537	ng/mL	
84) Benzo[a]fluoranthene	47.326	252	3272M3	12.305	ng/mL	
85) Benzo[e]pyrene	47.929	252	22662	94.939	ng/mL	94
87) Benzo[a]pyrene	48.121	252	22396M3	100.334	ng/mL	
88) Perylene	48.432	252	12375M3	51.137	ng/mL	
89) Indeno[1,2,3-cd]pyrene	52.886	276	13077M3	46.835	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.895	278	4232M3	16.131	ng/mL	
91) Benzo[g,h,i]perylene	54.165	276	20892	78.013	ng/mL	99
92) Hopane (T19)	51.816	191	123089M3	1548.430	ng/mL	
94) C23 Tricyclic Terpane (T4	40.510	191	49727	625.554	ng/ml	100
95) C24 Tricyclic Terpane (T5	41.241	191	26519	333.603	ng/ml	100
96) C25 Tricyclic Terpane (T6	42.729	191	25889M3	325.677	ng/ml	
97) C24 Tetracyclic Terpane (	44.044	191	9577	120.476	ng/ml	100
98) C26 Tricyclic Terpane-22S	43.788	191	9433M3	118.665	ng/ml	
99) C26 Tricyclic Terpane-22R	43.879	191	9151	115.117	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.173	191	10063	126.590	ng/ml	100
101) C28 Tricyclic Terpane-22R	46.338	191	12178M3	153.196	ng/ml	
102) C29 Tricyclic Terpane-22S	46.850	191	14023	176.406	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.042	191	12738M3	160.241	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.140	191	14893	187.350	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.240	191	10901M3	137.132	ng/mL	
106) C30 Tricyclic Terpane-22R	48.478	191	9824M3	123.584	ng/mL	
107) 17a(H)-22,29,30-Trisnorho	48.670	191	33176	417.346	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	49.841	191	21396M3	269.157	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	49.640	191	5894	74.145	ng/ml	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
110) 30-Norhopane (T15)	50.481	191	88092	1108.176	ng/ml	100
111) 18a(H)-30-Norneohopane-C2	50.591	191	12467	156.832	ng/ml	100
112) 17a(H)-Diahopane (X)	50.710	191	3991	50.206	ng/ml	100
113) 30-Normoretane (T17)	51.249	191	9208	115.834	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	51.633	191	1577M3	19.838	ng/ml	
115) Moretane (T20)	52.484	191	12853M3	161.688	ng/ml	
116) 30-Homohopane-22S (T21)	53.544	191	54301	683.094	ng/ml	100
117) 30-Homohopane-22R (T22)	53.772	191	44029	553.874	ng/ml	100
118) Gammacerane/C32-diahopane	54.302	191	19680M3	247.570	ng/mL	
119) 30,31-Bishomohopane-22S (	55.052	191	36027	453.211	ng/ml	100
120) 30,31-Bishomohopane-22R (	55.426	191	23872	300.304	ng/ml	100
121) 30,31-Trishomohopane-22S	57.117	191	26869	338.006	ng/ml	100
122) 30,31-Trishomohopane-22R	57.702	191	17508	220.246	ng/ml	100
123) Tetrakishomohopane-22S (T	59.648	191	18026	226.763	ng/ml	100
124) Tetrakishomohopane-22R (T	60.498	191	19375	243.733	ng/ml	100
125) Pentakishomohopane-22S (T	62.673	191	21616	271.924	ng/ml	100
126) Pentakishomohopane-22R (T	63.925	191	14847	186.772	ng/ml	100
128) 13b(H),17a(H)-20S-Diachol	45.002	217	7960	180.708	ng/ml	100
129) 13b(H),17a(H)-20R-Diachol	45.423	217	3993	90.649	ng/ml	100
130) 13b,17a-20S-Methyldiachol	46.118	217	3895	88.424	ng/ml	100
131) 14a,17a-20S-Chol/13b,17a-	46.978	217	15258	346.387	ng/ml	100
132) 14a,17a-20R-Chol/13b,17a-	47.499	217	17819M3	404.527	ng/ml	
133) Unknown Sterane (S18)	47.765	217	2989	67.856	ng/ml	100
134) 13a,17b-20S-Ethyldiachole	48.030	217	1355	30.761	ng/ml	100
135) 14a,17a-20S-Methylcholest	48.167	217	7023	159.436	ng/ml	100
136) 14a,17a-20R-Methylcholest	48.881	217	6669M3	151.400	ng/ml	
137) 14a(H),17a(H)-20S-Ethylch	49.219	217	14086M3	319.780	ng/ml	
138) 14a(H),17a(H)-20R-Ethylch	50.106	217	11579	262.866	ng/ml	100
139) 14b(H),17b(H)-20R-Cholest	47.079	218	12280M3	278.780	ng/ml	
140) 14b(H),17b(H)-20S-Cholest	47.161	218	12422M3	282.004	ng/ml	
141) 14b,17b-20R-Methylcholest	48.341	218	10048M3	228.110	ng/ml	
142) 14b,17b-20S-Methylcholest	48.423	218	12973M3	294.513	ng/ml	
143) 14b(H),17b(H)-20R-Ethylch	49.457	218	19307	438.307	ng/ml	100
144) 14b(H),17b(H)-20S-Ethylch	49.502	218	12076M3	274.149	ng/ml	
145) C26,20R- +C27,20S- triaro	49.182	231	52649	1195.237	ng/mL	100
146) C28,20S-triaromatic stero	50.024	231	43014M3	976.503	ng/mL	
147) C27,20R-triaromatic stero	50.463	231	34311	778.928	ng/mL	100
148) C28,20R-triaromatic stero	51.624	231	35926M3	815.591	ng/mL	

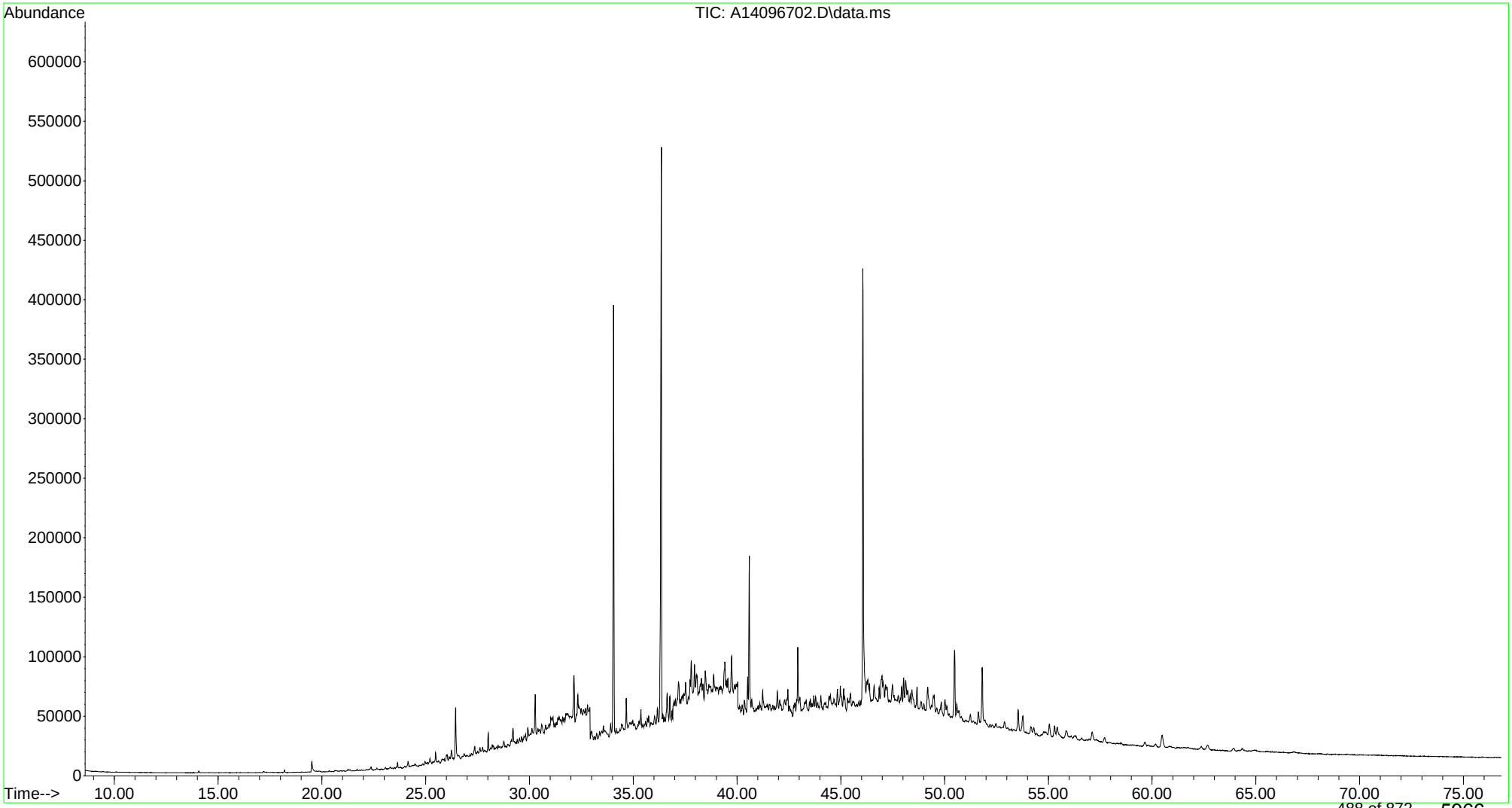
(#) = qualifier out of range (m) = manual integration (+) = signals summed

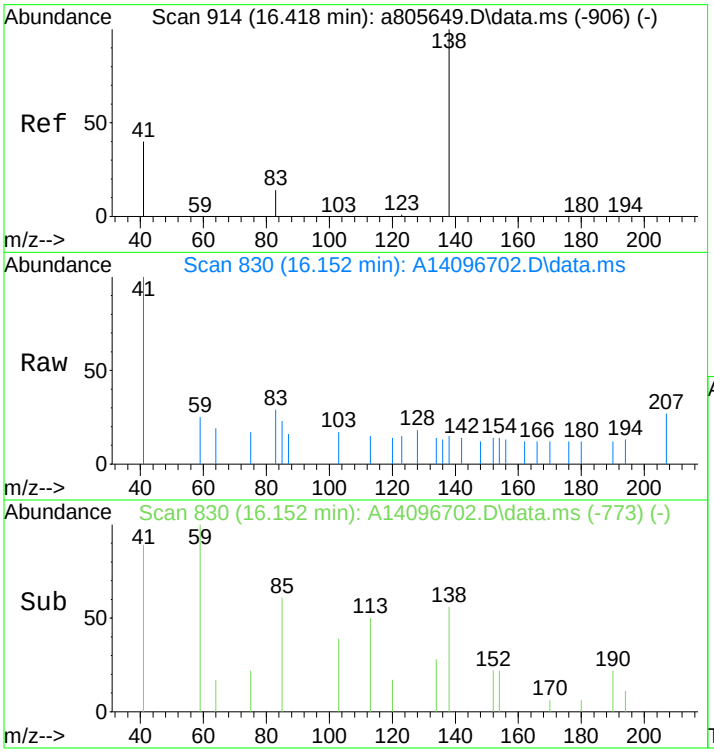
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096702.D
Acq On : 21 Jun 2012 2:06 pm
Operator : AC
Sample : 1206028-01
Misc : 1X
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jun 22 13:32:17 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

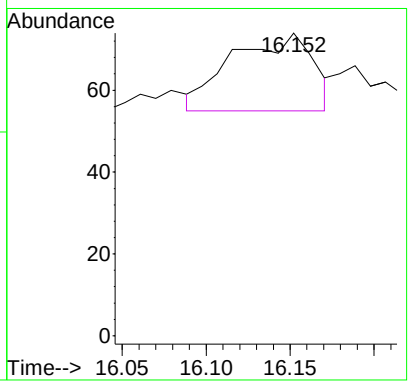
Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

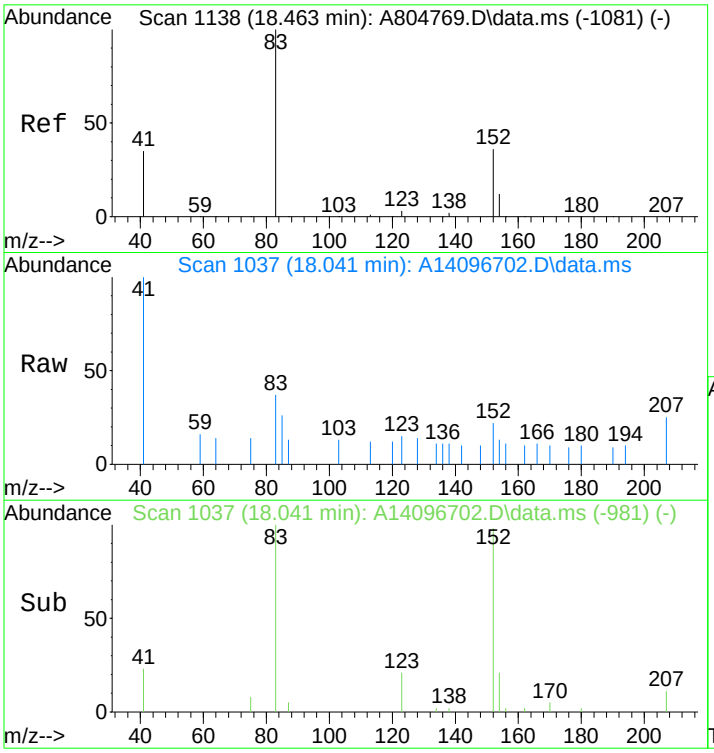




#3
trans-Decalin
Concen: 1.31 ng/mL m
RT: 16.152 min Scan# 830
Delta R.T. 0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

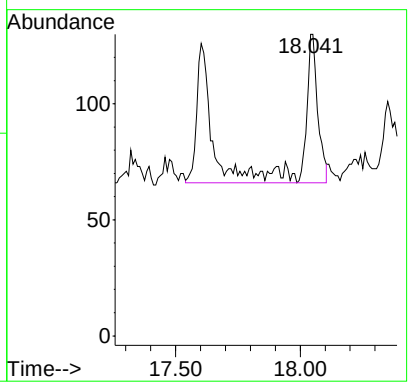
Tgt Ion:138 Resp: 63

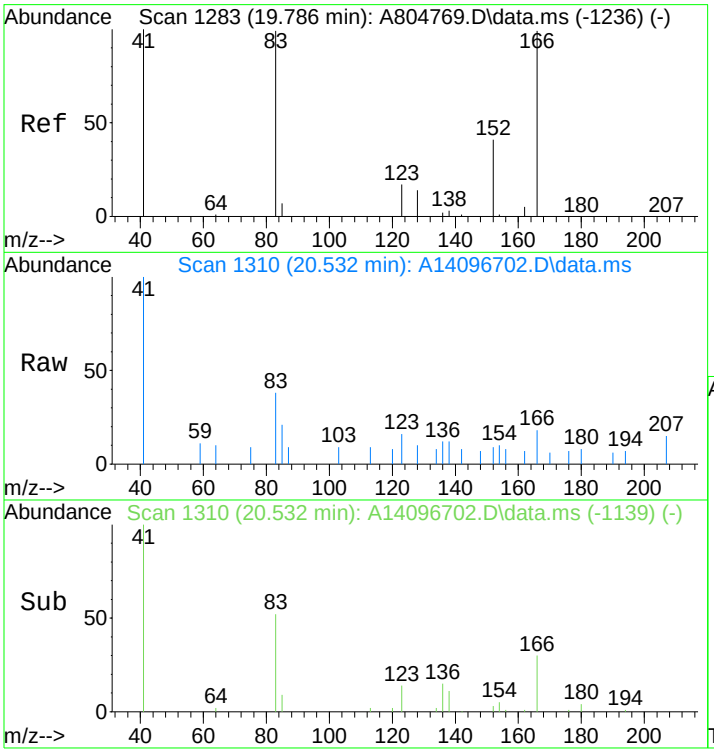




#5
C1-Decalins
Concen: 9.91 ng/mL m
RT: 18.041 min Scan# 1037
Delta R.T. -0.073 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

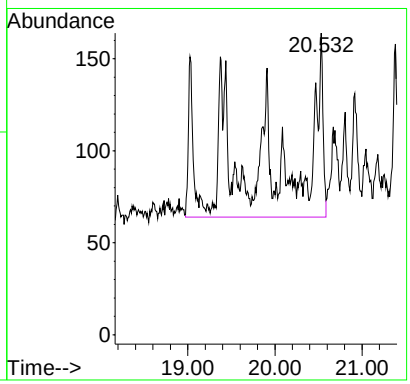
Tgt Ion:152 Resp: 476

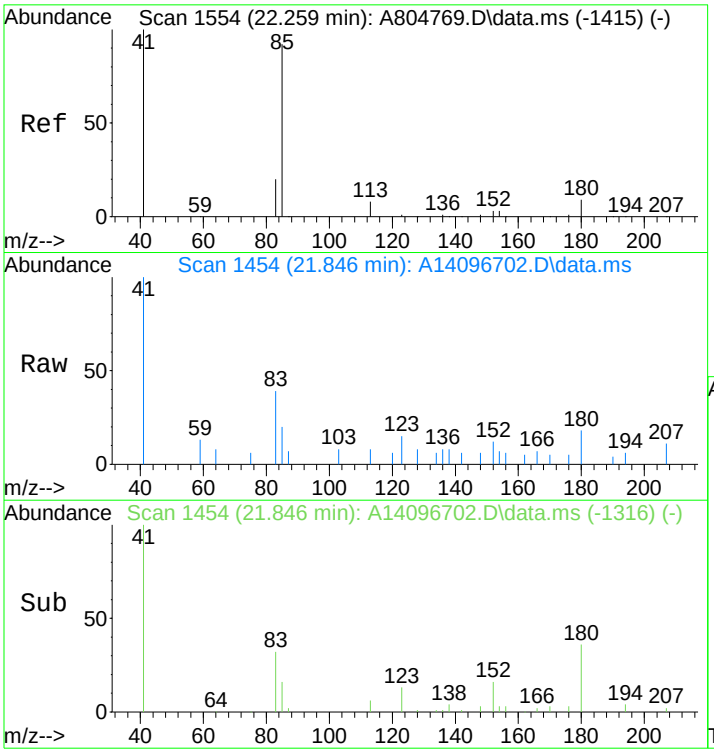




#6
C2-Decalins
Concen: 55.16 ng/mL m
RT: 20.532 min Scan# 1310
Delta R.T. 1.095 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

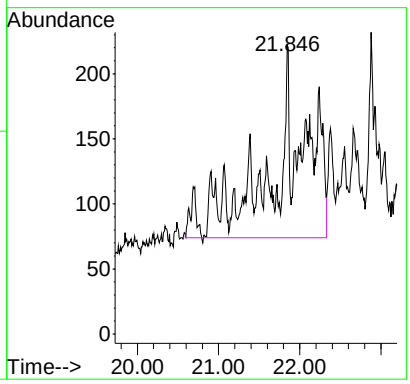
Tgt Ion:166 Resp: 2650

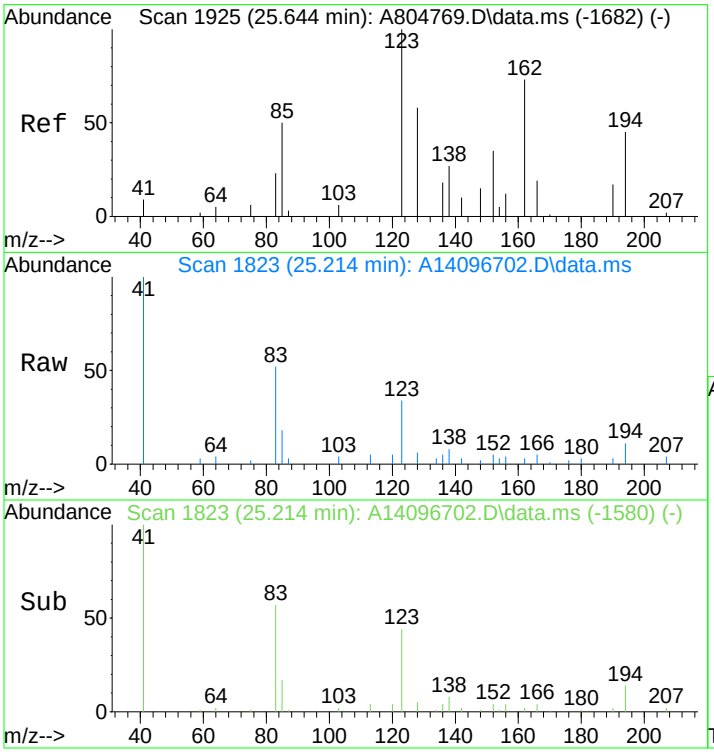




#7
C3-Decalins
Concen: 89.69 ng/mL m
RT: 21.846 min Scan# 1454
Delta R.T. -0.053 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

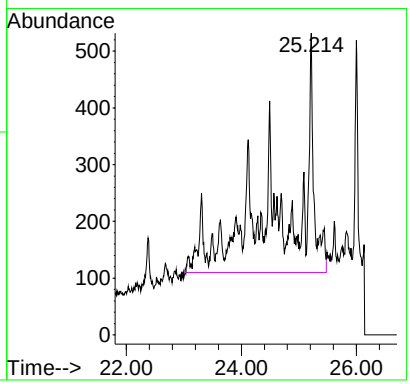
Tgt Ion:180 Resp: 4309

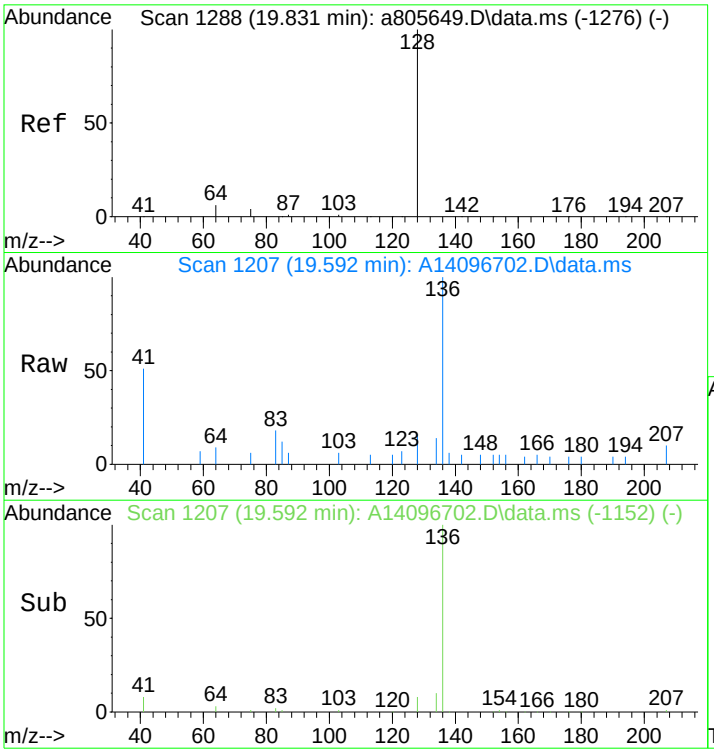




#8
C4-Decalins
Concen: 240.86 ng/mL m
RT: 25.214 min Scan# 1823
Delta R.T. -0.049 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:194 Resp: 11572

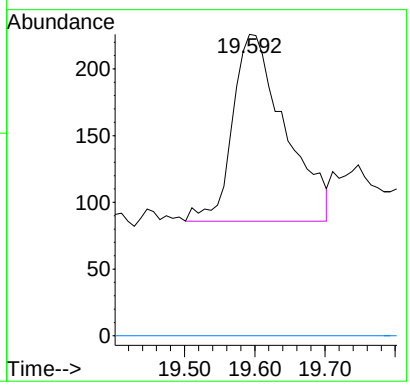


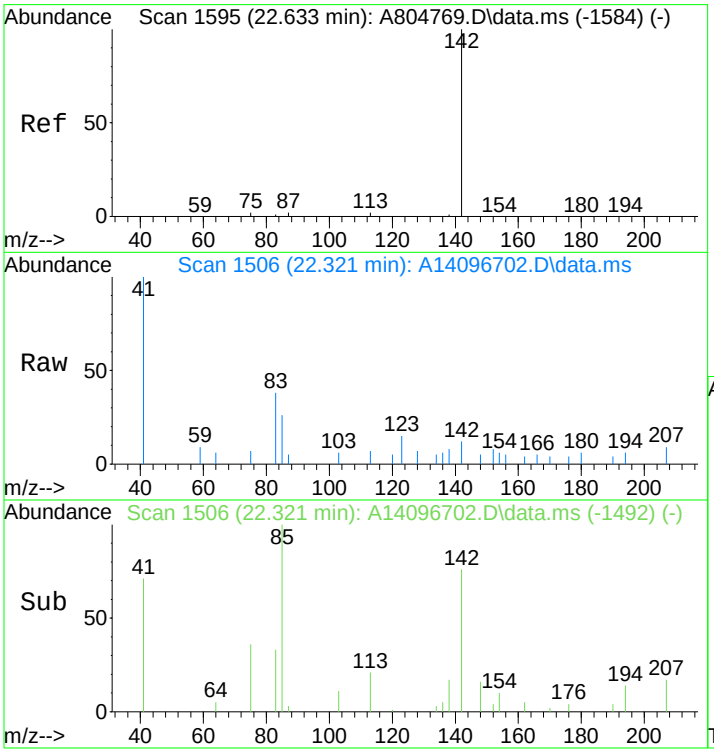


#10
Naphthalene
Concen: 3.14 ng/mL
RT: 19.592 min Scan# 1207
Delta R.T. 0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:128 Resp: 727

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

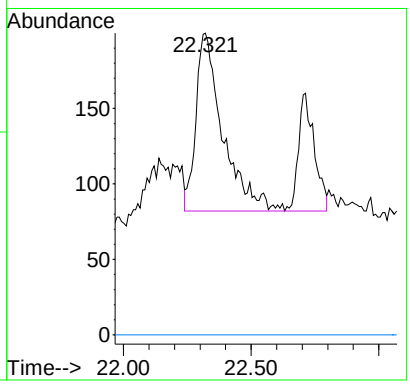


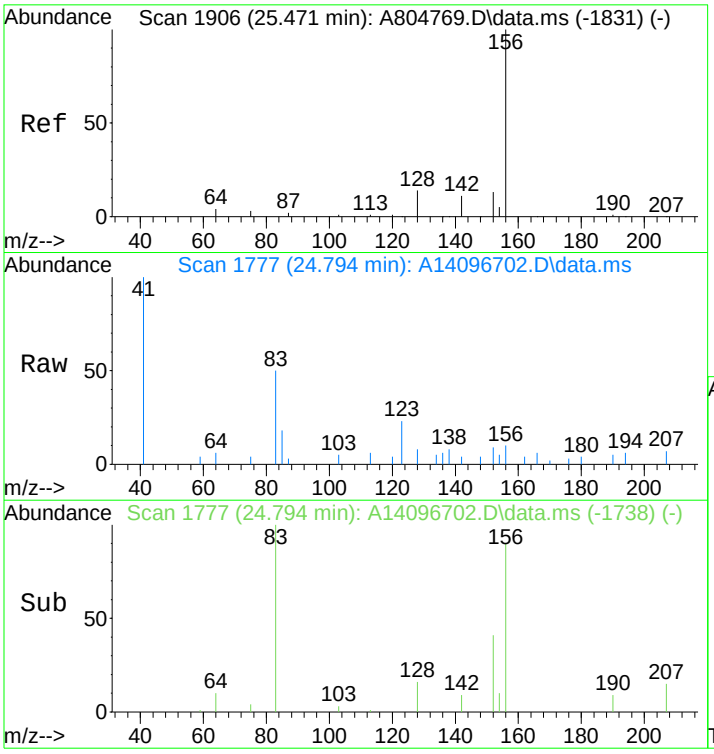


#11
C1-Naphthalenes
Concen: 5.17 ng/mL m
RT: 22.321 min Scan# 1506
Delta R.T. 0.037 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:142 Resp: 1196

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

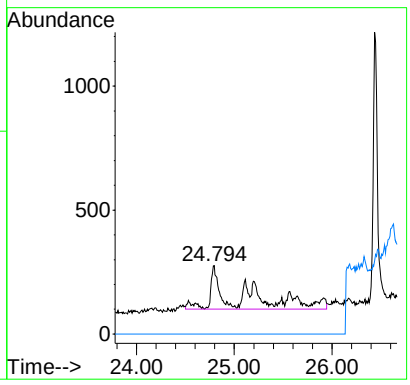


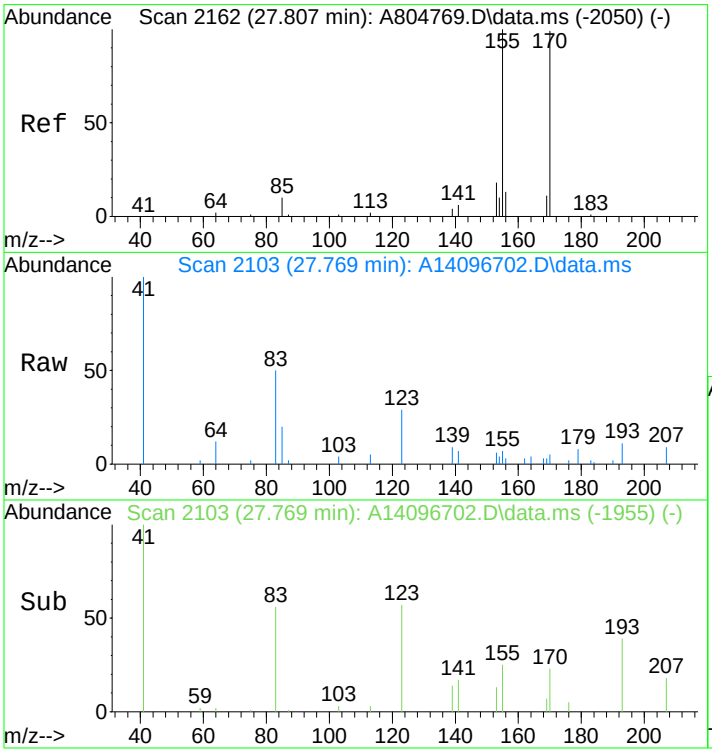


#12
C2-Naphthalenes
Concen: 14.11 ng/mL m
RT: 24.794 min Scan# 1777
Delta R.T. -0.314 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:156 Resp: 3268

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

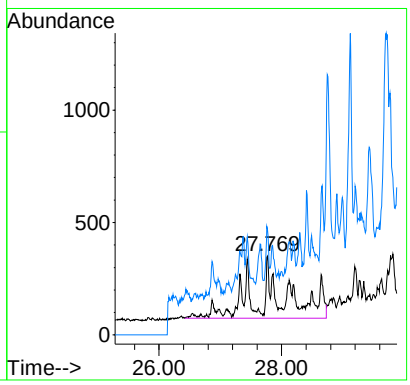


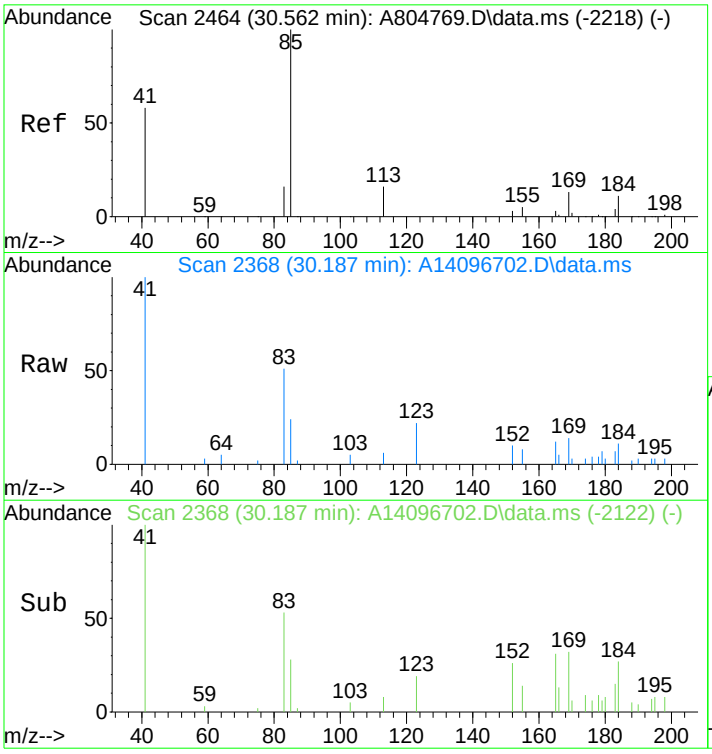


#13
C3-Naphthalenes
Concen: 36.77 ng/mL m
RT: 27.769 min Scan# 2103
Delta R.T. 0.335 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:170 Resp: 8515

Ion	Ratio	Lower	Upper
170	100		
155	9.2	74.5	111.7#

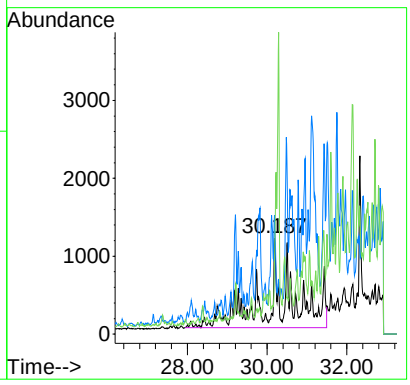


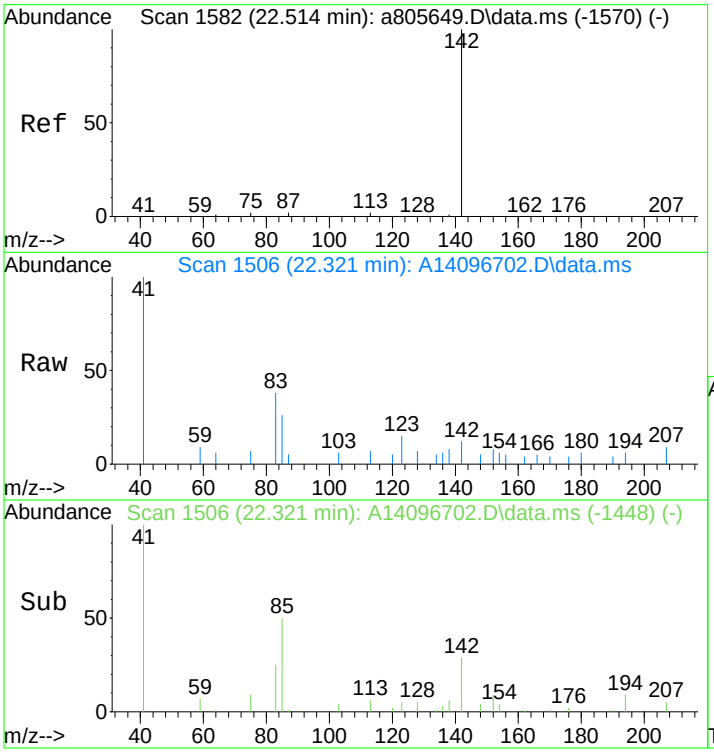


#14
C4-Naphthalenes
Concen: 200.79 ng/mL m
RT: 30.187 min Scan# 2368
Delta R.T. 0.006 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:184 Resp: 46493

Ion	Ratio	Lower	Upper
184	100		
169	5.6	83.0	124.6#
183	0.0	24.6	36.8#

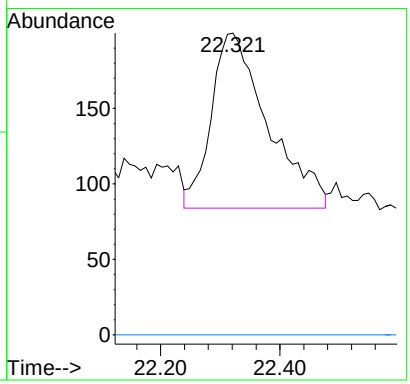


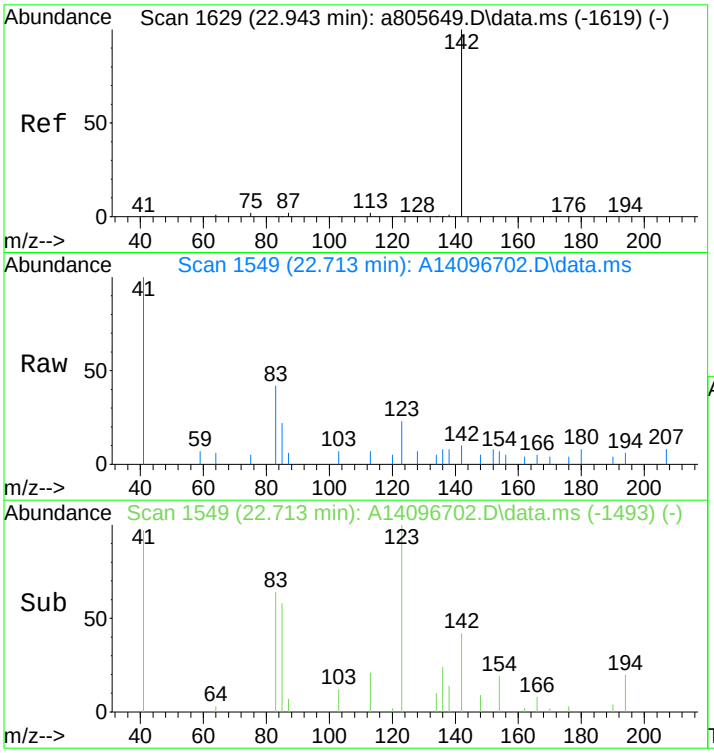


#16
2-Methylnaphthalene
Concen: 5.03 ng/mL m
RT: 22.321 min Scan# 1506
Delta R.T. 0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:142 Resp: 766

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

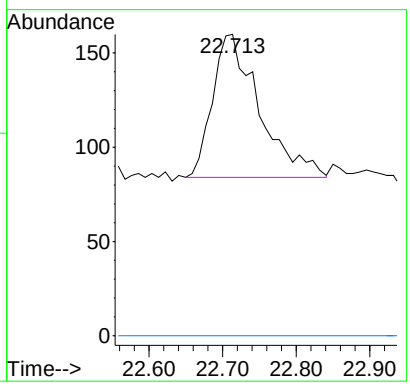


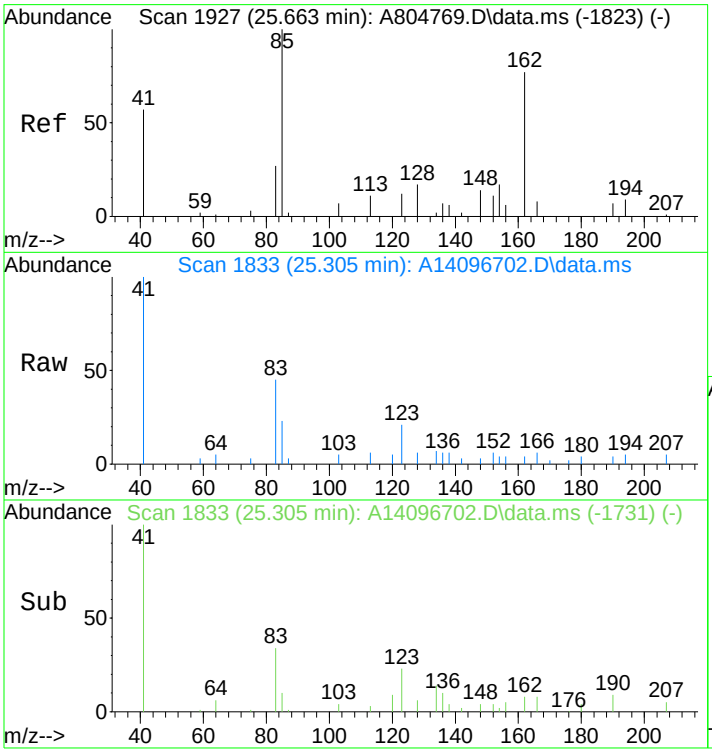


#17
1-Methylnaphthalene
Concen: 2.25 ng/mL
RT: 22.713 min Scan# 1549
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:142 Resp: 337

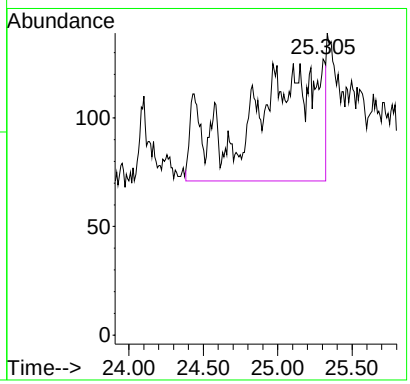
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

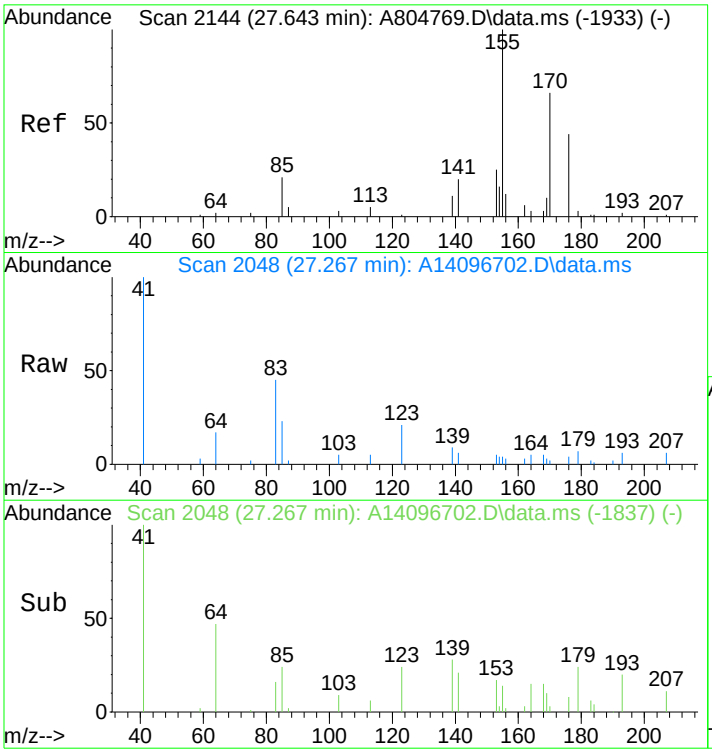




#20
C2-Benzo(b)thiophenes
Concen: 10.02 ng/mL m
RT: 25.305 min Scan# 1833
Delta R.T. 0.002 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

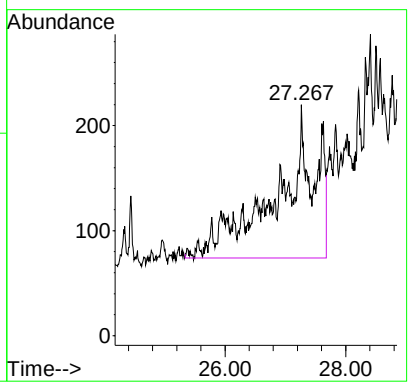
Tgt Ion:162 Resp: 1790

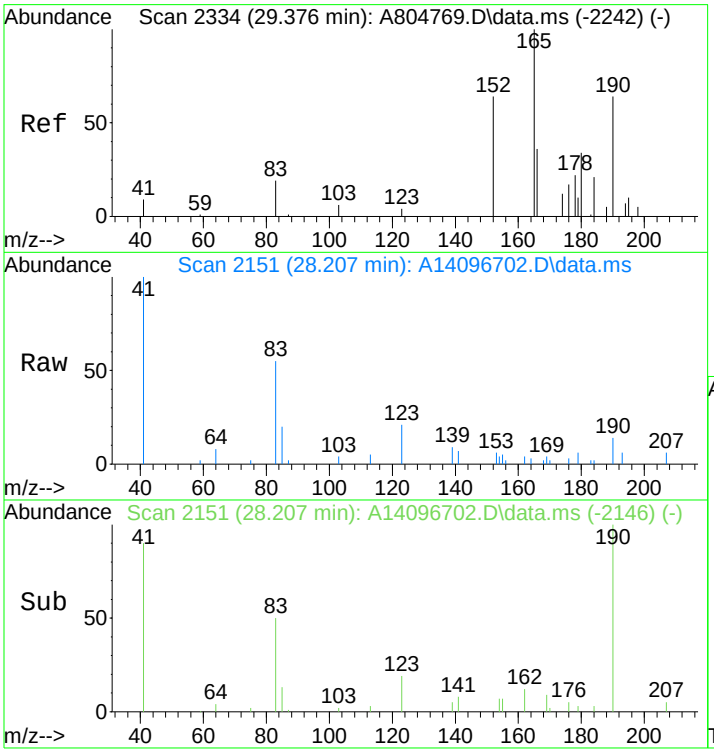




#21
C3-Benzo(b)thiophenes
Concen: 35.49 ng/mL m
RT: 27.267 min Scan# 2048
Delta R.T. 0.008 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

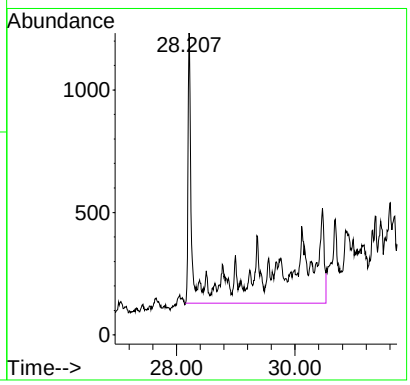
Tgt Ion:176 Resp: 6337

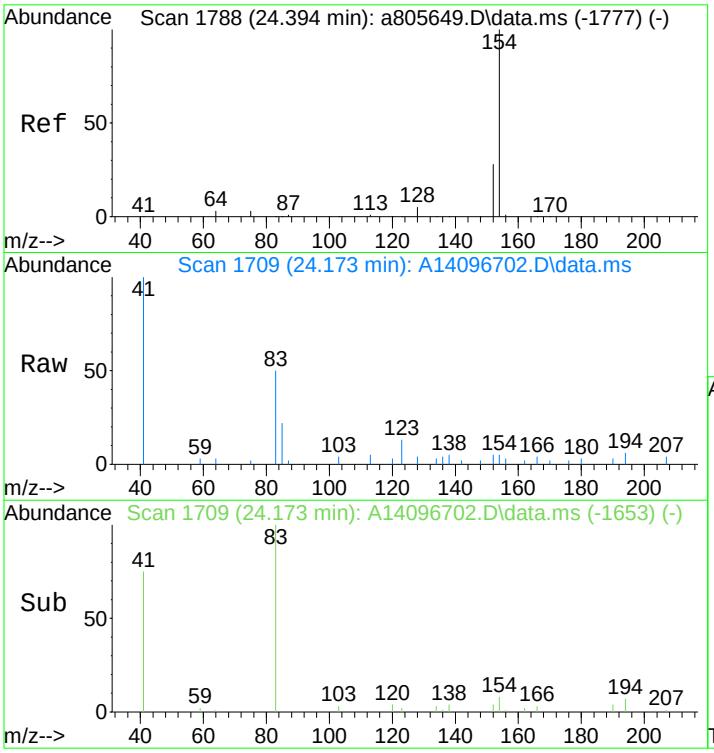




#22
C4-Benzo(b)thiophenes
Concen: 107.79 ng/mL m
RT: 28.207 min Scan# 2151
Delta R.T. -0.786 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:190 Resp: 19248

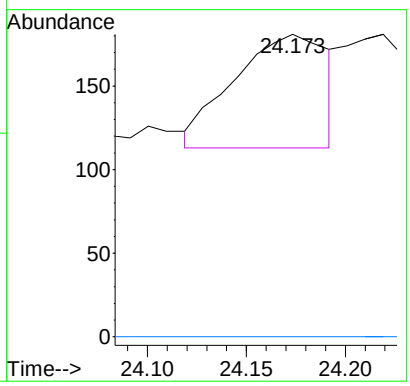


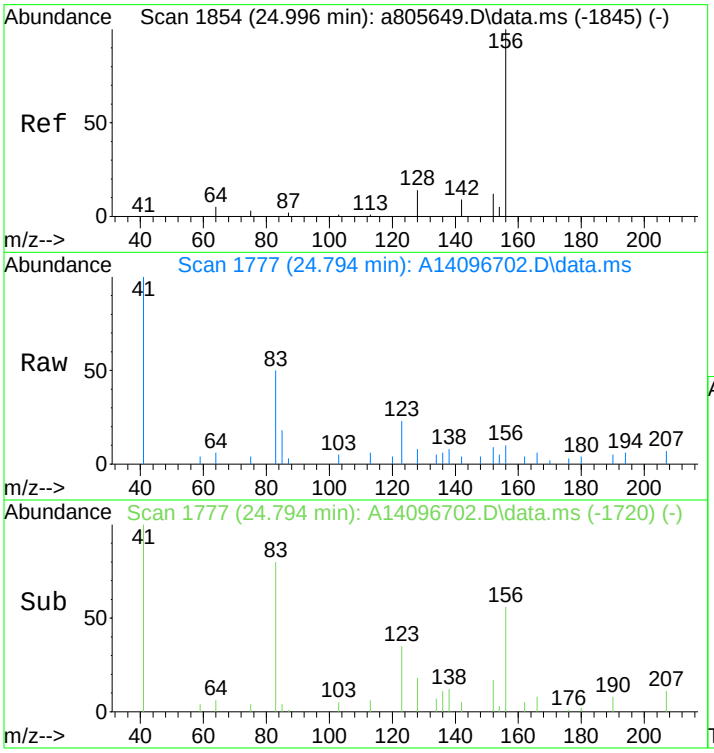


#23
Biphenyl
Concen: 1.20 ng/mL m
RT: 24.173 min Scan# 1709
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:154 Resp: 223

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

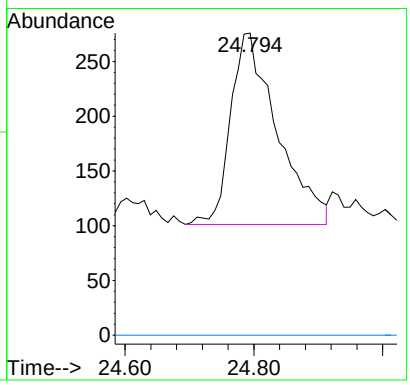


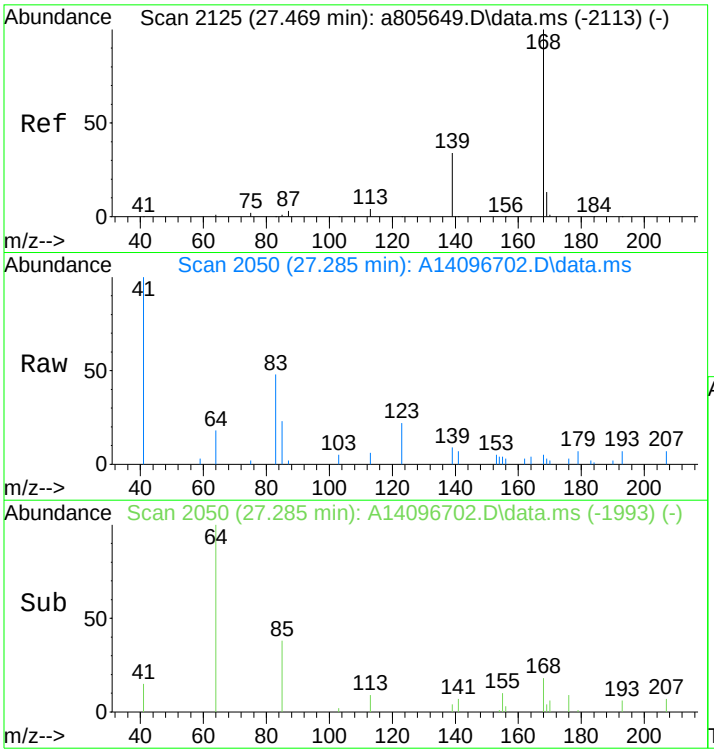


#24
2,6-Dimethylnaphthalene
Concen: 6.46 ng/mL
RT: 24.794 min Scan# 1777
Delta R.T. 0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:156 Resp: 881

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

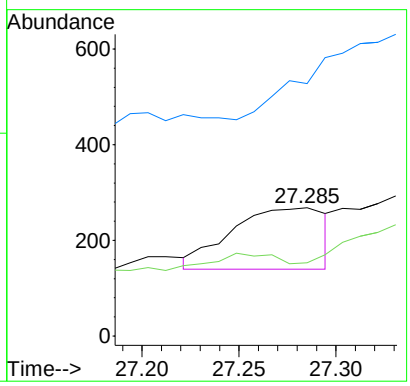


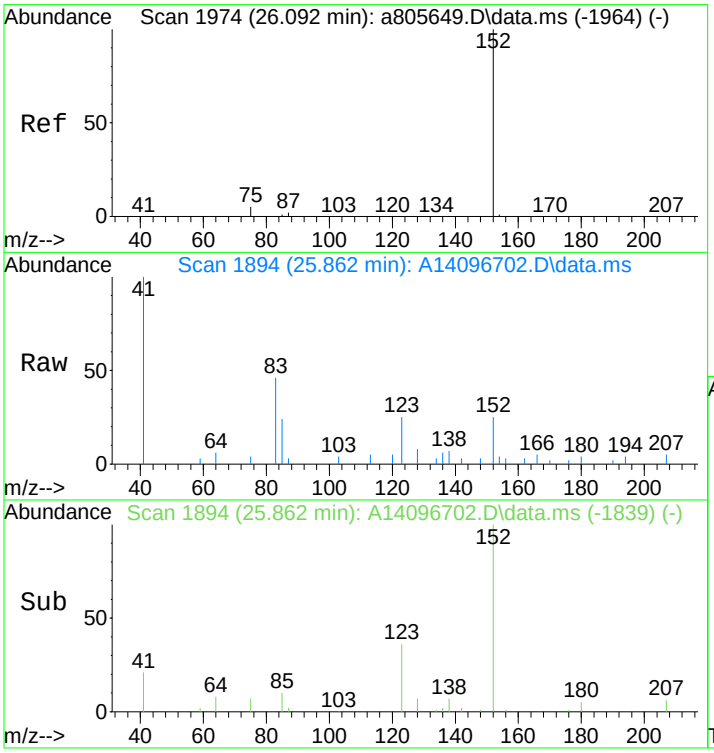


#25
Dibenzofuran
Concen: 2.20 ng/mL m
RT: 27.285 min Scan# 2050
Delta R.T. 0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:168 Resp: 434

Ion	Ratio	Lower	Upper
168	100		
139	0.0	34.0	51.0#
169	0.0	10.9	16.3#

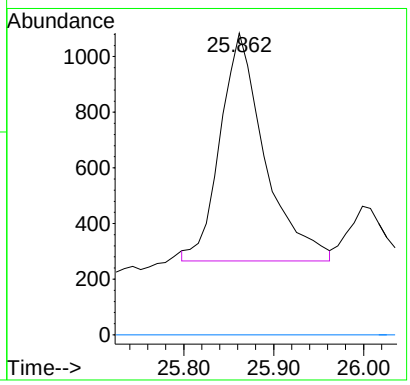


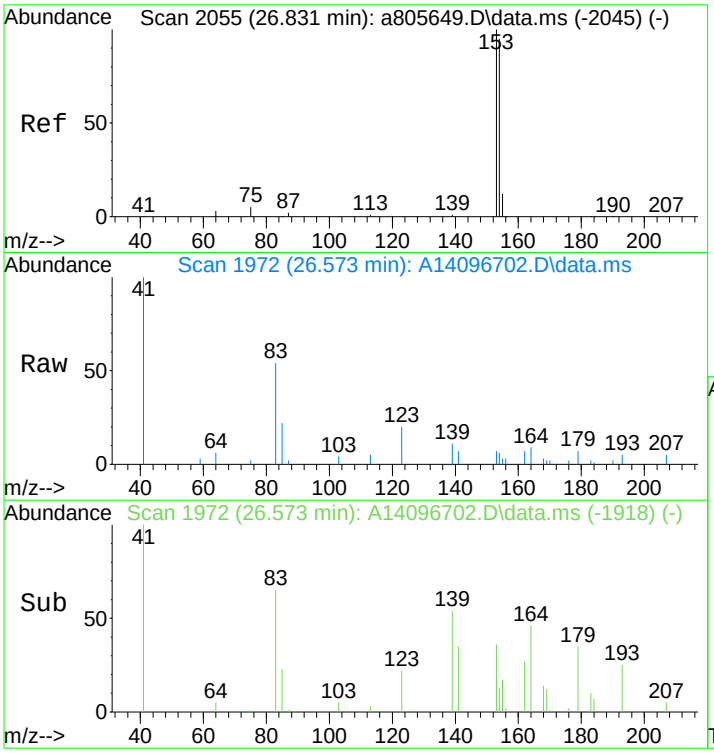


#26
Acenaphthylene
Concen: 11.71 ng/mL m
RT: 25.862 min Scan# 1894
Delta R.T. 0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:152 Resp: 2820

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

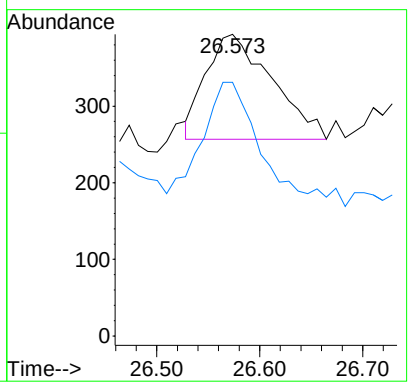


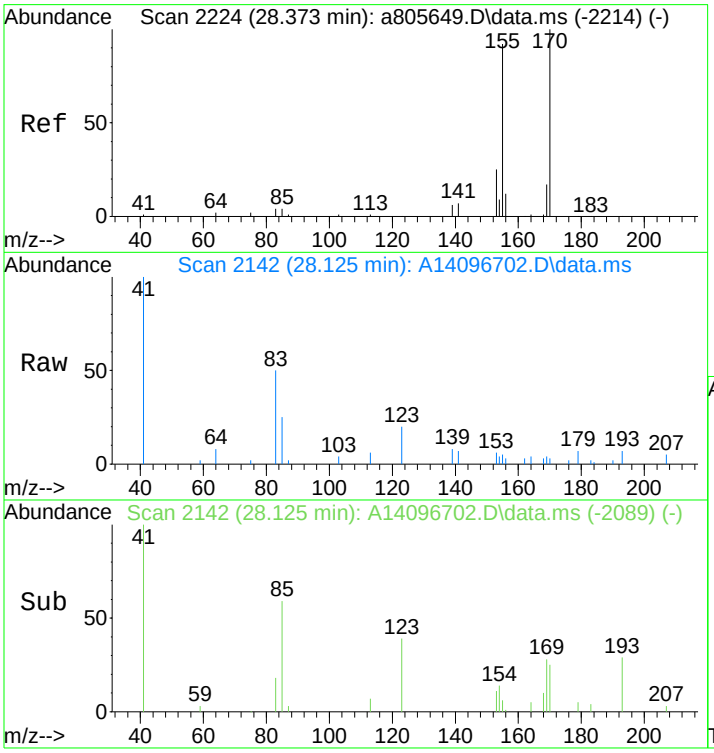


#27
Acenaphthene
Concen: 4.10 ng/mL
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:153 Resp: 610

Ion	Ratio	Lower	Upper
153	100		
154	83.0	72.8	109.2

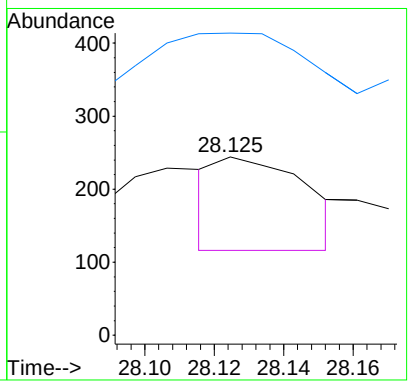


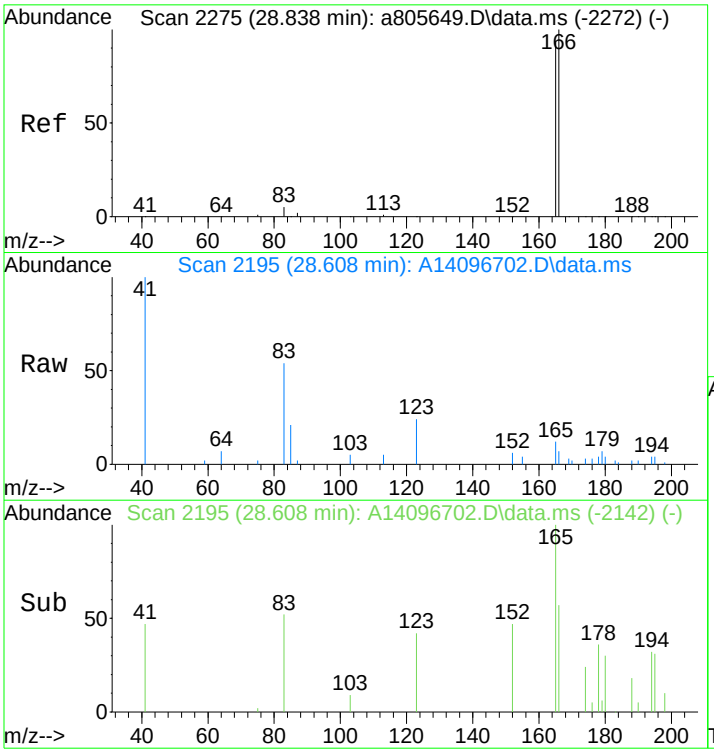


#28
2,3,5-Trimethylnaphthalene
Concen: 1.86 ng/mL m
RT: 28.125 min Scan# 2142
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:170 Resp: 230

Ion	Ratio	Lower	Upper
170	100		
155	144.3	73.5	110.3#

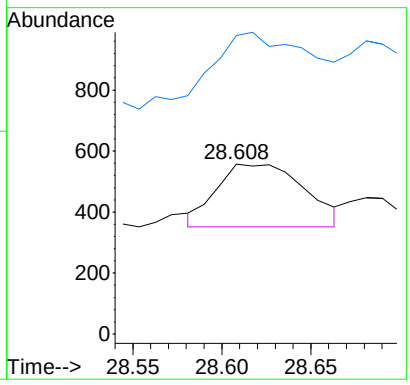


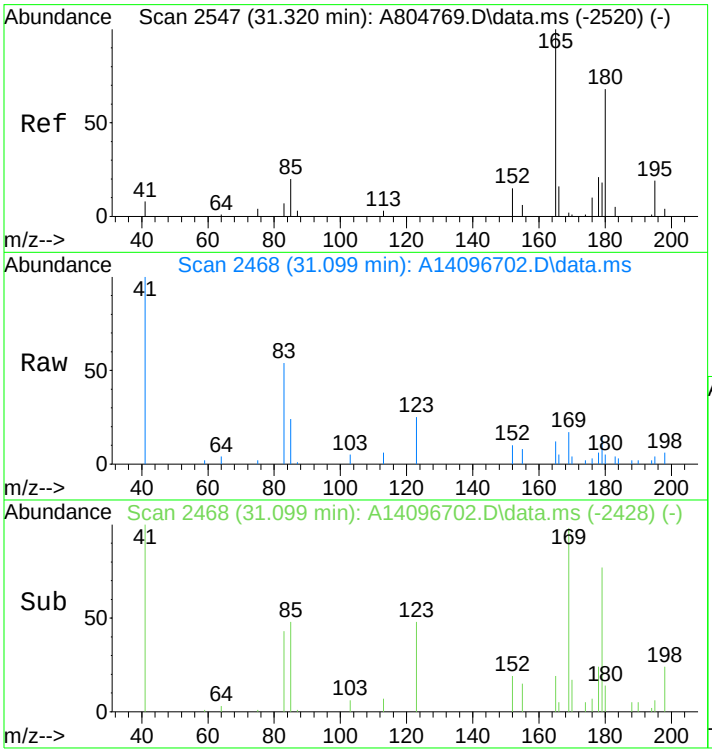


#29
Fluorene
Concen: 4.26 ng/mL m
RT: 28.608 min Scan# 2195
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:166 Resp: 707

Ion	Ratio	Lower	Upper
166	100		
165	0.0	73.2	109.8#

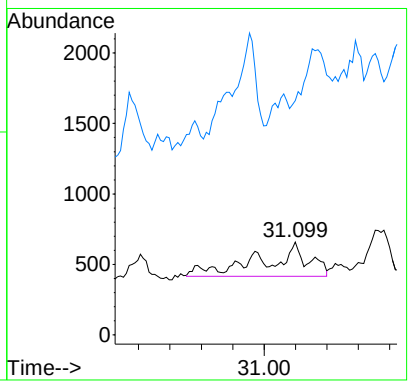


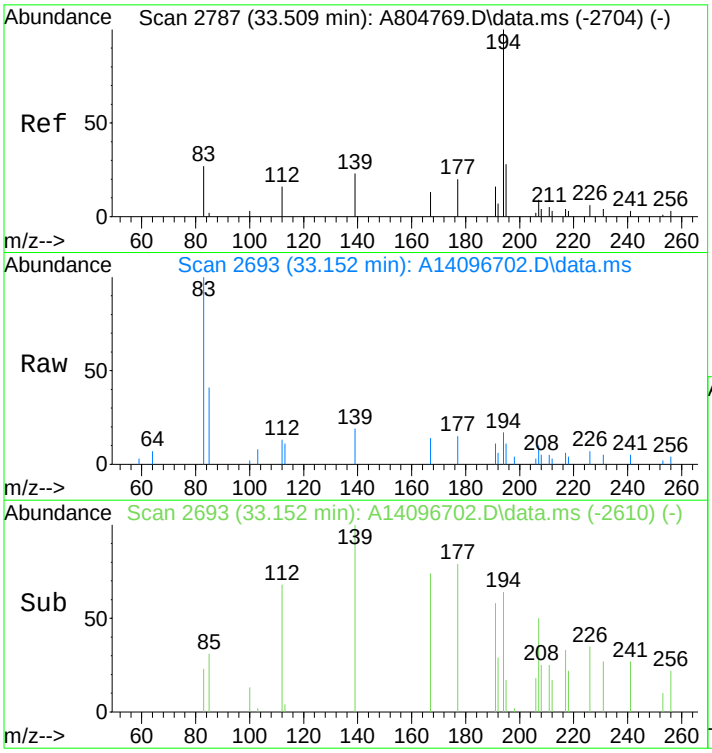


#30
C1-Fluorenes
Concen: 14.68 ng/mL m
RT: 31.099 min Scan# 2468
Delta R.T. 0.157 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:180 Resp: 2434

Ion	Ratio	Lower	Upper
180	100		
165	0.0	123.5	185.3#

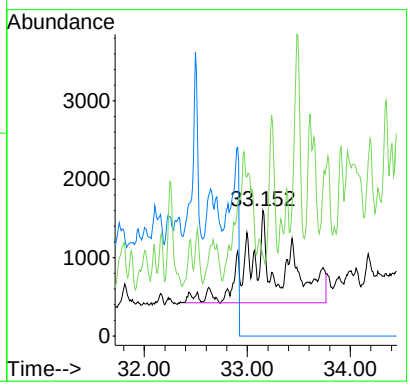


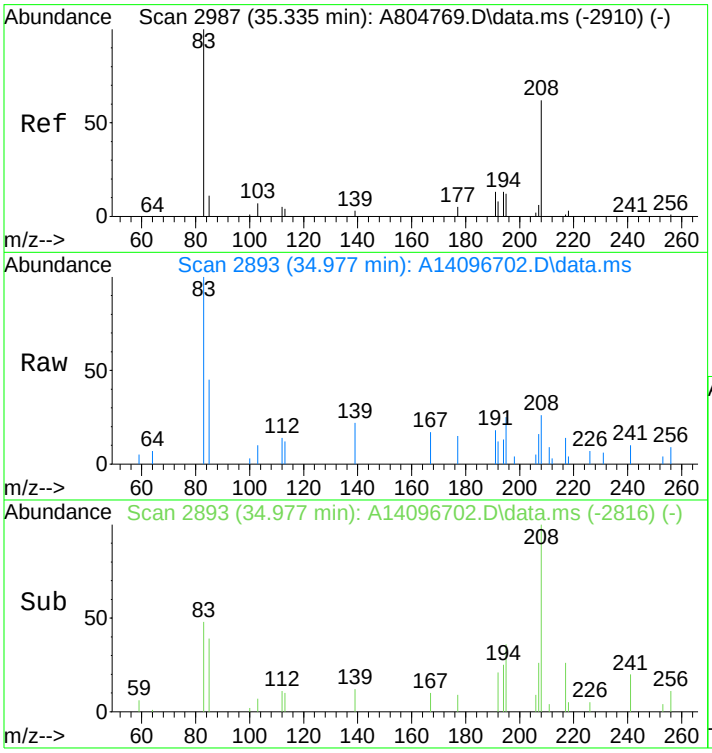


#31
C2-Fluorenes
Concen: 151.74 ng/mL m
RT: 33.152 min Scan# 2693
Delta R.T. 0.025 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:194 Resp: 25155

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	0.0	22.2	33.4#

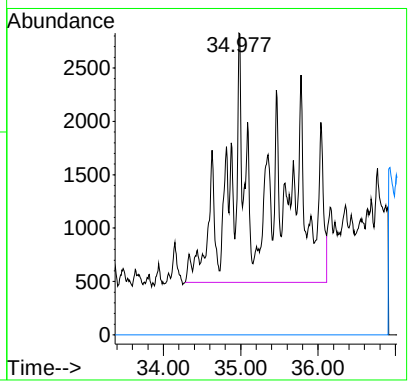


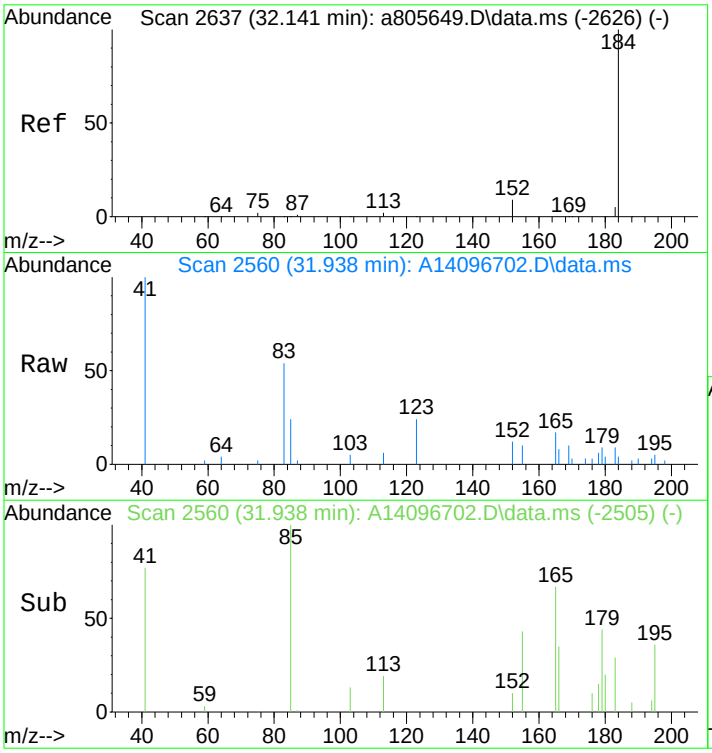


#32
C3-Fluorenes
Concen: 452.52 ng/mL m
RT: 34.977 min Scan# 2893
Delta R.T. 0.037 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:208 Resp: 75020

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

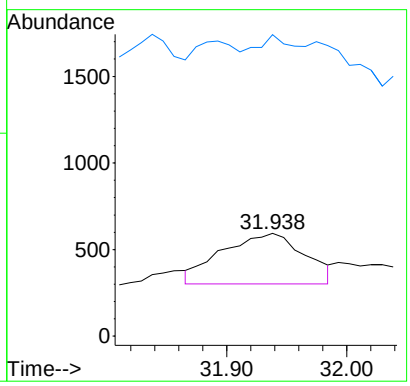


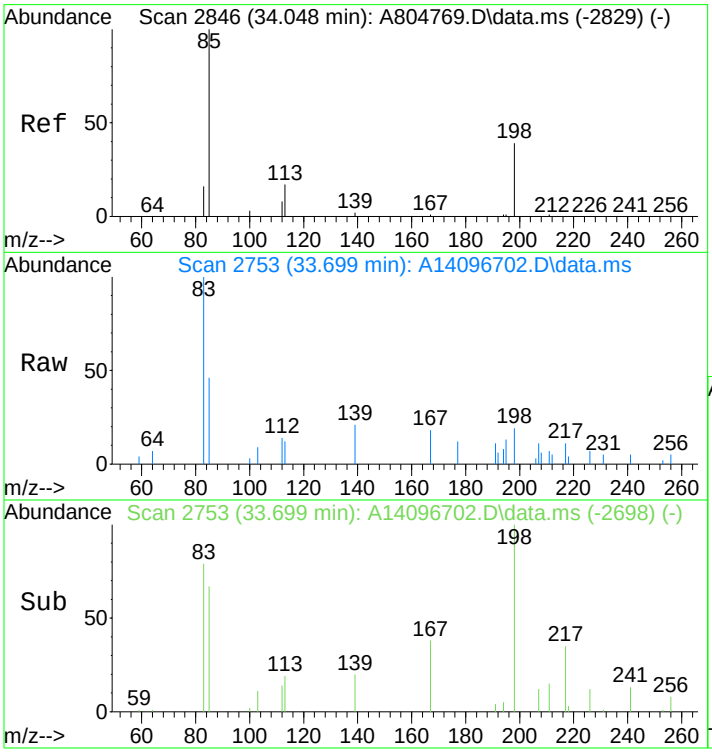


#33
Dibenzothiophene
Concen: 6.51 ng/mL m
RT: 31.938 min Scan# 2560
Delta R.T. 0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:184 Resp: 1401

Ion	Ratio	Lower	Upper
184	100		
152	0.0	8.8	13.2#

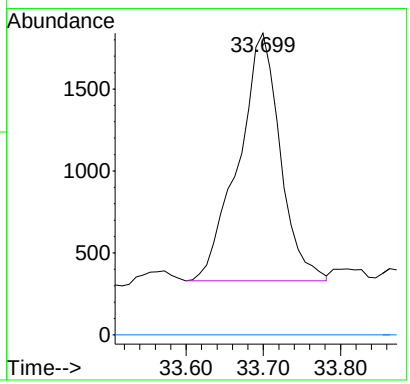


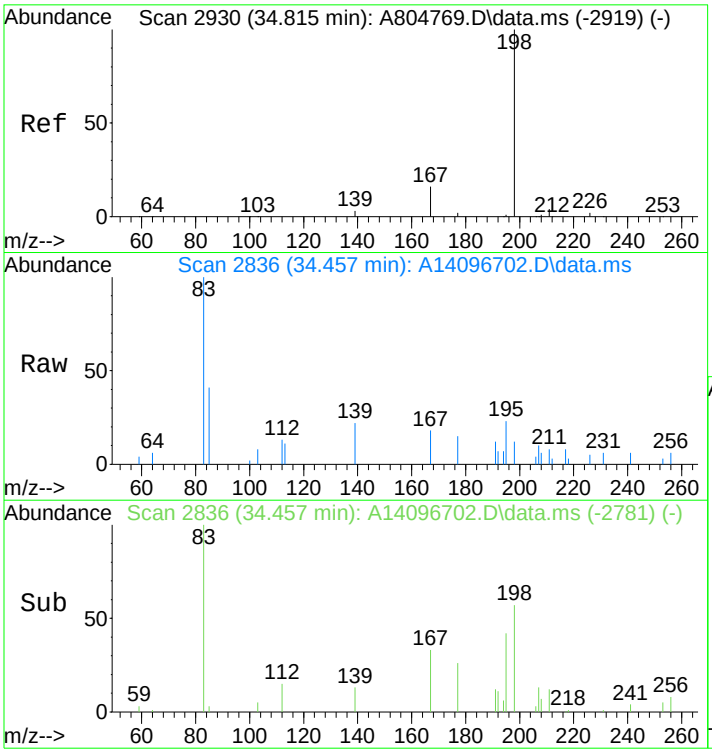


#34
4-Methyldibenzothiophene(4MDT)
Concen: 26.50 ng/mL
RT: 33.699 min Scan# 2753
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:198 Resp: 5706

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

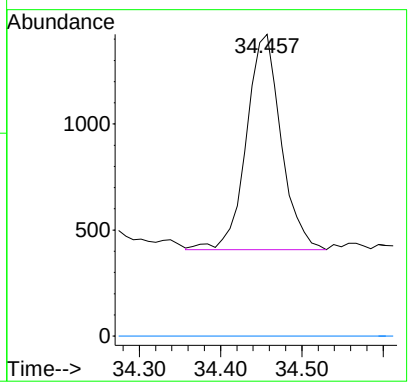


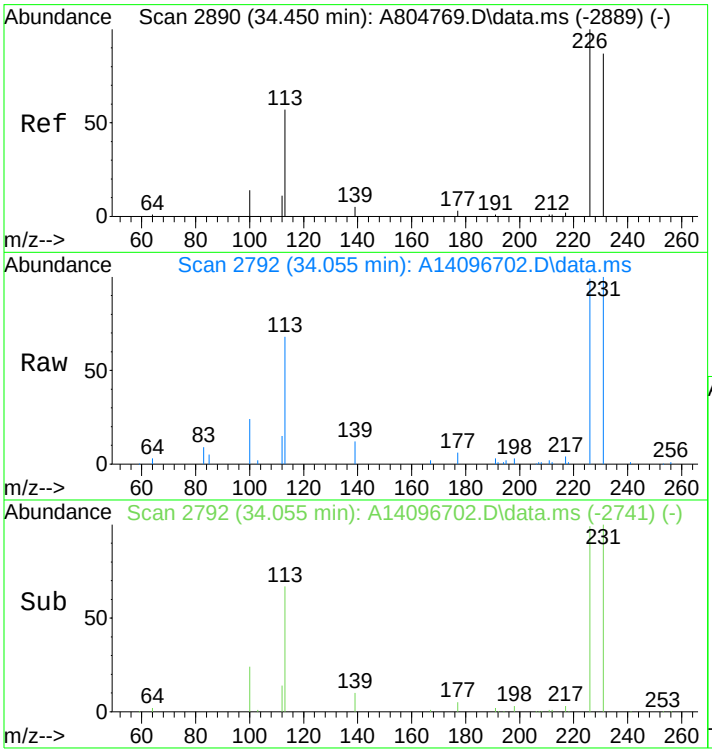


#36
1-Methyldibenzothiophene(1MDT)
Concen: 13.95 ng/mL
RT: 34.457 min Scan# 2836
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:198 Resp: 3004

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

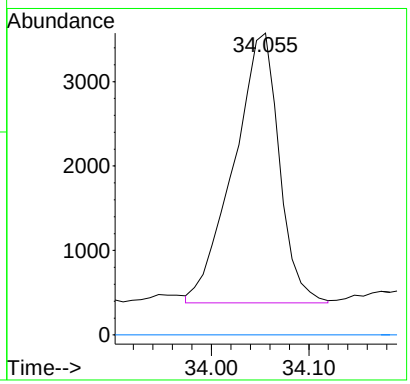


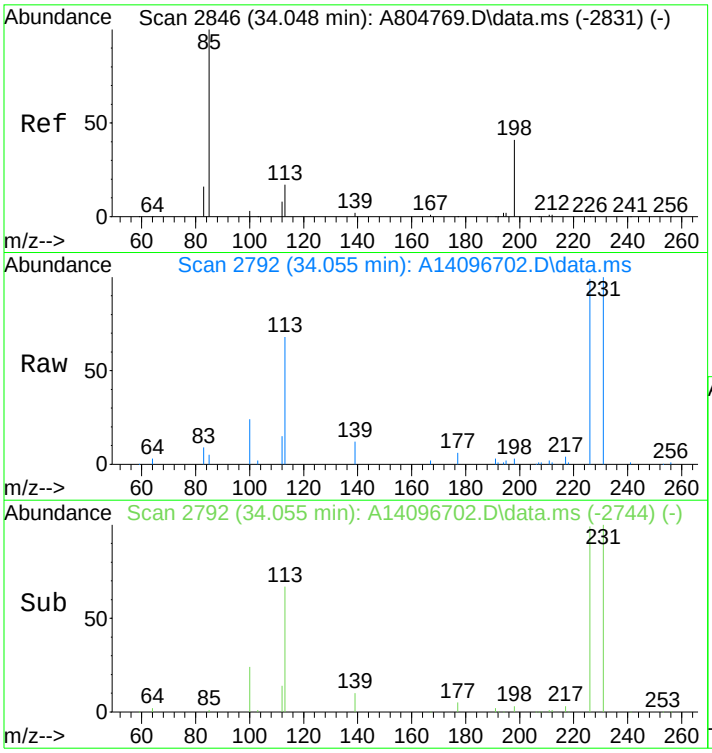


#37
OTP
Concen: 48.08 ng/mL m
RT: 34.055 min Scan# 2792
Delta R.T. -0.037 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:198 Resp: 10352

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

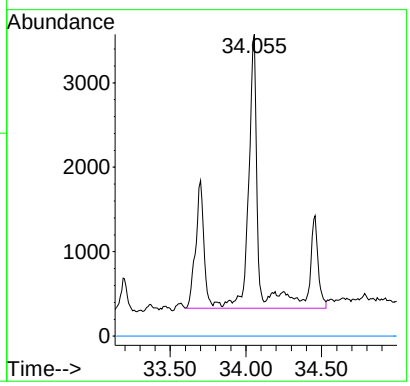


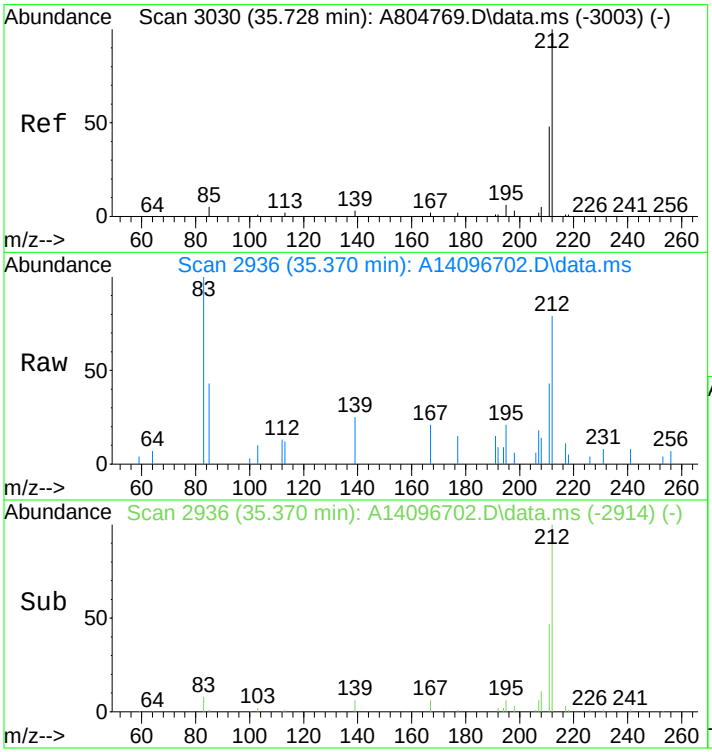


#38
C1-Dibenzothiophenes
Concen: 108.54 ng/mL m
RT: 34.055 min Scan# 2792
Delta R.T. 0.394 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:198 Resp: 23369

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

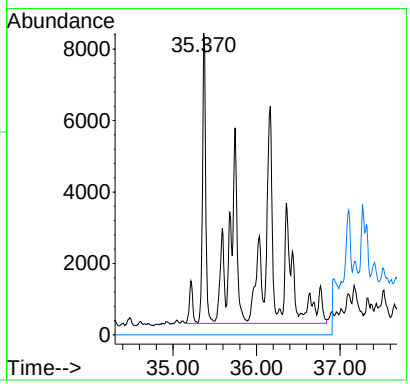


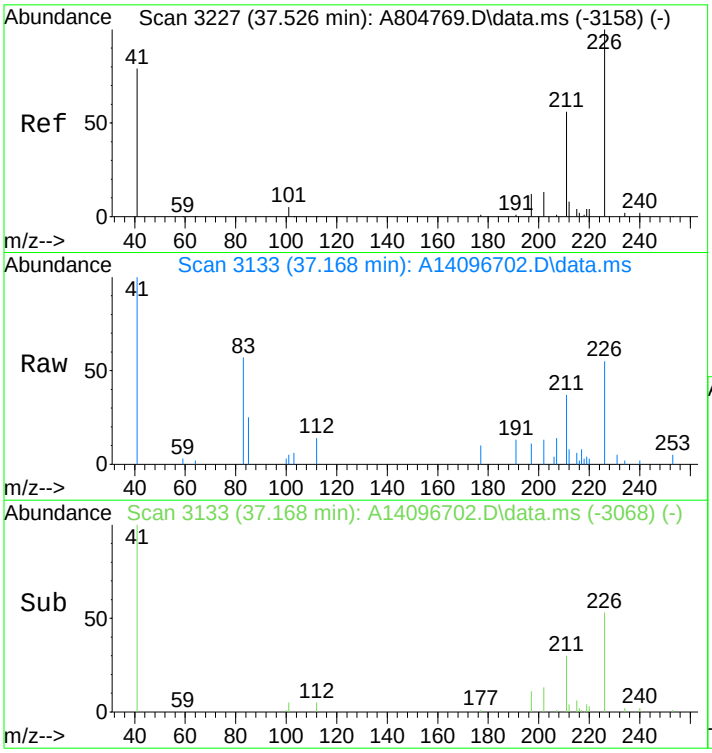


#39
C2-Dibenzothiophenes
Concen: 570.50 ng/mL m
RT: 35.370 min Scan# 2936
Delta R.T. -0.323 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:212 Resp: 122833

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

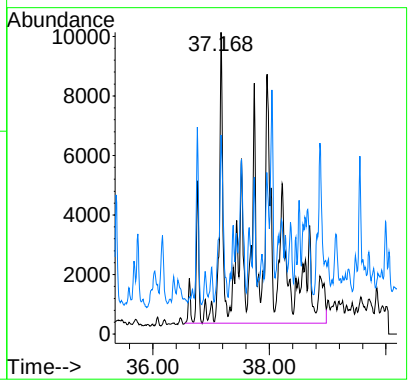


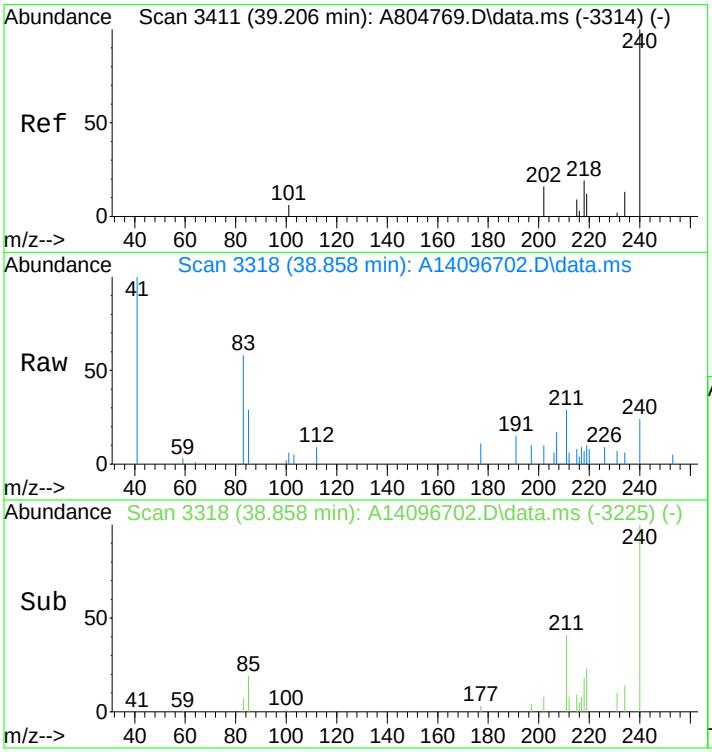


#40
C3-Dibenzothiophenes
Concen: 1201.16 ng/mL m
RT: 37.168 min Scan# 3133
Delta R.T. 0.043 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:226 Resp: 258621

Ion	Ratio	Lower	Upper
226	100		
211	3.3	48.4	72.6#

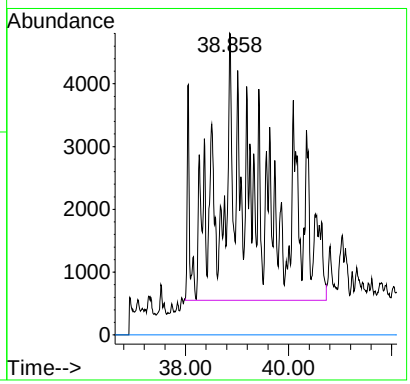


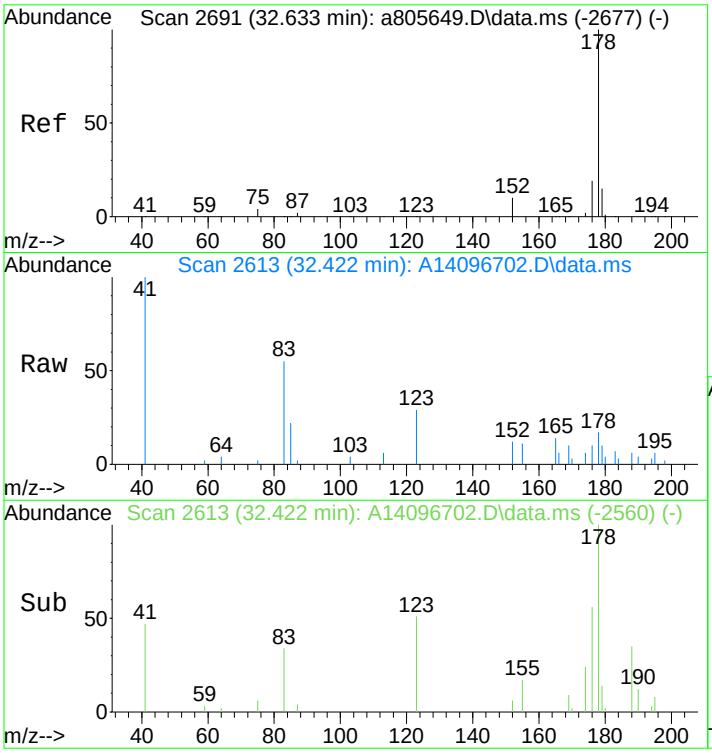


#41
C4-Dibenzothiophenes
Concen: 1048.47 ng/mL m
RT: 38.858 min Scan# 3318
Delta R.T. 0.054 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:240 Resp: 225744

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

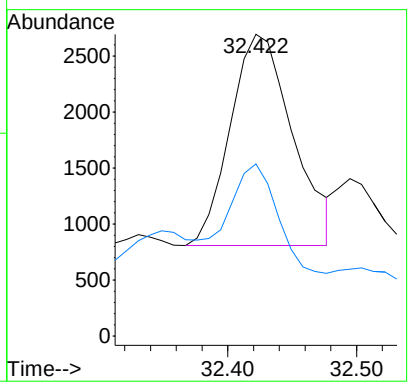


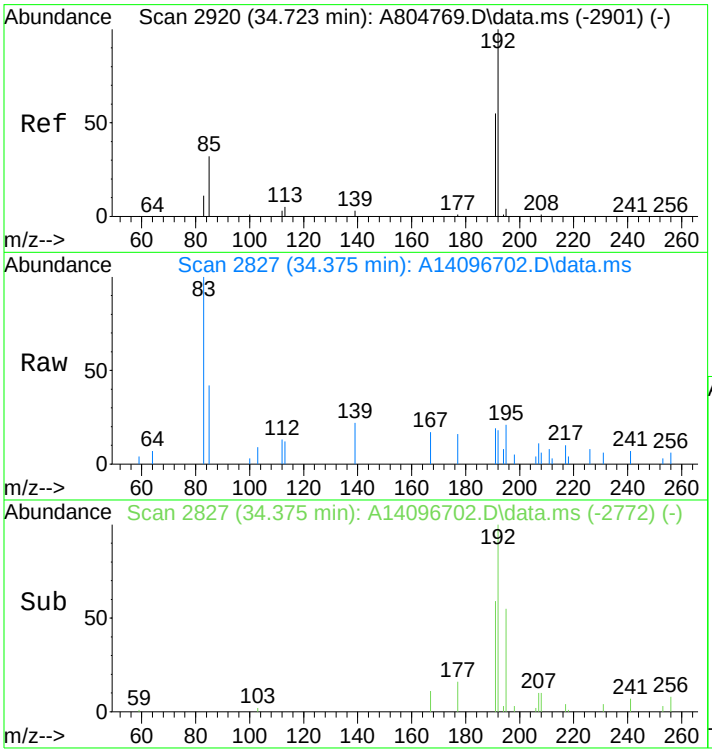


#43
Phenanthrene
Concen: 27.88 ng/mL
RT: 32.422 min Scan# 2613
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:178 Resp: 6374

Ion	Ratio	Lower	Upper
178	100		
176	38.7	14.8	22.2#

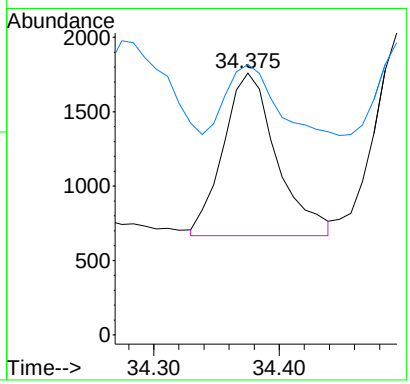


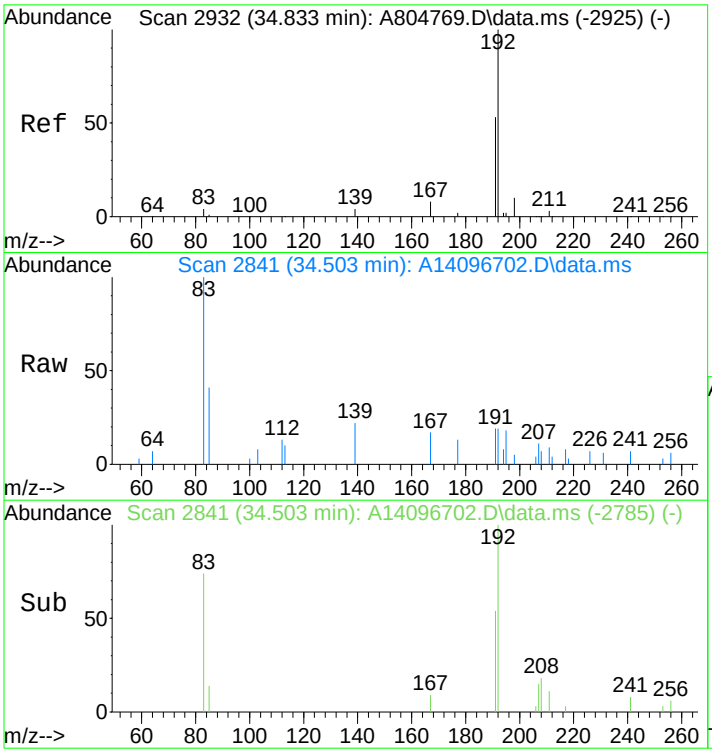


#44
3-Methylphenanthrene(3MP)
Concen: 14.20 ng/mL m
RT: 34.375 min Scan# 2827
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 3246

Ion	Ratio	Lower	Upper
192	100		
191	38.3	45.2	67.8#

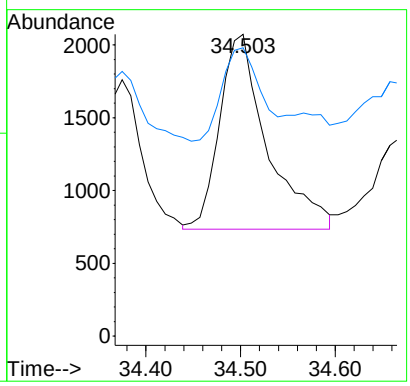


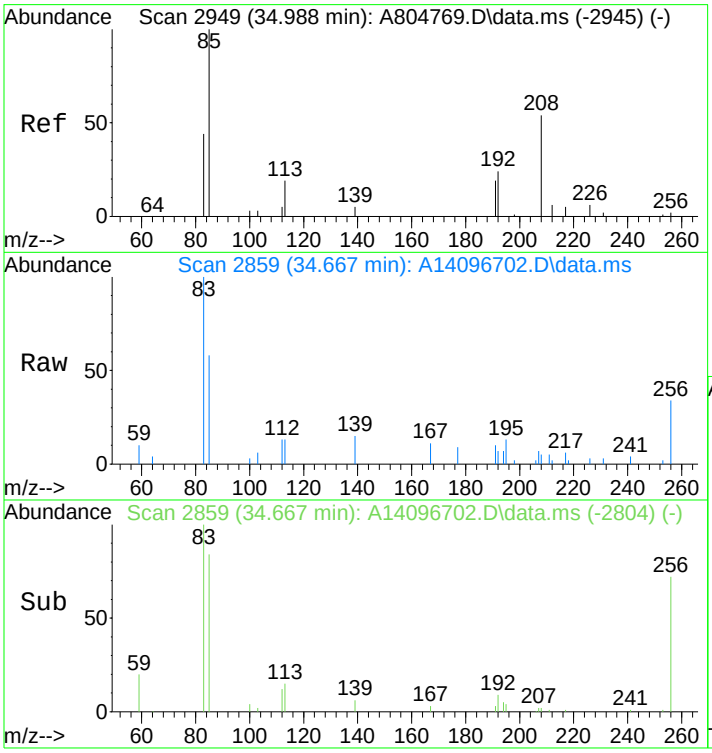


#45
2-Methylphenanthrene(2MP)
Concen: 20.49 ng/mL m
RT: 34.503 min Scan# 2841
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 4685

Ion	Ratio	Lower	Upper
192	100		
191	18.0	44.6	66.8#

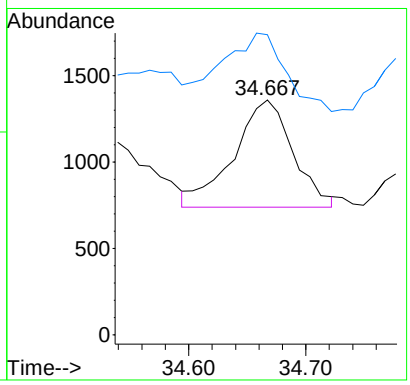


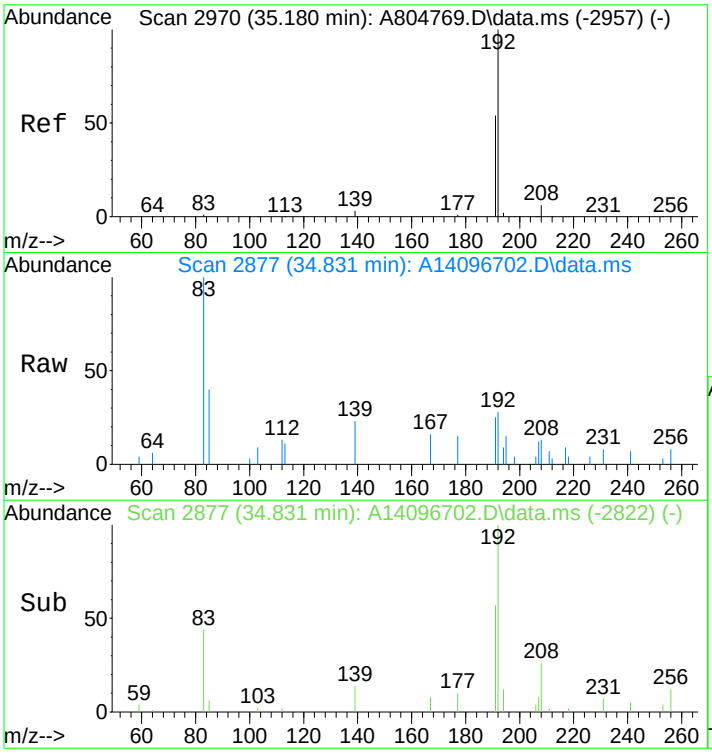


#46
2-Methylanthracene(2MA)
Concen: 9.54 ng/mL m
RT: 34.667 min Scan# 2859
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 2182

Ion	Ratio	Lower	Upper
192	100		
191	77.6	87.9	131.9#

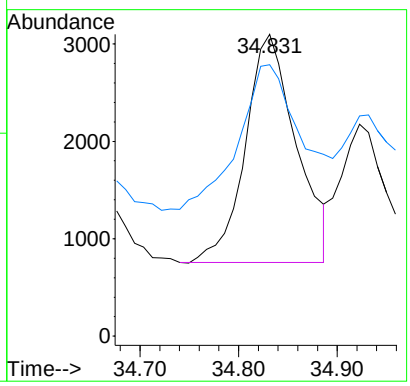


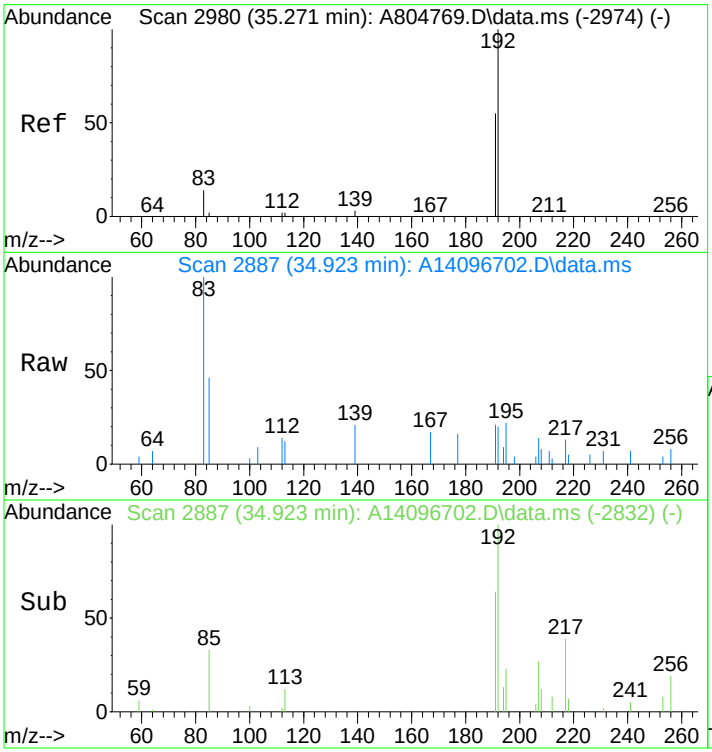


#47
9/4-Methylphenanthrene(9MP)
Concen: 36.85 ng/mL m
RT: 34.831 min Scan# 2877
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 8425

Ion	Ratio	Lower	Upper
192	100		
191	33.4	44.1	66.1#

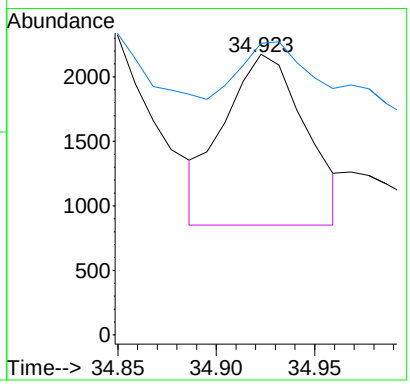


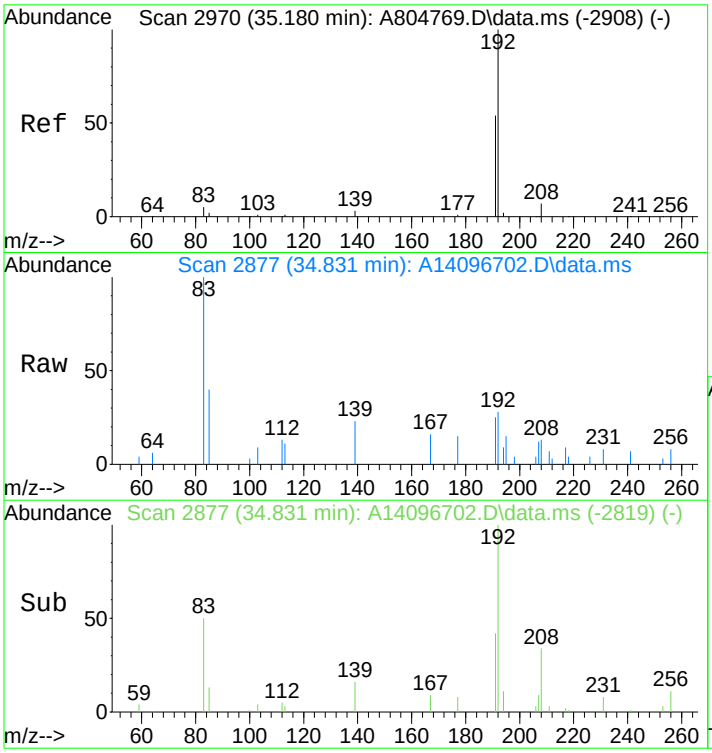


#48
1-Methylphenanthrene(1MP)
Concen: 16.67 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 3811

Ion	Ratio	Lower	Upper
192	100		
191	73.9	46.2	69.4#

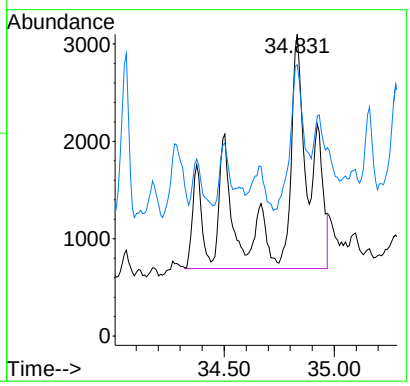


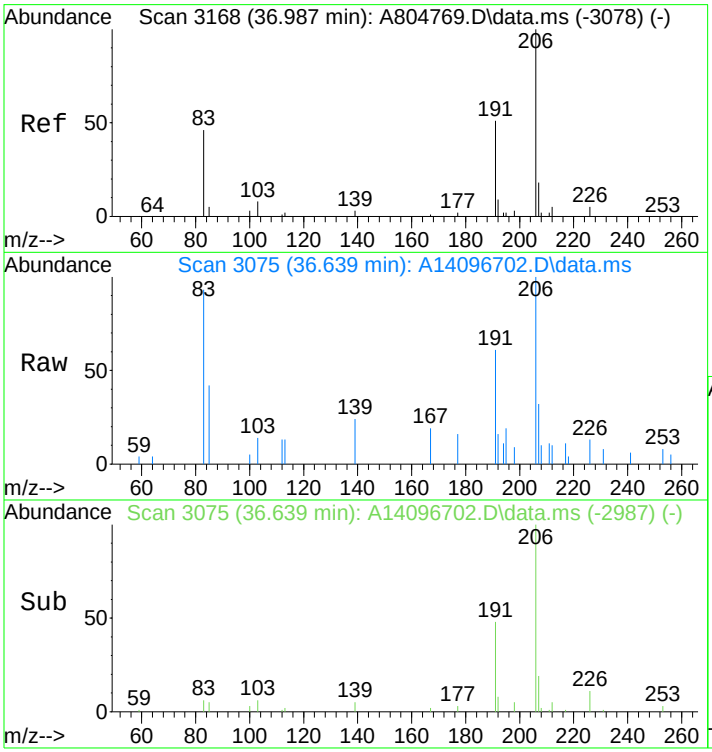


#49
C1-Phenanthrenes/Anthracenes
Concen: 107.05 ng/mL m
RT: 34.831 min Scan# 2877
Delta R.T. 0.045 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 24475

Ion	Ratio	Lower	Upper
192	100		
191	6.5	43.8	65.8#

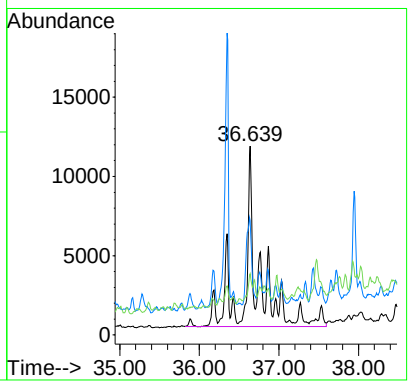


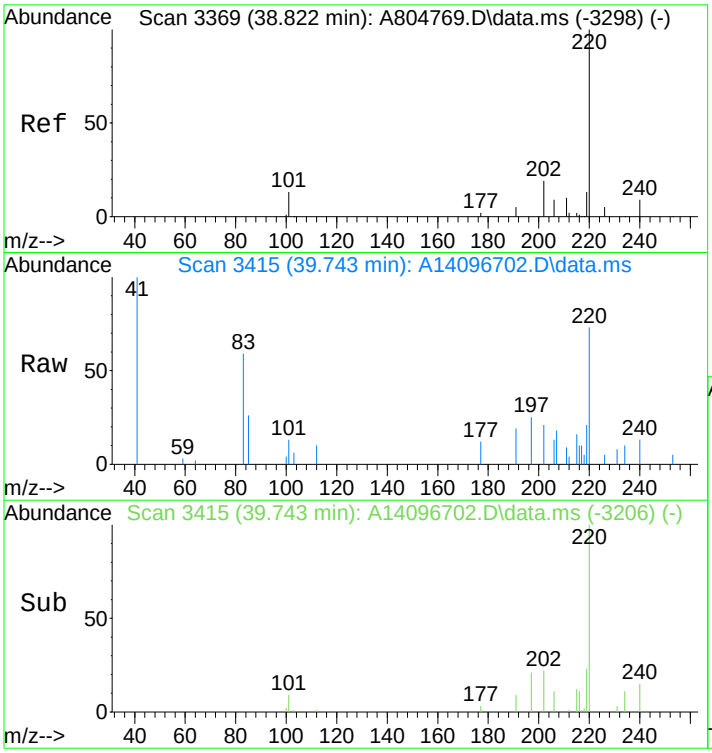


#50
C2-Phenanthrenes/Anthracenes
Concen: 583.03 ng/mL m
RT: 36.639 min Scan# 3075
Delta R.T. 0.048 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:206 Resp: 133301

Ion	Ratio	Lower	Upper
206	100		
191	19.4	39.2	58.8#
207	4.0	16.8	25.2#

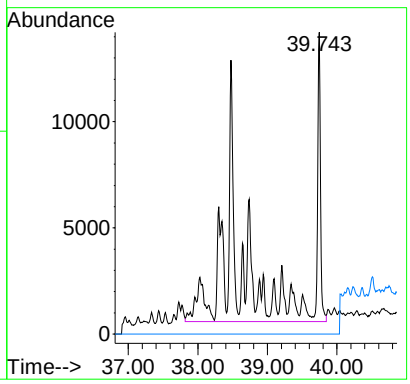


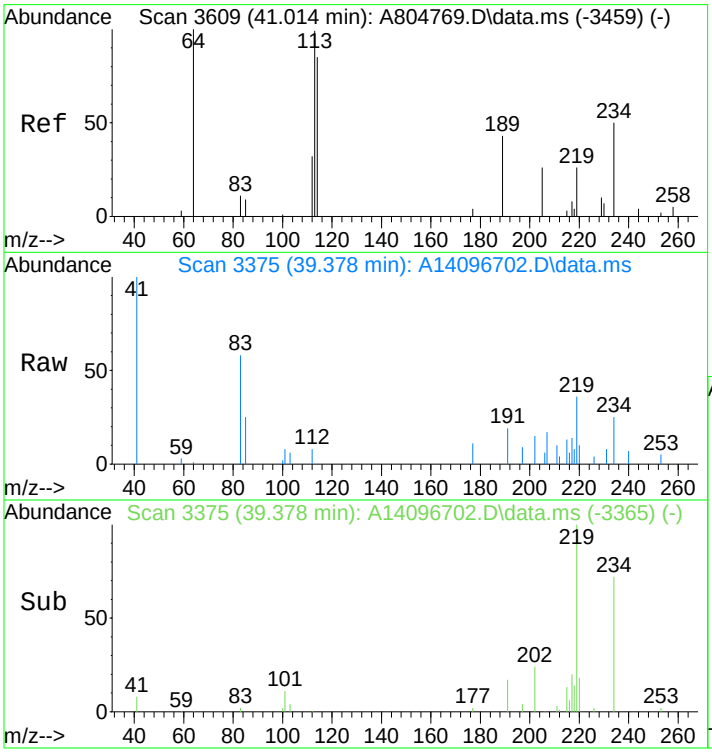


#52
C3-Phenanthrenes/Anthracenes
Concen: 914.16 ng/mL m
RT: 39.743 min Scan# 3415
Delta R.T. 1.320 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:220 Resp: 209009

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

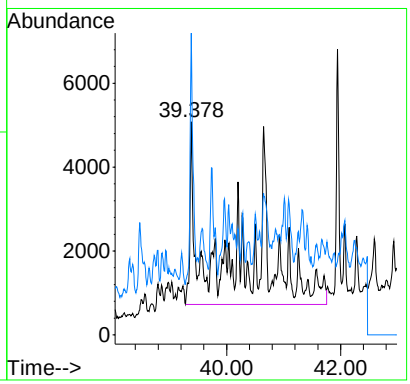


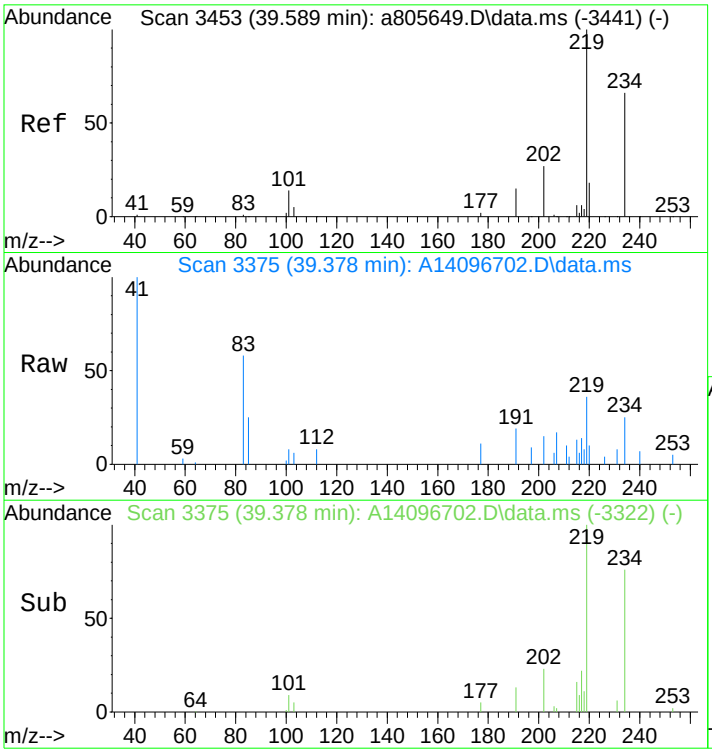


#53
C4-Phenanthrenes/Anthracenes
Concen: 582.31 ng/mL m
RT: 39.378 min Scan# 3375
Delta R.T. -1.204 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 133138

Ion	Ratio	Lower	Upper
234	100		
219	2.2	49.8	74.8#

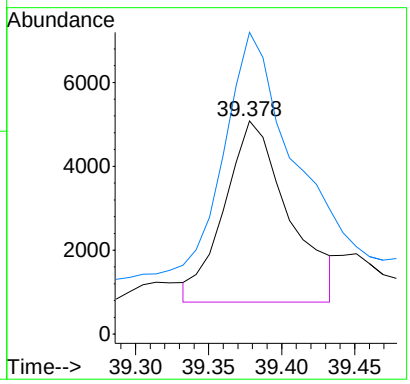


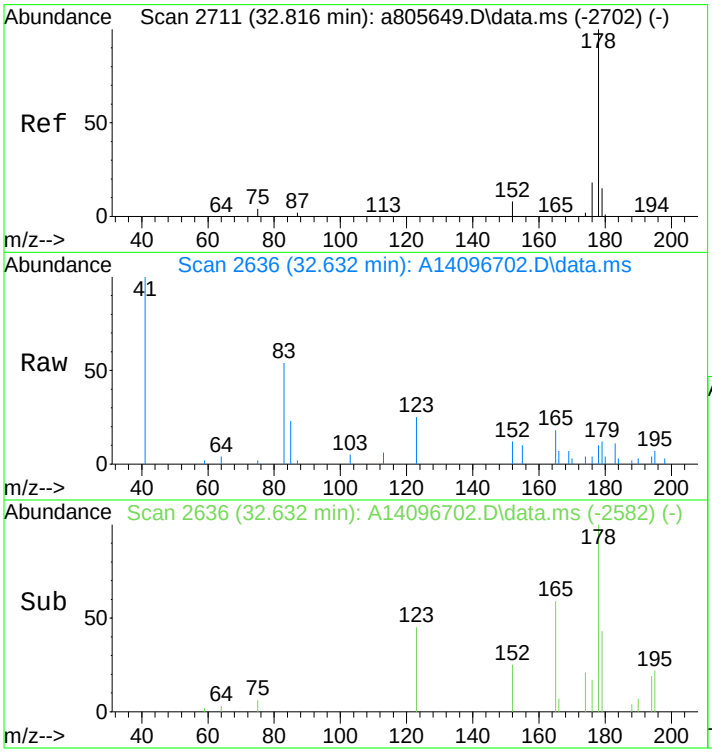


#54
Retene
Concen: 184.53 ng/mL m
RT: 39.378 min Scan# 3375
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 13211

Ion	Ratio	Lower	Upper
234	100		
219	165.5	119.3	178.9

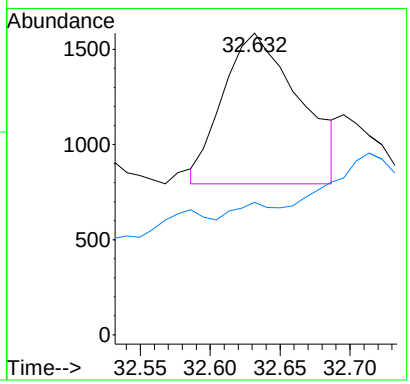


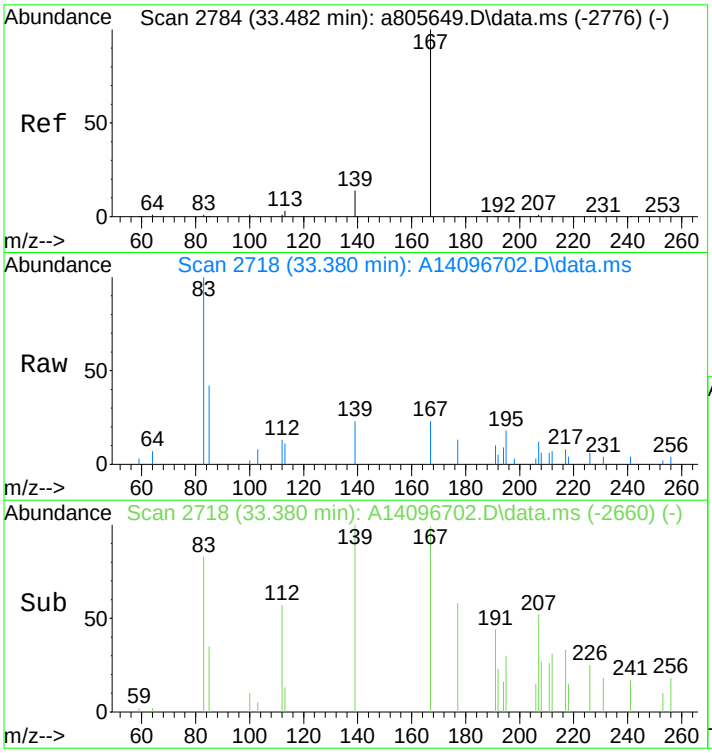


#55
Anthracene
Concen: 13.28 ng/mL m
RT: 32.632 min Scan# 2636
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:178 Resp: 3021

Ion	Ratio	Lower	Upper
178	100		
176	0.0	14.3	21.5#

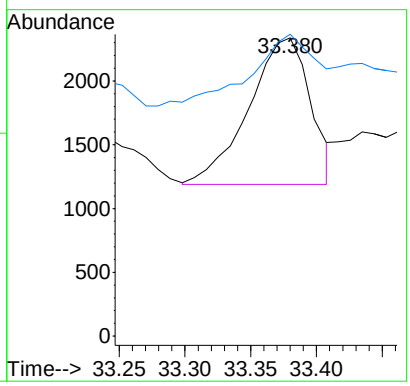


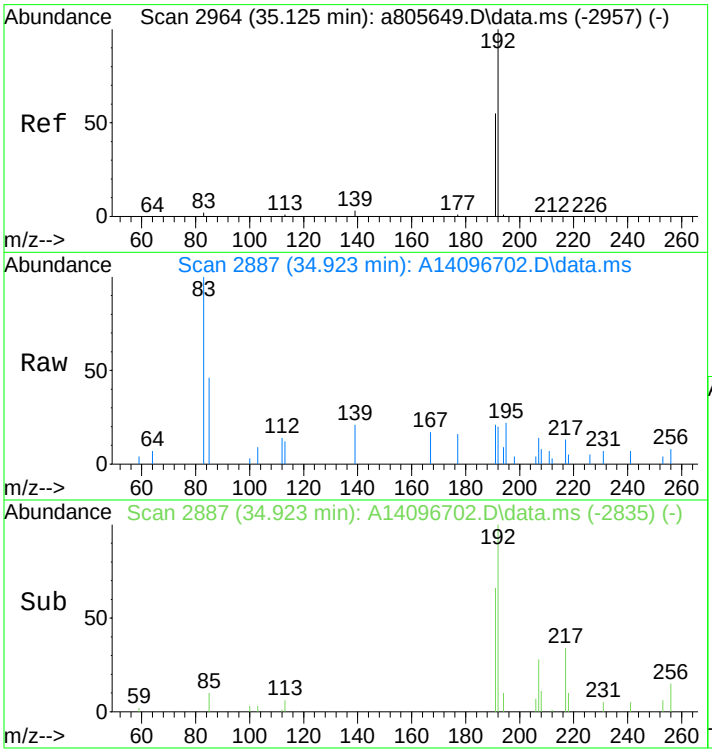


#56
Carbazole
Concen: 17.67 ng/mL m
RT: 33.380 min Scan# 2718
Delta R.T. 0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:167 Resp: 3748

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

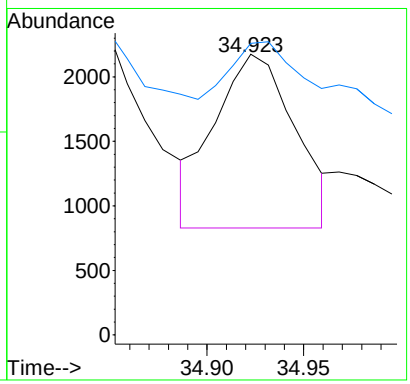


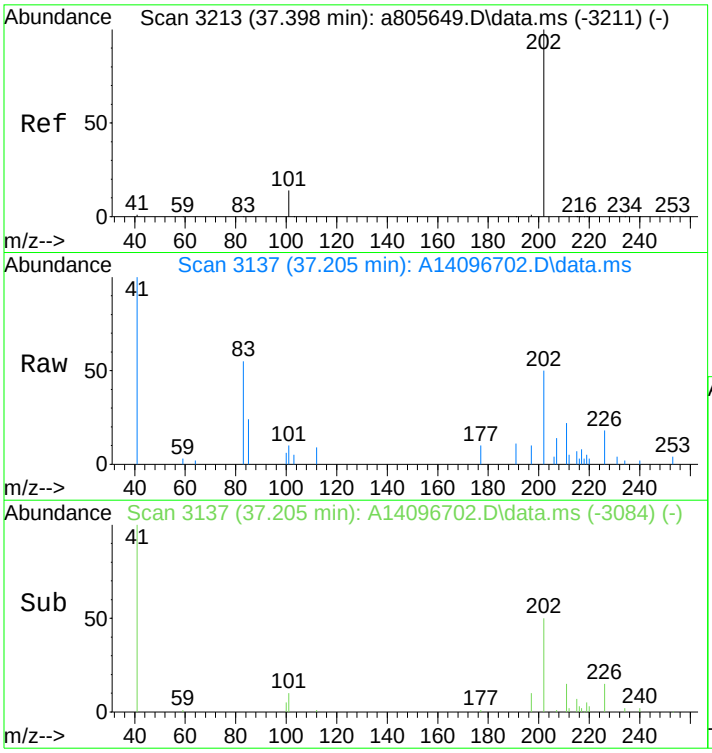


#57
1-Methylphenanthrene
Concen: 22.80 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:192 Resp: 3911

Ion	Ratio	Lower	Upper
192	100		
191	72.0	45.0	67.4#

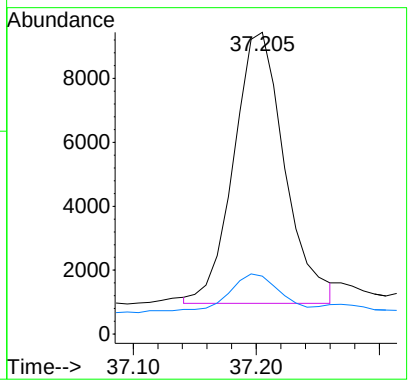


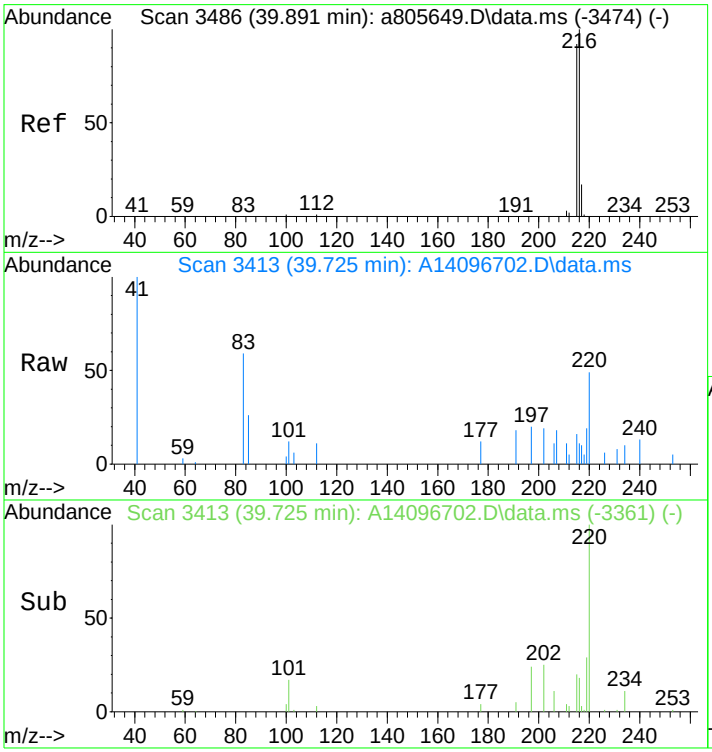


#58
Fluoranthene
Concen: 104.44 ng/mL m
RT: 37.205 min Scan# 3137
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:202 Resp: 24361

Ion	Ratio	Lower	Upper
202	100		
101	11.9	11.8	17.8

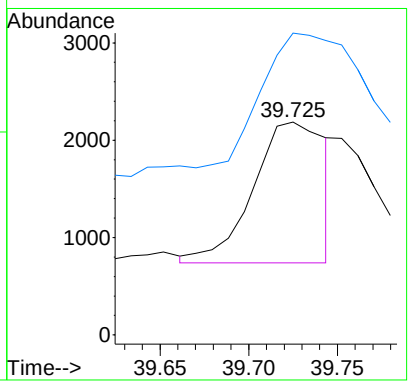


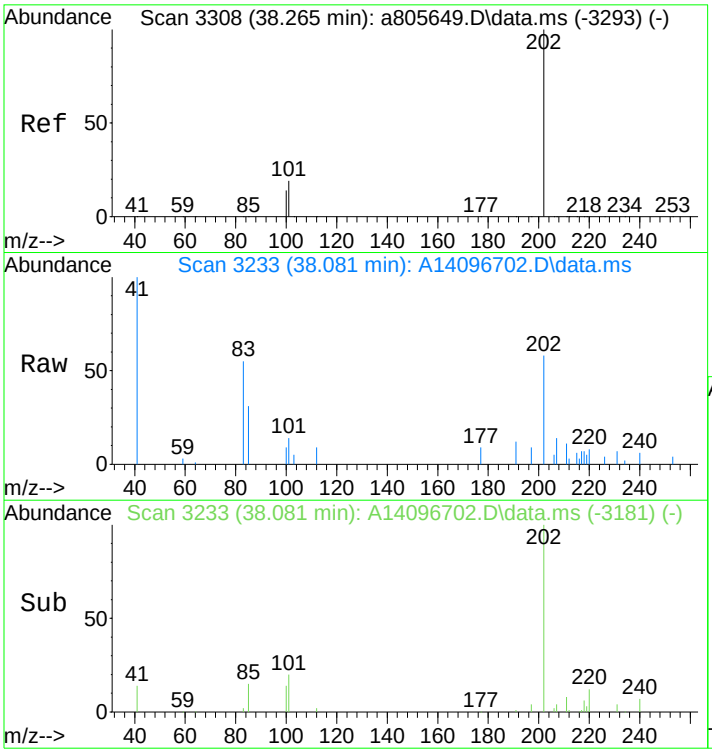


#59
Benzo(b)fluorene
Concen: 26.29 ng/mL m
RT: 39.725 min Scan# 3413
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:216 Resp: 4087

Ion	Ratio	Lower	Upper
216	100		
215	253.3	73.0	109.4#

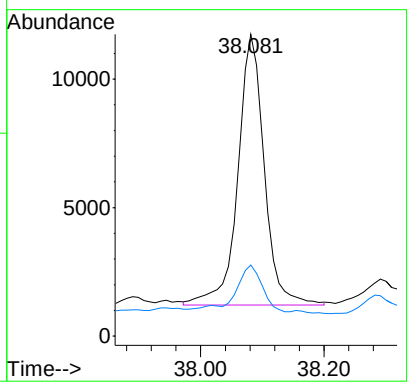


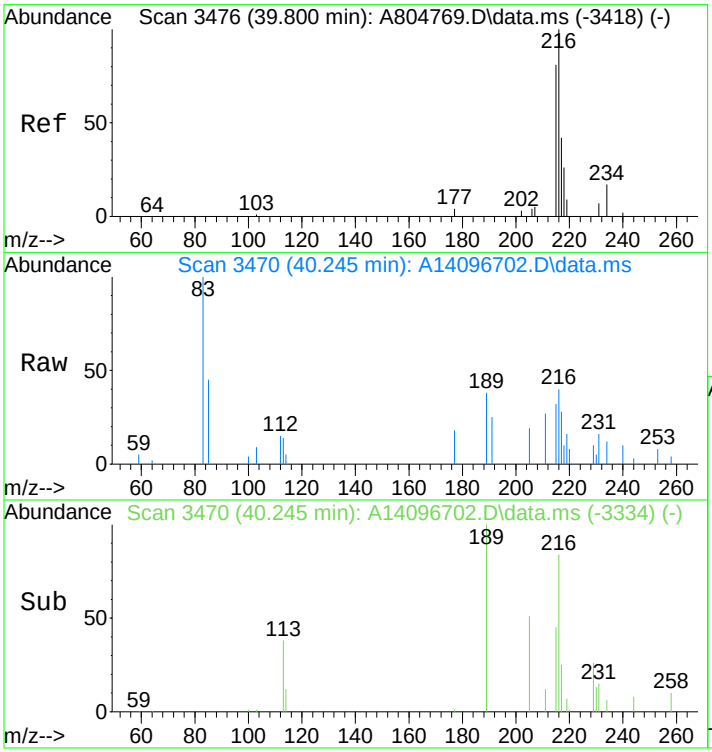


#60
Pyrene
Concen: 129.66 ng/mL m
RT: 38.081 min Scan# 3233
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:202 Resp: 31433

Ion	Ratio	Lower	Upper
202	100		
101	18.2	13.8	20.6

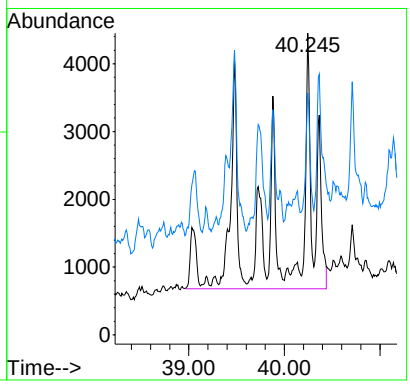


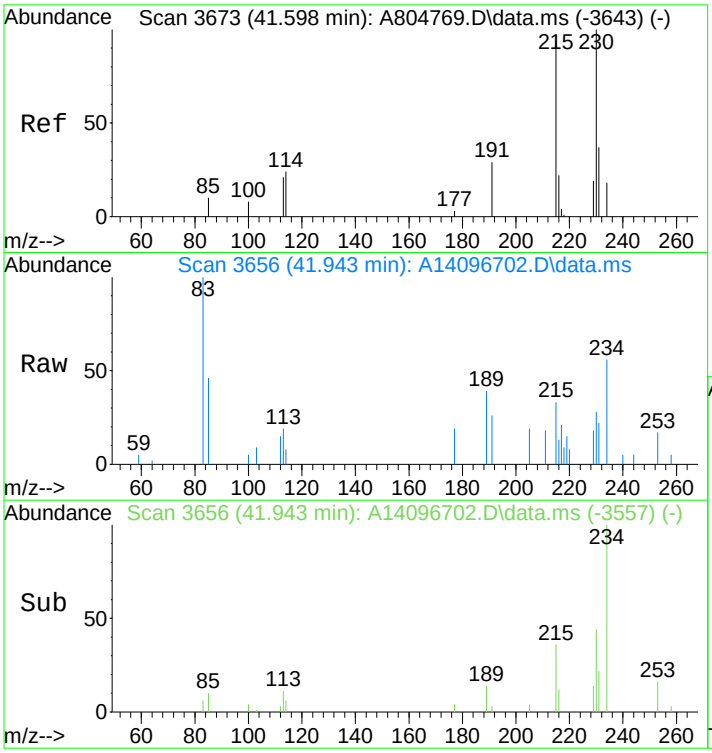


#61
C1-Fluoranthenes/Pyrenes
Concen: 243.60 ng/mL m
RT: 40.245 min Scan# 3470
Delta R.T. 0.603 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:216 Resp: 59057

Ion	Ratio	Lower	Upper
216	100		
215	10.2	82.9	124.3#

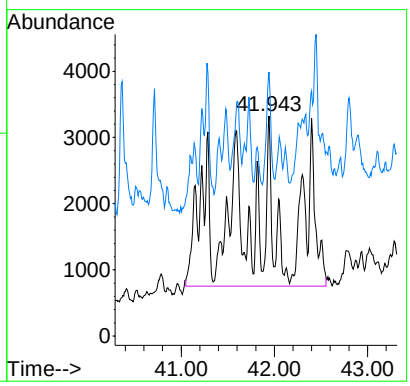


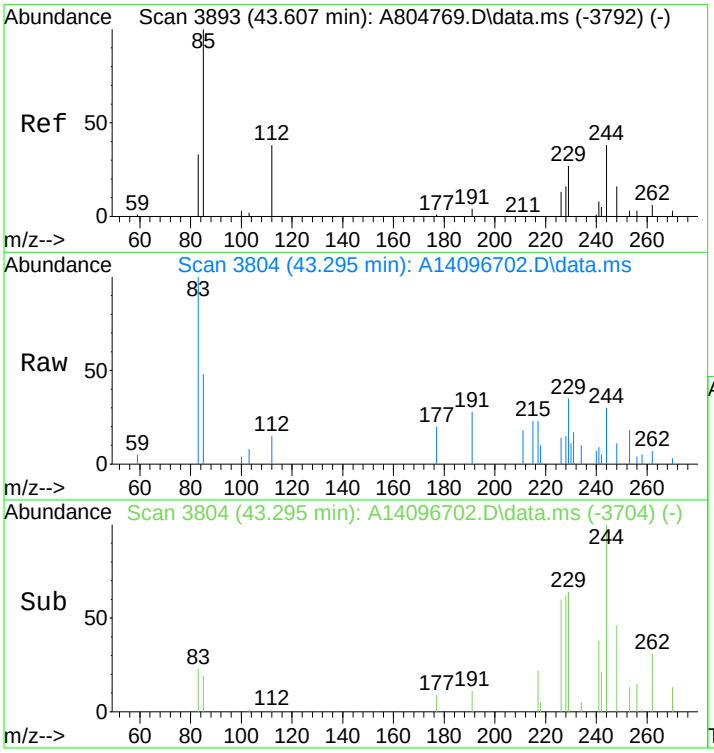


#62
C2-Fluoranthenes/Pyrenes
Concen: 325.67 ng/mL m
RT: 41.943 min Scan# 3656
Delta R.T. 0.745 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:230 Resp: 78953

Ion	Ratio	Lower	Upper
230	100		
215	6.4	88.1	132.1#

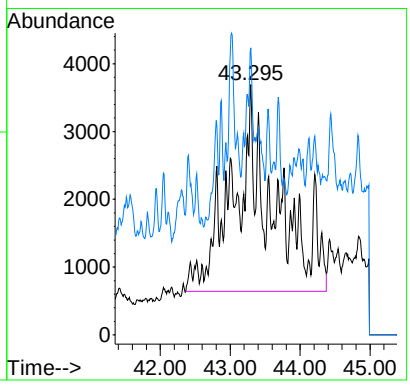


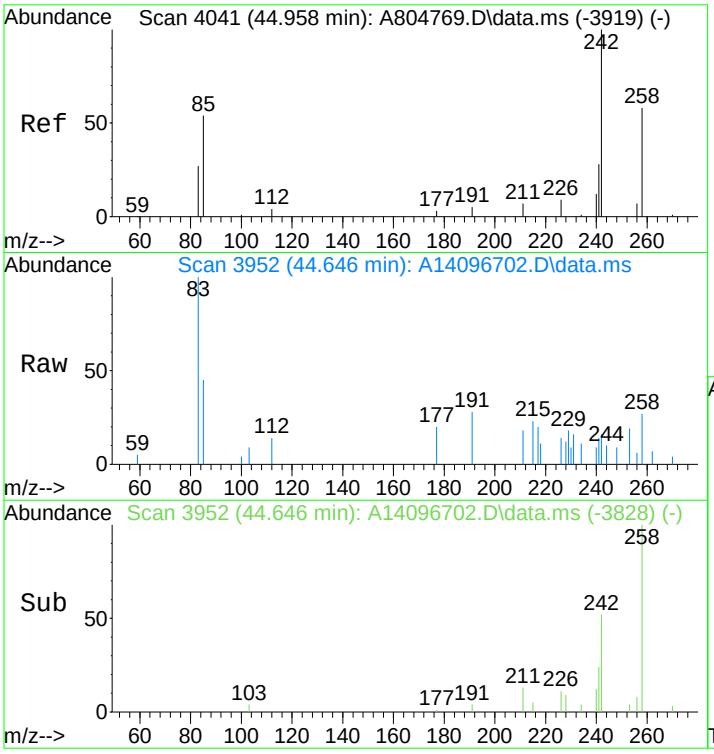


#63
C3-Fluoranthenes/Pyrenes
Concen: 497.80 ng/mL m
RT: 43.295 min Scan# 3804
Delta R.T. 0.092 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:244 Resp: 120683

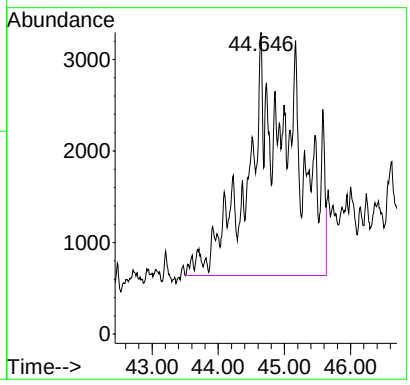
Ion	Ratio	Lower	Upper
244	100		
229	1.0	79.7	119.5#

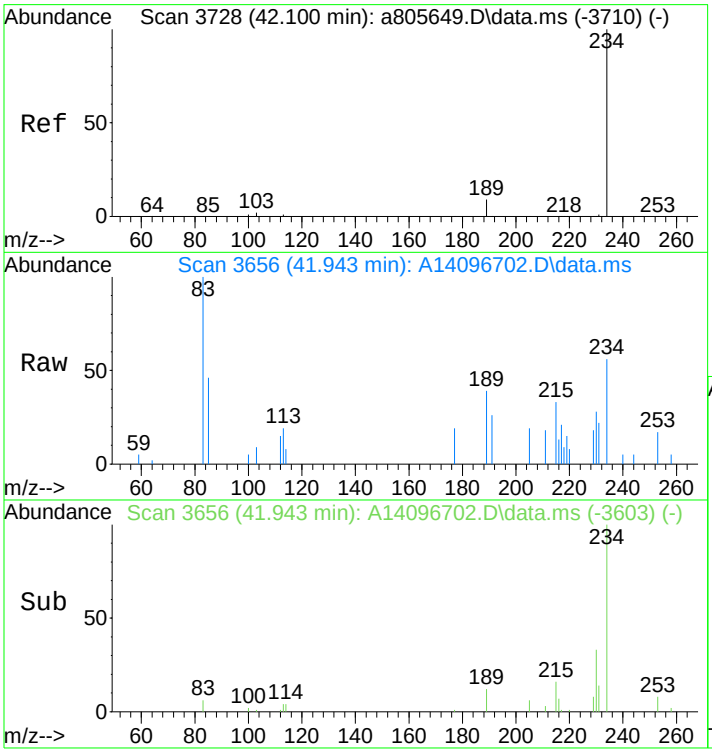




#64
C4-Fluoranthenes/Pyrenes
Concen: 516.01 ng/mL m
RT: 44.646 min Scan# 3952
Delta R.T. 0.100 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:258 Resp: 125099

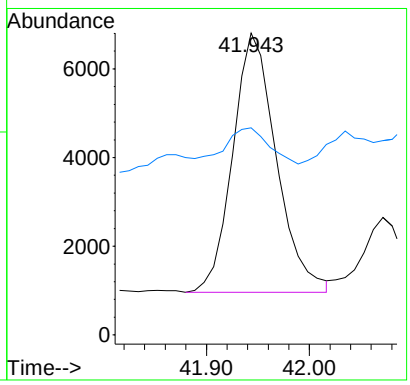


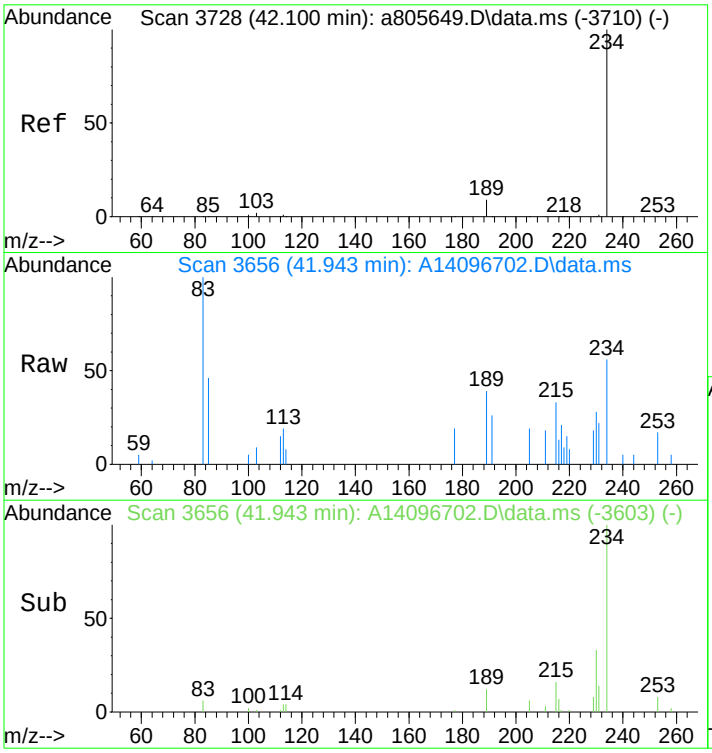


#66
Naphthobenzothiophene
Concen: 81.96 ng/ml
RT: 41.943 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 17228

Ion	Ratio	Lower	Upper
234	100		
189	14.8	29.1	43.7#

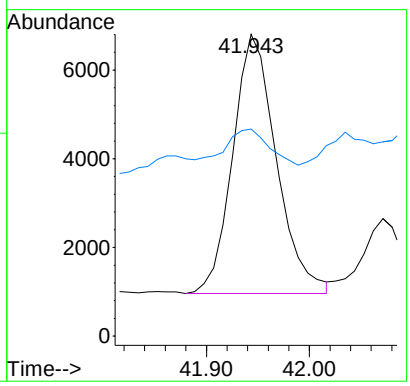


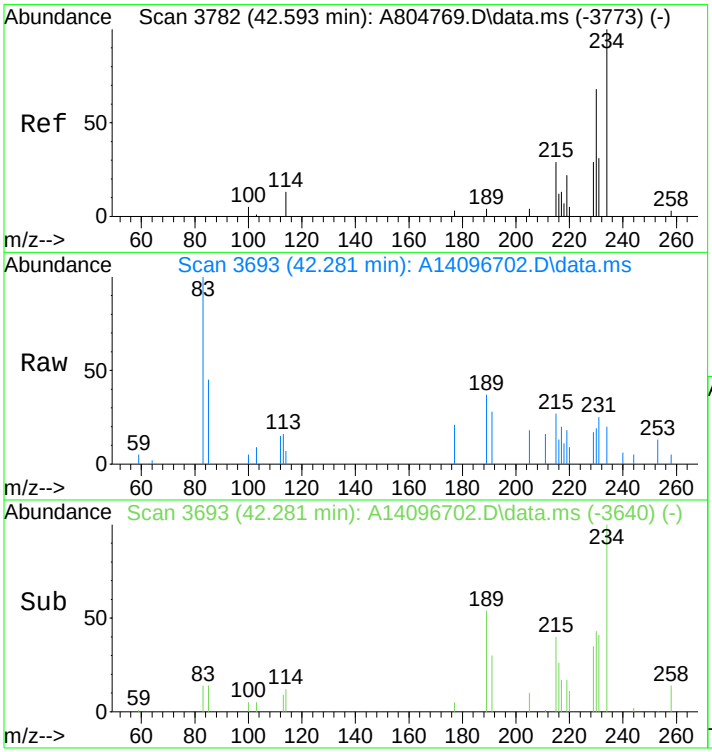


#67
Naphthobenzothiophene-2,1-D
Concen: 81.96 ng/mL
RT: 41.943 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 17228

Ion	Ratio	Lower	Upper
234	100		
189	14.8	29.1	43.7#

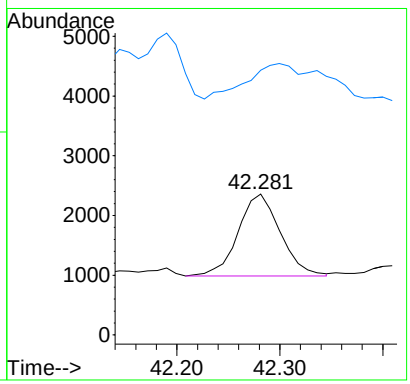


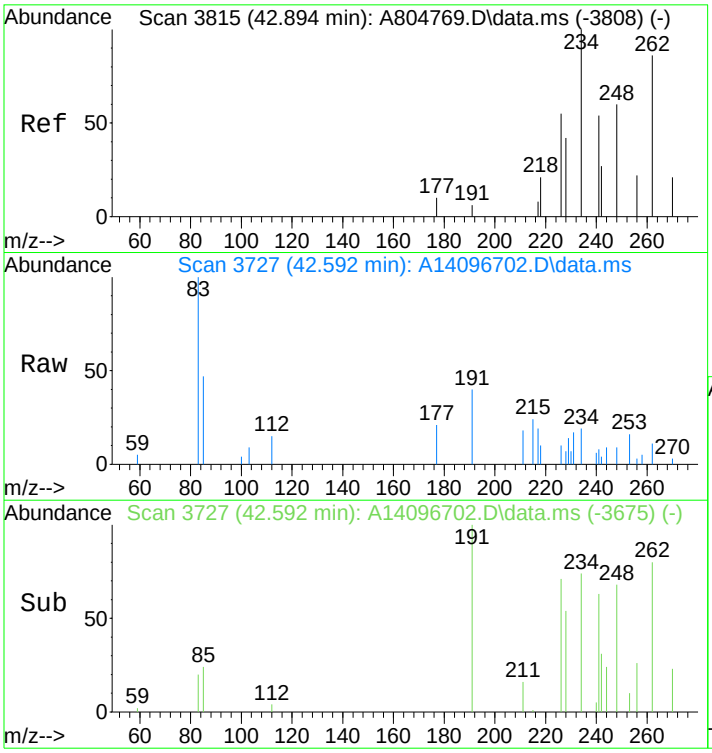


#68
Naphthobenzothiophene-1,2-D
Concen: 18.58 ng/mL
RT: 42.281 min Scan# 3693
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 3905

Ion	Ratio	Lower	Upper
234	100		
189	0.0	84.7	127.1#

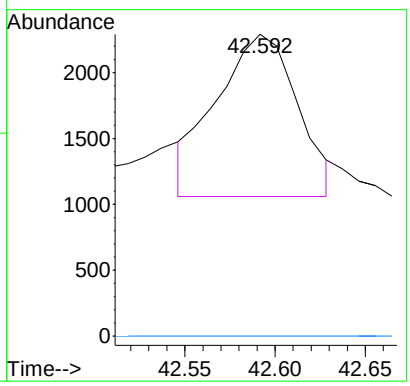


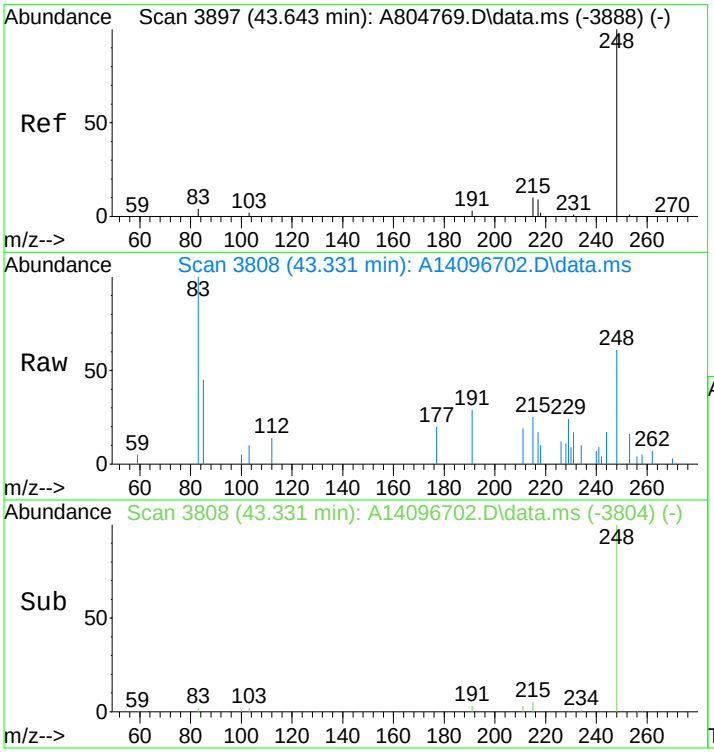


#69
Naphthobenzothiophene-2,3-D
Concen: 18.32 ng/mL m
RT: 42.592 min Scan# 3727
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:234 Resp: 3850

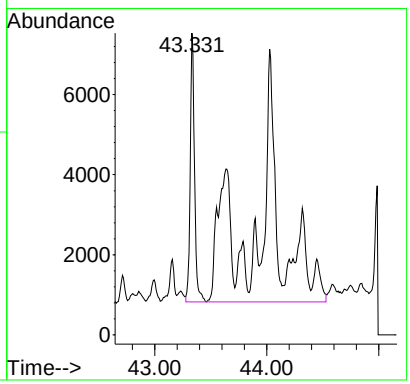
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

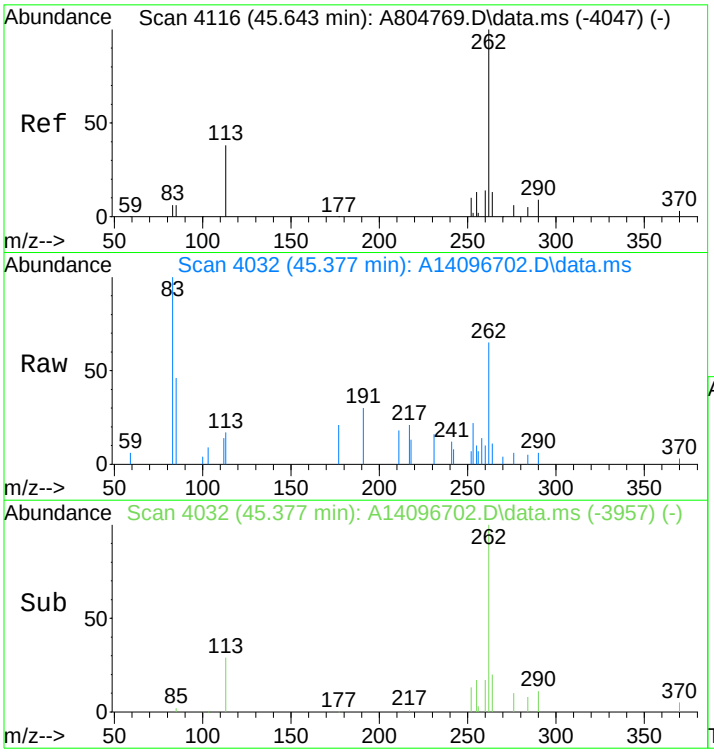




#70
C1-Naphthobenzothiophenes
Concen: 521.84 ng/ml m
RT: 43.331 min Scan# 3808
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

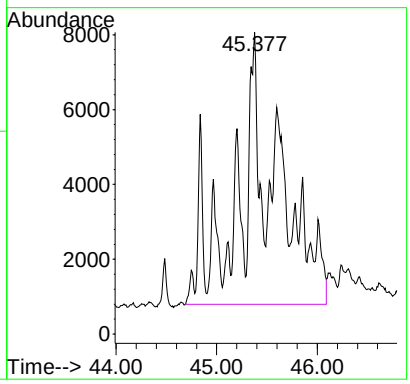
Tgt Ion:248 Resp: 109688

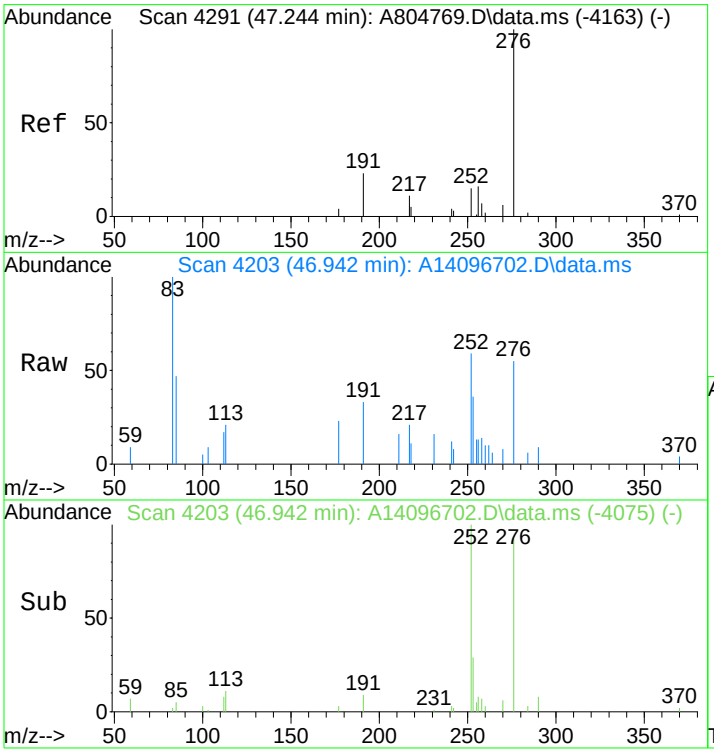




#71
C2-Naphthobenzothiophenes
Concen: 912.78 ng/ml m
RT: 45.377 min Scan# 4032
Delta R.T. 0.141 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

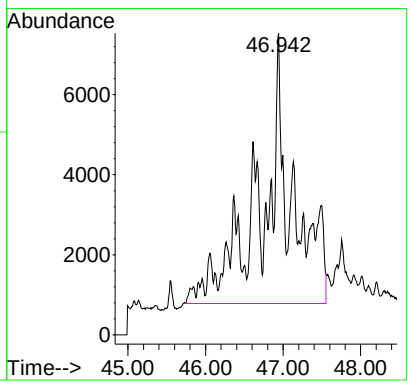
Tgt Ion:262 Resp: 191863

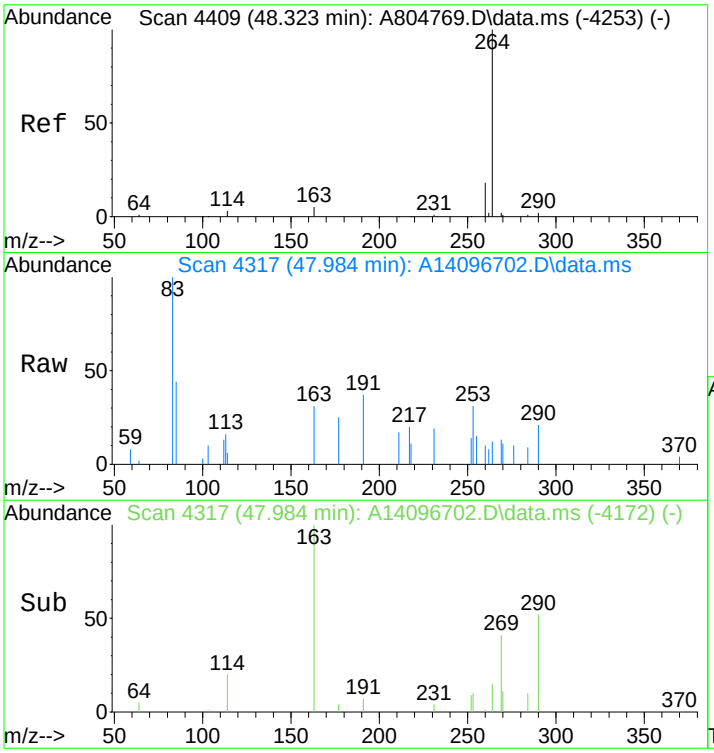




#72
C3-Naphthobenzothiophenes
Concen: 875.50 ng/ml m
RT: 46.942 min Scan# 4203
Delta R.T. 0.115 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

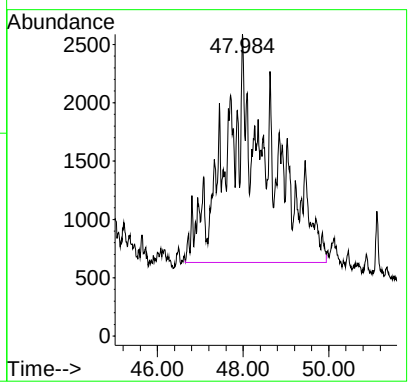
Tgt Ion:276 Resp: 184028

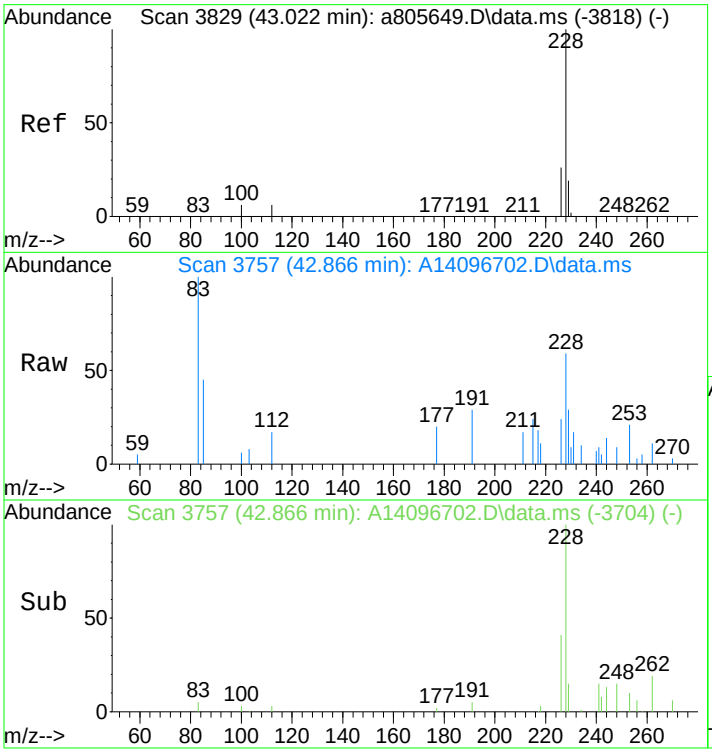




#73
C4-Naphthobenzothiophenes
Concen: 648.35 ng/mL m
RT: 47.984 min Scan# 4317
Delta R.T. 0.095 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:290 Resp: 136281

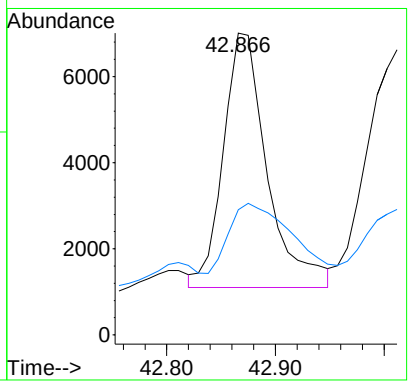


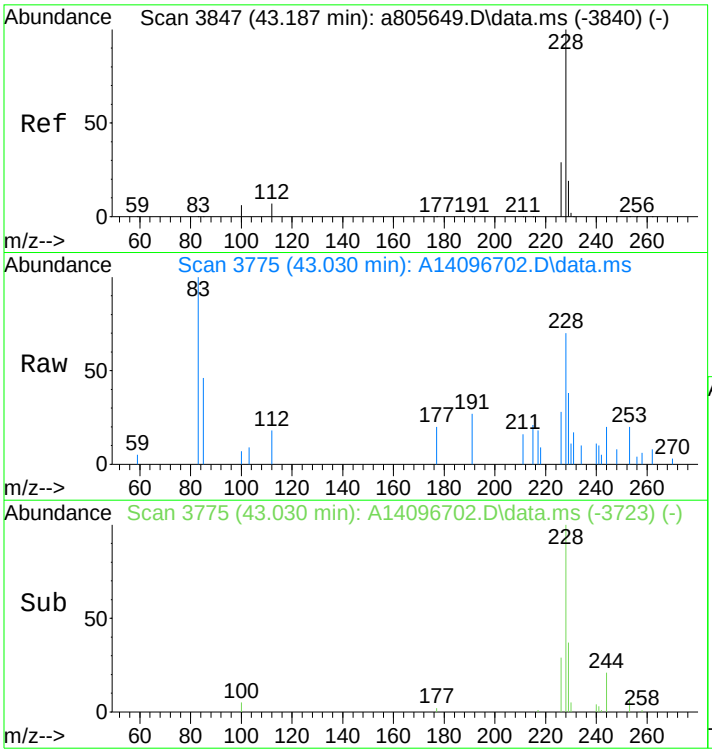


#75
Benz[a]anthracene
Concen: 67.81 ng/mL m
RT: 42.866 min Scan# 3757
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:228 Resp: 16506

Ion	Ratio	Lower	Upper
228	100		
226	54.3	20.3	30.5#

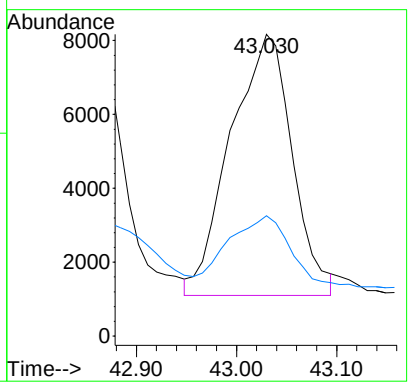


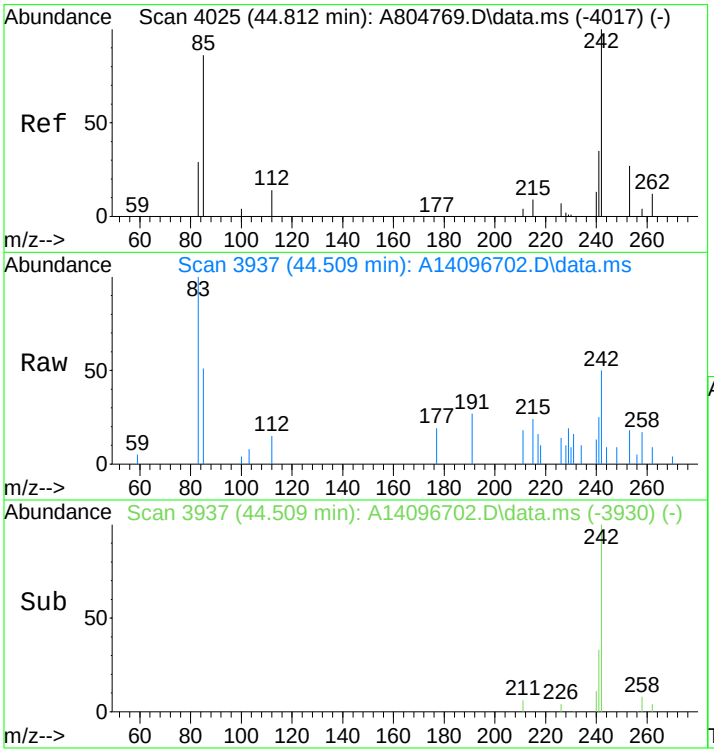


#77
Chrysene/Triphenylene
Concen: 125.38 ng/mL m
RT: 43.030 min Scan# 3775
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:228 Resp: 30134

Ion	Ratio	Lower	Upper
228	100		
226	30.2	22.2	33.2

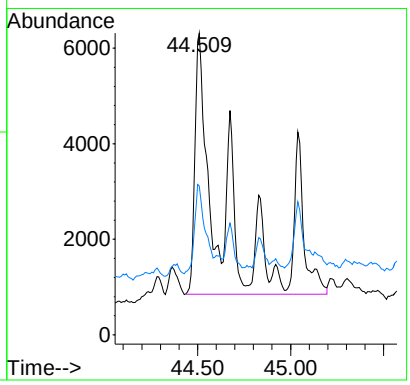


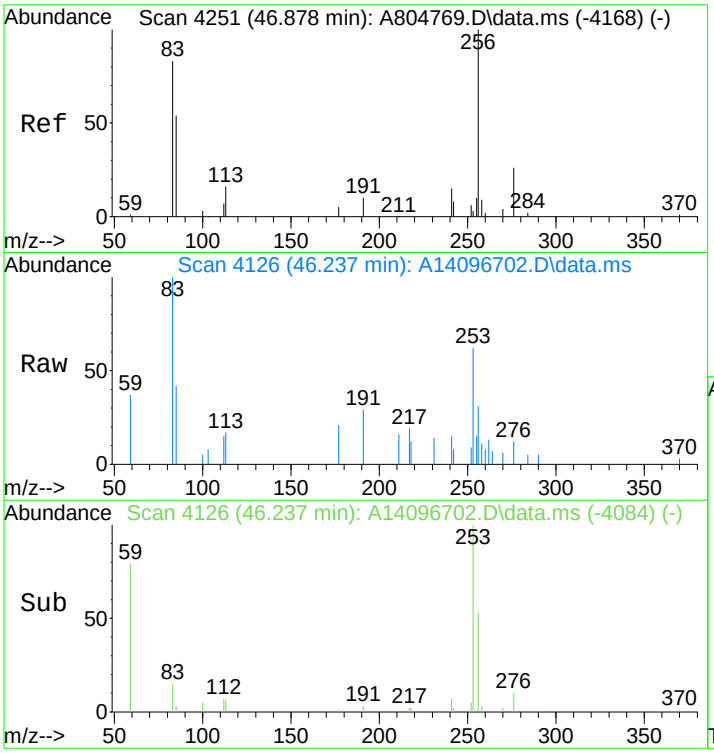


#78
C1-Chrysenes
Concen: 232.19 ng/mL m
RT: 44.509 min Scan# 3937
Delta R.T. 0.001 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:242 Resp: 55804

Ion	Ratio	Lower	Upper
242	100		
241	3.3	33.7	50.5#

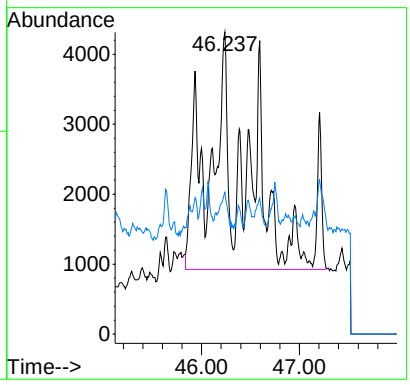


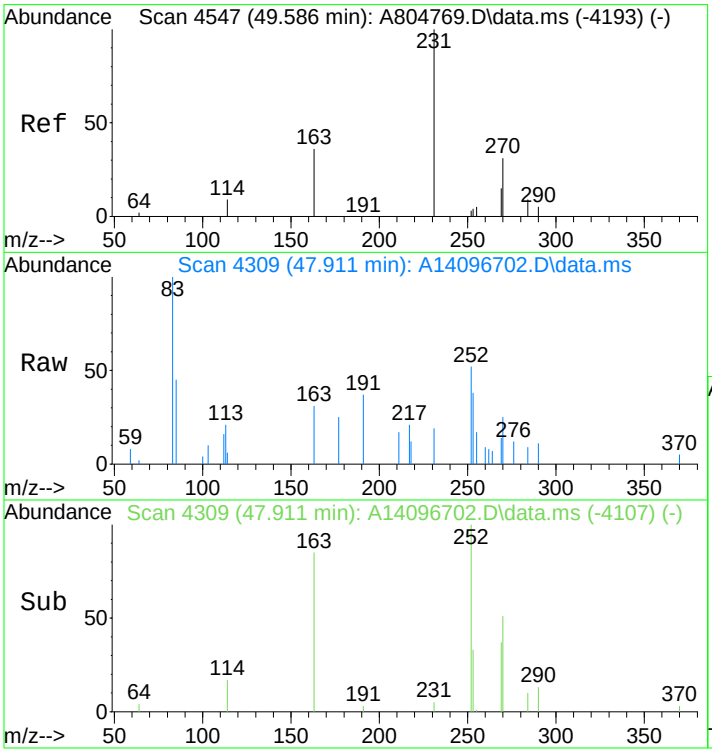


#79
C2-Chrysenes
Concen: 372.76 ng/mL m
RT: 46.237 min Scan# 4126
Delta R.T. -0.360 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:256 Resp: 89589

Ion	Ratio	Lower	Upper
256	100		
241	1.1	28.1	42.1#

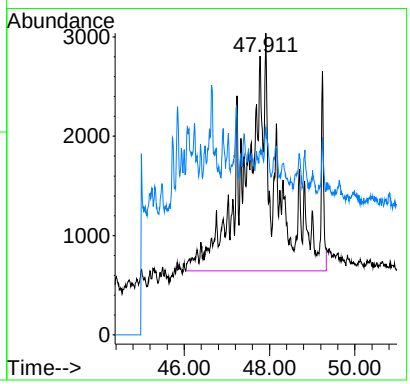


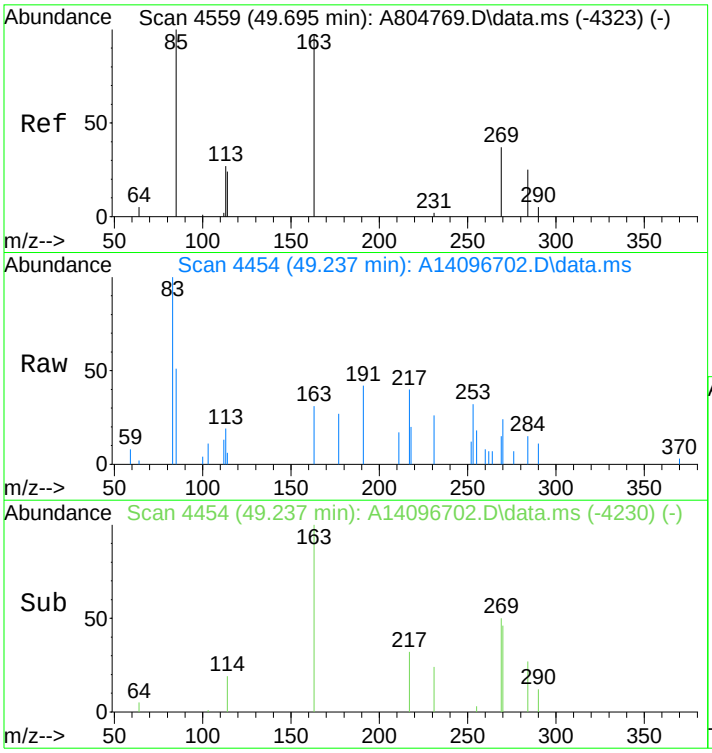


#80
C3-Chrysenes
Concen: 512.92 ng/mL m
RT: 47.911 min Scan# 4309
Delta R.T. -1.365 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:270 Resp: 123275

Ion	Ratio	Lower	Upper
270	100		
255	0.8	52.2	78.4#

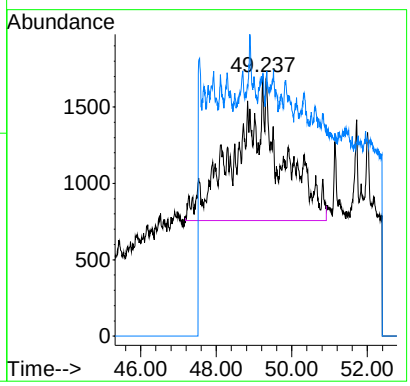


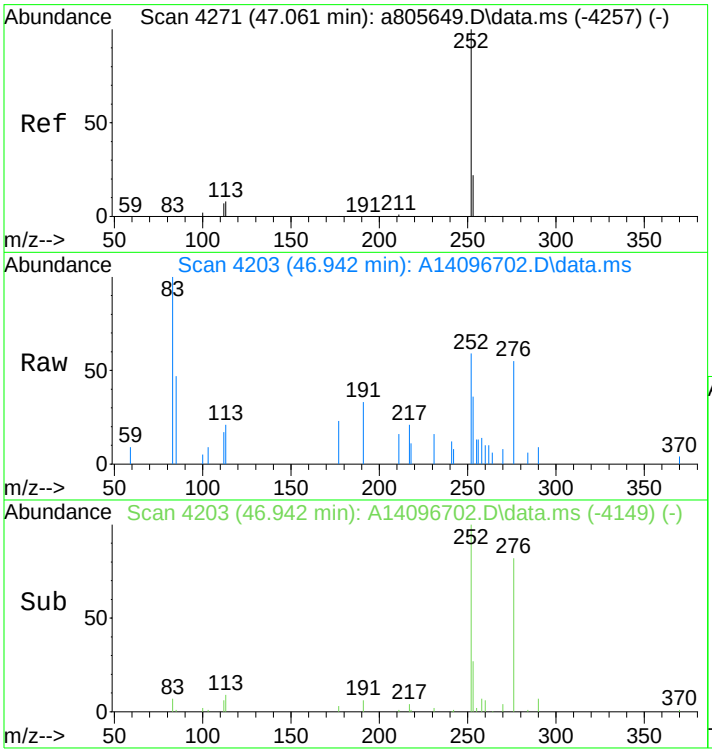


#81
C4-Chrysenes
Concen: 324.62 ng/mL m
RT: 49.237 min Scan# 4454
Delta R.T. -0.124 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:284 Resp: 78019

Ion	Ratio	Lower	Upper
284	100		
269	0.0	72.2	108.2#

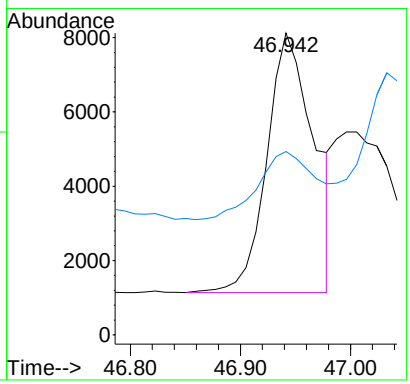


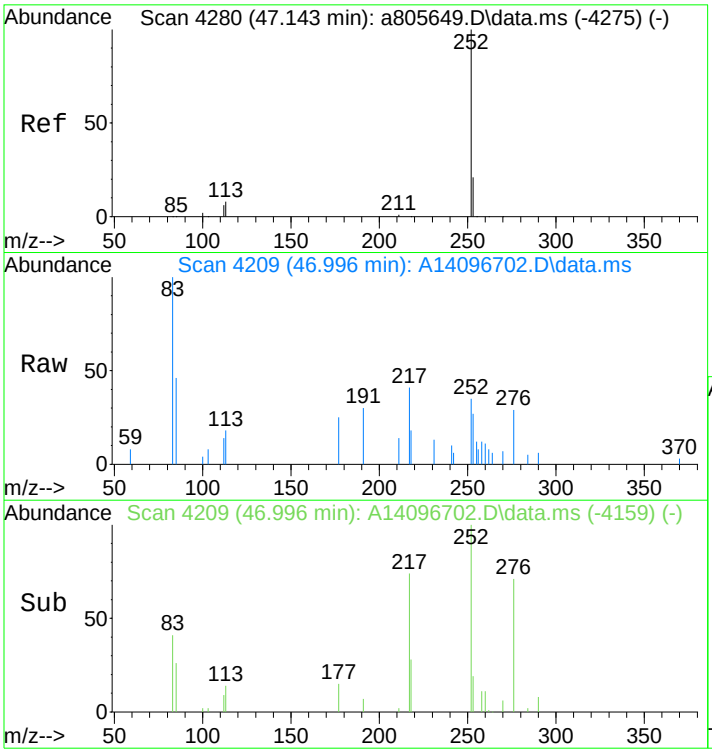


#82
Benzo[b]fluoranthene
Concen: 85.75 ng/mL
RT: 46.942 min Scan# 4203
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 20645

Ion	Ratio	Lower	Upper
252	100		
253	31.8	19.9	29.9#

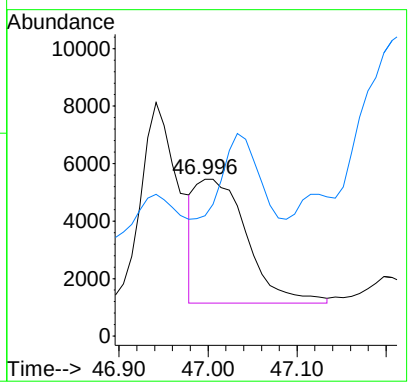


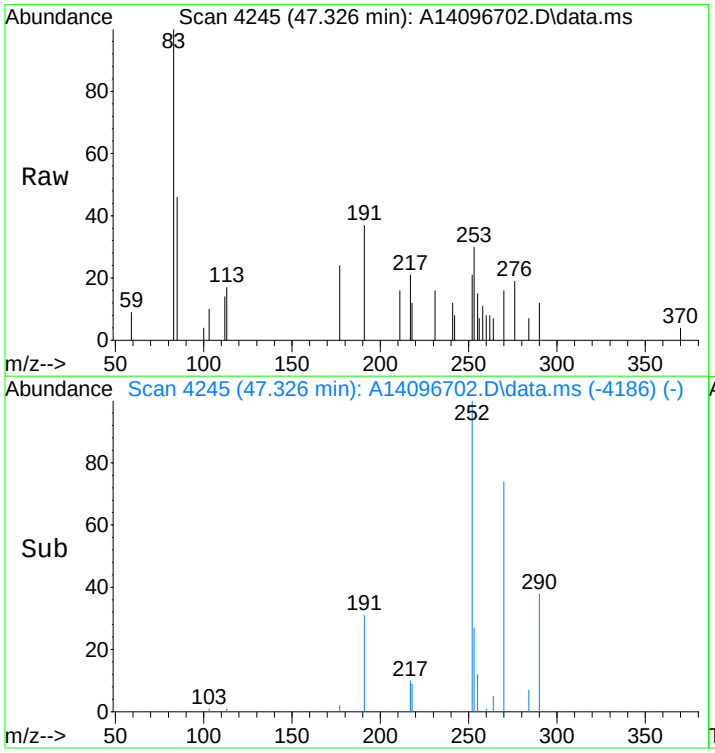


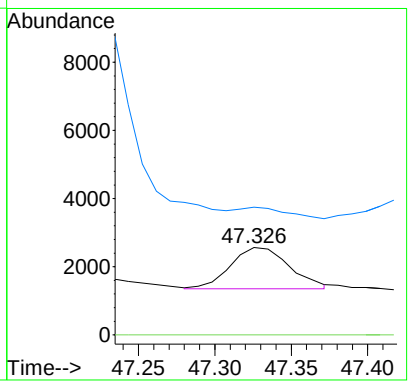
#83
Benzo[j]+[k]fluoranthene
Concen: 65.54 ng/mL m
RT: 46.996 min Scan# 4209
Delta R.T. -0.046 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 17427

Ion	Ratio	Lower	Upper
252	100		
253	37.6	20.1	30.1#



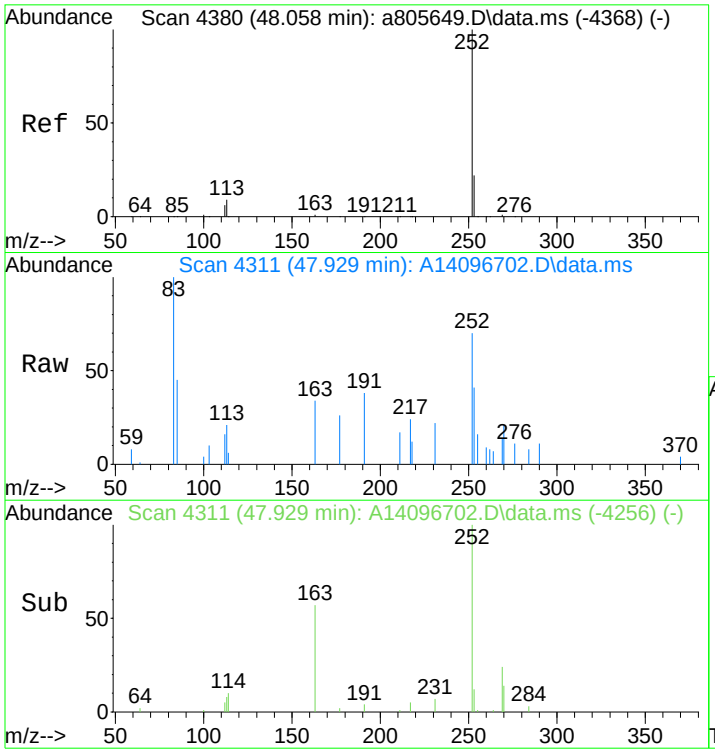


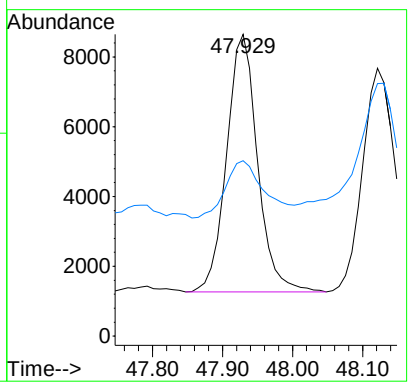


#84
Benzo[a]fluoranthene
Concen: 12.30 ng/mL m
RT: 47.326 min Scan# 4245
Delta R.T. 0.041 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 3272

Ion	Ratio	Lower	Upper
252	100		
253	966.9	338.4	507.6#
125	0.0	0.0	0.0

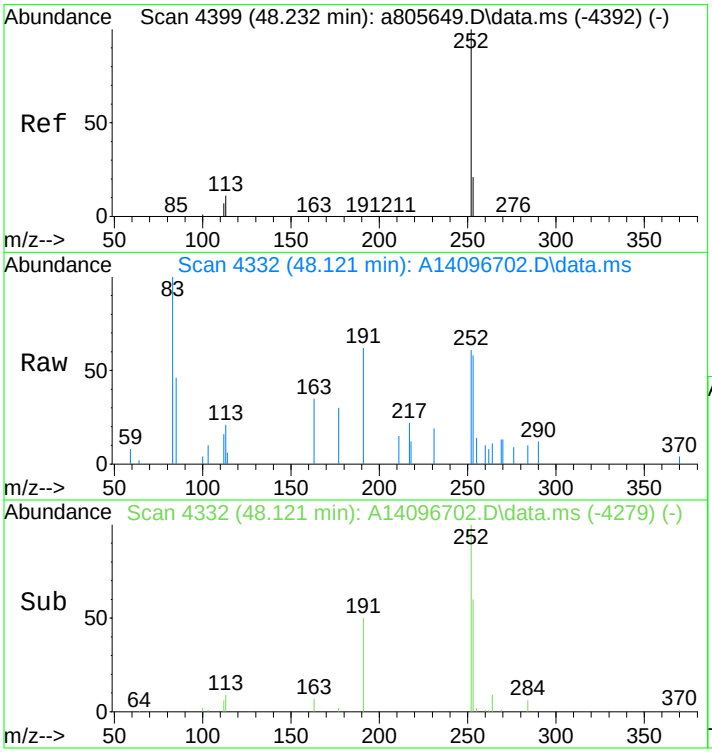




#85
Benzo[e]pyrene
Concen: 94.94 ng/mL
RT: 47.929 min Scan# 4311
Delta R.T. 0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 22662

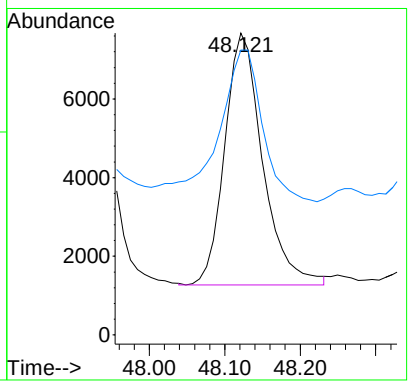
Ion	Ratio	Lower	Upper
252	100		
253	28.3	20.1	30.1

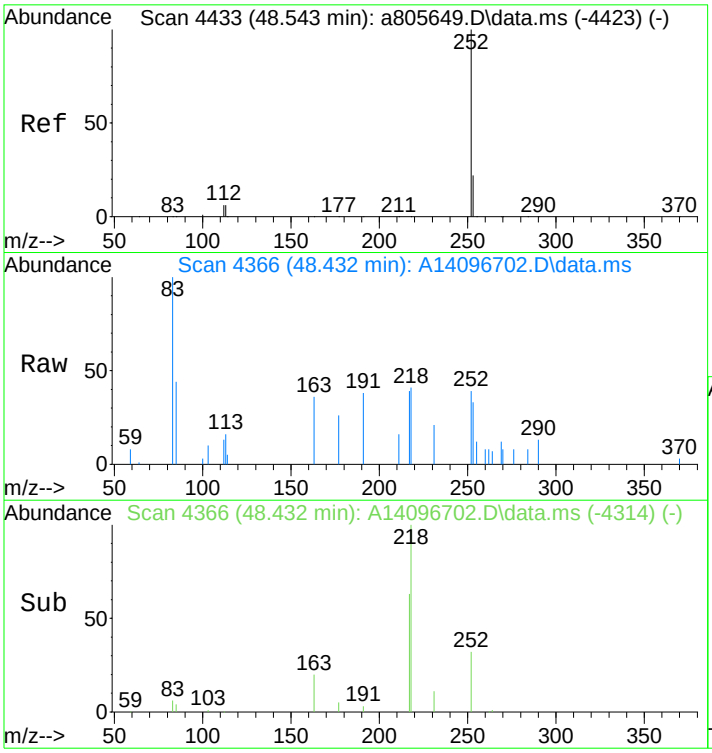


#87
Benzo[a]pyrene
Concen: 100.33 ng/mL m
RT: 48.121 min Scan# 4332
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 22396

Ion	Ratio	Lower	Upper
252	100		
253	28.6	23.0	34.4

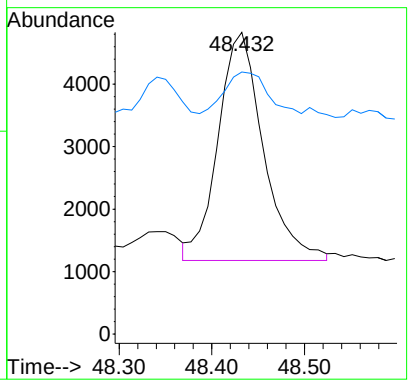


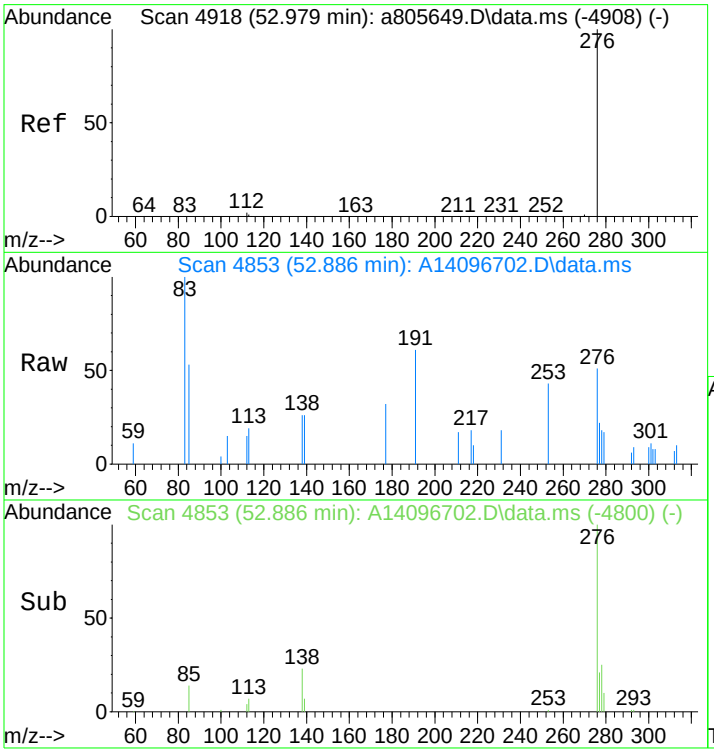


#88
Perylene
Concen: 51.14 ng/mL m
RT: 48.432 min Scan# 4366
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:252 Resp: 12375

Ion	Ratio	Lower	Upper
252	100		
253	18.7	23.3	34.9#

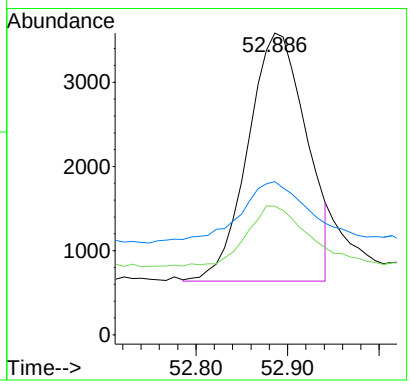


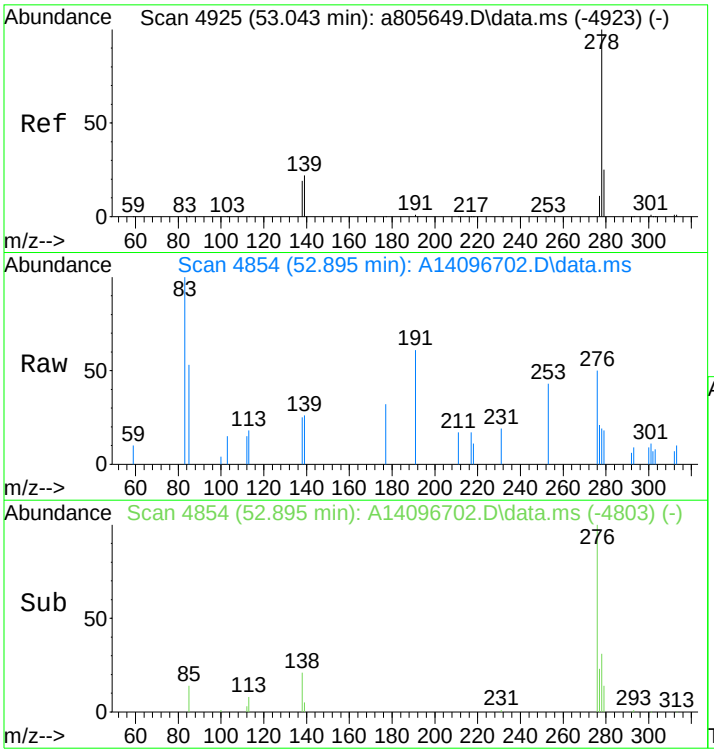


#89
Indeno[1,2,3-cd]pyrene
Concen: 46.84 ng/mL m
RT: 52.886 min Scan# 4853
Delta R.T. -0.018 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:276 Resp: 13077

Ion	Ratio	Lower	Upper
276	100		
138	25.9	23.2	34.8
277	23.9	19.8	29.8

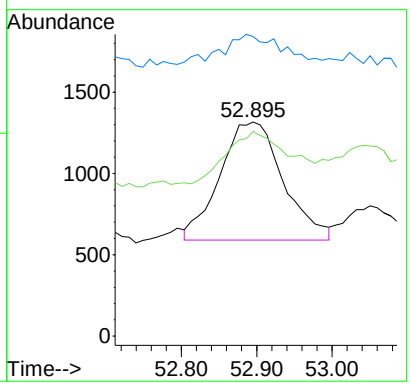


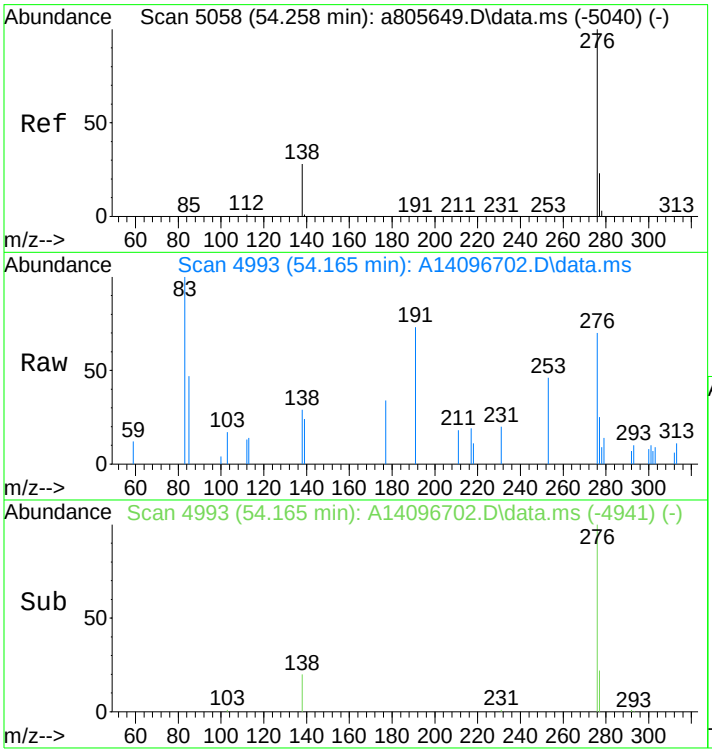


#90
Dibenz[ah]+[ac]anthracene
Concen: 16.13 ng/mL m
RT: 52.895 min Scan# 4854
Delta R.T. -0.037 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:278 Resp: 4232

Ion	Ratio	Lower	Upper
278	100		
139	24.3	16.1	24.1#
279	43.9	19.6	29.4#

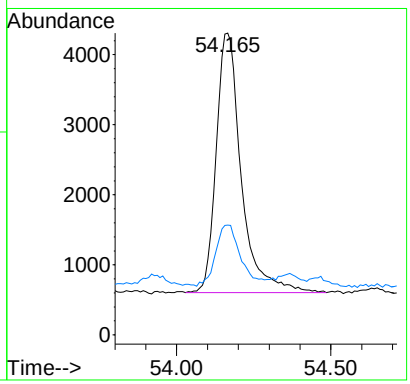


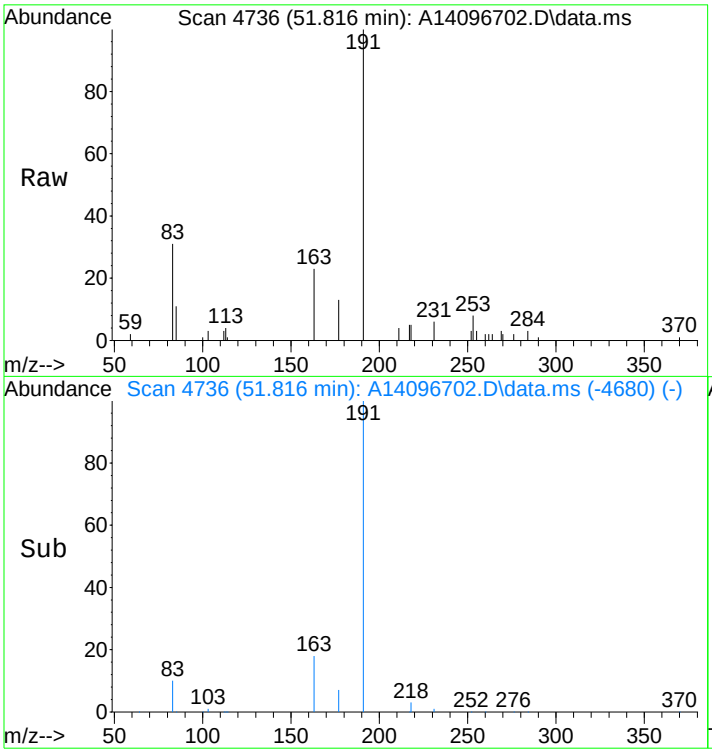


#91
Benzo[g,h,i]perylene
Concen: 78.01 ng/mL
RT: 54.165 min Scan# 4993
Delta R.T. -0.027 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:276 Resp: 20892

Ion	Ratio	Lower	Upper
276	100		
277	23.5	19.0	28.6

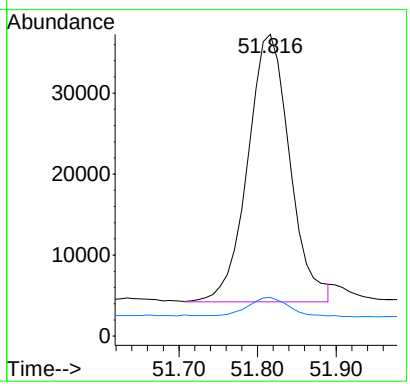


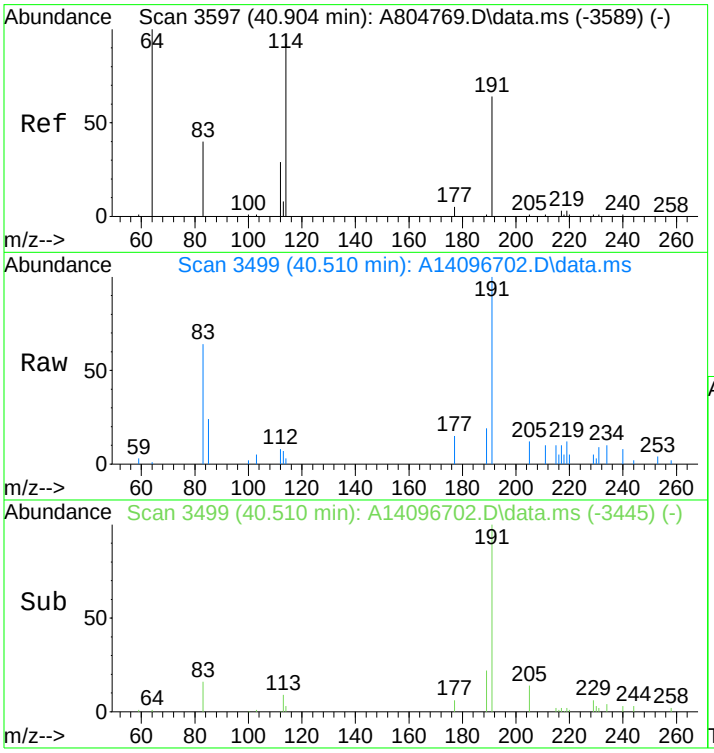


#92
Hopane (T19)
Concen: 1548.43 ng/mL m
RT: 51.816 min Scan# 4736
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:191 Resp: 123089

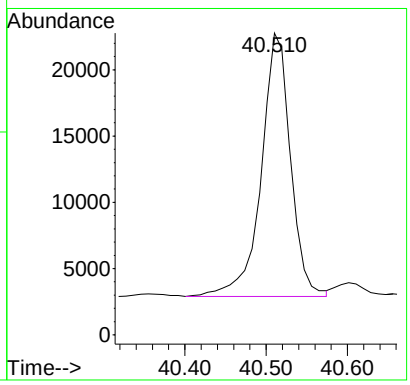
Ion	Ratio	Lower	Upper
191	100		
177	7.3	12.1	18.1#

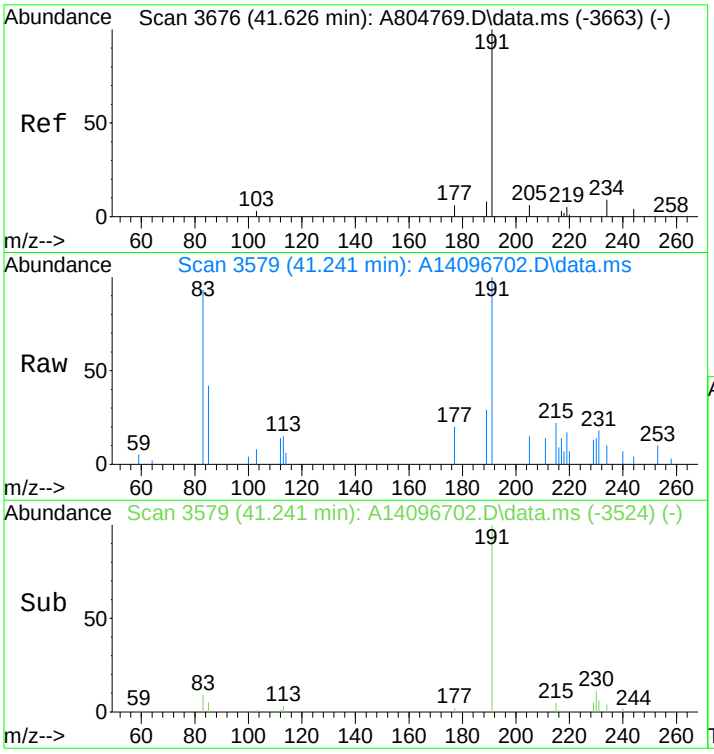




#94
C23 Tricyclic Terpane (T4)
Concen: 625.55 ng/ml
RT: 40.510 min Scan# 3499
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

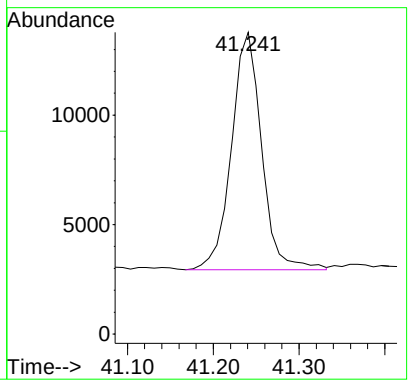
Tgt Ion:191 Resp: 49727

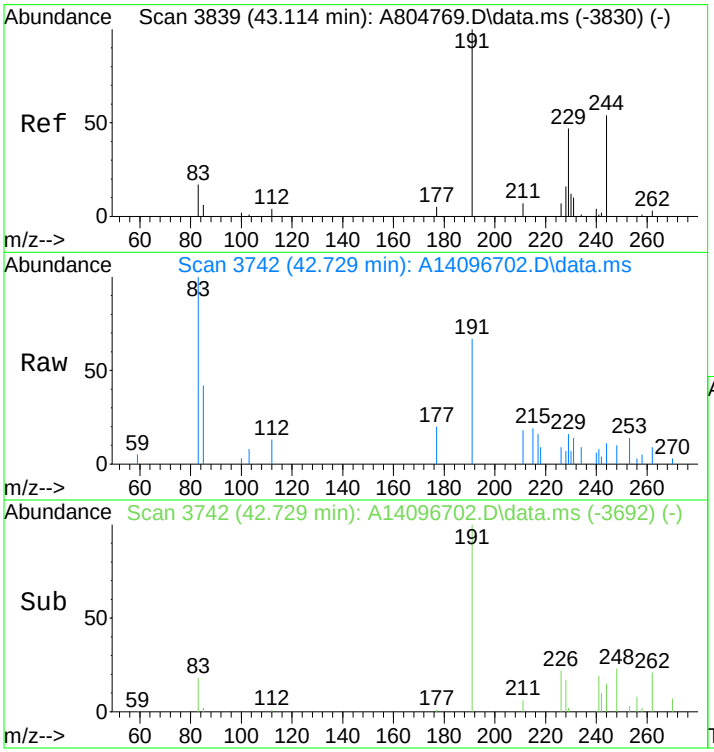




#95
C24 Tricyclic Terpane (T5)
Concen: 333.60 ng/ml
RT: 41.241 min Scan# 3579
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

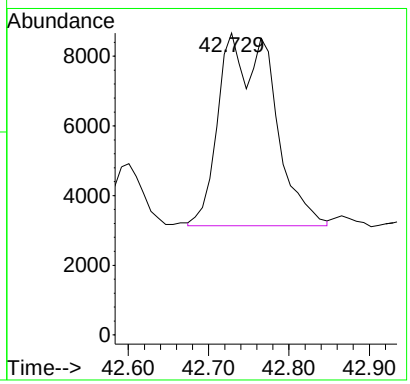
Tgt Ion:191 Resp: 26519

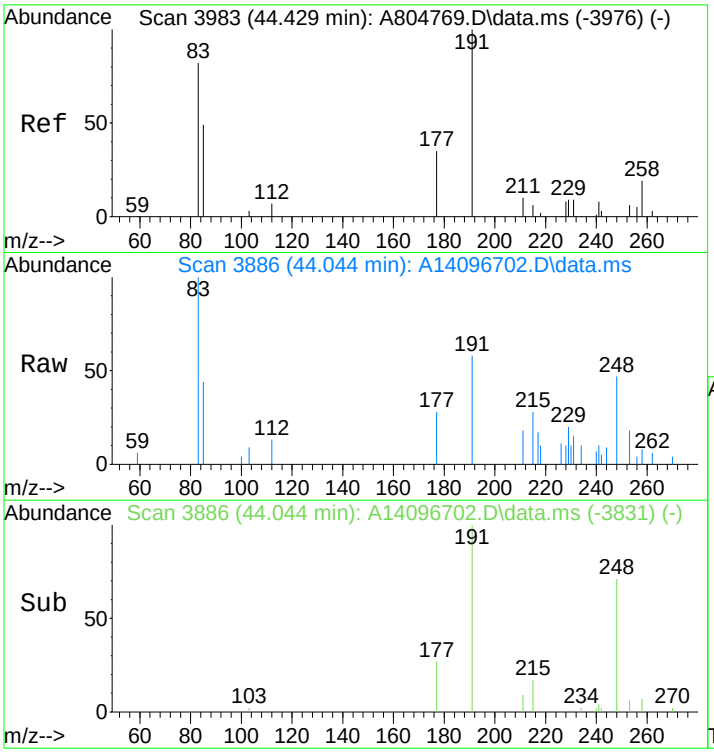




#96
C25 Tricyclic Terpane (T6)
Concen: 325.68 ng/ml m
RT: 42.729 min Scan# 3742
Delta R.T. -0.046 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

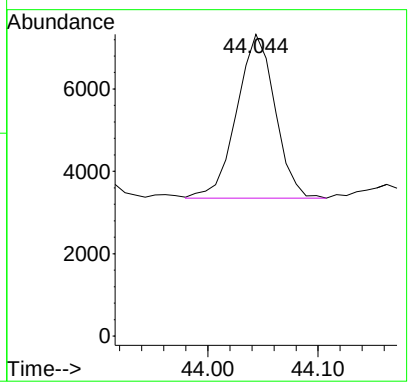
Tgt Ion:191 Resp: 25889

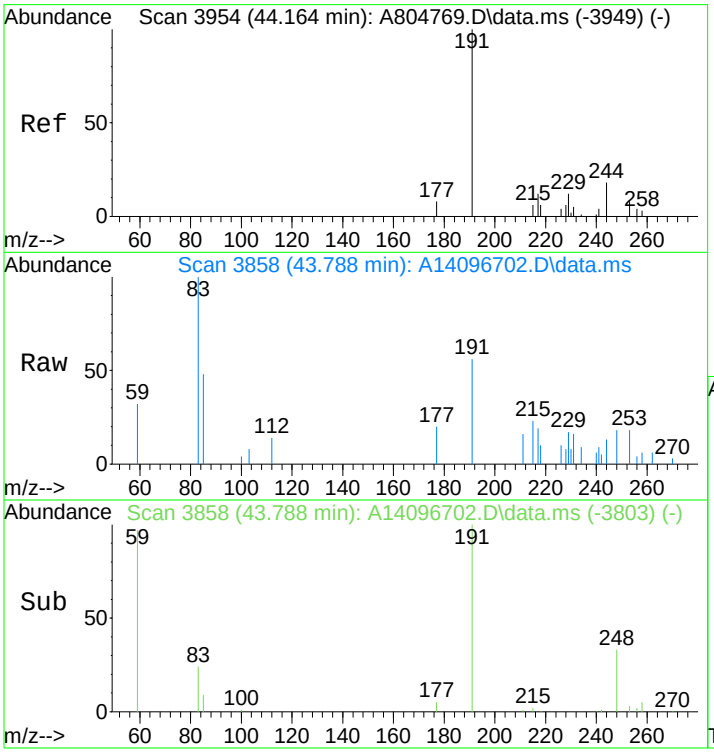




#97
C24 Tetracyclic Terpane (T6a)
Concen: 120.48 ng/ml
RT: 44.044 min Scan# 3886
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

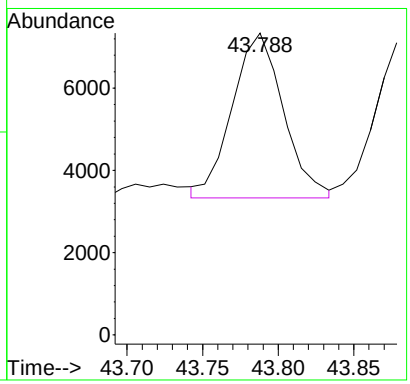
Tgt Ion:191 Resp: 9577

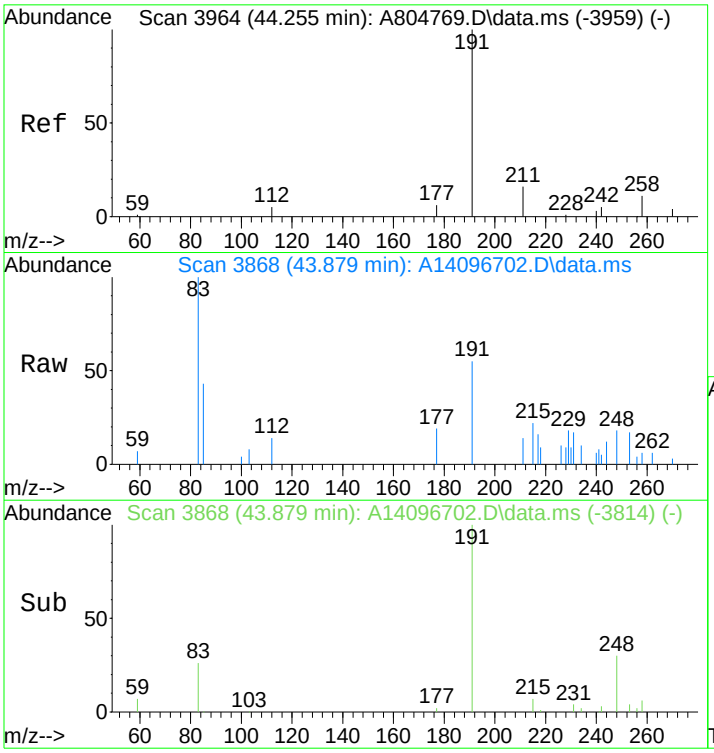




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 118.66 ng/ml m
RT: 43.788 min Scan# 3858
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

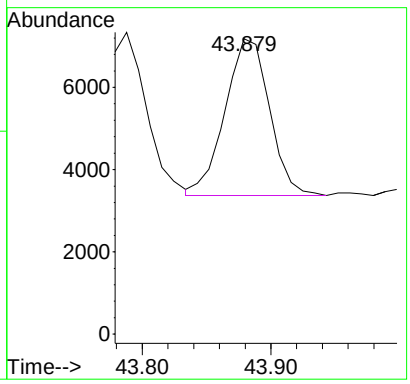
Tgt Ion:191 Resp: 9433

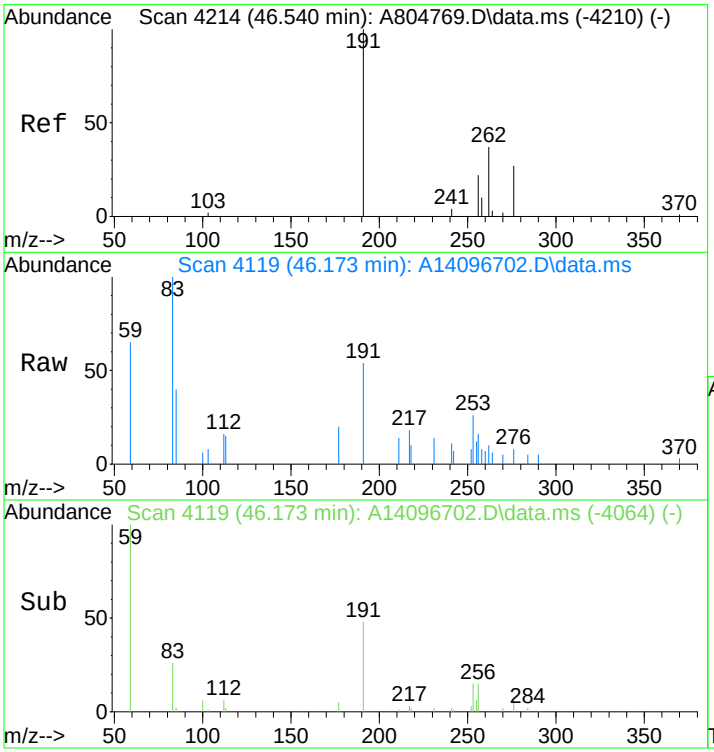




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 115.12 ng/ml
RT: 43.879 min Scan# 3868
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

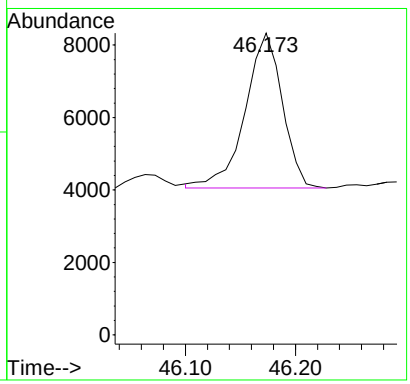
Tgt Ion:191 Resp: 9151

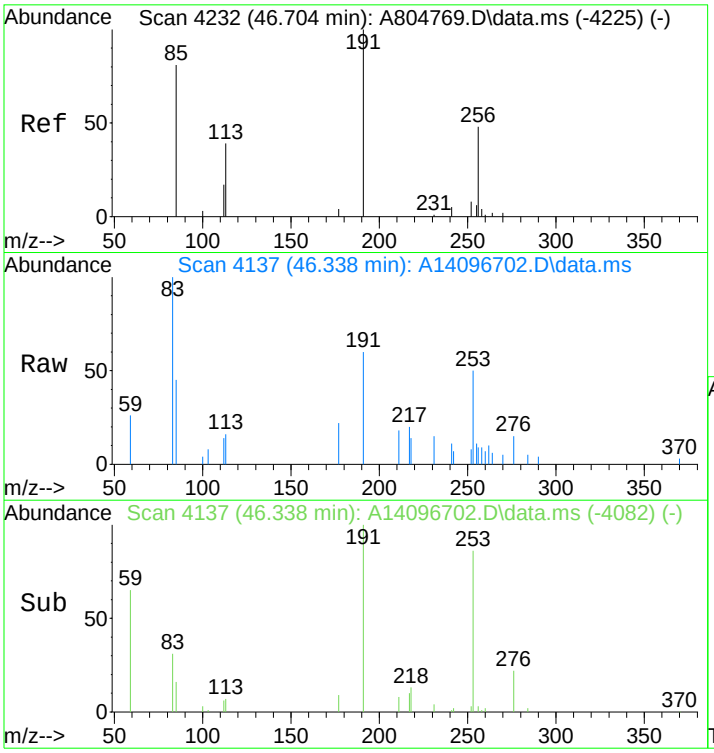




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 126.59 ng/ml
RT: 46.173 min Scan# 4119
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

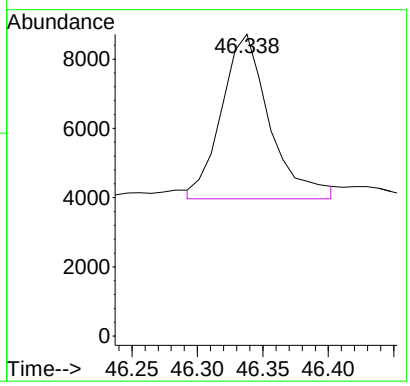
Tgt Ion:191 Resp: 10063

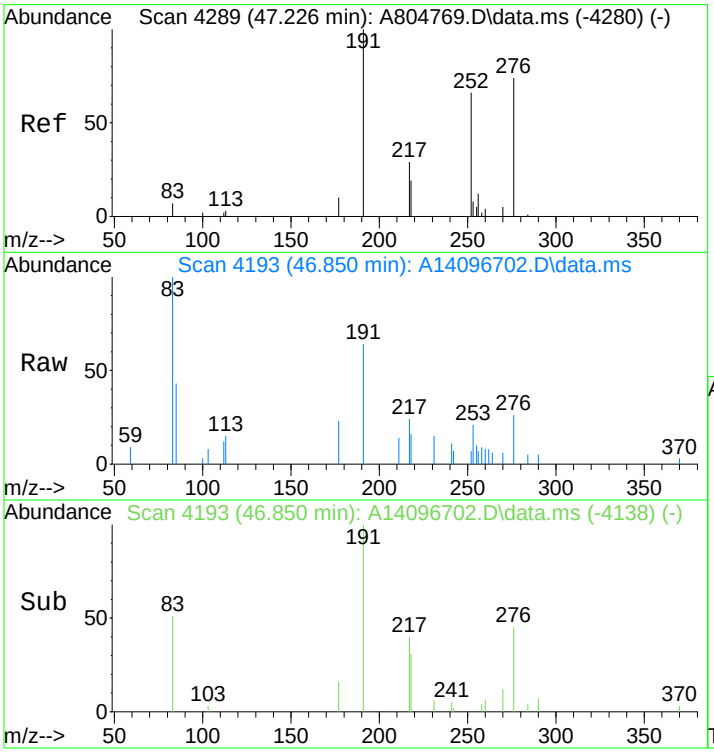




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 153.20 ng/ml m
RT: 46.338 min Scan# 4137
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

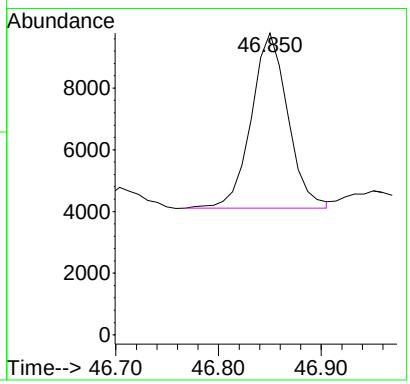
Tgt Ion:191 Resp: 12178

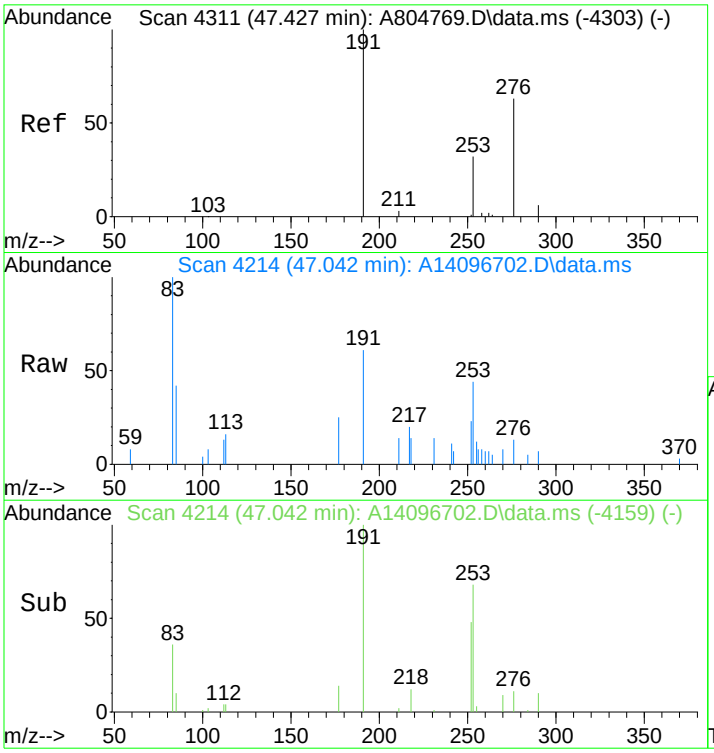




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 176.41 ng/ml
RT: 46.850 min Scan# 4193
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

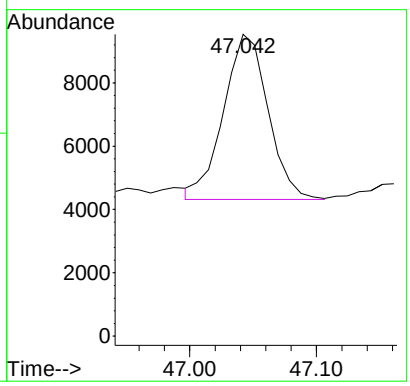
Tgt Ion:191 Resp: 14023

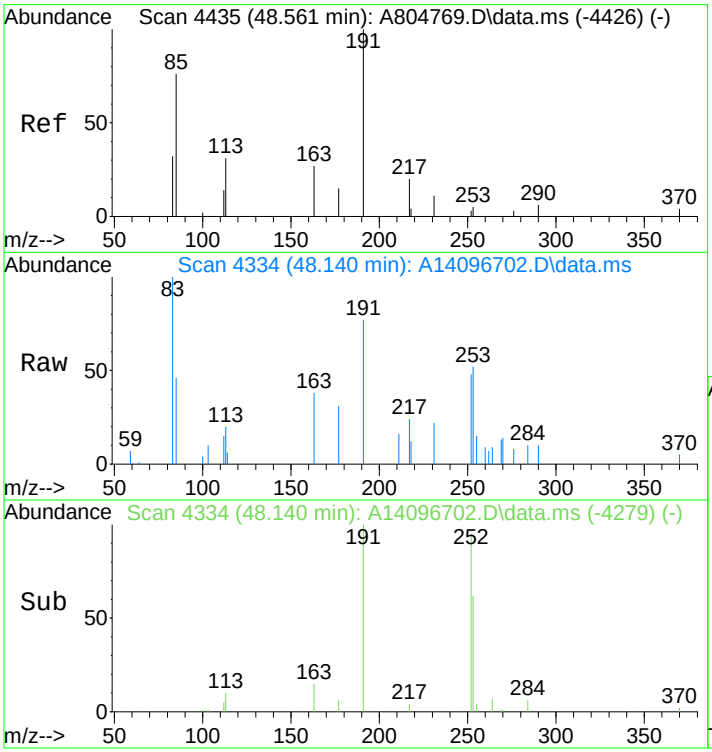




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 160.24 ng/ml m
RT: 47.042 min Scan# 4214
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

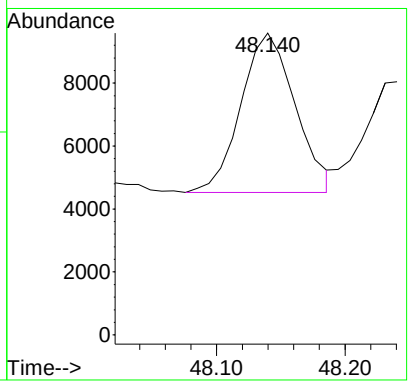
Tgt Ion:191 Resp: 12738

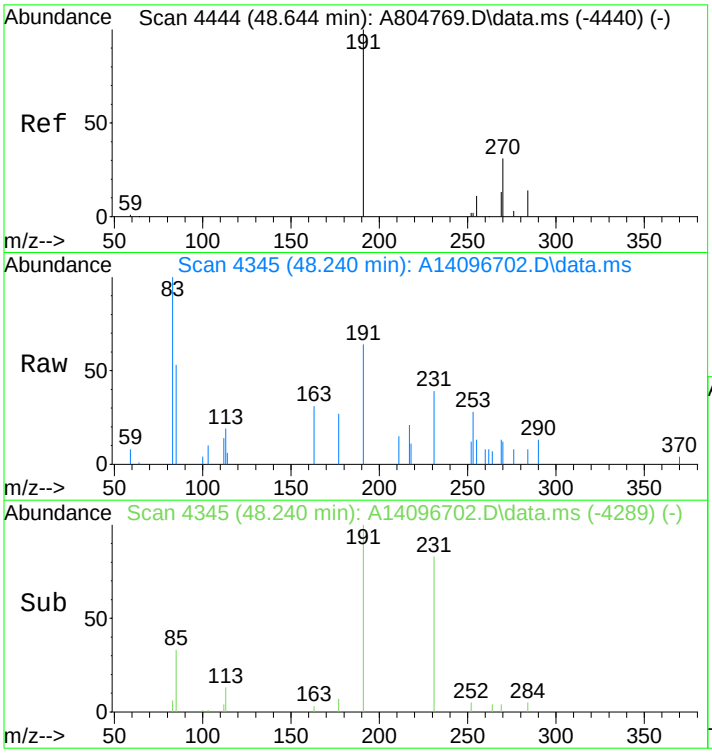




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 187.35 ng/ml
RT: 48.140 min Scan# 4334
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

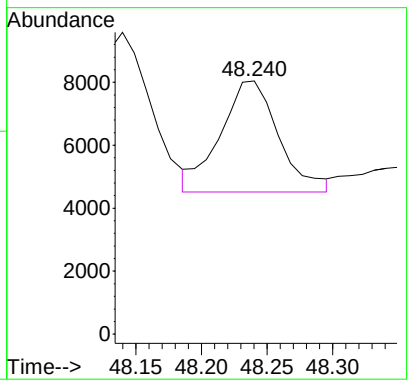
Tgt Ion:191 Resp: 14893

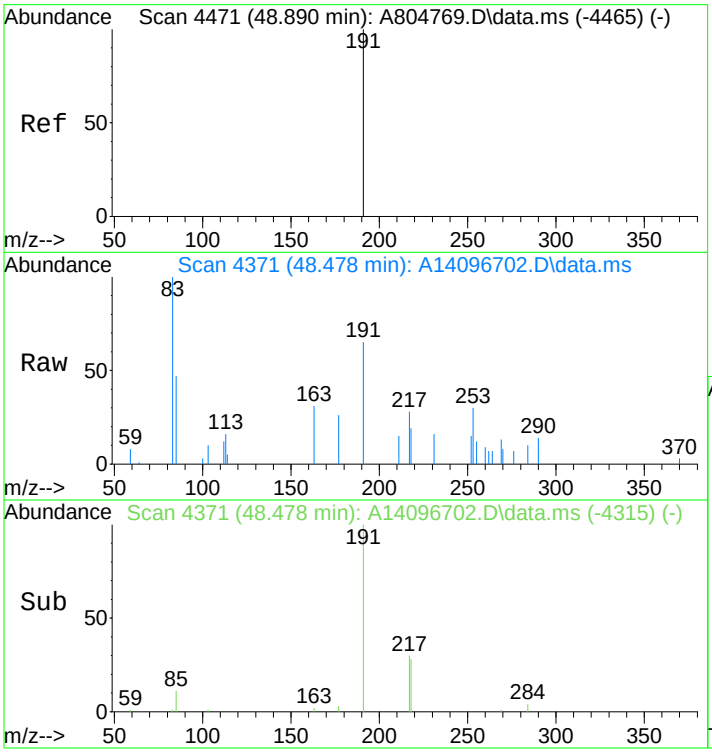




#105
C30 Tricyclic Terpane-22S
Concen: 137.13 ng/mL m
RT: 48.240 min Scan# 4345
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

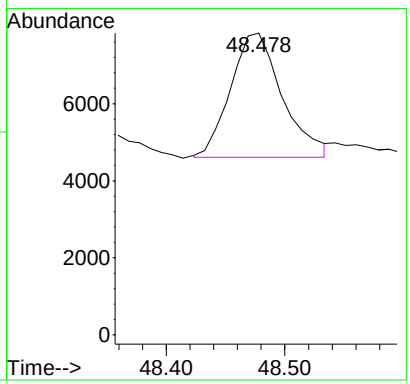
Tgt Ion:191 Resp: 10901

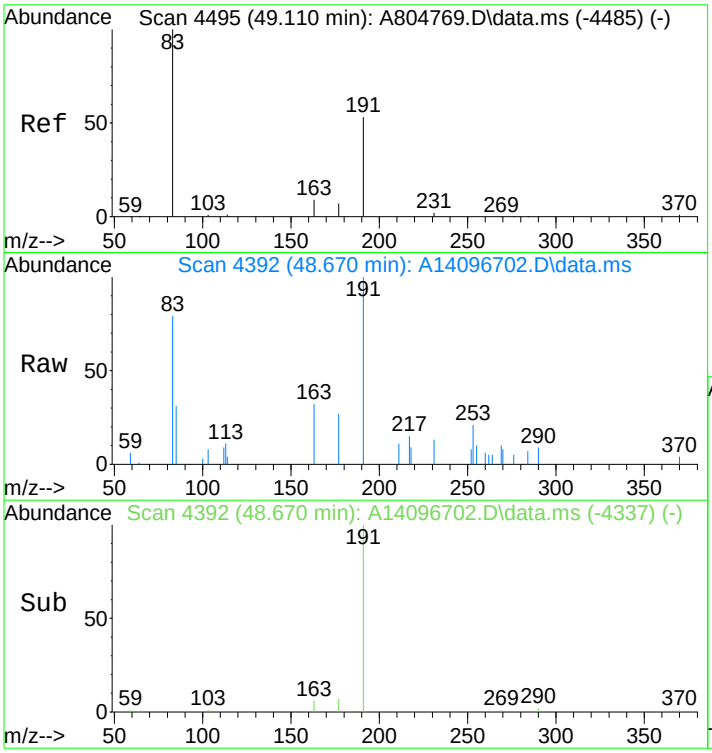




#106
C30 Tricyclic Terpane-22R
Concen: 123.58 ng/mL m
RT: 48.478 min Scan# 4371
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

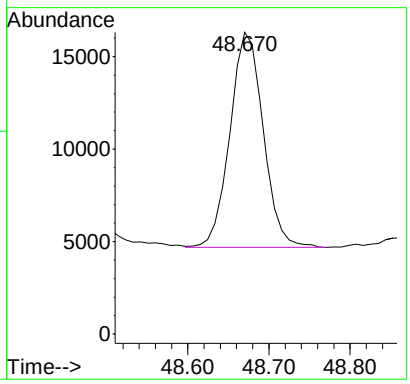
Tgt Ion:191 Resp: 9824

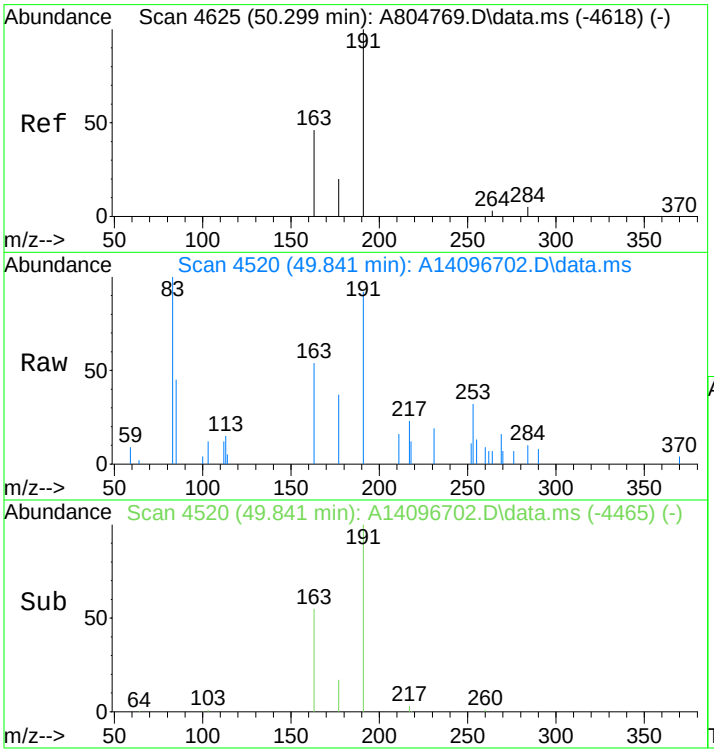




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 417.35 ng/ml
RT: 48.670 min Scan# 4392
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

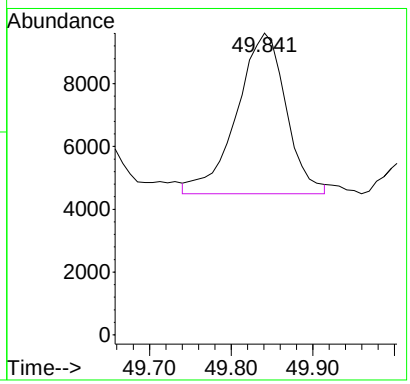
Tgt Ion:191 Resp: 33176

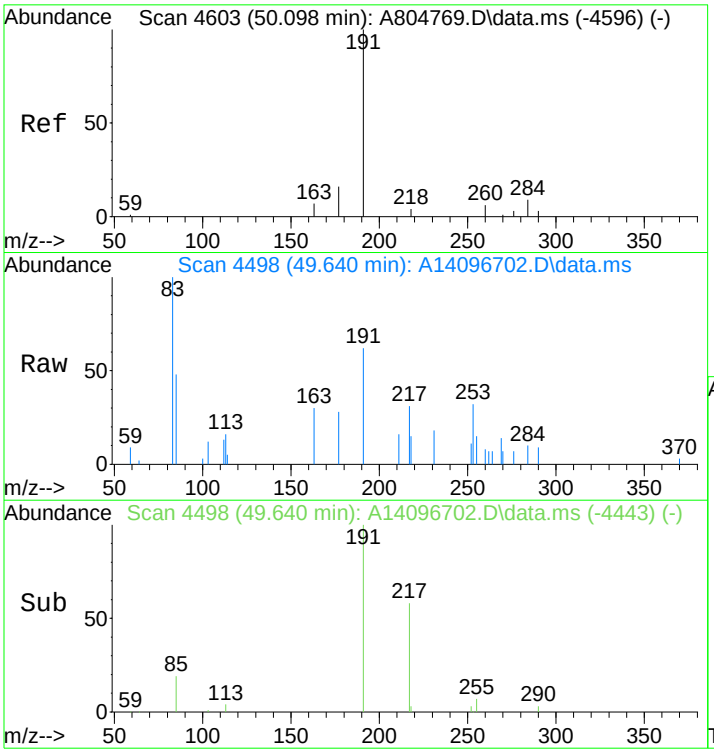




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 269.16 ng/ml m
RT: 49.841 min Scan# 4520
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

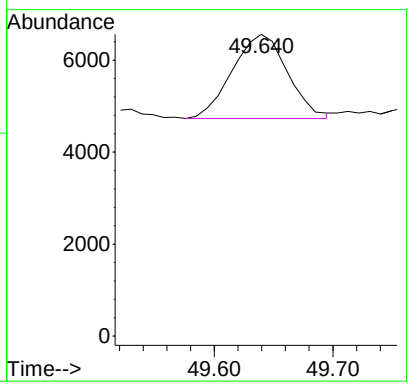
Tgt Ion:191 Resp: 21396

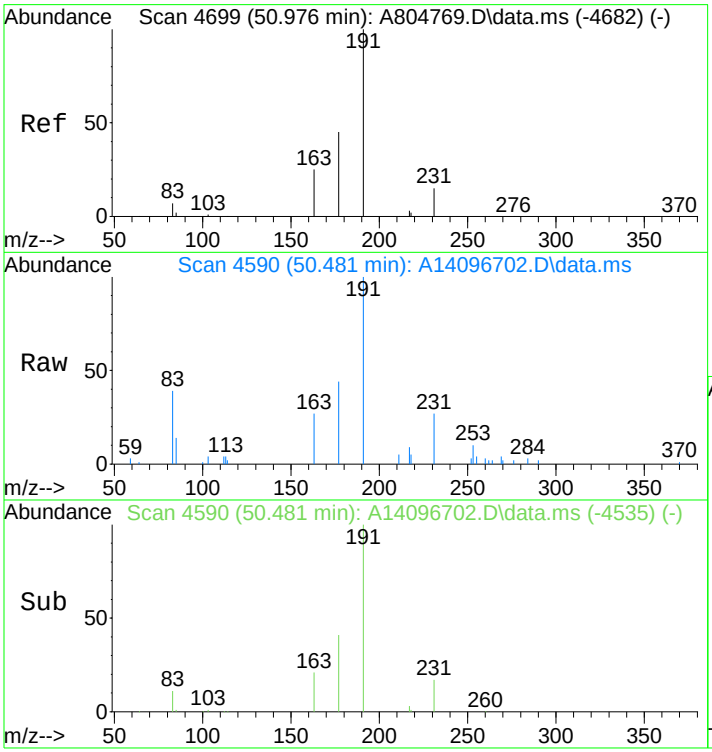




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 74.15 ng/ml
RT: 49.640 min Scan# 4498
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

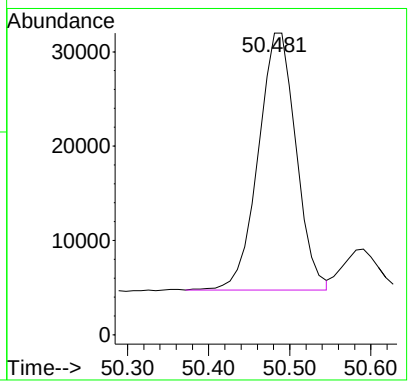
Tgt Ion:191 Resp: 5894

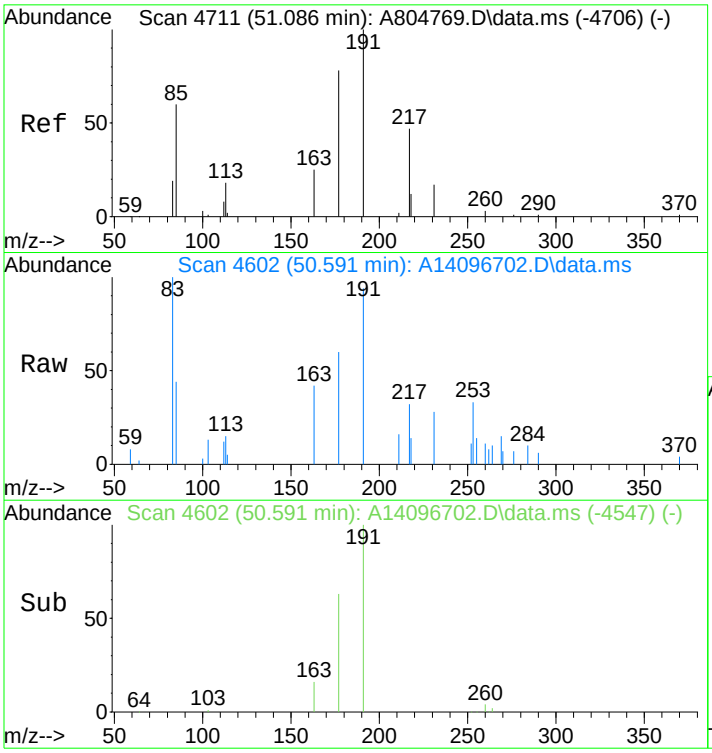




#110
30-Norhopane (T15)
Concen: 1108.18 ng/ml
RT: 50.481 min Scan# 4590
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

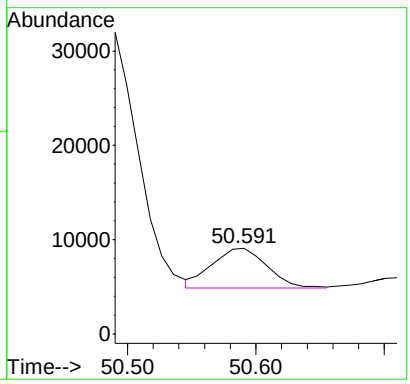
Tgt Ion:191 Resp: 88092

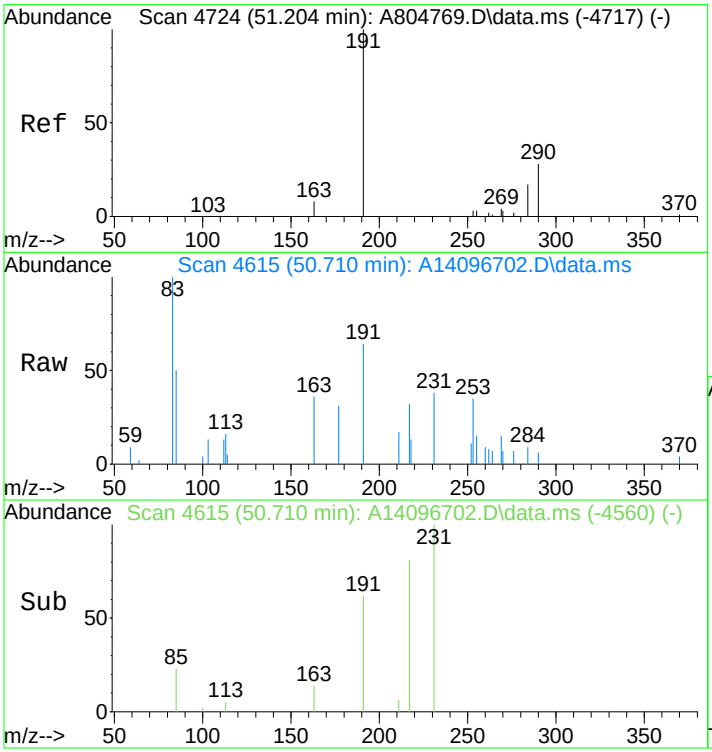




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 156.83 ng/ml
RT: 50.591 min Scan# 4602
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

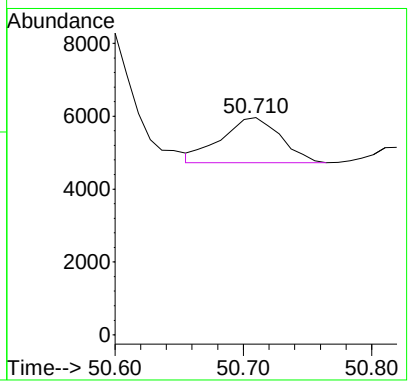
Tgt Ion:191 Resp: 12467

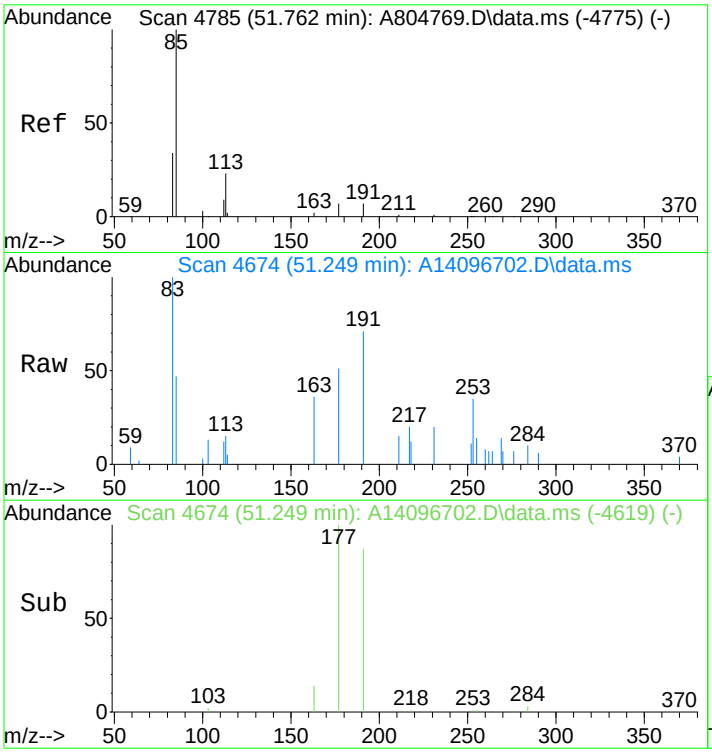




#112
17a(H)-Diahopane (X)
Concen: 50.21 ng/ml
RT: 50.710 min Scan# 4615
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

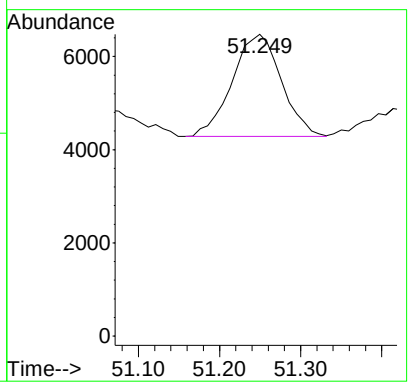
Tgt Ion:191 Resp: 3991

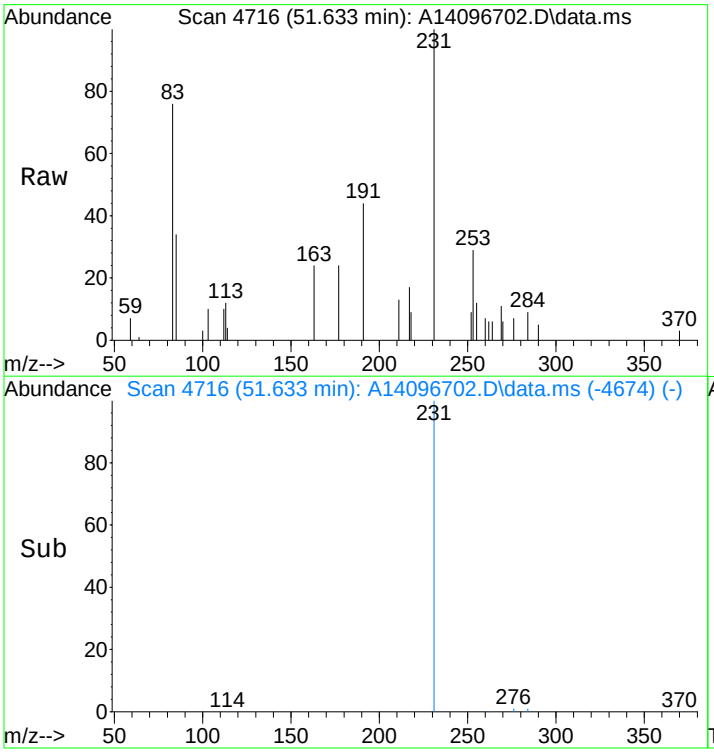




#113
30-Normoretane (T17)
Concen: 115.83 ng/ml
RT: 51.249 min Scan# 4674
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

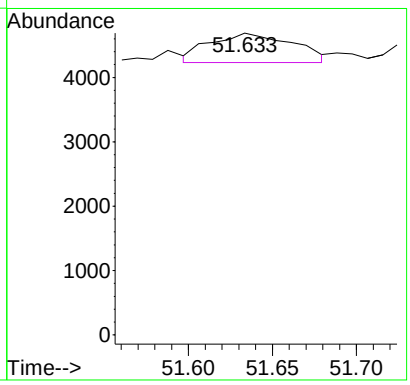
Tgt Ion:191 Resp: 9208

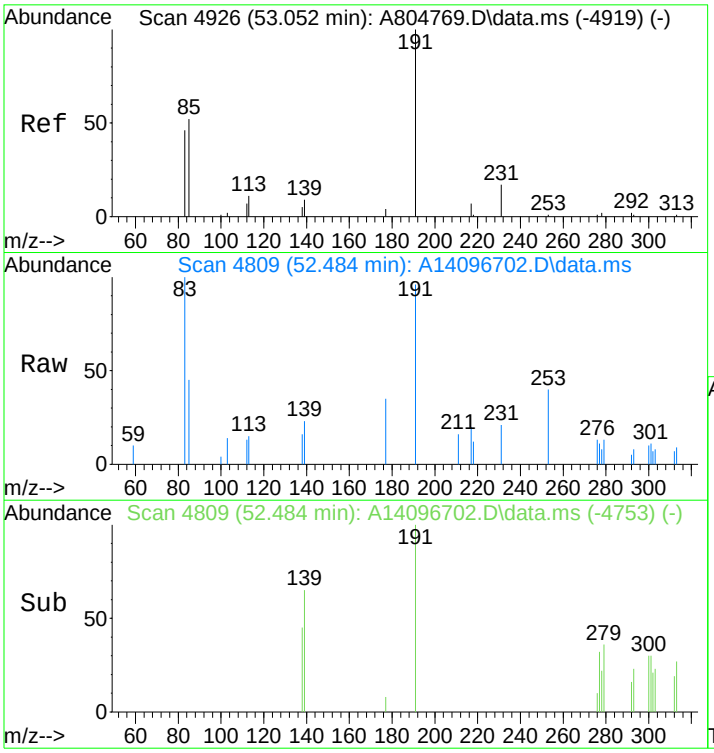




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 19.84 ng/ml m
RT: 51.633 min Scan# 4716
Delta R.T. -0.119 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

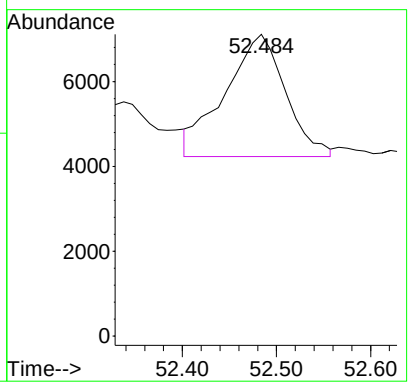
Tgt Ion:191 Resp: 1577

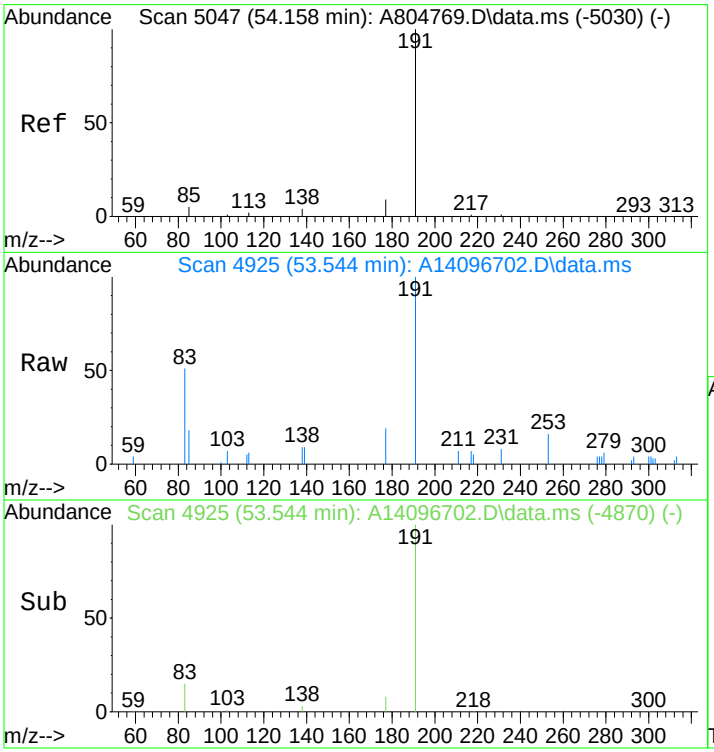




#115
Moretane (T20)
Concen: 161.69 ng/ml m
RT: 52.484 min Scan# 4809
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

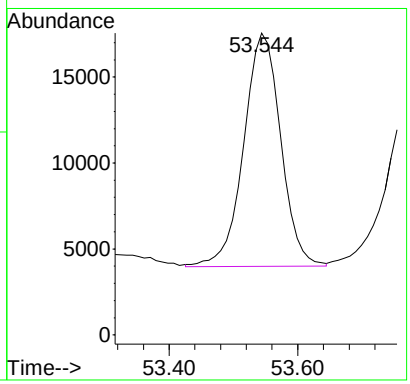
Tgt Ion:191 Resp: 12853

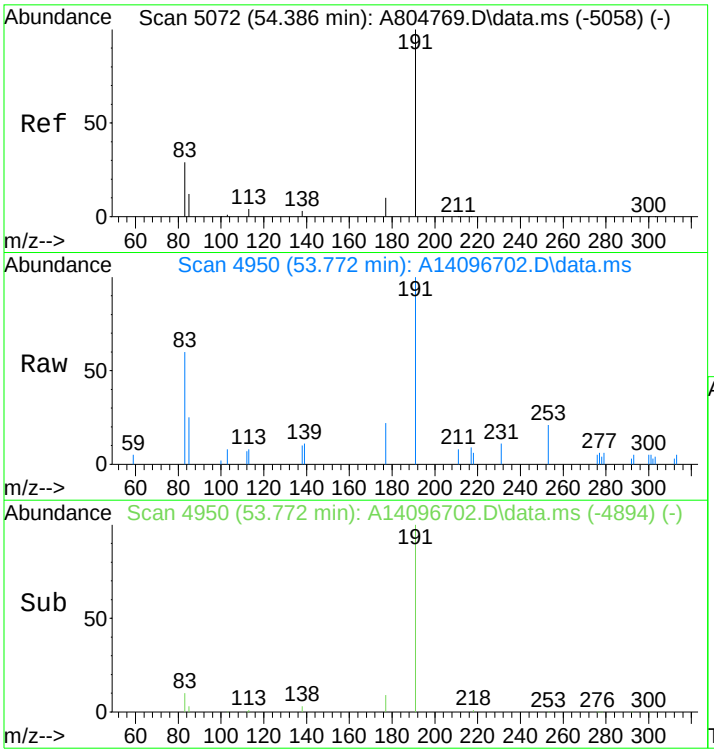




#116
30-Homohopane-22S (T21)
Concen: 683.09 ng/ml
RT: 53.544 min Scan# 4925
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

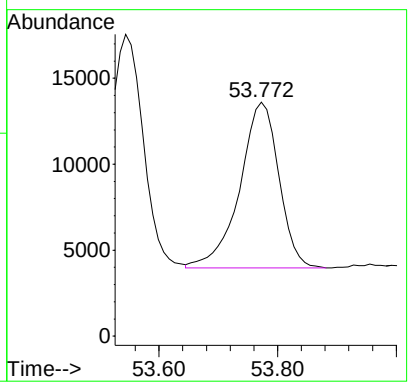
Tgt Ion:191 Resp: 54301

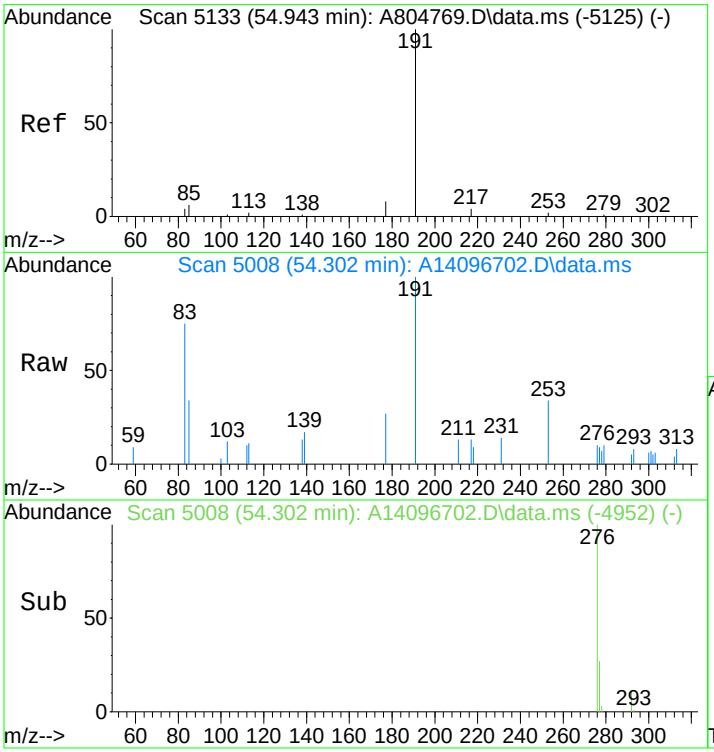




#117
30-Homohopane-22R (T22)
Concen: 553.87 ng/ml
RT: 53.772 min Scan# 4950
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

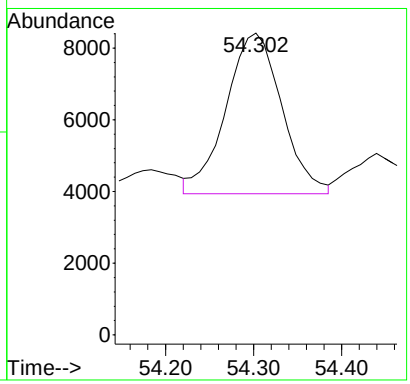
Tgt Ion:191 Resp: 44029

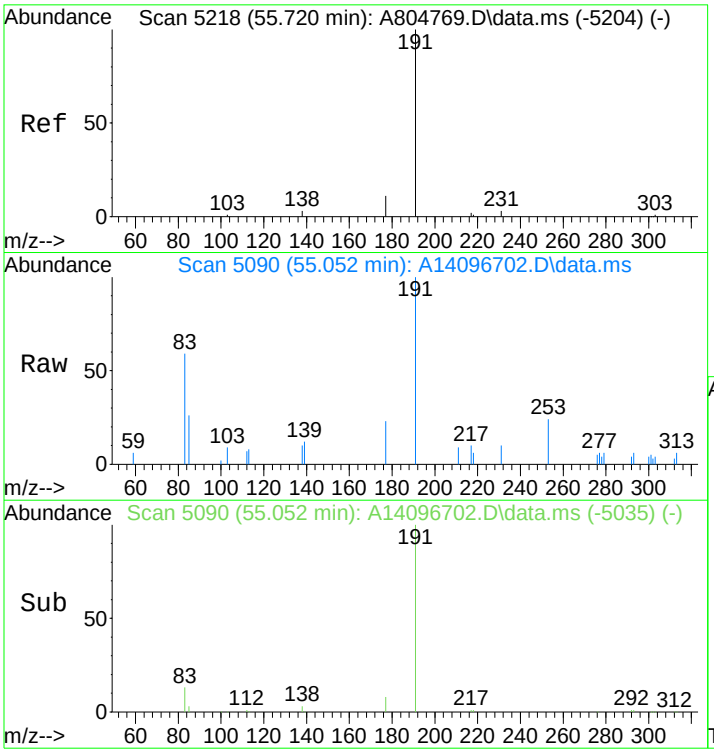




#118
Gammacerane/C32-diahopane
Concen: 247.57 ng/mL m
RT: 54.302 min Scan# 5008
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

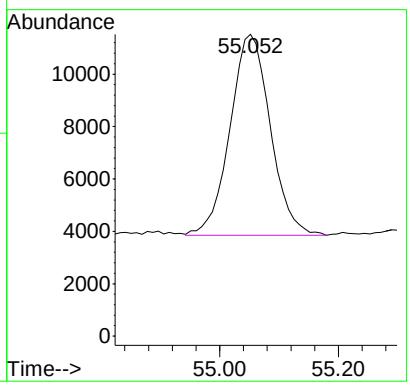
Tgt Ion:191 Resp: 19680

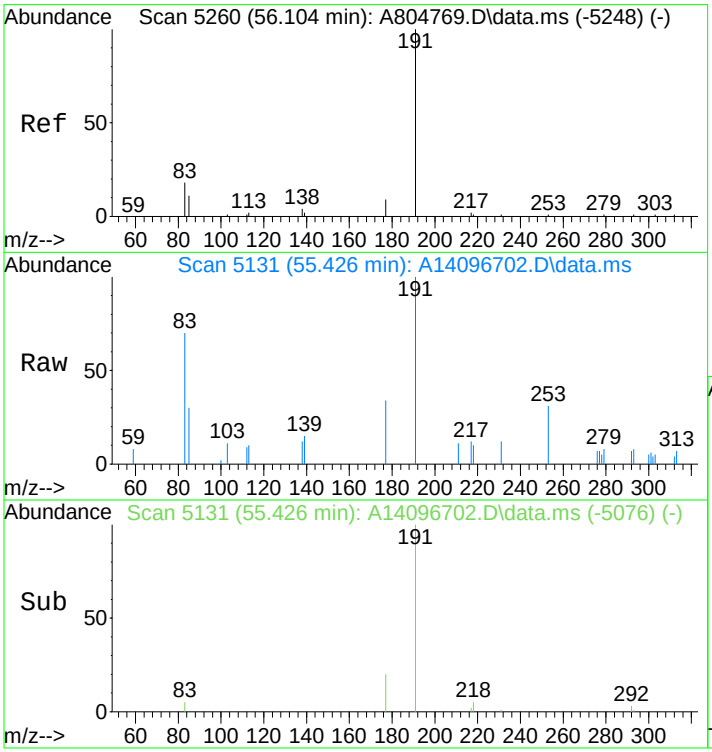




#119
30,31-Bishomohopane-22S (T26)
Concen: 453.21 ng/ml
RT: 55.052 min Scan# 5090
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

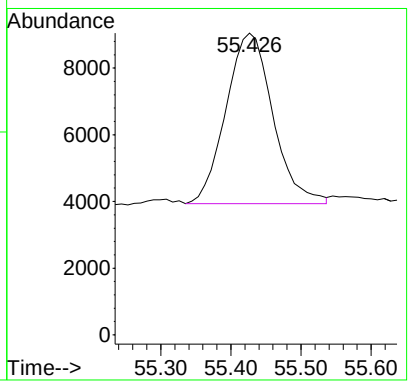
Tgt Ion:191 Resp: 36027

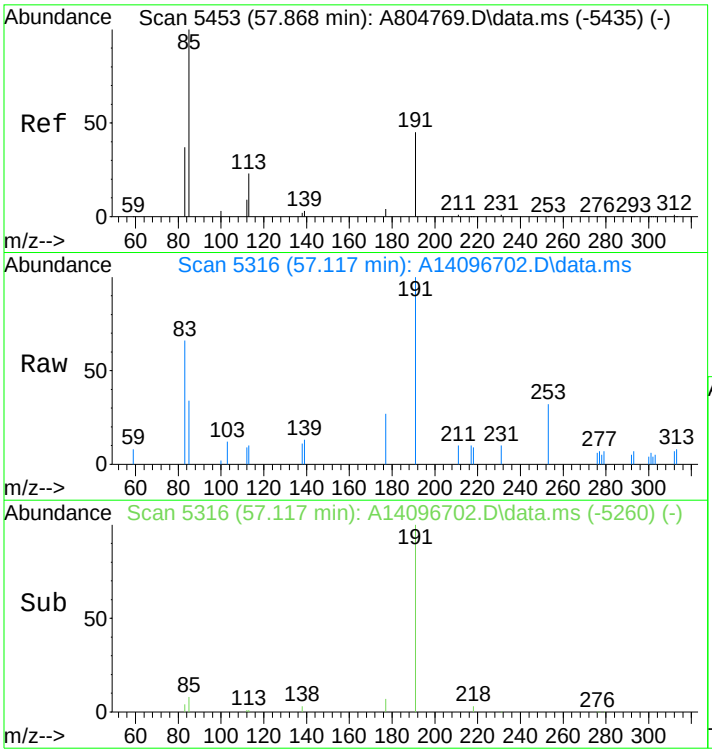




#120
30,31-Bishomohopane-22R (T27)
Concen: 300.30 ng/ml
RT: 55.426 min Scan# 5131
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

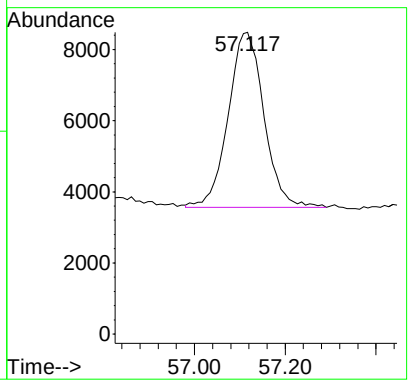
Tgt Ion:191 Resp: 23872

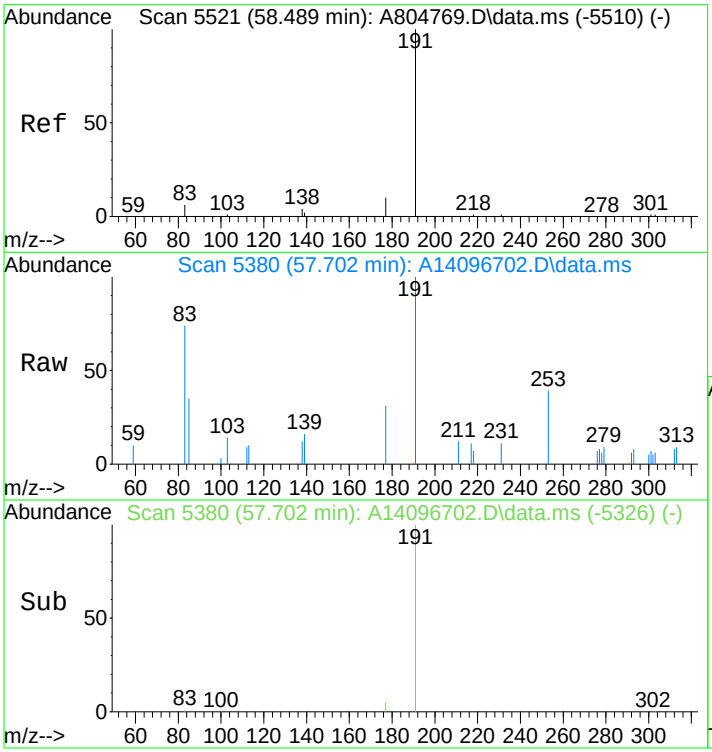




#121
30,31-Trishomohopane-22S (T30)
Concen: 338.01 ng/ml
RT: 57.117 min Scan# 5316
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

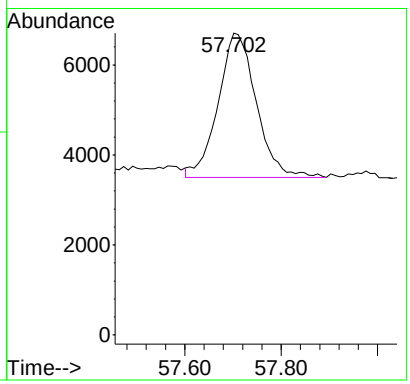
Tgt Ion:191 Resp: 26869

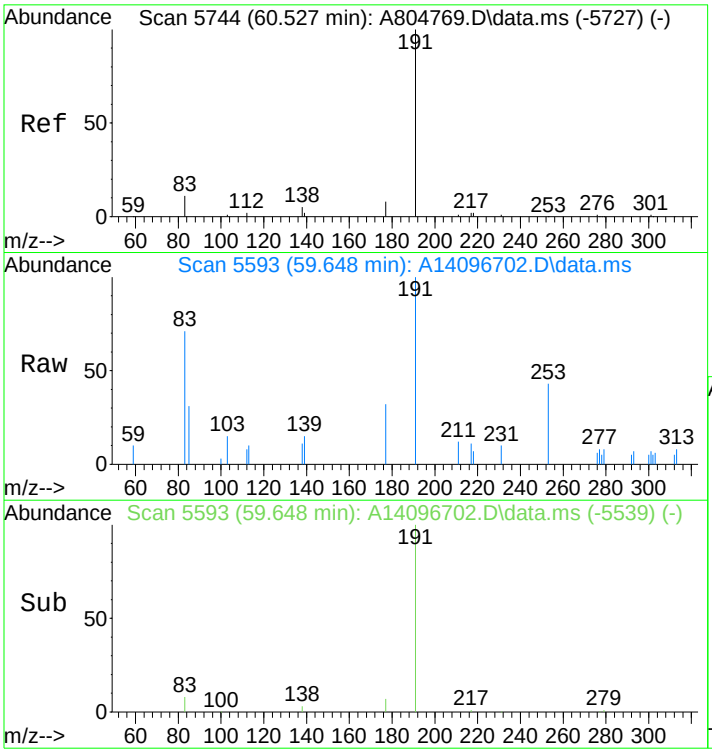




#122
30,31-Trishomohopane-22R (T31)
Concen: 220.25 ng/ml
RT: 57.702 min Scan# 5380
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

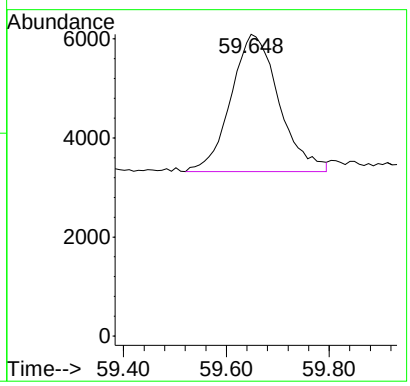
Tgt Ion:191 Resp: 17508

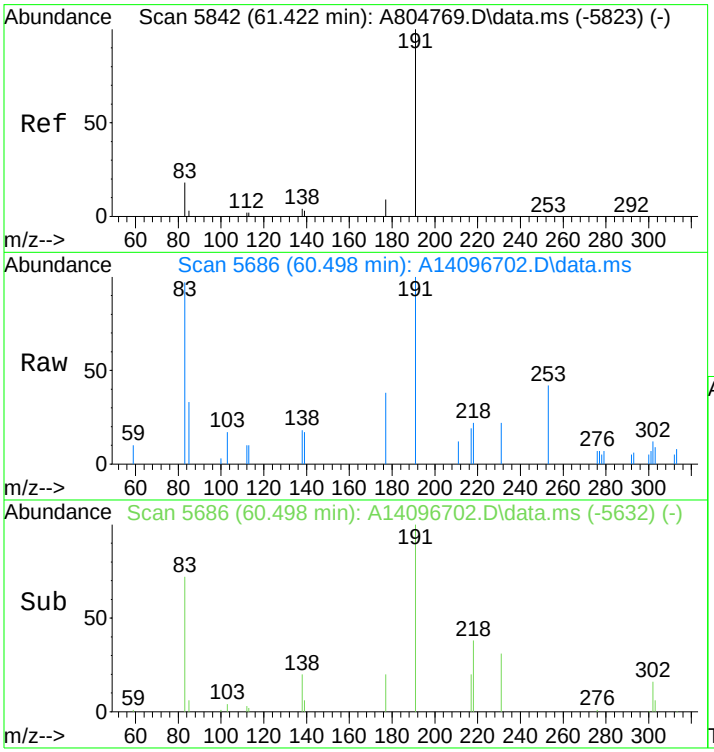




#123
Tetrakishomohopane-22S (T32)
Concen: 226.76 ng/ml
RT: 59.648 min Scan# 5593
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

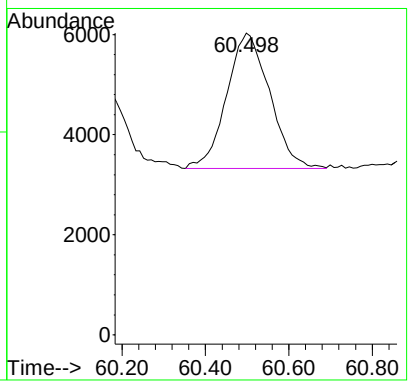
Tgt Ion:191 Resp: 18026

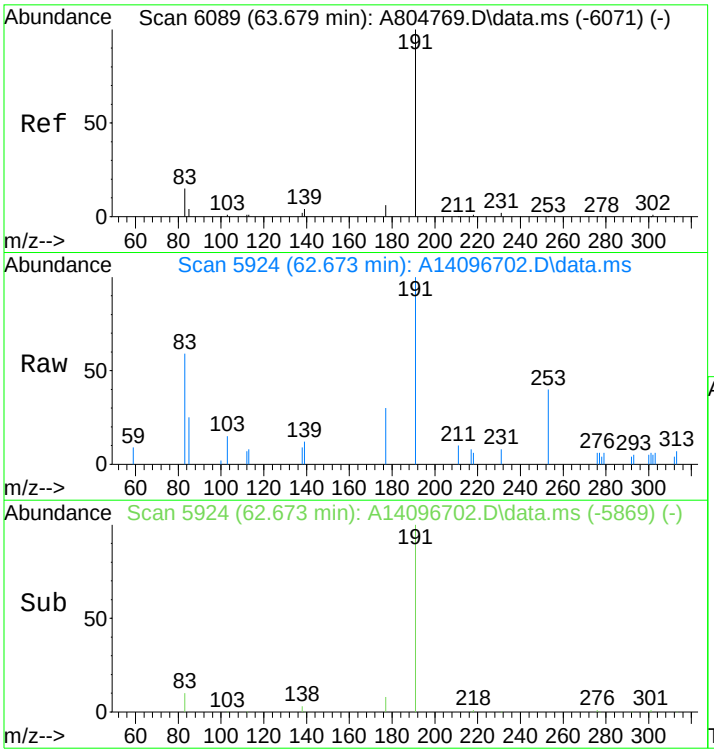




#124
Tetrakishomohopane-22R (T33)
Concen: 243.73 ng/ml
RT: 60.498 min Scan# 5686
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

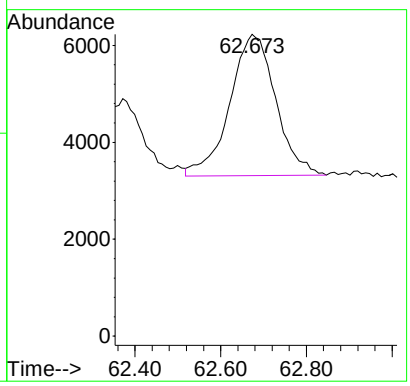
Tgt Ion:191 Resp: 19375

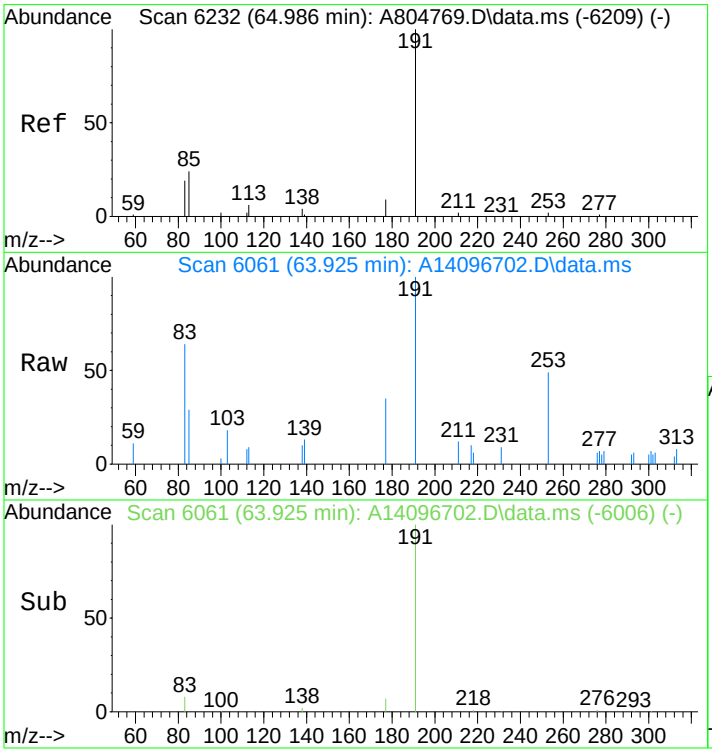




#125
Pentakishomohopane-22S (T34)
Concen: 271.92 ng/ml
RT: 62.673 min Scan# 5924
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

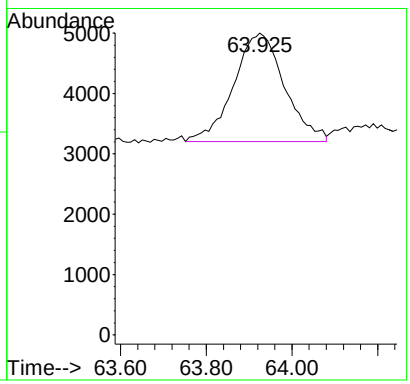
Tgt Ion:191 Resp: 21616

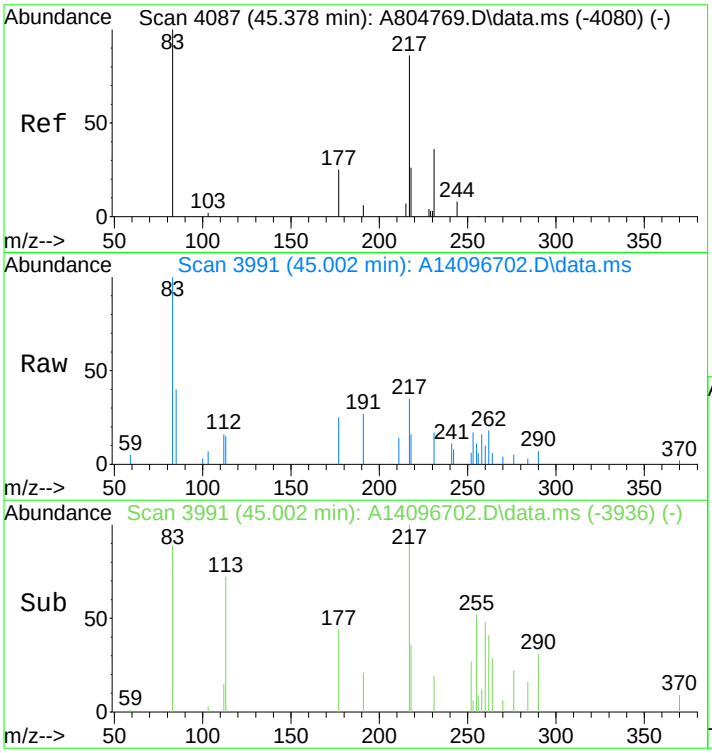




#126
Pentakishomohopane-22R (T35)
Concen: 186.77 ng/ml
RT: 63.925 min Scan# 6061
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

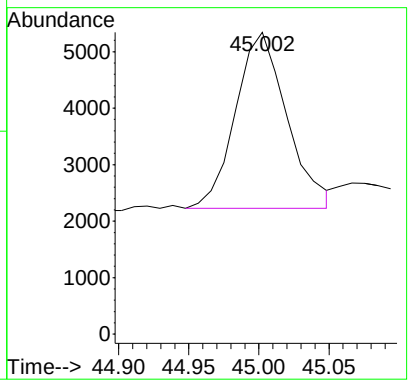
Tgt Ion:191 Resp: 14847

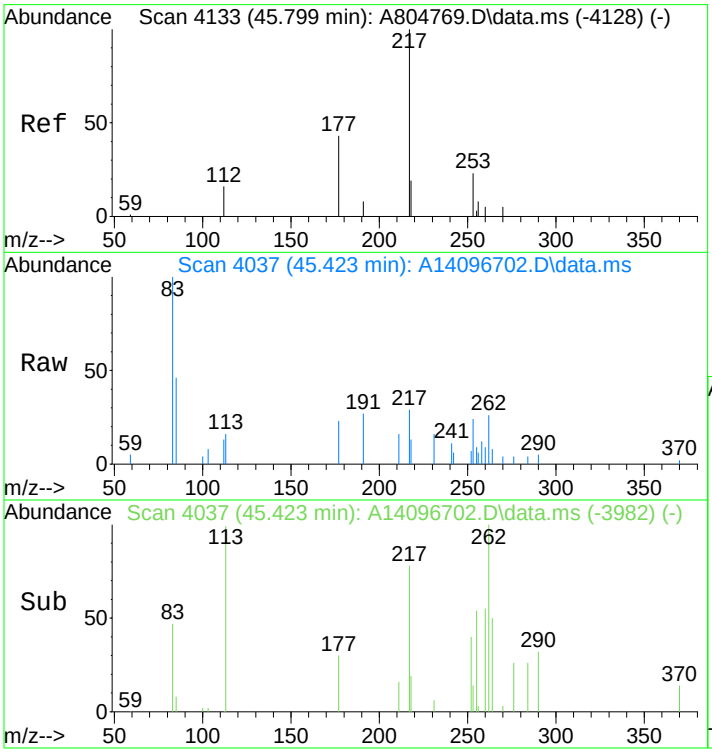




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 180.71 ng/ml
RT: 45.002 min Scan# 3991
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

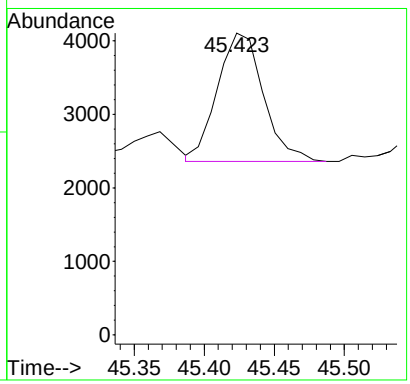
Tgt Ion:217 Resp: 7960

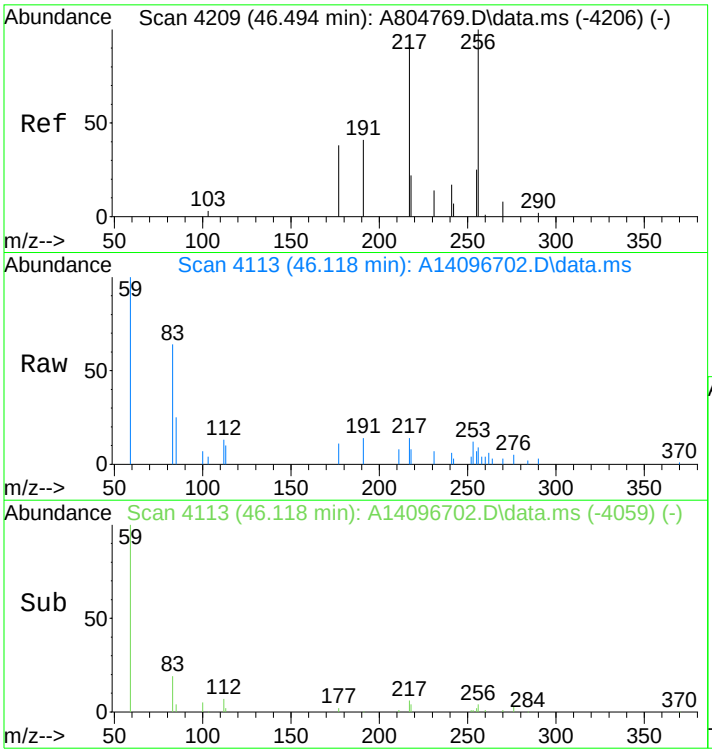




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 90.65 ng/ml
RT: 45.423 min Scan# 4037
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

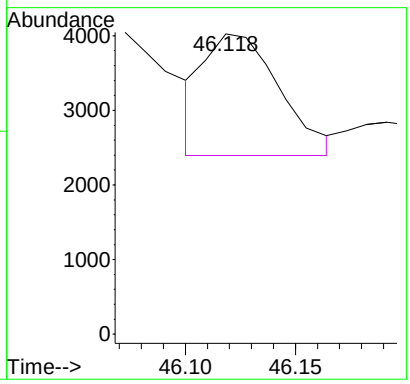
Tgt Ion:217 Resp: 3993

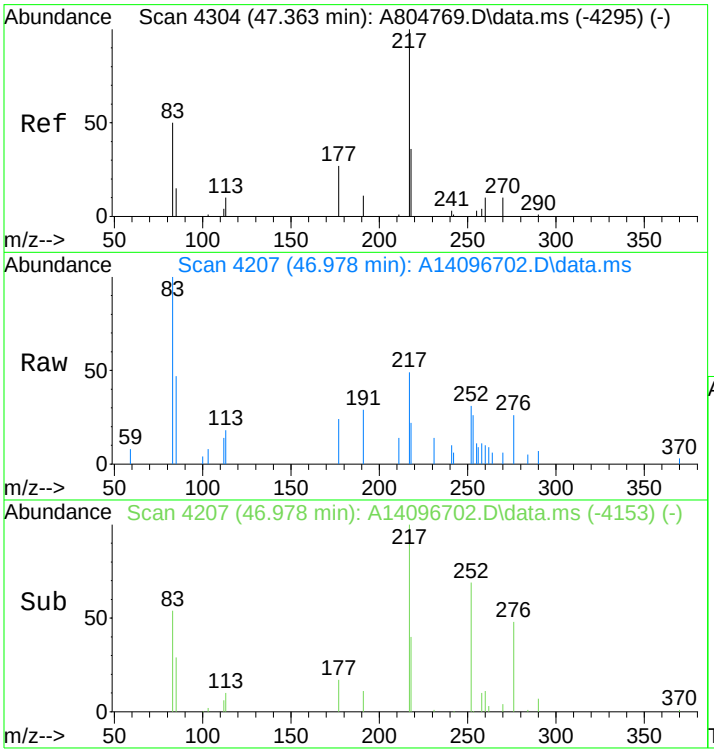




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 88.42 ng/ml
RT: 46.118 min Scan# 4113
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

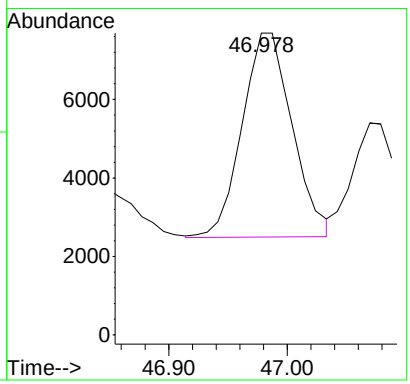
Tgt Ion:217 Resp: 3895

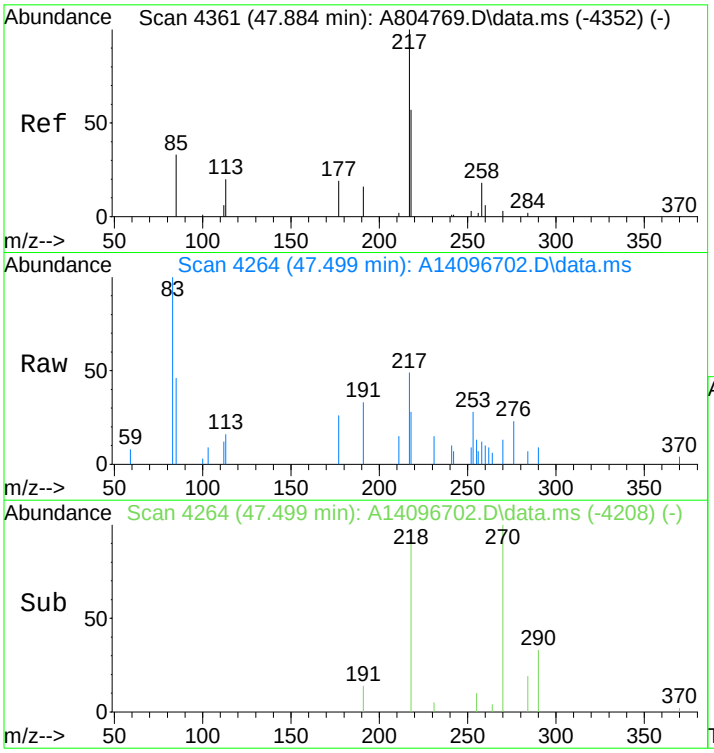




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 346.39 ng/ml
RT: 46.978 min Scan# 4207
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

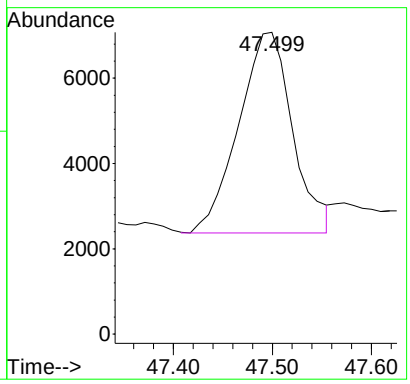
Tgt Ion:217 Resp: 15258

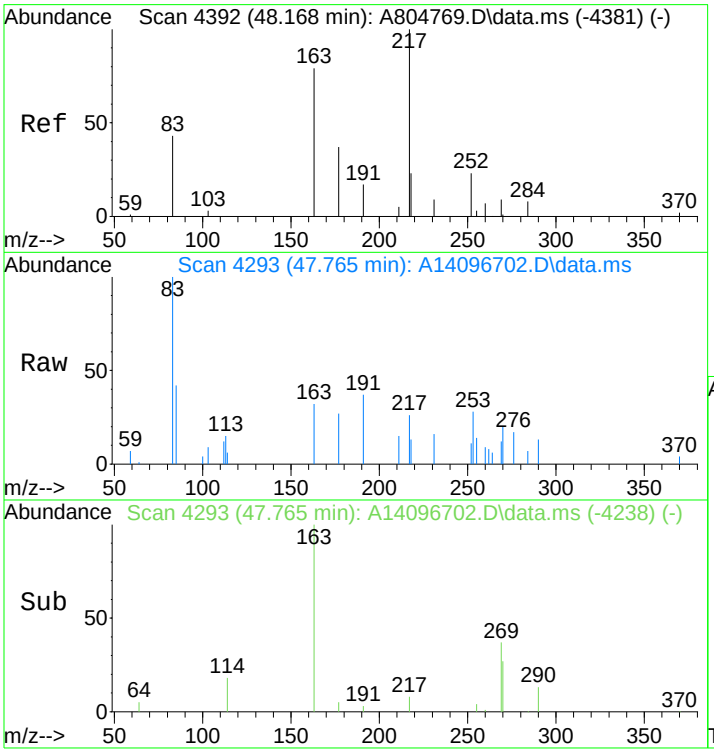




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 404.53 ng/ml m
RT: 47.499 min Scan# 4264
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

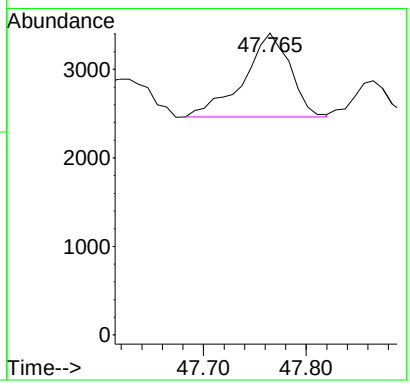
Tgt Ion:217 Resp: 17819

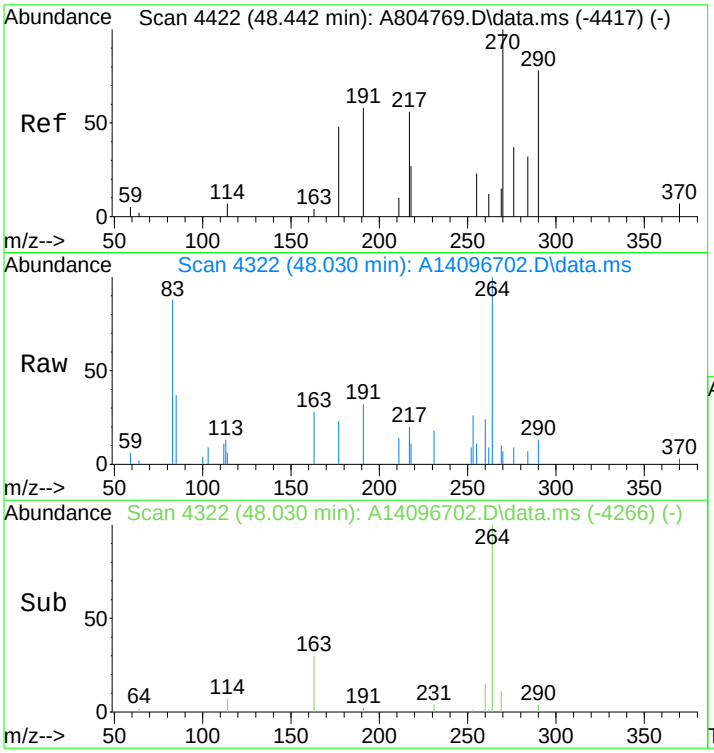




#133
Unknown Sterane (S18)
Concen: 67.86 ng/ml
RT: 47.765 min Scan# 4293
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

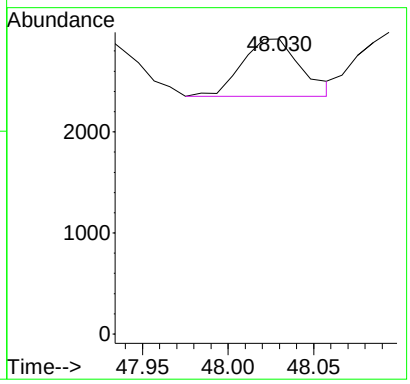
Tgt Ion:217 Resp: 2989

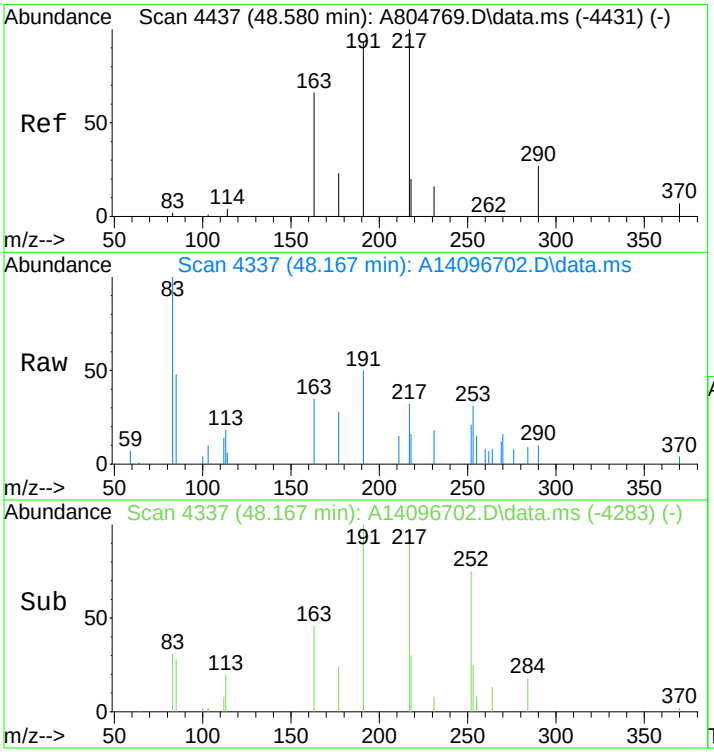




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 30.76 ng/ml
RT: 48.030 min Scan# 4322
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

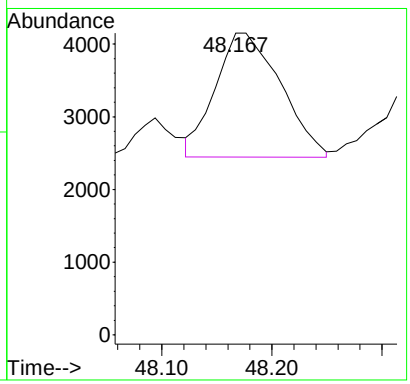
Tgt Ion:217 Resp: 1355

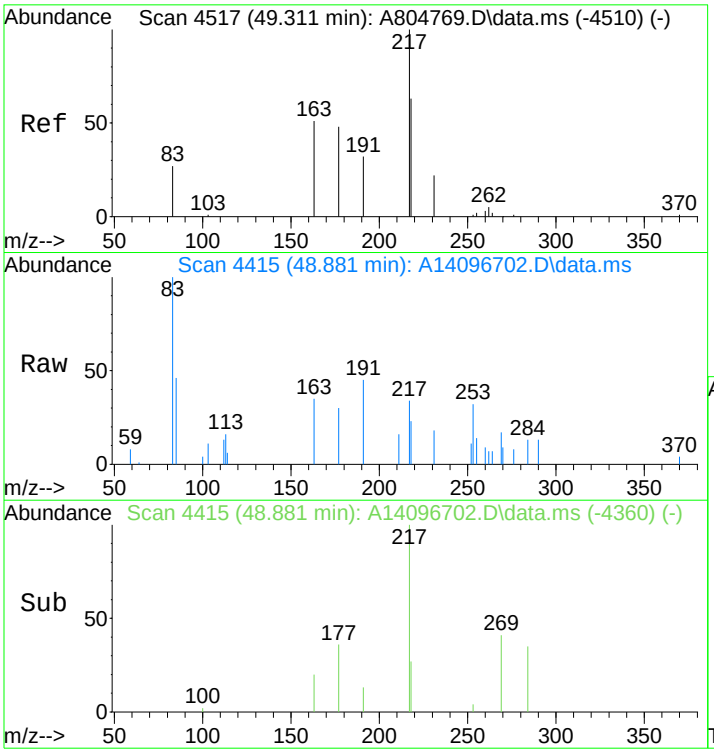




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 159.44 ng/ml
RT: 48.167 min Scan# 4337
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

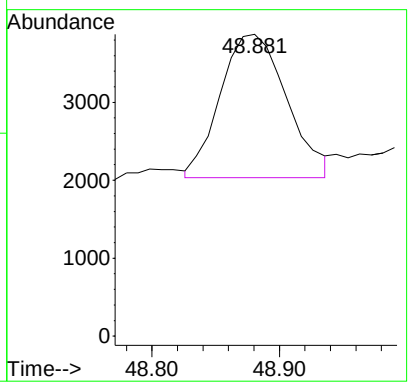
Tgt Ion:217 Resp: 7023

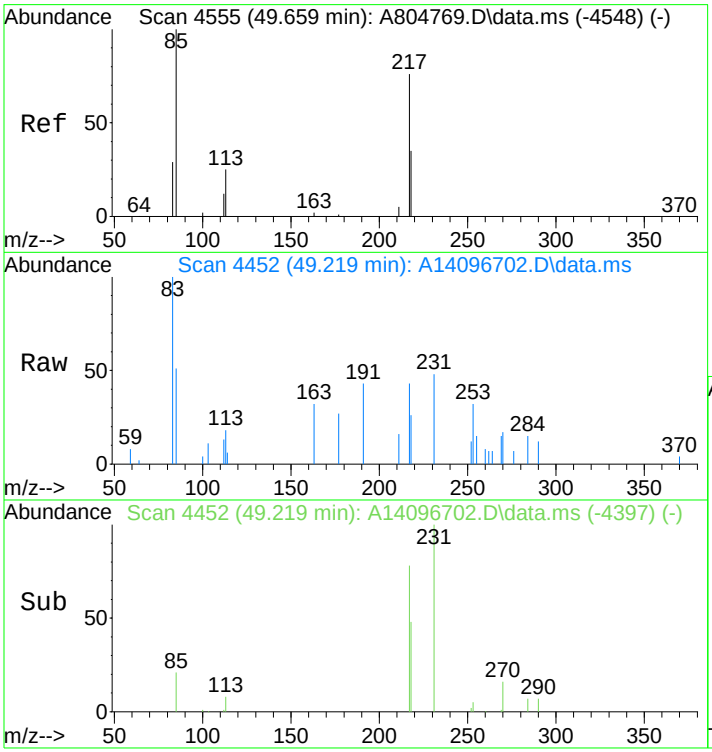




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 151.40 ng/ml m
RT: 48.881 min Scan# 4415
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

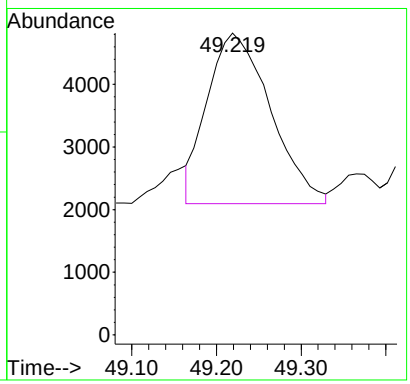
Tgt Ion:217 Resp: 6669

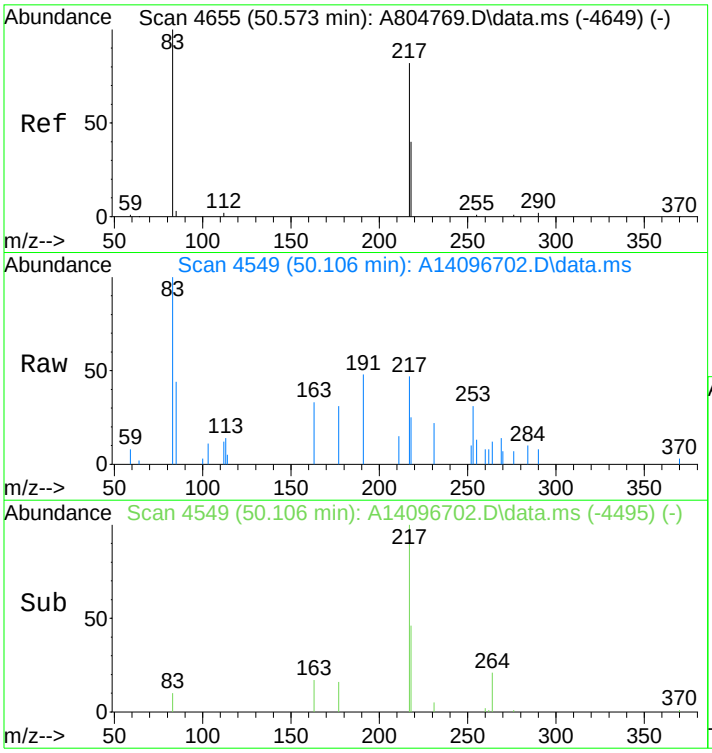




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 319.78 ng/ml m
RT: 49.219 min Scan# 4452
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

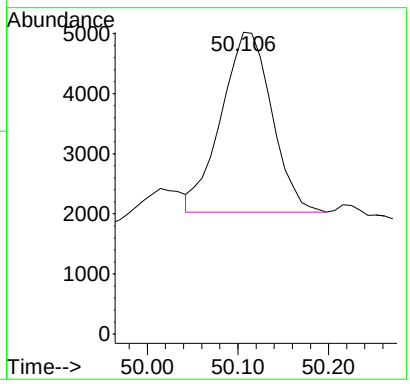
Tgt Ion:217 Resp: 14086

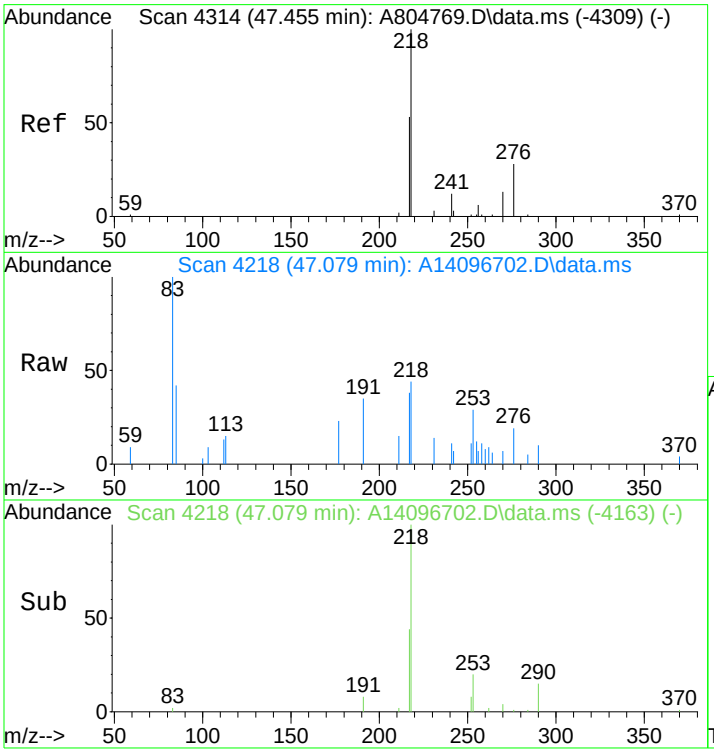




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 262.87 ng/ml
RT: 50.106 min Scan# 4549
Delta R.T. -0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

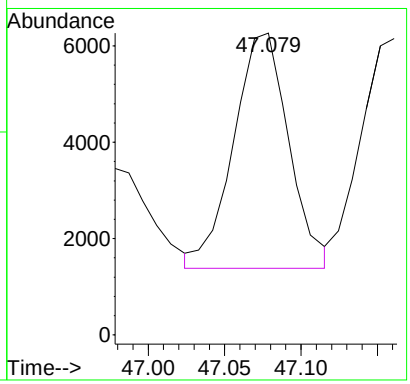
Tgt Ion:217 Resp: 11579

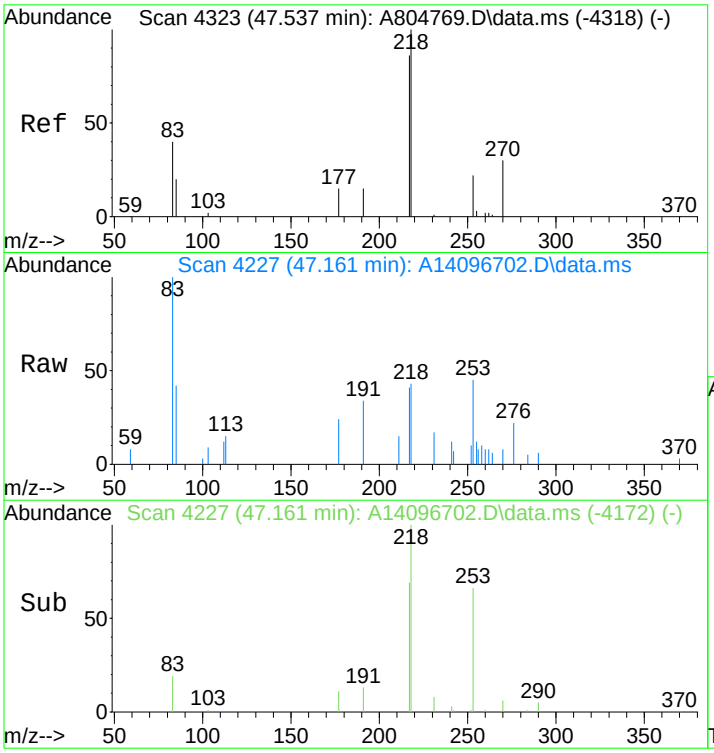




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 278.78 ng/ml m
RT: 47.079 min Scan# 4218
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

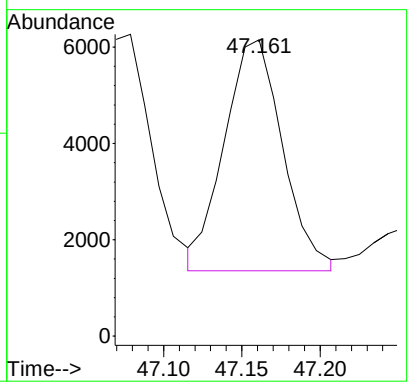
Tgt Ion:218 Resp: 12280

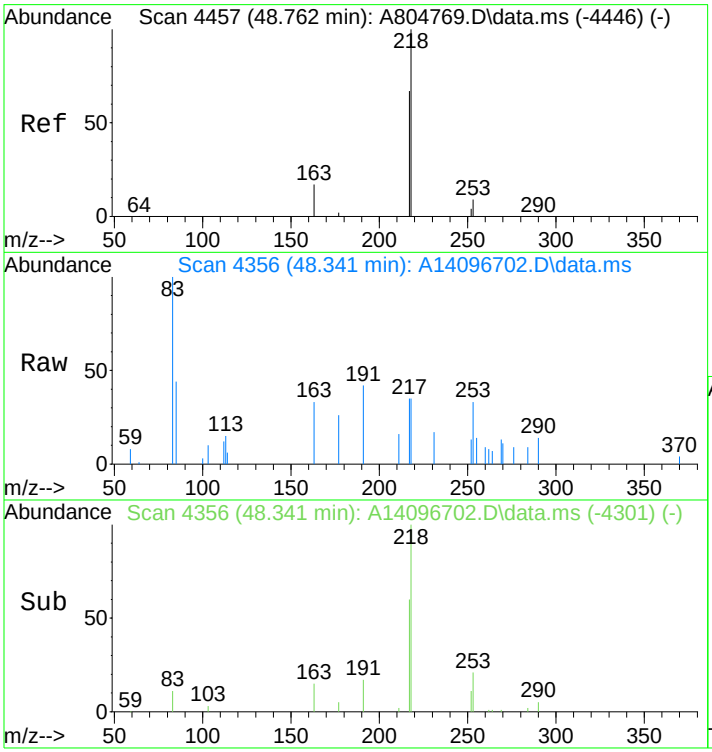




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 282.00 ng/ml m
RT: 47.161 min Scan# 4227
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

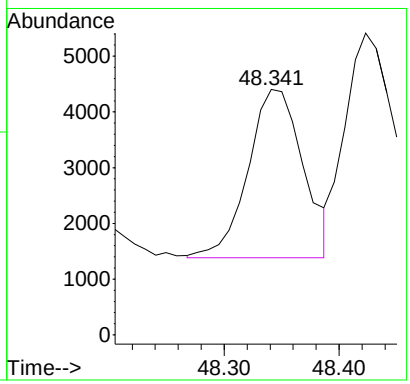
Tgt Ion:218 Resp: 12422

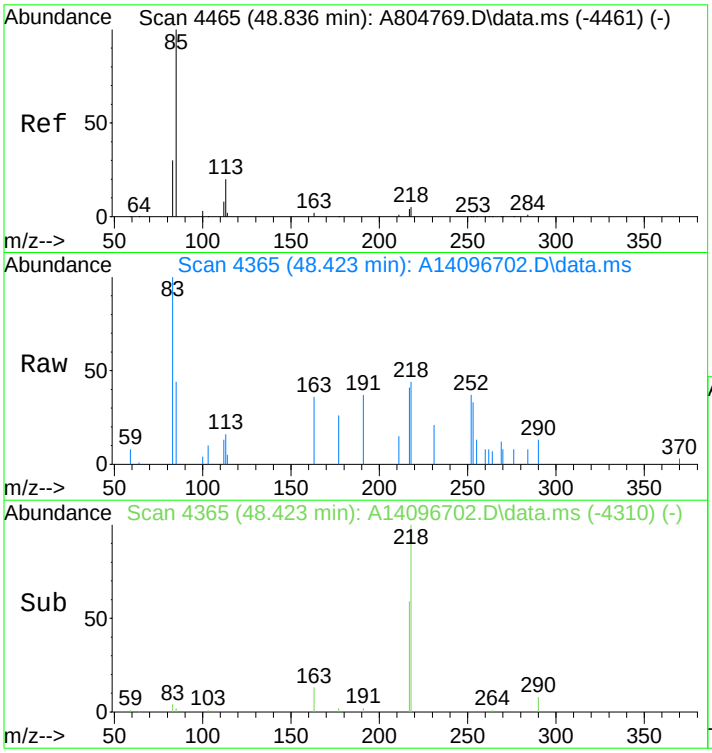




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 228.11 ng/ml m
RT: 48.341 min Scan# 4356
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

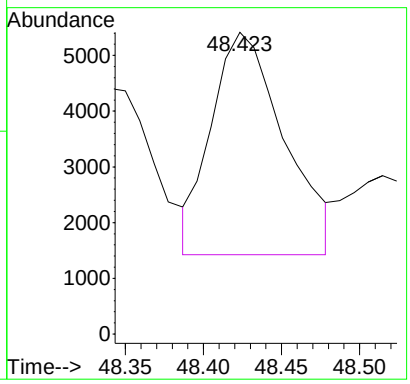
Tgt Ion:218 Resp: 10048

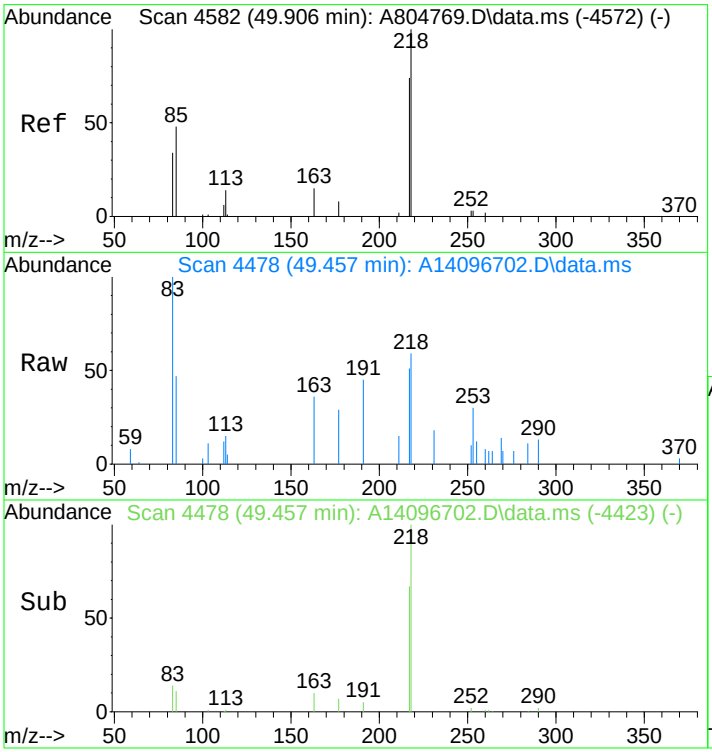




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 294.51 ng/ml m
RT: 48.423 min Scan# 4365
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

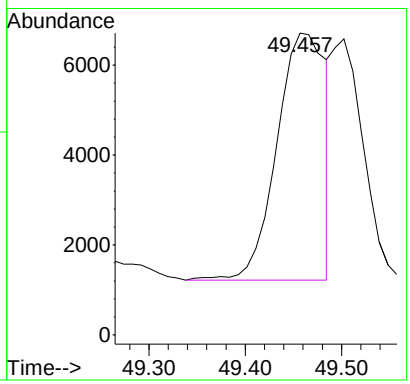
Tgt Ion:218 Resp: 12973

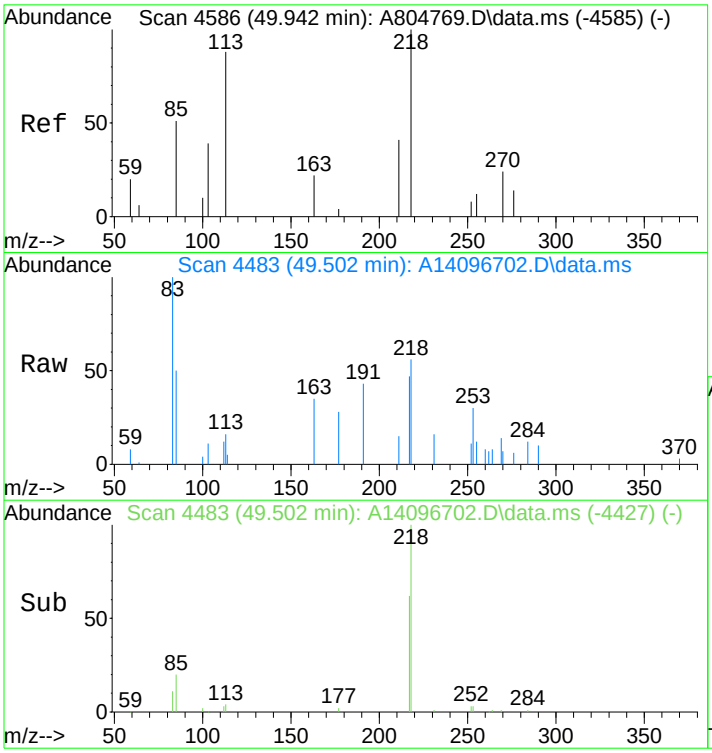




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 438.31 ng/ml
RT: 49.457 min Scan# 4478
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

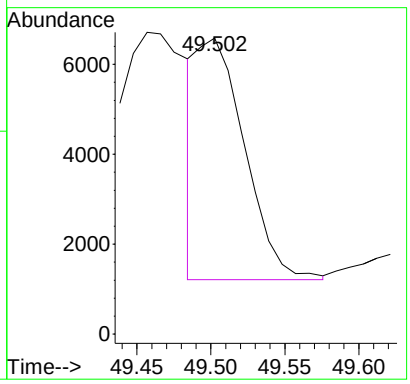
Tgt Ion:218 Resp: 19307

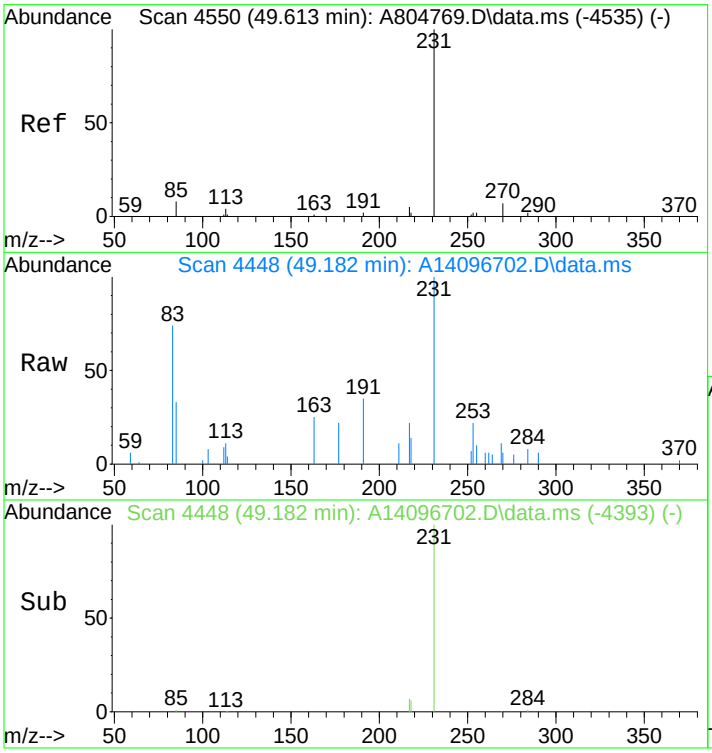




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 274.15 ng/ml m
RT: 49.502 min Scan# 4483
Delta R.T. 0.009 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

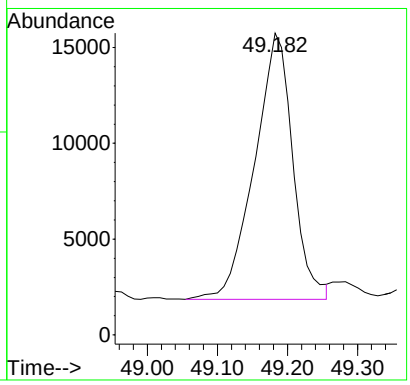
Tgt Ion:218 Resp: 12076

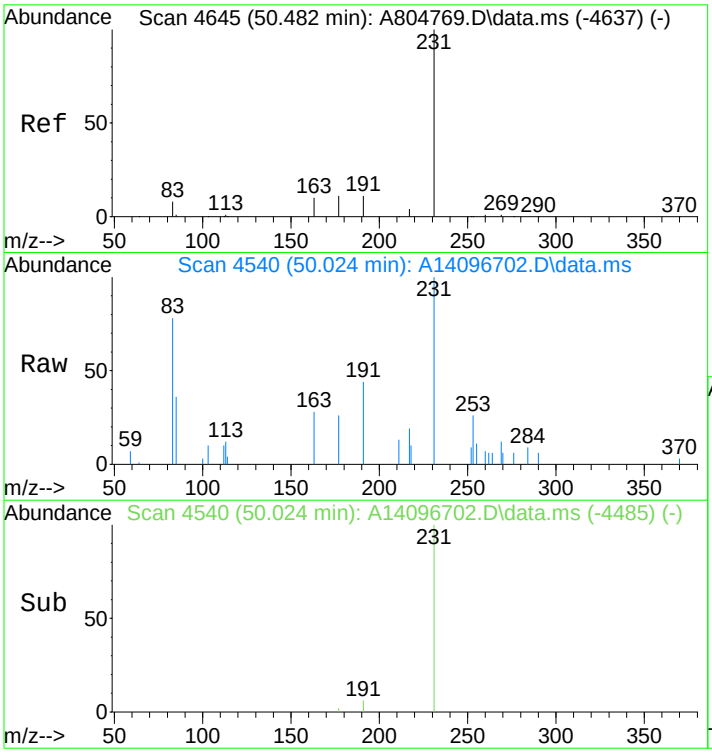




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1195.24 ng/mL
RT: 49.182 min Scan# 4448
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

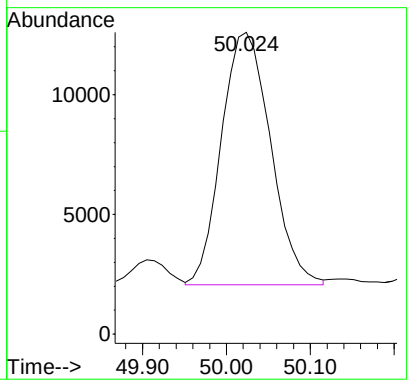
Tgt Ion:231 Resp: 52649

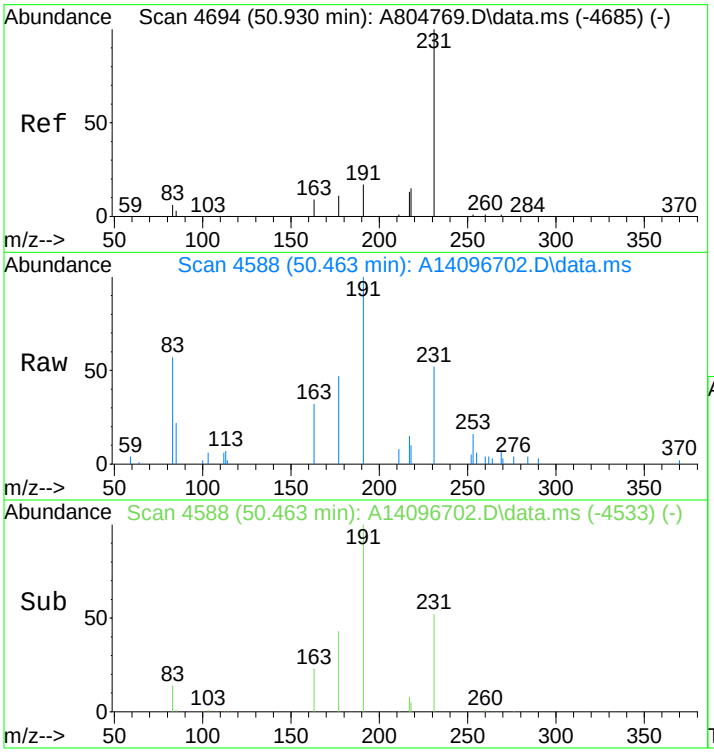




#146
C28,20S-triaromatic steroid
Concen: 976.50 ng/mL m
RT: 50.024 min Scan# 4540
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

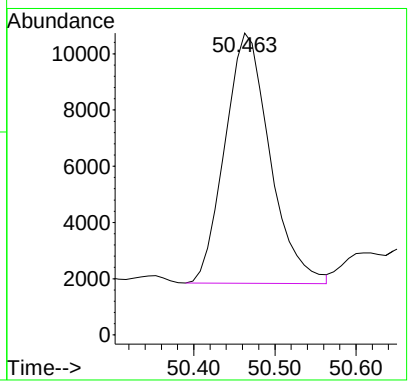
Tgt Ion:231 Resp: 43014

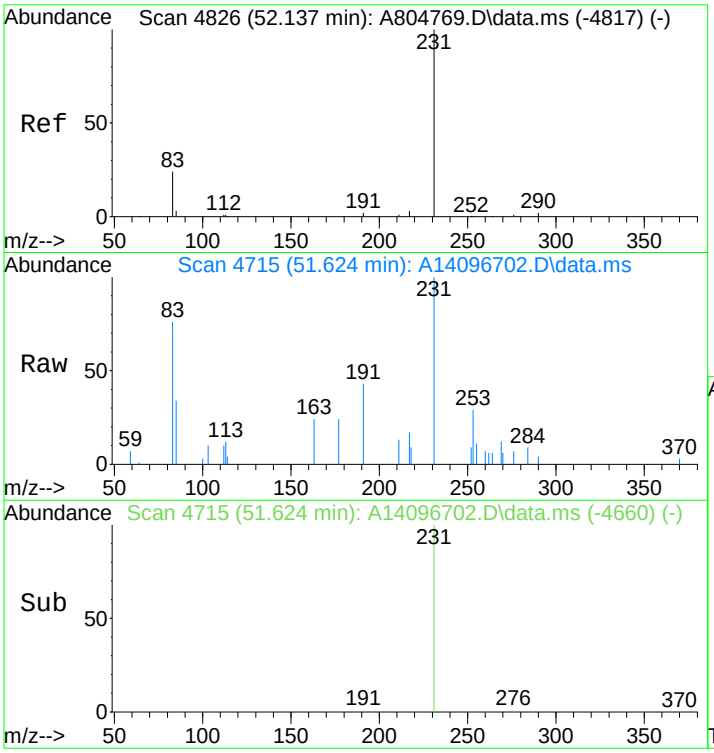




#147
C27,20R-triaromatic steroid
Concen: 778.93 ng/mL
RT: 50.463 min Scan# 4588
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

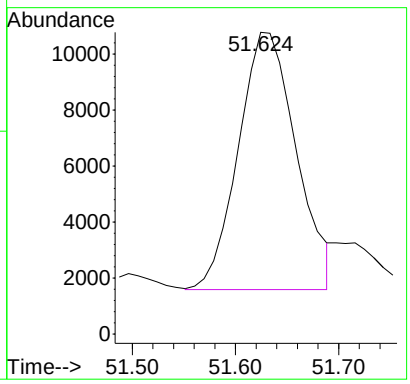
Tgt Ion:231 Resp: 34311





#148
C28,20R-triaromatic steroid
Concen: 815.59 ng/mL m
RT: 51.624 min Scan# 4715
Delta R.T. -0.000 min
Lab File: A14096702.D
Acq: 21 Jun 2012 2:06 pm

Tgt Ion:231 Resp: 35926



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096703.D
Acq On : 21 Jun 2012 3:33 pm
Operator : AC
Sample : 1206028-02
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 22 13:34:42 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	53561	500.000	ng/mL	0.00
74) Chrysene-d12	42.939	240	105170	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	67716	356.281	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 35.63%#			
42) Phenanthrene-d10	32.330	188	81763	456.481	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.65%#			
86) Benzo[a]pyrene-d12	48.030	264	101136	492.086	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.21%#			
127) 5B(H)Cholane - Surr	43.486	217	20069M3	482.071	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.21%#			
Target Compounds						Qvalue
10) Naphthalene	19.592	128	970	4.666	ng/mL#	100
11) C1-Naphthalenes	22.330	142	1384M5	6.658	ng/mL	
12) C2-Naphthalenes	25.113	156	2359M5	11.348	ng/mL	
13) C3-Naphthalenes	27.449	170	2091M5	10.059	ng/mL	
16) 2-Methylnaphthalene	22.330	142	785	5.739	ng/mL#	100
17) 1-Methylnaphthalene	22.722	142	390M3	2.905	ng/mL	
23) Biphenyl	24.219	154	164M2	0.979	ng/mL	
24) 2,6-Dimethylnaphthalene	24.821	156	508	4.152	ng/mL#	100
25) Dibenzofuran	27.322	168	775M3	4.378	ng/mL	
27) Acenaphthene	26.573	153	198M3	1.482	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.143	170	111M3	1.000	ng/mL	
29) Fluorene	28.645	166	482M3	3.238	ng/mL	
33) Dibenzothiophene	31.966	184	332	1.718	ng/mL#	71
34) 4-Methyldibenzothiophene(	33.727	198	153M3	0.792	ng/mL	
36) 1-Methyldibenzothiophene(	34.475	198	309	1.599	ng/mL#	100
37) OTP	34.055	198	14075	72.815	ng/mL#	100
38) C1-Dibenzothiophenes	34.055	198	14810M5	76.617	ng/mL	
38) C1-Dibenzothiophenes BS	34.055	198	735m	3.802	ng/mL	
39) C2-Dibenzothiophenes	36.191	212	1486M5	7.688	ng/mL	
43) Phenanthrene	32.422	178	3071	14.961	ng/mL	96
44) 3-Methylphenanthrene(3MP)	34.421	192	141M3	0.687	ng/mL	
45) 2-Methylphenanthrene(2MP)	34.557	192	204M3	0.994	ng/mL	
47) 9/4-Methylphenanthrene(9M	34.859	192	82M3	0.399	ng/mL	
48) 1-Methylphenanthrene(1MP)	34.959	192	124M3	0.604	ng/mL	
49) C1-Phenanthrenes/Anthrace	34.557	192	748M5	3.644	ng/mL	
56) Carbazole	33.343	167	166M3	0.872	ng/mL	
57) 1-Methylphenanthrene	34.959	192	130M3	0.844	ng/mL	
58) Fluoranthene	37.241	202	684	3.266	ng/mL#	64
60) Pyrene	38.127	202	275	1.263	ng/mL#	60
66) Naphthobenzothiophene	41.989	234	139M4	0.737	ng/ml	
67) Naphthobenzothiophene-2,1	41.989	234	139M4	0.737	ng/mL	
77) Chrysene/Triphenylene	43.066	228	121M3	0.533	ng/mL	
133) Unknown Sterane (S18)	47.801	217	382M3	9.176	ng/ml	

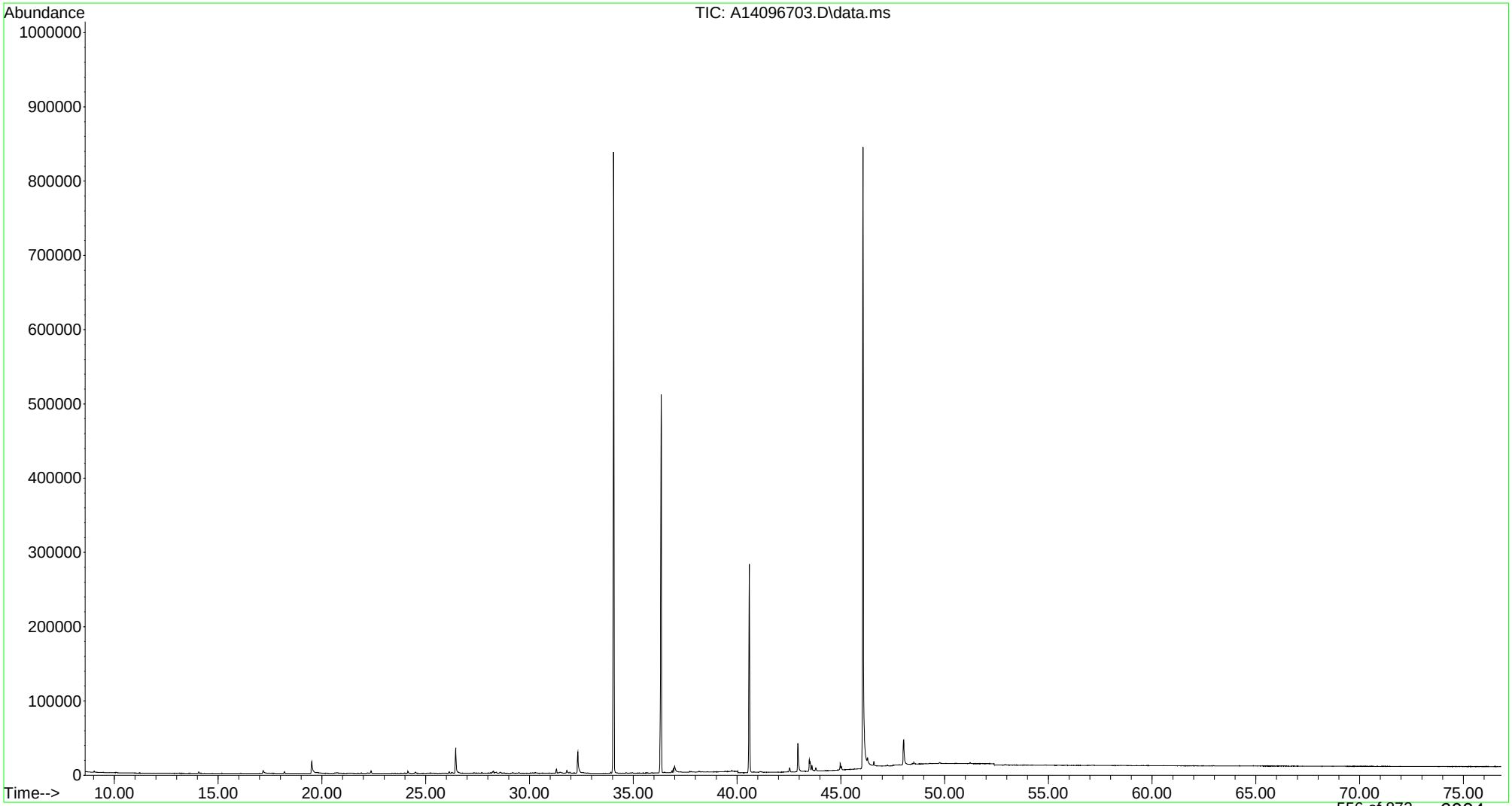
(#) = qualifier out of range (m) = manual integration (+) = signals summed

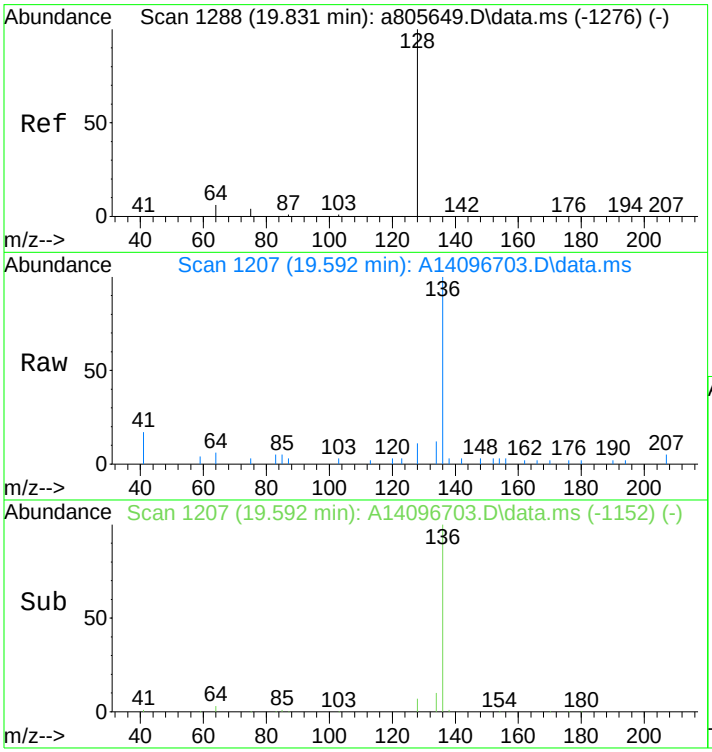
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096703.D
Acq On : 21 Jun 2012 3:33 pm
Operator : AC
Sample : 1206028-02
Misc : 1X
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 22 13:34:42 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : PIOB_ALTNEW_REV1 - PAH+isomers+optionals+biomarkers

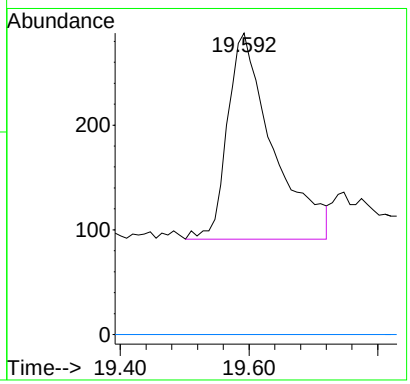


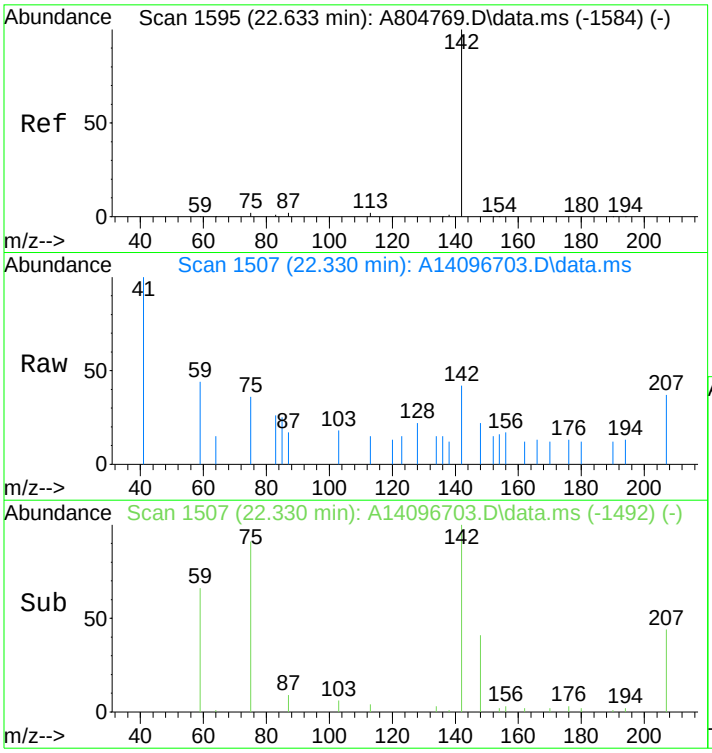


#10
Naphthalene
Concen: 4.67 ng/mL
RT: 19.592 min Scan# 1207
Delta R.T. -0.000 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:128 Resp: 970

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

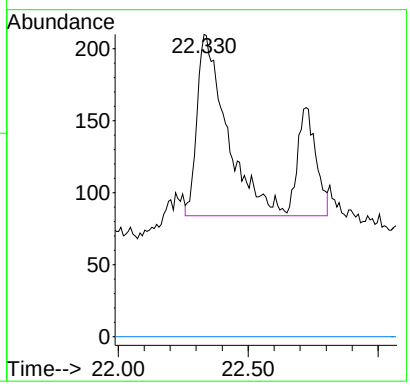


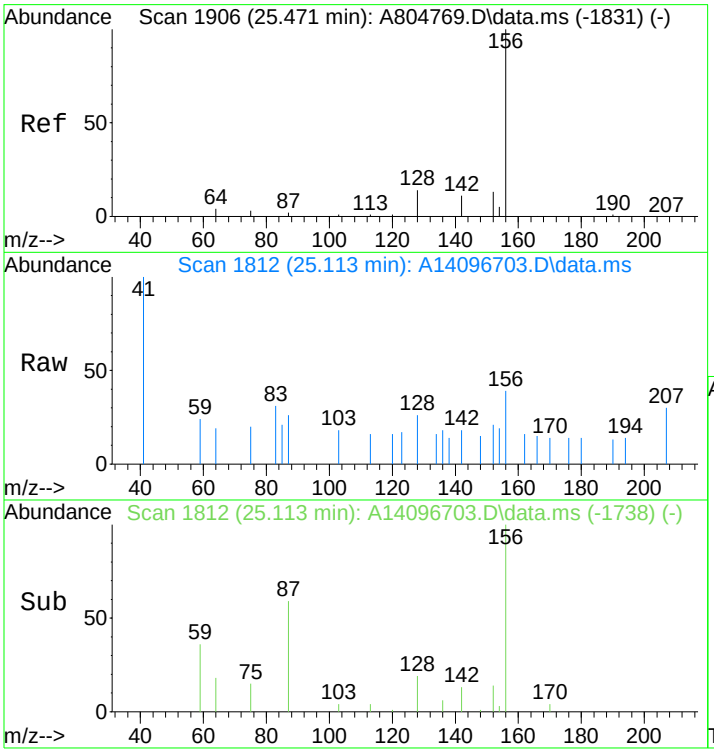


#11
C1-Naphthalenes
Concen: 6.66 ng/mL m
RT: 22.330 min Scan# 1507
Delta R.T. 0.046 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:142 Resp: 1384

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

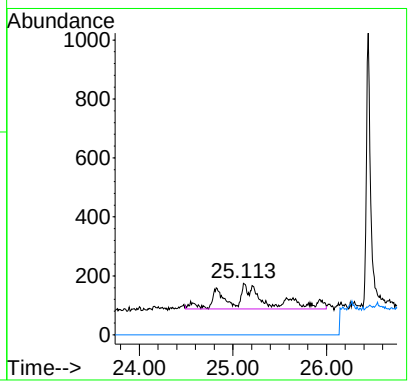


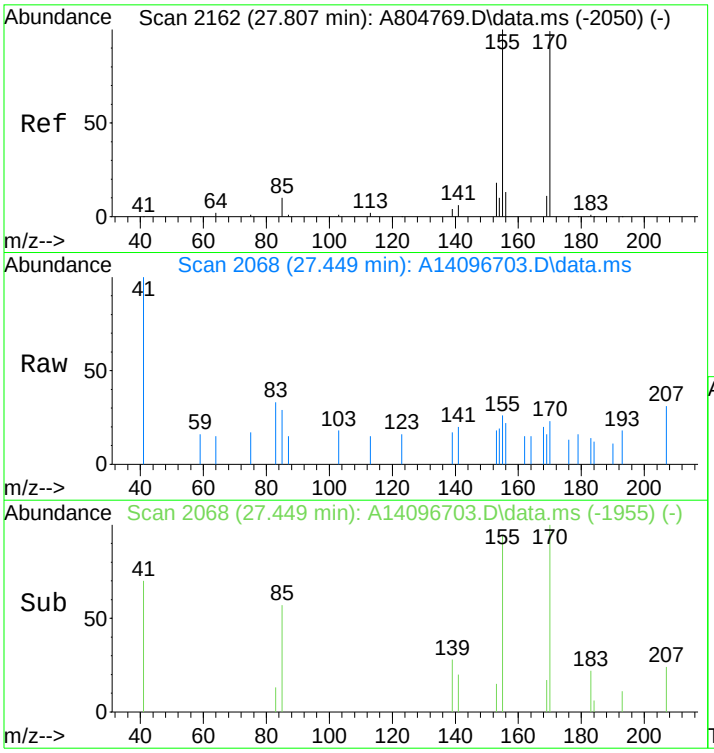


#12
C2-Naphthalenes
Concen: 11.35 ng/mL m
RT: 25.113 min Scan# 1812
Delta R.T. 0.005 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:156 Resp: 2359

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

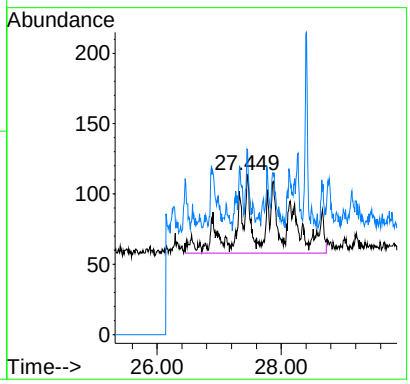


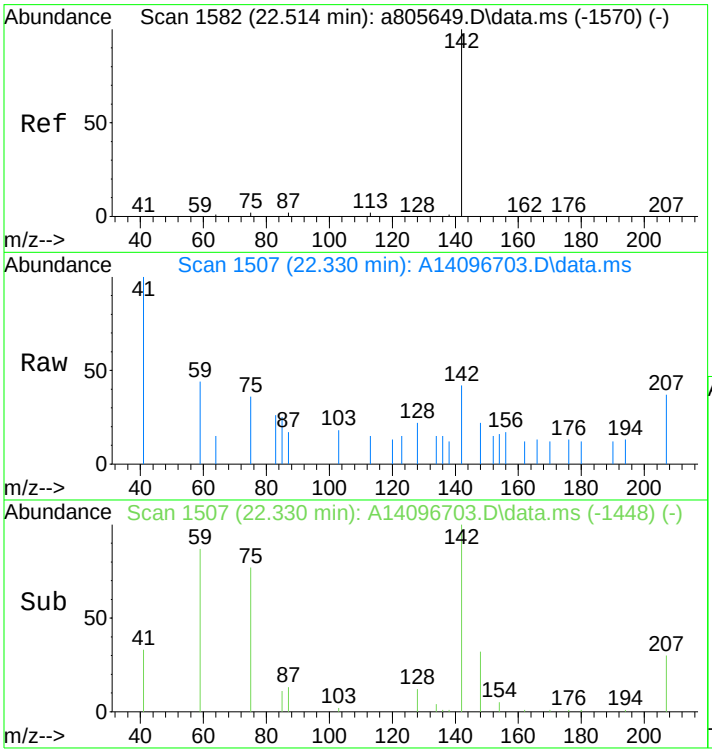


#13
C3-Naphthalenes
Concen: 10.06 ng/mL m
RT: 27.449 min Scan# 2068
Delta R.T. 0.015 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:170 Resp: 2091

Ion	Ratio	Lower	Upper
170	100		
155	5.6	74.5	111.7#

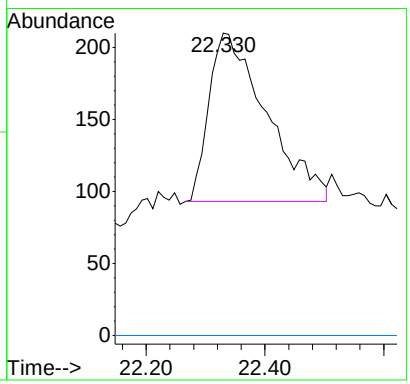


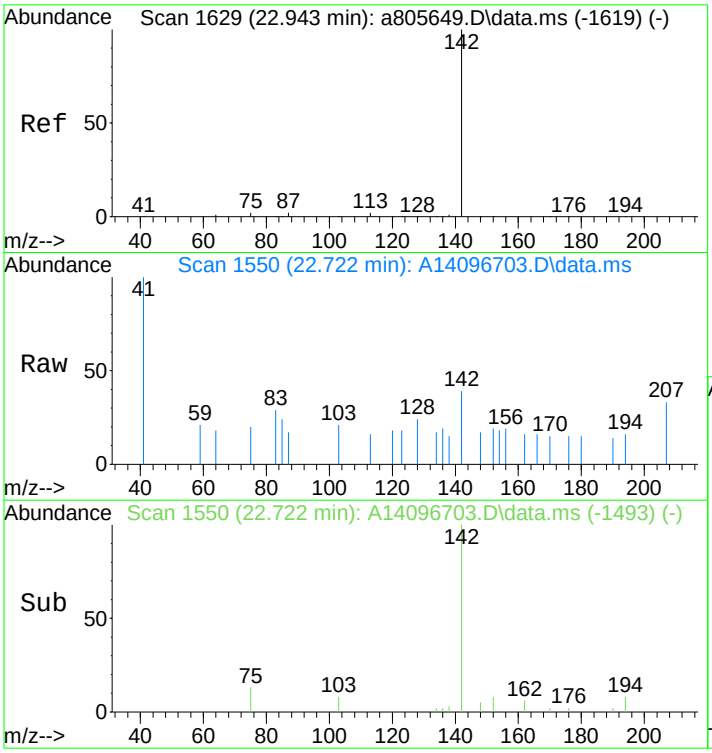


#16
2-Methylnaphthalene
Concen: 5.74 ng/mL
RT: 22.330 min Scan# 1507
Delta R.T. 0.036 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:142 Resp: 785

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

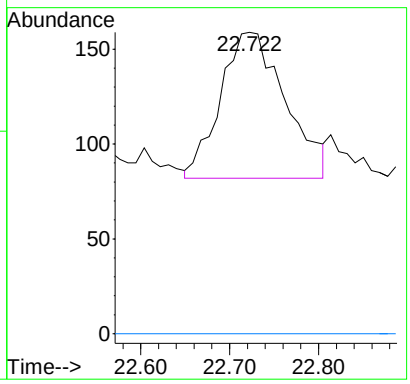


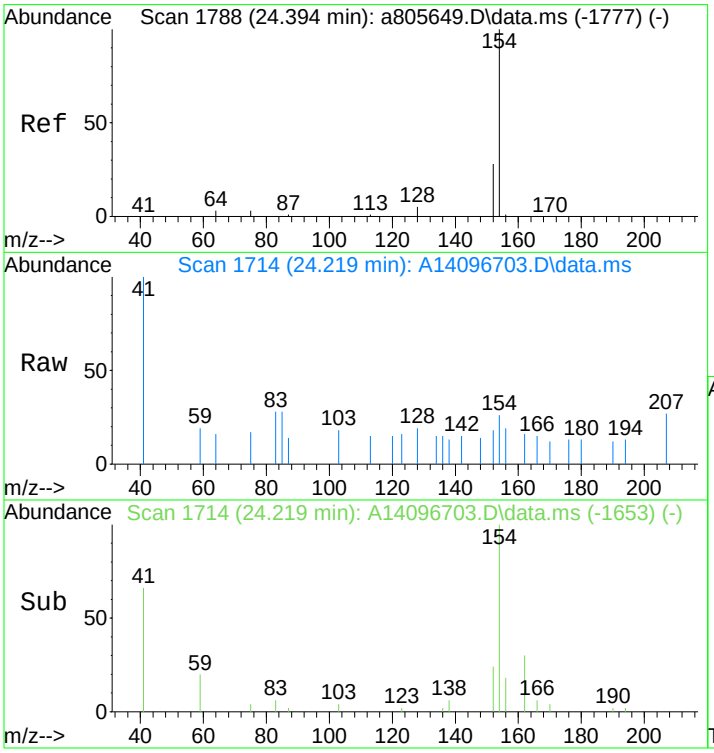


#17
1-Methylnaphthalene
Concen: 2.90 ng/mL m
RT: 22.722 min Scan# 1550
Delta R.T. 0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:142 Resp: 390

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

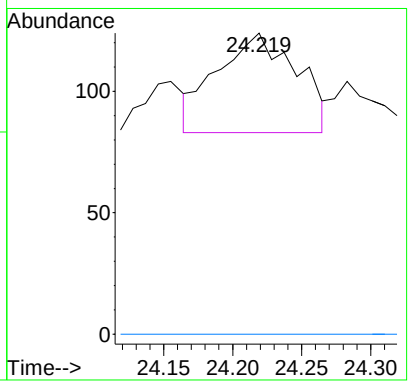


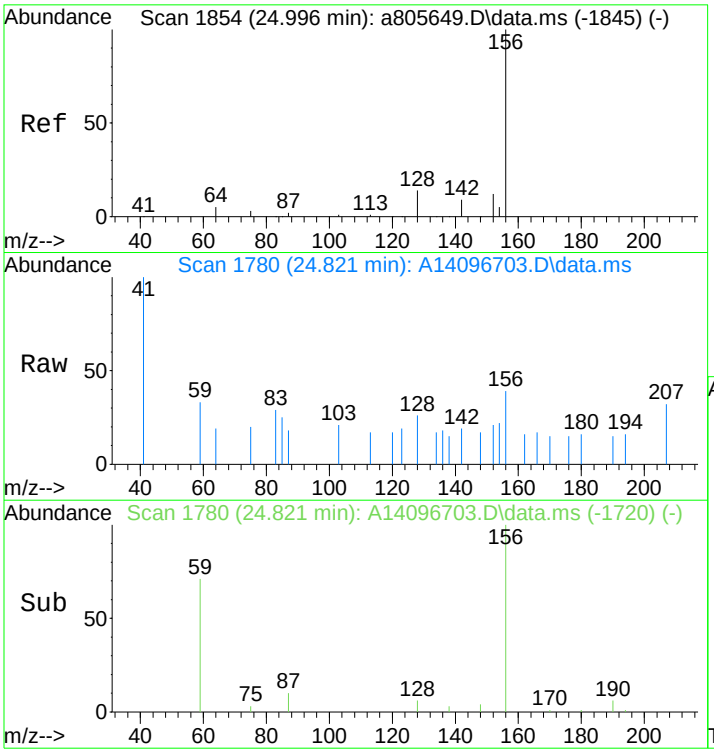


#23
Biphenyl
Concen: 0.98 ng/mL m
RT: 24.219 min Scan# 1714
Delta R.T. 0.055 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:154 Resp: 164

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

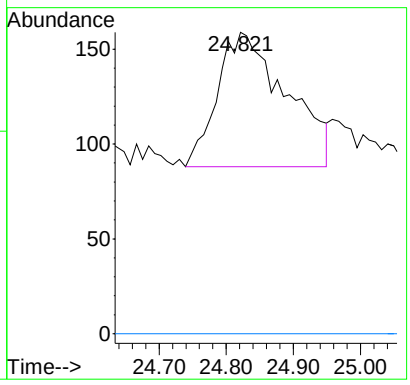


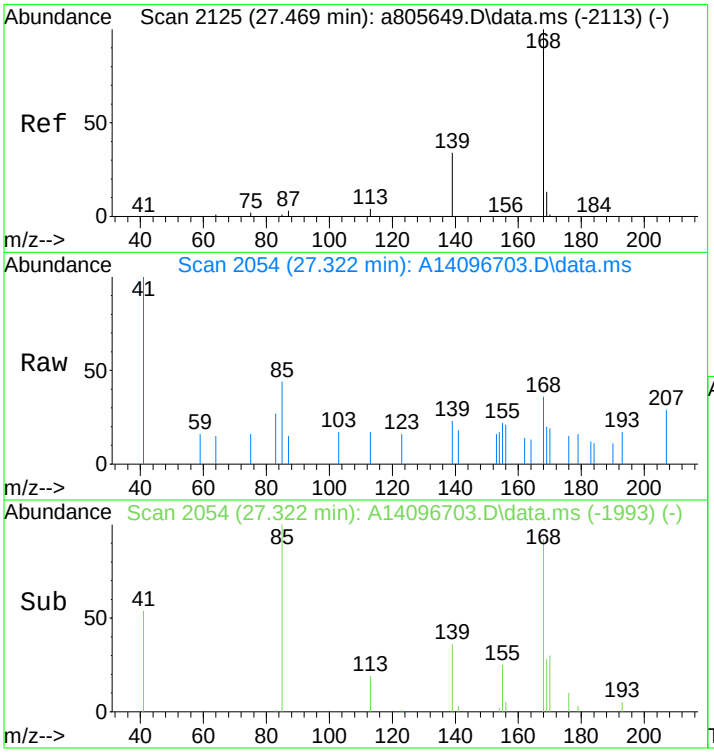


#24
2,6-Dimethylnaphthalene
Concen: 4.15 ng/mL
RT: 24.821 min Scan# 1780
Delta R.T. 0.046 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:156 Resp: 508

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

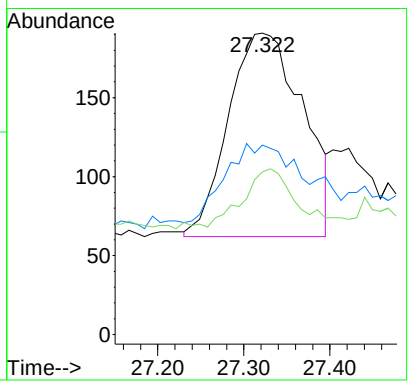


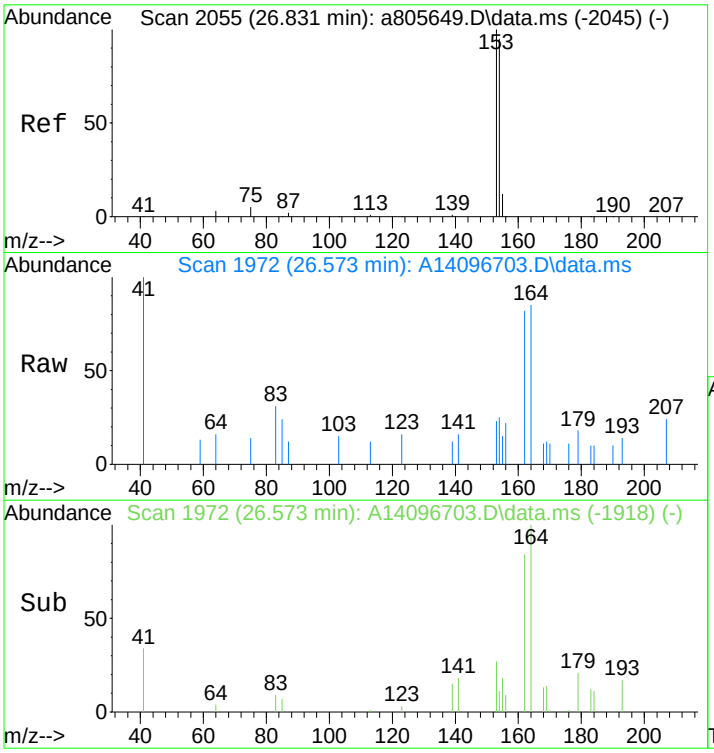


#25
Dibenzofuran
Concen: 4.38 ng/mL m
RT: 27.322 min Scan# 2054
Delta R.T. 0.055 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:168 Resp: 775

Ion	Ratio	Lower	Upper
168	100		
139	0.0	34.0	51.0#
169	20.5	10.9	16.3#

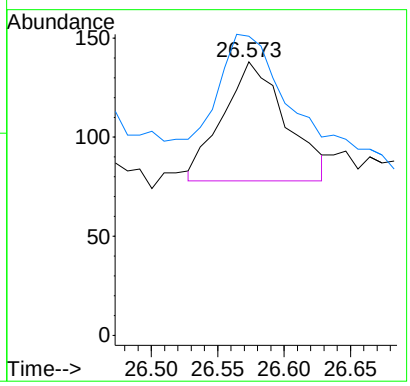


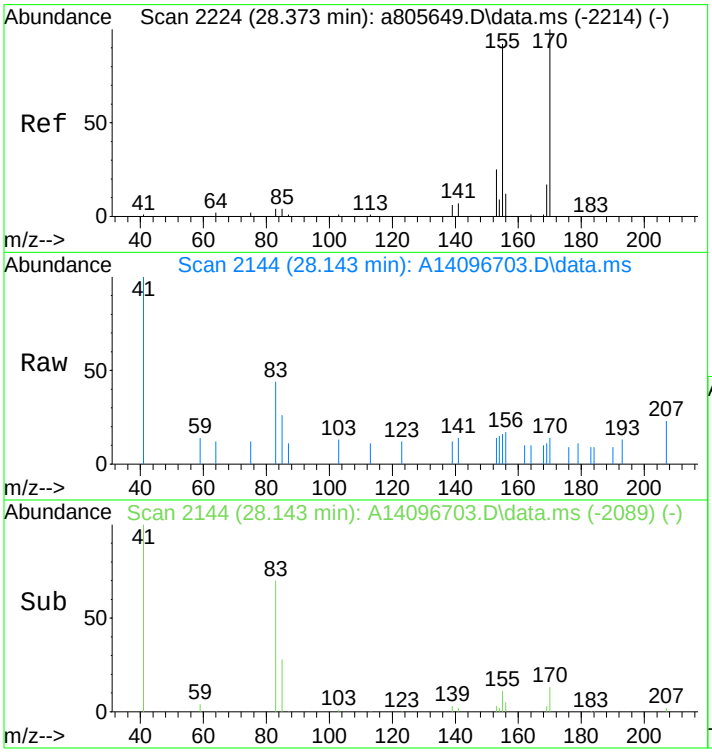


#27
Acenaphthene
Concen: 1.48 ng/mL m
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:153 Resp: 198

Ion	Ratio	Lower	Upper
153	100		
154	142.4	72.8	109.2#

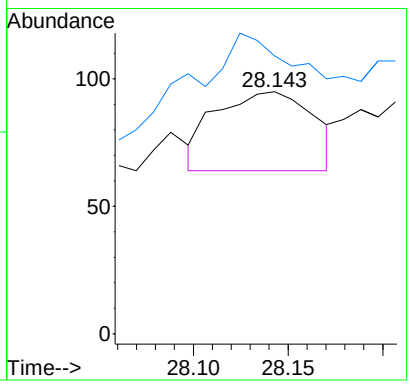


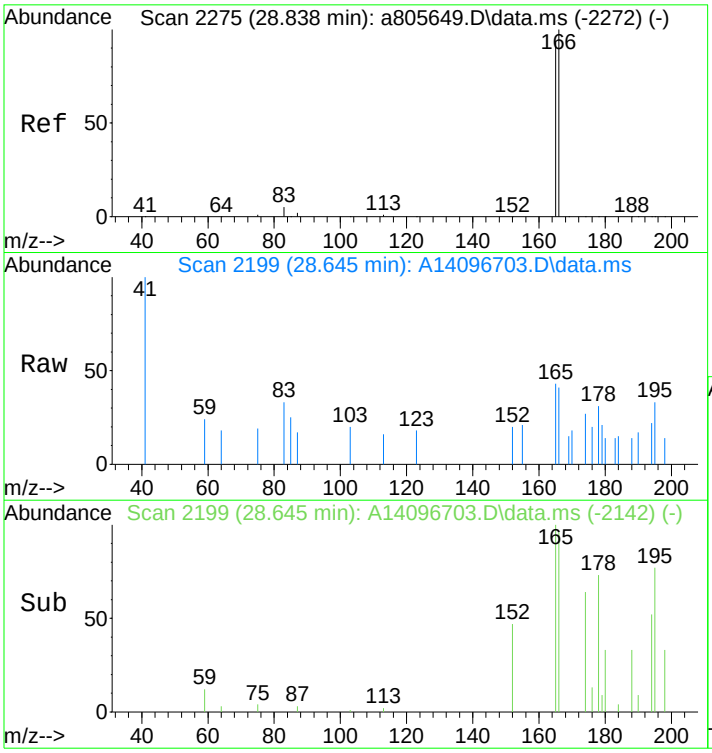


#28
2,3,5-Trimethylnaphthalene
Concen: 1.00 ng/mL m
RT: 28.143 min Scan# 2144
Delta R.T. -0.000 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:170 Resp: 111

Ion	Ratio	Lower	Upper
170	100		
155	175.7	73.5	110.3#

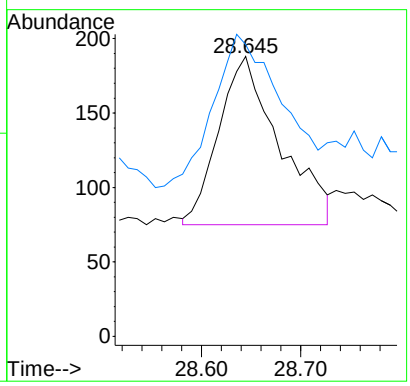


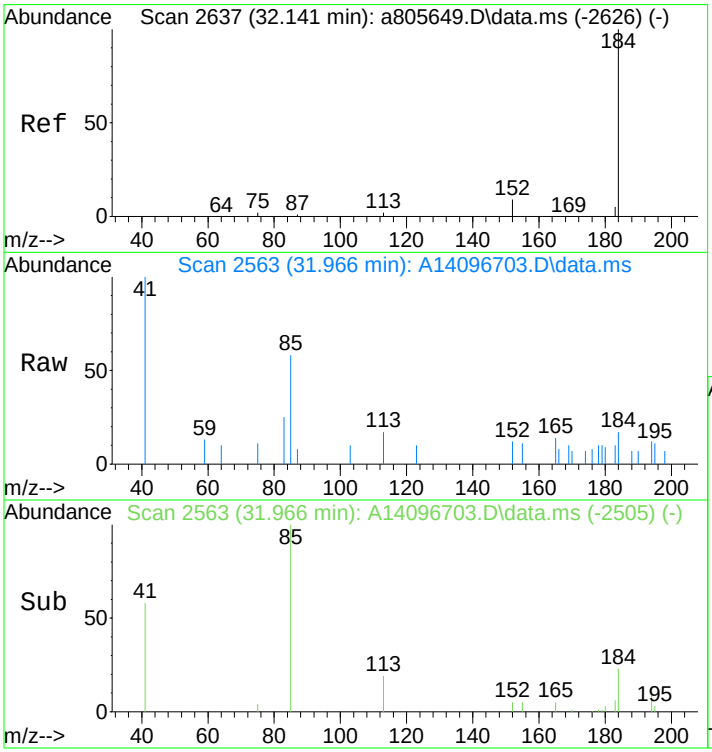


#29
Fluorene
Concen: 3.24 ng/mL m
RT: 28.645 min Scan# 2199
Delta R.T. 0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:166 Resp: 482

Ion	Ratio	Lower	Upper
166	100		
165	85.7	73.2	109.8

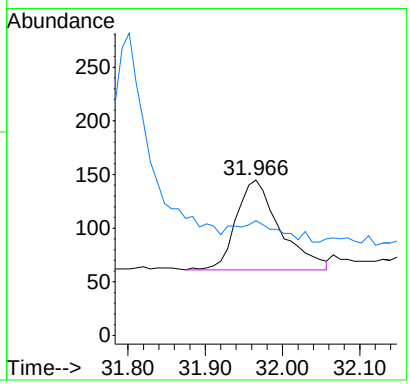


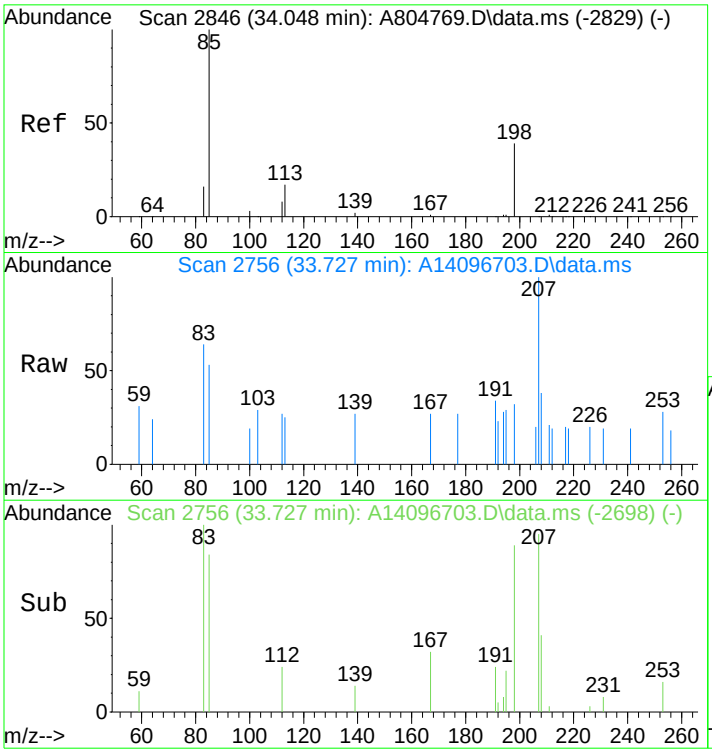


#33
Dibenzothiophene
Concen: 1.72 ng/mL
RT: 31.966 min Scan# 2563
Delta R.T. 0.027 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:184 Resp: 332

Ion	Ratio	Lower	Upper
184	100		
152	0.0	8.8	13.2#

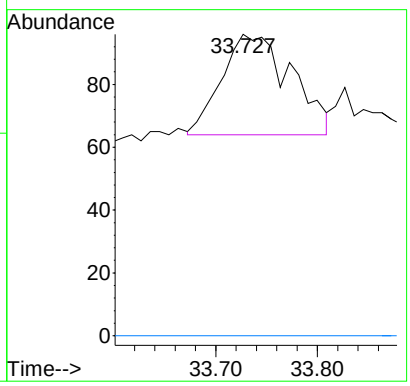


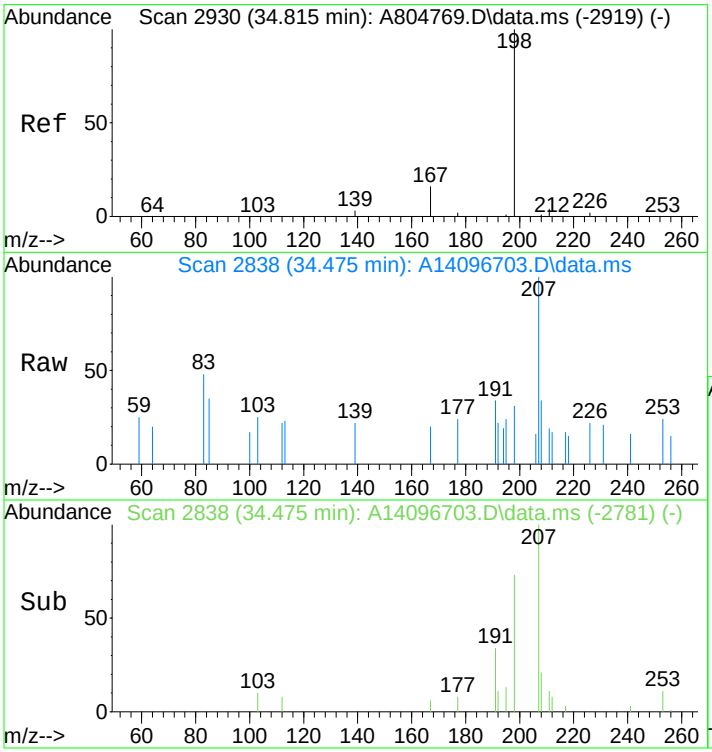


#34
4-Methyldibenzothiophene(4MDT)
Concen: 0.79 ng/mL m
RT: 33.727 min Scan# 2756
Delta R.T. 0.027 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:198 Resp: 153

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

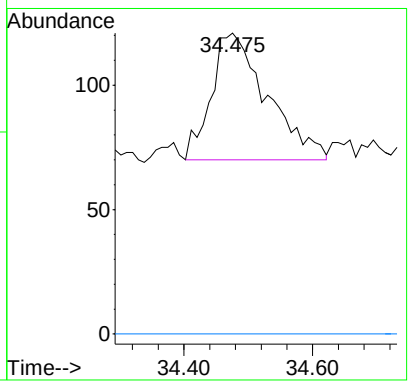


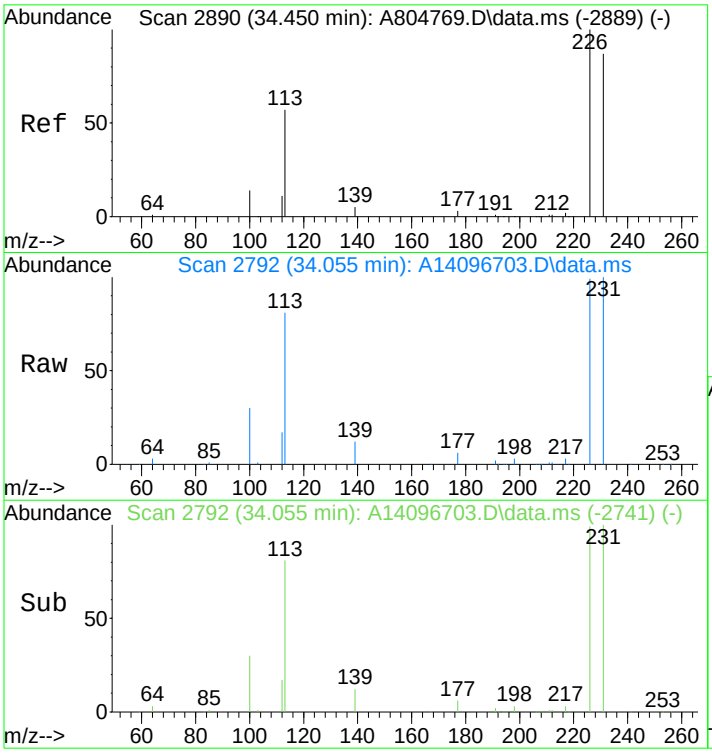


#36
1-Methyldibenzothiophene(1MDT)
Concen: 1.60 ng/mL
RT: 34.475 min Scan# 2838
Delta R.T. 0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:198 Resp: 309

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

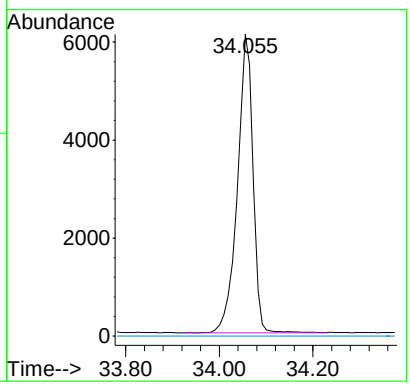


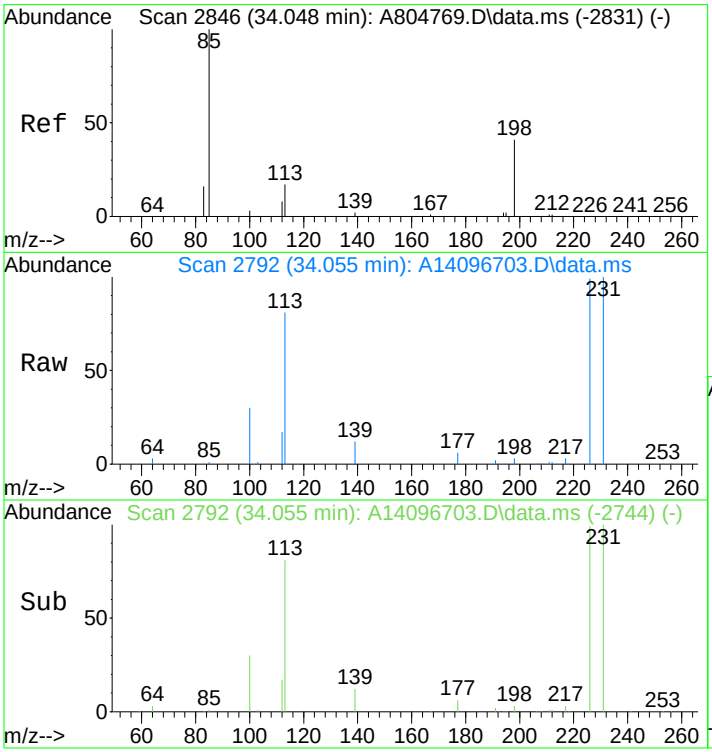


#37
OTP
Concen: 72.81 ng/mL
RT: 34.055 min Scan# 2792
Delta R.T. -0.037 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:198 Resp: 14075

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

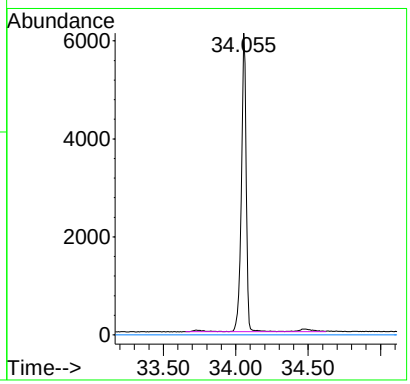


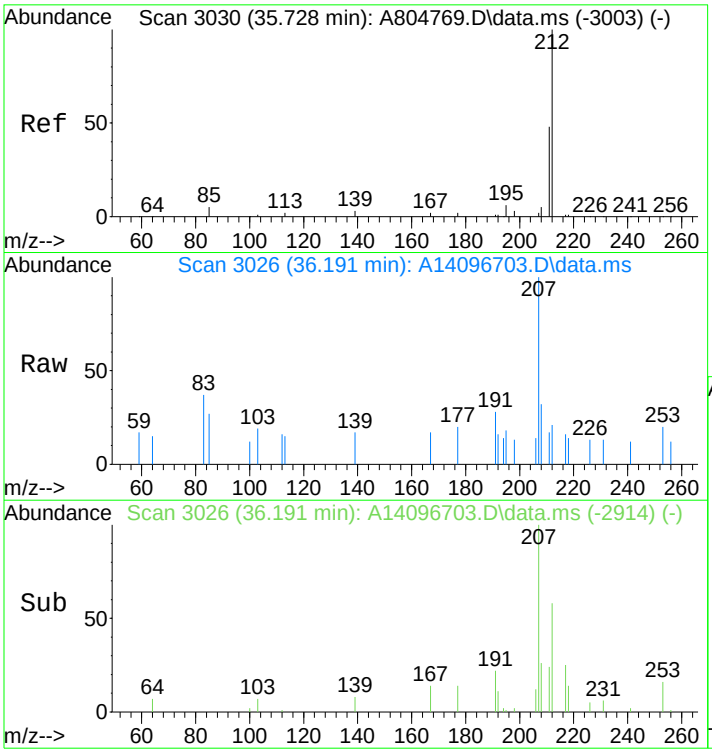


#38
C1-Dibenzothiophenes
Concen: 76.62 ng/mL m
RT: 34.055 min Scan# 2792
Delta R.T. 0.394 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:198 Resp: 14810

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

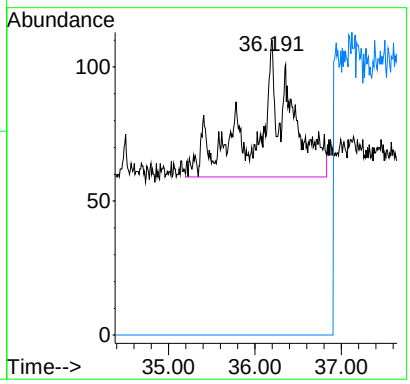


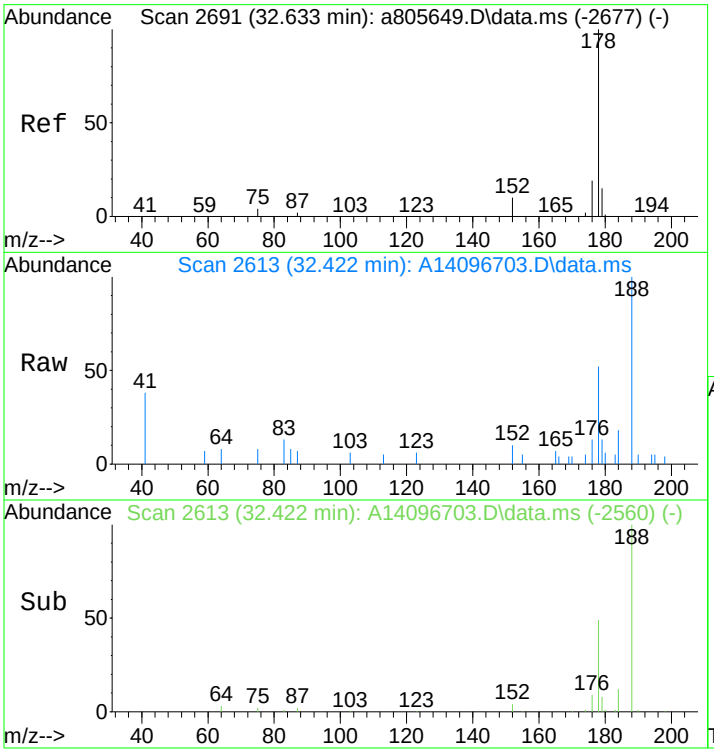


#39
C2-Dibenzothiophenes
Concen: 7.69 ng/mL m
RT: 36.191 min Scan# 3026
Delta R.T. 0.499 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:212 Resp: 1486

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

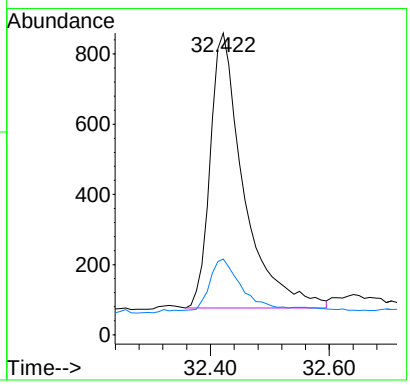


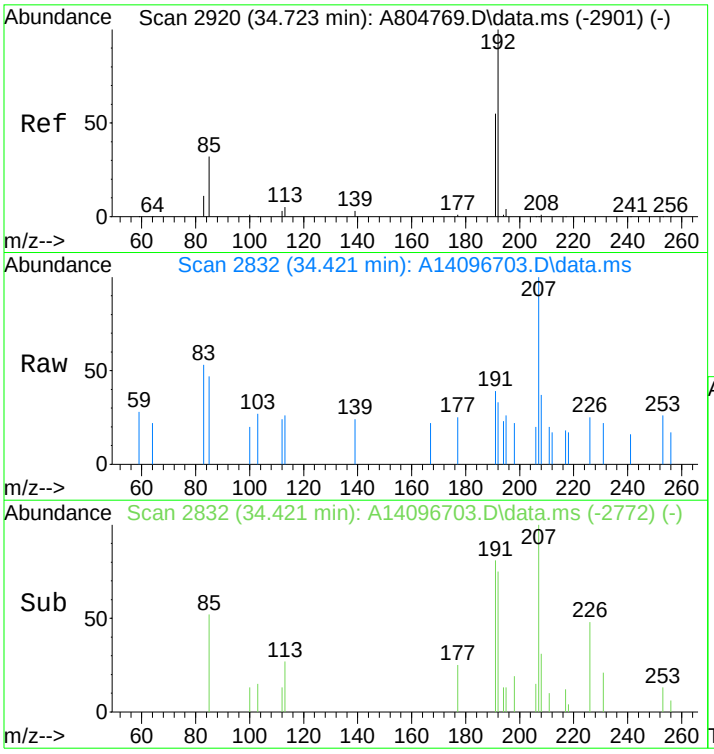


#43
Phenanthrene
Concen: 14.96 ng/mL
RT: 32.422 min Scan# 2613
Delta R.T. -0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:178 Resp: 3071

Ion	Ratio	Lower	Upper
178	100		
176	16.9	14.8	22.2

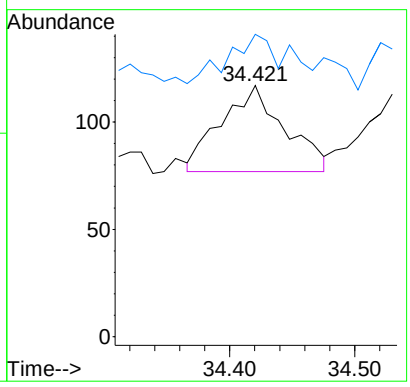


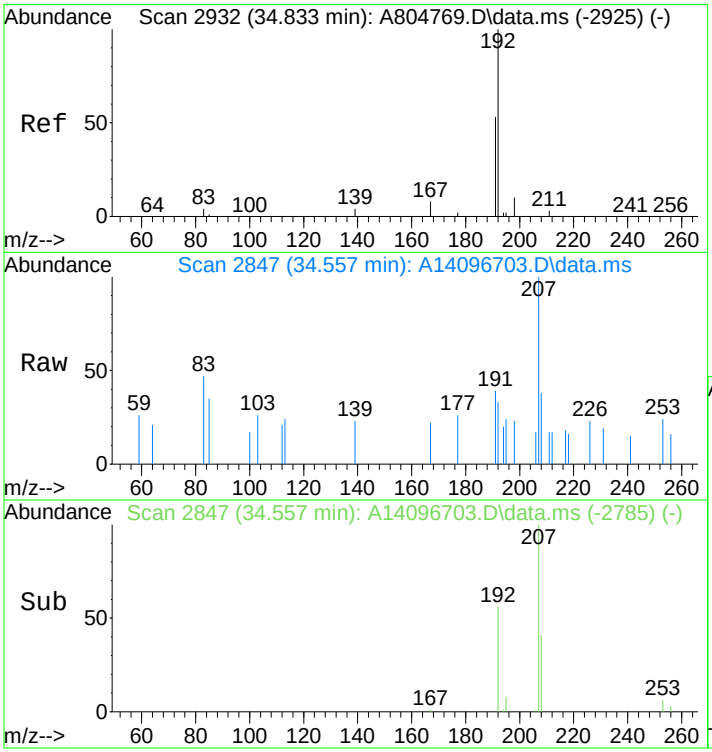


#44
3-Methylphenanthrene(3MP)
Concen: 0.69 ng/mL m
RT: 34.421 min Scan# 2832
Delta R.T. 0.045 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 141

Ion	Ratio	Lower	Upper
192	100		
191	97.2	45.2	67.8#

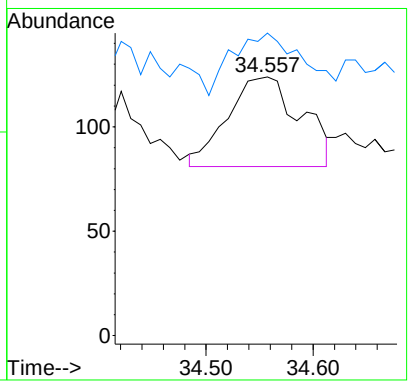


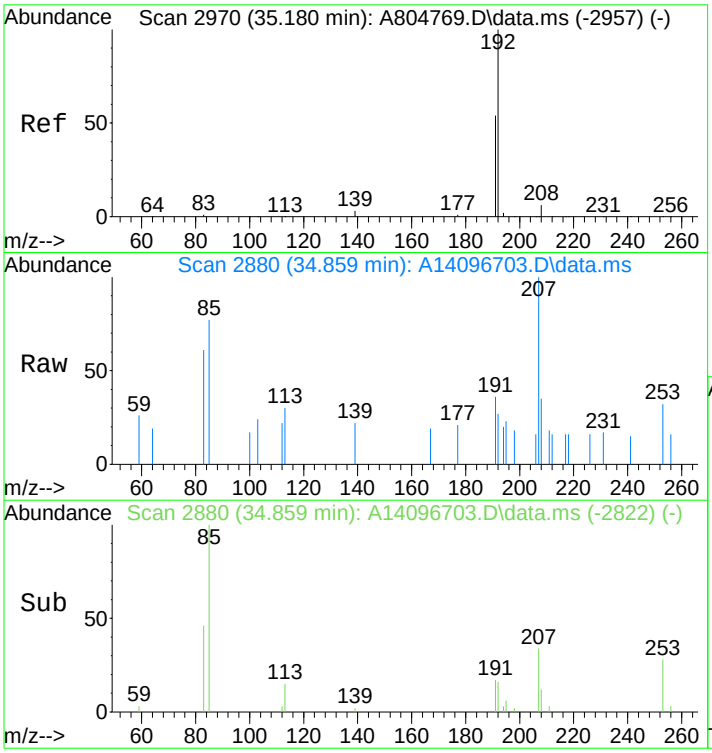


#45
2-Methylphenanthrene(2MP)
Concen: 0.99 ng/mL m
RT: 34.557 min Scan# 2847
Delta R.T. 0.064 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 204

Ion	Ratio	Lower	Upper
192	100		
191	67.2	44.6	66.8#

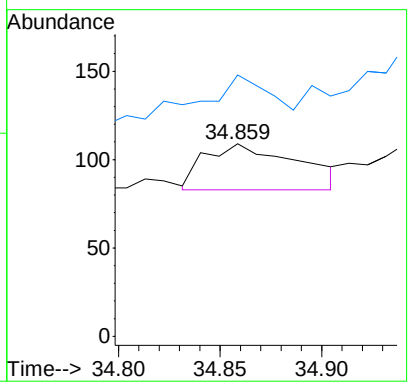


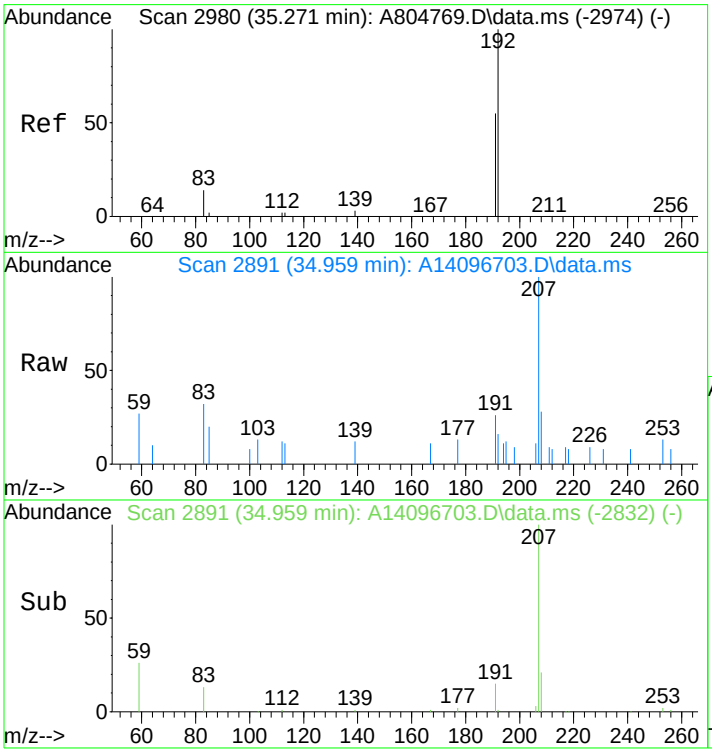


#47
9/4-Methylphenanthrene(9MP)
Concen: 0.40 ng/mL m
RT: 34.859 min Scan# 2880
Delta R.T. 0.027 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 82

Ion	Ratio	Lower	Upper
192	100		
191	167.1	44.1	66.1#

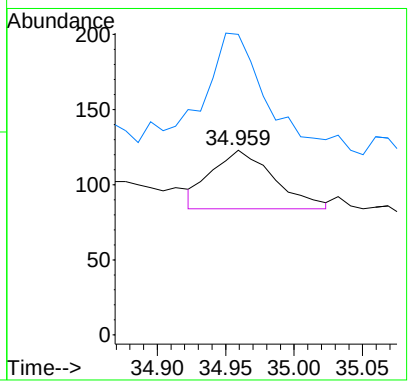


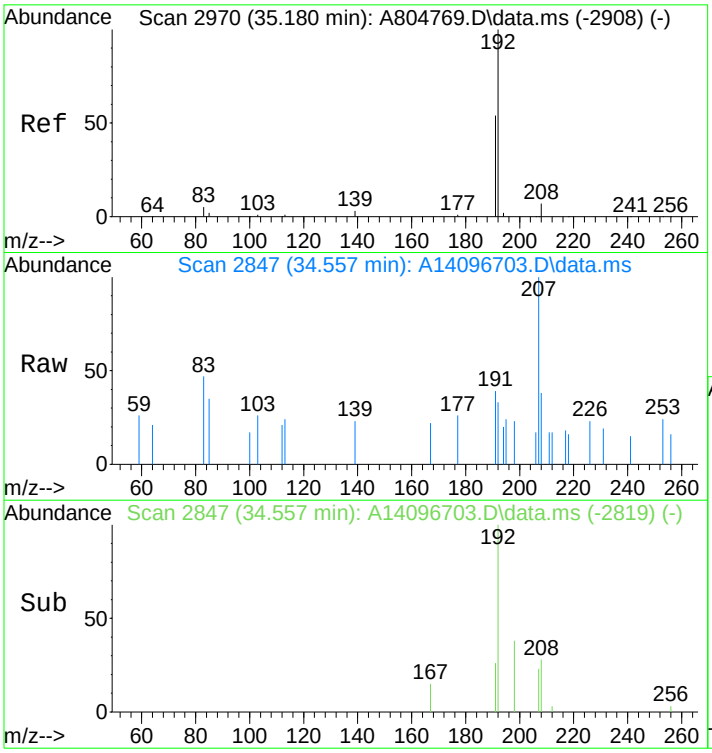


#48
1-Methylphenanthrene(1MP)
Concen: 0.60 ng/mL m
RT: 34.959 min Scan# 2891
Delta R.T. 0.036 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 124

Ion	Ratio	Lower	Upper
192	100		
191	110.5	46.2	69.4#

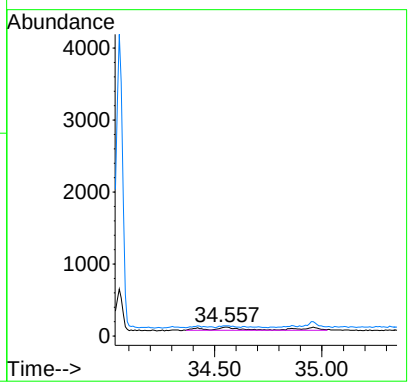


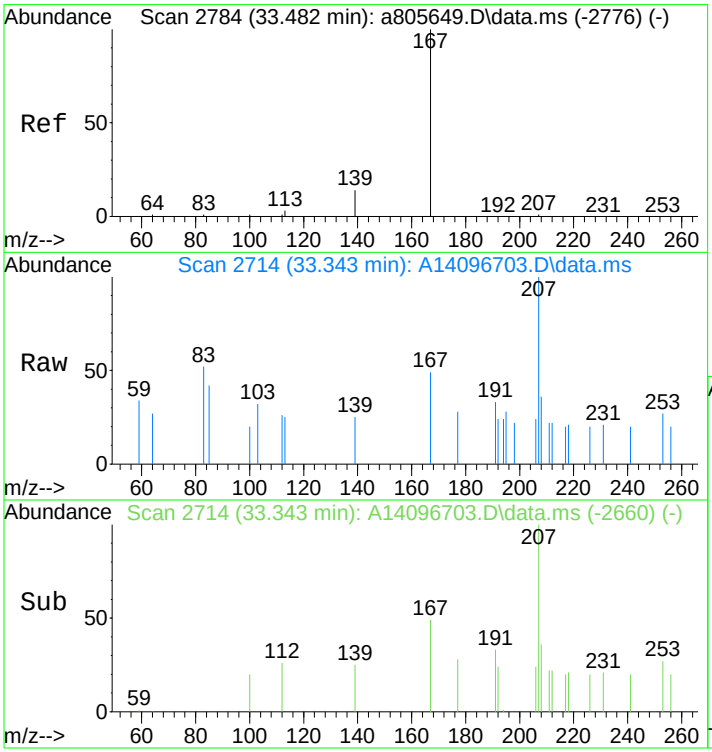


#49
C1-Phenanthrenes/Anthracenes
Concen: 3.64 ng/mL m
RT: 34.557 min Scan# 2847
Delta R.T. -0.228 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 748

Ion	Ratio	Lower	Upper
192	100		
191	18.3	43.8	65.8#

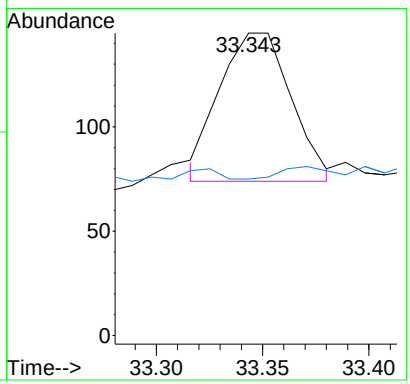


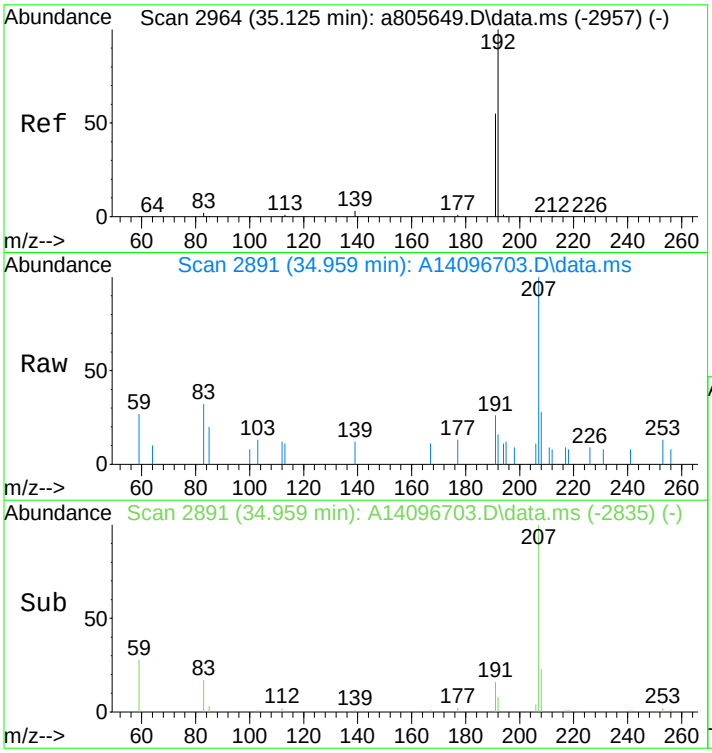


#56
Carbazole
Concen: 0.87 ng/mL m
RT: 33.343 min Scan# 2714
Delta R.T. -0.009 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:167 Resp: 166

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.8	17.8#

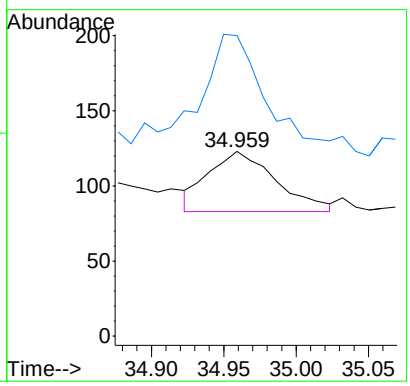


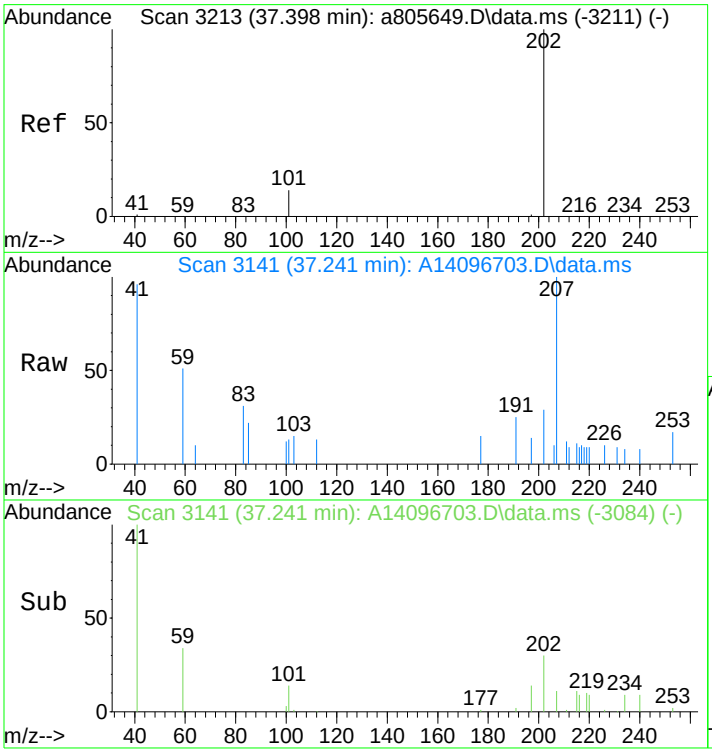


#57
1-Methylphenanthrene
Concen: 0.84 ng/mL m
RT: 34.959 min Scan# 2891
Delta R.T. 0.009 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:192 Resp: 130

Ion	Ratio	Lower	Upper
192	100		
191	105.4	45.0	67.4#

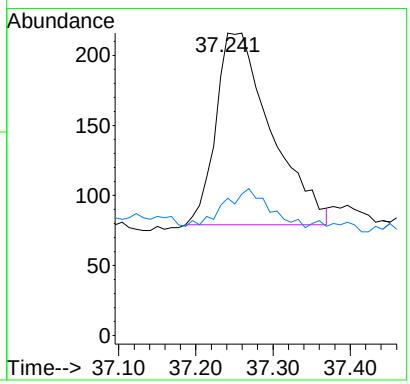


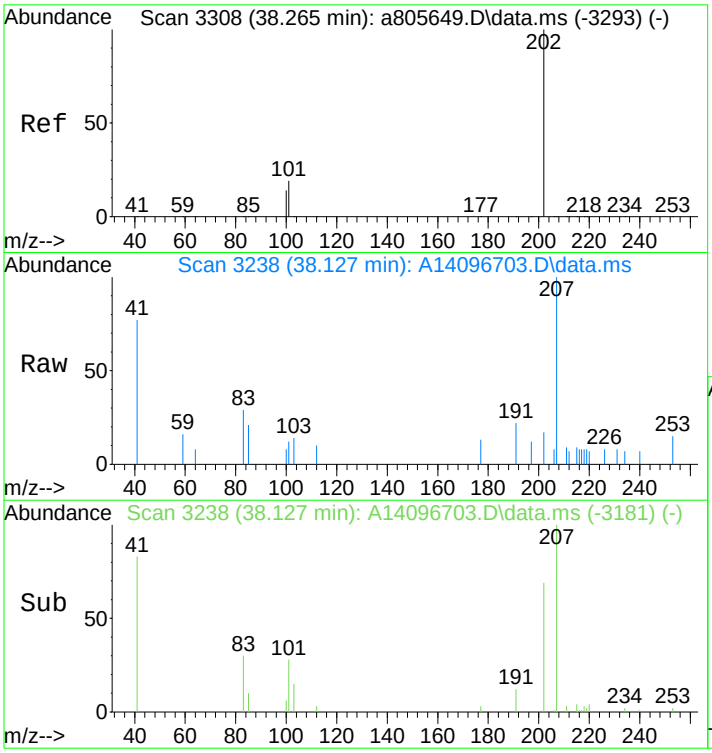


#58
Fluoranthene
Concen: 3.27 ng/mL
RT: 37.241 min Scan# 3141
Delta R.T. 0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:202 Resp: 684

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.8	17.8#

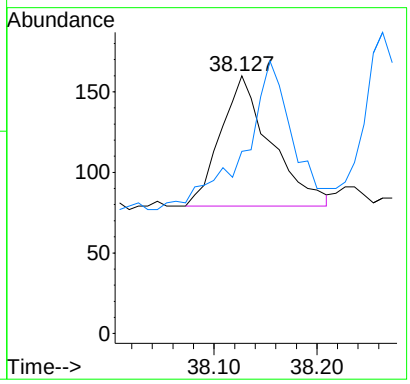


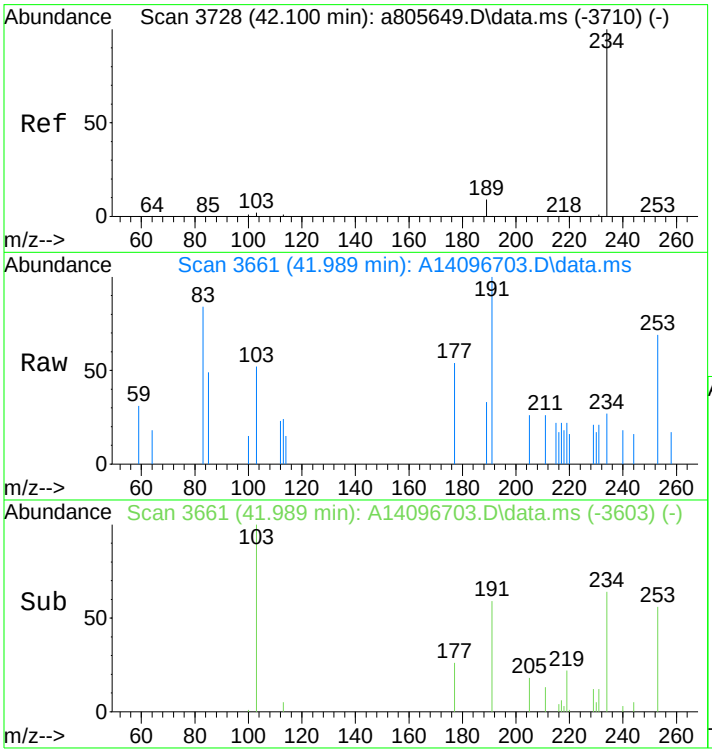


#60
Pyrene
Concen: 1.26 ng/mL
RT: 38.127 min Scan# 3238
Delta R.T. 0.018 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:202 Resp: 275

Ion	Ratio	Lower	Upper
202	100		
101	0.0	13.8	20.6#

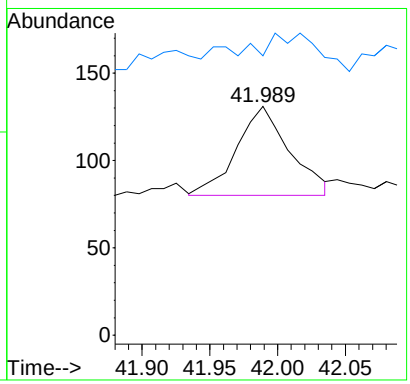


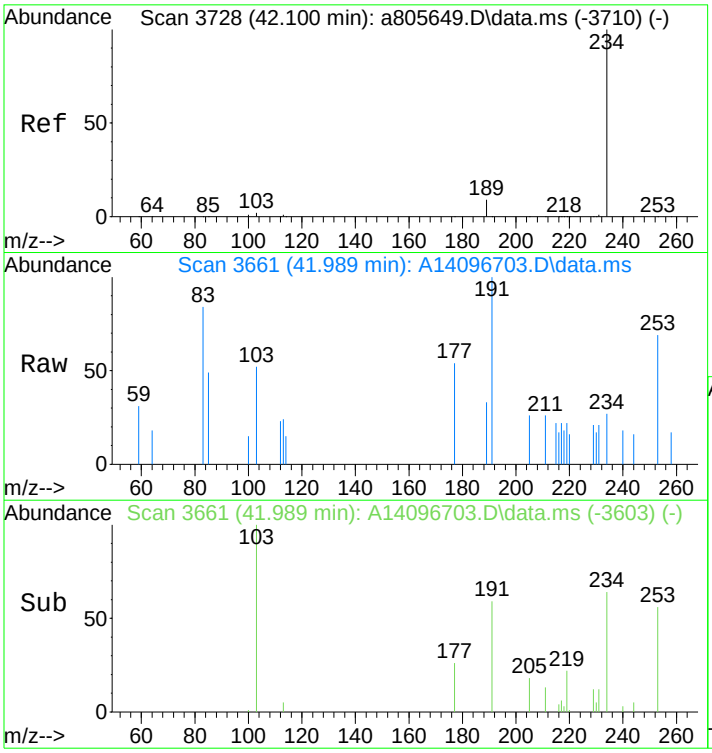


#66
Naphthobenzothiophene
Concen: 0.74 ng/ml m
RT: 41.989 min Scan# 3661
Delta R.T. 0.027 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:234 Resp: 139

Ion	Ratio	Lower	Upper
234	100		
189	0.0	29.1	43.7#

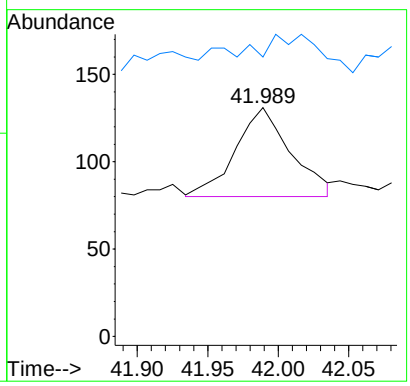


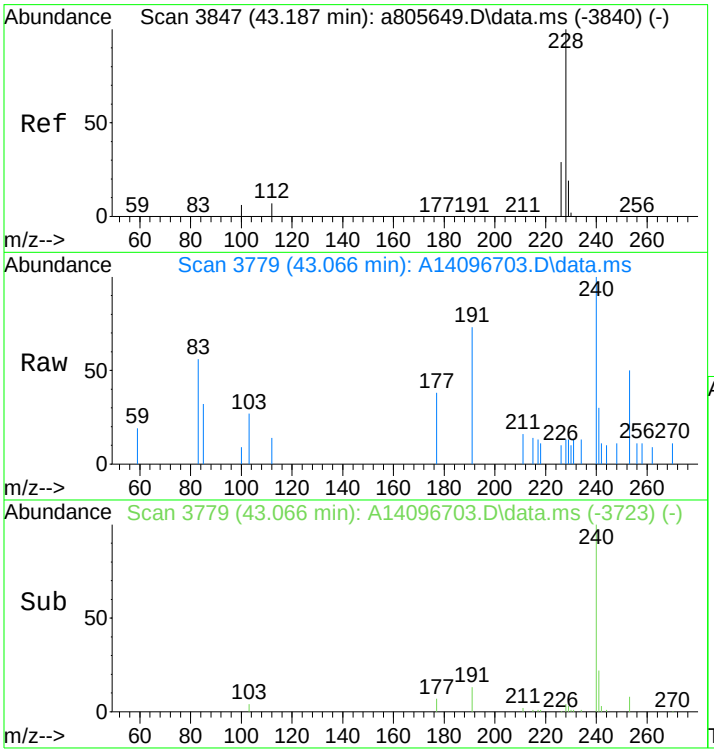


#67
Naphthobenzothiophene-2,1-D
Concen: 0.74 ng/mL m
RT: 41.989 min Scan# 3661
Delta R.T. 0.027 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:234 Resp: 139

Ion	Ratio	Lower	Upper
234	100		
189	0.0	29.1	43.7#

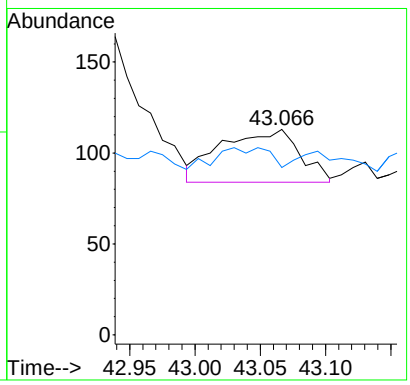


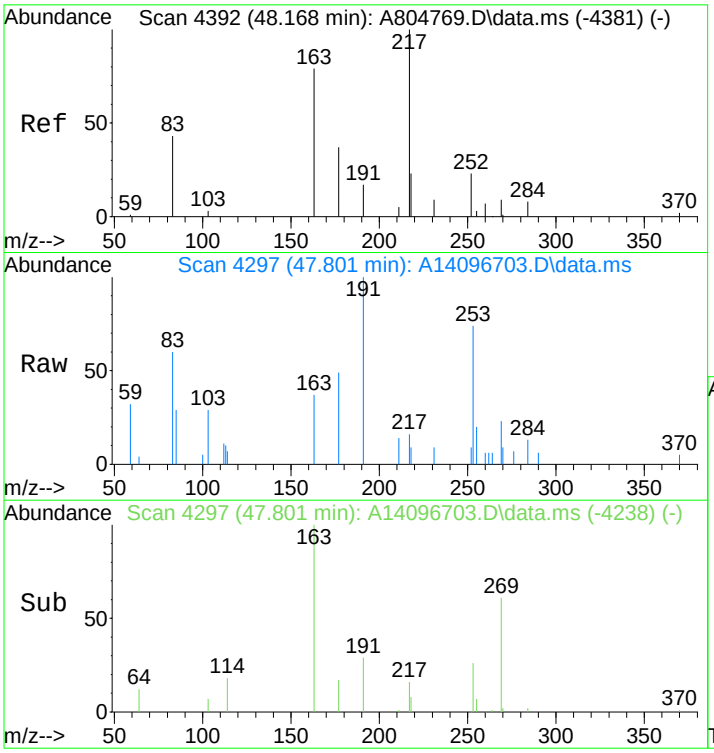


#77
Chrysene/Triphenylene
Concen: 0.53 ng/mL m
RT: 43.066 min Scan# 3779
Delta R.T. 0.009 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:228 Resp: 121

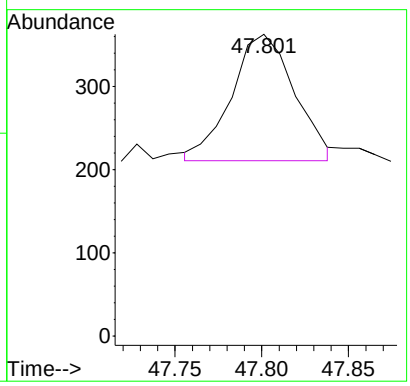
Ion	Ratio	Lower	Upper
228	100		
226	0.0	22.2	33.2#





#133
Unknown Sterane (S18)
Concen: 9.18 ng/ml m
RT: 47.801 min Scan# 4297
Delta R.T. 0.036 min
Lab File: A14096703.D
Acq: 21 Jun 2012 3:33 pm

Tgt Ion:217 Resp: 382



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096371.D
Acq On : 18 May 2012 1:35 pm
Operator : PAH14:MT
Sample : I1405181201
Misc : WG537732
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:15:57 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sun Mar 04 12:52:10 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.948	164	65221	500.000	ng/mL	0.04
74) Chrysene-d12	43.413	240	114297	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	20.030	136	2133M1	7.731	ng/mL	0.10
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.77%#		
42) Phenanthrene-d10	32.869	188	1994M4	9.200	ng/mL	0.07
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.92%#		
86) Benzo[a]pyrene-d12	48.587	264	2201	9.450	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery =	0.95%#		
127) 5B(H)Cholane - Surr	43.970	217	467M4	11.666	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.17%#		
Target Compounds						Qvalue
3) trans-Decalin	16.545	138	277	4.418	ng/mL	100
4) cis-Decalin	17.758	138	209	4.370	ng/mL	100
10) Naphthalene	20.122	128	2377	7.667	ng/mL#	100
16) 2-Methylnaphthalene	22.859	142	1453M4	7.468	ng/mL	
17) 1-Methylnaphthalene	23.243	142	1401M4	7.452	ng/mL	
18) Benzothiophene	20.332	134	1640M4	6.481	ng/mL	
23) Biphenyl	24.712	154	1967M4	8.248	ng/mL	
24) 2,6-Dimethylnaphthalene	25.342	156	1505	9.189	ng/mL#	100
25) Dibenzofuran	27.814	168	1864M4	7.630	ng/mL	
26) Acenaphthylene	26.354	152	2528M4	9.095	ng/mL	
27) Acenaphthene	27.066	153	1596M4	8.958	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.690	170	1318	9.615	ng/mL	97
29) Fluorene	29.174	166	1738M4	9.120	ng/mL	
33) Dibenzothiophene	32.468	184	2382	9.195	ng/mL	96
43) Phenanthrene	32.960	178	2534M4	9.524	ng/mL	
54) Retene	39.880	234	1028	17.282	ng/mL	96
55) Anthracene	33.161	178	2528M4	10.209	ng/mL	
56) Carbazole	33.845	167	1888	7.407	ng/mL#	66
57) 1-Methylphenanthrene	35.461	192	1975	11.408	ng/mL	92
58) Fluoranthene	37.716	202	2463	9.694	ng/mL	94
59) Benzo(b)fluorene	40.227	216	1748	11.948	ng/mL	97
60) Pyrene	38.593	202	2701	10.344	ng/mL	94
66) Naphthobenzothiophene	42.427	234	2291M4	10.179	ng/ml	
67) Naphthobenzothiophene-2,1	42.427	234	2301M4	10.224	ng/mL	
75) Benz[a]anthracene	43.358	228	2732	11.151	ng/mL	96
76) Chrysene	43.514	228	2635	9.987	ng/mL	98
77) Chrysene/Triphenylene	43.514	228	2635	9.987	ng/mL	98
82) Benzo[b]fluoranthene	47.453	252	2390M4	8.607	ng/mL	
83) Benzo[j]+[k]fluoranthene	47.535	252	2903	9.668	ng/mL	93
85) Benzo[e]pyrene	48.468	252	2610	9.291	ng/mL	98
87) Benzo[a]pyrene	48.678	252	2206	8.418	ng/mL	96
88) Perylene	48.989	252	2512	9.093	ng/mL	99
89) Indeno[1,2,3-cd]pyrene	53.662	276	2845M3	10.163	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.672	278	2681	9.353	ng/mL	96
91) Benzo[g,h,i]perylene	54.997	276	2764	8.704	ng/mL	98
92) Hopane (T19)	52.520	191	930M4	12.579	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.520	191	936M4	12.660	ng/mL	

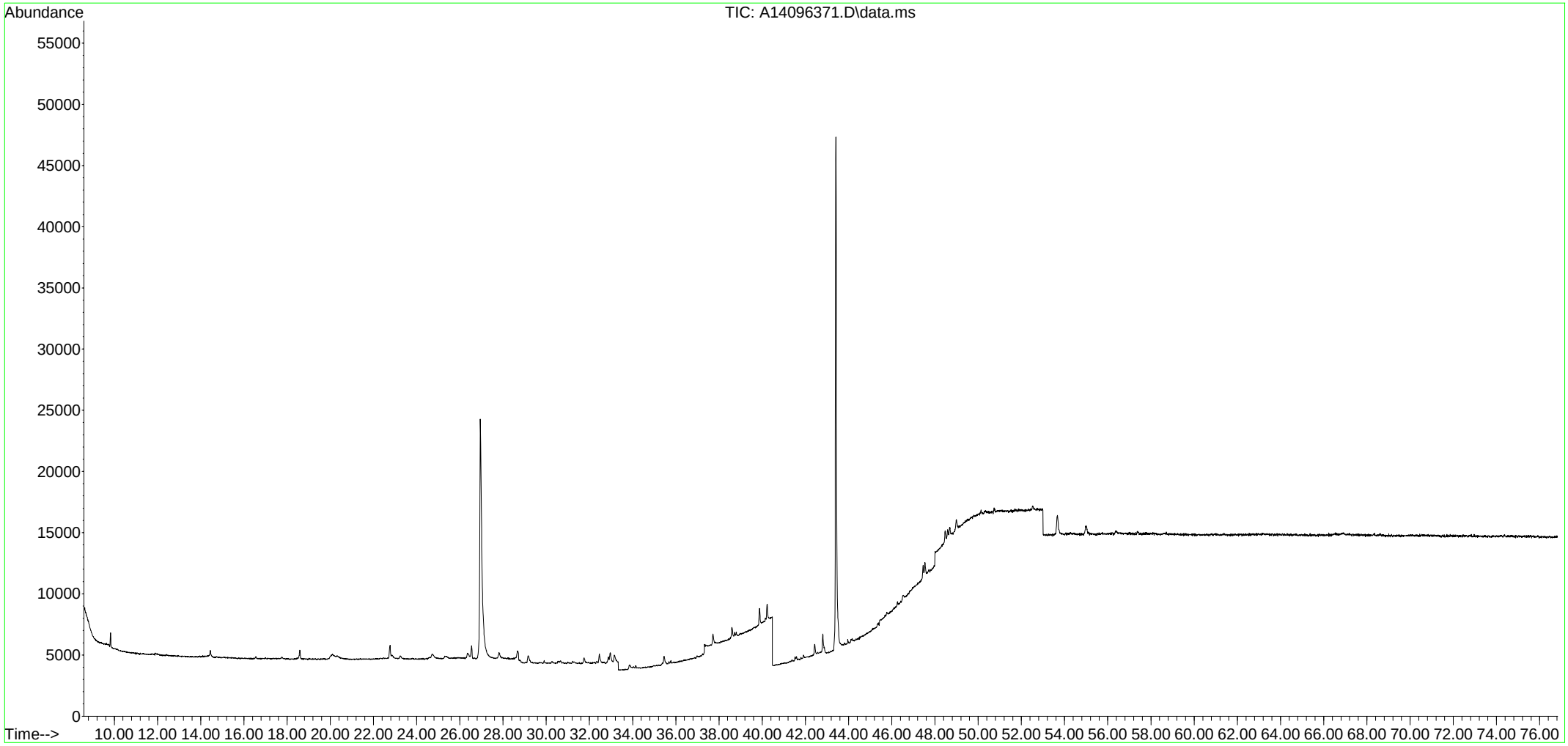
(#) = qualifier out of range (m) = manual integration (+) = signals summed

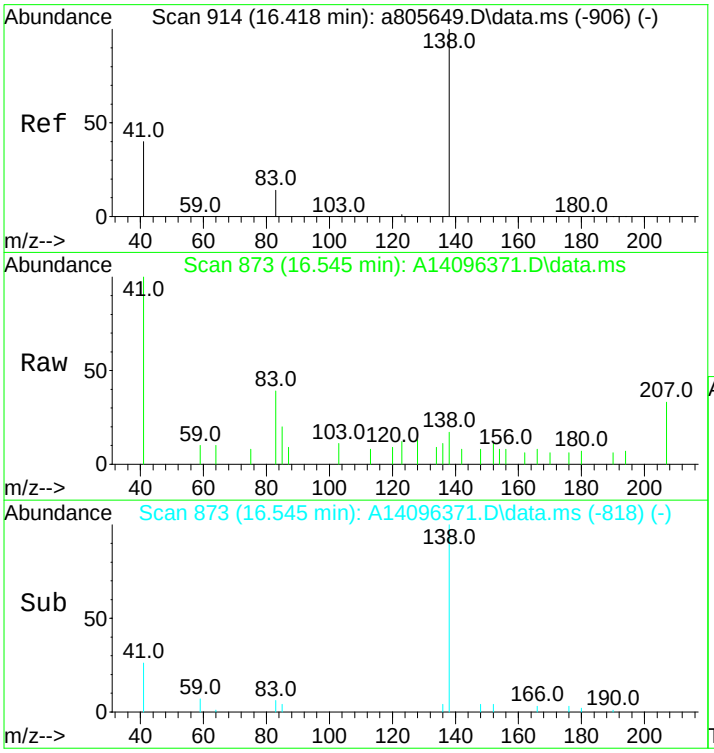
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096371.D
Acq On : 18 May 2012 1:35 pm
Operator : PAH14:MT
Sample : I1405181201
Misc : WG537732
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:15:57 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sun Mar 04 12:52:10 2012
Response via : Initial Calibration

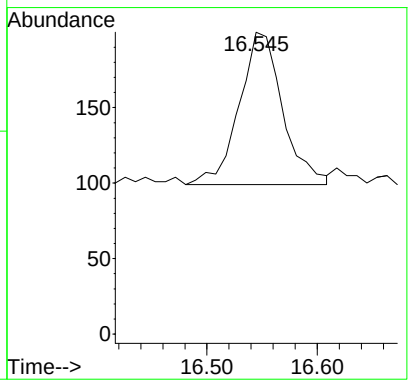
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

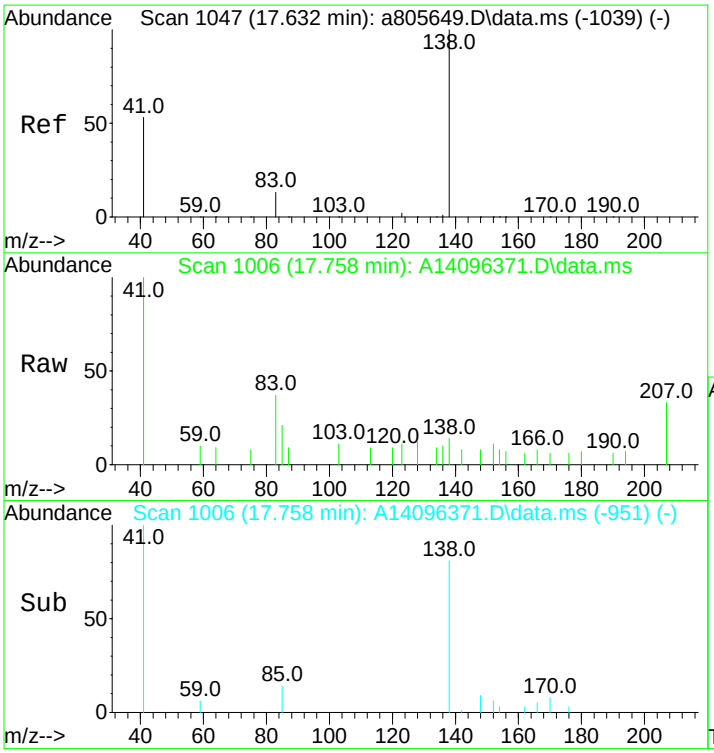




#3
trans-Decalin
Concen: 4.42 ng/mL
RT: 16.545 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

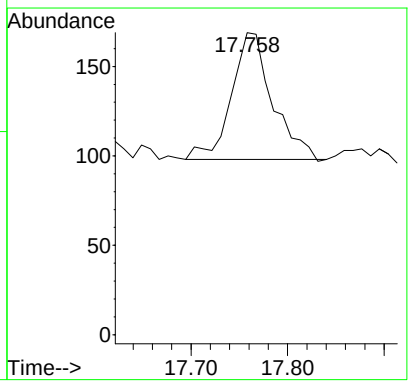
Tgt Ion:138 Resp: 277

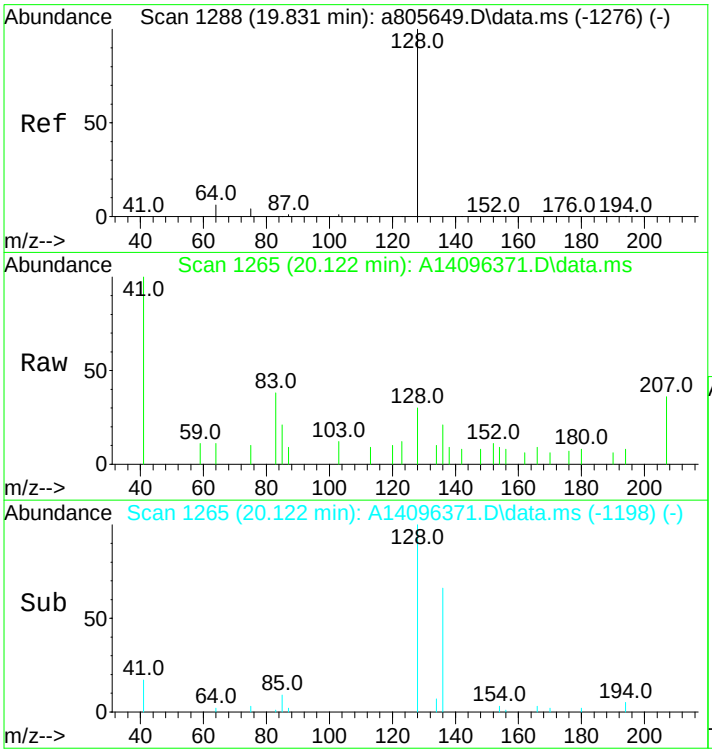




#4
cis-Decalin
Concen: 4.37 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:138 Resp: 209

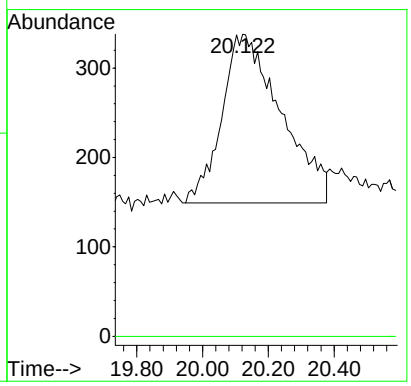


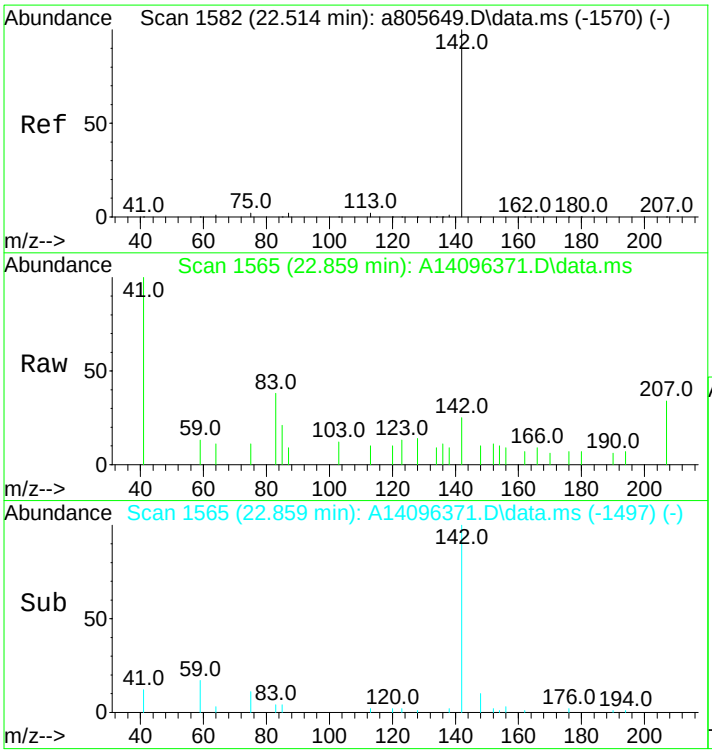


#10
Naphthalene
Concen: 7.67 ng/mL
RT: 20.122 min Scan# 1265
Delta R.T. 0.110 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:128 Resp: 2377

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

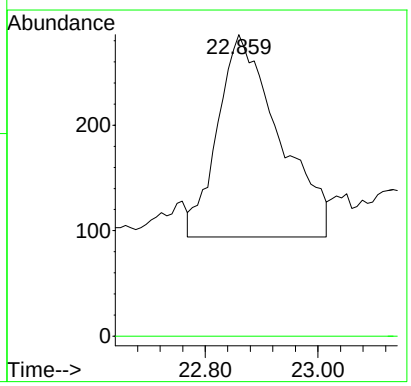


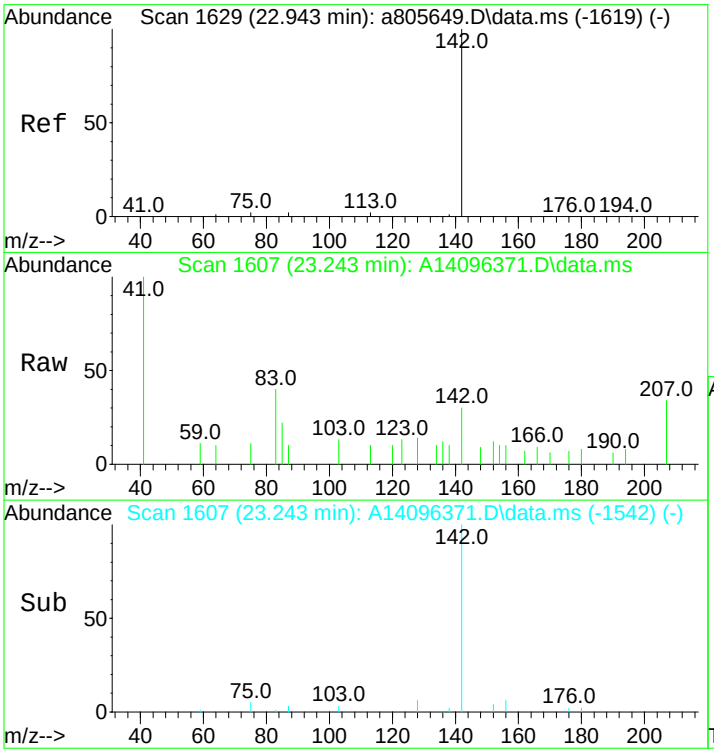


#16
2-Methylnaphthalene
Concen: 7.47 ng/mL m
RT: 22.859 min Scan# 1565
Delta R.T. 0.119 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:142 Resp: 1453

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

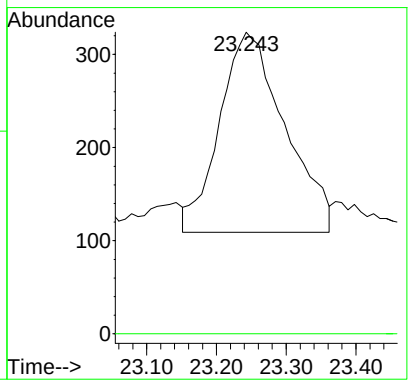


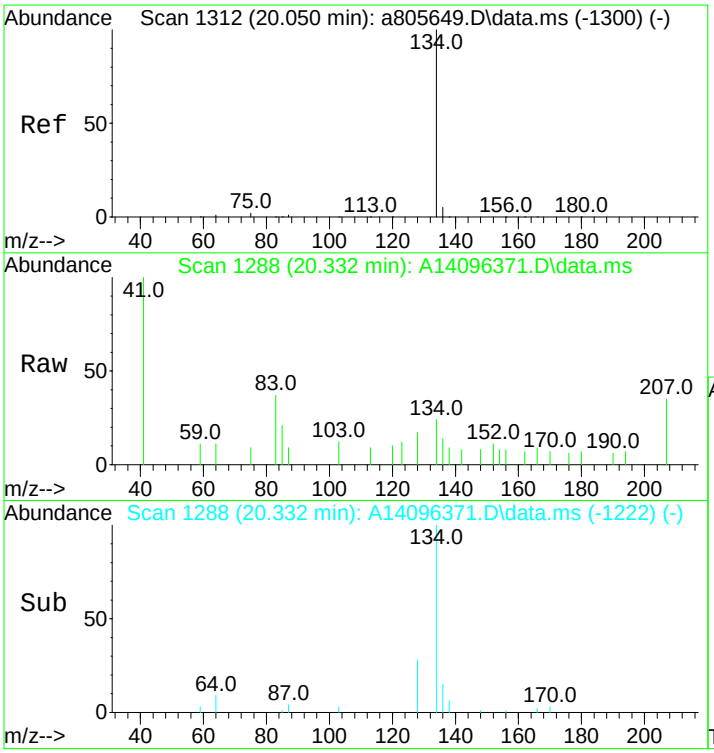


#17
1-Methylnaphthalene
Concen: 7.45 ng/mL m
RT: 23.243 min Scan# 1607
Delta R.T. 0.091 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:142 Resp: 1401

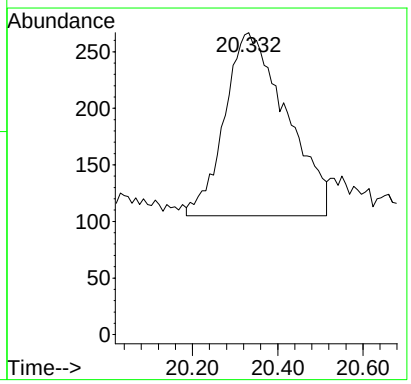
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

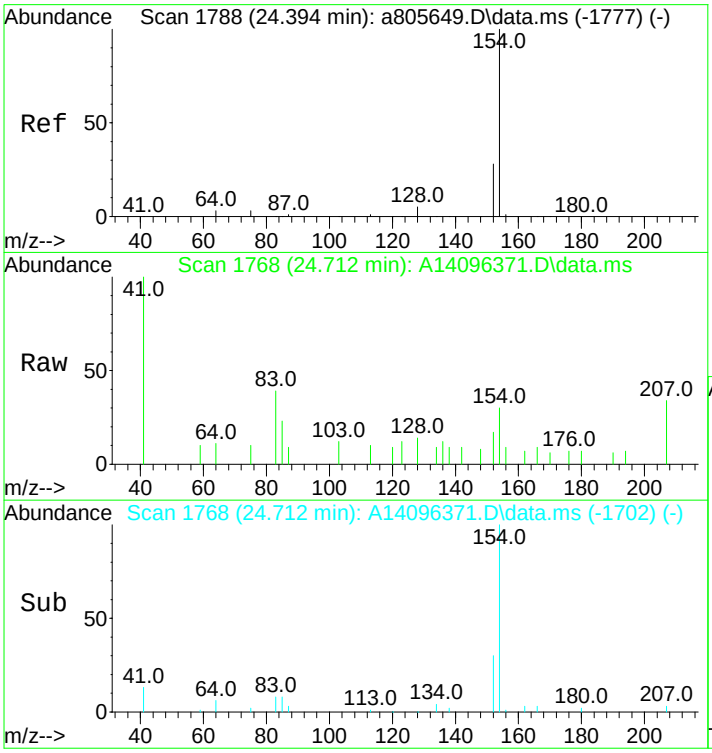




#18
Benzothiophene
Concen: 6.48 ng/mL m
RT: 20.332 min Scan# 1288
Delta R.T. 0.101 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:134 Resp: 1640

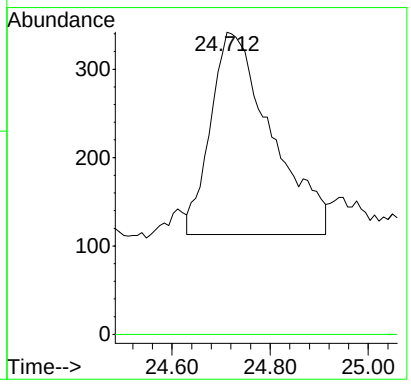


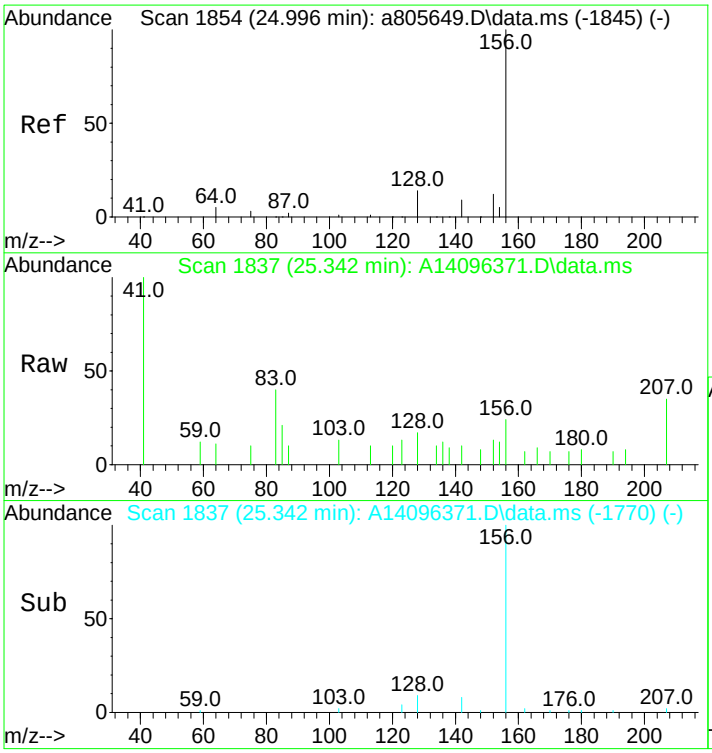


#23
Biphenyl
Concen: 8.25 ng/mL m
RT: 24.712 min Scan# 1768
Delta R.T. 0.101 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:154 Resp: 1967

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

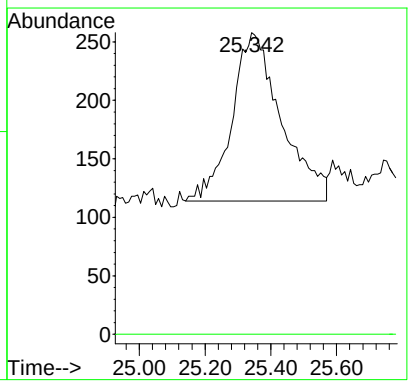


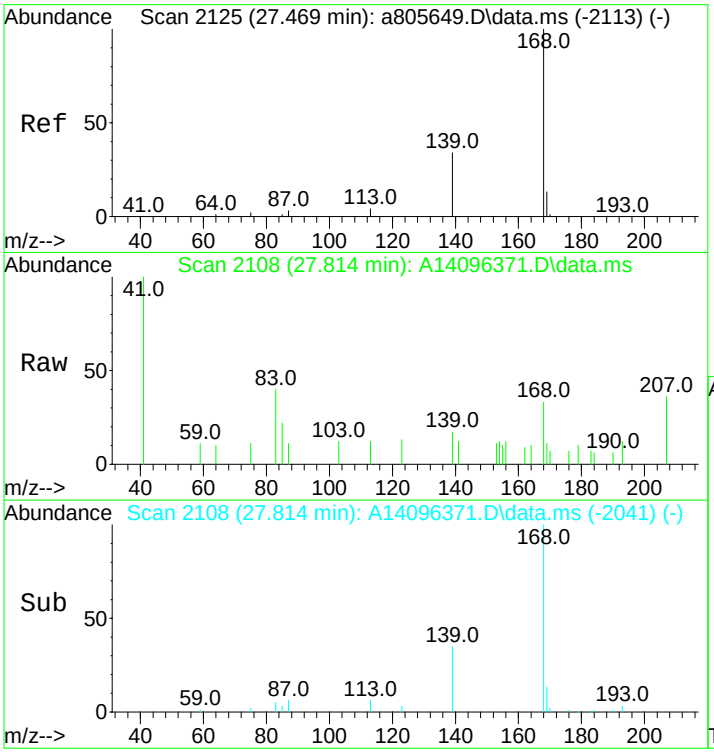


#24
2,6-Dimethylnaphthalene
Concen: 9.19 ng/mL
RT: 25.342 min Scan# 1837
Delta R.T. 0.110 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:156 Resp: 1505

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

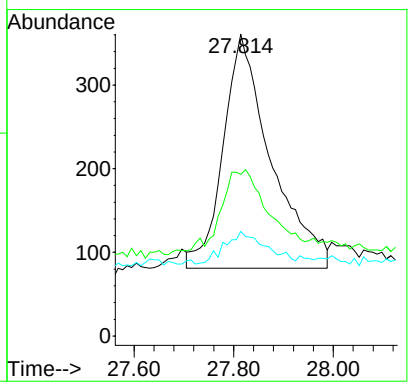


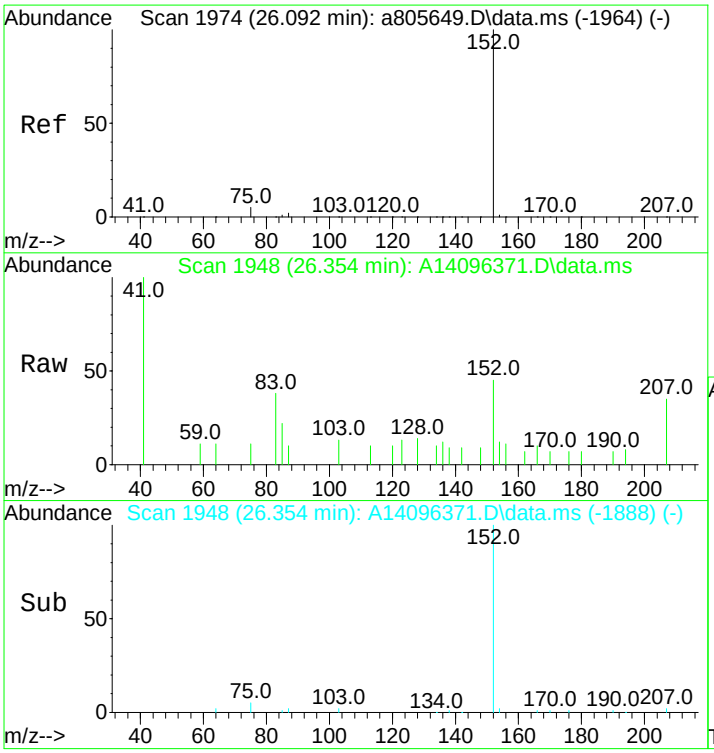


#25
Dibenzofuran
Concen: 7.63 ng/mL m
RT: 27.814 min Scan# 2108
Delta R.T. 0.110 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:168 Resp: 1864

Ion	Ratio	Lower	Upper
168	100		
139	29.2	30.9	46.3#
169	11.3	10.6	16.0

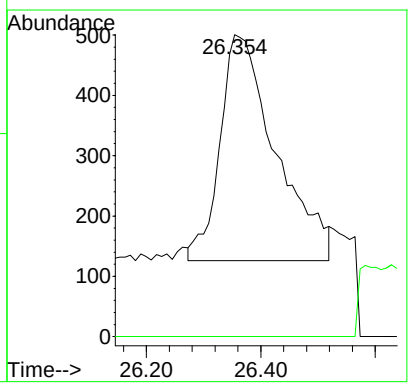


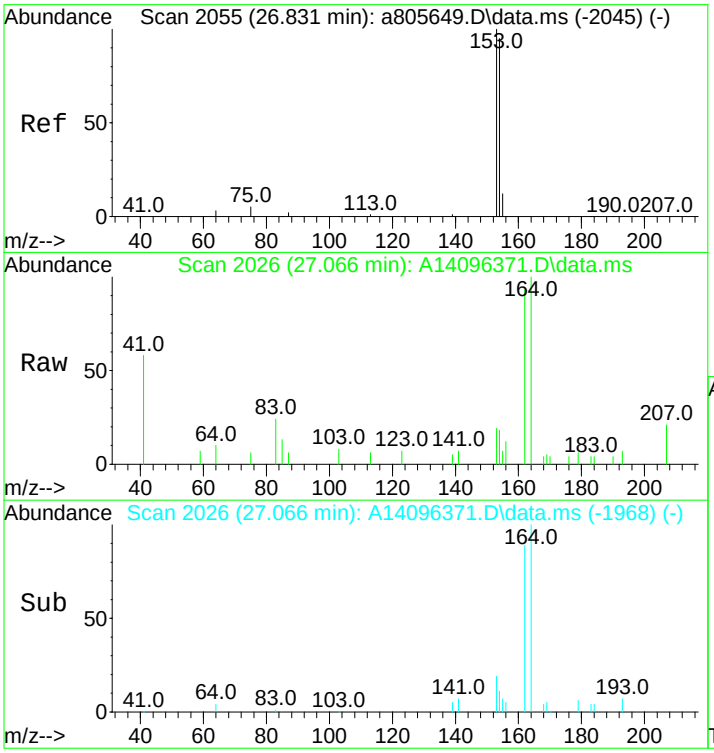


#26
Acenaphthylene
Concen: 9.09 ng/mL m
RT: 26.354 min Scan# 1948
Delta R.T. 0.046 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:152 Resp: 2528

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

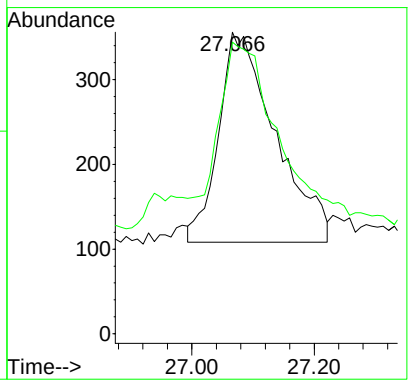


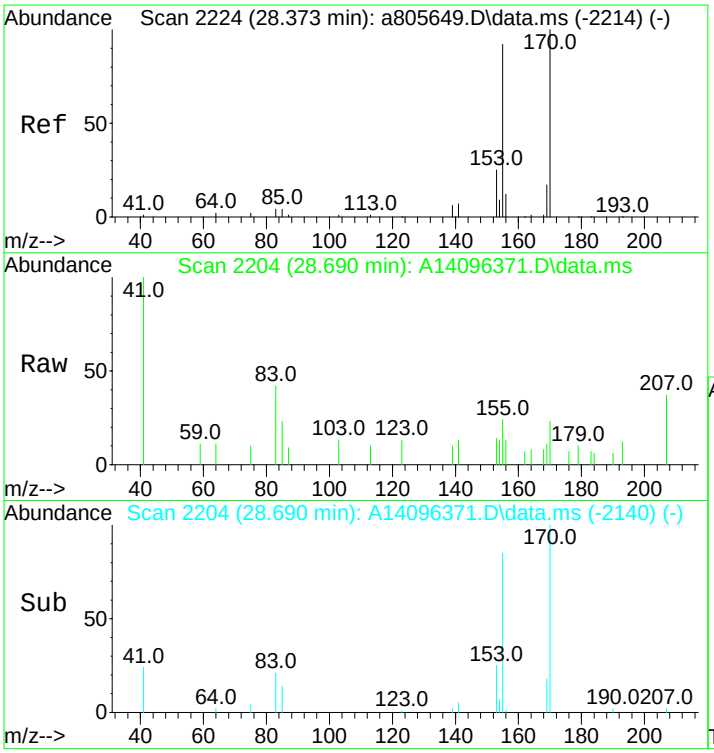


#27
Acenaphthene
Concen: 8.96 ng/mL m
RT: 27.066 min Scan# 2026
Delta R.T. 0.028 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:153 Resp: 1596

Ion	Ratio	Lower	Upper
153	100		
154	93.6	73.6	110.4

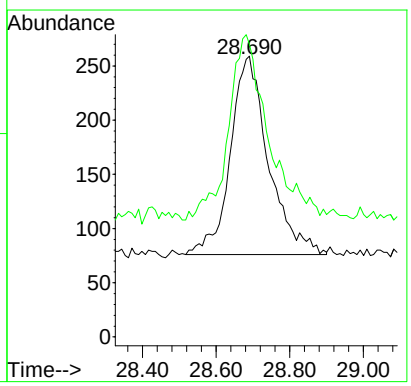


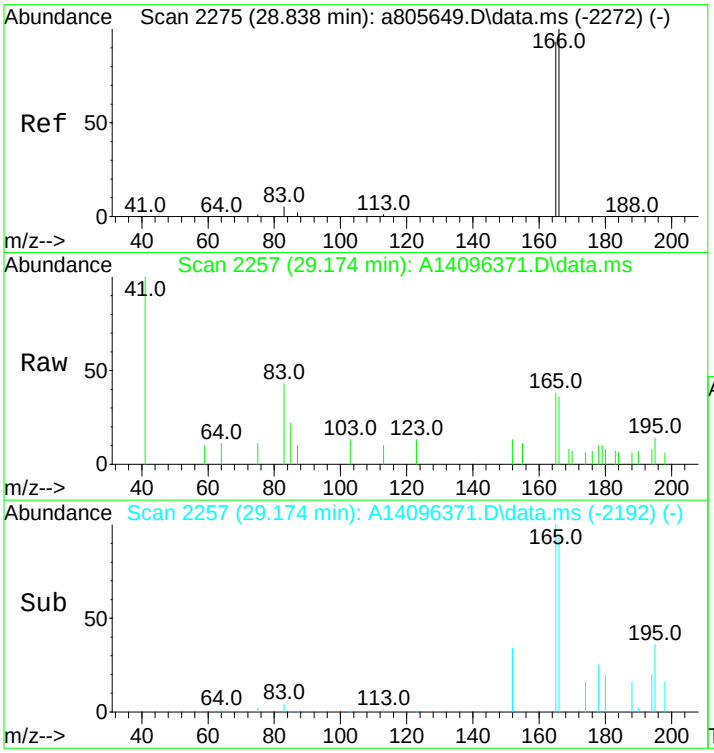


#28
2,3,5-Trimethylnaphthalene
Concen: 9.62 ng/mL
RT: 28.690 min Scan# 2204
Delta R.T. 0.082 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:170 Resp: 1318

Ion	Ratio	Lower	Upper
170	100		
155	91.7	71.2	106.8

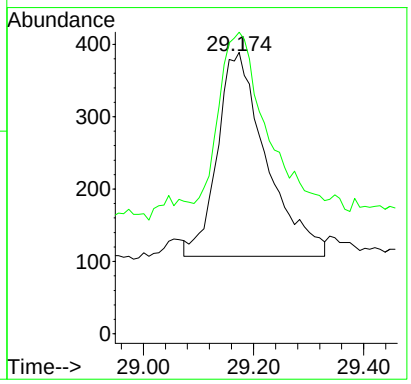


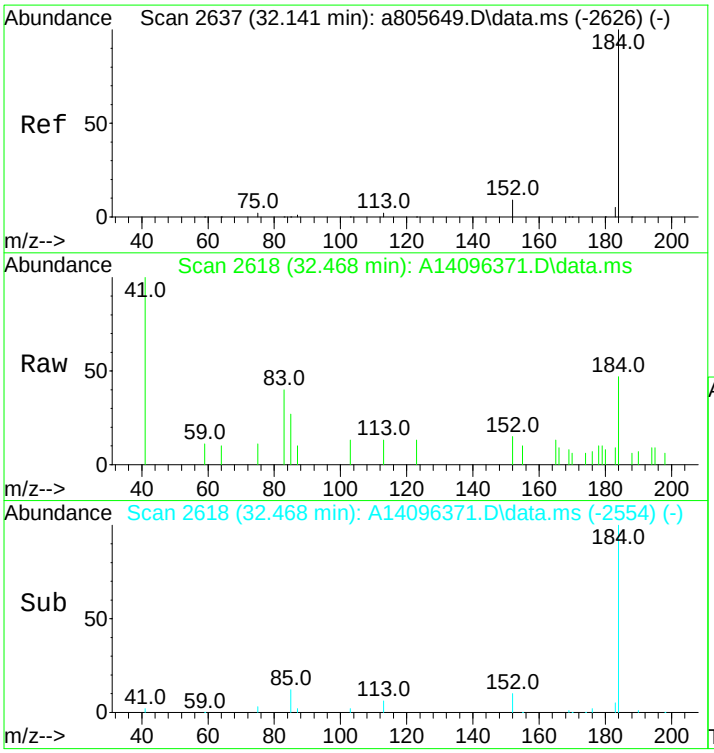


#29
Fluorene
Concen: 9.12 ng/mL m
RT: 29.174 min Scan# 2257
Delta R.T. 0.091 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:166 Resp: 1738

Ion	Ratio	Lower	Upper
166	100		
165	73.5	73.3	109.9

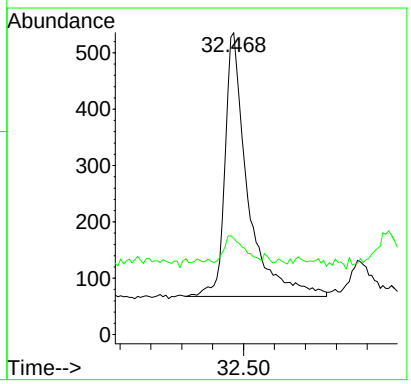


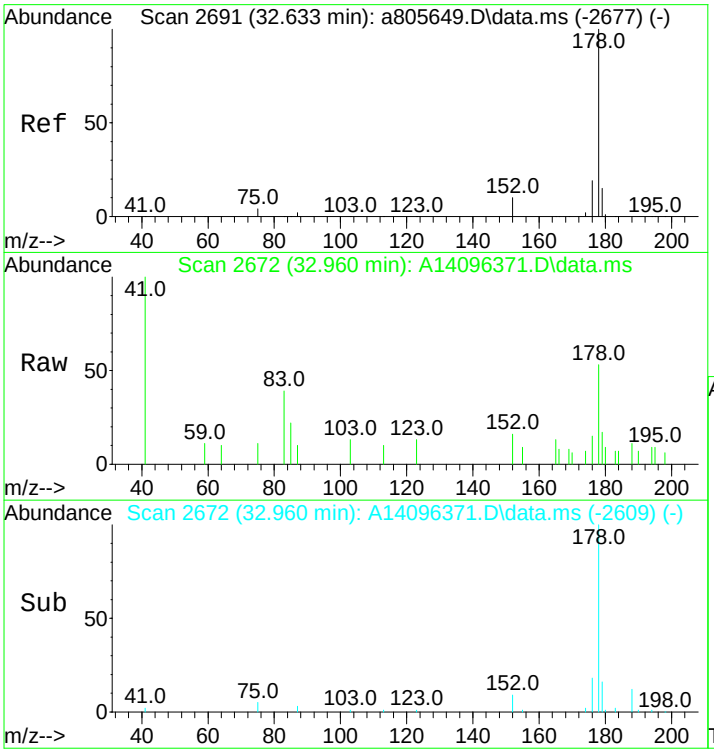


#33
Dibenzothiophene
Concen: 9.19 ng/mL
RT: 32.468 min Scan# 2618
Delta R.T. 0.082 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:184 Resp: 2382

Ion	Ratio	Lower	Upper
184	100		
152	8.6	8.2	12.2

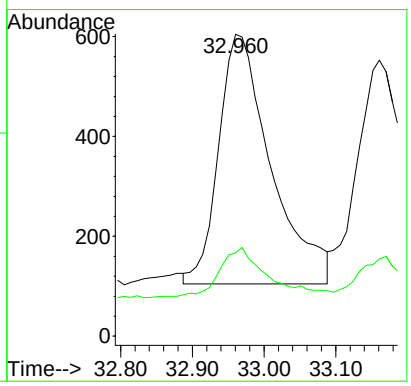


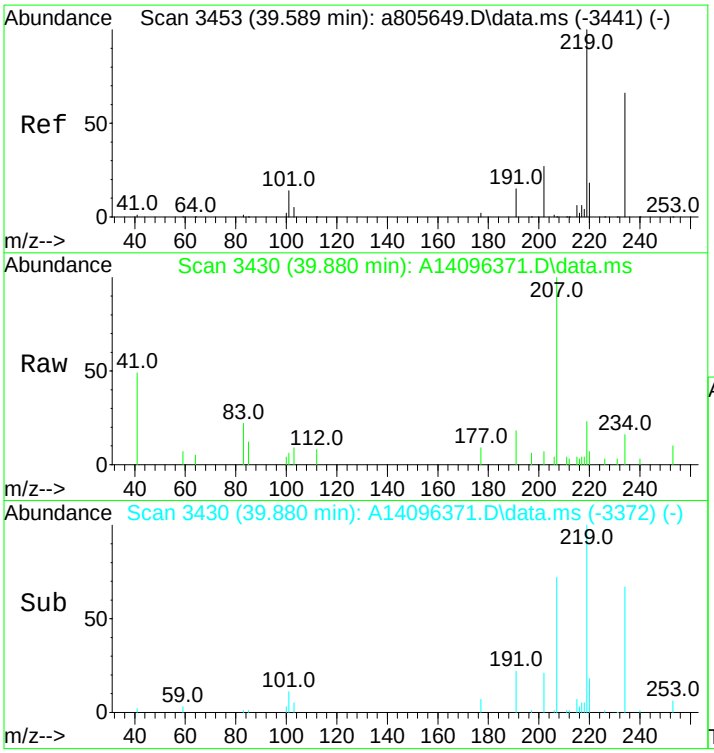


#43
Phenanthrene
Concen: 9.52 ng/mL m
RT: 32.960 min Scan# 2672
Delta R.T. 0.073 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:178 Resp: 2534

Ion	Ratio	Lower	Upper
178	100		
176	13.6	14.7	22.1#

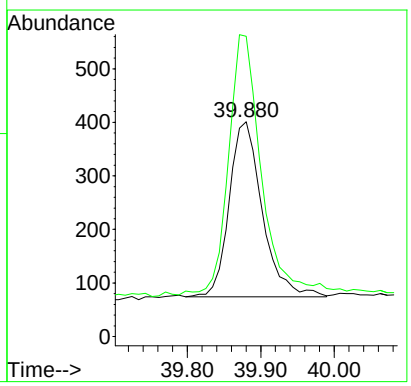


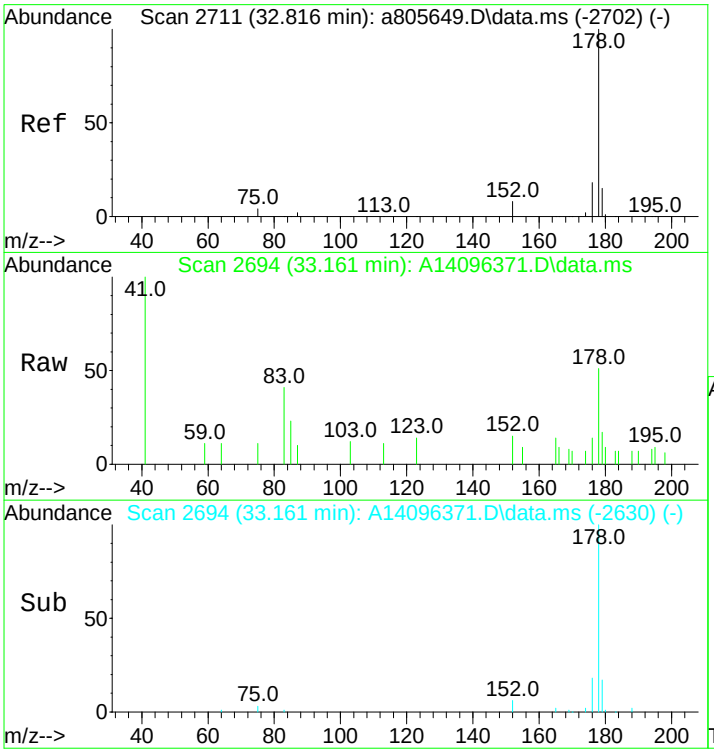


#54
Retene
Concen: 17.28 ng/mL
RT: 39.880 min Scan# 3430
Delta R.T. 0.028 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:234 Resp: 1028

Ion	Ratio	Lower	Upper
234	100		
219	153.1	118.7	178.1

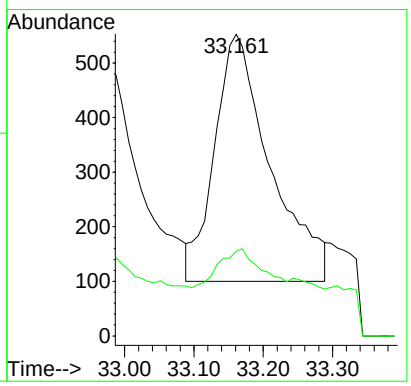


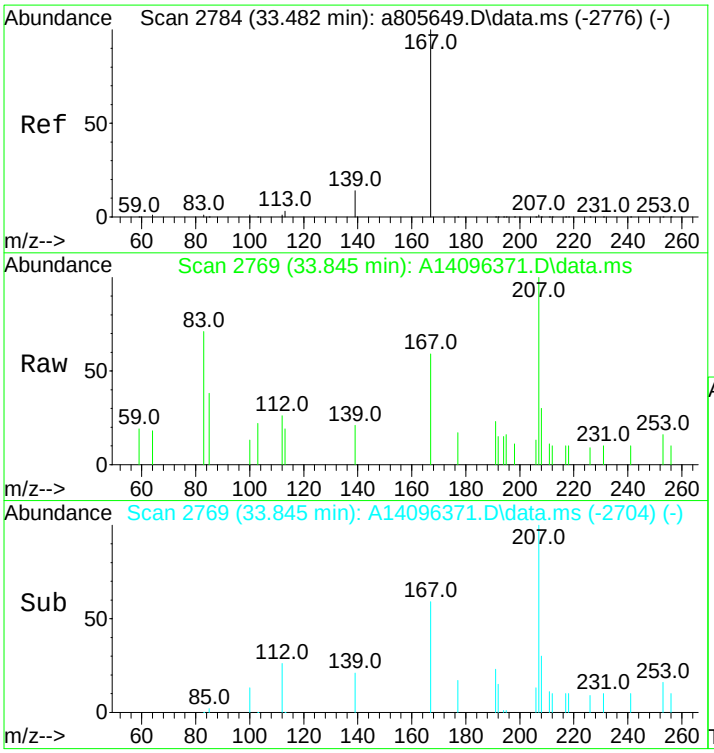


#55
Anthracene
Concen: 10.21 ng/mL m
RT: 33.161 min Scan# 2694
Delta R.T. 0.082 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:178 Resp: 2528

Ion	Ratio	Lower	Upper
178	100		
176	9.7	14.2	21.4#

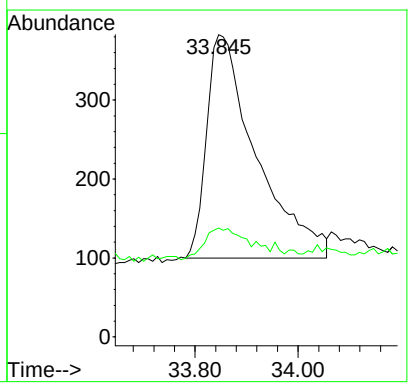


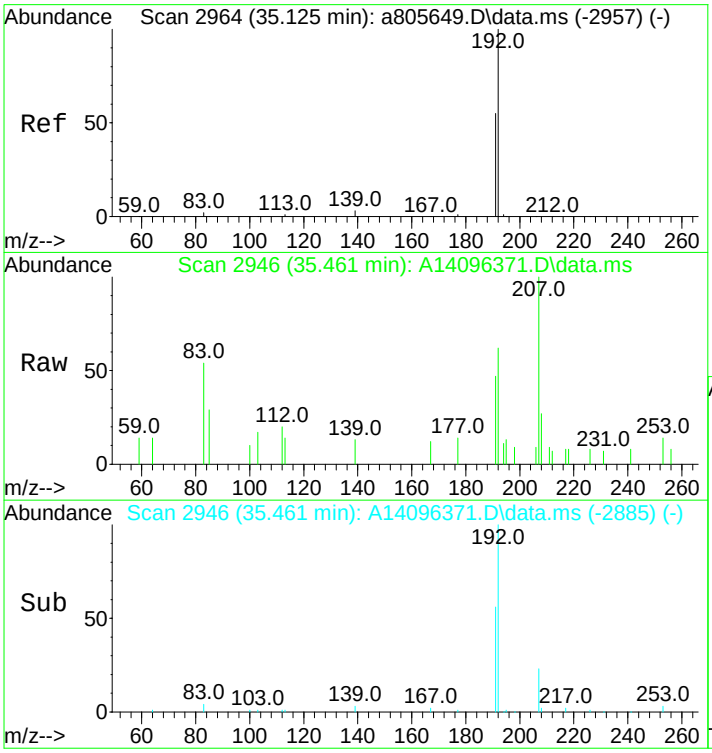


#56
Carbazole
Concen: 7.41 ng/mL
RT: 33.845 min Scan# 2769
Delta R.T. 0.091 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:167 Resp: 1888

Ion	Ratio	Lower	Upper
167	100		
139	0.0	11.0	16.4#

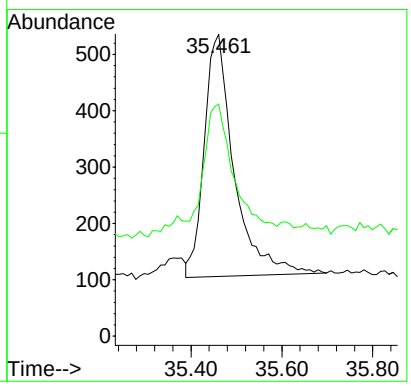


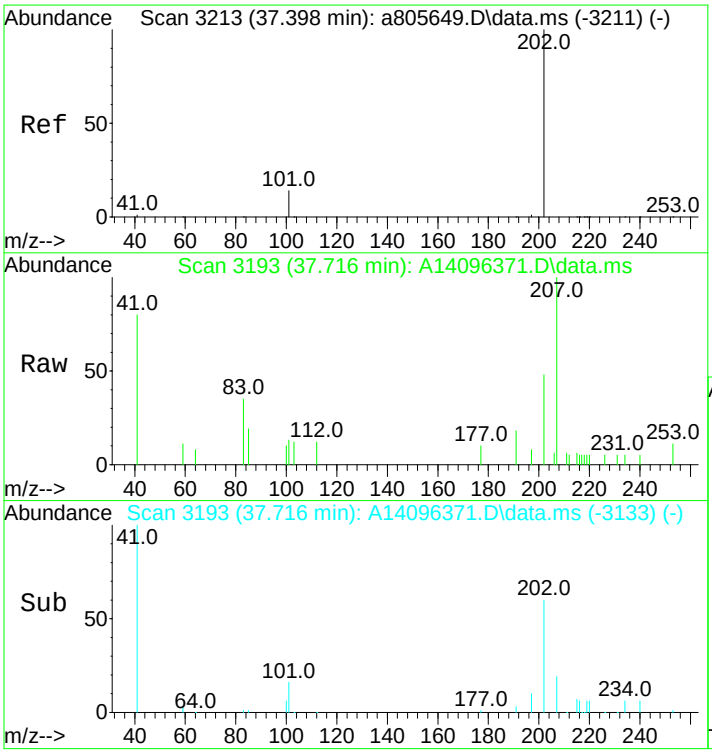


#57
1-Methylphenanthrene
Concen: 11.41 ng/mL
RT: 35.461 min Scan# 2946
Delta R.T. 0.055 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:192 Resp: 1975

Ion	Ratio	Lower	Upper
192	100		
191	49.2	43.8	65.8

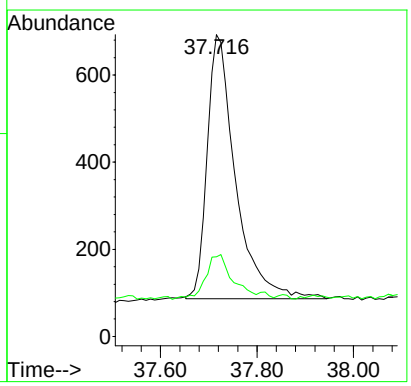


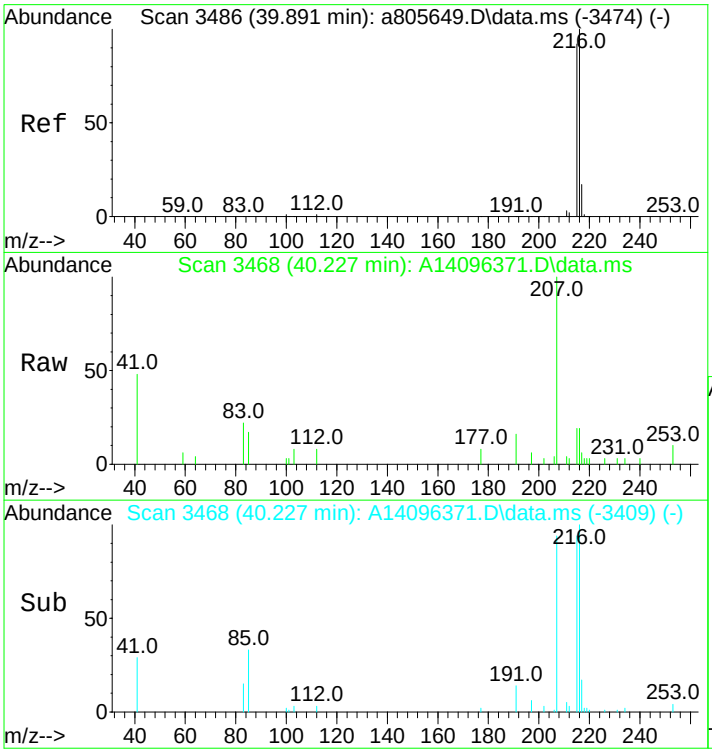


#58
Fluoranthene
Concen: 9.69 ng/mL
RT: 37.716 min Scan# 3193
Delta R.T. 0.046 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:202 Resp: 2463

Ion	Ratio	Lower	Upper
202	100		
101	13.0	12.3	18.5

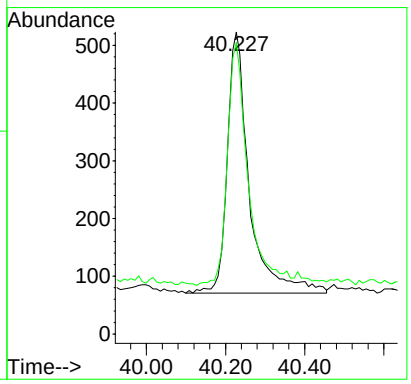


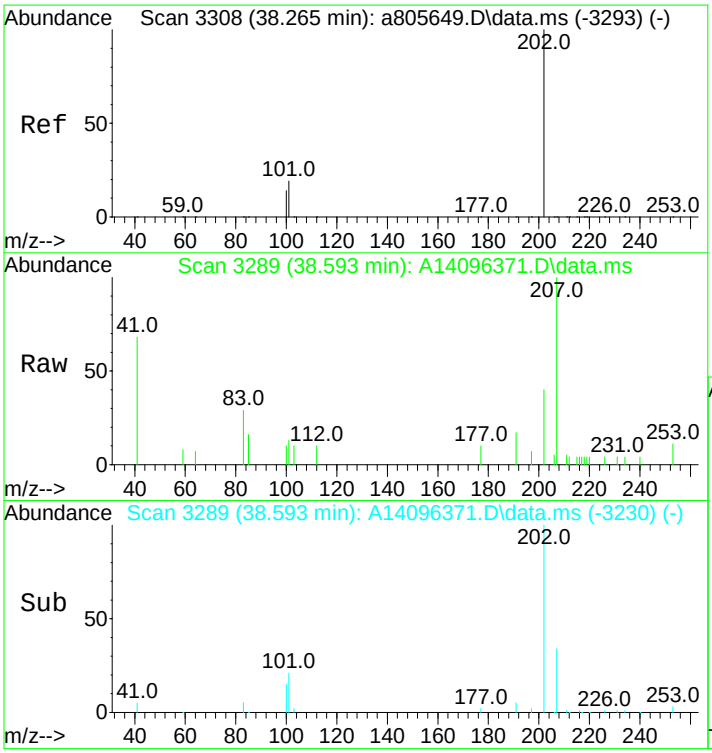


#59
Benzo(b)fluorene
Concen: 11.95 ng/mL
RT: 40.227 min Scan# 3468
Delta R.T. 0.037 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:216 Resp: 1748

Ion	Ratio	Lower	Upper
216	100		
215	87.4	72.2	108.4

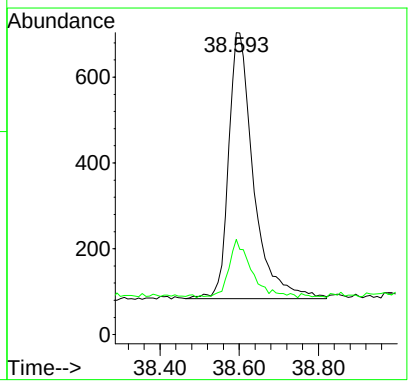


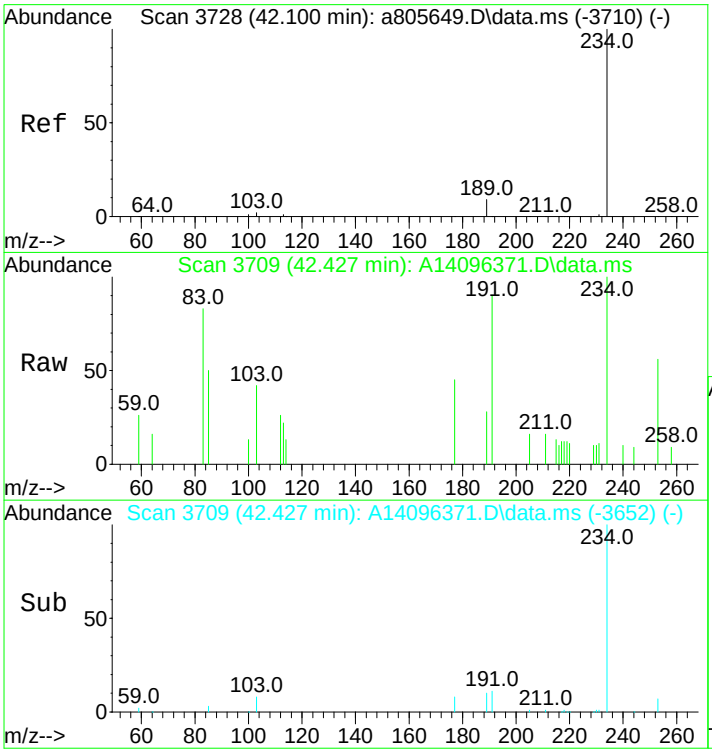


#60
Pyrene
Concen: 10.34 ng/mL
RT: 38.593 min Scan# 3289
Delta R.T. 0.037 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:202 Resp: 2701

Ion	Ratio	Lower	Upper
202	100		
101	20.4	14.2	21.2

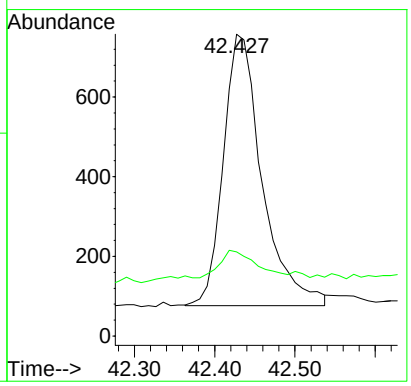


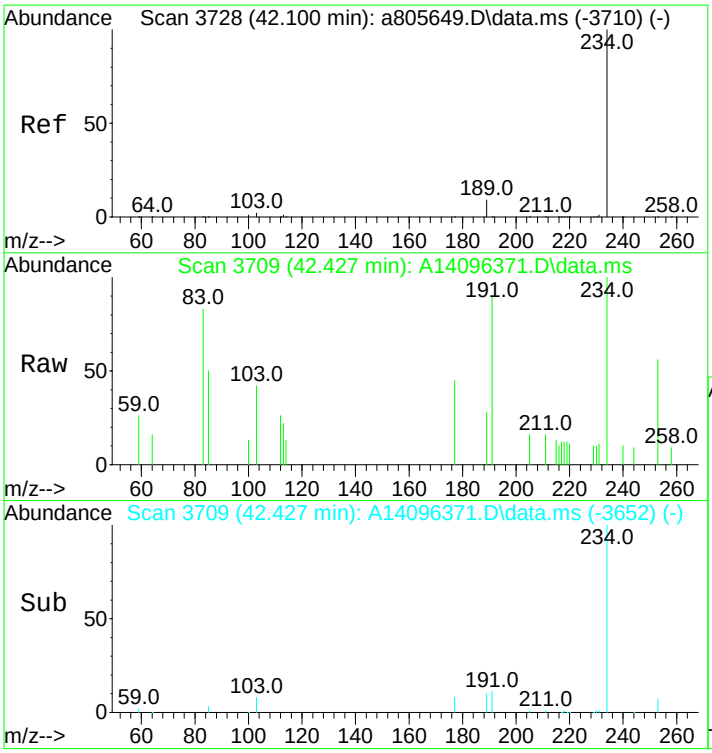


#66
Naphthobenzothiophene
Concen: 10.18 ng/ml m
RT: 42.427 min Scan# 3709
Delta R.T. 0.018 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:234 Resp: 2291

Ion	Ratio	Lower	Upper
234	100		
189	7.0	7.3	10.9#

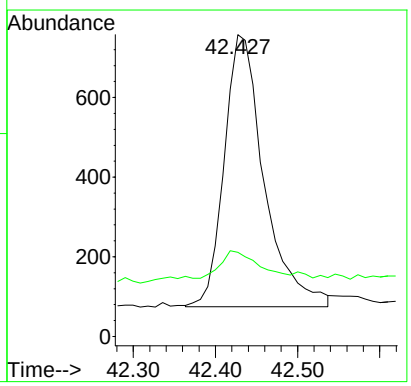


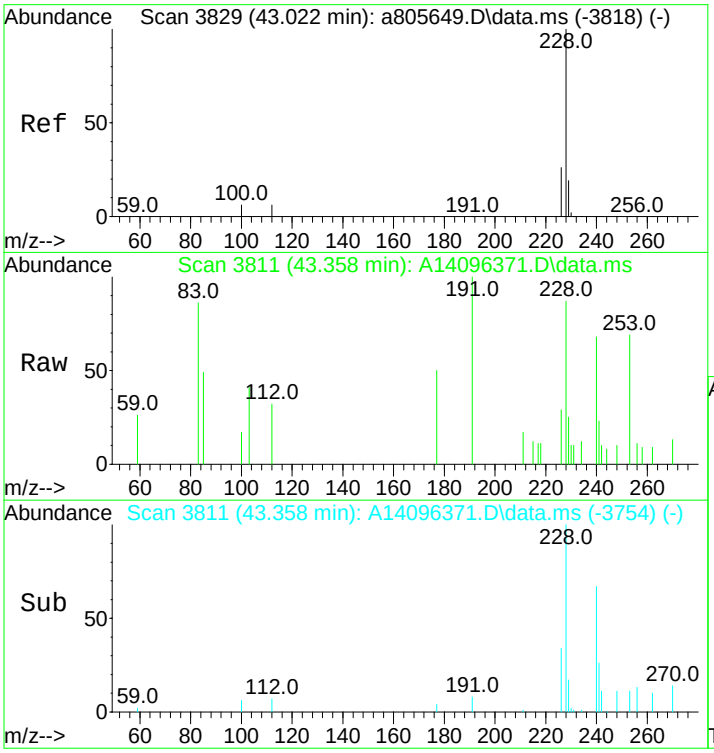


#67
Naphthobenzothiophene-2,1-D
Concen: 10.22 ng/mL m
RT: 42.427 min Scan# 3709
Delta R.T. 0.018 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:234 Resp: 2301

Ion	Ratio	Lower	Upper
234	100		
189	7.0	7.3	10.9#

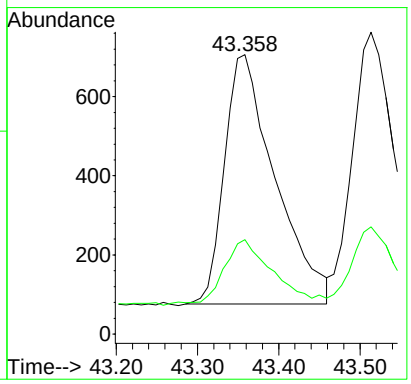


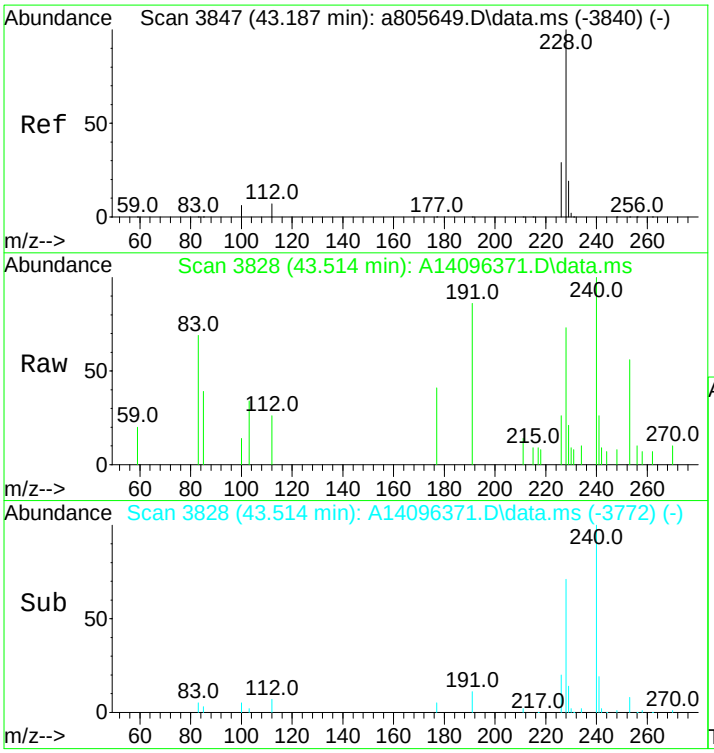


#75
Benz[a]anthracene
Concen: 11.15 ng/mL
RT: 43.358 min Scan# 3811
Delta R.T. 0.018 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:228 Resp: 2732

Ion	Ratio	Lower	Upper
228	100		
226	22.5	19.6	29.4

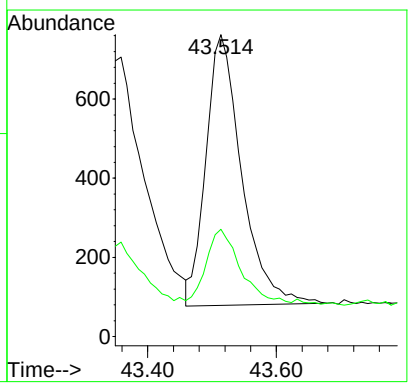


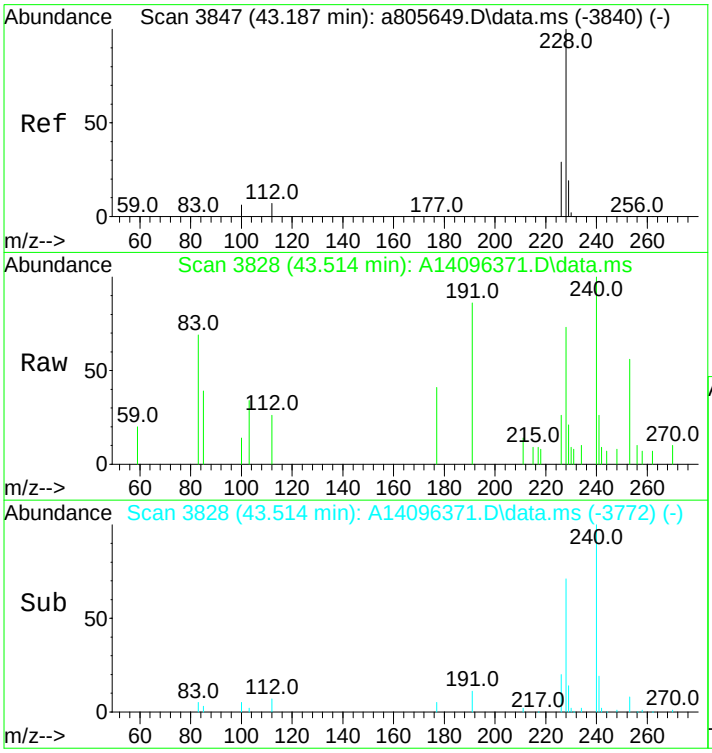


#76
Chrysene
Concen: 9.99 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:228 Resp: 2635

Ion	Ratio	Lower	Upper
228	100		
226	26.1	21.8	32.6

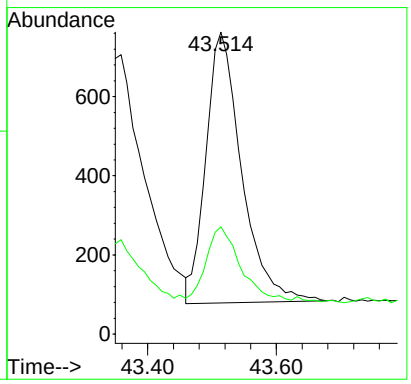


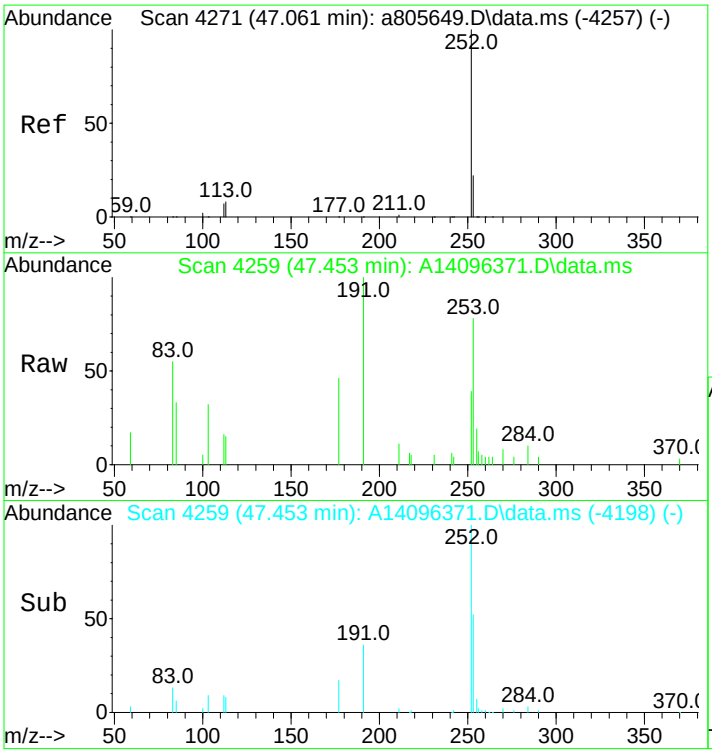


#77
Chrysene/Triphenylene
Concen: 9.99 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:228 Resp: 2635

Ion	Ratio	Lower	Upper
228	100		
226	26.1	21.8	32.6

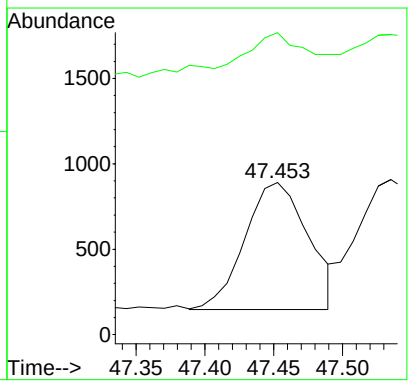


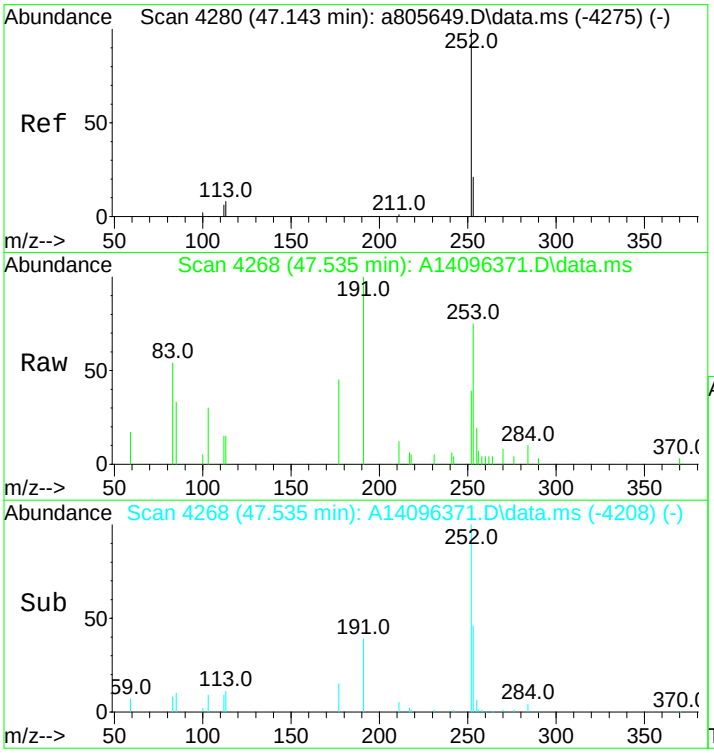


#82
Benzo[b]fluoranthene
Concen: 8.61 ng/mL m
RT: 47.453 min Scan# 4259
Delta R.T. 0.055 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:252 Resp: 2390

Ion	Ratio	Lower	Upper
252	100		
253	25.3	20.6	30.8

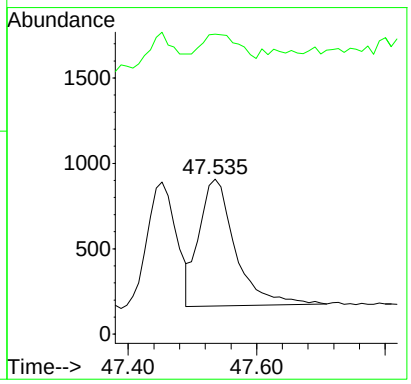


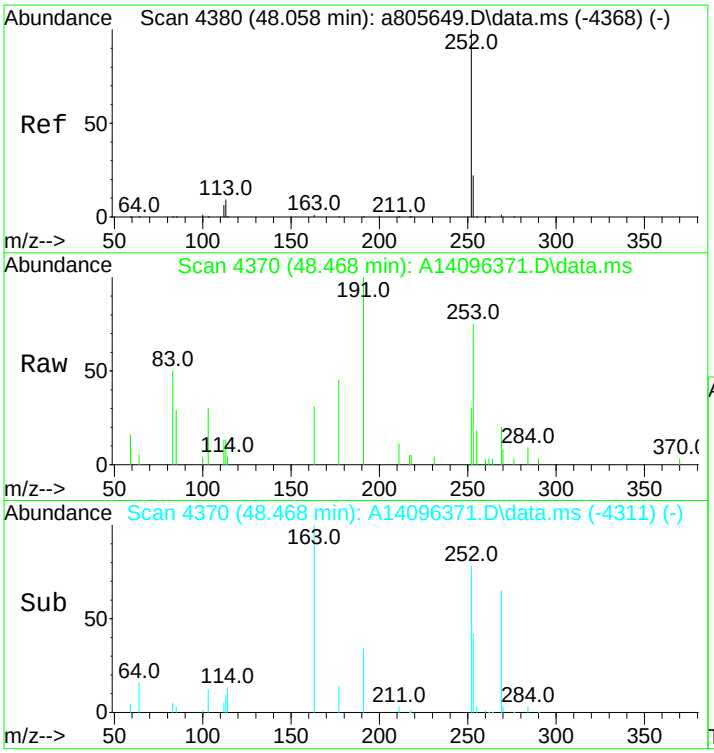


#83
Benzo[j]+[k]fluoranthene
Concen: 9.67 ng/mL
RT: 47.535 min Scan# 4268
Delta R.T. 0.046 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:252 Resp: 2903

Ion	Ratio	Lower	Upper
252	100		
253	21.8	20.2	30.4

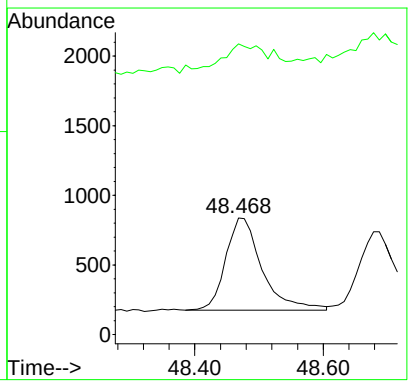


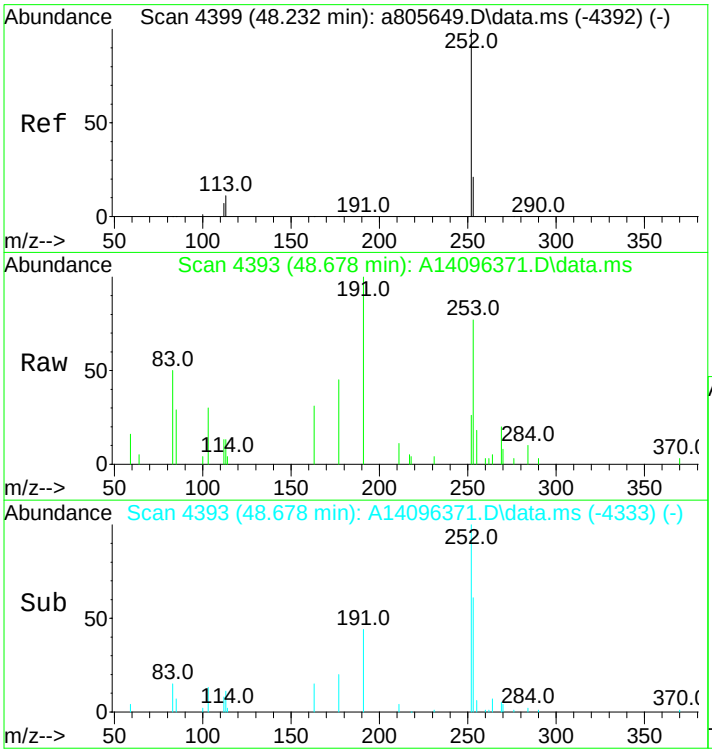


#85
Benzo[e]pyrene
Concen: 9.29 ng/mL
RT: 48.468 min Scan# 4370
Delta R.T. 0.037 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:252 Resp: 2610

Ion	Ratio	Lower	Upper
252	100		
253	27.8	21.3	31.9

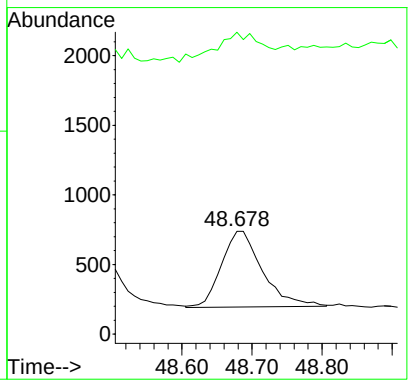


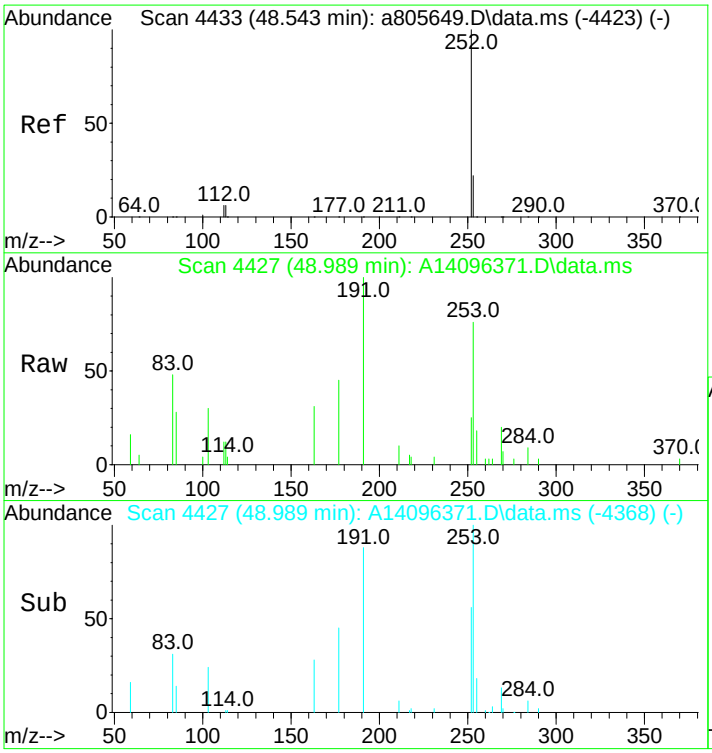


#87
Benzo[a]pyrene
Concen: 8.42 ng/mL
RT: 48.678 min Scan# 4393
Delta R.T. 0.046 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:252 Resp: 2206

Ion	Ratio	Lower	Upper
252	100		
253	25.6	22.2	33.2

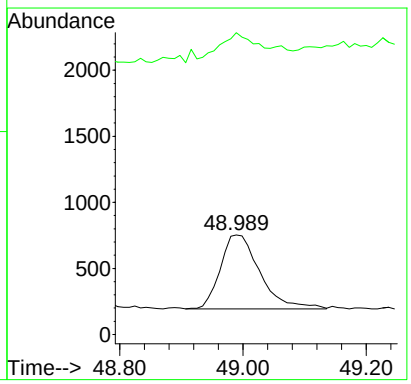


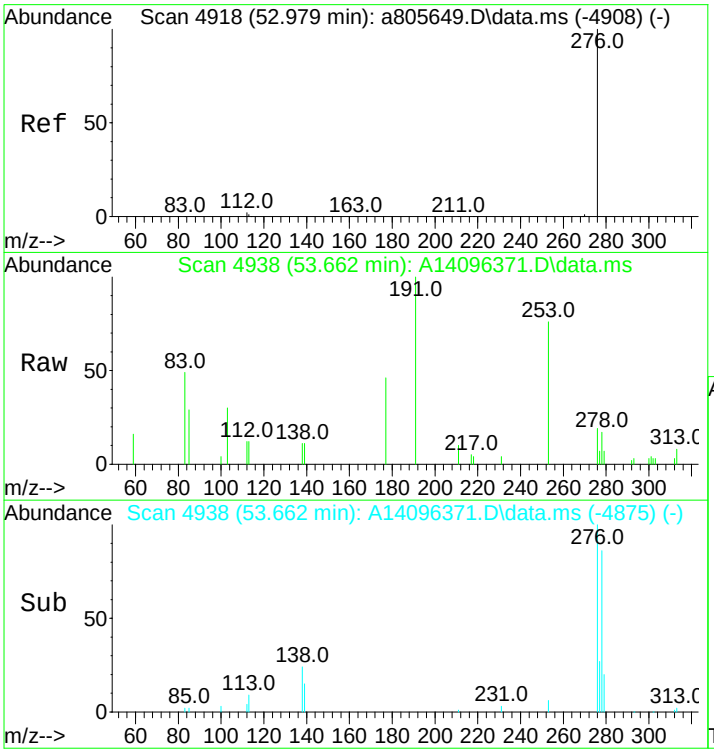


#88
Perylene
Concen: 9.09 ng/mL
RT: 48.989 min Scan# 4427
Delta R.T. 0.037 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:252 Resp: 2512

Ion	Ratio	Lower	Upper
252	100		
253	27.6	22.6	34.0

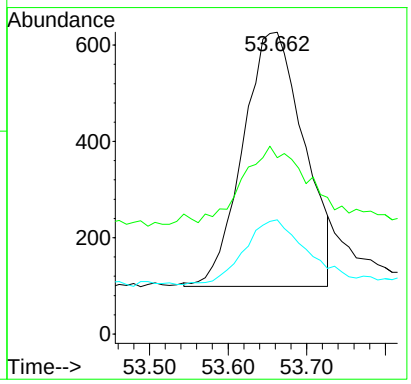


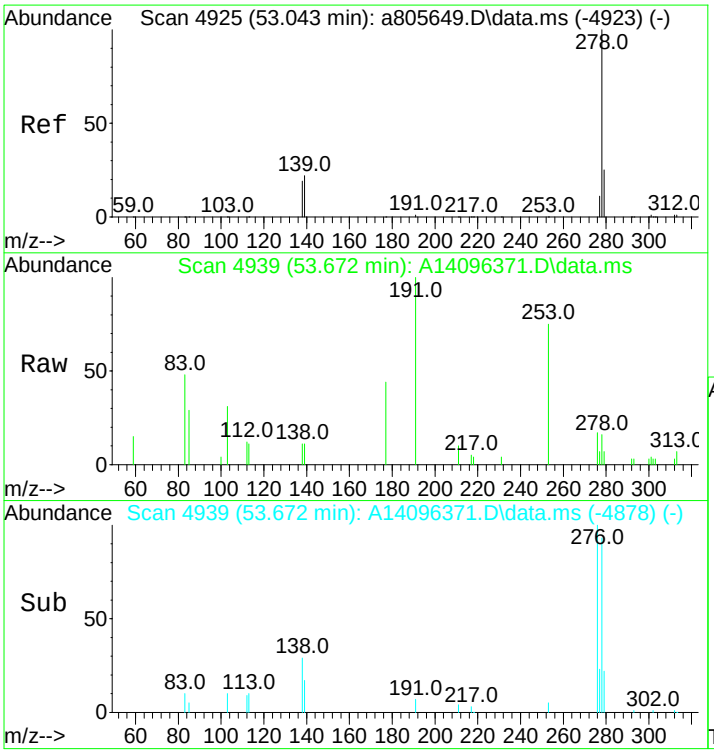


#89
Indeno[1,2,3-cd]pyrene
Concen: 10.16 ng/mL m
RT: 53.662 min Scan# 4938
Delta R.T. 0.073 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:276 Resp: 2845

Ion	Ratio	Lower	Upper
276	100		
138	34.2	22.6	33.8#
277	26.4	19.8	29.8

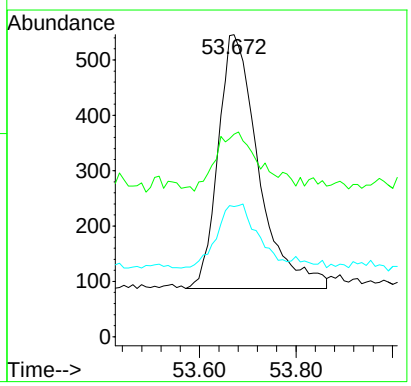


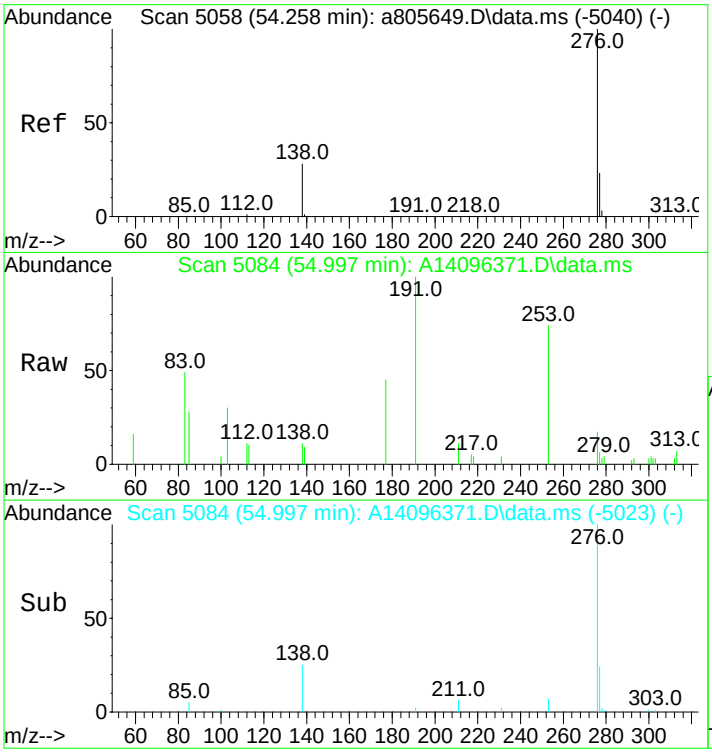


#90
Dibenz[ah]+[ac]anthracene
Concen: 9.35 ng/mL
RT: 53.672 min Scan# 4939
Delta R.T. 0.055 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:278 Resp: 2681

Ion	Ratio	Lower	Upper
278	100		
139	23.5	16.2	24.2
279	25.2	19.8	29.8

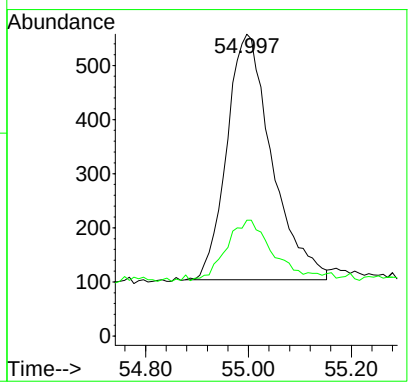


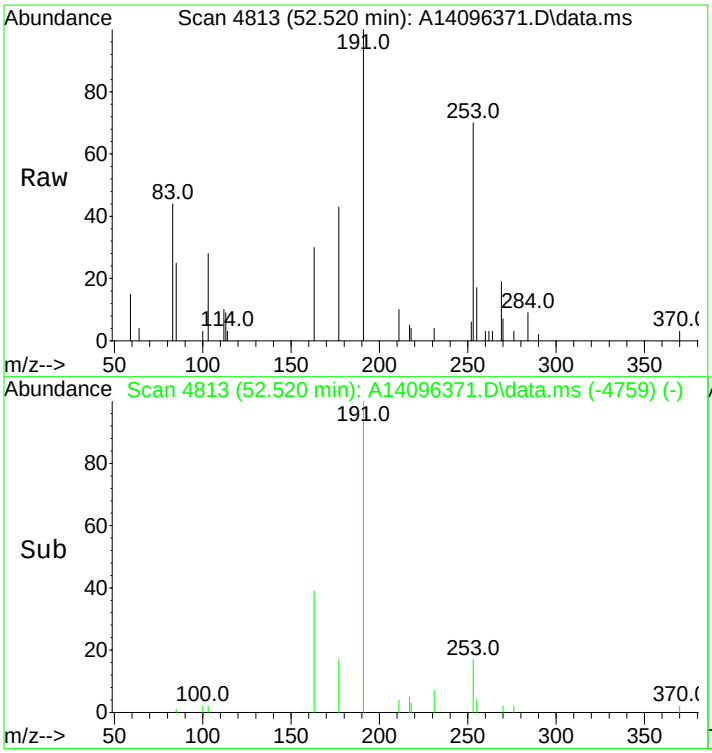


#91
Benzo[g,h,i]perylene
Concen: 8.70 ng/mL
RT: 54.997 min Scan# 5084
Delta R.T. 0.055 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:276 Resp: 2764

Ion	Ratio	Lower	Upper
276	100		
277	23.0	19.0	28.6

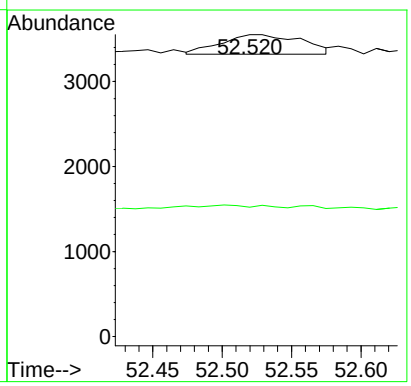


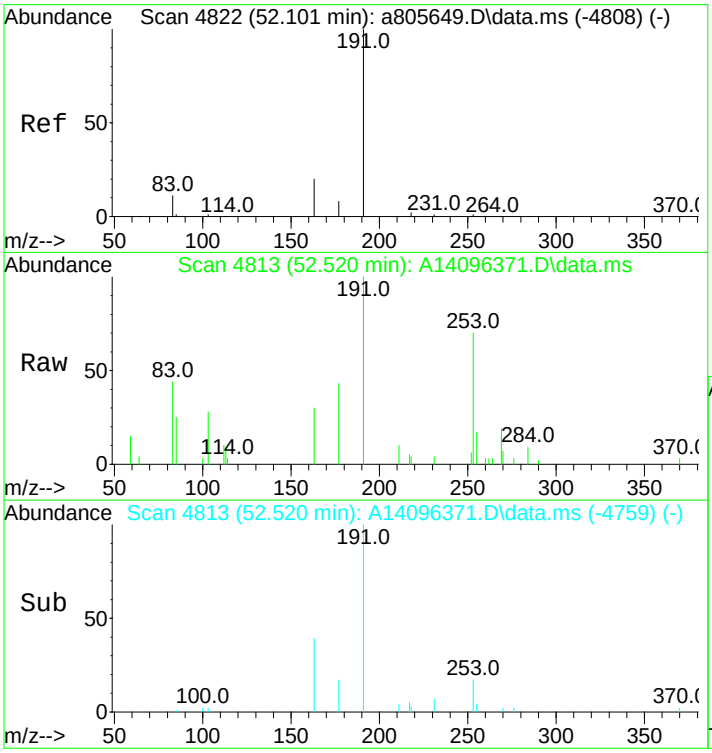


#92
Hopane (T19)
Concen: 12.58 ng/mL m
RT: 52.520 min Scan# 4813
Delta R.T. -0.009 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:191 Resp: 930

Ion	Ratio	Lower	Upper
191	100		
177	14.2	12.8	19.2

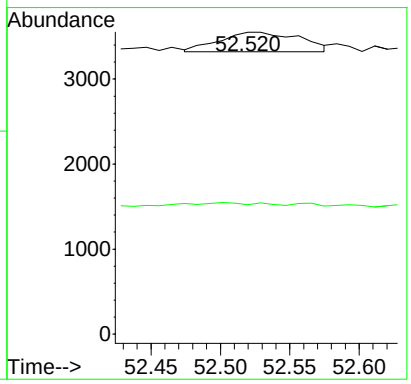




#93
17a(H),21B(H)-hopane - C30H52
Concen: 12.66 ng/mL m
RT: 52.520 min Scan# 4813
Delta R.T. -0.009 min
Lab File: A14096371.D
Acq: 18 May 2012 1:35 pm

Tgt Ion:191 Resp: 936

Ion	Ratio	Lower	Upper
191	100		
177	14.1	12.8	19.2



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096372.D
Acq On : 18 May 2012 3:00 pm
Operator : PAH14:MT
Sample : I1405181202
Misc : WG537732
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:16:02 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.957	164	66968	500.000	ng/mL	0.05
74) Chrysene-d12	43.413	240	117326	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	20.030	136	5271	18.607	ng/mL	0.10
Spiked Amount 1000.000	Range 50 - 130		Recovery =	1.86%#		
42) Phenanthrene-d10	32.860	188	4969	22.327	ng/mL	0.06
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.23%#		
86) Benzo[a]pyrene-d12	48.578	264	5383	22.516	ng/mL	0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.25%#		
127) 5B(H)Cholane - Surr	43.970	217	1137	27.670	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	2.77%#		
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	641	9.958	ng/mL	100
4) cis-Decalin	17.758	138	496	10.100	ng/mL	100
10) Naphthalene	20.113	128	5880	18.470	ng/mL#	100
16) 2-Methylnaphthalene	22.859	142	4037	20.208	ng/mL#	100
17) 1-Methylnaphthalene	23.233	142	4076M4	21.114	ng/mL	
18) Benzothiophene	20.322	134	4310	16.588	ng/mL	100
23) Biphenyl	24.712	154	4889	19.965	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.323	156	3445	20.485	ng/mL#	100
25) Dibenzofuran	27.805	168	5171	20.614	ng/mL#	95
26) Acenaphthylene	26.364	152	6226M4	21.814	ng/mL	
27) Acenaphthene	27.084	153	3952	21.602	ng/mL	96
28) 2,3,5-Trimethylnaphthalen	28.672	170	3255	23.127	ng/mL	98
29) Fluorene	29.156	166	4097	20.938	ng/mL	93
33) Dibenzothiophene	32.458	184	5570	20.939	ng/mL	95
43) Phenanthrene	32.951	178	5890M4	21.560	ng/mL	
54) Retene	39.880	234	2046	33.499	ng/mL	98
55) Anthracene	33.152	178	5783M4	22.745	ng/mL	
56) Carbazole	33.827	167	5142	19.647	ng/mL#	89
57) 1-Methylphenanthrene	35.452	192	4337M4	24.397	ng/mL	
58) Fluoranthene	37.716	202	5991	22.965	ng/mL	96
59) Benzo(b)fluorene	40.227	216	3954	26.322	ng/mL	100
60) Pyrene	38.592	202	6508	24.273	ng/mL	97
66) Naphthobenzothiophene	42.427	234	5447M4	23.570	ng/ml	
67) Naphthobenzothiophene-2,1	42.427	234	5474M4	23.687	ng/mL	
75) Benz[a]anthracene	43.358	228	6121	24.339	ng/mL	99
76) Chrysene	43.514	228	6171	22.786	ng/mL	99
77) Chrysene/Triphenylene	43.514	228	6171	22.786	ng/mL	99
82) Benzo[b]fluoranthene	47.444	252	5891	20.668	ng/mL	98
83) Benzo[j]+[k]fluoranthene	47.526	252	6592	21.387	ng/mL	93
85) Benzo[e]pyrene	48.459	252	6002	20.813	ng/mL	99
87) Benzo[a]pyrene	48.678	252	5573	20.718	ng/mL#	89
88) Perylene	48.980	252	6019	21.224	ng/mL	99
89) Indeno[1,2,3-cd]pyrene	53.644	276	6862M3	23.879	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.662	278	6624	22.513	ng/mL	98
91) Benzo[g,h,i]perylene	54.987	276	6799	20.858	ng/mL	97
92) Hopane (T19)	52.529	191	2294	30.227	ng/mL#	83
93) 17a(H),21B(H)-hopane - C3	52.529	191	2294	30.227	ng/mL#	83

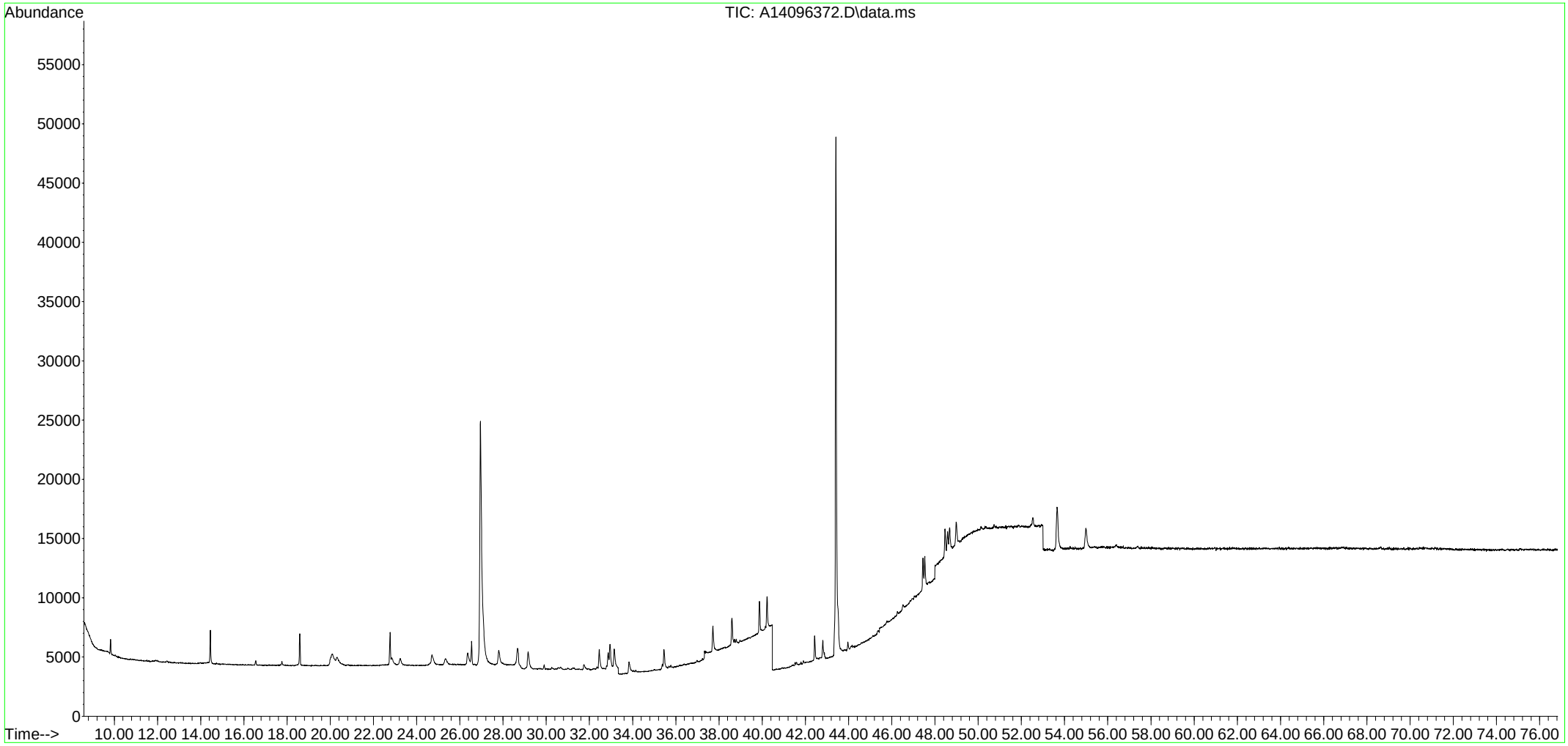
(#) = qualifier out of range (m) = manual integration (+) = signals summed

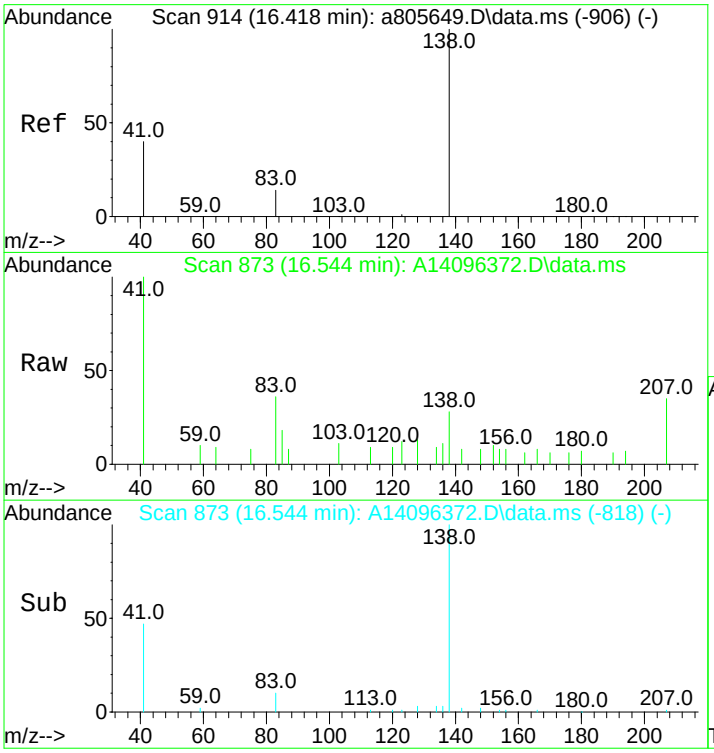
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096372.D
Acq On : 18 May 2012 3:00 pm
Operator : PAH14:MT
Sample : I1405181202
Misc : WG537732
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:16:02 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

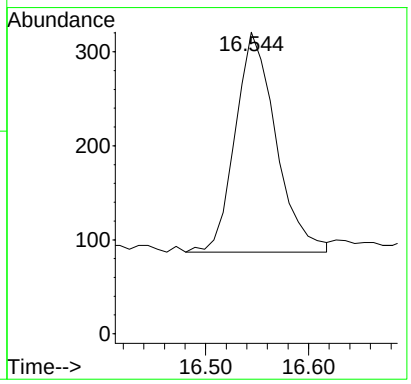
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

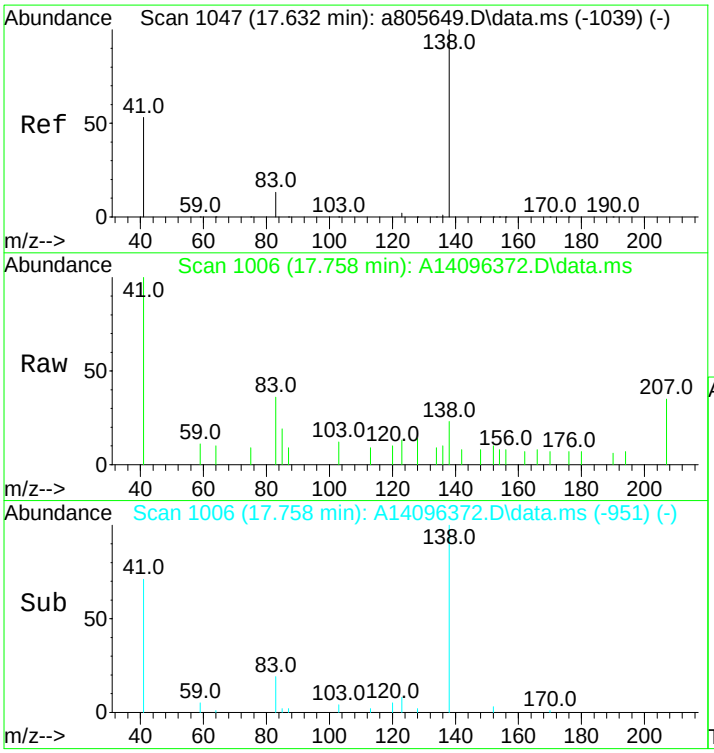




#3
trans-Decalin
Concen: 9.96 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

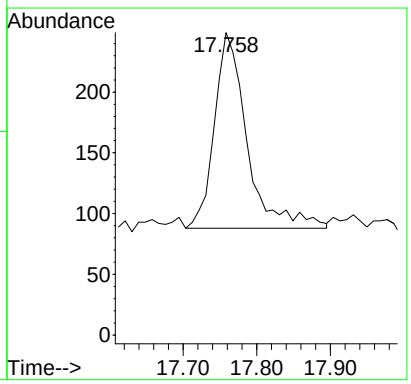
Tgt Ion:138 Resp: 641

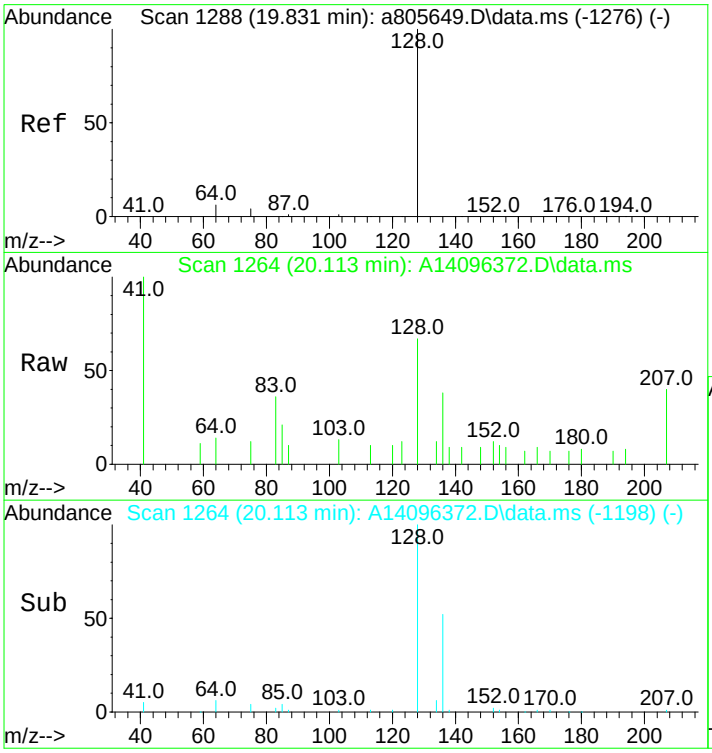




#4
cis-Decalin
Concen: 10.10 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:138 Resp: 496

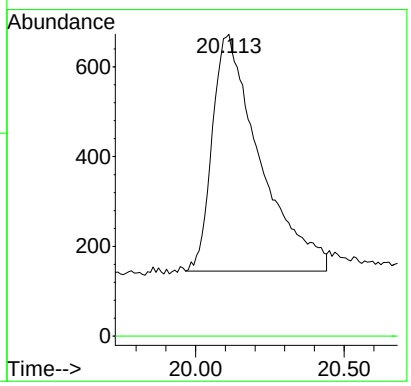


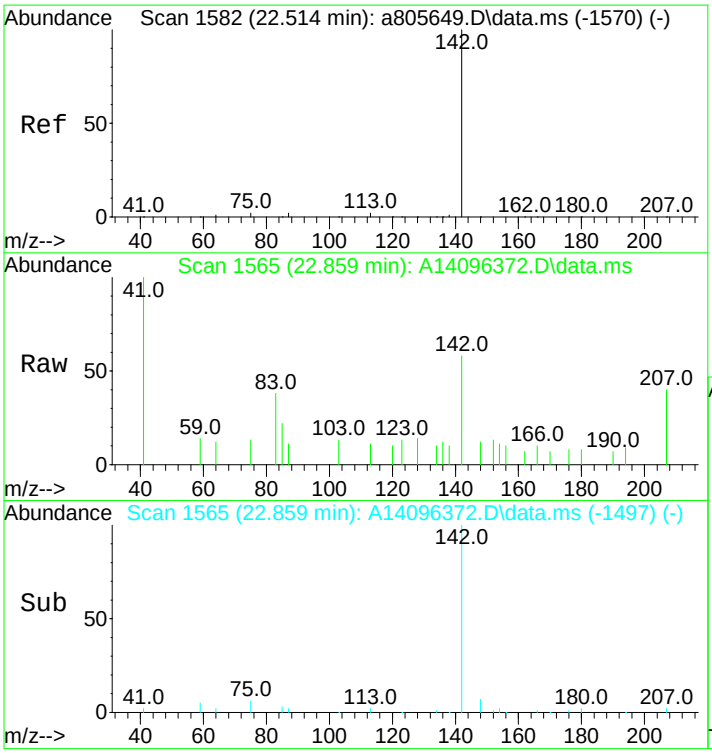


#10
Naphthalene
Concen: 18.47 ng/mL
RT: 20.113 min Scan# 1264
Delta R.T. 0.100 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:128 Resp: 5880

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

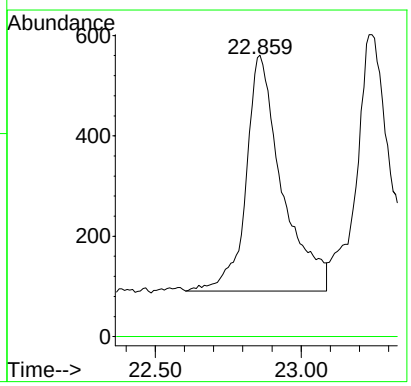


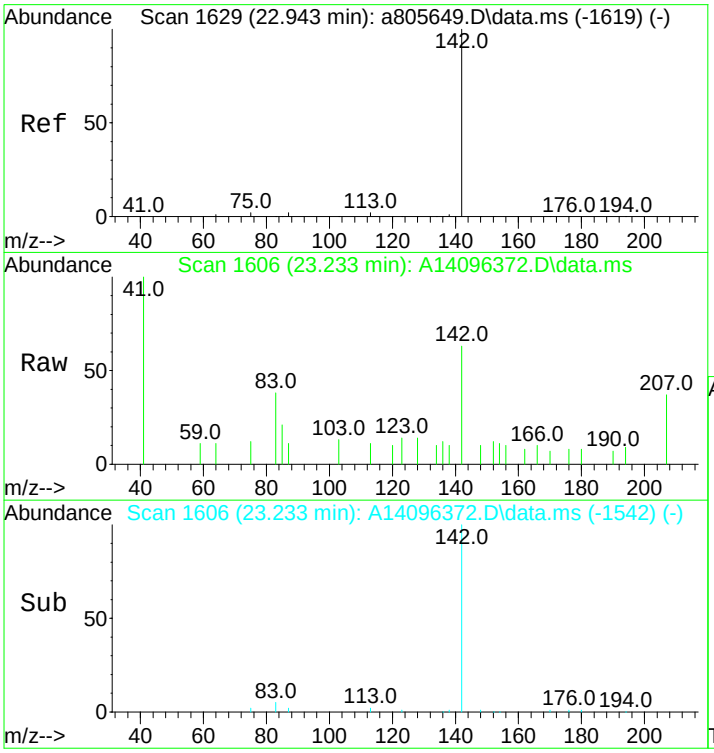


#16
2-Methylnaphthalene
Concen: 20.21 ng/mL
RT: 22.859 min Scan# 1565
Delta R.T. 0.119 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:142 Resp: 4037

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

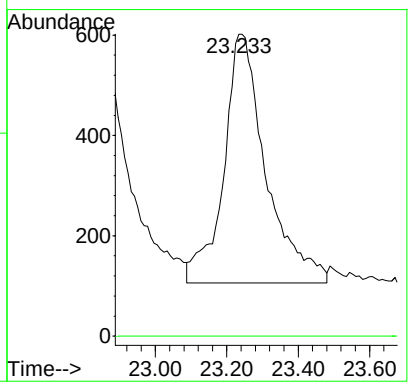


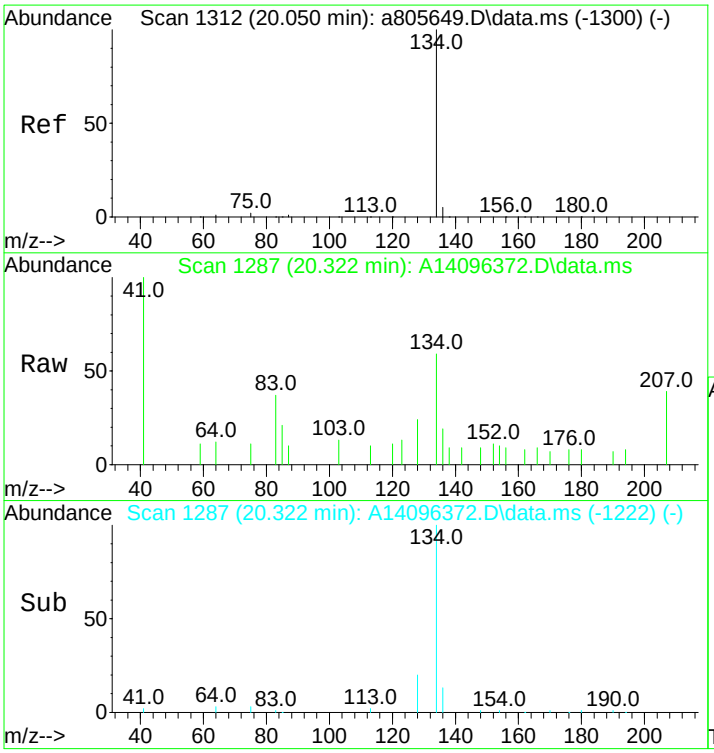


#17
1-Methylnaphthalene
Concen: 21.11 ng/mL m
RT: 23.233 min Scan# 1606
Delta R.T. 0.082 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:142 Resp: 4076

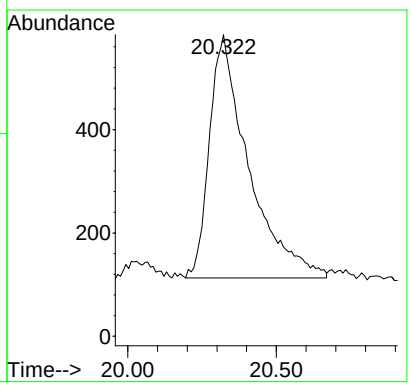
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

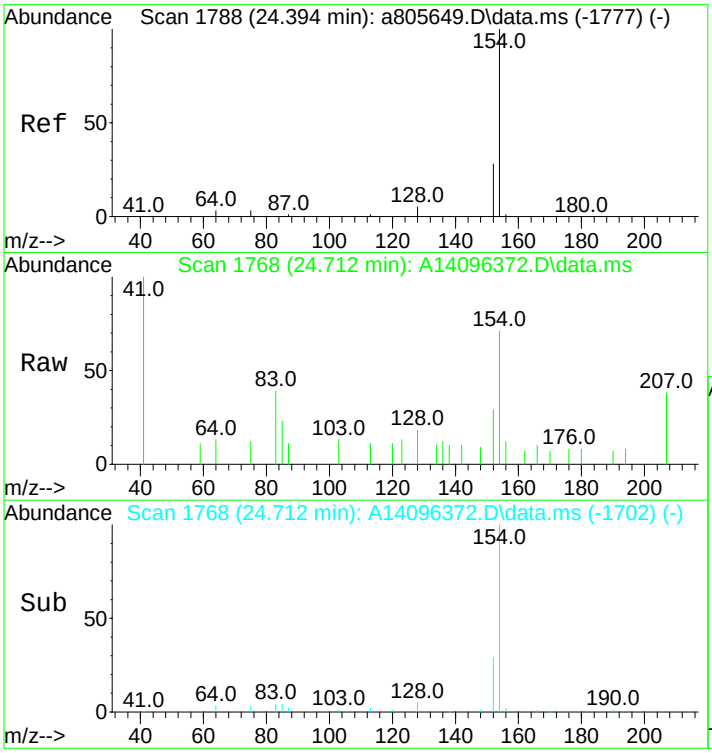




#18
Benzothiophene
Concen: 16.59 ng/mL
RT: 20.322 min Scan# 1287
Delta R.T. 0.091 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:134 Resp: 4310

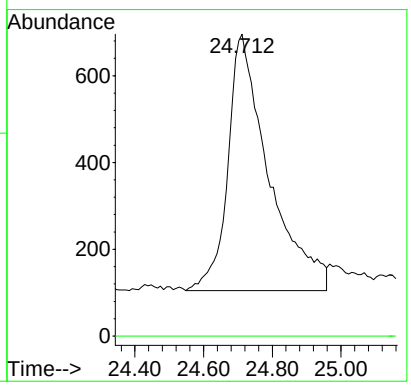


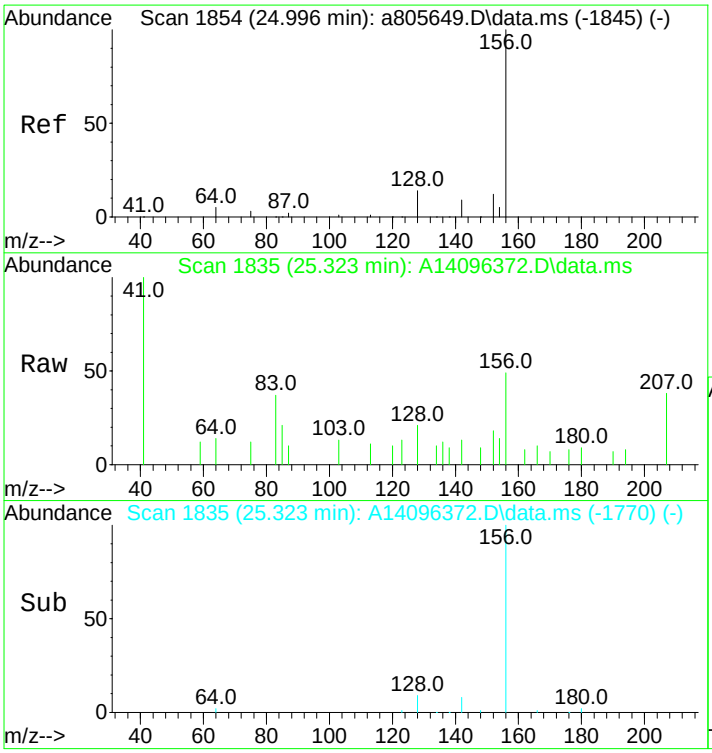


#23
Biphenyl
Concen: 19.96 ng/mL
RT: 24.712 min Scan# 1768
Delta R.T. 0.100 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:154 Resp: 4889

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

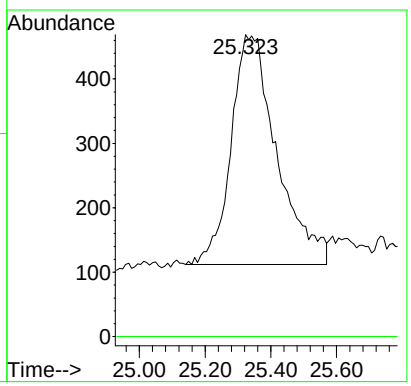


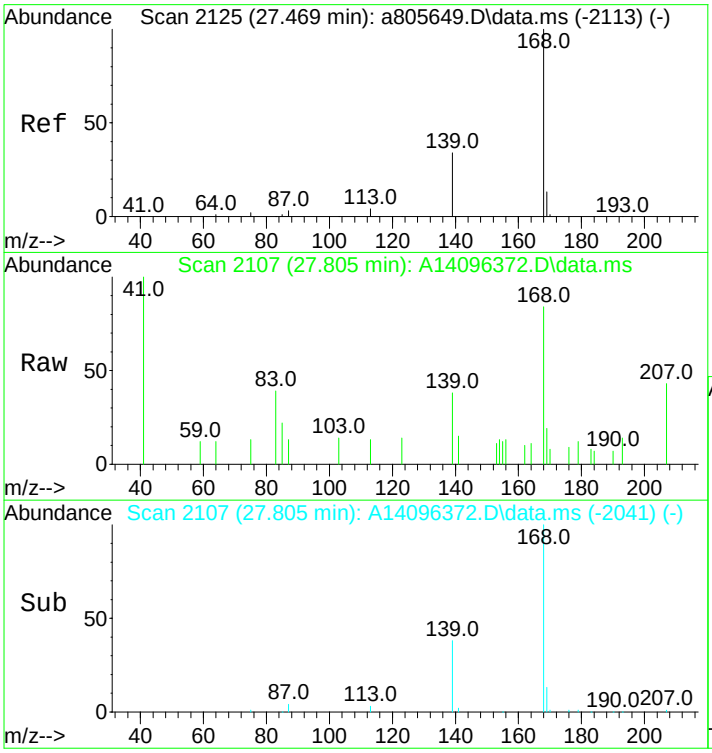


#24
2,6-Dimethylnaphthalene
Concen: 20.48 ng/mL
RT: 25.323 min Scan# 1835
Delta R.T. 0.091 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:156 Resp: 3445

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

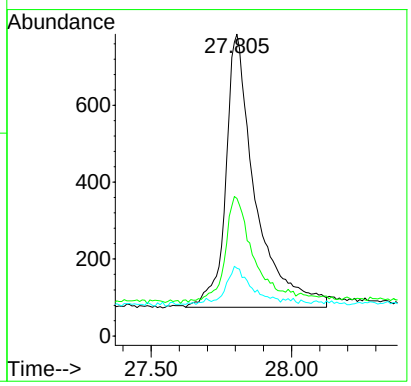


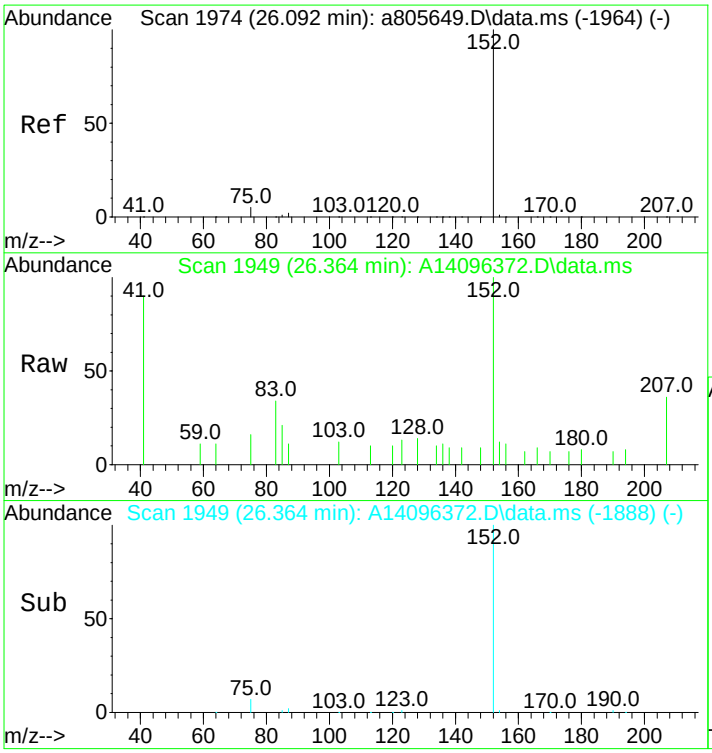


#25
Dibenzofuran
Concen: 20.61 ng/mL
RT: 27.805 min Scan# 2107
Delta R.T. 0.100 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:168 Resp: 5171

Ion	Ratio	Lower	Upper
168	100		
139	36.2	30.9	46.3
169	10.1	10.6	16.0#

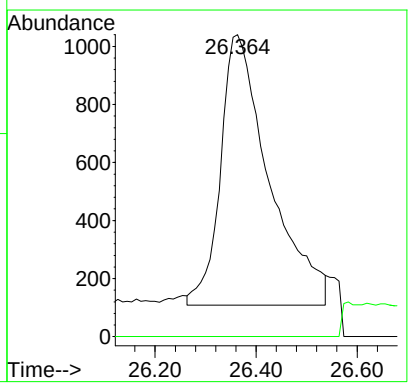


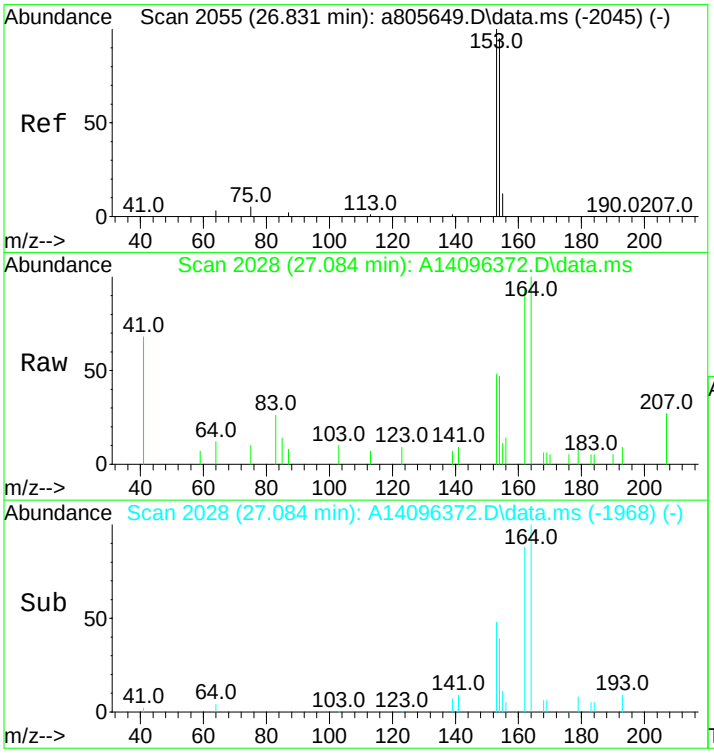


#26
Acenaphthylene
Concen: 21.81 ng/mL m
RT: 26.364 min Scan# 1949
Delta R.T. 0.055 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:152 Resp: 6226

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

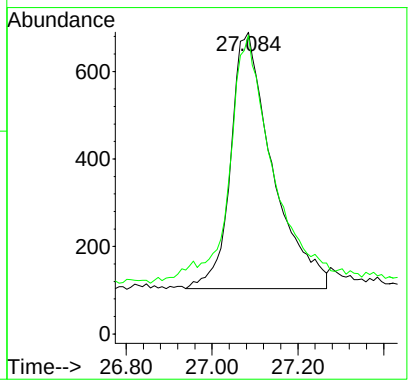


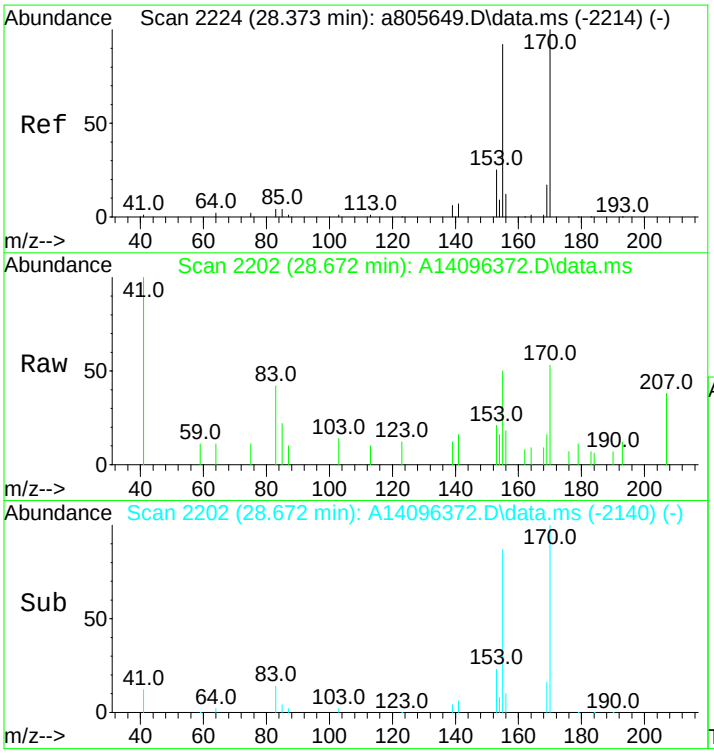


#27
Acenaphthene
Concen: 21.60 ng/mL
RT: 27.084 min Scan# 2028
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:153 Resp: 3952

Ion	Ratio	Lower	Upper
153	100		
154	88.1	73.6	110.4

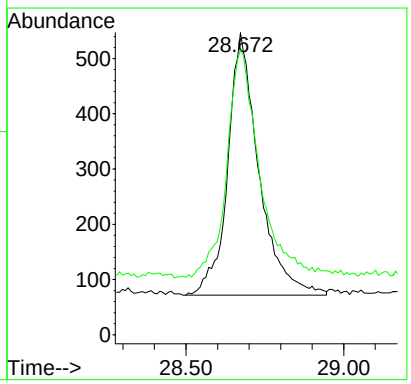


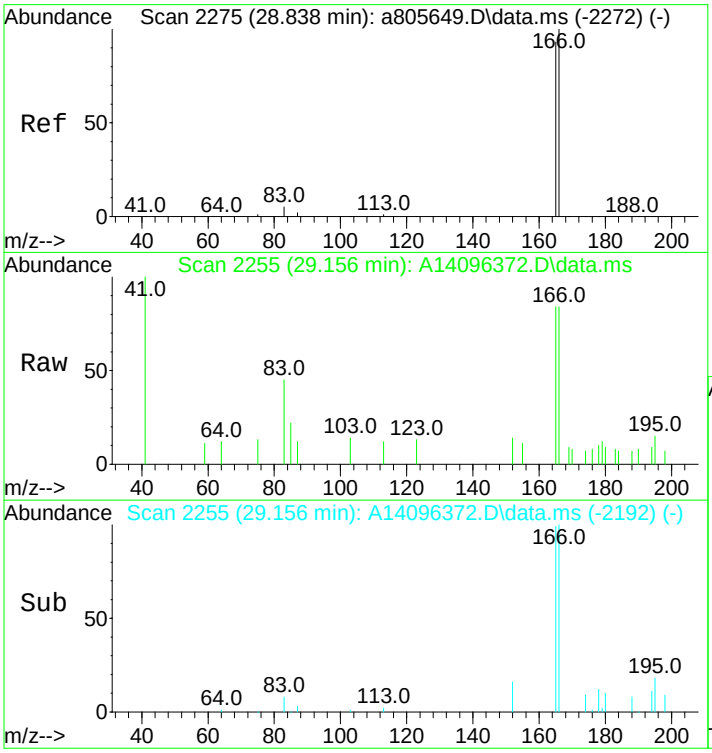


#28
2,3,5-Trimethylnaphthalene
Concen: 23.13 ng/mL
RT: 28.672 min Scan# 2202
Delta R.T. 0.064 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:170 Resp: 3255

Ion	Ratio	Lower	Upper
170	100		
155	90.5	71.2	106.8

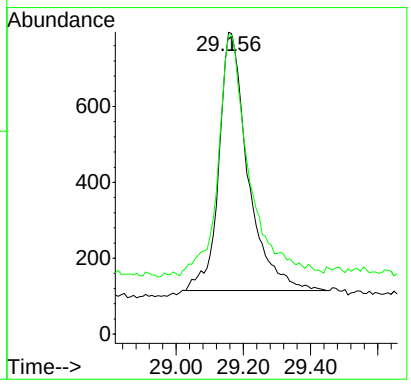


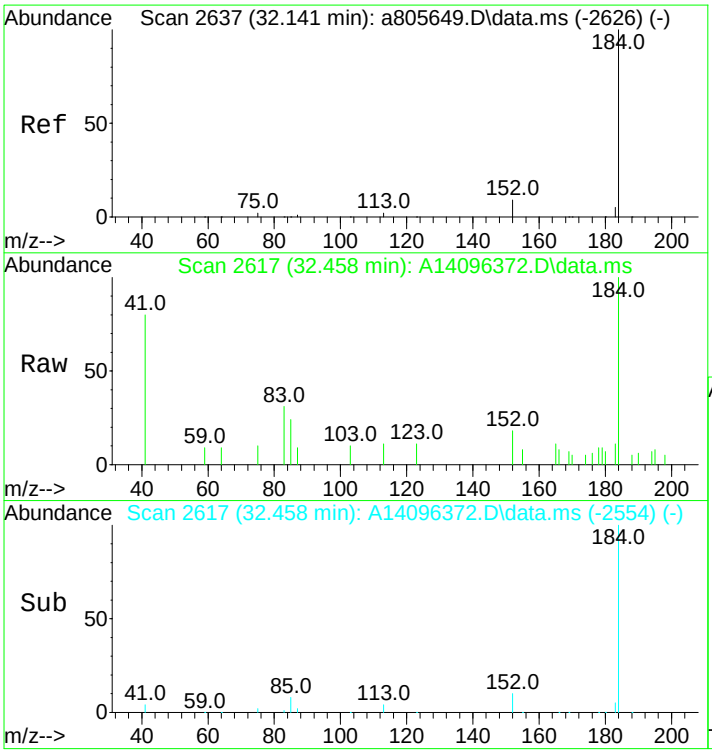


#29
Fluorene
Concen: 20.94 ng/mL
RT: 29.156 min Scan# 2255
Delta R.T. 0.073 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:166 Resp: 4097

Ion	Ratio	Lower	Upper
166	100		
165	84.8	73.3	109.9

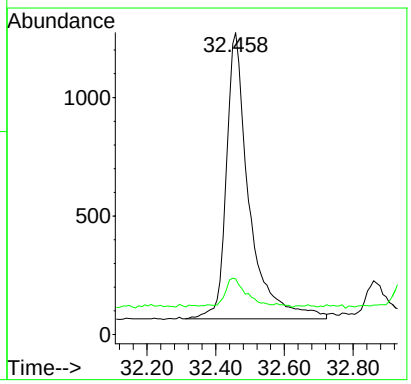


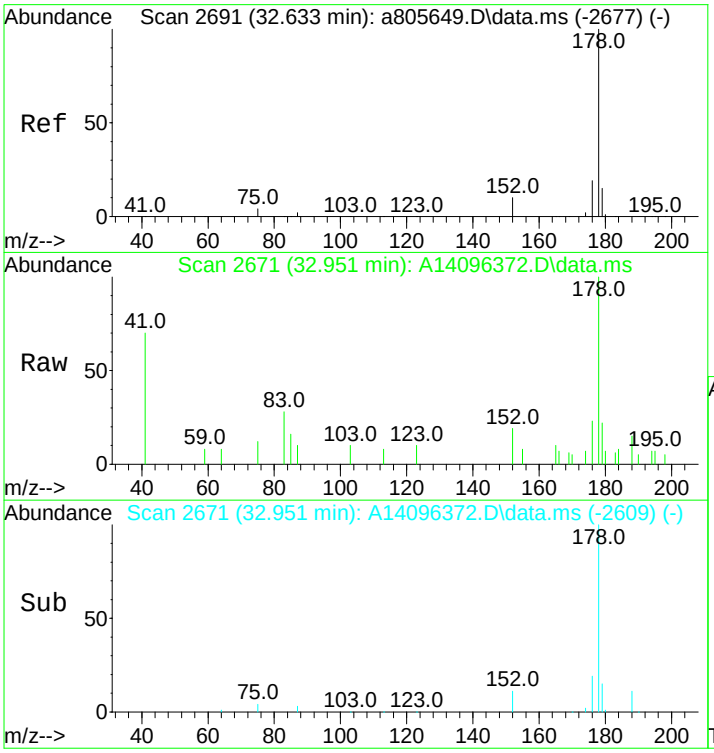


#33
Dibenzothiophene
Concen: 20.94 ng/mL
RT: 32.458 min Scan# 2617
Delta R.T. 0.073 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:184 Resp: 5570

Ion	Ratio	Lower	Upper
184	100		
152	8.3	8.2	12.2

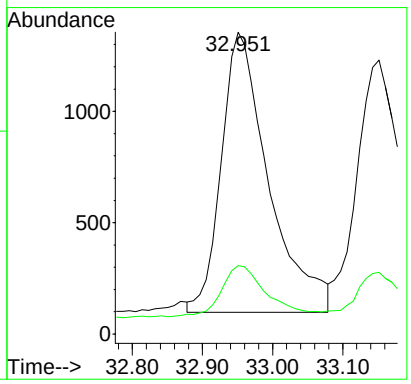


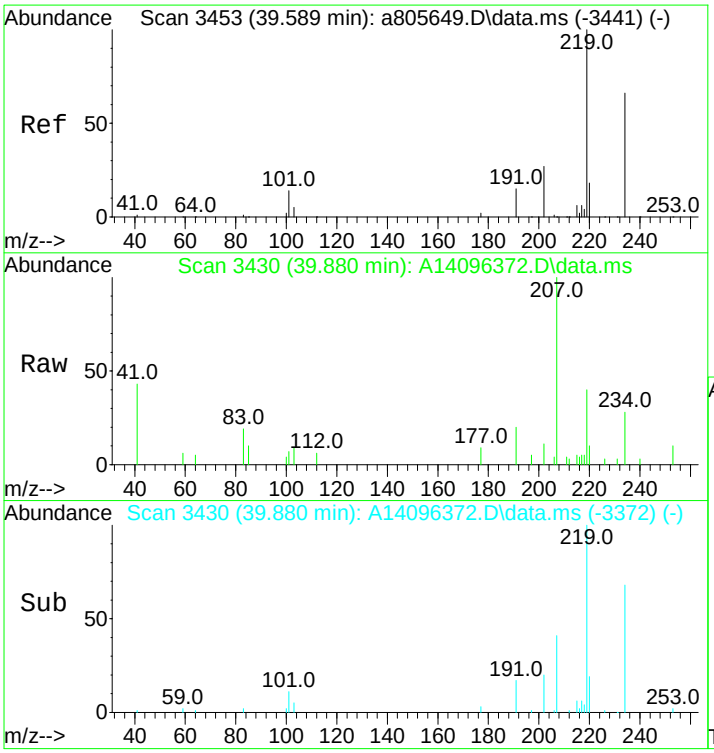


#43
Phenanthrene
Concen: 21.56 ng/mL m
RT: 32.951 min Scan# 2671
Delta R.T. 0.064 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:178 Resp: 5890

Ion	Ratio	Lower	Upper
178	100		
176	15.6	14.7	22.1

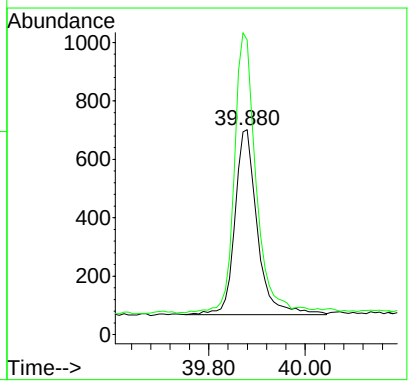


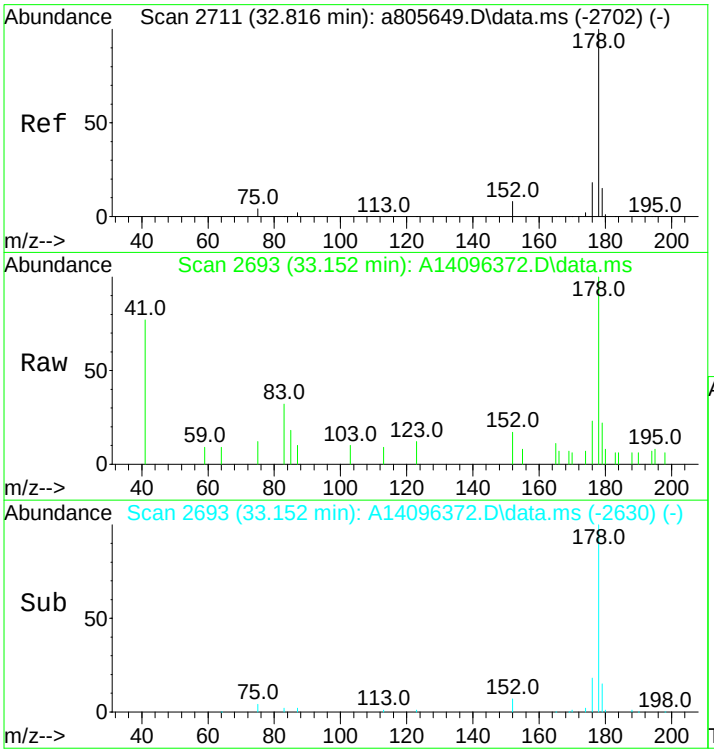


#54
Retene
Concen: 33.50 ng/mL
RT: 39.880 min Scan# 3430
Delta R.T. 0.027 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:234 Resp: 2046

Ion	Ratio	Lower	Upper
234	100		
219	145.3	118.7	178.1

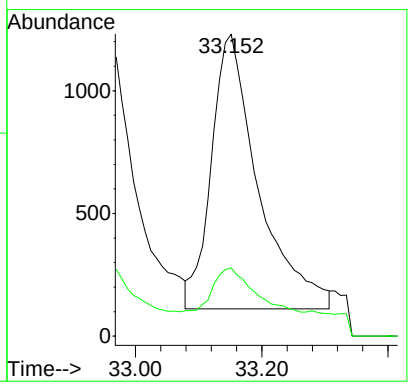


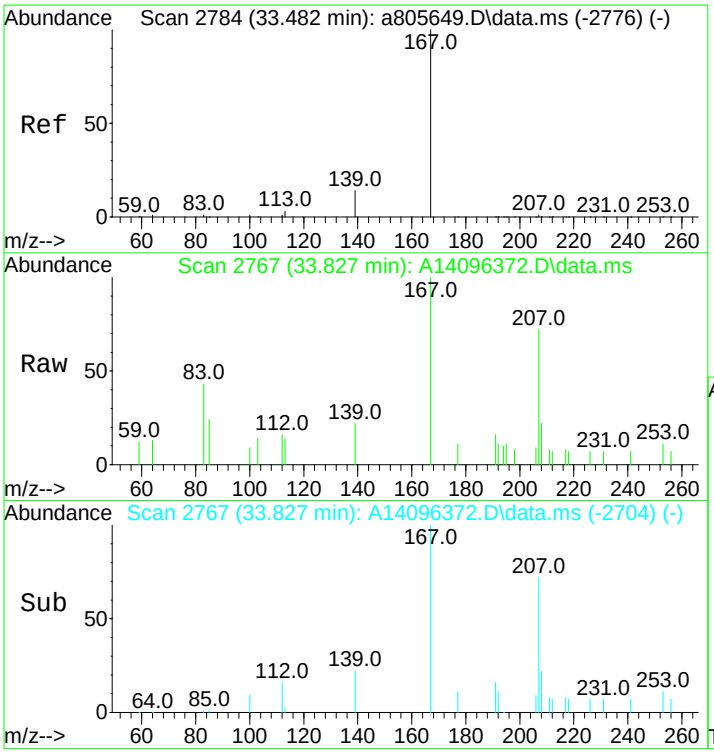


#55
Anthracene
Concen: 22.75 ng/mL m
RT: 33.152 min Scan# 2693
Delta R.T. 0.073 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:178 Resp: 5783

Ion	Ratio	Lower	Upper
178	100		
176	15.8	14.2	21.4

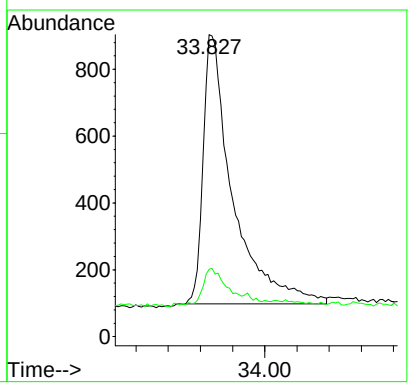


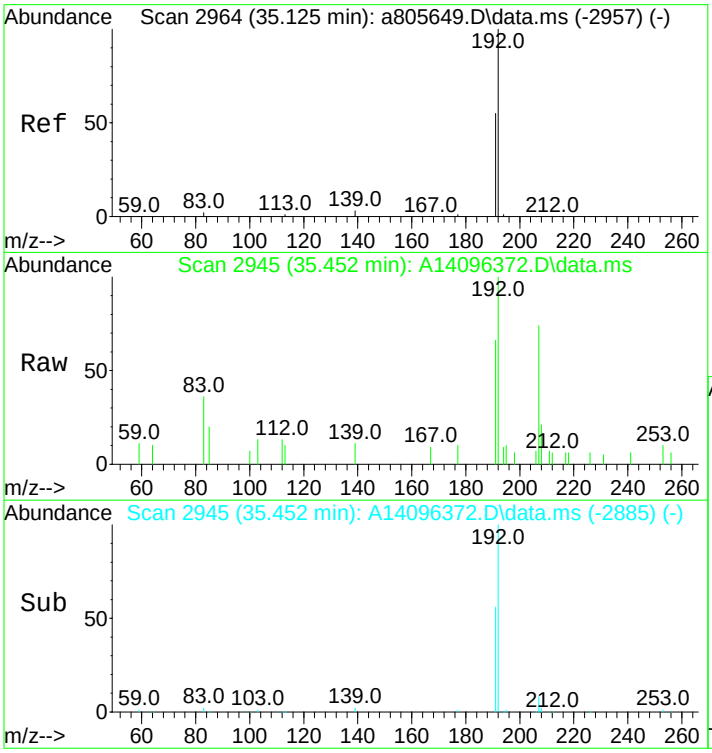


#56
Carbazole
Concen: 19.65 ng/mL
RT: 33.827 min Scan# 2767
Delta R.T. 0.073 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:167 Resp: 5142

Ion	Ratio	Lower	Upper
167	100		
139	9.5	11.0	16.4#

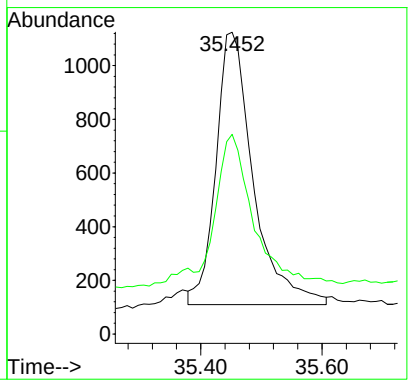


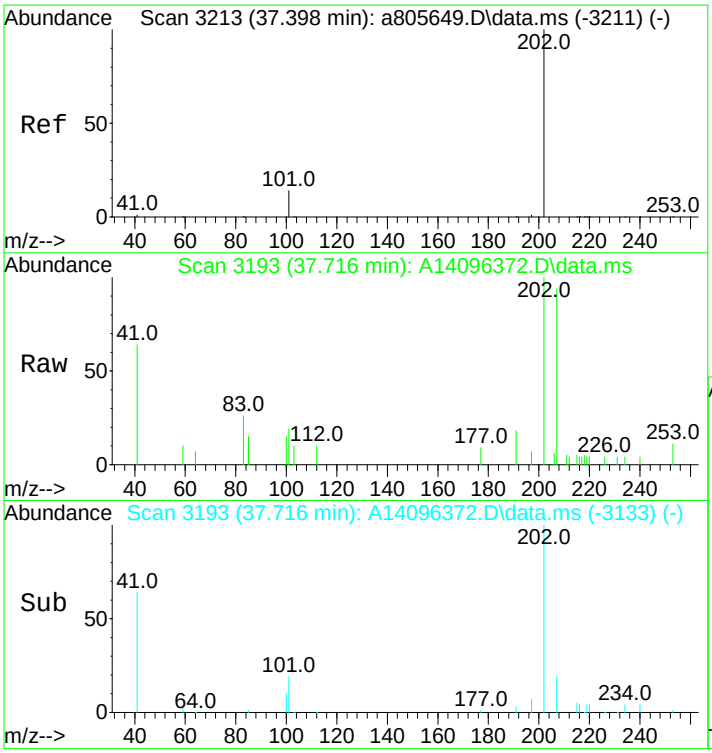


#57
1-Methylphenanthrene
Concen: 24.40 ng/mL m
RT: 35.452 min Scan# 2945
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:192 Resp: 4337

Ion	Ratio	Lower	Upper
192	100		
191	54.6	43.8	65.8

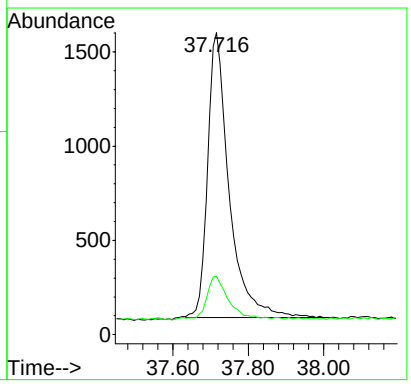


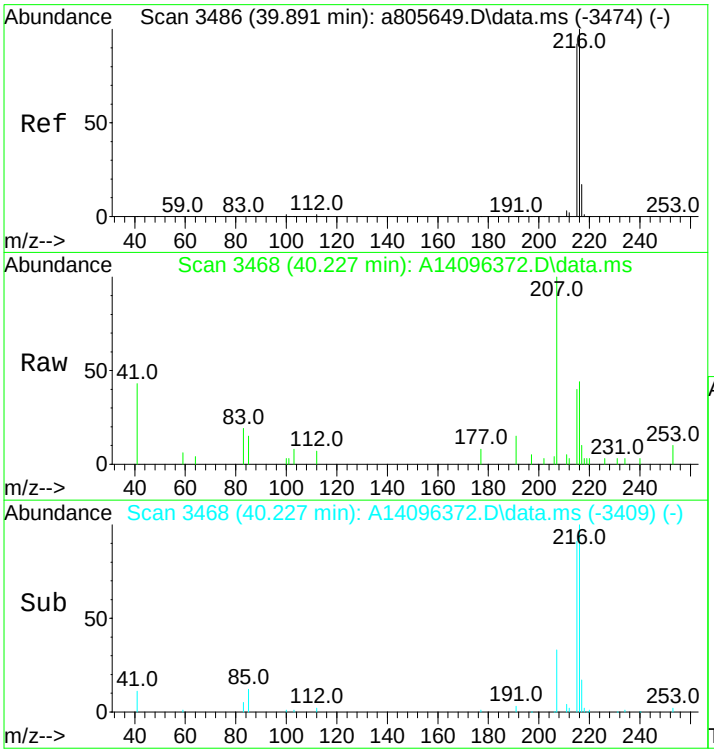


#58
Fluoranthene
Concen: 22.97 ng/mL
RT: 37.716 min Scan# 3193
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:202 Resp: 5991

Ion	Ratio	Lower	Upper
202	100		
101	13.9	12.3	18.5

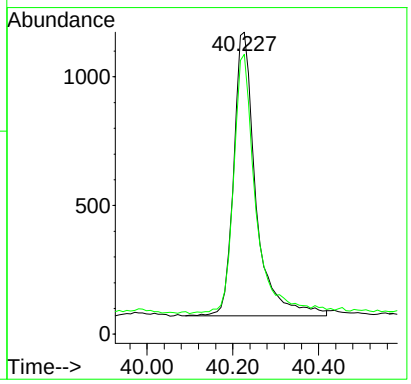


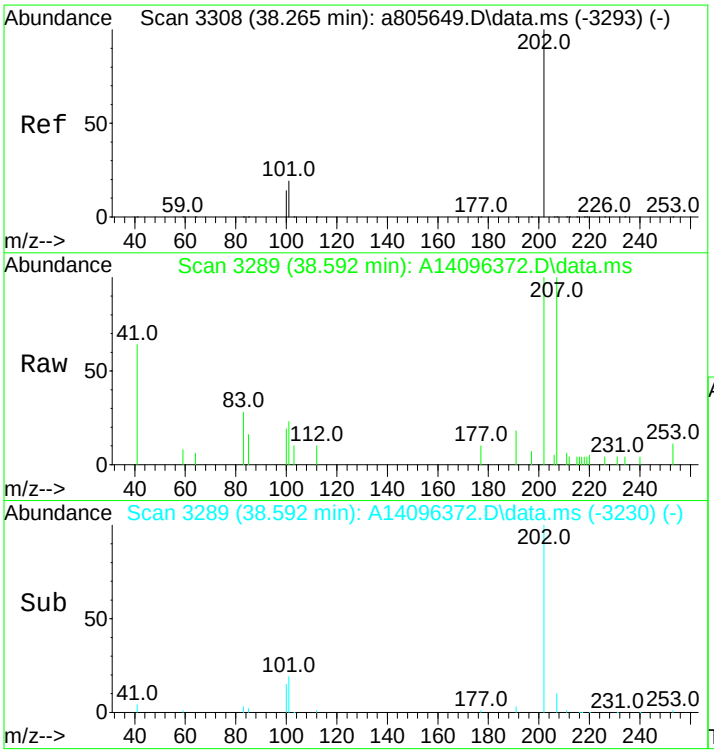


#59
Benzo(b)fluorene
Concen: 26.32 ng/mL
RT: 40.227 min Scan# 3468
Delta R.T. 0.037 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:216 Resp: 3954

Ion	Ratio	Lower	Upper
216	100		
215	90.5	72.2	108.4

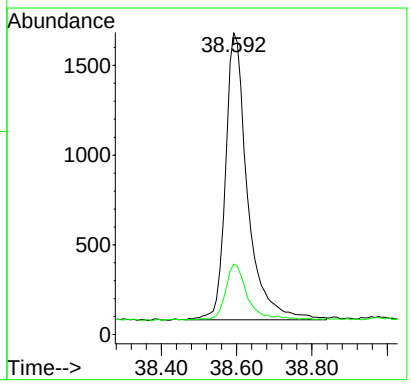


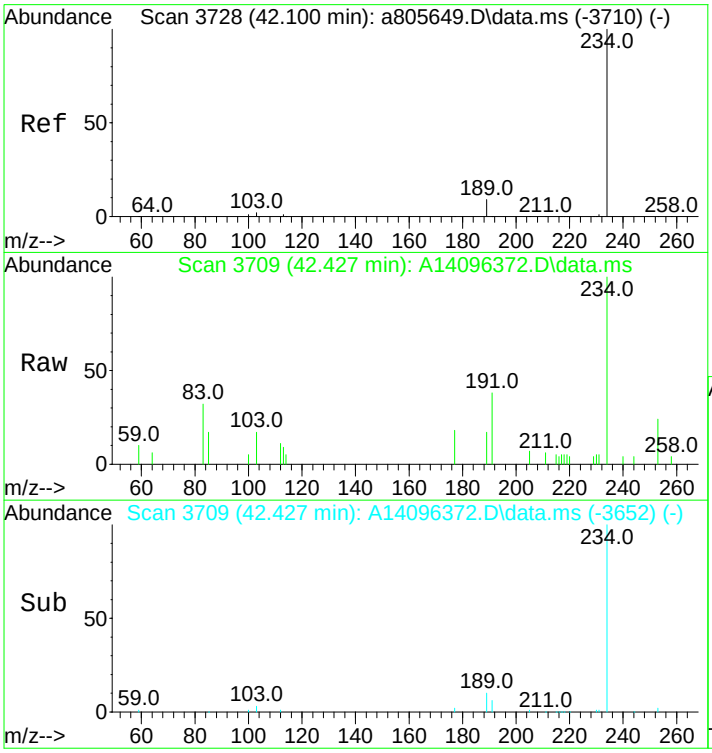


#60
Pyrene
Concen: 24.27 ng/mL
RT: 38.592 min Scan# 3289
Delta R.T. 0.037 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:202 Resp: 6508

Ion	Ratio	Lower	Upper
202	100		
101	19.1	14.2	21.2

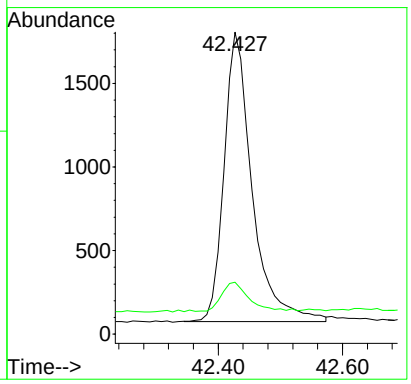


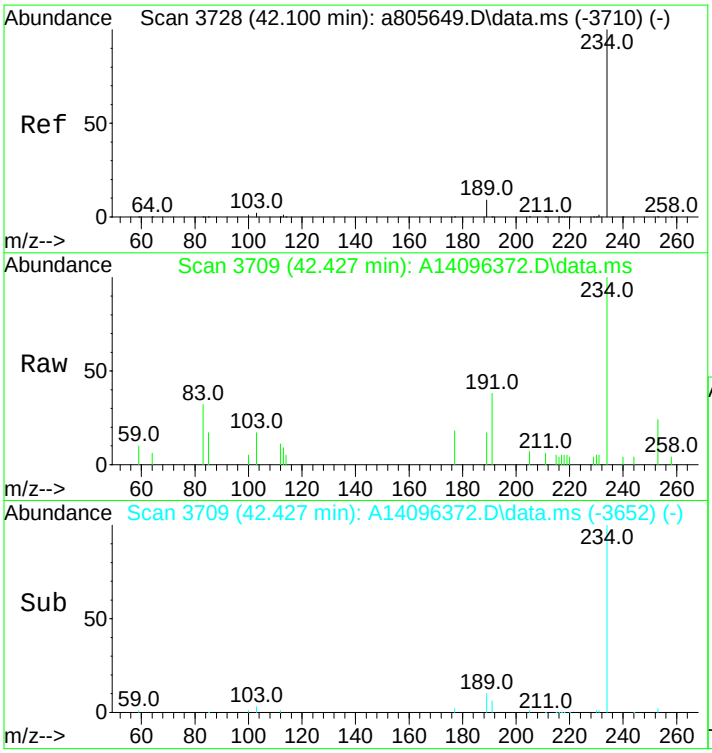


#66
Naphthobenzothiophene
Concen: 23.57 ng/ml m
RT: 42.427 min Scan# 3709
Delta R.T. 0.018 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:234 Resp: 5447

Ion	Ratio	Lower	Upper
234	100		
189	9.5	7.3	10.9

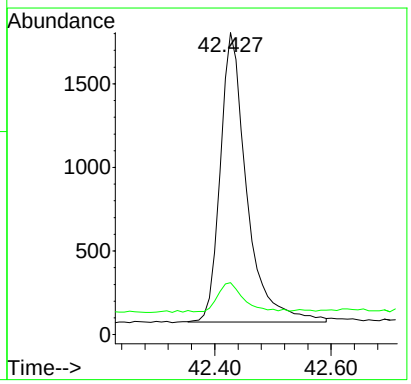


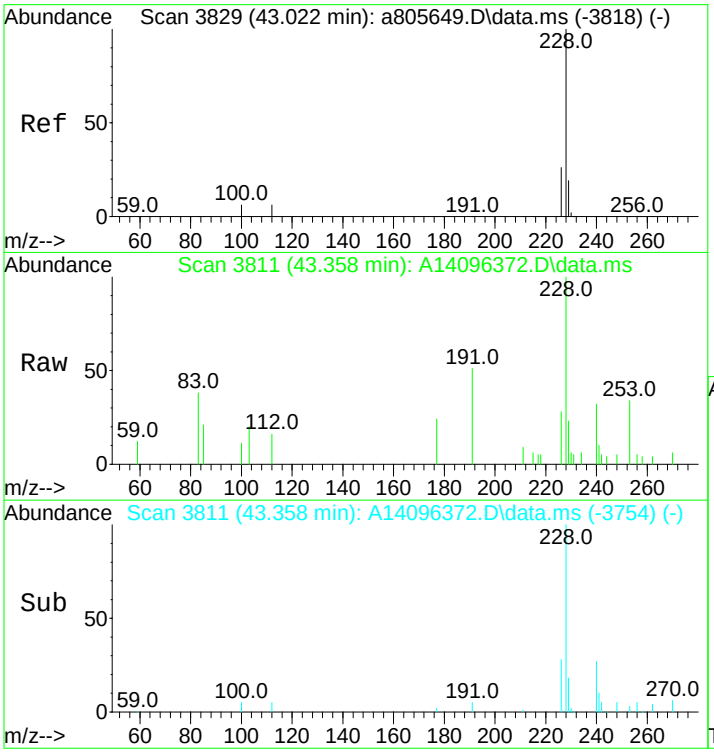


#67
Naphthobenzothiophene-2,1-D
Concen: 23.69 ng/mL m
RT: 42.427 min Scan# 3709
Delta R.T. 0.018 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:234 Resp: 5474

Ion	Ratio	Lower	Upper
234	100		
189	9.5	7.3	10.9

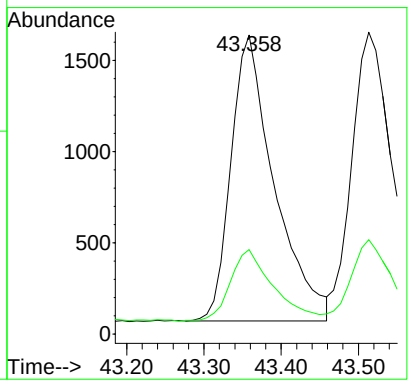


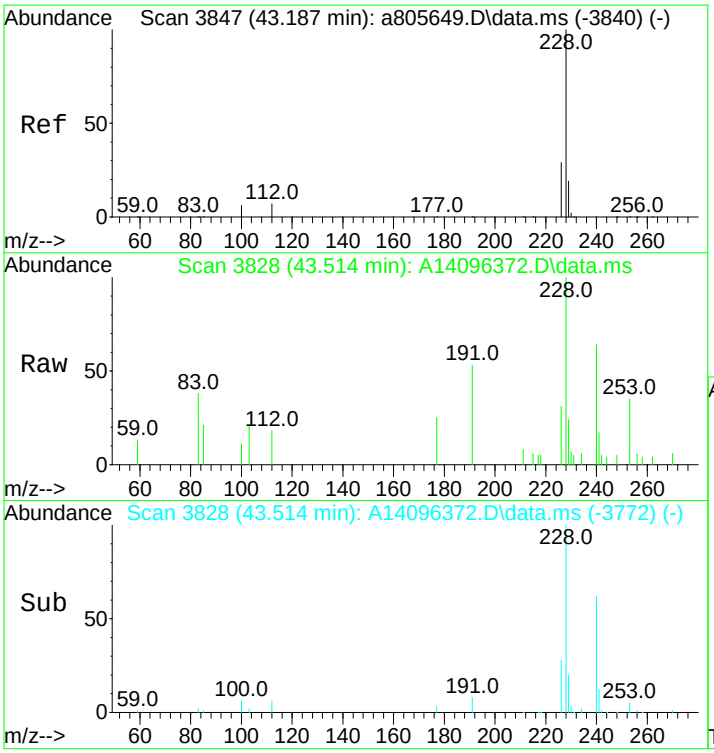


#75
Benz[a]anthracene
Concen: 24.34 ng/mL
RT: 43.358 min Scan# 3811
Delta R.T. 0.018 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:228 Resp: 6121

Ion	Ratio	Lower	Upper
228	100		
226	24.0	19.6	29.4

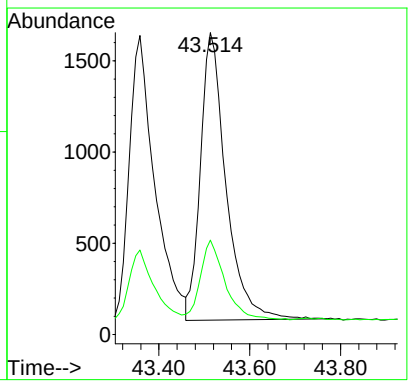


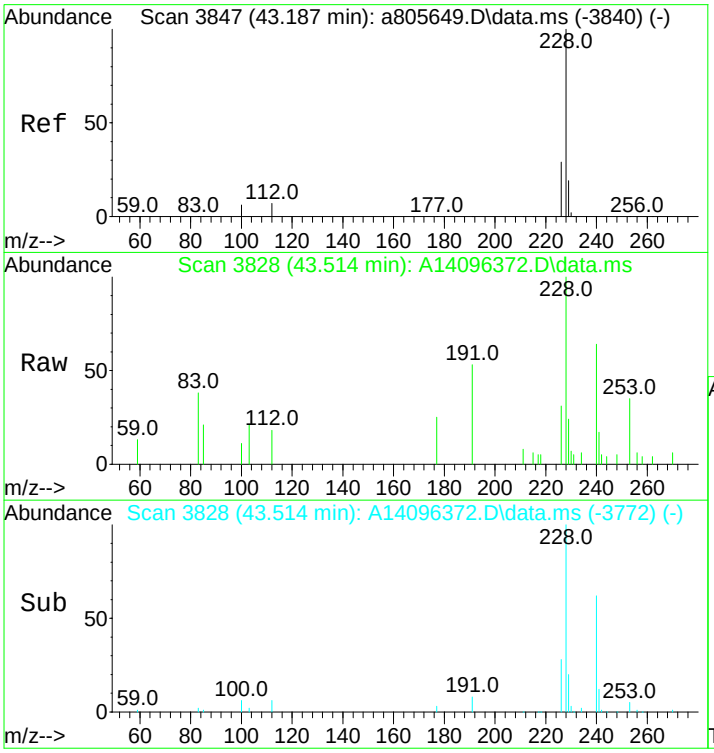


#76
Chrysene
Concen: 22.79 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:228 Resp: 6171

Ion	Ratio	Lower	Upper
228	100		
226	27.5	21.8	32.6

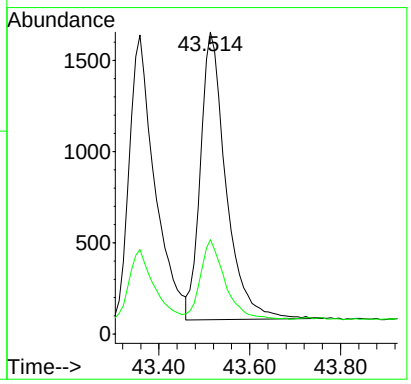


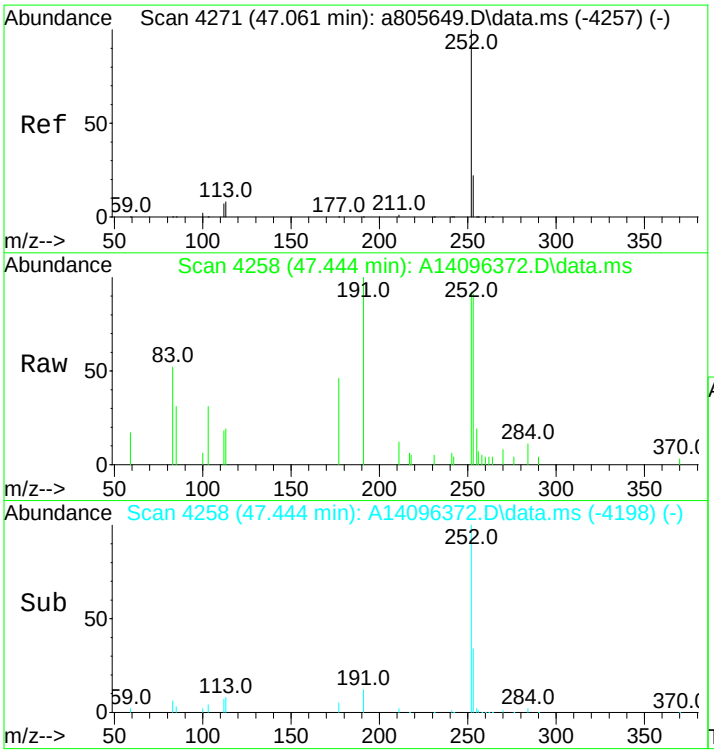


#77
Chrysene/Triphenylene
Concen: 22.79 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:228 Resp: 6171

Ion	Ratio	Lower	Upper
228	100		
226	27.5	21.8	32.6

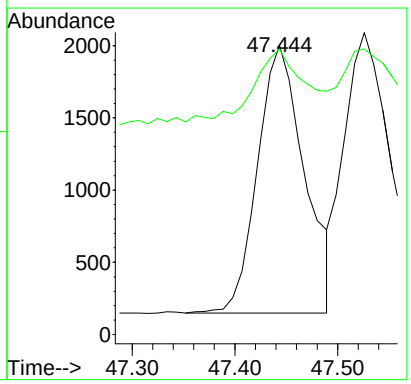


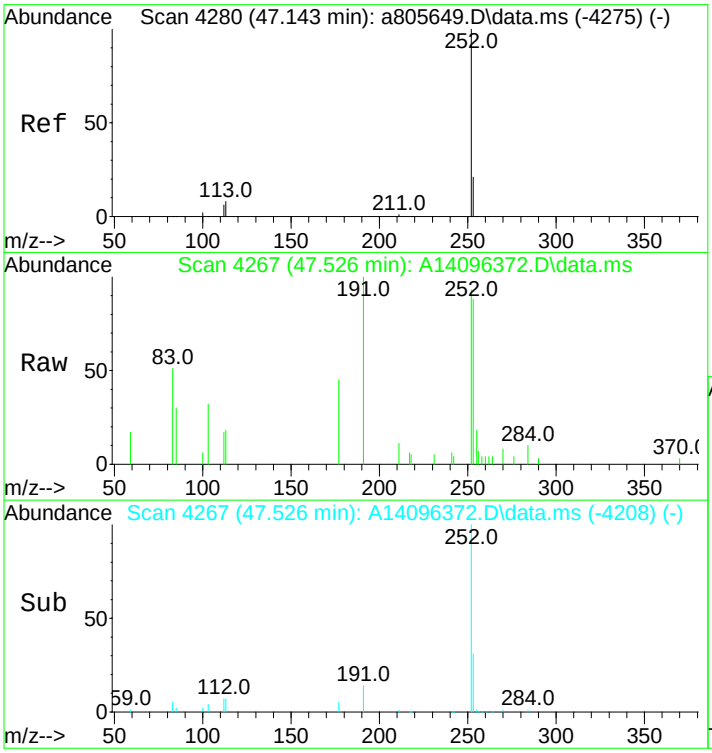


#82
Benzo[b]fluoranthene
Concen: 20.67 ng/mL
RT: 47.444 min Scan# 4258
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:252 Resp: 5891

Ion	Ratio	Lower	Upper
252	100		
253	26.5	20.6	30.8

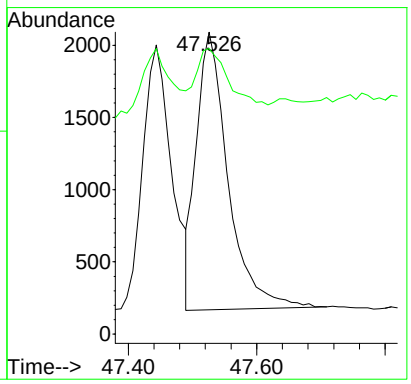


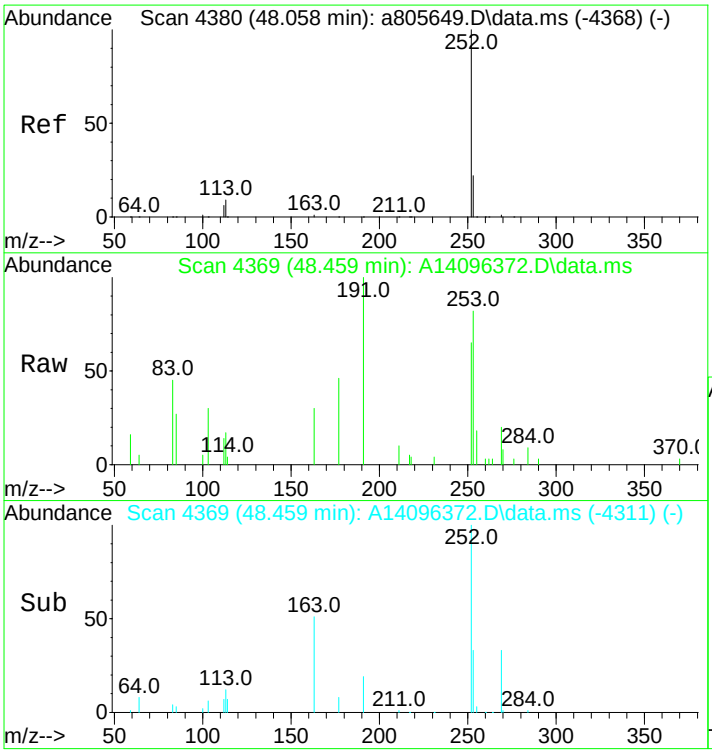


#83
Benzo[j]+[k]fluoranthene
Concen: 21.39 ng/mL
RT: 47.526 min Scan# 4267
Delta R.T. 0.037 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:252 Resp: 6592

Ion	Ratio	Lower	Upper
252	100		
253	21.9	20.2	30.4

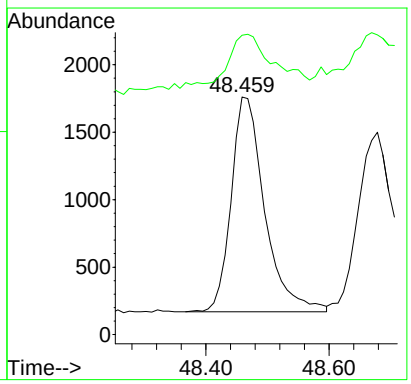


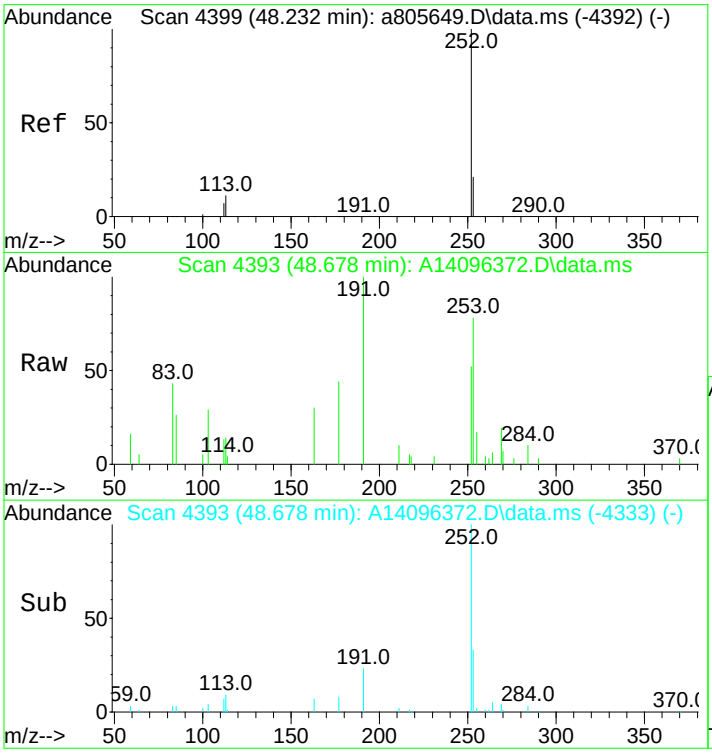


#85
Benzo[e]pyrene
Concen: 20.81 ng/mL
RT: 48.459 min Scan# 4369
Delta R.T. 0.028 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:252 Resp: 6002

Ion	Ratio	Lower	Upper
252	100		
253	27.2	21.3	31.9

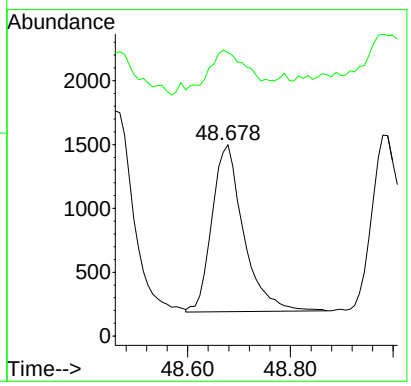


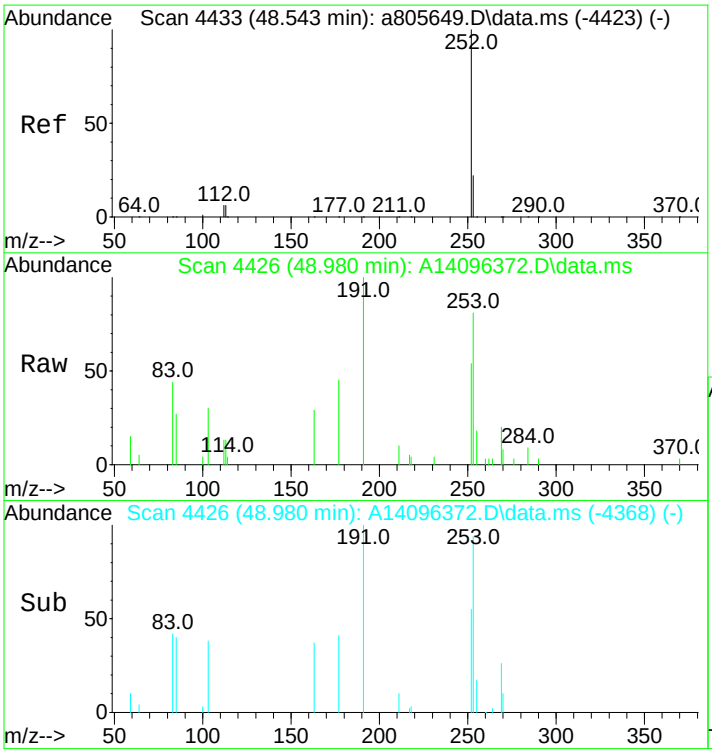


#87
Benzo[a]pyrene
Concen: 20.72 ng/mL
RT: 48.678 min Scan# 4393
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:252 Resp: 5573

Ion	Ratio	Lower	Upper
252	100		
253	21.7	22.2	33.2#

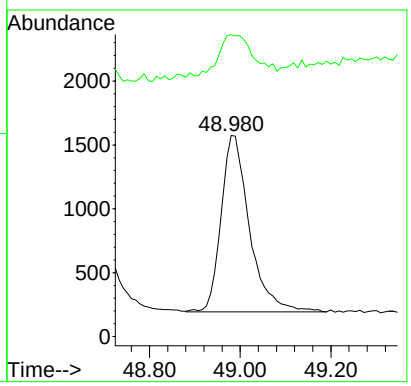


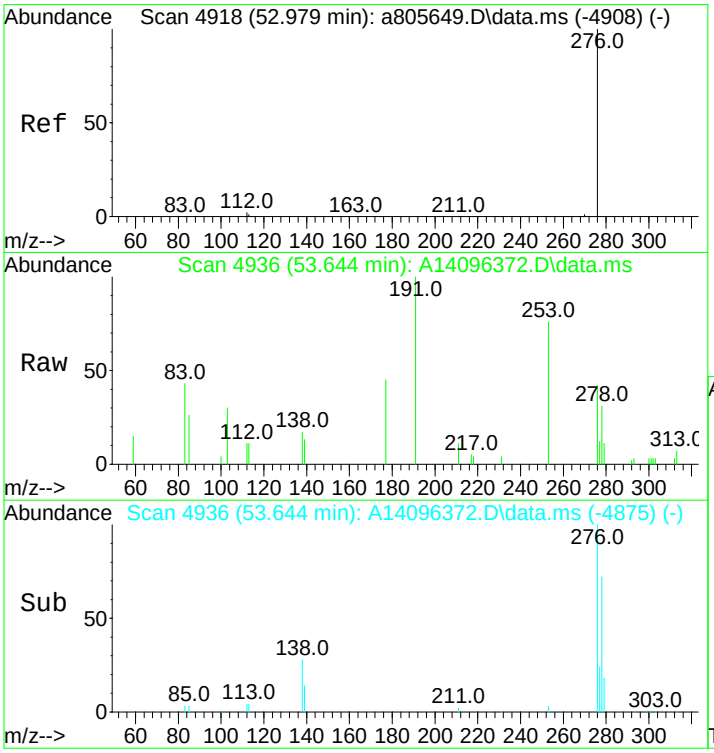


#88
Perylene
Concen: 21.22 ng/mL
RT: 48.980 min Scan# 4426
Delta R.T. 0.028 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:252 Resp: 6019

Ion	Ratio	Lower	Upper
252	100		
253	27.6	22.6	34.0

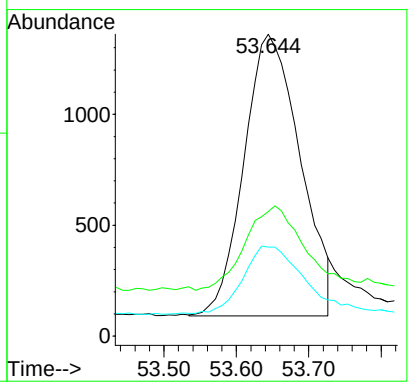


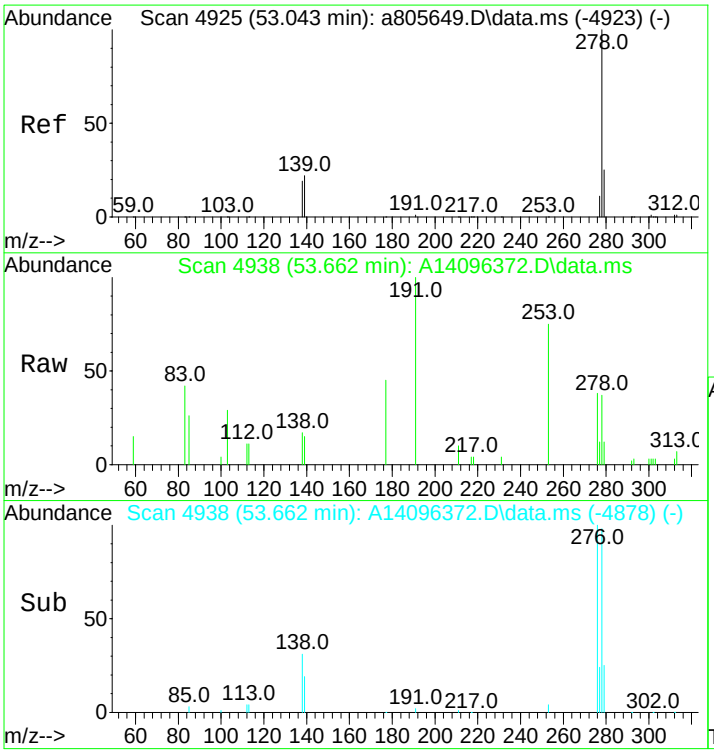


#89
Indeno[1,2,3-cd]pyrene
Concen: 23.88 ng/mL m
RT: 53.644 min Scan# 4936
Delta R.T. 0.055 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:276 Resp: 6862

Ion	Ratio	Lower	Upper
276	100		
138	32.0	22.6	33.8
277	27.6	19.8	29.8

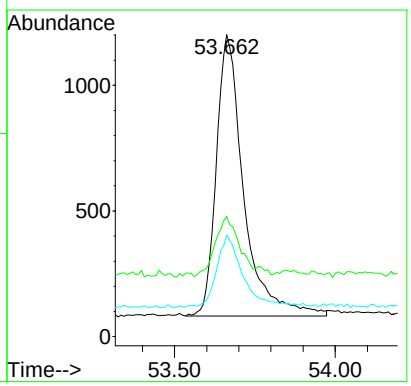


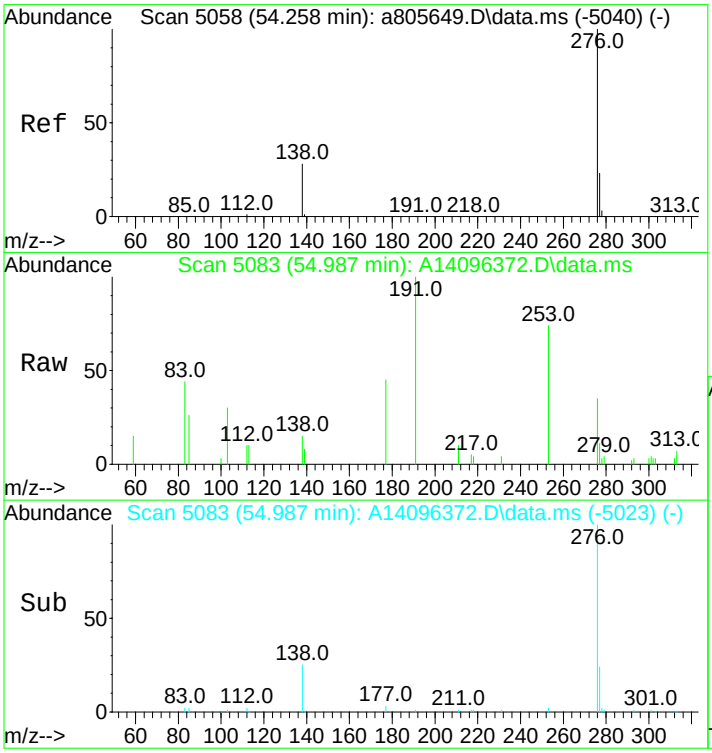


#90
Dibenz[ah]+[ac]anthracene
Concen: 22.51 ng/mL
RT: 53.662 min Scan# 4938
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:278 Resp: 6624

Ion	Ratio	Lower	Upper
278	100		
139	18.8	16.2	24.2
279	24.5	19.8	29.8

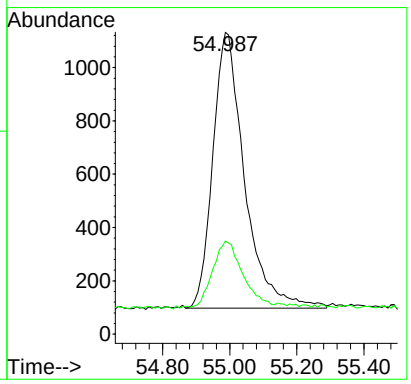


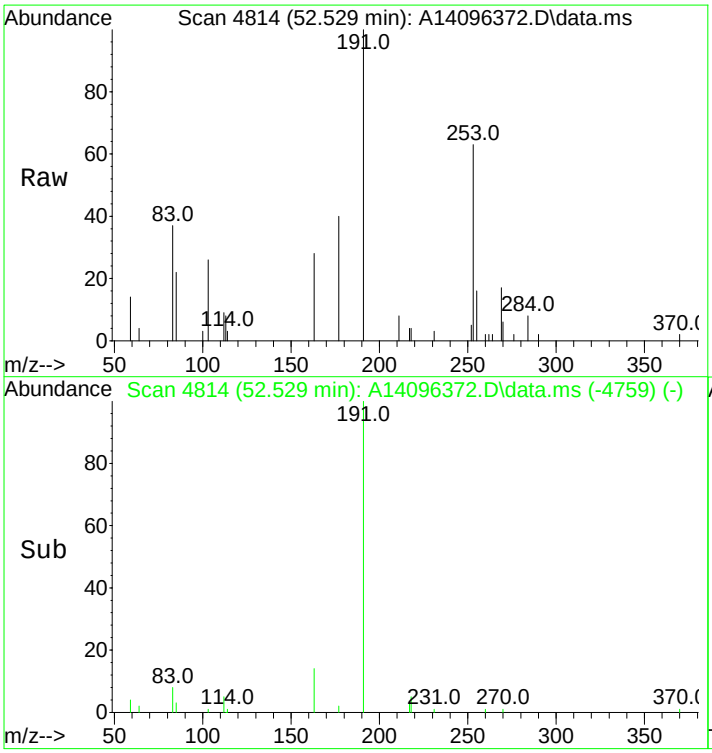


#91
Benzo[g,h,i]perylene
Concen: 20.86 ng/mL
RT: 54.987 min Scan# 5083
Delta R.T. 0.046 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:276 Resp: 6799

Ion	Ratio	Lower	Upper
276	100		
277	22.3	19.0	28.6

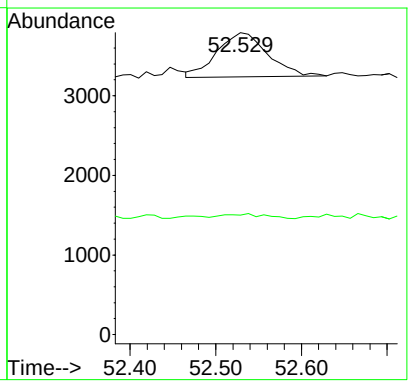


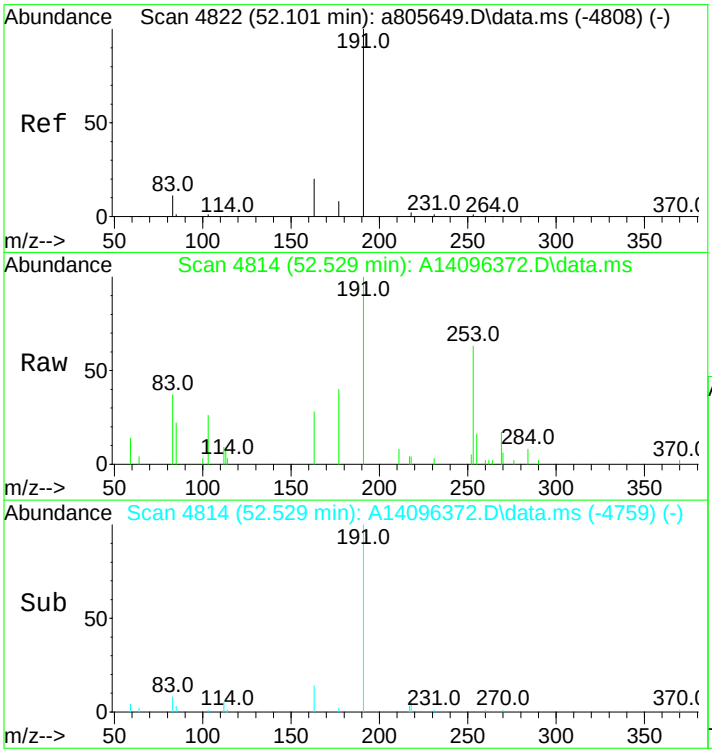


#92
Hopane (T19)
Concen: 30.23 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:191 Resp: 2294

Ion	Ratio	Lower	Upper
191	100		
177	8.7	12.8	19.2#

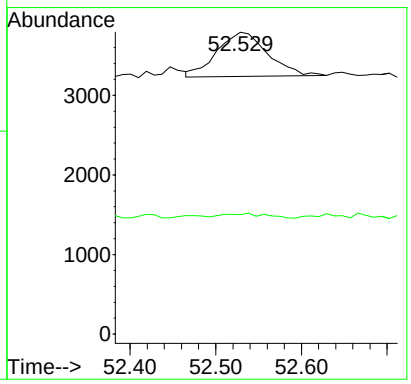




#93
17a(H),21B(H)-hopane - C30H52
Concen: 30.23 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096372.D
Acq: 18 May 2012 3:00 pm

Tgt Ion:191 Resp: 2294

Ion	Ratio	Lower	Upper
191	100		
177	8.7	12.8	19.2#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096373.D
Acq On : 18 May 2012 4:25 pm
Operator : PAH14:MT
Sample : I1405181203
Misc : WG537732
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:16:09 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.938	164	66781	500.000	ng/mL	0.03
74) Chrysene-d12	43.413	240	116853	500.000	ng/mL	0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.976	136	22285	78.887	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery =	7.89%#		
42) Phenanthrene-d10	32.842	188	21612	97.381	ng/mL	0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery =	9.74%#		
86) Benzo[a]pyrene-d12	48.569	264	21827	91.668	ng/mL	0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery =	9.17%#		
127) 5B(H)Cholane - Surr	43.961	217	4323	105.630	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery =	10.56%#		
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	2659M4	41.422	ng/mL	
4) cis-Decalin	17.758	138	1965	40.124	ng/mL	100
10) Naphthalene	20.058	128	25097	79.055	ng/mL#	100
16) 2-Methylnaphthalene	22.823	142	16043	80.532	ng/mL#	100
17) 1-Methylnaphthalene	23.215	142	16371	85.039	ng/mL#	100
18) Benzothiophene	20.277	134	19209	74.138	ng/mL	100
23) Biphenyl	24.675	154	19957	81.725	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.305	156	14203	84.690	ng/mL#	100
25) Dibenzofuran	27.769	168	21712	86.794	ng/mL	99
26) Acenaphthylene	26.345	152	25082M4	88.127	ng/mL	
27) Acenaphthene	27.066	153	16018	87.802	ng/mL	97
28) 2,3,5-Trimethylnaphthalen	28.654	170	13277	94.597	ng/mL	100
29) Fluorene	29.128	166	17754	90.985	ng/mL	100
33) Dibenzothiophene	32.431	184	22855	86.160	ng/mL	99
43) Phenanthrene	32.933	178	24475	89.841	ng/mL	99
54) Retene	39.871	234	7256	119.133	ng/mL	100
55) Anthracene	33.124	178	24113M4	95.105	ng/mL	
56) Carbazole	33.809	167	22571	86.484	ng/mL	96
57) 1-Methylphenanthrene	35.443	192	18318	103.333	ng/mL	99
58) Fluoranthene	37.698	202	24934	95.848	ng/mL	98
59) Benzo(b)fluorene	40.218	216	16328	108.999	ng/mL	100
60) Pyrene	38.583	202	25599	95.743	ng/mL	97
66) Naphthobenzothiophene	42.418	234	22184M4	96.263	ng/ml	
67) Naphthobenzothiophene-2,1	42.418	234	22313M4	96.823	ng/mL	
75) Benz[a]anthracene	43.349	228	23662	94.470	ng/mL	100
76) Chrysene	43.514	228	24617	91.265	ng/mL	99
77) Chrysene/Triphenylene	43.514	228	24617	91.265	ng/mL	99
82) Benzo[b]fluoranthene	47.425	252	23944	84.346	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.517	252	27447	89.411	ng/mL	93
85) Benzo[e]pyrene	48.450	252	24217	84.318	ng/mL	96
87) Benzo[a]pyrene	48.660	252	22531	84.099	ng/mL	93
88) Perylene	48.971	252	23876	84.533	ng/mL	96
89) Indeno[1,2,3-cd]pyrene	53.626	276	28047M3	97.995	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.644	278	26584	90.715	ng/mL	98
91) Benzo[g,h,i]perylene	54.969	276	27219	83.841	ng/mL	99
92) Hopane (T19)	52.529	191	8394	111.050	ng/mL#	88
93) 17a(H),21B(H)-hopane - C3	52.529	191	8394	111.050	ng/mL#	88

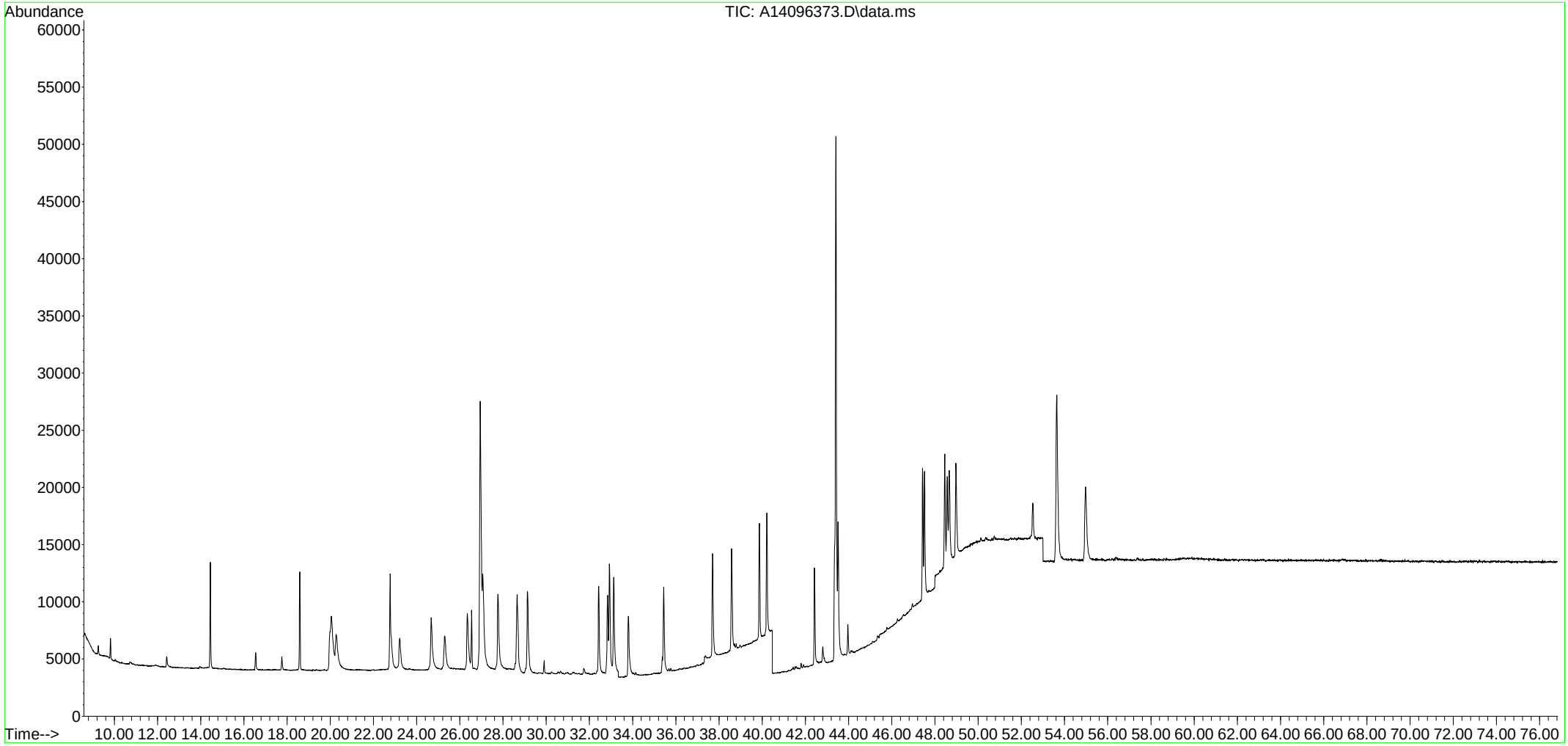
(#) = qualifier out of range (m) = manual integration (+) = signals summed

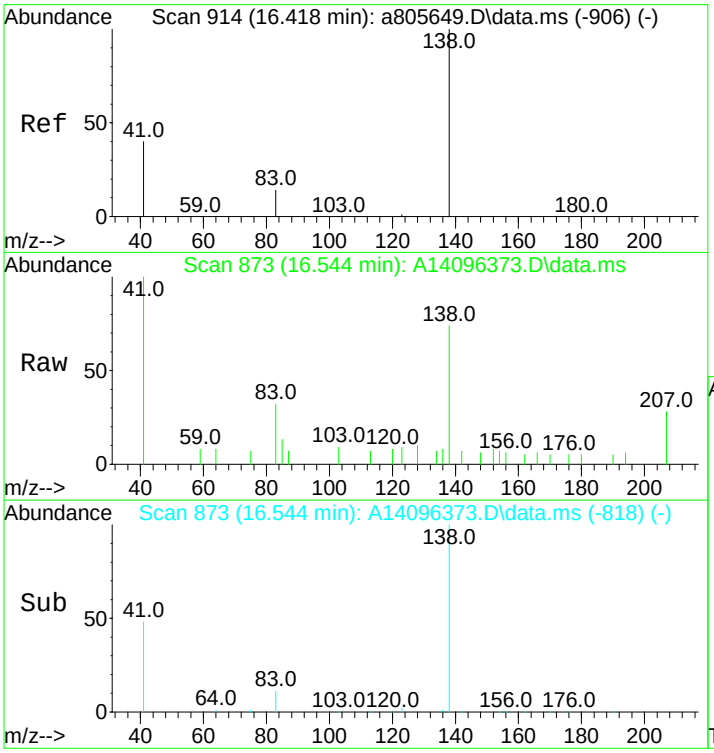
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096373.D
Acq On : 18 May 2012 4:25 pm
Operator : PAH14:MT
Sample : I1405181203
Misc : WG537732
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:16:09 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

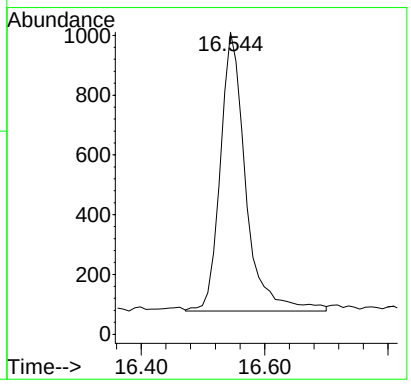
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

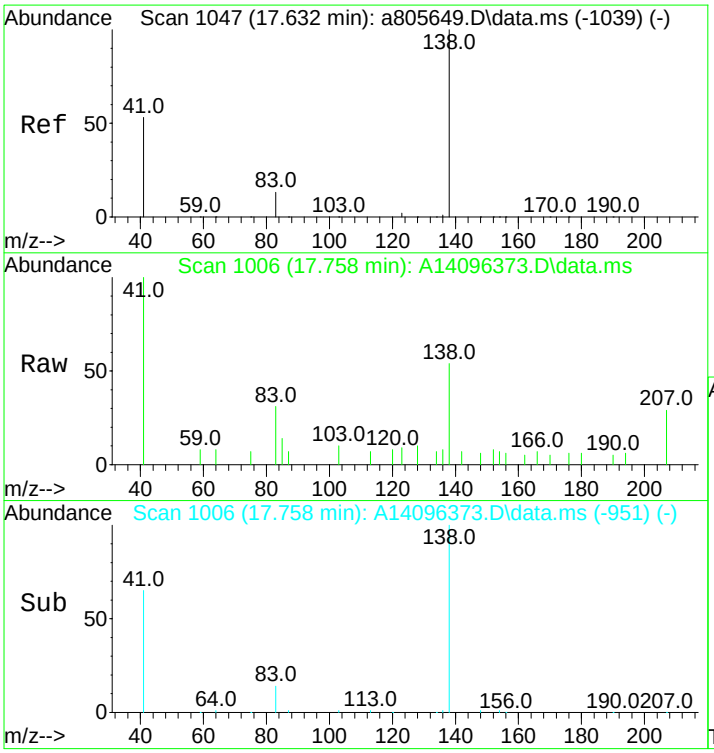




#3
trans-Decalin
Concen: 41.42 ng/mL m
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

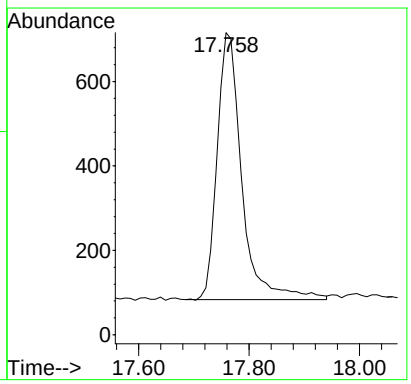
Tgt Ion:138 Resp: 2659

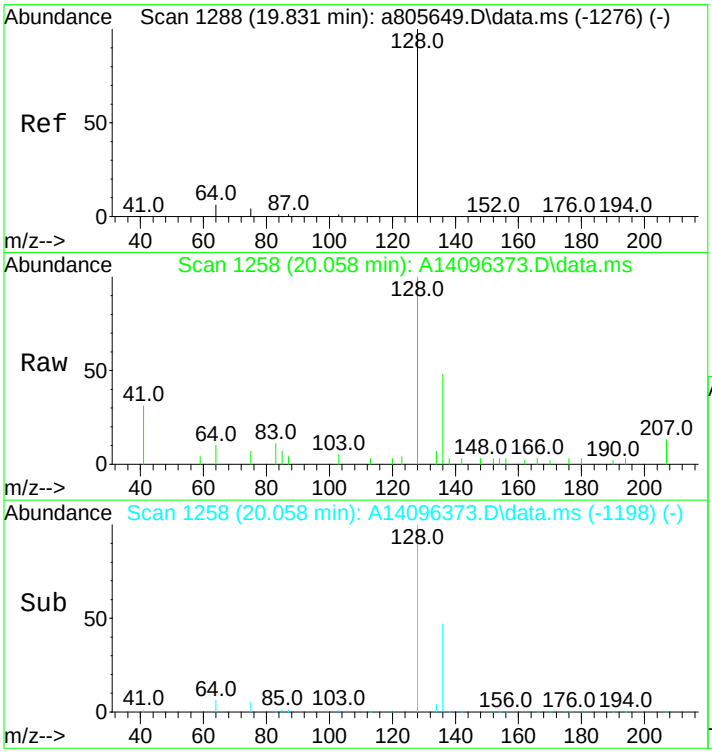




#4
cis-Decalin
Concen: 40.12 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:138 Resp: 1965

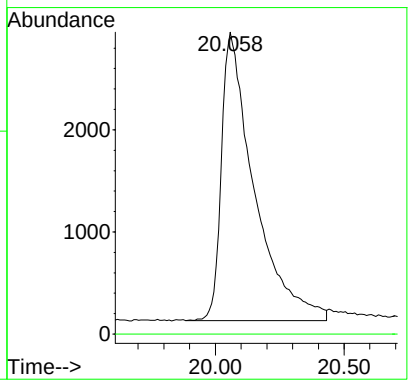


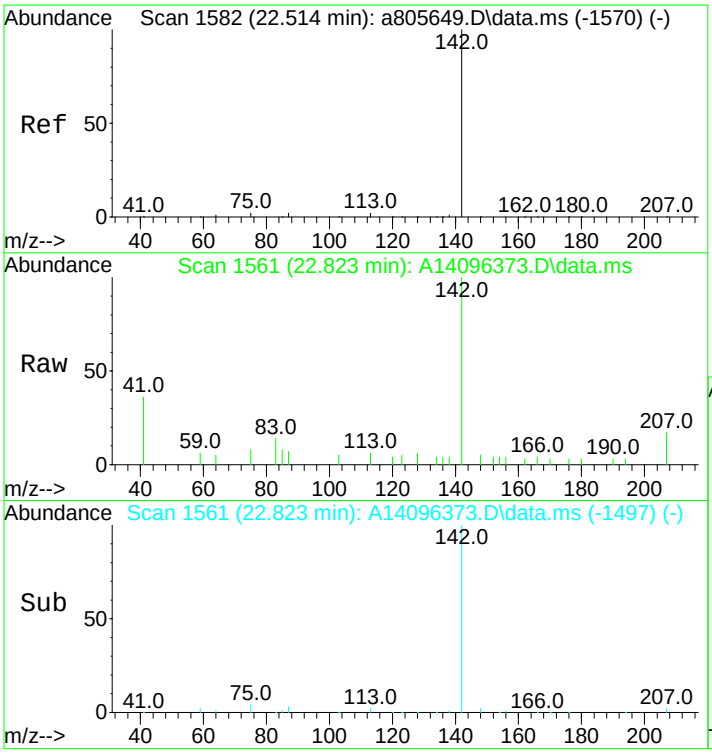


#10
Naphthalene
Concen: 79.05 ng/mL
RT: 20.058 min Scan# 1258
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:128 Resp: 25097

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

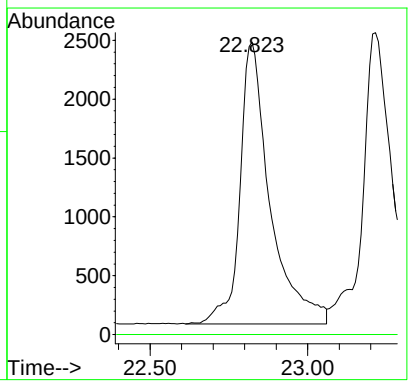


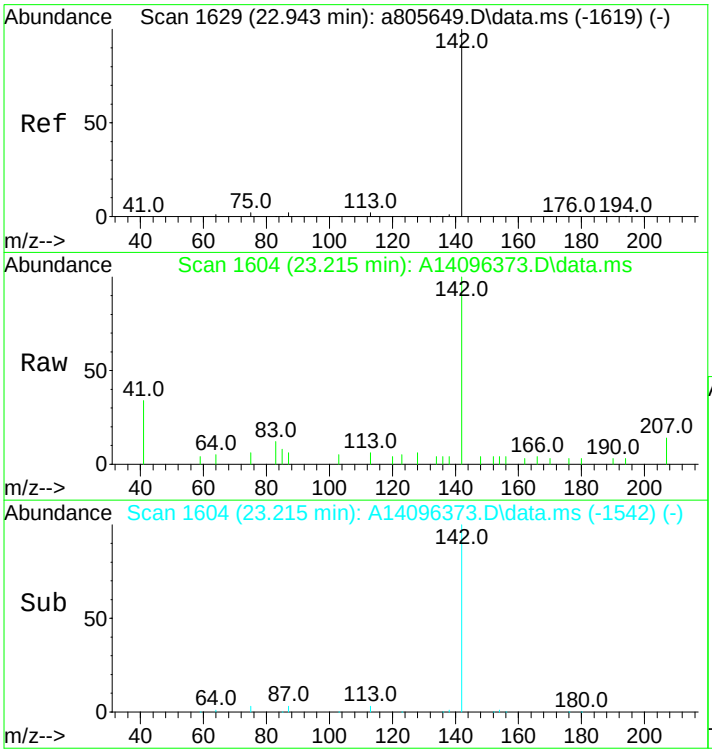


#16
2-Methylnaphthalene
Concen: 80.53 ng/mL
RT: 22.823 min Scan# 1561
Delta R.T. 0.082 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:142 Resp: 16043

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

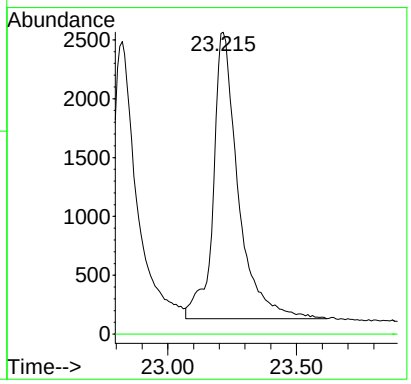


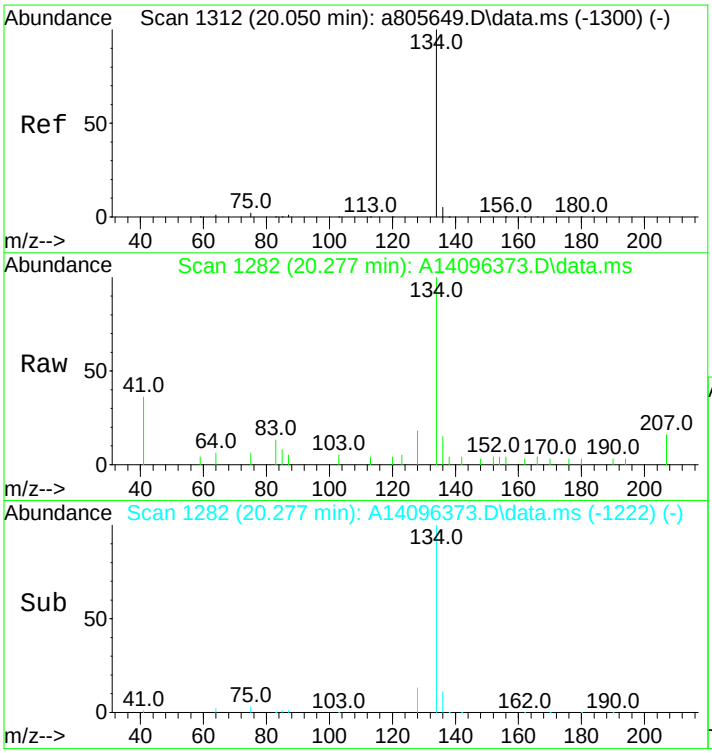


#17
1-Methylnaphthalene
Concen: 85.04 ng/mL
RT: 23.215 min Scan# 1604
Delta R.T. 0.064 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:142 Resp: 16371

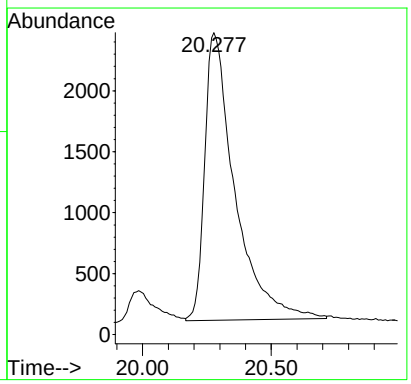
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

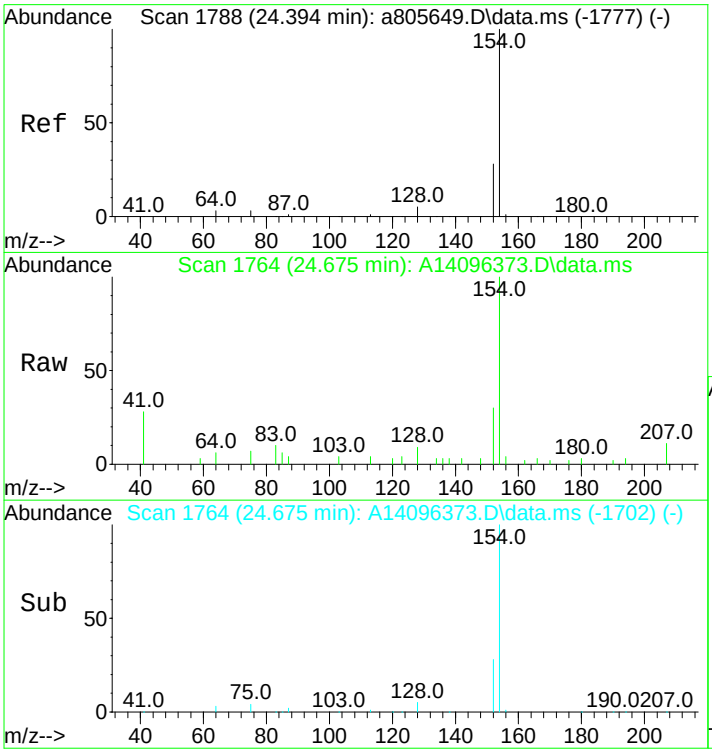




#18
Benzothiophene
Concen: 74.14 ng/mL
RT: 20.277 min Scan# 1282
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:134 Resp: 19209

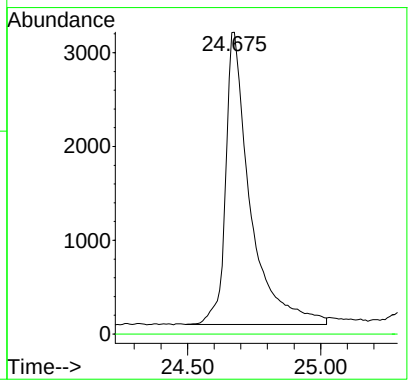


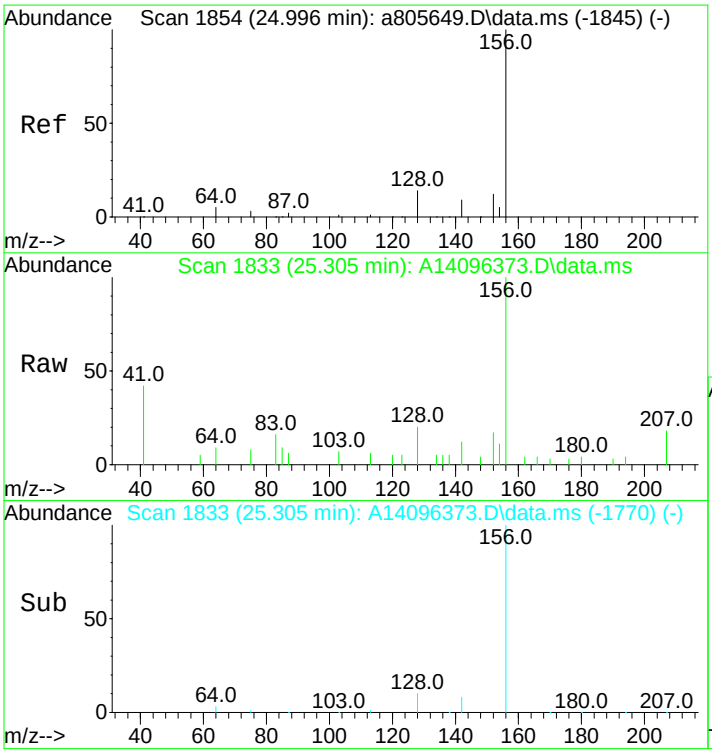


#23
Biphenyl
Concen: 81.73 ng/mL
RT: 24.675 min Scan# 1764
Delta R.T. 0.064 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:154 Resp: 19957

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

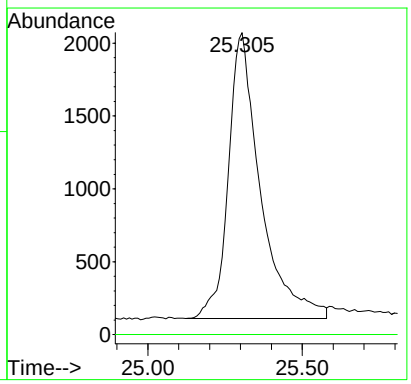


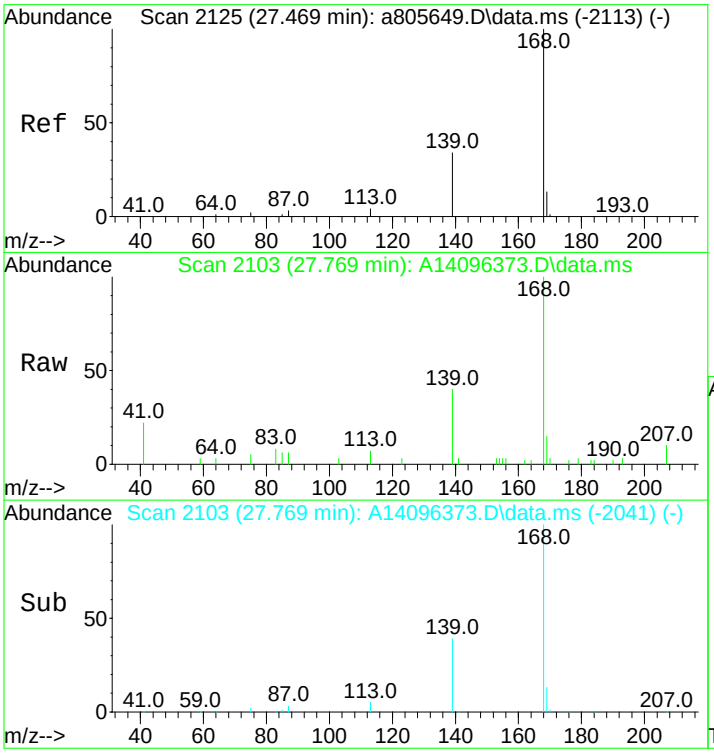


#24
2,6-Dimethylnaphthalene
Concen: 84.69 ng/mL
RT: 25.305 min Scan# 1833
Delta R.T. 0.073 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:156 Resp: 14203

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

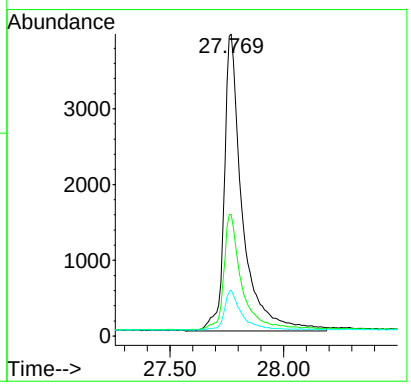


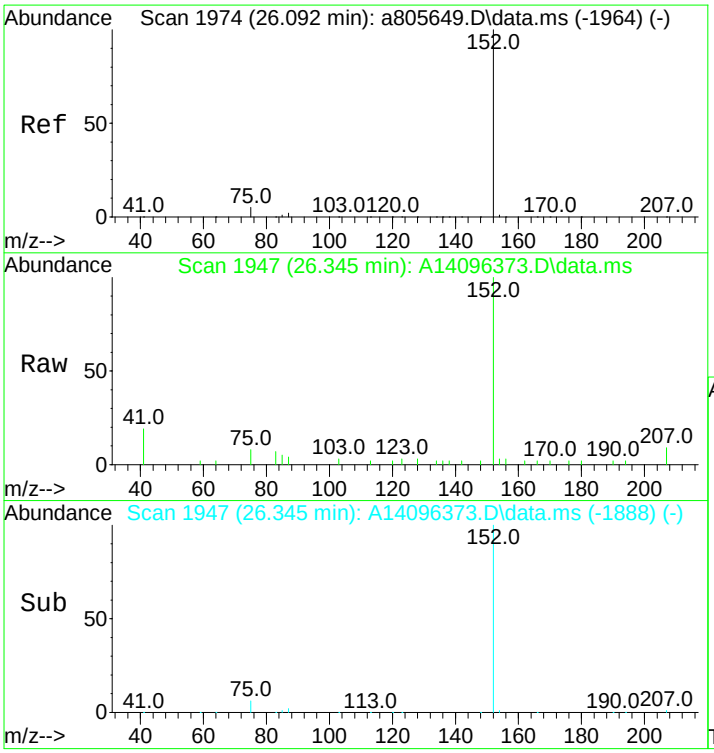


#25
Dibenzofuran
Concen: 86.79 ng/mL
RT: 27.769 min Scan# 2103
Delta R.T. 0.064 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:168 Resp: 21712

Ion	Ratio	Lower	Upper
168	100		
139	38.2	30.9	46.3
169	13.0	10.6	16.0

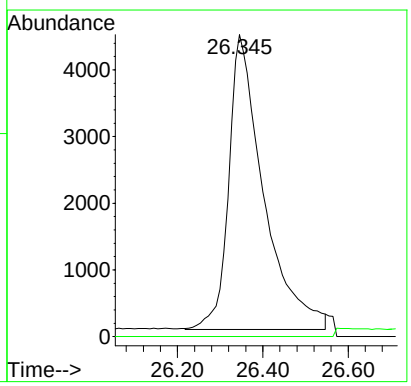


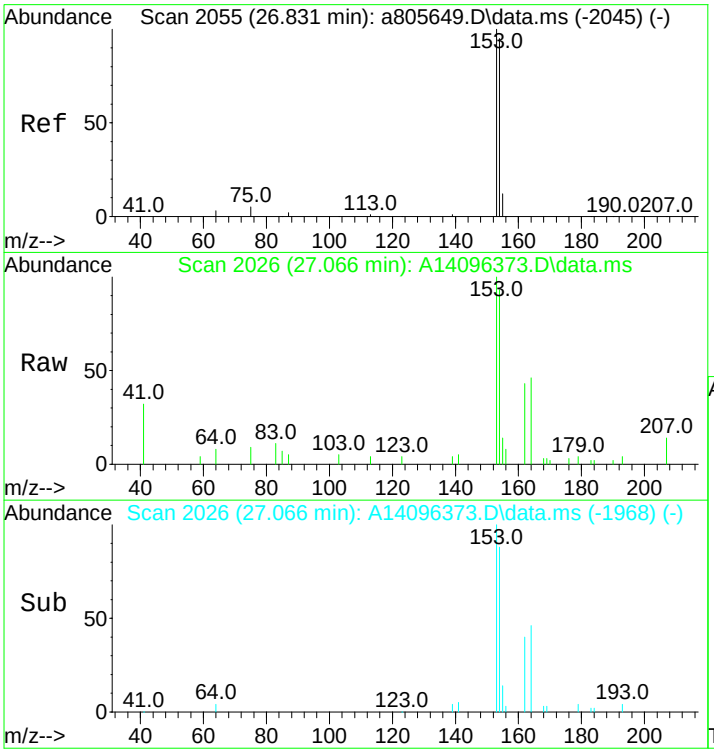


#26
Acenaphthylene
Concen: 88.13 ng/mL m
RT: 26.345 min Scan# 1947
Delta R.T. 0.037 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:152 Resp: 25082

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

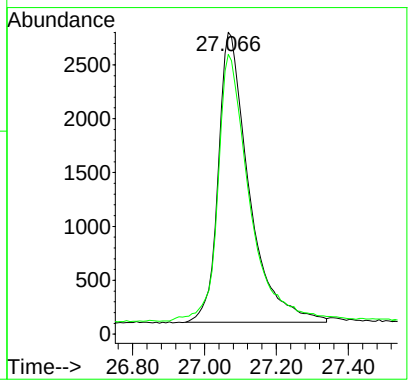


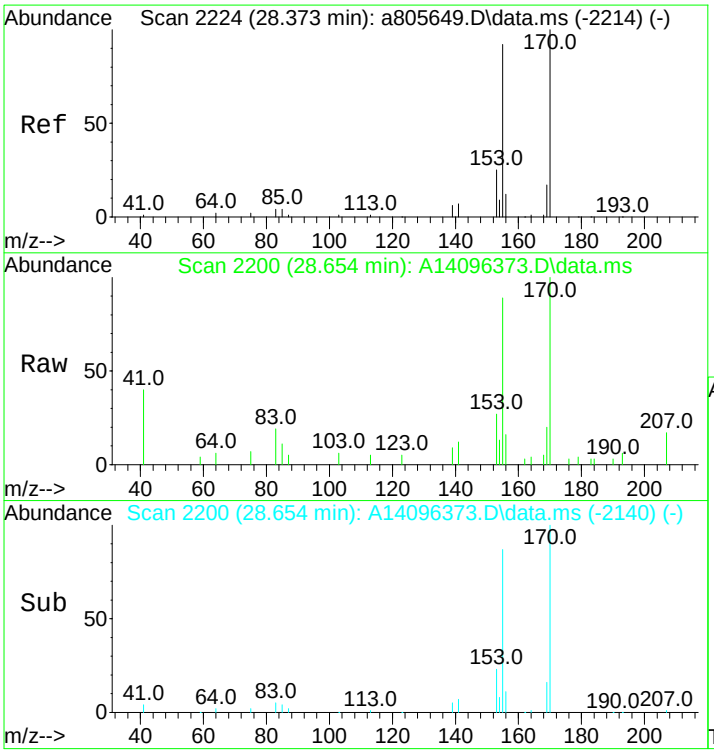


#27
Acenaphthene
Concen: 87.80 ng/mL
RT: 27.066 min Scan# 2026
Delta R.T. 0.027 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:153 Resp: 16018

Ion	Ratio	Lower	Upper
153	100		
154	94.5	73.6	110.4

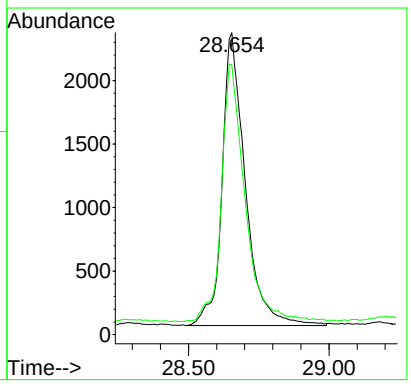


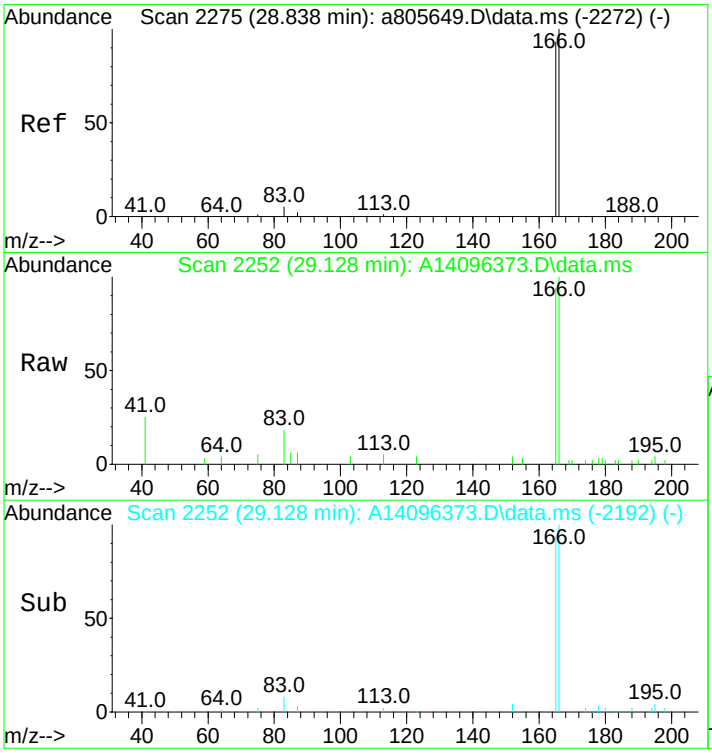


#28
2,3,5-Trimethylnaphthalene
Concen: 94.60 ng/mL
RT: 28.654 min Scan# 2200
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:170 Resp: 13277

Ion	Ratio	Lower	Upper
170	100		
155	89.0	71.2	106.8

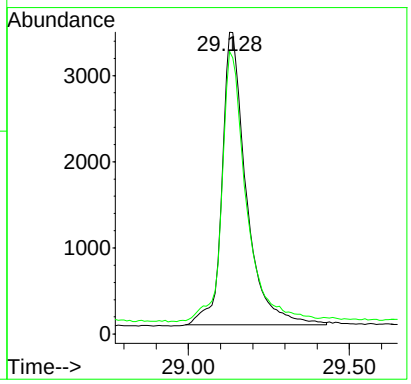


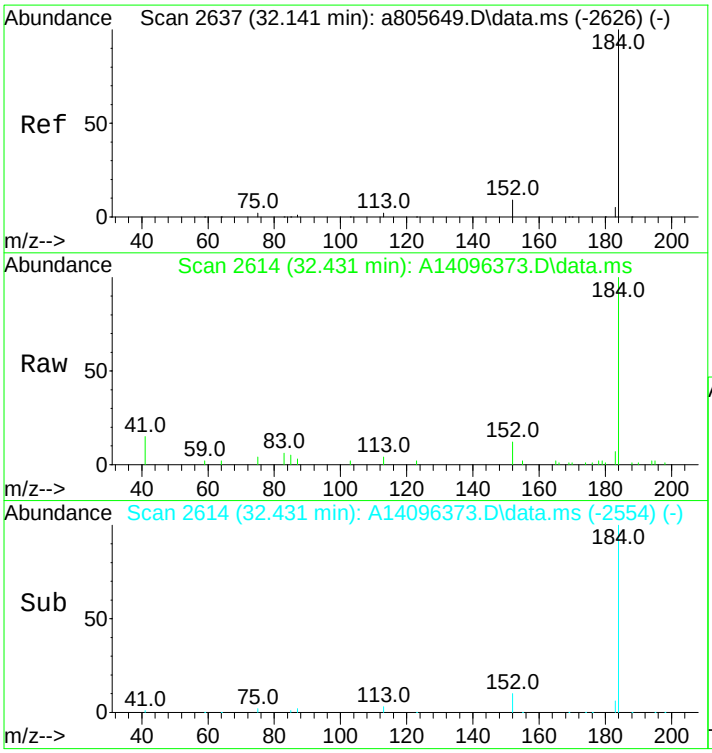


#29
Fluorene
Concen: 90.98 ng/mL
RT: 29.128 min Scan# 2252
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:166 Resp: 17754

Ion	Ratio	Lower	Upper
166	100		
165	91.7	73.3	109.9

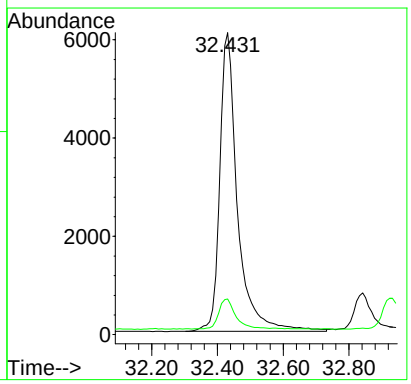


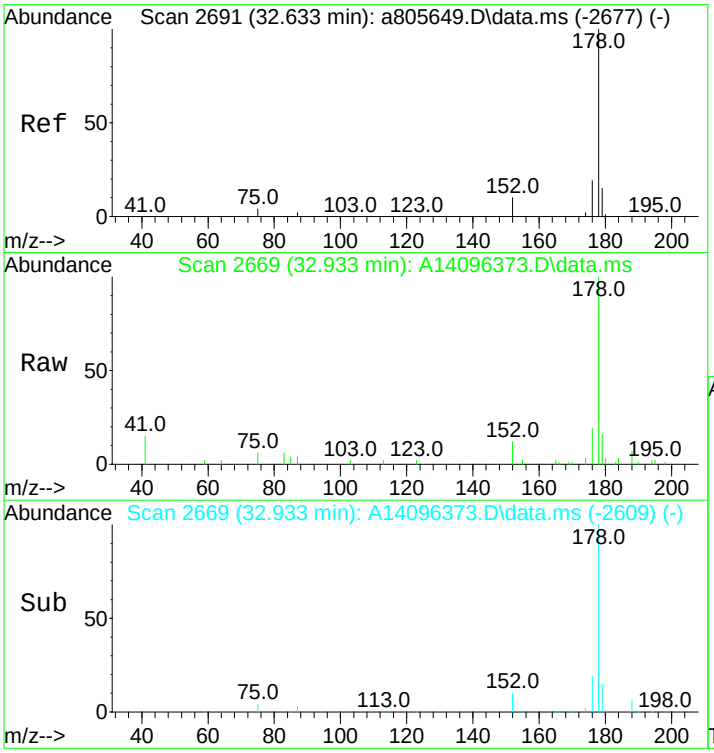


#33
Dibenzothiophene
Concen: 86.16 ng/mL
RT: 32.431 min Scan# 2614
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:184 Resp: 22855

Ion	Ratio	Lower	Upper
184	100		
152	9.9	8.2	12.2

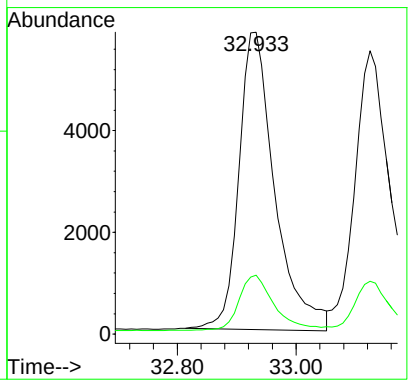


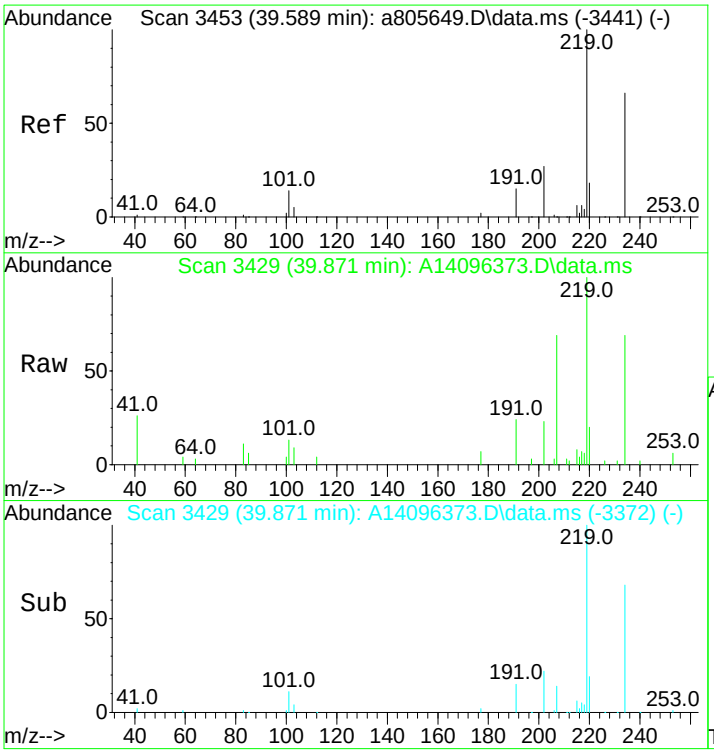


#43
Phenanthrene
Concen: 89.84 ng/mL
RT: 32.933 min Scan# 2669
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:178 Resp: 24475

Ion	Ratio	Lower	Upper
178	100		
176	17.8	14.7	22.1

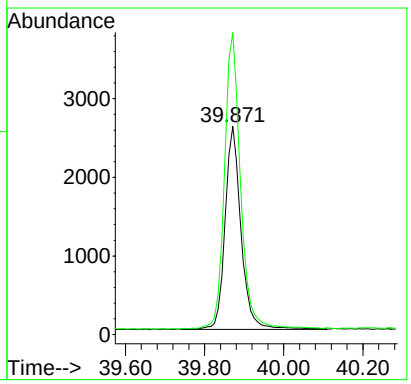


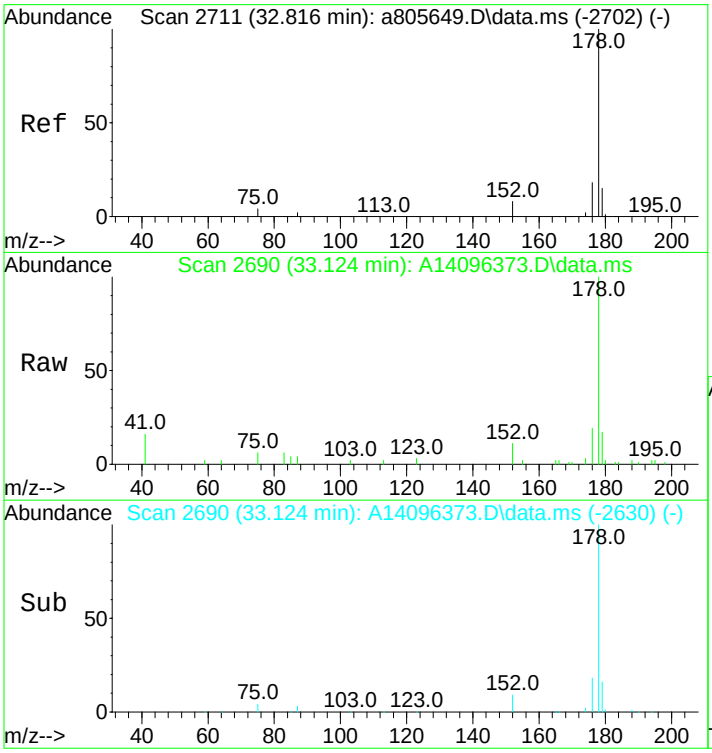


#54
Retene
Concen: 119.13 ng/mL
RT: 39.871 min Scan# 3429
Delta R.T. 0.018 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:234 Resp: 7256

Ion	Ratio	Lower	Upper
234	100		
219	148.0	118.7	178.1

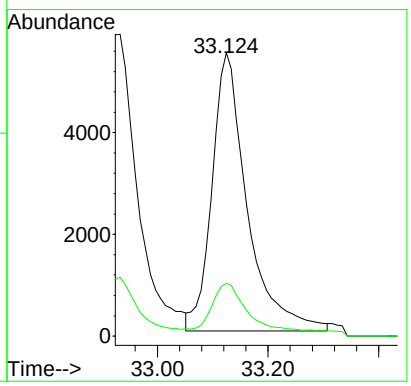


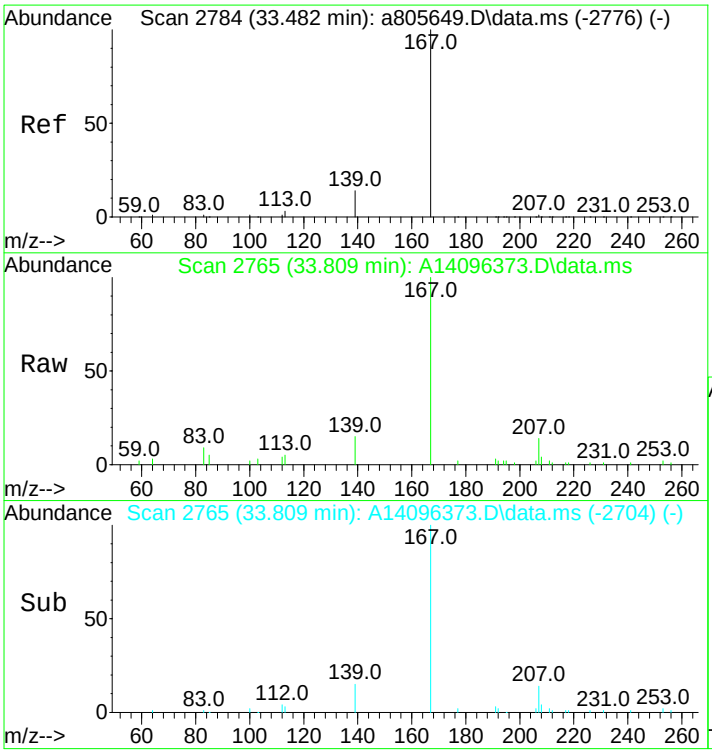


#55
Anthracene
Concen: 95.10 ng/mL m
RT: 33.124 min Scan# 2690
Delta R.T. 0.046 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:178 Resp: 24113

Ion	Ratio	Lower	Upper
178	100		
176	23.0	14.2	21.4#

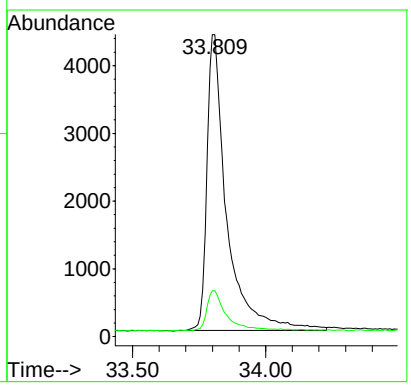


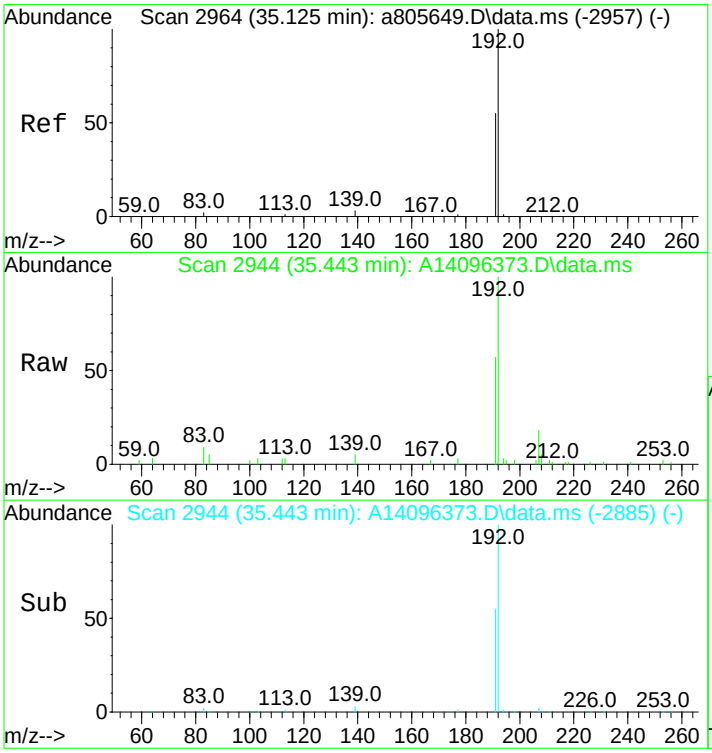


#56
Carbazole
Concen: 86.48 ng/mL
RT: 33.809 min Scan# 2765
Delta R.T. 0.055 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:167 Resp: 22571

Ion	Ratio	Lower	Upper
167	100		
139	12.2	11.0	16.4

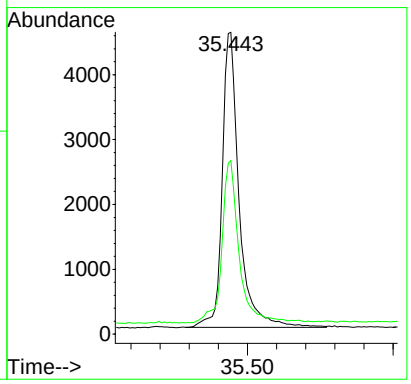


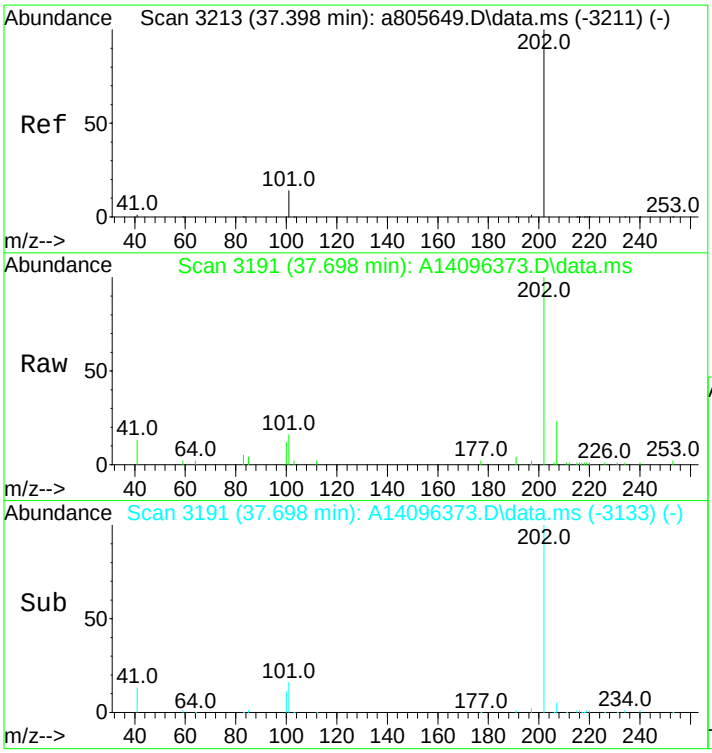


#57
1-Methylphenanthrene
Concen: 103.33 ng/mL
RT: 35.443 min Scan# 2944
Delta R.T. 0.037 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:192 Resp: 18318

Ion	Ratio	Lower	Upper
192	100		
191	55.8	43.8	65.8

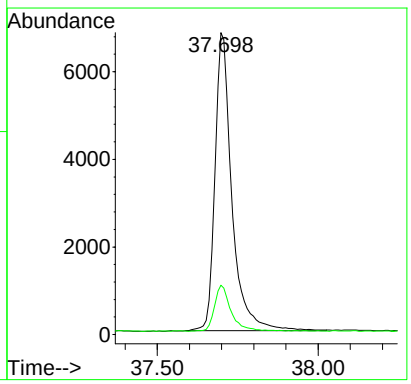


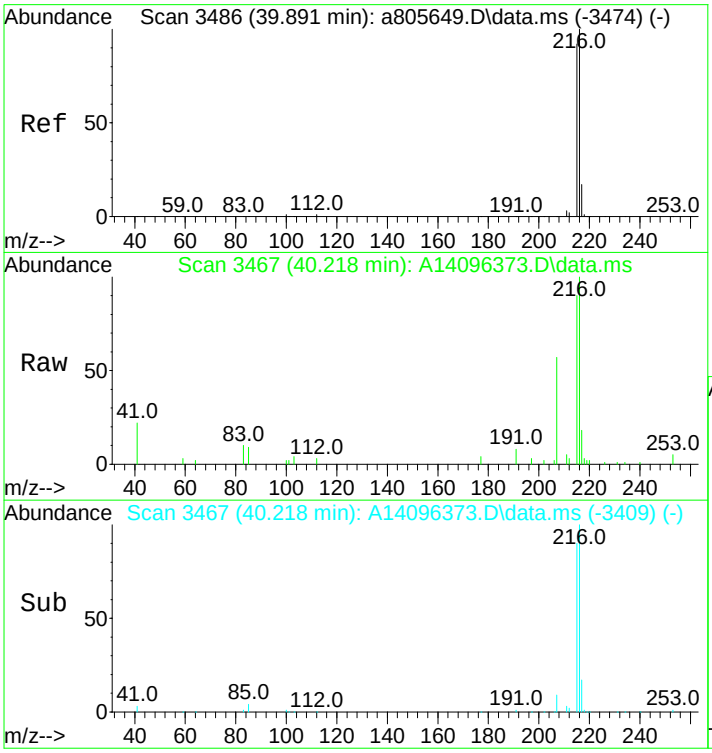


#58
Fluoranthene
Concen: 95.85 ng/mL
RT: 37.698 min Scan# 3191
Delta R.T. 0.027 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:202 Resp: 24934

Ion	Ratio	Lower	Upper
202	100		
101	14.7	12.3	18.5

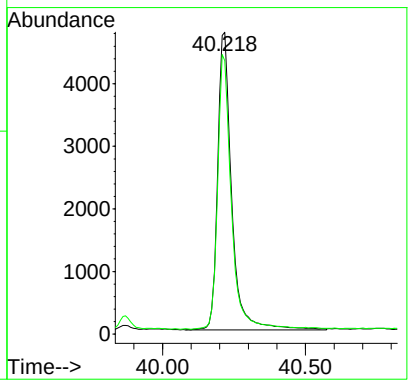


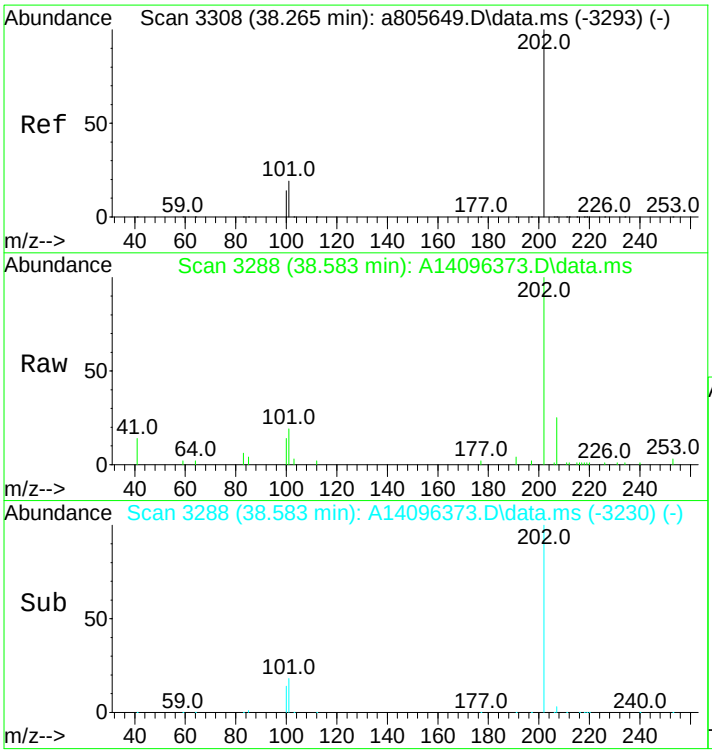


#59
Benzo(b)fluorene
Concen: 109.00 ng/mL
RT: 40.218 min Scan# 3467
Delta R.T. 0.027 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:216 Resp: 16328

Ion	Ratio	Lower	Upper
216	100		
215	90.1	72.2	108.4

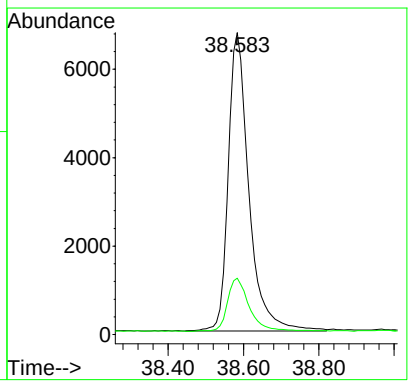


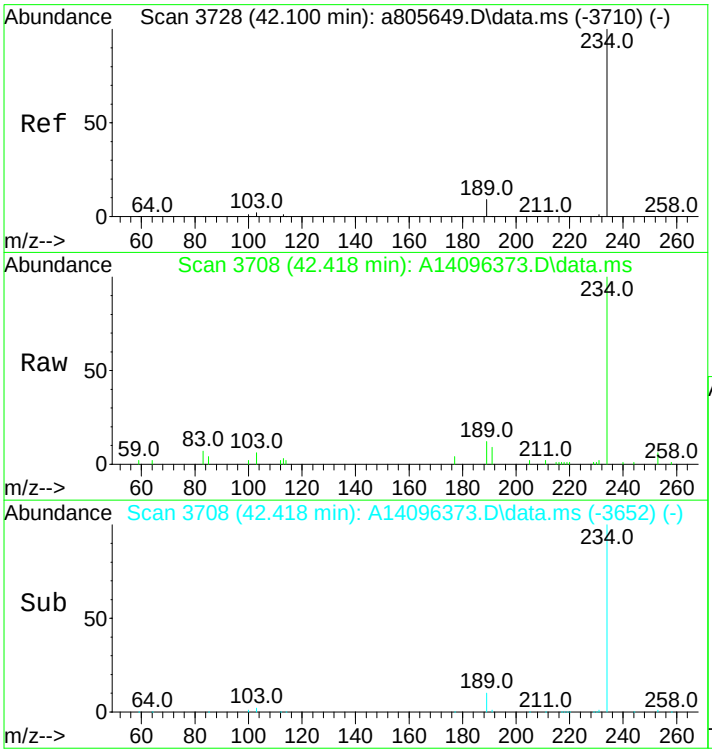


#60
Pyrene
Concen: 95.74 ng/mL
RT: 38.583 min Scan# 3288
Delta R.T. 0.027 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:202 Resp: 25599

Ion	Ratio	Lower	Upper
202	100		
101	18.9	14.2	21.2

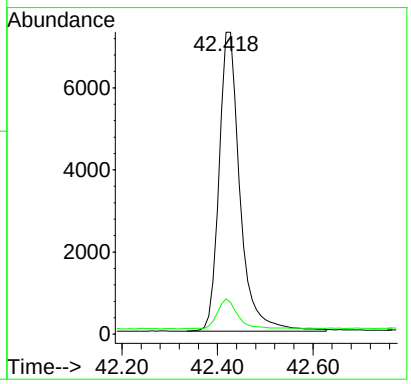


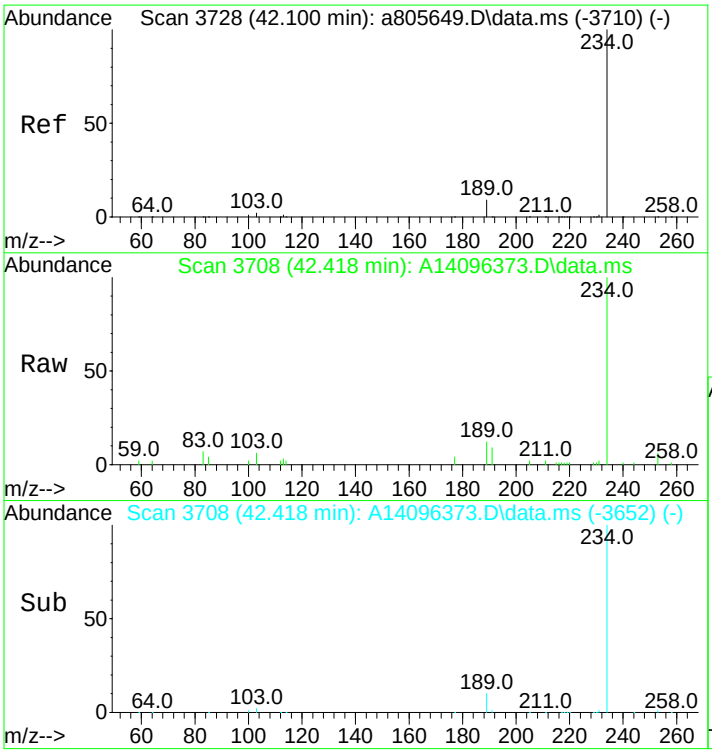


#66
Naphthobenzothiophene
Concen: 96.26 ng/ml m
RT: 42.418 min Scan# 3708
Delta R.T. 0.009 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:234 Resp: 22184

Ion	Ratio	Lower	Upper
234	100		
189	9.2	7.3	10.9

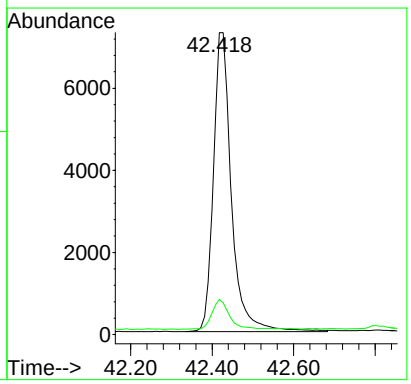


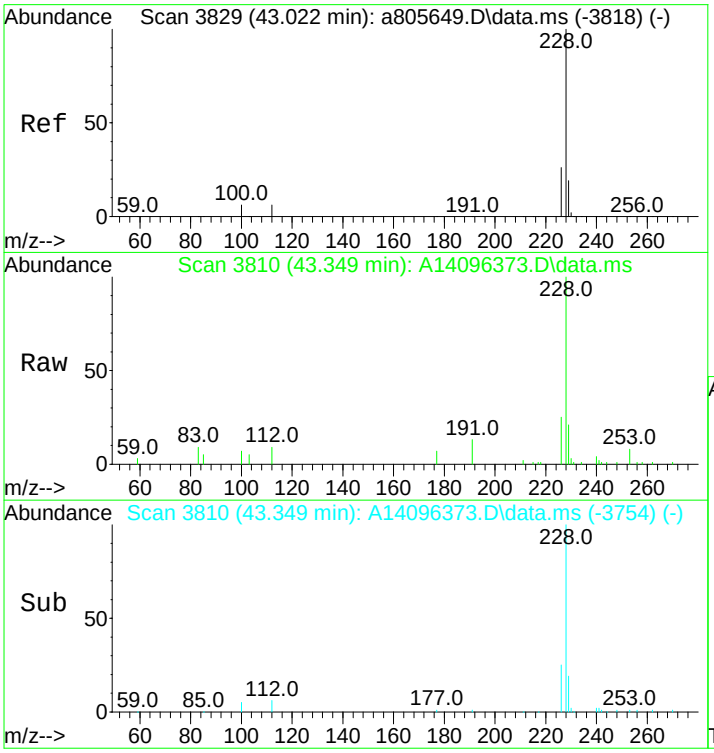


#67
Naphthobenzothiophene-2,1-D
Concen: 96.82 ng/mL m
RT: 42.418 min Scan# 3708
Delta R.T. 0.009 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:234 Resp: 22313

Ion	Ratio	Lower	Upper
234	100		
189	9.1	7.3	10.9

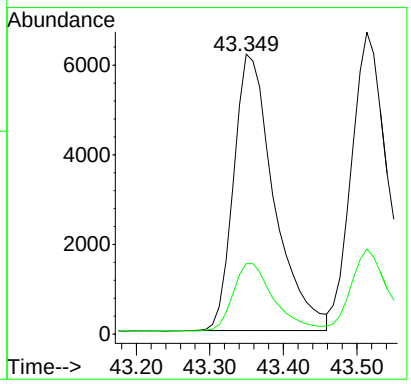


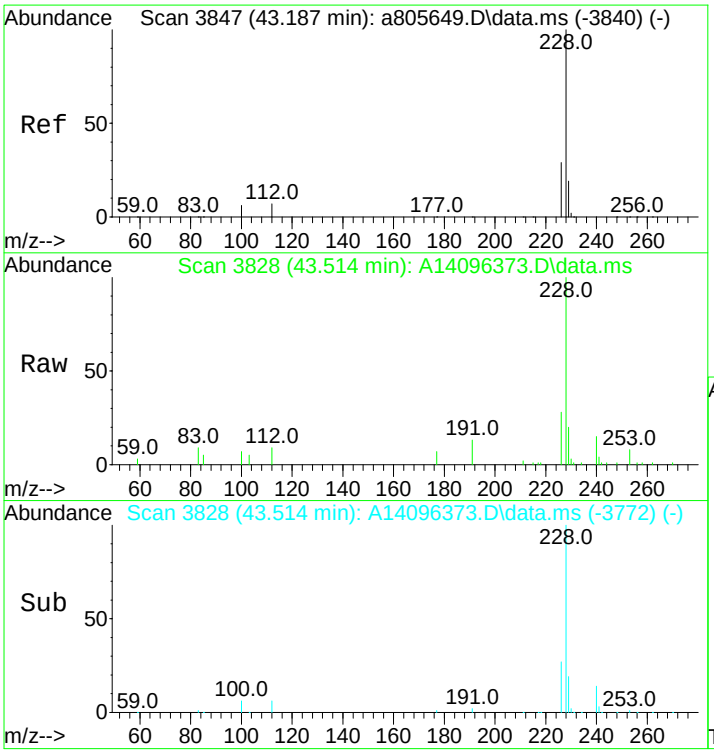


#75
Benz[a]anthracene
Concen: 94.47 ng/mL
RT: 43.349 min Scan# 3810
Delta R.T. 0.009 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:228 Resp: 23662

Ion	Ratio	Lower	Upper
228	100		
226	24.3	19.6	29.4

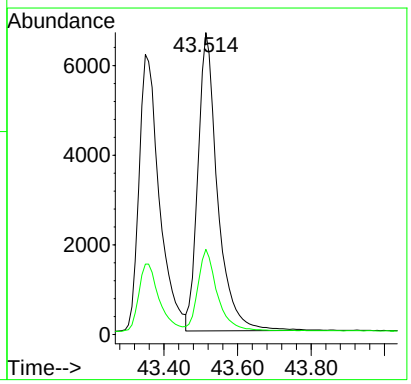


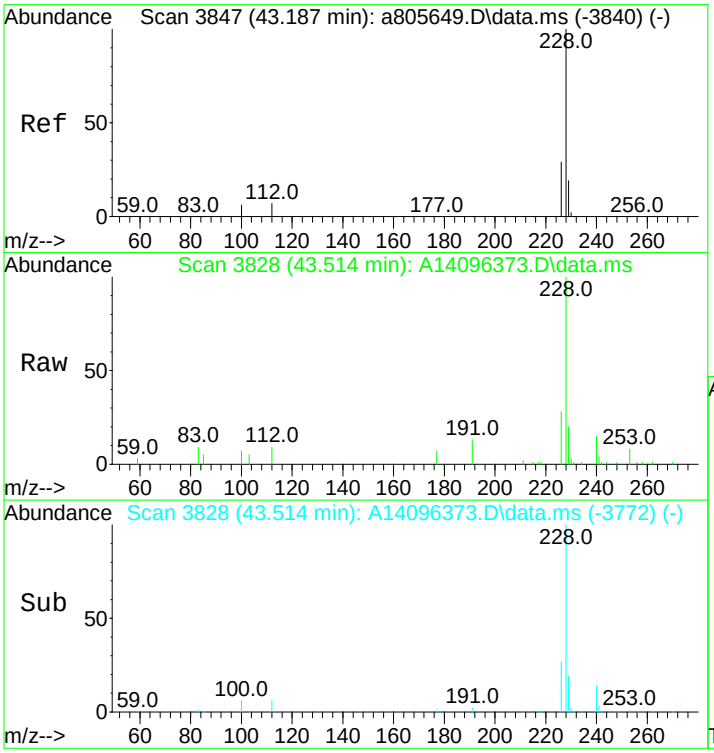


#76
Chrysene
Concen: 91.26 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:228 Resp: 24617

Ion	Ratio	Lower	Upper
228	100		
226	26.7	21.8	32.6

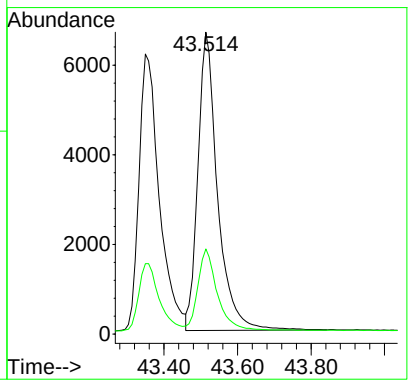


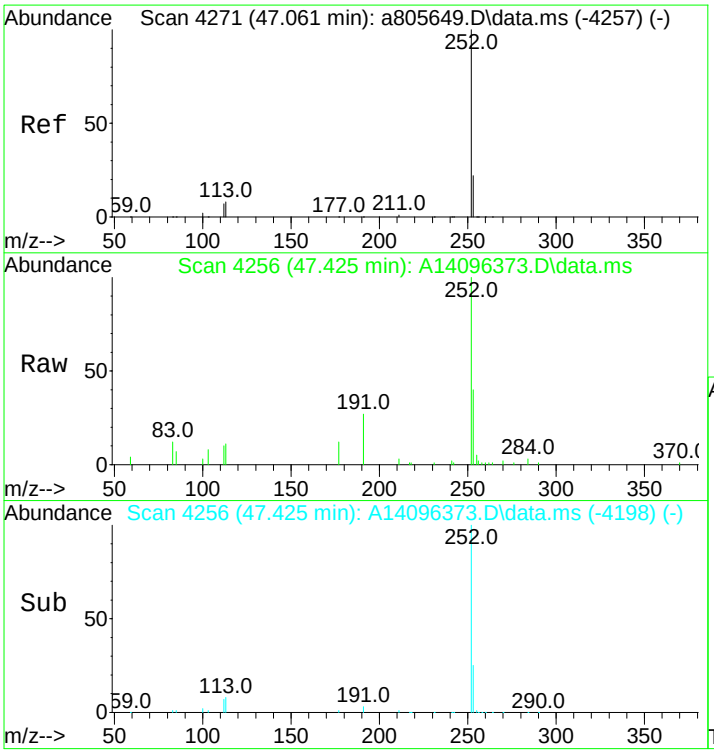


#77
Chrysene/Triphenylene
Concen: 91.26 ng/mL
RT: 43.514 min Scan# 3828
Delta R.T. 0.009 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:228 Resp: 24617

Ion	Ratio	Lower	Upper
228	100		
226	26.7	21.8	32.6

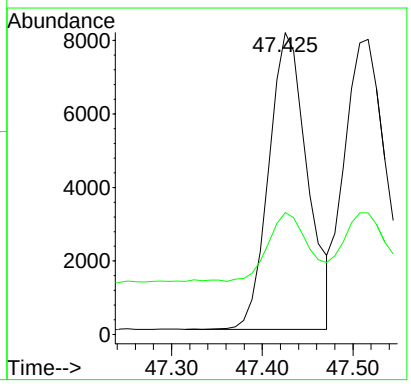


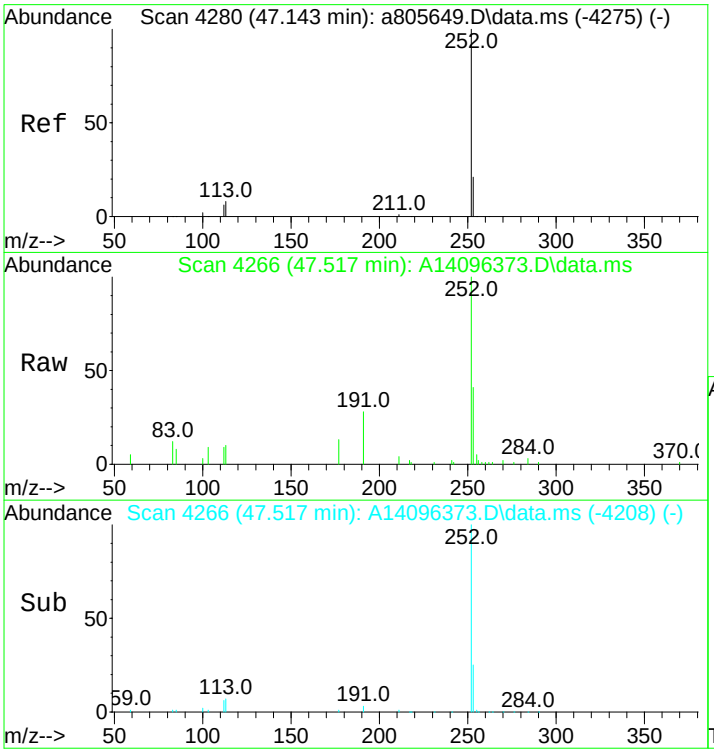


#82
Benzo[b]fluoranthene
Concen: 84.35 ng/mL
RT: 47.425 min Scan# 4256
Delta R.T. 0.028 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:252 Resp: 23944

Ion	Ratio	Lower	Upper
252	100		
253	23.8	20.6	30.8

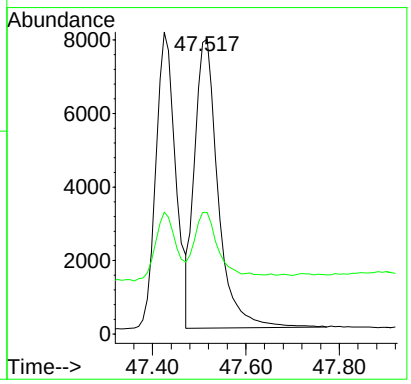


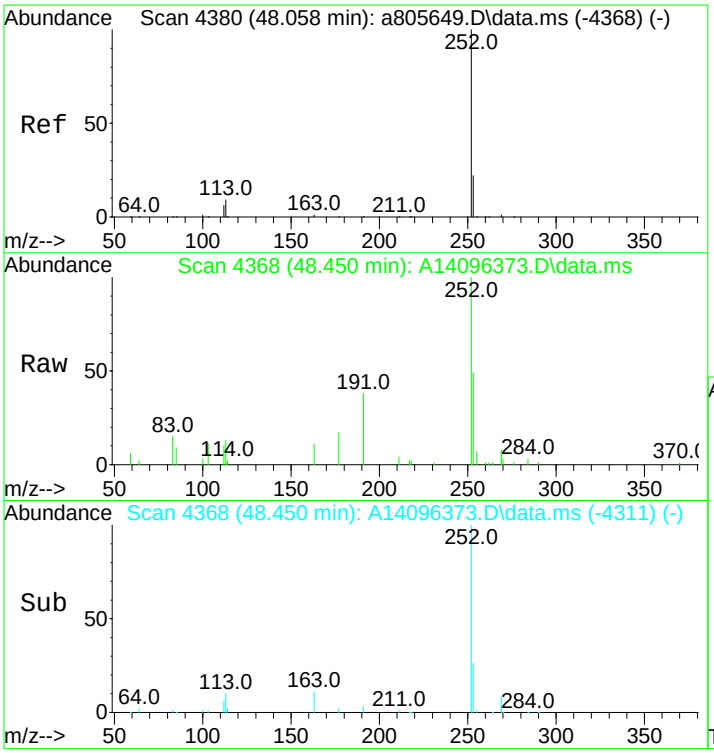


#83
Benzo[j]+[k]fluoranthene
Concen: 89.41 ng/mL
RT: 47.517 min Scan# 4266
Delta R.T. 0.028 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:252 Resp: 27447

Ion	Ratio	Lower	Upper
252	100		
253	21.9	20.2	30.4

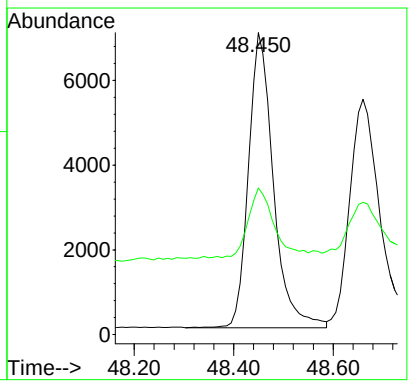


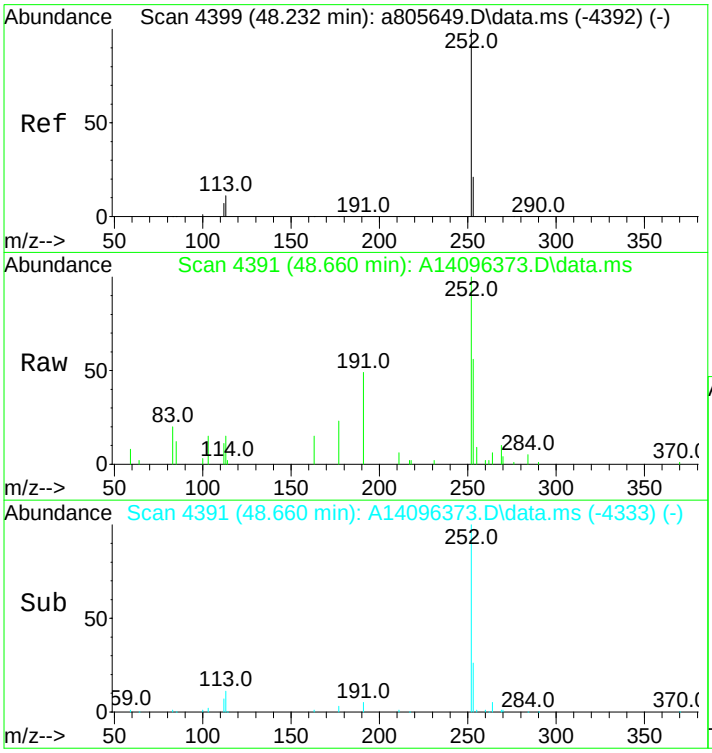


#85
Benzo[e]pyrene
Concen: 84.32 ng/mL
RT: 48.450 min Scan# 4368
Delta R.T. 0.018 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:252 Resp: 24217

Ion	Ratio	Lower	Upper
252	100		
253	24.6	21.3	31.9

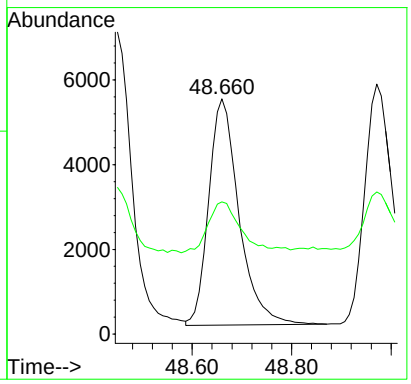


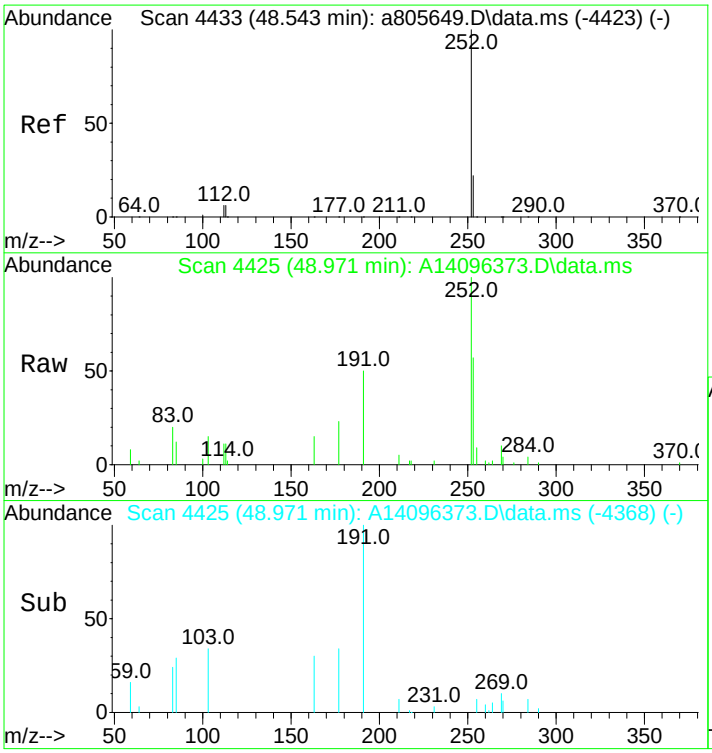


#87
Benzo[a]pyrene
Concen: 84.10 ng/mL
RT: 48.660 min Scan# 4391
Delta R.T. 0.028 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:252 Resp: 22531

Ion	Ratio	Lower	Upper
252	100		
253	23.8	22.2	33.2

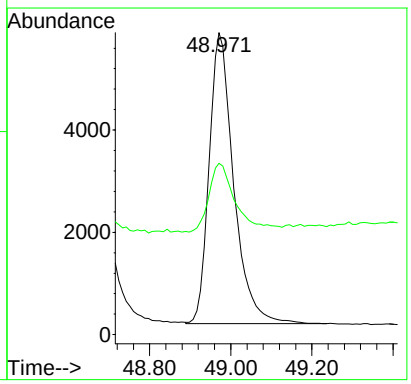


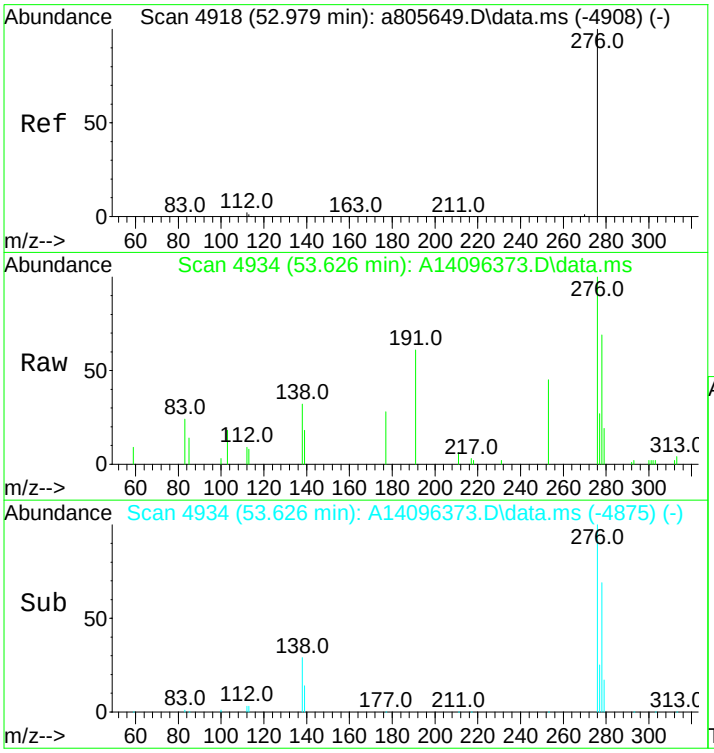


#88
Perylene
Concen: 84.53 ng/mL
RT: 48.971 min Scan# 4425
Delta R.T. 0.018 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:252 Resp: 23876

Ion	Ratio	Lower	Upper
252	100		
253	26.1	22.6	34.0

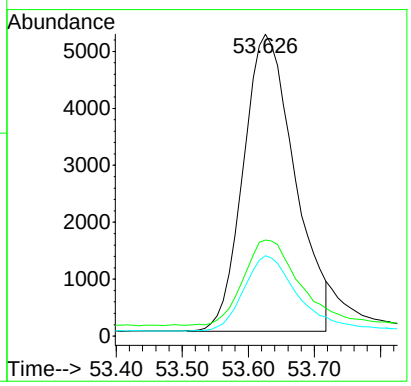


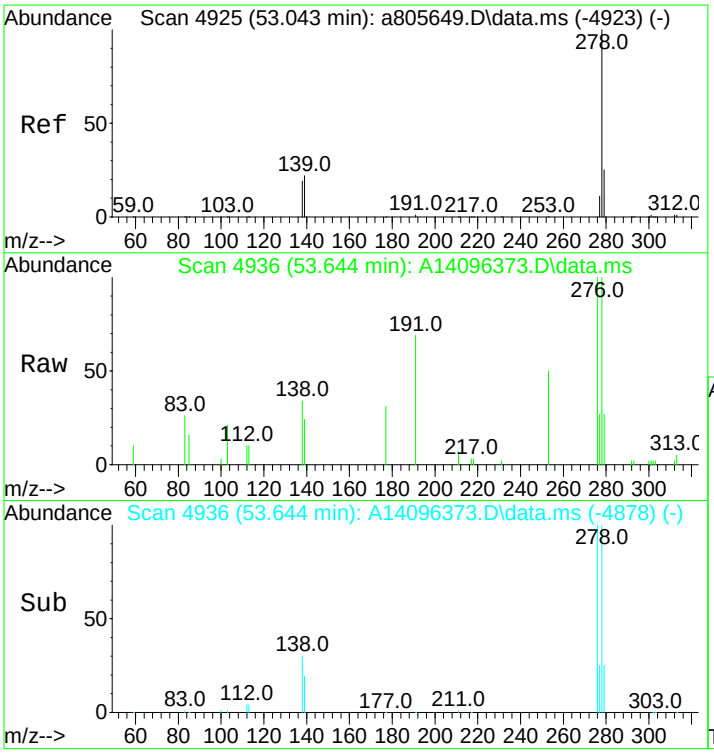


#89
Indeno[1,2,3-cd]pyrene
Concen: 98.00 ng/mL m
RT: 53.626 min Scan# 4934
Delta R.T. 0.037 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:276 Resp: 28047

Ion	Ratio	Lower	Upper
276	100		
138	32.7	22.6	33.8
277	27.8	19.8	29.8

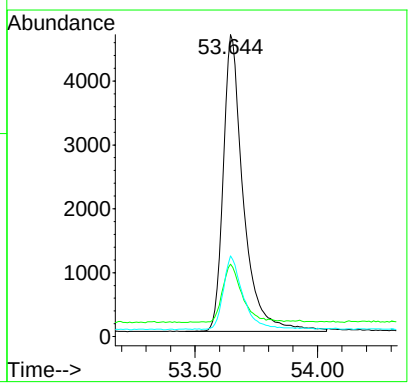


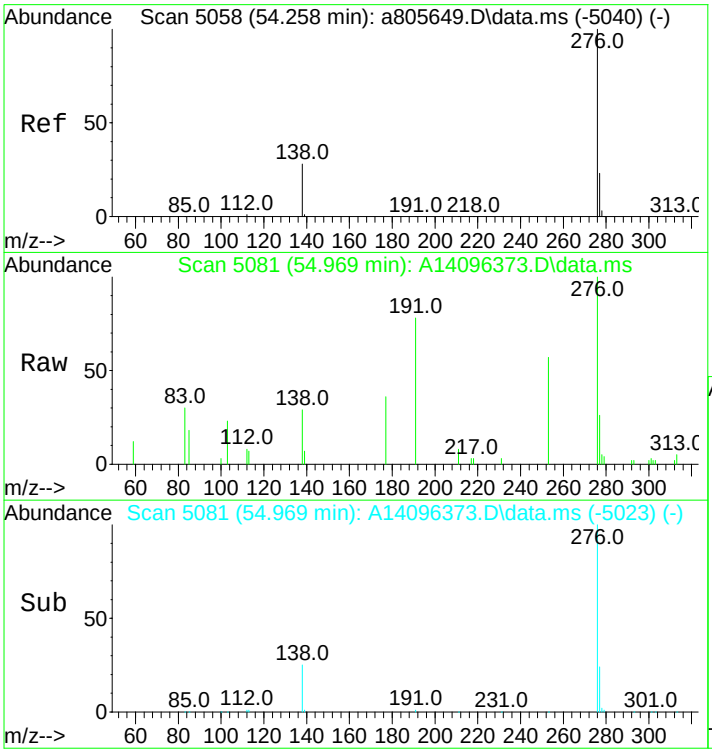


#90
Dibenz[ah]+[ac]anthracene
Concen: 90.72 ng/mL
RT: 53.644 min Scan# 4936
Delta R.T. 0.028 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:278 Resp: 26584

Ion	Ratio	Lower	Upper
278	100		
139	18.9	16.2	24.2
279	24.4	19.8	29.8

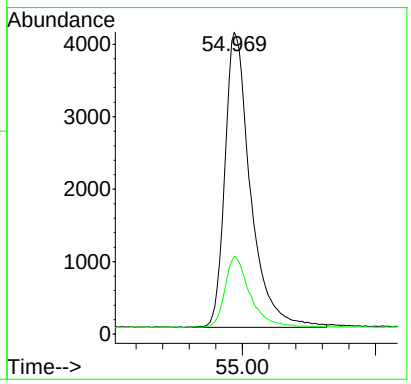


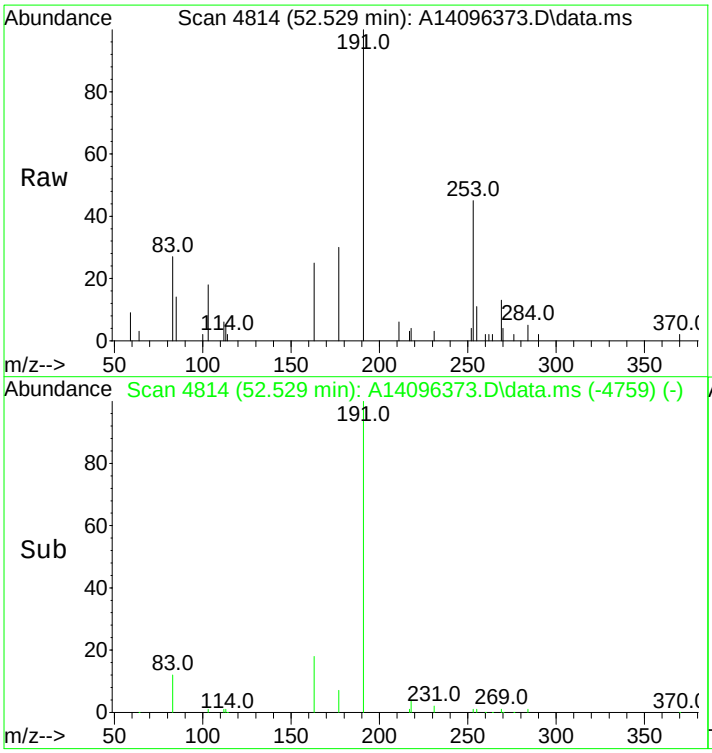


#91
Benzo[g,h,i]perylene
Concen: 83.84 ng/mL
RT: 54.969 min Scan# 5081
Delta R.T. 0.027 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:276 Resp: 27219

Ion	Ratio	Lower	Upper
276	100		
277	23.4	19.0	28.6

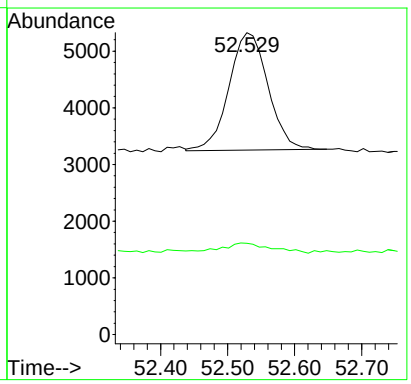


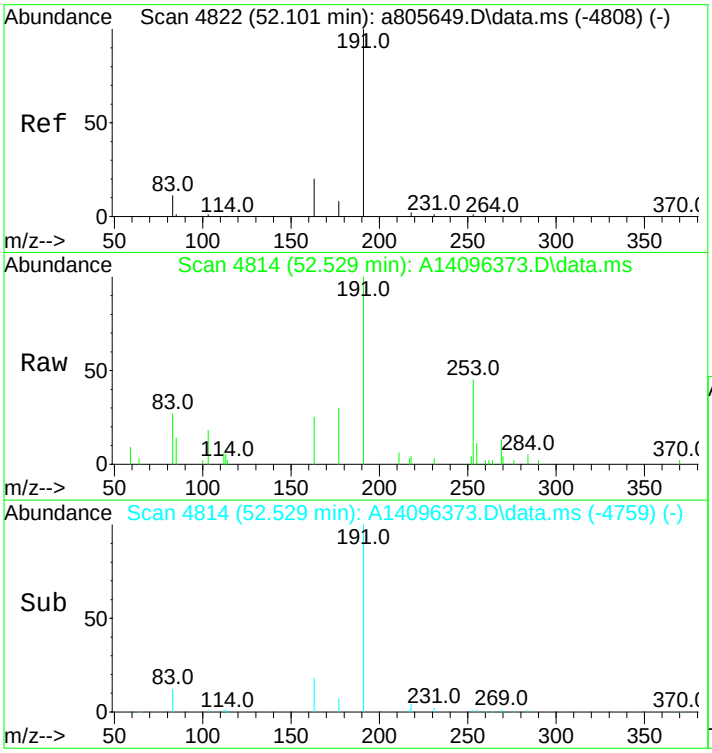


#92
Hopane (T19)
Concen: 111.05 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:191 Resp: 8394

Ion	Ratio	Lower	Upper
191	100		
177	11.0	12.8	19.2#

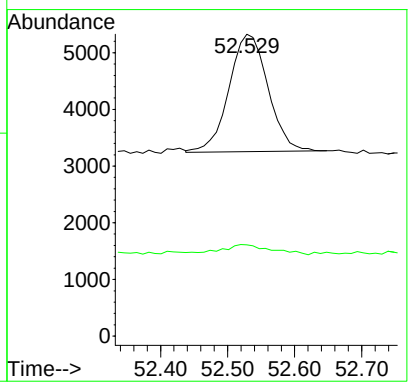




#93
17a(H),21B(H)-hopane - C30H52
Concen: 111.05 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096373.D
Acq: 18 May 2012 4:25 pm

Tgt Ion:191 Resp: 8394

Ion	Ratio	Lower	Upper
191	100		
177	11.0	12.8	19.2#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096374.D
Acq On : 18 May 2012 5:50 pm
Operator : PAH14:MT
Sample : I1405181204
Misc : WG537732
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 09:16:17 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.911	164	68046	500.000	ng/mL	0.00
74) Chrysene-d12	43.395	240	120993	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.930	136	131282	456.090	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 45.61%#			
42) Phenanthrene-d10	32.796	188	126824	560.832	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 56.08%			
86) Benzo[a]pyrene-d12	48.541	264	125512	509.084	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.91%			
127) 5B(H)Cholane - Surr	43.961	217	24598	580.470	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 58.05%			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	14010	214.190	ng/mL	100
4) cis-Decalin	17.758	138	10800	216.429	ng/mL	100
10) Naphthalene	20.012	128	145941	451.163	ng/mL#	100
16) 2-Methylnaphthalene	22.741	142	93452	460.386	ng/mL#	100
17) 1-Methylnaphthalene	23.151	142	92153	469.787	ng/mL#	100
18) Benzothiophene	20.231	134	114317	433.006	ng/mL	100
23) Biphenyl	24.611	154	114473	460.060	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.232	156	83161	486.656	ng/mL#	100
25) Dibenzofuran	27.705	168	124775	489.519	ng/mL	100
26) Acenaphthylene	26.309	152	147013M4	506.933	ng/mL	
27) Acenaphthene	27.039	153	92684	498.597	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.608	170	75972	531.230	ng/mL	100
29) Fluorene	29.083	166	104744	526.809	ng/mL	99
33) Dibenzothiophene	32.385	184	132672	490.857	ng/mL	100
43) Phenanthrene	32.887	178	143357	516.443	ng/mL	100
54) Retene	39.852	234	39439	635.495	ng/mL	99
55) Anthracene	33.079	178	144459M4	559.174	ng/mL	
56) Carbazole	33.754	167	135777	510.579	ng/mL	99
57) 1-Methylphenanthrene	35.406	192	104460	578.310	ng/mL	100
58) Fluoranthene	37.670	202	144131	543.749	ng/mL	99
59) Benzo(b)fluorene	40.190	216	94728	620.610	ng/mL	100
60) Pyrene	38.556	202	148058	543.458	ng/mL	100
66) Naphthobenzothiophene	42.409	234	128866	548.794	ng/ml	99
67) Naphthobenzothiophene-2,1	42.409	234	128866	548.794	ng/mL	99
75) Benz[a]anthracene	43.340	228	137482	530.113	ng/mL	100
76) Chrysene	43.504	228	139016	497.751	ng/mL	99
77) Chrysene/Triphenylene	43.504	228	139016	497.751	ng/mL	99
82) Benzo[b]fluoranthene	47.398	252	138543	471.337	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.489	252	155491	489.194	ng/mL	95
85) Benzo[e]pyrene	48.431	252	135986	457.273	ng/mL	93
87) Benzo[a]pyrene	48.632	252	129844	468.070	ng/mL	90
88) Perylene	48.953	252	139648	477.508	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.589	276	158432M3	534.616	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.617	278	150022	494.418	ng/mL	99
91) Benzo[g,h,i]perylene	54.942	276	150974	449.125	ng/mL	100
92) Hopane (T19)	52.529	191	40666	519.589	ng/mL#	79
93) 17a(H),21B(H)-hopane - C3	52.529	191	40666	519.589	ng/mL#	79

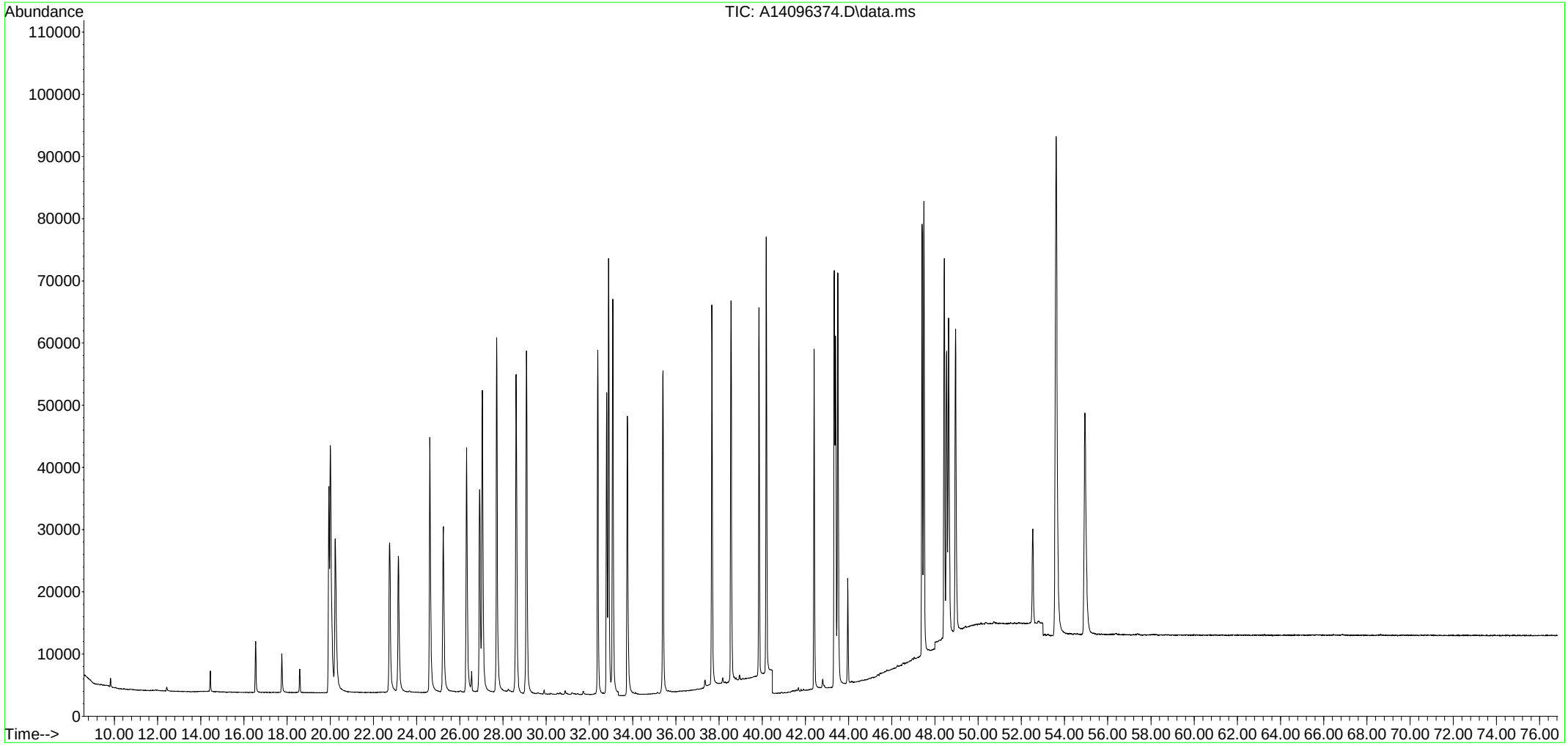
(#) = qualifier out of range (m) = manual integration (+) = signals summed

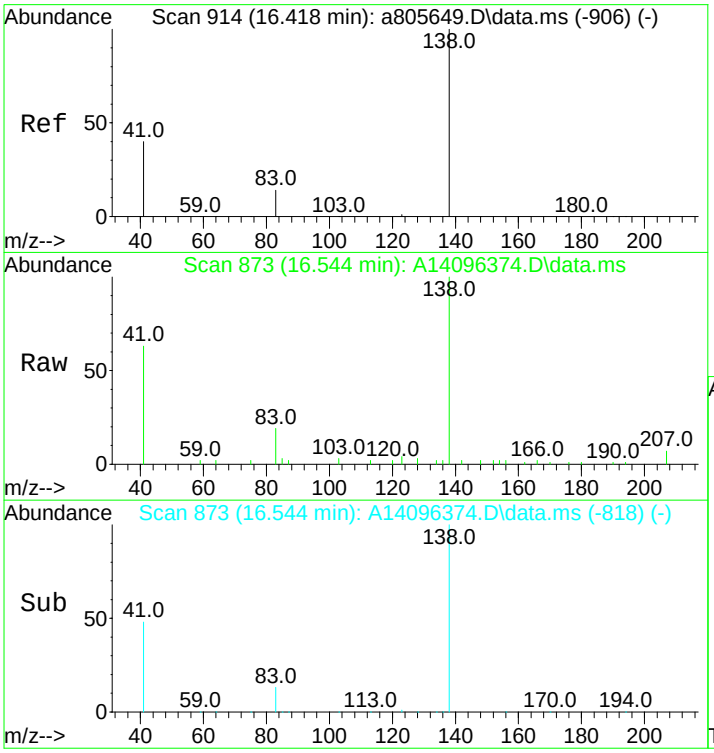
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096374.D
Acq On : 18 May 2012 5:50 pm
Operator : PAH14:MT
Sample : I1405181204
Misc : WG537732
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 09:16:17 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

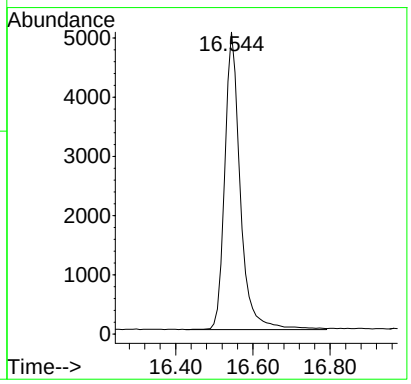
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

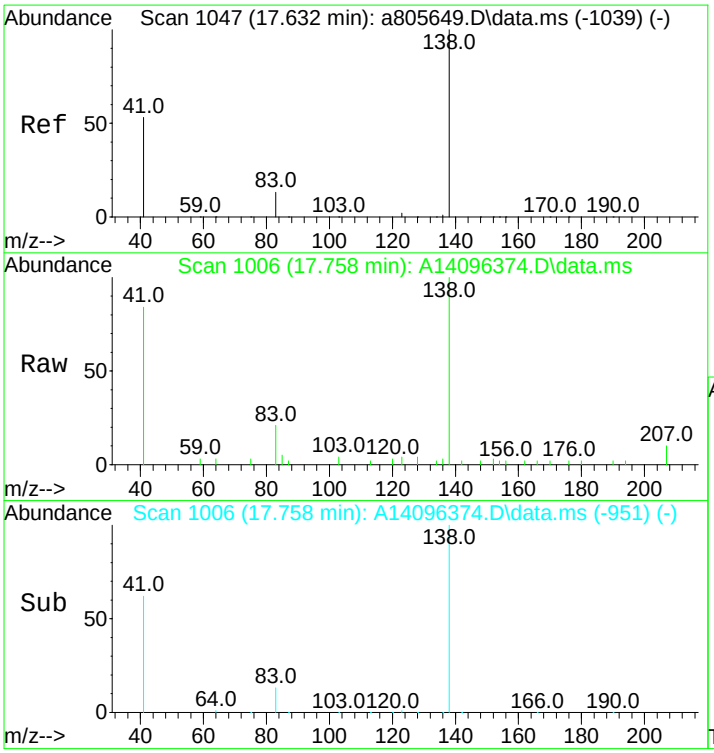




#3
trans-Decalin
Concen: 214.19 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

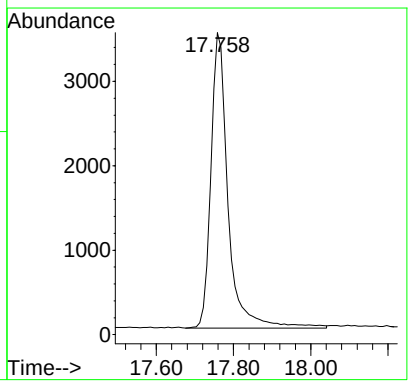
Tgt Ion:138 Resp: 14010

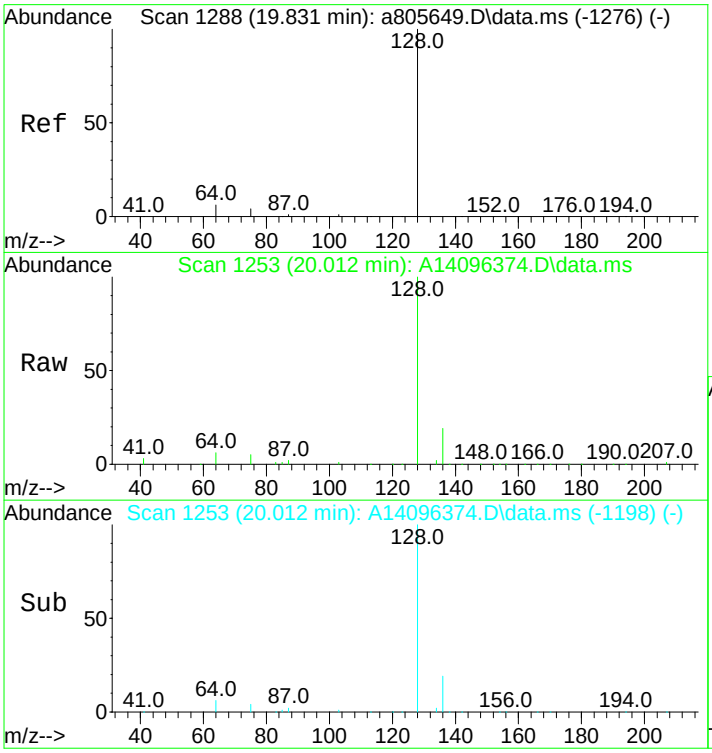




#4
cis-Decalin
Concen: 216.43 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:138 Resp: 10800

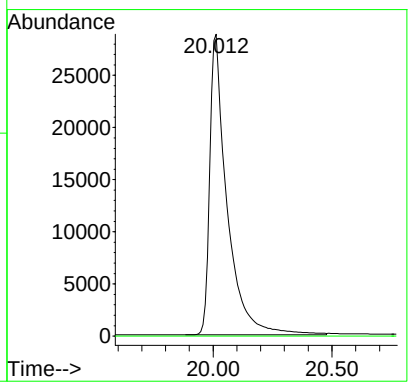


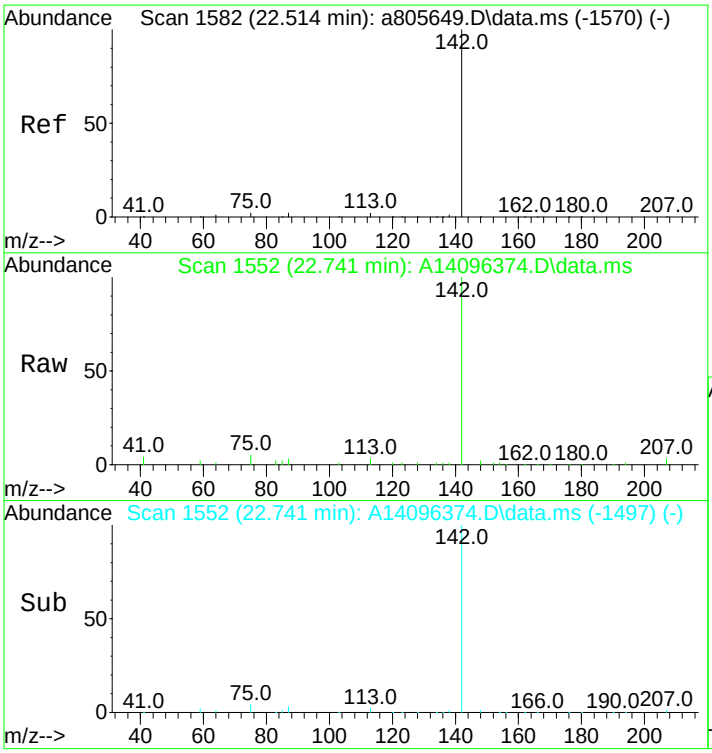


#10
Naphthalene
Concen: 451.16 ng/mL
RT: 20.012 min Scan# 1253
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:128 Resp: 145941

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

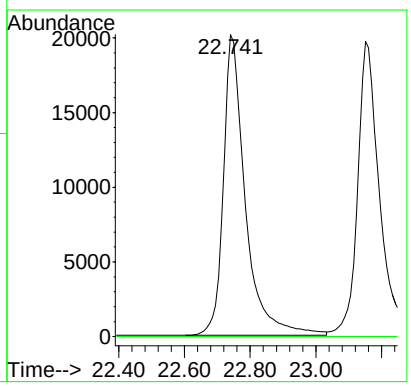


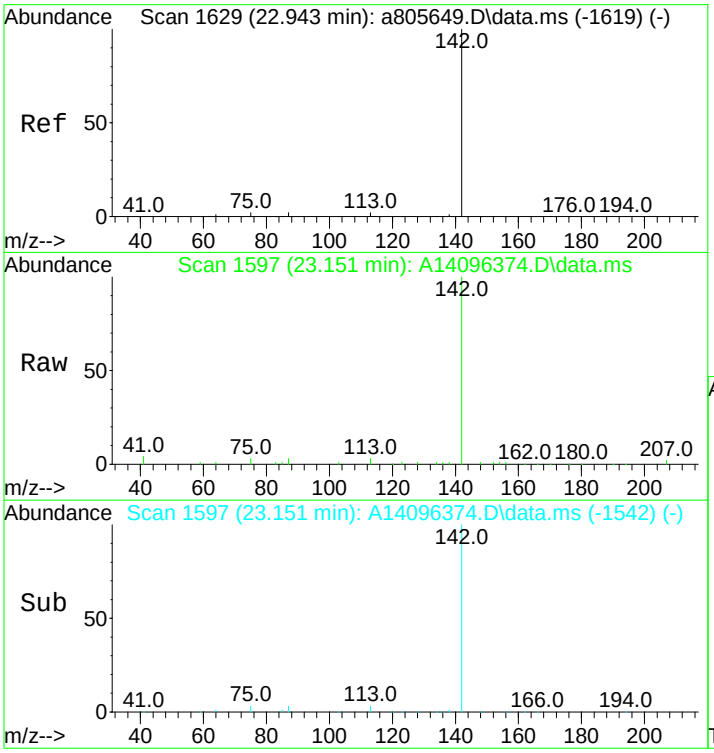


#16
2-Methylnaphthalene
Concen: 460.39 ng/mL
RT: 22.741 min Scan# 1552
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:142 Resp: 93452

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

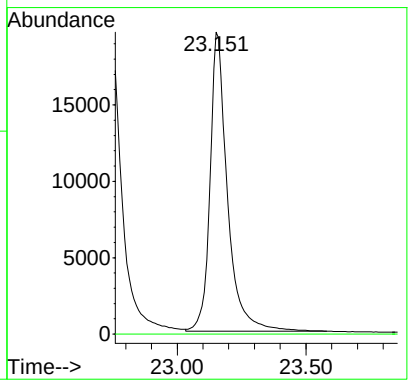


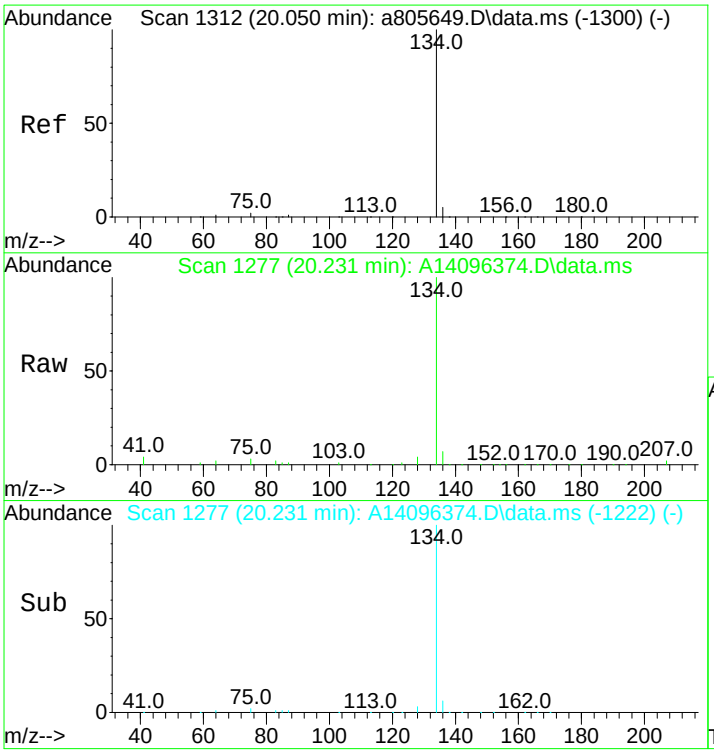


#17
1-Methylnaphthalene
Concen: 469.79 ng/mL
RT: 23.151 min Scan# 1597
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:142 Resp: 92153

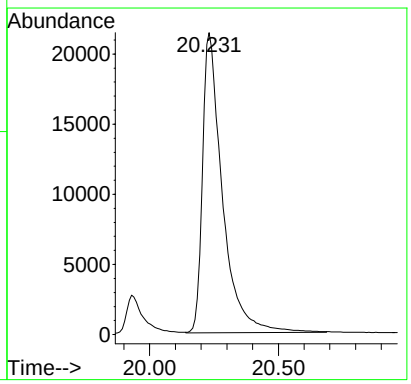
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

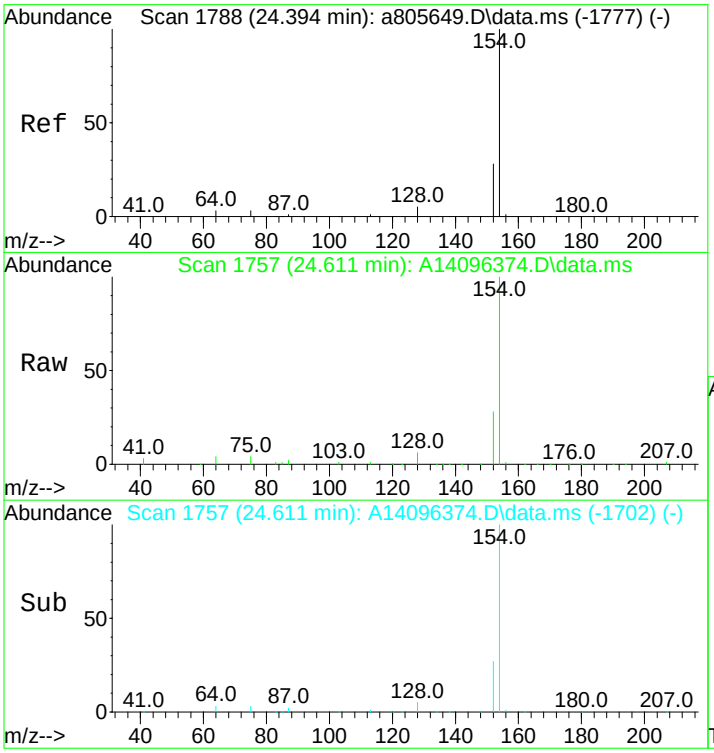




#18
Benzothiophene
Concen: 433.01 ng/mL
RT: 20.231 min Scan# 1277
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:134 Resp: 114317

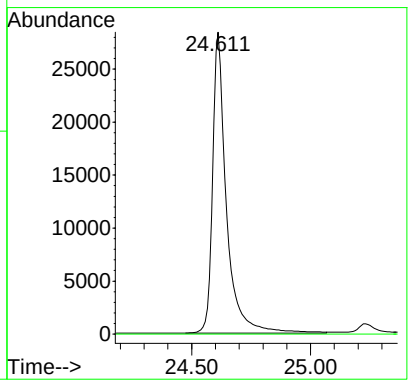


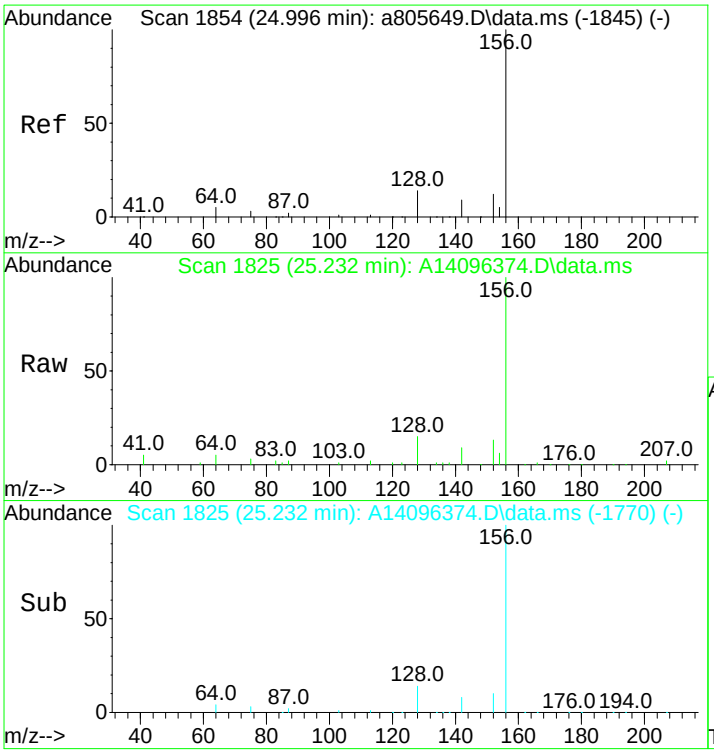


#23
Biphenyl
Concen: 460.06 ng/mL
RT: 24.611 min Scan# 1757
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:154 Resp: 114473

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

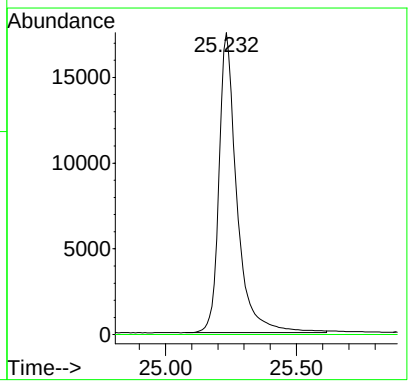


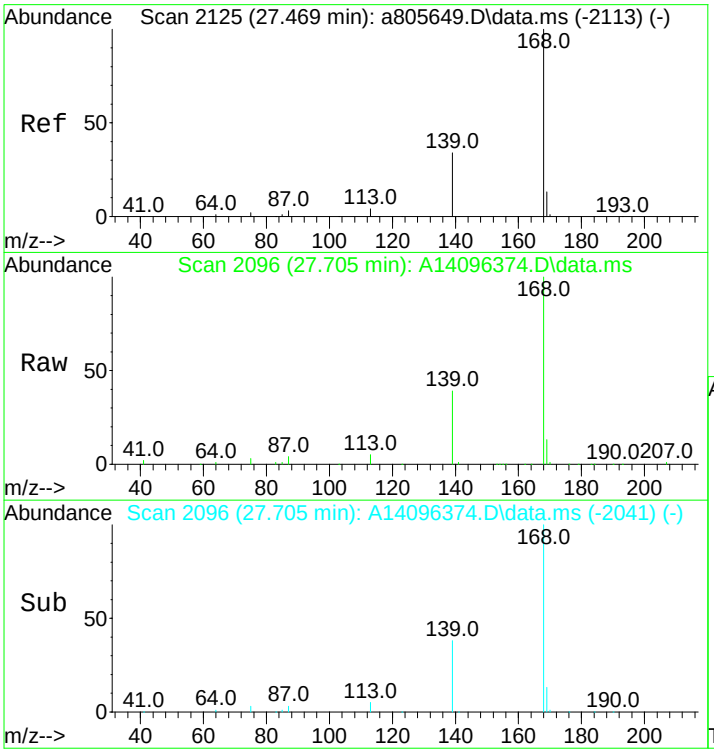


#24
2,6-Dimethylnaphthalene
Concen: 486.66 ng/mL
RT: 25.232 min Scan# 1825
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:156 Resp: 83161

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

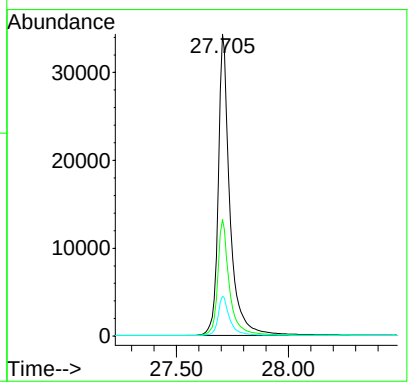


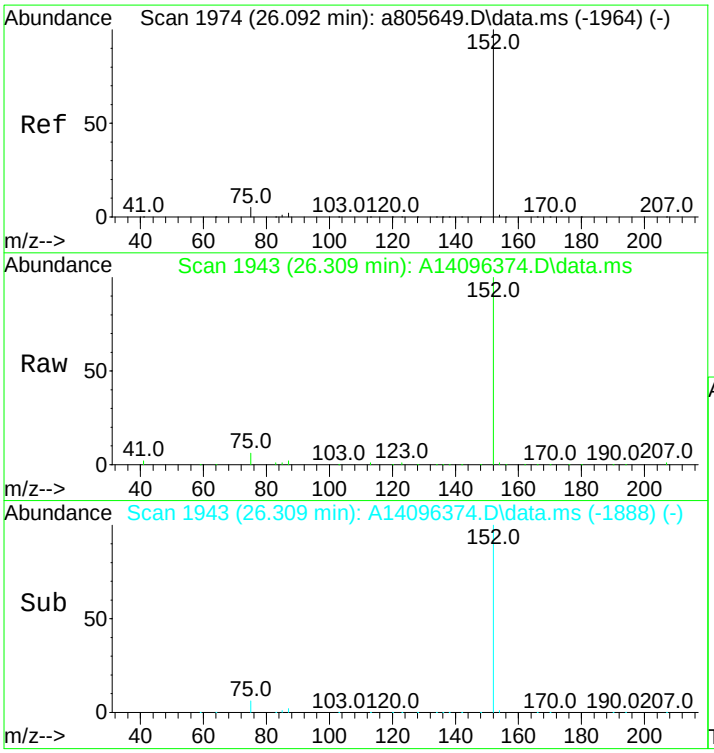


#25
Dibenzofuran
Concen: 489.52 ng/mL
RT: 27.705 min Scan# 2096
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:168 Resp: 124775

Ion	Ratio	Lower	Upper
168	100		
139	38.5	30.9	46.3
169	13.2	10.6	16.0

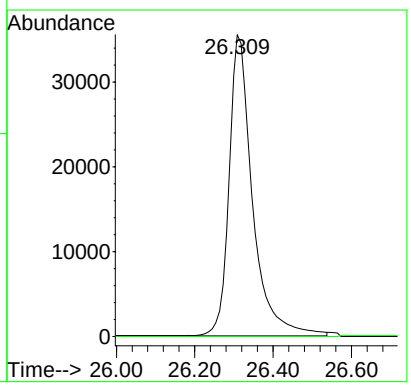


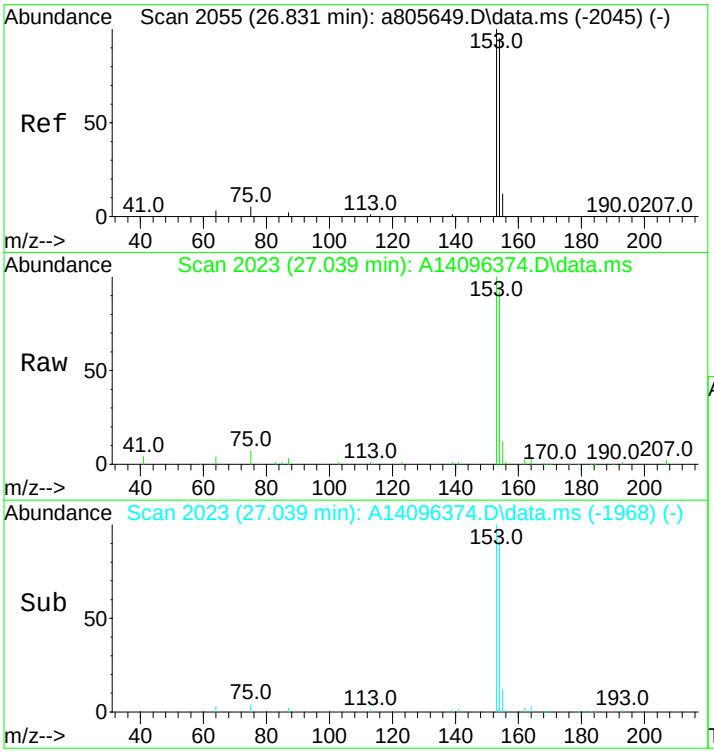


#26
Acenaphthylene
Concen: 506.93 ng/mL m
RT: 26.309 min Scan# 1943
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:152 Resp: 147013

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

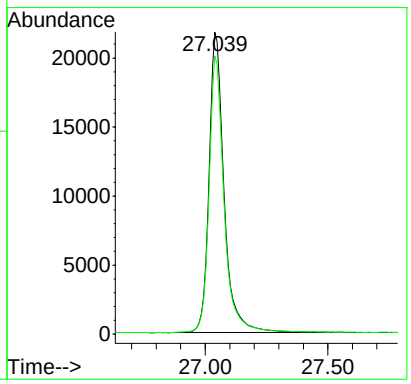


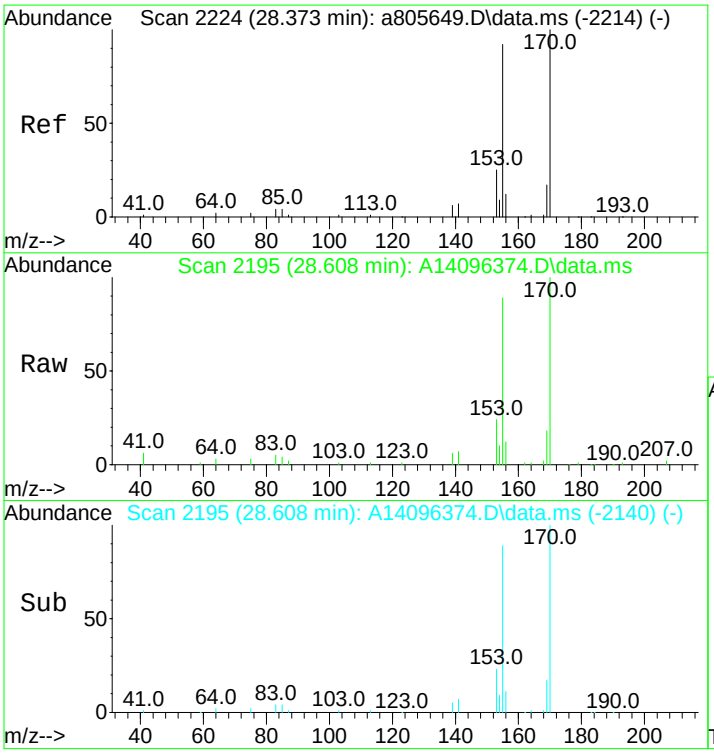


#27
Acenaphthene
Concen: 498.60 ng/mL
RT: 27.039 min Scan# 2023
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:153 Resp: 92684

Ion	Ratio	Lower	Upper
153	100		
154	92.3	73.6	110.4

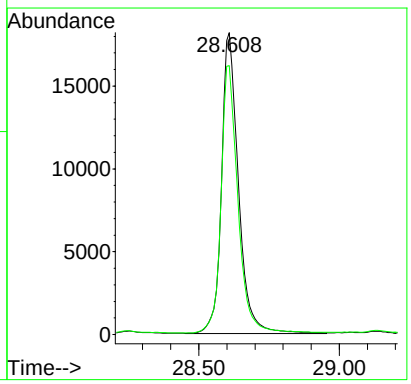


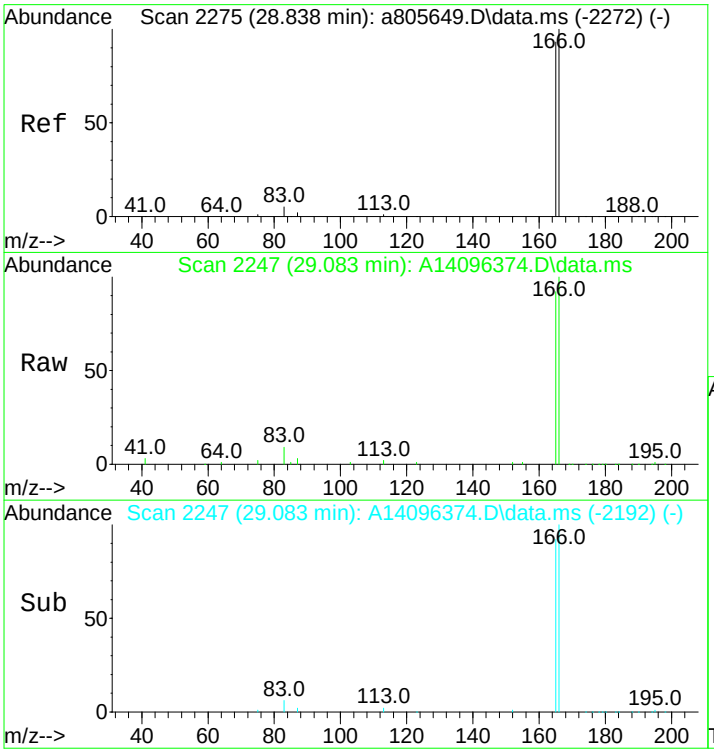


#28
2,3,5-Trimethylnaphthalene
Concen: 531.23 ng/mL
RT: 28.608 min Scan# 2195
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:170 Resp: 75972

Ion	Ratio	Lower	Upper
170	100		
155	89.1	71.2	106.8

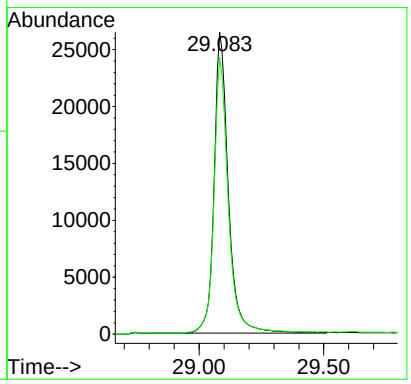


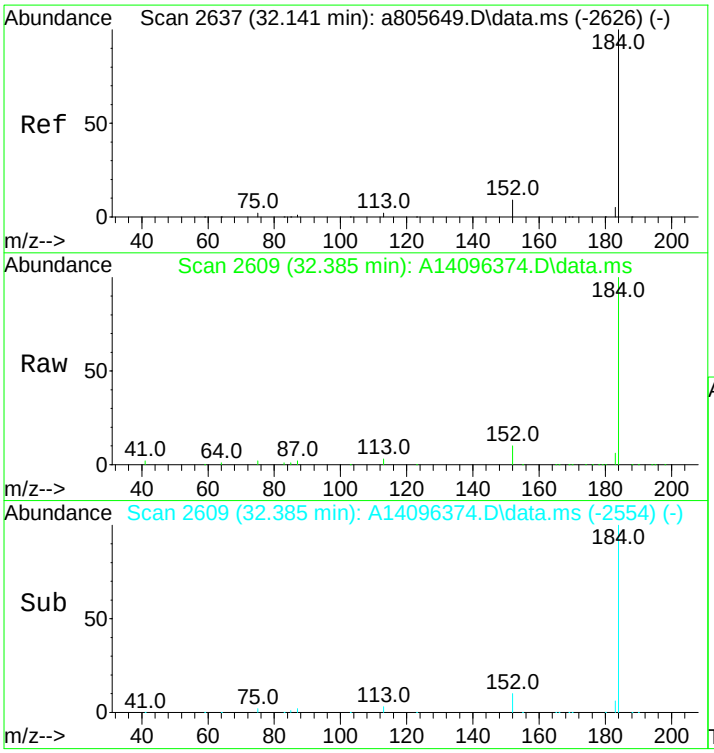


#29
Fluorene
Concen: 526.81 ng/mL
RT: 29.083 min Scan# 2247
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:166 Resp: 104744

Ion	Ratio	Lower	Upper
166	100		
165	90.3	73.3	109.9

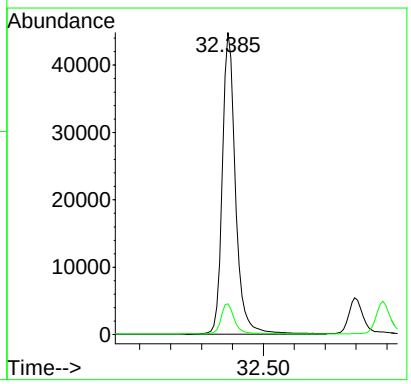


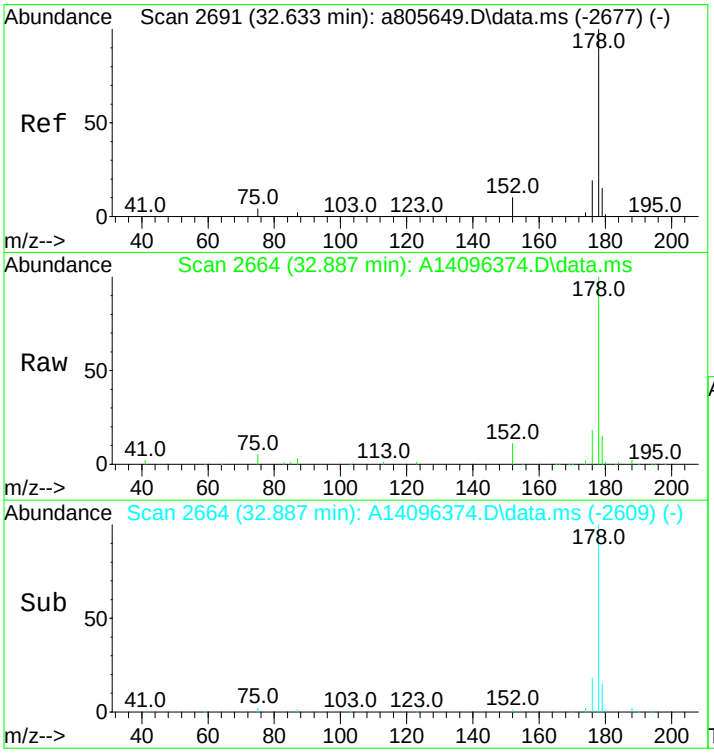


#33
Dibenzothiophene
Concen: 490.86 ng/mL
RT: 32.385 min Scan# 2609
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:184 Resp: 132672

Ion	Ratio	Lower	Upper
184	100		
152	10.0	8.2	12.2

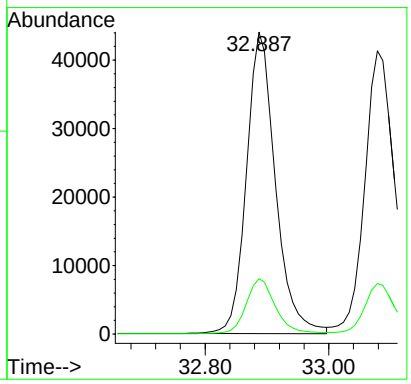


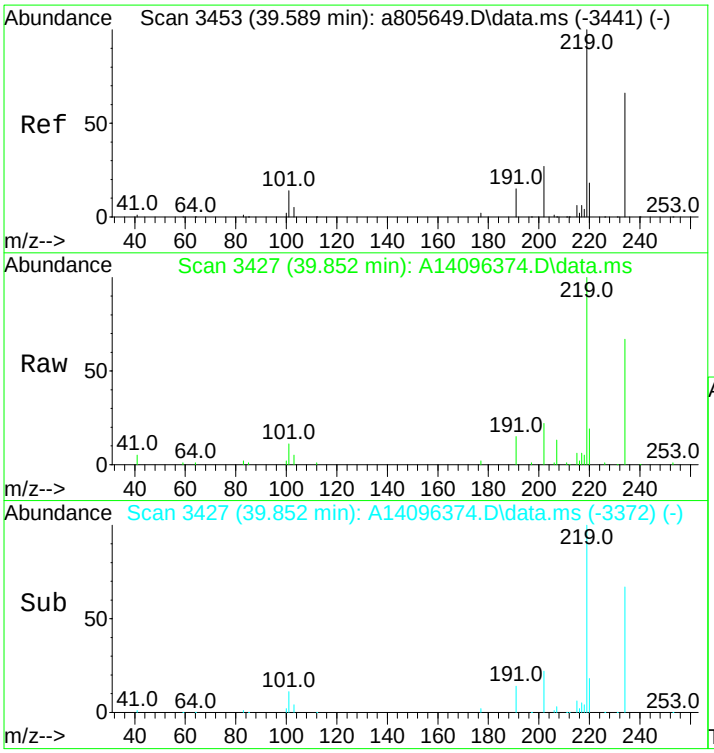


#43
Phenanthrene
Concen: 516.44 ng/mL
RT: 32.887 min Scan# 2664
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:178 Resp: 143357

Ion	Ratio	Lower	Upper
178	100		
176	18.4	14.7	22.1

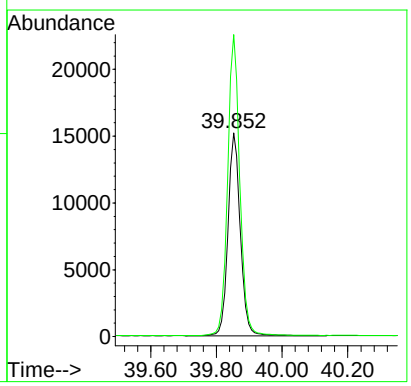


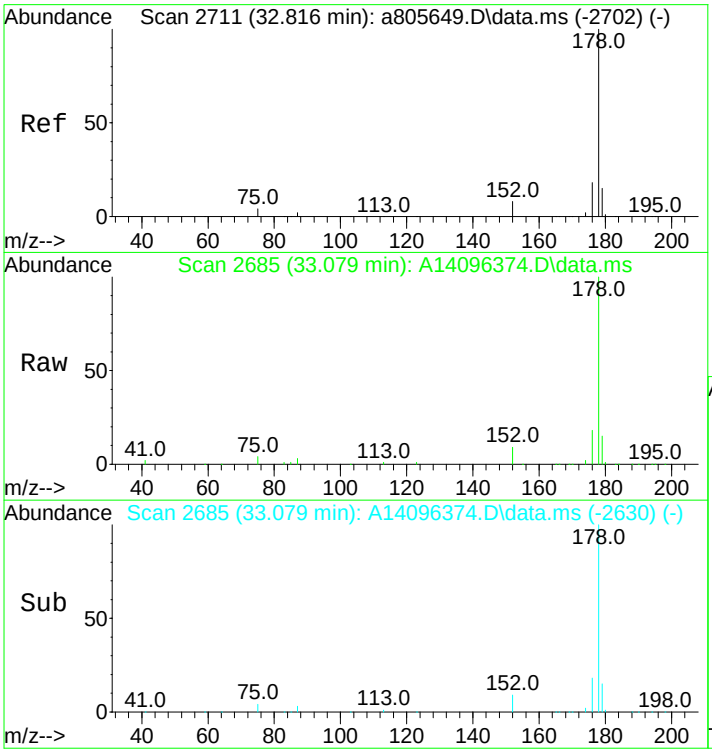


#54
Retene
Concen: 635.49 ng/mL
RT: 39.852 min Scan# 3427
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:234 Resp: 39439

Ion	Ratio	Lower	Upper
234	100		
219	147.4	118.7	178.1

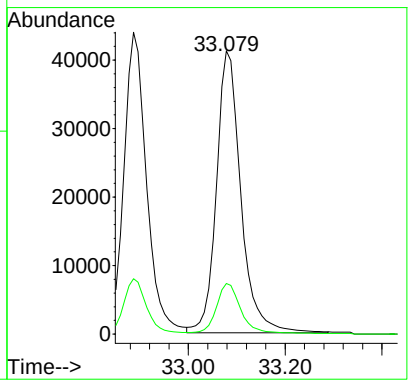


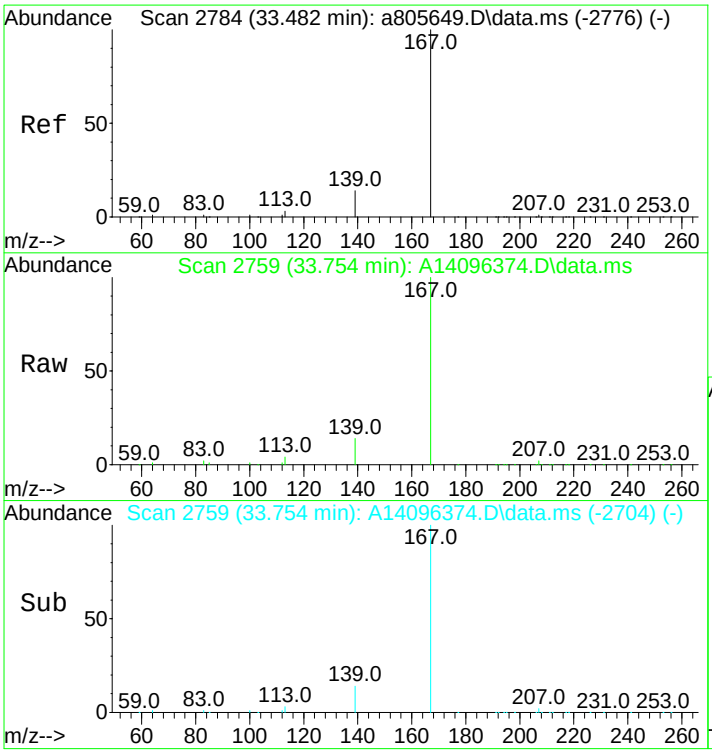


#55
Anthracene
Concen: 559.17 ng/mL m
RT: 33.079 min Scan# 2685
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:178 Resp: 144459

Ion	Ratio	Lower	Upper
178	100		
176	19.1	14.2	21.4

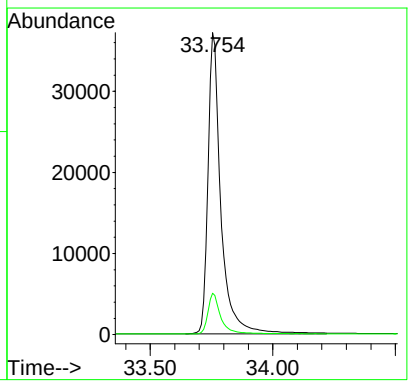


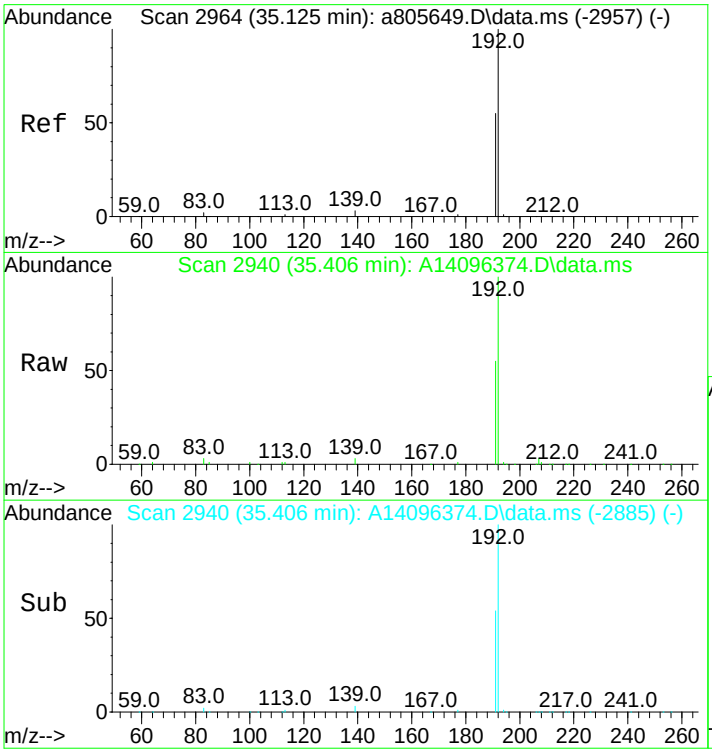


#56
Carbazole
Concen: 510.58 ng/mL
RT: 33.754 min Scan# 2759
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:167 Resp: 135777

Ion	Ratio	Lower	Upper
167	100		
139	13.1	11.0	16.4

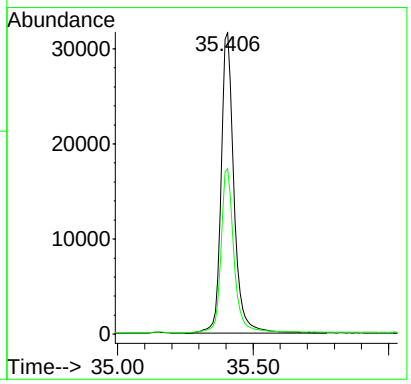


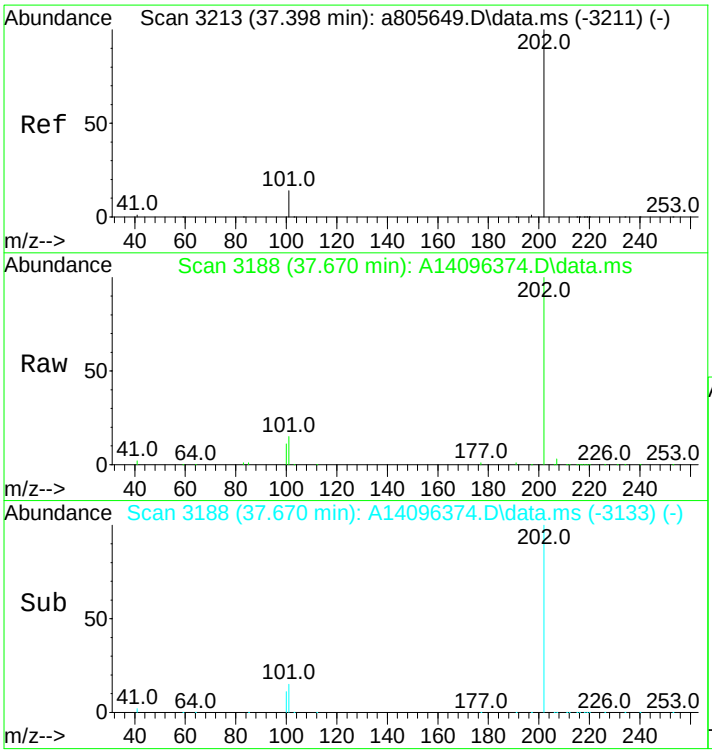


#57
1-Methylphenanthrene
Concen: 578.31 ng/mL
RT: 35.406 min Scan# 2940
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:192 Resp: 104460

Ion	Ratio	Lower	Upper
192	100		
191	55.0	43.8	65.8

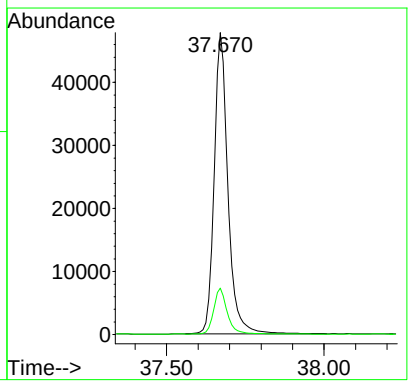


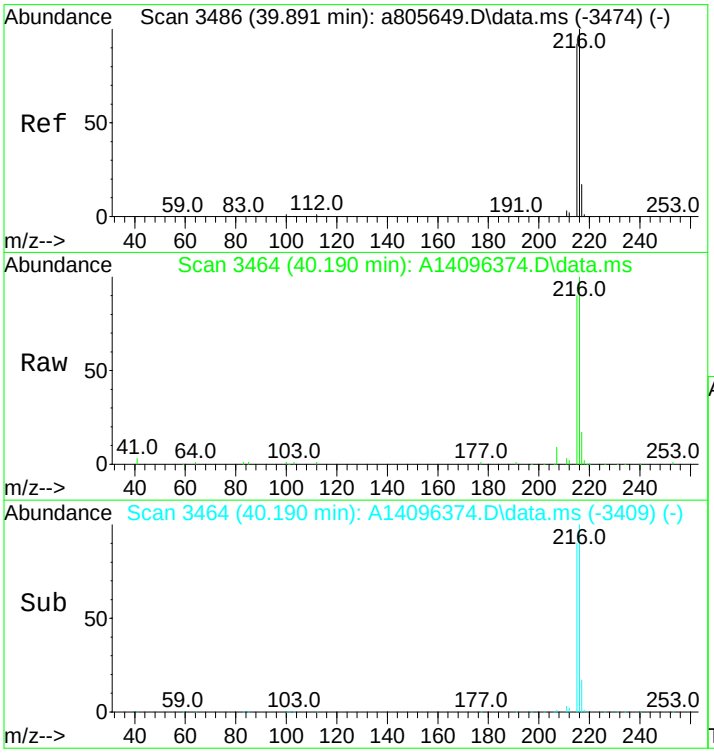


#58
Fluoranthene
Concen: 543.75 ng/mL
RT: 37.670 min Scan# 3188
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:202 Resp: 144131

Ion	Ratio	Lower	Upper
202	100		
101	14.9	12.3	18.5

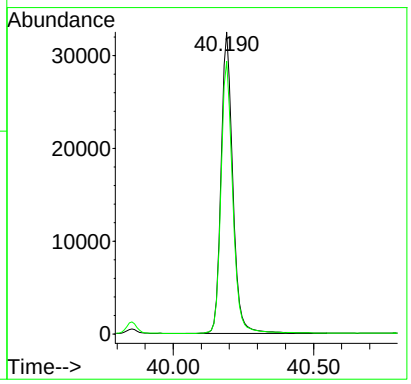


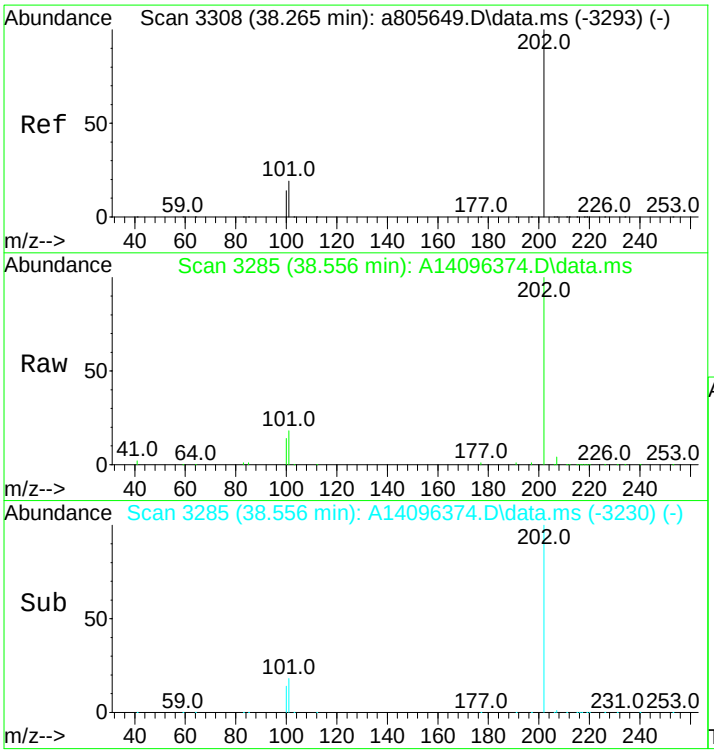


#59
Benzo(b)fluorene
Concen: 620.61 ng/mL
RT: 40.190 min Scan# 3464
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:216 Resp: 94728

Ion	Ratio	Lower	Upper
216	100		
215	90.3	72.2	108.4

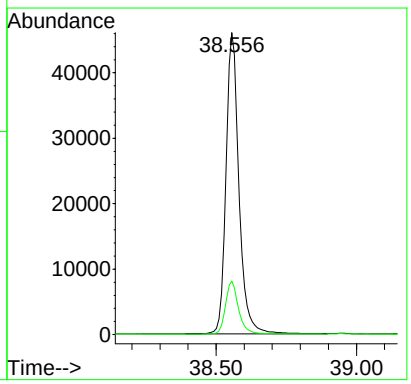


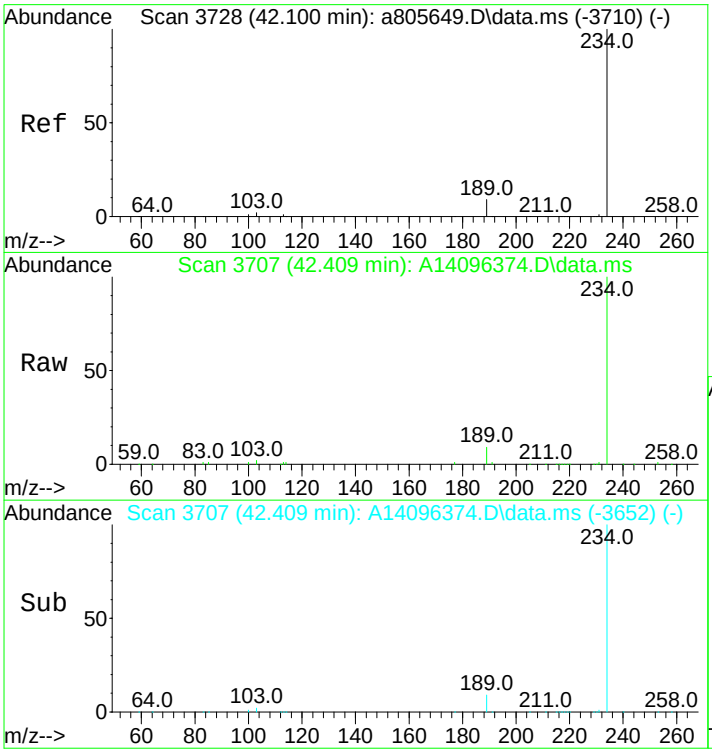


#60
Pyrene
Concen: 543.46 ng/mL
RT: 38.556 min Scan# 3285
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:202 Resp: 148058

Ion	Ratio	Lower	Upper
202	100		
101	17.7	14.2	21.2

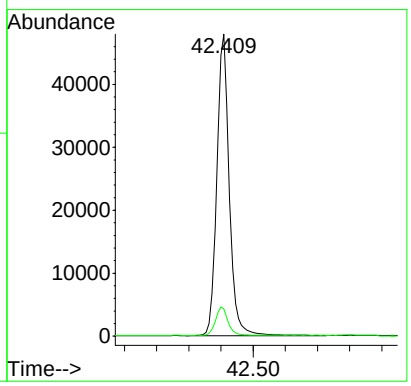


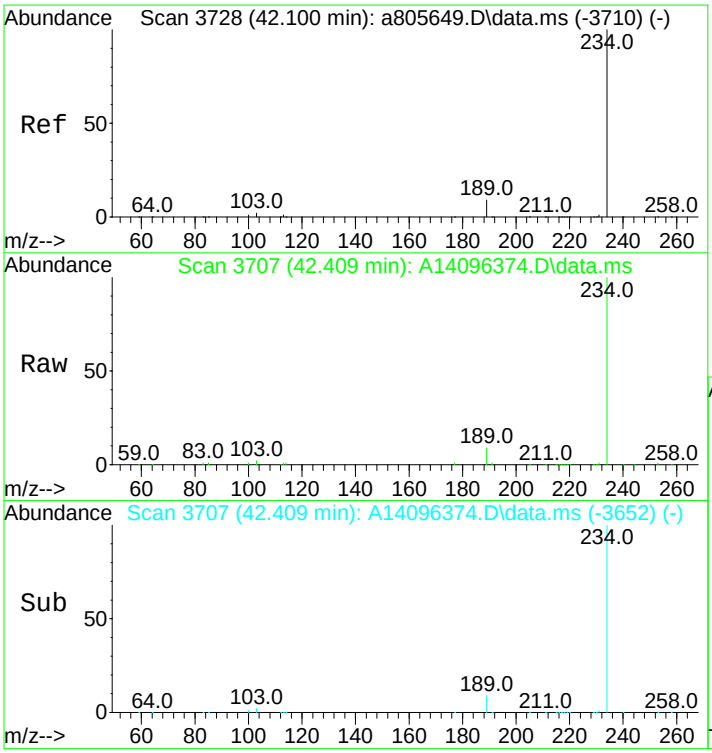


#66
Naphthobenzothiophene
Concen: 548.79 ng/ml
RT: 42.409 min Scan# 3707
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:234 Resp: 128866

Ion	Ratio	Lower	Upper
234	100		
189	9.4	7.3	10.9

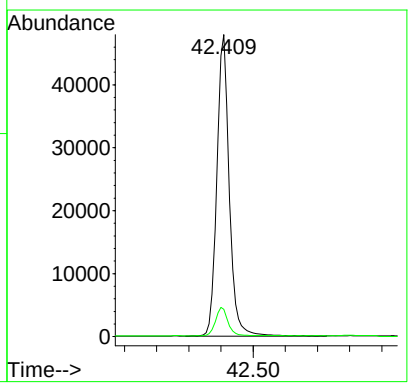


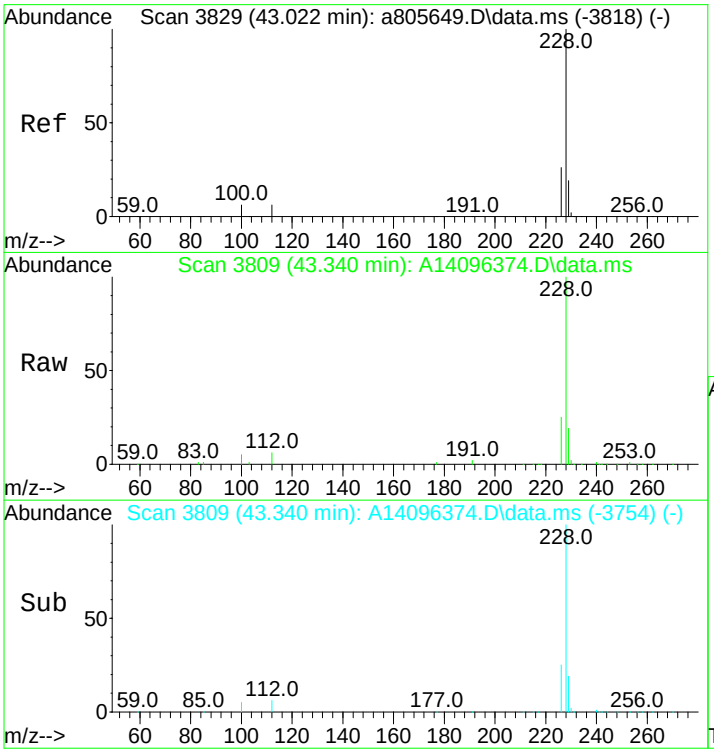


#67
Naphthobenzothiophene-2,1-D
Concen: 548.79 ng/mL
RT: 42.409 min Scan# 3707
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:234 Resp: 128866

Ion	Ratio	Lower	Upper
234	100		
189	9.4	7.3	10.9

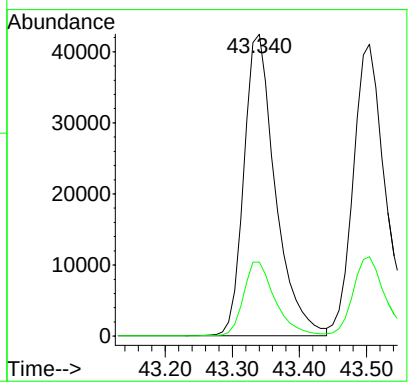


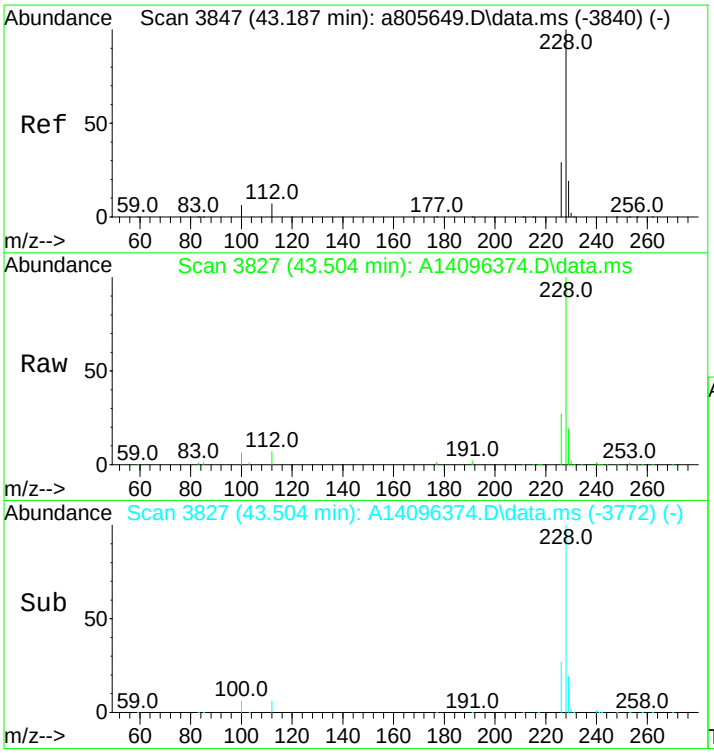


#75
Benz[a]anthracene
Concen: 530.11 ng/mL
RT: 43.340 min Scan# 3809
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:228 Resp: 137482

Ion	Ratio	Lower	Upper
228	100		
226	24.5	19.6	29.4

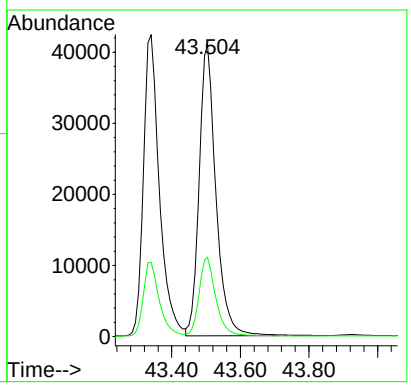


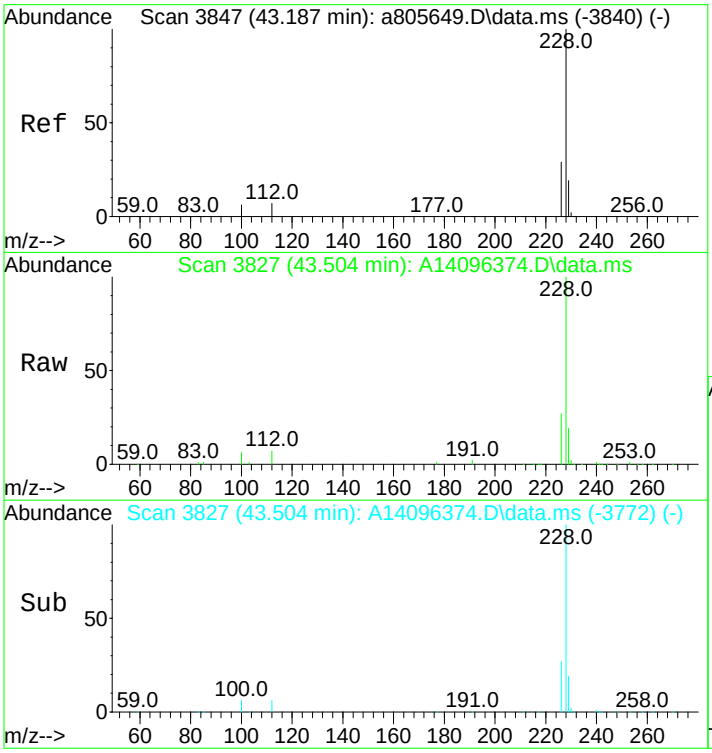


#76
Chrysene
Concen: 497.75 ng/mL
RT: 43.504 min Scan# 3827
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:228 Resp: 139016

Ion	Ratio	Lower	Upper
228	100		
226	26.9	21.8	32.6

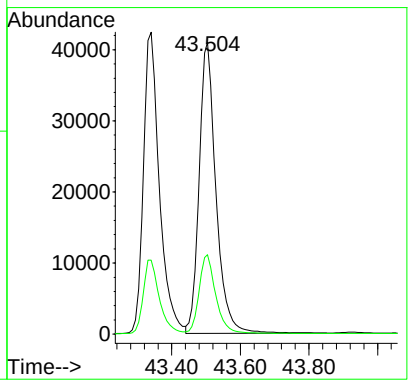


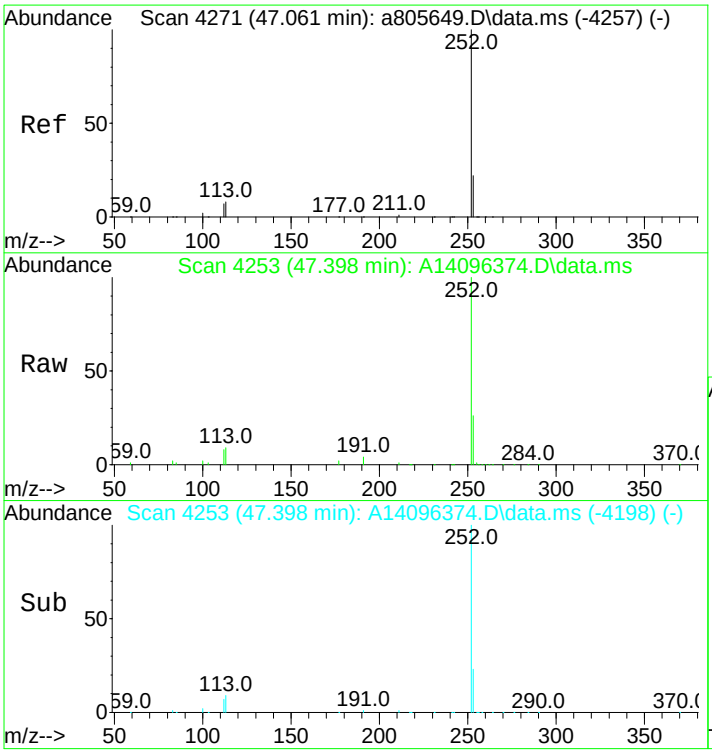


#77
Chrysene/Triphenylene
Concen: 497.75 ng/mL
RT: 43.504 min Scan# 3827
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:228 Resp: 139016

Ion	Ratio	Lower	Upper
228	100		
226	26.9	21.8	32.6

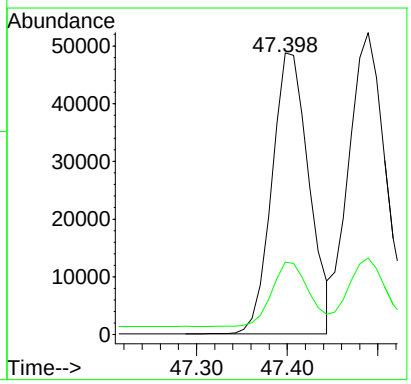


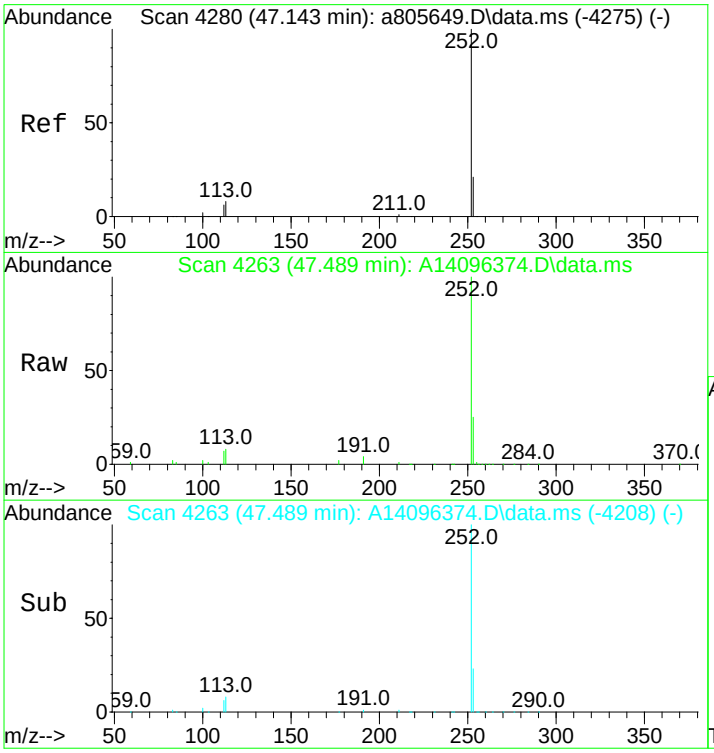


#82
Benzo[b]fluoranthene
Concen: 471.34 ng/mL
RT: 47.398 min Scan# 4253
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:252 Resp: 138543

Ion	Ratio	Lower	Upper
252	100		
253	22.9	20.6	30.8

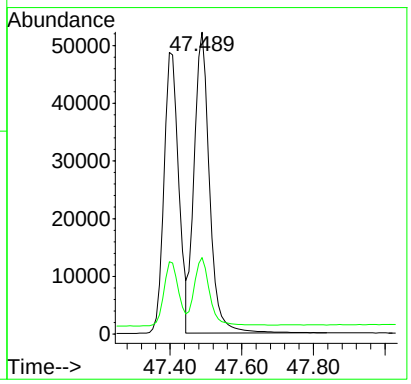


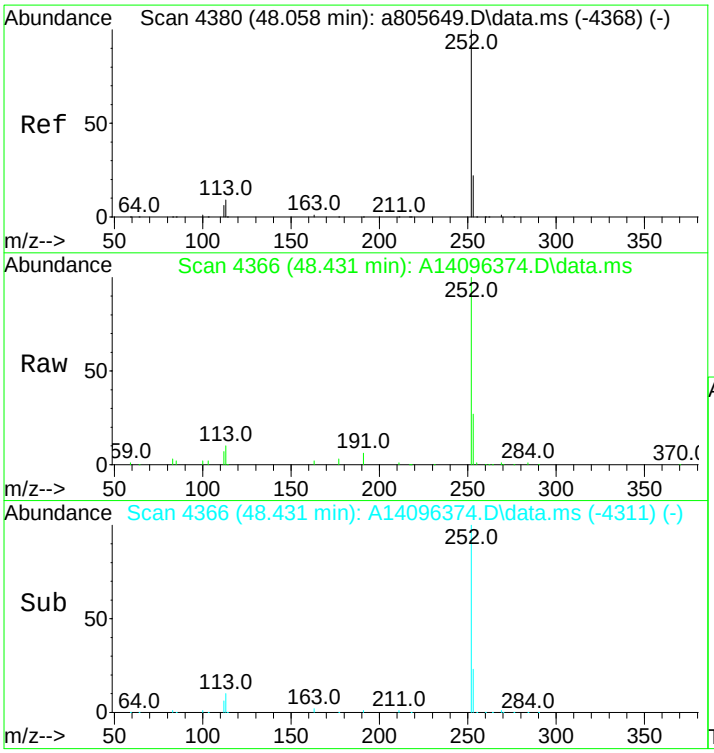


#83
Benzo[j]+[k]fluoranthene
Concen: 489.19 ng/mL
RT: 47.489 min Scan# 4263
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:252 Resp: 155491

Ion	Ratio	Lower	Upper
252	100		
253	22.6	20.2	30.4

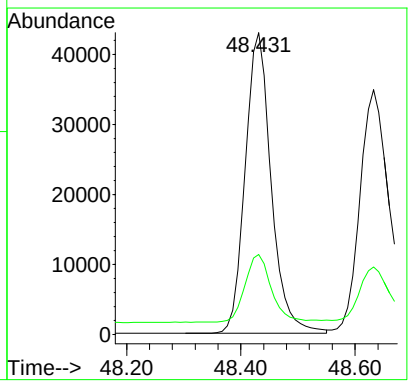


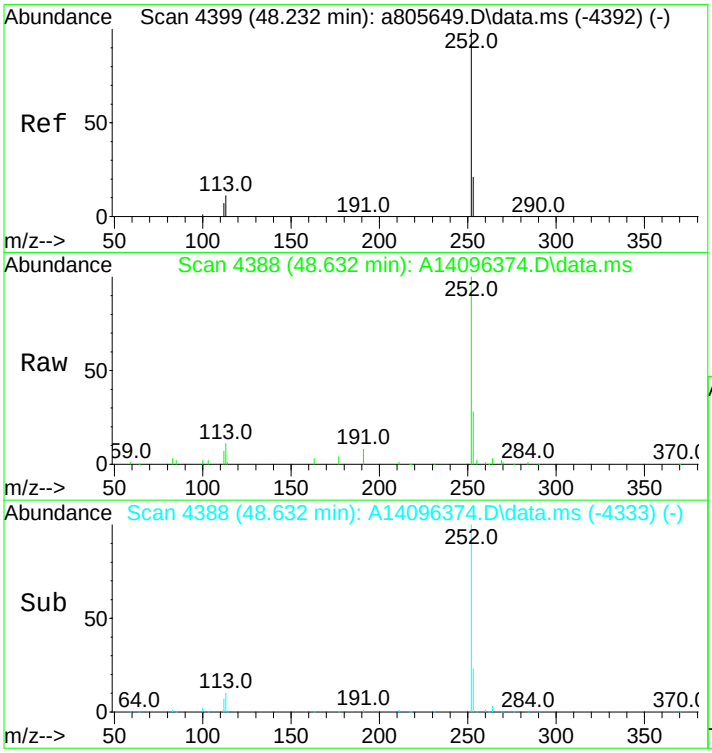


#85
Benzo[e]pyrene
Concen: 457.27 ng/mL
RT: 48.431 min Scan# 4366
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:252 Resp: 135986

Ion	Ratio	Lower	Upper
252	100		
253	23.2	21.3	31.9

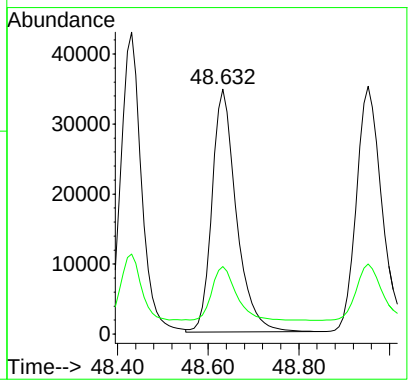


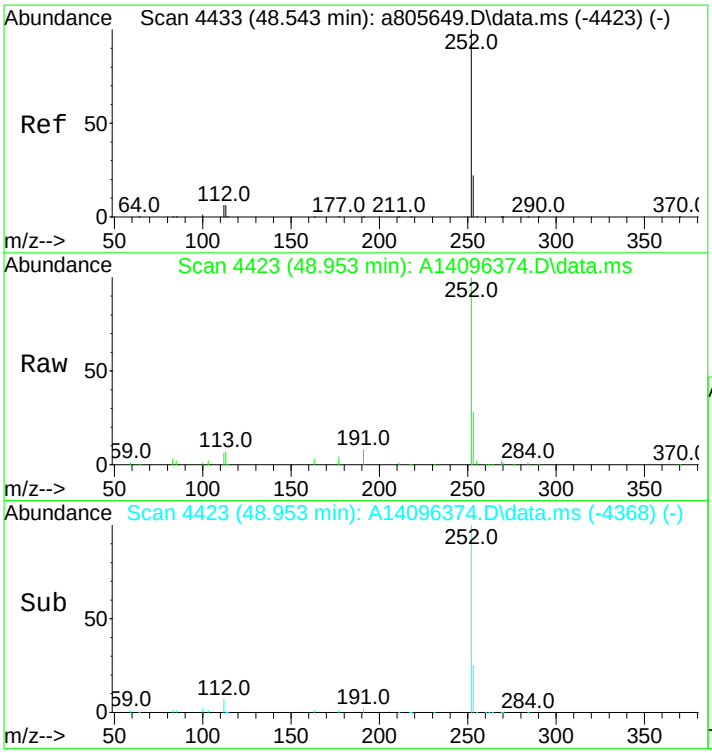


#87
Benzo[a]pyrene
Concen: 468.07 ng/mL
RT: 48.632 min Scan# 4388
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:252 Resp: 129844

Ion	Ratio	Lower	Upper
252	100		
253	22.5	22.2	33.2

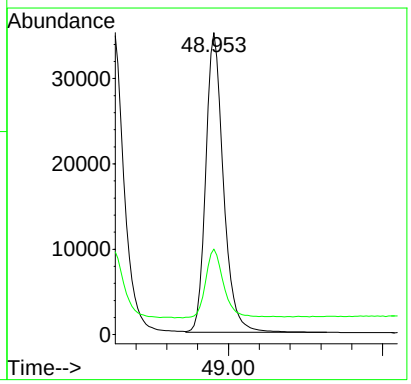


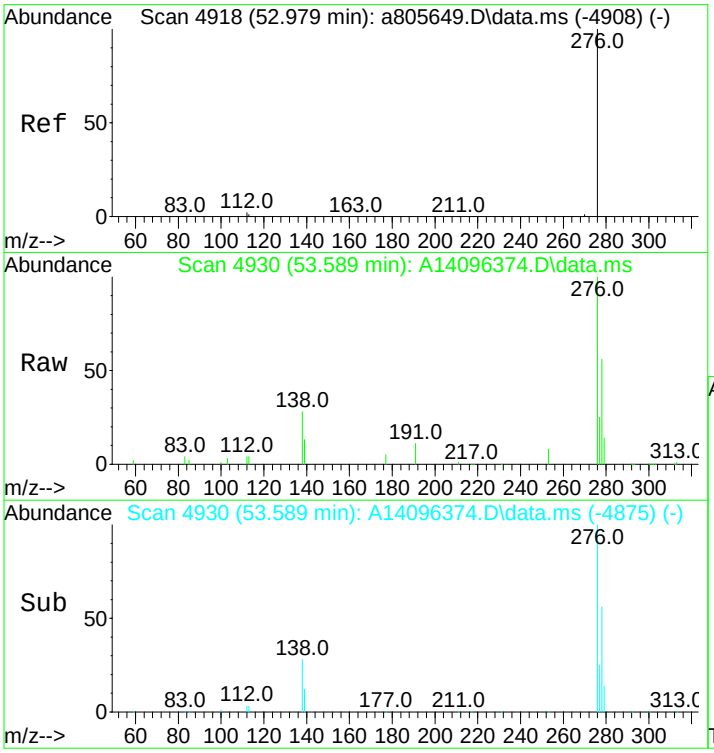


#88
Perylene
Concen: 477.51 ng/mL
RT: 48.953 min Scan# 4423
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:252 Resp: 139648

Ion	Ratio	Lower	Upper
252	100		
253	23.0	22.6	34.0

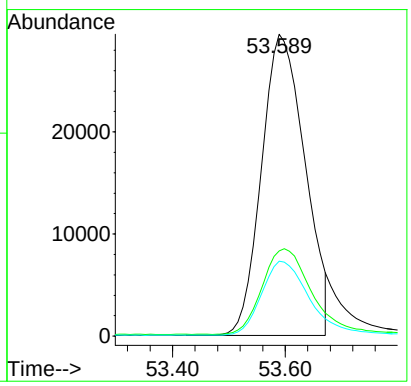


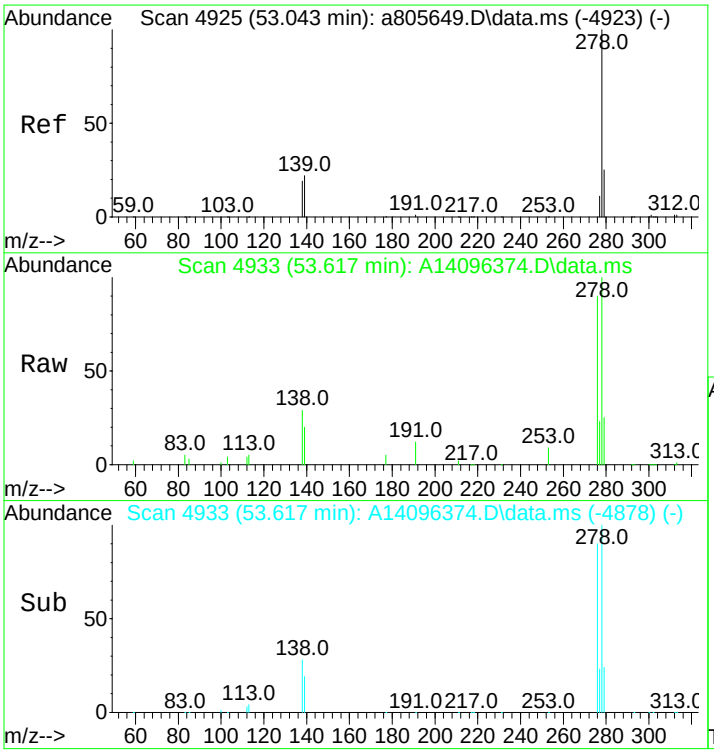


#89
Indeno[1,2,3-cd]pyrene
Concen: 534.62 ng/mL m
RT: 53.589 min Scan# 4930
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:276 Resp: 158432

Ion	Ratio	Lower	Upper
276	100		
138	33.1	22.6	33.8
277	27.8	19.8	29.8

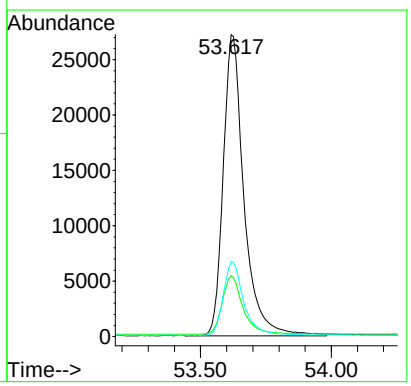


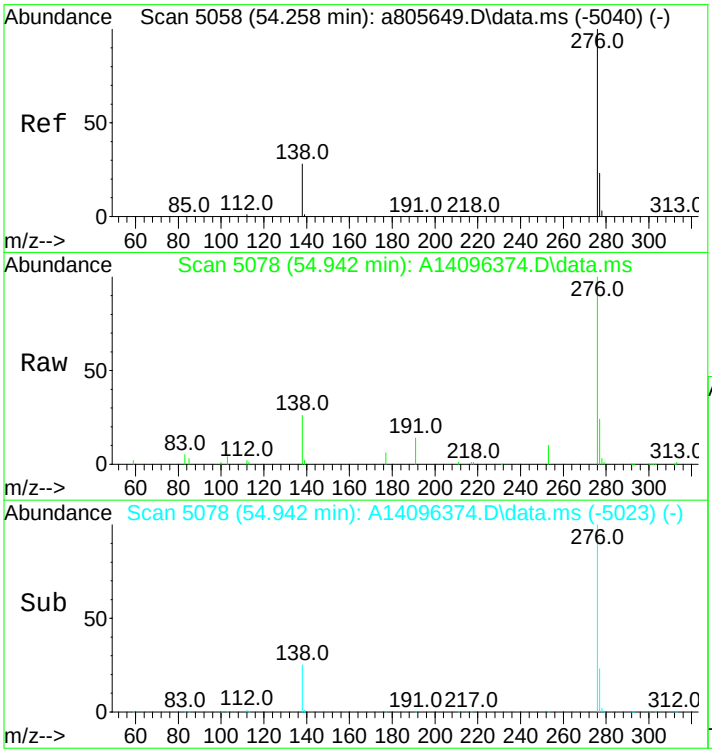


#90
Dibenz[ah]+[ac]anthracene
Concen: 494.42 ng/mL
RT: 53.617 min Scan# 4933
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:278 Resp: 150022

Ion	Ratio	Lower	Upper
278	100		
139	19.4	16.2	24.2
279	24.4	19.8	29.8

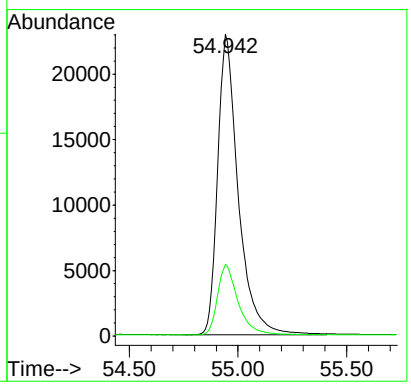


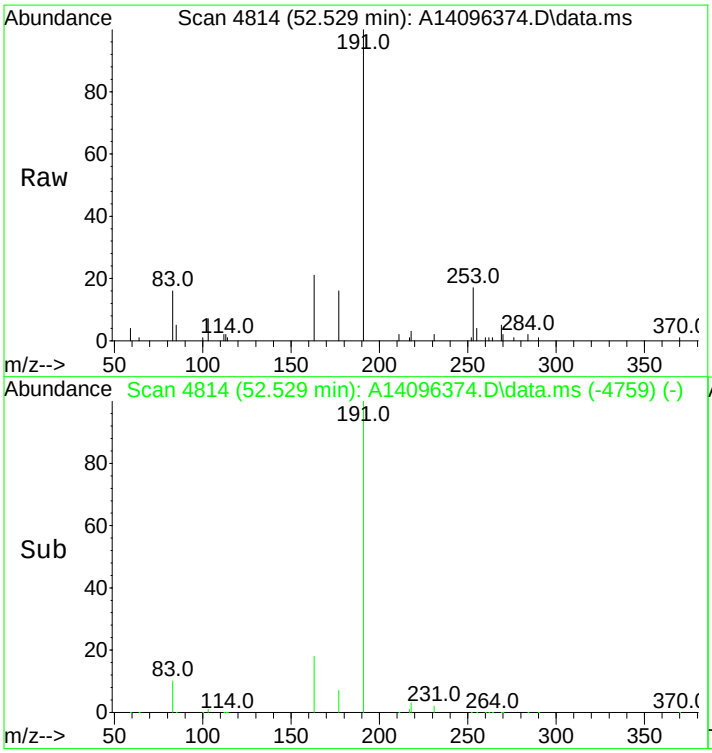


#91
Benzo[g,h,i]perylene
Concen: 449.12 ng/mL
RT: 54.942 min Scan# 5078
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:276 Resp: 150974

Ion	Ratio	Lower	Upper
276	100		
277	23.6	19.0	28.6

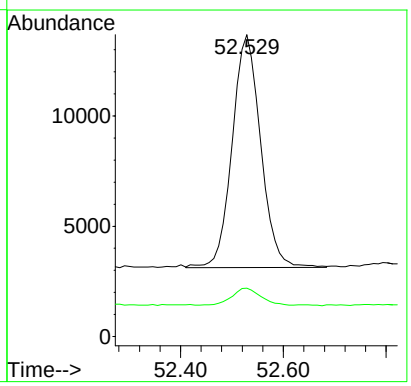


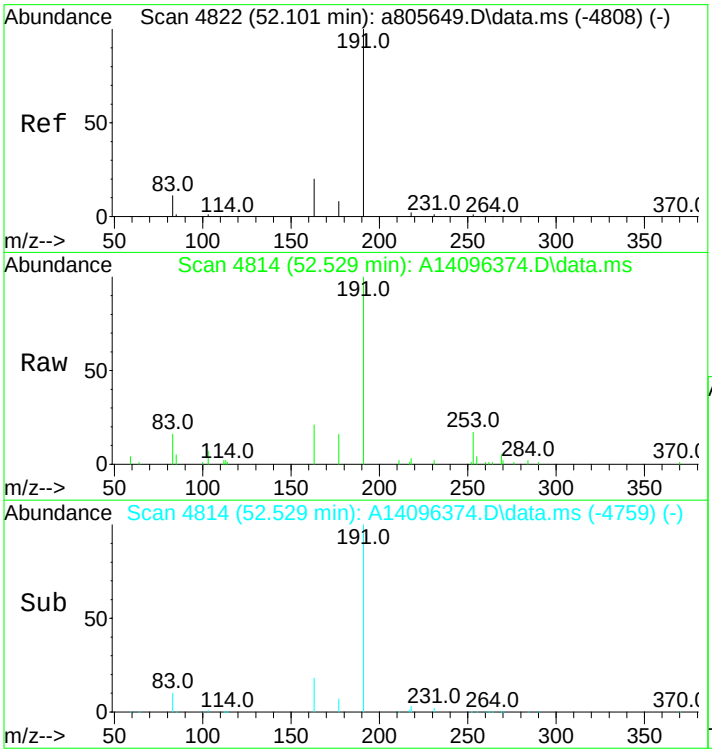


#92
Hopane (T19)
Concen: 519.59 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:191 Resp: 40666

Ion	Ratio	Lower	Upper
191	100		
177	7.3	12.8	19.2#

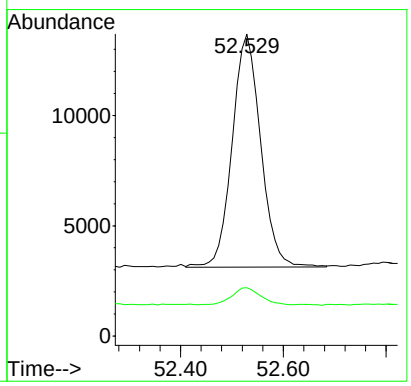




#93
17a(H),21B(H)-hopane - C30H52
Concen: 519.59 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096374.D
Acq: 18 May 2012 5:50 pm

Tgt Ion:191 Resp: 40666

Ion	Ratio	Lower	Upper
191	100		
177	7.3	12.8	19.2#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096375.D
Acq On : 18 May 2012 7:14 pm
Operator : PAH14:MT
Sample : I1405181205
Misc : WG537732
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:16:24 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.884	164	69665	500.000	ng/mL	-0.03
74) Chrysene-d12	43.377	240	122734	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.903	136	1388034	4710.140	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 471.01%#			
42) Phenanthrene-d10	32.759	188	1300609	5617.802	ng/mL	-0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery = 561.78%#			
86) Benzo[a]pyrene-d12	48.514	264	1289018	5154.165	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 515.42%#			
127) 5B(H)Cholane - Surr	43.961	217	256689	5971.490	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 597.15%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	144225	2153.721	ng/mL	100
4) cis-Decalin	17.758	138	112744	2206.848	ng/mL	100
10) Naphthalene	19.985	128	1486740	4489.306	ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	1000036	4812.123	ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	965423	4807.254	ng/mL#	100
18) Benzothiophene	20.204	134	1192249	4411.015	ng/mL	100
23) Biphenyl	24.557	154	1192589	4681.554	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.177	156	875769	5005.874	ng/mL#	100
25) Dibenzofuran	27.659	168	1283070	4916.777	ng/mL	100
26) Acenaphthylene	26.272	152	1568802M4	5283.855	ng/mL	
27) Acenaphthene	27.011	153	939735	4937.851	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.563	170	787231	5376.737	ng/mL	99
29) Fluorene	29.037	166	1073305	5272.723	ng/mL	99
33) Dibenzothiophene	32.358	184	1362691	4924.484	ng/mL	100
43) Phenanthrene	32.851	178	1445708	5087.119	ng/mL	100
54) Retene	39.834	234	412149	6486.766	ng/mL	99
55) Anthracene	33.042	178	1450159	5482.844	ng/mL	100
56) Carbazole	33.718	167	1441820	5295.855	ng/mL	99
57) 1-Methylphenanthrene	35.370	192	1085909	5872.080	ng/mL	99
58) Fluoranthene	37.643	202	1504772M4	5544.972	ng/mL	
59) Benzo(b)fluorene	40.163	216	985877	6308.865	ng/mL	100
60) Pyrene	38.529	202	1524205	5464.688	ng/mL	100
66) Naphthobenzothiophene	42.381	234	1336193	5558.121	ng/ml	99
67) Naphthobenzothiophene-2,1	42.381	234	1336193	5558.121	ng/mL	99
75) Benz[a]anthracene	43.313	228	1445408	5494.247	ng/mL	100
76) Chrysene	43.486	228	1391949	4913.220	ng/mL	100
77) Chrysene/Triphenylene	43.486	228	1391949	4913.220	ng/mL	100
82) Benzo[b]fluoranthene	47.389	252	1451693	4868.748	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.471	252	1551294	4811.332	ng/mL	95
85) Benzo[e]pyrene	48.413	252	1389429	4605.885	ng/mL	93
87) Benzo[a]pyrene	48.614	252	1331526	4731.887	ng/mL	90
88) Perylene	48.934	252	1441616	4859.493	ng/mL#	89
89) Indeno[1,2,3-cd]pyrene	53.553	276	1648795M3	5484.799	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.589	278	1546832	5025.480	ng/mL	99
91) Benzo[g,h,i]perylene	54.914	276	1570974	4607.118	ng/mL	99
92) Hopane (T19)	52.529	191	405695	5110.034	ng/mL#	79
93) 17a(H),21B(H)-hopane - C3	52.529	191	405695	5110.034	ng/mL#	79

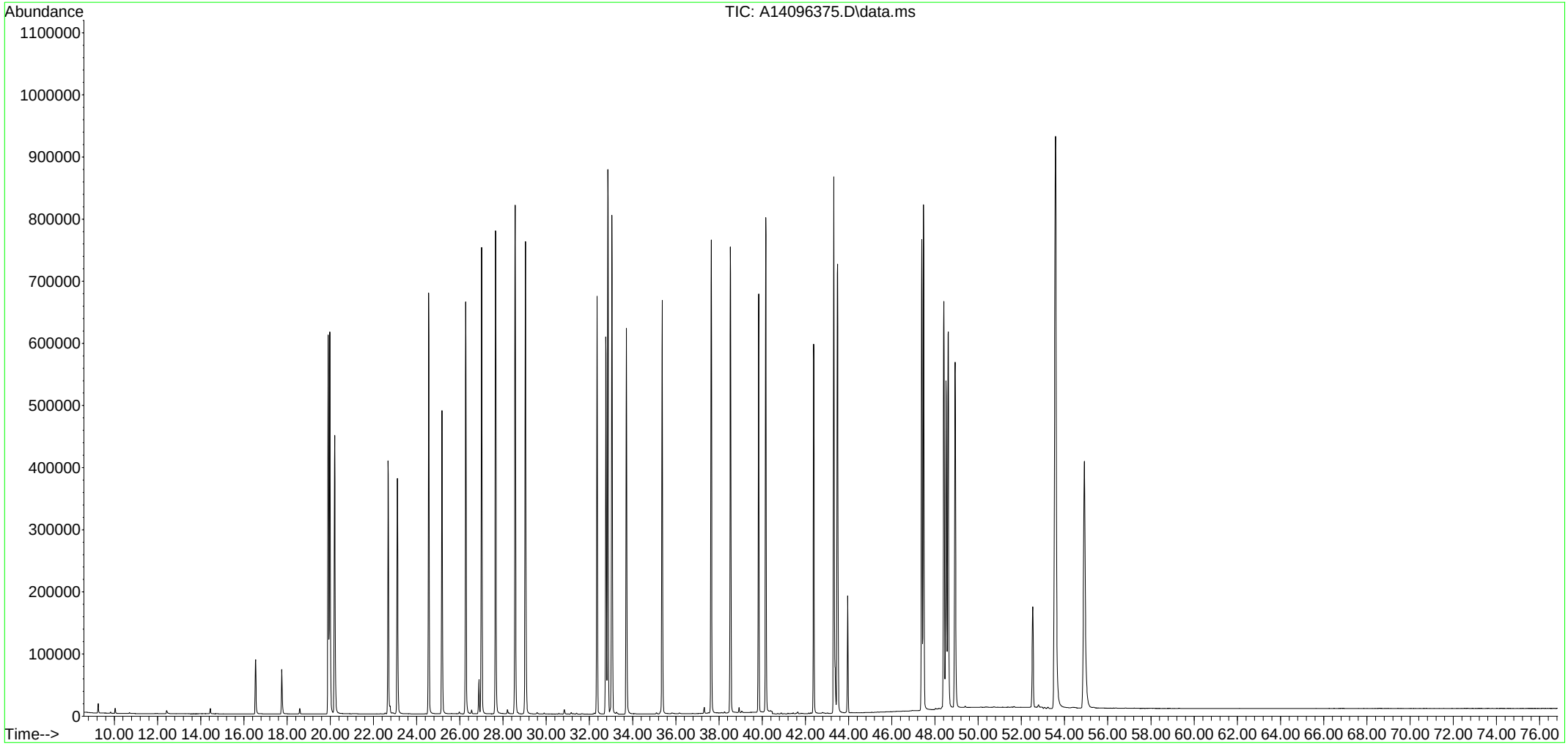
(#) = qualifier out of range (m) = manual integration (+) = signals summed

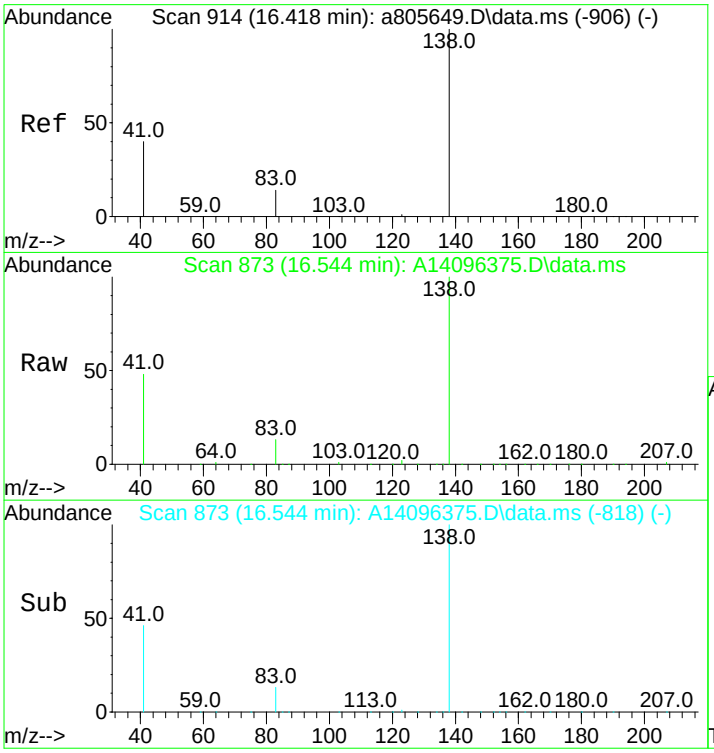
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096375.D
Acq On : 18 May 2012 7:14 pm
Operator : PAH14:MT
Sample : I1405181205
Misc : WG537732
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:16:24 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

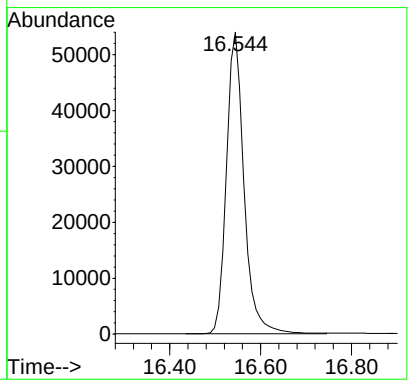
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

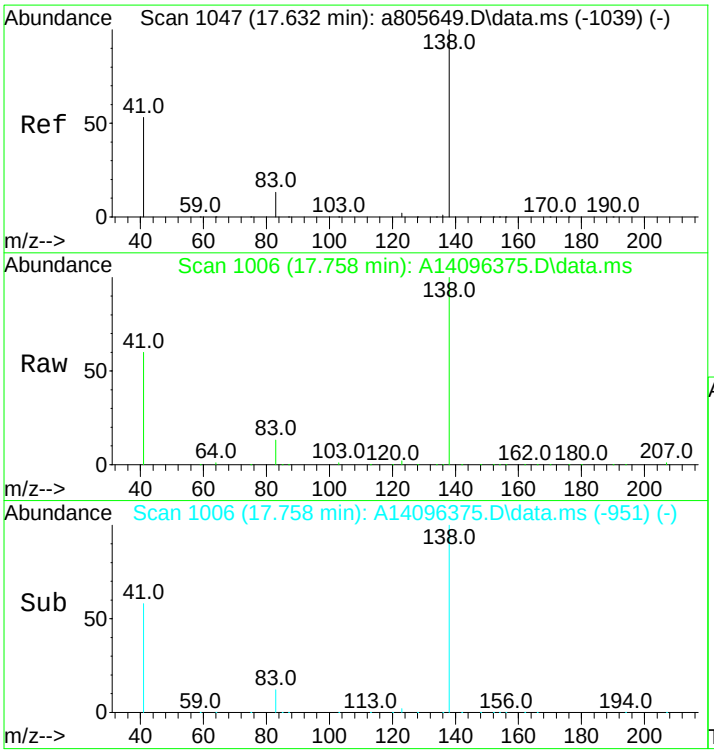




#3
trans-Decalin
Concen: 2153.72 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

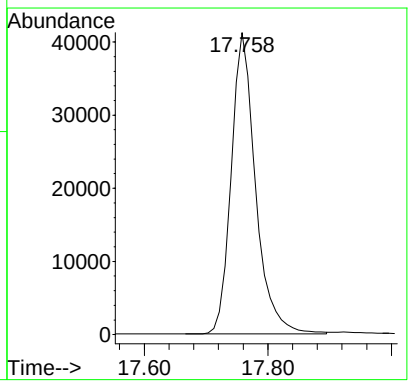
Tgt Ion:138 Resp: 144225

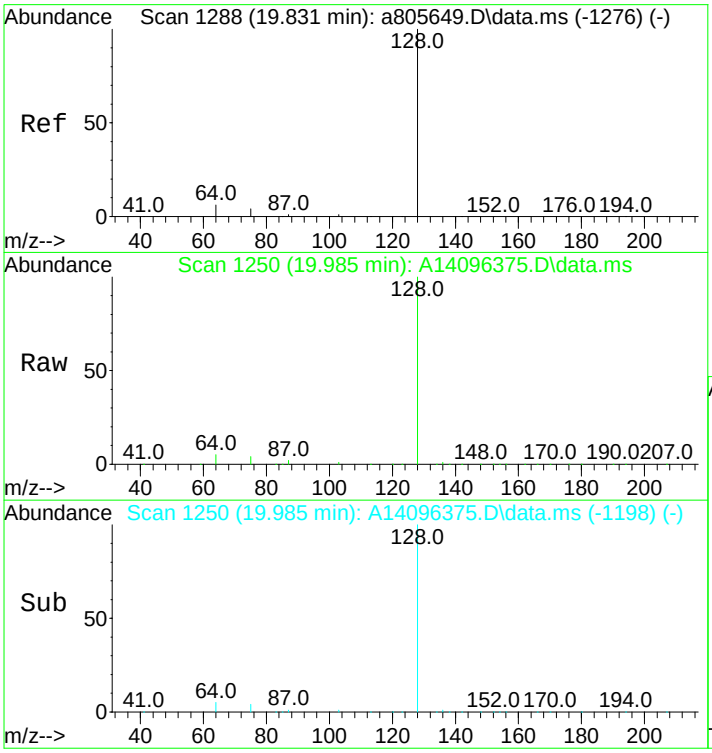




#4
cis-Decalin
Concen: 2206.85 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:138 Resp: 112744

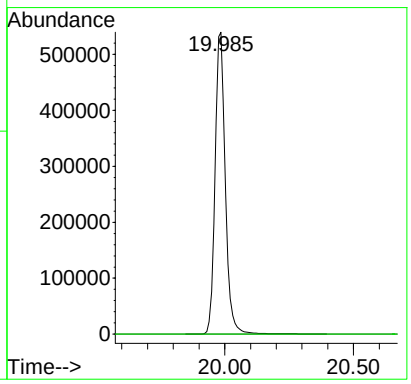


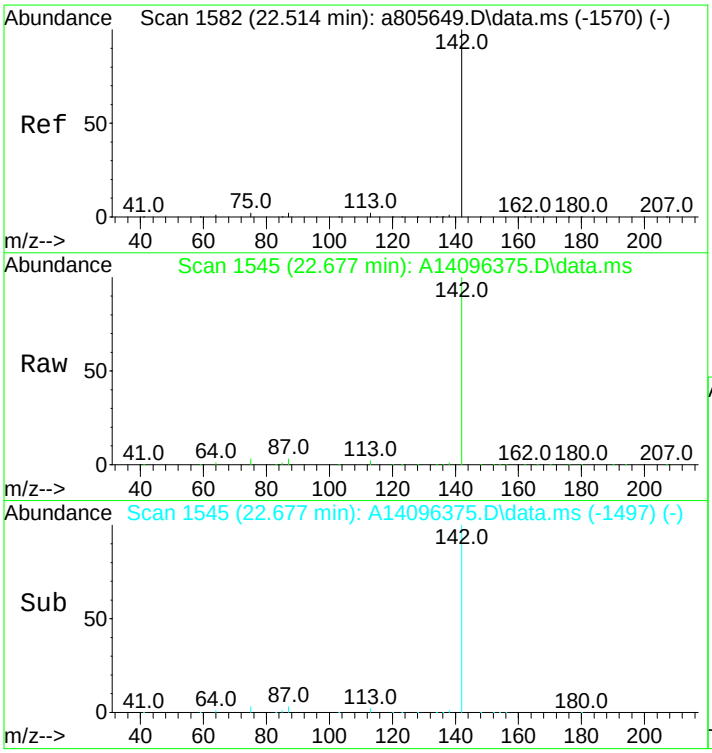


#10
Naphthalene
Concen: 4489.31 ng/mL
RT: 19.985 min Scan# 1250
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:128 Resp: 1486740

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

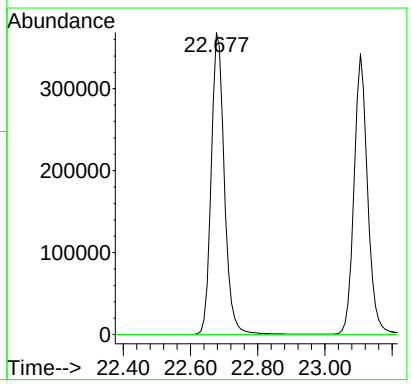


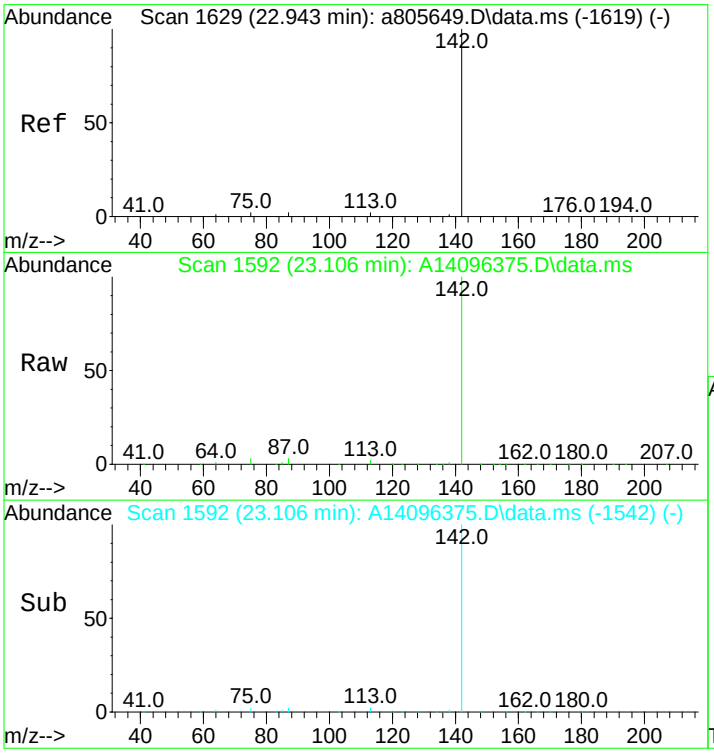


#16
2-Methylnaphthalene
Concen: 4812.12 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.064 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:142 Resp: 1000036

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

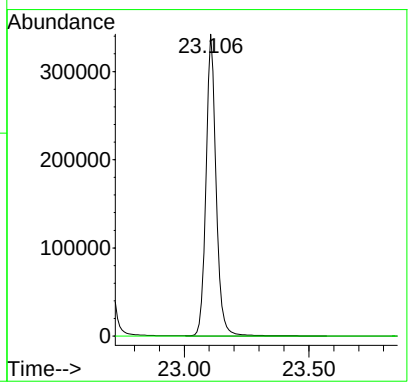


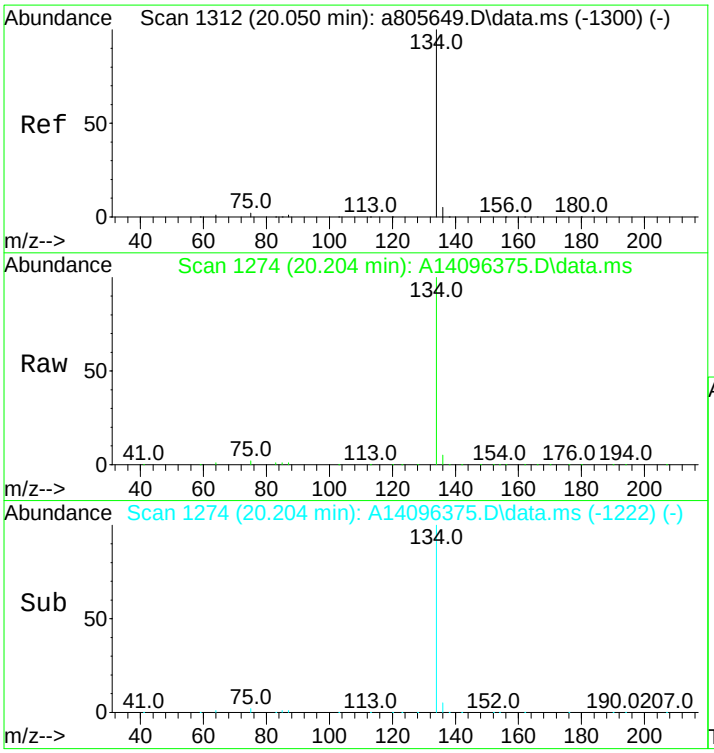


#17
1-Methylnaphthalene
Concen: 4807.25 ng/mL
RT: 23.106 min Scan# 1592
Delta R.T. -0.046 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:142 Resp: 965423

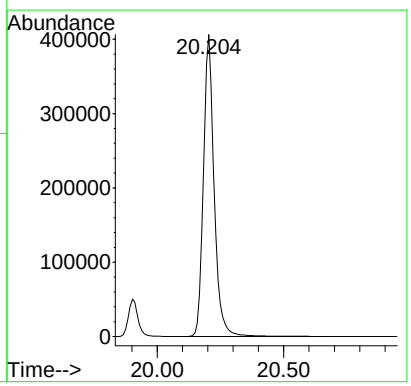
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

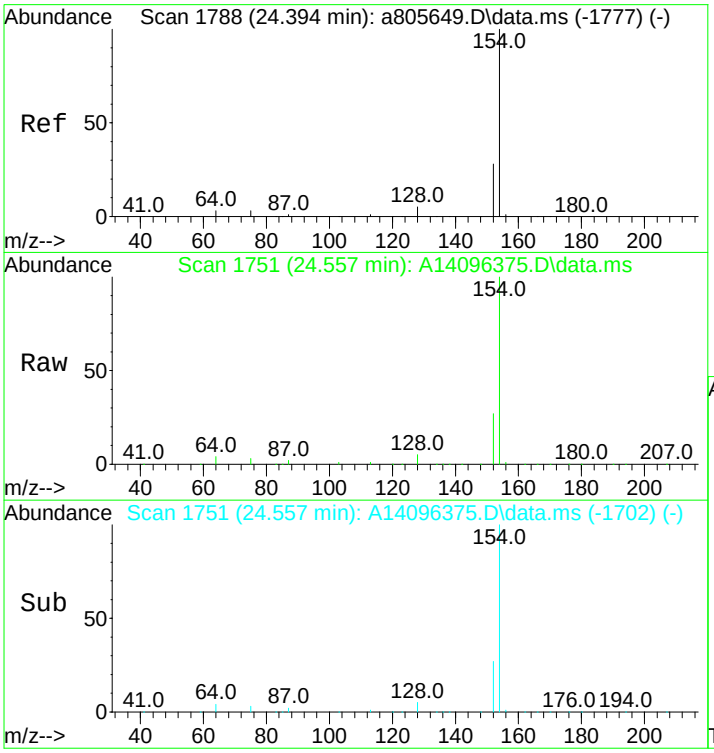




#18
Benzothiophene
Concen: 4411.01 ng/mL
RT: 20.204 min Scan# 1274
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:134 Resp: 1192249

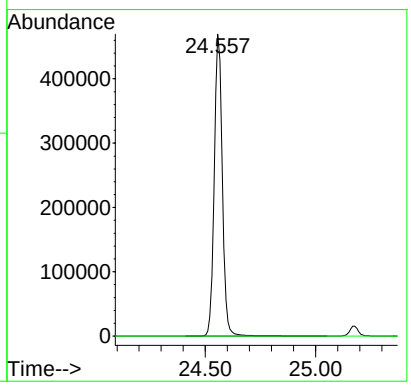


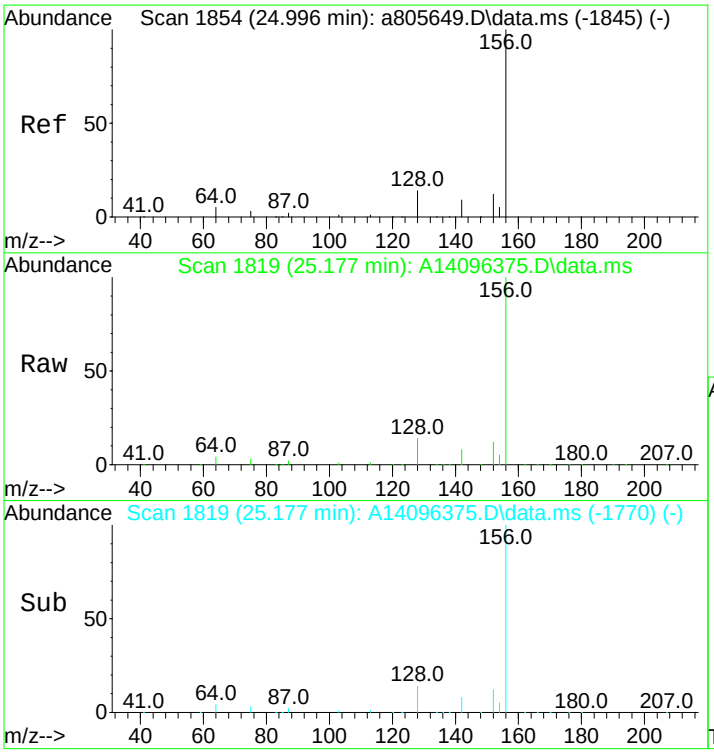


#23
Biphenyl
Concen: 4681.55 ng/mL
RT: 24.557 min Scan# 1751
Delta R.T. -0.055 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:154 Resp: 1192589

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

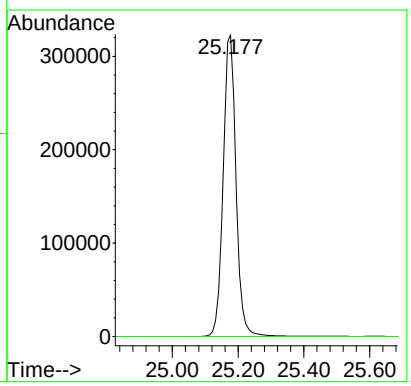


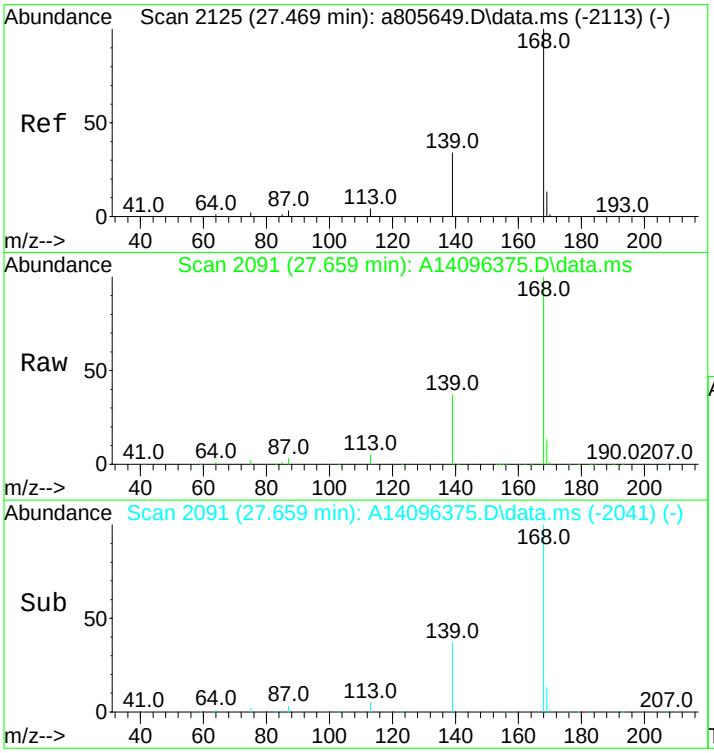


#24
2,6-Dimethylnaphthalene
Concen: 5005.87 ng/mL
RT: 25.177 min Scan# 1819
Delta R.T. -0.055 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:156 Resp: 875769

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

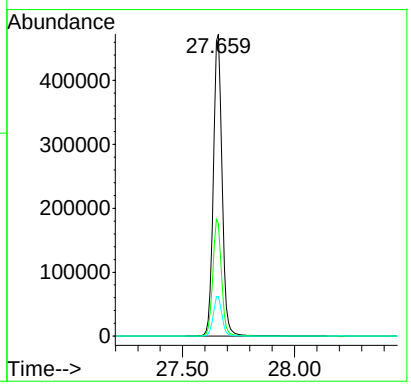


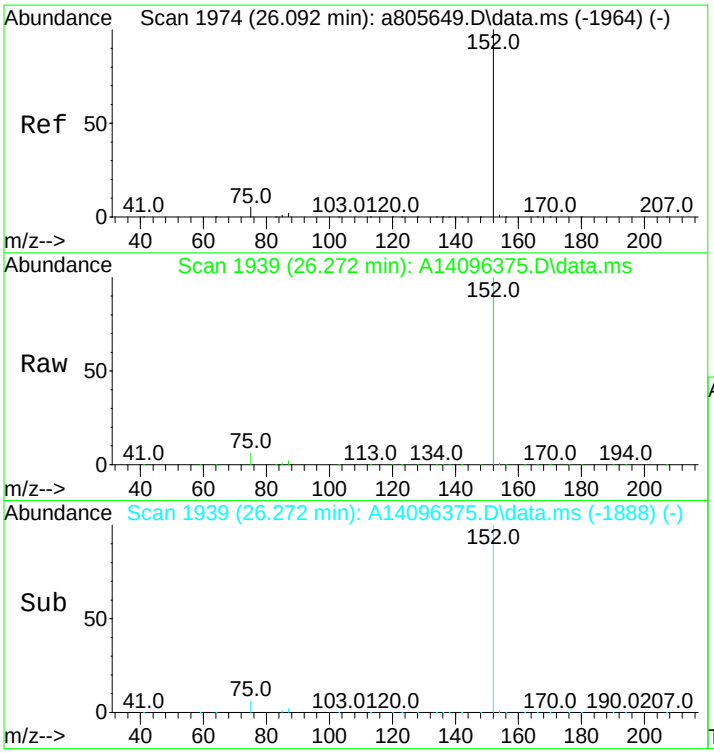


#25
Dibenzofuran
Concen: 4916.78 ng/mL
RT: 27.659 min Scan# 2091
Delta R.T. -0.046 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:168 Resp: 1283070

Ion	Ratio	Lower	Upper
168	100		
139	38.6	30.9	46.3
169	13.2	10.6	16.0

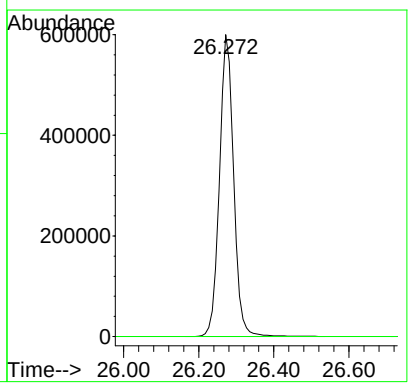


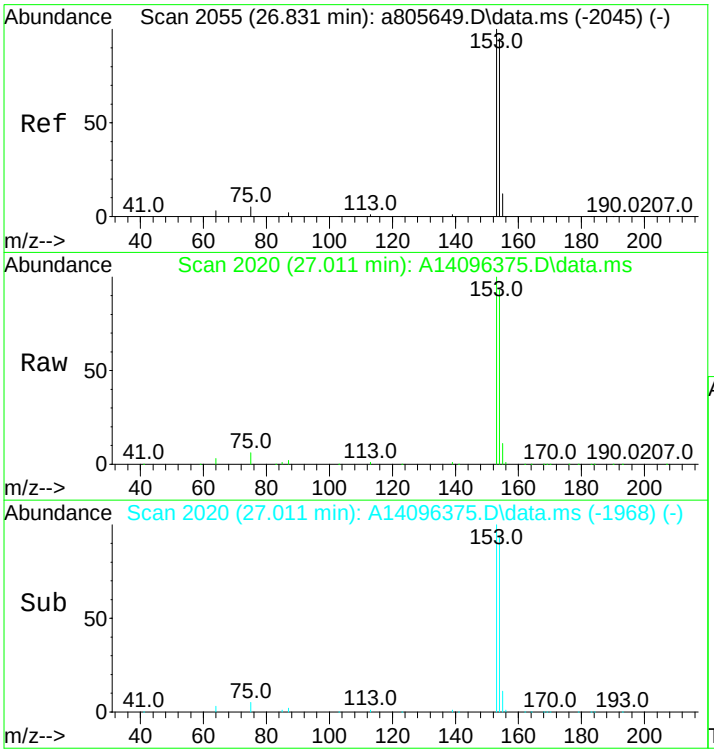


#26
Acenaphthylene
Concen: 5283.86 ng/mL m
RT: 26.272 min Scan# 1939
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:152 Resp: 1568802

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

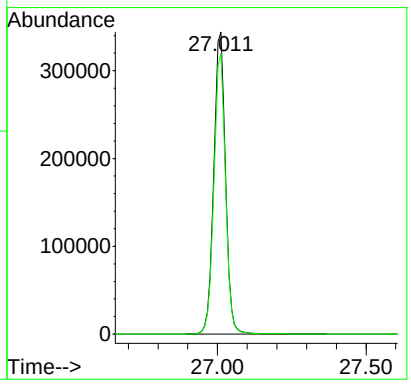


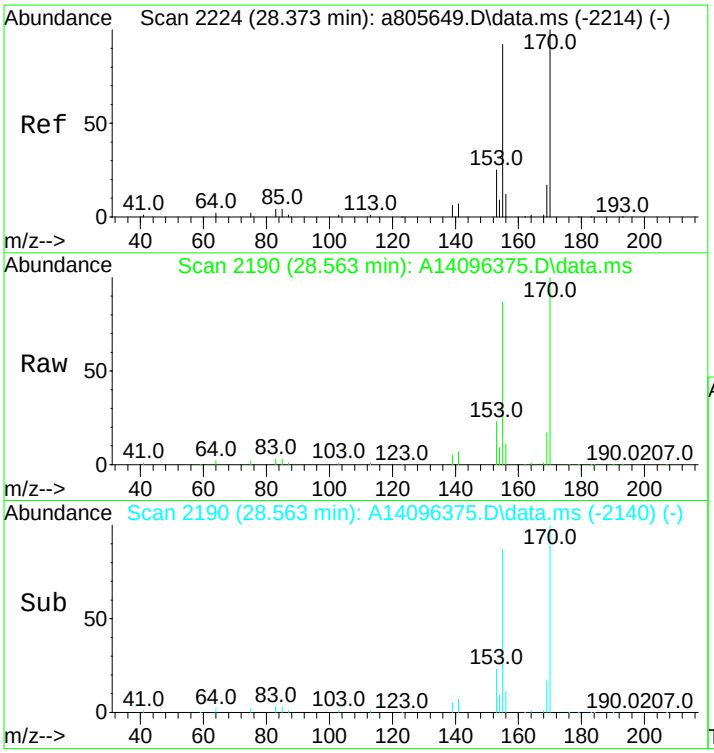


#27
Acenaphthene
Concen: 4937.85 ng/mL
RT: 27.011 min Scan# 2020
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:153 Resp: 939735

Ion	Ratio	Lower	Upper
153	100		
154	92.1	73.6	110.4

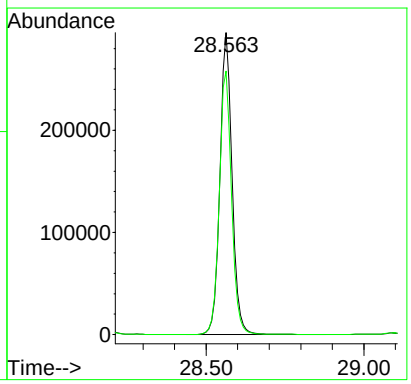


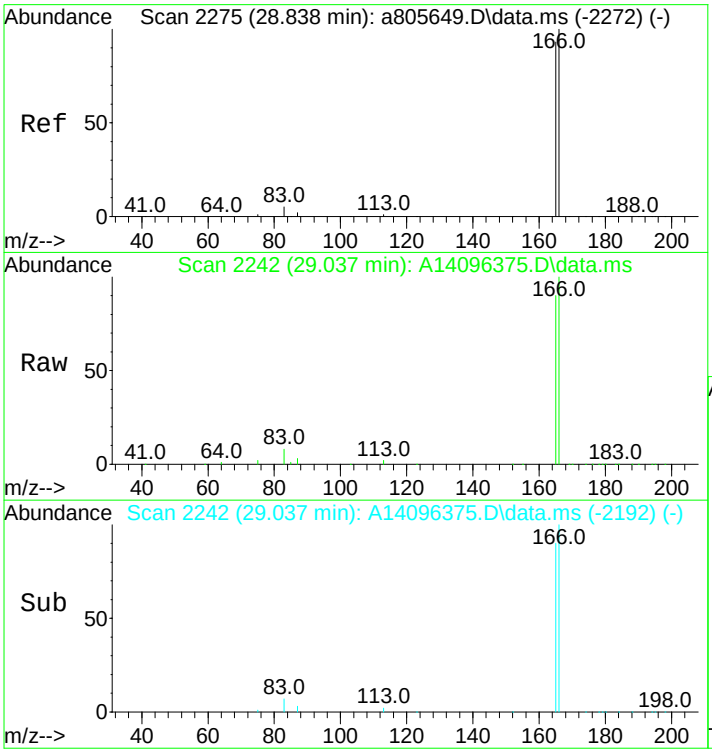


#28
2,3,5-Trimethylnaphthalene
Concen: 5376.74 ng/mL
RT: 28.563 min Scan# 2190
Delta R.T. -0.046 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:170 Resp: 787231

Ion	Ratio	Lower	Upper
170	100		
155	88.5	71.2	106.8

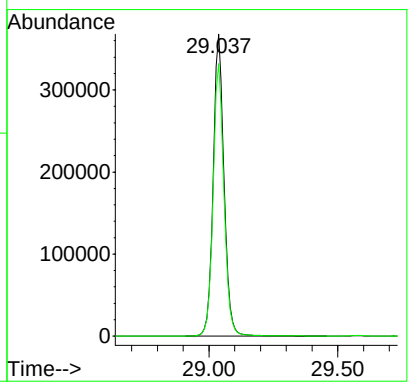


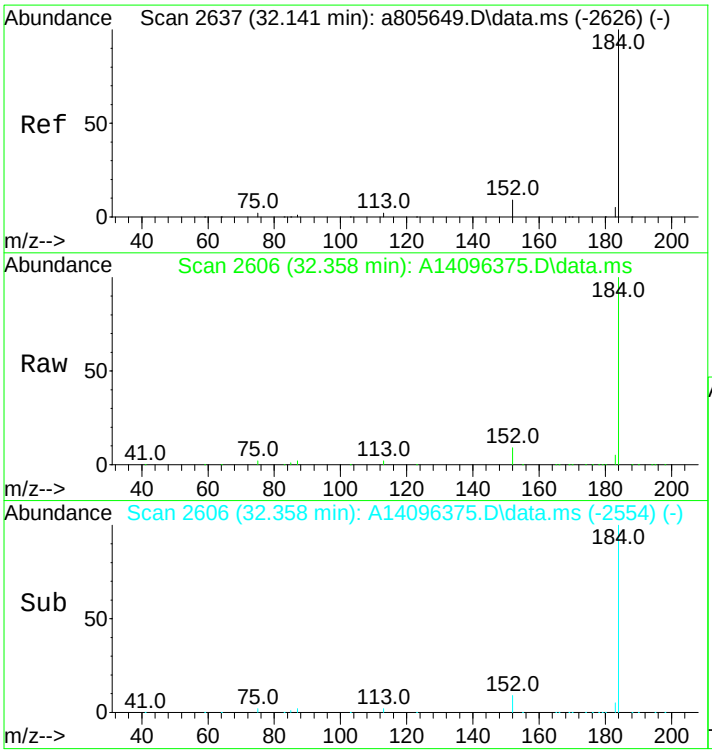


#29
Fluorene
Concen: 5272.72 ng/mL
RT: 29.037 min Scan# 2242
Delta R.T. -0.046 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:166 Resp: 1073305

Ion	Ratio	Lower	Upper
166	100		
165	90.6	73.3	109.9

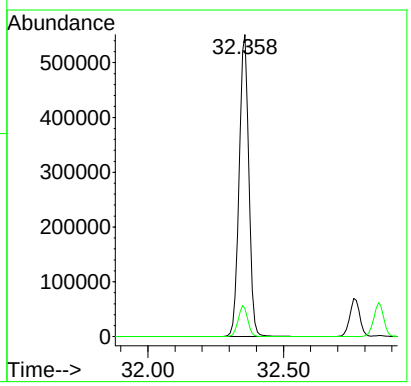


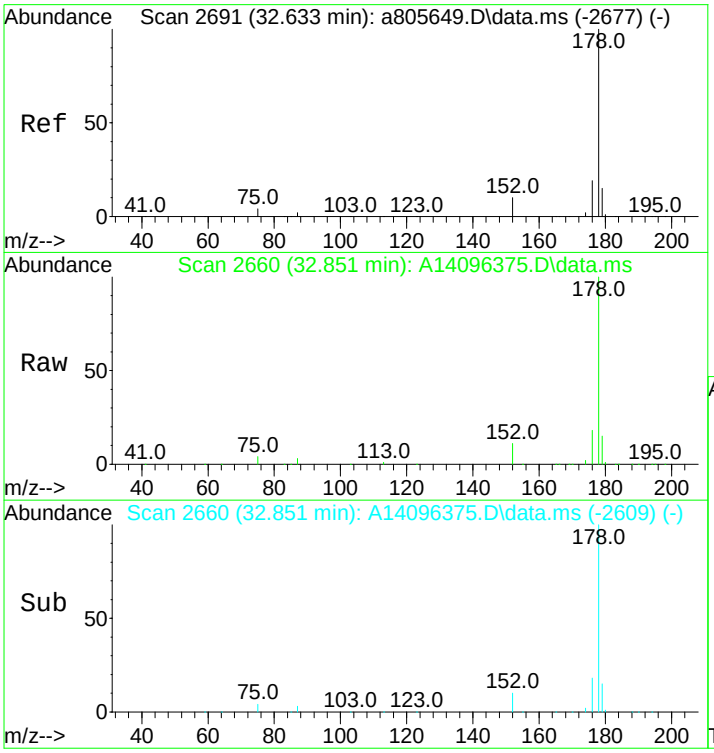


#33
Dibenzothiophene
Concen: 4924.48 ng/mL
RT: 32.358 min Scan# 2606
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:184 Resp: 1362691

Ion	Ratio	Lower	Upper
184	100		
152	10.1	8.2	12.2

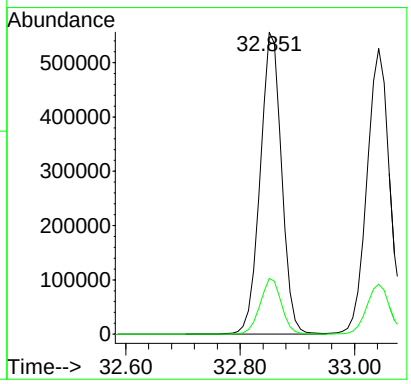


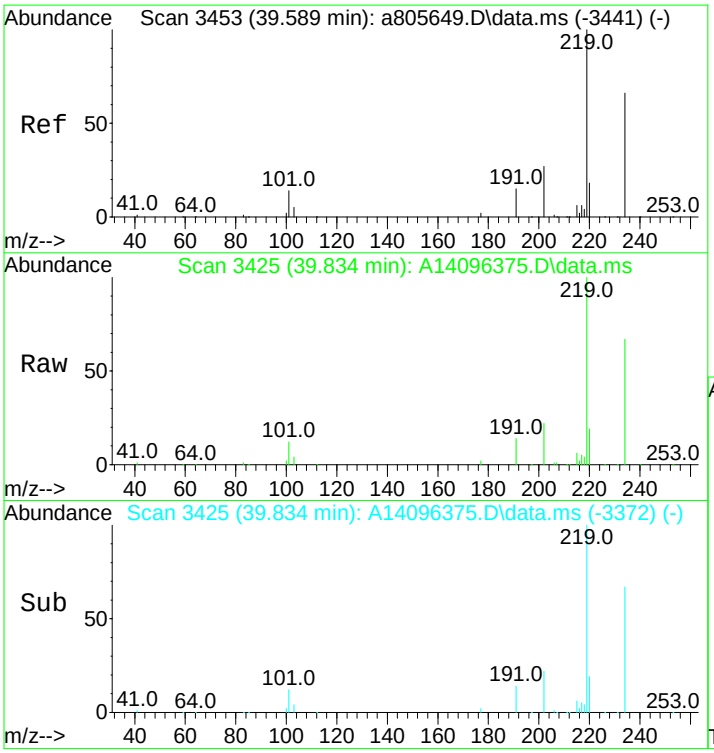


#43
Phenanthrene
Concen: 5087.12 ng/mL
RT: 32.851 min Scan# 2660
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:178 Resp: 1445708

Ion	Ratio	Lower	Upper
178	100		
176	18.3	14.7	22.1

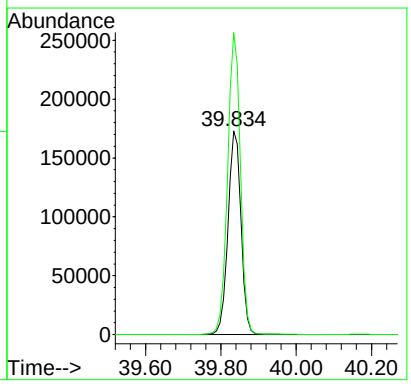


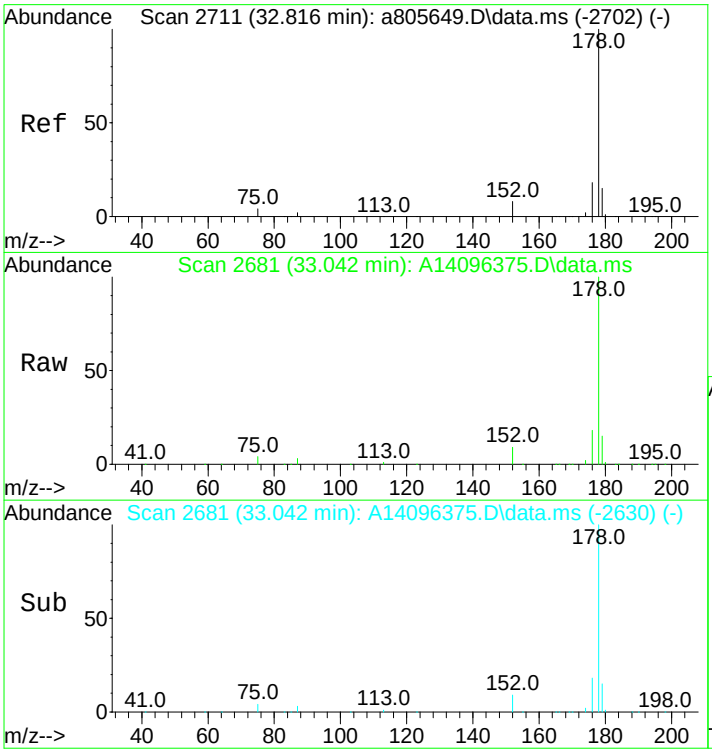


#54
Retene
Concen: 6486.77 ng/mL
RT: 39.834 min Scan# 3425
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:234 Resp: 412149

Ion	Ratio	Lower	Upper
234	100		
219	146.8	118.7	178.1

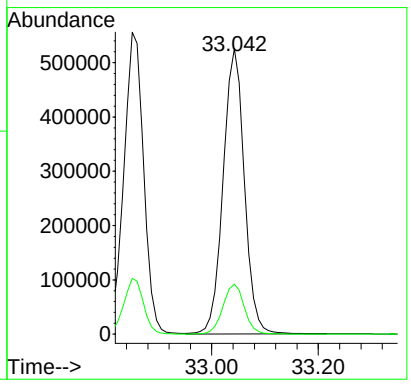


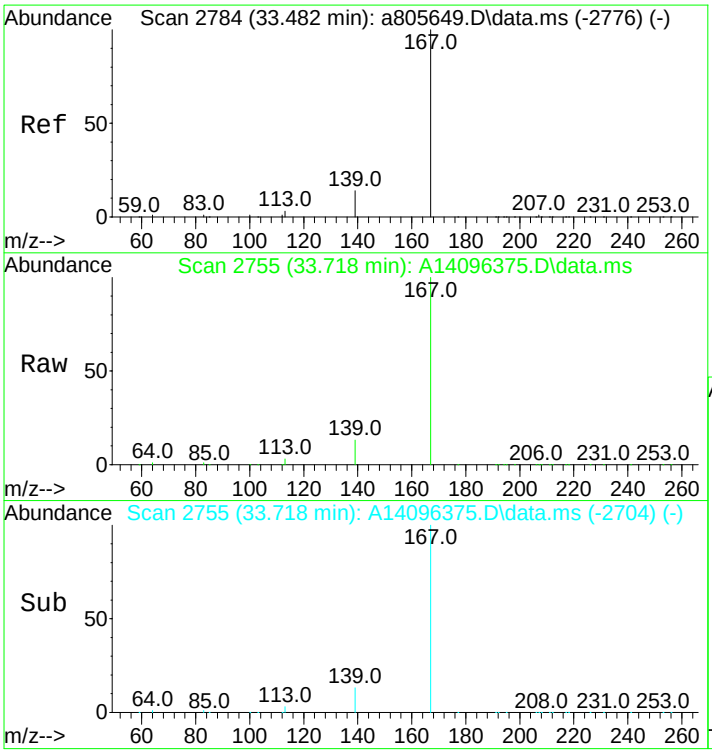


#55
Anthracene
Concen: 5482.84 ng/mL
RT: 33.042 min Scan# 2681
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:178 Resp: 1450159

Ion	Ratio	Lower	Upper
178	100		
176	17.9	14.2	21.4

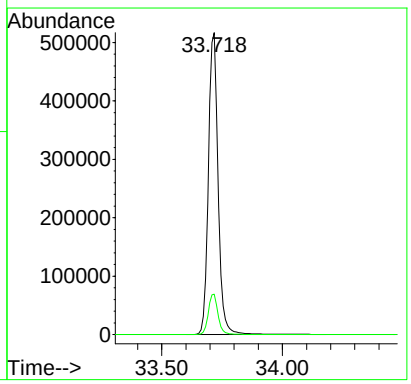


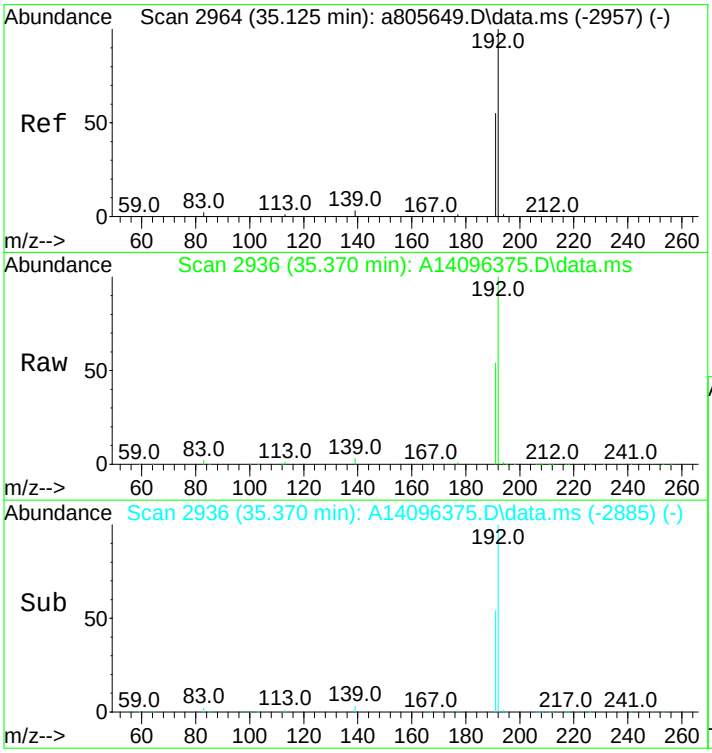


#56
Carbazole
Concen: 5295.85 ng/mL
RT: 33.718 min Scan# 2755
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:167 Resp: 1441820

Ion	Ratio	Lower	Upper
167	100		
139	13.4	11.0	16.4

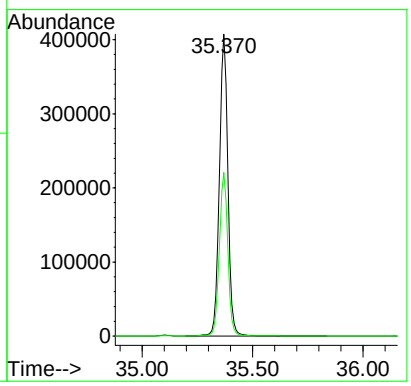


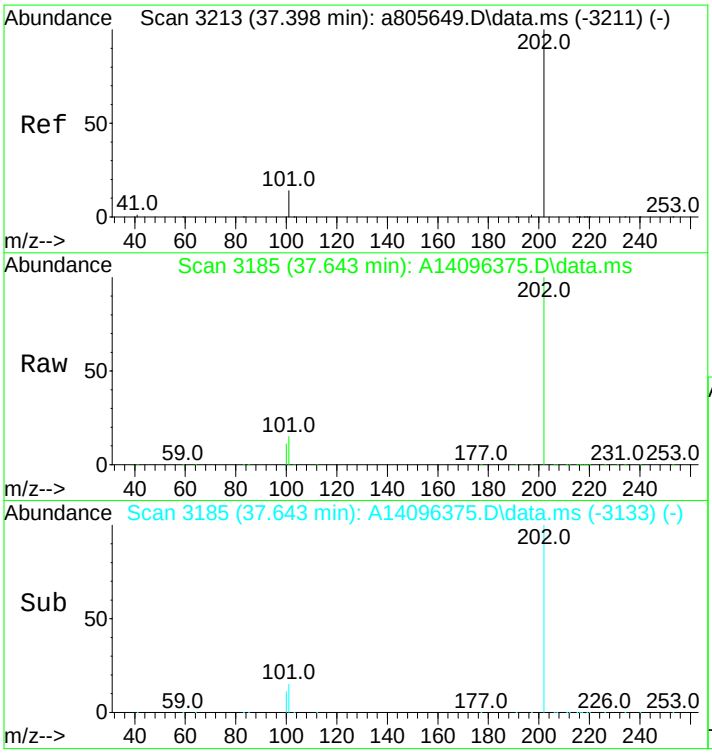


#57
1-Methylphenanthrene
Concen: 5872.08 ng/mL
RT: 35.370 min Scan# 2936
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:192 Resp: 1085909

Ion	Ratio	Lower	Upper
192	100		
191	54.3	43.8	65.8

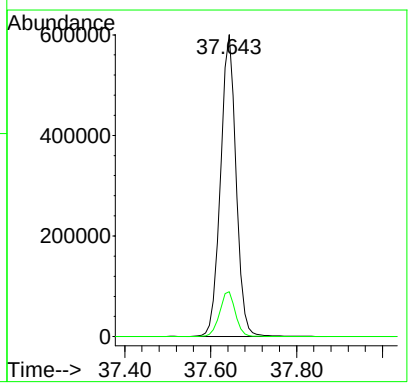


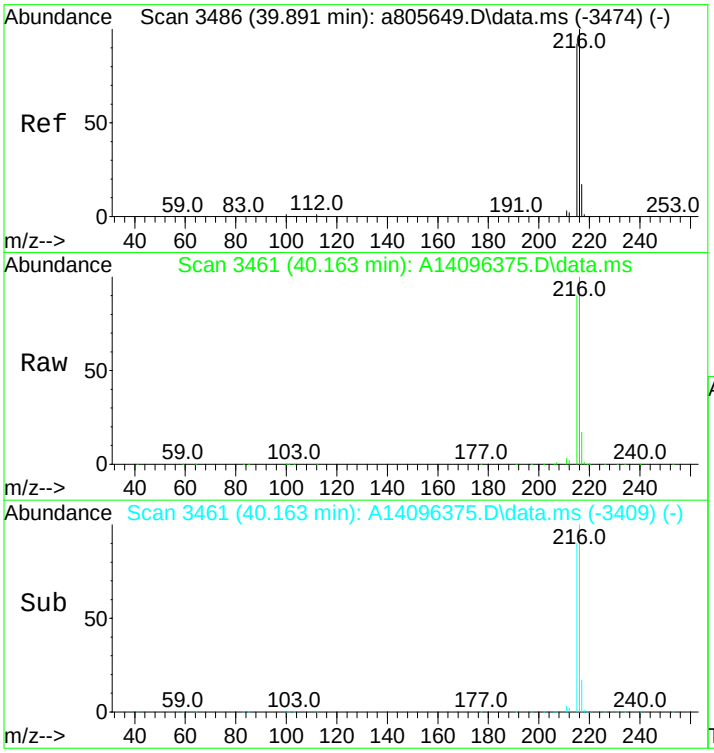


#58
Fluoranthene
Concen: 5544.97 ng/mL m
RT: 37.643 min Scan# 3185
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:202 Resp: 1504772

Ion	Ratio	Lower	Upper
202	100		
101	15.1	12.3	18.5

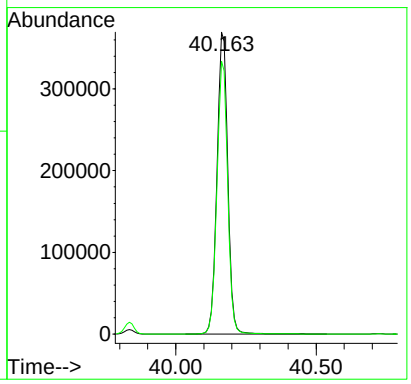


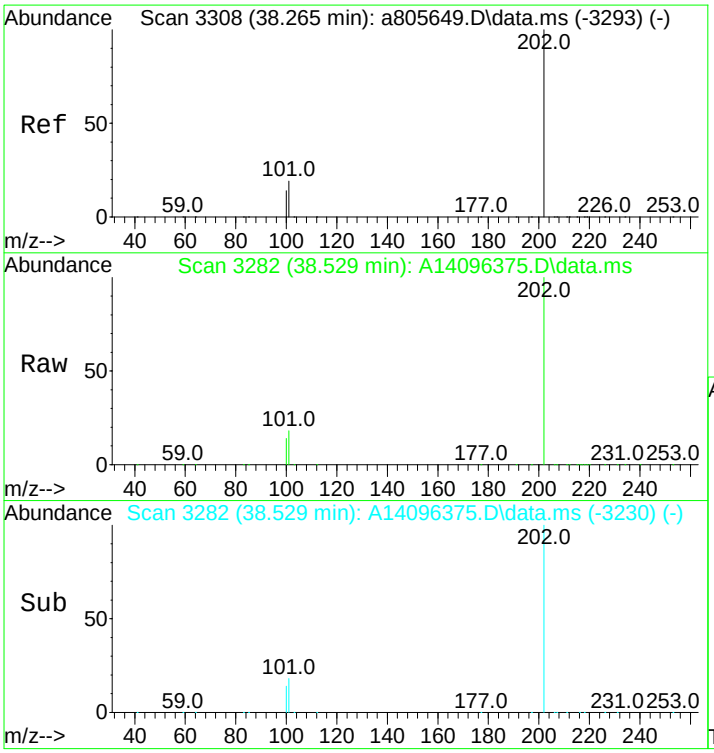


#59
Benzo(b)fluorene
Concen: 6308.87 ng/mL
RT: 40.163 min Scan# 3461
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:216 Resp: 985877

Ion	Ratio	Lower	Upper
216	100		
215	90.3	72.2	108.4

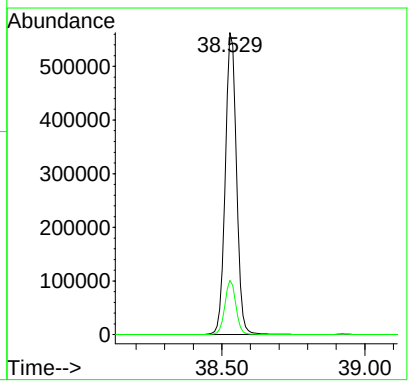


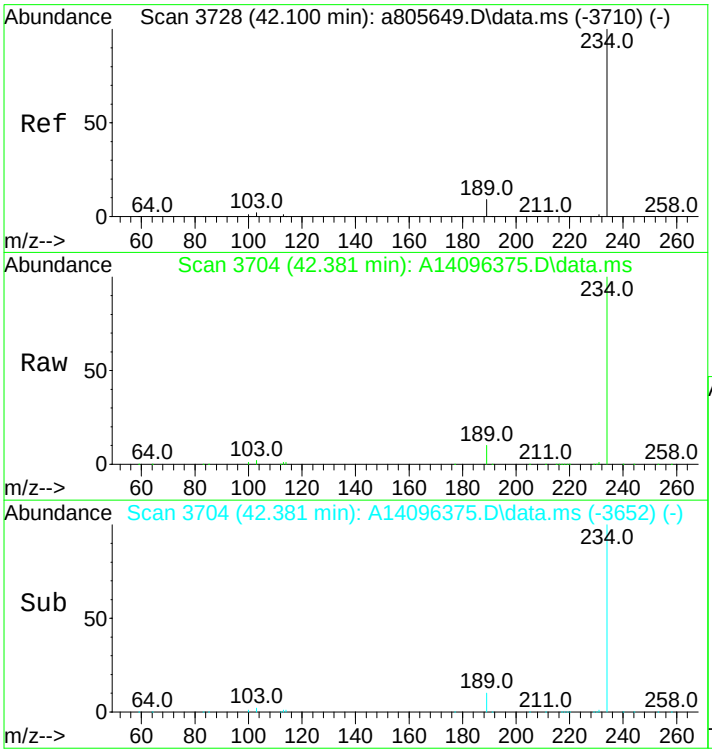


#60
Pyrene
Concen: 5464.69 ng/mL
RT: 38.529 min Scan# 3282
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:202 Resp: 1524205

Ion	Ratio	Lower	Upper
202	100		
101	17.7	14.2	21.2

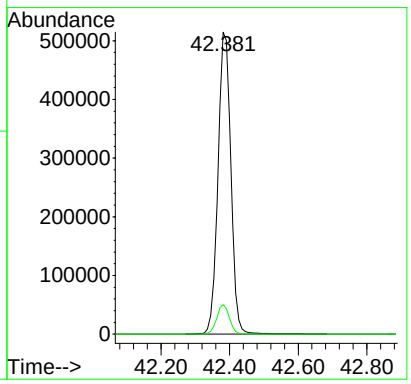


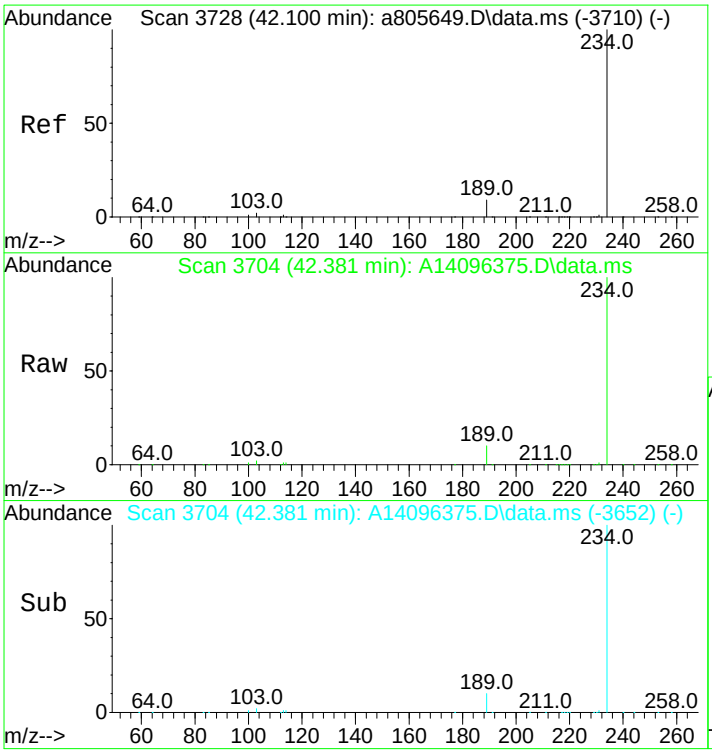


#66
Naphthobenzothiophene
Concen: 5558.12 ng/ml
RT: 42.381 min Scan# 3704
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:234 Resp: 1336193

Ion	Ratio	Lower	Upper
234	100		
189	9.6	7.3	10.9

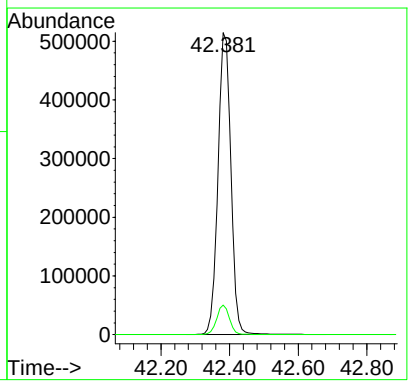


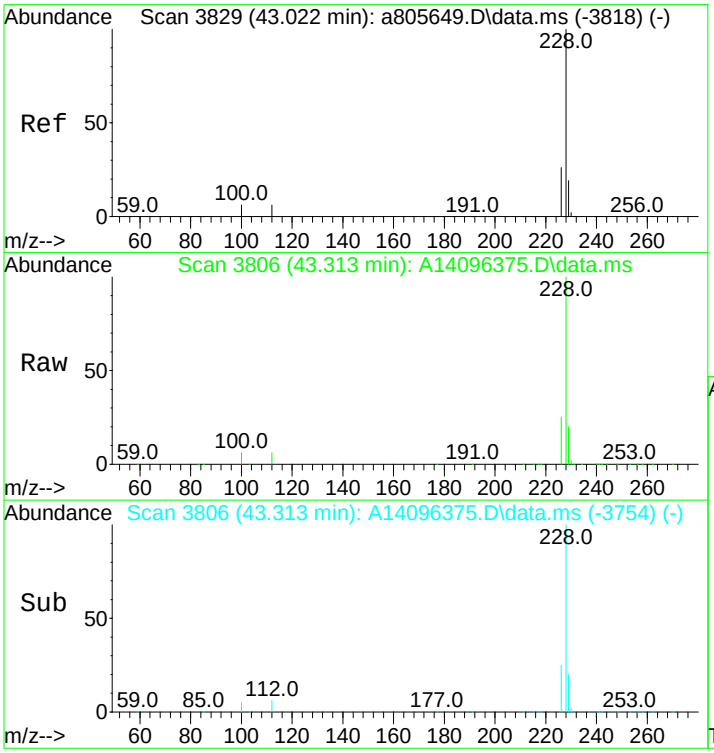


#67
Naphthobenzothiophene-2,1-D
Concen: 5558.12 ng/mL
RT: 42.381 min Scan# 3704
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:234 Resp: 1336193

Ion	Ratio	Lower	Upper
234	100		
189	9.6	7.3	10.9

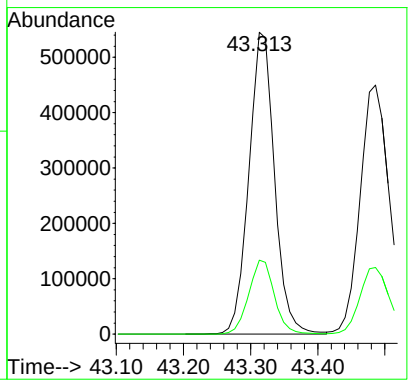


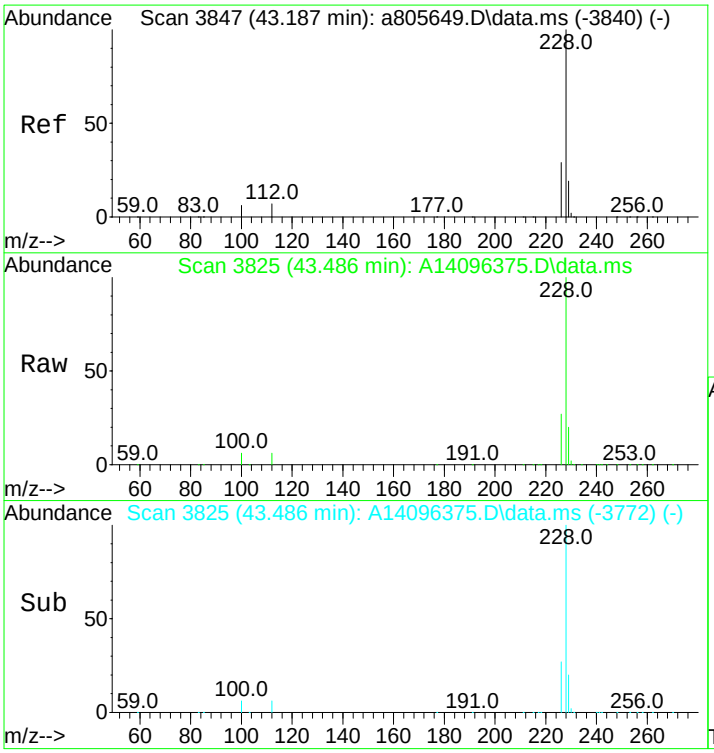


#75
Benz[a]anthracene
Concen: 5494.25 ng/mL
RT: 43.313 min Scan# 3806
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:228 Resp: 1445408

Ion	Ratio	Lower	Upper
228	100		
226	24.5	19.6	29.4

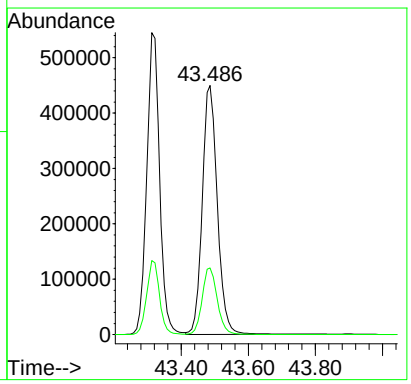


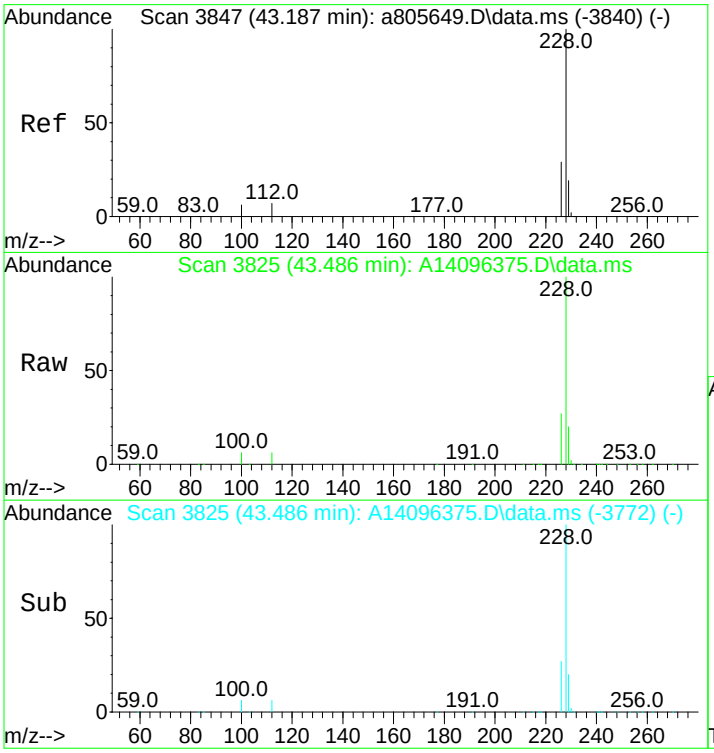


#76
Chrysene
Concen: 4913.22 ng/mL
RT: 43.486 min Scan# 3825
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:228 Resp: 1391949

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

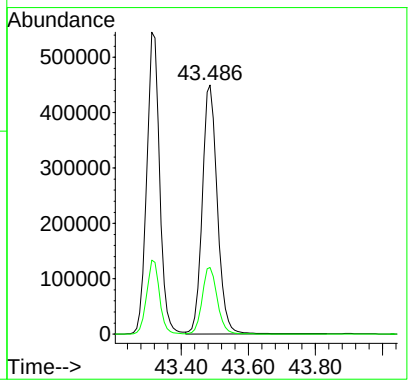


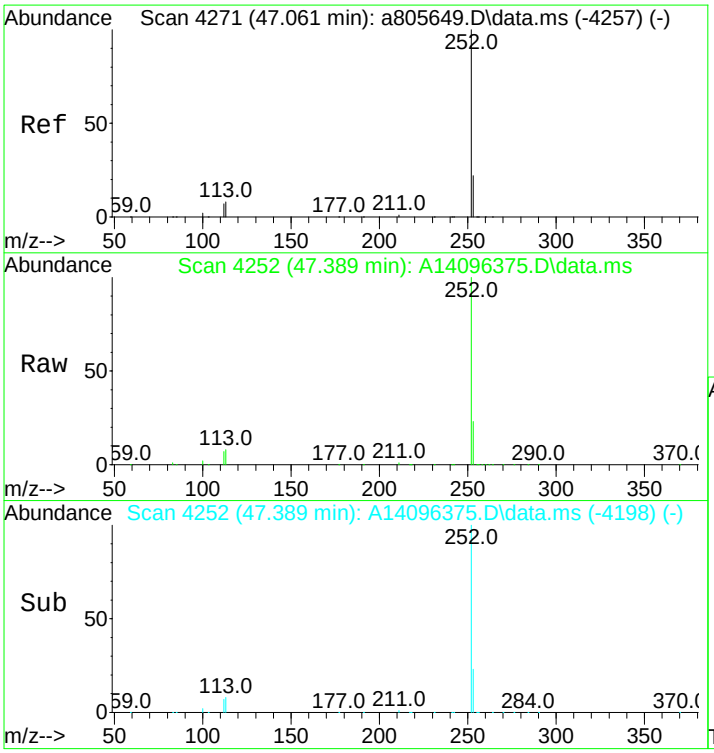


#77
Chrysene/Triphenylene
Concen: 4913.22 ng/mL
RT: 43.486 min Scan# 3825
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:228 Resp: 1391949

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

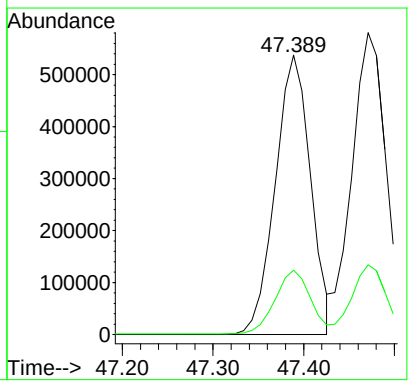


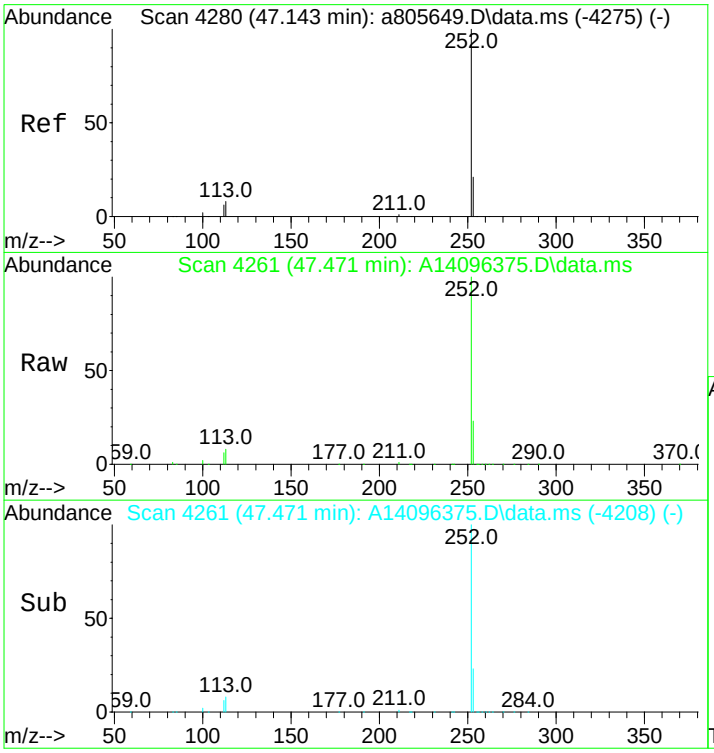


#82
Benzo[b]fluoranthene
Concen: 4868.75 ng/mL
RT: 47.389 min Scan# 4252
Delta R.T. -0.009 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:252 Resp: 1451693

Ion	Ratio	Lower	Upper
252	100		
253	22.8	20.6	30.8

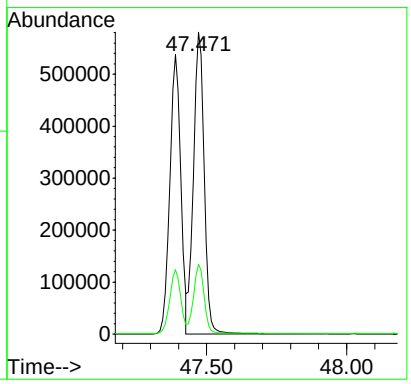


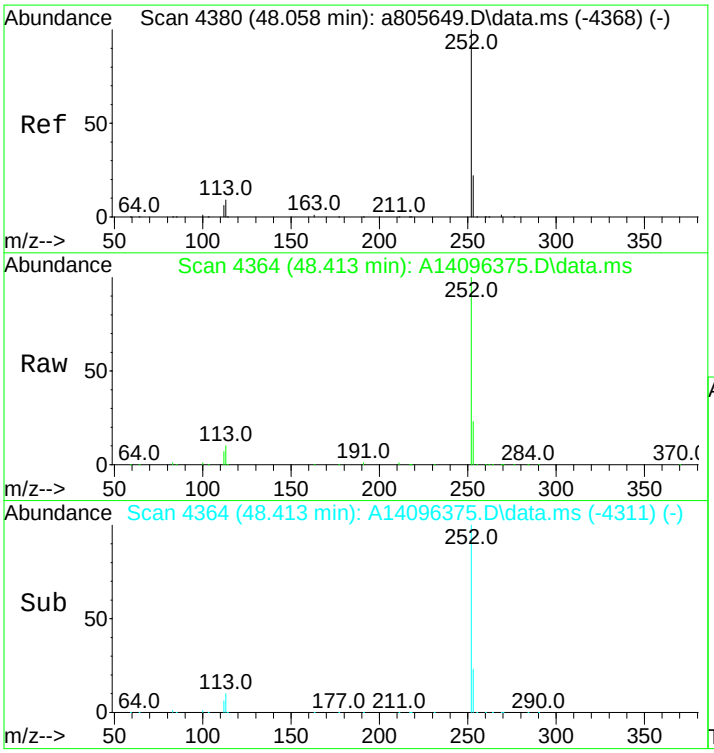


#83
Benzo[j]+[k]fluoranthene
Concen: 4811.33 ng/mL
RT: 47.471 min Scan# 4261
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:252 Resp: 1551294

Ion	Ratio	Lower	Upper
252	100		
253	22.6	20.2	30.4

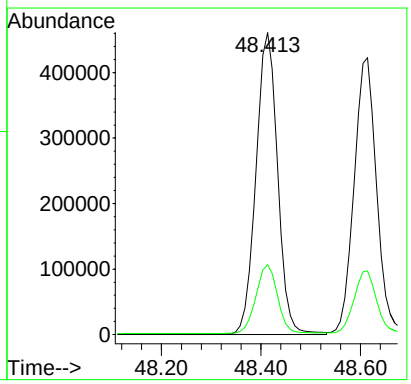


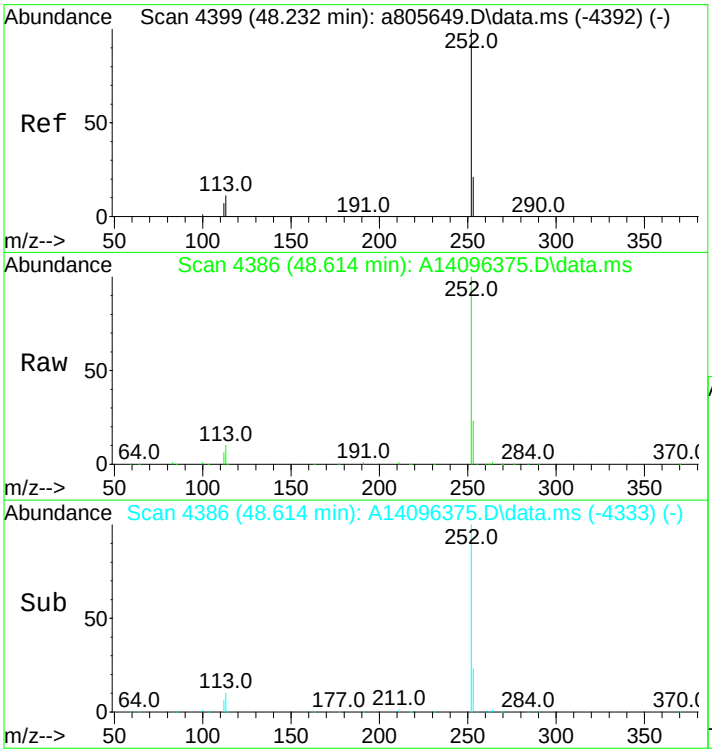


#85
Benzo[e]pyrene
Concen: 4605.88 ng/mL
RT: 48.413 min Scan# 4364
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:252 Resp: 1389429

Ion	Ratio	Lower	Upper
252	100		
253	22.8	21.3	31.9

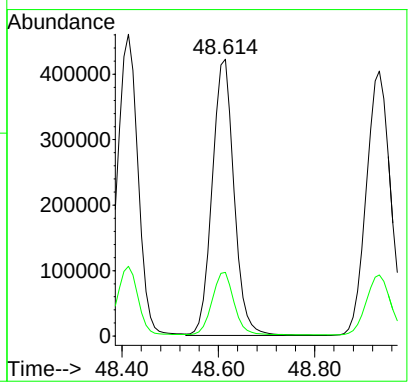


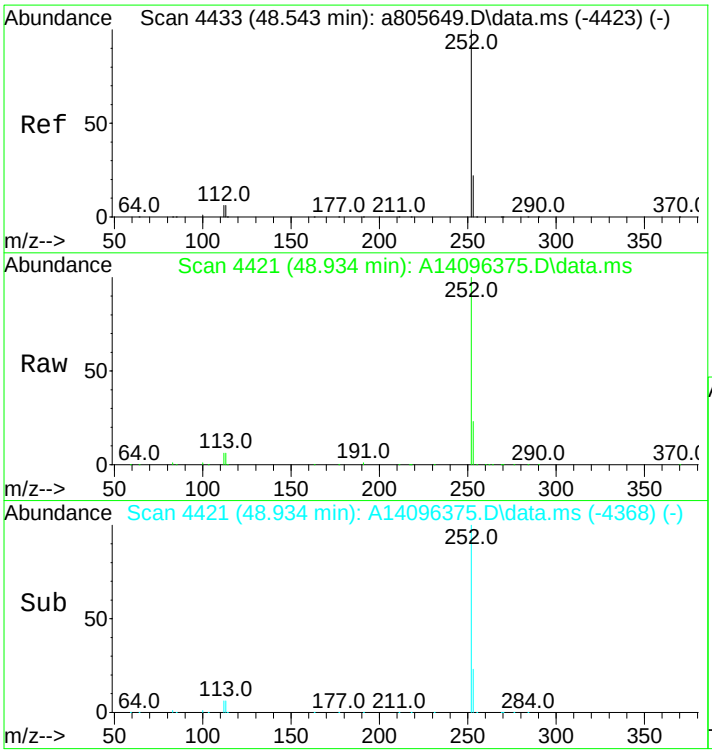


#87
Benzo[a]pyrene
Concen: 4731.89 ng/mL
RT: 48.614 min Scan# 4386
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:252 Resp: 1331526

Ion	Ratio	Lower	Upper
252	100		
253	22.7	22.2	33.2

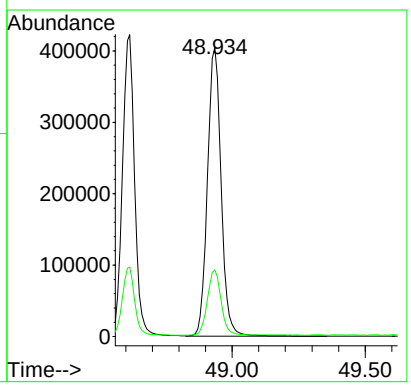


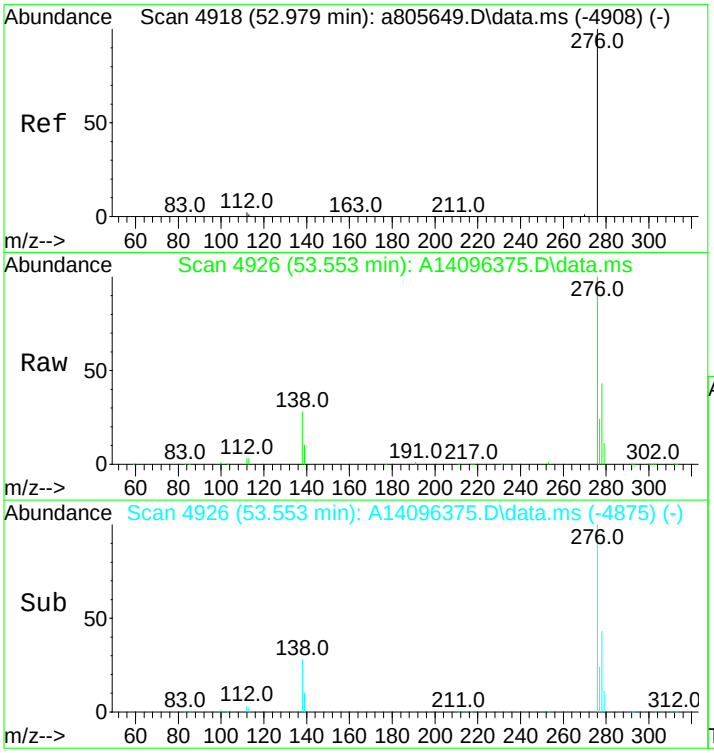


#88
Perylene
Concen: 4859.49 ng/mL
RT: 48.934 min Scan# 4421
Delta R.T. -0.018 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:252 Resp: 1441616

Ion	Ratio	Lower	Upper
252	100		
253	22.5	22.6	34.0#

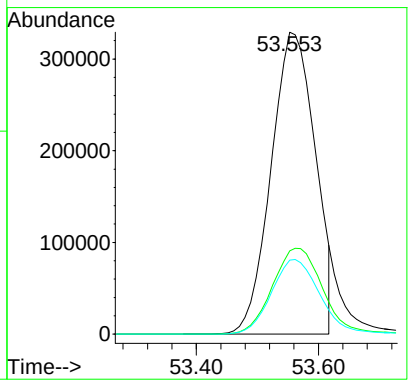


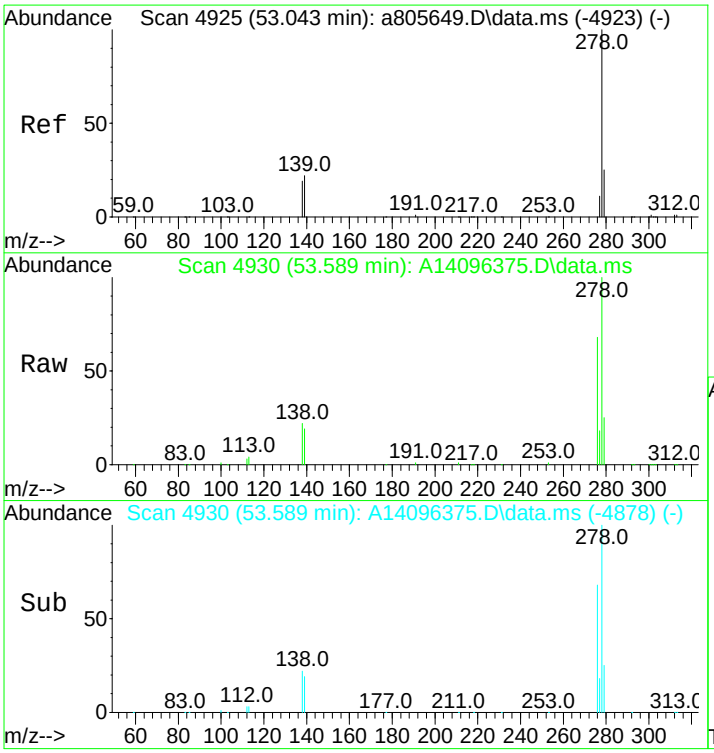


#89
Indeno[1,2,3-cd]pyrene
Concen: 5484.80 ng/mL m
RT: 53.553 min Scan# 4926
Delta R.T. -0.036 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:276 Resp: 1648795

Ion	Ratio	Lower	Upper
276	100		
138	32.7	22.6	33.8
277	27.5	19.8	29.8

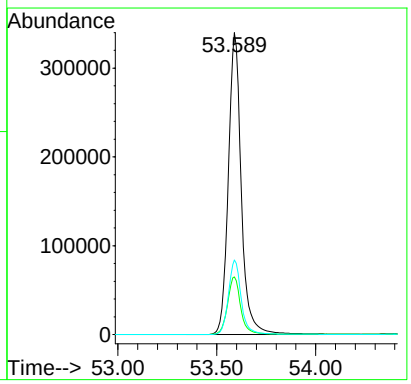


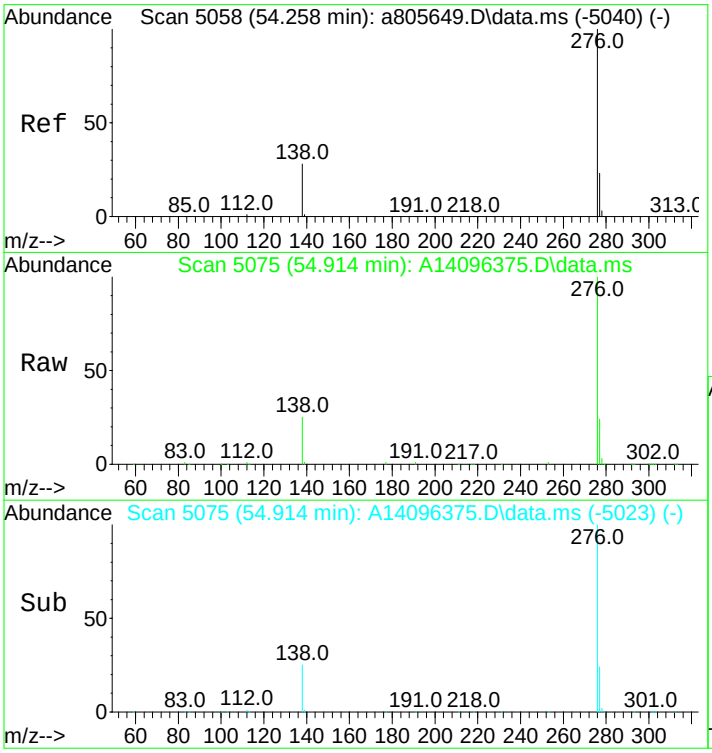


#90
Dibenz[ah]+[ac]anthracene
Concen: 5025.48 ng/mL
RT: 53.589 min Scan# 4930
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:278 Resp: 1546832

Ion	Ratio	Lower	Upper
278	100		
139	19.4	16.2	24.2
279	24.5	19.8	29.8

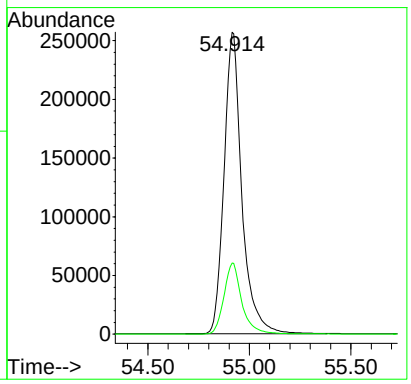


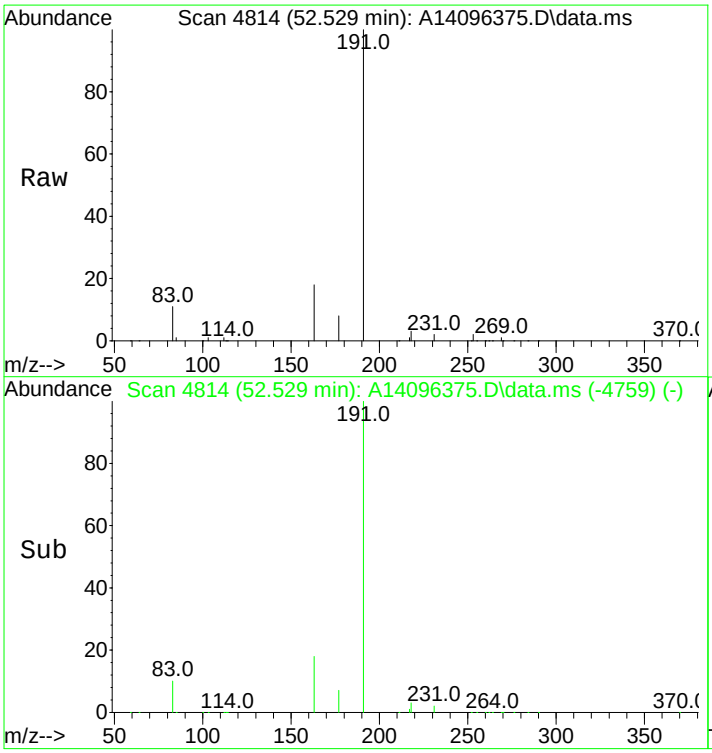


#91
Benzo[g,h,i]perylene
Concen: 4607.12 ng/mL
RT: 54.914 min Scan# 5075
Delta R.T. -0.027 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:276 Resp: 1570974

Ion	Ratio	Lower	Upper
276	100		
277	23.5	19.0	28.6

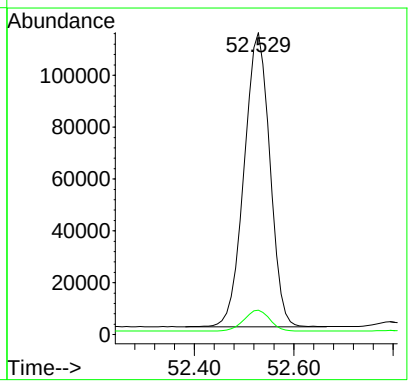


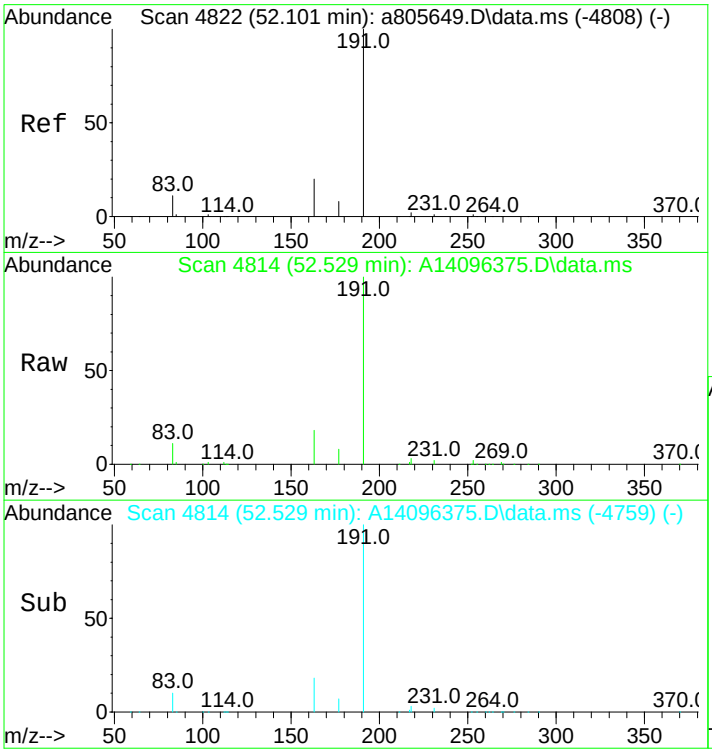


#92
Hopane (T19)
Concen: 5110.03 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:191 Resp: 405695

Ion	Ratio	Lower	Upper
191	100		
177	7.1	12.8	19.2#

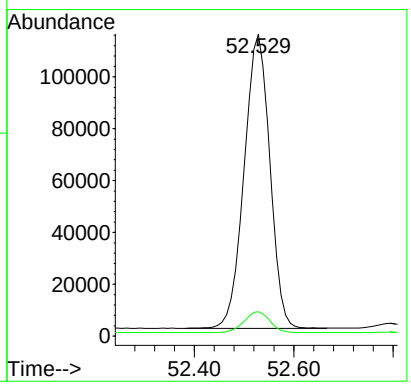




#93
17a(H),21B(H)-hopane - C30H52
Concen: 5110.03 ng/mL
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096375.D
Acq: 18 May 2012 7:14 pm

Tgt Ion:191 Resp: 405695

Ion	Ratio	Lower	Upper
191	100		
177	7.1	12.8	19.2#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096376.D
Acq On : 18 May 2012 8:39 pm
Operator : PAH14:MT
Sample : I1405181206
Misc : WG537732
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:16:29 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.875	164	70124	500.000	ng/mL	-0.04
74) Chrysene-d12	43.377	240	124729	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.903	136	2516983	8485.198	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 848.52%#			
42) Phenanthrene-d10	32.759	188	2328918	9993.597	ng/mL	-0.04
Spiked Amount 1000.000	Range 50 - 130		Recovery = 999.36%#			
86) Benzo[a]pyrene-d12	48.532	264	2396038	9427.369	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 942.74%#			
127) 5B(H)Cholane - Surr	43.961	217	486224	11130.361	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1113.04%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	271545	4028.456	ng/mL	100
4) cis-Decalin	17.758	138	213879	4159.059	ng/mL	100
10) Naphthalene	19.976	128	2710786	8131.812	ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	1835142	8772.809	ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	1772538	8768.452	ng/mL#	100
18) Benzothiophene	20.195	134	2189777	8048.582	ng/mL	100
23) Biphenyl	24.557	154	2178871	8497.257	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.168	156	1598886	9079.372	ng/mL#	100
25) Dibenzofuran	27.650	168	2329640	8868.842	ng/mL	100
26) Acenaphthylene	26.272	152	2850414M4	9537.591	ng/mL	
27) Acenaphthene	27.002	153	1710480	8928.913	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.563	170	1430428	9705.783	ng/mL	99
29) Fluorene	29.037	166	1952602	9529.574	ng/mL	98
33) Dibenzothiophene	32.358	184	2493342	8951.445	ng/mL	100
43) Phenanthrene	32.851	178	2616406	9146.279	ng/mL	100
54) Retene	39.834	234	761928	11913.404	ng/mL	98
55) Anthracene	33.042	178	2626848	9866.729	ng/mL	100
56) Carbazole	33.708	167	2622452	9569.308	ng/mL	99
57) 1-Methylphenanthrene	35.370	192	1981508	10644.918	ng/mL	99
58) Fluoranthene	37.643	202	2733837	10008.045	ng/mL	99
59) Benzo(b)fluorene	40.163	216	1811255	11514.791	ng/mL	100
60) Pyrene	38.528	202	2778916	9897.952	ng/mL	100
66) Naphthobenzothiophene	42.391	234	2452832	10136.185	ng/ml	98
67) Naphthobenzothiophene-2,1	42.391	234	2452832	10136.185	ng/mL	98
75) Benz[a]anthracene	43.322	228	2639773	9873.741	ng/mL	100
76) Chrysene	43.486	228	2546871	8846.007	ng/mL	100
77) Chrysene/Triphenylene	43.486	228	2546871	8846.007	ng/mL	100
82) Benzo[b]fluoranthene	47.398	252	2724668	8991.943	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.480	252	2822483	8613.903	ng/mL	95
85) Benzo[e]pyrene	48.422	252	2577797	8408.584	ng/mL	93
87) Benzo[a]pyrene	48.614	252	2486724	8695.804	ng/mL	91
88) Perylene	48.934	252	2677793	8882.103	ng/mL	89
89) Indeno[1,2,3-cd]pyrene	53.571	276	3128681M3	10241.246	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.598	278	2899029	9267.966	ng/mL	99
91) Benzo[g,h,i]perylene	54.923	276	2946968	8504.196	ng/mL	100
92) Hopane (T19)	52.529	191	796681M3	9874.294	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.529	191	797009M3	9878.359	ng/mL	

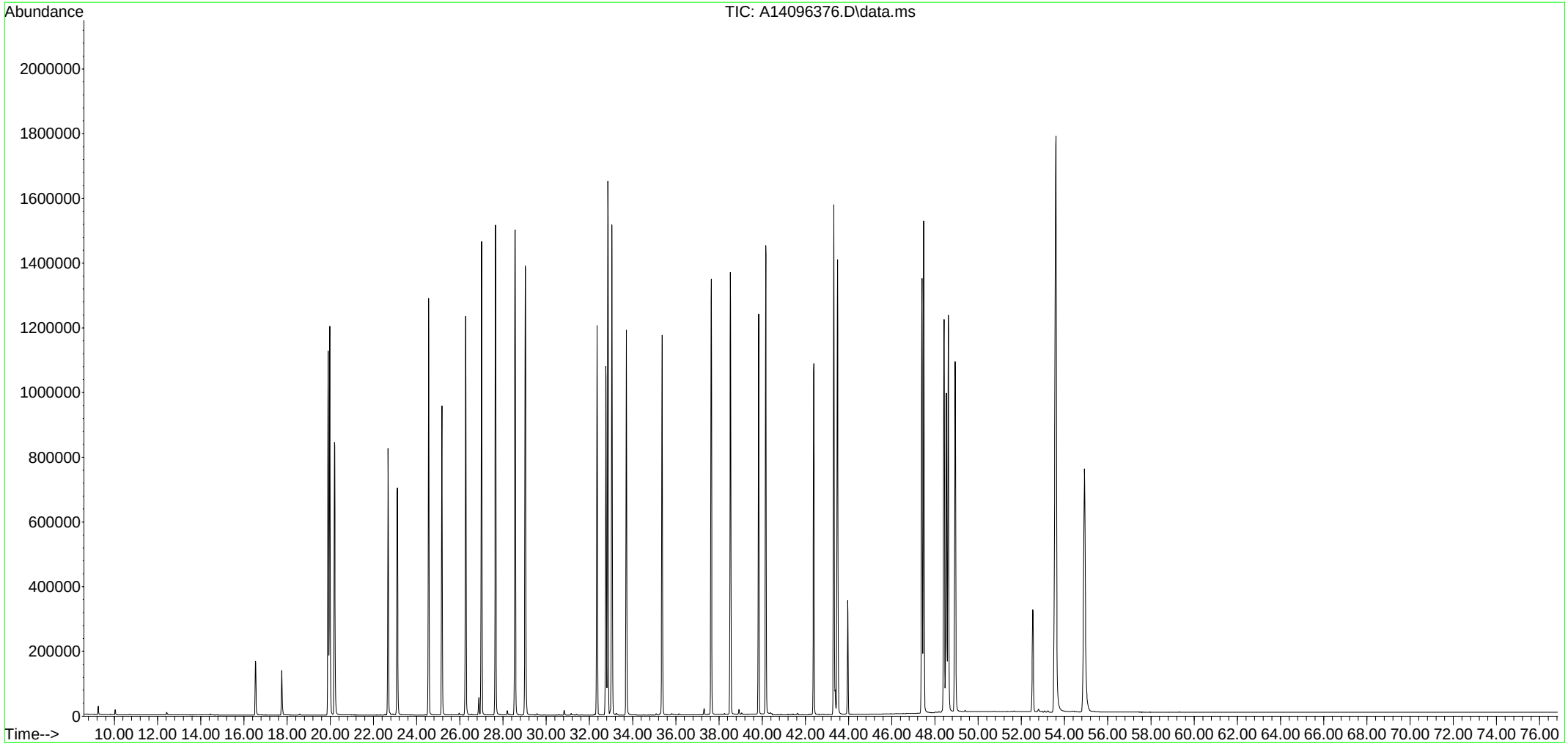
(#) = qualifier out of range (m) = manual integration (+) = signals summed

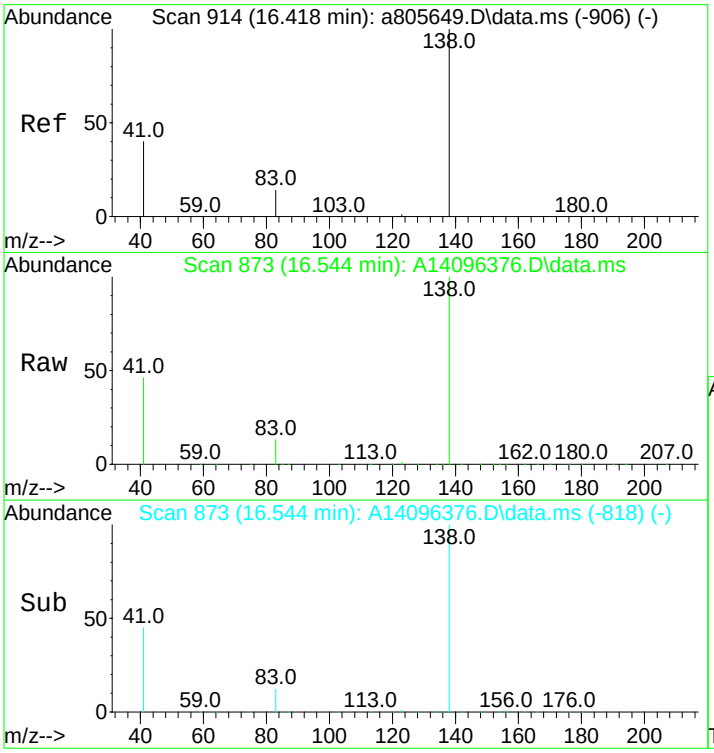
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096376.D
Acq On : 18 May 2012 8:39 pm
Operator : PAH14:MT
Sample : I1405181206
Misc : WG537732
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:16:29 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

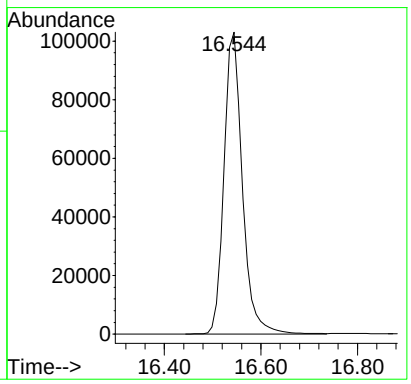
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

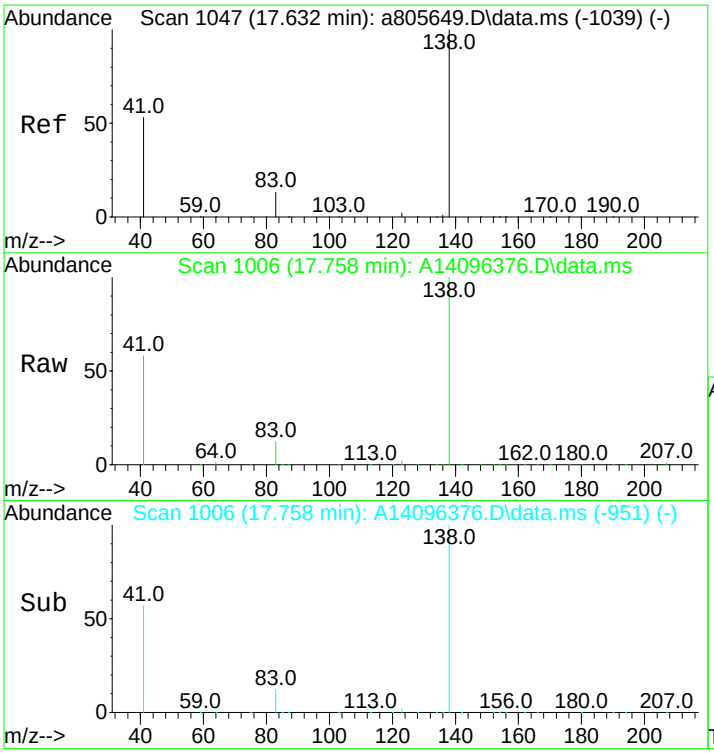




#3
trans-Decalin
Concen: 4028.46 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

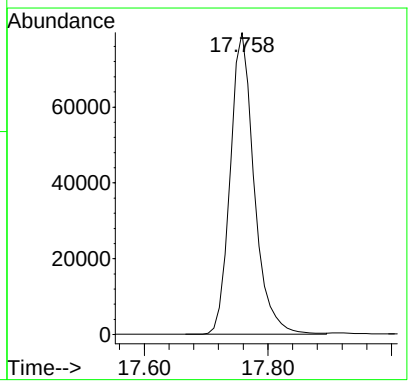
Tgt Ion:138 Resp: 271545

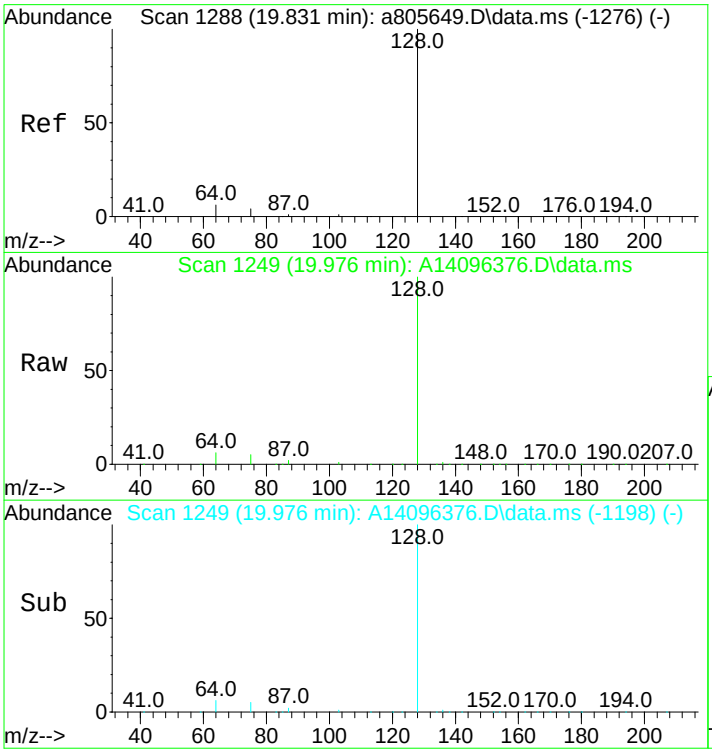




#4
cis-Decalin
Concen: 4159.06 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:138 Resp: 213879

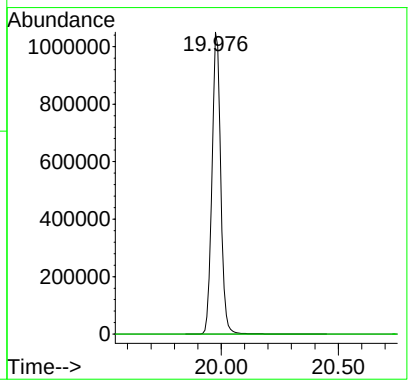


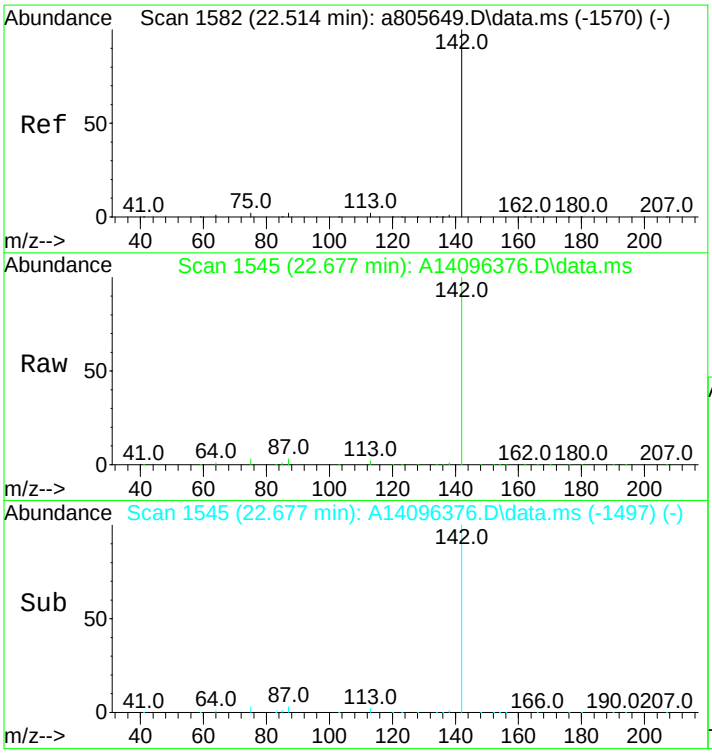


#10
Naphthalene
Concen: 8131.81 ng/mL
RT: 19.976 min Scan# 1249
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:128 Resp: 2710786

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

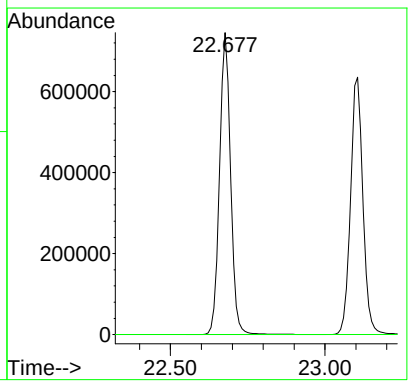


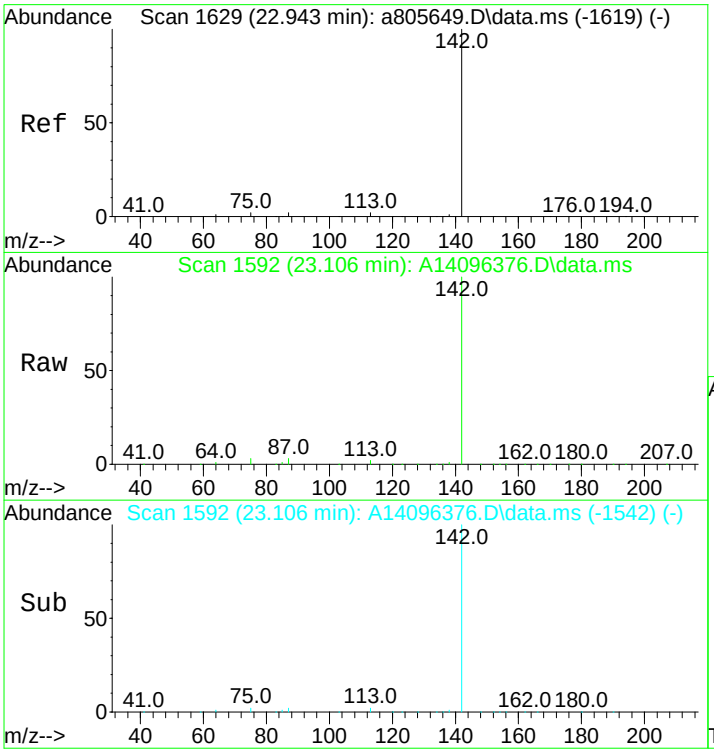


#16
2-Methylnaphthalene
Concen: 8772.81 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.064 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:142 Resp: 1835142

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

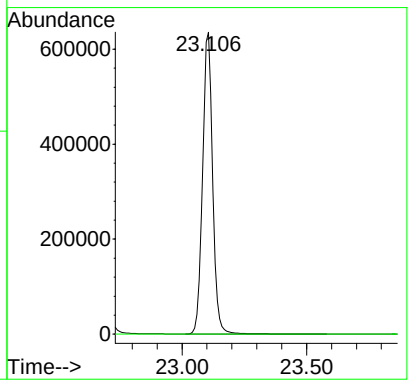


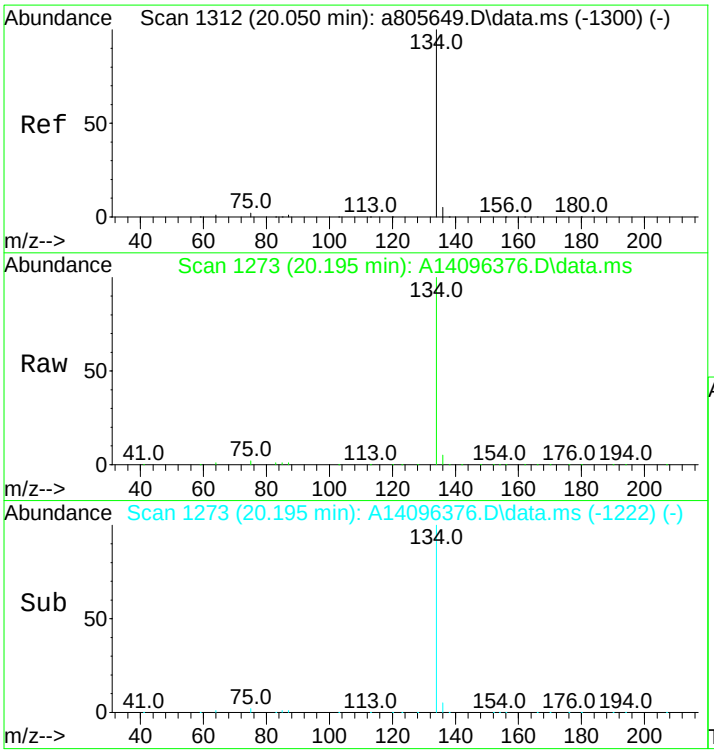


#17
1-Methylnaphthalene
Concen: 8768.45 ng/mL
RT: 23.106 min Scan# 1592
Delta R.T. -0.046 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:142 Resp: 1772538

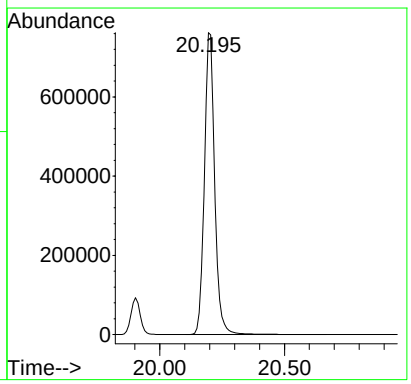
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

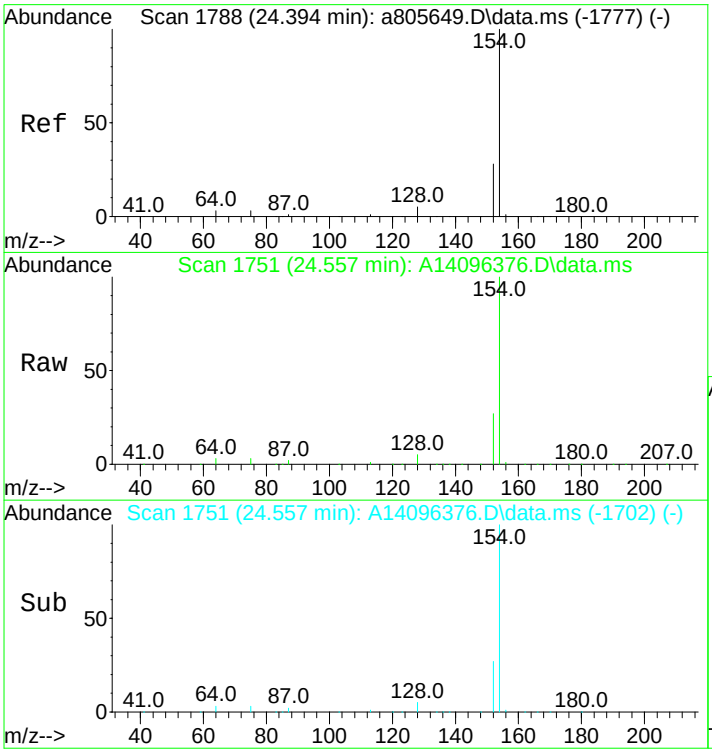




#18
Benzothiophene
Concen: 8048.58 ng/mL
RT: 20.195 min Scan# 1273
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:134 Resp: 2189777

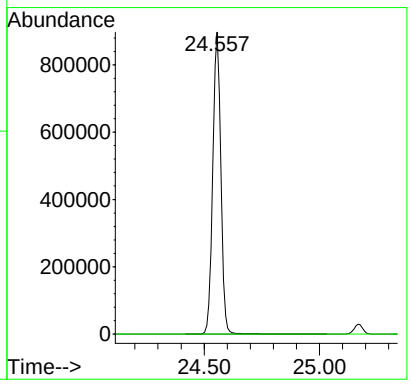


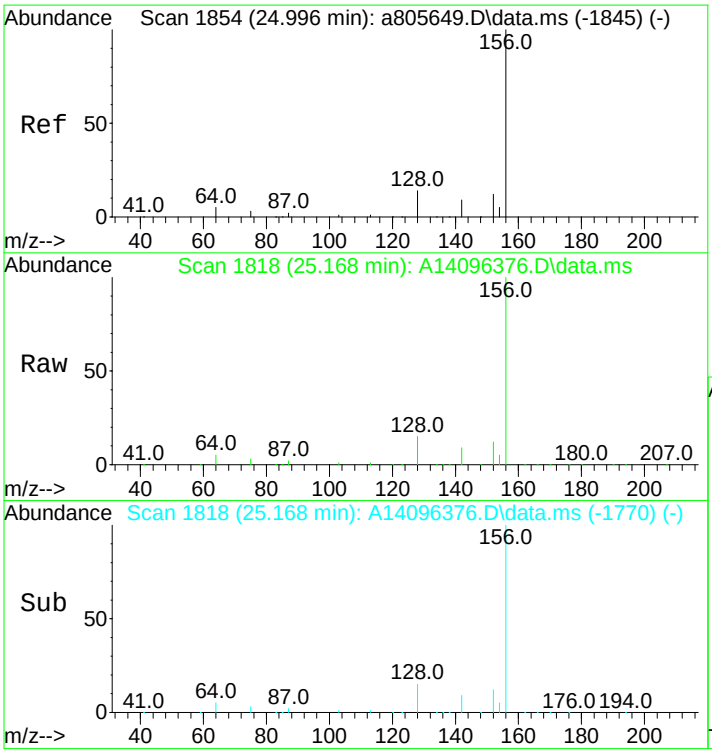


#23
Biphenyl
Concen: 8497.26 ng/mL
RT: 24.557 min Scan# 1751
Delta R.T. -0.055 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:154 Resp: 2178871

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

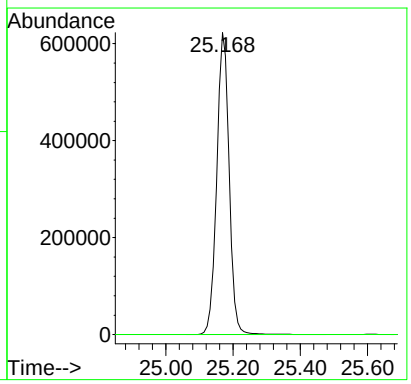


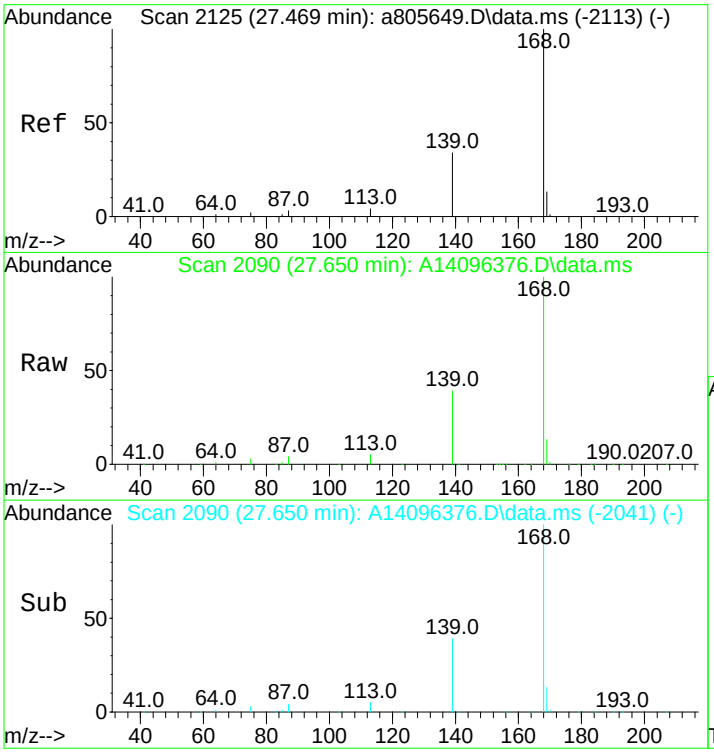


#24
2,6-Dimethylnaphthalene
Concen: 9079.37 ng/mL
RT: 25.168 min Scan# 1818
Delta R.T. -0.064 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:156 Resp: 1598886

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

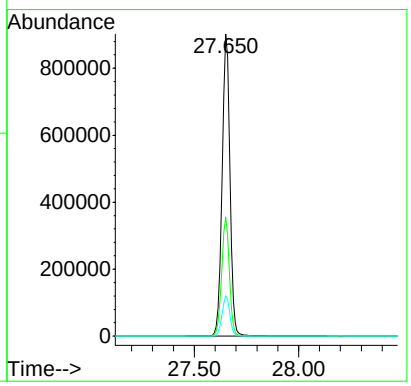


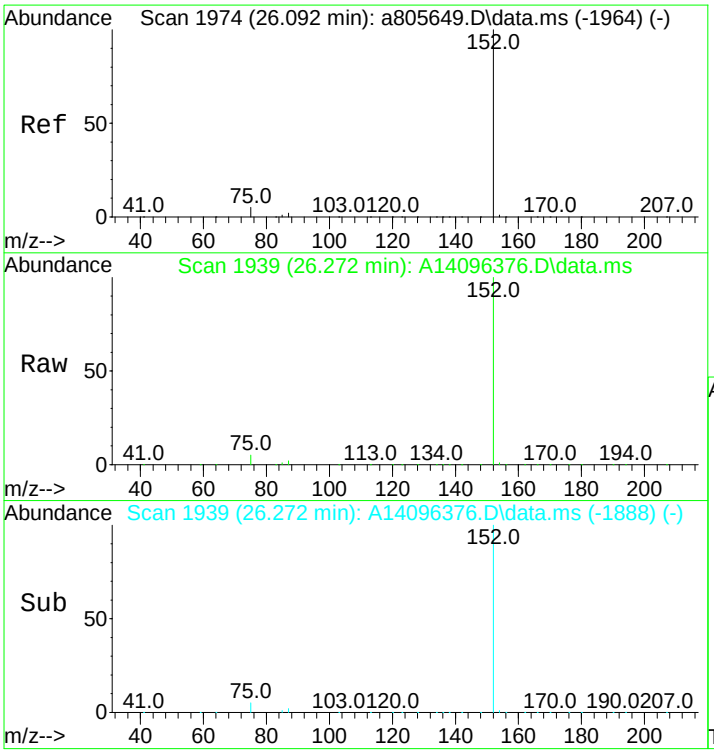


#25
Dibenzofuran
Concen: 8868.84 ng/mL
RT: 27.650 min Scan# 2090
Delta R.T. -0.055 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:168 Resp: 2329640

Ion	Ratio	Lower	Upper
168	100		
139	38.9	30.9	46.3
169	13.3	10.6	16.0

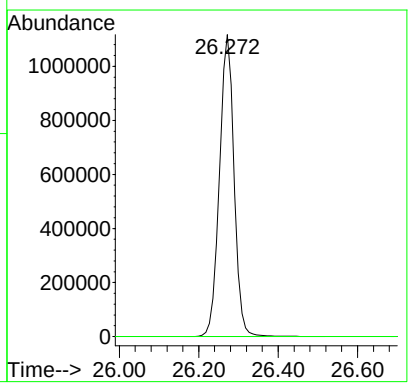


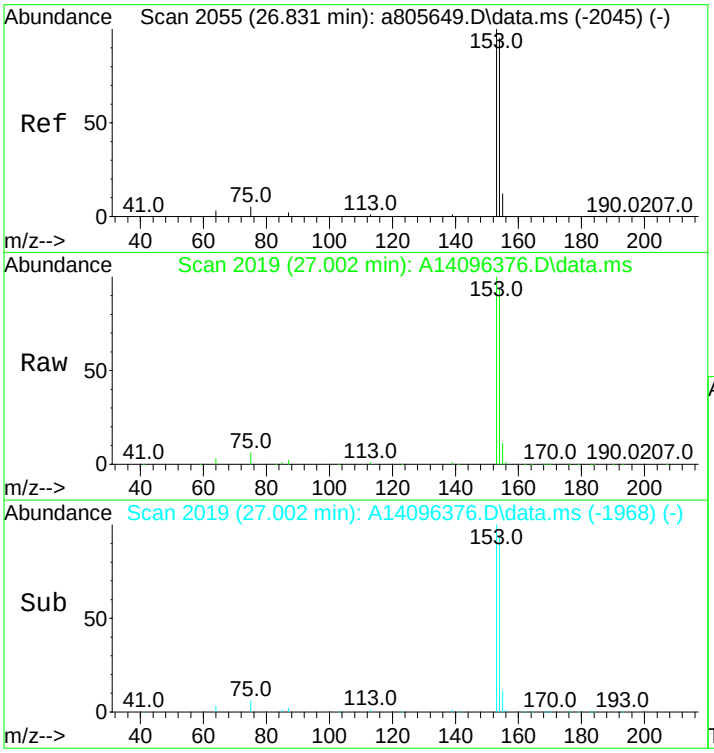


#26
Acenaphthylene
Concen: 9537.59 ng/mL m
RT: 26.272 min Scan# 1939
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:152 Resp: 2850414

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

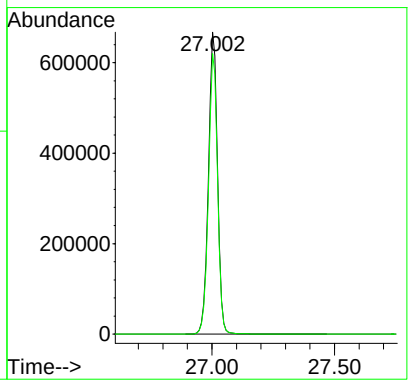


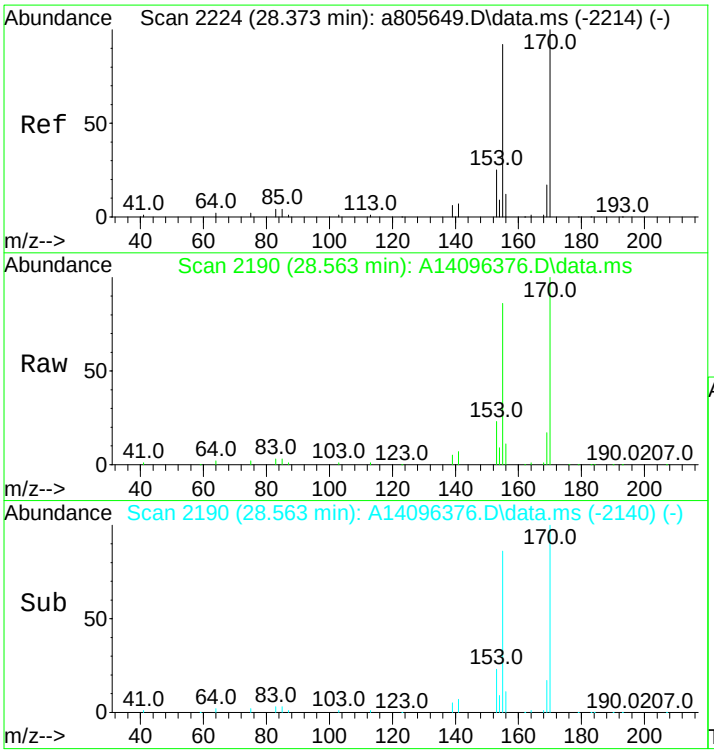


#27
Acenaphthene
Concen: 8928.91 ng/mL
RT: 27.002 min Scan# 2019
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:153 Resp: 1710480

Ion	Ratio	Lower	Upper
153	100		
154	92.6	73.6	110.4

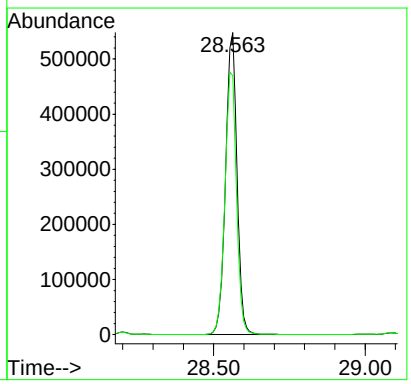


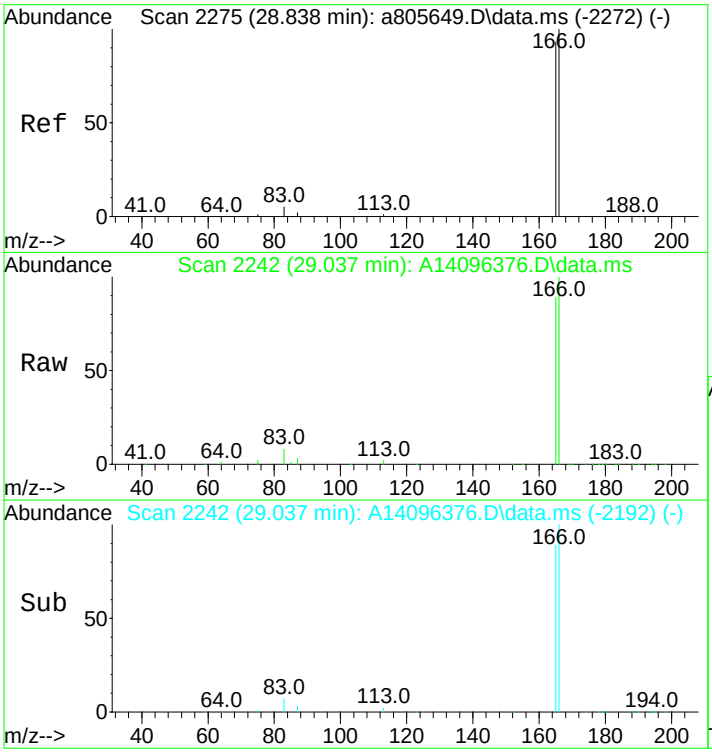


#28
2,3,5-Trimethylnaphthalene
Concen: 9705.78 ng/mL
RT: 28.563 min Scan# 2190
Delta R.T. -0.046 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:170 Resp: 1430428

Ion	Ratio	Lower	Upper
170	100		
155	88.5	71.2	106.8

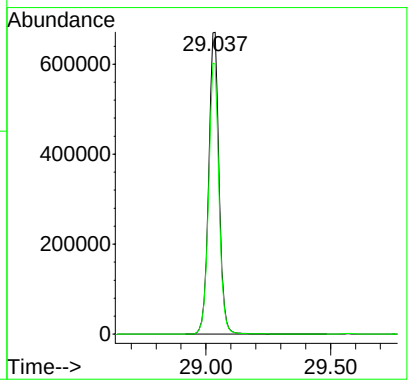


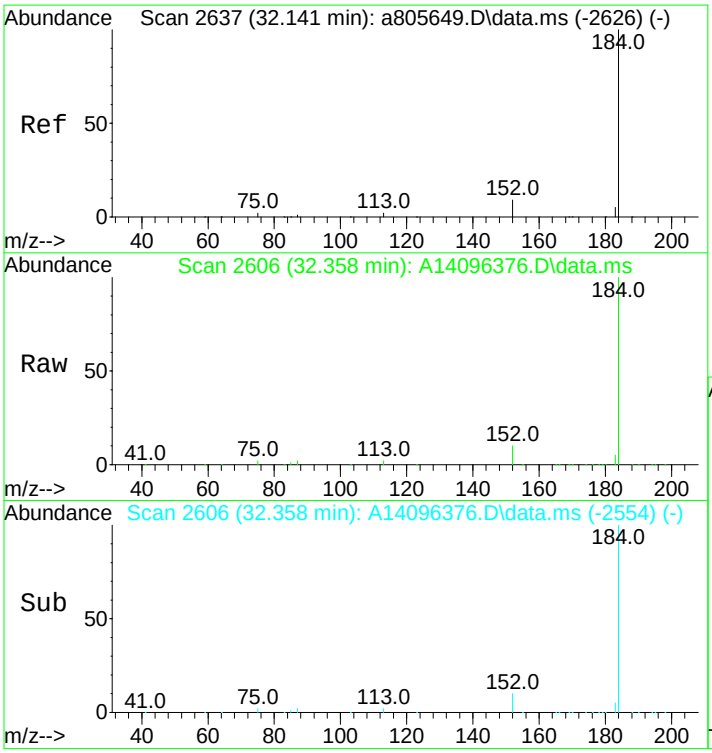


#29
Fluorene
Concen: 9529.57 ng/mL
RT: 29.037 min Scan# 2242
Delta R.T. -0.046 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:166 Resp: 1952602

Ion	Ratio	Lower	Upper
166	100		
165	90.1	73.3	109.9

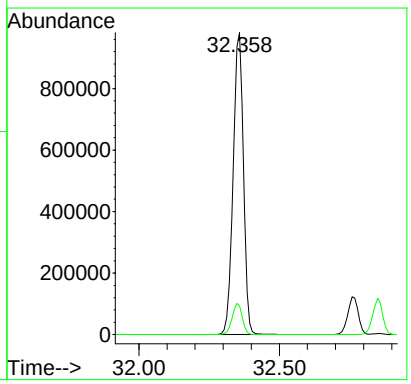


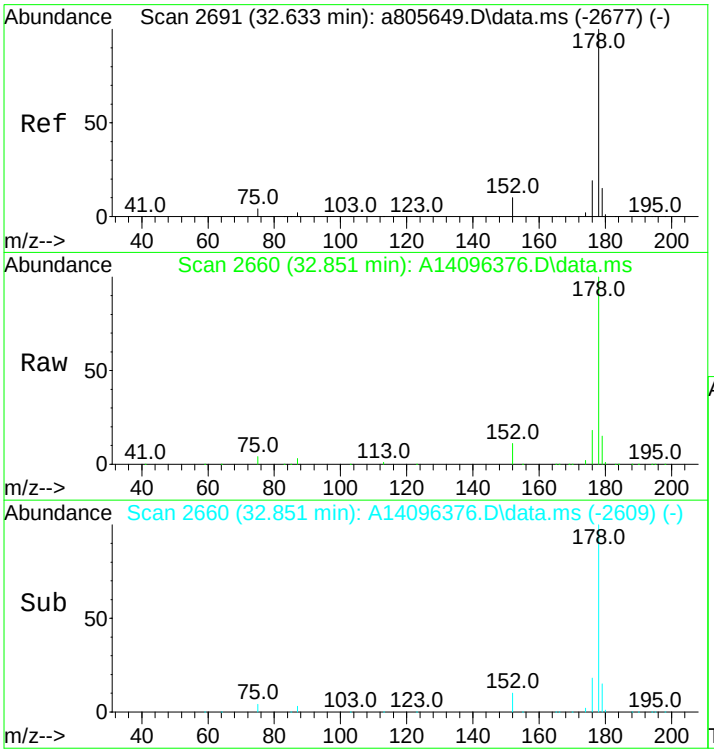


#33
Dibenzothiophene
Concen: 8951.45 ng/mL
RT: 32.358 min Scan# 2606
Delta R.T. -0.027 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:184 Resp: 2493342

Ion	Ratio	Lower	Upper
184	100		
152	10.2	8.2	12.2

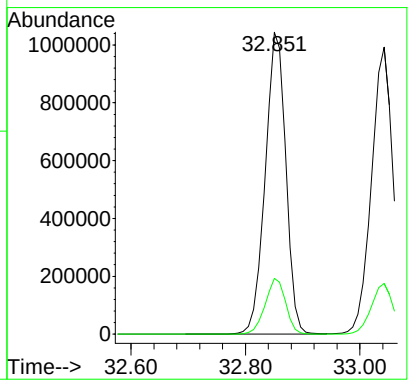


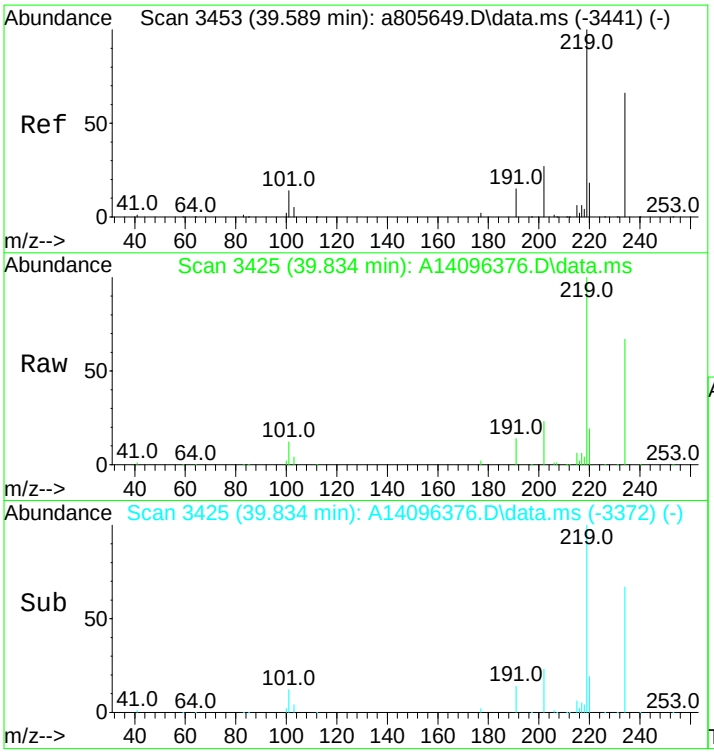


#43
Phenanthrene
Concen: 9146.28 ng/mL
RT: 32.851 min Scan# 2660
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:178 Resp: 2616406

Ion	Ratio	Lower	Upper
178	100		
176	18.3	14.7	22.1

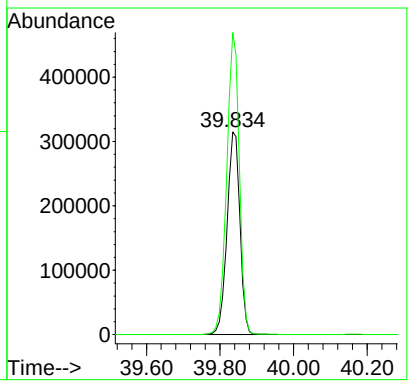


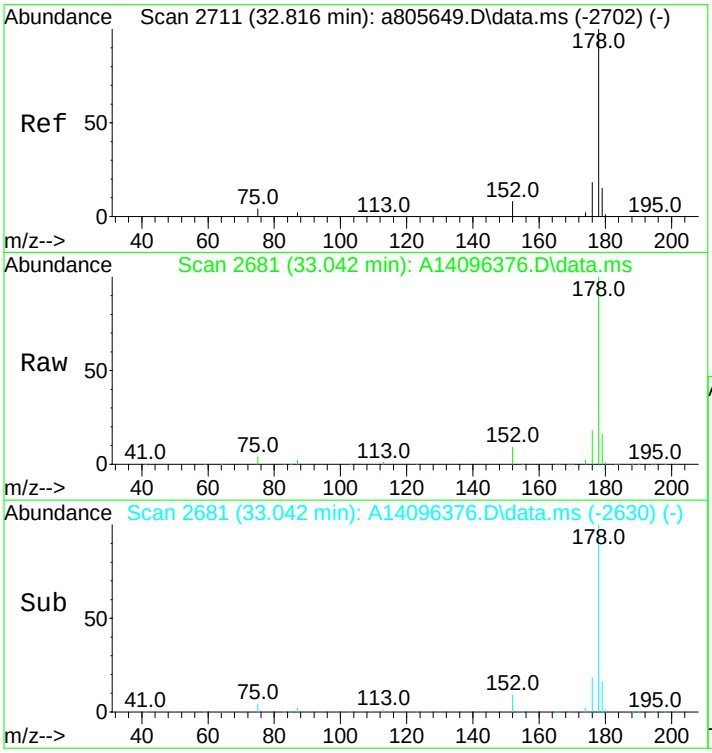


#54
Retene
Concen: 11913.40 ng/mL
RT: 39.834 min Scan# 3425
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:234 Resp: 761928

Ion	Ratio	Lower	Upper
234	100		
219	146.1	118.7	178.1

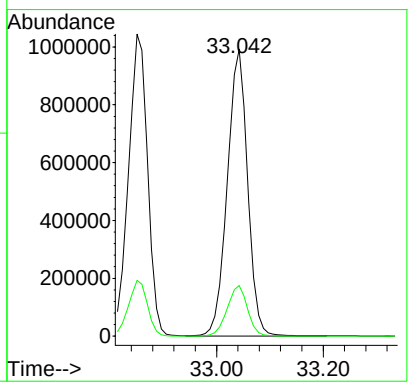


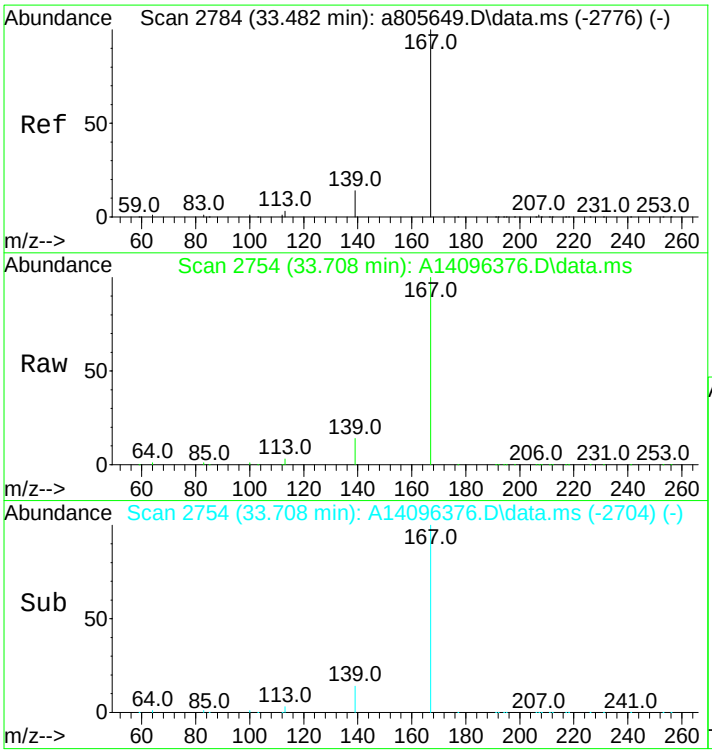


#55
Anthracene
Concen: 9866.73 ng/mL
RT: 33.042 min Scan# 2681
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:178 Resp: 2626848

Ion	Ratio	Lower	Upper
178	100		
176	17.6	14.2	21.4

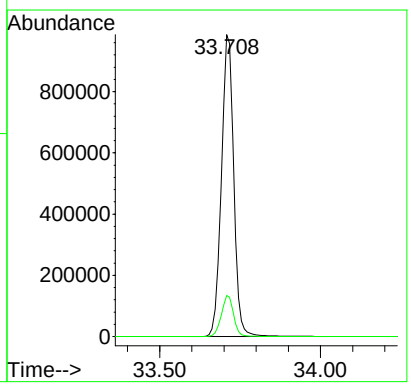


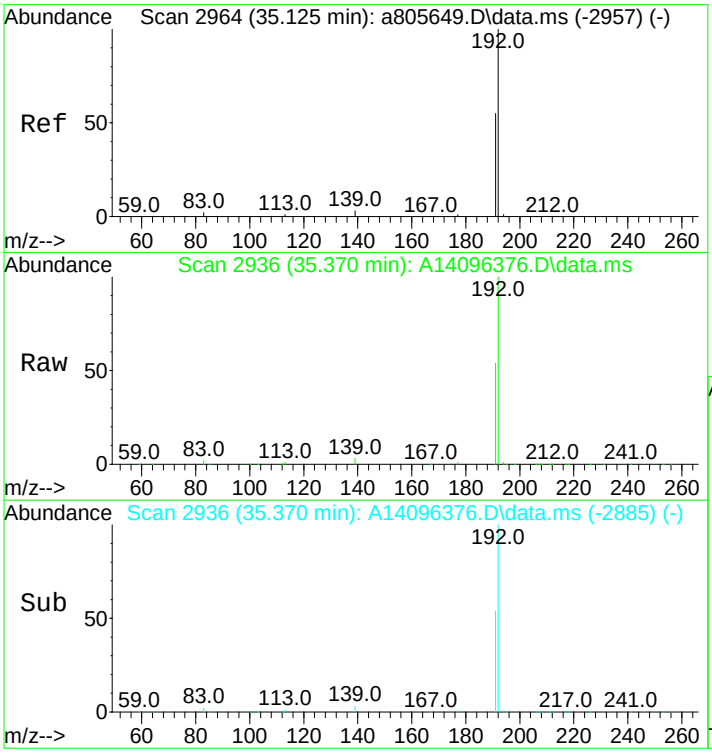


#56
Carbazole
Concen: 9569.31 ng/mL
RT: 33.708 min Scan# 2754
Delta R.T. -0.046 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:167 Resp: 2622452

Ion	Ratio	Lower	Upper
167	100		
139	13.5	11.0	16.4

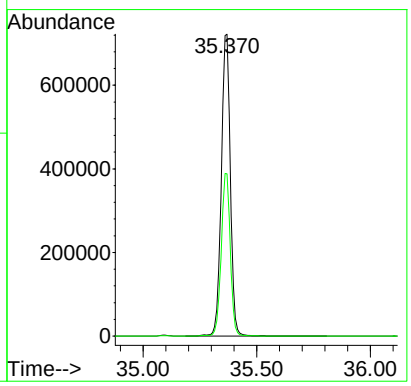


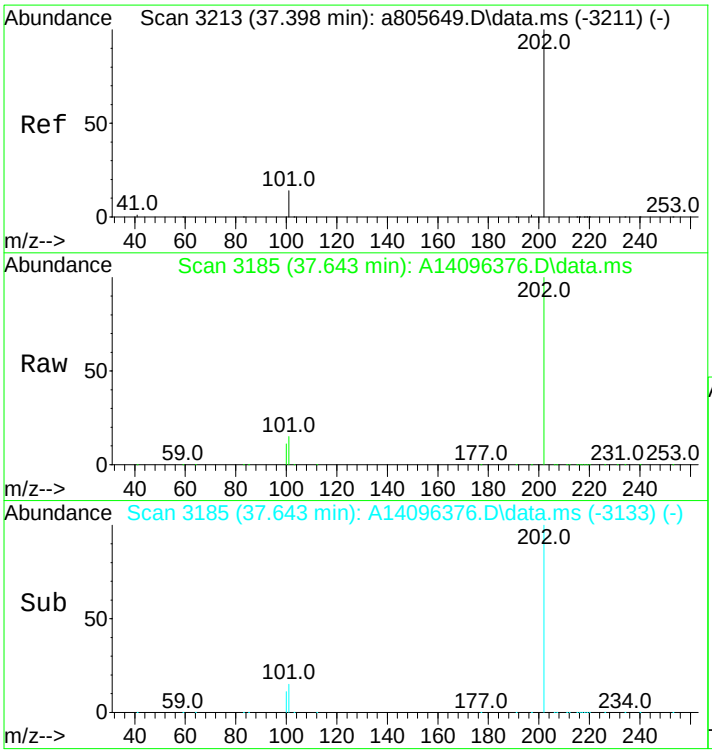


#57
1-Methylphenanthrene
Concen: 10644.92 ng/mL
RT: 35.370 min Scan# 2936
Delta R.T. -0.036 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:192 Resp: 1981508

Ion	Ratio	Lower	Upper
192	100		
191	54.1	43.8	65.8

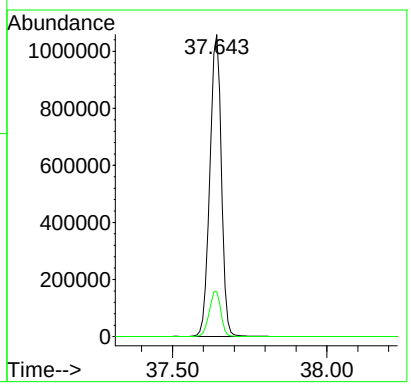


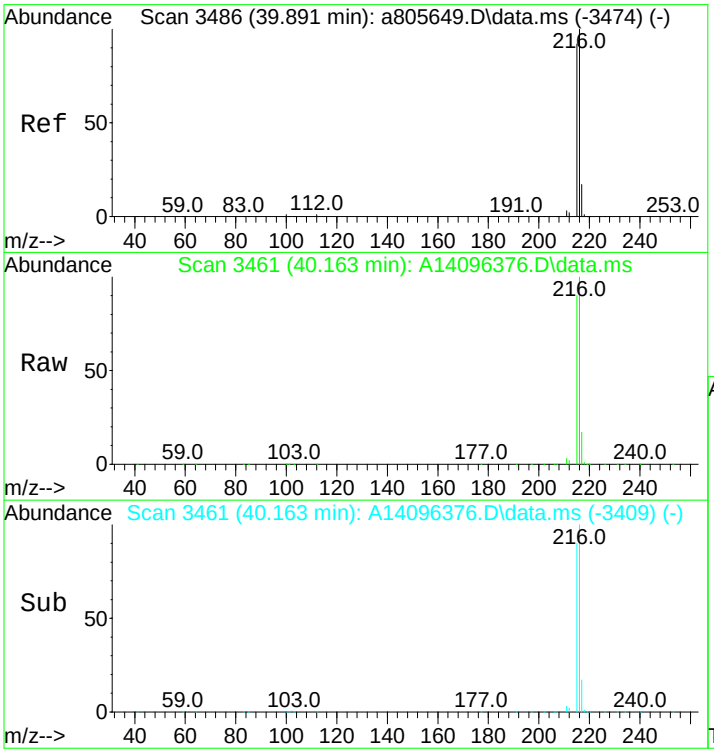


#58
Fluoranthene
Concen: 10008.04 ng/mL
RT: 37.643 min Scan# 3185
Delta R.T. -0.027 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:202 Resp: 2733837

Ion	Ratio	Lower	Upper
202	100		
101	15.1	12.3	18.5

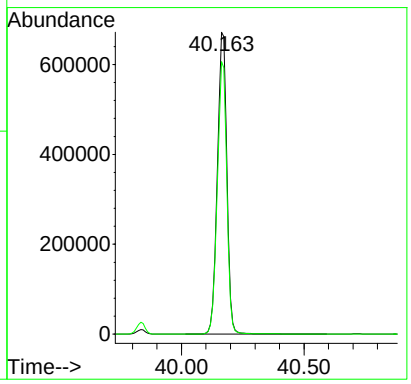


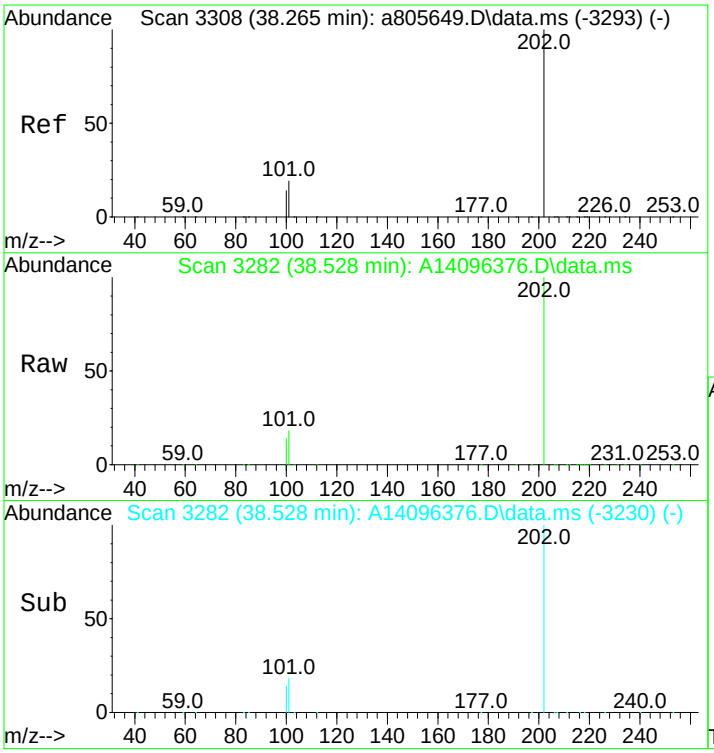


#59
Benzo(b)fluorene
Concen: 11514.79 ng/mL
RT: 40.163 min Scan# 3461
Delta R.T. -0.027 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:216 Resp: 1811255

Ion	Ratio	Lower	Upper
216	100		
215	90.1	72.2	108.4

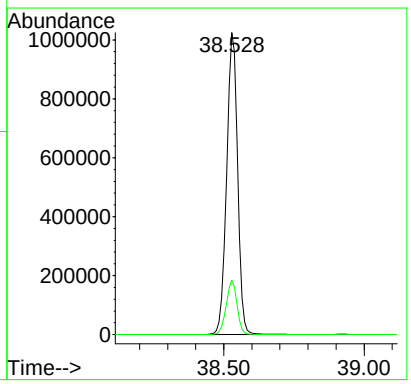


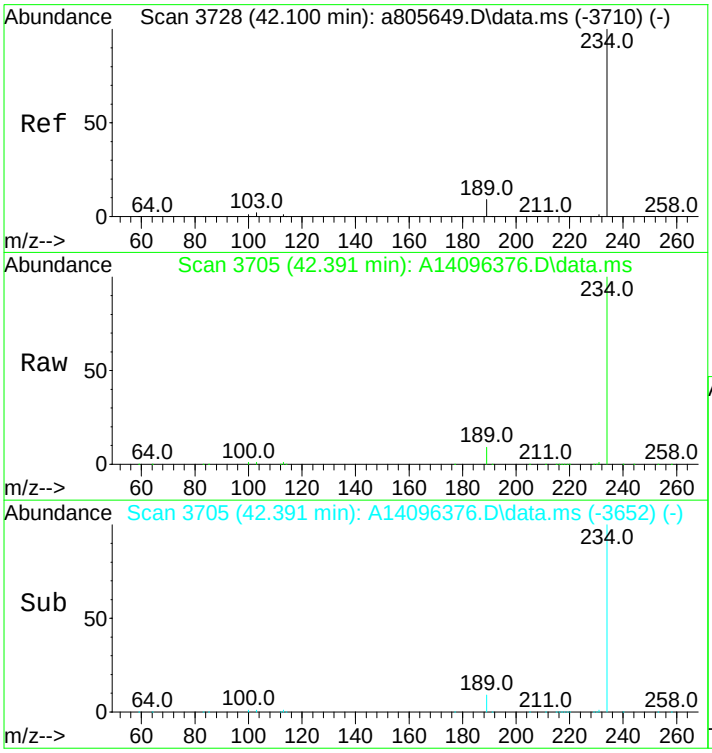


#60
Pyrene
Concen: 9897.95 ng/mL
RT: 38.528 min Scan# 3282
Delta R.T. -0.027 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:202 Resp: 2778916

Ion	Ratio	Lower	Upper
202	100		
101	17.7	14.2	21.2

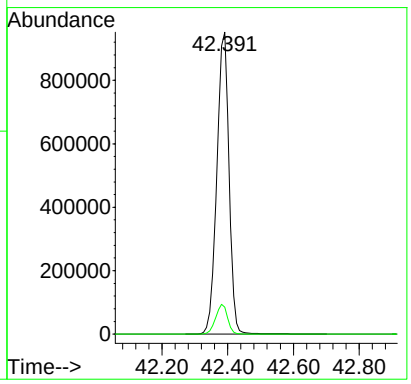


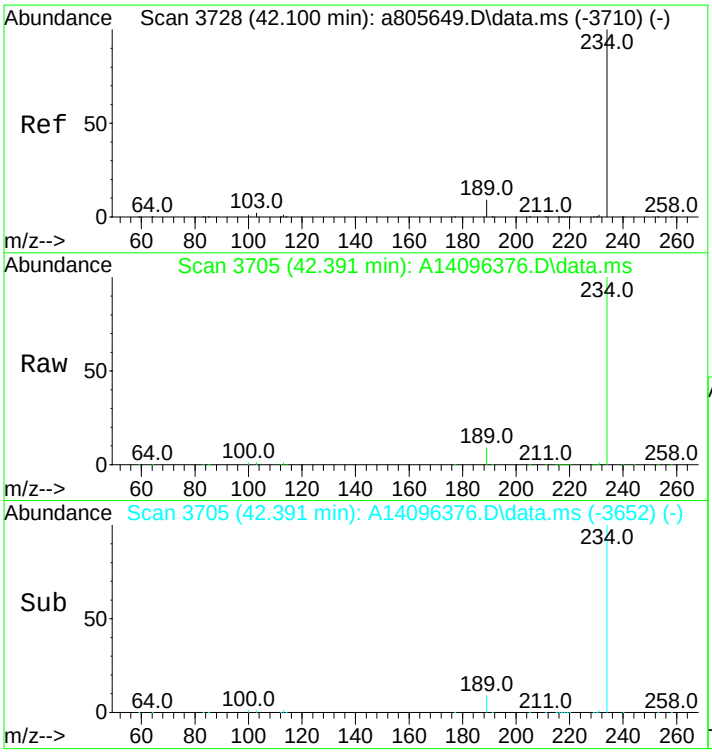


#66
Naphthobenzothiophene
Concen: 10136.19 ng/ml
RT: 42.391 min Scan# 3705
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:234 Resp: 2452832

Ion	Ratio	Lower	Upper
234	100		
189	9.7	7.3	10.9

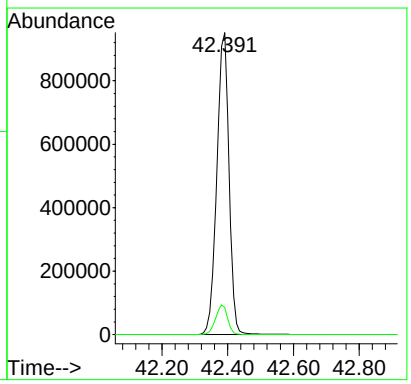


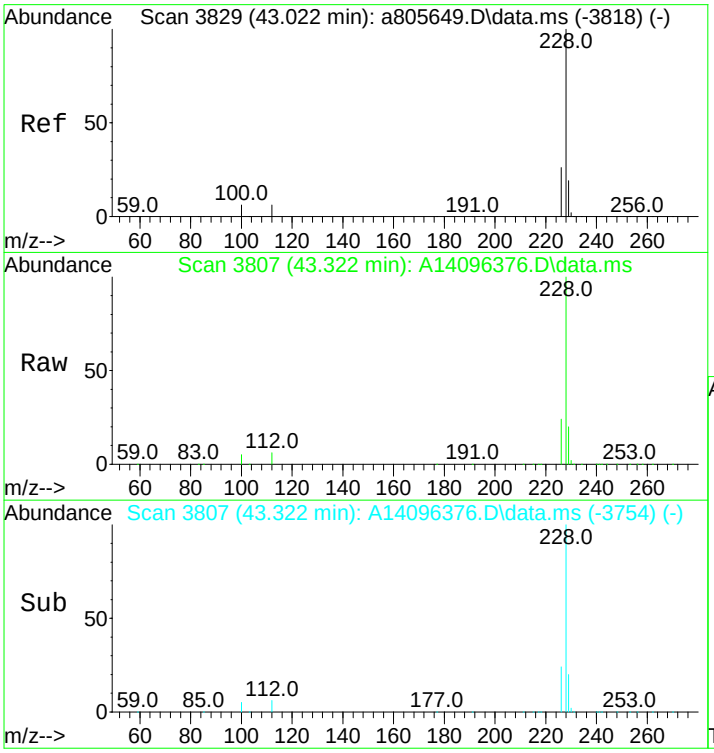


#67
Naphthobenzothiophene-2,1-D
Concen: 10136.19 ng/mL
RT: 42.391 min Scan# 3705
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:234 Resp: 2452832

Ion	Ratio	Lower	Upper
234	100		
189	9.7	7.3	10.9

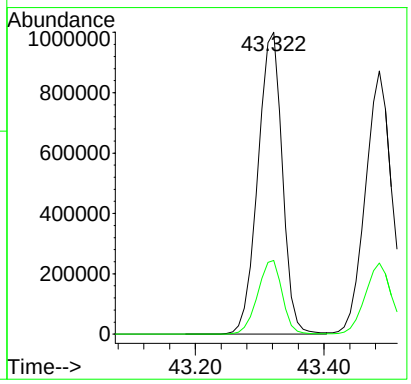


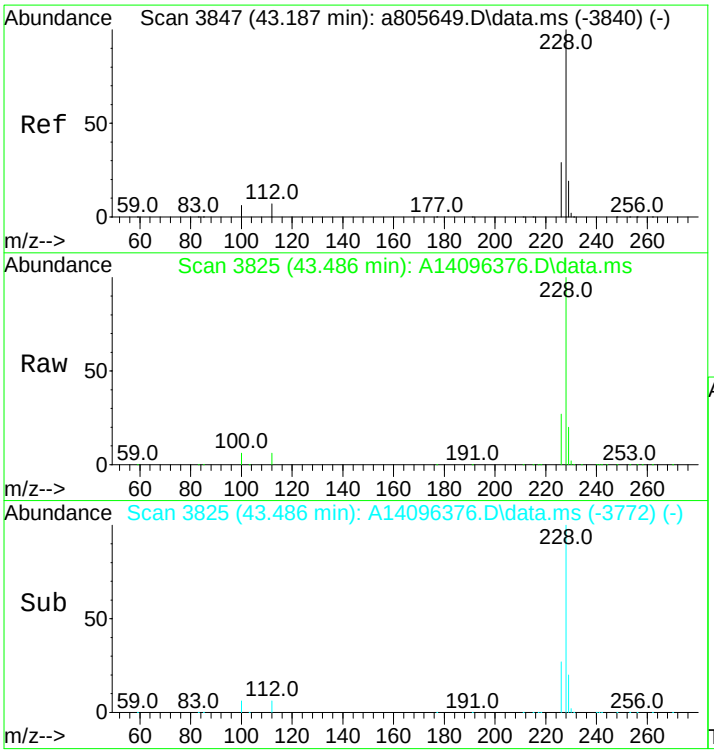


#75
Benz[a]anthracene
Concen: 9873.74 ng/mL
RT: 43.322 min Scan# 3807
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:228 Resp: 2639773

Ion	Ratio	Lower	Upper
228	100		
226	24.5	19.6	29.4

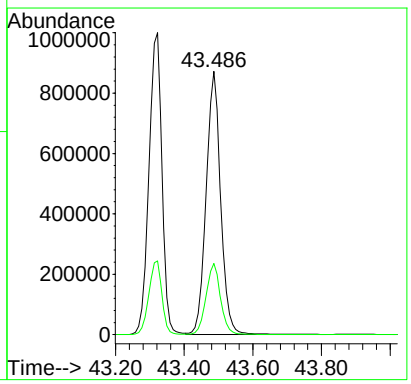


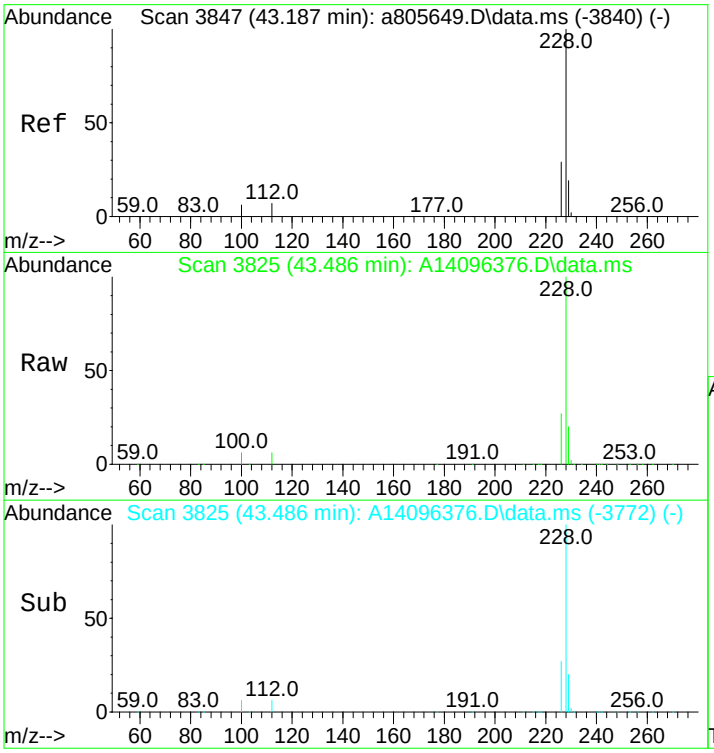


#76
Chrysene
Concen: 8846.01 ng/mL
RT: 43.486 min Scan# 3825
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:228 Resp: 2546871

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

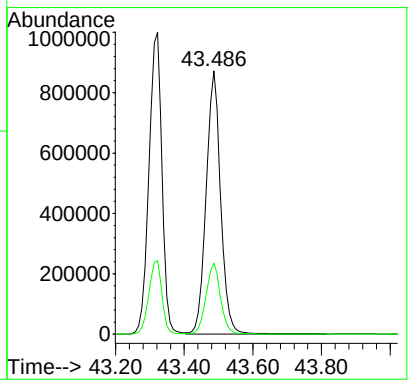


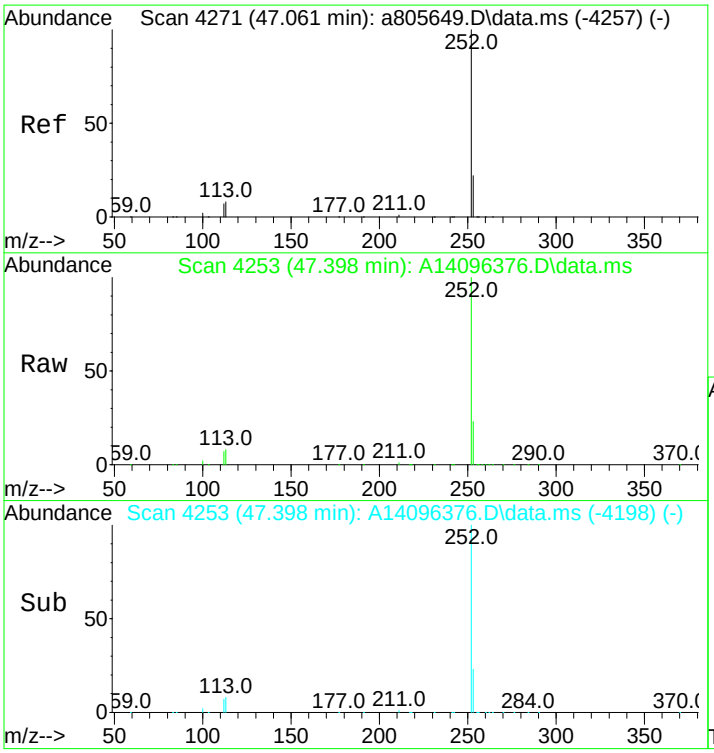


#77
Chrysene/Triphenylene
Concen: 8846.01 ng/mL
RT: 43.486 min Scan# 3825
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:228 Resp: 2546871

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

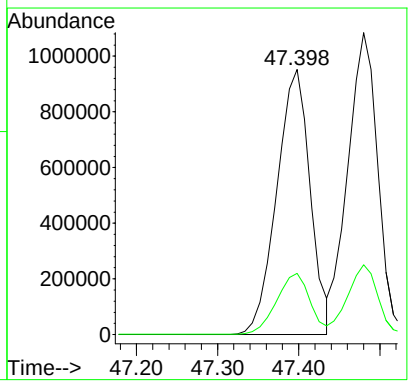


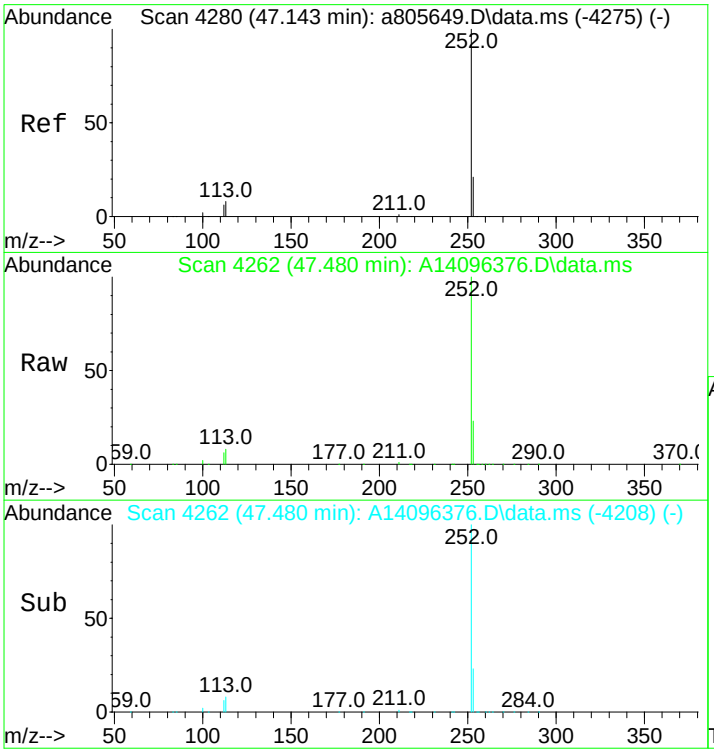


#82
Benzo[b]fluoranthene
Concen: 8991.94 ng/mL
RT: 47.398 min Scan# 4253
Delta R.T. 0.000 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:252 Resp: 2724668

Ion	Ratio	Lower	Upper
252	100		
253	22.9	20.6	30.8

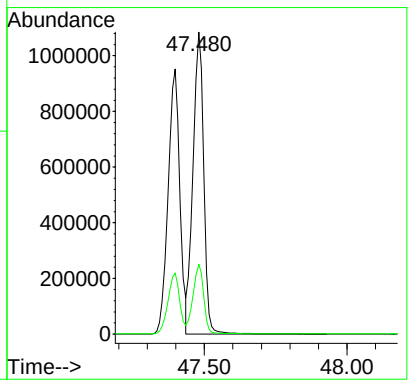


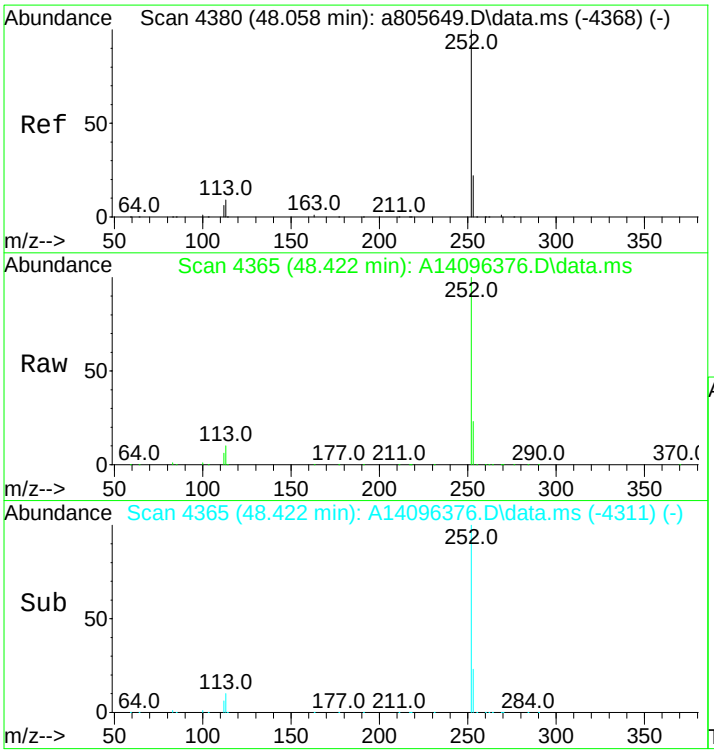


#83
Benzo[j]+[k]fluoranthene
Concen: 8613.90 ng/mL
RT: 47.480 min Scan# 4262
Delta R.T. -0.009 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:252 Resp: 2822483

Ion	Ratio	Lower	Upper
252	100		
253	22.9	20.2	30.4

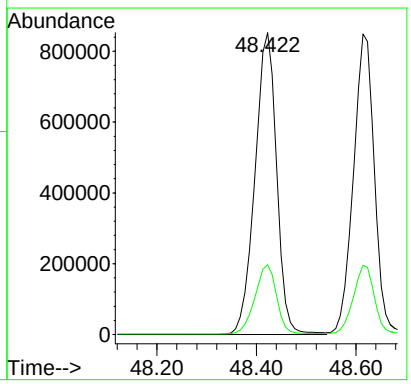


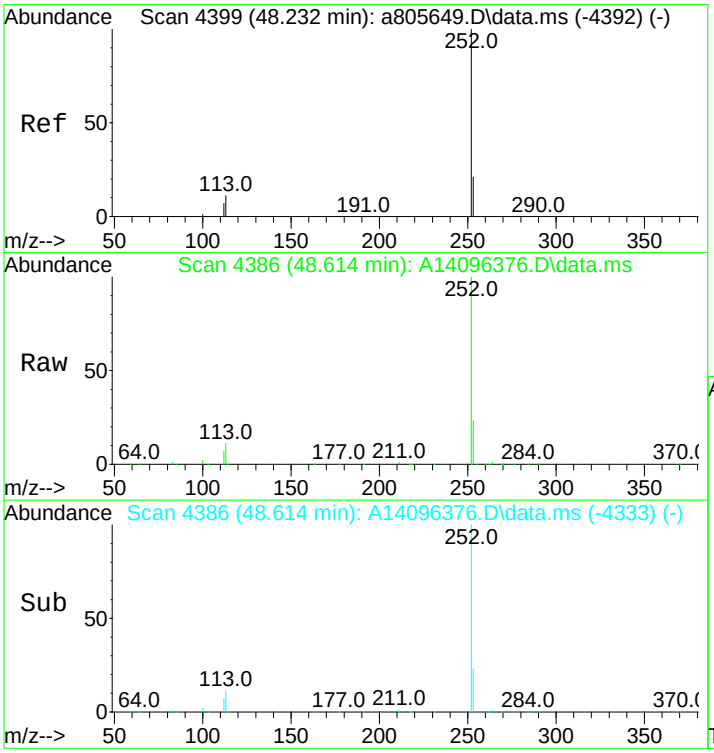


#85
Benzo[e]pyrene
Concen: 8408.58 ng/mL
RT: 48.422 min Scan# 4365
Delta R.T. -0.009 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:252 Resp: 2577797

Ion	Ratio	Lower	Upper
252	100		
253	22.9	21.3	31.9

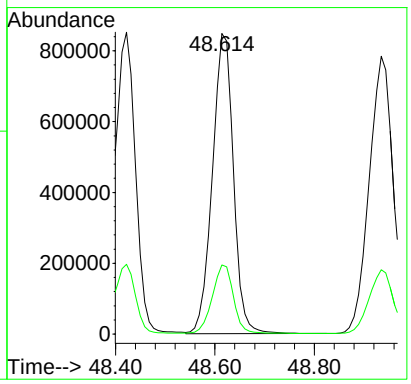


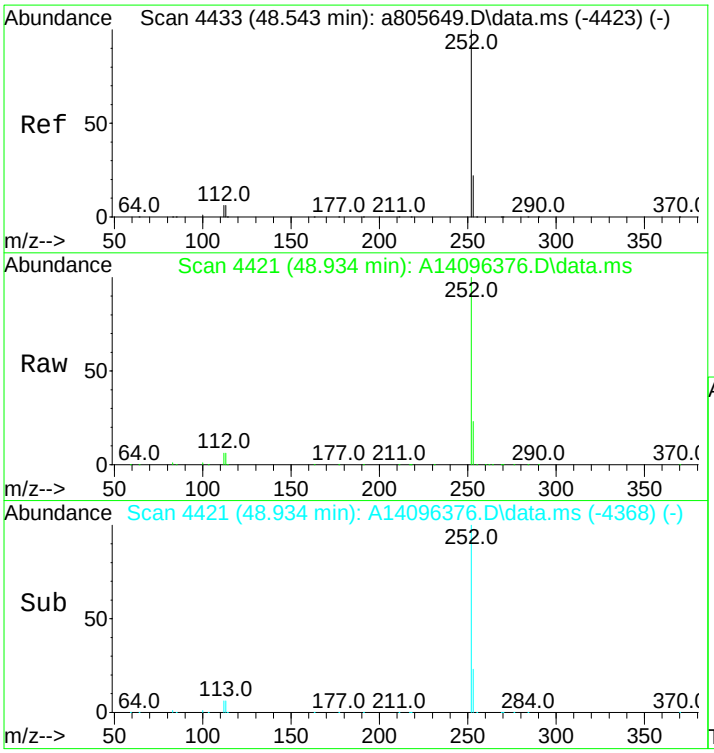


#87
Benzo[a]pyrene
Concen: 8695.80 ng/mL
RT: 48.614 min Scan# 4386
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:252 Resp: 2486724

Ion	Ratio	Lower	Upper
252	100		
253	22.8	22.2	33.2

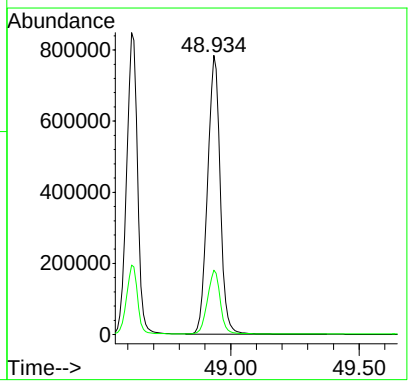


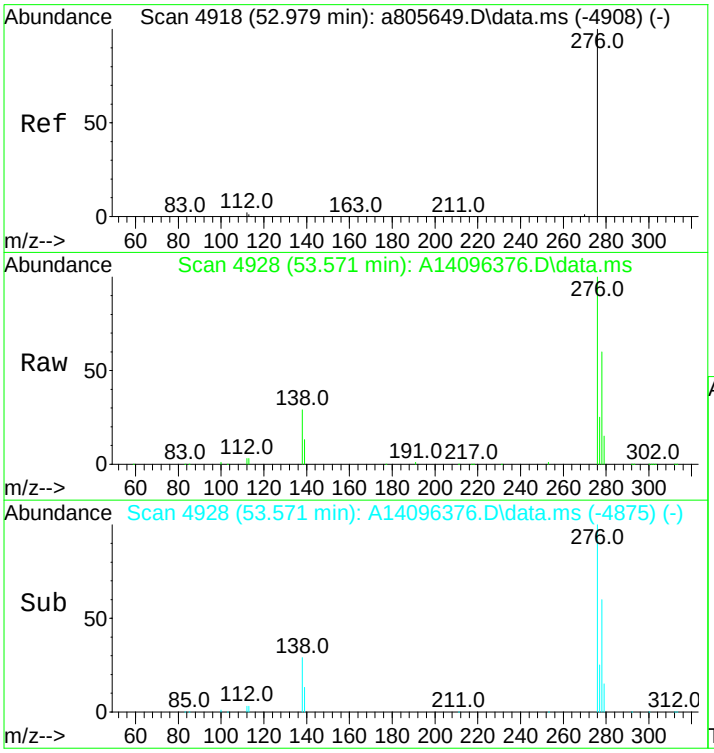


#88
Perylene
Concen: 8882.10 ng/mL
RT: 48.934 min Scan# 4421
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:252 Resp: 2677793

Ion	Ratio	Lower	Upper
252	100		
253	22.7	22.6	34.0

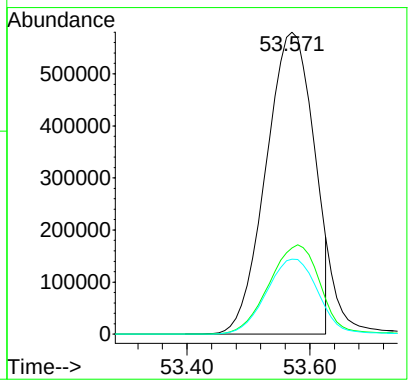


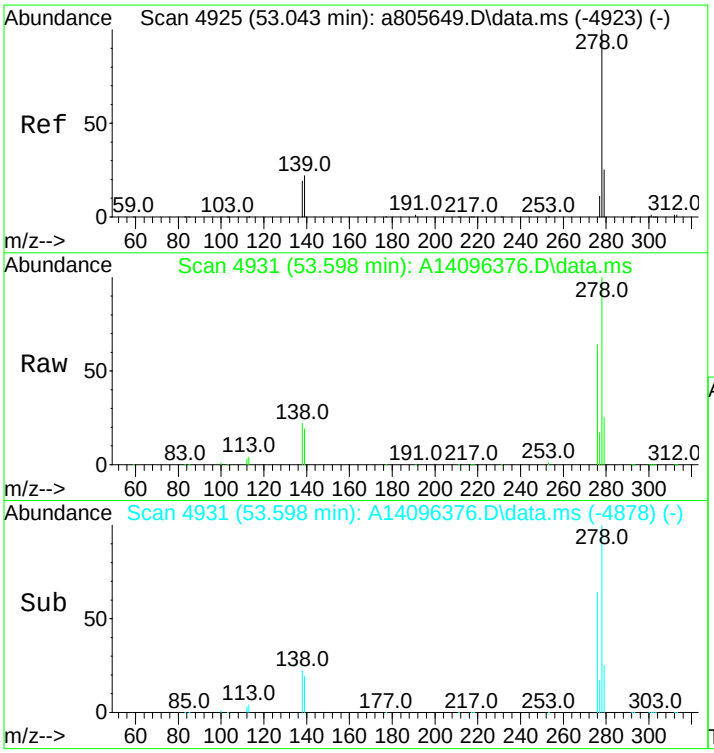


#89
Indeno[1,2,3-cd]pyrene
Concen: 10241.25 ng/mL m
RT: 53.571 min Scan# 4928
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:276 Resp: 3128681

Ion	Ratio	Lower	Upper
276	100		
138	32.1	22.6	33.8
277	27.1	19.8	29.8

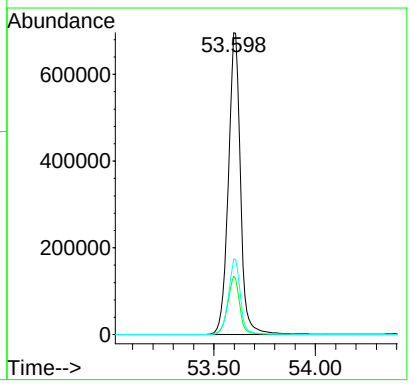


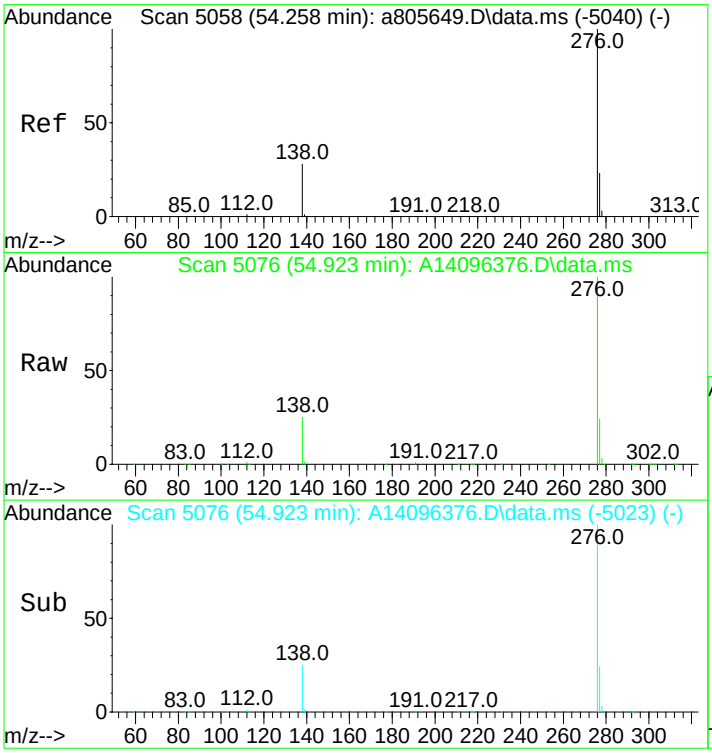


#90
Dibenz[ah]+[ac]anthracene
Concen: 9267.97 ng/mL
RT: 53.598 min Scan# 4931
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:278 Resp: 2899029

Ion	Ratio	Lower	Upper
278	100		
139	19.2	16.2	24.2
279	24.6	19.8	29.8

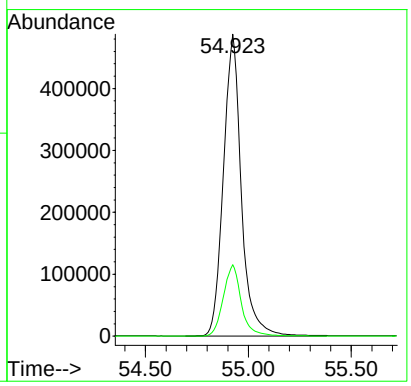


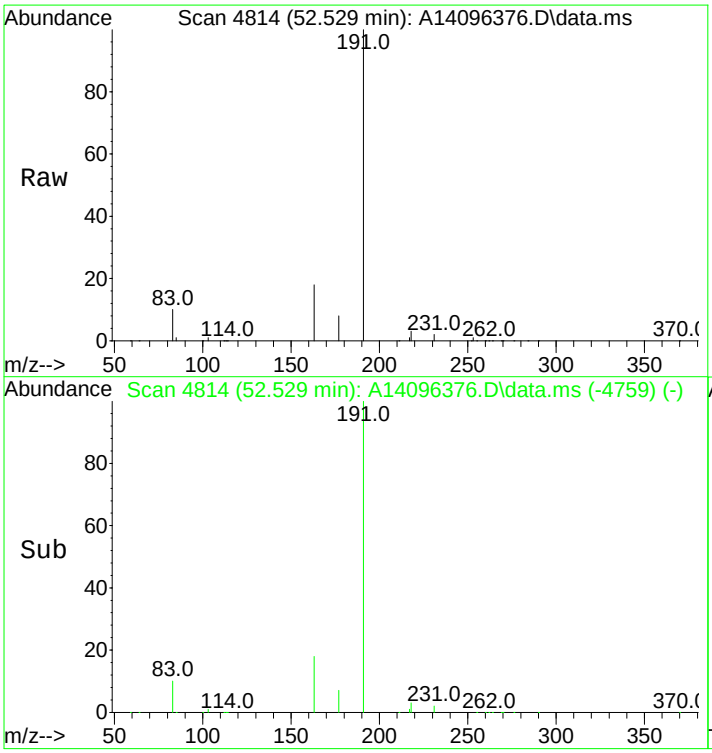


#91
Benzo[g,h,i]perylene
Concen: 8504.20 ng/mL
RT: 54.923 min Scan# 5076
Delta R.T. -0.018 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:276 Resp: 2946968

Ion	Ratio	Lower	Upper
276	100		
277	23.7	19.0	28.6

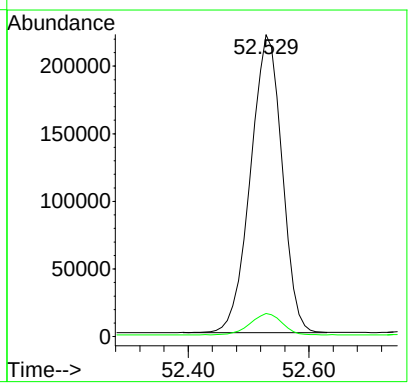


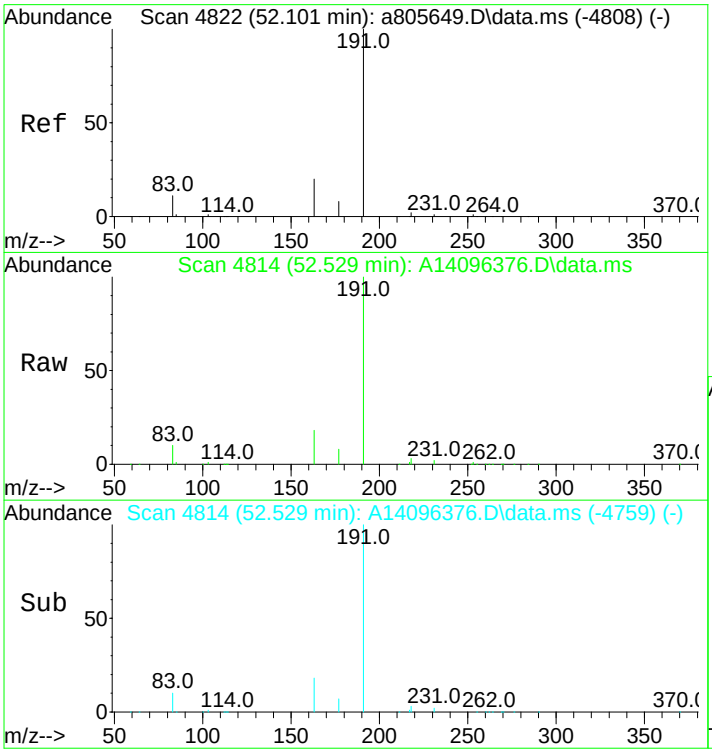


#92
Hopane (T19)
Concen: 9874.29 ng/mL m
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:191 Resp: 796681

Ion	Ratio	Lower	Upper
191	100		
177	0.0	12.8	19.2#

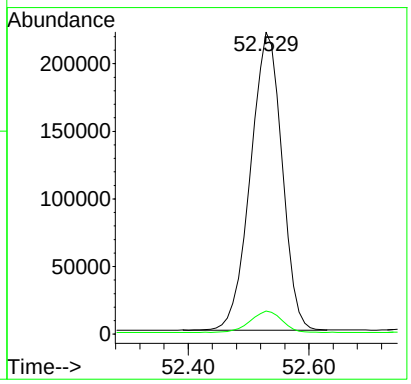




#93
17a(H),21B(H)-hopane - C30H52
Concen: 9878.36 ng/mL m
RT: 52.529 min Scan# 4814
Delta R.T. 0.000 min
Lab File: A14096376.D
Acq: 18 May 2012 8:39 pm

Tgt Ion:191 Resp: 797009

Ion	Ratio	Lower	Upper
191	100		
177	0.0	12.8	19.2#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096377.D
Acq On : 18 May 2012 10:05 pm
Operator : PAH14:MT
Sample : I1405181207
Misc : WG537732
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:16:36 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.874	164	67867	500.000	ng/mL	-0.04
74) Chrysene-d12	43.377	240	122166	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.903	136	4955862	17262.707	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1726.27%#			
42) Phenanthrene-d10	32.768	188	4567245	20250.231	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2025.02%#			
86) Benzo[a]pyrene-d12	48.550	264	4775518	19183.789	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 1918.38%#			
127) 5B(H)Cholane - Surr	43.970	217	952932	22271.623	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 2227.16%#			
Target Compounds						Qvalue
3) trans-Decalin	16.535	138	542629	8317.787	ng/mL	100
4) cis-Decalin	17.758	138	430089	8641.583	ng/mL	100
10) Naphthalene	19.985	128	5198277	16112.375	ng/mL#	100
16) 2-Methylnaphthalene	22.677	142	3529605	17434.245	ng/mL#	100
17) 1-Methylnaphthalene	23.106	142	3401845	17388.012	ng/mL#	100
18) Benzothiophene	20.195	134	4182483	15884.067	ng/mL	100
23) Biphenyl	24.557	154	4157001	16750.794	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.168	156	3068617	18004.831	ng/mL#	100
25) Dibenzofuran	27.650	168	4429520	17423.796	ng/mL	99
26) Acenaphthylene	26.272	152	5458307M4	18871.079	ng/mL	
27) Acenaphthene	27.011	153	3256442	17564.345	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.563	170	2738622	19200.153	ng/mL	100
29) Fluorene	29.028	166	3714438	18730.997	ng/mL	98
33) Dibenzothiophene	32.358	184	4742239	17591.496	ng/mL	100
43) Phenanthrene	32.860	178	4971676	17957.676	ng/mL	100
54) Retene	39.843	234	1474414	23820.419	ng/mL	97
55) Anthracene	33.042	178	4876979	18927.670	ng/mL	100
56) Carbazole	33.717	167	4987000	18802.707	ng/mL	100
57) 1-Methylphenanthrene	35.370	192	3730728M4	20708.475	ng/mL	
58) Fluoranthene	37.652	202	5191974	19638.900	ng/mL	100
59) Benzo(b)fluorene	40.172	216	3467640	22778.153	ng/mL	99
60) Pyrene	38.538	202	5284229	19447.312	ng/mL	100
66) Naphthobenzothiophene	42.391	234	4687033	20013.026	ng/ml	98
67) Naphthobenzothiophene-2,1	42.391	234	4687033	20013.026	ng/mL	98
75) Benz[a]anthracene	43.331	228	5047759	19276.618	ng/mL	100
76) Chrysene	43.495	228	4873171	17281.008	ng/mL	100
77) Chrysene/Triphenylene	43.495	228	4873171	17281.008	ng/mL	100
82) Benzo[b]fluoranthene	47.407	252	5267099	17747.145	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.498	252	5448565	16977.270	ng/mL	96
85) Benzo[e]pyrene	48.440	252	4970993	16555.198	ng/mL	93
87) Benzo[a]pyrene	48.642	252	4821407	17213.652	ng/mL	91
88) Perylene	48.953	252	5192988	17586.248	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.598	276	6159520M3	20585.218	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.635	278	5619672	18342.559	ng/mL	99
91) Benzo[g,h,i]perylene	54.951	276	5771776	17005.303	ng/mL	100

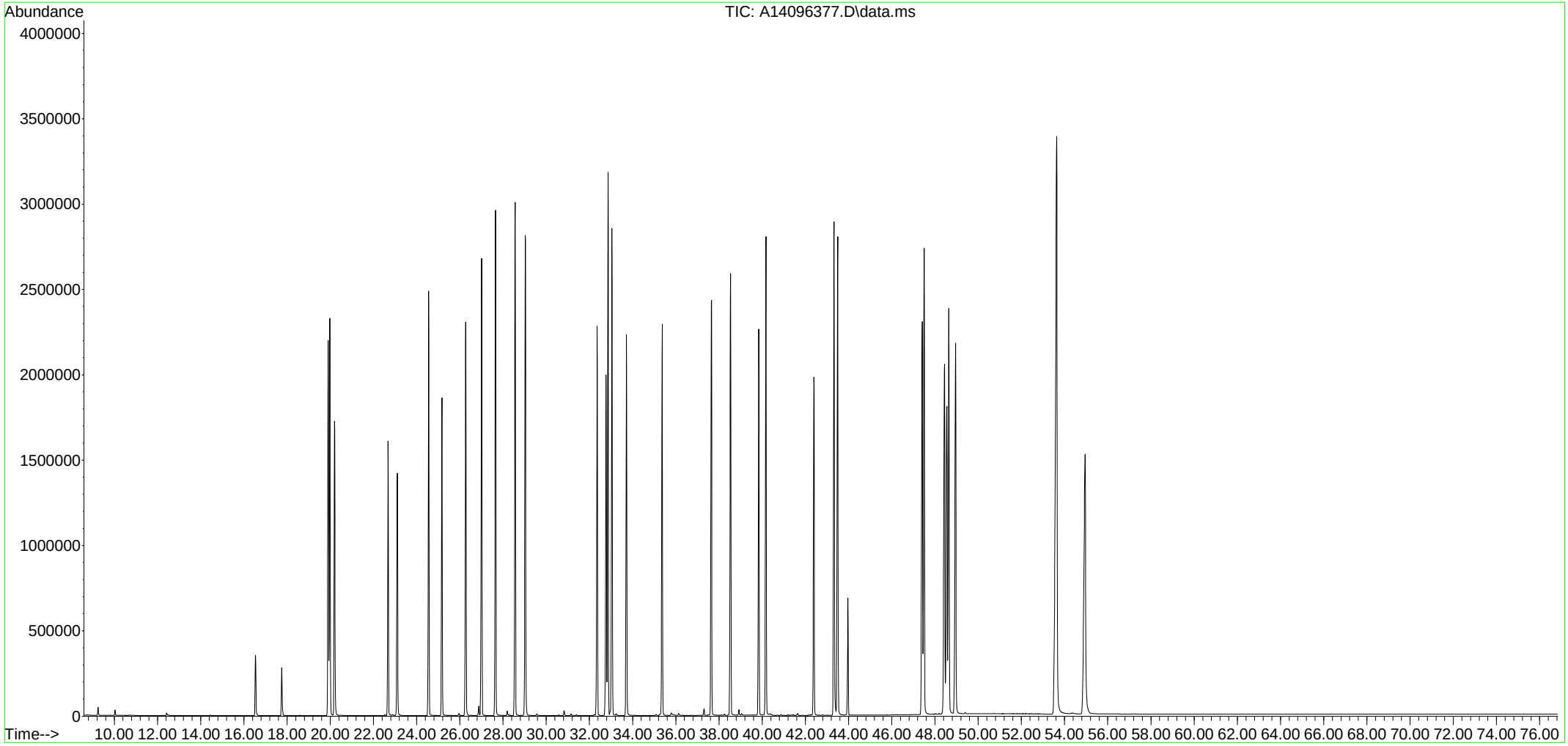
(#) = qualifier out of range (m) = manual integration (+) = signals summed

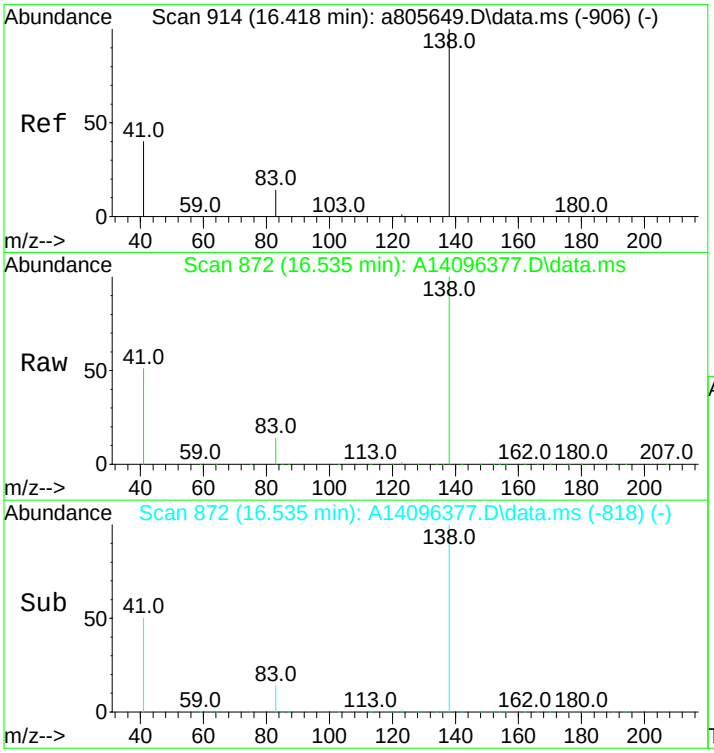
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096377.D
Acq On : 18 May 2012 10:05 pm
Operator : PAH14:MT
Sample : I1405181207
Misc : WG537732
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:16:36 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 12:52:32 2012
Response via : Initial Calibration

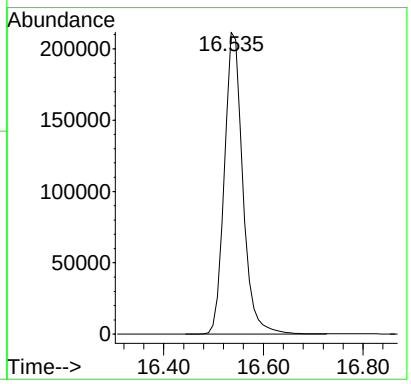
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

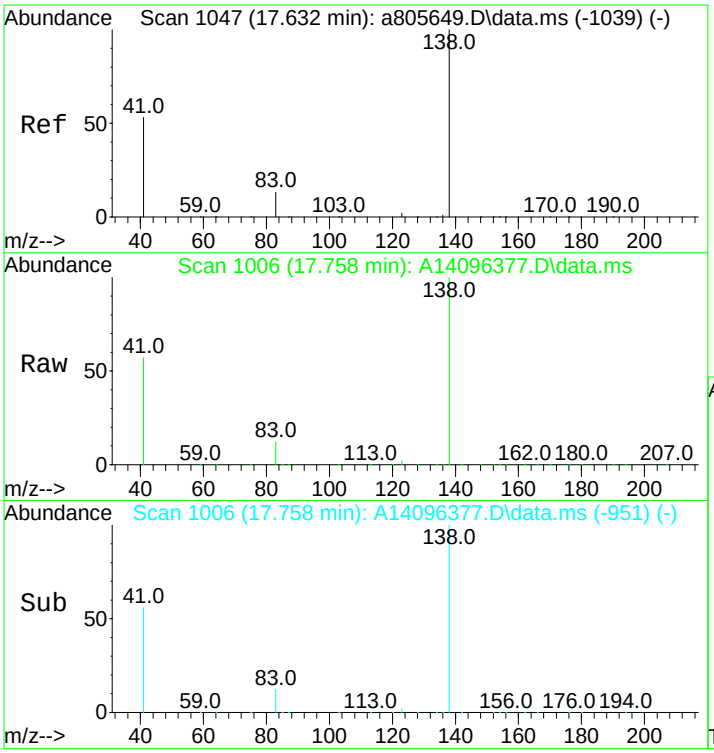




#3
trans-Decalin
Concen: 8317.79 ng/mL
RT: 16.535 min Scan# 872
Delta R.T. -0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

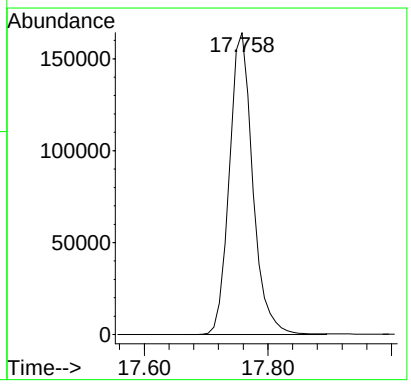
Tgt Ion:138 Resp: 542629

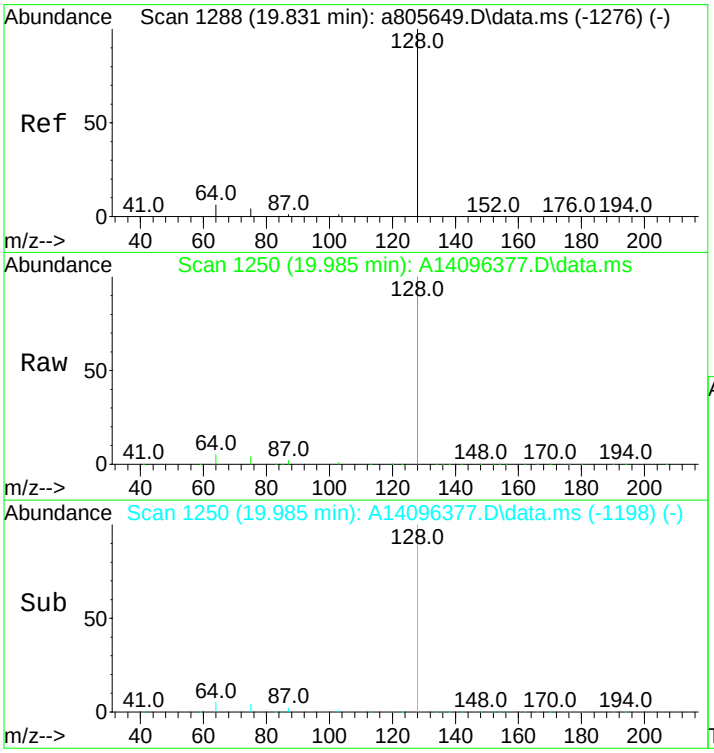




#4
cis-Decalin
Concen: 8641.58 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:138 Resp: 430089

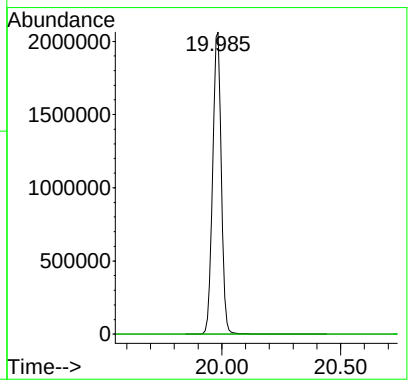


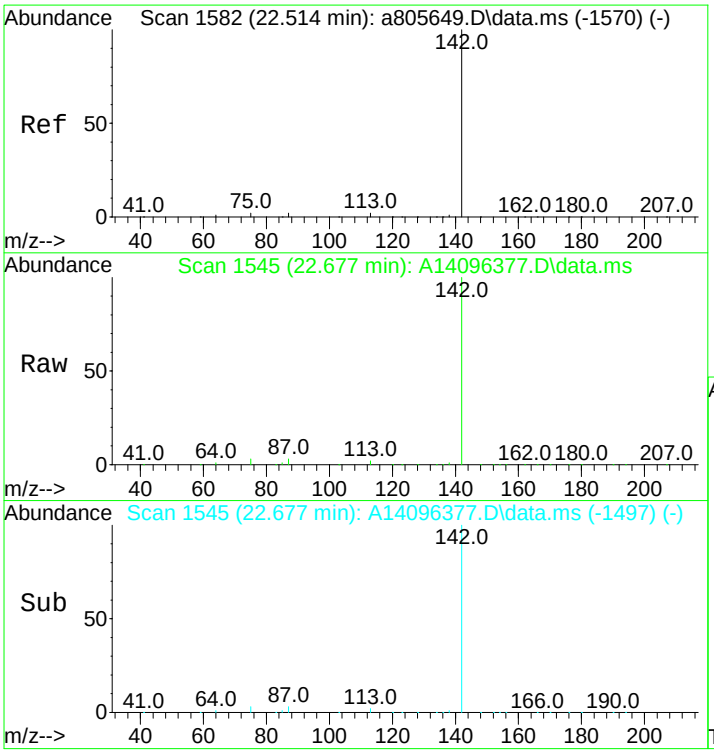


#10
Naphthalene
Concen: 16112.38 ng/mL
RT: 19.985 min Scan# 1250
Delta R.T. -0.027 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:128 Resp: 5198277

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

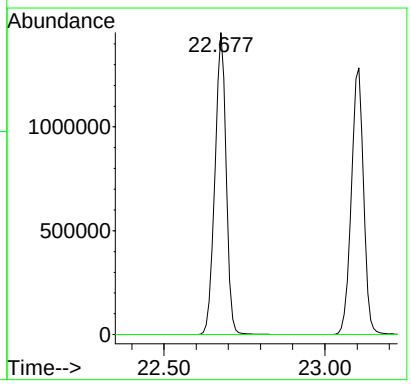


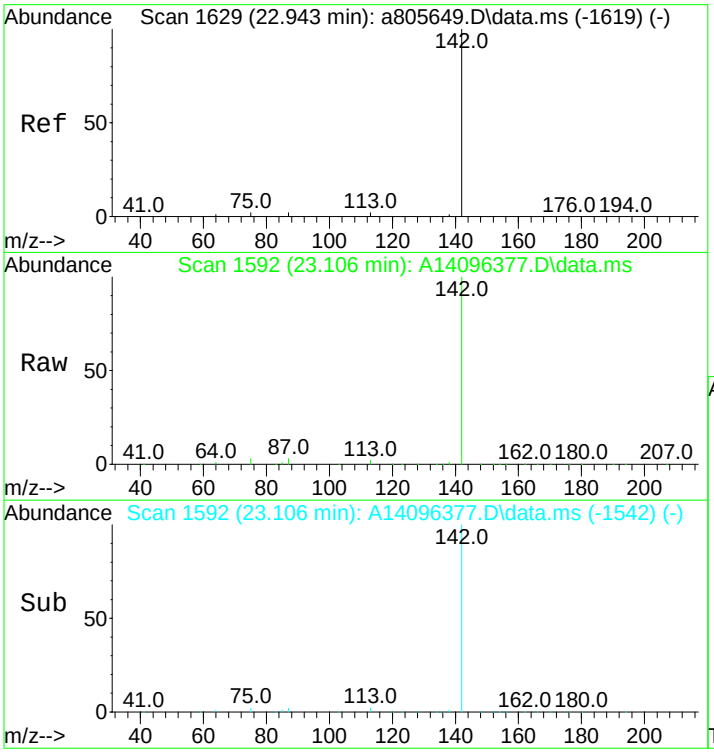


#16
2-Methylnaphthalene
Concen: 17434.25 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.064 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:142 Resp: 3529605

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

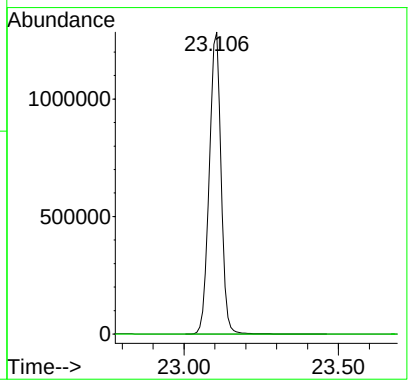


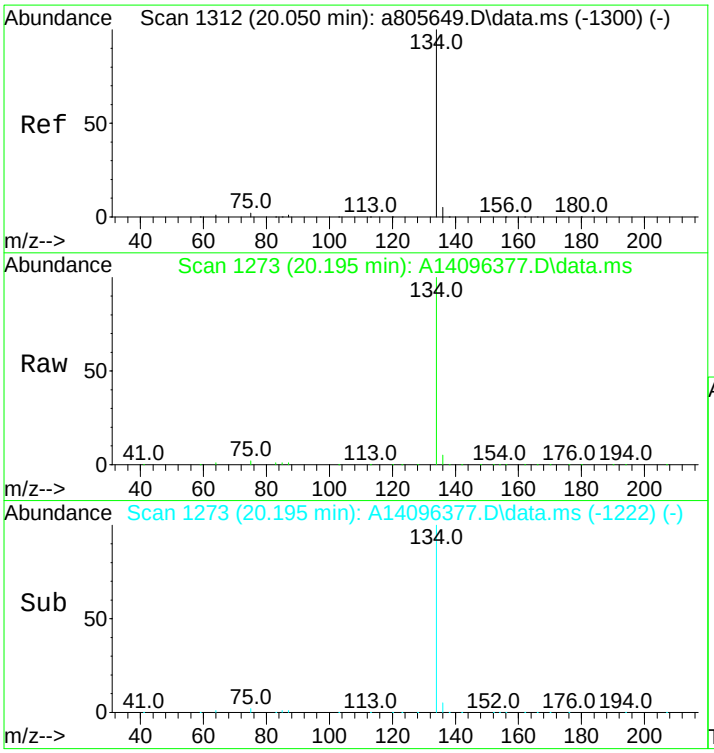


#17
1-Methylnaphthalene
Concen: 17388.01 ng/mL
RT: 23.106 min Scan# 1592
Delta R.T. -0.046 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:142 Resp: 3401845

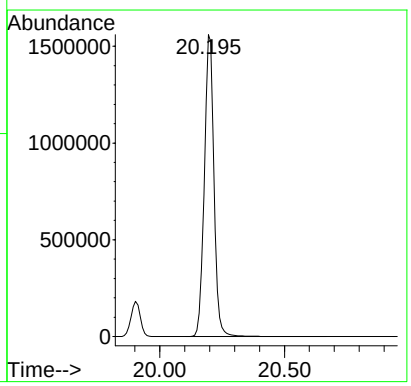
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

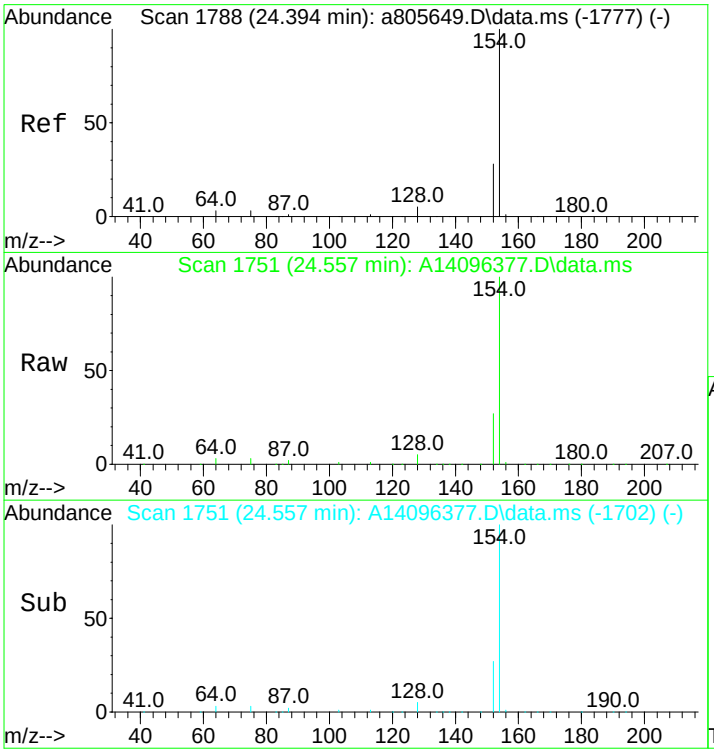




#18
Benzothiophene
Concen: 15884.07 ng/mL
RT: 20.195 min Scan# 1273
Delta R.T. -0.036 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:134 Resp: 4182483

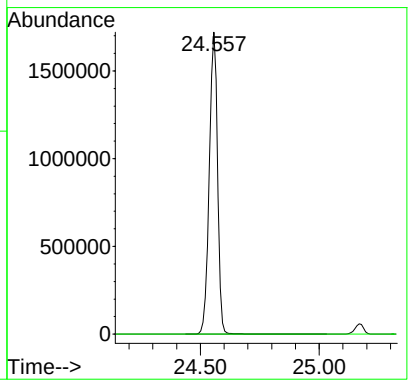


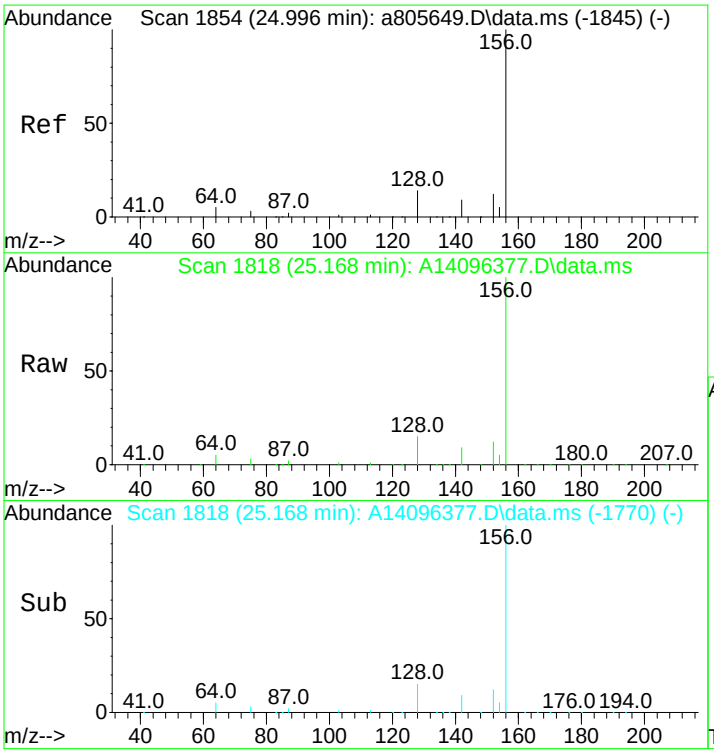


#23
Biphenyl
Concen: 16750.79 ng/mL
RT: 24.557 min Scan# 1751
Delta R.T. -0.055 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:154 Resp: 4157001

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

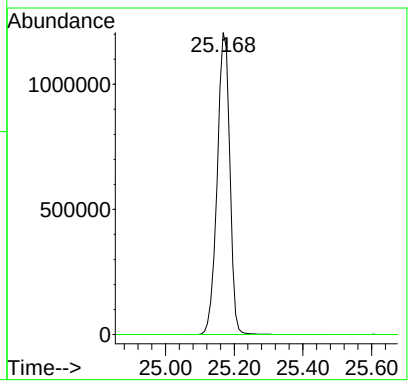


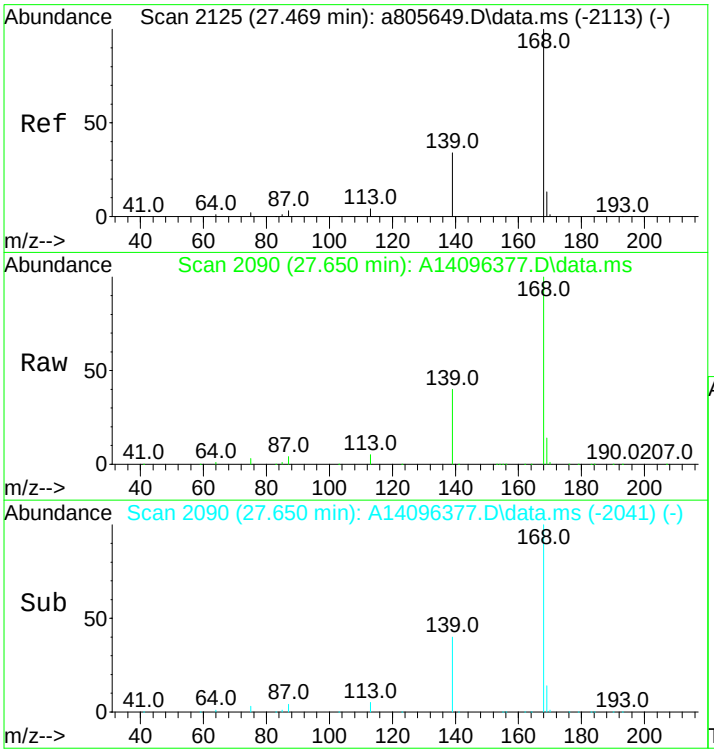


#24
2,6-Dimethylnaphthalene
Concen: 18004.83 ng/mL
RT: 25.168 min Scan# 1818
Delta R.T. -0.064 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:156 Resp: 3068617

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

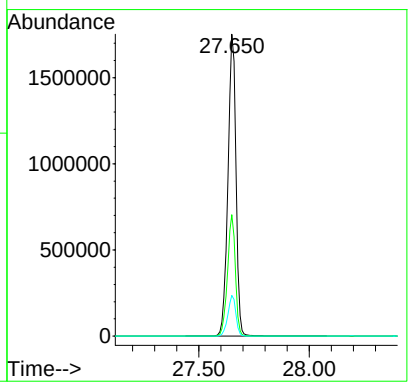


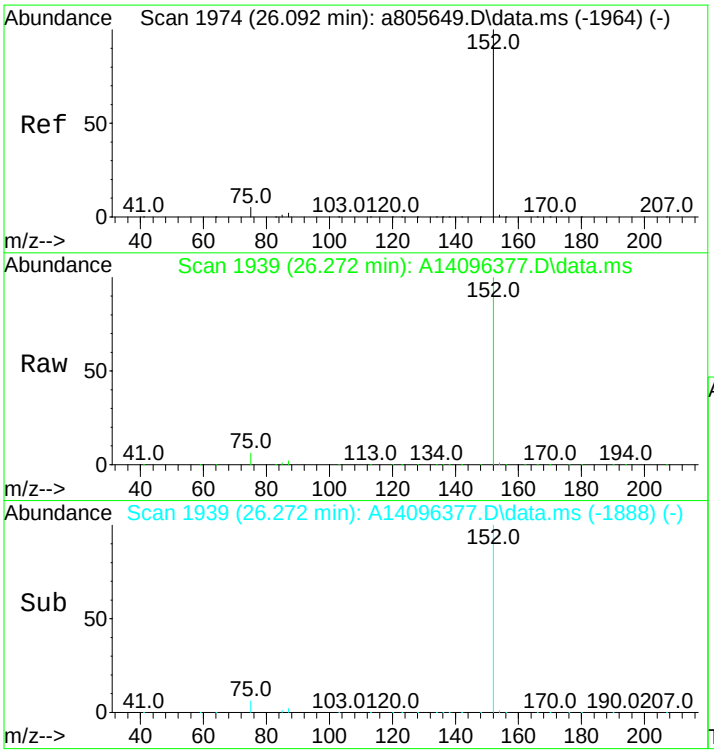


#25
Dibenzofuran
Concen: 17423.80 ng/mL
RT: 27.650 min Scan# 2090
Delta R.T. -0.055 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:168 Resp: 4429520

Ion	Ratio	Lower	Upper
168	100		
139	39.5	30.9	46.3
169	13.4	10.6	16.0

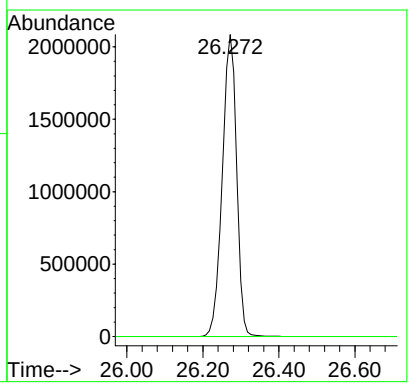


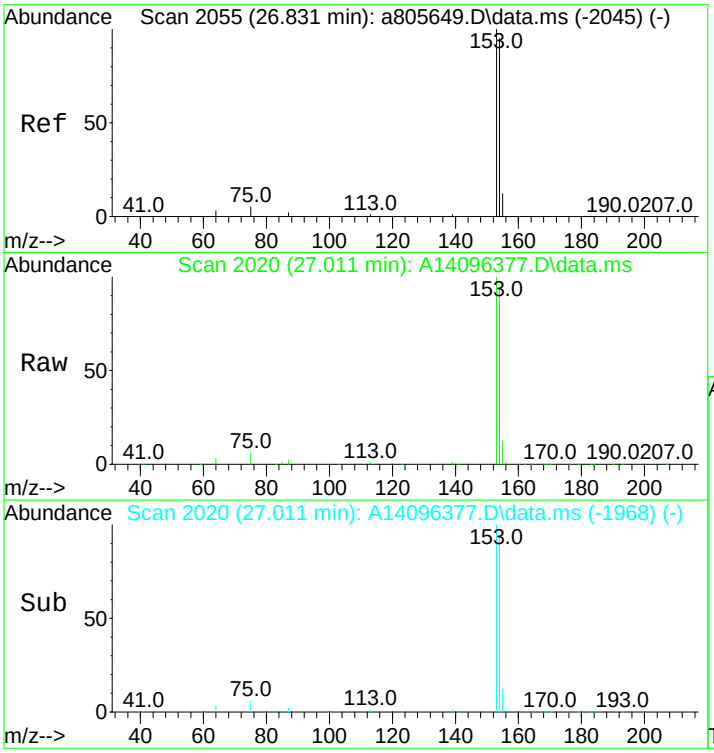


#26
Acenaphthylene
Concen: 18871.08 ng/mL m
RT: 26.272 min Scan# 1939
Delta R.T. -0.036 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:152 Resp: 5458307

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

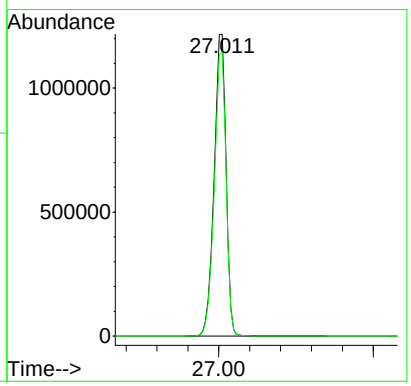


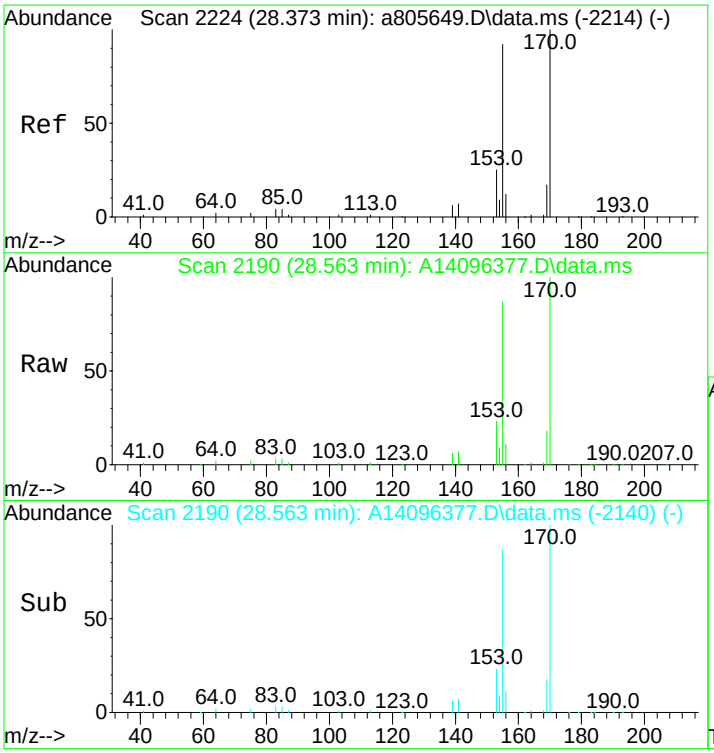


#27
Acenaphthene
Concen: 17564.34 ng/mL
RT: 27.011 min Scan# 2020
Delta R.T. -0.027 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:153 Resp: 3256442

Ion	Ratio	Lower	Upper
153	100		
154	93.3	73.6	110.4

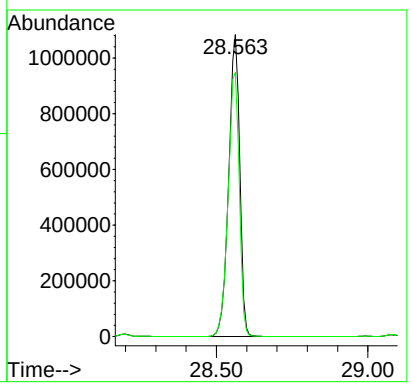


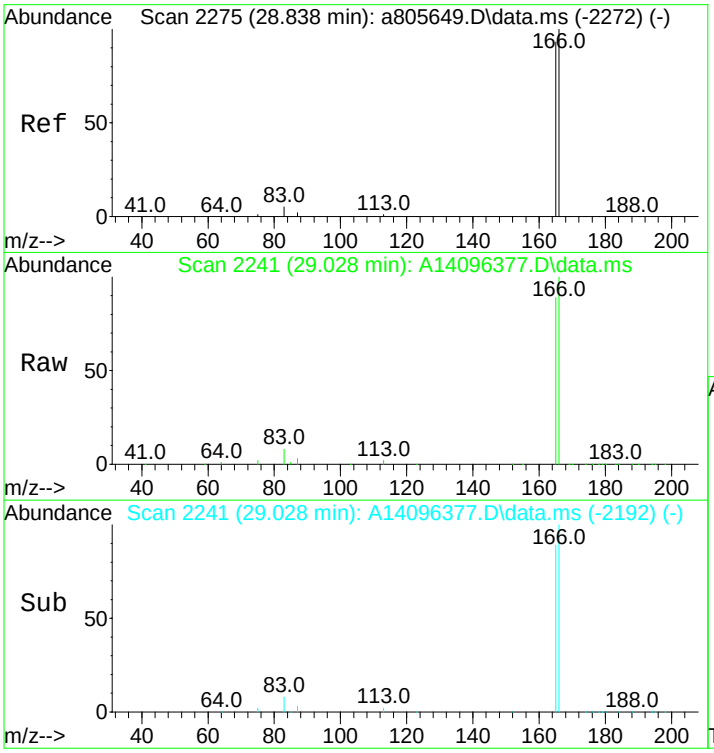


#28
2,3,5-Trimethylnaphthalene
Concen: 19200.15 ng/mL
RT: 28.563 min Scan# 2190
Delta R.T. -0.046 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:170 Resp: 2738622

Ion	Ratio	Lower	Upper
170	100		
155	88.8	71.2	106.8

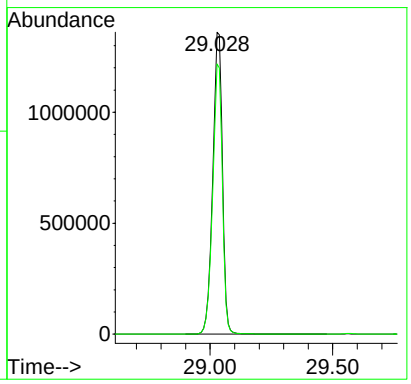


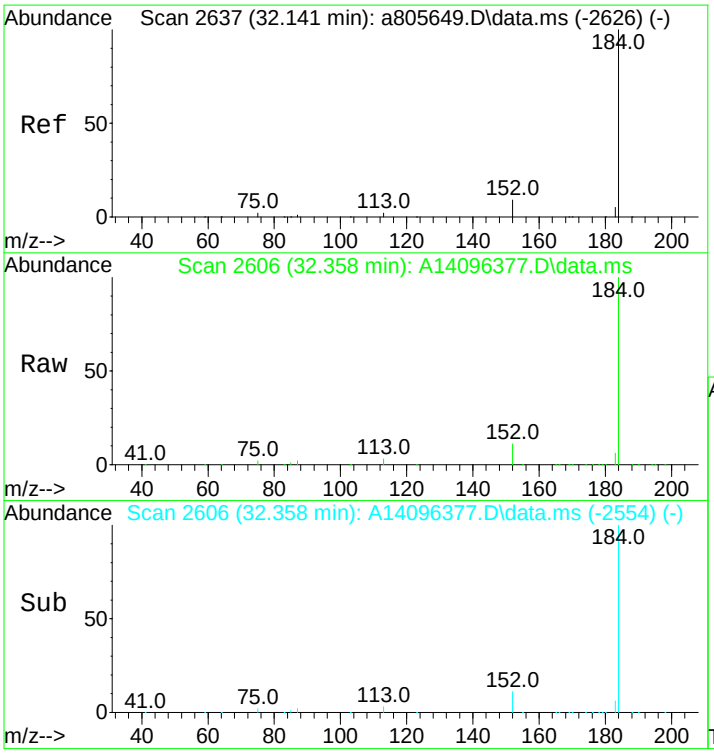


#29
Fluorene
Concen: 18731.00 ng/mL
RT: 29.028 min Scan# 2241
Delta R.T. -0.055 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:166 Resp: 3714438

Ion	Ratio	Lower	Upper
166	100		
165	89.6	73.3	109.9

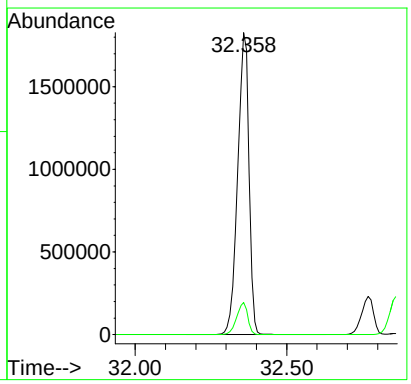


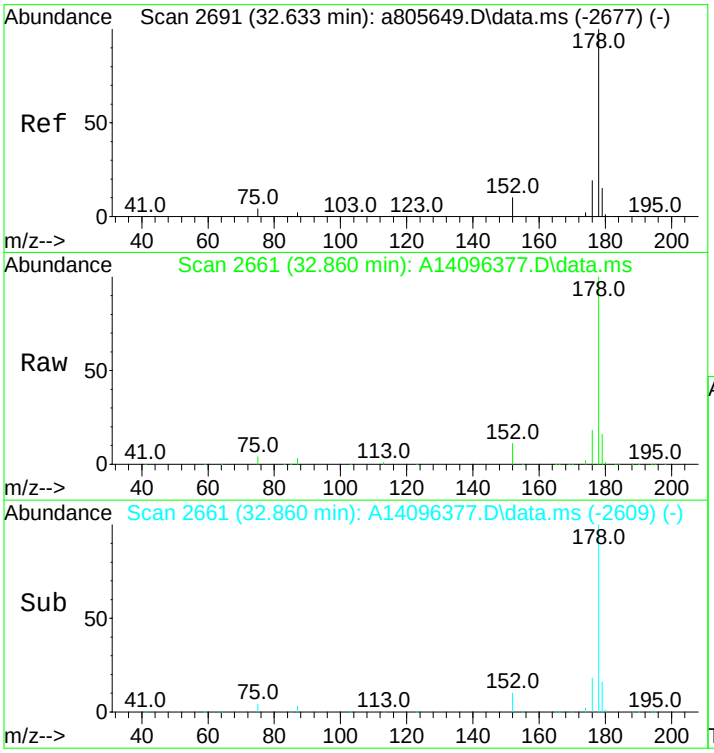


#33
Dibenzothiophene
Concen: 17591.50 ng/mL
RT: 32.358 min Scan# 2606
Delta R.T. -0.027 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:184 Resp: 4742239

Ion	Ratio	Lower	Upper
184	100		
152	10.4	8.2	12.2

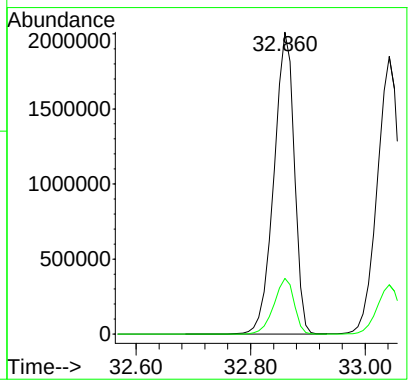


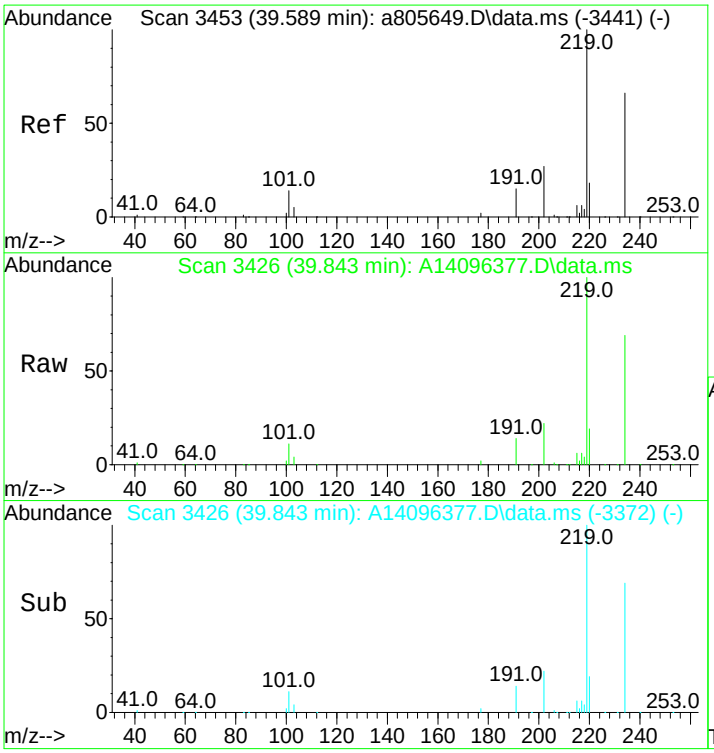


#43
Phenanthrene
Concen: 17957.68 ng/mL
RT: 32.860 min Scan# 2661
Delta R.T. -0.027 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:178 Resp: 4971676

Ion	Ratio	Lower	Upper
178	100		
176	18.3	14.7	22.1

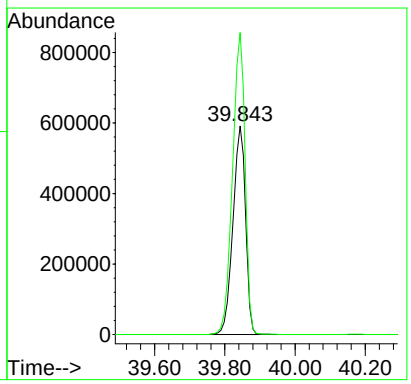


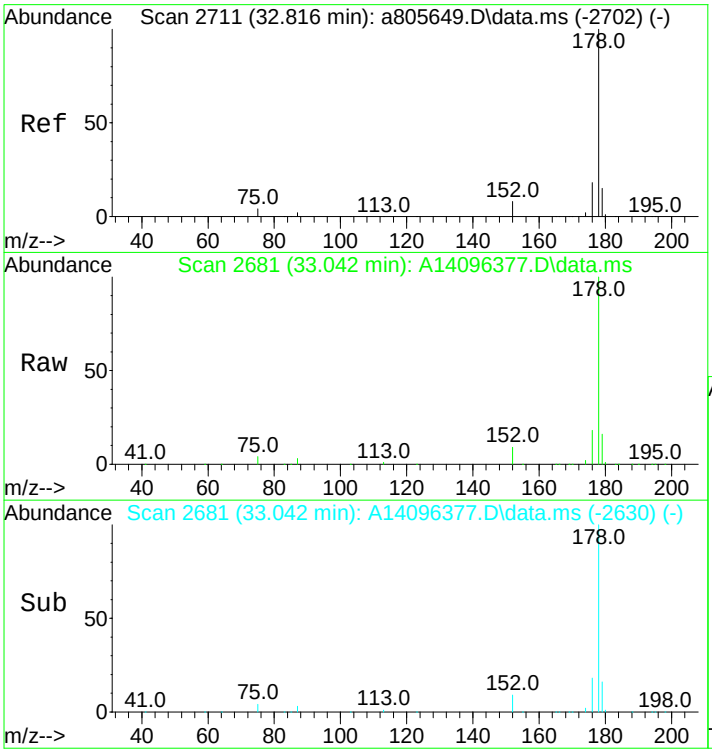


#54
Retene
Concen: 23820.42 ng/mL
RT: 39.843 min Scan# 3426
Delta R.T. -0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:234 Resp: 1474414

Ion	Ratio	Lower	Upper
234	100		
219	144.7	118.7	178.1

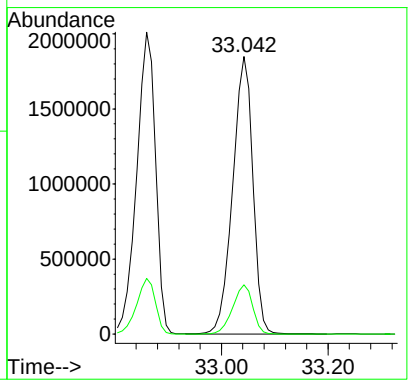


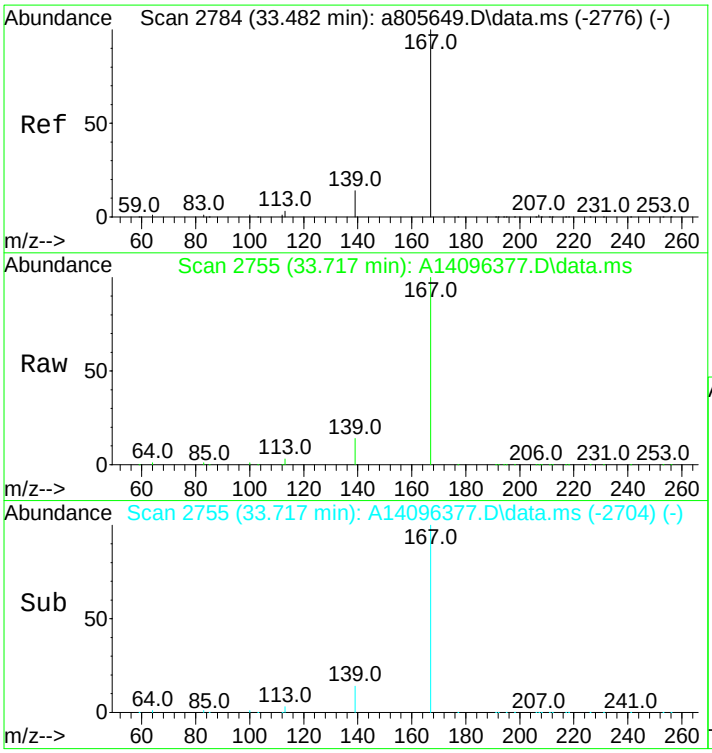


#55
Anthracene
Concen: 18927.67 ng/mL
RT: 33.042 min Scan# 2681
Delta R.T. -0.036 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:178 Resp: 4876979

Ion	Ratio	Lower	Upper
178	100		
176	17.7	14.2	21.4

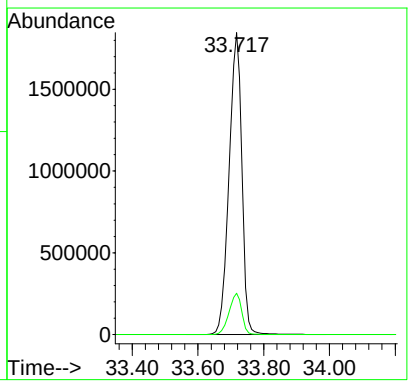


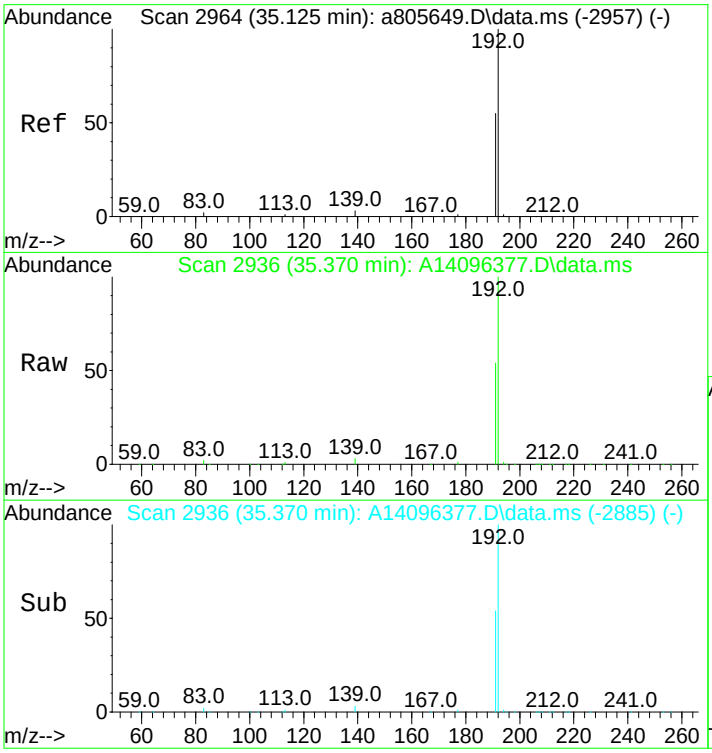


#56
Carbazole
Concen: 18802.71 ng/mL
RT: 33.717 min Scan# 2755
Delta R.T. -0.036 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:167 Resp: 4987000

Ion	Ratio	Lower	Upper
167	100		
139	13.6	11.0	16.4

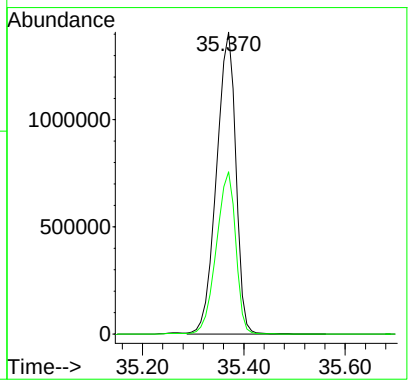


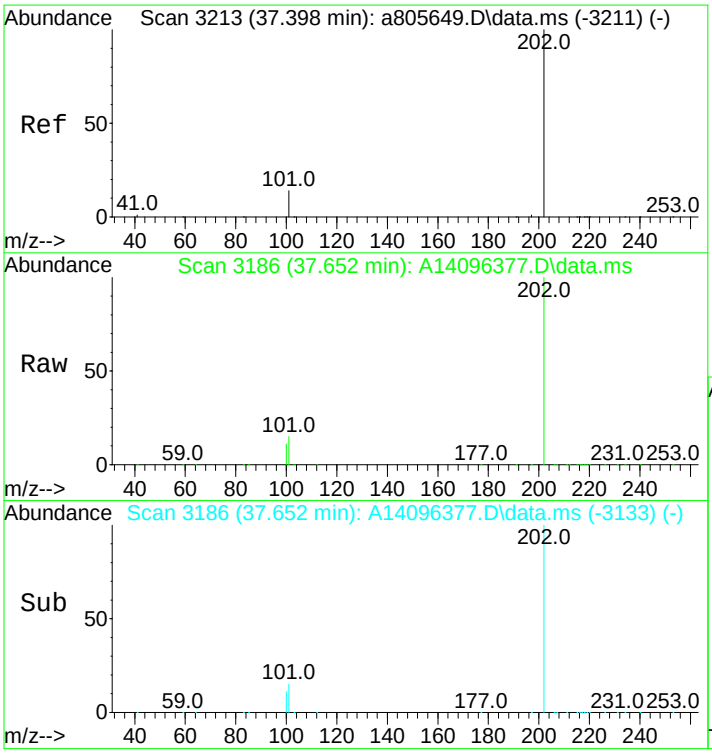


#57
1-Methylphenanthrene
Concen: 20708.47 ng/mL m
RT: 35.370 min Scan# 2936
Delta R.T. -0.036 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:192 Resp: 3730728

Ion	Ratio	Lower	Upper
192	100		
191	53.9	43.8	65.8

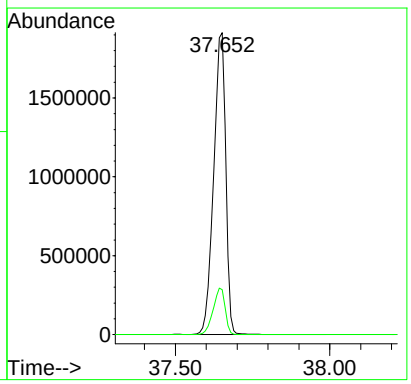


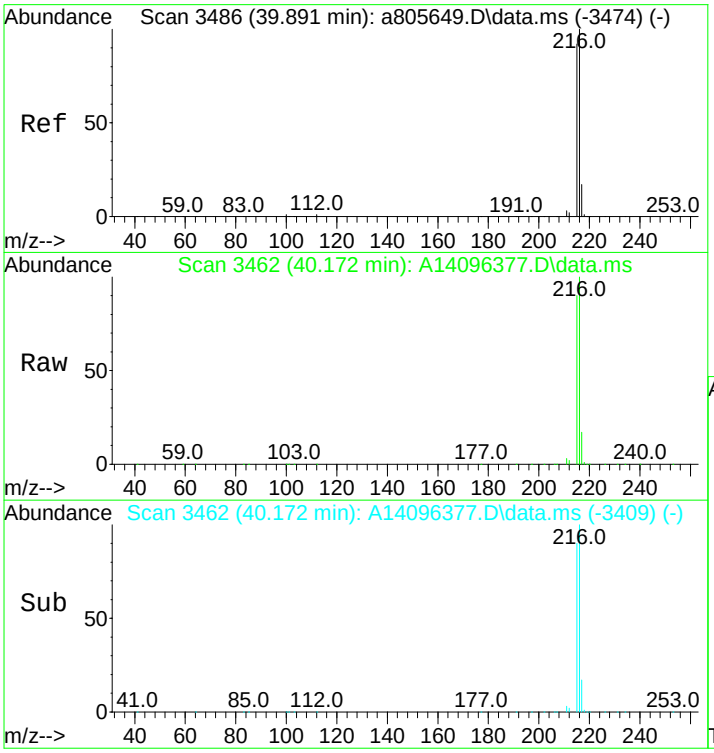


#58
Fluoranthene
Concen: 19638.90 ng/mL
RT: 37.652 min Scan# 3186
Delta R.T. -0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:202 Resp: 5191974

Ion	Ratio	Lower	Upper
202	100		
101	15.3	12.3	18.5

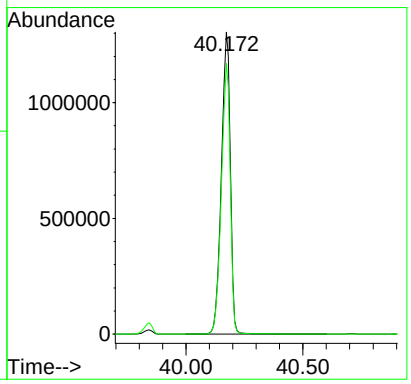


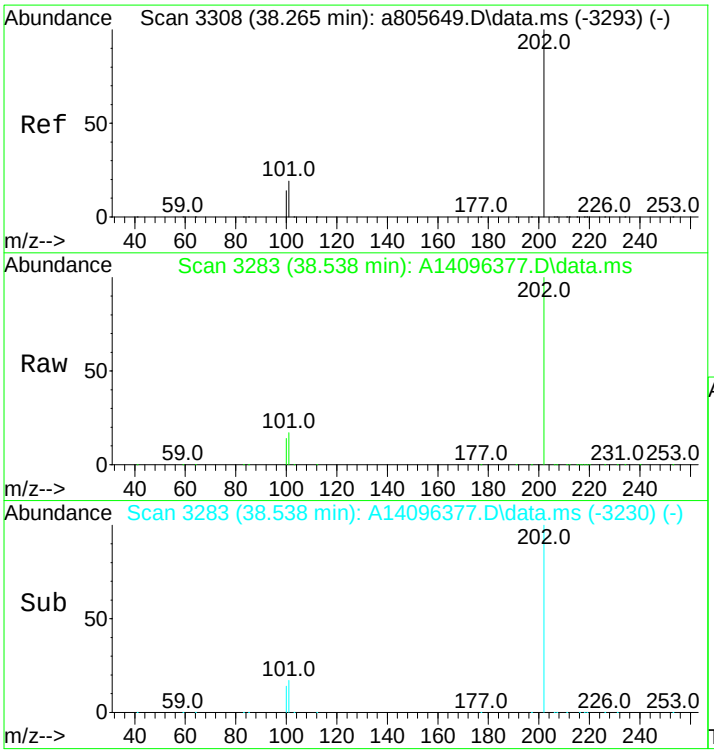


#59
Benzo(b)fluorene
Concen: 22778.15 ng/mL
RT: 40.172 min Scan# 3462
Delta R.T. -0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:216 Resp: 3467640

Ion	Ratio	Lower	Upper
216	100		
215	89.5	72.2	108.4

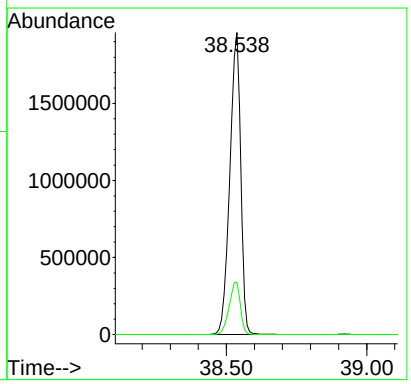


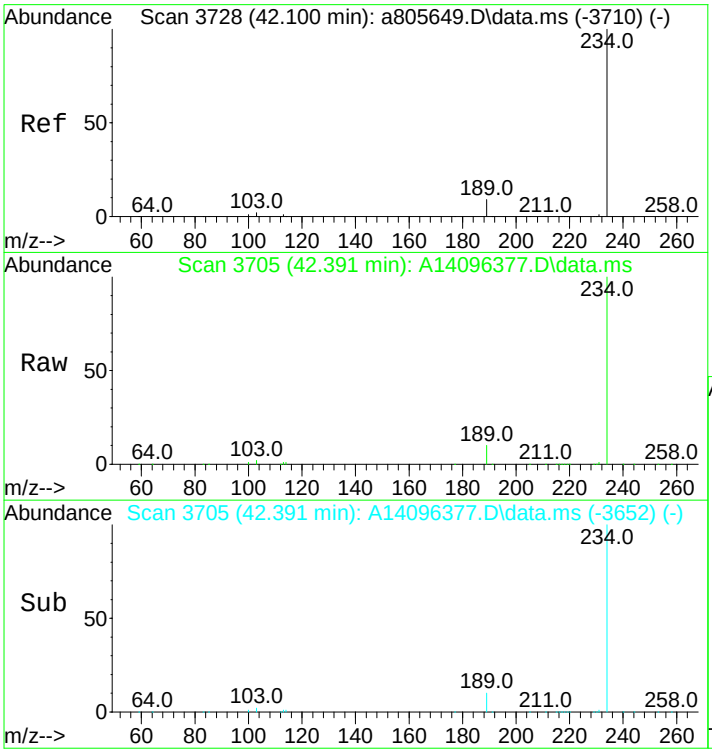


#60
Pyrene
Concen: 19447.31 ng/mL
RT: 38.538 min Scan# 3283
Delta R.T. -0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:202 Resp: 5284229

Ion	Ratio	Lower	Upper
202	100		
101	17.9	14.2	21.2

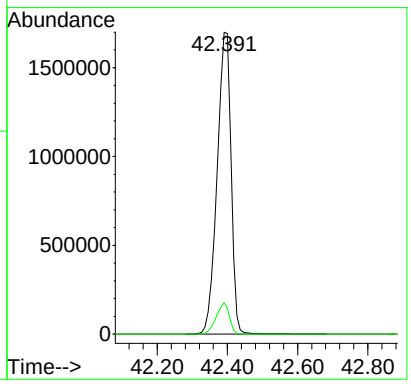


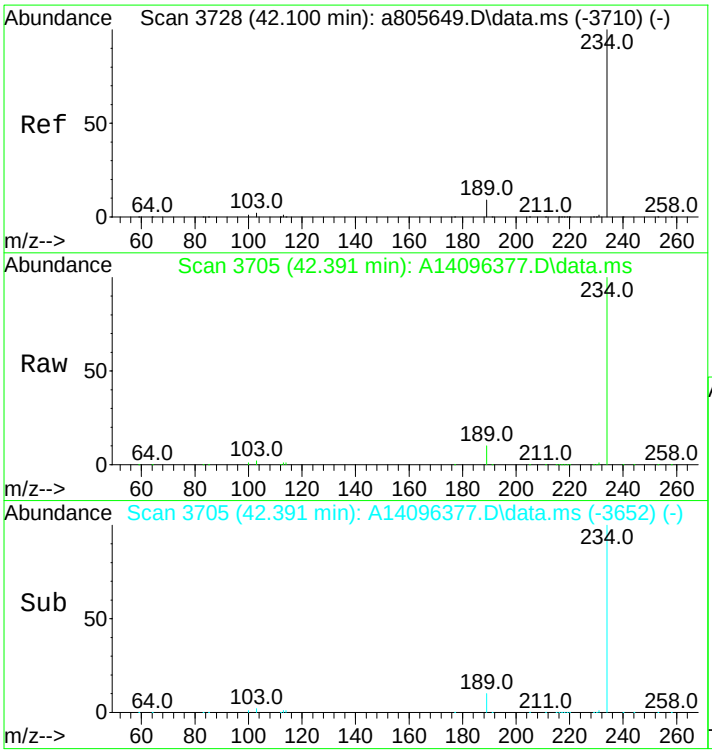


#66
Naphthobenzothiophene
Concen: 20013.03 ng/ml
RT: 42.391 min Scan# 3705
Delta R.T. -0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:234 Resp: 4687033

Ion	Ratio	Lower	Upper
234	100		
189	9.9	7.3	10.9

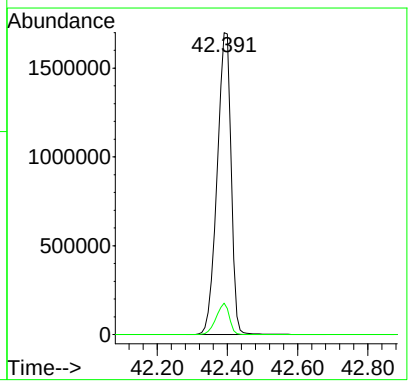


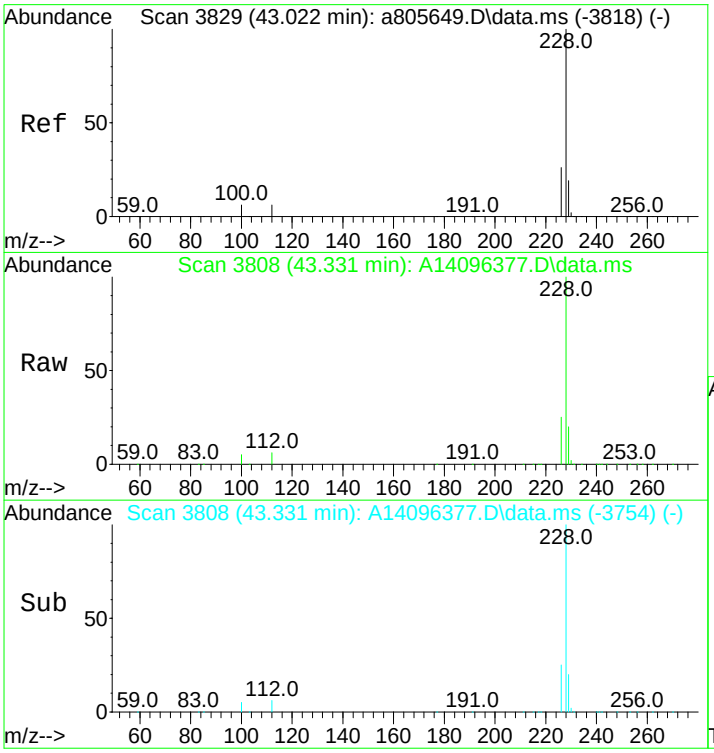


#67
Naphthobenzothiophene-2,1-D
Concen: 20013.03 ng/mL
RT: 42.391 min Scan# 3705
Delta R.T. -0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:234 Resp: 4687033

Ion	Ratio	Lower	Upper
234	100		
189	9.9	7.3	10.9

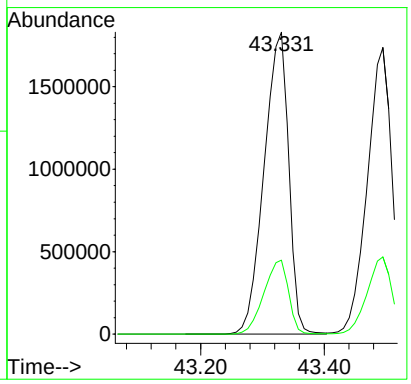


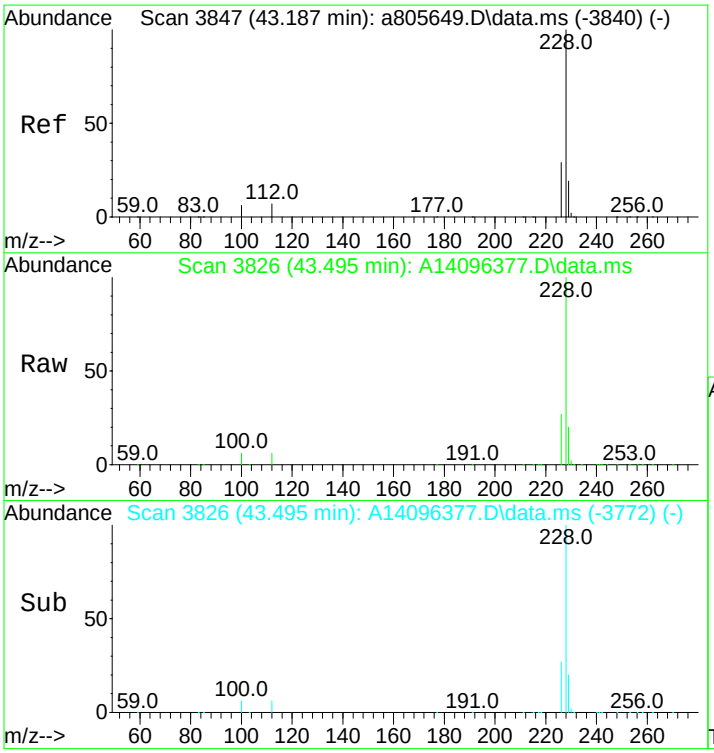


#75
Benz[a]anthracene
Concen: 19276.62 ng/mL
RT: 43.331 min Scan# 3808
Delta R.T. -0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:228 Resp: 5047759

Ion	Ratio	Lower	Upper
228	100		
226	24.6	19.6	29.4

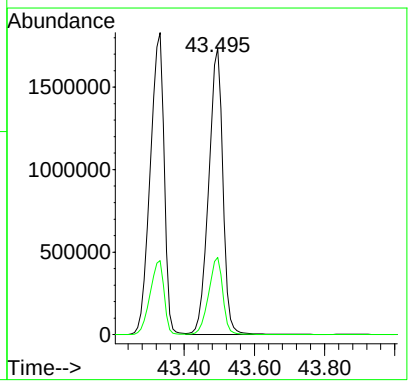


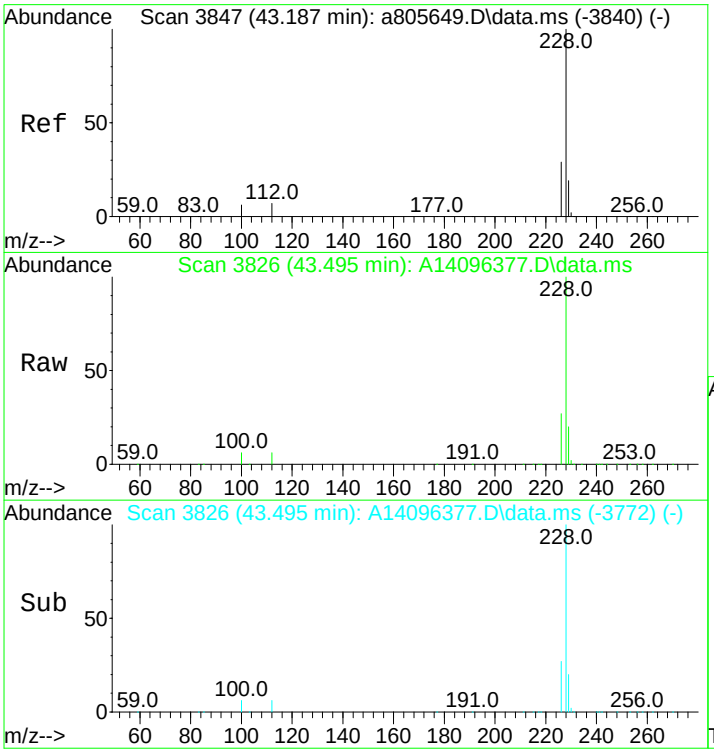


#76
Chrysene
Concen: 17281.01 ng/mL
RT: 43.495 min Scan# 3826
Delta R.T. -0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:228 Resp: 4873171

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

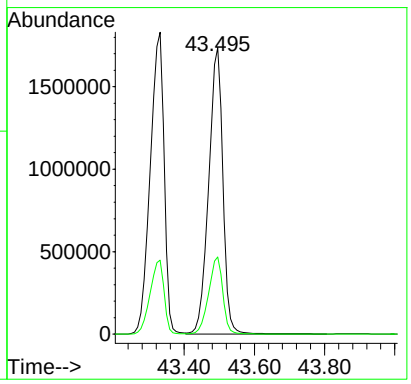


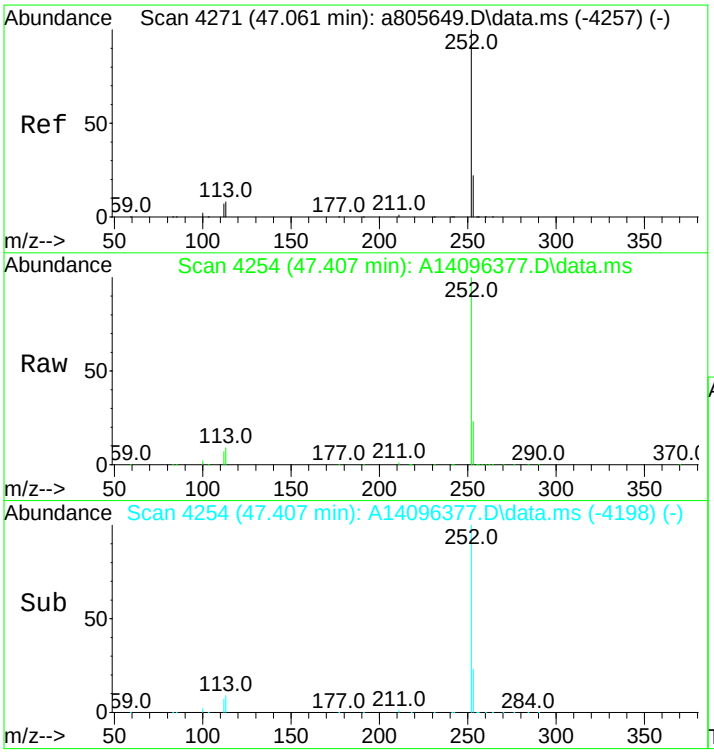


#77
Chrysene/Triphenylene
Concen: 17281.01 ng/mL
RT: 43.495 min Scan# 3826
Delta R.T. -0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:228 Resp: 4873171

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

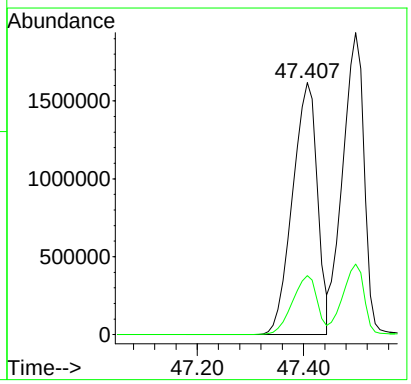


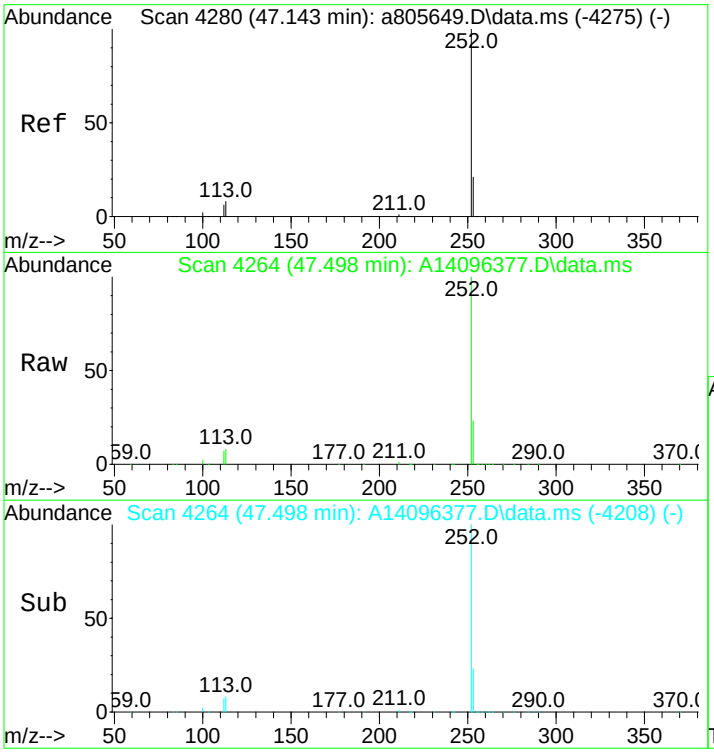


#82
Benzo[b]fluoranthene
Concen: 17747.15 ng/mL
RT: 47.407 min Scan# 4254
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:252 Resp: 5267099

Ion	Ratio	Lower	Upper
252	100		
253	23.2	20.6	30.8

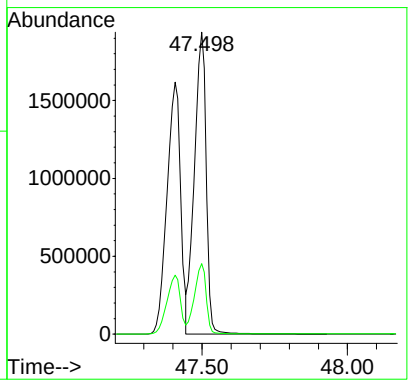


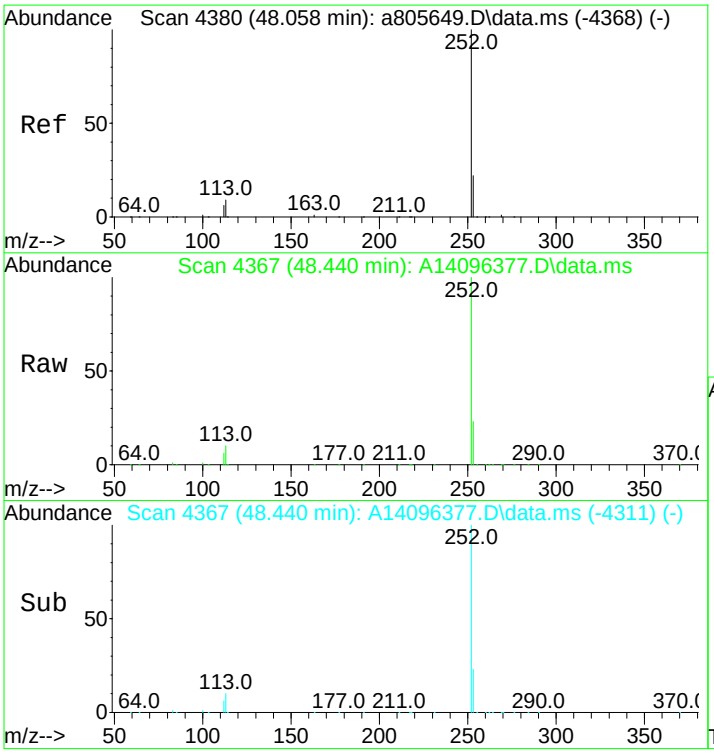


#83
Benzo[j]+[k]fluoranthene
Concen: 16977.27 ng/mL
RT: 47.498 min Scan# 4264
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:252 Resp: 5448565

Ion	Ratio	Lower	Upper
252	100		
253	23.2	20.2	30.4

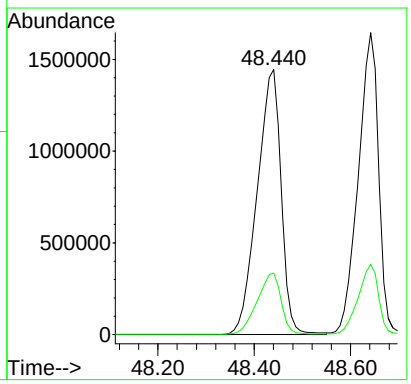


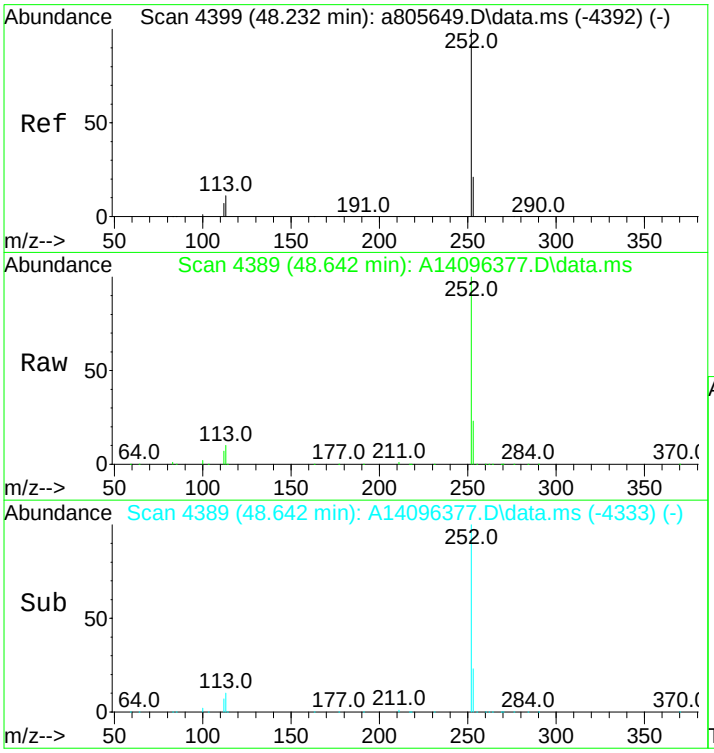


#85
Benzo[e]pyrene
Concen: 16555.20 ng/mL
RT: 48.440 min Scan# 4367
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:252 Resp: 4970993

Ion	Ratio	Lower	Upper
252	100		
253	23.1	21.3	31.9

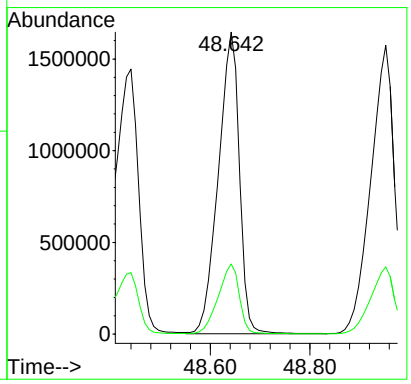


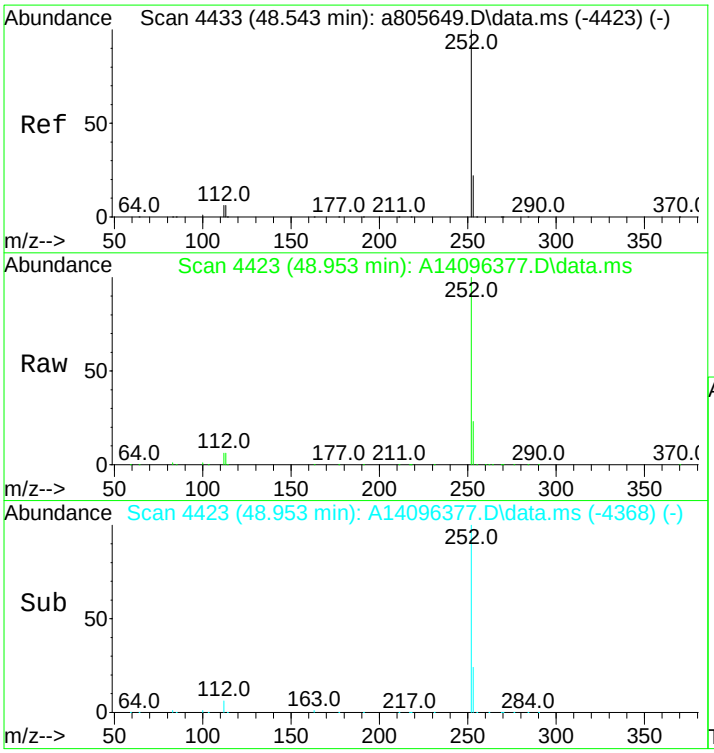


#87
Benzo[a]pyrene
Concen: 17213.65 ng/mL
RT: 48.642 min Scan# 4389
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:252 Resp: 4821407

Ion	Ratio	Lower	Upper
252	100		
253	23.0	22.2	33.2

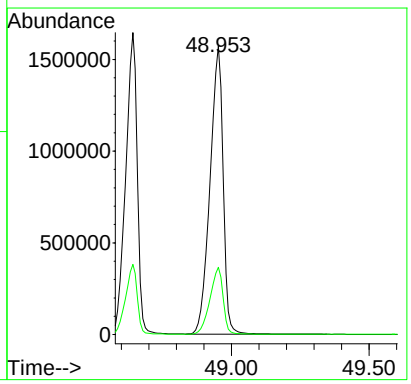


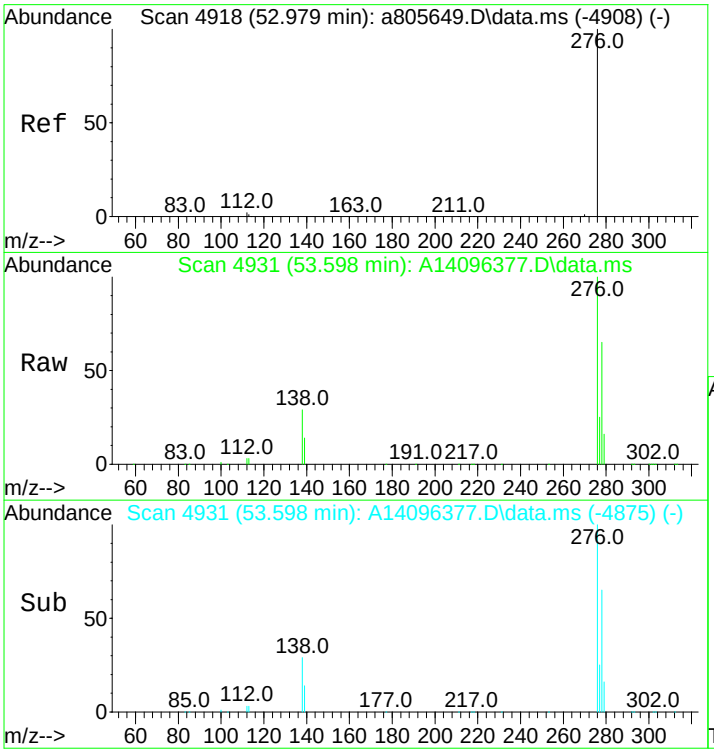


#88
Perylene
Concen: 17586.25 ng/mL
RT: 48.953 min Scan# 4423
Delta R.T. 0.000 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:252 Resp: 5192988

Ion	Ratio	Lower	Upper
252	100		
253	23.0	22.6	34.0

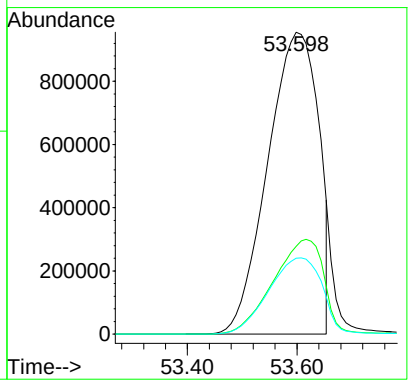


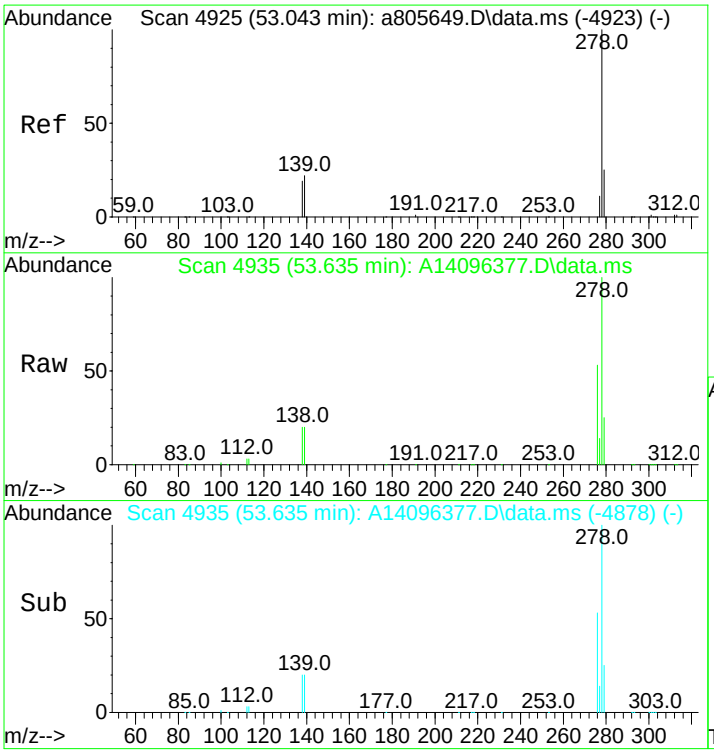


#89
Indeno[1,2,3-cd]pyrene
Concen: 20585.22 ng/mL m
RT: 53.598 min Scan# 4931
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:276 Resp: 6159520

Ion	Ratio	Lower	Upper
276	100		
138	31.6	22.6	33.8
277	26.9	19.8	29.8

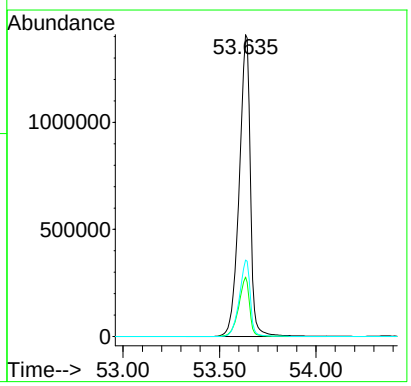


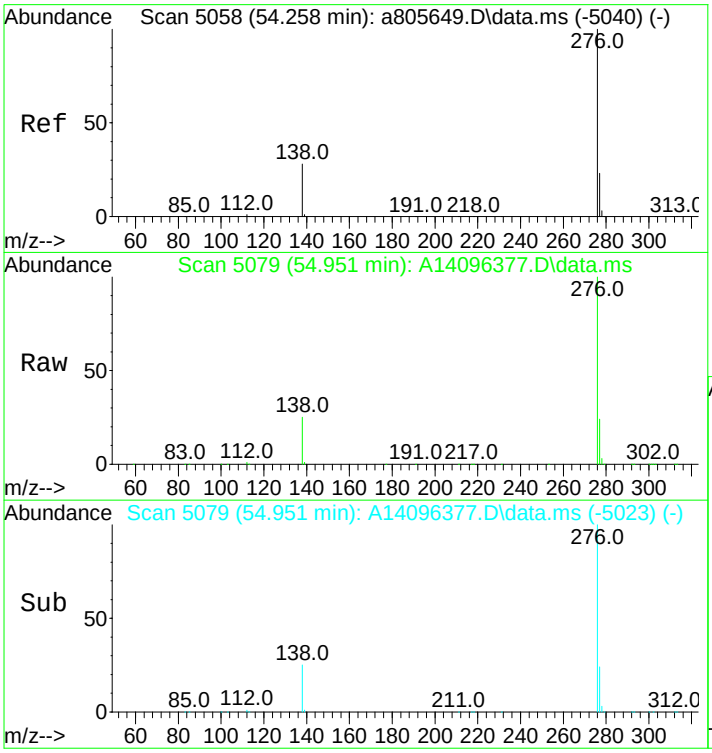


#90
Dibenz[ah]+[ac]anthracene
Concen: 18342.56 ng/mL
RT: 53.635 min Scan# 4935
Delta R.T. 0.018 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:278 Resp: 5619672

Ion	Ratio	Lower	Upper
278	100		
139	19.3	16.2	24.2
279	24.9	19.8	29.8

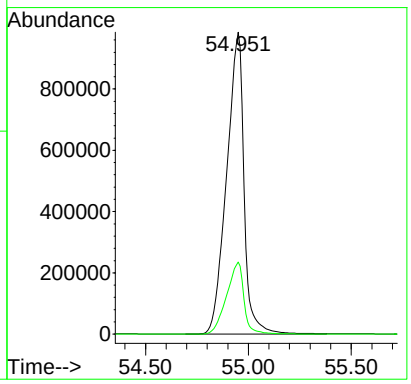




#91
Benzo[g,h,i]perylene
Concen: 17005.30 ng/mL
RT: 54.951 min Scan# 5079
Delta R.T. 0.009 min
Lab File: A14096377.D
Acq: 18 May 2012 10:05 pm

Tgt Ion:276 Resp: 5771776

Ion	Ratio	Lower	Upper
276	100		
277	23.9	19.0	28.6



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : PAH14:MT
Sample : Q1405181201
Misc : WG537732
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.920	164	70766	500.000	ng/mL	0.00
74) Chrysene-d12	43.404	240	126392	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.930	136	129951	517.493	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.75%			
42) Phenanthrene-d10	32.805	188	126430	534.245	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.42%			
86) Benzo[a]pyrene-d12	48.541	264	110842	448.757	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 44.88%#			
127) 5B(H)Cholane - Surr	0.000	217	0	0.000	ng/ml	
Spiked Amount 1000.000	Range 50 - 130		Recovery = 0.00%#			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	14524	255.414	ng/mL	100
4) cis-Decalin	17.758	138	11023	250.783	ng/mL	100
10) Naphthalene	20.012	128	151027	549.884	ng/mL#	100
16) 2-Methylnaphthalene	22.750	142	95305	527.358	ng/mL#	100
17) 1-Methylnaphthalene	23.160	142	95247	536.896	ng/mL#	100
18) Benzothiophene	20.231	134	119054	562.066	ng/mL	100
23) Biphenyl	24.621	154	117802	532.508	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.241	156	86177	533.064	ng/mL#	100
25) Dibenzofuran	27.714	168	129680	554.485	ng/mL	99
26) Acenaphthylene	26.309	152	150072M4	525.261	ng/mL	
27) Acenaphthene	27.048	153	96305	545.400	ng/mL	99
28) 2,3,5-Trimethylnaphthalen	28.608	170	78607	536.113	ng/mL	100
29) Fluorene	29.092	166	108793	553.250	ng/mL	99
33) Dibenzothiophene	32.394	184	137090	536.787	ng/mL	99
43) Phenanthrene	32.896	178	149254	550.351	ng/mL	100
54) Retene	39.852	234	41243	485.673	ng/mL	98
55) Anthracene	33.088	178	147351M4	546.124	ng/mL	
56) Carbazole	33.763	167	138562	550.676	ng/mL	99
57) 1-Methylphenanthrene	35.406	192	107249	527.179	ng/mL	100
58) Fluoranthene	37.679	202	148220	535.709	ng/mL	99
59) Benzo(b)fluorene	40.190	216	97211	527.213	ng/mL	99
60) Pyrene	38.556	202	152885	531.653	ng/mL	100
66) Naphthobenzothiophene	42.409	234	133407	530.908	ng/ml	100
67) Naphthobenzothiophene-2,1	42.409	234	133407	530.908	ng/mL	100
75) Benz[a]anthracene	43.340	228	141332	511.186	ng/mL	100
76) Chrysene	43.504	228	144878	530.728	ng/mL	100
77) Chrysene/Triphenylene	43.504	228	144878	530.728	ng/mL	100
82) Benzo[b]fluoranthene	47.407	252	144435	528.200	ng/mL	94
83) Benzo[j]+[k]fluoranthene	47.489	252	165896	549.278	ng/mL	94
85) Benzo[e]pyrene	48.431	252	143155	528.016	ng/mL	93
87) Benzo[a]pyrene	48.633	252	136281	537.535	ng/mL	91
88) Perylene	48.953	252	145343	528.780	ng/mL	90
89) Indeno[1,2,3-cd]pyrene	53.598	276	166514M3	525.063	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.617	278	158784	532.848	ng/mL	98
91) Benzo[g,h,i]perylene	54.951	276	159736	525.148	ng/mL	100

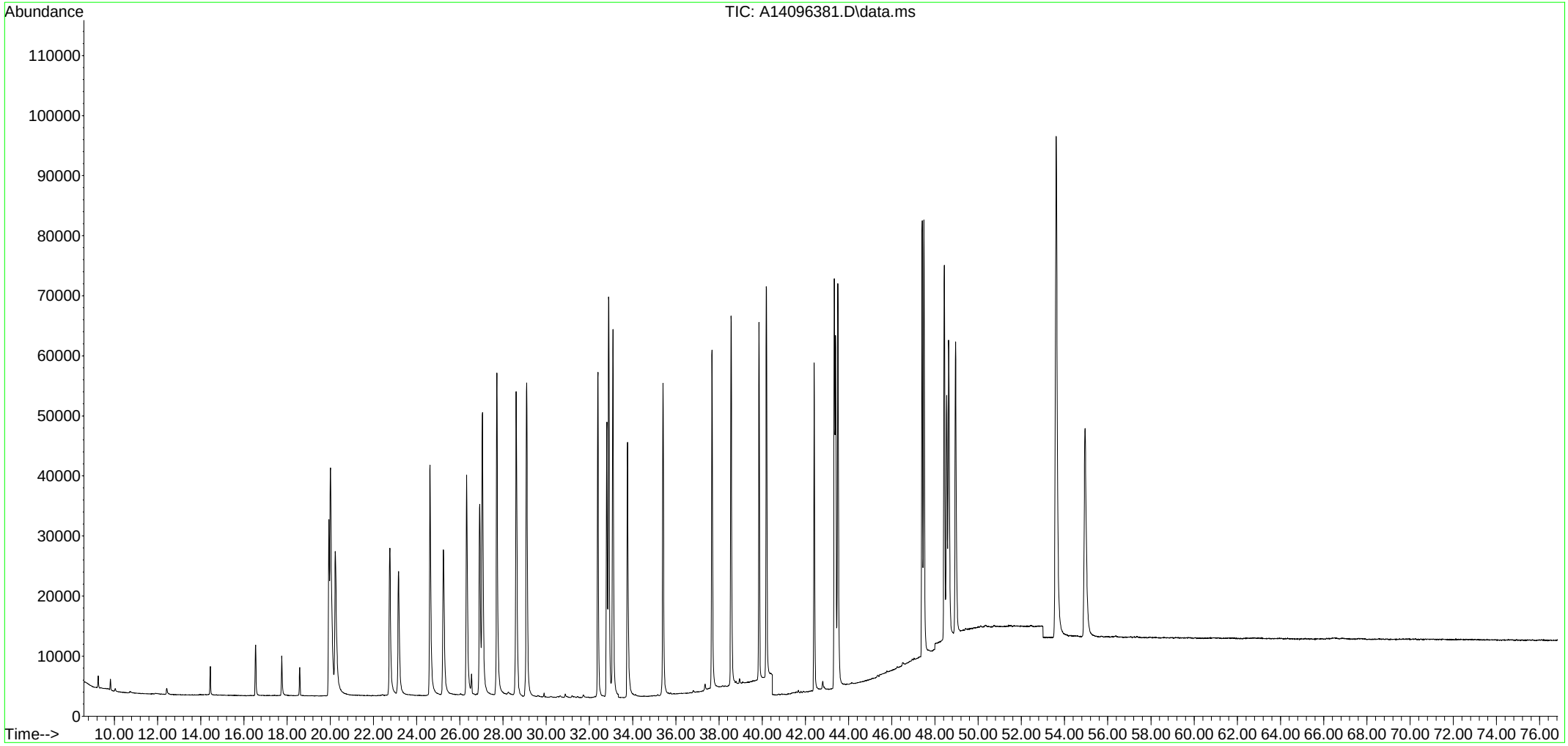
(#) = qualifier out of range (m) = manual integration (+) = signals summed

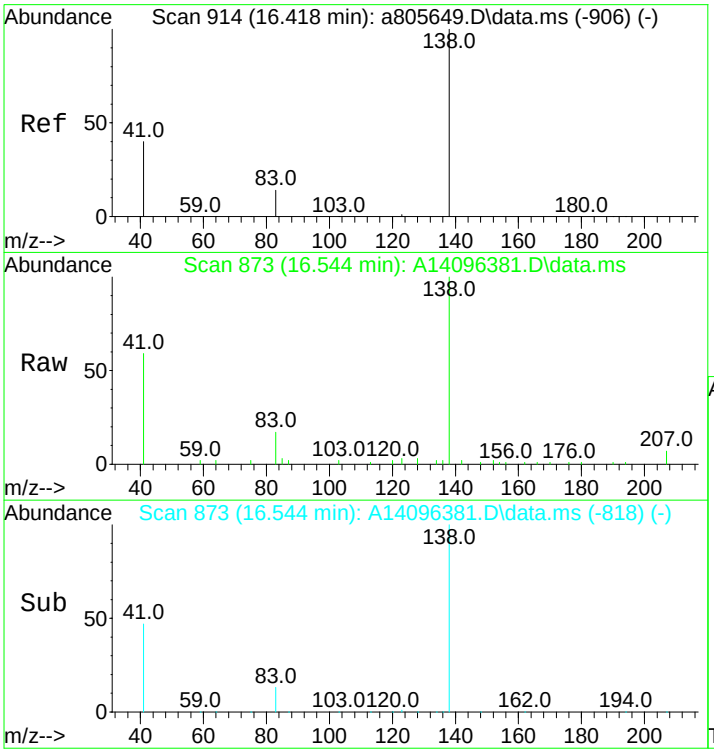
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096381.D
Acq On : 19 May 2012 3:47 am
Operator : PAH14:MT
Sample : Q1405181201
Misc : WG537732
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 22 09:16:50 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:09:46 2012
Response via : Initial Calibration

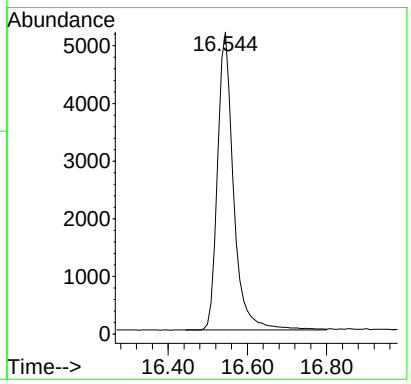
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

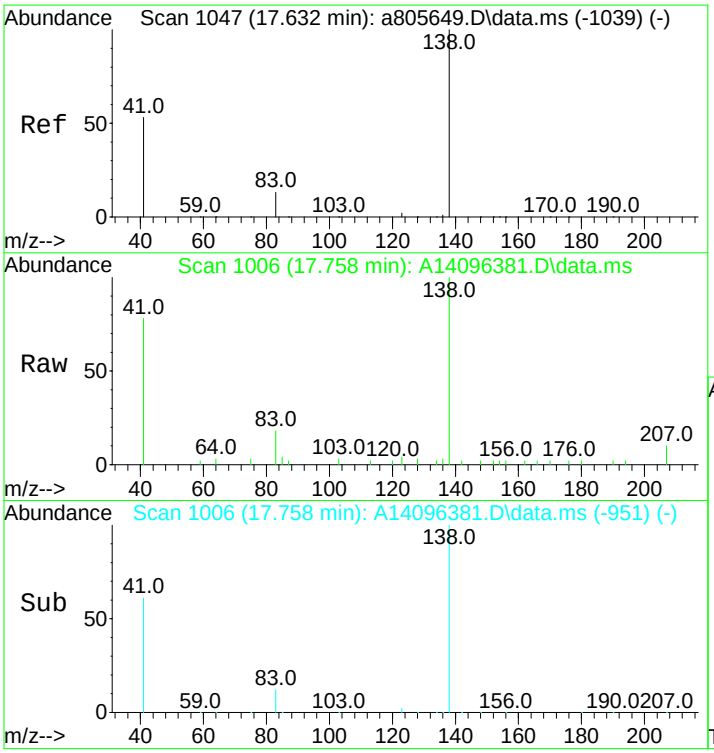




#3
trans-Decalin
Concen: 255.41 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

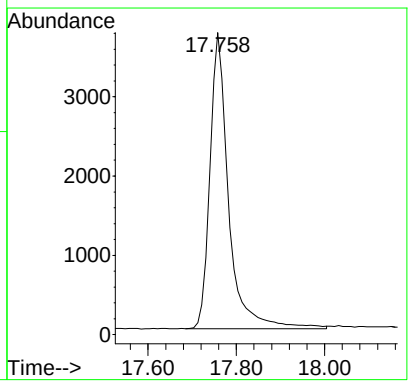
Tgt Ion:138 Resp: 14524

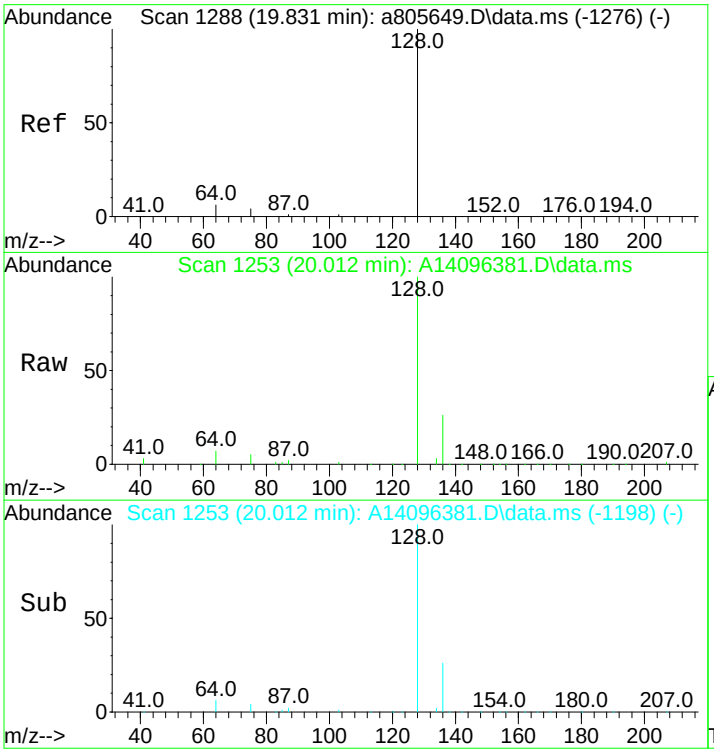




#4
cis-Decalin
Concen: 250.78 ng/mL
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:138 Resp: 11023

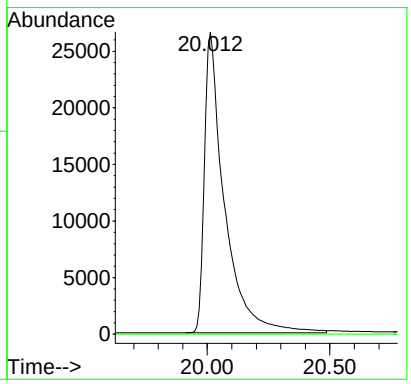


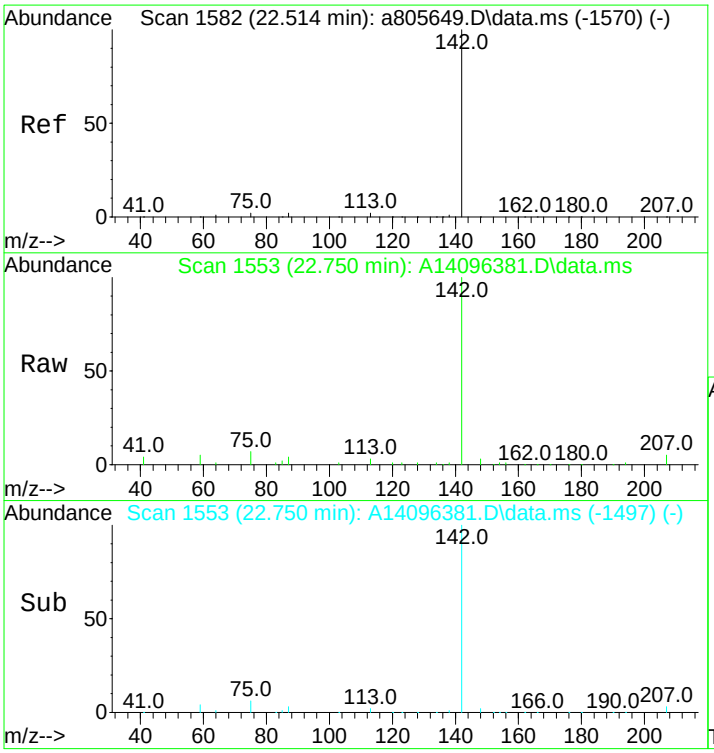


#10
Naphthalene
Concen: 549.88 ng/mL
RT: 20.012 min Scan# 1253
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:128 Resp: 151027

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

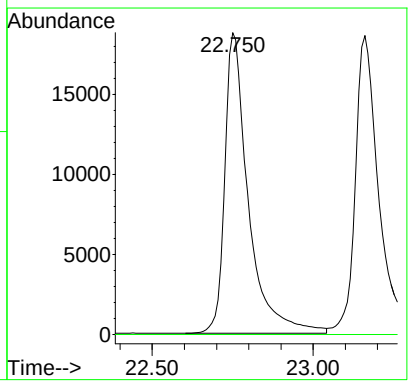


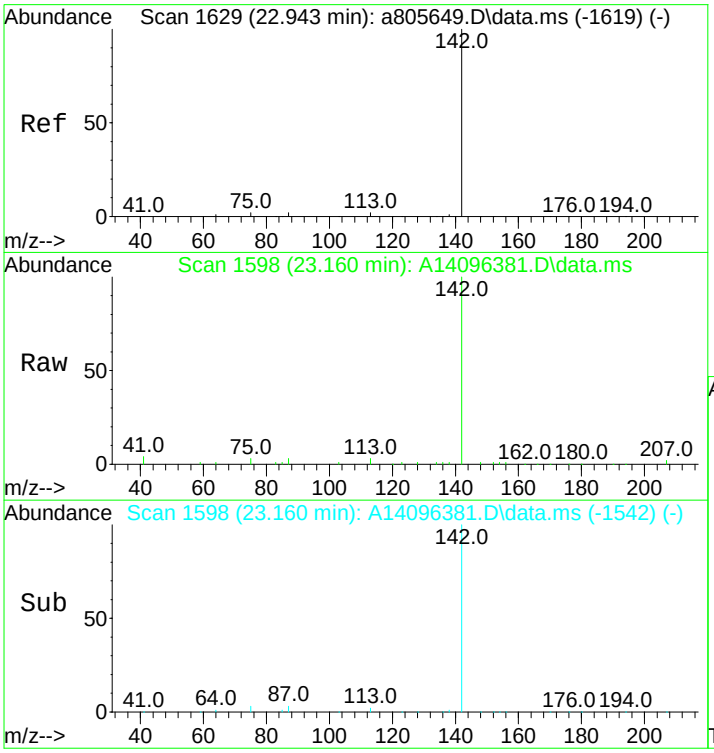


#16
2-Methylnaphthalene
Concen: 527.36 ng/mL
RT: 22.750 min Scan# 1553
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:142 Resp: 95305

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

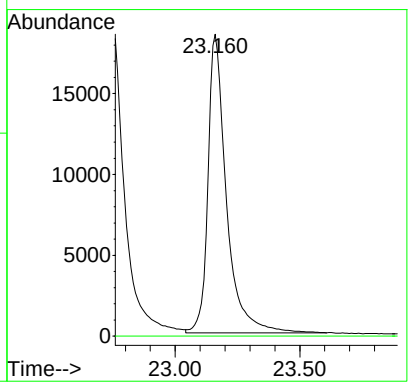


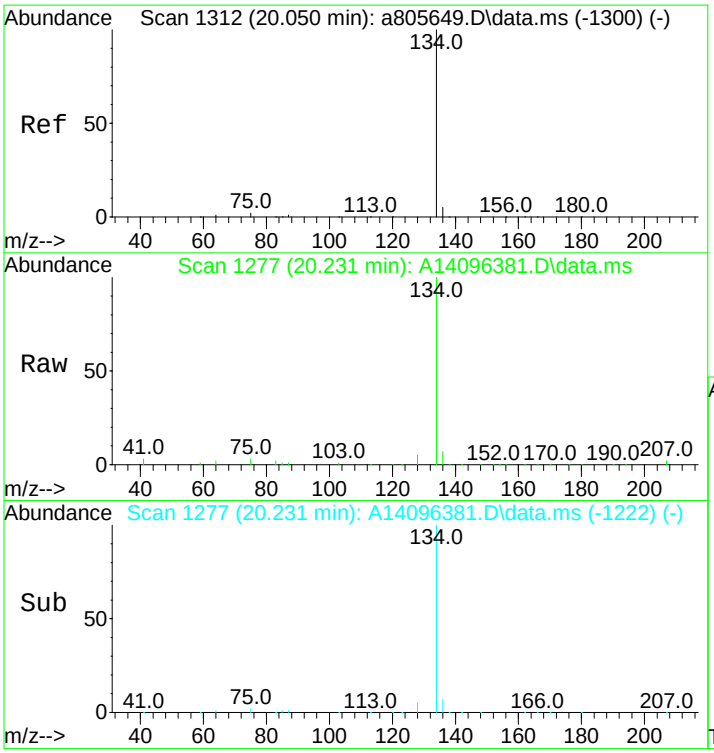


#17
1-Methylnaphthalene
Concen: 536.90 ng/mL
RT: 23.160 min Scan# 1598
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:142 Resp: 95247

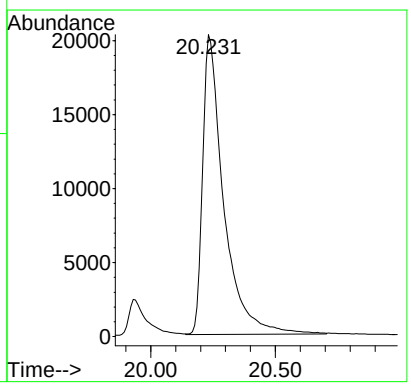
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

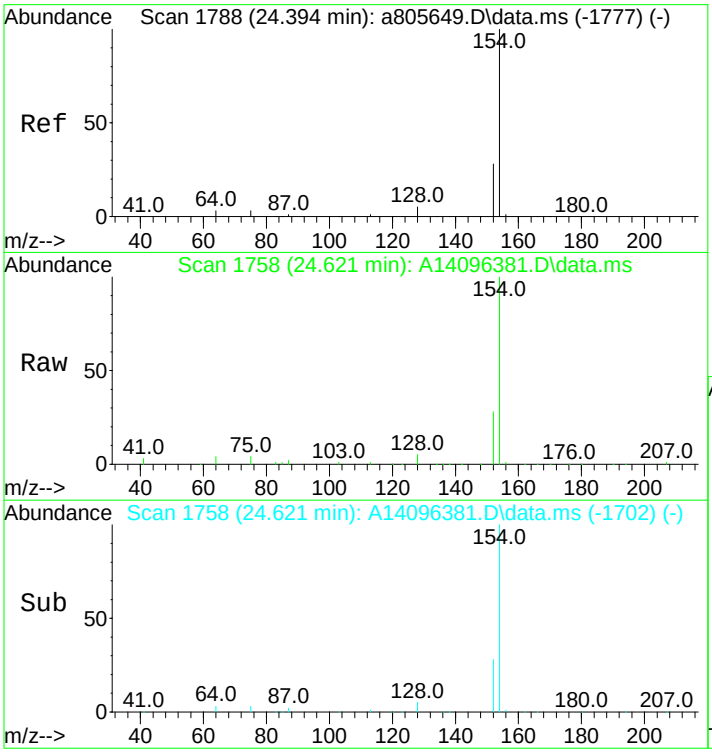




#18
Benzothiophene
Concen: 562.07 ng/mL
RT: 20.231 min Scan# 1277
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:134 Resp: 119054

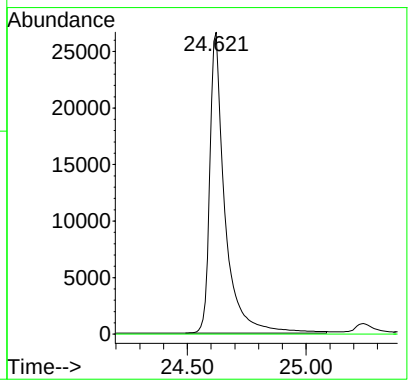


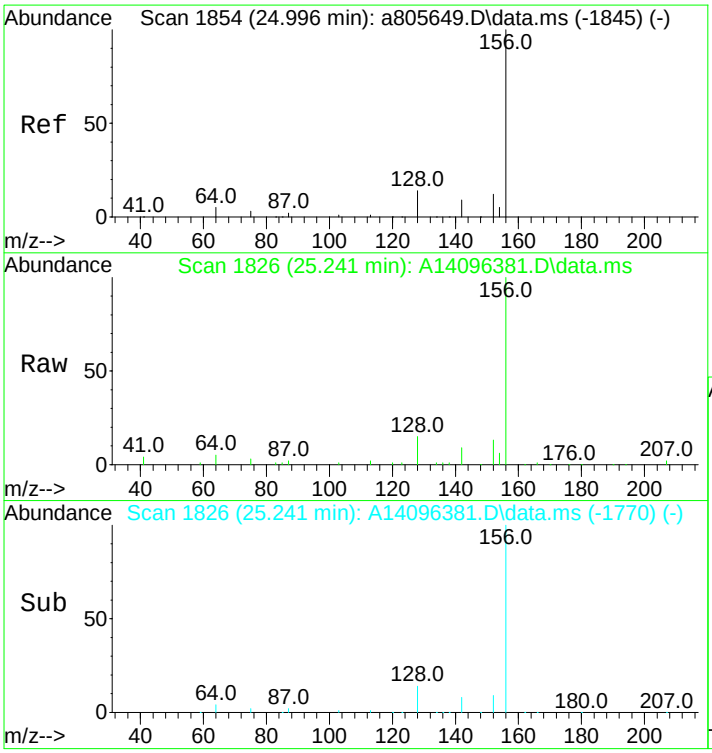


#23
Biphenyl
Concen: 532.51 ng/mL
RT: 24.621 min Scan# 1758
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:154 Resp: 117802

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

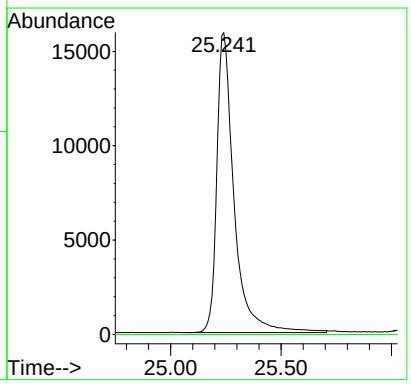


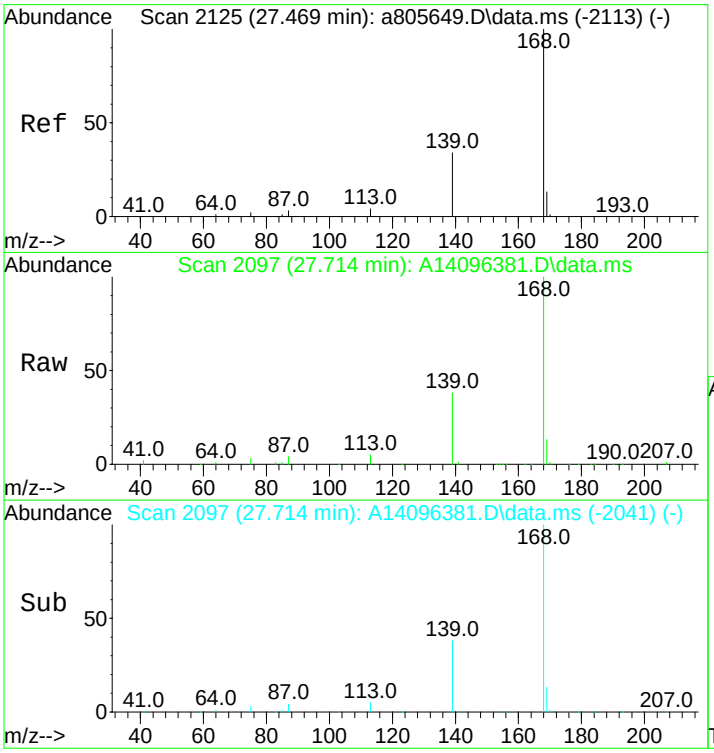


#24
2,6-Dimethylnaphthalene
Concen: 533.06 ng/mL
RT: 25.241 min Scan# 1826
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:156 Resp: 86177

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

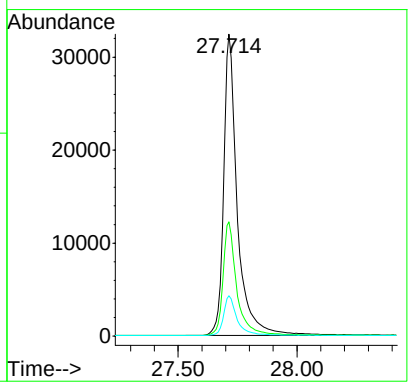


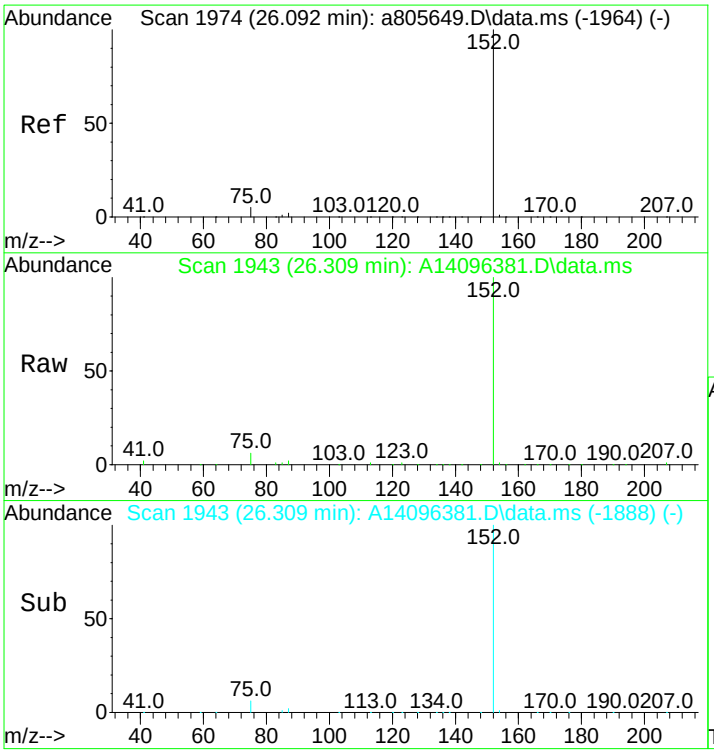


#25
Dibenzofuran
Concen: 554.49 ng/mL
RT: 27.714 min Scan# 2097
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:168 Resp: 129680

Ion	Ratio	Lower	Upper
168	100		
139	38.2	30.9	46.3
169	13.1	10.6	16.0

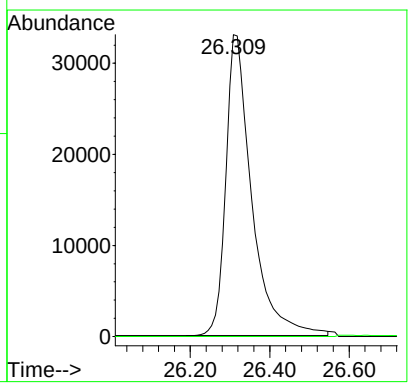


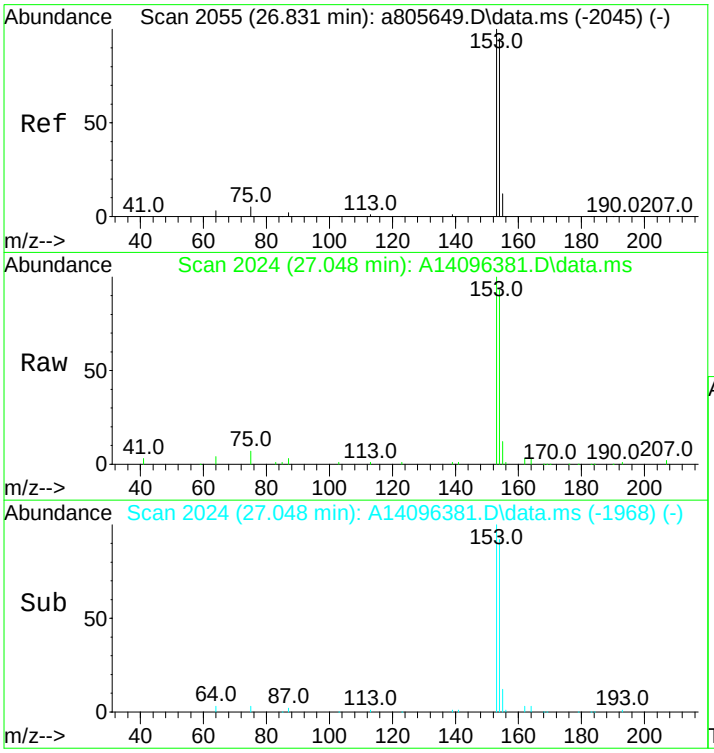


#26
Acenaphthylene
Concen: 525.26 ng/mL m
RT: 26.309 min Scan# 1943
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:152 Resp: 150072

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

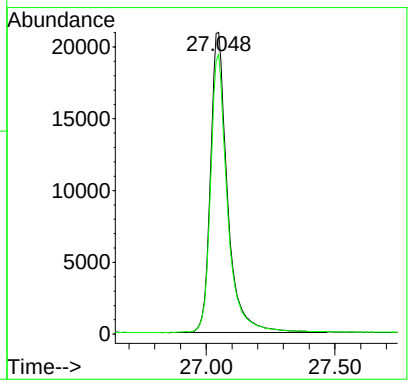


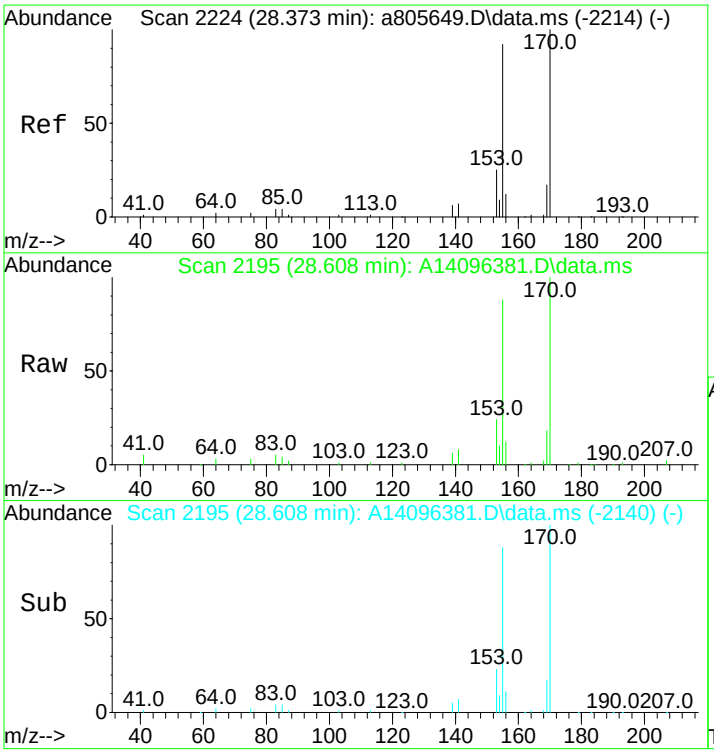


#27
Acenaphthene
Concen: 545.40 ng/mL
RT: 27.048 min Scan# 2024
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:153 Resp: 96305

Ion	Ratio	Lower	Upper
153	100		
154	93.0	73.6	110.4

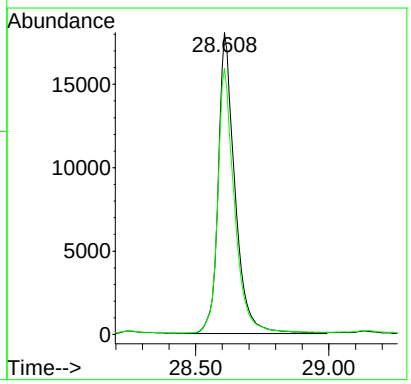


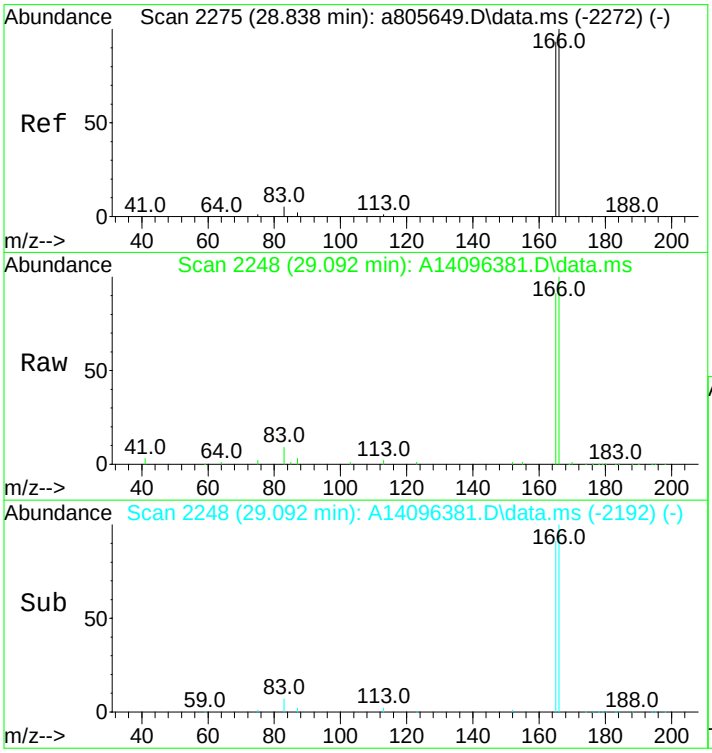


#28
2,3,5-Trimethylnaphthalene
Concen: 536.11 ng/mL
RT: 28.608 min Scan# 2195
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:170 Resp: 78607

Ion	Ratio	Lower	Upper
170	100		
155	88.8	71.2	106.8

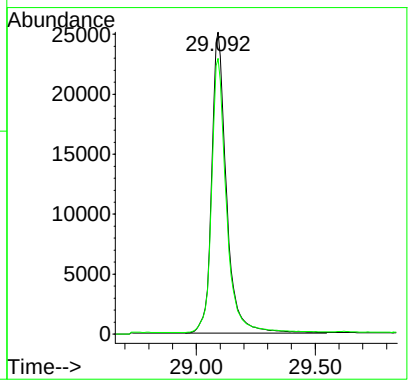


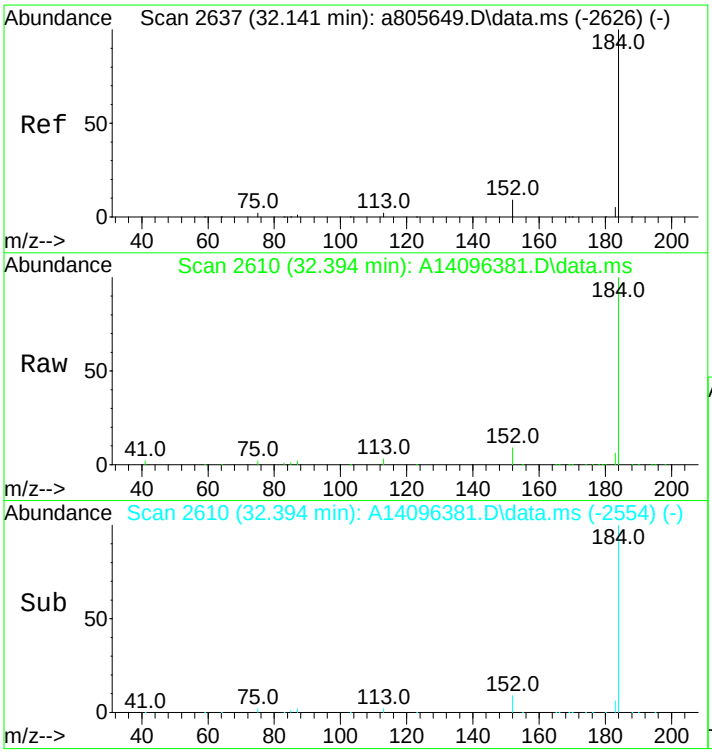


#29
Fluorene
Concen: 553.25 ng/mL
RT: 29.092 min Scan# 2248
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:166 Resp: 108793

Ion	Ratio	Lower	Upper
166	100		
165	91.1	73.3	109.9

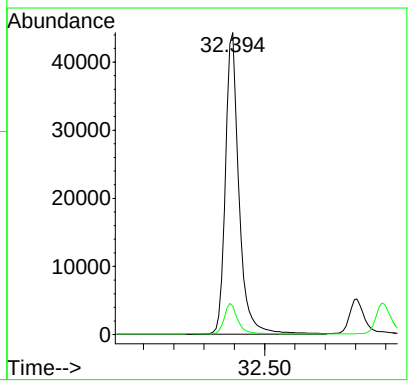


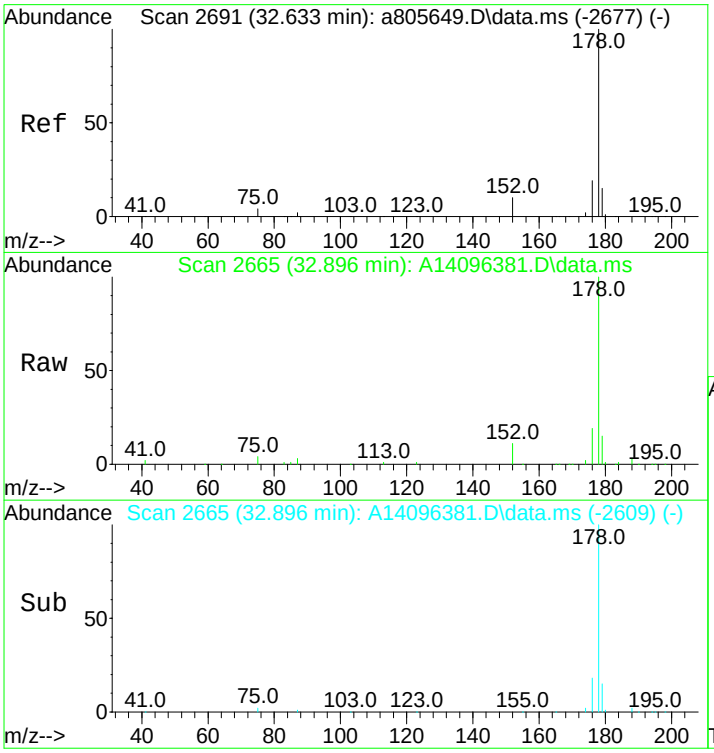


#33
Dibenzothiophene
Concen: 536.79 ng/mL
RT: 32.394 min Scan# 2610
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:184 Resp: 137090

Ion	Ratio	Lower	Upper
184	100		
152	10.0	8.2	12.2

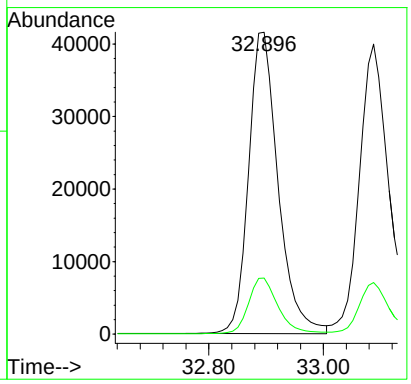


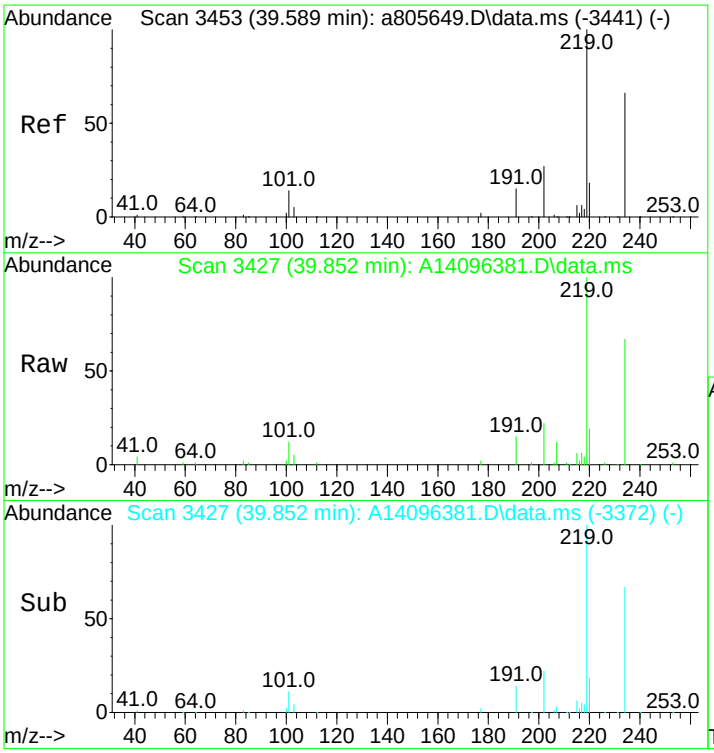


#43
Phenanthrene
Concen: 550.35 ng/mL
RT: 32.896 min Scan# 2665
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:178 Resp: 149254

Ion	Ratio	Lower	Upper
178	100		
176	18.4	14.7	22.1

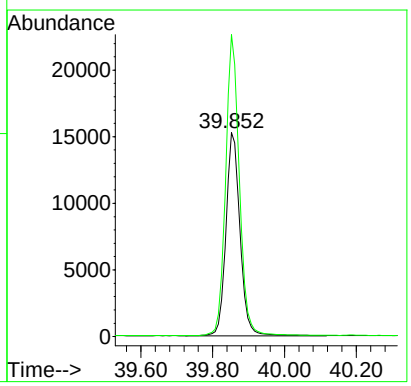


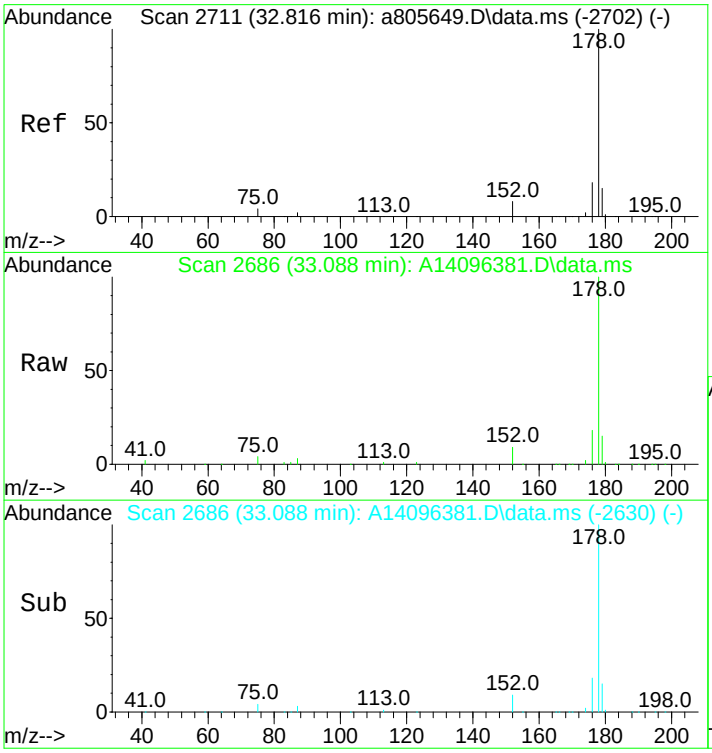


#54
Retene
Concen: 485.67 ng/mL
RT: 39.852 min Scan# 3427
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:234 Resp: 41243

Ion	Ratio	Lower	Upper
234	100		
219	145.4	118.7	178.1

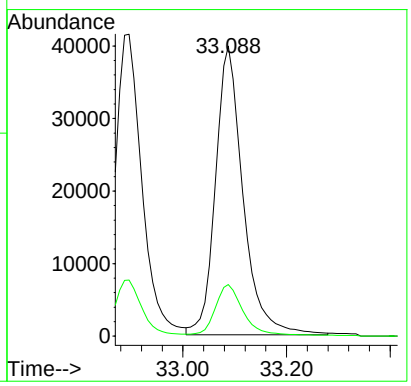


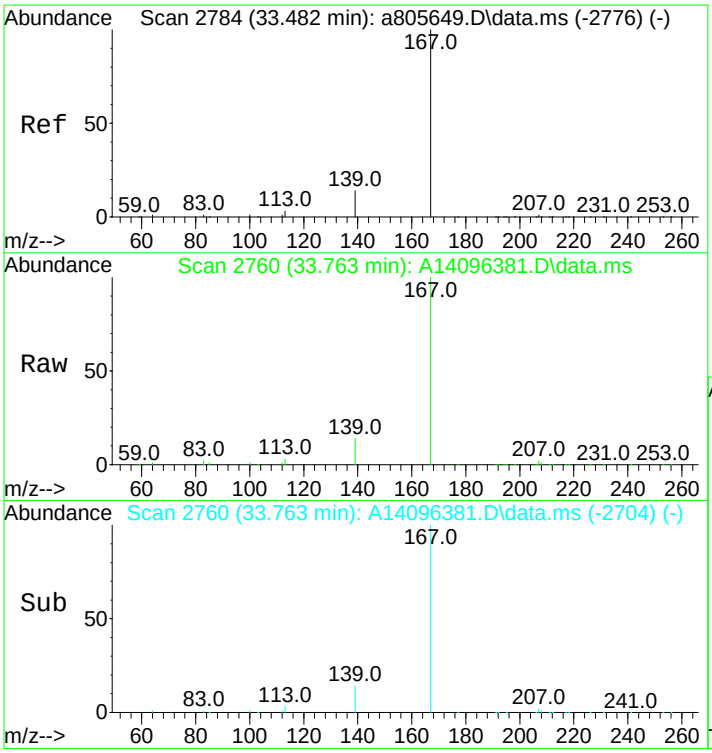


#55
Anthracene
Concen: 546.12 ng/mL m
RT: 33.088 min Scan# 2686
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:178 Resp: 147351

Ion	Ratio	Lower	Upper
178	100		
176	19.1	14.2	21.4

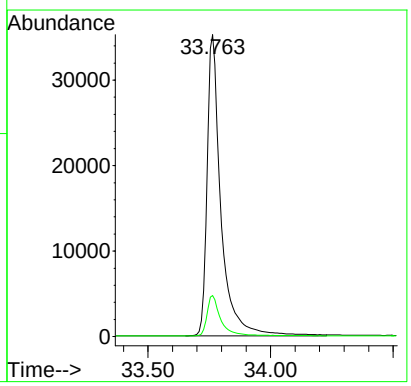


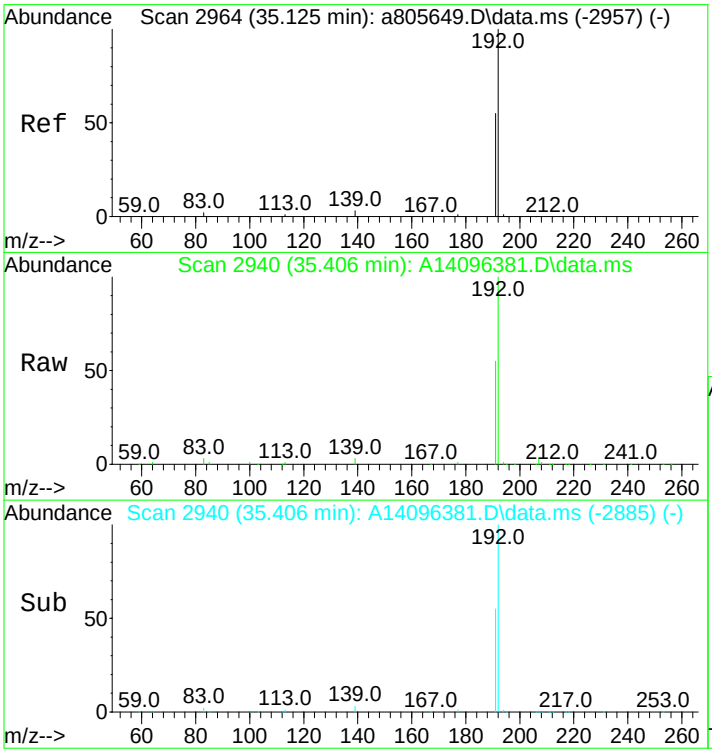


#56
Carbazole
Concen: 550.68 ng/mL
RT: 33.763 min Scan# 2760
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:167 Resp: 138562

Ion	Ratio	Lower	Upper
167	100		
139	13.1	11.0	16.4

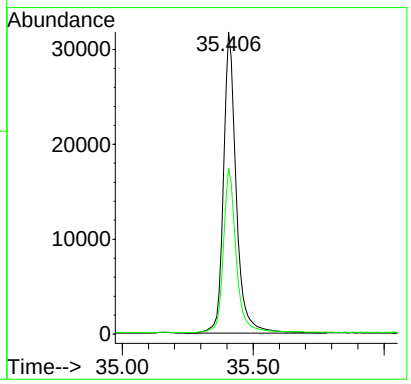


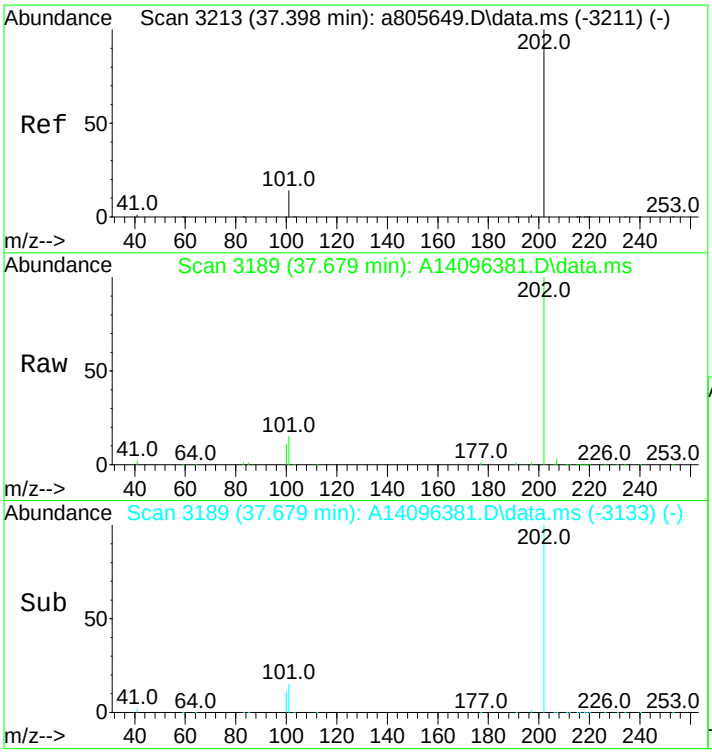


#57
1-Methylphenanthrene
Concen: 527.18 ng/mL
RT: 35.406 min Scan# 2940
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:192 Resp: 107249

Ion	Ratio	Lower	Upper
192	100		
191	55.1	43.8	65.8

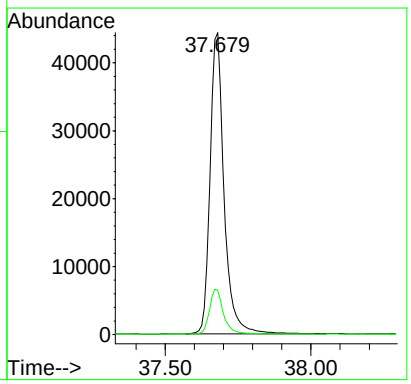


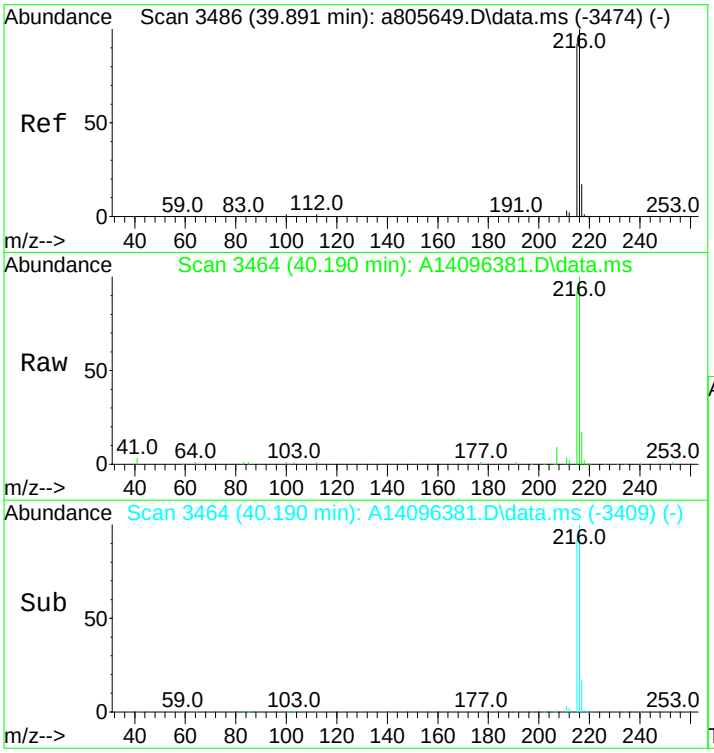


#58
Fluoranthene
Concen: 535.71 ng/mL
RT: 37.679 min Scan# 3189
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:202 Resp: 148220

Ion	Ratio	Lower	Upper
202	100		
101	14.8	12.3	18.5

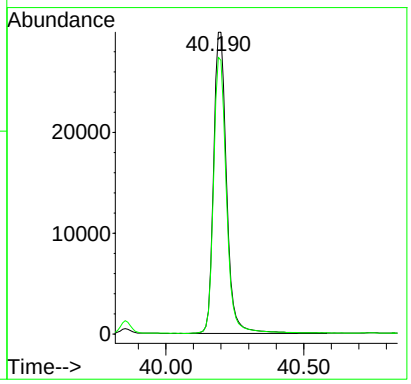


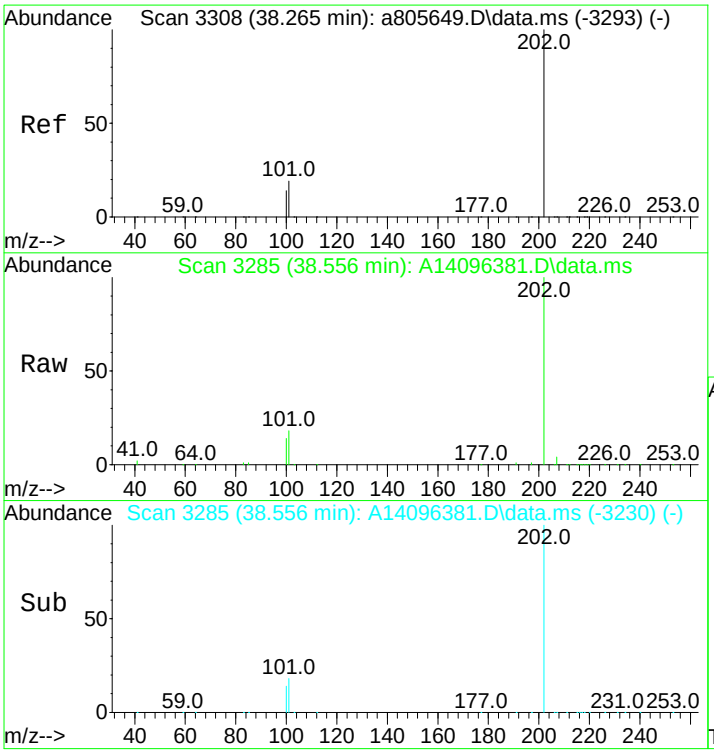


#59
Benzo(b)fluorene
Concen: 527.21 ng/mL
RT: 40.190 min Scan# 3464
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:216 Resp: 97211

Ion	Ratio	Lower	Upper
216	100		
215	90.8	72.2	108.4

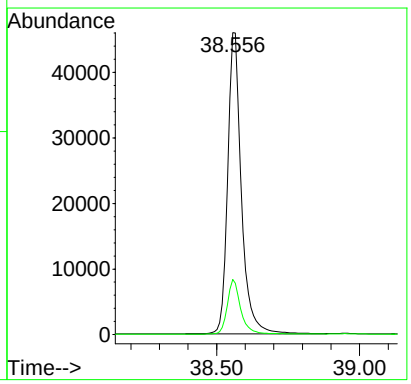


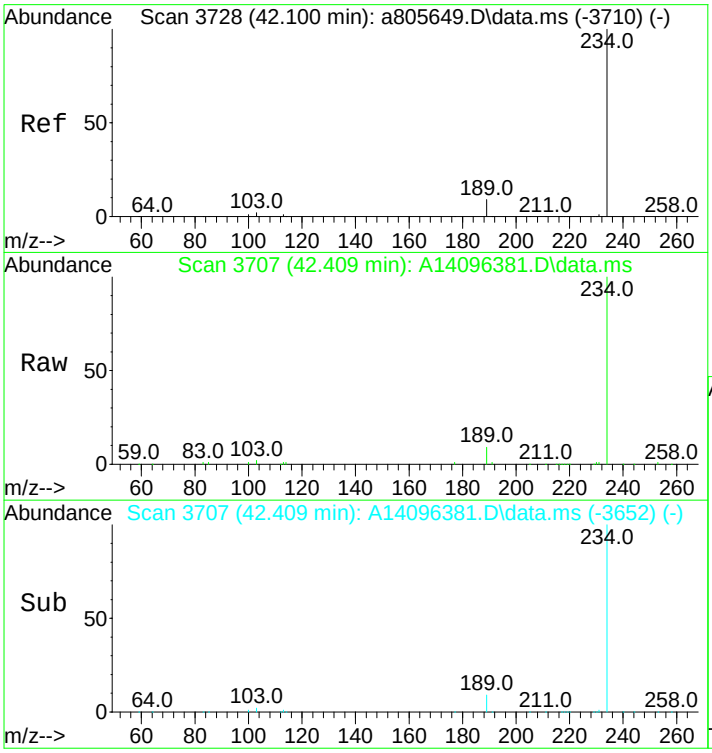


#60
Pyrene
Concen: 531.65 ng/mL
RT: 38.556 min Scan# 3285
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:202 Resp: 152885

Ion	Ratio	Lower	Upper
202	100		
101	17.7	14.2	21.2

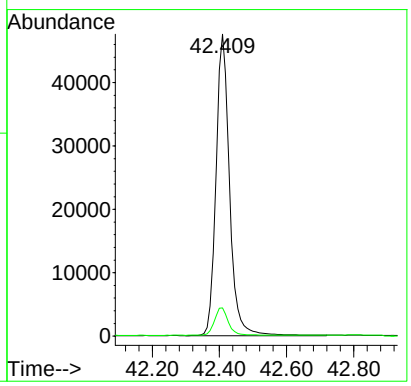


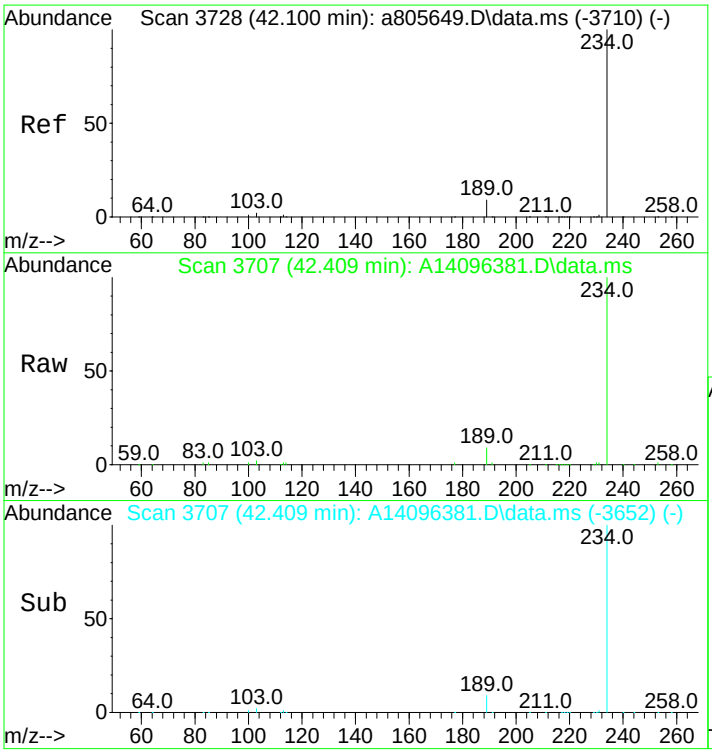


#66
Naphthobenzothiophene
Concen: 530.91 ng/ml
RT: 42.409 min Scan# 3707
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:234 Resp: 133407

Ion	Ratio	Lower	Upper
234	100		
189	9.2	7.3	10.9

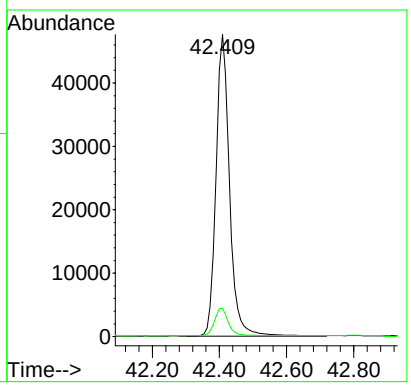


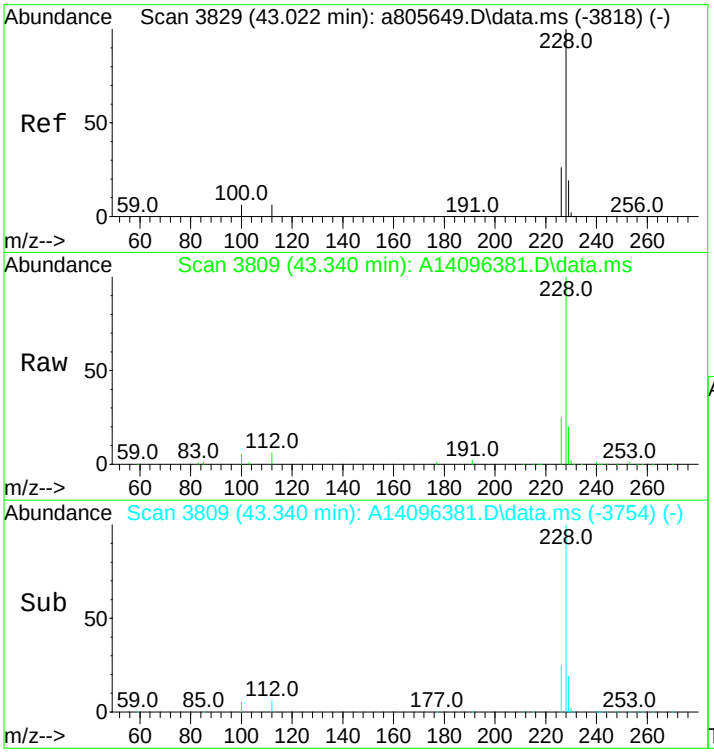


#67
Naphthobenzothiophene-2,1-D
Concen: 530.91 ng/mL
RT: 42.409 min Scan# 3707
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:234 Resp: 133407

Ion	Ratio	Lower	Upper
234	100		
189	9.2	7.3	10.9

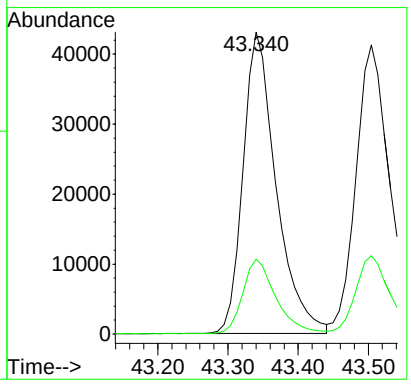


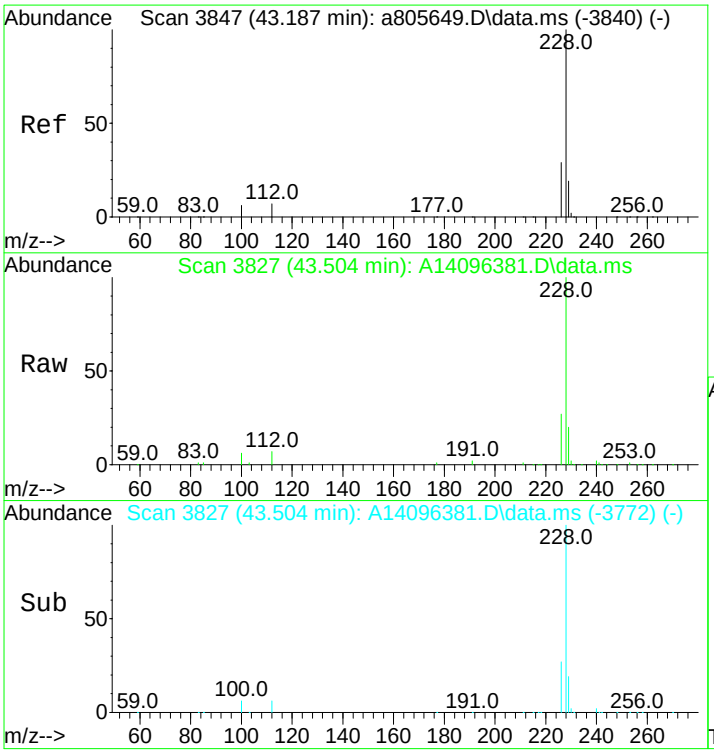


#75
Benz[a]anthracene
Concen: 511.19 ng/mL
RT: 43.340 min Scan# 3809
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:228 Resp: 141332

Ion	Ratio	Lower	Upper
228	100		
226	24.6	19.6	29.4

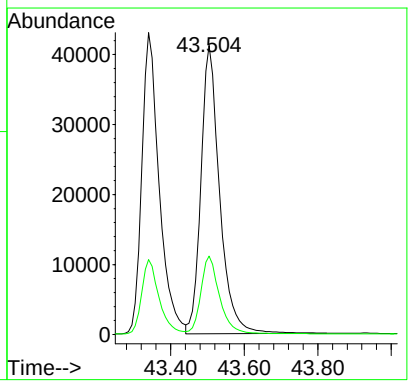


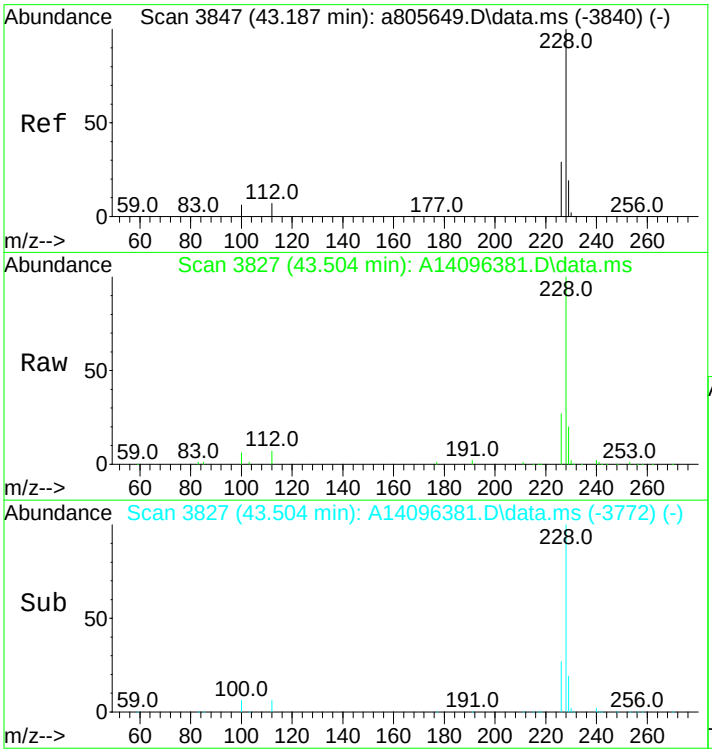


#76
Chrysene
Concen: 530.73 ng/mL
RT: 43.504 min Scan# 3827
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:228 Resp: 144878

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

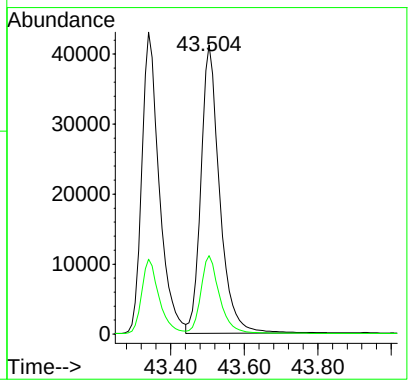


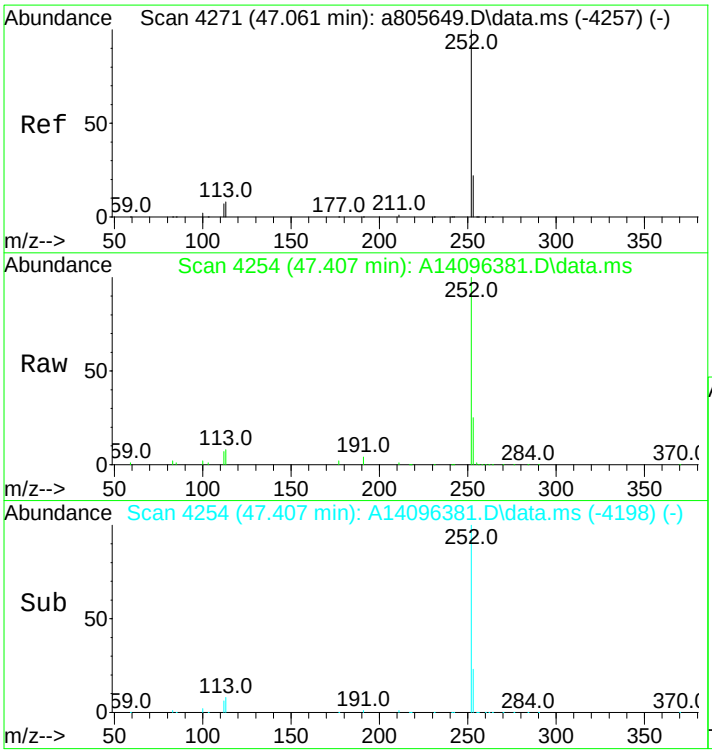


#77
Chrysene/Triphenylene
Concen: 530.73 ng/mL
RT: 43.504 min Scan# 3827
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:228 Resp: 144878

Ion	Ratio	Lower	Upper
228	100		
226	27.0	21.8	32.6

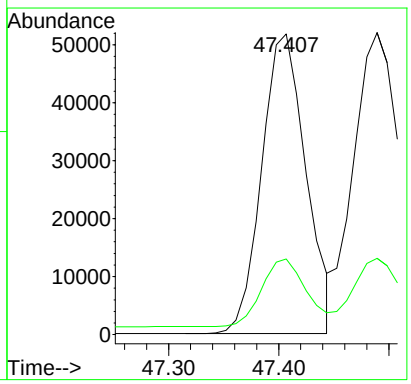


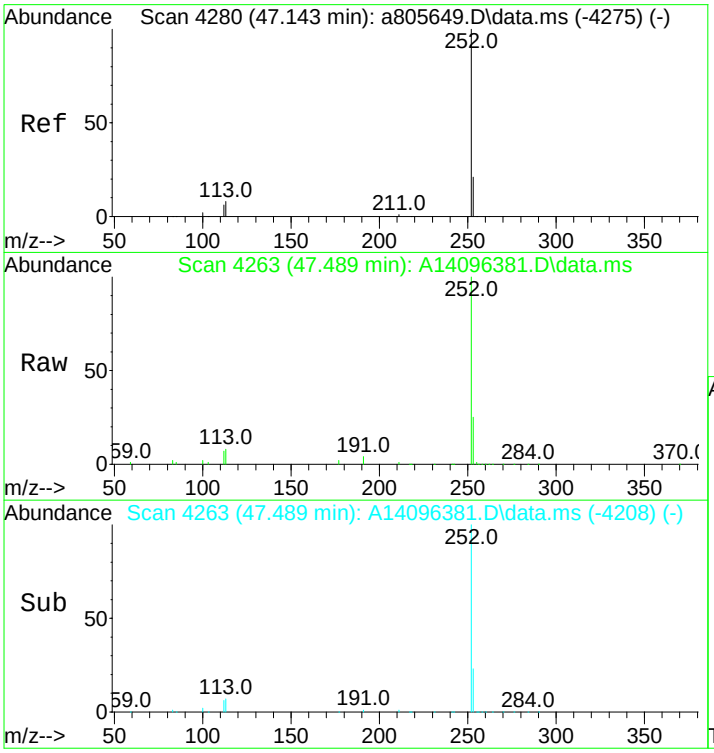


#82
Benzo[b]fluoranthene
Concen: 528.20 ng/mL
RT: 47.407 min Scan# 4254
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:252 Resp: 144435

Ion	Ratio	Lower	Upper
252	100		
253	22.7	20.6	30.8

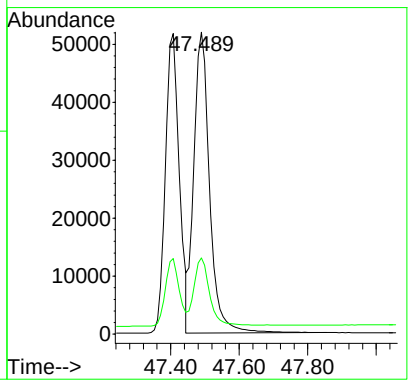


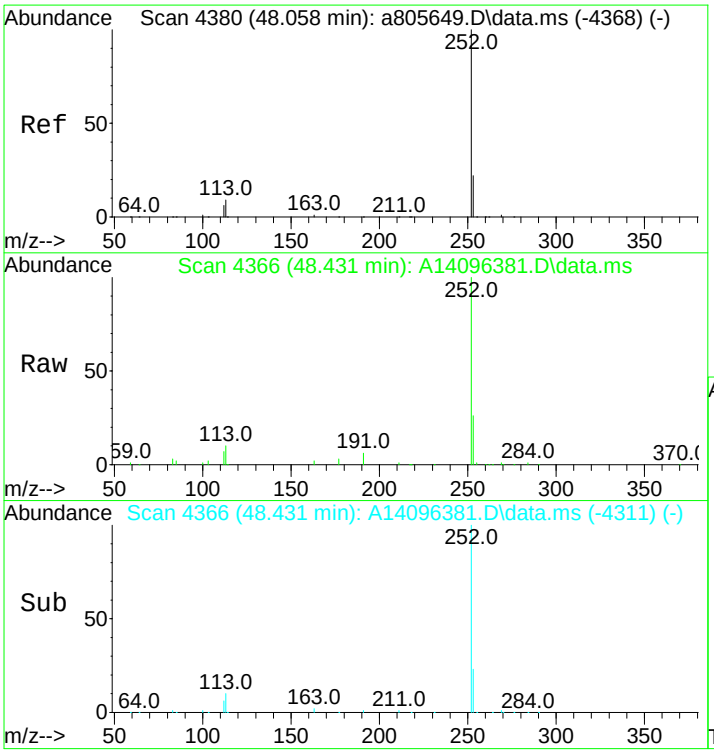


#83
Benzo[j]+[k]fluoranthene
Concen: 549.28 ng/mL
RT: 47.489 min Scan# 4263
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:252 Resp: 165896

Ion	Ratio	Lower	Upper
252	100		
253	22.2	20.2	30.4

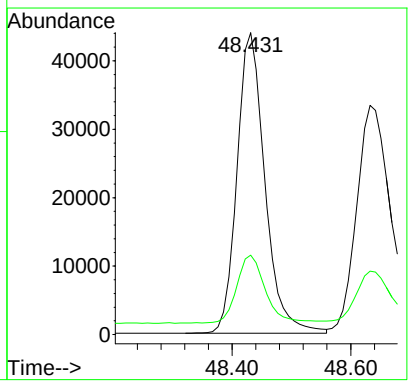


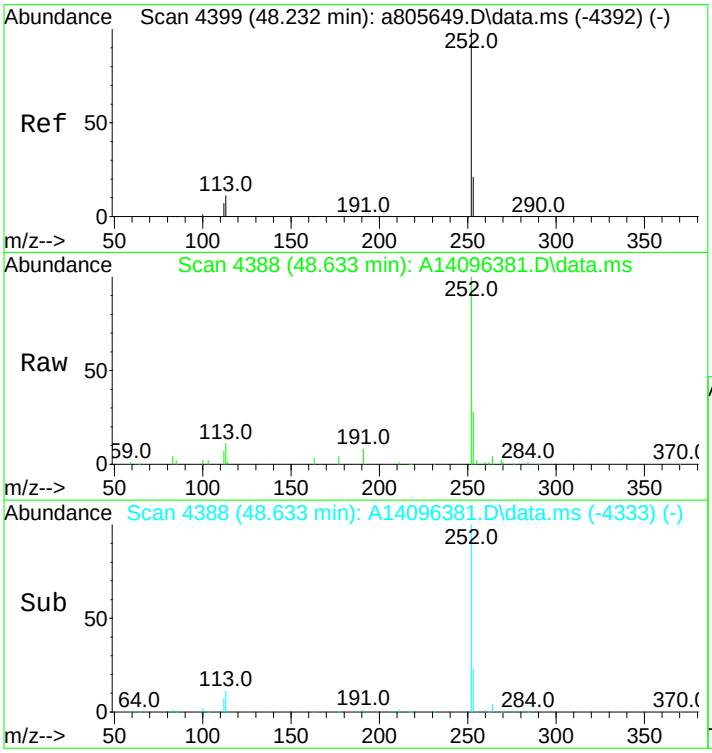


#85
Benzo[e]pyrene
Concen: 528.02 ng/mL
RT: 48.431 min Scan# 4366
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:252 Resp: 143155

Ion	Ratio	Lower	Upper
252	100		
253	23.0	21.3	31.9

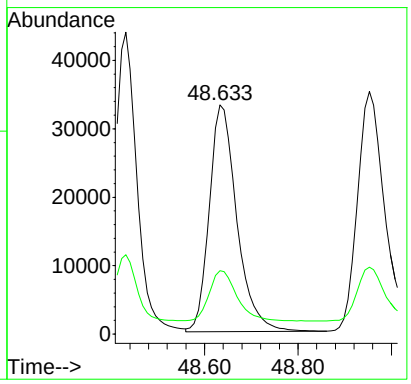


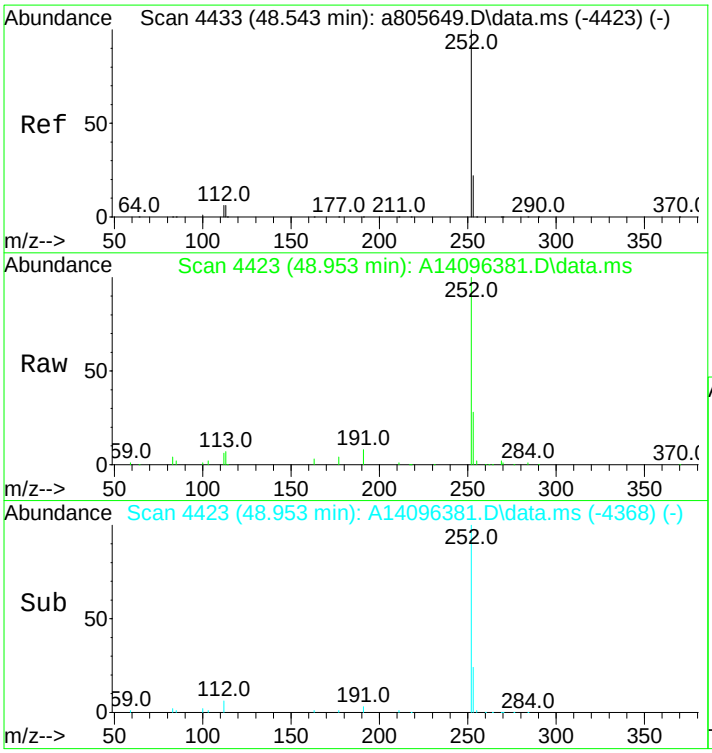


#87
Benzo[a]pyrene
Concen: 537.53 ng/mL
RT: 48.633 min Scan# 4388
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:252 Resp: 136281

Ion	Ratio	Lower	Upper
252	100		
253	22.9	22.2	33.2

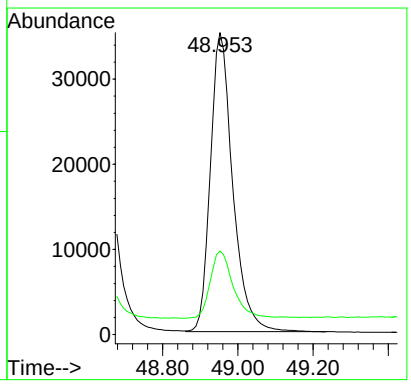


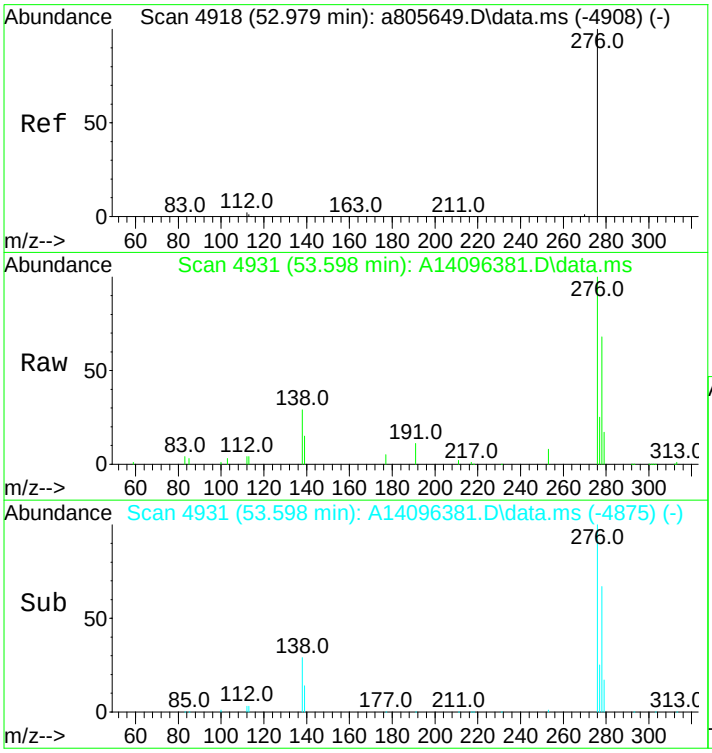


#88
Perylene
Concen: 528.78 ng/mL
RT: 48.953 min Scan# 4423
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:252 Resp: 145343

Ion	Ratio	Lower	Upper
252	100		
253	23.2	22.6	34.0

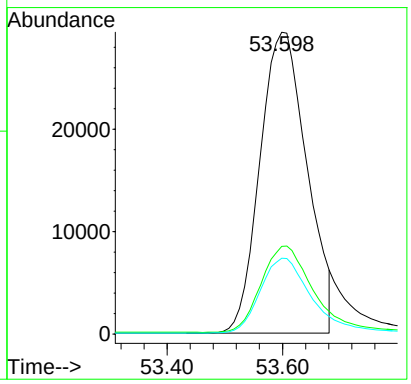


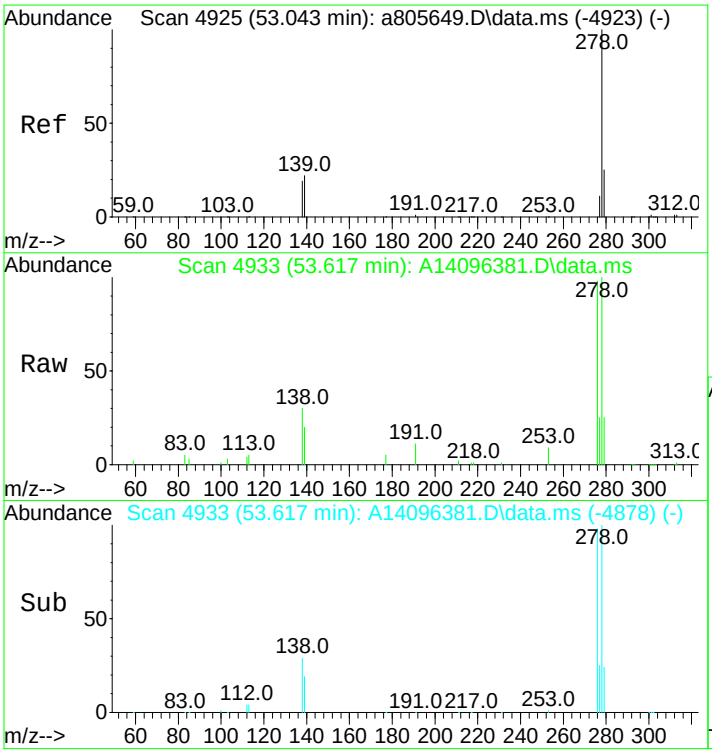


#89
Indeno[1,2,3-cd]pyrene
Concen: 525.06 ng/mL m
RT: 53.598 min Scan# 4931
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:276 Resp: 166514

Ion	Ratio	Lower	Upper
276	100		
138	32.6	22.6	33.8
277	27.9	19.8	29.8

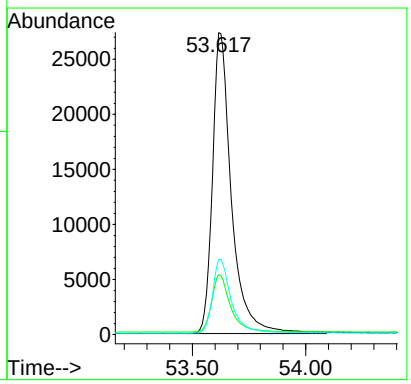


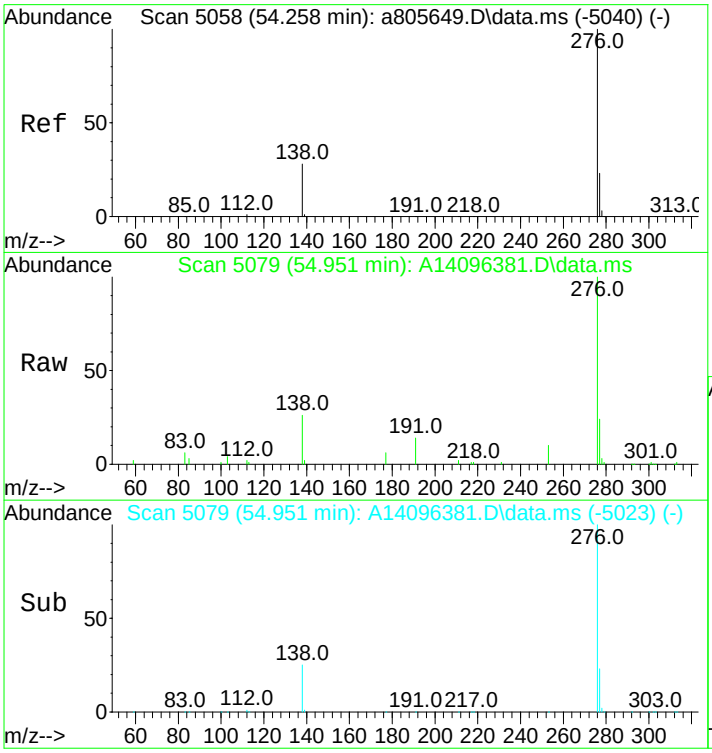


#90
Dibenz[ah]+[ac]anthracene
Concen: 532.85 ng/mL
RT: 53.617 min Scan# 4933
Delta R.T. 0.000 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:278 Resp: 158784

Ion	Ratio	Lower	Upper
278	100		
139	18.9	16.2	24.2
279	24.2	19.8	29.8

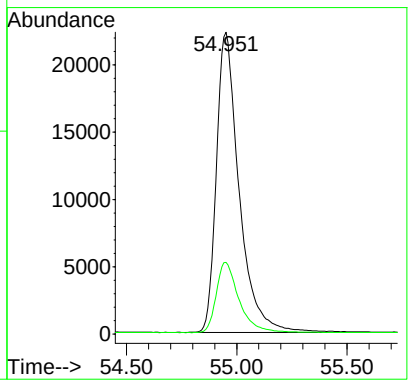




#91
Benzo[g,h,i]perylene
Concen: 525.15 ng/mL
RT: 54.951 min Scan# 5079
Delta R.T. 0.009 min
Lab File: A14096381.D
Acq: 19 May 2012 3:47 am

Tgt Ion:276 Resp: 159736

Ion	Ratio	Lower	Upper
276	100		
277	23.6	19.0	28.6



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : PAH14:MT
Sample : SO053012ANS01
Misc : WG537732
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.884	164	81519M4	500.000	ng/mL	0.00
74) Chrysene-d12	43.377	240	137067	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.903	136	277876	960.599	ng/mL	-0.03
Spiked Amount 1000.000	Range 50 - 130		Recovery = 96.06%			
42) Phenanthrene-d10	32.759	188	252048	924.569	ng/mL	-0.05
Spiked Amount 1000.000	Range 50 - 130		Recovery = 92.46%			
86) Benzo[a]pyrene-d12	48.523	264	272457	1017.166	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 101.72%			
127) 5B(H)Cholane - Surr	43.961	217	58521	1078.589	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 107.86%			
Target Compounds						Qvalue
3) trans-Decalin	16.544	138	163305	2487.579	ng/mL	100
4) cis-Decalin	17.758	138	6688M4	132.087	ng/mL	
5) C1-Decalins	18.470	152	281379M5	4286.168	ng/mL	
6) C2-Decalins	19.802	166	261628M5	3985.306	ng/mL	
7) C3-Decalins	22.284	180	133105M5	2027.551	ng/mL	
8) C4-Decalins	25.670	194	135201M5	2059.479	ng/mL	
10) Naphthalene	19.976	128	946595	2991.896	ng/mL#	100
11) C1-Naphthalenes	22.677	142	2036563M5	6436.950	ng/mL	
12) C2-Naphthalenes	25.515	156	2444314M5	7725.725	ng/mL	
13) C3-Naphthalenes	27.860	170	1873479M5	5921.491	ng/mL	
14) C4-Naphthalenes	30.624	184	1028994M5	3252.334	ng/mL	
16) 2-Methylnaphthalene	22.677	142	1194499	5737.750	ng/mL#	100
17) 1-Methylnaphthalene	23.096	142	841448	4117.487	ng/mL#	100
18) Benzothiophene	20.176	134	7902M4	32.385	ng/mL	
19) C1-Benzo(b)thiophenes	22.230	148	42646M5	174.778	ng/mL	
20) C2-Benzo(b)thiophenes	25.706	162	71032M5	291.114	ng/mL	
21) C3-Benzo(b)thiophenes	27.696	176	133471M5	547.011	ng/mL	
22) C4-Benzo(b)thiophenes	29.429	190	124596M5	510.638	ng/mL	
23) Biphenyl	24.557	154	192576	755.686	ng/mL#	100
24) 2,6-Dimethylnaphthalene	25.177	156	605469	3251.213	ng/mL#	100
25) Dibenzofuran	27.650	168	70030M3	259.936	ng/mL	
26) Acenaphthylene	26.254	152	11639M4	35.364	ng/mL	
27) Acenaphthene	27.011	153	19576M3	96.240	ng/mL	
28) 2,3,5-Trimethylnaphthalen	28.553	170	125613M3	743.696	ng/mL	
29) Fluorene	29.028	166	82876M4	365.860	ng/mL	
30) C1-Fluorenes	31.400	180	187818M5	829.132	ng/mL	
31) C2-Fluorenes	33.590	194	292428M5	1290.939	ng/mL	
32) C3-Fluorenes	35.424	208	279129M5	1232.229	ng/mL	
33) Dibenzothiophene	32.358	184	194695	661.785	ng/mL#	75
34) 4-Methyldibenzothiophene(	34.128	198	184760	628.015	ng/mL#	100
35) 2/3-Methyldibenzothiophen	34.484	198	129334	439.617	ng/mL#	100
36) 1-Methyldibenzothiophene(	34.895	198	60662	206.195	ng/mL#	100
38) C1-Dibenzothiophenes	34.128	198	384498M5	1306.942	ng/mL	
38) C1-Dibenzothiophenes BS	34.128	198	384498m	1306.942	ng/mL	
39) C2-Dibenzothiophenes	35.817	212	550664M5	1871.755	ng/mL	
40) C3-Dibenzothiophenes	37.624	226	502115M5	1706.732	ng/mL	
41) C4-Dibenzothiophenes	39.314	240	286312M5	973.199	ng/mL	
43) Phenanthrene	32.850	178	312095	999.002	ng/mL	95
44) 3-Methylphenanthrene(3MP)	34.813	192	138399	443.009	ng/mL	99
45) 2-Methylphenanthrene(2MP)	34.922	192	153633M4	491.772	ng/mL	
46) 2-Methylanthracene(2MA)	35.087	192	4120	13.188	ng/mL	94
47) 9/4-Methylphenanthrene(9M	35.269	192	221676	709.575	ng/mL	100
48) 1-Methylphenanthrene(1MP)	35.360	192	149465M4	478.431	ng/mL	
49) C1-Phenanthrenes/Anthrace	35.269	192	677746M5	2169.435	ng/mL	
50) C2-Phenanthrenes/Anthrace	37.086	206	737000M5	2359.104	ng/mL	
50) C2-Phenanthrenes/Anthr BS	37.086	206	737000m	2359.104	ng/mL	

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : PAH14:MT
Sample : SO053012ANS01
Misc : WG537732
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) C3-Phenanthrenes/Anthrace	38.921	220	530218M5	1697.204	ng/mL	
53) C4-Phenanthrenes/Anthrace	41.103	234	218778M5	700.299	ng/mL	
56) Carbazole	33.672	167	8069M4	27.838	ng/mL	
57) 1-Methylphenanthrene	35.360	192	149005M4	635.816	ng/mL	
58) Fluoranthene	37.643	202	5225M4	16.394	ng/mL	
59) Benzo(b)fluorene	40.163	216	6293M3	29.627	ng/mL	
60) Pyrene	38.528	202	17519M4	52.886	ng/mL	
61) C1-Fluoranthenes/Pyrenes	39.925	216	97315M5	293.771	ng/mL	
62) C2-Fluoranthenes/Pyrenes	41.724	230	163929M5	494.863	ng/mL	
63) C3-Fluoranthenes/Pyrenes	43.742	244	202440M5	611.119	ng/mL	
64) C4-Fluoranthenes/Pyrenes	45.093	258	172249M5	519.979	ng/mL	
66) Naphthobenzothiophene	42.390	234	44403M4	154.601	ng/ml	
67) Naphthobenzothiophene-2,1	42.390	234	44438M4	154.722	ng/mL	
68) Naphthobenzothiophene-1,2	42.728	234	9340	32.520	ng/mL#	3
69) Naphthobenzothiophene-2,3	43.030	234	4433M4	15.435	ng/mL	
70) C1-Naphthobenzothiophenes	43.787	248	160206M5	557.799	ng/ml	
71) C2-Naphthobenzothiophenes	45.788	262	233570M5	813.235	ng/ml	
72) C3-Naphthobenzothiophenes	47.407	276	187047M5	651.253	ng/ml	
73) C4-Naphthobenzothiophenes	48.486	290	132628M5	461.779	ng/mL	
75) Benz[a]anthracene	43.313	228	3148M4	10.499	ng/mL	
76) Chrysene	43.450	228	51255M4	173.138	ng/mL	
77) Chrysene/Triphenylene	43.450	228	51436M4	173.749	ng/mL	
78) C1-Chrysenes	44.947	242	94192M5	318.178	ng/mL	
79) C2-Chrysenes	47.672	256	135484M5	457.661	ng/mL	
79) C2-Chrysenes BS	47.672	256	135484m	457.661	ng/mL	
80) C3-Chrysenes	49.785	270	165389M5	558.680	ng/mL	
81) C4-Chrysenes	49.885	284	96100M5	324.623	ng/mL	
82) Benzo[b]fluoranthene	47.398	252	8014M3	27.025	ng/mL	
85) Benzo[e]pyrene	48.413	252	15270	51.936	ng/mL	95
87) Benzo[a]pyrene	48.614	252	3196M3	11.624	ng/mL	
88) Perylene	48.943	252	4592	15.405	ng/mL#	1
89) Indeno[1,2,3-cd]pyrene	53.589	276	1597M4	4.644	ng/mL	
90) Dibenz[ah]+[ac]anthracene	53.589	278	2225	6.885	ng/mL#	43
91) Benzo[g,h,i]perylene	54.923	276	4996	15.146	ng/mL	99
92) Hopane (T19)	52.529	191	86733M4	885.803	ng/mL	
93) 17a(H),21B(H)-hopane - C3	52.529	191	85867M4	876.958	ng/mL	
94) C23 Tricyclic Terpane (T4	40.985	191	34909M4	356.525	ng/ml	
95) C24 Tricyclic Terpane (T5	41.706	191	22032	225.013	ng/ml	100
96) C25 Tricyclic Terpane (T6	43.194	191	21313M1	217.669	ng/ml	
97) C24 Tetracyclic Terpane (	44.518	191	7167M4	73.196	ng/ml	
98) C26 Tricyclic Terpane-22S	44.244	191	8159M4	83.328	ng/ml	
99) C26 Tricyclic Terpane-22R	44.344	191	7848	80.152	ng/ml	100
100) C28 Tricyclic Terpane-22S	46.629	191	7859M4	80.264	ng/ml	
101) C28 Tricyclic Terpane-22R	46.794	191	8830M4	90.181	ng/ml	
102) C29 Tricyclic Terpane-22S	47.324	191	10731	109.596	ng/ml	100
103) C29 Tricyclic Terpane-22R	47.517	191	10315M4	105.347	ng/ml	
104) 18a-22,29,30-Trisnorneoho	48.678	191	15958	162.979	ng/ml	100
105) C30 Tricyclic Terpane-22S	48.760	191	9113M4	93.071	ng/ml	
106) C30 Tricyclic Terpane-22R	49.007	191	8026M4	81.969	ng/ml	
107) 17a(H)-22,29,30-Trisnorho	49.236	191	19203	196.120	ng/ml	100
108) 17a/b,21b/a 28,30-Bisnorh	50.453	191	3460M4	35.337	ng/ml	
109) 17a(H),21b(H)-25-Norhopan	50.224	191	3699	37.778	ng/ml	100
110) 30-Norhopane (T15)	51.129	191	49769M4	508.290	ng/ml	
111) 18a(H)-30-Norneohopane-C2	51.239	191	12297M4	125.589	ng/ml	
112) 17a(H)-Diahopane (X)	51.358	191	7247M4	74.014	ng/ml	
113) 30-Normoretane (T17)	51.925	191	5606	57.254	ng/ml	100
114) 18a(H)&18b(H)-Oleananes (	52.337	191	1640M4	16.749	ng/ml	
115) Moretane (T20)	53.233	191	8280M4	84.564	ng/ml	
116) 30-Homohopane-22S (T21)	54.357	191	37346	381.414	ng/ml	100
117) 30-Homohopane-22R (T22)	54.585	191	32269	329.563	ng/ml	100
118) Gammacerane/C32-diahopane	55.152	191	7403	75.607	ng/mL	100

Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : PAH14:MT
Sample : SO053012ANS01
Misc : WG537732
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

Sub List : Default - All compounds listed

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
119)	30,31-Bishomohopane-22S (	55.947	191	26790	273.606	ng/ml	100
120)	30,31-Bishomohopane-22R (	56.331	191	19372	197.846	ng/ml	100
121)	30,31-Trishomohopane-22S	58.122	191	21345	217.996	ng/ml	100
122)	30,31-Trishomohopane-22R	58.752	191	14058	143.574	ng/ml	100
123)	Tetrakishomohopane-22S (T	60.817	191	14564	148.742	ng/ml	100
124)	Tetrakishomohopane-22R (T	61.740	191	10659	108.860	ng/ml	100
125)	Pentakishomohopane-22S (T	64.025	191	15714	160.487	ng/ml	100
126)	Pentakishomohopane-22R (T	65.341	191	11066M4	113.017	ng/ml	
128)	13b(H),17a(H)-20S-Diachol	45.459	217	12786	235.656	ng/ml	100
129)	13b(H),17a(H)-20R-Diachol	45.888	217	6844M4	126.140	ng/ml	
130)	13b,17a-20S-Methyldiachol	46.584	217	6945M4	128.002	ng/ml	
131)	14a,17a-20S-Chol/13b,17a-	47.462	217	17481	322.189	ng/ml	100
132)	14a,17a-20R-Chol/13b,17a-	47.992	217	21617M4	398.419	ng/ml	
133)	Unknown Sterane (S18)	48.267	217	5264	97.020	ng/ml	100
134)	13a,17b-20S-Ethyldiachole	48.541	217	1135	20.919	ng/ml	100
135)	14a,17a-20S-Methylcholest	48.696	217	10141M4	186.907	ng/ml	
136)	14a,17a-20R-Methylcholest	49.437	217	9728M4	179.295	ng/ml	
137)	14a(H),17a(H)-20S-Ethylch	49.794	217	13816M4	254.640	ng/ml	
138)	14a(H),17a(H)-20R-Ethylch	50.718	217	11233M4	207.033	ng/ml	
139)	14b(H),17b(H)-20R-Cholest	47.553	218	12330M4	227.252	ng/ml	
140)	14b(H),17b(H)-20S-Cholest	47.645	218	12286M4	226.441	ng/ml	
141)	14b,17b-20R-Methylcholest	48.879	218	12942M4	238.531	ng/ml	
142)	14b,17b-20S-Methylcholest	48.962	218	16000M4	294.893	ng/ml	
143)	14b(H),17b(H)-20R-Ethylch	50.041	218	19581M3	360.893	ng/ml	
144)	14b(H),17b(H)-20S-Ethylch	50.087	218	10138M3	186.851	ng/ml	
145)	C26,20R- +C27,20S- triaro	49.748	231	65128	1200.361	ng/mL	100
146)	C28,20S-triaromatic stero	50.626	231	39995	737.140	ng/mL	100
147)	C27,20R-triaromatic stero	51.084	231	39498	727.980	ng/mL	100
148)	C28,20R-triaromatic stero	52.318	231	32467	598.393	ng/mL	100

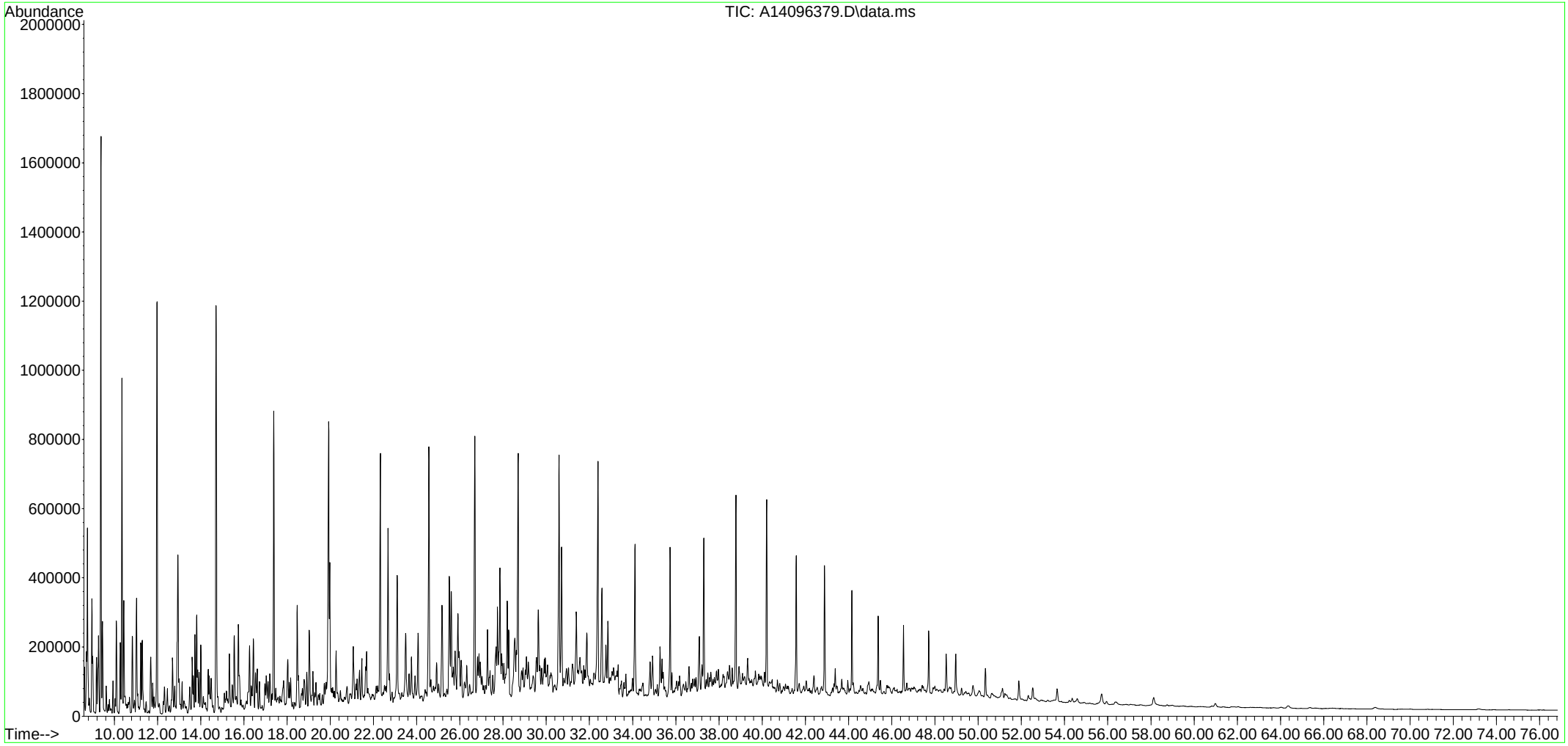
(#) = qualifier out of range (m) = manual integration (+) = signals summed

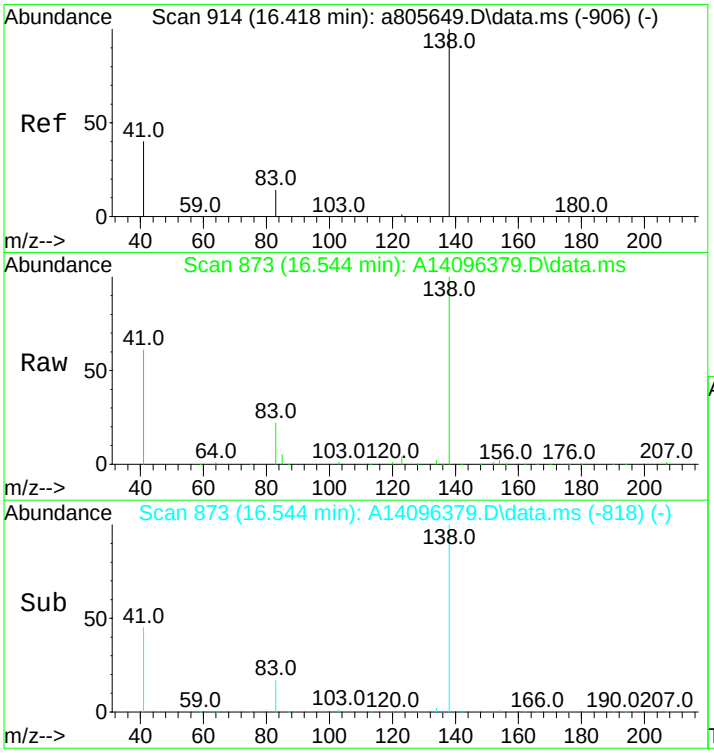
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\MAY12\MAY18\
Data File : A14096379.D
Acq On : 19 May 2012 12:57 am
Operator : PAH14:MT
Sample : SO053012ANS01
Misc : WG537732
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:16:41 2012
Quant Method : C:\msdchem\1\METHODS\PAH14\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:48:00 2012
Response via : Initial Calibration

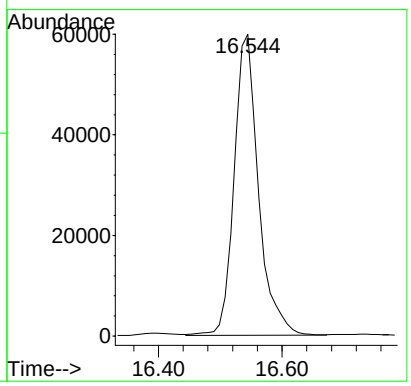
Sub List : Default - All compounds listed

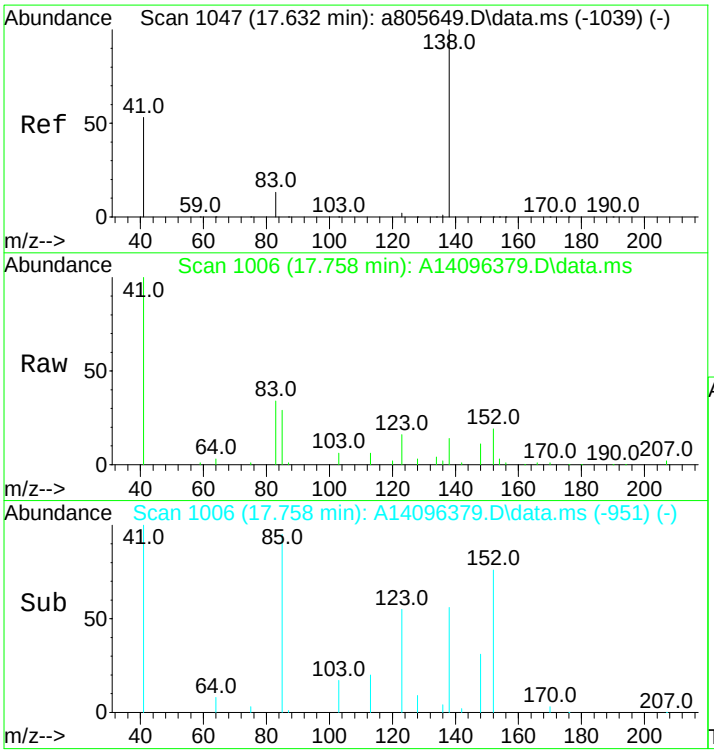




#3
trans-Decalin
Concen: 2487.58 ng/mL
RT: 16.544 min Scan# 873
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

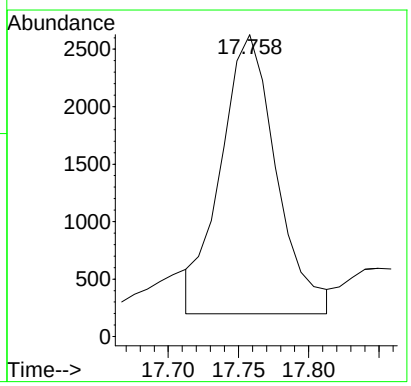
Tgt Ion:138 Resp: 163305

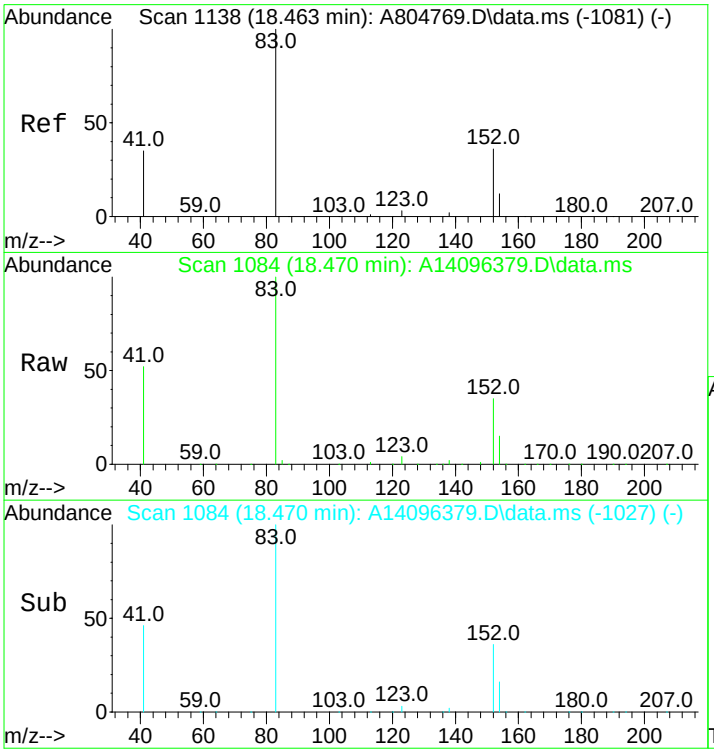




#4
cis-Decalin
Concen: 132.09 ng/mL m
RT: 17.758 min Scan# 1006
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

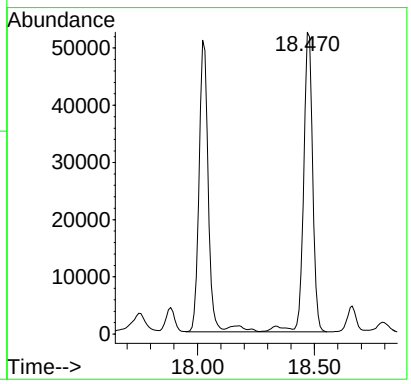
Tgt Ion:138 Resp: 6688

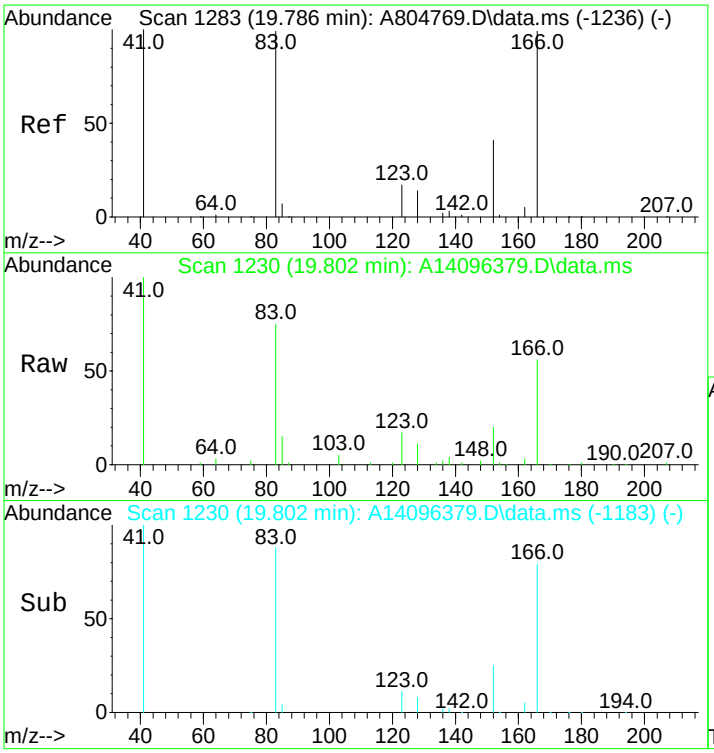




#5
C1-Decalins
Concen: 4286.17 ng/mL m
RT: 18.470 min Scan# 1084
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

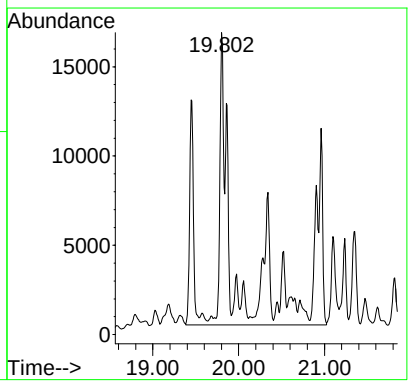
Tgt Ion:152 Resp: 281379

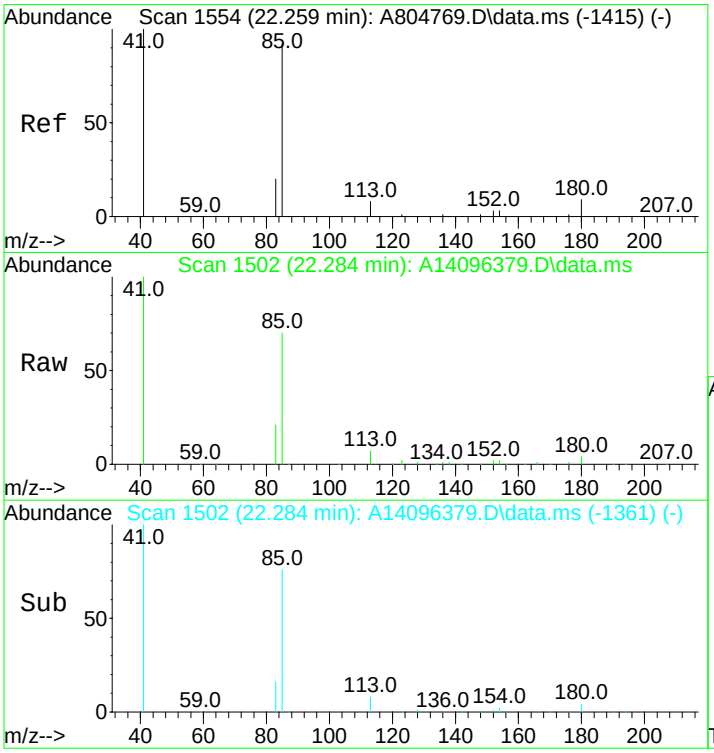




#6
C2-Decalins
Concen: 3985.31 ng/mL m
RT: 19.802 min Scan# 1230
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

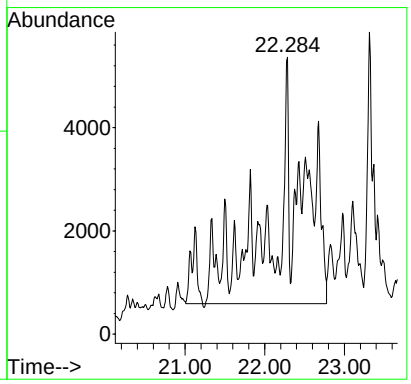
Tgt Ion:166 Resp: 261628

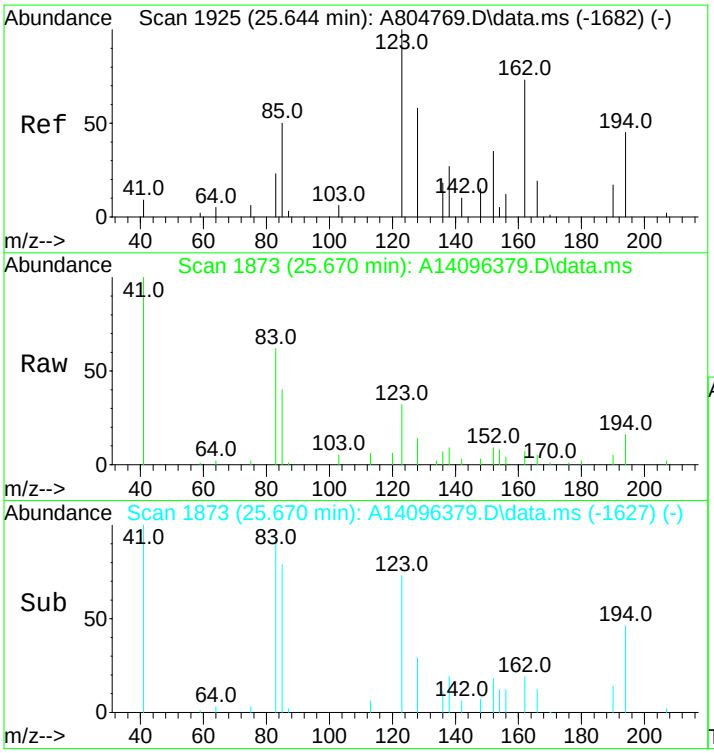




#7
C3-Decalins
Concen: 2027.55 ng/mL m
RT: 22.284 min Scan# 1502
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

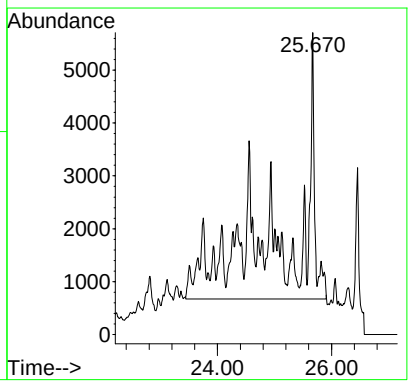
Tgt Ion:180 Resp: 133105

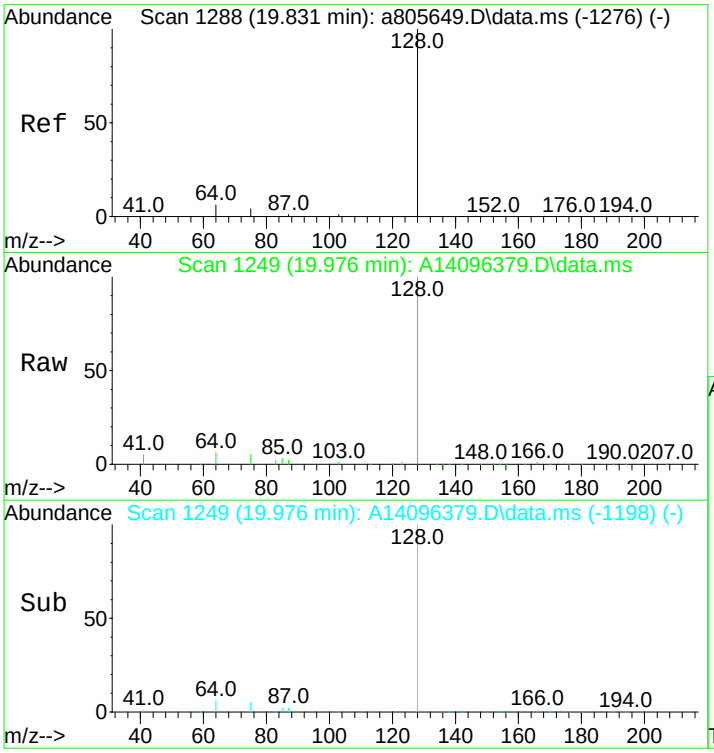




#8
C4-Decalins
Concen: 2059.48 ng/mL m
RT: 25.670 min Scan# 1873
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:194 Resp: 135201

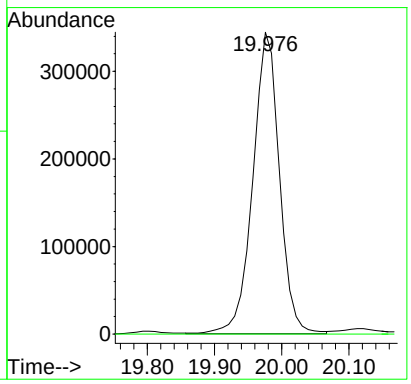


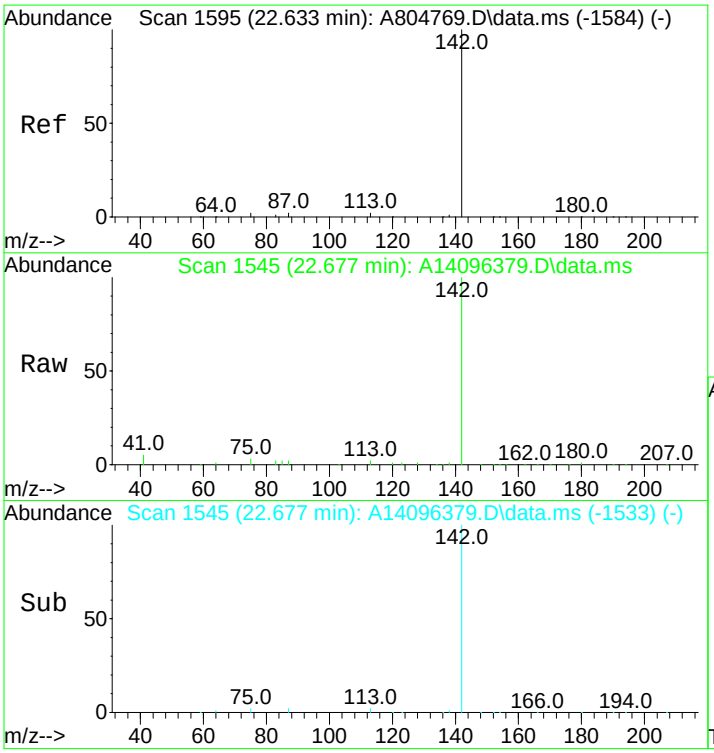


#10
Naphthalene
Concen: 2991.90 ng/mL
RT: 19.976 min Scan# 1249
Delta R.T. -0.036 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:128 Resp: 946595

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

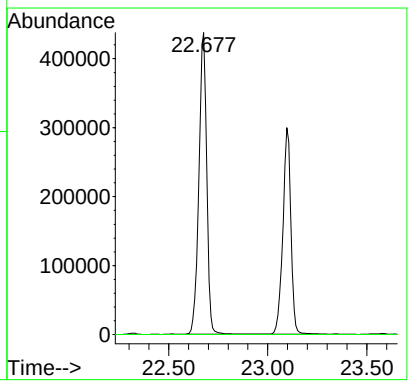


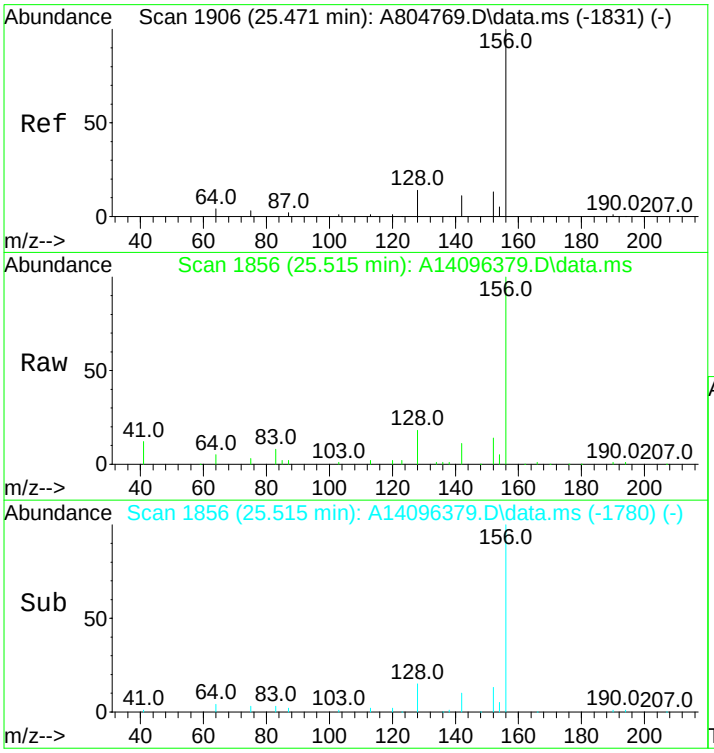


#11
C1-Naphthalenes
Concen: 6436.95 ng/mL m
RT: 22.677 min Scan# 1545
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:142 Resp: 2036563

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

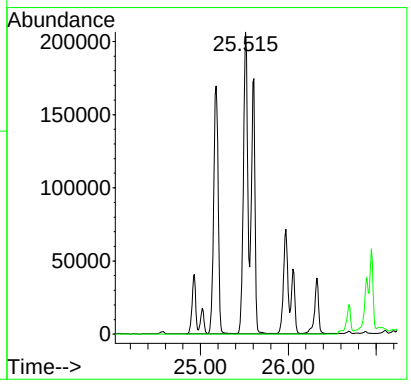


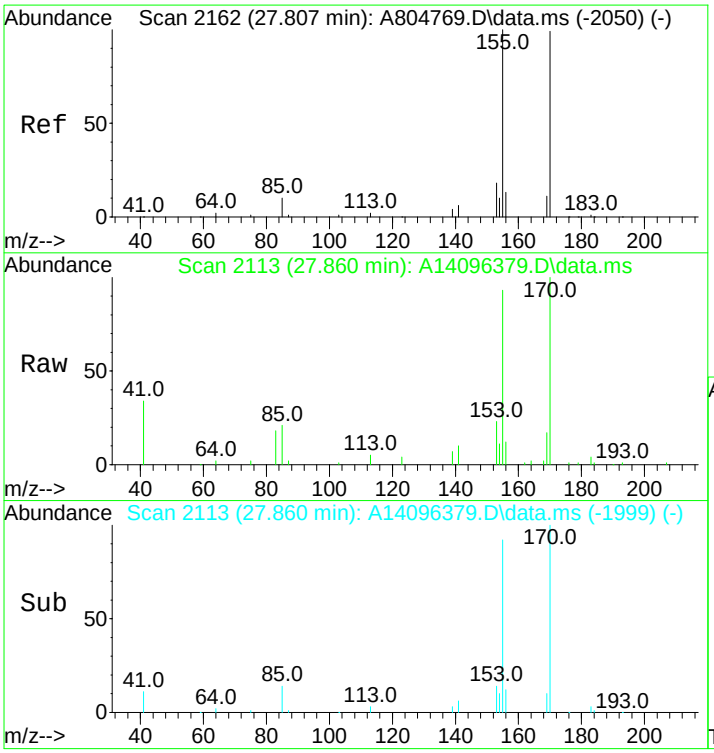


#12
C2-Naphthalenes
Concen: 7725.73 ng/mL m
RT: 25.515 min Scan# 1856
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:156 Resp: 2444314

Ion	Ratio	Lower	Upper
156	100		
141	0.0	0.0	0.0

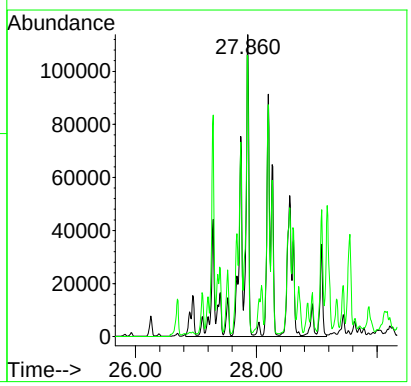


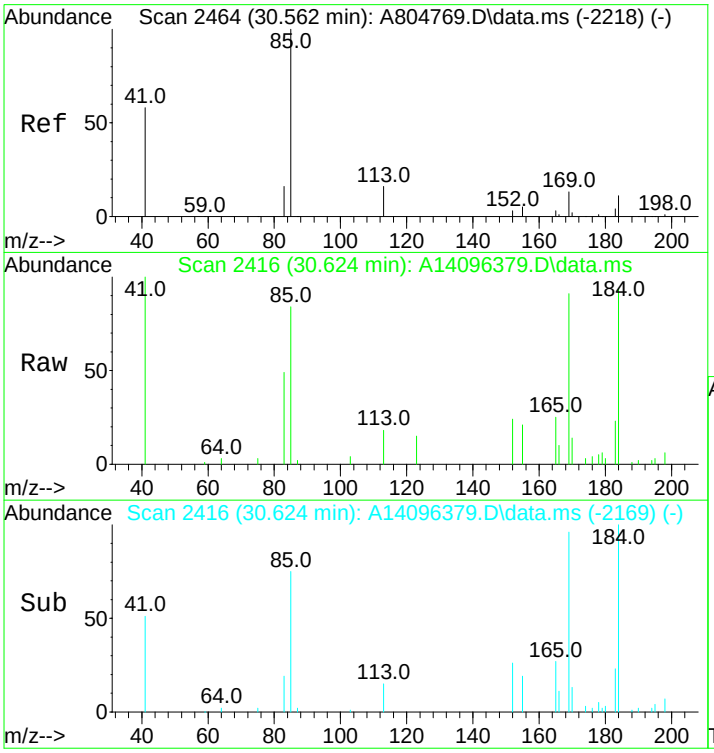


#13
C3-Naphthalenes
Concen: 5921.49 ng/mL m
RT: 27.860 min Scan# 2113
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:170 Resp: 1873479

Ion	Ratio	Lower	Upper
170	100		
155	18.0	74.2	111.4#

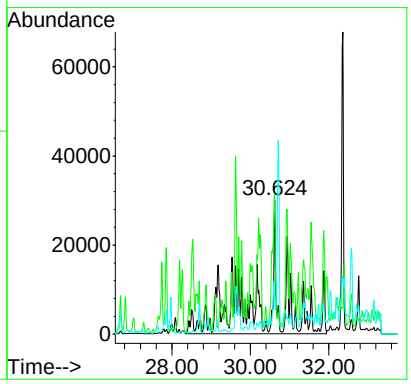


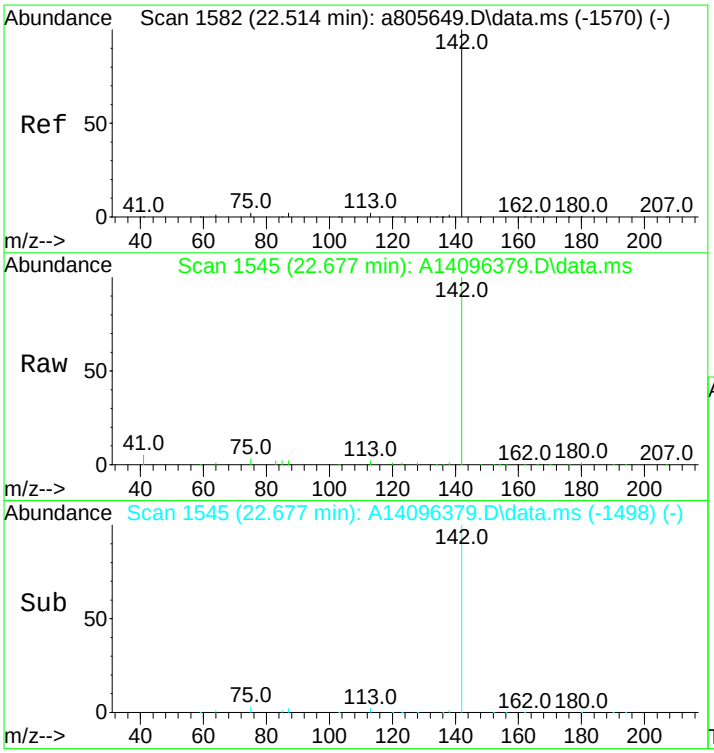


#14
C4-Naphthalenes
Concen: 3252.33 ng/mL m
RT: 30.624 min Scan# 2416
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:184 Resp: 1028994

Ion	Ratio	Lower	Upper
184	100		
169	16.9	78.1	117.1#
183	3.0	19.5	29.3#

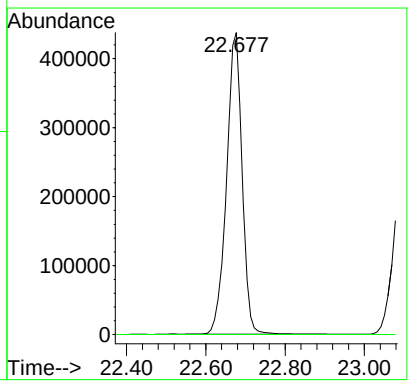


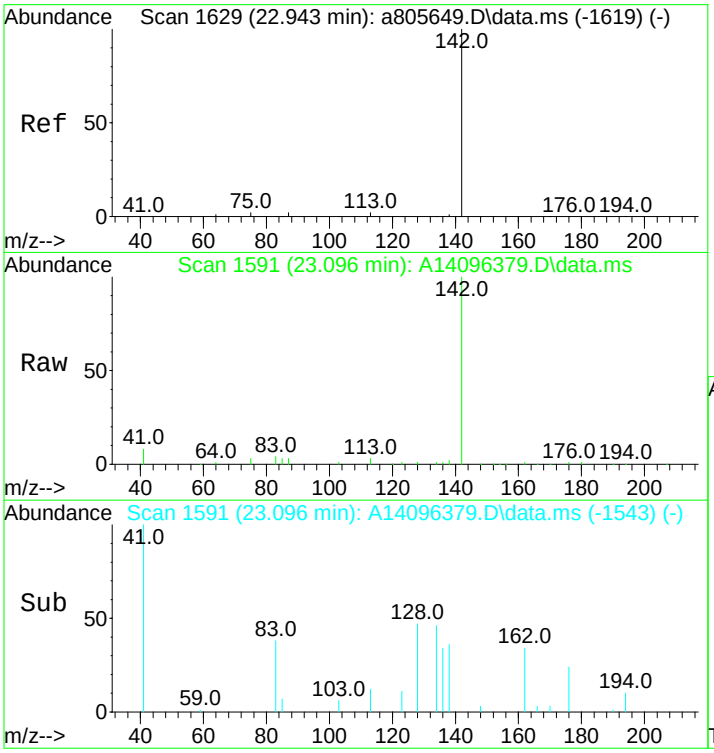


#16
2-Methylnaphthalene
Concen: 5737.75 ng/mL
RT: 22.677 min Scan# 1545
Delta R.T. -0.073 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:142 Resp: 1194499

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

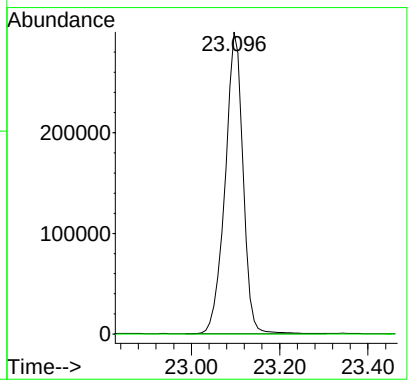


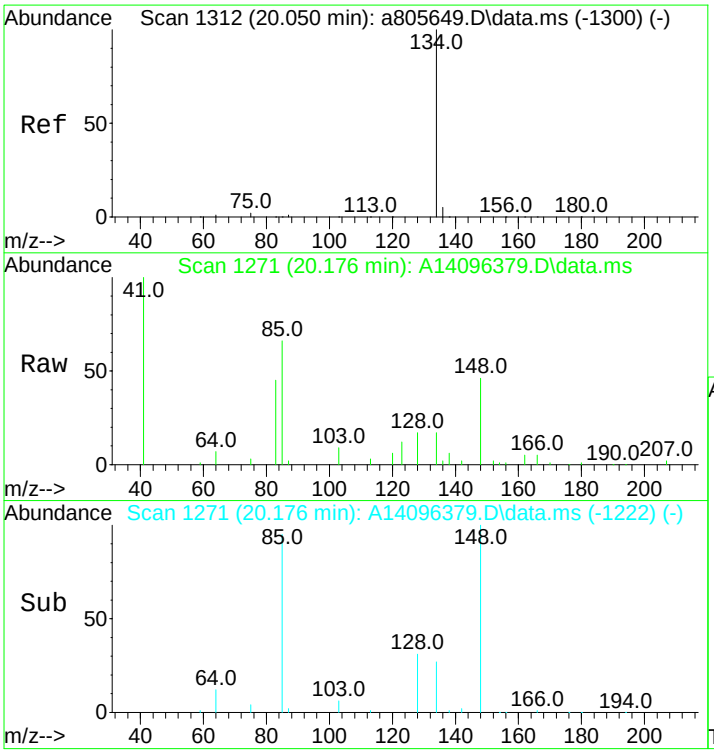


#17
1-Methylnaphthalene
Concen: 4117.49 ng/mL
RT: 23.096 min Scan# 1591
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:142 Resp: 841448

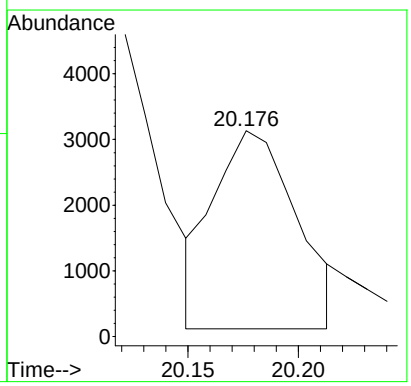
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

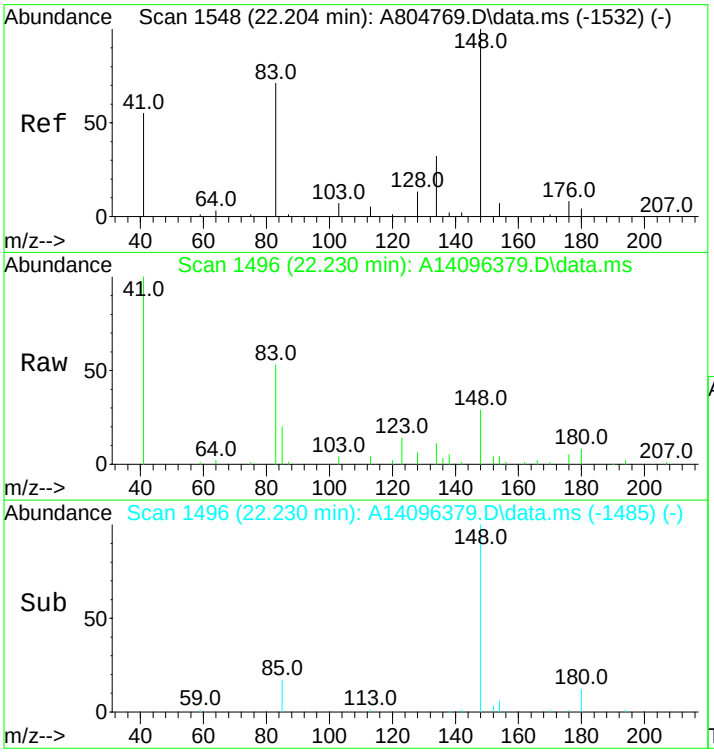




#18
Benzothiophene
Concen: 32.39 ng/mL m
RT: 20.176 min Scan# 1271
Delta R.T. -0.055 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

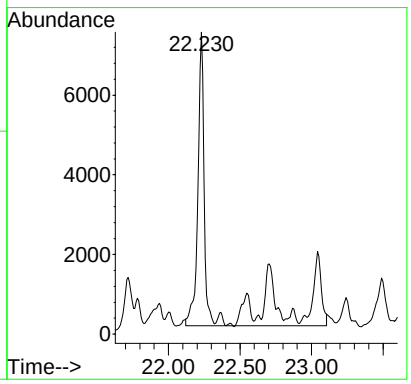
Tgt Ion:134 Resp: 7902

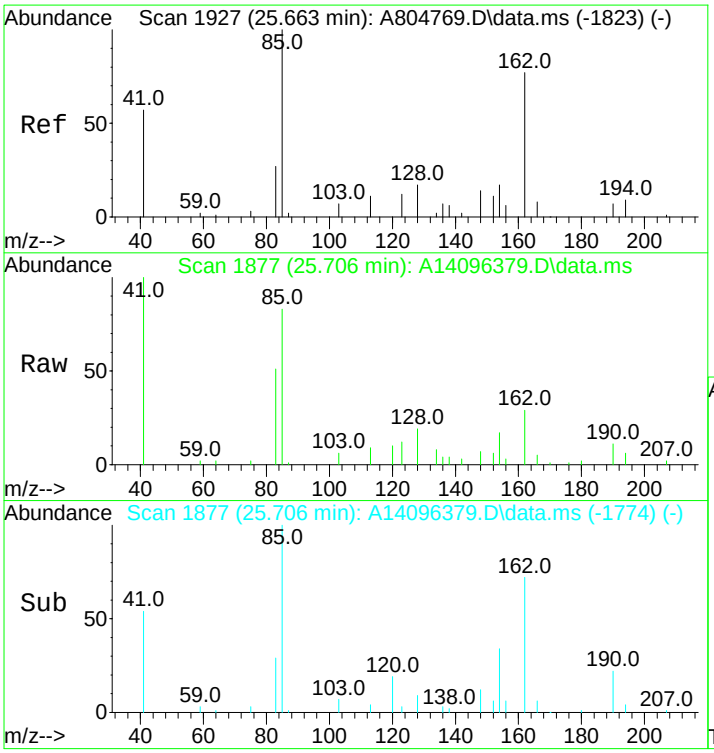




#19
C1-Benzo(b)thiophenes
Concen: 174.78 ng/mL m
RT: 22.230 min Scan# 1496
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

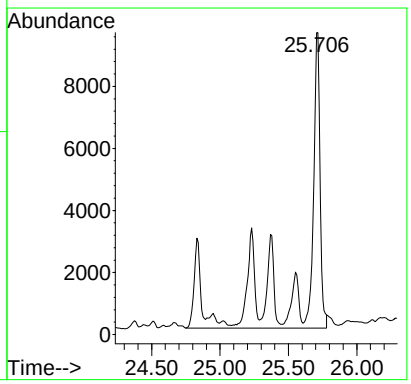
Tgt Ion:148 Resp: 42646

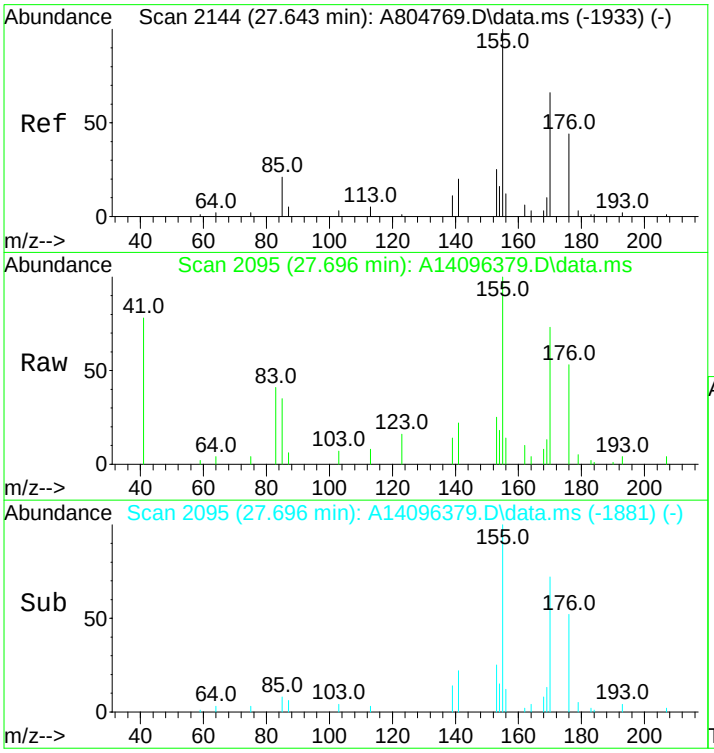




#20
C2-Benzo(b)thiophenes
Concen: 291.11 ng/mL m
RT: 25.706 min Scan# 1877
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

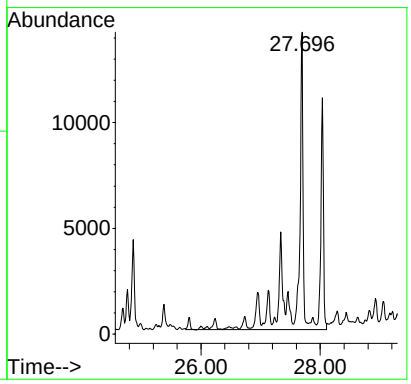
Tgt Ion:162 Resp: 71032

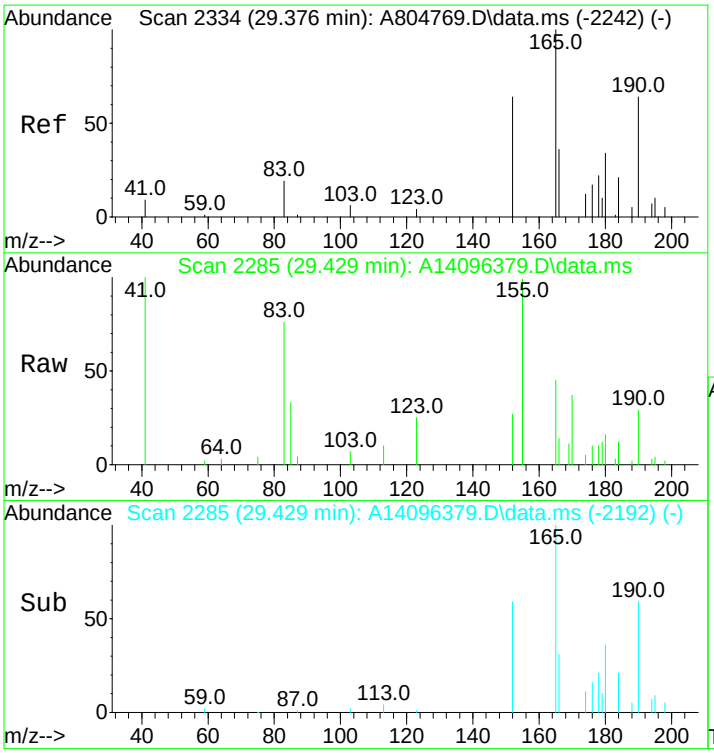




#21
C3-Benzo(b)thiophenes
Concen: 547.01 ng/mL m
RT: 27.696 min Scan# 2095
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

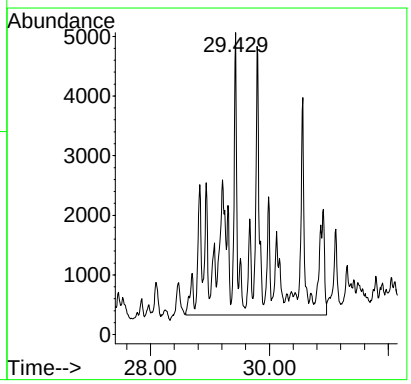
Tgt Ion:176 Resp: 133471

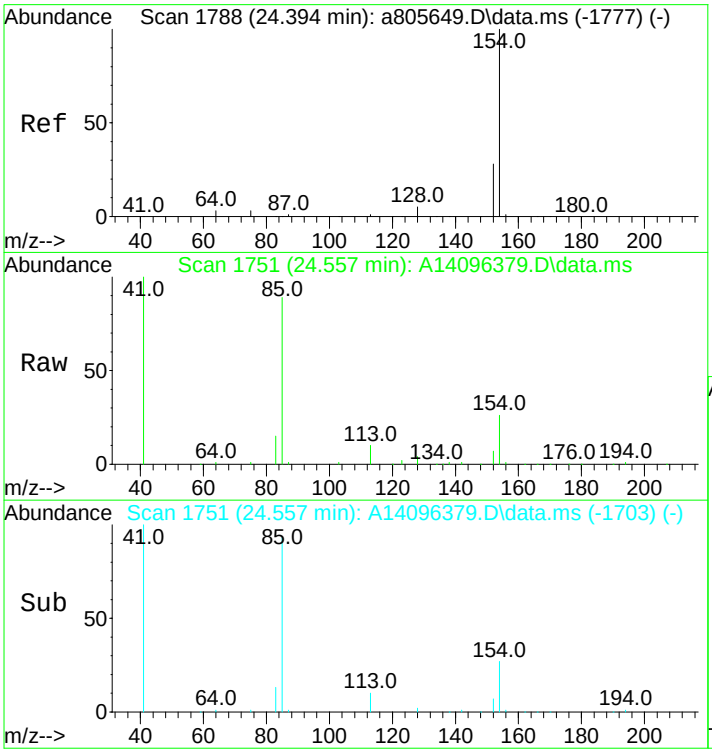




#22
C4-Benzo(b)thiophenes
Concen: 510.64 ng/mL m
RT: 29.429 min Scan# 2285
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:190 Resp: 124596

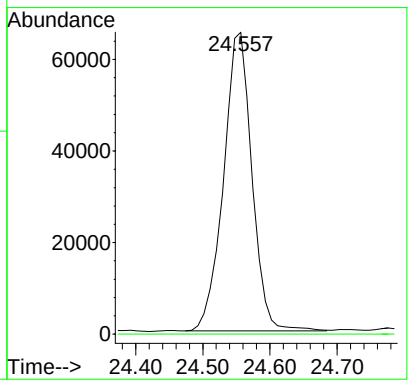


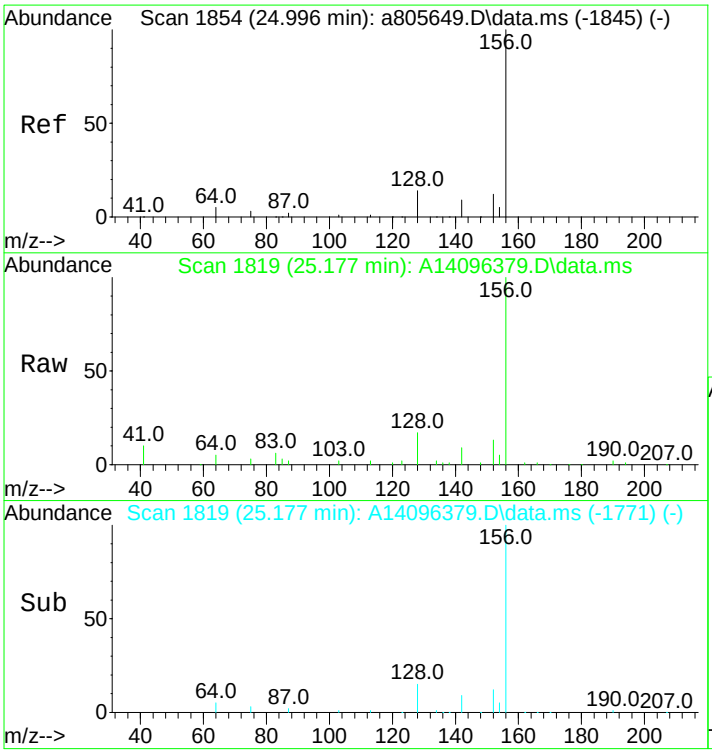


#23
Biphenyl
Concen: 755.69 ng/mL
RT: 24.557 min Scan# 1751
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:154 Resp: 192576

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

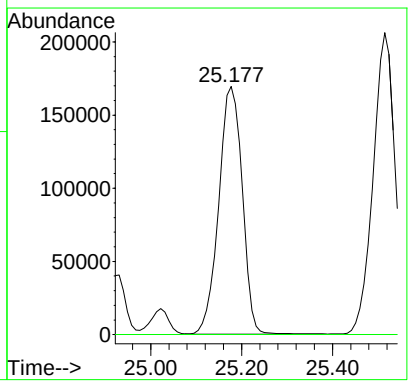


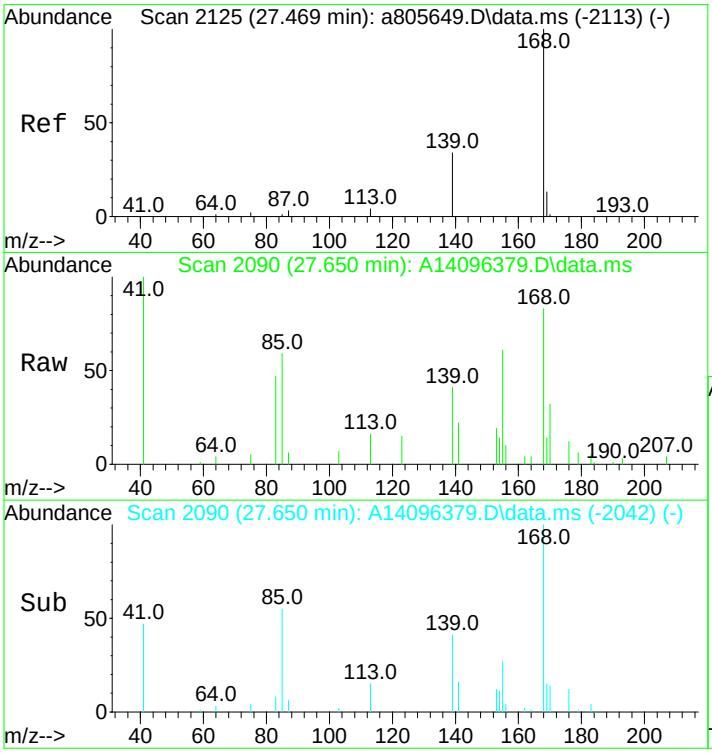


#24
2,6-Dimethylnaphthalene
Concen: 3251.21 ng/mL
RT: 25.177 min Scan# 1819
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:156 Resp: 605469

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

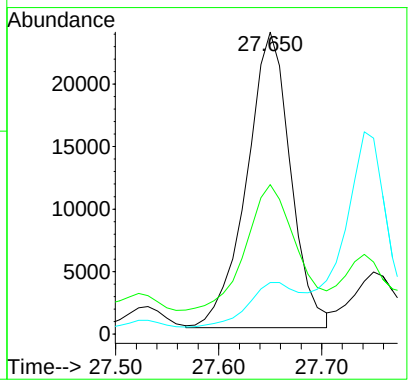


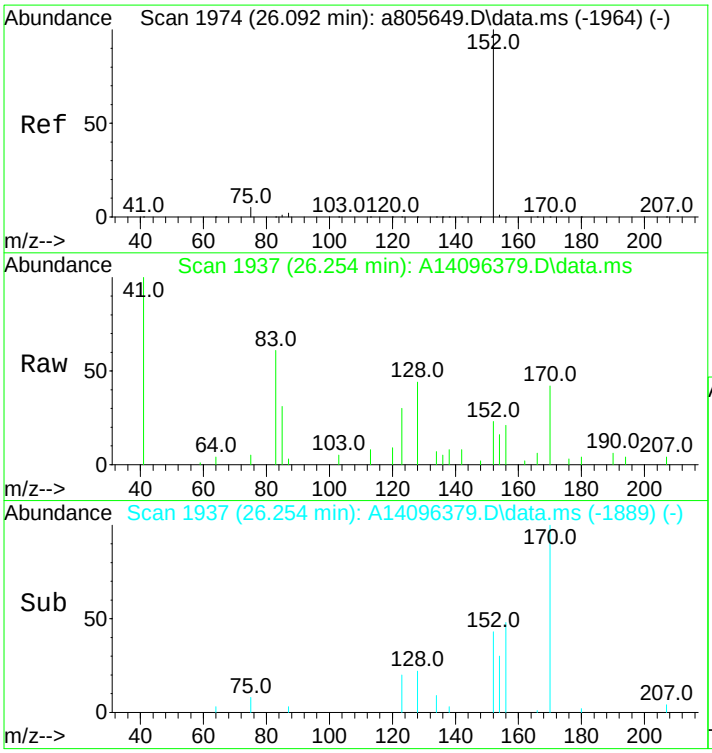


#25
Dibenzofuran
Concen: 259.94 ng/mL m
RT: 27.650 min Scan# 2090
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:168 Resp: 70030

Ion	Ratio	Lower	Upper
168	100		
139	15.0	30.2	45.4#
169	62.7	10.7	16.1#

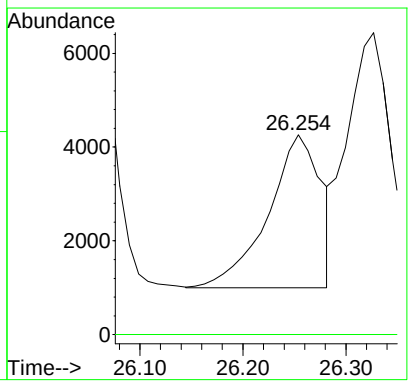


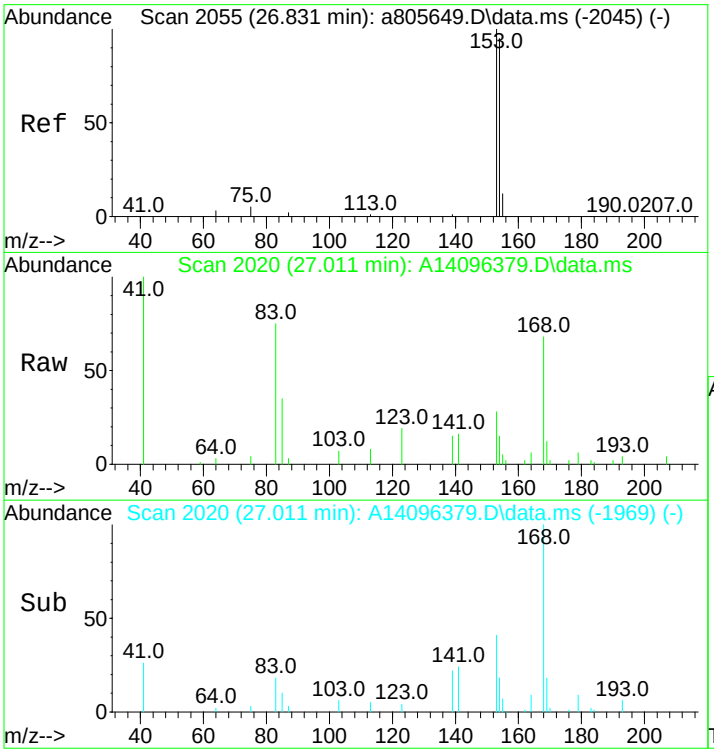


#26
Acenaphthylene
Concen: 35.36 ng/mL m
RT: 26.254 min Scan# 1937
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:152 Resp: 11639

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

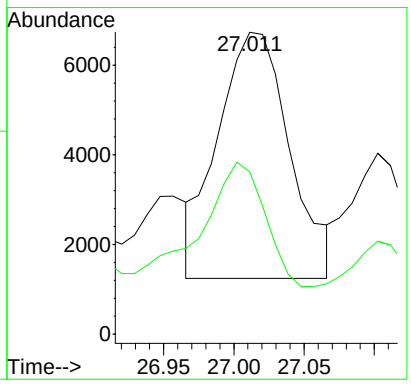


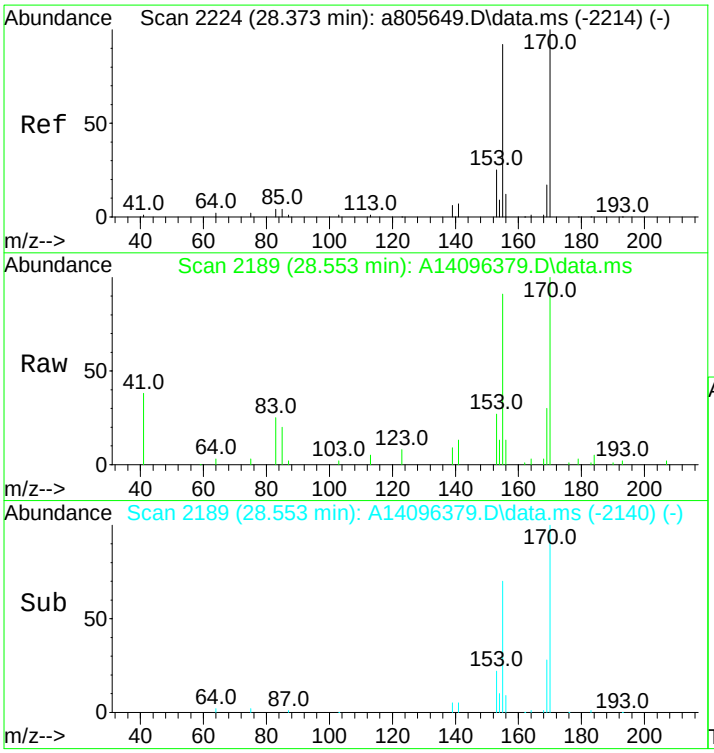


#27
Acenaphthene
Concen: 96.24 ng/mL m
RT: 27.011 min Scan# 2020
Delta R.T. -0.037 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:153 Resp: 19576

Ion	Ratio	Lower	Upper
153	100		
154	55.3	72.7	109.1#

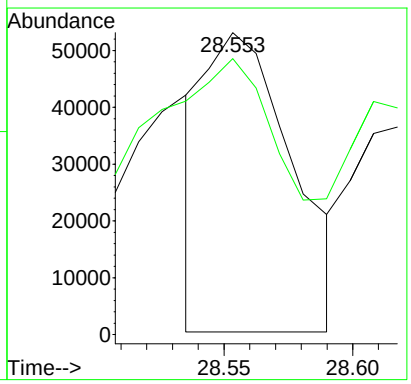


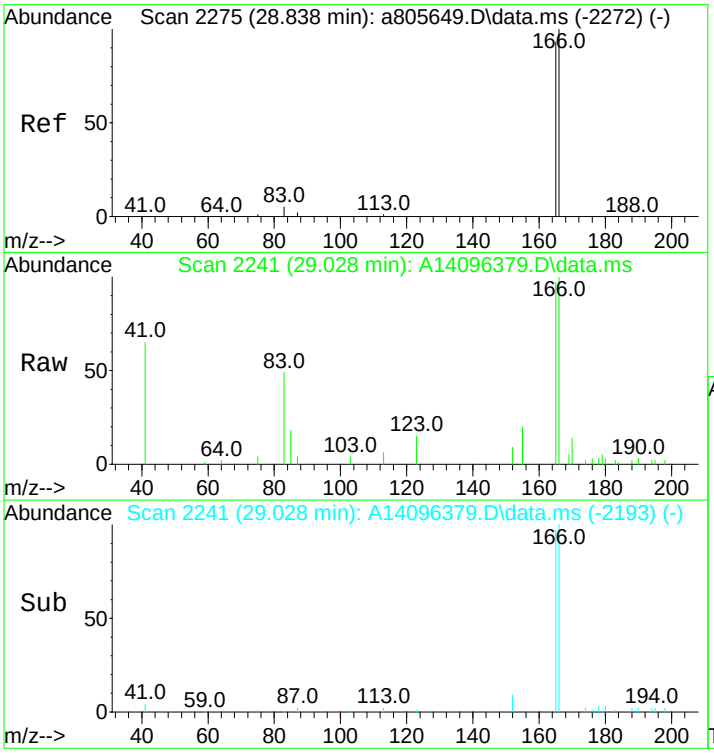


#28
2,3,5-Trimethylnaphthalene
Concen: 743.70 ng/mL m
RT: 28.553 min Scan# 2189
Delta R.T. -0.055 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:170 Resp: 125613

Ion	Ratio	Lower	Upper
170	100		
155	161.6	70.3	105.5#

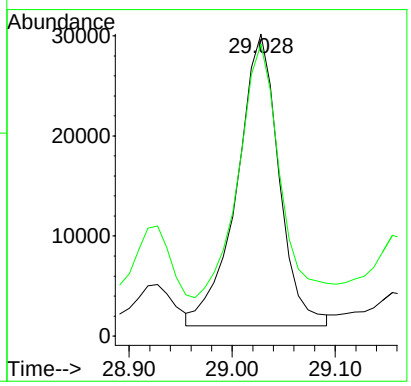


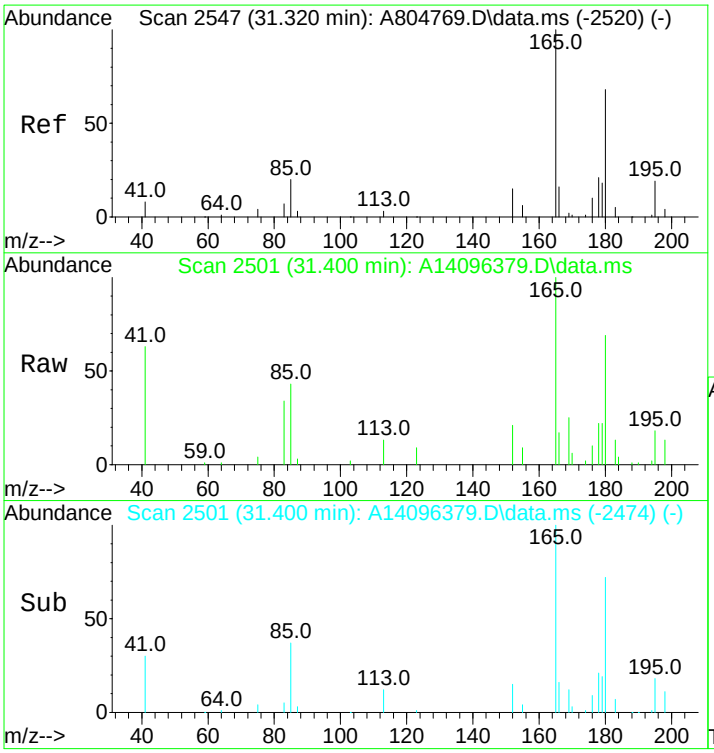


#29
Fluorene
Concen: 365.86 ng/mL m
RT: 29.028 min Scan# 2241
Delta R.T. -0.064 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:166 Resp: 82876

Ion	Ratio	Lower	Upper
166	100		
165	102.6	73.7	110.5

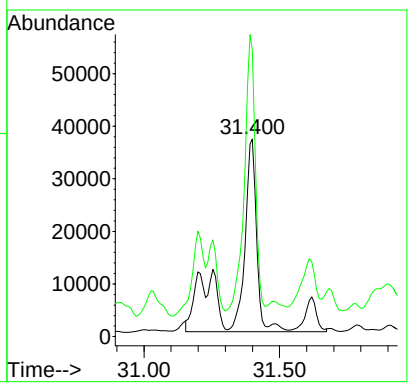


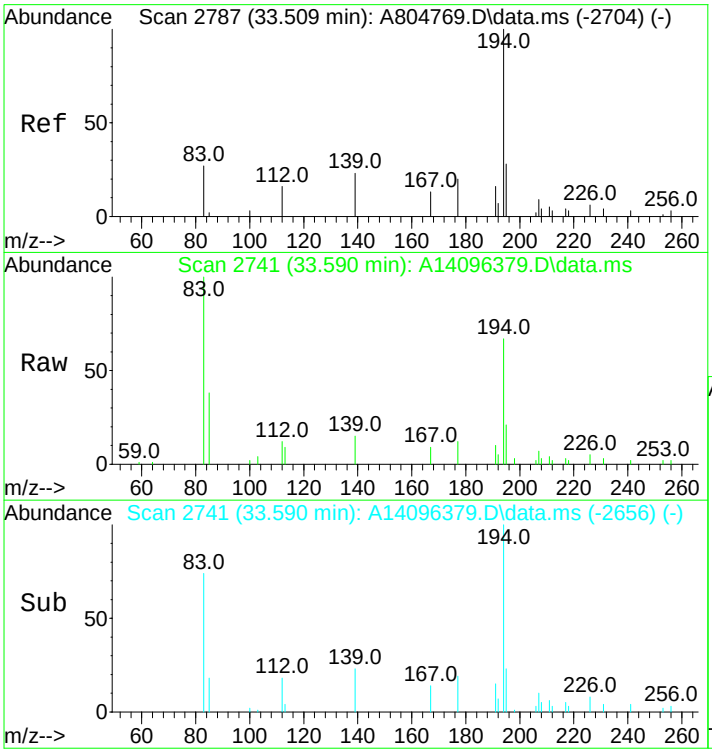


#30
C1-Fluorenes
Concen: 829.13 ng/mL m
RT: 31.400 min Scan# 2501
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:180 Resp: 187818

Ion	Ratio	Lower	Upper
180	100		
165	78.0	116.1	174.1#

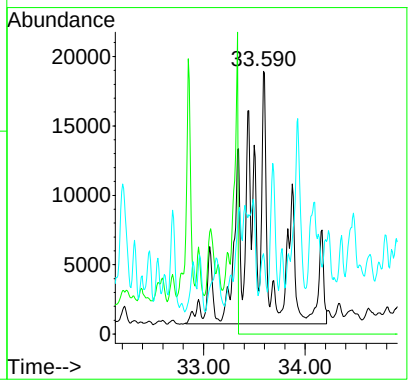


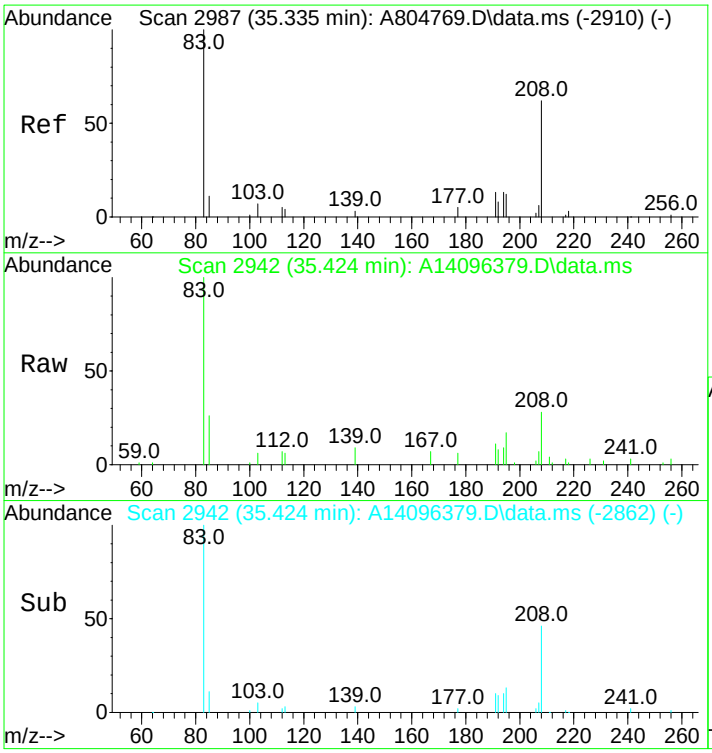


#31
C2-Fluorenes
Concen: 1290.94 ng/mL m
RT: 33.590 min Scan# 2741
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:194 Resp: 292428

Ion	Ratio	Lower	Upper
194	100		
179	0.0	0.0	0.0
195	3.0	24.5	36.7#

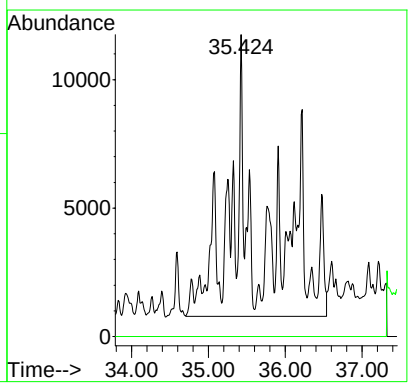


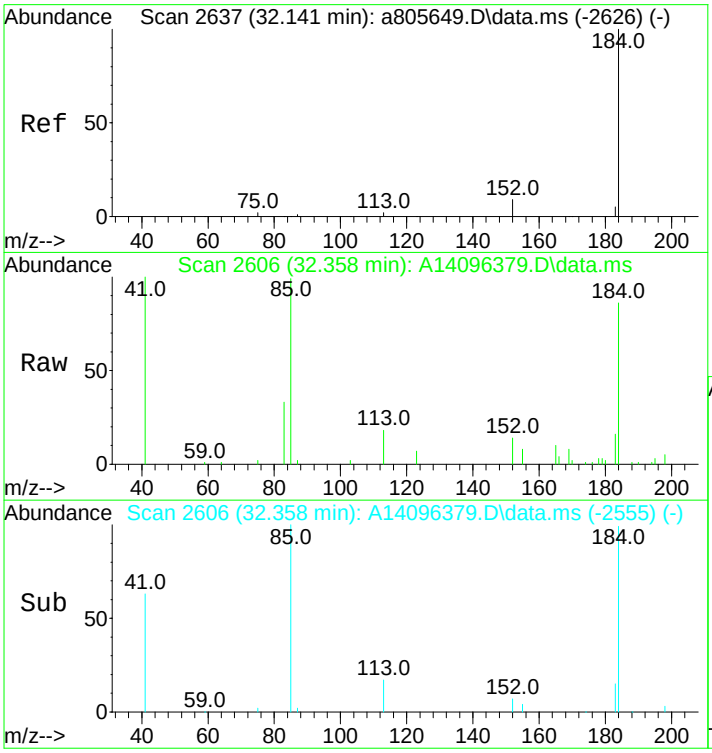


#32
C3-Fluorenes
Concen: 1232.23 ng/mL m
RT: 35.424 min Scan# 2942
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:208 Resp: 279129

Ion	Ratio	Lower	Upper
208	100		
197	0.0	0.0	0.0

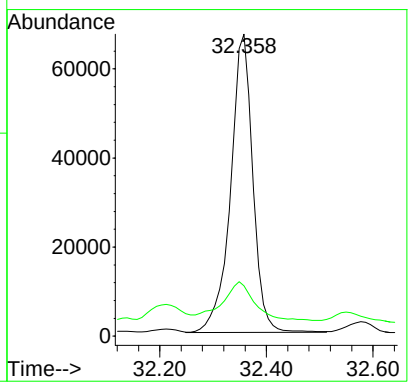


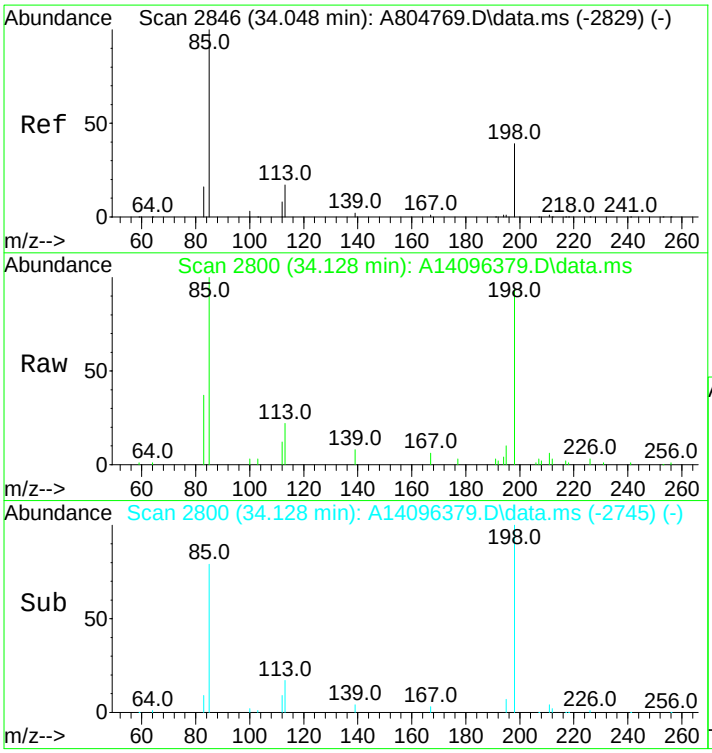


#33
Dibenzothiophene
Concen: 661.79 ng/mL
RT: 32.358 min Scan# 2606
Delta R.T. -0.036 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:184 Resp: 194695

Ion	Ratio	Lower	Upper
184	100		
152	18.6	7.5	11.3#

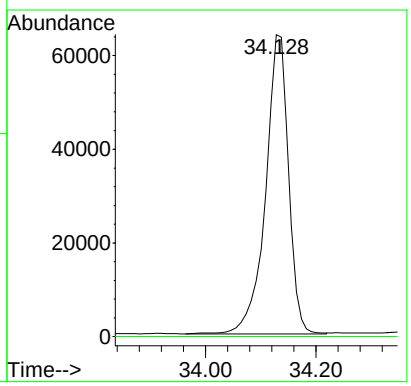


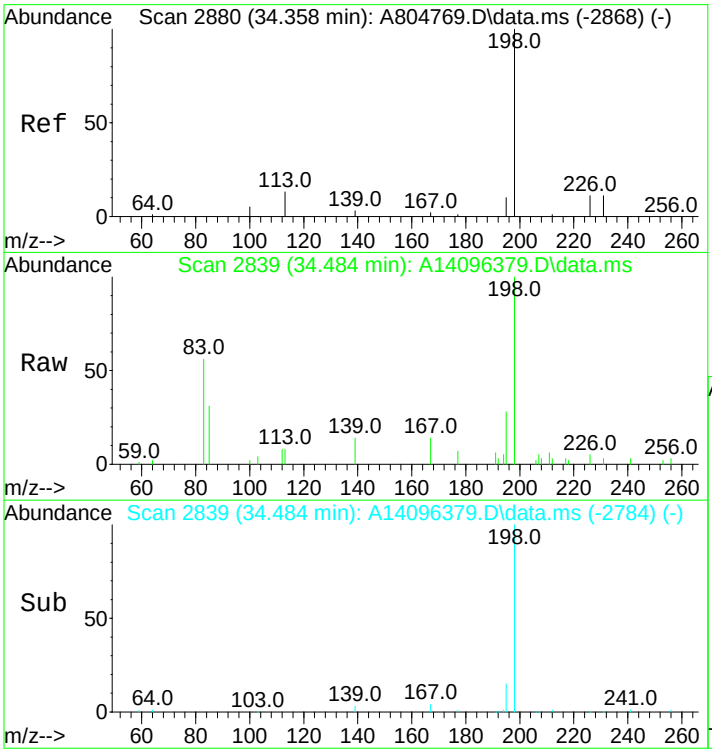


#34
4-Methyldibenzothiophene(4MDT)
Concen: 628.02 ng/mL
RT: 34.128 min Scan# 2800
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:198 Resp: 184760

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

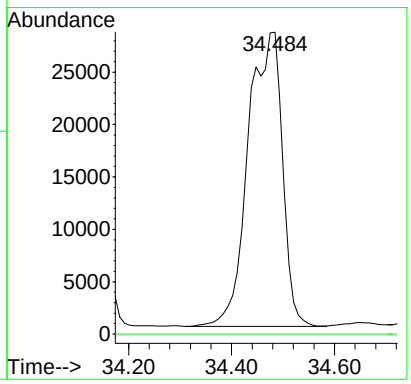


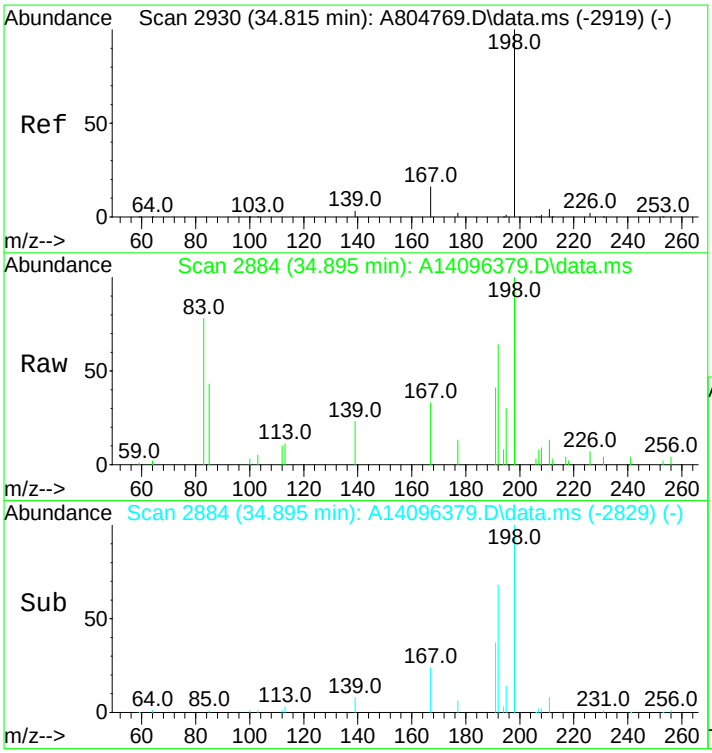


#35
2/3-Methyldibenzothiophene(2MDT)
Concen: 439.62 ng/mL
RT: 34.484 min Scan# 2839
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:198 Resp: 129334

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

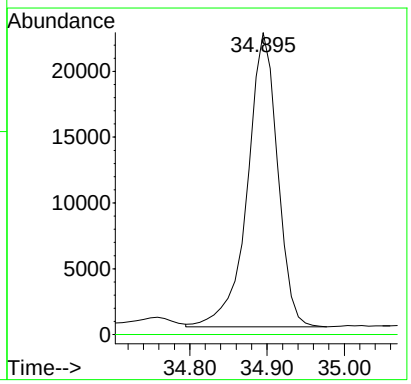


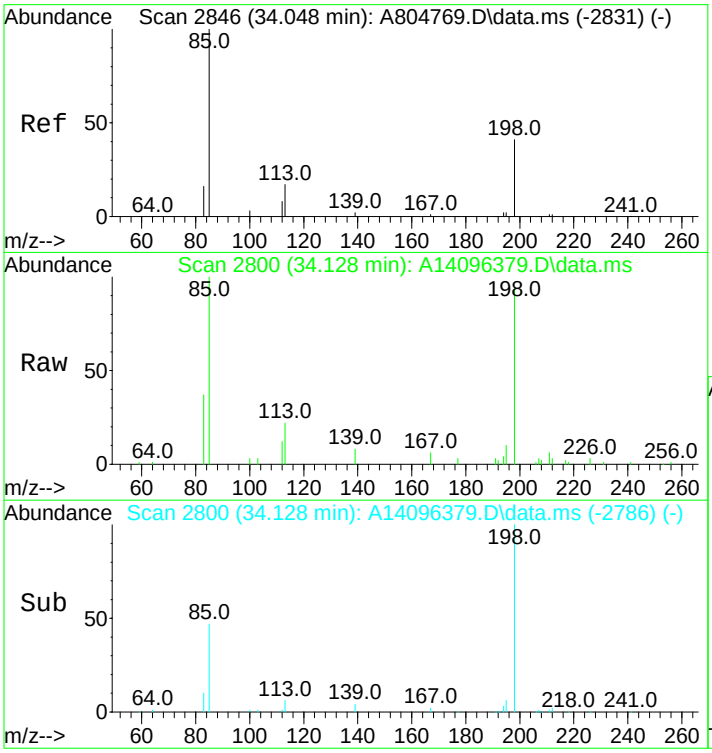


#36
1-Methyldibenzothiophene(1MDT)
Concen: 206.20 ng/mL
RT: 34.895 min Scan# 2884
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:198 Resp: 60662

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

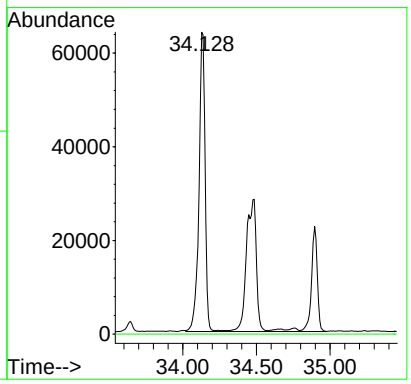


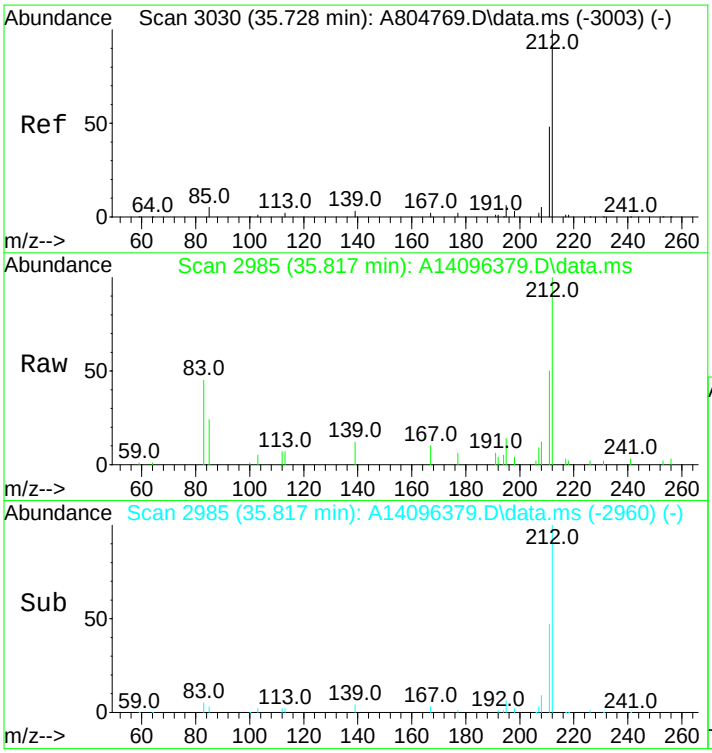


#38
C1-Dibenzothiophenes
Concen: 1306.94 ng/mL m
RT: 34.128 min Scan# 2800
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:198 Resp: 384498

Ion	Ratio	Lower	Upper
198	100		
197	0.0	0.0	0.0

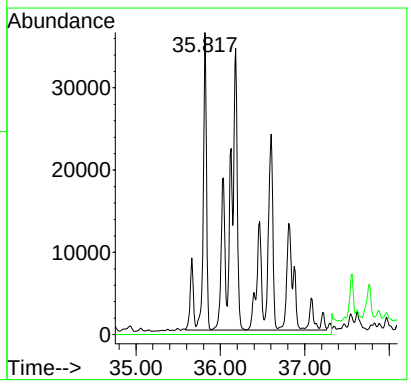


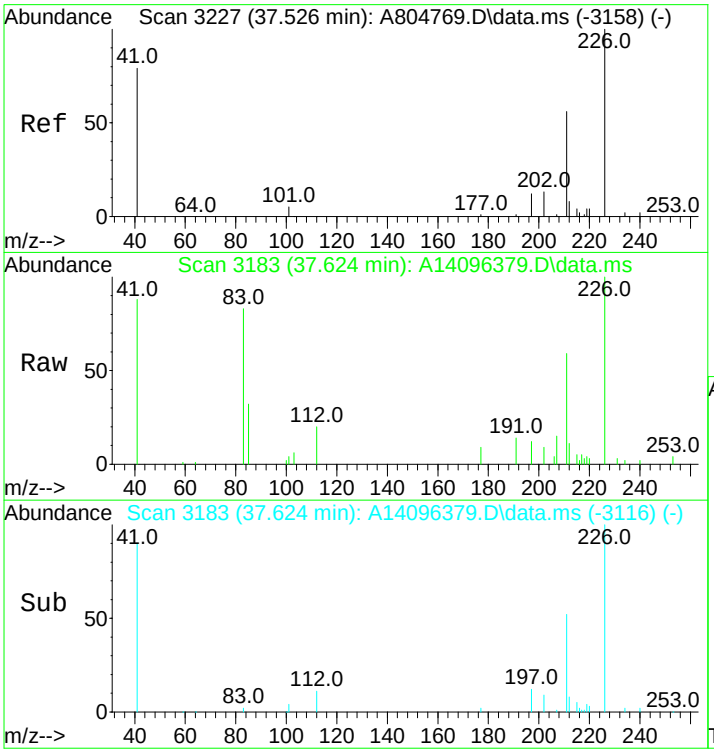


#39
C2-Dibenzothiophenes
Concen: 1871.75 ng/mL m
RT: 35.817 min Scan# 2985
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:212 Resp: 550664

Ion	Ratio	Lower	Upper
212	100		
197	0.0	0.0	0.0

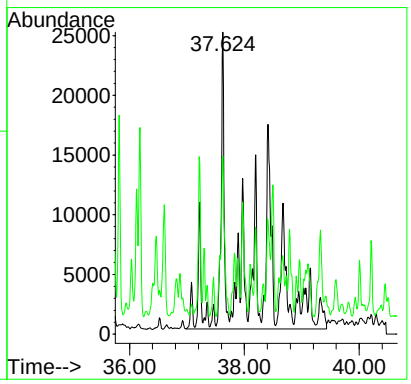


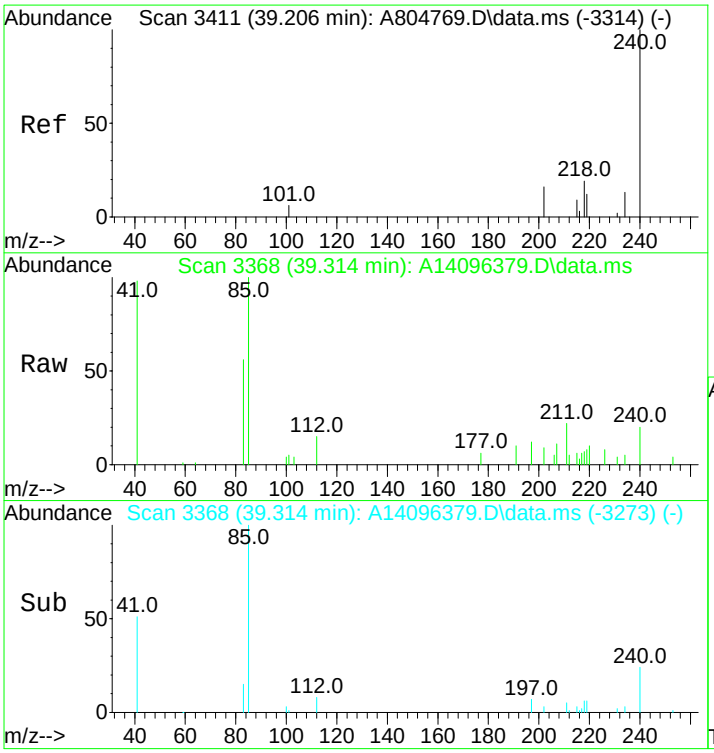


#40
C3-Dibenzothiophenes
Concen: 1706.73 ng/mL m
RT: 37.624 min Scan# 3183
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:226 Resp: 502115

Ion	Ratio	Lower	Upper
226	100		
211	1.7	47.0	70.6#

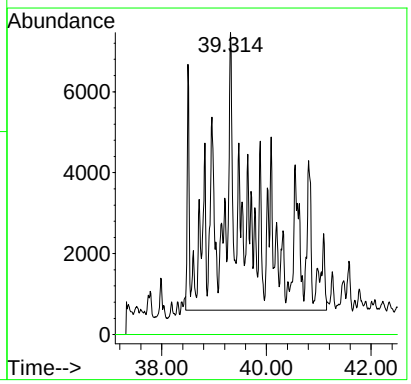


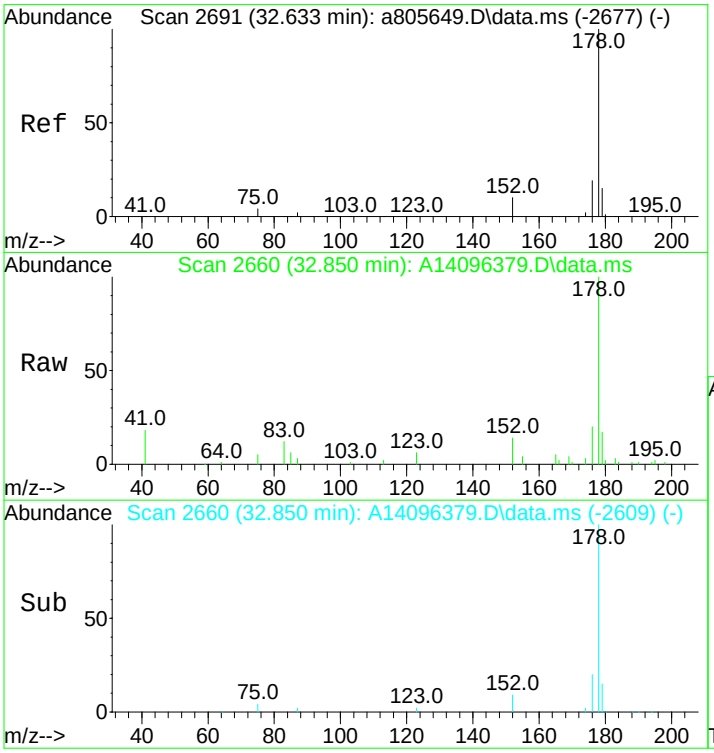


#41
C4-Dibenzothiophenes
Concen: 973.20 ng/mL m
RT: 39.314 min Scan# 3368
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:240 Resp: 286312

Ion	Ratio	Lower	Upper
240	100		
225	0.0	0.0	0.0

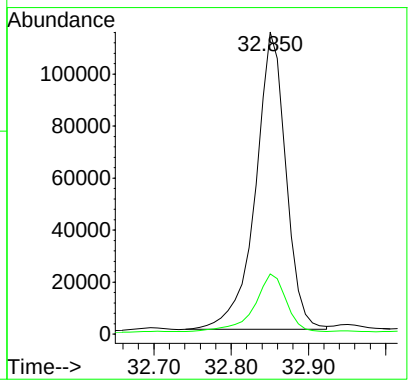


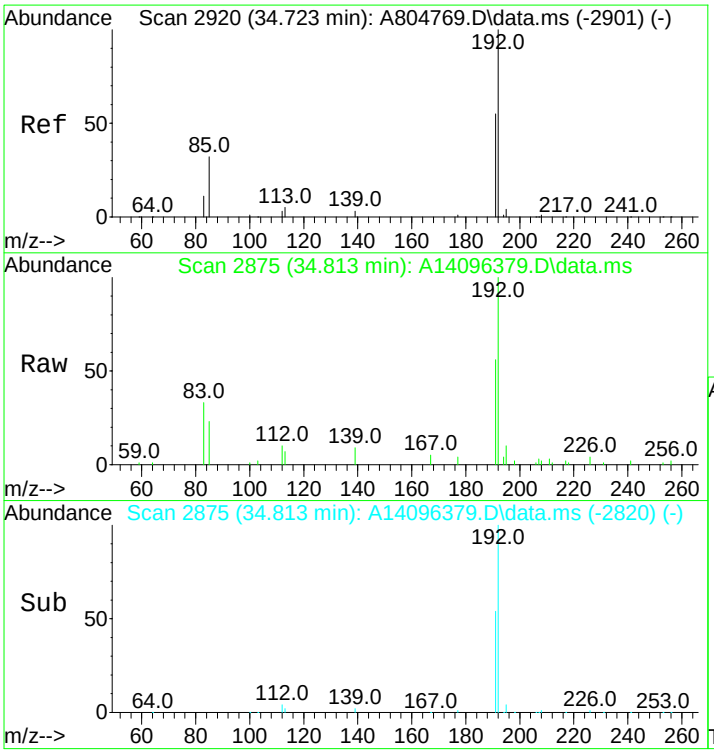


#43
Phenanthrene
Concen: 999.00 ng/mL
RT: 32.850 min Scan# 2660
Delta R.T. -0.037 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:178 Resp: 312095

Ion	Ratio	Lower	Upper
178	100		
176	20.6	14.7	22.1

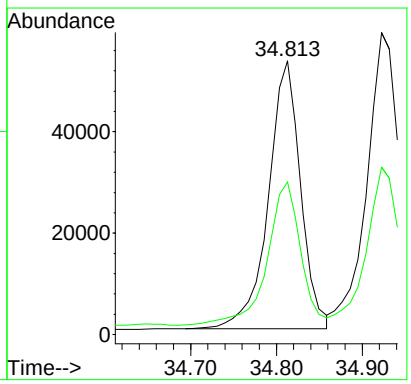


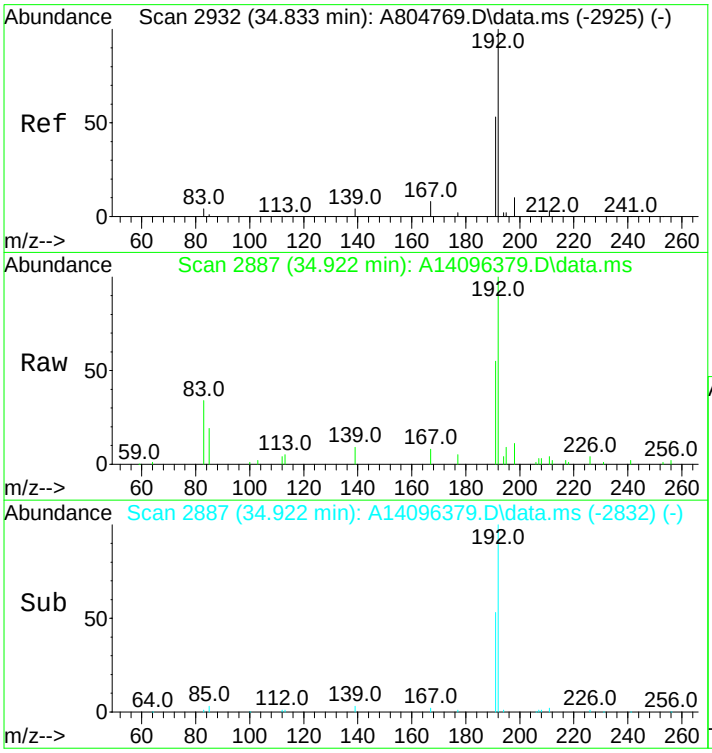


#44
3-Methylphenanthrene(3MP)
Concen: 443.01 ng/mL
RT: 34.813 min Scan# 2875
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 138399

Ion	Ratio	Lower	Upper
192	100		
191	54.9	44.6	67.0

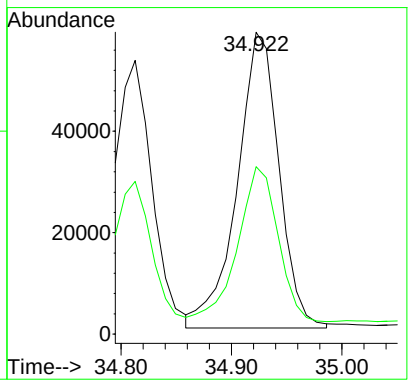


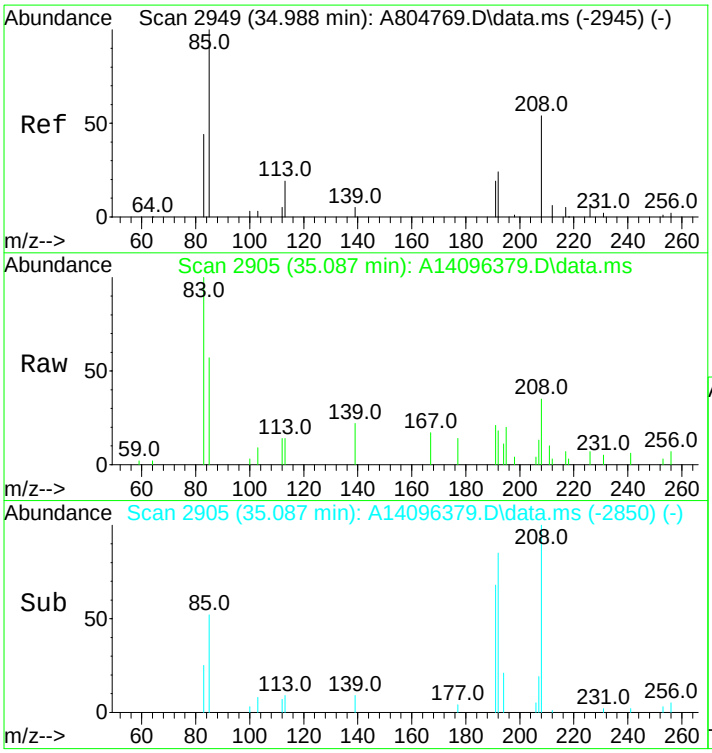


#45
2-Methylphenanthrene(2MP)
Concen: 491.77 ng/mL m
RT: 34.922 min Scan# 2887
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 153633

Ion	Ratio	Lower	Upper
192	100		
191	51.1	44.3	66.5

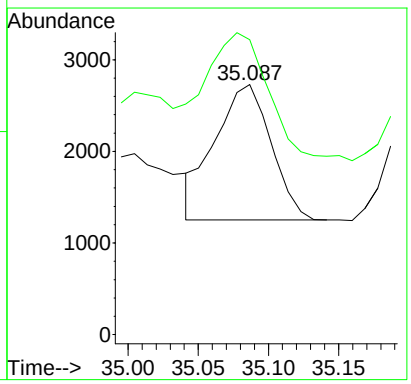


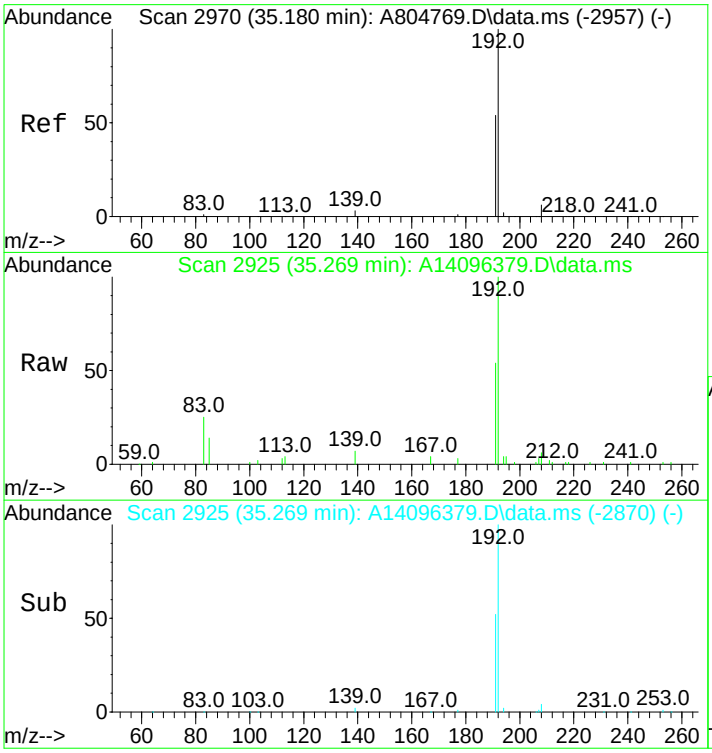


#46
2-Methylanthracene(2MA)
Concen: 13.19 ng/mL
RT: 35.087 min Scan# 2905
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 4120

Ion	Ratio	Lower	Upper
192	100		
191	111.8	94.4	141.6

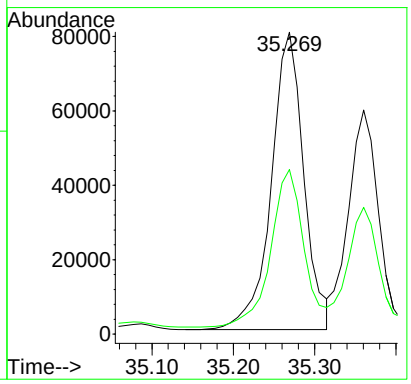


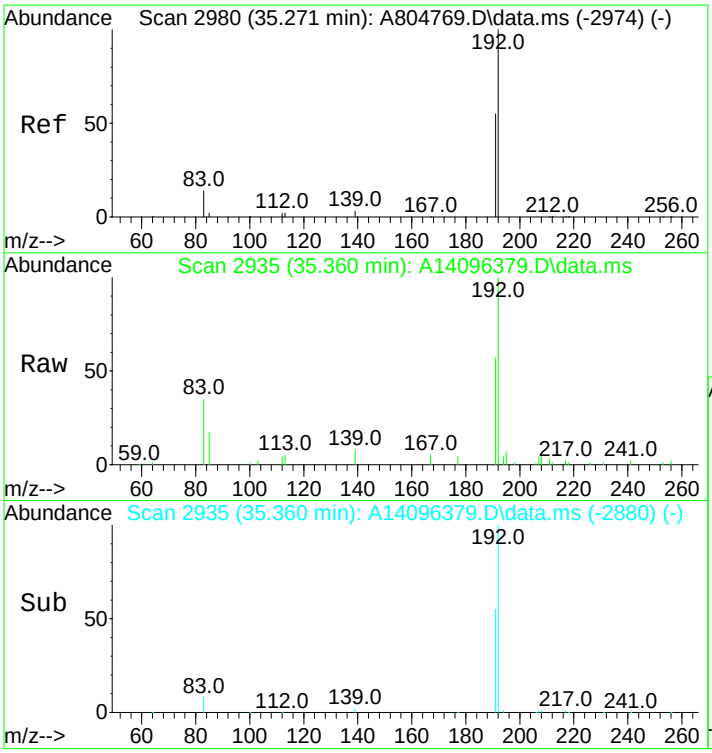


#47
9/4-Methylphenanthrene(9MP)
Concen: 709.57 ng/mL
RT: 35.269 min Scan# 2925
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 221676

Ion	Ratio	Lower	Upper
192	100		
191	54.1	43.5	65.3

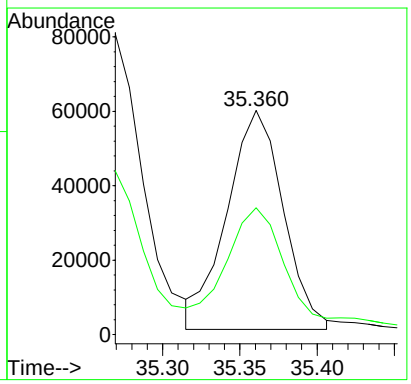


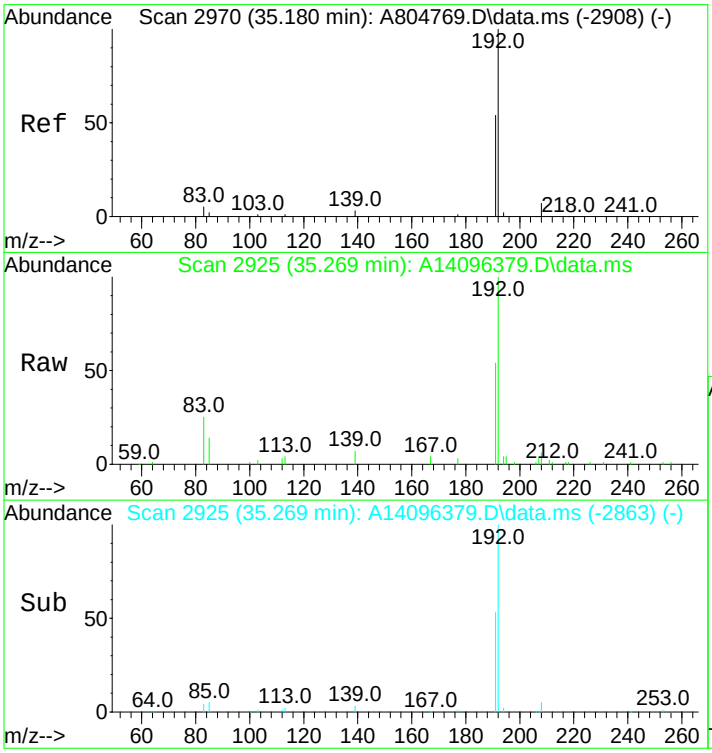


#48
1-Methylphenanthrene(1MP)
Concen: 478.43 ng/mL m
RT: 35.360 min Scan# 2935
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 149465

Ion	Ratio	Lower	Upper
192	100		
191	56.5	45.3	67.9

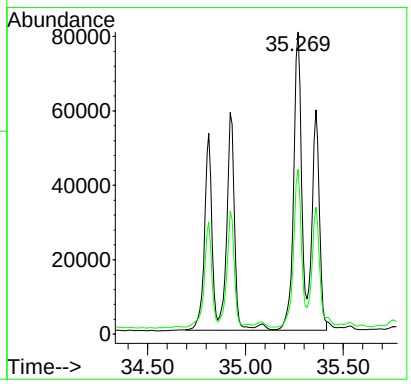


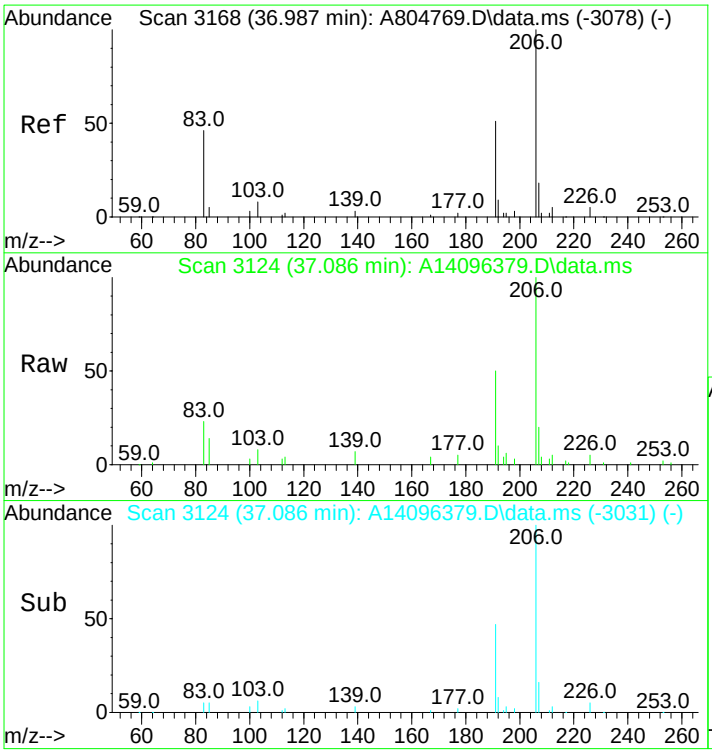


#49
C1-Phenanthrenes/Anthracenes
Concen: 2169.43 ng/mL m
RT: 35.269 min Scan# 2925
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 677746

Ion	Ratio	Lower	Upper
192	100		
191	17.7	43.5	65.3#

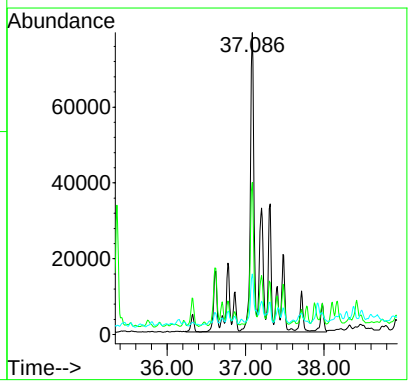


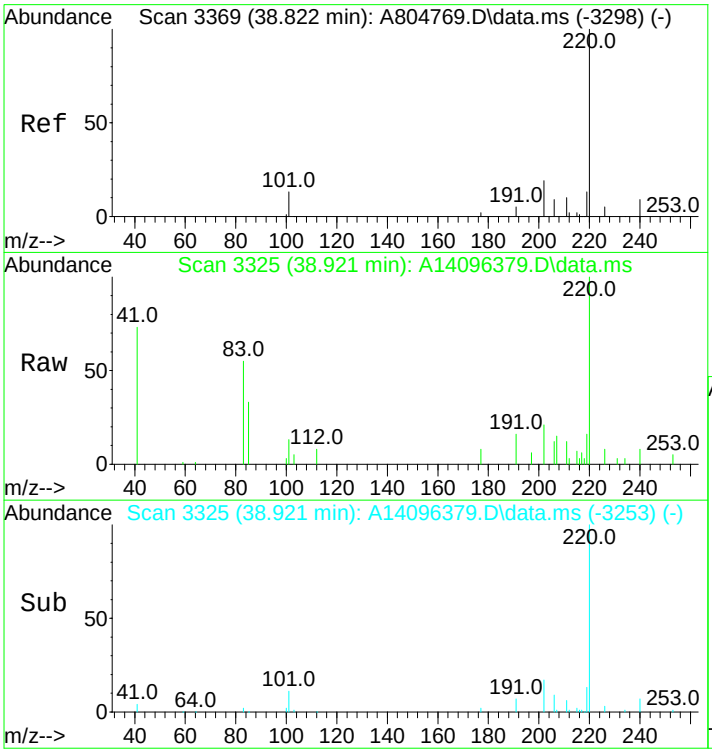


#50
C2-Phenanthrenes/Anthracenes
Concen: 2359.10 ng/mL m
RT: 37.086 min Scan# 3124
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:206 Resp: 737000

Ion	Ratio	Lower	Upper
206	100		
191	15.8	40.2	60.4#
207	5.9	16.1	24.1#

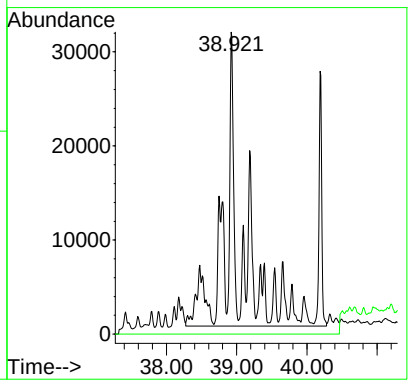


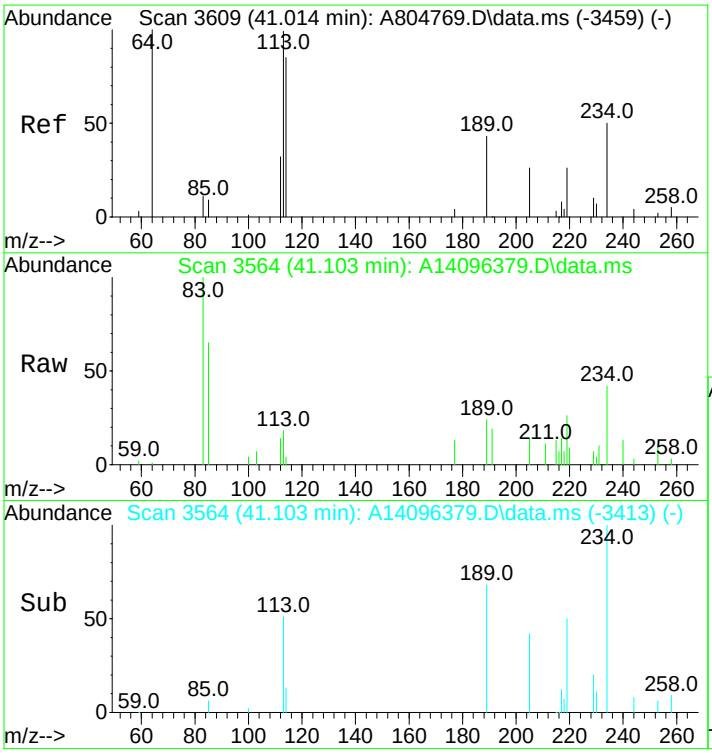


#52
C3-Phenanthrenes/Anthracenes
Concen: 1697.20 ng/mL m
RT: 38.921 min Scan# 3325
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:220 Resp: 530218

Ion	Ratio	Lower	Upper
220	100		
205	0.0	0.0	0.0

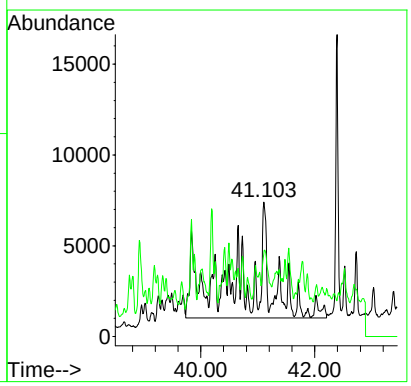


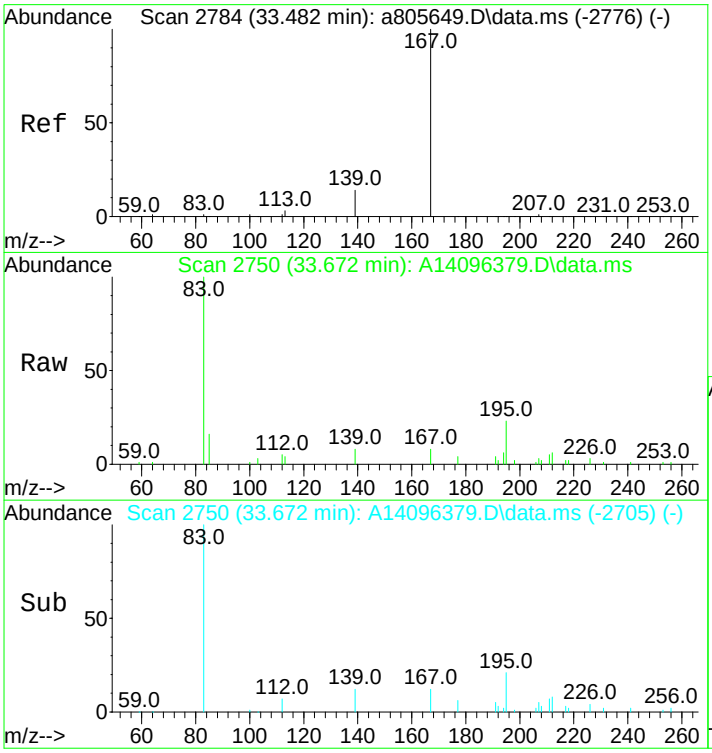


#53
C4-Phenanthrenes/Anthracenes
Concen: 700.30 ng/mL m
RT: 41.103 min Scan# 3564
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:234 Resp: 218778

Ion	Ratio	Lower	Upper
234	100		
219	2.9	49.1	73.7#

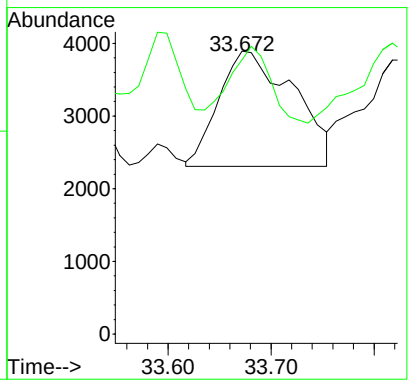


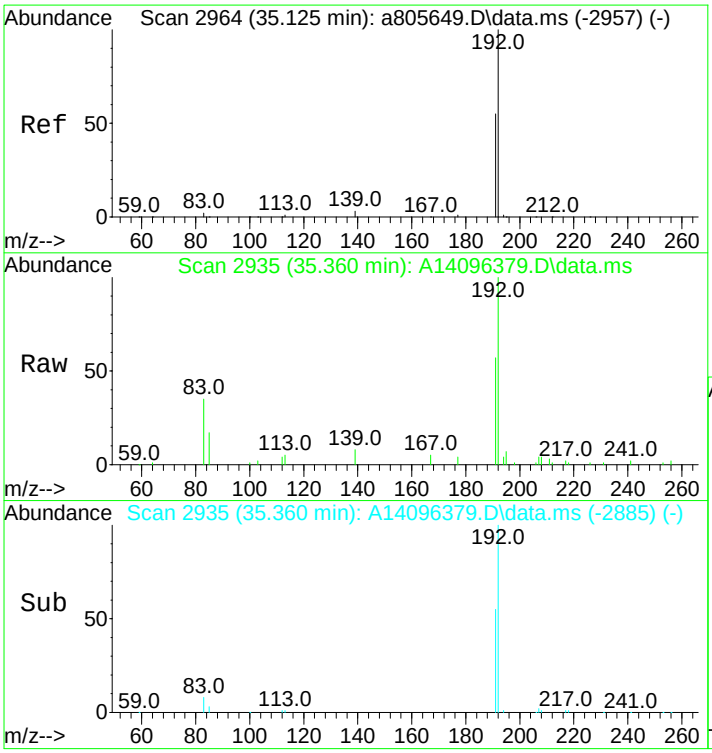


#56
Carbazole
Concen: 27.84 ng/mL m
RT: 33.672 min Scan# 2750
Delta R.T. -0.091 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:167 Resp: 8069

Ion	Ratio	Lower	Upper
167	100		
139	0.0	10.7	16.1#

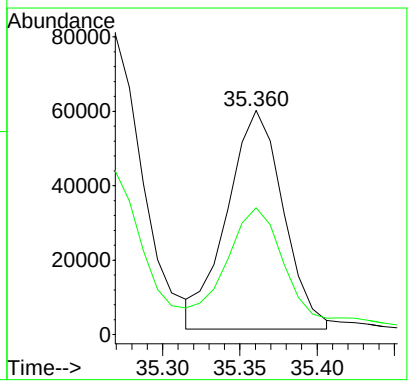


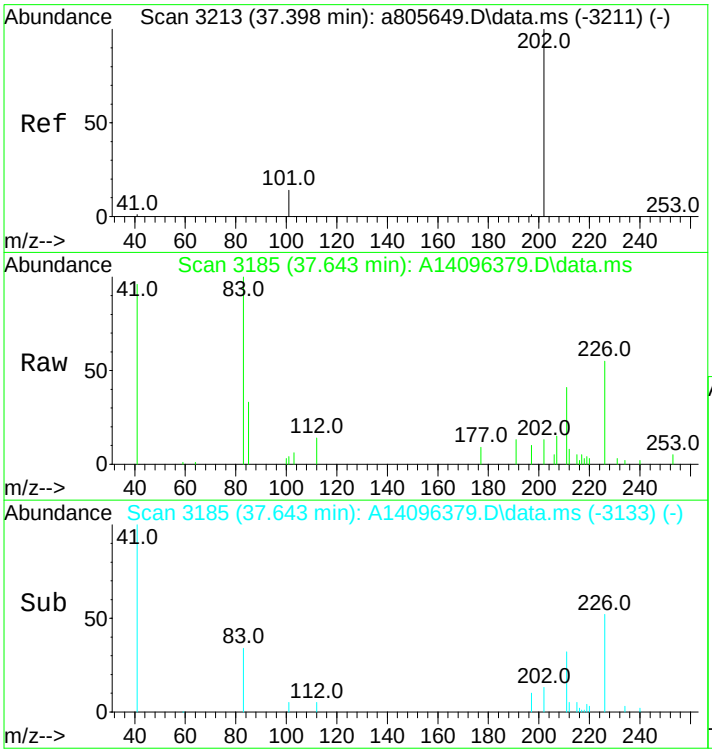


#57
1-Methylphenanthrene
Concen: 635.82 ng/mL m
RT: 35.360 min Scan# 2935
Delta R.T. -0.046 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:192 Resp: 149005

Ion	Ratio	Lower	Upper
192	100		
191	57.3	44.2	66.2

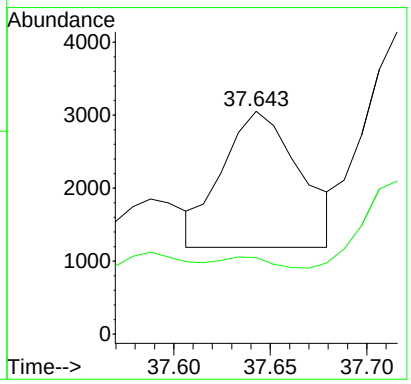


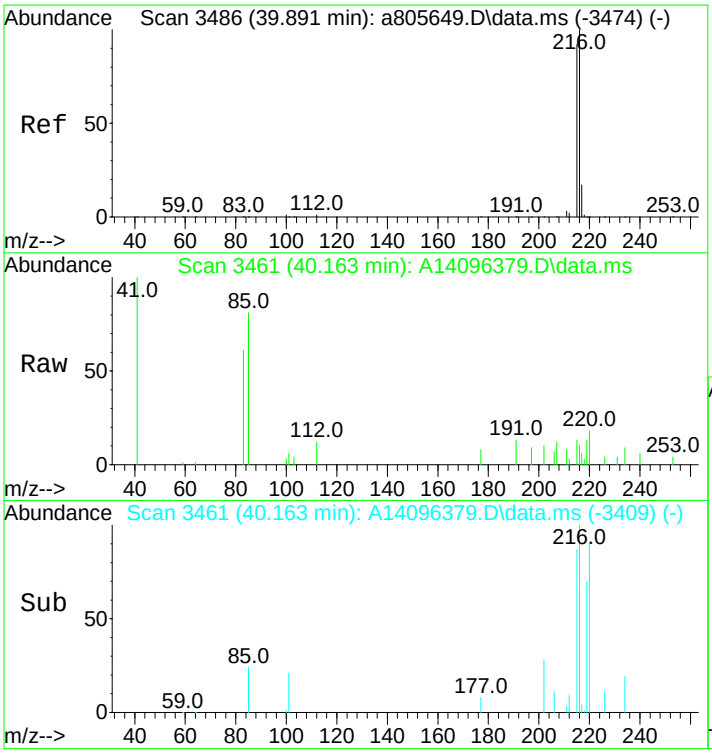


#58
Fluoranthene
Concen: 16.39 ng/mL m
RT: 37.643 min Scan# 3185
Delta R.T. -0.027 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:202 Resp: 5225

Ion	Ratio	Lower	Upper
202	100		
101	0.0	12.1	18.1#

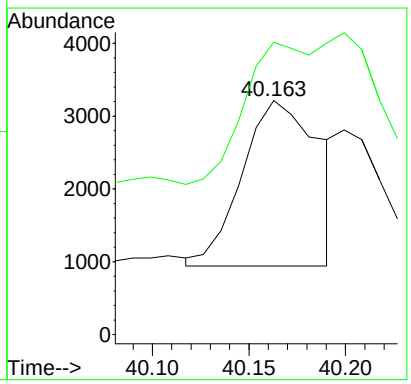


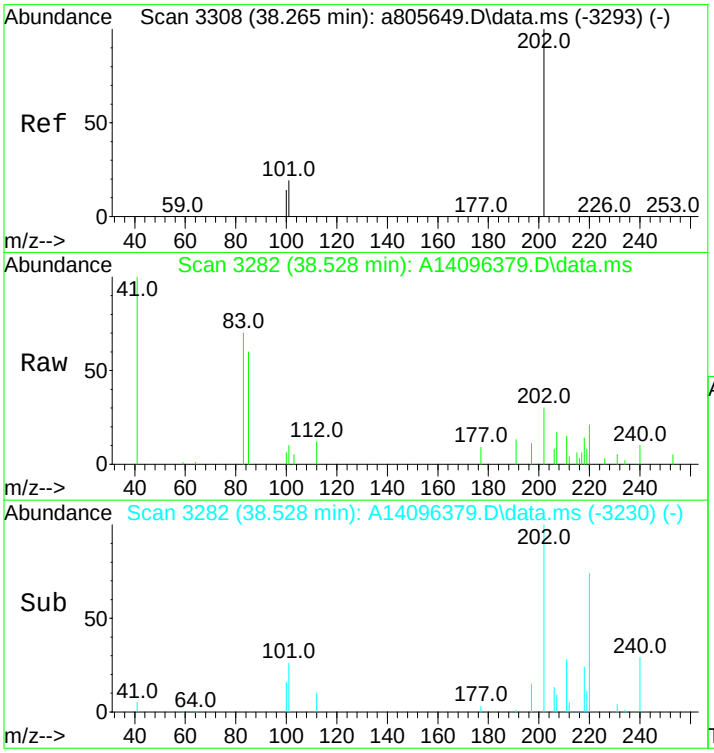


#59
Benzo(b)fluorene
Concen: 29.63 ng/mL m
RT: 40.163 min Scan# 3461
Delta R.T. -0.027 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:216 Resp: 6293

Ion	Ratio	Lower	Upper
216	100		
215	383.7	72.7	109.1#

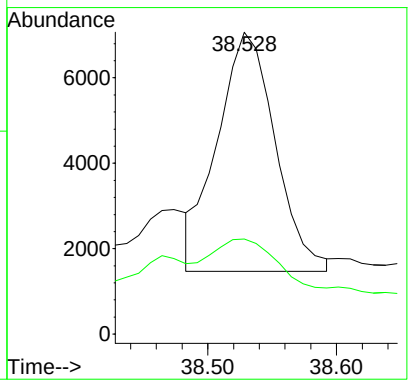


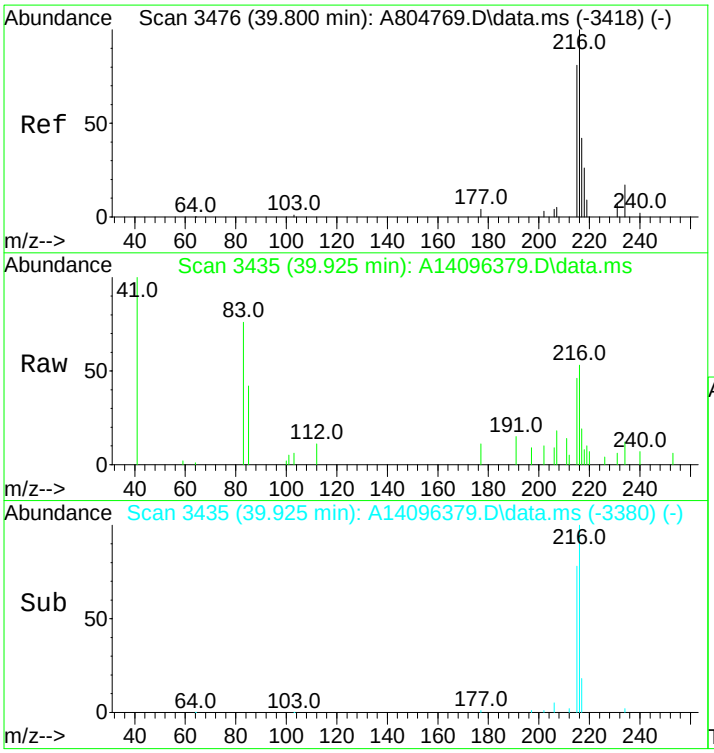


#60
Pyrene
Concen: 52.89 ng/mL m
RT: 38.528 min Scan# 3282
Delta R.T. -0.028 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:202 Resp: 17519

Ion	Ratio	Lower	Upper
202	100		
101	30.7	13.9	20.9#

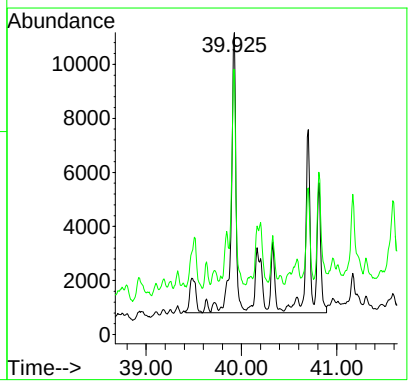


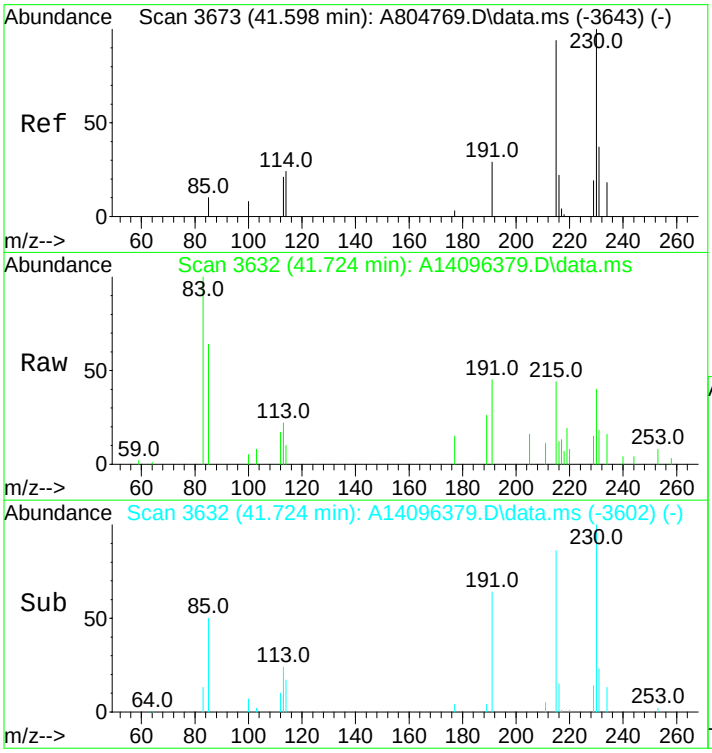


#61
C1-Fluoranthenes/Pyrenes
Concen: 293.77 ng/mL m
RT: 39.925 min Scan# 3435
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:216 Resp: 97315

Ion	Ratio	Lower	Upper
216	100		
215	24.8	70.2	105.4#

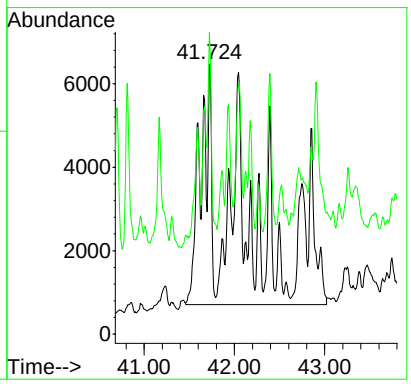


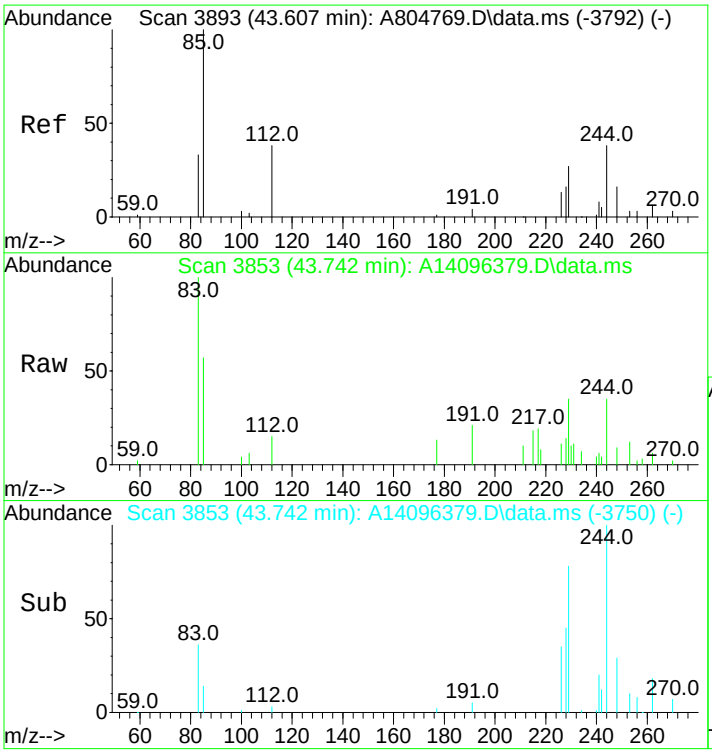


#62
C2-Fluoranthenes/Pyrenes
Concen: 494.86 ng/mL m
RT: 41.724 min Scan# 3632
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:230 Resp: 163929

Ion	Ratio	Lower	Upper
230	100		
215	1.7	89.5	134.3#

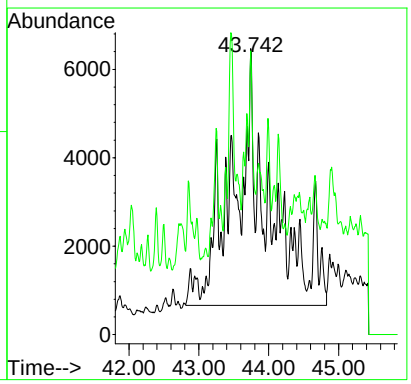


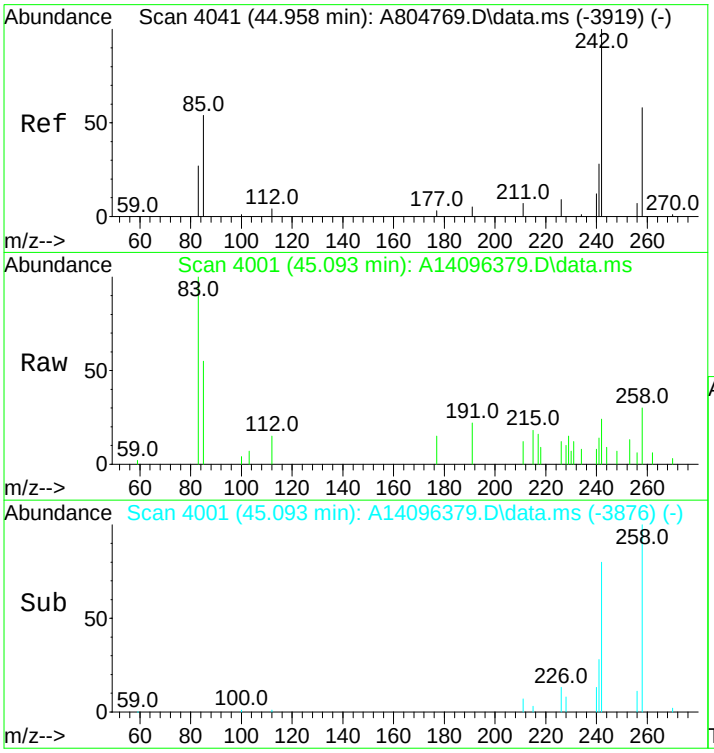


#63
C3-Fluoranthenes/Pyrenes
Concen: 611.12 ng/mL m
RT: 43.742 min Scan# 3853
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:244 Resp: 202440

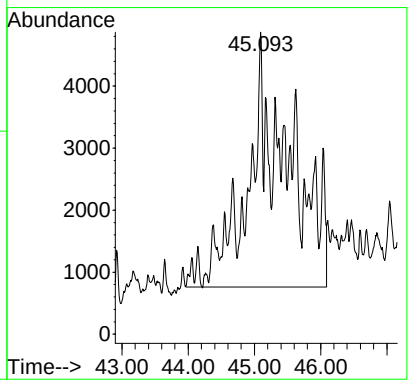
Ion	Ratio	Lower	Upper
244	100		
229	5.5	79.4	119.2#

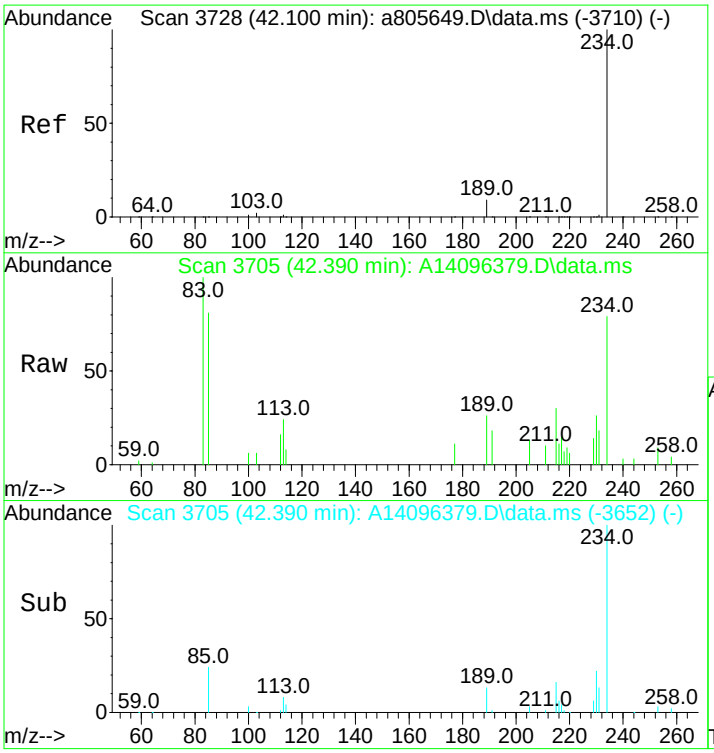




#64
C4-Fluoranthenes/Pyrenes
Concen: 519.98 ng/mL m
RT: 45.093 min Scan# 4001
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:258 Resp: 172249

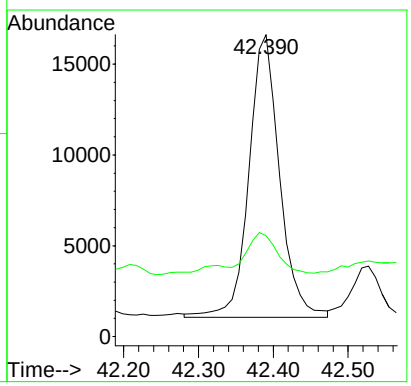


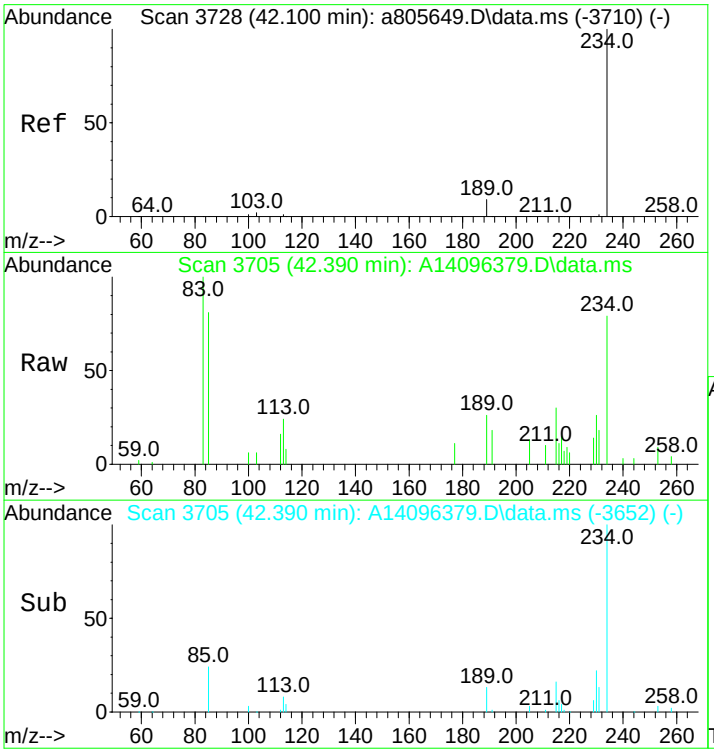


#66
Naphthobenzothiophene
Concen: 154.60 ng/ml m
RT: 42.390 min Scan# 3705
Delta R.T. -0.019 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:234 Resp: 44403

Ion	Ratio	Lower	Upper
234	100		
189	13.5	7.0	10.6#

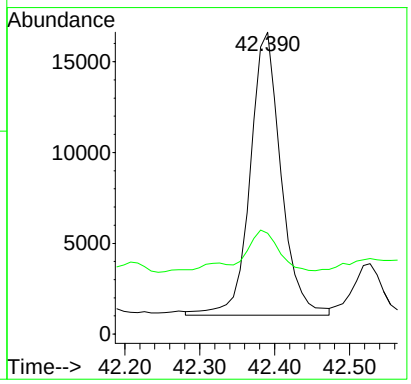


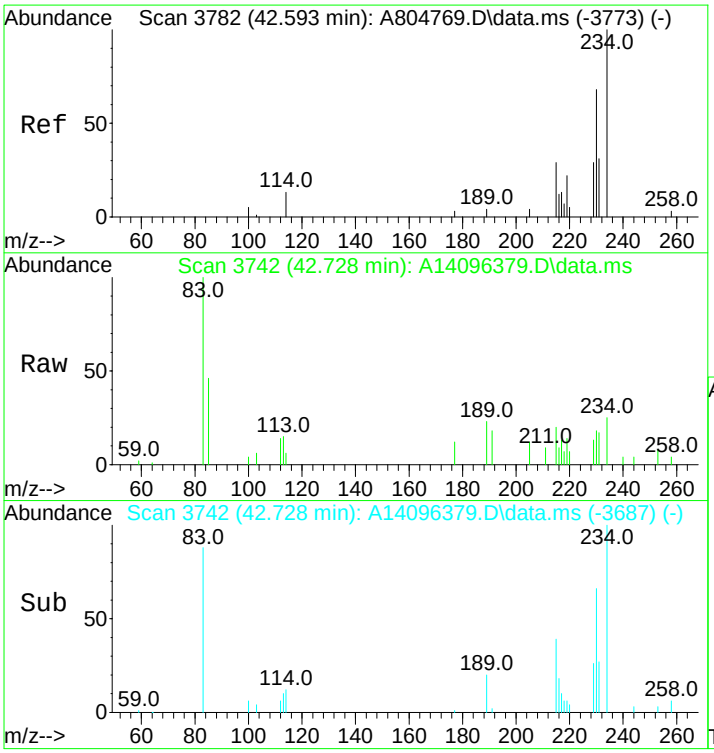


#67
Naphthobenzothiophene-2,1-D
Concen: 154.72 ng/mL m
RT: 42.390 min Scan# 3705
Delta R.T. -0.019 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:234 Resp: 44438

Ion	Ratio	Lower	Upper
234	100		
189	13.5	7.0	10.6#

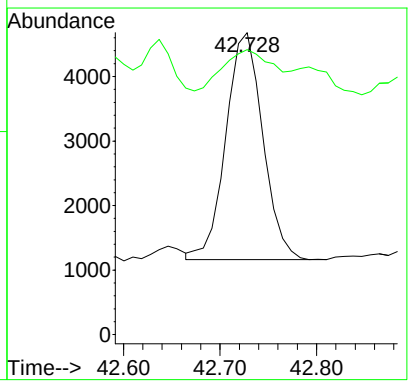


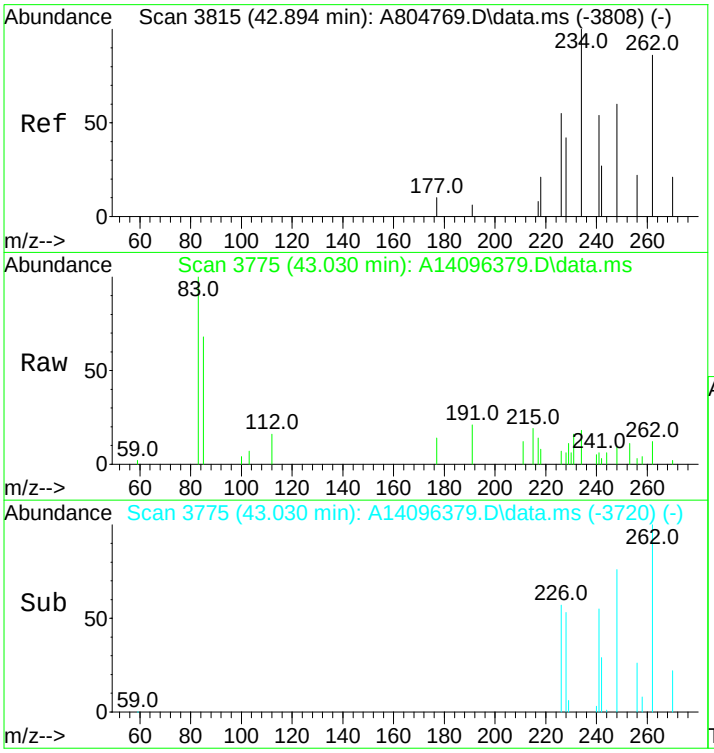


#68
Naphthobenzothiophene-1,2-D
Concen: 32.52 ng/mL
RT: 42.728 min Scan# 3742
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:234 Resp: 9340

Ion	Ratio	Lower	Upper
234	100		
189	0.0	75.4	113.2#

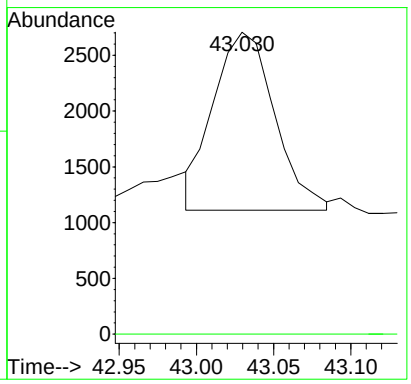


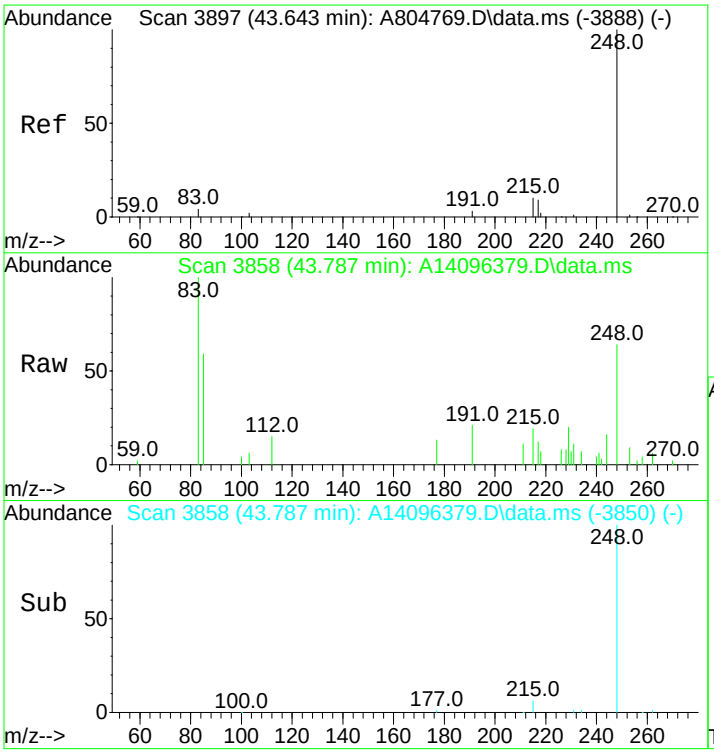


#69
Naphthobenzothiophene-2,3-D
Concen: 15.43 ng/mL m
RT: 43.030 min Scan# 3775
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:234 Resp: 4433

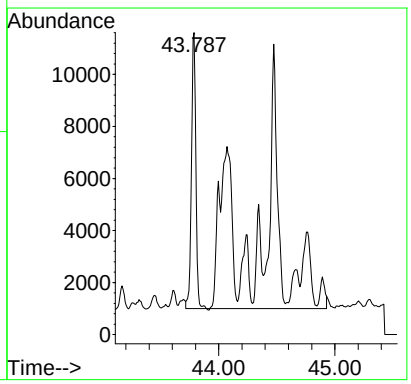
Ion	Ratio	Lower	Upper
234	100		
189	0.0	0.0	0.0

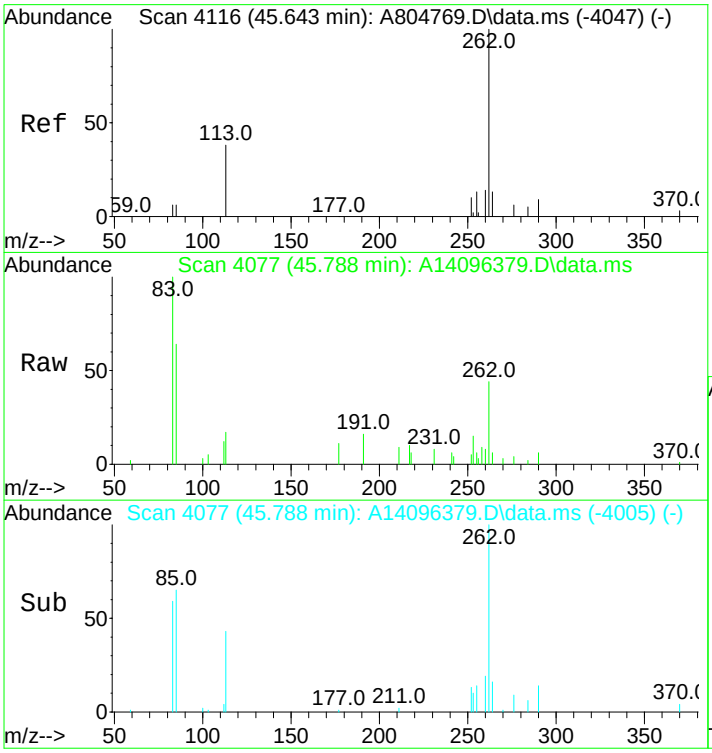




#70
C1-Naphthobenzothiophenes
Concen: 557.80 ng/ml m
RT: 43.787 min Scan# 3858
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

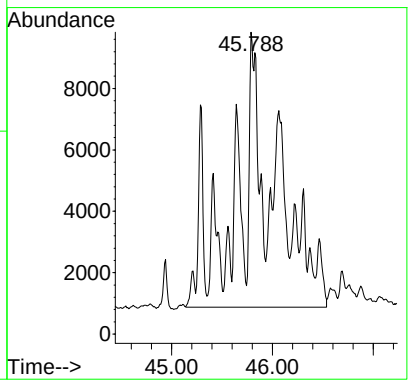
Tgt Ion:248 Resp: 160206

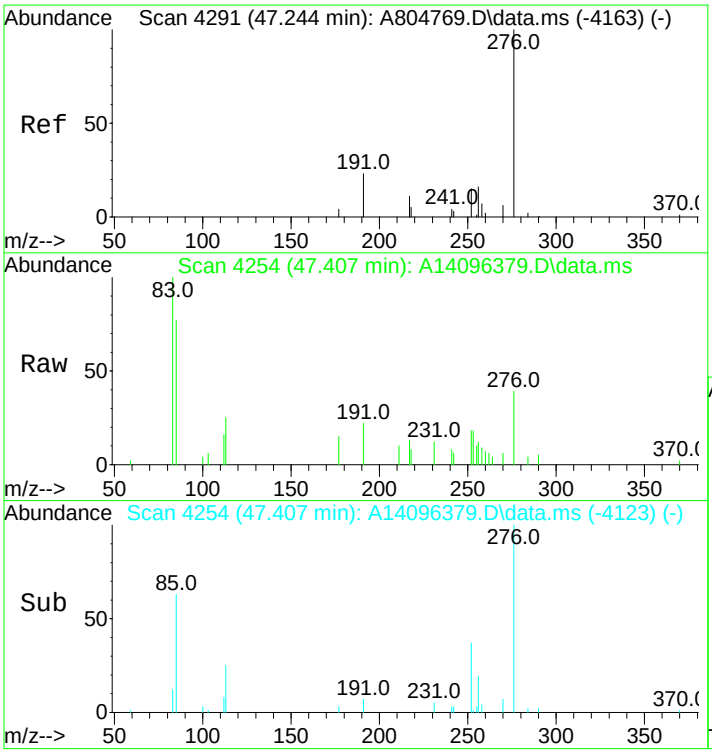




#71
C2-Naphthobenzothiophenes
Concen: 813.23 ng/ml m
RT: 45.788 min Scan# 4077
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

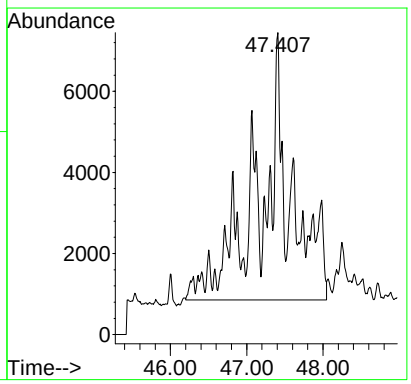
Tgt Ion:262 Resp: 233570

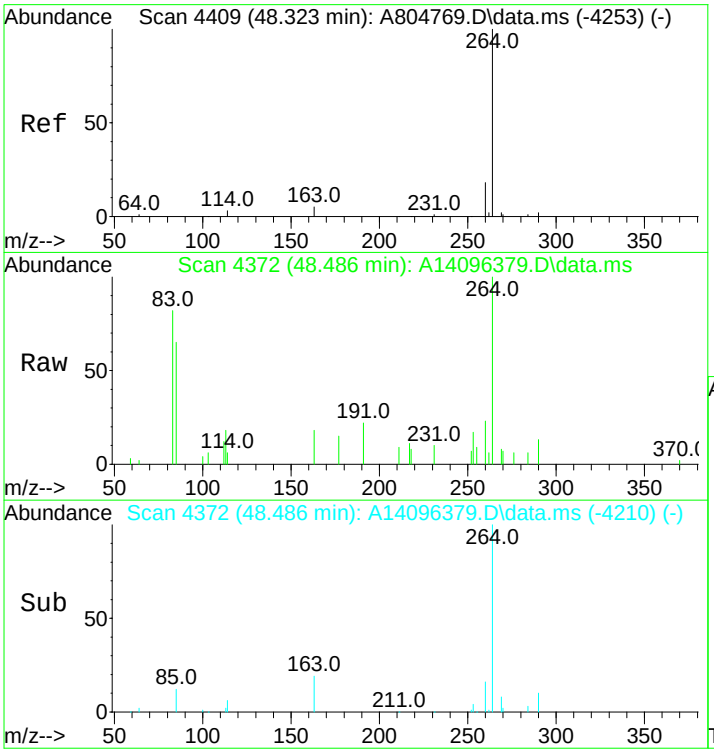




#72
C3-Naphthobenzothiophenes
Concen: 651.25 ng/ml m
RT: 47.407 min Scan# 4254
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

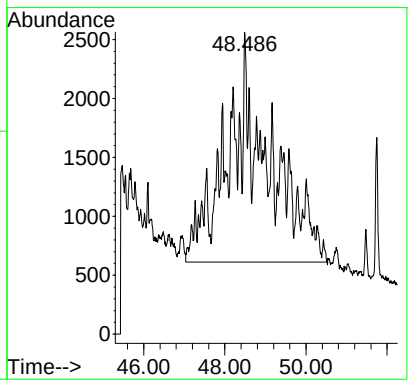
Tgt Ion:276 Resp: 187047

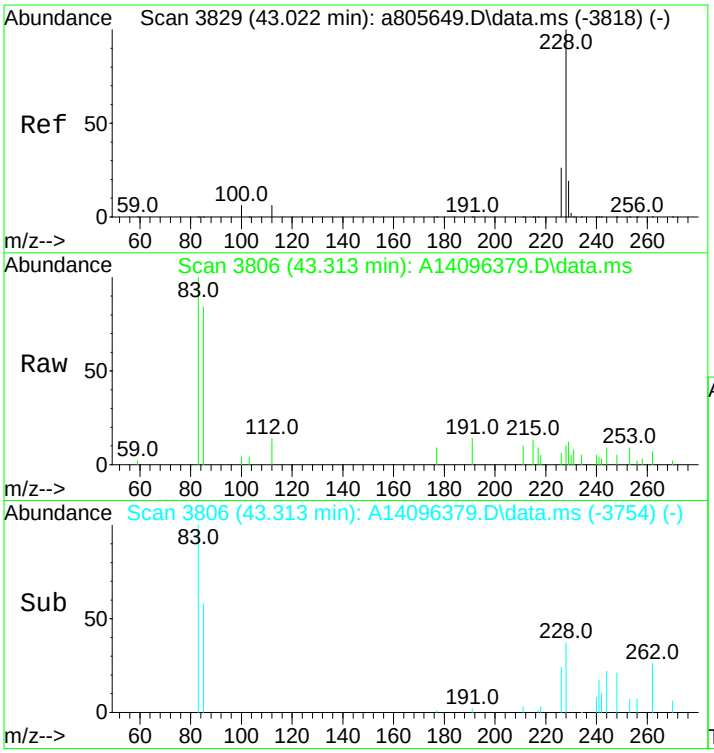




#73
C4-Naphthobenzothiophenes
Concen: 461.78 ng/mL m
RT: 48.486 min Scan# 4372
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:290 Resp: 132628

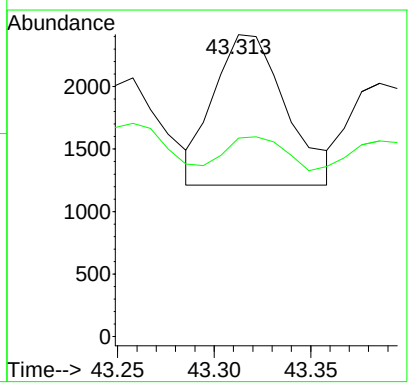


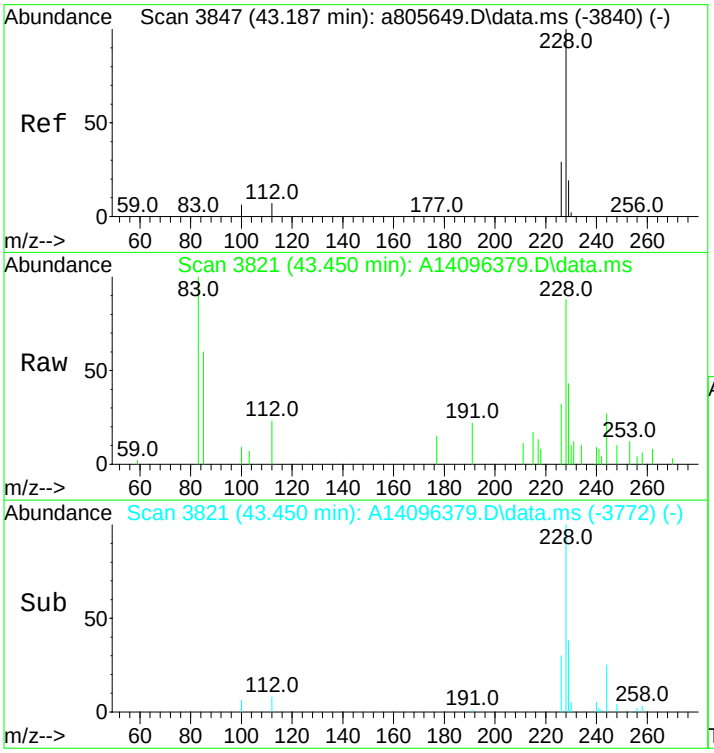


#75
Benz[a]anthracene
Concen: 10.50 ng/mL m
RT: 43.313 min Scan# 3806
Delta R.T. -0.027 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:228 Resp: 3148

Ion	Ratio	Lower	Upper
228	100		
226	21.8	19.8	29.6

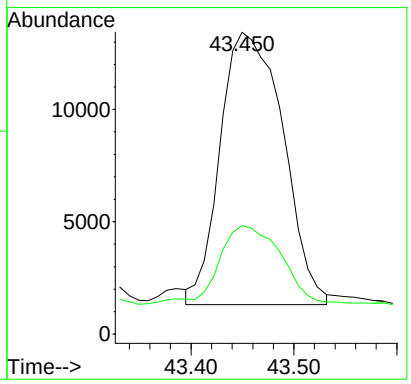


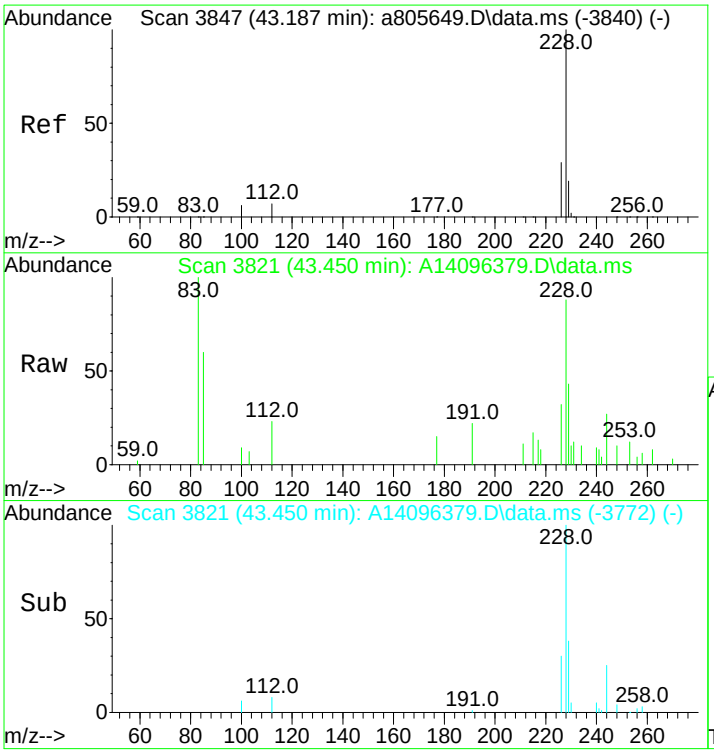


#76
Chrysene
Concen: 173.14 ng/mL m
RT: 43.450 min Scan# 3821
Delta R.T. -0.054 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:228 Resp: 51255

Ion	Ratio	Lower	Upper
228	100		
226	29.7	21.7	32.5

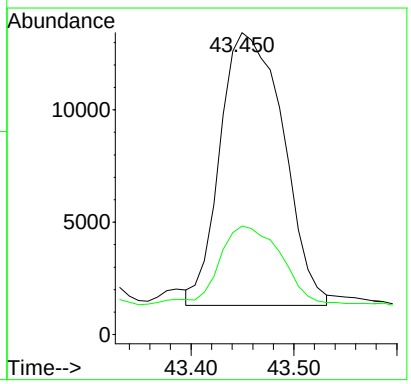


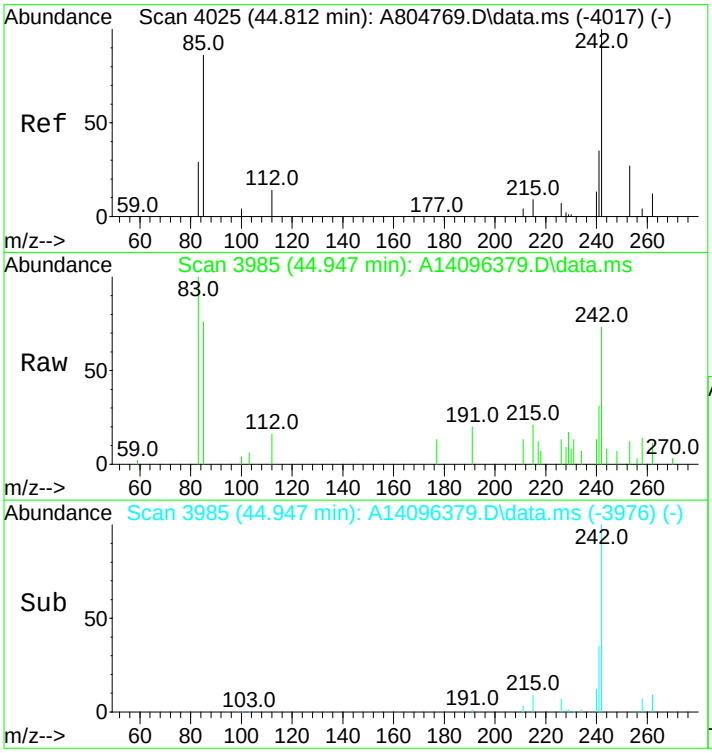


#77
Chrysene/Triphenylene
Concen: 173.75 ng/mL m
RT: 43.450 min Scan# 3821
Delta R.T. -0.054 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:228 Resp: 51436

Ion	Ratio	Lower	Upper
228	100		
226	29.6	21.7	32.5

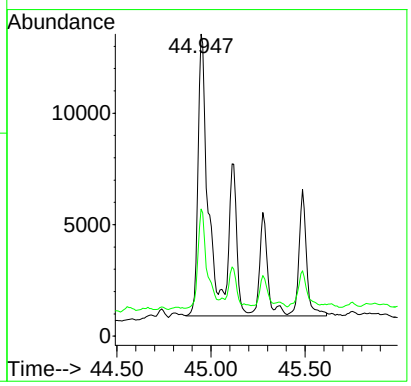


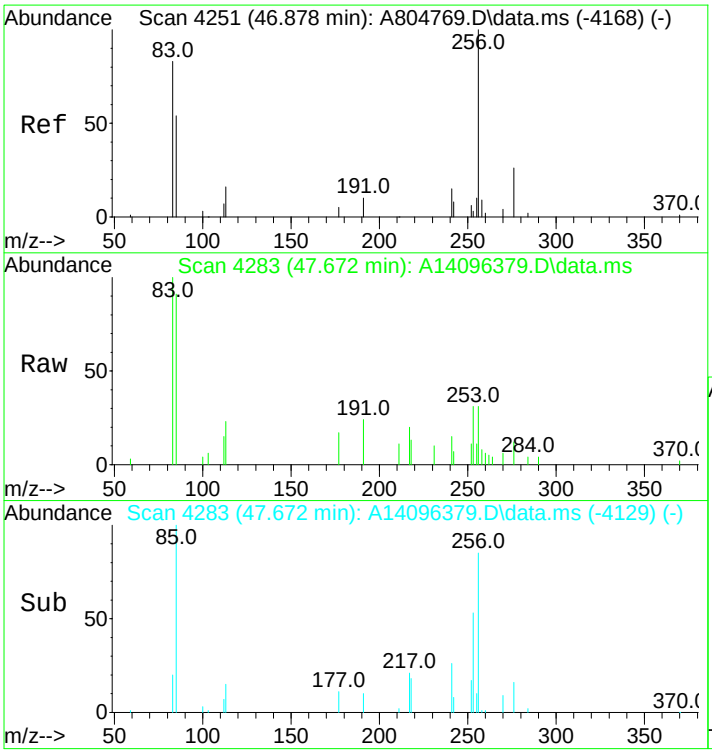


#78
C1-Chrysenes
Concen: 318.18 ng/mL m
RT: 44.947 min Scan# 3985
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:242 Resp: 94192

Ion	Ratio	Lower	Upper
242	100		
241	15.2	33.7	50.5#

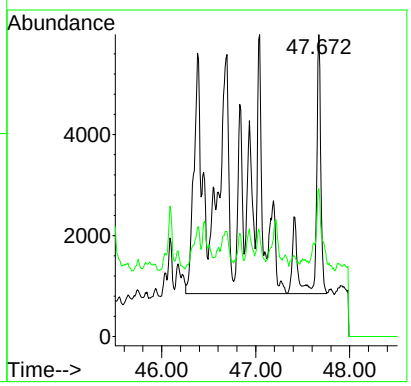


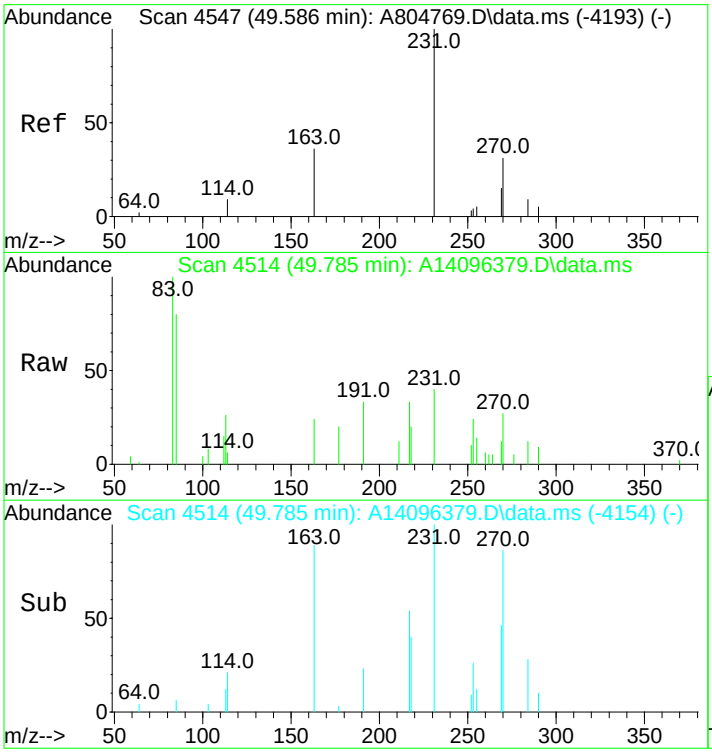


#79
C2-Chrysenes
Concen: 457.66 ng/mL m
RT: 47.672 min Scan# 4283
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:256 Resp: 135484

Ion	Ratio	Lower	Upper
256	100		
241	4.0	39.2	58.8#

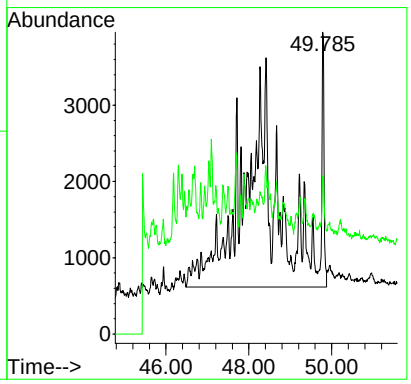


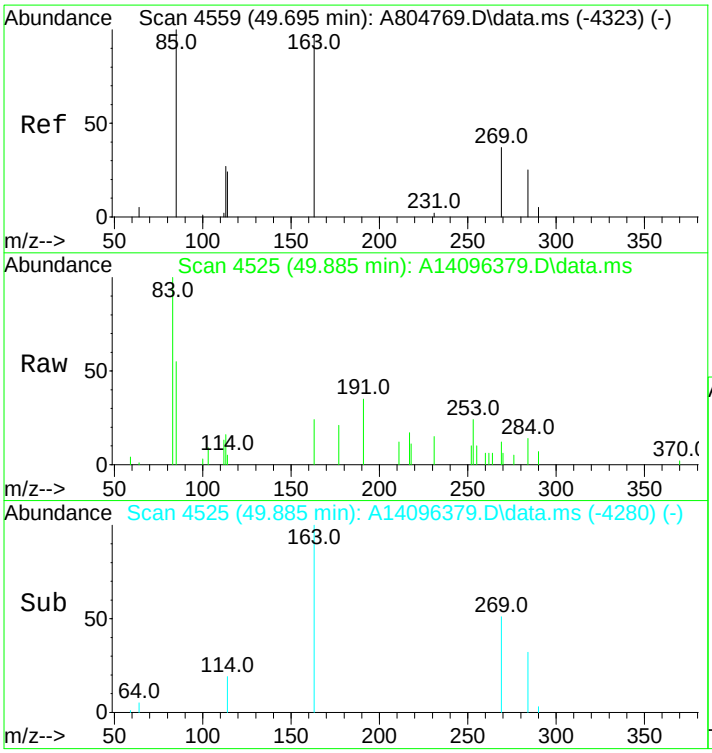


#80
C3-Chrysenes
Concen: 558.68 ng/mL m
RT: 49.785 min Scan# 4514
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:270 Resp: 165389

Ion	Ratio	Lower	Upper
270	100		
255	0.6	42.0	63.0#

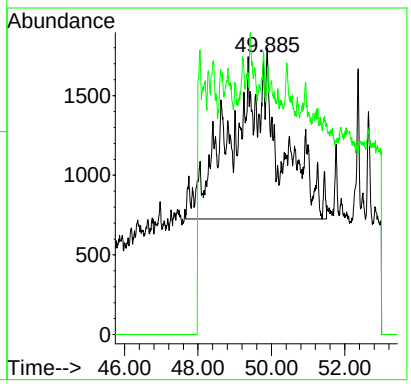


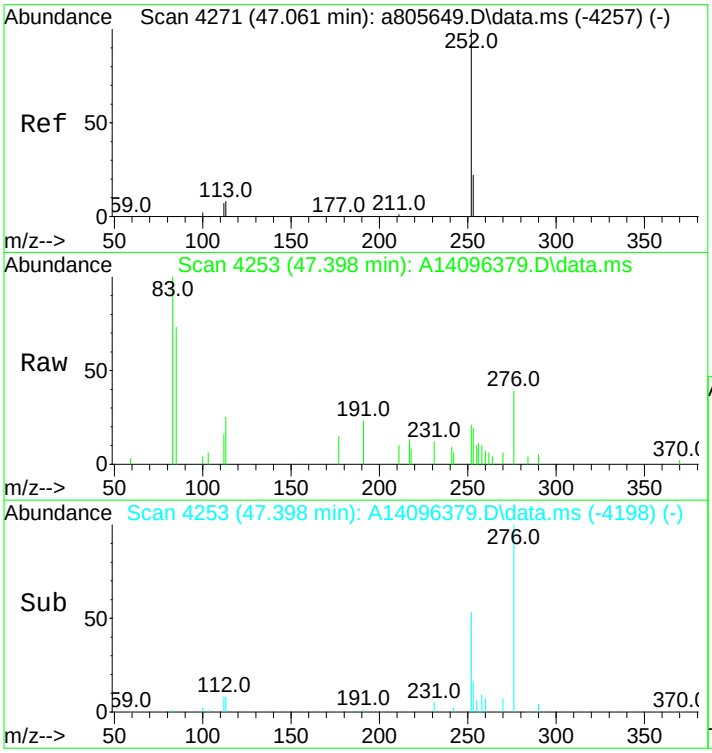


#81
C4-Chrysenes
Concen: 324.62 ng/mL m
RT: 49.885 min Scan# 4525
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:284 Resp: 96100

Ion	Ratio	Lower	Upper
284	100		
269	0.0	71.8	107.8#

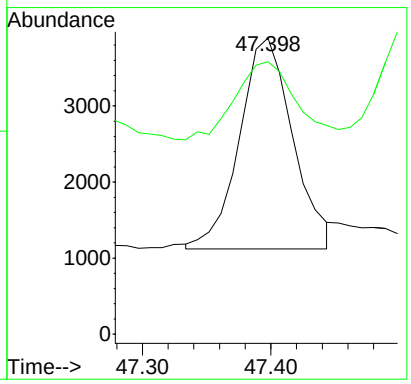


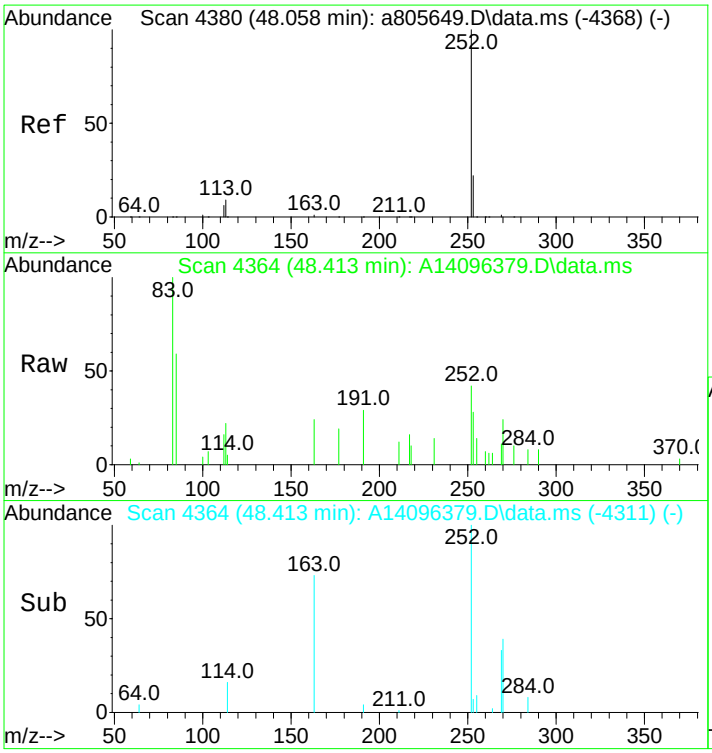


#82
Benzo[b]fluoranthene
Concen: 27.02 ng/mL m
RT: 47.398 min Scan# 4253
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:252 Resp: 8014

Ion	Ratio	Lower	Upper
252	100		
253	2.6	20.0	30.0#

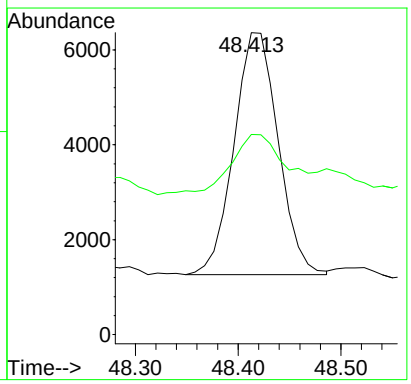


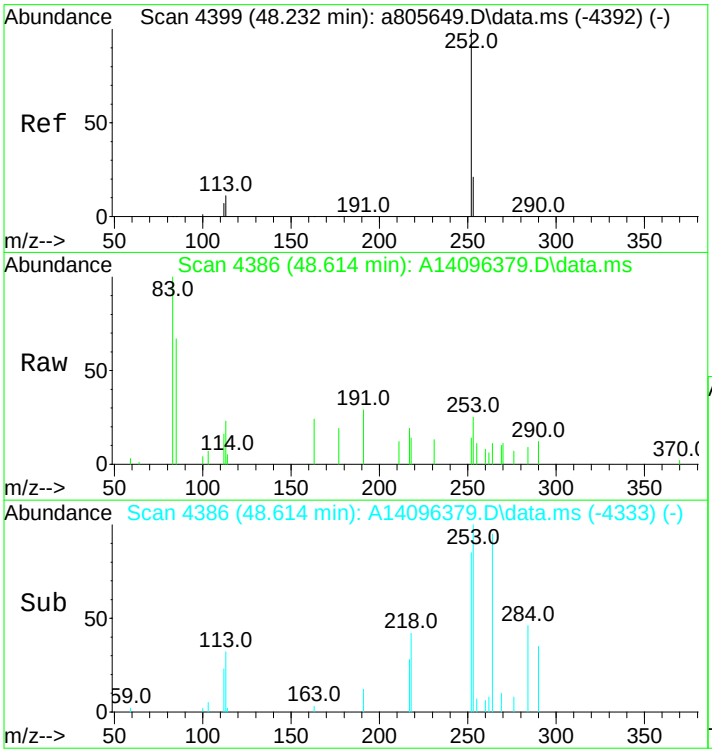


#85
Benzo[e]pyrene
Concen: 51.94 ng/mL
RT: 48.413 min Scan# 4364
Delta R.T. -0.018 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:252 Resp: 15270

Ion	Ratio	Lower	Upper
252	100		
253	28.5	20.6	31.0

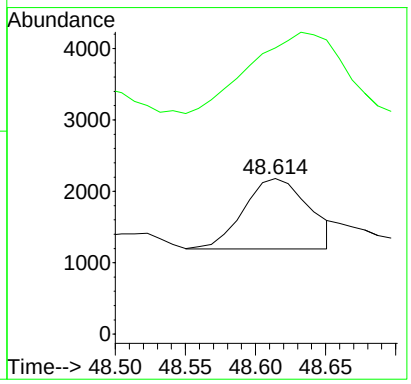


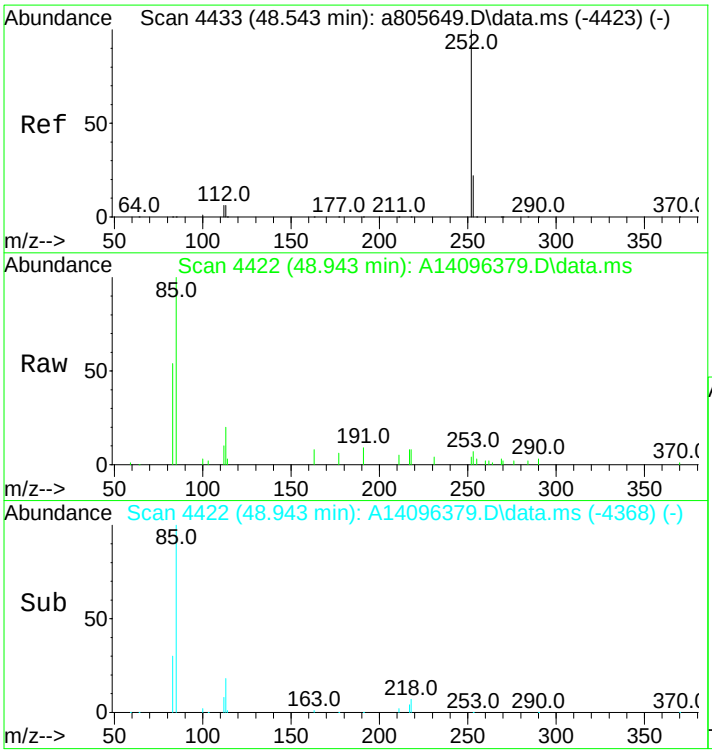


#87
Benzo[a]pyrene
Concen: 11.62 ng/mL m
RT: 48.614 min Scan# 4386
Delta R.T. -0.019 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:252 Resp: 3196

Ion	Ratio	Lower	Upper
252	100		
253	136.0	21.5	32.3#

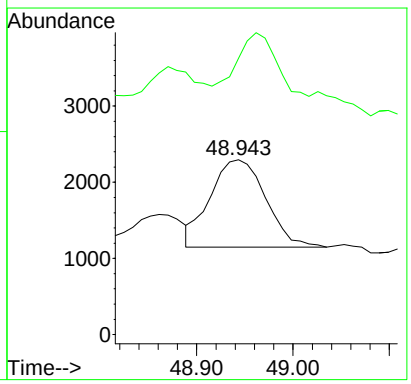


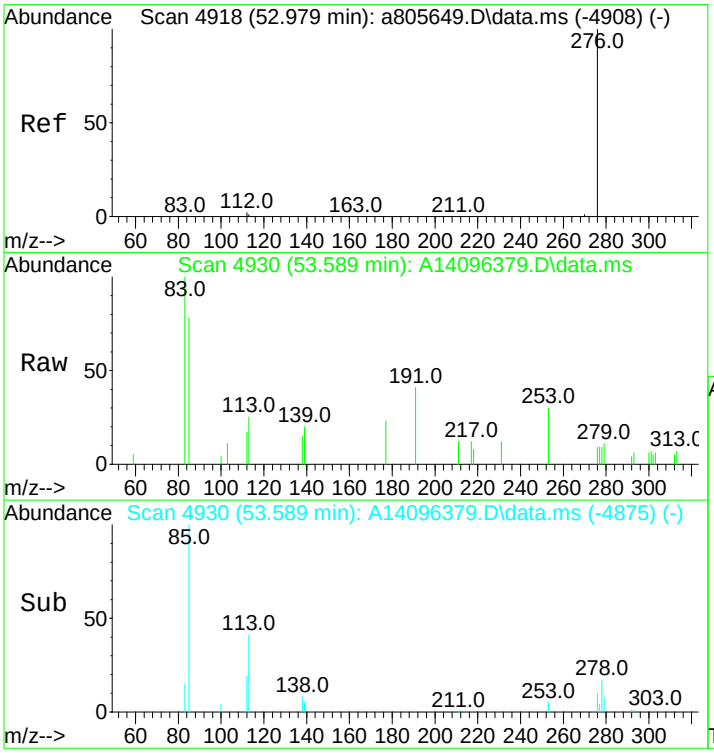


#88
Perylene
Concen: 15.41 ng/mL
RT: 48.943 min Scan# 4422
Delta R.T. -0.010 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:252 Resp: 4592

Ion	Ratio	Lower	Upper
252	100		
253	99.3	21.7	32.5#

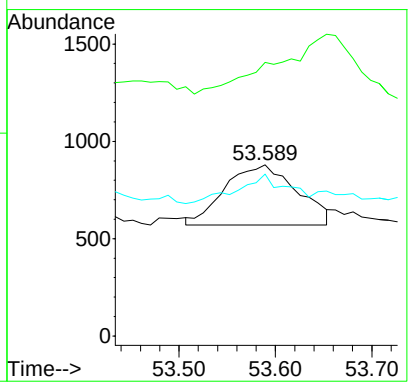


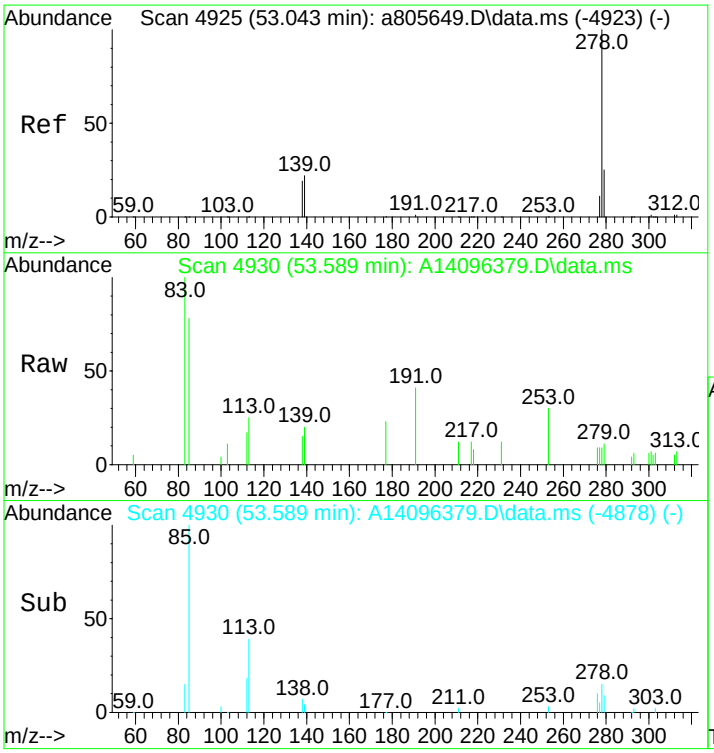


#89
Indeno[1,2,3-cd]pyrene
Concen: 4.64 ng/mL m
RT: 53.589 min Scan# 4930
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:276 Resp: 1597

Ion	Ratio	Lower	Upper
276	100		
138	0.0	22.3	33.5#
277	33.2	20.0	30.0#

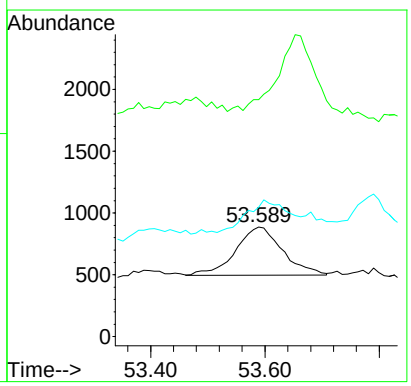


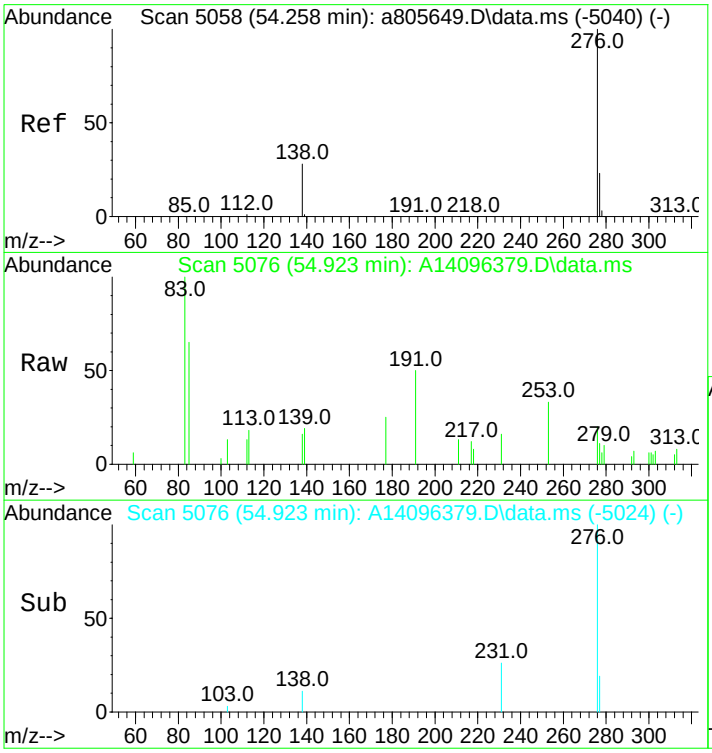


#90
Dibenz[ah]+[ac]anthracene
Concen: 6.89 ng/mL
RT: 53.589 min Scan# 4930
Delta R.T. -0.028 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:278 Resp: 2225

Ion	Ratio	Lower	Upper
278	100		
139	0.0	15.3	22.9#
279	59.0	19.9	29.9#

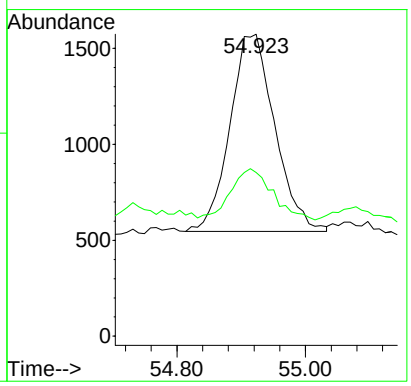


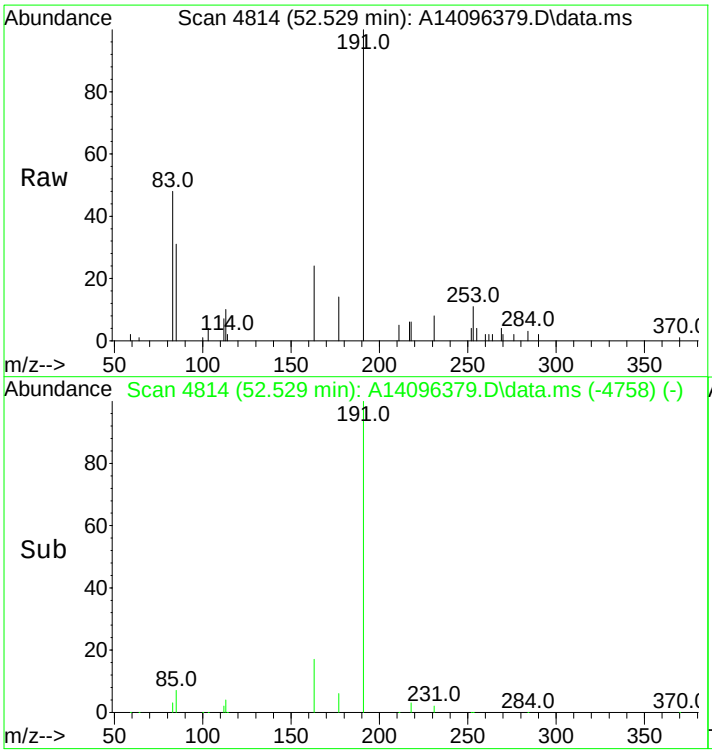


#91
Benzo[g,h,i]perylene
Concen: 15.15 ng/mL
RT: 54.923 min Scan# 5076
Delta R.T. -0.028 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:276 Resp: 4996

Ion	Ratio	Lower	Upper
276	100		
277	23.9	18.7	28.1

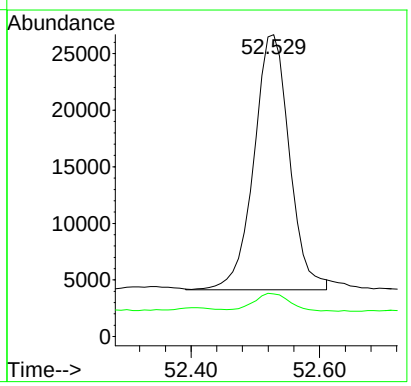


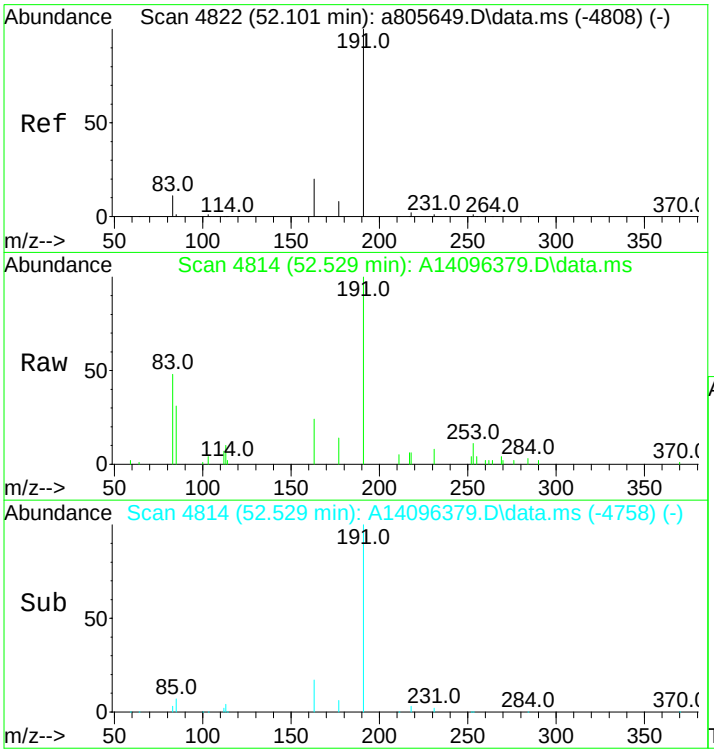


#92
Hopane (T19)
Concen: 885.80 ng/mL m
RT: 52.529 min Scan# 4814
Delta R.T. 0.009 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:191 Resp: 86733

Ion	Ratio	Lower	Upper
191	100		
177	0.2	12.4	18.6#

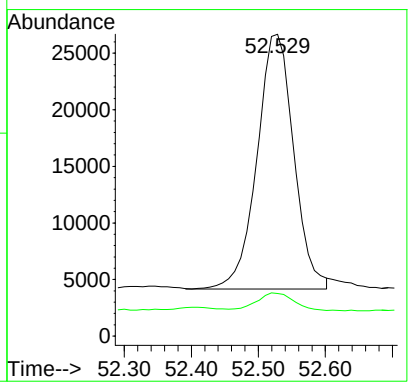


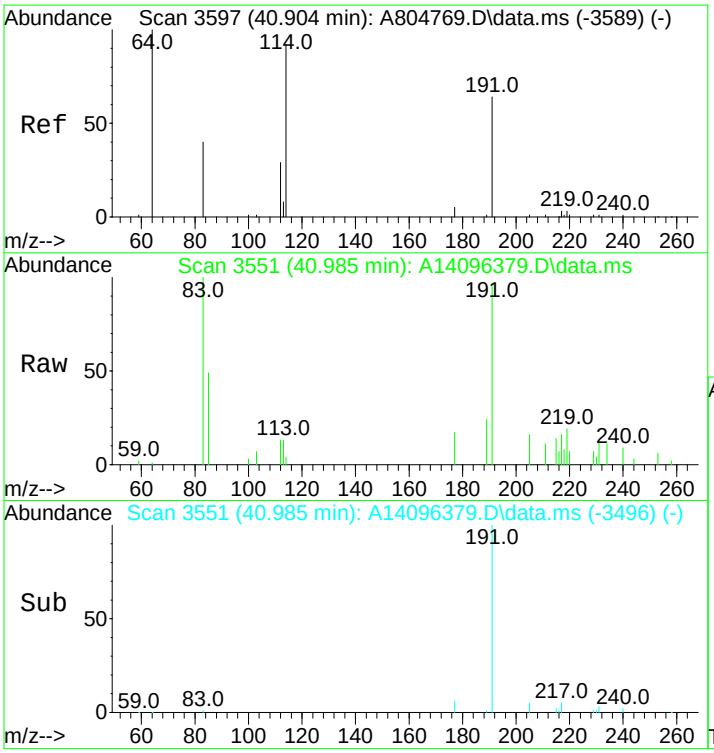


#93
17a(H),21B(H)-hopane - C30H52
Concen: 876.96 ng/mL m
RT: 52.529 min Scan# 4814
Delta R.T. 0.009 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:191 Resp: 85867

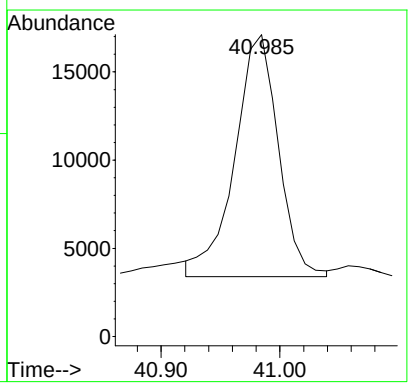
Ion	Ratio	Lower	Upper
191	100		
177	0.2	12.4	18.6#

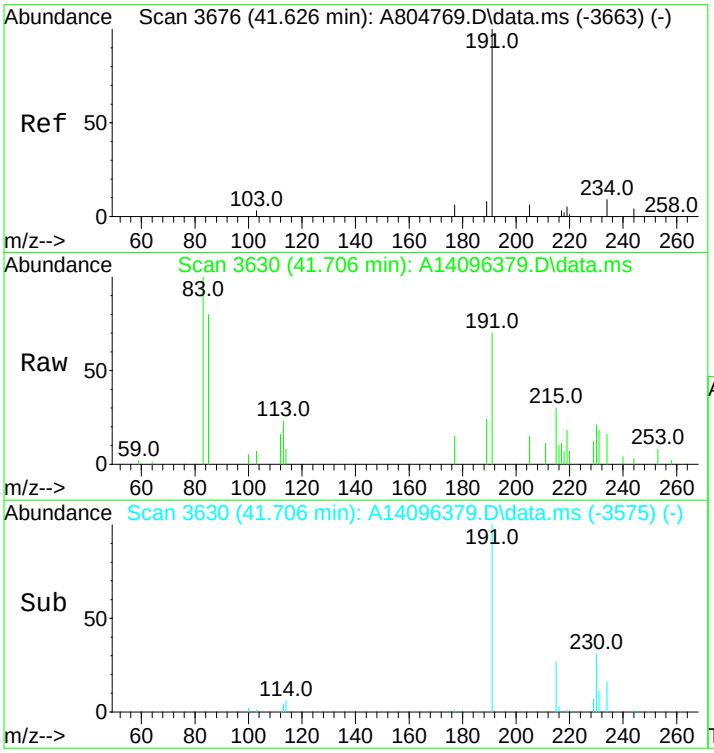




#94
C23 Tricyclic Terpane (T4)
Concen: 356.53 ng/ml m
RT: 40.985 min Scan# 3551
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

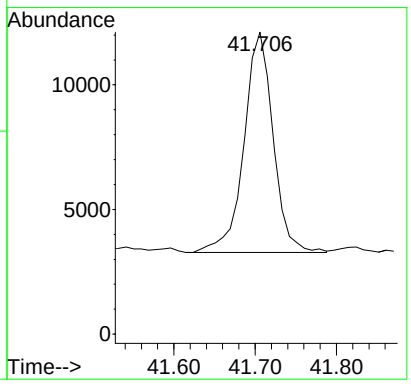
Tgt Ion:191 Resp: 34909

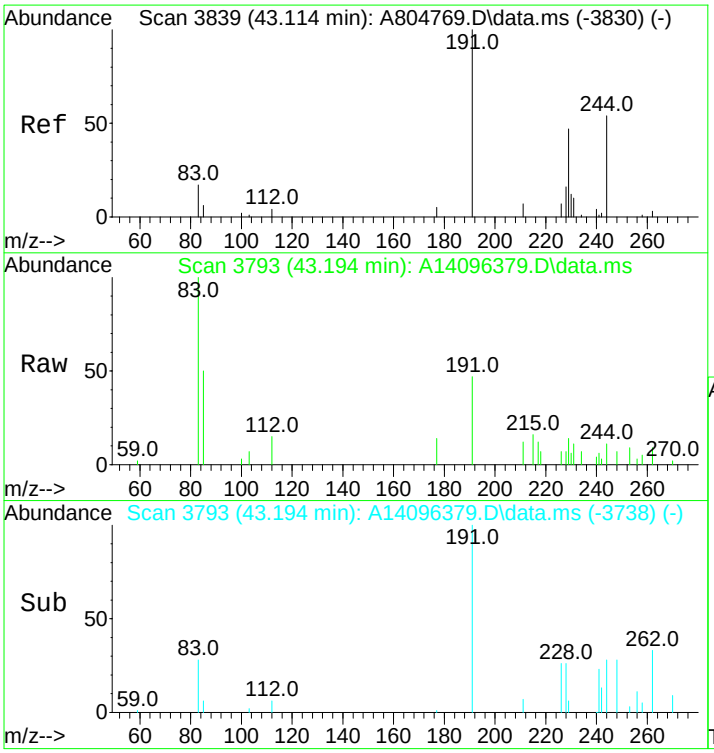




#95
C24 Tricyclic Terpane (T5)
Concen: 225.01 ng/ml
RT: 41.706 min Scan# 3630
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

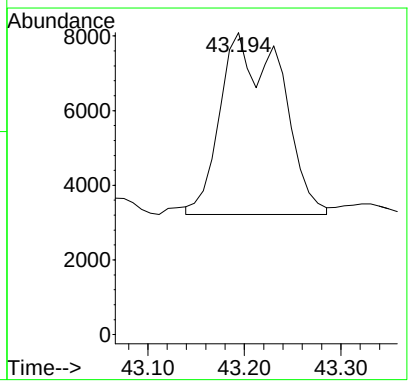
Tgt Ion:191 Resp: 22032

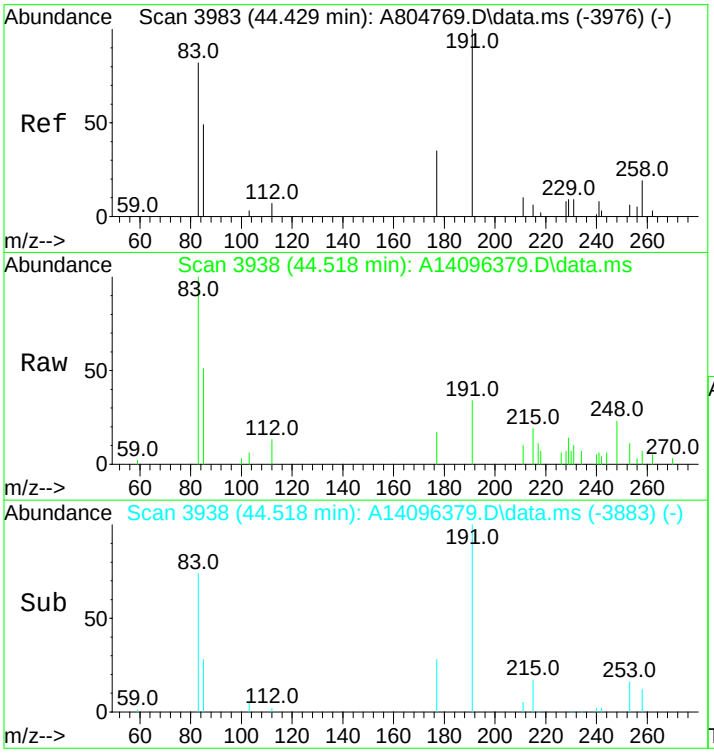




#96
C25 Tricyclic Terpane (T6)
Concen: 217.67 ng/ml m
RT: 43.194 min Scan# 3793
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

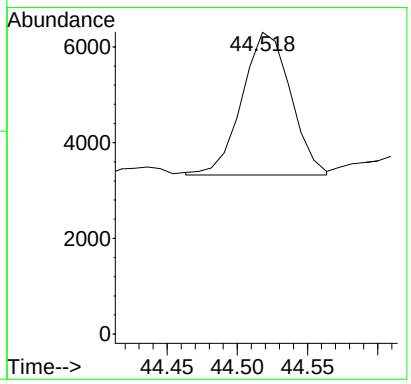
Tgt Ion:191 Resp: 21313

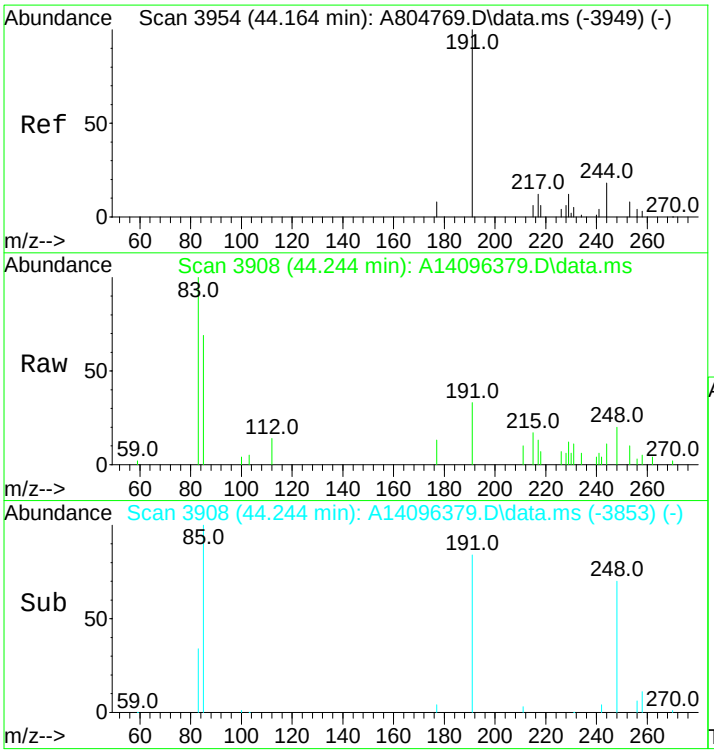




#97
C24 Tetracyclic Terpane (T6a)
Concen: 73.20 ng/ml m
RT: 44.518 min Scan# 3938
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

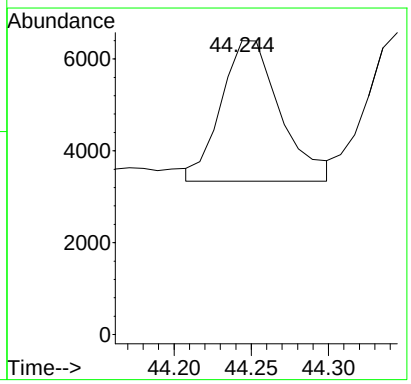
Tgt Ion:191 Resp: 7167

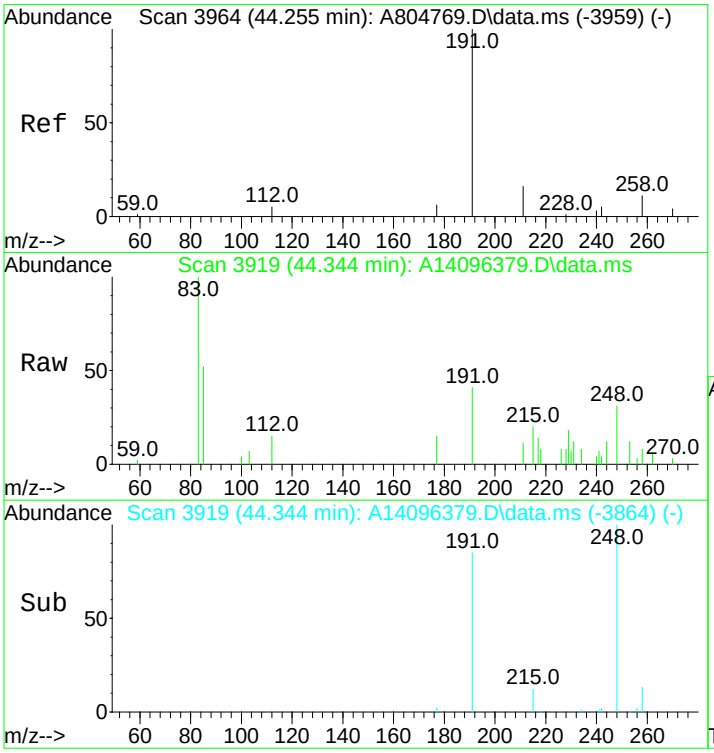




#98
C26 Tricyclic Terpane-22S (T6b)
Concen: 83.33 ng/ml m
RT: 44.244 min Scan# 3908
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

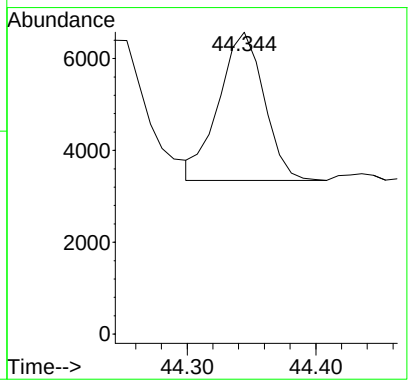
Tgt Ion:191 Resp: 8159

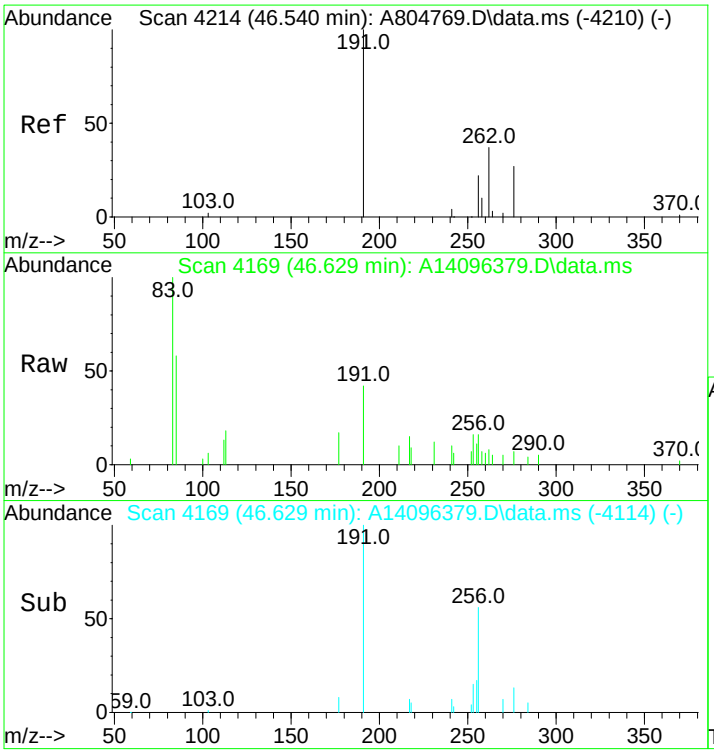




#99
C26 Tricyclic Terpane-22R (T6c)
Concen: 80.15 ng/ml
RT: 44.344 min Scan# 3919
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

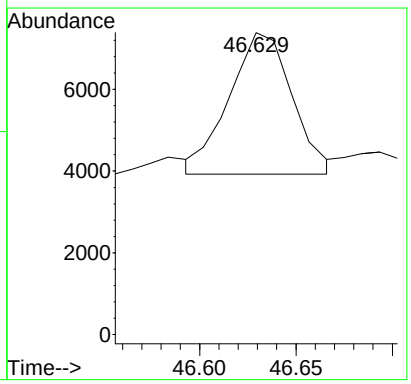
Tgt Ion:191 Resp: 7848

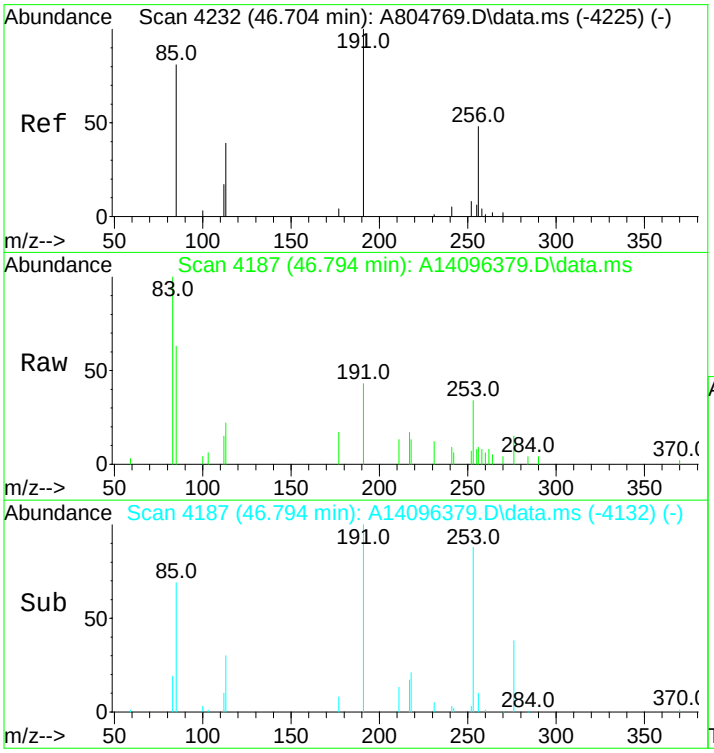




#100
C28 Tricyclic Terpane-22S (T7)
Concen: 80.26 ng/ml m
RT: 46.629 min Scan# 4169
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

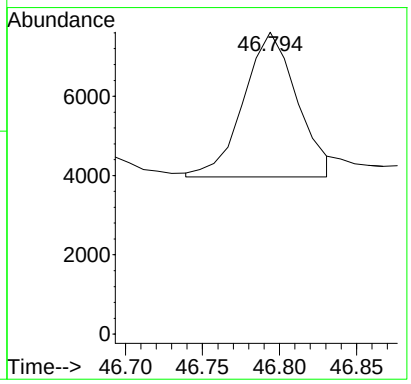
Tgt Ion:191 Resp: 7859

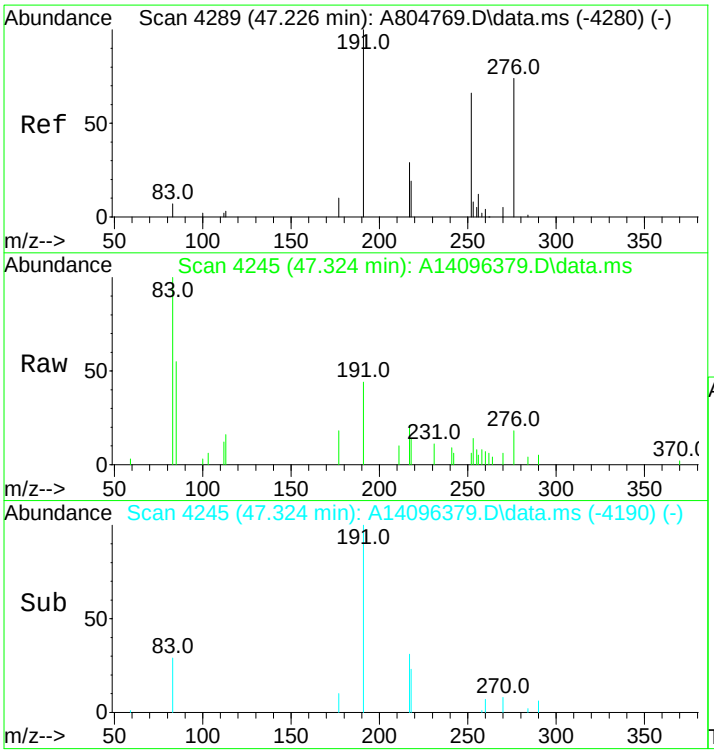




#101
C28 Tricyclic Terpane-22R (T8)
Concen: 90.18 ng/ml m
RT: 46.794 min Scan# 4187
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

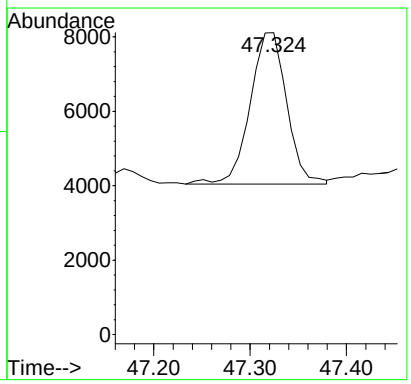
Tgt Ion:191 Resp: 8830

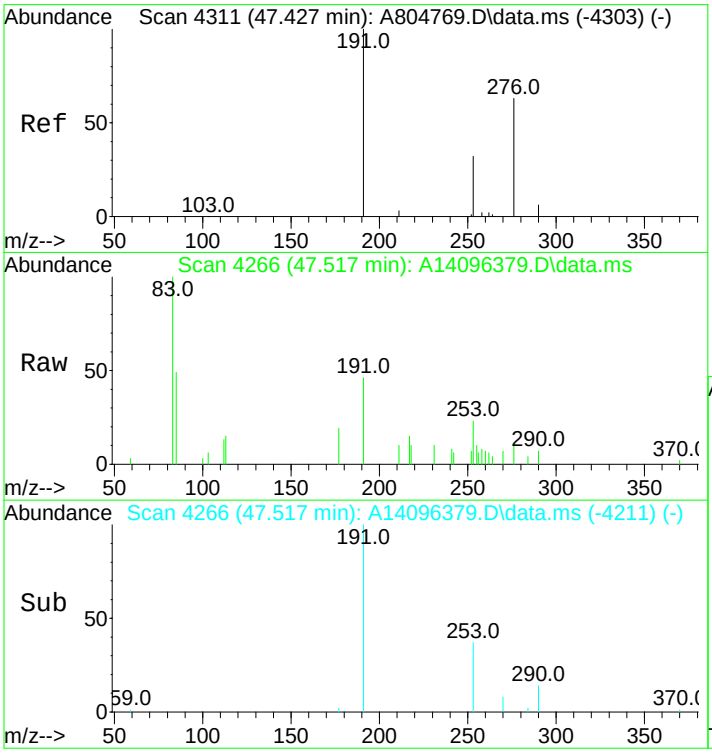




#102
C29 Tricyclic Terpane-22S (T9)
Concen: 109.60 ng/ml
RT: 47.324 min Scan# 4245
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

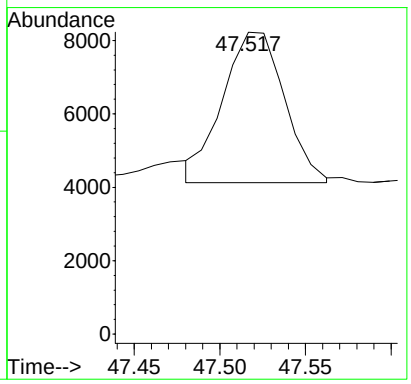
Tgt Ion:191 Resp: 10731

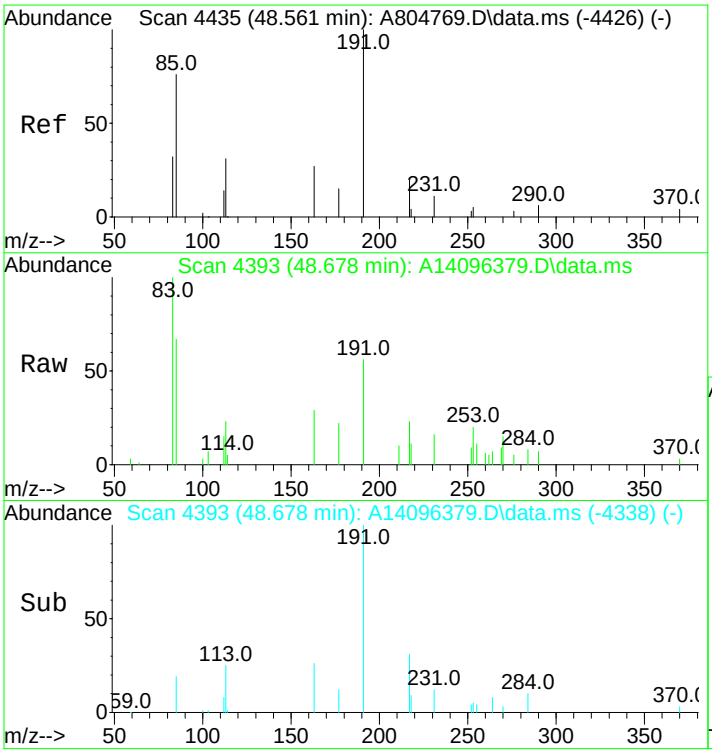




#103
C29 Tricyclic Terpane-22R (T10)
Concen: 105.35 ng/ml m
RT: 47.517 min Scan# 4266
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

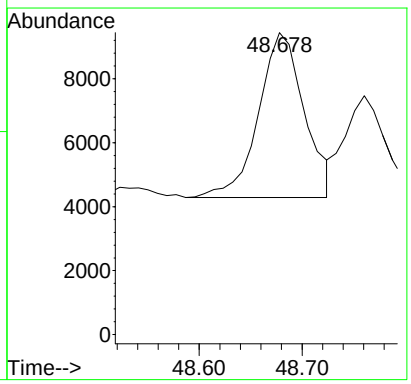
Tgt Ion:191 Resp: 10315

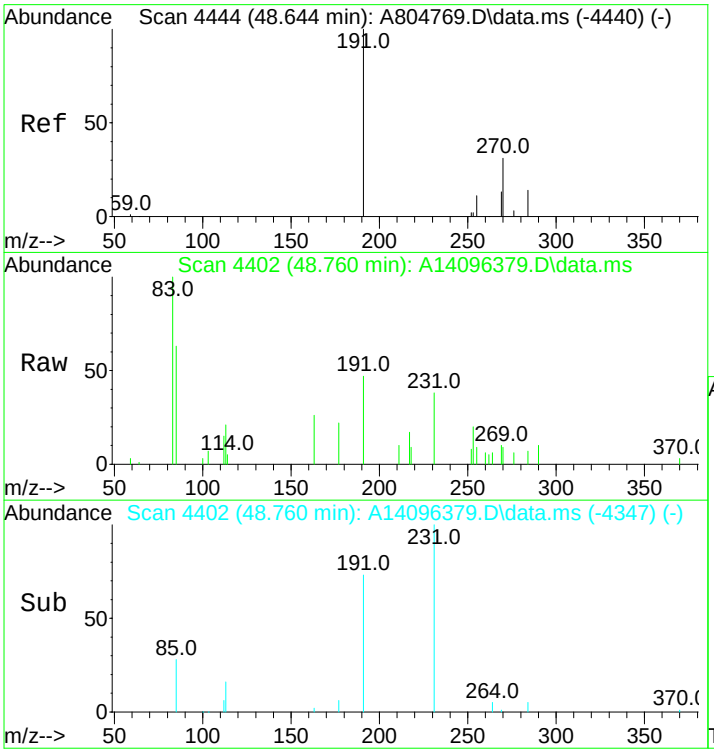




#104
18a-22,29,30-Trisnorneohopane-TS (T11)
Concen: 162.98 ng/ml
RT: 48.678 min Scan# 4393
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

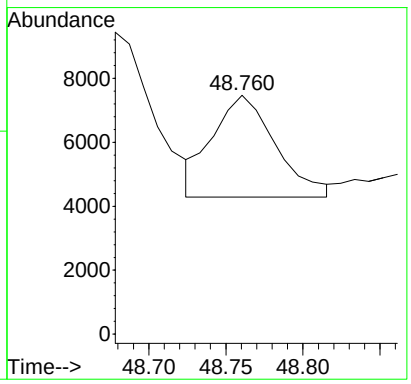
Tgt Ion:191 Resp: 15958

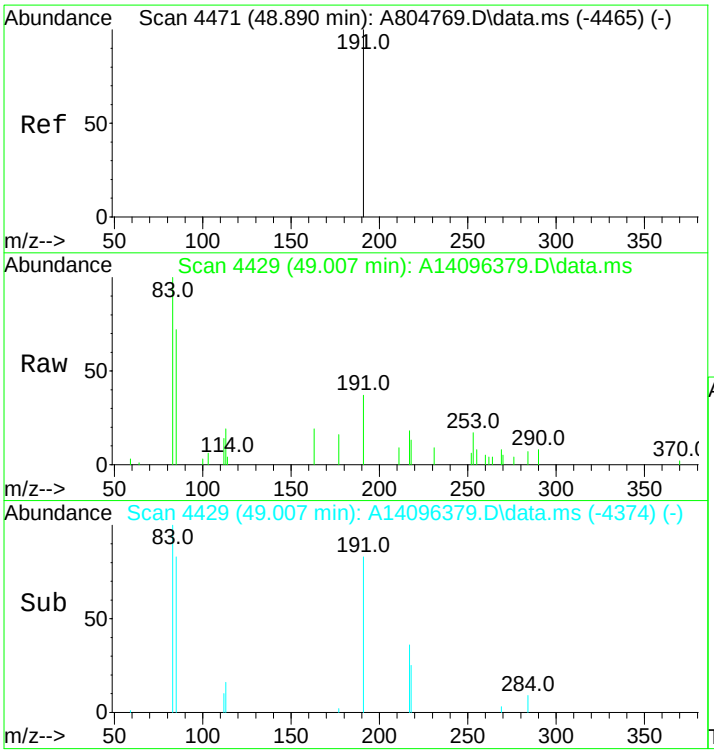




#105
C30 Tricyclic Terpane-22S
Concen: 93.07 ng/mL m
RT: 48.760 min Scan# 4402
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

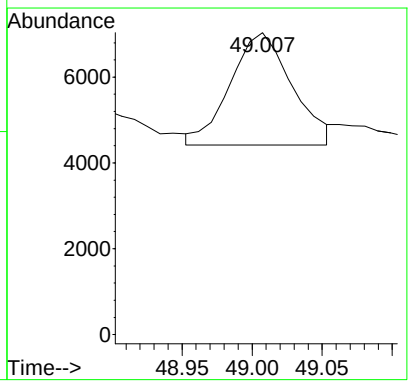
Tgt Ion:191 Resp: 9113

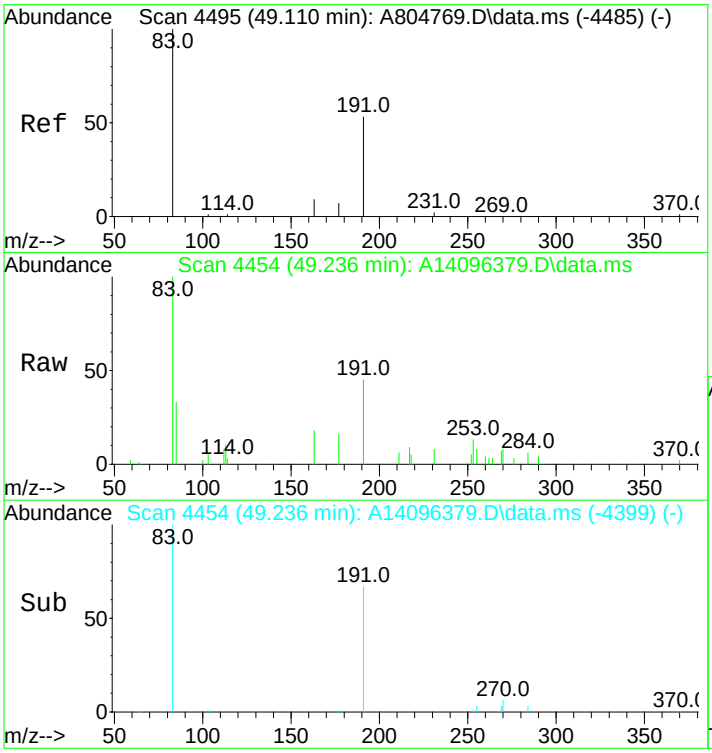




#106
C30 Tricyclic Terpane-22R
Concen: 81.97 ng/mL m
RT: 49.007 min Scan# 4429
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

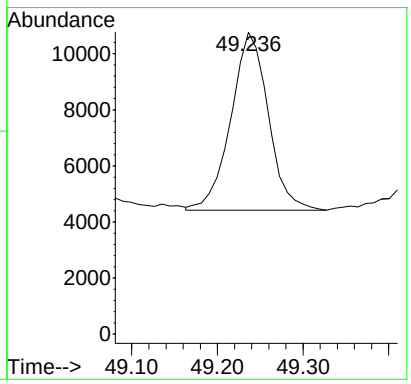
Tgt Ion:191 Resp: 8026

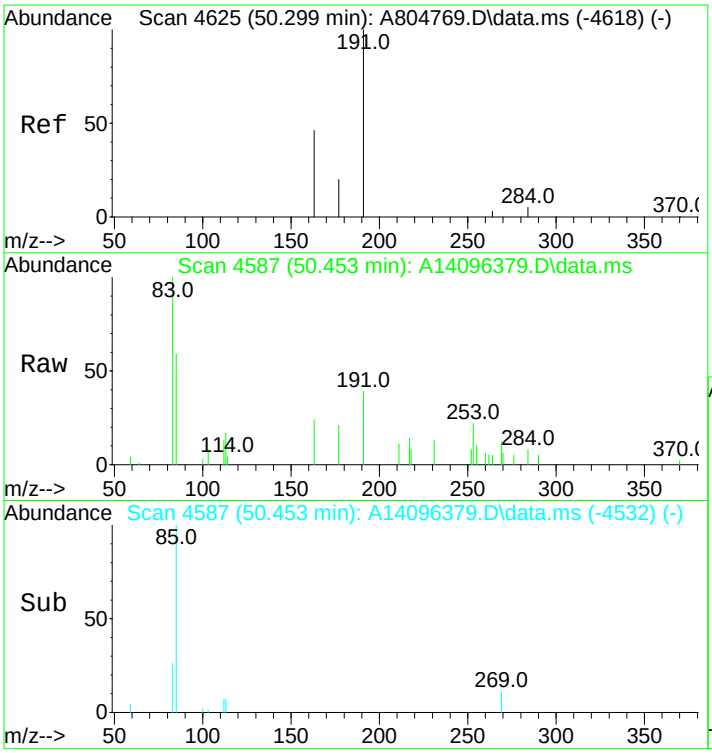




#107
17a(H)-22,29,30-Trisnorhopane-TM (T12)
Concen: 196.12 ng/ml
RT: 49.236 min Scan# 4454
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

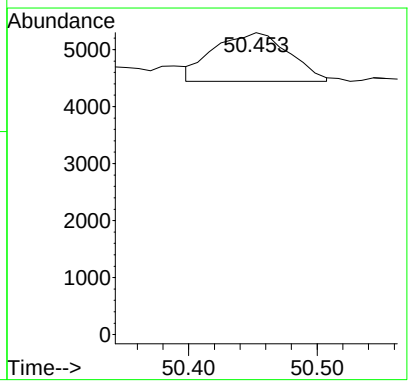
Tgt Ion:191 Resp: 19203

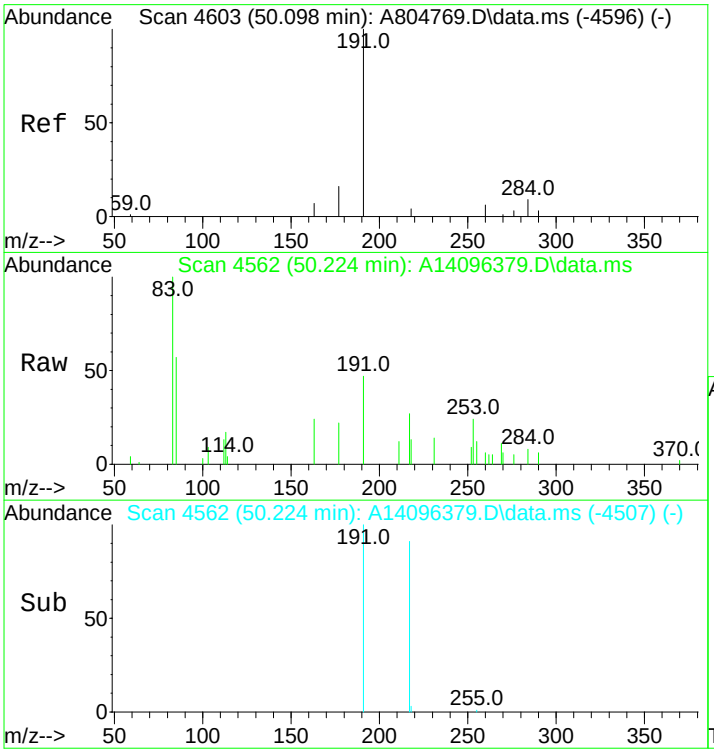




#108
17a/b,21b/a 28,30-Bisnorhopane (T14a)
Concen: 35.34 ng/ml m
RT: 50.453 min Scan# 4587
Delta R.T. -0.001 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

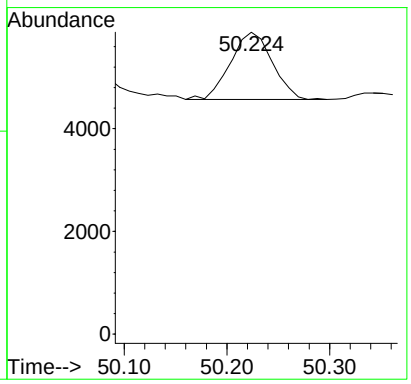
Tgt Ion:191 Resp: 3460

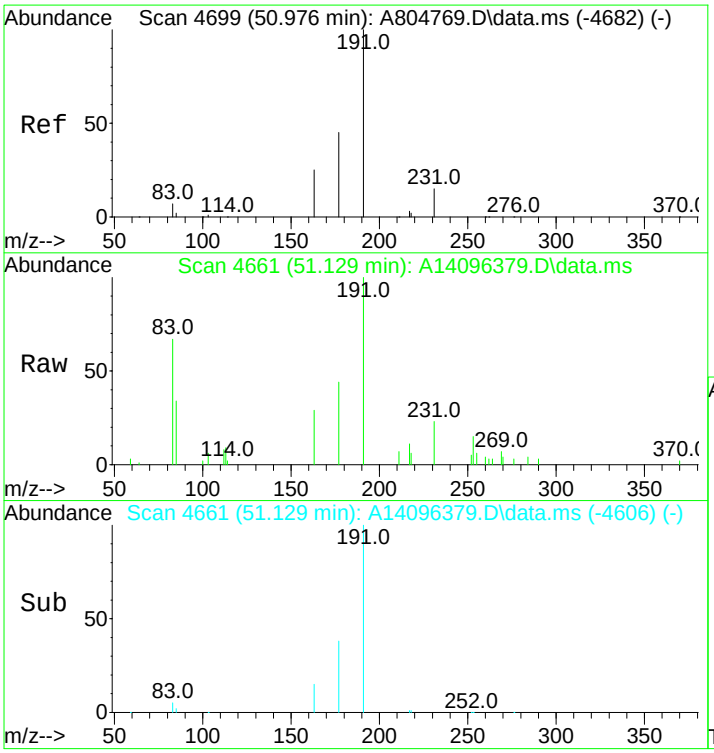




#109
17a(H),21b(H)-25-Norhopane (T14b)
Concen: 37.78 ng/ml
RT: 50.224 min Scan# 4562
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

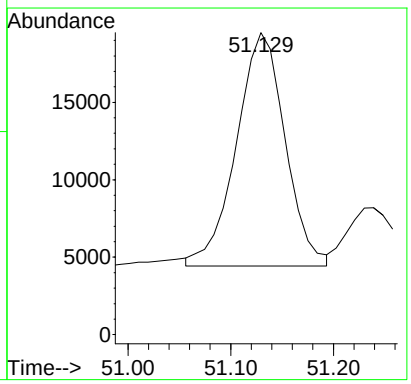
Tgt Ion:191 Resp: 3699

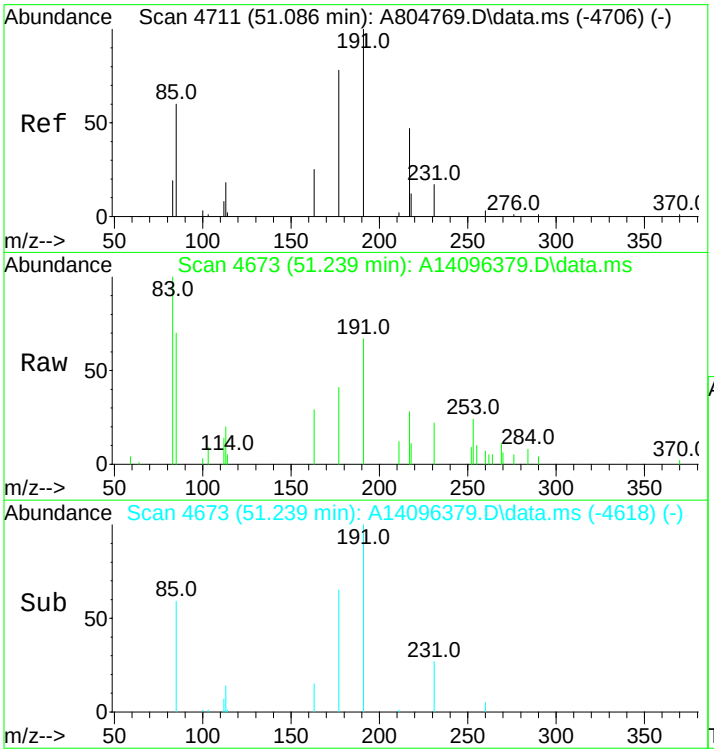




#110
30-Norhopane (T15)
Concen: 508.29 ng/ml m
RT: 51.129 min Scan# 4661
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

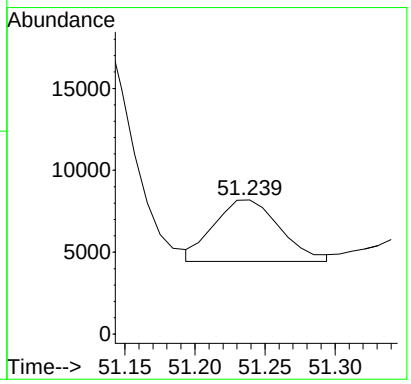
Tgt Ion:191 Resp: 49769

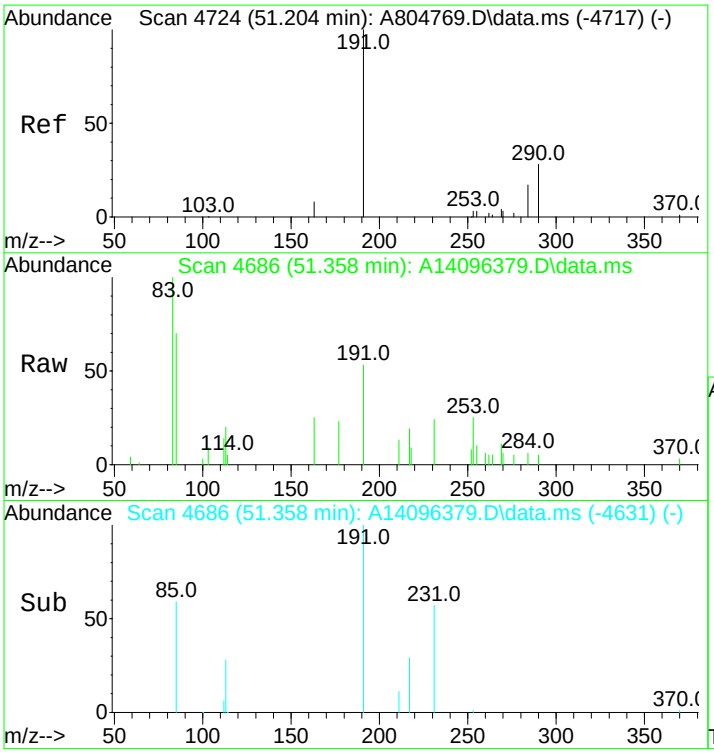




#111
18a(H)-30-Norneohopane-C29Ts (T16)
Concen: 125.59 ng/ml m
RT: 51.239 min Scan# 4673
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

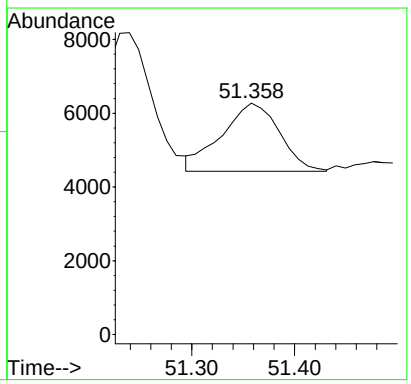
Tgt Ion:191 Resp: 12297

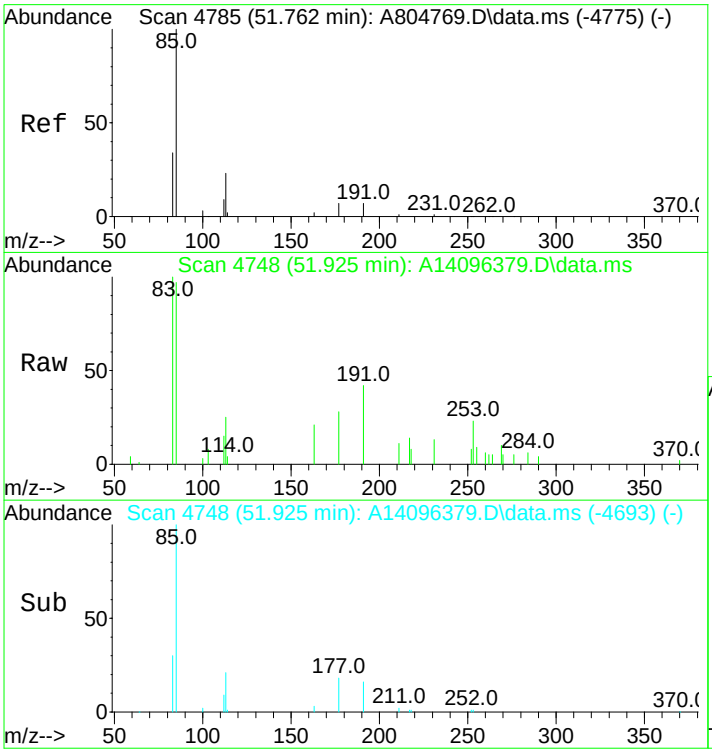




#112
17a(H)-Diahopane (X)
Concen: 74.01 ng/ml m
RT: 51.358 min Scan# 4686
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

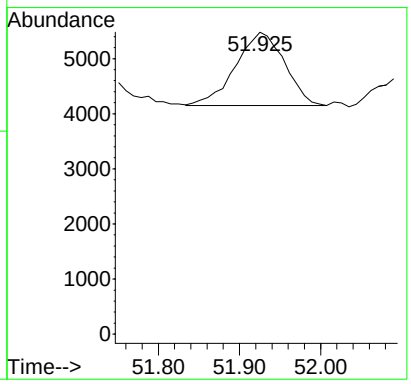
Tgt Ion:191 Resp: 7247

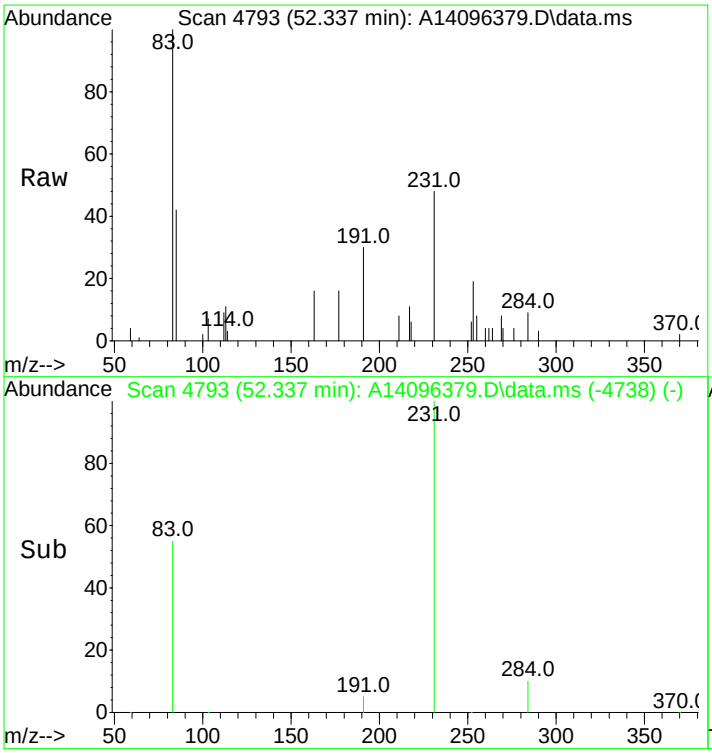




#113
30-Normoretane (T17)
Concen: 57.25 ng/ml
RT: 51.925 min Scan# 4748
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

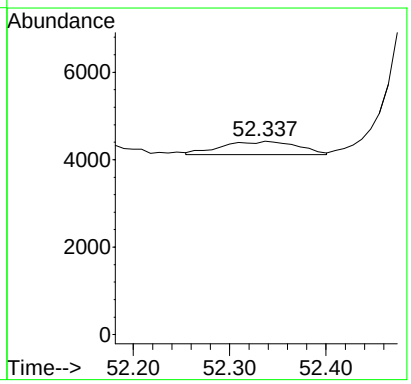
Tgt Ion:191 Resp: 5606

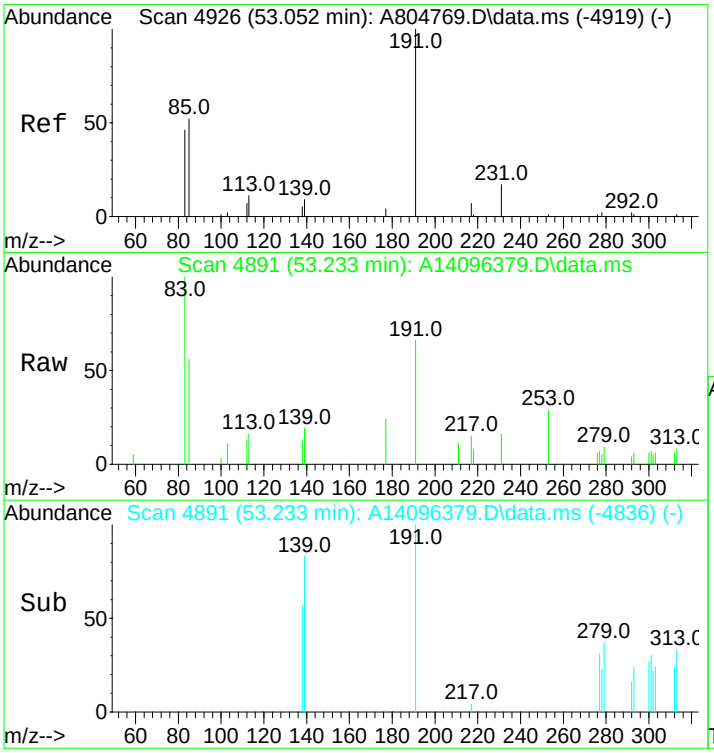




#114
18a(H)&18b(H)-Oleananes (T18)
Concen: 16.75 ng/ml m
RT: 52.337 min Scan# 4793
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

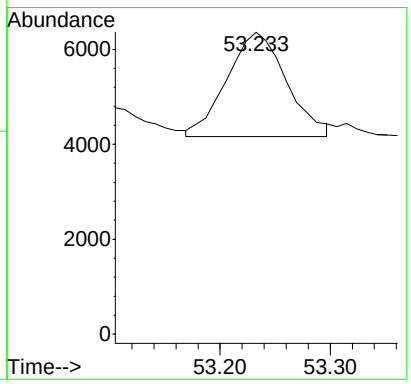
Tgt Ion:191 Resp: 1640

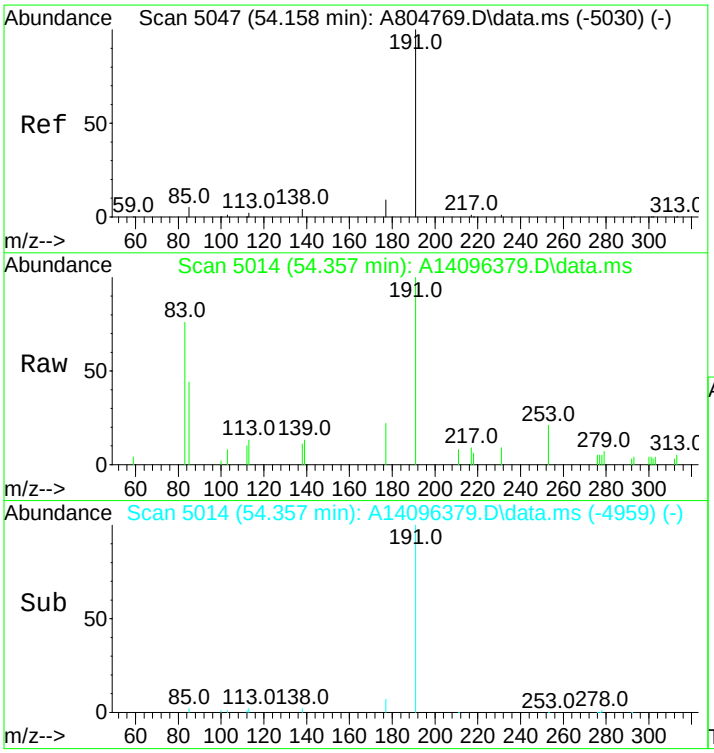




#115
Moretane (T20)
Concen: 84.56 ng/ml m
RT: 53.233 min Scan# 4891
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

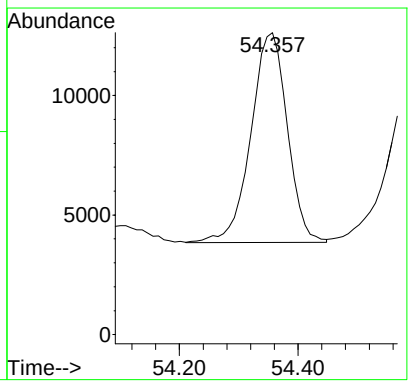
Tgt Ion:191 Resp: 8280

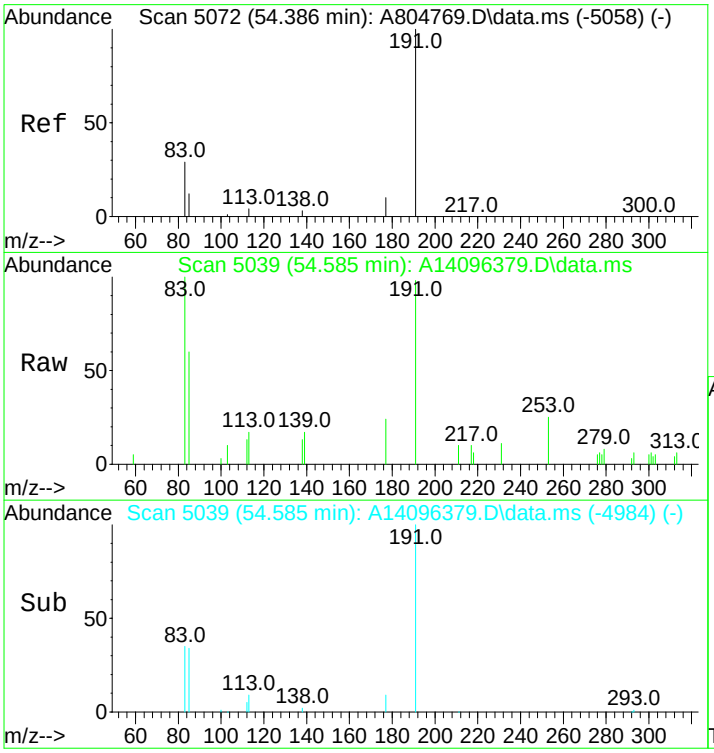




#116
30-Homohopane-22S (T21)
Concen: 381.41 ng/ml
RT: 54.357 min Scan# 5014
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

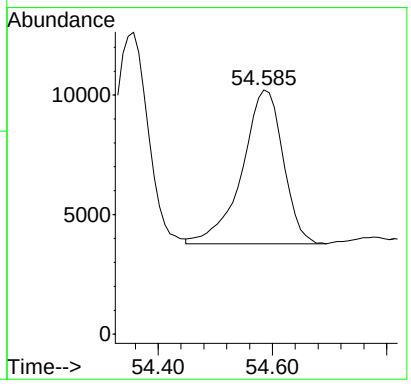
Tgt Ion:191 Resp: 37346

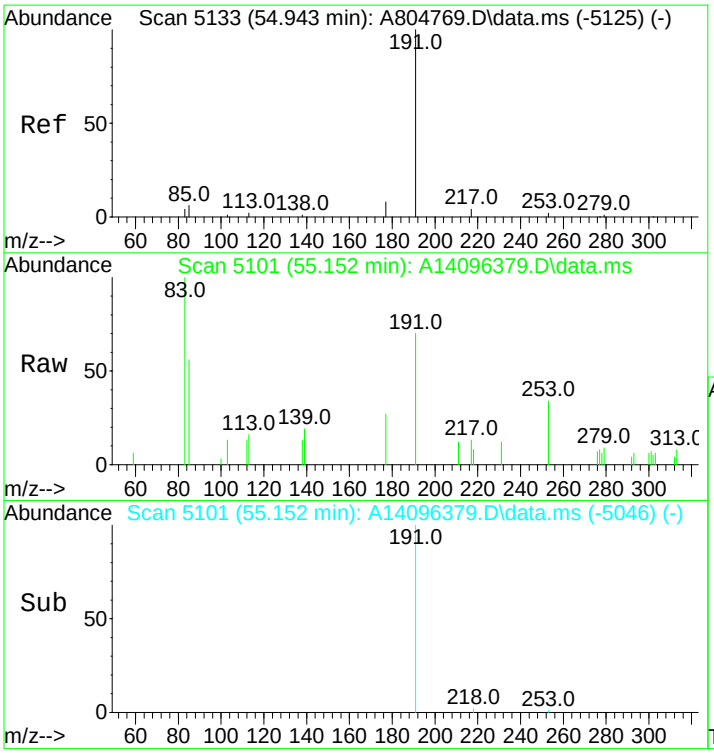




#117
30-Homohopane-22R (T22)
Concen: 329.56 ng/ml
RT: 54.585 min Scan# 5039
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

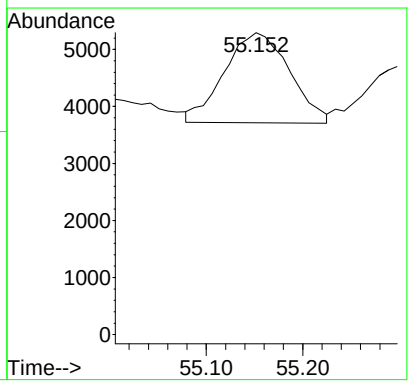
Tgt Ion:191 Resp: 32269

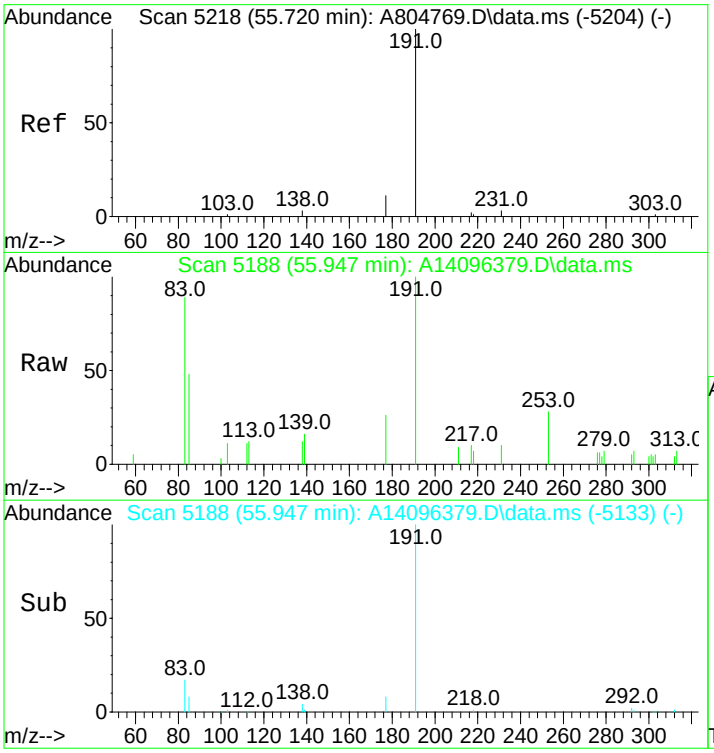




#118
Gammacerane/C32-diahopane
Concen: 75.61 ng/mL
RT: 55.152 min Scan# 5101
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

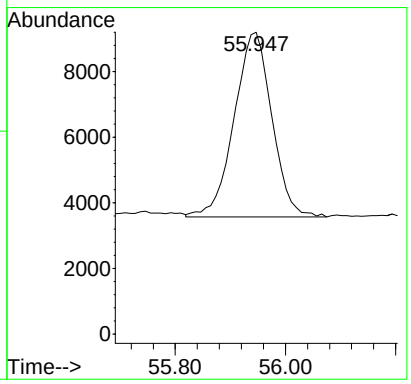
Tgt Ion:191 Resp: 7403

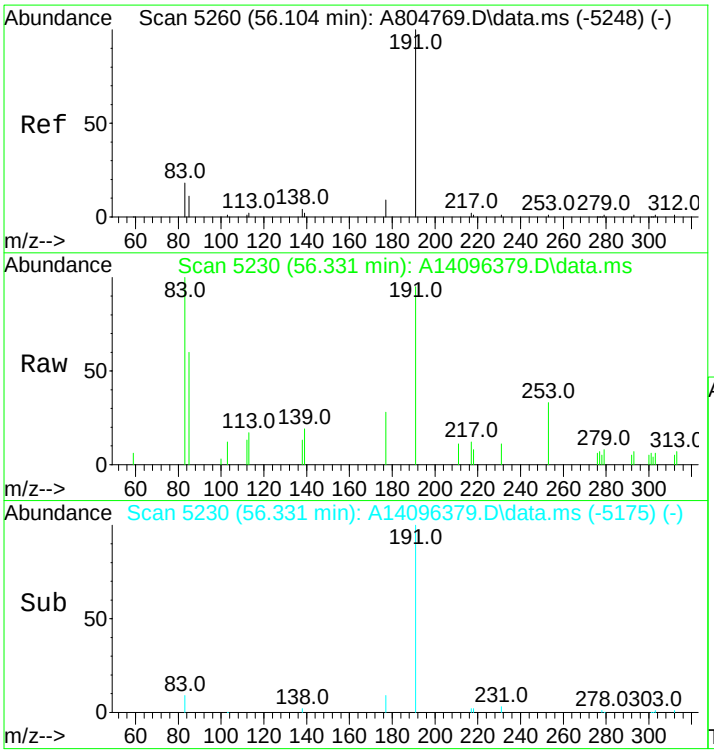




#119
30,31-Bishomohopane-22S (T26)
Concen: 273.61 ng/ml
RT: 55.947 min Scan# 5188
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

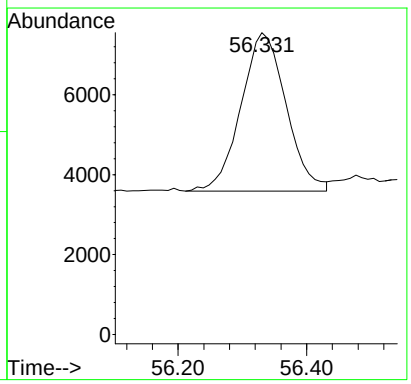
Tgt Ion:191 Resp: 26790

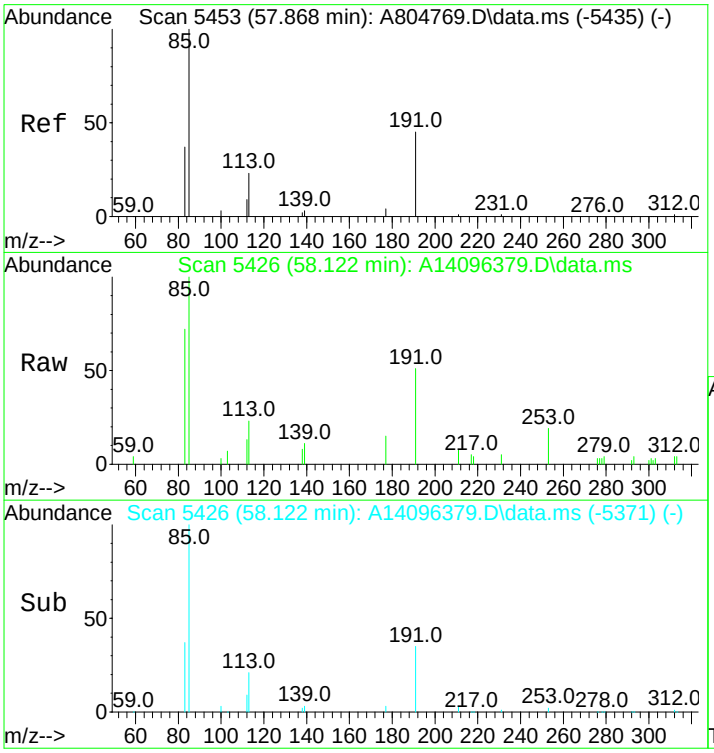




#120
30,31-Bishomohopane-22R (T27)
Concen: 197.85 ng/ml
RT: 56.331 min Scan# 5230
Delta R.T. -0.001 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

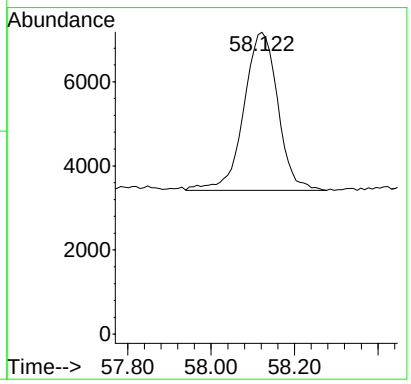
Tgt Ion:191 Resp: 19372

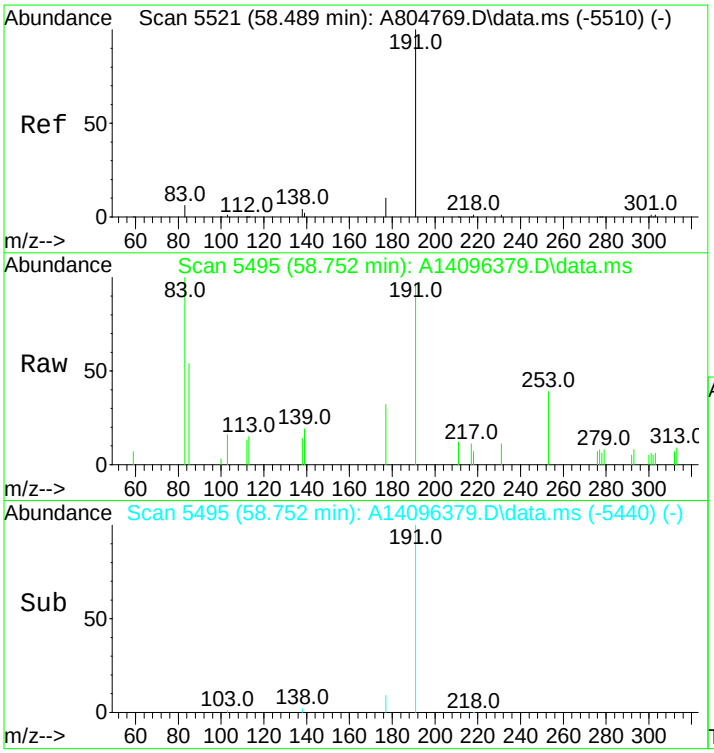




#121
30,31-Trishomohopane-22S (T30)
Concen: 218.00 ng/ml
RT: 58.122 min Scan# 5426
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

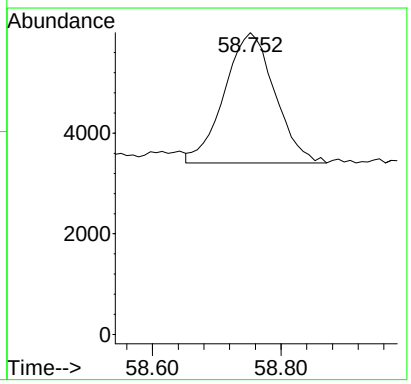
Tgt Ion:191 Resp: 21345

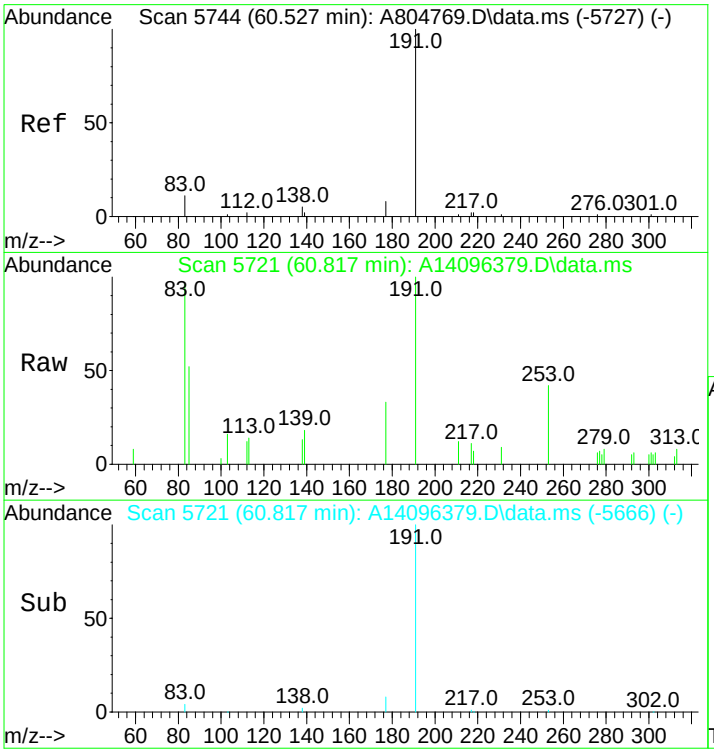




#122
30,31-Trishomohopane-22R (T31)
Concen: 143.57 ng/ml
RT: 58.752 min Scan# 5495
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

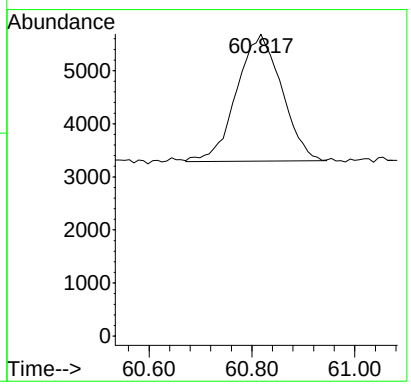
Tgt Ion:191 Resp: 14058

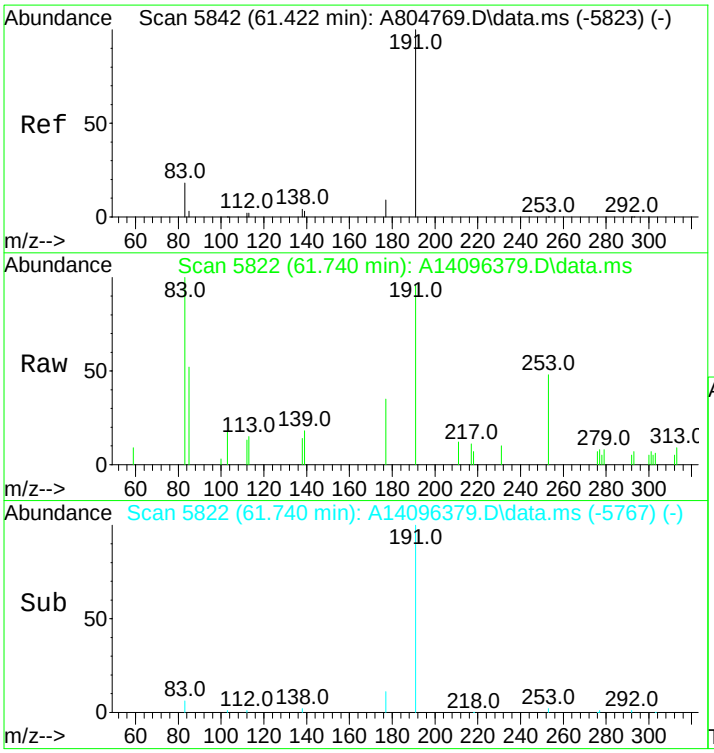




#123
Tetrakishomohopane-22S (T32)
Concen: 148.74 ng/ml
RT: 60.817 min Scan# 5721
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

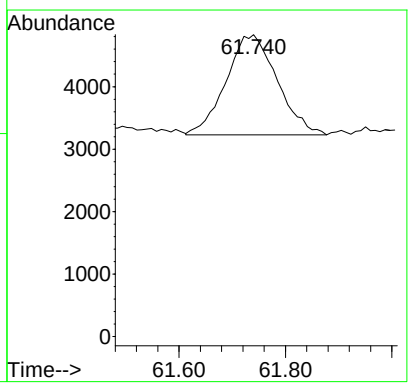
Tgt Ion:191 Resp: 14564

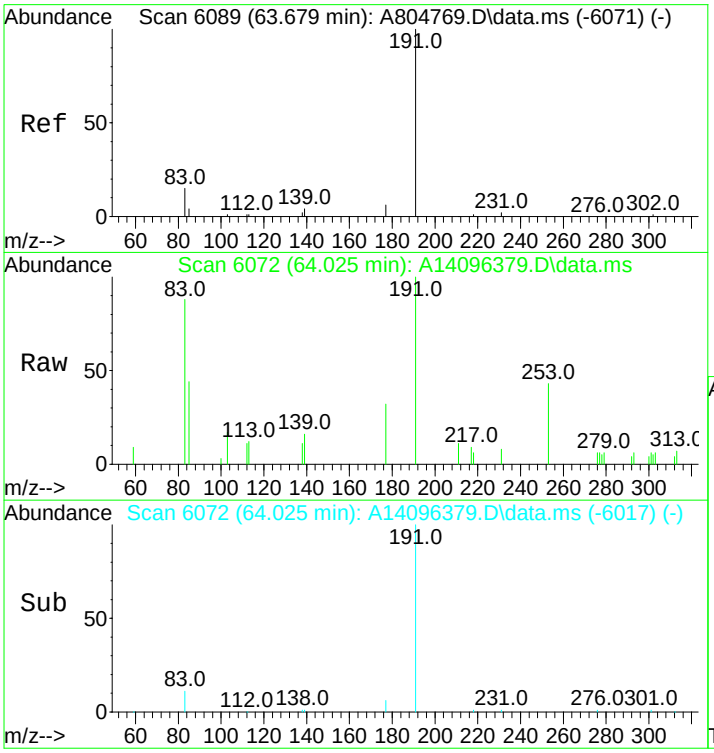




#124
Tetrakishomohopane-22R (T33)
Concen: 108.86 ng/ml
RT: 61.740 min Scan# 5822
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

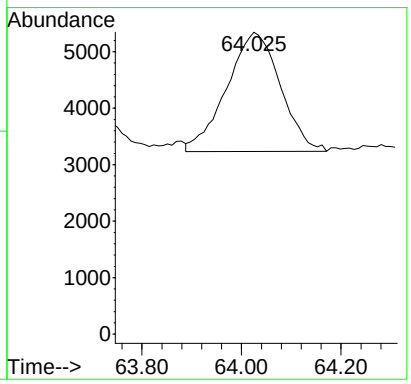
Tgt Ion:191 Resp: 10659

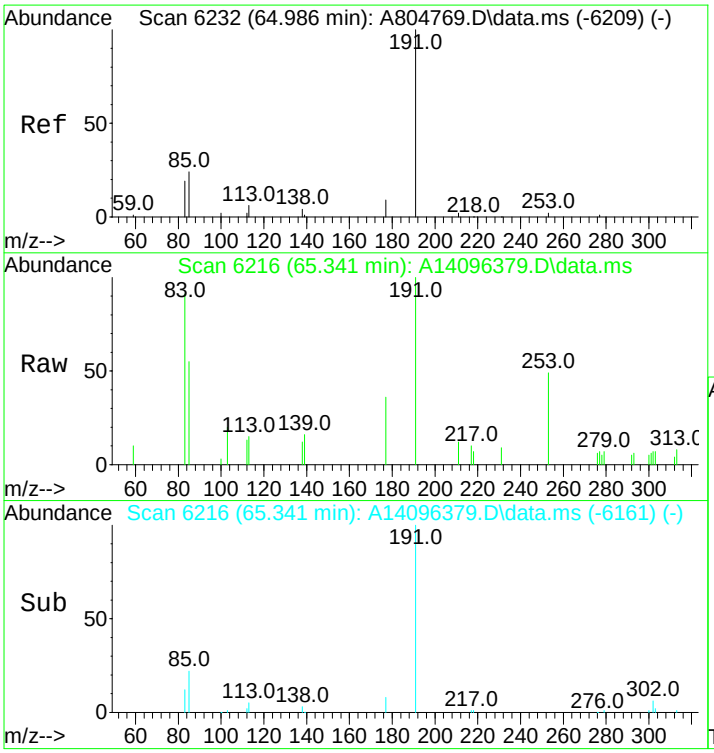




#125
Pentakishomohopane-22S (T34)
Concen: 160.49 ng/ml
RT: 64.025 min Scan# 6072
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

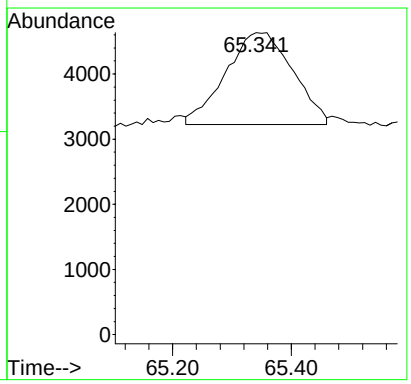
Tgt Ion:191 Resp: 15714

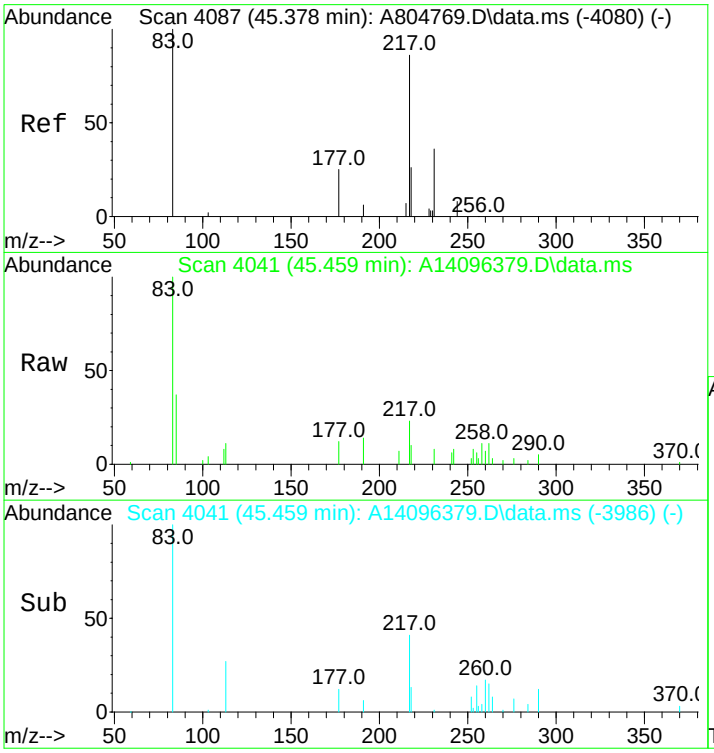




#126
Pentakishomohopane-22R (T35)
Concen: 113.02 ng/ml m
RT: 65.341 min Scan# 6216
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

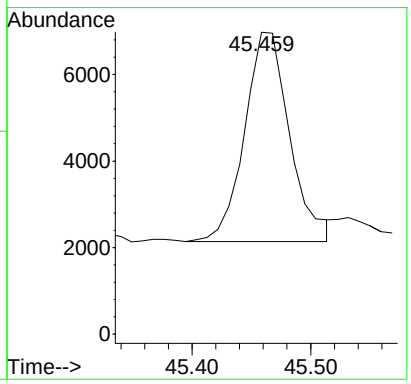
Tgt Ion:191 Resp: 11066

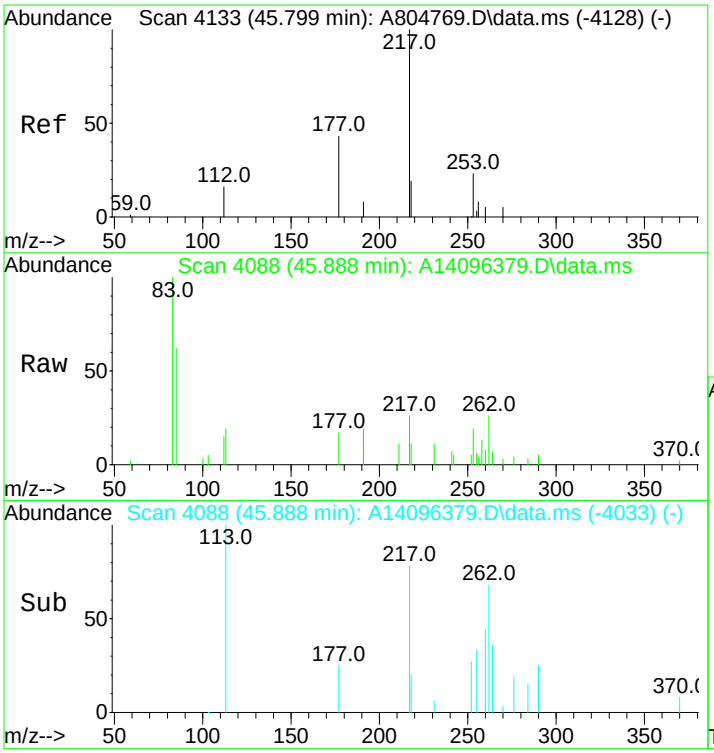




#128
13b(H),17a(H)-20S-Diacholestane (S4)
Concen: 235.66 ng/ml
RT: 45.459 min Scan# 4041
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

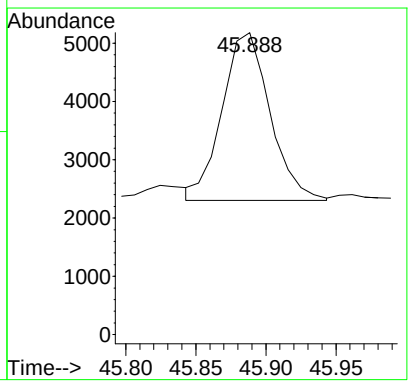
Tgt Ion:217 Resp: 12786

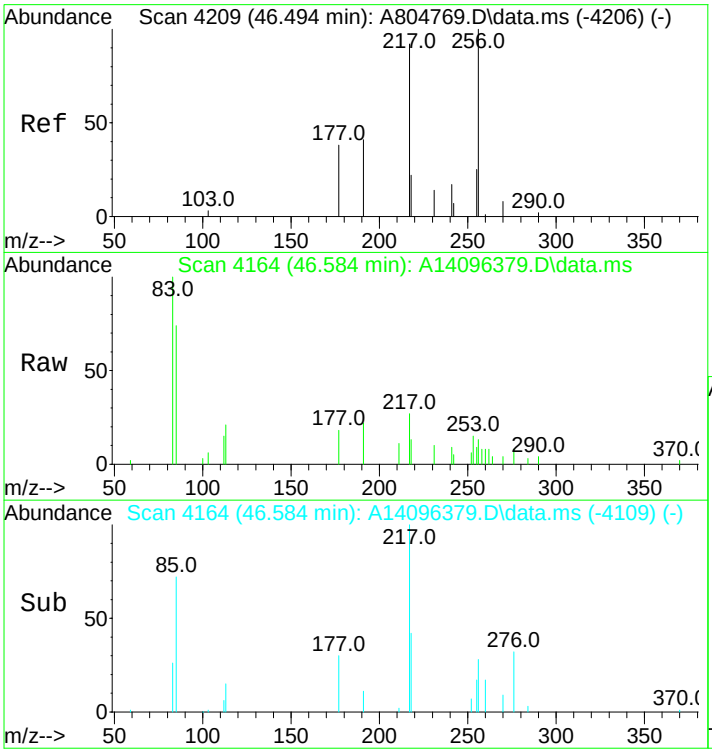




#129
13b(H),17a(H)-20R-Diacholestane (S5)
Concen: 126.14 ng/ml m
RT: 45.888 min Scan# 4088
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

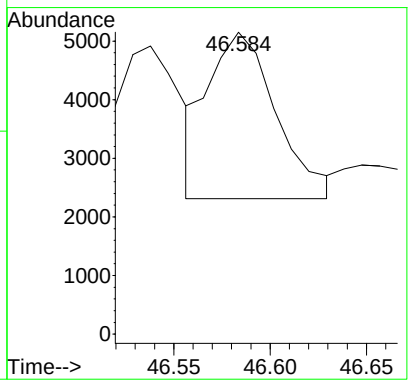
Tgt Ion:217 Resp: 6844

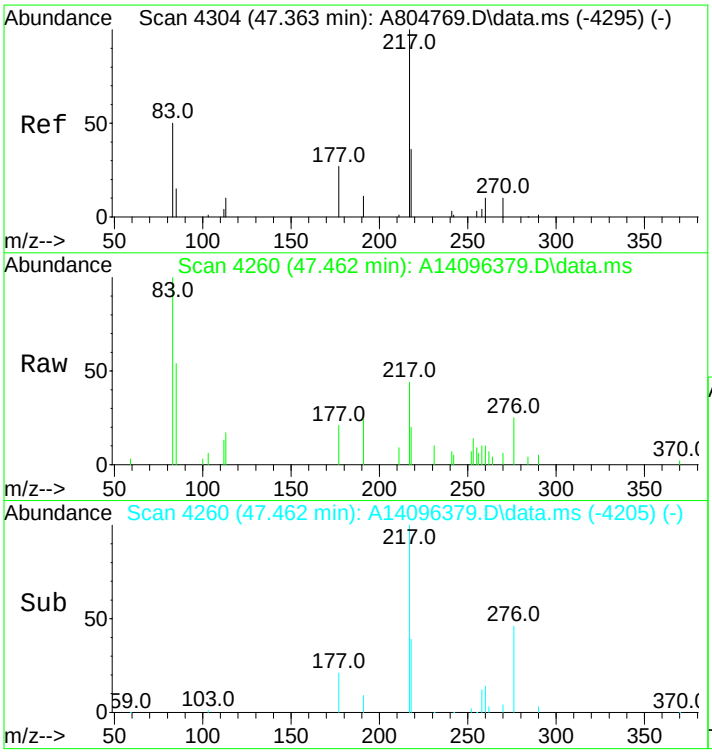




#130
13b,17a-20S-Methyldiacholestane (S8)
Concen: 128.00 ng/ml m
RT: 46.584 min Scan# 4164
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

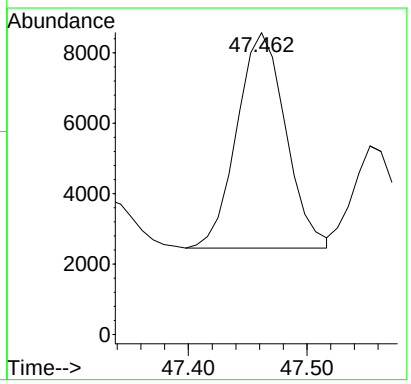
Tgt Ion:217 Resp: 6945

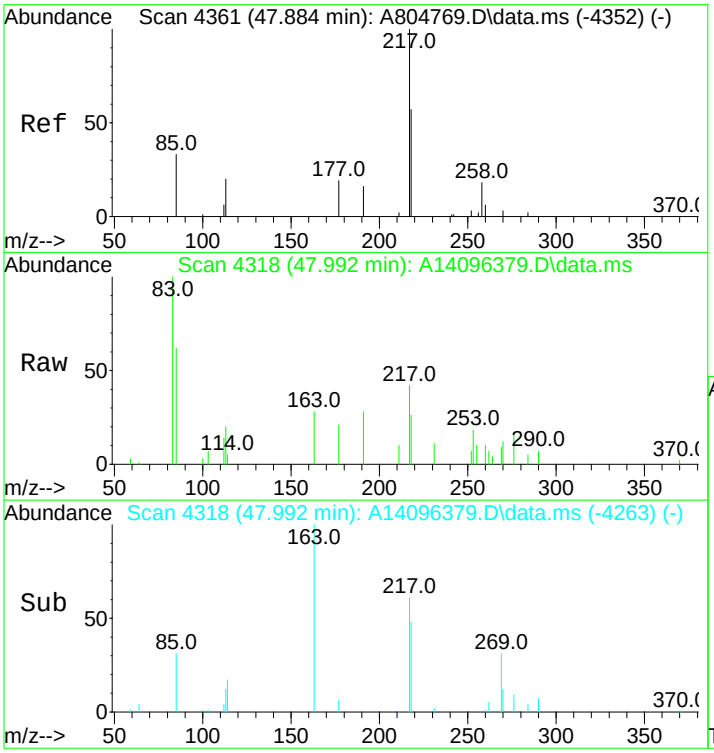




#131
14a,17a-20S-Chol/13b,17a-20S-Ethyldiach
Concen: 322.19 ng/ml
RT: 47.462 min Scan# 4260
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

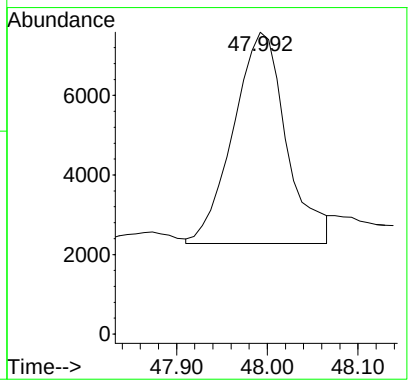
Tgt Ion:217 Resp: 17481

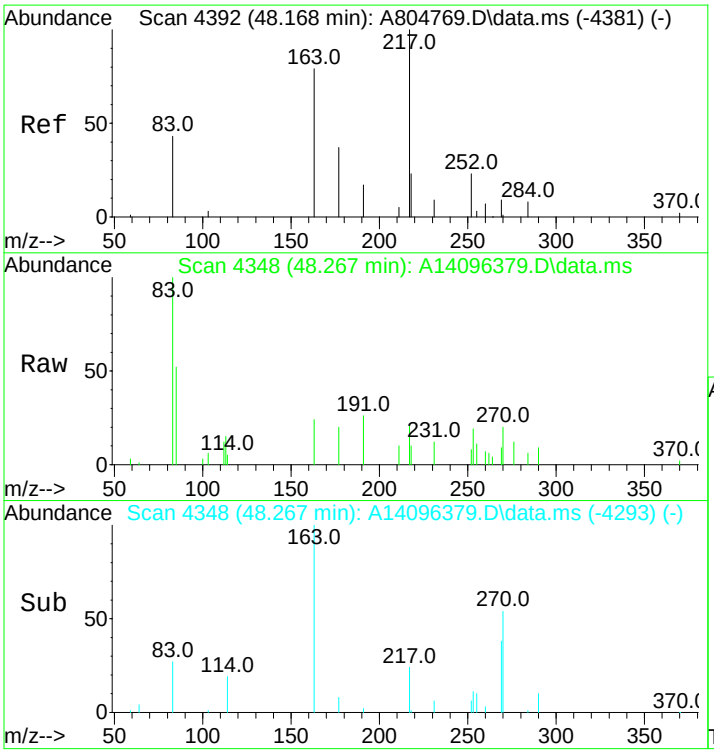




#132
14a,17a-20R-Chol/13b,17a-20R-Ethyldiach
Concen: 398.42 ng/ml m
RT: 47.992 min Scan# 4318
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

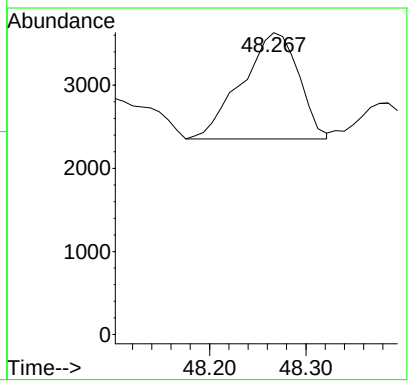
Tgt Ion:217 Resp: 21617

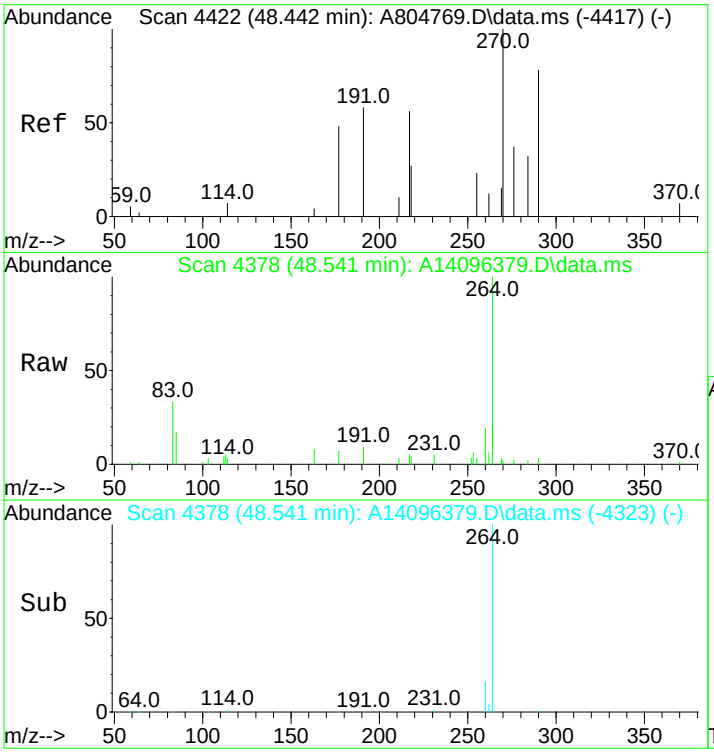




#133
Unknown Sterane (S18)
Concen: 97.02 ng/ml
RT: 48.267 min Scan# 4348
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

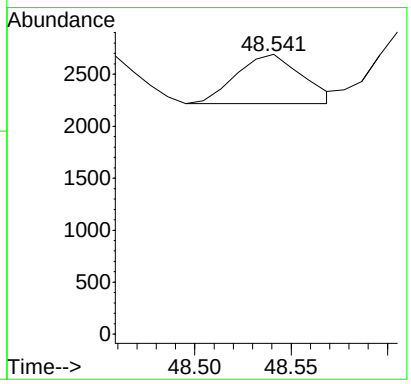
Tgt Ion:217 Resp: 5264

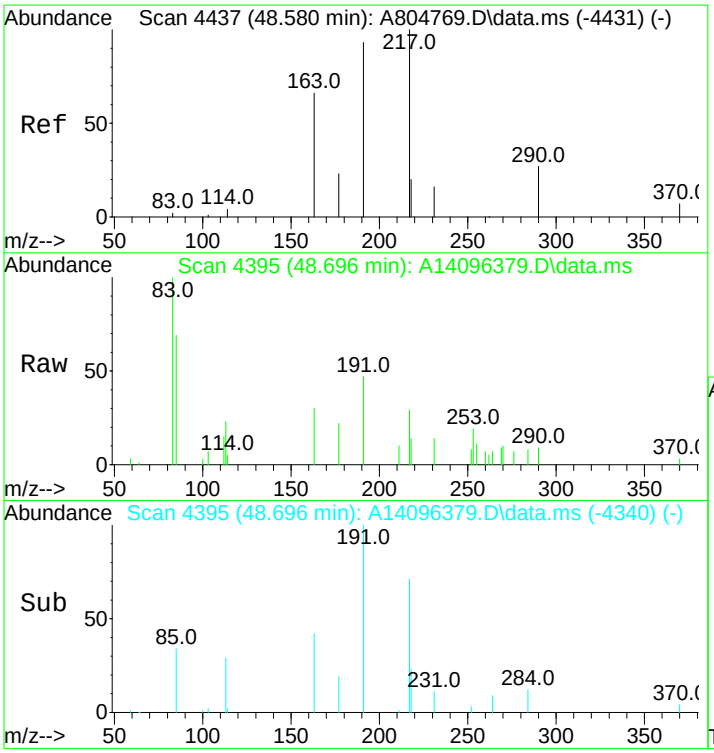




#134
13a,17b-20S-Ethyldiacholestane (S19)
Concen: 20.92 ng/ml
RT: 48.541 min Scan# 4378
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

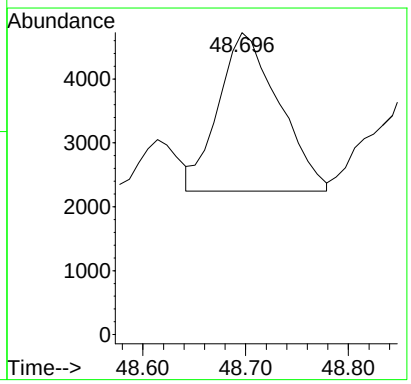
Tgt Ion:217 Resp: 1135

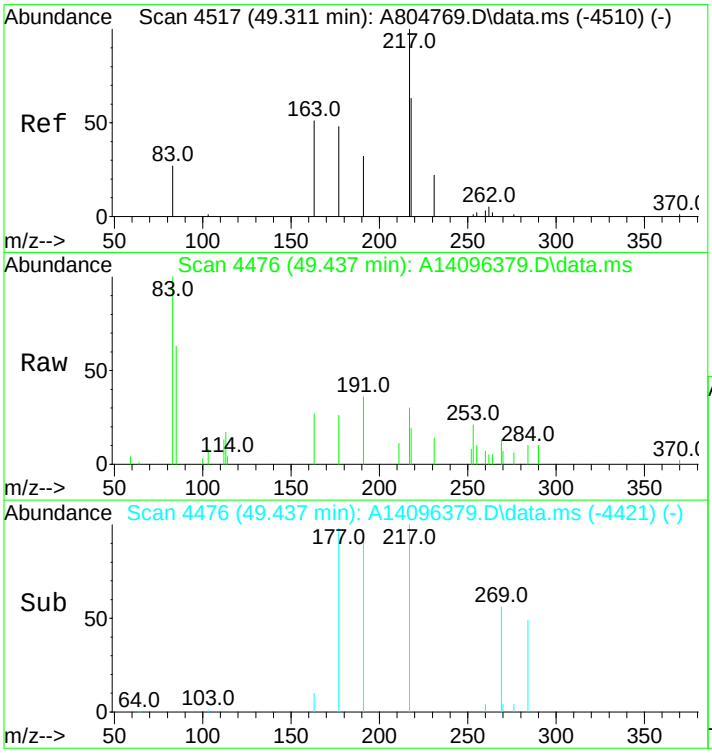




#135
14a,17a-20S-Methylcholestane (S20)
Concen: 186.91 ng/ml m
RT: 48.696 min Scan# 4395
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

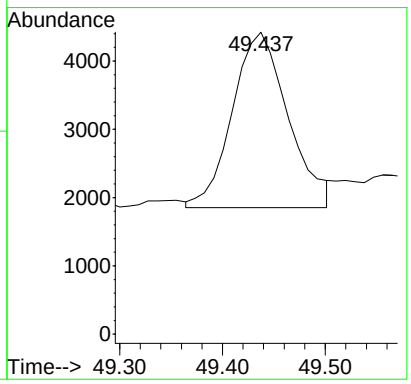
Tgt Ion:217 Resp: 10141

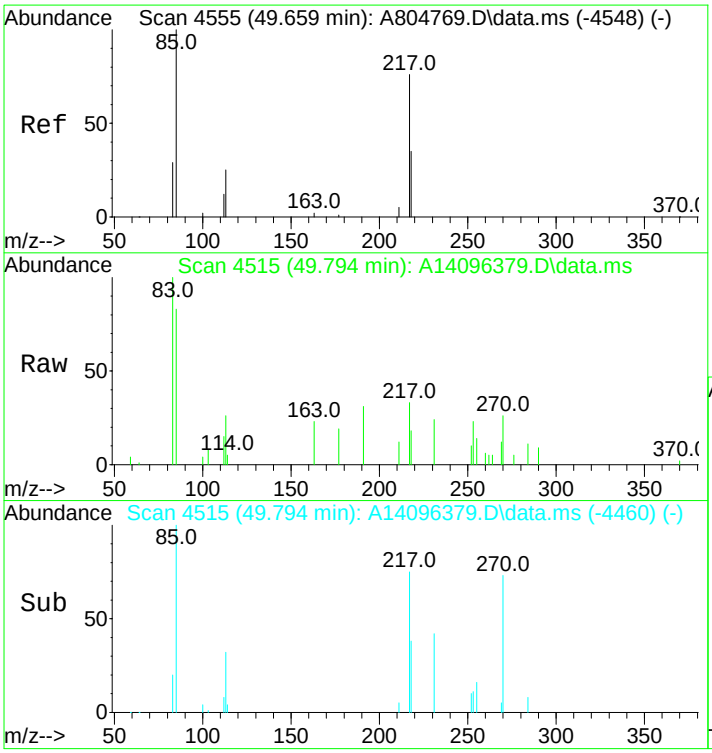




#136
14a,17a-20R-Methylcholestane (S24)
Concen: 179.29 ng/ml m
RT: 49.437 min Scan# 4476
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

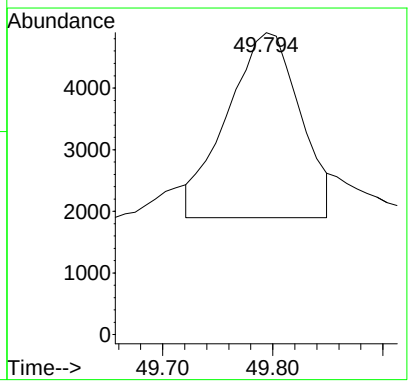
Tgt Ion:217 Resp: 9728

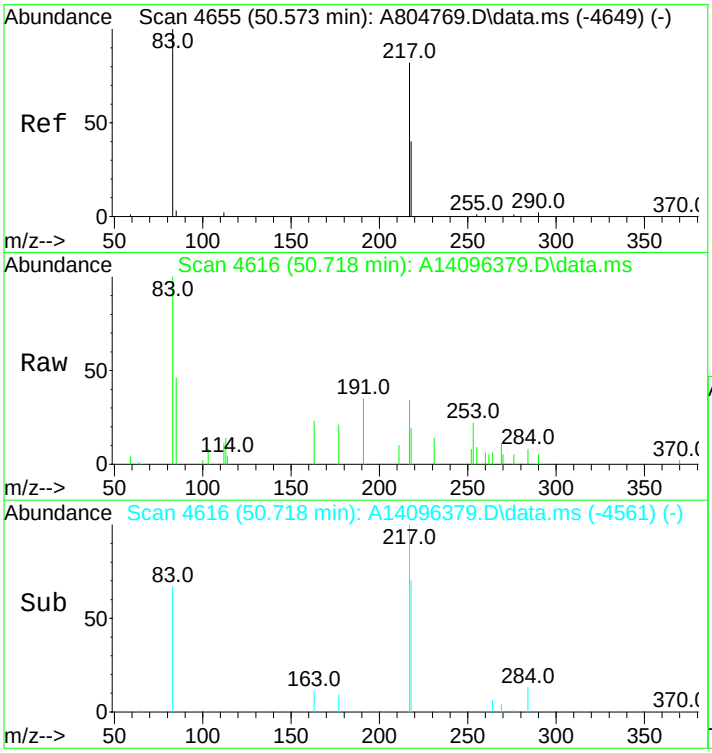




#137
14a(H),17a(H)-20S-Ethylcholestane (S25)
Concen: 254.64 ng/ml m
RT: 49.794 min Scan# 4515
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

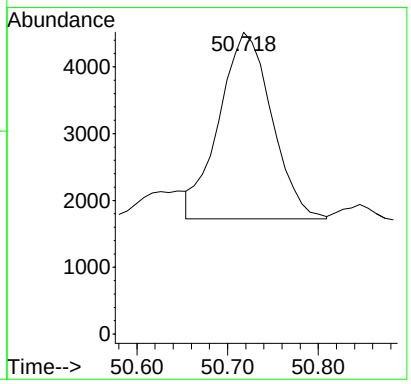
Tgt Ion:217 Resp: 13816

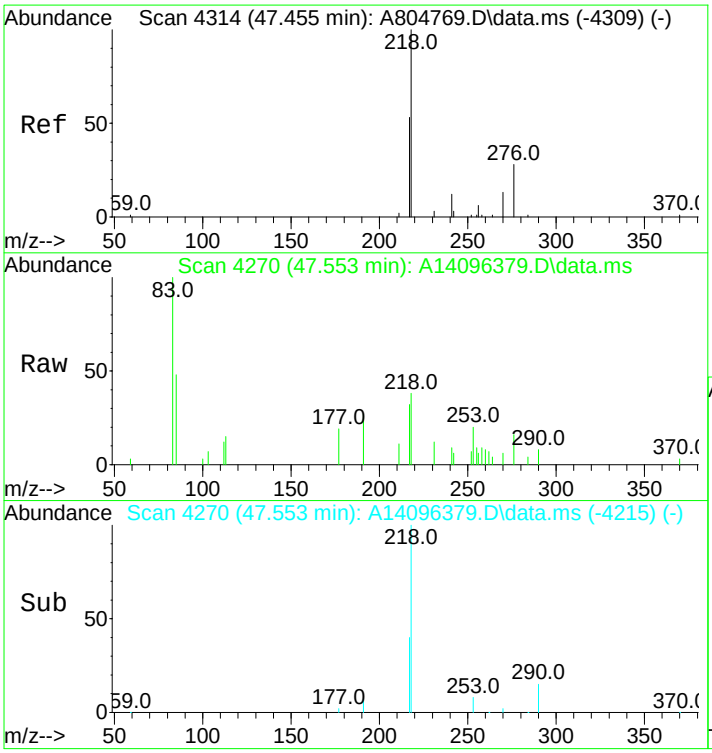




#138
14a(H),17a(H)-20R-Ethylcholestane (S28)
Concen: 207.03 ng/ml m
RT: 50.718 min Scan# 4616
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

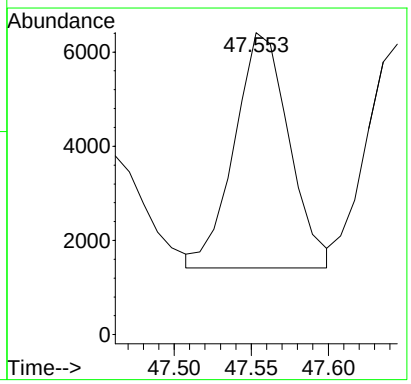
Tgt Ion:217 Resp: 11233

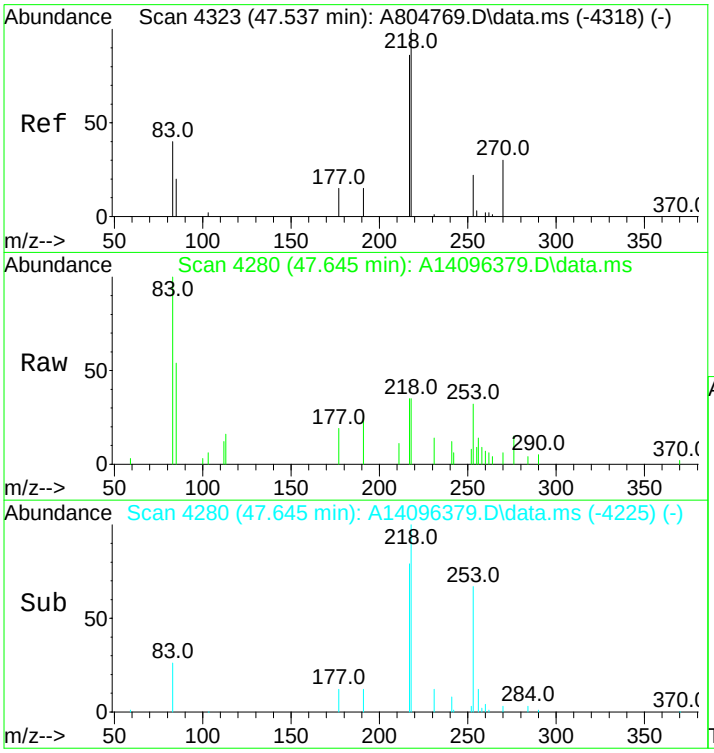




#139
14b(H),17b(H)-20R-Cholestane (S14)
Concen: 227.25 ng/ml m
RT: 47.553 min Scan# 4270
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

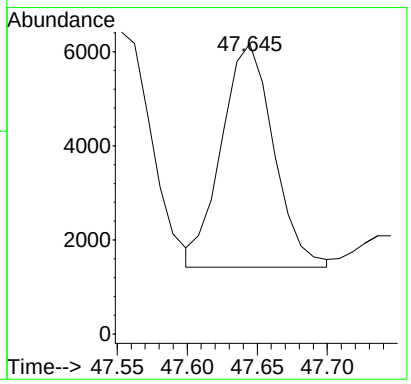
Tgt Ion:218 Resp: 12330

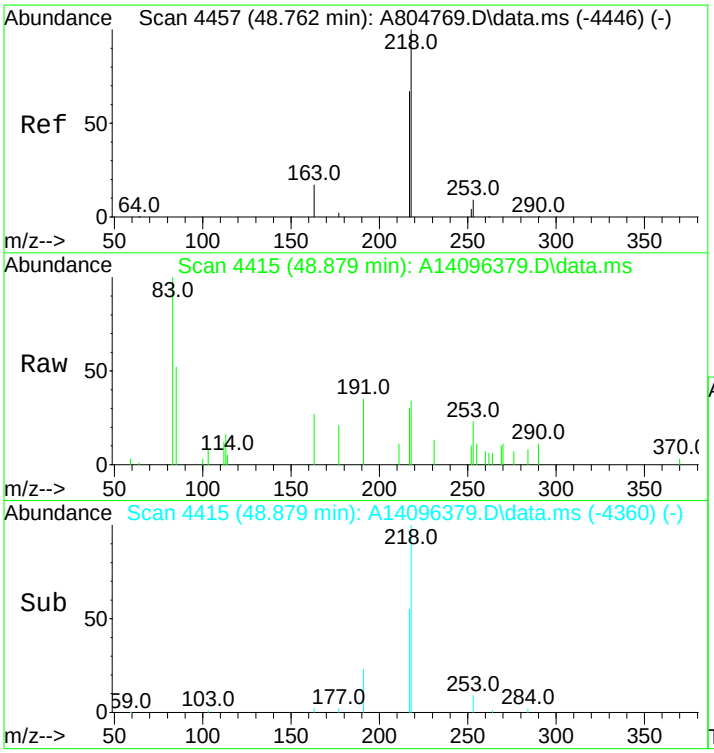




#140
14b(H),17b(H)-20S-Cholestane (S15)
Concen: 226.44 ng/ml m
RT: 47.645 min Scan# 4280
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

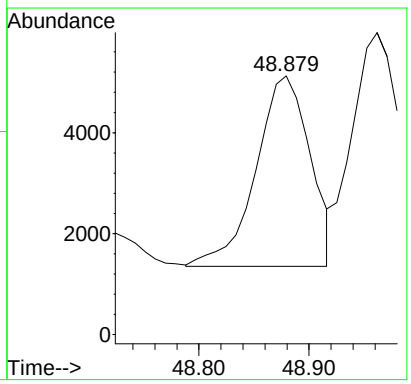
Tgt Ion:218 Resp: 12286

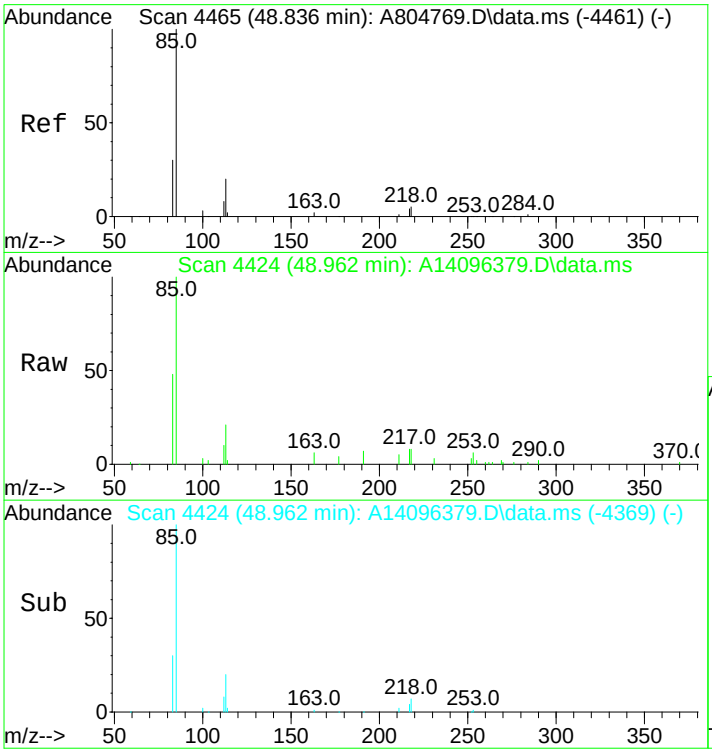




#141
14b,17b-20R-Methylcholestane (S22)
Concen: 238.53 ng/ml m
RT: 48.879 min Scan# 4415
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

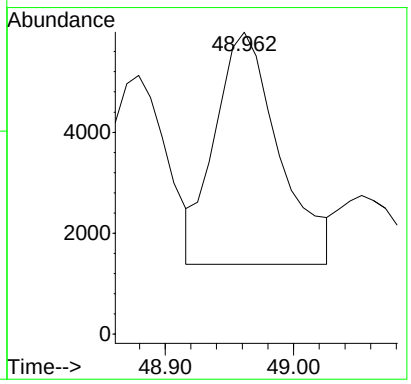
Tgt Ion:218 Resp: 12942

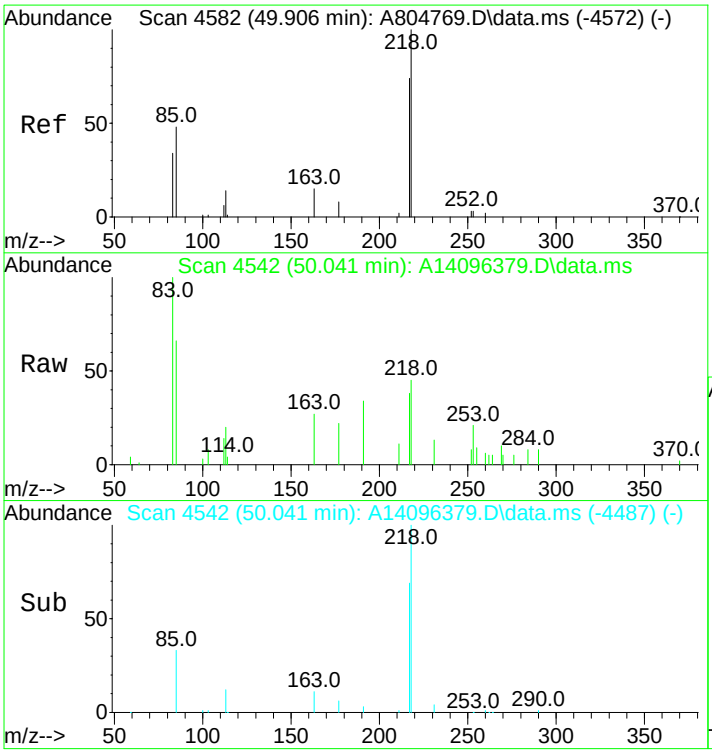




#142
14b,17b-20S-Methylcholestane (S23)
Concen: 294.89 ng/ml m
RT: 48.962 min Scan# 4424
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

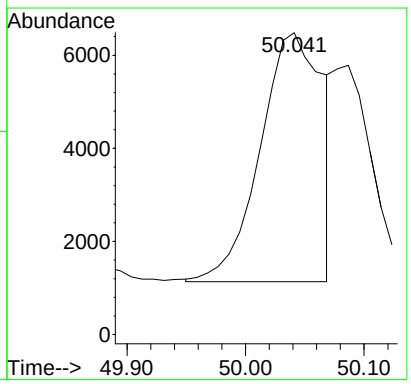
Tgt Ion:218 Resp: 16000

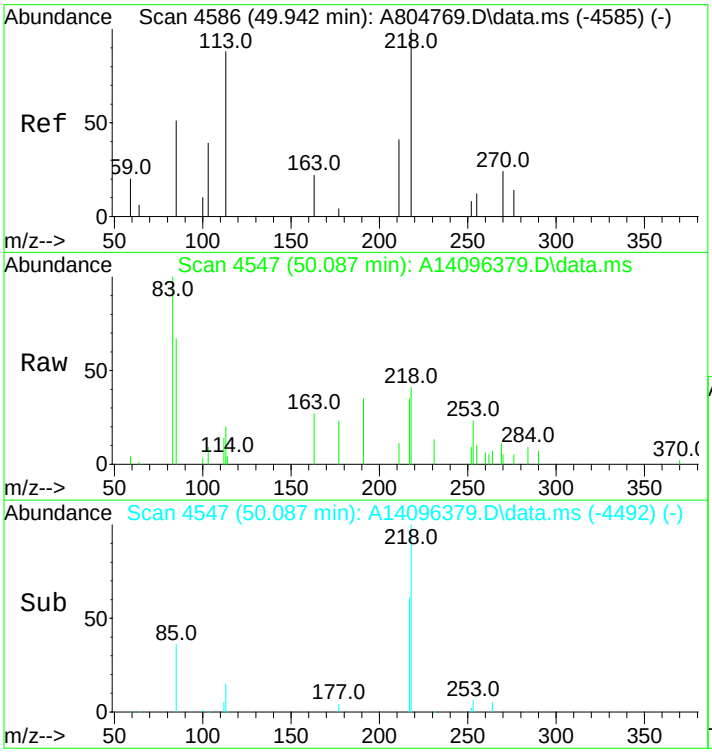




#143
14b(H),17b(H)-20R-Ethylcholestane (S26)
Concen: 360.89 ng/ml m
RT: 50.041 min Scan# 4542
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

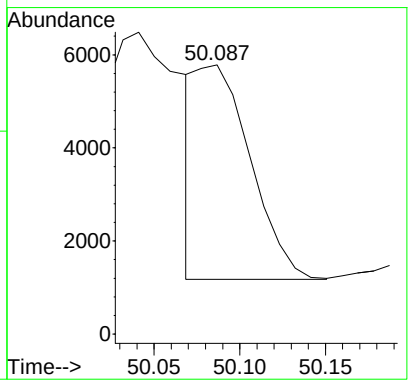
Tgt Ion:218 Resp: 19581

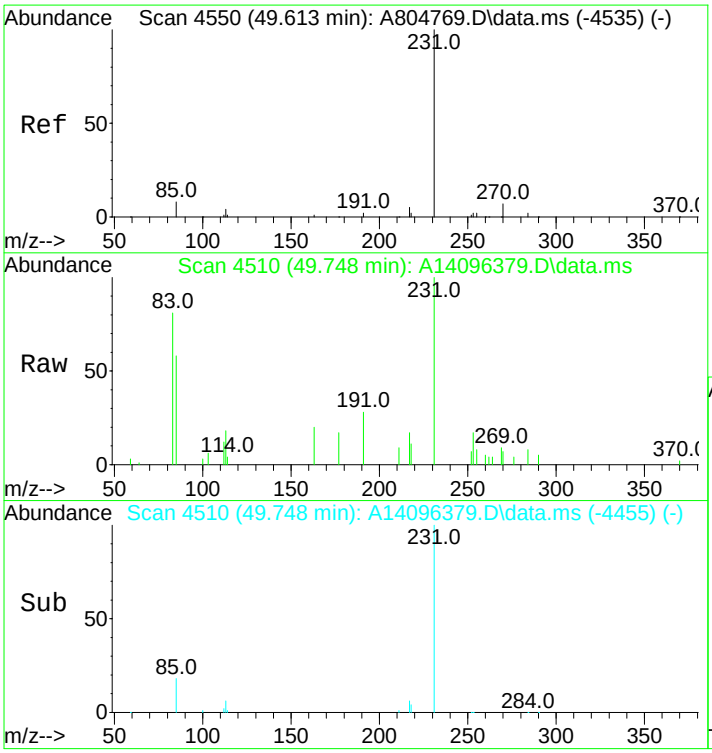




#144
14b(H),17b(H)-20S-Ethylcholestane (S27)
Concen: 186.85 ng/ml m
RT: 50.087 min Scan# 4547
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

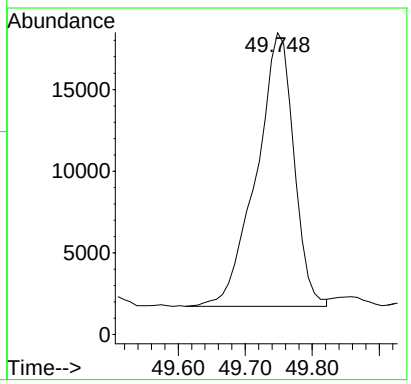
Tgt Ion:218 Resp: 10138

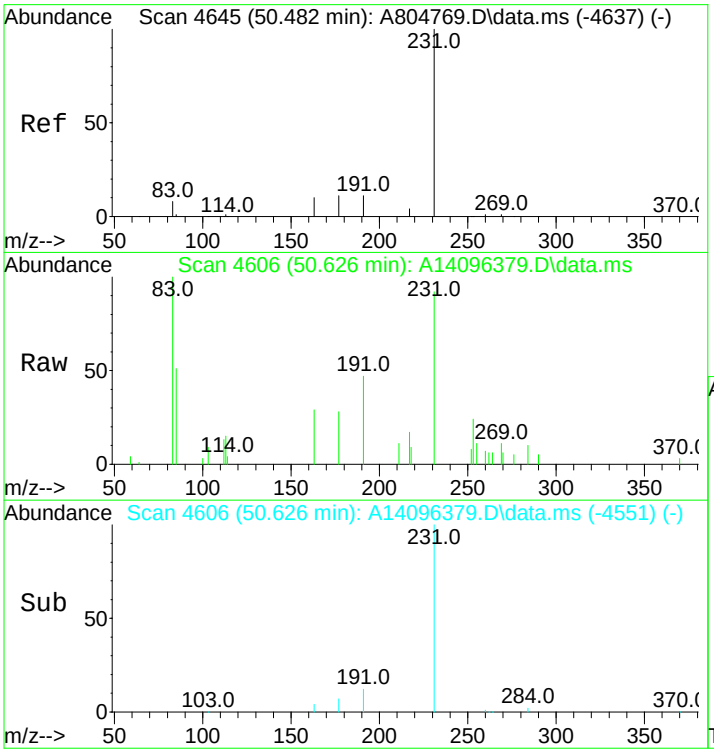




#145
C26,20R- +C27,20S- triaromatic steroid
Concen: 1200.36 ng/mL
RT: 49.748 min Scan# 4510
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

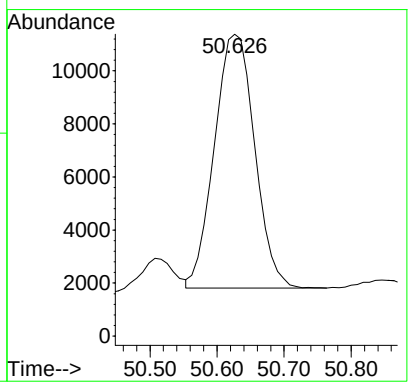
Tgt Ion:231 Resp: 65128

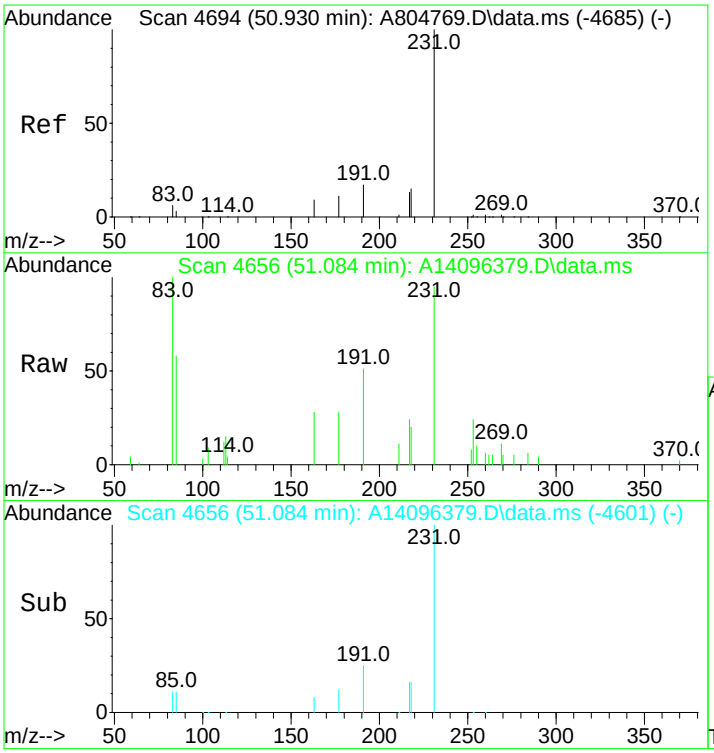




#146
C28,20S-triaromatic steroid
Concen: 737.14 ng/mL
RT: 50.626 min Scan# 4606
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

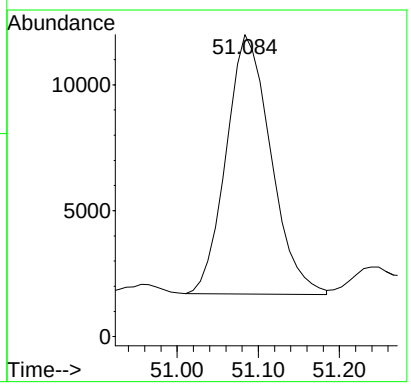
Tgt Ion:231 Resp: 39995

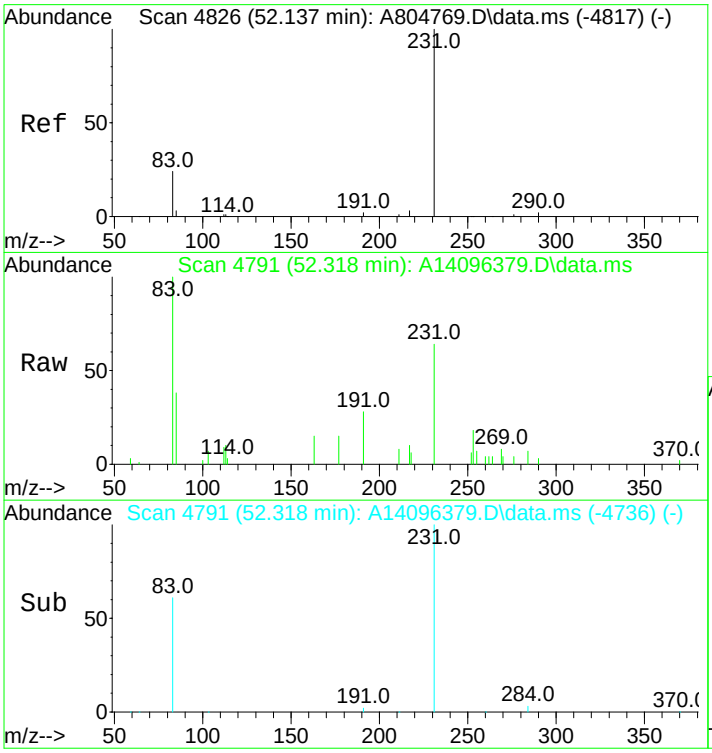




#147
C27,20R-triaromatic steroid
Concen: 727.98 ng/mL
RT: 51.084 min Scan# 4656
Delta R.T. -0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

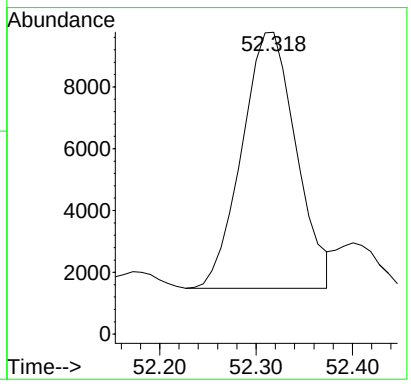
Tgt Ion:231 Resp: 39498





#148
C28,20R-triaromatic steroid
Concen: 598.39 ng/mL
RT: 52.318 min Scan# 4791
Delta R.T. 0.000 min
Lab File: A14096379.D
Acq: 19 May 2012 12:57 am

Tgt Ion:231 Resp: 32467



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.455	164	56092	500.000	ng/mL	0.00
74) Chrysene-d12	42.948	240	105691	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.510	136	102195	513.427	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.34%			
42) Phenanthrene-d10	32.340	188	99558	530.750	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 53.08%			
86) Benzo[a]pyrene-d12	48.039	264	95696	463.321	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 46.33%#			
127) 5B(H)Cholane - Surr	43.487	217	20921	500.059	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.01%			
Target Compounds						Qvalue
3) trans-Decalin	16.134	138	11354	251.353	ng/mL	100
4) cis-Decalin	17.338	138	8856	254.191	ng/mL	100
10) Naphthalene	19.592	128	117036	537.600	ng/mL#	100
16) 2-Methylnaphthalene	22.294	142	71459	498.851	ng/mL#	100
17) 1-Methylnaphthalene	22.704	142	73923	525.705	ng/mL#	100
18) Benzothiophene	19.821	134	92063	548.343	ng/mL	100
23) Biphenyl	24.164	154	89283	509.173	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.776	156	63500	495.547	ng/mL#	100
25) Dibenzofuran	27.267	168	99647	537.533	ng/mL	100
26) Acenaphthylene	25.862	152	104586M3	461.820	ng/mL	
27) Acenaphthene	26.583	153	74603	533.023	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.143	170	59416	511.237	ng/mL	100
29) Fluorene	28.626	166	81930	525.639	ng/mL	100
33) Dibenzothiophene	31.938	184	104626	516.844	ng/mL	98
43) Phenanthrene	32.440	178	117147	544.965	ng/mL	100
54) Retene	39.396	234	28930	429.800	ng/mL	98
55) Anthracene	32.641	178	107951M3	504.764	ng/mL	
56) Carbazole	33.353	167	101361M3	508.214	ng/mL	
57) 1-Methylphenanthrene	34.950	192	81495	505.382	ng/mL	99
58) Fluoranthene	37.223	202	114468	521.952	ng/mL	99
59) Benzo(b)fluorene	39.752	216	68451	468.354	ng/mL	100
60) Pyrene	38.109	202	117235	514.333	ng/mL	100
66) Naphthobenzothiophene	41.971	234	103687	524.664	ng/ml#	55
67) Naphthobenzothiophene-2,1	41.971	234	103687	524.664	ng/mL#	55
75) Benz[a]anthracene	42.884	228	97347	421.058	ng/mL	98
76) Chrysene	43.057	228	127775	559.754	ng/mL	100
77) Chrysene/Triphenylene	43.057	228	127775	559.754	ng/mL	100
82) Benzo[b]fluoranthene	46.951	252	102067	446.368	ng/mL	96
83) Benzo[j]+[k]fluoranthene	47.042	252	141789	561.410	ng/mL	93
85) Benzo[e]pyrene	47.929	252	117583	518.641	ng/mL	96
87) Benzo[a]pyrene	48.140	252	98546	464.827	ng/mL	91
88) Perylene	48.460	252	111585	485.477	ng/mL#	88
89) Indeno[1,2,3-cd]pyrene	52.904	276	112182M3	423.024	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.932	278	112689	452.231	ng/mL	99
91) Benzo[g,h,i]perylene	54.193	276	118296	465.083	ng/mL	99
92) Hopane (T19)	51.807	191	32847	435.054	ng/mL#	83
93) 17a(H),21B(H)-hopane - C3	51.807	191	32847	435.054	ng/mL#	83

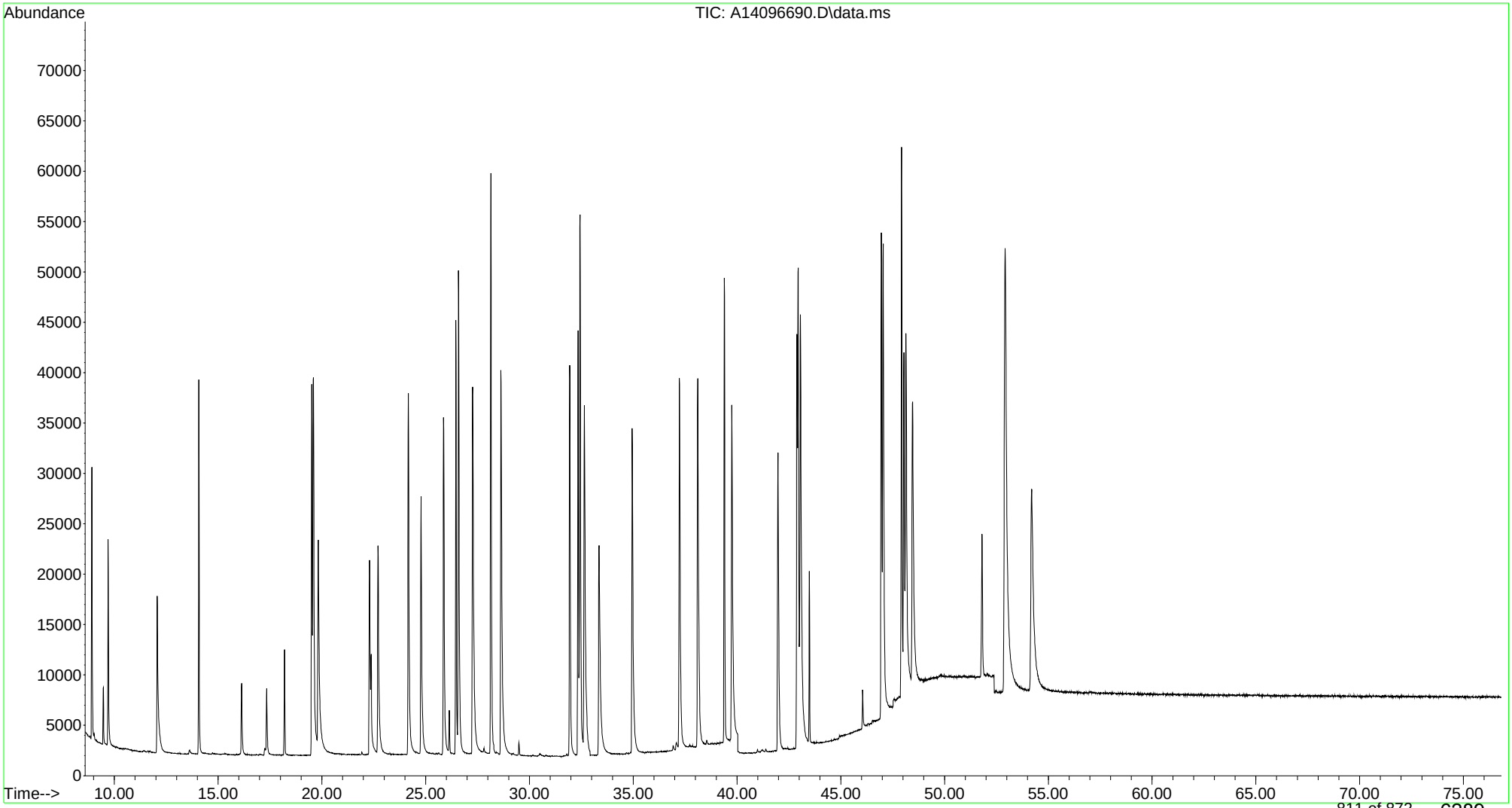
(#) = qualifier out of range (m) = manual integration (+) = signals summed

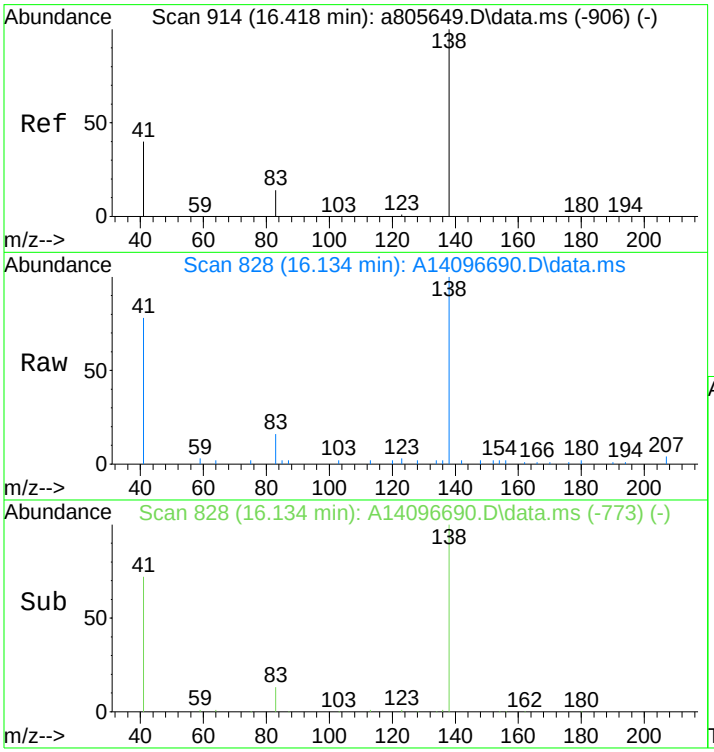
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096690.D
Acq On : 20 Jun 2012 6:18 pm
Operator : AC
Sample : C1406191204
Misc : CC WHAP67 500UG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 22 11:30:27 2012
Quant Method : C:\msdchem\1\DATA\PAH14\2012\June19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Jun 21 07:50:04 2012
Response via : Initial Calibration

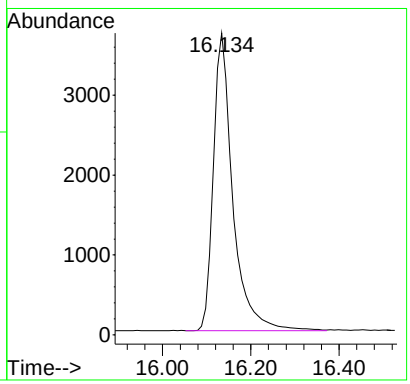
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

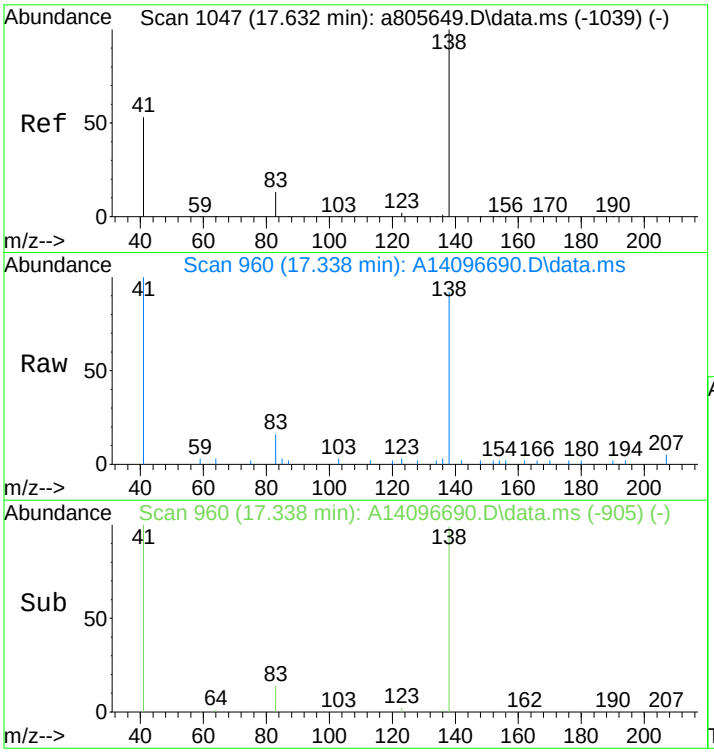




#3
trans-Decalin
Concen: 251.35 ng/mL
RT: 16.134 min Scan# 828
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

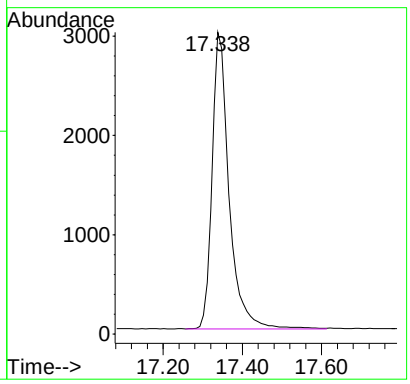
Tgt Ion:138 Resp: 11354

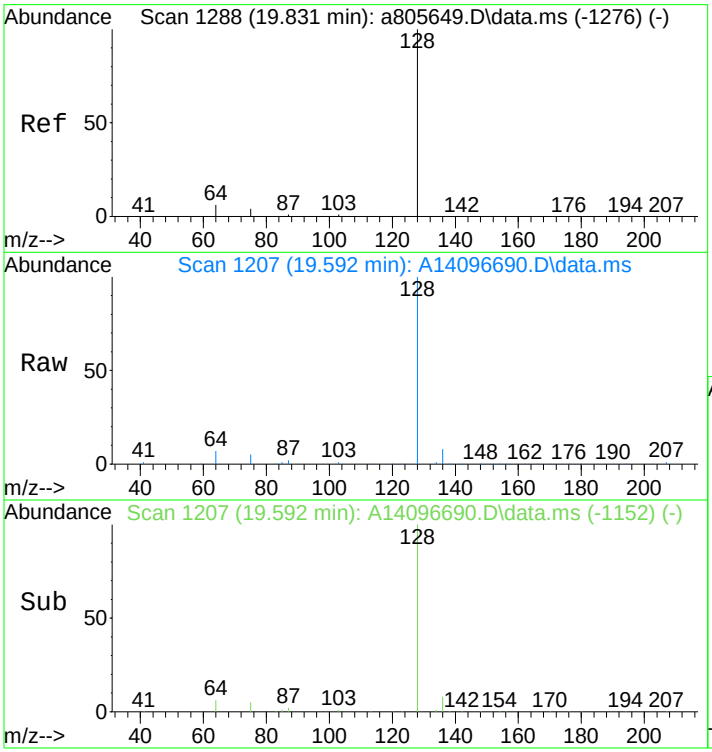




#4
cis-Decalin
Concen: 254.19 ng/mL
RT: 17.338 min Scan# 960
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:138 Resp: 8856

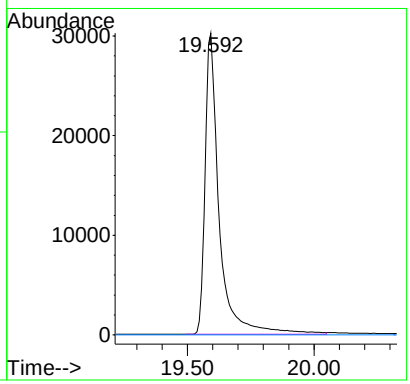


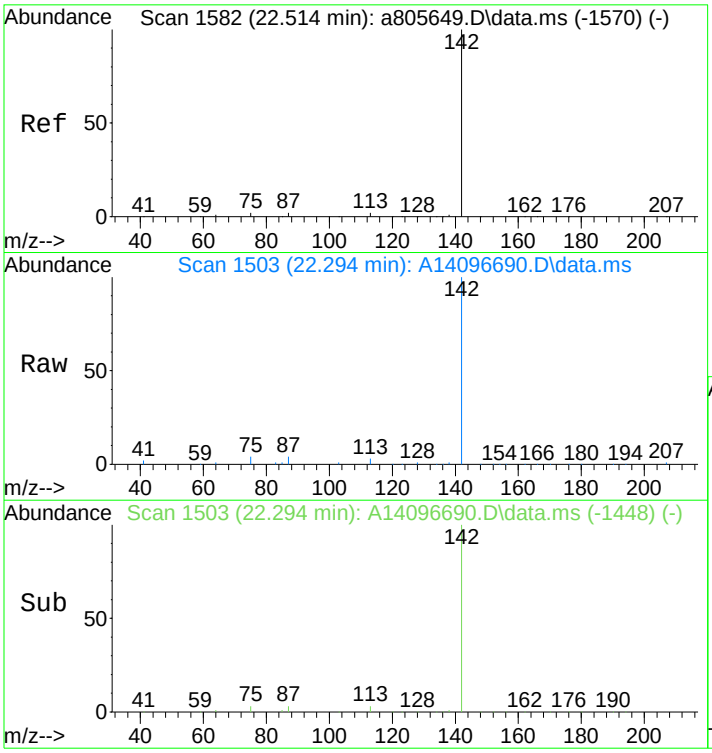


#10
Naphthalene
Concen: 537.60 ng/mL
RT: 19.592 min Scan# 1207
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:128 Resp: 117036

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

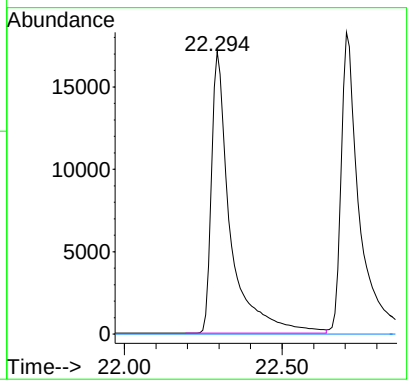


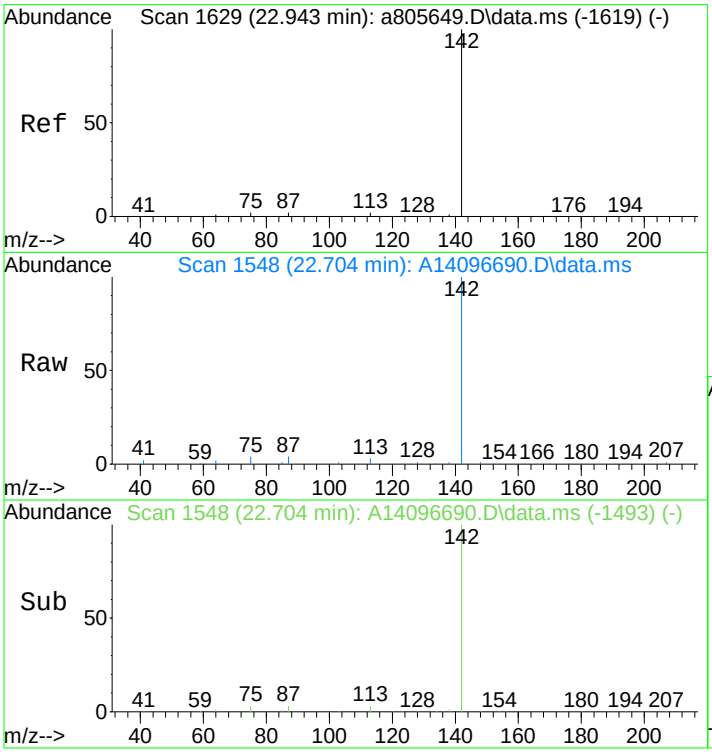


#16
2-Methylnaphthalene
Concen: 498.85 ng/mL
RT: 22.294 min Scan# 1503
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:142 Resp: 71459

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

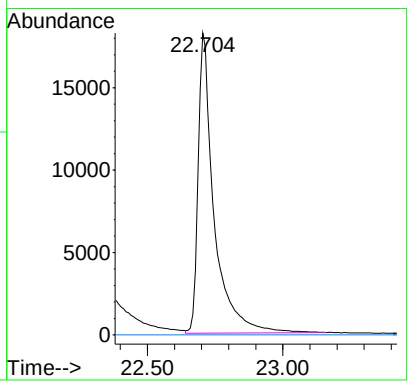


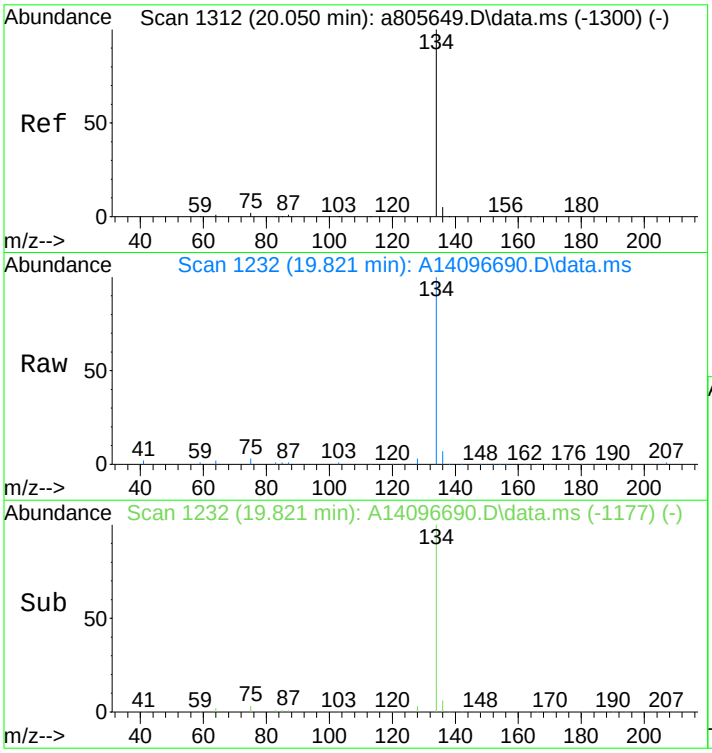


#17
1-Methylnaphthalene
Concen: 525.71 ng/mL
RT: 22.704 min Scan# 1548
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:142 Resp: 73923

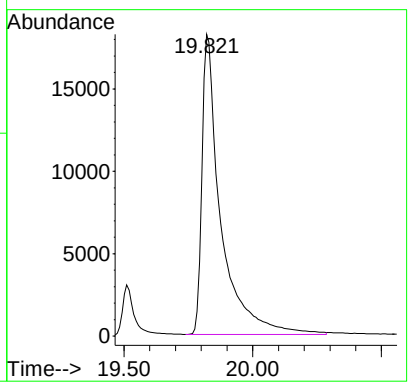
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

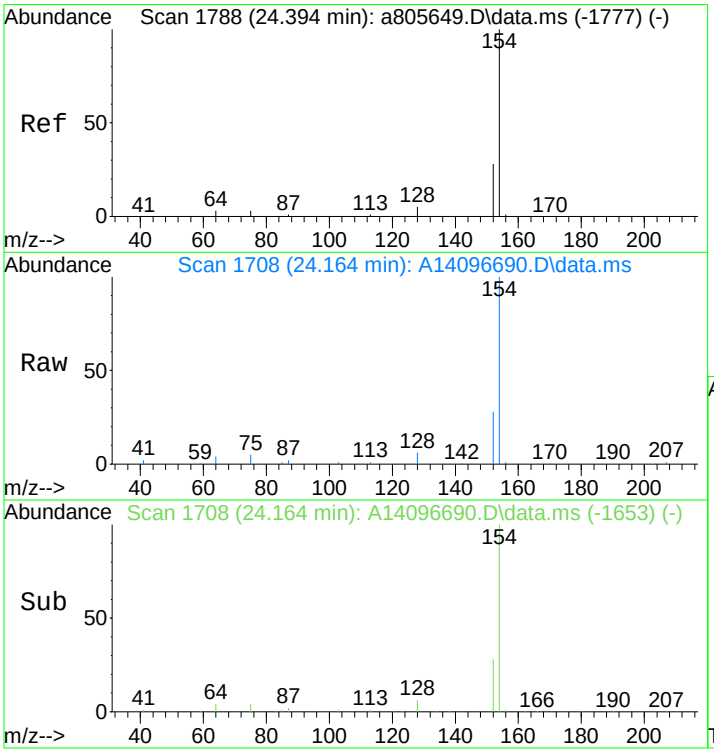




#18
Benzothiophene
Concen: 548.34 ng/mL
RT: 19.821 min Scan# 1232
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:134 Resp: 92063

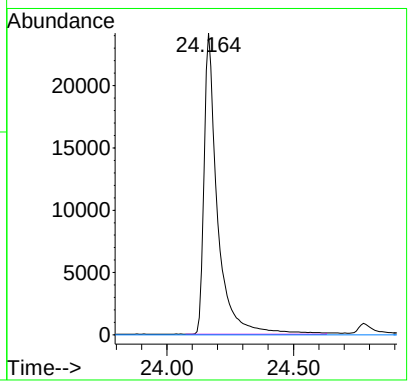


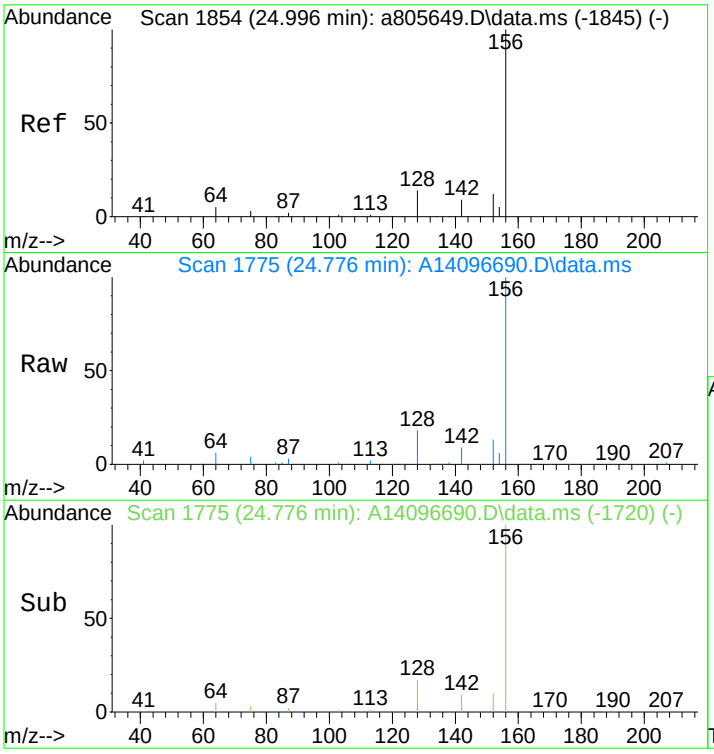


#23
Biphenyl
Concen: 509.17 ng/mL
RT: 24.164 min Scan# 1708
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:154 Resp: 89283

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

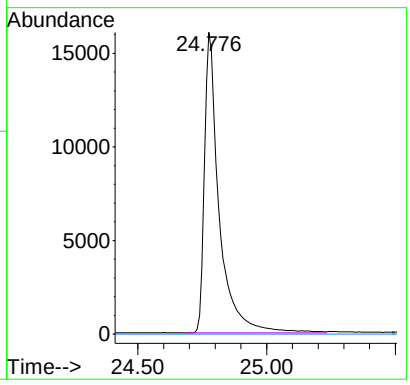


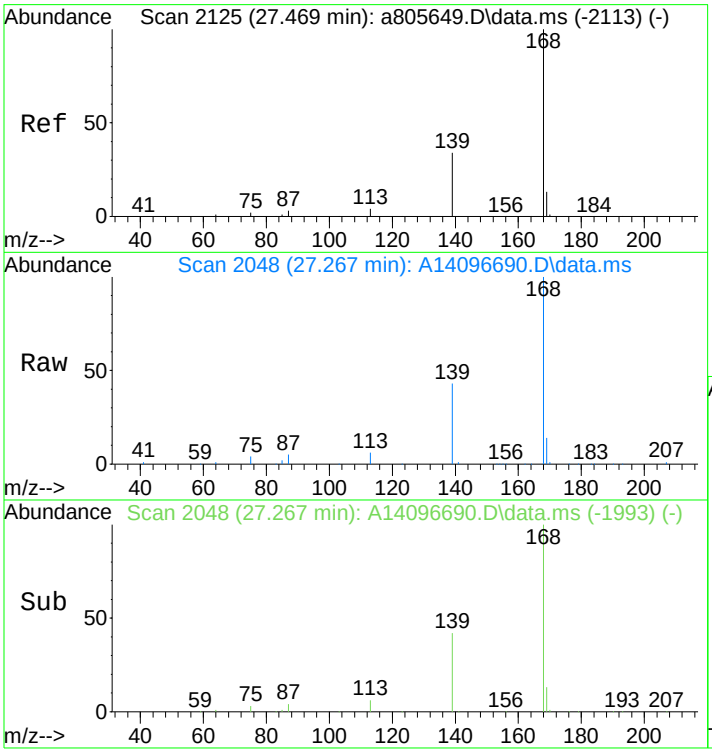


#24
2,6-Dimethylnaphthalene
Concen: 495.55 ng/mL
RT: 24.776 min Scan# 1775
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:156 Resp: 63500

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

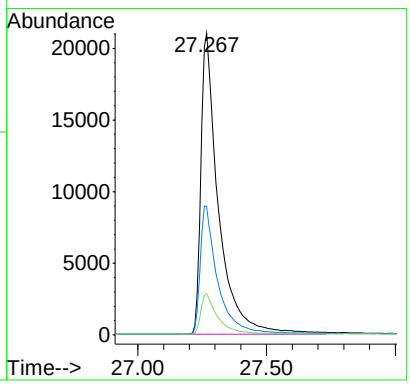


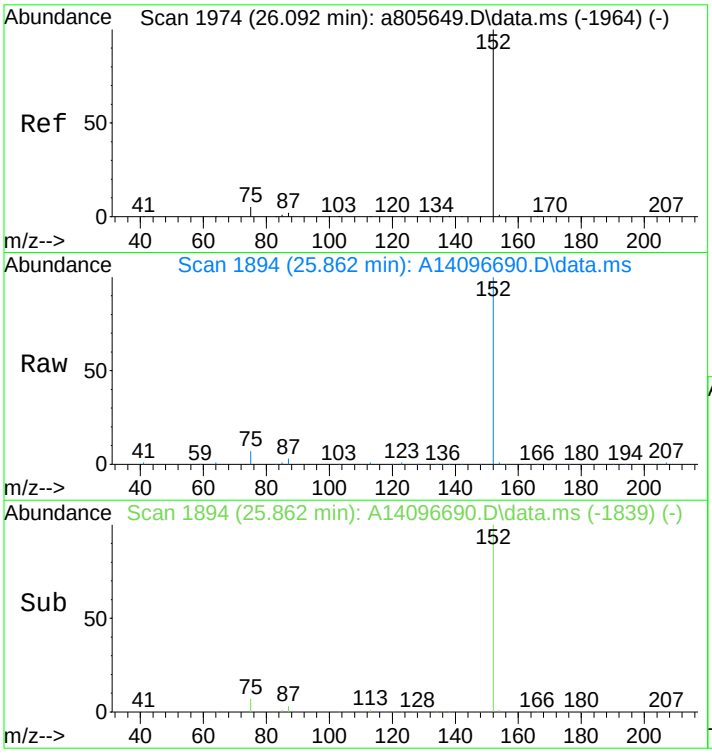


#25
Dibenzofuran
Concen: 537.53 ng/mL
RT: 27.267 min Scan# 2048
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:168 Resp: 99647

Ion	Ratio	Lower	Upper
168	100		
139	42.5	34.0	51.0
169	13.1	10.9	16.3

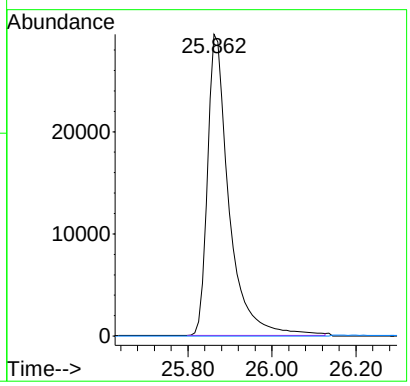


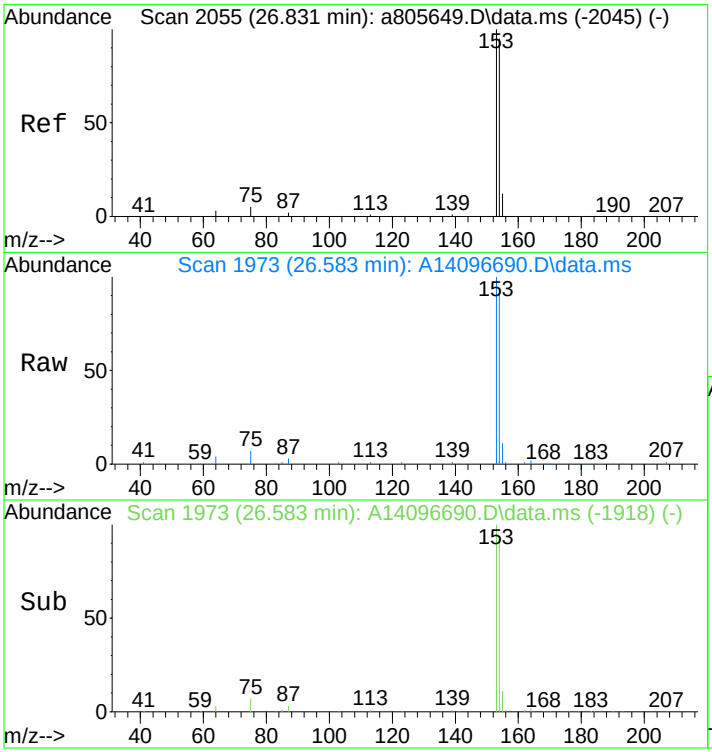


#26
Acenaphthylene
Concen: 461.82 ng/mL m
RT: 25.862 min Scan# 1894
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:152 Resp: 104586

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

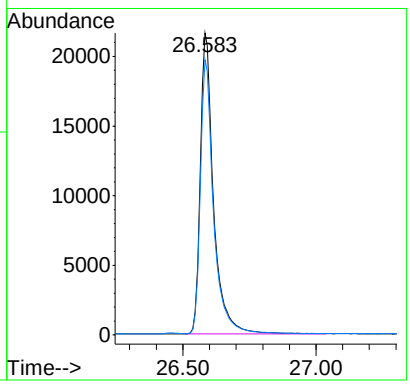


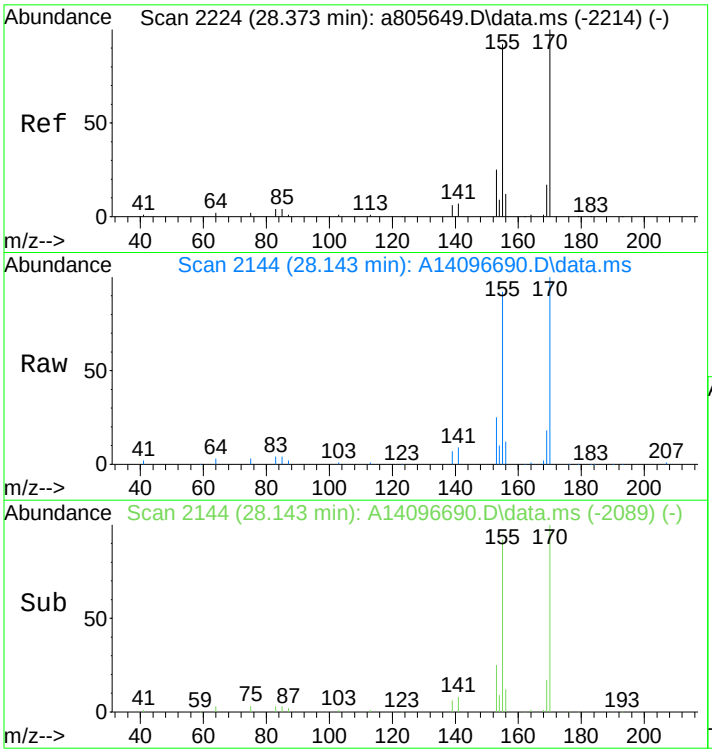


#27
Acenaphthene
Concen: 533.02 ng/mL
RT: 26.583 min Scan# 1973
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:153 Resp: 74603

Ion	Ratio	Lower	Upper
153	100		
154	90.7	72.8	109.2

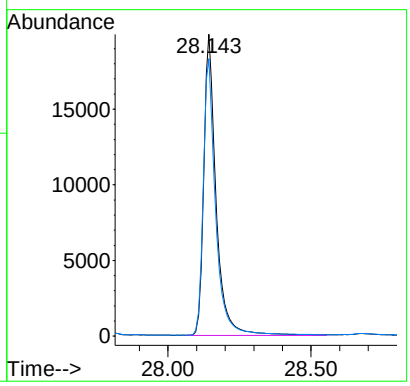


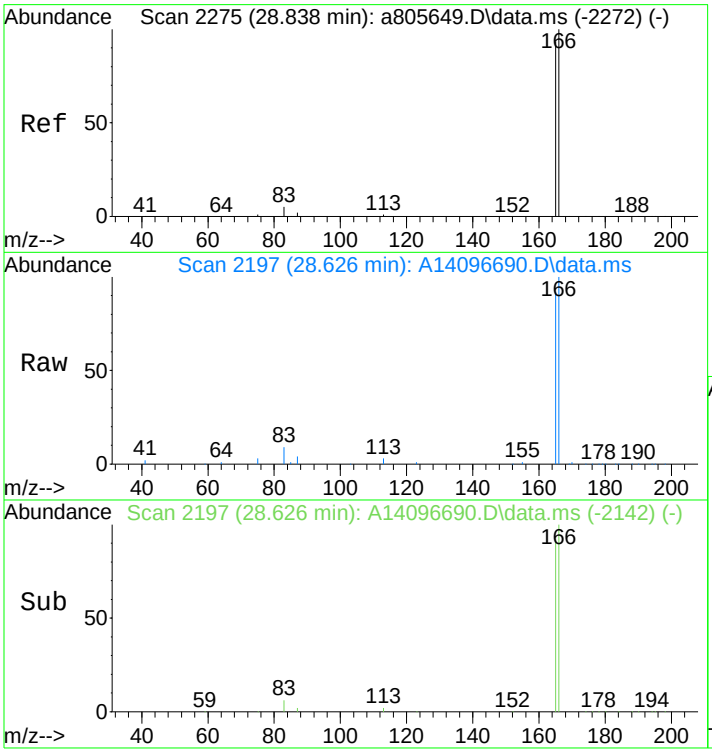


#28
2,3,5-Trimethylnaphthalene
Concen: 511.24 ng/mL
RT: 28.143 min Scan# 2144
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:170 Resp: 59416

Ion	Ratio	Lower	Upper
170	100		
155	92.3	73.5	110.3

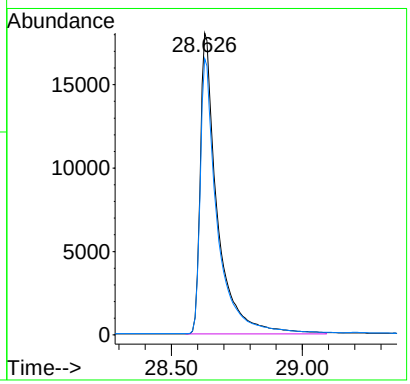


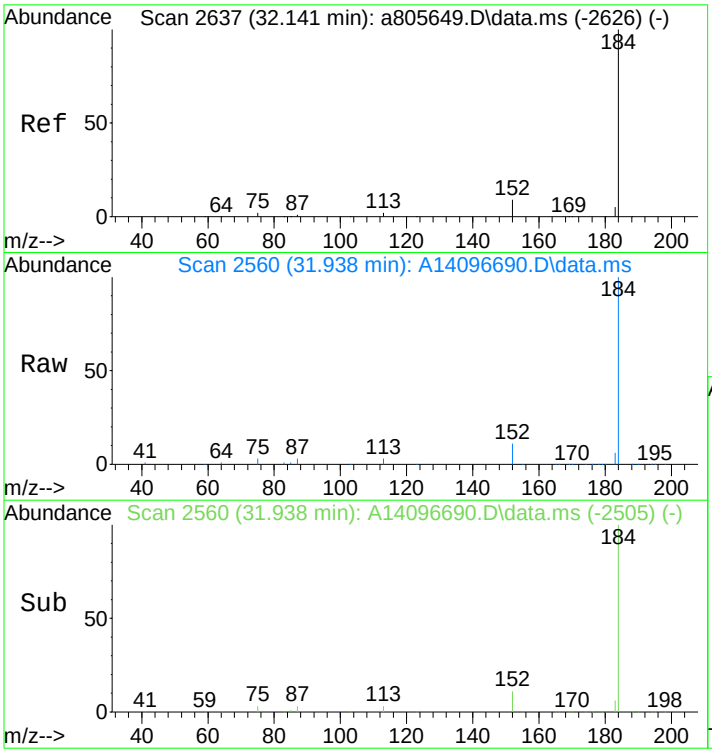


#29
Fluorene
Concen: 525.64 ng/mL
RT: 28.626 min Scan# 2197
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:166 Resp: 81930

Ion	Ratio	Lower	Upper
166	100		
165	91.1	73.2	109.8

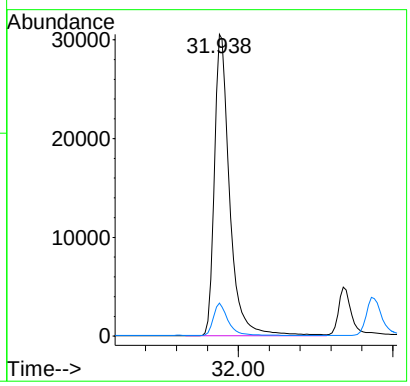


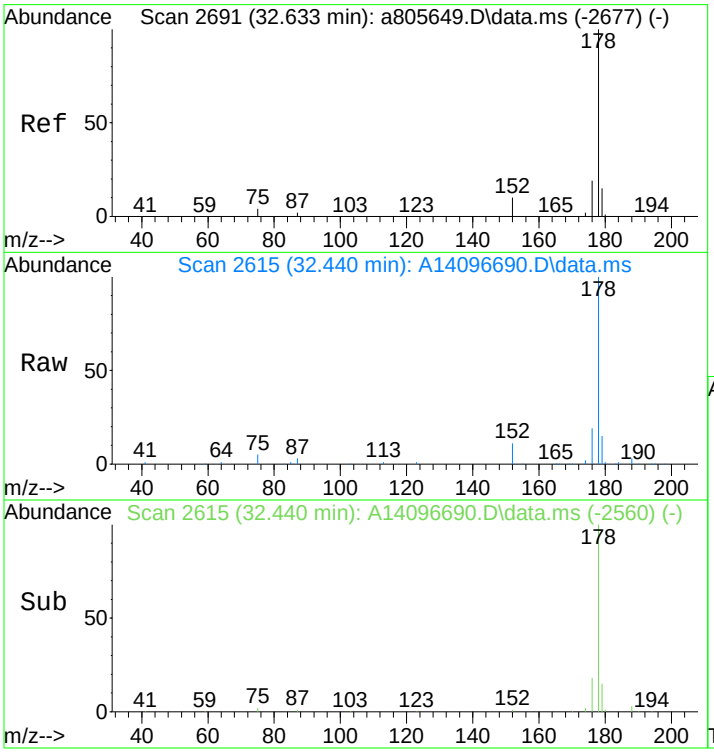


#33
Dibenzothiophene
Concen: 516.84 ng/mL
RT: 31.938 min Scan# 2560
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:184 Resp: 104626

Ion	Ratio	Lower	Upper
184	100		
152	10.3	8.8	13.2

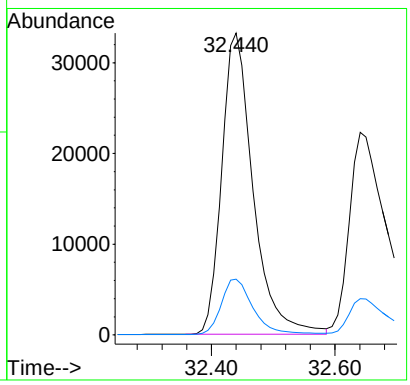


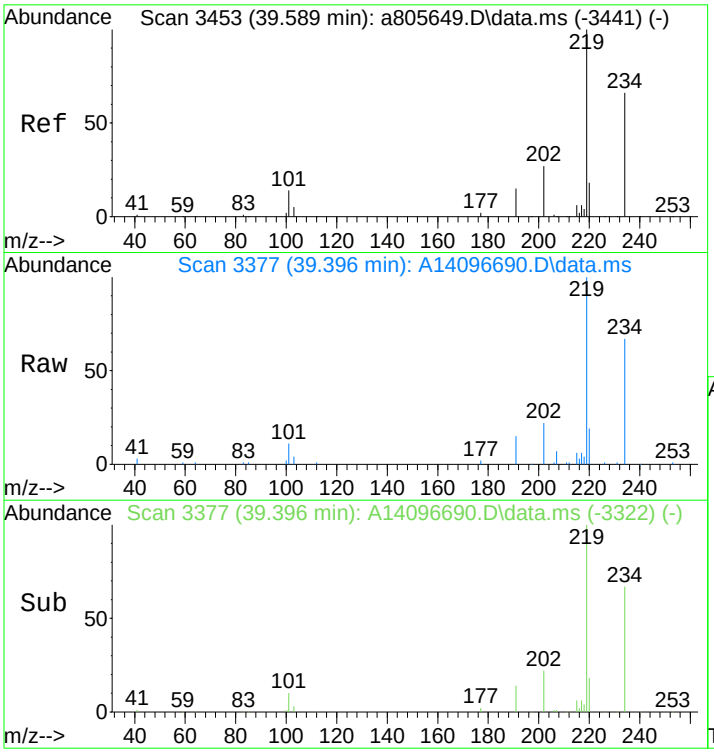


#43
Phenanthrene
Concen: 544.97 ng/mL
RT: 32.440 min Scan# 2615
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:178 Resp: 117147

Ion	Ratio	Lower	Upper
178	100		
176	18.6	14.8	22.2

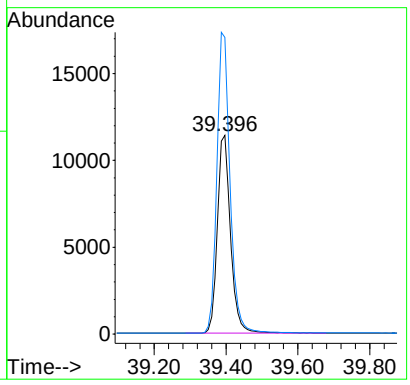


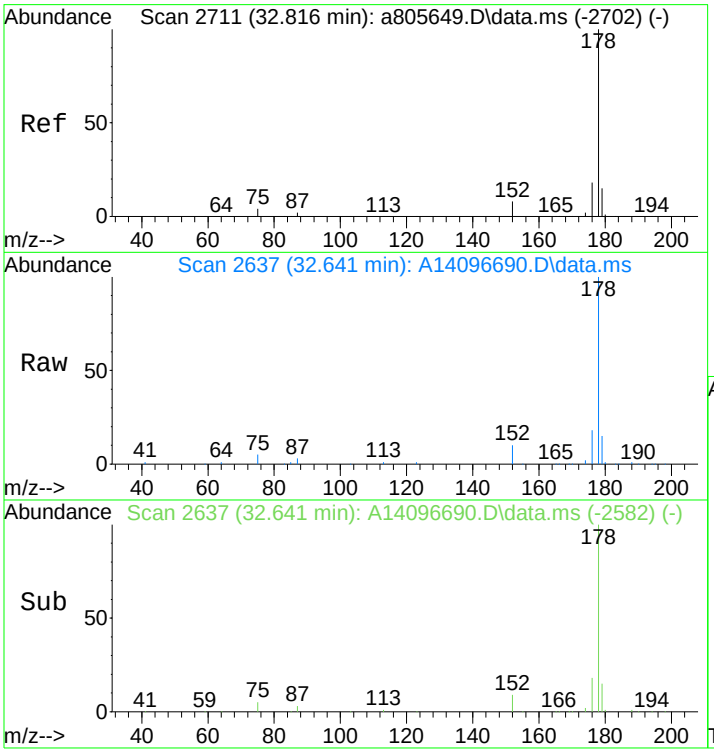


#54
Retene
Concen: 429.80 ng/mL
RT: 39.396 min Scan# 3377
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:234 Resp: 28930

Ion	Ratio	Lower	Upper
234	100		
219	151.9	119.3	178.9

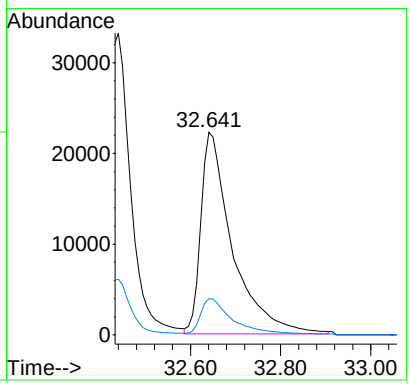


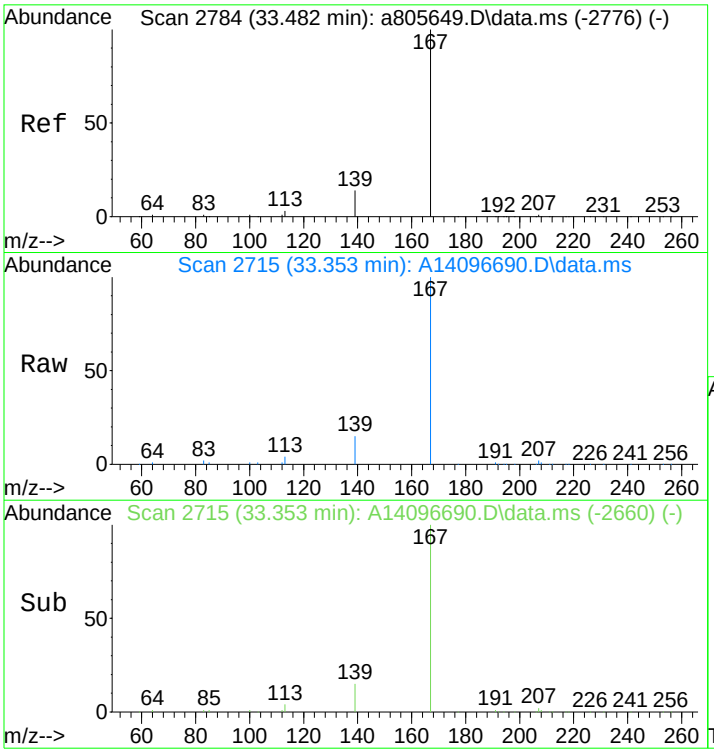


#55
Anthracene
Concen: 504.76 ng/mL m
RT: 32.641 min Scan# 2637
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:178 Resp: 107951

Ion	Ratio	Lower	Upper
178	100		
176	19.2	14.3	21.5

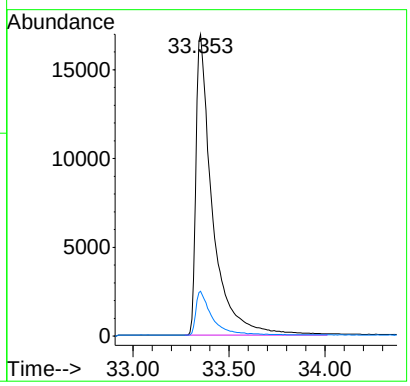


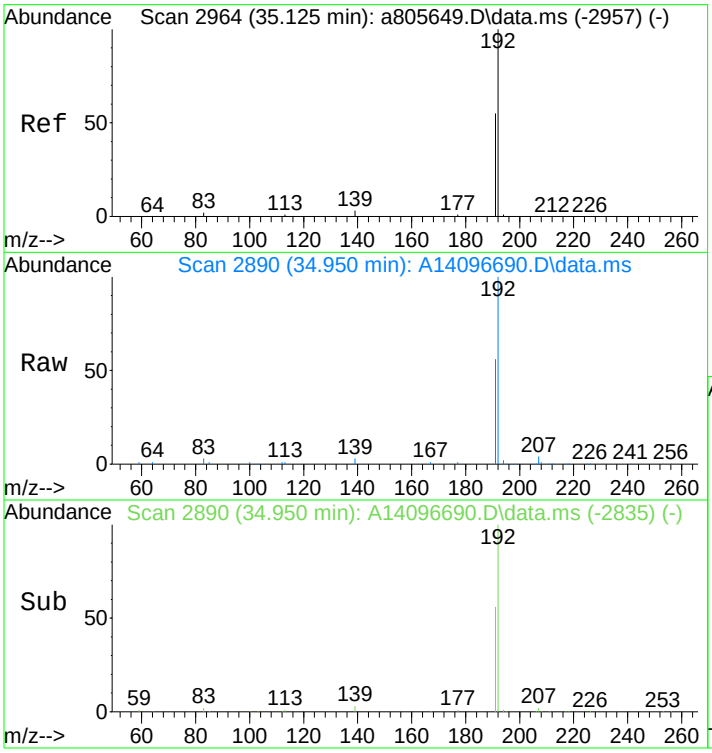


#56
Carbazole
Concen: 508.21 ng/mL m
RT: 33.353 min Scan# 2715
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:167 Resp: 101361

Ion	Ratio	Lower	Upper
167	100		
139	14.0	11.8	17.8

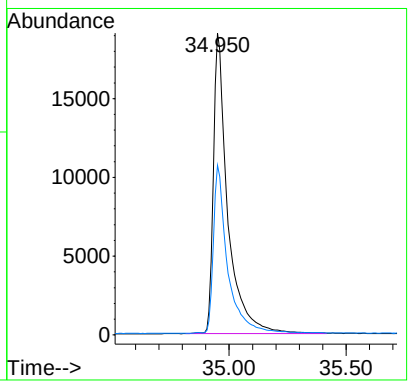


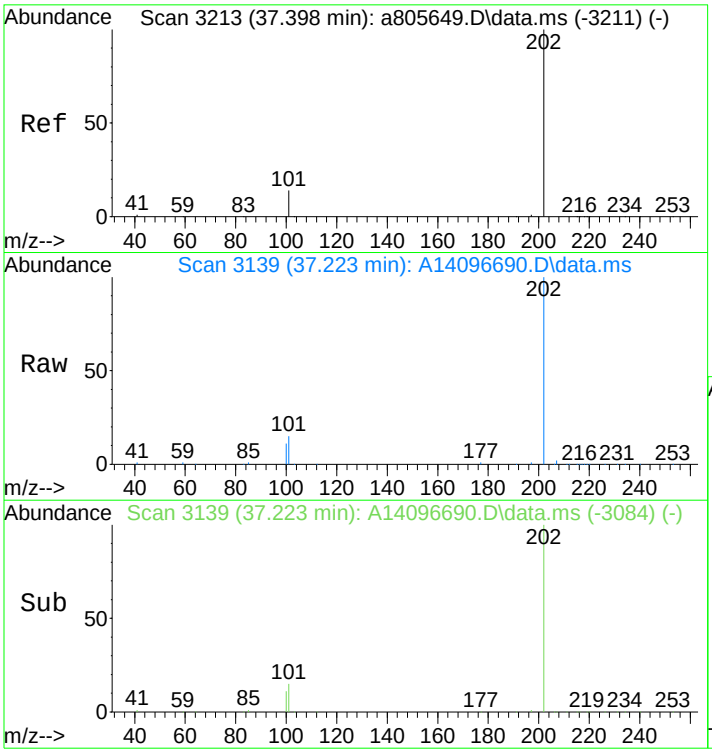


#57
1-Methylphenanthrene
Concen: 505.38 ng/mL
RT: 34.950 min Scan# 2890
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:192 Resp: 81495

Ion	Ratio	Lower	Upper
192	100		
191	55.2	45.0	67.4

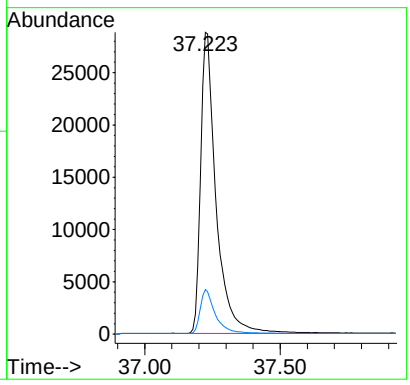


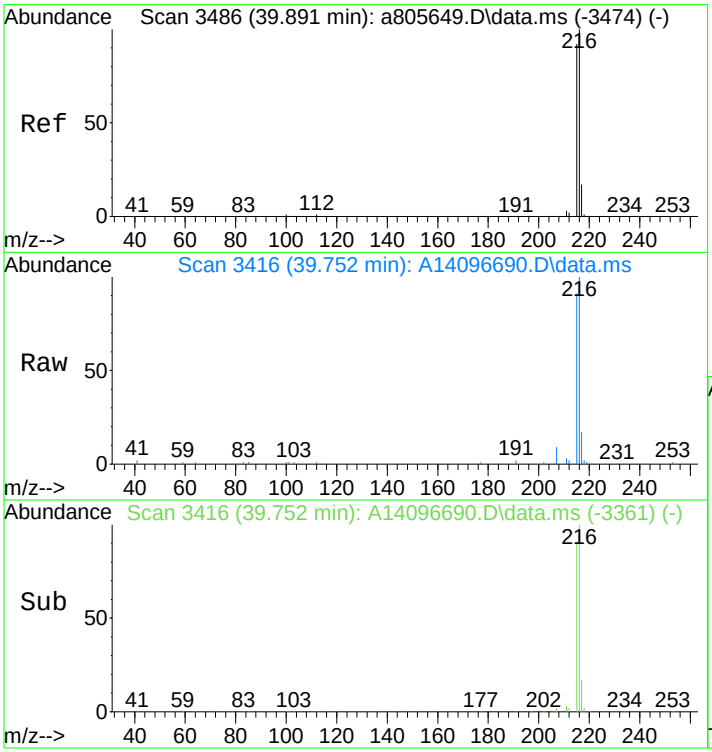


#58
Fluoranthene
Concen: 521.95 ng/mL
RT: 37.223 min Scan# 3139
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:202 Resp: 114468

Ion	Ratio	Lower	Upper
202	100		
101	14.2	11.8	17.8

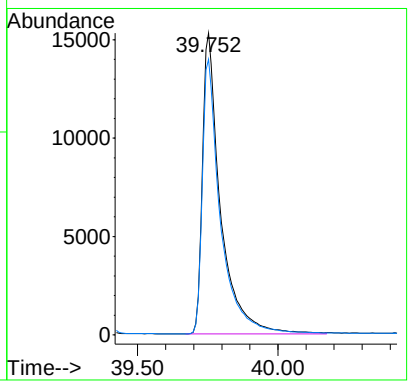


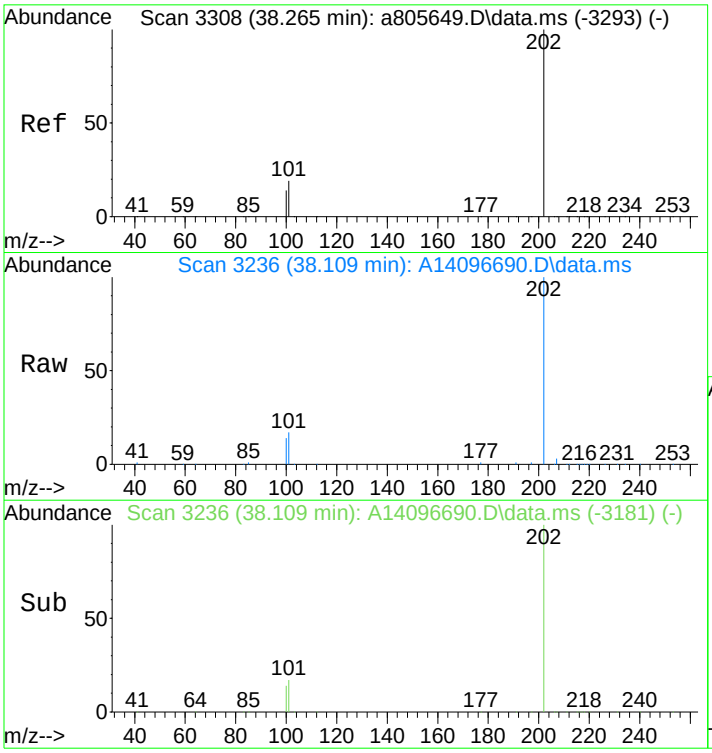


#59
Benzo(b)fluorene
Concen: 468.35 ng/mL
RT: 39.752 min Scan# 3416
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:216 Resp: 68451

Ion	Ratio	Lower	Upper
216	100		
215	91.6	73.0	109.4

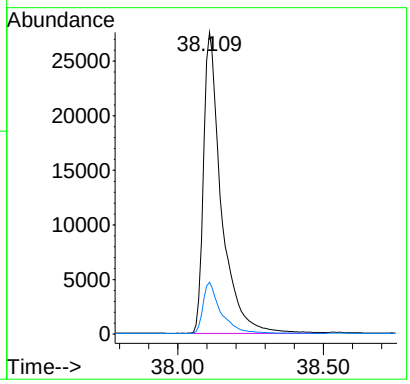


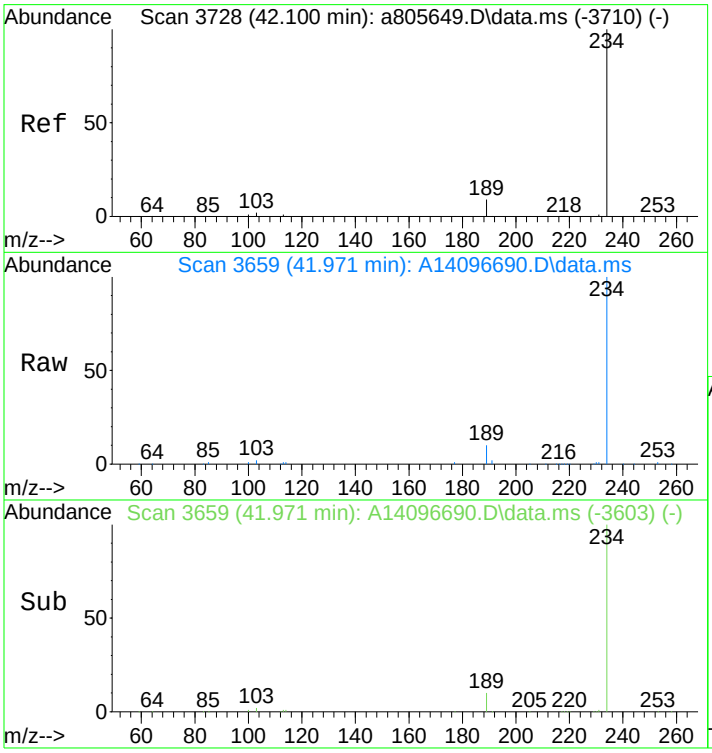


#60
Pyrene
Concen: 514.33 ng/mL
RT: 38.109 min Scan# 3236
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:202 Resp: 117235

Ion	Ratio	Lower	Upper
202	100		
101	17.1	13.8	20.6

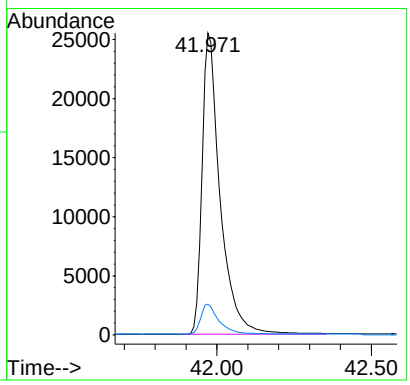


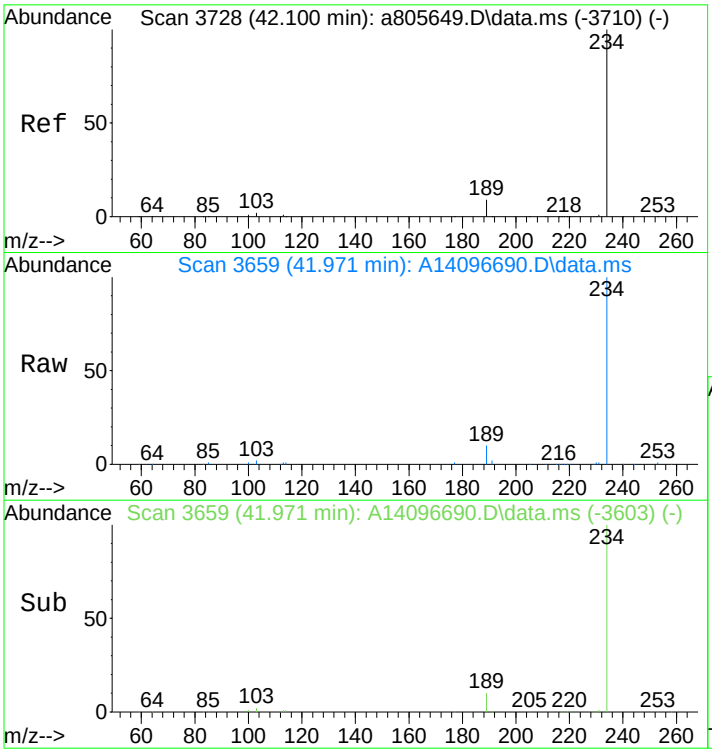


#66
Naphthobenzothiophene
Concen: 524.66 ng/ml
RT: 41.971 min Scan# 3659
Delta R.T. 0.009 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:234 Resp: 103687

Ion	Ratio	Lower	Upper
234	100		
189	9.9	29.1	43.7#

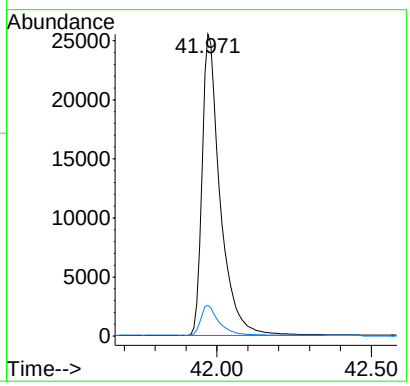


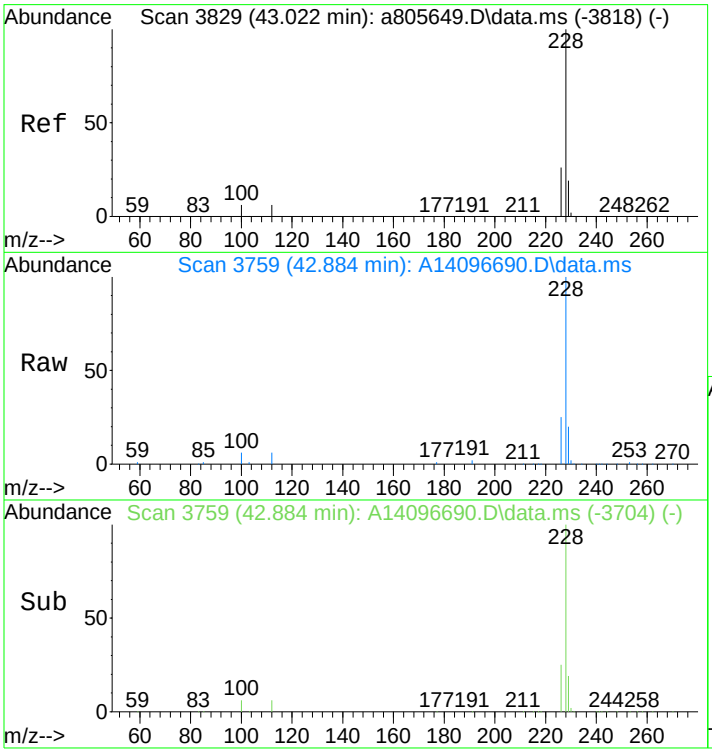


#67
Naphthobenzothiophene-2,1-D
Concen: 524.66 ng/mL
RT: 41.971 min Scan# 3659
Delta R.T. 0.009 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:234 Resp: 103687

Ion	Ratio	Lower	Upper
234	100		
189	9.9	29.1	43.7#

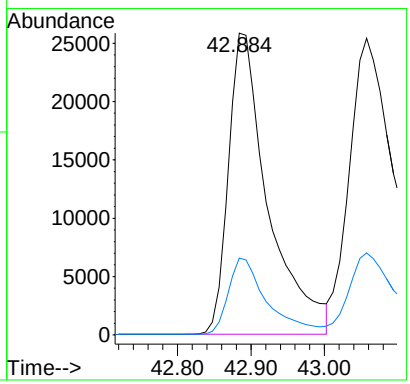


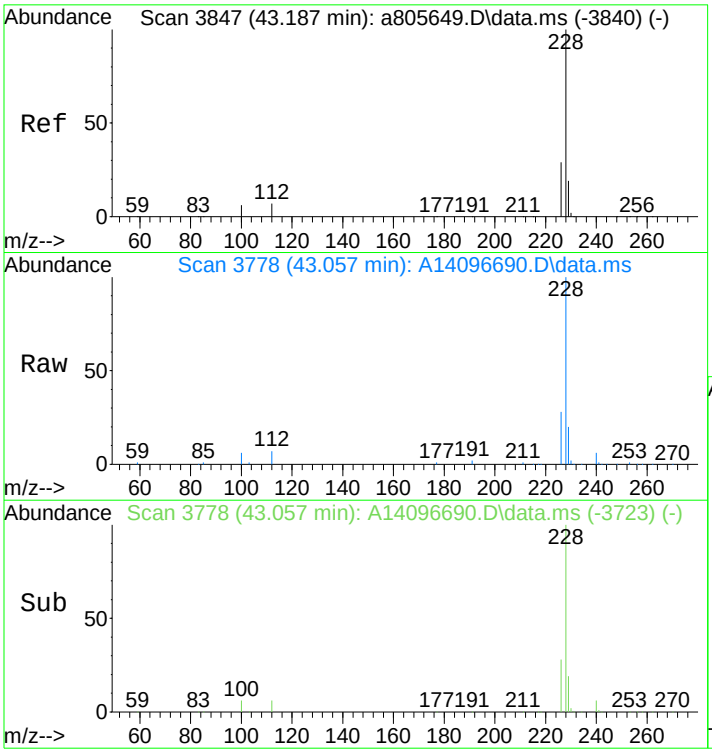


#75
Benz[a]anthracene
Concen: 421.06 ng/mL
RT: 42.884 min Scan# 3759
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:228 Resp: 97347

Ion	Ratio	Lower	Upper
228	100		
226	24.6	20.3	30.5

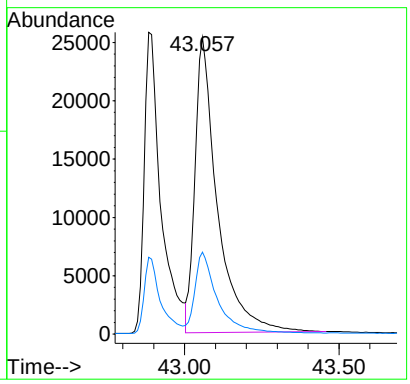


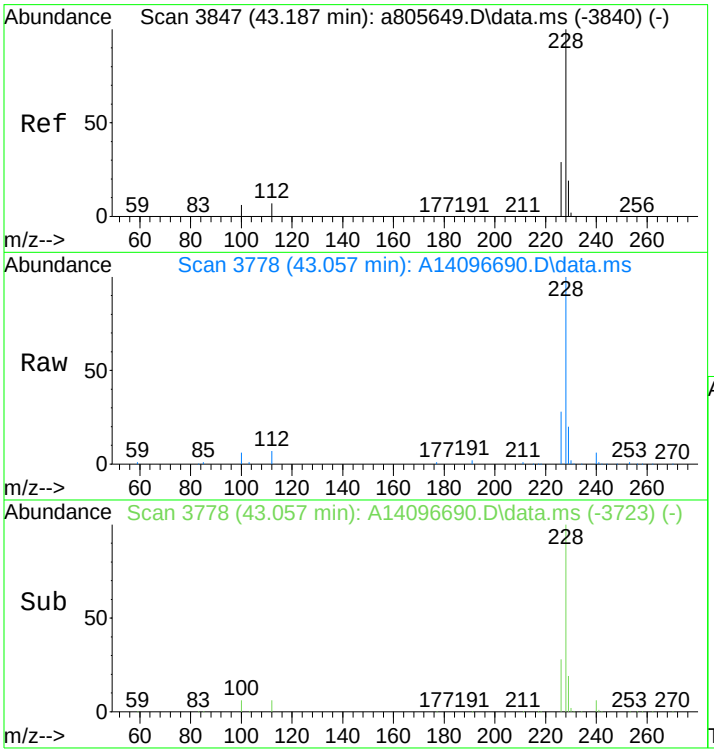


#76
Chrysene
Concen: 559.75 ng/mL
RT: 43.057 min Scan# 3778
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:228 Resp: 127775

Ion	Ratio	Lower	Upper
228	100		
226	27.7	22.2	33.2

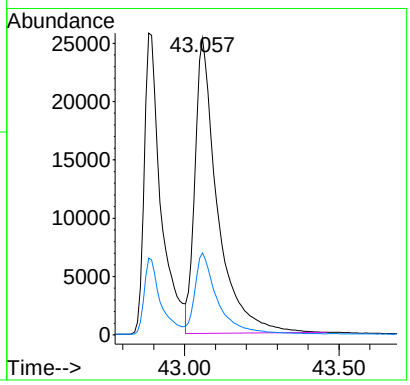


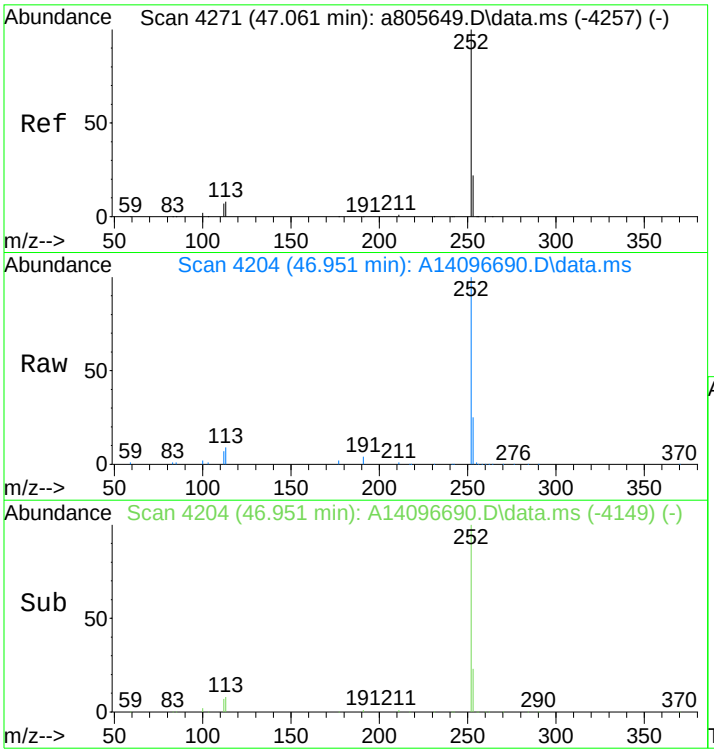


#77
Chrysene/Triphenylene
Concen: 559.75 ng/mL
RT: 43.057 min Scan# 3778
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:228 Resp: 127775

Ion	Ratio	Lower	Upper
228	100		
226	27.7	22.2	33.2

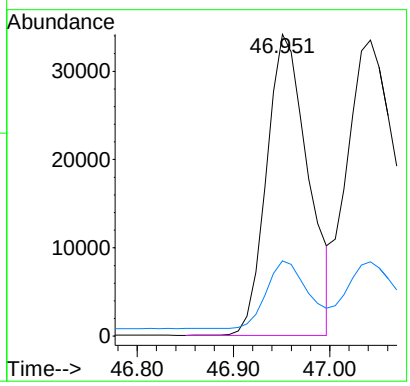


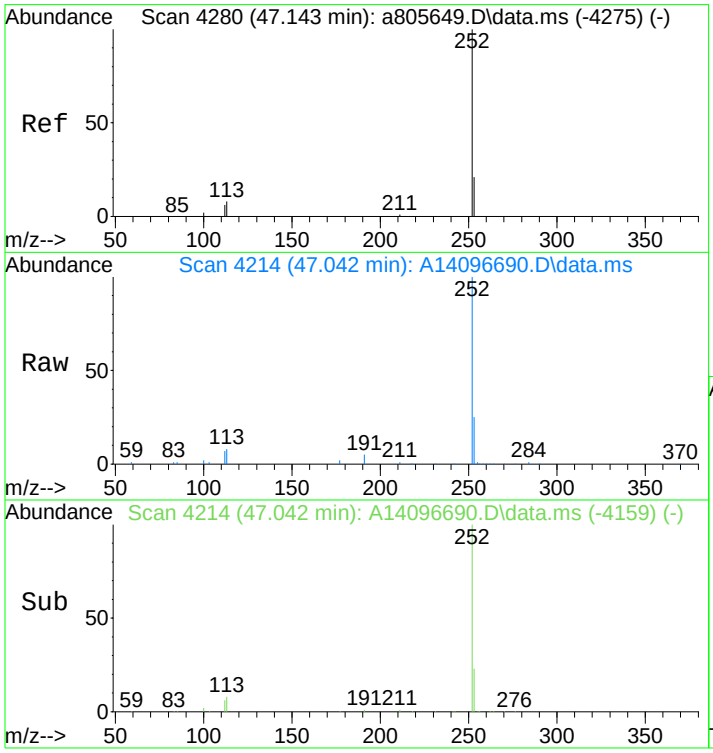


#82
Benzo[b]fluoranthene
Concen: 446.37 ng/mL
RT: 46.951 min Scan# 4204
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:252 Resp: 102067

Ion	Ratio	Lower	Upper
252	100		
253	22.9	19.9	29.9

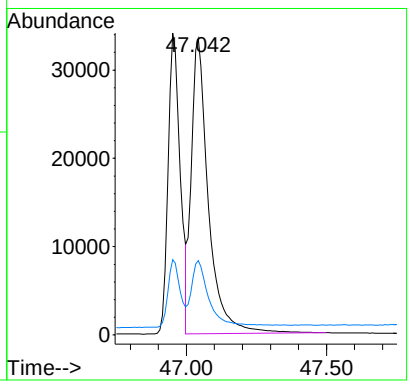


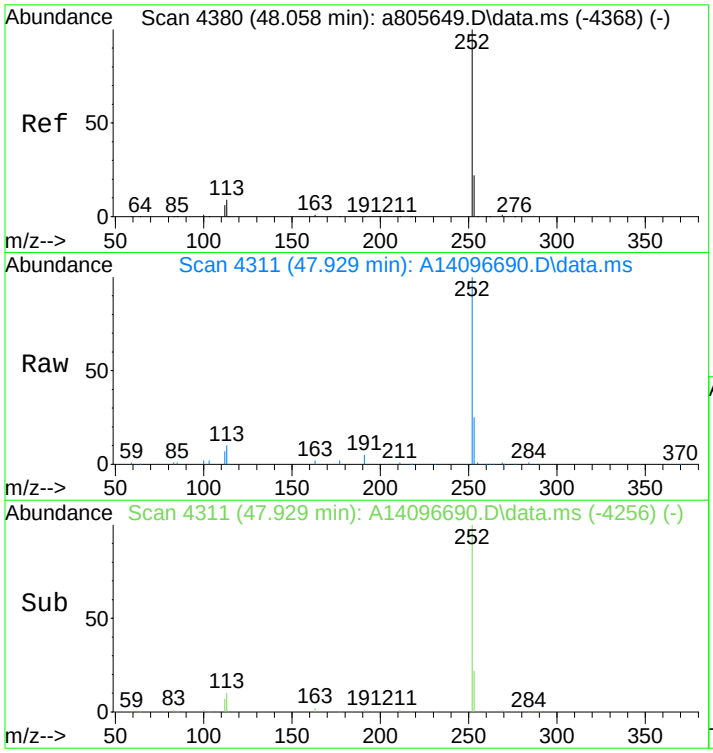


#83
Benzo[j]+[k]fluoranthene
Concen: 561.41 ng/mL
RT: 47.042 min Scan# 4214
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:252 Resp: 141789

Ion	Ratio	Lower	Upper
252	100		
253	21.6	20.1	30.1

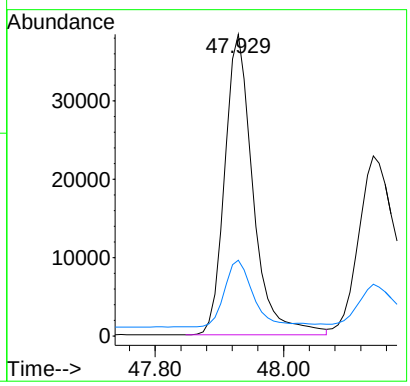


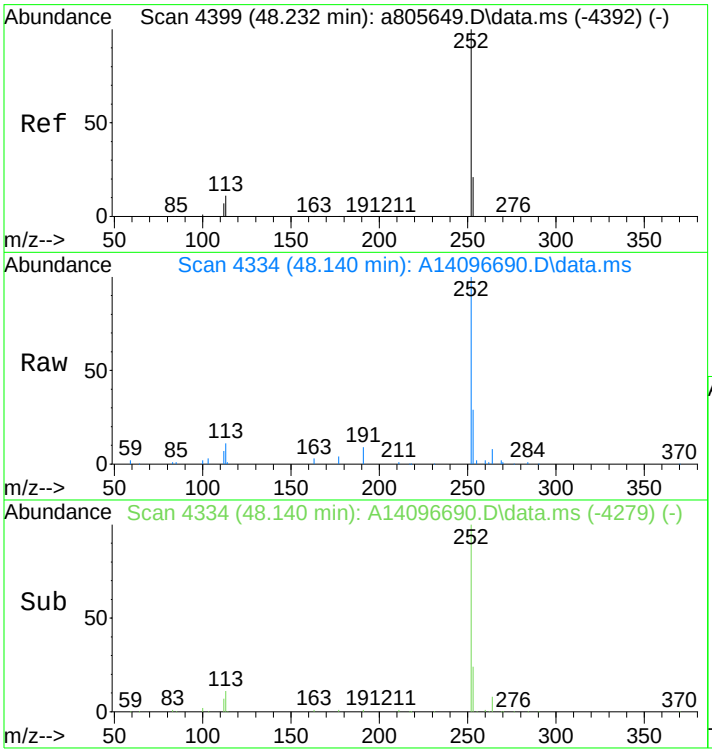


#85
Benzo[e]pyrene
Concen: 518.64 ng/mL
RT: 47.929 min Scan# 4311
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:252 Resp: 117583

Ion	Ratio	Lower	Upper
252	100		
253	23.3	20.1	30.1

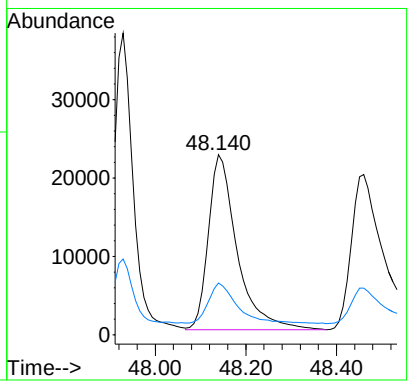


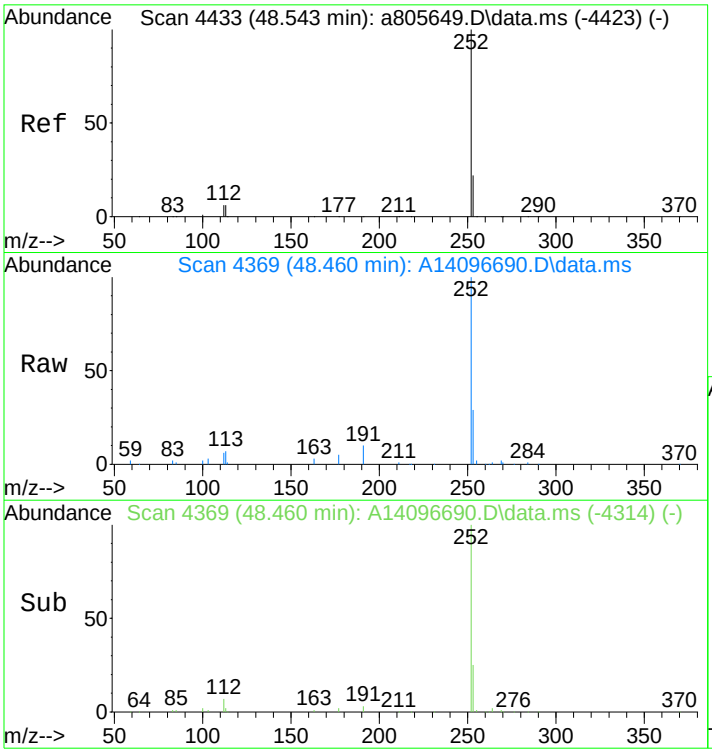


#87
Benzo[a]pyrene
Concen: 464.83 ng/mL
RT: 48.140 min Scan# 4334
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:252 Resp: 98546

Ion	Ratio	Lower	Upper
252	100		
253	23.9	23.0	34.4

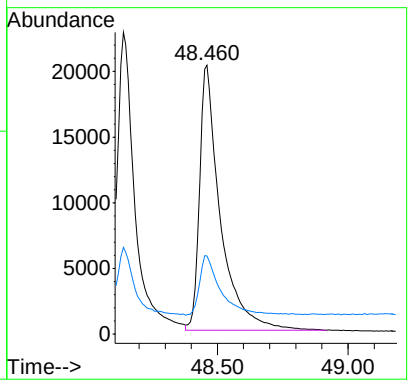


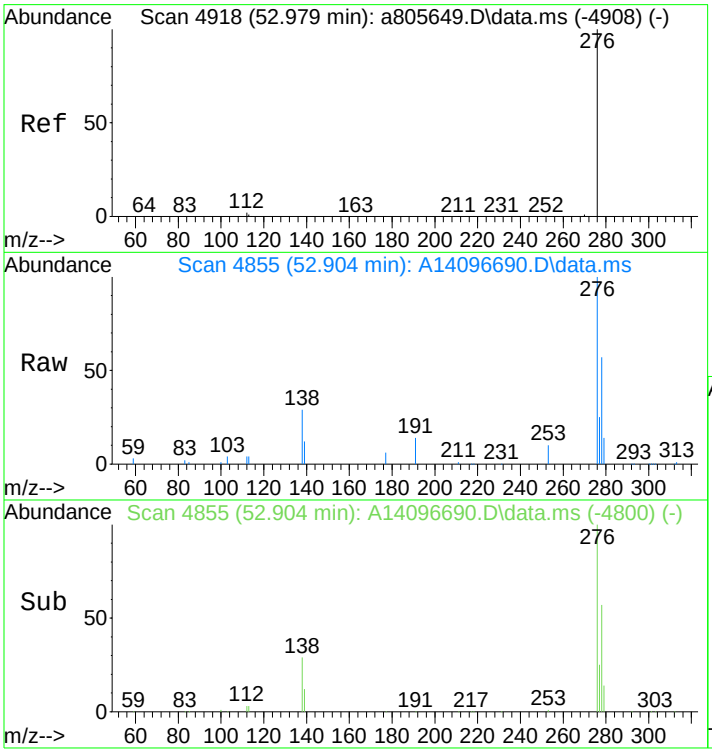


#88
Perylene
Concen: 485.48 ng/mL
RT: 48.460 min Scan# 4369
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:252 Resp: 111585

Ion	Ratio	Lower	Upper
252	100		
253	22.5	23.3	34.9#

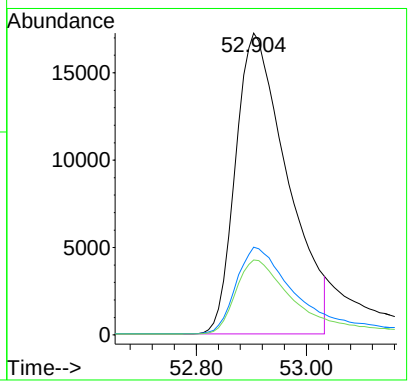


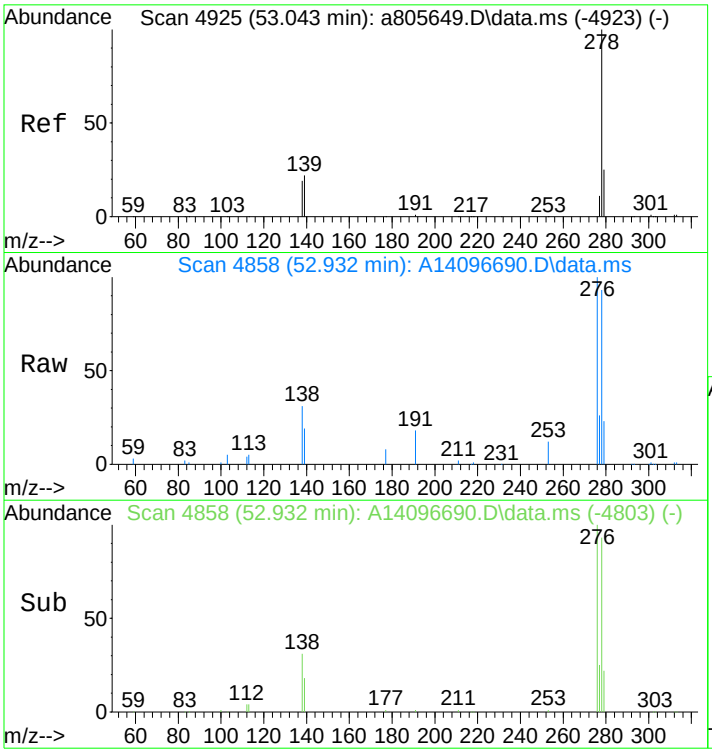


#89
Indeno[1,2,3-cd]pyrene
Concen: 423.02 ng/mL m
RT: 52.904 min Scan# 4855
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:276 Resp: 112182

Ion	Ratio	Lower	Upper
276	100		
138	35.8	23.2	34.8#
277	29.8	19.8	29.8#

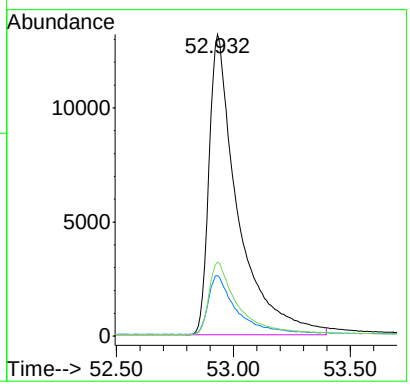


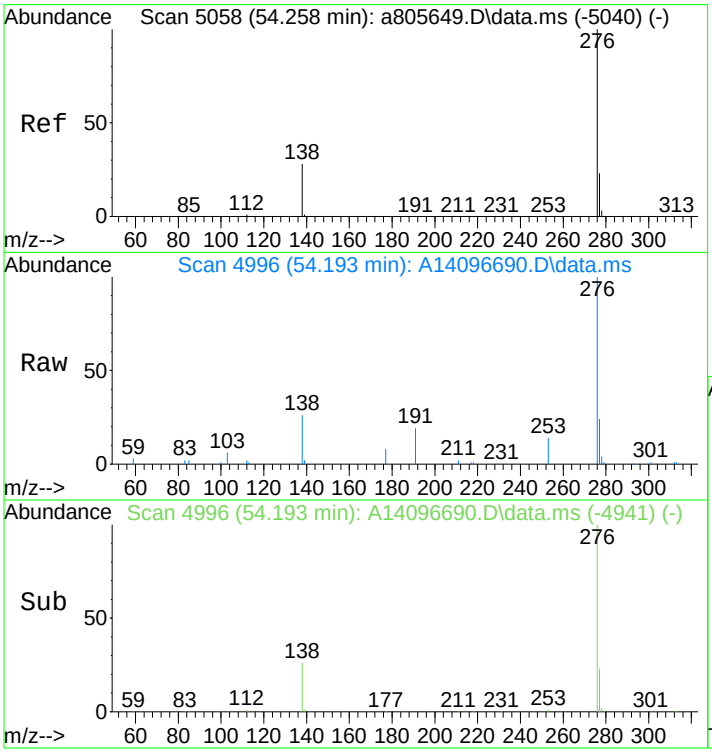


#90
Dibenz[ah]+[ac]anthracene
Concen: 452.23 ng/mL
RT: 52.932 min Scan# 4858
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:278 Resp: 112689

Ion	Ratio	Lower	Upper
278	100		
139	19.7	16.1	24.1
279	24.1	19.6	29.4

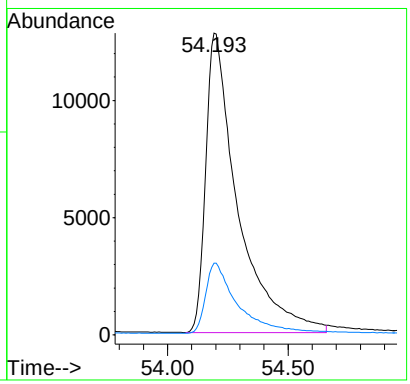


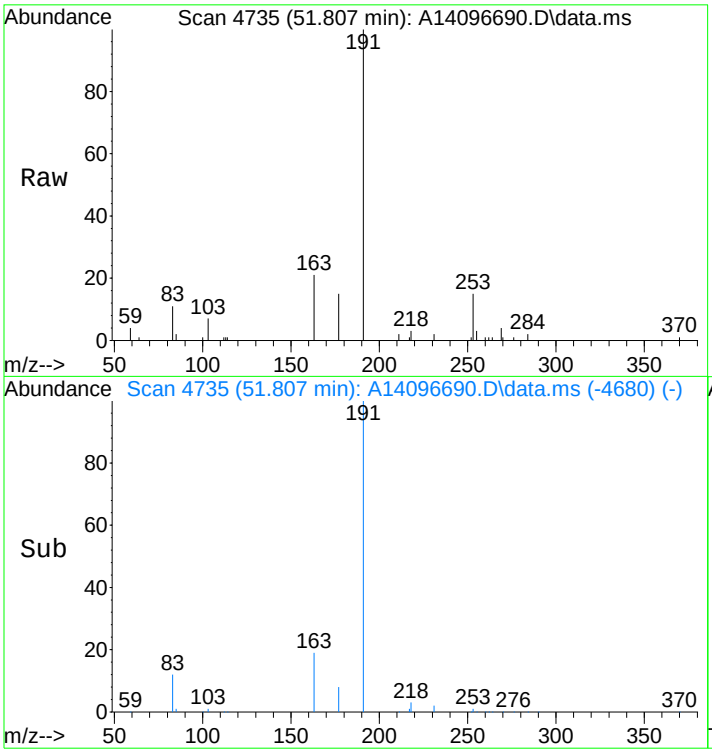


#91
Benzo[g,h,i]perylene
Concen: 465.08 ng/mL
RT: 54.193 min Scan# 4996
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:276 Resp: 118296

Ion	Ratio	Lower	Upper
276	100		
277	23.5	19.0	28.6

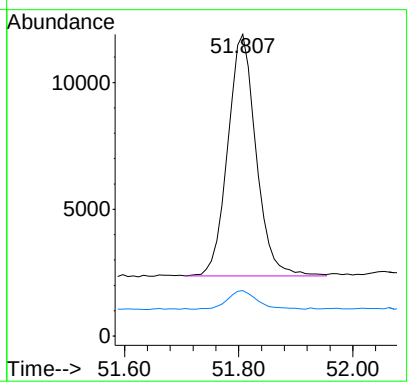


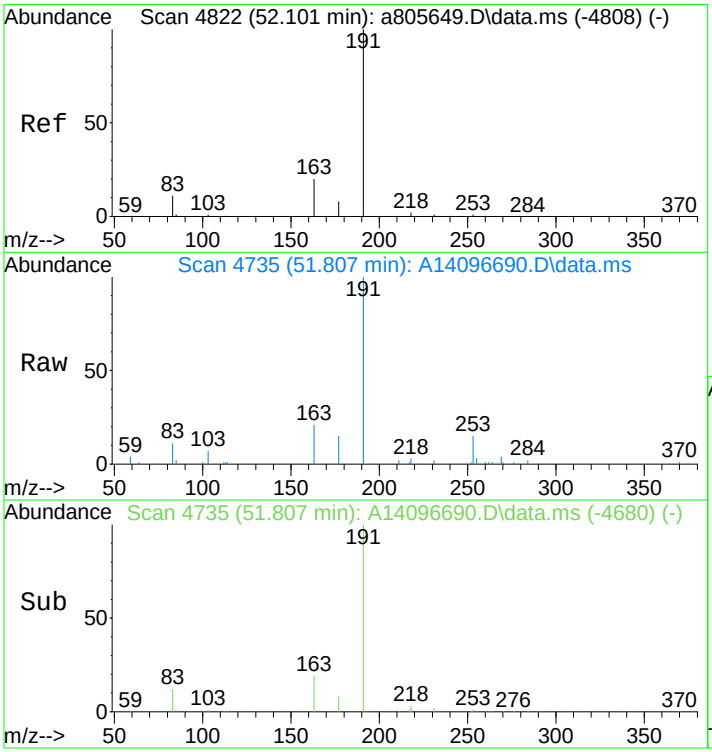


#92
Hopane (T19)
Concen: 435.05 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:191 Resp: 32847

Ion	Ratio	Lower	Upper
191	100		
177	8.0	12.1	18.1#

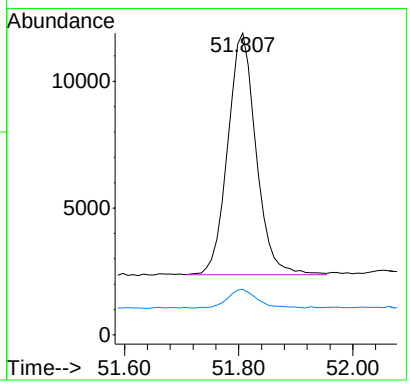




#93
17a(H),21B(H)-hopane - C30H52
Concen: 435.05 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. 0.000 min
Lab File: A14096690.D
Acq: 20 Jun 2012 6:18 pm

Tgt Ion:191 Resp: 32847

Ion	Ratio	Lower	Upper
191	100		
177	8.0	12.1	18.1#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	71915	500.000	ng/mL	0.00
74) Chrysene-d12	42.929	240	129552	500.000	ng/mL	-0.02
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	129167	506.153	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.62%			
42) Phenanthrene-d10	32.331	188	122290	508.495	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 50.85%			
86) Benzo[a]pyrene-d12	48.021	264	123843	489.163	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.92%#			
127) 5B(H)Cholane - Surr	43.486	217	25515	497.541	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 49.75%#			
Target Compounds						Qvalue
3) trans-Decalin	16.134	138	14578	251.718	ng/mL	100
4) cis-Decalin	17.338	138	11389	254.970	ng/mL	100
10) Naphthalene	19.574	128	148015	530.307	ng/mL#	100
16) 2-Methylnaphthalene	22.275	142	92577	504.079	ng/mL#	100
17) 1-Methylnaphthalene	22.686	142	94210	522.566	ng/mL#	100
18) Benzothiophene	19.802	134	117157	544.273	ng/mL	100
23) Biphenyl	24.146	154	113377	504.317	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.757	156	82563	502.549	ng/mL#	100
25) Dibenzofuran	27.240	168	124437	523.566	ng/mL	97
26) Acenaphthylene	25.843	152	143298M3	493.538	ng/mL	
27) Acenaphthene	26.573	153	93945	523.534	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.125	170	75073	503.830	ng/mL	100
29) Fluorene	28.599	166	103284	516.843	ng/mL	100
33) Dibenzothiophene	31.920	184	128599	495.495	ng/mL	98
43) Phenanthrene	32.413	178	143179	519.515	ng/mL	100
54) Retene	39.378	234	38476	445.850	ng/mL	98
55) Anthracene	32.604	178	140401M3	512.051	ng/mL	
56) Carbazole	33.316	167	132760	519.187	ng/mL	98
57) 1-Methylphenanthrene	34.923	192	102059M3	493.653	ng/mL	
58) Fluoranthene	37.196	202	143897	511.775	ng/mL	99
59) Benzo(b)fluorene	39.716	216	94870	506.296	ng/mL	100
60) Pyrene	38.081	202	149511	511.613	ng/mL	99
66) Naphthobenzothiophene	41.943	234	128307	506.394	ng/ml#	55
67) Naphthobenzothiophene-2,1	41.943	234	128307	506.394	ng/mL#	55
75) Benz[a]anthracene	42.866	228	137635	485.671	ng/mL	99
76) Chrysene	43.030	228	148810	531.835	ng/mL	99
77) Chrysene/Triphenylene	43.030	228	148810	531.835	ng/mL	99
82) Benzo[b]fluoranthene	46.932	252	138806	495.233	ng/mL	95
83) Benzo[j]+[k]fluoranthene	47.015	252	170941	552.177	ng/mL	93
85) Benzo[e]pyrene	47.911	252	142169	511.589	ng/mL	96
87) Benzo[a]pyrene	48.112	252	137898M3	530.646	ng/mL	
88) Perylene	48.414	252	146288	519.236	ng/mL	89
89) Indeno[1,2,3-cd]pyrene	52.859	276	157741M3	485.267	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.877	278	152790	500.227	ng/mL	99
91) Benzo[g,h,i]perylene	54.138	276	157585	505.440	ng/mL	99
92) Hopane (T19)	51.807	191	41324	446.523	ng/mL#	82
93) 17a(H),21B(H)-hopane - C3	51.807	191	41324	446.523	ng/mL#	82

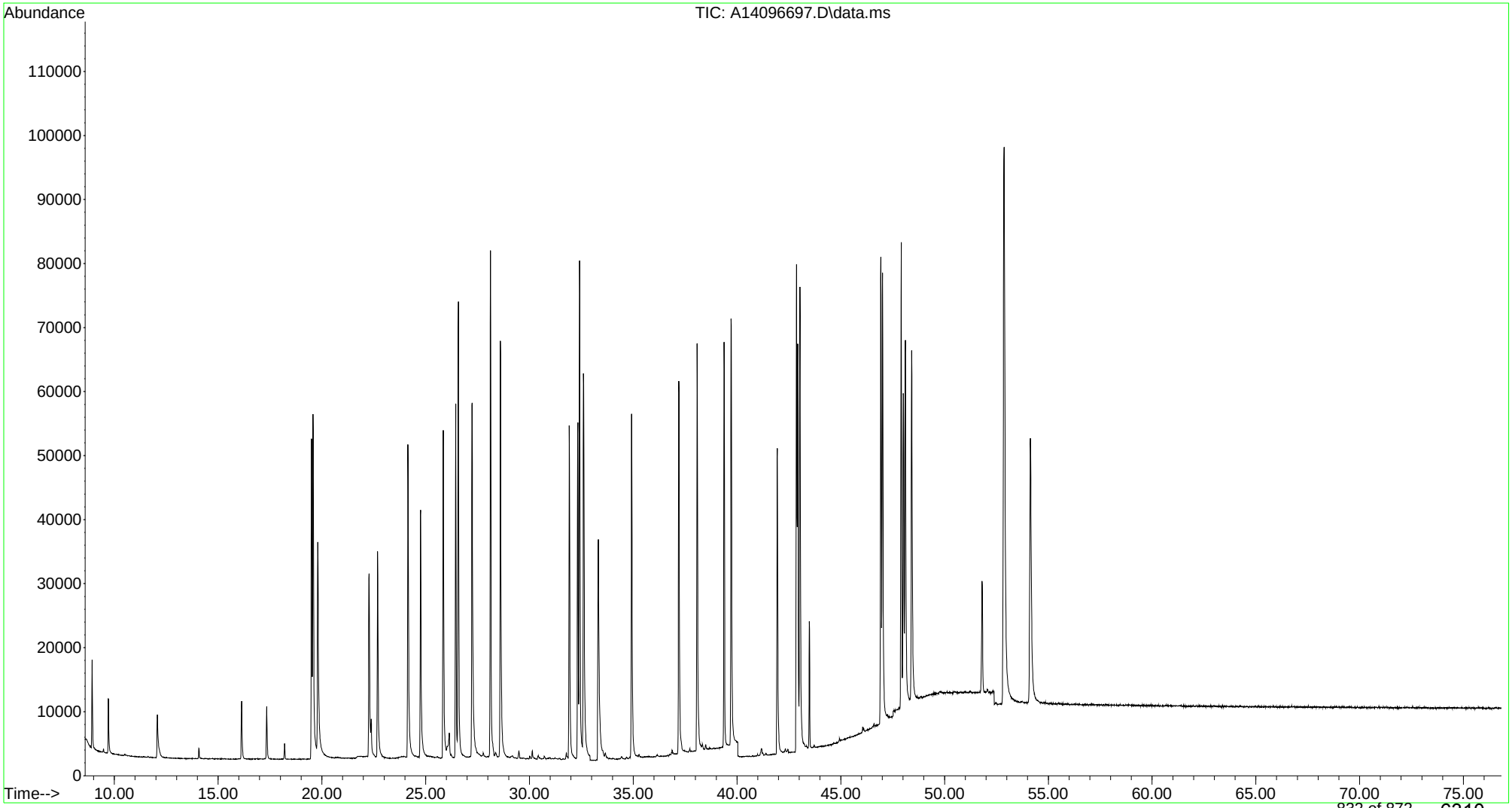
(#) = qualifier out of range (m) = manual integration (+) = signals summed

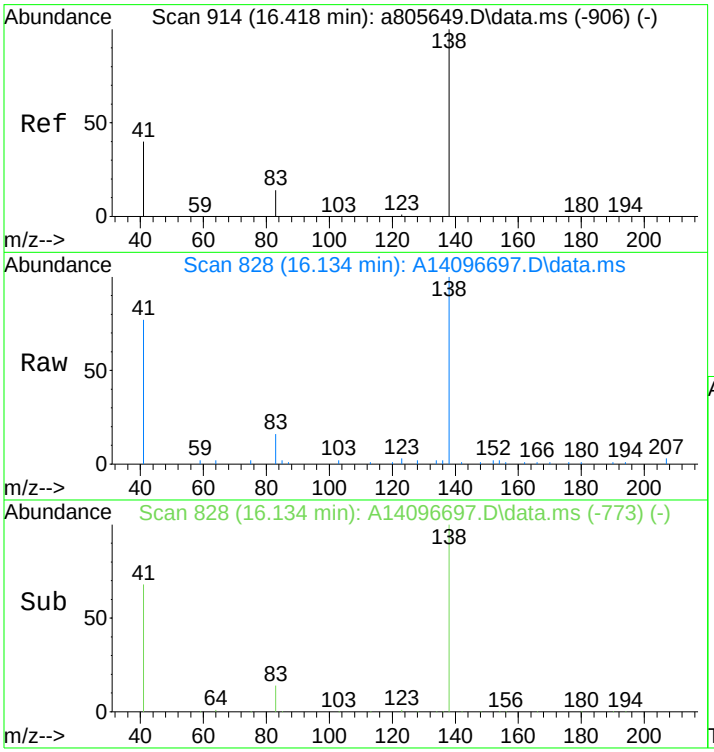
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096697.D
Acq On : 21 Jun 2012 6:55 am
Operator : AC
Sample : C1406191205
Misc : CC WHAP67 500UG/ML
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 11:30:53 2012
Quant Method : C:\MSDCHEM\1\DATA\PAH14\2012\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Sat May 19 13:46:55 2012
Response via : Initial Calibration

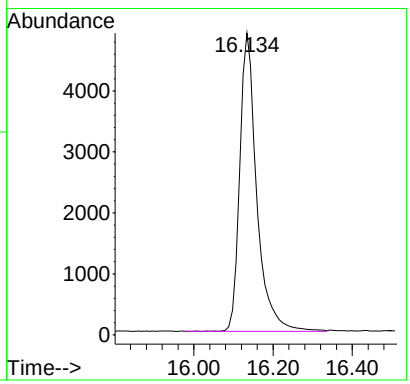
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

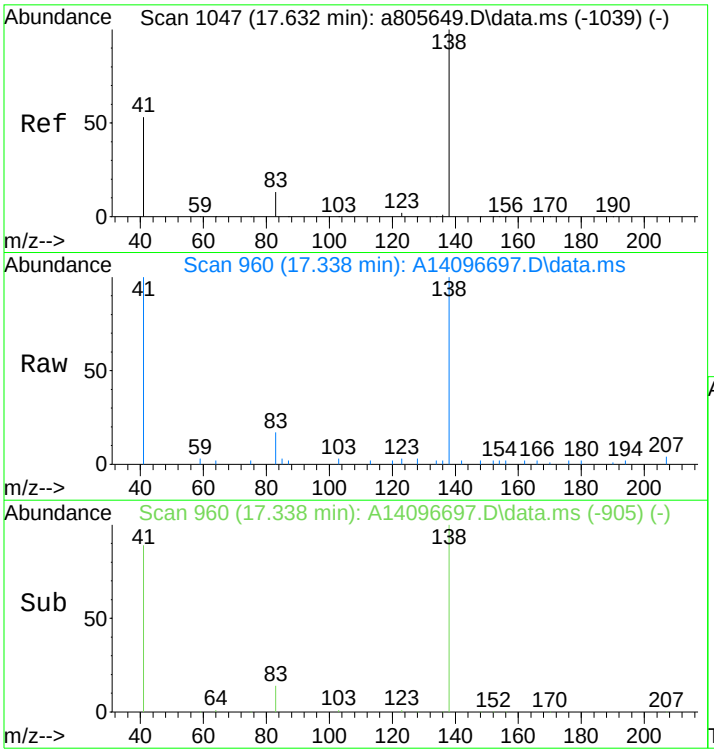




#3
trans-Decalin
Concen: 251.72 ng/mL
RT: 16.134 min Scan# 828
Delta R.T. -0.000 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

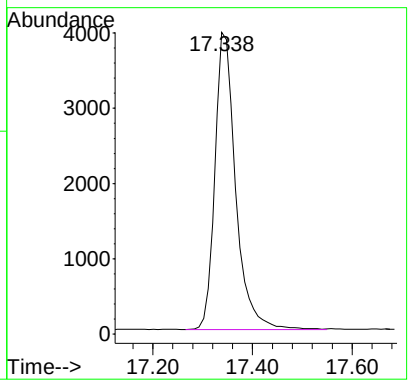
Tgt Ion:138 Resp: 14578

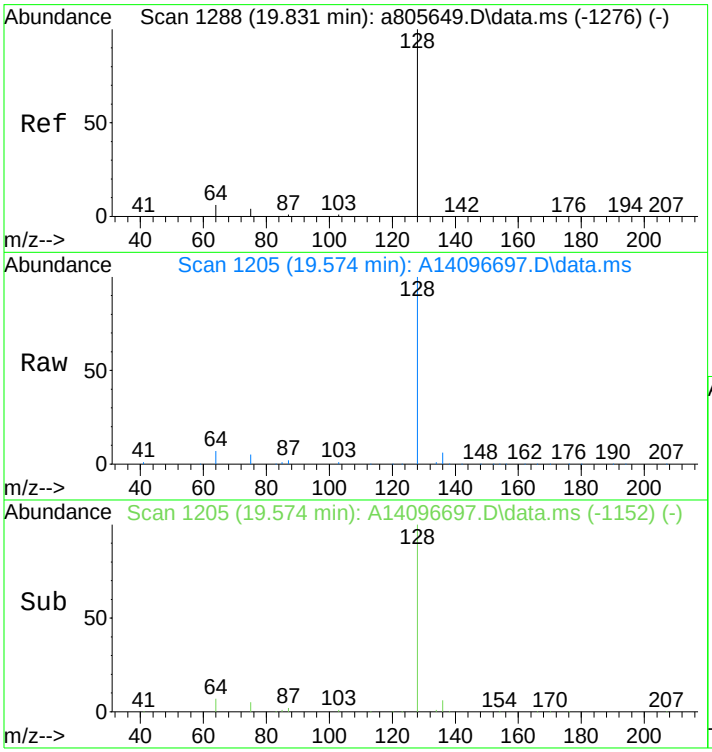




#4
cis-Decalin
Concen: 254.97 ng/mL
RT: 17.338 min Scan# 960
Delta R.T. -0.000 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:138 Resp: 11389

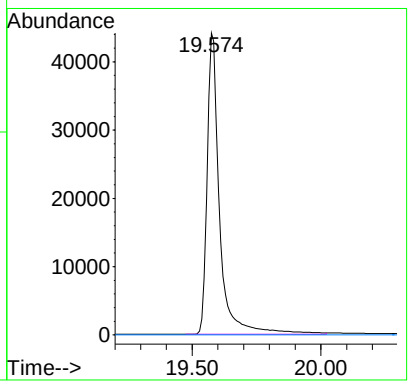


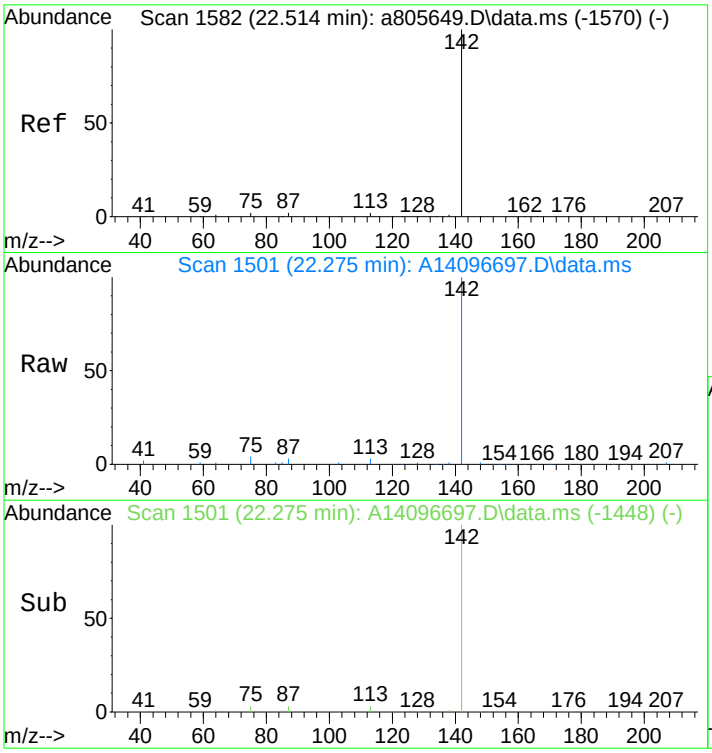


#10
Naphthalene
Concen: 530.31 ng/mL
RT: 19.574 min Scan# 1205
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:128 Resp: 148015

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

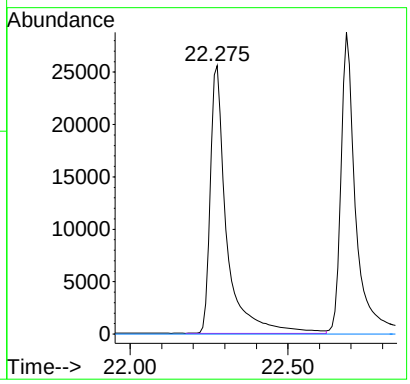


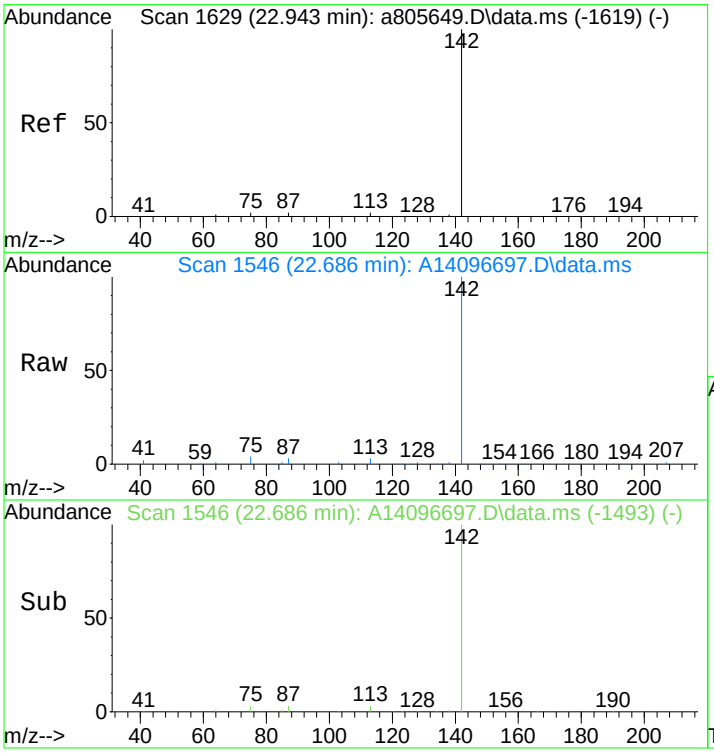


#16
2-Methylnaphthalene
Concen: 504.08 ng/mL
RT: 22.275 min Scan# 1501
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:142 Resp: 92577

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

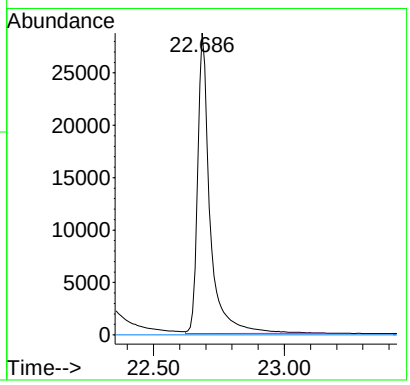


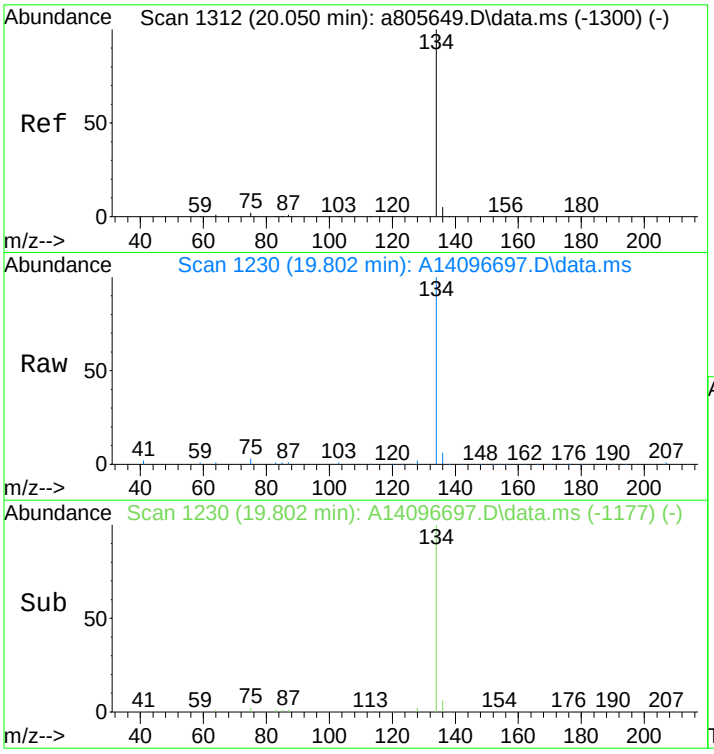


#17
1-Methylnaphthalene
Concen: 522.57 ng/mL
RT: 22.686 min Scan# 1546
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:142 Resp: 94210

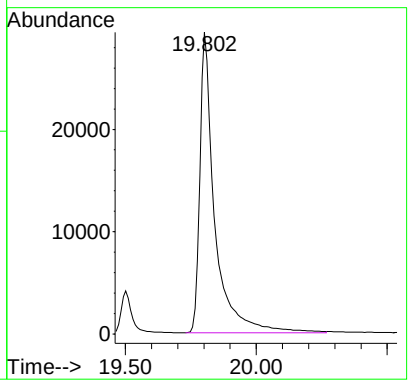
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

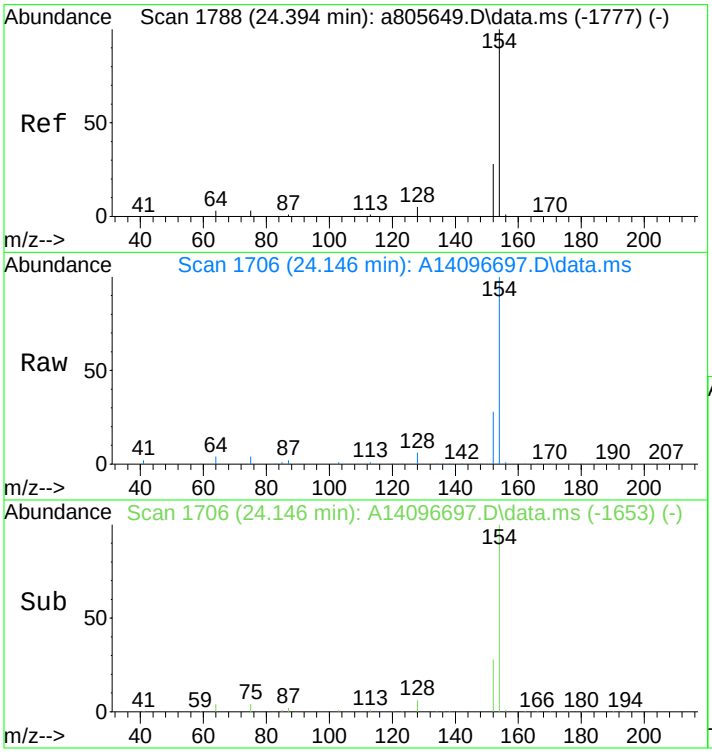




#18
Benzothiophene
Concen: 544.27 ng/mL
RT: 19.802 min Scan# 1230
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:134 Resp: 117157

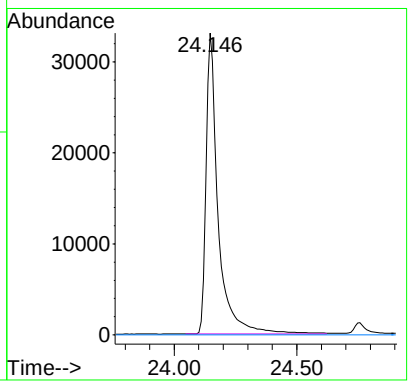


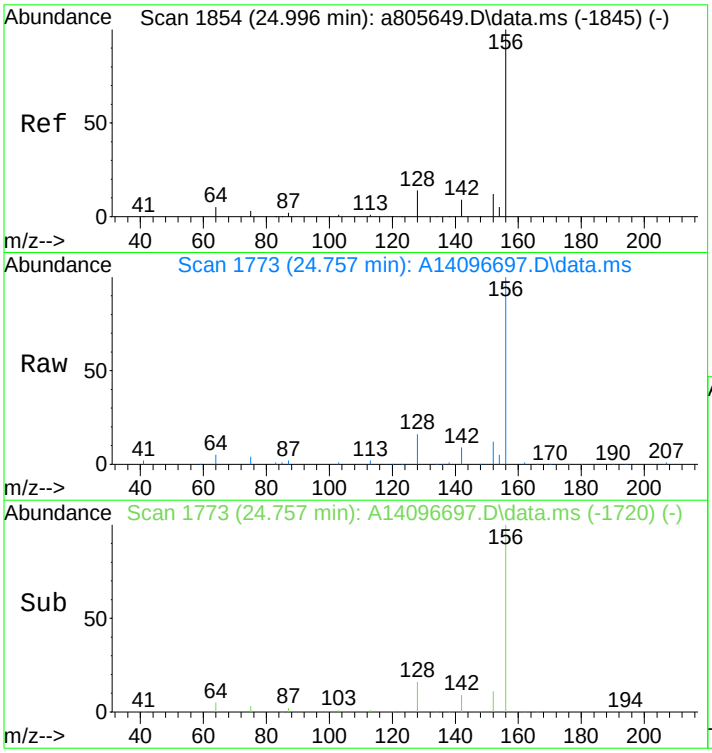


#23
Biphenyl
Concen: 504.32 ng/mL
RT: 24.146 min Scan# 1706
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:154 Resp: 113377

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

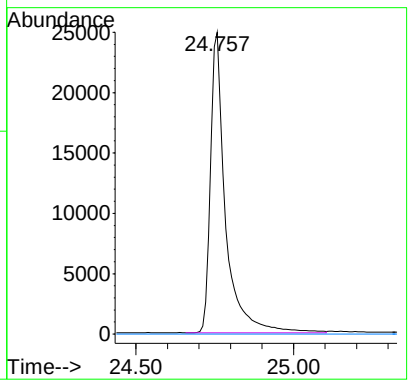


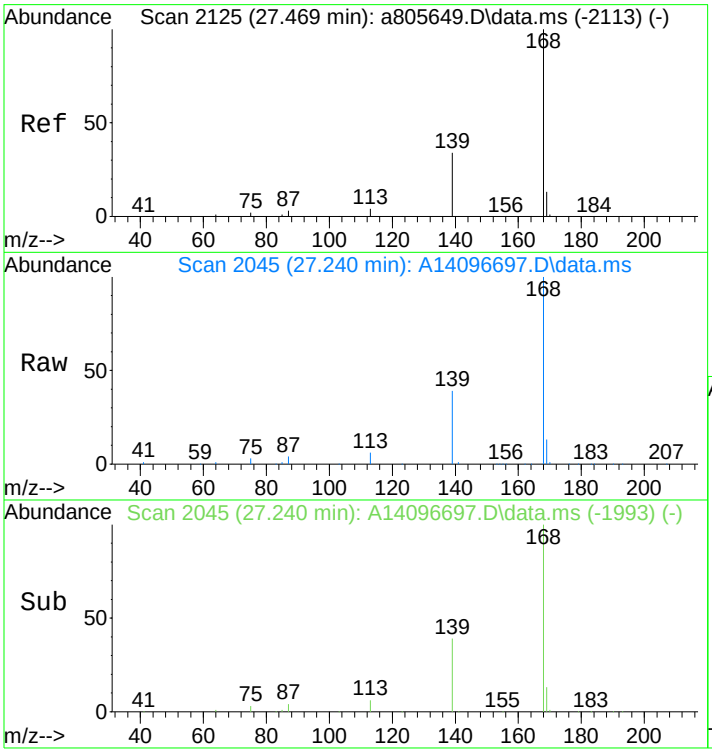


#24
2,6-Dimethylnaphthalene
Concen: 502.55 ng/mL
RT: 24.757 min Scan# 1773
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:156 Resp: 82563

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

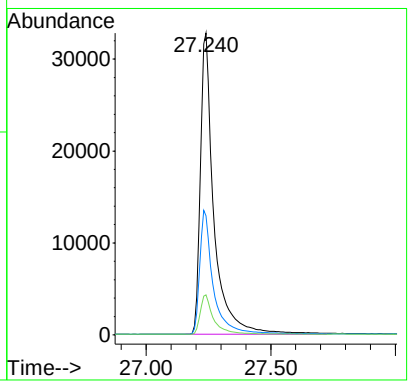


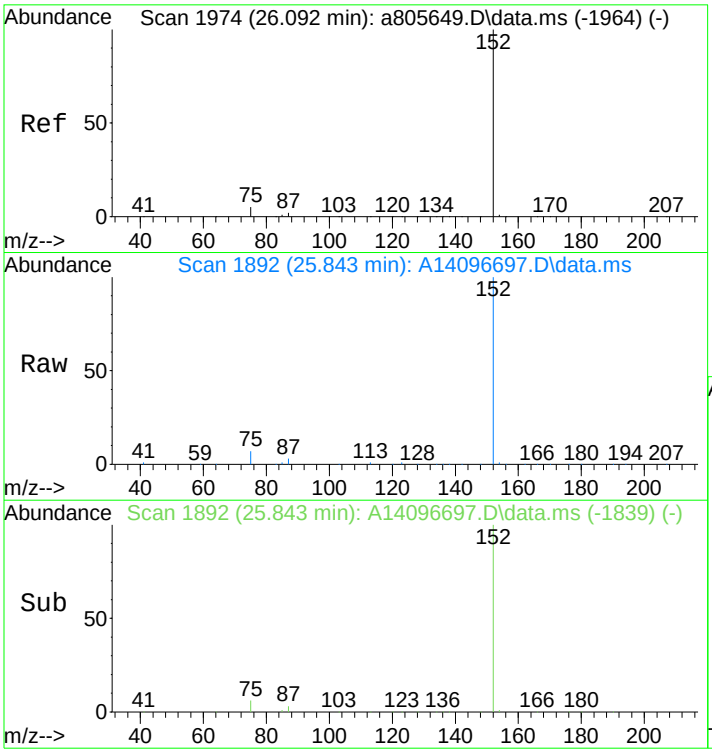


#25
Dibenzofuran
Concen: 523.57 ng/mL
RT: 27.240 min Scan# 2045
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:168 Resp: 124437

Ion	Ratio	Lower	Upper
168	100		
139	40.6	34.0	51.0
169	12.9	10.9	16.3

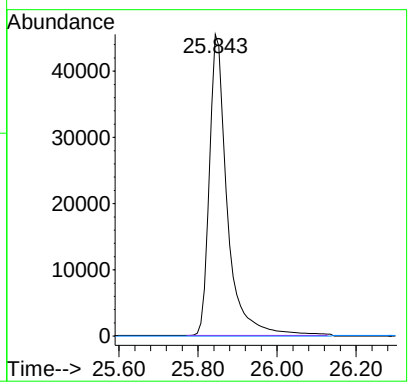


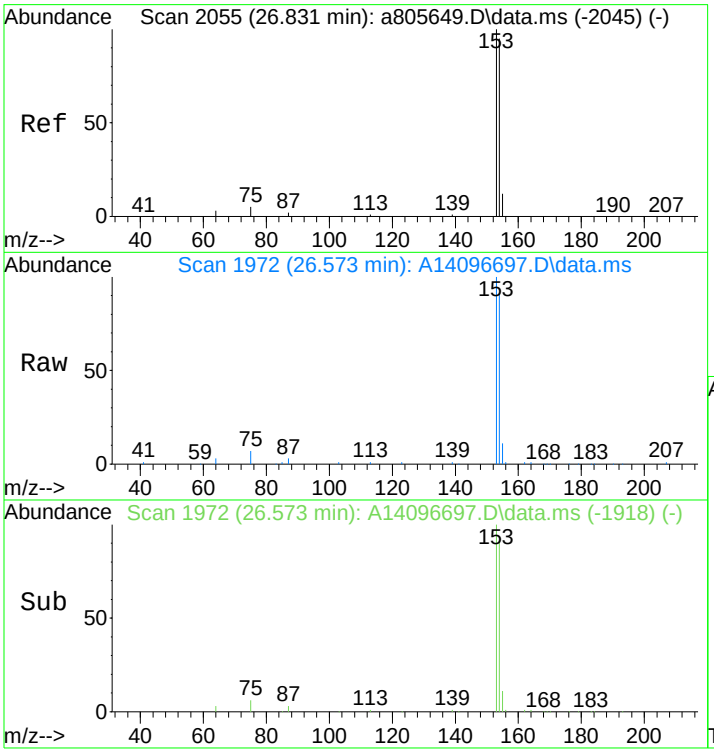


#26
Acenaphthylene
Concen: 493.54 ng/mL m
RT: 25.843 min Scan# 1892
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:152 Resp: 143298

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

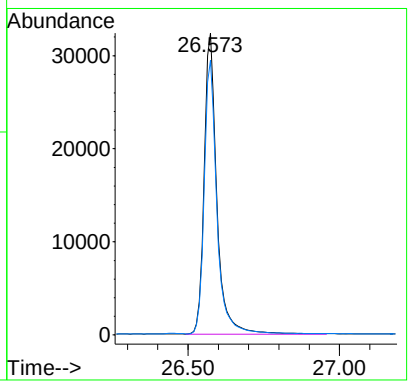


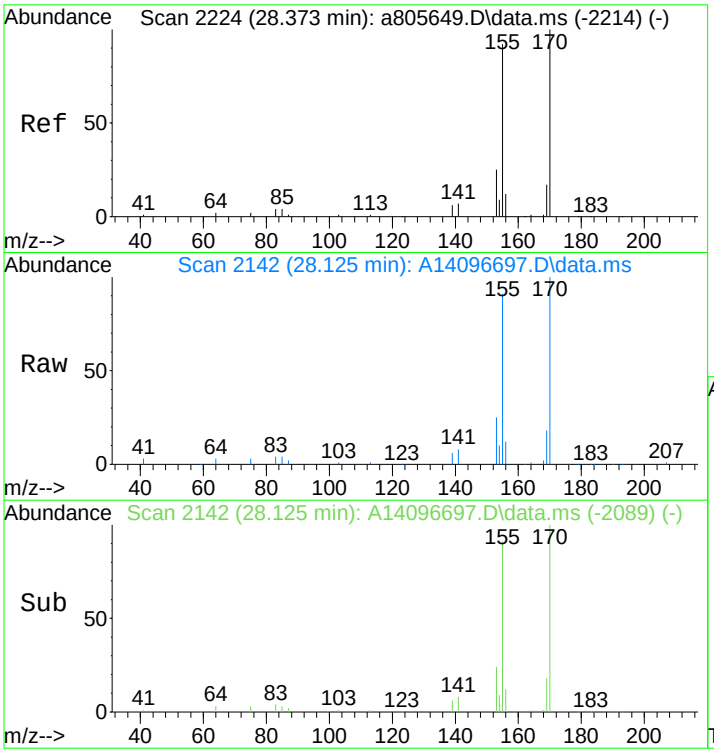


#27
Acenaphthene
Concen: 523.53 ng/mL
RT: 26.573 min Scan# 1972
Delta R.T. -0.009 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:153 Resp: 93945

Ion	Ratio	Lower	Upper
153	100		
154	90.9	72.8	109.2

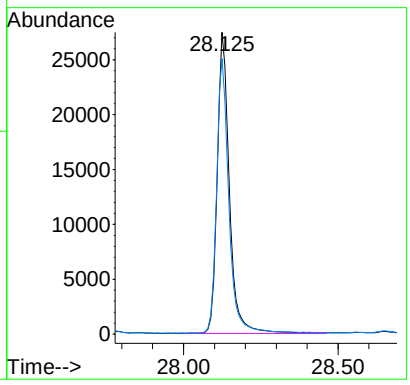


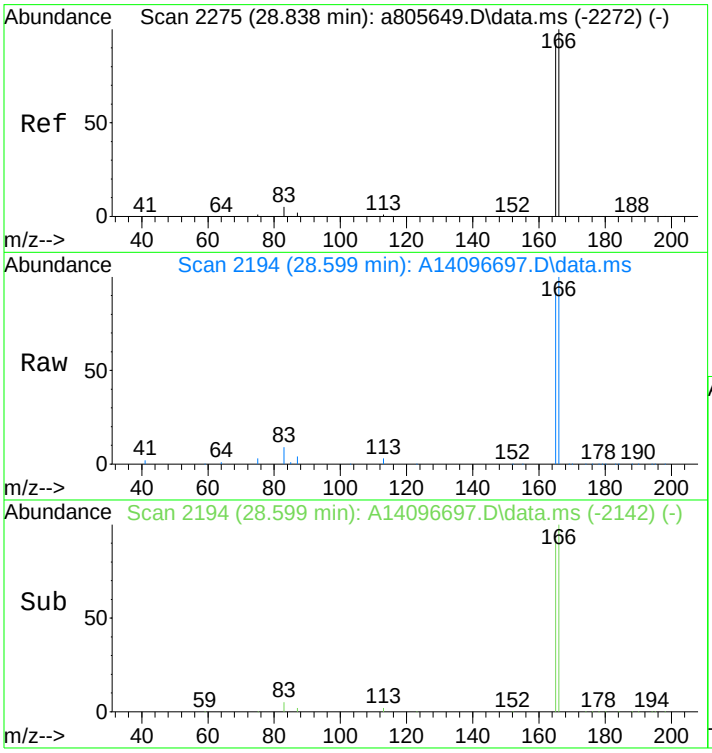


#28
2,3,5-Trimethylnaphthalene
Concen: 503.83 ng/mL
RT: 28.125 min Scan# 2142
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:170 Resp: 75073

Ion	Ratio	Lower	Upper
170	100		
155	91.9	73.5	110.3

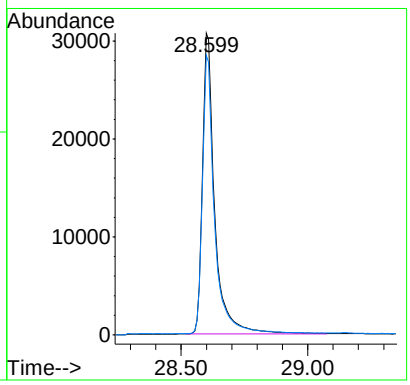


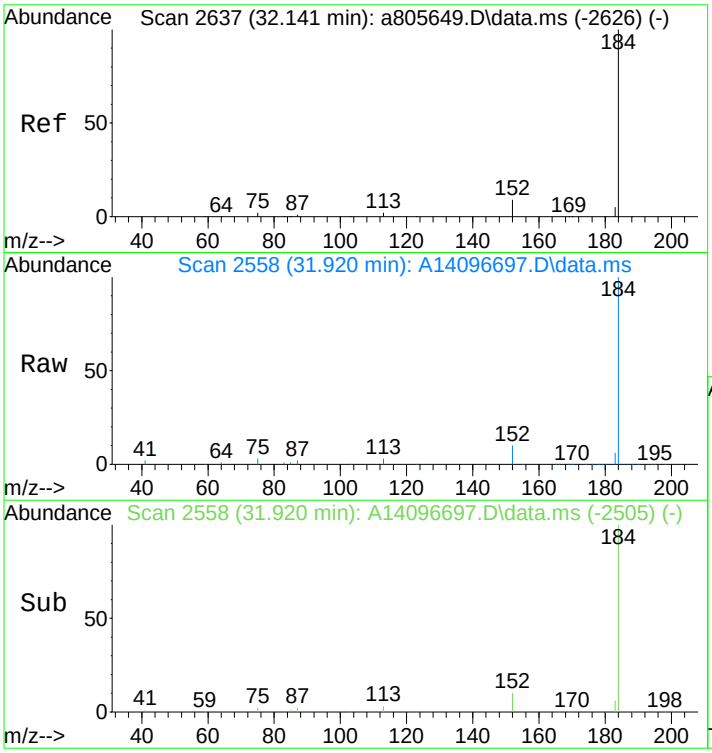


#29
Fluorene
Concen: 516.84 ng/mL
RT: 28.599 min Scan# 2194
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:166 Resp: 103284

Ion	Ratio	Lower	Upper
166	100		
165	91.4	73.2	109.8

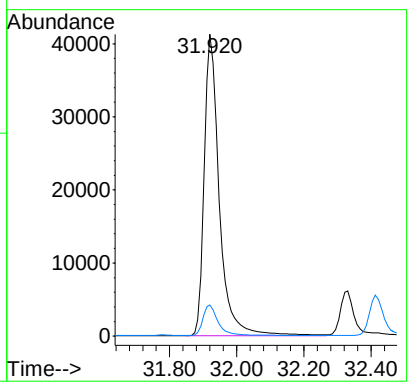


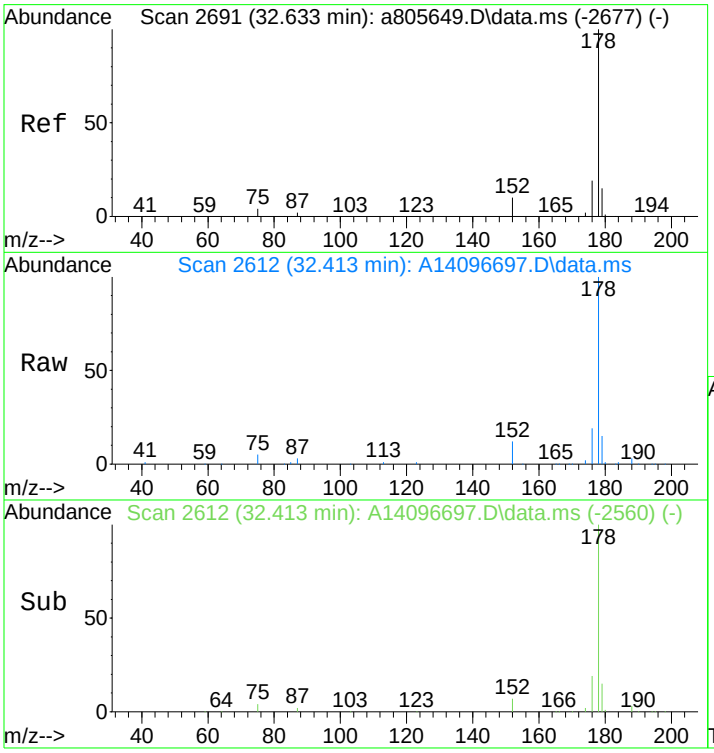


#33
Dibenzothiophene
Concen: 495.49 ng/mL
RT: 31.920 min Scan# 2558
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:184 Resp: 128599

Ion	Ratio	Lower	Upper
184	100		
152	10.1	8.8	13.2

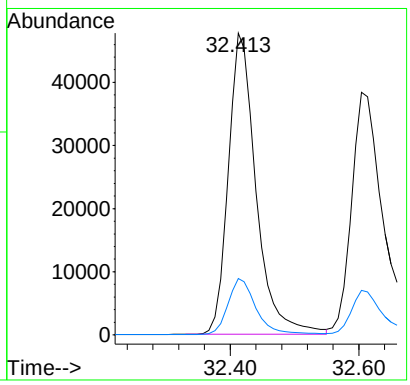


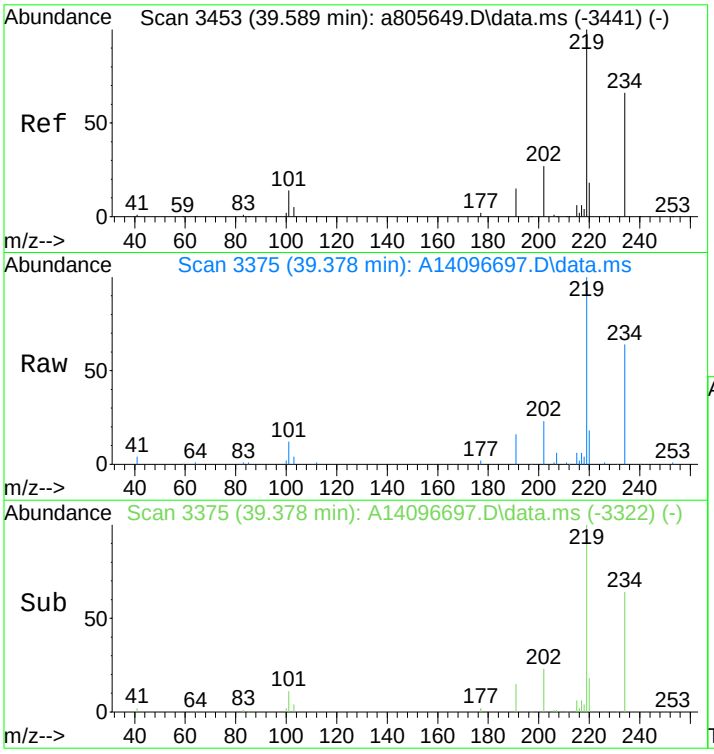


#43
Phenanthrene
Concen: 519.52 ng/mL
RT: 32.413 min Scan# 2612
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:178 Resp: 143179

Ion	Ratio	Lower	Upper
178	100		
176	18.6	14.8	22.2

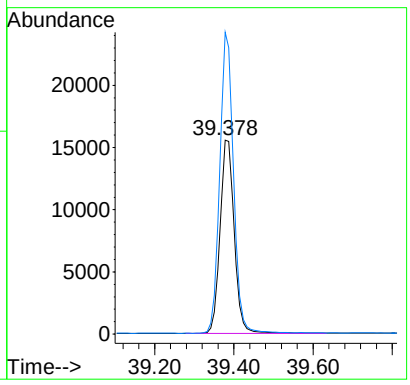


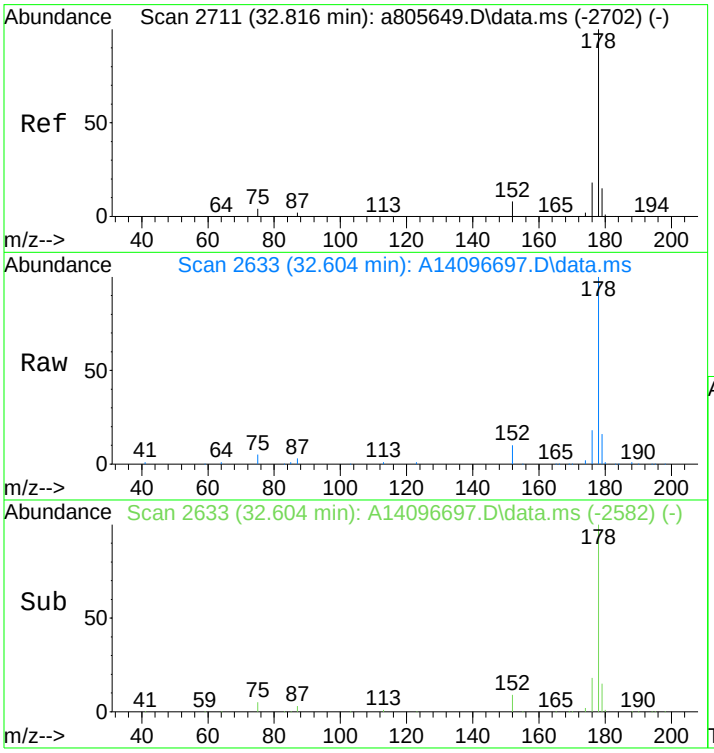


#54
Retene
Concen: 445.85 ng/mL
RT: 39.378 min Scan# 3375
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:234 Resp: 38476

Ion	Ratio	Lower	Upper
234	100		
219	151.8	119.3	178.9

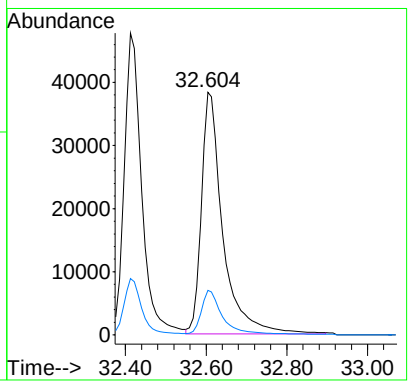


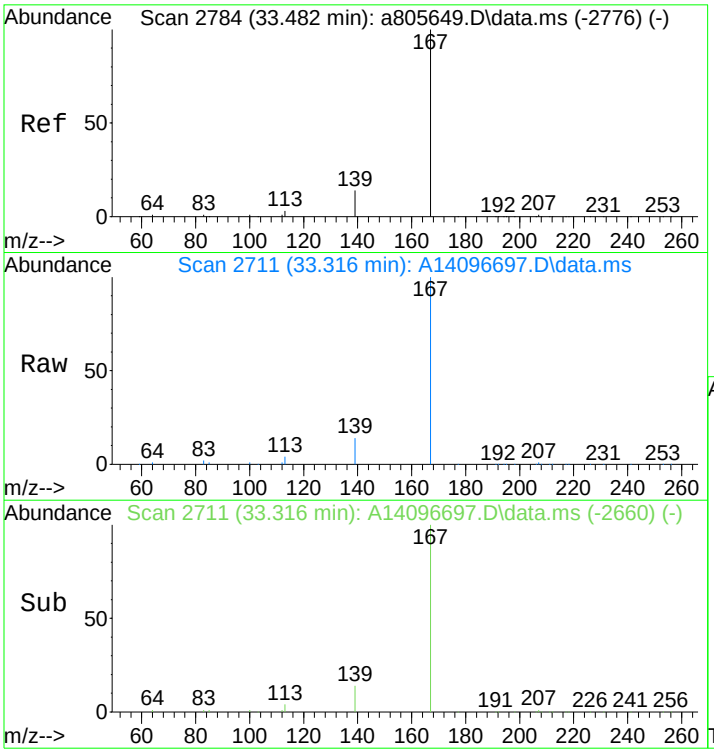


#55
Anthracene
Concen: 512.05 ng/mL m
RT: 32.604 min Scan# 2633
Delta R.T. -0.037 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:178 Resp: 140401

Ion	Ratio	Lower	Upper
178	100		
176	19.4	14.3	21.5

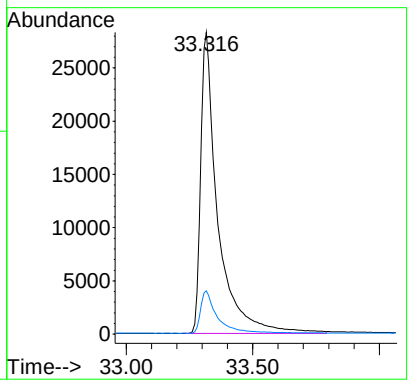


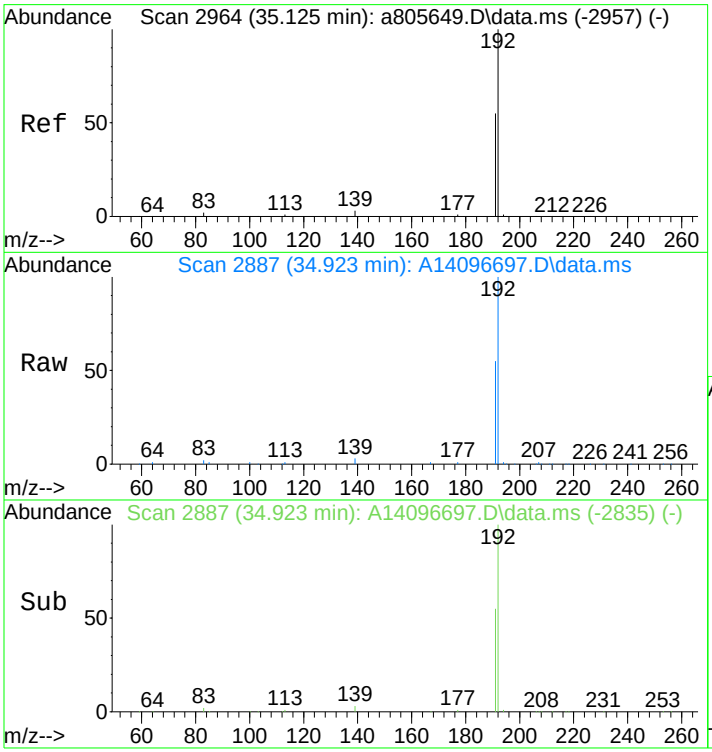


#56
Carbazole
Concen: 519.19 ng/mL
RT: 33.316 min Scan# 2711
Delta R.T. -0.037 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:167 Resp: 132760

Ion	Ratio	Lower	Upper
167	100		
139	14.0	11.8	17.8

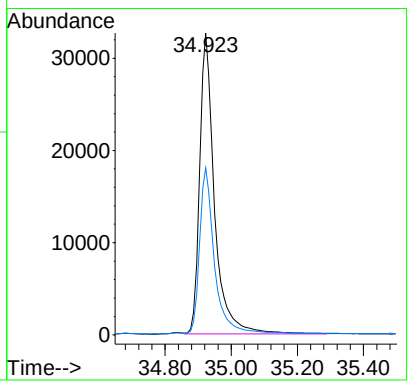


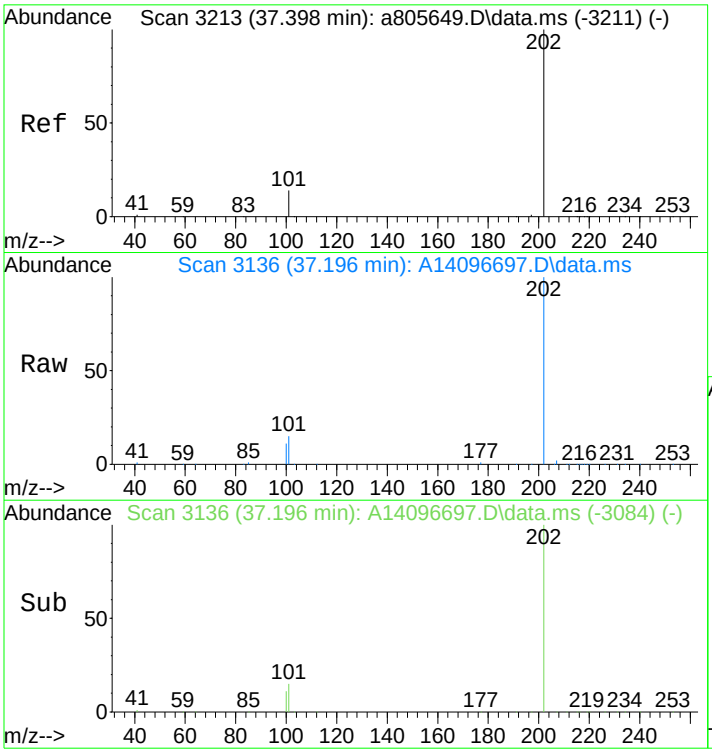


#57
1-Methylphenanthrene
Concen: 493.65 ng/mL m
RT: 34.923 min Scan# 2887
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:192 Resp: 102059

Ion	Ratio	Lower	Upper
192	100		
191	54.6	45.0	67.4

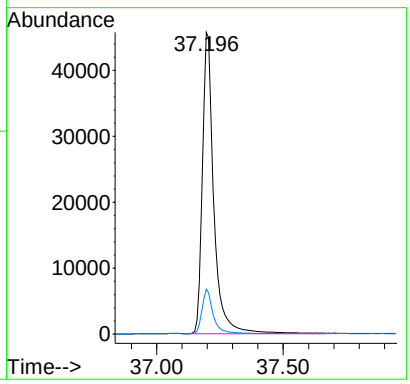


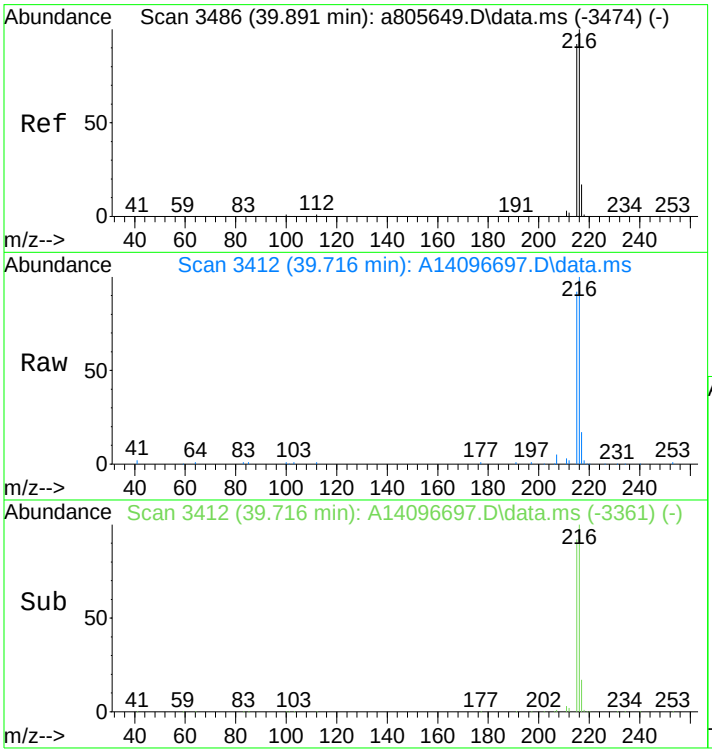


#58
Fluoranthene
Concen: 511.78 ng/mL
RT: 37.196 min Scan# 3136
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:202 Resp: 143897

Ion	Ratio	Lower	Upper
202	100		
101	14.4	11.8	17.8

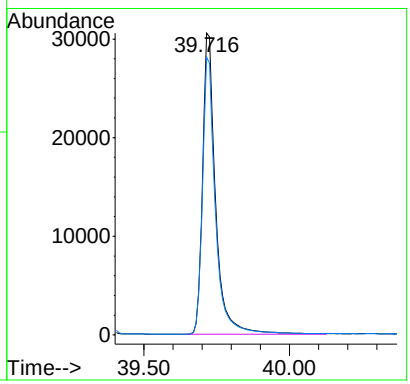


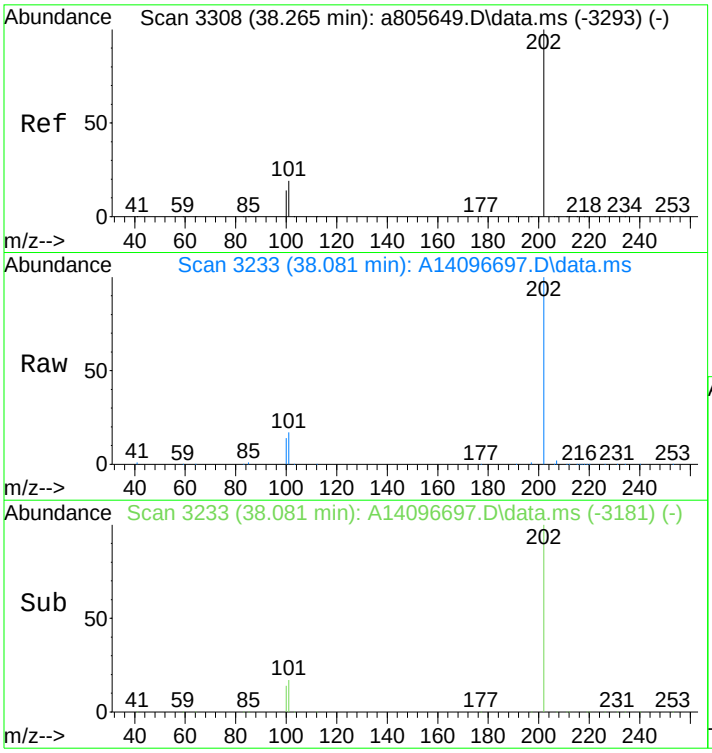


#59
Benzo(b)fluorene
Concen: 506.30 ng/mL
RT: 39.716 min Scan# 3412
Delta R.T. -0.037 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:216 Resp: 94870

Ion	Ratio	Lower	Upper
216	100		
215	91.5	73.0	109.4

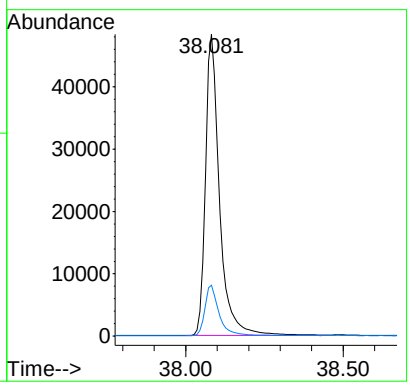


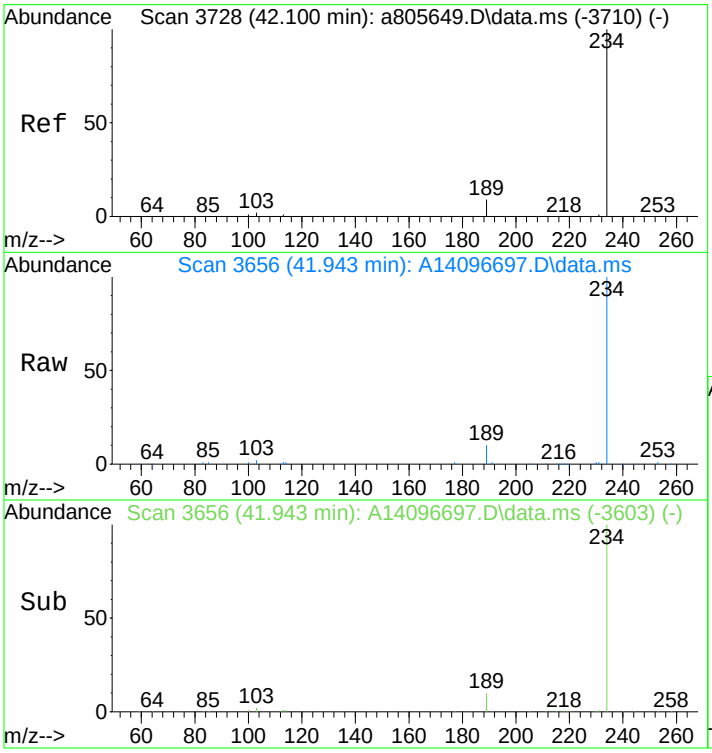


#60
Pyrene
Concen: 511.61 ng/mL
RT: 38.081 min Scan# 3233
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:202 Resp: 149511

Ion	Ratio	Lower	Upper
202	100		
101	17.0	13.8	20.6

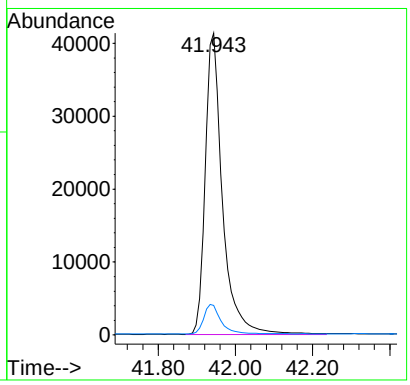


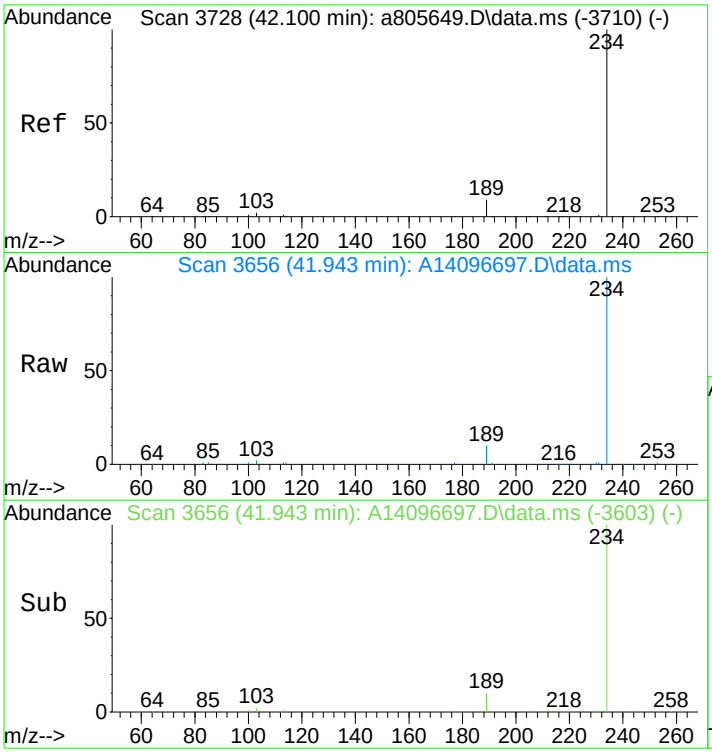


#66
Naphthobenzothiophene
Concen: 506.39 ng/ml
RT: 41.943 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:234 Resp: 128307

Ion	Ratio	Lower	Upper
234	100		
189	9.9	29.1	43.7#

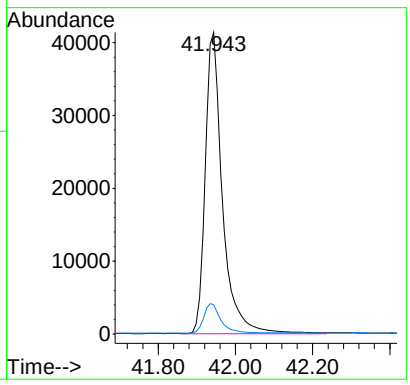


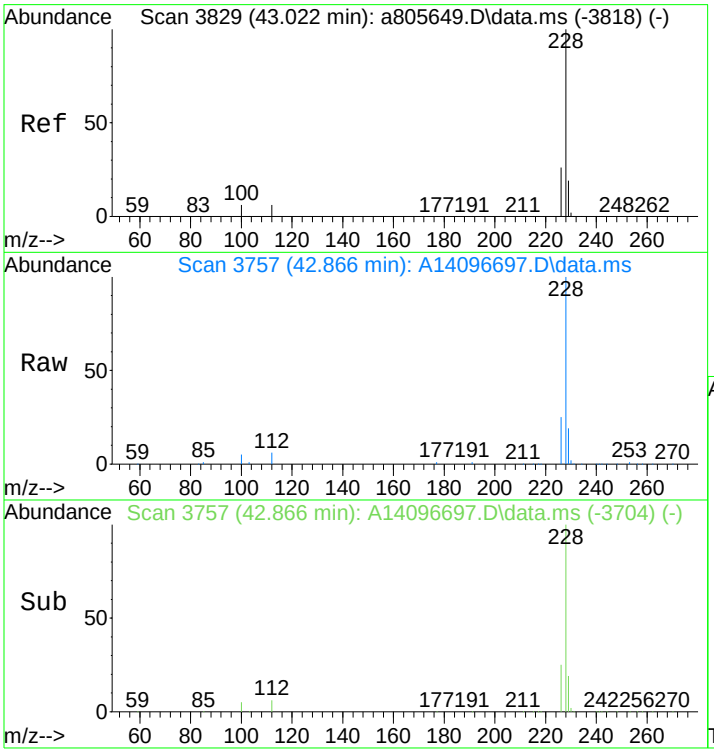


#67
Naphthobenzothiophene-2,1-D
Concen: 506.39 ng/mL
RT: 41.943 min Scan# 3656
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:234 Resp: 128307

Ion	Ratio	Lower	Upper
234	100		
189	9.9	29.1	43.7#

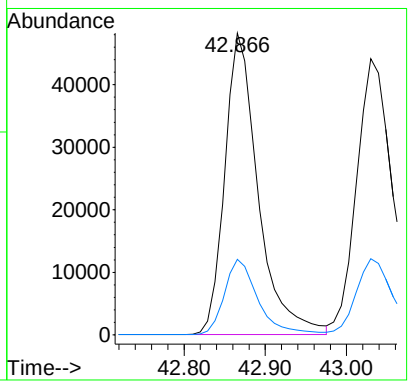


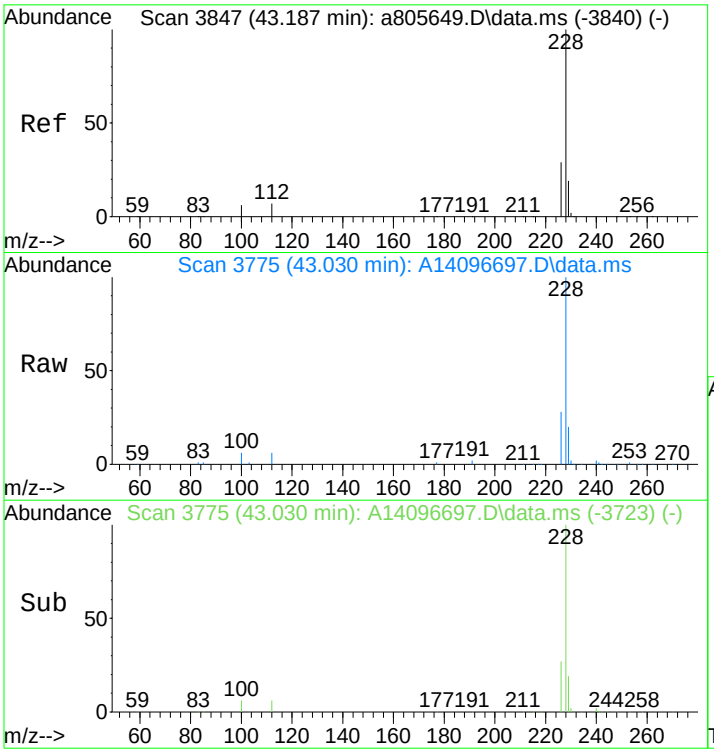


#75
Benz[a]anthracene
Concen: 485.67 ng/mL
RT: 42.866 min Scan# 3757
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:228 Resp: 137635

Ion	Ratio	Lower	Upper
228	100		
226	24.9	20.3	30.5

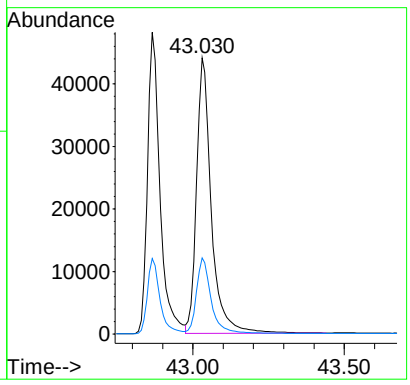


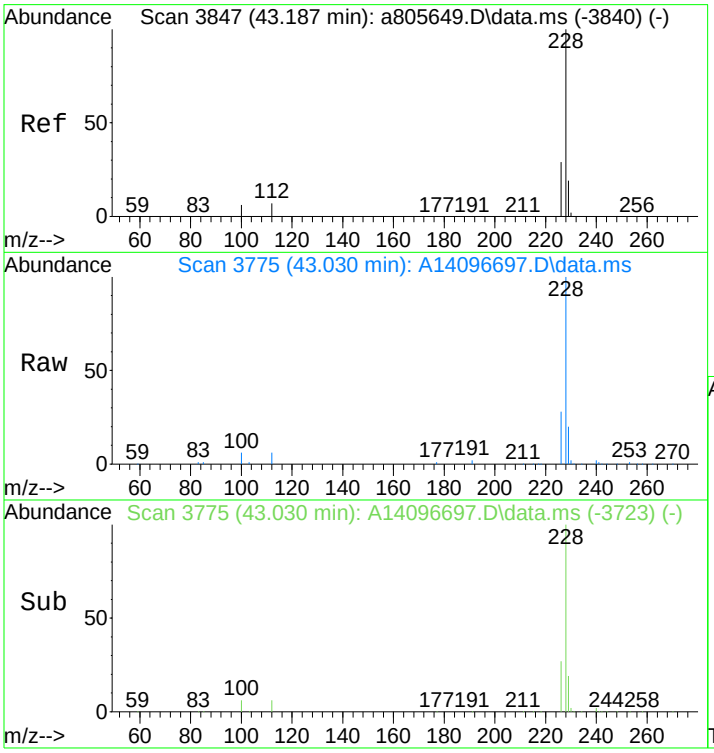


#76
Chrysene
Concen: 531.84 ng/mL
RT: 43.030 min Scan# 3775
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:228 Resp: 148810

Ion	Ratio	Lower	Upper
228	100		
226	27.3	22.2	33.2

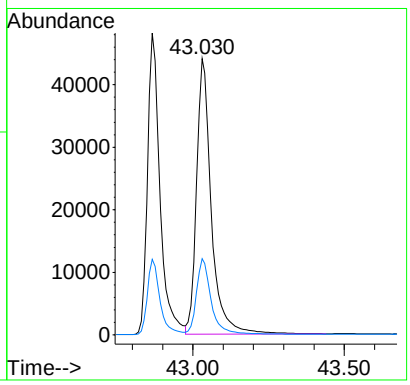


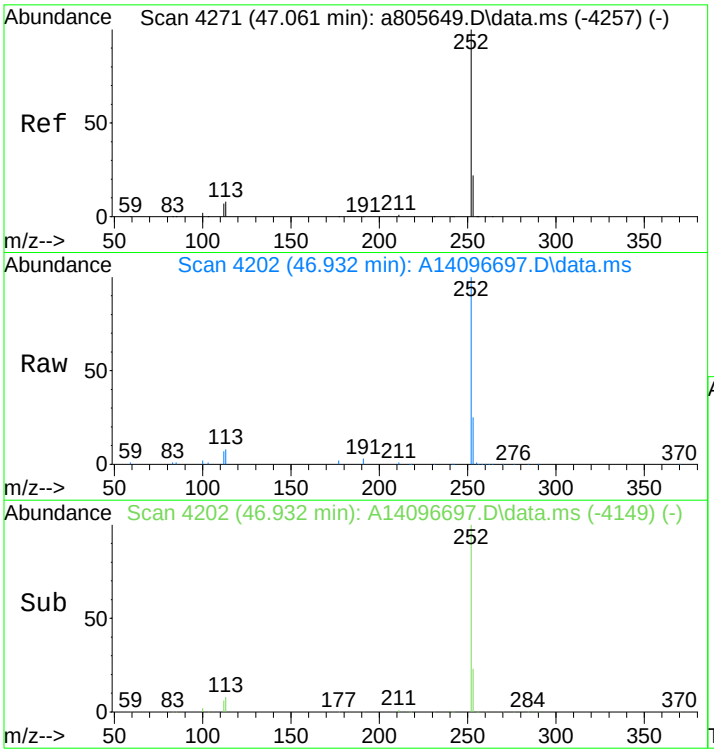


#77
Chrysene/Triphenylene
Concen: 531.84 ng/mL
RT: 43.030 min Scan# 3775
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:228 Resp: 148810

Ion	Ratio	Lower	Upper
228	100		
226	27.3	22.2	33.2

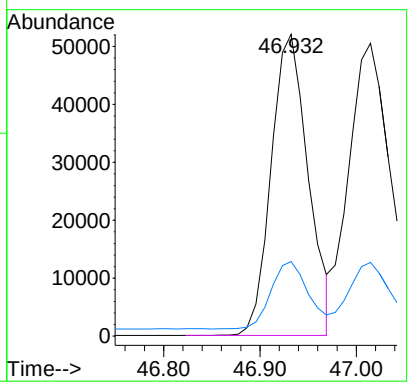


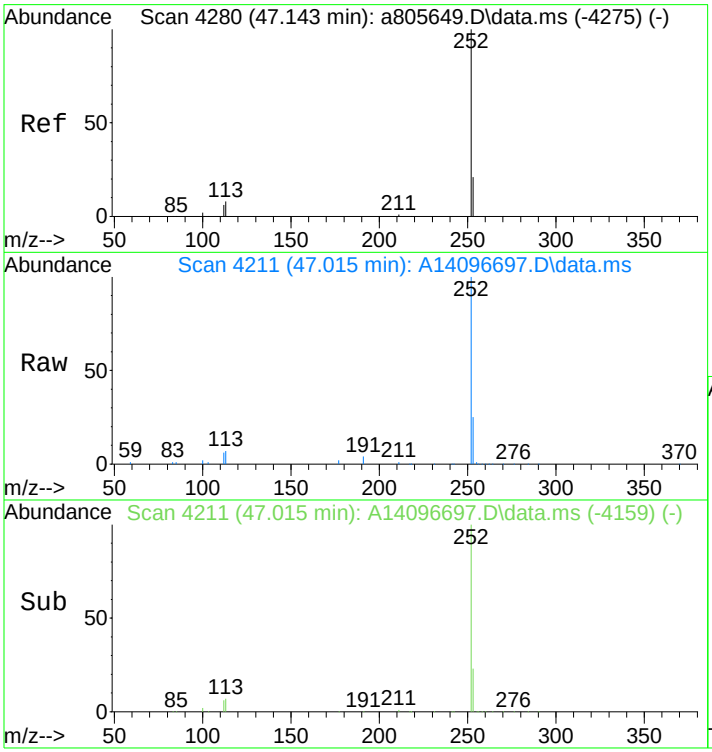


#82
Benzo[b]fluoranthene
Concen: 495.23 ng/mL
RT: 46.932 min Scan# 4202
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:252 Resp: 138806

Ion	Ratio	Lower	Upper
252	100		
253	22.6	19.9	29.9

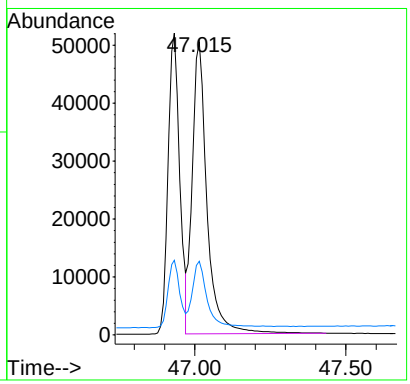


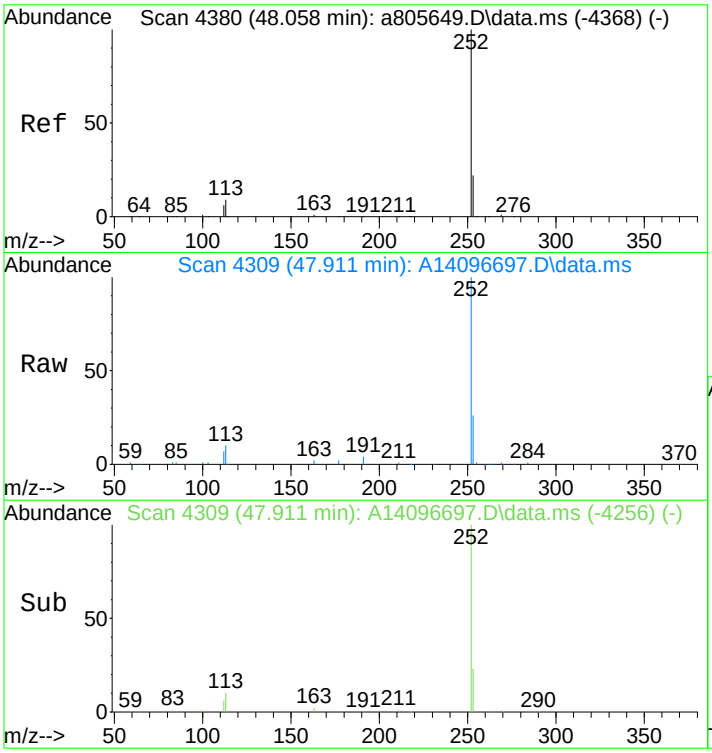


#83
Benzo[j]+[k]fluoranthene
Concen: 552.18 ng/mL
RT: 47.015 min Scan# 4211
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:252 Resp: 170941

Ion	Ratio	Lower	Upper
252	100		
253	21.8	20.1	30.1

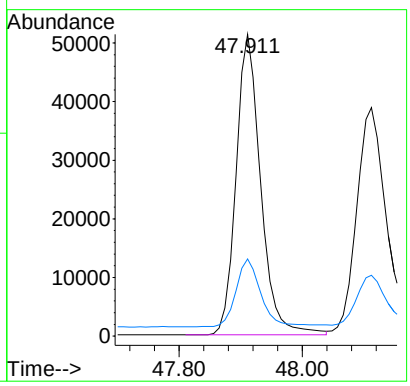


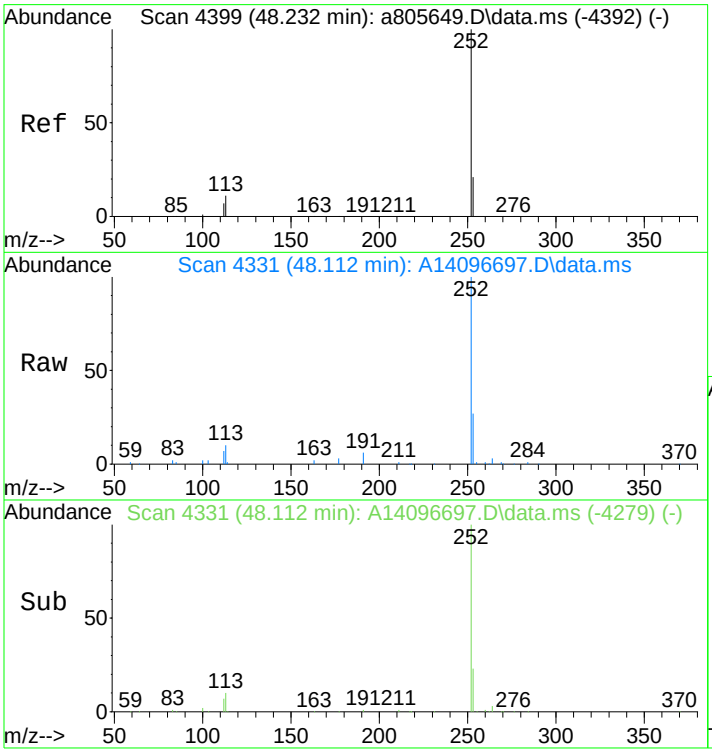


#85
Benzo[e]pyrene
Concen: 511.59 ng/mL
RT: 47.911 min Scan# 4309
Delta R.T. -0.018 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:252 Resp: 142169

Ion	Ratio	Lower	Upper
252	100		
253	23.0	20.1	30.1

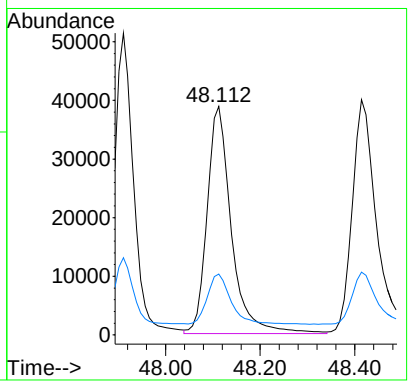


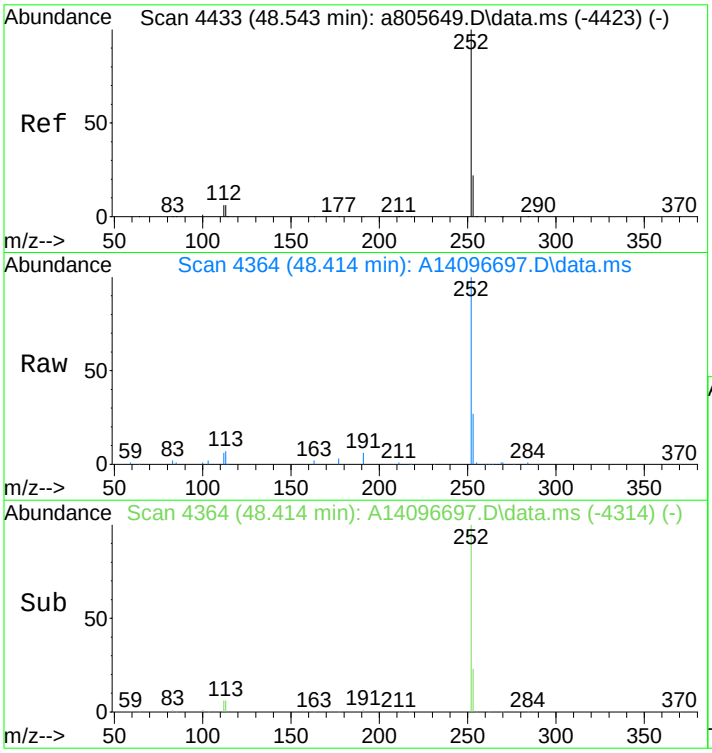


#87
Benzo[a]pyrene
Concen: 530.65 ng/mL m
RT: 48.112 min Scan# 4331
Delta R.T. -0.027 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:252 Resp: 137898

Ion	Ratio	Lower	Upper
252	100		
253	23.7	23.0	34.4

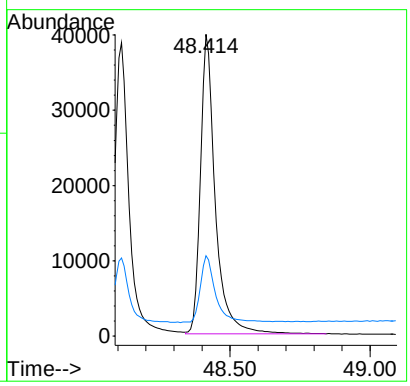


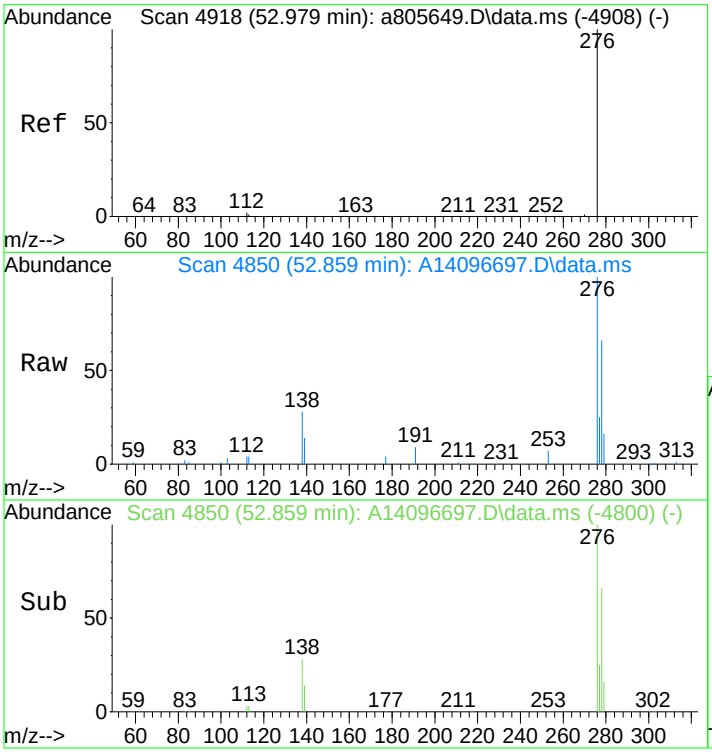


#88
Perylene
Concen: 519.24 ng/mL
RT: 48.414 min Scan# 4364
Delta R.T. -0.046 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:252 Resp: 146288

Ion	Ratio	Lower	Upper
252	100		
253	23.3	23.3	34.9

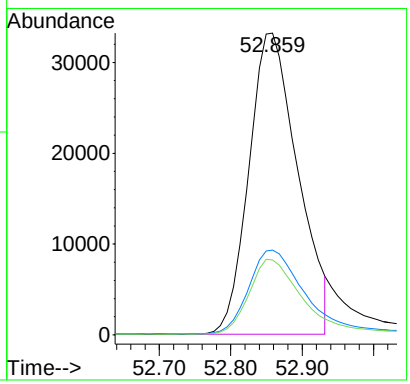


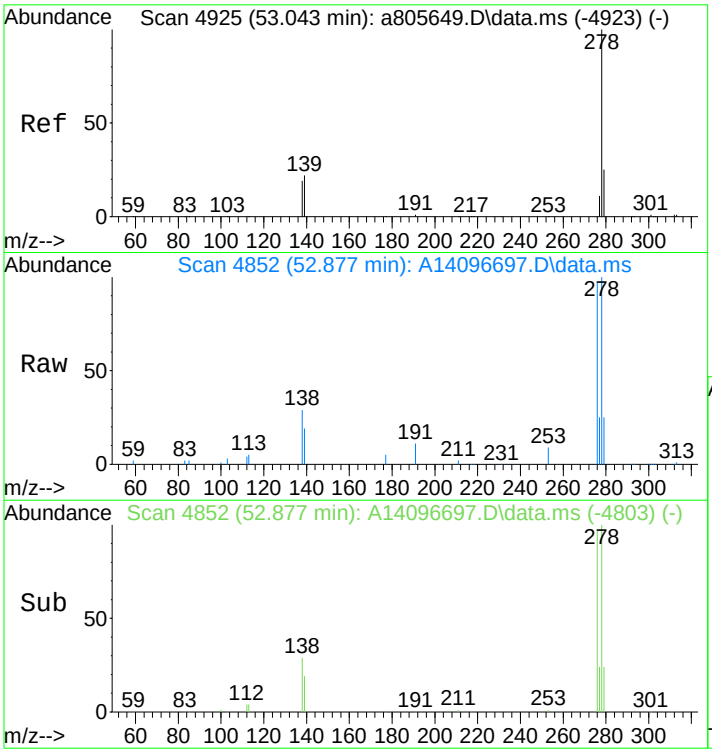


#89
Indeno[1,2,3-cd]pyrene
Concen: 485.27 ng/mL m
RT: 52.859 min Scan# 4850
Delta R.T. -0.046 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:276 Resp: 157741

Ion	Ratio	Lower	Upper
276	100		
138	33.8	23.2	34.8
277	28.5	19.8	29.8

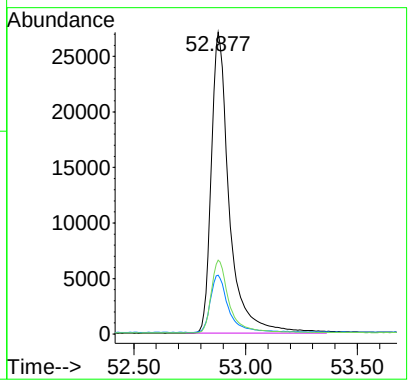


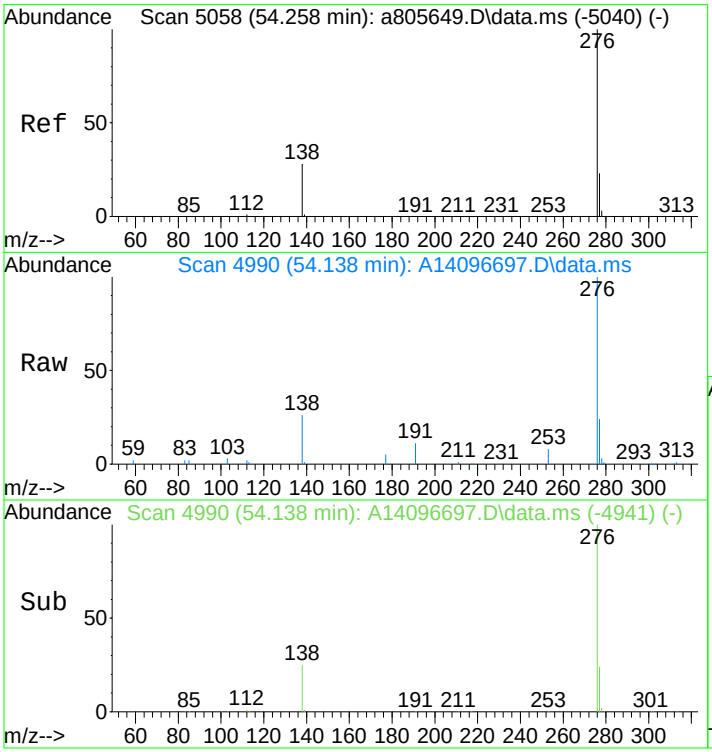


#90
Dibenz[ah]+[ac]anthracene
Concen: 500.23 ng/mL
RT: 52.877 min Scan# 4852
Delta R.T. -0.055 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:278 Resp: 152790

Ion	Ratio	Lower	Upper
278	100		
139	19.0	16.1	24.1
279	24.3	19.6	29.4

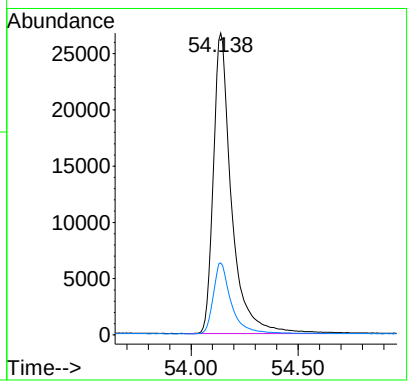


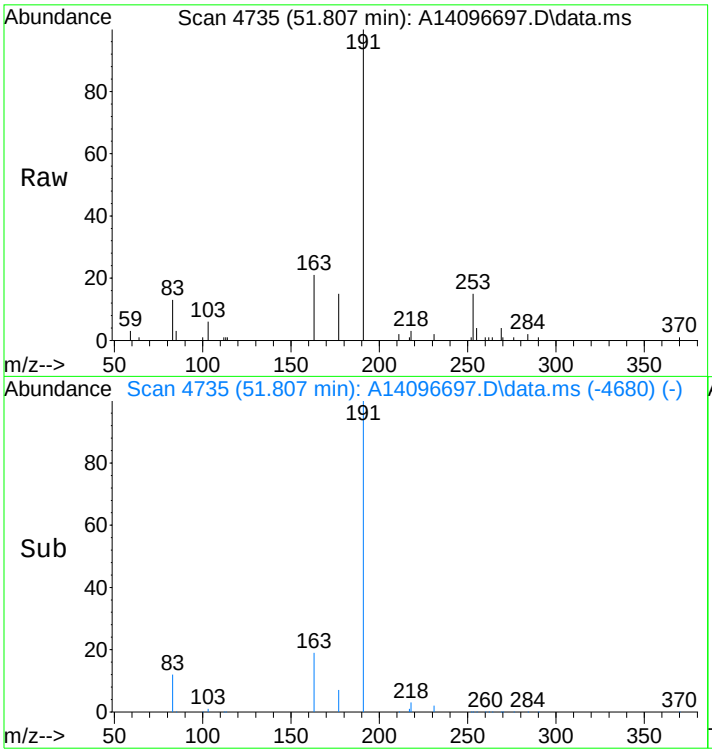


#91
Benzo[g,h,i]perylene
Concen: 505.44 ng/mL
RT: 54.138 min Scan# 4990
Delta R.T. -0.055 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:276 Resp: 157585

Ion	Ratio	Lower	Upper
276	100		
277	23.5	19.0	28.6

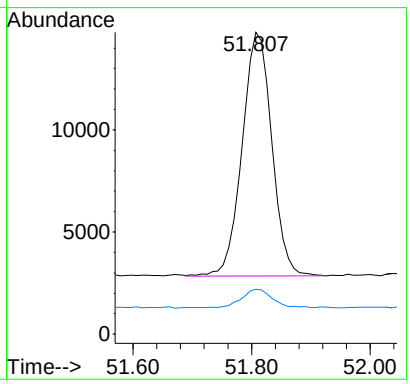


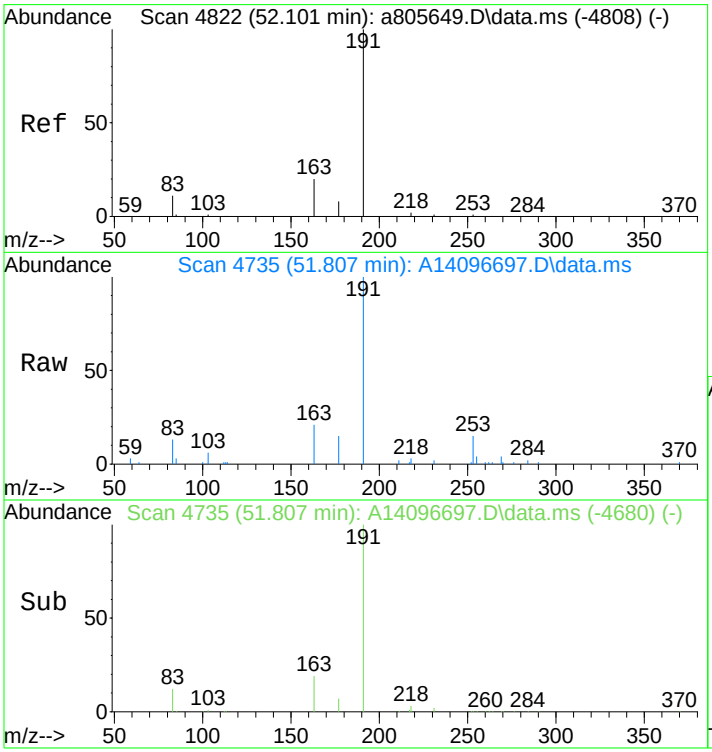


#92
Hopane (T19)
Concen: 446.52 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. -0.000 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:191 Resp: 41324

Ion	Ratio	Lower	Upper
191	100		
177	7.7	12.1	18.1#

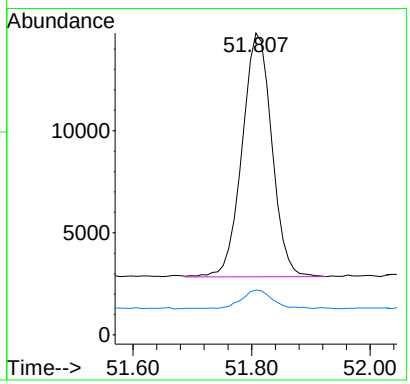




#93
17a(H),21B(H)-hopane - C30H52
Concen: 446.52 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. -0.000 min
Lab File: A14096697.D
Acq: 21 Jun 2012 6:55 am

Tgt Ion:191 Resp: 41324

Ion	Ratio	Lower	Upper
191	100		
177	7.7	12.1	18.1#



Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	26.446	164	69085	500.000	ng/mL	0.00
74) Chrysene-d12	42.930	240	131895	500.000	ng/mL	0.00
System Monitoring Compounds						
9) Naphthalene-d8	19.501	136	118892	484.974	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 48.50%#			
42) Phenanthrene-d10	32.321	188	119439	516.984	ng/mL	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.70%			
86) Benzo[a]pyrene-d12	48.012	264	133407	517.579	ng/mL	-0.02
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.76%			
127) 5B(H)Cholane - Surr	43.487	217	27069	518.467	ng/ml	0.00
Spiked Amount 1000.000	Range 50 - 130		Recovery = 51.85%			
Target Compounds						Qvalue
3) trans-Decalin	16.125	138	13534	243.264	ng/mL	100
4) cis-Decalin	17.338	138	10718	249.778	ng/mL	100
10) Naphthalene	19.574	128	136158	507.809	ng/mL#	100
16) 2-Methylnaphthalene	22.275	142	84827	480.801	ng/mL#	100
17) 1-Methylnaphthalene	22.686	142	87873	507.383	ng/mL#	100
18) Benzothiophene	19.802	134	107808	521.357	ng/mL	100
23) Biphenyl	24.146	154	105628	489.095	ng/mL#	100
24) 2,6-Dimethylnaphthalene	24.758	156	76497	484.700	ng/mL#	100
25) Dibenzofuran	27.240	168	120229	526.583	ng/mL	98
26) Acenaphthylene	25.843	152	133982M3	480.355	ng/mL	
27) Acenaphthene	26.564	153	90568	525.390	ng/mL	100
28) 2,3,5-Trimethylnaphthalen	28.125	170	73979	516.826	ng/mL	95
29) Fluorene	28.608	166	102535	534.114	ng/mL	100
33) Dibenzothiophene	31.920	184	123820	496.624	ng/mL	100
43) Phenanthrene	32.413	178	136920	517.156	ng/mL	99
54) Retene	39.378	234	37774	455.646	ng/mL	96
55) Anthracene	32.613	178	140360M3	532.871	ng/mL	
56) Carbazole	33.316	167	130343	530.616	ng/mL	99
57) 1-Methylphenanthrene	34.923	192	99335	500.159	ng/mL	100
58) Fluoranthene	37.196	202	139239	515.495	ng/mL	100
59) Benzo(b)fluorene	39.716	216	92205	512.231	ng/mL	99
60) Pyrene	38.081	202	144252	513.838	ng/mL	99
66) Naphthobenzothiophene	41.944	234	126956	521.587	ng/ml	100
67) Naphthobenzothiophene-2,1	41.944	234	126956	521.587	ng/mL	100
75) Benz[a]anthracene	42.866	228	134564	466.400	ng/mL	99
76) Chrysene	43.030	228	152990	537.061	ng/mL	100
77) Chrysene/Triphenylene	43.030	228	152990	537.061	ng/mL	100
82) Benzo[b]fluoranthene	46.923	252	143143	501.635	ng/mL	93
83) Benzo[j]+[k]fluoranthene	47.006	252	177958	564.632	ng/mL	91
85) Benzo[e]pyrene	47.911	252	149161	527.214	ng/mL	93
87) Benzo[a]pyrene	48.112	252	141819M3	536.040	ng/mL	
88) Perylene	48.414	252	153485	535.104	ng/mL#	85
89) Indeno[1,2,3-cd]pyrene	52.859	276	162375M3	490.649	ng/mL	
90) Dibenz[ah]+[ac]anthracene	52.877	278	162548	522.721	ng/mL	100
91) Benzo[g,h,i]perylene	54.138	276	166932	525.908	ng/mL	99
92) Hopane (T19)	51.807	191	44254	469.688	ng/mL#	78
93) 17a(H),21B(H)-hopane - C3	51.807	191	44254	469.688	ng/mL#	78

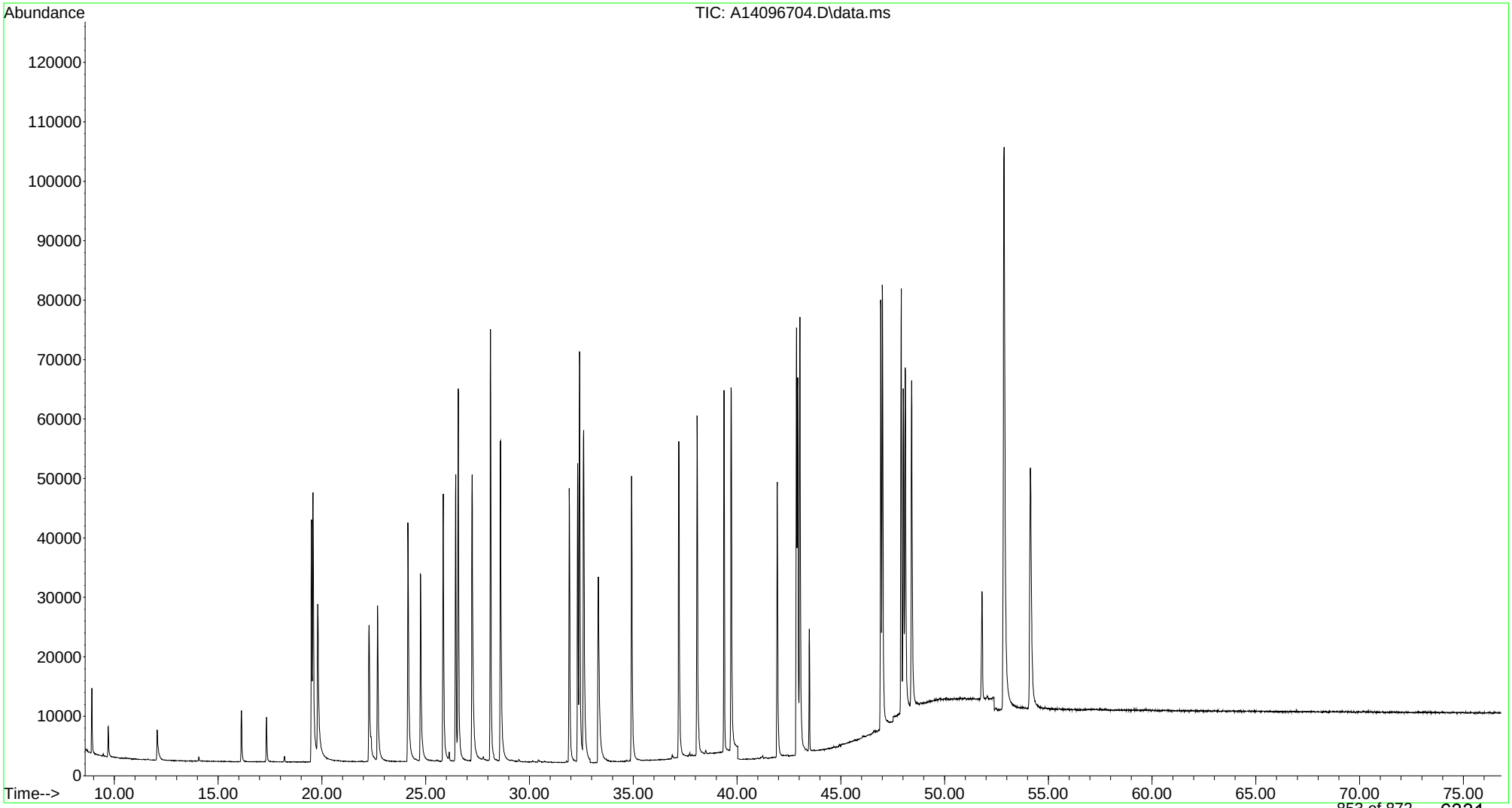
(#) = qualifier out of range (m) = manual integration (+) = signals summed

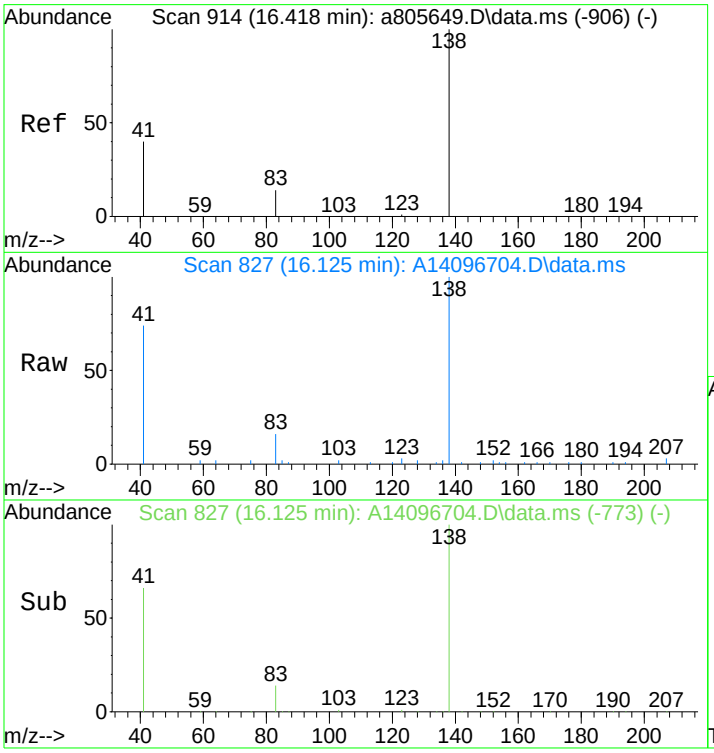
Quantitation Report (QT Reviewed)

Data Path : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\
Data File : A14096704.D
Acq On : 21 Jun 2012 5:00 pm
Operator : AC
Sample : C1406191206
Misc : CC WHAP67 500UG/ML
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 22 13:44:51 2012
Quant Method : O:\FORENSICS\DATA\PAH14\JUNE12\JUNE19\PAH14051812.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Fri Jun 22 11:52:47 2012
Response via : Initial Calibration

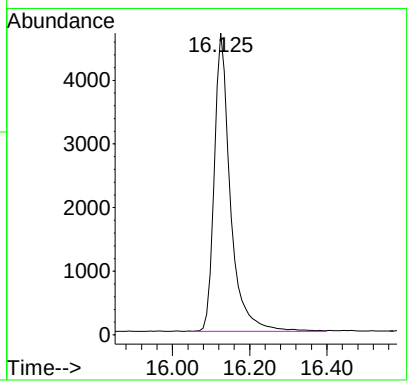
Sub List : ICAL_CCALT_NEW_Default - CC with alternative surrogates

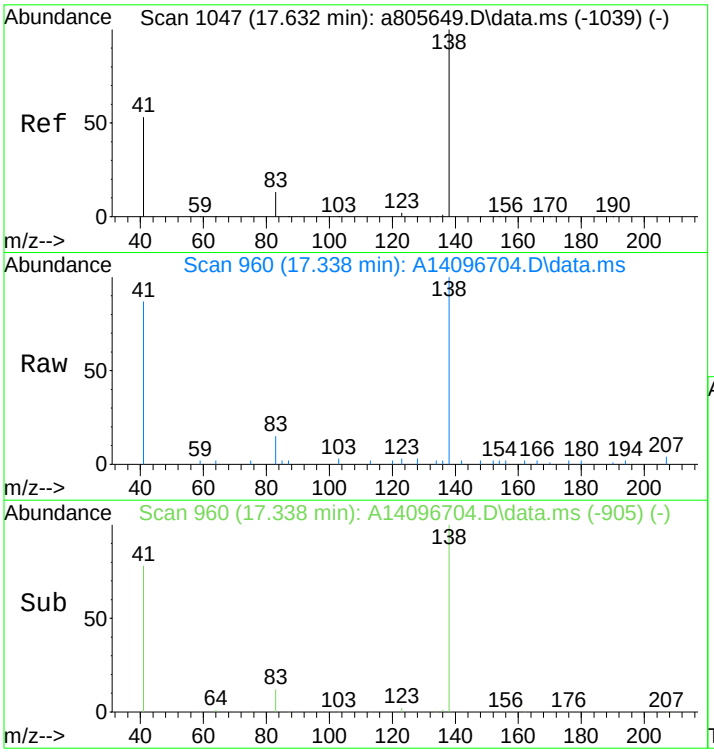




#3
trans-Decalin
Concen: 243.26 ng/mL
RT: 16.125 min Scan# 827
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

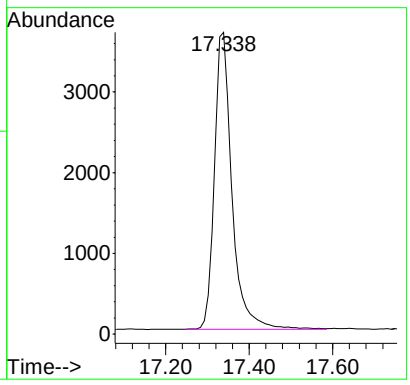
Tgt Ion:138 Resp: 13534

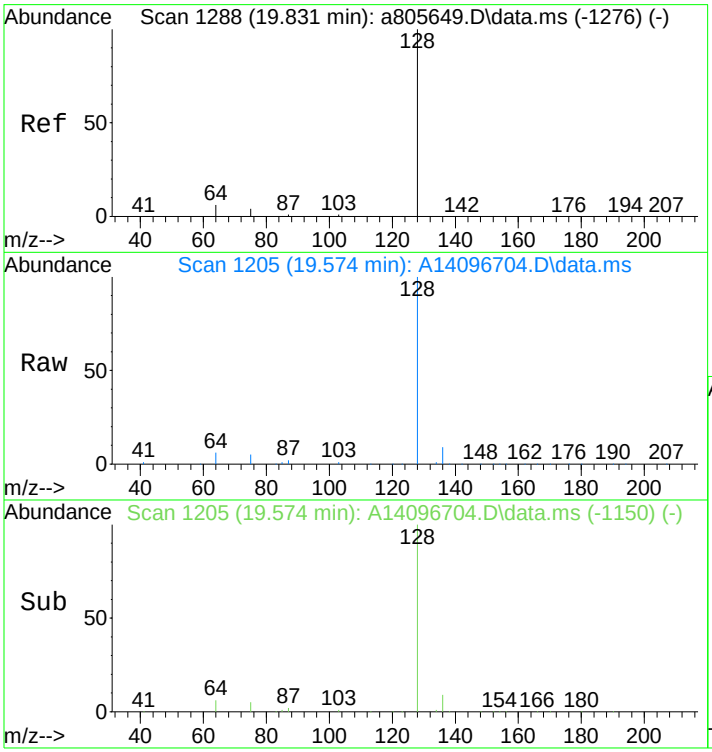




#4
cis-Decalin
Concen: 249.78 ng/mL
RT: 17.338 min Scan# 960
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:138 Resp: 10718

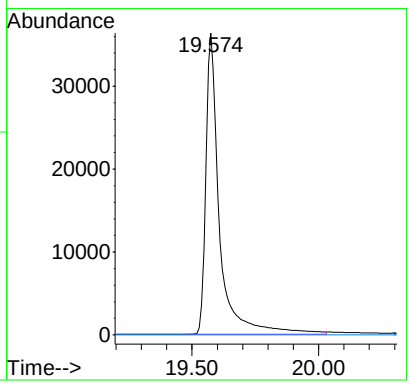


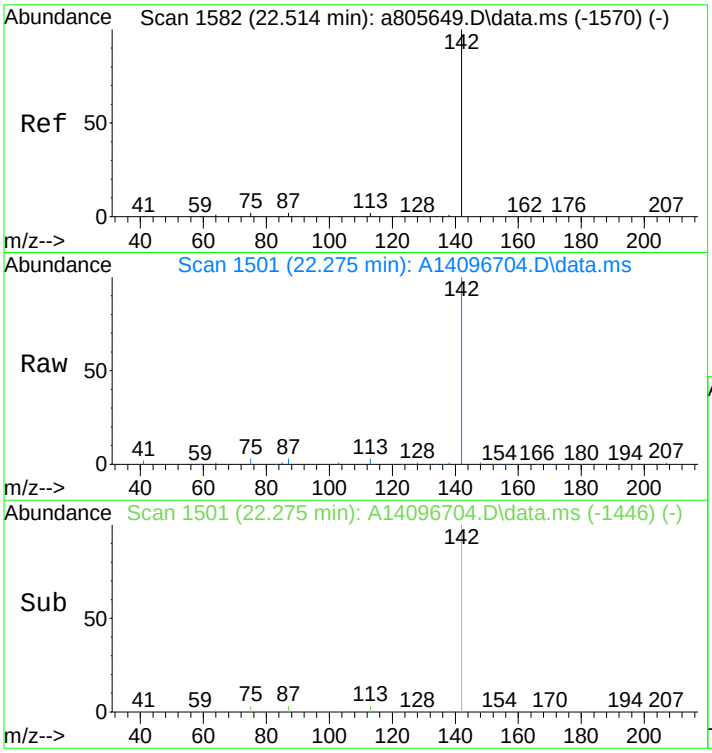


#10
Naphthalene
Concen: 507.81 ng/mL
RT: 19.574 min Scan# 1205
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:128 Resp: 136158

Ion	Ratio	Lower	Upper
128	100		
127	0.0	0.0	0.0

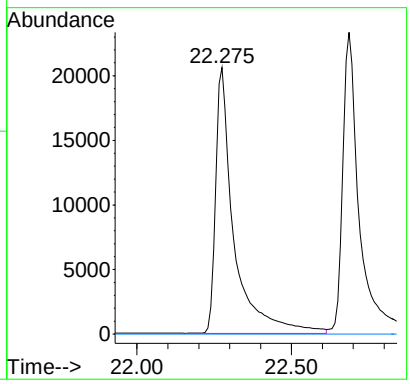


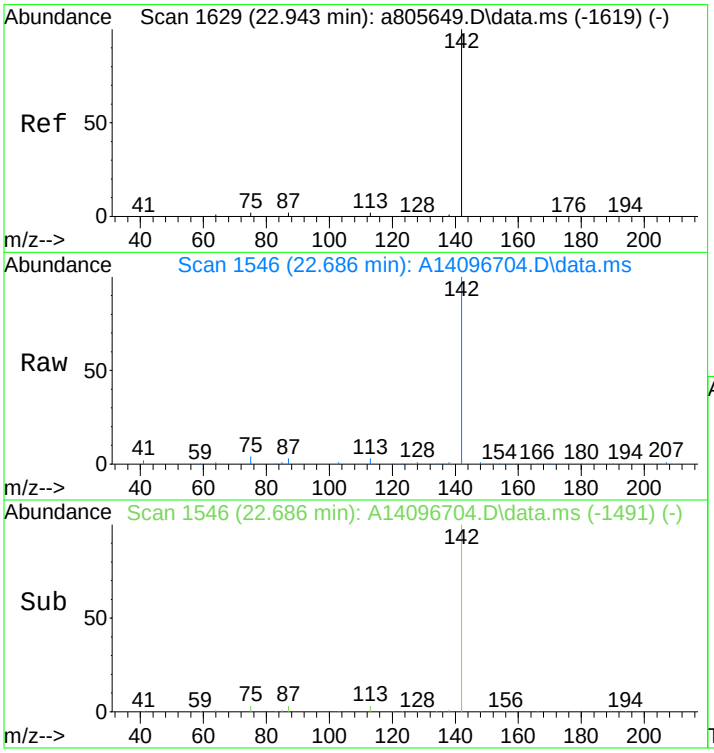


#16
2-Methylnaphthalene
Concen: 480.80 ng/mL
RT: 22.275 min Scan# 1501
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:142 Resp: 84827

Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	0.0

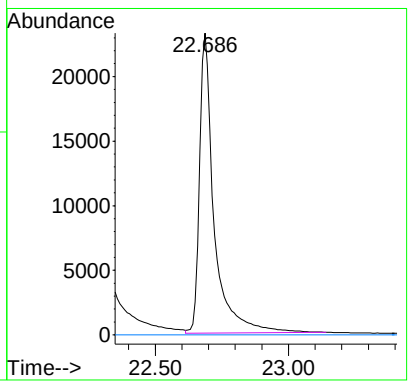


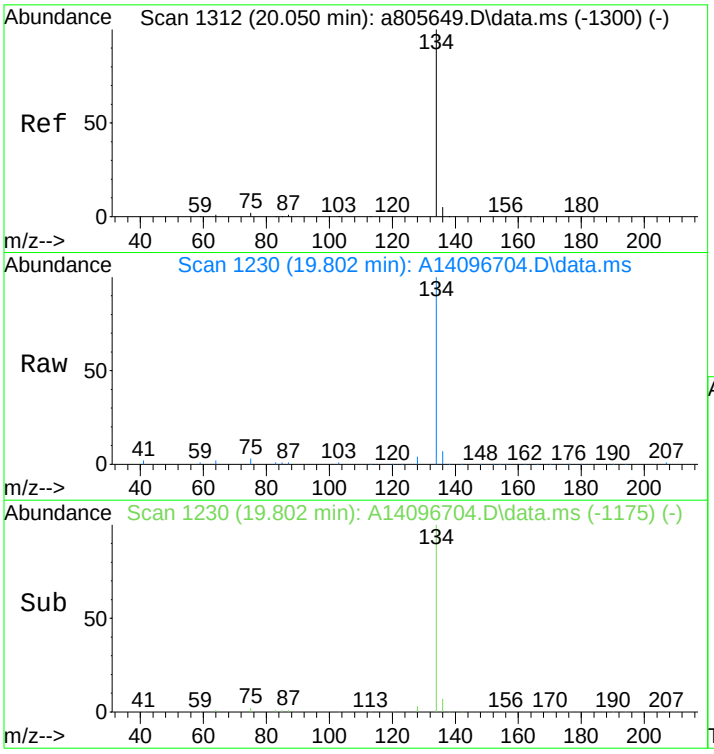


#17
1-Methylnaphthalene
Concen: 507.38 ng/mL
RT: 22.686 min Scan# 1546
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:142 Resp: 87873

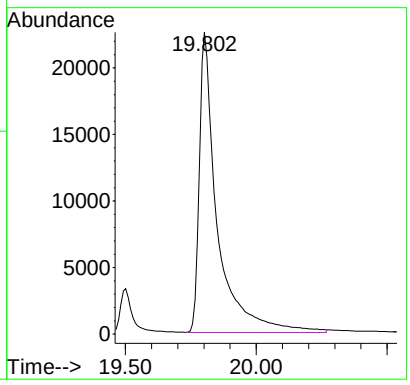
Ion	Ratio	Lower	Upper
142	100		
141	0.0	0.0	20.0

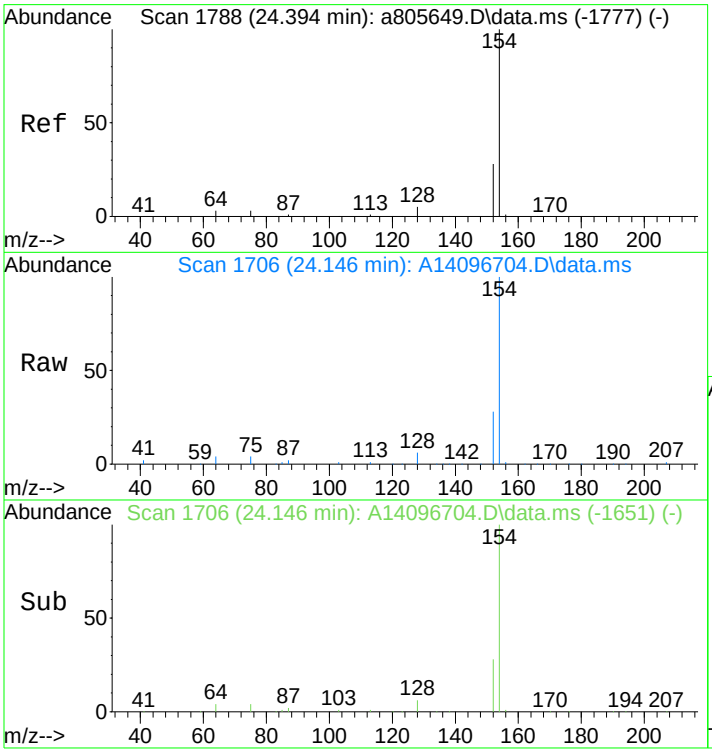




#18
Benzothiophene
Concen: 521.36 ng/mL
RT: 19.802 min Scan# 1230
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:134 Resp: 107808

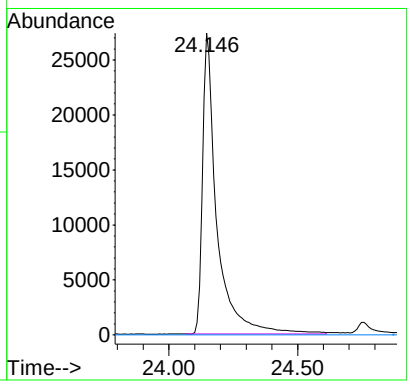


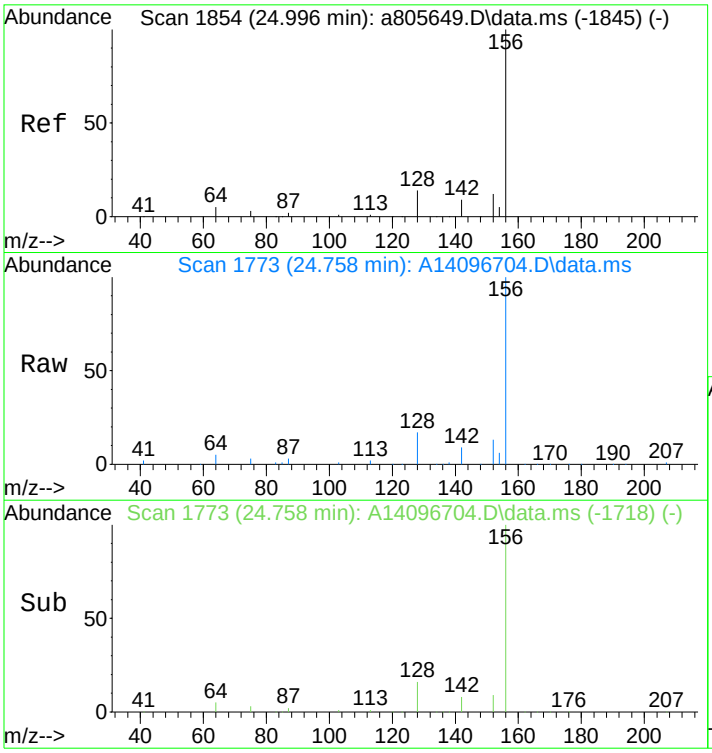


#23
Biphenyl
Concen: 489.09 ng/mL
RT: 24.146 min Scan# 1706
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:154 Resp: 105628

Ion	Ratio	Lower	Upper
154	100		
153	0.0	0.0	0.0

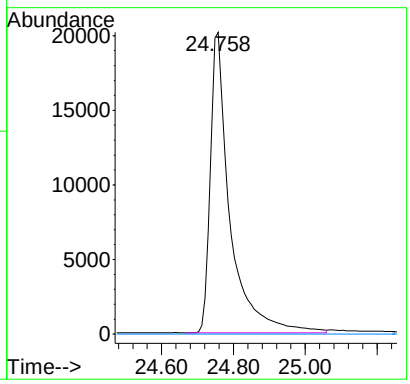


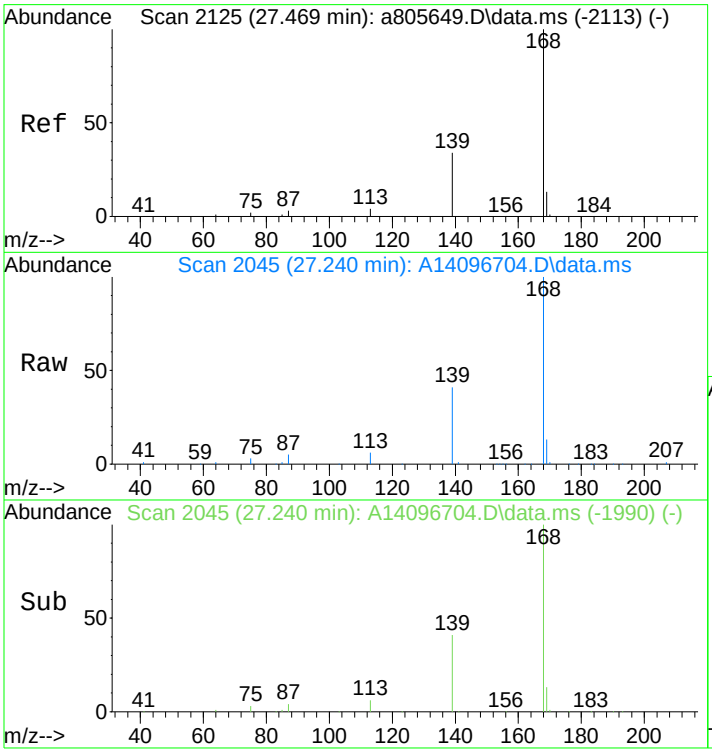


#24
2,6-Dimethylnaphthalene
Concen: 484.70 ng/mL
RT: 24.758 min Scan# 1773
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:156 Resp: 76497

Ion	Ratio	Lower	Upper
156	100		
155	0.0	0.0	0.0

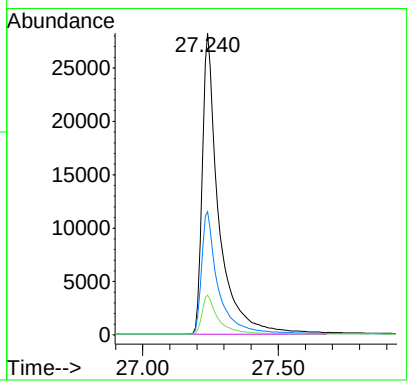


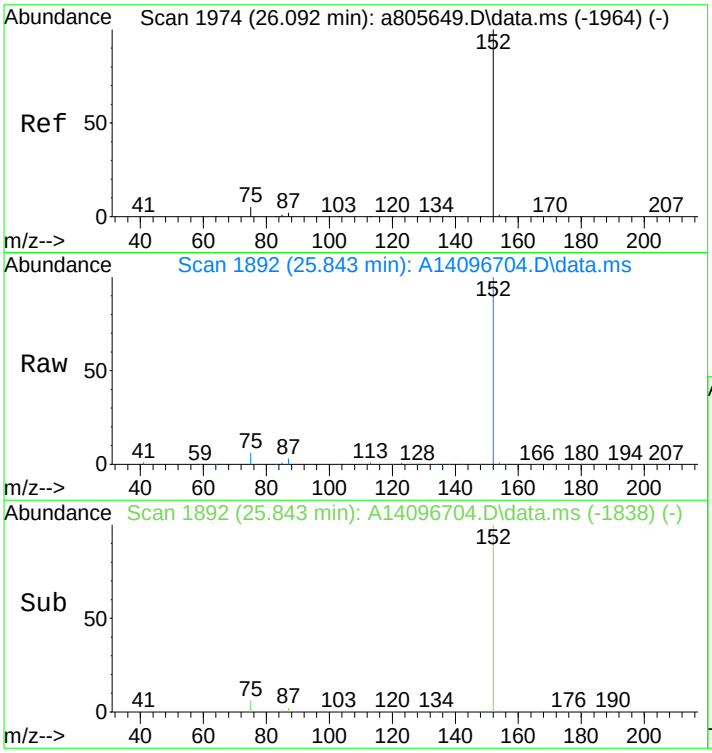


#25
Dibenzofuran
Concen: 526.58 ng/mL
RT: 27.240 min Scan# 2045
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:168 Resp: 120229

Ion	Ratio	Lower	Upper
168	100		
139	41.3	32.1	48.1
169	13.1	10.6	16.0

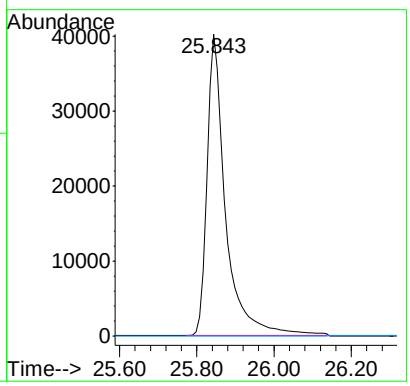


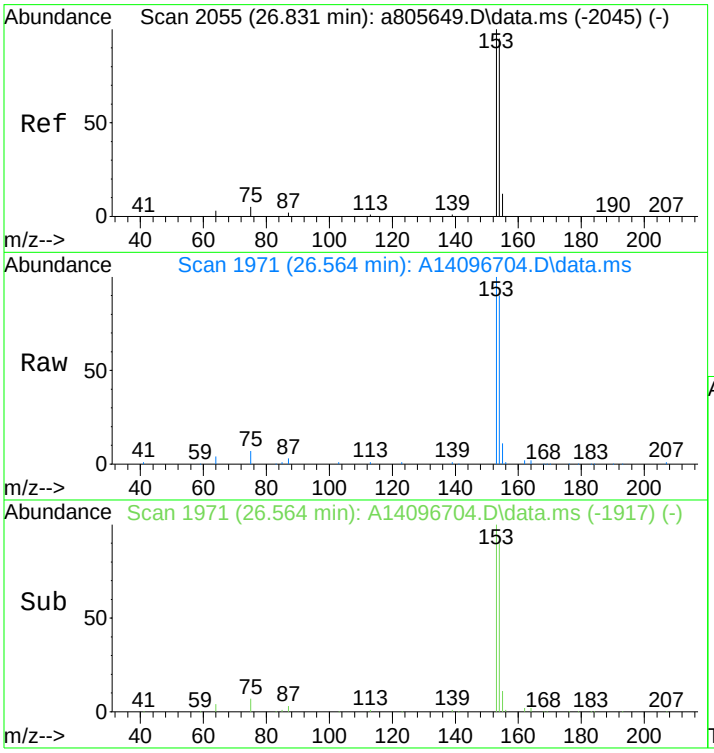


#26
Acenaphthylene
Concen: 480.36 ng/mL m
RT: 25.843 min Scan# 1892
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:152 Resp: 133982

Ion	Ratio	Lower	Upper
152	100		
153	0.0	0.0	0.0

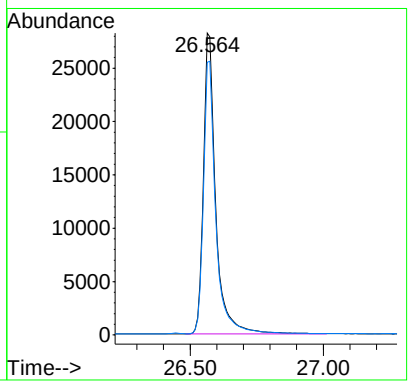


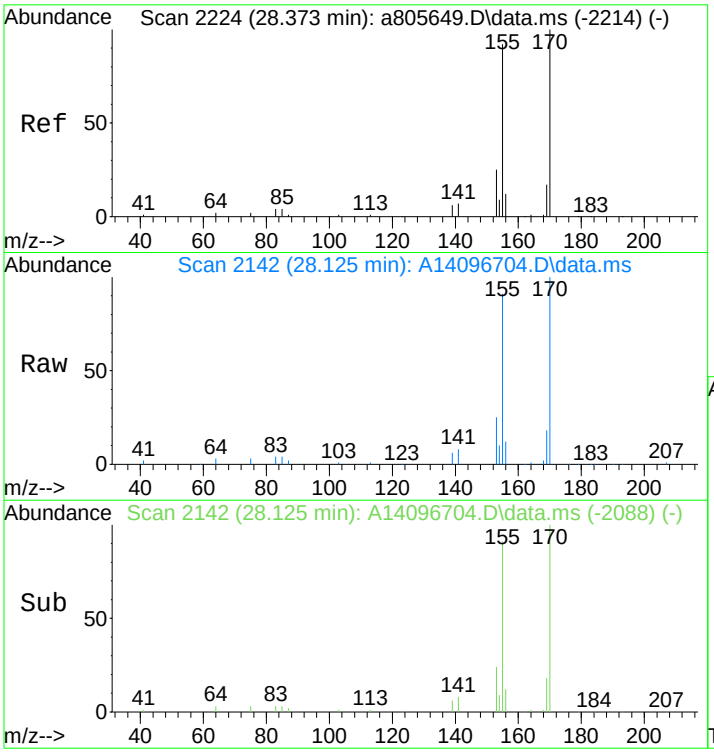


#27
Acenaphthene
Concen: 525.39 ng/mL
RT: 26.564 min Scan# 1971
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:153 Resp: 90568

Ion	Ratio	Lower	Upper
153	100		
154	90.7	72.7	109.1

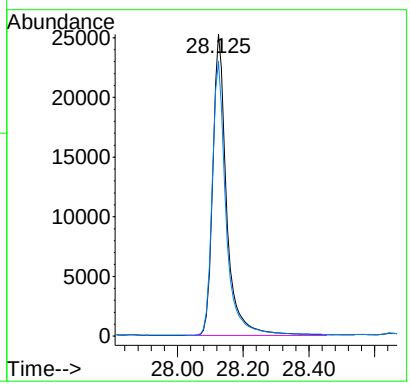


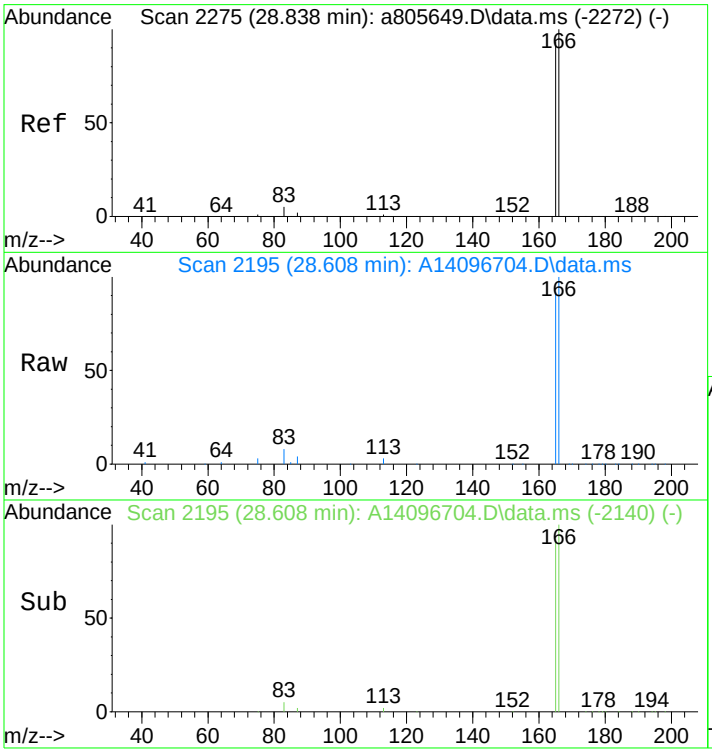


#28
2,3,5-Trimethylnaphthalene
Concen: 516.83 ng/mL
RT: 28.125 min Scan# 2142
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:170 Resp: 73979

Ion	Ratio	Lower	Upper
170	100		
155	91.7	69.9	104.9

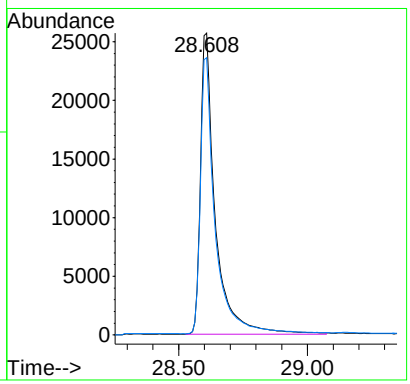


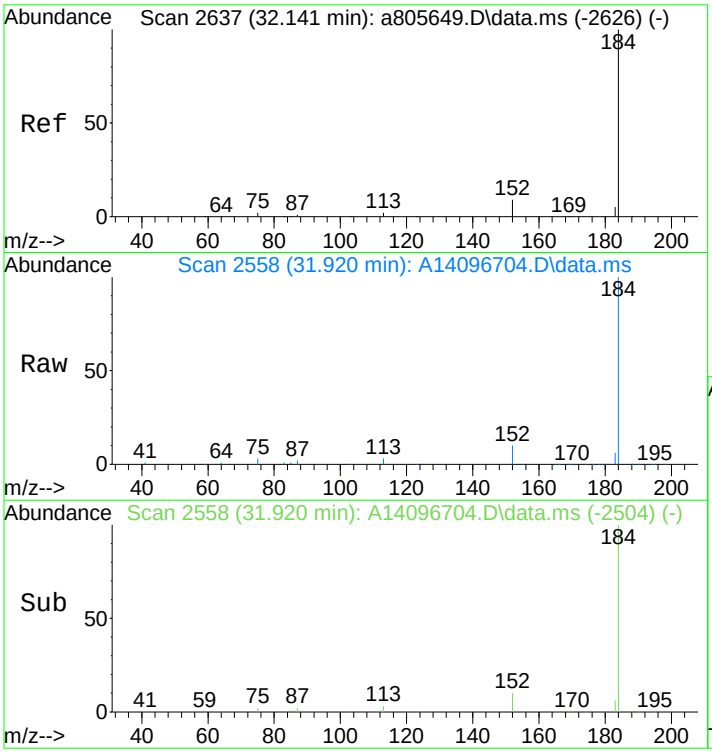


#29
Fluorene
Concen: 534.11 ng/mL
RT: 28.608 min Scan# 2195
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:166 Resp: 102535

Ion	Ratio	Lower	Upper
166	100		
165	91.6	73.3	109.9

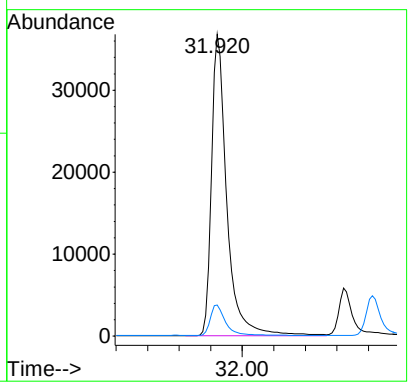


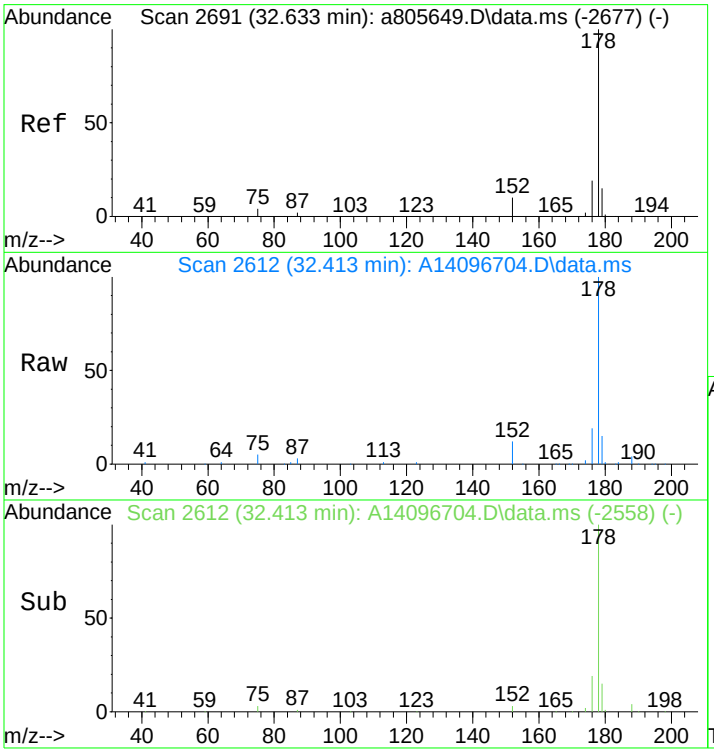


#33
Dibenzothiophene
Concen: 496.62 ng/mL
RT: 31.920 min Scan# 2558
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:184 Resp: 123820

Ion	Ratio	Lower	Upper
184	100		
152	10.2	8.0	12.0

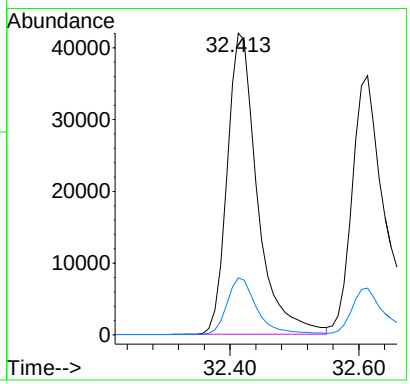


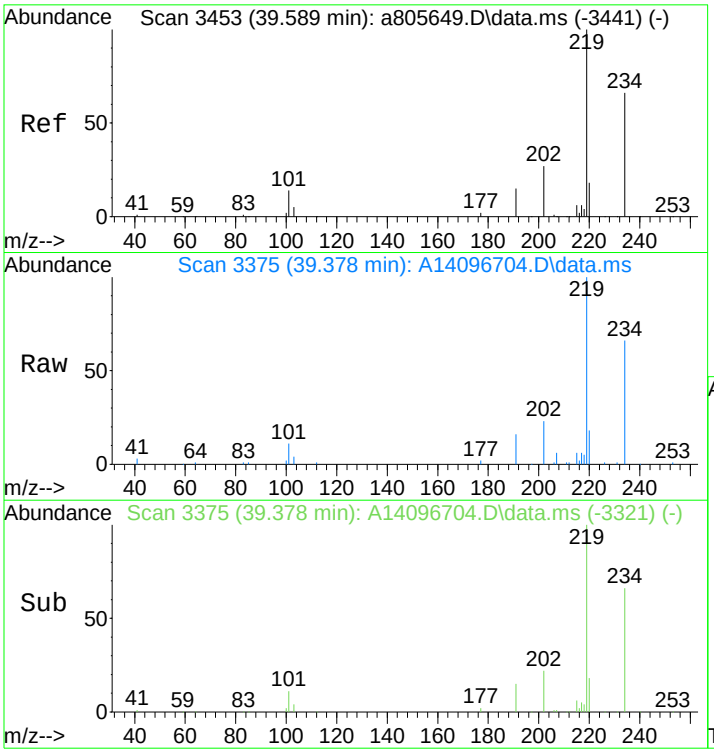


#43
Phenanthrene
Concen: 517.16 ng/mL
RT: 32.413 min Scan# 2612
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:178 Resp: 136920

Ion	Ratio	Lower	Upper
178	100		
176	18.7	15.2	22.8

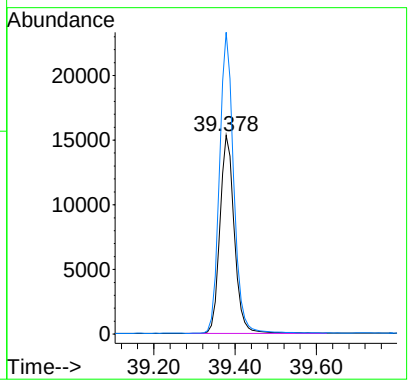


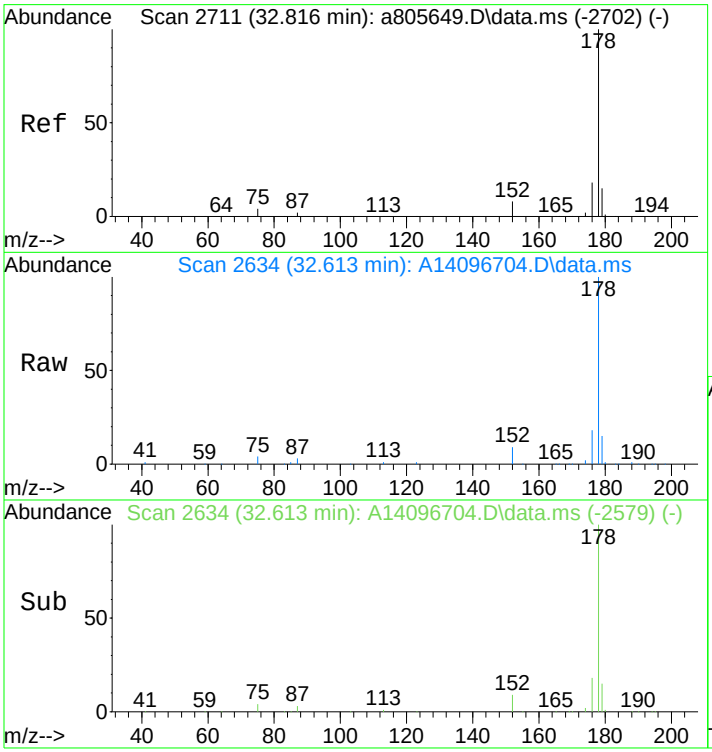


#54
Retene
Concen: 455.65 ng/mL
RT: 39.378 min Scan# 3375
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:234 Resp: 37774

Ion	Ratio	Lower	Upper
234	100		
219	150.5	116.7	175.1

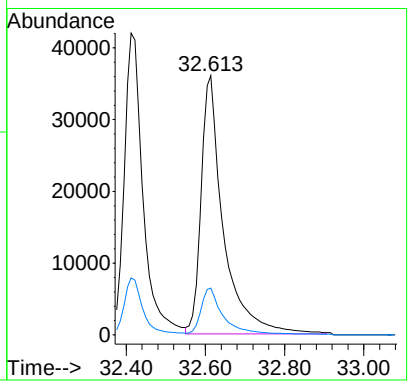


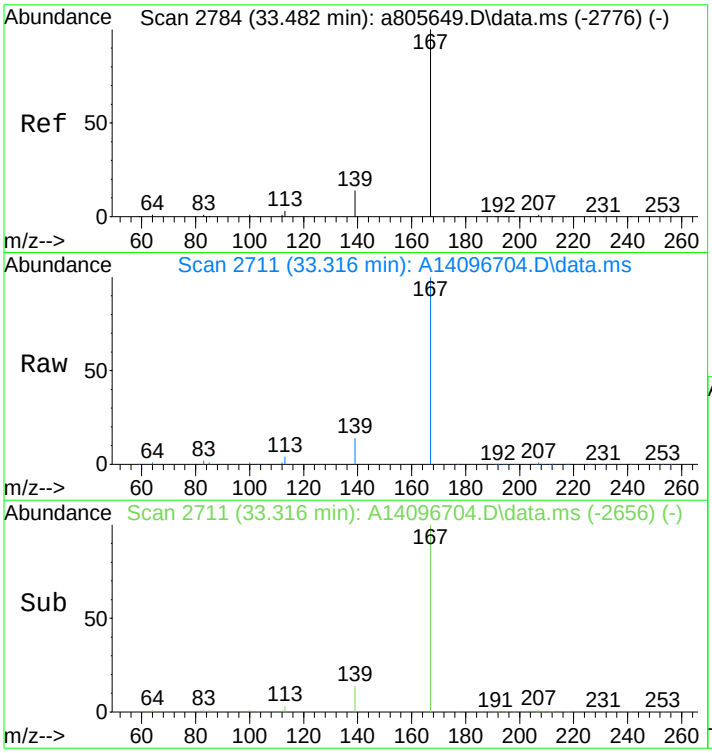


#55
Anthracene
Concen: 532.87 ng/mL m
RT: 32.613 min Scan# 2634
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:178 Resp: 140360

Ion	Ratio	Lower	Upper
178	100		
176	19.2	14.5	21.7

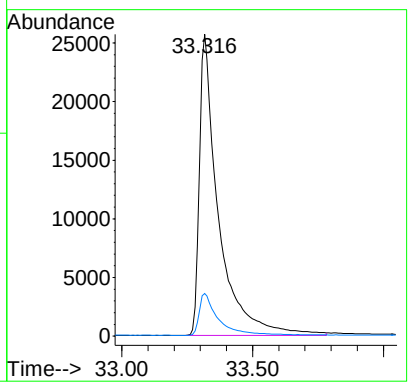


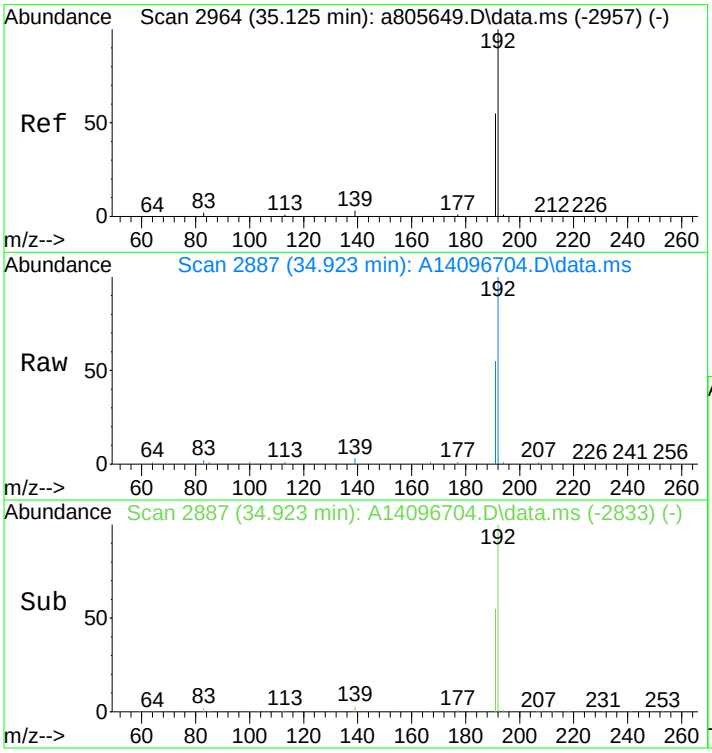


#56
Carbazole
Concen: 530.62 ng/mL
RT: 33.316 min Scan# 2711
Delta R.T. 0.000 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:167 Resp: 130343

Ion	Ratio	Lower	Upper
167	100		
139	14.1	11.5	17.3

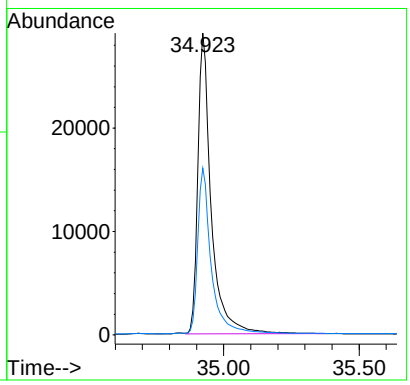


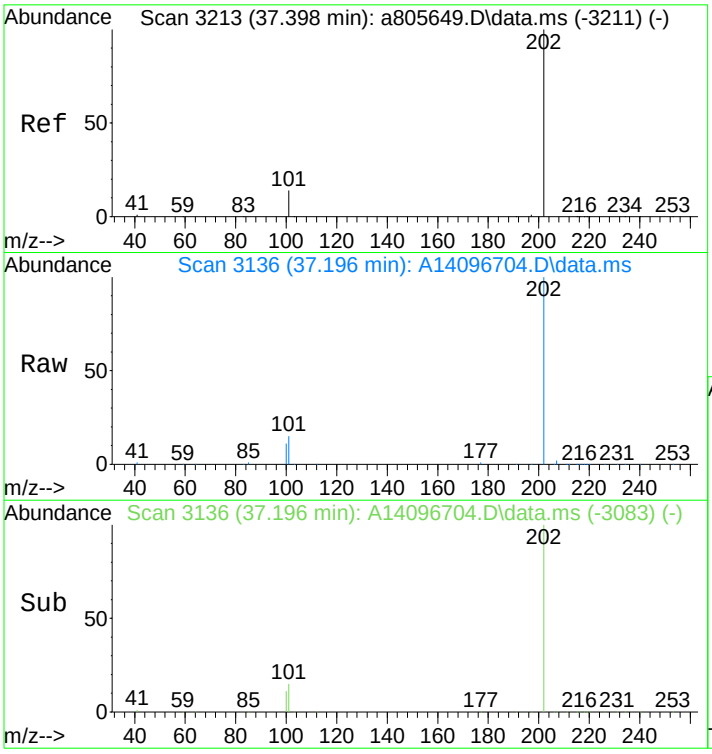


#57
1-Methylphenanthrene
Concen: 500.16 ng/mL
RT: 34.923 min Scan# 2887
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:192 Resp: 99335

Ion	Ratio	Lower	Upper
192	100		
191	54.8	44.1	66.1

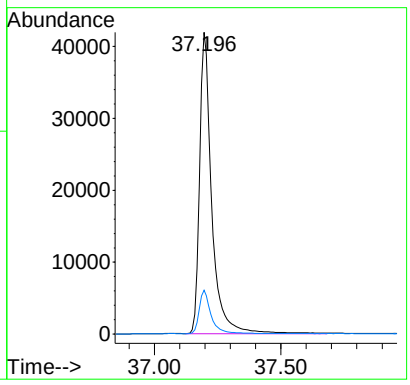


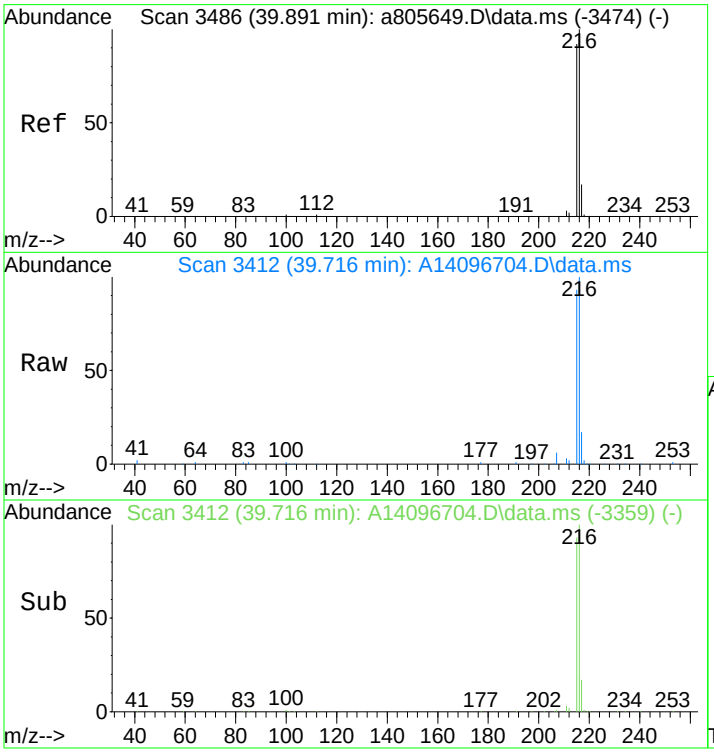


#58
Fluoranthene
Concen: 515.49 ng/mL
RT: 37.196 min Scan# 3136
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:202 Resp: 139239

Ion	Ratio	Lower	Upper
202	100		
101	14.1	11.3	16.9

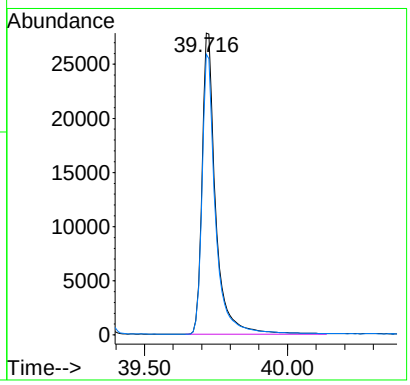


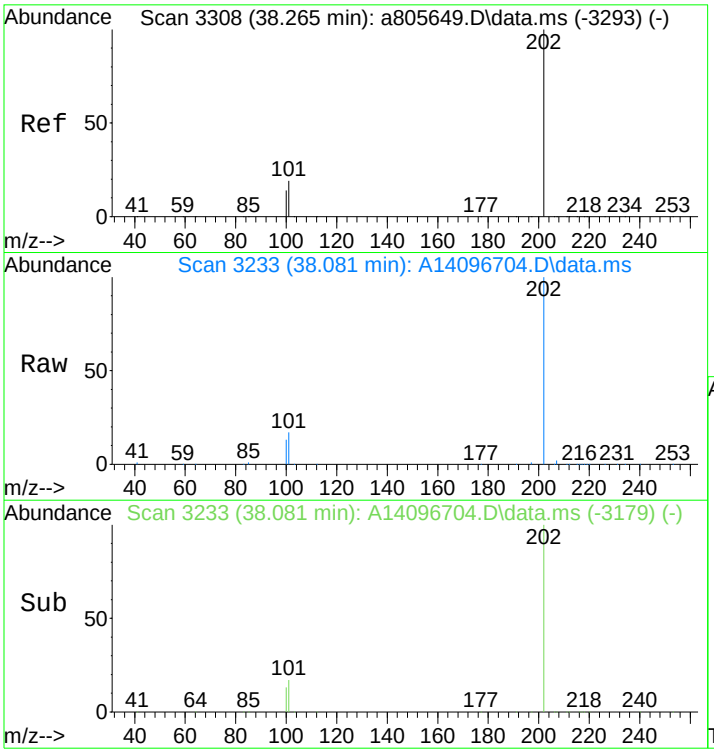


#59
Benzo(b)fluorene
Concen: 512.23 ng/mL
RT: 39.716 min Scan# 3412
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:216 Resp: 92205

Ion	Ratio	Lower	Upper
216	100		
215	92.1	72.9	109.3

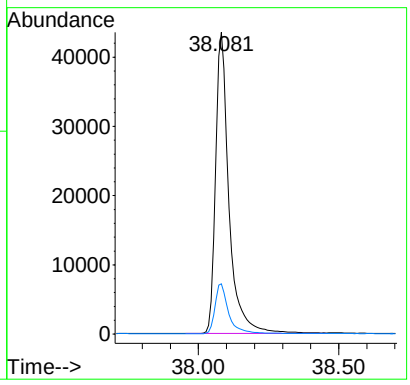


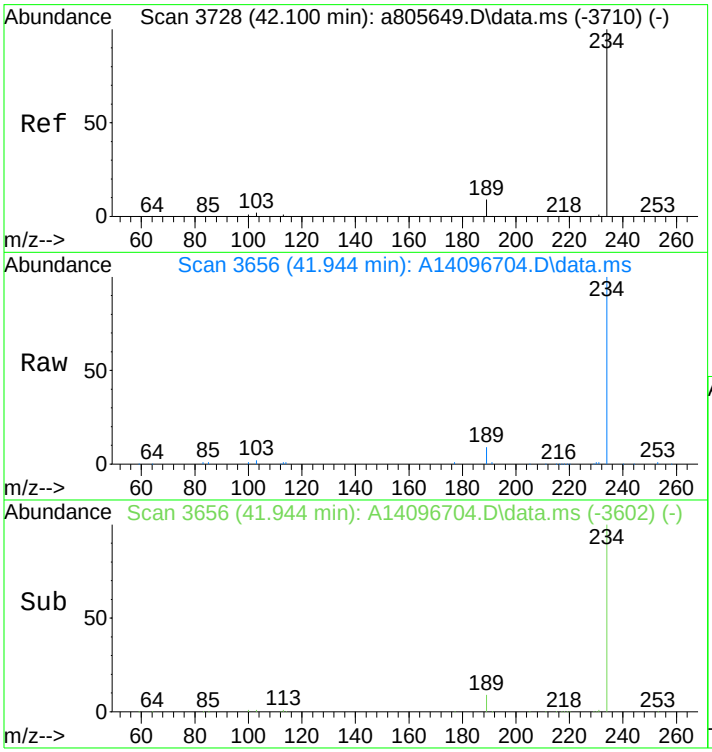


#60
Pyrene
Concen: 513.84 ng/mL
RT: 38.081 min Scan# 3233
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:202 Resp: 144252

Ion	Ratio	Lower	Upper
202	100		
101	16.8	13.7	20.5

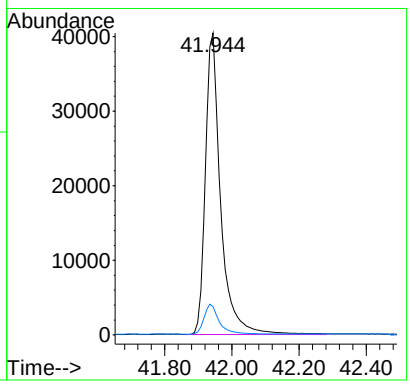


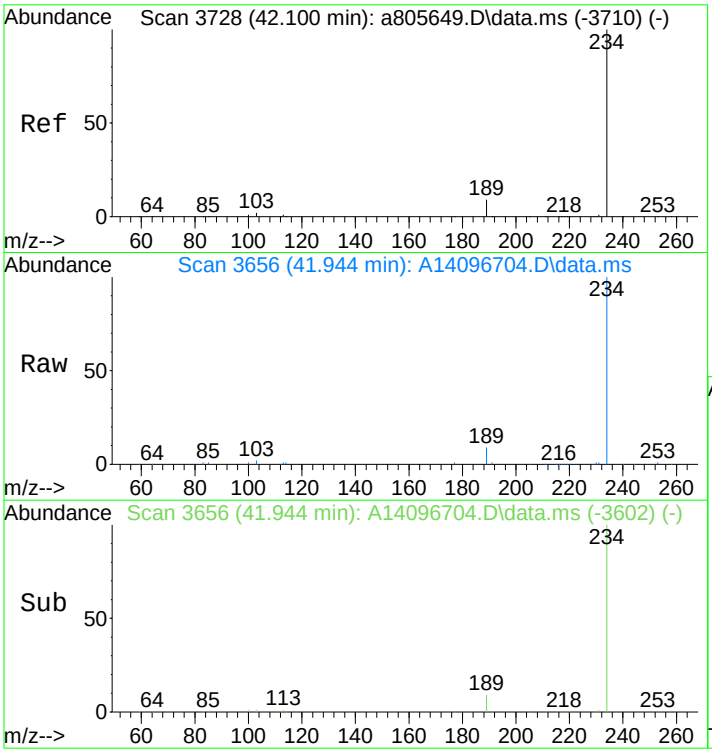


#66
Naphthobenzothiophene
Concen: 521.59 ng/ml
RT: 41.944 min Scan# 3656
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:234 Resp: 126956

Ion	Ratio	Lower	Upper
234	100		
189	9.8	7.9	11.9

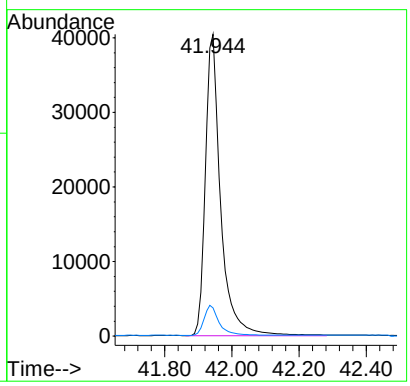


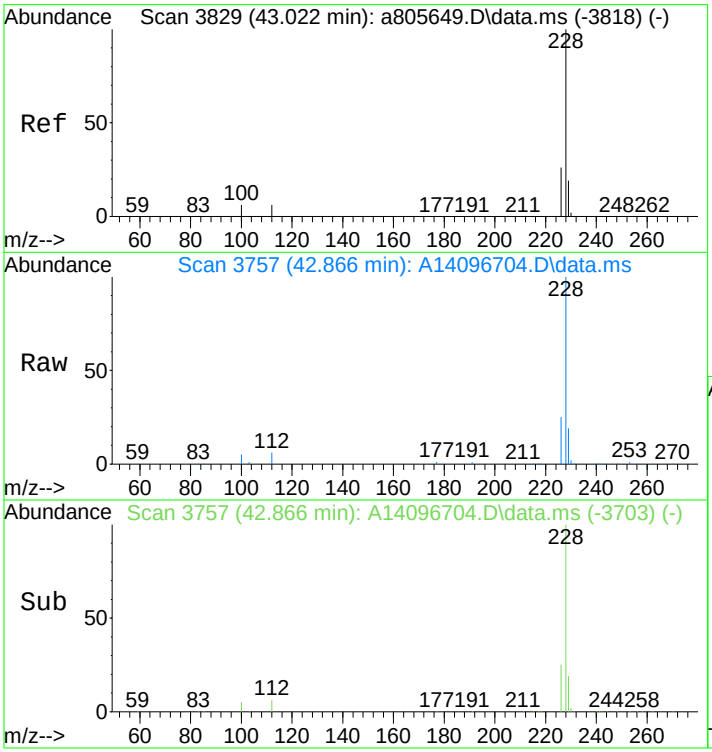


#67
Naphthobenzothiophene-2,1-D
Concen: 521.59 ng/mL
RT: 41.944 min Scan# 3656
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:234 Resp: 126956

Ion	Ratio	Lower	Upper
234	100		
189	9.8	7.9	11.9

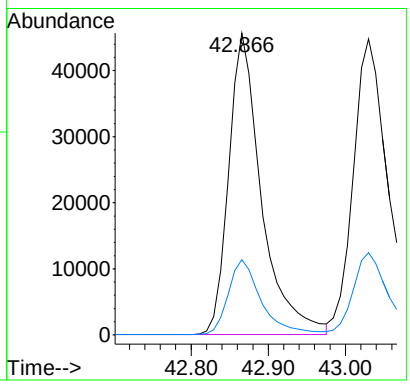


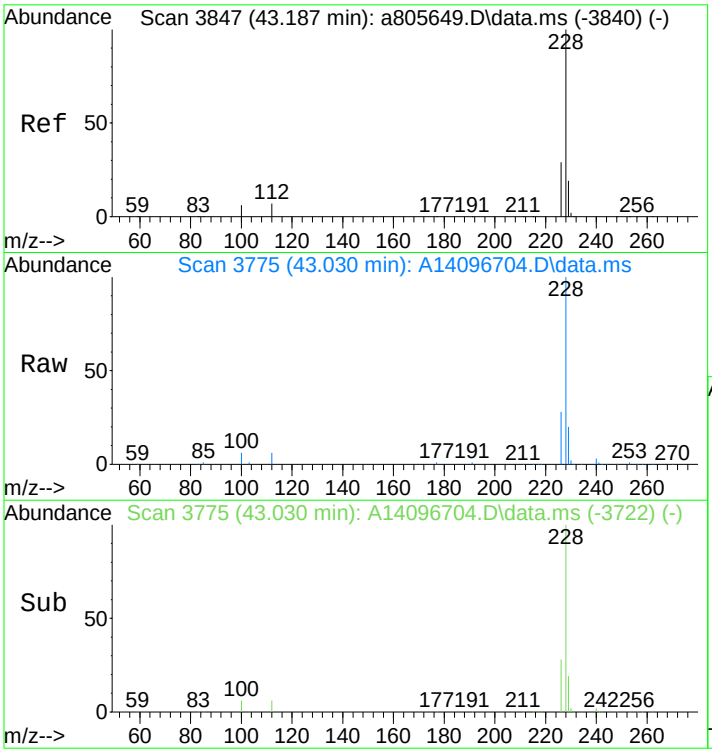


#75
Benz[a]anthracene
Concen: 466.40 ng/mL
RT: 42.866 min Scan# 3757
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:228 Resp: 134564

Ion	Ratio	Lower	Upper
228	100		
226	24.8	20.2	30.4

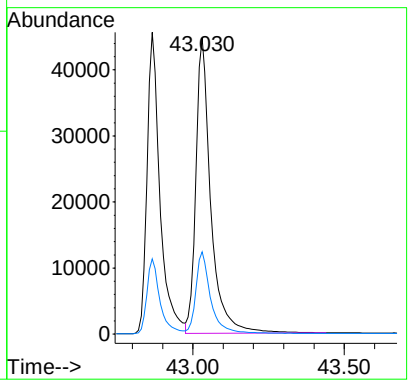


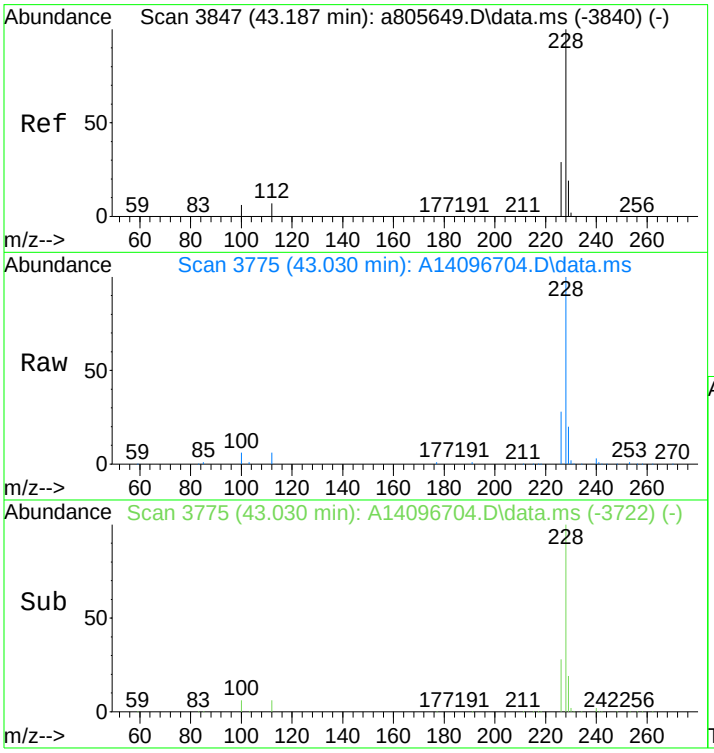


#76
Chrysene
Concen: 537.06 ng/mL
RT: 43.030 min Scan# 3775
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:228 Resp: 152990

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.9	32.9

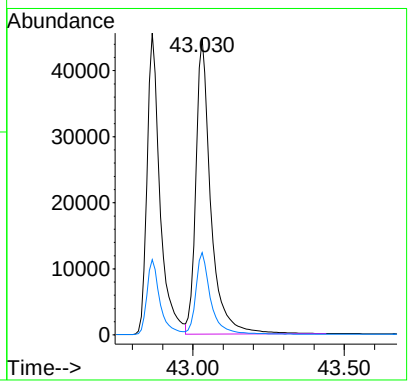


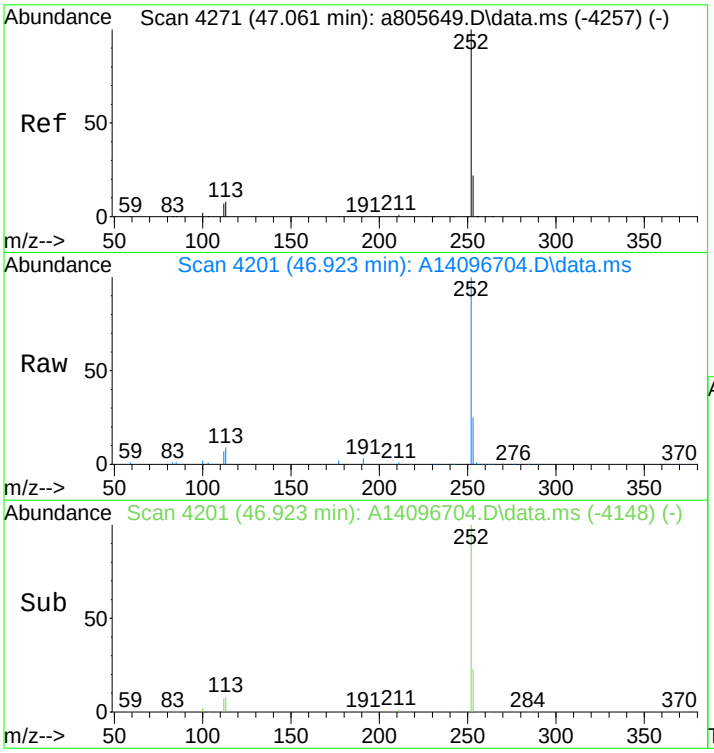


#77
Chrysene/Triphenylene
Concen: 537.06 ng/mL
RT: 43.030 min Scan# 3775
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:228 Resp: 152990

Ion	Ratio	Lower	Upper
228	100		
226	27.3	21.9	32.9

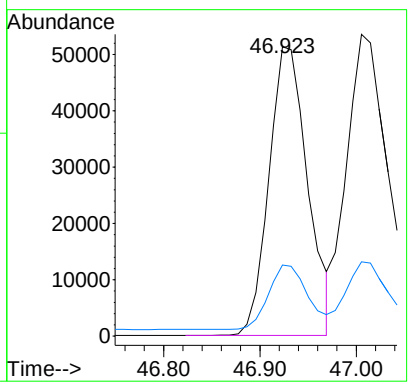


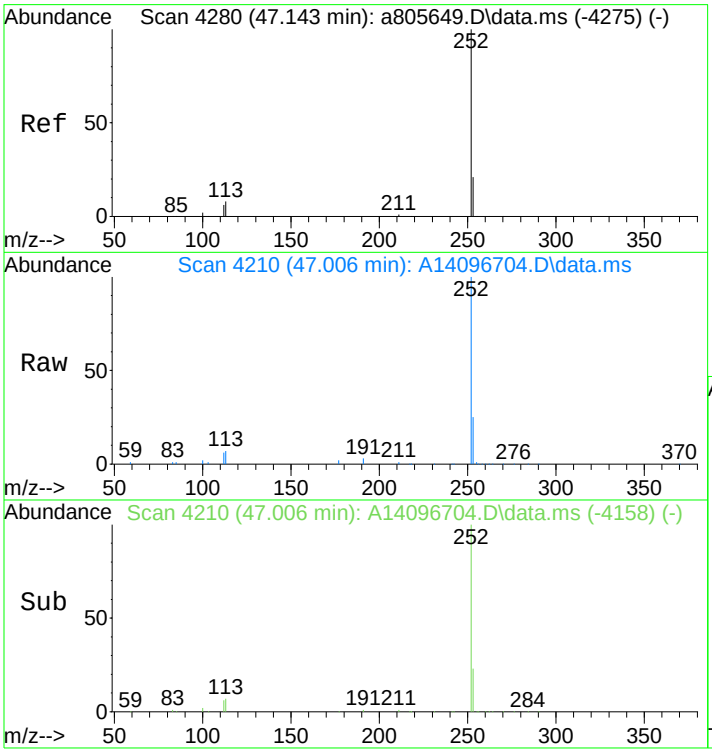


#82
Benzo[b]fluoranthene
Concen: 501.63 ng/mL
RT: 46.923 min Scan# 4201
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:252 Resp: 143143

Ion	Ratio	Lower	Upper
252	100		
253	22.4	20.9	31.3

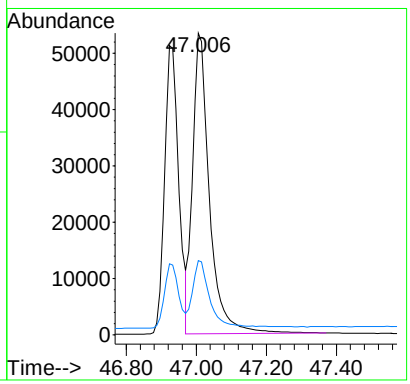


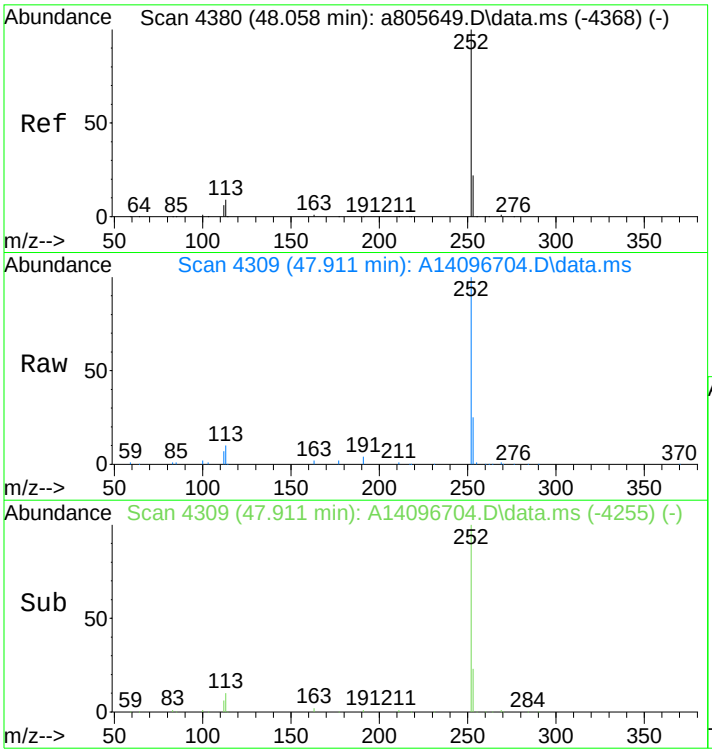


#83
Benzo[j]+[k]fluoranthene
Concen: 564.63 ng/mL
RT: 47.006 min Scan# 4210
Delta R.T. -0.027 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:252 Resp: 177958

Ion	Ratio	Lower	Upper
252	100		
253	22.3	21.5	32.3

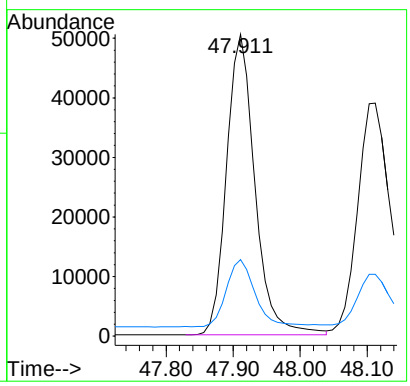


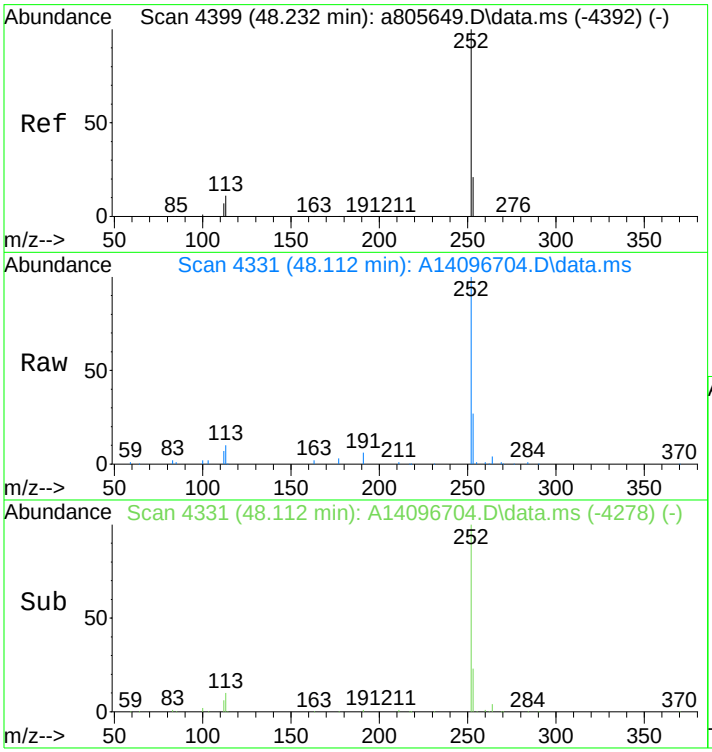


#85
Benzo[e]pyrene
Concen: 527.21 ng/mL
RT: 47.911 min Scan# 4309
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:252 Resp: 149161

Ion	Ratio	Lower	Upper
252	100		
253	23.4	21.5	32.3

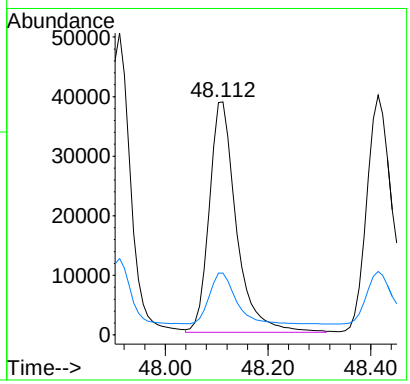


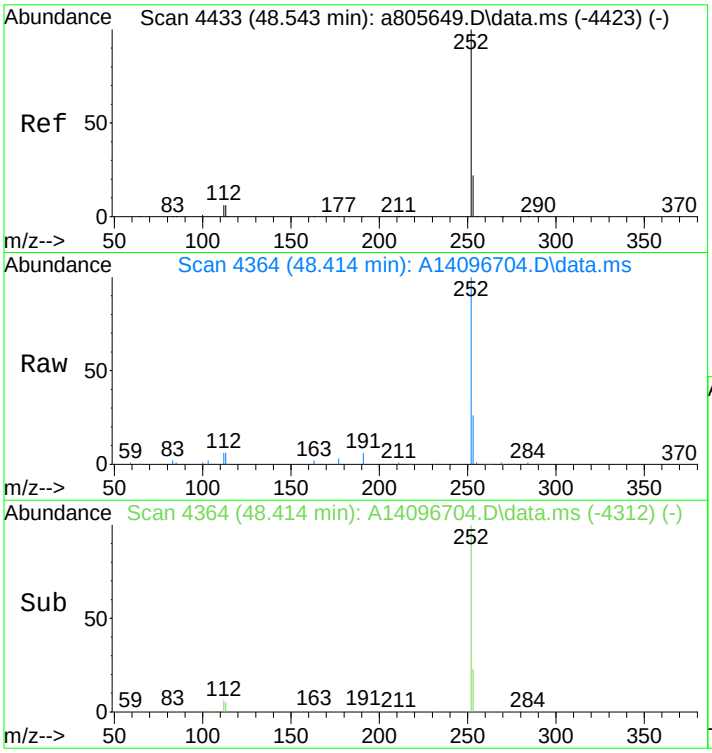


#87
Benzo[a]pyrene
Concen: 536.04 ng/mL m
RT: 48.112 min Scan# 4331
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:252 Resp: 141819

Ion	Ratio	Lower	Upper
252	100		
253	22.7	23.7	35.5#

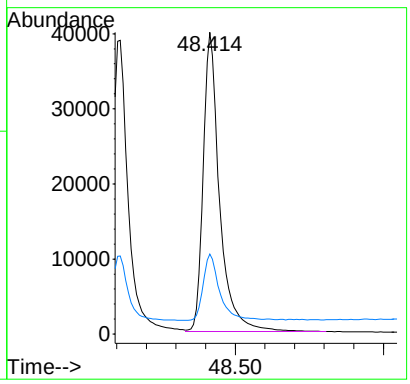


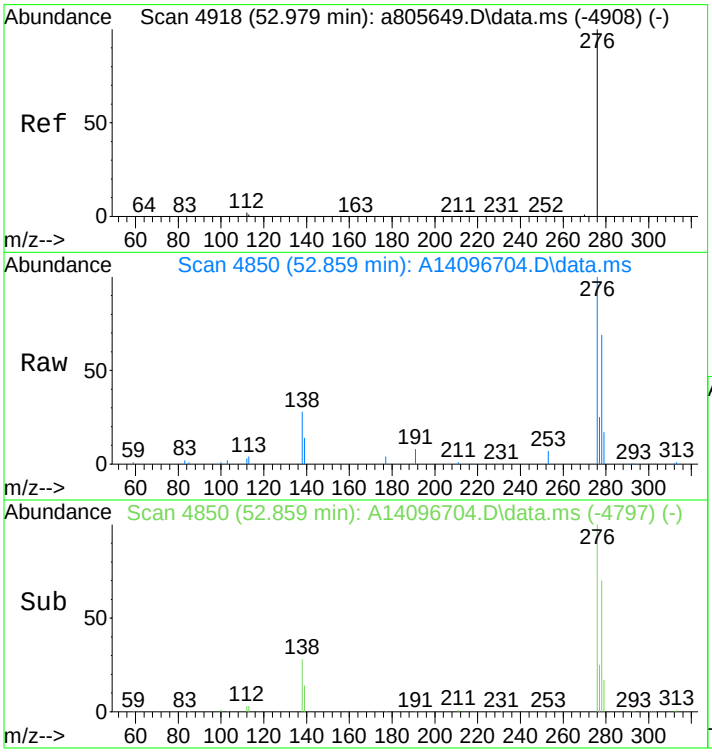


#88
Perylene
Concen: 535.10 ng/mL
RT: 48.414 min Scan# 4364
Delta R.T. -0.027 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:252 Resp: 153485

Ion	Ratio	Lower	Upper
252	100		
253	22.2	24.3	36.5#

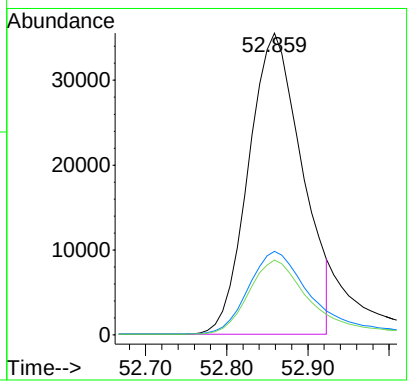


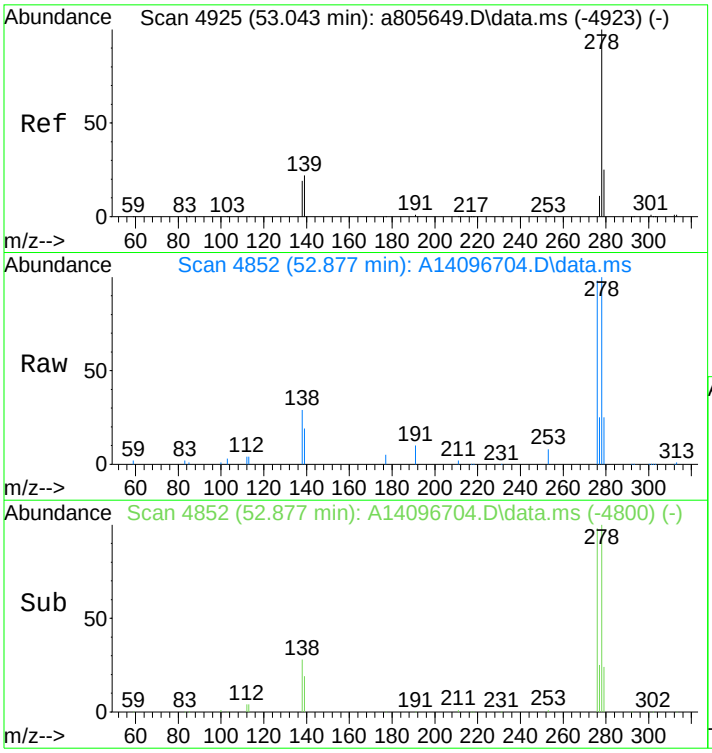


#89
Indeno[1,2,3-cd]pyrene
Concen: 490.65 ng/mL m
RT: 52.859 min Scan# 4850
Delta R.T. -0.018 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:276 Resp: 162375

Ion	Ratio	Lower	Upper
276	100		
138	33.4	22.2	33.2#
277	29.4	19.8	29.6

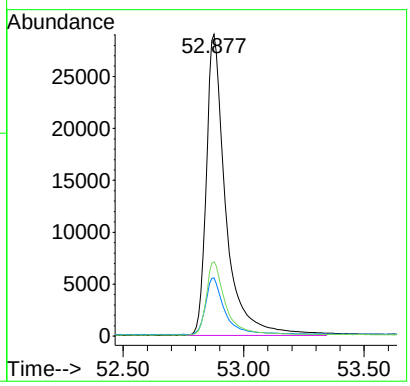


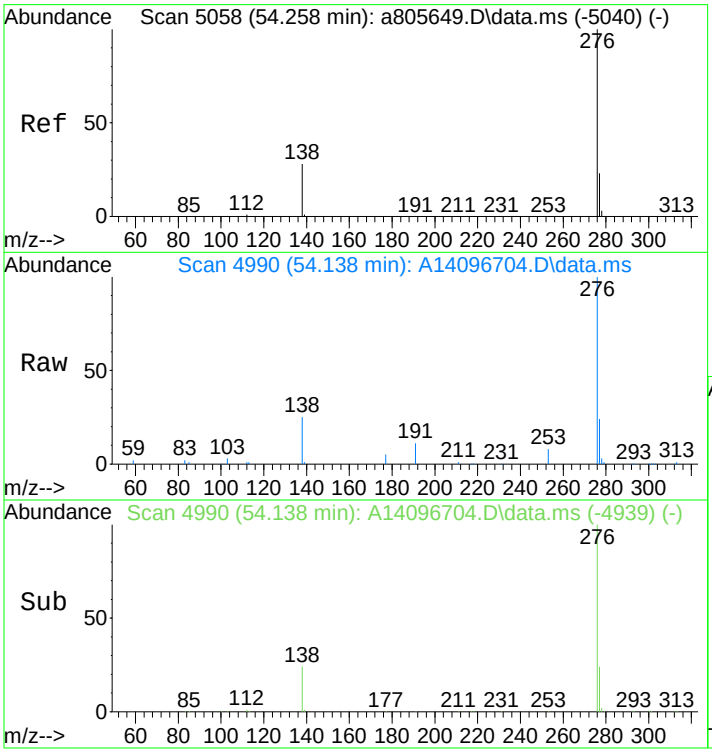


#90
Dibenz[ah]+[ac]anthracene
Concen: 522.72 ng/mL
RT: 52.877 min Scan# 4852
Delta R.T. -0.027 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:278 Resp: 162548

Ion	Ratio	Lower	Upper
278	100		
139	18.7	15.0	22.6
279	24.2	19.4	29.0

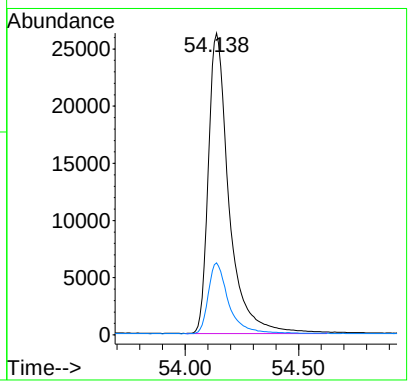


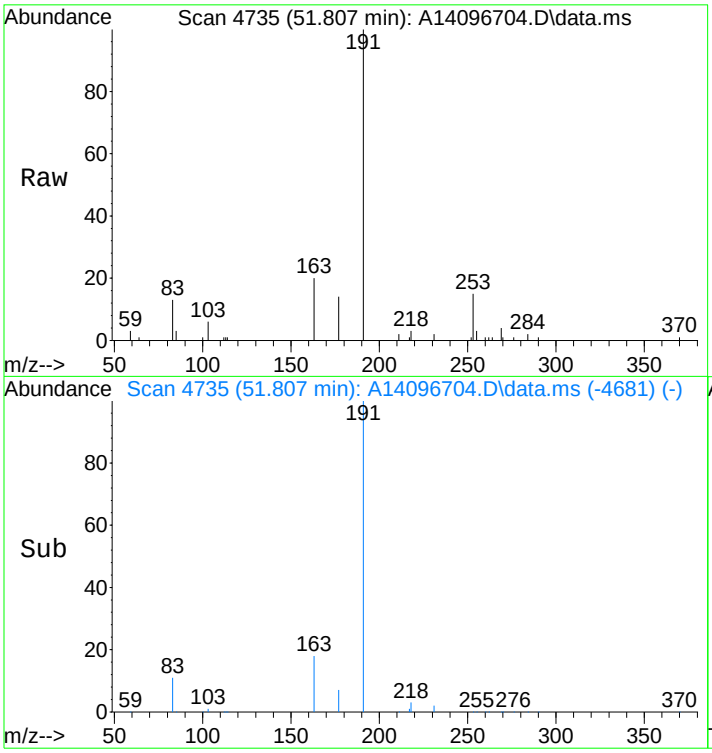


#91
Benzo[g,h,i]perylene
Concen: 525.91 ng/mL
RT: 54.138 min Scan# 4990
Delta R.T. -0.036 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:276 Resp: 166932

Ion	Ratio	Lower	Upper
276	100		
277	23.4	19.1	28.7

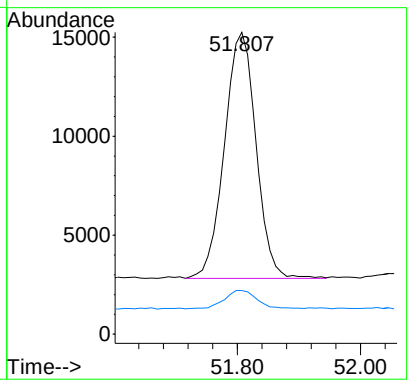


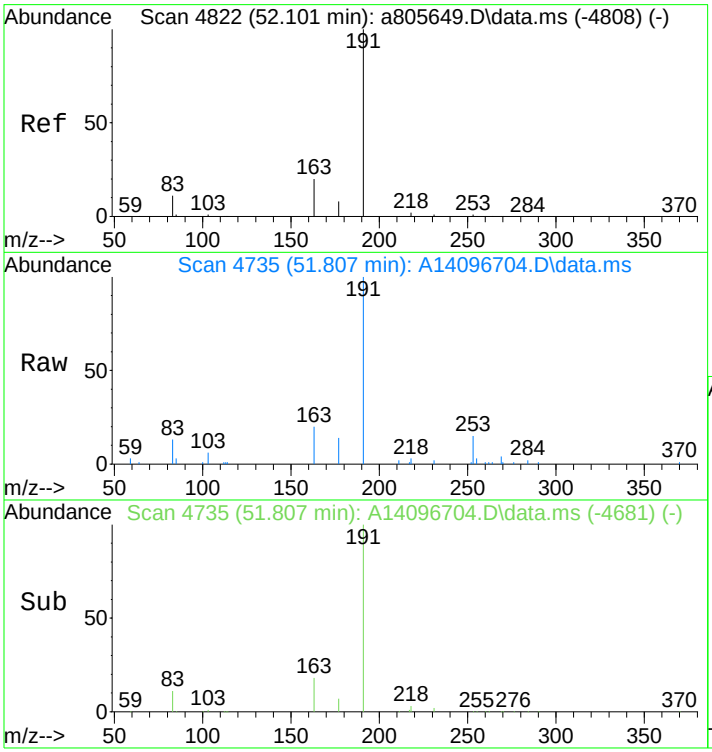


#92
Hopane (T19)
Concen: 469.69 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:191 Resp: 44254

Ion	Ratio	Lower	Upper
191	100		
177	7.7	13.6	20.4#

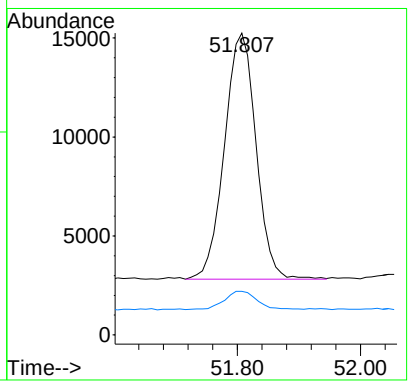




#93
17a(H),21B(H)-hopane - C30H52
Concen: 469.69 ng/mL
RT: 51.807 min Scan# 4735
Delta R.T. -0.009 min
Lab File: A14096704.D
Acq: 21 Jun 2012 5:00 pm

Tgt Ion:191 Resp: 44254

Ion	Ratio	Lower	Upper
191	100		
177	7.7	13.6	20.4#



29-Dec-2010

Mike Wolf
AECOM Enviroment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Hydrogeo 12/20/10** Work Order: **1012536**

Dear Mike,

ALS Environmental received 7 samples on 20-Dec-2010 05:30 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 46.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: IL100452

ALS Group USA, Corp

Date: 29-Dec-10

Client: AECOM Enviroment
Project: Marshall Hydrogeo 12/20/10
Work Order: **1012536**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1012536-01	MWKR0275R01D122010GX	Groundwater		12/20/2010 10:15	12/20/2010 17:30	☐
1012536-02	MWKR0275R01S122010GX	Groundwater		12/20/2010 10:15	12/20/2010 17:30	☐
1012536-03	MWKR0275R02S122010GX	Groundwater		12/20/2010 15:40	12/20/2010 17:30	☐
1012536-04	MWKR0275R03S122010GX	Groundwater		12/20/2010 11:45	12/20/2010 17:30	☐
1012536-05	MWKR0275R04S122010GX	Groundwater		12/20/2010 13:20	12/20/2010 17:30	☐
1012536-06	MWKR0275R05S122010GX	Groundwater		12/20/2010 14:25	12/20/2010 17:30	☐
1012536-07	MWKR0275R02B122010GX	Water		12/20/2010	12/20/2010 17:30	☐

Client: AECOM Enviroment
Project: Marshall Hydrogeo 12/20/10
Work Order: 1012536

Case Narrative

Batch 31118 MS/MSD data for Metals is not related to this project's samples.

Batch 31133 sample 1012536-03B surrogate recovery for 2-Fluorobiphenyl was below the DoD QSM lower control limit, but within the in-house calculated limit.

ALS Group USA, Corp

Date: 29-Dec-10

Client: AECOM Enviroment
Project: Marshall Hydrogeo 12/20/10
WorkOrder: **1012536**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-01

Client Sample ID: MWKR0275R01D122010GX
Collection Date: 12/20/2010 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	**0.15**	**0.10**	**0.10**		**mg/L**	1	12/23/2010
Calcium	**97**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	**0.88**	**0.20**	**0.20**		**mg/L**	1	12/23/2010
Magnesium	**24**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**51**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/28/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/28/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/28/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/28/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/28/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/28/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/28/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/28/2010
Surr: 2,4,6-Tribromophenol	*59.0*	*40-125*			*%REC*	1	12/28/2010
Surr: 2-Fluorobiphenyl	*63.3*	*50-110*			*%REC*	1	12/28/2010
Surr: 2-Fluorophenol	*28.2*	*20-110*			*%REC*	1	12/28/2010
Surr: 4-Terphenyl-d14	*61.5*	*50-125*			*%REC*	1	12/28/2010
Surr: Nitrobenzene-d5	*57.9*	*40-110*			*%REC*	1	12/28/2010
Surr: Phenol-d6	*25.7*	*20-110*			*%REC*	1	12/28/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-01

Client Sample ID: MWKR0275R01D122010GX
Collection Date: 12/20/2010 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/21/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/21/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/21/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/21/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
2-Butanone	ND	25	25		µg/L	1	12/21/2010
2-Hexanone	ND	50	50		µg/L	1	12/21/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/21/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/21/2010
Acetone	ND	50	50		µg/L	1	12/21/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/21/2010
Benzene	ND	1.0	1.0		µg/L	1	12/21/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/21/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/21/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/21/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/21/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/21/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/21/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/21/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/21/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/21/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/21/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/21/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/21/2010
Diethyl ether	ND	10	10		µg/L	1	12/21/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/21/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-01

Client Sample ID: MWKR0275R01D122010GX
Collection Date: 12/20/2010 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/21/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/21/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/21/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/21/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/21/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/21/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/21/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/21/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/21/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Styrene	ND	1.0	1.0		µg/L	1	12/21/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/21/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/21/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/21/2010
Toluene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/21/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/21/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/21/2010
Surr: 1,2-Dichloroethane-d4	*103*	*70-120*			*%REC*	1	12/21/2010
Surr: 4-Bromofluorobenzene	*99.3*	*75-120*			*%REC*	1	12/21/2010
Surr: Dibromofluoromethane	*101*	*85-115*			*%REC*	1	12/21/2010
Surr: Toluene-d8	*99.7*	*85-120*			*%REC*	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-02

Client Sample ID: MWKR0275R01S122010GX
Collection Date: 12/20/2010 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	**0.13**	**0.10**	**0.10**		**mg/L**	1	12/23/2010
Calcium	**88**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	**0.82**	**0.20**	**0.20**		**mg/L**	1	12/23/2010
Magnesium	**22**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**46**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/28/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/28/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/28/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/28/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/28/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/28/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/28/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/28/2010
Surr: 2,4,6-Tribromophenol	*55.3*	*40-125*			*%REC*	1	12/28/2010
Surr: 2-Fluorobiphenyl	*62.7*	*50-110*			*%REC*	1	12/28/2010
Surr: 2-Fluorophenol	*24.1*	*20-110*			*%REC*	1	12/28/2010
Surr: 4-Terphenyl-d14	*61.2*	*50-125*			*%REC*	1	12/28/2010
Surr: Nitrobenzene-d5	*56.6*	*40-110*			*%REC*	1	12/28/2010
Surr: Phenol-d6	*22.3*	*20-110*			*%REC*	1	12/28/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R01S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 10:15:00 AM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-02	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/21/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/21/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/21/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/21/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/21/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/21/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
2-Butanone	ND	25	25		µg/L	1	12/21/2010
2-Hexanone	ND	50	50		µg/L	1	12/21/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/21/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/21/2010
Acetone	ND	50	50		µg/L	1	12/21/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/21/2010
Benzene	ND	1.0	1.0		µg/L	1	12/21/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/21/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/21/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/21/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/21/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/21/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/21/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/21/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/21/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/21/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/21/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/21/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/21/2010
Diethyl ether	ND	10	10		µg/L	1	12/21/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/21/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R01S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 10:15:00 AM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-02	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/21/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/21/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/21/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/21/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/21/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/21/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/21/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/21/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/21/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Styrene	ND	1.0	1.0		µg/L	1	12/21/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/21/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/21/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/21/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/21/2010
Toluene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/21/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/21/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/21/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/21/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/21/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/21/2010
Surr: 1,2-Dichloroethane-d4	*103*	*70-120*			*%REC*	1	12/21/2010
Surr: 4-Bromofluorobenzene	*98.0*	*75-120*			*%REC*	1	12/21/2010
Surr: Dibromofluoromethane	*102*	*85-115*			*%REC*	1	12/21/2010
Surr: Toluene-d8	*98.8*	*85-120*			*%REC*	1	12/21/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R02S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 3:40:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-03	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	ND	0.10	0.10		mg/L	1	12/23/2010
Calcium	**89**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	ND	0.20	0.20		mg/L	1	12/23/2010
Magnesium	**24**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**2.7**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/29/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/29/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/29/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/29/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/29/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/29/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/29/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/29/2010
Surr: 2,4,6-Tribromophenol	*48.2*	*40-125*			*%REC*	1	12/29/2010
Surr: 2-Fluorobiphenyl	*41.7*	*50-110*		S	*%REC*	1	12/29/2010
Surr: 2-Fluorophenol	*30.7*	*20-110*			*%REC*	1	12/29/2010
Surr: 4-Terphenyl-d14	*53.3*	*50-125*			*%REC*	1	12/29/2010
Surr: Nitrobenzene-d5	*45.7*	*40-110*			*%REC*	1	12/29/2010
Surr: Phenol-d6	*20.9*	*20-110*			*%REC*	1	12/29/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R02S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 3:40:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-03	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/22/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/22/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
2-Butanone	ND	25	25		µg/L	1	12/22/2010
2-Hexanone	ND	50	50		µg/L	1	12/22/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/22/2010
Acetone	ND	50	50		µg/L	1	12/22/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/22/2010
Benzene	ND	1.0	1.0		µg/L	1	12/22/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/22/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/22/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/22/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Diethyl ether	ND	10	10		µg/L	1	12/22/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-03

Client Sample ID: MWKR0275R02S122010GX
Collection Date: 12/20/2010 3:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/22/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/22/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Styrene	ND	1.0	1.0		µg/L	1	12/22/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/22/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/22/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/22/2010
Toluene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/22/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/22/2010
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	12/22/2010
Surr: 4-Bromofluorobenzene	*98.7*	*75-120*			*%REC*	1	12/22/2010
Surr: Dibromofluoromethane	*103*	*85-115*			*%REC*	1	12/22/2010
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R03S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 11:45:00 AM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-04	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	**0.15**	**0.10**	**0.10**		**mg/L**	1	12/23/2010
Calcium	**78**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	**1.4**	**0.20**	**0.20**		**mg/L**	1	12/23/2010
Magnesium	**17**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**66**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/28/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/28/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/28/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/28/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/28/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/28/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/28/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/28/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/28/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/28/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/28/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/28/2010
Surr: 2,4,6-Tribromophenol	*60.2*	*40-125*			*%REC*	1	12/28/2010
Surr: 2-Fluorobiphenyl	*64.4*	*50-110*			*%REC*	1	12/28/2010
Surr: 2-Fluorophenol	*30.6*	*20-110*			*%REC*	1	12/28/2010
Surr: 4-Terphenyl-d14	*57.4*	*50-125*			*%REC*	1	12/28/2010
Surr: Nitrobenzene-d5	*60.6*	*40-110*			*%REC*	1	12/28/2010
Surr: Phenol-d6	*27.4*	*20-110*			*%REC*	1	12/28/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-04

Client Sample ID: MWKR0275R03S122010GX
Collection Date: 12/20/2010 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/22/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/22/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
2-Butanone	ND	25	25		µg/L	1	12/22/2010
2-Hexanone	ND	50	50		µg/L	1	12/22/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/22/2010
Acetone	ND	50	50		µg/L	1	12/22/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/22/2010
Benzene	ND	1.0	1.0		µg/L	1	12/22/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/22/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/22/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/22/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Diethyl ether	ND	10	10		µg/L	1	12/22/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R03S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 11:45:00 AM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-04	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/22/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/22/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Styrene	ND	1.0	1.0		µg/L	1	12/22/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/22/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/22/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/22/2010
Toluene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/22/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/22/2010
Surr: 1,2-Dichloroethane-d4	*103*	*70-120*			*%REC*	1	12/22/2010
Surr: 4-Bromofluorobenzene	*98.6*	*75-120*			*%REC*	1	12/22/2010
Surr: Dibromofluoromethane	*104*	*85-115*			*%REC*	1	12/22/2010
Surr: Toluene-d8	*99.0*	*85-120*			*%REC*	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R04S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 1:20:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	ND	0.10	0.10		mg/L	1	12/23/2010
Calcium	**79**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	**0.59**	**0.20**	**0.20**		**mg/L**	1	12/23/2010
Magnesium	**21**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**14**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/29/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/29/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/29/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/29/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/29/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/29/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/29/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/29/2010
Surr: 2,4,6-Tribromophenol	*64.4*	*40-125*			*%REC*	1	12/29/2010
Surr: 2-Fluorobiphenyl	*57.2*	*50-110*			*%REC*	1	12/29/2010
Surr: 2-Fluorophenol	*40.7*	*20-110*			*%REC*	1	12/29/2010
Surr: 4-Terphenyl-d14	*63.5*	*50-125*			*%REC*	1	12/29/2010
Surr: Nitrobenzene-d5	*64.6*	*40-110*			*%REC*	1	12/29/2010
Surr: Phenol-d6	*27.8*	*20-110*			*%REC*	1	12/29/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R04S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 1:20:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/22/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/22/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
2-Butanone	ND	25	25		µg/L	1	12/22/2010
2-Hexanone	ND	50	50		µg/L	1	12/22/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/22/2010
Acetone	ND	50	50		µg/L	1	12/22/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/22/2010
Benzene	ND	1.0	1.0		µg/L	1	12/22/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/22/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/22/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/22/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Diethyl ether	ND	10	10		µg/L	1	12/22/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R04S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 1:20:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/22/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/22/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Styrene	ND	1.0	1.0		µg/L	1	12/22/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/22/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/22/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/22/2010
Toluene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/22/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/22/2010
Surr: 1,2-Dichloroethane-d4	*104*	*70-120*			*%REC*	1	12/22/2010
Surr: 4-Bromofluorobenzene	*98.4*	*75-120*			*%REC*	1	12/22/2010
Surr: Dibromofluoromethane	*103*	*85-115*			*%REC*	1	12/22/2010
Surr: Toluene-d8	*98.2*	*85-120*			*%REC*	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R05S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 2:25:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-06	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **12/23/2010**		Analyst: **RH**
Barium	**0.15**	**0.10**	**0.10**		**mg/L**	1	12/23/2010
Calcium	**84**	**10**	**10**		**mg/L**	1	12/23/2010
Iron	**4.1**	**0.20**	**0.20**		**mg/L**	1	12/23/2010
Magnesium	**15**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Nickel	ND	0.020	0.020		mg/L	1	12/23/2010
Potassium	ND	10	10		mg/L	1	12/28/2010
Sodium	**68**	**1.0**	**1.0**		**mg/L**	1	12/23/2010
Vanadium	ND	0.0040	0.0040		mg/L	1	12/23/2010
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **12/28/2010**		Analyst: **JG**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthene	ND	5.0	5.0		µg/L	1	12/29/2010
Acenaphthylene	ND	5.0	5.0		µg/L	1	12/29/2010
Anthracene	ND	5.0	5.0		µg/L	1	12/29/2010
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	12/29/2010
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Chrysene	ND	1.0	1.0		µg/L	1	12/29/2010
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	12/29/2010
Fluoranthene	ND	1.0	1.0		µg/L	1	12/29/2010
Fluorene	ND	5.0	5.0		µg/L	1	12/29/2010
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	12/29/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/29/2010
Phenanthrene	ND	2.0	2.0		µg/L	1	12/29/2010
Pyrene	ND	5.0	5.0		µg/L	1	12/29/2010
Surr: 2,4,6-Tribromophenol	*68.8*	*40-125*			*%REC*	1	12/29/2010
Surr: 2-Fluorobiphenyl	*61.6*	*50-110*			*%REC*	1	12/29/2010
Surr: 2-Fluorophenol	*44.4*	*20-110*			*%REC*	1	12/29/2010
Surr: 4-Terphenyl-d14	*71.7*	*50-125*			*%REC*	1	12/29/2010
Surr: Nitrobenzene-d5	*67.9*	*40-110*			*%REC*	1	12/29/2010
Surr: Phenol-d6	*30.0*	*20-110*			*%REC*	1	12/29/2010
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10
Lab ID: 1012536-06

Client Sample ID: MWKR0275R05S122010GX
Collection Date: 12/20/2010 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/22/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/22/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
2-Butanone	ND	25	25		µg/L	1	12/22/2010
2-Hexanone	ND	50	50		µg/L	1	12/22/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/22/2010
Acetone	ND	50	50		µg/L	1	12/22/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/22/2010
Benzene	ND	1.0	1.0		µg/L	1	12/22/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/22/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/22/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/22/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
Cyclohexane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Diethyl ether	ND	10	10		µg/L	1	12/22/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R05S122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010 2:25:00 PM
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-06	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/22/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/22/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Styrene	ND	1.0	1.0		µg/L	1	12/22/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/22/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/22/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/22/2010
Toluene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/22/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/22/2010
Surr: 1,2-Dichloroethane-d4	*104*	*70-120*			*%REC*	1	12/22/2010
Surr: 4-Bromofluorobenzene	*99.1*	*75-120*			*%REC*	1	12/22/2010
Surr: Dibromofluoromethane	*103*	*85-115*			*%REC*	1	12/22/2010
Surr: Toluene-d8	*98.0*	*85-120*			*%REC*	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R02B122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-07	**Matrix:**	WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **MK**
1,1,1,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,1-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2,2-Tetrachloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1,2-Trichlorotrifluoroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,1-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,3-Trichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trichlorobenzene	ND	5.0	5.0		µg/L	1	12/22/2010
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dibromo-3-chloropropane	ND	1.0	0.20		µg/L	1	12/22/2010
1,2-Dibromoethane	ND	1.0	0.050		µg/L	1	12/22/2010
1,2-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloroethane	ND	1.0	1.0		µg/L	1	12/22/2010
1,2-Dichloropropane	ND	1.0	1.0		µg/L	1	12/22/2010
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,3-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
1,4-Dichlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
2-Butanone	ND	25	25		µg/L	1	12/22/2010
2-Hexanone	ND	50	50		µg/L	1	12/22/2010
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
4-Methyl-2-pentanone	ND	50	50		µg/L	1	12/22/2010
Acetone	ND	50	50		µg/L	1	12/22/2010
Acrylonitrile	ND	2.0	2.0		µg/L	1	12/22/2010
Benzene	ND	1.0	1.0		µg/L	1	12/22/2010
Bromochloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromodichloromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Bromoform	ND	1.0	1.0		µg/L	1	12/22/2010
Bromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon disulfide	ND	5.0	5.0		µg/L	1	12/22/2010
Carbon tetrachloride	ND	1.0	1.0		µg/L	1	12/22/2010
Chlorobenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Chloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Chloroform	ND	1.0	1.0		µg/L	1	12/22/2010
Chloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
cis-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
cis-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Dec-10*

Client:	AECOM Enviroment	**Client Sample ID:**	MWKR0275R02B122010GX
Work Order:	1012536	**Collection Date:**	12/20/2010
Project:	Marshall Hydrogeo 12/20/10		
Lab ID:	1012536-07	**Matrix:**	WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromochloromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dibromomethane	ND	5.0	5.0		µg/L	1	12/22/2010
Dichlorodifluoromethane	ND	5.0	5.0		µg/L	1	12/22/2010
Diethyl ether	ND	10	10		µg/L	1	12/22/2010
Diisopropyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethyl tert butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Ethylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Hexachloroethane	ND	5.0	5.0		µg/L	1	12/22/2010
Isopropylbenzene	ND	5.0	5.0		µg/L	1	12/22/2010
m,p-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl iodide	ND	1.0	1.0		µg/L	1	12/22/2010
Methyl tert-butyl ether	ND	5.0	5.0		µg/L	1	12/22/2010
Methylene chloride	ND	5.0	5.0		µg/L	1	12/22/2010
n-Propylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Naphthalene	ND	5.0	5.0		µg/L	1	12/22/2010
o-Xylene	ND	1.0	1.0		µg/L	1	12/22/2010
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	12/22/2010
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Styrene	ND	1.0	1.0		µg/L	1	12/22/2010
tert-Butyl alcohol	ND	50	50		µg/L	1	12/22/2010
tert-Butylbenzene	ND	1.0	1.0		µg/L	1	12/22/2010
Tertiaryamylmethylether	ND	5.0	5.0		µg/L	1	12/22/2010
Tetrachloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Tetrahydrofuran	ND	90	90		µg/L	1	12/22/2010
Toluene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,2-Dichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,3-Dichloropropene	ND	1.0	1.0		µg/L	1	12/22/2010
trans-1,4-Dichloro-2-butene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichloroethene	ND	1.0	1.0		µg/L	1	12/22/2010
Trichlorofluoromethane	ND	1.0	1.0		µg/L	1	12/22/2010
Vinyl chloride	ND	1.0	1.0		µg/L	1	12/22/2010
Xylenes, Total	ND	3.0	3.0		µg/L	1	12/22/2010
Surr: 1,2-Dichloroethane-d4	*105*	*70-120*			*%REC*	1	12/22/2010
Surr: 4-Bromofluorobenzene	*98.5*	*75-120*			*%REC*	1	12/22/2010
Surr: Dibromofluoromethane	*103*	*85-115*			*%REC*	1	12/22/2010
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	12/22/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **31118** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-31118-31118** Units: **mg/L** Analysis Date: **12/23/2010 08:16 PM**

Client ID: Run ID: **ICPMS2_101223A** SeqNo: **1517036** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	ND	0.0050								
Calcium	ND	0.50								
Iron	0.0156	0.080								J
Magnesium	0.005351	0.20								J
Nickel	0.0001276	0.0050								J
Potassium	0.01307	0.20								J
Sodium	ND	0.20								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-31118-31118** Units: **mg/L** Analysis Date: **12/23/2010 08:21 PM**

Client ID: Run ID: **ICPMS2_101223A** SeqNo: **1517037** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.09717	0.0050	0.1	0	97.2	80-120	0			
Calcium	9.472	0.50	10	0	94.7	80-120	0			
Iron	9.498	0.080	10	0	95	80-120	0			
Magnesium	9.553	0.20	10	0	95.5	80-120	0			
Nickel	0.09473	0.0050	0.1	0	94.7	80-120	0			
Potassium	9.984	0.20	10	0	99.8	80-120	0			
Sodium	9.554	0.20	10	0	95.5	80-120	0			
Vanadium	0.0966	0.0050	0.1	0	96.6	80-120	0			

LCSD Sample ID: **LCSD-31118-31118** Units: **mg/L** Analysis Date: **12/23/2010 08:40 PM**

Client ID: Run ID: **ICPMS2_101223A** SeqNo: **1517040** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.09484	0.0050	0.1	0	94.8	80-120	0.09717	2.43	20	
Calcium	9.378	0.50	10	0	93.8	80-120	9.472	0.997	20	
Iron	9.43	0.080	10	0	94.3	80-120	9.498	0.719	20	
Magnesium	9.421	0.20	10	0	94.2	80-120	9.553	1.39	20	
Nickel	0.09209	0.0050	0.1	0	92.1	80-120	0.09473	2.83	20	
Potassium	9.854	0.20	10	0	98.5	80-120	9.984	1.31	20	
Sodium	9.336	0.20	10	0	93.4	80-120	9.554	2.31	20	
Vanadium	0.09563	0.0050	0.1	0	95.6	80-120	0.0966	1.01	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31118** Instrument ID **ICPMS2** Method: **SW6020A**

MS Sample ID: **1012532-05CMS** Units: **mg/L** Analysis Date: **12/23/2010 09:59 PM**
Client ID: Run ID: **ICPMS2_101223A** SeqNo: **1517055** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.1536	0.0050	0.1	0.06139	92.2	80-120	0			
Calcium	93.67	0.50	10	86.08	75.9	80-120	0			SO
Iron	9.453	0.080	10	0.309	91.4	80-120	0			
Magnesium	31.5	0.20	10	23.26	82.4	80-120	0			
Nickel	0.08801	0.0050	0.1	0.000352	87.7	80-120	0			
Sodium	29.77	0.20	10	21.42	83.5	80-120	0			
Vanadium	0.09527	0.0050	0.1	-0.00008164	95.4	80-120	0			

MS Sample ID: **1012536-04CMS** Units: **mg/L** Analysis Date: **12/23/2010 10:58 PM**
Client ID: **MWKR0275R03S122010GX** Run ID: **ICPMS2_101223A** SeqNo: **1517066** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.2436	0.0050	0.1	0.146	97.6	80-120	0			
Calcium	89.09	0.50	10	78.07	110	80-120	0			O
Iron	10.93	0.080	10	1.388	95.4	80-120	0			
Magnesium	26.49	0.20	10	16.96	95.3	80-120	0			
Nickel	0.09227	0.0050	0.1	0.0001056	92.2	80-120	0			
Sodium	76.03	0.20	10	65.85	102	80-120	0			O
Vanadium	0.09925	0.0050	0.1	-9.367E-06	99.3	80-120	0			

MS Sample ID: **1012536-04CMS** Units: **mg/L** Analysis Date: **12/28/2010 02:16 PM**
Client ID: **MWKR0275R03S122010GX** Run ID: **ICPMS2_101228A** SeqNo: **1517880** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	14.44	0.20	10	2.753	117	80-120	0			

MS Sample ID: **1012532-05CMS** Units: **mg/L** Analysis Date: **12/28/2010 02:40 PM**
Client ID: Run ID: **ICPMS2_101228A** SeqNo: **1517885** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	13.41	0.20	10	2.173	112	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31118** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1012532-05CMSD** Units: **mg/L** Analysis Date: **12/23/2010 10:04 PM**

Client ID: Run ID: **ICPMS2_101223A** SeqNo: **1517056** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.1499	0.0050	0.1	0.06139	88.5	80-120	0.1536	2.44	20	
Calcium	90.78	0.50	10	86.08	47	80-120	93.67	3.13	20	SO
Iron	9.374	0.080	10	0.309	90.6	80-120	9.453	0.839	20	
Magnesium	30.58	0.20	10	23.26	73.2	80-120	31.5	2.96	20	S
Nickel	0.08709	0.0050	0.1	0.000352	86.7	80-120	0.08801	1.05	20	
Sodium	28.98	0.20	10	21.42	75.6	80-120	29.77	2.69	20	S
Vanadium	0.09345	0.0050	0.1	-0.00008164	93.5	80-120	0.09527	1.93	20	

MSD Sample ID: **1012536-04CMSD** Units: **mg/L** Analysis Date: **12/23/2010 11:03 PM**

Client ID: **MWKR0275R03S122010GX** Run ID: **ICPMS2_101223A** SeqNo: **1517067** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.2371	0.0050	0.1	0.146	91.1	80-120	0.2436	2.7	20	
Calcium	88.06	0.50	10	78.07	99.9	80-120	89.09	1.16	20	O
Iron	10.77	0.080	10	1.388	93.8	80-120	10.93	1.47	20	
Magnesium	26.13	0.20	10	16.96	91.7	80-120	26.49	1.37	20	
Nickel	0.09076	0.0050	0.1	0.0001056	90.7	80-120	0.09227	1.65	20	
Sodium	74.71	0.20	10	65.85	88.6	80-120	76.03	1.75	20	O
Vanadium	0.09792	0.0050	0.1	-9.367E-06	97.9	80-120	0.09925	1.35	20	

MSD Sample ID: **1012536-04CMSD** Units: **mg/L** Analysis Date: **12/28/2010 02:21 PM**

Client ID: **MWKR0275R03S122010GX** Run ID: **ICPMS2_101228A** SeqNo: **1517881** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	13.99	0.20	10	2.753	112	80-120	14.44	3.17	20	

MSD Sample ID: **1012532-05CMSD** Units: **mg/L** Analysis Date: **12/28/2010 02:45 PM**

Client ID: Run ID: **ICPMS2_101228A** SeqNo: **1517886** Prep Date: **12/23/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	12.92	0.20	10	2.173	107	80-120	13.41	3.72	20	

The following samples were analyzed in this batch:

1012536-01C 1012536-02C 1012536-03C
1012536-04C 1012536-05C 1012536-06C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31133** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKW1-31133-31133** Units: **µg/L** Analysis Date: **12/28/2010 05:11 PM**

Client ID: Run ID: **SVMS6_101228A** SeqNo: **1518754** Prep Date: **12/28/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*32.95*	0	*50*	0	*65.9*	*40-125*	0			
Surr: 2-Fluorobiphenyl	*33.59*	0	*50*	0	*67.2*	*50-110*	0			
Surr: 2-Fluorophenol	*19.54*	0	*50*	0	*39.1*	*20-110*	0			
Surr: 4-Terphenyl-d14	*32.73*	0	*50*	0	*65.5*	*50-125*	0			
Surr: Nitrobenzene-d5	*32.89*	0	*50*	0	*65.8*	*40-110*	0			
Surr: Phenol-d6	*14.55*	0	*50*	0	*29.1*	*20-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31133** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSW1-31133-31133** Units: **µg/L** Analysis Date: **12/28/2010 05:37 PM**

Client ID: Run ID: **SVMS6_101228A** SeqNo: **1518756** Prep Date: **12/28/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	27.37	5.0	40	0	68.4	45-105	0			
Acenaphthene	29.72	5.0	40	0	74.3	45-110	0			
Acenaphthylene	30.02	5.0	40	0	75	50-105	0			
Anthracene	30.47	5.0	40	0	76.2	55-110	0			
Benzo(a)anthracene	32.54	5.0	40	0	81.4	55-110	0			
Benzo(a)pyrene	33.37	5.0	40	0	83.4	55-110	0			
Benzo(b)fluoranthene	36.12	5.0	40	0	90.3	45-120	0			
Benzo(g,h,i)perylene	24.62	5.0	40	0	61.6	40-125	0			
Benzo(k)fluoranthene	37.13	5.0	40	0	92.8	45-125	0			
Chrysene	35.07	5.0	40	0	87.7	55-110	0			
Dibenzo(a,h)anthracene	29.15	5.0	40	0	72.9	40-125	0			
Fluoranthene	31.42	5.0	40	0	78.6	55-115	0			
Fluorene	31.45	5.0	40	0	78.6	50-110	0			
Indeno(1,2,3-cd)pyrene	27.68	5.0	40	0	69.2	45-125	0			
Naphthalene	28.25	5.0	40	0	70.6	40-100	0			
Phenanthrene	31.97	5.0	40	0	79.9	50-115	0			
Pyrene	30.03	5.0	40	0	75.1	50-130	0			
Surr: 2,4,6-Tribromophenol	*36.06*	0	*50*	0	*72.1*	*40-125*	0			
Surr: 2-Fluorobiphenyl	*31.99*	0	*50*	0	*64*	*50-110*	0			
Surr: 2-Fluorophenol	*19.19*	0	*50*	0	*38.4*	*20-110*	0			
Surr: 4-Terphenyl-d14	*35.65*	0	*50*	0	*71.3*	*50-125*	0			
Surr: Nitrobenzene-d5	*32.19*	0	*50*	0	*64.4*	*40-110*	0			
Surr: Phenol-d6	*15.93*	0	*50*	0	*31.9*	*20-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31133** Instrument ID **SVMS6** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-31133-31133** Units: **µg/L** Analysis Date: **12/28/2010 06:03 PM**

Client ID: Run ID: **SVMS6_101228A** SeqNo: **1518758** Prep Date: **12/28/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	26.85	5.0	40	0	67.1	45-105	27.37	1.92	30	
Acenaphthene	28.7	5.0	40	0	71.8	45-110	29.72	3.49	30	
Acenaphthylene	29.29	5.0	40	0	73.2	50-105	30.02	2.46	30	
Anthracene	29.94	5.0	40	0	74.8	55-110	30.47	1.75	30	
Benzo(a)anthracene	31.93	5.0	40	0	79.8	55-110	32.54	1.89	30	
Benzo(a)pyrene	32.66	5.0	40	0	81.6	55-110	33.37	2.15	30	
Benzo(b)fluoranthene	31.47	5.0	40	0	78.7	45-120	36.12	13.8	30	
Benzo(g,h,i)perylene	23.75	5.0	40	0	59.4	40-125	24.62	3.6	30	
Benzo(k)fluoranthene	40.11	5.0	40	0	100	45-125	37.13	7.72	30	
Chrysene	35.25	5.0	40	0	88.1	55-110	35.07	0.512	30	
Dibenzo(a,h)anthracene	28.15	5.0	40	0	70.4	40-125	29.15	3.49	30	
Fluoranthene	31.01	5.0	40	0	77.5	55-115	31.42	1.31	30	
Fluorene	30.45	5.0	40	0	76.1	50-110	31.45	3.23	30	
Indeno(1,2,3-cd)pyrene	27.03	5.0	40	0	67.6	45-125	27.68	2.38	30	
Naphthalene	27.41	5.0	40	0	68.5	40-100	28.25	3.02	30	
Phenanthrene	31.21	5.0	40	0	78	50-115	31.97	2.41	30	
Pyrene	30.03	5.0	40	0	75.1	50-130	30.03	0	30	
Surr: 2,4,6-Tribromophenol	*35.23*	0	*50*	0	*70.5*	*40-125*	36.06	*2.33*	*40*	
Surr: 2-Fluorobiphenyl	*30.59*	0	*50*	0	*61.2*	*50-110*	31.99	*4.47*	*40*	
Surr: 2-Fluorophenol	*16.75*	0	*50*	0	*33.5*	*20-110*	19.19	*13.6*	*40*	
Surr: 4-Terphenyl-d14	*33.27*	0	*50*	0	*66.5*	*50-125*	35.65	*6.91*	*40*	
Surr: Nitrobenzene-d5	*31*	0	*50*	0	*62*	*40-110*	32.19	*3.77*	*40*	
Surr: Phenol-d6	*13.95*	0	*50*	0	*27.9*	*20-110*	15.93	*13.3*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31133** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1012536-04B MS** Units: **µg/L** Analysis Date: **12/28/2010 06:29 PM**

Client ID: **MWKR0275R03S122010GX** Run ID: **SVMS6_101228A** SeqNo: **1518760** Prep Date: **12/28/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	242.6	50	400	0	60.6	45-105	0			
Acenaphthene	270.7	50	400	0	67.7	45-110	0			
Acenaphthylene	273.4	50	400	0	68.4	50-105	0			
Anthracene	293.4	50	400	0	73.4	55-110	0			
Benzo(a)anthracene	302.8	50	400	0	75.7	55-110	0			
Benzo(a)pyrene	313.7	50	400	0	78.4	55-110	0			
Benzo(b)fluoranthene	309.2	50	400	0	77.3	45-120	0			
Benzo(g,h,i)perylene	232.6	50	400	0	58.2	40-125	0			
Benzo(k)fluoranthene	383.4	50	400	0	95.8	45-125	0			
Chrysene	333.4	50	400	0	83.4	55-110	0			
Dibenzo(a,h)anthracene	272.4	50	400	0	68.1	40-125	0			
Fluoranthene	301.3	50	400	0	75.3	55-115	0			
Fluorene	297.7	50	400	0	74.4	50-110	0			
Indeno(1,2,3-cd)pyrene	262.7	50	400	0	65.7	45-125	0			
Naphthalene	246.7	50	400	0	61.7	40-100	0			
Phenanthrene	303.6	50	400	0	75.9	50-115	0			
Pyrene	285.4	50	400	0	71.4	50-130	0			
Surr: 2,4,6-Tribromophenol	*340.6*	0	*500*	0	*68.1*	*40-125*	0			
Surr: 2-Fluorobiphenyl	*283.8*	0	*500*	0	*56.8*	*50-110*	0			
Surr: 2-Fluorophenol	*141.6*	0	*500*	0	*28.3*	*20-110*	0			
Surr: 4-Terphenyl-d14	*335.2*	0	*500*	0	*67*	*50-125*	0			
Surr: Nitrobenzene-d5	*279*	0	*500*	0	*55.8*	*40-110*	0			
Surr: Phenol-d6	*129.6*	0	*500*	0	*25.9*	*20-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **31133** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1012536-04B MSD** Units: **µg/L** Analysis Date: **12/28/2010 06:55 PM**

Client ID: **MWKR0275R03S122010GX** Run ID: **SVMS6_101228A** SeqNo: **1518762** Prep Date: **12/28/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	285.2	50	400	0	71.3	45-105	242.6	16.1	30	
Acenaphthene	307.7	50	400	0	76.9	45-110	270.7	12.8	30	
Acenaphthylene	307.4	50	400	0	76.8	50-105	273.4	11.7	30	
Anthracene	312.4	50	400	0	78.1	55-110	293.4	6.27	30	
Benzo(a)anthracene	323.7	50	400	0	80.9	55-110	302.8	6.67	30	
Benzo(a)pyrene	333.7	50	400	0	83.4	55-110	313.7	6.18	30	
Benzo(b)fluoranthene	323.4	50	400	0	80.8	45-120	309.2	4.49	30	
Benzo(g,h,i)perylene	256.4	50	400	0	64.1	40-125	232.6	9.73	30	
Benzo(k)fluoranthene	411.7	50	400	0	103	45-125	383.4	7.12	30	
Chrysene	354.5	50	400	0	88.6	55-110	333.4	6.13	30	
Dibenzo(a,h)anthracene	294.5	50	400	0	73.6	40-125	272.4	7.8	30	
Fluoranthene	322.1	50	400	0	80.5	55-115	301.3	6.67	30	
Fluorene	321.1	50	400	0	80.3	50-110	297.7	7.56	30	
Indeno(1,2,3-cd)pyrene	283.4	50	400	0	70.8	45-125	262.7	7.58	30	
Naphthalene	292	50	400	0	73	40-100	246.7	16.8	30	
Phenanthrene	329.1	50	400	0	82.3	50-115	303.6	8.06	30	
Pyrene	308.2	50	400	0	77	50-130	285.4	7.68	30	
Surr: 2,4,6-Tribromophenol	*360*	0	*500*	0	*72*	*40-125*	340.6	*5.54*	*40*	
Surr: 2-Fluorobiphenyl	*322.2*	0	*500*	0	*64.4*	*50-110*	283.8	*12.7*	*40*	
Surr: 2-Fluorophenol	*157.2*	0	*500*	0	*31.4*	*20-110*	141.6	*10.4*	*40*	
Surr: 4-Terphenyl-d14	*358.3*	0	*500*	0	*71.7*	*50-125*	335.2	*6.66*	*40*	
Surr: Nitrobenzene-d5	*325.5*	0	*500*	0	*65.1*	*40-110*	279	*15.4*	*40*	
Surr: Phenol-d6	*154.3*	0	*500*	0	*30.9*	*20-110*	129.6	*17.4*	*40*	

The following samples were analyzed in this batch:

1012536-01B	1012536-02B	1012536-03B
1012536-04B	1012536-05B	1012536-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

MBLK Sample ID: **VBLKW2-101221-R85176** Units: **µg/L** Analysis Date: **12/21/2010 11:07 PM**

Client ID: Run ID: **VMS6_101221B** SeqNo: **1514423** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,3-Trichlorobenzene	ND	3.0								
1,2,3-Trichloropropane	ND	1.0								
1,2,3-Trimethylbenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,3-Dichlorobenzene	ND	2.0								
1,4-Dichlorobenzene	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
2-Methylnaphthalene	ND	10								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Acrylonitrile	ND	1.0								
Benzene	ND	1.0								
Bromochloromethane	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	5.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

Dichlorodifluoromethane	ND	1.0						
Diethyl ether	ND	10						
Diisopropyl ether	ND	5.0						
Ethyl tert butyl ether	ND	5.0						
Ethylbenzene	ND	1.0						
Hexachloroethane	ND	1.0						
Isopropylbenzene	ND	1.0						
m,p-Xylene	ND	2.0						
Methyl iodide	ND	5.0						
Methyl tert-butyl ether	ND	5.0						
Methylene chloride	ND	5.0						
n-Propylbenzene	ND	1.0						
Naphthalene	0.64	5.0						J
o-Xylene	ND	1.0						
p-Isopropyltoluene	ND	2.0						
sec-Butylbenzene	ND	2.0						
Styrene	ND	1.0						
tert-Butyl alcohol	ND	50						
tert-Butylbenzene	ND	2.0						
Tertiaryamylmethylether	ND	5.0						
Tetrachloroethene	ND	2.0						
Tetrahydrofuran	ND	10						
Toluene	ND	1.0						
trans-1,2-Dichloroethene	ND	1.0						
trans-1,3-Dichloropropene	ND	1.0						
trans-1,4-Dichloro-2-butene	ND	5.0						
Trichloroethene	ND	1.0						
Trichlorofluoromethane	ND	1.0						
Vinyl chloride	ND	1.0						
Xylenes, Total	ND	2.0						
Surr: 1,2-Dichloroethane-d4	*101.9*	0	*100*	0	*102*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*98.56*	0	*100*	0	*98.6*	*75-120*	0	
Surr: Dibromofluoromethane	*101.3*	0	*100*	0	*101*	*85-115*	0	
Surr: Toluene-d8	*98.61*	0	*100*	0	*98.6*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

LCS Sample ID: **VLCSW2-1012221-R85176** Units: **µg/L** Analysis Date: **12/21/2010 09:51 PM**

Client ID: Run ID: **VMS6_101221B** SeqNo: **1514421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.91	1.0	20	0	94.6	80-130	0			
1,1,1-Trichloroethane	19.44	1.0	20	0	97.2	65-130	0			
1,1,2,2-Tetrachloroethane	20.35	1.0	20	0	102	65-130	0			
1,1,2-Trichloroethane	20.14	1.0	20	0	101	75-125	0			
1,1-Dichloroethane	22.02	1.0	20	0	110	70-135	0			
1,1-Dichloroethene	24.85	1.0	20	0	124	70-130	0			
1,2,3-Trichlorobenzene	22.11	3.0	20	0	111	55-140	0			
1,2,3-Trichloropropane	19.51	1.0	20	0	97.6	75-125	0			
1,2,4-Trichlorobenzene	23.35	1.0	20	0	117	65-135	0			
1,2,4-Trimethylbenzene	20.39	1.0	20	0	102	75-130	0			
1,2-Dibromo-3-chloropropane	18.92	1.0	20	0	94.6	50-130	0			
1,2-Dibromoethane	21.46	1.0	20	0	107	80-120	0			
1,2-Dichlorobenzene	20.17	1.0	20	0	101	70-120	0			
1,2-Dichloroethane	19.66	1.0	20	0	98.3	70-130	0			
1,2-Dichloropropane	20.89	2.0	20	0	104	75-125	0			
1,3,5-Trimethylbenzene	20.32	1.0	20	0	102	75-130	0			
1,3-Dichlorobenzene	20.25	2.0	20	0	101	75-125	0			
1,4-Dichlorobenzene	19.88	2.0	20	0	99.4	75-125	0			
2-Butanone	19.11	5.0	20	0	95.6	30-150	0			
2-Hexanone	20.18	5.0	20	0	101	55-130	0			
4-Methyl-2-pentanone	20.07	5.0	20	0	100	60-135	0			
Acetone	21.03	20	20	0	105	40-140	0			
Acrylonitrile	19.22	1.0	20	0	96.1	70-135	0			
Benzene	20.28	1.0	20	0	101	80-120	0			
Bromochloromethane	21.88	1.0	20	0	109	65-130	0			
Bromodichloromethane	19.64	1.0	20	0	98.2	75-120	0			
Bromoform	18.48	1.0	20	0	92.4	70-130	0			
Bromomethane	24.67	1.0	20	0	123	30-145	0			
Carbon disulfide	28.53	2.5	20	0	143	35-165	0			
Carbon tetrachloride	19.42	1.0	20	0	97.1	65-140	0			
Chlorobenzene	19.66	1.0	20	0	98.3	80-120	0			
Chloroethane	17.18	1.0	20	0	85.9	60-135	0			
Chloroform	19.64	1.0	20	0	98.2	65-135	0			
Chloromethane	18.47	1.0	20	0	92.4	70-125	0			
cis-1,2-Dichloroethene	20.89	1.0	20	0	104	70-125	0			
cis-1,3-Dichloropropene	19.72	1.0	20	0	98.6	70-130	0			
Dibromochloromethane	19.22	1.0	20	0	96.1	60-135	0			
Dibromomethane	21.5	1.0	20	0	108	75-125	0			
Dichlorodifluoromethane	14.28	1.0	20	0	71.4	30-155	0			
Ethylbenzene	20.38	1.0	20	0	102	75-125	0			
Hexachloroethane	21.26	1.0	20	0	106	70-135	0			
Isopropylbenzene	23.56	1.0	20	0	118	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

m,p-Xylene	40.59	2.0	40	0	101	75-130	0
Methyl iodide	22.24	5.0	20	0	111	70-135	0
Methyl tert-butyl ether	22.11	5.0	20	0	111	65-125	0
Methylene chloride	18.98	5.0	20	0	94.9	55-140	0
n-Propylbenzene	20.89	1.0	20	0	104	70-130	0
Naphthalene	22.76	5.0	20	0	114	55-140	0
o-Xylene	20.33	1.0	20	0	102	80-120	0
p-Isopropyltoluene	22.25	2.0	20	0	111	75-130	0
sec-Butylbenzene	21.12	2.0	20	0	106	70-125	0
Styrene	20.81	1.0	20	0	104	65-135	0
tert-Butylbenzene	20.65	2.0	20	0	103	70-130	0
Tetrachloroethene	19.9	2.0	20	0	99.5	45-150	0
Tetrahydrofuran	21.61	10	20	0	108	70-135	0
Toluene	19.7	1.0	20	0	98.5	75-120	0
trans-1,2-Dichloroethene	23.46	1.0	20	0	117	60-140	0
trans-1,3-Dichloropropene	20.95	1.0	20	0	105	55-140	0
trans-1,4-Dichloro-2-butene	20.76	5.0	20	0	104	70-135	0
Trichloroethene	19.99	1.0	20	0	100	70-125	0
Trichlorofluoromethane	15.65	1.0	20	0	78.2	60-145	0
Vinyl chloride	18.73	1.0	20	0	93.6	50-145	0
Xylenes, Total	60.92	2.0	60	0	102	75-130	0
Surr: 1,2-Dichloroethane-d4	*101.2*	0	*100*	0	*101*	*70-120*	0
Surr: 4-Bromofluorobenzene	*101.6*	0	*100*	0	*102*	*75-120*	0
Surr: Dibromofluoromethane	*104.1*	0	*100*	0	*104*	*85-115*	0
Surr: Toluene-d8	*99.23*	0	*100*	0	*99.2*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

LCSD Sample ID: **VLCSDW2-101221-R85176** Units: **µg/L** Analysis Date: **12/21/2010 10:16 PM**

Client ID: Run ID: **VMS6_101221B** SeqNo: **1514422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.31	1.0	20	0	91.6	80-130	18.91	3.22	30	
1,1,1-Trichloroethane	18.31	1.0	20	0	91.6	65-130	19.44	5.99	30	
1,1,2,2-Tetrachloroethane	19.69	1.0	20	0	98.4	65-130	20.35	3.3	30	
1,1,2-Trichloroethane	19.7	1.0	20	0	98.5	75-125	20.14	2.21	30	
1,1-Dichloroethane	20.81	1.0	20	0	104	70-135	22.02	5.65	30	
1,1-Dichloroethene	23.68	1.0	20	0	118	70-130	24.85	4.82	30	
1,2,3-Trichlorobenzene	19.82	3.0	20	0	99.1	55-140	22.11	10.9	30	
1,2,3-Trichloropropane	19.08	1.0	20	0	95.4	75-125	19.51	2.23	30	
1,2,4-Trichlorobenzene	21.12	1.0	20	0	106	65-135	23.35	10	30	
1,2,4-Trimethylbenzene	19.21	1.0	20	0	96	75-130	20.39	5.96	30	
1,2-Dibromo-3-chloropropane	17.9	1.0	20	0	89.5	50-130	18.92	5.54	30	
1,2-Dibromoethane	21.02	1.0	20	0	105	80-120	21.46	2.07	30	
1,2-Dichlorobenzene	19.35	1.0	20	0	96.8	70-120	20.17	4.15	30	
1,2-Dichloroethane	19.16	1.0	20	0	95.8	70-130	19.66	2.58	30	
1,2-Dichloropropane	19.86	2.0	20	0	99.3	75-125	20.89	5.06	30	
1,3,5-Trimethylbenzene	18.91	1.0	20	0	94.6	75-130	20.32	7.19	30	
1,3-Dichlorobenzene	19.36	2.0	20	0	96.8	75-125	20.25	4.49	30	
1,4-Dichlorobenzene	18.8	2.0	20	0	94	75-125	19.88	5.58	30	
2-Butanone	18.94	5.0	20	0	94.7	30-150	19.11	0.894	30	
2-Hexanone	19.85	5.0	20	0	99.2	55-130	20.18	1.65	30	
4-Methyl-2-pentanone	19.69	5.0	20	0	98.4	60-135	20.07	1.91	30	
Acetone	20.6	20	20	0	103	40-140	21.03	2.07	30	
Acrylonitrile	19.16	1.0	20	0	95.8	70-135	19.22	0.313	30	
Benzene	19.2	1.0	20	0	96	80-120	20.28	5.47	30	
Bromochloromethane	21.39	1.0	20	0	107	65-130	21.88	2.26	30	
Bromodichloromethane	18.91	1.0	20	0	94.6	75-120	19.64	3.79	30	
Bromoform	18.05	1.0	20	0	90.2	70-130	18.48	2.35	30	
Bromomethane	23.09	1.0	20	0	115	30-145	24.67	6.62	30	
Carbon disulfide	26.88	2.5	20	0	134	35-165	28.53	5.96	30	
Carbon tetrachloride	18.3	1.0	20	0	91.5	65-140	19.42	5.94	30	
Chlorobenzene	18.82	1.0	20	0	94.1	80-120	19.66	4.37	30	
Chloroethane	16.15	1.0	20	0	80.8	60-135	17.18	6.18	30	
Chloroform	18.58	1.0	20	0	92.9	65-135	19.64	5.55	30	
Chloromethane	17.23	1.0	20	0	86.2	70-125	18.47	6.95	30	
cis-1,2-Dichloroethene	19.71	1.0	20	0	98.6	70-125	20.89	5.81	30	
cis-1,3-Dichloropropene	18.97	1.0	20	0	94.8	70-130	19.72	3.88	30	
Dibromochloromethane	18.61	1.0	20	0	93	60-135	19.22	3.22	30	
Dibromomethane	20.93	1.0	20	0	105	75-125	21.5	2.69	30	
Dichlorodifluoromethane	13.64	1.0	20	0	68.2	30-155	14.28	4.58	30	
Ethylbenzene	19.27	1.0	20	0	96.4	75-125	20.38	5.6	30	
Hexachloroethane	19.65	1.0	20	0	98.2	70-135	21.26	7.87	30	
Isopropylbenzene	22.32	1.0	20	0	112	75-125	23.56	5.41	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

m,p-Xylene	38.43	2.0	40	0	96.1	75-130	40.59	5.47	30
Methyl iodide	22.12	5.0	20	0	111	70-135	22.24	0.541	30
Methyl tert-butyl ether	21.64	5.0	20	0	108	65-125	22.11	2.15	30
Methylene chloride	18.13	5.0	20	0	90.6	55-140	18.98	4.58	30
n-Propylbenzene	19.62	1.0	20	0	98.1	70-130	20.89	6.27	30
Naphthalene	20.63	5.0	20	0	103	55-140	22.76	9.82	30
o-Xylene	19.27	1.0	20	0	96.4	80-120	20.33	5.35	30
p-Isopropyltoluene	20.99	2.0	20	0	105	75-130	22.25	5.83	30
sec-Butylbenzene	19.43	2.0	20	0	97.2	70-125	21.12	8.34	30
Styrene	19.82	1.0	20	0	99.1	65-135	20.81	4.87	30
tert-Butylbenzene	19.4	2.0	20	0	97	70-130	20.65	6.24	30
Tetrachloroethene	18.65	2.0	20	0	93.2	45-150	19.9	6.49	30
Tetrahydrofuran	20.39	10	20	0	102	70-135	21.61	5.81	30
Toluene	18.7	1.0	20	0	93.5	75-120	19.7	5.21	30
trans-1,2-Dichloroethene	22.12	1.0	20	0	111	60-140	23.46	5.88	30
trans-1,3-Dichloropropene	20.39	1.0	20	0	102	55-140	20.95	2.71	30
trans-1,4-Dichloro-2-butene	20.14	5.0	20	0	101	70-135	20.76	3.03	30
Trichloroethene	18.7	1.0	20	0	93.5	70-125	19.99	6.67	30
Trichlorofluoromethane	14.62	1.0	20	0	73.1	60-145	15.65	6.81	30
Vinyl chloride	17.6	1.0	20	0	88	50-145	18.73	6.22	30
Xylenes, Total	57.7	2.0	60	0	96.2	75-130	60.92	5.43	30
Surr: 1,2-Dichloroethane-d4	*100.6*	0	*100*	0	*101*	*70-120*	101.2	*0.595*	*30*
Surr: 4-Bromofluorobenzene	*101*	0	*100*	0	*101*	*75-120*	101.6	*0.523*	*30*
Surr: Dibromofluoromethane	*105.9*	0	*100*	0	*106*	*85-115*	104.1	*1.67*	*30*
Surr: Toluene-d8	*99.65*	0	*100*	0	*99.6*	*85-120*	99.23	*0.422*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

MS Sample ID: **1012536-04A MS** Units: **µg/L** Analysis Date: **12/22/2010 07:35 AM**

Client ID: **MWKR0275R03S122010GX** Run ID: **VMS6_101221B** SeqNo: **1514780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.47	1.0	20	0	87.4	80-130	0			
1,1,1-Trichloroethane	18.92	1.0	20	0	94.6	65-130	0			
1,1,2,2-Tetrachloroethane	18.58	1.0	20	0	92.9	65-130	0			
1,1,2-Trichloroethane	18.89	1.0	20	0	94.4	75-125	0			
1,1-Dichloroethane	21.45	1.0	20	0	107	70-135	0			
1,1-Dichloroethene	24.56	1.0	20	0	123	70-130	0			
1,2,3-Trichlorobenzene	14.14	3.0	20	0	70.7	55-140	0			
1,2,3-Trichloropropane	17.94	1.0	20	0	89.7	75-125	0			
1,2,4-Trichlorobenzene	15.99	1.0	20	0	80	65-135	0			
1,2,4-Trimethylbenzene	18.38	1.0	20	0	91.9	75-130	0			
1,2-Dibromo-3-chloropropane	14.3	1.0	20	0	71.5	50-130	0			
1,2-Dibromoethane	19.85	1.0	20	0	99.2	80-120	0			
1,2-Dichlorobenzene	17.95	1.0	20	0	89.8	70-120	0			
1,2-Dichloroethane	19.12	1.0	20	0	95.6	70-130	0			
1,2-Dichloropropane	20.01	2.0	20	0	100	75-125	0			
1,3,5-Trimethylbenzene	18.47	1.0	20	0	92.4	75-130	0			
1,3-Dichlorobenzene	18.17	2.0	20	0	90.8	75-125	0			
1,4-Dichlorobenzene	17.34	2.0	20	0	86.7	75-125	0			
2-Butanone	17.55	5.0	20	0	87.8	30-150	0			
2-Hexanone	18.84	5.0	20	0	94.2	55-130	0			
4-Methyl-2-pentanone	19.05	5.0	20	0	95.2	60-135	0			
Acetone	22.94	20	20	0.57	112	40-140	0			
Acrylonitrile	18.13	1.0	20	0	90.6	70-135	0			
Benzene	19.85	1.0	20	0	99.2	80-120	0			
Bromochloromethane	20.99	1.0	20	0	105	65-130	0			
Bromodichloromethane	17.97	1.0	20	0	89.8	75-120	0			
Bromoform	15.38	1.0	20	0	76.9	70-130	0			
Bromomethane	19.57	1.0	20	0	97.8	30-145	0			
Carbon disulfide	23.85	2.5	20	0	119	35-165	0			
Carbon tetrachloride	18.39	1.0	20	0	92	65-140	0			
Chlorobenzene	18.56	1.0	20	0	92.8	80-120	0			
Chloroethane	16.56	1.0	20	0	82.8	60-135	0			
Chloroform	19.02	1.0	20	0	95.1	65-135	0			
Chloromethane	16.24	1.0	20	0	81.2	70-125	0			
cis-1,2-Dichloroethene	20.14	1.0	20	0	101	70-125	0			
cis-1,3-Dichloropropene	17.55	1.0	20	0	87.8	70-130	0			
Dibromochloromethane	16.76	1.0	20	0	83.8	60-135	0			
Dibromomethane	20.21	1.0	20	0	101	75-125	0			
Dichlorodifluoromethane	15.08	1.0	20	0	75.4	30-155	0			
Ethylbenzene	19.51	1.0	20	0	97.6	75-125	0			
Hexachloroethane	17.11	1.0	20	0	85.6	70-135	0			
Isopropylbenzene	22.47	1.0	20	0	112	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

m,p-Xylene	38.47	2.0	40	0	96.2	75-130	0
Methyl iodide	18.15	5.0	20	0	90.8	70-135	0
Methyl tert-butyl ether	21.48	5.0	20	0	107	65-125	0
Methylene chloride	18.51	5.0	20	0	92.6	55-140	0
n-Propylbenzene	19.33	1.0	20	0	96.6	70-130	0
Naphthalene	14.34	5.0	20	0	71.7	55-140	0
o-Xylene	19.25	1.0	20	0	96.2	80-120	0
p-Isopropyltoluene	19.8	2.0	20	0	99	75-130	0
sec-Butylbenzene	18.81	2.0	20	0	94	70-125	0
Styrene	19.06	1.0	20	0	95.3	65-135	0
tert-Butylbenzene	18.94	2.0	20	0	94.7	70-130	0
Tetrachloroethene	19	2.0	20	0	95	45-150	0
Tetrahydrofuran	18.73	10	20	0	93.6	70-135	0
Toluene	19.04	1.0	20	0	95.2	75-120	0
trans-1,2-Dichloroethene	23.04	1.0	20	0	115	60-140	0
trans-1,3-Dichloropropene	18.28	1.0	20	0	91.4	55-140	0
trans-1,4-Dichloro-2-butene	16.58	5.0	20	0	82.9	70-135	0
Trichloroethene	19.52	1.0	20	0	97.6	70-125	0
Trichlorofluoromethane	15.93	1.0	20	0	79.6	60-145	0
Vinyl chloride	18.52	1.0	20	0	92.6	50-145	0
Xylenes, Total	57.72	2.0	60	0	96.2	75-130	0
Surr: 1,2-Dichloroethane-d4	*103.3*	0	*100*	0	*103*	*70-120*	0
Surr: 4-Bromofluorobenzene	*101.9*	0	*100*	0	*102*	*75-120*	0
Surr: Dibromofluoromethane	*104.5*	0	*100*	0	*104*	*85-115*	0
Surr: Toluene-d8	*99.01*	0	*100*	0	*99*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Enviroment
Work Order: 1012536
Project: Marshall Hydrogeo 12/20/10

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

MSD Sample ID: **1012536-04A MSD** Units: **µg/L** Analysis Date: **12/22/2010 08:00 AM**

Client ID: **MWKR0275R03S122010GX** Run ID: **VMS6_101221B** SeqNo: **1514781** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.74	1.0	20	0	88.7	80-130	17.47	1.53	30	
1,1,1-Trichloroethane	18.94	1.0	20	0	94.7	65-130	18.92	0.106	30	
1,1,2,2-Tetrachloroethane	18.82	1.0	20	0	94.1	65-130	18.58	1.28	30	
1,1,2-Trichloroethane	18.92	1.0	20	0	94.6	75-125	18.89	0.159	30	
1,1-Dichloroethane	21.35	1.0	20	0	107	70-135	21.45	0.467	30	
1,1-Dichloroethene	25.1	1.0	20	0	126	70-130	24.56	2.17	30	
1,2,3-Trichlorobenzene	16.04	3.0	20	0	80.2	55-140	14.14	12.6	30	
1,2,3-Trichloropropane	18.33	1.0	20	0	91.6	75-125	17.94	2.15	30	
1,2,4-Trichlorobenzene	17.96	1.0	20	0	89.8	65-135	15.99	11.6	30	
1,2,4-Trimethylbenzene	18.81	1.0	20	0	94	75-130	18.38	2.31	30	
1,2-Dibromo-3-chloropropane	15.26	1.0	20	0	76.3	50-130	14.3	6.5	30	
1,2-Dibromoethane	19.76	1.0	20	0	98.8	80-120	19.85	0.454	30	
1,2-Dichlorobenzene	18.23	1.0	20	0	91.2	70-120	17.95	1.55	30	
1,2-Dichloroethane	19.25	1.0	20	0	96.2	70-130	19.12	0.678	30	
1,2-Dichloropropane	20.07	2.0	20	0	100	75-125	20.01	0.299	30	
1,3,5-Trimethylbenzene	18.75	1.0	20	0	93.8	75-130	18.47	1.5	30	
1,3-Dichlorobenzene	18.52	2.0	20	0	92.6	75-125	18.17	1.91	30	
1,4-Dichlorobenzene	17.76	2.0	20	0	88.8	75-125	17.34	2.39	30	
2-Butanone	17.94	5.0	20	0	89.7	30-150	17.55	2.2	30	
2-Hexanone	19.12	5.0	20	0	95.6	55-130	18.84	1.48	30	
4-Methyl-2-pentanone	19.3	5.0	20	0	96.5	60-135	19.05	1.3	30	
Acetone	23.02	20	20	0.57	112	40-140	22.94	0.348	30	
Acrylonitrile	18.08	1.0	20	0	90.4	70-135	18.13	0.276	30	
Benzene	19.85	1.0	20	0	99.2	80-120	19.85	0	30	
Bromochloromethane	20.87	1.0	20	0	104	65-130	20.99	0.573	30	
Bromodichloromethane	18.1	1.0	20	0	90.5	75-120	17.97	0.721	30	
Bromoform	16.04	1.0	20	0	80.2	70-130	15.38	4.2	30	
Bromomethane	20.66	1.0	20	0	103	30-145	19.57	5.42	30	
Carbon disulfide	25.81	2.5	20	0	129	35-165	23.85	7.89	30	
Carbon tetrachloride	18.76	1.0	20	0	93.8	65-140	18.39	1.99	30	
Chlorobenzene	18.62	1.0	20	0	93.1	80-120	18.56	0.323	30	
Chloroethane	16.66	1.0	20	0	83.3	60-135	16.56	0.602	30	
Chloroform	18.88	1.0	20	0	94.4	65-135	19.02	0.739	30	
Chloromethane	17.71	1.0	20	0	88.6	70-125	16.24	8.66	30	
cis-1,2-Dichloroethene	19.94	1.0	20	0	99.7	70-125	20.14	0.998	30	
cis-1,3-Dichloropropene	17.87	1.0	20	0	89.4	70-130	17.55	1.81	30	
Dibromochloromethane	17.13	1.0	20	0	85.6	60-135	16.76	2.18	30	
Dibromomethane	20.34	1.0	20	0	102	75-125	20.21	0.641	30	
Dichlorodifluoromethane	14.82	1.0	20	0	74.1	30-155	15.08	1.74	30	
Ethylbenzene	19.42	1.0	20	0	97.1	75-125	19.51	0.462	30	
Hexachloroethane	18.24	1.0	20	0	91.2	70-135	17.11	6.39	30	
Isopropylbenzene	22.55	1.0	20	0	113	75-125	22.47	0.355	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R85176** Instrument ID **VMS6** Method: **SW8260**

m,p-Xylene	38.55	2.0	40	0	96.4	75-130	38.47	0.208	30
Methyl iodide	22	5.0	20	0	110	70-135	18.15	19.2	30
Methyl tert-butyl ether	21.76	5.0	20	0	109	65-125	21.48	1.3	30
Methylene chloride	18.62	5.0	20	0	93.1	55-140	18.51	0.593	30
n-Propylbenzene	19.51	1.0	20	0	97.6	70-130	19.33	0.927	30
Naphthalene	16.15	5.0	20	0	80.8	55-140	14.34	11.9	30
o-Xylene	19.34	1.0	20	0	96.7	80-120	19.25	0.466	30
p-Isopropyltoluene	20.61	2.0	20	0	103	75-130	19.8	4.01	30
sec-Butylbenzene	19.69	2.0	20	0	98.4	70-125	18.81	4.57	30
Styrene	19.43	1.0	20	0	97.2	65-135	19.06	1.92	30
tert-Butylbenzene	19.39	2.0	20	0	97	70-130	18.94	2.35	30
Tetrachloroethene	18.93	2.0	20	0	94.6	45-150	19	0.369	30
Tetrahydrofuran	18.91	10	20	0	94.6	70-135	18.73	0.956	30
Toluene	18.92	1.0	20	0	94.6	75-120	19.04	0.632	30
trans-1,2-Dichloroethene	23.15	1.0	20	0	116	60-140	23.04	0.476	30
trans-1,3-Dichloropropene	18.62	1.0	20	0	93.1	55-140	18.28	1.84	30
trans-1,4-Dichloro-2-butene	17.26	5.0	20	0	86.3	70-135	16.58	4.02	30
Trichloroethene	19.44	1.0	20	0	97.2	70-125	19.52	0.411	30
Trichlorofluoromethane	16.02	1.0	20	0	80.1	60-145	15.93	0.563	30
Vinyl chloride	18.73	1.0	20	0	93.6	50-145	18.52	1.13	30
Xylenes, Total	57.89	2.0	60	0	96.5	75-130	57.72	0.294	30
Surr: 1,2-Dichloroethane-d4	*102.9*	0	*100*	0	*103*	*70-120*	103.3	*0.359*	*30*
Surr: 4-Bromofluorobenzene	*101.4*	0	*100*	0	*101*	*75-120*	101.9	*0.443*	*30*
Surr: Dibromofluoromethane	*105.3*	0	*100*	0	*105*	*85-115*	104.5	*0.82*	*30*
Surr: Toluene-d8	*98.66*	0	*100*	0	*98.7*	*85-120*	99.01	*0.354*	*30*

The following samples were analyzed in this batch:

1012536-01A	1012536-02A	1012536-03A
1012536-04A	1012536-05A	1012536-06A
1012536-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1012536

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

* Ba, Ca, Fe, Mg, Ni, K, Na, V ug 12/23/10

Page: 1 of
Cooler #

COC # ENBRIDGE_122010_1
Total # of Samples: 7
Event Complete?

Regular	X		Turnaround Time		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	HYDROGEO
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	SAMPLE TIME	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None													
									Analysis	Ba,Mo,V by EPA	PNAs by 8270	VOC by 5035/8260													
1	MWKR0275R01D122010GX *	MWKR0275R01	WG	G	12/20/2010	10:15	3	DUPLICATE		X	X	X													
2	MWKR0275R01S122010GX *	MWKR0275R01	WG	G	12/20/2010	10:15	3			X	X	X													
3	MWKR0275R02S122010GX *	MWKR0275R02	WG	G	12/20/2010	15:40	3			X	X	X													
4	MWKR0275R03M122010GX * *	MWKR0275R03	WG	G	12/20/2010	11:45	3	MSMSD		X	X	X													
5	MWKR0275R03S122010GX *	MWKR0275R03	WG	G	12/20/2010	11:45	3			X	X	X													
6	MWKR0275R04S122010GX *	MWKR0275R04	WG	G	12/20/2010	13:20	3			X	X	X													
7	MWKR0275R05S122010GX	MWKR0275R05	WG	G	12/20/2010	14:25	3			X	X	X													
	MWKR0275R07201220106GX				12/20/10		1	Trip Blank				X													

4 5 6 7

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Don Johnson / AECOM	12/20/10	1700		12/20/10	1700
	12/21/10	1730		12/20/10	1730

SHIPPING INFO	SAMPLER NAME AND SIGNATURE
Company:	PRINT Name of SAMPLER: Don Johnson
Tracking #:	SIGNATURE of SAMPLER: DATE Signed: Time:

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

2.8°C

12534

Bill Carey

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Wednesday, December 22, 2010 11:09 AM
To: Ann Preston; Bill Carey
Subject: RE: Hydrogeo Samples

Yes. See metals list for 1012004. Barium, Calcium, Iron, Magnesium, Nickel, Potassium, Sodium, Vanadium

Mike
From: Ann Preston [mailto:Ann.Preston@ALSGlobal.com]
Sent: Wednesday, December 22, 2010 10:20 AM
To: Bill Carey; Wolf, Michael G.
Subject: RE: Hydrogeo Samples

Also....and then I have to leave.....I logged the Hydrogeo we got for 12/20 with the full list plus Oxy cmpd, 3 metals and PNAs....See WOA. Do these samples need to be changed?

Ann

From: Bill Carey
Sent: Wednesday, December 22, 2010 10:09 AM
To: michael.wolf@aecom.com
Cc: Ann Preston
Subject: Hydrogeo Samples
Hi Mike - Please send me a revised chain for the samples we received last night so we know we have all the correct parameters.

Thanks

How was your customer experience? Please send us your feedback.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Dec-10 17:30**

Work Order: **1012536** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 21-Dec-10 (Date) Reviewed by: Ann Preston (eSignature) 21-Dec-10 (Date)

Matrices: Groundwater
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

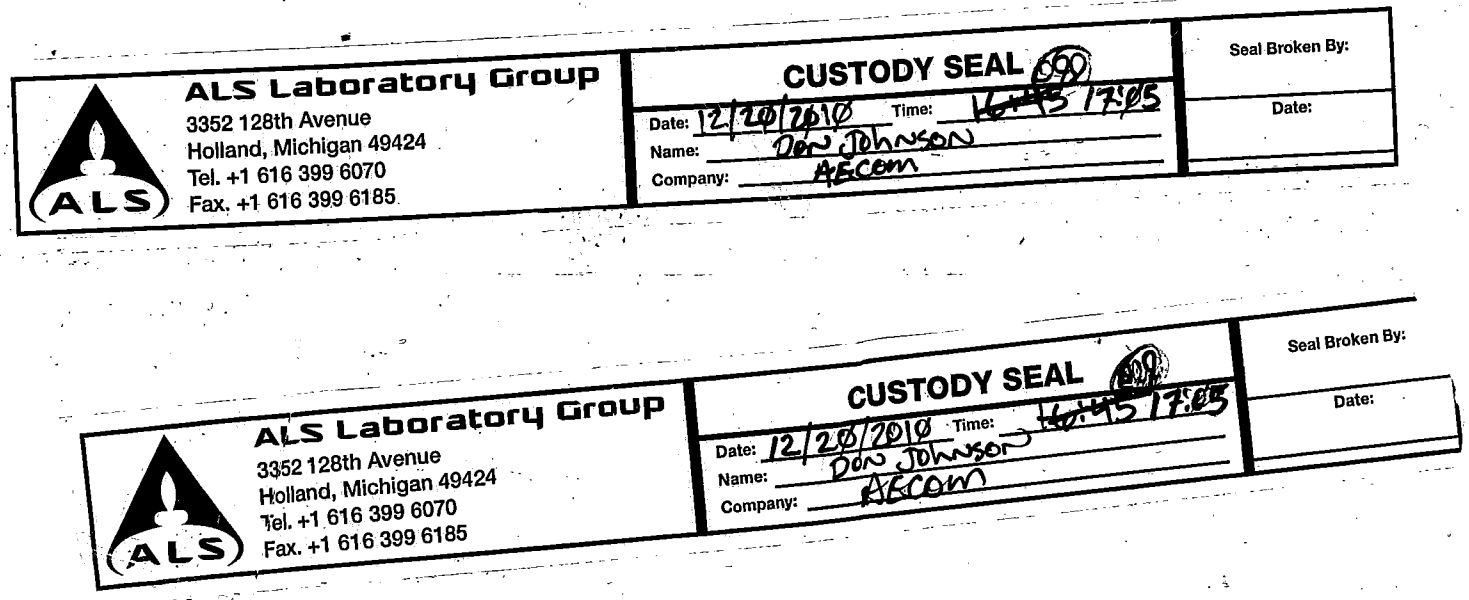
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL 699
Date: 12/20/2010 Time: 16:45 17:05
Name: Don Johnson
Company: AECOM

Seal Broken By:
Date:

ALS Laboratory Group
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL 699
Date: 12/20/2010 Time: 16:45 17:05
Name: Don Johnson
Company: AECOM

Seal Broken By:
Date:

27-Jun-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Hydrogeo2 Kalamazoo 6.20.12** Work Order: **1206702**

Dear Mike,

ALS Environmental received 7 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 32.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12
Work Order: **1206702**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206702-01	MWKR3780L01S062012GX	Groundwater		6/20/2012 12:35	6/20/2012 17:16	☐
1206702-02	MWKR3780L02S062012GX	Groundwater		6/20/2012 11:45	6/20/2012 17:16	☐
1206702-03	MWKR3780L03S062012GX	Groundwater		6/20/2012 11:00	6/20/2012 17:16	☐
1206702-04	MWKR3782L01D062012GX	Groundwater		6/20/2012 11:55	6/20/2012 17:16	☐
1206702-05	MWKR3782L01S062012GX	Groundwater		6/20/2012 11:55	6/20/2012 17:16	☐
1206702-06	MWKR3782L01T062012WX	Water		6/20/2012	6/20/2012 17:16	☐
1206702-07	MWKR3776L01S062012GX	Groundwater		6/20/2012 10:45	6/20/2012 17:16	☐

Client: AECOM Environment
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12
Work Order: 1206702

Case Narrative

Batch R106431A MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12
WorkOrder: **1206702**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3780L01S062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 12:35:00 PM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-01	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/22/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/25/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	**5.0**	**0.20**	**0.20**		**mg/L**	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*47.8*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*59.7*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*49.3*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **RS**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*97.8*	*70-120*			*%REC*	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*85.4*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*92.4*	*75-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*99.4*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*91.2*	*85-115*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*99.2*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.6*	*85-120*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.5*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3780L02S062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 11:45:00 AM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-02	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/22/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/25/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	**5.9**	**0.20**	**0.20**		**mg/L**	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*46.8*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*44.0*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*49.1*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*99.8*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.0*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*97.8*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*98.8*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3780L03S062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 11:00:00 AM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-03	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/22/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/25/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*42.3*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*51.8*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*43.7*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*99.8*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*97.0*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3782L01D062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 11:55:00 AM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-04	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*43.1*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*51.8*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*44.6*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*95.4*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*100*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*100*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3782L01S062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 11:55:00 AM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*41.3*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*41.4*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*44.0*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.7*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*98.1*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3782L01T062012WX
Work Order:	1206702	**Collection Date:**	6/20/2012
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-06	**Matrix:**	WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.3*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*98.7*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*98.2*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR3776L01S062012GX
Work Order:	1206702	**Collection Date:**	6/20/2012 10:45:00 AM
Project:	Marshall Hydrogeo2 Kalamazoo 6.20.12		
Lab ID:	1206702-07	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*50.9*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*57.9*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*53.2*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*95.6*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*96.6*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.4*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41874** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-41874-41874** Units: **mg/L** Analysis Date: **6/25/2012 02:14 PM**
Client ID: Run ID: **HG1_120625A** SeqNo: **2011294** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-41874-41874** Units: **mg/L** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **HG1_120625A** SeqNo: **2011295** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001923	0.00020	0.002	0	96.2	80-120	0			

MS Sample ID: **1206641-16AMS** Units: **mg/L** Analysis Date: **6/25/2012 02:34 PM**
Client ID: Run ID: **HG1_120625A** SeqNo: **2011303** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.01962	0.0020	0.02	0.00006	97.8	75-125	0			

MSD Sample ID: **1206641-16AMSD** Units: **mg/L** Analysis Date: **6/25/2012 02:44 PM**
Client ID: Run ID: **HG1_120625A** SeqNo: **2011307** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.01999	0.0020	0.02	0.00006	99.6	75-125	0.01962	1.87	20	

The following samples were analyzed in this batch: 1206702-01A 1206702-02A 1206702-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **41937** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-41937-41937** Units: **mg/L** Analysis Date: **6/26/2012 12:38 PM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012591** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-41937-41937** Units: **mg/L** Analysis Date: **6/26/2012 12:40 PM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012592** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002103	0.00020	0.002	0	105	80-120	0			

MS Sample ID: **1206641-21AMS** Units: **mg/L** Analysis Date: **6/26/2012 12:56 PM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012599** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.02074	0.0020	0.02	-0.00011	104	75-125	0			

MSD Sample ID: **1206641-21AMSD** Units: **mg/L** Analysis Date: **6/26/2012 12:58 PM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012600** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.02096	0.0020	0.02	-0.00011	105	75-125	0.02074	1.06	20	

The following samples were analyzed in this batch: 1206702-04A 1206702-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **41939** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-41939-41939** Units: **mg/L** Analysis Date: **6/26/2012 11:23 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012552** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-41939-41939** Units: **mg/L** Analysis Date: **6/26/2012 11:25 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012553** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001985	0.00020	0.002	0	99.2	80-120	0			

MS Sample ID: **1206702-07AMS** Units: **mg/L** Analysis Date: **6/26/2012 11:30 AM**
Client ID: **MWKR3776L01S062012GX** Run ID: **HG1_120626A** SeqNo: **2012555** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002017	0.00020	0.002	-0.000019	102	75-125	0			

MS Sample ID: **1206707-04AMS** Units: **mg/L** Analysis Date: **6/26/2012 11:37 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012558** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001964	0.00020	0.002	-0.000015	99	75-125	0			

MSD Sample ID: **1206702-07AMSD** Units: **mg/L** Analysis Date: **6/26/2012 11:32 AM**
Client ID: **MWKR3776L01S062012GX** Run ID: **HG1_120626A** SeqNo: **2012556** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001988	0.00020	0.002	-0.000019	100	75-125	0.002017	1.45	20	

MSD Sample ID: **1206707-04AMSD** Units: **mg/L** Analysis Date: **6/26/2012 11:39 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012559** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001975	0.00020	0.002	-0.000015	99.5	75-125	0.001964	0.559	20	

The following samples were analyzed in this batch: 1206702-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41899-41899** Units: **mg/L** Analysis Date: **6/25/2012 11:57 PM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012123** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Iron	ND	0.080								
Molybdenum	0.0009148	0.0050								J
Nickel	ND	0.0050								
Titanium	0.0001288	0.0050								J
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41899-41899** Units: **mg/L** Analysis Date: **6/26/2012 12:28 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012133** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08674	0.0020	0.1	0	86.7	80-120	0			
Iron	8.736	0.080	10	0	87.4	80-120	0			
Molybdenum	0.09185	0.0050	0.1	0	91.8	80-120	0			
Nickel	0.08278	0.0050	0.1	0	82.8	80-120	0			
Titanium	0.08523	0.0050	0.1	0	85.2	80-120	0			
Vanadium	0.08106	0.0050	0.1	0	81.1	80-120	0			

MS Sample ID: **1206641-21AMS** Units: **mg/L** Analysis Date: **6/26/2012 12:54 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012138** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8641	0.020	1	0.0003471	86.4	80-120	0			
Iron	88.87	0.80	100	0.05946	88.8	80-120	0			
Molybdenum	0.8789	0.050	1	0.001769	87.7	80-120	0			
Nickel	0.8995	0.050	1	0.04495	85.5	80-120	0			
Titanium	0.9178	0.050	1	0.007274	91.1	80-120	0			
Vanadium	0.8547	0.050	1	0.00003524	85.5	80-120	0			

MS Sample ID: **1206702-07AMS** Units: **mg/L** Analysis Date: **6/26/2012 02:57 AM**
Client ID: **MWKR3776L01S062012GX** Run ID: **ICPMS2_120625A** SeqNo: **2012163** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08995	0.0020	0.1	-3.294E-06	90	80-120	0			
Iron	9.263	0.080	10	0.003816	92.6	80-120	0			
Molybdenum	0.08848	0.0050	0.1	0.0007451	87.7	80-120	0			
Nickel	0.0881	0.0050	0.1	-0.001213	89.3	80-120	0			
Titanium	0.09712	0.0050	0.1	0.0007027	96.4	80-120	0			
Vanadium	0.08942	0.0050	0.1	0.0004493	89	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1206641-21AMSD** Units: **mg/L** Analysis Date: **6/26/2012 12:59 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012139** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8965	0.020	1	0.0003471	89.6	80-120	0.8641	3.68	20	
Iron	91.9	0.80	100	0.05946	91.8	80-120	88.87	3.35	20	
Molybdenum	0.9081	0.050	1	0.001769	90.6	80-120	0.8789	3.27	20	
Nickel	0.9256	0.050	1	0.04495	88.1	80-120	0.8995	2.86	20	
Titanium	0.942	0.050	1	0.007274	93.5	80-120	0.9178	2.6	20	
Vanadium	0.8914	0.050	1	0.00003524	89.1	80-120	0.8547	4.2	20	

MSD Sample ID: **1206702-07AMSD** Units: **mg/L** Analysis Date: **6/26/2012 03:02 AM**
Client ID: **MWKR3776L01S062012GX** Run ID: **ICPMS2_120625A** SeqNo: **2012164** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09196	0.0020	0.1	-3.294E-06	92	80-120	0.08995	2.21	20	
Iron	9.446	0.080	10	0.003816	94.4	80-120	9.263	1.96	20	
Molybdenum	0.09189	0.0050	0.1	0.0007451	91.1	80-120	0.08848	3.78	20	
Nickel	0.09045	0.0050	0.1	-0.001213	91.7	80-120	0.0881	2.63	20	
Titanium	0.09716	0.0050	0.1	0.0007027	96.5	80-120	0.09712	0.0412	20	
Vanadium	0.09184	0.0050	0.1	0.0004493	91.4	80-120	0.08942	2.67	20	

The following samples were analyzed in this batch:

1206702-01A	1206702-02A	1206702-03A
1206702-04A	1206702-05A	1206702-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 06:23 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012665** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*22.23*	0	*50*	0	*44.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*26.63*	0	*50*	0	*53.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*23.05*	0	*50*	0	*46.1*	*41-104*	0			

LCS Sample ID: **SLCSW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 02:27 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012658** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	10.82	5.0	20	0	54.1	45-105	0			
Naphthalene	10.61	5.0	20	0	53	40-100	0			
Phenanthrene	12.04	5.0	20	0	60.2	50-115	0			
Surr: 2-Fluorobiphenyl	*23.96*	0	*50*	0	*47.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*25.63*	0	*50*	0	*51.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*25.24*	0	*50*	0	*50.5*	*41-104*	0			

MS Sample ID: **1206702-07B MS** Units: **µg/L** Analysis Date: **6/25/2012 03:01 PM**
Client ID: **MWKR3776L01S062012GX** Run ID: **SVMS4_120625A** SeqNo: **2012659** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	100.2	50	200	0	50.1	45-105	0			
Naphthalene	98.9	50	200	0	49.4	40-100	0			
Phenanthrene	112.3	50	200	0	56.2	50-115	0			
Surr: 2-Fluorobiphenyl	*224.7*	0	*500*	0	*44.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*254.3*	0	*500*	0	*50.9*	*26-119*	0			
Surr: Nitrobenzene-d5	*234.8*	0	*500*	0	*47*	*41-104*	0			

MS Sample ID: **1206707-04B MS** Units: **µg/L** Analysis Date: **6/25/2012 04:08 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012661** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	93.4	50	200	0	46.7	45-105	0			
Naphthalene	92.3	50	200	0	46.2	40-100	0			
Phenanthrene	105.1	50	200	0	52.6	50-115	0			
Surr: 2-Fluorobiphenyl	*206.5*	0	*500*	0	*41.3*	*36-94*	0			
Surr: 4-Terphenyl-d14	*191.6*	0	*500*	0	*38.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*225.2*	0	*500*	0	*45*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206702-07B MSD** Units: **µg/L** Analysis Date: **6/25/2012 03:34 PM**
Client ID: **MWKR3776L01S062012GX** Run ID: **SVMS4_120625A** SeqNo: **2012660** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	95.9	50	200	0	48	45-105	100.2	4.39	30	
Naphthalene	93.4	50	200	0	46.7	40-100	98.9	5.72	30	
Phenanthrene	109.7	50	200	0	54.8	50-115	112.3	2.34	30	
Surr: 2-Fluorobiphenyl	*212.4*	0	*500*	0	*42.5*	*36-94*	224.7	*5.63*	*40*	
Surr: 4-Terphenyl-d14	*250.9*	0	*500*	0	*50.2*	*26-119*	254.3	*1.35*	*40*	
Surr: Nitrobenzene-d5	*223.5*	0	*500*	0	*44.7*	*41-104*	234.8	*4.93*	*40*	

MSD Sample ID: **1206707-04B MSD** Units: **µg/L** Analysis Date: **6/25/2012 04:42 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012662** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	104.6	50	200	0	52.3	45-105	93.4	11.3	30	
Naphthalene	101.1	50	200	0	50.6	40-100	92.3	9.1	30	
Phenanthrene	118.6	50	200	0	59.3	50-115	105.1	12.1	30	
Surr: 2-Fluorobiphenyl	*232.2*	0	*500*	0	*46.4*	*36-94*	206.5	*11.7*	*40*	
Surr: 4-Terphenyl-d14	*273.3*	0	*500*	0	*54.7*	*26-119*	191.6	*35.1*	*40*	
Surr: Nitrobenzene-d5	*240.4*	0	*500*	0	*48.1*	*41-104*	225.2	*6.53*	*40*	

The following samples were analyzed in this batch:

1206702-01B	1206702-02B	1206702-03B
1206702-04B	1206702-05B	1206702-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **R106424A** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **VBLKW2-120622-R106424A** Units: **µg/L** Analysis Date: **6/23/2012 01:00 AM**
Client ID: Run ID: **VMS8_120622B** SeqNo: **2009755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	10								
Surr: 1,2-Dichloroethane-d4	*19.89*	0	*20*	0	*99.4*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*19.67*	0	*20*	0	*98.4*	*75-120*	0			
Surr: Dibromofluoromethane	*20.09*	0	*20*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*19.53*	0	*20*	0	*97.6*	*85-120*	0			

The following samples were analyzed in this batch: 1206702-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **VBLKW2-120622-R106425** Units: **µg/L** Analysis Date: **6/22/2012 11:40 PM**
Client ID: Run ID: **VMS5_120622A** SeqNo: **2009758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,3-Trichlorobenzene	ND	3.0								
1,2,3-Trichloropropane	ND	1.0								
1,2,3-Trimethylbenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,3-Dichlorobenzene	ND	2.0								
1,4-Dichlorobenzene	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
2-Methylnaphthalene	ND	10								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Acetonitrile	ND	1.0								
Benzene	ND	1.0								
Bromobenzene	ND	1.0								
Bromochloromethane	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	5.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	1.0					
Diethyl ether	ND	10					
Diisopropyl ether	ND	5.0					
Ethyl tert butyl ether	ND	5.0					
Ethylbenzene	ND	1.0					
Hexachloroethane	ND	1.0					
Isopropylbenzene	ND	1.0					
m,p-Xylene	ND	2.0					
Methyl iodide	ND	5.0					
Methyl tert-butyl ether	ND	5.0					
Methylene chloride	ND	5.0					
Naphthalene	ND	5.0					
n-Butylbenzene	ND	1.0					
n-Propylbenzene	ND	1.0					
o-Xylene	ND	1.0					
p-Isopropyltoluene	ND	2.0					
sec-Butylbenzene	ND	2.0					
Styrene	ND	1.0					
tert-Butyl alcohol	ND	50					
tert-Butylbenzene	ND	2.0					
Tertiaryamylmethylether	ND	5.0					
Tetrachloroethene	ND	2.0					
Tetrahydrofuran	ND	10					
Toluene	ND	1.0					
trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
trans-1,4-Dichloro-2-butene	ND	5.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*20.5*	0	*20*	0	*102*	*70-120*	0
Surr: 4-Bromofluorobenzene	*19.66*	0	*20*	0	*98.3*	*75-120*	0
Surr: Dibromofluoromethane	*20.87*	0	*20*	0	*104*	*85-115*	0
Surr: Toluene-d8	*20.02*	0	*20*	0	*100*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **VLCSW1-120622-R106425** Units: **µg/L** Analysis Date: **6/22/2012 10:49 PM**
Client ID: Run ID: **VMS5_120622A** SeqNo: **2009757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.92	1.0	20	0	99.6	80-130	0			
1,1,1-Trichloroethane	20.61	1.0	20	0	103	65-130	0			
1,1,2,2-Tetrachloroethane	21.08	1.0	20	0	105	65-130	0			
1,1,2-Trichloroethane	19.01	1.0	20	0	95	75-125	0			
1,1-Dichloroethane	19.57	1.0	20	0	97.8	70-135	0			
1,1-Dichloroethene	22.06	1.0	20	0	110	70-130	0			
1,2,3-Trichlorobenzene	20.66	3.0	20	0	103	55-140	0			
1,2,3-Trichloropropane	19.04	1.0	20	0	95.2	75-125	0			
1,2,3-Trimethylbenzene	19.97	1.0	20	0	99.8	75-130	0			
1,2,4-Trichlorobenzene	19.18	1.0	20	0	95.9	65-135	0			
1,2,4-Trimethylbenzene	20.54	1.0	20	0	103	75-130	0			
1,2-Dibromo-3-chloropropane	20.78	1.0	20	0	104	50-130	0			
1,2-Dibromoethane	20.51	1.0	20	0	103	80-120	0			
1,2-Dichlorobenzene	20.42	1.0	20	0	102	70-120	0			
1,2-Dichloroethane	18.61	1.0	20	0	93	70-130	0			
1,2-Dichloropropane	20.49	2.0	20	0	102	75-125	0			
1,3,5-Trimethylbenzene	20.62	1.0	20	0	103	75-130	0			
1,3-Dichlorobenzene	19.94	2.0	20	0	99.7	75-125	0			
1,4-Dichlorobenzene	20	2.0	20	0	100	75-125	0			
2-Butanone	19.47	5.0	20	0	97.4	30-150	0			
2-Hexanone	23.61	5.0	20	0	118	55-130	0			
4-Methyl-2-pentanone	22.86	5.0	20	0	114	60-135	0			
Acetone	17.39	20	20	0	87	40-140	0			J
Benzene	20.53	1.0	20	0	103	80-120	0			
Bromobenzene	18.52	1.0	20	0	92.6	75-125	0			
Bromochloromethane	18.49	1.0	20	0	92.4	65-130	0			
Bromodichloromethane	20.43	1.0	20	0	102	75-120	0			
Bromoform	20.54	1.0	20	0	103	70-130	0			
Bromomethane	22	1.0	20	0	110	30-145	0			
Carbon disulfide	22.82	2.5	20	0	114	35-165	0			
Carbon tetrachloride	21.36	1.0	20	0	107	65-140	0			
Chlorobenzene	19.94	1.0	20	0	99.7	80-120	0			
Chloroethane	18.96	1.0	20	0	94.8	60-135	0			
Chloroform	20.19	1.0	20	0	101	65-135	0			
Chloromethane	17.89	1.0	20	0	89.4	70-125	0			
cis-1,2-Dichloroethene	19.51	1.0	20	0	97.6	70-125	0			
cis-1,3-Dichloropropene	20.64	1.0	20	0	103	70-130	0			
Dibromochloromethane	21.09	1.0	20	0	105	60-135	0			
Dibromomethane	19.91	1.0	20	0	99.6	75-125	0			
Dichlorodifluoromethane	17.29	1.0	20	0	86.4	30-155	0			
Ethylbenzene	20.83	1.0	20	0	104	75-125	0			
Hexachloroethane	18.9	1.0	20	0	94.5	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	20.97	1.0	20	0	105	75-125	0
m,p-Xylene	40.76	2.0	40	0	102	75-130	0
Methyl iodide	20.25	5.0	20	0	101	70-135	0
Methyl tert-butyl ether	20.53	5.0	20	0	103	65-125	0
Methylene chloride	19.1	5.0	20	0	95.5	55-140	0
Naphthalene	20.82	5.0	20	0	104	55-140	0
n-Butylbenzene	20.98	1.0	20	0	105	70-135	0
n-Propylbenzene	20.5	1.0	20	0	102	70-130	0
o-Xylene	20.32	1.0	20	0	102	80-120	0
p-Isopropyltoluene	20.48	2.0	20	0	102	75-130	0
sec-Butylbenzene	20.63	2.0	20	0	103	70-125	0
Styrene	20.95	1.0	20	0	105	65-135	0
tert-Butylbenzene	20.81	2.0	20	0	104	70-130	0
Tetrachloroethene	20.64	2.0	20	0	103	45-150	0
Tetrahydrofuran	17.77	10	20	0	88.8	70-135	0
Toluene	20.38	1.0	20	0	102	75-120	0
trans-1,2-Dichloroethene	21.3	1.0	20	0	106	60-140	0
trans-1,3-Dichloropropene	20.01	1.0	20	0	100	55-140	0
trans-1,4-Dichloro-2-butene	19.54	5.0	20	0	97.7	70-135	0
Trichloroethene	21.22	1.0	20	0	106	70-125	0
Trichlorofluoromethane	19.94	1.0	20	0	99.7	60-145	0
Vinyl chloride	19.68	1.0	20	0	98.4	50-145	0
Xylenes, Total	61.08	3.0	60	0	102	75-130	0
Surr: 1,2-Dichloroethane-d4	*19.5*	0	*20*	0	*97.5*	*70-120*	0
Surr: 4-Bromofluorobenzene	*20.1*	0	*20*	0	*100*	*75-120*	0
Surr: Dibromofluoromethane	*20.25*	0	*20*	0	*101*	*85-115*	0
Surr: Toluene-d8	*19.95*	0	*20*	0	*99.8*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **1206702-07C MS** Units: **µg/L** Analysis Date: **6/23/2012 08:35 AM**
Client ID: **MWKR3776L01S062012GX** Run ID: **VMS5_120622A** SeqNo: **2009857** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.1	1.0	20	0	95.5	80-130	0			
1,1,1-Trichloroethane	20.93	1.0	20	0	105	65-130	0			
1,1,2,2-Tetrachloroethane	20.17	1.0	20	0	101	65-130	0			
1,1,2-Trichloroethane	19.24	1.0	20	0	96.2	75-125	0			
1,1-Dichloroethane	20.22	1.0	20	0	101	70-135	0			
1,1-Dichloroethene	23.51	1.0	20	0	118	70-130	0			
1,2,3-Trichlorobenzene	18.62	3.0	20	0	93.1	55-140	0			
1,2,3-Trichloropropane	19.39	1.0	20	0	97	75-125	0			
1,2,3-Trimethylbenzene	19.23	1.0	20	0	96.2	75-130	0			
1,2,4-Trichlorobenzene	18.02	1.0	20	0	90.1	65-135	0			
1,2,4-Trimethylbenzene	20.37	1.0	20	0	102	75-130	0			
1,2-Dibromo-3-chloropropane	18.33	1.0	20	0	91.6	50-130	0			
1,2-Dibromoethane	19.97	1.0	20	0	99.8	80-120	0			
1,2-Dichlorobenzene	18.65	1.0	20	0	93.2	70-120	0			
1,2-Dichloroethane	19.49	1.0	20	0	97.4	70-130	0			
1,2-Dichloropropane	20.54	2.0	20	0	103	75-125	0			
1,3,5-Trimethylbenzene	20.63	1.0	20	0	103	75-130	0			
1,3-Dichlorobenzene	19.02	2.0	20	0	95.1	75-125	0			
1,4-Dichlorobenzene	18.93	2.0	20	0	94.6	75-125	0			
2-Butanone	19.41	5.0	20	0	97	30-150	0			
2-Hexanone	23.64	5.0	20	0	118	55-130	0			
4-Methyl-2-pentanone	23.63	5.0	20	0	118	60-135	0			
Acetone	21.88	20	20	0	109	40-140	0			
Benzene	19.93	1.0	20	0	99.6	80-120	0			
Bromobenzene	18.44	1.0	20	0	92.2	75-125	0			
Bromochloromethane	18.81	1.0	20	0	94	65-130	0			
Bromodichloromethane	19.4	1.0	20	0	97	75-120	0			
Bromoform	19.28	1.0	20	0	96.4	70-130	0			
Bromomethane	19.14	1.0	20	0	95.7	30-145	0			
Carbon disulfide	24.61	2.5	20	0	123	35-165	0			
Carbon tetrachloride	21.97	1.0	20	0	110	65-140	0			
Chlorobenzene	20.13	1.0	20	0	101	80-120	0			
Chloroethane	18.86	1.0	20	0	94.3	60-135	0			
Chloroform	19.25	1.0	20	0	96.2	65-135	0			
Chloromethane	17.89	1.0	20	0	89.4	70-125	0			
cis-1,2-Dichloroethene	19.35	1.0	20	0	96.8	70-125	0			
cis-1,3-Dichloropropene	19.01	1.0	20	0	95	70-130	0			
Dibromochloromethane	19.8	1.0	20	0	99	60-135	0			
Dibromomethane	18.94	1.0	20	0	94.7	75-125	0			
Dichlorodifluoromethane	17.05	1.0	20	0	85.2	30-155	0			
Ethylbenzene	20.72	1.0	20	0	104	75-125	0			
Hexachloroethane	18.08	1.0	20	0	90.4	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	21.21	1.0	20	0	106	75-125	0
m,p-Xylene	41.35	2.0	40	0	103	75-130	0
Methyl iodide	16.16	5.0	20	0	80.8	70-135	0
Methyl tert-butyl ether	19.76	5.0	20	0	98.8	65-125	0
Methylene chloride	19.81	5.0	20	0	99	55-140	0
Naphthalene	19.06	5.0	20	0	95.3	55-140	0
n-Butylbenzene	20.49	1.0	20	0	102	70-135	0
n-Propylbenzene	20.6	1.0	20	0	103	70-130	0
o-Xylene	20.32	1.0	20	0	102	80-120	0
p-Isopropyltoluene	19.63	2.0	20	0	98.2	75-130	0
sec-Butylbenzene	21.22	2.0	20	0	106	70-125	0
Styrene	19.63	1.0	20	0	98.2	65-135	0
tert-Butylbenzene	21.2	2.0	20	0	106	70-130	0
Tetrachloroethene	20.29	2.0	20	0	101	45-150	0
Tetrahydrofuran	19.07	10	20	0	95.4	70-135	0
Toluene	20.65	1.0	20	0	103	75-120	0
trans-1,2-Dichloroethene	21.54	1.0	20	0	108	60-140	0
trans-1,3-Dichloropropene	18.92	1.0	20	0	94.6	55-140	0
trans-1,4-Dichloro-2-butene	16.39	5.0	20	0	82	70-135	0
Trichloroethene	20.1	1.0	20	0	100	70-125	0
Trichlorofluoromethane	19.91	1.0	20	0	99.6	60-145	0
Vinyl chloride	20.32	1.0	20	0	102	50-145	0
Xylenes, Total	61.67	3.0	60	0	103	75-130	0
Surr: 1,2-Dichloroethane-d4	*19.5*	0	*20*	0	*97.5*	*70-120*	0
Surr: 4-Bromofluorobenzene	*20.62*	0	*20*	0	*103*	*75-120*	0
Surr: Dibromofluoromethane	*18.25*	0	*20*	0	*91.2*	*85-115*	0
Surr: Toluene-d8	*20.17*	0	*20*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MSD Sample ID: **1206702-07C MSD** Units: **µg/L** Analysis Date: **6/23/2012 09:00 AM**

Client ID: **MWKR3776L01S062012GX** Run ID: **VMS5_120622A** SeqNo: **2009858** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.44	1.0	20	0	92.2	80-130	19.1	3.52	30	
1,1,1-Trichloroethane	21.48	1.0	20	0	107	65-130	20.93	2.59	30	
1,1,2,2-Tetrachloroethane	19.34	1.0	20	0	96.7	65-130	20.17	4.2	30	
1,1,2-Trichloroethane	18.27	1.0	20	0	91.4	75-125	19.24	5.17	30	
1,1-Dichloroethane	20.25	1.0	20	0	101	70-135	20.22	0.148	30	
1,1-Dichloroethene	22.76	1.0	20	0	114	70-130	23.51	3.24	30	
1,2,3-Trichlorobenzene	19.56	3.0	20	0	97.8	55-140	18.62	4.92	30	
1,2,3-Trichloropropane	18.74	1.0	20	0	93.7	75-125	19.39	3.41	30	
1,2,3-Trimethylbenzene	18.75	1.0	20	0	93.8	75-130	19.23	2.53	30	
1,2,4-Trichlorobenzene	17.71	1.0	20	0	88.6	65-135	18.02	1.74	30	
1,2,4-Trimethylbenzene	20.44	1.0	20	0	102	75-130	20.37	0.343	30	
1,2-Dibromo-3-chloropropane	18.37	1.0	20	0	91.8	50-130	18.33	0.218	30	
1,2-Dibromoethane	19.47	1.0	20	0	97.4	80-120	19.97	2.54	30	
1,2-Dichlorobenzene	18.99	1.0	20	0	95	70-120	18.65	1.81	30	
1,2-Dichloroethane	18.68	1.0	20	0	93.4	70-130	19.49	4.24	30	
1,2-Dichloropropane	20.38	2.0	20	0	102	75-125	20.54	0.782	30	
1,3,5-Trimethylbenzene	20.38	1.0	20	0	102	75-130	20.63	1.22	30	
1,3-Dichlorobenzene	18.57	2.0	20	0	92.8	75-125	19.02	2.39	30	
1,4-Dichlorobenzene	18.58	2.0	20	0	92.9	75-125	18.93	1.87	30	
2-Butanone	19.18	5.0	20	0	95.9	30-150	19.41	1.19	30	
2-Hexanone	22.83	5.0	20	0	114	55-130	23.64	3.49	30	
4-Methyl-2-pentanone	22.67	5.0	20	0	113	60-135	23.63	4.15	30	
Acetone	22.08	20	20	0	110	40-140	21.88	0.91	30	
Benzene	20.55	1.0	20	0	103	80-120	19.93	3.06	30	
Bromobenzene	19.04	1.0	20	0	95.2	75-125	18.44	3.2	30	
Bromochloromethane	19.09	1.0	20	0	95.4	65-130	18.81	1.48	30	
Bromodichloromethane	19.85	1.0	20	0	99.2	75-120	19.4	2.29	30	
Bromoform	18.68	1.0	20	0	93.4	70-130	19.28	3.16	30	
Bromomethane	21.22	1.0	20	0	106	30-145	19.14	10.3	30	
Carbon disulfide	23.02	2.5	20	0	115	35-165	24.61	6.68	30	
Carbon tetrachloride	21.73	1.0	20	0	109	65-140	21.97	1.1	30	
Chlorobenzene	19.2	1.0	20	0	96	80-120	20.13	4.73	30	
Chloroethane	19.5	1.0	20	0	97.5	60-135	18.86	3.34	30	
Chloroform	19.25	1.0	20	0	96.2	65-135	19.25	0	30	
Chloromethane	18.05	1.0	20	0	90.2	70-125	17.89	0.89	30	
cis-1,2-Dichloroethene	19	1.0	20	0	95	70-125	19.35	1.83	30	
cis-1,3-Dichloropropene	19.21	1.0	20	0	96	70-130	19.01	1.05	30	
Dibromochloromethane	19.09	1.0	20	0	95.4	60-135	19.8	3.65	30	
Dibromomethane	19.01	1.0	20	0	95	75-125	18.94	0.369	30	
Dichlorodifluoromethane	17.92	1.0	20	0	89.6	30-155	17.05	4.98	30	
Ethylbenzene	20.18	1.0	20	0	101	75-125	20.72	2.64	30	
Hexachloroethane	18.7	1.0	20	0	93.5	70-135	18.08	3.37	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	20.63	1.0	20	0	103	75-125	21.21	2.77	30
m,p-Xylene	39.96	2.0	40	0	99.9	75-130	41.35	3.42	30
Methyl iodide	20.25	5.0	20	0	101	70-135	16.16	22.5	30
Methyl tert-butyl ether	20.09	5.0	20	0	100	65-125	19.76	1.66	30
Methylene chloride	19.66	5.0	20	0	98.3	55-140	19.81	0.76	30
Naphthalene	19.14	5.0	20	0	95.7	55-140	19.06	0.419	30
n-Butylbenzene	20.27	1.0	20	0	101	70-135	20.49	1.08	30
n-Propylbenzene	20.48	1.0	20	0	102	70-130	20.6	0.584	30
o-Xylene	19.79	1.0	20	0	99	80-120	20.32	2.64	30
p-Isopropyltoluene	19.58	2.0	20	0	97.9	75-130	19.63	0.255	30
sec-Butylbenzene	20.71	2.0	20	0	104	70-125	21.22	2.43	30
Styrene	18.77	1.0	20	0	93.8	65-135	19.63	4.48	30
tert-Butylbenzene	20.86	2.0	20	0	104	70-130	21.2	1.62	30
Tetrachloroethene	20.42	2.0	20	0	102	45-150	20.29	0.639	30
Tetrahydrofuran	17.44	10	20	0	87.2	70-135	19.07	8.93	30
Toluene	19.5	1.0	20	0	97.5	75-120	20.65	5.73	30
trans-1,2-Dichloroethene	21.42	1.0	20	0	107	60-140	21.54	0.559	30
trans-1,3-Dichloropropene	17.89	1.0	20	0	89.4	55-140	18.92	5.6	30
trans-1,4-Dichloro-2-butene	16.21	5.0	20	0	81	70-135	16.39	1.1	30
Trichloroethene	21.09	1.0	20	0	105	70-125	20.1	4.81	30
Trichlorofluoromethane	20.19	1.0	20	0	101	60-145	19.91	1.4	30
Vinyl chloride	20.77	1.0	20	0	104	50-145	20.32	2.19	30
Xylenes, Total	59.75	3.0	60	0	99.6	75-130	61.67	3.16	30
Surr: 1,2-Dichloroethane-d4	*21.03*	0	*20*	0	*105*	*70-120*	19.5	*7.55*	*30*
Surr: 4-Bromofluorobenzene	*20.25*	0	*20*	0	*101*	*75-120*	20.62	*1.81*	*30*
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*85-115*	18.25	*8.05*	*30*
Surr: Toluene-d8	*20.15*	0	*20*	0	*101*	*85-120*	20.17	*0.0992*	*30*

The following samples were analyzed in this batch:

1206702-02C	1206702-03C	1206702-04C
1206702-05C	1206702-06A	1206702-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106431A** Instrument ID **VMS6** Method: **SW8260**

MBLK Sample ID: **VBLKW1-120623-R106431A** Units: **µg/L** Analysis Date: **6/23/2012 03:59 PM**
Client ID: Run ID: **VMS6_120623A** SeqNo: **2010928** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Benzene	ND	1.0								
Cyclohexane	ND	5.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
n-Propylbenzene	ND	1.0								
p-Isopropyltoluene	ND	2.0								
sec-Butylbenzene	ND	2.0								
Toluene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	*19.29*	0	*20*	0	*96.4*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*20.07*	0	*20*	0	*100*	*75-120*	0			
Surr: Dibromofluoromethane	*18.43*	0	*20*	0	*92.2*	*85-115*	0			
Surr: Toluene-d8	*20.4*	0	*20*	0	*102*	*85-120*	0			

LCS Sample ID: **VLCSW1-120623-R106431A** Units: **µg/L** Analysis Date: **6/23/2012 03:09 PM**
Client ID: Run ID: **VMS6_120623A** SeqNo: **2009982** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	20.19	1.0	20	0	101	75-130	0			
1,2,4-Trimethylbenzene	20.62	1.0	20	0	103	75-130	0			
1,3,5-Trimethylbenzene	21.17	1.0	20	0	106	75-130	0			
Benzene	21.42	1.0	20	0	107	80-120	0			
Ethylbenzene	20.98	1.0	20	0	105	75-125	0			
Isopropylbenzene	21.19	1.0	20	0	106	75-125	0			
n-Propylbenzene	20.83	1.0	20	0	104	70-130	0			
p-Isopropyltoluene	21.09	2.0	20	0	105	75-130	0			
sec-Butylbenzene	21.42	2.0	20	0	107	70-125	0			
Toluene	20.52	1.0	20	0	103	75-120	0			
Xylenes, Total	62.55	3.0	60	0	104	75-130	0			
Surr: 1,2-Dichloroethane-d4	*19.3*	0	*20*	0	*96.5*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*19.74*	0	*20*	0	*98.7*	*75-120*	0			
Surr: Dibromofluoromethane	*19.98*	0	*20*	0	*99.9*	*85-115*	0			
Surr: Toluene-d8	*19.35*	0	*20*	0	*96.8*	*85-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206702
Project: Marshall Hydrogeo2 Kalamazoo 6.20.12

QC BATCH REPORT

Batch ID: **R106431A** Instrument ID **VMS6** Method: **SW8260**

MS Sample ID: **1206686-06A MS** Units: **µg/L** Analysis Date: **6/24/2012 12:41 PM**
Client ID: Run ID: **VMS6_120623A** SeqNo: **2010899** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	2012	100	2000	0	101	75-130	0			
1,2,4-Trimethylbenzene	2235	100	2000	162	104	75-130	0			
1,3,5-Trimethylbenzene	2298	100	2000	166	107	75-130	0			
Benzene	10530	100	2000	8786	87.2	80-120	0			EO
Ethylbenzene	2648	100	2000	486	108	75-125	0			
Isopropylbenzene	2146	100	2000	0	107	75-125	0			
n-Propylbenzene	2098	100	2000	0	105	70-130	0			
p-Isopropyltoluene	2071	200	2000	0	104	75-130	0			
sec-Butylbenzene	2149	200	2000	0	107	70-125	0			
Toluene	18500	100	2000	16990	75.6	75-120	0			EO
Xylenes, Total	13550	300	6000	6896	111	75-130	0			
Surr: 1,2-Dichloroethane-d4	*1923*	0	*2000*	0	*96.2*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*2010*	0	*2000*	0	*100*	*75-120*	0			
Surr: Dibromofluoromethane	*1971*	0	*2000*	0	*98.6*	*85-115*	0			
Surr: Toluene-d8	*1983*	0	*2000*	0	*99.2*	*85-120*	0			

MSD Sample ID: **1206686-06A MSD** Units: **µg/L** Analysis Date: **6/24/2012 01:05 AM**
Client ID: Run ID: **VMS6_120623A** SeqNo: **2010894** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	1971	100	2000	0	98.6	75-130	2012	2.06	30	
1,2,4-Trimethylbenzene	2218	100	2000	162	103	75-130	2235	0.764	30	
1,3,5-Trimethylbenzene	2269	100	2000	166	105	75-130	2298	1.27	30	
Benzene	10220	100	2000	8786	71.5	80-120	10530	3.03	30	SEO
Ethylbenzene	2547	100	2000	486	103	75-125	2648	3.89	30	
Isopropylbenzene	2098	100	2000	0	105	75-125	2146	2.26	30	
n-Propylbenzene	2048	100	2000	0	102	70-130	2098	2.41	30	
p-Isopropyltoluene	2060	200	2000	0	103	75-130	2071	0.533	30	
sec-Butylbenzene	2177	200	2000	0	109	70-125	2149	1.29	30	
Toluene	18030	100	2000	16990	51.8	75-120	18500	2.61	30	SEO
Xylenes, Total	13130	300	6000	6896	104	75-130	13550	3.16	30	
Surr: 1,2-Dichloroethane-d4	*1904*	0	*2000*	0	*95.2*	*70-120*	1923	*0.993*	*30*	
Surr: 4-Bromofluorobenzene	*1978*	0	*2000*	0	*98.9*	*75-120*	2010	*1.6*	*30*	
Surr: Dibromofluoromethane	*1963*	0	*2000*	0	*98.2*	*85-115*	1971	*0.407*	*30*	
Surr: Toluene-d8	*1945*	0	*2000*	0	*97.2*	*85-120*	1983	*1.93*	*30*	

The following samples were analyzed in this batch: 1206702-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206702

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062012_AKM1	Task: HYDROGEO2_KALAMAZOO
	Total # of Samples: 7	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 7.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State,	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative: HNO3	HNO3	None	HCl	Analysis: Be,Fe,Mo,Ni,Ti,V	Mercury	PNAs by 8270	VOC by 5035/8260
1	MWKR3780L01S062012GX	MWKR3780L01	WG	G	06/20/2012 12:35	6						X	X	X	X
2	MWKR3780L02S062012GX	MWKR3780L02	WG	G	06/20/2012 11:45	6						X	X	X	X
3	MWKR3780L03S062012GX	MWKR3780L03	WG	G	06/20/2012 11:00	6						X	X	X	X
4	MWKR3782L01D062012GX	MWKR3782L01	WG	G	06/20/2012 11:55	6	DUPLICATE					X	X	X	X
5	MWKR3782L01S062012GX	MWKR3782L01	WG	G	06/20/2012 11:55	6						X	X	X	X
6	MWKR3782L01T062012WX	MWKR3782L01	WQ	G	06/20/2012 00:00	3	TRIP BLANK								X
7	MWKR3776L01S062012GX	MWKR3776L01	WG	G	06/20/2012 10:45	18	MS/MSD					X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6/20/12	1445		6.20.12	1445
	6/20/12	1716		6.20.12	1716

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
8.8°C	Y/N (Y) N	Y/N (Y) N	Y/N (Y) N
3.0°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: APRIL MODERT (AKM1), JOHN CARVETH (JTC)
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206702** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Groundwater
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8, 3.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

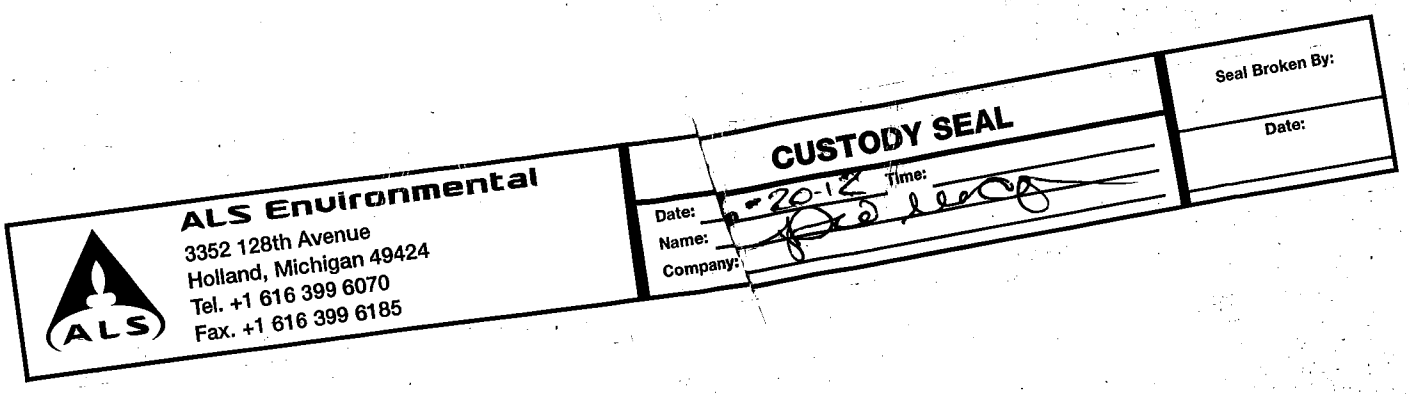
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

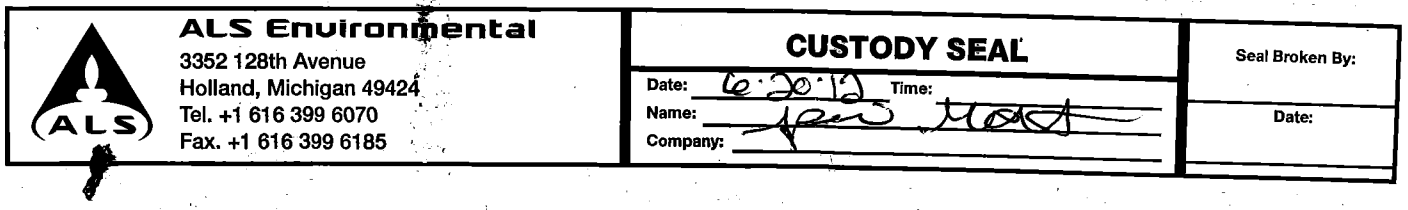
Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-20-12 Time:
Name:
Company:
Seal Broken By:
Date:

2.8°C


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6.20.12 Time:
Name:
Company:
Seal Broken By:
Date:

3.0°C

28-Jun-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Hydrogeo2 Augusta GW 6/19/12** Work Order: **1206707**

Dear Mike,

ALS Environmental received 7 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 28-Jun-12

Client: AECOM Environment
Project: Marshall Hydrogeo2 Augusta GW 6/19/12
Work Order: **1206707**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206707-01	MWKR2875R01S061912GX	Groundwater		6/19/2012 11:50	6/20/2012 17:16	☐
1206707-02	MWKR2875R02S061912GX	Groundwater		6/19/2012 11:50	6/20/2012 17:16	☐
1206707-03	MWKR2875R02D061912GX	Groundwater		6/19/2012 11:50	6/20/2012 17:16	☐
1206707-04	MWKR2875R03S061912GX	Groundwater		6/19/2012 10:40	6/20/2012 17:16	☐
1206707-05	MWKR2875R04S061912GX	Groundwater		6/19/2012 10:45	6/20/2012 17:16	☐
1206707-06	MWKR2875R05S061912GX	Groundwater		6/19/2012 12:55	6/20/2012 17:16	☐
1206707-07	MWKR2875R05T061912WX	Water		6/19/2012	6/20/2012 17:16	☐

Client: AECOM Environment
Project: Marshall Hydrogeo2 Augusta GW 6/19/12
Work Order: 1206707

Case Narrative

Batch 41947 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 28-Jun-12

Client: AECOM Environment
Project: Marshall Hydrogeo2 Augusta GW 6/19/12
WorkOrder: **1206707**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R01S061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 11:50:00 AM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-01	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*40.1*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*46.5*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*42.7*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*105*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*99.8*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*96.6*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.7*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R02S061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 11:50:00 AM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-02	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/27/2012
Iron	**0.40**	**0.20**	**0.20**		**mg/L**	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/27/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/27/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/27/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/27/2012
Surr: 2-Fluorobiphenyl	*50.1*	*36-94*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*56.3*	*26-119*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*51.5*	*41-104*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.7*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*96.0*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*100*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R02D061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 11:50:00 AM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-03	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/27/2012
Iron	**0.42**	**0.20**	**0.20**		**mg/L**	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/27/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*48.8*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*63.9*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*49.2*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **BG**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/25/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzene	ND	1.0	1.0		µg/L	1	6/25/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/25/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/25/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/25/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Toluene	ND	1.0	1.0		µg/L	1	6/25/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/25/2012
Surr: 1,2-Dichloroethane-d4	*96.2*	*70-120*			*%REC*	1	6/25/2012
Surr: 4-Bromofluorobenzene	*94.6*	*75-120*			*%REC*	1	6/25/2012
Surr: Dibromofluoromethane	*96.0*	*85-115*			*%REC*	1	6/25/2012
Surr: Toluene-d8	*95.2*	*85-120*			*%REC*	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R03S061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 10:40:00 AM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-04	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Surr: 2-Fluorobiphenyl	*48.5*	*36-94*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*59.8*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*50.1*	*41-104*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **BG**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/25/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzene	ND	1.0	1.0		µg/L	1	6/25/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/25/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/25/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/25/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/25/2012
Toluene	ND	1.0	1.0		µg/L	1	6/25/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/25/2012
Surr: 1,2-Dichloroethane-d4	*96.2*	*70-120*			*%REC*	1	6/25/2012
Surr: 4-Bromofluorobenzene	*94.6*	*75-120*			*%REC*	1	6/25/2012
Surr: Dibromofluoromethane	*97.6*	*85-115*			*%REC*	1	6/25/2012
Surr: Toluene-d8	*96.1*	*85-120*			*%REC*	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R04S061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 10:45:00 AM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	ND	0.20	0.20		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/26/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/26/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/26/2012
Surr: 2-Fluorobiphenyl	*59.7*	*36-94*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*71.5*	*26-119*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*61.8*	*41-104*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*98.2*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*96.3*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R05S061912GX
Work Order:	1206707	**Collection Date:**	6/19/2012 12:55:00 PM
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-06	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470**		Prep Date: **6/25/2012**		Analyst: **LR**
Mercury	ND	0.00020	0.00020		mg/L	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Iron	**1.4**	**0.20**	**0.20**		**mg/L**	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Titanium	ND	0.0050	0		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/26/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/26/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/26/2012
Surr: 2-Fluorobiphenyl	*47.6*	*36-94*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*64.4*	*26-119*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*51.4*	*41-104*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.2*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*98.4*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.9*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	MWKR2875R05T061912WX
Work Order:	1206707	**Collection Date:**	6/19/2012
Project:	Marshall Hydrogeo2 Augusta GW 6/19/12		
Lab ID:	1206707-07	**Matrix:**	WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**				Analyst: **CW**
1,2,3-Trimethylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Benzene	ND	1.0	1.0		µg/L	1	6/23/2012
Cyclohexane	ND	5.0	5.0		µg/L	1	6/23/2012
Ethylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Isopropylbenzene	ND	5.0	5.0		µg/L	1	6/23/2012
n-Propylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
p-Isopropyltoluene	ND	5.0	5.0		µg/L	1	6/23/2012
sec-Butylbenzene	ND	1.0	1.0		µg/L	1	6/23/2012
Toluene	ND	1.0	1.0		µg/L	1	6/23/2012
Xylenes, Total	ND	3.0	3.0		µg/L	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.0*	*75-120*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*95.4*	*85-115*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.7*	*85-120*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 28-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206707

Project: Marshall Hydrogeo2 Augusta GW 6/19/12

Batch ID: **41937** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-41937-41937** Units: **mg/L** Analysis Date: **6/26/2012 12:38 PM**

Client ID: Run ID: **HG1_120626A** SeqNo: **2012591** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-41937-41937** Units: **mg/L** Analysis Date: **6/26/2012 12:40 PM**

Client ID: Run ID: **HG1_120626A** SeqNo: **2012592** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002103	0.00020	0.002	0	105	80-120	0			

MS Sample ID: **1206641-21AMS** Units: **mg/L** Analysis Date: **6/26/2012 12:56 PM**

Client ID: Run ID: **HG1_120626A** SeqNo: **2012599** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.02074	0.0020	0.02	-0.00011	104	75-125	0			

MSD Sample ID: **1206641-21AMSD** Units: **mg/L** Analysis Date: **6/26/2012 12:58 PM**

Client ID: Run ID: **HG1_120626A** SeqNo: **2012600** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.02096	0.0020	0.02	-0.00011	105	75-125	0.02074	1.06	20	

The following samples were analyzed in this batch:

1206707-01A	1206707-02A	1206707-03A
1206707-05A	1206707-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41939** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-41939-41939** Units: **mg/L** Analysis Date: **6/26/2012 11:23 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012552** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-41939-41939** Units: **mg/L** Analysis Date: **6/26/2012 11:25 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012553** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001985	0.00020	0.002	0	99.2	80-120	0			

MS Sample ID: **1206702-07AMS** Units: **mg/L** Analysis Date: **6/26/2012 11:30 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012555** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002017	0.00020	0.002	-0.000019	102	75-125	0			

MS Sample ID: **1206707-04AMS** Units: **mg/L** Analysis Date: **6/26/2012 11:37 AM**
Client ID: **MWKR2875R03S061912GX** Run ID: **HG1_120626A** SeqNo: **2012558** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001964	0.00020	0.002	-0.000015	99	75-125	0			

MSD Sample ID: **1206702-07AMSD** Units: **mg/L** Analysis Date: **6/26/2012 11:32 AM**
Client ID: Run ID: **HG1_120626A** SeqNo: **2012556** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001988	0.00020	0.002	-0.000019	100	75-125	0.002017	1.45	20	

MSD Sample ID: **1206707-04AMSD** Units: **mg/L** Analysis Date: **6/26/2012 11:39 AM**
Client ID: **MWKR2875R03S061912GX** Run ID: **HG1_120626A** SeqNo: **2012559** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001975	0.00020	0.002	-0.000015	99.5	75-125	0.001964	0.559	20	

The following samples were analyzed in this batch: 1206707-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41899-41899** Units: **mg/L** Analysis Date: **6/25/2012 11:57 PM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012123** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Iron	ND	0.080								
Molybdenum	0.0009148	0.0050								J
Nickel	ND	0.0050								
Titanium	0.0001288	0.0050								J
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41899-41899** Units: **mg/L** Analysis Date: **6/26/2012 12:28 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012133** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08674	0.0020	0.1	0	86.7	80-120	0			
Iron	8.736	0.080	10	0	87.4	80-120	0			
Molybdenum	0.09185	0.0050	0.1	0	91.8	80-120	0			
Nickel	0.08278	0.0050	0.1	0	82.8	80-120	0			
Titanium	0.08523	0.0050	0.1	0	85.2	80-120	0			
Vanadium	0.08106	0.0050	0.1	0	81.1	80-120	0			

MS Sample ID: **1206641-21AMS** Units: **mg/L** Analysis Date: **6/26/2012 12:54 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012138** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8641	0.020	1	0.0003471	86.4	80-120	0			
Iron	88.87	0.80	100	0.05946	88.8	80-120	0			
Molybdenum	0.8789	0.050	1	0.001769	87.7	80-120	0			
Nickel	0.8995	0.050	1	0.04495	85.5	80-120	0			
Titanium	0.9178	0.050	1	0.007274	91.1	80-120	0			
Vanadium	0.8547	0.050	1	0.00003524	85.5	80-120	0			

MS Sample ID: **1206702-07AMS** Units: **mg/L** Analysis Date: **6/26/2012 02:57 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012163** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08995	0.0020	0.1	-3.294E-06	90	80-120	0			
Iron	9.263	0.080	10	0.003816	92.6	80-120	0			
Molybdenum	0.08848	0.0050	0.1	0.0007451	87.7	80-120	0			
Nickel	0.0881	0.0050	0.1	-0.001213	89.3	80-120	0			
Titanium	0.09712	0.0050	0.1	0.0007027	96.4	80-120	0			
Vanadium	0.08942	0.0050	0.1	0.0004493	89	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1206641-21AMSD** Units: **mg/L** Analysis Date: **6/26/2012 12:59 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012139** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8965	0.020	1	0.0003471	89.6	80-120	0.8641	3.68	20	
Iron	91.9	0.80	100	0.05946	91.8	80-120	88.87	3.35	20	
Molybdenum	0.9081	0.050	1	0.001769	90.6	80-120	0.8789	3.27	20	
Nickel	0.9256	0.050	1	0.04495	88.1	80-120	0.8995	2.86	20	
Titanium	0.942	0.050	1	0.007274	93.5	80-120	0.9178	2.6	20	
Vanadium	0.8914	0.050	1	0.00003524	89.1	80-120	0.8547	4.2	20	

MSD Sample ID: **1206702-07AMSD** Units: **mg/L** Analysis Date: **6/26/2012 03:02 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012164** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09196	0.0020	0.1	-3.294E-06	92	80-120	0.08995	2.21	20	
Iron	9.446	0.080	10	0.003816	94.4	80-120	9.263	1.96	20	
Molybdenum	0.09189	0.0050	0.1	0.0007451	91.1	80-120	0.08848	3.78	20	
Nickel	0.09045	0.0050	0.1	-0.001213	91.7	80-120	0.0881	2.63	20	
Titanium	0.09716	0.0050	0.1	0.0007027	96.5	80-120	0.09712	0.0412	20	
Vanadium	0.09184	0.0050	0.1	0.0004493	91.4	80-120	0.08942	2.67	20	

The following samples were analyzed in this batch: 1206707-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41900** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41900-41900** Units: **mg/L** Analysis Date: **6/26/2012 03:40 PM**
Client ID: Run ID: **ICPMS2_120626A** SeqNo: **2013109** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Iron	ND	0.080								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Titanium	ND	0.0050								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41900-41900** Units: **mg/L** Analysis Date: **6/26/2012 03:45 PM**
Client ID: Run ID: **ICPMS2_120626A** SeqNo: **2013110** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09918	0.0020	0.1	0	99.2	80-120	0			
Iron	9.68	0.080	10	0	96.8	80-120	0			
Molybdenum	0.09429	0.0050	0.1	0	94.3	80-120	0			
Nickel	0.09456	0.0050	0.1	0	94.6	80-120	0			
Titanium	0.09853	0.0050	0.1	0	98.5	80-120	0			
Vanadium	0.09358	0.0050	0.1	0	93.6	80-120	0			

MS Sample ID: **1206707-04AMS** Units: **mg/L** Analysis Date: **6/26/2012 06:38 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **ICPMS2_120626A** SeqNo: **2013675** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09509	0.0020	0.1	0.000005708	95.1	80-120	0			
Iron	9.334	0.080	10	0.0877	92.5	80-120	0			
Molybdenum	0.09498	0.0050	0.1	0.0006841	94.3	80-120	0			
Nickel	0.09109	0.0050	0.1	0.001005	90.1	80-120	0			
Titanium	0.09485	0.0050	0.1	0.001753	93.1	80-120	0			
Vanadium	0.09077	0.0050	0.1	0.0002703	90.5	80-120	0			

MSD Sample ID: **1206707-04AMSD** Units: **mg/L** Analysis Date: **6/26/2012 06:43 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **ICPMS2_120626A** SeqNo: **2013676** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09391	0.0020	0.1	0.000005708	93.9	80-120	0.09509	1.25	20	
Iron	9.295	0.080	10	0.0877	92.1	80-120	9.334	0.419	20	
Molybdenum	0.09594	0.0050	0.1	0.0006841	95.3	80-120	0.09498	1.01	20	
Nickel	0.09143	0.0050	0.1	0.001005	90.4	80-120	0.09109	0.373	20	
Titanium	0.09533	0.0050	0.1	0.001753	93.6	80-120	0.09485	0.505	20	
Vanadium	0.09072	0.0050	0.1	0.0002703	90.4	80-120	0.09077	0.0551	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41900** Instrument ID **ICPMS2** Method: **SW6020A**

The following samples were analyzed in this batch:

1206707-02A	1206707-03A	1206707-04A
1206707-05A	1206707-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 06:23 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012665** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*22.23*	0	*50*	0	*44.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*26.63*	0	*50*	0	*53.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*23.05*	0	*50*	0	*46.1*	*41-104*	0			

LCS Sample ID: **SLCSW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 02:27 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012658** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	10.82	5.0	20	0	54.1	45-105	0			
Naphthalene	10.61	5.0	20	0	53	40-100	0			
Phenanthrene	12.04	5.0	20	0	60.2	50-115	0			
Surr: 2-Fluorobiphenyl	*23.96*	0	*50*	0	*47.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*25.63*	0	*50*	0	*51.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*25.24*	0	*50*	0	*50.5*	*41-104*	0			

MS Sample ID: **1206702-07B MS** Units: **µg/L** Analysis Date: **6/25/2012 03:01 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012659** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	100.2	50	200	0	50.1	45-105	0			
Naphthalene	98.9	50	200	0	49.4	40-100	0			
Phenanthrene	112.3	50	200	0	56.2	50-115	0			
Surr: 2-Fluorobiphenyl	*224.7*	0	*500*	0	*44.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*254.3*	0	*500*	0	*50.9*	*26-119*	0			
Surr: Nitrobenzene-d5	*234.8*	0	*500*	0	*47*	*41-104*	0			

MS Sample ID: **1206707-04B MS** Units: **µg/L** Analysis Date: **6/25/2012 04:08 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **SVMS4_120625A** SeqNo: **2012661** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	93.4	50	200	0	46.7	45-105	0			
Naphthalene	92.3	50	200	0	46.2	40-100	0			
Phenanthrene	105.1	50	200	0	52.6	50-115	0			
Surr: 2-Fluorobiphenyl	*206.5*	0	*500*	0	*41.3*	*36-94*	0			
Surr: 4-Terphenyl-d14	*191.6*	0	*500*	0	*38.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*225.2*	0	*500*	0	*45*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206702-07B MSD** Units: **µg/L** Analysis Date: **6/25/2012 03:34 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012660** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	95.9	50	200	0	48	45-105	100.2	4.39	30	
Naphthalene	93.4	50	200	0	46.7	40-100	98.9	5.72	30	
Phenanthrene	109.7	50	200	0	54.8	50-115	112.3	2.34	30	
Surr: 2-Fluorobiphenyl	*212.4*	0	*500*	0	*42.5*	*36-94*	224.7	*5.63*	*40*	
Surr: 4-Terphenyl-d14	*250.9*	0	*500*	0	*50.2*	*26-119*	254.3	*1.35*	*40*	
Surr: Nitrobenzene-d5	*223.5*	0	*500*	0	*44.7*	*41-104*	234.8	*4.93*	*40*	

MSD Sample ID: **1206707-04B MSD** Units: **µg/L** Analysis Date: **6/25/2012 04:42 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **SVMS4_120625A** SeqNo: **2012662** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	104.6	50	200	0	52.3	45-105	93.4	11.3	30	
Naphthalene	101.1	50	200	0	50.6	40-100	92.3	9.1	30	
Phenanthrene	118.6	50	200	0	59.3	50-115	105.1	12.1	30	
Surr: 2-Fluorobiphenyl	*232.2*	0	*500*	0	*46.4*	*36-94*	206.5	*11.7*	*40*	
Surr: 4-Terphenyl-d14	*273.3*	0	*500*	0	*54.7*	*26-119*	191.6	*35.1*	*40*	
Surr: Nitrobenzene-d5	*240.4*	0	*500*	0	*48.1*	*41-104*	225.2	*6.53*	*40*	

The following samples were analyzed in this batch:

1206707-01B	1206707-02B	1206707-03B
1206707-04B	1206707-05B	1206707-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **41947** Instrument ID **SVMS7** Method: **E625**

MBLK Sample ID: **SBLKW1-41947-41947** Units: **µg/L** Analysis Date: **6/26/2012 08:02 PM**
Client ID: Run ID: **SVMS7_120626A** SeqNo: **2014149** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*26.8*	0	*50*	0	*53.6*	*36-94*	0			
Surr: 4-Terphenyl-d14	*30.69*	0	*50*	0	*61.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*27.65*	0	*50*	0	*55.3*	*41-104*	0			

MBLK Sample ID: **SBLKW1-41947-41947** Units: **µg/L** Analysis Date: **6/27/2012 12:38 PM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2014413** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*27.26*	0	*50*	0	*54.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*34.4*	0	*50*	0	*68.8*	*26-119*	0			
Surr: Nitrobenzene-d5	*28.08*	0	*50*	0	*56.2*	*41-104*	0			

LCS Sample ID: **SLCSW1-41947-41947** Units: **µg/L** Analysis Date: **6/26/2012 06:04 PM**
Client ID: Run ID: **SVMS7_120626A** SeqNo: **2014145** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	10.86	5.0	20	0	54.3	45-105	0			
Naphthalene	10.77	5.0	20	0	53.8	40-100	0			
Phenanthrene	12.13	5.0	20	0	60.6	50-115	0			
Surr: 2-Fluorobiphenyl	*23.81*	0	*50*	0	*47.6*	*36-94*	0			
Surr: 4-Terphenyl-d14	*30.86*	0	*50*	0	*61.7*	*26-119*	0			
Surr: Nitrobenzene-d5	*23.93*	0	*50*	0	*47.9*	*41-104*	0			

MS Sample ID: **1206577-12A MS** Units: **µg/L** Analysis Date: **6/26/2012 06:33 PM**
Client ID: Run ID: **SVMS7_120626A** SeqNo: **2014146** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	238.6	100	400	0	59.6	45-105	0			H
Naphthalene	234.6	100	400	0	58.6	40-100	0			H
Phenanthrene	266	100	400	0	66.5	50-115	0			H
Surr: 2-Fluorobiphenyl	*536.4*	0	*1000*	0	*53.6*	*36-94*	0			
Surr: 4-Terphenyl-d14	*628.8*	0	*1000*	0	*62.9*	*26-119*	0			
Surr: Nitrobenzene-d5	*530.8*	0	*1000*	0	*53.1*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41947** Instrument ID **SVMS7** Method: **E625**

MSD Sample ID: **1206577-12A MSD** Units: **µg/L** Analysis Date: **6/26/2012 07:03 PM**
Client ID: Run ID: **SVMS7_120626A** SeqNo: **2014147** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	247.6	100	400	0	61.9	45-105	238.6	3.7	30	H
Naphthalene	246.6	100	400	0	61.6	40-100	234.6	4.99	30	H
Phenanthrene	282.6	100	400	0	70.6	50-115	266	6.05	30	H
Surr: 2-Fluorobiphenyl	*555*	0	*1000*	0	*55.5*	*36-94*	536.4	*3.41*	*40*	
Surr: 4-Terphenyl-d14	*701*	0	*1000*	0	*70.1*	*26-119*	628.8	*10.9*	*40*	
Surr: Nitrobenzene-d5	*544.6*	0	*1000*	0	*54.5*	*41-104*	530.8	*2.57*	*40*	

The following samples were analyzed in this batch: 1206707-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **VBLKW2-120622-R106425** Units: **µg/L** Analysis Date: **6/22/2012 11:40 PM**
Client ID: Run ID: **VMS5_120622A** SeqNo: **2009758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,3-Trichlorobenzene	ND	3.0								
1,2,3-Trichloropropane	ND	1.0								
1,2,3-Trimethylbenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,3-Dichlorobenzene	ND	2.0								
1,4-Dichlorobenzene	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
2-Methylnaphthalene	ND	10								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Acetonitrile	ND	1.0								
Benzene	ND	1.0								
Bromobenzene	ND	1.0								
Bromochloromethane	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	5.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	1.0					
Diethyl ether	ND	10					
Diisopropyl ether	ND	5.0					
Ethyl tert butyl ether	ND	5.0					
Ethylbenzene	ND	1.0					
Hexachloroethane	ND	1.0					
Isopropylbenzene	ND	1.0					
m,p-Xylene	ND	2.0					
Methyl iodide	ND	5.0					
Methyl tert-butyl ether	ND	5.0					
Methylene chloride	ND	5.0					
Naphthalene	ND	5.0					
n-Butylbenzene	ND	1.0					
n-Propylbenzene	ND	1.0					
o-Xylene	ND	1.0					
p-Isopropyltoluene	ND	2.0					
sec-Butylbenzene	ND	2.0					
Styrene	ND	1.0					
tert-Butyl alcohol	ND	50					
tert-Butylbenzene	ND	2.0					
Tertiaryamylmethylether	ND	5.0					
Tetrachloroethene	ND	2.0					
Tetrahydrofuran	ND	10					
Toluene	ND	1.0					
trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
trans-1,4-Dichloro-2-butene	ND	5.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*20.5*	0	*20*	0	*102*	*70-120*	0
Surr: 4-Bromofluorobenzene	*19.66*	0	*20*	0	*98.3*	*75-120*	0
Surr: Dibromofluoromethane	*20.87*	0	*20*	0	*104*	*85-115*	0
Surr: Toluene-d8	*20.02*	0	*20*	0	*100*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **VLCSW1-120622-R106425** Units: **µg/L** Analysis Date: **6/22/2012 10:49 PM**
Client ID: Run ID: **VMS5_120622A** SeqNo: **2009757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.92	1.0	20	0	99.6	80-130	0			
1,1,1-Trichloroethane	20.61	1.0	20	0	103	65-130	0			
1,1,2,2-Tetrachloroethane	21.08	1.0	20	0	105	65-130	0			
1,1,2-Trichloroethane	19.01	1.0	20	0	95	75-125	0			
1,1-Dichloroethane	19.57	1.0	20	0	97.8	70-135	0			
1,1-Dichloroethene	22.06	1.0	20	0	110	70-130	0			
1,2,3-Trichlorobenzene	20.66	3.0	20	0	103	55-140	0			
1,2,3-Trichloropropane	19.04	1.0	20	0	95.2	75-125	0			
1,2,3-Trimethylbenzene	19.97	1.0	20	0	99.8	75-130	0			
1,2,4-Trichlorobenzene	19.18	1.0	20	0	95.9	65-135	0			
1,2,4-Trimethylbenzene	20.54	1.0	20	0	103	75-130	0			
1,2-Dibromo-3-chloropropane	20.78	1.0	20	0	104	50-130	0			
1,2-Dibromoethane	20.51	1.0	20	0	103	80-120	0			
1,2-Dichlorobenzene	20.42	1.0	20	0	102	70-120	0			
1,2-Dichloroethane	18.61	1.0	20	0	93	70-130	0			
1,2-Dichloropropane	20.49	2.0	20	0	102	75-125	0			
1,3,5-Trimethylbenzene	20.62	1.0	20	0	103	75-130	0			
1,3-Dichlorobenzene	19.94	2.0	20	0	99.7	75-125	0			
1,4-Dichlorobenzene	20	2.0	20	0	100	75-125	0			
2-Butanone	19.47	5.0	20	0	97.4	30-150	0			
2-Hexanone	23.61	5.0	20	0	118	55-130	0			
4-Methyl-2-pentanone	22.86	5.0	20	0	114	60-135	0			
Acetone	17.39	20	20	0	87	40-140	0			J
Benzene	20.53	1.0	20	0	103	80-120	0			
Bromobenzene	18.52	1.0	20	0	92.6	75-125	0			
Bromochloromethane	18.49	1.0	20	0	92.4	65-130	0			
Bromodichloromethane	20.43	1.0	20	0	102	75-120	0			
Bromoform	20.54	1.0	20	0	103	70-130	0			
Bromomethane	22	1.0	20	0	110	30-145	0			
Carbon disulfide	22.82	2.5	20	0	114	35-165	0			
Carbon tetrachloride	21.36	1.0	20	0	107	65-140	0			
Chlorobenzene	19.94	1.0	20	0	99.7	80-120	0			
Chloroethane	18.96	1.0	20	0	94.8	60-135	0			
Chloroform	20.19	1.0	20	0	101	65-135	0			
Chloromethane	17.89	1.0	20	0	89.4	70-125	0			
cis-1,2-Dichloroethene	19.51	1.0	20	0	97.6	70-125	0			
cis-1,3-Dichloropropene	20.64	1.0	20	0	103	70-130	0			
Dibromochloromethane	21.09	1.0	20	0	105	60-135	0			
Dibromomethane	19.91	1.0	20	0	99.6	75-125	0			
Dichlorodifluoromethane	17.29	1.0	20	0	86.4	30-155	0			
Ethylbenzene	20.83	1.0	20	0	104	75-125	0			
Hexachloroethane	18.9	1.0	20	0	94.5	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	20.97	1.0	20	0	105	75-125	0
m,p-Xylene	40.76	2.0	40	0	102	75-130	0
Methyl iodide	20.25	5.0	20	0	101	70-135	0
Methyl tert-butyl ether	20.53	5.0	20	0	103	65-125	0
Methylene chloride	19.1	5.0	20	0	95.5	55-140	0
Naphthalene	20.82	5.0	20	0	104	55-140	0
n-Butylbenzene	20.98	1.0	20	0	105	70-135	0
n-Propylbenzene	20.5	1.0	20	0	102	70-130	0
o-Xylene	20.32	1.0	20	0	102	80-120	0
p-Isopropyltoluene	20.48	2.0	20	0	102	75-130	0
sec-Butylbenzene	20.63	2.0	20	0	103	70-125	0
Styrene	20.95	1.0	20	0	105	65-135	0
tert-Butylbenzene	20.81	2.0	20	0	104	70-130	0
Tetrachloroethene	20.64	2.0	20	0	103	45-150	0
Tetrahydrofuran	17.77	10	20	0	88.8	70-135	0
Toluene	20.38	1.0	20	0	102	75-120	0
trans-1,2-Dichloroethene	21.3	1.0	20	0	106	60-140	0
trans-1,3-Dichloropropene	20.01	1.0	20	0	100	55-140	0
trans-1,4-Dichloro-2-butene	19.54	5.0	20	0	97.7	70-135	0
Trichloroethene	21.22	1.0	20	0	106	70-125	0
Trichlorofluoromethane	19.94	1.0	20	0	99.7	60-145	0
Vinyl chloride	19.68	1.0	20	0	98.4	50-145	0
Xylenes, Total	61.08	3.0	60	0	102	75-130	0
Surr: 1,2-Dichloroethane-d4	*19.5*	0	*20*	0	*97.5*	*70-120*	0
Surr: 4-Bromofluorobenzene	*20.1*	0	*20*	0	*100*	*75-120*	0
Surr: Dibromofluoromethane	*20.25*	0	*20*	0	*101*	*85-115*	0
Surr: Toluene-d8	*19.95*	0	*20*	0	*99.8*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **1206702-07C MS** Units: **µg/L** Analysis Date: **6/23/2012 08:35 AM**
Client ID: Run ID: **VMS5_120622A** SeqNo: **2009857** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.1	1.0	20	0	95.5	80-130	0			
1,1,1-Trichloroethane	20.93	1.0	20	0	105	65-130	0			
1,1,2,2-Tetrachloroethane	20.17	1.0	20	0	101	65-130	0			
1,1,2-Trichloroethane	19.24	1.0	20	0	96.2	75-125	0			
1,1-Dichloroethane	20.22	1.0	20	0	101	70-135	0			
1,1-Dichloroethene	23.51	1.0	20	0	118	70-130	0			
1,2,3-Trichlorobenzene	18.62	3.0	20	0	93.1	55-140	0			
1,2,3-Trichloropropane	19.39	1.0	20	0	97	75-125	0			
1,2,3-Trimethylbenzene	19.23	1.0	20	0	96.2	75-130	0			
1,2,4-Trichlorobenzene	18.02	1.0	20	0	90.1	65-135	0			
1,2,4-Trimethylbenzene	20.37	1.0	20	0	102	75-130	0			
1,2-Dibromo-3-chloropropane	18.33	1.0	20	0	91.6	50-130	0			
1,2-Dibromoethane	19.97	1.0	20	0	99.8	80-120	0			
1,2-Dichlorobenzene	18.65	1.0	20	0	93.2	70-120	0			
1,2-Dichloroethane	19.49	1.0	20	0	97.4	70-130	0			
1,2-Dichloropropane	20.54	2.0	20	0	103	75-125	0			
1,3,5-Trimethylbenzene	20.63	1.0	20	0	103	75-130	0			
1,3-Dichlorobenzene	19.02	2.0	20	0	95.1	75-125	0			
1,4-Dichlorobenzene	18.93	2.0	20	0	94.6	75-125	0			
2-Butanone	19.41	5.0	20	0	97	30-150	0			
2-Hexanone	23.64	5.0	20	0	118	55-130	0			
4-Methyl-2-pentanone	23.63	5.0	20	0	118	60-135	0			
Acetone	21.88	20	20	0	109	40-140	0			
Benzene	19.93	1.0	20	0	99.6	80-120	0			
Bromobenzene	18.44	1.0	20	0	92.2	75-125	0			
Bromochloromethane	18.81	1.0	20	0	94	65-130	0			
Bromodichloromethane	19.4	1.0	20	0	97	75-120	0			
Bromoform	19.28	1.0	20	0	96.4	70-130	0			
Bromomethane	19.14	1.0	20	0	95.7	30-145	0			
Carbon disulfide	24.61	2.5	20	0	123	35-165	0			
Carbon tetrachloride	21.97	1.0	20	0	110	65-140	0			
Chlorobenzene	20.13	1.0	20	0	101	80-120	0			
Chloroethane	18.86	1.0	20	0	94.3	60-135	0			
Chloroform	19.25	1.0	20	0	96.2	65-135	0			
Chloromethane	17.89	1.0	20	0	89.4	70-125	0			
cis-1,2-Dichloroethene	19.35	1.0	20	0	96.8	70-125	0			
cis-1,3-Dichloropropene	19.01	1.0	20	0	95	70-130	0			
Dibromochloromethane	19.8	1.0	20	0	99	60-135	0			
Dibromomethane	18.94	1.0	20	0	94.7	75-125	0			
Dichlorodifluoromethane	17.05	1.0	20	0	85.2	30-155	0			
Ethylbenzene	20.72	1.0	20	0	104	75-125	0			
Hexachloroethane	18.08	1.0	20	0	90.4	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	21.21	1.0	20	0	106	75-125	0
m,p-Xylene	41.35	2.0	40	0	103	75-130	0
Methyl iodide	16.16	5.0	20	0	80.8	70-135	0
Methyl tert-butyl ether	19.76	5.0	20	0	98.8	65-125	0
Methylene chloride	19.81	5.0	20	0	99	55-140	0
Naphthalene	19.06	5.0	20	0	95.3	55-140	0
n-Butylbenzene	20.49	1.0	20	0	102	70-135	0
n-Propylbenzene	20.6	1.0	20	0	103	70-130	0
o-Xylene	20.32	1.0	20	0	102	80-120	0
p-Isopropyltoluene	19.63	2.0	20	0	98.2	75-130	0
sec-Butylbenzene	21.22	2.0	20	0	106	70-125	0
Styrene	19.63	1.0	20	0	98.2	65-135	0
tert-Butylbenzene	21.2	2.0	20	0	106	70-130	0
Tetrachloroethene	20.29	2.0	20	0	101	45-150	0
Tetrahydrofuran	19.07	10	20	0	95.4	70-135	0
Toluene	20.65	1.0	20	0	103	75-120	0
trans-1,2-Dichloroethene	21.54	1.0	20	0	108	60-140	0
trans-1,3-Dichloropropene	18.92	1.0	20	0	94.6	55-140	0
trans-1,4-Dichloro-2-butene	16.39	5.0	20	0	82	70-135	0
Trichloroethene	20.1	1.0	20	0	100	70-125	0
Trichlorofluoromethane	19.91	1.0	20	0	99.6	60-145	0
Vinyl chloride	20.32	1.0	20	0	102	50-145	0
Xylenes, Total	61.67	3.0	60	0	103	75-130	0
Surr: 1,2-Dichloroethane-d4	*19.5*	0	*20*	0	*97.5*	*70-120*	0
Surr: 4-Bromofluorobenzene	*20.62*	0	*20*	0	*103*	*75-120*	0
Surr: Dibromofluoromethane	*18.25*	0	*20*	0	*91.2*	*85-115*	0
Surr: Toluene-d8	*20.17*	0	*20*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

MSD	Sample ID: **1206702-07C MSD**				Units: **µg/L**			Analysis Date: **6/23/2012 09:00 AM**		
Client ID:		Run ID: **VMS5_120622A**			SeqNo: **2009858**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.44	1.0	20	0	92.2	80-130	19.1	3.52	30	
1,1,1-Trichloroethane	21.48	1.0	20	0	107	65-130	20.93	2.59	30	
1,1,2,2-Tetrachloroethane	19.34	1.0	20	0	96.7	65-130	20.17	4.2	30	
1,1,2-Trichloroethane	18.27	1.0	20	0	91.4	75-125	19.24	5.17	30	
1,1-Dichloroethane	20.25	1.0	20	0	101	70-135	20.22	0.148	30	
1,1-Dichloroethene	22.76	1.0	20	0	114	70-130	23.51	3.24	30	
1,2,3-Trichlorobenzene	19.56	3.0	20	0	97.8	55-140	18.62	4.92	30	
1,2,3-Trichloropropane	18.74	1.0	20	0	93.7	75-125	19.39	3.41	30	
1,2,3-Trimethylbenzene	18.75	1.0	20	0	93.8	75-130	19.23	2.53	30	
1,2,4-Trichlorobenzene	17.71	1.0	20	0	88.6	65-135	18.02	1.74	30	
1,2,4-Trimethylbenzene	20.44	1.0	20	0	102	75-130	20.37	0.343	30	
1,2-Dibromo-3-chloropropane	18.37	1.0	20	0	91.8	50-130	18.33	0.218	30	
1,2-Dibromoethane	19.47	1.0	20	0	97.4	80-120	19.97	2.54	30	
1,2-Dichlorobenzene	18.99	1.0	20	0	95	70-120	18.65	1.81	30	
1,2-Dichloroethane	18.68	1.0	20	0	93.4	70-130	19.49	4.24	30	
1,2-Dichloropropane	20.38	2.0	20	0	102	75-125	20.54	0.782	30	
1,3,5-Trimethylbenzene	20.38	1.0	20	0	102	75-130	20.63	1.22	30	
1,3-Dichlorobenzene	18.57	2.0	20	0	92.8	75-125	19.02	2.39	30	
1,4-Dichlorobenzene	18.58	2.0	20	0	92.9	75-125	18.93	1.87	30	
2-Butanone	19.18	5.0	20	0	95.9	30-150	19.41	1.19	30	
2-Hexanone	22.83	5.0	20	0	114	55-130	23.64	3.49	30	
4-Methyl-2-pentanone	22.67	5.0	20	0	113	60-135	23.63	4.15	30	
Acetone	22.08	20	20	0	110	40-140	21.88	0.91	30	
Benzene	20.55	1.0	20	0	103	80-120	19.93	3.06	30	
Bromobenzene	19.04	1.0	20	0	95.2	75-125	18.44	3.2	30	
Bromochloromethane	19.09	1.0	20	0	95.4	65-130	18.81	1.48	30	
Bromodichloromethane	19.85	1.0	20	0	99.2	75-120	19.4	2.29	30	
Bromoform	18.68	1.0	20	0	93.4	70-130	19.28	3.16	30	
Bromomethane	21.22	1.0	20	0	106	30-145	19.14	10.3	30	
Carbon disulfide	23.02	2.5	20	0	115	35-165	24.61	6.68	30	
Carbon tetrachloride	21.73	1.0	20	0	109	65-140	21.97	1.1	30	
Chlorobenzene	19.2	1.0	20	0	96	80-120	20.13	4.73	30	
Chloroethane	19.5	1.0	20	0	97.5	60-135	18.86	3.34	30	
Chloroform	19.25	1.0	20	0	96.2	65-135	19.25	0	30	
Chloromethane	18.05	1.0	20	0	90.2	70-125	17.89	0.89	30	
cis-1,2-Dichloroethene	19	1.0	20	0	95	70-125	19.35	1.83	30	
cis-1,3-Dichloropropene	19.21	1.0	20	0	96	70-130	19.01	1.05	30	
Dibromochloromethane	19.09	1.0	20	0	95.4	60-135	19.8	3.65	30	
Dibromomethane	19.01	1.0	20	0	95	75-125	18.94	0.369	30	
Dichlorodifluoromethane	17.92	1.0	20	0	89.6	30-155	17.05	4.98	30	
Ethylbenzene	20.18	1.0	20	0	101	75-125	20.72	2.64	30	
Hexachloroethane	18.7	1.0	20	0	93.5	70-135	18.08	3.37	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R106425** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	20.63	1.0	20	0	103	75-125	21.21	2.77	30
m,p-Xylene	39.96	2.0	40	0	99.9	75-130	41.35	3.42	30
Methyl iodide	20.25	5.0	20	0	101	70-135	16.16	22.5	30
Methyl tert-butyl ether	20.09	5.0	20	0	100	65-125	19.76	1.66	30
Methylene chloride	19.66	5.0	20	0	98.3	55-140	19.81	0.76	30
Naphthalene	19.14	5.0	20	0	95.7	55-140	19.06	0.419	30
n-Butylbenzene	20.27	1.0	20	0	101	70-135	20.49	1.08	30
n-Propylbenzene	20.48	1.0	20	0	102	70-130	20.6	0.584	30
o-Xylene	19.79	1.0	20	0	99	80-120	20.32	2.64	30
p-Isopropyltoluene	19.58	2.0	20	0	97.9	75-130	19.63	0.255	30
sec-Butylbenzene	20.71	2.0	20	0	104	70-125	21.22	2.43	30
Styrene	18.77	1.0	20	0	93.8	65-135	19.63	4.48	30
tert-Butylbenzene	20.86	2.0	20	0	104	70-130	21.2	1.62	30
Tetrachloroethene	20.42	2.0	20	0	102	45-150	20.29	0.639	30
Tetrahydrofuran	17.44	10	20	0	87.2	70-135	19.07	8.93	30
Toluene	19.5	1.0	20	0	97.5	75-120	20.65	5.73	30
trans-1,2-Dichloroethene	21.42	1.0	20	0	107	60-140	21.54	0.559	30
trans-1,3-Dichloropropene	17.89	1.0	20	0	89.4	55-140	18.92	5.6	30
trans-1,4-Dichloro-2-butene	16.21	5.0	20	0	81	70-135	16.39	1.1	30
Trichloroethene	21.09	1.0	20	0	105	70-125	20.1	4.81	30
Trichlorofluoromethane	20.19	1.0	20	0	101	60-145	19.91	1.4	30
Vinyl chloride	20.77	1.0	20	0	104	50-145	20.32	2.19	30
Xylenes, Total	59.75	3.0	60	0	99.6	75-130	61.67	3.16	30
Surr: 1,2-Dichloroethane-d4	*21.03*	0	*20*	0	*105*	*70-120*	19.5	*7.55*	*30*
Surr: 4-Bromofluorobenzene	*20.25*	0	*20*	0	*101*	*75-120*	20.62	*1.81*	*30*
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*85-115*	18.25	*8.05*	*30*
Surr: Toluene-d8	*20.15*	0	*20*	0	*101*	*85-120*	20.17	*0.0992*	*30*

The following samples were analyzed in this batch:

1206707-01C	1206707-02C	1206707-03C
1206707-05C	1206707-06C	1206707-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **R106465A** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **VBLKW1-120625-R106465A** Units: **µg/L** Analysis Date: **6/25/2012 11:00 AM**
Client ID: Run ID: **VMS7_120625A** SeqNo: **2011982** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Benzene	ND	1.0								
Cyclohexane	ND	5.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
n-Propylbenzene	ND	1.0								
p-Isopropyltoluene	ND	2.0								
sec-Butylbenzene	ND	2.0								
Toluene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	*18.68*	0	*20*	0	*93.4*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*19.08*	0	*20*	0	*95.4*	*75-120*	0			
Surr: Dibromofluoromethane	*19.18*	0	*20*	0	*95.9*	*85-115*	0			
Surr: Toluene-d8	*19.43*	0	*20*	0	*97.2*	*85-120*	0			

LCS Sample ID: **VLCSW1-120625-R106465A** Units: **µg/L** Analysis Date: **6/25/2012 10:10 AM**
Client ID: Run ID: **VMS7_120625A** SeqNo: **2010954** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	19.12	1.0	20	0	95.6	75-130	0			
1,2,4-Trimethylbenzene	19.34	1.0	20	0	96.7	75-130	0			
1,3,5-Trimethylbenzene	19.8	1.0	20	0	99	75-130	0			
Benzene	19.16	1.0	20	0	95.8	80-120	0			
Ethylbenzene	19.83	1.0	20	0	99.2	75-125	0			
Isopropylbenzene	20.53	1.0	20	0	103	75-125	0			
n-Propylbenzene	19.72	1.0	20	0	98.6	70-130	0			
p-Isopropyltoluene	20.77	2.0	20	0	104	75-130	0			
sec-Butylbenzene	21.53	2.0	20	0	108	70-125	0			
Toluene	19.16	1.0	20	0	95.8	75-120	0			
Xylenes, Total	59.74	3.0	60	0	99.6	75-130	0			
Surr: 1,2-Dichloroethane-d4	*18.17*	0	*20*	0	*90.8*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*19.37*	0	*20*	0	*96.8*	*75-120*	0			
Surr: Dibromofluoromethane	*19.22*	0	*20*	0	*96.1*	*85-115*	0			
Surr: Toluene-d8	*19.38*	0	*20*	0	*96.9*	*85-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206707
Project: Marshall Hydrogeo2 Augusta GW 6/19/12

QC BATCH REPORT

Batch ID: **R106465A** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206707-04C MS** Units: **µg/L** Analysis Date: **6/25/2012 08:00 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **VMS7_120625A** SeqNo: **2012005** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	18.45	1.0	20	0	92.2	75-130	0			
1,2,4-Trimethylbenzene	18.51	1.0	20	0	92.6	75-130	0			
1,3,5-Trimethylbenzene	18.87	1.0	20	0	94.4	75-130	0			
Benzene	20.04	1.0	20	0	100	80-120	0			
Ethylbenzene	19.81	1.0	20	0	99	75-125	0			
Isopropylbenzene	20.08	1.0	20	0	100	75-125	0			
n-Propylbenzene	19.22	1.0	20	0	96.1	70-130	0			
p-Isopropyltoluene	19.71	2.0	20	0	98.6	75-130	0			
sec-Butylbenzene	19.8	2.0	20	0	99	70-125	0			
Toluene	19.47	1.0	20	0	97.4	75-120	0			
Xylenes, Total	59.24	3.0	60	0	98.7	75-130	0			
Surr: 1,2-Dichloroethane-d4	*19.33*	0	*20*	0	*96.6*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*19.23*	0	*20*	0	*96.2*	*75-120*	0			
Surr: Dibromofluoromethane	*18.93*	0	*20*	0	*94.6*	*85-115*	0			
Surr: Toluene-d8	*19.25*	0	*20*	0	*96.2*	*85-120*	0			

MSD Sample ID: **1206707-04C MSD** Units: **µg/L** Analysis Date: **6/25/2012 08:25 PM**
Client ID: **MWKR2875R03S061912GX** Run ID: **VMS7_120625A** SeqNo: **2012008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,3-Trimethylbenzene	18.27	1.0	20	0	91.4	75-130	18.45	0.98	30	
1,2,4-Trimethylbenzene	18.41	1.0	20	0	92	75-130	18.51	0.542	30	
1,3,5-Trimethylbenzene	19.06	1.0	20	0	95.3	75-130	18.87	1	30	
Benzene	19.89	1.0	20	0	99.4	80-120	20.04	0.751	30	
Ethylbenzene	19.77	1.0	20	0	98.8	75-125	19.81	0.202	30	
Isopropylbenzene	20.49	1.0	20	0	102	75-125	20.08	2.02	30	
n-Propylbenzene	19.52	1.0	20	0	97.6	70-130	19.22	1.55	30	
p-Isopropyltoluene	18.74	2.0	20	0	93.7	75-130	19.71	5.05	30	
sec-Butylbenzene	20.03	2.0	20	0	100	70-125	19.8	1.15	30	
Toluene	19.18	1.0	20	0	95.9	75-120	19.47	1.5	30	
Xylenes, Total	58.86	3.0	60	0	98.1	75-130	59.24	0.644	30	
Surr: 1,2-Dichloroethane-d4	*18.93*	0	*20*	0	*94.6*	*70-120*	19.33	*2.09*	*30*	
Surr: 4-Bromofluorobenzene	*19.56*	0	*20*	0	*97.8*	*75-120*	19.23	*1.7*	*30*	
Surr: Dibromofluoromethane	*19.28*	0	*20*	0	*96.4*	*85-115*	18.93	*1.83*	*30*	
Surr: Toluene-d8	*19.32*	0	*20*	0	*96.6*	*85-120*	19.25	*0.363*	*30*	

The following samples were analyzed in this batch: 1206707-03C 1206707-04C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206707

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Cooler # of

COC # ENBRIDGE_061912_AKM1 | Task: HYDROGEO2_AUGUSTA
Total # of Samples: 7 | Event Complete?

Turn Around Time: 5 Day | Rush | No

BILLING CODE: 7.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX | Phone #: 713-821-2000
PO #
Send EDD to
CC Hardcopy report
CC Hardcopy report

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	# OF CONTAINERS	Comments/Lab Sample I.D.	Be,Fe,Mo,Ni,Ti,V (HNO3)	PNAs by 8270 (None)	VOC by 5035/8260 (HCl)	Mercury (HNO3)
1	MWKR2875R01S061912GX	MWKR2875R01	WG	G	06/19/2012 11:50	6		X	X	X	X
2	MWKR2875R02S061912GX	MWKR2875R02	WG	G	06/19/2012 11:50	6		X	X	X	X
3	MWKR2875R02D061912GX	MWKR2875R02	WG	G	06/19/2012 11:50	6	DUPLICATE	X	X	X	X
4	MWKR2875R03S061912GX	MWKR2875R03	WG	G	06/19/2012 10:40	18	MS/MSD	X	X	X	X
5	MWKR2875R04S061912GX	MWKR2875R04	WG	G	06/19/2012 10:45	6		X	X	X	X
6	MWKR2875R05S061912GX	MWKR2875R05	WG	G	06/19/2012 12:55	6		X	X	X	X
7	MWKR2875R05T061912WX	MWKR2875R05	WQ	G	06/19/2012 00:00	3	TRIP BLANK			X	

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	6.19.12	1425	[signature]	6.19.12	1425
[signature]	6.20.12	1716	[signature]	6.20.12	1716

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
	Y/N	Y/N	Y/N
5.8°C	(Y)N	(Y)N	(Y)N
1.6°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: | Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: APRIL MODERT (AKM1), JOHN CARVETH (JTC)
SIGNATURE of SAMPLER: | DATE Signed | Time:

TBB

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206707** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Groundwater
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.8, 1.6 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

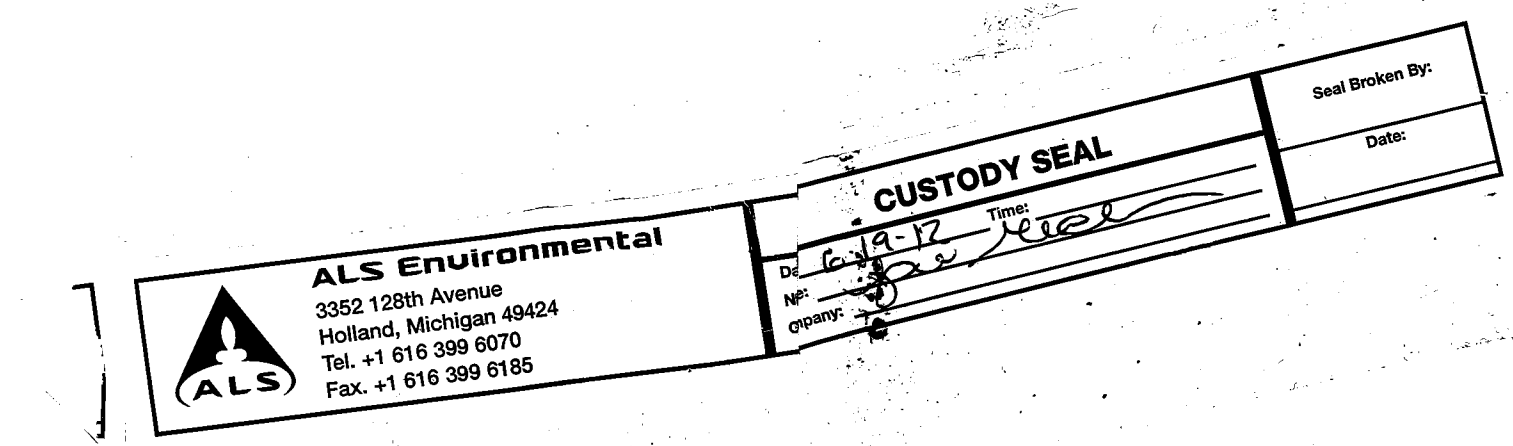
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

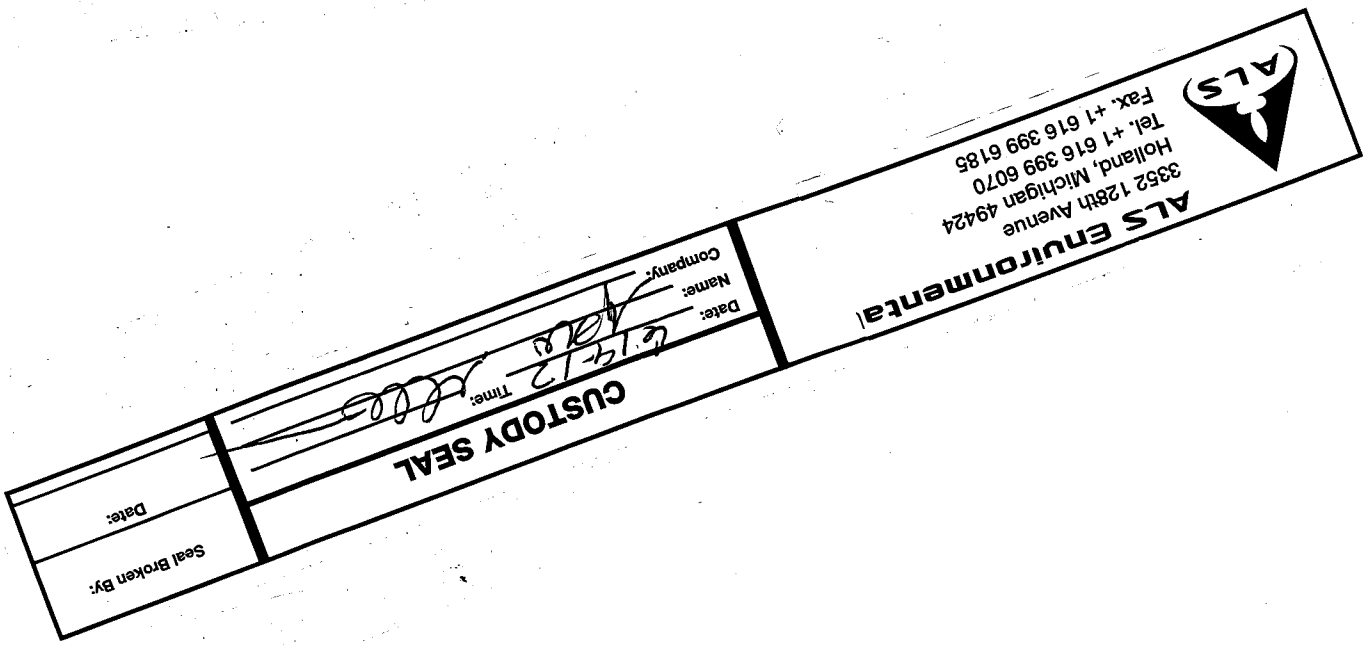
Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Time:
Seal Broken By:
Date:

5.8°c


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Time:
Seal Broken By:
Date:

1.6°c

08-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150,1175 6/1/12** Work Order: **1206043**

Dear Bryan,

ALS Environmental received 7 samples on 01-Jun-2012 05:08 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 42.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 08-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150,1175 6/1/12
Work Order: **1206043**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206043-01	SBKR1150L529S060112S007	Soil		6/1/2012 11:20	6/1/2012 17:08	☐
1206043-02	SBKR1150L530S060112S010	Soil		6/1/2012 13:35	6/1/2012 17:08	☐
1206043-03	SBKR1150L530D060112S010	Soil		6/1/2012 13:35	6/1/2012 17:08	☐
1206043-04	SBKR1150L531S060112S008	Soil		6/1/2012 14:00	6/1/2012 17:08	☐
1206043-05	SBKR1150L532S060112S007	Soil		6/1/2012 15:40	6/1/2012 17:08	☐
1206043-06	SBKR1150L532T060112MX	Soil		6/1/2012	6/1/2012 17:08	☐
1206043-07	SBKR1175L501S060112S006	Soil		6/1/2012 11:45	6/1/2012 17:08	☐

Client: AECOM Environment
Project: Marshall KRRI 1150,1175 6/1/12
Work Order: 1206043

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41473 MS/MSD data for Metals is not related to this project's samples.

Batch 41504 MS/MSD data for Volatiles is not related to this project's samples. The LCS recovery for 4-Methyl-2-Pentanone was above the upper control limit. All sample results in the batch were non-detect. No qualification is necessary for 4-Methyl-2-Pentanone.

Batch 41422 sample 1206043-07PAH internal standard recovery was below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the noted PAH compounds.

Batch 41423 samples 1206043-01, 1206043-03, and 1206043-05 DRO surrogate recoveries were above control limits due to matrix interference. The DRO/ORO results may be biased high.

Client: AECOM Environment
Project: Marshall KRRI 1150,1175 6/1/12
WorkOrder: **1206043**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L529S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 11:20:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**80**	**25**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**780**	**50**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*142*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(b)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/4/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Fluoranthene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/4/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Surr: 2,4,6-Tribromophenol	*96.6*	*34-140*			*%REC*	1	6/4/2012
Surr: 2-Fluorobiphenyl	*65.5*	*12-100*			*%REC*	1	6/4/2012
Surr: 2-Fluorophenol	*61.7*	*33-117*			*%REC*	1	6/4/2012
Surr: 4-Terphenyl-d14	*90.3*	*25-137*			*%REC*	1	6/4/2012
Surr: Nitrobenzene-d5	*56.0*	*37-107*			*%REC*	1	6/4/2012
Surr: Phenol-d6	*55.0*	*40-106*			*%REC*	1	6/4/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	340	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	340	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L529S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 11:20:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	340	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	340	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	340	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	340	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	340	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	2,800	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	340	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	340	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	340	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	340	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	340	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	340	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	340	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	340	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	340	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	340	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	340	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	340	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	340	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	340	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	340	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	340	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	340	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L529S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 11:20:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	340	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	340	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	340	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	680	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	340	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	340	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	340	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	340	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	340	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	340	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	340	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	340	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	340	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	340	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	340	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	340	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	340	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	340	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*97.4*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*99.7*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**62**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530S060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**290**	**47**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**1,900**	**94**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*72.5*	*39-115*			*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.75	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**2.0**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**24**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**27**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(b)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*94.1*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*65.8*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*70.8*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*90.4*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*63.0*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*60.4*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	1,300	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530S060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	1,300	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	1,300	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	1,300	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	1,300	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	1,300	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	1,300	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	4,400	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	4,400	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	11,000	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	1,300	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	4,400	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	1,300	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	1,300	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	1,300	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	1,300	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530S060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	1,300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	1,300	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	2,700	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	4,400	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	4,400	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	1,300	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	4,400	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	1,300	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	1,300	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	1,300	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	1,300	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*99.1*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*98.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**80**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530D060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**150**	**33**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**1,500**	**65**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*230*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	**0.85**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**36**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(a)pyrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(b)fluoranthene	**700**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Chrysene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluoranthene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*98.6*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*68.7*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*70.5*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*92.6*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*61.0*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*65.9*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	570	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	570	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	570	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	570	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	570	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530D060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	570	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	570	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	570	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	570	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	570	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	570	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	4,800	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	570	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	570	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	570	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	570	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	570	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	570	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	570	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	570	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	570	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	570	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	570	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	570	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	570	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	570	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	570	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	570	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	570	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	570	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L530D060112S010
Work Order:	1206043	**Collection Date:**	6/1/2012 1:35:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	570	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	570	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	570	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	570	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	570	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	570	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	570	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	570	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	570	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	570	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	570	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	570	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	570	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	570	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	570	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	570	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	570	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*99.5*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L531S060112S008
Work Order:	1206043	**Collection Date:**	6/1/2012 2:00:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**95**	**21**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**500**	**42**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*77.5*	*39-115*			*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	**0.75**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**40**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/4/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/4/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Surr: 2,4,6-Tribromophenol	*96.0*	*34-140*			*%REC*	1	6/4/2012
Surr: 2-Fluorobiphenyl	*66.4*	*12-100*			*%REC*	1	6/4/2012
Surr: 2-Fluorophenol	*67.6*	*33-117*			*%REC*	1	6/4/2012
Surr: 4-Terphenyl-d14	*87.9*	*25-137*			*%REC*	1	6/4/2012
Surr: Nitrobenzene-d5	*61.3*	*37-107*			*%REC*	1	6/4/2012
Surr: Phenol-d6	*61.9*	*40-106*			*%REC*	1	6/4/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L531S060112S008
Work Order:	1206043	**Collection Date:**	6/1/2012 2:00:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L531S060112S008
Work Order:	1206043	**Collection Date:**	6/1/2012 2:00:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*99.8*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.4*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L532S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 3:40:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**190**	**45**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**2,300**	**90**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*217*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.70	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.4	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**24**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**28**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(a)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(b)fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Chrysene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/4/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Surr: 2,4,6-Tribromophenol	*97.7*	*34-140*			*%REC*	1	6/4/2012
Surr: 2-Fluorobiphenyl	*65.5*	*12-100*			*%REC*	1	6/4/2012
Surr: 2-Fluorophenol	*63.6*	*33-117*			*%REC*	1	6/4/2012
Surr: 4-Terphenyl-d14	*84.0*	*25-137*			*%REC*	1	6/4/2012
Surr: Nitrobenzene-d5	*55.7*	*37-107*			*%REC*	1	6/4/2012
Surr: Phenol-d6	*55.3*	*40-106*			*%REC*	1	6/4/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L532S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 3:40:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	1,100	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	1,100	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	1,100	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	1,100	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	3,700	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	3,700	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	9,200	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	1,100	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	3,700	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	1,100	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	1,100	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	1,100	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L532S060112S007
Work Order:	1206043	**Collection Date:**	6/1/2012 3:40:00 PM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	1,100	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	1,100	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	2,200	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	3,700	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	3,700	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	3,700	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	1,100	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	1,100	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	1,100	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	1,100	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*98.3*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**78**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L532T060112MX
Work Order:	1206043	**Collection Date:**	6/1/2012
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/8/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/8/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/8/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/8/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/8/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/8/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/8/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/8/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/8/2012
Benzene	ND	50	50		µg/Kg	1	6/8/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/8/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/8/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/8/2012
Bromoform	ND	100	100		µg/Kg	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/8/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/8/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/8/2012
Chloroethane	ND	250	250		µg/Kg	1	6/8/2012
Chloroform	ND	50	50		µg/Kg	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg	1	6/8/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L532T060112MX
Work Order:	1206043	**Collection Date:**	6/1/2012
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/8/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/8/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/8/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/8/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/8/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg	1	6/8/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/8/2012
o-Xylene	ND	50	50		µg/Kg	1	6/8/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/8/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Styrene	ND	50	50		µg/Kg	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/8/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/8/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/8/2012
Toluene	ND	100	100		µg/Kg	1	6/8/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/8/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/8/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/8/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*83.4*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*94.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*89.4*	*70-130*			*%REC*	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L501S060112S006
Work Order:	1206043	**Collection Date:**	6/1/2012 11:45:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**96**	**21**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**780**	**43**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*113*	*39-115*			*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(a)pyrene	**680**	**330**	**330**	*	**µg/Kg-dry**	1	6/5/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**	*	**µg/Kg-dry**	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	**470**	**330**	**330**	*	**µg/Kg-dry**	1	6/5/2012
Chrysene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/5/2012
Fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*95.9*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*67.6*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*63.7*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*113*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*55.5*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*63.3*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L501S060112S006
Work Order:	1206043	**Collection Date:**	6/1/2012 11:45:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	230	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	230	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	230	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L501S060112S006
Work Order:	1206043	**Collection Date:**	6/1/2012 11:45:00 AM
Project:	Marshall KRRI 1150,1175 6/1/12		
Lab ID:	1206043-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	230	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	230	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	230	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*98.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41423** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41423-41423** Units: **mg/Kg** Analysis Date: **6/7/2012 01:39 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994075** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.166*	0	*5*	0	*103*	*39-115*	0			

LCS Sample ID: **DLCSS1-41423-41423** Units: **mg/Kg** Analysis Date: **6/7/2012 01:39 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994076** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	417.2	10	500	0	83.4	60-130	0			
Surr: 4-Terphenyl-d14	*2.753*	0	*5*	0	*55.1*	*39-115*	0			

MS Sample ID: **1206045-04A MS** Units: **mg/Kg** Analysis Date: **6/7/2012 02:05 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994086** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	388.1	9.4	471.8	37.39	74.3	60-130	0			
Surr: 4-Terphenyl-d14	*2.406*	0	*4.718*	0	*51*	*39-115*	0			

MSD Sample ID: **1206045-04A MSD** Units: **mg/Kg** Analysis Date: **6/7/2012 02:05 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994087** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	374.7	9.5	474.5	37.39	71.1	60-130	388.1	3.5	30	
Surr: 4-Terphenyl-d14	*1.997*	0	*4.745*	0	*42.1*	*39-115*	2.406	*18.6*	*30*	

The following samples were analyzed in this batch:

1206043-01A	1206043-02A	1206043-03A
1206043-04A	1206043-05A	1206043-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41473** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:27 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993606** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	0.02968	0.25								J
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:32 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993607** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.08	0.10	5	0	102	80-120	0			
Molybdenum	4.997	0.25	5	0	99.9	80-120	0			
Nickel	4.82	0.25	5	0	96.4	80-120	0			
Vanadium	4.966	0.25	5	0	99.3	80-120	0			

MS Sample ID: **1206045-04AMS** Units: **mg/Kg** Analysis Date: **6/7/2012 02:53 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993611** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.06	0.51	6.369	0.1832	76.6	80-120	0			S
Molybdenum	5.531	1.3	6.369	0.5021	79	80-120	0			S
Nickel	12.69	1.3	6.369	8.142	71.3	80-120	0			S
Vanadium	13.58	1.3	6.369	9.097	70.4	80-120	0			S

MSD Sample ID: **1206045-04AMSD** Units: **mg/Kg** Analysis Date: **6/7/2012 02:58 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993612** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.022	0.54	6.793	0.1832	85.9	80-120	5.06	17.4	25	
Molybdenum	6.628	1.4	6.793	0.5021	90.2	80-120	5.531	18	25	
Nickel	14.43	1.4	6.793	8.142	92.6	80-120	12.69	12.9	25	
Vanadium	15.63	1.4	6.793	9.097	96.1	80-120	13.58	14	25	

The following samples were analyzed in this batch:

1206043-01A	1206043-02A	1206043-03A
1206043-04A	1206043-05A	1206043-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41422-41422** Units: **µg/Kg** Analysis Date: **6/4/2012 07:17 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991221** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3315*	0	*5000*	0	*66.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3441*	0	*5000*	0	*68.8*	*12-100*	0			
Surr: 2-Fluorophenol	*3499*	0	*5000*	0	*70*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3718*	0	*5000*	0	*74.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3351*	0	*5000*	0	*67*	*37-107*	0			
Surr: Phenol-d6	*3522*	0	*5000*	0	*70.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41422-41422** Units: **µg/Kg** Analysis Date: **6/4/2012 07:51 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991223** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1505	50	2000	0	75.2	45-105	0			
Acenaphthene	1498	50	2000	0	74.9	45-110	0			
Acenaphthylene	1575	50	2000	0	78.8	45-105	0			
Anthracene	1592	50	2000	0	79.6	55-105	0			
Benzo(a)anthracene	1551	50	2000	0	77.6	50-110	0			
Benzo(a)pyrene	1533	50	2000	0	76.6	50-110	0			
Benzo(b)fluoranthene	1408	50	2000	0	70.4	45-115	0			
Benzo(g,h,i)perylene	1663	50	2000	0	83.2	40-125	0			
Benzo(k)fluoranthene	1745	50	2000	0	87.2	45-115	0			
Chrysene	1612	50	2000	0	80.6	55-110	0			
Dibenzo(a,h)anthracene	1656	50	2000	0	82.8	40-125	0			
Fluoranthene	1633	50	2000	0	81.6	55-115	0			
Fluorene	1571	50	2000	0	78.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1630	50	2000	0	81.5	40-120	0			
Naphthalene	1469	50	2000	0	73.4	40-105	0			
Phenanthrene	1596	50	2000	0	79.8	50-110	0			
Pyrene	1544	50	2000	0	77.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*3900*	0	*5000*	0	*78*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3522*	0	*5000*	0	*70.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3729*	0	*5000*	0	*74.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3565*	0	*5000*	0	*71.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3500*	0	*5000*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3651*	0	*5000*	0	*73*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206045-04A MS** Units: **µg/Kg** Analysis Date: **6/4/2012 10:39 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991230** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1380	49	1958	0	70.4	45-105	0			
Acenaphthene	1572	49	1958	0	80.2	45-110	0			
Acenaphthylene	1713	49	1958	55.39	84.6	45-105	0			
Anthracene	1844	49	1958	74.18	90.4	55-105	0			
Benzo(a)anthracene	2113	49	1958	416.4	86.6	50-110	0			
Benzo(a)pyrene	2158	49	1958	438.2	87.8	50-110	0			
Benzo(b)fluoranthene	2264	49	1958	563.8	86.8	45-115	0			
Benzo(g,h,i)perylene	1260	49	1958	191.9	54.6	40-125	0			
Benzo(k)fluoranthene	2053	49	1958	229.5	93.1	45-115	0			
Chrysene	2114	49	1958	416.4	86.7	55-110	0			
Dibenzo(a,h)anthracene	1218	49	1958	0	62.2	40-125	0			
Fluoranthene	2468	49	1958	719.1	89.3	55-115	0			
Fluorene	1766	49	1958	0	90.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1305	49	1958	152.3	58.9	40-120	0			
Naphthalene	1290	49	1958	0	65.8	40-105	0			
Phenanthrene	2013	49	1958	252.2	89.9	50-110	0			
Pyrene	2233	49	1958	636	81.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*5477*	0	*4896*	0	*112*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3305*	0	*4896*	0	*67.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3181*	0	*4896*	0	*65*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4752*	0	*4896*	0	*97.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*2884*	0	*4896*	0	*58.9*	*37-107*	0			
Surr: Phenol-d6	*3104*	0	*4896*	0	*63.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206045-04A MSD** Units: **µg/Kg** Analysis Date: **6/4/2012 11:12 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991231** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1409	49	1979	0	71.2	45-105	1380	2.1	30	
Acenaphthene	1544	49	1979	0	78	45-110	1572	1.74	30	
Acenaphthylene	1653	49	1979	55.39	80.8	45-105	1713	3.52	30	
Anthracene	1757	49	1979	74.18	85.1	55-105	1844	4.81	30	
Benzo(a)anthracene	2018	49	1979	416.4	81	50-110	2113	4.58	30	
Benzo(a)pyrene	2070	49	1979	438.2	82.5	50-110	2158	4.17	30	
Benzo(b)fluoranthene	2215	49	1979	563.8	83.5	45-115	2264	2.16	30	
Benzo(g,h,i)perylene	1084	49	1979	191.9	45.1	40-125	1260	15	30	
Benzo(k)fluoranthene	2452	49	1979	229.5	112	45-115	2053	17.7	30	
Chrysene	2036	49	1979	416.4	81.9	55-110	2114	3.75	30	
Dibenzo(a,h)anthracene	1096	49	1979	0	55.4	40-125	1218	10.5	30	
Fluoranthene	2367	49	1979	719.1	83.3	55-115	2468	4.21	30	
Fluorene	1730	49	1979	0	87.4	50-110	1766	2.05	30	
Indeno(1,2,3-cd)pyrene	1138	49	1979	152.3	49.8	40-120	1305	13.7	30	
Naphthalene	1341	49	1979	0	67.8	40-105	1290	3.89	30	
Phenanthrene	1898	49	1979	252.2	83.2	50-110	2013	5.9	30	
Pyrene	2172	49	1979	636	77.6	45-125	2233	2.8	30	
Surr: 2,4,6-Tribromophenol	*5249*	0	*4947*	0	*106*	*34-140*	5477	*4.26*	*40*	
Surr: 2-Fluorobiphenyl	*3539*	0	*4947*	0	*71.5*	*12-100*	3305	*6.85*	*40*	
Surr: 2-Fluorophenol	*3354*	0	*4947*	0	*67.8*	*33-117*	3181	*5.29*	*40*	
Surr: 4-Terphenyl-d14	*4742*	0	*4947*	0	*95.9*	*25-137*	4752	*0.201*	*40*	
Surr: Nitrobenzene-d5	*3089*	0	*4947*	0	*62.4*	*37-107*	2884	*6.88*	*40*	
Surr: Phenol-d6	*3261*	0	*4947*	0	*65.9*	*40-106*	3104	*4.94*	*40*	

The following samples were analyzed in this batch:

1206043-01A	1206043-02A	1206043-03A
1206043-04A	1206043-05A	1206043-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41504-41504** Units: **µg/Kg** Analysis Date: **6/8/2012 12:26 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993885** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	17	30								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	112	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	41.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*991.5*	0	*1000*	0	*99.2*	*70-130*	0
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41504-41504** Units: **µg/Kg** Analysis Date: **6/7/2012 11:35 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993884** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	958	30	1000	0	95.8	75-125	0			
1,1,1-Trichloroethane	946.5	30	1000	0	94.6	70-135	0			
1,1,2,2-Tetrachloroethane	983.5	30	1000	0	98.4	55-130	0			
1,1,2-Trichloroethane	918.5	30	1000	0	91.8	60-125	0			
1,1-Dichloroethane	896.5	30	1000	0	89.6	75-125	0			
1,1-Dichloroethene	771.5	30	1000	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	1048	30	1000	0	105	60-135	0			
1,2,3-Trichloropropane	966	30	1000	0	96.6	65-130	0			
1,2,3-Trimethylbenzene	906.5	30	1000	0	90.6	65-135	0			
1,2,4-Trichlorobenzene	998.5	30	1000	0	99.8	65-130	0			
1,2,4-Trimethylbenzene	941.5	30	1000	0	94.2	65-135	0			
1,2-Dibromo-3-chloropropane	942	30	1000	0	94.2	40-135	0			
1,2-Dibromoethane	970.5	30	1000	0	97	70-125	0			
1,2-Dichlorobenzene	961.5	30	1000	0	96.2	75-120	0			
1,2-Dichloroethane	929.5	30	1000	0	93	70-135	0			
1,2-Dichloropropane	929.5	30	1000	0	93	70-120	0			
1,3,5-Trimethylbenzene	949.5	30	1000	0	95	65-135	0			
1,3-Dichlorobenzene	951	30	1000	0	95.1	70-125	0			
1,4-Dichlorobenzene	990	30	1000	0	99	70-125	0			
2-Butanone	1044	100	1000	0	104	30-160	0			
2-Hexanone	1019	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	1454	30	1000	0	145	45-145	0			S
Acetone	845	100	1000	0	84.5	20-160	0			
Acrylonitrile	969	30	1000	0	96.9	70-135	0			
Benzene	908.5	30	1000	0	90.8	75-125	0			
Bromobenzene	944.5	30	1000	0	94.4	65-120	0			
Bromochloromethane	895.5	30	1000	0	89.6	70-125	0			
Bromodichloromethane	932.5	30	1000	0	93.2	70-130	0			
Bromoform	878.5	30	1000	0	87.8	55-135	0			
Bromomethane	881.5	30	1000	0	88.2	30-160	0			
Carbon disulfide	914	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	861.5	30	1000	0	86.2	65-135	0			
Chlorobenzene	939.5	30	1000	0	94	75-125	0			
Chloroethane	678.5	100	1000	0	67.8	40-155	0			
Chloroform	907	30	1000	0	90.7	70-125	0			
Chloromethane	827	30	1000	0	82.7	50-130	0			
cis-1,2-Dichloroethene	905	30	1000	0	90.5	65-125	0			
cis-1,3-Dichloropropene	957.5	30	1000	0	95.8	70-125	0			
Dibromochloromethane	915.5	30	1000	0	91.6	65-135	0			
Dibromomethane	932	30	1000	0	93.2	75-130	0			
Dichlorodifluoromethane	759.5	30	1000	0	76	35-135	0			
Ethylbenzene	908.5	30	1000	0	90.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	915.5	30	1000	0	91.6	70-135	0
Isopropylbenzene	955	30	1000	0	95.5	75-130	0
m,p-Xylene	1818	60	2000	0	90.9	80-125	0
Methyl tert-butyl ether	1104	30	1000	0	110	75-125	0
Methylene chloride	1080	30	1000	0	108	55-145	0
Naphthalene	981.5	100	1000	0	98.2	40-140	0
n-Butylbenzene	922.5	30	1000	0	92.2	65-140	0
n-Propylbenzene	924.5	30	1000	0	92.4	65-135	0
o-Xylene	924	30	1000	0	92.4	75-125	0
p-Isopropyltoluene	927	30	1000	0	92.7	75-135	0
sec-Butylbenzene	972	30	1000	0	97.2	65-130	0
Styrene	944.5	30	1000	0	94.4	75-125	0
tert-Butylbenzene	971	30	1000	0	97.1	65-130	0
Tetrachloroethene	908.5	30	1000	0	90.8	64-140	0
Tetrahydrofuran	939.5	100	1000	0	94	70-135	0
Toluene	906	30	1000	0	90.6	70-125	0
trans-1,2-Dichloroethene	997	30	1000	0	99.7	65-135	0
trans-1,3-Dichloropropene	973	30	1000	0	97.3	65-125	0
trans-1,4-Dichloro-2-butene	922	30	1000	0	92.2	70-135	0
Trichloroethene	920.5	30	1000	0	92	75-125	0
Trichlorofluoromethane	335.5	30	1000	0	33.6	25-185	0
Vinyl chloride	808.5	30	1000	0	80.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*999*	0	*1000*	0	*99.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1024*	0	*1000*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206045-04B MS** Units: **µg/Kg** Analysis Date: **6/8/2012 08:46 AM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1994351** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2722	85	2846	0	95.6	75-125	0			
1,1,1-Trichloroethane	2778	85	2846	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	2712	85	2846	0	95.3	55-130	0			
1,1,2-Trichloroethane	2618	85	2846	0	92	60-125	0			
1,1-Dichloroethane	2627	85	2846	0	92.3	75-125	0			
1,1-Dichloroethene	2199	85	2846	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	2523	85	2846	0	88.6	60-135	0			
1,2,3-Trichloropropane	2705	85	2846	0	95	65-130	0			
1,2,3-Trimethylbenzene	2495	85	2846	0	87.6	65-135	0			
1,2,4-Trichlorobenzene	2441	85	2846	0	85.8	65-130	0			
1,2,4-Trimethylbenzene	2594	85	2846	0	91.2	65-135	0			
1,2-Dibromo-3-chloropropane	2374	85	2846	0	83.4	40-135	0			
1,2-Dibromoethane	2748	85	2846	0	96.6	70-125	0			
1,2-Dichlorobenzene	2641	85	2846	0	92.8	75-120	0			
1,2-Dichloroethane	2765	85	2846	0	97.2	70-135	0			
1,2-Dichloropropane	2732	85	2846	0	96	70-120	0			
1,3,5-Trimethylbenzene	2668	85	2846	0	93.8	65-135	0			
1,3-Dichlorobenzene	2552	85	2846	0	89.6	70-125	0			
1,4-Dichlorobenzene	2626	85	2846	0	92.2	70-125	0			
2-Butanone	3579	280	2846	0	126	30-160	0			
2-Hexanone	2986	85	2846	0	105	45-145	0			
4-Methyl-2-pentanone	4181	85	2846	0	147	45-145	0			S
Acetone	4299	280	2846	0	151	20-160	0			
Acrylonitrile	2842	85	2846	0	99.8	70-135	0			
Benzene	2673	85	2846	0	93.9	75-125	0			
Bromobenzene	2617	85	2846	0	92	65-120	0			
Bromochloromethane	2710	85	2846	0	95.2	70-125	0			
Bromodichloromethane	2754	85	2846	0	96.8	70-130	0			
Bromoform	2389	85	2846	0	84	55-135	0			
Bromomethane	2230	85	2846	0	78.4	30-160	0			
Carbon disulfide	2641	85	2846	0	92.8	45-160	0			
Carbon tetrachloride	2534	85	2846	0	89	65-135	0			
Chlorobenzene	2671	85	2846	0	93.8	75-125	0			
Chloroethane	1904	280	2846	0	66.9	40-155	0			
Chloroform	2638	85	2846	0	92.7	70-125	0			
Chloromethane	2482	85	2846	0	87.2	50-130	0			
cis-1,2-Dichloroethene	2636	85	2846	0	92.6	65-125	0			
cis-1,3-Dichloropropene	2700	85	2846	0	94.8	70-125	0			
Dibromochloromethane	2530	85	2846	0	88.9	65-135	0			
Dibromomethane	2738	85	2846	0	96.2	75-130	0			
Dichlorodifluoromethane	2197	85	2846	0	77.2	35-135	0			
Ethylbenzene	2554	85	2846	0	89.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2389	85	2846	0	84	70-135	0
Isopropylbenzene	2648	85	2846	0	93	75-130	0
m,p-Xylene	5228	170	5692	0	91.8	80-125	0
Methyl tert-butyl ether	3218	85	2846	0	113	75-125	0
Methylene chloride	3270	85	2846	0	115	55-145	0
Naphthalene	2473	280	2846	0	86.9	40-140	0
n-Butylbenzene	2442	85	2846	0	85.8	65-140	0
n-Propylbenzene	2577	85	2846	0	90.6	65-135	0
o-Xylene	2589	85	2846	0	91	75-125	0
p-Isopropyltoluene	2465	85	2846	0	86.6	75-135	0
sec-Butylbenzene	2636	85	2846	0	92.6	65-130	0
Styrene	2489	85	2846	0	87.4	75-125	0
tert-Butylbenzene	2741	85	2846	0	96.3	65-130	0
Tetrachloroethene	2604	85	2846	0	91.5	64-140	0
Tetrahydrofuran	2711	280	2846	0	95.2	70-135	0
Toluene	2599	85	2846	0	91.3	70-125	0
trans-1,2-Dichloroethene	2946	85	2846	0	104	65-135	0
trans-1,3-Dichloropropene	2647	85	2846	0	93	65-125	0
trans-1,4-Dichloro-2-butene	2250	85	2846	0	79	70-135	0
Trichloroethene	2704	85	2846	0	95	75-125	0
Trichlorofluoromethane	981.9	85	2846	0	34.5	25-185	0
Vinyl chloride	2429	85	2846	0	85.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*2892*	0	*2846*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2937*	0	*2846*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*2880*	0	*2846*	0	*101*	*70-130*	0
Surr: Toluene-d8	*2816*	0	*2846*	0	*99*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206045-04B MSD** Units: **µg/Kg** Analysis Date: **6/8/2012 09:13 AM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1994352** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2685	86	2862	0	93.8	75-125	2722	1.39	30	
1,1,1-Trichloroethane	2675	86	2862	0	93.4	70-135	2778	3.78	30	
1,1,2,2-Tetrachloroethane	2620	86	2862	0	91.6	55-130	2712	3.45	30	
1,1,2-Trichloroethane	2552	86	2862	0	89.2	60-125	2618	2.58	30	
1,1-Dichloroethane	2590	86	2862	0	90.5	75-125	2627	1.41	30	
1,1-Dichloroethene	2267	86	2862	0	79.2	65-135	2199	3.06	30	
1,2,3-Trichlorobenzene	2625	86	2862	0	91.7	60-135	2523	3.95	30	
1,2,3-Trichloropropane	2629	86	2862	0	91.8	65-130	2705	2.86	30	
1,2,3-Trimethylbenzene	2453	86	2862	0	85.7	65-135	2495	1.69	30	
1,2,4-Trichlorobenzene	2507	86	2862	0	87.6	65-130	2441	2.7	30	
1,2,4-Trimethylbenzene	2542	86	2862	0	88.8	65-135	2594	2.05	30	
1,2-Dibromo-3-chloropropane	2357	86	2862	0	82.4	40-135	2374	0.704	30	
1,2-Dibromoethane	2666	86	2862	0	93.2	70-125	2748	3.02	30	
1,2-Dichlorobenzene	2628	86	2862	0	91.8	75-120	2641	0.52	30	
1,2-Dichloroethane	2712	86	2862	0	94.8	70-135	2765	1.94	30	
1,2-Dichloropropane	2688	86	2862	0	93.9	70-120	2732	1.65	30	
1,3,5-Trimethylbenzene	2625	86	2862	0	91.7	65-135	2668	1.65	30	
1,3-Dichlorobenzene	2565	86	2862	0	89.6	70-125	2552	0.507	30	
1,4-Dichlorobenzene	2612	86	2862	0	91.2	70-125	2626	0.527	30	
2-Butanone	3217	290	2862	0	112	30-160	3579	10.7	30	
2-Hexanone	2907	86	2862	0	102	45-145	2986	2.68	30	
4-Methyl-2-pentanone	4084	86	2862	0	143	45-145	4181	2.34	30	
Acetone	4087	290	2862	0	143	20-160	4299	5.05	30	
Acrylonitrile	2742	86	2862	0	95.8	70-135	2842	3.58	30	
Benzene	2563	86	2862	0	89.6	75-125	2673	4.18	30	
Bromobenzene	2613	86	2862	0	91.3	65-120	2617	0.146	30	
Bromochloromethane	2676	86	2862	0	93.5	70-125	2710	1.24	30	
Bromodichloromethane	2685	86	2862	0	93.8	70-130	2754	2.53	30	
Bromoform	2333	86	2862	0	81.5	55-135	2389	2.4	30	
Bromomethane	2310	86	2862	0	80.7	30-160	2230	3.52	30	
Carbon disulfide	2648	86	2862	0	92.5	45-160	2641	0.239	30	
Carbon tetrachloride	2446	86	2862	0	85.4	65-135	2534	3.56	30	
Chlorobenzene	2607	86	2862	0	91.1	75-125	2671	2.41	30	
Chloroethane	1903	290	2862	0	66.5	40-155	1904	0.0367	30	
Chloroform	2560	86	2862	0	89.4	70-125	2638	3.01	30	
Chloromethane	2499	86	2862	0	87.3	50-130	2482	0.678	30	
cis-1,2-Dichloroethene	2565	86	2862	0	89.6	65-125	2636	2.73	30	
cis-1,3-Dichloropropene	2665	86	2862	0	93.1	70-125	2700	1.3	30	
Dibromochloromethane	2527	86	2862	0	88.3	65-135	2530	0.114	30	
Dibromomethane	2659	86	2862	0	92.9	75-130	2738	2.93	30	
Dichlorodifluoromethane	2170	86	2862	0	75.8	35-135	2197	1.27	30	
Ethylbenzene	2514	86	2862	0	87.8	75-125	2554	1.58	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2434	86	2862	0	85	70-135	2389	1.86	30
Isopropylbenzene	2622	86	2862	0	91.6	75-130	2648	1.01	30
m,p-Xylene	5095	170	5724	0	89	80-125	5228	2.59	30
Methyl tert-butyl ether	3180	86	2862	0	111	75-125	3218	1.18	30
Methylene chloride	3171	86	2862	0	111	55-145	3270	3.07	30
Naphthalene	2559	290	2862	0	89.4	40-140	2473	3.4	30
n-Butylbenzene	2443	86	2862	0	85.4	65-140	2442	0.0372	30
n-Propylbenzene	2526	86	2862	0	88.2	65-135	2577	2.01	30
o-Xylene	2547	86	2862	0	89	75-125	2589	1.6	30
p-Isopropyltoluene	2397	86	2862	0	83.8	75-135	2465	2.78	30
sec-Butylbenzene	2580	86	2862	0	90.2	65-130	2636	2.12	30
Styrene	2419	86	2862	0	84.5	75-125	2489	2.87	30
tert-Butylbenzene	2656	86	2862	0	92.8	65-130	2741	3.14	30
Tetrachloroethene	2510	86	2862	0	87.7	64-140	2604	3.68	30
Tetrahydrofuran	2628	290	2862	0	91.8	70-135	2711	3.13	30
Toluene	2520	86	2862	0	88	70-125	2599	3.06	30
trans-1,2-Dichloroethene	2865	86	2862	0	100	65-135	2946	2.78	30
trans-1,3-Dichloropropene	2586	86	2862	0	90.4	65-125	2647	2.33	30
trans-1,4-Dichloro-2-butene	2207	86	2862	0	77.1	70-135	2250	1.93	30
Trichloroethene	2623	86	2862	0	91.6	75-125	2704	3.03	30
Trichlorofluoromethane	930.2	86	2862	0	32.5	25-185	981.9	5.41	30
Vinyl chloride	2406	86	2862	0	84	60-125	2429	0.972	30
Surr: 1,2-Dichloroethane-d4	*2852*	0	*2862*	0	*99.6*	*70-130*	2892	*1.37*	*30*
Surr: 4-Bromofluorobenzene	*2928*	0	*2862*	0	*102*	*70-130*	2937	*0.313*	*30*
Surr: Dibromofluoromethane	*2854*	0	*2862*	0	*99.7*	*70-130*	2880	*0.93*	*30*
Surr: Toluene-d8	*2842*	0	*2862*	0	*99.3*	*70-130*	2816	*0.916*	*30*

The following samples were analyzed in this batch:

1206043-01B	1206043-02B	1206043-03B
1206043-04B	1206043-05B	1206043-06A
1206043-07B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206043
Project: Marshall KRRI 1150,1175 6/1/12

QC BATCH REPORT

Batch ID: **R105572** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991265** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206045-04ADUP1** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991251** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.56	0.050	0	0	0	0-0	48.47	0.186	20	

DUP Sample ID: **1206045-04ADUP2** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991252** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.59	0.050	0	0	0	0-0	48.47	0.247	20	

DUP Sample ID: **1206054-11ADUP** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991257** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.42	0.050	0	0	0	0-0	17.72	1.71	20	

The following samples were analyzed in this batch:

1206043-01A	1206043-02A	1206043-03A
1206043-04A	1206043-05A	1206043-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206043

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_060112_PMB2 | Task: KRRI_1150,1175
Total # of Samples: 7 | Event Complete?

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX | Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L529S060112S007	SBKR1150L529	SO	G	06/01/2012 11:20	3			X	X	X	X	X										
2	SBKR1150L530S060112S010	SBKR1150L530	SO	G	06/01/2012 13:35	3			X	X	X	X	X										
3	SBKR1150L530D060112S010	SBKR1150L530	SO	G	06/01/2012 13:35	3	DUPLICATE		X	X	X	X	X										
4	SBKR1150L531S060112S008	SBKR1150L531	SO	G	06/01/2012 14:00	3			X	X	X	X	X										
5	SBKR1150L532S060112S007	SBKR1150L532	SO	G	06/01/2012 15:40	3			X	X	X	X	X										
6	SBKR1150L532T060112MX	SBKR1150L532	SQ	G	06/01/2012 00:00	1	TRIP BLANK						X										
7	SBKR1175L501S060112S006	SBKR1175L501	SO	G	06/01/2012 11:45	3			X	X	X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-1-12	1703		6-1-12	1703
	6/1/12	1708		6-1-12	1708

SHIPPING INFO: Company: | Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB2)
SIGNATURE of SAMPLER: | DATE Signed: | Time:

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
0.6°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **01-Jun-12 17:08**

Work Order: **1206043** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 02-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 04-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.6 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

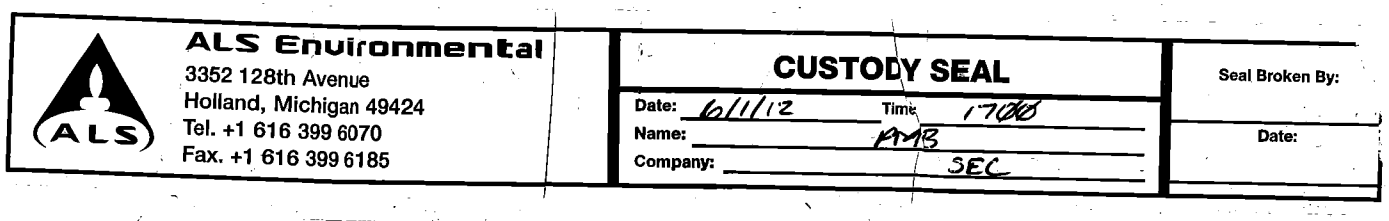
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

0.6 °C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6/1/12 Time: 1700
Name: AMB
Company: SEC

Seal Broken By:

Date:

12-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L Sediment 6/1/12** Work Order: **1206058**

Dear Bryan,

ALS Environmental received 6 samples on 01-Jun-2012 05:08 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: MN331938

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L Sediment 6/1/12
Work Order: **1206058**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206058-01	SEKR1150L502S060112D007	Sediment		6/1/2012 08:38	6/1/2012 17:08	☐
1206058-02	SEKR1150L503S060112D006	Sediment		6/1/2012 09:20	6/1/2012 17:08	☐
1206058-03	SEKR1150L503S060112D012	Sediment		6/1/2012 09:30	6/1/2012 17:08	☐
1206058-04	SEKR1150L504S060112D008	Sediment		6/1/2012 16:05	6/1/2012 17:08	☐
1206058-05	SEKR1150L504D060112D008	Sediment		6/1/2012 16:05	6/1/2012 17:08	☐
1206058-06	SEKR1150L505S060112D007	Sediment		6/1/2012 16:20	6/1/2012 17:08	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L Sediment 6/1/12
Work Order: 1206058

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41475 MS/MSD data for DRO is not related to this project's samples.

Batches 41473 and 41493 MS/MSD data for Metals is not related to this project's samples.

Batch 41475, Method DRO_8015M_S, Sample 1206045-05A MS: Surrogate out due to matrix interference.

Batch 41475 all samples for DRO in this work order had high surrogate recoveries due to matrix interference. The DRO results may be biased high due to this matrix interference.

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L Sediment 6/1/12
WorkOrder: **1206058**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L502S060112D007
Work Order:	1206058	**Collection Date:**	6/1/2012 8:38:00 AM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**46**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,400**	**92**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*125*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.80	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**2.9**	**1.6**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**21**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**36**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Surr: 2,4,6-Tribromophenol	*87.0*	*34-140*			*%REC*	1	6/6/2012
Surr: 2-Fluorobiphenyl	*58.9*	*12-100*			*%REC*	1	6/6/2012
Surr: 2-Fluorophenol	*70.8*	*33-117*			*%REC*	1	6/6/2012
Surr: 4-Terphenyl-d14	*75.1*	*25-137*			*%REC*	1	6/6/2012
Surr: Nitrobenzene-d5	*57.9*	*37-107*			*%REC*	1	6/6/2012
Surr: Phenol-d6	*73.5*	*40-106*			*%REC*	1	6/6/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L503S060112D006
Work Order:	1206058	**Collection Date:**	6/1/2012 9:20:00 AM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-02	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**450**	**53**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**3,700**	**110**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*127*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.86	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**2.8**	**1.7**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**17**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**30**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*86.5*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*55.5*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*63.0*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*70.7*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*53.1*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*64.0*	*40-106*			*%REC*	1	6/7/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**81**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L503S060112D012
Work Order:	1206058	**Collection Date:**	6/1/2012 9:30:00 AM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-03	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**50**	**23**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**620**	**46**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*169*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**9.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*97.3*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*75.2*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*85.4*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*64.3*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*74.3*	*40-106*			*%REC*	1	6/7/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L504S060112D008
Work Order:	1206058	**Collection Date:**	6/1/2012 4:05:00 PM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-04	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**47**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,700**	**94**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*128*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.72	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**2.2**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**20**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**30**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*95.6*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*60.0*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*69.8*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*81.1*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*58.0*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*70.5*	*40-106*			*%REC*	1	6/7/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L504D060112D008
Work Order:	1206058	**Collection Date:**	6/1/2012 4:05:00 PM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-05	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**270**	**45**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**2,400**	**91**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*149*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	**0.84**	**0.66**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	ND	1.3	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**20**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**35**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*91.4*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*60.0*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*70.6*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*78.0*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*59.9*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*69.7*	*40-106*			*%REC*	1	6/7/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L505S060112D007
Work Order:	1206058	**Collection Date:**	6/1/2012 4:20:00 PM
Project:	Marshall KRRI 1150L Sediment 6/1/12		
Lab ID:	1206058-06	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**46**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,500**	**92**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*164*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	**1.1**	**0.86**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**2.1**	**1.7**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**33**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**41**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*92.2*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*53.9*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*60.7*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*78.0*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*49.4*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*63.3*	*40-106*			*%REC*	1	6/7/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41475** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 02:40 PM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995322** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.245*	0	*5*	0	*105*	*39-115*	0			

LCS Sample ID: **DLCSS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 09:01 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995321** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	384.4	10	500	0	76.9	60-130	0			
ORO (C20-C34)	427.8	20	500	0	85.6	60-130	0			
Surr: 4-Terphenyl-d14	*5.513*	0	*5*	0	*110*	*39-115*	0			

MS Sample ID: **1206045-05A MS** Units: **mg/Kg** Analysis Date: **6/8/2012 03:06 PM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995323** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.9	9.5	474.7	33.99	68.4	60-130	0			
ORO (C20-C34)	790.2	19	474.7	380.9	86.2	60-130	0			
Surr: 4-Terphenyl-d14	*7.311*	0	*4.747*	0	*154*	*39-115*	0			*S*

MSD Sample ID: **1206045-05A MSD** Units: **mg/Kg** Analysis Date: **6/8/2012 09:26 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995332** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	365.9	9.7	482.9	33.99	68.7	60-130	358.9	1.94	30	
ORO (C20-C34)	817.9	19	482.9	380.9	90.5	60-130	790.2	3.44	30	
Surr: 4-Terphenyl-d14	*6.783*	0	*4.829*	0	*140*	*39-115*	7.311	*7.5*	*30*	*S*

The following samples were analyzed in this batch:

1206058-01A	1206058-02A	1206058-03A
1206058-04A	1206058-05A	1206058-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206058
Project: Marshall KRRI 1150L Sediment 6/1/12

QC BATCH REPORT

Batch ID: **41473** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:27 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993606** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	0.02968	0.25								J
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:32 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993607** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.08	0.10	5	0	102	80-120	0			
Molybdenum	4.997	0.25	5	0	99.9	80-120	0			
Nickel	4.82	0.25	5	0	96.4	80-120	0			
Vanadium	4.966	0.25	5	0	99.3	80-120	0			

MS Sample ID: **1206045-04AMS** Units: **mg/Kg** Analysis Date: **6/7/2012 02:53 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993611** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.06	0.51	6.369	0.1832	76.6	80-120	0			S
Molybdenum	5.531	1.3	6.369	0.5021	79	80-120	0			S
Nickel	12.69	1.3	6.369	8.142	71.3	80-120	0			S
Vanadium	13.58	1.3	6.369	9.097	70.4	80-120	0			S

MSD Sample ID: **1206045-04AMSD** Units: **mg/Kg** Analysis Date: **6/7/2012 02:58 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993612** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.022	0.54	6.793	0.1832	85.9	80-120	5.06	17.4	25	
Molybdenum	6.628	1.4	6.793	0.5021	90.2	80-120	5.531	18	25	
Nickel	14.43	1.4	6.793	8.142	92.6	80-120	12.69	12.9	25	
Vanadium	15.63	1.4	6.793	9.097	96.1	80-120	13.58	14	25	

The following samples were analyzed in this batch: 1206058-01A 1206058-02A 1206058-03A 1206058-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206058
Project: Marshall KRRI 1150L Sediment 6/1/12

QC BATCH REPORT

Batch ID: **41493** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41493-41493** Units: **mg/Kg** Analysis Date: **6/7/2012 05:05 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993786** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41493-41493** Units: **mg/Kg** Analysis Date: **6/7/2012 05:11 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993799** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.582	0.10	5	0	91.6	80-120	0			
Molybdenum	4.534	0.25	5	0	90.7	80-120	0			
Nickel	4.414	0.25	5	0	88.3	80-120	0			
Vanadium	4.482	0.25	5	0	89.6	80-120	0			

MS Sample ID: **1206059-01AMS** Units: **mg/Kg** Analysis Date: **6/7/2012 06:00 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993817** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.579	0.56	6.974	0.2667	76.2	80-120	0			S
Molybdenum	6.234	1.4	6.974	0.7225	79	80-120	0			S
Nickel	18.09	1.4	6.974	12.88	74.7	80-120	0			S
Vanadium	15.27	1.4	6.974	10.07	74.6	80-120	0			S

MSD Sample ID: **1206059-01AMSD** Units: **mg/Kg** Analysis Date: **6/7/2012 06:19 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993824** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.808	0.55	6.868	0.2667	80.7	80-120	5.579	4.02	25	
Molybdenum	6.492	1.4	6.868	0.7225	84	80-120	6.234	4.05	25	
Nickel	18.49	1.4	6.868	12.88	81.8	80-120	18.09	2.2	25	
Vanadium	16.22	1.4	6.868	10.07	89.5	80-120	15.27	6	25	

The following samples were analyzed in this batch: 1206058-05A 1206058-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:10 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992950** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3926*	0	*5000*	0	*78.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3461*	0	*5000*	0	*69.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4291*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3742*	0	*5000*	0	*74.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3693*	0	*5000*	0	*73.9*	*37-107*	0			
Surr: Phenol-d6	*4256*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:39 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992951** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1848	50	2000	0	92.4	45-105	0			
Acenaphthene	1836	50	2000	0	91.8	45-110	0			
Acenaphthylene	1812	50	2000	0	90.6	45-105	0			
Anthracene	1867	50	2000	0	93.4	55-105	0			
Benzo(a)anthracene	1830	50	2000	0	91.5	50-110	0			
Benzo(a)pyrene	1809	50	2000	0	90.4	50-110	0			
Benzo(b)fluoranthene	1955	50	2000	0	97.8	45-115	0			
Benzo(g,h,i)perylene	2080	50	2000	0	104	40-125	0			
Benzo(k)fluoranthene	1854	50	2000	0	92.7	45-115	0			
Chrysene	1916	50	2000	0	95.8	55-110	0			
Dibenzo(a,h)anthracene	1882	50	2000	0	94.1	40-125	0			
Fluoranthene	2126	50	2000	0	106	55-115	0			
Fluorene	1846	50	2000	0	92.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1917	50	2000	0	95.8	40-120	0			
Naphthalene	1738	50	2000	0	86.9	40-105	0			
Phenanthrene	1820	50	2000	0	91	50-110	0			
Pyrene	1847	50	2000	0	92.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4316*	0	*5000*	0	*86.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3668*	0	*5000*	0	*73.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4330*	0	*5000*	0	*86.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3810*	0	*5000*	0	*76.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3980*	0	*5000*	0	*79.6*	*37-107*	0			
Surr: Phenol-d6	*4331*	0	*5000*	0	*86.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206045-05A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 01:54 AM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992952** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1616	48	1932	0	83.6	45-105	0			
Acenaphthene	1619	48	1932	0	83.8	45-110	0			
Acenaphthylene	1743	48	1932	49.15	87.7	45-105	0			
Anthracene	1858	48	1932	75.11	92.3	55-105	0			
Benzo(a)anthracene	2131	48	1932	417.3	88.7	50-110	0			
Benzo(a)pyrene	2194	48	1932	553.6	84.9	50-110	0			
Benzo(b)fluoranthene	2552	48	1932	656.5	98.1	45-115	0			
Benzo(g,h,i)perylene	2252	48	1932	375.6	97.2	40-125	0			
Benzo(k)fluoranthene	1781	48	1932	200.3	81.8	45-115	0			
Chrysene	2258	48	1932	506.3	90.7	55-110	0			
Dibenzo(a,h)anthracene	1881	48	1932	115	91.4	40-125	0			
Fluoranthene	2604	48	1932	757.6	95.6	55-115	0			
Fluorene	1837	48	1932	0	95.1	50-110	0			
Indeno(1,2,3-cd)pyrene	2080	48	1932	325.5	90.8	40-120	0			
Naphthalene	1443	48	1932	0	74.7	40-105	0			
Phenanthrene	1961	48	1932	247.6	88.7	50-110	0			
Pyrene	2875	48	1932	838.3	105	45-125	0			
Surr: 2,4,6-Tribromophenol	*4544*	0	*4829*	0	*94.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3018*	0	*4829*	0	*62.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3547*	0	*4829*	0	*73.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4048*	0	*4829*	0	*83.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3124*	0	*4829*	0	*64.7*	*37-107*	0			
Surr: Phenol-d6	*3612*	0	*4829*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206058
Project: Marshall KRRI 1150L Sediment 6/1/12

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206045-05A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 02:22 AM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992953** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1562	49	1943	0	80.4	45-105	1616	3.4	30	
Acenaphthene	1579	49	1943	0	81.3	45-110	1619	2.47	30	
Acenaphthylene	1693	49	1943	49.15	84.6	45-105	1743	2.93	30	
Anthracene	1804	49	1943	75.11	89	55-105	1858	2.98	30	
Benzo(a)anthracene	1980	49	1943	417.3	80.5	50-110	2131	7.31	30	
Benzo(a)pyrene	2065	49	1943	553.6	77.8	50-110	2194	6.08	30	
Benzo(b)fluoranthene	2324	49	1943	656.5	85.9	45-115	2552	9.33	30	
Benzo(g,h,i)perylene	2056	49	1943	375.6	86.5	40-125	2252	9.1	30	
Benzo(k)fluoranthene	1755	49	1943	200.3	80	45-115	1781	1.47	30	
Chrysene	2097	49	1943	506.3	81.9	55-110	2258	7.4	30	
Dibenzo(a,h)anthracene	1760	49	1943	115	84.7	40-125	1881	6.67	30	
Fluoranthene	2315	49	1943	757.6	80.2	55-115	2604	11.7	30	
Fluorene	1790	49	1943	0	92.2	50-110	1837	2.59	30	
Indeno(1,2,3-cd)pyrene	1910	49	1943	325.5	81.6	40-120	2080	8.51	30	
Naphthalene	1356	49	1943	0	69.8	40-105	1443	6.22	30	
Phenanthrene	1850	49	1943	247.6	82.5	50-110	1961	5.79	30	
Pyrene	2617	49	1943	838.3	91.5	45-125	2875	9.42	30	
Surr: 2,4,6-Tribromophenol	*4497*	0	*4856*	0	*92.6*	*34-140*	4544	*1.05*	*40*	
Surr: 2-Fluorobiphenyl	*2967*	0	*4856*	0	*61.1*	*12-100*	3018	*1.7*	*40*	
Surr: 2-Fluorophenol	*3392*	0	*4856*	0	*69.8*	*33-117*	3547	*4.49*	*40*	
Surr: 4-Terphenyl-d14	*3972*	0	*4856*	0	*81.8*	*25-137*	4048	*1.88*	*40*	
Surr: Nitrobenzene-d5	*2924*	0	*4856*	0	*60.2*	*37-107*	3124	*6.61*	*40*	
Surr: Phenol-d6	*3571*	0	*4856*	0	*73.5*	*40-106*	3612	*1.14*	*40*	

The following samples were analyzed in this batch:

1206058-01A	1206058-02A	1206058-03A
1206058-04A	1206058-05A	1206058-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206058
Project: Marshall KRRI 1150L Sediment 6/1/12

QC BATCH REPORT

Batch ID: **R105573** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105573** Units: **% of sample** Analysis Date: **6/4/2012 03:57 PM**
Client ID: Run ID: **MOIST_120604D** SeqNo: **1991287** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105573** Units: **% of sample** Analysis Date: **6/4/2012 03:57 PM**
Client ID: Run ID: **MOIST_120604D** SeqNo: **1991286** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206046-01ADUP** Units: **% of sample** Analysis Date: **6/4/2012 03:57 PM**
Client ID: Run ID: **MOIST_120604D** SeqNo: **1991274** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	55.84	0.050	0	0	0	0-0	55.31	0.954	20	

The following samples were analyzed in this batch:

1206058-01A	1206058-02A	1206058-03A
1206058-04A	1206058-05A	1206058-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206058

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060112_PMB1	Task: KRRI_SED1150
Total # of Samples: 6		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
									None	None	None	None
1	SEKR1150L502S060112D007	SEKR1150L502	SE	G	06/01/2012 08:38	1			X	X	X	X
2	SEKR1150L503S060112D006	SEKR1150L503	SE	G	06/01/2012 09:20	1	MDEQ SPLIT		X	X	X	X
3	SEKR1150L503S060112D012	SEKR1150L503	SE	G	06/01/2012 09:30	1			X	X	X	X
4	SEKR1150L504S060112D008	SEKR1150L504	SE	G	06/01/2012 16:05	1			X	X	X	X
5	SEKR1150L504D060112D008	SEKR1150L504	SE	G	06/01/2012 16:05	1	DUPLICATE		X	X	X	X
6	SEKR1150L505S060112D007	SEKR1150L505	SE	G	06/01/2012 16:20	1			X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pete Berman	6-1-12	1707	Pete Meer	6-1-12	1707
Pete Berman	6-1-12	1708		1700	1708

Sample Receipt Conditions				
	Y/N		Y/N	Y/N
1.2°C	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
Temp in OC	Samples on Ice?		Sample intact?	Trip Blank?

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE MAERMAN (PMB1)
SIGNATURE of SAMPLER: DATE Signed: Time:

6/11/12

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **01-Jun-12 17:08**

Work Order: **1206058** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 02-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 04-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6/11/12 Time: 1700
Name: PMB
Company: SEC

Seal Broken By:

Date:

12-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 5/30/12** Work Order: **1206059**

Dear Bryan,

ALS Environmental received 7 samples on 01-Jun-2012 05:08 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 43.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/30/12
Work Order: **1206059**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206059-01	SBKR1150L516S053012S005	Soil		5/30/2012 11:15	6/1/2012 17:08	☐
1206059-02	SBKR1150L517S053012S004	Soil		5/30/2012 11:35	6/1/2012 17:08	☐
1206059-03	SBKR1150L518S053012S004	Soil		5/30/2012 11:50	6/1/2012 17:08	☐
1206059-04	SBKR1150L519S053012S004	Soil		5/30/2012 13:35	6/1/2012 17:08	☐
1206059-05	SBKR1150L520S053012S006	Soil		5/30/2012 15:25	6/1/2012 17:08	☐
1206059-06	SBKR1150L521S053012S005	Soil		5/30/2012 15:50	6/1/2012 17:08	☐
1206059-07	SBKR1150L521T053012MX	Soil		5/30/2012	6/1/2012 17:08	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/30/12
Work Order: 1206059

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41475 MS/MSD data for DRO is not related to this project's samples. Samples 1206059-01 through 1206059-05 analyses for DRO had surrogate recoveries above control limits due to matrix interference. The DRO results may be biased high.

Batch 41493 sample SBKR1150L516S053012S005 MS recoveries for Beryllium, Molybdenum, Nickel and Vanadium were below control limits. Both the MSD recoveries and RPDs met quality control criteria. No data requires qualification.

Batch 41504 LCS recovery for 4-Methyl-2-Pentanone was above control limits, but all samples in this quality control batch were ND for this compound. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/30/12
WorkOrder: **1206059**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L516S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 11:15:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**100**	**16**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,100**	**31**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*156*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**920**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Chrysene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*95.2*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*63.5*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*71.0*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*80.6*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*60.6*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*77.6*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L516S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 11:15:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	350	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	100	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	350	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	100	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L516S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 11:15:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	210	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	350	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	100	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*99.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*98.0*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**37**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L517S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:35:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**26**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,000**	**52**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*133*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)anthracene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Chrysene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluoranthene	**2,900**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**980**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**3,300**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*98.4*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*58.2*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*62.7*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*99.3*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*53.8*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*67.1*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	330	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L517S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:35:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	330	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	330	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	2,800	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	330	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	330	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	330	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	330	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	330	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	330	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	330	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	330	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	330	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	330	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L517S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:35:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	330	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	670	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	330	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	330	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	330	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	330	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	330	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	330	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	330	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	330	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	330	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	330	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*98.6*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*98.0*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**62**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L518S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:50:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**85**	**16**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**890**	**33**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*164*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**850**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Chrysene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**2,400**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*101*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*62.4*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*68.5*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*58.1*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*74.1*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	130	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	130	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L518S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:50:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	130	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	130	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	130	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	130	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	440	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	130	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	130	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	130	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	130	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	130	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	130	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	130	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	440	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	130	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	130	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L518S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 11:50:00 AM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	130	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	260	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	130	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	130	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	440	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	130	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	130	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	130	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	130	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	130	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	130	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	130	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	130	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	130	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	130	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*97.3*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*95.6*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*98.6*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**43**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L519S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 1:35:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**74**	**15**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**800**	**30**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*166*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**960**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*96.6*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*61.3*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*68.4*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*105*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*60.7*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*70.3*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	99	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	99	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	99	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	99	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L519S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 1:35:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	99	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	99	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	99	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	99	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	99	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	99	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	99	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	99	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	99	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	99	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	99	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L519S053012S004
Work Order:	1206059	**Collection Date:**	5/30/2012 1:35:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	99	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	99	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	99	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	99	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	99	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	99	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	99	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	99	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	99	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	99	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	99	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	99	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	6/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L520S053012S006
Work Order:	1206059	**Collection Date:**	5/30/2012 3:25:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**270**	**42**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**2,900**	**84**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*150*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	ND	0.61	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**780**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*93.6*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*59.6*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*66.7*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*74.3*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*54.9*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*72.7*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	1,000	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L520S053012S006
Work Order:	1206059	**Collection Date:**	5/30/2012 3:25:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	1,000	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	1,000	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	1,000	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	1,000	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	1,000	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	1,000	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	3,400	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	3,400	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	8,400	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	1,000	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	3,400	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	1,000	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	1,000	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	1,000	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	1,000	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L520S053012S006
Work Order:	1206059	**Collection Date:**	5/30/2012 3:25:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	1,000	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	1,000	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	2,000	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	3,400	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	3,400	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	1,000	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	3,400	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	1,000	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	1,000	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	1,000	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	1,000	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.0*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**77**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L521S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 3:50:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**73**	**29**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**650**	**58**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*107*	*39-115*			*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **ML**
Beryllium	**0.62**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/6/2012
Benzo(b)fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/6/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/6/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Pyrene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/6/2012
Surr: 2,4,6-Tribromophenol	*88.4*	*34-140*			*%REC*	1	6/6/2012
Surr: 2-Fluorobiphenyl	*61.1*	*12-100*			*%REC*	1	6/6/2012
Surr: 2-Fluorophenol	*61.9*	*33-117*			*%REC*	1	6/6/2012
Surr: 4-Terphenyl-d14	*76.3*	*25-137*			*%REC*	1	6/6/2012
Surr: Nitrobenzene-d5	*53.6*	*37-107*			*%REC*	1	6/6/2012
Surr: Phenol-d6	*69.6*	*40-106*			*%REC*	1	6/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	430	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	430	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L521S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 3:50:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	430	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	430	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	430	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	430	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	430	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	3,600	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	430	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	430	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	430	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	430	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	430	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	430	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	430	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	430	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	430	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	430	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	430	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	430	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	430	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	430	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	430	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	430	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	430	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L521S053012S005
Work Order:	1206059	**Collection Date:**	5/30/2012 3:50:00 PM
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	430	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	430	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	430	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	860	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	430	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	430	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	430	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	430	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	430	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	430	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	430	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	430	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	430	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	430	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	430	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	430	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	430	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	430	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*99.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**66**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L521T053012MX
Work Order:	1206059	**Collection Date:**	5/30/2012
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/4/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/8/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/8/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/8/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/8/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/8/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/8/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/8/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/8/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/8/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/8/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/8/2012
Benzene	ND	50	50		µg/Kg	1	6/8/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/8/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/8/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/8/2012
Bromoform	ND	100	100		µg/Kg	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/8/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/8/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/8/2012
Chloroethane	ND	250	250		µg/Kg	1	6/8/2012
Chloroform	ND	50	50		µg/Kg	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg	1	6/8/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L521T053012MX
Work Order:	1206059	**Collection Date:**	5/30/2012
Project:	Marshall KRRI 1150L 5/30/12		
Lab ID:	1206059-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/8/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/8/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/8/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/8/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/8/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg	1	6/8/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/8/2012
o-Xylene	ND	50	50		µg/Kg	1	6/8/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/8/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Styrene	ND	50	50		µg/Kg	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/8/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/8/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/8/2012
Toluene	ND	100	100		µg/Kg	1	6/8/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/8/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/8/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/8/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/8/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*97.9*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*80.6*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*92.0*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*87.0*	*70-130*			*%REC*	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206059

Project: Marshall KRRI 1150L 5/30/12

Batch ID: **41475** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 02:40 PM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995322** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.245*	0	*5*	0	*105*	*39-115*	0			

LCS Sample ID: **DLCSS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 09:01 AM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995321** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	384.4	10	500	0	76.9	60-130	0			
ORO (C20-C34)	427.8	20	500	0	85.6	60-130	0			
Surr: 4-Terphenyl-d14	*5.513*	0	*5*	0	*110*	*39-115*	0			

MS Sample ID: **1206045-05A MS** Units: **mg/Kg** Analysis Date: **6/8/2012 03:06 PM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995323** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.9	9.5	474.7	33.99	68.4	60-130	0			
ORO (C20-C34)	790.2	19	474.7	380.9	86.2	60-130	0			
Surr: 4-Terphenyl-d14	*7.311*	0	*4.747*	0	*154*	*39-115*	0			*S*

MSD Sample ID: **1206045-05A MSD** Units: **mg/Kg** Analysis Date: **6/8/2012 09:26 AM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995332** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	365.9	9.7	482.9	33.99	68.7	60-130	358.9	1.94	30	
ORO (C20-C34)	817.9	19	482.9	380.9	90.5	60-130	790.2	3.44	30	
Surr: 4-Terphenyl-d14	*6.783*	0	*4.829*	0	*140*	*39-115*	7.311	*7.5*	*30*	*S*

The following samples were analyzed in this batch:

1206059-01A	1206059-02A	1206059-03A
1206059-04A	1206059-05A	1206059-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41493** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41493-41493** Units: **mg/Kg** Analysis Date: **6/7/2012 05:05 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993786** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41493-41493** Units: **mg/Kg** Analysis Date: **6/7/2012 05:11 PM**
Client ID: Run ID: **ICPMS1_120607A** SeqNo: **1993799** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.582	0.10	5	0	91.6	80-120	0			
Molybdenum	4.534	0.25	5	0	90.7	80-120	0			
Nickel	4.414	0.25	5	0	88.3	80-120	0			
Vanadium	4.482	0.25	5	0	89.6	80-120	0			

MS Sample ID: **1206059-01AMS** Units: **mg/Kg** Analysis Date: **6/7/2012 06:00 PM**
Client ID: **SBKR1150L516S053012S005** Run ID: **ICPMS1_120607A** SeqNo: **1993817** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.579	0.56	6.974	0.2667	76.2	80-120	0			S
Molybdenum	6.234	1.4	6.974	0.7225	79	80-120	0			S
Nickel	18.09	1.4	6.974	12.88	74.7	80-120	0			S
Vanadium	15.27	1.4	6.974	10.07	74.6	80-120	0			S

MSD Sample ID: **1206059-01AMSD** Units: **mg/Kg** Analysis Date: **6/7/2012 06:19 PM**
Client ID: **SBKR1150L516S053012S005** Run ID: **ICPMS1_120607A** SeqNo: **1993824** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.808	0.55	6.868	0.2667	80.7	80-120	5.579	4.02	25	
Molybdenum	6.492	1.4	6.868	0.7225	84	80-120	6.234	4.05	25	
Nickel	18.49	1.4	6.868	12.88	81.8	80-120	18.09	2.2	25	
Vanadium	16.22	1.4	6.868	10.07	89.5	80-120	15.27	6	25	

The following samples were analyzed in this batch:

1206059-01A	1206059-02A	1206059-03A
1206059-04A	1206059-05A	1206059-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:10 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992950** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3926*	0	*5000*	0	*78.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3461*	0	*5000*	0	*69.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4291*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3742*	0	*5000*	0	*74.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3693*	0	*5000*	0	*73.9*	*37-107*	0			
Surr: Phenol-d6	*4256*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:39 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992951** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1848	50	2000	0	92.4	45-105	0			
Acenaphthene	1836	50	2000	0	91.8	45-110	0			
Acenaphthylene	1812	50	2000	0	90.6	45-105	0			
Anthracene	1867	50	2000	0	93.4	55-105	0			
Benzo(a)anthracene	1830	50	2000	0	91.5	50-110	0			
Benzo(a)pyrene	1809	50	2000	0	90.4	50-110	0			
Benzo(b)fluoranthene	1955	50	2000	0	97.8	45-115	0			
Benzo(g,h,i)perylene	2080	50	2000	0	104	40-125	0			
Benzo(k)fluoranthene	1854	50	2000	0	92.7	45-115	0			
Chrysene	1916	50	2000	0	95.8	55-110	0			
Dibenzo(a,h)anthracene	1882	50	2000	0	94.1	40-125	0			
Fluoranthene	2126	50	2000	0	106	55-115	0			
Fluorene	1846	50	2000	0	92.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1917	50	2000	0	95.8	40-120	0			
Naphthalene	1738	50	2000	0	86.9	40-105	0			
Phenanthrene	1820	50	2000	0	91	50-110	0			
Pyrene	1847	50	2000	0	92.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4316*	0	*5000*	0	*86.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3668*	0	*5000*	0	*73.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4330*	0	*5000*	0	*86.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3810*	0	*5000*	0	*76.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3980*	0	*5000*	0	*79.6*	*37-107*	0			
Surr: Phenol-d6	*4331*	0	*5000*	0	*86.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206045-05A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 01:54 AM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992952** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1616	48	1932	0	83.6	45-105	0			
Acenaphthene	1619	48	1932	0	83.8	45-110	0			
Acenaphthylene	1743	48	1932	49.15	87.7	45-105	0			
Anthracene	1858	48	1932	75.11	92.3	55-105	0			
Benzo(a)anthracene	2131	48	1932	417.3	88.7	50-110	0			
Benzo(a)pyrene	2194	48	1932	553.6	84.9	50-110	0			
Benzo(b)fluoranthene	2552	48	1932	656.5	98.1	45-115	0			
Benzo(g,h,i)perylene	2252	48	1932	375.6	97.2	40-125	0			
Benzo(k)fluoranthene	1781	48	1932	200.3	81.8	45-115	0			
Chrysene	2258	48	1932	506.3	90.7	55-110	0			
Dibenzo(a,h)anthracene	1881	48	1932	115	91.4	40-125	0			
Fluoranthene	2604	48	1932	757.6	95.6	55-115	0			
Fluorene	1837	48	1932	0	95.1	50-110	0			
Indeno(1,2,3-cd)pyrene	2080	48	1932	325.5	90.8	40-120	0			
Naphthalene	1443	48	1932	0	74.7	40-105	0			
Phenanthrene	1961	48	1932	247.6	88.7	50-110	0			
Pyrene	2875	48	1932	838.3	105	45-125	0			
Surr: 2,4,6-Tribromophenol	*4544*	0	*4829*	0	*94.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3018*	0	*4829*	0	*62.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3547*	0	*4829*	0	*73.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4048*	0	*4829*	0	*83.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3124*	0	*4829*	0	*64.7*	*37-107*	0			
Surr: Phenol-d6	*3612*	0	*4829*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206045-05A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 02:22 AM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992953** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1562	49	1943	0	80.4	45-105	1616	3.4	30	
Acenaphthene	1579	49	1943	0	81.3	45-110	1619	2.47	30	
Acenaphthylene	1693	49	1943	49.15	84.6	45-105	1743	2.93	30	
Anthracene	1804	49	1943	75.11	89	55-105	1858	2.98	30	
Benzo(a)anthracene	1980	49	1943	417.3	80.5	50-110	2131	7.31	30	
Benzo(a)pyrene	2065	49	1943	553.6	77.8	50-110	2194	6.08	30	
Benzo(b)fluoranthene	2324	49	1943	656.5	85.9	45-115	2552	9.33	30	
Benzo(g,h,i)perylene	2056	49	1943	375.6	86.5	40-125	2252	9.1	30	
Benzo(k)fluoranthene	1755	49	1943	200.3	80	45-115	1781	1.47	30	
Chrysene	2097	49	1943	506.3	81.9	55-110	2258	7.4	30	
Dibenzo(a,h)anthracene	1760	49	1943	115	84.7	40-125	1881	6.67	30	
Fluoranthene	2315	49	1943	757.6	80.2	55-115	2604	11.7	30	
Fluorene	1790	49	1943	0	92.2	50-110	1837	2.59	30	
Indeno(1,2,3-cd)pyrene	1910	49	1943	325.5	81.6	40-120	2080	8.51	30	
Naphthalene	1356	49	1943	0	69.8	40-105	1443	6.22	30	
Phenanthrene	1850	49	1943	247.6	82.5	50-110	1961	5.79	30	
Pyrene	2617	49	1943	838.3	91.5	45-125	2875	9.42	30	
Surr: 2,4,6-Tribromophenol	*4497*	0	*4856*	0	*92.6*	*34-140*	4544	*1.05*	*40*	
Surr: 2-Fluorobiphenyl	*2967*	0	*4856*	0	*61.1*	*12-100*	3018	*1.7*	*40*	
Surr: 2-Fluorophenol	*3392*	0	*4856*	0	*69.8*	*33-117*	3547	*4.49*	*40*	
Surr: 4-Terphenyl-d14	*3972*	0	*4856*	0	*81.8*	*25-137*	4048	*1.88*	*40*	
Surr: Nitrobenzene-d5	*2924*	0	*4856*	0	*60.2*	*37-107*	3124	*6.61*	*40*	
Surr: Phenol-d6	*3571*	0	*4856*	0	*73.5*	*40-106*	3612	*1.14*	*40*	

The following samples were analyzed in this batch:

1206059-01A	1206059-02A	1206059-03A
1206059-04A	1206059-05A	1206059-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41504-41504** Units: **µg/Kg** Analysis Date: **6/8/2012 12:26 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993885** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	17	30								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	112	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	41.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*991.5*	0	*1000*	0	*99.2*	*70-130*	0
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41504-41504** Units: **µg/Kg** Analysis Date: **6/7/2012 11:35 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993884** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	958	30	1000	0	95.8	75-125	0			
1,1,1-Trichloroethane	946.5	30	1000	0	94.6	70-135	0			
1,1,2,2-Tetrachloroethane	983.5	30	1000	0	98.4	55-130	0			
1,1,2-Trichloroethane	918.5	30	1000	0	91.8	60-125	0			
1,1-Dichloroethane	896.5	30	1000	0	89.6	75-125	0			
1,1-Dichloroethene	771.5	30	1000	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	1048	30	1000	0	105	60-135	0			
1,2,3-Trichloropropane	966	30	1000	0	96.6	65-130	0			
1,2,3-Trimethylbenzene	906.5	30	1000	0	90.6	65-135	0			
1,2,4-Trichlorobenzene	998.5	30	1000	0	99.8	65-130	0			
1,2,4-Trimethylbenzene	941.5	30	1000	0	94.2	65-135	0			
1,2-Dibromo-3-chloropropane	942	30	1000	0	94.2	40-135	0			
1,2-Dibromoethane	970.5	30	1000	0	97	70-125	0			
1,2-Dichlorobenzene	961.5	30	1000	0	96.2	75-120	0			
1,2-Dichloroethane	929.5	30	1000	0	93	70-135	0			
1,2-Dichloropropane	929.5	30	1000	0	93	70-120	0			
1,3,5-Trimethylbenzene	949.5	30	1000	0	95	65-135	0			
1,3-Dichlorobenzene	951	30	1000	0	95.1	70-125	0			
1,4-Dichlorobenzene	990	30	1000	0	99	70-125	0			
2-Butanone	1044	100	1000	0	104	30-160	0			
2-Hexanone	1019	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	1454	30	1000	0	145	45-145	0			S
Acetone	845	100	1000	0	84.5	20-160	0			
Acrylonitrile	969	30	1000	0	96.9	70-135	0			
Benzene	908.5	30	1000	0	90.8	75-125	0			
Bromobenzene	944.5	30	1000	0	94.4	65-120	0			
Bromochloromethane	895.5	30	1000	0	89.6	70-125	0			
Bromodichloromethane	932.5	30	1000	0	93.2	70-130	0			
Bromoform	878.5	30	1000	0	87.8	55-135	0			
Bromomethane	881.5	30	1000	0	88.2	30-160	0			
Carbon disulfide	914	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	861.5	30	1000	0	86.2	65-135	0			
Chlorobenzene	939.5	30	1000	0	94	75-125	0			
Chloroethane	678.5	100	1000	0	67.8	40-155	0			
Chloroform	907	30	1000	0	90.7	70-125	0			
Chloromethane	827	30	1000	0	82.7	50-130	0			
cis-1,2-Dichloroethene	905	30	1000	0	90.5	65-125	0			
cis-1,3-Dichloropropene	957.5	30	1000	0	95.8	70-125	0			
Dibromochloromethane	915.5	30	1000	0	91.6	65-135	0			
Dibromomethane	932	30	1000	0	93.2	75-130	0			
Dichlorodifluoromethane	759.5	30	1000	0	76	35-135	0			
Ethylbenzene	908.5	30	1000	0	90.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	915.5	30	1000	0	91.6	70-135	0
Isopropylbenzene	955	30	1000	0	95.5	75-130	0
m,p-Xylene	1818	60	2000	0	90.9	80-125	0
Methyl tert-butyl ether	1104	30	1000	0	110	75-125	0
Methylene chloride	1080	30	1000	0	108	55-145	0
Naphthalene	981.5	100	1000	0	98.2	40-140	0
n-Butylbenzene	922.5	30	1000	0	92.2	65-140	0
n-Propylbenzene	924.5	30	1000	0	92.4	65-135	0
o-Xylene	924	30	1000	0	92.4	75-125	0
p-Isopropyltoluene	927	30	1000	0	92.7	75-135	0
sec-Butylbenzene	972	30	1000	0	97.2	65-130	0
Styrene	944.5	30	1000	0	94.4	75-125	0
tert-Butylbenzene	971	30	1000	0	97.1	65-130	0
Tetrachloroethene	908.5	30	1000	0	90.8	64-140	0
Tetrahydrofuran	939.5	100	1000	0	94	70-135	0
Toluene	906	30	1000	0	90.6	70-125	0
trans-1,2-Dichloroethene	997	30	1000	0	99.7	65-135	0
trans-1,3-Dichloropropene	973	30	1000	0	97.3	65-125	0
trans-1,4-Dichloro-2-butene	922	30	1000	0	92.2	70-135	0
Trichloroethene	920.5	30	1000	0	92	75-125	0
Trichlorofluoromethane	335.5	30	1000	0	33.6	25-185	0
Vinyl chloride	808.5	30	1000	0	80.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*999*	0	*1000*	0	*99.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1024*	0	*1000*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206045-04B MS** Units: **µg/Kg** Analysis Date: **6/8/2012 08:46 AM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1994351** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2722	85	2846	0	95.6	75-125	0			
1,1,1-Trichloroethane	2778	85	2846	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	2712	85	2846	0	95.3	55-130	0			
1,1,2-Trichloroethane	2618	85	2846	0	92	60-125	0			
1,1-Dichloroethane	2627	85	2846	0	92.3	75-125	0			
1,1-Dichloroethene	2199	85	2846	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	2523	85	2846	0	88.6	60-135	0			
1,2,3-Trichloropropane	2705	85	2846	0	95	65-130	0			
1,2,3-Trimethylbenzene	2495	85	2846	0	87.6	65-135	0			
1,2,4-Trichlorobenzene	2441	85	2846	0	85.8	65-130	0			
1,2,4-Trimethylbenzene	2594	85	2846	0	91.2	65-135	0			
1,2-Dibromo-3-chloropropane	2374	85	2846	0	83.4	40-135	0			
1,2-Dibromoethane	2748	85	2846	0	96.6	70-125	0			
1,2-Dichlorobenzene	2641	85	2846	0	92.8	75-120	0			
1,2-Dichloroethane	2765	85	2846	0	97.2	70-135	0			
1,2-Dichloropropane	2732	85	2846	0	96	70-120	0			
1,3,5-Trimethylbenzene	2668	85	2846	0	93.8	65-135	0			
1,3-Dichlorobenzene	2552	85	2846	0	89.6	70-125	0			
1,4-Dichlorobenzene	2626	85	2846	0	92.2	70-125	0			
2-Butanone	3579	280	2846	0	126	30-160	0			
2-Hexanone	2986	85	2846	0	105	45-145	0			
4-Methyl-2-pentanone	4181	85	2846	0	147	45-145	0			S
Acetone	4299	280	2846	0	151	20-160	0			
Acrylonitrile	2842	85	2846	0	99.8	70-135	0			
Benzene	2673	85	2846	0	93.9	75-125	0			
Bromobenzene	2617	85	2846	0	92	65-120	0			
Bromochloromethane	2710	85	2846	0	95.2	70-125	0			
Bromodichloromethane	2754	85	2846	0	96.8	70-130	0			
Bromoform	2389	85	2846	0	84	55-135	0			
Bromomethane	2230	85	2846	0	78.4	30-160	0			
Carbon disulfide	2641	85	2846	0	92.8	45-160	0			
Carbon tetrachloride	2534	85	2846	0	89	65-135	0			
Chlorobenzene	2671	85	2846	0	93.8	75-125	0			
Chloroethane	1904	280	2846	0	66.9	40-155	0			
Chloroform	2638	85	2846	0	92.7	70-125	0			
Chloromethane	2482	85	2846	0	87.2	50-130	0			
cis-1,2-Dichloroethene	2636	85	2846	0	92.6	65-125	0			
cis-1,3-Dichloropropene	2700	85	2846	0	94.8	70-125	0			
Dibromochloromethane	2530	85	2846	0	88.9	65-135	0			
Dibromomethane	2738	85	2846	0	96.2	75-130	0			
Dichlorodifluoromethane	2197	85	2846	0	77.2	35-135	0			
Ethylbenzene	2554	85	2846	0	89.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2389	85	2846	0	84	70-135	0
Isopropylbenzene	2648	85	2846	0	93	75-130	0
m,p-Xylene	5228	170	5692	0	91.8	80-125	0
Methyl tert-butyl ether	3218	85	2846	0	113	75-125	0
Methylene chloride	3270	85	2846	0	115	55-145	0
Naphthalene	2473	280	2846	0	86.9	40-140	0
n-Butylbenzene	2442	85	2846	0	85.8	65-140	0
n-Propylbenzene	2577	85	2846	0	90.6	65-135	0
o-Xylene	2589	85	2846	0	91	75-125	0
p-Isopropyltoluene	2465	85	2846	0	86.6	75-135	0
sec-Butylbenzene	2636	85	2846	0	92.6	65-130	0
Styrene	2489	85	2846	0	87.4	75-125	0
tert-Butylbenzene	2741	85	2846	0	96.3	65-130	0
Tetrachloroethene	2604	85	2846	0	91.5	64-140	0
Tetrahydrofuran	2711	280	2846	0	95.2	70-135	0
Toluene	2599	85	2846	0	91.3	70-125	0
trans-1,2-Dichloroethene	2946	85	2846	0	104	65-135	0
trans-1,3-Dichloropropene	2647	85	2846	0	93	65-125	0
trans-1,4-Dichloro-2-butene	2250	85	2846	0	79	70-135	0
Trichloroethene	2704	85	2846	0	95	75-125	0
Trichlorofluoromethane	981.9	85	2846	0	34.5	25-185	0
Vinyl chloride	2429	85	2846	0	85.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*2892*	0	*2846*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2937*	0	*2846*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*2880*	0	*2846*	0	*101*	*70-130*	0
Surr: Toluene-d8	*2816*	0	*2846*	0	*99*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MSD	Sample ID: **1206045-04B MSD**				Units: **µg/Kg**			Analysis Date: **6/8/2012 09:13 AM**			
Client ID:		Run ID: **VMS7_120607A**			SeqNo: **1994352**			Prep Date: **6/7/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2685	86	2862	0	93.8	75-125	2722	1.39	30	
1,1,1-Trichloroethane	2675	86	2862	0	93.4	70-135	2778	3.78	30	
1,1,2,2-Tetrachloroethane	2620	86	2862	0	91.6	55-130	2712	3.45	30	
1,1,2-Trichloroethane	2552	86	2862	0	89.2	60-125	2618	2.58	30	
1,1-Dichloroethane	2590	86	2862	0	90.5	75-125	2627	1.41	30	
1,1-Dichloroethene	2267	86	2862	0	79.2	65-135	2199	3.06	30	
1,2,3-Trichlorobenzene	2625	86	2862	0	91.7	60-135	2523	3.95	30	
1,2,3-Trichloropropane	2629	86	2862	0	91.8	65-130	2705	2.86	30	
1,2,3-Trimethylbenzene	2453	86	2862	0	85.7	65-135	2495	1.69	30	
1,2,4-Trichlorobenzene	2507	86	2862	0	87.6	65-130	2441	2.7	30	
1,2,4-Trimethylbenzene	2542	86	2862	0	88.8	65-135	2594	2.05	30	
1,2-Dibromo-3-chloropropane	2357	86	2862	0	82.4	40-135	2374	0.704	30	
1,2-Dibromoethane	2666	86	2862	0	93.2	70-125	2748	3.02	30	
1,2-Dichlorobenzene	2628	86	2862	0	91.8	75-120	2641	0.52	30	
1,2-Dichloroethane	2712	86	2862	0	94.8	70-135	2765	1.94	30	
1,2-Dichloropropane	2688	86	2862	0	93.9	70-120	2732	1.65	30	
1,3,5-Trimethylbenzene	2625	86	2862	0	91.7	65-135	2668	1.65	30	
1,3-Dichlorobenzene	2565	86	2862	0	89.6	70-125	2552	0.507	30	
1,4-Dichlorobenzene	2612	86	2862	0	91.2	70-125	2626	0.527	30	
2-Butanone	3217	290	2862	0	112	30-160	3579	10.7	30	
2-Hexanone	2907	86	2862	0	102	45-145	2986	2.68	30	
4-Methyl-2-pentanone	4084	86	2862	0	143	45-145	4181	2.34	30	
Acetone	4087	290	2862	0	143	20-160	4299	5.05	30	
Acrylonitrile	2742	86	2862	0	95.8	70-135	2842	3.58	30	
Benzene	2563	86	2862	0	89.6	75-125	2673	4.18	30	
Bromobenzene	2613	86	2862	0	91.3	65-120	2617	0.146	30	
Bromochloromethane	2676	86	2862	0	93.5	70-125	2710	1.24	30	
Bromodichloromethane	2685	86	2862	0	93.8	70-130	2754	2.53	30	
Bromoform	2333	86	2862	0	81.5	55-135	2389	2.4	30	
Bromomethane	2310	86	2862	0	80.7	30-160	2230	3.52	30	
Carbon disulfide	2648	86	2862	0	92.5	45-160	2641	0.239	30	
Carbon tetrachloride	2446	86	2862	0	85.4	65-135	2534	3.56	30	
Chlorobenzene	2607	86	2862	0	91.1	75-125	2671	2.41	30	
Chloroethane	1903	290	2862	0	66.5	40-155	1904	0.0367	30	
Chloroform	2560	86	2862	0	89.4	70-125	2638	3.01	30	
Chloromethane	2499	86	2862	0	87.3	50-130	2482	0.678	30	
cis-1,2-Dichloroethene	2565	86	2862	0	89.6	65-125	2636	2.73	30	
cis-1,3-Dichloropropene	2665	86	2862	0	93.1	70-125	2700	1.3	30	
Dibromochloromethane	2527	86	2862	0	88.3	65-135	2530	0.114	30	
Dibromomethane	2659	86	2862	0	92.9	75-130	2738	2.93	30	
Dichlorodifluoromethane	2170	86	2862	0	75.8	35-135	2197	1.27	30	
Ethylbenzene	2514	86	2862	0	87.8	75-125	2554	1.58	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2434	86	2862	0	85	70-135	2389	1.86	30
Isopropylbenzene	2622	86	2862	0	91.6	75-130	2648	1.01	30
m,p-Xylene	5095	170	5724	0	89	80-125	5228	2.59	30
Methyl tert-butyl ether	3180	86	2862	0	111	75-125	3218	1.18	30
Methylene chloride	3171	86	2862	0	111	55-145	3270	3.07	30
Naphthalene	2559	290	2862	0	89.4	40-140	2473	3.4	30
n-Butylbenzene	2443	86	2862	0	85.4	65-140	2442	0.0372	30
n-Propylbenzene	2526	86	2862	0	88.2	65-135	2577	2.01	30
o-Xylene	2547	86	2862	0	89	75-125	2589	1.6	30
p-Isopropyltoluene	2397	86	2862	0	83.8	75-135	2465	2.78	30
sec-Butylbenzene	2580	86	2862	0	90.2	65-130	2636	2.12	30
Styrene	2419	86	2862	0	84.5	75-125	2489	2.87	30
tert-Butylbenzene	2656	86	2862	0	92.8	65-130	2741	3.14	30
Tetrachloroethene	2510	86	2862	0	87.7	64-140	2604	3.68	30
Tetrahydrofuran	2628	290	2862	0	91.8	70-135	2711	3.13	30
Toluene	2520	86	2862	0	88	70-125	2599	3.06	30
trans-1,2-Dichloroethene	2865	86	2862	0	100	65-135	2946	2.78	30
trans-1,3-Dichloropropene	2586	86	2862	0	90.4	65-125	2647	2.33	30
trans-1,4-Dichloro-2-butene	2207	86	2862	0	77.1	70-135	2250	1.93	30
Trichloroethene	2623	86	2862	0	91.6	75-125	2704	3.03	30
Trichlorofluoromethane	930.2	86	2862	0	32.5	25-185	981.9	5.41	30
Vinyl chloride	2406	86	2862	0	84	60-125	2429	0.972	30
Surr: 1,2-Dichloroethane-d4	*2852*	0	*2862*	0	*99.6*	*70-130*	2892	*1.37*	*30*
Surr: 4-Bromofluorobenzene	*2928*	0	*2862*	0	*102*	*70-130*	2937	*0.313*	*30*
Surr: Dibromofluoromethane	*2854*	0	*2862*	0	*99.7*	*70-130*	2880	*0.93*	*30*
Surr: Toluene-d8	*2842*	0	*2862*	0	*99.3*	*70-130*	2816	*0.916*	*30*

The following samples were analyzed in this batch:

1206059-01B	1206059-02B	1206059-03B
1206059-04B	1206059-05B	1206059-06B
1206059-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **R105572** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991265** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206045-04ADUP1** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991251** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.56	0.050	0	0	0	0-0	48.47	0.186	20	

DUP Sample ID: **1206045-04ADUP2** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991252** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.59	0.050	0	0	0	0-0	48.47	0.247	20	

DUP Sample ID: **1206054-11ADUP** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991257** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.42	0.050	0	0	0	0-0	17.72	1.71	20	

The following samples were analyzed in this batch:

1206059-01A	1206059-02A	1206059-03A
1206059-05A	1206059-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206059
Project: Marshall KRRI 1150L 5/30/12

QC BATCH REPORT

Batch ID: **R105620** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105620** Units: **% of sample** Analysis Date: **6/5/2012 04:12 PM**
Client ID: Run ID: **MOIST_120605C** SeqNo: **1992117** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105620** Units: **% of sample** Analysis Date: **6/5/2012 04:12 PM**
Client ID: Run ID: **MOIST_120605C** SeqNo: **1992116** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206082-01ADUP** Units: **% of sample** Analysis Date: **6/5/2012 04:12 PM**
Client ID: Run ID: **MOIST_120605C** SeqNo: **1992115** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	4.34	0.050	0	0	0	0-0	4.48	3.17	20	

The following samples were analyzed in this batch: 1206059-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206059

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_053012_PMB1 | Task: KRRI_1150L
Total # of Samples: 7 | Event Complete?

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX | Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

Turn Around Time: 5 Day | Rush: No
BILLING CODE: 6.00

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
1	SBKR1150L516S053012S005	SBKR1150L516	SO	G	05/30/2012 11:15	3			X	X	X	X	X
2	SBKR1150L517S053012S004	SBKR1150L517	SO	G	05/30/2012 11:35	3			X	X	X	X	X
3	SBKR1150L518S053012S004	SBKR1150L518	SO	G	05/30/2012 11:50	3			X	X	X	X	X
4	SBKR1150L519S053012S004	SBKR1150L519	SO	G	05/30/2012 13:35	3			X	X	X	X	X
5	SBKR1150L520S053012S006	SBKR1150L520	SO	G	05/30/2012 15:25	3			X	X	X	X	X
6	SBKR1150L521S053012S005	SBKR1150L521	SO	G	05/30/2012 15:50	3			X	X	X	X	X
7	SBKR1150L521T053012MX	SBKR1150L521	SQ	G	05/30/2012 00:00	1	TRIP BLANK						X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-30-12	1708		5-30-12	1708
	6-1-12	1708		6-1-12	1708

Sample Receipt Conditions

Temp in 0C	Samples on Ice?	Sample intact?	Trip Blank?
0.8°C	Y/N: Y	Y/N: Y	Y/N: Y
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **01-Jun-12 17:08**

Work Order: **1206059** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 02-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 04-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.8 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

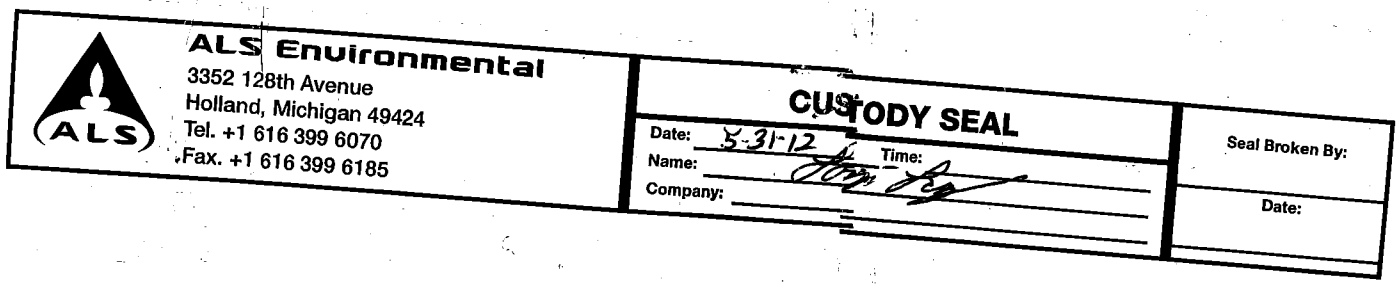
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5-31-12
Time:
Name:
Company:
Seal Broken By:
Date:

09-Jul-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0675L,0700I,0700L 6/29/12** Work Order: **12061023**

Dear Bryan,

ALS Environmental received 7 samples on 29-Jun-2012 04:56 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 77.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12
Work Order: **12061023**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
12061023-01	SBKR0675L501S062912S005	Soil		6/29/2012 13:28	6/29/2012 16:56	☐
12061023-02	SBKR0675L502S062912S004	Soil		6/29/2012 14:22	6/29/2012 16:56	☐
12061023-03	SBKR0675L503S062912S007	Soil		6/29/2012 15:20	6/29/2012 16:56	☐
12061023-04	SBKR0675L503T062912MX	Soil		6/29/2012	6/29/2012 16:56	☐
12061023-05	SBKR0700I519S062912S007	Soil		6/29/2012 08:50	6/29/2012 16:56	☐
12061023-06	SBKR0700L502S062912S006	Soil		6/29/2012 09:52	6/29/2012 16:56	☐
12061023-07	SBKR0700L503S062912S004	Soil		6/29/2012 11:04	6/29/2012 16:56	☐

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12
Work Order: 12061023

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 42093 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 42101 LCS recoveries for 4-Methyl-2-Pentanone and Tetrahydrofuran were above control limits, but all samples in this quality control batch were ND for these compounds. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch 42119 MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Client: AECOM Environment
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12
WorkOrder: **12061023**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L501S062912S005
Work Order:	12061023	**Collection Date:**	6/29/2012 1:28:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/3/2012**		Analyst: **CW**
DRO (C10-C20)	**1,900**	**35**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**2,500**	**71**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*79.8*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	ND	0.67	0.50		mg/Kg-dry	4	7/2/2012
Molybdenum	**1.5**	**1.3**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Nickel	**14**	**1.1**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**28**	**1.1**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/3/2012**		Analyst: **RM**
2-Methylnaphthalene	**5,300**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Acenaphthene	**480**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Anthracene	**2,900**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/3/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluorene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Naphthalene	**790**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Phenanthrene	**2,900**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Surr: 2,4,6-Tribromophenol	*97.4*	*34-140*			*%REC*	1	7/3/2012
Surr: 2-Fluorobiphenyl	*66.7*	*12-100*			*%REC*	1	7/3/2012
Surr: 2-Fluorophenol	*70.9*	*33-117*			*%REC*	1	7/3/2012
Surr: 4-Terphenyl-d14	*73.7*	*25-137*			*%REC*	1	7/3/2012
Surr: Nitrobenzene-d5	*59.8*	*37-107*			*%REC*	1	7/3/2012
Surr: Phenol-d6	*71.7*	*40-106*			*%REC*	1	7/3/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	110	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	110	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	110	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	110	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	110	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L501S062912S005
Work Order:	12061023	**Collection Date:**	6/29/2012 1:28:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	110	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	110	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	110	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	110	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	110	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	110	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	380	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	110	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	110	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	110	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	110	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	110	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	110	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	110	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	380	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	110	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	110	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L501S062912S005
Work Order:	12061023	**Collection Date:**	6/29/2012 1:28:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	110	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	230	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	110	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	110	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	380	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	110	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	110	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	110	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	110	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	110	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	110	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	110	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	110	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	110	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	110	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	110	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	110	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	110	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**73**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L502S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 2:22:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/3/2012**		Analyst: **CW**
DRO (C10-C20)	**190**	**44**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**1,300**	**88**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*79.8*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	ND	0.86	0.50		mg/Kg-dry	4	7/2/2012
Molybdenum	**2.5**	**1.7**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Nickel	**13**	**1.4**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**25**	**1.4**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/3/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/3/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/3/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Surr: 2,4,6-Tribromophenol	*88.8*	*34-140*			*%REC*	1	7/3/2012
Surr: 2-Fluorobiphenyl	*71.0*	*12-100*			*%REC*	1	7/3/2012
Surr: 2-Fluorophenol	*82.0*	*33-117*			*%REC*	1	7/3/2012
Surr: 4-Terphenyl-d14	*77.9*	*25-137*			*%REC*	1	7/3/2012
Surr: Nitrobenzene-d5	*67.1*	*37-107*			*%REC*	1	7/3/2012
Surr: Phenol-d6	*81.9*	*40-106*			*%REC*	1	7/3/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L502S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 2:22:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	460	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	140	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	140	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	460	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	140	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L502S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 2:22:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	280	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	460	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	**210**	**140**	**100**		**µg/Kg-dry**	1	7/3/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	140	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	140	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**78**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L503S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 3:20:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/3/2012**		Analyst: **CW**
DRO (C10-C20)	**95**	**25**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**640**	**50**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*64.1*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/2/2012
Molybdenum	**1.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/3/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/3/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/3/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Pyrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Surr: 2,4,6-Tribromophenol	*82.9*	*34-140*			*%REC*	1	7/3/2012
Surr: 2-Fluorobiphenyl	*69.7*	*12-100*			*%REC*	1	7/3/2012
Surr: 2-Fluorophenol	*79.7*	*33-117*			*%REC*	1	7/3/2012
Surr: 4-Terphenyl-d14	*73.2*	*25-137*			*%REC*	1	7/3/2012
Surr: Nitrobenzene-d5	*64.3*	*37-107*			*%REC*	1	7/3/2012
Surr: Phenol-d6	*78.9*	*40-106*			*%REC*	1	7/3/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L503S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 3:20:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	320	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L503S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 3:20:00 PM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	740	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	320	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	320	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*104*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L503T062912MX
Work Order:	12061023	**Collection Date:**	6/29/2012
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/3/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	7/4/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	7/4/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg	1	7/4/2012
Benzene	ND	50	50		µg/Kg	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	7/4/2012
Bromoform	ND	100	100		µg/Kg	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg	1	7/4/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	7/4/2012
Chlorobenzene	ND	50	50		µg/Kg	1	7/4/2012
Chloroethane	ND	250	250		µg/Kg	1	7/4/2012
Chloroform	ND	50	50		µg/Kg	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg	1	7/4/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0675L503T062912MX
Work Order:	12061023	**Collection Date:**	6/29/2012
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	7/4/2012
Ethylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	7/4/2012
m,p-Xylene	ND	100	100		µg/Kg	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	7/4/2012
Methylene chloride	ND	100	100		µg/Kg	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg	1	7/4/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	7/4/2012
o-Xylene	ND	50	50		µg/Kg	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	7/4/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Styrene	ND	50	50		µg/Kg	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	7/4/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	7/4/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	7/4/2012
Toluene	ND	100	100		µg/Kg	1	7/4/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	7/4/2012
Trichloroethene	ND	50	50		µg/Kg	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	7/4/2012
Vinyl chloride	ND	40	40		µg/Kg	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I519S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 8:50:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/3/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**25**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**900**	**51**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*64.9*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/2/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/2/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/3/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Anthracene	**410**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(a)anthracene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(a)pyrene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(b)fluoranthene	**2,300**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(g,h,i)perylene	**830**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(k)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Chrysene	**2,100**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluoranthene	**3,200**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/3/2012
Indeno(1,2,3-cd)pyrene	**720**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Phenanthrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Pyrene	**3,400**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Surr: 2,4,6-Tribromophenol	*85.4*	*34-140*			*%REC*	1	7/3/2012
Surr: 2-Fluorobiphenyl	*69.7*	*12-100*			*%REC*	1	7/3/2012
Surr: 2-Fluorophenol	*81.2*	*33-117*			*%REC*	1	7/3/2012
Surr: 4-Terphenyl-d14	*74.1*	*25-137*			*%REC*	1	7/3/2012
Surr: Nitrobenzene-d5	*67.3*	*37-107*			*%REC*	1	7/3/2012
Surr: Phenol-d6	*79.3*	*40-106*			*%REC*	1	7/3/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/3/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I519S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 8:50:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	2,700	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	320	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	320	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I519S062912S007
Work Order:	12061023	**Collection Date:**	6/29/2012 8:50:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	640	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	320	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	320	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L502S062912S006
Work Order:	12061023	**Collection Date:**	6/29/2012 9:52:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/3/2012**		Analyst: **CW**
DRO (C10-C20)	**56**	**14**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**370**	**27**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*48.0*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	7/2/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/2/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/3/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/3/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/3/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Benzo(a)anthracene	**750**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(a)pyrene	**970**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(b)fluoranthene	**860**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(g,h,i)perylene	**480**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Benzo(k)fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Chrysene	**870**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/3/2012
Fluoranthene	**910**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/3/2012
Indeno(1,2,3-cd)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/3/2012
Pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	7/3/2012
Surr: 2,4,6-Tribromophenol	*80.2*	*34-140*			*%REC*	1	7/3/2012
Surr: 2-Fluorobiphenyl	*65.9*	*12-100*			*%REC*	1	7/3/2012
Surr: 2-Fluorophenol	*73.8*	*33-117*			*%REC*	1	7/3/2012
Surr: 4-Terphenyl-d14	*71.8*	*25-137*			*%REC*	1	7/3/2012
Surr: Nitrobenzene-d5	*60.9*	*37-107*			*%REC*	1	7/3/2012
Surr: Phenol-d6	*73.3*	*40-106*			*%REC*	1	7/3/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/3/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L502S062912S006
Work Order:	12061023	**Collection Date:**	6/29/2012 9:52:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	89	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	89	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	89	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	300	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	89	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	89	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L502S062912S006
Work Order:	12061023	**Collection Date:**	6/29/2012 9:52:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	180	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	89	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	89	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	89	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	89	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	89	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*99.0*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**33**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L503S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 11:04:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**86**	**17**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**690**	**33**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*58.9*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	**0.54**	**0.50**	**0.50**		**mg/Kg-dry**	4	7/2/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)pyrene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(b)fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(g,h,i)perylene	**620**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(k)fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Chrysene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	**450**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*80.8*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*75.6*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*74.4*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*75.9*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*71.2*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*60.7*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/3/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L503S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 11:04:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	460	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	460	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L503S062912S004
Work Order:	12061023	**Collection Date:**	6/29/2012 11:04:00 AM
Project:	Marshall KRRI 0675L,0700I,0700L 6/29/12		
Lab ID:	12061023-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	270	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	460	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	140	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	140	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*105*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**44**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42121** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42121-42121** Units: **mg/Kg** Analysis Date: **7/5/2012 08:57 AM**
Client ID: Run ID: **GC8_120705A** SeqNo: **2020908** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.443*	0	*5*	0	*48.9*	*39-115*	0			

LCS Sample ID: **DLCSS1-42121-42121** Units: **mg/Kg** Analysis Date: **7/5/2012 09:23 AM**
Client ID: Run ID: **GC8_120705A** SeqNo: **2020909** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	386.9	10	500	0	77.4	60-130	0			
ORO (C20-C34)	532.3	20	500	0	106	60-130	0			
Surr: 4-Terphenyl-d14	*2.629*	0	*5*	0	*52.6*	*39-115*	0			

MS Sample ID: **12061023-06B MS** Units: **mg/Kg** Analysis Date: **7/5/2012 09:50 AM**
Client ID: **SBKR0700L502S062912S006** Run ID: **GC8_120705A** SeqNo: **2020910** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	416.1	9.6	478.8	37.83	79	60-130	0			
ORO (C20-C34)	803	19	478.8	249.7	116	60-130	0			
Surr: 4-Terphenyl-d14	*2.699*	0	*4.788*	0	*56.4*	*39-115*	0			

MSD Sample ID: **12061023-06B MSD** Units: **mg/Kg** Analysis Date: **7/5/2012 10:17 AM**
Client ID: **SBKR0700L502S062912S006** Run ID: **GC8_120705A** SeqNo: **2020911** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	415.3	9.8	491.1	37.83	76.9	60-130	416.1	0.19	30	
ORO (C20-C34)	762.5	20	491.1	249.7	104	60-130	803	5.16	30	
Surr: 4-Terphenyl-d14	*2.585*	0	*4.911*	0	*52.6*	*39-115*	2.699	*4.32*	*30*	

The following samples were analyzed in this batch:

12061023-01B	12061023-02B	12061023-03B
12061023-05B	12061023-06B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42141** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 09:34 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021636** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.281*	0	*5*	0	*65.6*	*39-115*	0			

LCS Sample ID: **DLCSS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021661** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	397.8	10	500	0	79.6	60-130	0			
ORO (C20-C34)	542.4	20	500	0	108	60-130	0			
Surr: 4-Terphenyl-d14	*3.062*	0	*5*	0	*61.2*	*39-115*	0			

MS Sample ID: **12061024-04B MS** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021637** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	362.8	9.5	475.1	34.52	69.1	60-130	0			
ORO (C20-C34)	626.4	19	475.1	228.4	83.7	60-130	0			
Surr: 4-Terphenyl-d14	*3.394*	0	*4.751*	0	*71.4*	*39-115*	0			

MSD Sample ID: **12061024-04B MSD** Units: **mg/Kg** Analysis Date: **7/5/2012 10:28 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021662** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	370.3	9.9	494.8	34.52	67.9	60-130	362.8	2.02	30	
ORO (C20-C34)	789.4	20	494.8	228.4	113	60-130	626.4	23	30	
Surr: 4-Terphenyl-d14	*2.865*	0	*4.948*	0	*57.9*	*39-115*	3.394	*16.9*	*30*	

The following samples were analyzed in this batch: 12061023-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42093** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-42093-42093** Units: **mg/Kg** Analysis Date: **7/2/2012 05:30 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018770** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.17								
Molybdenum	ND	0.42								
Nickel	0.02248	0.42								J
Vanadium	ND	0.42								

LCS Sample ID: **LCS-42093-42093** Units: **mg/Kg** Analysis Date: **7/2/2012 05:36 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018771** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	7.407	0.17	8.333	0	88.9	80-120	0			
Molybdenum	7.208	0.42	8.333	0	86.5	80-120	0			
Nickel	7.116	0.42	8.333	0	85.4	80-120	0			
Vanadium	7.488	0.42	8.333	0	89.8	80-120	0			

MS Sample ID: **1206950-01BMS** Units: **mg/Kg** Analysis Date: **7/2/2012 07:14 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018787** Prep Date: **7/2/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	5.161	0.68	6.821	0.5886	67	80-120	0			S
Nickel	18.51	0.68	6.821	14.81	54.3	80-120	0			S
Vanadium	22.5	0.68	6.821	19.8	39.5	80-120	0			S

MSD Sample ID: **1206950-01BMSD** Units: **mg/Kg** Analysis Date: **7/2/2012 07:20 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018788** Prep Date: **7/2/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.261	0.77	7.68	0.5886	73.9	80-120	5.161	19.3	25	S
Nickel	19.2	0.77	7.68	14.81	57.2	80-120	18.51	3.65	25	S
Vanadium	26.36	0.77	7.68	19.8	85.4	80-120	22.5	15.8	25	

The following samples were analyzed in this batch:

12061023-01B	12061023-02B	12061023-03B
12061023-05B	12061023-06B	12061023-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42120** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42120-42120** Units: **µg/Kg** Analysis Date: **7/3/2012 07:23 PM**
Client ID: Run ID: **SVMS6_120703A** SeqNo: **2020592** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3324*	0	*5000*	0	*66.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3450*	0	*5000*	0	*69*	*12-100*	0			
Surr: 2-Fluorophenol	*4117*	0	*5000*	0	*82.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3589*	0	*5000*	0	*71.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3523*	0	*5000*	0	*70.5*	*37-107*	0			
Surr: Phenol-d6	*3970*	0	*5000*	0	*79.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42120** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-42120-42120** Units: **µg/Kg** Analysis Date: **7/3/2012 05:37 PM**
Client ID: Run ID: **SVMS6_120703A** SeqNo: **2020588** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1644	50	2000	0	82.2	45-105	0			
Acenaphthene	1630	50	2000	0	81.5	45-110	0			
Acenaphthylene	1689	50	2000	0	84.4	45-105	0			
Anthracene	1777	50	2000	0	88.8	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1892	50	2000	0	94.6	50-110	0			
Benzo(b)fluoranthene	1734	50	2000	0	86.7	45-115	0			
Benzo(g,h,i)perylene	1870	50	2000	0	93.5	40-125	0			
Benzo(k)fluoranthene	2075	50	2000	0	104	45-115	0			
Chrysene	1799	50	2000	0	90	55-110	0			
Dibenzo(a,h)anthracene	1866	50	2000	0	93.3	40-125	0			
Fluoranthene	1831	50	2000	0	91.6	55-115	0			
Fluorene	1768	50	2000	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1845	50	2000	0	92.2	40-120	0			
Naphthalene	1617	50	2000	0	80.8	40-105	0			
Phenanthrene	1752	50	2000	0	87.6	50-110	0			
Pyrene	1836	50	2000	0	91.8	45-125	0			
Surr: 2,4,6-Tribromophenol	*3807*	0	*5000*	0	*76.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3574*	0	*5000*	0	*71.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4110*	0	*5000*	0	*82.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3711*	0	*5000*	0	*74.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3581*	0	*5000*	0	*71.6*	*37-107*	0			
Surr: Phenol-d6	*3925*	0	*5000*	0	*78.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42120** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **12061023-06B MS** Units: **µg/Kg** Analysis Date: **7/3/2012 06:04 PM**
Client ID: **SBKR0700L502S062912S006** Run ID: **SVMS6_120703A** SeqNo: **2020589** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1487	46	1836	0	81	45-105	0			
Acenaphthene	1523	46	1836	0	83	45-110	0			
Acenaphthylene	1645	46	1836	80.56	85.2	45-105	0			
Anthracene	1671	46	1836	63.17	87.6	55-105	0			
Benzo(a)anthracene	2087	46	1836	505.4	86.1	50-110	0			
Benzo(a)pyrene	2331	46	1836	650.9	91.5	50-110	0			
Benzo(b)fluoranthene	1424	46	1836	574.9	46.2	45-115	0			
Benzo(g,h,i)perylene	1775	46	1836	324.1	79	40-125	0			
Benzo(k)fluoranthene	1820	46	1836	365.3	79.2	45-115	0			
Chrysene	2188	46	1836	585	87.3	55-110	0			
Dibenzo(a,h)anthracene	1618	46	1836	97.04	82.9	40-125	0			
Fluoranthene	2222	46	1836	607	87.9	55-115	0			
Fluorene	1643	46	1836	0	89.5	50-110	0			
Indeno(1,2,3-cd)pyrene	1763	46	1836	268.2	81.4	40-120	0			
Naphthalene	1438	46	1836	0	78.3	40-105	0			
Phenanthrene	1744	46	1836	187.7	84.8	50-110	0			
Pyrene	2297	46	1836	823	80.3	45-125	0			
Surr: 2,4,6-Tribromophenol	*3518*	0	*4590*	0	*76.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3202*	0	*4590*	0	*69.8*	*12-100*	0			
Surr: 2-Fluorophenol	*3527*	0	*4590*	0	*76.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3153*	0	*4590*	0	*68.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3098*	0	*4590*	0	*67.5*	*37-107*	0			
Surr: Phenol-d6	*3499*	0	*4590*	0	*76.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42120** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **12061023-06B MSD** Units: **µg/Kg** Analysis Date: **7/3/2012 06:30 PM**
Client ID: **SBKR0700L502S062912S006** Run ID: **SVMS6_120703A** SeqNo: **2020590** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1891	47	1886	0	100	45-105	1487	23.9	30	
Acenaphthene	1623	47	1886	0	86	45-110	1523	6.35	30	
Acenaphthylene	1708	47	1886	80.56	86.3	45-105	1645	3.73	30	
Anthracene	1833	47	1886	63.17	93.9	55-105	1671	9.26	30	
Benzo(a)anthracene	2273	47	1886	505.4	93.8	50-110	2087	8.57	30	
Benzo(a)pyrene	2455	47	1886	650.9	95.7	50-110	2331	5.21	30	
Benzo(b)fluoranthene	1743	47	1886	574.9	61.9	45-115	1424	20.1	30	
Benzo(g,h,i)perylene	1705	47	1886	324.1	73.2	40-125	1775	4.01	30	
Benzo(k)fluoranthene	2226	47	1886	365.3	98.7	45-115	1820	20.1	30	
Chrysene	2199	47	1886	585	85.6	55-110	2188	0.516	30	
Dibenzo(a,h)anthracene	1642	47	1886	97.04	81.9	40-125	1618	1.42	30	
Fluoranthene	2315	47	1886	607	90.6	55-115	2222	4.11	30	
Fluorene	1842	47	1886	0	97.6	50-110	1643	11.4	30	
Indeno(1,2,3-cd)pyrene	1750	47	1886	268.2	78.6	40-120	1763	0.711	30	
Naphthalene	1442	47	1886	0	76.4	40-105	1438	0.288	30	
Phenanthrene	2070	47	1886	187.7	99.8	50-110	1744	17.1	30	
Pyrene	2444	47	1886	823	86	45-125	2297	6.21	30	
Surr: 2,4,6-Tribromophenol	*4244*	0	*4715*	0	*90*	*34-140*	3518	*18.7*	*40*	
Surr: 2-Fluorobiphenyl	*3220*	0	*4715*	0	*68.3*	*12-100*	3202	*0.564*	*40*	
Surr: 2-Fluorophenol	*3352*	0	*4715*	0	*71.1*	*33-117*	3527	*5.08*	*40*	
Surr: 4-Terphenyl-d14	*3531*	0	*4715*	0	*74.9*	*25-137*	3153	*11.3*	*40*	
Surr: Nitrobenzene-d5	*2964*	0	*4715*	0	*62.9*	*37-107*	3098	*4.44*	*40*	
Surr: Phenol-d6	*3346*	0	*4715*	0	*71*	*40-106*	3499	*4.47*	*40*	

The following samples were analyzed in this batch:

12061023-01B	12061023-02B	12061023-03B
12061023-05B	12061023-06B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 08:16 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021522** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2890*	0	*5000*	0	*57.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4213*	0	*5000*	0	*84.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4643*	0	*5000*	0	*92.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4089*	0	*5000*	0	*81.8*	*37-107*	0			
Surr: Phenol-d6	*3859*	0	*5000*	0	*77.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 05:39 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021518** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1553	50	2000	0	77.6	45-105	0			
Acenaphthene	1602	50	2000	0	80.1	45-110	0			
Acenaphthylene	1731	50	2000	0	86.6	45-105	0			
Anthracene	1780	50	2000	0	89	55-105	0			
Benzo(a)anthracene	1778	50	2000	0	88.9	50-110	0			
Benzo(a)pyrene	1829	50	2000	0	91.4	50-110	0			
Benzo(b)fluoranthene	1964	50	2000	0	98.2	45-115	0			
Benzo(g,h,i)perylene	1652	50	2000	0	82.6	40-125	0			
Benzo(k)fluoranthene	1947	50	2000	0	97.4	45-115	0			
Chrysene	1822	50	2000	0	91.1	55-110	0			
Dibenzo(a,h)anthracene	1580	50	2000	0	79	40-125	0			
Fluoranthene	1842	50	2000	0	92.1	55-115	0			
Fluorene	1745	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1638	50	2000	0	81.9	40-120	0			
Naphthalene	1544	50	2000	0	77.2	40-105	0			
Phenanthrene	1758	50	2000	0	87.9	50-110	0			
Pyrene	1808	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4066*	0	*5000*	0	*81.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4770*	0	*5000*	0	*95.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4289*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4406*	0	*5000*	0	*88.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*4105*	0	*5000*	0	*82.1*	*37-107*	0			
Surr: Phenol-d6	*4071*	0	*5000*	0	*81.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **12061024-04B MS** Units: **µg/Kg** Analysis Date: **7/5/2012 06:21 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021519** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1341	50	1997	0	67.2	45-105	0			
Acenaphthene	1487	50	1997	0	74.4	45-110	0			
Acenaphthylene	1621	50	1997	0	81.2	45-105	0			
Anthracene	1641	50	1997	0	82.2	55-105	0			
Benzo(a)anthracene	1718	50	1997	130	79.5	50-110	0			
Benzo(a)pyrene	1680	50	1997	130	77.6	50-110	0			
Benzo(b)fluoranthene	1792	50	1997	142.6	82.6	45-115	0			
Benzo(g,h,i)perylene	1239	50	1997	79.57	58.1	40-125	0			
Benzo(k)fluoranthene	2023	50	1997	161.1	93.2	45-115	0			
Chrysene	1669	50	1997	123.2	77.4	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1997	0	58.9	40-125	0			
Fluoranthene	1764	50	1997	180.5	79.3	55-115	0			
Fluorene	1632	50	1997	0	81.7	50-110	0			
Indeno(1,2,3-cd)pyrene	1259	50	1997	65.01	59.8	40-120	0			
Naphthalene	1371	50	1997	0	68.6	40-105	0			
Phenanthrene	1693	50	1997	74.71	81.1	50-110	0			
Pyrene	1772	50	1997	209.6	78.3	45-125	0			
Surr: 2,4,6-Tribromophenol	*3864*	0	*4993*	0	*77.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4190*	0	*4993*	0	*83.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3588*	0	*4993*	0	*71.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3456*	0	*4993*	0	*69.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3454*	0	*4993*	0	*69.2*	*37-107*	0			
Surr: Phenol-d6	*3320*	0	*4993*	0	*66.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **12061024-04B MSD** Units: **µg/Kg** Analysis Date: **7/5/2012 07:01 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021520** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1471	50	1989	0	74	45-105	1341	9.26	30	
Acenaphthene	1401	50	1989	0	70.4	45-110	1487	5.97	30	
Acenaphthylene	1502	50	1989	0	75.5	45-105	1621	7.59	30	
Anthracene	1483	50	1989	0	74.6	55-105	1641	10.1	30	
Benzo(a)anthracene	1698	50	1989	130	78.8	50-110	1718	1.2	30	
Benzo(a)pyrene	1612	50	1989	130	74.5	50-110	1680	4.13	30	
Benzo(b)fluoranthene	1836	50	1989	142.6	85.1	45-115	1792	2.42	30	
Benzo(g,h,i)perylene	1026	50	1989	79.57	47.6	40-125	1239	18.9	30	
Benzo(k)fluoranthene	1946	50	1989	161.1	89.7	45-115	2023	3.89	30	
Chrysene	1544	50	1989	123.2	71.4	55-110	1669	7.82	30	
Dibenzo(a,h)anthracene	1012	50	1989	0	50.8	40-125	1176	15	30	
Fluoranthene	1638	50	1989	180.5	73.3	55-115	1764	7.41	30	
Fluorene	1548	50	1989	0	77.8	50-110	1632	5.27	30	
Indeno(1,2,3-cd)pyrene	1073	50	1989	65.01	50.7	40-120	1259	15.9	30	
Naphthalene	1316	50	1989	0	66.2	40-105	1371	4.09	30	
Phenanthrene	1726	50	1989	74.71	83	50-110	1693	1.89	30	
Pyrene	1700	50	1989	209.6	74.9	45-125	1772	4.17	30	
Surr: 2,4,6-Tribromophenol	*3488*	0	*4974*	0	*70.1*	*34-140*	3864	*10.2*	*40*	
Surr: 2-Fluorobiphenyl	*3843*	0	*4974*	0	*77.3*	*12-100*	4190	*8.64*	*40*	
Surr: 2-Fluorophenol	*3675*	0	*4974*	0	*73.9*	*33-117*	3588	*2.39*	*40*	
Surr: 4-Terphenyl-d14	*3287*	0	*4974*	0	*66.1*	*25-137*	3456	*5.02*	*40*	
Surr: Nitrobenzene-d5	*3295*	0	*4974*	0	*66.2*	*37-107*	3454	*4.72*	*40*	
Surr: Phenol-d6	*3432*	0	*4974*	0	*69*	*40-106*	3320	*3.31*	*40*	

The following samples were analyzed in this batch: 12061023-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 12:09 PM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020040** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	197	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: 4-Bromofluorobenzene	*975.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 03:54 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020243** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	101	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1071*	0	*1000*	0	*107*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1047*	0	*1000*	0	*105*	*70-130*	0
Surr: Dibromofluoromethane	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*1060*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 04:30 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020623** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1039*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 04:24 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021111** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	151.5	200								J
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	671	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*976.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*1018*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*962.5*	0	*1000*	0	*96.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 10:52 AM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020039** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	906	30	1000	0	90.6	75-125	0			
1,1,1-Trichloroethane	940.5	30	1000	0	94	70-135	0			
1,1,2,2-Tetrachloroethane	882.5	30	1000	0	88.2	55-130	0			
1,1,2-Trichloroethane	928.5	30	1000	0	92.8	60-125	0			
1,1-Dichloroethane	926.5	30	1000	0	92.6	75-125	0			
1,1-Dichloroethene	963	30	1000	0	96.3	65-135	0			
1,2,3-Trichlorobenzene	878	30	1000	0	87.8	60-135	0			
1,2,3-Trichloropropane	860	30	1000	0	86	65-130	0			
1,2,3-Trimethylbenzene	909.5	30	1000	0	91	65-135	0			
1,2,4-Trichlorobenzene	886	30	1000	0	88.6	65-130	0			
1,2,4-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	753.5	30	1000	0	75.4	40-135	0			
1,2-Dibromoethane	873	30	1000	0	87.3	70-125	0			
1,2-Dichlorobenzene	898.5	30	1000	0	89.8	75-120	0			
1,2-Dichloroethane	899	30	1000	0	89.9	70-135	0			
1,2-Dichloropropane	920.5	30	1000	0	92	70-120	0			
1,3,5-Trimethylbenzene	902	30	1000	0	90.2	65-135	0			
1,3-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
1,4-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
2-Butanone	829.5	200	1000	0	83	30-160	0			
2-Hexanone	815	30	1000	0	81.5	45-145	0			
4-Methyl-2-pentanone	874	30	1000	0	87.4	45-145	0			
Acetone	823	100	1000	0	82.3	20-160	0			B
Acrylonitrile	784.5	100	1000	0	78.4	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	929.5	30	1000	0	93	65-120	0			
Bromochloromethane	950	30	1000	0	95	70-125	0			
Bromodichloromethane	929.5	30	1000	0	93	70-130	0			
Bromoform	810.5	30	1000	0	81	55-135	0			
Bromomethane	1138	75	1000	0	114	30-160	0			
Carbon disulfide	940	30	1000	0	94	45-160	0			
Carbon tetrachloride	929.5	30	1000	0	93	65-135	0			
Chlorobenzene	909	30	1000	0	90.9	75-125	0			
Chloroethane	1044	100	1000	0	104	40-155	0			
Chloroform	946.5	30	1000	0	94.6	70-125	0			
Chloromethane	1006	100	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1078	30	1000	0	108	65-125	0			
cis-1,3-Dichloropropene	959.5	30	1000	0	96	70-125	0			
Dibromochloromethane	888.5	30	1000	0	88.8	65-135	0			
Dibromomethane	924	30	1000	0	92.4	75-130	0			
Dichlorodifluoromethane	998.5	30	1000	0	99.8	35-135	0			
Ethylbenzene	939.5	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	957	30	1000	0	95.7	70-135	0
Isopropylbenzene	907	30	1000	0	90.7	75-130	0
m,p-Xylene	1792	60	2000	0	89.6	80-125	0
Methyl tert-butyl ether	950	30	1000	0	95	75-125	0
Methylene chloride	965	30	1000	0	96.5	55-145	0
Naphthalene	797	100	1000	0	79.7	40-140	0
n-Butylbenzene	890	30	1000	0	89	65-140	0
n-Propylbenzene	874.5	30	1000	0	87.4	65-135	0
o-Xylene	892.5	30	1000	0	89.2	75-125	0
p-Isopropyltoluene	882	30	1000	0	88.2	75-135	0
sec-Butylbenzene	908	30	1000	0	90.8	65-130	0
Styrene	913.5	30	1000	0	91.4	75-125	0
tert-Butylbenzene	954.5	30	1000	0	95.4	65-130	0
Tetrachloroethene	916.5	30	1000	0	91.6	64-140	0
Tetrahydrofuran	817.5	200	1000	0	81.8	70-135	0
Toluene	970	30	1000	0	97	70-125	0
trans-1,2-Dichloroethene	965.5	30	1000	0	96.6	65-135	0
trans-1,3-Dichloropropene	932	30	1000	0	93.2	65-125	0
trans-1,4-Dichloro-2-butene	782	30	1000	0	78.2	70-135	0
Trichloroethene	936.5	30	1000	0	93.6	75-125	0
Trichlorofluoromethane	970	30	1000	0	97	25-185	0
Vinyl chloride	967.5	30	1000	0	96.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*975*	0	*1000*	0	*97.5*	*70-130*	0
Surr: 4-Bromofluorobenzene	*988*	0	*1000*	0	*98.8*	*70-130*	0
Surr: Dibromofluoromethane	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 02:38 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020242** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1170	30	1000	0	117	75-125	0			
1,1,1-Trichloroethane	1182	30	1000	0	118	70-135	0			
1,1,2,2-Tetrachloroethane	1100	30	1000	0	110	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	1050	30	1000	0	105	75-125	0			
1,1-Dichloroethene	1110	30	1000	0	111	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1066	30	1000	0	107	65-130	0			
1,2,3-Trimethylbenzene	1073	30	1000	0	107	65-135	0			
1,2,4-Trichlorobenzene	1082	30	1000	0	108	65-130	0			
1,2,4-Trimethylbenzene	1061	30	1000	0	106	65-135	0			
1,2-Dibromo-3-chloropropane	1110	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1110	30	1000	0	111	70-125	0			
1,2-Dichlorobenzene	1085	30	1000	0	108	75-120	0			
1,2-Dichloroethane	1053	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1104	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1110	30	1000	0	111	65-135	0			
1,3-Dichlorobenzene	1092	30	1000	0	109	70-125	0			
1,4-Dichlorobenzene	1098	30	1000	0	110	70-125	0			
2-Butanone	1283	200	1000	0	128	30-160	0			
2-Hexanone	1086	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1546	30	1000	0	155	45-145	0			S
Acetone	1171	100	1000	0	117	20-160	0			B
Acrylonitrile	989	100	1000	0	98.9	70-135	0			
Benzene	1074	30	1000	0	107	75-125	0			
Bromobenzene	1032	30	1000	0	103	65-120	0			
Bromochloromethane	1058	30	1000	0	106	70-125	0			
Bromodichloromethane	1136	30	1000	0	114	70-130	0			
Bromoform	1019	30	1000	0	102	55-135	0			
Bromomethane	1094	75	1000	0	109	30-160	0			
Carbon disulfide	1000	30	1000	0	100	45-160	0			
Carbon tetrachloride	1048	30	1000	0	105	65-135	0			
Chlorobenzene	1134	30	1000	0	113	75-125	0			
Chloroethane	996.5	100	1000	0	99.6	40-155	0			
Chloroform	1132	30	1000	0	113	70-125	0			
Chloromethane	947.5	100	1000	0	94.8	50-130	0			
cis-1,2-Dichloroethene	1068	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1163	30	1000	0	116	70-125	0			
Dibromochloromethane	1176	30	1000	0	118	65-135	0			
Dibromomethane	1062	30	1000	0	106	75-130	0			
Dichlorodifluoromethane	810.5	30	1000	0	81	35-135	0			
Ethylbenzene	1134	30	1000	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	1130	30	1000	0	113	70-135	0
Isopropylbenzene	1126	30	1000	0	113	75-130	0
m,p-Xylene	2255	60	2000	0	113	80-125	0
Methyl tert-butyl ether	965.5	30	1000	0	96.6	75-125	0
Methylene chloride	1048	30	1000	0	105	55-145	0
Naphthalene	1054	100	1000	0	105	40-140	0
n-Butylbenzene	1188	30	1000	0	119	65-140	0
n-Propylbenzene	1107	30	1000	0	111	65-135	0
o-Xylene	1112	30	1000	0	111	75-125	0
p-Isopropyltoluene	1131	30	1000	0	113	75-135	0
sec-Butylbenzene	1135	30	1000	0	114	65-130	0
Styrene	1136	30	1000	0	114	75-125	0
tert-Butylbenzene	1099	30	1000	0	110	65-130	0
Tetrachloroethene	1195	30	1000	0	120	64-140	0
Tetrahydrofuran	931.5	200	1000	0	93.2	70-135	0
Toluene	1106	30	1000	0	111	70-125	0
trans-1,2-Dichloroethene	1090	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1184	30	1000	0	118	65-125	0
trans-1,4-Dichloro-2-butene	1044	30	1000	0	104	70-135	0
Trichloroethene	1141	30	1000	0	114	75-125	0
Trichlorofluoromethane	1000	30	1000	0	100	25-185	0
Vinyl chloride	925	30	1000	0	92.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1034*	0	*1000*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*1059*	0	*1000*	0	*106*	*70-130*	0
Surr: Toluene-d8	*1074*	0	*1000*	0	*107*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 03:15 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020621** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1062	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1104	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	962	30	1000	0	96.2	55-130	0			
1,1,2-Trichloroethane	960.5	30	1000	0	96	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1067	30	1000	0	107	65-135	0			
1,2,3-Trichlorobenzene	965.5	30	1000	0	96.6	60-135	0			
1,2,3-Trichloropropane	962.5	30	1000	0	96.2	65-130	0			
1,2,3-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2,4-Trichlorobenzene	994	30	1000	0	99.4	65-130	0			
1,2,4-Trimethylbenzene	964	30	1000	0	96.4	65-135	0			
1,2-Dibromo-3-chloropropane	909	30	1000	0	90.9	40-135	0			
1,2-Dibromoethane	1015	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1011	30	1000	0	101	75-120	0			
1,2-Dichloroethane	983.5	30	1000	0	98.4	70-135	0			
1,2-Dichloropropane	1014	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	991.5	30	1000	0	99.2	65-135	0			
1,3-Dichlorobenzene	1018	30	1000	0	102	70-125	0			
1,4-Dichlorobenzene	1022	30	1000	0	102	70-125	0			
2-Butanone	1034	200	1000	0	103	30-160	0			
2-Hexanone	936	30	1000	0	93.6	45-145	0			
4-Methyl-2-pentanone	1326	30	1000	0	133	45-145	0			
Acetone	1194	100	1000	0	119	20-160	0			
Acrylonitrile	914	100	1000	0	91.4	70-135	0			
Benzene	997	30	1000	0	99.7	75-125	0			
Bromobenzene	938.5	30	1000	0	93.8	65-120	0			
Bromochloromethane	1018	30	1000	0	102	70-125	0			
Bromodichloromethane	1028	30	1000	0	103	70-130	0			
Bromoform	897.5	30	1000	0	89.8	55-135	0			
Bromomethane	1099	75	1000	0	110	30-160	0			
Carbon disulfide	1084	30	1000	0	108	45-160	0			
Carbon tetrachloride	986	30	1000	0	98.6	65-135	0			
Chlorobenzene	1044	30	1000	0	104	75-125	0			
Chloroethane	894.5	100	1000	0	89.4	40-155	0			
Chloroform	1023	30	1000	0	102	70-125	0			
Chloromethane	942.5	100	1000	0	94.2	50-130	0			
cis-1,2-Dichloroethene	991.5	30	1000	0	99.2	65-125	0			
cis-1,3-Dichloropropene	1018	30	1000	0	102	70-125	0			
Dibromochloromethane	1032	30	1000	0	103	65-135	0			
Dibromomethane	1011	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	752	30	1000	0	75.2	35-135	0			
Ethylbenzene	1005	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	999.5	30	1000	0	100	70-135	0
Isopropylbenzene	1030	30	1000	0	103	75-130	0
m,p-Xylene	2041	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1024	30	1000	0	102	75-125	0
Methylene chloride	1000	30	1000	0	100	55-145	0
Naphthalene	876.5	100	1000	0	87.6	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	999.5	30	1000	0	100	65-135	0
o-Xylene	1002	30	1000	0	100	75-125	0
p-Isopropyltoluene	1021	30	1000	0	102	75-135	0
sec-Butylbenzene	1010	30	1000	0	101	65-130	0
Styrene	1039	30	1000	0	104	75-125	0
tert-Butylbenzene	974.5	30	1000	0	97.4	65-130	0
Tetrachloroethene	1098	30	1000	0	110	64-140	0
Tetrahydrofuran	888	200	1000	0	88.8	70-135	0
Toluene	998	30	1000	0	99.8	70-125	0
trans-1,2-Dichloroethene	1120	30	1000	0	112	65-135	0
trans-1,3-Dichloropropene	998	30	1000	0	99.8	65-125	0
trans-1,4-Dichloro-2-butene	750.5	30	1000	0	75	70-135	0
Trichloroethene	1070	30	1000	0	107	75-125	0
Trichlorofluoromethane	938	30	1000	0	93.8	25-185	0
Vinyl chloride	888.5	30	1000	0	88.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1036*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 02:20 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021110** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	932	30	1000	0	93.2	75-125	0			
1,1,1-Trichloroethane	1022	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1050	30	1000	0	105	55-130	0			
1,1,2-Trichloroethane	940	30	1000	0	94	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1100	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	1013	30	1000	0	101	60-135	0			
1,2,3-Trichloropropane	1059	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2,4-Trichlorobenzene	940	30	1000	0	94	65-130	0			
1,2,4-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2-Dibromo-3-chloropropane	1107	30	1000	0	111	40-135	0			
1,2-Dibromoethane	946	30	1000	0	94.6	70-125	0			
1,2-Dichlorobenzene	921	30	1000	0	92.1	75-120	0			
1,2-Dichloroethane	912	30	1000	0	91.2	70-135	0			
1,2-Dichloropropane	892.5	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	961.5	30	1000	0	96.2	65-135	0			
1,3-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
1,4-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
2-Butanone	1562	200	1000	0	156	30-160	0			
2-Hexanone	1268	30	1000	0	127	45-145	0			
4-Methyl-2-pentanone	1226	30	1000	0	123	45-145	0			
Acetone	1759	100	1000	0	176	20-160	0			BS
Acrylonitrile	1158	100	1000	0	116	70-135	0			
Benzene	950	30	1000	0	95	75-125	0			
Bromobenzene	836.5	30	1000	0	83.6	65-120	0			
Bromochloromethane	975.5	30	1000	0	97.6	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	845.5	30	1000	0	84.6	55-135	0			
Bromomethane	1018	75	1000	0	102	30-160	0			
Carbon disulfide	1186	30	1000	0	119	45-160	0			
Carbon tetrachloride	1000	30	1000	0	100	65-135	0			
Chlorobenzene	930.5	30	1000	0	93	75-125	0			
Chloroethane	1267	100	1000	0	127	40-155	0			
Chloroform	1006	30	1000	0	101	70-125	0			
Chloromethane	1264	100	1000	0	126	50-130	0			
cis-1,2-Dichloroethene	1040	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	972	30	1000	0	97.2	70-125	0			
Dibromochloromethane	845	30	1000	0	84.5	65-135	0			
Dibromomethane	971.5	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1146	30	1000	0	115	35-135	0			
Ethylbenzene	994	30	1000	0	99.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101**	Instrument ID **VMS5**		Method: **SW8260**					
Hexachloroethane	863	30	1000	0	86.3	70-135	0	
Isopropylbenzene	971.5	30	1000	0	97.2	75-130	0	
m,p-Xylene	1846	60	2000	0	92.3	80-125	0	
Methyl tert-butyl ether	1038	30	1000	0	104	75-125	0	
Methylene chloride	1056	30	1000	0	106	55-145	0	
Naphthalene	988.5	100	1000	0	98.8	40-140	0	
n-Butylbenzene	899	30	1000	0	89.9	65-140	0	
n-Propylbenzene	927	30	1000	0	92.7	65-135	0	
o-Xylene	912.5	30	1000	0	91.2	75-125	0	
p-Isopropyltoluene	887.5	30	1000	0	88.8	75-135	0	
sec-Butylbenzene	976	30	1000	0	97.6	65-130	0	
Styrene	931	30	1000	0	93.1	75-125	0	
tert-Butylbenzene	983.5	30	1000	0	98.4	65-130	0	
Tetrachloroethene	1024	30	1000	0	102	64-140	0	
Tetrahydrofuran	1916	200	1000	0	192	70-135	0	S
Toluene	1001	30	1000	0	100	70-125	0	
trans-1,2-Dichloroethene	1060	30	1000	0	106	65-135	0	
trans-1,3-Dichloropropene	933	30	1000	0	93.3	65-125	0	
trans-1,4-Dichloro-2-butene	706	30	1000	0	70.6	70-135	0	
Trichloroethene	981.5	30	1000	0	98.2	75-125	0	
Trichlorofluoromethane	1160	30	1000	0	116	25-185	0	
Vinyl chloride	1190	30	1000	0	119	60-125	0	
Surr: 1,2-Dichloroethane-d4	*960*	0	*1000*	0	*96*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0	
Surr: Dibromofluoromethane	*941*	0	*1000*	0	*94.1*	*70-130*	0	
Surr: Toluene-d8	*980.5*	0	*1000*	0	*98*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/4/2012 12:53 PM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020648** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	5165	160	5452	0	94.8	75-125	0			
1,1,1-Trichloroethane	4705	160	5452	0	86.3	70-135	0			
1,1,2,2-Tetrachloroethane	5430	160	5452	0	99.6	55-130	0			
1,1,2-Trichloroethane	5084	160	5452	0	93.2	60-125	0			
1,1-Dichloroethane	4454	160	5452	0	81.7	75-125	0			
1,1-Dichloroethene	3552	160	5452	0	65.2	65-135	0			
1,2,3-Trichlorobenzene	4157	160	5452	0	76.2	60-135	0			
1,2,3-Trichloropropane	5443	160	5452	0	99.8	65-130	0			
1,2,3-Trimethylbenzene	4628	160	5452	0	84.9	65-135	0			
1,2,4-Trichlorobenzene	4048	160	5452	0	74.2	65-130	0			
1,2,4-Trimethylbenzene	4707	160	5452	0	86.4	65-135	0			
1,2-Dibromo-3-chloropropane	4890	160	5452	0	89.7	40-135	0			
1,2-Dibromoethane	5433	160	5452	0	99.6	70-125	0			
1,2-Dichlorobenzene	4778	160	5452	0	87.6	75-120	0			
1,2-Dichloroethane	5013	160	5452	0	92	70-135	0			
1,2-Dichloropropane	4991	160	5452	0	91.6	70-120	0			
1,3,5-Trimethylbenzene	4762	160	5452	0	87.4	65-135	0			
1,3-Dichlorobenzene	4675	160	5452	0	85.8	70-125	0			
1,4-Dichlorobenzene	4609	160	5452	0	84.6	70-125	0			
2-Butanone	6755	550	5452	0	124	30-160	0			
2-Hexanone	6212	160	5452	0	114	45-145	0			
4-Methyl-2-pentanone	8581	160	5452	0	157	45-145	0			S
Acetone	10930	550	5452	0	200	20-160	0			S
Acrylonitrile	5239	160	5452	0	96.1	70-135	0			
Benzene	4762	160	5452	0	87.4	75-125	0			
Bromobenzene	4748	160	5452	0	87.1	65-120	0			
Bromochloromethane	4677	160	5452	0	85.8	70-125	0			
Bromodichloromethane	4969	160	5452	0	91.2	70-130	0			
Bromoform	4585	160	5452	0	84.1	55-135	0			
Bromomethane	2404	160	5452	0	44.1	30-160	0			
Carbon disulfide	3410	160	5452	0	62.6	45-160	0			
Carbon tetrachloride	3914	160	5452	0	71.8	65-135	0			
Chlorobenzene	5114	160	5452	0	93.8	75-125	0			
Chloroethane	3852	550	5452	0	70.6	40-155	0			
Chloroform	4857	160	5452	0	89.1	70-125	0			
Chloromethane	3435	160	5452	0	63	50-130	0			
cis-1,2-Dichloroethene	4492	160	5452	0	82.4	65-125	0			
cis-1,3-Dichloropropene	4607	160	5452	0	84.5	70-125	0			
Dibromochloromethane	5130	160	5452	0	94.1	65-135	0			
Dibromomethane	5130	160	5452	0	94.1	75-130	0			
Dichlorodifluoromethane	1265	160	5452	0	23.2	35-135	0			S
Ethylbenzene	4977	160	5452	0	91.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4181	160	5452	0	76.7	70-135	0	
Isopropylbenzene	4931	160	5452	0	90.4	75-130	0	
m,p-Xylene	9889	330	10900	0	90.7	80-125	0	
Methyl tert-butyl ether	5970	160	5452	0	110	75-125	0	
Methylene chloride	4716	160	5452	850.5	70.9	55-145	0	
Naphthalene	4184	550	5452	0	76.8	40-140	0	
n-Butylbenzene	4042	160	5452	0	74.2	65-140	0	
n-Propylbenzene	4650	160	5452	0	85.3	65-135	0	
o-Xylene	4896	160	5452	0	89.8	75-125	0	
p-Isopropyltoluene	4170	160	5452	0	76.5	75-135	0	
sec-Butylbenzene	4571	160	5452	0	83.8	65-130	0	
Styrene	3410	160	5452	0	62.6	75-125	0	S
tert-Butylbenzene	4645	160	5452	0	85.2	65-130	0	
Tetrachloroethene	4928	160	5452	0	90.4	64-140	0	
Tetrahydrofuran	5383	550	5452	0	98.8	70-135	0	
Toluene	4746	160	5452	0	87	70-125	0	
trans-1,2-Dichloroethene	4160	160	5452	0	76.3	65-135	0	
trans-1,3-Dichloropropene	4642	160	5452	0	85.2	65-125	0	
trans-1,4-Dichloro-2-butene	3827	160	5452	0	70.2	70-135	0	
Trichloroethene	4906	160	5452	0	90	75-125	0	
Trichlorofluoromethane	1780	160	5452	0	32.6	25-185	0	
Vinyl chloride	2827	160	5452	0	51.8	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*5509*	0	*5452*	0	*101*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5700*	0	*5452*	0	*105*	*70-130*	0	
Surr: Dibromofluoromethane	*5536*	0	*5452*	0	*102*	*70-130*	0	
Surr: Toluene-d8	*5577*	0	*5452*	0	*102*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/5/2012 10:51 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021104** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4503	160	5452	0	82.6	75-125	0			
1,1,1-Trichloroethane	5075	160	5452	0	93.1	70-135	0			
1,1,2,2-Tetrachloroethane	4397	160	5452	0	80.6	55-130	0			
1,1,2-Trichloroethane	4754	160	5452	0	87.2	60-125	0			
1,1-Dichloroethane	4890	160	5452	0	89.7	75-125	0			
1,1-Dichloroethene	5517	160	5452	0	101	65-135	0			
1,2,3-Trichlorobenzene	5037	160	5452	0	92.4	60-135	0			
1,2,3-Trichloropropane	4538	160	5452	0	83.2	65-130	0			
1,2,3-Trimethylbenzene	4830	160	5452	0	88.6	65-135	0			
1,2,4-Trichlorobenzene	4781	160	5452	0	87.7	65-130	0			
1,2,4-Trimethylbenzene	4560	160	5452	0	83.6	65-135	0			
1,2-Dibromo-3-chloropropane	4132	160	5452	0	75.8	40-135	0			
1,2-Dibromoethane	4386	160	5452	0	80.4	70-125	0			
1,2-Dichlorobenzene	4901	160	5452	0	89.9	75-120	0			
1,2-Dichloroethane	4784	160	5452	0	87.8	70-135	0			
1,2-Dichloropropane	4536	160	5452	0	83.2	70-120	0			
1,3,5-Trimethylbenzene	4672	160	5452	0	85.7	65-135	0			
1,3-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
1,4-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
2-Butanone	6130	550	5452	0	112	30-160	0			B
2-Hexanone	4468	160	5452	0	82	45-145	0			
4-Methyl-2-pentanone	4707	160	5452	0	86.4	45-145	0			
Acetone	7534	550	5452	0	138	20-160	0			B
Acrylonitrile	4833	160	5452	0	88.6	70-135	0			
Benzene	4808	160	5452	0	88.2	75-125	0			
Bromobenzene	4081	160	5452	0	74.8	65-120	0			
Bromochloromethane	4969	160	5452	0	91.2	70-125	0			
Bromodichloromethane	4489	160	5452	0	82.4	70-130	0			
Bromoform	3552	160	5452	0	65.2	55-135	0			
Bromomethane	5018	160	5452	0	92	30-160	0			
Carbon disulfide	5896	160	5452	0	108	45-160	0			
Carbon tetrachloride	5043	160	5452	0	92.5	65-135	0			
Chlorobenzene	4615	160	5452	0	84.6	75-125	0			
Chloroethane	6417	550	5452	0	118	40-155	0			
Chloroform	5225	160	5452	0	95.8	70-125	0			
Chloromethane	6024	160	5452	0	110	50-130	0			
cis-1,2-Dichloroethene	4893	160	5452	0	89.8	65-125	0			
cis-1,3-Dichloropropene	4457	160	5452	0	81.8	70-125	0			
Dibromochloromethane	3980	160	5452	0	73	65-135	0			
Dibromomethane	4713	160	5452	0	86.4	75-130	0			
Dichlorodifluoromethane	5626	160	5452	0	103	35-135	0			
Ethylbenzene	4827	160	5452	0	88.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4326	160	5452	0	79.4	70-135	0	
Isopropylbenzene	4846	160	5452	0	88.9	75-130	0	
m,p-Xylene	9235	330	10900	0	84.7	80-125	0	
Methyl tert-butyl ether	5174	160	5452	0	94.9	75-125	0	
Methylene chloride	5454	160	5452	0	100	55-145	0	
Naphthalene	4318	550	5452	0	79.2	40-140	0	
n-Butylbenzene	4571	160	5452	0	83.8	65-140	0	
n-Propylbenzene	4544	160	5452	0	83.4	65-135	0	
o-Xylene	4500	160	5452	0	82.6	75-125	0	
p-Isopropyltoluene	4672	160	5452	0	85.7	75-135	0	
sec-Butylbenzene	4838	160	5452	0	88.8	65-130	0	
Styrene	4751	160	5452	0	87.2	75-125	0	
tert-Butylbenzene	4811	160	5452	0	88.2	65-130	0	
Tetrachloroethene	5002	160	5452	0	91.8	64-140	0	
Tetrahydrofuran	4986	550	5452	0	91.4	70-135	0	
Toluene	4964	160	5452	0	91	70-125	0	
trans-1,2-Dichloroethene	5427	160	5452	0	99.6	65-135	0	
trans-1,3-Dichloropropene	4100	160	5452	0	75.2	65-125	0	
trans-1,4-Dichloro-2-butene	2257	160	5452	0	41.4	70-135	0	S
Trichloroethene	4961	160	5452	0	91	75-125	0	
Trichlorofluoromethane	5561	160	5452	0	102	25-185	0	
Vinyl chloride	5634	160	5452	0	103	60-125	0	
Surr: 1,2-Dichloroethane-d4	*4896*	0	*5452*	0	*89.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5206*	0	*5452*	0	*95.5*	*70-130*	0	
Surr: Dibromofluoromethane	*5214*	0	*5452*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*5204*	0	*5452*	0	*95.4*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MSD Sample ID: **12061024-04A MSD** Units: **µg/Kg** Analysis Date: **7/5/2012 11:16 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021105** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4598	160	5452	0	84.4	75-125	4503	2.1	30	
1,1,1-Trichloroethane	5084	160	5452	0	93.2	70-135	5075	0.161	30	
1,1,2,2-Tetrachloroethane	4517	160	5452	0	82.8	55-130	4397	2.69	30	
1,1,2-Trichloroethane	4710	160	5452	0	86.4	60-125	4754	0.922	30	
1,1-Dichloroethane	4846	160	5452	0	88.9	75-125	4890	0.896	30	
1,1-Dichloroethene	5463	160	5452	0	100	65-135	5517	0.993	30	
1,2,3-Trichlorobenzene	5285	160	5452	0	97	60-135	5037	4.81	30	
1,2,3-Trichloropropane	4757	160	5452	0	87.2	65-130	4538	4.69	30	
1,2,3-Trimethylbenzene	4816	160	5452	0	88.4	65-135	4830	0.283	30	
1,2,4-Trichlorobenzene	5043	160	5452	0	92.5	65-130	4781	5.33	30	
1,2,4-Trimethylbenzene	4688	160	5452	0	86	65-135	4560	2.77	30	
1,2-Dibromo-3-chloropropane	4419	160	5452	0	81	40-135	4132	6.69	30	
1,2-Dibromoethane	4427	160	5452	0	81.2	70-125	4386	0.928	30	
1,2-Dichlorobenzene	4827	160	5452	0	88.6	75-120	4901	1.51	30	
1,2-Dichloroethane	4669	160	5452	0	85.6	70-135	4784	2.42	30	
1,2-Dichloropropane	4609	160	5452	0	84.6	70-120	4536	1.61	30	
1,3,5-Trimethylbenzene	4789	160	5452	0	87.8	65-135	4672	2.48	30	
1,3-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
1,4-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
2-Butanone	6656	550	5452	0	122	30-160	6130	8.23	30	B
2-Hexanone	4688	160	5452	0	86	45-145	4468	4.82	30	
4-Methyl-2-pentanone	4732	160	5452	0	86.8	45-145	4707	0.52	30	
Acetone	8311	550	5452	0	152	20-160	7534	9.81	30	B
Acrylonitrile	5056	160	5452	0	92.8	70-135	4833	4.52	30	
Benzene	4836	160	5452	0	88.7	75-125	4808	0.565	30	
Bromobenzene	4051	160	5452	0	74.3	65-120	4081	0.738	30	
Bromochloromethane	4686	160	5452	0	86	70-125	4969	5.87	30	
Bromodichloromethane	4538	160	5452	0	83.2	70-130	4489	1.09	30	
Bromoform	3677	160	5452	0	67.4	55-135	3552	3.47	30	
Bromomethane	4563	160	5452	0	83.7	30-160	5018	9.5	30	
Carbon disulfide	5550	160	5452	0	102	45-160	5896	6.05	30	
Carbon tetrachloride	4994	160	5452	0	91.6	65-135	5043	0.978	30	
Chlorobenzene	4601	160	5452	0	84.4	75-125	4615	0.296	30	
Chloroethane	5923	550	5452	0	109	40-155	6417	8	30	
Chloroform	4936	160	5452	0	90.6	70-125	5225	5.69	30	
Chloromethane	5610	160	5452	0	103	50-130	6024	7.12	30	
cis-1,2-Dichloroethene	4721	160	5452	0	86.6	65-125	4893	3.57	30	
cis-1,3-Dichloropropene	4530	160	5452	0	83.1	70-125	4457	1.64	30	
Dibromochloromethane	4026	160	5452	0	73.8	65-135	3980	1.16	30	
Dibromomethane	4806	160	5452	0	88.2	75-130	4713	1.95	30	
Dichlorodifluoromethane	5441	160	5452	0	99.8	35-135	5626	3.35	30	
Ethylbenzene	4833	160	5452	0	88.6	75-125	4827	0.113	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4282	160	5452	0	78.6	70-135	4326	1.01	30	
Isopropylbenzene	4874	160	5452	0	89.4	75-130	4846	0.561	30	
m,p-Xylene	9096	330	10900	0	83.4	80-125	9235	1.52	30	
Methyl tert-butyl ether	5037	160	5452	0	92.4	75-125	5174	2.67	30	
Methylene chloride	5108	160	5452	0	93.7	55-145	5454	6.55	30	
Naphthalene	4525	550	5452	0	83	40-140	4318	4.69	30	
n-Butylbenzene	4579	160	5452	0	84	65-140	4571	0.179	30	
n-Propylbenzene	4604	160	5452	0	84.4	65-135	4544	1.31	30	
o-Xylene	4454	160	5452	0	81.7	75-125	4500	1.04	30	
p-Isopropyltoluene	4667	160	5452	0	85.6	75-135	4672	0.117	30	
sec-Butylbenzene	4977	160	5452	0	91.3	65-130	4838	2.83	30	
Styrene	4598	160	5452	0	84.4	75-125	4751	3.27	30	
tert-Butylbenzene	4915	160	5452	0	90.2	65-130	4811	2.13	30	
Tetrachloroethene	5070	160	5452	0	93	64-140	5002	1.35	30	
Tetrahydrofuran	5127	550	5452	0	94	70-135	4986	2.8	30	
Toluene	4827	160	5452	0	88.6	70-125	4964	2.78	30	
trans-1,2-Dichloroethene	5119	160	5452	0	93.9	65-135	5427	5.84	30	
trans-1,3-Dichloropropene	4135	160	5452	0	75.8	65-125	4100	0.861	30	
trans-1,4-Dichloro-2-butene	2410	160	5452	0	44.2	70-135	2257	6.54	30	S
Trichloroethene	4713	160	5452	0	86.4	75-125	4961	5.13	30	
Trichlorofluoromethane	5351	160	5452	0	98.2	25-185	5561	3.85	30	
Vinyl chloride	5517	160	5452	0	101	60-125	5634	2.1	30	
Surr: 1,2-Dichloroethane-d4	*5029*	0	*5452*	0	*92.2*	*70-130*	4896	*2.69*	*30*	
Surr: 4-Bromofluorobenzene	*5304*	0	*5452*	0	*97.3*	*70-130*	5206	*1.87*	*30*	
Surr: Dibromofluoromethane	*5182*	0	*5452*	0	*95*	*70-130*	5214	*0.629*	*30*	
Surr: Toluene-d8	*5324*	0	*5452*	0	*97.6*	*70-130*	5204	*2.28*	*30*	

The following samples were analyzed in this batch: 12061023-01A 12061023-02A 12061023-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42119-42119** Units: **µg/Kg** Analysis Date: **7/3/2012 12:09 PM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020046** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	197	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: 4-Bromofluorobenzene	*975.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42119-42119** Units: **µg/Kg** Analysis Date: **7/4/2012 01:22 AM**
Client ID: Run ID: **VMS5_120703B** SeqNo: **2020340** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	170.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*967.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*974.5*	0	*1000*	0	*97.4*	*70-130*	0
Surr: Dibromofluoromethane	*982*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Toluene-d8	*1002*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42119-42119** Units: **µg/Kg** Analysis Date: **7/4/2012 04:30 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020663** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1039*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42119-42119** Units: **µg/Kg** Analysis Date: **7/3/2012 10:52 AM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020045** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	906	30	1000	0	90.6	75-125	0			
1,1,1-Trichloroethane	940.5	30	1000	0	94	70-135	0			
1,1,2,2-Tetrachloroethane	882.5	30	1000	0	88.2	55-130	0			
1,1,2-Trichloroethane	928.5	30	1000	0	92.8	60-125	0			
1,1-Dichloroethane	926.5	30	1000	0	92.6	75-125	0			
1,1-Dichloroethene	963	30	1000	0	96.3	65-135	0			
1,2,3-Trichlorobenzene	878	30	1000	0	87.8	60-135	0			
1,2,3-Trichloropropane	860	30	1000	0	86	65-130	0			
1,2,3-Trimethylbenzene	909.5	30	1000	0	91	65-135	0			
1,2,4-Trichlorobenzene	886	30	1000	0	88.6	65-130	0			
1,2,4-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	753.5	30	1000	0	75.4	40-135	0			
1,2-Dibromoethane	873	30	1000	0	87.3	70-125	0			
1,2-Dichlorobenzene	898.5	30	1000	0	89.8	75-120	0			
1,2-Dichloroethane	899	30	1000	0	89.9	70-135	0			
1,2-Dichloropropane	920.5	30	1000	0	92	70-120	0			
1,3,5-Trimethylbenzene	902	30	1000	0	90.2	65-135	0			
1,3-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
1,4-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
2-Butanone	829.5	200	1000	0	83	30-160	0			
2-Hexanone	815	30	1000	0	81.5	45-145	0			
4-Methyl-2-pentanone	874	30	1000	0	87.4	45-145	0			
Acetone	823	100	1000	0	82.3	20-160	0			B
Acrylonitrile	784.5	100	1000	0	78.4	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	929.5	30	1000	0	93	65-120	0			
Bromochloromethane	950	30	1000	0	95	70-125	0			
Bromodichloromethane	929.5	30	1000	0	93	70-130	0			
Bromoform	810.5	30	1000	0	81	55-135	0			
Bromomethane	1138	75	1000	0	114	30-160	0			
Carbon disulfide	940	30	1000	0	94	45-160	0			
Carbon tetrachloride	929.5	30	1000	0	93	65-135	0			
Chlorobenzene	909	30	1000	0	90.9	75-125	0			
Chloroethane	1044	100	1000	0	104	40-155	0			
Chloroform	946.5	30	1000	0	94.6	70-125	0			
Chloromethane	1006	100	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1078	30	1000	0	108	65-125	0			
cis-1,3-Dichloropropene	959.5	30	1000	0	96	70-125	0			
Dibromochloromethane	888.5	30	1000	0	88.8	65-135	0			
Dibromomethane	924	30	1000	0	92.4	75-130	0			
Dichlorodifluoromethane	998.5	30	1000	0	99.8	35-135	0			
Ethylbenzene	939.5	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	957	30	1000	0	95.7	70-135	0
Isopropylbenzene	907	30	1000	0	90.7	75-130	0
m,p-Xylene	1792	60	2000	0	89.6	80-125	0
Methyl tert-butyl ether	950	30	1000	0	95	75-125	0
Methylene chloride	965	30	1000	0	96.5	55-145	0
Naphthalene	797	100	1000	0	79.7	40-140	0
n-Butylbenzene	890	30	1000	0	89	65-140	0
n-Propylbenzene	874.5	30	1000	0	87.4	65-135	0
o-Xylene	892.5	30	1000	0	89.2	75-125	0
p-Isopropyltoluene	882	30	1000	0	88.2	75-135	0
sec-Butylbenzene	908	30	1000	0	90.8	65-130	0
Styrene	913.5	30	1000	0	91.4	75-125	0
tert-Butylbenzene	954.5	30	1000	0	95.4	65-130	0
Tetrachloroethene	916.5	30	1000	0	91.6	64-140	0
Tetrahydrofuran	817.5	200	1000	0	81.8	70-135	0
Toluene	970	30	1000	0	97	70-125	0
trans-1,2-Dichloroethene	965.5	30	1000	0	96.6	65-135	0
trans-1,3-Dichloropropene	932	30	1000	0	93.2	65-125	0
trans-1,4-Dichloro-2-butene	782	30	1000	0	78.2	70-135	0
Trichloroethene	936.5	30	1000	0	93.6	75-125	0
Trichlorofluoromethane	970	30	1000	0	97	25-185	0
Vinyl chloride	967.5	30	1000	0	96.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*975*	0	*1000*	0	*97.5*	*70-130*	0
Surr: 4-Bromofluorobenzene	*988*	0	*1000*	0	*98.8*	*70-130*	0
Surr: Dibromofluoromethane	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42119-42119** Units: **µg/Kg** Analysis Date: **7/4/2012 12:04 PM**
Client ID: Run ID: **VMS5_120703B** SeqNo: **2020345** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	935	30	1000	0	93.5	75-125	0			
1,1,1-Trichloroethane	1042	30	1000	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	960	30	1000	0	96	55-130	0			
1,1,2-Trichloroethane	953.5	30	1000	0	95.4	60-125	0			
1,1-Dichloroethane	966	30	1000	0	96.6	75-125	0			
1,1-Dichloroethene	1032	30	1000	0	103	65-135	0			
1,2,3-Trichlorobenzene	889.5	30	1000	0	89	60-135	0			
1,2,3-Trichloropropane	943	30	1000	0	94.3	65-130	0			
1,2,3-Trimethylbenzene	972.5	30	1000	0	97.2	65-135	0			
1,2,4-Trichlorobenzene	908	30	1000	0	90.8	65-130	0			
1,2,4-Trimethylbenzene	936.5	30	1000	0	93.6	65-135	0			
1,2-Dibromo-3-chloropropane	857	30	1000	0	85.7	40-135	0			
1,2-Dibromoethane	890.5	30	1000	0	89	70-125	0			
1,2-Dichlorobenzene	968	30	1000	0	96.8	75-120	0			
1,2-Dichloroethane	963	30	1000	0	96.3	70-135	0			
1,2-Dichloropropane	927	30	1000	0	92.7	70-120	0			
1,3,5-Trimethylbenzene	959.5	30	1000	0	96	65-135	0			
1,3-Dichlorobenzene	934.5	30	1000	0	93.4	70-125	0			
1,4-Dichlorobenzene	934.5	30	1000	0	93.4	70-125	0			
2-Butanone	1042	200	1000	0	104	30-160	0			
2-Hexanone	1026	30	1000	0	103	45-145	0			
4-Methyl-2-pentanone	993	30	1000	0	99.3	45-145	0			
Acetone	1043	100	1000	0	104	20-160	0			B
Acrylonitrile	873	100	1000	0	87.3	70-135	0			
Benzene	994	30	1000	0	99.4	75-125	0			
Bromobenzene	890	30	1000	0	89	65-120	0			
Bromochloromethane	977	30	1000	0	97.7	70-125	0			
Bromodichloromethane	982.5	30	1000	0	98.2	70-130	0			
Bromoform	816	30	1000	0	81.6	55-135	0			
Bromomethane	1299	75	1000	0	130	30-160	0			
Carbon disulfide	1088	30	1000	0	109	45-160	0			
Carbon tetrachloride	1044	30	1000	0	104	65-135	0			
Chlorobenzene	946.5	30	1000	0	94.6	75-125	0			
Chloroethane	1167	100	1000	0	117	40-155	0			
Chloroform	968	30	1000	0	96.8	70-125	0			
Chloromethane	1176	100	1000	0	118	50-130	0			
cis-1,2-Dichloroethene	969	30	1000	0	96.9	65-125	0			
cis-1,3-Dichloropropene	972.5	30	1000	0	97.2	70-125	0			
Dibromochloromethane	864	30	1000	0	86.4	65-135	0			
Dibromomethane	972	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1080	30	1000	0	108	35-135	0			
Ethylbenzene	998.5	30	1000	0	99.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	914.5	30	1000	0	91.4	70-135	0
Isopropylbenzene	971.5	30	1000	0	97.2	75-130	0
m,p-Xylene	1868	60	2000	0	93.4	80-125	0
Methyl tert-butyl ether	1018	30	1000	0	102	75-125	0
Methylene chloride	1003	30	1000	0	100	55-145	0
Naphthalene	805	100	1000	0	80.5	40-140	0
n-Butylbenzene	919.5	30	1000	0	92	65-140	0
n-Propylbenzene	910	30	1000	0	91	65-135	0
o-Xylene	924	30	1000	0	92.4	75-125	0
p-Isopropyltoluene	913	30	1000	0	91.3	75-135	0
sec-Butylbenzene	951.5	30	1000	0	95.2	65-130	0
Styrene	952	30	1000	0	95.2	75-125	0
tert-Butylbenzene	975	30	1000	0	97.5	65-130	0
Tetrachloroethene	1006	30	1000	0	101	64-140	0
Tetrahydrofuran	847.5	200	1000	0	84.8	70-135	0
Toluene	1015	30	1000	0	102	70-125	0
trans-1,2-Dichloroethene	1044	30	1000	0	104	65-135	0
trans-1,3-Dichloropropene	923	30	1000	0	92.3	65-125	0
trans-1,4-Dichloro-2-butene	762.5	30	1000	0	76.2	70-135	0
Trichloroethene	988.5	30	1000	0	98.8	75-125	0
Trichlorofluoromethane	1064	30	1000	0	106	25-185	0
Vinyl chloride	1117	30	1000	0	112	60-125	0
Surr: 1,2-Dichloroethane-d4	*967*	0	*1000*	0	*96.7*	*70-130*	0
Surr: 4-Bromofluorobenzene	*992.5*	0	*1000*	0	*99.2*	*70-130*	0
Surr: Dibromofluoromethane	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42119-42119** Units: **µg/Kg** Analysis Date: **7/4/2012 03:15 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020662** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1062	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1104	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	962	30	1000	0	96.2	55-130	0			
1,1,2-Trichloroethane	960.5	30	1000	0	96	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1067	30	1000	0	107	65-135	0			
1,2,3-Trichlorobenzene	965.5	30	1000	0	96.6	60-135	0			
1,2,3-Trichloropropane	962.5	30	1000	0	96.2	65-130	0			
1,2,3-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2,4-Trichlorobenzene	994	30	1000	0	99.4	65-130	0			
1,2,4-Trimethylbenzene	964	30	1000	0	96.4	65-135	0			
1,2-Dibromo-3-chloropropane	909	30	1000	0	90.9	40-135	0			
1,2-Dibromoethane	1015	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1011	30	1000	0	101	75-120	0			
1,2-Dichloroethane	983.5	30	1000	0	98.4	70-135	0			
1,2-Dichloropropane	1014	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	991.5	30	1000	0	99.2	65-135	0			
1,3-Dichlorobenzene	1018	30	1000	0	102	70-125	0			
1,4-Dichlorobenzene	1022	30	1000	0	102	70-125	0			
2-Butanone	1034	200	1000	0	103	30-160	0			
2-Hexanone	936	30	1000	0	93.6	45-145	0			
4-Methyl-2-pentanone	1326	30	1000	0	133	45-145	0			
Acetone	1194	100	1000	0	119	20-160	0			
Acrylonitrile	914	100	1000	0	91.4	70-135	0			
Benzene	997	30	1000	0	99.7	75-125	0			
Bromobenzene	938.5	30	1000	0	93.8	65-120	0			
Bromochloromethane	1018	30	1000	0	102	70-125	0			
Bromodichloromethane	1028	30	1000	0	103	70-130	0			
Bromoform	897.5	30	1000	0	89.8	55-135	0			
Bromomethane	1099	75	1000	0	110	30-160	0			
Carbon disulfide	1084	30	1000	0	108	45-160	0			
Carbon tetrachloride	986	30	1000	0	98.6	65-135	0			
Chlorobenzene	1044	30	1000	0	104	75-125	0			
Chloroethane	894.5	100	1000	0	89.4	40-155	0			
Chloroform	1023	30	1000	0	102	70-125	0			
Chloromethane	942.5	100	1000	0	94.2	50-130	0			
cis-1,2-Dichloroethene	991.5	30	1000	0	99.2	65-125	0			
cis-1,3-Dichloropropene	1018	30	1000	0	102	70-125	0			
Dibromochloromethane	1032	30	1000	0	103	65-135	0			
Dibromomethane	1011	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	752	30	1000	0	75.2	35-135	0			
Ethylbenzene	1005	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	999.5	30	1000	0	100	70-135	0
Isopropylbenzene	1030	30	1000	0	103	75-130	0
m,p-Xylene	2041	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1024	30	1000	0	102	75-125	0
Methylene chloride	1000	30	1000	0	100	55-145	0
Naphthalene	876.5	100	1000	0	87.6	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	999.5	30	1000	0	100	65-135	0
o-Xylene	1002	30	1000	0	100	75-125	0
p-Isopropyltoluene	1021	30	1000	0	102	75-135	0
sec-Butylbenzene	1010	30	1000	0	101	65-130	0
Styrene	1039	30	1000	0	104	75-125	0
tert-Butylbenzene	974.5	30	1000	0	97.4	65-130	0
Tetrachloroethene	1098	30	1000	0	110	64-140	0
Tetrahydrofuran	888	200	1000	0	88.8	70-135	0
Toluene	998	30	1000	0	99.8	70-125	0
trans-1,2-Dichloroethene	1120	30	1000	0	112	65-135	0
trans-1,3-Dichloropropene	998	30	1000	0	99.8	65-125	0
trans-1,4-Dichloro-2-butene	750.5	30	1000	0	75	70-135	0
Trichloroethene	1070	30	1000	0	107	75-125	0
Trichlorofluoromethane	938	30	1000	0	93.8	25-185	0
Vinyl chloride	888.5	30	1000	0	88.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1036*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **1207012-09A MS** Units: **µg/Kg** Analysis Date: **7/3/2012 08:34 PM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020034** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	922	5.0	1000	0	92.2	75-125	0			
1,1,1-Trichloroethane	816	5.0	1000	0	81.6	70-135	0			
1,1,2,2-Tetrachloroethane	1058	5.0	1000	0	106	55-130	0			
1,1,2-Trichloroethane	996.5	5.0	1000	0	99.6	60-125	0			
1,1-Dichloroethane	847.5	5.0	1000	0	84.8	75-125	0			
1,1-Dichloroethene	734.5	5.0	1000	0	73.4	65-135	0			
1,2,3-Trichlorobenzene	959	5.0	1000	0	95.9	60-135	0			
1,2,3-Trichloropropane	1030	5.0	1000	0	103	65-130	0			
1,2,4-Trichlorobenzene	960.5	5.0	1000	0	96	65-130	0			
1,2,4-Trimethylbenzene	920.5	5.0	1000	0	92	65-135	0			
1,2-Dibromo-3-chloropropane	1010	5.0	1000	0	101	40-135	0			
1,2-Dibromoethane	932	5.0	1000	0	93.2	70-125	0			
1,2-Dichlorobenzene	980.5	5.0	1000	0	98	75-120	0			
1,2-Dichloroethane	963	5.0	1000	0	96.3	70-135	0			
1,2-Dichloropropane	868	5.0	1000	0	86.8	70-120	0			
1,3,5-Trimethylbenzene	926.5	5.0	1000	0	92.6	65-135	0			
1,3-Dichlorobenzene	934	5.0	1000	0	93.4	70-125	0			
1,4-Dichlorobenzene	934	5.0	1000	0	93.4	70-125	0			
2-Butanone	1403	10	1000	0	140	30-160	0			
2-Hexanone	1175	5.0	1000	0	118	45-145	0			
4-Methyl-2-pentanone	1117	5.0	1000	0	112	45-145	0			
Acetone	1633	10	1000	0	163	20-160	0			BS
Acrylonitrile	1035	5.0	1000	0	104	70-135	0			
Benzene	885	5.0	1000	0	88.5	75-125	0			
Bromobenzene	1003	10	1000	0	100	65-120	0			
Bromochloromethane	949	5.0	1000	0	94.9	70-125	0			
Bromodichloromethane	937.5	5.0	1000	0	93.8	70-130	0			
Bromoform	881.5	5.0	1000	0	88.2	55-135	0			
Bromomethane	649.5	10	1000	0	65	30-160	0			
Carbon disulfide	707.5	5.0	1000	0	70.8	45-160	0			
Carbon tetrachloride	735.5	5.0	1000	0	73.6	65-135	0			
Chlorobenzene	897	5.0	1000	0	89.7	75-125	0			
Chloroethane	965.5	5.0	1000	0	96.6	40-155	0			
Chloroform	935	5.0	1000	0	93.5	70-125	0			
Chloromethane	797.5	10	1000	0	79.8	50-130	0			
cis-1,2-Dichloroethene	919	5.0	1000	0	91.9	65-125	0			
cis-1,3-Dichloropropene	972	5.0	1000	0	97.2	70-125	0			
Dibromochloromethane	892.5	5.0	1000	0	89.2	65-135	0			
Dibromomethane	980.5	5.0	1000	0	98	75-130	0			
Dichlorodifluoromethane	276.5	10	1000	0	27.6	35-135	0			S
Ethylbenzene	913.5	5.0	1000	0	91.4	75-125	0			
Hexachloroethane	866.5	5.0	1000	0	86.6	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	891.5	5.0	1000	0	89.2	75-130	0
m,p-Xylene	1770	2.5	2000	0	88.5	80-125	0
Methyl tert-butyl ether	1002	5.0	1000	0	100	75-125	0
Methylene chloride	970.5	5.0	1000	0	97	55-140	0
Naphthalene	897.5	5.0	1000	0	89.8	40-140	0
n-Butylbenzene	874.5	5.0	1000	0	87.4	65-140	0
n-Propylbenzene	867	5.0	1000	0	86.7	65-135	0
o-Xylene	890	2.5	1000	0	89	75-125	0
p-Isopropyltoluene	876	5.0	1000	0	87.6	75-135	0
sec-Butylbenzene	894.5	5.0	1000	0	89.4	65-130	0
Styrene	934.5	5.0	1000	0	93.4	75-125	0
tert-Butylbenzene	916.5	5.0	1000	0	91.6	65-130	0
Tetrachloroethene	832.5	5.0	1000	0	83.2	65-140	0
Tetrahydrofuran	1104	20	1000	0	110	70-135	0
Toluene	913	5.0	1000	0	91.3	70-125	0
trans-1,2-Dichloroethene	828.5	5.0	1000	0	82.8	65-135	0
trans-1,3-Dichloropropene	922.5	10	1000	0	92.2	65-125	0
trans-1,4-Dichloro-2-butene	901	5.0	1000	0	90.1	70-135	0
Trichloroethene	848	5.0	1000	0	84.8	75-125	0
Trichlorofluoromethane	548	5.0	1000	0	54.8	25-185	0
Vinyl chloride	678.5	5.0	1000	0	67.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*963*	0	*1000*	0	*96.3*	*70-120*	0
Surr: 4-Bromofluorobenzene	*982.5*	0	*1000*	0	*98.2*	*75-120*	0
Surr: Dibromofluoromethane	*1014*	0	*1000*	0	*101*	*85-115*	0
Surr: Toluene-d8	*963*	0	*1000*	0	*96.3*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

MSD	Sample ID: **1207012-09A MSD**				Units: **µg/Kg**		Analysis Date: **7/3/2012 09:01 PM**			
Client ID:		Run ID: **VMS5_120703A**			SeqNo: **2020035**		Prep Date: **7/3/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	893	5.0	1000	0	89.3	75-125	922	3.2	30	
1,1,1-Trichloroethane	778.5	5.0	1000	0	77.8	70-135	816	4.7	30	
1,1,2,2-Tetrachloroethane	987.5	5.0	1000	0	98.8	55-130	1058	6.94	30	
1,1,2-Trichloroethane	968.5	5.0	1000	0	96.8	60-125	996.5	2.85	30	
1,1-Dichloroethane	857	5.0	1000	0	85.7	75-125	847.5	1.11	30	
1,1-Dichloroethene	702	5.0	1000	0	70.2	65-135	734.5	4.52	30	
1,2,3-Trichlorobenzene	947.5	5.0	1000	0	94.8	60-135	959	1.21	30	
1,2,3-Trichloropropane	1002	5.0	1000	0	100	65-130	1030	2.71	30	
1,2,4-Trichlorobenzene	915.5	5.0	1000	0	91.6	65-130	960.5	4.8	30	
1,2,4-Trimethylbenzene	917	5.0	1000	0	91.7	65-135	920.5	0.381	30	
1,2-Dibromo-3-chloropropane	939	5.0	1000	0	93.9	40-135	1010	7.29	30	
1,2-Dibromoethane	913.5	5.0	1000	0	91.4	70-125	932	2	30	
1,2-Dichlorobenzene	951.5	5.0	1000	0	95.2	75-120	980.5	3	30	
1,2-Dichloroethane	928	5.0	1000	0	92.8	70-135	963	3.7	30	
1,2-Dichloropropane	869.5	5.0	1000	0	87	70-120	868	0.173	30	
1,3,5-Trimethylbenzene	930	5.0	1000	0	93	65-135	926.5	0.377	30	
1,3-Dichlorobenzene	928	5.0	1000	0	92.8	70-125	934	0.644	30	
1,4-Dichlorobenzene	928	5.0	1000	0	92.8	70-125	934	0.644	30	
2-Butanone	1320	10	1000	0	132	30-160	1403	6.1	30	
2-Hexanone	1076	5.0	1000	0	108	45-145	1175	8.8	30	
4-Methyl-2-pentanone	1102	5.0	1000	0	110	45-145	1117	1.35	30	
Acetone	1600	10	1000	0	160	20-160	1633	2.01	30	BS
Acrylonitrile	1049	5.0	1000	0	105	70-135	1035	1.34	30	
Benzene	835.5	5.0	1000	0	83.6	75-125	885	5.75	30	
Bromobenzene	978	10	1000	0	97.8	65-120	1003	2.52	30	
Bromochloromethane	948	5.0	1000	0	94.8	70-125	949	0.105	30	
Bromodichloromethane	901	5.0	1000	0	90.1	70-130	937.5	3.97	30	
Bromoform	850	5.0	1000	0	85	55-135	881.5	3.64	30	
Bromomethane	795.5	10	1000	0	79.6	30-160	649.5	20.2	30	
Carbon disulfide	654	5.0	1000	0	65.4	45-160	707.5	7.86	30	
Carbon tetrachloride	704.5	5.0	1000	0	70.4	65-135	735.5	4.31	30	
Chlorobenzene	873	5.0	1000	0	87.3	75-125	897	2.71	30	
Chloroethane	887.5	5.0	1000	0	88.8	40-155	965.5	8.42	30	
Chloroform	927.5	5.0	1000	0	92.8	70-125	935	0.805	30	
Chloromethane	762	10	1000	0	76.2	50-130	797.5	4.55	30	
cis-1,2-Dichloroethene	894.5	5.0	1000	0	89.4	65-125	919	2.7	30	
cis-1,3-Dichloropropene	935	5.0	1000	0	93.5	70-125	972	3.88	30	
Dibromochloromethane	866	5.0	1000	0	86.6	65-135	892.5	3.01	30	
Dibromomethane	948	5.0	1000	0	94.8	75-130	980.5	3.37	30	
Dichlorodifluoromethane	272	10	1000	0	27.2	35-135	276.5	1.64	30	S
Ethylbenzene	890	5.0	1000	0	89	75-125	913.5	2.61	30	
Hexachloroethane	839.5	5.0	1000	0	84	70-135	866.5	3.17	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42119** Instrument ID **VMS5** Method: **SW8260**

Isopropylbenzene	894	5.0	1000	0	89.4	75-130	891.5	0.28	30
m,p-Xylene	1721	2.5	2000	0	86	80-125	1770	2.78	30
Methyl tert-butyl ether	964	5.0	1000	0	96.4	75-125	1002	3.87	30
Methylene chloride	922.5	5.0	1000	0	92.2	55-140	970.5	5.07	30
Naphthalene	862	5.0	1000	0	86.2	40-140	897.5	4.04	30
n-Butylbenzene	858.5	5.0	1000	0	85.8	65-140	874.5	1.85	30
n-Propylbenzene	864	5.0	1000	0	86.4	65-135	867	0.347	30
o-Xylene	881	2.5	1000	0	88.1	75-125	890	1.02	30
p-Isopropyltoluene	863.5	5.0	1000	0	86.4	75-135	876	1.44	30
sec-Butylbenzene	887.5	5.0	1000	0	88.8	65-130	894.5	0.786	30
Styrene	905	5.0	1000	0	90.5	75-125	934.5	3.21	30
tert-Butylbenzene	933	5.0	1000	0	93.3	65-130	916.5	1.78	30
Tetrachloroethene	795.5	5.0	1000	0	79.6	65-140	832.5	4.55	30
Tetrahydrofuran	1140	20	1000	0	114	70-135	1104	3.25	30
Toluene	899	5.0	1000	0	89.9	70-125	913	1.55	30
trans-1,2-Dichloroethene	803	5.0	1000	0	80.3	65-135	828.5	3.13	30
trans-1,3-Dichloropropene	895	10	1000	0	89.5	65-125	922.5	3.03	30
trans-1,4-Dichloro-2-butene	898	5.0	1000	0	89.8	70-135	901	0.334	30
Trichloroethene	802.5	5.0	1000	0	80.2	75-125	848	5.51	30
Trichlorofluoromethane	500	5.0	1000	0	50	25-185	548	9.16	30
Vinyl chloride	613	5.0	1000	0	61.3	60-125	678.5	10.1	30
Surr: 1,2-Dichloroethane-d4	*960*	0	*1000*	0	*96*	*70-120*	963	*0.312*	*30*
Surr: 4-Bromofluorobenzene	*966*	0	*1000*	0	*96.6*	*75-120*	982.5	*1.69*	*30*
Surr: Dibromofluoromethane	*980.5*	0	*1000*	0	*98*	*85-115*	1014	*3.31*	*30*
Surr: Toluene-d8	*973.5*	0	*1000*	0	*97.4*	*85-120*	963	*1.08*	*30*

The following samples were analyzed in this batch: 12061023-04A 12061023-05A 12061023-06A 12061023-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061023
Project: Marshall KRRI 0675L,0700I,0700L 6/29/12

QC BATCH REPORT

Batch ID: **R106839** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106839** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019053** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106839** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019051** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **12061026-01BDUP** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019039** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	8.41	0.050	0	0	0	0-0	7.4	12.8	20	

DUP Sample ID: **12061026-09BDUP** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019048** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.64	0.050	0	0	0	0-0	11.04	5.29	20	

The following samples were analyzed in this batch:

12061023-01B	12061023-02B	12061023-03B
12061023-05B	12061023-06B	12061023-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

12061023

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062912_GMK1	Task: KRRI_0675, 0700
Total # of Samples: 7		Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR0675L501S062912S005	SBKR0675L501	SO	G	06/29/2012 13:28	3			X	X	X	X	X											
2	SBKR0675L502S062912S004	SBKR0675L502	SO	G	06/29/2012 14:22	3			X	X	X	X	X											
3	SBKR0675L503S062912S007	SBKR0675L503	SO	G	06/29/2012 15:20	3			X	X	X	X	X											
4	SBKR0675L503T062912MX	SBKR0675L503	SQ	G	06/29/2012 00:00	1	TRIP BLANK						X											
5	SBKR0700I519S062912S007	SBKR0700I519	SO	G	06/29/2012 08:50	3			X	X	X	X	X											
6	SBKR0700L502S062912S006	SBKR0700L502	SO	G	06/29/2012 09:52	3			X	X	X	X	X											
7	SBKR0700L503S062912S004	SBKR0700L503	SO	G	06/29/2012 11:04	3			X	X	X	X	X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-29-12	1626		6-29-12	1626
	6-29-12	1656		6-29-12	1656

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
5.6'c	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:
Tracking #:
PRINT Name of SAMPLER: GERRY KRAMER (GMK1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **29-Jun-12 16:56**

Work Order: **12061023** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 30-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 30-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.6 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental 3352 128th Avenue Holland, Michigan 49424 Tel. +1 616 399 6070 Fax. +1 616 399 6185	**CUSTODY SEAL** Date: 06-28-12 Time: 1712 Name: Gerald Kraemer Company:	Seal Broken By: Date:

5.6c

09-Jul-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0700I 6/27/12** Work Order: **12061024**

Dear Bryan,

ALS Environmental received 8 samples on 29-Jun-2012 04:56 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 62.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I 6/27/12
Work Order: **12061024**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
12061024-01	SBKR0700I508S062712S005	Soil		6/27/2012 09:04	6/29/2012 16:56	☐
12061024-02	SBKR0700I509S062712S005	Soil		6/27/2012 10:05	6/29/2012 16:56	☐
12061024-03	SBKR0700I510S062712S006	Soil		6/27/2012 11:10	6/29/2012 16:56	☐
12061024-04	SBKR0700I511S062712S006	Soil		6/27/2012 11:35	6/29/2012 16:56	☐
12061024-05	SBKR0700I512S062712S005	Soil		6/27/2012 13:42	6/29/2012 16:56	☐
12061024-06	SBKR0700I513S062712S006	Soil		6/27/2012 14:25	6/29/2012 16:56	☐
12061024-07	SBKR0700I514S062712S005	Soil		6/27/2012 15:04	6/29/2012 16:56	☐
12061024-08	SBKR0700I514T062712MX	Soil		6/27/2012	6/29/2012 16:56	☐

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I 6/27/12
Work Order: 12061024

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 42093 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 42142 sample SBKR0700I511S062712S006 MS/MSD recoveries for Nickel and Beryllium were above control limits. The corresponding results in the parent sample may be biased high for both these elements. The MS recovery for Vanadium and MSD recovery for Molybdenum were outside control limits. Both the MSD recovery and RPD for Vanadium and MS recovery and RPD for Molybdenum met quality control criteria. No data requires qualification.

Batch 42101 LCS recoveries for 4-Methyl-2-pentanone, Acetone, and Tetrahydrofuran were above control limits, but all samples in this quality control batch were ND for these compounds. No data requires qualification. Sample SBKR0700I511S062712S006 MS recoveries for 4-Methyl-2-pentanone, Acetone, Dichlorodifluoromethane, Styrene and Vinyl Chloride were outside control limits. Both the MSD recoveries and RPDs met quality control criteria. No data requires qualification. The MS/MSD recoveries for trans-1,4-Dichloro-2-butene were below control limits. The corresponding reporting limit in the parent sample may be biased low for this compound.

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I 6/27/12
WorkOrder: **12061024**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I508S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 9:04:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	ND	16	4.0		mg/Kg-dry	1	7/5/2012
ORO (C20-C34)	ND	33	4.0		mg/Kg-dry	1	7/5/2012
Surr: 4-Terphenyl-d14	*55.1*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/2/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/2/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/2/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/2/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*79.9*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*71.8*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*73.2*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*77.8*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*67.7*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*68.2*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	130	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	130	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	130	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	130	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	130	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I508S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 9:04:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	130	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	130	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	130	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	130	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	130	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	130	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	420	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	130	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	130	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	130	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	130	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	130	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	130	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	130	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	420	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	130	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	130	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I508S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 9:04:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	130	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	250	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	130	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	290	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	420	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	130	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	130	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	130	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	130	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	130	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	130	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	130	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	130	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	130	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	130	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	130	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	130	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	130	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**42**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I509S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 10:05:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**61**	**18**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**360**	**36**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*60.5*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	**600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)pyrene	**730**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(b)fluoranthene	**650**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(g,h,i)perylene	**330**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(k)fluoranthene	**650**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Chrysene	**570**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	**600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Pyrene	**860**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*87.5*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*78.7*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*80.4*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*89.3*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*74.2*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*77.2*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I509S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 10:05:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I509S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 10:05:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	480	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	140	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	140	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*105*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*108*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I510S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:10:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**49**	**15**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**270**	**31**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*84.9*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**6.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*89.5*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*77.7*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*82.7*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*89.7*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*75.3*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*78.7*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I510S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:10:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	100	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I510S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:10:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	100	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*104*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I511S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:35:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**31**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**740**	**63**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*70.0*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **ML**
Beryllium	ND	0.59	0.50		mg/Kg-dry	4	7/6/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/6/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	**420**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(b)fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(k)fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Chrysene	**400**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	**580**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Pyrene	**680**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*85.6*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*78.6*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*63.0*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*86.9*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*61.9*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*52.8*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	530	100		µg/Kg-dry	1	7/5/2012
1,1,1-Trichloroethane	ND	530	50		µg/Kg-dry	1	7/5/2012
1,1,2,2-Tetrachloroethane	ND	530	50		µg/Kg-dry	1	7/5/2012
1,1,2-Trichloroethane	ND	530	50		µg/Kg-dry	1	7/5/2012
1,1-Dichloroethane	ND	530	50		µg/Kg-dry	1	7/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I511S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:35:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	530	50		µg/Kg-dry	1	7/5/2012
1,2,3-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	7/5/2012
1,2,3-Trichloropropane	ND	530	100		µg/Kg-dry	1	7/5/2012
1,2,3-Trimethylbenzene	ND	530	250		µg/Kg-dry	1	7/5/2012
1,2,4-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	7/5/2012
1,2,4-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
1,2-Dibromo-3-chloropropane	ND	530	10		µg/Kg-dry	1	7/5/2012
1,2-Dibromoethane	ND	530	20		µg/Kg-dry	1	7/5/2012
1,2-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
1,2-Dichloroethane	ND	530	50		µg/Kg-dry	1	7/5/2012
1,2-Dichloropropane	ND	530	50		µg/Kg-dry	1	7/5/2012
1,3,5-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
1,3-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
1,4-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
2-Butanone	ND	1,800	750		µg/Kg-dry	1	7/5/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/5/2012
2-Methylnaphthalene	ND	1,800	330		µg/Kg-dry	1	7/5/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/5/2012
Acetone	ND	4,400	1,000		µg/Kg-dry	1	7/5/2012
Acrylonitrile	ND	530	100		µg/Kg-dry	1	7/5/2012
Benzene	ND	530	50		µg/Kg-dry	1	7/5/2012
Bromobenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
Bromochloromethane	ND	530	100		µg/Kg-dry	1	7/5/2012
Bromodichloromethane	ND	530	100		µg/Kg-dry	1	7/5/2012
Bromoform	ND	530	100		µg/Kg-dry	1	7/5/2012
Bromomethane	ND	530	200		µg/Kg-dry	1	7/5/2012
Carbon disulfide	ND	530	250		µg/Kg-dry	1	7/5/2012
Carbon tetrachloride	ND	530	50		µg/Kg-dry	1	7/5/2012
Chlorobenzene	ND	530	50		µg/Kg-dry	1	7/5/2012
Chloroethane	ND	1,800	250		µg/Kg-dry	1	7/5/2012
Chloroform	ND	530	50		µg/Kg-dry	1	7/5/2012
Chloromethane	ND	530	250		µg/Kg-dry	1	7/5/2012
cis-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	7/5/2012
cis-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	7/5/2012
Cyclohexane	ND	530	500		µg/Kg-dry	1	7/5/2012
Dibromochloromethane	ND	530	100		µg/Kg-dry	1	7/5/2012
Dibromomethane	ND	530	250		µg/Kg-dry	1	7/5/2012
Dichlorodifluoromethane	ND	530	250		µg/Kg-dry	1	7/5/2012
Diethyl ether	ND	530	200		µg/Kg-dry	1	7/5/2012
Diisopropyl ether	ND	530	250		µg/Kg-dry	1	7/5/2012
Ethyl tert butyl ether	ND	530	250		µg/Kg-dry	1	7/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I511S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 11:35:00 AM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	530	50		µg/Kg-dry	1	7/5/2012
Hexachloroethane	ND	530	300		µg/Kg-dry	1	7/5/2012
Isopropylbenzene	ND	530	250		µg/Kg-dry	1	7/5/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	7/5/2012
Methyl iodide	ND	530	100		µg/Kg-dry	1	7/5/2012
Methyl tert-butyl ether	ND	530	250		µg/Kg-dry	1	7/5/2012
Methylene chloride	ND	530	100		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	1,800	330		µg/Kg-dry	1	7/5/2012
n-Butylbenzene	ND	530	50		µg/Kg-dry	1	7/5/2012
n-Propylbenzene	ND	530	100		µg/Kg-dry	1	7/5/2012
o-Xylene	ND	530	50		µg/Kg-dry	1	7/5/2012
p-Isopropyltoluene	ND	530	100		µg/Kg-dry	1	7/5/2012
sec-Butylbenzene	ND	530	50		µg/Kg-dry	1	7/5/2012
Styrene	ND	530	50		µg/Kg-dry	1	7/5/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/5/2012
tert-Butylbenzene	ND	530	50		µg/Kg-dry	1	7/5/2012
Tertiaryamylmethylether	ND	530	250		µg/Kg-dry	1	7/5/2012
Tetrachloroethene	ND	530	50		µg/Kg-dry	1	7/5/2012
Tetrahydrofuran	ND	1,800	1,000		µg/Kg-dry	1	7/5/2012
Toluene	ND	530	100		µg/Kg-dry	1	7/5/2012
trans-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	7/5/2012
trans-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	7/5/2012
trans-1,4-Dichloro-2-butene	ND	530	50		µg/Kg-dry	1	7/5/2012
Trichloroethene	ND	530	50		µg/Kg-dry	1	7/5/2012
Trichlorofluoromethane	ND	530	100		µg/Kg-dry	1	7/5/2012
Vinyl chloride	ND	530	40		µg/Kg-dry	1	7/5/2012
Surr: 1,2-Dichloroethane-d4	*90.2*	*70-130*			*%REC*	1	7/5/2012
Surr: 4-Bromofluorobenzene	*95.0*	*70-130*			*%REC*	1	7/5/2012
Surr: Dibromofluoromethane	*95.4*	*70-130*			*%REC*	1	7/5/2012
Surr: Toluene-d8	*98.0*	*70-130*			*%REC*	1	7/5/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**69**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I512S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 1:42:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**99**	**19**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**1,200**	**38**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*61.0*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Benzo(a)anthracene	**940**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(b)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(g,h,i)perylene	**350**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(k)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	**580**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Pyrene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*77.0*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*68.5*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*62.6*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*72.4*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*54.8*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*64.1*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I512S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 1:42:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	550	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	160	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	160	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	550	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	160	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I512S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 1:42:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	330	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	820	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	550	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	160	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	160	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I513S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 2:25:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**180**	**27**	**4.0**		**mg/Kg-dry**	1	7/5/2012
ORO (C20-C34)	**1,500**	**53**	**4.0**		**mg/Kg-dry**	1	7/5/2012
Surr: 4-Terphenyl-d14	*68.8*	*39-115*			*%REC*	1	7/5/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.51	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/5/2012
Acenaphthylene	**420**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Anthracene	**550**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)anthracene	**4,000**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(a)pyrene	**4,000**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(b)fluoranthene	**3,500**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(g,h,i)perylene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Benzo(k)fluoranthene	**4,300**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Chrysene	**3,100**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/5/2012
Fluoranthene	**5,500**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/5/2012
Indeno(1,2,3-cd)pyrene	**950**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/5/2012
Phenanthrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Pyrene	**6,400**	**330**	**330**		**µg/Kg-dry**	1	7/5/2012
Surr: 2,4,6-Tribromophenol	*82.7*	*34-140*			*%REC*	1	7/5/2012
Surr: 2-Fluorobiphenyl	*78.1*	*12-100*			*%REC*	1	7/5/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	7/5/2012
Surr: 4-Terphenyl-d14	*73.6*	*25-137*			*%REC*	1	7/5/2012
Surr: Nitrobenzene-d5	*64.3*	*37-107*			*%REC*	1	7/5/2012
Surr: Phenol-d6	*72.4*	*40-106*			*%REC*	1	7/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I513S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 2:25:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	3,100	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I513S062712S006
Work Order:	12061024	**Collection Date:**	6/27/2012 2:25:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	750	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	1,300	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	380	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	380	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*107*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I514S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 3:04:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**28**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**1,400**	**56**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*49.2*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	**0.56**	**0.51**	**0.50**		**mg/Kg-dry**	4	7/5/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Nickel	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**660**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**720**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**900**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(k)fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**770**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	**430**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*86.4*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*60.4*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*57.3*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*69.3*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*50.7*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*57.6*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I514S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 3:04:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	1,300	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	3,200	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I514S062712S005
Work Order:	12061024	**Collection Date:**	6/27/2012 3:04:00 PM
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	770	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	380	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	380	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	380	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*105*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I514T062712MX
Work Order:	12061024	**Collection Date:**	6/27/2012
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	7/4/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	7/4/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	7/4/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg	1	7/4/2012
Benzene	ND	50	50		µg/Kg	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	7/4/2012
Bromoform	ND	100	100		µg/Kg	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg	1	7/4/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	7/4/2012
Chlorobenzene	ND	50	50		µg/Kg	1	7/4/2012
Chloroethane	ND	250	250		µg/Kg	1	7/4/2012
Chloroform	ND	50	50		µg/Kg	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg	1	7/4/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I514T062712MX
Work Order:	12061024	**Collection Date:**	6/27/2012
Project:	Marshall KRRI 0700I 6/27/12		
Lab ID:	12061024-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	7/4/2012
Ethylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	7/4/2012
m,p-Xylene	ND	100	100		µg/Kg	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	7/4/2012
Methylene chloride	ND	100	100		µg/Kg	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg	1	7/4/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	7/4/2012
o-Xylene	ND	50	50		µg/Kg	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	7/4/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Styrene	ND	50	50		µg/Kg	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	7/4/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	7/4/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	7/4/2012
Toluene	ND	100	100		µg/Kg	1	7/4/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/4/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	7/4/2012
Trichloroethene	ND	50	50		µg/Kg	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	7/4/2012
Vinyl chloride	ND	40	40		µg/Kg	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42141** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 09:34 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021636** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.281*	0	*5*	0	*65.6*	*39-115*	0			

LCS Sample ID: **DLCSS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021661** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	397.8	10	500	0	79.6	60-130	0			
ORO (C20-C34)	542.4	20	500	0	108	60-130	0			
Surr: 4-Terphenyl-d14	*3.062*	0	*5*	0	*61.2*	*39-115*	0			

MS Sample ID: **12061024-04B MS** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **GC8_120705B** SeqNo: **2021637** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	362.8	9.5	475.1	34.52	69.1	60-130	0			
ORO (C20-C34)	626.4	19	475.1	228.4	83.7	60-130	0			
Surr: 4-Terphenyl-d14	*3.394*	0	*4.751*	0	*71.4*	*39-115*	0			

MSD Sample ID: **12061024-04B MSD** Units: **mg/Kg** Analysis Date: **7/5/2012 10:28 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **GC8_120705B** SeqNo: **2021662** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	370.3	9.9	494.8	34.52	67.9	60-130	362.8	2.02	30	
ORO (C20-C34)	789.4	20	494.8	228.4	113	60-130	626.4	23	30	
Surr: 4-Terphenyl-d14	*2.865*	0	*4.948*	0	*57.9*	*39-115*	3.394	*16.9*	*30*	

The following samples were analyzed in this batch:

12061024-01B	12061024-02B	12061024-03B
12061024-04B	12061024-05B	12061024-06B
12061024-07B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42093** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-42093-42093** Units: **mg/Kg** Analysis Date: **7/2/2012 05:30 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018770** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.17								
Molybdenum	ND	0.42								
Nickel	0.02248	0.42								J
Vanadium	ND	0.42								

LCS Sample ID: **LCS-42093-42093** Units: **mg/Kg** Analysis Date: **7/2/2012 05:36 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018771** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	7.407	0.17	8.333	0	88.9	80-120	0			
Molybdenum	7.208	0.42	8.333	0	86.5	80-120	0			
Nickel	7.116	0.42	8.333	0	85.4	80-120	0			
Vanadium	7.488	0.42	8.333	0	89.8	80-120	0			

MS Sample ID: **1206950-01BMS** Units: **mg/Kg** Analysis Date: **7/2/2012 07:14 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018787** Prep Date: **7/2/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	5.161	0.68	6.821	0.5886	67	80-120	0			S
Nickel	18.51	0.68	6.821	14.81	54.3	80-120	0			S
Vanadium	22.5	0.68	6.821	19.8	39.5	80-120	0			S

MSD Sample ID: **1206950-01BMSD** Units: **mg/Kg** Analysis Date: **7/2/2012 07:20 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018788** Prep Date: **7/2/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.261	0.77	7.68	0.5886	73.9	80-120	5.161	19.3	25	S
Nickel	19.2	0.77	7.68	14.81	57.2	80-120	18.51	3.65	25	S
Vanadium	26.36	0.77	7.68	19.8	85.4	80-120	22.5	15.8	25	

The following samples were analyzed in this batch: 12061024-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42142** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 12:23 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020726** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.0174	0.25								J

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 03:16 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020995** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Nickel	0.00747	0.25								J
Vanadium	ND	0.25								

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/6/2012 12:11 PM**
Client ID: Run ID: **ICPMS1_120706A** SeqNo: **2021716** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.009415	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 12:33 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020728** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	8.925	0.25	10	0	89.2	80-120	0			

LCS Sample ID: **LCS-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 03:26 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020997** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	8.805	0.10	10	0	88	80-120	0			
Nickel	8.45	0.25	10	0	84.5	80-120	0			
Vanadium	8.455	0.25	10	0	84.6	80-120	0			

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/5/2012 01:05 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS2_120705A** SeqNo: **2020734** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	13.51	1.6	15.55	0.3045	84.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42142** Instrument ID **ICPMS2** Method: **SW6020A**

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/5/2012 04:13 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS2_120705A** SeqNo: **2021132** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	17.2	1.6	7.776	6.136	142	80-120	0			S

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/6/2012 12:35 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS1_120706A** SeqNo: **2021722** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	11.53	0.62	7.776	0.1267	147	80-120	0			S
Vanadium	17.16	1.6	7.776	6.309	140	80-120	0			S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/5/2012 01:11 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS2_120705A** SeqNo: **2020735** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	11.15	1.5	15.43	0.3045	70.3	80-120	13.51	19.2	25	S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/5/2012 04:18 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS2_120705A** SeqNo: **2021133** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	15.52	1.5	7.716	6.136	122	80-120	17.2	10.3	25	S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/6/2012 12:41 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **ICPMS1_120706A** SeqNo: **2021723** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	9.772	0.62	7.716	0.1267	125	80-120	11.53	16.5	25	S
Vanadium	15.46	1.5	7.716	6.309	119	80-120	17.16	10.4	25	

The following samples were analyzed in this batch:

12061024-02B	12061024-03B	12061024-04B
12061024-05B	12061024-06B	12061024-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 08:16 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021522** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2890*	0	*5000*	0	*57.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4213*	0	*5000*	0	*84.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4643*	0	*5000*	0	*92.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4089*	0	*5000*	0	*81.8*	*37-107*	0			
Surr: Phenol-d6	*3859*	0	*5000*	0	*77.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 05:39 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021518** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1553	50	2000	0	77.6	45-105	0			
Acenaphthene	1602	50	2000	0	80.1	45-110	0			
Acenaphthylene	1731	50	2000	0	86.6	45-105	0			
Anthracene	1780	50	2000	0	89	55-105	0			
Benzo(a)anthracene	1778	50	2000	0	88.9	50-110	0			
Benzo(a)pyrene	1829	50	2000	0	91.4	50-110	0			
Benzo(b)fluoranthene	1964	50	2000	0	98.2	45-115	0			
Benzo(g,h,i)perylene	1652	50	2000	0	82.6	40-125	0			
Benzo(k)fluoranthene	1947	50	2000	0	97.4	45-115	0			
Chrysene	1822	50	2000	0	91.1	55-110	0			
Dibenzo(a,h)anthracene	1580	50	2000	0	79	40-125	0			
Fluoranthene	1842	50	2000	0	92.1	55-115	0			
Fluorene	1745	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1638	50	2000	0	81.9	40-120	0			
Naphthalene	1544	50	2000	0	77.2	40-105	0			
Phenanthrene	1758	50	2000	0	87.9	50-110	0			
Pyrene	1808	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4066*	0	*5000*	0	*81.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4770*	0	*5000*	0	*95.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4289*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4406*	0	*5000*	0	*88.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*4105*	0	*5000*	0	*82.1*	*37-107*	0			
Surr: Phenol-d6	*4071*	0	*5000*	0	*81.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **12061024-04B MS** Units: **µg/Kg** Analysis Date: **7/5/2012 06:21 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **SVMS5_120705A** SeqNo: **2021519** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1341	50	1997	0	67.2	45-105	0			
Acenaphthene	1487	50	1997	0	74.4	45-110	0			
Acenaphthylene	1621	50	1997	0	81.2	45-105	0			
Anthracene	1641	50	1997	0	82.2	55-105	0			
Benzo(a)anthracene	1718	50	1997	130	79.5	50-110	0			
Benzo(a)pyrene	1680	50	1997	130	77.6	50-110	0			
Benzo(b)fluoranthene	1792	50	1997	142.6	82.6	45-115	0			
Benzo(g,h,i)perylene	1239	50	1997	79.57	58.1	40-125	0			
Benzo(k)fluoranthene	2023	50	1997	161.1	93.2	45-115	0			
Chrysene	1669	50	1997	123.2	77.4	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1997	0	58.9	40-125	0			
Fluoranthene	1764	50	1997	180.5	79.3	55-115	0			
Fluorene	1632	50	1997	0	81.7	50-110	0			
Indeno(1,2,3-cd)pyrene	1259	50	1997	65.01	59.8	40-120	0			
Naphthalene	1371	50	1997	0	68.6	40-105	0			
Phenanthrene	1693	50	1997	74.71	81.1	50-110	0			
Pyrene	1772	50	1997	209.6	78.3	45-125	0			
Surr: 2,4,6-Tribromophenol	*3864*	0	*4993*	0	*77.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4190*	0	*4993*	0	*83.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3588*	0	*4993*	0	*71.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3456*	0	*4993*	0	*69.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3454*	0	*4993*	0	*69.2*	*37-107*	0			
Surr: Phenol-d6	*3320*	0	*4993*	0	*66.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **12061024-04B MSD** Units: **µg/Kg** Analysis Date: **7/5/2012 07:01 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **SVMS5_120705A** SeqNo: **2021520** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1471	50	1989	0	74	45-105	1341	9.26	30	
Acenaphthene	1401	50	1989	0	70.4	45-110	1487	5.97	30	
Acenaphthylene	1502	50	1989	0	75.5	45-105	1621	7.59	30	
Anthracene	1483	50	1989	0	74.6	55-105	1641	10.1	30	
Benzo(a)anthracene	1698	50	1989	130	78.8	50-110	1718	1.2	30	
Benzo(a)pyrene	1612	50	1989	130	74.5	50-110	1680	4.13	30	
Benzo(b)fluoranthene	1836	50	1989	142.6	85.1	45-115	1792	2.42	30	
Benzo(g,h,i)perylene	1026	50	1989	79.57	47.6	40-125	1239	18.9	30	
Benzo(k)fluoranthene	1946	50	1989	161.1	89.7	45-115	2023	3.89	30	
Chrysene	1544	50	1989	123.2	71.4	55-110	1669	7.82	30	
Dibenzo(a,h)anthracene	1012	50	1989	0	50.8	40-125	1176	15	30	
Fluoranthene	1638	50	1989	180.5	73.3	55-115	1764	7.41	30	
Fluorene	1548	50	1989	0	77.8	50-110	1632	5.27	30	
Indeno(1,2,3-cd)pyrene	1073	50	1989	65.01	50.7	40-120	1259	15.9	30	
Naphthalene	1316	50	1989	0	66.2	40-105	1371	4.09	30	
Phenanthrene	1726	50	1989	74.71	83	50-110	1693	1.89	30	
Pyrene	1700	50	1989	209.6	74.9	45-125	1772	4.17	30	
Surr: 2,4,6-Tribromophenol	*3488*	0	*4974*	0	*70.1*	*34-140*	3864	*10.2*	*40*	
Surr: 2-Fluorobiphenyl	*3843*	0	*4974*	0	*77.3*	*12-100*	4190	*8.64*	*40*	
Surr: 2-Fluorophenol	*3675*	0	*4974*	0	*73.9*	*33-117*	3588	*2.39*	*40*	
Surr: 4-Terphenyl-d14	*3287*	0	*4974*	0	*66.1*	*25-137*	3456	*5.02*	*40*	
Surr: Nitrobenzene-d5	*3295*	0	*4974*	0	*66.2*	*37-107*	3454	*4.72*	*40*	
Surr: Phenol-d6	*3432*	0	*4974*	0	*69*	*40-106*	3320	*3.31*	*40*	

The following samples were analyzed in this batch:

12061024-01B	12061024-02B	12061024-03B
12061024-04B	12061024-05B	12061024-06B
12061024-07B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 12:09 PM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020040** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	197	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: 4-Bromofluorobenzene	*975.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 03:54 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020243** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	101	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1071*	0	*1000*	0	*107*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1047*	0	*1000*	0	*105*	*70-130*	0
Surr: Dibromofluoromethane	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*1060*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 04:30 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020623** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1039*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 04:24 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021111** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	151.5	200								J
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	671	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*976.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*1018*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*962.5*	0	*1000*	0	*96.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 10:52 AM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020039** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	906	30	1000	0	90.6	75-125	0			
1,1,1-Trichloroethane	940.5	30	1000	0	94	70-135	0			
1,1,2,2-Tetrachloroethane	882.5	30	1000	0	88.2	55-130	0			
1,1,2-Trichloroethane	928.5	30	1000	0	92.8	60-125	0			
1,1-Dichloroethane	926.5	30	1000	0	92.6	75-125	0			
1,1-Dichloroethene	963	30	1000	0	96.3	65-135	0			
1,2,3-Trichlorobenzene	878	30	1000	0	87.8	60-135	0			
1,2,3-Trichloropropane	860	30	1000	0	86	65-130	0			
1,2,3-Trimethylbenzene	909.5	30	1000	0	91	65-135	0			
1,2,4-Trichlorobenzene	886	30	1000	0	88.6	65-130	0			
1,2,4-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	753.5	30	1000	0	75.4	40-135	0			
1,2-Dibromoethane	873	30	1000	0	87.3	70-125	0			
1,2-Dichlorobenzene	898.5	30	1000	0	89.8	75-120	0			
1,2-Dichloroethane	899	30	1000	0	89.9	70-135	0			
1,2-Dichloropropane	920.5	30	1000	0	92	70-120	0			
1,3,5-Trimethylbenzene	902	30	1000	0	90.2	65-135	0			
1,3-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
1,4-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
2-Butanone	829.5	200	1000	0	83	30-160	0			
2-Hexanone	815	30	1000	0	81.5	45-145	0			
4-Methyl-2-pentanone	874	30	1000	0	87.4	45-145	0			
Acetone	823	100	1000	0	82.3	20-160	0			B
Acrylonitrile	784.5	100	1000	0	78.4	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	929.5	30	1000	0	93	65-120	0			
Bromochloromethane	950	30	1000	0	95	70-125	0			
Bromodichloromethane	929.5	30	1000	0	93	70-130	0			
Bromoform	810.5	30	1000	0	81	55-135	0			
Bromomethane	1138	75	1000	0	114	30-160	0			
Carbon disulfide	940	30	1000	0	94	45-160	0			
Carbon tetrachloride	929.5	30	1000	0	93	65-135	0			
Chlorobenzene	909	30	1000	0	90.9	75-125	0			
Chloroethane	1044	100	1000	0	104	40-155	0			
Chloroform	946.5	30	1000	0	94.6	70-125	0			
Chloromethane	1006	100	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1078	30	1000	0	108	65-125	0			
cis-1,3-Dichloropropene	959.5	30	1000	0	96	70-125	0			
Dibromochloromethane	888.5	30	1000	0	88.8	65-135	0			
Dibromomethane	924	30	1000	0	92.4	75-130	0			
Dichlorodifluoromethane	998.5	30	1000	0	99.8	35-135	0			
Ethylbenzene	939.5	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	957	30	1000	0	95.7	70-135	0
Isopropylbenzene	907	30	1000	0	90.7	75-130	0
m,p-Xylene	1792	60	2000	0	89.6	80-125	0
Methyl tert-butyl ether	950	30	1000	0	95	75-125	0
Methylene chloride	965	30	1000	0	96.5	55-145	0
Naphthalene	797	100	1000	0	79.7	40-140	0
n-Butylbenzene	890	30	1000	0	89	65-140	0
n-Propylbenzene	874.5	30	1000	0	87.4	65-135	0
o-Xylene	892.5	30	1000	0	89.2	75-125	0
p-Isopropyltoluene	882	30	1000	0	88.2	75-135	0
sec-Butylbenzene	908	30	1000	0	90.8	65-130	0
Styrene	913.5	30	1000	0	91.4	75-125	0
tert-Butylbenzene	954.5	30	1000	0	95.4	65-130	0
Tetrachloroethene	916.5	30	1000	0	91.6	64-140	0
Tetrahydrofuran	817.5	200	1000	0	81.8	70-135	0
Toluene	970	30	1000	0	97	70-125	0
trans-1,2-Dichloroethene	965.5	30	1000	0	96.6	65-135	0
trans-1,3-Dichloropropene	932	30	1000	0	93.2	65-125	0
trans-1,4-Dichloro-2-butene	782	30	1000	0	78.2	70-135	0
Trichloroethene	936.5	30	1000	0	93.6	75-125	0
Trichlorofluoromethane	970	30	1000	0	97	25-185	0
Vinyl chloride	967.5	30	1000	0	96.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*975*	0	*1000*	0	*97.5*	*70-130*	0
Surr: 4-Bromofluorobenzene	*988*	0	*1000*	0	*98.8*	*70-130*	0
Surr: Dibromofluoromethane	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 02:38 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020242** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1170	30	1000	0	117	75-125	0			
1,1,1-Trichloroethane	1182	30	1000	0	118	70-135	0			
1,1,2,2-Tetrachloroethane	1100	30	1000	0	110	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	1050	30	1000	0	105	75-125	0			
1,1-Dichloroethene	1110	30	1000	0	111	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1066	30	1000	0	107	65-130	0			
1,2,3-Trimethylbenzene	1073	30	1000	0	107	65-135	0			
1,2,4-Trichlorobenzene	1082	30	1000	0	108	65-130	0			
1,2,4-Trimethylbenzene	1061	30	1000	0	106	65-135	0			
1,2-Dibromo-3-chloropropane	1110	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1110	30	1000	0	111	70-125	0			
1,2-Dichlorobenzene	1085	30	1000	0	108	75-120	0			
1,2-Dichloroethane	1053	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1104	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1110	30	1000	0	111	65-135	0			
1,3-Dichlorobenzene	1092	30	1000	0	109	70-125	0			
1,4-Dichlorobenzene	1098	30	1000	0	110	70-125	0			
2-Butanone	1283	200	1000	0	128	30-160	0			
2-Hexanone	1086	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1546	30	1000	0	155	45-145	0			S
Acetone	1171	100	1000	0	117	20-160	0			B
Acrylonitrile	989	100	1000	0	98.9	70-135	0			
Benzene	1074	30	1000	0	107	75-125	0			
Bromobenzene	1032	30	1000	0	103	65-120	0			
Bromochloromethane	1058	30	1000	0	106	70-125	0			
Bromodichloromethane	1136	30	1000	0	114	70-130	0			
Bromoform	1019	30	1000	0	102	55-135	0			
Bromomethane	1094	75	1000	0	109	30-160	0			
Carbon disulfide	1000	30	1000	0	100	45-160	0			
Carbon tetrachloride	1048	30	1000	0	105	65-135	0			
Chlorobenzene	1134	30	1000	0	113	75-125	0			
Chloroethane	996.5	100	1000	0	99.6	40-155	0			
Chloroform	1132	30	1000	0	113	70-125	0			
Chloromethane	947.5	100	1000	0	94.8	50-130	0			
cis-1,2-Dichloroethene	1068	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1163	30	1000	0	116	70-125	0			
Dibromochloromethane	1176	30	1000	0	118	65-135	0			
Dibromomethane	1062	30	1000	0	106	75-130	0			
Dichlorodifluoromethane	810.5	30	1000	0	81	35-135	0			
Ethylbenzene	1134	30	1000	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	1130	30	1000	0	113	70-135	0
Isopropylbenzene	1126	30	1000	0	113	75-130	0
m,p-Xylene	2255	60	2000	0	113	80-125	0
Methyl tert-butyl ether	965.5	30	1000	0	96.6	75-125	0
Methylene chloride	1048	30	1000	0	105	55-145	0
Naphthalene	1054	100	1000	0	105	40-140	0
n-Butylbenzene	1188	30	1000	0	119	65-140	0
n-Propylbenzene	1107	30	1000	0	111	65-135	0
o-Xylene	1112	30	1000	0	111	75-125	0
p-Isopropyltoluene	1131	30	1000	0	113	75-135	0
sec-Butylbenzene	1135	30	1000	0	114	65-130	0
Styrene	1136	30	1000	0	114	75-125	0
tert-Butylbenzene	1099	30	1000	0	110	65-130	0
Tetrachloroethene	1195	30	1000	0	120	64-140	0
Tetrahydrofuran	931.5	200	1000	0	93.2	70-135	0
Toluene	1106	30	1000	0	111	70-125	0
trans-1,2-Dichloroethene	1090	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1184	30	1000	0	118	65-125	0
trans-1,4-Dichloro-2-butene	1044	30	1000	0	104	70-135	0
Trichloroethene	1141	30	1000	0	114	75-125	0
Trichlorofluoromethane	1000	30	1000	0	100	25-185	0
Vinyl chloride	925	30	1000	0	92.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1034*	0	*1000*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*1059*	0	*1000*	0	*106*	*70-130*	0
Surr: Toluene-d8	*1074*	0	*1000*	0	*107*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 03:15 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020621** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1062	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1104	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	962	30	1000	0	96.2	55-130	0			
1,1,2-Trichloroethane	960.5	30	1000	0	96	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1067	30	1000	0	107	65-135	0			
1,2,3-Trichlorobenzene	965.5	30	1000	0	96.6	60-135	0			
1,2,3-Trichloropropane	962.5	30	1000	0	96.2	65-130	0			
1,2,3-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2,4-Trichlorobenzene	994	30	1000	0	99.4	65-130	0			
1,2,4-Trimethylbenzene	964	30	1000	0	96.4	65-135	0			
1,2-Dibromo-3-chloropropane	909	30	1000	0	90.9	40-135	0			
1,2-Dibromoethane	1015	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1011	30	1000	0	101	75-120	0			
1,2-Dichloroethane	983.5	30	1000	0	98.4	70-135	0			
1,2-Dichloropropane	1014	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	991.5	30	1000	0	99.2	65-135	0			
1,3-Dichlorobenzene	1018	30	1000	0	102	70-125	0			
1,4-Dichlorobenzene	1022	30	1000	0	102	70-125	0			
2-Butanone	1034	200	1000	0	103	30-160	0			
2-Hexanone	936	30	1000	0	93.6	45-145	0			
4-Methyl-2-pentanone	1326	30	1000	0	133	45-145	0			
Acetone	1194	100	1000	0	119	20-160	0			
Acrylonitrile	914	100	1000	0	91.4	70-135	0			
Benzene	997	30	1000	0	99.7	75-125	0			
Bromobenzene	938.5	30	1000	0	93.8	65-120	0			
Bromochloromethane	1018	30	1000	0	102	70-125	0			
Bromodichloromethane	1028	30	1000	0	103	70-130	0			
Bromoform	897.5	30	1000	0	89.8	55-135	0			
Bromomethane	1099	75	1000	0	110	30-160	0			
Carbon disulfide	1084	30	1000	0	108	45-160	0			
Carbon tetrachloride	986	30	1000	0	98.6	65-135	0			
Chlorobenzene	1044	30	1000	0	104	75-125	0			
Chloroethane	894.5	100	1000	0	89.4	40-155	0			
Chloroform	1023	30	1000	0	102	70-125	0			
Chloromethane	942.5	100	1000	0	94.2	50-130	0			
cis-1,2-Dichloroethene	991.5	30	1000	0	99.2	65-125	0			
cis-1,3-Dichloropropene	1018	30	1000	0	102	70-125	0			
Dibromochloromethane	1032	30	1000	0	103	65-135	0			
Dibromomethane	1011	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	752	30	1000	0	75.2	35-135	0			
Ethylbenzene	1005	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	999.5	30	1000	0	100	70-135	0
Isopropylbenzene	1030	30	1000	0	103	75-130	0
m,p-Xylene	2041	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1024	30	1000	0	102	75-125	0
Methylene chloride	1000	30	1000	0	100	55-145	0
Naphthalene	876.5	100	1000	0	87.6	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	999.5	30	1000	0	100	65-135	0
o-Xylene	1002	30	1000	0	100	75-125	0
p-Isopropyltoluene	1021	30	1000	0	102	75-135	0
sec-Butylbenzene	1010	30	1000	0	101	65-130	0
Styrene	1039	30	1000	0	104	75-125	0
tert-Butylbenzene	974.5	30	1000	0	97.4	65-130	0
Tetrachloroethene	1098	30	1000	0	110	64-140	0
Tetrahydrofuran	888	200	1000	0	88.8	70-135	0
Toluene	998	30	1000	0	99.8	70-125	0
trans-1,2-Dichloroethene	1120	30	1000	0	112	65-135	0
trans-1,3-Dichloropropene	998	30	1000	0	99.8	65-125	0
trans-1,4-Dichloro-2-butene	750.5	30	1000	0	75	70-135	0
Trichloroethene	1070	30	1000	0	107	75-125	0
Trichlorofluoromethane	938	30	1000	0	93.8	25-185	0
Vinyl chloride	888.5	30	1000	0	88.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1036*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 02:20 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021110** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	932	30	1000	0	93.2	75-125	0			
1,1,1-Trichloroethane	1022	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1050	30	1000	0	105	55-130	0			
1,1,2-Trichloroethane	940	30	1000	0	94	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1100	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	1013	30	1000	0	101	60-135	0			
1,2,3-Trichloropropane	1059	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2,4-Trichlorobenzene	940	30	1000	0	94	65-130	0			
1,2,4-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2-Dibromo-3-chloropropane	1107	30	1000	0	111	40-135	0			
1,2-Dibromoethane	946	30	1000	0	94.6	70-125	0			
1,2-Dichlorobenzene	921	30	1000	0	92.1	75-120	0			
1,2-Dichloroethane	912	30	1000	0	91.2	70-135	0			
1,2-Dichloropropane	892.5	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	961.5	30	1000	0	96.2	65-135	0			
1,3-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
1,4-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
2-Butanone	1562	200	1000	0	156	30-160	0			
2-Hexanone	1268	30	1000	0	127	45-145	0			
4-Methyl-2-pentanone	1226	30	1000	0	123	45-145	0			
Acetone	1759	100	1000	0	176	20-160	0			BS
Acrylonitrile	1158	100	1000	0	116	70-135	0			
Benzene	950	30	1000	0	95	75-125	0			
Bromobenzene	836.5	30	1000	0	83.6	65-120	0			
Bromochloromethane	975.5	30	1000	0	97.6	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	845.5	30	1000	0	84.6	55-135	0			
Bromomethane	1018	75	1000	0	102	30-160	0			
Carbon disulfide	1186	30	1000	0	119	45-160	0			
Carbon tetrachloride	1000	30	1000	0	100	65-135	0			
Chlorobenzene	930.5	30	1000	0	93	75-125	0			
Chloroethane	1267	100	1000	0	127	40-155	0			
Chloroform	1006	30	1000	0	101	70-125	0			
Chloromethane	1264	100	1000	0	126	50-130	0			
cis-1,2-Dichloroethene	1040	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	972	30	1000	0	97.2	70-125	0			
Dibromochloromethane	845	30	1000	0	84.5	65-135	0			
Dibromomethane	971.5	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1146	30	1000	0	115	35-135	0			
Ethylbenzene	994	30	1000	0	99.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101**	Instrument ID **VMS5**		Method: **SW8260**					
Hexachloroethane	863	30	1000	0	86.3	70-135	0	
Isopropylbenzene	971.5	30	1000	0	97.2	75-130	0	
m,p-Xylene	1846	60	2000	0	92.3	80-125	0	
Methyl tert-butyl ether	1038	30	1000	0	104	75-125	0	
Methylene chloride	1056	30	1000	0	106	55-145	0	
Naphthalene	988.5	100	1000	0	98.8	40-140	0	
n-Butylbenzene	899	30	1000	0	89.9	65-140	0	
n-Propylbenzene	927	30	1000	0	92.7	65-135	0	
o-Xylene	912.5	30	1000	0	91.2	75-125	0	
p-Isopropyltoluene	887.5	30	1000	0	88.8	75-135	0	
sec-Butylbenzene	976	30	1000	0	97.6	65-130	0	
Styrene	931	30	1000	0	93.1	75-125	0	
tert-Butylbenzene	983.5	30	1000	0	98.4	65-130	0	
Tetrachloroethene	1024	30	1000	0	102	64-140	0	
Tetrahydrofuran	1916	200	1000	0	192	70-135	0	S
Toluene	1001	30	1000	0	100	70-125	0	
trans-1,2-Dichloroethene	1060	30	1000	0	106	65-135	0	
trans-1,3-Dichloropropene	933	30	1000	0	93.3	65-125	0	
trans-1,4-Dichloro-2-butene	706	30	1000	0	70.6	70-135	0	
Trichloroethene	981.5	30	1000	0	98.2	75-125	0	
Trichlorofluoromethane	1160	30	1000	0	116	25-185	0	
Vinyl chloride	1190	30	1000	0	119	60-125	0	
Surr: 1,2-Dichloroethane-d4	*960*	0	*1000*	0	*96*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0	
Surr: Dibromofluoromethane	*941*	0	*1000*	0	*94.1*	*70-130*	0	
Surr: Toluene-d8	*980.5*	0	*1000*	0	*98*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/4/2012 12:53 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **VMS7_120703B** SeqNo: **2020648** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	5165	160	5452	0	94.8	75-125	0			
1,1,1-Trichloroethane	4705	160	5452	0	86.3	70-135	0			
1,1,2,2-Tetrachloroethane	5430	160	5452	0	99.6	55-130	0			
1,1,2-Trichloroethane	5084	160	5452	0	93.2	60-125	0			
1,1-Dichloroethane	4454	160	5452	0	81.7	75-125	0			
1,1-Dichloroethene	3552	160	5452	0	65.2	65-135	0			
1,2,3-Trichlorobenzene	4157	160	5452	0	76.2	60-135	0			
1,2,3-Trichloropropane	5443	160	5452	0	99.8	65-130	0			
1,2,3-Trimethylbenzene	4628	160	5452	0	84.9	65-135	0			
1,2,4-Trichlorobenzene	4048	160	5452	0	74.2	65-130	0			
1,2,4-Trimethylbenzene	4707	160	5452	0	86.4	65-135	0			
1,2-Dibromo-3-chloropropane	4890	160	5452	0	89.7	40-135	0			
1,2-Dibromoethane	5433	160	5452	0	99.6	70-125	0			
1,2-Dichlorobenzene	4778	160	5452	0	87.6	75-120	0			
1,2-Dichloroethane	5013	160	5452	0	92	70-135	0			
1,2-Dichloropropane	4991	160	5452	0	91.6	70-120	0			
1,3,5-Trimethylbenzene	4762	160	5452	0	87.4	65-135	0			
1,3-Dichlorobenzene	4675	160	5452	0	85.8	70-125	0			
1,4-Dichlorobenzene	4609	160	5452	0	84.6	70-125	0			
2-Butanone	6755	550	5452	0	124	30-160	0			
2-Hexanone	6212	160	5452	0	114	45-145	0			
4-Methyl-2-pentanone	8581	160	5452	0	157	45-145	0			S
Acetone	10930	550	5452	0	200	20-160	0			S
Acrylonitrile	5239	160	5452	0	96.1	70-135	0			
Benzene	4762	160	5452	0	87.4	75-125	0			
Bromobenzene	4748	160	5452	0	87.1	65-120	0			
Bromochloromethane	4677	160	5452	0	85.8	70-125	0			
Bromodichloromethane	4969	160	5452	0	91.2	70-130	0			
Bromoform	4585	160	5452	0	84.1	55-135	0			
Bromomethane	2404	160	5452	0	44.1	30-160	0			
Carbon disulfide	3410	160	5452	0	62.6	45-160	0			
Carbon tetrachloride	3914	160	5452	0	71.8	65-135	0			
Chlorobenzene	5114	160	5452	0	93.8	75-125	0			
Chloroethane	3852	550	5452	0	70.6	40-155	0			
Chloroform	4857	160	5452	0	89.1	70-125	0			
Chloromethane	3435	160	5452	0	63	50-130	0			
cis-1,2-Dichloroethene	4492	160	5452	0	82.4	65-125	0			
cis-1,3-Dichloropropene	4607	160	5452	0	84.5	70-125	0			
Dibromochloromethane	5130	160	5452	0	94.1	65-135	0			
Dibromomethane	5130	160	5452	0	94.1	75-130	0			
Dichlorodifluoromethane	1265	160	5452	0	23.2	35-135	0			S
Ethylbenzene	4977	160	5452	0	91.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4181	160	5452	0	76.7	70-135	0	
Isopropylbenzene	4931	160	5452	0	90.4	75-130	0	
m,p-Xylene	9889	330	10900	0	90.7	80-125	0	
Methyl tert-butyl ether	5970	160	5452	0	110	75-125	0	
Methylene chloride	4716	160	5452	850.5	70.9	55-145	0	
Naphthalene	4184	550	5452	0	76.8	40-140	0	
n-Butylbenzene	4042	160	5452	0	74.2	65-140	0	
n-Propylbenzene	4650	160	5452	0	85.3	65-135	0	
o-Xylene	4896	160	5452	0	89.8	75-125	0	
p-Isopropyltoluene	4170	160	5452	0	76.5	75-135	0	
sec-Butylbenzene	4571	160	5452	0	83.8	65-130	0	
Styrene	3410	160	5452	0	62.6	75-125	0	S
tert-Butylbenzene	4645	160	5452	0	85.2	65-130	0	
Tetrachloroethene	4928	160	5452	0	90.4	64-140	0	
Tetrahydrofuran	5383	550	5452	0	98.8	70-135	0	
Toluene	4746	160	5452	0	87	70-125	0	
trans-1,2-Dichloroethene	4160	160	5452	0	76.3	65-135	0	
trans-1,3-Dichloropropene	4642	160	5452	0	85.2	65-125	0	
trans-1,4-Dichloro-2-butene	3827	160	5452	0	70.2	70-135	0	
Trichloroethene	4906	160	5452	0	90	75-125	0	
Trichlorofluoromethane	1780	160	5452	0	32.6	25-185	0	
Vinyl chloride	2827	160	5452	0	51.8	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*5509*	0	*5452*	0	*101*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5700*	0	*5452*	0	*105*	*70-130*	0	
Surr: Dibromofluoromethane	*5536*	0	*5452*	0	*102*	*70-130*	0	
Surr: Toluene-d8	*5577*	0	*5452*	0	*102*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/5/2012 10:51 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **VMS5_120705A** SeqNo: **2021104** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4503	160	5452	0	82.6	75-125	0			
1,1,1-Trichloroethane	5075	160	5452	0	93.1	70-135	0			
1,1,2,2-Tetrachloroethane	4397	160	5452	0	80.6	55-130	0			
1,1,2-Trichloroethane	4754	160	5452	0	87.2	60-125	0			
1,1-Dichloroethane	4890	160	5452	0	89.7	75-125	0			
1,1-Dichloroethene	5517	160	5452	0	101	65-135	0			
1,2,3-Trichlorobenzene	5037	160	5452	0	92.4	60-135	0			
1,2,3-Trichloropropane	4538	160	5452	0	83.2	65-130	0			
1,2,3-Trimethylbenzene	4830	160	5452	0	88.6	65-135	0			
1,2,4-Trichlorobenzene	4781	160	5452	0	87.7	65-130	0			
1,2,4-Trimethylbenzene	4560	160	5452	0	83.6	65-135	0			
1,2-Dibromo-3-chloropropane	4132	160	5452	0	75.8	40-135	0			
1,2-Dibromoethane	4386	160	5452	0	80.4	70-125	0			
1,2-Dichlorobenzene	4901	160	5452	0	89.9	75-120	0			
1,2-Dichloroethane	4784	160	5452	0	87.8	70-135	0			
1,2-Dichloropropane	4536	160	5452	0	83.2	70-120	0			
1,3,5-Trimethylbenzene	4672	160	5452	0	85.7	65-135	0			
1,3-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
1,4-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
2-Butanone	6130	550	5452	0	112	30-160	0			B
2-Hexanone	4468	160	5452	0	82	45-145	0			
4-Methyl-2-pentanone	4707	160	5452	0	86.4	45-145	0			
Acetone	7534	550	5452	0	138	20-160	0			B
Acrylonitrile	4833	160	5452	0	88.6	70-135	0			
Benzene	4808	160	5452	0	88.2	75-125	0			
Bromobenzene	4081	160	5452	0	74.8	65-120	0			
Bromochloromethane	4969	160	5452	0	91.2	70-125	0			
Bromodichloromethane	4489	160	5452	0	82.4	70-130	0			
Bromoform	3552	160	5452	0	65.2	55-135	0			
Bromomethane	5018	160	5452	0	92	30-160	0			
Carbon disulfide	5896	160	5452	0	108	45-160	0			
Carbon tetrachloride	5043	160	5452	0	92.5	65-135	0			
Chlorobenzene	4615	160	5452	0	84.6	75-125	0			
Chloroethane	6417	550	5452	0	118	40-155	0			
Chloroform	5225	160	5452	0	95.8	70-125	0			
Chloromethane	6024	160	5452	0	110	50-130	0			
cis-1,2-Dichloroethene	4893	160	5452	0	89.8	65-125	0			
cis-1,3-Dichloropropene	4457	160	5452	0	81.8	70-125	0			
Dibromochloromethane	3980	160	5452	0	73	65-135	0			
Dibromomethane	4713	160	5452	0	86.4	75-130	0			
Dichlorodifluoromethane	5626	160	5452	0	103	35-135	0			
Ethylbenzene	4827	160	5452	0	88.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4326	160	5452	0	79.4	70-135	0	
Isopropylbenzene	4846	160	5452	0	88.9	75-130	0	
m,p-Xylene	9235	330	10900	0	84.7	80-125	0	
Methyl tert-butyl ether	5174	160	5452	0	94.9	75-125	0	
Methylene chloride	5454	160	5452	0	100	55-145	0	
Naphthalene	4318	550	5452	0	79.2	40-140	0	
n-Butylbenzene	4571	160	5452	0	83.8	65-140	0	
n-Propylbenzene	4544	160	5452	0	83.4	65-135	0	
o-Xylene	4500	160	5452	0	82.6	75-125	0	
p-Isopropyltoluene	4672	160	5452	0	85.7	75-135	0	
sec-Butylbenzene	4838	160	5452	0	88.8	65-130	0	
Styrene	4751	160	5452	0	87.2	75-125	0	
tert-Butylbenzene	4811	160	5452	0	88.2	65-130	0	
Tetrachloroethene	5002	160	5452	0	91.8	64-140	0	
Tetrahydrofuran	4986	550	5452	0	91.4	70-135	0	
Toluene	4964	160	5452	0	91	70-125	0	
trans-1,2-Dichloroethene	5427	160	5452	0	99.6	65-135	0	
trans-1,3-Dichloropropene	4100	160	5452	0	75.2	65-125	0	
trans-1,4-Dichloro-2-butene	2257	160	5452	0	41.4	70-135	0	S
Trichloroethene	4961	160	5452	0	91	75-125	0	
Trichlorofluoromethane	5561	160	5452	0	102	25-185	0	
Vinyl chloride	5634	160	5452	0	103	60-125	0	
Surr: 1,2-Dichloroethane-d4	*4896*	0	*5452*	0	*89.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5206*	0	*5452*	0	*95.5*	*70-130*	0	
Surr: Dibromofluoromethane	*5214*	0	*5452*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*5204*	0	*5452*	0	*95.4*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MSD Sample ID: **12061024-04A MSD** Units: **µg/Kg** Analysis Date: **7/5/2012 11:16 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **VMS5_120705A** SeqNo: **2021105** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4598	160	5452	0	84.4	75-125	4503	2.1	30	
1,1,1-Trichloroethane	5084	160	5452	0	93.2	70-135	5075	0.161	30	
1,1,2,2-Tetrachloroethane	4517	160	5452	0	82.8	55-130	4397	2.69	30	
1,1,2-Trichloroethane	4710	160	5452	0	86.4	60-125	4754	0.922	30	
1,1-Dichloroethane	4846	160	5452	0	88.9	75-125	4890	0.896	30	
1,1-Dichloroethene	5463	160	5452	0	100	65-135	5517	0.993	30	
1,2,3-Trichlorobenzene	5285	160	5452	0	97	60-135	5037	4.81	30	
1,2,3-Trichloropropane	4757	160	5452	0	87.2	65-130	4538	4.69	30	
1,2,3-Trimethylbenzene	4816	160	5452	0	88.4	65-135	4830	0.283	30	
1,2,4-Trichlorobenzene	5043	160	5452	0	92.5	65-130	4781	5.33	30	
1,2,4-Trimethylbenzene	4688	160	5452	0	86	65-135	4560	2.77	30	
1,2-Dibromo-3-chloropropane	4419	160	5452	0	81	40-135	4132	6.69	30	
1,2-Dibromoethane	4427	160	5452	0	81.2	70-125	4386	0.928	30	
1,2-Dichlorobenzene	4827	160	5452	0	88.6	75-120	4901	1.51	30	
1,2-Dichloroethane	4669	160	5452	0	85.6	70-135	4784	2.42	30	
1,2-Dichloropropane	4609	160	5452	0	84.6	70-120	4536	1.61	30	
1,3,5-Trimethylbenzene	4789	160	5452	0	87.8	65-135	4672	2.48	30	
1,3-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
1,4-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
2-Butanone	6656	550	5452	0	122	30-160	6130	8.23	30	B
2-Hexanone	4688	160	5452	0	86	45-145	4468	4.82	30	
4-Methyl-2-pentanone	4732	160	5452	0	86.8	45-145	4707	0.52	30	
Acetone	8311	550	5452	0	152	20-160	7534	9.81	30	B
Acrylonitrile	5056	160	5452	0	92.8	70-135	4833	4.52	30	
Benzene	4836	160	5452	0	88.7	75-125	4808	0.565	30	
Bromobenzene	4051	160	5452	0	74.3	65-120	4081	0.738	30	
Bromochloromethane	4686	160	5452	0	86	70-125	4969	5.87	30	
Bromodichloromethane	4538	160	5452	0	83.2	70-130	4489	1.09	30	
Bromoform	3677	160	5452	0	67.4	55-135	3552	3.47	30	
Bromomethane	4563	160	5452	0	83.7	30-160	5018	9.5	30	
Carbon disulfide	5550	160	5452	0	102	45-160	5896	6.05	30	
Carbon tetrachloride	4994	160	5452	0	91.6	65-135	5043	0.978	30	
Chlorobenzene	4601	160	5452	0	84.4	75-125	4615	0.296	30	
Chloroethane	5923	550	5452	0	109	40-155	6417	8	30	
Chloroform	4936	160	5452	0	90.6	70-125	5225	5.69	30	
Chloromethane	5610	160	5452	0	103	50-130	6024	7.12	30	
cis-1,2-Dichloroethene	4721	160	5452	0	86.6	65-125	4893	3.57	30	
cis-1,3-Dichloropropene	4530	160	5452	0	83.1	70-125	4457	1.64	30	
Dibromochloromethane	4026	160	5452	0	73.8	65-135	3980	1.16	30	
Dibromomethane	4806	160	5452	0	88.2	75-130	4713	1.95	30	
Dichlorodifluoromethane	5441	160	5452	0	99.8	35-135	5626	3.35	30	
Ethylbenzene	4833	160	5452	0	88.6	75-125	4827	0.113	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4282	160	5452	0	78.6	70-135	4326	1.01	30	
Isopropylbenzene	4874	160	5452	0	89.4	75-130	4846	0.561	30	
m,p-Xylene	9096	330	10900	0	83.4	80-125	9235	1.52	30	
Methyl tert-butyl ether	5037	160	5452	0	92.4	75-125	5174	2.67	30	
Methylene chloride	5108	160	5452	0	93.7	55-145	5454	6.55	30	
Naphthalene	4525	550	5452	0	83	40-140	4318	4.69	30	
n-Butylbenzene	4579	160	5452	0	84	65-140	4571	0.179	30	
n-Propylbenzene	4604	160	5452	0	84.4	65-135	4544	1.31	30	
o-Xylene	4454	160	5452	0	81.7	75-125	4500	1.04	30	
p-Isopropyltoluene	4667	160	5452	0	85.6	75-135	4672	0.117	30	
sec-Butylbenzene	4977	160	5452	0	91.3	65-130	4838	2.83	30	
Styrene	4598	160	5452	0	84.4	75-125	4751	3.27	30	
tert-Butylbenzene	4915	160	5452	0	90.2	65-130	4811	2.13	30	
Tetrachloroethene	5070	160	5452	0	93	64-140	5002	1.35	30	
Tetrahydrofuran	5127	550	5452	0	94	70-135	4986	2.8	30	
Toluene	4827	160	5452	0	88.6	70-125	4964	2.78	30	
trans-1,2-Dichloroethene	5119	160	5452	0	93.9	65-135	5427	5.84	30	
trans-1,3-Dichloropropene	4135	160	5452	0	75.8	65-125	4100	0.861	30	
trans-1,4-Dichloro-2-butene	2410	160	5452	0	44.2	70-135	2257	6.54	30	S
Trichloroethene	4713	160	5452	0	86.4	75-125	4961	5.13	30	
Trichlorofluoromethane	5351	160	5452	0	98.2	25-185	5561	3.85	30	
Vinyl chloride	5517	160	5452	0	101	60-125	5634	2.1	30	
Surr: 1,2-Dichloroethane-d4	*5029*	0	*5452*	0	*92.2*	*70-130*	4896	*2.69*	*30*	
Surr: 4-Bromofluorobenzene	*5304*	0	*5452*	0	*97.3*	*70-130*	5206	*1.87*	*30*	
Surr: Dibromofluoromethane	*5182*	0	*5452*	0	*95*	*70-130*	5214	*0.629*	*30*	
Surr: Toluene-d8	*5324*	0	*5452*	0	*97.6*	*70-130*	5204	*2.28*	*30*	

The following samples were analyzed in this batch:

12061024-01A	12061024-02A	12061024-03A
12061024-04A	12061024-05A	12061024-06A
12061024-07A	12061024-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **R106839** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106839** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019053** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106839** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019051** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **12061026-01BDUP** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019039** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	8.41	0.050	0	0	0	0-0	7.4	12.8	20	

DUP Sample ID: **12061026-09BDUP** Units: **% of sample** Analysis Date: **7/2/2012 12:52 PM**
Client ID: Run ID: **MOIST_120702A** SeqNo: **2019048** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.64	0.050	0	0	0	0-0	11.04	5.29	20	

The following samples were analyzed in this batch: 12061024-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061024
Project: Marshall KRRI 0700I 6/27/12

QC BATCH REPORT

Batch ID: **R106840** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106840** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019090** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106840** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **12061024-04BDUP1** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **MOIST_120702B** SeqNo: **2019065** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	70.03	0.050	0	0	0	0-0	69.14	1.28	20	

DUP Sample ID: **12061024-04BDUP2** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: **SBKR0700I511S062712S006** Run ID: **MOIST_120702B** SeqNo: **2019066** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	67.82	0.050	0	0	0	0-0	69.14	1.93	20	

DUP Sample ID: **12061025-02BDUP** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019072** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	32.53	0.050	0	0	0	0-0	32.85	0.979	20	

The following samples were analyzed in this batch:

12061024-02B	12061024-03B	12061024-04B
12061024-05B	12061024-06B	12061024-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

12061024

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC # ENBRIDGE_062712_GMK1 | Task: KRRI_0700
Total # of Samples: 8 | Event Complete?
Turn Around Time: 5 Day | Rush | No
BILLING CODE: 6.00

Lab Information:
- Lab Name: ALS Laboratory Group
- Address: 3352 128th Ave. Holland, MI 49424-9263
- Lab PM: Ann Preston
- Phone/Fax: 1-616-399-6070/1-616-399-6185
- Lab PM email: ann.preston@alsglobal.com
- Applicable Lab Quote #:

Project Information:
- Site ID #:
- Project #: 60162778
- Site Address: 5555 Glenwood Parkway SE Suite 200
- City: Grand Rapids, State, Zip: MI
- Site PM Name: Bryan Stiemsma
- Phone/Fax: 616-940-4424
- Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
- Send Invoice to: Enbridge Energy - ATTN Accounts Payable
- Address: 1100 Louisiana Suite 1100
- City/State: Houson, TX; Phone #: 713-821-2000
- PO #
- Send EDD to
- CC Hardcopy report
- CC Hardcopy report

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	# OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture (None)	Be,Mo,V,Ni by 6020 (None)	ORO,DRO (None)	PNAs by 8270 (None)	VOC by 5035/8260 (MeOH)
1	SBKR0700I508S062712S005	SBKR0700I508	SO	G	06/27/2012 09:04	3		X	X	X	X	X
2	SBKR0700I509S062712S005	SBKR0700I509	SO	G	06/27/2012 10:05	3		X	X	X	X	X
3	SBKR0700I510S062712S006	SBKR0700I510	SO	G	06/27/2012 11:10	3		X	X	X	X	X
4	SBKR0700I511S062712S006	SBKR0700I511	SO	G	06/27/2012 11:35	6	MS/MSD	X	X	X	X	X
5	SBKR0700I512S062712S005	SBKR0700I512	SO	G	06/27/2012 13:42	3		X	X	X	X	X
6	SBKR0700I513S062712S006	SBKR0700I513	SO	G	06/27/2012 14:25	3		X	X	X	X	X
7	SBKR0700I514S062712S005	SBKR0700I514	SO	G	06/27/2012 15:04	3		X	X	X	X	X
8	SBKR0700I514T062712MX	SBKR0700I514	SQ	G	06/27/2012 00:00	1	TRIP BLANK					X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	6-27-12	1659	[signature]	6-27-12	1659
[signature]	6-29-12	1636	[signature]	6-29-12	1636

Sample Receipt Conditions

Temp in 0C	Samples on Ice?	Sample Intact?	Trip Blank?
5.8°c	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: / Tracking #:
SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: GERRY KRAMER (GMK1)
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **29-Jun-12 16:56**

Work Order: **12061024** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 30-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 30-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.8 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

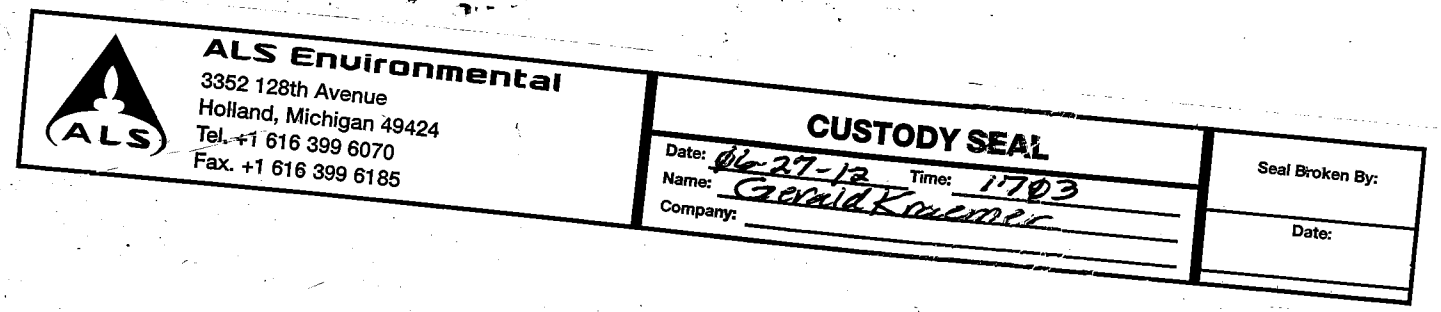
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 06-27-12 Time: 1703
Name: Gerald Kraemer
Company:
Seal Broken By:
Date:

5.8°C

09-Jul-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0700I,0700L 6/28/12** Work Order: **12061025**

Dear Bryan,

ALS Environmental received 8 samples on 29-Jun-2012 04:56 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 60.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0700L 6/28/12
Work Order: **12061025**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
12061025-01	SBKR0700I515S062812S005	Soil		6/28/2012 09:49	6/29/2012 16:56	☐
12061025-02	SBKR0700I516S062812S006	Soil		6/28/2012 13:33	6/29/2012 16:56	☐
12061025-03	SBKR0700I516D062812S006	Soil		6/28/2012 13:33	6/29/2012 16:56	☐
12061025-04	SBKR0700I517S062812S007	Soil		6/28/2012 14:13	6/29/2012 16:56	☐
12061025-05	SBKR0700I518S062812S004	Soil		6/28/2012 15:25	6/29/2012 16:56	☐
12061025-06	SBKR0700I518S062812S016	Soil		6/28/2012 15:30	6/29/2012 16:56	☐
12061025-07	SBKR0700I518T062812MX	Soil		6/28/2012	6/29/2012 16:56	☐
12061025-08	SBKR0700L501S062812S004	Soil		6/28/2012 10:45	6/29/2012 16:56	☐

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0700L 6/28/12
Work Order: 12061025

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 42142 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 42101 LCS recoveries for 4-Methyl-2-Pentanone, Acetone and Tetrahydrofuran were above control limits, but all samples in this quality control batch were ND for these compounds. No data requires qualification. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0700L 6/28/12
WorkOrder: **12061025**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I515S062812S005
Work Order:	12061025	**Collection Date:**	6/28/2012 9:49:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**66**	**18**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**480**	**35**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*58.9*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	**410**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(k)fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	**520**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*95.2*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*70.3*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*72.9*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*79.6*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*63.3*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*73.7*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I515S062812S005
Work Order:	12061025	**Collection Date:**	6/28/2012 9:49:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	140	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	140	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I515S062812S005
Work Order:	12061025	**Collection Date:**	6/28/2012 9:49:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	140	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	140	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*105*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516S062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**59**	**15**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**520**	**29**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*64.4*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	**550**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(k)fluoranthene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	**410**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	**390**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*98.7*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*74.1*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*78.3*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*83.4*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*68.4*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*75.2*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516S062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	89	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	89	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	89	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	89	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	300	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	89	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	89	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516S062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	180	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	89	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	89	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	89	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	89	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	89	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	89	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	89	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*105*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**33**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516D062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**65**	**14**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**450**	**28**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*89.2*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	**590**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(k)fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	**520**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Pyrene	**2,400**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*99.6*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*79.1*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*82.1*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*85.2*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*72.2*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*81.2*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	85	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	85	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	85	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	85	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516D062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	85	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	85	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	85	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	85	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	85	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	85	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	85	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	85	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	280	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	85	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	85	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	85	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I516D062812S006
Work Order:	12061025	**Collection Date:**	6/28/2012 1:33:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	85	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	170	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	85	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	85	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	85	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	85	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	85	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	85	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	85	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	85	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	85	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	85	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	85	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*99.9*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*99.2*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**32**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I517S062812S007
Work Order:	12061025	**Collection Date:**	6/28/2012 2:13:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**71**	**15**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**610**	**30**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*71.8*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/5/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	**480**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**2,700**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**3,200**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**2,800**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	**950**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(k)fluoranthene	**3,000**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**2,400**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	**730**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	**580**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Pyrene	**3,400**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*98.2*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*75.2*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*73.1*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*81.3*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*66.6*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*76.8*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I517S062812S007
Work Order:	12061025	**Collection Date:**	6/28/2012 2:13:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	100	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I517S062812S007
Work Order:	12061025	**Collection Date:**	6/28/2012 2:13:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	100	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*99.0*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 3:25:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**1,300**	**130**	**4.0**		**mg/Kg-dry**	5	7/6/2012
ORO (C20-C34)	**7,300**	**270**	**4.0**		**mg/Kg-dry**	5	7/6/2012
Surr: 4-Terphenyl-d14	*66.7*	*39-115*			*%REC*	5	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/6/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Acenaphthene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Acenaphthylene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Anthracene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Benzo(a)anthracene	**1,300**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Benzo(a)pyrene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Benzo(b)fluoranthene	**1,600**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Benzo(g,h,i)perylene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Benzo(k)fluoranthene	**1,700**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Chrysene	**1,700**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Dibenzo(a,h)anthracene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Fluoranthene	**1,600**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Fluorene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Indeno(1,2,3-cd)pyrene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Phenanthrene	ND	1,300	330		µg/Kg-dry	10	7/6/2012
Pyrene	**1,800**	**1,300**	**330**		**µg/Kg-dry**	10	7/6/2012
Surr: 2,4,6-Tribromophenol	*119*	*34-140*			*%REC*	10	7/6/2012
Surr: 2-Fluorobiphenyl	*80.2*	*12-100*			*%REC*	10	7/6/2012
Surr: 2-Fluorophenol	*82.8*	*33-117*			*%REC*	10	7/6/2012
Surr: 4-Terphenyl-d14	*78.0*	*25-137*			*%REC*	10	7/6/2012
Surr: Nitrobenzene-d5	*76.8*	*37-107*			*%REC*	10	7/6/2012
Surr: Phenol-d6	*80.8*	*40-106*			*%REC*	10	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 3:25:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	1,300	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	3,200	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	380	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	380	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 3:25:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	760	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	380	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	380	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	380	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S016
Work Order:	12061025	**Collection Date:**	6/28/2012 3:30:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**53**	**15**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**590**	**30**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*52.9*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	7/6/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**5.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**8.7**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Chrysene	ND	330	330		µg/Kg-dry	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Pyrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*96.2*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*78.5*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*82.0*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*84.2*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*72.8*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*83.0*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	120	100		µg/Kg-dry	1	7/4/2012
1,1,1-Trichloroethane	ND	120	50		µg/Kg-dry	1	7/4/2012
1,1,2,2-Tetrachloroethane	ND	120	50		µg/Kg-dry	1	7/4/2012
1,1,2-Trichloroethane	ND	120	50		µg/Kg-dry	1	7/4/2012
1,1-Dichloroethane	ND	120	50		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S016
Work Order:	12061025	**Collection Date:**	6/28/2012 3:30:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/4/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,3-Trichloropropane	ND	120	100		µg/Kg-dry	1	7/4/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
1,2,4-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
1,2-Dibromo-3-chloropropane	ND	120	10		µg/Kg-dry	1	7/4/2012
1,2-Dibromoethane	ND	120	20		µg/Kg-dry	1	7/4/2012
1,2-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
1,2-Dichloroethane	ND	120	50		µg/Kg-dry	1	7/4/2012
1,2-Dichloropropane	ND	120	50		µg/Kg-dry	1	7/4/2012
1,3,5-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
1,3-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
1,4-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/4/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
2-Methylnaphthalene	ND	390	330		µg/Kg-dry	1	7/4/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Acrylonitrile	ND	120	100		µg/Kg-dry	1	7/4/2012
Benzene	ND	120	50		µg/Kg-dry	1	7/4/2012
Bromobenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
Bromochloromethane	ND	120	100		µg/Kg-dry	1	7/4/2012
Bromodichloromethane	ND	120	100		µg/Kg-dry	1	7/4/2012
Bromoform	ND	120	100		µg/Kg-dry	1	7/4/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/4/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/4/2012
Carbon tetrachloride	ND	120	50		µg/Kg-dry	1	7/4/2012
Chlorobenzene	ND	120	50		µg/Kg-dry	1	7/4/2012
Chloroethane	ND	390	250		µg/Kg-dry	1	7/4/2012
Chloroform	ND	120	50		µg/Kg-dry	1	7/4/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
cis-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/4/2012
cis-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	7/4/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/4/2012
Dibromochloromethane	ND	120	100		µg/Kg-dry	1	7/4/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/4/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/4/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518S062812S016
Work Order:	12061025	**Collection Date:**	6/28/2012 3:30:00 PM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	120	50		µg/Kg-dry	1	7/4/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/4/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/4/2012
m,p-Xylene	ND	230	100		µg/Kg-dry	1	7/4/2012
Methyl iodide	ND	120	100		µg/Kg-dry	1	7/4/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/4/2012
Methylene chloride	ND	120	100		µg/Kg-dry	1	7/4/2012
Naphthalene	ND	390	330		µg/Kg-dry	1	7/4/2012
n-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/4/2012
n-Propylbenzene	ND	120	100		µg/Kg-dry	1	7/4/2012
o-Xylene	ND	120	50		µg/Kg-dry	1	7/4/2012
p-Isopropyltoluene	ND	120	100		µg/Kg-dry	1	7/4/2012
sec-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/4/2012
Styrene	ND	120	50		µg/Kg-dry	1	7/4/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/4/2012
tert-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/4/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/4/2012
Tetrachloroethene	ND	120	50		µg/Kg-dry	1	7/4/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/4/2012
Toluene	ND	120	100		µg/Kg-dry	1	7/4/2012
trans-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/4/2012
trans-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	7/4/2012
trans-1,4-Dichloro-2-butene	ND	120	50		µg/Kg-dry	1	7/4/2012
Trichloroethene	ND	120	50		µg/Kg-dry	1	7/4/2012
Trichlorofluoromethane	ND	120	100		µg/Kg-dry	1	7/4/2012
Vinyl chloride	ND	120	40		µg/Kg-dry	1	7/4/2012
Surr: 1,2-Dichloroethane-d4	*109*	*70-130*			*%REC*	1	7/4/2012
Surr: 4-Bromofluorobenzene	*115*	*70-130*			*%REC*	1	7/4/2012
Surr: Dibromofluoromethane	*107*	*70-130*			*%REC*	1	7/4/2012
Surr: Toluene-d8	*119*	*70-130*			*%REC*	1	7/4/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**40**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518T062812MX
Work Order:	12061025	**Collection Date:**	6/28/2012
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	7/5/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	7/5/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	7/5/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	7/5/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	7/5/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	7/5/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	7/5/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	7/5/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	7/5/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	7/5/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	7/5/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	7/5/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	7/5/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	7/5/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	7/5/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	7/5/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	7/5/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	7/5/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	7/5/2012
2-Butanone	ND	750	750		µg/Kg	1	7/5/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	7/5/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	7/5/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	7/5/2012
Acetone	ND	1,000	1,000		µg/Kg	1	7/5/2012
Acrylonitrile	ND	100	100		µg/Kg	1	7/5/2012
Benzene	ND	50	50		µg/Kg	1	7/5/2012
Bromobenzene	ND	100	100		µg/Kg	1	7/5/2012
Bromochloromethane	ND	100	100		µg/Kg	1	7/5/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	7/5/2012
Bromoform	ND	100	100		µg/Kg	1	7/5/2012
Bromomethane	ND	200	200		µg/Kg	1	7/5/2012
Carbon disulfide	ND	250	250		µg/Kg	1	7/5/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	7/5/2012
Chlorobenzene	ND	50	50		µg/Kg	1	7/5/2012
Chloroethane	ND	250	250		µg/Kg	1	7/5/2012
Chloroform	ND	50	50		µg/Kg	1	7/5/2012
Chloromethane	ND	250	250		µg/Kg	1	7/5/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/5/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I518T062812MX
Work Order:	12061025	**Collection Date:**	6/28/2012
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	7/5/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	7/5/2012
Dibromomethane	ND	250	250		µg/Kg	1	7/5/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	7/5/2012
Diethyl ether	ND	200	200		µg/Kg	1	7/5/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	7/5/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	7/5/2012
Ethylbenzene	ND	50	50		µg/Kg	1	7/5/2012
Hexachloroethane	ND	300	300		µg/Kg	1	7/5/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	7/5/2012
m,p-Xylene	ND	100	100		µg/Kg	1	7/5/2012
Methyl iodide	ND	100	100		µg/Kg	1	7/5/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	7/5/2012
Methylene chloride	ND	100	100		µg/Kg	1	7/5/2012
Naphthalene	ND	330	330		µg/Kg	1	7/5/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	7/5/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	7/5/2012
o-Xylene	ND	50	50		µg/Kg	1	7/5/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	7/5/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	7/5/2012
Styrene	ND	50	50		µg/Kg	1	7/5/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	7/5/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	7/5/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	7/5/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	7/5/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	7/5/2012
Toluene	ND	100	100		µg/Kg	1	7/5/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	7/5/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	7/5/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	7/5/2012
Trichloroethene	ND	50	50		µg/Kg	1	7/5/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	7/5/2012
Vinyl chloride	ND	40	40		µg/Kg	1	7/5/2012
Surr: 1,2-Dichloroethane-d4	*89.8*	*70-130*			*%REC*	1	7/5/2012
Surr: 4-Bromofluorobenzene	*98.5*	*70-130*			*%REC*	1	7/5/2012
Surr: Dibromofluoromethane	*95.2*	*70-130*			*%REC*	1	7/5/2012
Surr: Toluene-d8	*97.8*	*70-130*			*%REC*	1	7/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L501S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 10:45:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **7/5/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**28**	**4.0**		**mg/Kg-dry**	1	7/6/2012
ORO (C20-C34)	**930**	**56**	**4.0**		**mg/Kg-dry**	1	7/6/2012
Surr: 4-Terphenyl-d14	*60.5*	*39-115*			*%REC*	1	7/6/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/5/2012**		Analyst: **ML**
Beryllium	**0.55**	**0.52**	**0.50**		**mg/Kg-dry**	4	7/6/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	7/5/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
Vanadium	**31**	**1.0**	**1.0**		**mg/Kg-dry**	4	7/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **7/5/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	7/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(a)pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(b)fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	7/6/2012
Benzo(k)fluoranthene	**490**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Chrysene	**560**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	7/6/2012
Fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	7/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/6/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	7/6/2012
Pyrene	**540**	**330**	**330**		**µg/Kg-dry**	1	7/6/2012
Surr: 2,4,6-Tribromophenol	*95.7*	*34-140*			*%REC*	1	7/6/2012
Surr: 2-Fluorobiphenyl	*76.6*	*12-100*			*%REC*	1	7/6/2012
Surr: 2-Fluorophenol	*78.9*	*33-117*			*%REC*	1	7/6/2012
Surr: 4-Terphenyl-d14	*83.4*	*25-137*			*%REC*	1	7/6/2012
Surr: Nitrobenzene-d5	*70.6*	*37-107*			*%REC*	1	7/6/2012
Surr: Phenol-d6	*74.9*	*40-106*			*%REC*	1	7/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **7/2/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	84	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	84	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	84	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	84	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L501S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 10:45:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	84	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	84	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	84	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	84	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	84	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	84	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	84	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	84	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	280	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	84	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	84	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	84	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700L501S062812S004
Work Order:	12061025	**Collection Date:**	6/28/2012 10:45:00 AM
Project:	Marshall KRRI 0700I,0700L 6/28/12		
Lab ID:	12061025-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	84	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	170	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	84	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	84	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	84	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	84	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	84	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	84	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	84	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	84	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	84	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	84	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	84	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*99.4*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*98.1*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	7/2/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42141** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 09:34 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021636** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.281*	0	*5*	0	*65.6*	*39-115*	0			

LCS Sample ID: **DLCSS1-42141-42141** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021661** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	397.8	10	500	0	79.6	60-130	0			
ORO (C20-C34)	542.4	20	500	0	108	60-130	0			
Surr: 4-Terphenyl-d14	*3.062*	0	*5*	0	*61.2*	*39-115*	0			

MS Sample ID: **12061024-04B MS** Units: **mg/Kg** Analysis Date: **7/5/2012 10:01 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021637** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	362.8	9.5	475.1	34.52	69.1	60-130	0			
ORO (C20-C34)	626.4	19	475.1	228.4	83.7	60-130	0			
Surr: 4-Terphenyl-d14	*3.394*	0	*4.751*	0	*71.4*	*39-115*	0			

MSD Sample ID: **12061024-04B MSD** Units: **mg/Kg** Analysis Date: **7/5/2012 10:28 PM**
Client ID: Run ID: **GC8_120705B** SeqNo: **2021662** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	370.3	9.9	494.8	34.52	67.9	60-130	362.8	2.02	30	
ORO (C20-C34)	789.4	20	494.8	228.4	113	60-130	626.4	23	30	
Surr: 4-Terphenyl-d14	*2.865*	0	*4.948*	0	*57.9*	*39-115*	3.394	*16.9*	*30*	

The following samples were analyzed in this batch:

12061025-01B	12061025-02B	12061025-03B
12061025-04B	12061025-05B	12061025-06B
12061025-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42142** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 12:23 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020726** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.0174	0.25								J

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 03:16 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020995** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Nickel	0.00747	0.25								J
Vanadium	ND	0.25								

MBLK Sample ID: **MBLK-42142-42142** Units: **mg/Kg** Analysis Date: **7/6/2012 12:11 PM**
Client ID: Run ID: **ICPMS1_120706A** SeqNo: **2021716** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.009415	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 12:33 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020728** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	8.925	0.25	10	0	89.2	80-120	0			

LCS Sample ID: **LCS-42142-42142** Units: **mg/Kg** Analysis Date: **7/5/2012 03:26 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020997** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	8.805	0.10	10	0	88	80-120	0			
Nickel	8.45	0.25	10	0	84.5	80-120	0			
Vanadium	8.455	0.25	10	0	84.6	80-120	0			

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/5/2012 01:05 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020734** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	13.51	1.6	15.55	0.3045	84.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42142** Instrument ID **ICPMS2** Method: **SW6020A**

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/5/2012 04:13 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2021132** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	17.2	1.6	7.776	6.136	142	80-120	0			S

MS Sample ID: **12061024-04BMS** Units: **mg/Kg** Analysis Date: **7/6/2012 12:35 PM**
Client ID: Run ID: **ICPMS1_120706A** SeqNo: **2021722** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	11.53	0.62	7.776	0.1267	147	80-120	0			S
Vanadium	17.16	1.6	7.776	6.309	140	80-120	0			S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/5/2012 01:11 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2020735** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	11.15	1.5	15.43	0.3045	70.3	80-120	13.51	19.2	25	S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/5/2012 04:18 PM**
Client ID: Run ID: **ICPMS2_120705A** SeqNo: **2021133** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	15.52	1.5	7.716	6.136	122	80-120	17.2	10.3	25	S

MSD Sample ID: **12061024-04BMSD** Units: **mg/Kg** Analysis Date: **7/6/2012 12:41 PM**
Client ID: Run ID: **ICPMS1_120706A** SeqNo: **2021723** Prep Date: **7/5/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	9.772	0.62	7.716	0.1267	125	80-120	11.53	16.5	25	S
Vanadium	15.46	1.5	7.716	6.309	119	80-120	17.16	10.4	25	

The following samples were analyzed in this batch:

12061025-01B	12061025-02B	12061025-03B
12061025-04B	12061025-05B	12061025-06B
12061025-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 08:16 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021522** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2890*	0	*5000*	0	*57.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4213*	0	*5000*	0	*84.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4643*	0	*5000*	0	*92.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4089*	0	*5000*	0	*81.8*	*37-107*	0			
Surr: Phenol-d6	*3859*	0	*5000*	0	*77.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-42140-42140** Units: **µg/Kg** Analysis Date: **7/5/2012 05:39 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021518** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1553	50	2000	0	77.6	45-105	0			
Acenaphthene	1602	50	2000	0	80.1	45-110	0			
Acenaphthylene	1731	50	2000	0	86.6	45-105	0			
Anthracene	1780	50	2000	0	89	55-105	0			
Benzo(a)anthracene	1778	50	2000	0	88.9	50-110	0			
Benzo(a)pyrene	1829	50	2000	0	91.4	50-110	0			
Benzo(b)fluoranthene	1964	50	2000	0	98.2	45-115	0			
Benzo(g,h,i)perylene	1652	50	2000	0	82.6	40-125	0			
Benzo(k)fluoranthene	1947	50	2000	0	97.4	45-115	0			
Chrysene	1822	50	2000	0	91.1	55-110	0			
Dibenzo(a,h)anthracene	1580	50	2000	0	79	40-125	0			
Fluoranthene	1842	50	2000	0	92.1	55-115	0			
Fluorene	1745	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1638	50	2000	0	81.9	40-120	0			
Naphthalene	1544	50	2000	0	77.2	40-105	0			
Phenanthrene	1758	50	2000	0	87.9	50-110	0			
Pyrene	1808	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4066*	0	*5000*	0	*81.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4770*	0	*5000*	0	*95.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4289*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4406*	0	*5000*	0	*88.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*4105*	0	*5000*	0	*82.1*	*37-107*	0			
Surr: Phenol-d6	*4071*	0	*5000*	0	*81.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **12061024-04B MS** Units: **µg/Kg** Analysis Date: **7/5/2012 06:21 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021519** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1341	50	1997	0	67.2	45-105	0			
Acenaphthene	1487	50	1997	0	74.4	45-110	0			
Acenaphthylene	1621	50	1997	0	81.2	45-105	0			
Anthracene	1641	50	1997	0	82.2	55-105	0			
Benzo(a)anthracene	1718	50	1997	130	79.5	50-110	0			
Benzo(a)pyrene	1680	50	1997	130	77.6	50-110	0			
Benzo(b)fluoranthene	1792	50	1997	142.6	82.6	45-115	0			
Benzo(g,h,i)perylene	1239	50	1997	79.57	58.1	40-125	0			
Benzo(k)fluoranthene	2023	50	1997	161.1	93.2	45-115	0			
Chrysene	1669	50	1997	123.2	77.4	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1997	0	58.9	40-125	0			
Fluoranthene	1764	50	1997	180.5	79.3	55-115	0			
Fluorene	1632	50	1997	0	81.7	50-110	0			
Indeno(1,2,3-cd)pyrene	1259	50	1997	65.01	59.8	40-120	0			
Naphthalene	1371	50	1997	0	68.6	40-105	0			
Phenanthrene	1693	50	1997	74.71	81.1	50-110	0			
Pyrene	1772	50	1997	209.6	78.3	45-125	0			
Surr: 2,4,6-Tribromophenol	*3864*	0	*4993*	0	*77.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4190*	0	*4993*	0	*83.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3588*	0	*4993*	0	*71.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3456*	0	*4993*	0	*69.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3454*	0	*4993*	0	*69.2*	*37-107*	0			
Surr: Phenol-d6	*3320*	0	*4993*	0	*66.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42140** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **12061024-04B MSD** Units: **µg/Kg** Analysis Date: **7/5/2012 07:01 PM**
Client ID: Run ID: **SVMS5_120705A** SeqNo: **2021520** Prep Date: **7/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1471	50	1989	0	74	45-105	1341	9.26	30	
Acenaphthene	1401	50	1989	0	70.4	45-110	1487	5.97	30	
Acenaphthylene	1502	50	1989	0	75.5	45-105	1621	7.59	30	
Anthracene	1483	50	1989	0	74.6	55-105	1641	10.1	30	
Benzo(a)anthracene	1698	50	1989	130	78.8	50-110	1718	1.2	30	
Benzo(a)pyrene	1612	50	1989	130	74.5	50-110	1680	4.13	30	
Benzo(b)fluoranthene	1836	50	1989	142.6	85.1	45-115	1792	2.42	30	
Benzo(g,h,i)perylene	1026	50	1989	79.57	47.6	40-125	1239	18.9	30	
Benzo(k)fluoranthene	1946	50	1989	161.1	89.7	45-115	2023	3.89	30	
Chrysene	1544	50	1989	123.2	71.4	55-110	1669	7.82	30	
Dibenzo(a,h)anthracene	1012	50	1989	0	50.8	40-125	1176	15	30	
Fluoranthene	1638	50	1989	180.5	73.3	55-115	1764	7.41	30	
Fluorene	1548	50	1989	0	77.8	50-110	1632	5.27	30	
Indeno(1,2,3-cd)pyrene	1073	50	1989	65.01	50.7	40-120	1259	15.9	30	
Naphthalene	1316	50	1989	0	66.2	40-105	1371	4.09	30	
Phenanthrene	1726	50	1989	74.71	83	50-110	1693	1.89	30	
Pyrene	1700	50	1989	209.6	74.9	45-125	1772	4.17	30	
Surr: 2,4,6-Tribromophenol	*3488*	0	*4974*	0	*70.1*	*34-140*	3864	*10.2*	*40*	
Surr: 2-Fluorobiphenyl	*3843*	0	*4974*	0	*77.3*	*12-100*	4190	*8.64*	*40*	
Surr: 2-Fluorophenol	*3675*	0	*4974*	0	*73.9*	*33-117*	3588	*2.39*	*40*	
Surr: 4-Terphenyl-d14	*3287*	0	*4974*	0	*66.1*	*25-137*	3456	*5.02*	*40*	
Surr: Nitrobenzene-d5	*3295*	0	*4974*	0	*66.2*	*37-107*	3454	*4.72*	*40*	
Surr: Phenol-d6	*3432*	0	*4974*	0	*69*	*40-106*	3320	*3.31*	*40*	

The following samples were analyzed in this batch:

12061025-01B	12061025-02B	12061025-03B
12061025-04B	12061025-05B	12061025-06B
12061025-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 12:09 PM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020040** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	197	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: 4-Bromofluorobenzene	*975.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 03:54 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020243** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	101	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1071*	0	*1000*	0	*107*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1047*	0	*1000*	0	*105*	*70-130*	0
Surr: Dibromofluoromethane	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*1060*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 04:30 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020623** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1039*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 04:24 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021111** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	151.5	200								J
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	671	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*976.5*	0	*1000*	0	*97.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*1018*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*962.5*	0	*1000*	0	*96.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 10:52 AM**
Client ID: Run ID: **VMS5_120703A** SeqNo: **2020039** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	906	30	1000	0	90.6	75-125	0			
1,1,1-Trichloroethane	940.5	30	1000	0	94	70-135	0			
1,1,2,2-Tetrachloroethane	882.5	30	1000	0	88.2	55-130	0			
1,1,2-Trichloroethane	928.5	30	1000	0	92.8	60-125	0			
1,1-Dichloroethane	926.5	30	1000	0	92.6	75-125	0			
1,1-Dichloroethene	963	30	1000	0	96.3	65-135	0			
1,2,3-Trichlorobenzene	878	30	1000	0	87.8	60-135	0			
1,2,3-Trichloropropane	860	30	1000	0	86	65-130	0			
1,2,3-Trimethylbenzene	909.5	30	1000	0	91	65-135	0			
1,2,4-Trichlorobenzene	886	30	1000	0	88.6	65-130	0			
1,2,4-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	753.5	30	1000	0	75.4	40-135	0			
1,2-Dibromoethane	873	30	1000	0	87.3	70-125	0			
1,2-Dichlorobenzene	898.5	30	1000	0	89.8	75-120	0			
1,2-Dichloroethane	899	30	1000	0	89.9	70-135	0			
1,2-Dichloropropane	920.5	30	1000	0	92	70-120	0			
1,3,5-Trimethylbenzene	902	30	1000	0	90.2	65-135	0			
1,3-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
1,4-Dichlorobenzene	889.5	30	1000	0	89	70-125	0			
2-Butanone	829.5	200	1000	0	83	30-160	0			
2-Hexanone	815	30	1000	0	81.5	45-145	0			
4-Methyl-2-pentanone	874	30	1000	0	87.4	45-145	0			
Acetone	823	100	1000	0	82.3	20-160	0			B
Acrylonitrile	784.5	100	1000	0	78.4	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	929.5	30	1000	0	93	65-120	0			
Bromochloromethane	950	30	1000	0	95	70-125	0			
Bromodichloromethane	929.5	30	1000	0	93	70-130	0			
Bromoform	810.5	30	1000	0	81	55-135	0			
Bromomethane	1138	75	1000	0	114	30-160	0			
Carbon disulfide	940	30	1000	0	94	45-160	0			
Carbon tetrachloride	929.5	30	1000	0	93	65-135	0			
Chlorobenzene	909	30	1000	0	90.9	75-125	0			
Chloroethane	1044	100	1000	0	104	40-155	0			
Chloroform	946.5	30	1000	0	94.6	70-125	0			
Chloromethane	1006	100	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1078	30	1000	0	108	65-125	0			
cis-1,3-Dichloropropene	959.5	30	1000	0	96	70-125	0			
Dibromochloromethane	888.5	30	1000	0	88.8	65-135	0			
Dibromomethane	924	30	1000	0	92.4	75-130	0			
Dichlorodifluoromethane	998.5	30	1000	0	99.8	35-135	0			
Ethylbenzene	939.5	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	957	30	1000	0	95.7	70-135	0
Isopropylbenzene	907	30	1000	0	90.7	75-130	0
m,p-Xylene	1792	60	2000	0	89.6	80-125	0
Methyl tert-butyl ether	950	30	1000	0	95	75-125	0
Methylene chloride	965	30	1000	0	96.5	55-145	0
Naphthalene	797	100	1000	0	79.7	40-140	0
n-Butylbenzene	890	30	1000	0	89	65-140	0
n-Propylbenzene	874.5	30	1000	0	87.4	65-135	0
o-Xylene	892.5	30	1000	0	89.2	75-125	0
p-Isopropyltoluene	882	30	1000	0	88.2	75-135	0
sec-Butylbenzene	908	30	1000	0	90.8	65-130	0
Styrene	913.5	30	1000	0	91.4	75-125	0
tert-Butylbenzene	954.5	30	1000	0	95.4	65-130	0
Tetrachloroethene	916.5	30	1000	0	91.6	64-140	0
Tetrahydrofuran	817.5	200	1000	0	81.8	70-135	0
Toluene	970	30	1000	0	97	70-125	0
trans-1,2-Dichloroethene	965.5	30	1000	0	96.6	65-135	0
trans-1,3-Dichloropropene	932	30	1000	0	93.2	65-125	0
trans-1,4-Dichloro-2-butene	782	30	1000	0	78.2	70-135	0
Trichloroethene	936.5	30	1000	0	93.6	75-125	0
Trichlorofluoromethane	970	30	1000	0	97	25-185	0
Vinyl chloride	967.5	30	1000	0	96.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*975*	0	*1000*	0	*97.5*	*70-130*	0
Surr: 4-Bromofluorobenzene	*988*	0	*1000*	0	*98.8*	*70-130*	0
Surr: Dibromofluoromethane	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/3/2012 02:38 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020242** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1170	30	1000	0	117	75-125	0			
1,1,1-Trichloroethane	1182	30	1000	0	118	70-135	0			
1,1,2,2-Tetrachloroethane	1100	30	1000	0	110	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	1050	30	1000	0	105	75-125	0			
1,1-Dichloroethene	1110	30	1000	0	111	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1066	30	1000	0	107	65-130	0			
1,2,3-Trimethylbenzene	1073	30	1000	0	107	65-135	0			
1,2,4-Trichlorobenzene	1082	30	1000	0	108	65-130	0			
1,2,4-Trimethylbenzene	1061	30	1000	0	106	65-135	0			
1,2-Dibromo-3-chloropropane	1110	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1110	30	1000	0	111	70-125	0			
1,2-Dichlorobenzene	1085	30	1000	0	108	75-120	0			
1,2-Dichloroethane	1053	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1104	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1110	30	1000	0	111	65-135	0			
1,3-Dichlorobenzene	1092	30	1000	0	109	70-125	0			
1,4-Dichlorobenzene	1098	30	1000	0	110	70-125	0			
2-Butanone	1283	200	1000	0	128	30-160	0			
2-Hexanone	1086	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1546	30	1000	0	155	45-145	0			S
Acetone	1171	100	1000	0	117	20-160	0			B
Acrylonitrile	989	100	1000	0	98.9	70-135	0			
Benzene	1074	30	1000	0	107	75-125	0			
Bromobenzene	1032	30	1000	0	103	65-120	0			
Bromochloromethane	1058	30	1000	0	106	70-125	0			
Bromodichloromethane	1136	30	1000	0	114	70-130	0			
Bromoform	1019	30	1000	0	102	55-135	0			
Bromomethane	1094	75	1000	0	109	30-160	0			
Carbon disulfide	1000	30	1000	0	100	45-160	0			
Carbon tetrachloride	1048	30	1000	0	105	65-135	0			
Chlorobenzene	1134	30	1000	0	113	75-125	0			
Chloroethane	996.5	100	1000	0	99.6	40-155	0			
Chloroform	1132	30	1000	0	113	70-125	0			
Chloromethane	947.5	100	1000	0	94.8	50-130	0			
cis-1,2-Dichloroethene	1068	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1163	30	1000	0	116	70-125	0			
Dibromochloromethane	1176	30	1000	0	118	65-135	0			
Dibromomethane	1062	30	1000	0	106	75-130	0			
Dichlorodifluoromethane	810.5	30	1000	0	81	35-135	0			
Ethylbenzene	1134	30	1000	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	1130	30	1000	0	113	70-135	0
Isopropylbenzene	1126	30	1000	0	113	75-130	0
m,p-Xylene	2255	60	2000	0	113	80-125	0
Methyl tert-butyl ether	965.5	30	1000	0	96.6	75-125	0
Methylene chloride	1048	30	1000	0	105	55-145	0
Naphthalene	1054	100	1000	0	105	40-140	0
n-Butylbenzene	1188	30	1000	0	119	65-140	0
n-Propylbenzene	1107	30	1000	0	111	65-135	0
o-Xylene	1112	30	1000	0	111	75-125	0
p-Isopropyltoluene	1131	30	1000	0	113	75-135	0
sec-Butylbenzene	1135	30	1000	0	114	65-130	0
Styrene	1136	30	1000	0	114	75-125	0
tert-Butylbenzene	1099	30	1000	0	110	65-130	0
Tetrachloroethene	1195	30	1000	0	120	64-140	0
Tetrahydrofuran	931.5	200	1000	0	93.2	70-135	0
Toluene	1106	30	1000	0	111	70-125	0
trans-1,2-Dichloroethene	1090	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1184	30	1000	0	118	65-125	0
trans-1,4-Dichloro-2-butene	1044	30	1000	0	104	70-135	0
Trichloroethene	1141	30	1000	0	114	75-125	0
Trichlorofluoromethane	1000	30	1000	0	100	25-185	0
Vinyl chloride	925	30	1000	0	92.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1034*	0	*1000*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*1059*	0	*1000*	0	*106*	*70-130*	0
Surr: Toluene-d8	*1074*	0	*1000*	0	*107*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/4/2012 03:15 AM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020621** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1062	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1104	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	962	30	1000	0	96.2	55-130	0			
1,1,2-Trichloroethane	960.5	30	1000	0	96	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1067	30	1000	0	107	65-135	0			
1,2,3-Trichlorobenzene	965.5	30	1000	0	96.6	60-135	0			
1,2,3-Trichloropropane	962.5	30	1000	0	96.2	65-130	0			
1,2,3-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2,4-Trichlorobenzene	994	30	1000	0	99.4	65-130	0			
1,2,4-Trimethylbenzene	964	30	1000	0	96.4	65-135	0			
1,2-Dibromo-3-chloropropane	909	30	1000	0	90.9	40-135	0			
1,2-Dibromoethane	1015	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1011	30	1000	0	101	75-120	0			
1,2-Dichloroethane	983.5	30	1000	0	98.4	70-135	0			
1,2-Dichloropropane	1014	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	991.5	30	1000	0	99.2	65-135	0			
1,3-Dichlorobenzene	1018	30	1000	0	102	70-125	0			
1,4-Dichlorobenzene	1022	30	1000	0	102	70-125	0			
2-Butanone	1034	200	1000	0	103	30-160	0			
2-Hexanone	936	30	1000	0	93.6	45-145	0			
4-Methyl-2-pentanone	1326	30	1000	0	133	45-145	0			
Acetone	1194	100	1000	0	119	20-160	0			
Acrylonitrile	914	100	1000	0	91.4	70-135	0			
Benzene	997	30	1000	0	99.7	75-125	0			
Bromobenzene	938.5	30	1000	0	93.8	65-120	0			
Bromochloromethane	1018	30	1000	0	102	70-125	0			
Bromodichloromethane	1028	30	1000	0	103	70-130	0			
Bromoform	897.5	30	1000	0	89.8	55-135	0			
Bromomethane	1099	75	1000	0	110	30-160	0			
Carbon disulfide	1084	30	1000	0	108	45-160	0			
Carbon tetrachloride	986	30	1000	0	98.6	65-135	0			
Chlorobenzene	1044	30	1000	0	104	75-125	0			
Chloroethane	894.5	100	1000	0	89.4	40-155	0			
Chloroform	1023	30	1000	0	102	70-125	0			
Chloromethane	942.5	100	1000	0	94.2	50-130	0			
cis-1,2-Dichloroethene	991.5	30	1000	0	99.2	65-125	0			
cis-1,3-Dichloropropene	1018	30	1000	0	102	70-125	0			
Dibromochloromethane	1032	30	1000	0	103	65-135	0			
Dibromomethane	1011	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	752	30	1000	0	75.2	35-135	0			
Ethylbenzene	1005	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	999.5	30	1000	0	100	70-135	0
Isopropylbenzene	1030	30	1000	0	103	75-130	0
m,p-Xylene	2041	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1024	30	1000	0	102	75-125	0
Methylene chloride	1000	30	1000	0	100	55-145	0
Naphthalene	876.5	100	1000	0	87.6	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	999.5	30	1000	0	100	65-135	0
o-Xylene	1002	30	1000	0	100	75-125	0
p-Isopropyltoluene	1021	30	1000	0	102	75-135	0
sec-Butylbenzene	1010	30	1000	0	101	65-130	0
Styrene	1039	30	1000	0	104	75-125	0
tert-Butylbenzene	974.5	30	1000	0	97.4	65-130	0
Tetrachloroethene	1098	30	1000	0	110	64-140	0
Tetrahydrofuran	888	200	1000	0	88.8	70-135	0
Toluene	998	30	1000	0	99.8	70-125	0
trans-1,2-Dichloroethene	1120	30	1000	0	112	65-135	0
trans-1,3-Dichloropropene	998	30	1000	0	99.8	65-125	0
trans-1,4-Dichloro-2-butene	750.5	30	1000	0	75	70-135	0
Trichloroethene	1070	30	1000	0	107	75-125	0
Trichlorofluoromethane	938	30	1000	0	93.8	25-185	0
Vinyl chloride	888.5	30	1000	0	88.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1036*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-42101-42101** Units: **µg/Kg** Analysis Date: **7/5/2012 02:20 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021110** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	932	30	1000	0	93.2	75-125	0			
1,1,1-Trichloroethane	1022	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1050	30	1000	0	105	55-130	0			
1,1,2-Trichloroethane	940	30	1000	0	94	60-125	0			
1,1-Dichloroethane	962	30	1000	0	96.2	75-125	0			
1,1-Dichloroethene	1100	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	1013	30	1000	0	101	60-135	0			
1,2,3-Trichloropropane	1059	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2,4-Trichlorobenzene	940	30	1000	0	94	65-130	0			
1,2,4-Trimethylbenzene	930	30	1000	0	93	65-135	0			
1,2-Dibromo-3-chloropropane	1107	30	1000	0	111	40-135	0			
1,2-Dibromoethane	946	30	1000	0	94.6	70-125	0			
1,2-Dichlorobenzene	921	30	1000	0	92.1	75-120	0			
1,2-Dichloroethane	912	30	1000	0	91.2	70-135	0			
1,2-Dichloropropane	892.5	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	961.5	30	1000	0	96.2	65-135	0			
1,3-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
1,4-Dichlorobenzene	897.5	30	1000	0	89.8	70-125	0			
2-Butanone	1562	200	1000	0	156	30-160	0			
2-Hexanone	1268	30	1000	0	127	45-145	0			
4-Methyl-2-pentanone	1226	30	1000	0	123	45-145	0			
Acetone	1759	100	1000	0	176	20-160	0			BS
Acrylonitrile	1158	100	1000	0	116	70-135	0			
Benzene	950	30	1000	0	95	75-125	0			
Bromobenzene	836.5	30	1000	0	83.6	65-120	0			
Bromochloromethane	975.5	30	1000	0	97.6	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	845.5	30	1000	0	84.6	55-135	0			
Bromomethane	1018	75	1000	0	102	30-160	0			
Carbon disulfide	1186	30	1000	0	119	45-160	0			
Carbon tetrachloride	1000	30	1000	0	100	65-135	0			
Chlorobenzene	930.5	30	1000	0	93	75-125	0			
Chloroethane	1267	100	1000	0	127	40-155	0			
Chloroform	1006	30	1000	0	101	70-125	0			
Chloromethane	1264	100	1000	0	126	50-130	0			
cis-1,2-Dichloroethene	1040	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	972	30	1000	0	97.2	70-125	0			
Dibromochloromethane	845	30	1000	0	84.5	65-135	0			
Dibromomethane	971.5	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1146	30	1000	0	115	35-135	0			
Ethylbenzene	994	30	1000	0	99.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101**	Instrument ID **VMS5**		Method: **SW8260**					
Hexachloroethane	863	30	1000	0	86.3	70-135	0	
Isopropylbenzene	971.5	30	1000	0	97.2	75-130	0	
m,p-Xylene	1846	60	2000	0	92.3	80-125	0	
Methyl tert-butyl ether	1038	30	1000	0	104	75-125	0	
Methylene chloride	1056	30	1000	0	106	55-145	0	
Naphthalene	988.5	100	1000	0	98.8	40-140	0	
n-Butylbenzene	899	30	1000	0	89.9	65-140	0	
n-Propylbenzene	927	30	1000	0	92.7	65-135	0	
o-Xylene	912.5	30	1000	0	91.2	75-125	0	
p-Isopropyltoluene	887.5	30	1000	0	88.8	75-135	0	
sec-Butylbenzene	976	30	1000	0	97.6	65-130	0	
Styrene	931	30	1000	0	93.1	75-125	0	
tert-Butylbenzene	983.5	30	1000	0	98.4	65-130	0	
Tetrachloroethene	1024	30	1000	0	102	64-140	0	
Tetrahydrofuran	1916	200	1000	0	192	70-135	0	S
Toluene	1001	30	1000	0	100	70-125	0	
trans-1,2-Dichloroethene	1060	30	1000	0	106	65-135	0	
trans-1,3-Dichloropropene	933	30	1000	0	93.3	65-125	0	
trans-1,4-Dichloro-2-butene	706	30	1000	0	70.6	70-135	0	
Trichloroethene	981.5	30	1000	0	98.2	75-125	0	
Trichlorofluoromethane	1160	30	1000	0	116	25-185	0	
Vinyl chloride	1190	30	1000	0	119	60-125	0	
Surr: 1,2-Dichloroethane-d4	*960*	0	*1000*	0	*96*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1012*	0	*1000*	0	*101*	*70-130*	0	
Surr: Dibromofluoromethane	*941*	0	*1000*	0	*94.1*	*70-130*	0	
Surr: Toluene-d8	*980.5*	0	*1000*	0	*98*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/4/2012 12:53 PM**
Client ID: Run ID: **VMS7_120703B** SeqNo: **2020648** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	5165	160	5452	0	94.8	75-125	0			
1,1,1-Trichloroethane	4705	160	5452	0	86.3	70-135	0			
1,1,2,2-Tetrachloroethane	5430	160	5452	0	99.6	55-130	0			
1,1,2-Trichloroethane	5084	160	5452	0	93.2	60-125	0			
1,1-Dichloroethane	4454	160	5452	0	81.7	75-125	0			
1,1-Dichloroethene	3552	160	5452	0	65.2	65-135	0			
1,2,3-Trichlorobenzene	4157	160	5452	0	76.2	60-135	0			
1,2,3-Trichloropropane	5443	160	5452	0	99.8	65-130	0			
1,2,3-Trimethylbenzene	4628	160	5452	0	84.9	65-135	0			
1,2,4-Trichlorobenzene	4048	160	5452	0	74.2	65-130	0			
1,2,4-Trimethylbenzene	4707	160	5452	0	86.4	65-135	0			
1,2-Dibromo-3-chloropropane	4890	160	5452	0	89.7	40-135	0			
1,2-Dibromoethane	5433	160	5452	0	99.6	70-125	0			
1,2-Dichlorobenzene	4778	160	5452	0	87.6	75-120	0			
1,2-Dichloroethane	5013	160	5452	0	92	70-135	0			
1,2-Dichloropropane	4991	160	5452	0	91.6	70-120	0			
1,3,5-Trimethylbenzene	4762	160	5452	0	87.4	65-135	0			
1,3-Dichlorobenzene	4675	160	5452	0	85.8	70-125	0			
1,4-Dichlorobenzene	4609	160	5452	0	84.6	70-125	0			
2-Butanone	6755	550	5452	0	124	30-160	0			
2-Hexanone	6212	160	5452	0	114	45-145	0			
4-Methyl-2-pentanone	8581	160	5452	0	157	45-145	0			S
Acetone	10930	550	5452	0	200	20-160	0			S
Acrylonitrile	5239	160	5452	0	96.1	70-135	0			
Benzene	4762	160	5452	0	87.4	75-125	0			
Bromobenzene	4748	160	5452	0	87.1	65-120	0			
Bromochloromethane	4677	160	5452	0	85.8	70-125	0			
Bromodichloromethane	4969	160	5452	0	91.2	70-130	0			
Bromoform	4585	160	5452	0	84.1	55-135	0			
Bromomethane	2404	160	5452	0	44.1	30-160	0			
Carbon disulfide	3410	160	5452	0	62.6	45-160	0			
Carbon tetrachloride	3914	160	5452	0	71.8	65-135	0			
Chlorobenzene	5114	160	5452	0	93.8	75-125	0			
Chloroethane	3852	550	5452	0	70.6	40-155	0			
Chloroform	4857	160	5452	0	89.1	70-125	0			
Chloromethane	3435	160	5452	0	63	50-130	0			
cis-1,2-Dichloroethene	4492	160	5452	0	82.4	65-125	0			
cis-1,3-Dichloropropene	4607	160	5452	0	84.5	70-125	0			
Dibromochloromethane	5130	160	5452	0	94.1	65-135	0			
Dibromomethane	5130	160	5452	0	94.1	75-130	0			
Dichlorodifluoromethane	1265	160	5452	0	23.2	35-135	0			S
Ethylbenzene	4977	160	5452	0	91.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4181	160	5452	0	76.7	70-135	0	
Isopropylbenzene	4931	160	5452	0	90.4	75-130	0	
m,p-Xylene	9889	330	10900	0	90.7	80-125	0	
Methyl tert-butyl ether	5970	160	5452	0	110	75-125	0	
Methylene chloride	4716	160	5452	850.5	70.9	55-145	0	
Naphthalene	4184	550	5452	0	76.8	40-140	0	
n-Butylbenzene	4042	160	5452	0	74.2	65-140	0	
n-Propylbenzene	4650	160	5452	0	85.3	65-135	0	
o-Xylene	4896	160	5452	0	89.8	75-125	0	
p-Isopropyltoluene	4170	160	5452	0	76.5	75-135	0	
sec-Butylbenzene	4571	160	5452	0	83.8	65-130	0	
Styrene	3410	160	5452	0	62.6	75-125	0	S
tert-Butylbenzene	4645	160	5452	0	85.2	65-130	0	
Tetrachloroethene	4928	160	5452	0	90.4	64-140	0	
Tetrahydrofuran	5383	550	5452	0	98.8	70-135	0	
Toluene	4746	160	5452	0	87	70-125	0	
trans-1,2-Dichloroethene	4160	160	5452	0	76.3	65-135	0	
trans-1,3-Dichloropropene	4642	160	5452	0	85.2	65-125	0	
trans-1,4-Dichloro-2-butene	3827	160	5452	0	70.2	70-135	0	
Trichloroethene	4906	160	5452	0	90	75-125	0	
Trichlorofluoromethane	1780	160	5452	0	32.6	25-185	0	
Vinyl chloride	2827	160	5452	0	51.8	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*5509*	0	*5452*	0	*101*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5700*	0	*5452*	0	*105*	*70-130*	0	
Surr: Dibromofluoromethane	*5536*	0	*5452*	0	*102*	*70-130*	0	
Surr: Toluene-d8	*5577*	0	*5452*	0	*102*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **12061024-04A MS** Units: **µg/Kg** Analysis Date: **7/5/2012 10:51 PM**
Client ID: Run ID: **VMS5_120705A** SeqNo: **2021104** Prep Date: **7/2/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4503	160	5452	0	82.6	75-125	0			
1,1,1-Trichloroethane	5075	160	5452	0	93.1	70-135	0			
1,1,2,2-Tetrachloroethane	4397	160	5452	0	80.6	55-130	0			
1,1,2-Trichloroethane	4754	160	5452	0	87.2	60-125	0			
1,1-Dichloroethane	4890	160	5452	0	89.7	75-125	0			
1,1-Dichloroethene	5517	160	5452	0	101	65-135	0			
1,2,3-Trichlorobenzene	5037	160	5452	0	92.4	60-135	0			
1,2,3-Trichloropropane	4538	160	5452	0	83.2	65-130	0			
1,2,3-Trimethylbenzene	4830	160	5452	0	88.6	65-135	0			
1,2,4-Trichlorobenzene	4781	160	5452	0	87.7	65-130	0			
1,2,4-Trimethylbenzene	4560	160	5452	0	83.6	65-135	0			
1,2-Dibromo-3-chloropropane	4132	160	5452	0	75.8	40-135	0			
1,2-Dibromoethane	4386	160	5452	0	80.4	70-125	0			
1,2-Dichlorobenzene	4901	160	5452	0	89.9	75-120	0			
1,2-Dichloroethane	4784	160	5452	0	87.8	70-135	0			
1,2-Dichloropropane	4536	160	5452	0	83.2	70-120	0			
1,3,5-Trimethylbenzene	4672	160	5452	0	85.7	65-135	0			
1,3-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
1,4-Dichlorobenzene	4743	160	5452	0	87	70-125	0			
2-Butanone	6130	550	5452	0	112	30-160	0			B
2-Hexanone	4468	160	5452	0	82	45-145	0			
4-Methyl-2-pentanone	4707	160	5452	0	86.4	45-145	0			
Acetone	7534	550	5452	0	138	20-160	0			B
Acrylonitrile	4833	160	5452	0	88.6	70-135	0			
Benzene	4808	160	5452	0	88.2	75-125	0			
Bromobenzene	4081	160	5452	0	74.8	65-120	0			
Bromochloromethane	4969	160	5452	0	91.2	70-125	0			
Bromodichloromethane	4489	160	5452	0	82.4	70-130	0			
Bromoform	3552	160	5452	0	65.2	55-135	0			
Bromomethane	5018	160	5452	0	92	30-160	0			
Carbon disulfide	5896	160	5452	0	108	45-160	0			
Carbon tetrachloride	5043	160	5452	0	92.5	65-135	0			
Chlorobenzene	4615	160	5452	0	84.6	75-125	0			
Chloroethane	6417	550	5452	0	118	40-155	0			
Chloroform	5225	160	5452	0	95.8	70-125	0			
Chloromethane	6024	160	5452	0	110	50-130	0			
cis-1,2-Dichloroethene	4893	160	5452	0	89.8	65-125	0			
cis-1,3-Dichloropropene	4457	160	5452	0	81.8	70-125	0			
Dibromochloromethane	3980	160	5452	0	73	65-135	0			
Dibromomethane	4713	160	5452	0	86.4	75-130	0			
Dichlorodifluoromethane	5626	160	5452	0	103	35-135	0			
Ethylbenzene	4827	160	5452	0	88.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4326	160	5452	0	79.4	70-135	0	
Isopropylbenzene	4846	160	5452	0	88.9	75-130	0	
m,p-Xylene	9235	330	10900	0	84.7	80-125	0	
Methyl tert-butyl ether	5174	160	5452	0	94.9	75-125	0	
Methylene chloride	5454	160	5452	0	100	55-145	0	
Naphthalene	4318	550	5452	0	79.2	40-140	0	
n-Butylbenzene	4571	160	5452	0	83.8	65-140	0	
n-Propylbenzene	4544	160	5452	0	83.4	65-135	0	
o-Xylene	4500	160	5452	0	82.6	75-125	0	
p-Isopropyltoluene	4672	160	5452	0	85.7	75-135	0	
sec-Butylbenzene	4838	160	5452	0	88.8	65-130	0	
Styrene	4751	160	5452	0	87.2	75-125	0	
tert-Butylbenzene	4811	160	5452	0	88.2	65-130	0	
Tetrachloroethene	5002	160	5452	0	91.8	64-140	0	
Tetrahydrofuran	4986	550	5452	0	91.4	70-135	0	
Toluene	4964	160	5452	0	91	70-125	0	
trans-1,2-Dichloroethene	5427	160	5452	0	99.6	65-135	0	
trans-1,3-Dichloropropene	4100	160	5452	0	75.2	65-125	0	
trans-1,4-Dichloro-2-butene	2257	160	5452	0	41.4	70-135	0	S
Trichloroethene	4961	160	5452	0	91	75-125	0	
Trichlorofluoromethane	5561	160	5452	0	102	25-185	0	
Vinyl chloride	5634	160	5452	0	103	60-125	0	
Surr: 1,2-Dichloroethane-d4	*4896*	0	*5452*	0	*89.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5206*	0	*5452*	0	*95.5*	*70-130*	0	
Surr: Dibromofluoromethane	*5214*	0	*5452*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*5204*	0	*5452*	0	*95.4*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

MSD	Sample ID: **12061024-04A MSD**				Units: **µg/Kg**			Analysis Date: **7/5/2012 11:16 PM**			
Client ID:		Run ID: **VMS5_120705A**			SeqNo: **2021105**			Prep Date: **7/2/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4598	160	5452	0	84.4	75-125	4503	2.1	30	
1,1,1-Trichloroethane	5084	160	5452	0	93.2	70-135	5075	0.161	30	
1,1,2,2-Tetrachloroethane	4517	160	5452	0	82.8	55-130	4397	2.69	30	
1,1,2-Trichloroethane	4710	160	5452	0	86.4	60-125	4754	0.922	30	
1,1-Dichloroethane	4846	160	5452	0	88.9	75-125	4890	0.896	30	
1,1-Dichloroethene	5463	160	5452	0	100	65-135	5517	0.993	30	
1,2,3-Trichlorobenzene	5285	160	5452	0	97	60-135	5037	4.81	30	
1,2,3-Trichloropropane	4757	160	5452	0	87.2	65-130	4538	4.69	30	
1,2,3-Trimethylbenzene	4816	160	5452	0	88.4	65-135	4830	0.283	30	
1,2,4-Trichlorobenzene	5043	160	5452	0	92.5	65-130	4781	5.33	30	
1,2,4-Trimethylbenzene	4688	160	5452	0	86	65-135	4560	2.77	30	
1,2-Dibromo-3-chloropropane	4419	160	5452	0	81	40-135	4132	6.69	30	
1,2-Dibromoethane	4427	160	5452	0	81.2	70-125	4386	0.928	30	
1,2-Dichlorobenzene	4827	160	5452	0	88.6	75-120	4901	1.51	30	
1,2-Dichloroethane	4669	160	5452	0	85.6	70-135	4784	2.42	30	
1,2-Dichloropropane	4609	160	5452	0	84.6	70-120	4536	1.61	30	
1,3,5-Trimethylbenzene	4789	160	5452	0	87.8	65-135	4672	2.48	30	
1,3-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
1,4-Dichlorobenzene	4751	160	5452	0	87.2	70-125	4743	0.172	30	
2-Butanone	6656	550	5452	0	122	30-160	6130	8.23	30	B
2-Hexanone	4688	160	5452	0	86	45-145	4468	4.82	30	
4-Methyl-2-pentanone	4732	160	5452	0	86.8	45-145	4707	0.52	30	
Acetone	8311	550	5452	0	152	20-160	7534	9.81	30	B
Acrylonitrile	5056	160	5452	0	92.8	70-135	4833	4.52	30	
Benzene	4836	160	5452	0	88.7	75-125	4808	0.565	30	
Bromobenzene	4051	160	5452	0	74.3	65-120	4081	0.738	30	
Bromochloromethane	4686	160	5452	0	86	70-125	4969	5.87	30	
Bromodichloromethane	4538	160	5452	0	83.2	70-130	4489	1.09	30	
Bromoform	3677	160	5452	0	67.4	55-135	3552	3.47	30	
Bromomethane	4563	160	5452	0	83.7	30-160	5018	9.5	30	
Carbon disulfide	5550	160	5452	0	102	45-160	5896	6.05	30	
Carbon tetrachloride	4994	160	5452	0	91.6	65-135	5043	0.978	30	
Chlorobenzene	4601	160	5452	0	84.4	75-125	4615	0.296	30	
Chloroethane	5923	550	5452	0	109	40-155	6417	8	30	
Chloroform	4936	160	5452	0	90.6	70-125	5225	5.69	30	
Chloromethane	5610	160	5452	0	103	50-130	6024	7.12	30	
cis-1,2-Dichloroethene	4721	160	5452	0	86.6	65-125	4893	3.57	30	
cis-1,3-Dichloropropene	4530	160	5452	0	83.1	70-125	4457	1.64	30	
Dibromochloromethane	4026	160	5452	0	73.8	65-135	3980	1.16	30	
Dibromomethane	4806	160	5452	0	88.2	75-130	4713	1.95	30	
Dichlorodifluoromethane	5441	160	5452	0	99.8	35-135	5626	3.35	30	
Ethylbenzene	4833	160	5452	0	88.6	75-125	4827	0.113	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42101** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	4282	160	5452	0	78.6	70-135	4326	1.01	30	
Isopropylbenzene	4874	160	5452	0	89.4	75-130	4846	0.561	30	
m,p-Xylene	9096	330	10900	0	83.4	80-125	9235	1.52	30	
Methyl tert-butyl ether	5037	160	5452	0	92.4	75-125	5174	2.67	30	
Methylene chloride	5108	160	5452	0	93.7	55-145	5454	6.55	30	
Naphthalene	4525	550	5452	0	83	40-140	4318	4.69	30	
n-Butylbenzene	4579	160	5452	0	84	65-140	4571	0.179	30	
n-Propylbenzene	4604	160	5452	0	84.4	65-135	4544	1.31	30	
o-Xylene	4454	160	5452	0	81.7	75-125	4500	1.04	30	
p-Isopropyltoluene	4667	160	5452	0	85.6	75-135	4672	0.117	30	
sec-Butylbenzene	4977	160	5452	0	91.3	65-130	4838	2.83	30	
Styrene	4598	160	5452	0	84.4	75-125	4751	3.27	30	
tert-Butylbenzene	4915	160	5452	0	90.2	65-130	4811	2.13	30	
Tetrachloroethene	5070	160	5452	0	93	64-140	5002	1.35	30	
Tetrahydrofuran	5127	550	5452	0	94	70-135	4986	2.8	30	
Toluene	4827	160	5452	0	88.6	70-125	4964	2.78	30	
trans-1,2-Dichloroethene	5119	160	5452	0	93.9	65-135	5427	5.84	30	
trans-1,3-Dichloropropene	4135	160	5452	0	75.8	65-125	4100	0.861	30	
trans-1,4-Dichloro-2-butene	2410	160	5452	0	44.2	70-135	2257	6.54	30	S
Trichloroethene	4713	160	5452	0	86.4	75-125	4961	5.13	30	
Trichlorofluoromethane	5351	160	5452	0	98.2	25-185	5561	3.85	30	
Vinyl chloride	5517	160	5452	0	101	60-125	5634	2.1	30	
Surr: 1,2-Dichloroethane-d4	*5029*	0	*5452*	0	*92.2*	*70-130*	4896	*2.69*	*30*	
Surr: 4-Bromofluorobenzene	*5304*	0	*5452*	0	*97.3*	*70-130*	5206	*1.87*	*30*	
Surr: Dibromofluoromethane	*5182*	0	*5452*	0	*95*	*70-130*	5214	*0.629*	*30*	
Surr: Toluene-d8	*5324*	0	*5452*	0	*97.6*	*70-130*	5204	*2.28*	*30*	

The following samples were analyzed in this batch:

12061025-01A	12061025-02A	12061025-03A
12061025-04A	12061025-05A	12061025-06A
12061025-07A	12061025-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 12061025
Project: Marshall KRRI 0700I,0700L 6/28/12

QC BATCH REPORT

Batch ID: **R106840** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106840** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019090** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106840** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **12061024-04BDUP1** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019065** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	70.03	0.050	0	0	0	0-0	69.14	1.28	20	

DUP Sample ID: **12061024-04BDUP2** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: Run ID: **MOIST_120702B** SeqNo: **2019066** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	67.82	0.050	0	0	0	0-0	69.14	1.93	20	

DUP Sample ID: **12061025-02BDUP** Units: **% of sample** Analysis Date: **7/2/2012 02:14 PM**
Client ID: **SBKR0700I516S062812S006** Run ID: **MOIST_120702B** SeqNo: **2019072** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	32.53	0.050	0	0	0	0-0	32.85	0.979	20	

The following samples were analyzed in this batch:

12061025-01B	12061025-02B	12061025-03B
12061025-04B	12061025-05B	12061025-06B
12061025-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

12061025

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062812_GMK1	Task: KRRI_0700	
Total # of Samples: 8			Event Complete?
Turn Around Time	5 Day	Rush	No
BILLING CODE: 6.00			

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State,	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR0700I515S062812S005	SBKR0700I515	SO	G	06/28/2012 09:49	3			X	X	X	X	X											
2	SBKR0700I516S062812S006	SBKR0700I516	SO	G	06/28/2012 13:33	3			X	X	X	X	X											
3	SBKR0700I516D062812S006	SBKR0700I516	SO	G	06/28/2012 13:33	3	DUPLICATE		X	X	X	X	X											
4	SBKR0700I517S062812S007	SBKR0700I517	SO	G	06/28/2012 14:13	3			X	X	X	X	X											
5	SBKR0700I518S062812S004	SBKR0700I518	SO	G	06/28/2012 15:25	3			X	X	X	X	X											
6	SBKR0700I518S062812S016	SBKR0700I518	SO	G	06/28/2012 15:30	3			X	X	X	X	X											
7	SBKR0700I518T062812MX	SBKR0700I518	SQ	G	06/28/2012 00:00	1	TRIP BLANK						X											
8	SBKR0700L501S062812S004	SBKR0700L501	SO	G	06/28/2012 10:45	3			X	X	X	X	X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-28-12	1700		6-28-12	1700
	6-29-12	1656		6-29-12	1656

Sample Receipt Conditions

Temp in OC	Samples on ice?	Sample Intact?	Trip Blank?
4.2°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:

Company:

Tracking #:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: GERRY KRAMER (GMK1)

SIGNATURE of SAMPLER:

DATE Signed

Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **29-Jun-12 16:56**

Work Order: **12061025** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 30-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 30-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.2 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 06-29-12 Time: 1631
Name: Gerald Kruemer
Company:

Seal Broken By:

Date:

4.2°c

09-Jul-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI SPLP Reactivation June 2012** Work Order: **12061028**

Dear Mike,

ALS Environmental received 5 samples on 30-Jun-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 20.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: **12061028**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
12061028-01	SBKR1150L546S061112S005	Splp Extract		6/11/2012 14:39	6/30/2012	☐
12061028-02	SBKR1150L551S061212S011	Splp Extract		6/12/2012 08:50	6/30/2012	☐
12061028-03	SBKR0625R503S062112S006	Splp Extract		6/21/2012 09:10	6/30/2012	☐
12061028-04	SBKR0650R505S062112S012	Splp Extract		6/21/2012 09:33	6/30/2012	☐
12061028-05	SBKR0650R507S062212S004	Splp Extract		6/22/2012 10:10	6/30/2012	☐

ALS Group USA, Corp

Date: 09-Jul-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
WorkOrder: **12061028**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *09-Jul-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 12061028
Sample ID: SBKR1150L546S061112S005 **Lab ID:** 12061028-01
Collection Date: 6/11/2012 02:39 PM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/3/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	7/3/2012 08:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 12061028
Sample ID: SBKR1150L551S061212S011
Lab ID: 12061028-02
Collection Date: 6/12/2012 08:50 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/3/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	7/3/2012 08:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 12061028
Sample ID: SBKR0625R503S062112S006 **Lab ID:** 12061028-03
Collection Date: 6/21/2012 09:10 AM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/3/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	7/3/2012 08:19 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 12061028
Sample ID: SBKR0650R505S062112S012
Lab ID: 12061028-04
Collection Date: 6/21/2012 09:33 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/3/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	7/3/2012 08:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *09-Jul-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 12061028
Sample ID: SBKR0650R507S062212S004 **Lab ID:** 12061028-05
Collection Date: 6/22/2012 10:10 AM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **7/3/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	7/3/2012 08:29 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42125** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-42125-42125** Units: **mg/L** Analysis Date: **7/3/2012 01:00 PM**

Client ID: Run ID: **ICPMS2_120703A** SeqNo: **2019613** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.0003339	0.0050								J

LCS Sample ID: **LCS-42125-42125** Units: **mg/L** Analysis Date: **7/3/2012 01:15 PM**

Client ID: Run ID: **ICPMS2_120703A** SeqNo: **2019629** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09551	0.0050	0.1	0	95.5	80-120	0			

MS Sample ID: **1206797-16BMS** Units: **mg/L** Analysis Date: **7/3/2012 01:51 PM**

Client ID: Run ID: **ICPMS2_120703A** SeqNo: **2019656** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.1111	0.0050	0.1	0.001381	110	80-120	0			

MSD Sample ID: **1206797-16BMSD** Units: **mg/L** Analysis Date: **7/3/2012 01:56 PM**

Client ID: Run ID: **ICPMS2_120703A** SeqNo: **2019659** Prep Date: **7/3/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09648	0.0050	0.1	0.001381	95.1	80-120	0.1111	14.1	20	

The following samples were analyzed in this batch:

12061028-01A	12061028-02A	12061028-03A
12061028-04A	12061028-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206416
120 61028

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061112_LJL1	Task: KRRI_1150L
	Total # of Samples: 16	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:		Project Information:		Other Information:			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 8035/8260		SPLP Mo	6/3b/12	SHD							
1	SBKR1150L541D061112S005	SBKR1150L541	SO	G	06/11/2012 10:40	3	DUPLICATE		X	X	X	X	X											
2	SBKR1150L541S061112S005	SBKR1150L541	SO	G	06/11/2012 10:40	3			X	X	X	X	X											
3	SBKR1150L542S061112S008	SBKR1150L542	SO	G	06/11/2012 10:26	3			X	X	X	X	X											
4	SBKR1150L543S061112S006	SBKR1160L543	SO	G	06/11/2012 13:47	3			X	X	X	X	X											
5	SBKR1150L544S061112S010	SBKR1150L544	SO	G	06/11/2012 13:28	6	MS/MD		X	X	X	X	X											
6	SBKR1150L545S061112S005	SBKR1150L545	SO	G	06/11/2012 11:47	3	MDEQ SPLIT		X	X	X	X	X											
7	SBKR1150L545S061112S032	SBKR1150L545	SO	G	06/11/2012 11:51	3			X	X	X	X	X											
8	SBKR1150L546S061112S005	SBKR1150L546	SO	G	06/11/2012 14:39	3	MDEQ SPLIT		X	X	X	X	X		X									
9	SBKR1150L546S061112S020	SBKR1150L546	SO	G	06/11/2012 14:43	3			X	X	X	X	X											
10	SBKR1150L547S061112S004	SBKR1150L547	SO	G	06/11/2012 15:07	3			X	X	X	X	X											
11	SBKR1150L547S061112S020	SBKR1150L547	SO	G	06/11/2012 15:11	3			X	X	X	X	X											
12	SBKR1150L548S061112S005	SBKR1150L548	SO	G	06/11/2012 15:56	3			X	X	X	X	X											
13	SBKR1150L549D061112S006	SBKR1150L549	SO	G	06/11/2012 16:14	3	DUPLICATE		X	X	X	X	X											
14	SBKR1150L549S061112S006	SBKR1150L549	SO	G	06/11/2012 16:14	3			X	X	X	X	X											
15	SBKR1150L550S061112S006	SBKR1150L550	SO	G	06/11/2012 16:30	3			X	X	X	X	X											
16	SBKR1150L550T061112MX	SBKR1150L550	SQ	G	06/11/2012 00:00	1	TRIP BLANK						X											

01

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lorri Lego	6.11.12	1720	Ann Preston	6.11.12	1726
Ann Preston	6.13.12	1315		6.13.12	1513

Sample Receipt Conditions				
	Y/N	Y/N	Y/N	Y/N
3.0°	(Y)N	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
Temp in C	Samples on Ice?	Sample Intact?	Trip Blank?	

SHIPPING INFO	SAMPLER NAME AND SIGNATURE		
Company:	PRINT Name of SAMPLER:	LORRI LEGO (LJL1)	
Tracking #:	SIGNATURE of SAMPLER:	DATE Signed:	Time:

12064417 12061028

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061212_LJL1	Task: KRRI_1150L, 1325L,
	Total # of Samples: 15	Event Complete?

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9203
Lab PM:	Ana Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ana.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L551S061212S004	SBKR1150L551	SO	G	06/12/2012 08:46	3			X	X	X	X	X										
2	SBKR1150L551S061212S011	SBKR1150L551	SO	G	06/12/2012 08:50	3			X	X	X	X	X		X								
3	SBKR1150L552S061212S003	SBKR1150L552	SO	G	06/12/2012 09:27	3			X	X	X	X	X										
4	SBKR1150L552S061212S010	SBKR1150L552	SO	G	06/12/2012 09:33	3			X	X	X	X	X										
5	SBKR1325L501S061212S006	SBKR1325L501	SO	G	06/12/2012 10:32	3			X	X	X	X	X										
6	SBKR1325L502S061212S005	SBKR1325L502	SO	G	06/12/2012 10:54	3			X	X	X	X	X										
7	SBKR1325L503S061212S004	SBKR1325L503	SO	G	06/12/2012 13:18	3			X	X	X	X	X										
8	SBKR1325L504S061212S003	SBKR1325L504	SO	G	06/12/2012 13:40	3			X	X	X	X	X										
9	SBKR1325L505S061212S005	SBKR1325L505	SO	G	06/12/2012 14:18	3			X	X	X	X	X										
10	SBKR1325L506S061212S007	SBKR1325L506	SO	G	06/12/2012 14:55	3			X	X	X	X	X										
11	SBKR1325L506D061212S007	SBKR1325L506	SO	G	06/12/2012 14:55	3	DUPLICATE		X	X	X	X	X										
12	SBKR1325L507S061212S007	SBKR1325L507	SO	G	06/12/2012 15:29	6	MS/MSD		X	X	X	X	X										
13	SBKR1325L508S061212S005	SBKR1325L508	SO	G	06/12/2012 15:54	3			X	X	X	X	X										
14	SBKR1325L509S061212S004	SBKR1325L509	SO	G	06/12/2012 16:30	3			X	X	X	X	X										
15	SBKR1325L509T061212MX	SBKR1325L509	SQ	G	06/12/2012 00:00	1	TRIP BLANK						X										

SPLP MC 6/13/12

G2

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.12.12	1722		6.12.12	1722
	6.13.12	1314		6.13.12	1315

Sample Receipt Conditions				
Temp in DC	Samples on Ice?	Sample Intact?	Trip Blank?	
	Y/N	Y/N	Y/N	
2.0°c	(Y)N	(Y)N	(Y)N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

12061028
12061817

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #: of

COC # ENBRIDGE_062112_LJL1 | Task: KRRI_0600,0625,0650
Total # of Samples: 13 | Event Complete?
Turn Around Time: 5 Day | Rush: No
BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX | Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis:	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260	SPLP Mo	Mo	Be							
1	SBKR0600R514S062112S010	SBKR0600R514	SO	G	06/21/2012 10:31	3			X	X	X	X	X										
2	SBKR0600R515S062112S005	SBKR0600R515	SO	G	06/21/2012 10:41	3			X	X	X	X	X										
3	SBKR0625R503S062112S006	SBKR0625R503	SO	G	06/21/2012 09:10	6	MS/MSD		X	X	X	X	X	X									
4	SBKR0625R504D062112S005	SBKR0625R504	SO	G	06/21/2012 11:40	3	DUPLICATE		X	X	X	X	X										
5	SBKR0625R504S062112S005	SBKR0625R504	SO	G	06/21/2012 11:40	3			X	X	X	X	X										
6	SBKR0625R505S062112S006	SBKR0625R505	SO	G	06/21/2012 11:54	3			X	X	X	X	X										
7	SBKR0625R506S062112S006	SBKR0625R506	SO	G	06/21/2012 13:28	3			X	X	X	X	X										
8	SBKR0625R507S062112S005	SBKR0625R507	SO	G	06/21/2012 13:47	3			X	X	X	X	X										
9	SBKR0650I501S062112S005	SBKR0650I501	SO	G	06/21/2012 15:34	3			X	X	X	X	X										
10	SBKR0650I502S062112S004	SBKR0650I502	SO	G	06/21/2012 15:46	3			X	X	X	X	X										
11	SBKR0650I502T062112MX	SBKR0650I502	SQ	G	06/21/2012 00:00	1	TRIP BLANK						X										
12	SBKR0650R505S062112S004	SBKR0650R505	SO	G	06/21/2012 09:28	3			X	X	X	X	X										
13	SBKR0650R505S062112S012	SBKR0650R505	SO	G	06/21/2012 09:33	3			X	X	X	X	X	X									

03
04

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.21.12	1736		6.21.12	1736
	6.22.12	1646		6.22.12	1646

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
4.8°C	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1), APRIL MODERT
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1206818 / 12061028

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC # ENBRIDGE_062212_LJL1 | Task: KRRI_0650,0750,0775,0925
Total # of Samples: 11 | Event Complete?

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	6555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX Phone #: 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids State, Zip MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Me									
1	SBKR0650I503S062212S005	SBKR0650I503	SO	G	06/22/2012 08:42	3			X	X	X	X	X											
2	SBKR0650R506S062212S005	SBKR0650R506	SO	G	06/22/2012 08:30	3			X	X	X	X	X											
3	SBKR0650R507S062212S004	SBKR0650R507	SO	G	06/22/2012 10:10	3			X	X	X	X	X		X									
4	SBKR0750L506S062212S007	SBKR0750L506	SO	G	06/22/2012 12:48	3			X	X	X	X	X											
5	SBKR0750L507S062212S005	SBKR0750L507	SO	G	06/22/2012 12:59	3			X	X	X	X	X											
6	SBKR0750L507D062212S005	SBKR0750L507	SO	G	06/22/2012 12:59	3	DUPLICATE		X	X	X	X	X											
7	SBKR0775L504S062212S007	SBKR0775L504	SO	G	06/22/2012 13:17	3			X	X	X	X	X											
8	SBKR0925R501S062212S005	SBKR0925R501	SO	G	06/22/2012 14:26	3			X	X	X	X	X											
9	SBKR0925R502S062212S003	SBKR0925R502	SO	G	06/22/2012 14:36	3			X	X	X	X	X											
10	SBKR0925R503S062212S010	SBKR0925R503	SO	G	06/22/2012 15:52	3			X	X	X	X	X											
11	SBKR0925R503T062212MX	SBKR0925R503	SQ	G	06/22/2012 00:00	1	TRIP BLANK						X											

05

Additional Comments/Special Instructions:

RELIN. LISTED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lori Lego	6.22.12	1643		6-22-12	1643
	6.22.12	1646		6-22-12	1646

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
3.8°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER: DATE Signed: Time:

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Friday, June 29, 2012 4:47 PM
To: Ann Preston
Subject: KRRI SPLP

~~Latest splp – note the~~ *
1206818-03* — needs by 7/7/12 CS
~~1206299-01~~ – Already run
1206416-08 01
1206417-02 02

Thanks

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Friday, June 29, 2012 5:13 PM
To: Ann Preston
Subject: KRRI SPLP

Last ones to add before I go.
1206817-03 and 13 03, 04

Thanks

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **30-Jun-12 00:00**

Work Order: **12061028** Received by: **AP**

Checklist completed by Ann Preston (eSignature) 30-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 02-Jul-12 (Date)

Matrices: soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

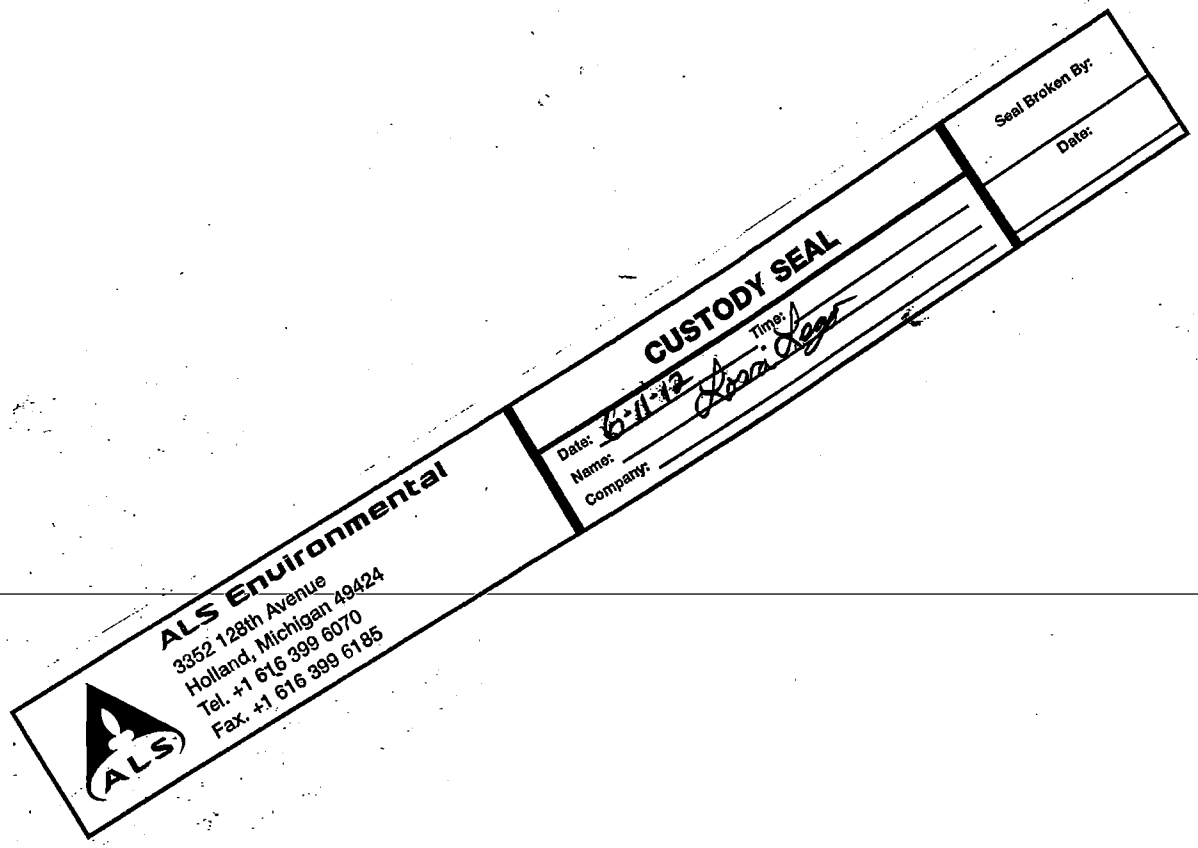
Login Notes: Reactivated from refrigerated storage

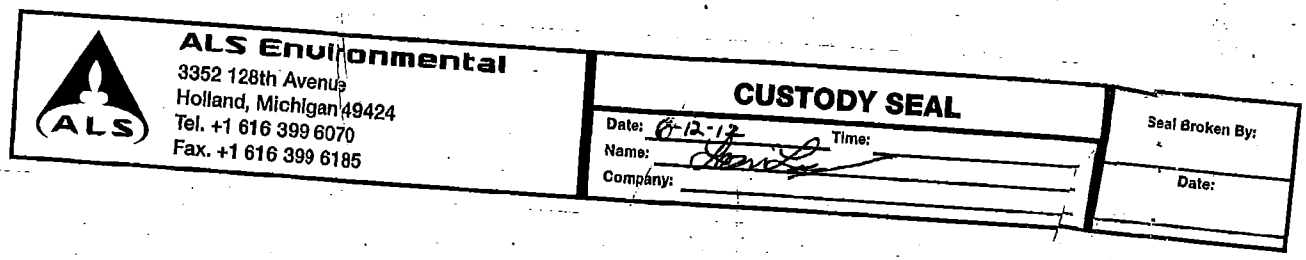
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-11-12
Time:
Name:
Company:
Seal Broken By:
Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-12-17
Time:
Name:
Company:
Seal Broken By:
Date:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-21-12 Time:
Name: Lori Kegg
Company:

Seal Broken By:

Date:

4.8.c

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-22-12 Time:
Name:
Company:

Seal Broken By:

Date:

3.8 °C

13-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1200-1225L,1150L 6/5/12** Work Order: **1206175**

Dear Bryan,

ALS Environmental received 7 samples on 06-Jun-2012 01:05 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 46.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1200-1225L,1150L 6/5/12
Work Order: **1206175**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206175-01	SBKR1150L535S060512S006	Soil		6/5/2012 15:50	6/6/2012 13:05	☐
1206175-02	SBKR1150L535T060512MX	Soil		6/5/2012	6/6/2012 13:05	☐
1206175-03	SBKR1200L510S060512S005	Soil		6/5/2012 08:40	6/6/2012 13:05	☐
1206175-04	SBKR1200L511S060512S005	Soil		6/5/2012 09:35	6/6/2012 13:05	☐
1206175-05	SBKR1200L513S060512S003	Soil		6/5/2012 10:40	6/6/2012 13:05	☐
1206175-06	SBKR1225L505S060512S005	Soil		6/5/2012 13:35	6/6/2012 13:05	☐
1206175-07	SBKR1225L507S060512S008	Soil		6/5/2012 14:15	6/6/2012 13:05	☐

Client: AECOM Environment
Project: Marshall KRRI 1200-1225L,1150L 6/5/12
Work Order: 1206175

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41497 MS/MSD data for DRO is not related to this project's samples.

Batch 41516 MS/MSD data for Metals is not related to this project's samples.

Batch 41496 samples 1206175-03, 1206175-04, and 1206175-07 PAH internal standard recoveries were below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

Batch 41497 samples 1206175-03, and 1206175-05 DRO surrogate recoveries were high due to matrix interference. The DRO results may be biased high.

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1200-1225L,1150L 6/5/12
WorkOrder: **1206175**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L535S060512S006
Work Order:	1206175	**Collection Date:**	6/5/2012 3:50:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**40**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**1,300**	**81**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*65.2*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.60	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**2.5**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*57.2*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*46.2*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*53.5*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*62.1*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*43.9*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*52.1*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	1,000	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L535S060512S006
Work Order:	1206175	**Collection Date:**	6/5/2012 3:50:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	1,000	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	1,000	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	1,000	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	1,000	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	1,000	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	1,000	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	3,400	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	3,400	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	8,500	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	1,000	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	3,400	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	1,000	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	1,000	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	1,000	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	1,000	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L535S060512S006
Work Order:	1206175	**Collection Date:**	6/5/2012 3:50:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	1,000	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	1,000	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	2,000	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	3,400	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	3,400	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	1,000	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	3,400	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	1,000	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	1,000	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	1,000	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**77**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L535T060512MX
Work Order:	1206175	**Collection Date:**	6/5/2012
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/13/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/13/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/13/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/13/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/13/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/13/2012
Benzene	ND	50	50		µg/Kg	1	6/13/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/13/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromoform	ND	100	100		µg/Kg	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/13/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/13/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/13/2012
Chloroethane	ND	250	250		µg/Kg	1	6/13/2012
Chloroform	ND	50	50		µg/Kg	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg	1	6/13/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L535T060512MX
Work Order:	1206175	**Collection Date:**	6/5/2012
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/13/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/13/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/13/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg	1	6/13/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/13/2012
o-Xylene	ND	50	50		µg/Kg	1	6/13/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/13/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Styrene	ND	50	50		µg/Kg	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/13/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/13/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/13/2012
Toluene	ND	100	100		µg/Kg	1	6/13/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/13/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/13/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/13/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*99.8*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*95.6*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L510S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 8:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**320**	**33**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**3,100**	**65**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*135*	*39-115*		S	*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.59	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	**890**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(a)pyrene	**1,100**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**1,600**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(k)fluoranthene	**740**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Chrysene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Fluoranthene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*89.0*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*53.9*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*65.6*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*96.0*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*58.1*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*71.4*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	620	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	620	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	620	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	620	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	620	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L510S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 8:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	620	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	620	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	620	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	620	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	620	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	620	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	620	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	620	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	2,100	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	2,100	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	5,200	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	620	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	620	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	620	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	620	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	620	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	620	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	620	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	620	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	620	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	2,100	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	620	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	620	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	620	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	620	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	620	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	620	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	620	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	620	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	620	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	620	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L510S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 8:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	620	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	620	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	620	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	1,200	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	620	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	620	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	620	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	2,100	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	620	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	620	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	620	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	620	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	620	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	620	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	2,100	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	620	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	620	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	620	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	620	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	620	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	620	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**71**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L511S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 9:35:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**86**	**23**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**740**	**46**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*66.1*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.71**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**32**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(a)pyrene	**600**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**780**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	**430**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Chrysene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Fluoranthene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*85.9*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*63.7*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*64.2*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*105*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*52.2*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*66.2*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	270	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L511S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 9:35:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	270	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	270	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	900	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	900	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,200	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	270	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	270	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	270	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	270	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	900	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	270	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	270	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	270	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	270	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	270	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L511S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 9:35:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	540	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	270	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	270	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	900	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	270	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	270	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	270	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	270	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	270	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	270	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	270	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*99.6*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*96.4*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*92.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**58**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L513S060512S003
Work Order:	1206175	**Collection Date:**	6/5/2012 10:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**61**	**15**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**320**	**30**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*122*	*39-115*		S	*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*86.3*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*70.9*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*74.8*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*68.0*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*74.7*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	110	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	110	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L513S060512S003
Work Order:	1206175	**Collection Date:**	6/5/2012 10:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	110	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	110	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	110	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	110	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	360	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	110	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	110	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	110	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	110	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	110	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	110	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	110	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	360	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	110	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	110	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L513S060512S003
Work Order:	1206175	**Collection Date:**	6/5/2012 10:40:00 AM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	110	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	220	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	110	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	110	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	360	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	110	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	110	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	110	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	110	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	110	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	110	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	110	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	110	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	110	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	110	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*95.8*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**38**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L505S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 1:35:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**23**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**830**	**46**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*73.0*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.66**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Chrysene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*91.6*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*79.0*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*86.3*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*73.0*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*79.5*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	310	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	310	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	310	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	310	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	310	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L505S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 1:35:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	310	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	310	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	310	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	310	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	310	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	310	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	310	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	310	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	310	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	1,000	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	1,000	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	310	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	310	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	310	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	310	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	310	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	310	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	310	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	310	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	310	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	1,000	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	310	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	520	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	310	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	310	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	310	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	310	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	310	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	310	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	310	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	310	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L505S060512S005
Work Order:	1206175	**Collection Date:**	6/5/2012 1:35:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	310	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	310	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	310	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	310	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	310	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	310	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	1,000	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	310	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	310	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	310	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	310	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	310	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	310	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	310	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	310	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	310	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	310	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	310	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	310	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	310	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	310	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	310	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	310	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*99.6*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*92.3*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L507S060512S008
Work Order:	1206175	**Collection Date:**	6/5/2012 2:15:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**38**	**14**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**260**	**28**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*91.2*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**7.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(b)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*95.0*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*72.4*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*79.8*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*122*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*66.2*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*76.2*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	82	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	82	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	82	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	82	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L507S060512S008
Work Order:	1206175	**Collection Date:**	6/5/2012 2:15:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	82	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	82	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	82	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	82	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	82	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	82	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	82	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	270	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	82	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	82	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L507S060512S008
Work Order:	1206175	**Collection Date:**	6/5/2012 2:15:00 PM
Project:	Marshall KRRI 1200-1225L,1150L 6/5/12		
Lab ID:	1206175-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	82	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	160	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	82	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	82	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	82	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	82	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	82	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	82	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	82	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*108*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*96.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*91.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**31**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206175

Project: Marshall KRRI 1200-1225L,1150L 6/5/12

Batch ID: **41497** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996986** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.998*	0	*5*	0	*60*	*39-115*	0			

LCS Sample ID: **DLCSS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996949** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.9	10	500	0	81.2	60-130	0			
ORO (C20-C34)	441.5	20	500	0	88.3	60-130	0			
Surr: 4-Terphenyl-d14	*5.445*	0	*5*	0	*109*	*39-115*	0			

MS Sample ID: **1206177-12A MS** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996987** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	402.8	9.5	476.6	30.71	78.1	60-130	0			
ORO (C20-C34)	582	19	476.6	129.8	94.9	60-130	0			
Surr: 4-Terphenyl-d14	*4.459*	0	*4.766*	0	*93.5*	*39-115*	0			

MSD Sample ID: **1206177-12A MSD** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996950** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.3	9.8	489.9	30.71	66.9	60-130	402.8	11.7	30	
ORO (C20-C34)	542.3	20	489.9	129.8	84.2	60-130	582	7.07	30	
Surr: 4-Terphenyl-d14	*2.514*	0	*4.899*	0	*51.3*	*39-115*	4.459	*55.8*	*30*	*R*

The following samples were analyzed in this batch:

1206175-01A	1206175-03A	1206175-04A
1206175-05A	1206175-06A	1206175-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206175
Project: Marshall KRRI 1200-1225L,1150L 6/5/12

QC BATCH REPORT

Batch ID: **41516** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:38 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994404** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.00503	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:45 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994405** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.738	0.10	5	0	94.8	80-120	0			
Molybdenum	4.666	0.25	5	0	93.3	80-120	0			
Nickel	4.494	0.25	5	0	89.9	80-120	0			
Vanadium	4.602	0.25	5	0	92	80-120	0			

MS Sample ID: **1206177-12AMS** Units: **mg/Kg** Analysis Date: **6/8/2012 04:24 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994708** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.976	0.65	8.078	0.1653	84.3	80-120	0			
Molybdenum	7.422	1.6	8.078	0.5807	84.7	80-120	0			
Nickel	11.68	1.6	8.078	4.986	82.9	80-120	0			
Vanadium	16.45	1.6	8.078	9.646	84.2	80-120	0			

MSD Sample ID: **1206177-12AMSD** Units: **mg/Kg** Analysis Date: **6/8/2012 04:30 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994709** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.698	0.52	6.452	0.1653	85.8	80-120	6.976	20.2	25	
Molybdenum	6.095	1.3	6.452	0.5807	85.5	80-120	7.422	19.6	25	
Nickel	9.897	1.3	6.452	4.986	76.1	80-120	11.68	16.5	25	S
Vanadium	14.68	1.3	6.452	9.646	78	80-120	16.45	11.4	25	S

The following samples were analyzed in this batch:

1206175-01A	1206175-03A	1206175-04A
1206175-05A	1206175-06A	1206175-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 06:53 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993874** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4451*	0	*5000*	0	*89*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3702*	0	*5000*	0	*74*	*12-100*	0			
Surr: 2-Fluorophenol	*4366*	0	*5000*	0	*87.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5718*	0	*5000*	0	*114*	*25-137*	0			
Surr: Nitrobenzene-d5	*3702*	0	*5000*	0	*74*	*37-107*	0			
Surr: Phenol-d6	*4164*	0	*5000*	0	*83.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 07:28 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993875** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1601	50	2000	0	80	45-105	0			
Acenaphthene	1634	50	2000	0	81.7	45-110	0			
Acenaphthylene	1684	50	2000	0	84.2	45-105	0			
Anthracene	1812	50	2000	0	90.6	55-105	0			
Benzo(a)anthracene	1798	50	2000	0	89.9	50-110	0			
Benzo(a)pyrene	1883	50	2000	0	94.2	50-110	0			
Benzo(b)fluoranthene	1793	50	2000	0	89.6	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	2059	50	2000	0	103	45-115	0			
Chrysene	1925	50	2000	0	96.2	55-110	0			
Dibenzo(a,h)anthracene	2031	50	2000	0	102	40-125	0			
Fluoranthene	1863	50	2000	0	93.2	55-115	0			
Fluorene	1743	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	2036	50	2000	0	102	40-120	0			
Naphthalene	1589	50	2000	0	79.4	40-105	0			
Phenanthrene	1806	50	2000	0	90.3	50-110	0			
Pyrene	1905	50	2000	0	95.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4253*	0	*5000*	0	*85.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3590*	0	*5000*	0	*71.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4169*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5278*	0	*5000*	0	*106*	*25-137*	0			
Surr: Nitrobenzene-d5	*3655*	0	*5000*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3948*	0	*5000*	0	*79*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206177-12A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 08:03 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993876** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1477	48	1938	0	76.2	45-105	0			
Acenaphthene	1538	48	1938	0	79.4	45-110	0			
Acenaphthylene	1603	48	1938	0	82.7	45-105	0			
Anthracene	1801	48	1938	0	92.9	55-105	0			
Benzo(a)anthracene	1942	48	1938	118.7	94.1	50-110	0			
Benzo(a)pyrene	2028	48	1938	158.2	96.4	50-110	0			
Benzo(b)fluoranthene	2001	48	1938	176.1	94.2	45-115	0			
Benzo(g,h,i)perylene	2069	48	1938	120.6	101	40-125	0			
Benzo(k)fluoranthene	2012	48	1938	70.64	100	45-115	0			
Chrysene	2074	48	1938	150.7	99.2	55-110	0			
Dibenzo(a,h)anthracene	1850	48	1938	0	95.4	40-125	0			
Fluoranthene	1965	48	1938	124.3	94.9	55-115	0			
Fluorene	1625	48	1938	0	83.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1984	48	1938	87.6	97.8	40-120	0			
Naphthalene	1435	48	1938	0	74	40-105	0			
Phenanthrene	1793	48	1938	0	92.5	50-110	0			
Pyrene	2038	48	1938	173.3	96.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4428*	0	*4846*	0	*91.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3443*	0	*4846*	0	*71*	*12-100*	0			
Surr: 2-Fluorophenol	*3705*	0	*4846*	0	*76.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4861*	0	*4846*	0	*100*	*25-137*	0			
Surr: Nitrobenzene-d5	*3363*	0	*4846*	0	*69.4*	*37-107*	0			
Surr: Phenol-d6	*3645*	0	*4846*	0	*75.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206175
Project: Marshall KRRI 1200-1225L,1150L 6/5/12

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206177-12A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 08:37 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993877** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1469	47	1889	0	77.8	45-105	1477	0.569	30	
Acenaphthene	1578	47	1889	0	83.6	45-110	1538	2.57	30	
Acenaphthylene	1646	47	1889	0	87.2	45-105	1603	2.66	30	
Anthracene	1790	47	1889	0	94.8	55-105	1801	0.611	30	
Benzo(a)anthracene	1882	47	1889	118.7	93.4	50-110	1942	3.13	30	
Benzo(a)pyrene	1935	47	1889	158.2	94.1	50-110	2028	4.66	30	
Benzo(b)fluoranthene	1877	47	1889	176.1	90	45-115	2001	6.43	30	
Benzo(g,h,i)perylene	1866	47	1889	120.6	92.4	40-125	2069	10.3	30	
Benzo(k)fluoranthene	1789	47	1889	70.64	91	45-115	2012	11.7	30	
Chrysene	2023	47	1889	150.7	99.1	55-110	2074	2.49	30	
Dibenzo(a,h)anthracene	1752	47	1889	0	92.8	40-125	1850	5.45	30	
Fluoranthene	1859	47	1889	124.3	91.8	55-115	1965	5.54	30	
Fluorene	1685	47	1889	0	89.2	50-110	1625	3.6	30	
Indeno(1,2,3-cd)pyrene	1851	47	1889	87.6	93.4	40-120	1984	6.92	30	
Naphthalene	1452	47	1889	0	76.8	40-105	1435	1.13	30	
Phenanthrene	1789	47	1889	0	94.7	50-110	1793	0.233	30	
Pyrene	1913	47	1889	173.3	92.1	45-125	2038	6.31	30	
Surr: 2,4,6-Tribromophenol	*4491*	0	*4722*	0	*95.1*	*34-140*	4428	*1.41*	*40*	
Surr: 2-Fluorobiphenyl	*3521*	0	*4722*	0	*74.6*	*12-100*	3443	*2.25*	*40*	
Surr: 2-Fluorophenol	*3848*	0	*4722*	0	*81.5*	*33-117*	3705	*3.78*	*40*	
Surr: 4-Terphenyl-d14	*4953*	0	*4722*	0	*105*	*25-137*	4861	*1.86*	*40*	
Surr: Nitrobenzene-d5	*3365*	0	*4722*	0	*71.3*	*37-107*	3363	*0.0617*	*40*	
Surr: Phenol-d6	*3716*	0	*4722*	0	*78.7*	*40-106*	3645	*1.91*	*40*	

The following samples were analyzed in this batch:

1206175-01A	1206175-03A	1206175-04A
1206175-05A	1206175-06A	1206175-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41542-41542** Units: **µg/Kg** Analysis Date: **6/11/2012 06:02 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996585** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3908*	0	*5000*	0	*78.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3028*	0	*5000*	0	*60.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3956*	0	*5000*	0	*79.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4487*	0	*5000*	0	*89.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3694*	0	*5000*	0	*73.9*	*37-107*	0			
Surr: Phenol-d6	*4059*	0	*5000*	0	*81.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41542-41542** Units: **µg/Kg** Analysis Date: **6/11/2012 06:32 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996586** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1751	50	2000	0	87.6	45-105	0			
Acenaphthene	1652	50	2000	0	82.6	45-110	0			
Acenaphthylene	1681	50	2000	0	84	45-105	0			
Anthracene	1737	50	2000	0	86.8	55-105	0			
Benzo(a)anthracene	1725	50	2000	0	86.2	50-110	0			
Benzo(a)pyrene	1746	50	2000	0	87.3	50-110	0			
Benzo(b)fluoranthene	1746	50	2000	0	87.3	45-115	0			
Benzo(g,h,i)perylene	1816	50	2000	0	90.8	40-125	0			
Benzo(k)fluoranthene	1862	50	2000	0	93.1	45-115	0			
Chrysene	1794	50	2000	0	89.7	55-110	0			
Dibenzo(a,h)anthracene	1727	50	2000	0	86.4	40-125	0			
Fluoranthene	1892	50	2000	0	94.6	55-115	0			
Fluorene	1746	50	2000	0	87.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1737	50	2000	0	86.8	40-120	0			
Naphthalene	1654	50	2000	0	82.7	40-105	0			
Phenanthrene	1727	50	2000	0	86.4	50-110	0			
Pyrene	1872	50	2000	0	93.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*3864*	0	*5000*	0	*77.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3075*	0	*5000*	0	*61.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3780*	0	*5000*	0	*75.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4466*	0	*5000*	0	*89.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3634*	0	*5000*	0	*72.7*	*37-107*	0			
Surr: Phenol-d6	*3831*	0	*5000*	0	*76.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206191-01B MS** Units: **µg/Kg** Analysis Date: **6/11/2012 07:02 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996588** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1128	32	1268	0	89	45-105	0			
Acenaphthene	1138	32	1268	0	89.8	45-110	0			
Acenaphthylene	1152	32	1268	0	90.8	45-105	0			
Anthracene	1222	32	1268	0	96.4	55-105	0			
Benzo(a)anthracene	1202	32	1268	0	94.8	50-110	0			
Benzo(a)pyrene	1243	32	1268	0	98	50-110	0			
Benzo(b)fluoranthene	1260	32	1268	0	99.4	45-115	0			
Benzo(g,h,i)perylene	1297	32	1268	0	102	40-125	0			
Benzo(k)fluoranthene	1229	32	1268	0	96.9	45-115	0			
Chrysene	1226	32	1268	0	96.7	55-110	0			
Dibenzo(a,h)anthracene	1210	32	1268	0	95.4	40-125	0			
Fluoranthene	1276	32	1268	0	101	55-115	0			
Fluorene	1229	32	1268	0	97	50-110	0			
Indeno(1,2,3-cd)pyrene	1232	32	1268	0	97.2	40-120	0			
Naphthalene	1081	32	1268	0	85.2	40-105	0			
Phenanthrene	1203	32	1268	0	94.9	50-110	0			
Pyrene	1279	32	1268	0	101	45-125	0			
Surr: 2,4,6-Tribromophenol	*2921*	0	*3170*	0	*92.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*1883*	0	*3170*	0	*59.4*	*12-100*	0			
Surr: 2-Fluorophenol	*2408*	0	*3170*	0	*76*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3004*	0	*3170*	0	*94.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*2266*	0	*3170*	0	*71.5*	*37-107*	0			
Surr: Phenol-d6	*2405*	0	*3170*	0	*75.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206191-01B MSD** Units: **µg/Kg** Analysis Date: **6/11/2012 07:32 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996593** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1118	31	1250	0	89.4	45-105	1128	0.831	30	
Acenaphthene	1138	31	1250	0	91	45-110	1138	0.0468	30	
Acenaphthylene	1156	31	1250	0	92.4	45-105	1152	0.355	30	
Anthracene	1218	31	1250	0	97.4	55-105	1222	0.307	30	
Benzo(a)anthracene	1183	31	1250	0	94.6	50-110	1202	1.6	30	
Benzo(a)pyrene	1230	31	1250	0	98.4	50-110	1243	1.03	30	
Benzo(b)fluoranthene	1182	31	1250	0	94.6	45-115	1260	6.39	30	
Benzo(g,h,i)perylene	1297	31	1250	0	104	40-125	1297	0.0321	30	
Benzo(k)fluoranthene	1295	31	1250	0	104	45-115	1229	5.29	30	
Chrysene	1221	31	1250	0	97.6	55-110	1226	0.414	30	
Dibenzo(a,h)anthracene	1209	31	1250	0	96.7	40-125	1210	0.0378	30	
Fluoranthene	1267	31	1250	0	101	55-115	1276	0.698	30	
Fluorene	1209	31	1250	0	96.6	50-110	1229	1.7	30	
Indeno(1,2,3-cd)pyrene	1230	31	1250	0	98.4	40-120	1232	0.113	30	
Naphthalene	1047	31	1250	0	83.8	40-105	1081	3.17	30	
Phenanthrene	1188	31	1250	0	95	50-110	1203	1.29	30	
Pyrene	1278	31	1250	0	102	45-125	1279	0.0616	30	
Surr: 2,4,6-Tribromophenol	*3031*	0	*3126*	0	*97*	*34-140*	2921	*3.71*	*40*	
Surr: 2-Fluorobiphenyl	*1941*	0	*3126*	0	*62.1*	*12-100*	1883	*3.05*	*40*	
Surr: 2-Fluorophenol	*2405*	0	*3126*	0	*76.9*	*33-117*	2408	*0.109*	*40*	
Surr: 4-Terphenyl-d14	*3054*	0	*3126*	0	*97.7*	*25-137*	3004	*1.66*	*40*	
Surr: Nitrobenzene-d5	*2246*	0	*3126*	0	*71.9*	*37-107*	2266	*0.861*	*40*	
Surr: Phenol-d6	*2419*	0	*3126*	0	*77.4*	*40-106*	2405	*0.566*	*40*	

The following samples were analyzed in this batch: 1206175-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41558-41558** Units: **µg/Kg** Analysis Date: **6/12/2012 06:50 PM**
Client ID: Run ID: **VMS8_120612B** SeqNo: **1997380** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	677.5	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	109	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*948*	0	*1000*	0	*94.8*	*70-130*	0
Surr: Dibromofluoromethane	*918*	0	*1000*	0	*91.8*	*70-130*	0
Surr: Toluene-d8	*999*	0	*1000*	0	*99.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41558-41558** Units: **µg/Kg** Analysis Date: **6/13/2012 10:09 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1997871** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	42	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	21.5	30						J
Naphthalene	ND	100						
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*985*	0	*1000*	0	*98.5*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*980.5*	0	*1000*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*956.5*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*1011*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41558-41558** Units: **µg/Kg** Analysis Date: **6/13/2012 08:54 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1997235** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	995.5	30	1000	0	99.6	75-125	0			
1,1,1-Trichloroethane	997.5	30	1000	0	99.8	70-135	0			
1,1,2,2-Tetrachloroethane	989	30	1000	0	98.9	55-130	0			
1,1,2-Trichloroethane	965.5	30	1000	0	96.6	60-125	0			
1,1-Dichloroethane	923.5	30	1000	0	92.4	75-125	0			
1,1-Dichloroethene	975.5	30	1000	0	97.6	65-135	0			
1,2,3-Trichlorobenzene	977.5	30	1000	0	97.8	60-135	0			
1,2,3-Trichloropropane	1056	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	907.5	30	1000	0	90.8	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	937.5	30	1000	0	93.8	65-135	0			
1,2-Dibromo-3-chloropropane	1022	30	1000	0	102	40-135	0			
1,2-Dibromoethane	1010	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	952.5	30	1000	0	95.2	75-120	0			
1,2-Dichloroethane	974.5	30	1000	0	97.4	70-135	0			
1,2-Dichloropropane	963.5	30	1000	0	96.4	70-120	0			
1,3,5-Trimethylbenzene	952.5	30	1000	0	95.2	65-135	0			
1,3-Dichlorobenzene	971	30	1000	0	97.1	70-125	0			
1,4-Dichlorobenzene	986.5	30	1000	0	98.6	70-125	0			
2-Butanone	1086	200	1000	0	109	30-160	0			
2-Hexanone	931.5	30	1000	0	93.2	45-145	0			
4-Methyl-2-pentanone	1356	30	1000	0	136	45-145	0			
Acetone	901	100	1000	0	90.1	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	927	30	1000	0	92.7	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	981.5	30	1000	0	98.2	70-130	0			
Bromoform	883.5	30	1000	0	88.4	55-135	0			
Bromomethane	1083	75	1000	0	108	30-160	0			
Carbon disulfide	1026	30	1000	0	103	45-160	0			
Carbon tetrachloride	1012	30	1000	0	101	65-135	0			
Chlorobenzene	954	30	1000	0	95.4	75-125	0			
Chloroethane	942.5	100	1000	0	94.2	40-155	0			
Chloroform	950	30	1000	0	95	70-125	0			
Chloromethane	858.5	100	1000	0	85.8	50-130	0			
cis-1,2-Dichloroethene	921.5	30	1000	0	92.2	65-125	0			
cis-1,3-Dichloropropene	1065	30	1000	0	106	70-125	0			
Dibromochloromethane	1048	30	1000	0	105	65-135	0			
Dibromomethane	991	30	1000	0	99.1	75-130	0			
Dichlorodifluoromethane	724.5	30	1000	0	72.4	35-135	0			
Ethylbenzene	941.5	30	1000	0	94.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	937	30	1000	0	93.7	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1852	60	2000	0	92.6	80-125	0
Methyl tert-butyl ether	1012	30	1000	0	101	75-125	0
Methylene chloride	1034	30	1000	0	103	55-145	0
Naphthalene	931	100	1000	0	93.1	40-140	0
n-Butylbenzene	998	30	1000	0	99.8	65-140	0
n-Propylbenzene	916	30	1000	0	91.6	65-135	0
o-Xylene	945	30	1000	0	94.5	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	967	30	1000	0	96.7	65-130	0
Styrene	965	30	1000	0	96.5	75-125	0
tert-Butylbenzene	956.5	30	1000	0	95.6	65-130	0
Tetrachloroethene	930.5	30	1000	0	93	64-140	0
Tetrahydrofuran	809.5	200	1000	0	81	70-135	0
Toluene	935.5	30	1000	0	93.6	70-125	0
trans-1,2-Dichloroethene	991	30	1000	0	99.1	65-135	0
trans-1,3-Dichloropropene	1032	30	1000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	885.5	30	1000	0	88.6	70-135	0
Trichloroethene	934	30	1000	0	93.4	75-125	0
Trichlorofluoromethane	963.5	30	1000	0	96.4	25-185	0
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*985.5*	0	*1000*	0	*98.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1007*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206175
Project: Marshall KRRI 1200-1225L,1150L 6/5/12

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41558-41558** Units: **µg/Kg** Analysis Date: **6/12/2012 05:37 PM**
Client ID: Run ID: **VMS8_120612B** SeqNo: **1997377** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	982.5	30	1000	0	98.2	75-125	0			
1,1,1-Trichloroethane	942	30	1000	0	94.2	70-135	0			
1,1,2,2-Tetrachloroethane	932.5	30	1000	0	93.2	55-130	0			
1,1,2-Trichloroethane	951	30	1000	0	95.1	60-125	0			
1,1-Dichloroethane	894	30	1000	0	89.4	75-125	0			
1,1-Dichloroethene	883	30	1000	0	88.3	65-135	0			
1,2,3-Trichlorobenzene	1336	30	1000	0	134	60-135	0			
1,2,3-Trichloropropane	909.5	30	1000	0	91	65-130	0			
1,2,3-Trimethylbenzene	918	30	1000	0	91.8	65-135	0			
1,2,4-Trichlorobenzene	1224	30	1000	0	122	65-130	0			
1,2,4-Trimethylbenzene	985.5	30	1000	0	98.6	65-135	0			
1,2-Dibromo-3-chloropropane	982.5	30	1000	0	98.2	40-135	0			
1,2-Dibromoethane	1012	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	0			
1,2-Dichloroethane	963.5	30	1000	0	96.4	70-135	0			
1,2-Dichloropropane	885.5	30	1000	0	88.6	70-120	0			
1,3,5-Trimethylbenzene	1001	30	1000	0	100	65-135	0			
1,3-Dichlorobenzene	969.5	30	1000	0	97	70-125	0			
1,4-Dichlorobenzene	1009	30	1000	0	101	70-125	0			
2-Butanone	753	200	1000	0	75.3	30-160	0			
2-Hexanone	1014	30	1000	0	101	45-145	0			
4-Methyl-2-pentanone	1296	30	1000	0	130	45-145	0			
Acetone	887.5	100	1000	0	88.8	20-160	0			
Acrylonitrile	809.5	100	1000	0	81	70-135	0			
Benzene	920.5	30	1000	0	92	75-125	0			
Bromobenzene	979	30	1000	0	97.9	65-120	0			
Bromochloromethane	964	30	1000	0	96.4	70-125	0			
Bromodichloromethane	867	30	1000	0	86.7	70-130	0			
Bromoform	871	30	1000	0	87.1	55-135	0			
Bromomethane	953.5	75	1000	0	95.4	30-160	0			
Carbon disulfide	820	30	1000	0	82	45-160	0			
Carbon tetrachloride	862	30	1000	0	86.2	65-135	0			
Chlorobenzene	1008	30	1000	0	101	75-125	0			
Chloroethane	823.5	100	1000	0	82.4	40-155	0			
Chloroform	921	30	1000	0	92.1	70-125	0			
Chloromethane	721	100	1000	0	72.1	50-130	0			
cis-1,2-Dichloroethene	916	30	1000	0	91.6	65-125	0			
cis-1,3-Dichloropropene	1007	30	1000	0	101	70-125	0			
Dibromochloromethane	901	30	1000	0	90.1	65-135	0			
Dibromomethane	889.5	30	1000	0	89	75-130	0			
Dichlorodifluoromethane	562	30	1000	0	56.2	35-135	0			
Ethylbenzene	977.5	30	1000	0	97.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	786.5	30	1000	0	78.6	70-135	0	
Isopropylbenzene	1002	30	1000	0	100	75-130	0	
m,p-Xylene	1952	60	2000	0	97.6	80-125	0	
Methyl tert-butyl ether	944.5	30	1000	0	94.4	75-125	0	
Methylene chloride	925	30	1000	0	92.5	55-145	0	
Naphthalene	1230	100	1000	0	123	40-140	0	B
n-Butylbenzene	1020	30	1000	0	102	65-140	0	
n-Propylbenzene	1022	30	1000	0	102	65-135	0	
o-Xylene	966	30	1000	0	96.6	75-125	0	
p-Isopropyltoluene	983.5	30	1000	0	98.4	75-135	0	
sec-Butylbenzene	1086	30	1000	0	109	65-130	0	
Styrene	952	30	1000	0	95.2	75-125	0	
tert-Butylbenzene	1037	30	1000	0	104	65-130	0	
Tetrachloroethene	1054	30	1000	0	105	64-140	0	
Tetrahydrofuran	878.5	200	1000	0	87.8	70-135	0	
Toluene	978.5	30	1000	0	97.8	70-125	0	
trans-1,2-Dichloroethene	954.5	30	1000	0	95.4	65-135	0	
trans-1,3-Dichloropropene	945.5	30	1000	0	94.6	65-125	0	
trans-1,4-Dichloro-2-butene	923	30	1000	0	92.3	70-135	0	
Trichloroethene	952.5	30	1000	0	95.2	75-125	0	
Trichlorofluoromethane	735.5	30	1000	0	73.6	25-185	0	
Vinyl chloride	732.5	30	1000	0	73.2	60-125	0	
Surr: 1,2-Dichloroethane-d4	*982.5*	0	*1000*	0	*98.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*993*	0	*1000*	0	*99.3*	*70-130*	0	
Surr: Dibromofluoromethane	*991.5*	0	*1000*	0	*99.2*	*70-130*	0	
Surr: Toluene-d8	*1016*	0	*1000*	0	*102*	*70-130*	0	

The following samples were analyzed in this batch:

1206175-01B	1206175-02A	1206175-03B
1206175-04B	1206175-05B	1206175-06B
1206175-07B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206175
Project: Marshall KRRI 1200-1225L,1150L 6/5/12

QC BATCH REPORT

Batch ID: **R105725** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206175-07ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: **SBKR1225L507S060512S008** Run ID: **MOIST_120607B** SeqNo: **1994151** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	29.1	0.050	0	0	0	0-0	30.96	6.19	20	

DUP Sample ID: **1206213-06ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	1.29	0.050	0	0	0	0-0	1.29	0	20	

The following samples were analyzed in this batch:

1206175-01A	1206175-03A	1206175-04A
1206175-05A	1206175-06A	1206175-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206175

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060512_PMB1	Task: KRRI_1200,1225,1150
	Total # of Samples: 7	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5036/8260										
1	SBKR1150L535S060512S006	SBKR1150L535	SO	G	06/05/2012 15:50	3			X	X	X	X	X										
2	SBKR1150L535T060512MX	SBKR1150L535	SQ	G	06/05/2012 00:00	1	TRIP BLANK						X										
3	SBKR1200L510S060512S005	SBKR1200L510	SO	G	06/05/2012 08:40	3			X	X	X	X	X										
4	SBKR1200L511S060512S005	SBKR1200L511	SO	G	06/05/2012 09:35	3			X	X	X	X	X										
5	SBKR1200L513S060512S003	SBKR1200L513	SO	G	06/05/2012 10:40	3			X	X	X	X	X										
6	SBKR1225L505S060512S005	SBKR1225L505	SO	G	06/05/2012 13:35	3			X	X	X	X	X										
7	SBKR1225L507S060512S008	SBKR1225L507	SO	G	06/05/2012 14:15	3			X	X	X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Peter Baerman	6.5.12	1702		6.5.12	1702
	6.6.12	1305		6.6.12	1305

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
	Y/N	Y/N	Y/N
2.2°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **06-Jun-12 13:05**

Work Order: **1206175** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 06-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 07-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental	CUSTODY SEAL	Seal Broken By:
3352 128th Avenue Holland, Michigan 49424 Tel. +1 616 399 6070 Fax. +1 616 399 6185	Date: 6-5-12 Time: 1700 Name: PMB Company: SEC	Date:

3.e.c

13-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1175-1225L 6/5/12** Work Order: **1206176**

Dear Bryan,

ALS Environmental received 6 samples on 06-Jun-2012 01:05 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1175-1225L 6/5/12
Work Order: **1206176**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206176-01	SBKR1175L502S060512S004	Soil		6/5/2012 16:05	6/6/2012 13:05	☐
1206176-02	SBKR1175L502T060512MX	Soil		6/5/2012	6/6/2012 13:05	☐
1206176-03	SBKR1200L512S060512S004	Soil		6/5/2012 09:50	6/6/2012 13:05	☐
1206176-04	SBKR1225L503S060512S004	Soil		6/5/2012 10:47	6/6/2012 13:05	☐
1206176-05	SBKR1225L504S060512S006	Soil		6/5/2012 13:15	6/6/2012 13:05	☐
1206176-06	SBKR1225L506S060512S004	Soil		6/5/2012 13:54	6/6/2012 13:05	☐

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1175-1225L 6/5/12
Work Order: 1206176

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41497 MS/MSD data for DRO is not related to this project's samples.

Batch 41516 MS/MSD data for Metals is not related to this project's samples.

Batch 41592 MS/MSD data for Volatiles is not related to this project's samples.

Batch 41496 sample 1206176-01 PAH internal standard recovery was below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1175-1225L 6/5/12
WorkOrder: **1206176**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L502S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 4:05:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**38**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**1,600**	**77**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*75.1*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.60	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.9**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(b)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*96.4*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*72.7*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*78.7*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*119*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*62.5*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*79.7*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	830	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	830	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	830	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	830	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	830	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L502S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 4:05:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	830	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	830	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	830	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	830	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	830	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	830	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	830	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	830	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	830	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	2,800	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	2,800	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	6,900	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	830	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	830	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	830	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	830	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	830	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	1,400	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	830	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	830	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	830	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	2,800	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	830	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	830	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	830	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	830	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	830	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	830	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	830	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	830	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	830	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	830	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	830	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L502S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 4:05:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	830	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	830	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	830	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	1,700	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	830	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	830	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	830	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	2,800	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	830	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	830	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	830	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	830	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	830	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	830	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,800	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	830	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	830	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	830	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	2,800	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	830	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	830	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	830	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	830	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	830	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	830	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	830	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*98.3*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*99.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**75**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L502T060512MX
Work Order:	1206176	**Collection Date:**	6/5/2012
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/12/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/12/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/12/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/12/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/12/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/12/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/12/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/12/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/12/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/12/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/12/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/12/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/12/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/12/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/12/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/12/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/12/2012
Benzene	ND	50	50		µg/Kg	1	6/12/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/12/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/12/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/12/2012
Bromoform	ND	100	100		µg/Kg	1	6/12/2012
Bromomethane	ND	200	200		µg/Kg	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/12/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/12/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/12/2012
Chloroethane	ND	250	250		µg/Kg	1	6/12/2012
Chloroform	ND	50	50		µg/Kg	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg	1	6/12/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/12/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1175L502T060512MX
Work Order:	1206176	**Collection Date:**	6/5/2012
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/12/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/12/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/12/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/12/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/12/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/12/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg	1	6/12/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/12/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/12/2012
o-Xylene	ND	50	50		µg/Kg	1	6/12/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/12/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/12/2012
Styrene	ND	50	50		µg/Kg	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/12/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/12/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/12/2012
Toluene	ND	100	100		µg/Kg	1	6/12/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/12/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/12/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/12/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/12/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*98.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*97.4*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L512S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 9:50:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**87**	**21**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**740**	**43**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*105*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.66**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**33**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(a)pyrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Chrysene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluoranthene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*97.7*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*66.5*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*71.3*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*116*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*61.0*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*70.4*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	260	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	260	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L512S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 9:50:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	260	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	260	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	260	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	260	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	260	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	860	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	860	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,200	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	260	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	260	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	260	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	260	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	260	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	260	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	260	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	260	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	260	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	860	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	260	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	260	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	260	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	260	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	260	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	260	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	260	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	260	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L512S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 9:50:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	260	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	260	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	520	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	260	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	260	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	260	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	860	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	260	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	260	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	260	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	260	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	260	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	260	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	260	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	260	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	260	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	260	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	260	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*96.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*98.1*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L503S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 10:47:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**72**	**21**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**570**	**42**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*56.3*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*96.6*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*70.9*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*74.0*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*111*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*65.3*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*75.3*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L503S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 10:47:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	770	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	770	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	230	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	230	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	770	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	230	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L503S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 10:47:00 AM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	230	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	770	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	230	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	230	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*98.2*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*96.3*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L504S060512S006
Work Order:	1206176	**Collection Date:**	6/5/2012 1:15:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**71**	**24**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**480**	**48**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*76.3*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.61**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*83.7*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*63.7*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*65.8*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*59.4*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*68.6*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L504S060512S006
Work Order:	1206176	**Collection Date:**	6/5/2012 1:15:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,400	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	280	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	280	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	280	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L504S060512S006
Work Order:	1206176	**Collection Date:**	6/5/2012 1:15:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	570	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	280	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	280	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	280	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*96.9*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*94.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L506S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 1:54:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**25**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**770**	**51**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*69.8*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**9.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*96.2*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*70.7*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*83.3*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*65.3*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*80.1*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L506S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 1:54:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	360	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	360	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	360	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L506S060512S004
Work Order:	1206176	**Collection Date:**	6/5/2012 1:54:00 PM
Project:	Marshall KRRI 1175-1225L 6/5/12		
Lab ID:	1206176-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	720	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	360	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	360	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	360	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*97.4*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*98.0*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41497** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996986** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.998*	0	*5*	0	*60*	*39-115*	0			

LCS Sample ID: **DLCSS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996949** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.9	10	500	0	81.2	60-130	0			
ORO (C20-C34)	441.5	20	500	0	88.3	60-130	0			
Surr: 4-Terphenyl-d14	*5.445*	0	*5*	0	*109*	*39-115*	0			

MS Sample ID: **1206177-12A MS** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996987** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	402.8	9.5	476.6	30.71	78.1	60-130	0			
ORO (C20-C34)	582	19	476.6	129.8	94.9	60-130	0			
Surr: 4-Terphenyl-d14	*4.459*	0	*4.766*	0	*93.5*	*39-115*	0			

MSD Sample ID: **1206177-12A MSD** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996950** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.3	9.8	489.9	30.71	66.9	60-130	402.8	11.7	30	
ORO (C20-C34)	542.3	20	489.9	129.8	84.2	60-130	582	7.07	30	
Surr: 4-Terphenyl-d14	*2.514*	0	*4.899*	0	*51.3*	*39-115*	4.459	*55.8*	*30*	*R*

The following samples were analyzed in this batch:

1206176-01A	1206176-03A	1206176-04A
1206176-05A	1206176-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41516** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:38 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994404** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.00503	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:45 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994405** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.738	0.10	5	0	94.8	80-120	0			
Molybdenum	4.666	0.25	5	0	93.3	80-120	0			
Nickel	4.494	0.25	5	0	89.9	80-120	0			
Vanadium	4.602	0.25	5	0	92	80-120	0			

MS Sample ID: **1206177-12AMS** Units: **mg/Kg** Analysis Date: **6/8/2012 04:24 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994708** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.976	0.65	8.078	0.1653	84.3	80-120	0			
Molybdenum	7.422	1.6	8.078	0.5807	84.7	80-120	0			
Nickel	11.68	1.6	8.078	4.986	82.9	80-120	0			
Vanadium	16.45	1.6	8.078	9.646	84.2	80-120	0			

MSD Sample ID: **1206177-12AMSD** Units: **mg/Kg** Analysis Date: **6/8/2012 04:30 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994709** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.698	0.52	6.452	0.1653	85.8	80-120	6.976	20.2	25	
Molybdenum	6.095	1.3	6.452	0.5807	85.5	80-120	7.422	19.6	25	
Nickel	9.897	1.3	6.452	4.986	76.1	80-120	11.68	16.5	25	S
Vanadium	14.68	1.3	6.452	9.646	78	80-120	16.45	11.4	25	S

The following samples were analyzed in this batch: 1206176-01A 1206176-03A 1206176-04A 1206176-05A 1206176-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 06:53 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993874** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4451*	0	*5000*	0	*89*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3702*	0	*5000*	0	*74*	*12-100*	0			
Surr: 2-Fluorophenol	*4366*	0	*5000*	0	*87.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5718*	0	*5000*	0	*114*	*25-137*	0			
Surr: Nitrobenzene-d5	*3702*	0	*5000*	0	*74*	*37-107*	0			
Surr: Phenol-d6	*4164*	0	*5000*	0	*83.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 07:28 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993875** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1601	50	2000	0	80	45-105	0			
Acenaphthene	1634	50	2000	0	81.7	45-110	0			
Acenaphthylene	1684	50	2000	0	84.2	45-105	0			
Anthracene	1812	50	2000	0	90.6	55-105	0			
Benzo(a)anthracene	1798	50	2000	0	89.9	50-110	0			
Benzo(a)pyrene	1883	50	2000	0	94.2	50-110	0			
Benzo(b)fluoranthene	1793	50	2000	0	89.6	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	2059	50	2000	0	103	45-115	0			
Chrysene	1925	50	2000	0	96.2	55-110	0			
Dibenzo(a,h)anthracene	2031	50	2000	0	102	40-125	0			
Fluoranthene	1863	50	2000	0	93.2	55-115	0			
Fluorene	1743	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	2036	50	2000	0	102	40-120	0			
Naphthalene	1589	50	2000	0	79.4	40-105	0			
Phenanthrene	1806	50	2000	0	90.3	50-110	0			
Pyrene	1905	50	2000	0	95.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4253*	0	*5000*	0	*85.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3590*	0	*5000*	0	*71.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4169*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5278*	0	*5000*	0	*106*	*25-137*	0			
Surr: Nitrobenzene-d5	*3655*	0	*5000*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3948*	0	*5000*	0	*79*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206177-12A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 08:03 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993876** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1477	48	1938	0	76.2	45-105	0			
Acenaphthene	1538	48	1938	0	79.4	45-110	0			
Acenaphthylene	1603	48	1938	0	82.7	45-105	0			
Anthracene	1801	48	1938	0	92.9	55-105	0			
Benzo(a)anthracene	1942	48	1938	118.7	94.1	50-110	0			
Benzo(a)pyrene	2028	48	1938	158.2	96.4	50-110	0			
Benzo(b)fluoranthene	2001	48	1938	176.1	94.2	45-115	0			
Benzo(g,h,i)perylene	2069	48	1938	120.6	101	40-125	0			
Benzo(k)fluoranthene	2012	48	1938	70.64	100	45-115	0			
Chrysene	2074	48	1938	150.7	99.2	55-110	0			
Dibenzo(a,h)anthracene	1850	48	1938	0	95.4	40-125	0			
Fluoranthene	1965	48	1938	124.3	94.9	55-115	0			
Fluorene	1625	48	1938	0	83.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1984	48	1938	87.6	97.8	40-120	0			
Naphthalene	1435	48	1938	0	74	40-105	0			
Phenanthrene	1793	48	1938	0	92.5	50-110	0			
Pyrene	2038	48	1938	173.3	96.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4428*	0	*4846*	0	*91.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3443*	0	*4846*	0	*71*	*12-100*	0			
Surr: 2-Fluorophenol	*3705*	0	*4846*	0	*76.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4861*	0	*4846*	0	*100*	*25-137*	0			
Surr: Nitrobenzene-d5	*3363*	0	*4846*	0	*69.4*	*37-107*	0			
Surr: Phenol-d6	*3645*	0	*4846*	0	*75.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206177-12A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 08:37 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993877** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1469	47	1889	0	77.8	45-105	1477	0.569	30	
Acenaphthene	1578	47	1889	0	83.6	45-110	1538	2.57	30	
Acenaphthylene	1646	47	1889	0	87.2	45-105	1603	2.66	30	
Anthracene	1790	47	1889	0	94.8	55-105	1801	0.611	30	
Benzo(a)anthracene	1882	47	1889	118.7	93.4	50-110	1942	3.13	30	
Benzo(a)pyrene	1935	47	1889	158.2	94.1	50-110	2028	4.66	30	
Benzo(b)fluoranthene	1877	47	1889	176.1	90	45-115	2001	6.43	30	
Benzo(g,h,i)perylene	1866	47	1889	120.6	92.4	40-125	2069	10.3	30	
Benzo(k)fluoranthene	1789	47	1889	70.64	91	45-115	2012	11.7	30	
Chrysene	2023	47	1889	150.7	99.1	55-110	2074	2.49	30	
Dibenzo(a,h)anthracene	1752	47	1889	0	92.8	40-125	1850	5.45	30	
Fluoranthene	1859	47	1889	124.3	91.8	55-115	1965	5.54	30	
Fluorene	1685	47	1889	0	89.2	50-110	1625	3.6	30	
Indeno(1,2,3-cd)pyrene	1851	47	1889	87.6	93.4	40-120	1984	6.92	30	
Naphthalene	1452	47	1889	0	76.8	40-105	1435	1.13	30	
Phenanthrene	1789	47	1889	0	94.7	50-110	1793	0.233	30	
Pyrene	1913	47	1889	173.3	92.1	45-125	2038	6.31	30	
Surr: 2,4,6-Tribromophenol	*4491*	0	*4722*	0	*95.1*	*34-140*	4428	*1.41*	*40*	
Surr: 2-Fluorobiphenyl	*3521*	0	*4722*	0	*74.6*	*12-100*	3443	*2.25*	*40*	
Surr: 2-Fluorophenol	*3848*	0	*4722*	0	*81.5*	*33-117*	3705	*3.78*	*40*	
Surr: 4-Terphenyl-d14	*4953*	0	*4722*	0	*105*	*25-137*	4861	*1.86*	*40*	
Surr: Nitrobenzene-d5	*3365*	0	*4722*	0	*71.3*	*37-107*	3363	*0.0617*	*40*	
Surr: Phenol-d6	*3716*	0	*4722*	0	*78.7*	*40-106*	3645	*1.91*	*40*	

The following samples were analyzed in this batch:

1206176-01A	1206176-03A	1206176-04A
1206176-05A	1206176-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41592-41592** Units: **µg/Kg** Analysis Date: **6/12/2012 08:17 PM**
Client ID: Run ID: **VMS7_120612A** SeqNo: **1997797** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	71	75								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	110.5	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	20.5	30					J
Naphthalene	39.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*972.5*	0	*1000*	0	*97.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*973.5*	0	*1000*	0	*97.4*	*70-130*	0
Surr: Dibromofluoromethane	*951*	0	*1000*	0	*95.1*	*70-130*	0
Surr: Toluene-d8	*977*	0	*1000*	0	*97.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41592-41592**				Units: **µg/Kg**		Analysis Date: **6/12/2012 07:27 PM**			
Client ID:		Run ID: **VMS7_120612A**			SeqNo: **1997796**		Prep Date: **6/12/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	990.5	30	1000	0	99	75-125	0			
1,1,1-Trichloroethane	1016	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	967	30	1000	0	96.7	55-130	0			
1,1,2-Trichloroethane	938	30	1000	0	93.8	60-125	0			
1,1-Dichloroethane	935	30	1000	0	93.5	75-125	0			
1,1-Dichloroethene	999	30	1000	0	99.9	65-135	0			
1,2,3-Trichlorobenzene	973.5	30	1000	0	97.4	60-135	0			
1,2,3-Trichloropropane	1014	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	914	30	1000	0	91.4	65-135	0			
1,2,4-Trichlorobenzene	946.5	30	1000	0	94.6	65-130	0			
1,2,4-Trimethylbenzene	956.5	30	1000	0	95.6	65-135	0			
1,2-Dibromo-3-chloropropane	1017	30	1000	0	102	40-135	0			
1,2-Dibromoethane	984.5	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	946	30	1000	0	94.6	75-120	0			
1,2-Dichloroethane	947	30	1000	0	94.7	70-135	0			
1,2-Dichloropropane	967	30	1000	0	96.7	70-120	0			
1,3,5-Trimethylbenzene	970	30	1000	0	97	65-135	0			
1,3-Dichlorobenzene	996	30	1000	0	99.6	70-125	0			
1,4-Dichlorobenzene	1004	30	1000	0	100	70-125	0			
2-Butanone	1139	200	1000	0	114	30-160	0			
2-Hexanone	907	30	1000	0	90.7	45-145	0			
4-Methyl-2-pentanone	1323	30	1000	0	132	45-145	0			
Acetone	905	100	1000	0	90.5	20-160	0			
Acrylonitrile	899	100	1000	0	89.9	70-135	0			
Benzene	942.5	30	1000	0	94.2	75-125	0			
Bromobenzene	940.5	30	1000	0	94	65-120	0			
Bromochloromethane	994	30	1000	0	99.4	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	886.5	30	1000	0	88.6	55-135	0			
Bromomethane	1207	75	1000	0	121	30-160	0			
Carbon disulfide	1060	30	1000	0	106	45-160	0			
Carbon tetrachloride	1041	30	1000	0	104	65-135	0			
Chlorobenzene	978	30	1000	0	97.8	75-125	0			
Chloroethane	987.5	100	1000	0	98.8	40-155	0			
Chloroform	960.5	30	1000	0	96	70-125	0			
Chloromethane	947	100	1000	0	94.7	50-130	0			
cis-1,2-Dichloroethene	927.5	30	1000	0	92.8	65-125	0			
cis-1,3-Dichloropropene	1060	30	1000	0	106	70-125	0			
Dibromochloromethane	1040	30	1000	0	104	65-135	0			
Dibromomethane	972	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	752.5	30	1000	0	75.2	35-135	0			
Ethylbenzene	955.5	30	1000	0	95.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	948.5	30	1000	0	94.8	70-135	0
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	0
m,p-Xylene	1923	60	2000	0	96.2	80-125	0
Methyl tert-butyl ether	988.5	30	1000	0	98.8	75-125	0
Methylene chloride	1028	30	1000	0	103	55-145	0
Naphthalene	972.5	100	1000	0	97.2	40-140	0
n-Butylbenzene	1002	30	1000	0	100	65-140	0
n-Propylbenzene	932	30	1000	0	93.2	65-135	0
o-Xylene	951	30	1000	0	95.1	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	979.5	30	1000	0	98	65-130	0
Styrene	989	30	1000	0	98.9	75-125	0
tert-Butylbenzene	965	30	1000	0	96.5	65-130	0
Tetrachloroethene	960.5	30	1000	0	96	64-140	0
Tetrahydrofuran	824.5	200	1000	0	82.4	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1024	30	1000	0	102	65-135	0
trans-1,3-Dichloropropene	1018	30	1000	0	102	65-125	0
trans-1,4-Dichloro-2-butene	880.5	30	1000	0	88	70-135	0
Trichloroethene	967	30	1000	0	96.7	75-125	0
Trichlorofluoromethane	1014	30	1000	0	101	25-185	0
Vinyl chloride	910	30	1000	0	91	60-125	0
Surr: 1,2-Dichloroethane-d4	*978*	0	*1000*	0	*97.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*990.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Dibromofluoromethane	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MS	Sample ID: **1206178-05B MS**				Units: **µg/Kg**		Analysis Date: **6/13/2012 05:07 AM**			
Client ID:		Run ID: **VMS7_120612A**			SeqNo: **1997838**		Prep Date: **6/12/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2564	83	2774	0	92.4	75-125	0			HHH
1,1,1-Trichloroethane	2679	83	2774	0	96.6	70-135	0			HHH
1,1,2,2-Tetrachloroethane	2528	83	2774	0	91.2	55-130	0			HHH
1,1,2-Trichloroethane	2532	83	2774	0	91.3	60-125	0			HHH
1,1-Dichloroethane	2506	83	2774	0	90.4	75-125	0			HHH
1,1-Dichloroethene	1682	83	2774	0	60.6	65-135	0			SHHH
1,2,3-Trichlorobenzene	2388	83	2774	0	86.1	60-135	0			HHH
1,2,3-Trichloropropane	2708	83	2774	0	97.6	65-130	0			HHH
1,2,3-Trimethylbenzene	2367	83	2774	0	85.4	65-135	0			HHH
1,2,4-Trichlorobenzene	2301	83	2774	0	83	65-130	0			HHH
1,2,4-Trimethylbenzene	2481	83	2774	0	89.4	65-135	0			HHH
1,2-Dibromo-3-chloropropane	2434	83	2774	0	87.8	40-135	0			HHH
1,2-Dibromoethane	2640	83	2774	0	95.2	70-125	0			HHH
1,2-Dichlorobenzene	2423	83	2774	0	87.4	75-120	0			HHH
1,2-Dichloroethane	2561	83	2774	0	92.4	70-135	0			HHH
1,2-Dichloropropane	2600	83	2774	0	93.8	70-120	0			HHH
1,3,5-Trimethylbenzene	2511	83	2774	0	90.6	65-135	0			HHH
1,3-Dichlorobenzene	2477	83	2774	0	89.3	70-125	0			HHH
1,4-Dichlorobenzene	2525	83	2774	0	91	70-125	0			HHH
2-Butanone	2195	280	2774	0	79.2	30-160	0			HHH
2-Hexanone	2448	83	2774	0	88.2	45-145	0			HHH
4-Methyl-2-pentanone	3575	83	2774	0	129	45-145	0			HHH
Acetone	2219	280	2774	0	80	20-160	0			HHH
Acrylonitrile	1996	83	2774	0	72	70-135	0			HHH
Benzene	2487	83	2774	0	89.6	75-125	0			HHH
Bromobenzene	2457	83	2774	0	88.6	65-120	0			HHH
Bromochloromethane	2571	83	2774	0	92.7	70-125	0			HHH
Bromodichloromethane	2548	83	2774	0	91.8	70-130	0			HHH
Bromoform	2161	83	2774	0	77.9	55-135	0			HHH
Bromomethane	1986	83	2774	0	71.6	30-160	0			BHHH
Carbon disulfide	1883	83	2774	0	67.9	45-160	0			HHH
Carbon tetrachloride	2652	83	2774	0	95.6	65-135	0			HHH
Chlorobenzene	2518	83	2774	0	90.8	75-125	0			HHH
Chloroethane	1102	280	2774	0	39.8	40-155	0			SHHH
Chloroform	2552	83	2774	0	92	70-125	0			HHH
Chloromethane	2338	83	2774	0	84.3	50-130	0			HHH
cis-1,2-Dichloroethene	2462	83	2774	0	88.8	65-125	0			HHH
cis-1,3-Dichloropropene	2679	83	2774	0	96.6	70-125	0			HHH
Dibromochloromethane	2628	83	2774	0	94.8	65-135	0			HHH
Dibromomethane	2600	83	2774	0	93.8	75-130	0			HHH
Dichlorodifluoromethane	1971	83	2774	0	71	35-135	0			HHH
Ethylbenzene	2500	83	2774	0	90.2	75-125	0			HHH

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2302	83	2774	0	83	70-135	0	HHH
Isopropylbenzene	2535	83	2774	0	91.4	75-130	0	HHH
m,p-Xylene	4973	170	5547	0	89.6	80-125	0	HHH
Methyl tert-butyl ether	3388	83	2774	0	122	75-125	0	HHH
Methylene chloride	2572	83	2774	0	92.8	55-145	0	HHH
Naphthalene	2299	280	2774	0	82.9	40-140	0	HHH
n-Butylbenzene	2403	83	2774	0	86.6	65-140	0	HHH
n-Propylbenzene	2403	83	2774	0	86.6	65-135	0	HHH
o-Xylene	2534	83	2774	0	91.4	75-125	0	HHH
p-Isopropyltoluene	2514	83	2774	0	90.6	75-135	0	HHH
sec-Butylbenzene	2509	83	2774	0	90.4	65-130	0	HHH
Styrene	2543	83	2774	0	91.7	75-125	0	HHH
tert-Butylbenzene	2492	83	2774	0	89.8	65-130	0	HHH
Tetrachloroethene	2431	83	2774	0	87.6	64-140	0	HHH
Tetrahydrofuran	2108	280	2774	0	76	70-135	0	HHH
Toluene	2532	83	2774	0	91.3	70-125	0	HHH
trans-1,2-Dichloroethene	3441	83	2774	0	124	65-135	0	HHH
trans-1,3-Dichloropropene	2586	83	2774	0	93.2	65-125	0	HHH
trans-1,4-Dichloro-2-butene	2102	83	2774	0	75.8	70-135	0	HHH
Trichloroethene	2502	83	2774	0	90.2	75-125	0	HHH
Trichlorofluoromethane	1254	83	2774	0	45.2	25-185	0	HHH
Vinyl chloride	2338	83	2774	0	84.3	60-125	0	HHH
Surr: 1,2-Dichloroethane-d4	*2713*	0	*2774*	0	*97.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*2743*	0	*2774*	0	*98.9*	*70-130*	0	
Surr: Dibromofluoromethane	*2714*	0	*2774*	0	*97.8*	*70-130*	0	
Surr: Toluene-d8	*2744*	0	*2774*	0	*99*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206178-05B MSD** Units: **µg/Kg** Analysis Date: **6/13/2012 05:31 AM**
Client ID: Run ID: **VMS7_120612A** SeqNo: **1997841** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2539	83	2774	0	91.6	75-125	2564	0.978	30	HHH
1,1,1-Trichloroethane	2631	83	2774	0	94.8	70-135	2679	1.83	30	HHH
1,1,2,2-Tetrachloroethane	2568	83	2774	0	92.6	55-130	2528	1.58	30	HHH
1,1,2-Trichloroethane	2517	83	2774	0	90.8	60-125	2532	0.604	30	HHH
1,1-Dichloroethane	2419	83	2774	0	87.2	75-125	2506	3.55	30	HHH
1,1-Dichloroethene	1704	83	2774	0	61.4	65-135	1682	1.31	30	SHHH
1,2,3-Trichlorobenzene	2388	83	2774	0	86.1	60-135	2388	0	30	HHH
1,2,3-Trichloropropane	2706	83	2774	0	97.6	65-130	2708	0.102	30	HHH
1,2,3-Trimethylbenzene	2345	83	2774	0	84.6	65-135	2367	0.942	30	HHH
1,2,4-Trichlorobenzene	2370	83	2774	0	85.4	65-130	2301	2.97	30	HHH
1,2,4-Trimethylbenzene	2467	83	2774	0	89	65-135	2481	0.561	30	HHH
1,2-Dibromo-3-chloropropane	2499	83	2774	0	90.1	40-135	2434	2.64	30	HHH
1,2-Dibromoethane	2634	83	2774	0	95	70-125	2640	0.263	30	HHH
1,2-Dichlorobenzene	2381	83	2774	0	85.8	75-120	2423	1.73	30	HHH
1,2-Dichloroethane	2566	83	2774	0	92.5	70-135	2561	0.162	30	HHH
1,2-Dichloropropane	2591	83	2774	0	93.4	70-120	2600	0.374	30	HHH
1,3,5-Trimethylbenzene	2475	83	2774	0	89.2	65-135	2511	1.45	30	HHH
1,3-Dichlorobenzene	2430	83	2774	0	87.6	70-125	2477	1.92	30	HHH
1,4-Dichlorobenzene	2492	83	2774	0	89.8	70-125	2525	1.33	30	HHH
2-Butanone	2596	280	2774	0	93.6	30-160	2195	16.7	30	HHH
2-Hexanone	2500	83	2774	0	90.2	45-145	2448	2.13	30	HHH
4-Methyl-2-pentanone	3592	83	2774	0	130	45-145	3575	0.464	30	HHH
Acetone	2159	280	2774	0	77.8	20-160	2219	2.72	30	HHH
Acrylonitrile	1997	83	2774	0	72	70-135	1996	0.0695	30	HHH
Benzene	2423	83	2774	0	87.4	75-125	2487	2.6	30	HHH
Bromobenzene	2467	83	2774	0	89	65-120	2457	0.394	30	HHH
Bromochloromethane	2503	83	2774	0	90.2	70-125	2571	2.68	30	HHH
Bromodichloromethane	2532	83	2774	0	91.3	70-130	2548	0.601	30	HHH
Bromoform	2183	83	2774	0	78.7	55-135	2161	1.02	30	HHH
Bromomethane	2105	83	2774	0	75.9	30-160	1986	5.83	30	BHHH
Carbon disulfide	1885	83	2774	0	68	45-160	1883	0.0736	30	HHH
Carbon tetrachloride	2595	83	2774	0	93.6	65-135	2652	2.17	30	HHH
Chlorobenzene	2500	83	2774	0	90.2	75-125	2518	0.718	30	HHH
Chloroethane	1101	280	2774	0	39.7	40-155	1102	0.126	30	SHHH
Chloroform	2489	83	2774	0	89.8	70-125	2552	2.48	30	HHH
Chloromethane	2326	83	2774	0	83.8	50-130	2338	0.535	30	HHH
cis-1,2-Dichloroethene	2378	83	2774	0	85.8	65-125	2462	3.44	30	HHH
cis-1,3-Dichloropropene	2658	83	2774	0	95.8	70-125	2679	0.779	30	HHH
Dibromochloromethane	2636	83	2774	0	95	65-135	2628	0.316	30	HHH
Dibromomethane	2611	83	2774	0	94.2	75-130	2600	0.426	30	HHH
Dichlorodifluoromethane	1901	83	2774	0	68.6	35-135	1971	3.58	30	HHH
Ethylbenzene	2438	83	2774	0	87.9	75-125	2500	2.53	30	HHH

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2272	83	2774	0	81.9	70-135	2302	1.33	30	HHH
Isopropylbenzene	2517	83	2774	0	90.8	75-130	2535	0.714	30	HHH
m,p-Xylene	4858	170	5547	0	87.6	80-125	4973	2.34	30	HHH
Methyl tert-butyl ether	3306	83	2774	0	119	75-125	3388	2.44	30	HHH
Methylene chloride	2498	83	2774	0	90	55-145	2572	2.95	30	HHH
Naphthalene	2377	280	2774	0	85.7	40-140	2299	3.32	30	HHH
n-Butylbenzene	2419	83	2774	0	87.2	65-140	2403	0.633	30	HHH
n-Propylbenzene	2363	83	2774	0	85.2	65-135	2403	1.69	30	HHH
o-Xylene	2493	83	2774	0	89.9	75-125	2534	1.6	30	HHH
p-Isopropyltoluene	2416	83	2774	0	87.1	75-135	2514	3.99	30	HHH
sec-Butylbenzene	2475	83	2774	0	89.2	65-130	2509	1.34	30	HHH
Styrene	2518	83	2774	0	90.8	75-125	2543	0.986	30	HHH
tert-Butylbenzene	2487	83	2774	0	89.6	65-130	2492	0.223	30	HHH
Tetrachloroethene	2402	83	2774	0	86.6	64-140	2431	1.21	30	HHH
Tetrahydrofuran	2211	280	2774	0	79.7	70-135	2108	4.75	30	HHH
Toluene	2473	83	2774	0	89.2	70-125	2532	2.38	30	HHH
trans-1,2-Dichloroethene	3253	83	2774	0	117	65-135	3441	5.59	30	HHH
trans-1,3-Dichloropropene	2550	83	2774	0	92	65-125	2586	1.4	30	HHH
trans-1,4-Dichloro-2-butene	2125	83	2774	0	76.6	70-135	2102	1.05	30	HHH
Trichloroethene	2448	83	2774	0	88.2	75-125	2502	2.19	30	HHH
Trichlorofluoromethane	1266	83	2774	0	45.6	25-185	1254	0.991	30	HHH
Vinyl chloride	2240	83	2774	0	80.8	60-125	2338	4.3	30	HHH
Surr: 1,2-Dichloroethane-d4	*2711*	0	*2774*	0	*97.8*	*70-130*	2713	*0.0511*	*30*	
Surr: 4-Bromofluorobenzene	*2765*	0	*2774*	0	*99.7*	*70-130*	2743	*0.806*	*30*	
Surr: Dibromofluoromethane	*2732*	0	*2774*	0	*98.5*	*70-130*	2714	*0.662*	*30*	
Surr: Toluene-d8	*2762*	0	*2774*	0	*99.6*	*70-130*	2744	*0.655*	*30*	

The following samples were analyzed in this batch:

1206176-01B	1206176-02A	1206176-03B
1206176-04B	1206176-05B	1206176-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206176
Project: Marshall KRRI 1175-1225L 6/5/12

QC BATCH REPORT

Batch ID: **R105725** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206175-07ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994151** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	29.1	0.050	0	0	0	0-0	30.96	6.19	20	

DUP Sample ID: **1206213-06ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	1.29	0.050	0	0	0	0-0	1.29	0	20	

The following samples were analyzed in this batch:

1206176-01A	1206176-03A	1206176-04A
1206176-05A	1206176-06A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206176

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060512_LJL1	Task: KRRI_1175,120,1225
	Total # of Samples: 6	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave, Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 6270	VOC by 5035/8260
									None	None	None	None	MeOH
1	SBKR1175L502S060512S004	SBKR1175L502	SO	G	06/05/2012 16:05	3			X	X	X	X	X
2	SBKR1175L502T060512MX	SBKR1175L502	SQ	G	06/05/2012 00:00	1	TRIP BLANK						X
3	SBKR1200L512S060512S004	SBKR1200L512	SO	G	06/05/2012 09:50	3			X	X	X	X	X
4	SBKR1225L503S060512S004	SBKR1225L503	SO	G	06/05/2012 10:47	3			X	X	X	X	X
5	SBKR1225L504S060512S006	SBKR1225L504	SO	G	06/05/2012 13:15	3	MDEQ SPLIT		X	X	X	X	X
6	SBKR1225L506S060512S004	SBKR1225L506	SO	G	06/05/2012 13:54	3			X	X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-5-12	1708		6-5-12	1708
	6-6-12	1305		6-6-12	1305

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
5.0 °C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **06-Jun-12 13:05**

Work Order: **1206176** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 06-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 07-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

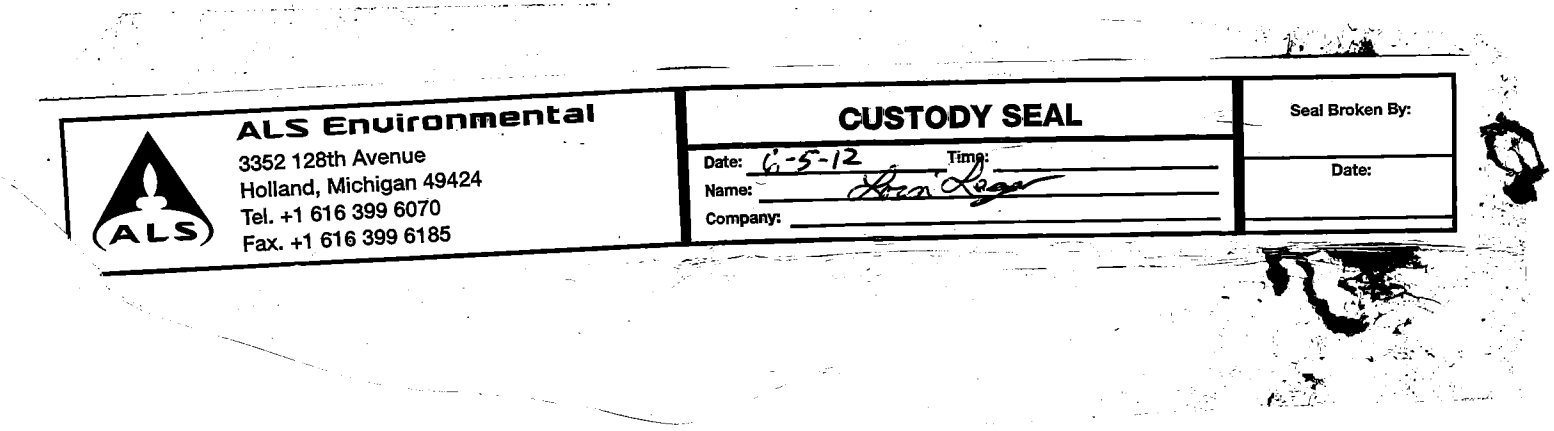
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

5.0°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-5-12 Time:
Name: Ken Lugo
Company:

Seal Broken By:

Date:

13-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L,1200-1225L 6/4/12** Work Order: **1206177**

Dear Bryan,

ALS Environmental received 12 samples on 06-Jun-2012 01:05 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 64.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/4/12
Work Order: **1206177**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206177-01	SBKR1150L534S060412S005	Soil		6/4/2012 09:05	6/6/2012 13:05	☐
1206177-02	SBKR1200L502S060412S005	Soil		6/4/2012 10:20	6/6/2012 13:05	☐
1206177-03	SBKR1200L502S060412S014	Soil		6/4/2012 10:30	6/6/2012 13:05	☐
1206177-04	SBKR1200L504S060412S004	Soil		6/4/2012 11:40	6/6/2012 13:05	☐
1206177-05	SBKR1200L506S060412S005	Soil		6/4/2012 13:30	6/6/2012 13:05	☐
1206177-06	SBKR1200L507S060412S004	Soil		6/4/2012 14:30	6/6/2012 13:05	☐
1206177-07	SBKR1200L508S060412S007	Soil		6/4/2012 15:30	6/6/2012 13:05	☐
1206177-08	SBKR1200L509S060412S004	Soil		6/4/2012 16:45	6/6/2012 13:05	☐
1206177-09	SBKR1200L509T060412MX	Soil		6/4/2012	6/6/2012 13:05	☐
1206177-10	SBKR1225L501S060412S010	Soil		6/4/2012 15:55	6/6/2012 13:05	☐
1206177-11	SBKR1225L501D060412S010	Soil		6/4/2012 15:55	6/6/2012 13:05	☐
1206177-12	SBKR1225L502S060412S005	Soil		6/4/2012 16:25	6/6/2012 13:05	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/4/12
Work Order: 1206177

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41497 sample SBKR1225L502S060412S005 RPD between the MS/MSD recoveries for the DRO surrogate, 4-Terphenyl-d14, was above control limits. The individual MS/MSD recoveries met quality control criteria.

Batch 41516 sample SBKR1225L502S060412S005 MSD recoveries for Nickel and Vanadium were below control limits. Both the MS recoveries and RPDs met quality control criteria.

Batch 41524 MS/MSD data for Metals is not related to this project's samples.

Batch 41496 samples 1206177-01 and 1206177-02 PAH internal standard recoveries were below the lower control limit, but >20%. Per the client’s request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

Batch 41497 samples 1206177-02 and 1206077-08 DRO surrogate recoveries were high due to matrix interference. The DRO results may be biased high.

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/4/12
WorkOrder: **1206177**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L534S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 9:05:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**100**	**30**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**690**	**61**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*76.9*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.61	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	**350**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**490**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Chrysene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*98.0*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*74.9*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*79.0*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*114*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*67.6*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*77.4*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	530	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	530	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	530	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	530	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	530	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L534S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 9:05:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	530	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	530	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	530	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	530	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	530	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	530	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	1,800	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	1,800	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	4,400	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	530	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	530	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	530	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	530	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	530	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	530	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	530	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	530	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	530	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	1,800	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	530	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	880	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	530	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	530	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	530	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	530	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	530	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	530	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	530	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L534S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 9:05:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	530	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	530	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	530	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	530	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	530	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	530	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	1,800	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	530	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	530	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	530	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	530	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	530	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	530	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,800	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	530	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	530	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	530	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	530	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	530	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*114*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*95.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.3*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**69**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 10:20:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**160**	**21**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**770**	**41**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*153*	*39-115*		S	*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.63**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/8/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/8/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/8/2012
Benzo(a)pyrene	**340**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(b)fluoranthene	**560**	**330**	**330**	*	**µg/Kg-dry**	1	6/8/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/8/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Fluoranthene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/8/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/8/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/8/2012
Pyrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*86.7*	*34-140*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*66.3*	*12-100*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*70.6*	*33-117*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*117*	*25-137*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*60.6*	*37-107*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*69.9*	*40-106*			*%REC*	1	6/8/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 10:20:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	720	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	720	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 10:20:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	430	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	720	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*94.8*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.8*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S014
Work Order:	1206177	**Collection Date:**	6/4/2012 10:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**56**	**21**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**370**	**43**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*51.8*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**2.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*78.0*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*60.9*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*64.3*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*86.3*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*62.2*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*68.9*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	250	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	250	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	250	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	250	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	250	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S014
Work Order:	1206177	**Collection Date:**	6/4/2012 10:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	250	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	250	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	250	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	250	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	250	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	250	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	850	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	850	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,100	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	250	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	250	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	250	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	250	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	250	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	250	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	250	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	250	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	850	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	250	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	420	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	250	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	250	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	250	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	250	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L502S060412S014
Work Order:	1206177	**Collection Date:**	6/4/2012 10:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	250	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	510	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	250	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	250	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	850	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	250	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	250	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	250	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	250	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	250	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	250	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	250	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	250	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	250	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	250	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	250	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	250	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	250	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	250	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	250	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*96.1*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L504S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 11:40:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**60**	**15**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**460**	**31**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*107*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)pyrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(b)fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*74.7*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*56.5*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*52.8*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*85.5*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*51.2*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*61.3*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L504S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 11:40:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	100	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	100	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L504S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 11:40:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	100	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*113*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*94.9*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*93.4*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L506S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 1:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**100**	**22**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**1,100**	**45**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*51.3*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*71.8*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*49.8*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*50.6*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*76.5*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*46.7*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*53.5*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	270	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L506S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 1:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	270	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	270	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	270	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	890	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	890	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	2,200	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	270	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	270	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	270	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	270	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	270	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	890	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	270	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	440	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	270	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	270	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	270	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L506S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 1:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	270	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	530	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	270	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	270	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	270	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	890	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	270	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	270	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	270	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	270	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	270	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	270	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	270	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	270	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	270	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	270	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*99.5*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*95.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*95.8*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**58**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L507S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**26**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**800**	**53**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*70.9*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.65**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**31**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(a)pyrene	**870**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(b)fluoranthene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(g,h,i)perylene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(k)fluoranthene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Chrysene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	**840**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	**990**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*82.6*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*56.9*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*55.2*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*90.7*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*52.6*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*63.2*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	340	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L507S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	340	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	340	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	2,800	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	340	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	340	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	340	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	340	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	340	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	790	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	340	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	340	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	340	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L507S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	340	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	680	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	340	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	340	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	340	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	340	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	340	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	340	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	340	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	340	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	340	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*92.3*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**62**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L508S060412S007
Work Order:	1206177	**Collection Date:**	6/4/2012 3:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**83**	**22**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**550**	**44**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*65.4*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(b)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*88.3*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*60.1*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*68.7*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*97.1*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*66.2*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*70.9*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	270	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	270	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L508S060412S007
Work Order:	1206177	**Collection Date:**	6/4/2012 3:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	270	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	270	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	270	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	270	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	270	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	900	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	900	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	2,300	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	270	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	270	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	270	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	270	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	270	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	270	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	270	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	270	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	270	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	900	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	270	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	630	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	270	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	270	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	270	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	270	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	270	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	270	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L508S060412S007
Work Order:	1206177	**Collection Date:**	6/4/2012 3:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	270	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	270	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	540	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	270	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	270	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	270	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	900	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	270	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	270	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	270	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	270	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	270	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	270	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	270	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	270	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	270	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	270	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	270	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*96.3*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*91.2*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**58**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L509S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 4:45:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**70**	**16**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**350**	**33**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*116*	*39-115*		S	*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(b)fluoranthene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Chrysene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/11/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Pyrene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Surr: 2,4,6-Tribromophenol	*95.3*	*34-140*			*%REC*	1	6/11/2012
Surr: 2-Fluorobiphenyl	*58.4*	*12-100*			*%REC*	1	6/11/2012
Surr: 2-Fluorophenol	*69.5*	*33-117*			*%REC*	1	6/11/2012
Surr: 4-Terphenyl-d14	*93.9*	*25-137*			*%REC*	1	6/11/2012
Surr: Nitrobenzene-d5	*64.5*	*37-107*			*%REC*	1	6/11/2012
Surr: Phenol-d6	*75.4*	*40-106*			*%REC*	1	6/11/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	130	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	130	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L509S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 4:45:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	130	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	130	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	130	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	130	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	420	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	130	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	130	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	130	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	130	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	130	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	130	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	130	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	420	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	130	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	130	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L509S060412S004
Work Order:	1206177	**Collection Date:**	6/4/2012 4:45:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	130	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	250	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	130	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	130	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	420	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	130	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	130	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	130	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	130	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	130	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	130	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	130	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	130	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	130	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	130	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*96.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*91.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**42**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L509T060412MX
Work Order:	1206177	**Collection Date:**	6/4/2012
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/13/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/13/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/13/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/13/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/13/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/13/2012
Benzene	ND	50	50		µg/Kg	1	6/13/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/13/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromoform	ND	100	100		µg/Kg	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/13/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/13/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/13/2012
Chloroethane	ND	250	250		µg/Kg	1	6/13/2012
Chloroform	ND	50	50		µg/Kg	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg	1	6/13/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L509T060412MX
Work Order:	1206177	**Collection Date:**	6/4/2012
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/13/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/13/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/13/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg	1	6/13/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/13/2012
o-Xylene	ND	50	50		µg/Kg	1	6/13/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/13/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Styrene	ND	50	50		µg/Kg	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/13/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/13/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/13/2012
Toluene	ND	100	100		µg/Kg	1	6/13/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/13/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/13/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/13/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*96.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*89.6*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501S060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**64**	**20**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**450**	**39**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*62.2*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(b)fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(g,h,i)perylene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Chrysene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/11/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Pyrene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Surr: 2,4,6-Tribromophenol	*84.1*	*34-140*			*%REC*	1	6/11/2012
Surr: 2-Fluorobiphenyl	*49.8*	*12-100*			*%REC*	1	6/11/2012
Surr: 2-Fluorophenol	*47.4*	*33-117*			*%REC*	1	6/11/2012
Surr: 4-Terphenyl-d14	*84.5*	*25-137*			*%REC*	1	6/11/2012
Surr: Nitrobenzene-d5	*45.3*	*37-107*			*%REC*	1	6/11/2012
Surr: Phenol-d6	*56.2*	*40-106*			*%REC*	1	6/11/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501S060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501S060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*95.5*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*88.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501D060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**66**	**20**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**430**	**40**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*68.9*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)anthracene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(a)pyrene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(b)fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Chrysene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/11/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Pyrene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Surr: 2,4,6-Tribromophenol	*86.3*	*34-140*			*%REC*	1	6/11/2012
Surr: 2-Fluorobiphenyl	*56.7*	*12-100*			*%REC*	1	6/11/2012
Surr: 2-Fluorophenol	*63.0*	*33-117*			*%REC*	1	6/11/2012
Surr: 4-Terphenyl-d14	*89.7*	*25-137*			*%REC*	1	6/11/2012
Surr: Nitrobenzene-d5	*63.4*	*37-107*			*%REC*	1	6/11/2012
Surr: Phenol-d6	*68.7*	*40-106*			*%REC*	1	6/11/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501D060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	370	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L501D060412S010
Work Order:	1206177	**Collection Date:**	6/4/2012 3:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*98.8*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*94.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*90.7*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 4:25:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/7/2012**		Analyst: **CW**
DRO (C10-C20)	**54**	**17**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**230**	**33**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*103*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**8.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/7/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*95.2*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*75.3*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*83.5*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*112*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*71.5*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*82.2*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/11/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 4:25:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	460	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	140	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	140	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	460	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	140	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L502S060412S005
Work Order:	1206177	**Collection Date:**	6/4/2012 4:25:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/4/12		
Lab ID:	1206177-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	270	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	460	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	140	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	140	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*97.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**44**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41497** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996986** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.998*	0	*5*	0	*60*	*39-115*	0			

LCS Sample ID: **DLCSS1-41497-41497** Units: **mg/Kg** Analysis Date: **6/11/2012 10:12 AM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996949** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.9	10	500	0	81.2	60-130	0			
ORO (C20-C34)	441.5	20	500	0	88.3	60-130	0			
Surr: 4-Terphenyl-d14	*5.445*	0	*5*	0	*109*	*39-115*	0			

MS Sample ID: **1206177-12A MS** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: **SBKR1225L502S060412S005** Run ID: **GC8_120611A** SeqNo: **1996987** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	402.8	9.5	476.6	30.71	78.1	60-130	0			
ORO (C20-C34)	582	19	476.6	129.8	94.9	60-130	0			
Surr: 4-Terphenyl-d14	*4.459*	0	*4.766*	0	*93.5*	*39-115*	0			

MSD Sample ID: **1206177-12A MSD** Units: **mg/Kg** Analysis Date: **6/11/2012 10:38 AM**

Client ID: **SBKR1225L502S060412S005** Run ID: **GC8_120611A** SeqNo: **1996950** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.3	9.8	489.9	30.71	66.9	60-130	402.8	11.7	30	
ORO (C20-C34)	542.3	20	489.9	129.8	84.2	60-130	582	7.07	30	
Surr: 4-Terphenyl-d14	*2.514*	0	*4.899*	0	*51.3*	*39-115*	4.459	*55.8*	*30*	*R*

The following samples were analyzed in this batch: 1206177-01A 1206177-02A 1206177-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41521** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41521-41521** Units: **mg/Kg** Analysis Date: **6/11/2012 03:22 PM**
Client ID: Run ID: **GC8_120611A** SeqNo: **1996996** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.961*	0	*5*	0	*79.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41521-41521** Units: **mg/Kg** Analysis Date: **6/11/2012 03:22 PM**
Client ID: Run ID: **GC8_120611A** SeqNo: **1996958** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	408.1	10	500	0	81.6	60-130	0			
ORO (C20-C34)	502.3	20	500	0	100	60-130	0			
Surr: 4-Terphenyl-d14	*2.67*	0	*5*	0	*53.4*	*39-115*	0			

MS Sample ID: **1206178-05A MS** Units: **mg/Kg** Analysis Date: **6/11/2012 03:48 PM**
Client ID: Run ID: **GC8_120611A** SeqNo: **1996997** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	333.4	9.7	486.4	0	68.5	60-130	0			
ORO (C20-C34)	536.8	19	486.4	0	110	60-130	0			
Surr: 4-Terphenyl-d14	*2.547*	0	*4.864*	0	*52.4*	*39-115*	0			

MSD Sample ID: **1206178-05A MSD** Units: **mg/Kg** Analysis Date: **6/11/2012 03:48 PM**
Client ID: Run ID: **GC8_120611A** SeqNo: **1996959** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.6	9.5	474.7	0	75.5	60-130	333.4	7.29	30	
ORO (C20-C34)	540.1	19	474.7	0	114	60-130	536.8	0.621	30	
Surr: 4-Terphenyl-d14	*2.497*	0	*4.747*	0	*52.6*	*39-115*	2.547	*1.96*	*30*	

The following samples were analyzed in this batch:

1206177-03A	1206177-04A	1206177-05A
1206177-06A	1206177-07A	1206177-08A
1206177-10A	1206177-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41516** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:38 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994404** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.00503	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41516-41516** Units: **mg/Kg** Analysis Date: **6/8/2012 01:45 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994405** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.738	0.10	5	0	94.8	80-120	0			
Molybdenum	4.666	0.25	5	0	93.3	80-120	0			
Nickel	4.494	0.25	5	0	89.9	80-120	0			
Vanadium	4.602	0.25	5	0	92	80-120	0			

MS Sample ID: **1206177-12AMS** Units: **mg/Kg** Analysis Date: **6/8/2012 04:24 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **ICPMS1_120608A** SeqNo: **1994708** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.976	0.65	8.078	0.1653	84.3	80-120	0			
Molybdenum	7.422	1.6	8.078	0.5807	84.7	80-120	0			
Nickel	11.68	1.6	8.078	4.986	82.9	80-120	0			
Vanadium	16.45	1.6	8.078	9.646	84.2	80-120	0			

MSD Sample ID: **1206177-12AMSD** Units: **mg/Kg** Analysis Date: **6/8/2012 04:30 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **ICPMS1_120608A** SeqNo: **1994709** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.698	0.52	6.452	0.1653	85.8	80-120	6.976	20.2	25	
Molybdenum	6.095	1.3	6.452	0.5807	85.5	80-120	7.422	19.6	25	
Nickel	9.897	1.3	6.452	4.986	76.1	80-120	11.68	16.5	25	S
Vanadium	14.68	1.3	6.452	9.646	78	80-120	16.45	11.4	25	S

The following samples were analyzed in this batch: 1206177-02A 1206177-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41524** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41524-41524** Units: **mg/Kg** Analysis Date: **6/8/2012 04:43 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994711** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01249	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41524-41524** Units: **mg/Kg** Analysis Date: **6/8/2012 04:50 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994712** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.322	0.10	5	0	86.4	80-120	0			
Molybdenum	4.308	0.25	5	0	86.2	80-120	0			
Nickel	4.166	0.25	5	0	83.3	80-120	0			
Vanadium	4.237	0.25	5	0	84.7	80-120	0			

MS Sample ID: **1206178-05AMS** Units: **mg/Kg** Analysis Date: **6/12/2012 11:44 AM**
Client ID: Run ID: **ICPMS1_120612A** SeqNo: **1996424** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.647	0.48	6.01	0.2852	72.6	80-120	0			S
Molybdenum	4.846	1.2	6.01	0.5979	70.7	80-120	0			S
Nickel	11.76	1.2	6.01	9.032	45.5	80-120	0			S
Vanadium	16.93	1.2	6.01	14.95	33	80-120	0			S

MSD Sample ID: **1206178-05AMSD** Units: **mg/Kg** Analysis Date: **6/12/2012 11:50 AM**
Client ID: Run ID: **ICPMS1_120612A** SeqNo: **1996457** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.521	0.54	6.729	0.2852	77.8	80-120	4.647	17.2	25	S
Molybdenum	5.873	1.3	6.729	0.5979	78.4	80-120	4.846	19.2	25	S
Nickel	13.56	1.3	6.729	9.032	67.3	80-120	11.76	14.2	25	S
Vanadium	18.69	1.3	6.729	14.95	55.6	80-120	16.93	9.9	25	S

The following samples were analyzed in this batch:

1206177-01A	1206177-03A	1206177-04A
1206177-05A	1206177-06A	1206177-07A
1206177-08A	1206177-10A	1206177-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 06:53 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993874** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4451*	0	*5000*	0	*89*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3702*	0	*5000*	0	*74*	*12-100*	0			
Surr: 2-Fluorophenol	*4366*	0	*5000*	0	*87.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5718*	0	*5000*	0	*114*	*25-137*	0			
Surr: Nitrobenzene-d5	*3702*	0	*5000*	0	*74*	*37-107*	0			
Surr: Phenol-d6	*4164*	0	*5000*	0	*83.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41496-41496** Units: **µg/Kg** Analysis Date: **6/7/2012 07:28 PM**
Client ID: Run ID: **SVMS4_120607A** SeqNo: **1993875** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1601	50	2000	0	80	45-105	0			
Acenaphthene	1634	50	2000	0	81.7	45-110	0			
Acenaphthylene	1684	50	2000	0	84.2	45-105	0			
Anthracene	1812	50	2000	0	90.6	55-105	0			
Benzo(a)anthracene	1798	50	2000	0	89.9	50-110	0			
Benzo(a)pyrene	1883	50	2000	0	94.2	50-110	0			
Benzo(b)fluoranthene	1793	50	2000	0	89.6	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	2059	50	2000	0	103	45-115	0			
Chrysene	1925	50	2000	0	96.2	55-110	0			
Dibenzo(a,h)anthracene	2031	50	2000	0	102	40-125	0			
Fluoranthene	1863	50	2000	0	93.2	55-115	0			
Fluorene	1743	50	2000	0	87.2	50-110	0			
Indeno(1,2,3-cd)pyrene	2036	50	2000	0	102	40-120	0			
Naphthalene	1589	50	2000	0	79.4	40-105	0			
Phenanthrene	1806	50	2000	0	90.3	50-110	0			
Pyrene	1905	50	2000	0	95.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4253*	0	*5000*	0	*85.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3590*	0	*5000*	0	*71.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4169*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5278*	0	*5000*	0	*106*	*25-137*	0			
Surr: Nitrobenzene-d5	*3655*	0	*5000*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3948*	0	*5000*	0	*79*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206177-12A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 08:03 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **SVMS4_120607A** SeqNo: **1993876** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1477	48	1938	0	76.2	45-105	0			
Acenaphthene	1538	48	1938	0	79.4	45-110	0			
Acenaphthylene	1603	48	1938	0	82.7	45-105	0			
Anthracene	1801	48	1938	0	92.9	55-105	0			
Benzo(a)anthracene	1942	48	1938	118.7	94.1	50-110	0			
Benzo(a)pyrene	2028	48	1938	158.2	96.4	50-110	0			
Benzo(b)fluoranthene	2001	48	1938	176.1	94.2	45-115	0			
Benzo(g,h,i)perylene	2069	48	1938	120.6	101	40-125	0			
Benzo(k)fluoranthene	2012	48	1938	70.64	100	45-115	0			
Chrysene	2074	48	1938	150.7	99.2	55-110	0			
Dibenzo(a,h)anthracene	1850	48	1938	0	95.4	40-125	0			
Fluoranthene	1965	48	1938	124.3	94.9	55-115	0			
Fluorene	1625	48	1938	0	83.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1984	48	1938	87.6	97.8	40-120	0			
Naphthalene	1435	48	1938	0	74	40-105	0			
Phenanthrene	1793	48	1938	0	92.5	50-110	0			
Pyrene	2038	48	1938	173.3	96.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4428*	0	*4846*	0	*91.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3443*	0	*4846*	0	*71*	*12-100*	0			
Surr: 2-Fluorophenol	*3705*	0	*4846*	0	*76.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4861*	0	*4846*	0	*100*	*25-137*	0			
Surr: Nitrobenzene-d5	*3363*	0	*4846*	0	*69.4*	*37-107*	0			
Surr: Phenol-d6	*3645*	0	*4846*	0	*75.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41496** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206177-12A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 08:37 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **SVMS4_120607A** SeqNo: **1993877** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1469	47	1889	0	77.8	45-105	1477	0.569	30	
Acenaphthene	1578	47	1889	0	83.6	45-110	1538	2.57	30	
Acenaphthylene	1646	47	1889	0	87.2	45-105	1603	2.66	30	
Anthracene	1790	47	1889	0	94.8	55-105	1801	0.611	30	
Benzo(a)anthracene	1882	47	1889	118.7	93.4	50-110	1942	3.13	30	
Benzo(a)pyrene	1935	47	1889	158.2	94.1	50-110	2028	4.66	30	
Benzo(b)fluoranthene	1877	47	1889	176.1	90	45-115	2001	6.43	30	
Benzo(g,h,i)perylene	1866	47	1889	120.6	92.4	40-125	2069	10.3	30	
Benzo(k)fluoranthene	1789	47	1889	70.64	91	45-115	2012	11.7	30	
Chrysene	2023	47	1889	150.7	99.1	55-110	2074	2.49	30	
Dibenzo(a,h)anthracene	1752	47	1889	0	92.8	40-125	1850	5.45	30	
Fluoranthene	1859	47	1889	124.3	91.8	55-115	1965	5.54	30	
Fluorene	1685	47	1889	0	89.2	50-110	1625	3.6	30	
Indeno(1,2,3-cd)pyrene	1851	47	1889	87.6	93.4	40-120	1984	6.92	30	
Naphthalene	1452	47	1889	0	76.8	40-105	1435	1.13	30	
Phenanthrene	1789	47	1889	0	94.7	50-110	1793	0.233	30	
Pyrene	1913	47	1889	173.3	92.1	45-125	2038	6.31	30	
Surr: 2,4,6-Tribromophenol	*4491*	0	*4722*	0	*95.1*	*34-140*	4428	*1.41*	*40*	
Surr: 2-Fluorobiphenyl	*3521*	0	*4722*	0	*74.6*	*12-100*	3443	*2.25*	*40*	
Surr: 2-Fluorophenol	*3848*	0	*4722*	0	*81.5*	*33-117*	3705	*3.78*	*40*	
Surr: 4-Terphenyl-d14	*4953*	0	*4722*	0	*105*	*25-137*	4861	*1.86*	*40*	
Surr: Nitrobenzene-d5	*3365*	0	*4722*	0	*71.3*	*37-107*	3363	*0.0617*	*40*	
Surr: Phenol-d6	*3716*	0	*4722*	0	*78.7*	*40-106*	3645	*1.91*	*40*	

The following samples were analyzed in this batch: 1206177-01A 1206177-02A 1206177-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41520-41520** Units: **µg/Kg** Analysis Date: **6/9/2012 11:53 AM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995270** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3216*	0	*5000*	0	*64.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3121*	0	*5000*	0	*62.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3422*	0	*5000*	0	*68.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4667*	0	*5000*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3437*	0	*5000*	0	*68.7*	*37-107*	0			
Surr: Phenol-d6	*3672*	0	*5000*	0	*73.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41520-41520** Units: **µg/Kg** Analysis Date: **6/9/2012 12:23 PM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995272** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1775	50	2000	0	88.8	45-105	0			
Acenaphthene	1774	50	2000	0	88.7	45-110	0			
Acenaphthylene	1807	50	2000	0	90.4	45-105	0			
Anthracene	1899	50	2000	0	95	55-105	0			
Benzo(a)anthracene	1883	50	2000	0	94.2	50-110	0			
Benzo(a)pyrene	1983	50	2000	0	99.2	50-110	0			
Benzo(b)fluoranthene	1835	50	2000	0	91.8	45-115	0			
Benzo(g,h,i)perylene	1830	50	2000	0	91.5	40-125	0			
Benzo(k)fluoranthene	2176	50	2000	0	109	45-115	0			
Chrysene	1976	50	2000	0	98.8	55-110	0			
Dibenzo(a,h)anthracene	1924	50	2000	0	96.2	40-125	0			
Fluoranthene	1990	50	2000	0	99.5	55-115	0			
Fluorene	1841	50	2000	0	92	50-110	0			
Indeno(1,2,3-cd)pyrene	1912	50	2000	0	95.6	40-120	0			
Naphthalene	1733	50	2000	0	86.6	40-105	0			
Phenanthrene	1868	50	2000	0	93.4	50-110	0			
Pyrene	1948	50	2000	0	97.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4350*	0	*5000*	0	*87*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3298*	0	*5000*	0	*66*	*12-100*	0			
Surr: 2-Fluorophenol	*3862*	0	*5000*	0	*77.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4658*	0	*5000*	0	*93.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3725*	0	*5000*	0	*74.5*	*37-107*	0			
Surr: Phenol-d6	*3758*	0	*5000*	0	*75.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206178-05A MS** Units: **µg/Kg** Analysis Date: **6/9/2012 02:50 PM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995279** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1594	46	1840	0	86.6	45-105	0			
Acenaphthene	1622	46	1840	0	88.2	45-110	0			
Acenaphthylene	1678	46	1840	0	91.2	45-105	0			
Anthracene	1793	46	1840	0	97.4	55-105	0			
Benzo(a)anthracene	1833	46	1840	126.4	92.7	50-110	0			
Benzo(a)pyrene	1967	46	1840	169.1	97.7	50-110	0			
Benzo(b)fluoranthene	1934	46	1840	249	91.6	45-115	0			
Benzo(g,h,i)perylene	1730	46	1840	118.8	87.5	40-125	0			
Benzo(k)fluoranthene	2025	46	1840	298.4	93.8	45-115	0			
Chrysene	1909	46	1840	154.9	95.3	55-110	0			
Dibenzo(a,h)anthracene	1637	46	1840	0	89	40-125	0			
Fluoranthene	2140	46	1840	205.2	105	55-115	0			
Fluorene	1775	46	1840	0	96.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1695	46	1840	89.32	87.2	40-120	0			
Naphthalene	1502	46	1840	0	81.6	40-105	0			
Phenanthrene	1785	46	1840	70.32	93.2	50-110	0			
Pyrene	2026	46	1840	221.4	98.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4085*	0	*4601*	0	*88.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3034*	0	*4601*	0	*65.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3253*	0	*4601*	0	*70.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4491*	0	*4601*	0	*97.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3232*	0	*4601*	0	*70.2*	*37-107*	0			
Surr: Phenol-d6	*3404*	0	*4601*	0	*74*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206178-05A MSD** Units: **µg/Kg** Analysis Date: **6/9/2012 03:19 PM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995280** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1356	47	1861	0	72.8	45-105	1594	16.1	30	
Acenaphthene	1529	47	1861	0	82.2	45-110	1622	5.94	30	
Acenaphthylene	1577	47	1861	0	84.8	45-105	1678	6.22	30	
Anthracene	1722	47	1861	0	92.6	55-105	1793	4	30	
Benzo(a)anthracene	1794	47	1861	126.4	89.6	50-110	1833	2.16	30	
Benzo(a)pyrene	1916	47	1861	169.1	93.9	50-110	1967	2.61	30	
Benzo(b)fluoranthene	1866	47	1861	249	86.9	45-115	1934	3.61	30	
Benzo(g,h,i)perylene	1588	47	1861	118.8	79	40-125	1730	8.54	30	
Benzo(k)fluoranthene	2004	47	1861	298.4	91.7	45-115	2025	1.05	30	
Chrysene	1845	47	1861	154.9	90.8	55-110	1909	3.38	30	
Dibenzo(a,h)anthracene	1546	47	1861	0	83.1	40-125	1637	5.69	30	
Fluoranthene	2095	47	1861	205.2	102	55-115	2140	2.12	30	
Fluorene	1693	47	1861	0	91	50-110	1775	4.76	30	
Indeno(1,2,3-cd)pyrene	1599	47	1861	89.32	81.1	40-120	1695	5.86	30	
Naphthalene	1135	47	1861	0	61	40-105	1502	27.8	30	
Phenanthrene	1720	47	1861	70.32	88.7	50-110	1785	3.69	30	
Pyrene	2000	47	1861	221.4	95.6	45-125	2026	1.33	30	
Surr: 2,4,6-Tribromophenol	*3974*	0	*4652*	0	*85.4*	*34-140*	4085	*2.75*	*40*	
Surr: 2-Fluorobiphenyl	*2755*	0	*4652*	0	*59.2*	*12-100*	3034	*9.63*	*40*	
Surr: 2-Fluorophenol	*2465*	0	*4652*	0	*53*	*33-117*	3253	*27.6*	*40*	
Surr: 4-Terphenyl-d14	*4447*	0	*4652*	0	*95.6*	*25-137*	4491	*0.981*	*40*	
Surr: Nitrobenzene-d5	*2390*	0	*4652*	0	*51.4*	*37-107*	3232	*29.9*	*40*	
Surr: Phenol-d6	*2870*	0	*4652*	0	*61.7*	*40-106*	3404	*17*	*40*	

The following samples were analyzed in this batch:

1206177-03A	1206177-04A	1206177-05A
1206177-06A	1206177-07A	1206177-08A
1206177-10A	1206177-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41558-41558** Units: **µg/Kg** Analysis Date: **6/12/2012 06:50 PM**
Client ID: Run ID: **VMS8_120612B** SeqNo: **1997380** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	677.5	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	109	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*948*	0	*1000*	0	*94.8*	*70-130*	0
Surr: Dibromofluoromethane	*918*	0	*1000*	0	*91.8*	*70-130*	0
Surr: Toluene-d8	*999*	0	*1000*	0	*99.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41558-41558** Units: **µg/Kg** Analysis Date: **6/13/2012 10:09 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1997871** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	42	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	21.5	30						J
Naphthalene	ND	100						
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*985*	0	*1000*	0	*98.5*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*980.5*	0	*1000*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*956.5*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*1011*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

LCS	Sample ID: **LCS-41558-41558**				Units: **µg/Kg**		Analysis Date: **6/13/2012 08:54 AM**			
Client ID:		Run ID: **VMS7_120613A**			SeqNo: **1997235**		Prep Date: **6/11/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	995.5	30	1000	0	99.6	75-125	0			
1,1,1-Trichloroethane	997.5	30	1000	0	99.8	70-135	0			
1,1,2,2-Tetrachloroethane	989	30	1000	0	98.9	55-130	0			
1,1,2-Trichloroethane	965.5	30	1000	0	96.6	60-125	0			
1,1-Dichloroethane	923.5	30	1000	0	92.4	75-125	0			
1,1-Dichloroethene	975.5	30	1000	0	97.6	65-135	0			
1,2,3-Trichlorobenzene	977.5	30	1000	0	97.8	60-135	0			
1,2,3-Trichloropropane	1056	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	907.5	30	1000	0	90.8	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	937.5	30	1000	0	93.8	65-135	0			
1,2-Dibromo-3-chloropropane	1022	30	1000	0	102	40-135	0			
1,2-Dibromoethane	1010	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	952.5	30	1000	0	95.2	75-120	0			
1,2-Dichloroethane	974.5	30	1000	0	97.4	70-135	0			
1,2-Dichloropropane	963.5	30	1000	0	96.4	70-120	0			
1,3,5-Trimethylbenzene	952.5	30	1000	0	95.2	65-135	0			
1,3-Dichlorobenzene	971	30	1000	0	97.1	70-125	0			
1,4-Dichlorobenzene	986.5	30	1000	0	98.6	70-125	0			
2-Butanone	1086	200	1000	0	109	30-160	0			
2-Hexanone	931.5	30	1000	0	93.2	45-145	0			
4-Methyl-2-pentanone	1356	30	1000	0	136	45-145	0			
Acetone	901	100	1000	0	90.1	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	927	30	1000	0	92.7	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	981.5	30	1000	0	98.2	70-130	0			
Bromoform	883.5	30	1000	0	88.4	55-135	0			
Bromomethane	1083	75	1000	0	108	30-160	0			
Carbon disulfide	1026	30	1000	0	103	45-160	0			
Carbon tetrachloride	1012	30	1000	0	101	65-135	0			
Chlorobenzene	954	30	1000	0	95.4	75-125	0			
Chloroethane	942.5	100	1000	0	94.2	40-155	0			
Chloroform	950	30	1000	0	95	70-125	0			
Chloromethane	858.5	100	1000	0	85.8	50-130	0			
cis-1,2-Dichloroethene	921.5	30	1000	0	92.2	65-125	0			
cis-1,3-Dichloropropene	1065	30	1000	0	106	70-125	0			
Dibromochloromethane	1048	30	1000	0	105	65-135	0			
Dibromomethane	991	30	1000	0	99.1	75-130	0			
Dichlorodifluoromethane	724.5	30	1000	0	72.4	35-135	0			
Ethylbenzene	941.5	30	1000	0	94.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	937	30	1000	0	93.7	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1852	60	2000	0	92.6	80-125	0
Methyl tert-butyl ether	1012	30	1000	0	101	75-125	0
Methylene chloride	1034	30	1000	0	103	55-145	0
Naphthalene	931	100	1000	0	93.1	40-140	0
n-Butylbenzene	998	30	1000	0	99.8	65-140	0
n-Propylbenzene	916	30	1000	0	91.6	65-135	0
o-Xylene	945	30	1000	0	94.5	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	967	30	1000	0	96.7	65-130	0
Styrene	965	30	1000	0	96.5	75-125	0
tert-Butylbenzene	956.5	30	1000	0	95.6	65-130	0
Tetrachloroethene	930.5	30	1000	0	93	64-140	0
Tetrahydrofuran	809.5	200	1000	0	81	70-135	0
Toluene	935.5	30	1000	0	93.6	70-125	0
trans-1,2-Dichloroethene	991	30	1000	0	99.1	65-135	0
trans-1,3-Dichloropropene	1032	30	1000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	885.5	30	1000	0	88.6	70-135	0
Trichloroethene	934	30	1000	0	93.4	75-125	0
Trichlorofluoromethane	963.5	30	1000	0	96.4	25-185	0
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*985.5*	0	*1000*	0	*98.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1007*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41558-41558** Units: **µg/Kg** Analysis Date: **6/12/2012 05:37 PM**
Client ID: Run ID: **VMS8_120612B** SeqNo: **1997377** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	982.5	30	1000	0	98.2	75-125	0			
1,1,1-Trichloroethane	942	30	1000	0	94.2	70-135	0			
1,1,2,2-Tetrachloroethane	932.5	30	1000	0	93.2	55-130	0			
1,1,2-Trichloroethane	951	30	1000	0	95.1	60-125	0			
1,1-Dichloroethane	894	30	1000	0	89.4	75-125	0			
1,1-Dichloroethene	883	30	1000	0	88.3	65-135	0			
1,2,3-Trichlorobenzene	1336	30	1000	0	134	60-135	0			
1,2,3-Trichloropropane	909.5	30	1000	0	91	65-130	0			
1,2,3-Trimethylbenzene	918	30	1000	0	91.8	65-135	0			
1,2,4-Trichlorobenzene	1224	30	1000	0	122	65-130	0			
1,2,4-Trimethylbenzene	985.5	30	1000	0	98.6	65-135	0			
1,2-Dibromo-3-chloropropane	982.5	30	1000	0	98.2	40-135	0			
1,2-Dibromoethane	1012	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	0			
1,2-Dichloroethane	963.5	30	1000	0	96.4	70-135	0			
1,2-Dichloropropane	885.5	30	1000	0	88.6	70-120	0			
1,3,5-Trimethylbenzene	1001	30	1000	0	100	65-135	0			
1,3-Dichlorobenzene	969.5	30	1000	0	97	70-125	0			
1,4-Dichlorobenzene	1009	30	1000	0	101	70-125	0			
2-Butanone	753	200	1000	0	75.3	30-160	0			
2-Hexanone	1014	30	1000	0	101	45-145	0			
4-Methyl-2-pentanone	1296	30	1000	0	130	45-145	0			
Acetone	887.5	100	1000	0	88.8	20-160	0			
Acrylonitrile	809.5	100	1000	0	81	70-135	0			
Benzene	920.5	30	1000	0	92	75-125	0			
Bromobenzene	979	30	1000	0	97.9	65-120	0			
Bromochloromethane	964	30	1000	0	96.4	70-125	0			
Bromodichloromethane	867	30	1000	0	86.7	70-130	0			
Bromoform	871	30	1000	0	87.1	55-135	0			
Bromomethane	953.5	75	1000	0	95.4	30-160	0			
Carbon disulfide	820	30	1000	0	82	45-160	0			
Carbon tetrachloride	862	30	1000	0	86.2	65-135	0			
Chlorobenzene	1008	30	1000	0	101	75-125	0			
Chloroethane	823.5	100	1000	0	82.4	40-155	0			
Chloroform	921	30	1000	0	92.1	70-125	0			
Chloromethane	721	100	1000	0	72.1	50-130	0			
cis-1,2-Dichloroethene	916	30	1000	0	91.6	65-125	0			
cis-1,3-Dichloropropene	1007	30	1000	0	101	70-125	0			
Dibromochloromethane	901	30	1000	0	90.1	65-135	0			
Dibromomethane	889.5	30	1000	0	89	75-130	0			
Dichlorodifluoromethane	562	30	1000	0	56.2	35-135	0			
Ethylbenzene	977.5	30	1000	0	97.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41558** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	786.5	30	1000	0	78.6	70-135	0	
Isopropylbenzene	1002	30	1000	0	100	75-130	0	
m,p-Xylene	1952	60	2000	0	97.6	80-125	0	
Methyl tert-butyl ether	944.5	30	1000	0	94.4	75-125	0	
Methylene chloride	925	30	1000	0	92.5	55-145	0	
Naphthalene	1230	100	1000	0	123	40-140	0	B
n-Butylbenzene	1020	30	1000	0	102	65-140	0	
n-Propylbenzene	1022	30	1000	0	102	65-135	0	
o-Xylene	966	30	1000	0	96.6	75-125	0	
p-Isopropyltoluene	983.5	30	1000	0	98.4	75-135	0	
sec-Butylbenzene	1086	30	1000	0	109	65-130	0	
Styrene	952	30	1000	0	95.2	75-125	0	
tert-Butylbenzene	1037	30	1000	0	104	65-130	0	
Tetrachloroethene	1054	30	1000	0	105	64-140	0	
Tetrahydrofuran	878.5	200	1000	0	87.8	70-135	0	
Toluene	978.5	30	1000	0	97.8	70-125	0	
trans-1,2-Dichloroethene	954.5	30	1000	0	95.4	65-135	0	
trans-1,3-Dichloropropene	945.5	30	1000	0	94.6	65-125	0	
trans-1,4-Dichloro-2-butene	923	30	1000	0	92.3	70-135	0	
Trichloroethene	952.5	30	1000	0	95.2	75-125	0	
Trichlorofluoromethane	735.5	30	1000	0	73.6	25-185	0	
Vinyl chloride	732.5	30	1000	0	73.2	60-125	0	
Surr: 1,2-Dichloroethane-d4	*982.5*	0	*1000*	0	*98.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*993*	0	*1000*	0	*99.3*	*70-130*	0	
Surr: Dibromofluoromethane	*991.5*	0	*1000*	0	*99.2*	*70-130*	0	
Surr: Toluene-d8	*1016*	0	*1000*	0	*102*	*70-130*	0	

The following samples were analyzed in this batch:

1206177-01B	1206177-02B	1206177-03B
1206177-04B	1206177-05B	1206177-06B
1206177-07B	1206177-08B	1206177-09A
1206177-10B	1206177-11B	1206177-12B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **R105725** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105725** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206175-07ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994151** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	29.1	0.050	0	0	0	0-0	30.96	6.19	20	

DUP Sample ID: **1206213-06ADUP** Units: **% of sample** Analysis Date: **6/7/2012 03:52 PM**
Client ID: Run ID: **MOIST_120607B** SeqNo: **1994164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	1.29	0.050	0	0	0	0-0	1.29	0	20	

The following samples were analyzed in this batch:

1206177-01A	1206177-02A	1206177-03A
1206177-04A	1206177-05A	1206177-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206177
Project: Marshall KRRI 1150L,1200-1225L 6/4/12

QC BATCH REPORT

Batch ID: **R105726** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105726** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R105726** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206177-12ADUP1** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **MOIST_120607C** SeqNo: **1994180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.49	0.050	0	0	0	0-0	43.53	0.0919	20	

DUP Sample ID: **1206177-12ADUP2** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: **SBKR1225L502S060412S005** Run ID: **MOIST_120607C** SeqNo: **1994181** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.01	0.050	0	0	0	0-0	43.53	1.2	20	

DUP Sample ID: **1206178-05ADUP1** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994187** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	46.05	0.050	0	0	0	0-0	46.98	2	20	

DUP Sample ID: **1206178-05ADUP2** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	46.48	0.050	0	0	0	0-0	46.98	1.07	20	

The following samples were analyzed in this batch:

1206177-07A	1206177-08A	1206177-10A
1206177-11A	1206177-12A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206177

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060412_PMB1	Task: KRRI_1150,1200,1225
	Total # of Samples: 12	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #
Send EDD to
CC Hardcopy report
CC Hardcopy report

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L534S060412S005	SBKR1150L534	SO	G	06/04/2012 09:05	3			X	X	X	X	X										
2	SBKR1200L502S060412S005	SBKR1200L502	SO	G	06/04/2012 10:20	3			X	X	X	X	X										
3	SBKR1200L502S060412S014	SBKR1200L502	SO	G	06/04/2012 10:30	3			X	X	X	X	X										
4	SBKR1200L504S060412S004	SBKR1200L504	SO	G	06/04/2012 11:40	3			X	X	X	X	X										
5	SBKR1200L506S060412S005	SBKR1200L506	SO	G	06/04/2012 13:30	3			X	X	X	X	X										
6	SBKR1200L507S060412S004	SBKR1200L507	SO	G	06/04/2012 14:30	3			X	X	X	X	X										
7	SBKR1200L508S060412S007	SBKR1200L508	SO	G	06/04/2012 15:30	3			X	X	X	X	X										
8	SBKR1200L509S060412S004	SBKR1200L509	SO	G	06/04/2012 16:45	3			X	X	X	X	X										
9	SBKR1200L509T060412MX	SBKR1200L509	SQ	G	06/04/2012 00:00	1	TRIP BLANK						X										
10	SBKR1225L501S060412S010	SBKR1225L501	SO	G	06/04/2012 15:55	3			X	X	X	X	X										
11	SBKR1225L501D060412S010	SBKR1225L501	SO	G	06/04/2012 15:55	3	DUPLICATE		X	X	X	X	X										
12	SBKR1225L502S060412S005	SBKR1225L502	SO	G	06/04/2012 16:25	6	MS/MSD		X	X	X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.4.12	1720		6.4.12	1720
	6.6.12	1305		6.6.12	1305

Sample Receipt Conditions

Temp in 0C	Samples on Ice?	Sample Intact?	Trip Blank?
	Y/N	Y/N	Y/N
5.0°C	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **06-Jun-12 13:05**

Work Order: **1206177** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 06-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 07-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

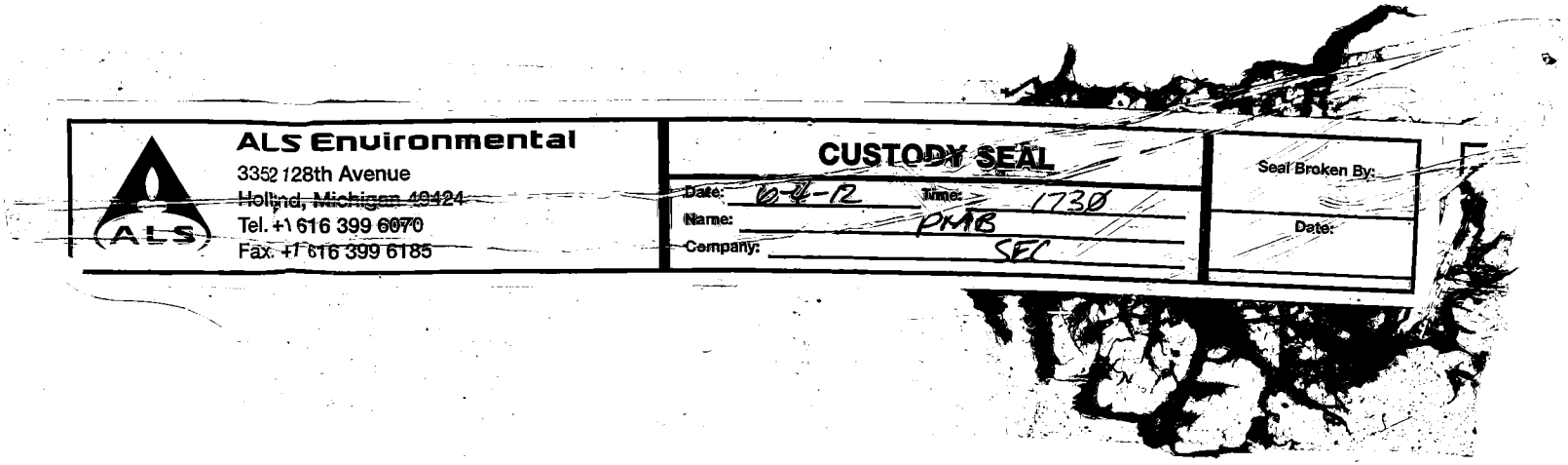
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

5.0°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-4-12 Time: 1730
Name: PMB
Company: SEC

Seal Broken By:

Date:

14-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L, 1200L 6/4/12** Work Order: **1206178**

Dear Bryan,

ALS Environmental received 6 samples on 06-Jun-2012 01:05 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 14-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L, 1200L 6/4/12
Work Order: **1206178**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206178-01	SBKR1150L533S060412S005	Soil		6/4/2012 08:43	6/6/2012 13:05	☐
1206178-02	SBKR1200L501S060412S004	Soil		6/4/2012 10:06	6/6/2012 13:05	☐
1206178-03	SBKR1200L503S060412S010	Soil		6/4/2012 10:35	6/6/2012 13:05	☐
1206178-04	SBKR1200L503D060412S010	Soil		6/4/2012 10:35	6/6/2012 13:05	☐
1206178-05	SBKR1200L505S060412S010	Soil		6/4/2012 11:50	6/6/2012 13:05	☐
1206178-06	SBKR1200L505T060412MX	Soil		6/4/2012	6/6/2012 13:05	☐

ALS Group USA, Corp

Date: 14-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L, 1200L 6/4/12
Work Order: 1206178

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 4152 samples 1206178-01 and 1206178-03 DRO surrogate recoveries were above control limits due to matrix interference. The DRO results may be biased high.

Batch 41524 sample SBKR1200L505S060412S010 MS/MSD recoveries for Beryllium, Molybdenum, Nickel, and Vanadium were below control limits. The results for these elements in the parent sample may be biased low due to matrix interference.

Batch 41592 sample SBKR1200L505S060412S010 MS/MSD recoveries for 1,1-DCE and Chloroethane were below control limits. The corresponding reporting limits in the parent sample may be biased low. The Method Blank had a reportable result for Bromomethane, but all samples in this work order were ND for this compound.

ALS Group USA, Corp

Date: 14-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L, 1200L 6/4/12
WorkOrder: **1206178**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L533S060412S005
Work Order:	1206178	**Collection Date:**	6/4/2012 8:43:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**140**	**36**	**4.0**		**mg/Kg-dry**	1	6/11/2012
ORO (C20-C34)	**970**	**72**	**4.0**		**mg/Kg-dry**	1	6/11/2012
Surr: 4-Terphenyl-d14	*203*	*39-115*		S	*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.54	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.1	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(a)pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(b)fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/11/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/11/2012
Chrysene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/11/2012
Fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/11/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/11/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/11/2012
Pyrene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/11/2012
Surr: 2,4,6-Tribromophenol	*99.1*	*34-140*			*%REC*	1	6/11/2012
Surr: 2-Fluorobiphenyl	*60.7*	*12-100*			*%REC*	1	6/11/2012
Surr: 2-Fluorophenol	*79.8*	*33-117*			*%REC*	1	6/11/2012
Surr: 4-Terphenyl-d14	*97.0*	*25-137*			*%REC*	1	6/11/2012
Surr: Nitrobenzene-d5	*71.8*	*37-107*			*%REC*	1	6/11/2012
Surr: Phenol-d6	*82.8*	*40-106*			*%REC*	1	6/11/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	670	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	670	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L533S060412S005
Work Order:	1206178	**Collection Date:**	6/4/2012 8:43:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	670	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	670	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	670	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	670	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	670	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	2,200	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	2,200	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	5,600	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	670	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	670	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	670	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	670	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	670	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	670	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	670	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	670	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	670	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	2,200	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	670	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	670	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	670	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	670	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	670	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	670	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	670	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	670	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	670	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L533S060412S005
Work Order:	1206178	**Collection Date:**	6/4/2012 8:43:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	670	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	670	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	670	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	1,300	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	670	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	670	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	670	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	2,200	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	670	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	670	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	670	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	670	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	670	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	670	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	2,200	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	670	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	670	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	670	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	670	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	670	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*98.3*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L501S060412S004
Work Order:	1206178	**Collection Date:**	6/4/2012 10:06:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**67**	**21**	**4.0**		**mg/Kg-dry**	1	6/12/2012
ORO (C20-C34)	**600**	**42**	**4.0**		**mg/Kg-dry**	1	6/12/2012
Surr: 4-Terphenyl-d14	*111*	*39-115*			*%REC*	1	6/12/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.56**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/8/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(a)pyrene	**760**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(k)fluoranthene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Chrysene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*92.7*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*56.2*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*73.8*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*91.2*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*66.7*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*75.9*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/12/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L501S060412S004
Work Order:	1206178	**Collection Date:**	6/4/2012 10:06:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/12/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/12/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/12/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/12/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/12/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/12/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/12/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/12/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/12/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/12/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/12/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/12/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/12/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/12/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/12/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/12/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/12/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L501S060412S004
Work Order:	1206178	**Collection Date:**	6/4/2012 10:06:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/12/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/12/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/12/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/12/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/12/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/12/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/12/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/12/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/12/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/12/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/12/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/12/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/12/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/12/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/12/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/12/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/12/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/12/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/12/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/12/2012
Surr: 1,2-Dichloroethane-d4	*98.0*	*70-130*			*%REC*	1	6/12/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/12/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	6/12/2012
Surr: Toluene-d8	*99.1*	*70-130*			*%REC*	1	6/12/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**24**	**4.0**		**mg/Kg-dry**	1	6/12/2012
ORO (C20-C34)	**800**	**48**	**4.0**		**mg/Kg-dry**	1	6/12/2012
Surr: 4-Terphenyl-d14	*183*	*39-115*		S	*%REC*	1	6/12/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/8/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/8/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
Vanadium	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(a)pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**700**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(k)fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Chrysene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluoranthene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Pyrene	**880**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*95.2*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*60.3*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*71.3*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*91.8*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*64.8*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*76.3*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	320	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	320	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	320	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	320	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	320	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*99.4*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*98.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*98.1*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503D060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	**55**	**23**	**4.0**		**mg/Kg-dry**	1	6/12/2012
ORO (C20-C34)	**530**	**47**	**4.0**		**mg/Kg-dry**	1	6/12/2012
Surr: 4-Terphenyl-d14	*114*	*39-115*			*%REC*	1	6/12/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/12/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(k)fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Chrysene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluoranthene	**920**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Pyrene	**850**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*89.2*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*59.7*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*72.3*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*87.2*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*67.7*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*75.2*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503D060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	2,300	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	280	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	280	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	280	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L503D060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 10:35:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	560	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	280	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	280	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	280	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*98.8*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L505S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 11:50:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/11/2012
ORO (C20-C34)	ND	36	4.0		mg/Kg-dry	1	6/11/2012
Surr: 4-Terphenyl-d14	*68.9*	*39-115*			*%REC*	1	6/11/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **ML**
Beryllium	**0.54**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/12/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/12/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/9/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(b)fluoranthene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/9/2012
Benzo(k)fluoranthene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/9/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/9/2012
Fluoranthene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/9/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/9/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/9/2012
Pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/9/2012
Surr: 2,4,6-Tribromophenol	*78.5*	*34-140*			*%REC*	1	6/9/2012
Surr: 2-Fluorobiphenyl	*58.9*	*12-100*			*%REC*	1	6/9/2012
Surr: 2-Fluorophenol	*64.4*	*33-117*			*%REC*	1	6/9/2012
Surr: 4-Terphenyl-d14	*87.3*	*25-137*			*%REC*	1	6/9/2012
Surr: Nitrobenzene-d5	*61.4*	*37-107*			*%REC*	1	6/9/2012
Surr: Phenol-d6	*69.2*	*40-106*			*%REC*	1	6/9/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L505S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 11:50:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	520	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	520	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L505S060412S010
Work Order:	1206178	**Collection Date:**	6/4/2012 11:50:00 AM
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	310	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	520	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*97.8*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.1*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/7/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L505T060412MX
Work Order:	1206178	**Collection Date:**	6/4/2012
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/12/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/13/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/13/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/13/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/13/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/13/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/13/2012
Benzene	ND	50	50		µg/Kg	1	6/13/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/13/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromoform	ND	100	100		µg/Kg	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/13/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/13/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/13/2012
Chloroethane	ND	250	250		µg/Kg	1	6/13/2012
Chloroform	ND	50	50		µg/Kg	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg	1	6/13/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L505T060412MX
Work Order:	1206178	**Collection Date:**	6/4/2012
Project:	Marshall KRRI 1150L, 1200L 6/4/12		
Lab ID:	1206178-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/13/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/13/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/13/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg	1	6/13/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/13/2012
o-Xylene	ND	50	50		µg/Kg	1	6/13/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/13/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Styrene	ND	50	50		µg/Kg	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/13/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/13/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/13/2012
Toluene	ND	100	100		µg/Kg	1	6/13/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/13/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/13/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/13/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*94.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41521** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41521-41521** Units: **mg/Kg** Analysis Date: **6/11/2012 03:22 PM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996996** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.961*	0	*5*	0	*79.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41521-41521** Units: **mg/Kg** Analysis Date: **6/11/2012 03:22 PM**

Client ID: Run ID: **GC8_120611A** SeqNo: **1996958** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	408.1	10	500	0	81.6	60-130	0			
ORO (C20-C34)	502.3	20	500	0	100	60-130	0			
Surr: 4-Terphenyl-d14	*2.67*	0	*5*	0	*53.4*	*39-115*	0			

MS Sample ID: **1206178-05A MS** Units: **mg/Kg** Analysis Date: **6/11/2012 03:48 PM**

Client ID: **SBKR1200L505S060412S010** Run ID: **GC8_120611A** SeqNo: **1996997** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	333.4	9.7	486.4	0	68.5	60-130	0			
ORO (C20-C34)	536.8	19	486.4	0	110	60-130	0			
Surr: 4-Terphenyl-d14	*2.547*	0	*4.864*	0	*52.4*	*39-115*	0			

MSD Sample ID: **1206178-05A MSD** Units: **mg/Kg** Analysis Date: **6/11/2012 03:48 PM**

Client ID: **SBKR1200L505S060412S010** Run ID: **GC8_120611A** SeqNo: **1996959** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.6	9.5	474.7	0	75.5	60-130	333.4	7.29	30	
ORO (C20-C34)	540.1	19	474.7	0	114	60-130	536.8	0.621	30	
Surr: 4-Terphenyl-d14	*2.497*	0	*4.747*	0	*52.6*	*39-115*	2.547	*1.96*	*30*	

The following samples were analyzed in this batch:

1206178-01A	1206178-02A	1206178-03A
1206178-04A	1206178-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **41524** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41524-41524** Units: **mg/Kg** Analysis Date: **6/8/2012 04:43 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994711** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01249	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41524-41524** Units: **mg/Kg** Analysis Date: **6/8/2012 04:50 PM**
Client ID: Run ID: **ICPMS1_120608A** SeqNo: **1994712** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.322	0.10	5	0	86.4	80-120	0			
Molybdenum	4.308	0.25	5	0	86.2	80-120	0			
Nickel	4.166	0.25	5	0	83.3	80-120	0			
Vanadium	4.237	0.25	5	0	84.7	80-120	0			

MS Sample ID: **1206178-05AMS** Units: **mg/Kg** Analysis Date: **6/12/2012 11:44 AM**
Client ID: **SBKR1200L505S060412S010** Run ID: **ICPMS1_120612A** SeqNo: **1996424** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.647	0.48	6.01	0.2852	72.6	80-120	0			S
Molybdenum	4.846	1.2	6.01	0.5979	70.7	80-120	0			S
Nickel	11.76	1.2	6.01	9.032	45.5	80-120	0			S
Vanadium	16.93	1.2	6.01	14.95	33	80-120	0			S

MSD Sample ID: **1206178-05AMSD** Units: **mg/Kg** Analysis Date: **6/12/2012 11:50 AM**
Client ID: **SBKR1200L505S060412S010** Run ID: **ICPMS1_120612A** SeqNo: **1996457** Prep Date: **6/8/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.521	0.54	6.729	0.2852	77.8	80-120	4.647	17.2	25	S
Molybdenum	5.873	1.3	6.729	0.5979	78.4	80-120	4.846	19.2	25	S
Nickel	13.56	1.3	6.729	9.032	67.3	80-120	11.76	14.2	25	S
Vanadium	18.69	1.3	6.729	14.95	55.6	80-120	16.93	9.9	25	S

The following samples were analyzed in this batch: 1206178-01A 1206178-02A 1206178-03A 1206178-04A 1206178-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41520-41520** Units: **µg/Kg** Analysis Date: **6/9/2012 11:53 AM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995270** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3216*	0	*5000*	0	*64.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3121*	0	*5000*	0	*62.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3422*	0	*5000*	0	*68.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4667*	0	*5000*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3437*	0	*5000*	0	*68.7*	*37-107*	0			
Surr: Phenol-d6	*3672*	0	*5000*	0	*73.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41520-41520** Units: **µg/Kg** Analysis Date: **6/9/2012 12:23 PM**
Client ID: Run ID: **SVMS7_120609A** SeqNo: **1995272** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1775	50	2000	0	88.8	45-105	0			
Acenaphthene	1774	50	2000	0	88.7	45-110	0			
Acenaphthylene	1807	50	2000	0	90.4	45-105	0			
Anthracene	1899	50	2000	0	95	55-105	0			
Benzo(a)anthracene	1883	50	2000	0	94.2	50-110	0			
Benzo(a)pyrene	1983	50	2000	0	99.2	50-110	0			
Benzo(b)fluoranthene	1835	50	2000	0	91.8	45-115	0			
Benzo(g,h,i)perylene	1830	50	2000	0	91.5	40-125	0			
Benzo(k)fluoranthene	2176	50	2000	0	109	45-115	0			
Chrysene	1976	50	2000	0	98.8	55-110	0			
Dibenzo(a,h)anthracene	1924	50	2000	0	96.2	40-125	0			
Fluoranthene	1990	50	2000	0	99.5	55-115	0			
Fluorene	1841	50	2000	0	92	50-110	0			
Indeno(1,2,3-cd)pyrene	1912	50	2000	0	95.6	40-120	0			
Naphthalene	1733	50	2000	0	86.6	40-105	0			
Phenanthrene	1868	50	2000	0	93.4	50-110	0			
Pyrene	1948	50	2000	0	97.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4350*	0	*5000*	0	*87*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3298*	0	*5000*	0	*66*	*12-100*	0			
Surr: 2-Fluorophenol	*3862*	0	*5000*	0	*77.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4658*	0	*5000*	0	*93.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3725*	0	*5000*	0	*74.5*	*37-107*	0			
Surr: Phenol-d6	*3758*	0	*5000*	0	*75.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206178-05A MS** Units: **µg/Kg** Analysis Date: **6/9/2012 02:50 PM**
Client ID: **SBKR1200L505S060412S010** Run ID: **SVMS7_120609A** SeqNo: **1995279** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1594	46	1840	0	86.6	45-105	0			
Acenaphthene	1622	46	1840	0	88.2	45-110	0			
Acenaphthylene	1678	46	1840	0	91.2	45-105	0			
Anthracene	1793	46	1840	0	97.4	55-105	0			
Benzo(a)anthracene	1833	46	1840	126.4	92.7	50-110	0			
Benzo(a)pyrene	1967	46	1840	169.1	97.7	50-110	0			
Benzo(b)fluoranthene	1934	46	1840	249	91.6	45-115	0			
Benzo(g,h,i)perylene	1730	46	1840	118.8	87.5	40-125	0			
Benzo(k)fluoranthene	2025	46	1840	298.4	93.8	45-115	0			
Chrysene	1909	46	1840	154.9	95.3	55-110	0			
Dibenzo(a,h)anthracene	1637	46	1840	0	89	40-125	0			
Fluoranthene	2140	46	1840	205.2	105	55-115	0			
Fluorene	1775	46	1840	0	96.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1695	46	1840	89.32	87.2	40-120	0			
Naphthalene	1502	46	1840	0	81.6	40-105	0			
Phenanthrene	1785	46	1840	70.32	93.2	50-110	0			
Pyrene	2026	46	1840	221.4	98.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4085*	0	*4601*	0	*88.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3034*	0	*4601*	0	*65.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3253*	0	*4601*	0	*70.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4491*	0	*4601*	0	*97.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3232*	0	*4601*	0	*70.2*	*37-107*	0			
Surr: Phenol-d6	*3404*	0	*4601*	0	*74*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **41520** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206178-05A MSD** Units: **µg/Kg** Analysis Date: **6/9/2012 03:19 PM**
Client ID: **SBKR1200L505S060412S010** Run ID: **SVMS7_120609A** SeqNo: **1995280** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1356	47	1861	0	72.8	45-105	1594	16.1	30	
Acenaphthene	1529	47	1861	0	82.2	45-110	1622	5.94	30	
Acenaphthylene	1577	47	1861	0	84.8	45-105	1678	6.22	30	
Anthracene	1722	47	1861	0	92.6	55-105	1793	4	30	
Benzo(a)anthracene	1794	47	1861	126.4	89.6	50-110	1833	2.16	30	
Benzo(a)pyrene	1916	47	1861	169.1	93.9	50-110	1967	2.61	30	
Benzo(b)fluoranthene	1866	47	1861	249	86.9	45-115	1934	3.61	30	
Benzo(g,h,i)perylene	1588	47	1861	118.8	79	40-125	1730	8.54	30	
Benzo(k)fluoranthene	2004	47	1861	298.4	91.7	45-115	2025	1.05	30	
Chrysene	1845	47	1861	154.9	90.8	55-110	1909	3.38	30	
Dibenzo(a,h)anthracene	1546	47	1861	0	83.1	40-125	1637	5.69	30	
Fluoranthene	2095	47	1861	205.2	102	55-115	2140	2.12	30	
Fluorene	1693	47	1861	0	91	50-110	1775	4.76	30	
Indeno(1,2,3-cd)pyrene	1599	47	1861	89.32	81.1	40-120	1695	5.86	30	
Naphthalene	1135	47	1861	0	61	40-105	1502	27.8	30	
Phenanthrene	1720	47	1861	70.32	88.7	50-110	1785	3.69	30	
Pyrene	2000	47	1861	221.4	95.6	45-125	2026	1.33	30	
Surr: 2,4,6-Tribromophenol	*3974*	0	*4652*	0	*85.4*	*34-140*	4085	*2.75*	*40*	
Surr: 2-Fluorobiphenyl	*2755*	0	*4652*	0	*59.2*	*12-100*	3034	*9.63*	*40*	
Surr: 2-Fluorophenol	*2465*	0	*4652*	0	*53*	*33-117*	3253	*27.6*	*40*	
Surr: 4-Terphenyl-d14	*4447*	0	*4652*	0	*95.6*	*25-137*	4491	*0.981*	*40*	
Surr: Nitrobenzene-d5	*2390*	0	*4652*	0	*51.4*	*37-107*	3232	*29.9*	*40*	
Surr: Phenol-d6	*2870*	0	*4652*	0	*61.7*	*40-106*	3404	*17*	*40*	

The following samples were analyzed in this batch:

1206178-01A	1206178-02A	1206178-03A
1206178-04A	1206178-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41592-41592** Units: **µg/Kg** Analysis Date: **6/12/2012 08:17 PM**
Client ID: Run ID: **VMS7_120612A** SeqNo: **1997797** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	71	75								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	110.5	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	20.5	30					J
Naphthalene	39.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*972.5*	0	*1000*	0	*97.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*973.5*	0	*1000*	0	*97.4*	*70-130*	0
Surr: Dibromofluoromethane	*951*	0	*1000*	0	*95.1*	*70-130*	0
Surr: Toluene-d8	*977*	0	*1000*	0	*97.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41592-41592**				Units: **µg/Kg**		Analysis Date: **6/12/2012 07:27 PM**			
Client ID:		Run ID: **VMS7_120612A**			SeqNo: **1997796**		Prep Date: **6/12/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	990.5	30	1000	0	99	75-125	0			
1,1,1-Trichloroethane	1016	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	967	30	1000	0	96.7	55-130	0			
1,1,2-Trichloroethane	938	30	1000	0	93.8	60-125	0			
1,1-Dichloroethane	935	30	1000	0	93.5	75-125	0			
1,1-Dichloroethene	999	30	1000	0	99.9	65-135	0			
1,2,3-Trichlorobenzene	973.5	30	1000	0	97.4	60-135	0			
1,2,3-Trichloropropane	1014	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	914	30	1000	0	91.4	65-135	0			
1,2,4-Trichlorobenzene	946.5	30	1000	0	94.6	65-130	0			
1,2,4-Trimethylbenzene	956.5	30	1000	0	95.6	65-135	0			
1,2-Dibromo-3-chloropropane	1017	30	1000	0	102	40-135	0			
1,2-Dibromoethane	984.5	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	946	30	1000	0	94.6	75-120	0			
1,2-Dichloroethane	947	30	1000	0	94.7	70-135	0			
1,2-Dichloropropane	967	30	1000	0	96.7	70-120	0			
1,3,5-Trimethylbenzene	970	30	1000	0	97	65-135	0			
1,3-Dichlorobenzene	996	30	1000	0	99.6	70-125	0			
1,4-Dichlorobenzene	1004	30	1000	0	100	70-125	0			
2-Butanone	1139	200	1000	0	114	30-160	0			
2-Hexanone	907	30	1000	0	90.7	45-145	0			
4-Methyl-2-pentanone	1323	30	1000	0	132	45-145	0			
Acetone	905	100	1000	0	90.5	20-160	0			
Acrylonitrile	899	100	1000	0	89.9	70-135	0			
Benzene	942.5	30	1000	0	94.2	75-125	0			
Bromobenzene	940.5	30	1000	0	94	65-120	0			
Bromochloromethane	994	30	1000	0	99.4	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	886.5	30	1000	0	88.6	55-135	0			
Bromomethane	1207	75	1000	0	121	30-160	0			
Carbon disulfide	1060	30	1000	0	106	45-160	0			
Carbon tetrachloride	1041	30	1000	0	104	65-135	0			
Chlorobenzene	978	30	1000	0	97.8	75-125	0			
Chloroethane	987.5	100	1000	0	98.8	40-155	0			
Chloroform	960.5	30	1000	0	96	70-125	0			
Chloromethane	947	100	1000	0	94.7	50-130	0			
cis-1,2-Dichloroethene	927.5	30	1000	0	92.8	65-125	0			
cis-1,3-Dichloropropene	1060	30	1000	0	106	70-125	0			
Dibromochloromethane	1040	30	1000	0	104	65-135	0			
Dibromomethane	972	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	752.5	30	1000	0	75.2	35-135	0			
Ethylbenzene	955.5	30	1000	0	95.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	948.5	30	1000	0	94.8	70-135	0
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	0
m,p-Xylene	1923	60	2000	0	96.2	80-125	0
Methyl tert-butyl ether	988.5	30	1000	0	98.8	75-125	0
Methylene chloride	1028	30	1000	0	103	55-145	0
Naphthalene	972.5	100	1000	0	97.2	40-140	0
n-Butylbenzene	1002	30	1000	0	100	65-140	0
n-Propylbenzene	932	30	1000	0	93.2	65-135	0
o-Xylene	951	30	1000	0	95.1	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	979.5	30	1000	0	98	65-130	0
Styrene	989	30	1000	0	98.9	75-125	0
tert-Butylbenzene	965	30	1000	0	96.5	65-130	0
Tetrachloroethene	960.5	30	1000	0	96	64-140	0
Tetrahydrofuran	824.5	200	1000	0	82.4	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1024	30	1000	0	102	65-135	0
trans-1,3-Dichloropropene	1018	30	1000	0	102	65-125	0
trans-1,4-Dichloro-2-butene	880.5	30	1000	0	88	70-135	0
Trichloroethene	967	30	1000	0	96.7	75-125	0
Trichlorofluoromethane	1014	30	1000	0	101	25-185	0
Vinyl chloride	910	30	1000	0	91	60-125	0
Surr: 1,2-Dichloroethane-d4	*978*	0	*1000*	0	*97.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*990.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Dibromofluoromethane	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206178-05B MS** Units: **µg/Kg** Analysis Date: **6/13/2012 05:07 AM**
Client ID: **SBKR1200L505S060412S010** Run ID: **VMS7_120612A** SeqNo: **1997838** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2564	83	2774	0	92.4	75-125	0			
1,1,1-Trichloroethane	2679	83	2774	0	96.6	70-135	0			
1,1,2,2-Tetrachloroethane	2528	83	2774	0	91.2	55-130	0			
1,1,2-Trichloroethane	2532	83	2774	0	91.3	60-125	0			
1,1-Dichloroethane	2506	83	2774	0	90.4	75-125	0			
1,1-Dichloroethene	1682	83	2774	0	60.6	65-135	0			S
1,2,3-Trichlorobenzene	2388	83	2774	0	86.1	60-135	0			
1,2,3-Trichloropropane	2708	83	2774	0	97.6	65-130	0			
1,2,3-Trimethylbenzene	2367	83	2774	0	85.4	65-135	0			
1,2,4-Trichlorobenzene	2301	83	2774	0	83	65-130	0			
1,2,4-Trimethylbenzene	2481	83	2774	0	89.4	65-135	0			
1,2-Dibromo-3-chloropropane	2434	83	2774	0	87.8	40-135	0			
1,2-Dibromoethane	2640	83	2774	0	95.2	70-125	0			
1,2-Dichlorobenzene	2423	83	2774	0	87.4	75-120	0			
1,2-Dichloroethane	2561	83	2774	0	92.4	70-135	0			
1,2-Dichloropropane	2600	83	2774	0	93.8	70-120	0			
1,3,5-Trimethylbenzene	2511	83	2774	0	90.6	65-135	0			
1,3-Dichlorobenzene	2477	83	2774	0	89.3	70-125	0			
1,4-Dichlorobenzene	2525	83	2774	0	91	70-125	0			
2-Butanone	2195	280	2774	0	79.2	30-160	0			
2-Hexanone	2448	83	2774	0	88.2	45-145	0			
4-Methyl-2-pentanone	3575	83	2774	0	129	45-145	0			
Acetone	2219	280	2774	0	80	20-160	0			
Acrylonitrile	1996	83	2774	0	72	70-135	0			
Benzene	2487	83	2774	0	89.6	75-125	0			
Bromobenzene	2457	83	2774	0	88.6	65-120	0			
Bromochloromethane	2571	83	2774	0	92.7	70-125	0			
Bromodichloromethane	2548	83	2774	0	91.8	70-130	0			
Bromoform	2161	83	2774	0	77.9	55-135	0			
Bromomethane	1986	83	2774	0	71.6	30-160	0			B
Carbon disulfide	1883	83	2774	0	67.9	45-160	0			
Carbon tetrachloride	2652	83	2774	0	95.6	65-135	0			
Chlorobenzene	2518	83	2774	0	90.8	75-125	0			
Chloroethane	1102	280	2774	0	39.8	40-155	0			S
Chloroform	2552	83	2774	0	92	70-125	0			
Chloromethane	2338	83	2774	0	84.3	50-130	0			
cis-1,2-Dichloroethene	2462	83	2774	0	88.8	65-125	0			
cis-1,3-Dichloropropene	2679	83	2774	0	96.6	70-125	0			
Dibromochloromethane	2628	83	2774	0	94.8	65-135	0			
Dibromomethane	2600	83	2774	0	93.8	75-130	0			
Dichlorodifluoromethane	1971	83	2774	0	71	35-135	0			
Ethylbenzene	2500	83	2774	0	90.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2302	83	2774	0	83	70-135	0
Isopropylbenzene	2535	83	2774	0	91.4	75-130	0
m,p-Xylene	4973	170	5547	0	89.6	80-125	0
Methyl tert-butyl ether	3388	83	2774	0	122	75-125	0
Methylene chloride	2572	83	2774	0	92.8	55-145	0
Naphthalene	2299	280	2774	0	82.9	40-140	0
n-Butylbenzene	2403	83	2774	0	86.6	65-140	0
n-Propylbenzene	2403	83	2774	0	86.6	65-135	0
o-Xylene	2534	83	2774	0	91.4	75-125	0
p-Isopropyltoluene	2514	83	2774	0	90.6	75-135	0
sec-Butylbenzene	2509	83	2774	0	90.4	65-130	0
Styrene	2543	83	2774	0	91.7	75-125	0
tert-Butylbenzene	2492	83	2774	0	89.8	65-130	0
Tetrachloroethene	2431	83	2774	0	87.6	64-140	0
Tetrahydrofuran	2108	280	2774	0	76	70-135	0
Toluene	2532	83	2774	0	91.3	70-125	0
trans-1,2-Dichloroethene	3441	83	2774	0	124	65-135	0
trans-1,3-Dichloropropene	2586	83	2774	0	93.2	65-125	0
trans-1,4-Dichloro-2-butene	2102	83	2774	0	75.8	70-135	0
Trichloroethene	2502	83	2774	0	90.2	75-125	0
Trichlorofluoromethane	1254	83	2774	0	45.2	25-185	0
Vinyl chloride	2338	83	2774	0	84.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*2713*	0	*2774*	0	*97.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2743*	0	*2774*	0	*98.9*	*70-130*	0
Surr: Dibromofluoromethane	*2714*	0	*2774*	0	*97.8*	*70-130*	0
Surr: Toluene-d8	*2744*	0	*2774*	0	*99*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206178-05B MSD** Units: **µg/Kg** Analysis Date: **6/13/2012 05:31 AM**
Client ID: **SBKR1200L505S060412S010** Run ID: **VMS7_120612A** SeqNo: **1997841** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2539	83	2774	0	91.6	75-125	2564	0.978	30	
1,1,1-Trichloroethane	2631	83	2774	0	94.8	70-135	2679	1.83	30	
1,1,2,2-Tetrachloroethane	2568	83	2774	0	92.6	55-130	2528	1.58	30	
1,1,2-Trichloroethane	2517	83	2774	0	90.8	60-125	2532	0.604	30	
1,1-Dichloroethane	2419	83	2774	0	87.2	75-125	2506	3.55	30	
1,1-Dichloroethene	1704	83	2774	0	61.4	65-135	1682	1.31	30	S
1,2,3-Trichlorobenzene	2388	83	2774	0	86.1	60-135	2388	0	30	
1,2,3-Trichloropropane	2706	83	2774	0	97.6	65-130	2708	0.102	30	
1,2,3-Trimethylbenzene	2345	83	2774	0	84.6	65-135	2367	0.942	30	
1,2,4-Trichlorobenzene	2370	83	2774	0	85.4	65-130	2301	2.97	30	
1,2,4-Trimethylbenzene	2467	83	2774	0	89	65-135	2481	0.561	30	
1,2-Dibromo-3-chloropropane	2499	83	2774	0	90.1	40-135	2434	2.64	30	
1,2-Dibromoethane	2634	83	2774	0	95	70-125	2640	0.263	30	
1,2-Dichlorobenzene	2381	83	2774	0	85.8	75-120	2423	1.73	30	
1,2-Dichloroethane	2566	83	2774	0	92.5	70-135	2561	0.162	30	
1,2-Dichloropropane	2591	83	2774	0	93.4	70-120	2600	0.374	30	
1,3,5-Trimethylbenzene	2475	83	2774	0	89.2	65-135	2511	1.45	30	
1,3-Dichlorobenzene	2430	83	2774	0	87.6	70-125	2477	1.92	30	
1,4-Dichlorobenzene	2492	83	2774	0	89.8	70-125	2525	1.33	30	
2-Butanone	2596	280	2774	0	93.6	30-160	2195	16.7	30	
2-Hexanone	2500	83	2774	0	90.2	45-145	2448	2.13	30	
4-Methyl-2-pentanone	3592	83	2774	0	130	45-145	3575	0.464	30	
Acetone	2159	280	2774	0	77.8	20-160	2219	2.72	30	
Acrylonitrile	1997	83	2774	0	72	70-135	1996	0.0695	30	
Benzene	2423	83	2774	0	87.4	75-125	2487	2.6	30	
Bromobenzene	2467	83	2774	0	89	65-120	2457	0.394	30	
Bromochloromethane	2503	83	2774	0	90.2	70-125	2571	2.68	30	
Bromodichloromethane	2532	83	2774	0	91.3	70-130	2548	0.601	30	
Bromoform	2183	83	2774	0	78.7	55-135	2161	1.02	30	
Bromomethane	2105	83	2774	0	75.9	30-160	1986	5.83	30	B
Carbon disulfide	1885	83	2774	0	68	45-160	1883	0.0736	30	
Carbon tetrachloride	2595	83	2774	0	93.6	65-135	2652	2.17	30	
Chlorobenzene	2500	83	2774	0	90.2	75-125	2518	0.718	30	
Chloroethane	1101	280	2774	0	39.7	40-155	1102	0.126	30	S
Chloroform	2489	83	2774	0	89.8	70-125	2552	2.48	30	
Chloromethane	2326	83	2774	0	83.8	50-130	2338	0.535	30	
cis-1,2-Dichloroethene	2378	83	2774	0	85.8	65-125	2462	3.44	30	
cis-1,3-Dichloropropene	2658	83	2774	0	95.8	70-125	2679	0.779	30	
Dibromochloromethane	2636	83	2774	0	95	65-135	2628	0.316	30	
Dibromomethane	2611	83	2774	0	94.2	75-130	2600	0.426	30	
Dichlorodifluoromethane	1901	83	2774	0	68.6	35-135	1971	3.58	30	
Ethylbenzene	2438	83	2774	0	87.9	75-125	2500	2.53	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41592** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2272	83	2774	0	81.9	70-135	2302	1.33	30
Isopropylbenzene	2517	83	2774	0	90.8	75-130	2535	0.714	30
m,p-Xylene	4858	170	5547	0	87.6	80-125	4973	2.34	30
Methyl tert-butyl ether	3306	83	2774	0	119	75-125	3388	2.44	30
Methylene chloride	2498	83	2774	0	90	55-145	2572	2.95	30
Naphthalene	2377	280	2774	0	85.7	40-140	2299	3.32	30
n-Butylbenzene	2419	83	2774	0	87.2	65-140	2403	0.633	30
n-Propylbenzene	2363	83	2774	0	85.2	65-135	2403	1.69	30
o-Xylene	2493	83	2774	0	89.9	75-125	2534	1.6	30
p-Isopropyltoluene	2416	83	2774	0	87.1	75-135	2514	3.99	30
sec-Butylbenzene	2475	83	2774	0	89.2	65-130	2509	1.34	30
Styrene	2518	83	2774	0	90.8	75-125	2543	0.986	30
tert-Butylbenzene	2487	83	2774	0	89.6	65-130	2492	0.223	30
Tetrachloroethene	2402	83	2774	0	86.6	64-140	2431	1.21	30
Tetrahydrofuran	2211	280	2774	0	79.7	70-135	2108	4.75	30
Toluene	2473	83	2774	0	89.2	70-125	2532	2.38	30
trans-1,2-Dichloroethene	3253	83	2774	0	117	65-135	3441	5.59	30
trans-1,3-Dichloropropene	2550	83	2774	0	92	65-125	2586	1.4	30
trans-1,4-Dichloro-2-butene	2125	83	2774	0	76.6	70-135	2102	1.05	30
Trichloroethene	2448	83	2774	0	88.2	75-125	2502	2.19	30
Trichlorofluoromethane	1266	83	2774	0	45.6	25-185	1254	0.991	30
Vinyl chloride	2240	83	2774	0	80.8	60-125	2338	4.3	30
Surr: 1,2-Dichloroethane-d4	*2711*	0	*2774*	0	*97.8*	*70-130*	2713	*0.0511*	*30*
Surr: 4-Bromofluorobenzene	*2765*	0	*2774*	0	*99.7*	*70-130*	2743	*0.806*	*30*
Surr: Dibromofluoromethane	*2732*	0	*2774*	0	*98.5*	*70-130*	2714	*0.662*	*30*
Surr: Toluene-d8	*2762*	0	*2774*	0	*99.6*	*70-130*	2744	*0.655*	*30*

The following samples were analyzed in this batch:

1206178-01B	1206178-02B	1206178-03B
1206178-04B	1206178-05B	1206178-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206178
Project: Marshall KRRI 1150L, 1200L 6/4/12

QC BATCH REPORT

Batch ID: **R105726** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105726** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R105726** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206177-12ADUP1** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.49	0.050	0	0	0	0-0	43.53	0.0919	20	

DUP Sample ID: **1206177-12ADUP2** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: Run ID: **MOIST_120607C** SeqNo: **1994181** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.01	0.050	0	0	0	0-0	43.53	1.2	20	

DUP Sample ID: **1206178-05ADUP1** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: **SBKR1200L505S060412S010** Run ID: **MOIST_120607C** SeqNo: **1994187** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	46.05	0.050	0	0	0	0-0	46.98	2	20	

DUP Sample ID: **1206178-05ADUP2** Units: **% of sample** Analysis Date: **6/7/2012 04:34 PM**
Client ID: **SBKR1200L505S060412S010** Run ID: **MOIST_120607C** SeqNo: **1994188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	46.48	0.050	0	0	0	0-0	46.98	1.07	20	

The following samples were analyzed in this batch:

1206178-01A	1206178-02A	1206178-03A
1206178-04A	1206178-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206178

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060412_LJL2	Task: KRRI_1150,1200
	Total # of Samples: 6	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 6036/8260												
1	SBKR1150L533S060412S005	SBKR1150L533	SO	G	06/04/2012 08:43	3			X	X	X	X	X												
2	SBKR1200L501S060412S004	SBKR1200L501	SO	G	06/04/2012 10:06	3			X	X	X	X	X												
3	SBKR1200L503S060412S010	SBKR1200L503	SO	G	06/04/2012 10:35	3			X	X	X	X	X												
4	SBKR1200L503D060412S010	SBKR1200L503	SO	G	06/04/2012 10:35	3	DUPLICATE		X	X	X	X	X												
5	SBKR1200L505S060412S010	SBKR1200L505	SO	G	06/04/2012 11:50	6	MS/MSD		X	X	X	X	X												
6	SBKR1200L505T060412MX	SBKR1200L505	SQ	G	06/04/2012 00:00	1	TRIP BLANK						X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-4-12	1712		6-4-12	1712
	6-6-12	1305		6-6-12	1305

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
4.2°C	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **06-Jun-12 13:05**

Work Order: **1206178** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 06-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 07-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

4.2°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-4-12 Time: 1730
Name: PMB
Company: SEL

Seal Broken By:

Date:

13-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1200L GW 6/4/12** Work Order: **1206179**

Dear Bryan,

ALS Environmental received 1 sample on 06-Jun-2012 01:05 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1200L GW 6/4/12
Work Order: **1206179**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206179-01	SBKR1200L506S060412G039	Groundwater		6/4/2012 15:40	6/6/2012 13:05	☐

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1200L GW 6/4/12
Work Order: 1206179

Case Narrative

Batch 41530 sample 1206179-01 and Method Blank DRO surrogate recovery was above the upper control limits. The sample was non-detect, therefore, no qualification is needed. The RPD between the MS/MSD recoveries for the DRO surrogate, 4-Terphenyl-d14, was above control limits. The individual MS/MSD recoveries met quality control criteria.

ALS Group USA, Corp

Date: 13-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1200L GW 6/4/12
WorkOrder: **1206179**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *13-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L506S060412G039
Work Order:	1206179	**Collection Date:**	6/4/2012 3:40:00 PM
Project:	Marshall KRRI 1200L GW 6/4/12		
Lab ID:	1206179-01	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/8/2012**		Analyst: **CW**
DRO (C10-C20)	ND	0.10	0.10		mg/L	1	6/9/2012
ORO (C20-C34)	ND	0.10	0.10		mg/L	1	6/9/2012
Surr: 4-Terphenyl-d14	*86.9*	*33-78*		S	*%REC*	1	6/9/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/8/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/8/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/8/2012
Nickel	ND	0.020	0.020		mg/L	1	6/8/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/8/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/8/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/8/2012
Acenaphthene	ND	5.0	5.0		µg/L	1	6/8/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/8/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/8/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/8/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/8/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/8/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/8/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/8/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/8/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/8/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/8/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/8/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/8/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/8/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/8/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/8/2012
Surr: 2,4,6-Tribromophenol	*55.4*	*21-125*			*%REC*	1	6/8/2012
Surr: 2-Fluorobiphenyl	*52.7*	*36-94*			*%REC*	1	6/8/2012
Surr: 2-Fluorophenol	*36.4*	*10-75*			*%REC*	1	6/8/2012
Surr: 4-Terphenyl-d14	*86.7*	*26-119*			*%REC*	1	6/8/2012
Surr: Nitrobenzene-d5	*54.8*	*41-104*			*%REC*	1	6/8/2012
Surr: Phenol-d6	*22.3*	*11-50*			*%REC*	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41530** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKW1-41530-41530** Units: **mg/L** Analysis Date: **6/9/2012 12:35 PM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995921** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.04588*	0	*0.05*	0	*91.8*	*33-78*	0			*S*

LCS Sample ID: **DLCSW1-41530-41530** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**

Client ID: Run ID: **GC8_120608A** SeqNo: **1995916** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	2.83	0.10	5	0	56.6	44-116	0			
ORO (C20-C34)	3.203	0.10	5	0	64.1	44-116	0			
Surr: 4-Terphenyl-d14	*0.02203*	0	*0.05*	0	*44.1*	*33-78*	0			

MS Sample ID: **1206179-01B MS** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**

Client ID: **SBKR1200L506S060412G039** Run ID: **GC8_120608A** SeqNo: **1995919** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	29.85	1.0	50	0	59.7	44-116	0			
ORO (C20-C34)	32.38	1.0	50	0	64.8	44-116	0			
Surr: 4-Terphenyl-d14	*0.3671*	0	*0.5*	0	*73.4*	*33-78*	0			

MSD Sample ID: **1206179-01B MSD** Units: **mg/L** Analysis Date: **6/9/2012 01:27 AM**

Client ID: **SBKR1200L506S060412G039** Run ID: **GC8_120608A** SeqNo: **1995917** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	24.92	1.0	50	0	49.8	44-116	29.85	18	30	
ORO (C20-C34)	28.69	1.0	50	0	57.4	44-116	32.38	12.1	30	
Surr: 4-Terphenyl-d14	*0.2004*	0	*0.5*	0	*40.1*	*33-78*	0.3671	*58.7*	*30*	*R*

The following samples were analyzed in this batch: 1206179-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206179
Project: Marshall KRRI 1200L GW 6/4/12

QC BATCH REPORT

Batch ID: **41530A** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKW1-41530-41530A** Units: **mg/L** Analysis Date: **6/9/2012 12:35 PM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995928** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.04237*	0	*0.05*	0	*84.7*	*33-78*	0			*S*

LCS Sample ID: **DLCSW1-41530-41530A** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995929** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	2.83	0.10	5	0	56.6	44-116	0			
ORO (C20-C34)	3.203	0.10	5	0	64.1	44-116	0			
Surr: 4-Terphenyl-d14	*0.02319*	0	*0.05*	0	*46.4*	*33-78*	0			

MS Sample ID: **1206179-01B MS** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**
Client ID: **SBKR1200L506S060412G039** Run ID: **GC8_120608A** SeqNo: **1995925** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	29.85	1.0	50	0	59.7	44-116	0			
ORO (C20-C34)	32.38	1.0	50	0	64.8	44-116	0			
Surr: 4-Terphenyl-d14	*0.3607*	0	*0.5*	0	*72.1*	*33-78*	0			

MSD Sample ID: **1206179-01B MSD** Units: **mg/L** Analysis Date: **6/9/2012 01:27 AM**
Client ID: **SBKR1200L506S060412G039** Run ID: **GC8_120608A** SeqNo: **1995930** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	24.92	1.0	50	0	49.8	44-116	29.85	18	30	
ORO (C20-C34)	28.69	1.0	50	0	57.4	44-116	32.38	12.1	30	
Surr: 4-Terphenyl-d14	*0.2048*	0	*0.5*	0	*41*	*33-78*	0.3607	*55.1*	*30*	*R*

The following samples were analyzed in this batch: 1206179-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206179
Project: Marshall KRRI 1200L GW 6/4/12

QC BATCH REPORT

Batch ID: **41517** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41517-41517** Units: **mg/L** Analysis Date: **6/8/2012 05:45 PM**
Client ID: Run ID: **ICPMS2_120608A** SeqNo: **1994808** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	ND	0.0050								
Nickel	0.0009449	0.0050								J
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41517-41517** Units: **mg/L** Analysis Date: **6/8/2012 05:50 PM**
Client ID: Run ID: **ICPMS2_120608A** SeqNo: **1994811** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09964	0.0020	0.1	0	99.6	80-120	0			
Molybdenum	0.09155	0.0050	0.1	0	91.6	80-120	0			
Nickel	0.09551	0.0050	0.1	0	95.5	80-120	0			
Vanadium	0.09882	0.0050	0.1	0	98.8	80-120	0			

MS Sample ID: **1206179-01AMS** Units: **mg/L** Analysis Date: **6/8/2012 06:15 PM**
Client ID: **SBKR1200L506S060412G039** Run ID: **ICPMS2_120608A** SeqNo: **1994819** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09396	0.0020	0.1	0.000002114	94	80-120	0			
Molybdenum	0.09331	0.0050	0.1	0.001921	91.4	80-120	0			
Nickel	0.09649	0.0050	0.1	0.003238	93.3	80-120	0			
Vanadium	0.09991	0.0050	0.1	0.001469	98.4	80-120	0			

MSD Sample ID: **1206179-01AMSD** Units: **mg/L** Analysis Date: **6/8/2012 06:20 PM**
Client ID: **SBKR1200L506S060412G039** Run ID: **ICPMS2_120608A** SeqNo: **1994820** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09336	0.0020	0.1	0.000002114	93.4	80-120	0.09396	0.641	20	
Molybdenum	0.09083	0.0050	0.1	0.001921	88.9	80-120	0.09331	2.69	20	
Nickel	0.09352	0.0050	0.1	0.003238	90.3	80-120	0.09649	3.13	20	
Vanadium	0.09818	0.0050	0.1	0.001469	96.7	80-120	0.09991	1.75	20	

The following samples were analyzed in this batch: 1206179-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41529** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41529-41529** Units: **µg/L** Analysis Date: **6/8/2012 05:54 PM**
Client ID: Run ID: **SVMS4_120608A** SeqNo: **1996273** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*27.61*	0	*50*	0	*55.2*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*28.47*	0	*50*	0	*56.9*	*36-94*	0			
Surr: 2-Fluorophenol	*19.67*	0	*50*	0	*39.3*	*10-75*	0			
Surr: 4-Terphenyl-d14	*40.73*	0	*50*	0	*81.5*	*26-119*	0			
Surr: Nitrobenzene-d5	*28.49*	0	*50*	0	*57*	*41-104*	0			
Surr: Phenol-d6	*11.32*	0	*50*	0	*22.6*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41529** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSW1-41529-41529** Units: **µg/L** Analysis Date: **6/8/2012 06:28 PM**
Client ID: Run ID: **SVMS4_120608A** SeqNo: **1995749** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	11.34	5.0	20	0	56.7	45-105	0			
Acenaphthene	11.6	5.0	20	0	58	45-110	0			
Acenaphthylene	11.87	5.0	20	0	59.4	50-105	0			
Anthracene	13.05	5.0	20	0	65.2	55-110	0			
Benzo(a)anthracene	13.07	5.0	20	0	65.4	55-110	0			
Benzo(a)pyrene	13.82	5.0	20	0	69.1	55-110	0			
Benzo(b)fluoranthene	14.1	5.0	20	0	70.5	45-120	0			
Benzo(g,h,i)perylene	16.34	5.0	20	0	81.7	40-125	0			
Benzo(k)fluoranthene	14.02	5.0	20	0	70.1	45-125	0			
Chrysene	14.47	5.0	20	0	72.4	55-110	0			
Dibenzo(a,h)anthracene	15.08	5.0	20	0	75.4	40-125	0			
Fluoranthene	12.93	5.0	20	0	64.6	55-115	0			
Fluorene	12.33	5.0	20	0	61.6	50-110	0			
Indeno(1,2,3-cd)pyrene	15.42	5.0	20	0	77.1	45-125	0			
Naphthalene	10.85	5.0	20	0	54.2	40-100	0			
Phenanthrene	12.85	5.0	20	0	64.2	50-115	0			
Pyrene	14.07	5.0	20	0	70.4	50-130	0			
Surr: 2,4,6-Tribromophenol	*28.2*	0	*50*	0	*56.4*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*24.28*	0	*50*	0	*48.6*	*36-94*	0			
Surr: 2-Fluorophenol	*18.31*	0	*50*	0	*36.6*	*10-75*	0			
Surr: 4-Terphenyl-d14	*36.18*	0	*50*	0	*72.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*24.74*	0	*50*	0	*49.5*	*41-104*	0			
Surr: Phenol-d6	*10.92*	0	*50*	0	*21.8*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41529** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206179-01B MS** Units: **µg/L** Analysis Date: **6/8/2012 07:02 PM**
Client ID: **SBKR1200L506S060412G039** Run ID: **SVMS4_120608A** SeqNo: **1995751** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	125.7	50	200	0	62.8	45-105	0			
Acenaphthene	129.4	50	200	0	64.7	45-110	0			
Acenaphthylene	130.8	50	200	0	65.4	50-105	0			
Anthracene	140.7	50	200	0	70.4	55-110	0			
Benzo(a)anthracene	137.7	50	200	0	68.8	55-110	0			
Benzo(a)pyrene	146.4	50	200	0	73.2	55-110	0			
Benzo(b)fluoranthene	147.4	50	200	0	73.7	45-120	0			
Benzo(g,h,i)perylene	171.8	50	200	0	85.9	40-125	0			
Benzo(k)fluoranthene	148.8	50	200	0	74.4	45-125	0			
Chrysene	153.1	50	200	0	76.6	55-110	0			
Dibenzo(a,h)anthracene	158.3	50	200	0	79.2	40-125	0			
Fluoranthene	140	50	200	0	70	55-115	0			
Fluorene	135.4	50	200	0	67.7	50-110	0			
Indeno(1,2,3-cd)pyrene	163.3	50	200	0	81.6	45-125	0			
Naphthalene	123.5	50	200	0	61.8	40-100	0			
Phenanthrene	138.7	50	200	0	69.4	50-115	0			
Pyrene	149.1	50	200	0	74.6	50-130	0			
Surr: 2,4,6-Tribromophenol	*308.3*	0	*500*	0	*61.7*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*267.5*	0	*500*	0	*53.5*	*36-94*	0			
Surr: 2-Fluorophenol	*170.6*	0	*500*	0	*34.1*	*10-75*	0			
Surr: 4-Terphenyl-d14	*396.4*	0	*500*	0	*79.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*276.3*	0	*500*	0	*55.3*	*41-104*	0			
Surr: Phenol-d6	*108.7*	0	*500*	0	*21.7*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206179
Project: Marshall KRRI 1200L GW 6/4/12

QC BATCH REPORT

Batch ID: **41529** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206179-01B MSD** Units: **µg/L** Analysis Date: **6/8/2012 07:36 PM**
Client ID: **SBKR1200L506S060412G039** Run ID: **SVMS4_120608A** SeqNo: **1995752** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	120.6	50	200	0	60.3	45-105	125.7	4.14	30	
Acenaphthene	127.6	50	200	0	63.8	45-110	129.4	1.4	30	
Acenaphthylene	127.4	50	200	0	63.7	50-105	130.8	2.63	30	
Anthracene	136.2	50	200	0	68.1	55-110	140.7	3.25	30	
Benzo(a)anthracene	134.1	50	200	0	67	55-110	137.7	2.65	30	
Benzo(a)pyrene	142.6	50	200	0	71.3	55-110	146.4	2.63	30	
Benzo(b)fluoranthene	146.1	50	200	0	73	45-120	147.4	0.886	30	
Benzo(g,h,i)perylene	168.4	50	200	0	84.2	40-125	171.8	2	30	
Benzo(k)fluoranthene	145.8	50	200	0	72.9	45-125	148.8	2.04	30	
Chrysene	148.7	50	200	0	74.4	55-110	153.1	2.92	30	
Dibenzo(a,h)anthracene	153.5	50	200	0	76.8	40-125	158.3	3.08	30	
Fluoranthene	138.2	50	200	0	69.1	55-115	140	1.29	30	
Fluorene	132.3	50	200	0	66.2	50-110	135.4	2.32	30	
Indeno(1,2,3-cd)pyrene	159	50	200	0	79.5	45-125	163.3	2.67	30	
Naphthalene	119.5	50	200	0	59.8	40-100	123.5	3.29	30	
Phenanthrene	134	50	200	0	67	50-115	138.7	3.45	30	
Pyrene	146.2	50	200	0	73.1	50-130	149.1	1.96	30	
Surr: 2,4,6-Tribromophenol	*297.4*	0	*500*	0	*59.5*	*21-125*	308.3	*3.6*	*40*	
Surr: 2-Fluorobiphenyl	*263.3*	0	*500*	0	*52.7*	*36-94*	267.5	*1.58*	*40*	
Surr: 2-Fluorophenol	*172.8*	0	*500*	0	*34.6*	*10-75*	170.6	*1.28*	*40*	
Surr: 4-Terphenyl-d14	*392.8*	0	*500*	0	*78.6*	*26-119*	396.4	*0.912*	*40*	
Surr: Nitrobenzene-d5	*269.5*	0	*500*	0	*53.9*	*41-104*	276.3	*2.49*	*40*	
Surr: Phenol-d6	*108.8*	0	*500*	0	*21.8*	*11-50*	108.7	*0.092*	*40*	

The following samples were analyzed in this batch: 1206179-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206179

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060412_LJL1	Task: KRRI_GW1200
	Total # of Samples: 1	Event Complete?

Turn Around Time	5 Day	Rush	No	

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-5070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:				
Project #	60162778			
Site Address	5555 Glenwood Parkway SE Suite 200			
City	Grand Rapids	State, Zip	MI	
Site PM Name	Bryan Stiemsma			
Phone/Fax:	616-940-4424			
Site PM Email:	Bryan.Stiemsma@aecom.com			

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	1100 Louisiana Suite 1100		
City/State:	Houson, TX	Phone #:	713-821-2000
PO #			
Send EDD to			
CC Hardcopy report			
CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	HNO3	None	None											
								Analysis	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270											
1	SBKR1200L506S060412G039	SBKR1200L506	WG	G	06/04/2012 15:40	3			X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-4-12	1700		6-4-12	1700
	6-6-12	1305		6-6-12	1305

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
0.6°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

6/7/12

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:
Tracking #:
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **06-Jun-12 13:05**

Work Order: **1206179** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 06-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 07-Jun-12 (Date)

Matrices: Groundwater
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.6 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

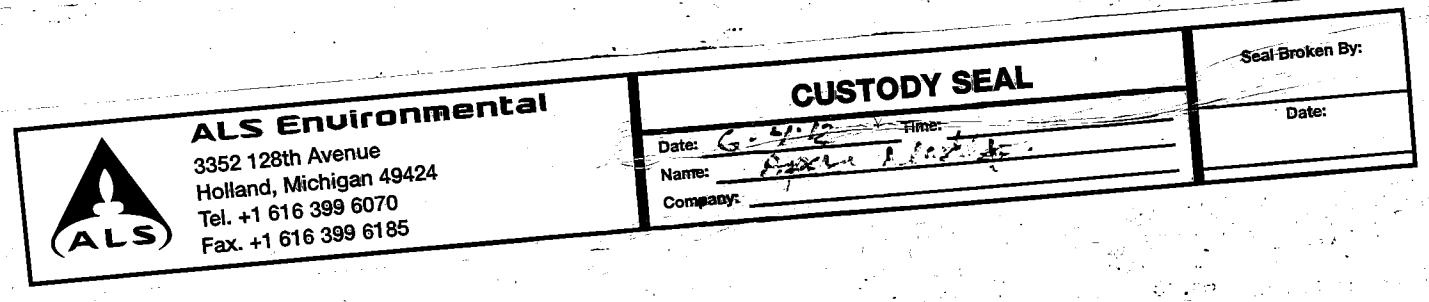
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

0.6°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: Time:
Name:
Company:

Seal Broken By:

Date:

15-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L,1200-1225L 6/6/12** Work Order: **1206298**

Dear Bryan,

ALS Environmental received 14 samples on 08-Jun-2012 03:33 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 72.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 15-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/6/12
Work Order: **1206298**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206298-01	SBKR1150L536S060612S007	Soil		6/6/2012 09:00	6/8/2012 15:33	☐
1206298-02	SBKR1150L537S060612S005	Soil		6/6/2012 17:00	6/8/2012 15:33	☐
1206298-03	SBKR1150L537T060612MX	Soil		6/6/2012	6/8/2012 15:33	☐
1206298-04	SBKR1200L514S060612S004	Soil		6/6/2012 09:30	6/8/2012 15:33	☐
1206298-05	SBKR1200L515S060612S006	Soil		6/6/2012 10:25	6/8/2012 15:33	☐
1206298-06	SBKR1200L516S060612S005	Soil		6/6/2012 10:48	6/8/2012 15:33	☐
1206298-07	SBKR1200L516D060612S005	Soil		6/6/2012 10:48	6/8/2012 15:33	☐
1206298-08	SBKR1200L517S060612S006	Soil		6/6/2012 11:22	6/8/2012 15:33	☐
1206298-09	SBKR1200L518S060612S005	Soil		6/6/2012 14:30	6/8/2012 15:33	☐
1206298-10	SBKR1200L519S060612S006	Soil		6/6/2012 13:55	6/8/2012 15:33	☐
1206298-11	SBKR1200L520S060612S005	Soil		6/6/2012 15:50	6/8/2012 15:33	☐
1206298-12	SBKR1200L521S060612S006	Soil		6/6/2012 16:10	6/8/2012 15:33	☐
1206298-13	SBKR1225L508S060612S005	Soil		6/6/2012 13:40	6/8/2012 15:33	☐
1206298-14	SBKR1225L509S060612S005	Soil		6/6/2012 16:30	6/8/2012 15:33	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/6/12
Work Order: 1206298

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41543 MS/MSD data for ORO is not related to this project's samples.

Batch 41587 sample SBKR1200L519S060612S006 RPD between the MS/MSD recoveries for the DRO surrogate, 4-Terphenyl-d14, was above control limits. The individual MS/MSD recoveries met quality control criteria.

Batch 41619 MS/MSD data for Metals is not related to this project's samples.

Batch 41609 MS/MSD data for Volatiles is not related to this project's samples.

Batch 41542 samples 1206298-01 and 1206298-02 PAH internal standard recoveries were below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

Batch 41543 samples 1206298-01, 1206298-04, 1206298-05, 1206298-06, 1206298-08, 1206298-10, 1206298-11, and 1206298-13 DRO surrogate recoveries were above control limits. The DRO results in these samples may be biased high due to matrix interference.

ALS Group USA, Corp

Date: 15-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1200-1225L 6/6/12
WorkOrder: **1206298**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L536S060612S007
Work Order:	1206298	**Collection Date:**	6/6/2012 9:00:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/11/2012**		Analyst: **CW**
DRO (C10-C20)	**190**	**35**	**4.0**		**mg/Kg-dry**	1	6/12/2012
ORO (C20-C34)	**1,500**	**69**	**4.0**		**mg/Kg-dry**	1	6/12/2012
Surr: 4-Terphenyl-d14	*152*	*39-115*		S	*%REC*	1	6/12/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**1.3**	**0.60**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**2.7**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**48**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)pyrene	**350**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**530**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Pyrene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*83.2*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*54.6*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*65.3*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*91.3*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*57.9*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*69.9*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	670	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	670	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L536S060612S007
Work Order:	1206298	**Collection Date:**	6/6/2012 9:00:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	670	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	670	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	670	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	670	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	670	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	2,200	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	2,200	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	5,600	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	670	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	670	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	670	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	670	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	670	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	670	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	670	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	670	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	670	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	2,200	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	670	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	670	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	670	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	670	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	670	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	670	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	670	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	670	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	670	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L536S060612S007
Work Order:	1206298	**Collection Date:**	6/6/2012 9:00:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	670	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	670	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	670	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	1,300	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	670	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	670	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	670	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	2,200	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	670	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	670	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	670	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	670	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	670	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	670	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	2,200	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	670	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	670	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	670	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	670	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	670	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*99.5*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*91.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*97.6*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L537S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 5:00:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/11/2012**		Analyst: **CW**
DRO (C10-C20)	ND	33	4.0		mg/Kg-dry	1	6/13/2012
ORO (C20-C34)	**680**	**66**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*99.4*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.64**	**0.55**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.5**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Benzo(a)pyrene	**620**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(b)fluoranthene	**1,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Benzo(k)fluoranthene	**370**	**330**	**330**	*	**µg/Kg-dry**	1	6/12/2012
Chrysene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*90.1*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*55.8*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*70.1*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*98.3*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*60.8*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*72.8*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	620	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	620	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	620	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	620	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	620	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L537S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 5:00:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	620	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	620	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	620	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	620	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	620	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	620	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	620	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	620	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	2,100	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	2,100	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	5,200	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	620	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	620	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	620	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	620	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	620	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	620	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	620	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	620	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	620	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	2,100	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	620	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	620	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	620	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	620	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	620	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	620	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	620	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	620	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	620	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	620	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L537S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 5:00:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	620	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	620	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	620	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	1,200	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	620	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	620	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	2,100	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	620	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	620	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	620	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	620	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	620	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	620	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	620	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	2,100	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	620	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	620	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	620	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	620	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	620	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	620	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	620	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*97.2*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*99.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**71**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L537T060612MX
Work Order:	1206298	**Collection Date:**	6/6/2012
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/13/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/13/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/13/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/13/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/13/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/13/2012
Benzene	ND	50	50		µg/Kg	1	6/13/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/13/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromoform	ND	100	100		µg/Kg	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/13/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/13/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/13/2012
Chloroethane	ND	250	250		µg/Kg	1	6/13/2012
Chloroform	ND	50	50		µg/Kg	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg	1	6/13/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L537T060612MX
Work Order:	1206298	**Collection Date:**	6/6/2012
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/13/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/13/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/13/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg	1	6/13/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/13/2012
o-Xylene	ND	50	50		µg/Kg	1	6/13/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/13/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Styrene	ND	50	50		µg/Kg	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/13/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/13/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/13/2012
Toluene	ND	100	100		µg/Kg	1	6/13/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/13/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/13/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/13/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*103*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*95.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L514S060612S004
Work Order:	1206298	**Collection Date:**	6/6/2012 9:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/11/2012**		Analyst: **CW**
DRO (C10-C20)	**54**	**26**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**290**	**52**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*150*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.87**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**2.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**57**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*86.9*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*56.2*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*70.1*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*80.9*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*63.1*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*72.2*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	340	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L514S060612S004
Work Order:	1206298	**Collection Date:**	6/6/2012 9:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	340	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	340	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	340	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	2,800	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	340	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	340	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	340	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	340	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	340	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	340	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	340	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	340	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	340	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	340	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L514S060612S004
Work Order:	1206298	**Collection Date:**	6/6/2012 9:30:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	340	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	340	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	680	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	340	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	340	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	560	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	340	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	340	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	340	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	340	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	340	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	340	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	340	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	340	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	340	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	340	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	340	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	340	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*98.4*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*99.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*98.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**62**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L515S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 10:25:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/11/2012**		Analyst: **CW**
DRO (C10-C20)	**35**	**34**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**640**	**68**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*123*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.93**	**0.58**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.9**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**44**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/12/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/12/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/12/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/12/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/12/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/12/2012
Surr: 2,4,6-Tribromophenol	*92.8*	*34-140*			*%REC*	1	6/12/2012
Surr: 2-Fluorobiphenyl	*60.5*	*12-100*			*%REC*	1	6/12/2012
Surr: 2-Fluorophenol	*73.1*	*33-117*			*%REC*	1	6/12/2012
Surr: 4-Terphenyl-d14	*84.8*	*25-137*			*%REC*	1	6/12/2012
Surr: Nitrobenzene-d5	*67.8*	*37-107*			*%REC*	1	6/12/2012
Surr: Phenol-d6	*75.2*	*40-106*			*%REC*	1	6/12/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	610	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	610	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	610	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	610	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	610	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L515S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 10:25:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	610	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	610	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	610	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	610	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	610	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	610	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	610	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	610	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	2,000	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	2,000	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	5,100	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	610	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	610	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	610	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	610	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	610	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	1,000	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	610	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	610	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	610	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	2,000	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	610	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	610	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	610	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	610	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	610	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	610	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	610	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	610	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	610	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	610	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L515S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 10:25:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	610	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	610	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	610	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	1,200	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	2,000	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	610	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	1,000	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	2,000	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	610	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	610	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	610	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	610	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	610	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	610	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	2,000	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	610	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	610	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	610	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	610	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	610	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	610	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*96.6*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*98.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**71**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/11/2012**		Analyst: **CW**
DRO (C10-C20)	**37**	**19**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**150**	**38**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*121*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.90**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**58**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/11/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/13/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/13/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Surr: 2,4,6-Tribromophenol	*78.7*	*34-140*			*%REC*	1	6/13/2012
Surr: 2-Fluorobiphenyl	*54.4*	*12-100*			*%REC*	1	6/13/2012
Surr: 2-Fluorophenol	*63.7*	*33-117*			*%REC*	1	6/13/2012
Surr: 4-Terphenyl-d14	*82.6*	*25-137*			*%REC*	1	6/13/2012
Surr: Nitrobenzene-d5	*59.5*	*37-107*			*%REC*	1	6/13/2012
Surr: Phenol-d6	*66.7*	*40-106*			*%REC*	1	6/13/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	570	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	170	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	170	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	290	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	570	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	170	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	340	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	170	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	290	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	570	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	170	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	170	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*96.2*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**49**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516D060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	6/13/2012
ORO (C20-C34)	**240**	**38**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*90.7*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.84**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**53**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/13/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/13/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Surr: 2,4,6-Tribromophenol	*85.0*	*34-140*			*%REC*	1	6/13/2012
Surr: 2-Fluorobiphenyl	*63.1*	*12-100*			*%REC*	1	6/13/2012
Surr: 2-Fluorophenol	*70.4*	*33-117*			*%REC*	1	6/13/2012
Surr: 4-Terphenyl-d14	*90.1*	*25-137*			*%REC*	1	6/13/2012
Surr: Nitrobenzene-d5	*68.9*	*37-107*			*%REC*	1	6/13/2012
Surr: Phenol-d6	*78.3*	*40-106*			*%REC*	1	6/13/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516D060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	600	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	180	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	180	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	600	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	180	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L516D060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 10:48:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	180	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	300	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	600	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	180	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	180	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*96.4*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*96.0*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L517S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 11:22:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**20**	**12**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**100**	**24**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*127*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/14/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/14/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/13/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/13/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Surr: 2,4,6-Tribromophenol	*90.6*	*34-140*			*%REC*	1	6/13/2012
Surr: 2-Fluorobiphenyl	*59.4*	*12-100*			*%REC*	1	6/13/2012
Surr: 2-Fluorophenol	*74.5*	*33-117*			*%REC*	1	6/13/2012
Surr: 4-Terphenyl-d14	*91.1*	*25-137*			*%REC*	1	6/13/2012
Surr: Nitrobenzene-d5	*69.8*	*37-107*			*%REC*	1	6/13/2012
Surr: Phenol-d6	*77.0*	*40-106*			*%REC*	1	6/13/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L517S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 11:22:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	53	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	53	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	53	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	53	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L517S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 11:22:00 AM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	53	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	53	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	53	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	53	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*98.4*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*97.3*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**18**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L518S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	ND	23	4.0		mg/Kg-dry	1	6/13/2012
ORO (C20-C34)	**270**	**46**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*79.6*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.70**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/13/2012
Benzo(b)fluoranthene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/13/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Chrysene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/13/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/13/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/13/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Pyrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/13/2012
Surr: 2,4,6-Tribromophenol	*82.4*	*34-140*			*%REC*	1	6/13/2012
Surr: 2-Fluorobiphenyl	*57.1*	*12-100*			*%REC*	1	6/13/2012
Surr: 2-Fluorophenol	*68.2*	*33-117*			*%REC*	1	6/13/2012
Surr: 4-Terphenyl-d14	*85.5*	*25-137*			*%REC*	1	6/13/2012
Surr: Nitrobenzene-d5	*66.3*	*37-107*			*%REC*	1	6/13/2012
Surr: Phenol-d6	*72.2*	*40-106*			*%REC*	1	6/13/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	260	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	260	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L518S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	260	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	260	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	260	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	260	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	260	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	860	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	860	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	2,100	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	260	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	260	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	260	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	260	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	260	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	260	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	260	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	260	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	260	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	860	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	260	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	260	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	260	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	260	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	260	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	260	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	260	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	260	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L518S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 2:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	260	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	260	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	510	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	260	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	260	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	260	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	860	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	260	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	260	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	260	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	260	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	260	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	260	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	260	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	260	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	260	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	260	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	260	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*96.5*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*94.4*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*97.9*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L519S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 1:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**16**	**12**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**80**	**24**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*124*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.58**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**34**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/13/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/13/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/13/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/13/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/13/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/13/2012
Surr: 2,4,6-Tribromophenol	*85.1*	*34-140*			*%REC*	1	6/13/2012
Surr: 2-Fluorobiphenyl	*61.9*	*12-100*			*%REC*	1	6/13/2012
Surr: 2-Fluorophenol	*69.3*	*33-117*			*%REC*	1	6/13/2012
Surr: 4-Terphenyl-d14	*90.7*	*25-137*			*%REC*	1	6/13/2012
Surr: Nitrobenzene-d5	*66.6*	*37-107*			*%REC*	1	6/13/2012
Surr: Phenol-d6	*60.9*	*40-106*			*%REC*	1	6/13/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L519S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 1:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	53	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	53	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	53	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	53	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	53	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L519S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 1:55:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	53	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	53	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	53	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	53	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	53	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*97.1*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*98.6*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*97.1*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*99.3*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**18**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L520S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 3:50:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**43**	**16**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**220**	**32**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*131*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.99**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**42**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/14/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Surr: 2,4,6-Tribromophenol	*83.4*	*34-140*			*%REC*	1	6/14/2012
Surr: 2-Fluorobiphenyl	*56.9*	*12-100*			*%REC*	1	6/14/2012
Surr: 2-Fluorophenol	*62.0*	*33-117*			*%REC*	1	6/14/2012
Surr: 4-Terphenyl-d14	*91.8*	*25-137*			*%REC*	1	6/14/2012
Surr: Nitrobenzene-d5	*61.9*	*37-107*			*%REC*	1	6/14/2012
Surr: Phenol-d6	*68.1*	*40-106*			*%REC*	1	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	110	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	110	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L520S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 3:50:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	110	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	110	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	110	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	110	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	360	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	110	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	110	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	110	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	110	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	110	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	110	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	110	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	360	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	110	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	110	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L520S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 3:50:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	110	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	220	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	110	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	360	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	110	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	110	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	110	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	110	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	110	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	110	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	110	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	110	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	110	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	110	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*98.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**38**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L521S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 4:10:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	ND	14	4.0		mg/Kg-dry	1	6/13/2012
ORO (C20-C34)	ND	29	4.0		mg/Kg-dry	1	6/13/2012
Surr: 4-Terphenyl-d14	*88.0*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.91**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**52**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/14/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluoranthene	ND	330	330	J	µg/Kg-dry	1	6/14/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Surr: 2,4,6-Tribromophenol	*79.4*	*34-140*			*%REC*	1	6/14/2012
Surr: 2-Fluorobiphenyl	*60.6*	*12-100*			*%REC*	1	6/14/2012
Surr: 2-Fluorophenol	*66.9*	*33-117*			*%REC*	1	6/14/2012
Surr: 4-Terphenyl-d14	*87.1*	*25-137*			*%REC*	1	6/14/2012
Surr: Nitrobenzene-d5	*69.2*	*37-107*			*%REC*	1	6/14/2012
Surr: Phenol-d6	*71.3*	*40-106*			*%REC*	1	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	85	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	85	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	85	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	85	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L521S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 4:10:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	85	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	85	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	85	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	85	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	85	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	85	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	85	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	85	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	280	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	85	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	85	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	85	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200L521S060612S006
Work Order:	1206298	**Collection Date:**	6/6/2012 4:10:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	85	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	170	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	85	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	85	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	85	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	85	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	85	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	85	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	85	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	85	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	85	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	85	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	85	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*98.4*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*97.6*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*96.0*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**32**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L508S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**140**	**28**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**560**	**56**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*142*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.78**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**33**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Benzo(b)fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Chrysene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluoranthene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Pyrene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Surr: 2,4,6-Tribromophenol	*92.0*	*34-140*			*%REC*	1	6/14/2012
Surr: 2-Fluorobiphenyl	*61.4*	*12-100*			*%REC*	1	6/14/2012
Surr: 2-Fluorophenol	*68.8*	*33-117*			*%REC*	1	6/14/2012
Surr: 4-Terphenyl-d14	*92.8*	*25-137*			*%REC*	1	6/14/2012
Surr: Nitrobenzene-d5	*68.8*	*37-107*			*%REC*	1	6/14/2012
Surr: Phenol-d6	*73.3*	*40-106*			*%REC*	1	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	430	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	430	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L508S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	430	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	430	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	430	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	430	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	430	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	3,600	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	430	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	430	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	430	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	430	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	430	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	430	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	430	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	430	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	430	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	430	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	430	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	430	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	430	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	430	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	430	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	430	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	430	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L508S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	430	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	430	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	430	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	860	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	430	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	430	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	430	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	430	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	430	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	430	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	430	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	430	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	430	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	430	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	430	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	430	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	430	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	430	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*98.1*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*99.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*96.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**66**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L509S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	ND	26	4.0		mg/Kg-dry	1	6/13/2012
ORO (C20-C34)	ND	52	4.0		mg/Kg-dry	1	6/13/2012
Surr: 4-Terphenyl-d14	*94.9*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.67**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**29**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/14/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Surr: 2,4,6-Tribromophenol	*91.6*	*34-140*			*%REC*	1	6/14/2012
Surr: 2-Fluorobiphenyl	*59.1*	*12-100*			*%REC*	1	6/14/2012
Surr: 2-Fluorophenol	*66.2*	*33-117*			*%REC*	1	6/14/2012
Surr: 4-Terphenyl-d14	*91.8*	*25-137*			*%REC*	1	6/14/2012
Surr: Nitrobenzene-d5	*62.2*	*37-107*			*%REC*	1	6/14/2012
Surr: Phenol-d6	*71.4*	*40-106*			*%REC*	1	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L509S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	360	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	360	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	360	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1225L509S060612S005
Work Order:	1206298	**Collection Date:**	6/6/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1200-1225L 6/6/12		
Lab ID:	1206298-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	720	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	600	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	360	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	360	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*96.0*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*97.2*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41543** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41543-41543** Units: **mg/Kg** Analysis Date: **6/12/2012 06:30 PM**

Client ID: Run ID: **GC8_120612A** SeqNo: **1998233** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.375*	0	*5*	0	*108*	*39-115*	0			

LCS Sample ID: **DLCSS1-41543-41543** Units: **mg/Kg** Analysis Date: **6/12/2012 06:30 PM**

Client ID: Run ID: **GC8_120612A** SeqNo: **1998240** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	316.4	10	500	0	63.3	60-130	0			
ORO (C20-C34)	585.7	20	500	0	117	60-130	0			
Surr: 4-Terphenyl-d14	*2.157*	0	*5*	0	*43.1*	*39-115*	0			

MS Sample ID: **1206191-01B MS** Units: **mg/Kg** Analysis Date: **6/12/2012 06:56 PM**

Client ID: Run ID: **GC8_120612A** SeqNo: **1998241** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	209.7	6.5	324.9	0	64.5	60-130	0			
ORO (C20-C34)	412.5	13	324.9	0	127	60-130	0			
Surr: 4-Terphenyl-d14	*1.777*	0	*3.249*	0	*54.7*	*39-115*	0			

MSD Sample ID: **1206191-01B MSD** Units: **mg/Kg** Analysis Date: **6/12/2012 06:56 PM**

Client ID: Run ID: **GC8_120612A** SeqNo: **1998234** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	215.7	6.6	329.7	0	65.4	60-130	209.7	2.83	30	
ORO (C20-C34)	439.7	13	329.7	0	133	60-130	412.5	6.4	30	S
Surr: 4-Terphenyl-d14	*3.495*	0	*3.297*	0	*106*	*39-115*	1.777	*65.2*	*30*	*R*

The following samples were analyzed in this batch:

1206298-01B	1206298-02B	1206298-04B
1206298-05B	1206298-06B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41587** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41587-41587** Units: **mg/Kg** Analysis Date: **6/13/2012 07:50 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998305** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.404*	0	*5*	0	*108*	*39-115*	0			

LCS Sample ID: **DLCSS1-41587-41587** Units: **mg/Kg** Analysis Date: **6/13/2012 08:16 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998313** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	334.4	10	500	0	66.9	60-130	0			
ORO (C20-C34)	432.6	20	500	0	86.5	60-130	0			
Surr: 4-Terphenyl-d14	*3.087*	0	*5*	0	*61.7*	*39-115*	0			

MS Sample ID: **1206298-10B MS** Units: **mg/Kg** Analysis Date: **6/13/2012 08:16 AM**
Client ID: **SBKR1200L519S060612S006** Run ID: **GC8_120612B** SeqNo: **1998306** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	317.3	9.7	486.9	13.21	62.5	60-130	0			
ORO (C20-C34)	436	19	486.9	65.75	76.1	60-130	0			
Surr: 4-Terphenyl-d14	*2.087*	0	*4.869*	0	*42.9*	*39-115*	0			

MSD Sample ID: **1206298-10B MSD** Units: **mg/Kg** Analysis Date: **6/13/2012 08:41 AM**
Client ID: **SBKR1200L519S060612S006** Run ID: **GC8_120612B** SeqNo: **1998314** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	320.2	9.8	490.1	13.21	62.6	60-130	317.3	0.922	30	
ORO (C20-C34)	481.2	20	490.1	65.75	84.8	60-130	436	9.84	30	
Surr: 4-Terphenyl-d14	*4.328*	0	*4.901*	0	*88.3*	*39-115*	2.087	*69.9*	*30*	*R*

The following samples were analyzed in this batch:

1206298-07B	1206298-08B	1206298-09B
1206298-10B	1206298-11B	1206298-12B
1206298-13B	1206298-14B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41619** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41619-41619** Units: **mg/Kg** Analysis Date: **6/14/2012 12:38 PM**
Client ID: Run ID: **ICPMS2_120614A** SeqNo: **1999431** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	0.02578	0.25								J
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41619-41619** Units: **mg/Kg** Analysis Date: **6/14/2012 12:44 PM**
Client ID: Run ID: **ICPMS2_120614A** SeqNo: **1999432** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.865	0.10	5	0	97.3	80-120	0			
Molybdenum	4.704	0.25	5	0	94.1	80-120	0			
Nickel	4.622	0.25	5	0	92.4	80-120	0			
Vanadium	4.725	0.25	5	0	94.5	80-120	0			

MS Sample ID: **1206211-06AMS** Units: **mg/Kg** Analysis Date: **6/14/2012 12:59 PM**
Client ID: Run ID: **ICPMS2_120614A** SeqNo: **1999435** Prep Date: **6/14/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.004	0.28	7.102	0.4254	78.6	80-120	0			S
Molybdenum	6.766	0.71	7.102	1.107	79.7	80-120	0			S
Nickel	16.95	0.71	7.102	12.41	63.8	80-120	0			S
Vanadium	24.35	0.71	7.102	20.41	55.4	80-120	0			S

MSD Sample ID: **1206211-06AMSD** Units: **mg/Kg** Analysis Date: **6/14/2012 01:04 PM**
Client ID: Run ID: **ICPMS2_120614A** SeqNo: **1999436** Prep Date: **6/14/2012** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.569	0.28	6.878	0.4254	74.8	80-120	6.004	7.51	25	S
Molybdenum	6.601	0.69	6.878	1.107	79.9	80-120	6.766	2.46	25	S
Nickel	17.58	0.69	6.878	12.41	75.1	80-120	16.95	3.67	25	S
Vanadium	25.34	0.69	6.878	20.41	71.6	80-120	24.35	3.99	25	S

The following samples were analyzed in this batch:

1206298-01B	1206298-02B	1206298-04B
1206298-05B	1206298-06B	1206298-07B
1206298-08B	1206298-09B	1206298-10B
1206298-11B	1206298-12B	1206298-13B
1206298-14B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41542-41542** Units: **µg/Kg** Analysis Date: **6/11/2012 06:02 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996585** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3908*	0	*5000*	0	*78.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3028*	0	*5000*	0	*60.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3956*	0	*5000*	0	*79.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4487*	0	*5000*	0	*89.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3694*	0	*5000*	0	*73.9*	*37-107*	0			
Surr: Phenol-d6	*4059*	0	*5000*	0	*81.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41542-41542** Units: **µg/Kg** Analysis Date: **6/11/2012 06:32 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996586** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1751	50	2000	0	87.6	45-105	0			
Acenaphthene	1652	50	2000	0	82.6	45-110	0			
Acenaphthylene	1681	50	2000	0	84	45-105	0			
Anthracene	1737	50	2000	0	86.8	55-105	0			
Benzo(a)anthracene	1725	50	2000	0	86.2	50-110	0			
Benzo(a)pyrene	1746	50	2000	0	87.3	50-110	0			
Benzo(b)fluoranthene	1746	50	2000	0	87.3	45-115	0			
Benzo(g,h,i)perylene	1816	50	2000	0	90.8	40-125	0			
Benzo(k)fluoranthene	1862	50	2000	0	93.1	45-115	0			
Chrysene	1794	50	2000	0	89.7	55-110	0			
Dibenzo(a,h)anthracene	1727	50	2000	0	86.4	40-125	0			
Fluoranthene	1892	50	2000	0	94.6	55-115	0			
Fluorene	1746	50	2000	0	87.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1737	50	2000	0	86.8	40-120	0			
Naphthalene	1654	50	2000	0	82.7	40-105	0			
Phenanthrene	1727	50	2000	0	86.4	50-110	0			
Pyrene	1872	50	2000	0	93.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*3864*	0	*5000*	0	*77.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3075*	0	*5000*	0	*61.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3780*	0	*5000*	0	*75.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4466*	0	*5000*	0	*89.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3634*	0	*5000*	0	*72.7*	*37-107*	0			
Surr: Phenol-d6	*3831*	0	*5000*	0	*76.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206191-01B MS** Units: **µg/Kg** Analysis Date: **6/11/2012 07:02 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996588** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1128	32	1268	0	89	45-105	0			
Acenaphthene	1138	32	1268	0	89.8	45-110	0			
Acenaphthylene	1152	32	1268	0	90.8	45-105	0			
Anthracene	1222	32	1268	0	96.4	55-105	0			
Benzo(a)anthracene	1202	32	1268	0	94.8	50-110	0			
Benzo(a)pyrene	1243	32	1268	0	98	50-110	0			
Benzo(b)fluoranthene	1260	32	1268	0	99.4	45-115	0			
Benzo(g,h,i)perylene	1297	32	1268	0	102	40-125	0			
Benzo(k)fluoranthene	1229	32	1268	0	96.9	45-115	0			
Chrysene	1226	32	1268	0	96.7	55-110	0			
Dibenzo(a,h)anthracene	1210	32	1268	0	95.4	40-125	0			
Fluoranthene	1276	32	1268	0	101	55-115	0			
Fluorene	1229	32	1268	0	97	50-110	0			
Indeno(1,2,3-cd)pyrene	1232	32	1268	0	97.2	40-120	0			
Naphthalene	1081	32	1268	0	85.2	40-105	0			
Phenanthrene	1203	32	1268	0	94.9	50-110	0			
Pyrene	1279	32	1268	0	101	45-125	0			
Surr: 2,4,6-Tribromophenol	*2921*	0	*3170*	0	*92.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*1883*	0	*3170*	0	*59.4*	*12-100*	0			
Surr: 2-Fluorophenol	*2408*	0	*3170*	0	*76*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3004*	0	*3170*	0	*94.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*2266*	0	*3170*	0	*71.5*	*37-107*	0			
Surr: Phenol-d6	*2405*	0	*3170*	0	*75.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41542** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206191-01B MSD** Units: **µg/Kg** Analysis Date: **6/11/2012 07:32 PM**
Client ID: Run ID: **SVMS7_120611A** SeqNo: **1996593** Prep Date: **6/11/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1118	31	1250	0	89.4	45-105	1128	0.831	30	
Acenaphthene	1138	31	1250	0	91	45-110	1138	0.0468	30	
Acenaphthylene	1156	31	1250	0	92.4	45-105	1152	0.355	30	
Anthracene	1218	31	1250	0	97.4	55-105	1222	0.307	30	
Benzo(a)anthracene	1183	31	1250	0	94.6	50-110	1202	1.6	30	
Benzo(a)pyrene	1230	31	1250	0	98.4	50-110	1243	1.03	30	
Benzo(b)fluoranthene	1182	31	1250	0	94.6	45-115	1260	6.39	30	
Benzo(g,h,i)perylene	1297	31	1250	0	104	40-125	1297	0.0321	30	
Benzo(k)fluoranthene	1295	31	1250	0	104	45-115	1229	5.29	30	
Chrysene	1221	31	1250	0	97.6	55-110	1226	0.414	30	
Dibenzo(a,h)anthracene	1209	31	1250	0	96.7	40-125	1210	0.0378	30	
Fluoranthene	1267	31	1250	0	101	55-115	1276	0.698	30	
Fluorene	1209	31	1250	0	96.6	50-110	1229	1.7	30	
Indeno(1,2,3-cd)pyrene	1230	31	1250	0	98.4	40-120	1232	0.113	30	
Naphthalene	1047	31	1250	0	83.8	40-105	1081	3.17	30	
Phenanthrene	1188	31	1250	0	95	50-110	1203	1.29	30	
Pyrene	1278	31	1250	0	102	45-125	1279	0.0616	30	
Surr: 2,4,6-Tribromophenol	*3031*	0	*3126*	0	*97*	*34-140*	2921	*3.71*	*40*	
Surr: 2-Fluorobiphenyl	*1941*	0	*3126*	0	*62.1*	*12-100*	1883	*3.05*	*40*	
Surr: 2-Fluorophenol	*2405*	0	*3126*	0	*76.9*	*33-117*	2408	*0.109*	*40*	
Surr: 4-Terphenyl-d14	*3054*	0	*3126*	0	*97.7*	*25-137*	3004	*1.66*	*40*	
Surr: Nitrobenzene-d5	*2246*	0	*3126*	0	*71.9*	*37-107*	2266	*0.861*	*40*	
Surr: Phenol-d6	*2419*	0	*3126*	0	*77.4*	*40-106*	2405	*0.566*	*40*	

The following samples were analyzed in this batch:

1206298-01B	1206298-02B	1206298-04B
1206298-05B	1206298-06B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41586-41586** Units: **µg/Kg** Analysis Date: **6/13/2012 12:18 PM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999122** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4366*	0	*5000*	0	*87.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3334*	0	*5000*	0	*66.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4074*	0	*5000*	0	*81.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4563*	0	*5000*	0	*91.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3766*	0	*5000*	0	*75.3*	*37-107*	0			
Surr: Phenol-d6	*4169*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41586-41586** Units: **µg/Kg** Analysis Date: **6/13/2012 09:51 AM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999118** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1814	50	2000	0	90.7	45-105	0			
Acenaphthene	1727	50	2000	0	86.4	45-110	0			
Acenaphthylene	1763	50	2000	0	88.2	45-105	0			
Anthracene	1840	50	2000	0	92	55-105	0			
Benzo(a)anthracene	1833	50	2000	0	91.6	50-110	0			
Benzo(a)pyrene	1921	50	2000	0	96	50-110	0			
Benzo(b)fluoranthene	1816	50	2000	0	90.8	45-115	0			
Benzo(g,h,i)perylene	2147	50	2000	0	107	40-125	0			
Benzo(k)fluoranthene	2071	50	2000	0	104	45-115	0			
Chrysene	1913	50	2000	0	95.6	55-110	0			
Dibenzo(a,h)anthracene	1993	50	2000	0	99.6	40-125	0			
Fluoranthene	1980	50	2000	0	99	55-115	0			
Fluorene	1848	50	2000	0	92.4	50-110	0			
Indeno(1,2,3-cd)pyrene	2009	50	2000	0	100	40-120	0			
Naphthalene	1722	50	2000	0	86.1	40-105	0			
Phenanthrene	1799	50	2000	0	90	50-110	0			
Pyrene	1958	50	2000	0	97.9	45-125	0			
Surr: 2,4,6-Tribromophenol	*4471*	0	*5000*	0	*89.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3163*	0	*5000*	0	*63.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3847*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4697*	0	*5000*	0	*93.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3657*	0	*5000*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3774*	0	*5000*	0	*75.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206298-10B MS** Units: **µg/Kg** Analysis Date: **6/13/2012 10:20 AM**
Client ID: **SBKR1200L519S060612S006** Run ID: **SVMS7_120613A** SeqNo: **1999119** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1620	46	1859	0	87.2	45-105	0			
Acenaphthene	1617	46	1859	0	87	45-110	0			
Acenaphthylene	1622	46	1859	0	87.2	45-105	0			
Anthracene	1767	46	1859	0	95	55-105	0			
Benzo(a)anthracene	1780	46	1859	0	95.8	50-110	0			
Benzo(a)pyrene	1813	46	1859	0	97.5	50-110	0			
Benzo(b)fluoranthene	1920	46	1859	0	103	45-115	0			
Benzo(g,h,i)perylene	1881	46	1859	0	101	40-125	0			
Benzo(k)fluoranthene	1756	46	1859	0	94.4	45-115	0			
Chrysene	1836	46	1859	0	98.8	55-110	0			
Dibenzo(a,h)anthracene	1767	46	1859	0	95	40-125	0			
Fluoranthene	1943	46	1859	53.06	102	55-115	0			
Fluorene	1774	46	1859	0	95.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1791	46	1859	0	96.3	40-120	0			
Naphthalene	1488	46	1859	0	80	40-105	0			
Phenanthrene	1745	46	1859	0	93.8	50-110	0			
Pyrene	1830	46	1859	0	98.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4260*	0	*4649*	0	*91.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2868*	0	*4649*	0	*61.7*	*12-100*	0			
Surr: 2-Fluorophenol	*3285*	0	*4649*	0	*70.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4332*	0	*4649*	0	*93.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3179*	0	*4649*	0	*68.4*	*37-107*	0			
Surr: Phenol-d6	*3354*	0	*4649*	0	*72.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206298-10B MSD** Units: **µg/Kg** Analysis Date: **6/13/2012 10:50 AM**
Client ID: **SBKR1200L519S060612S006** Run ID: **SVMS7_120613A** SeqNo: **1999120** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1682	50	1984	0	84.8	45-105	1620	3.7	30	
Acenaphthene	1703	50	1984	0	85.8	45-110	1617	5.22	30	
Acenaphthylene	1711	50	1984	0	86.2	45-105	1622	5.34	30	
Anthracene	1894	50	1984	0	95.4	55-105	1767	6.91	30	
Benzo(a)anthracene	1869	50	1984	0	94.2	50-110	1780	4.86	30	
Benzo(a)pyrene	1921	50	1984	0	96.8	50-110	1813	5.77	30	
Benzo(b)fluoranthene	2025	50	1984	0	102	45-115	1920	5.32	30	
Benzo(g,h,i)perylene	1939	50	1984	0	97.8	40-125	1881	3.07	30	
Benzo(k)fluoranthene	1894	50	1984	0	95.4	45-115	1756	7.54	30	
Chrysene	1915	50	1984	0	96.5	55-110	1836	4.19	30	
Dibenzo(a,h)anthracene	1838	50	1984	0	92.6	40-125	1767	3.93	30	
Fluoranthene	2106	50	1984	53.06	103	55-115	1943	8.05	30	
Fluorene	1890	50	1984	0	95.2	50-110	1774	6.33	30	
Indeno(1,2,3-cd)pyrene	1863	50	1984	0	93.9	40-120	1791	3.97	30	
Naphthalene	1551	50	1984	0	78.2	40-105	1488	4.09	30	
Phenanthrene	1861	50	1984	0	93.8	50-110	1745	6.44	30	
Pyrene	1915	50	1984	0	96.5	45-125	1830	4.54	30	
Surr: 2,4,6-Tribromophenol	*4756*	0	*4960*	0	*95.9*	*34-140*	4260	*11*	*40*	
Surr: 2-Fluorobiphenyl	*3148*	0	*4960*	0	*63.5*	*12-100*	2868	*9.3*	*40*	
Surr: 2-Fluorophenol	*3541*	0	*4960*	0	*71.4*	*33-117*	3285	*7.5*	*40*	
Surr: 4-Terphenyl-d14	*4671*	0	*4960*	0	*94.2*	*25-137*	4332	*7.53*	*40*	
Surr: Nitrobenzene-d5	*3368*	0	*4960*	0	*67.9*	*37-107*	3179	*5.78*	*40*	
Surr: Phenol-d6	*3551*	0	*4960*	0	*71.6*	*40-106*	3354	*5.68*	*40*	

The following samples were analyzed in this batch:

1206298-07B	1206298-08B	1206298-09B
1206298-10B	1206298-11B	1206298-12B
1206298-13B	1206298-14B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41609-41609** Units: **µg/Kg** Analysis Date: **6/13/2012 10:09 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1998668** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	42	75								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	21.5	30						J
Naphthalene	ND	100						
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*985*	0	*1000*	0	*98.5*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*980.5*	0	*1000*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*956.5*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*1011*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41609-41609** Units: **µg/Kg** Analysis Date: **6/14/2012 02:26 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999903** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1023*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*981*	0	*1000*	0	*98.1*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41609-41609** Units: **µg/Kg** Analysis Date: **6/13/2012 08:54 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1998667** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	995.5	30	1000	0	99.6	75-125	0			
1,1,1-Trichloroethane	997.5	30	1000	0	99.8	70-135	0			
1,1,2,2-Tetrachloroethane	989	30	1000	0	98.9	55-130	0			
1,1,2-Trichloroethane	965.5	30	1000	0	96.6	60-125	0			
1,1-Dichloroethane	923.5	30	1000	0	92.4	75-125	0			
1,1-Dichloroethene	975.5	30	1000	0	97.6	65-135	0			
1,2,3-Trichlorobenzene	977.5	30	1000	0	97.8	60-135	0			
1,2,3-Trichloropropane	1056	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	907.5	30	1000	0	90.8	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	937.5	30	1000	0	93.8	65-135	0			
1,2-Dibromo-3-chloropropane	1022	30	1000	0	102	40-135	0			
1,2-Dibromoethane	1010	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	952.5	30	1000	0	95.2	75-120	0			
1,2-Dichloroethane	974.5	30	1000	0	97.4	70-135	0			
1,2-Dichloropropane	963.5	30	1000	0	96.4	70-120	0			
1,3,5-Trimethylbenzene	952.5	30	1000	0	95.2	65-135	0			
1,3-Dichlorobenzene	971	30	1000	0	97.1	70-125	0			
1,4-Dichlorobenzene	986.5	30	1000	0	98.6	70-125	0			
2-Butanone	1086	200	1000	0	109	30-160	0			
2-Hexanone	931.5	30	1000	0	93.2	45-145	0			
4-Methyl-2-pentanone	1356	30	1000	0	136	45-145	0			
Acetone	901	100	1000	0	90.1	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	927	30	1000	0	92.7	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	981.5	30	1000	0	98.2	70-130	0			
Bromoform	883.5	30	1000	0	88.4	55-135	0			
Bromomethane	1083	75	1000	0	108	30-160	0			
Carbon disulfide	1026	30	1000	0	103	45-160	0			
Carbon tetrachloride	1012	30	1000	0	101	65-135	0			
Chlorobenzene	954	30	1000	0	95.4	75-125	0			
Chloroethane	942.5	100	1000	0	94.2	40-155	0			
Chloroform	950	30	1000	0	95	70-125	0			
Chloromethane	858.5	100	1000	0	85.8	50-130	0			
cis-1,2-Dichloroethene	921.5	30	1000	0	92.2	65-125	0			
cis-1,3-Dichloropropene	1065	30	1000	0	106	70-125	0			
Dibromochloromethane	1048	30	1000	0	105	65-135	0			
Dibromomethane	991	30	1000	0	99.1	75-130	0			
Dichlorodifluoromethane	724.5	30	1000	0	72.4	35-135	0			
Ethylbenzene	941.5	30	1000	0	94.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	937	30	1000	0	93.7	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1852	60	2000	0	92.6	80-125	0
Methyl tert-butyl ether	1012	30	1000	0	101	75-125	0
Methylene chloride	1034	30	1000	0	103	55-145	0
Naphthalene	931	100	1000	0	93.1	40-140	0
n-Butylbenzene	998	30	1000	0	99.8	65-140	0
n-Propylbenzene	916	30	1000	0	91.6	65-135	0
o-Xylene	945	30	1000	0	94.5	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	967	30	1000	0	96.7	65-130	0
Styrene	965	30	1000	0	96.5	75-125	0
tert-Butylbenzene	956.5	30	1000	0	95.6	65-130	0
Tetrachloroethene	930.5	30	1000	0	93	64-140	0
Tetrahydrofuran	809.5	200	1000	0	81	70-135	0
Toluene	935.5	30	1000	0	93.6	70-125	0
trans-1,2-Dichloroethene	991	30	1000	0	99.1	65-135	0
trans-1,3-Dichloropropene	1032	30	1000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	885.5	30	1000	0	88.6	70-135	0
Trichloroethene	934	30	1000	0	93.4	75-125	0
Trichlorofluoromethane	963.5	30	1000	0	96.4	25-185	0
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*985.5*	0	*1000*	0	*98.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1007*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41609-41609** Units: **µg/Kg** Analysis Date: **6/14/2012 01:10 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999902** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	978.5	30	1000	0	97.8	75-125	0			
1,1,1-Trichloroethane	1009	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	999.5	30	1000	0	100	55-130	0			
1,1,2-Trichloroethane	878	30	1000	0	87.8	60-125	0			
1,1-Dichloroethane	866	30	1000	0	86.6	75-125	0			
1,1-Dichloroethene	939	30	1000	0	93.9	65-135	0			
1,2,3-Trichlorobenzene	1015	30	1000	0	102	60-135	0			
1,2,3-Trichloropropane	914.5	30	1000	0	91.4	65-130	0			
1,2,3-Trimethylbenzene	922.5	30	1000	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	1023	30	1000	0	102	65-130	0			
1,2,4-Trimethylbenzene	929	30	1000	0	92.9	65-135	0			
1,2-Dibromo-3-chloropropane	975.5	30	1000	0	97.6	40-135	0			
1,2-Dibromoethane	1022	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	959.5	30	1000	0	96	75-120	0			
1,2-Dichloroethane	1020	30	1000	0	102	70-135	0			
1,2-Dichloropropane	881.5	30	1000	0	88.2	70-120	0			
1,3,5-Trimethylbenzene	934.5	30	1000	0	93.4	65-135	0			
1,3-Dichlorobenzene	951.5	30	1000	0	95.2	70-125	0			
1,4-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	0			
2-Butanone	1028	200	1000	0	103	30-160	0			
2-Hexanone	1000	30	1000	0	100	45-145	0			
4-Methyl-2-pentanone	1430	30	1000	0	143	45-145	0			
Acetone	960	100	1000	0	96	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	884.5	30	1000	0	88.4	75-125	0			
Bromobenzene	932.5	30	1000	0	93.2	65-120	0			
Bromochloromethane	951	30	1000	0	95.1	70-125	0			
Bromodichloromethane	983.5	30	1000	0	98.4	70-130	0			
Bromoform	933	30	1000	0	93.3	55-135	0			
Bromomethane	994	75	1000	0	99.4	30-160	0			
Carbon disulfide	930	30	1000	0	93	45-160	0			
Carbon tetrachloride	1061	30	1000	0	106	65-135	0			
Chlorobenzene	950	30	1000	0	95	75-125	0			
Chloroethane	909.5	100	1000	0	91	40-155	0			
Chloroform	951	30	1000	0	95.1	70-125	0			
Chloromethane	717	100	1000	0	71.7	50-130	0			
cis-1,2-Dichloroethene	946	30	1000	0	94.6	65-125	0			
cis-1,3-Dichloropropene	1036	30	1000	0	104	70-125	0			
Dibromochloromethane	1016	30	1000	0	102	65-135	0			
Dibromomethane	1014	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	598.5	30	1000	0	59.8	35-135	0			
Ethylbenzene	963	30	1000	0	96.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	914.5	30	1000	0	91.4	70-135	0
Isopropylbenzene	963	30	1000	0	96.3	75-130	0
m,p-Xylene	1888	60	2000	0	94.4	80-125	0
Methyl tert-butyl ether	980	30	1000	0	98	75-125	0
Methylene chloride	900.5	30	1000	0	90	55-145	0
Naphthalene	1037	100	1000	0	104	40-140	0
n-Butylbenzene	1010	30	1000	0	101	65-140	0
n-Propylbenzene	921	30	1000	0	92.1	65-135	0
o-Xylene	937	30	1000	0	93.7	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	994.5	30	1000	0	99.4	65-130	0
Styrene	955	30	1000	0	95.5	75-125	0
tert-Butylbenzene	984	30	1000	0	98.4	65-130	0
Tetrachloroethene	978.5	30	1000	0	97.8	64-140	0
Tetrahydrofuran	925.5	200	1000	0	92.6	70-135	0
Toluene	941	30	1000	0	94.1	70-125	0
trans-1,2-Dichloroethene	913.5	30	1000	0	91.4	65-135	0
trans-1,3-Dichloropropene	1012	30	1000	0	101	65-125	0
trans-1,4-Dichloro-2-butene	964	30	1000	0	96.4	70-135	0
Trichloroethene	983.5	30	1000	0	98.4	75-125	0
Trichlorofluoromethane	867	30	1000	0	86.7	25-185	0
Vinyl chloride	813.5	30	1000	0	81.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*1064*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1011*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1012*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206299-05A MS** Units: **µg/Kg** Analysis Date: **6/14/2012 07:31 AM**
Client ID: Run ID: **VMS7_120613B** SeqNo: **1999234** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4587	150	4882	0	94	75-125	0			
1,1,1-Trichloroethane	4714	150	4882	0	96.6	70-135	0			
1,1,2,2-Tetrachloroethane	4533	150	4882	0	92.8	55-130	0			
1,1,2-Trichloroethane	4545	150	4882	0	93.1	60-125	0			
1,1-Dichloroethane	4314	150	4882	0	88.4	75-125	0			
1,1-Dichloroethene	3816	150	4882	0	78.2	65-135	0			
1,2,3-Trichlorobenzene	3249	150	4882	0	66.6	60-135	0			
1,2,3-Trichloropropane	4863	150	4882	0	99.6	65-130	0			
1,2,3-Trimethylbenzene	4052	150	4882	0	83	65-135	0			
1,2,4-Trichlorobenzene	3423	150	4882	0	70.1	65-130	0			
1,2,4-Trimethylbenzene	4179	150	4882	0	85.6	65-135	0			
1,2-Dibromo-3-chloropropane	4414	150	4882	0	90.4	40-135	0			
1,2-Dibromoethane	4780	150	4882	0	97.9	70-125	0			
1,2-Dichlorobenzene	4189	150	4882	0	85.8	75-120	0			
1,2-Dichloroethane	4524	150	4882	0	92.6	70-135	0			
1,2-Dichloropropane	4550	150	4882	0	93.2	70-120	0			
1,3,5-Trimethylbenzene	4331	150	4882	0	88.7	65-135	0			
1,3-Dichlorobenzene	4321	150	4882	0	88.5	70-125	0			
1,4-Dichlorobenzene	4333	150	4882	0	88.8	70-125	0			
2-Butanone	4094	490	4882	0	83.8	30-160	0			
2-Hexanone	4423	150	4882	0	90.6	45-145	0			
4-Methyl-2-pentanone	6323	150	4882	0	130	45-145	0			
Acetone	6559	490	4882	0	134	20-160	0			
Acrylonitrile	4055	150	4882	0	83	70-135	0			
Benzene	4414	150	4882	0	90.4	75-125	0			
Bromobenzene	4221	150	4882	0	86.4	65-120	0			
Bromochloromethane	4585	150	4882	0	93.9	70-125	0			
Bromodichloromethane	4472	150	4882	0	91.6	70-130	0			
Bromoform	3879	150	4882	0	79.4	55-135	0			
Bromomethane	3689	150	4882	90.32	73.7	30-160	0			B
Carbon disulfide	4531	150	4882	0	92.8	45-160	0			
Carbon tetrachloride	4709	150	4882	0	96.4	65-135	0			
Chlorobenzene	4528	150	4882	0	92.8	75-125	0			
Chloroethane	2112	490	4882	0	43.2	40-155	0			
Chloroform	4494	150	4882	0	92	70-125	0			
Chloromethane	3979	150	4882	0	81.5	50-130	0			
cis-1,2-Dichloroethene	4289	150	4882	0	87.8	65-125	0			
cis-1,3-Dichloropropene	4475	150	4882	0	91.6	70-125	0			
Dibromochloromethane	4738	150	4882	0	97	65-135	0			
Dibromomethane	4633	150	4882	0	94.9	75-130	0			
Dichlorodifluoromethane	3320	150	4882	0	68	35-135	0			
Ethylbenzene	4358	150	4882	0	89.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	3591	150	4882	0	73.6	70-135	0	
Isopropylbenzene	4409	150	4882	0	90.3	75-130	0	
m,p-Xylene	8705	290	9765	0	89.2	80-125	0	
Methyl tert-butyl ether	5122	150	4882	0	105	75-125	0	
Methylene chloride	5168	150	4882	114.7	104	55-145	0	
Naphthalene	3418	490	4882	0	70	40-140	0	
n-Butylbenzene	3820	150	4882	0	78.2	65-140	0	
n-Propylbenzene	4052	150	4882	0	83	65-135	0	
o-Xylene	4401	150	4882	0	90.2	75-125	0	
p-Isopropyltoluene	4209	150	4882	0	86.2	75-135	0	
sec-Butylbenzene	4045	150	4882	0	82.8	65-130	0	
Styrene	2573	150	4882	0	52.7	75-125	0	S
tert-Butylbenzene	4187	150	4882	0	85.8	65-130	0	
Tetrachloroethene	4404	150	4882	0	90.2	64-140	0	
Tetrahydrofuran	4379	490	4882	0	89.7	70-135	0	
Toluene	4558	150	4882	0	93.4	70-125	0	
trans-1,2-Dichloroethene	5131	150	4882	0	105	65-135	0	
trans-1,3-Dichloropropene	4426	150	4882	0	90.6	65-125	0	
trans-1,4-Dichloro-2-butene	3462	150	4882	0	70.9	70-135	0	
Trichloroethene	4558	150	4882	0	93.4	75-125	0	
Trichlorofluoromethane	2090	150	4882	0	42.8	25-185	0	
Vinyl chloride	3955	150	4882	0	81	60-125	0	
Surr: 1,2-Dichloroethane-d4	*4646*	0	*4882*	0	*95.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*4858*	0	*4882*	0	*99.5*	*70-130*	0	
Surr: Dibromofluoromethane	*4831*	0	*4882*	0	*99*	*70-130*	0	
Surr: Toluene-d8	*4843*	0	*4882*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206299-05A MSD** Units: **µg/Kg** Analysis Date: **6/14/2012 07:56 AM**
Client ID: Run ID: **VMS7_120613B** SeqNo: **1999235** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4565	150	4882	0	93.5	75-125	4587	0.48	30	
1,1,1-Trichloroethane	4660	150	4882	0	95.4	70-135	4714	1.15	30	
1,1,2,2-Tetrachloroethane	4553	150	4882	0	93.2	55-130	4533	0.43	30	
1,1,2-Trichloroethane	4462	150	4882	0	91.4	60-125	4545	1.84	30	
1,1-Dichloroethane	4218	150	4882	0	86.4	75-125	4314	2.23	30	
1,1-Dichloroethene	3669	150	4882	0	75.2	65-135	3816	3.91	30	
1,2,3-Trichlorobenzene	3386	150	4882	0	69.4	60-135	3249	4.12	30	
1,2,3-Trichloropropane	4992	150	4882	0	102	65-130	4863	2.63	30	
1,2,3-Trimethylbenzene	4028	150	4882	0	82.5	65-135	4052	0.604	30	
1,2,4-Trichlorobenzene	3496	150	4882	0	71.6	65-130	3423	2.12	30	
1,2,4-Trimethylbenzene	4177	150	4882	0	85.6	65-135	4179	0.0584	30	
1,2-Dibromo-3-chloropropane	4594	150	4882	0	94.1	40-135	4414	4.01	30	
1,2-Dibromoethane	4733	150	4882	0	97	70-125	4780	0.975	30	
1,2-Dichlorobenzene	4172	150	4882	0	85.4	75-120	4189	0.409	30	
1,2-Dichloroethane	4443	150	4882	0	91	70-135	4524	1.8	30	
1,2-Dichloropropane	4511	150	4882	0	92.4	70-120	4550	0.862	30	
1,3,5-Trimethylbenzene	4238	150	4882	0	86.8	65-135	4331	2.17	30	
1,3-Dichlorobenzene	4199	150	4882	0	86	70-125	4321	2.87	30	
1,4-Dichlorobenzene	4338	150	4882	0	88.8	70-125	4333	0.113	30	
2-Butanone	4475	490	4882	0	91.6	30-160	4094	8.89	30	
2-Hexanone	4480	150	4882	0	91.8	45-145	4423	1.26	30	
4-Methyl-2-pentanone	6459	150	4882	0	132	45-145	6323	2.14	30	
Acetone	5681	490	4882	0	116	20-160	6559	14.4	30	
Acrylonitrile	3901	150	4882	0	79.9	70-135	4055	3.87	30	
Benzene	4309	150	4882	0	88.2	75-125	4414	2.41	30	
Bromobenzene	4253	150	4882	0	87.1	65-120	4221	0.749	30	
Bromochloromethane	4353	150	4882	0	89.2	70-125	4585	5.19	30	
Bromodichloromethane	4514	150	4882	0	92.4	70-130	4472	0.924	30	
Bromoform	3933	150	4882	0	80.6	55-135	3879	1.37	30	
Bromomethane	3330	150	4882	90.32	66.4	30-160	3689	10.2	30	B
Carbon disulfide	4370	150	4882	0	89.5	45-160	4531	3.62	30	
Carbon tetrachloride	4641	150	4882	0	95	65-135	4709	1.46	30	
Chlorobenzene	4448	150	4882	0	91.1	75-125	4528	1.79	30	
Chloroethane	2085	490	4882	0	42.7	40-155	2112	1.28	30	
Chloroform	4423	150	4882	0	90.6	70-125	4494	1.59	30	
Chloromethane	3877	150	4882	0	79.4	50-130	3979	2.61	30	
cis-1,2-Dichloroethene	4145	150	4882	0	84.9	65-125	4289	3.42	30	
cis-1,3-Dichloropropene	4602	150	4882	0	94.2	70-125	4475	2.8	30	
Dibromochloromethane	4716	150	4882	0	96.6	65-135	4738	0.465	30	
Dibromomethane	4646	150	4882	0	95.2	75-130	4633	0.263	30	
Dichlorodifluoromethane	3237	150	4882	0	66.3	35-135	3320	2.53	30	
Ethylbenzene	4338	150	4882	0	88.8	75-125	4358	0.449	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	3562	150	4882	0	73	70-135	3591	0.819	30	
Isopropylbenzene	4365	150	4882	0	89.4	75-130	4409	1	30	
m,p-Xylene	8539	290	9765	0	87.4	80-125	8705	1.93	30	
Methyl tert-butyl ether	5236	150	4882	0	107	75-125	5122	2.22	30	
Methylene chloride	4956	150	4882	114.7	99.2	55-145	5168	4.2	30	
Naphthalene	3632	490	4882	0	74.4	40-140	3418	6.09	30	
n-Butylbenzene	3742	150	4882	0	76.6	65-140	3820	2.07	30	
n-Propylbenzene	4021	150	4882	0	82.4	65-135	4052	0.786	30	
o-Xylene	4365	150	4882	0	89.4	75-125	4401	0.835	30	
p-Isopropyltoluene	4084	150	4882	0	83.6	75-135	4209	3	30	
sec-Butylbenzene	3984	150	4882	0	81.6	65-130	4045	1.52	30	
Styrene	2532	150	4882	0	51.8	75-125	2573	1.63	30	S
tert-Butylbenzene	4157	150	4882	0	85.2	65-130	4187	0.702	30	
Tetrachloroethene	4316	150	4882	0	88.4	64-140	4404	2.02	30	
Tetrahydrofuran	4130	490	4882	0	84.6	70-135	4379	5.85	30	
Toluene	4475	150	4882	0	91.6	70-125	4558	1.84	30	
trans-1,2-Dichloroethene	5141	150	4882	0	105	65-135	5131	0.19	30	
trans-1,3-Dichloropropene	4470	150	4882	0	91.6	65-125	4426	0.988	30	
trans-1,4-Dichloro-2-butene	3479	150	4882	0	71.2	70-135	3462	0.492	30	
Trichloroethene	4477	150	4882	0	91.7	75-125	4558	1.78	30	
Trichlorofluoromethane	2417	150	4882	0	49.5	25-185	2090	14.5	30	
Vinyl chloride	3759	150	4882	0	77	60-125	3955	5.06	30	
Surr: 1,2-Dichloroethane-d4	*4665*	0	*4882*	0	*95.6*	*70-130*	4646	*0.42*	*30*	
Surr: 4-Bromofluorobenzene	*4853*	0	*4882*	0	*99.4*	*70-130*	4858	*0.101*	*30*	
Surr: Dibromofluoromethane	*4826*	0	*4882*	0	*98.8*	*70-130*	4831	*0.101*	*30*	
Surr: Toluene-d8	*4843*	0	*4882*	0	*99.2*	*70-130*	4843	*0*	*30*	

The following samples were analyzed in this batch:

1206298-01A	1206298-02A	1206298-03A
1206298-04A	1206298-05A	1206298-06A
1206298-07A	1206298-08A	1206298-09A
1206298-10A	1206298-11A	1206298-12A
1206298-13A	1206298-14A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206298
Project: Marshall KRRI 1150L,1200-1225L 6/6/12

QC BATCH REPORT

Batch ID: **R105826** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105826** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996122** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105826** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206298-05BDUP** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: **SBKR1200L515S060612S006** Run ID: **MOIST_120611C** SeqNo: **1996101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	70.42	0.050	0	0	0	0-0	71.15	1.03	20	

DUP Sample ID: **1206301-01ADUP** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996120** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.6	0.050	0	0	0	0-0	2.84	8.82	20	

The following samples were analyzed in this batch:

1206298-01B	1206298-02B	1206298-04B
1206298-05B	1206298-06B	1206298-07B
1206298-08B	1206298-09B	1206298-10B
1206298-11B	1206298-12B	1206298-13B
1206298-14B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206298

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060612_LJL1	Task: KRRI_1150,1200.1225
	Total # of Samples: 14	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX — Phone #: 713-821-2000
Lab PM:	Ann Preston	City: Grand Rapids	State, Zip: MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L536S060612S007	SBKR1150L536	SO	G	06/06/2012 09:00	3			X	X	X	X	X										
2	SBKR1150L537S060612S005	SBKR1150L537	SO	G	06/06/2012 17:00	3			X	X	X	X	X										
3	SBKR1150L537T060612MX	SBKR1150L537	SO	G	06/06/2012 00:00	1	TRIP BLANK						X										
4	SBKR1200L514S060612S004	SBKR1200L514	SO	G	06/06/2012 09:30	3			X	X	X	X	X										
5	SBKR1200L515S060612S006	SBKR1200L515	SO	G	06/06/2012 10:25	3	MDEQ SPLIT		X	X	X	X	X										
6	SBKR1200L516S060612S005	SBKR1200L516	SO	G	06/06/2012 10:48	3			X	X	X	X	X										
7	SBKR1200L516D060612S005	SBKR1200L516	SO	G	06/06/2012 10:48	3	DUPLICATE		X	X	X	X	X										
8	SBKR1200L517S060612S006	SBKR1200L517	SO	G	06/06/2012 11:22	3			X	X	X	X	X										
9	SBKR1200L518S060612S005	SBKR1200L518	SO	G	06/06/2012 14:30	3			X	X	X	X	X										
10	SBKR1200L519S060612S006	SBKR1200L519	SO	G	06/06/2012 13:55	3			X	X	X	X	X										
11	SBKR1200L520S060612S005	SBKR1200L520	SO	G	06/06/2012 15:50	3			X	X	X	X	X										
12	SBKR1200L521S060612S006	SBKR1200L521	SO	G	06/06/2012 16:10	3	MDEQ SPLIT		X	X	X	X	X										
13	SBKR1225L508S060612S005	SBKR1225L508	SO	G	06/06/2012 13:40	3			X	X	X	X	X										
14	SBKR1225L509S060612S005	SBKR1225L509	SO	G	06/06/2012 16:30	3			X	X	X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-6-12	1740		6-6-12	1740
	6-8-12	1533		6-8-12	1533

Sample Receipt Conditions				
	Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
5.4°C		(Y)N	(Y)N	(Y)N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1), PETE BAERMAN
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **08-Jun-12 15:33**

Work Order: **1206298** Received by: **PD**

Checklist completed by Diane Shaw eSignature 09-Jun-12 Date Reviewed by: Ann Preston eSignature 10-Jun-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.4 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

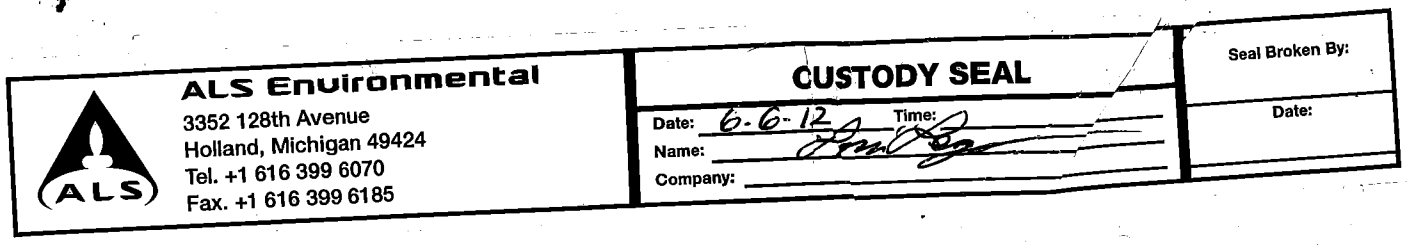
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 6-6-12
Time:
Name:
Company:
Seal Broken By:
Date:

5.4°C

15-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 6/7/12** Work Order: **1206299**

Dear Bryan,

ALS Environmental received 6 samples on 08-Jun-2012 03:33 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 43.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 15-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/7/12
Work Order: **1206299**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206299-01	SBKR1150L538S060712S005	Soil		6/7/2012 09:15	6/8/2012 15:33	☐
1206299-02	SBKR1150L538S060712S021	Soil		6/7/2012 09:25	6/8/2012 15:33	☐
1206299-03	SBKR1150L539S060712S004	Soil		6/7/2012 10:10	6/8/2012 15:33	☐
1206299-04	SBKR1150L540S060712S006	Soil		6/7/2012 10:45	6/8/2012 15:33	☐
1206299-05	SBKR1150L540S060712S014	Soil		6/7/2012 11:00	6/8/2012 15:33	☐
1206299-06	SBKR1150L540T060712MX	Soil		6/7/2012	6/8/2012 15:33	☐

ALS Group USA, Corp

Date: 15-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/7/12
Work Order: 1206299

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41587 MS/MSD data for DRO is not related to this project's samples.

Batch 41636 MS/MSD data for Beryllium is not related to this project's samples.

Batch 41587 samples 1206299-01, 1206299-02, 1206299-03, and 1206299-04 DRO surrogate recoveries were above control limits. The DRO results in these samples may be biased high due to matrix interference.

Batch 41609 sample SBKR1150L540S060712S014 MS/MSD recoveries for Styrene were below control limits. The parent sample reporting limits for this compound may be biased low. The Method Blank had a small positive result for Bromomethane. Alls samples in this work order were ND for this compound.

ALS Group USA, Corp

Date: 15-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/7/12
WorkOrder: **1206299**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S005
Work Order:	1206299	**Collection Date:**	6/7/2012 9:15:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**9,300**	**530**	**4.0**		**mg/Kg-dry**	20	6/13/2012
ORO (C20-C34)	**49,000**	**1,100**	**4.0**		**mg/Kg-dry**	20	6/13/2012
Surr: 4-Terphenyl-d14	*118*	*39-115*		S	*%REC*	20	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/14/2012
Molybdenum	**2.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**39**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Acenaphthene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Acenaphthylene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Anthracene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Benzo(a)anthracene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Benzo(a)pyrene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Benzo(b)fluoranthene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Benzo(g,h,i)perylene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Benzo(k)fluoranthene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Chrysene	**4,700**	**2,700**	**330**		**µg/Kg-dry**	20	6/14/2012
Dibenzo(a,h)anthracene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Fluoranthene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Fluorene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Naphthalene	ND	2,700	330		µg/Kg-dry	20	6/14/2012
Phenanthrene	**5,200**	**2,700**	**330**		**µg/Kg-dry**	20	6/14/2012
Pyrene	**2,800**	**2,700**	**330**		**µg/Kg-dry**	20	6/14/2012
Surr: 2,4,6-Tribromophenol	*109*	*34-140*			*%REC*	20	6/14/2012
Surr: 2-Fluorobiphenyl	*76.8*	*12-100*			*%REC*	20	6/14/2012
Surr: 2-Fluorophenol	*76.4*	*33-117*			*%REC*	20	6/14/2012
Surr: 4-Terphenyl-d14	*112*	*25-137*			*%REC*	20	6/14/2012
Surr: Nitrobenzene-d5	*78.0*	*37-107*			*%REC*	20	6/14/2012
Surr: Phenol-d6	*80.8*	*40-106*			*%REC*	20	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S005
Work Order:	1206299	**Collection Date:**	6/7/2012 9:15:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,300	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	**1,400**	**1,300**	**330**		**µg/Kg-dry**	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	3,100	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	380	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S005
Work Order:	1206299	**Collection Date:**	6/7/2012 9:15:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	750	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	380	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	380	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	380	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*94.1*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*92.7*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*98.2*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S021
Work Order:	1206299	**Collection Date:**	6/7/2012 9:25:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**79**	**27**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**570**	**54**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*153*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/14/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**8.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/15/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/15/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/15/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/15/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/15/2012
Surr: 2,4,6-Tribromophenol	*93.6*	*34-140*			*%REC*	1	6/15/2012
Surr: 2-Fluorobiphenyl	*57.7*	*12-100*			*%REC*	1	6/15/2012
Surr: 2-Fluorophenol	*65.6*	*33-117*			*%REC*	1	6/15/2012
Surr: 4-Terphenyl-d14	*87.5*	*25-137*			*%REC*	1	6/15/2012
Surr: Nitrobenzene-d5	*53.4*	*37-107*			*%REC*	1	6/15/2012
Surr: Phenol-d6	*68.8*	*40-106*			*%REC*	1	6/15/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	430	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S021
Work Order:	1206299	**Collection Date:**	6/7/2012 9:25:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	430	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	430	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	3,500	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	430	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	430	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	430	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	430	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	430	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	430	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	430	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	430	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	430	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L538S060712S021
Work Order:	1206299	**Collection Date:**	6/7/2012 9:25:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	430	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	850	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	430	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	430	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	430	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	430	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	430	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	430	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	430	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	430	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	430	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*96.1*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*97.7*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*95.2*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**66**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L539S060712S004
Work Order:	1206299	**Collection Date:**	6/7/2012 10:10:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**200**	**31**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**2,100**	**61**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*121*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	ND	0.60	0.50		mg/Kg-dry	4	6/14/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/14/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/15/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(a)anthracene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(a)pyrene	**900**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(b)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(g,h,i)perylene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(k)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Chrysene	**900**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/15/2012
Indeno(1,2,3-cd)pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Phenanthrene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Surr: 2,4,6-Tribromophenol	*90.1*	*34-140*			*%REC*	1	6/15/2012
Surr: 2-Fluorobiphenyl	*59.2*	*12-100*			*%REC*	1	6/15/2012
Surr: 2-Fluorophenol	*61.5*	*33-117*			*%REC*	1	6/15/2012
Surr: 4-Terphenyl-d14	*83.8*	*25-137*			*%REC*	1	6/15/2012
Surr: Nitrobenzene-d5	*52.2*	*37-107*			*%REC*	1	6/15/2012
Surr: Phenol-d6	*56.1*	*40-106*			*%REC*	1	6/15/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	530	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	530	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	530	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	530	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	530	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L539S060712S004
Work Order:	1206299	**Collection Date:**	6/7/2012 10:10:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	530	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	530	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	530	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	530	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	530	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	530	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	530	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,800	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,800	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	4,400	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	530	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	530	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	530	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	530	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	530	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	530	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	530	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	530	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	530	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,800	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	530	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	530	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	530	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	530	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	530	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	530	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	530	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	530	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	530	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L539S060712S004
Work Order:	1206299	**Collection Date:**	6/7/2012 10:10:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	530	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	530	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	530	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	530	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	530	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	530	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,800	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	530	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	530	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	530	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	530	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	530	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	530	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	530	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,800	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	530	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	530	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	530	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	530	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	530	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	530	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	530	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*98.0*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**69**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S006
Work Order:	1206299	**Collection Date:**	6/7/2012 10:45:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**370**	**37**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**1,900**	**73**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*140*	*39-115*		S	*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	ND	0.71	0.50		mg/Kg-dry	4	6/14/2012
Molybdenum	ND	1.4	1.0		mg/Kg-dry	4	6/14/2012
Nickel	**21**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**33**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/15/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(a)anthracene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(a)pyrene	**650**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(b)fluoranthene	**860**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/15/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/15/2012
Chrysene	**710**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/15/2012
Fluoranthene	**880**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/15/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
Phenanthrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/15/2012
Surr: 2,4,6-Tribromophenol	*98.1*	*34-140*			*%REC*	1	6/15/2012
Surr: 2-Fluorobiphenyl	*62.2*	*12-100*			*%REC*	1	6/15/2012
Surr: 2-Fluorophenol	*61.3*	*33-117*			*%REC*	1	6/15/2012
Surr: 4-Terphenyl-d14	*95.4*	*25-137*			*%REC*	1	6/15/2012
Surr: Nitrobenzene-d5	*53.8*	*37-107*			*%REC*	1	6/15/2012
Surr: Phenol-d6	*65.8*	*40-106*			*%REC*	1	6/15/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	710	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	710	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	710	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	710	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	710	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S006
Work Order:	1206299	**Collection Date:**	6/7/2012 10:45:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	710	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	710	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	710	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	710	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	710	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	710	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	710	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	710	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	2,400	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	2,400	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	5,900	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	710	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	710	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	710	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	710	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	710	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	710	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	710	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	710	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	710	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	2,400	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	710	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	710	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	710	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	710	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	710	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	710	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	710	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	710	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	710	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	710	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S006
Work Order:	1206299	**Collection Date:**	6/7/2012 10:45:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	710	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	710	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	710	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	1,400	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	710	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	710	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	710	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	2,400	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	710	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	710	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	710	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	710	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	710	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	710	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	2,400	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	710	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	710	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	710	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	710	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	710	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	710	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*98.6*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.1*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**73**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S014
Work Order:	1206299	**Collection Date:**	6/7/2012 11:00:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/12/2012**		Analyst: **CW**
DRO (C10-C20)	**68**	**29**	**4.0**		**mg/Kg-dry**	1	6/13/2012
ORO (C20-C34)	**640**	**57**	**4.0**		**mg/Kg-dry**	1	6/13/2012
Surr: 4-Terphenyl-d14	*113*	*39-115*			*%REC*	1	6/13/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/14/2012**		Analyst: **RH**
Beryllium	**0.52**	**0.51**	**0.50**		**mg/Kg-dry**	4	6/14/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/14/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/12/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(a)pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Benzo(b)fluoranthene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/14/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/14/2012
Chrysene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/14/2012
Fluoranthene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/14/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/14/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/14/2012
Pyrene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/14/2012
Surr: 2,4,6-Tribromophenol	*89.3*	*34-140*			*%REC*	1	6/14/2012
Surr: 2-Fluorobiphenyl	*54.8*	*12-100*			*%REC*	1	6/14/2012
Surr: 2-Fluorophenol	*63.1*	*33-117*			*%REC*	1	6/14/2012
Surr: 4-Terphenyl-d14	*92.3*	*25-137*			*%REC*	1	6/14/2012
Surr: Nitrobenzene-d5	*56.0*	*37-107*			*%REC*	1	6/14/2012
Surr: Phenol-d6	*67.5*	*40-106*			*%REC*	1	6/14/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	430	100		µg/Kg-dry	1	6/13/2012
1,1,1-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1,2-Trichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,1-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S014
Work Order:	1206299	**Collection Date:**	6/7/2012 11:00:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
1,2,3-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,3-Trichloropropane	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2,3-Trimethylbenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trichlorobenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
1,2,4-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	430	10		µg/Kg-dry	1	6/13/2012
1,2-Dibromoethane	ND	430	20		µg/Kg-dry	1	6/13/2012
1,2-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,2-Dichloroethane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,2-Dichloropropane	ND	430	50		µg/Kg-dry	1	6/13/2012
1,3,5-Trimethylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,3-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
1,4-Dichlorobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
Acetone	ND	3,600	1,000		µg/Kg-dry	1	6/13/2012
Acrylonitrile	ND	430	100		µg/Kg-dry	1	6/13/2012
Benzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Bromobenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromochloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromodichloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromoform	ND	430	100		µg/Kg-dry	1	6/13/2012
Bromomethane	ND	430	200		µg/Kg-dry	1	6/13/2012
Carbon disulfide	ND	430	250		µg/Kg-dry	1	6/13/2012
Carbon tetrachloride	ND	430	50		µg/Kg-dry	1	6/13/2012
Chlorobenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	6/13/2012
Chloroform	ND	430	50		µg/Kg-dry	1	6/13/2012
Chloromethane	ND	430	250		µg/Kg-dry	1	6/13/2012
cis-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
cis-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/13/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/13/2012
Dibromochloromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Dibromomethane	ND	430	250		µg/Kg-dry	1	6/13/2012
Dichlorodifluoromethane	ND	430	250		µg/Kg-dry	1	6/13/2012
Diethyl ether	ND	430	200		µg/Kg-dry	1	6/13/2012
Diisopropyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012
Ethyl tert butyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540S060712S014
Work Order:	1206299	**Collection Date:**	6/7/2012 11:00:00 AM
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Hexachloroethane	ND	430	300		µg/Kg-dry	1	6/13/2012
Isopropylbenzene	ND	430	250		µg/Kg-dry	1	6/13/2012
m,p-Xylene	ND	860	100		µg/Kg-dry	1	6/13/2012
Methyl iodide	ND	430	100		µg/Kg-dry	1	6/13/2012
Methyl tert-butyl ether	ND	430	250		µg/Kg-dry	1	6/13/2012
Methylene chloride	ND	430	100		µg/Kg-dry	1	6/13/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	6/13/2012
n-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
n-Propylbenzene	ND	430	100		µg/Kg-dry	1	6/13/2012
o-Xylene	ND	430	50		µg/Kg-dry	1	6/13/2012
p-Isopropyltoluene	ND	430	100		µg/Kg-dry	1	6/13/2012
sec-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Styrene	ND	430	50		µg/Kg-dry	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/13/2012
tert-Butylbenzene	ND	430	50		µg/Kg-dry	1	6/13/2012
Tertiaryamylmethylether	ND	430	250		µg/Kg-dry	1	6/13/2012
Tetrachloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	6/13/2012
Toluene	ND	430	100		µg/Kg-dry	1	6/13/2012
trans-1,2-Dichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
trans-1,3-Dichloropropene	ND	430	50		µg/Kg-dry	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	430	50		µg/Kg-dry	1	6/13/2012
Trichloroethene	ND	430	50		µg/Kg-dry	1	6/13/2012
Trichlorofluoromethane	ND	430	100		µg/Kg-dry	1	6/13/2012
Vinyl chloride	ND	430	40		µg/Kg-dry	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*99.3*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*95.8*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/13/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**66**	**0.050**	**0**		**% of sample**	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540T060712MX
Work Order:	1206299	**Collection Date:**	6/7/2012
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/13/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/13/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/13/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/13/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/13/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/13/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/13/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/13/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/13/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/13/2012
2-Butanone	ND	750	750		µg/Kg	1	6/13/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/13/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/13/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/13/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/13/2012
Benzene	ND	50	50		µg/Kg	1	6/13/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/13/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/13/2012
Bromoform	ND	100	100		µg/Kg	1	6/13/2012
Bromomethane	ND	200	200		µg/Kg	1	6/13/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/13/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/13/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/13/2012
Chloroethane	ND	250	250		µg/Kg	1	6/13/2012
Chloroform	ND	50	50		µg/Kg	1	6/13/2012
Chloromethane	ND	250	250		µg/Kg	1	6/13/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L540T060712MX
Work Order:	1206299	**Collection Date:**	6/7/2012
Project:	Marshall KRRI 1150L 6/7/12		
Lab ID:	1206299-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/13/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/13/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/13/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/13/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/13/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/13/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/13/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/13/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/13/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/13/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/13/2012
Naphthalene	ND	330	330		µg/Kg	1	6/13/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/13/2012
o-Xylene	ND	50	50		µg/Kg	1	6/13/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/13/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Styrene	ND	50	50		µg/Kg	1	6/13/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/13/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/13/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/13/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/13/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/13/2012
Toluene	ND	100	100		µg/Kg	1	6/13/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/13/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/13/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/13/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/13/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/13/2012
Surr: 1,2-Dichloroethane-d4	*98.7*	*70-130*			*%REC*	1	6/13/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/13/2012
Surr: Dibromofluoromethane	*96.4*	*70-130*			*%REC*	1	6/13/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/13/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41587** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41587-41587** Units: **mg/Kg** Analysis Date: **6/13/2012 07:50 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998305** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.404*	0	*5*	0	*108*	*39-115*	0			

LCS Sample ID: **DLCSS1-41587-41587** Units: **mg/Kg** Analysis Date: **6/13/2012 08:16 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998313** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	334.4	10	500	0	66.9	60-130	0			
ORO (C20-C34)	432.6	20	500	0	86.5	60-130	0			
Surr: 4-Terphenyl-d14	*3.087*	0	*5*	0	*61.7*	*39-115*	0			

MS Sample ID: **1206298-10B MS** Units: **mg/Kg** Analysis Date: **6/13/2012 08:16 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998306** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	317.3	9.7	486.9	13.21	62.5	60-130	0			
ORO (C20-C34)	436	19	486.9	65.75	76.1	60-130	0			
Surr: 4-Terphenyl-d14	*2.087*	0	*4.869*	0	*42.9*	*39-115*	0			

MSD Sample ID: **1206298-10B MSD** Units: **mg/Kg** Analysis Date: **6/13/2012 08:41 AM**
Client ID: Run ID: **GC8_120612B** SeqNo: **1998314** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	320.2	9.8	490.1	13.21	62.6	60-130	317.3	0.922	30	
ORO (C20-C34)	481.2	20	490.1	65.75	84.8	60-130	436	9.84	30	
Surr: 4-Terphenyl-d14	*4.328*	0	*4.901*	0	*88.3*	*39-115*	2.087	*69.9*	*30*	*R*

The following samples were analyzed in this batch:

1206299-01B	1206299-02B	1206299-03B
1206299-04B	1206299-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41636** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41636-41636** Units: **mg/Kg** Analysis Date: **6/14/2012 03:10 PM**
Client ID: Run ID: **ICPMS1_120614A** SeqNo: **1999803** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41636-41636** Units: **mg/Kg** Analysis Date: **6/14/2012 03:17 PM**
Client ID: Run ID: **ICPMS1_120614A** SeqNo: **1999804** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.43	0.10	5	0	88.6	80-120	0			
Molybdenum	4.416	0.25	5	0	88.3	80-120	0			
Nickel	4.308	0.25	5	0	86.2	80-120	0			
Vanadium	4.45	0.25	5	0	89	80-120	0			

MS Sample ID: **1206429-07AMS** Units: **mg/Kg** Analysis Date: **6/14/2012 04:01 PM**
Client ID: Run ID: **ICPMS1_120614A** SeqNo: **1999811** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.154	0.13	6.667	0.1717	74.7	80-120	0			S
Molybdenum	6.386	0.33	6.667	0.5075	88.2	80-120	0			
Nickel	11.54	0.33	6.667	5.485	90.8	80-120	0			
Vanadium	14.95	0.33	6.667	7.57	111	80-120	0			

MSD Sample ID: **1206429-07AMSD** Units: **mg/Kg** Analysis Date: **6/14/2012 04:07 PM**
Client ID: Run ID: **ICPMS1_120614A** SeqNo: **1999812** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.44	0.14	6.916	0.1717	76.2	80-120	5.154	5.4	25	S
Molybdenum	6.848	0.35	6.916	0.5075	91.7	80-120	6.386	6.98	25	
Nickel	12.75	0.35	6.916	5.485	105	80-120	11.54	9.98	25	
Vanadium	14.88	0.35	6.916	7.57	106	80-120	14.95	0.522	25	

The following samples were analyzed in this batch: 1206299-01B, 1206299-02B, 1206299-03B, 1206299-04B, 1206299-05B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41586-41586** Units: **µg/Kg** Analysis Date: **6/13/2012 12:18 PM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999122** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4366*	0	*5000*	0	*87.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3334*	0	*5000*	0	*66.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4074*	0	*5000*	0	*81.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4563*	0	*5000*	0	*91.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3766*	0	*5000*	0	*75.3*	*37-107*	0			
Surr: Phenol-d6	*4169*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41586-41586** Units: **µg/Kg** Analysis Date: **6/13/2012 09:51 AM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999118** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1814	50	2000	0	90.7	45-105	0			
Acenaphthene	1727	50	2000	0	86.4	45-110	0			
Acenaphthylene	1763	50	2000	0	88.2	45-105	0			
Anthracene	1840	50	2000	0	92	55-105	0			
Benzo(a)anthracene	1833	50	2000	0	91.6	50-110	0			
Benzo(a)pyrene	1921	50	2000	0	96	50-110	0			
Benzo(b)fluoranthene	1816	50	2000	0	90.8	45-115	0			
Benzo(g,h,i)perylene	2147	50	2000	0	107	40-125	0			
Benzo(k)fluoranthene	2071	50	2000	0	104	45-115	0			
Chrysene	1913	50	2000	0	95.6	55-110	0			
Dibenzo(a,h)anthracene	1993	50	2000	0	99.6	40-125	0			
Fluoranthene	1980	50	2000	0	99	55-115	0			
Fluorene	1848	50	2000	0	92.4	50-110	0			
Indeno(1,2,3-cd)pyrene	2009	50	2000	0	100	40-120	0			
Naphthalene	1722	50	2000	0	86.1	40-105	0			
Phenanthrene	1799	50	2000	0	90	50-110	0			
Pyrene	1958	50	2000	0	97.9	45-125	0			
Surr: 2,4,6-Tribromophenol	*4471*	0	*5000*	0	*89.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3163*	0	*5000*	0	*63.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3847*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4697*	0	*5000*	0	*93.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3657*	0	*5000*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3774*	0	*5000*	0	*75.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206298-10B MS** Units: **µg/Kg** Analysis Date: **6/13/2012 10:20 AM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999119** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1620	46	1859	0	87.2	45-105	0			
Acenaphthene	1617	46	1859	0	87	45-110	0			
Acenaphthylene	1622	46	1859	0	87.2	45-105	0			
Anthracene	1767	46	1859	0	95	55-105	0			
Benzo(a)anthracene	1780	46	1859	0	95.8	50-110	0			
Benzo(a)pyrene	1813	46	1859	0	97.5	50-110	0			
Benzo(b)fluoranthene	1920	46	1859	0	103	45-115	0			
Benzo(g,h,i)perylene	1881	46	1859	0	101	40-125	0			
Benzo(k)fluoranthene	1756	46	1859	0	94.4	45-115	0			
Chrysene	1836	46	1859	0	98.8	55-110	0			
Dibenzo(a,h)anthracene	1767	46	1859	0	95	40-125	0			
Fluoranthene	1943	46	1859	53.06	102	55-115	0			
Fluorene	1774	46	1859	0	95.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1791	46	1859	0	96.3	40-120	0			
Naphthalene	1488	46	1859	0	80	40-105	0			
Phenanthrene	1745	46	1859	0	93.8	50-110	0			
Pyrene	1830	46	1859	0	98.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4260*	0	*4649*	0	*91.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2868*	0	*4649*	0	*61.7*	*12-100*	0			
Surr: 2-Fluorophenol	*3285*	0	*4649*	0	*70.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4332*	0	*4649*	0	*93.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3179*	0	*4649*	0	*68.4*	*37-107*	0			
Surr: Phenol-d6	*3354*	0	*4649*	0	*72.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41586** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206298-10B MSD** Units: **µg/Kg** Analysis Date: **6/13/2012 10:50 AM**
Client ID: Run ID: **SVMS7_120613A** SeqNo: **1999120** Prep Date: **6/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1682	50	1984	0	84.8	45-105	1620	3.7	30	
Acenaphthene	1703	50	1984	0	85.8	45-110	1617	5.22	30	
Acenaphthylene	1711	50	1984	0	86.2	45-105	1622	5.34	30	
Anthracene	1894	50	1984	0	95.4	55-105	1767	6.91	30	
Benzo(a)anthracene	1869	50	1984	0	94.2	50-110	1780	4.86	30	
Benzo(a)pyrene	1921	50	1984	0	96.8	50-110	1813	5.77	30	
Benzo(b)fluoranthene	2025	50	1984	0	102	45-115	1920	5.32	30	
Benzo(g,h,i)perylene	1939	50	1984	0	97.8	40-125	1881	3.07	30	
Benzo(k)fluoranthene	1894	50	1984	0	95.4	45-115	1756	7.54	30	
Chrysene	1915	50	1984	0	96.5	55-110	1836	4.19	30	
Dibenzo(a,h)anthracene	1838	50	1984	0	92.6	40-125	1767	3.93	30	
Fluoranthene	2106	50	1984	53.06	103	55-115	1943	8.05	30	
Fluorene	1890	50	1984	0	95.2	50-110	1774	6.33	30	
Indeno(1,2,3-cd)pyrene	1863	50	1984	0	93.9	40-120	1791	3.97	30	
Naphthalene	1551	50	1984	0	78.2	40-105	1488	4.09	30	
Phenanthrene	1861	50	1984	0	93.8	50-110	1745	6.44	30	
Pyrene	1915	50	1984	0	96.5	45-125	1830	4.54	30	
Surr: 2,4,6-Tribromophenol	*4756*	0	*4960*	0	*95.9*	*34-140*	4260	*11*	*40*	
Surr: 2-Fluorobiphenyl	*3148*	0	*4960*	0	*63.5*	*12-100*	2868	*9.3*	*40*	
Surr: 2-Fluorophenol	*3541*	0	*4960*	0	*71.4*	*33-117*	3285	*7.5*	*40*	
Surr: 4-Terphenyl-d14	*4671*	0	*4960*	0	*94.2*	*25-137*	4332	*7.53*	*40*	
Surr: Nitrobenzene-d5	*3368*	0	*4960*	0	*67.9*	*37-107*	3179	*5.78*	*40*	
Surr: Phenol-d6	*3551*	0	*4960*	0	*71.6*	*40-106*	3354	*5.68*	*40*	

The following samples were analyzed in this batch:

1206299-01B	1206299-02B	1206299-03B
1206299-04B	1206299-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41609-41609** Units: **µg/Kg** Analysis Date: **6/13/2012 10:09 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1998668** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	42	75								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	21.5	30						J
Naphthalene	ND	100						
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*985*	0	*1000*	0	*98.5*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*980.5*	0	*1000*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*956.5*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*1011*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41609-41609** Units: **µg/Kg** Analysis Date: **6/14/2012 02:26 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999903** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1023*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*981*	0	*1000*	0	*98.1*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41609-41609** Units: **µg/Kg** Analysis Date: **6/13/2012 08:54 AM**
Client ID: Run ID: **VMS7_120613A** SeqNo: **1998667** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	995.5	30	1000	0	99.6	75-125	0			
1,1,1-Trichloroethane	997.5	30	1000	0	99.8	70-135	0			
1,1,2,2-Tetrachloroethane	989	30	1000	0	98.9	55-130	0			
1,1,2-Trichloroethane	965.5	30	1000	0	96.6	60-125	0			
1,1-Dichloroethane	923.5	30	1000	0	92.4	75-125	0			
1,1-Dichloroethene	975.5	30	1000	0	97.6	65-135	0			
1,2,3-Trichlorobenzene	977.5	30	1000	0	97.8	60-135	0			
1,2,3-Trichloropropane	1056	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	907.5	30	1000	0	90.8	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	937.5	30	1000	0	93.8	65-135	0			
1,2-Dibromo-3-chloropropane	1022	30	1000	0	102	40-135	0			
1,2-Dibromoethane	1010	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	952.5	30	1000	0	95.2	75-120	0			
1,2-Dichloroethane	974.5	30	1000	0	97.4	70-135	0			
1,2-Dichloropropane	963.5	30	1000	0	96.4	70-120	0			
1,3,5-Trimethylbenzene	952.5	30	1000	0	95.2	65-135	0			
1,3-Dichlorobenzene	971	30	1000	0	97.1	70-125	0			
1,4-Dichlorobenzene	986.5	30	1000	0	98.6	70-125	0			
2-Butanone	1086	200	1000	0	109	30-160	0			
2-Hexanone	931.5	30	1000	0	93.2	45-145	0			
4-Methyl-2-pentanone	1356	30	1000	0	136	45-145	0			
Acetone	901	100	1000	0	90.1	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	932.5	30	1000	0	93.2	75-125	0			
Bromobenzene	927	30	1000	0	92.7	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	981.5	30	1000	0	98.2	70-130	0			
Bromoform	883.5	30	1000	0	88.4	55-135	0			
Bromomethane	1083	75	1000	0	108	30-160	0			
Carbon disulfide	1026	30	1000	0	103	45-160	0			
Carbon tetrachloride	1012	30	1000	0	101	65-135	0			
Chlorobenzene	954	30	1000	0	95.4	75-125	0			
Chloroethane	942.5	100	1000	0	94.2	40-155	0			
Chloroform	950	30	1000	0	95	70-125	0			
Chloromethane	858.5	100	1000	0	85.8	50-130	0			
cis-1,2-Dichloroethene	921.5	30	1000	0	92.2	65-125	0			
cis-1,3-Dichloropropene	1065	30	1000	0	106	70-125	0			
Dibromochloromethane	1048	30	1000	0	105	65-135	0			
Dibromomethane	991	30	1000	0	99.1	75-130	0			
Dichlorodifluoromethane	724.5	30	1000	0	72.4	35-135	0			
Ethylbenzene	941.5	30	1000	0	94.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	937	30	1000	0	93.7	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1852	60	2000	0	92.6	80-125	0
Methyl tert-butyl ether	1012	30	1000	0	101	75-125	0
Methylene chloride	1034	30	1000	0	103	55-145	0
Naphthalene	931	100	1000	0	93.1	40-140	0
n-Butylbenzene	998	30	1000	0	99.8	65-140	0
n-Propylbenzene	916	30	1000	0	91.6	65-135	0
o-Xylene	945	30	1000	0	94.5	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	967	30	1000	0	96.7	65-130	0
Styrene	965	30	1000	0	96.5	75-125	0
tert-Butylbenzene	956.5	30	1000	0	95.6	65-130	0
Tetrachloroethene	930.5	30	1000	0	93	64-140	0
Tetrahydrofuran	809.5	200	1000	0	81	70-135	0
Toluene	935.5	30	1000	0	93.6	70-125	0
trans-1,2-Dichloroethene	991	30	1000	0	99.1	65-135	0
trans-1,3-Dichloropropene	1032	30	1000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	885.5	30	1000	0	88.6	70-135	0
Trichloroethene	934	30	1000	0	93.4	75-125	0
Trichlorofluoromethane	963.5	30	1000	0	96.4	25-185	0
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*985.5*	0	*1000*	0	*98.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1007*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41609-41609** Units: **µg/Kg** Analysis Date: **6/14/2012 01:10 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999902** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	978.5	30	1000	0	97.8	75-125	0			
1,1,1-Trichloroethane	1009	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	999.5	30	1000	0	100	55-130	0			
1,1,2-Trichloroethane	878	30	1000	0	87.8	60-125	0			
1,1-Dichloroethane	866	30	1000	0	86.6	75-125	0			
1,1-Dichloroethene	939	30	1000	0	93.9	65-135	0			
1,2,3-Trichlorobenzene	1015	30	1000	0	102	60-135	0			
1,2,3-Trichloropropane	914.5	30	1000	0	91.4	65-130	0			
1,2,3-Trimethylbenzene	922.5	30	1000	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	1023	30	1000	0	102	65-130	0			
1,2,4-Trimethylbenzene	929	30	1000	0	92.9	65-135	0			
1,2-Dibromo-3-chloropropane	975.5	30	1000	0	97.6	40-135	0			
1,2-Dibromoethane	1022	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	959.5	30	1000	0	96	75-120	0			
1,2-Dichloroethane	1020	30	1000	0	102	70-135	0			
1,2-Dichloropropane	881.5	30	1000	0	88.2	70-120	0			
1,3,5-Trimethylbenzene	934.5	30	1000	0	93.4	65-135	0			
1,3-Dichlorobenzene	951.5	30	1000	0	95.2	70-125	0			
1,4-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	0			
2-Butanone	1028	200	1000	0	103	30-160	0			
2-Hexanone	1000	30	1000	0	100	45-145	0			
4-Methyl-2-pentanone	1430	30	1000	0	143	45-145	0			
Acetone	960	100	1000	0	96	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	884.5	30	1000	0	88.4	75-125	0			
Bromobenzene	932.5	30	1000	0	93.2	65-120	0			
Bromochloromethane	951	30	1000	0	95.1	70-125	0			
Bromodichloromethane	983.5	30	1000	0	98.4	70-130	0			
Bromoform	933	30	1000	0	93.3	55-135	0			
Bromomethane	994	75	1000	0	99.4	30-160	0			
Carbon disulfide	930	30	1000	0	93	45-160	0			
Carbon tetrachloride	1061	30	1000	0	106	65-135	0			
Chlorobenzene	950	30	1000	0	95	75-125	0			
Chloroethane	909.5	100	1000	0	91	40-155	0			
Chloroform	951	30	1000	0	95.1	70-125	0			
Chloromethane	717	100	1000	0	71.7	50-130	0			
cis-1,2-Dichloroethene	946	30	1000	0	94.6	65-125	0			
cis-1,3-Dichloropropene	1036	30	1000	0	104	70-125	0			
Dibromochloromethane	1016	30	1000	0	102	65-135	0			
Dibromomethane	1014	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	598.5	30	1000	0	59.8	35-135	0			
Ethylbenzene	963	30	1000	0	96.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	914.5	30	1000	0	91.4	70-135	0
Isopropylbenzene	963	30	1000	0	96.3	75-130	0
m,p-Xylene	1888	60	2000	0	94.4	80-125	0
Methyl tert-butyl ether	980	30	1000	0	98	75-125	0
Methylene chloride	900.5	30	1000	0	90	55-145	0
Naphthalene	1037	100	1000	0	104	40-140	0
n-Butylbenzene	1010	30	1000	0	101	65-140	0
n-Propylbenzene	921	30	1000	0	92.1	65-135	0
o-Xylene	937	30	1000	0	93.7	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	994.5	30	1000	0	99.4	65-130	0
Styrene	955	30	1000	0	95.5	75-125	0
tert-Butylbenzene	984	30	1000	0	98.4	65-130	0
Tetrachloroethene	978.5	30	1000	0	97.8	64-140	0
Tetrahydrofuran	925.5	200	1000	0	92.6	70-135	0
Toluene	941	30	1000	0	94.1	70-125	0
trans-1,2-Dichloroethene	913.5	30	1000	0	91.4	65-135	0
trans-1,3-Dichloropropene	1012	30	1000	0	101	65-125	0
trans-1,4-Dichloro-2-butene	964	30	1000	0	96.4	70-135	0
Trichloroethene	983.5	30	1000	0	98.4	75-125	0
Trichlorofluoromethane	867	30	1000	0	86.7	25-185	0
Vinyl chloride	813.5	30	1000	0	81.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*1064*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1011*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1012*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206299-05A MS** Units: **µg/Kg** Analysis Date: **6/14/2012 07:31 AM**
Client ID: **SBKR1150L540S060712S014** Run ID: **VMS7_120613B** SeqNo: **1999234** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4587	150	4882	0	94	75-125	0			
1,1,1-Trichloroethane	4714	150	4882	0	96.6	70-135	0			
1,1,2,2-Tetrachloroethane	4533	150	4882	0	92.8	55-130	0			
1,1,2-Trichloroethane	4545	150	4882	0	93.1	60-125	0			
1,1-Dichloroethane	4314	150	4882	0	88.4	75-125	0			
1,1-Dichloroethene	3816	150	4882	0	78.2	65-135	0			
1,2,3-Trichlorobenzene	3249	150	4882	0	66.6	60-135	0			
1,2,3-Trichloropropane	4863	150	4882	0	99.6	65-130	0			
1,2,3-Trimethylbenzene	4052	150	4882	0	83	65-135	0			
1,2,4-Trichlorobenzene	3423	150	4882	0	70.1	65-130	0			
1,2,4-Trimethylbenzene	4179	150	4882	0	85.6	65-135	0			
1,2-Dibromo-3-chloropropane	4414	150	4882	0	90.4	40-135	0			
1,2-Dibromoethane	4780	150	4882	0	97.9	70-125	0			
1,2-Dichlorobenzene	4189	150	4882	0	85.8	75-120	0			
1,2-Dichloroethane	4524	150	4882	0	92.6	70-135	0			
1,2-Dichloropropane	4550	150	4882	0	93.2	70-120	0			
1,3,5-Trimethylbenzene	4331	150	4882	0	88.7	65-135	0			
1,3-Dichlorobenzene	4321	150	4882	0	88.5	70-125	0			
1,4-Dichlorobenzene	4333	150	4882	0	88.8	70-125	0			
2-Butanone	4094	490	4882	0	83.8	30-160	0			
2-Hexanone	4423	150	4882	0	90.6	45-145	0			
4-Methyl-2-pentanone	6323	150	4882	0	130	45-145	0			
Acetone	6559	490	4882	0	134	20-160	0			
Acrylonitrile	4055	150	4882	0	83	70-135	0			
Benzene	4414	150	4882	0	90.4	75-125	0			
Bromobenzene	4221	150	4882	0	86.4	65-120	0			
Bromochloromethane	4585	150	4882	0	93.9	70-125	0			
Bromodichloromethane	4472	150	4882	0	91.6	70-130	0			
Bromoform	3879	150	4882	0	79.4	55-135	0			
Bromomethane	3689	150	4882	90.32	73.7	30-160	0			B
Carbon disulfide	4531	150	4882	0	92.8	45-160	0			
Carbon tetrachloride	4709	150	4882	0	96.4	65-135	0			
Chlorobenzene	4528	150	4882	0	92.8	75-125	0			
Chloroethane	2112	490	4882	0	43.2	40-155	0			
Chloroform	4494	150	4882	0	92	70-125	0			
Chloromethane	3979	150	4882	0	81.5	50-130	0			
cis-1,2-Dichloroethene	4289	150	4882	0	87.8	65-125	0			
cis-1,3-Dichloropropene	4475	150	4882	0	91.6	70-125	0			
Dibromochloromethane	4738	150	4882	0	97	65-135	0			
Dibromomethane	4633	150	4882	0	94.9	75-130	0			
Dichlorodifluoromethane	3320	150	4882	0	68	35-135	0			
Ethylbenzene	4358	150	4882	0	89.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	3591	150	4882	0	73.6	70-135	0	
Isopropylbenzene	4409	150	4882	0	90.3	75-130	0	
m,p-Xylene	8705	290	9765	0	89.2	80-125	0	
Methyl tert-butyl ether	5122	150	4882	0	105	75-125	0	
Methylene chloride	5168	150	4882	114.7	104	55-145	0	
Naphthalene	3418	490	4882	0	70	40-140	0	
n-Butylbenzene	3820	150	4882	0	78.2	65-140	0	
n-Propylbenzene	4052	150	4882	0	83	65-135	0	
o-Xylene	4401	150	4882	0	90.2	75-125	0	
p-Isopropyltoluene	4209	150	4882	0	86.2	75-135	0	
sec-Butylbenzene	4045	150	4882	0	82.8	65-130	0	
Styrene	2573	150	4882	0	52.7	75-125	0	S
tert-Butylbenzene	4187	150	4882	0	85.8	65-130	0	
Tetrachloroethene	4404	150	4882	0	90.2	64-140	0	
Tetrahydrofuran	4379	490	4882	0	89.7	70-135	0	
Toluene	4558	150	4882	0	93.4	70-125	0	
trans-1,2-Dichloroethene	5131	150	4882	0	105	65-135	0	
trans-1,3-Dichloropropene	4426	150	4882	0	90.6	65-125	0	
trans-1,4-Dichloro-2-butene	3462	150	4882	0	70.9	70-135	0	
Trichloroethene	4558	150	4882	0	93.4	75-125	0	
Trichlorofluoromethane	2090	150	4882	0	42.8	25-185	0	
Vinyl chloride	3955	150	4882	0	81	60-125	0	
Surr: 1,2-Dichloroethane-d4	*4646*	0	*4882*	0	*95.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*4858*	0	*4882*	0	*99.5*	*70-130*	0	
Surr: Dibromofluoromethane	*4831*	0	*4882*	0	*99*	*70-130*	0	
Surr: Toluene-d8	*4843*	0	*4882*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206299-05A MSD** Units: **µg/Kg** Analysis Date: **6/14/2012 07:56 AM**
Client ID: **SBKR1150L540S060712S014** Run ID: **VMS7_120613B** SeqNo: **1999235** Prep Date: **6/13/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4565	150	4882	0	93.5	75-125	4587	0.48	30	
1,1,1-Trichloroethane	4660	150	4882	0	95.4	70-135	4714	1.15	30	
1,1,2,2-Tetrachloroethane	4553	150	4882	0	93.2	55-130	4533	0.43	30	
1,1,2-Trichloroethane	4462	150	4882	0	91.4	60-125	4545	1.84	30	
1,1-Dichloroethane	4218	150	4882	0	86.4	75-125	4314	2.23	30	
1,1-Dichloroethene	3669	150	4882	0	75.2	65-135	3816	3.91	30	
1,2,3-Trichlorobenzene	3386	150	4882	0	69.4	60-135	3249	4.12	30	
1,2,3-Trichloropropane	4992	150	4882	0	102	65-130	4863	2.63	30	
1,2,3-Trimethylbenzene	4028	150	4882	0	82.5	65-135	4052	0.604	30	
1,2,4-Trichlorobenzene	3496	150	4882	0	71.6	65-130	3423	2.12	30	
1,2,4-Trimethylbenzene	4177	150	4882	0	85.6	65-135	4179	0.0584	30	
1,2-Dibromo-3-chloropropane	4594	150	4882	0	94.1	40-135	4414	4.01	30	
1,2-Dibromoethane	4733	150	4882	0	97	70-125	4780	0.975	30	
1,2-Dichlorobenzene	4172	150	4882	0	85.4	75-120	4189	0.409	30	
1,2-Dichloroethane	4443	150	4882	0	91	70-135	4524	1.8	30	
1,2-Dichloropropane	4511	150	4882	0	92.4	70-120	4550	0.862	30	
1,3,5-Trimethylbenzene	4238	150	4882	0	86.8	65-135	4331	2.17	30	
1,3-Dichlorobenzene	4199	150	4882	0	86	70-125	4321	2.87	30	
1,4-Dichlorobenzene	4338	150	4882	0	88.8	70-125	4333	0.113	30	
2-Butanone	4475	490	4882	0	91.6	30-160	4094	8.89	30	
2-Hexanone	4480	150	4882	0	91.8	45-145	4423	1.26	30	
4-Methyl-2-pentanone	6459	150	4882	0	132	45-145	6323	2.14	30	
Acetone	5681	490	4882	0	116	20-160	6559	14.4	30	
Acrylonitrile	3901	150	4882	0	79.9	70-135	4055	3.87	30	
Benzene	4309	150	4882	0	88.2	75-125	4414	2.41	30	
Bromobenzene	4253	150	4882	0	87.1	65-120	4221	0.749	30	
Bromochloromethane	4353	150	4882	0	89.2	70-125	4585	5.19	30	
Bromodichloromethane	4514	150	4882	0	92.4	70-130	4472	0.924	30	
Bromoform	3933	150	4882	0	80.6	55-135	3879	1.37	30	
Bromomethane	3330	150	4882	90.32	66.4	30-160	3689	10.2	30	B
Carbon disulfide	4370	150	4882	0	89.5	45-160	4531	3.62	30	
Carbon tetrachloride	4641	150	4882	0	95	65-135	4709	1.46	30	
Chlorobenzene	4448	150	4882	0	91.1	75-125	4528	1.79	30	
Chloroethane	2085	490	4882	0	42.7	40-155	2112	1.28	30	
Chloroform	4423	150	4882	0	90.6	70-125	4494	1.59	30	
Chloromethane	3877	150	4882	0	79.4	50-130	3979	2.61	30	
cis-1,2-Dichloroethene	4145	150	4882	0	84.9	65-125	4289	3.42	30	
cis-1,3-Dichloropropene	4602	150	4882	0	94.2	70-125	4475	2.8	30	
Dibromochloromethane	4716	150	4882	0	96.6	65-135	4738	0.465	30	
Dibromomethane	4646	150	4882	0	95.2	75-130	4633	0.263	30	
Dichlorodifluoromethane	3237	150	4882	0	66.3	35-135	3320	2.53	30	
Ethylbenzene	4338	150	4882	0	88.8	75-125	4358	0.449	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41609** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	3562	150	4882	0	73	70-135	3591	0.819	30	
Isopropylbenzene	4365	150	4882	0	89.4	75-130	4409	1	30	
m,p-Xylene	8539	290	9765	0	87.4	80-125	8705	1.93	30	
Methyl tert-butyl ether	5236	150	4882	0	107	75-125	5122	2.22	30	
Methylene chloride	4956	150	4882	114.7	99.2	55-145	5168	4.2	30	
Naphthalene	3632	490	4882	0	74.4	40-140	3418	6.09	30	
n-Butylbenzene	3742	150	4882	0	76.6	65-140	3820	2.07	30	
n-Propylbenzene	4021	150	4882	0	82.4	65-135	4052	0.786	30	
o-Xylene	4365	150	4882	0	89.4	75-125	4401	0.835	30	
p-Isopropyltoluene	4084	150	4882	0	83.6	75-135	4209	3	30	
sec-Butylbenzene	3984	150	4882	0	81.6	65-130	4045	1.52	30	
Styrene	2532	150	4882	0	51.8	75-125	2573	1.63	30	S
tert-Butylbenzene	4157	150	4882	0	85.2	65-130	4187	0.702	30	
Tetrachloroethene	4316	150	4882	0	88.4	64-140	4404	2.02	30	
Tetrahydrofuran	4130	490	4882	0	84.6	70-135	4379	5.85	30	
Toluene	4475	150	4882	0	91.6	70-125	4558	1.84	30	
trans-1,2-Dichloroethene	5141	150	4882	0	105	65-135	5131	0.19	30	
trans-1,3-Dichloropropene	4470	150	4882	0	91.6	65-125	4426	0.988	30	
trans-1,4-Dichloro-2-butene	3479	150	4882	0	71.2	70-135	3462	0.492	30	
Trichloroethene	4477	150	4882	0	91.7	75-125	4558	1.78	30	
Trichlorofluoromethane	2417	150	4882	0	49.5	25-185	2090	14.5	30	
Vinyl chloride	3759	150	4882	0	77	60-125	3955	5.06	30	
Surr: 1,2-Dichloroethane-d4	*4665*	0	*4882*	0	*95.6*	*70-130*	4646	*0.42*	*30*	
Surr: 4-Bromofluorobenzene	*4853*	0	*4882*	0	*99.4*	*70-130*	4858	*0.101*	*30*	
Surr: Dibromofluoromethane	*4826*	0	*4882*	0	*98.8*	*70-130*	4831	*0.101*	*30*	
Surr: Toluene-d8	*4843*	0	*4882*	0	*99.2*	*70-130*	4843	*0*	*30*	

The following samples were analyzed in this batch:

1206299-01A	1206299-02A	1206299-03A
1206299-04A	1206299-05A	1206299-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206299
Project: Marshall KRRI 1150L 6/7/12

QC BATCH REPORT

Batch ID: **R105826** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105826** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996122** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105826** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206298-05BDUP** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	70.42	0.050	0	0	0	0-0	71.15	1.03	20	

DUP Sample ID: **1206301-01ADUP** Units: **% of sample** Analysis Date: **6/11/2012 03:28 PM**
Client ID: Run ID: **MOIST_120611C** SeqNo: **1996120** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.6	0.050	0	0	0	0-0	2.84	8.82	20	

The following samples were analyzed in this batch:

1206299-01B	1206299-02B	1206299-03B
1206299-04B	1206299-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206299

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060712_PMB1	Task: KRRI_1150
Total # of Samples: 6		Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State.	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.
1	SBKR1150L538S060712S005	SBKR1150L538	SO	G	06/07/2012 09:15	3	
2	SBKR1150L538S060712S021	SBKR1150L538	SO	G	06/07/2012 09:25	3	
3	SBKR1150L539S060712S004	SBKR1150L539	SO	G	06/07/2012 10:10	3	
4	SBKR1150L540S060712S006	SBKR1150L540	SO	G	06/07/2012 10:45	3	
5	SBKR1150L540S060712S014	SBKR1150L540	SO	G	06/07/2012 11:00	3	
6	SBKR1150L540T060712MX	SBKR1150L540	SQ	G	06/07/2012 00:00	1	TRIP BLANK

Preservative	None	None	None	None	MeOH
Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 6035/8260
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4	X	X	X	X	X
5	X	X	X	X	X
6					X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.7.12	1537		6.8.12	1533

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
5.0 c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **08-Jun-12 15:33**

Work Order: **1206299** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 09-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 10-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

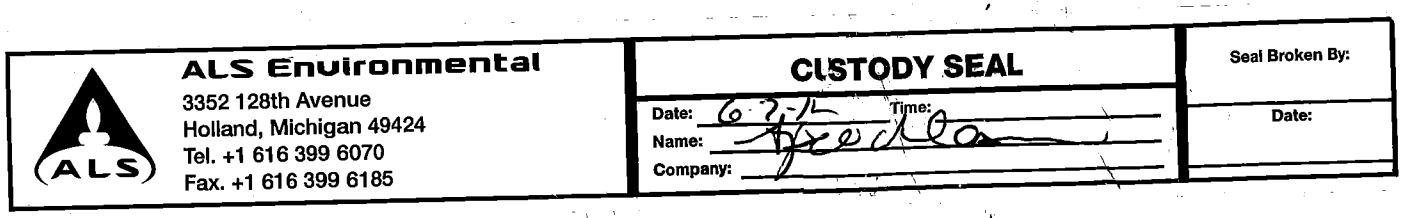
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

50.c



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-7-11 Time:
Name:
Company:

Seal Broken By:

Date:

22-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 6/11/12** Work Order: **1206416**

Dear Bryan,

ALS Environmental received 16 samples on 13-Jun-2012 01:15 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 83.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/11/12
Work Order: **1206416**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206416-01	SBKR1150L541D061112S005	Soil		6/11/2012 10:40	6/13/2012 13:15	☐
1206416-02	SBKR1150L541S061112S005	Soil		6/11/2012 10:40	6/13/2012 13:15	☐
1206416-03	SBKR1150L542S061112S008	Soil		6/11/2012 10:26	6/13/2012 13:15	☐
1206416-04	SBKR1150L543S061112S006	Soil		6/11/2012 13:47	6/13/2012 13:15	☐
1206416-05	SBKR1150L544S061112S010	Soil		6/11/2012 13:28	6/13/2012 13:15	☐
1206416-06	SBKR1150L545S061112S005	Soil		6/11/2012 11:47	6/13/2012 13:15	☐
1206416-07	SBKR1150L545S061112S032	Soil		6/11/2012 11:51	6/13/2012 13:15	☐
1206416-08	SBKR1150L546S061112S005	Soil		6/11/2012 14:39	6/13/2012 13:15	☐
1206416-09	SBKR1150L546S061112S020	Soil		6/11/2012 14:43	6/13/2012 13:15	☐
1206416-10	SBKR1150L547S061112S004	Soil		6/11/2012 15:07	6/13/2012 13:15	☐
1206416-11	SBKR1150L547S061112S020	Soil		6/11/2012 15:11	6/13/2012 13:15	☐
1206416-12	SBKR1150L548S061112S005	Soil		6/11/2012 15:58	6/13/2012 13:15	☐
1206416-13	SBKR1150L549D061112S006	Soil		6/11/2012 16:14	6/13/2012 13:15	☐
1206416-14	SBKR1150L549S061112S006	Soil		6/11/2012 16:14	6/13/2012 13:15	☐
1206416-15	SBKR1150L550S061112S006	Soil		6/11/2012 16:30	6/13/2012 13:15	☐
1206416-16	SBKR1150L550T061112MX	Soil		6/11/2012	6/13/2012 13:15	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/11/12
Work Order: 1206416

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41651sample SBKR1150L544S061112S010 MS recovery for 1,2,4-Trichlorobenzene, and RPD between the MS/MSD for Naphthalene were outside control limits. Both the MSD recovery and RPD for 1,2,4- Trichlorobenzene, and the individual MS?MSD recoveries for Naphthalene met quality control criteria. No data requires qualification. The MS recovery and RPD for 1,2,3-Trichlorobenzene were outside control limits. The sample reporting limits may be biased low for this analyte.

Batch 41652 MS/MSD data for Volatiles is not related to this project's samples.

Batch 41656 samples 1206416-02, 1206416-03, 1206416-04m and 1206416-06 PAH internal standard recoveries were below the lower control limit, but >20%. Per the client’s request, the results associated with the IS are being reported and should be considered as estimated for the noted PAH compounds. Sample 1206416-07 had a high surrogate recovery, but this sample was ND for all PAH compounds. NO data requires qualification.

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 6/11/12
WorkOrder: **1206416**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541D061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**140**	**29**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**780**	**58**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*79.8*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.61**	**0.52**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**680**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**870**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Chrysene	**780**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*89.1*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*68.3*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*75.3*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*116*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*61.7*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*73.3*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	460	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	460	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541D061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	460	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	460	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	460	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	460	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	460	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,500	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,500	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	3,800	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	460	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	460	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	460	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	460	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	460	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	460	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	460	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	460	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	460	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,500	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	460	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	460	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	460	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	460	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	460	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	460	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	460	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541D061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	460	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	460	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	460	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	920	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	460	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	460	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	460	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,500	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	460	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	460	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	460	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	460	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	460	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	460	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,500	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	460	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	460	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	460	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	460	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	460	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*96.3*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*95.3*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**67**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**30**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**1,100**	**61**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*77.4*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.59**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**29**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**900**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,600**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	**640**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Chrysene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Pyrene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*82.2*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*64.3*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*68.2*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*109*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*56.0*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*65.9*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	500	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	500	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	500	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	500	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	500	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	500	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	500	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	500	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	500	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	500	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	500	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	500	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,700	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,700	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	4,100	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	500	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	500	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	500	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	500	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	500	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	500	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	500	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	500	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	500	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,700	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	500	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	500	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	500	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	500	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	500	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	500	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	500	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	500	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L541S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 10:40:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	500	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	500	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	500	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	990	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	500	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	500	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	500	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,700	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	500	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	500	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	500	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	500	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	500	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	500	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	500	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	500	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	500	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,700	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	500	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	500	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	500	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	500	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	500	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*94.9*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*93.2*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L542S061112S008
Work Order:	1206416	**Collection Date:**	6/11/2012 10:26:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**190**	**28**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**1,200**	**56**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*73.7*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**730**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,300**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	**400**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Chrysene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Fluoranthene	**920**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Pyrene	**990**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*79.5*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*67.0*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*63.8*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*54.0*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*63.5*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L542S061112S008
Work Order:	1206416	**Collection Date:**	6/11/2012 10:26:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,300	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	3,200	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	380	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	380	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L542S061112S008
Work Order:	1206416	**Collection Date:**	6/11/2012 10:26:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	770	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	380	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	380	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	380	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*112*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*99.4*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*98.6*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L543S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 1:47:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**31**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**930**	**61**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*82.1*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.60**	**0.53**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	ND	1.1	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**730**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,200**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	**420**	**330**	**330**	*	**µg/Kg-dry**	1	6/18/2012
Chrysene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Fluoranthene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Pyrene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*90.3*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*68.5*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*71.4*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*122*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*59.7*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*68.0*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	560	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	560	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	560	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	560	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	560	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L543S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 1:47:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	560	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	560	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	560	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	560	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	560	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	560	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	560	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	560	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	4,700	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	560	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	560	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	560	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	560	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	560	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	560	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	560	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	560	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	560	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	560	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	560	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	560	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	560	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	560	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	560	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	560	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	560	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	560	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	560	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L543S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 1:47:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	560	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	560	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	560	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	560	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	560	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	560	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	560	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	560	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	560	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	560	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	560	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	560	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	560	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	560	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	560	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	560	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	560	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	560	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*110*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*99.5*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*99.6*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L544S061112S010
Work Order:	1206416	**Collection Date:**	6/11/2012 1:28:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**140**	**34**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**840**	**68**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*77.0*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.69**	**0.65**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	**1.4**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**23**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**33**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Chrysene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluoranthene	**710**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*84.1*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*66.1*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*77.1*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*62.1*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*72.5*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	650	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	650	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	650	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	650	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	650	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L544S061112S010
Work Order:	1206416	**Collection Date:**	6/11/2012 1:28:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	650	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	650	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	650	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	650	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	650	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	650	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	650	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	650	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	650	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	2,200	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	2,200	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	5,500	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	650	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	650	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	650	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	650	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	650	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	650	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	650	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	650	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	650	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	2,200	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	650	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	650	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	650	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	650	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	650	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	650	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	650	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	650	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	650	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	650	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	650	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L544S061112S010
Work Order:	1206416	**Collection Date:**	6/11/2012 1:28:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	650	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	650	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	650	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	1,300	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	650	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	650	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	650	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	2,200	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	650	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	650	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	650	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	650	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	650	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	650	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	650	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	650	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	650	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	2,200	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	650	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	650	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	650	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	650	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	650	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	650	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	650	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*112*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*98.0*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 11:47:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**6,200**	**240**	**4.0**		**mg/Kg-dry**	10	6/18/2012
ORO (C20-C34)	**25,000**	**480**	**4.0**		**mg/Kg-dry**	10	6/18/2012
Surr: 4-Terphenyl-d14	*53.4*	*39-115*			*%REC*	10	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.57**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	**840**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Benzo(a)anthracene	**1,200**	**1,200**	**330**	J	**µg/Kg-dry**	10	6/19/2012
Benzo(a)pyrene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Benzo(b)fluoranthene	**1,400**	**1,200**	**330**		**µg/Kg-dry**	10	6/19/2012
Benzo(g,h,i)perylene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Benzo(k)fluoranthene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Chrysene	**2,300**	**1,200**	**330**		**µg/Kg-dry**	10	6/19/2012
Dibenzo(a,h)anthracene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Fluoranthene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	1,200	330		µg/Kg-dry	10	6/19/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	**2,800**	**1,200**	**330**		**µg/Kg-dry**	10	6/19/2012
Pyrene	**1,800**	**1,200**	**330**		**µg/Kg-dry**	10	6/19/2012
Surr: 2,4,6-Tribromophenol	*83.5*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*63.9*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*83.6*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*92.2*	*25-137*			*%REC*	10	6/19/2012
Surr: Nitrobenzene-d5	*69.9*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*72.9*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	300	100		µg/Kg-dry	1	6/14/2012
1,1,1-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/14/2012
1,1,2,2-Tetrachloroethane	ND	300	50		µg/Kg-dry	1	6/14/2012
1,1,2-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/14/2012
1,1-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 11:47:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/14/2012
1,2,3-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/14/2012
1,2,3-Trichloropropane	ND	300	100		µg/Kg-dry	1	6/14/2012
1,2,3-Trimethylbenzene	ND	300	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/14/2012
1,2,4-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
1,2-Dibromo-3-chloropropane	ND	300	10		µg/Kg-dry	1	6/14/2012
1,2-Dibromoethane	ND	300	20		µg/Kg-dry	1	6/14/2012
1,2-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
1,2-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/14/2012
1,2-Dichloropropane	ND	300	50		µg/Kg-dry	1	6/14/2012
1,3,5-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
1,3-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
1,4-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
2-Butanone	ND	1,000	750		µg/Kg-dry	1	6/14/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
2-Methylnaphthalene	ND	1,000	330		µg/Kg-dry	1	6/14/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
Acetone	ND	2,500	1,000		µg/Kg-dry	1	6/14/2012
Acrylonitrile	ND	300	100		µg/Kg-dry	1	6/14/2012
Benzene	ND	300	50		µg/Kg-dry	1	6/14/2012
Bromobenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
Bromochloromethane	ND	300	100		µg/Kg-dry	1	6/14/2012
Bromodichloromethane	ND	300	100		µg/Kg-dry	1	6/14/2012
Bromoform	ND	300	100		µg/Kg-dry	1	6/14/2012
Bromomethane	ND	300	200		µg/Kg-dry	1	6/14/2012
Carbon disulfide	ND	300	250		µg/Kg-dry	1	6/14/2012
Carbon tetrachloride	ND	300	50		µg/Kg-dry	1	6/14/2012
Chlorobenzene	ND	300	50		µg/Kg-dry	1	6/14/2012
Chloroethane	ND	1,000	250		µg/Kg-dry	1	6/14/2012
Chloroform	ND	300	50		µg/Kg-dry	1	6/14/2012
Chloromethane	ND	300	250		µg/Kg-dry	1	6/14/2012
cis-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/14/2012
cis-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/14/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/14/2012
Dibromochloromethane	ND	300	100		µg/Kg-dry	1	6/14/2012
Dibromomethane	ND	300	250		µg/Kg-dry	1	6/14/2012
Dichlorodifluoromethane	ND	300	250		µg/Kg-dry	1	6/14/2012
Diethyl ether	ND	300	200		µg/Kg-dry	1	6/14/2012
Diisopropyl ether	ND	300	250		µg/Kg-dry	1	6/14/2012
Ethyl tert butyl ether	ND	300	250		µg/Kg-dry	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 11:47:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	300	50		µg/Kg-dry	1	6/14/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/14/2012
Isopropylbenzene	ND	300	250		µg/Kg-dry	1	6/14/2012
m,p-Xylene	ND	600	100		µg/Kg-dry	1	6/14/2012
Methyl iodide	ND	300	100		µg/Kg-dry	1	6/14/2012
Methyl tert-butyl ether	ND	300	250		µg/Kg-dry	1	6/14/2012
Methylene chloride	ND	300	100		µg/Kg-dry	1	6/14/2012
Naphthalene	ND	1,000	330		µg/Kg-dry	1	6/14/2012
n-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/14/2012
n-Propylbenzene	ND	300	100		µg/Kg-dry	1	6/14/2012
o-Xylene	ND	300	50		µg/Kg-dry	1	6/14/2012
p-Isopropyltoluene	ND	300	100		µg/Kg-dry	1	6/14/2012
sec-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/14/2012
Styrene	ND	300	50		µg/Kg-dry	1	6/14/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/14/2012
tert-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/14/2012
Tertiaryamylmethylether	ND	300	250		µg/Kg-dry	1	6/14/2012
Tetrachloroethene	ND	300	50		µg/Kg-dry	1	6/14/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/14/2012
Toluene	ND	300	100		µg/Kg-dry	1	6/14/2012
trans-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/14/2012
trans-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/14/2012
trans-1,4-Dichloro-2-butene	ND	300	50		µg/Kg-dry	1	6/14/2012
Trichloroethene	ND	300	50		µg/Kg-dry	1	6/14/2012
Trichlorofluoromethane	ND	300	100		µg/Kg-dry	1	6/14/2012
Vinyl chloride	ND	300	40		µg/Kg-dry	1	6/14/2012
Surr: 1,2-Dichloroethane-d4	*112*	*70-130*			*%REC*	1	6/14/2012
Surr: 4-Bromofluorobenzene	*98.5*	*70-130*			*%REC*	1	6/14/2012
Surr: Dibromofluoromethane	*98.0*	*70-130*			*%REC*	1	6/14/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/14/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**60**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S032
Work Order:	1206416	**Collection Date:**	6/11/2012 11:51:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**38**	**13**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**120**	**25**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*79.1*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**3.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**7.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)pyrene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(b)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/18/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Surr: 2,4,6-Tribromophenol	*84.8*	*34-140*			*%REC*	1	6/18/2012
Surr: 2-Fluorobiphenyl	*55.9*	*12-100*			*%REC*	1	6/18/2012
Surr: 2-Fluorophenol	*62.8*	*33-117*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*160*	*25-137*		S	*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*50.5*	*37-107*			*%REC*	1	6/18/2012
Surr: Phenol-d6	*61.9*	*40-106*			*%REC*	1	6/18/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	63	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	63	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	63	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	63	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S032
Work Order:	1206416	**Collection Date:**	6/11/2012 11:51:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	63	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	63	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	63	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	63	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	63	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	63	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	63	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	63	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	63	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	63	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	63	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L545S061112S032
Work Order:	1206416	**Collection Date:**	6/11/2012 11:51:00 AM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	63	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	130	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	63	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	63	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	63	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	63	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	63	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	63	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	63	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	63	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	63	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	63	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	63	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.0*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*99.6*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*107*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**23**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 2:39:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**760**	**32**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**2,800**	**65**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*82.7*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.59	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.6**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**30**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **JD**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Benzo(a)pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Benzo(b)fluoranthene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(k)fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Chrysene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Pyrene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/19/2012
Surr: 2,4,6-Tribromophenol	*81.6*	*34-140*			*%REC*	1	6/19/2012
Surr: 2-Fluorobiphenyl	*68.9*	*12-100*			*%REC*	1	6/19/2012
Surr: 2-Fluorophenol	*69.9*	*33-117*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*58.2*	*37-107*			*%REC*	1	6/19/2012
Surr: Phenol-d6	*69.9*	*40-106*			*%REC*	1	6/19/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	580	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	580	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	580	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	580	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	580	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 2:39:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	580	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	580	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	580	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	580	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	580	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	580	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	580	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	580	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	580	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	4,800	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	580	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	580	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	580	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	580	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	580	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	580	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	580	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	580	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	580	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	580	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	580	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	580	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	580	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	580	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	580	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	580	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	580	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	580	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	580	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	580	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 2:39:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	580	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	580	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	580	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,200	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	580	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	580	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	580	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	580	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	580	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	580	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	580	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	580	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	580	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	580	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	580	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	580	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	580	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	580	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	580	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	580	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	580	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	580	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	580	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.3*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.4*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 2:43:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**93**	**24**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**420**	**48**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*65.5*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**6.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/19/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Surr: 2,4,6-Tribromophenol	*72.5*	*34-140*			*%REC*	1	6/19/2012
Surr: 2-Fluorobiphenyl	*60.4*	*12-100*			*%REC*	1	6/19/2012
Surr: 2-Fluorophenol	*70.3*	*33-117*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*88.8*	*25-137*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*56.7*	*37-107*			*%REC*	1	6/19/2012
Surr: Phenol-d6	*67.8*	*40-106*			*%REC*	1	6/19/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	290	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	290	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	290	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	290	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	290	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 2:43:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	290	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	290	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	290	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	290	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	290	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	290	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	290	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	290	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	290	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	950	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	950	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,400	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	290	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	290	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	290	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	290	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	290	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	290	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	290	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	290	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	290	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	950	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	290	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	290	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	290	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	290	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	290	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	290	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	290	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	290	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	290	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	290	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L546S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 2:43:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	290	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	290	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	570	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	290	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	290	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	290	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	950	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	290	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	290	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	290	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	290	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	290	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	290	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	290	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	290	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	290	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	290	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	290	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	290	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	290	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	290	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	290	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	290	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*92.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.1*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S004
Work Order:	1206416	**Collection Date:**	6/11/2012 3:07:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	**260**	**32**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**1,100**	**64**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*77.0*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.54	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.1	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/19/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Surr: 2,4,6-Tribromophenol	*82.7*	*34-140*			*%REC*	1	6/19/2012
Surr: 2-Fluorobiphenyl	*60.9*	*12-100*			*%REC*	1	6/19/2012
Surr: 2-Fluorophenol	*64.2*	*33-117*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*54.5*	*37-107*			*%REC*	1	6/19/2012
Surr: Phenol-d6	*65.1*	*40-106*			*%REC*	1	6/19/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	560	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	560	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	560	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	560	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	560	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S004
Work Order:	1206416	**Collection Date:**	6/11/2012 3:07:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	560	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	560	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	560	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	560	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	560	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	560	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	560	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	560	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	4,700	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	560	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	560	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	560	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	560	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	560	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	560	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	560	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	560	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	560	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	560	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	560	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	560	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	560	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	560	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	560	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	560	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	560	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	560	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	560	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S004
Work Order:	1206416	**Collection Date:**	6/11/2012 3:07:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	560	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	560	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	560	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	560	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	560	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	560	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	560	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	560	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	560	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	560	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	560	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	560	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	560	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	560	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	560	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	560	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	560	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	560	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	560	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	560	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.7*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*97.6*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 3:11:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/15/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	36	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*77.7*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**5.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/19/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/19/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/19/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/19/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/19/2012
Surr: 2,4,6-Tribromophenol	*82.9*	*34-140*			*%REC*	1	6/19/2012
Surr: 2-Fluorobiphenyl	*69.5*	*12-100*			*%REC*	1	6/19/2012
Surr: 2-Fluorophenol	*85.2*	*33-117*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*108*	*25-137*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*69.0*	*37-107*			*%REC*	1	6/19/2012
Surr: Phenol-d6	*81.2*	*40-106*			*%REC*	1	6/19/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 3:11:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	530	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	530	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L547S061112S020
Work Order:	1206416	**Collection Date:**	6/11/2012 3:11:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	320	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	530	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*97.6*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L548S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 3:58:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	27	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	54	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*63.9*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.51	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(k)fluoranthene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*94.1*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*76.8*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*78.2*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*76.9*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*65.9*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*77.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	380	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	380	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	380	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L548S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 3:58:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	380	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	380	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	380	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	380	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	380	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	380	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	380	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,300	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,300	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	3,100	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	380	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	380	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	380	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	380	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	380	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	380	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	380	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	380	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	380	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,300	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	380	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	380	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	380	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	380	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	380	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	380	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	380	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	380	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L548S061112S005
Work Order:	1206416	**Collection Date:**	6/11/2012 3:58:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	380	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	380	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	380	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	760	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	380	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	380	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	380	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,300	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	380	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	380	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	380	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	380	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	380	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	380	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	380	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,300	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	380	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	380	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	380	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	380	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	380	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	380	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	380	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.1*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**64**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549D061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	48	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*75.3*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*96.9*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*79.6*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*86.6*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*77.9*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*68.7*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*83.0*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549D061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,700	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	320	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	320	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	320	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549D061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	640	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	320	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	320	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*99.6*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*92.7*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*97.1*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**60**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	47	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*70.5*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*96.0*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*78.8*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*83.3*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*80.2*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*68.0*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*81.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	300	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	300	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	300	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	300	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	300	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	300	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	300	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,000	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,000	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,500	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	300	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	300	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	300	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	300	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	300	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	300	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	300	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	300	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	300	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,000	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	300	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	300	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	300	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	300	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	300	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	300	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	300	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	300	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L549S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:14:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	300	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	300	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	600	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	300	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	300	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	300	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,000	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	300	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	300	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	300	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	300	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	300	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	300	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	300	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	300	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	300	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	300	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	300	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*92.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**60**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L550S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:30:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-15	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	26	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	53	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*68.8*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*91.7*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*72.5*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*76.9*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*78.8*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*63.2*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*74.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L550S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:30:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-15	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	360	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	360	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	360	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L550S061112S006
Work Order:	1206416	**Collection Date:**	6/11/2012 4:30:00 PM
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-15	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	720	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	360	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	360	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	360	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*95.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*97.0*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L550T061112MX
Work Order:	1206416	**Collection Date:**	6/11/2012
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-16	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/15/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/15/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/15/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/15/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/15/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/15/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/15/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/15/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/15/2012
Benzene	ND	50	50		µg/Kg	1	6/15/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/15/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/15/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/15/2012
Bromoform	ND	100	100		µg/Kg	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/15/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/15/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/15/2012
Chloroethane	ND	250	250		µg/Kg	1	6/15/2012
Chloroform	ND	50	50		µg/Kg	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg	1	6/15/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L550T061112MX
Work Order:	1206416	**Collection Date:**	6/11/2012
Project:	Marshall KRRI 1150L 6/11/12		
Lab ID:	1206416-16	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/15/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/15/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/15/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/15/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/15/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg	1	6/15/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/15/2012
o-Xylene	ND	50	50		µg/Kg	1	6/15/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/15/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Styrene	ND	50	50		µg/Kg	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/15/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/15/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/15/2012
Toluene	ND	100	100		µg/Kg	1	6/15/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/15/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/15/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/15/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*91.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*108*	*70-130*			*%REC*	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41657** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41657-41657** Units: **mg/Kg** Analysis Date: **6/17/2012 10:45 PM**

Client ID: Run ID: **GC8_120617B** SeqNo: **2001915** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.656*	0	*5*	0	*73.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-41657-41657** Units: **mg/Kg** Analysis Date: **6/17/2012 11:09 PM**

Client ID: Run ID: **GC8_120617B** SeqNo: **2001916** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	434.6	10	500	0	86.9	60-130	0			
ORO (C20-C34)	464.5	20	500	0	92.9	60-130	0			
Surr: 4-Terphenyl-d14	*3.858*	0	*5*	0	*77.2*	*39-115*	0			

MS Sample ID: **1206416-05A MS** Units: **mg/Kg** Analysis Date: **6/17/2012 11:34 PM**

Client ID: **SBKR1150L544S061112S010** Run ID: **GC8_120617B** SeqNo: **2001917** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	424.1	10	498.3	40.35	77	60-130	0			
ORO (C20-C34)	751	20	498.3	237.3	103	60-130	0			
Surr: 4-Terphenyl-d14	*3.865*	0	*4.983*	0	*77.6*	*39-115*	0			

MSD Sample ID: **1206416-05A MSD** Units: **mg/Kg** Analysis Date: **6/17/2012 11:58 PM**

Client ID: **SBKR1150L544S061112S010** Run ID: **GC8_120617B** SeqNo: **2001918** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	448.6	9.7	484.8	40.35	84.2	60-130	424.1	5.61	30	
ORO (C20-C34)	696.5	19	484.8	237.3	94.7	60-130	751	7.53	30	
Surr: 4-Terphenyl-d14	*3.967*	0	*4.848*	0	*81.8*	*39-115*	3.865	*2.6*	*30*	

The following samples were analyzed in this batch:

1206416-01A	1206416-02A	1206416-03A
1206416-04A	1206416-05A	1206416-06A
1206416-07A	1206416-08A	1206416-09A
1206416-10A	1206416-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41712** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41712-41712** Units: **mg/Kg** Analysis Date: **6/18/2012 05:25 PM**
Client ID: Run ID: **GC8_120618A** SeqNo: **2003740** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.418*	0	*5*	0	*68.4*	*39-115*	0			

LCS Sample ID: **DLCSS1-41712-41712** Units: **mg/Kg** Analysis Date: **6/18/2012 05:49 PM**
Client ID: Run ID: **GC8_120618A** SeqNo: **2003741** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	420.7	10	500	0	84.1	60-130	0			
ORO (C20-C34)	449.9	20	500	0	90	60-130	0			
Surr: 4-Terphenyl-d14	*3.511*	0	*5*	0	*70.2*	*39-115*	0			

MS Sample ID: **1206417-12A MS** Units: **mg/Kg** Analysis Date: **6/18/2012 06:14 PM**
Client ID: Run ID: **GC8_120618A** SeqNo: **2003742** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	400.4	9.9	492.7	0	81.3	60-130	0			
ORO (C20-C34)	499.4	20	492.7	0	101	60-130	0			
Surr: 4-Terphenyl-d14	*3.328*	0	*4.927*	0	*67.5*	*39-115*	0			

MSD Sample ID: **1206417-12A MSD** Units: **mg/Kg** Analysis Date: **6/18/2012 06:39 PM**
Client ID: Run ID: **GC8_120618A** SeqNo: **2003743** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	414.6	10	499.6	0	83	60-130	400.4	3.48	30	
ORO (C20-C34)	493.2	20	499.6	0	98.7	60-130	499.4	1.25	30	
Surr: 4-Terphenyl-d14	*3.46*	0	*4.996*	0	*69.3*	*39-115*	3.328	*3.9*	*30*	

The following samples were analyzed in this batch:
1206416-12A 1206416-13A 1206416-14A
1206416-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41679** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41679-41679** Units: **mg/Kg** Analysis Date: **6/18/2012 05:26 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002912** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.02292	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41679-41679** Units: **mg/Kg** Analysis Date: **6/18/2012 05:32 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002913** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.72	0.10	5	0	94.4	80-120	0			
Molybdenum	4.866	0.25	5	0	97.3	80-120	0			
Nickel	4.626	0.25	5	0	92.5	80-120	0			
Vanadium	4.882	0.25	5	0	97.6	80-120	0			

MS Sample ID: **1206416-05AMS** Units: **mg/Kg** Analysis Date: **6/18/2012 06:39 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **ICPMS1_120618A** SeqNo: **2002924** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	7.141	0.63	7.924	0.1935	87.7	80-120	0			
Molybdenum	7.452	1.6	7.924	0.3822	89.2	80-120	0			
Nickel	13	1.6	7.924	6.396	83.4	80-120	0			
Vanadium	16.57	1.6	7.924	9.383	90.7	80-120	0			

MSD Sample ID: **1206416-05AMSD** Units: **mg/Kg** Analysis Date: **6/18/2012 06:45 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **ICPMS1_120618A** SeqNo: **2002925** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.748	0.59	7.364	0.1935	89	80-120	7.141	5.66	25	
Molybdenum	7.004	1.5	7.364	0.3822	89.9	80-120	7.452	6.19	25	
Nickel	12.56	1.5	7.364	6.396	83.7	80-120	13	3.46	25	
Vanadium	15.3	1.5	7.364	9.383	80.4	80-120	16.57	7.92	25	

The following samples were analyzed in this batch:

1206416-01A	1206416-02A	1206416-03A
1206416-04A	1206416-05A	1206416-06A
1206416-07A	1206416-08A	1206416-09A
1206416-10A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41684** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 08:59 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002958** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.00614	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 09:05 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002959** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.584	0.10	5	0	91.7	80-120	0			
Molybdenum	4.802	0.25	5	0	96	80-120	0			
Nickel	4.614	0.25	5	0	92.3	80-120	0			
Vanadium	4.838	0.25	5	0	96.8	80-120	0			

MS Sample ID: **1206417-12AMS** Units: **mg/Kg** Analysis Date: **6/18/2012 11:37 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003023** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.792	0.56	7.032	0.1372	80.4	80-120	0			
Molybdenum	6.127	1.4	7.032	0.1973	84.3	80-120	0			
Nickel	10.28	1.4	7.032	4.54	81.6	80-120	0			
Vanadium	13.35	1.4	7.032	7.254	86.6	80-120	0			

MSD Sample ID: **1206417-12AMSD** Units: **mg/Kg** Analysis Date: **6/18/2012 11:43 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003028** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.263	0.60	7.485	0.1372	81.8	80-120	5.792	7.82	25	
Molybdenum	6.734	1.5	7.485	0.1973	87.3	80-120	6.127	9.44	25	
Nickel	10.9	1.5	7.485	4.54	85	80-120	10.28	5.88	25	
Vanadium	13.77	1.5	7.485	7.254	87	80-120	13.35	3.09	25	

The following samples were analyzed in this batch: 1206416-11A, 1206416-12A, 1206416-13A, 1206416-14A, 1206416-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41656** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41656-41656** Units: **µg/Kg** Analysis Date: **6/18/2012 10:26 AM**
Client ID: Run ID: **SVMS4_120618A** SeqNo: **2002181** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3698*	0	*5000*	0	*74*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3922*	0	*5000*	0	*78.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4706*	0	*5000*	0	*94.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5654*	0	*5000*	0	*113*	*25-137*	0			
Surr: Nitrobenzene-d5	*3946*	0	*5000*	0	*78.9*	*37-107*	0			
Surr: Phenol-d6	*4545*	0	*5000*	0	*90.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41656** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41656-41656** Units: **µg/Kg** Analysis Date: **6/18/2012 09:51 AM**
Client ID: Run ID: **SVMS4_120618A** SeqNo: **2002180** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1641	50	2000	0	82	45-105	0			
Acenaphthene	1702	50	2000	0	85.1	45-110	0			
Acenaphthylene	1729	50	2000	0	86.4	45-105	0			
Anthracene	1847	50	2000	0	92.4	55-105	0			
Benzo(a)anthracene	1835	50	2000	0	91.8	50-110	0			
Benzo(a)pyrene	1914	50	2000	0	95.7	50-110	0			
Benzo(b)fluoranthene	1889	50	2000	0	94.4	45-115	0			
Benzo(g,h,i)perylene	2086	50	2000	0	104	40-125	0			
Benzo(k)fluoranthene	2012	50	2000	0	101	45-115	0			
Chrysene	1987	50	2000	0	99.4	55-110	0			
Dibenzo(a,h)anthracene	2036	50	2000	0	102	40-125	0			
Fluoranthene	1921	50	2000	0	96	55-115	0			
Fluorene	1720	50	2000	0	86	50-110	0			
Indeno(1,2,3-cd)pyrene	2072	50	2000	0	104	40-120	0			
Naphthalene	1626	50	2000	0	81.3	40-105	0			
Phenanthrene	1835	50	2000	0	91.8	50-110	0			
Pyrene	1962	50	2000	0	98.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4086*	0	*5000*	0	*81.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3561*	0	*5000*	0	*71.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4208*	0	*5000*	0	*84.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5130*	0	*5000*	0	*103*	*25-137*	0			
Surr: Nitrobenzene-d5	*3545*	0	*5000*	0	*70.9*	*37-107*	0			
Surr: Phenol-d6	*4023*	0	*5000*	0	*80.5*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41656** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206416-05A MS** Units: **µg/Kg** Analysis Date: **6/18/2012 11:00 AM**
Client ID: **SBKR1150L544S061112S010** Run ID: **SVMS4_120618A** SeqNo: **2002182** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1404	48	1903	0	73.8	45-105	0			
Acenaphthene	1558	48	1903	0	81.9	45-110	0			
Acenaphthylene	1558	48	1903	0	81.9	45-105	0			
Anthracene	1730	48	1903	0	91	55-105	0			
Benzo(a)anthracene	1784	48	1903	133.5	86.7	50-110	0			
Benzo(a)pyrene	1833	48	1903	164.3	87.7	50-110	0			
Benzo(b)fluoranthene	1841	48	1903	210.4	85.7	45-115	0			
Benzo(g,h,i)perylene	1444	48	1903	93.18	71	40-125	0			
Benzo(k)fluoranthene	1833	48	1903	80.69	92.1	45-115	0			
Chrysene	1830	48	1903	147	88.5	55-110	0			
Dibenzo(a,h)anthracene	1420	48	1903	0	74.6	40-125	0			
Fluoranthene	2052	48	1903	198.8	97.4	55-115	0			
Fluorene	1586	48	1903	0	83.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1492	48	1903	73.97	74.5	40-120	0			
Naphthalene	1302	48	1903	0	68.4	40-105	0			
Phenanthrene	1728	48	1903	63.4	87.5	50-110	0			
Pyrene	1878	48	1903	216.1	87.3	45-125	0			
Surr: 2,4,6-Tribromophenol	*3975*	0	*4756*	0	*83.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3370*	0	*4756*	0	*70.9*	*12-100*	0			
Surr: 2-Fluorophenol	*3465*	0	*4756*	0	*72.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4538*	0	*4756*	0	*95.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*2848*	0	*4756*	0	*59.9*	*37-107*	0			
Surr: Phenol-d6	*3474*	0	*4756*	0	*73*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41656** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206416-05A MSD** Units: **µg/Kg** Analysis Date: **6/18/2012 11:35 AM**
Client ID: **SBKR1150L544S061112S010** Run ID: **SVMS4_120618A** SeqNo: **2002183** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1180	50	1988	0	59.4	45-105	1404	17.4	30	
Acenaphthene	1378	50	1988	0	69.3	45-110	1558	12.3	30	
Acenaphthylene	1389	50	1988	0	69.8	45-105	1558	11.5	30	
Anthracene	1618	50	1988	0	81.4	55-105	1730	6.71	30	
Benzo(a)anthracene	1704	50	1988	133.5	79	50-110	1784	4.59	30	
Benzo(a)pyrene	1764	50	1988	164.3	80.5	50-110	1833	3.83	30	
Benzo(b)fluoranthene	1861	50	1988	210.4	83	45-115	1841	1.08	30	
Benzo(g,h,i)perylene	1186	50	1988	93.18	55	40-125	1444	19.6	30	
Benzo(k)fluoranthene	1742	50	1988	80.69	83.6	45-115	1833	5.08	30	
Chrysene	1739	50	1988	147	80.1	55-110	1830	5.09	30	
Dibenzo(a,h)anthracene	1187	50	1988	0	59.7	40-125	1420	17.9	30	
Fluoranthene	1944	50	1988	198.8	87.8	55-115	2052	5.4	30	
Fluorene	1446	50	1988	0	72.8	50-110	1586	9.21	30	
Indeno(1,2,3-cd)pyrene	1259	50	1988	73.97	59.6	40-120	1492	16.9	30	
Naphthalene	1068	50	1988	0	53.8	40-105	1302	19.7	30	
Phenanthrene	1620	50	1988	63.4	78.3	50-110	1728	6.42	30	
Pyrene	1787	50	1988	216.1	79	45-125	1878	4.95	30	
Surr: 2,4,6-Tribromophenol	*3692*	0	*4970*	0	*74.3*	*34-140*	3975	*7.38*	*40*	
Surr: 2-Fluorobiphenyl	*2855*	0	*4970*	0	*57.4*	*12-100*	3370	*16.6*	*40*	
Surr: 2-Fluorophenol	*2824*	0	*4970*	0	*56.8*	*33-117*	3465	*20.4*	*40*	
Surr: 4-Terphenyl-d14	*4262*	0	*4970*	0	*85.8*	*25-137*	4538	*6.27*	*40*	
Surr: Nitrobenzene-d5	*2333*	0	*4970*	0	*46.9*	*37-107*	2848	*19.9*	*40*	
Surr: Phenol-d6	*2972*	0	*4970*	0	*59.8*	*40-106*	3474	*15.6*	*40*	

The following samples were analyzed in this batch:

1206416-01A	1206416-02A	1206416-03A
1206416-04A	1206416-05A	1206416-06A
1206416-07A	1206416-08A	1206416-09A
1206416-10A	1206416-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41760-41760** Units: **µg/Kg** Analysis Date: **6/20/2012 01:13 AM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006420** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4172*	0	*5000*	0	*83.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4318*	0	*5000*	0	*86.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4195*	0	*5000*	0	*83.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3581*	0	*5000*	0	*71.6*	*37-107*	0			
Surr: Phenol-d6	*4281*	0	*5000*	0	*85.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41760-41760** Units: **µg/Kg** Analysis Date: **6/19/2012 10:47 PM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006418** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1499	50	2000	0	75	45-105	0			
Acenaphthene	1486	50	2000	0	74.3	45-110	0			
Acenaphthylene	1595	50	2000	0	79.8	45-105	0			
Anthracene	1631	50	2000	0	81.6	55-105	0			
Benzo(a)anthracene	1701	50	2000	0	85	50-110	0			
Benzo(a)pyrene	1784	50	2000	0	89.2	50-110	0			
Benzo(b)fluoranthene	2020	50	2000	0	101	45-115	0			
Benzo(g,h,i)perylene	2111	50	2000	0	106	40-125	0			
Benzo(k)fluoranthene	1754	50	2000	0	87.7	45-115	0			
Chrysene	1735	50	2000	0	86.8	55-110	0			
Dibenzo(a,h)anthracene	1881	50	2000	0	94	40-125	0			
Fluoranthene	1635	50	2000	0	81.8	55-115	0			
Fluorene	1665	50	2000	0	83.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1877	50	2000	0	93.8	40-120	0			
Naphthalene	1558	50	2000	0	77.9	40-105	0			
Phenanthrene	1651	50	2000	0	82.6	50-110	0			
Pyrene	1735	50	2000	0	86.8	45-125	0			
Surr: 2,4,6-Tribromophenol	*4090*	0	*5000*	0	*81.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3860*	0	*5000*	0	*77.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4186*	0	*5000*	0	*83.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3962*	0	*5000*	0	*79.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3289*	0	*5000*	0	*65.8*	*37-107*	0			
Surr: Phenol-d6	*3871*	0	*5000*	0	*77.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1206417-12A MS** Units: **µg/Kg** Analysis Date: **6/19/2012 11:24 PM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006419** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1608	49	1952	0	82.4	45-105	0			
Acenaphthene	1625	49	1952	0	83.2	45-110	0			
Acenaphthylene	1745	49	1952	0	89.4	45-105	0			
Anthracene	1724	49	1952	0	88.3	55-105	0			
Benzo(a)anthracene	1838	49	1952	0	94.2	50-110	0			
Benzo(a)pyrene	1776	49	1952	69.84	87.4	50-110	0			
Benzo(b)fluoranthene	2008	49	1952	0	103	45-115	0			
Benzo(g,h,i)perylene	1676	49	1952	54.1	83.1	40-125	0			
Benzo(k)fluoranthene	1950	49	1952	62.95	96.7	45-115	0			
Chrysene	1727	49	1952	77.71	84.5	55-110	0			
Dibenzo(a,h)anthracene	1534	49	1952	0	78.6	40-125	0			
Fluoranthene	1814	49	1952	77.71	89	55-115	0			
Fluorene	1762	49	1952	0	90.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1551	49	1952	0	79.4	40-120	0			
Naphthalene	1603	49	1952	0	82.1	40-105	0			
Phenanthrene	1767	49	1952	0	90.5	50-110	0			
Pyrene	1822	49	1952	89.51	88.8	45-125	0			
Surr: 2,4,6-Tribromophenol	*4290*	0	*4880*	0	*87.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3697*	0	*4880*	0	*75.8*	*12-100*	0			
Surr: 2-Fluorophenol	*3882*	0	*4880*	0	*79.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3444*	0	*4880*	0	*70.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3246*	0	*4880*	0	*66.5*	*37-107*	0			
Surr: Phenol-d6	*3720*	0	*4880*	0	*76.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1206417-12A MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 12:00 PM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006434** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1570	48	1926	0	81.5	45-105	1608	2.44	30	
Acenaphthene	1607	48	1926	0	83.4	45-110	1625	1.1	30	
Acenaphthylene	1735	48	1926	0	90.1	45-105	1745	0.558	30	
Anthracene	1665	48	1926	0	86.4	55-105	1724	3.45	30	
Benzo(a)anthracene	1746	48	1926	0	90.6	50-110	1838	5.13	30	
Benzo(a)pyrene	1770	48	1926	69.84	88.3	50-110	1776	0.354	30	
Benzo(b)fluoranthene	1955	48	1926	0	102	45-115	2008	2.66	30	
Benzo(g,h,i)perylene	1616	48	1926	54.1	81.1	40-125	1676	3.64	30	
Benzo(k)fluoranthene	1925	48	1926	62.95	96.7	45-115	1950	1.29	30	
Chrysene	1628	48	1926	77.71	80.5	55-110	1727	5.85	30	
Dibenzo(a,h)anthracene	1527	48	1926	0	79.3	40-125	1534	0.451	30	
Fluoranthene	1698	48	1926	77.71	84.1	55-115	1814	6.64	30	
Fluorene	1761	48	1926	0	91.4	50-110	1762	0.017	30	
Indeno(1,2,3-cd)pyrene	1540	48	1926	0	80	40-120	1551	0.711	30	
Naphthalene	1618	48	1926	0	84	40-105	1603	0.95	30	
Phenanthrene	1715	48	1926	0	89	50-110	1767	2.95	30	
Pyrene	1689	48	1926	89.51	83.1	45-125	1822	7.58	30	
Surr: 2,4,6-Tribromophenol	*4360*	0	*4815*	0	*90.5*	*34-140*	4290	*1.6*	*40*	
Surr: 2-Fluorobiphenyl	*4017*	0	*4815*	0	*83.4*	*12-100*	3697	*8.29*	*40*	
Surr: 2-Fluorophenol	*4194*	0	*4815*	0	*87.1*	*33-117*	3882	*7.74*	*40*	
Surr: 4-Terphenyl-d14	*3607*	0	*4815*	0	*74.9*	*25-137*	3444	*4.6*	*40*	
Surr: Nitrobenzene-d5	*3404*	0	*4815*	0	*70.7*	*37-107*	3246	*4.76*	*40*	
Surr: Phenol-d6	*3988*	0	*4815*	0	*82.8*	*40-106*	3720	*6.94*	*40*	

The following samples were analyzed in this batch: 1206416-12A 1206416-13A 1206416-14A 1206416-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41651-41651** Units: **µg/Kg** Analysis Date: **6/14/2012 02:26 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999905** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1023*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*970*	0	*1000*	0	*97*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*981*	0	*1000*	0	*98.1*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41651-41651** Units: **µg/Kg** Analysis Date: **6/14/2012 01:10 PM**
Client ID: Run ID: **VMS8_120614A** SeqNo: **1999904** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	978.5	30	1000	0	97.8	75-125	0			
1,1,1-Trichloroethane	1009	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	999.5	30	1000	0	100	55-130	0			
1,1,2-Trichloroethane	878	30	1000	0	87.8	60-125	0			
1,1-Dichloroethane	866	30	1000	0	86.6	75-125	0			
1,1-Dichloroethene	939	30	1000	0	93.9	65-135	0			
1,2,3-Trichlorobenzene	1015	30	1000	0	102	60-135	0			
1,2,3-Trichloropropane	914.5	30	1000	0	91.4	65-130	0			
1,2,3-Trimethylbenzene	922.5	30	1000	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	1023	30	1000	0	102	65-130	0			
1,2,4-Trimethylbenzene	929	30	1000	0	92.9	65-135	0			
1,2-Dibromo-3-chloropropane	975.5	30	1000	0	97.6	40-135	0			
1,2-Dibromoethane	1022	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	959.5	30	1000	0	96	75-120	0			
1,2-Dichloroethane	1020	30	1000	0	102	70-135	0			
1,2-Dichloropropane	881.5	30	1000	0	88.2	70-120	0			
1,3,5-Trimethylbenzene	934.5	30	1000	0	93.4	65-135	0			
1,3-Dichlorobenzene	951.5	30	1000	0	95.2	70-125	0			
1,4-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	0			
2-Butanone	1028	200	1000	0	103	30-160	0			
2-Hexanone	1000	30	1000	0	100	45-145	0			
4-Methyl-2-pentanone	1430	30	1000	0	143	45-145	0			
Acetone	960	100	1000	0	96	20-160	0			
Acrylonitrile	902	100	1000	0	90.2	70-135	0			
Benzene	884.5	30	1000	0	88.4	75-125	0			
Bromobenzene	932.5	30	1000	0	93.2	65-120	0			
Bromochloromethane	951	30	1000	0	95.1	70-125	0			
Bromodichloromethane	983.5	30	1000	0	98.4	70-130	0			
Bromoform	933	30	1000	0	93.3	55-135	0			
Bromomethane	994	75	1000	0	99.4	30-160	0			
Carbon disulfide	930	30	1000	0	93	45-160	0			
Carbon tetrachloride	1061	30	1000	0	106	65-135	0			
Chlorobenzene	950	30	1000	0	95	75-125	0			
Chloroethane	909.5	100	1000	0	91	40-155	0			
Chloroform	951	30	1000	0	95.1	70-125	0			
Chloromethane	717	100	1000	0	71.7	50-130	0			
cis-1,2-Dichloroethene	946	30	1000	0	94.6	65-125	0			
cis-1,3-Dichloropropene	1036	30	1000	0	104	70-125	0			
Dibromochloromethane	1016	30	1000	0	102	65-135	0			
Dibromomethane	1014	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	598.5	30	1000	0	59.8	35-135	0			
Ethylbenzene	963	30	1000	0	96.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	914.5	30	1000	0	91.4	70-135	0
Isopropylbenzene	963	30	1000	0	96.3	75-130	0
m,p-Xylene	1888	60	2000	0	94.4	80-125	0
Methyl tert-butyl ether	980	30	1000	0	98	75-125	0
Methylene chloride	900.5	30	1000	0	90	55-145	0
Naphthalene	1037	100	1000	0	104	40-140	0
n-Butylbenzene	1010	30	1000	0	101	65-140	0
n-Propylbenzene	921	30	1000	0	92.1	65-135	0
o-Xylene	937	30	1000	0	93.7	75-125	0
p-Isopropyltoluene	1000	30	1000	0	100	75-135	0
sec-Butylbenzene	994.5	30	1000	0	99.4	65-130	0
Styrene	955	30	1000	0	95.5	75-125	0
tert-Butylbenzene	984	30	1000	0	98.4	65-130	0
Tetrachloroethene	978.5	30	1000	0	97.8	64-140	0
Tetrahydrofuran	925.5	200	1000	0	92.6	70-135	0
Toluene	941	30	1000	0	94.1	70-125	0
trans-1,2-Dichloroethene	913.5	30	1000	0	91.4	65-135	0
trans-1,3-Dichloropropene	1012	30	1000	0	101	65-125	0
trans-1,4-Dichloro-2-butene	964	30	1000	0	96.4	70-135	0
Trichloroethene	983.5	30	1000	0	98.4	75-125	0
Trichlorofluoromethane	867	30	1000	0	86.7	25-185	0
Vinyl chloride	813.5	30	1000	0	81.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*1064*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1011*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1012*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1206416-05B MS** Units: **µg/Kg** Analysis Date: **6/14/2012 10:22 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **VMS8_120614A** SeqNo: **1999913** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	6045	180	6143	0	98.4	75-125	0			
1,1,1-Trichloroethane	6407	180	6143	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	5452	180	6143	0	88.8	55-130	0			
1,1,2-Trichloroethane	5056	180	6143	0	82.3	60-125	0			
1,1-Dichloroethane	5390	180	6143	0	87.8	75-125	0			
1,1-Dichloroethene	6260	180	6143	0	102	65-135	0			
1,2,3-Trichlorobenzene	2654	180	6143	0	43.2	60-135	0			S
1,2,3-Trichloropropane	5117	180	6143	0	83.3	65-130	0			
1,2,3-Trimethylbenzene	5458	180	6143	0	88.8	65-135	0			
1,2,4-Trichlorobenzene	3584	180	6143	0	58.4	65-130	0			S
1,2,4-Trimethylbenzene	5590	180	6143	0	91	65-135	0			
1,2-Dibromo-3-chloropropane	3910	180	6143	0	63.6	40-135	0			
1,2-Dibromoethane	5670	180	6143	0	92.3	70-125	0			
1,2-Dichlorobenzene	5565	180	6143	0	90.6	75-120	0			
1,2-Dichloroethane	6717	180	6143	0	109	70-135	0			
1,2-Dichloropropane	5154	180	6143	0	83.9	70-120	0			
1,3,5-Trimethylbenzene	5728	180	6143	0	93.2	65-135	0			
1,3-Dichlorobenzene	5516	180	6143	0	89.8	70-125	0			
1,4-Dichlorobenzene	5630	180	6143	0	91.6	70-125	0			
2-Butanone	5096	610	6143	0	83	30-160	0			
2-Hexanone	5160	180	6143	0	84	45-145	0			
4-Methyl-2-pentanone	7448	180	6143	0	121	45-145	0			
Acetone	5842	610	6143	0	95.1	20-160	0			
Acrylonitrile	4773	180	6143	0	77.7	70-135	0			
Benzene	5366	180	6143	0	87.4	75-125	0			
Bromobenzene	5719	180	6143	0	93.1	65-120	0			
Bromochloromethane	5522	180	6143	0	89.9	70-125	0			
Bromodichloromethane	6097	180	6143	0	99.2	70-130	0			
Bromoform	5142	180	6143	0	83.7	55-135	0			
Bromomethane	5799	180	6143	0	94.4	30-160	0			
Carbon disulfide	5922	180	6143	0	96.4	45-160	0			
Carbon tetrachloride	6797	180	6143	0	111	65-135	0			
Chlorobenzene	5796	180	6143	0	94.4	75-125	0			
Chloroethane	6450	610	6143	0	105	40-155	0			
Chloroform	5968	180	6143	0	97.2	70-125	0			
Chloromethane	4536	180	6143	0	73.8	50-130	0			
cis-1,2-Dichloroethene	5900	180	6143	0	96	65-125	0			
cis-1,3-Dichloropropene	5836	180	6143	0	95	70-125	0			
Dibromochloromethane	6011	180	6143	0	97.8	65-135	0			
Dibromomethane	6063	180	6143	0	98.7	75-130	0			
Dichlorodifluoromethane	3756	180	6143	0	61.2	35-135	0			
Ethylbenzene	5765	180	6143	0	93.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	4896	180	6143	0	79.7	70-135	0
Isopropylbenzene	5750	180	6143	0	93.6	75-130	0
m,p-Xylene	11640	370	12290	0	94.7	80-125	0
Methyl tert-butyl ether	6091	180	6143	0	99.2	75-125	0
Methylene chloride	5719	180	6143	0	93.1	55-145	0
Naphthalene	2939	610	6143	0	47.8	40-140	0
n-Butylbenzene	5099	180	6143	0	83	65-140	0
n-Propylbenzene	5572	180	6143	0	90.7	65-135	0
o-Xylene	5830	180	6143	0	94.9	75-125	0
p-Isopropyltoluene	5326	180	6143	0	86.7	75-135	0
sec-Butylbenzene	5565	180	6143	0	90.6	65-130	0
Styrene	5237	180	6143	0	85.2	75-125	0
tert-Butylbenzene	5830	180	6143	0	94.9	65-130	0
Tetrachloroethene	5796	180	6143	0	94.4	64-140	0
Tetrahydrofuran	4494	610	6143	0	73.2	70-135	0
Toluene	5507	180	6143	0	89.6	70-125	0
trans-1,2-Dichloroethene	5661	180	6143	0	92.2	65-135	0
trans-1,3-Dichloropropene	5876	180	6143	0	95.6	65-125	0
trans-1,4-Dichloro-2-butene	5178	180	6143	0	84.3	70-135	0
Trichloroethene	6038	180	6143	0	98.3	75-125	0
Trichlorofluoromethane	5968	180	6143	0	97.2	25-185	0
Vinyl chloride	5138	180	6143	0	83.6	60-125	0
Surr: 1,2-Dichloroethane-d4	*6855*	0	*6143*	0	*112*	*70-130*	0
Surr: 4-Bromofluorobenzene	*6164*	0	*6143*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*6435*	0	*6143*	0	*105*	*70-130*	0
Surr: Toluene-d8	*6026*	0	*6143*	0	*98.1*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **1206416-05B MSD** Units: **µg/Kg** Analysis Date: **6/14/2012 10:47 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **VMS8_120614A** SeqNo: **1999914** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	5860	180	6143	0	95.4	75-125	6045	3.1	30	
1,1,1-Trichloroethane	6137	180	6143	0	99.9	70-135	6407	4.31	30	
1,1,2,2-Tetrachloroethane	5286	180	6143	0	86	55-130	5452	3.09	30	
1,1,2-Trichloroethane	4997	180	6143	0	81.4	60-125	5056	1.16	30	
1,1-Dichloroethane	5326	180	6143	0	86.7	75-125	5390	1.2	30	
1,1-Dichloroethene	6005	180	6143	0	97.8	65-135	6260	4.16	30	
1,2,3-Trichlorobenzene	3996	180	6143	0	65	60-135	2654	40.4	30	R
1,2,3-Trichloropropane	4874	180	6143	0	79.4	65-130	5117	4.86	30	
1,2,3-Trimethylbenzene	5486	180	6143	0	89.3	65-135	5458	0.505	30	
1,2,4-Trichlorobenzene	4408	180	6143	0	71.8	65-130	3584	20.6	30	
1,2,4-Trimethylbenzene	5403	180	6143	0	88	65-135	5590	3.41	30	
1,2-Dibromo-3-chloropropane	4232	180	6143	0	68.9	40-135	3910	7.92	30	
1,2-Dibromoethane	5513	180	6143	0	89.8	70-125	5670	2.8	30	
1,2-Dichlorobenzene	5584	180	6143	0	90.9	75-120	5565	0.331	30	
1,2-Dichloroethane	6272	180	6143	0	102	70-135	6717	6.86	30	
1,2-Dichloropropane	5062	180	6143	0	82.4	70-120	5154	1.8	30	
1,3,5-Trimethylbenzene	5602	180	6143	0	91.2	65-135	5728	2.22	30	
1,3-Dichlorobenzene	5599	180	6143	0	91.2	70-125	5516	1.49	30	
1,4-Dichlorobenzene	5734	180	6143	0	93.4	70-125	5630	1.84	30	
2-Butanone	4914	610	6143	0	80	30-160	5096	3.62	30	
2-Hexanone	4966	180	6143	0	80.8	45-145	5160	3.82	30	
4-Methyl-2-pentanone	7181	180	6143	0	117	45-145	7448	3.65	30	
Acetone	5191	610	6143	0	84.5	20-160	5842	11.8	30	
Acrylonitrile	4690	180	6143	0	76.4	70-135	4773	1.75	30	
Benzene	5209	180	6143	0	84.8	75-125	5366	2.96	30	
Bromobenzene	5572	180	6143	0	90.7	65-120	5719	2.61	30	
Bromochloromethane	5519	180	6143	0	89.8	70-125	5522	0.0556	30	
Bromodichloromethane	5854	180	6143	0	95.3	70-130	6097	4.06	30	
Bromoform	4927	180	6143	0	80.2	55-135	5142	4.27	30	
Bromomethane	4767	180	6143	0	77.6	30-160	5799	19.5	30	
Carbon disulfide	5612	180	6143	0	91.4	45-160	5922	5.38	30	
Carbon tetrachloride	6241	180	6143	0	102	65-135	6797	8.53	30	
Chlorobenzene	5658	180	6143	0	92.1	75-125	5796	2.41	30	
Chloroethane	6072	610	6143	0	98.8	40-155	6450	6.03	30	
Chloroform	5830	180	6143	0	94.9	70-125	5968	2.34	30	
Chloromethane	4438	180	6143	0	72.2	50-130	4536	2.19	30	
cis-1,2-Dichloroethene	5845	180	6143	0	95.2	65-125	5900	0.941	30	
cis-1,3-Dichloropropene	5916	180	6143	0	96.3	70-125	5836	1.36	30	
Dibromochloromethane	5762	180	6143	0	93.8	65-135	6011	4.23	30	
Dibromomethane	5694	180	6143	0	92.7	75-130	6063	6.27	30	
Dichlorodifluoromethane	3704	180	6143	0	60.3	35-135	3756	1.4	30	
Ethylbenzene	5685	180	6143	0	92.6	75-125	5765	1.39	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41651** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	4988	180	6143	0	81.2	70-135	4896	1.86	30	
Isopropylbenzene	5664	180	6143	0	92.2	75-130	5750	1.51	30	
m,p-Xylene	11320	370	12290	0	92.1	80-125	11640	2.81	30	
Methyl tert-butyl ether	5949	180	6143	0	96.8	75-125	6091	2.35	30	
Methylene chloride	5744	180	6143	0	93.5	55-145	5719	0.429	30	
Naphthalene	4392	610	6143	0	71.5	40-140	2939	39.6	30	R
n-Butylbenzene	5289	180	6143	0	86.1	65-140	5099	3.67	30	
n-Propylbenzene	5350	180	6143	0	87.1	65-135	5572	4.05	30	
o-Xylene	5664	180	6143	0	92.2	75-125	5830	2.89	30	
p-Isopropyltoluene	5400	180	6143	0	87.9	75-135	5326	1.37	30	
sec-Butylbenzene	5418	180	6143	0	88.2	65-130	5565	2.68	30	
Styrene	5142	180	6143	0	83.7	75-125	5237	1.83	30	
tert-Butylbenzene	5651	180	6143	0	92	65-130	5830	3.1	30	
Tetrachloroethene	5615	180	6143	0	91.4	64-140	5796	3.18	30	
Tetrahydrofuran	4411	610	6143	0	71.8	70-135	4494	1.86	30	
Toluene	5393	180	6143	0	87.8	70-125	5507	2.09	30	
trans-1,2-Dichloroethene	5562	180	6143	0	90.6	65-135	5661	1.75	30	
trans-1,3-Dichloropropene	5664	180	6143	0	92.2	65-125	5876	3.67	30	
trans-1,4-Dichloro-2-butene	4696	180	6143	0	76.4	70-135	5178	9.77	30	
Trichloroethene	5747	180	6143	0	93.6	75-125	6038	4.95	30	
Trichlorofluoromethane	5553	180	6143	0	90.4	25-185	5968	7.2	30	
Vinyl chloride	5092	180	6143	0	82.9	60-125	5138	0.901	30	
Surr: 1,2-Dichloroethane-d4	*6545*	0	*6143*	0	*107*	*70-130*	6855	*4.63*	*30*	
Surr: 4-Bromofluorobenzene	*6183*	0	*6143*	0	*101*	*70-130*	6164	*0.299*	*30*	
Surr: Dibromofluoromethane	*6223*	0	*6143*	0	*101*	*70-130*	6435	*3.35*	*30*	
Surr: Toluene-d8	*5946*	0	*6143*	0	*96.8*	*70-130*	6026	*1.33*	*30*	

The following samples were analyzed in this batch:

1206416-01B	1206416-02B	1206416-03B
1206416-04B	1206416-05B	1206416-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41652-41652** Units: **µg/Kg** Analysis Date: **6/15/2012 01:49 AM**
Client ID: Run ID: **VMS9_120614A** SeqNo: **2000507** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	106	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*947.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1050*	0	*1000*	0	*105*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41652-41652** Units: **µg/Kg** Analysis Date: **6/15/2012 12:58 PM**
Client ID: Run ID: **VMS9_120614A** SeqNo: **2000545** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	951.5	30	1000	0	95.2	70-135	0			
1,1,2,2-Tetrachloroethane	1019	30	1000	0	102	55-130	0			
1,1,2-Trichloroethane	1012	30	1000	0	101	60-125	0			
1,1-Dichloroethane	977	30	1000	0	97.7	75-125	0			
1,1-Dichloroethene	925	30	1000	0	92.5	65-135	0			
1,2,3-Trichlorobenzene	999.5	30	1000	0	100	60-135	0			
1,2,3-Trichloropropane	1014	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	1028	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	965	30	1000	0	96.5	65-130	0			
1,2,4-Trimethylbenzene	927.5	30	1000	0	92.8	65-135	0			
1,2-Dibromo-3-chloropropane	884.5	30	1000	0	88.4	40-135	0			
1,2-Dibromoethane	1052	30	1000	0	105	70-125	0			
1,2-Dichlorobenzene	1008	30	1000	0	101	75-120	0			
1,2-Dichloroethane	985	30	1000	0	98.5	70-135	0			
1,2-Dichloropropane	1010	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	951	30	1000	0	95.1	65-135	0			
1,3-Dichlorobenzene	1033	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1036	30	1000	0	104	70-125	0			
2-Butanone	959	100	1000	0	95.9	30-160	0			
2-Hexanone	1022	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	938	30	1000	0	93.8	45-145	0			
Acetone	1050	100	1000	0	105	20-160	0			B
Acrylonitrile	1008	30	1000	0	101	70-135	0			
Benzene	977	30	1000	0	97.7	75-125	0			
Bromobenzene	1006	30	1000	0	101	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	903.5	30	1000	0	90.4	70-130	0			
Bromoform	869	30	1000	0	86.9	55-135	0			
Bromomethane	916.5	30	1000	0	91.6	30-160	0			
Carbon disulfide	880	30	1000	0	88	45-160	0			
Carbon tetrachloride	942	30	1000	0	94.2	65-135	0			
Chlorobenzene	1019	30	1000	0	102	75-125	0			
Chloroethane	935	100	1000	0	93.5	40-155	0			
Chloroform	999	30	1000	0	99.9	70-125	0			
Chloromethane	778.5	30	1000	0	77.8	50-130	0			
cis-1,2-Dichloroethene	970.5	30	1000	0	97	65-125	0			
cis-1,3-Dichloropropene	916.5	30	1000	0	91.6	70-125	0			
Dibromochloromethane	911	30	1000	0	91.1	65-135	0			
Dibromomethane	1008	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	601	30	1000	0	60.1	35-135	0			
Ethylbenzene	1071	30	1000	0	107	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	895.5	30	1000	0	89.6	70-135	0
Isopropylbenzene	954.5	30	1000	0	95.4	75-130	0
m,p-Xylene	1930	60	2000	0	96.5	80-125	0
Methyl tert-butyl ether	994	30	1000	0	99.4	75-125	0
Methylene chloride	953	30	1000	0	95.3	55-145	0
Naphthalene	924.5	100	1000	0	92.4	40-140	0
n-Butylbenzene	1080	30	1000	0	108	65-140	0
n-Propylbenzene	934.5	30	1000	0	93.4	65-135	0
o-Xylene	939	30	1000	0	93.9	75-125	0
p-Isopropyltoluene	1074	30	1000	0	107	75-135	0
sec-Butylbenzene	951.5	30	1000	0	95.2	65-130	0
Styrene	949.5	30	1000	0	95	75-125	0
tert-Butylbenzene	935.5	30	1000	0	93.6	65-130	0
Tetrachloroethene	1020	30	1000	0	102	64-140	0
Tetrahydrofuran	924.5	100	1000	0	92.4	70-135	0
Toluene	1026	30	1000	0	103	70-125	0
trans-1,2-Dichloroethene	1028	30	1000	0	103	65-135	0
trans-1,3-Dichloropropene	898.5	30	1000	0	89.8	65-125	0
trans-1,4-Dichloro-2-butene	843.5	30	1000	0	84.4	70-135	0
Trichloroethene	976.5	30	1000	0	97.6	75-125	0
Trichlorofluoromethane	851.5	30	1000	0	85.2	25-185	0
Vinyl chloride	829.5	30	1000	0	83	60-125	0
Surr: 1,2-Dichloroethane-d4	*990*	0	*1000*	0	*99*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1016*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206417-12B MS** Units: **µg/Kg** Analysis Date: **6/15/2012 10:37 AM**
Client ID: Run ID: **VMS9_120614A** SeqNo: **2000543** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3668	110	3762	0	97.5	75-125	0			
1,1,1-Trichloroethane	3271	110	3762	0	87	70-135	0			
1,1,2,2-Tetrachloroethane	3800	110	3762	0	101	55-130	0			
1,1,2-Trichloroethane	3685	110	3762	0	98	60-125	0			
1,1-Dichloroethane	3610	110	3762	0	96	75-125	0			
1,1-Dichloroethene	3230	110	3762	0	85.8	65-135	0			
1,2,3-Trichlorobenzene	3173	110	3762	0	84.4	60-135	0			
1,2,3-Trichloropropane	3762	110	3762	0	100	65-130	0			
1,2,3-Trimethylbenzene	3632	110	3762	0	96.6	65-135	0			
1,2,4-Trichlorobenzene	2972	110	3762	0	79	65-130	0			
1,2,4-Trimethylbenzene	3440	110	3762	0	91.4	65-135	0			
1,2-Dibromo-3-chloropropane	2833	110	3762	0	75.3	40-135	0			
1,2-Dibromoethane	3816	110	3762	0	101	70-125	0			
1,2-Dichlorobenzene	3542	110	3762	0	94.2	75-120	0			
1,2-Dichloroethane	3668	110	3762	0	97.5	70-135	0			
1,2-Dichloropropane	3984	110	3762	0	106	70-120	0			
1,3,5-Trimethylbenzene	3499	110	3762	0	93	65-135	0			
1,3-Dichlorobenzene	3576	110	3762	0	95	70-125	0			
1,4-Dichlorobenzene	3593	110	3762	0	95.5	70-125	0			
2-Butanone	3721	380	3762	0	98.9	30-160	0			
2-Hexanone	3606	110	3762	0	95.8	45-145	0			
4-Methyl-2-pentanone	3416	110	3762	0	90.8	45-145	0			
Acetone	4264	380	3762	0	113	20-160	0			B
Acrylonitrile	3839	110	3762	0	102	70-135	0			
Benzene	3540	110	3762	0	94.1	75-125	0			
Bromobenzene	3711	110	3762	0	98.6	65-120	0			
Bromochloromethane	4001	110	3762	0	106	70-125	0			
Bromodichloromethane	3184	110	3762	0	84.6	70-130	0			
Bromoform	2968	110	3762	0	78.9	55-135	0			
Bromomethane	2765	110	3762	0	73.5	30-160	0			
Carbon disulfide	2568	110	3762	0	68.2	45-160	0			
Carbon tetrachloride	3104	110	3762	0	82.5	65-135	0			
Chlorobenzene	3705	110	3762	0	98.5	75-125	0			
Chloroethane	2133	380	3762	0	56.7	40-155	0			
Chloroform	3828	110	3762	0	102	70-125	0			
Chloromethane	3104	110	3762	0	82.5	50-130	0			
cis-1,2-Dichloroethene	3647	110	3762	0	97	65-125	0			
cis-1,3-Dichloropropene	3120	110	3762	0	83	70-125	0			
Dibromochloromethane	3066	110	3762	0	81.5	65-135	0			
Dibromomethane	3865	110	3762	0	103	75-130	0			
Dichlorodifluoromethane	2201	110	3762	0	58.5	35-135	0			
Ethylbenzene	4003	110	3762	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	2959	110	3762	0	78.6	70-135	0	
Isopropylbenzene	3457	110	3762	0	91.9	75-130	0	
m,p-Xylene	7206	230	7524	0	95.8	80-125	0	
Methyl tert-butyl ether	3141	110	3762	0	83.5	75-125	0	
Methylene chloride	3939	110	3762	0	105	55-145	0	
Naphthalene	2880	380	3762	0	76.6	40-140	0	
n-Butylbenzene	3704	110	3762	0	98.4	65-140	0	
n-Propylbenzene	3352	110	3762	0	89.1	65-135	0	
o-Xylene	3380	110	3762	0	89.8	75-125	0	
p-Isopropyltoluene	3728	110	3762	0	99.1	75-135	0	
sec-Butylbenzene	3476	110	3762	0	92.4	65-130	0	
Styrene	3260	110	3762	0	86.6	75-125	0	
tert-Butylbenzene	3405	110	3762	0	90.5	65-130	0	
Tetrachloroethene	3918	110	3762	0	104	64-140	0	
Tetrahydrofuran	3173	380	3762	0	84.4	70-135	0	
Toluene	4085	110	3762	0	109	70-125	0	
trans-1,2-Dichloroethene	3514	110	3762	0	93.4	65-135	0	
trans-1,3-Dichloropropene	3026	110	3762	0	80.4	65-125	0	
trans-1,4-Dichloro-2-butene	2814	110	3762	0	74.8	70-135	0	
Trichloroethene	3596	110	3762	0	95.6	75-125	0	
Trichlorofluoromethane	639.5	110	3762	0	17	25-185	0	S
Vinyl chloride	3126	110	3762	0	83.1	60-125	0	
Surr: 1,2-Dichloroethane-d4	*3860*	0	*3762*	0	*103*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*4008*	0	*3762*	0	*107*	*70-130*	0	
Surr: Dibromofluoromethane	*3907*	0	*3762*	0	*104*	*70-130*	0	
Surr: Toluene-d8	*4125*	0	*3762*	0	*110*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206417-12B MSD**				Units: **µg/Kg**			Analysis Date: **6/15/2012 11:03 AM**		
Client ID:		Run ID: **VMS9_120614A**			SeqNo: **2000544**		Prep Date: **6/14/2012**		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3660	110	3762	0	97.3	75-125	3668	0.205	30	
1,1,1-Trichloroethane	3295	110	3762	0	87.6	70-135	3271	0.745	30	
1,1,2,2-Tetrachloroethane	3828	110	3762	0	102	55-130	3800	0.74	30	
1,1,2-Trichloroethane	3784	110	3762	0	101	60-125	3685	2.67	30	
1,1-Dichloroethane	3649	110	3762	0	97	75-125	3610	1.09	30	
1,1-Dichloroethene	3286	110	3762	0	87.4	65-135	3230	1.73	30	
1,2,3-Trichlorobenzene	3277	110	3762	0	87.1	60-135	3173	3.21	30	
1,2,3-Trichloropropane	3736	110	3762	0	99.3	65-130	3762	0.702	30	
1,2,3-Trimethylbenzene	3704	110	3762	0	98.4	65-135	3632	1.95	30	
1,2,4-Trichlorobenzene	3066	110	3762	0	81.5	65-130	2972	3.12	30	
1,2,4-Trimethylbenzene	3435	110	3762	0	91.3	65-135	3440	0.164	30	
1,2-Dibromo-3-chloropropane	2870	110	3762	0	76.3	40-135	2833	1.32	30	
1,2-Dibromoethane	3865	110	3762	0	103	70-125	3816	1.27	30	
1,2-Dichlorobenzene	3576	110	3762	0	95	75-120	3542	0.951	30	
1,2-Dichloroethane	3713	110	3762	0	98.7	70-135	3668	1.22	30	
1,2-Dichloropropane	4020	110	3762	0	107	70-120	3984	0.893	30	
1,3,5-Trimethylbenzene	3514	110	3762	0	93.4	65-135	3499	0.429	30	
1,3-Dichlorobenzene	3666	110	3762	0	97.4	70-125	3576	2.49	30	
1,4-Dichlorobenzene	3638	110	3762	0	96.7	70-125	3593	1.25	30	
2-Butanone	3719	380	3762	0	98.8	30-160	3721	0.0506	30	
2-Hexanone	3566	110	3762	0	94.8	45-145	3606	1.1	30	
4-Methyl-2-pentanone	3378	110	3762	0	89.8	45-145	3416	1.11	30	
Acetone	4322	380	3762	0	115	20-160	4264	1.36	30	B
Acrylonitrile	3875	110	3762	0	103	70-135	3839	0.927	30	
Benzene	3564	110	3762	0	94.8	75-125	3540	0.688	30	
Bromobenzene	3728	110	3762	0	99.1	65-120	3711	0.455	30	
Bromochloromethane	4061	110	3762	0	108	70-125	4001	1.49	30	
Bromodichloromethane	3284	110	3762	0	87.3	70-130	3184	3.08	30	
Bromoform	2994	110	3762	0	79.6	55-135	2968	0.883	30	
Bromomethane	2863	110	3762	0	76.1	30-160	2765	3.48	30	
Carbon disulfide	2695	110	3762	0	71.6	45-160	2568	4.86	30	
Carbon tetrachloride	3126	110	3762	0	83.1	65-135	3104	0.725	30	
Chlorobenzene	3775	110	3762	0	100	75-125	3705	1.86	30	
Chloroethane	2124	380	3762	0	56.4	40-155	2133	0.442	30	
Chloroform	3920	110	3762	0	104	70-125	3828	2.38	30	
Chloromethane	3179	110	3762	0	84.5	50-130	3104	2.4	30	
cis-1,2-Dichloroethene	3675	110	3762	0	97.7	65-125	3647	0.771	30	
cis-1,3-Dichloropropene	3239	110	3762	0	86.1	70-125	3120	3.73	30	
Dibromochloromethane	3145	110	3762	0	83.6	65-135	3066	2.54	30	
Dibromomethane	3875	110	3762	0	103	75-130	3865	0.243	30	
Dichlorodifluoromethane	2293	110	3762	0	61	35-135	2201	4.1	30	
Ethylbenzene	4033	110	3762	0	107	75-125	4003	0.749	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	3023	110	3762	0	80.4	70-135	2959	2.14	30	
Isopropylbenzene	3484	110	3762	0	92.6	75-130	3457	0.759	30	
m,p-Xylene	7225	230	7524	0	96	80-125	7206	0.261	30	
Methyl tert-butyl ether	3177	110	3762	0	84.4	75-125	3141	1.13	30	
Methylene chloride	4027	110	3762	0	107	55-145	3939	2.22	30	
Naphthalene	2949	380	3762	0	78.4	40-140	2880	2.39	30	
n-Butylbenzene	3711	110	3762	0	98.6	65-140	3704	0.203	30	
n-Propylbenzene	3373	110	3762	0	89.6	65-135	3352	0.615	30	
o-Xylene	3453	110	3762	0	91.8	75-125	3380	2.15	30	
p-Isopropyltoluene	3766	110	3762	0	100	75-135	3728	1	30	
sec-Butylbenzene	3463	110	3762	0	92	65-130	3476	0.38	30	
Styrene	3284	110	3762	0	87.3	75-125	3260	0.747	30	
tert-Butylbenzene	3457	110	3762	0	91.9	65-130	3405	1.54	30	
Tetrachloroethene	3990	110	3762	0	106	64-140	3918	1.81	30	
Tetrahydrofuran	3391	380	3762	0	90.2	70-135	3173	6.65	30	
Toluene	4132	110	3762	0	110	70-125	4085	1.14	30	
trans-1,2-Dichloroethene	3536	110	3762	0	94	65-135	3514	0.64	30	
trans-1,3-Dichloropropene	3149	110	3762	0	83.7	65-125	3026	3.96	30	
trans-1,4-Dichloro-2-butene	2808	110	3762	0	74.6	70-135	2814	0.201	30	
Trichloroethene	3615	110	3762	0	96.1	75-125	3596	0.522	30	
Trichlorofluoromethane	609.4	110	3762	0	16.2	25-185	639.5	4.82	30	S
Vinyl chloride	3278	110	3762	0	87.2	60-125	3126	4.76	30	
Surr: 1,2-Dichloroethane-d4	*3886*	0	*3762*	0	*103*	*70-130*	3860	*0.68*	*30*	
Surr: 4-Bromofluorobenzene	*3927*	0	*3762*	0	*104*	*70-130*	4008	*2.04*	*30*	
Surr: Dibromofluoromethane	*3909*	0	*3762*	0	*104*	*70-130*	3907	*0.0481*	*30*	
Surr: Toluene-d8	*4136*	0	*3762*	0	*110*	*70-130*	4125	*0.273*	*30*	

The following samples were analyzed in this batch:

1206416-07B	1206416-08B	1206416-09B
1206416-10B	1206416-11B	1206416-12B
1206416-13B	1206416-14B	1206416-15B
1206416-16A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206416
Project: Marshall KRRI 1150L 6/11/12

QC BATCH REPORT

Batch ID: **R106028** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106028** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106028** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206416-05ADUP1** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **MOIST_120614A** SeqNo: **2000153** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.53	0.050	0	0	0	0-0	71.83	0.419	20	

DUP Sample ID: **1206416-05ADUP2** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: **SBKR1150L544S061112S010** Run ID: **MOIST_120614A** SeqNo: **2000154** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.24	0.050	0	0	0	0-0	71.83	0.825	20	

DUP Sample ID: **1206421-01ADUP** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.46	0.050	0	0	0	0-0	14.56	0.689	20	

The following samples were analyzed in this batch:

1206416-01A	1206416-02A	1206416-03A
1206416-04A	1206416-05A	1206416-06A
1206416-07A	1206416-08A	1206416-09A
1206416-10A	1206416-11A	1206416-12A
1206416-13A	1206416-14A	1206416-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206416

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_061112_LJL1 | Task: KRRI_1150L
Total # of Samples: 16 | Event Complete?
Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L541D061112S005	SBKR1150L541	SO	G	06/11/2012 10:40	3	DUPLICATE		X	X	X	X	X										
2	SBKR1150L541S061112S005	SBKR1150L541	SO	G	06/11/2012 10:40	3			X	X	X	X	X										
3	SBKR1150L542S061112S008	SBKR1150L542	SO	G	06/11/2012 10:26	3			X	X	X	X	X										
4	SBKR1150L543S061112S006	SBKR1150L543	SO	G	06/11/2012 13:47	3			X	X	X	X	X										
5	SBKR1150L544S061112S010	SBKR1150L544	SO	G	06/11/2012 13:28	6	MS/MD		X	X	X	X	X										
6	SBKR1150L545S061112S005	SBKR1150L545	SO	G	06/11/2012 11:47	3	MDEQ SPLIT		X	X	X	X	X										
7	SBKR1150L545S061112S032	SBKR1150L545	SO	G	06/11/2012 11:51	3			X	X	X	X	X										
8	SBKR1150L546S061112S005	SBKR1150L546	SO	G	06/11/2012 14:39	3	MDEQ SPLIT		X	X	X	X	X										
9	SBKR1150L546S061112S020	SBKR1150L546	SO	G	06/11/2012 14:43	3			X	X	X	X	X										
10	SBKR1150L547S061112S004	SBKR1150L547	SO	G	06/11/2012 15:07	3			X	X	X	X	X										
11	SBKR1150L547S061112S020	SBKR1150L547	SO	G	06/11/2012 15:11	3			X	X	X	X	X										
12	SBKR1150L548S061112S005	SBKR1150L548	SO	G	06/11/2012 15:58	3			X	X	X	X	X										
13	SBKR1150L549D061112S006	SBKR1150L549	SO	G	06/11/2012 16:14	3	DUPLICATE		X	X	X	X	X										
14	SBKR1150L549S061112S006	SBKR1150L549	SO	G	06/11/2012 16:14	3			X	X	X	X	X										
15	SBKR1150L550S061112S006	SBKR1150L550	SO	G	06/11/2012 16:30	3			X	X	X	X	X										
16	SBKR1150L550T061112MX	SBKR1150L550	SQ	G	06/11/2012 00:00	1	TRIP BLANK						X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lorri Lego	6-11-12	1726	Lorri Lego	6-11-12	1726
Lorri Lego	6-13-12	1315		6-13-12	1513

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
3.0°	Y/N (Y)	Y/N (Y)	Y/N (Y)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **13-Jun-12 13:15**

Work Order: **1206416** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 13-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 14-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

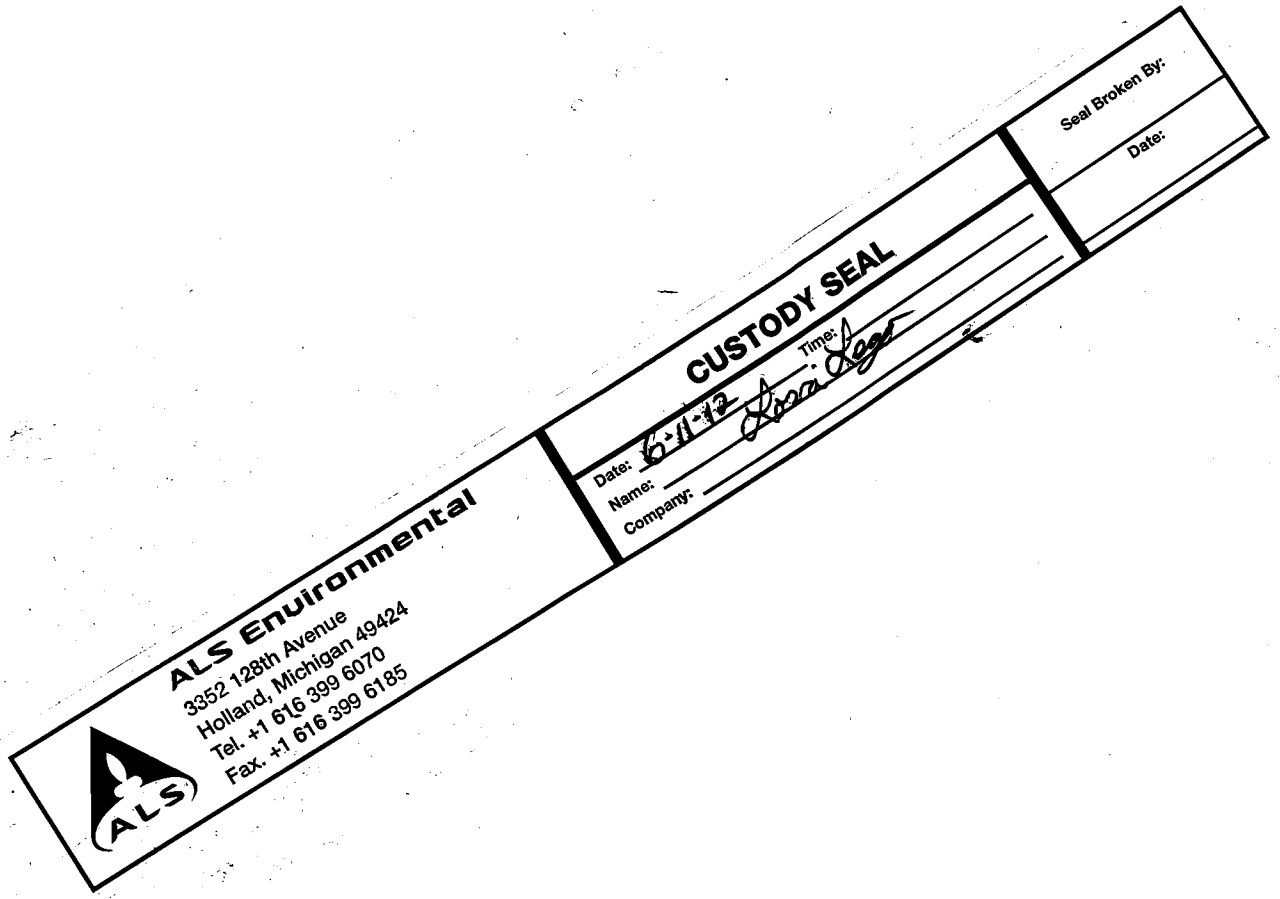
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 6-11-12
Time:
Name:
Company:
Seal Broken By:
Date:

22-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L,1325L 6/12/12** Work Order: **1206417**

Dear Bryan,

ALS Environmental received 15 samples on 13-Jun-2012 01:15 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 84.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1325L 6/12/12
Work Order: **1206417**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206417-01	SBKR1150L551S061212S004	Soil		6/12/2012 08:46	6/13/2012 13:15	☐
1206417-02	SBKR1150L551S061212S011	Soil		6/12/2012 08:50	6/13/2012 13:15	☐
1206417-03	SBKR1150L552S061212S003	Soil		6/12/2012 09:27	6/13/2012 13:15	☐
1206417-04	SBKR1150L552S061212S010	Soil		6/12/2012 09:33	6/13/2012 13:15	☐
1206417-05	SBKR1325L501S061212S006	Soil		6/12/2012 10:32	6/13/2012 13:15	☐
1206417-06	SBKR1325L502S061212S005	Soil		6/12/2012 10:54	6/13/2012 13:15	☐
1206417-07	SBKR1325L503S061212S004	Soil		6/12/2012 13:18	6/13/2012 13:15	☐
1206417-08	SBKR1325L504S061212S003	Soil		6/12/2012 13:40	6/13/2012 13:15	☐
1206417-09	SBKR1325L505S061212S005	Soil		6/12/2012 14:18	6/13/2012 13:15	☐
1206417-10	SBKR1325L506S061212S007	Soil		6/12/2012 14:55	6/13/2012 13:15	☐
1206417-11	SBKR1325L506D061212S007	Soil		6/12/2012 14:55	6/13/2012 13:15	☐
1206417-12	SBKR1325L507S061212S007	Soil		6/12/2012 15:29	6/13/2012 13:15	☐
1206417-13	SBKR1325L508S061212S005	Soil		6/12/2012 15:54	6/13/2012 13:15	☐
1206417-14	SBKR1325L509S061212S004	Soil		6/12/2012 16:30	6/13/2012 13:15	☐
1206417-15	SBKR1325L509T061212MX	Soil		6/12/2012	6/13/2012 13:15	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L,1325L 6/12/12
Work Order: 1206417

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41670 LCSD recovery for 4-Methyl-2-pentanone was above control limits, but all samples in this quality control batch were ND for this compound. The MS/MSD data for Volatiles is not related to this project's samples.

Batch 41652 sample SBKR1325L507S061212S007 MS/MSD recoveries for Trichlorofluoromethane were below the lower control limit. The sample reporting limits may be biased low for this analyte.

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L,1325L 6/12/12
WorkOrder: **1206417**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 8:46:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	**1,300**	**35**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**4,400**	**70**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*78.0*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.70**	**0.60**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**40**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**2,500**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**2,300**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	**960**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Pyrene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*81.4*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*71.7*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*82.1*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*86.0*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*62.7*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*77.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	660	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	660	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	660	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	660	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	660	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 8:46:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	660	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	660	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	660	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	660	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	660	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	660	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	660	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	660	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	660	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	2,200	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	2,200	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	5,500	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	660	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	660	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	660	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	660	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	660	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	660	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	660	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	660	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	660	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	2,200	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	660	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	660	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	660	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	660	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	660	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	660	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	660	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	660	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	660	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	660	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	660	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 8:46:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	660	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	660	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	660	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,300	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	660	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	660	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	660	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	2,200	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	660	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	660	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	660	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	660	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	660	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	660	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	660	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	660	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	660	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	2,200	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	660	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	660	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	660	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	660	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	660	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	660	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	660	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*94.0*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*99.5*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S011
Work Order:	1206417	**Collection Date:**	6/12/2012 8:50:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	41	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	81	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*67.2*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.74	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**2.1**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**13**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**27**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**850**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**990**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(k)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**680**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**880**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*90.2*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*65.1*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*67.7*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*72.8*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*51.5*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*69.0*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	910	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	910	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	910	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	910	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	910	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S011
Work Order:	1206417	**Collection Date:**	6/12/2012 8:50:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	910	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	910	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	910	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	910	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	910	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	910	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	910	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	910	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	910	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	3,000	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	3,000	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	7,600	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	910	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	910	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	910	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	910	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	910	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	910	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	910	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	910	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	910	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	3,000	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	910	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	910	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	910	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	910	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	910	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	910	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	910	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	910	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	910	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	910	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	910	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L551S061212S011
Work Order:	1206417	**Collection Date:**	6/12/2012 8:50:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	910	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	910	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	910	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,800	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	910	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	910	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	910	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	3,000	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	910	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	910	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	910	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	910	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	910	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	910	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	3,000	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	910	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	910	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	910	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	3,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	910	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	910	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	910	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	910	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	910	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	910	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	910	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*95.4*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*99.6*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**76**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 9:27:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	**450**	**33**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**2,600**	**65**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*69.5*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.55	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.1	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**860**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*83.4*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*69.9*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*70.6*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*80.1*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*52.2*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*70.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	610	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	610	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	610	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	610	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	610	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 9:27:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	610	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	610	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	610	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	610	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	610	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	610	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	610	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	610	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	2,000	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	2,000	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	5,100	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	610	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	610	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	610	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	610	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	610	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	610	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	610	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	610	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	610	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	2,000	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	610	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	610	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	610	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	610	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	610	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	610	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	610	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	610	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	610	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	610	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 9:27:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	610	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	610	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	610	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,200	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	610	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	610	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	610	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	2,000	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	610	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	610	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	610	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	610	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	610	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	610	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	610	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	2,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	610	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	610	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	610	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	610	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	610	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	610	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	610	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.0*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*99.6*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**71**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S010
Work Order:	1206417	**Collection Date:**	6/12/2012 9:33:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	33	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	65	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*71.3*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.78**	**0.57**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	ND	1.1	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**37**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**700**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*85.1*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*63.1*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*71.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*79.6*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*53.0*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*68.0*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	570	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	570	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	570	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	570	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	570	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S010
Work Order:	1206417	**Collection Date:**	6/12/2012 9:33:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	570	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	570	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	570	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	570	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	570	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	570	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	4,700	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	570	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	570	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	570	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	570	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	570	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	570	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	570	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	570	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	570	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	570	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	570	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	570	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	570	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	570	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	570	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	570	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	570	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	570	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L552S061212S010
Work Order:	1206417	**Collection Date:**	6/12/2012 9:33:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	570	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	570	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	570	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	570	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	570	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	570	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	570	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	570	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	570	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	570	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	570	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	570	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	570	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	570	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	570	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	570	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	570	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	570	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.1*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*99.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L501S061212S006
Work Order:	1206417	**Collection Date:**	6/12/2012 10:32:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	15	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	30	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*74.0*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(a)pyrene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*87.6*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*71.8*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*76.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*90.6*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*57.0*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*74.6*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L501S061212S006
Work Order:	1206417	**Collection Date:**	6/12/2012 10:32:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	340	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	100	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	340	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	100	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L501S061212S006
Work Order:	1206417	**Collection Date:**	6/12/2012 10:32:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	210	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	340	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	100	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*99.0*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*90.7*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*96.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**37**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L502S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 10:54:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	**77**	**19**	**4.0**		**mg/Kg-dry**	1	6/18/2012
ORO (C20-C34)	**380**	**37**	**4.0**		**mg/Kg-dry**	1	6/18/2012
Surr: 4-Terphenyl-d14	*72.0*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*90.1*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*68.1*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*68.7*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*93.1*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*51.5*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*69.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L502S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 10:54:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	580	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	170	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	170	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	580	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	170	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L502S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 10:54:00 AM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	350	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	170	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	580	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	170	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	170	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*99.3*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*93.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**49**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L503S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 1:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	23	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	45	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*72.2*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*94.0*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*75.0*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*78.6*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*98.1*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*57.3*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*77.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	240	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	240	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	240	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	240	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	240	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L503S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 1:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	240	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	240	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	240	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	240	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	240	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	240	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	800	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	800	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,000	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	240	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	240	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	240	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	240	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	240	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	240	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	240	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	240	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	800	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	240	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	240	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	240	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L503S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 1:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	240	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	480	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	240	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	800	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	240	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	240	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	240	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	240	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	240	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	240	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	240	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	240	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	240	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	240	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	240	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	240	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	240	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*92.9*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.5*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**56**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L504S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	22	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	45	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*72.8*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	J	µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*90.9*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*72.5*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*78.1*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*96.6*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*57.8*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*76.4*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	260	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	260	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L504S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	260	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	260	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	260	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	260	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	260	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	850	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	850	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,100	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	260	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	260	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	260	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	260	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	260	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	260	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	260	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	260	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	260	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	850	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	260	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	260	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	260	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	260	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	260	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	260	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	260	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	260	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L504S061212S003
Work Order:	1206417	**Collection Date:**	6/12/2012 1:40:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	260	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	260	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	510	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	260	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	260	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	260	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	850	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	260	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	260	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	260	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	260	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	260	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	260	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	260	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	260	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	260	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	260	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	260	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*94.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*107*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L505S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 2:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	22	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	43	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*73.5*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*94.7*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*78.0*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*86.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*64.8*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*83.3*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L505S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 2:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L505S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 2:18:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*92.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.7*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*107*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	23	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	45	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*73.8*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*92.9*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*65.0*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*75.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*65.4*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*74.6*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/15/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	270	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	270	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	270	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	900	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	900	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,200	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	270	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	270	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	270	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	270	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	900	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	270	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	270	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	270	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	270	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	270	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	540	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	270	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	270	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	900	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	270	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	270	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	270	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	270	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	270	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	270	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	270	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*115*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*99.3*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**58**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506D061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*71.3*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**9.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*80.5*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*67.7*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*79.0*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*100*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*64.8*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*73.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/15/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506D061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L506D061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 2:55:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*116*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L507S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 3:29:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/18/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	6/18/2012
ORO (C20-C34)	ND	47	4.0		mg/Kg-dry	1	6/18/2012
Surr: 4-Terphenyl-d14	*63.9*	*39-115*			*%REC*	1	6/18/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*99.7*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*84.7*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*89.7*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*88.7*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*70.8*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*86.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/14/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	270	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L507S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 3:29:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	270	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	270	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	270	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	890	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	890	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	2,200	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	270	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	270	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	270	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	270	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	270	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	890	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	270	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	270	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	270	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	270	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	270	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L507S061212S007
Work Order:	1206417	**Collection Date:**	6/12/2012 3:29:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	270	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	540	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	270	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	270	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	270	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	890	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	270	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	270	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	270	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	270	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	270	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	270	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	270	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	270	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	270	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	270	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	270	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	270	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*94.2*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*98.3*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**58**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L508S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 3:54:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	40	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*71.7*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	**0.51**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/18/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/18/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*83.8*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*69.0*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*80.2*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*99.3*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*66.1*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*77.3*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/15/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L508S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 3:54:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L508S061212S005
Work Order:	1206417	**Collection Date:**	6/12/2012 3:54:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	390	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*116*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*94.5*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L509S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	16	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	32	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*71.7*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/19/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/19/2012
Nickel	**8.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/19/2012
Vanadium	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*85.4*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*69.6*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*79.2*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*67.0*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*72.2*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/15/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	110	100		µg/Kg-dry	1	6/15/2012
1,1,1-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	110	50		µg/Kg-dry	1	6/15/2012
1,1,2-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/15/2012
1,1-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L509S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,3-Trichloropropane	ND	110	100		µg/Kg-dry	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
1,2,4-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	110	10		µg/Kg-dry	1	6/15/2012
1,2-Dibromoethane	ND	110	20		µg/Kg-dry	1	6/15/2012
1,2-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
1,2-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/15/2012
1,2-Dichloropropane	ND	110	50		µg/Kg-dry	1	6/15/2012
1,3,5-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
1,3-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
1,4-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
2-Methylnaphthalene	ND	360	330		µg/Kg-dry	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Acrylonitrile	ND	110	100		µg/Kg-dry	1	6/15/2012
Benzene	ND	110	50		µg/Kg-dry	1	6/15/2012
Bromobenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
Bromochloromethane	ND	110	100		µg/Kg-dry	1	6/15/2012
Bromodichloromethane	ND	110	100		µg/Kg-dry	1	6/15/2012
Bromoform	ND	110	100		µg/Kg-dry	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/15/2012
Carbon tetrachloride	ND	110	50		µg/Kg-dry	1	6/15/2012
Chlorobenzene	ND	110	50		µg/Kg-dry	1	6/15/2012
Chloroethane	ND	360	250		µg/Kg-dry	1	6/15/2012
Chloroform	ND	110	50		µg/Kg-dry	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
cis-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/15/2012
cis-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/15/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/15/2012
Dibromochloromethane	ND	110	100		µg/Kg-dry	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L509S061212S004
Work Order:	1206417	**Collection Date:**	6/12/2012 4:30:00 PM
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	110	50		µg/Kg-dry	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/15/2012
m,p-Xylene	ND	220	100		µg/Kg-dry	1	6/15/2012
Methyl iodide	ND	110	100		µg/Kg-dry	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/15/2012
Methylene chloride	ND	110	100		µg/Kg-dry	1	6/15/2012
Naphthalene	ND	360	330		µg/Kg-dry	1	6/15/2012
n-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/15/2012
n-Propylbenzene	ND	110	100		µg/Kg-dry	1	6/15/2012
o-Xylene	ND	110	50		µg/Kg-dry	1	6/15/2012
p-Isopropyltoluene	ND	110	100		µg/Kg-dry	1	6/15/2012
sec-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/15/2012
Styrene	ND	110	50		µg/Kg-dry	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/15/2012
tert-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/15/2012
Tetrachloroethene	ND	110	50		µg/Kg-dry	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/15/2012
Toluene	ND	110	100		µg/Kg-dry	1	6/15/2012
trans-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/15/2012
trans-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	110	50		µg/Kg-dry	1	6/15/2012
Trichloroethene	ND	110	50		µg/Kg-dry	1	6/15/2012
Trichlorofluoromethane	ND	110	100		µg/Kg-dry	1	6/15/2012
Vinyl chloride	ND	110	40		µg/Kg-dry	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*116*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*99.1*	*70-130*			*%REC*	1	6/15/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**38**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L509T061212MX
Work Order:	1206417	**Collection Date:**	6/12/2012
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-15	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/15/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/15/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/15/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/15/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/15/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/15/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/15/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/15/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/15/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/15/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/15/2012
2-Butanone	ND	750	750		µg/Kg	1	6/15/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/15/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/15/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/15/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/15/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/15/2012
Benzene	ND	50	50		µg/Kg	1	6/15/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/15/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/15/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/15/2012
Bromoform	ND	100	100		µg/Kg	1	6/15/2012
Bromomethane	ND	200	200		µg/Kg	1	6/15/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/15/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/15/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/15/2012
Chloroethane	ND	250	250		µg/Kg	1	6/15/2012
Chloroform	ND	50	50		µg/Kg	1	6/15/2012
Chloromethane	ND	250	250		µg/Kg	1	6/15/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L509T061212MX
Work Order:	1206417	**Collection Date:**	6/12/2012
Project:	Marshall KRRI 1150L,1325L 6/12/12		
Lab ID:	1206417-15	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/15/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/15/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/15/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/15/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/15/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/15/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/15/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/15/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/15/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/15/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/15/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/15/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/15/2012
Naphthalene	ND	330	330		µg/Kg	1	6/15/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/15/2012
o-Xylene	ND	50	50		µg/Kg	1	6/15/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/15/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Styrene	ND	50	50		µg/Kg	1	6/15/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/15/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/15/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/15/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/15/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/15/2012
Toluene	ND	100	100		µg/Kg	1	6/15/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/15/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/15/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/15/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/15/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/15/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/15/2012
Surr: 1,2-Dichloroethane-d4	*118*	*70-130*			*%REC*	1	6/15/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/15/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/15/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/15/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41712** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41712-41712** Units: **mg/Kg** Analysis Date: **6/18/2012 05:25 PM**

Client ID: Run ID: **GC8_120618A** SeqNo: **2003740** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.418*	0	*5*	0	*68.4*	*39-115*	0			

LCS Sample ID: **DLCSS1-41712-41712** Units: **mg/Kg** Analysis Date: **6/18/2012 05:49 PM**

Client ID: Run ID: **GC8_120618A** SeqNo: **2003741** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	420.7	10	500	0	84.1	60-130	0			
ORO (C20-C34)	449.9	20	500	0	90	60-130	0			
Surr: 4-Terphenyl-d14	*3.511*	0	*5*	0	*70.2*	*39-115*	0			

MS Sample ID: **1206417-12A MS** Units: **mg/Kg** Analysis Date: **6/18/2012 06:14 PM**

Client ID: **SBKR1325L507S061212S007** Run ID: **GC8_120618A** SeqNo: **2003742** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	400.4	9.9	492.7	0	81.3	60-130	0			
ORO (C20-C34)	499.4	20	492.7	0	101	60-130	0			
Surr: 4-Terphenyl-d14	*3.328*	0	*4.927*	0	*67.5*	*39-115*	0			

MSD Sample ID: **1206417-12A MSD** Units: **mg/Kg** Analysis Date: **6/18/2012 06:39 PM**

Client ID: **SBKR1325L507S061212S007** Run ID: **GC8_120618A** SeqNo: **2003743** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	414.6	10	499.6	0	83	60-130	400.4	3.48	30	
ORO (C20-C34)	493.2	20	499.6	0	98.7	60-130	499.4	1.25	30	
Surr: 4-Terphenyl-d14	*3.46*	0	*4.996*	0	*69.3*	*39-115*	3.328	*3.9*	*30*	

The following samples were analyzed in this batch:

1206417-01A	1206417-02A	1206417-03A
1206417-04A	1206417-05A	1206417-06A
1206417-07A	1206417-08A	1206417-09A
1206417-10A	1206417-12A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41747** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41747-41747** Units: **mg/Kg** Analysis Date: **6/19/2012 03:32 PM**
Client ID: Run ID: **GC8_120619A** SeqNo: **2004623** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.757*	0	*5*	0	*75.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-41747-41747** Units: **mg/Kg** Analysis Date: **6/19/2012 03:57 PM**
Client ID: Run ID: **GC8_120619A** SeqNo: **2004624** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	419.8	10	500	0	84	60-130	0			
ORO (C20-C34)	431	20	500	0	86.2	60-130	0			
Surr: 4-Terphenyl-d14	*3.751*	0	*5*	0	*75*	*39-115*	0			

MS Sample ID: **1206417-13A MS** Units: **mg/Kg** Analysis Date: **6/19/2012 04:21 PM**
Client ID: **SBKR1325L508S061212S005** Run ID: **GC8_120619A** SeqNo: **2004625** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	399.4	9.8	491.5	0	81.2	60-130	0			
ORO (C20-C34)	527	20	491.5	0	107	60-130	0			
Surr: 4-Terphenyl-d14	*3.759*	0	*4.915*	0	*76.5*	*39-115*	0			

MSD Sample ID: **1206417-13A MSD** Units: **mg/Kg** Analysis Date: **6/19/2012 04:46 PM**
Client ID: **SBKR1325L508S061212S005** Run ID: **GC8_120619A** SeqNo: **2004626** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	394.6	9.6	479.6	0	82.3	60-130	399.4	1.2	30	
ORO (C20-C34)	528.4	19	479.6	0	110	60-130	527	0.254	30	
Surr: 4-Terphenyl-d14	*3.699*	0	*4.796*	0	*77.1*	*39-115*	3.759	*1.62*	*30*	

The following samples were analyzed in this batch: 1206417-11A 1206417-13A 1206417-14A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41684** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 08:59 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002958** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.00614	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 09:05 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002959** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.584	0.10	5	0	91.7	80-120	0			
Molybdenum	4.802	0.25	5	0	96	80-120	0			
Nickel	4.614	0.25	5	0	92.3	80-120	0			
Vanadium	4.838	0.25	5	0	96.8	80-120	0			

MS Sample ID: **1206417-12AMS** Units: **mg/Kg** Analysis Date: **6/18/2012 11:37 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **ICPMS1_120618A** SeqNo: **2003023** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.792	0.56	7.032	0.1372	80.4	80-120	0			
Molybdenum	6.127	1.4	7.032	0.1973	84.3	80-120	0			
Nickel	10.28	1.4	7.032	4.54	81.6	80-120	0			
Vanadium	13.35	1.4	7.032	7.254	86.6	80-120	0			

MSD Sample ID: **1206417-12AMSD** Units: **mg/Kg** Analysis Date: **6/18/2012 11:43 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **ICPMS1_120618A** SeqNo: **2003028** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.263	0.60	7.485	0.1372	81.8	80-120	5.792	7.82	25	
Molybdenum	6.734	1.5	7.485	0.1973	87.3	80-120	6.127	9.44	25	
Nickel	10.9	1.5	7.485	4.54	85	80-120	10.28	5.88	25	
Vanadium	13.77	1.5	7.485	7.254	87	80-120	13.35	3.09	25	

The following samples were analyzed in this batch:

1206417-01A	1206417-02A	1206417-03A
1206417-04A	1206417-05A	1206417-06A
1206417-07A	1206417-08A	1206417-09A
1206417-10A	1206417-11A	1206417-12A
1206417-13A	1206417-14A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41746-41746** Units: **µg/Kg** Analysis Date: **6/20/2012 04:57 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007490** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2975*	0	*5000*	0	*59.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3710*	0	*5000*	0	*74.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3770*	0	*5000*	0	*75.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5590*	0	*5000*	0	*112*	*25-137*	0			
Surr: Nitrobenzene-d5	*3759*	0	*5000*	0	*75.2*	*37-107*	0			
Surr: Phenol-d6	*4082*	0	*5000*	0	*81.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41746-41746** Units: **µg/Kg** Analysis Date: **6/20/2012 02:41 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007486** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1748	50	2000	0	87.4	45-105	0			
Acenaphthene	1785	50	2000	0	89.2	45-110	0			
Acenaphthylene	1825	50	2000	0	91.2	45-105	0			
Anthracene	1910	50	2000	0	95.5	55-105	0			
Benzo(a)anthracene	1873	50	2000	0	93.6	50-110	0			
Benzo(a)pyrene	1970	50	2000	0	98.5	50-110	0			
Benzo(b)fluoranthene	1921	50	2000	0	96	45-115	0			
Benzo(g,h,i)perylene	2231	50	2000	0	112	40-125	0			
Benzo(k)fluoranthene	1944	50	2000	0	97.2	45-115	0			
Chrysene	2056	50	2000	0	103	55-110	0			
Dibenzo(a,h)anthracene	2114	50	2000	0	106	40-125	0			
Fluoranthene	2007	50	2000	0	100	55-115	0			
Fluorene	1821	50	2000	0	91	50-110	0			
Indeno(1,2,3-cd)pyrene	2153	50	2000	0	108	40-120	0			
Naphthalene	1736	50	2000	0	86.8	40-105	0			
Phenanthrene	1907	50	2000	0	95.4	50-110	0			
Pyrene	2060	50	2000	0	103	45-125	0			
Surr: 2,4,6-Tribromophenol	*3947*	0	*5000*	0	*78.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3839*	0	*5000*	0	*76.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4490*	0	*5000*	0	*89.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5504*	0	*5000*	0	*110*	*25-137*	0			
Surr: Nitrobenzene-d5	*3882*	0	*5000*	0	*77.6*	*37-107*	0			
Surr: Phenol-d6	*4257*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206417-13A MS** Units: **µg/Kg** Analysis Date: **6/20/2012 03:15 PM**
Client ID: **SBKR1325L508S061212S005** Run ID: **SVMS4_120620A** SeqNo: **2007487** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1501	47	1888	0	79.5	45-105	0			
Acenaphthene	1642	47	1888	0	87	45-110	0			
Acenaphthylene	1703	47	1888	0	90.2	45-105	0			
Anthracene	1801	47	1888	0	95.4	55-105	0			
Benzo(a)anthracene	1830	47	1888	79.3	92.7	50-110	0			
Benzo(a)pyrene	1921	47	1888	115.1	95.7	50-110	0			
Benzo(b)fluoranthene	1965	47	1888	151.8	96	45-115	0			
Benzo(g,h,i)perylene	1781	47	1888	87.03	89.7	40-125	0			
Benzo(k)fluoranthene	1824	47	1888	55.12	93.7	45-115	0			
Chrysene	1892	47	1888	115.1	94.1	55-110	0			
Dibenzo(a,h)anthracene	1695	47	1888	0	89.8	40-125	0			
Fluoranthene	1920	47	1888	105.4	96.1	55-115	0			
Fluorene	1737	47	1888	0	92	50-110	0			
Indeno(1,2,3-cd)pyrene	1797	47	1888	61.89	91.9	40-120	0			
Naphthalene	1414	47	1888	0	74.9	40-105	0			
Phenanthrene	1825	47	1888	0	96.6	50-110	0			
Pyrene	1920	47	1888	126.7	95	45-125	0			
Surr: 2,4,6-Tribromophenol	*4136*	0	*4720*	0	*87.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3448*	0	*4720*	0	*73*	*12-100*	0			
Surr: 2-Fluorophenol	*3644*	0	*4720*	0	*77.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4775*	0	*4720*	0	*101*	*25-137*	0			
Surr: Nitrobenzene-d5	*3086*	0	*4720*	0	*65.4*	*37-107*	0			
Surr: Phenol-d6	*3580*	0	*4720*	0	*75.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206417-13A MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 03:49 PM**
Client ID: **SBKR1325L508S061212S005** Run ID: **SVMS4_120620A** SeqNo: **2007488** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1625	49	1952	0	83.2	45-105	1501	7.95	30	
Acenaphthene	1741	49	1952	0	89.2	45-110	1642	5.89	30	
Acenaphthylene	1791	49	1952	0	91.8	45-105	1703	5.04	30	
Anthracene	1908	49	1952	0	97.8	55-105	1801	5.77	30	
Benzo(a)anthracene	1899	49	1952	79.3	93.2	50-110	1830	3.75	30	
Benzo(a)pyrene	2035	49	1952	115.1	98.4	50-110	1921	5.77	30	
Benzo(b)fluoranthene	2250	49	1952	151.8	107	45-115	1965	13.5	30	
Benzo(g,h,i)perylene	1644	49	1952	87.03	79.7	40-125	1781	8.04	30	
Benzo(k)fluoranthene	2174	49	1952	55.12	109	45-115	1824	17.5	30	
Chrysene	2020	49	1952	115.1	97.6	55-110	1892	6.53	30	
Dibenzo(a,h)anthracene	1645	49	1952	0	84.2	40-125	1695	2.98	30	
Fluoranthene	2061	49	1952	105.4	100	55-115	1920	7.05	30	
Fluorene	1805	49	1952	0	92.4	50-110	1737	3.83	30	
Indeno(1,2,3-cd)pyrene	1706	49	1952	61.89	84.2	40-120	1797	5.21	30	
Naphthalene	1536	49	1952	0	78.7	40-105	1414	8.28	30	
Phenanthrene	1918	49	1952	0	98.2	50-110	1825	4.98	30	
Pyrene	2020	49	1952	126.7	97	45-125	1920	5.09	30	
Surr: 2,4,6-Tribromophenol	*4426*	0	*4880*	0	*90.7*	*34-140*	4136	*6.77*	*40*	
Surr: 2-Fluorobiphenyl	*3667*	0	*4880*	0	*75.1*	*12-100*	3448	*6.17*	*40*	
Surr: 2-Fluorophenol	*3884*	0	*4880*	0	*79.6*	*33-117*	3644	*6.37*	*40*	
Surr: 4-Terphenyl-d14	*5029*	0	*4880*	0	*103*	*25-137*	4775	*5.18*	*40*	
Surr: Nitrobenzene-d5	*3350*	0	*4880*	0	*68.6*	*37-107*	3086	*8.2*	*40*	
Surr: Phenol-d6	*3869*	0	*4880*	0	*79.3*	*40-106*	3580	*7.77*	*40*	

The following samples were analyzed in this batch: 1206417-11A 1206417-13A 1206417-14A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41760-41760** Units: **µg/Kg** Analysis Date: **6/20/2012 01:13 AM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006420** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4172*	0	*5000*	0	*83.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4318*	0	*5000*	0	*86.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4195*	0	*5000*	0	*83.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3581*	0	*5000*	0	*71.6*	*37-107*	0			
Surr: Phenol-d6	*4281*	0	*5000*	0	*85.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41760-41760** Units: **µg/Kg** Analysis Date: **6/19/2012 10:47 PM**
Client ID: Run ID: **SVMS5_120619A** SeqNo: **2006418** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1499	50	2000	0	75	45-105	0			
Acenaphthene	1486	50	2000	0	74.3	45-110	0			
Acenaphthylene	1595	50	2000	0	79.8	45-105	0			
Anthracene	1631	50	2000	0	81.6	55-105	0			
Benzo(a)anthracene	1701	50	2000	0	85	50-110	0			
Benzo(a)pyrene	1784	50	2000	0	89.2	50-110	0			
Benzo(b)fluoranthene	2020	50	2000	0	101	45-115	0			
Benzo(g,h,i)perylene	2111	50	2000	0	106	40-125	0			
Benzo(k)fluoranthene	1754	50	2000	0	87.7	45-115	0			
Chrysene	1735	50	2000	0	86.8	55-110	0			
Dibenzo(a,h)anthracene	1881	50	2000	0	94	40-125	0			
Fluoranthene	1635	50	2000	0	81.8	55-115	0			
Fluorene	1665	50	2000	0	83.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1877	50	2000	0	93.8	40-120	0			
Naphthalene	1558	50	2000	0	77.9	40-105	0			
Phenanthrene	1651	50	2000	0	82.6	50-110	0			
Pyrene	1735	50	2000	0	86.8	45-125	0			
Surr: 2,4,6-Tribromophenol	*4090*	0	*5000*	0	*81.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3860*	0	*5000*	0	*77.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4186*	0	*5000*	0	*83.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3962*	0	*5000*	0	*79.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3289*	0	*5000*	0	*65.8*	*37-107*	0			
Surr: Phenol-d6	*3871*	0	*5000*	0	*77.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1206417-12A MS** Units: **µg/Kg** Analysis Date: **6/19/2012 11:24 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **SVMS5_120619A** SeqNo: **2006419** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1608	49	1952	0	82.4	45-105	0			
Acenaphthene	1625	49	1952	0	83.2	45-110	0			
Acenaphthylene	1745	49	1952	0	89.4	45-105	0			
Anthracene	1724	49	1952	0	88.3	55-105	0			
Benzo(a)anthracene	1838	49	1952	0	94.2	50-110	0			
Benzo(a)pyrene	1776	49	1952	69.84	87.4	50-110	0			
Benzo(b)fluoranthene	2008	49	1952	0	103	45-115	0			
Benzo(g,h,i)perylene	1676	49	1952	54.1	83.1	40-125	0			
Benzo(k)fluoranthene	1950	49	1952	62.95	96.7	45-115	0			
Chrysene	1727	49	1952	77.71	84.5	55-110	0			
Dibenzo(a,h)anthracene	1534	49	1952	0	78.6	40-125	0			
Fluoranthene	1814	49	1952	77.71	89	55-115	0			
Fluorene	1762	49	1952	0	90.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1551	49	1952	0	79.4	40-120	0			
Naphthalene	1603	49	1952	0	82.1	40-105	0			
Phenanthrene	1767	49	1952	0	90.5	50-110	0			
Pyrene	1822	49	1952	89.51	88.8	45-125	0			
Surr: 2,4,6-Tribromophenol	*4290*	0	*4880*	0	*87.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3697*	0	*4880*	0	*75.8*	*12-100*	0			
Surr: 2-Fluorophenol	*3882*	0	*4880*	0	*79.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3444*	0	*4880*	0	*70.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3246*	0	*4880*	0	*66.5*	*37-107*	0			
Surr: Phenol-d6	*3720*	0	*4880*	0	*76.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41760** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1206417-12A MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 12:00 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **SVMS5_120619A** SeqNo: **2006434** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1570	48	1926	0	81.5	45-105	1608	2.44	30	
Acenaphthene	1607	48	1926	0	83.4	45-110	1625	1.1	30	
Acenaphthylene	1735	48	1926	0	90.1	45-105	1745	0.558	30	
Anthracene	1665	48	1926	0	86.4	55-105	1724	3.45	30	
Benzo(a)anthracene	1746	48	1926	0	90.6	50-110	1838	5.13	30	
Benzo(a)pyrene	1770	48	1926	69.84	88.3	50-110	1776	0.354	30	
Benzo(b)fluoranthene	1955	48	1926	0	102	45-115	2008	2.66	30	
Benzo(g,h,i)perylene	1616	48	1926	54.1	81.1	40-125	1676	3.64	30	
Benzo(k)fluoranthene	1925	48	1926	62.95	96.7	45-115	1950	1.29	30	
Chrysene	1628	48	1926	77.71	80.5	55-110	1727	5.85	30	
Dibenzo(a,h)anthracene	1527	48	1926	0	79.3	40-125	1534	0.451	30	
Fluoranthene	1698	48	1926	77.71	84.1	55-115	1814	6.64	30	
Fluorene	1761	48	1926	0	91.4	50-110	1762	0.017	30	
Indeno(1,2,3-cd)pyrene	1540	48	1926	0	80	40-120	1551	0.711	30	
Naphthalene	1618	48	1926	0	84	40-105	1603	0.95	30	
Phenanthrene	1715	48	1926	0	89	50-110	1767	2.95	30	
Pyrene	1689	48	1926	89.51	83.1	45-125	1822	7.58	30	
Surr: 2,4,6-Tribromophenol	*4360*	0	*4815*	0	*90.5*	*34-140*	4290	*1.6*	*40*	
Surr: 2-Fluorobiphenyl	*4017*	0	*4815*	0	*83.4*	*12-100*	3697	*8.29*	*40*	
Surr: 2-Fluorophenol	*4194*	0	*4815*	0	*87.1*	*33-117*	3882	*7.74*	*40*	
Surr: 4-Terphenyl-d14	*3607*	0	*4815*	0	*74.9*	*25-137*	3444	*4.6*	*40*	
Surr: Nitrobenzene-d5	*3404*	0	*4815*	0	*70.7*	*37-107*	3246	*4.76*	*40*	
Surr: Phenol-d6	*3988*	0	*4815*	0	*82.8*	*40-106*	3720	*6.94*	*40*	

The following samples were analyzed in this batch:

1206417-01A	1206417-02A	1206417-03A
1206417-04A	1206417-05A	1206417-06A
1206417-07A	1206417-08A	1206417-09A
1206417-10A	1206417-12A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41652-41652** Units: **µg/Kg** Analysis Date: **6/15/2012 01:49 AM**
Client ID: Run ID: **VMS9_120614A** SeqNo: **2000507** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	106	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*947.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1050*	0	*1000*	0	*105*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41652-41652** Units: **µg/Kg** Analysis Date: **6/15/2012 12:58 PM**
Client ID: Run ID: **VMS9_120614A** SeqNo: **2000545** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	951.5	30	1000	0	95.2	70-135	0			
1,1,2,2-Tetrachloroethane	1019	30	1000	0	102	55-130	0			
1,1,2-Trichloroethane	1012	30	1000	0	101	60-125	0			
1,1-Dichloroethane	977	30	1000	0	97.7	75-125	0			
1,1-Dichloroethene	925	30	1000	0	92.5	65-135	0			
1,2,3-Trichlorobenzene	999.5	30	1000	0	100	60-135	0			
1,2,3-Trichloropropane	1014	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	1028	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	965	30	1000	0	96.5	65-130	0			
1,2,4-Trimethylbenzene	927.5	30	1000	0	92.8	65-135	0			
1,2-Dibromo-3-chloropropane	884.5	30	1000	0	88.4	40-135	0			
1,2-Dibromoethane	1052	30	1000	0	105	70-125	0			
1,2-Dichlorobenzene	1008	30	1000	0	101	75-120	0			
1,2-Dichloroethane	985	30	1000	0	98.5	70-135	0			
1,2-Dichloropropane	1010	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	951	30	1000	0	95.1	65-135	0			
1,3-Dichlorobenzene	1033	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1036	30	1000	0	104	70-125	0			
2-Butanone	959	100	1000	0	95.9	30-160	0			
2-Hexanone	1022	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	938	30	1000	0	93.8	45-145	0			
Acetone	1050	100	1000	0	105	20-160	0			B
Acrylonitrile	1008	30	1000	0	101	70-135	0			
Benzene	977	30	1000	0	97.7	75-125	0			
Bromobenzene	1006	30	1000	0	101	65-120	0			
Bromochloromethane	991	30	1000	0	99.1	70-125	0			
Bromodichloromethane	903.5	30	1000	0	90.4	70-130	0			
Bromoform	869	30	1000	0	86.9	55-135	0			
Bromomethane	916.5	30	1000	0	91.6	30-160	0			
Carbon disulfide	880	30	1000	0	88	45-160	0			
Carbon tetrachloride	942	30	1000	0	94.2	65-135	0			
Chlorobenzene	1019	30	1000	0	102	75-125	0			
Chloroethane	935	100	1000	0	93.5	40-155	0			
Chloroform	999	30	1000	0	99.9	70-125	0			
Chloromethane	778.5	30	1000	0	77.8	50-130	0			
cis-1,2-Dichloroethene	970.5	30	1000	0	97	65-125	0			
cis-1,3-Dichloropropene	916.5	30	1000	0	91.6	70-125	0			
Dibromochloromethane	911	30	1000	0	91.1	65-135	0			
Dibromomethane	1008	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	601	30	1000	0	60.1	35-135	0			
Ethylbenzene	1071	30	1000	0	107	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	895.5	30	1000	0	89.6	70-135	0
Isopropylbenzene	954.5	30	1000	0	95.4	75-130	0
m,p-Xylene	1930	60	2000	0	96.5	80-125	0
Methyl tert-butyl ether	994	30	1000	0	99.4	75-125	0
Methylene chloride	953	30	1000	0	95.3	55-145	0
Naphthalene	924.5	100	1000	0	92.4	40-140	0
n-Butylbenzene	1080	30	1000	0	108	65-140	0
n-Propylbenzene	934.5	30	1000	0	93.4	65-135	0
o-Xylene	939	30	1000	0	93.9	75-125	0
p-Isopropyltoluene	1074	30	1000	0	107	75-135	0
sec-Butylbenzene	951.5	30	1000	0	95.2	65-130	0
Styrene	949.5	30	1000	0	95	75-125	0
tert-Butylbenzene	935.5	30	1000	0	93.6	65-130	0
Tetrachloroethene	1020	30	1000	0	102	64-140	0
Tetrahydrofuran	924.5	100	1000	0	92.4	70-135	0
Toluene	1026	30	1000	0	103	70-125	0
trans-1,2-Dichloroethene	1028	30	1000	0	103	65-135	0
trans-1,3-Dichloropropene	898.5	30	1000	0	89.8	65-125	0
trans-1,4-Dichloro-2-butene	843.5	30	1000	0	84.4	70-135	0
Trichloroethene	976.5	30	1000	0	97.6	75-125	0
Trichlorofluoromethane	851.5	30	1000	0	85.2	25-185	0
Vinyl chloride	829.5	30	1000	0	83	60-125	0
Surr: 1,2-Dichloroethane-d4	*990*	0	*1000*	0	*99*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1016*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206417-12B MS** Units: **µg/Kg** Analysis Date: **6/15/2012 10:37 AM**
Client ID: **SBKR1325L507S061212S007** Run ID: **VMS9_120614A** SeqNo: **2000543** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3668	110	3762	0	97.5	75-125	0			
1,1,1-Trichloroethane	3271	110	3762	0	87	70-135	0			
1,1,2,2-Tetrachloroethane	3800	110	3762	0	101	55-130	0			
1,1,2-Trichloroethane	3685	110	3762	0	98	60-125	0			
1,1-Dichloroethane	3610	110	3762	0	96	75-125	0			
1,1-Dichloroethene	3230	110	3762	0	85.8	65-135	0			
1,2,3-Trichlorobenzene	3173	110	3762	0	84.4	60-135	0			
1,2,3-Trichloropropane	3762	110	3762	0	100	65-130	0			
1,2,3-Trimethylbenzene	3632	110	3762	0	96.6	65-135	0			
1,2,4-Trichlorobenzene	2972	110	3762	0	79	65-130	0			
1,2,4-Trimethylbenzene	3440	110	3762	0	91.4	65-135	0			
1,2-Dibromo-3-chloropropane	2833	110	3762	0	75.3	40-135	0			
1,2-Dibromoethane	3816	110	3762	0	101	70-125	0			
1,2-Dichlorobenzene	3542	110	3762	0	94.2	75-120	0			
1,2-Dichloroethane	3668	110	3762	0	97.5	70-135	0			
1,2-Dichloropropane	3984	110	3762	0	106	70-120	0			
1,3,5-Trimethylbenzene	3499	110	3762	0	93	65-135	0			
1,3-Dichlorobenzene	3576	110	3762	0	95	70-125	0			
1,4-Dichlorobenzene	3593	110	3762	0	95.5	70-125	0			
2-Butanone	3721	380	3762	0	98.9	30-160	0			
2-Hexanone	3606	110	3762	0	95.8	45-145	0			
4-Methyl-2-pentanone	3416	110	3762	0	90.8	45-145	0			
Acetone	4264	380	3762	0	113	20-160	0			B
Acrylonitrile	3839	110	3762	0	102	70-135	0			
Benzene	3540	110	3762	0	94.1	75-125	0			
Bromobenzene	3711	110	3762	0	98.6	65-120	0			
Bromochloromethane	4001	110	3762	0	106	70-125	0			
Bromodichloromethane	3184	110	3762	0	84.6	70-130	0			
Bromoform	2968	110	3762	0	78.9	55-135	0			
Bromomethane	2765	110	3762	0	73.5	30-160	0			
Carbon disulfide	2568	110	3762	0	68.2	45-160	0			
Carbon tetrachloride	3104	110	3762	0	82.5	65-135	0			
Chlorobenzene	3705	110	3762	0	98.5	75-125	0			
Chloroethane	2133	380	3762	0	56.7	40-155	0			
Chloroform	3828	110	3762	0	102	70-125	0			
Chloromethane	3104	110	3762	0	82.5	50-130	0			
cis-1,2-Dichloroethene	3647	110	3762	0	97	65-125	0			
cis-1,3-Dichloropropene	3120	110	3762	0	83	70-125	0			
Dibromochloromethane	3066	110	3762	0	81.5	65-135	0			
Dibromomethane	3865	110	3762	0	103	75-130	0			
Dichlorodifluoromethane	2201	110	3762	0	58.5	35-135	0			
Ethylbenzene	4003	110	3762	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	2959	110	3762	0	78.6	70-135	0	
Isopropylbenzene	3457	110	3762	0	91.9	75-130	0	
m,p-Xylene	7206	230	7524	0	95.8	80-125	0	
Methyl tert-butyl ether	3141	110	3762	0	83.5	75-125	0	
Methylene chloride	3939	110	3762	0	105	55-145	0	
Naphthalene	2880	380	3762	0	76.6	40-140	0	
n-Butylbenzene	3704	110	3762	0	98.4	65-140	0	
n-Propylbenzene	3352	110	3762	0	89.1	65-135	0	
o-Xylene	3380	110	3762	0	89.8	75-125	0	
p-Isopropyltoluene	3728	110	3762	0	99.1	75-135	0	
sec-Butylbenzene	3476	110	3762	0	92.4	65-130	0	
Styrene	3260	110	3762	0	86.6	75-125	0	
tert-Butylbenzene	3405	110	3762	0	90.5	65-130	0	
Tetrachloroethene	3918	110	3762	0	104	64-140	0	
Tetrahydrofuran	3173	380	3762	0	84.4	70-135	0	
Toluene	4085	110	3762	0	109	70-125	0	
trans-1,2-Dichloroethene	3514	110	3762	0	93.4	65-135	0	
trans-1,3-Dichloropropene	3026	110	3762	0	80.4	65-125	0	
trans-1,4-Dichloro-2-butene	2814	110	3762	0	74.8	70-135	0	
Trichloroethene	3596	110	3762	0	95.6	75-125	0	
Trichlorofluoromethane	639.5	110	3762	0	17	25-185	0	S
Vinyl chloride	3126	110	3762	0	83.1	60-125	0	
Surr: 1,2-Dichloroethane-d4	*3860*	0	*3762*	0	*103*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*4008*	0	*3762*	0	*107*	*70-130*	0	
Surr: Dibromofluoromethane	*3907*	0	*3762*	0	*104*	*70-130*	0	
Surr: Toluene-d8	*4125*	0	*3762*	0	*110*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206417-12B MSD** Units: **µg/Kg** Analysis Date: **6/15/2012 11:03 AM**
Client ID: **SBKR1325L507S061212S007** Run ID: **VMS9_120614A** SeqNo: **2000544** Prep Date: **6/14/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3660	110	3762	0	97.3	75-125	3668	0.205	30	
1,1,1-Trichloroethane	3295	110	3762	0	87.6	70-135	3271	0.745	30	
1,1,2,2-Tetrachloroethane	3828	110	3762	0	102	55-130	3800	0.74	30	
1,1,2-Trichloroethane	3784	110	3762	0	101	60-125	3685	2.67	30	
1,1-Dichloroethane	3649	110	3762	0	97	75-125	3610	1.09	30	
1,1-Dichloroethene	3286	110	3762	0	87.4	65-135	3230	1.73	30	
1,2,3-Trichlorobenzene	3277	110	3762	0	87.1	60-135	3173	3.21	30	
1,2,3-Trichloropropane	3736	110	3762	0	99.3	65-130	3762	0.702	30	
1,2,3-Trimethylbenzene	3704	110	3762	0	98.4	65-135	3632	1.95	30	
1,2,4-Trichlorobenzene	3066	110	3762	0	81.5	65-130	2972	3.12	30	
1,2,4-Trimethylbenzene	3435	110	3762	0	91.3	65-135	3440	0.164	30	
1,2-Dibromo-3-chloropropane	2870	110	3762	0	76.3	40-135	2833	1.32	30	
1,2-Dibromoethane	3865	110	3762	0	103	70-125	3816	1.27	30	
1,2-Dichlorobenzene	3576	110	3762	0	95	75-120	3542	0.951	30	
1,2-Dichloroethane	3713	110	3762	0	98.7	70-135	3668	1.22	30	
1,2-Dichloropropane	4020	110	3762	0	107	70-120	3984	0.893	30	
1,3,5-Trimethylbenzene	3514	110	3762	0	93.4	65-135	3499	0.429	30	
1,3-Dichlorobenzene	3666	110	3762	0	97.4	70-125	3576	2.49	30	
1,4-Dichlorobenzene	3638	110	3762	0	96.7	70-125	3593	1.25	30	
2-Butanone	3719	380	3762	0	98.8	30-160	3721	0.0506	30	
2-Hexanone	3566	110	3762	0	94.8	45-145	3606	1.1	30	
4-Methyl-2-pentanone	3378	110	3762	0	89.8	45-145	3416	1.11	30	
Acetone	4322	380	3762	0	115	20-160	4264	1.36	30	B
Acrylonitrile	3875	110	3762	0	103	70-135	3839	0.927	30	
Benzene	3564	110	3762	0	94.8	75-125	3540	0.688	30	
Bromobenzene	3728	110	3762	0	99.1	65-120	3711	0.455	30	
Bromochloromethane	4061	110	3762	0	108	70-125	4001	1.49	30	
Bromodichloromethane	3284	110	3762	0	87.3	70-130	3184	3.08	30	
Bromoform	2994	110	3762	0	79.6	55-135	2968	0.883	30	
Bromomethane	2863	110	3762	0	76.1	30-160	2765	3.48	30	
Carbon disulfide	2695	110	3762	0	71.6	45-160	2568	4.86	30	
Carbon tetrachloride	3126	110	3762	0	83.1	65-135	3104	0.725	30	
Chlorobenzene	3775	110	3762	0	100	75-125	3705	1.86	30	
Chloroethane	2124	380	3762	0	56.4	40-155	2133	0.442	30	
Chloroform	3920	110	3762	0	104	70-125	3828	2.38	30	
Chloromethane	3179	110	3762	0	84.5	50-130	3104	2.4	30	
cis-1,2-Dichloroethene	3675	110	3762	0	97.7	65-125	3647	0.771	30	
cis-1,3-Dichloropropene	3239	110	3762	0	86.1	70-125	3120	3.73	30	
Dibromochloromethane	3145	110	3762	0	83.6	65-135	3066	2.54	30	
Dibromomethane	3875	110	3762	0	103	75-130	3865	0.243	30	
Dichlorodifluoromethane	2293	110	3762	0	61	35-135	2201	4.1	30	
Ethylbenzene	4033	110	3762	0	107	75-125	4003	0.749	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41652** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	3023	110	3762	0	80.4	70-135	2959	2.14	30	
Isopropylbenzene	3484	110	3762	0	92.6	75-130	3457	0.759	30	
m,p-Xylene	7225	230	7524	0	96	80-125	7206	0.261	30	
Methyl tert-butyl ether	3177	110	3762	0	84.4	75-125	3141	1.13	30	
Methylene chloride	4027	110	3762	0	107	55-145	3939	2.22	30	
Naphthalene	2949	380	3762	0	78.4	40-140	2880	2.39	30	
n-Butylbenzene	3711	110	3762	0	98.6	65-140	3704	0.203	30	
n-Propylbenzene	3373	110	3762	0	89.6	65-135	3352	0.615	30	
o-Xylene	3453	110	3762	0	91.8	75-125	3380	2.15	30	
p-Isopropyltoluene	3766	110	3762	0	100	75-135	3728	1	30	
sec-Butylbenzene	3463	110	3762	0	92	65-130	3476	0.38	30	
Styrene	3284	110	3762	0	87.3	75-125	3260	0.747	30	
tert-Butylbenzene	3457	110	3762	0	91.9	65-130	3405	1.54	30	
Tetrachloroethene	3990	110	3762	0	106	64-140	3918	1.81	30	
Tetrahydrofuran	3391	380	3762	0	90.2	70-135	3173	6.65	30	
Toluene	4132	110	3762	0	110	70-125	4085	1.14	30	
trans-1,2-Dichloroethene	3536	110	3762	0	94	65-135	3514	0.64	30	
trans-1,3-Dichloropropene	3149	110	3762	0	83.7	65-125	3026	3.96	30	
trans-1,4-Dichloro-2-butene	2808	110	3762	0	74.6	70-135	2814	0.201	30	
Trichloroethene	3615	110	3762	0	96.1	75-125	3596	0.522	30	
Trichlorofluoromethane	609.4	110	3762	0	16.2	25-185	639.5	4.82	30	S
Vinyl chloride	3278	110	3762	0	87.2	60-125	3126	4.76	30	
Surr: 1,2-Dichloroethane-d4	*3886*	0	*3762*	0	*103*	*70-130*	3860	*0.68*	*30*	
Surr: 4-Bromofluorobenzene	*3927*	0	*3762*	0	*104*	*70-130*	4008	*2.04*	*30*	
Surr: Dibromofluoromethane	*3909*	0	*3762*	0	*104*	*70-130*	3907	*0.0481*	*30*	
Surr: Toluene-d8	*4136*	0	*3762*	0	*110*	*70-130*	4125	*0.273*	*30*	

The following samples were analyzed in this batch:

1206417-01B	1206417-02B	1206417-03B
1206417-04B	1206417-05B	1206417-06B
1206417-07B	1206417-08B	1206417-09B
1206417-12B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41670-41670** Units: **µg/Kg** Analysis Date: **6/15/2012 10:24 AM**
Client ID: Run ID: **VMS7_120615A** SeqNo: **2001528** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	77.5	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*990.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Toluene-d8	*1026*	0	*1000*	0	*103*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41670-41670** Units: **µg/Kg** Analysis Date: **6/15/2012 06:39 PM**
Client ID: Run ID: **VMS8_120615A** SeqNo: **2001643** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1136*	0	*1000*	0	*114*	*70-130*	0
Surr: 4-Bromofluorobenzene	*966.5*	0	*1000*	0	*96.6*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*988*	0	*1000*	0	*98.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41670-41670** Units: **µg/Kg** Analysis Date: **6/15/2012 09:09 AM**
Client ID: Run ID: **VMS7_120615A** SeqNo: **2001522** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1012	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1014	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	967.5	30	1000	0	96.8	55-130	0			
1,1,2-Trichloroethane	947	30	1000	0	94.7	60-125	0			
1,1-Dichloroethane	927	30	1000	0	92.7	75-125	0			
1,1-Dichloroethene	1052	30	1000	0	105	65-135	0			
1,2,3-Trichlorobenzene	888.5	30	1000	0	88.8	60-135	0			
1,2,3-Trichloropropane	1050	30	1000	0	105	65-130	0			
1,2,3-Trimethylbenzene	914.5	30	1000	0	91.4	65-135	0			
1,2,4-Trichlorobenzene	903	30	1000	0	90.3	65-130	0			
1,2,4-Trimethylbenzene	970	30	1000	0	97	65-135	0			
1,2-Dibromo-3-chloropropane	955	30	1000	0	95.5	40-135	0			
1,2-Dibromoethane	1021	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	949	30	1000	0	94.9	75-120	0			
1,2-Dichloroethane	945.5	30	1000	0	94.6	70-135	0			
1,2-Dichloropropane	965.5	30	1000	0	96.6	70-120	0			
1,3,5-Trimethylbenzene	978	30	1000	0	97.8	65-135	0			
1,3-Dichlorobenzene	992.5	30	1000	0	99.2	70-125	0			
1,4-Dichlorobenzene	1010	30	1000	0	101	70-125	0			
2-Butanone	1116	200	1000	0	112	30-160	0			
2-Hexanone	936	30	1000	0	93.6	45-145	0			
4-Methyl-2-pentanone	1322	30	1000	0	132	45-145	0			
Acetone	1318	100	1000	0	132	20-160	0			
Acrylonitrile	877.5	100	1000	0	87.8	70-135	0			
Benzene	946	30	1000	0	94.6	75-125	0			
Bromobenzene	933	30	1000	0	93.3	65-120	0			
Bromochloromethane	979	30	1000	0	97.9	70-125	0			
Bromodichloromethane	990	30	1000	0	99	70-130	0			
Bromoform	871	30	1000	0	87.1	55-135	0			
Bromomethane	1199	75	1000	0	120	30-160	0			B
Carbon disulfide	1108	30	1000	0	111	45-160	0			
Carbon tetrachloride	1044	30	1000	0	104	65-135	0			
Chlorobenzene	978.5	30	1000	0	97.8	75-125	0			
Chloroethane	984	100	1000	0	98.4	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	874.5	100	1000	0	87.4	50-130	0			
cis-1,2-Dichloroethene	923	30	1000	0	92.3	65-125	0			
cis-1,3-Dichloropropene	1064	30	1000	0	106	70-125	0			
Dibromochloromethane	1056	30	1000	0	106	65-135	0			
Dibromomethane	999.5	30	1000	0	100	75-130	0			
Dichlorodifluoromethane	725.5	30	1000	0	72.6	35-135	0			
Ethylbenzene	959	30	1000	0	95.9	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	941	30	1000	0	94.1	70-135	0
Isopropylbenzene	978	30	1000	0	97.8	75-130	0
m,p-Xylene	1892	60	2000	0	94.6	80-125	0
Methyl tert-butyl ether	1000	30	1000	0	100	75-125	0
Methylene chloride	1044	30	1000	0	104	55-145	0
Naphthalene	828.5	100	1000	0	82.8	40-140	0
n-Butylbenzene	1008	30	1000	0	101	65-140	0
n-Propylbenzene	934.5	30	1000	0	93.4	65-135	0
o-Xylene	966.5	30	1000	0	96.6	75-125	0
p-Isopropyltoluene	1016	30	1000	0	102	75-135	0
sec-Butylbenzene	984.5	30	1000	0	98.4	65-130	0
Styrene	995.5	30	1000	0	99.6	75-125	0
tert-Butylbenzene	972.5	30	1000	0	97.2	65-130	0
Tetrachloroethene	929.5	30	1000	0	93	64-140	0
Tetrahydrofuran	861	200	1000	0	86.1	70-135	0
Toluene	974	30	1000	0	97.4	70-125	0
trans-1,2-Dichloroethene	991	30	1000	0	99.1	65-135	0
trans-1,3-Dichloropropene	1010	30	1000	0	101	65-125	0
trans-1,4-Dichloro-2-butene	833	30	1000	0	83.3	70-135	0
Trichloroethene	972.5	30	1000	0	97.2	75-125	0
Trichlorofluoromethane	1038	30	1000	0	104	25-185	0
Vinyl chloride	899	30	1000	0	89.9	60-125	0
Surr: 1,2-Dichloroethane-d4	*964*	0	*1000*	0	*96.4*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1020*	0	*1000*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*1038*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1015*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41670-41670**				Units: **µg/Kg**		Analysis Date: **6/15/2012 05:11 PM**			
Client ID:		Run ID: **VMS8_120615A**			SeqNo: **2001642**		Prep Date: **6/15/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1051	30	1000	0	105	75-125	0			
1,1,1-Trichloroethane	1102	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	1091	30	1000	0	109	55-130	0			
1,1,2-Trichloroethane	927.5	30	1000	0	92.8	60-125	0			
1,1-Dichloroethane	918.5	30	1000	0	91.8	75-125	0			
1,1-Dichloroethene	1100	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	1114	30	1000	0	111	60-135	0			
1,2,3-Trichloropropane	1060	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	933	30	1000	0	93.3	65-135	0			
1,2,4-Trichlorobenzene	1044	30	1000	0	104	65-130	0			
1,2,4-Trimethylbenzene	967	30	1000	0	96.7	65-135	0			
1,2-Dibromo-3-chloropropane	1110	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1064	30	1000	0	106	70-125	0			
1,2-Dichlorobenzene	980.5	30	1000	0	98	75-120	0			
1,2-Dichloroethane	1126	30	1000	0	113	70-135	0			
1,2-Dichloropropane	861	30	1000	0	86.1	70-120	0			
1,3,5-Trimethylbenzene	993.5	30	1000	0	99.4	65-135	0			
1,3-Dichlorobenzene	943	30	1000	0	94.3	70-125	0			
1,4-Dichlorobenzene	980	30	1000	0	98	70-125	0			
2-Butanone	1018	200	1000	0	102	30-160	0			
2-Hexanone	1056	30	1000	0	106	45-145	0			
4-Methyl-2-pentanone	1463	30	1000	0	146	45-145	0			S
Acetone	1279	100	1000	0	128	20-160	0			
Acrylonitrile	1050	100	1000	0	105	70-135	0			
Benzene	894	30	1000	0	89.4	75-125	0			
Bromobenzene	964	30	1000	0	96.4	65-120	0			
Bromochloromethane	938.5	30	1000	0	93.8	70-125	0			
Bromodichloromethane	1008	30	1000	0	101	70-130	0			
Bromoform	970	30	1000	0	97	55-135	0			
Bromomethane	1252	75	1000	0	125	30-160	0			
Carbon disulfide	1084	30	1000	0	108	45-160	0			
Carbon tetrachloride	1146	30	1000	0	115	65-135	0			
Chlorobenzene	982.5	30	1000	0	98.2	75-125	0			
Chloroethane	941.5	100	1000	0	94.2	40-155	0			
Chloroform	996.5	30	1000	0	99.6	70-125	0			
Chloromethane	802	100	1000	0	80.2	50-130	0			
cis-1,2-Dichloroethene	985	30	1000	0	98.5	65-125	0			
cis-1,3-Dichloropropene	1014	30	1000	0	101	70-125	0			
Dibromochloromethane	1049	30	1000	0	105	65-135	0			
Dibromomethane	1030	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	760.5	30	1000	0	76	35-135	0			
Ethylbenzene	1001	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	911.5	30	1000	0	91.2	70-135	0
Isopropylbenzene	989.5	30	1000	0	99	75-130	0
m,p-Xylene	1984	60	2000	0	99.2	80-125	0
Methyl tert-butyl ether	1069	30	1000	0	107	75-125	0
Methylene chloride	971	30	1000	0	97.1	55-145	0
Naphthalene	1142	100	1000	0	114	40-140	0
n-Butylbenzene	1002	30	1000	0	100	65-140	0
n-Propylbenzene	960	30	1000	0	96	65-135	0
o-Xylene	983	30	1000	0	98.3	75-125	0
p-Isopropyltoluene	982.5	30	1000	0	98.2	75-135	0
sec-Butylbenzene	1022	30	1000	0	102	65-130	0
Styrene	963	30	1000	0	96.3	75-125	0
tert-Butylbenzene	1024	30	1000	0	102	65-130	0
Tetrachloroethene	1024	30	1000	0	102	64-140	0
Tetrahydrofuran	1074	200	1000	0	107	70-135	0
Toluene	943.5	30	1000	0	94.4	70-125	0
trans-1,2-Dichloroethene	997	30	1000	0	99.7	65-135	0
trans-1,3-Dichloropropene	1046	30	1000	0	105	65-125	0
trans-1,4-Dichloro-2-butene	1120	30	1000	0	112	70-135	0
Trichloroethene	1008	30	1000	0	101	75-125	0
Trichlorofluoromethane	1024	30	1000	0	102	25-185	0
Vinyl chloride	948.5	30	1000	0	94.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1146*	0	*1000*	0	*115*	*70-130*	0
Surr: 4-Bromofluorobenzene	*994.5*	0	*1000*	0	*99.4*	*70-130*	0
Surr: Dibromofluoromethane	*1036*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1007*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206467-06A MS** Units: **µg/Kg** Analysis Date: **6/15/2012 06:50 PM**
Client ID: Run ID: **VMS7_120615A** SeqNo: **2001508** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	954.5	30	1000	0	95.4	75-125	0			
1,1,1-Trichloroethane	994.5	30	1000	0	99.4	70-135	0			
1,1,2,2-Tetrachloroethane	925.5	30	1000	0	92.6	55-130	0			
1,1,2-Trichloroethane	941	30	1000	0	94.1	60-125	0			
1,1-Dichloroethane	930.5	30	1000	0	93	75-125	0			
1,1-Dichloroethene	314.5	30	1000	0	31.4	65-135	0			S
1,2,3-Trichlorobenzene	188	30	1000	0	18.8	60-135	0			S
1,2,3-Trichloropropane	993	30	1000	0	99.3	65-130	0			
1,2,3-Trimethylbenzene	884.5	30	1000	0	88.4	65-135	0			
1,2,4-Trichlorobenzene	334.5	30	1000	0	33.4	65-130	0			S
1,2,4-Trimethylbenzene	909	30	1000	22.5	88.6	65-135	0			
1,2-Dibromo-3-chloropropane	557.5	30	1000	0	55.8	40-135	0			
1,2-Dibromoethane	995.5	30	1000	0	99.6	70-125	0			
1,2-Dichlorobenzene	870	30	1000	0	87	75-120	0			
1,2-Dichloroethane	953	30	1000	0	95.3	70-135	0			
1,2-Dichloropropane	970.5	30	1000	0	97	70-120	0			
1,3,5-Trimethylbenzene	910	30	1000	0	91	65-135	0			
1,3-Dichlorobenzene	922.5	30	1000	0	92.2	70-125	0			
1,4-Dichlorobenzene	930	30	1000	0	93	70-125	0			
2-Butanone	1079	200	1000	0	108	30-160	0			
2-Hexanone	983.5	30	1000	0	98.4	45-145	0			
4-Methyl-2-pentanone	1376	30	1000	0	138	45-145	0			
Acetone	937	100	1000	0	93.7	20-160	0			
Acrylonitrile	781.5	100	1000	0	78.2	70-135	0			
Benzene	950.5	30	1000	25	92.6	75-125	0			
Bromobenzene	910	30	1000	0	91	65-120	0			
Bromochloromethane	974	30	1000	0	97.4	70-125	0			
Bromodichloromethane	946.5	30	1000	0	94.6	70-130	0			
Bromoform	794.5	30	1000	0	79.4	55-135	0			
Bromomethane	610	75	1000	53	55.7	30-160	0			B
Carbon disulfide	452.5	30	1000	0	45.2	45-160	0			
Carbon tetrachloride	974	30	1000	0	97.4	65-135	0			
Chlorobenzene	953	30	1000	0	95.3	75-125	0			
Chloroethane	322	100	1000	0	32.2	40-155	0			S
Chloroform	968	30	1000	0	96.8	70-125	0			
Chloromethane	871	100	1000	0	87.1	50-130	0			
cis-1,2-Dichloroethene	921.5	30	1000	0	92.2	65-125	0			
cis-1,3-Dichloropropene	989.5	30	1000	0	99	70-125	0			
Dibromochloromethane	988.5	30	1000	0	98.8	65-135	0			
Dibromomethane	990	30	1000	0	99	75-130	0			
Dichlorodifluoromethane	725.5	30	1000	0	72.6	35-135	0			
Ethylbenzene	923	30	1000	0	92.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	833	30	1000	0	83.3	70-135	0	
Isopropylbenzene	926.5	30	1000	0	92.6	75-130	0	
m,p-Xylene	1823	60	2000	32	89.6	80-125	0	
Methyl tert-butyl ether	1083	30	1000	0	108	75-125	0	
Methylene chloride	1092	30	1000	24	107	55-145	0	
Naphthalene	288	100	1000	48.5	24	40-140	0	S
n-Butylbenzene	918	30	1000	0	91.8	65-140	0	
n-Propylbenzene	874	30	1000	0	87.4	65-135	0	
o-Xylene	962	30	1000	28	93.4	75-125	0	
p-Isopropyltoluene	917.5	30	1000	0	91.8	75-135	0	
sec-Butylbenzene	905	30	1000	0	90.5	65-130	0	
Styrene	952.5	30	1000	0	95.2	75-125	0	
tert-Butylbenzene	902.5	30	1000	0	90.2	65-130	0	
Tetrachloroethene	943	30	1000	70	87.3	64-140	0	
Tetrahydrofuran	817	200	1000	0	81.7	70-135	0	
Toluene	1006	30	1000	80	92.6	70-125	0	
trans-1,2-Dichloroethene	1184	30	1000	0	118	65-135	0	
trans-1,3-Dichloropropene	979	30	1000	0	97.9	65-125	0	
trans-1,4-Dichloro-2-butene	796.5	30	1000	0	79.6	70-135	0	
Trichloroethene	979.5	30	1000	0	98	75-125	0	
Trichlorofluoromethane	253.5	30	1000	0	25.4	25-185	0	
Vinyl chloride	827	30	1000	0	82.7	60-125	0	
Surr: 1,2-Dichloroethane-d4	*996.5*	0	*1000*	0	*99.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1077*	0	*1000*	0	*108*	*70-130*	0	
Surr: Dibromofluoromethane	*1024*	0	*1000*	0	*102*	*70-130*	0	
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206467-06A MSD** Units: **µg/Kg** Analysis Date: **6/15/2012 07:15 PM**
Client ID: Run ID: **VMS7_120615A** SeqNo: **2001511** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	966.5	30	1000	0	96.6	75-125	954.5	1.25	30	
1,1,1-Trichloroethane	995	30	1000	0	99.5	70-135	994.5	0.0503	30	
1,1,2,2-Tetrachloroethane	935	30	1000	0	93.5	55-130	925.5	1.02	30	
1,1,2-Trichloroethane	955.5	30	1000	0	95.6	60-125	941	1.53	30	
1,1-Dichloroethane	908	30	1000	0	90.8	75-125	930.5	2.45	30	
1,1-Dichloroethene	309.5	30	1000	0	31	65-135	314.5	1.6	30	S
1,2,3-Trichlorobenzene	234.5	30	1000	0	23.4	60-135	188	22	30	S
1,2,3-Trichloropropane	1024	30	1000	0	102	65-130	993	3.07	30	
1,2,3-Trimethylbenzene	872	30	1000	0	87.2	65-135	884.5	1.42	30	
1,2,4-Trichlorobenzene	373	30	1000	0	37.3	65-130	334.5	10.9	30	S
1,2,4-Trimethylbenzene	907	30	1000	22.5	88.4	65-135	909	0.22	30	
1,2-Dibromo-3-chloropropane	598.5	30	1000	0	59.8	40-135	557.5	7.09	30	
1,2-Dibromoethane	1000	30	1000	0	100	70-125	995.5	0.451	30	
1,2-Dichlorobenzene	878.5	30	1000	0	87.8	75-120	870	0.972	30	
1,2-Dichloroethane	959	30	1000	0	95.9	70-135	953	0.628	30	
1,2-Dichloropropane	962.5	30	1000	0	96.2	70-120	970.5	0.828	30	
1,3,5-Trimethylbenzene	901.5	30	1000	0	90.2	65-135	910	0.938	30	
1,3-Dichlorobenzene	917.5	30	1000	0	91.8	70-125	922.5	0.543	30	
1,4-Dichlorobenzene	935.5	30	1000	0	93.6	70-125	930	0.59	30	
2-Butanone	1031	200	1000	0	103	30-160	1079	4.55	30	
2-Hexanone	997	30	1000	0	99.7	45-145	983.5	1.36	30	
4-Methyl-2-pentanone	1392	30	1000	0	139	45-145	1376	1.12	30	
Acetone	941	100	1000	0	94.1	20-160	937	0.426	30	
Acrylonitrile	767	100	1000	0	76.7	70-135	781.5	1.87	30	
Benzene	943.5	30	1000	25	91.8	75-125	950.5	0.739	30	
Bromobenzene	919.5	30	1000	0	92	65-120	910	1.04	30	
Bromochloromethane	930	30	1000	0	93	70-125	974	4.62	30	
Bromodichloromethane	949	30	1000	0	94.9	70-130	946.5	0.264	30	
Bromoform	811	30	1000	0	81.1	55-135	794.5	2.06	30	
Bromomethane	651.5	75	1000	53	59.8	30-160	610	6.58	30	B
Carbon disulfide	398	30	1000	0	39.8	45-160	452.5	12.8	30	S
Carbon tetrachloride	982.5	30	1000	0	98.2	65-135	974	0.869	30	
Chlorobenzene	932.5	30	1000	0	93.2	75-125	953	2.17	30	
Chloroethane	323.5	100	1000	0	32.4	40-155	322	0.465	30	S
Chloroform	946	30	1000	0	94.6	70-125	968	2.3	30	
Chloromethane	869	100	1000	0	86.9	50-130	871	0.23	30	
cis-1,2-Dichloroethene	899.5	30	1000	0	90	65-125	921.5	2.42	30	
cis-1,3-Dichloropropene	984.5	30	1000	0	98.4	70-125	989.5	0.507	30	
Dibromochloromethane	999.5	30	1000	0	100	65-135	988.5	1.11	30	
Dibromomethane	994	30	1000	0	99.4	75-130	990	0.403	30	
Dichlorodifluoromethane	707	30	1000	0	70.7	35-135	725.5	2.58	30	
Ethylbenzene	929	30	1000	0	92.9	75-125	923	0.648	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41670** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	831	30	1000	0	83.1	70-135	833	0.24	30	
Isopropylbenzene	928.5	30	1000	0	92.8	75-130	926.5	0.216	30	
m,p-Xylene	1854	60	2000	32	91.1	80-125	1823	1.69	30	
Methyl tert-butyl ether	1067	30	1000	0	107	75-125	1083	1.49	30	
Methylene chloride	1066	30	1000	24	104	55-145	1092	2.46	30	
Naphthalene	343	100	1000	48.5	29.4	40-140	288	17.4	30	S
n-Butylbenzene	911	30	1000	0	91.1	65-140	918	0.765	30	
n-Propylbenzene	857.5	30	1000	0	85.8	65-135	874	1.91	30	
o-Xylene	963.5	30	1000	28	93.6	75-125	962	0.156	30	
p-Isopropyltoluene	892.5	30	1000	0	89.2	75-135	917.5	2.76	30	
sec-Butylbenzene	892.5	30	1000	0	89.2	65-130	905	1.39	30	
Styrene	944.5	30	1000	0	94.4	75-125	952.5	0.843	30	
tert-Butylbenzene	885.5	30	1000	0	88.6	65-130	902.5	1.9	30	
Tetrachloroethene	969.5	30	1000	70	90	64-140	943	2.77	30	
Tetrahydrofuran	753	200	1000	0	75.3	70-135	817	8.15	30	
Toluene	1008	30	1000	80	92.8	70-125	1006	0.149	30	
trans-1,2-Dichloroethene	1166	30	1000	0	117	65-135	1184	1.49	30	
trans-1,3-Dichloropropene	988	30	1000	0	98.8	65-125	979	0.915	30	
trans-1,4-Dichloro-2-butene	803.5	30	1000	0	80.4	70-135	796.5	0.875	30	
Trichloroethene	972.5	30	1000	0	97.2	75-125	979.5	0.717	30	
Trichlorofluoromethane	246	30	1000	0	24.6	25-185	253.5	3	30	S
Vinyl chloride	822	30	1000	0	82.2	60-125	827	0.606	30	
Surr: 1,2-Dichloroethane-d4	*984.5*	0	*1000*	0	*98.4*	*70-130*	996.5	*1.21*	*30*	
Surr: 4-Bromofluorobenzene	*1057*	0	*1000*	0	*106*	*70-130*	1077	*1.87*	*30*	
Surr: Dibromofluoromethane	*997*	0	*1000*	0	*99.7*	*70-130*	1024	*2.62*	*30*	
Surr: Toluene-d8	*1020*	0	*1000*	0	*102*	*70-130*	1024	*0.489*	*30*	

The following samples were analyzed in this batch:

1206417-10B	1206417-11B	1206417-13B
1206417-14B	1206417-15A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **R106028** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106028** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106028** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206416-05ADUP1** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000153** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.53	0.050	0	0	0	0-0	71.83	0.419	20	

DUP Sample ID: **1206416-05ADUP2** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000154** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.24	0.050	0	0	0	0-0	71.83	0.825	20	

DUP Sample ID: **1206421-01ADUP** Units: **% of sample** Analysis Date: **6/14/2012 01:55 PM**
Client ID: Run ID: **MOIST_120614A** SeqNo: **2000168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.46	0.050	0	0	0	0-0	14.56	0.689	20	

The following samples were analyzed in this batch: 1206417-01A 1206417-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206417
Project: Marshall KRRI 1150L,1325L 6/12/12

QC BATCH REPORT

Batch ID: **R106031** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106031** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000241** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106031** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000240** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206417-12ADUP1** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **MOIST_120614B** SeqNo: **2000227** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	54.13	0.050	0	0	0	0-0	57.87	6.68	20	

DUP Sample ID: **1206417-12ADUP2** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: **SBKR1325L507S061212S007** Run ID: **MOIST_120614B** SeqNo: **2000228** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	56.94	0.050	0	0	0	0-0	57.87	1.62	20	

DUP Sample ID: **1206449-03ADUP** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000234** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	15.25	0.050	0	0	0	0-0	16.72	9.2	20	

The following samples were analyzed in this batch:

1206417-03A	1206417-04A	1206417-05A
1206417-06A	1206417-07A	1206417-08A
1206417-09A	1206417-10A	1206417-11A
1206417-12A	1206417-13A	1206417-14A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206417

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061212_LJL1	Task: KRRI_1150L, 1325L,
	Total # of Samples: 15	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX Phone #: 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids State, Zip MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260										
1	SBKR1150L551S061212S004	SBKR1150L551	SO	G	06/12/2012 08:46	3			X	X	X	X	X										
2	SBKR1150L551S061212S011	SBKR1150L551	SO	G	06/12/2012 08:50	3			X	X	X	X	X										
3	SBKR1150L552S061212S003	SBKR1150L552	SO	G	06/12/2012 09:27	3			X	X	X	X	X										
4	SBKR1150L552S061212S010	SBKR1150L552	SO	G	06/12/2012 09:33	3			X	X	X	X	X										
5	SBKR1325L501S061212S006	SBKR1325L501	SO	G	06/12/2012 10:32	3			X	X	X	X	X										
6	SBKR1325L502S061212S005	SBKR1325L502	SO	G	06/12/2012 10:54	3			X	X	X	X	X										
7	SBKR1325L503S061212S004	SBKR1325L503	SO	G	06/12/2012 13:18	3			X	X	X	X	X										
8	SBKR1325L504S061212S003	SBKR1325L504	SO	G	06/12/2012 13:40	3			X	X	X	X	X										
9	SBKR1325L505S061212S005	SBKR1325L505	SO	G	06/12/2012 14:18	3			X	X	X	X	X										
10	SBKR1325L506S061212S007	SBKR1325L506	SO	G	06/12/2012 14:55	3			X	X	X	X	X										
11	SBKR1325L506D061212S007	SBKR1325L506	SO	G	06/12/2012 14:55	3	DUPLICATE		X	X	X	X	X										
12	SBKR1325L507S061212S007	SBKR1325L507	SO	G	06/12/2012 15:29	6	MS/MSD		X	X	X	X	X										
13	SBKR1325L508S061212S005	SBKR1325L508	SO	G	06/12/2012 15:54	3			X	X	X	X	X										
14	SBKR1325L509S061212S004	SBKR1325L509	SO	G	06/12/2012 16:30	3			X	X	X	X	X										
15	SBKR1325L509T061212MX	SBKR1325L509	SQ	G	06/12/2012 00:00	1	TRIP BLANK						X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-12-12	1722		6-12-12	1722
	6-13-12	1315		6-13-12	1315

SHIPPING INFO:	SAMPLER NAME AND SIGNATURE			
Company:	PRINT Name of SAMPLER:	LORRI LEGO (LJL1)		
Tracking #:	SIGNATURE of SAMPLER:		DATE Signed	Time:

Sample Receipt Conditions				
	Y/N	Y/N	Y/N	Y/N
2.0°c	(Y)N	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?	

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **13-Jun-12 13:15**

Work Order: **1206417** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 13-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 14-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

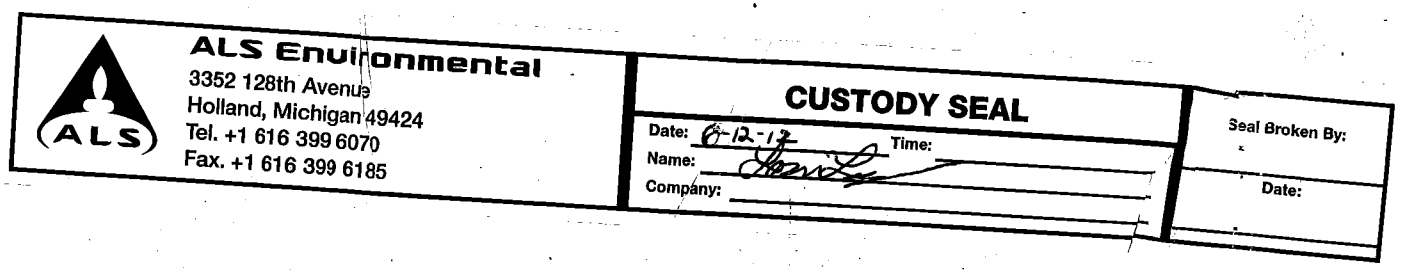
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-12-17
Time:
Name:
Company:
Seal Broken By:
Date:

26-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1350L,1375L 6/14/12** Work Order: **1206567**

Dear Bryan,

ALS Environmental received 12 samples on 15-Jun-2012 05:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 64.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 26-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1350L,1375L 6/14/12
Work Order: **1206567**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206567-01	SBKR1350L512S061412S006	Soil		6/14/2012 09:05	6/15/2012 17:00	☐
1206567-02	SBKR1350L513S061412S005	Soil		6/14/2012 09:33	6/15/2012 17:00	☐
1206567-03	SBKR1350L514S061412S006	Soil		6/14/2012 11:23	6/15/2012 17:00	☐
1206567-04	SBKR1350L515S061412S005	Soil		6/14/2012 11:40	6/15/2012 17:00	☐
1206567-05	SBKR1350L515D061412S005	Soil		6/14/2012 11:40	6/15/2012 17:00	☐
1206567-06	SBKR1350L516S061412S006	Soil		6/14/2012 13:26	6/15/2012 17:00	☐
1206567-07	SBKR1350L517S061412S006	Soil		6/14/2012 13:48	6/15/2012 17:00	☐
1206567-08	SBKR1350L518S061412S005	Soil		6/14/2012 14:05	6/15/2012 17:00	☐
1206567-09	SBKR1375L505S061412S007	Soil		6/14/2012 15:26	6/15/2012 17:00	☐
1206567-10	SBKR1375L506S061412S006	Soil		6/14/2012 15:48	6/15/2012 17:00	☐
1206567-11	SBKR1375L507S061412S006	Soil		6/14/2012 16:05	6/15/2012 17:00	☐
1206567-12	SBKR1375L507T061412MX	Soil		6/14/2012	6/15/2012 17:00	☐

Client: AECOM Environment
Project: Marshall KRRI 1350L,1375L 6/14/12
Work Order: 1206567

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41789 sample SBKR1350L517S061412S006 MS recoveries for Nickel and Vanadium were control limits. Both the MSD recoveries and RPDs met quality control criteria. No data requires qualification.

Batch 41780 LCS recovery and sample SBKR1350L517S061412S006 RPD recovery for one acid surrogate was below control limits. This surrogate is not associated with any of the reported PAH compounds. No data requires qualification. Sample 1206567-08 had a high surrogate recovery for 4-Terphenyl-d14. Any PAH hits in this sample may be biased high.

Batch 41759 sample SBKR1350L517S061412S006 MS recovery for Tetrahydrofuran and RPD for Bromomethane were below control limits. Both the respective MSD and/or MS recoveries and RPDs met quality control criteria. No data requires qualification.

ALS Group USA, Corp

Date: 26-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1350L,1375L 6/14/12
WorkOrder: **1206567**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L512S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 9:05:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	40	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*67.6*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*91.0*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*78.9*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*95.3*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*90.3*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*77.6*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*91.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L512S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 9:05:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	740	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	740	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L512S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 9:05:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	370	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	740	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*96.4*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.1*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L513S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 9:33:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/19/2012
ORO (C20-C34)	ND	35	4.0		mg/Kg-dry	1	6/19/2012
Surr: 4-Terphenyl-d14	*62.4*	*39-115*			*%REC*	1	6/19/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*80.9*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*75.7*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*88.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*81.7*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*74.2*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*87.6*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L513S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 9:33:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L513S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 9:33:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	140	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	140	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*93.2*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*99.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*98.5*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L514S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 11:23:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	34	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*57.0*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/20/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*79.8*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*72.3*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*81.4*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*79.0*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*68.5*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*81.9*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L514S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 11:23:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L514S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 11:23:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	140	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	140	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*96.9*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.7*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	37	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*51.9*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/20/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*78.6*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*70.1*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*78.8*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*57.6*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*71.5*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	520	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	520	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	310	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	520	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*94.8*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515D061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	37	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*53.9*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/20/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(b)fluoranthene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*81.4*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*73.3*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*87.5*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*82.5*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*71.4*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*85.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	150	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	150	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515D061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	150	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	150	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	150	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	150	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	500	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	150	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	150	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	150	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	150	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	150	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	150	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	150	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	500	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	150	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	150	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L515D061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 11:40:00 AM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	150	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	300	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	150	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	150	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	500	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	150	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	150	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	150	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	150	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	150	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	150	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	150	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	150	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	150	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	150	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*95.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**46**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L516S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/19/2012**		Analyst: **CW**
DRO (C10-C20)	ND	15	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	31	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*52.9*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/20/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/19/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(b)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/20/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/20/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/20/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/20/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/20/2012
Surr: 2,4,6-Tribromophenol	*79.1*	*34-140*			*%REC*	1	6/20/2012
Surr: 2-Fluorobiphenyl	*74.3*	*12-100*			*%REC*	1	6/20/2012
Surr: 2-Fluorophenol	*83.9*	*33-117*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*81.4*	*25-137*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*70.3*	*37-107*			*%REC*	1	6/20/2012
Surr: Phenol-d6	*84.1*	*40-106*			*%REC*	1	6/20/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L516S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	100	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	100	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L516S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	100	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*95.5*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*96.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*94.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L517S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	6/20/2012
ORO (C20-C34)	ND	35	4.0		mg/Kg-dry	1	6/20/2012
Surr: 4-Terphenyl-d14	*59.7*	*39-115*			*%REC*	1	6/20/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	**0.52**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/20/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*47.5*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*66.2*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*80.5*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*90.2*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*71.6*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*80.6*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	130	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	130	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L517S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	130	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	130	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	130	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	130	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	440	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	130	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	130	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	130	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	130	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	130	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	130	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	130	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	440	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	130	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	130	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L517S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 1:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	130	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	260	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	130	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	130	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	440	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	130	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	130	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	130	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	130	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	130	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	130	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	130	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	130	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	130	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	130	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*93.4*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.9*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**43**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L518S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 2:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	6/20/2012
ORO (C20-C34)	ND	34	4.0		mg/Kg-dry	1	6/20/2012
Surr: 4-Terphenyl-d14	*61.1*	*39-115*			*%REC*	1	6/20/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*68.4*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*66.8*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*79.0*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*142*	*25-137*		S	*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*70.7*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*78.0*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L518S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 2:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L518S061412S005
Work Order:	1206567	**Collection Date:**	6/14/2012 2:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	140	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	140	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L505S061412S007
Work Order:	1206567	**Collection Date:**	6/14/2012 3:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	36	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*63.5*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*75.1*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*68.3*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*80.9*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*97.5*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*71.9*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*81.4*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L505S061412S007
Work Order:	1206567	**Collection Date:**	6/14/2012 3:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	570	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	570	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	170	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L505S061412S007
Work Order:	1206567	**Collection Date:**	6/14/2012 3:26:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	340	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	170	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	570	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	170	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	170	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*93.0*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**49**	**0.050**	**0**		**% of sample**	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L506S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 3:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	40	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*62.8*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*75.5*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*67.6*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*82.4*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*95.5*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*72.7*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*81.4*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L506S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 3:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L506S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 3:48:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	210	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	210	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L507S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 4:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	36	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*60.6*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/20/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/20/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*73.3*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*61.3*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*71.6*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*91.8*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*64.1*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*72.1*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L507S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 4:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	520	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	520	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L507S061412S006
Work Order:	1206567	**Collection Date:**	6/14/2012 4:05:00 PM
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	310	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	260	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	520	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*96.7*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*94.3*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L507T061412MX
Work Order:	1206567	**Collection Date:**	6/14/2012
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/20/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/20/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/20/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/20/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/20/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/20/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/20/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/20/2012
Benzene	ND	50	50		µg/Kg	1	6/20/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/20/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/20/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/20/2012
Bromoform	ND	100	100		µg/Kg	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/20/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/20/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/20/2012
Chloroethane	ND	250	250		µg/Kg	1	6/20/2012
Chloroform	ND	50	50		µg/Kg	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg	1	6/20/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *26-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L507T061412MX
Work Order:	1206567	**Collection Date:**	6/14/2012
Project:	Marshall KRRI 1350L,1375L 6/14/12		
Lab ID:	1206567-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/20/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/20/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/20/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/20/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/20/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg	1	6/20/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/20/2012
o-Xylene	ND	50	50		µg/Kg	1	6/20/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/20/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Styrene	ND	50	50		µg/Kg	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/20/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/20/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/20/2012
Toluene	ND	100	100		µg/Kg	1	6/20/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/20/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/20/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/20/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*95.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41747** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41747-41747** Units: **mg/Kg** Analysis Date: **6/19/2012 03:32 PM**

Client ID: Run ID: **GC8_120619A** SeqNo: **2004623** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.757*	0	*5*	0	*75.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-41747-41747** Units: **mg/Kg** Analysis Date: **6/19/2012 03:57 PM**

Client ID: Run ID: **GC8_120619A** SeqNo: **2004624** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	419.8	10	500	0	84	60-130	0			
ORO (C20-C34)	431	20	500	0	86.2	60-130	0			
Surr: 4-Terphenyl-d14	*3.751*	0	*5*	0	*75*	*39-115*	0			

MS Sample ID: **1206417-13A MS** Units: **mg/Kg** Analysis Date: **6/19/2012 04:21 PM**

Client ID: Run ID: **GC8_120619A** SeqNo: **2004625** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	399.4	9.8	491.5	0	81.2	60-130	0			
ORO (C20-C34)	527	20	491.5	0	107	60-130	0			
Surr: 4-Terphenyl-d14	*3.759*	0	*4.915*	0	*76.5*	*39-115*	0			

MSD Sample ID: **1206417-13A MSD** Units: **mg/Kg** Analysis Date: **6/19/2012 04:46 PM**

Client ID: Run ID: **GC8_120619A** SeqNo: **2004626** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	394.6	9.6	479.6	0	82.3	60-130	399.4	1.2	30	
ORO (C20-C34)	528.4	19	479.6	0	110	60-130	527	0.254	30	
Surr: 4-Terphenyl-d14	*3.699*	0	*4.796*	0	*77.1*	*39-115*	3.759	*1.62*	*30*	

The following samples were analyzed in this batch:

1206567-01A	1206567-02A	1206567-03A
1206567-04A	1206567-05A	1206567-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41781** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41781-41781** Units: **mg/Kg** Analysis Date: **6/20/2012 09:34 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008042** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.08*	0	*5*	0	*61.6*	*39-115*	0			

LCS Sample ID: **DLCSS1-41781-41781** Units: **mg/Kg** Analysis Date: **6/20/2012 10:01 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008043** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	432.7	10	500	0	86.5	60-130	0			
ORO (C20-C34)	456.2	20	500	0	91.2	60-130	0			
Surr: 4-Terphenyl-d14	*3.322*	0	*5*	0	*66.4*	*39-115*	0			

MS Sample ID: **1206567-07A MS** Units: **mg/Kg** Analysis Date: **6/20/2012 10:27 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **GC8_120620A** SeqNo: **2008044** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.3	10	499.9	0	81.1	60-130	0			
ORO (C20-C34)	510.4	20	499.9	0	102	60-130	0			
Surr: 4-Terphenyl-d14	*3.171*	0	*4.999*	0	*63.4*	*39-115*	0			

MSD Sample ID: **1206567-07A MSD** Units: **mg/Kg** Analysis Date: **6/20/2012 10:53 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **GC8_120620A** SeqNo: **2008045** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	417.8	9.8	489.3	0	85.4	60-130	405.3	3.05	30	
ORO (C20-C34)	529	20	489.3	0	108	60-130	510.4	3.58	30	
Surr: 4-Terphenyl-d14	*3.311*	0	*4.893*	0	*67.7*	*39-115*	3.171	*4.29*	*30*	

The following samples were analyzed in this batch:

1206567-07A	1206567-08A	1206567-09A
1206567-10A	1206567-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41789** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41789-41789** Units: **mg/Kg** Analysis Date: **6/20/2012 06:00 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006532** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.004721	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41789-41789** Units: **mg/Kg** Analysis Date: **6/20/2012 06:05 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006533** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.516	0.10	5	0	90.3	80-120	0			
Molybdenum	4.97	0.25	5	0	99.4	80-120	0			
Nickel	4.686	0.25	5	0	93.7	80-120	0			
Vanadium	4.82	0.25	5	0	96.4	80-120	0			

MS Sample ID: **1206567-07AMS** Units: **mg/Kg** Analysis Date: **6/20/2012 06:35 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **ICPMS2_120620A** SeqNo: **2006539** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.621	0.61	7.645	0.2961	82.7	80-120	0			
Molybdenum	7.229	1.5	7.645	0.3823	89.6	80-120	0			
Nickel	16.31	1.5	7.645	10.54	75.6	80-120	0			S
Vanadium	20.08	1.5	7.645	14.23	76.5	80-120	0			S

MSD Sample ID: **1206567-07AMSD** Units: **mg/Kg** Analysis Date: **6/20/2012 06:40 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **ICPMS2_120620A** SeqNo: **2006540** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.977	0.57	7.092	0.2961	80.1	80-120	6.621	10.2	25	
Molybdenum	7.106	1.4	7.092	0.3823	94.8	80-120	7.229	1.72	25	
Nickel	17.04	1.4	7.092	10.54	91.7	80-120	16.31	4.35	25	
Vanadium	21.04	1.4	7.092	14.23	96.1	80-120	20.08	4.68	25	

The following samples were analyzed in this batch:

1206567-01A	1206567-02A	1206567-03A
1206567-04A	1206567-05A	1206567-06A
1206567-07A	1206567-08A	1206567-09A
1206567-10A	1206567-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41746-41746** Units: **µg/Kg** Analysis Date: **6/20/2012 04:57 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007490** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2975*	0	*5000*	0	*59.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3710*	0	*5000*	0	*74.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3770*	0	*5000*	0	*75.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5590*	0	*5000*	0	*112*	*25-137*	0			
Surr: Nitrobenzene-d5	*3759*	0	*5000*	0	*75.2*	*37-107*	0			
Surr: Phenol-d6	*4082*	0	*5000*	0	*81.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41746-41746** Units: **µg/Kg** Analysis Date: **6/20/2012 02:41 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007486** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1748	50	2000	0	87.4	45-105	0			
Acenaphthene	1785	50	2000	0	89.2	45-110	0			
Acenaphthylene	1825	50	2000	0	91.2	45-105	0			
Anthracene	1910	50	2000	0	95.5	55-105	0			
Benzo(a)anthracene	1873	50	2000	0	93.6	50-110	0			
Benzo(a)pyrene	1970	50	2000	0	98.5	50-110	0			
Benzo(b)fluoranthene	1921	50	2000	0	96	45-115	0			
Benzo(g,h,i)perylene	2231	50	2000	0	112	40-125	0			
Benzo(k)fluoranthene	1944	50	2000	0	97.2	45-115	0			
Chrysene	2056	50	2000	0	103	55-110	0			
Dibenzo(a,h)anthracene	2114	50	2000	0	106	40-125	0			
Fluoranthene	2007	50	2000	0	100	55-115	0			
Fluorene	1821	50	2000	0	91	50-110	0			
Indeno(1,2,3-cd)pyrene	2153	50	2000	0	108	40-120	0			
Naphthalene	1736	50	2000	0	86.8	40-105	0			
Phenanthrene	1907	50	2000	0	95.4	50-110	0			
Pyrene	2060	50	2000	0	103	45-125	0			
Surr: 2,4,6-Tribromophenol	*3947*	0	*5000*	0	*78.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3839*	0	*5000*	0	*76.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4490*	0	*5000*	0	*89.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5504*	0	*5000*	0	*110*	*25-137*	0			
Surr: Nitrobenzene-d5	*3882*	0	*5000*	0	*77.6*	*37-107*	0			
Surr: Phenol-d6	*4257*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206417-13A MS** Units: **µg/Kg** Analysis Date: **6/20/2012 03:15 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007487** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1501	47	1888	0	79.5	45-105	0			
Acenaphthene	1642	47	1888	0	87	45-110	0			
Acenaphthylene	1703	47	1888	0	90.2	45-105	0			
Anthracene	1801	47	1888	0	95.4	55-105	0			
Benzo(a)anthracene	1830	47	1888	79.3	92.7	50-110	0			
Benzo(a)pyrene	1921	47	1888	115.1	95.7	50-110	0			
Benzo(b)fluoranthene	1965	47	1888	151.8	96	45-115	0			
Benzo(g,h,i)perylene	1781	47	1888	87.03	89.7	40-125	0			
Benzo(k)fluoranthene	1824	47	1888	55.12	93.7	45-115	0			
Chrysene	1892	47	1888	115.1	94.1	55-110	0			
Dibenzo(a,h)anthracene	1695	47	1888	0	89.8	40-125	0			
Fluoranthene	1920	47	1888	105.4	96.1	55-115	0			
Fluorene	1737	47	1888	0	92	50-110	0			
Indeno(1,2,3-cd)pyrene	1797	47	1888	61.89	91.9	40-120	0			
Naphthalene	1414	47	1888	0	74.9	40-105	0			
Phenanthrene	1825	47	1888	0	96.6	50-110	0			
Pyrene	1920	47	1888	126.7	95	45-125	0			
Surr: 2,4,6-Tribromophenol	*4136*	0	*4720*	0	*87.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3448*	0	*4720*	0	*73*	*12-100*	0			
Surr: 2-Fluorophenol	*3644*	0	*4720*	0	*77.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4775*	0	*4720*	0	*101*	*25-137*	0			
Surr: Nitrobenzene-d5	*3086*	0	*4720*	0	*65.4*	*37-107*	0			
Surr: Phenol-d6	*3580*	0	*4720*	0	*75.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41746** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206417-13A MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 03:49 PM**
Client ID: Run ID: **SVMS4_120620A** SeqNo: **2007488** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1625	49	1952	0	83.2	45-105	1501	7.95	30	
Acenaphthene	1741	49	1952	0	89.2	45-110	1642	5.89	30	
Acenaphthylene	1791	49	1952	0	91.8	45-105	1703	5.04	30	
Anthracene	1908	49	1952	0	97.8	55-105	1801	5.77	30	
Benzo(a)anthracene	1899	49	1952	79.3	93.2	50-110	1830	3.75	30	
Benzo(a)pyrene	2035	49	1952	115.1	98.4	50-110	1921	5.77	30	
Benzo(b)fluoranthene	2250	49	1952	151.8	107	45-115	1965	13.5	30	
Benzo(g,h,i)perylene	1644	49	1952	87.03	79.7	40-125	1781	8.04	30	
Benzo(k)fluoranthene	2174	49	1952	55.12	109	45-115	1824	17.5	30	
Chrysene	2020	49	1952	115.1	97.6	55-110	1892	6.53	30	
Dibenzo(a,h)anthracene	1645	49	1952	0	84.2	40-125	1695	2.98	30	
Fluoranthene	2061	49	1952	105.4	100	55-115	1920	7.05	30	
Fluorene	1805	49	1952	0	92.4	50-110	1737	3.83	30	
Indeno(1,2,3-cd)pyrene	1706	49	1952	61.89	84.2	40-120	1797	5.21	30	
Naphthalene	1536	49	1952	0	78.7	40-105	1414	8.28	30	
Phenanthrene	1918	49	1952	0	98.2	50-110	1825	4.98	30	
Pyrene	2020	49	1952	126.7	97	45-125	1920	5.09	30	
Surr: 2,4,6-Tribromophenol	*4426*	0	*4880*	0	*90.7*	*34-140*	4136	*6.77*	*40*	
Surr: 2-Fluorobiphenyl	*3667*	0	*4880*	0	*75.1*	*12-100*	3448	*6.17*	*40*	
Surr: 2-Fluorophenol	*3884*	0	*4880*	0	*79.6*	*33-117*	3644	*6.37*	*40*	
Surr: 4-Terphenyl-d14	*5029*	0	*4880*	0	*103*	*25-137*	4775	*5.18*	*40*	
Surr: Nitrobenzene-d5	*3350*	0	*4880*	0	*68.6*	*37-107*	3086	*8.2*	*40*	
Surr: Phenol-d6	*3869*	0	*4880*	0	*79.3*	*40-106*	3580	*7.77*	*40*	

The following samples were analyzed in this batch:

1206567-01A	1206567-02A	1206567-03A
1206567-04A	1206567-05A	1206567-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41780-41780** Units: **µg/Kg** Analysis Date: **6/21/2012 01:04 PM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009429** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*808*	0	*5000*	0	*16.2*	*34-140*	0			*S*
Surr: 2-Fluorobiphenyl	*3431*	0	*5000*	0	*68.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3625*	0	*5000*	0	*72.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4579*	0	*5000*	0	*91.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3715*	0	*5000*	0	*74.3*	*37-107*	0			
Surr: Phenol-d6	*3910*	0	*5000*	0	*78.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41780-41780** Units: **µg/Kg** Analysis Date: **6/21/2012 11:16 AM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009425** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1777	50	2000	0	88.8	45-105	0			
Acenaphthene	1768	50	2000	0	88.4	45-110	0			
Acenaphthylene	1665	50	2000	0	83.2	45-105	0			
Anthracene	1958	50	2000	0	97.9	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2059	50	2000	0	103	50-110	0			
Benzo(b)fluoranthene	2083	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2297	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	1888	50	2000	0	94.4	45-115	0			
Chrysene	2096	50	2000	0	105	55-110	0			
Dibenzo(a,h)anthracene	2284	50	2000	0	114	40-125	0			
Fluoranthene	2075	50	2000	0	104	55-115	0			
Fluorene	1848	50	2000	0	92.4	50-110	0			
Indeno(1,2,3-cd)pyrene	2266	50	2000	0	113	40-120	0			
Naphthalene	1710	50	2000	0	85.5	40-105	0			
Phenanthrene	1928	50	2000	0	96.4	50-110	0			
Pyrene	1962	50	2000	0	98.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*846*	0	*5000*	0	*16.9*	*34-140*	0			*S*
Surr: 2-Fluorobiphenyl	*3217*	0	*5000*	0	*64.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3733*	0	*5000*	0	*74.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4770*	0	*5000*	0	*95.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3528*	0	*5000*	0	*70.6*	*37-107*	0			
Surr: Phenol-d6	*3613*	0	*5000*	0	*72.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206567-07A MS** Units: **µg/Kg** Analysis Date: **6/21/2012 11:43 AM**
Client ID: **SBKR1350L517S061412S006** Run ID: **SVMS6_120621A** SeqNo: **2009426** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1467	48	1916	0	76.6	45-105	0			
Acenaphthene	1540	48	1916	0	80.4	45-110	0			
Acenaphthylene	1453	48	1916	0	75.8	45-105	0			
Anthracene	1634	48	1916	0	85.2	55-105	0			
Benzo(a)anthracene	1746	48	1916	117.3	85	50-110	0			
Benzo(a)pyrene	1731	48	1916	154.1	82.3	50-110	0			
Benzo(b)fluoranthene	1835	48	1916	175	86.6	45-115	0			
Benzo(g,h,i)perylene	1703	48	1916	116.3	82.8	40-125	0			
Benzo(k)fluoranthene	1503	48	1916	143.1	71	45-115	0			
Chrysene	1748	48	1916	147.1	83.5	55-110	0			
Dibenzo(a,h)anthracene	1642	48	1916	0	85.7	40-125	0			
Fluoranthene	1813	48	1916	175.9	85.4	55-115	0			
Fluorene	1613	48	1916	0	84.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1720	48	1916	77.53	85.7	40-120	0			
Naphthalene	1420	48	1916	0	74.1	40-105	0			
Phenanthrene	1669	48	1916	60.64	83.9	50-110	0			
Pyrene	1738	48	1916	185.9	81	45-125	0			
Surr: 2,4,6-Tribromophenol	*1683*	0	*4791*	0	*35.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2786*	0	*4791*	0	*58.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3094*	0	*4791*	0	*64.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3913*	0	*4791*	0	*81.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*2920*	0	*4791*	0	*61*	*37-107*	0			
Surr: Phenol-d6	*3061*	0	*4791*	0	*63.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206567-07A MSD** Units: **µg/Kg** Analysis Date: **6/21/2012 12:10 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **SVMS6_120621A** SeqNo: **2009427** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1603	47	1893	0	84.7	45-105	1467	8.88	30	
Acenaphthene	1672	47	1893	0	88.4	45-110	1540	8.26	30	
Acenaphthylene	1615	47	1893	0	85.3	45-105	1453	10.5	30	
Anthracene	1834	47	1893	0	96.9	55-105	1634	11.6	30	
Benzo(a)anthracene	1964	47	1893	117.3	97.6	50-110	1746	11.8	30	
Benzo(a)pyrene	2008	47	1893	154.1	98	50-110	1731	14.8	30	
Benzo(b)fluoranthene	2076	47	1893	175	100	45-115	1835	12.3	30	
Benzo(g,h,i)perylene	1567	47	1893	116.3	76.7	40-125	1703	8.28	30	
Benzo(k)fluoranthene	1732	47	1893	143.1	83.9	45-115	1503	14.1	30	
Chrysene	1955	47	1893	147.1	95.5	55-110	1748	11.2	30	
Dibenzo(a,h)anthracene	1620	47	1893	0	85.6	40-125	1642	1.35	30	
Fluoranthene	2014	47	1893	175.9	97.1	55-115	1813	10.5	30	
Fluorene	1807	47	1893	0	95.4	50-110	1613	11.4	30	
Indeno(1,2,3-cd)pyrene	1677	47	1893	77.53	84.5	40-120	1720	2.52	30	
Naphthalene	1552	47	1893	0	82	40-105	1420	8.9	30	
Phenanthrene	1863	47	1893	60.64	95.2	50-110	1669	11	30	
Pyrene	1952	47	1893	185.9	93.3	45-125	1738	11.6	30	
Surr: 2,4,6-Tribromophenol	*3198*	0	*4732*	0	*67.6*	*34-140*	1683	*62.1*	*40*	*R*
Surr: 2-Fluorobiphenyl	*2964*	0	*4732*	0	*62.6*	*12-100*	2786	*6.19*	*40*	
Surr: 2-Fluorophenol	*3362*	0	*4732*	0	*71*	*33-117*	3094	*8.3*	*40*	
Surr: 4-Terphenyl-d14	*4301*	0	*4732*	0	*90.9*	*25-137*	3913	*9.44*	*40*	
Surr: Nitrobenzene-d5	*3138*	0	*4732*	0	*66.3*	*37-107*	2920	*7.2*	*40*	
Surr: Phenol-d6	*3302*	0	*4732*	0	*69.8*	*40-106*	3061	*7.57*	*40*	

The following samples were analyzed in this batch:

1206567-07A	1206567-08A	1206567-09A
1206567-10A	1206567-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

MBLK Sample ID: **MBLK-41759-41759** Units: **µg/Kg** Analysis Date: **6/20/2012 12:25 PM**
Client ID: Run ID: **VMS5_120619A** SeqNo: **2005448** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: 4-Bromofluorobenzene	*975*	0	*1000*	0	*97.5*	*70-130*	0
Surr: Dibromofluoromethane	*973*	0	*1000*	0	*97.3*	*70-130*	0
Surr: Toluene-d8	*1012*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

LCS Sample ID: **LCS-41759-41759** Units: **µg/Kg** Analysis Date: **6/19/2012 11:31 PM**
Client ID: Run ID: **VMS5_120619A** SeqNo: **2005439** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1054	30	1000	0	105	75-125	0			
1,1,1-Trichloroethane	1018	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1010	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	960.5	30	1000	0	96	75-125	0			
1,1-Dichloroethene	1018	30	1000	0	102	65-135	0			
1,2,3-Trichlorobenzene	959.5	30	1000	0	96	60-135	0			
1,2,3-Trichloropropane	867	30	1000	0	86.7	65-130	0			
1,2,3-Trimethylbenzene	984	30	1000	0	98.4	65-135	0			
1,2,4-Trichlorobenzene	942.5	30	1000	0	94.2	65-130	0			
1,2,4-Trimethylbenzene	1007	30	1000	0	101	65-135	0			
1,2-Dibromo-3-chloropropane	869.5	30	1000	0	87	40-135	0			
1,2-Dibromoethane	1042	30	1000	0	104	70-125	0			
1,2-Dichlorobenzene	1024	30	1000	0	102	75-120	0			
1,2-Dichloroethane	977	30	1000	0	97.7	70-135	0			
1,2-Dichloropropane	1014	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	1046	30	1000	0	105	65-135	0			
1,3-Dichlorobenzene	1010	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	1002	30	1000	0	100	70-125	0			
2-Butanone	901	200	1000	0	90.1	30-160	0			
2-Hexanone	944.5	30	1000	0	94.4	45-145	0			
4-Methyl-2-pentanone	915	30	1000	0	91.5	45-145	0			
Acetone	911.5	100	1000	0	91.2	20-160	0			
Acrylonitrile	946	100	1000	0	94.6	70-135	0			
Benzene	983	30	1000	0	98.3	75-125	0			
Bromobenzene	767.5	30	1000	0	76.8	65-120	0			
Bromochloromethane	989.5	30	1000	0	99	70-125	0			
Bromodichloromethane	1086	30	1000	0	109	70-130	0			
Bromoform	896	30	1000	0	89.6	55-135	0			
Bromomethane	1152	75	1000	0	115	30-160	0			
Carbon disulfide	986.5	30	1000	0	98.6	45-160	0			
Carbon tetrachloride	1056	30	1000	0	106	65-135	0			
Chlorobenzene	1028	30	1000	0	103	75-125	0			
Chloroethane	988	100	1000	0	98.8	40-155	0			
Chloroform	1028	30	1000	0	103	70-125	0			
Chloromethane	900	100	1000	0	90	50-130	0			
cis-1,2-Dichloroethene	1004	30	1000	0	100	65-125	0			
cis-1,3-Dichloropropene	1038	30	1000	0	104	70-125	0			
Dibromochloromethane	1109	30	1000	0	111	65-135	0			
Dibromomethane	983	30	1000	0	98.3	75-130	0			
Dichlorodifluoromethane	677.5	30	1000	0	67.8	35-135	0			
Ethylbenzene	1048	30	1000	0	105	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	931	30	1000	0	93.1	70-135	0
Isopropylbenzene	1040	30	1000	0	104	75-130	0
m,p-Xylene	2123	60	2000	0	106	80-125	0
Methyl tert-butyl ether	962	30	1000	0	96.2	75-125	0
Methylene chloride	1026	30	1000	0	103	55-145	0
Naphthalene	994.5	100	1000	0	99.4	40-140	0
n-Butylbenzene	990	30	1000	0	99	65-140	0
n-Propylbenzene	1009	30	1000	0	101	65-135	0
o-Xylene	1056	30	1000	0	106	75-125	0
p-Isopropyltoluene	1012	30	1000	0	101	75-135	0
sec-Butylbenzene	1048	30	1000	0	105	65-130	0
Styrene	1082	30	1000	0	108	75-125	0
tert-Butylbenzene	1024	30	1000	0	102	65-130	0
Tetrachloroethene	1050	30	1000	0	105	64-140	0
Tetrahydrofuran	845.5	200	1000	0	84.6	70-135	0
Toluene	1014	30	1000	0	101	70-125	0
trans-1,2-Dichloroethene	1054	30	1000	0	105	65-135	0
trans-1,3-Dichloropropene	1016	30	1000	0	102	65-125	0
trans-1,4-Dichloro-2-butene	892.5	30	1000	0	89.2	70-135	0
Trichloroethene	991	30	1000	0	99.1	75-125	0
Trichlorofluoromethane	866	30	1000	0	86.6	25-185	0
Vinyl chloride	915	30	1000	0	91.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*922*	0	*1000*	0	*92.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*982.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*994*	0	*1000*	0	*99.4*	*70-130*	0
Surr: Toluene-d8	*993.5*	0	*1000*	0	*99.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

MS Sample ID: **1206567-07B MS** Units: **µg/Kg** Analysis Date: **6/20/2012 09:35 AM**
Client ID: **SBKR1350L517S061412S006** Run ID: **VMS5_120619A** SeqNo: **2005461** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2277	75	2509	0	90.8	75-125	0			
1,1,1-Trichloroethane	2530	75	2509	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	2047	75	2509	0	81.6	55-130	0			
1,1,2-Trichloroethane	2361	75	2509	0	94.1	60-125	0			
1,1-Dichloroethane	2363	75	2509	0	94.2	75-125	0			
1,1-Dichloroethene	2452	75	2509	0	97.8	65-135	0			
1,2,3-Trichlorobenzene	2181	75	2509	0	87	60-135	0			
1,2,3-Trichloropropane	1843	75	2509	0	73.4	65-130	0			
1,2,3-Trimethylbenzene	2400	75	2509	0	95.6	65-135	0			
1,2,4-Trichlorobenzene	2233	75	2509	0	89	65-130	0			
1,2,4-Trimethylbenzene	2395	75	2509	0	95.4	65-135	0			
1,2-Dibromo-3-chloropropane	1766	75	2509	0	70.4	40-135	0			
1,2-Dibromoethane	2336	75	2509	0	93.1	70-125	0			
1,2-Dichlorobenzene	2441	75	2509	0	97.3	75-120	0			
1,2-Dichloroethane	2245	75	2509	0	89.5	70-135	0			
1,2-Dichloropropane	2467	75	2509	0	98.4	70-120	0			
1,3,5-Trimethylbenzene	2440	75	2509	0	97.2	65-135	0			
1,3-Dichlorobenzene	2407	75	2509	0	96	70-125	0			
1,4-Dichlorobenzene	2352	75	2509	0	93.8	70-125	0			
2-Butanone	1830	250	2509	0	73	30-160	0			
2-Hexanone	1850	75	2509	0	73.8	45-145	0			
4-Methyl-2-pentanone	1814	75	2509	0	72.3	45-145	0			
Acetone	1805	250	2509	0	72	20-160	0			
Acrylonitrile	2117	75	2509	0	84.4	70-135	0			
Benzene	2432	75	2509	0	97	75-125	0			
Bromobenzene	2279	75	2509	0	90.8	65-120	0			
Bromochloromethane	2445	75	2509	0	97.4	70-125	0			
Bromodichloromethane	2459	75	2509	0	98	70-130	0			
Bromoform	2211	75	2509	0	88.2	55-135	0			
Bromomethane	2511	75	2509	0	100	30-160	0			
Carbon disulfide	2544	75	2509	0	101	45-160	0			
Carbon tetrachloride	2476	75	2509	0	98.7	65-135	0			
Chlorobenzene	2378	75	2509	0	94.8	75-125	0			
Chloroethane	2288	250	2509	0	91.2	40-155	0			
Chloroform	2481	75	2509	0	98.9	70-125	0			
Chloromethane	2269	75	2509	0	90.4	50-130	0			
cis-1,2-Dichloroethene	2348	75	2509	0	93.6	65-125	0			
cis-1,3-Dichloropropene	2460	75	2509	0	98	70-125	0			
Dibromochloromethane	2456	75	2509	0	97.9	65-135	0			
Dibromomethane	2356	75	2509	0	93.9	75-130	0			
Dichlorodifluoromethane	1788	75	2509	0	71.2	35-135	0			
Ethylbenzene	2455	75	2509	0	97.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	2031	75	2509	0	81	70-135	0	
Isopropylbenzene	2500	75	2509	0	99.6	75-130	0	
m,p-Xylene	4981	150	5018	0	99.3	80-125	0	
Methyl tert-butyl ether	2204	75	2509	0	87.8	75-125	0	
Methylene chloride	2804	75	2509	42.65	110	55-145	0	
Naphthalene	2012	250	2509	0	80.2	40-140	0	
n-Butylbenzene	2447	75	2509	0	97.6	65-140	0	
n-Propylbenzene	2388	75	2509	0	95.2	65-135	0	
o-Xylene	2469	75	2509	0	98.4	75-125	0	
p-Isopropyltoluene	2461	75	2509	0	98.1	75-135	0	
sec-Butylbenzene	2516	75	2509	0	100	65-130	0	
Styrene	2428	75	2509	0	96.8	75-125	0	
tert-Butylbenzene	2408	75	2509	0	96	65-130	0	
Tetrachloroethene	2496	75	2509	0	99.5	64-140	0	
Tetrahydrofuran	1716	250	2509	0	68.4	70-135	0	S
Toluene	2386	75	2509	0	95.1	70-125	0	
trans-1,2-Dichloroethene	2510	75	2509	0	100	65-135	0	
trans-1,3-Dichloropropene	2181	75	2509	0	87	65-125	0	
trans-1,4-Dichloro-2-butene	2041	75	2509	0	81.4	70-135	0	
Trichloroethene	2393	75	2509	0	95.4	75-125	0	
Trichlorofluoromethane	2079	75	2509	0	82.8	25-185	0	
Vinyl chloride	2392	75	2509	0	95.4	60-125	0	
Surr: 1,2-Dichloroethane-d4	*2388*	0	*2509*	0	*95.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*2370*	0	*2509*	0	*94.4*	*70-130*	0	
Surr: Dibromofluoromethane	*2413*	0	*2509*	0	*96.2*	*70-130*	0	
Surr: Toluene-d8	*2489*	0	*2509*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

MSD Sample ID: **1206567-07B MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 10:01 AM**
Client ID: **SBKR1350L517S061412S006** Run ID: **VMS5_120619A** SeqNo: **2005462** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2223	75	2509	0	88.6	75-125	2277	2.4	30	
1,1,1-Trichloroethane	2411	75	2509	0	96.1	70-135	2530	4.82	30	
1,1,2,2-Tetrachloroethane	2076	75	2509	0	82.8	55-130	2047	1.4	30	
1,1,2-Trichloroethane	2328	75	2509	0	92.8	60-125	2361	1.39	30	
1,1-Dichloroethane	2219	75	2509	0	88.4	75-125	2363	6.3	30	
1,1-Dichloroethene	2317	75	2509	0	92.4	65-135	2452	5.68	30	
1,2,3-Trichlorobenzene	2164	75	2509	0	86.2	60-135	2181	0.808	30	
1,2,3-Trichloropropane	1831	75	2509	0	73	65-130	1843	0.615	30	
1,2,3-Trimethylbenzene	2222	75	2509	0	88.6	65-135	2400	7.71	30	
1,2,4-Trichlorobenzene	2181	75	2509	0	87	65-130	2233	2.33	30	
1,2,4-Trimethylbenzene	2357	75	2509	0	94	65-135	2395	1.58	30	
1,2-Dibromo-3-chloropropane	1744	75	2509	0	69.5	40-135	1766	1.29	30	
1,2-Dibromoethane	2289	75	2509	0	91.2	70-125	2336	2.01	30	
1,2-Dichlorobenzene	2296	75	2509	0	91.5	75-120	2441	6.14	30	
1,2-Dichloroethane	2122	75	2509	0	84.6	70-135	2245	5.63	30	
1,2-Dichloropropane	2333	75	2509	0	93	70-120	2467	5.59	30	
1,3,5-Trimethylbenzene	2439	75	2509	0	97.2	65-135	2440	0.0514	30	
1,3-Dichlorobenzene	2267	75	2509	0	90.4	70-125	2407	6.01	30	
1,4-Dichlorobenzene	2190	75	2509	0	87.3	70-125	2352	7.13	30	
2-Butanone	1939	250	2509	0	77.3	30-160	1830	5.79	30	
2-Hexanone	1959	75	2509	0	78.1	45-145	1850	5.73	30	
4-Methyl-2-pentanone	1834	75	2509	0	73.1	45-145	1814	1.1	30	
Acetone	2302	250	2509	0	91.8	20-160	1805	24.2	30	
Acrylonitrile	2033	75	2509	0	81	70-135	2117	4.05	30	
Benzene	2264	75	2509	0	90.2	75-125	2432	7.16	30	
Bromobenzene	2228	75	2509	0	88.8	65-120	2279	2.28	30	
Bromochloromethane	2338	75	2509	0	93.2	70-125	2445	4.46	30	
Bromodichloromethane	2308	75	2509	0	92	70-130	2459	6.32	30	
Bromoform	2095	75	2509	0	83.5	55-135	2211	5.42	30	
Bromomethane	1814	75	2509	0	72.3	30-160	2511	32.3	30	R
Carbon disulfide	2303	75	2509	0	91.8	45-160	2544	9.94	30	
Carbon tetrachloride	2383	75	2509	0	95	65-135	2476	3.82	30	
Chlorobenzene	2273	75	2509	0	90.6	75-125	2378	4.53	30	
Chloroethane	2145	250	2509	0	85.5	40-155	2288	6.45	30	
Chloroform	2306	75	2509	0	91.9	70-125	2481	7.34	30	
Chloromethane	2184	75	2509	0	87	50-130	2269	3.83	30	
cis-1,2-Dichloroethene	2222	75	2509	0	88.6	65-125	2348	5.54	30	
cis-1,3-Dichloropropene	2253	75	2509	0	89.8	70-125	2460	8.78	30	
Dibromochloromethane	2515	75	2509	0	100	65-135	2456	2.37	30	
Dibromomethane	2145	75	2509	0	85.5	75-130	2356	9.36	30	
Dichlorodifluoromethane	1719	75	2509	0	68.5	35-135	1788	3.94	30	
Ethylbenzene	2426	75	2509	0	96.7	75-125	2455	1.18	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41759** Instrument ID **VMS5** Method: **SW8260**

Hexachloroethane	2023	75	2509	0	80.6	70-135	2031	0.371	30
Isopropylbenzene	2428	75	2509	0	96.8	75-130	2500	2.9	30
m,p-Xylene	4826	150	5018	0	96.2	80-125	4981	3.17	30
Methyl tert-butyl ether	2141	75	2509	0	85.4	75-125	2204	2.89	30
Methylene chloride	2703	75	2509	42.65	106	55-145	2804	3.64	30
Naphthalene	2051	250	2509	0	81.8	40-140	2012	1.91	30
n-Butylbenzene	2353	75	2509	0	93.8	65-140	2447	3.92	30
n-Propylbenzene	2357	75	2509	0	94	65-135	2388	1.32	30
o-Xylene	2385	75	2509	0	95	75-125	2469	3.46	30
p-Isopropyltoluene	2353	75	2509	0	93.8	75-135	2461	4.48	30
sec-Butylbenzene	2510	75	2509	0	100	65-130	2516	0.25	30
Styrene	2349	75	2509	0	93.6	75-125	2428	3.31	30
tert-Butylbenzene	2449	75	2509	0	97.6	65-130	2408	1.65	30
Tetrachloroethene	2351	75	2509	0	93.7	64-140	2496	6	30
Tetrahydrofuran	1757	250	2509	0	70	70-135	1716	2.38	30
Toluene	2311	75	2509	0	92.1	70-125	2386	3.21	30
trans-1,2-Dichloroethene	2427	75	2509	0	96.8	65-135	2510	3.35	30
trans-1,3-Dichloropropene	2129	75	2509	0	84.8	65-125	2181	2.44	30
trans-1,4-Dichloro-2-butene	1998	75	2509	0	79.6	70-135	2041	2.11	30
Trichloroethene	2136	75	2509	0	85.2	75-125	2393	11.4	30
Trichlorofluoromethane	1983	75	2509	0	79	25-185	2079	4.69	30
Vinyl chloride	2255	75	2509	0	89.9	60-125	2392	5.88	30
Surr: 1,2-Dichloroethane-d4	*2303*	0	*2509*	0	*91.8*	*70-130*	2388	*3.64*	*30*
Surr: 4-Bromofluorobenzene	*2460*	0	*2509*	0	*98*	*70-130*	2370	*3.74*	*30*
Surr: Dibromofluoromethane	*2363*	0	*2509*	0	*94.2*	*70-130*	2413	*2.1*	*30*
Surr: Toluene-d8	*2499*	0	*2509*	0	*99.6*	*70-130*	2489	*0.402*	*30*

The following samples were analyzed in this batch:

1206567-01B	1206567-02B	1206567-03B
1206567-04B	1206567-05B	1206567-06B
1206567-07B	1206567-08B	1206567-09B
1206567-10B	1206567-11B	1206567-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **R106167** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106167** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003630** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106167** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003628** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206543-03ADUP** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003607** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.15	0.050	0	0	0	0-0	12.2	0.411	20	

DUP Sample ID: **1206543-08ADUP** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003610** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.44	0.050	0	0	0	0-0	5.44	0	20	

The following samples were analyzed in this batch: 1206567-01A 1206567-02A 1206567-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **R106168** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106168** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: Run ID: **MOIST_120618E** SeqNo: **2003668** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106168** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: Run ID: **MOIST_120618E** SeqNo: **2003667** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206567-07ADUP1** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **MOIST_120618E** SeqNo: **2003647** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	42.82	0.050	0	0	0	0-0	42.52	0.703	20	

DUP Sample ID: **1206567-07ADUP2** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: **SBKR1350L517S061412S006** Run ID: **MOIST_120618E** SeqNo: **2003648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	44.4	0.050	0	0	0	0-0	42.52	4.33	20	

DUP Sample ID: **1206577-28CDUP1** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: Run ID: **MOIST_120618E** SeqNo: **2003661** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.37	0.050	0	0	0	0-0	12.43	0.484	20	

DUP Sample ID: **1206577-28CDUP2** Units: **% of sample** Analysis Date: **6/18/2012 06:09 PM**
Client ID: Run ID: **MOIST_120618E** SeqNo: **2003662** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.28	0.050	0	0	0	0-0	12.43	9.7	20	

The following samples were analyzed in this batch:

1206567-04A	1206567-05A	1206567-06A
1206567-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206567
Project: Marshall KRRI 1350L,1375L 6/14/12

QC BATCH REPORT

Batch ID: **R106231** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106231** Units: **% of sample** Analysis Date: **6/19/2012 05:01 PM**
Client ID: Run ID: **MOIST_120619A** SeqNo: **2005115** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106231** Units: **% of sample** Analysis Date: **6/19/2012 05:01 PM**
Client ID: Run ID: **MOIST_120619A** SeqNo: **2005113** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206567-08ADUP** Units: **% of sample** Analysis Date: **6/19/2012 05:01 PM**
Client ID: **SBKR1350L518S061412S005** Run ID: **MOIST_120619A** SeqNo: **2005080** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	44.94	0.050	0	0	0	0-0	45.4	1.02	20	

DUP Sample ID: **1206569-01ADUP** Units: **% of sample** Analysis Date: **6/19/2012 05:01 PM**
Client ID: Run ID: **MOIST_120619A** SeqNo: **2005088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	44.06	0.050	0	0	0	0-0	44.11	0.113	20	

The following samples were analyzed in this batch:

1206567-08A	1206567-09A	1206567-10A
1206567-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206567

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061412_AKM1	Task: KRRI_1350, 1375
	Total # of Samples: 12	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
1	SBKR1350L512S061412S006	SBKR1350L512	SO	G	06/14/2012 09:05	3			X	X	X	X	X
2	SBKR1350L513S061412S005	SBKR1350L513	SO	G	06/14/2012 09:33	3	MDEQ SPLIT		X	X	X	X	X
3	SBKR1350L514S061412S006	SBKR1350L514	SO	G	06/14/2012 11:23	3			X	X	X	X	X
4	SBKR1350L515S061412S005	SBKR1350L515	SO	G	06/14/2012 11:40	3			X	X	X	X	X
5	SBKR1350L515D061412S005	SBKR1350L515	SO	G	06/14/2012 11:40	3	DUPLICATE		X	X	X	X	X
6	SBKR1350L516S061412S006	SBKR1350L516	SO	G	06/14/2012 13:26	3			X	X	X	X	X
7	SBKR1350L517S061412S006	SBKR1350L517	SO	G	06/14/2012 13:48	6	MS/MSD		X	X	X	X	X
8	SBKR1350L518S061412S005	SBKR1350L518	SO	G	06/14/2012 14:05	3	MDEQ SPLIT		X	X	X	X	X
9	SBKR1375L505S061412S007	SBKR1375L505	SO	G	06/14/2012 15:26	3			X	X	X	X	X
10	SBKR1375L506S061412S006	SBKR1375L506	SO	G	06/14/2012 15:48	3			X	X	X	X	X
11	SBKR1375L507S061412S006	SBKR1375L507	SO	G	06/14/2012 16:05	3			X	X	X	X	X
12	SBKR1375L507T061412MX	SBKR1375L507	SQ	G	06/14/2012 00:00	1	TRIP BLANK						X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-14-12	1720		6-14-12	1720
	6-15-12	1700		6-15-12	1700

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
3.2°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:
Tracking #:
PRINT Name of SAMPLER: APRIL MODERT (AKM1)
SIGNATURE of SAMPLER:
DATE Signed
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **15-Jun-12 17:00**

Work Order: **1206567** Received by: **PD**

Checklist completed by Keith Wierenga eSignature 18-Jun-12 Date Reviewed by: Alex Csaszar eSignature 18-Jun-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

3.2°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-14-12 Time:

Name:

Company:

Seal Broken By:

Date:

25-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1325L,1350L 6/13/12** Work Order: **1206568**

Dear Bryan,

ALS Environmental received 14 samples on 15-Jun-2012 05:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 73.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 25-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1325L,1350L 6/13/12
Work Order: **1206568**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206568-01	SBKR1325L510S061312S004	Soil		6/13/2012 08:44	6/15/2012 17:00	☐
1206568-02	SBKR1350L501S061312S004	Soil		6/13/2012 09:27	6/15/2012 17:00	☐
1206568-03	SBKR1350L502S061312S004	Soil		6/13/2012 10:10	6/15/2012 17:00	☐
1206568-04	SBKR1350L503S061312S006	Soil		6/13/2012 13:05	6/15/2012 17:00	☐
1206568-05	SBKR1350L504S061312S006	Soil		6/13/2012 13:30	6/15/2012 17:00	☐
1206568-06	SBKR1350L505S061312S006	Soil		6/13/2012 14:04	6/15/2012 17:00	☐
1206568-07	SBKR1350L505D061312S006	Soil		6/13/2012 14:04	6/15/2012 17:00	☐
1206568-08	SBKR1350L506S061312S006	Soil		6/13/2012 14:33	6/15/2012 17:00	☐
1206568-09	SBKR1350L507S061312S005	Soil		6/13/2012 15:05	6/15/2012 17:00	☐
1206568-10	SBKR1350L508S061312S005	Soil		6/13/2012 15:26	6/15/2012 17:00	☐
1206568-11	SBKR1350L509S061312S005	Soil		6/13/2012 15:44	6/15/2012 17:00	☐
1206568-12	SBKR1350L510S061312S007	Soil		6/13/2012 16:02	6/15/2012 17:00	☐
1206568-13	SBKR1350L511S061312S005	Soil		6/13/2012 16:18	6/15/2012 17:00	☐
1206568-14	SBKR1350L511T061312MX	Soil		6/13/2012	6/15/2012 17:00	☐

ALS Group USA, Corp

Date: 25-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1325L,1350L 6/13/12
Work Order: 1206568

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41789 MS/MSD data for Metals is not related to this project's samples.

Batch 41803 sample SBKR1350L510S061312S007 MS recoveries for Molybdenum and Nickel were below control limits. Both the MSD recoveries and RPDs met quality control criteria. No data requires qualification for these two elements. The MS/MSD recoveries for Beryllium were below control limits. The corresponding result in the parent sample may be biased low for Beryllium.

Batch 41780 MS/MSD data for PAHs is not related to this project's samples. The Method Blank and LCS had low recoveries for one of the acid surrogates. None of the PAHs are associated with this surrogate. Sample 1206568-01 had a high surrogate recovery for 4-Terphenyl-d14. The PAH compounds that had reportable results, bay be biased high due to matrix interference.

Batch 41794 MS/MSD data for PAHs is not related to this project's samples.

Batch 41762 Method Blank had a reportable result for Methylene Chloride. All samples in this quality control batch were ND for Methylene Chloride.

ALS Group USA, Corp

Date: 25-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1325L,1350L 6/13/12
WorkOrder: **1206568**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L510S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 8:44:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	15	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	29	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*60.4*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(a)pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(b)fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Chrysene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**650**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*76.7*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*64.5*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*178*	*25-137*		S	*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*66.0*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*75.8*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	86	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	86	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	86	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	86	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L510S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 8:44:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	86	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	86	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	86	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	86	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	86	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	86	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	86	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	86	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	290	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	86	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	86	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	86	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1325L510S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 8:44:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	86	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	170	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	86	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	86	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	86	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	86	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	86	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	86	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	86	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	86	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	86	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	86	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	86	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**32**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L501S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 9:27:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	30	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	59	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*59.2*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(b)fluoranthene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Chrysene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*73.9*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*55.2*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*60.1*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*89.2*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*53.2*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*63.7*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	460	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	460	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L501S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 9:27:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	460	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	460	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	460	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	460	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	460	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	1,500	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	1,500	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	3,900	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	460	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	460	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	460	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	460	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	460	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	460	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	460	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	460	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	460	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	1,500	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	460	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	460	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	460	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	460	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	460	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	460	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	460	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L501S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 9:27:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	460	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	460	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	460	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	920	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	460	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	460	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	460	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	1,500	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	460	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	460	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	460	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	460	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	460	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	460	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,500	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	460	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	460	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	460	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	460	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	460	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.1*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**67**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L502S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 10:10:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	35	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*61.5*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*80.9*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*62.8*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*70.3*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*92.6*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*62.8*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*71.1*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L502S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 10:10:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	140	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	140	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	140	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	140	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	140	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	140	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	480	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	140	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L502S061312S004
Work Order:	1206568	**Collection Date:**	6/13/2012 10:10:00 AM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	290	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	140	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	140	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	480	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	140	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	140	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	140	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	140	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	140	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	140	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	140	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	140	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	140	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*97.6*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**45**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L503S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*62.2*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*79.7*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*61.6*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*68.7*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*92.8*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*61.7*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*70.8*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L503S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L503S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	210	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	210	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L504S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:30:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	40	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*61.6*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*77.3*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*63.9*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*93.3*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*66.6*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*74.2*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L504S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:30:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	210	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	210	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L504S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 1:30:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	210	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	210	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	6/21/2012
ORO (C20-C34)	ND	48	4.0		mg/Kg-dry	1	6/21/2012
Surr: 4-Terphenyl-d14	*50.4*	*39-115*			*%REC*	1	6/21/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*61.9*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*48.3*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*53.1*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*78.9*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*47.9*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*54.8*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	2,400	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	280	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	280	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	280	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	560	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	280	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	280	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	280	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*99.6*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*99.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505D061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	**68**	**21**	**4.0**		**mg/Kg-dry**	1	6/22/2012
ORO (C20-C34)	**470**	**42**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*74.6*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*110*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*72.0*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*78.7*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*108*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*68.9*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*74.1*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505D061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	230	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	230	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	230	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L505D061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:04:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	230	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	230	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	230	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*97.3*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*95.2*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L506S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:33:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	23	4.0		mg/Kg-dry	1	6/22/2012
ORO (C20-C34)	ND	45	4.0		mg/Kg-dry	1	6/22/2012
Surr: 4-Terphenyl-d14	*69.9*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*92.7*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*59.1*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*63.9*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*53.8*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*60.6*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	260	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	260	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	260	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L506S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:33:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	260	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	260	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	260	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	260	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	260	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	260	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	260	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	850	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	850	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	2,100	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	260	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	260	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	260	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	260	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	260	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	260	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	260	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	260	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	260	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	850	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	260	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	260	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	260	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	260	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	260	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	260	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	260	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	260	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L506S061312S006
Work Order:	1206568	**Collection Date:**	6/13/2012 2:33:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	260	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	260	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	510	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	260	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	260	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	260	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	850	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	260	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	260	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	260	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	260	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	260	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	260	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	260	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	260	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	260	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	260	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	260	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	260	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	260	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	260	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*95.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L507S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	18	4.0		mg/Kg-dry	1	6/22/2012
ORO (C20-C34)	**430**	**37**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*72.1*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*99.3*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*73.3*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*80.2*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*70.9*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*74.0*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L507S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	600	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	180	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	180	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	600	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	180	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L507S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:05:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	180	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	600	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	180	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	180	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L508S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:26:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	6/22/2012
ORO (C20-C34)	**560**	**43**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*74.6*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(b)fluoranthene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*109*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*65.3*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*70.4*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*111*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*64.2*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*67.3*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L508S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:26:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L508S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:26:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*98.7*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*96.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L509S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:44:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	**66**	**16**	**4.0**		**mg/Kg-dry**	1	6/22/2012
ORO (C20-C34)	**830**	**32**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*74.8*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/21/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(a)pyrene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(b)fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Chrysene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*104*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*72.4*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*70.3*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*62.7*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*71.2*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	120	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	120	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	120	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	120	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	120	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L509S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:44:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	120	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	120	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	120	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	120	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	120	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	120	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	390	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	120	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	120	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	120	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	120	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	120	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	120	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	120	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	390	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	120	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	120	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L509S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 3:44:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	120	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	230	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	120	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	190	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	390	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	120	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	120	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	120	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	120	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	120	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	120	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	120	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	120	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	120	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	120	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	120	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	120	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	120	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*95.4*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*99.5*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**40**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L510S061312S007
Work Order:	1206568	**Collection Date:**	6/13/2012 4:02:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	**87**	**16**	**4.0**		**mg/Kg-dry**	1	6/22/2012
ORO (C20-C34)	**1,300**	**32**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*74.7*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/21/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(a)pyrene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(b)fluoranthene	**2,100**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Chrysene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*100*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*68.5*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*70.0*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*114*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*61.8*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*68.9*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	110	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	110	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	110	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L510S061312S007
Work Order:	1206568	**Collection Date:**	6/13/2012 4:02:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	110	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	110	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	110	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	110	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	110	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	380	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	110	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	110	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	110	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	110	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	110	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	110	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	110	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	380	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	110	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	110	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L510S061312S007
Work Order:	1206568	**Collection Date:**	6/13/2012 4:02:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	110	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	230	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	110	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	110	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	380	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	110	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	110	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	110	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	110	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	110	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	110	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	110	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	110	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	110	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	110	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	110	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	110	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	110	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*85.2*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*89.6*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*85.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**39**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L511S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 4:18:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/20/2012**		Analyst: **CW**
DRO (C10-C20)	**210**	**19**	**4.0**		**mg/Kg-dry**	1	6/22/2012
ORO (C20-C34)	**2,300**	**38**	**4.0**		**mg/Kg-dry**	1	6/22/2012
Surr: 4-Terphenyl-d14	*74.7*	*39-115*			*%REC*	1	6/22/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/20/2012**		Analyst: **ML**
Beryllium	**0.57**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/21/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Nickel	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/21/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/21/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(a)anthracene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(a)pyrene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/21/2012
Benzo(k)fluoranthene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Chrysene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/21/2012
Fluoranthene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/21/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/21/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/21/2012
Pyrene	**900**	**330**	**330**		**µg/Kg-dry**	1	6/21/2012
Surr: 2,4,6-Tribromophenol	*88.5*	*34-140*			*%REC*	1	6/21/2012
Surr: 2-Fluorobiphenyl	*69.2*	*12-100*			*%REC*	1	6/21/2012
Surr: 2-Fluorophenol	*67.2*	*33-117*			*%REC*	1	6/21/2012
Surr: 4-Terphenyl-d14	*116*	*25-137*			*%REC*	1	6/21/2012
Surr: Nitrobenzene-d5	*61.5*	*37-107*			*%REC*	1	6/21/2012
Surr: Phenol-d6	*67.2*	*40-106*			*%REC*	1	6/21/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	6/20/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L511S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 4:18:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	6/20/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	6/20/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	6/20/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
2-Methylnaphthalene	ND	570	330		µg/Kg-dry	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/20/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	6/20/2012
Benzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromoform	ND	170	100		µg/Kg-dry	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/20/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	6/20/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Chloroethane	ND	570	250		µg/Kg-dry	1	6/20/2012
Chloroform	ND	170	50		µg/Kg-dry	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/20/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/20/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L511S061312S005
Work Order:	1206568	**Collection Date:**	6/13/2012 4:18:00 PM
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/20/2012
m,p-Xylene	ND	340	100		µg/Kg-dry	1	6/20/2012
Methyl iodide	ND	170	100		µg/Kg-dry	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/20/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	6/20/2012
Naphthalene	ND	570	330		µg/Kg-dry	1	6/20/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	6/20/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	6/20/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	6/20/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Styrene	ND	170	50		µg/Kg-dry	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/20/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/20/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/20/2012
Toluene	ND	170	100		µg/Kg-dry	1	6/20/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	6/20/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	6/20/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	6/20/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*86.3*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*89.8*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*86.1*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/20/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**49**	**0.050**	**0**		**% of sample**	1	6/18/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L511T061312MX
Work Order:	1206568	**Collection Date:**	6/13/2012
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/19/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/20/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/20/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/20/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/20/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/20/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/20/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/20/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/20/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/20/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/20/2012
2-Butanone	ND	750	750		µg/Kg	1	6/20/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/20/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/20/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/20/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/20/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/20/2012
Benzene	ND	50	50		µg/Kg	1	6/20/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/20/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/20/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/20/2012
Bromoform	ND	100	100		µg/Kg	1	6/20/2012
Bromomethane	ND	200	200		µg/Kg	1	6/20/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/20/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/20/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/20/2012
Chloroethane	ND	250	250		µg/Kg	1	6/20/2012
Chloroform	ND	50	50		µg/Kg	1	6/20/2012
Chloromethane	ND	250	250		µg/Kg	1	6/20/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *25-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1350L511T061312MX
Work Order:	1206568	**Collection Date:**	6/13/2012
Project:	Marshall KRRI 1325L,1350L 6/13/12		
Lab ID:	1206568-14	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/20/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/20/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/20/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/20/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/20/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/20/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/20/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/20/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/20/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/20/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/20/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/20/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/20/2012
Naphthalene	ND	330	330		µg/Kg	1	6/20/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/20/2012
o-Xylene	ND	50	50		µg/Kg	1	6/20/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/20/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Styrene	ND	50	50		µg/Kg	1	6/20/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/20/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/20/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/20/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/20/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/20/2012
Toluene	ND	100	100		µg/Kg	1	6/20/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/20/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/20/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/20/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/20/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/20/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/20/2012
Surr: 1,2-Dichloroethane-d4	*97.2*	*70-130*			*%REC*	1	6/20/2012
Surr: 4-Bromofluorobenzene	*84.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Dibromofluoromethane	*97.0*	*70-130*			*%REC*	1	6/20/2012
Surr: Toluene-d8	*98.6*	*70-130*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41781** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41781-41781** Units: **mg/Kg** Analysis Date: **6/20/2012 09:34 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008042** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.08*	0	*5*	0	*61.6*	*39-115*	0			

LCS Sample ID: **DLCSS1-41781-41781** Units: **mg/Kg** Analysis Date: **6/20/2012 10:01 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008043** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	432.7	10	500	0	86.5	60-130	0			
ORO (C20-C34)	456.2	20	500	0	91.2	60-130	0			
Surr: 4-Terphenyl-d14	*3.322*	0	*5*	0	*66.4*	*39-115*	0			

MS Sample ID: **1206567-07A MS** Units: **mg/Kg** Analysis Date: **6/20/2012 10:27 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008044** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.3	10	499.9	0	81.1	60-130	0			
ORO (C20-C34)	510.4	20	499.9	0	102	60-130	0			
Surr: 4-Terphenyl-d14	*3.171*	0	*4.999*	0	*63.4*	*39-115*	0			

MSD Sample ID: **1206567-07A MSD** Units: **mg/Kg** Analysis Date: **6/20/2012 10:53 PM**
Client ID: Run ID: **GC8_120620A** SeqNo: **2008045** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	417.8	9.8	489.3	0	85.4	60-130	405.3	3.05	30	
ORO (C20-C34)	529	20	489.3	0	108	60-130	510.4	3.58	30	
Surr: 4-Terphenyl-d14	*3.311*	0	*4.893*	0	*67.7*	*39-115*	3.171	*4.29*	*30*	

The following samples were analyzed in this batch:

1206568-01A	1206568-02A	1206568-03A
1206568-04A	1206568-05A	1206568-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41795** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41795-41795** Units: **mg/Kg** Analysis Date: **6/21/2012 11:38 PM**
Client ID: Run ID: **GC8_120621A** SeqNo: **2009142** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*3.811*	0	*5*	0	*76.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41795-41795** Units: **mg/Kg** Analysis Date: **6/22/2012 12:03 PM**
Client ID: Run ID: **GC8_120621A** SeqNo: **2009168** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	426.3	10	500	0	85.3	60-130	0			
ORO (C20-C34)	577.8	20	500	0	116	60-130	0			
Surr: 4-Terphenyl-d14	*4.042*	0	*5*	0	*80.8*	*39-115*	0			

MS Sample ID: **1206569-12A MS** Units: **mg/Kg** Analysis Date: **6/22/2012 12:27 PM**
Client ID: Run ID: **GC8_120621A** SeqNo: **2009169** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	397.7	9.5	477.3	35.99	75.8	60-130	0			
ORO (C20-C34)	697.3	19	477.3	393.6	63.6	60-130	0			
Surr: 4-Terphenyl-d14	*3.588*	0	*4.773*	0	*75.2*	*39-115*	0			

MSD Sample ID: **1206569-12A MSD** Units: **mg/Kg** Analysis Date: **6/22/2012 12:52 PM**
Client ID: Run ID: **GC8_120621A** SeqNo: **2009170** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	405.5	9.8	491.7	35.99	75.1	60-130	397.7	1.94	30	
ORO (C20-C34)	714.9	20	491.7	393.6	65.3	60-130	697.3	2.49	30	
Surr: 4-Terphenyl-d14	*3.931*	0	*4.917*	0	*79.9*	*39-115*	3.588	*9.12*	*30*	

The following samples were analyzed in this batch:

1206568-07A	1206568-08A	1206568-09A
1206568-10A	1206568-11A	1206568-12A
1206568-13A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41789** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41789-41789** Units: **mg/Kg** Analysis Date: **6/20/2012 06:00 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006532** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.004721	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41789-41789** Units: **mg/Kg** Analysis Date: **6/20/2012 06:05 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006533** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.516	0.10	5	0	90.3	80-120	0			
Molybdenum	4.97	0.25	5	0	99.4	80-120	0			
Nickel	4.686	0.25	5	0	93.7	80-120	0			
Vanadium	4.82	0.25	5	0	96.4	80-120	0			

MS Sample ID: **1206567-07AMS** Units: **mg/Kg** Analysis Date: **6/20/2012 06:35 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006539** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.621	0.61	7.645	0.2961	82.7	80-120	0			
Molybdenum	7.229	1.5	7.645	0.3823	89.6	80-120	0			
Nickel	16.31	1.5	7.645	10.54	75.6	80-120	0			S
Vanadium	20.08	1.5	7.645	14.23	76.5	80-120	0			S

MSD Sample ID: **1206567-07AMSD** Units: **mg/Kg** Analysis Date: **6/20/2012 06:40 PM**
Client ID: Run ID: **ICPMS2_120620A** SeqNo: **2006540** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.977	0.57	7.092	0.2961	80.1	80-120	6.621	10.2	25	
Molybdenum	7.106	1.4	7.092	0.3823	94.8	80-120	7.229	1.72	25	
Nickel	17.04	1.4	7.092	10.54	91.7	80-120	16.31	4.35	25	
Vanadium	21.04	1.4	7.092	14.23	96.1	80-120	20.08	4.68	25	

The following samples were analyzed in this batch: 1206568-01A 1206568-02A 1206568-03A 1206568-04A 1206568-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41803** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41803-41803** Units: **mg/Kg** Analysis Date: **6/21/2012 08:09 PM**
Client ID: Run ID: **ICPMS1_120621A** SeqNo: **2008300** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01126	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41803-41803** Units: **mg/Kg** Analysis Date: **6/21/2012 08:15 PM**
Client ID: Run ID: **ICPMS1_120621A** SeqNo: **2008301** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.153	0.10	5	0	83.1	80-120	0			
Molybdenum	4.21	0.25	5	0	84.2	80-120	0			
Nickel	4.214	0.25	5	0	84.3	80-120	0			
Vanadium	4.15	0.25	5	0	83	80-120	0			

MS Sample ID: **1206568-12AMS** Units: **mg/Kg** Analysis Date: **6/21/2012 05:58 AM**
Client ID: **SBKR1350L510S061312S007** Run ID: **ICPMS1_120620A** SeqNo: **2006794** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.406	0.54	6.693	0.3016	76.3	80-120	0			S
Molybdenum	5.989	1.3	6.693	0.6573	79.7	80-120	0			S
Nickel	17.05	1.3	6.693	11.88	77.3	80-120	0			S
Vanadium	17.46	1.3	6.693	11.44	89.8	80-120	0			

MSD Sample ID: **1206568-12AMSD** Units: **mg/Kg** Analysis Date: **6/21/2012 06:04 AM**
Client ID: **SBKR1350L510S061312S007** Run ID: **ICPMS1_120620A** SeqNo: **2006795** Prep Date: **6/20/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.523	0.54	6.739	0.3016	77.5	80-120	5.406	2.15	25	S
Molybdenum	6.27	1.3	6.739	0.6573	83.3	80-120	5.989	4.57	25	
Nickel	17.57	1.3	6.739	11.88	84.4	80-120	17.05	2.97	25	
Vanadium	17.71	1.3	6.739	11.44	93.1	80-120	17.46	1.47	25	

The following samples were analyzed in this batch:

1206568-06A	1206568-07A	1206568-08A
1206568-09A	1206568-10A	1206568-11A
1206568-12A	1206568-13A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41780-41780** Units: **µg/Kg** Analysis Date: **6/21/2012 01:04 PM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009429** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*808*	0	*5000*	0	*16.2*	*34-140*	0			*S*
Surr: 2-Fluorobiphenyl	*3431*	0	*5000*	0	*68.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3625*	0	*5000*	0	*72.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4579*	0	*5000*	0	*91.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3715*	0	*5000*	0	*74.3*	*37-107*	0			
Surr: Phenol-d6	*3910*	0	*5000*	0	*78.2*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41780-41780** Units: **µg/Kg** Analysis Date: **6/21/2012 11:16 AM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009425** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1777	50	2000	0	88.8	45-105	0			
Acenaphthene	1768	50	2000	0	88.4	45-110	0			
Acenaphthylene	1665	50	2000	0	83.2	45-105	0			
Anthracene	1958	50	2000	0	97.9	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2059	50	2000	0	103	50-110	0			
Benzo(b)fluoranthene	2083	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2297	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	1888	50	2000	0	94.4	45-115	0			
Chrysene	2096	50	2000	0	105	55-110	0			
Dibenzo(a,h)anthracene	2284	50	2000	0	114	40-125	0			
Fluoranthene	2075	50	2000	0	104	55-115	0			
Fluorene	1848	50	2000	0	92.4	50-110	0			
Indeno(1,2,3-cd)pyrene	2266	50	2000	0	113	40-120	0			
Naphthalene	1710	50	2000	0	85.5	40-105	0			
Phenanthrene	1928	50	2000	0	96.4	50-110	0			
Pyrene	1962	50	2000	0	98.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*846*	0	*5000*	0	*16.9*	*34-140*	0			*S*
Surr: 2-Fluorobiphenyl	*3217*	0	*5000*	0	*64.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3733*	0	*5000*	0	*74.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4770*	0	*5000*	0	*95.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3528*	0	*5000*	0	*70.6*	*37-107*	0			
Surr: Phenol-d6	*3613*	0	*5000*	0	*72.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206567-07A MS** Units: **µg/Kg** Analysis Date: **6/21/2012 11:43 AM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009426** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1467	48	1916	0	76.6	45-105	0			
Acenaphthene	1540	48	1916	0	80.4	45-110	0			
Acenaphthylene	1453	48	1916	0	75.8	45-105	0			
Anthracene	1634	48	1916	0	85.2	55-105	0			
Benzo(a)anthracene	1746	48	1916	117.3	85	50-110	0			
Benzo(a)pyrene	1731	48	1916	154.1	82.3	50-110	0			
Benzo(b)fluoranthene	1835	48	1916	175	86.6	45-115	0			
Benzo(g,h,i)perylene	1703	48	1916	116.3	82.8	40-125	0			
Benzo(k)fluoranthene	1503	48	1916	143.1	71	45-115	0			
Chrysene	1748	48	1916	147.1	83.5	55-110	0			
Dibenzo(a,h)anthracene	1642	48	1916	0	85.7	40-125	0			
Fluoranthene	1813	48	1916	175.9	85.4	55-115	0			
Fluorene	1613	48	1916	0	84.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1720	48	1916	77.53	85.7	40-120	0			
Naphthalene	1420	48	1916	0	74.1	40-105	0			
Phenanthrene	1669	48	1916	60.64	83.9	50-110	0			
Pyrene	1738	48	1916	185.9	81	45-125	0			
Surr: 2,4,6-Tribromophenol	*1683*	0	*4791*	0	*35.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2786*	0	*4791*	0	*58.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3094*	0	*4791*	0	*64.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3913*	0	*4791*	0	*81.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*2920*	0	*4791*	0	*61*	*37-107*	0			
Surr: Phenol-d6	*3061*	0	*4791*	0	*63.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41780** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206567-07A MSD** Units: **µg/Kg** Analysis Date: **6/21/2012 12:10 PM**
Client ID: Run ID: **SVMS6_120621A** SeqNo: **2009427** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1603	47	1893	0	84.7	45-105	1467	8.88	30	
Acenaphthene	1672	47	1893	0	88.4	45-110	1540	8.26	30	
Acenaphthylene	1615	47	1893	0	85.3	45-105	1453	10.5	30	
Anthracene	1834	47	1893	0	96.9	55-105	1634	11.6	30	
Benzo(a)anthracene	1964	47	1893	117.3	97.6	50-110	1746	11.8	30	
Benzo(a)pyrene	2008	47	1893	154.1	98	50-110	1731	14.8	30	
Benzo(b)fluoranthene	2076	47	1893	175	100	45-115	1835	12.3	30	
Benzo(g,h,i)perylene	1567	47	1893	116.3	76.7	40-125	1703	8.28	30	
Benzo(k)fluoranthene	1732	47	1893	143.1	83.9	45-115	1503	14.1	30	
Chrysene	1955	47	1893	147.1	95.5	55-110	1748	11.2	30	
Dibenzo(a,h)anthracene	1620	47	1893	0	85.6	40-125	1642	1.35	30	
Fluoranthene	2014	47	1893	175.9	97.1	55-115	1813	10.5	30	
Fluorene	1807	47	1893	0	95.4	50-110	1613	11.4	30	
Indeno(1,2,3-cd)pyrene	1677	47	1893	77.53	84.5	40-120	1720	2.52	30	
Naphthalene	1552	47	1893	0	82	40-105	1420	8.9	30	
Phenanthrene	1863	47	1893	60.64	95.2	50-110	1669	11	30	
Pyrene	1952	47	1893	185.9	93.3	45-125	1738	11.6	30	
Surr: 2,4,6-Tribromophenol	*3198*	0	*4732*	0	*67.6*	*34-140*	1683	*62.1*	*40*	*R*
Surr: 2-Fluorobiphenyl	*2964*	0	*4732*	0	*62.6*	*12-100*	2786	*6.19*	*40*	
Surr: 2-Fluorophenol	*3362*	0	*4732*	0	*71*	*33-117*	3094	*8.3*	*40*	
Surr: 4-Terphenyl-d14	*4301*	0	*4732*	0	*90.9*	*25-137*	3913	*9.44*	*40*	
Surr: Nitrobenzene-d5	*3138*	0	*4732*	0	*66.3*	*37-107*	2920	*7.2*	*40*	
Surr: Phenol-d6	*3302*	0	*4732*	0	*69.8*	*40-106*	3061	*7.57*	*40*	

The following samples were analyzed in this batch:

1206568-01A	1206568-02A	1206568-03A
1206568-04A	1206568-05A	1206568-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41794** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41794-41794** Units: **µg/Kg** Analysis Date: **6/21/2012 07:01 PM**
Client ID: Run ID: **SVMS5_120621A** SeqNo: **2009733** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3980*	0	*5000*	0	*79.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4224*	0	*5000*	0	*84.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4137*	0	*5000*	0	*82.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*5418*	0	*5000*	0	*108*	*25-137*	0			
Surr: Nitrobenzene-d5	*4281*	0	*5000*	0	*85.6*	*37-107*	0			
Surr: Phenol-d6	*4171*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41794** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41794-41794** Units: **µg/Kg** Analysis Date: **6/21/2012 04:39 PM**
Client ID: Run ID: **SVMS5_120621A** SeqNo: **2009729** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1743	50	2000	0	87.2	45-105	0			
Acenaphthene	1758	50	2000	0	87.9	45-110	0			
Acenaphthylene	1774	50	2000	0	88.7	45-105	0			
Anthracene	1716	50	2000	0	85.8	55-105	0			
Benzo(a)anthracene	1825	50	2000	0	91.2	50-110	0			
Benzo(a)pyrene	1773	50	2000	0	88.6	50-110	0			
Benzo(b)fluoranthene	1835	50	2000	0	91.8	45-115	0			
Benzo(g,h,i)perylene	1850	50	2000	0	92.5	40-125	0			
Benzo(k)fluoranthene	1961	50	2000	0	98	45-115	0			
Chrysene	1813	50	2000	0	90.6	55-110	0			
Dibenzo(a,h)anthracene	1842	50	2000	0	92.1	40-125	0			
Fluoranthene	1836	50	2000	0	91.8	55-115	0			
Fluorene	1812	50	2000	0	90.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1812	50	2000	0	90.6	40-120	0			
Naphthalene	1722	50	2000	0	86.1	40-105	0			
Phenanthrene	1790	50	2000	0	89.5	50-110	0			
Pyrene	1864	50	2000	0	93.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*4220*	0	*5000*	0	*84.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3740*	0	*5000*	0	*74.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4171*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4995*	0	*5000*	0	*99.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3896*	0	*5000*	0	*77.9*	*37-107*	0			
Surr: Phenol-d6	*3930*	0	*5000*	0	*78.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41794** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1206569-12A MS** Units: **µg/Kg** Analysis Date: **6/21/2012 05:14 PM**
Client ID: Run ID: **SVMS5_120621A** SeqNo: **2009730** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1595	48	1929	0	82.7	45-105	0			
Acenaphthene	1715	48	1929	0	88.9	45-110	0			
Acenaphthylene	1796	48	1929	151.3	85.3	45-105	0			
Anthracene	1812	48	1929	260.6	80.4	55-105	0			
Benzo(a)anthracene	2172	48	1929	1655	26.8	50-110	0			S
Benzo(a)pyrene	2041	48	1929	1419	32.2	50-110	0			S
Benzo(b)fluoranthene	2390	48	1929	1756	32.9	45-115	0			S
Benzo(g,h,i)perylene	1467	48	1929	463.6	52	40-125	0			
Benzo(k)fluoranthene	2509	48	1929	1542	50.1	45-115	0			
Chrysene	2063	48	1929	1263	41.5	55-110	0			S
Dibenzo(a,h)anthracene	1391	48	1929	0	72.1	40-125	0			
Fluoranthene	2505	48	1929	3121	-31.9	55-115	0			S
Fluorene	1836	48	1929	0	95.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1461	48	1929	438.3	53	40-120	0			
Naphthalene	1597	48	1929	0	82.8	40-105	0			
Phenanthrene	1988	48	1929	725.2	65.5	50-110	0			
Pyrene	2222	48	1929	2170	2.7	45-125	0			S
Surr: 2,4,6-Tribromophenol	*4624*	0	*4822*	0	*95.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3524*	0	*4822*	0	*73.1*	*12-100*	0			
Surr: 2-Fluorophenol	*3711*	0	*4822*	0	*77*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4644*	0	*4822*	0	*96.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3527*	0	*4822*	0	*73.1*	*37-107*	0			
Surr: Phenol-d6	*3418*	0	*4822*	0	*70.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41794** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1206569-12A MSD** Units: **µg/Kg** Analysis Date: **6/21/2012 05:50 PM**
Client ID: Run ID: **SVMS5_120621A** SeqNo: **2009731** Prep Date: **6/20/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1555	47	1886	0	82.4	45-105	1595	2.54	30	
Acenaphthene	1683	47	1886	0	89.2	45-110	1715	1.85	30	
Acenaphthylene	1752	47	1886	151.3	84.9	45-105	1796	2.46	30	
Anthracene	1730	47	1886	260.6	77.9	55-105	1812	4.61	30	
Benzo(a)anthracene	1937	47	1886	1655	14.9	50-110	2172	11.4	30	S
Benzo(a)pyrene	1859	47	1886	1419	23.3	50-110	2041	9.33	30	S
Benzo(b)fluoranthene	2049	47	1886	1756	15.5	45-115	2390	15.3	30	S
Benzo(g,h,i)perylene	1255	47	1886	463.6	42	40-125	1467	15.6	30	
Benzo(k)fluoranthene	2247	47	1886	1542	37.4	45-115	2509	11	30	S
Chrysene	1827	47	1886	1263	29.9	55-110	2063	12.1	30	S
Dibenzo(a,h)anthracene	1211	47	1886	0	64.2	40-125	1391	13.8	30	
Fluoranthene	2113	47	1886	3121	-53.4	55-115	2505	16.9	30	S
Fluorene	1816	47	1886	0	96.3	50-110	1836	1.09	30	
Indeno(1,2,3-cd)pyrene	1252	47	1886	438.3	43.2	40-120	1461	15.4	30	
Naphthalene	1536	47	1886	0	81.4	40-105	1597	3.88	30	
Phenanthrene	1840	47	1886	725.2	59.1	50-110	1988	7.72	30	
Pyrene	1914	47	1886	2170	-13.5	45-125	2222	14.9	30	S
Surr: 2,4,6-Tribromophenol	*4616*	0	*4715*	0	*97.9*	*34-140*	4624	*0.177*	*40*	
Surr: 2-Fluorobiphenyl	*3467*	0	*4715*	0	*73.5*	*12-100*	3524	*1.64*	*40*	
Surr: 2-Fluorophenol	*3655*	0	*4715*	0	*77.5*	*33-117*	3711	*1.52*	*40*	
Surr: 4-Terphenyl-d14	*4699*	0	*4715*	0	*99.7*	*25-137*	4644	*1.19*	*40*	
Surr: Nitrobenzene-d5	*3502*	0	*4715*	0	*74.3*	*37-107*	3527	*0.721*	*40*	
Surr: Phenol-d6	*3492*	0	*4715*	0	*74.1*	*40-106*	3418	*2.15*	*40*	

The following samples were analyzed in this batch:

1206568-07A	1206568-08A	1206568-09A
1206568-10A	1206568-11A	1206568-12A
1206568-13A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41762-41762** Units: **µg/Kg** Analysis Date: **6/20/2012 05:41 AM**
Client ID: Run ID: **VMS8_120619A** SeqNo: **2004748** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	59	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	30	30						
Naphthalene	47	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*976.5*	0	*1000*	0	*97.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*977.5*	0	*1000*	0	*97.8*	*70-130*	0	
Surr: Dibromofluoromethane	*977*	0	*1000*	0	*97.7*	*70-130*	0	
Surr: Toluene-d8	*1010*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41762-41762** Units: **µg/Kg** Analysis Date: **6/20/2012 11:35 AM**
Client ID: Run ID: **VMS9_120620A** SeqNo: **2007730** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	95	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*873*	0	*1000*	0	*87.3*	*70-130*	0
Surr: 4-Bromofluorobenzene	*881.5*	0	*1000*	0	*88.2*	*70-130*	0
Surr: Dibromofluoromethane	*892*	0	*1000*	0	*89.2*	*70-130*	0
Surr: Toluene-d8	*1015*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

LCS	Sample ID: **LCS-41762-41762**				Units: **µg/Kg**		Analysis Date: **6/20/2012 04:49 AM**			
Client ID:		Run ID: **VMS8_120619A**			SeqNo: **2004747**		Prep Date: **6/19/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	960.5	30	1000	0	96	75-125	0			
1,1,1-Trichloroethane	1060	30	1000	0	106	70-135	0			
1,1,2,2-Tetrachloroethane	994.5	30	1000	0	99.4	55-130	0			
1,1,2-Trichloroethane	976.5	30	1000	0	97.6	60-125	0			
1,1-Dichloroethane	945	30	1000	0	94.5	75-125	0			
1,1-Dichloroethene	1015	30	1000	0	102	65-135	0			
1,2,3-Trichlorobenzene	989.5	30	1000	0	99	60-135	0			
1,2,3-Trichloropropane	1006	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	949.5	30	1000	0	95	65-135	0			
1,2,4-Trichlorobenzene	938.5	30	1000	0	93.8	65-130	0			
1,2,4-Trimethylbenzene	958.5	30	1000	0	95.8	65-135	0			
1,2-Dibromo-3-chloropropane	996	30	1000	0	99.6	40-135	0			
1,2-Dibromoethane	947	30	1000	0	94.7	70-125	0			
1,2-Dichlorobenzene	1031	30	1000	0	103	75-120	0			
1,2-Dichloroethane	947.5	30	1000	0	94.8	70-135	0			
1,2-Dichloropropane	947.5	30	1000	0	94.8	70-120	0			
1,3,5-Trimethylbenzene	953.5	30	1000	0	95.4	65-135	0			
1,3-Dichlorobenzene	981	30	1000	0	98.1	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	1066	200	1000	0	107	30-160	0			
2-Hexanone	995	30	1000	0	99.5	45-145	0			
4-Methyl-2-pentanone	1322	30	1000	0	132	45-145	0			
Acetone	1108	100	1000	0	111	20-160	0			
Acrylonitrile	969	100	1000	0	96.9	70-135	0			
Benzene	965	30	1000	0	96.5	75-125	0			
Bromobenzene	978	30	1000	0	97.8	65-120	0			
Bromochloromethane	982	30	1000	0	98.2	70-125	0			
Bromodichloromethane	980.5	30	1000	0	98	70-130	0			
Bromoform	1016	30	1000	0	102	55-135	0			
Bromomethane	1088	75	1000	0	109	30-160	0			
Carbon disulfide	1028	30	1000	0	103	45-160	0			
Carbon tetrachloride	1051	30	1000	0	105	65-135	0			
Chlorobenzene	986.5	30	1000	0	98.6	75-125	0			
Chloroethane	882	100	1000	0	88.2	40-155	0			
Chloroform	1006	30	1000	0	101	70-125	0			
Chloromethane	951.5	100	1000	0	95.2	50-130	0			
cis-1,2-Dichloroethene	968	30	1000	0	96.8	65-125	0			
cis-1,3-Dichloropropene	935.5	30	1000	0	93.6	70-125	0			
Dibromochloromethane	1014	30	1000	0	101	65-135	0			
Dibromomethane	943	30	1000	0	94.3	75-130	0			
Dichlorodifluoromethane	799	30	1000	0	79.9	35-135	0			
Ethylbenzene	993	30	1000	0	99.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1016	30	1000	0	102	70-135	0
Isopropylbenzene	1012	30	1000	0	101	75-130	0
m,p-Xylene	1960	60	2000	0	98	80-125	0
Methyl tert-butyl ether	1000	30	1000	0	100	75-125	0
Methylene chloride	1076	30	1000	0	108	55-145	0
Naphthalene	1006	100	1000	0	101	40-140	0
n-Butylbenzene	1008	30	1000	0	101	65-140	0
n-Propylbenzene	969	30	1000	0	96.9	65-135	0
o-Xylene	980	30	1000	0	98	75-125	0
p-Isopropyltoluene	987.5	30	1000	0	98.8	75-135	0
sec-Butylbenzene	1018	30	1000	0	102	65-130	0
Styrene	962.5	30	1000	0	96.2	75-125	0
tert-Butylbenzene	1002	30	1000	0	100	65-130	0
Tetrachloroethene	1004	30	1000	0	100	64-140	0
Tetrahydrofuran	1010	200	1000	0	101	70-135	0
Toluene	994	30	1000	0	99.4	70-125	0
trans-1,2-Dichloroethene	1036	30	1000	0	104	65-135	0
trans-1,3-Dichloropropene	928	30	1000	0	92.8	65-125	0
trans-1,4-Dichloro-2-butene	947	30	1000	0	94.7	70-135	0
Trichloroethene	979.5	30	1000	0	98	75-125	0
Trichlorofluoromethane	1006	30	1000	0	101	25-185	0
Vinyl chloride	978.5	30	1000	0	97.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1009*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*991*	0	*1000*	0	*99.1*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41762-41762** Units: **µg/Kg** Analysis Date: **6/20/2012 10:19 AM**
Client ID: Run ID: **VMS9_120620A** SeqNo: **2007728** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1018	30	1000	0	102	75-125	0			
1,1,1-Trichloroethane	1013	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	918.5	30	1000	0	91.8	55-130	0			
1,1,2-Trichloroethane	939.5	30	1000	0	94	60-125	0			
1,1-Dichloroethane	954	30	1000	0	95.4	75-125	0			
1,1-Dichloroethene	1006	30	1000	0	101	65-135	0			
1,2,3-Trichlorobenzene	946.5	30	1000	0	94.6	60-135	0			
1,2,3-Trichloropropane	878	30	1000	0	87.8	65-130	0			
1,2,3-Trimethylbenzene	984.5	30	1000	0	98.4	65-135	0			
1,2,4-Trichlorobenzene	910	30	1000	0	91	65-130	0			
1,2,4-Trimethylbenzene	1054	30	1000	0	105	65-135	0			
1,2-Dibromo-3-chloropropane	754.5	30	1000	0	75.4	40-135	0			
1,2-Dibromoethane	954.5	30	1000	0	95.4	70-125	0			
1,2-Dichlorobenzene	965.5	30	1000	0	96.6	75-120	0			
1,2-Dichloroethane	927	30	1000	0	92.7	70-135	0			
1,2-Dichloropropane	936.5	30	1000	0	93.6	70-120	0			
1,3,5-Trimethylbenzene	1067	30	1000	0	107	65-135	0			
1,3-Dichlorobenzene	969.5	30	1000	0	97	70-125	0			
1,4-Dichlorobenzene	964	30	1000	0	96.4	70-125	0			
2-Butanone	770.5	200	1000	0	77	30-160	0			
2-Hexanone	758.5	30	1000	0	75.8	45-145	0			
4-Methyl-2-pentanone	755	30	1000	0	75.5	45-145	0			
Acetone	757	100	1000	0	75.7	20-160	0			
Acrylonitrile	825.5	100	1000	0	82.6	70-135	0			
Benzene	951	30	1000	0	95.1	75-125	0			
Bromobenzene	967.5	30	1000	0	96.8	65-120	0			
Bromochloromethane	943	30	1000	0	94.3	70-125	0			
Bromodichloromethane	941	30	1000	0	94.1	70-130	0			
Bromoform	790	30	1000	0	79	55-135	0			
Bromomethane	1126	75	1000	0	113	30-160	0			
Carbon disulfide	896	30	1000	0	89.6	45-160	0			
Carbon tetrachloride	920	30	1000	0	92	65-135	0			
Chlorobenzene	976	30	1000	0	97.6	75-125	0			
Chloroethane	1047	100	1000	0	105	40-155	0			
Chloroform	949.5	30	1000	0	95	70-125	0			
Chloromethane	736	100	1000	0	73.6	50-130	0			
cis-1,2-Dichloroethene	934.5	30	1000	0	93.4	65-125	0			
cis-1,3-Dichloropropene	868.5	30	1000	0	86.8	70-125	0			
Dibromochloromethane	875	30	1000	0	87.5	65-135	0			
Dibromomethane	867.5	30	1000	0	86.8	75-130	0			
Dichlorodifluoromethane	653	30	1000	0	65.3	35-135	0			
Ethylbenzene	1004	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	831	30	1000	0	83.1	70-135	0
Isopropylbenzene	1082	30	1000	0	108	75-130	0
m,p-Xylene	2080	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1012	30	1000	0	101	75-125	0
Methylene chloride	941.5	30	1000	0	94.2	55-145	0
Naphthalene	768	100	1000	0	76.8	40-140	0
n-Butylbenzene	1037	30	1000	0	104	65-140	0
n-Propylbenzene	1006	30	1000	0	101	65-135	0
o-Xylene	1030	30	1000	0	103	75-125	0
p-Isopropyltoluene	1006	30	1000	0	101	75-135	0
sec-Butylbenzene	1069	30	1000	0	107	65-130	0
Styrene	982.5	30	1000	0	98.2	75-125	0
tert-Butylbenzene	1044	30	1000	0	104	65-130	0
Tetrachloroethene	942	30	1000	0	94.2	64-140	0
Tetrahydrofuran	744.5	200	1000	0	74.4	70-135	0
Toluene	960.5	30	1000	0	96	70-125	0
trans-1,2-Dichloroethene	1034	30	1000	0	103	65-135	0
trans-1,3-Dichloropropene	874.5	30	1000	0	87.4	65-125	0
trans-1,4-Dichloro-2-butene	750.5	30	1000	0	75	70-135	0
Trichloroethene	966	30	1000	0	96.6	75-125	0
Trichlorofluoromethane	906.5	30	1000	0	90.6	25-185	0
Vinyl chloride	815	30	1000	0	81.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*952.5*	0	*1000*	0	*95.2*	*70-130*	0
Surr: 4-Bromofluorobenzene	*991.5*	0	*1000*	0	*99.2*	*70-130*	0
Surr: Dibromofluoromethane	*987*	0	*1000*	0	*98.7*	*70-130*	0
Surr: Toluene-d8	*1001*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1206568-01B MS** Units: **µg/Kg** Analysis Date: **6/20/2012 11:51 AM**
Client ID: **SBKR1325L510S061312S004** Run ID: **VMS8_120619A** SeqNo: **2006017** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1736	58	1941	0	89.4	75-125	0			
1,1,1-Trichloroethane	1941	58	1941	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	1848	58	1941	0	95.2	55-130	0			
1,1,2-Trichloroethane	1802	58	1941	0	92.8	60-125	0			
1,1-Dichloroethane	1785	58	1941	0	92	75-125	0			
1,1-Dichloroethene	1748	58	1941	0	90	65-135	0			
1,2,3-Trichlorobenzene	1639	58	1941	0	84.4	60-135	0			
1,2,3-Trichloropropane	1834	58	1941	0	94.5	65-130	0			
1,2,3-Trimethylbenzene	1728	58	1941	0	89	65-135	0			
1,2,4-Trichlorobenzene	1579	58	1941	0	81.4	65-130	0			
1,2,4-Trimethylbenzene	1734	58	1941	0	89.4	65-135	0			
1,2-Dibromo-3-chloropropane	1672	58	1941	0	86.2	40-135	0			
1,2-Dibromoethane	1788	58	1941	0	92.1	70-125	0			
1,2-Dichlorobenzene	1842	58	1941	0	94.9	75-120	0			
1,2-Dichloroethane	1793	58	1941	0	92.4	70-135	0			
1,2-Dichloropropane	1760	58	1941	0	90.6	70-120	0			
1,3,5-Trimethylbenzene	1753	58	1941	0	90.3	65-135	0			
1,3-Dichlorobenzene	1787	58	1941	0	92	70-125	0			
1,4-Dichlorobenzene	1845	58	1941	0	95	70-125	0			
2-Butanone	1511	190	1941	0	77.8	30-160	0			
2-Hexanone	1933	58	1941	0	99.6	45-145	0			
4-Methyl-2-pentanone	2575	58	1941	0	133	45-145	0			
Acetone	1964	190	1941	0	101	20-160	0			
Acrylonitrile	1854	58	1941	0	95.5	70-135	0			
Benzene	1789	58	1941	0	92.2	75-125	0			
Bromobenzene	1781	58	1941	0	91.8	65-120	0			
Bromochloromethane	1837	58	1941	0	94.6	70-125	0			
Bromodichloromethane	1690	58	1941	0	87	70-130	0			
Bromoform	1667	58	1941	0	85.9	55-135	0			
Bromomethane	1871	58	1941	0	96.4	30-160	0			
Carbon disulfide	1676	58	1941	0	86.4	45-160	0			
Carbon tetrachloride	1903	58	1941	0	98	65-135	0			
Chlorobenzene	1822	58	1941	0	93.8	75-125	0			
Chloroethane	1821	190	1941	0	93.8	40-155	0			
Chloroform	1833	58	1941	0	94.4	70-125	0			
Chloromethane	1812	58	1941	0	93.4	50-130	0			
cis-1,2-Dichloroethene	2017	58	1941	0	104	65-125	0			
cis-1,3-Dichloropropene	1645	58	1941	0	84.8	70-125	0			
Dibromochloromethane	1696	58	1941	0	87.4	65-135	0			
Dibromomethane	1722	58	1941	0	88.7	75-130	0			
Dichlorodifluoromethane	1580	58	1941	0	81.4	35-135	0			
Ethylbenzene	1814	58	1941	0	93.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1751	58	1941	0	90.2	70-135	0	
Isopropylbenzene	1846	58	1941	0	95.1	75-130	0	
m,p-Xylene	3637	120	3882	0	93.7	80-125	0	
Methyl tert-butyl ether	1924	58	1941	0	99.1	75-125	0	
Methylene chloride	1872	58	1941	32.03	94.8	55-145	0	B
Naphthalene	1694	190	1941	74.74	83.4	40-140	0	
n-Butylbenzene	1802	58	1941	0	92.8	65-140	0	
n-Propylbenzene	1789	58	1941	0	92.2	65-135	0	
o-Xylene	1770	58	1941	0	91.2	75-125	0	
p-Isopropyltoluene	1791	58	1941	0	92.2	75-135	0	
sec-Butylbenzene	1869	58	1941	0	96.3	65-130	0	
Styrene	1713	58	1941	0	88.2	75-125	0	
tert-Butylbenzene	1862	58	1941	0	95.9	65-130	0	
Tetrachloroethene	1982	58	1941	0	102	64-140	0	
Tetrahydrofuran	1849	190	1941	0	95.2	70-135	0	
Toluene	1843	58	1941	0	95	70-125	0	
trans-1,2-Dichloroethene	1878	58	1941	0	96.8	65-135	0	
trans-1,3-Dichloropropene	1644	58	1941	0	84.7	65-125	0	
trans-1,4-Dichloro-2-butene	1517	58	1941	0	78.2	70-135	0	
Trichloroethene	1834	58	1941	0	94.5	75-125	0	
Trichlorofluoromethane	1528	58	1941	0	78.7	25-185	0	
Vinyl chloride	1840	58	1941	0	94.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1969*	0	*1941*	0	*101*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1938*	0	*1941*	0	*99.8*	*70-130*	0	
Surr: Dibromofluoromethane	*1933*	0	*1941*	0	*99.6*	*70-130*	0	
Surr: Toluene-d8	*1926*	0	*1941*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **1206568-01B MSD** Units: **µg/Kg** Analysis Date: **6/20/2012 12:17 PM**
Client ID: **SBKR1325L510S061312S004** Run ID: **VMS8_120619A** SeqNo: **2006022** Prep Date: **6/19/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1703	58	1941	0	87.8	75-125	1736	1.92	30	
1,1,1-Trichloroethane	1890	58	1941	0	97.4	70-135	1941	2.69	30	
1,1,2,2-Tetrachloroethane	1810	58	1941	0	93.2	55-130	1848	2.07	30	
1,1,2-Trichloroethane	1801	58	1941	0	92.8	60-125	1802	0.0539	30	
1,1-Dichloroethane	1730	58	1941	0	89.1	75-125	1785	3.15	30	
1,1-Dichloroethene	1703	58	1941	0	87.8	65-135	1748	2.59	30	
1,2,3-Trichlorobenzene	1686	58	1941	0	86.8	60-135	1639	2.8	30	
1,2,3-Trichloropropane	1846	58	1941	0	95.1	65-130	1834	0.633	30	
1,2,3-Trimethylbenzene	1708	58	1941	0	88	65-135	1728	1.13	30	
1,2,4-Trichlorobenzene	1626	58	1941	0	83.8	65-130	1579	2.91	30	
1,2,4-Trimethylbenzene	1692	58	1941	0	87.2	65-135	1734	2.49	30	
1,2-Dibromo-3-chloropropane	1719	58	1941	0	88.6	40-135	1672	2.75	30	
1,2-Dibromoethane	1763	58	1941	0	90.8	70-125	1788	1.42	30	
1,2-Dichlorobenzene	1824	58	1941	0	94	75-120	1842	1.01	30	
1,2-Dichloroethane	1783	58	1941	0	91.8	70-135	1793	0.543	30	
1,2-Dichloropropane	1718	58	1941	0	88.5	70-120	1760	2.4	30	
1,3,5-Trimethylbenzene	1709	58	1941	0	88	65-135	1753	2.52	30	
1,3-Dichlorobenzene	1766	58	1941	0	91	70-125	1787	1.15	30	
1,4-Dichlorobenzene	1840	58	1941	0	94.8	70-125	1845	0.263	30	
2-Butanone	1621	190	1941	0	83.5	30-160	1511	7	30	
2-Hexanone	1899	58	1941	0	97.8	45-145	1933	1.77	30	
4-Methyl-2-pentanone	2517	58	1941	0	130	45-145	2575	2.29	30	
Acetone	1942	190	1941	0	100	20-160	1964	1.14	30	
Acrylonitrile	1808	58	1941	0	93.2	70-135	1854	2.49	30	
Benzene	1749	58	1941	0	90.1	75-125	1789	2.25	30	
Bromobenzene	1737	58	1941	0	89.5	65-120	1781	2.48	30	
Bromochloromethane	1790	58	1941	0	92.2	70-125	1837	2.62	30	
Bromodichloromethane	1695	58	1941	0	87.3	70-130	1690	0.287	30	
Bromoform	1659	58	1941	0	85.4	55-135	1667	0.525	30	
Bromomethane	1750	58	1941	0	90.2	30-160	1871	6.7	30	
Carbon disulfide	1644	58	1941	0	84.7	45-160	1676	1.93	30	
Carbon tetrachloride	1849	58	1941	0	95.2	65-135	1903	2.9	30	
Chlorobenzene	1781	58	1941	0	91.8	75-125	1822	2.26	30	
Chloroethane	1755	190	1941	0	90.4	40-155	1821	3.69	30	
Chloroform	1830	58	1941	0	94.2	70-125	1833	0.212	30	
Chloromethane	1732	58	1941	0	89.2	50-130	1812	4.49	30	
cis-1,2-Dichloroethene	1995	58	1941	0	103	65-125	2017	1.11	30	
cis-1,3-Dichloropropene	1665	58	1941	0	85.8	70-125	1645	1.17	30	
Dibromochloromethane	1718	58	1941	0	88.5	65-135	1696	1.31	30	
Dibromomethane	1727	58	1941	0	89	75-130	1722	0.281	30	
Dichlorodifluoromethane	1554	58	1941	0	80	35-135	1580	1.67	30	
Ethylbenzene	1784	58	1941	0	91.9	75-125	1814	1.67	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41762** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1759	58	1941	0	90.6	70-135	1751	0.442	30	
Isopropylbenzene	1806	58	1941	0	93	75-130	1846	2.18	30	
m,p-Xylene	3550	120	3882	0	91.4	80-125	3637	2.4	30	
Methyl tert-butyl ether	1915	58	1941	0	98.6	75-125	1924	0.455	30	
Methylene chloride	1855	58	1941	32.03	93.9	55-145	1872	0.938	30	B
Naphthalene	1810	190	1941	74.74	89.4	40-140	1694	6.65	30	
n-Butylbenzene	1778	58	1941	0	91.6	65-140	1802	1.36	30	
n-Propylbenzene	1745	58	1941	0	89.9	65-135	1789	2.47	30	
o-Xylene	1756	58	1941	0	90.4	75-125	1770	0.826	30	
p-Isopropyltoluene	1763	58	1941	0	90.8	75-135	1791	1.58	30	
sec-Butylbenzene	1838	58	1941	0	94.7	65-130	1869	1.68	30	
Styrene	1700	58	1941	0	87.6	75-125	1713	0.739	30	
tert-Butylbenzene	1804	58	1941	0	93	65-130	1862	3.12	30	
Tetrachloroethene	1947	58	1941	0	100	64-140	1982	1.78	30	
Tetrahydrofuran	1777	190	1941	0	91.6	70-135	1849	3.96	30	
Toluene	1804	58	1941	0	93	70-125	1843	2.13	30	
trans-1,2-Dichloroethene	1843	58	1941	0	95	65-135	1878	1.88	30	
trans-1,3-Dichloropropene	1652	58	1941	0	85.1	65-125	1644	0.471	30	
trans-1,4-Dichloro-2-butene	1557	58	1941	0	80.2	70-135	1517	2.59	30	
Trichloroethene	1793	58	1941	0	92.4	75-125	1834	2.3	30	
Trichlorofluoromethane	1481	58	1941	0	76.3	25-185	1528	3.1	30	
Vinyl chloride	1797	58	1941	0	92.6	60-125	1840	2.4	30	
Surr: 1,2-Dichloroethane-d4	*1924*	0	*1941*	0	*99.1*	*70-130*	1969	*2.34*	*30*	
Surr: 4-Bromofluorobenzene	*1940*	0	*1941*	0	*100*	*70-130*	1938	*0.1*	*30*	
Surr: Dibromofluoromethane	*1944*	0	*1941*	0	*100*	*70-130*	1933	*0.551*	*30*	
Surr: Toluene-d8	*1932*	0	*1941*	0	*99.6*	*70-130*	1926	*0.352*	*30*	

The following samples were analyzed in this batch:

1206568-01B	1206568-02B	1206568-03B
1206568-04B	1206568-05B	1206568-06B
1206568-07B	1206568-08B	1206568-09B
1206568-10B	1206568-11B	1206568-12B
1206568-13B	1206568-14A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206568
Project: Marshall KRRI 1325L,1350L 6/13/12

QC BATCH REPORT

Batch ID: **R106167** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106167** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003630** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106167** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003628** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206543-03ADUP** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003607** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.15	0.050	0	0	0	0-0	12.2	0.411	20	

DUP Sample ID: **1206543-08ADUP** Units: **% of sample** Analysis Date: **6/18/2012 05:27 PM**
Client ID: Run ID: **MOIST_120618D** SeqNo: **2003610** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.44	0.050	0	0	0	0-0	5.44	0	20	

The following samples were analyzed in this batch:

1206568-01A	1206568-02A	1206568-03A
1206568-04A	1206568-05A	1206568-06A
1206568-07A	1206568-08A	1206568-09A
1206568-10A	1206568-11A	1206568-12A
1206568-13A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206568

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061312_LJL1	Task: KRRI_1325,1350
	Total # of Samples: 14	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
	Preservative							None	None	None	None	MeOH
	Analysis											
1	SBKR1325L510S061312S004	SBKR1325L510	SO	G	06/13/2012 08:44	3		X	X	X	X	X
2	SBKR1350L501S061312S004	SBKR1350L501	SO	G	06/13/2012 09:27	3		X	X	X	X	X
3	SBKR1350L502S061312S004	SBKR1350L502	SO	G	06/13/2012 10:10	3		X	X	X	X	X
4	SBKR1350L503S061312S006	SBKR1350L503	SO	G	06/13/2012 13:05	3		X	X	X	X	X
5	SBKR1350L504S061312S006	SBKR1350L504	SO	G	06/13/2012 13:30	3		X	X	X	X	X
6	SBKR1350L505S061312S006	SBKR1350L505	SO	G	06/13/2012 14:04	3		X	X	X	X	X
7	SBKR1350L505D061312S006	SBKR1350L505	SO	G	06/13/2012 14:04	3	DUPLICATE	X	X	X	X	X
8	SBKR1350L506S061312S006	SBKR1350L506	SO	G	06/13/2012 14:33	3		X	X	X	X	X
9	SBKR1350L507S061312S005	SBKR1350L507	SO	G	06/13/2012 15:05	3		X	X	X	X	X
10	SBKR1350L508S061312S005	SBKR1350L508	SO	G	06/13/2012 15:26	3		X	X	X	X	X
11	SBKR1350L509S061312S005	SBKR1350L509	SO	G	06/13/2012 15:44	3		X	X	X	X	X
12	SBKR1350L510S061312S007	SBKR1350L510	SO	G	06/13/2012 16:02	3		X	X	X	X	X
13	SBKR1350L511S061312S005	SBKR1350L511	SO	G	06/13/2012 16:18	3		X	X	X	X	X
14	SBKR1350L511T061312MX	SBKR1350L511	SQ	G	06/13/2012 00:00	1	TRIP BLANK					X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6/13/12	1721		6-13-12	1721
	6.15.12	1700		6.15.12	1700

SHIPPING INFO.
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
3.6°C	Y/N (Y)	Y/N (Y)	Y/N (Y)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **15-Jun-12 17:00**

Work Order: **1206568** Received by: **PD**

Checklist completed by Keith Wierenga eSignature 18-Jun-12 Date Reviewed by: Alex Csaszar eSignature 18-Jun-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

3.6°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-13-12 Time:
Name:
Company:

Seal Broken By:

Date:

ALS Group USA, Corp

Work Order Acknowledgement

18-Jun-12

Client: AECOM ENVIRONMENT
Project: Marshall KRRI 1375I, 1375L 6.15.12
QC Level: STD **TAT:** 5 days

Work Order: 1206569
Date Received*: 15-Jun-12
Date Due*: 22-Jun-12

Sample Summary

Lab ID	Field ID	Matrix	Tag Number	Type	Collection Date	Date Received	Hold
1206569-01	SBKR1375I501S061512S003	Soil		N	6/15/2012 14:35	6/15/2012 17:00	☐
1206569-02	SBKR1375I502S061512S007	Soil		N	6/15/2012 14:55	6/15/2012 17:00	☐
1206569-03	SBKR1375L508S061512S006	Soil		N	6/15/2012 08:37	6/15/2012 17:00	☐
1206569-04	SBKR1375L509S061512S007	Soil		N	6/15/2012 08:53	6/15/2012 17:00	☐
1206569-05	SBKR1375L510S061512S005	Soil		N	6/15/2012 09:12	6/15/2012 17:00	☐
1206569-06	SBKR1375L511D061512S006	Soil		N	6/15/2012 10:12	6/15/2012 17:00	☐
1206569-07	SBKR1375L511S061512S006	Soil		N	6/15/2012 10:12	6/15/2012 17:00	☐
1206569-08	SBKR1375L513S061512S005	Soil		N	6/15/2012 11:57	6/15/2012 17:00	☐
1206569-09	SBKR1375L514S061512S005	Soil		N	6/15/2012 12:08	6/15/2012 17:00	☐
1206569-10	SBKR1375L515S061512S007	Soil		N	6/15/2012 13:32	6/15/2012 17:00	☐
1206569-11	SBKR1375L516S061512S006	Soil		N	6/15/2012 15:30	6/15/2012 17:00	☐
1206569-12	SBKR1375L517S061512S005	Soil		N	6/15/2012 15:40	6/15/2012 17:00	☐
1206569-13	SBKR1375L517T061512MX	Soil		N	6/15/2012	6/15/2012 17:00	☐
1206569-14	SBKR1375L512S061512S007	Soil		N	6/15/2012 10:27	6/15/2012 17:00	☐

Invoice Summary

Invoice To: Enbridge Energy

Purchase Order: #6.00 WML-21349-12, LOB 01002 R. Hummel

Method	Test	Matrix	Unit Price	Mult	Cost	Qty	Ext Cost
SW8015M	Diesel Range Organics by GC-FID	Soil	$100.00	1	$100.00	13	$1,300.00
	C10-C20, ORO C20-C34-New Prep						
SW6020A	Metals by ICP-MS	Soil	$32.00	1	$32.00	13	$416.00
	Be, Mo, Ni, V						
A2540 G	Moisture	Soil	$5.00	1	$5.00	13	$65.00
SW8270	Semi-Volatile Organic Compounds	Soil	$90.00	1	$90.00	13	$1,170.00
	PNAs Only-New Prep-No 2-Cnap						
SW8260	Volatile Organic Compounds	Soil	$85.00	1	$85.00	13	$1,105.00
	MDEQ Plus w/Oxy. Cmpds						

% discount added 1/1/12, through $2000K

Discount: 5.00%

Total Estimated Cost: USD $3,853.20

Analysis Summary

Method	Test	MS	Due Date	Remarks	Subbed	Subcontractor	Hold
1206569-01	SBKR1375I501S061512S003						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐

* Date Received is the Initial Date of Receipt and Date Due is the Due Date for the entire Work Order.

Work Order Acknowledgement

18-Jun-12

Client: AECOM ENVIRONMENT
Project: Marshall KRRI 1375I, 1375L 6.15.12
QC Level: STD **TAT:** 5 days

Work Order: 1206569
Date Received*: 15-Jun-12
Date Due*: 22-Jun-12

1206569-02	SBKR1375I502S061512S007						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-03	SBKR1375L508S061512S006						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-04	SBKR1375L509S061512S007						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-05	SBKR1375L510S061512S005						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-06	SBKR1375L511D061512S006						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-07	SBKR1375L511S061512S006						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐

* Date Received is the Initial Date of Receipt and Date Due is the Due Date for the entire Work Order.

Work Order Acknowledgement

18-Jun-12

Client: AECOM ENVIRONMENT
Project: Marshall KRRI 1375I, 1375L 6.15.12
QC Level: STD **TAT:** 5 days

Work Order: 1206569
Date Received*: 15-Jun-12
Date Due*: 22-Jun-12

1206569-08	SBKR1375L513S061512S005						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-09	SBKR1375L514S061512S005						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-10	SBKR1375L515S061512S007						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-11	SBKR1375L516S061512S006						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-12	SBKR1375L517S061512S005						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-13	SBKR1375L517T061512MX						
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐
1206569-14	SBKR1375L512S061512S007						
SW8015M	Diesel Range Organics by GC-FID	☐	6/22/2012	C10-C20, ORO C20-C34-New Prep	☐		☐
SW6020A	Metals by ICP-MS	☐	6/22/2012	Be, Mo, Ni, V	☐		☐
A2540 G	Moisture	☐	6/22/2012		☐		☐
SW8270	Semi-Volatile Organic Compounds	☐	6/22/2012	PNAs Only-New Prep-No 2-Cnap	☐		☐
SW8260	Volatile Organic Compounds	☐	6/22/2012	MDEQ Plus w/Oxy. Cmpds	☐		☐

* Date Received is the Initial Date of Receipt and Date Due is the Due Date for the entire Work Order.

Work Order Acknowledgement

18-Jun-12

Client:	AECOM ENVIRONMENT			**Work Order:**	**1206569**
Project:	Marshall KRRI 1375I, 1375L 6.15.12			**Date Received*:**	15-Jun-12
QC Level:	STD	**TAT:**	5 days	**Date Due*:**	22-Jun-12

* Date Received is the Initial Date of Receipt and Date Due is the Due Date for the entire Work Order.

27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI Sediment 1375L 6.20.12** Work Order: **1206699**

Dear Bryan,

ALS Environmental received 1 sample on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 1375L 6.20.12
Work Order: **1206699**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206699-01	SEKR1375L503S062012D005	Sediment		6/20/2012 09:48	6/20/2012 17:16	☐

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 1375L 6.20.12
Work Order: 1206699

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41883 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 41868 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 1375L 6.20.12
WorkOrder: **1206699**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1375L503S062012D005
Work Order:	1206699	**Collection Date:**	6/20/2012 9:48:00 AM
Project:	Marshall KRRI Sediment 1375L 6.20.12		
Lab ID:	1206699-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	ND	46	4.0		mg/Kg-dry	1	6/23/2012
ORO (C20-C34)	ND	93	4.0		mg/Kg-dry	1	6/23/2012
Surr: 4-Terphenyl-d14	*59.6*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.79	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	**2.1**	**1.6**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Nickel	**14**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**15**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*87.4*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*70.7*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*86.2*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*81.0*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*70.3*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*85.6*	*40-106*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**80**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41869** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010713** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.458*	0	*5*	0	*49.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010564** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	391	10	500	0	78.2	60-130	0			
ORO (C20-C34)	447.2	20	500	0	89.4	60-130	0			
Surr: 4-Terphenyl-d14	*3.316*	0	*5*	0	*66.3*	*39-115*	0			

MS Sample ID: **1206703-03A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010715** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.2	9.6	481	0	73.6	60-130	0			
ORO (C20-C34)	536.7	19	481	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.764*	0	*4.81*	0	*57.5*	*39-115*	0			

MSD Sample ID: **1206703-03A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010566** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	366.5	9.7	482.8	0	75.9	60-130	354.2	3.39	30	
ORO (C20-C34)	459.3	19	482.8	0	95.1	60-130	536.7	15.5	30	
Surr: 4-Terphenyl-d14	*3.126*	0	*4.828*	0	*64.8*	*39-115*	2.764	*12.3*	*30*	

The following samples were analyzed in this batch: 1206699-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206699
Project: Marshall KRRI Sediment 1375L 6.20.12

QC BATCH REPORT

Batch ID: **41883** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:48 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011877** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.04284	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:54 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011878** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.412	0.10	5	0	88.2	80-120	0			
Molybdenum	4.566	0.25	5	0	91.3	80-120	0			
Nickel	4.436	0.25	5	0	88.7	80-120	0			
Vanadium	4.519	0.25	5	0	90.4	80-120	0			

MS Sample ID: **1206703-03AMS** Units: **mg/Kg** Analysis Date: **6/25/2012 10:58 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011900** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.545	0.58	7.299	0.09327	74.7	80-120	0			S
Molybdenum	5.895	1.5	7.299	0.4335	74.8	80-120	0			S
Nickel	9.839	1.5	7.299	5.3	62.2	80-120	0			S
Vanadium	9.95	1.5	7.299	6.919	41.5	80-120	0			S

MSD Sample ID: **1206703-03AMSD** Units: **mg/Kg** Analysis Date: **6/25/2012 11:04 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011901** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.369	0.58	7.267	0.09327	72.6	80-120	5.545	3.21	25	S
Molybdenum	5.666	1.5	7.267	0.4335	72	80-120	5.895	3.97	25	S
Nickel	10.28	1.5	7.267	5.3	68.5	80-120	9.839	4.34	25	S
Vanadium	11.71	1.5	7.267	6.919	65.9	80-120	9.95	16.2	25	S

The following samples were analyzed in this batch: 1206699-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 06:31 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013261** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3083*	0	*5000*	0	*61.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3594*	0	*5000*	0	*71.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4055*	0	*5000*	0	*81.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4875*	0	*5000*	0	*97.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3741*	0	*5000*	0	*74.8*	*37-107*	0			
Surr: Phenol-d6	*4128*	0	*5000*	0	*82.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 04:45 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013257** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1969	50	2000	0	98.4	45-105	0			
Acenaphthene	1933	50	2000	0	96.6	45-110	0			
Acenaphthylene	1949	50	2000	0	97.4	45-105	0			
Anthracene	2086	50	2000	0	104	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2140	50	2000	0	107	50-110	0			
Benzo(b)fluoranthene	2084	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2291	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	2266	50	2000	0	113	45-115	0			
Chrysene	2175	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2358	50	2000	0	118	40-125	0			
Fluoranthene	2232	50	2000	0	112	55-115	0			
Fluorene	2059	50	2000	0	103	50-110	0			
Indeno(1,2,3-cd)pyrene	2363	50	2000	0	118	40-120	0			
Naphthalene	1845	50	2000	0	92.2	40-105	0			
Phenanthrene	2083	50	2000	0	104	50-110	0			
Pyrene	2036	50	2000	0	102	45-125	0			
Surr: 2,4,6-Tribromophenol	*3605*	0	*5000*	0	*72.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3482*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3902*	0	*5000*	0	*78*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4744*	0	*5000*	0	*94.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3591*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3656*	0	*5000*	0	*73.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206703-03A MS** Units: **µg/Kg** Analysis Date: **6/23/2012 05:11 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013258** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1846	48	1926	0	95.8	45-105	0			
Acenaphthene	1863	48	1926	0	96.7	45-110	0			
Acenaphthylene	1863	48	1926	0	96.7	45-105	0			
Anthracene	1980	48	1926	0	103	55-105	0			
Benzo(a)anthracene	1941	48	1926	0	101	50-110	0			
Benzo(a)pyrene	2042	48	1926	0	106	50-110	0			
Benzo(b)fluoranthene	1972	48	1926	0	102	45-115	0			
Benzo(g,h,i)perylene	1971	48	1926	0	102	40-125	0			
Benzo(k)fluoranthene	2158	48	1926	0	112	45-115	0			
Chrysene	2016	48	1926	0	105	55-110	0			
Dibenzo(a,h)anthracene	2071	48	1926	0	108	40-125	0			
Fluoranthene	2107	48	1926	0	109	55-115	0			
Fluorene	2028	48	1926	0	105	50-110	0			
Indeno(1,2,3-cd)pyrene	2052	48	1926	0	107	40-120	0			
Naphthalene	1706	48	1926	0	88.6	40-105	0			
Phenanthrene	1991	48	1926	0	103	50-110	0			
Pyrene	1918	48	1926	0	99.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*4149*	0	*4816*	0	*86.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3340*	0	*4816*	0	*69.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3776*	0	*4816*	0	*78.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4493*	0	*4816*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3371*	0	*4816*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3602*	0	*4816*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206699
Project: Marshall KRRI Sediment 1375L 6.20.12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206703-03A MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 05:38 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013259** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1897	49	1958	0	96.8	45-105	1846	2.7	30	
Acenaphthene	1918	49	1958	0	98	45-110	1863	2.94	30	
Acenaphthylene	1920	49	1958	0	98	45-105	1863	3.05	30	
Anthracene	2094	49	1958	0	107	55-105	1980	5.57	30	S
Benzo(a)anthracene	2027	49	1958	0	104	50-110	1941	4.35	30	
Benzo(a)pyrene	2112	49	1958	0	108	50-110	2042	3.39	30	
Benzo(b)fluoranthene	2253	49	1958	0	115	45-115	1972	13.3	30	S
Benzo(g,h,i)perylene	1909	49	1958	0	97.4	40-125	1971	3.24	30	
Benzo(k)fluoranthene	2048	49	1958	0	105	45-115	2158	5.27	30	
Chrysene	2094	49	1958	0	107	55-110	2016	3.79	30	
Dibenzo(a,h)anthracene	2059	49	1958	0	105	40-125	2071	0.55	30	
Fluoranthene	2240	49	1958	0	114	55-115	2107	6.08	30	
Fluorene	2091	49	1958	0	107	50-110	2028	3.03	30	
Indeno(1,2,3-cd)pyrene	2050	49	1958	0	105	40-120	2052	0.139	30	
Naphthalene	1742	49	1958	0	89	40-105	1706	2.11	30	
Phenanthrene	2143	49	1958	0	109	50-110	1991	7.35	30	
Pyrene	2005	49	1958	0	102	45-125	1918	4.43	30	
Surr: 2,4,6-Tribromophenol	*4401*	0	*4896*	0	*89.9*	*34-140*	4149	*5.89*	*40*	
Surr: 2-Fluorobiphenyl	*3451*	0	*4896*	0	*70.5*	*12-100*	3340	*3.26*	*40*	
Surr: 2-Fluorophenol	*3772*	0	*4896*	0	*77*	*33-117*	3776	*0.115*	*40*	
Surr: 4-Terphenyl-d14	*4719*	0	*4896*	0	*96.4*	*25-137*	4493	*4.91*	*40*	
Surr: Nitrobenzene-d5	*3390*	0	*4896*	0	*69.2*	*37-107*	3371	*0.569*	*40*	
Surr: Phenol-d6	*3846*	0	*4896*	0	*78.6*	*40-106*	3602	*6.56*	*40*	

The following samples were analyzed in this batch: 1206699-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206699
Project: Marshall KRRI Sediment 1375L 6.20.12

QC BATCH REPORT

Batch ID: **R106376** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008708** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206693-05BDUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.15	0.050	0	0	0	0-0	19.41	6.71	20	

DUP Sample ID: **1206703-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.84	0.050	0	0	0	0-0	2.51	12.3	20	

The following samples were analyzed in this batch: 1206699-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206699

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062012_LJL2	Task: KRRI_SED1375
	Total # of Samples: 1	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
									None	None	None	None
1	SEKR1375L503S062012D005	SEKR1375L503	SE	G	06/20/2012 09:48	1			X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.20.12	1702		6.20.12	1702
Joe Meola	6.20.12	1716		6-20-12	1716

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
2.4°C	Y/N	Y/N	Y/N
	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

6/23/12

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206699** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

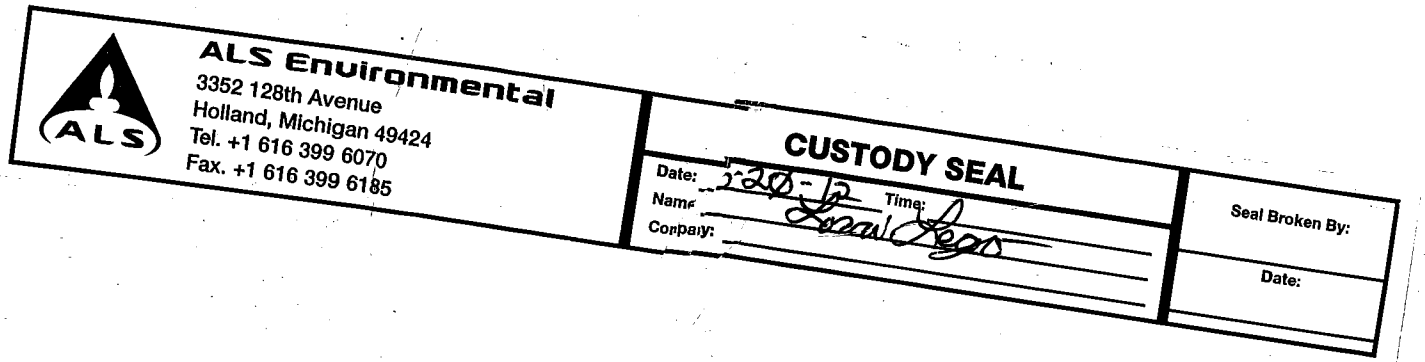
Contacted By: Regarding:

Comments:

CorrectiveAction:

6/20 948

2.4


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5-20-12
Time:
Name:
Company:
Seal Broken By:
Date:

27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI SW 0725L 6.18.12** Work Order: **1206700**

Dear Bryan,

ALS Environmental received 1 sample on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 17.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SW 0725L 6.18.12
Work Order: **1206700**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206700-01	SWKR0725L001S061812FX	Surface Water		6/18/2012 13:37	6/20/2012 17:16	☐

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SW 0725L 6.18.12
Work Order: 1206700

Case Narrative

Batch 41915 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SW 0725L 6.18.12
WorkOrder: **1206700**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SWKR0725L001S061812FX
Work Order:	1206700	**Collection Date:**	6/18/2012 1:37:00 PM
Project:	Marshall KRRI SW 0725L 6.18.12		
Lab ID:	1206700-01	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/25/2012**		Analyst: **CW**
DRO (C10-C20)	ND	0.10	0.10		mg/L	1	6/25/2012
ORO (C20-C34)	ND	0.10	0.10		mg/L	1	6/25/2012
Surr: 4-Terphenyl-d14	*37.8*	*33-78*			*%REC*	1	6/25/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **CES**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/26/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/26/2012
Nickel	ND	0.020	0.020		mg/L	1	6/26/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/25/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Acenaphthene	ND	5.0	5.0		µg/L	1	6/25/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/25/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/25/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/25/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/25/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/25/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/25/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/25/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/25/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/25/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/25/2012
Surr: 2,4,6-Tribromophenol	*43.3*	*21-125*			*%REC*	1	6/25/2012
Surr: 2-Fluorobiphenyl	*46.7*	*36-94*			*%REC*	1	6/25/2012
Surr: 2-Fluorophenol	*28.4*	*10-75*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*56.5*	*26-119*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*48.5*	*41-104*			*%REC*	1	6/25/2012
Surr: Phenol-d6	*18.6*	*11-50*			*%REC*	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41914** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKW1-41914-41914** Units: **mg/L** Analysis Date: **6/25/2012 05:05 PM**
Client ID: Run ID: **GC8_120625A** SeqNo: **2012282** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.01747*	0	*0.05*	0	*34.9*	*33-78*	0			

MBLK Sample ID: **DBLKW1-41914-41914** Units: **mg/L** Analysis Date: **6/25/2012 05:05 PM**
Client ID: Run ID: **GC8_120625A** SeqNo: **2012420** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.01767*	0	*0.05*	0	*35.3*	*33-78*	0			

LCS Sample ID: **DLCSW1-41914-41914** Units: **mg/L** Analysis Date: **6/25/2012 05:05 PM**
Client ID: Run ID: **GC8_120625A** SeqNo: **2012415** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	2.799	0.10	5	0	56	44-116	0			
ORO (C20-C34)	3.136	0.10	5	0	62.7	44-116	0			
Surr: 4-Terphenyl-d14	*0.0186*	0	*0.05*	0	*37.2*	*33-78*	0			

MS Sample ID: **1206700-01B MS** Units: **mg/L** Analysis Date: **6/25/2012 05:29 PM**
Client ID: **SWKR0725L001S061812FX** Run ID: **GC8_120625A** SeqNo: **2012422** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	26.71	1.0	50	0	53.4	44-116	0			
ORO (C20-C34)	36.77	1.0	50	0	73.5	44-116	0			
Surr: 4-Terphenyl-d14	*0.185*	0	*0.5*	0	*37*	*33-78*	0			

MSD Sample ID: **1206700-01B MSD** Units: **mg/L** Analysis Date: **6/25/2012 05:29 PM**
Client ID: **SWKR0725L001S061812FX** Run ID: **GC8_120625A** SeqNo: **2012416** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	24.37	1.0	50	0	48.7	44-116	26.71	9.14	30	
ORO (C20-C34)	27.64	1.0	50	0	55.3	44-116	36.77	28.3	30	
Surr: 4-Terphenyl-d14	*0.1878*	0	*0.5*	0	*37.6*	*33-78*	0.185	*1.5*	*30*	

The following samples were analyzed in this batch: 1206700-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206700
Project: Marshall KRRI SW 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41899-41899** Units: **mg/L** Analysis Date: **6/25/2012 11:57 PM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012123** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	0.0009148	0.0050								J
Nickel	ND	0.0050								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41899-41899** Units: **mg/L** Analysis Date: **6/26/2012 12:28 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012133** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08674	0.0020	0.1	0	86.7	80-120	0			
Molybdenum	0.09185	0.0050	0.1	0	91.8	80-120	0			
Nickel	0.08278	0.0050	0.1	0	82.8	80-120	0			
Vanadium	0.08106	0.0050	0.1	0	81.1	80-120	0			

MS Sample ID: **1206641-21AMS** Units: **mg/L** Analysis Date: **6/26/2012 12:54 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012138** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8641	0.020	1	0.0003471	86.4	80-120	0			
Molybdenum	0.8789	0.050	1	0.001769	87.7	80-120	0			
Nickel	0.8995	0.050	1	0.04495	85.5	80-120	0			
Vanadium	0.8547	0.050	1	0.00003524	85.5	80-120	0			

MS Sample ID: **1206702-07AMS** Units: **mg/L** Analysis Date: **6/26/2012 02:57 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012163** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08995	0.0020	0.1	-3.294E-06	90	80-120	0			
Molybdenum	0.08848	0.0050	0.1	0.0007451	87.7	80-120	0			
Nickel	0.0881	0.0050	0.1	-0.001213	89.3	80-120	0			
Vanadium	0.08942	0.0050	0.1	0.0004493	89	80-120	0			

MSD Sample ID: **1206641-21AMSD** Units: **mg/L** Analysis Date: **6/26/2012 12:59 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012139** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.8965	0.020	1	0.0003471	89.6	80-120	0.8641	3.68	20	
Molybdenum	0.9081	0.050	1	0.001769	90.6	80-120	0.8789	3.27	20	
Nickel	0.9256	0.050	1	0.04495	88.1	80-120	0.8995	2.86	20	
Vanadium	0.8914	0.050	1	0.00003524	89.1	80-120	0.8547	4.2	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206700
Project: Marshall KRRI SW 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41899** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1206702-07AMSD** Units: **mg/L** Analysis Date: **6/26/2012 03:02 AM**
Client ID: Run ID: **ICPMS2_120625A** SeqNo: **2012164** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09196	0.0020	0.1	-3.294E-06	92	80-120	0.08995	2.21	20	
Molybdenum	0.09189	0.0050	0.1	0.0007451	91.1	80-120	0.08848	3.78	20	
Nickel	0.09045	0.0050	0.1	-0.001213	91.7	80-120	0.0881	2.63	20	
Vanadium	0.09184	0.0050	0.1	0.0004493	91.4	80-120	0.08942	2.67	20	

The following samples were analyzed in this batch: 1206700-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 06:23 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012665** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*21.77*	0	*50*	0	*43.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*22.23*	0	*50*	0	*44.5*	*36-94*	0			
Surr: 2-Fluorophenol	*17.52*	0	*50*	0	*35*	*10-75*	0			
Surr: 4-Terphenyl-d14	*26.63*	0	*50*	0	*53.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*23.05*	0	*50*	0	*46.1*	*41-104*	0			
Surr: Phenol-d6	*9.71*	0	*50*	0	*19.4*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSW1-41915-41915** Units: **µg/L** Analysis Date: **6/25/2012 02:27 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012658** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	10.82	5.0	20	0	54.1	45-105	0			
Acenaphthene	11.08	5.0	20	0	55.4	45-110	0			
Acenaphthylene	11.32	5.0	20	0	56.6	50-105	0			
Anthracene	12.38	5.0	20	0	61.9	55-110	0			
Benzo(a)anthracene	12.66	5.0	20	0	63.3	55-110	0			
Benzo(a)pyrene	13.38	5.0	20	0	66.9	55-110	0			
Benzo(b)fluoranthene	14.04	5.0	20	0	70.2	45-120	0			
Benzo(g,h,i)perylene	14.95	5.0	20	0	74.8	40-125	0			
Benzo(k)fluoranthene	13.01	5.0	20	0	65	45-125	0			
Chrysene	13.35	5.0	20	0	66.8	55-110	0			
Dibenzo(a,h)anthracene	13.92	5.0	20	0	69.6	40-125	0			
Fluoranthene	12.77	5.0	20	0	63.8	55-115	0			
Fluorene	11.22	5.0	20	0	56.1	50-110	0			
Indeno(1,2,3-cd)pyrene	14.29	5.0	20	0	71.4	45-125	0			
Naphthalene	10.61	5.0	20	0	53	40-100	0			
Phenanthrene	12.04	5.0	20	0	60.2	50-115	0			
Pyrene	13.57	5.0	20	0	67.8	50-130	0			
Surr: 2,4,6-Tribromophenol	*26.54*	0	*50*	0	*53.1*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*23.96*	0	*50*	0	*47.9*	*36-94*	0			
Surr: 2-Fluorophenol	*18.4*	0	*50*	0	*36.8*	*10-75*	0			
Surr: 4-Terphenyl-d14	*25.63*	0	*50*	0	*51.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*25.24*	0	*50*	0	*50.5*	*41-104*	0			
Surr: Phenol-d6	*11.09*	0	*50*	0	*22.2*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206702-07B MS** Units: **µg/L** Analysis Date: **6/25/2012 03:01 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012659** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	100.2	50	200	0	50.1	45-105	0			
Acenaphthene	102.7	50	200	0	51.4	45-110	0			
Acenaphthylene	105.8	50	200	0	52.9	50-105	0			
Anthracene	116.5	50	200	0	58.2	55-110	0			
Benzo(a)anthracene	117.3	50	200	0	58.6	55-110	0			
Benzo(a)pyrene	121.3	50	200	0	60.6	55-110	0			
Benzo(b)fluoranthene	119.2	50	200	0	59.6	45-120	0			
Benzo(g,h,i)perylene	138.4	50	200	0	69.2	40-125	0			
Benzo(k)fluoranthene	133.8	50	200	0	66.9	45-125	0			
Chrysene	122	50	200	0	61	55-110	0			
Dibenzo(a,h)anthracene	127.2	50	200	0	63.6	40-125	0			
Fluoranthene	120.7	50	200	0	60.4	55-115	0			
Fluorene	103.9	50	200	0	52	50-110	0			
Indeno(1,2,3-cd)pyrene	129.2	50	200	0	64.6	45-125	0			
Naphthalene	98.9	50	200	0	49.4	40-100	0			
Phenanthrene	112.3	50	200	0	56.2	50-115	0			
Pyrene	126.6	50	200	0	63.3	50-130	0			
Surr: 2,4,6-Tribromophenol	*247*	0	*500*	0	*49.4*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*224.7*	0	*500*	0	*44.9*	*36-94*	0			
Surr: 2-Fluorophenol	*153.4*	0	*500*	0	*30.7*	*10-75*	0			
Surr: 4-Terphenyl-d14	*254.3*	0	*500*	0	*50.9*	*26-119*	0			
Surr: Nitrobenzene-d5	*234.8*	0	*500*	0	*47*	*41-104*	0			
Surr: Phenol-d6	*93.9*	0	*500*	0	*18.8*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206707-04B MS** Units: **µg/L** Analysis Date: **6/25/2012 04:08 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012661** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	93.4	50	200	0	46.7	45-105	0			
Acenaphthene	96.6	50	200	0	48.3	45-110	0			
Acenaphthylene	98.8	50	200	0	49.4	50-105	0			S
Anthracene	110.8	50	200	0	55.4	55-110	0			
Benzo(a)anthracene	110	50	200	0	55	55-110	0			
Benzo(a)pyrene	118	50	200	0	59	55-110	0			
Benzo(b)fluoranthene	115.2	50	200	0	57.6	45-120	0			
Benzo(g,h,i)perylene	133.7	50	200	0	66.8	40-125	0			
Benzo(k)fluoranthene	127.4	50	200	0	63.7	45-125	0			
Chrysene	120.5	50	200	0	60.2	55-110	0			
Dibenzo(a,h)anthracene	123.1	50	200	0	61.6	40-125	0			
Fluoranthene	115.8	50	200	0	57.9	55-115	0			
Fluorene	98.8	50	200	0	49.4	50-110	0			S
Indeno(1,2,3-cd)pyrene	126.3	50	200	0	63.2	45-125	0			
Naphthalene	92.3	50	200	0	46.2	40-100	0			
Phenanthrene	105.1	50	200	0	52.6	50-115	0			
Pyrene	120.9	50	200	0	60.4	50-130	0			
Surr: 2,4,6-Tribromophenol	*230.1*	0	*500*	0	*46*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*206.5*	0	*500*	0	*41.3*	*36-94*	0			
Surr: 2-Fluorophenol	*147.9*	0	*500*	0	*29.6*	*10-75*	0			
Surr: 4-Terphenyl-d14	*191.6*	0	*500*	0	*38.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*225.2*	0	*500*	0	*45*	*41-104*	0			
Surr: Phenol-d6	*97.1*	0	*500*	0	*19.4*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206700
Project: Marshall KRRI SW 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206702-07B MSD** Units: **µg/L** Analysis Date: **6/25/2012 03:34 PM**
Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012660** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	95.9	50	200	0	48	45-105	100.2	4.39	30	
Acenaphthene	98.8	50	200	0	49.4	45-110	102.7	3.87	30	
Acenaphthylene	101.8	50	200	0	50.9	50-105	105.8	3.85	30	
Anthracene	114.2	50	200	0	57.1	55-110	116.5	1.99	30	
Benzo(a)anthracene	112.9	50	200	0	56.4	55-110	117.3	3.82	30	
Benzo(a)pyrene	121.1	50	200	0	60.6	55-110	121.3	0.165	30	
Benzo(b)fluoranthene	118.1	50	200	0	59	45-120	119.2	0.927	30	
Benzo(g,h,i)perylene	137.7	50	200	0	68.8	40-125	138.4	0.507	30	
Benzo(k)fluoranthene	131.2	50	200	0	65.6	45-125	133.8	1.96	30	
Chrysene	124.4	50	200	0	62.2	55-110	122	1.95	30	
Dibenzo(a,h)anthracene	127.2	50	200	0	63.6	40-125	127.2	0	30	
Fluoranthene	119.9	50	200	0	60	55-115	120.7	0.665	30	
Fluorene	100.7	50	200	0	50.4	50-110	103.9	3.13	30	
Indeno(1,2,3-cd)pyrene	129.9	50	200	0	65	45-125	129.2	0.54	30	
Naphthalene	93.4	50	200	0	46.7	40-100	98.9	5.72	30	
Phenanthrene	109.7	50	200	0	54.8	50-115	112.3	2.34	30	
Pyrene	125.8	50	200	0	62.9	50-130	126.6	0.634	30	
Surr: 2,4,6-Tribromophenol	*245.5*	0	*500*	0	*49.1*	*21-125*	247	*0.609*	*40*	
Surr: 2-Fluorobiphenyl	*212.4*	0	*500*	0	*42.5*	*36-94*	224.7	*5.63*	*40*	
Surr: 2-Fluorophenol	*165.8*	0	*500*	0	*33.2*	*10-75*	153.4	*7.77*	*40*	
Surr: 4-Terphenyl-d14	*250.9*	0	*500*	0	*50.2*	*26-119*	254.3	*1.35*	*40*	
Surr: Nitrobenzene-d5	*223.5*	0	*500*	0	*44.7*	*41-104*	234.8	*4.93*	*40*	
Surr: Phenol-d6	*104*	0	*500*	0	*20.8*	*11-50*	93.9	*10.2*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206700
Project: Marshall KRRI SW 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41915** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206707-04B MSD** Units: **µg/L** Analysis Date: **6/25/2012 04:42 PM**

Client ID: Run ID: **SVMS4_120625A** SeqNo: **2012662** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	104.6	50	200	0	52.3	45-105	93.4	11.3	30	
Acenaphthene	106.5	50	200	0	53.2	45-110	96.6	9.75	30	
Acenaphthylene	108.7	50	200	0	54.4	50-105	98.8	9.54	30	
Anthracene	123	50	200	0	61.5	55-110	110.8	10.4	30	
Benzo(a)anthracene	120.6	50	200	0	60.3	55-110	110	9.19	30	
Benzo(a)pyrene	130	50	200	0	65	55-110	118	9.68	30	
Benzo(b)fluoranthene	127	50	200	0	63.5	45-120	115.2	9.74	30	
Benzo(g,h,i)perylene	148.2	50	200	0	74.1	40-125	133.7	10.3	30	
Benzo(k)fluoranthene	141.5	50	200	0	70.8	45-125	127.4	10.5	30	
Chrysene	132.7	50	200	0	66.4	55-110	120.5	9.64	30	
Dibenzo(a,h)anthracene	137	50	200	0	68.5	40-125	123.1	10.7	30	
Fluoranthene	127.7	50	200	0	63.8	55-115	115.8	9.77	30	
Fluorene	108	50	200	0	54	50-110	98.8	8.9	30	
Indeno(1,2,3-cd)pyrene	139	50	200	0	69.5	45-125	126.3	9.57	30	
Naphthalene	101.1	50	200	0	50.6	40-100	92.3	9.1	30	
Phenanthrene	118.6	50	200	0	59.3	50-115	105.1	12.1	30	
Pyrene	132.6	50	200	0	66.3	50-130	120.9	9.23	30	
Surr: 2,4,6-Tribromophenol	*257.1*	0	*500*	0	*51.4*	*21-125*	230.1	*11.1*	*40*	
Surr: 2-Fluorobiphenyl	*232.2*	0	*500*	0	*46.4*	*36-94*	206.5	*11.7*	*40*	
Surr: 2-Fluorophenol	*154.8*	0	*500*	0	*31*	*10-75*	147.9	*4.56*	*40*	
Surr: 4-Terphenyl-d14	*273.3*	0	*500*	0	*54.7*	*26-119*	191.6	*35.1*	*40*	
Surr: Nitrobenzene-d5	*240.4*	0	*500*	0	*48.1*	*41-104*	225.2	*6.53*	*40*	
Surr: Phenol-d6	*94.8*	0	*500*	0	*19*	*11-50*	97.1	*2.4*	*40*	

The following samples were analyzed in this batch: 1206700-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206700

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061812_RAR1	Task: KRRI_SW0725
Total # of Samples: 1		Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	HNO3	None	None	
								Analysis:	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	
1	SWKR0725L001S061812FX	SWKR0725L001	WS	G	06/18/2012 13:37	3			X	X	X	

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6/18/12	1800		6/18/12	1800
	6/20/12	1716		6/20/12	1716

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.2°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE
Company:
Tracking #:
PRINT Name of SAMPLER: REED RECTOR (RAR1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206700** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Surface Water
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	_		

Login Notes:

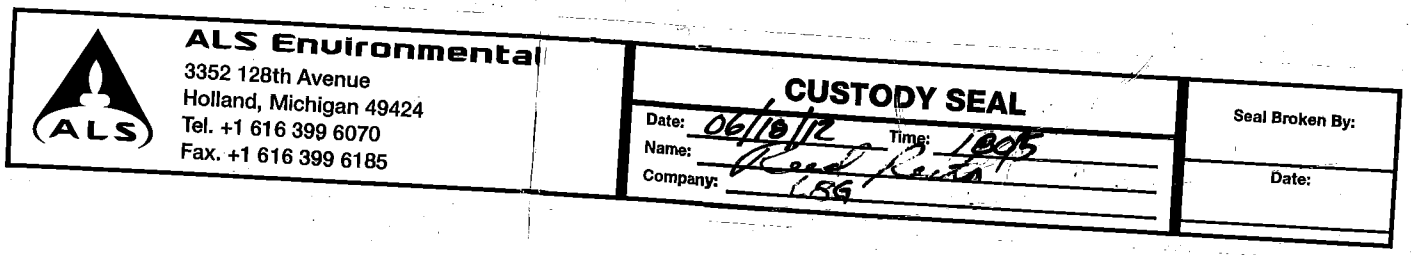
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

5.2 WATER



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 06/18/12 Time: 1605
Name: Reed Reeds
Company: LSG

Seal Broken By:

Date:

27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI Sediment 0725L 6.18.12** Work Order: **1206701**

Dear Bryan,

ALS Environmental received 1 sample on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 0725L 6.18.12
Work Order: **1206701**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206701-01	SEKR0725L501S061812D004	Sediment		6/18/2012 14:10	6/20/2012 17:16	☐

Client: AECOM Environment
Project: Marshall KRRI Sediment 0725L 6.18.12
Work Order: 1206701

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41883 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 41868 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 0725L 6.18.12
WorkOrder: **1206701**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR0725L501S061812D004
Work Order:	1206701	**Collection Date:**	6/18/2012 2:10:00 PM
Project:	Marshall KRRI Sediment 0725L 6.18.12		
Lab ID:	1206701-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**40**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**840**	**80**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*54.7*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	**0.78**	**0.76**	**0.50**		**mg/Kg-dry**	4	6/25/2012
Molybdenum	**3.7**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Nickel	**16**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**55**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*84.5*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*70.1*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*78.1*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*63.9*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*81.2*	*40-106*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**75**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41869** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010713** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.458*	0	*5*	0	*49.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010564** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	391	10	500	0	78.2	60-130	0			
ORO (C20-C34)	447.2	20	500	0	89.4	60-130	0			
Surr: 4-Terphenyl-d14	*3.316*	0	*5*	0	*66.3*	*39-115*	0			

MS Sample ID: **1206703-03A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010715** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.2	9.6	481	0	73.6	60-130	0			
ORO (C20-C34)	536.7	19	481	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.764*	0	*4.81*	0	*57.5*	*39-115*	0			

MSD Sample ID: **1206703-03A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010566** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	366.5	9.7	482.8	0	75.9	60-130	354.2	3.39	30	
ORO (C20-C34)	459.3	19	482.8	0	95.1	60-130	536.7	15.5	30	
Surr: 4-Terphenyl-d14	*3.126*	0	*4.828*	0	*64.8*	*39-115*	2.764	*12.3*	*30*	

The following samples were analyzed in this batch: 1206701-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206701
Project: Marshall KRRI Sediment 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41883** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:48 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011877** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.04284	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:54 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011878** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.412	0.10	5	0	88.2	80-120	0			
Molybdenum	4.566	0.25	5	0	91.3	80-120	0			
Nickel	4.436	0.25	5	0	88.7	80-120	0			
Vanadium	4.519	0.25	5	0	90.4	80-120	0			

MS Sample ID: **1206703-03AMS** Units: **mg/Kg** Analysis Date: **6/25/2012 10:58 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011900** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.545	0.58	7.299	0.09327	74.7	80-120	0			S
Molybdenum	5.895	1.5	7.299	0.4335	74.8	80-120	0			S
Nickel	9.839	1.5	7.299	5.3	62.2	80-120	0			S
Vanadium	9.95	1.5	7.299	6.919	41.5	80-120	0			S

MSD Sample ID: **1206703-03AMSD** Units: **mg/Kg** Analysis Date: **6/25/2012 11:04 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011901** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.369	0.58	7.267	0.09327	72.6	80-120	5.545	3.21	25	S
Molybdenum	5.666	1.5	7.267	0.4335	72	80-120	5.895	3.97	25	S
Nickel	10.28	1.5	7.267	5.3	68.5	80-120	9.839	4.34	25	S
Vanadium	11.71	1.5	7.267	6.919	65.9	80-120	9.95	16.2	25	S

The following samples were analyzed in this batch: 1206701-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 06:31 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013261** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3083*	0	*5000*	0	*61.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3594*	0	*5000*	0	*71.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4055*	0	*5000*	0	*81.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4875*	0	*5000*	0	*97.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3741*	0	*5000*	0	*74.8*	*37-107*	0			
Surr: Phenol-d6	*4128*	0	*5000*	0	*82.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 04:45 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013257** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1969	50	2000	0	98.4	45-105	0			
Acenaphthene	1933	50	2000	0	96.6	45-110	0			
Acenaphthylene	1949	50	2000	0	97.4	45-105	0			
Anthracene	2086	50	2000	0	104	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2140	50	2000	0	107	50-110	0			
Benzo(b)fluoranthene	2084	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2291	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	2266	50	2000	0	113	45-115	0			
Chrysene	2175	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2358	50	2000	0	118	40-125	0			
Fluoranthene	2232	50	2000	0	112	55-115	0			
Fluorene	2059	50	2000	0	103	50-110	0			
Indeno(1,2,3-cd)pyrene	2363	50	2000	0	118	40-120	0			
Naphthalene	1845	50	2000	0	92.2	40-105	0			
Phenanthrene	2083	50	2000	0	104	50-110	0			
Pyrene	2036	50	2000	0	102	45-125	0			
Surr: 2,4,6-Tribromophenol	*3605*	0	*5000*	0	*72.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3482*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3902*	0	*5000*	0	*78*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4744*	0	*5000*	0	*94.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3591*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3656*	0	*5000*	0	*73.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206703-03A MS** Units: **µg/Kg** Analysis Date: **6/23/2012 05:11 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013258** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1846	48	1926	0	95.8	45-105	0			
Acenaphthene	1863	48	1926	0	96.7	45-110	0			
Acenaphthylene	1863	48	1926	0	96.7	45-105	0			
Anthracene	1980	48	1926	0	103	55-105	0			
Benzo(a)anthracene	1941	48	1926	0	101	50-110	0			
Benzo(a)pyrene	2042	48	1926	0	106	50-110	0			
Benzo(b)fluoranthene	1972	48	1926	0	102	45-115	0			
Benzo(g,h,i)perylene	1971	48	1926	0	102	40-125	0			
Benzo(k)fluoranthene	2158	48	1926	0	112	45-115	0			
Chrysene	2016	48	1926	0	105	55-110	0			
Dibenzo(a,h)anthracene	2071	48	1926	0	108	40-125	0			
Fluoranthene	2107	48	1926	0	109	55-115	0			
Fluorene	2028	48	1926	0	105	50-110	0			
Indeno(1,2,3-cd)pyrene	2052	48	1926	0	107	40-120	0			
Naphthalene	1706	48	1926	0	88.6	40-105	0			
Phenanthrene	1991	48	1926	0	103	50-110	0			
Pyrene	1918	48	1926	0	99.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*4149*	0	*4816*	0	*86.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3340*	0	*4816*	0	*69.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3776*	0	*4816*	0	*78.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4493*	0	*4816*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3371*	0	*4816*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3602*	0	*4816*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206701
Project: Marshall KRRI Sediment 0725L 6.18.12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206703-03A MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 05:38 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013259** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1897	49	1958	0	96.8	45-105	1846	2.7	30	
Acenaphthene	1918	49	1958	0	98	45-110	1863	2.94	30	
Acenaphthylene	1920	49	1958	0	98	45-105	1863	3.05	30	
Anthracene	2094	49	1958	0	107	55-105	1980	5.57	30	S
Benzo(a)anthracene	2027	49	1958	0	104	50-110	1941	4.35	30	
Benzo(a)pyrene	2112	49	1958	0	108	50-110	2042	3.39	30	
Benzo(b)fluoranthene	2253	49	1958	0	115	45-115	1972	13.3	30	S
Benzo(g,h,i)perylene	1909	49	1958	0	97.4	40-125	1971	3.24	30	
Benzo(k)fluoranthene	2048	49	1958	0	105	45-115	2158	5.27	30	
Chrysene	2094	49	1958	0	107	55-110	2016	3.79	30	
Dibenzo(a,h)anthracene	2059	49	1958	0	105	40-125	2071	0.55	30	
Fluoranthene	2240	49	1958	0	114	55-115	2107	6.08	30	
Fluorene	2091	49	1958	0	107	50-110	2028	3.03	30	
Indeno(1,2,3-cd)pyrene	2050	49	1958	0	105	40-120	2052	0.139	30	
Naphthalene	1742	49	1958	0	89	40-105	1706	2.11	30	
Phenanthrene	2143	49	1958	0	109	50-110	1991	7.35	30	
Pyrene	2005	49	1958	0	102	45-125	1918	4.43	30	
Surr: 2,4,6-Tribromophenol	*4401*	0	*4896*	0	*89.9*	*34-140*	4149	*5.89*	*40*	
Surr: 2-Fluorobiphenyl	*3451*	0	*4896*	0	*70.5*	*12-100*	3340	*3.26*	*40*	
Surr: 2-Fluorophenol	*3772*	0	*4896*	0	*77*	*33-117*	3776	*0.115*	*40*	
Surr: 4-Terphenyl-d14	*4719*	0	*4896*	0	*96.4*	*25-137*	4493	*4.91*	*40*	
Surr: Nitrobenzene-d5	*3390*	0	*4896*	0	*69.2*	*37-107*	3371	*0.569*	*40*	
Surr: Phenol-d6	*3846*	0	*4896*	0	*78.6*	*40-106*	3602	*6.56*	*40*	

The following samples were analyzed in this batch: 1206701-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206701
Project: Marshall KRRI Sediment 0725L 6.18.12

QC BATCH REPORT

Batch ID: **R106376** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008708** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206693-05BDUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.15	0.050	0	0	0	0-0	19.41	6.71	20	

DUP Sample ID: **1206703-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.84	0.050	0	0	0	0-0	2.51	12.3	20	

The following samples were analyzed in this batch: 1206701-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206701

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061812_LJL2	Task: KRRI_SED0725
Total # of Samples: 1		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
1	SEKR0725L501S061812D004	SEKR0725L501	SE	G	06/18/2012 14:10	1								X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lorri Lego	6.18.12	1738		6.18.12	1738
	6.20.12	1716		6.20.12	1716

Sample Receipt Conditions

Temp in OC	Samples on ice?	Sample intact?	Trip Blank?
5.0°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:	PRINT Name of SAMPLER:	LORRI LEGO (LJL2)		
Tracking #:	SIGNATURE of SAMPLER:		DATE Signed	Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206701** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

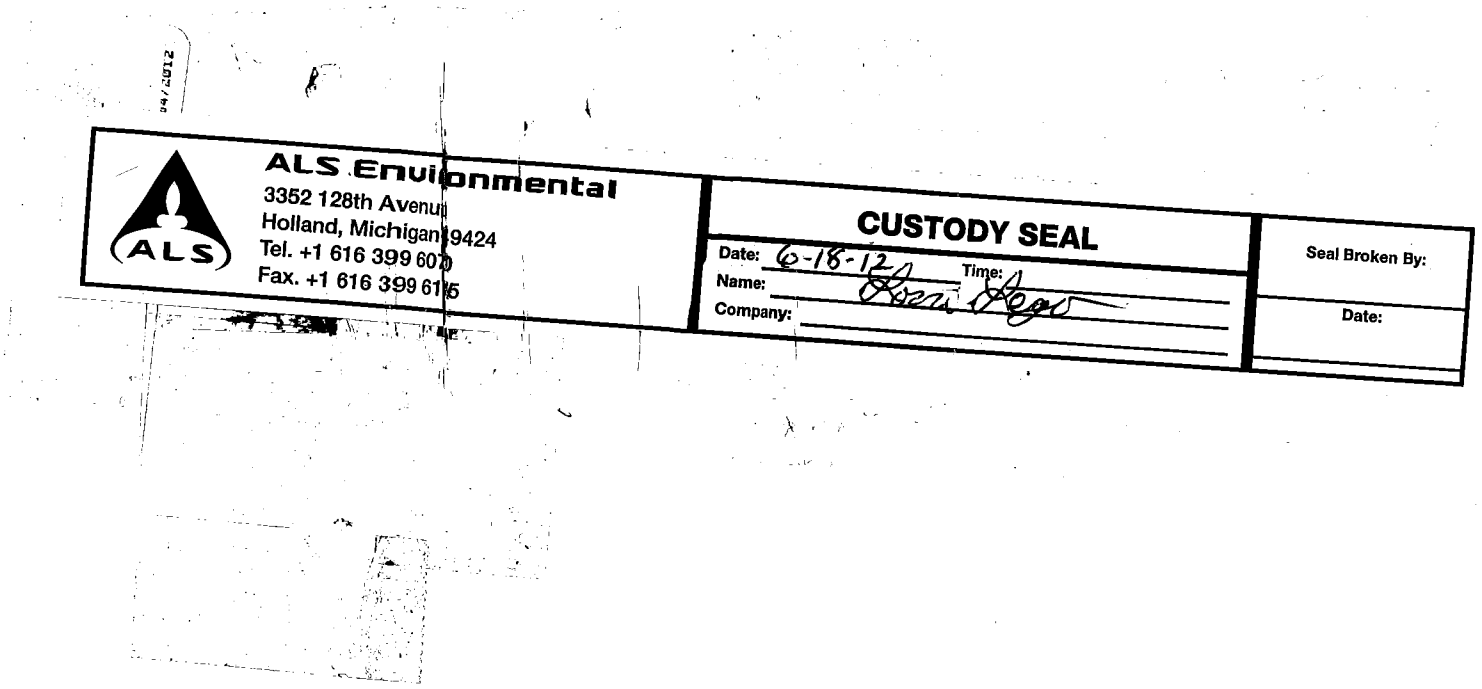
Contacted By: Regarding:

Comments:

CorrectiveAction:

6118 1410

5.0


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-18-12
Time:
Name:
Company:
Seal Broken By:
Date:

27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0600R,0625R,1375L 6/20/12** Work Order: **1206703**

Dear Bryan,

ALS Environmental received 11 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 70.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12
Work Order: **1206703**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206703-01	SBKR0600R509S062012S005	Soil		6/20/2012 10:54	6/20/2012 17:16	☐
1206703-02	SBKR0600R510S062012S005	Soil		6/20/2012 11:18	6/20/2012 17:16	☐
1206703-03	SBKR0600R511S062012S005	Soil		6/20/2012 11:50	6/20/2012 17:16	☐
1206703-04	SBKR0600R512S062012S008	Soil		6/20/2012 13:31	6/20/2012 17:16	☐
1206703-05	SBKR0600R513S062012S007	Soil		6/20/2012 13:56	6/20/2012 17:16	☐
1206703-06	SBKR0625R501S062012S005	Soil		6/20/2012 15:41	6/20/2012 17:16	☐
1206703-07	SBKR0625R502S062012S006	Soil		6/20/2012 15:52	6/20/2012 17:16	☐
1206703-08	SBKR0625R502T062012MX	Soil		6/20/2012	6/20/2012 17:16	☐
1206703-09	SBKR1375L521S062012S004	Soil		6/20/2012 09:06	6/20/2012 17:16	☐
1206703-10	SBKR1375L522S062012S005	Soil		6/20/2012 09:15	6/20/2012 17:16	☐
1206703-11	SBKR1375L522D062012S005	Soil		6/20/2012 09:15	6/20/2012 17:16	☐

Client: AECOM Environment
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12
Work Order: 1206703

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41883 sample SBKR0600R511S062012S005 MS/MSD recoveries for Beryllium, Molybdenum, Nickel, and Vanadium were below control limits. The sample results may be biased low for these elements due to matrix interference.

Batch 41868 sample SBKR0600R511S062012S005 MSD recoveries for Anthracene and Benzo(b)fluoranthene were above control limits. Both the MS recoveries and RPDs met quality control criteria. No data requires qualification.

Batches 41854 and 41907 MS/MSD data for Volatiles is not related to this project's samples.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12
WorkOrder: **1206703**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R509S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 10:54:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**51**	**14**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**260**	**28**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*63.8*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	**3.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Nickel	**82**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**37**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*82.9*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*69.0*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*78.1*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*95.9*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*64.9*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*79.6*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R509S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 10:54:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	77	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	77	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	77	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	260	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R509S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 10:54:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	150	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	77	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	77	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	77	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*90.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**29**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R510S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:18:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**81**	**21**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**940**	**43**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*57.6*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(a)pyrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(b)fluoranthene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(k)fluoranthene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Chrysene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*94.1*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*72.6*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*82.9*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*68.4*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*83.7*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R510S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:18:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R510S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:18:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*88.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R511S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:50:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	ND	9.7	4.0		mg/Kg-dry	1	6/23/2012
ORO (C20-C34)	ND	19	4.0		mg/Kg-dry	1	6/23/2012
Surr: 4-Terphenyl-d14	*53.4*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**5.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**7.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*78.3*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*68.6*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*82.4*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*98.6*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*70.9*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*79.9*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R511S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:50:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	32	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	32	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R511S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 11:50:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	40	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*88.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**2.5**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R512S062012S008
Work Order:	1206703	**Collection Date:**	6/20/2012 1:31:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**46**	**12**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**250**	**24**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*69.1*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**9.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(a)pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(b)fluoranthene	**960**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Chrysene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	**840**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*89.2*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*70.5*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*79.2*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*105*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*66.2*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*81.8*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	57	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	57	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	57	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	57	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R512S062012S008
Work Order:	1206703	**Collection Date:**	6/20/2012 1:31:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	57	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	57	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	57	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	57	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	57	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	57	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	57	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	57	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	57	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R512S062012S008
Work Order:	1206703	**Collection Date:**	6/20/2012 1:31:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	57	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	57	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	57	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	57	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	57	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	57	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	57	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	57	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*89.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*99.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**20**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R513S062012S007
Work Order:	1206703	**Collection Date:**	6/20/2012 1:56:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**72**	**24**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**430**	**48**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*52.8*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**31**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*90.0*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*69.8*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*79.0*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*99.6*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*65.2*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*81.5*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	300	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	300	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R513S062012S007
Work Order:	1206703	**Collection Date:**	6/20/2012 1:56:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	300	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	300	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	300	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	300	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	300	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	990	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	990	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	2,500	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	300	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	300	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	300	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	300	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	300	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	300	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	300	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	300	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	300	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	990	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	300	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	300	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	300	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	300	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	300	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	300	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	300	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	300	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R513S062012S007
Work Order:	1206703	**Collection Date:**	6/20/2012 1:56:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	300	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	300	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	590	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	300	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	300	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	300	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	990	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	300	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	300	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	300	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	300	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	300	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	300	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	300	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	300	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	300	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	300	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	300	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*87.5*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*96.8*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**60**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R501S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 3:41:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**150**	**45**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**600**	**91**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*63.7*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.84	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.7	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**8.1**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**16**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*84.3*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*63.3*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*74.4*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*95.5*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*61.7*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*75.3*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R501S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 3:41:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	1,100	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	1,100	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	1,100	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	1,100	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	3,800	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	3,800	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	9,400	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	1,100	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	3,800	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	1,100	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	1,100	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	1,100	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	1,100	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R501S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 3:41:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	1,100	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	1,100	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	2,300	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	3,800	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	3,800	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	1,100	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	3,800	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	1,100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	1,100	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	1,100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	1,100	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*88.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**78**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R502S062012S006
Work Order:	1206703	**Collection Date:**	6/20/2012 3:52:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**37**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**1,100**	**74**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*45.5*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.65	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.3	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**11**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**20**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(b)fluoranthene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*85.1*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*64.5*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*74.3*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*79.4*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*60.0*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*79.0*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	730	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	730	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	730	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	730	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	730	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R502S062012S006
Work Order:	1206703	**Collection Date:**	6/20/2012 3:52:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	730	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	730	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	730	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	730	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	730	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	730	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	730	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	730	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	730	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	2,400	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	2,400	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	6,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	730	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	730	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	730	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	730	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	730	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	730	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	730	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	730	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	730	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	2,400	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	730	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	730	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	730	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	730	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	730	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	730	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	730	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	730	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	730	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	730	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	730	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R502S062012S006
Work Order:	1206703	**Collection Date:**	6/20/2012 3:52:00 PM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	730	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	730	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	730	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	1,500	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	730	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	730	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	730	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	2,400	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	730	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	730	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	730	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	**970**	**730**	**100**		**µg/Kg-dry**	1	6/23/2012
sec-Butylbenzene	ND	730	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	730	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	730	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	730	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	730	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	2,400	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	730	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	730	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	730	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	730	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	730	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	730	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	730	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*88.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**73**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R502T062012MX
Work Order:	1206703	**Collection Date:**	6/20/2012
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/23/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/23/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/23/2012
Benzene	ND	50	50		µg/Kg	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/23/2012
Bromoform	ND	100	100		µg/Kg	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/23/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/23/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg	1	6/23/2012
Chloroform	ND	50	50		µg/Kg	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg	1	6/23/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R502T062012MX
Work Order:	1206703	**Collection Date:**	6/20/2012
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/23/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/23/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg	1	6/23/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/23/2012
o-Xylene	ND	50	50		µg/Kg	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/23/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Styrene	ND	50	50		µg/Kg	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/23/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/23/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/23/2012
Toluene	ND	100	100		µg/Kg	1	6/23/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/23/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/23/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*96.6*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.5*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*92.1*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L521S062012S004
Work Order:	1206703	**Collection Date:**	6/20/2012 9:06:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**45**	**13**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**240**	**27**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*54.8*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*77.8*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*66.6*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*73.9*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*78.5*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*64.7*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*78.9*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	71	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	71	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	71	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	71	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L521S062012S004
Work Order:	1206703	**Collection Date:**	6/20/2012 9:06:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	71	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	71	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	71	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	71	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	71	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	71	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	71	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	71	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	71	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	71	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	71	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L521S062012S004
Work Order:	1206703	**Collection Date:**	6/20/2012 9:06:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	71	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	140	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	71	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	71	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	71	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	71	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	71	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	71	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	71	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	71	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	71	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	71	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	71	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*96.0*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.4*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*93.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**27**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**58**	**19**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**670**	**38**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*41.9*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/25/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/25/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
Vanadium	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(a)pyrene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(b)fluoranthene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Chrysene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**890**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*79.1*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*61.9*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*68.5*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*75.3*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*56.9*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*73.5*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	530	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	530	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522S062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	320	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	530	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*87.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522D062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**76**	**18**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**420**	**35**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*54.3*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(a)pyrene	**650**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(b)fluoranthene	**930**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Chrysene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	**990**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*81.6*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*59.2*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*65.3*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*75.4*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*53.3*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*69.8*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522D062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	530	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	530	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L522D062012S005
Work Order:	1206703	**Collection Date:**	6/20/2012 9:15:00 AM
Project:	Marshall KRRI 0600R,0625R,1375L 6/20/12		
Lab ID:	1206703-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	320	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	530	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*112*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*92.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*105*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*91.7*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41869** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010713** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.458*	0	*5*	0	*49.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010564** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	391	10	500	0	78.2	60-130	0			
ORO (C20-C34)	447.2	20	500	0	89.4	60-130	0			
Surr: 4-Terphenyl-d14	*3.316*	0	*5*	0	*66.3*	*39-115*	0			

MS Sample ID: **1206703-03A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: **SBKR0600R511S062012S005** Run ID: **GC8_120622A** SeqNo: **2010715** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.2	9.6	481	0	73.6	60-130	0			
ORO (C20-C34)	536.7	19	481	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.764*	0	*4.81*	0	*57.5*	*39-115*	0			

MSD Sample ID: **1206703-03A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**

Client ID: **SBKR0600R511S062012S005** Run ID: **GC8_120622A** SeqNo: **2010566** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	366.5	9.7	482.8	0	75.9	60-130	354.2	3.39	30	
ORO (C20-C34)	459.3	19	482.8	0	95.1	60-130	536.7	15.5	30	
Surr: 4-Terphenyl-d14	*3.126*	0	*4.828*	0	*64.8*	*39-115*	2.764	*12.3*	*30*	

The following samples were analyzed in this batch:

1206703-01A	1206703-02A	1206703-03A
1206703-04A	1206703-05A	1206703-06A
1206703-07A	1206703-09A	1206703-10A
1206703-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41883** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:48 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011877** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.04284	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:54 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011878** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.412	0.10	5	0	88.2	80-120	0			
Molybdenum	4.566	0.25	5	0	91.3	80-120	0			
Nickel	4.436	0.25	5	0	88.7	80-120	0			
Vanadium	4.519	0.25	5	0	90.4	80-120	0			

MS Sample ID: **1206703-03AMS** Units: **mg/Kg** Analysis Date: **6/25/2012 10:58 PM**
Client ID: **SBKR0600R511S062012S005** Run ID: **ICPMS1_120625B** SeqNo: **2011900** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.545	0.58	7.299	0.09327	74.7	80-120	0			S
Molybdenum	5.895	1.5	7.299	0.4335	74.8	80-120	0			S
Nickel	9.839	1.5	7.299	5.3	62.2	80-120	0			S
Vanadium	9.95	1.5	7.299	6.919	41.5	80-120	0			S

MSD Sample ID: **1206703-03AMSD** Units: **mg/Kg** Analysis Date: **6/25/2012 11:04 PM**
Client ID: **SBKR0600R511S062012S005** Run ID: **ICPMS1_120625B** SeqNo: **2011901** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.369	0.58	7.267	0.09327	72.6	80-120	5.545	3.21	25	S
Molybdenum	5.666	1.5	7.267	0.4335	72	80-120	5.895	3.97	25	S
Nickel	10.28	1.5	7.267	5.3	68.5	80-120	9.839	4.34	25	S
Vanadium	11.71	1.5	7.267	6.919	65.9	80-120	9.95	16.2	25	S

The following samples were analyzed in this batch:

1206703-01A	1206703-02A	1206703-03A
1206703-04A	1206703-05A	1206703-06A
1206703-07A	1206703-09A	1206703-10A
1206703-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 06:31 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013261** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3083*	0	*5000*	0	*61.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3594*	0	*5000*	0	*71.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4055*	0	*5000*	0	*81.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4875*	0	*5000*	0	*97.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3741*	0	*5000*	0	*74.8*	*37-107*	0			
Surr: Phenol-d6	*4128*	0	*5000*	0	*82.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 04:45 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013257** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1969	50	2000	0	98.4	45-105	0			
Acenaphthene	1933	50	2000	0	96.6	45-110	0			
Acenaphthylene	1949	50	2000	0	97.4	45-105	0			
Anthracene	2086	50	2000	0	104	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2140	50	2000	0	107	50-110	0			
Benzo(b)fluoranthene	2084	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2291	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	2266	50	2000	0	113	45-115	0			
Chrysene	2175	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2358	50	2000	0	118	40-125	0			
Fluoranthene	2232	50	2000	0	112	55-115	0			
Fluorene	2059	50	2000	0	103	50-110	0			
Indeno(1,2,3-cd)pyrene	2363	50	2000	0	118	40-120	0			
Naphthalene	1845	50	2000	0	92.2	40-105	0			
Phenanthrene	2083	50	2000	0	104	50-110	0			
Pyrene	2036	50	2000	0	102	45-125	0			
Surr: 2,4,6-Tribromophenol	*3605*	0	*5000*	0	*72.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3482*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3902*	0	*5000*	0	*78*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4744*	0	*5000*	0	*94.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3591*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3656*	0	*5000*	0	*73.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206703-03A MS** Units: **µg/Kg** Analysis Date: **6/23/2012 05:11 PM**
Client ID: **SBKR0600R511S062012S005** Run ID: **SVMS6_120623A** SeqNo: **2013258** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1846	48	1926	0	95.8	45-105	0			
Acenaphthene	1863	48	1926	0	96.7	45-110	0			
Acenaphthylene	1863	48	1926	0	96.7	45-105	0			
Anthracene	1980	48	1926	0	103	55-105	0			
Benzo(a)anthracene	1941	48	1926	0	101	50-110	0			
Benzo(a)pyrene	2042	48	1926	0	106	50-110	0			
Benzo(b)fluoranthene	1972	48	1926	0	102	45-115	0			
Benzo(g,h,i)perylene	1971	48	1926	0	102	40-125	0			
Benzo(k)fluoranthene	2158	48	1926	0	112	45-115	0			
Chrysene	2016	48	1926	0	105	55-110	0			
Dibenzo(a,h)anthracene	2071	48	1926	0	108	40-125	0			
Fluoranthene	2107	48	1926	0	109	55-115	0			
Fluorene	2028	48	1926	0	105	50-110	0			
Indeno(1,2,3-cd)pyrene	2052	48	1926	0	107	40-120	0			
Naphthalene	1706	48	1926	0	88.6	40-105	0			
Phenanthrene	1991	48	1926	0	103	50-110	0			
Pyrene	1918	48	1926	0	99.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*4149*	0	*4816*	0	*86.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3340*	0	*4816*	0	*69.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3776*	0	*4816*	0	*78.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4493*	0	*4816*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3371*	0	*4816*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3602*	0	*4816*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206703-03A MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 05:38 PM**
Client ID: **SBKR0600R511S062012S005** Run ID: **SVMS6_120623A** SeqNo: **2013259** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1897	49	1958	0	96.8	45-105	1846	2.7	30	
Acenaphthene	1918	49	1958	0	98	45-110	1863	2.94	30	
Acenaphthylene	1920	49	1958	0	98	45-105	1863	3.05	30	
Anthracene	2094	49	1958	0	107	55-105	1980	5.57	30	S
Benzo(a)anthracene	2027	49	1958	0	104	50-110	1941	4.35	30	
Benzo(a)pyrene	2112	49	1958	0	108	50-110	2042	3.39	30	
Benzo(b)fluoranthene	2253	49	1958	0	115	45-115	1972	13.3	30	S
Benzo(g,h,i)perylene	1909	49	1958	0	97.4	40-125	1971	3.24	30	
Benzo(k)fluoranthene	2048	49	1958	0	105	45-115	2158	5.27	30	
Chrysene	2094	49	1958	0	107	55-110	2016	3.79	30	
Dibenzo(a,h)anthracene	2059	49	1958	0	105	40-125	2071	0.55	30	
Fluoranthene	2240	49	1958	0	114	55-115	2107	6.08	30	
Fluorene	2091	49	1958	0	107	50-110	2028	3.03	30	
Indeno(1,2,3-cd)pyrene	2050	49	1958	0	105	40-120	2052	0.139	30	
Naphthalene	1742	49	1958	0	89	40-105	1706	2.11	30	
Phenanthrene	2143	49	1958	0	109	50-110	1991	7.35	30	
Pyrene	2005	49	1958	0	102	45-125	1918	4.43	30	
Surr: 2,4,6-Tribromophenol	*4401*	0	*4896*	0	*89.9*	*34-140*	4149	*5.89*	*40*	
Surr: 2-Fluorobiphenyl	*3451*	0	*4896*	0	*70.5*	*12-100*	3340	*3.26*	*40*	
Surr: 2-Fluorophenol	*3772*	0	*4896*	0	*77*	*33-117*	3776	*0.115*	*40*	
Surr: 4-Terphenyl-d14	*4719*	0	*4896*	0	*96.4*	*25-137*	4493	*4.91*	*40*	
Surr: Nitrobenzene-d5	*3390*	0	*4896*	0	*69.2*	*37-107*	3371	*0.569*	*40*	
Surr: Phenol-d6	*3846*	0	*4896*	0	*78.6*	*40-106*	3602	*6.56*	*40*	

The following samples were analyzed in this batch:

1206703-01A	1206703-02A	1206703-03A
1206703-04A	1206703-05A	1206703-06A
1206703-07A	1206703-09A	1206703-10A
1206703-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41854-41854** Units: **µg/Kg** Analysis Date: **6/22/2012 01:33 AM**
Client ID: Run ID: **VMS9_120621B** SeqNo: **2008254** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*919.5*	0	*1000*	0	*92*	*70-130*	0
Surr: 4-Bromofluorobenzene	*856.5*	0	*1000*	0	*85.6*	*70-130*	0
Surr: Dibromofluoromethane	*911.5*	0	*1000*	0	*91.2*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41854-41854** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010649** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

LCS	Sample ID: **LCS-41854-41854**				Units: **µg/Kg**		Analysis Date: **6/22/2012 12:17 PM**			
Client ID:		Run ID: **VMS9_120621B**			SeqNo: **2008251**		Prep Date: **6/21/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1020	30	1000	0	102	75-125	0			
1,1,1-Trichloroethane	984	30	1000	0	98.4	70-135	0			
1,1,2,2-Tetrachloroethane	832.5	30	1000	0	83.2	55-130	0			
1,1,2-Trichloroethane	932.5	30	1000	0	93.2	60-125	0			
1,1-Dichloroethane	914.5	30	1000	0	91.4	75-125	0			
1,1-Dichloroethene	1122	30	1000	0	112	65-135	0			
1,2,3-Trichlorobenzene	899.5	30	1000	0	90	60-135	0			
1,2,3-Trichloropropane	856	30	1000	0	85.6	65-130	0			
1,2,3-Trimethylbenzene	1005	30	1000	0	100	65-135	0			
1,2,4-Trichlorobenzene	882.5	30	1000	0	88.2	65-130	0			
1,2,4-Trimethylbenzene	1072	30	1000	0	107	65-135	0			
1,2-Dibromo-3-chloropropane	720.5	30	1000	0	72	40-135	0			
1,2-Dibromoethane	956.5	30	1000	0	95.6	70-125	0			
1,2-Dichlorobenzene	979	30	1000	0	97.9	75-120	0			
1,2-Dichloroethane	901	30	1000	0	90.1	70-135	0			
1,2-Dichloropropane	885	30	1000	0	88.5	70-120	0			
1,3,5-Trimethylbenzene	1085	30	1000	0	108	65-135	0			
1,3-Dichlorobenzene	995	30	1000	0	99.5	70-125	0			
1,4-Dichlorobenzene	978.5	30	1000	0	97.8	70-125	0			
2-Butanone	713	200	1000	0	71.3	30-160	0			
2-Hexanone	745.5	30	1000	0	74.6	45-145	0			
4-Methyl-2-pentanone	756	30	1000	0	75.6	45-145	0			
Acetone	759.5	100	1000	0	76	20-160	0			
Acrylonitrile	760.5	100	1000	0	76	70-135	0			
Benzene	947.5	30	1000	0	94.8	75-125	0			
Bromobenzene	965.5	30	1000	0	96.6	65-120	0			
Bromochloromethane	915.5	30	1000	0	91.6	70-125	0			
Bromodichloromethane	940	30	1000	0	94	70-130	0			
Bromoform	747	30	1000	0	74.7	55-135	0			
Bromomethane	1293	75	1000	0	129	30-160	0			
Carbon disulfide	841	30	1000	0	84.1	45-160	0			
Carbon tetrachloride	900.5	30	1000	0	90	65-135	0			
Chlorobenzene	1022	30	1000	0	102	75-125	0			
Chloroethane	1207	100	1000	0	121	40-155	0			
Chloroform	956	30	1000	0	95.6	70-125	0			
Chloromethane	752.5	100	1000	0	75.2	50-130	0			
cis-1,2-Dichloroethene	898.5	30	1000	0	89.8	65-125	0			
cis-1,3-Dichloropropene	866.5	30	1000	0	86.6	70-125	0			
Dibromochloromethane	858	30	1000	0	85.8	65-135	0			
Dibromomethane	828.5	30	1000	0	82.8	75-130	0			
Dichlorodifluoromethane	616	30	1000	0	61.6	35-135	0			
Ethylbenzene	1043	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	813.5	30	1000	0	81.4	70-135	0	
Isopropylbenzene	1110	30	1000	0	111	75-130	0	
m,p-Xylene	2155	60	2000	0	108	80-125	0	
Methyl tert-butyl ether	945	30	1000	0	94.5	75-125	0	
Methylene chloride	916	30	1000	0	91.6	55-145	0	
Naphthalene	720.5	100	1000	0	72	40-140	0	
n-Butylbenzene	1020	30	1000	0	102	65-140	0	
n-Propylbenzene	1020	30	1000	0	102	65-135	0	
o-Xylene	1056	30	1000	0	106	75-125	0	
p-Isopropyltoluene	1020	30	1000	0	102	75-135	0	
sec-Butylbenzene	1070	30	1000	0	107	65-130	0	
Styrene	997.5	30	1000	0	99.8	75-125	0	
tert-Butylbenzene	1056	30	1000	0	106	65-130	0	
Tetrachloroethene	1089	30	1000	0	109	64-140	0	
Tetrahydrofuran	672	200	1000	0	67.2	70-135	0	S
Toluene	1004	30	1000	0	100	70-125	0	
trans-1,2-Dichloroethene	975	30	1000	0	97.5	65-135	0	
trans-1,3-Dichloropropene	831.5	30	1000	0	83.2	65-125	0	
trans-1,4-Dichloro-2-butene	682.5	30	1000	0	68.2	70-135	0	S
Trichloroethene	1036	30	1000	0	104	75-125	0	
Trichlorofluoromethane	986.5	30	1000	0	98.6	25-185	0	
Vinyl chloride	837.5	30	1000	0	83.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*915*	0	*1000*	0	*91.5*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*981*	0	*1000*	0	*98.1*	*70-130*	0	
Surr: Dibromofluoromethane	*946.5*	0	*1000*	0	*94.6*	*70-130*	0	
Surr: Toluene-d8	*1010*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41854-41854** Units: **µg/Kg** Analysis Date: **6/23/2012 12:33 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010647** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

MS	Sample ID: **1206730-08A MS**				Units: **µg/Kg**		Analysis Date: **6/22/2012 10:22 AM**			
Client ID:		Run ID: **VMS9_120621B**			SeqNo: **2009257**		Prep Date: **6/21/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	935.5	30	1000	0	93.6	75-125	0			
1,1,1-Trichloroethane	903	30	1000	0	90.3	70-135	0			
1,1,2,2-Tetrachloroethane	715	30	1000	0	71.5	55-130	0			
1,1,2-Trichloroethane	935.5	30	1000	0	93.6	60-125	0			
1,1-Dichloroethane	940.5	30	1000	0	94	75-125	0			
1,1-Dichloroethene	1097	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	857.5	30	1000	0	85.8	60-135	0			
1,2,3-Trichloropropane	834.5	30	1000	0	83.4	65-130	0			
1,2,3-Trimethylbenzene	971.5	30	1000	0	97.2	65-135	0			
1,2,4-Trichlorobenzene	825	30	1000	0	82.5	65-130	0			
1,2,4-Trimethylbenzene	1001	30	1000	0	100	65-135	0			
1,2-Dibromo-3-chloropropane	660.5	30	1000	0	66	40-135	0			
1,2-Dibromoethane	961.5	30	1000	0	96.2	70-125	0			
1,2-Dichlorobenzene	962	30	1000	0	96.2	75-120	0			
1,2-Dichloroethane	935	30	1000	0	93.5	70-135	0			
1,2-Dichloropropane	898.5	30	1000	0	89.8	70-120	0			
1,3,5-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	957.5	30	1000	0	95.8	70-125	0			
1,4-Dichlorobenzene	956.5	30	1000	0	95.6	70-125	0			
2-Butanone	724	200	1000	0	72.4	30-160	0			
2-Hexanone	645.5	30	1000	0	64.6	45-145	0			
4-Methyl-2-pentanone	709.5	30	1000	0	71	45-145	0			
Acetone	844.5	100	1000	0	84.4	20-160	0			
Acrylonitrile	813.5	100	1000	0	81.4	70-135	0			
Benzene	919	30	1000	0	91.9	75-125	0			
Bromobenzene	912.5	30	1000	0	91.2	65-120	0			
Bromochloromethane	943.5	30	1000	0	94.4	70-125	0			
Bromodichloromethane	798.5	30	1000	0	79.8	70-130	0			
Bromoform	648	30	1000	0	64.8	55-135	0			
Bromomethane	1018	75	1000	0	102	30-160	0			
Carbon disulfide	605.5	30	1000	0	60.6	45-160	0			
Carbon tetrachloride	796	30	1000	0	79.6	65-135	0			
Chlorobenzene	1005	30	1000	0	100	75-125	0			
Chloroethane	935.5	100	1000	0	93.6	40-155	0			
Chloroform	953	30	1000	0	95.3	70-125	0			
Chloromethane	837	100	1000	0	83.7	50-130	0			
cis-1,2-Dichloroethene	875.5	30	1000	0	87.6	65-125	0			
cis-1,3-Dichloropropene	781	30	1000	0	78.1	70-125	0			
Dibromochloromethane	746	30	1000	0	74.6	65-135	0			
Dibromomethane	884.5	30	1000	0	88.4	75-130	0			
Dichlorodifluoromethane	617	30	1000	0	61.7	35-135	0			
Ethylbenzene	1031	30	1000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	734	30	1000	0	73.4	70-135	0	
Isopropylbenzene	1057	30	1000	0	106	75-130	0	
m,p-Xylene	2142	60	2000	0	107	80-125	0	
Methyl tert-butyl ether	852.5	30	1000	0	85.2	75-125	0	
Methylene chloride	946.5	30	1000	0	94.6	55-145	0	
Naphthalene	682.5	100	1000	0	68.2	40-140	0	
n-Butylbenzene	951	30	1000	0	95.1	65-140	0	
n-Propylbenzene	944.5	30	1000	0	94.4	65-135	0	
o-Xylene	1026	30	1000	0	103	75-125	0	
p-Isopropyltoluene	956	30	1000	0	95.6	75-135	0	
sec-Butylbenzene	998	30	1000	0	99.8	65-130	0	
Styrene	952.5	30	1000	0	95.2	75-125	0	
tert-Butylbenzene	986	30	1000	0	98.6	65-130	0	
Tetrachloroethene	1139	30	1000	0	114	64-140	0	
Tetrahydrofuran	721	200	1000	0	72.1	70-135	0	
Toluene	968	30	1000	0	96.8	70-125	0	
trans-1,2-Dichloroethene	955.5	30	1000	0	95.6	65-135	0	
trans-1,3-Dichloropropene	717	30	1000	0	71.7	65-125	0	
trans-1,4-Dichloro-2-butene	637.5	30	1000	0	63.8	70-135	0	S
Trichloroethene	1020	30	1000	0	102	75-125	0	
Trichlorofluoromethane	171.5	30	1000	0	17.2	25-185	0	S
Vinyl chloride	825	30	1000	0	82.5	60-125	0	
Surr: 1,2-Dichloroethane-d4	*933.5*	0	*1000*	0	*93.4*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*939*	0	*1000*	0	*93.9*	*70-130*	0	
Surr: Dibromofluoromethane	*946*	0	*1000*	0	*94.6*	*70-130*	0	
Surr: Toluene-d8	*979.5*	0	*1000*	0	*98*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206730-08A MSD** Units: **µg/Kg** Analysis Date: **6/22/2012 10:47 AM**
Client ID: Run ID: **VMS9_120621B** SeqNo: **2009258** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	934	30	1000	0	93.4	75-125	935.5	0.16	30	
1,1,1-Trichloroethane	767	30	1000	0	76.7	70-135	903	16.3	30	
1,1,2,2-Tetrachloroethane	768.5	30	1000	0	76.8	55-130	715	7.21	30	
1,1,2-Trichloroethane	927	30	1000	0	92.7	60-125	935.5	0.913	30	
1,1-Dichloroethane	916.5	30	1000	0	91.6	75-125	940.5	2.58	30	
1,1-Dichloroethene	1030	30	1000	0	103	65-135	1097	6.35	30	
1,2,3-Trichlorobenzene	867	30	1000	0	86.7	60-135	857.5	1.1	30	
1,2,3-Trichloropropane	836.5	30	1000	0	83.6	65-130	834.5	0.239	30	
1,2,3-Trimethylbenzene	975	30	1000	0	97.5	65-135	971.5	0.36	30	
1,2,4-Trichlorobenzene	839	30	1000	0	83.9	65-130	825	1.68	30	
1,2,4-Trimethylbenzene	985.5	30	1000	0	98.6	65-135	1001	1.56	30	
1,2-Dibromo-3-chloropropane	676	30	1000	0	67.6	40-135	660.5	2.32	30	
1,2-Dibromoethane	958.5	30	1000	0	95.8	70-125	961.5	0.312	30	
1,2-Dichlorobenzene	974.5	30	1000	0	97.4	75-120	962	1.29	30	
1,2-Dichloroethane	837	30	1000	0	83.7	70-135	935	11.1	30	
1,2-Dichloropropane	867.5	30	1000	0	86.8	70-120	898.5	3.51	30	
1,3,5-Trimethylbenzene	1014	30	1000	0	101	65-135	1019	0.541	30	
1,3-Dichlorobenzene	960.5	30	1000	0	96	70-125	957.5	0.313	30	
1,4-Dichlorobenzene	962	30	1000	0	96.2	70-125	956.5	0.573	30	
2-Butanone	699	200	1000	0	69.9	30-160	724	3.51	30	
2-Hexanone	640	30	1000	0	64	45-145	645.5	0.856	30	
4-Methyl-2-pentanone	706.5	30	1000	0	70.6	45-145	709.5	0.424	30	
Acetone	965.5	100	1000	0	96.6	20-160	844.5	13.4	30	
Acrylonitrile	781	100	1000	0	78.1	70-135	813.5	4.08	30	
Benzene	724	30	1000	0	72.4	75-125	919	23.7	30	S
Bromobenzene	902	30	1000	0	90.2	65-120	912.5	1.16	30	
Bromochloromethane	928.5	30	1000	0	92.8	70-125	943.5	1.6	30	
Bromodichloromethane	795.5	30	1000	0	79.6	70-130	798.5	0.376	30	
Bromoform	654	30	1000	0	65.4	55-135	648	0.922	30	
Bromomethane	1294	75	1000	0	129	30-160	1018	23.8	30	
Carbon disulfide	661.5	30	1000	0	66.2	45-160	605.5	8.84	30	
Carbon tetrachloride	660.5	30	1000	0	66	65-135	796	18.6	30	
Chlorobenzene	998.5	30	1000	0	99.8	75-125	1005	0.649	30	
Chloroethane	1188	100	1000	0	119	40-155	935.5	23.7	30	
Chloroform	969	30	1000	0	96.9	70-125	953	1.66	30	
Chloromethane	972	100	1000	0	97.2	50-130	837	14.9	30	
cis-1,2-Dichloroethene	848.5	30	1000	0	84.8	65-125	875.5	3.13	30	
cis-1,3-Dichloropropene	798	30	1000	0	79.8	70-125	781	2.15	30	
Dibromochloromethane	753	30	1000	0	75.3	65-135	746	0.934	30	
Dibromomethane	876.5	30	1000	0	87.6	75-130	884.5	0.909	30	
Dichlorodifluoromethane	707	30	1000	0	70.7	35-135	617	13.6	30	
Ethylbenzene	1030	30	1000	0	103	75-125	1031	0.0485	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41854** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	732.5	30	1000	0	73.2	70-135	734	0.205	30	
Isopropylbenzene	1048	30	1000	0	105	75-130	1057	0.807	30	
m,p-Xylene	2126	60	2000	0	106	80-125	2142	0.75	30	
Methyl tert-butyl ether	835.5	30	1000	0	83.6	75-125	852.5	2.01	30	
Methylene chloride	1002	30	1000	0	100	55-145	946.5	5.65	30	
Naphthalene	699	100	1000	0	69.9	40-140	682.5	2.39	30	
n-Butylbenzene	969.5	30	1000	0	97	65-140	951	1.93	30	
n-Propylbenzene	939.5	30	1000	0	94	65-135	944.5	0.531	30	
o-Xylene	1016	30	1000	0	102	75-125	1026	1.08	30	
p-Isopropyltoluene	969.5	30	1000	0	97	75-135	956	1.4	30	
sec-Butylbenzene	987	30	1000	0	98.7	65-130	998	1.11	30	
Styrene	932	30	1000	0	93.2	75-125	952.5	2.18	30	
tert-Butylbenzene	970.5	30	1000	0	97	65-130	986	1.58	30	
Tetrachloroethene	1141	30	1000	0	114	64-140	1139	0.175	30	
Tetrahydrofuran	606	200	1000	0	60.6	70-135	721	17.3	30	S
Toluene	989	30	1000	0	98.9	70-125	968	2.15	30	
trans-1,2-Dichloroethene	918	30	1000	0	91.8	65-135	955.5	4	30	
trans-1,3-Dichloropropene	732.5	30	1000	0	73.2	65-125	717	2.14	30	
trans-1,4-Dichloro-2-butene	635	30	1000	0	63.5	70-135	637.5	0.393	30	S
Trichloroethene	972	30	1000	0	97.2	75-125	1020	4.82	30	
Trichlorofluoromethane	198.5	30	1000	0	19.8	25-185	171.5	14.6	30	S
Vinyl chloride	967.5	30	1000	0	96.8	60-125	825	15.9	30	
Surr: 1,2-Dichloroethane-d4	*841*	0	*1000*	0	*84.1*	*70-130*	933.5	*10.4*	*30*	
Surr: 4-Bromofluorobenzene	*933*	0	*1000*	0	*93.3*	*70-130*	939	*0.641*	*30*	
Surr: Dibromofluoromethane	*826*	0	*1000*	0	*82.6*	*70-130*	946	*13.5*	*30*	
Surr: Toluene-d8	*1011*	0	*1000*	0	*101*	*70-130*	979.5	*3.17*	*30*	

The following samples were analyzed in this batch: 1206703-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41907-41907** Units: **µg/Kg** Analysis Date: **6/23/2012 12:11 PM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009915** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	146	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*979*	0	*1000*	0	*97.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*858.5*	0	*1000*	0	*85.8*	*70-130*	0
Surr: Dibromofluoromethane	*966.5*	0	*1000*	0	*96.6*	*70-130*	0
Surr: Toluene-d8	*977.5*	0	*1000*	0	*97.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41907-41907** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010678** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41907-41907** Units: **µg/Kg** Analysis Date: **6/22/2012 10:55 PM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009914** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	929.5	30	1000	0	93	75-125	0			
1,1,1-Trichloroethane	986.5	30	1000	0	98.6	70-135	0			
1,1,2,2-Tetrachloroethane	1053	30	1000	0	105	55-130	0			
1,1,2-Trichloroethane	970.5	30	1000	0	97	60-125	0			
1,1-Dichloroethane	917	30	1000	0	91.7	75-125	0			
1,1-Dichloroethene	997	30	1000	0	99.7	65-135	0			
1,2,3-Trichlorobenzene	1014	30	1000	0	101	60-135	0			
1,2,3-Trichloropropane	991.5	30	1000	0	99.2	65-130	0			
1,2,3-Trimethylbenzene	999.5	30	1000	0	100	65-135	0			
1,2,4-Trichlorobenzene	935.5	30	1000	0	93.6	65-130	0			
1,2,4-Trimethylbenzene	1046	30	1000	0	105	65-135	0			
1,2-Dibromo-3-chloropropane	1004	30	1000	0	100	40-135	0			
1,2-Dibromoethane	1003	30	1000	0	100	70-125	0			
1,2-Dichlorobenzene	963.5	30	1000	0	96.4	75-120	0			
1,2-Dichloroethane	986.5	30	1000	0	98.6	70-135	0			
1,2-Dichloropropane	912.5	30	1000	0	91.2	70-120	0			
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	0			
1,3-Dichlorobenzene	972.5	30	1000	0	97.2	70-125	0			
1,4-Dichlorobenzene	973	30	1000	0	97.3	70-125	0			
2-Butanone	971	200	1000	0	97.1	30-160	0			
2-Hexanone	1029	30	1000	0	103	45-145	0			
4-Methyl-2-pentanone	971	30	1000	0	97.1	45-145	0			
Acetone	994	100	1000	0	99.4	20-160	0			B
Acrylonitrile	1042	100	1000	0	104	70-135	0			
Benzene	927.5	30	1000	0	92.8	75-125	0			
Bromobenzene	982.5	30	1000	0	98.2	65-120	0			
Bromochloromethane	1027	30	1000	0	103	70-125	0			
Bromodichloromethane	948.5	30	1000	0	94.8	70-130	0			
Bromoform	993.5	30	1000	0	99.4	55-135	0			
Bromomethane	1120	75	1000	0	112	30-160	0			
Carbon disulfide	980.5	30	1000	0	98	45-160	0			
Carbon tetrachloride	874.5	30	1000	0	87.4	65-135	0			
Chlorobenzene	970	30	1000	0	97	75-125	0			
Chloroethane	1002	100	1000	0	100	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	864	100	1000	0	86.4	50-130	0			
cis-1,2-Dichloroethene	908.5	30	1000	0	90.8	65-125	0			
cis-1,3-Dichloropropene	965	30	1000	0	96.5	70-125	0			
Dibromochloromethane	918	30	1000	0	91.8	65-135	0			
Dibromomethane	881.5	30	1000	0	88.2	75-130	0			
Dichlorodifluoromethane	732.5	30	1000	0	73.2	35-135	0			
Ethylbenzene	995.5	30	1000	0	99.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	887	30	1000	0	88.7	70-135	0
Isopropylbenzene	1041	30	1000	0	104	75-130	0
m,p-Xylene	2043	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1020	30	1000	0	102	75-125	0
Methylene chloride	1001	30	1000	0	100	55-145	0
Naphthalene	907.5	100	1000	0	90.8	40-140	0
n-Butylbenzene	971.5	30	1000	0	97.2	65-140	0
n-Propylbenzene	969	30	1000	0	96.9	65-135	0
o-Xylene	1016	30	1000	0	102	75-125	0
p-Isopropyltoluene	966	30	1000	0	96.6	75-135	0
sec-Butylbenzene	1028	30	1000	0	103	65-130	0
Styrene	1083	30	1000	0	108	75-125	0
tert-Butylbenzene	999.5	30	1000	0	100	65-130	0
Tetrachloroethene	1000	30	1000	0	100	64-140	0
Tetrahydrofuran	900.5	200	1000	0	90	70-135	0
Toluene	956	30	1000	0	95.6	70-125	0
trans-1,2-Dichloroethene	990.5	30	1000	0	99	65-135	0
trans-1,3-Dichloropropene	896.5	30	1000	0	89.6	65-125	0
trans-1,4-Dichloro-2-butene	951	30	1000	0	95.1	70-135	0
Trichloroethene	879	30	1000	0	87.9	75-125	0
Trichlorofluoromethane	819.5	30	1000	0	82	25-185	0
Vinyl chloride	936.5	30	1000	0	93.6	60-125	0
Surr: 1,2-Dichloroethane-d4	*965.5*	0	*1000*	0	*96.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*984.5*	0	*1000*	0	*98.4*	*70-130*	0
Surr: Dibromofluoromethane	*993*	0	*1000*	0	*99.3*	*70-130*	0
Surr: Toluene-d8	*989*	0	*1000*	0	*98.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41907-41907** Units: **µg/Kg** Analysis Date: **6/23/2012 12:33 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010676** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206778-07B MS** Units: **µg/Kg** Analysis Date: **6/23/2012 08:59 AM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009923** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1250	45	1495	0	83.6	75-125	0			
1,1,1-Trichloroethane	1439	45	1495	0	96.3	70-135	0			
1,1,2,2-Tetrachloroethane	1259	45	1495	0	84.2	55-130	0			
1,1,2-Trichloroethane	1419	45	1495	0	95	60-125	0			
1,1-Dichloroethane	1496	45	1495	0	100	75-125	0			
1,1-Dichloroethene	1864	45	1495	0	125	65-135	0			
1,2,3-Trichlorobenzene	1090	45	1495	0	73	60-135	0			
1,2,3-Trichloropropane	1330	45	1495	0	89	65-130	0			
1,2,3-Trimethylbenzene	1449	45	1495	28.42	95	65-135	0			
1,2,4-Trichlorobenzene	1245	45	1495	0	83.3	65-130	0			
1,2,4-Trimethylbenzene	1567	45	1495	68.32	100	65-135	0			
1,2-Dibromo-3-chloropropane	1193	45	1495	0	79.8	40-135	0			
1,2-Dibromoethane	1448	45	1495	0	96.8	70-125	0			
1,2-Dichlorobenzene	1359	45	1495	0	91	75-120	0			
1,2-Dichloroethane	1505	45	1495	0	101	70-135	0			
1,2-Dichloropropane	1362	45	1495	0	91.2	70-120	0			
1,3,5-Trimethylbenzene	1498	45	1495	15.72	99.1	65-135	0			
1,3-Dichlorobenzene	1369	45	1495	0	91.6	70-125	0			
1,4-Dichlorobenzene	1374	45	1495	0	92	70-125	0			
2-Butanone	1498	300	1495	0	100	30-160	0			
2-Hexanone	1374	45	1495	0	92	45-145	0			
4-Methyl-2-pentanone	1402	45	1495	0	93.8	45-145	0			
Acetone	1710	150	1495	0	114	20-160	0			B
Acrylonitrile	1597	150	1495	0	107	70-135	0			
Benzene	1408	45	1495	0	94.2	75-125	0			
Bromobenzene	1359	45	1495	0	91	65-120	0			
Bromochloromethane	1625	45	1495	0	109	70-125	0			
Bromodichloromethane	1149	45	1495	0	76.9	70-130	0			
Bromoform	1149	45	1495	0	76.9	55-135	0			
Bromomethane	1459	110	1495	0	97.6	30-160	0			
Carbon disulfide	1191	45	1495	0	79.6	45-160	0			
Carbon tetrachloride	1200	45	1495	0	80.2	65-135	0			
Chlorobenzene	1426	45	1495	0	95.4	75-125	0			
Chloroethane	1083	150	1495	0	72.4	40-155	0			
Chloroform	1525	45	1495	0	102	70-125	0			
Chloromethane	1500	150	1495	0	100	50-130	0			
cis-1,2-Dichloroethene	1382	45	1495	0	92.4	65-125	0			
cis-1,3-Dichloropropene	1332	45	1495	0	89.1	70-125	0			
Dibromochloromethane	1129	45	1495	0	75.6	65-135	0			
Dibromomethane	1309	45	1495	0	87.6	75-130	0			
Dichlorodifluoromethane	861.7	45	1495	0	57.6	35-135	0			
Ethylbenzene	1531	45	1495	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1143	45	1495	0	76.4	70-135	0	
Isopropylbenzene	1515	45	1495	0	101	75-130	0	
m,p-Xylene	3154	90	2990	47.76	104	80-125	0	
Methyl tert-butyl ether	1428	45	1495	0	95.5	75-125	0	
Methylene chloride	1545	45	1495	0	103	55-145	0	
Naphthalene	1430	150	1495	381.5	70.2	40-140	0	
n-Butylbenzene	1551	45	1495	0	104	65-140	0	
n-Propylbenzene	1408	45	1495	15.11	93.2	65-135	0	
o-Xylene	1529	45	1495	22.97	101	75-125	0	
p-Isopropyltoluene	1442	45	1495	0	96.4	75-135	0	
sec-Butylbenzene	1516	45	1495	0	101	65-130	0	
Styrene	1516	45	1495	0	101	75-125	0	
tert-Butylbenzene	1440	45	1495	0	96.4	65-130	0	
Tetrachloroethene	1667	45	1495	0	112	64-140	0	
Tetrahydrofuran	1457	300	1495	0	97.5	70-135	0	
Toluene	1575	45	1495	78.6	100	70-125	0	
trans-1,2-Dichloroethene	1493	45	1495	0	99.8	65-135	0	
trans-1,3-Dichloropropene	1158	45	1495	0	77.4	65-125	0	
trans-1,4-Dichloro-2-butene	1193	45	1495	0	79.8	70-135	0	
Trichloroethene	1321	45	1495	0	88.4	75-125	0	
Trichlorofluoromethane	222	45	1495	0	14.8	25-185	0	S
Vinyl chloride	1508	45	1495	0	101	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1498*	0	*1495*	0	*100*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1422*	0	*1495*	0	*95.2*	*70-130*	0	
Surr: Dibromofluoromethane	*1498*	0	*1495*	0	*100*	*70-130*	0	
Surr: Toluene-d8	*1509*	0	*1495*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206778-07B MSD**				Units: **µg/Kg**			Analysis Date: **6/23/2012 09:25 AM**		
Client ID:		Run ID: **VMS9_120622A**			SeqNo: **2009924**		Prep Date: **6/22/2012**		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1261	45	1495	0	84.4	75-125	1250	0.833	30	
1,1,1-Trichloroethane	1486	45	1495	0	99.4	70-135	1439	3.17	30	
1,1,2,2-Tetrachloroethane	1162	45	1495	0	77.8	55-130	1259	8.02	30	
1,1,2-Trichloroethane	1440	45	1495	0	96.4	60-125	1419	1.46	30	
1,1-Dichloroethane	1505	45	1495	0	101	75-125	1496	0.648	30	
1,1-Dichloroethene	1587	45	1495	0	106	65-135	1864	16.1	30	
1,2,3-Trichlorobenzene	1063	45	1495	0	71.1	60-135	1090	2.57	30	
1,2,3-Trichloropropane	1354	45	1495	0	90.6	65-130	1330	1.78	30	
1,2,3-Trimethylbenzene	1466	45	1495	28.42	96.1	65-135	1449	1.13	30	
1,2,4-Trichlorobenzene	1252	45	1495	0	83.8	65-130	1245	0.539	30	
1,2,4-Trimethylbenzene	1565	45	1495	68.32	100	65-135	1567	0.0955	30	
1,2-Dibromo-3-chloropropane	1212	45	1495	0	81	40-135	1193	1.55	30	
1,2-Dibromoethane	1465	45	1495	0	98	70-125	1448	1.18	30	
1,2-Dichlorobenzene	1398	45	1495	0	93.5	75-120	1359	2.76	30	
1,2-Dichloroethane	1533	45	1495	0	103	70-135	1505	1.82	30	
1,2-Dichloropropane	1392	45	1495	0	93.1	70-120	1362	2.12	30	
1,3,5-Trimethylbenzene	1503	45	1495	15.72	99.5	65-135	1498	0.349	30	
1,3-Dichlorobenzene	1386	45	1495	0	92.7	70-125	1369	1.19	30	
1,4-Dichlorobenzene	1401	45	1495	0	93.7	70-125	1374	1.89	30	
2-Butanone	1540	300	1495	0	103	30-160	1498	2.8	30	
2-Hexanone	1371	45	1495	0	91.7	45-145	1374	0.272	30	
4-Methyl-2-pentanone	1445	45	1495	0	96.6	45-145	1402	2.99	30	
Acetone	1718	150	1495	0	115	20-160	1710	0.48	30	B
Acrylonitrile	1374	150	1495	0	92	70-135	1597	15	30	
Benzene	1419	45	1495	0	94.9	75-125	1408	0.74	30	
Bromobenzene	1358	45	1495	0	90.8	65-120	1359	0.11	30	
Bromochloromethane	1606	45	1495	0	107	70-125	1625	1.16	30	
Bromodichloromethane	1217	45	1495	0	81.4	70-130	1149	5.69	30	
Bromoform	1159	45	1495	0	77.6	55-135	1149	0.842	30	
Bromomethane	1460	110	1495	0	97.7	30-160	1459	0.102	30	
Carbon disulfide	1143	45	1495	0	76.4	45-160	1191	4.1	30	
Carbon tetrachloride	1238	45	1495	0	82.8	65-135	1200	3.13	30	
Chlorobenzene	1449	45	1495	0	97	75-125	1426	1.61	30	
Chloroethane	1296	150	1495	0	86.7	40-155	1083	17.9	30	
Chloroform	1523	45	1495	0	102	70-125	1525	0.0981	30	
Chloromethane	1573	150	1495	0	105	50-130	1500	4.77	30	
cis-1,2-Dichloroethene	1375	45	1495	0	92	65-125	1382	0.488	30	
cis-1,3-Dichloropropene	1371	45	1495	0	91.7	70-125	1332	2.88	30	
Dibromochloromethane	1148	45	1495	0	76.8	65-135	1129	1.64	30	
Dibromomethane	1339	45	1495	0	89.6	75-130	1309	2.2	30	
Dichlorodifluoromethane	864	45	1495	0	57.8	35-135	861.7	0.26	30	
Ethylbenzene	1553	45	1495	0	104	75-125	1531	1.45	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1159	45	1495	0	77.6	70-135	1143	1.43	30	
Isopropylbenzene	1521	45	1495	0	102	75-130	1515	0.394	30	
m,p-Xylene	3187	90	2990	47.76	105	80-125	3154	1.04	30	
Methyl tert-butyl ether	1303	45	1495	0	87.2	75-125	1428	9.09	30	
Methylene chloride	1442	45	1495	0	96.5	55-145	1545	6.86	30	
Naphthalene	1428	150	1495	381.5	70	40-140	1430	0.157	30	
n-Butylbenzene	1591	45	1495	0	106	65-140	1551	2.57	30	
n-Propylbenzene	1418	45	1495	15.11	93.8	65-135	1408	0.688	30	
o-Xylene	1545	45	1495	22.97	102	75-125	1529	1.02	30	
p-Isopropyltoluene	1464	45	1495	0	98	75-135	1442	1.54	30	
sec-Butylbenzene	1537	45	1495	0	103	65-130	1516	1.37	30	
Styrene	1531	45	1495	0	102	75-125	1516	0.932	30	
tert-Butylbenzene	1445	45	1495	0	96.6	65-130	1440	0.311	30	
Tetrachloroethene	1654	45	1495	0	111	64-140	1667	0.765	30	
Tetrahydrofuran	1407	300	1495	0	94.2	70-135	1457	3.5	30	
Toluene	1565	45	1495	78.6	99.4	70-125	1575	0.666	30	
trans-1,2-Dichloroethene	1346	45	1495	0	90	65-135	1493	10.3	30	
trans-1,3-Dichloropropene	1187	45	1495	0	79.4	65-125	1158	2.49	30	
trans-1,4-Dichloro-2-butene	1216	45	1495	0	81.4	70-135	1193	1.92	30	
Trichloroethene	1368	45	1495	0	91.5	75-125	1321	3.45	30	
Trichlorofluoromethane	225	45	1495	0	15	25-185	222	1.34	30	S
Vinyl chloride	1523	45	1495	0	102	60-125	1508	0.986	30	
Surr: 1,2-Dichloroethane-d4	*1559*	0	*1495*	0	*104*	*70-130*	1498	*4.01*	*30*	
Surr: 4-Bromofluorobenzene	*1464*	0	*1495*	0	*98*	*70-130*	1422	*2.9*	*30*	
Surr: Dibromofluoromethane	*1562*	0	*1495*	0	*104*	*70-130*	1498	*4.2*	*30*	
Surr: Toluene-d8	*1544*	0	*1495*	0	*103*	*70-130*	1509	*2.3*	*30*	

The following samples were analyzed in this batch:

1206703-01B	1206703-02B	1206703-03B
1206703-04B	1206703-05B	1206703-06B
1206703-07B	1206703-09B	1206703-10B
1206703-11B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206703
Project: Marshall KRRI 0600R,0625R,1375L 6/20/12

QC BATCH REPORT

Batch ID: **R106376** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008708** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206693-05BDUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.15	0.050	0	0	0	0-0	19.41	6.71	20	

DUP Sample ID: **1206703-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: **SBKR0600R511S062012S005** Run ID: **MOIST_120621B** SeqNo: **2008690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.84	0.050	0	0	0	0-0	2.51	12.3	20	

The following samples were analyzed in this batch:

1206703-01A	1206703-02A	1206703-03A
1206703-04A	1206703-05A	1206703-06A
1206703-07A	1206703-09A	1206703-10A
1206703-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206703

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062012_LJL1	Task: KRRI_0600R,0625R,1375L
	Total # of Samples: 11	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260												
1	SBKR0600R509S062012S005	SBKR0600R509	SO	G	06/20/2012 10:54	3			X	X	X	X	X												
2	SBKR0600R510S062012S005	SBKR0600R510	SO	G	06/20/2012 11:18	3			X	X	X	X	X												
3	SBKR0600R511S062012S005	SBKR0600R511	SO	G	06/20/2012 11:50	3			X	X	X	X	X												
4	SBKR0600R512S062012S008	SBKR0600R512	SO	G	06/20/2012 13:31	3			X	X	X	X	X												
5	SBKR0600R513S062012S007	SBKR0600R513	SO	G	06/20/2012 13:56	3			X	X	X	X	X												
6	SBKR0625R501S062012S005	SBKR0625R501	SO	G	06/20/2012 15:41	3			X	X	X	X	X												
7	SBKR0625R502S062012S006	SBKR0625R502	SO	G	06/20/2012 15:52	3			X	X	X	X	X												
8	SBKR0625R502T062012MX	SBKR0625R502	SQ	G	06/20/2012 00:00	1	TRIP BLANK						X												
9	SBKR1375L521S062012S004	SBKR1375L521	SO	G	06/20/2012 09:06	3			X	X	X	X	X												
10	SBKR1375L522S062012S005	SBKR1375L522	SO	G	06/20/2012 09:15	3			X	X	X	X	X												
11	SBKR1375L522D062012S005	SBKR1375L522	SO	G	06/20/2012 09:15	3	DUPLICATE		X	X	X	X	X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-20-12	1701		6-20-12	1701
	6-20-12	1716		6-20-12	1716

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
5.2°c	Y/N (Y) N	Y/N (Y) N	Y/N (Y) N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206703** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

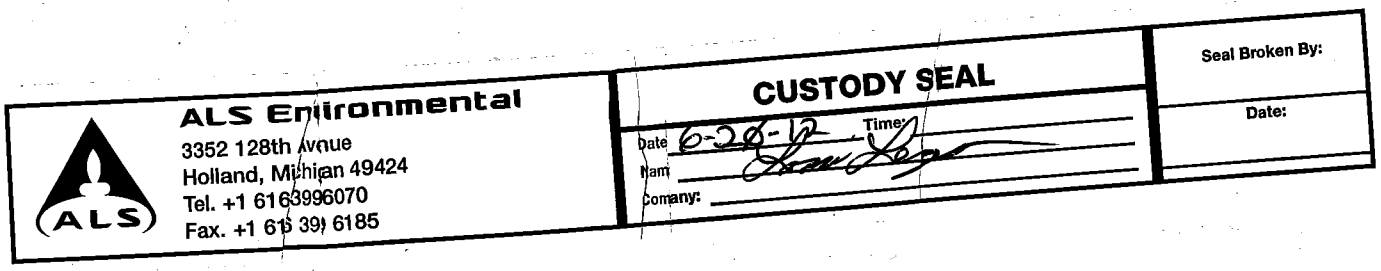
Contacted By: Regarding:

Comments:

CorrectiveAction:

5.2 10 soils

6/20



27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0725L,0750I 6/18/12** Work Order: **1206704**

Dear Bryan,

ALS Environmental received 5 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0725L,0750I 6/18/12
Work Order: **1206704**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206704-01	SBKR0725L512S061812S007	Soil		6/18/2012 15:39	6/20/2012 17:16	☐
1206704-02	SBKR0750I501S061812S003	Soil		6/18/2012 16:08	6/20/2012 17:16	☐
1206704-03	SBKR0750I501S061812S015	Soil		6/18/2012 16:15	6/20/2012 17:16	☐
1206704-04	SBKR0750I502S061812S008	Soil		6/18/2012 16:50	6/20/2012 17:16	☐
1206704-05	SBKR0750I502T061812MX	Soil		6/18/2012	6/20/2012 17:16	☐

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0725L,0750I 6/18/12
Work Order: 1206704

Case Narrative

PThe extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batches 41883 and 41885 MS/MSD data for Metals is not related to this project's samples.

Batch 41868 MS/MSD data for PAHs is not related to this project's samples.

Batch 41833 LCS recovery for 4-Methyl-2-pentanone was above control limits, but all samples in this quality control batch were ND for this compound. No data requires qualification. Sample SBKR0750I502S061812S008 MS recovery for trans-1,4-Dichloro-2-Butene, and MSD recovery for 1,1-DCE were below control limits. Both the MSD, and MS recovery, respectively, and RPDs met quality control criteria. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0725L,0750I 6/18/12
WorkOrder: **1206704**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0725L512S061812S007
Work Order:	1206704	**Collection Date:**	6/18/2012 3:39:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**39**	**12**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**540**	**24**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*46.0*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	**0.55**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/26/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**74**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/23/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/23/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/23/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/23/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/23/2012
Surr: 2,4,6-Tribromophenol	*92.8*	*34-140*			*%REC*	1	6/23/2012
Surr: 2-Fluorobiphenyl	*73.6*	*12-100*			*%REC*	1	6/23/2012
Surr: 2-Fluorophenol	*91.1*	*33-117*			*%REC*	1	6/23/2012
Surr: 4-Terphenyl-d14	*87.8*	*25-137*			*%REC*	1	6/23/2012
Surr: Nitrobenzene-d5	*73.7*	*37-107*			*%REC*	1	6/23/2012
Surr: Phenol-d6	*91.3*	*40-106*			*%REC*	1	6/23/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	57	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	57	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	57	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	57	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0725L512S061812S007
Work Order:	1206704	**Collection Date:**	6/18/2012 3:39:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	57	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	57	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	57	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	57	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	57	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	57	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	57	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	57	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	57	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0725L512S061812S007
Work Order:	1206704	**Collection Date:**	6/18/2012 3:39:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	57	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	57	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	57	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	57	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	57	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	57	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	57	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	57	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	57	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	57	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*99.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*98.1*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**20**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S003
Work Order:	1206704	**Collection Date:**	6/18/2012 4:08:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**990**	**99**	**4.0**		**mg/Kg-dry**	5	6/23/2012
ORO (C20-C34)	**8,000**	**200**	**4.0**		**mg/Kg-dry**	5	6/23/2012
Surr: 4-Terphenyl-d14	*69.3*	*39-115*			*%REC*	5	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Anthracene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)anthracene	**3,500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)pyrene	**4,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(b)fluoranthene	**6,300**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(g,h,i)perylene	**790**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(k)fluoranthene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Chrysene	**3,300**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	**5,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	**700**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	**2,100**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Pyrene	**8,800**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*100*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*74.9*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*88.5*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*136*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*71.8*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*91.3*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	220	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	220	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	220	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S003
Work Order:	1206704	**Collection Date:**	6/18/2012 4:08:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	220	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	220	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	220	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	220	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	220	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	730	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,800	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	220	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	220	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	220	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	220	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	220	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	220	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	220	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	220	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	730	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	220	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	220	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	220	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S003
Work Order:	1206704	**Collection Date:**	6/18/2012 4:08:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	220	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	440	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	220	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	220	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	730	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	220	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	220	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	220	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	220	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	220	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	220	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	220	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	220	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	220	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	220	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	220	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	220	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	220	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*98.1*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*96.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S015
Work Order:	1206704	**Collection Date:**	6/18/2012 4:15:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	ND	13	4.0		mg/Kg-dry	1	6/23/2012
ORO (C20-C34)	ND	26	4.0		mg/Kg-dry	1	6/23/2012
Surr: 4-Terphenyl-d14	*49.4*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**4.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**6.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*66.8*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*62.2*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*75.0*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*99.3*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*63.3*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*75.6*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	67	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	67	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	67	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	67	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S015
Work Order:	1206704	**Collection Date:**	6/18/2012 4:15:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	67	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	67	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	67	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	67	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	67	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	67	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	67	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	67	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	67	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I501S061812S015
Work Order:	1206704	**Collection Date:**	6/18/2012 4:15:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	67	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	130	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	67	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	67	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	67	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	67	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	67	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	67	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	67	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*97.6*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*99.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*96.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**25**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I502S061812S008
Work Order:	1206704	**Collection Date:**	6/18/2012 4:50:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	6/23/2012
ORO (C20-C34)	**740**	**42**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*43.7*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(b)fluoranthene	**2,400**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(g,h,i)perylene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Chrysene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	**2,600**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Pyrene	**3,400**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*84.5*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*66.3*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*75.1*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*108*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*61.6*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*78.4*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I502S061812S008
Work Order:	1206704	**Collection Date:**	6/18/2012 4:50:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I502S061812S008
Work Order:	1206704	**Collection Date:**	6/18/2012 4:50:00 PM
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*95.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*99.9*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I502T061812MX
Work Order:	1206704	**Collection Date:**	6/18/2012
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/26/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/26/2012
Benzene	ND	50	50		µg/Kg	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromoform	ND	100	100		µg/Kg	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg	1	6/26/2012
Chloroform	ND	50	50		µg/Kg	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750I502T061812MX
Work Order:	1206704	**Collection Date:**	6/18/2012
Project:	Marshall KRRI 0725L,0750I 6/18/12		
Lab ID:	1206704-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Styrene	ND	50	50		µg/Kg	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/26/2012
Toluene	ND	100	100		µg/Kg	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/26/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*99.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*96.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41869** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010713** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.458*	0	*5*	0	*49.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010564** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	391	10	500	0	78.2	60-130	0			
ORO (C20-C34)	447.2	20	500	0	89.4	60-130	0			
Surr: 4-Terphenyl-d14	*3.316*	0	*5*	0	*66.3*	*39-115*	0			

MS Sample ID: **1206703-03A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010715** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.2	9.6	481	0	73.6	60-130	0			
ORO (C20-C34)	536.7	19	481	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.764*	0	*4.81*	0	*57.5*	*39-115*	0			

MSD Sample ID: **1206703-03A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010566** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	366.5	9.7	482.8	0	75.9	60-130	354.2	3.39	30	
ORO (C20-C34)	459.3	19	482.8	0	95.1	60-130	536.7	15.5	30	
Surr: 4-Terphenyl-d14	*3.126*	0	*4.828*	0	*64.8*	*39-115*	2.764	*12.3*	*30*	

The following samples were analyzed in this batch: 1206704-01A 1206704-02A 1206704-03A 1206704-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41883** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:48 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011877** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.04284	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41883-41883** Units: **mg/Kg** Analysis Date: **6/25/2012 08:54 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011878** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.412	0.10	5	0	88.2	80-120	0			
Molybdenum	4.566	0.25	5	0	91.3	80-120	0			
Nickel	4.436	0.25	5	0	88.7	80-120	0			
Vanadium	4.519	0.25	5	0	90.4	80-120	0			

MS Sample ID: **1206703-03AMS** Units: **mg/Kg** Analysis Date: **6/25/2012 10:58 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011900** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.545	0.58	7.299	0.09327	74.7	80-120	0			S
Molybdenum	5.895	1.5	7.299	0.4335	74.8	80-120	0			S
Nickel	9.839	1.5	7.299	5.3	62.2	80-120	0			S
Vanadium	9.95	1.5	7.299	6.919	41.5	80-120	0			S

MSD Sample ID: **1206703-03AMSD** Units: **mg/Kg** Analysis Date: **6/25/2012 11:04 PM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011901** Prep Date: **6/22/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.369	0.58	7.267	0.09327	72.6	80-120	5.545	3.21	25	S
Molybdenum	5.666	1.5	7.267	0.4335	72	80-120	5.895	3.97	25	S
Nickel	10.28	1.5	7.267	5.3	68.5	80-120	9.839	4.34	25	S
Vanadium	11.71	1.5	7.267	6.919	65.9	80-120	9.95	16.2	25	S

The following samples were analyzed in this batch: 1206704-01A 1206704-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41885** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:24 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011914** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:30 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011915** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.52	0.10	5	0	90.4	80-120	0			
Molybdenum	4.636	0.25	5	0	92.7	80-120	0			
Nickel	4.397	0.25	5	0	87.9	80-120	0			
Vanadium	4.486	0.25	5	0	89.7	80-120	0			

MS Sample ID: **1206720-03AMS** Units: **mg/Kg** Analysis Date: **6/26/2012 04:45 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011958** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.599	0.16	8.183	0.06905	79.8	80-120	0			S
Molybdenum	7.234	0.41	8.183	0.06129	87.7	80-120	0			
Nickel	8.993	0.41	8.183	2.183	83.2	80-120	0			
Vanadium	12.11	0.41	8.183	5.543	80.3	80-120	0			

MSD Sample ID: **1206720-03AMSD** Units: **mg/Kg** Analysis Date: **6/26/2012 04:51 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011959** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.326	0.16	8.104	0.06905	77.2	80-120	6.599	4.23	25	S
Molybdenum	6.897	0.41	8.104	0.06129	84.4	80-120	7.234	4.77	25	
Nickel	8.549	0.41	8.104	2.183	78.6	80-120	8.993	5.06	25	S
Vanadium	11.27	0.41	8.104	5.543	70.7	80-120	12.11	7.18	25	S

The following samples were analyzed in this batch: 1206704-03A 1206704-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 06:31 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013261** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3083*	0	*5000*	0	*61.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3594*	0	*5000*	0	*71.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4055*	0	*5000*	0	*81.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4875*	0	*5000*	0	*97.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3741*	0	*5000*	0	*74.8*	*37-107*	0			
Surr: Phenol-d6	*4128*	0	*5000*	0	*82.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 04:45 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013257** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1969	50	2000	0	98.4	45-105	0			
Acenaphthene	1933	50	2000	0	96.6	45-110	0			
Acenaphthylene	1949	50	2000	0	97.4	45-105	0			
Anthracene	2086	50	2000	0	104	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2140	50	2000	0	107	50-110	0			
Benzo(b)fluoranthene	2084	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2291	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	2266	50	2000	0	113	45-115	0			
Chrysene	2175	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2358	50	2000	0	118	40-125	0			
Fluoranthene	2232	50	2000	0	112	55-115	0			
Fluorene	2059	50	2000	0	103	50-110	0			
Indeno(1,2,3-cd)pyrene	2363	50	2000	0	118	40-120	0			
Naphthalene	1845	50	2000	0	92.2	40-105	0			
Phenanthrene	2083	50	2000	0	104	50-110	0			
Pyrene	2036	50	2000	0	102	45-125	0			
Surr: 2,4,6-Tribromophenol	*3605*	0	*5000*	0	*72.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3482*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3902*	0	*5000*	0	*78*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4744*	0	*5000*	0	*94.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3591*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3656*	0	*5000*	0	*73.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206703-03A MS** Units: **µg/Kg** Analysis Date: **6/23/2012 05:11 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013258** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1846	48	1926	0	95.8	45-105	0			
Acenaphthene	1863	48	1926	0	96.7	45-110	0			
Acenaphthylene	1863	48	1926	0	96.7	45-105	0			
Anthracene	1980	48	1926	0	103	55-105	0			
Benzo(a)anthracene	1941	48	1926	0	101	50-110	0			
Benzo(a)pyrene	2042	48	1926	0	106	50-110	0			
Benzo(b)fluoranthene	1972	48	1926	0	102	45-115	0			
Benzo(g,h,i)perylene	1971	48	1926	0	102	40-125	0			
Benzo(k)fluoranthene	2158	48	1926	0	112	45-115	0			
Chrysene	2016	48	1926	0	105	55-110	0			
Dibenzo(a,h)anthracene	2071	48	1926	0	108	40-125	0			
Fluoranthene	2107	48	1926	0	109	55-115	0			
Fluorene	2028	48	1926	0	105	50-110	0			
Indeno(1,2,3-cd)pyrene	2052	48	1926	0	107	40-120	0			
Naphthalene	1706	48	1926	0	88.6	40-105	0			
Phenanthrene	1991	48	1926	0	103	50-110	0			
Pyrene	1918	48	1926	0	99.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*4149*	0	*4816*	0	*86.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3340*	0	*4816*	0	*69.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3776*	0	*4816*	0	*78.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4493*	0	*4816*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3371*	0	*4816*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3602*	0	*4816*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206703-03A MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 05:38 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013259** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1897	49	1958	0	96.8	45-105	1846	2.7	30	
Acenaphthene	1918	49	1958	0	98	45-110	1863	2.94	30	
Acenaphthylene	1920	49	1958	0	98	45-105	1863	3.05	30	
Anthracene	2094	49	1958	0	107	55-105	1980	5.57	30	S
Benzo(a)anthracene	2027	49	1958	0	104	50-110	1941	4.35	30	
Benzo(a)pyrene	2112	49	1958	0	108	50-110	2042	3.39	30	
Benzo(b)fluoranthene	2253	49	1958	0	115	45-115	1972	13.3	30	S
Benzo(g,h,i)perylene	1909	49	1958	0	97.4	40-125	1971	3.24	30	
Benzo(k)fluoranthene	2048	49	1958	0	105	45-115	2158	5.27	30	
Chrysene	2094	49	1958	0	107	55-110	2016	3.79	30	
Dibenzo(a,h)anthracene	2059	49	1958	0	105	40-125	2071	0.55	30	
Fluoranthene	2240	49	1958	0	114	55-115	2107	6.08	30	
Fluorene	2091	49	1958	0	107	50-110	2028	3.03	30	
Indeno(1,2,3-cd)pyrene	2050	49	1958	0	105	40-120	2052	0.139	30	
Naphthalene	1742	49	1958	0	89	40-105	1706	2.11	30	
Phenanthrene	2143	49	1958	0	109	50-110	1991	7.35	30	
Pyrene	2005	49	1958	0	102	45-125	1918	4.43	30	
Surr: 2,4,6-Tribromophenol	*4401*	0	*4896*	0	*89.9*	*34-140*	4149	*5.89*	*40*	
Surr: 2-Fluorobiphenyl	*3451*	0	*4896*	0	*70.5*	*12-100*	3340	*3.26*	*40*	
Surr: 2-Fluorophenol	*3772*	0	*4896*	0	*77*	*33-117*	3776	*0.115*	*40*	
Surr: 4-Terphenyl-d14	*4719*	0	*4896*	0	*96.4*	*25-137*	4493	*4.91*	*40*	
Surr: Nitrobenzene-d5	*3390*	0	*4896*	0	*69.2*	*37-107*	3371	*0.569*	*40*	
Surr: Phenol-d6	*3846*	0	*4896*	0	*78.6*	*40-106*	3602	*6.56*	*40*	

The following samples were analyzed in this batch: 1206704-01A 1206704-02A 1206704-03A 1206704-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/21/2012 12:56 PM**
Client ID: Run ID: **VMS9_120621A** SeqNo: **2008433** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*947.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*867.5*	0	*1000*	0	*86.8*	*70-130*	0
Surr: Dibromofluoromethane	*957.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: Toluene-d8	*1003*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010696** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/26/2012 12:52 PM**
Client ID: Run ID: **VMS8_120625A** SeqNo: **2012225** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	66	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	85.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1058*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*990.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Toluene-d8	*1017*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41833-41833** Units: **µg/Kg** Analysis Date: **6/21/2012 11:40 AM**
Client ID: Run ID: **VMS9_120621A** SeqNo: **2008432** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1048	30	1000	0	105	70-135	0			
1,1,2,2-Tetrachloroethane	941	30	1000	0	94.1	55-130	0			
1,1,2-Trichloroethane	949.5	30	1000	0	95	60-125	0			
1,1-Dichloroethane	980	30	1000	0	98	75-125	0			
1,1-Dichloroethene	1057	30	1000	0	106	65-135	0			
1,2,3-Trichlorobenzene	933	30	1000	0	93.3	60-135	0			
1,2,3-Trichloropropane	895	30	1000	0	89.5	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	905.5	30	1000	0	90.6	65-130	0			
1,2,4-Trimethylbenzene	1108	30	1000	0	111	65-135	0			
1,2-Dibromo-3-chloropropane	735	30	1000	0	73.5	40-135	0			
1,2-Dibromoethane	987.5	30	1000	0	98.8	70-125	0			
1,2-Dichlorobenzene	994	30	1000	0	99.4	75-120	0			
1,2-Dichloroethane	931	30	1000	0	93.1	70-135	0			
1,2-Dichloropropane	999.5	30	1000	0	100	70-120	0			
1,3,5-Trimethylbenzene	1132	30	1000	0	113	65-135	0			
1,3-Dichlorobenzene	1006	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	996.5	30	1000	0	99.6	70-125	0			
2-Butanone	767	200	1000	0	76.7	30-160	0			
2-Hexanone	775.5	30	1000	0	77.6	45-145	0			
4-Methyl-2-pentanone	787.5	30	1000	0	78.8	45-145	0			
Acetone	742.5	100	1000	0	74.2	20-160	0			
Acrylonitrile	822.5	100	1000	0	82.2	70-135	0			
Benzene	989.5	30	1000	0	99	75-125	0			
Bromobenzene	986.5	30	1000	0	98.6	65-120	0			
Bromochloromethane	930	30	1000	0	93	70-125	0			
Bromodichloromethane	941.5	30	1000	0	94.2	70-130	0			
Bromoform	795	30	1000	0	79.5	55-135	0			
Bromomethane	1251	75	1000	0	125	30-160	0			
Carbon disulfide	935.5	30	1000	0	93.6	45-160	0			
Carbon tetrachloride	972	30	1000	0	97.2	65-135	0			
Chlorobenzene	1032	30	1000	0	103	75-125	0			
Chloroethane	1224	100	1000	0	122	40-155	0			
Chloroform	968.5	30	1000	0	96.8	70-125	0			
Chloromethane	751	100	1000	0	75.1	50-130	0			
cis-1,2-Dichloroethene	962	30	1000	0	96.2	65-125	0			
cis-1,3-Dichloropropene	876	30	1000	0	87.6	70-125	0			
Dibromochloromethane	906.5	30	1000	0	90.6	65-135	0			
Dibromomethane	946.5	30	1000	0	94.6	75-130	0			
Dichlorodifluoromethane	650.5	30	1000	0	65	35-135	0			
Ethylbenzene	1064	30	1000	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	869	30	1000	0	86.9	70-135	0
Isopropylbenzene	1154	30	1000	0	115	75-130	0
m,p-Xylene	2192	60	2000	0	110	80-125	0
Methyl tert-butyl ether	1036	30	1000	0	104	75-125	0
Methylene chloride	946	30	1000	0	94.6	55-145	0
Naphthalene	740.5	100	1000	0	74	40-140	0
n-Butylbenzene	1056	30	1000	0	106	65-140	0
n-Propylbenzene	1059	30	1000	0	106	65-135	0
o-Xylene	1086	30	1000	0	109	75-125	0
p-Isopropyltoluene	1048	30	1000	0	105	75-135	0
sec-Butylbenzene	1124	30	1000	0	112	65-130	0
Styrene	1024	30	1000	0	102	75-125	0
tert-Butylbenzene	1106	30	1000	0	111	65-130	0
Tetrachloroethene	997	30	1000	0	99.7	64-140	0
Tetrahydrofuran	743	200	1000	0	74.3	70-135	0
Toluene	1022	30	1000	0	102	70-125	0
trans-1,2-Dichloroethene	1078	30	1000	0	108	65-135	0
trans-1,3-Dichloropropene	884	30	1000	0	88.4	65-125	0
trans-1,4-Dichloro-2-butene	749	30	1000	0	74.9	70-135	0
Trichloroethene	1147	30	1000	0	115	75-125	0
Trichlorofluoromethane	968	30	1000	0	96.8	25-185	0
Vinyl chloride	837.5	30	1000	0	83.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*933*	0	*1000*	0	*93.3*	*70-130*	0
Surr: 4-Bromofluorobenzene	*987*	0	*1000*	0	*98.7*	*70-130*	0
Surr: Dibromofluoromethane	*967.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Toluene-d8	*1006*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41833-41833** Units: **µg/Kg** Analysis Date: **6/23/2012 12:33 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010695** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41833-41833** Units: **µg/Kg** Analysis Date: **6/25/2012 11:59 PM**
Client ID: Run ID: **VMS8_120625A** SeqNo: **2012224** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1010	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1018	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1220	30	1000	0	122	55-130	0			
1,1,2-Trichloroethane	1112	30	1000	0	111	60-125	0			
1,1-Dichloroethane	1021	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1084	30	1000	0	108	65-135	0			
1,2,3-Trichlorobenzene	1131	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1234	30	1000	0	123	65-130	0			
1,2,3-Trimethylbenzene	951.5	30	1000	0	95.2	65-135	0			
1,2,4-Trichlorobenzene	1014	30	1000	0	101	65-130	0			
1,2,4-Trimethylbenzene	970.5	30	1000	0	97	65-135	0			
1,2-Dibromo-3-chloropropane	1284	30	1000	0	128	40-135	0			
1,2-Dibromoethane	1124	30	1000	0	112	70-125	0			
1,2-Dichlorobenzene	1036	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1080	30	1000	0	108	70-135	0			
1,2-Dichloropropane	948	30	1000	0	94.8	70-120	0			
1,3,5-Trimethylbenzene	985	30	1000	0	98.5	65-135	0			
1,3-Dichlorobenzene	974	30	1000	0	97.4	70-125	0			
1,4-Dichlorobenzene	1038	30	1000	0	104	70-125	0			
2-Butanone	986.5	200	1000	0	98.6	30-160	0			
2-Hexanone	1384	30	1000	0	138	45-145	0			
4-Methyl-2-pentanone	1749	30	1000	0	175	45-145	0			S
Acetone	1312	100	1000	0	131	20-160	0			
Acrylonitrile	1226	100	1000	0	123	70-135	0			
Benzene	1027	30	1000	0	103	75-125	0			
Bromobenzene	1048	30	1000	0	105	65-120	0			
Bromochloromethane	1083	30	1000	0	108	70-125	0			
Bromodichloromethane	1015	30	1000	0	102	70-130	0			
Bromoform	1174	30	1000	0	117	55-135	0			
Bromomethane	1354	75	1000	0	135	30-160	0			
Carbon disulfide	1204	30	1000	0	120	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	1056	30	1000	0	106	75-125	0			
Chloroethane	1110	100	1000	0	111	40-155	0			
Chloroform	1038	30	1000	0	104	70-125	0			
Chloromethane	1036	100	1000	0	104	50-130	0			
cis-1,2-Dichloroethene	1044	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	1044	30	1000	0	104	70-125	0			
Dibromochloromethane	1066	30	1000	0	107	65-135	0			
Dibromomethane	1052	30	1000	0	105	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1030	30	1000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1067	30	1000	0	107	70-135	0
Isopropylbenzene	1044	30	1000	0	104	75-130	0
m,p-Xylene	2071	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1126	30	1000	0	113	75-125	0
Methylene chloride	1024	30	1000	0	102	55-145	0
Naphthalene	1262	100	1000	0	126	40-140	0
n-Butylbenzene	1001	30	1000	0	100	65-140	0
n-Propylbenzene	978.5	30	1000	0	97.8	65-135	0
o-Xylene	1026	30	1000	0	103	75-125	0
p-Isopropyltoluene	964	30	1000	0	96.4	75-135	0
sec-Butylbenzene	1008	30	1000	0	101	65-130	0
Styrene	1010	30	1000	0	101	75-125	0
tert-Butylbenzene	1001	30	1000	0	100	65-130	0
Tetrachloroethene	1082	30	1000	0	108	64-140	0
Tetrahydrofuran	1296	200	1000	0	130	70-135	0
Toluene	1038	30	1000	0	104	70-125	0
trans-1,2-Dichloroethene	1076	30	1000	0	108	65-135	0
trans-1,3-Dichloropropene	1058	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	1174	30	1000	0	117	70-135	0
Trichloroethene	1019	30	1000	0	102	75-125	0
Trichlorofluoromethane	998	30	1000	0	99.8	25-185	0
Vinyl chloride	1034	30	1000	0	103	60-125	0
Surr: 1,2-Dichloroethane-d4	*1054*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206704-04B MS** Units: **µg/Kg** Analysis Date: **6/23/2012 10:06 PM**
Client ID: **SBKR0750I502S061812S008** Run ID: **VMS8_120623A** SeqNo: **2010598** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	872.5	30	1000	0	87.2	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	789	30	1000	0	78.9	55-130	0			
1,1,2-Trichloroethane	870.5	30	1000	0	87	60-125	0			
1,1-Dichloroethane	908.5	30	1000	0	90.8	75-125	0			
1,1-Dichloroethene	676.5	30	1000	0	67.6	65-135	0			
1,2,3-Trichlorobenzene	811.5	30	1000	0	81.2	60-135	0			
1,2,3-Trichloropropane	800	30	1000	0	80	65-130	0			
1,2,3-Trimethylbenzene	896.5	30	1000	0	89.6	65-135	0			
1,2,4-Trichlorobenzene	816	30	1000	0	81.6	65-130	0			
1,2,4-Trimethylbenzene	889.5	30	1000	0	89	65-135	0			
1,2-Dibromo-3-chloropropane	642.5	30	1000	0	64.2	40-135	0			
1,2-Dibromoethane	836	30	1000	0	83.6	70-125	0			
1,2-Dichlorobenzene	928	30	1000	0	92.8	75-120	0			
1,2-Dichloroethane	897.5	30	1000	0	89.8	70-135	0			
1,2-Dichloropropane	910	30	1000	0	91	70-120	0			
1,3,5-Trimethylbenzene	906	30	1000	0	90.6	65-135	0			
1,3-Dichlorobenzene	936	30	1000	0	93.6	70-125	0			
1,4-Dichlorobenzene	964	30	1000	0	96.4	70-125	0			
2-Butanone	867	100	1000	0	86.7	30-160	0			
2-Hexanone	759	30	1000	0	75.9	45-145	0			
4-Methyl-2-pentanone	1041	30	1000	0	104	45-145	0			
Acetone	713	100	1000	0	71.3	20-160	0			
Acrylonitrile	830	30	1000	0	83	70-135	0			
Benzene	924	30	1000	0	92.4	75-125	0			
Bromobenzene	904	30	1000	0	90.4	65-120	0			
Bromochloromethane	912.5	30	1000	0	91.2	70-125	0			
Bromodichloromethane	820	30	1000	0	82	70-130	0			
Bromoform	703	30	1000	0	70.3	55-135	0			
Bromomethane	736	30	1000	0	73.6	30-160	0			
Carbon disulfide	739.5	30	1000	0	74	45-160	0			
Carbon tetrachloride	921.5	30	1000	0	92.2	65-135	0			
Chlorobenzene	934	30	1000	0	93.4	75-125	0			
Chloroethane	912	100	1000	0	91.2	40-155	0			
Chloroform	954	30	1000	0	95.4	70-125	0			
Chloromethane	896.5	30	1000	0	89.6	50-130	0			
cis-1,2-Dichloroethene	919	30	1000	0	91.9	65-125	0			
cis-1,3-Dichloropropene	839.5	30	1000	0	84	70-125	0			
Dibromochloromethane	774.5	30	1000	0	77.4	65-135	0			
Dibromomethane	832.5	30	1000	0	83.2	75-130	0			
Dichlorodifluoromethane	828	30	1000	0	82.8	35-135	0			
Ethylbenzene	940	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	871	30	1000	0	87.1	70-135	0	
Isopropylbenzene	969	30	1000	0	96.9	75-130	0	
m,p-Xylene	1886	60	2000	0	94.3	80-125	0	
Methyl tert-butyl ether	951.5	30	1000	0	95.2	75-125	0	
Methylene chloride	976.5	30	1000	0	97.6	55-145	0	
Naphthalene	706.5	100	1000	0	70.6	40-140	0	
n-Butylbenzene	931.5	30	1000	0	93.2	65-140	0	
n-Propylbenzene	936	30	1000	0	93.6	65-135	0	
o-Xylene	924.5	30	1000	0	92.4	75-125	0	
p-Isopropyltoluene	955.5	30	1000	0	95.6	75-135	0	
sec-Butylbenzene	994.5	30	1000	0	99.4	65-130	0	
Styrene	909	30	1000	0	90.9	75-125	0	
tert-Butylbenzene	960	30	1000	0	96	65-130	0	
Tetrachloroethene	979.5	30	1000	0	98	64-140	0	
Tetrahydrofuran	733	100	1000	0	73.3	70-135	0	
Toluene	946	30	1000	0	94.6	70-125	0	
trans-1,2-Dichloroethene	969.5	30	1000	0	97	65-135	0	
trans-1,3-Dichloropropene	829.5	30	1000	0	83	65-125	0	
trans-1,4-Dichloro-2-butene	653	30	1000	0	65.3	70-135	0	S
Trichloroethene	925	30	1000	0	92.5	75-125	0	
Trichlorofluoromethane	738	30	1000	0	73.8	25-185	0	
Vinyl chloride	850	30	1000	0	85	60-125	0	
Surr: 1,2-Dichloroethane-d4	*956*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*959*	0	*1000*	0	*95.9*	*70-130*	0	
Surr: Dibromofluoromethane	*983.5*	0	*1000*	0	*98.4*	*70-130*	0	
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206704-04B MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 10:30 PM**
Client ID: **SBKR0750I502S061812S008** Run ID: **VMS8_120623A** SeqNo: **2010599** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	875.5	30	1000	0	87.6	75-125	872.5	0.343	30	
1,1,1-Trichloroethane	956	30	1000	0	95.6	70-135	976	2.07	30	
1,1,2,2-Tetrachloroethane	798.5	30	1000	0	79.8	55-130	789	1.2	30	
1,1,2-Trichloroethane	871	30	1000	0	87.1	60-125	870.5	0.0574	30	
1,1-Dichloroethane	900.5	30	1000	0	90	75-125	908.5	0.884	30	
1,1-Dichloroethene	647	30	1000	0	64.7	65-135	676.5	4.46	30	S
1,2,3-Trichlorobenzene	863	30	1000	0	86.3	60-135	811.5	6.15	30	
1,2,3-Trichloropropane	780	30	1000	0	78	65-130	800	2.53	30	
1,2,3-Trimethylbenzene	906.5	30	1000	0	90.6	65-135	896.5	1.11	30	
1,2,4-Trichlorobenzene	847	30	1000	0	84.7	65-130	816	3.73	30	
1,2,4-Trimethylbenzene	905.5	30	1000	0	90.6	65-135	889.5	1.78	30	
1,2-Dibromo-3-chloropropane	651.5	30	1000	0	65.2	40-135	642.5	1.39	30	
1,2-Dibromoethane	832.5	30	1000	0	83.2	70-125	836	0.42	30	
1,2-Dichlorobenzene	944.5	30	1000	0	94.4	75-120	928	1.76	30	
1,2-Dichloroethane	882	30	1000	0	88.2	70-135	897.5	1.74	30	
1,2-Dichloropropane	898.5	30	1000	0	89.8	70-120	910	1.27	30	
1,3,5-Trimethylbenzene	912.5	30	1000	0	91.2	65-135	906	0.715	30	
1,3-Dichlorobenzene	927	30	1000	0	92.7	70-125	936	0.966	30	
1,4-Dichlorobenzene	958	30	1000	0	95.8	70-125	964	0.624	30	
2-Butanone	1005	100	1000	0	100	30-160	867	14.7	30	
2-Hexanone	768.5	30	1000	0	76.8	45-145	759	1.24	30	
4-Methyl-2-pentanone	1055	30	1000	0	106	45-145	1041	1.34	30	
Acetone	666	100	1000	0	66.6	20-160	713	6.82	30	
Acrylonitrile	829	30	1000	0	82.9	70-135	830	0.121	30	
Benzene	912	30	1000	0	91.2	75-125	924	1.31	30	
Bromobenzene	910	30	1000	0	91	65-120	904	0.662	30	
Bromochloromethane	901.5	30	1000	0	90.2	70-125	912.5	1.21	30	
Bromodichloromethane	826.5	30	1000	0	82.6	70-130	820	0.79	30	
Bromoform	727.5	30	1000	0	72.8	55-135	703	3.43	30	
Bromomethane	722.5	30	1000	0	72.2	30-160	736	1.85	30	
Carbon disulfide	675	30	1000	0	67.5	45-160	739.5	9.12	30	
Carbon tetrachloride	909	30	1000	0	90.9	65-135	921.5	1.37	30	
Chlorobenzene	939	30	1000	0	93.9	75-125	934	0.534	30	
Chloroethane	793	100	1000	0	79.3	40-155	912	14	30	
Chloroform	939	30	1000	0	93.9	70-125	954	1.58	30	
Chloromethane	845.5	30	1000	0	84.6	50-130	896.5	5.86	30	
cis-1,2-Dichloroethene	909	30	1000	0	90.9	65-125	919	1.09	30	
cis-1,3-Dichloropropene	833	30	1000	0	83.3	70-125	839.5	0.777	30	
Dibromochloromethane	797.5	30	1000	0	79.8	65-135	774.5	2.93	30	
Dibromomethane	834.5	30	1000	0	83.4	75-130	832.5	0.24	30	
Dichlorodifluoromethane	830	30	1000	0	83	35-135	828	0.241	30	
Ethylbenzene	933.5	30	1000	0	93.4	75-125	940	0.694	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	883.5	30	1000	0	88.4	70-135	871	1.42	30
Isopropylbenzene	967	30	1000	0	96.7	75-130	969	0.207	30
m,p-Xylene	1864	60	2000	0	93.2	80-125	1886	1.17	30
Methyl tert-butyl ether	920	30	1000	0	92	75-125	951.5	3.37	30
Methylene chloride	839.5	30	1000	0	84	55-145	976.5	15.1	30
Naphthalene	754.5	100	1000	0	75.4	40-140	706.5	6.57	30
n-Butylbenzene	935.5	30	1000	0	93.6	65-140	931.5	0.428	30
n-Propylbenzene	925	30	1000	0	92.5	65-135	936	1.18	30
o-Xylene	918.5	30	1000	0	91.8	75-125	924.5	0.651	30
p-Isopropyltoluene	951	30	1000	0	95.1	75-135	955.5	0.472	30
sec-Butylbenzene	988.5	30	1000	0	98.8	65-130	994.5	0.605	30
Styrene	905	30	1000	0	90.5	75-125	909	0.441	30
tert-Butylbenzene	981	30	1000	0	98.1	65-130	960	2.16	30
Tetrachloroethene	970	30	1000	0	97	64-140	979.5	0.975	30
Tetrahydrofuran	718	100	1000	0	71.8	70-135	733	2.07	30
Toluene	933.5	30	1000	0	93.4	70-125	946	1.33	30
trans-1,2-Dichloroethene	866.5	30	1000	0	86.6	65-135	969.5	11.2	30
trans-1,3-Dichloropropene	830.5	30	1000	0	83	65-125	829.5	0.12	30
trans-1,4-Dichloro-2-butene	705.5	30	1000	0	70.6	70-135	653	7.73	30
Trichloroethene	927	30	1000	0	92.7	75-125	925	0.216	30
Trichlorofluoromethane	704	30	1000	0	70.4	25-185	738	4.72	30
Vinyl chloride	801	30	1000	0	80.1	60-125	850	5.94	30
Surr: 1,2-Dichloroethane-d4	*962*	0	*1000*	0	*96.2*	*70-130*	956	*0.626*	*30*
Surr: 4-Bromofluorobenzene	*977*	0	*1000*	0	*97.7*	*70-130*	959	*1.86*	*30*
Surr: Dibromofluoromethane	*984.5*	0	*1000*	0	*98.4*	*70-130*	983.5	*0.102*	*30*
Surr: Toluene-d8	*996.5*	0	*1000*	0	*99.6*	*70-130*	991.5	*0.503*	*30*

The following samples were analyzed in this batch:

1206704-01B	1206704-02B	1206704-03B
1206704-04B	1206704-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206704
Project: Marshall KRRI 0725L,0750I 6/18/12

QC BATCH REPORT

Batch ID: **R106376** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008708** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106376** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206693-05BDUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.15	0.050	0	0	0	0-0	19.41	6.71	20	

DUP Sample ID: **1206703-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:07 PM**
Client ID: Run ID: **MOIST_120621B** SeqNo: **2008690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.84	0.050	0	0	0	0-0	2.51	12.3	20	

The following samples were analyzed in this batch:

1206704-01A 1206704-02A 1206704-03A
1206704-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

12067094

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061812_LJL1	Task: KRRI_0725L,0750I
Total # of Samples: 5		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State.	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.
1	SBKR0725L512S061812S007	SBKR0725L512	SO	G	06/18/2012 15:39	3	
2	SBKR0750I501S061812S003	SBKR0750I501	SO	G	06/18/2012 16:08	3	
3	SBKR0750I501S061812S015	SBKR0750I501	SO	G	06/18/2012 16:15	3	
4	SBKR0750I502S061812S008	SBKR0750I502	SO	G	06/18/2012 16:50	6	MS/MSD
5	SBKR0750I502T061812MX	SBKR0750I502	SQ	G	06/18/2012 00:00	1	TRIP BLANK

Preservative	Analysis: % Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
	None	None	None	None	MeOH
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4	X	X	X	X	X
5					X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Loren Lego	6-18-12	1741	Dan Meyer	6-18-12	1741
	6-20-12	1716		6-20-12	1716

Sample Receipt Conditions				
	Y/N		Y/N	Y/N
4.4°c	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
Temp in °C	Samples on ice?		Sample Intact?	Trip Blank?

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1111

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206704** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.4 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

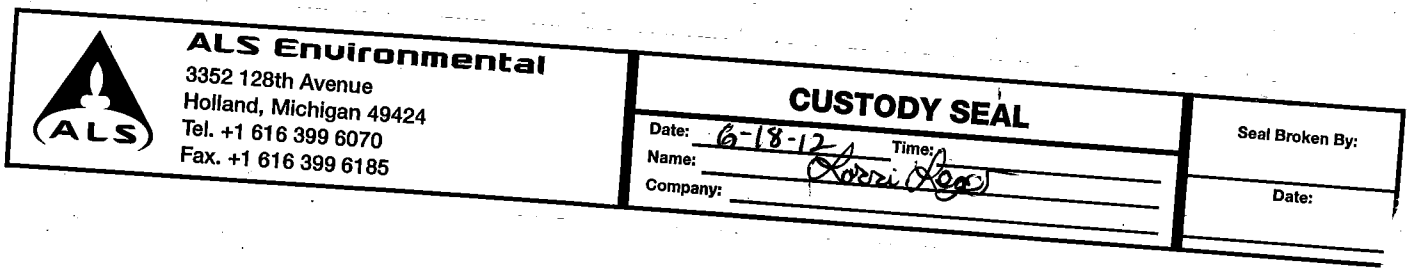
Contacted By: Regarding:

Comments:

CorrectiveAction:

4.4 5 soils

6/18



27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0775L,1200R,1375L 6/19/12** Work Order: **1206705**

Dear Bryan,

ALS Environmental received 11 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 88.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12
Work Order: **1206705**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206705-01	SBKR0775L501S061912S004	Soil		6/19/2012 08:43	6/20/2012 17:16	☐
1206705-02	SBKR0775L501D061912S004	Soil		6/19/2012 08:43	6/20/2012 17:16	☐
1206705-03	SBKR0775L502S061912S005	Soil		6/19/2012 09:10	6/20/2012 17:16	☐
1206705-04	SBKR0775L503S061912S003	Soil		6/19/2012 09:55	6/20/2012 17:16	☐
1206705-05	SBKR0775L503S061912S012	Soil		6/19/2012 10:00	6/20/2012 17:16	☐
1206705-06	SBKR1200R501S061912S006	Soil		6/19/2012 11:20	6/20/2012 17:16	☐
1206705-07	SBKR1200R502S061912S004	Soil		6/19/2012 11:47	6/20/2012 17:16	☐
1206705-08	SBKR1375L518S061912S004	Soil		6/19/2012 13:39	6/20/2012 17:16	☐
1206705-09	SBKR1375L519S061912S006	Soil		6/19/2012 15:46	6/20/2012 17:16	☐
1206705-10	SBKR1375L520S061912S005	Soil		6/19/2012 16:23	6/20/2012 17:16	☐
1206705-11	SBKR1375L520T061912MX	Soil		6/19/2012	6/20/2012 17:16	☐

Client: AECOM Environment
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12
Work Order: 1206705

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41885 MS/MSD data for Metals is not related to this project's samples.

Batch 41868 MS/MSD data for PAHs is not related to this project's samples.

Batch 41888 sample SBKR1200R501S061912S006 MS recovery for Benzo(b)fluoranthene and MSD recovery for Anthracene were above control limits. Both the MS and MSD recoveries, respectively, and RPDs met quality control criteria. No data requires qualification.

Batch 41833 LCS recovery for 4-Methyl-2-pentanone was above control limits, but all samples in this quality control batch were ND for this compound. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch 41907 MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch 41908 LCS recovery for 4-Methyl-2-pentanone was above control limits, but all samples in this quality control batch were ND for this compound. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12
WorkOrder: **1206705**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**24**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**640**	**49**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*55.0*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)pyrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(b)fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(g,h,i)perylene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Chrysene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Pyrene	**3,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*81.1*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*67.7*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*81.8*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*109*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*66.1*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*83.4*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	77	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	77	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	77	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	260	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	150	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	77	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	77	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	77	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*97.1*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*95.8*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*92.8*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501D061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**100**	**24**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**1,300**	**48**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*43.9*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)pyrene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(b)fluoranthene	**3,300**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(g,h,i)perylene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(k)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Chrysene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	**3,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Pyrene	**4,300**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*84.8*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*63.5*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*70.6*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*113*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*57.0*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*76.0*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501D061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	77	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	77	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	77	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	77	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	260	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	77	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L501D061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 8:43:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	150	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	77	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	77	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	77	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	77	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	77	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*96.8*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.3*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*93.1*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L502S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 9:10:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**71**	**17**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**370**	**34**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*56.2*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**31**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*85.7*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*69.8*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*82.6*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*113*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*66.4*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*85.4*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	53	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L502S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 9:10:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	53	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	53	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	53	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	53	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	53	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	53	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	53	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L502S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 9:10:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	53	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	53	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	53	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	53	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	53	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	53	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	53	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*97.2*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*94.1*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**43**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S003
Work Order:	1206705	**Collection Date:**	6/19/2012 9:55:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**230**	**25**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**2,600**	**49**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*44.1*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.52	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/24/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/24/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Benzo(a)anthracene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(a)pyrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(b)fluoranthene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(g,h,i)perylene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Benzo(k)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Chrysene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/24/2012
Fluoranthene	**2,400**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/24/2012
Indeno(1,2,3-cd)pyrene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/24/2012
Phenanthrene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Pyrene	**2,900**	**330**	**330**		**µg/Kg-dry**	1	6/24/2012
Surr: 2,4,6-Tribromophenol	*79.3*	*34-140*			*%REC*	1	6/24/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/24/2012
Surr: 2-Fluorophenol	*64.8*	*33-117*			*%REC*	1	6/24/2012
Surr: 4-Terphenyl-d14	*96.0*	*25-137*			*%REC*	1	6/24/2012
Surr: Nitrobenzene-d5	*52.5*	*37-107*			*%REC*	1	6/24/2012
Surr: Phenol-d6	*69.5*	*40-106*			*%REC*	1	6/24/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/21/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	81	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	81	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	81	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	81	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S003
Work Order:	1206705	**Collection Date:**	6/19/2012 9:55:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	81	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	81	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	81	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	81	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	81	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	81	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	81	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	81	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	270	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	81	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	81	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	81	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S003
Work Order:	1206705	**Collection Date:**	6/19/2012 9:55:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	81	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	160	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	81	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	81	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	81	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	81	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	81	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	81	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	81	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	81	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	81	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	81	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	81	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*93.5*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S012
Work Order:	1206705	**Collection Date:**	6/19/2012 10:00:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**87**	**26**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**510**	**51**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*55.7*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/25/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/25/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/25/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/25/2012
Benzo(a)anthracene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Benzo(a)pyrene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Benzo(b)fluoranthene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Benzo(g,h,i)perylene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/25/2012
Chrysene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/25/2012
Fluoranthene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/25/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/25/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/25/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/25/2012
Pyrene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/25/2012
Surr: 2,4,6-Tribromophenol	*90.5*	*34-140*			*%REC*	1	6/25/2012
Surr: 2-Fluorobiphenyl	*61.0*	*12-100*			*%REC*	1	6/25/2012
Surr: 2-Fluorophenol	*66.9*	*33-117*			*%REC*	1	6/25/2012
Surr: 4-Terphenyl-d14	*88.5*	*25-137*			*%REC*	1	6/25/2012
Surr: Nitrobenzene-d5	*57.6*	*37-107*			*%REC*	1	6/25/2012
Surr: Phenol-d6	*70.0*	*40-106*			*%REC*	1	6/25/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S012
Work Order:	1206705	**Collection Date:**	6/19/2012 10:00:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	360	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	360	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	360	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L503S061912S012
Work Order:	1206705	**Collection Date:**	6/19/2012 10:00:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	710	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	360	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	360	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	360	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*83.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*98.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*94.6*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R501S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 11:20:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	ND	9.8	4.0		mg/Kg-dry	1	6/23/2012
ORO (C20-C34)	ND	20	4.0		mg/Kg-dry	1	6/23/2012
Surr: 4-Terphenyl-d14	*41.9*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**6.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**8.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*94.3*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*64.8*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*71.7*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*98.3*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*63.5*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*75.2*	*40-106*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/22/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R501S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 11:20:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	37	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	37	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R501S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 11:20:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	40	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*108*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*88.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*98.3*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**6.5**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R502S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 11:47:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**31**	**11**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**280**	**21**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*43.2*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**8.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)anthracene	**2,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**3,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**3,800**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(k)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Chrysene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluoranthene	**3,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Pyrene	**3,200**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*91.4*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*65.2*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*72.0*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*93.8*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*64.6*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*75.1*	*40-106*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/23/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R502S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 11:47:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	39	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	39	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1200R502S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 11:47:00 AM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	40	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*97.8*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*93.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**8.5**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L518S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 1:39:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**150**	**37**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**1,100**	**74**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*54.7*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.74	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.5	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**13**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**16**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330	J	µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	**680**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(k)fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Chrysene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Pyrene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*89.4*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*58.1*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*65.5*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*88.7*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*56.3*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*69.8*	*40-106*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/23/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	770	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	770	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	770	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	770	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	770	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L518S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 1:39:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	770	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	770	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	770	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	770	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	770	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	770	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	770	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	770	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	770	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	2,600	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	2,600	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	6,500	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	770	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	770	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	770	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	770	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	770	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	770	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	770	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	770	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	770	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	2,600	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	770	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	770	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	770	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	770	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	770	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	770	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	770	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	770	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	770	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	770	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	770	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L518S061912S004
Work Order:	1206705	**Collection Date:**	6/19/2012 1:39:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	770	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	770	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	770	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	1,500	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	770	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	770	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	1,800	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	2,600	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	770	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	770	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	770	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	770	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	770	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	770	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	2,600	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	770	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	770	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	770	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	2,600	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	770	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	770	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	770	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	770	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	770	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	770	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	770	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*97.0*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*98.0*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*94.5*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*100*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**74**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L519S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 3:46:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**180**	**48**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**2,000**	**97**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*40.5*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.97	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.9	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**12**	**1.6**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**10**	**1.6**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Chrysene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Pyrene	**780**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*88.4*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*61.8*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*67.6*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*87.7*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*59.5*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*70.8*	*40-106*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/23/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	1,400	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L519S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 3:46:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	1,400	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	1,400	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	1,400	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	1,400	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	1,400	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	1,400	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	4,600	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	4,600	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	12,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	1,400	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	4,600	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	1,400	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	1,400	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	1,400	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	1,400	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L519S061912S006
Work Order:	1206705	**Collection Date:**	6/19/2012 3:46:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	1,400	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	1,400	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	2,800	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	3,200	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	4,600	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	4,600	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	1,400	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	4,600	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	1,400	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	1,400	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	1,400	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	1,400	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*96.2*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.2*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*94.8*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**80**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L520S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 4:23:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**270**	**47**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**1,500**	**94**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*57.9*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.91	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.8	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**19**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**26**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**840**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Chrysene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Pyrene	**980**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*92.9*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*64.2*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*71.2*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*93.0*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*62.6*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*73.3*	*40-106*			*%REC*	1	6/26/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/23/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,1,1-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,1,2-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,1-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L520S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 4:23:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,2,3-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	6/23/2012
1,2,3-Trichloropropane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,2,3-Trimethylbenzene	ND	1,200	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	6/23/2012
1,2,4-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	1,200	10		µg/Kg-dry	1	6/23/2012
1,2-Dibromoethane	ND	1,200	20		µg/Kg-dry	1	6/23/2012
1,2-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,2-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,2-Dichloropropane	ND	1,200	50		µg/Kg-dry	1	6/23/2012
1,3,5-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,3-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
1,4-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
2-Butanone	ND	4,100	750		µg/Kg-dry	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
2-Methylnaphthalene	ND	4,100	330		µg/Kg-dry	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/23/2012
Acetone	ND	10,000	1,000		µg/Kg-dry	1	6/23/2012
Acrylonitrile	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Benzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Bromobenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Bromochloromethane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Bromodichloromethane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Bromoform	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Bromomethane	ND	1,200	200		µg/Kg-dry	1	6/23/2012
Carbon disulfide	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Carbon tetrachloride	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Chlorobenzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Chloroethane	ND	4,100	250		µg/Kg-dry	1	6/23/2012
Chloroform	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Chloromethane	ND	1,200	250		µg/Kg-dry	1	6/23/2012
cis-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
cis-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Cyclohexane	ND	1,200	500		µg/Kg-dry	1	6/23/2012
Dibromochloromethane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Dibromomethane	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Dichlorodifluoromethane	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Diethyl ether	ND	1,200	200		µg/Kg-dry	1	6/23/2012
Diisopropyl ether	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Ethyl tert butyl ether	ND	1,200	250		µg/Kg-dry	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L520S061912S005
Work Order:	1206705	**Collection Date:**	6/19/2012 4:23:00 PM
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Hexachloroethane	ND	1,200	300		µg/Kg-dry	1	6/23/2012
Isopropylbenzene	ND	1,200	250		µg/Kg-dry	1	6/23/2012
m,p-Xylene	ND	2,500	100		µg/Kg-dry	1	6/23/2012
Methyl iodide	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Methyl tert-butyl ether	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Methylene chloride	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Naphthalene	ND	4,100	330		µg/Kg-dry	1	6/23/2012
n-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
n-Propylbenzene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
o-Xylene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
p-Isopropyltoluene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
sec-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Styrene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
tert-Butyl alcohol	ND	4,100	2,500		µg/Kg-dry	1	6/23/2012
tert-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Tertiaryamylmethylether	ND	1,200	250		µg/Kg-dry	1	6/23/2012
Tetrachloroethene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Tetrahydrofuran	ND	4,100	1,000		µg/Kg-dry	1	6/23/2012
Toluene	ND	1,200	100		µg/Kg-dry	1	6/23/2012
trans-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
trans-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Trichloroethene	ND	1,200	50		µg/Kg-dry	1	6/23/2012
Trichlorofluoromethane	ND	1,200	100		µg/Kg-dry	1	6/23/2012
Vinyl chloride	ND	1,200	40		µg/Kg-dry	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*94.6*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*99.3*	*70-130*			*%REC*	1	6/23/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L520T061912MX
Work Order:	1206705	**Collection Date:**	6/19/2012
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/23/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/23/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/23/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/23/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/23/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/23/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/23/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/23/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/23/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/23/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/23/2012
2-Butanone	ND	750	750		µg/Kg	1	6/23/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/23/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/23/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/23/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/23/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/23/2012
Benzene	ND	50	50		µg/Kg	1	6/23/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/23/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/23/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/23/2012
Bromoform	ND	100	100		µg/Kg	1	6/23/2012
Bromomethane	ND	200	200		µg/Kg	1	6/23/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/23/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/23/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/23/2012
Chloroethane	ND	250	250		µg/Kg	1	6/23/2012
Chloroform	ND	50	50		µg/Kg	1	6/23/2012
Chloromethane	ND	250	250		µg/Kg	1	6/23/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1375L520T061912MX
Work Order:	1206705	**Collection Date:**	6/19/2012
Project:	Marshall KRRI 0775L,1200R,1375L 6/19/12		
Lab ID:	1206705-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/23/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/23/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/23/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/23/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/23/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/23/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/23/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/23/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/23/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/23/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/23/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/23/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/23/2012
Naphthalene	ND	330	330		µg/Kg	1	6/23/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/23/2012
o-Xylene	ND	50	50		µg/Kg	1	6/23/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/23/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Styrene	ND	50	50		µg/Kg	1	6/23/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/23/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/23/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/23/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/23/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/23/2012
Toluene	ND	100	100		µg/Kg	1	6/23/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/23/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/23/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/23/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/23/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/23/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/23/2012
Surr: 1,2-Dichloroethane-d4	*98.2*	*70-130*			*%REC*	1	6/23/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/23/2012
Surr: Dibromofluoromethane	*93.5*	*70-130*			*%REC*	1	6/23/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	6/23/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41869** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010713** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.458*	0	*5*	0	*49.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41869-41869** Units: **mg/Kg** Analysis Date: **6/23/2012 04:34 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010564** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	391	10	500	0	78.2	60-130	0			
ORO (C20-C34)	447.2	20	500	0	89.4	60-130	0			
Surr: 4-Terphenyl-d14	*3.316*	0	*5*	0	*66.3*	*39-115*	0			

MS Sample ID: **1206703-03A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010715** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.2	9.6	481	0	73.6	60-130	0			
ORO (C20-C34)	536.7	19	481	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.764*	0	*4.81*	0	*57.5*	*39-115*	0			

MSD Sample ID: **1206703-03A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 04:58 AM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010566** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	366.5	9.7	482.8	0	75.9	60-130	354.2	3.39	30	
ORO (C20-C34)	459.3	19	482.8	0	95.1	60-130	536.7	15.5	30	
Surr: 4-Terphenyl-d14	*3.126*	0	*4.828*	0	*64.8*	*39-115*	2.764	*12.3*	*30*	

The following samples were analyzed in this batch: 1206705-01A 1206705-02A 1206705-03A 1206705-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41889** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41889-41889** Units: **mg/Kg** Analysis Date: **6/23/2012 01:50 PM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010729** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.093*	0	*5*	0	*41.9*	*39-115*	0			

LCS Sample ID: **DLCSS1-41889-41889** Units: **mg/Kg** Analysis Date: **6/23/2012 01:50 PM**
Client ID: Run ID: **GC8_120622A** SeqNo: **2010584** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	376.1	10	500	0	75.2	60-130	0			
ORO (C20-C34)	444	20	500	0	88.8	60-130	0			
Surr: 4-Terphenyl-d14	*2.803*	0	*5*	0	*56.1*	*39-115*	0			

MS Sample ID: **1206705-06A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 02:15 PM**
Client ID: **SBKR1200R501S061912S006** Run ID: **GC8_120622A** SeqNo: **2010730** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	363	9.9	492.6	0	73.7	60-130	0			
ORO (C20-C34)	521.8	20	492.6	0	106	60-130	0			
Surr: 4-Terphenyl-d14	*2.267*	0	*4.926*	0	*46*	*39-115*	0			

MSD Sample ID: **1206705-06A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 02:15 PM**
Client ID: **SBKR1200R501S061912S006** Run ID: **GC8_120622A** SeqNo: **2010586** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	370.9	9.9	497.2	0	74.6	60-130	363	2.16	30	
ORO (C20-C34)	492.1	20	497.2	0	99	60-130	521.8	5.87	30	
Surr: 4-Terphenyl-d14	*2.787*	0	*4.972*	0	*56.1*	*39-115*	2.267	*20.6*	*30*	

The following samples were analyzed in this batch:

1206705-05A	1206705-06A	1206705-07A
1206705-08A	1206705-09A	1206705-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41885** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:24 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011914** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:30 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011915** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.52	0.10	5	0	90.4	80-120	0			
Molybdenum	4.636	0.25	5	0	92.7	80-120	0			
Nickel	4.397	0.25	5	0	87.9	80-120	0			
Vanadium	4.486	0.25	5	0	89.7	80-120	0			

MS Sample ID: **1206720-03AMS** Units: **mg/Kg** Analysis Date: **6/26/2012 04:45 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011958** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.599	0.16	8.183	0.06905	79.8	80-120	0			S
Molybdenum	7.234	0.41	8.183	0.06129	87.7	80-120	0			
Nickel	8.993	0.41	8.183	2.183	83.2	80-120	0			
Vanadium	12.11	0.41	8.183	5.543	80.3	80-120	0			

MSD Sample ID: **1206720-03AMSD** Units: **mg/Kg** Analysis Date: **6/26/2012 04:51 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011959** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.326	0.16	8.104	0.06905	77.2	80-120	6.599	4.23	25	S
Molybdenum	6.897	0.41	8.104	0.06129	84.4	80-120	7.234	4.77	25	
Nickel	8.549	0.41	8.104	2.183	78.6	80-120	8.993	5.06	25	S
Vanadium	11.27	0.41	8.104	5.543	70.7	80-120	12.11	7.18	25	S

The following samples were analyzed in this batch:

1206705-01A	1206705-02A	1206705-03A
1206705-04A	1206705-05A	1206705-06A
1206705-07A	1206705-08A	1206705-09A
1206705-10A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 06:31 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013261** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3083*	0	*5000*	0	*61.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3594*	0	*5000*	0	*71.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4055*	0	*5000*	0	*81.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4875*	0	*5000*	0	*97.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3741*	0	*5000*	0	*74.8*	*37-107*	0			
Surr: Phenol-d6	*4128*	0	*5000*	0	*82.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41868-41868** Units: **µg/Kg** Analysis Date: **6/23/2012 04:45 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013257** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1969	50	2000	0	98.4	45-105	0			
Acenaphthene	1933	50	2000	0	96.6	45-110	0			
Acenaphthylene	1949	50	2000	0	97.4	45-105	0			
Anthracene	2086	50	2000	0	104	55-105	0			
Benzo(a)anthracene	2048	50	2000	0	102	50-110	0			
Benzo(a)pyrene	2140	50	2000	0	107	50-110	0			
Benzo(b)fluoranthene	2084	50	2000	0	104	45-115	0			
Benzo(g,h,i)perylene	2291	50	2000	0	115	40-125	0			
Benzo(k)fluoranthene	2266	50	2000	0	113	45-115	0			
Chrysene	2175	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2358	50	2000	0	118	40-125	0			
Fluoranthene	2232	50	2000	0	112	55-115	0			
Fluorene	2059	50	2000	0	103	50-110	0			
Indeno(1,2,3-cd)pyrene	2363	50	2000	0	118	40-120	0			
Naphthalene	1845	50	2000	0	92.2	40-105	0			
Phenanthrene	2083	50	2000	0	104	50-110	0			
Pyrene	2036	50	2000	0	102	45-125	0			
Surr: 2,4,6-Tribromophenol	*3605*	0	*5000*	0	*72.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3482*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3902*	0	*5000*	0	*78*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4744*	0	*5000*	0	*94.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*3591*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3656*	0	*5000*	0	*73.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206703-03A MS** Units: **µg/Kg** Analysis Date: **6/23/2012 05:11 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013258** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1846	48	1926	0	95.8	45-105	0			
Acenaphthene	1863	48	1926	0	96.7	45-110	0			
Acenaphthylene	1863	48	1926	0	96.7	45-105	0			
Anthracene	1980	48	1926	0	103	55-105	0			
Benzo(a)anthracene	1941	48	1926	0	101	50-110	0			
Benzo(a)pyrene	2042	48	1926	0	106	50-110	0			
Benzo(b)fluoranthene	1972	48	1926	0	102	45-115	0			
Benzo(g,h,i)perylene	1971	48	1926	0	102	40-125	0			
Benzo(k)fluoranthene	2158	48	1926	0	112	45-115	0			
Chrysene	2016	48	1926	0	105	55-110	0			
Dibenzo(a,h)anthracene	2071	48	1926	0	108	40-125	0			
Fluoranthene	2107	48	1926	0	109	55-115	0			
Fluorene	2028	48	1926	0	105	50-110	0			
Indeno(1,2,3-cd)pyrene	2052	48	1926	0	107	40-120	0			
Naphthalene	1706	48	1926	0	88.6	40-105	0			
Phenanthrene	1991	48	1926	0	103	50-110	0			
Pyrene	1918	48	1926	0	99.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*4149*	0	*4816*	0	*86.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3340*	0	*4816*	0	*69.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3776*	0	*4816*	0	*78.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4493*	0	*4816*	0	*93.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3371*	0	*4816*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3602*	0	*4816*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41868** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206703-03A MSD** Units: **µg/Kg** Analysis Date: **6/23/2012 05:38 PM**
Client ID: Run ID: **SVMS6_120623A** SeqNo: **2013259** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1897	49	1958	0	96.8	45-105	1846	2.7	30	
Acenaphthene	1918	49	1958	0	98	45-110	1863	2.94	30	
Acenaphthylene	1920	49	1958	0	98	45-105	1863	3.05	30	
Anthracene	2094	49	1958	0	107	55-105	1980	5.57	30	S
Benzo(a)anthracene	2027	49	1958	0	104	50-110	1941	4.35	30	
Benzo(a)pyrene	2112	49	1958	0	108	50-110	2042	3.39	30	
Benzo(b)fluoranthene	2253	49	1958	0	115	45-115	1972	13.3	30	S
Benzo(g,h,i)perylene	1909	49	1958	0	97.4	40-125	1971	3.24	30	
Benzo(k)fluoranthene	2048	49	1958	0	105	45-115	2158	5.27	30	
Chrysene	2094	49	1958	0	107	55-110	2016	3.79	30	
Dibenzo(a,h)anthracene	2059	49	1958	0	105	40-125	2071	0.55	30	
Fluoranthene	2240	49	1958	0	114	55-115	2107	6.08	30	
Fluorene	2091	49	1958	0	107	50-110	2028	3.03	30	
Indeno(1,2,3-cd)pyrene	2050	49	1958	0	105	40-120	2052	0.139	30	
Naphthalene	1742	49	1958	0	89	40-105	1706	2.11	30	
Phenanthrene	2143	49	1958	0	109	50-110	1991	7.35	30	
Pyrene	2005	49	1958	0	102	45-125	1918	4.43	30	
Surr: 2,4,6-Tribromophenol	*4401*	0	*4896*	0	*89.9*	*34-140*	4149	*5.89*	*40*	
Surr: 2-Fluorobiphenyl	*3451*	0	*4896*	0	*70.5*	*12-100*	3340	*3.26*	*40*	
Surr: 2-Fluorophenol	*3772*	0	*4896*	0	*77*	*33-117*	3776	*0.115*	*40*	
Surr: 4-Terphenyl-d14	*4719*	0	*4896*	0	*96.4*	*25-137*	4493	*4.91*	*40*	
Surr: Nitrobenzene-d5	*3390*	0	*4896*	0	*69.2*	*37-107*	3371	*0.569*	*40*	
Surr: Phenol-d6	*3846*	0	*4896*	0	*78.6*	*40-106*	3602	*6.56*	*40*	

The following samples were analyzed in this batch: 1206705-01A 1206705-02A 1206705-03A 1206705-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41888-41888** Units: **µg/Kg** Analysis Date: **6/25/2012 04:23 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012438** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2896*	0	*5000*	0	*57.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3478*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3439*	0	*5000*	0	*68.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4130*	0	*5000*	0	*82.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3648*	0	*5000*	0	*73*	*37-107*	0			
Surr: Phenol-d6	*4018*	0	*5000*	0	*80.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41888-41888** Units: **µg/Kg** Analysis Date: **6/25/2012 03:54 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012437** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1899	50	2000	0	95	45-105	0			
Acenaphthene	1985	50	2000	0	99.2	45-110	0			
Acenaphthylene	1951	50	2000	0	97.6	45-105	0			
Anthracene	2037	50	2000	0	102	55-105	0			
Benzo(a)anthracene	2092	50	2000	0	105	50-110	0			
Benzo(a)pyrene	2176	50	2000	0	109	50-110	0			
Benzo(b)fluoranthene	2026	50	2000	0	101	45-115	0			
Benzo(g,h,i)perylene	2158	50	2000	0	108	40-125	0			
Benzo(k)fluoranthene	2153	50	2000	0	108	45-115	0			
Chrysene	2187	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2197	50	2000	0	110	40-125	0			
Fluoranthene	2048	50	2000	0	102	55-115	0			
Fluorene	1956	50	2000	0	97.8	50-110	0			
Indeno(1,2,3-cd)pyrene	2201	50	2000	0	110	40-120	0			
Naphthalene	1880	50	2000	0	94	40-105	0			
Phenanthrene	2033	50	2000	0	102	50-110	0			
Pyrene	2146	50	2000	0	107	45-125	0			
Surr: 2,4,6-Tribromophenol	*4164*	0	*5000*	0	*83.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3512*	0	*5000*	0	*70.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3791*	0	*5000*	0	*75.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3682*	0	*5000*	0	*73.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3690*	0	*5000*	0	*73.8*	*37-107*	0			
Surr: Phenol-d6	*3819*	0	*5000*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206705-06A MS** Units: **µg/Kg** Analysis Date: **6/25/2012 05:32 PM**
Client ID: **SBKR1200R501S061912S006** Run ID: **SVMS7_120625A** SeqNo: **2012439** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1621	46	1846	0	87.8	45-105	0			
Acenaphthene	1764	46	1846	0	95.6	45-110	0			
Acenaphthylene	1775	46	1846	0	96.2	45-105	0			
Anthracene	1894	46	1846	0	103	55-105	0			
Benzo(a)anthracene	1874	46	1846	51.2	98.7	50-110	0			
Benzo(a)pyrene	2007	46	1846	53.95	106	50-110	0			
Benzo(b)fluoranthene	2228	46	1846	84.12	116	45-115	0			S
Benzo(g,h,i)perylene	1850	46	1846	0	100	40-125	0			
Benzo(k)fluoranthene	1989	46	1846	0	108	45-115	0			
Chrysene	1925	46	1846	61.26	101	55-110	0			
Dibenzo(a,h)anthracene	1797	46	1846	0	97.4	40-125	0			
Fluoranthene	2208	46	1846	101.5	114	55-115	0			
Fluorene	1789	46	1846	0	96.9	50-110	0			
Indeno(1,2,3-cd)pyrene	1839	46	1846	0	99.6	40-120	0			
Naphthalene	1582	46	1846	0	85.7	40-105	0			
Phenanthrene	1900	46	1846	0	103	50-110	0			
Pyrene	1970	46	1846	108.8	101	45-125	0			
Surr: 2,4,6-Tribromophenol	*3866*	0	*4615*	0	*83.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3187*	0	*4615*	0	*69.1*	*12-100*	0			
Surr: 2-Fluorophenol	*3273*	0	*4615*	0	*70.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3330*	0	*4615*	0	*72.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3173*	0	*4615*	0	*68.8*	*37-107*	0			
Surr: Phenol-d6	*3296*	0	*4615*	0	*71.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206705-06A MSD** Units: **µg/Kg** Analysis Date: **6/25/2012 06:01 PM**
Client ID: **SBKR1200R501S061912S006** Run ID: **SVMS7_120625A** SeqNo: **2012440** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1581	48	1922	0	82.2	45-105	1621	2.51	30	
Acenaphthene	1873	48	1922	0	97.4	45-110	1764	5.99	30	
Acenaphthylene	1825	48	1922	0	95	45-105	1775	2.76	30	
Anthracene	1953	48	1922	0	102	55-105	1894	3.09	30	
Benzo(a)anthracene	1983	48	1922	51.2	101	50-110	1874	5.68	30	
Benzo(a)pyrene	2071	48	1922	53.95	105	50-110	2007	3.14	30	
Benzo(b)fluoranthene	2076	48	1922	84.12	104	45-115	2228	7.05	30	
Benzo(g,h,i)perylene	1886	48	1922	0	98.2	40-125	1850	1.95	30	
Benzo(k)fluoranthene	1953	48	1922	0	102	45-115	1989	1.86	30	
Chrysene	2014	48	1922	61.26	102	55-110	1925	4.5	30	
Dibenzo(a,h)anthracene	1838	48	1922	0	95.6	40-125	1797	2.26	30	
Fluoranthene	2357	48	1922	101.5	117	55-115	2208	6.54	30	S
Fluorene	1907	48	1922	0	99.2	50-110	1789	6.42	30	
Indeno(1,2,3-cd)pyrene	1904	48	1922	0	99.1	40-120	1839	3.52	30	
Naphthalene	1536	48	1922	0	79.9	40-105	1582	2.99	30	
Phenanthrene	1984	48	1922	0	103	50-110	1900	4.31	30	
Pyrene	2179	48	1922	108.8	108	45-125	1970	10.1	30	
Surr: 2,4,6-Tribromophenol	*4087*	0	*4804*	0	*85.1*	*34-140*	3866	*5.56*	*40*	
Surr: 2-Fluorobiphenyl	*3234*	0	*4804*	0	*67.3*	*12-100*	3187	*1.47*	*40*	
Surr: 2-Fluorophenol	*3181*	0	*4804*	0	*66.2*	*33-117*	3273	*2.87*	*40*	
Surr: 4-Terphenyl-d14	*3590*	0	*4804*	0	*74.7*	*25-137*	3330	*7.5*	*40*	
Surr: Nitrobenzene-d5	*3079*	0	*4804*	0	*64.1*	*37-107*	3173	*3.03*	*40*	
Surr: Phenol-d6	*3240*	0	*4804*	0	*67.4*	*40-106*	3296	*1.71*	*40*	

The following samples were analyzed in this batch:

1206705-05A	1206705-06A	1206705-07A
1206705-08A	1206705-09A	1206705-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/21/2012 12:56 PM**
Client ID: Run ID: **VMS9_120621A** SeqNo: **2008433** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*947.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*867.5*	0	*1000*	0	*86.8*	*70-130*	0
Surr: Dibromofluoromethane	*957.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: Toluene-d8	*1003*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010696** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41833-41833** Units: **µg/Kg** Analysis Date: **6/26/2012 12:52 PM**
Client ID: Run ID: **VMS8_120625A** SeqNo: **2012225** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	66	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	85.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1058*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*990.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Toluene-d8	*1017*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41833-41833** Units: **µg/Kg** Analysis Date: **6/21/2012 11:40 AM**
Client ID: Run ID: **VMS9_120621A** SeqNo: **2008432** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1048	30	1000	0	105	70-135	0			
1,1,2,2-Tetrachloroethane	941	30	1000	0	94.1	55-130	0			
1,1,2-Trichloroethane	949.5	30	1000	0	95	60-125	0			
1,1-Dichloroethane	980	30	1000	0	98	75-125	0			
1,1-Dichloroethene	1057	30	1000	0	106	65-135	0			
1,2,3-Trichlorobenzene	933	30	1000	0	93.3	60-135	0			
1,2,3-Trichloropropane	895	30	1000	0	89.5	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	905.5	30	1000	0	90.6	65-130	0			
1,2,4-Trimethylbenzene	1108	30	1000	0	111	65-135	0			
1,2-Dibromo-3-chloropropane	735	30	1000	0	73.5	40-135	0			
1,2-Dibromoethane	987.5	30	1000	0	98.8	70-125	0			
1,2-Dichlorobenzene	994	30	1000	0	99.4	75-120	0			
1,2-Dichloroethane	931	30	1000	0	93.1	70-135	0			
1,2-Dichloropropane	999.5	30	1000	0	100	70-120	0			
1,3,5-Trimethylbenzene	1132	30	1000	0	113	65-135	0			
1,3-Dichlorobenzene	1006	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	996.5	30	1000	0	99.6	70-125	0			
2-Butanone	767	200	1000	0	76.7	30-160	0			
2-Hexanone	775.5	30	1000	0	77.6	45-145	0			
4-Methyl-2-pentanone	787.5	30	1000	0	78.8	45-145	0			
Acetone	742.5	100	1000	0	74.2	20-160	0			
Acrylonitrile	822.5	100	1000	0	82.2	70-135	0			
Benzene	989.5	30	1000	0	99	75-125	0			
Bromobenzene	986.5	30	1000	0	98.6	65-120	0			
Bromochloromethane	930	30	1000	0	93	70-125	0			
Bromodichloromethane	941.5	30	1000	0	94.2	70-130	0			
Bromoform	795	30	1000	0	79.5	55-135	0			
Bromomethane	1251	75	1000	0	125	30-160	0			
Carbon disulfide	935.5	30	1000	0	93.6	45-160	0			
Carbon tetrachloride	972	30	1000	0	97.2	65-135	0			
Chlorobenzene	1032	30	1000	0	103	75-125	0			
Chloroethane	1224	100	1000	0	122	40-155	0			
Chloroform	968.5	30	1000	0	96.8	70-125	0			
Chloromethane	751	100	1000	0	75.1	50-130	0			
cis-1,2-Dichloroethene	962	30	1000	0	96.2	65-125	0			
cis-1,3-Dichloropropene	876	30	1000	0	87.6	70-125	0			
Dibromochloromethane	906.5	30	1000	0	90.6	65-135	0			
Dibromomethane	946.5	30	1000	0	94.6	75-130	0			
Dichlorodifluoromethane	650.5	30	1000	0	65	35-135	0			
Ethylbenzene	1064	30	1000	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	869	30	1000	0	86.9	70-135	0
Isopropylbenzene	1154	30	1000	0	115	75-130	0
m,p-Xylene	2192	60	2000	0	110	80-125	0
Methyl tert-butyl ether	1036	30	1000	0	104	75-125	0
Methylene chloride	946	30	1000	0	94.6	55-145	0
Naphthalene	740.5	100	1000	0	74	40-140	0
n-Butylbenzene	1056	30	1000	0	106	65-140	0
n-Propylbenzene	1059	30	1000	0	106	65-135	0
o-Xylene	1086	30	1000	0	109	75-125	0
p-Isopropyltoluene	1048	30	1000	0	105	75-135	0
sec-Butylbenzene	1124	30	1000	0	112	65-130	0
Styrene	1024	30	1000	0	102	75-125	0
tert-Butylbenzene	1106	30	1000	0	111	65-130	0
Tetrachloroethene	997	30	1000	0	99.7	64-140	0
Tetrahydrofuran	743	200	1000	0	74.3	70-135	0
Toluene	1022	30	1000	0	102	70-125	0
trans-1,2-Dichloroethene	1078	30	1000	0	108	65-135	0
trans-1,3-Dichloropropene	884	30	1000	0	88.4	65-125	0
trans-1,4-Dichloro-2-butene	749	30	1000	0	74.9	70-135	0
Trichloroethene	1147	30	1000	0	115	75-125	0
Trichlorofluoromethane	968	30	1000	0	96.8	25-185	0
Vinyl chloride	837.5	30	1000	0	83.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*933*	0	*1000*	0	*93.3*	*70-130*	0
Surr: 4-Bromofluorobenzene	*987*	0	*1000*	0	*98.7*	*70-130*	0
Surr: Dibromofluoromethane	*967.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Toluene-d8	*1006*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS	Sample ID: **LCS-41833-41833**				Units: **µg/Kg**		Analysis Date: **6/23/2012 12:33 PM**			
Client ID:		Run ID: **VMS8_120623A**			SeqNo: **2010695**		Prep Date: **6/21/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41833-41833** Units: **µg/Kg** Analysis Date: **6/25/2012 11:59 PM**
Client ID: Run ID: **VMS8_120625A** SeqNo: **2012224** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1010	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1018	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1220	30	1000	0	122	55-130	0			
1,1,2-Trichloroethane	1112	30	1000	0	111	60-125	0			
1,1-Dichloroethane	1021	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1084	30	1000	0	108	65-135	0			
1,2,3-Trichlorobenzene	1131	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1234	30	1000	0	123	65-130	0			
1,2,3-Trimethylbenzene	951.5	30	1000	0	95.2	65-135	0			
1,2,4-Trichlorobenzene	1014	30	1000	0	101	65-130	0			
1,2,4-Trimethylbenzene	970.5	30	1000	0	97	65-135	0			
1,2-Dibromo-3-chloropropane	1284	30	1000	0	128	40-135	0			
1,2-Dibromoethane	1124	30	1000	0	112	70-125	0			
1,2-Dichlorobenzene	1036	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1080	30	1000	0	108	70-135	0			
1,2-Dichloropropane	948	30	1000	0	94.8	70-120	0			
1,3,5-Trimethylbenzene	985	30	1000	0	98.5	65-135	0			
1,3-Dichlorobenzene	974	30	1000	0	97.4	70-125	0			
1,4-Dichlorobenzene	1038	30	1000	0	104	70-125	0			
2-Butanone	986.5	200	1000	0	98.6	30-160	0			
2-Hexanone	1384	30	1000	0	138	45-145	0			
4-Methyl-2-pentanone	1749	30	1000	0	175	45-145	0			S
Acetone	1312	100	1000	0	131	20-160	0			
Acrylonitrile	1226	100	1000	0	123	70-135	0			
Benzene	1027	30	1000	0	103	75-125	0			
Bromobenzene	1048	30	1000	0	105	65-120	0			
Bromochloromethane	1083	30	1000	0	108	70-125	0			
Bromodichloromethane	1015	30	1000	0	102	70-130	0			
Bromoform	1174	30	1000	0	117	55-135	0			
Bromomethane	1354	75	1000	0	135	30-160	0			
Carbon disulfide	1204	30	1000	0	120	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	1056	30	1000	0	106	75-125	0			
Chloroethane	1110	100	1000	0	111	40-155	0			
Chloroform	1038	30	1000	0	104	70-125	0			
Chloromethane	1036	100	1000	0	104	50-130	0			
cis-1,2-Dichloroethene	1044	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	1044	30	1000	0	104	70-125	0			
Dibromochloromethane	1066	30	1000	0	107	65-135	0			
Dibromomethane	1052	30	1000	0	105	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1030	30	1000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1067	30	1000	0	107	70-135	0
Isopropylbenzene	1044	30	1000	0	104	75-130	0
m,p-Xylene	2071	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1126	30	1000	0	113	75-125	0
Methylene chloride	1024	30	1000	0	102	55-145	0
Naphthalene	1262	100	1000	0	126	40-140	0
n-Butylbenzene	1001	30	1000	0	100	65-140	0
n-Propylbenzene	978.5	30	1000	0	97.8	65-135	0
o-Xylene	1026	30	1000	0	103	75-125	0
p-Isopropyltoluene	964	30	1000	0	96.4	75-135	0
sec-Butylbenzene	1008	30	1000	0	101	65-130	0
Styrene	1010	30	1000	0	101	75-125	0
tert-Butylbenzene	1001	30	1000	0	100	65-130	0
Tetrachloroethene	1082	30	1000	0	108	64-140	0
Tetrahydrofuran	1296	200	1000	0	130	70-135	0
Toluene	1038	30	1000	0	104	70-125	0
trans-1,2-Dichloroethene	1076	30	1000	0	108	65-135	0
trans-1,3-Dichloropropene	1058	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	1174	30	1000	0	117	70-135	0
Trichloroethene	1019	30	1000	0	102	75-125	0
Trichlorofluoromethane	998	30	1000	0	99.8	25-185	0
Vinyl chloride	1034	30	1000	0	103	60-125	0
Surr: 1,2-Dichloroethane-d4	*1054*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206704-04B MS** Units: **µg/Kg** Analysis Date: **6/23/2012 10:06 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010598** Prep Date: **6/21/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	872.5	30	1000	0	87.2	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	789	30	1000	0	78.9	55-130	0			
1,1,2-Trichloroethane	870.5	30	1000	0	87	60-125	0			
1,1-Dichloroethane	908.5	30	1000	0	90.8	75-125	0			
1,1-Dichloroethene	676.5	30	1000	0	67.6	65-135	0			
1,2,3-Trichlorobenzene	811.5	30	1000	0	81.2	60-135	0			
1,2,3-Trichloropropane	800	30	1000	0	80	65-130	0			
1,2,3-Trimethylbenzene	896.5	30	1000	0	89.6	65-135	0			
1,2,4-Trichlorobenzene	816	30	1000	0	81.6	65-130	0			
1,2,4-Trimethylbenzene	889.5	30	1000	0	89	65-135	0			
1,2-Dibromo-3-chloropropane	642.5	30	1000	0	64.2	40-135	0			
1,2-Dibromoethane	836	30	1000	0	83.6	70-125	0			
1,2-Dichlorobenzene	928	30	1000	0	92.8	75-120	0			
1,2-Dichloroethane	897.5	30	1000	0	89.8	70-135	0			
1,2-Dichloropropane	910	30	1000	0	91	70-120	0			
1,3,5-Trimethylbenzene	906	30	1000	0	90.6	65-135	0			
1,3-Dichlorobenzene	936	30	1000	0	93.6	70-125	0			
1,4-Dichlorobenzene	964	30	1000	0	96.4	70-125	0			
2-Butanone	867	100	1000	0	86.7	30-160	0			
2-Hexanone	759	30	1000	0	75.9	45-145	0			
4-Methyl-2-pentanone	1041	30	1000	0	104	45-145	0			
Acetone	713	100	1000	0	71.3	20-160	0			
Acrylonitrile	830	30	1000	0	83	70-135	0			
Benzene	924	30	1000	0	92.4	75-125	0			
Bromobenzene	904	30	1000	0	90.4	65-120	0			
Bromochloromethane	912.5	30	1000	0	91.2	70-125	0			
Bromodichloromethane	820	30	1000	0	82	70-130	0			
Bromoform	703	30	1000	0	70.3	55-135	0			
Bromomethane	736	30	1000	0	73.6	30-160	0			
Carbon disulfide	739.5	30	1000	0	74	45-160	0			
Carbon tetrachloride	921.5	30	1000	0	92.2	65-135	0			
Chlorobenzene	934	30	1000	0	93.4	75-125	0			
Chloroethane	912	100	1000	0	91.2	40-155	0			
Chloroform	954	30	1000	0	95.4	70-125	0			
Chloromethane	896.5	30	1000	0	89.6	50-130	0			
cis-1,2-Dichloroethene	919	30	1000	0	91.9	65-125	0			
cis-1,3-Dichloropropene	839.5	30	1000	0	84	70-125	0			
Dibromochloromethane	774.5	30	1000	0	77.4	65-135	0			
Dibromomethane	832.5	30	1000	0	83.2	75-130	0			
Dichlorodifluoromethane	828	30	1000	0	82.8	35-135	0			
Ethylbenzene	940	30	1000	0	94	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	871	30	1000	0	87.1	70-135	0	
Isopropylbenzene	969	30	1000	0	96.9	75-130	0	
m,p-Xylene	1886	60	2000	0	94.3	80-125	0	
Methyl tert-butyl ether	951.5	30	1000	0	95.2	75-125	0	
Methylene chloride	976.5	30	1000	0	97.6	55-145	0	
Naphthalene	706.5	100	1000	0	70.6	40-140	0	
n-Butylbenzene	931.5	30	1000	0	93.2	65-140	0	
n-Propylbenzene	936	30	1000	0	93.6	65-135	0	
o-Xylene	924.5	30	1000	0	92.4	75-125	0	
p-Isopropyltoluene	955.5	30	1000	0	95.6	75-135	0	
sec-Butylbenzene	994.5	30	1000	0	99.4	65-130	0	
Styrene	909	30	1000	0	90.9	75-125	0	
tert-Butylbenzene	960	30	1000	0	96	65-130	0	
Tetrachloroethene	979.5	30	1000	0	98	64-140	0	
Tetrahydrofuran	733	100	1000	0	73.3	70-135	0	
Toluene	946	30	1000	0	94.6	70-125	0	
trans-1,2-Dichloroethene	969.5	30	1000	0	97	65-135	0	
trans-1,3-Dichloropropene	829.5	30	1000	0	83	65-125	0	
trans-1,4-Dichloro-2-butene	653	30	1000	0	65.3	70-135	0	S
Trichloroethene	925	30	1000	0	92.5	75-125	0	
Trichlorofluoromethane	738	30	1000	0	73.8	25-185	0	
Vinyl chloride	850	30	1000	0	85	60-125	0	
Surr: 1,2-Dichloroethane-d4	*956*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*959*	0	*1000*	0	*95.9*	*70-130*	0	
Surr: Dibromofluoromethane	*983.5*	0	*1000*	0	*98.4*	*70-130*	0	
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206704-04B MSD**				Units: **µg/Kg**			Analysis Date: **6/23/2012 10:30 PM**			
Client ID:		Run ID: **VMS8_120623A**			SeqNo: **2010599**			Prep Date: **6/21/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	875.5	30	1000	0	87.6	75-125	872.5	0.343	30	
1,1,1-Trichloroethane	956	30	1000	0	95.6	70-135	976	2.07	30	
1,1,2,2-Tetrachloroethane	798.5	30	1000	0	79.8	55-130	789	1.2	30	
1,1,2-Trichloroethane	871	30	1000	0	87.1	60-125	870.5	0.0574	30	
1,1-Dichloroethane	900.5	30	1000	0	90	75-125	908.5	0.884	30	
1,1-Dichloroethene	647	30	1000	0	64.7	65-135	676.5	4.46	30	S
1,2,3-Trichlorobenzene	863	30	1000	0	86.3	60-135	811.5	6.15	30	
1,2,3-Trichloropropane	780	30	1000	0	78	65-130	800	2.53	30	
1,2,3-Trimethylbenzene	906.5	30	1000	0	90.6	65-135	896.5	1.11	30	
1,2,4-Trichlorobenzene	847	30	1000	0	84.7	65-130	816	3.73	30	
1,2,4-Trimethylbenzene	905.5	30	1000	0	90.6	65-135	889.5	1.78	30	
1,2-Dibromo-3-chloropropane	651.5	30	1000	0	65.2	40-135	642.5	1.39	30	
1,2-Dibromoethane	832.5	30	1000	0	83.2	70-125	836	0.42	30	
1,2-Dichlorobenzene	944.5	30	1000	0	94.4	75-120	928	1.76	30	
1,2-Dichloroethane	882	30	1000	0	88.2	70-135	897.5	1.74	30	
1,2-Dichloropropane	898.5	30	1000	0	89.8	70-120	910	1.27	30	
1,3,5-Trimethylbenzene	912.5	30	1000	0	91.2	65-135	906	0.715	30	
1,3-Dichlorobenzene	927	30	1000	0	92.7	70-125	936	0.966	30	
1,4-Dichlorobenzene	958	30	1000	0	95.8	70-125	964	0.624	30	
2-Butanone	1005	100	1000	0	100	30-160	867	14.7	30	
2-Hexanone	768.5	30	1000	0	76.8	45-145	759	1.24	30	
4-Methyl-2-pentanone	1055	30	1000	0	106	45-145	1041	1.34	30	
Acetone	666	100	1000	0	66.6	20-160	713	6.82	30	
Acrylonitrile	829	30	1000	0	82.9	70-135	830	0.121	30	
Benzene	912	30	1000	0	91.2	75-125	924	1.31	30	
Bromobenzene	910	30	1000	0	91	65-120	904	0.662	30	
Bromochloromethane	901.5	30	1000	0	90.2	70-125	912.5	1.21	30	
Bromodichloromethane	826.5	30	1000	0	82.6	70-130	820	0.79	30	
Bromoform	727.5	30	1000	0	72.8	55-135	703	3.43	30	
Bromomethane	722.5	30	1000	0	72.2	30-160	736	1.85	30	
Carbon disulfide	675	30	1000	0	67.5	45-160	739.5	9.12	30	
Carbon tetrachloride	909	30	1000	0	90.9	65-135	921.5	1.37	30	
Chlorobenzene	939	30	1000	0	93.9	75-125	934	0.534	30	
Chloroethane	793	100	1000	0	79.3	40-155	912	14	30	
Chloroform	939	30	1000	0	93.9	70-125	954	1.58	30	
Chloromethane	845.5	30	1000	0	84.6	50-130	896.5	5.86	30	
cis-1,2-Dichloroethene	909	30	1000	0	90.9	65-125	919	1.09	30	
cis-1,3-Dichloropropene	833	30	1000	0	83.3	70-125	839.5	0.777	30	
Dibromochloromethane	797.5	30	1000	0	79.8	65-135	774.5	2.93	30	
Dibromomethane	834.5	30	1000	0	83.4	75-130	832.5	0.24	30	
Dichlorodifluoromethane	830	30	1000	0	83	35-135	828	0.241	30	
Ethylbenzene	933.5	30	1000	0	93.4	75-125	940	0.694	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41833** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	883.5	30	1000	0	88.4	70-135	871	1.42	30
Isopropylbenzene	967	30	1000	0	96.7	75-130	969	0.207	30
m,p-Xylene	1864	60	2000	0	93.2	80-125	1886	1.17	30
Methyl tert-butyl ether	920	30	1000	0	92	75-125	951.5	3.37	30
Methylene chloride	839.5	30	1000	0	84	55-145	976.5	15.1	30
Naphthalene	754.5	100	1000	0	75.4	40-140	706.5	6.57	30
n-Butylbenzene	935.5	30	1000	0	93.6	65-140	931.5	0.428	30
n-Propylbenzene	925	30	1000	0	92.5	65-135	936	1.18	30
o-Xylene	918.5	30	1000	0	91.8	75-125	924.5	0.651	30
p-Isopropyltoluene	951	30	1000	0	95.1	75-135	955.5	0.472	30
sec-Butylbenzene	988.5	30	1000	0	98.8	65-130	994.5	0.605	30
Styrene	905	30	1000	0	90.5	75-125	909	0.441	30
tert-Butylbenzene	981	30	1000	0	98.1	65-130	960	2.16	30
Tetrachloroethene	970	30	1000	0	97	64-140	979.5	0.975	30
Tetrahydrofuran	718	100	1000	0	71.8	70-135	733	2.07	30
Toluene	933.5	30	1000	0	93.4	70-125	946	1.33	30
trans-1,2-Dichloroethene	866.5	30	1000	0	86.6	65-135	969.5	11.2	30
trans-1,3-Dichloropropene	830.5	30	1000	0	83	65-125	829.5	0.12	30
trans-1,4-Dichloro-2-butene	705.5	30	1000	0	70.6	70-135	653	7.73	30
Trichloroethene	927	30	1000	0	92.7	75-125	925	0.216	30
Trichlorofluoromethane	704	30	1000	0	70.4	25-185	738	4.72	30
Vinyl chloride	801	30	1000	0	80.1	60-125	850	5.94	30
Surr: 1,2-Dichloroethane-d4	*962*	0	*1000*	0	*96.2*	*70-130*	956	*0.626*	*30*
Surr: 4-Bromofluorobenzene	*977*	0	*1000*	0	*97.7*	*70-130*	959	*1.86*	*30*
Surr: Dibromofluoromethane	*984.5*	0	*1000*	0	*98.4*	*70-130*	983.5	*0.102*	*30*
Surr: Toluene-d8	*996.5*	0	*1000*	0	*99.6*	*70-130*	991.5	*0.503*	*30*

The following samples were analyzed in this batch: 1206705-01B 1206705-02B 1206705-03B 1206705-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41907-41907** Units: **µg/Kg** Analysis Date: **6/23/2012 12:11 PM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009915** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	146	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*979*	0	*1000*	0	*97.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*858.5*	0	*1000*	0	*85.8*	*70-130*	0
Surr: Dibromofluoromethane	*966.5*	0	*1000*	0	*96.6*	*70-130*	0
Surr: Toluene-d8	*977.5*	0	*1000*	0	*97.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41907-41907** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010678** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41907-41907** Units: **µg/Kg** Analysis Date: **6/22/2012 10:55 PM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009914** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	929.5	30	1000	0	93	75-125	0			
1,1,1-Trichloroethane	986.5	30	1000	0	98.6	70-135	0			
1,1,2,2-Tetrachloroethane	1053	30	1000	0	105	55-130	0			
1,1,2-Trichloroethane	970.5	30	1000	0	97	60-125	0			
1,1-Dichloroethane	917	30	1000	0	91.7	75-125	0			
1,1-Dichloroethene	997	30	1000	0	99.7	65-135	0			
1,2,3-Trichlorobenzene	1014	30	1000	0	101	60-135	0			
1,2,3-Trichloropropane	991.5	30	1000	0	99.2	65-130	0			
1,2,3-Trimethylbenzene	999.5	30	1000	0	100	65-135	0			
1,2,4-Trichlorobenzene	935.5	30	1000	0	93.6	65-130	0			
1,2,4-Trimethylbenzene	1046	30	1000	0	105	65-135	0			
1,2-Dibromo-3-chloropropane	1004	30	1000	0	100	40-135	0			
1,2-Dibromoethane	1003	30	1000	0	100	70-125	0			
1,2-Dichlorobenzene	963.5	30	1000	0	96.4	75-120	0			
1,2-Dichloroethane	986.5	30	1000	0	98.6	70-135	0			
1,2-Dichloropropane	912.5	30	1000	0	91.2	70-120	0			
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	0			
1,3-Dichlorobenzene	972.5	30	1000	0	97.2	70-125	0			
1,4-Dichlorobenzene	973	30	1000	0	97.3	70-125	0			
2-Butanone	971	200	1000	0	97.1	30-160	0			
2-Hexanone	1029	30	1000	0	103	45-145	0			
4-Methyl-2-pentanone	971	30	1000	0	97.1	45-145	0			
Acetone	994	100	1000	0	99.4	20-160	0			B
Acrylonitrile	1042	100	1000	0	104	70-135	0			
Benzene	927.5	30	1000	0	92.8	75-125	0			
Bromobenzene	982.5	30	1000	0	98.2	65-120	0			
Bromochloromethane	1027	30	1000	0	103	70-125	0			
Bromodichloromethane	948.5	30	1000	0	94.8	70-130	0			
Bromoform	993.5	30	1000	0	99.4	55-135	0			
Bromomethane	1120	75	1000	0	112	30-160	0			
Carbon disulfide	980.5	30	1000	0	98	45-160	0			
Carbon tetrachloride	874.5	30	1000	0	87.4	65-135	0			
Chlorobenzene	970	30	1000	0	97	75-125	0			
Chloroethane	1002	100	1000	0	100	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	864	100	1000	0	86.4	50-130	0			
cis-1,2-Dichloroethene	908.5	30	1000	0	90.8	65-125	0			
cis-1,3-Dichloropropene	965	30	1000	0	96.5	70-125	0			
Dibromochloromethane	918	30	1000	0	91.8	65-135	0			
Dibromomethane	881.5	30	1000	0	88.2	75-130	0			
Dichlorodifluoromethane	732.5	30	1000	0	73.2	35-135	0			
Ethylbenzene	995.5	30	1000	0	99.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	887	30	1000	0	88.7	70-135	0
Isopropylbenzene	1041	30	1000	0	104	75-130	0
m,p-Xylene	2043	60	2000	0	102	80-125	0
Methyl tert-butyl ether	1020	30	1000	0	102	75-125	0
Methylene chloride	1001	30	1000	0	100	55-145	0
Naphthalene	907.5	100	1000	0	90.8	40-140	0
n-Butylbenzene	971.5	30	1000	0	97.2	65-140	0
n-Propylbenzene	969	30	1000	0	96.9	65-135	0
o-Xylene	1016	30	1000	0	102	75-125	0
p-Isopropyltoluene	966	30	1000	0	96.6	75-135	0
sec-Butylbenzene	1028	30	1000	0	103	65-130	0
Styrene	1083	30	1000	0	108	75-125	0
tert-Butylbenzene	999.5	30	1000	0	100	65-130	0
Tetrachloroethene	1000	30	1000	0	100	64-140	0
Tetrahydrofuran	900.5	200	1000	0	90	70-135	0
Toluene	956	30	1000	0	95.6	70-125	0
trans-1,2-Dichloroethene	990.5	30	1000	0	99	65-135	0
trans-1,3-Dichloropropene	896.5	30	1000	0	89.6	65-125	0
trans-1,4-Dichloro-2-butene	951	30	1000	0	95.1	70-135	0
Trichloroethene	879	30	1000	0	87.9	75-125	0
Trichlorofluoromethane	819.5	30	1000	0	82	25-185	0
Vinyl chloride	936.5	30	1000	0	93.6	60-125	0
Surr: 1,2-Dichloroethane-d4	*965.5*	0	*1000*	0	*96.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*984.5*	0	*1000*	0	*98.4*	*70-130*	0
Surr: Dibromofluoromethane	*993*	0	*1000*	0	*99.3*	*70-130*	0
Surr: Toluene-d8	*989*	0	*1000*	0	*98.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

LCS	Sample ID: **LCS-41907-41907**				Units: **µg/Kg**		Analysis Date: **6/23/2012 12:33 PM**			
Client ID:		Run ID: **VMS8_120623A**			SeqNo: **2010676**		Prep Date: **6/22/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206778-07B MS** Units: **µg/Kg** Analysis Date: **6/23/2012 08:59 AM**
Client ID: Run ID: **VMS9_120622A** SeqNo: **2009923** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1250	45	1495	0	83.6	75-125	0			
1,1,1-Trichloroethane	1439	45	1495	0	96.3	70-135	0			
1,1,2,2-Tetrachloroethane	1259	45	1495	0	84.2	55-130	0			
1,1,2-Trichloroethane	1419	45	1495	0	95	60-125	0			
1,1-Dichloroethane	1496	45	1495	0	100	75-125	0			
1,1-Dichloroethene	1864	45	1495	0	125	65-135	0			
1,2,3-Trichlorobenzene	1090	45	1495	0	73	60-135	0			
1,2,3-Trichloropropane	1330	45	1495	0	89	65-130	0			
1,2,3-Trimethylbenzene	1449	45	1495	28.42	95	65-135	0			
1,2,4-Trichlorobenzene	1245	45	1495	0	83.3	65-130	0			
1,2,4-Trimethylbenzene	1567	45	1495	68.32	100	65-135	0			
1,2-Dibromo-3-chloropropane	1193	45	1495	0	79.8	40-135	0			
1,2-Dibromoethane	1448	45	1495	0	96.8	70-125	0			
1,2-Dichlorobenzene	1359	45	1495	0	91	75-120	0			
1,2-Dichloroethane	1505	45	1495	0	101	70-135	0			
1,2-Dichloropropane	1362	45	1495	0	91.2	70-120	0			
1,3,5-Trimethylbenzene	1498	45	1495	15.72	99.1	65-135	0			
1,3-Dichlorobenzene	1369	45	1495	0	91.6	70-125	0			
1,4-Dichlorobenzene	1374	45	1495	0	92	70-125	0			
2-Butanone	1498	300	1495	0	100	30-160	0			
2-Hexanone	1374	45	1495	0	92	45-145	0			
4-Methyl-2-pentanone	1402	45	1495	0	93.8	45-145	0			
Acetone	1710	150	1495	0	114	20-160	0			B
Acrylonitrile	1597	150	1495	0	107	70-135	0			
Benzene	1408	45	1495	0	94.2	75-125	0			
Bromobenzene	1359	45	1495	0	91	65-120	0			
Bromochloromethane	1625	45	1495	0	109	70-125	0			
Bromodichloromethane	1149	45	1495	0	76.9	70-130	0			
Bromoform	1149	45	1495	0	76.9	55-135	0			
Bromomethane	1459	110	1495	0	97.6	30-160	0			
Carbon disulfide	1191	45	1495	0	79.6	45-160	0			
Carbon tetrachloride	1200	45	1495	0	80.2	65-135	0			
Chlorobenzene	1426	45	1495	0	95.4	75-125	0			
Chloroethane	1083	150	1495	0	72.4	40-155	0			
Chloroform	1525	45	1495	0	102	70-125	0			
Chloromethane	1500	150	1495	0	100	50-130	0			
cis-1,2-Dichloroethene	1382	45	1495	0	92.4	65-125	0			
cis-1,3-Dichloropropene	1332	45	1495	0	89.1	70-125	0			
Dibromochloromethane	1129	45	1495	0	75.6	65-135	0			
Dibromomethane	1309	45	1495	0	87.6	75-130	0			
Dichlorodifluoromethane	861.7	45	1495	0	57.6	35-135	0			
Ethylbenzene	1531	45	1495	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1143	45	1495	0	76.4	70-135	0	
Isopropylbenzene	1515	45	1495	0	101	75-130	0	
m,p-Xylene	3154	90	2990	47.76	104	80-125	0	
Methyl tert-butyl ether	1428	45	1495	0	95.5	75-125	0	
Methylene chloride	1545	45	1495	0	103	55-145	0	
Naphthalene	1430	150	1495	381.5	70.2	40-140	0	
n-Butylbenzene	1551	45	1495	0	104	65-140	0	
n-Propylbenzene	1408	45	1495	15.11	93.2	65-135	0	
o-Xylene	1529	45	1495	22.97	101	75-125	0	
p-Isopropyltoluene	1442	45	1495	0	96.4	75-135	0	
sec-Butylbenzene	1516	45	1495	0	101	65-130	0	
Styrene	1516	45	1495	0	101	75-125	0	
tert-Butylbenzene	1440	45	1495	0	96.4	65-130	0	
Tetrachloroethene	1667	45	1495	0	112	64-140	0	
Tetrahydrofuran	1457	300	1495	0	97.5	70-135	0	
Toluene	1575	45	1495	78.6	100	70-125	0	
trans-1,2-Dichloroethene	1493	45	1495	0	99.8	65-135	0	
trans-1,3-Dichloropropene	1158	45	1495	0	77.4	65-125	0	
trans-1,4-Dichloro-2-butene	1193	45	1495	0	79.8	70-135	0	
Trichloroethene	1321	45	1495	0	88.4	75-125	0	
Trichlorofluoromethane	222	45	1495	0	14.8	25-185	0	S
Vinyl chloride	1508	45	1495	0	101	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1498*	0	*1495*	0	*100*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1422*	0	*1495*	0	*95.2*	*70-130*	0	
Surr: Dibromofluoromethane	*1498*	0	*1495*	0	*100*	*70-130*	0	
Surr: Toluene-d8	*1509*	0	*1495*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206778-07B MSD**				Units: **µg/Kg**			Analysis Date: **6/23/2012 09:25 AM**		
Client ID:		Run ID: **VMS9_120622A**			SeqNo: **2009924**		Prep Date: **6/22/2012**		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1261	45	1495	0	84.4	75-125	1250	0.833	30	
1,1,1-Trichloroethane	1486	45	1495	0	99.4	70-135	1439	3.17	30	
1,1,2,2-Tetrachloroethane	1162	45	1495	0	77.8	55-130	1259	8.02	30	
1,1,2-Trichloroethane	1440	45	1495	0	96.4	60-125	1419	1.46	30	
1,1-Dichloroethane	1505	45	1495	0	101	75-125	1496	0.648	30	
1,1-Dichloroethene	1587	45	1495	0	106	65-135	1864	16.1	30	
1,2,3-Trichlorobenzene	1063	45	1495	0	71.1	60-135	1090	2.57	30	
1,2,3-Trichloropropane	1354	45	1495	0	90.6	65-130	1330	1.78	30	
1,2,3-Trimethylbenzene	1466	45	1495	28.42	96.1	65-135	1449	1.13	30	
1,2,4-Trichlorobenzene	1252	45	1495	0	83.8	65-130	1245	0.539	30	
1,2,4-Trimethylbenzene	1565	45	1495	68.32	100	65-135	1567	0.0955	30	
1,2-Dibromo-3-chloropropane	1212	45	1495	0	81	40-135	1193	1.55	30	
1,2-Dibromoethane	1465	45	1495	0	98	70-125	1448	1.18	30	
1,2-Dichlorobenzene	1398	45	1495	0	93.5	75-120	1359	2.76	30	
1,2-Dichloroethane	1533	45	1495	0	103	70-135	1505	1.82	30	
1,2-Dichloropropane	1392	45	1495	0	93.1	70-120	1362	2.12	30	
1,3,5-Trimethylbenzene	1503	45	1495	15.72	99.5	65-135	1498	0.349	30	
1,3-Dichlorobenzene	1386	45	1495	0	92.7	70-125	1369	1.19	30	
1,4-Dichlorobenzene	1401	45	1495	0	93.7	70-125	1374	1.89	30	
2-Butanone	1540	300	1495	0	103	30-160	1498	2.8	30	
2-Hexanone	1371	45	1495	0	91.7	45-145	1374	0.272	30	
4-Methyl-2-pentanone	1445	45	1495	0	96.6	45-145	1402	2.99	30	
Acetone	1718	150	1495	0	115	20-160	1710	0.48	30	B
Acrylonitrile	1374	150	1495	0	92	70-135	1597	15	30	
Benzene	1419	45	1495	0	94.9	75-125	1408	0.74	30	
Bromobenzene	1358	45	1495	0	90.8	65-120	1359	0.11	30	
Bromochloromethane	1606	45	1495	0	107	70-125	1625	1.16	30	
Bromodichloromethane	1217	45	1495	0	81.4	70-130	1149	5.69	30	
Bromoform	1159	45	1495	0	77.6	55-135	1149	0.842	30	
Bromomethane	1460	110	1495	0	97.7	30-160	1459	0.102	30	
Carbon disulfide	1143	45	1495	0	76.4	45-160	1191	4.1	30	
Carbon tetrachloride	1238	45	1495	0	82.8	65-135	1200	3.13	30	
Chlorobenzene	1449	45	1495	0	97	75-125	1426	1.61	30	
Chloroethane	1296	150	1495	0	86.7	40-155	1083	17.9	30	
Chloroform	1523	45	1495	0	102	70-125	1525	0.0981	30	
Chloromethane	1573	150	1495	0	105	50-130	1500	4.77	30	
cis-1,2-Dichloroethene	1375	45	1495	0	92	65-125	1382	0.488	30	
cis-1,3-Dichloropropene	1371	45	1495	0	91.7	70-125	1332	2.88	30	
Dibromochloromethane	1148	45	1495	0	76.8	65-135	1129	1.64	30	
Dibromomethane	1339	45	1495	0	89.6	75-130	1309	2.2	30	
Dichlorodifluoromethane	864	45	1495	0	57.8	35-135	861.7	0.26	30	
Ethylbenzene	1553	45	1495	0	104	75-125	1531	1.45	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41907** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1159	45	1495	0	77.6	70-135	1143	1.43	30	
Isopropylbenzene	1521	45	1495	0	102	75-130	1515	0.394	30	
m,p-Xylene	3187	90	2990	47.76	105	80-125	3154	1.04	30	
Methyl tert-butyl ether	1303	45	1495	0	87.2	75-125	1428	9.09	30	
Methylene chloride	1442	45	1495	0	96.5	55-145	1545	6.86	30	
Naphthalene	1428	150	1495	381.5	70	40-140	1430	0.157	30	
n-Butylbenzene	1591	45	1495	0	106	65-140	1551	2.57	30	
n-Propylbenzene	1418	45	1495	15.11	93.8	65-135	1408	0.688	30	
o-Xylene	1545	45	1495	22.97	102	75-125	1529	1.02	30	
p-Isopropyltoluene	1464	45	1495	0	98	75-135	1442	1.54	30	
sec-Butylbenzene	1537	45	1495	0	103	65-130	1516	1.37	30	
Styrene	1531	45	1495	0	102	75-125	1516	0.932	30	
tert-Butylbenzene	1445	45	1495	0	96.6	65-130	1440	0.311	30	
Tetrachloroethene	1654	45	1495	0	111	64-140	1667	0.765	30	
Tetrahydrofuran	1407	300	1495	0	94.2	70-135	1457	3.5	30	
Toluene	1565	45	1495	78.6	99.4	70-125	1575	0.666	30	
trans-1,2-Dichloroethene	1346	45	1495	0	90	65-135	1493	10.3	30	
trans-1,3-Dichloropropene	1187	45	1495	0	79.4	65-125	1158	2.49	30	
trans-1,4-Dichloro-2-butene	1216	45	1495	0	81.4	70-135	1193	1.92	30	
Trichloroethene	1368	45	1495	0	91.5	75-125	1321	3.45	30	
Trichlorofluoromethane	225	45	1495	0	15	25-185	222	1.34	30	S
Vinyl chloride	1523	45	1495	0	102	60-125	1508	0.986	30	
Surr: 1,2-Dichloroethane-d4	*1559*	0	*1495*	0	*104*	*70-130*	1498	*4.01*	*30*	
Surr: 4-Bromofluorobenzene	*1464*	0	*1495*	0	*98*	*70-130*	1422	*2.9*	*30*	
Surr: Dibromofluoromethane	*1562*	0	*1495*	0	*104*	*70-130*	1498	*4.2*	*30*	
Surr: Toluene-d8	*1544*	0	*1495*	0	*103*	*70-130*	1509	*2.3*	*30*	

The following samples were analyzed in this batch: 1206705-05B 1206705-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41908-41908** Units: **µg/Kg** Analysis Date: **6/23/2012 01:45 PM**
Client ID: Run ID: **VMS8_120623A** SeqNo: **2010687** Prep Date: **6/23/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	72.5	100								J
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*999.5*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*968.5*	0	*1000*	0	*96.8*	*70-130*	0
Surr: Dibromofluoromethane	*957*	0	*1000*	0	*95.7*	*70-130*	0
Surr: Toluene-d8	*991.5*	0	*1000*	0	*99.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41908-41908** Units: **µg/Kg** Analysis Date: **6/25/2012 11:47 PM**
Client ID: Run ID: **VMS7_120625B** SeqNo: **2012414** Prep Date: **6/23/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	259	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	51.5	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*980*	0	*1000*	0	*98*	*70-130*	0
Surr: 4-Bromofluorobenzene	*971.5*	0	*1000*	0	*97.2*	*70-130*	0
Surr: Dibromofluoromethane	*923.5*	0	*1000*	0	*92.4*	*70-130*	0
Surr: Toluene-d8	*964.5*	0	*1000*	0	*96.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

LCS	Sample ID: **LCS-41908-41908**				Units: **µg/Kg**		Analysis Date: **6/23/2012 12:33 PM**			
Client ID:		Run ID: **VMS8_120623A**			SeqNo: **2010685**		Prep Date: **6/23/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	924.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	976	30	1000	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	843	30	1000	0	84.3	55-130	0			
1,1,2-Trichloroethane	906.5	30	1000	0	90.6	60-125	0			
1,1-Dichloroethane	890	30	1000	0	89	75-125	0			
1,1-Dichloroethene	835	30	1000	0	83.5	65-135	0			
1,2,3-Trichlorobenzene	992	30	1000	0	99.2	60-135	0			
1,2,3-Trichloropropane	808.5	30	1000	0	80.8	65-130	0			
1,2,3-Trimethylbenzene	928.5	30	1000	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	971.5	30	1000	0	97.2	65-130	0			
1,2,4-Trimethylbenzene	918.5	30	1000	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	771.5	30	1000	0	77.2	40-135	0			
1,2-Dibromoethane	860	30	1000	0	86	70-125	0			
1,2-Dichlorobenzene	997.5	30	1000	0	99.8	75-120	0			
1,2-Dichloroethane	892.5	30	1000	0	89.2	70-135	0			
1,2-Dichloropropane	892	30	1000	0	89.2	70-120	0			
1,3,5-Trimethylbenzene	919	30	1000	0	91.9	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	960.5	200	1000	0	96	30-160	0			
2-Hexanone	817.5	30	1000	0	81.8	45-145	0			
4-Methyl-2-pentanone	1088	30	1000	0	109	45-145	0			
Acetone	654.5	100	1000	0	65.4	20-160	0			
Acrylonitrile	794.5	100	1000	0	79.4	70-135	0			
Benzene	915	30	1000	0	91.5	75-125	0			
Bromobenzene	935	30	1000	0	93.5	65-120	0			
Bromochloromethane	924	30	1000	0	92.4	70-125	0			
Bromodichloromethane	904.5	30	1000	0	90.4	70-130	0			
Bromoform	834	30	1000	0	83.4	55-135	0			
Bromomethane	873.5	75	1000	0	87.4	30-160	0			
Carbon disulfide	914.5	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	967.5	30	1000	0	96.8	65-135	0			
Chlorobenzene	949.5	30	1000	0	95	75-125	0			
Chloroethane	989.5	100	1000	0	99	40-155	0			
Chloroform	925.5	30	1000	0	92.6	70-125	0			
Chloromethane	843.5	100	1000	0	84.4	50-130	0			
cis-1,2-Dichloroethene	912.5	30	1000	0	91.2	65-125	0			
cis-1,3-Dichloropropene	904	30	1000	0	90.4	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	864	30	1000	0	86.4	75-130	0			
Dichlorodifluoromethane	784	30	1000	0	78.4	35-135	0			
Ethylbenzene	931	30	1000	0	93.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1002	30	1000	0	100	70-135	0
Isopropylbenzene	958	30	1000	0	95.8	75-130	0
m,p-Xylene	1900	60	2000	0	95	80-125	0
Methyl tert-butyl ether	931	30	1000	0	93.1	75-125	0
Methylene chloride	847.5	30	1000	0	84.8	55-145	0
Naphthalene	862	100	1000	0	86.2	40-140	0
n-Butylbenzene	1058	30	1000	0	106	65-140	0
n-Propylbenzene	923	30	1000	0	92.3	65-135	0
o-Xylene	926.5	30	1000	0	92.6	75-125	0
p-Isopropyltoluene	1002	30	1000	0	100	75-135	0
sec-Butylbenzene	1027	30	1000	0	103	65-130	0
Styrene	923	30	1000	0	92.3	75-125	0
tert-Butylbenzene	969.5	30	1000	0	97	65-130	0
Tetrachloroethene	1008	30	1000	0	101	64-140	0
Tetrahydrofuran	729	200	1000	0	72.9	70-135	0
Toluene	942.5	30	1000	0	94.2	70-125	0
trans-1,2-Dichloroethene	953.5	30	1000	0	95.4	65-135	0
trans-1,3-Dichloropropene	912	30	1000	0	91.2	65-125	0
trans-1,4-Dichloro-2-butene	776	30	1000	0	77.6	70-135	0
Trichloroethene	937	30	1000	0	93.7	75-125	0
Trichlorofluoromethane	812	30	1000	0	81.2	25-185	0
Vinyl chloride	863	30	1000	0	86.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*958.5*	0	*1000*	0	*95.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*981.5*	0	*1000*	0	*98.2*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*998*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41908-41908** Units: **µg/Kg** Analysis Date: **6/25/2012 10:30 PM**
Client ID: Run ID: **VMS7_120625B** SeqNo: **2012413** Prep Date: **6/23/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	1014	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	1012	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	925	30	1000	0	92.5	60-125	0			
1,1-Dichloroethane	1050	30	1000	0	105	75-125	0			
1,1-Dichloroethene	1098	30	1000	0	110	65-135	0			
1,2,3-Trichlorobenzene	973.5	30	1000	0	97.4	60-135	0			
1,2,3-Trichloropropane	1012	30	1000	0	101	65-130	0			
1,2,3-Trimethylbenzene	979	30	1000	0	97.9	65-135	0			
1,2,4-Trichlorobenzene	975	30	1000	0	97.5	65-130	0			
1,2,4-Trimethylbenzene	976.5	30	1000	0	97.6	65-135	0			
1,2-Dibromo-3-chloropropane	1038	30	1000	0	104	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	983.5	30	1000	0	98.4	75-120	0			
1,2-Dichloroethane	1046	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1046	30	1000	0	105	70-120	0			
1,3,5-Trimethylbenzene	1002	30	1000	0	100	65-135	0			
1,3-Dichlorobenzene	1012	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	978.5	30	1000	0	97.8	70-125	0			
2-Butanone	1254	200	1000	0	125	30-160	0			
2-Hexanone	1022	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	1607	30	1000	0	161	45-145	0			S
Acetone	1281	100	1000	0	128	20-160	0			B
Acrylonitrile	1068	100	1000	0	107	70-135	0			
Benzene	1008	30	1000	0	101	75-125	0			
Bromobenzene	999.5	30	1000	0	100	65-120	0			
Bromochloromethane	1110	30	1000	0	111	70-125	0			
Bromodichloromethane	1053	30	1000	0	105	70-130	0			
Bromoform	952.5	30	1000	0	95.2	55-135	0			
Bromomethane	1432	75	1000	0	143	30-160	0			
Carbon disulfide	1195	30	1000	0	120	45-160	0			
Carbon tetrachloride	1094	30	1000	0	109	65-135	0			
Chlorobenzene	1022	30	1000	0	102	75-125	0			
Chloroethane	780	100	1000	0	78	40-155	0			
Chloroform	1078	30	1000	0	108	70-125	0			
Chloromethane	828	100	1000	0	82.8	50-130	0			
cis-1,2-Dichloroethene	1055	30	1000	0	106	65-125	0			
cis-1,3-Dichloropropene	1116	30	1000	0	112	70-125	0			
Dibromochloromethane	1093	30	1000	0	109	65-135	0			
Dibromomethane	1040	30	1000	0	104	75-130	0			
Dichlorodifluoromethane	799.5	30	1000	0	80	35-135	0			
Ethylbenzene	1000	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41908** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1026	30	1000	0	103	70-135	0	
Isopropylbenzene	1018	30	1000	0	102	75-130	0	
m,p-Xylene	2028	60	2000	0	101	80-125	0	
Methyl tert-butyl ether	1102	30	1000	0	110	75-125	0	
Methylene chloride	1155	30	1000	0	116	55-145	0	B
Naphthalene	875.5	100	1000	0	87.6	40-140	0	
n-Butylbenzene	1018	30	1000	0	102	65-140	0	
n-Propylbenzene	1001	30	1000	0	100	65-135	0	
o-Xylene	1027	30	1000	0	103	75-125	0	
p-Isopropyltoluene	1001	30	1000	0	100	75-135	0	
sec-Butylbenzene	1020	30	1000	0	102	65-130	0	
Styrene	1030	30	1000	0	103	75-125	0	
tert-Butylbenzene	1018	30	1000	0	102	65-130	0	
Tetrachloroethene	1018	30	1000	0	102	64-140	0	
Tetrahydrofuran	1158	200	1000	0	116	70-135	0	
Toluene	978	30	1000	0	97.8	70-125	0	
trans-1,2-Dichloroethene	1116	30	1000	0	112	65-135	0	
trans-1,3-Dichloropropene	1063	30	1000	0	106	65-125	0	
trans-1,4-Dichloro-2-butene	1031	30	1000	0	103	70-135	0	
Trichloroethene	1080	30	1000	0	108	75-125	0	
Trichlorofluoromethane	904.5	30	1000	0	90.4	25-185	0	
Vinyl chloride	999	30	1000	0	99.9	60-125	0	
Surr: 1,2-Dichloroethane-d4	*937.5*	0	*1000*	0	*93.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*954*	0	*1000*	0	*95.4*	*70-130*	0	
Surr: Dibromofluoromethane	*963*	0	*1000*	0	*96.3*	*70-130*	0	
Surr: Toluene-d8	*941.5*	0	*1000*	0	*94.2*	*70-130*	0	

The following samples were analyzed in this batch:

1206705-07B	1206705-08B	1206705-09B
1206705-10B	1206705-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **R106376** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: **WBLKS1-R106376**					Units: **% of sample**		Analysis Date: **6/21/2012 03:07 PM**			
Client ID:		Run ID: **MOIST_120621B**				SeqNo: **2008708**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	ND	0.050									

LCS	Sample ID: **LCS-R106376**					Units: **% of sample**		Analysis Date: **6/21/2012 03:07 PM**			
Client ID:		Run ID: **MOIST_120621B**				SeqNo: **2008706**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	100	0.050	100	0	100	99.5-100.5	0				

DUP	Sample ID: **1206693-05BDUP**					Units: **% of sample**		Analysis Date: **6/21/2012 03:07 PM**			
Client ID:		Run ID: **MOIST_120621B**				SeqNo: **2008683**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	18.15	0.050	0	0	0	0-0	19.41	6.71	20		

DUP	Sample ID: **1206703-03ADUP**					Units: **% of sample**		Analysis Date: **6/21/2012 03:07 PM**			
Client ID:		Run ID: **MOIST_120621B**				SeqNo: **2008690**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	2.84	0.050	0	0	0	0-0	2.51	12.3	20		

The following samples were analyzed in this batch: 1206705-01A 1206705-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206705
Project: Marshall KRRI 0775L,1200R,1375L 6/19/12

QC BATCH REPORT

Batch ID: **R106378** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106378** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008790** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106378** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008789** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206705-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: **SBKR0775L502S061912S005** Run ID: **MOIST_120621C** SeqNo: **2008768** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.15	0.050	0	0	0	0-0	42.96	0.441	20	

DUP Sample ID: **1206705-06ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: **SBKR1200R501S061912S006** Run ID: **MOIST_120621C** SeqNo: **2008772** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.82	0.050	0	0	0	0-0	6.54	11.7	20	

The following samples were analyzed in this batch:

1206705-03A	1206705-04A	1206705-05A
1206705-06A	1206705-07A	1206705-08A
1206705-09A	1206705-10A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206705

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061912_LJL2	Task: KRRI_0775,1200,1375
	Total # of Samples: 11	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260												
1	SBKR0775L501S061912S004	SBKR0775L501	SO	G	06/19/2012 08:43	3			X	X	X	X	X												
2	SBKR0775L501D061912S004	SBKR0775L501	SO	G	06/19/2012 08:43	3	DUPLICATE		X	X	X	X	X												
3	SBKR0775L502S061912S005	SBKR0775L502	SO	G	06/19/2012 09:10	3			X	X	X	X	X												
4	SBKR0775L503S061912S003	SBKR0775L503	SO	G	06/19/2012 09:55	3			X	X	X	X	X												
5	SBKR0775L503S061912S012	SBKR0775L503	SO	G	06/19/2012 10:00	3			X	X	X	X	X												
6	SBKR1200R501S061912S006	SBKR1200R501	SO	G	06/19/2012 11:20	3			X	X	X	X	X												
7	SBKR1200R502S061912S004	SBKR1200R502	SO	G	06/19/2012 11:47	3			X	X	X	X	X												
8	SBKR1375L518S061912S004	SBKR1375L518	SO	G	06/19/2012 13:39	3			X	X	X	X	X												
9	SBKR1375L519S061912S006	SBKR1375L519	SO	G	06/19/2012 15:46	3			X	X	X	X	X												
10	SBKR1375L520S061912S005	SBKR1375L520	SO	G	06/19/2012 16:23	3			X	X	X	X	X												
11	SBKR1375L520T061912MX	SBKR1375L520	SQ	G	06/19/2012 00:00	1	TRIP BLANK						X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.19.12	1724		6.19.12	1724
	6.20.12	1716		6.20.12	1716

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
4.0°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:

Tracking #:

PRINT Name of SAMPLER: LORRI LEGO (LJL2)

SIGNATURE of SAMPLER: DATE Signed: Time:

193

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206705** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

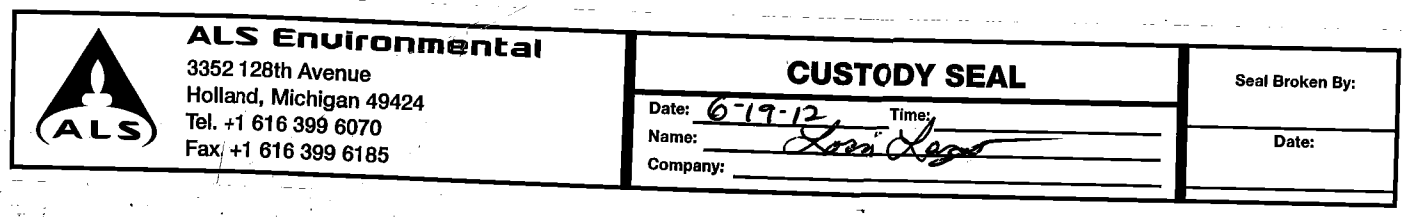
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

40 10 SOILS
6/19



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax +1 616 399 6185

CUSTODY SEAL

Date: 6-19-12 Time:
Name: Lora Lago
Company:

Seal Broken By:

Date:

27-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0775L,1375L Sediment 6/19/12** Work Order: **1206706**

Dear Bryan,

ALS Environmental received 4 samples on 20-Jun-2012 05:16 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 18.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12
Work Order: **1206706**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206706-01	SEKR0775L501S061912D003	Sediment		6/19/2012 10:48	6/20/2012 17:16	☐
1206706-02	SEKR0775L501S061912D007	Sediment		6/19/2012 10:50	6/20/2012 17:16	☐
1206706-03	SEKR1375L502S061912D004	Sediment		6/19/2012 14:23	6/20/2012 17:16	☐
1206706-04	SEKR1375L502S061912D011	Sediment		6/19/2012 14:25	6/20/2012 17:16	☐

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12
Work Order: 1206706

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41885 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 41888 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12
WorkOrder: **1206706**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR0775L501S061912D003
Work Order:	1206706	**Collection Date:**	6/19/2012 10:48:00 AM
Project:	Marshall KRRI 0775L,1375L Sediment 6/19/12		
Lab ID:	1206706-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**250**	**18**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**690**	**36**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*41.6*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**5.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**9.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Chrysene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Pyrene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*94.2*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*62.5*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*73.9*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*91.8*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*64.1*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*76.0*	*40-106*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**49**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR0775L501S061912D007
Work Order:	1206706	**Collection Date:**	6/19/2012 10:50:00 AM
Project:	Marshall KRRI 0775L,1375L Sediment 6/19/12		
Lab ID:	1206706-02	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**76**	**23**	**4.0**		**mg/Kg-dry**	1	6/23/2012
ORO (C20-C34)	**490**	**46**	**4.0**		**mg/Kg-dry**	1	6/23/2012
Surr: 4-Terphenyl-d14	*58.8*	*39-115*			*%REC*	1	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**5.7**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*95.0*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*73.0*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*96.6*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*63.0*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*74.8*	*40-106*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**57**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1375L502S061912D004
Work Order:	1206706	**Collection Date:**	6/19/2012 2:23:00 PM
Project:	Marshall KRRI 0775L,1375L Sediment 6/19/12		
Lab ID:	1206706-03	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**1,000**	**260**	**4.0**		**mg/Kg-dry**	5	6/23/2012
ORO (C20-C34)	**9,700**	**520**	**4.0**		**mg/Kg-dry**	5	6/23/2012
Surr: 4-Terphenyl-d14	*47.3*	*39-115*			*%REC*	5	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.80	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.6	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**18**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**20**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(k)fluoranthene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/26/2012
Indeno(1,2,3-cd)pyrene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Pyrene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*94.5*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*68.7*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*88.8*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*58.7*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*74.8*	*40-106*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**81**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *27-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1375L502S061912D011
Work Order:	1206706	**Collection Date:**	6/19/2012 2:25:00 PM
Project:	Marshall KRRI 0775L,1375L Sediment 6/19/12		
Lab ID:	1206706-04	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/22/2012**		Analyst: **CW**
DRO (C10-C20)	**410**	**220**	**4.0**		**mg/Kg-dry**	5	6/23/2012
ORO (C20-C34)	**3,300**	**450**	**4.0**		**mg/Kg-dry**	5	6/23/2012
Surr: 4-Terphenyl-d14	*59.6*	*39-115*			*%REC*	5	6/23/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/22/2012**		Analyst: **ML**
Beryllium	ND	0.76	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.5	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**15**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**15**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/22/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Acenaphthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(a)anthracene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(b)fluoranthene	**2,900**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/26/2012
Benzo(k)fluoranthene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Chrysene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/26/2012
Fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Fluorene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
Phenanthrene	**960**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/26/2012
Surr: 2,4,6-Tribromophenol	*97.6*	*34-140*			*%REC*	1	6/26/2012
Surr: 2-Fluorobiphenyl	*66.0*	*12-100*			*%REC*	1	6/26/2012
Surr: 2-Fluorophenol	*68.8*	*33-117*			*%REC*	1	6/26/2012
Surr: 4-Terphenyl-d14	*82.8*	*25-137*			*%REC*	1	6/26/2012
Surr: Nitrobenzene-d5	*59.3*	*37-107*			*%REC*	1	6/26/2012
Surr: Phenol-d6	*68.7*	*40-106*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**78**	**0.050**	**0**		**% of sample**	1	6/21/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **41889** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41889-41889** Units: **mg/Kg** Analysis Date: **6/23/2012 01:50 PM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010729** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.093*	0	*5*	0	*41.9*	*39-115*	0			

LCS Sample ID: **DLCSS1-41889-41889** Units: **mg/Kg** Analysis Date: **6/23/2012 01:50 PM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010584** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	376.1	10	500	0	75.2	60-130	0			
ORO (C20-C34)	444	20	500	0	88.8	60-130	0			
Surr: 4-Terphenyl-d14	*2.803*	0	*5*	0	*56.1*	*39-115*	0			

MS Sample ID: **1206705-06A MS** Units: **mg/Kg** Analysis Date: **6/23/2012 02:15 PM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010730** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	363	9.9	492.6	0	73.7	60-130	0			
ORO (C20-C34)	521.8	20	492.6	0	106	60-130	0			
Surr: 4-Terphenyl-d14	*2.267*	0	*4.926*	0	*46*	*39-115*	0			

MSD Sample ID: **1206705-06A MSD** Units: **mg/Kg** Analysis Date: **6/23/2012 02:15 PM**

Client ID: Run ID: **GC8_120622A** SeqNo: **2010586** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	370.9	9.9	497.2	0	74.6	60-130	363	2.16	30	
ORO (C20-C34)	492.1	20	497.2	0	99	60-130	521.8	5.87	30	
Surr: 4-Terphenyl-d14	*2.787*	0	*4.972*	0	*56.1*	*39-115*	2.267	*20.6*	*30*	

The following samples were analyzed in this batch: 1206706-01A 1206706-02A 1206706-03A 1206706-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206706
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12

QC BATCH REPORT

Batch ID: **41885** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:24 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011914** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41885-41885** Units: **mg/Kg** Analysis Date: **6/26/2012 12:30 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011915** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.52	0.10	5	0	90.4	80-120	0			
Molybdenum	4.636	0.25	5	0	92.7	80-120	0			
Nickel	4.397	0.25	5	0	87.9	80-120	0			
Vanadium	4.486	0.25	5	0	89.7	80-120	0			

MS Sample ID: **1206720-03AMS** Units: **mg/Kg** Analysis Date: **6/26/2012 04:45 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011958** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.599	0.16	8.183	0.06905	79.8	80-120	0			S
Molybdenum	7.234	0.41	8.183	0.06129	87.7	80-120	0			
Nickel	8.993	0.41	8.183	2.183	83.2	80-120	0			
Vanadium	12.11	0.41	8.183	5.543	80.3	80-120	0			

MSD Sample ID: **1206720-03AMSD** Units: **mg/Kg** Analysis Date: **6/26/2012 04:51 AM**
Client ID: Run ID: **ICPMS1_120625B** SeqNo: **2011959** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.326	0.16	8.104	0.06905	77.2	80-120	6.599	4.23	25	S
Molybdenum	6.897	0.41	8.104	0.06129	84.4	80-120	7.234	4.77	25	
Nickel	8.549	0.41	8.104	2.183	78.6	80-120	8.993	5.06	25	S
Vanadium	11.27	0.41	8.104	5.543	70.7	80-120	12.11	7.18	25	S

The following samples were analyzed in this batch: 1206706-01A 1206706-02A 1206706-03A 1206706-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41888-41888** Units: **µg/Kg** Analysis Date: **6/25/2012 04:23 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012438** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*2896*	0	*5000*	0	*57.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3478*	0	*5000*	0	*69.6*	*12-100*	0			
Surr: 2-Fluorophenol	*3439*	0	*5000*	0	*68.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4130*	0	*5000*	0	*82.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3648*	0	*5000*	0	*73*	*37-107*	0			
Surr: Phenol-d6	*4018*	0	*5000*	0	*80.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41888-41888** Units: **µg/Kg** Analysis Date: **6/25/2012 03:54 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012437** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1899	50	2000	0	95	45-105	0			
Acenaphthene	1985	50	2000	0	99.2	45-110	0			
Acenaphthylene	1951	50	2000	0	97.6	45-105	0			
Anthracene	2037	50	2000	0	102	55-105	0			
Benzo(a)anthracene	2092	50	2000	0	105	50-110	0			
Benzo(a)pyrene	2176	50	2000	0	109	50-110	0			
Benzo(b)fluoranthene	2026	50	2000	0	101	45-115	0			
Benzo(g,h,i)perylene	2158	50	2000	0	108	40-125	0			
Benzo(k)fluoranthene	2153	50	2000	0	108	45-115	0			
Chrysene	2187	50	2000	0	109	55-110	0			
Dibenzo(a,h)anthracene	2197	50	2000	0	110	40-125	0			
Fluoranthene	2048	50	2000	0	102	55-115	0			
Fluorene	1956	50	2000	0	97.8	50-110	0			
Indeno(1,2,3-cd)pyrene	2201	50	2000	0	110	40-120	0			
Naphthalene	1880	50	2000	0	94	40-105	0			
Phenanthrene	2033	50	2000	0	102	50-110	0			
Pyrene	2146	50	2000	0	107	45-125	0			
Surr: 2,4,6-Tribromophenol	*4164*	0	*5000*	0	*83.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3512*	0	*5000*	0	*70.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3791*	0	*5000*	0	*75.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3682*	0	*5000*	0	*73.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3690*	0	*5000*	0	*73.8*	*37-107*	0			
Surr: Phenol-d6	*3819*	0	*5000*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206705-06A MS** Units: **µg/Kg** Analysis Date: **6/25/2012 05:32 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012439** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1621	46	1846	0	87.8	45-105	0			
Acenaphthene	1764	46	1846	0	95.6	45-110	0			
Acenaphthylene	1775	46	1846	0	96.2	45-105	0			
Anthracene	1894	46	1846	0	103	55-105	0			
Benzo(a)anthracene	1874	46	1846	51.2	98.7	50-110	0			
Benzo(a)pyrene	2007	46	1846	53.95	106	50-110	0			
Benzo(b)fluoranthene	2228	46	1846	84.12	116	45-115	0			S
Benzo(g,h,i)perylene	1850	46	1846	0	100	40-125	0			
Benzo(k)fluoranthene	1989	46	1846	0	108	45-115	0			
Chrysene	1925	46	1846	61.26	101	55-110	0			
Dibenzo(a,h)anthracene	1797	46	1846	0	97.4	40-125	0			
Fluoranthene	2208	46	1846	101.5	114	55-115	0			
Fluorene	1789	46	1846	0	96.9	50-110	0			
Indeno(1,2,3-cd)pyrene	1839	46	1846	0	99.6	40-120	0			
Naphthalene	1582	46	1846	0	85.7	40-105	0			
Phenanthrene	1900	46	1846	0	103	50-110	0			
Pyrene	1970	46	1846	108.8	101	45-125	0			
Surr: 2,4,6-Tribromophenol	*3866*	0	*4615*	0	*83.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3187*	0	*4615*	0	*69.1*	*12-100*	0			
Surr: 2-Fluorophenol	*3273*	0	*4615*	0	*70.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3330*	0	*4615*	0	*72.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3173*	0	*4615*	0	*68.8*	*37-107*	0			
Surr: Phenol-d6	*3296*	0	*4615*	0	*71.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206706
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12

QC BATCH REPORT

Batch ID: **41888** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206705-06A MSD** Units: **µg/Kg** Analysis Date: **6/25/2012 06:01 PM**
Client ID: Run ID: **SVMS7_120625A** SeqNo: **2012440** Prep Date: **6/22/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1581	48	1922	0	82.2	45-105	1621	2.51	30	
Acenaphthene	1873	48	1922	0	97.4	45-110	1764	5.99	30	
Acenaphthylene	1825	48	1922	0	95	45-105	1775	2.76	30	
Anthracene	1953	48	1922	0	102	55-105	1894	3.09	30	
Benzo(a)anthracene	1983	48	1922	51.2	101	50-110	1874	5.68	30	
Benzo(a)pyrene	2071	48	1922	53.95	105	50-110	2007	3.14	30	
Benzo(b)fluoranthene	2076	48	1922	84.12	104	45-115	2228	7.05	30	
Benzo(g,h,i)perylene	1886	48	1922	0	98.2	40-125	1850	1.95	30	
Benzo(k)fluoranthene	1953	48	1922	0	102	45-115	1989	1.86	30	
Chrysene	2014	48	1922	61.26	102	55-110	1925	4.5	30	
Dibenzo(a,h)anthracene	1838	48	1922	0	95.6	40-125	1797	2.26	30	
Fluoranthene	2357	48	1922	101.5	117	55-115	2208	6.54	30	S
Fluorene	1907	48	1922	0	99.2	50-110	1789	6.42	30	
Indeno(1,2,3-cd)pyrene	1904	48	1922	0	99.1	40-120	1839	3.52	30	
Naphthalene	1536	48	1922	0	79.9	40-105	1582	2.99	30	
Phenanthrene	1984	48	1922	0	103	50-110	1900	4.31	30	
Pyrene	2179	48	1922	108.8	108	45-125	1970	10.1	30	
Surr: 2,4,6-Tribromophenol	*4087*	0	*4804*	0	*85.1*	*34-140*	3866	*5.56*	*40*	
Surr: 2-Fluorobiphenyl	*3234*	0	*4804*	0	*67.3*	*12-100*	3187	*1.47*	*40*	
Surr: 2-Fluorophenol	*3181*	0	*4804*	0	*66.2*	*33-117*	3273	*2.87*	*40*	
Surr: 4-Terphenyl-d14	*3590*	0	*4804*	0	*74.7*	*25-137*	3330	*7.5*	*40*	
Surr: Nitrobenzene-d5	*3079*	0	*4804*	0	*64.1*	*37-107*	3173	*3.03*	*40*	
Surr: Phenol-d6	*3240*	0	*4804*	0	*67.4*	*40-106*	3296	*1.71*	*40*	

The following samples were analyzed in this batch: 1206706-01A 1206706-02A 1206706-03A 1206706-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206706
Project: Marshall KRRI 0775L,1375L Sediment 6/19/12

QC BATCH REPORT

Batch ID: **R106378** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106378** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008790** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106378** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008789** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206705-03ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008768** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	43.15	0.050	0	0	0	0-0	42.96	0.441	20	

DUP Sample ID: **1206705-06ADUP** Units: **% of sample** Analysis Date: **6/21/2012 03:57 PM**
Client ID: Run ID: **MOIST_120621C** SeqNo: **2008772** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.82	0.050	0	0	0	0-0	6.54	11.7	20	

The following samples were analyzed in this batch: 1206706-01A 1206706-02A 1206706-03A 1206706-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206706

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061912_LJL1	Task: KRRI_SED0775L,1375L
	Total # of Samples: 4	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Analysis: Be,Mo,V,Ni by 6020	Analysis: ORO,DRO	Analysis: PNAs by 8270
									None	None	None	None
1	SEKR0775L501S061912D003	SEKR0775L501	SE	G	06/19/2012 10:48	1			X	X	X	X
2	SEKR0775L501S061912D007	SEKR0775L501	SE	G	06/19/2012 10:50	1			X	X	X	X
3	SEKR1375L502S061912D004	SEKR1375L502	SE	G	06/19/2012 14:23	1			X	X	X	X
4	SEKR1375L502S061912D011	SEKR1375L502	SE	G	06/19/2012 14:25	1			X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.19.12	1718		6.19.12	1718
	6.20.12	1716		6.20.12	1716

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
4.8°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 17:16**

Work Order: **1206706** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.8 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

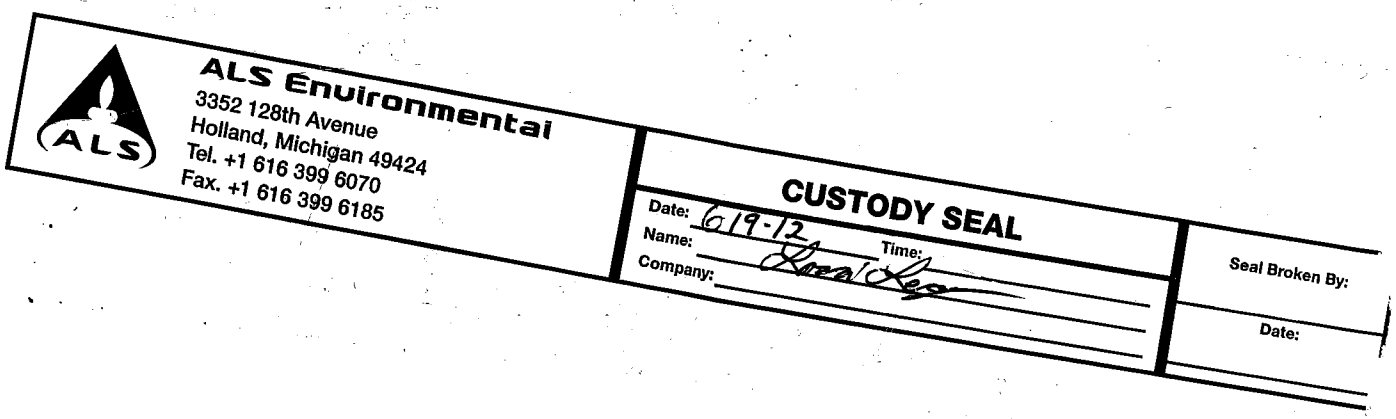
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

4.8 4 socs
6/19


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6/9-12
Time:
Name:
Company:
Seal Broken By:
Date:

29-Jun-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI SPLP Reactivation June 2012** Work Order: **1206816**

Dear Mike,

ALS Environmental received 19 samples on 22-Jun-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 44.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: **1206816**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206816-01	SBKR1050L513D052212S005	Splp Extract		5/22/2012 10:25	6/22/2012	☐
1206816-02	SBKR1050L517S052212S008	Splp Extract		5/22/2012 14:24	6/22/2012	☐
1206816-03	SBKR1150L530S060112S010	Splp Extract		6/1/2012 13:35	6/22/2012	☐
1206816-04	SBKR1150L531S060112S008	Splp Extract		6/1/2012 14:00	6/22/2012	☐
1206816-05	SBKR1150L535S060512S006	Splp Extract		6/5/2012 15:50	6/22/2012	☐
1206816-06	SBKR1225L505S060512S005	Splp Extract		6/5/2012 13:35	6/22/2012	☐
1206816-07	SBKR1175L502S060512S004	Splp Extract		6/5/2012 16:05	6/22/2012	☐
1206816-08	SBKR1225L504S060512S006	Splp Extract		6/5/2012 13:15	6/22/2012	☐
1206816-09	SBKR1200L502S060412S005	Splp Extract		6/4/2012 10:20	6/22/2012	☐
1206816-10	SBKR1200L502S060412S014	Splp Extract		6/4/2012 10:30	6/22/2012	☐
1206816-11	SBKR1150L536S060612S007	Splp Extract		6/6/2012 09:00	6/22/2012	☐
1206816-12	SBKR1200L514S060612S004	Splp Extract		6/6/2012 09:30	6/22/2012	☐
1206816-13	SBKR1200L515S060612S006	Splp Extract		6/6/2012 10:25	6/22/2012	☐
1206816-14	SBKR1200L516S060612S005	Splp Extract		6/6/2012 10:48	6/22/2012	☐
1206816-15	SBKR1200L516D060612S005	Splp Extract		6/6/2012 10:48	6/22/2012	☐
1206816-16	SBKR1200L520S060612S005	Splp Extract		6/6/2012 15:50	6/22/2012	☐
1206816-17	SBKR1225L508S060612S005	Splp Extract		6/6/2012 13:40	6/22/2012	☐
1206816-18	SBKR1225L509S060612S005	Splp Extract		6/6/2012 16:30	6/22/2012	☐
1206816-19	SBKR1150L538S060712S005	Splp Extract		6/7/2012 09:15	6/22/2012	☐

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816

Case Narrative

Batch 41983 sample 1206816-19A was extracted for PAHs after the hold time had expired. This data is provided at no charge.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
WorkOrder: **1206816**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1050L513D052212S005
Lab ID: 1206816-01
Collection Date: 5/22/2012 10:25 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1050L517S052212S008
Lab ID: 1206816-02
Collection Date: 5/22/2012 02:24 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1150L530S060112S010
Lab ID: 1206816-03
Collection Date: 6/1/2012 01:35 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1150L531S060112S008
Lab ID: 1206816-04
Collection Date: 6/1/2012 02:00 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:29 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1150L535S060512S006
Lab ID: 1206816-05
Collection Date: 6/5/2012 03:50 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:34 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1225L505S060512S005
Lab ID: 1206816-06
Collection Date: 6/5/2012 01:35 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 07:49 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1175L502S060512S004
Lab ID: 1206816-07
Collection Date: 6/5/2012 04:05 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 08:15 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 1206816
Sample ID: SBKR1225L504S060512S006 **Lab ID:** 1206816-08
Collection Date: 6/5/2012 01:15 PM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 08:20 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L502S060412S005
Lab ID: 1206816-09
Collection Date: 6/4/2012 10:20 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 08:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L502S060412S014
Lab ID: 1206816-10
Collection Date: 6/4/2012 10:30 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 08:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 1206816
Sample ID: SBKR1150L536S060612S007 **Lab ID:** 1206816-11
Collection Date: 6/6/2012 09:00 AM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 08:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L514S060612S004
Lab ID: 1206816-12
Collection Date: 6/6/2012 09:30 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L515S060612S006
Lab ID: 1206816-13
Collection Date: 6/6/2012 10:25 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L516S060612S005
Lab ID: 1206816-14
Collection Date: 6/6/2012 10:48 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012 **Work Order:** 1206816
Sample ID: SBKR1200L516D060612S005 **Lab ID:** 1206816-15
Collection Date: 6/6/2012 10:48 AM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1200L520S060612S005
Lab ID: 1206816-16
Collection Date: 6/6/2012 03:50 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1225L508S060612S005
Lab ID: 1206816-17
Collection Date: 6/6/2012 01:40 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1225L509S060612S005
Lab ID: 1206816-18
Collection Date: 6/6/2012 04:30 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Reactivation June 2012
Work Order: 1206816
Sample ID: SBKR1150L538S060712S005
Lab ID: 1206816-19
Collection Date: 6/7/2012 09:15 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**	Analyst: **CES**
Molybdenum	ND		0.0050	mg/L	1	6/27/2012 10:44 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/27/2012**	Analyst: **HL**
2-Methylnaphthalene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Acenaphthene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Acenaphthylene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Anthracene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Benzo(a)anthracene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Benzo(a)pyrene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Benzo(b)fluoranthene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Benzo(g,h,i)perylene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Benzo(k)fluoranthene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Chrysene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Dibenzo(a,h)anthracene	ND	H	2.9	µg/L	1	6/27/2012 10:35 PM
Fluoranthene	ND	H	1.4	µg/L	1	6/27/2012 10:35 PM
Fluorene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Indeno(1,2,3-cd)pyrene	ND	H	2.9	µg/L	1	6/27/2012 10:35 PM
Naphthalene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Phenanthrene	ND	H	2.9	µg/L	1	6/27/2012 10:35 PM
Pyrene	ND	H	7.1	µg/L	1	6/27/2012 10:35 PM
Surr: 2,4,6-Tribromophenol	*76.7*		*21-125*	*%REC*	1	6/27/2012 10:35 PM
Surr: 2-Fluorobiphenyl	*46.8*		*36-94*	*%REC*	1	6/27/2012 10:35 PM
Surr: 2-Fluorophenol	*30.6*		*10-75*	*%REC*	1	6/27/2012 10:35 PM
Surr: 4-Terphenyl-d14	*64.7*		*26-119*	*%REC*	1	6/27/2012 10:35 PM
Surr: Nitrobenzene-d5	*41.6*		*41-104*	*%REC*	1	6/27/2012 10:35 PM
Surr: Phenol-d6	*21.1*		*11-50*	*%REC*	1	6/27/2012 10:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42006** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-42006-42006** Units: **mg/L** Analysis Date: **6/27/2012 07:03 PM**

Client ID: Run ID: **ICPMS2_120627A** SeqNo: **2015121** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								

LCS Sample ID: **LCS-42006-42006** Units: **mg/L** Analysis Date: **6/27/2012 07:09 PM**

Client ID: Run ID: **ICPMS2_120627A** SeqNo: **2015122** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09402	0.0050	0.1	0	94	80-120	0			

MS Sample ID: **1206816-06AMS** Units: **mg/L** Analysis Date: **6/27/2012 08:00 PM**

Client ID: **SBKR1225L505S060512S005** Run ID: **ICPMS2_120627A** SeqNo: **2015136** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09774	0.0050	0.1	0.0009919	96.7	80-120	0			

MSD Sample ID: **1206816-06AMSD** Units: **mg/L** Analysis Date: **6/27/2012 08:05 PM**

Client ID: **SBKR1225L505S060512S005** Run ID: **ICPMS2_120627A** SeqNo: **2015138** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09338	0.0050	0.1	0.0009919	92.4	80-120	0.09774	4.56	20	

The following samples were analyzed in this batch:

1206816-01A	1206816-02A	1206816-03A
1206816-04A	1206816-05A	1206816-06A
1206816-07A	1206816-08A	1206816-09A
1206816-10A	1206816-11A	1206816-12A
1206816-13A	1206816-14A	1206816-15A
1206816-16A	1206816-17A	1206816-18A
1206816-19A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41983** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41983-41983** Units: **µg/L** Analysis Date: **6/27/2012 07:37 PM**
Client ID: Run ID: **SVMS7_120627A** SeqNo: **2015740** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*18.23*	0	*50*	0	*36.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*15.03*	0	*50*	0	*30.1*	*36-94*	0			*S*
Surr: 2-Fluorophenol	*10.18*	0	*50*	0	*20.4*	*10-75*	0			
Surr: 4-Terphenyl-d14	*16.16*	0	*50*	0	*32.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*16*	0	*50*	0	*32*	*41-104*	0			*S*
Surr: Phenol-d6	*6.42*	0	*50*	0	*12.8*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206816
Project: Marshall KRRI SPLP Reactivation June 2012

QC BATCH REPORT

Batch ID: **41983** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSW1-41983-41983** Units: **µg/L** Analysis Date: **6/27/2012 05:38 PM**
Client ID: Run ID: **SVMS7_120627A** SeqNo: **2015736** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	11.55	5.0	20	0	57.8	45-105	0			
Acenaphthene	11.53	5.0	20	0	57.6	45-110	0			
Acenaphthylene	11.37	5.0	20	0	56.8	50-105	0			
Anthracene	13.09	5.0	20	0	65.4	55-110	0			
Benzo(a)anthracene	13.22	5.0	20	0	66.1	55-110	0			
Benzo(a)pyrene	13.64	5.0	20	0	68.2	55-110	0			
Benzo(b)fluoranthene	13.92	5.0	20	0	69.6	45-120	0			
Benzo(g,h,i)perylene	12.84	5.0	20	0	64.2	40-125	0			
Benzo(k)fluoranthene	14.37	5.0	20	0	71.8	45-125	0			
Chrysene	13.3	5.0	20	0	66.5	55-110	0			
Dibenzo(a,h)anthracene	13.09	5.0	20	0	65.4	40-125	0			
Fluoranthene	14.34	5.0	20	0	71.7	55-115	0			
Fluorene	12.98	5.0	20	0	64.9	50-110	0			
Indeno(1,2,3-cd)pyrene	13.02	5.0	20	0	65.1	45-125	0			
Naphthalene	10.81	5.0	20	0	54	40-100	0			
Phenanthrene	12.38	5.0	20	0	61.9	50-115	0			
Pyrene	14.15	5.0	20	0	70.8	50-130	0			
Surr: 2,4,6-Tribromophenol	*34.65*	0	*50*	0	*69.3*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*23.56*	0	*50*	0	*47.1*	*36-94*	0			
Surr: 2-Fluorophenol	*17.43*	0	*50*	0	*34.9*	*10-75*	0			
Surr: 4-Terphenyl-d14	*34.14*	0	*50*	0	*68.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*24.14*	0	*50*	0	*48.3*	*41-104*	0			
Surr: Phenol-d6	*11.38*	0	*50*	0	*22.8*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41983** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206753-19B MS** Units: **µg/L** Analysis Date: **6/27/2012 06:08 PM**
Client ID: Run ID: **SVMS7_120627A** SeqNo: **2015737** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	12.2	5.0	20	0	61	45-105	0			
Acenaphthene	12.37	5.0	20	0	61.8	45-110	0			
Acenaphthylene	12.19	5.0	20	0	61	50-105	0			
Anthracene	13.24	5.0	20	0	66.2	55-110	0			
Benzo(a)anthracene	13.06	5.0	20	0	65.3	55-110	0			
Benzo(a)pyrene	13.93	5.0	20	0	69.6	55-110	0			
Benzo(b)fluoranthene	14.62	5.0	20	0	73.1	45-120	0			
Benzo(g,h,i)perylene	12.87	5.0	20	0	64.4	40-125	0			
Benzo(k)fluoranthene	13.55	5.0	20	0	67.8	45-125	0			
Chrysene	13.62	5.0	20	0	68.1	55-110	0			
Dibenzo(a,h)anthracene	13.23	5.0	20	0	66.2	40-125	0			
Fluoranthene	14.66	5.0	20	0	73.3	55-115	0			
Fluorene	13.54	5.0	20	0	67.7	50-110	0			
Indeno(1,2,3-cd)pyrene	13.08	5.0	20	0	65.4	45-125	0			
Naphthalene	11.65	5.0	20	0	58.2	40-100	0			
Phenanthrene	12.49	5.0	20	0	62.4	50-115	0			
Pyrene	13.85	5.0	20	0	69.2	50-130	0			
Surr: 2,4,6-Tribromophenol	*34.7*	0	*50*	0	*69.4*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*25.64*	0	*50*	0	*51.3*	*36-94*	0			
Surr: 2-Fluorophenol	*17.23*	0	*50*	0	*34.5*	*10-75*	0			
Surr: 4-Terphenyl-d14	*32.66*	0	*50*	0	*65.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*25.1*	0	*50*	0	*50.2*	*41-104*	0			
Surr: Phenol-d6	*10.6*	0	*50*	0	*21.2*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206816
Project: Marshall KRRI SPLP Reactivation June 2012

QC BATCH REPORT

Batch ID: **41983** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206753-19B MSD** Units: **µg/L** Analysis Date: **6/27/2012 06:37 PM**
Client ID: Run ID: **SVMS7_120627A** SeqNo: **2015738** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	13.39	5.0	20	0	67	45-105	12.2	9.3	30	
Acenaphthene	13.36	5.0	20	0	66.8	45-110	12.37	7.7	30	
Acenaphthylene	13.29	5.0	20	0	66.4	50-105	12.19	8.63	30	
Anthracene	14.7	5.0	20	0	73.5	55-110	13.24	10.5	30	
Benzo(a)anthracene	14.73	5.0	20	0	73.6	55-110	13.06	12	30	
Benzo(a)pyrene	15.39	5.0	20	0	77	55-110	13.93	9.96	30	
Benzo(b)fluoranthene	15.65	5.0	20	0	78.2	45-120	14.62	6.81	30	
Benzo(g,h,i)perylene	14.69	5.0	20	0	73.4	40-125	12.87	13.2	30	
Benzo(k)fluoranthene	15.87	5.0	20	0	79.4	45-125	13.55	15.8	30	
Chrysene	14.89	5.0	20	0	74.4	55-110	13.62	8.91	30	
Dibenzo(a,h)anthracene	14.93	5.0	20	0	74.6	40-125	13.23	12.1	30	
Fluoranthene	16.86	5.0	20	0	84.3	55-115	14.66	14	30	
Fluorene	14.45	5.0	20	0	72.2	50-110	13.54	6.5	30	
Indeno(1,2,3-cd)pyrene	14.85	5.0	20	0	74.2	45-125	13.08	12.7	30	
Naphthalene	12.69	5.0	20	0	63.4	40-100	11.65	8.55	30	
Phenanthrene	14.11	5.0	20	0	70.6	50-115	12.49	12.2	30	
Pyrene	15.12	5.0	20	0	75.6	50-130	13.85	8.77	30	
Surr: 2,4,6-Tribromophenol	*38.65*	0	*50*	0	*77.3*	*21-125*	34.7	*10.8*	*40*	
Surr: 2-Fluorobiphenyl	*27.62*	0	*50*	0	*55.2*	*36-94*	25.64	*7.44*	*40*	
Surr: 2-Fluorophenol	*18.37*	0	*50*	0	*36.7*	*10-75*	17.23	*6.4*	*40*	
Surr: 4-Terphenyl-d14	*33.78*	0	*50*	0	*67.6*	*26-119*	32.66	*3.37*	*40*	
Surr: Nitrobenzene-d5	*27.16*	0	*50*	0	*54.3*	*41-104*	25.1	*7.88*	*40*	
Surr: Phenol-d6	*11.58*	0	*50*	0	*23.2*	*11-50*	10.6	*8.84*	*40*	

The following samples were analyzed in this batch: 1206816-19A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206816
1205724

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_052212_LJL2 | Task: KRRI_1150L,1050L
Total # of Samples: 11 | Event Complete?
Turn Around Time: 5 Day | Rush | No

BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260			SPLP									
1	SBKR1050L512S052212S005	SBKR1050L512	SO	G	05/22/2012 10:06	3			X	X	X	X	X											
2	SBKR1050L513S052212S005	SBKR1050L513	SO	G	05/22/2012 10:25	3			X	X	X	X	X											
3	SBKR1050L513D052212S005	SBKR1050L513	SO	G	05/22/2012 10:25	3	DUPLICATE		X	X	X	X	X			X								
4	SBKR1050L514S052212S005	SBKR1050L514	SO	G	05/22/2012 11:06	3			X	X	X	X	X											
5	SBKR1050L515S052212S006	SBKR1050L515	SO	G	05/22/2012 13:28	3			X	X	X	X	X											
6	SBKR1050L516S052212S005	SBKR1050L516	SO	G	05/22/2012 13:54	3			X	X	X	X	X											
7	SBKR1050L517S052212S008	SBKR1050L517	SO	G	05/22/2012 14:24	3			X	X	X	X	X			X								
8	SBKR1050L518S052212S005	SBKR1050L518	SO	G	05/22/2012 14:50	3			X	X	X	X	X											
9	SBKR1050L519S052212S005	SBKR1050L519	SO	G	05/22/2012 15:30	3			X	X	X	X	X											
10	SBKR1050L519T052212MX	SBKR1050L519	SQ	G	05/22/2012 00:00	1	TRIP BLANK						X											
11	SBKR1150L506S052212S004	SBKR1150L506	SO	G	05/22/2012 08:56	3			X	X	X	X	X											

01 — 02 —

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-22-12	1706		5-22-12	1706
	5-23-12	1319		5-23-12	1319

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
3.09	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

1206816
1206043

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC # ENBRIDGE_060112_PMB2 | Task: KRRI_1150,1175
Total # of Samples: 7 | Event Complete?

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX | Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260												
									None	None	None	None	MeOH												
								Analysis							SRLPM6										
1	SBKR1150L529S060112S007	SBKR1150L529	SO	G	06/01/2012 11:20	3			X	X	X	X	X												
2	SBKR1150L530S060112S010	SBKR1150L530	SO	G	06/01/2012 13:35	3			X	X	X	X	X		X										
3	SBKR1150L530D060112S010	SBKR1150L530	SO	G	06/01/2012 13:35	3	DUPLICATE		X	X	X	X	X												
4	SBKR1150L531S060112S008	SBKR1150L531	SO	G	06/01/2012 14:00	3			X	X	X	X	X		X										
5	SBKR1150L532S060112S007	SBKR1150L532	SO	G	06/01/2012 15:40	3			X	X	X	X	X												
6	SBKR1150L532T060112MX	SBKR1150L532	SQ	G	06/01/2012 00:00	1	TRIP BLANK						X												
7	SBKR1175L501S060112S006	SBKR1175L501	SO	G	06/01/2012 11:45	3			X	X	X	X	X												

03
04

Additional Comments/Special Instructions:

N

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-1-12	1703		6-1-12	1703
	6-1-12	1708		6-1-12	1708

Sample Receipt Conditions

Temp in OC	Samples on ice?	Sample Intact?	Trip Blank?
0.6°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

~~1206175~~
1206816

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060512_PMB1	Task: KRRI_1200,1225,1150
Total # of Samples: 7		Event Complete?

Turn Around Time	5 Day	Rush	No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH								
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260								
1	SBKR1150L535S060512S006	SBKR1150L535	SO	G	06/05/2012 15:50	3			X	X	X	X	X		X SPLP Mo						
2	SBKR1150L535T060512MX	SBKR1150L535	SQ	G	06/05/2012 00:00	1	TRIP BLANK						X								
3	SBKR1200L510S060512S005	SBKR1200L510	SO	G	06/05/2012 08:40	3			X	X	X	X	X								
4	SBKR1200L511S060512S005	SBKR1200L511	SO	G	06/05/2012 09:35	3			X	X	X	X	X								
5	SBKR1200L513S060512S003	SBKR1200L513	SO	G	06/05/2012 10:40	3			X	X	X	X	X		No						
6	SBKR1225L505S060512S005	SBKR1225L505	SO	G	06/05/2012 13:35	3			X	X	X	X	X		X						
7	SBKR1225L507S060512S008	SBKR1225L507	SO	G	06/05/2012 14:15	3			X	X	X	X	X								

05

06

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Peter Baerman	6.5.12	1702		6.5.12	1702
	6.6.12	1305		6.6.12	1305

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
2.2°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

~~1206176~~
1206816

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC # ENBRIDGE_060512_LJL1 | Task: KRRI_1175,120,1225
Total # of Samples: 6 | Event Complete?
Turn Around Time: 5 Day | Rush: No
BILLING CODE: 6.00

Lab Information		Project Information		Other Information			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60102778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH													
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260													
07 1	SBKR1175L502S060512S004	SBKR1175L502	SO	G	06/05/2012 16:05	3			X	X	X	X	X		X											
2	SBKR1175L502T060512MX	SBKR1175L502	SQ	G	06/05/2012 00:00	1	TRIP BLANK						X													
3	SBKR1200L512S060512S004	SBKR1200L512	SO	G	06/05/2012 09:50	3			X	X	X	X	X													
4	SBKR1225L503S060512S004	SBKR1225L503	SO	G	06/05/2012 10:47	3			X	X	X	X	X													
08 5	SBKR1225L504S060512S006	SBKR1225L504	SO	G	06/05/2012 13:15	3	MDEQ SPLIT		X	X	X	X	X		X											
6	SBKR1225L506S060512S004	SBKR1225L506	SO	G	06/05/2012 13:54	3			X	X	X	X	X													

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-5-12	1708		6-5-12	1708
	6-6-12	1305		6-6-12	1305

SHIPPING INFO	SAMPLER NAME AND SIGNATURE			
Company:	PRINT Name of SAMPLER	LORRI LEGO (LJL1)		
Tracking #:	SIGNATURE of SAMPLER	DATE Signed	Time:	

Sample Receipt Conditions							
	Y/N		Y/N		Y/N		
5.0 °C	(Y)N		(Y)N		(Y)N		
	Y/N		Y/N		Y/N		
	Y/N		Y/N		Y/N		
Temp in OC	Samples on Ice?		Sample Intact?		Trip Blank?		

1206177
1206816

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060412_PMB1	Task: KRRI_1150,1200,1225
	Total # of Samples: 12	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State, Phone #:	Houson, TX 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids State, Zip MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Sbemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@eecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample .I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR1150L534S060412S005	SBKR1150L534	SO	G	06/04/2012 09:05	3			X	X	X	X	X											
2	SBKR1200L502S060412S005	SBKR1200L502	SO	G	06/04/2012 10:20	3			X	X	X	X	X											
3	SBKR1200L502S060412S014	SBKR1200L502	SO	G	06/04/2012 10:30	3			X	X	X	X	X											
4	SBKR1200L504S060412S004	SBKR1200L504	SO	G	06/04/2012 11:40	3			X	X	X	X	X											
5	SBKR1200L506S060412S005	SBKR1200L506	SO	G	06/04/2012 13:30	3			X	X	X	X	X											
6	SBKR1200L507S060412S004	SBKR1200L507	SO	G	06/04/2012 14:30	3			X	X	X	X	X											
7	SBKR1200L508S060412S007	SBKR1200L508	SO	G	06/04/2012 15:30	3			X	X	X	X	X											
8	SBKR1200L509S060412S004	SBKR1200L509	SO	G	06/04/2012 16:45	3			X	X	X	X	X											
9	SBKR1200L509T060412MX	SBKR1200L509	SQ	G	06/04/2012 00:00	1	TRIP BLANK						X											
10	SBKR1225L501S060412S010	SBKR1225L501	SO	G	06/04/2012 15:55	3			X	X	X	X	X											
11	SBKR1225L501D060412S010	SBKR1225L501	SO	G	06/04/2012 15:55	3	DUPLICATE		X	X	X	X	X											
12	SBKR1225L502S060412S005	SBKR1225L502	SO	G	06/04/2012 16:25	6	MS/MSD		X	X	X	X	X											

SPLP Mo 6/22/12

09
10

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.4.12	1720		6.4.12	1720
	6.6.12	1305		6.6.12	1305

Sample Receipt Conditions					
	Y/N		Y/N		Y/N
5.0°C	(Y)N		(Y)N		(Y)N
	Y/N		Y/N		Y/N
	Y/N		Y/N		Y/N
Temp in °C	Samples on ice?		Sample Intact?		Trip Blank?

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER: DATE Signed: Time:

~~1206298~~ 1206816

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC # ENBRIDGE_060612_LJL1 | Task: KRRI_1150,1200.1225
Total # of Samples: 14 | Event Complete?

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
11	SBKR1150L536S060612S007	SBKR1150L536	SO	G	06/06/2012 09:00	3			X	X	X	X	X		X									
	SBKR1150L537S060612S005	SBKR1150L537	SO	G	06/06/2012 17:00	3			X	X	X	X	X											
	SBKR1150L537T060612MX	SBKR1150L537	SQ	G	06/06/2012 00:00	1	TRIP BLANK						X											
12	SBKR1200L514S060612S004	SBKR1200L514	SO	G	06/06/2012 09:30	3			X	X	X	X	X		X									
13	SBKR1200L515S060612S006	SBKR1200L515	SO	G	06/06/2012 10:25	3	MDEQ SPLIT		X	X	X	X	X		X									
14	SBKR1200L516S060612S005	SBKR1200L516	SO	G	06/06/2012 10:48	3			X	X	X	X	X		X									
15	SBKR1200L516D060612S005	SBKR1200L516	SO	G	06/06/2012 10:48	3	DUPLICATE		X	X	X	X	X											
	SBKR1200L517S060612S006	SBKR1200L517	SO	G	06/06/2012 11:22	3			X	X	X	X	X											
	SBKR1200L518S060612S005	SBKR1200L518	SO	G	06/06/2012 14:30	3			X	X	X	X	X											
	SBKR1200L519S060612S006	SBKR1200L519	SO	G	06/06/2012 13:55	3			X	X	X	X	X											
16	SBKR1200L520S060612S005	SBKR1200L520	SO	G	06/06/2012 15:50	3			X	X	X	X	X		X									
	SBKR1200L521S060612S006	SBKR1200L521	SO	G	06/06/2012 16:10	3	MDEQ SPLIT		X	X	X	X	X											
17	SBKR1225L508S060612S005	SBKR1225L508	SO	G	06/06/2012 13:40	3			X	X	X	X	X		X									
18	SBKR1225L509S060612S005	SBKR1225L509	SO	G	06/06/2012 16:30	3			X	X	X	X	X		X									

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-6-12	1740		6-6-12	1740
	6-8-12	1533		6-8-12	1533

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.4°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1), PETE BAERMAN
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1206816
1206799

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_060712_PMB1	Task: KRRI_1150
Total # of Samples: 6		Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houston, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH								
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260	SPLP Me + PMH							
1	SBKR1150L538S060712S005	SBKR1150L538	SO	G	06/07/2012 09:15	3			X	X	X	X	X	X							
2	SBKR1150L538S060712S021	SBKR1150L538	SO	G	06/07/2012 09:25	3			X	X	X	X	X								
3	SBKR1150L539S060712S004	SBKR1150L539	SO	G	06/07/2012 10:10	3			X	X	X	X	X								
4	SBKR1150L540S060712S006	SBKR1150L540	SO	G	06/07/2012 10:45	3			X	X	X	X	X								
5	SBKR1150L540S060712S014	SBKR1150L540	SO	G	06/07/2012 11:00	3			X	X	X	X	X								
6	SBKR1150L540T060712MX	SBKR1150L540	SQ	G	06/07/2012 00:00	1	TRIP BLANK						X								

19

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.7.12	1557		6.8.12	1535

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.0 c.	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER: DATE Signed: Time:

Ann Preston 1206816

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Monday, June 18, 2012 9:40 AM
To: Ann Preston
Subject: KRRI SPLP

Ann – Here is the latest list for SPLP Mo. One sample also has PNAs,

1205724-03, 07	01, 02
1206043-02, 04	03, 04
1206176-01, 05	07, 08
1206175-01, 06	05, 06
1206177-02, 03	09, 10
1206299-01 PNAs Also	19
1206298-01, 04, 05, 06, 07, 11, 13, 14	11-18

Thanks

Mike

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 00:00**

Work Order: **1206816** Received by: **AP**

Checklist completed by Ann Preston (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Soil
Carrier name:

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes: Activated from refrigerated storage

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 05-22-12 Time: 1720

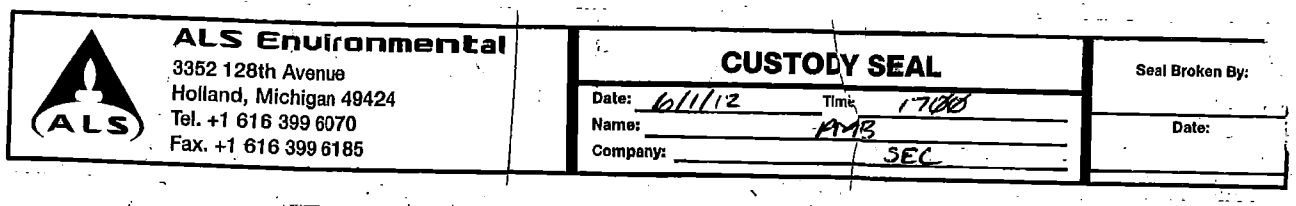
Name: Timothy Penn

Company: SEL

Seal Broken By:

Date:

0.6°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6/1/12 Time: 1700
Name: AMB
Company: SEC

Seal Broken By:

Date:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

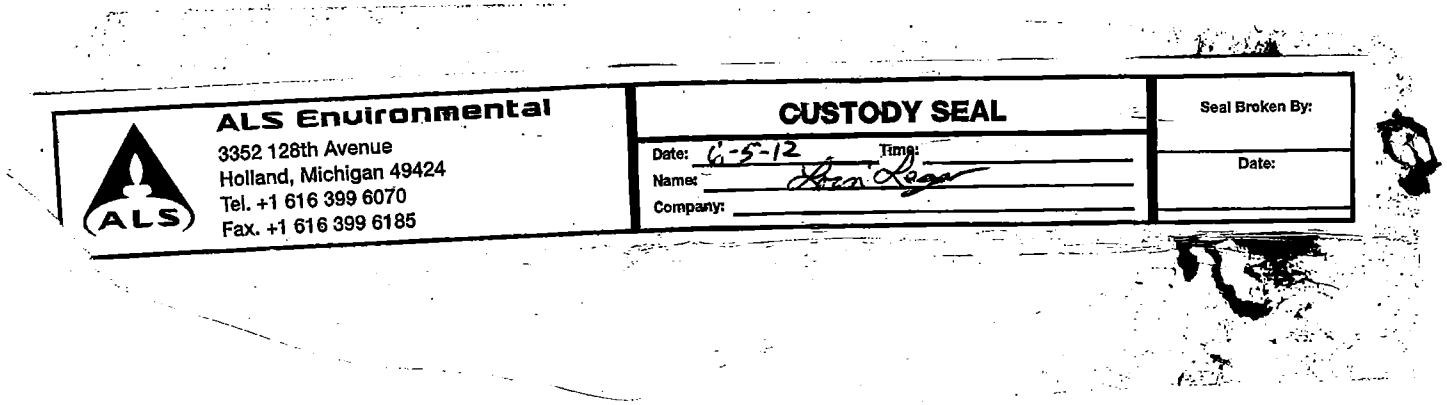
Date: 6-5-12 Time: 1700
Name: PMB
Company: SEC

Seal Broken By:

Date:

3.0°C

5.0°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

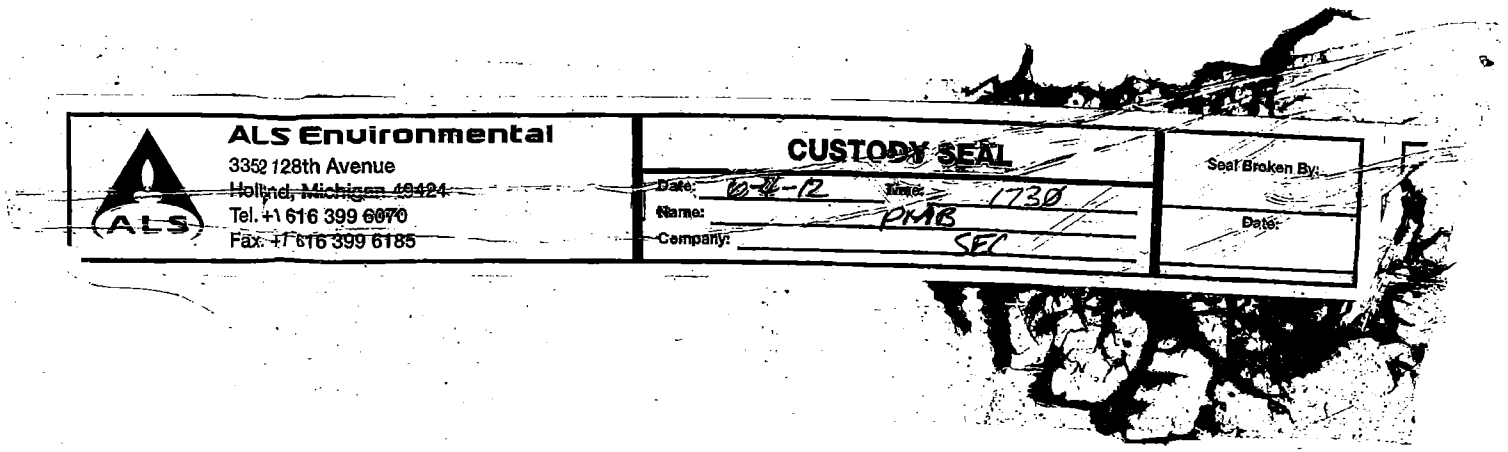
CUSTODY SEAL

Date: 6-5-12 Time:
Name: Ken Logan
Company:

Seal Broken By:

Date:

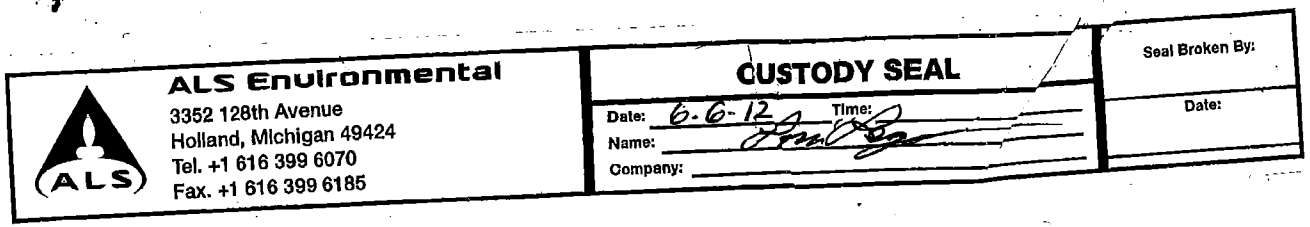
5.0°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

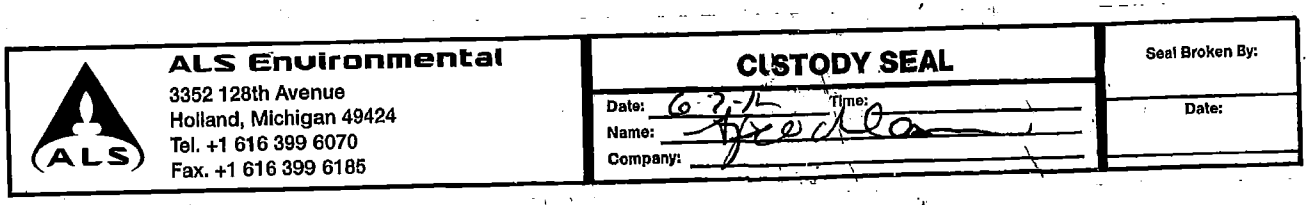
CUSTODY SEAL
Date: 6-4-12 Time: 1730
Name: PMB
Company: SEC

Seal Broken By:
Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-6-12
Time:
Name:
Company:
Seal Broken By:
Date:

5.4c

50.c



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-7-15 Time:
Name:
Company:

Seal Broken By:

Date:

29-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0600-0625R,0650I 0650R 6/21/12** Work Order: **1206817**

Dear Bryan,

ALS Environmental received 13 samples on 22-Jun-2012 04:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 73.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12
Work Order: **1206817**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206817-01	SBKR0600R514S062112S010	Soil		6/21/2012 10:31	6/22/2012 16:46	☐
1206817-02	SBKR0600R515S062112S005	Soil		6/21/2012 10:41	6/22/2012 16:46	☐
1206817-03	SBKR0625R503S062112S006	Soil		6/21/2012 09:10	6/22/2012 16:46	☐
1206817-04	SBKR0625R504D062112S005	Soil		6/21/2012 11:40	6/22/2012 16:46	☐
1206817-05	SBKR0625R504S062112S005	Soil		6/21/2012 11:40	6/22/2012 16:46	☐
1206817-06	SBKR0625R505S062112S006	Soil		6/21/2012 11:54	6/22/2012 16:46	☐
1206817-07	SBKR0625R506S062112S006	Soil		6/21/2012 13:28	6/22/2012 16:46	☐
1206817-08	SBKR0625R507S062112S005	Soil		6/21/2012 13:47	6/22/2012 16:46	☐
1206817-09	SBKR0650I501S062112S005	Soil		6/21/2012 15:34	6/22/2012 16:46	☐
1206817-10	SBKR0650I502S062112S004	Soil		6/21/2012 15:46	6/22/2012 16:46	☐
1206817-11	SBKR0650I502T062112MX	Soil		6/21/2012	6/22/2012 16:46	☐
1206817-12	SBKR0650R505S062112S004	Soil		6/21/2012 09:28	6/22/2012 16:46	☐
1206817-13	SBKR0650R505S062112S012	Soil		6/21/2012 09:33	6/22/2012 16:46	☐

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12
Work Order: 1206817

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41951 sample SBKR0625R503S062112S006 MSD recovery for DRO was below control limits. Both the MS recovery and RPD met quality control criteria. No data requires qualification. The MS/MSD recoveries for ORO were below control limits due to matrix interference. The result for ORO in the parent sample may be biased low.

Batch 41955 sample SBKR0625R503S062112S006 MS/MSD recoveries for Beryllium, Molybdenum, and Nickel, and MSD recovery for Vanadium were below control limits. The results for these elements in the parent sample may be biased low.

Batch 41943 LCS recovery for 4-Methyl-2-pentanone was above control limits. All samples in this quality control batch were ND for this compound. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch 41950 samples 1206817-02, 1206817-04, 1206817-05, 1206817-06, 1206817-08, 1206817-09, 1206817-10, and 1206817-12 PAH internal standard recoveries were below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12
WorkOrder: **1206817**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R514S062112S010
Work Order:	1206817	**Collection Date:**	6/21/2012 10:31:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	ND	10	4.0		mg/Kg-dry	1	6/26/2012
ORO (C20-C34)	ND	20	4.0		mg/Kg-dry	1	6/26/2012
Surr: 4-Terphenyl-d14	*52.9*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	**1.1**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**33**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**160**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*74.6*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*65.7*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*78.8*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*80.9*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*64.2*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*69.9*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R514S062112S010
Work Order:	1206817	**Collection Date:**	6/21/2012 10:31:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	41	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	41	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R514S062112S010
Work Order:	1206817	**Collection Date:**	6/21/2012 10:31:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	41	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*93.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*107*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**9.9**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R515S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 10:41:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**37**	**11**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**390**	**23**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*40.1*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**5.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**9.7**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*73.5*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*64.8*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*70.6*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*75.6*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*57.4*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*71.5*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R515S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 10:41:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	49	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	49	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0600R515S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 10:41:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	49	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*93.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**16**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R503S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 9:10:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**91**	**35**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**530**	**70**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*52.3*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.62	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	**1.7**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*87.5*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*74.3*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*88.0*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*77.8*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*71.2*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*80.4*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	670	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	670	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	670	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R503S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 9:10:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	670	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	670	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	670	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	670	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	670	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	670	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	670	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	2,200	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	2,200	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	5,600	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	670	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	670	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	670	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	670	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	670	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	670	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	670	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	670	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	670	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	2,200	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	670	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	670	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	670	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	670	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	670	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	670	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	670	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	670	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	670	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R503S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 9:10:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	670	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	670	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	670	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	1,300	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	670	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	670	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	670	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	2,200	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	670	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	670	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	670	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	670	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	670	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	670	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	670	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	2,200	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	670	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	670	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	670	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	670	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	670	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	670	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	670	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*107*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*93.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504D062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	ND	55	4.0		mg/Kg-dry	5	6/26/2012
ORO (C20-C34)	**1,100**	**110**	**4.0**		**mg/Kg-dry**	5	6/26/2012
Surr: 4-Terphenyl-d14	*55.5*	*39-115*			*%REC*	5	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	**440**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**810**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Chrysene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*70.5*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*68.7*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*79.8*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*90.1*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*65.7*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*78.3*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504D062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	46	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	46	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504D062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	46	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*91.7*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*107*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**14**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**55**	**54**	**4.0**		**mg/Kg-dry**	5	6/26/2012
ORO (C20-C34)	**1,600**	**110**	**4.0**		**mg/Kg-dry**	5	6/26/2012
Surr: 4-Terphenyl-d14	*47.2*	*39-115*			*%REC*	5	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**8.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/28/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(a)anthracene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(a)pyrene	**1,100**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(b)fluoranthene	**2,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Benzo(k)fluoranthene	**940**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Chrysene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Fluoranthene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/28/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Phenanthrene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Pyrene	**2,100**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Surr: 2,4,6-Tribromophenol	*81.7*	*34-140*			*%REC*	1	6/28/2012
Surr: 2-Fluorobiphenyl	*80.2*	*12-100*			*%REC*	1	6/28/2012
Surr: 2-Fluorophenol	*91.7*	*33-117*			*%REC*	1	6/28/2012
Surr: 4-Terphenyl-d14	*108*	*25-137*			*%REC*	1	6/28/2012
Surr: Nitrobenzene-d5	*73.8*	*37-107*			*%REC*	1	6/28/2012
Surr: Phenol-d6	*86.6*	*40-106*			*%REC*	1	6/28/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	46	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	46	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R504S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 11:40:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	46	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*98.2*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*98.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*95.1*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*95.2*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**14**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R505S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 11:54:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**89**	**24**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**490**	**48**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*52.3*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**890**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**1,200**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**1,700**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	**430**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(k)fluoranthene	**500**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Chrysene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	**360**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*81.1*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*68.1*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*74.3*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*79.5*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*59.6*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*75.2*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R505S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 11:54:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	2,400	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	280	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	280	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	280	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R505S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 11:54:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	560	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	280	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	280	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	280	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*95.6*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*95.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*94.7*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*94.8*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R506S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 1:28:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**68**	**18**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**610**	**36**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*44.9*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(k)fluoranthene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Chrysene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*80.8*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*69.2*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*77.6*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*76.8*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*64.8*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*77.5*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R506S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 1:28:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	550	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	170	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	170	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	550	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	170	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R506S062112S006
Work Order:	1206817	**Collection Date:**	6/21/2012 1:28:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	330	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	170	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	550	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	170	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	170	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*97.4*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*99.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*97.6*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R507S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 1:47:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**26**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**590**	**53**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*50.8*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**540**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**780**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**960**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	**480**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Chrysene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*77.7*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*63.7*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*75.6*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*58.5*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*72.9*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	410	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	410	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	410	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	410	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	410	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R507S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 1:47:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	410	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	410	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	410	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	410	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	410	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	410	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	410	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	3,400	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	410	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	410	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	410	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	410	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	410	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	410	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	410	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	410	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	410	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	410	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	410	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	410	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	410	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	410	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	410	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	410	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	410	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0625R507S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 1:47:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	410	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	410	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	410	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	820	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	410	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	410	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	410	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	410	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	410	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	410	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	410	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	410	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	410	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	410	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	410	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	410	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	410	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	410	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	410	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	410	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	410	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*95.2*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*96.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*91.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*94.2*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**65**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I501S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 3:34:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**76**	**26**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**1,100**	**51**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*42.4*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)anthracene	**2,600**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**3,100**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**5,300**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	**770**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(k)fluoranthene	**2,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Chrysene	**2,700**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	**4,600**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	**750**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**5,700**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*74.1*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*65.0*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*89.7*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*60.7*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*71.6*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I501S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 3:34:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	360	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	360	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	590	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I501S062112S005
Work Order:	1206817	**Collection Date:**	6/21/2012 3:34:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	710	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	360	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	360	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*94.4*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*93.7*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*95.2*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I502S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 3:46:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**24**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**920**	**48**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*54.9*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthylene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Anthracene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(a)anthracene	**3,200**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(a)pyrene	**3,600**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(b)fluoranthene	**5,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(g,h,i)perylene	**1,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(k)fluoranthene	**2,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Chrysene	**2,800**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Fluoranthene	**4,900**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/28/2012
Indeno(1,2,3-cd)pyrene	**940**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Phenanthrene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Pyrene	**5,800**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Surr: 2,4,6-Tribromophenol	*80.5*	*34-140*			*%REC*	1	6/28/2012
Surr: 2-Fluorobiphenyl	*67.5*	*12-100*			*%REC*	1	6/28/2012
Surr: 2-Fluorophenol	*77.2*	*33-117*			*%REC*	1	6/28/2012
Surr: 4-Terphenyl-d14	*91.0*	*25-137*			*%REC*	1	6/28/2012
Surr: Nitrobenzene-d5	*62.0*	*37-107*			*%REC*	1	6/28/2012
Surr: Phenol-d6	*74.8*	*40-106*			*%REC*	1	6/28/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	300	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	300	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	300	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I502S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 3:46:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	300	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	300	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	300	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	300	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	300	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	300	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	300	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	990	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	990	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	2,500	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	300	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	300	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	300	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	300	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	300	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	300	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	300	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	300	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	300	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	990	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	300	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	300	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	300	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	300	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	300	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	300	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	300	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	300	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I502S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 3:46:00 PM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	300	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	300	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	600	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	300	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	300	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	300	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	990	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	300	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	300	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	300	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	300	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	300	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	300	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	300	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	300	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	300	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	300	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	300	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	300	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	300	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	300	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*96.2*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*96.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*92.3*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*93.2*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**60**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I502T062112MX
Work Order:	1206817	**Collection Date:**	6/21/2012
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/26/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/26/2012
Benzene	ND	50	50		µg/Kg	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromoform	ND	100	100		µg/Kg	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg	1	6/26/2012
Chloroform	ND	50	50		µg/Kg	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I502T062112MX
Work Order:	1206817	**Collection Date:**	6/21/2012
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Styrene	ND	50	50		µg/Kg	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/26/2012
Toluene	ND	100	100		µg/Kg	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/26/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*95.0*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*91.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*94.0*	*70-130*			*%REC*	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 9:28:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**79**	**18**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**780**	**37**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*44.6*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/28/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(a)anthracene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(a)pyrene	**630**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Benzo(g,h,i)perylene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Benzo(k)fluoranthene	**490**	**330**	**330**	*	**µg/Kg-dry**	1	6/28/2012
Chrysene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Fluoranthene	**810**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/28/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/28/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Pyrene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Surr: 2,4,6-Tribromophenol	*84.3*	*34-140*			*%REC*	1	6/28/2012
Surr: 2-Fluorobiphenyl	*72.8*	*12-100*			*%REC*	1	6/28/2012
Surr: 2-Fluorophenol	*81.9*	*33-117*			*%REC*	1	6/28/2012
Surr: 4-Terphenyl-d14	*98.0*	*25-137*			*%REC*	1	6/28/2012
Surr: Nitrobenzene-d5	*66.3*	*37-107*			*%REC*	1	6/28/2012
Surr: Phenol-d6	*79.4*	*40-106*			*%REC*	1	6/28/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	150	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	150	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 9:28:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	150	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	150	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	150	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	150	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	500	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	150	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	150	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	150	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	150	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	150	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	150	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	150	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	500	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	150	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	150	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S004
Work Order:	1206817	**Collection Date:**	6/21/2012 9:28:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-12	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	150	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	300	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	150	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	150	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	500	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	150	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	150	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	150	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	150	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	150	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	150	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	150	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	150	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	150	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	150	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*94.2*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*96.6*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*92.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*95.0*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**46**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S012
Work Order:	1206817	**Collection Date:**	6/21/2012 9:33:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**72**	**18**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**280**	**36**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*53.9*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	**0.54**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/26/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**8.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*82.7*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*70.5*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*83.2*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*78.6*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*67.4*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*78.6*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S012
Work Order:	1206817	**Collection Date:**	6/21/2012 9:33:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	550	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	550	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R505S062112S012
Work Order:	1206817	**Collection Date:**	6/21/2012 9:33:00 AM
Project:	Marshall KRRI 0600-0625R,0650I 0650R 6/21/12		
Lab ID:	1206817-13	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	330	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	550	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*94.8*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*95.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*93.7*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*92.6*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41951** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41951-41951** Units: **mg/Kg** Analysis Date: **6/26/2012 06:59 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2013987** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.274*	0	*5*	0	*45.5*	*39-115*	0			

LCS Sample ID: **DLCSS1-41951-41951** Units: **mg/Kg** Analysis Date: **6/26/2012 06:59 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014005** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	382.7	10	500	0	76.5	60-130	0			
ORO (C20-C34)	430.6	20	500	0	86.1	60-130	0			
Surr: 4-Terphenyl-d14	*2.691*	0	*5*	0	*53.8*	*39-115*	0			

MS Sample ID: **1206817-03B MS** Units: **mg/Kg** Analysis Date: **6/26/2012 07:24 PM**

Client ID: **SBKR0625R503S062112S006** Run ID: **GC8_120626A** SeqNo: **2013988** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	376.6	9.8	489.9	38.53	69	60-130	0			
ORO (C20-C34)	694.8	20	489.9	575.4	24.4	60-130	0			S
Surr: 4-Terphenyl-d14	*2.522*	0	*4.899*	0	*51.5*	*39-115*	0			

MSD Sample ID: **1206817-03B MSD** Units: **mg/Kg** Analysis Date: **6/26/2012 07:24 PM**

Client ID: **SBKR0625R503S062112S006** Run ID: **GC8_120626A** SeqNo: **2014006** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	279.2	9.7	485.2	38.53	49.6	60-130	376.6	29.7	30	S
ORO (C20-C34)	373.2	19	485.2	575.4	-41.7	60-130	694.8	60.2	30	SR
Surr: 4-Terphenyl-d14	*2.025*	0	*4.852*	0	*41.7*	*39-115*	2.522	*21.8*	*30*	

The following samples were analyzed in this batch:

1206817-01B	1206817-02B	1206817-03B
1206817-04B	1206817-05B	1206817-06B
1206817-07B	1206817-08B	1206817-09B
1206817-10B	1206817-12B	1206817-13B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **42018A** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42018-42018A** Units: **mg/Kg** Analysis Date: **6/28/2012 02:46 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016115** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.455*	0	*5*	0	*49.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-42018-42018A** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016118** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	375.9	10	500	0	75.2	60-130	0			
ORO (C20-C34)	559.2	20	500	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.561*	0	*5*	0	*51.2*	*39-115*	0			

MS Sample ID: **1206817-03B MS** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **GC8_120628A** SeqNo: **2016116** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	314.6	9.2	462	25.31	62.6	60-130	0			
ORO (C20-C34)	435.5	18	462	147.6	62.3	60-130	0			
Surr: 4-Terphenyl-d14	*2.204*	0	*4.62*	0	*47.7*	*39-115*	0			

MSD Sample ID: **1206817-03B MSD** Units: **mg/Kg** Analysis Date: **6/28/2012 03:36 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **GC8_120628A** SeqNo: **2016119** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	321.8	9.6	482.4	25.31	61.5	60-130	314.6	2.25	30	
ORO (C20-C34)	584.1	19	482.4	147.6	90.5	60-130	435.5	29.2	30	
Surr: 4-Terphenyl-d14	*2.213*	0	*4.824*	0	*45.9*	*39-115*	2.204	*0.434*	*30*	

The following samples were analyzed in this batch: 1206817-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41955** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41955-41955** Units: **mg/Kg** Analysis Date: **6/26/2012 06:17 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013380** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.004733	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41955-41955** Units: **mg/Kg** Analysis Date: **6/26/2012 06:23 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013381** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.372	0.10	5	0	87.4	80-120	0			
Molybdenum	4.386	0.25	5	0	87.7	80-120	0			
Nickel	4.302	0.25	5	0	86	80-120	0			
Vanadium	4.461	0.25	5	0	89.2	80-120	0			

MS Sample ID: **1206817-03BMS** Units: **mg/Kg** Analysis Date: **6/26/2012 06:54 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **ICPMS1_120626A** SeqNo: **2013386** Prep Date: **6/26/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.162	0.61	7.634	0.1099	79.3	80-120	0			S
Molybdenum	6.519	1.5	7.634	0.4644	79.3	80-120	0			S
Nickel	9.298	1.5	7.634	3.296	78.6	80-120	0			S
Vanadium	13.04	1.5	7.634	6.886	80.6	80-120	0			

MSD Sample ID: **1206817-03BMSD** Units: **mg/Kg** Analysis Date: **6/26/2012 07:00 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **ICPMS1_120626A** SeqNo: **2013387** Prep Date: **6/26/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.034	0.62	7.74	0.1099	76.5	80-120	6.162	2.1	25	S
Molybdenum	6.508	1.5	7.74	0.4644	78.1	80-120	6.519	0.174	25	S
Nickel	8.96	1.5	7.74	3.296	73.2	80-120	9.298	3.7	25	S
Vanadium	12.64	1.5	7.74	6.886	74.4	80-120	13.04	3.07	25	S

The following samples were analyzed in this batch:

1206817-01B	1206817-02B	1206817-03B
1206817-04B	1206817-05B	1206817-06B
1206817-07B	1206817-08B	1206817-09B
1206817-10B	1206817-12B	1206817-13B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41950-41950** Units: **µg/Kg** Analysis Date: **6/27/2012 12:05 PM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015322** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3160*	0	*5000*	0	*63.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4045*	0	*5000*	0	*80.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4379*	0	*5000*	0	*87.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4216*	0	*5000*	0	*84.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3982*	0	*5000*	0	*79.6*	*37-107*	0			
Surr: Phenol-d6	*4432*	0	*5000*	0	*88.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41950-41950** Units: **µg/Kg** Analysis Date: **6/27/2012 09:50 AM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015316** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1853	50	2000	0	92.6	45-105	0			
Acenaphthene	1886	50	2000	0	94.3	45-110	0			
Acenaphthylene	1965	50	2000	0	98.2	45-105	0			
Anthracene	2030	50	2000	0	102	55-105	0			
Benzo(a)anthracene	2091	50	2000	0	105	50-110	0			
Benzo(a)pyrene	2001	50	2000	0	100	50-110	0			
Benzo(b)fluoranthene	2097	50	2000	0	105	45-115	0			
Benzo(g,h,i)perylene	2402	50	2000	0	120	40-125	0			
Benzo(k)fluoranthene	2033	50	2000	0	102	45-115	0			
Chrysene	2103	50	2000	0	105	55-110	0			
Dibenzo(a,h)anthracene	2250	50	2000	0	112	40-125	0			
Fluoranthene	2203	50	2000	0	110	55-115	0			
Fluorene	1939	50	2000	0	97	50-110	0			
Indeno(1,2,3-cd)pyrene	2361	50	2000	0	118	40-120	0			
Naphthalene	1826	50	2000	0	91.3	40-105	0			
Phenanthrene	2098	50	2000	0	105	50-110	0			
Pyrene	2250	50	2000	0	112	45-125	0			
Surr: 2,4,6-Tribromophenol	*4019*	0	*5000*	0	*80.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3623*	0	*5000*	0	*72.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4277*	0	*5000*	0	*85.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4131*	0	*5000*	0	*82.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3626*	0	*5000*	0	*72.5*	*37-107*	0			
Surr: Phenol-d6	*4070*	0	*5000*	0	*81.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206817-03B MS** Units: **µg/Kg** Analysis Date: **6/27/2012 10:24 AM**
Client ID: **SBKR0625R503S062112S006** Run ID: **SVMS4_120627A** SeqNo: **2015317** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1381	49	1952	0	70.8	45-105	0			
Acenaphthene	1468	49	1952	0	75.2	45-110	0			
Acenaphthylene	1542	49	1952	0	79	45-105	0			
Anthracene	1635	49	1952	0	83.8	55-105	0			
Benzo(a)anthracene	1591	49	1952	58.47	78.5	50-110	0			
Benzo(a)pyrene	1681	49	1952	59.46	83.1	50-110	0			
Benzo(b)fluoranthene	1855	49	1952	63.43	91.8	45-115	0			
Benzo(g,h,i)perylene	1560	49	1952	0	80	40-125	0			
Benzo(k)fluoranthene	1650	49	1952	0	84.6	45-115	0			
Chrysene	1712	49	1952	51.54	85.1	55-110	0			
Dibenzo(a,h)anthracene	1533	49	1952	0	78.6	40-125	0			
Fluoranthene	1737	49	1952	63.43	85.7	55-115	0			
Fluorene	1542	49	1952	0	79	50-110	0			
Indeno(1,2,3-cd)pyrene	1560	49	1952	0	80	40-120	0			
Naphthalene	1352	49	1952	0	69.3	40-105	0			
Phenanthrene	1624	49	1952	0	83.2	50-110	0			
Pyrene	1685	49	1952	67.39	82.9	45-125	0			
Surr: 2,4,6-Tribromophenol	*3959*	0	*4879*	0	*81.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3420*	0	*4879*	0	*70.1*	*12-100*	0			
Surr: 2-Fluorophenol	*3794*	0	*4879*	0	*77.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3503*	0	*4879*	0	*71.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3139*	0	*4879*	0	*64.3*	*37-107*	0			
Surr: Phenol-d6	*3628*	0	*4879*	0	*74.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206817-03B MSD** Units: **µg/Kg** Analysis Date: **6/27/2012 10:57 AM**
Client ID: **SBKR0625R503S062112S006** Run ID: **SVMS4_120627A** SeqNo: **2015318** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1237	48	1915	0	64.6	45-105	1381	11	30	
Acenaphthene	1414	48	1915	0	73.8	45-110	1468	3.75	30	
Acenaphthylene	1434	48	1915	0	74.8	45-105	1542	7.27	30	
Anthracene	1537	48	1915	0	80.2	55-105	1635	6.2	30	
Benzo(a)anthracene	1484	48	1915	58.47	74.4	50-110	1591	6.91	30	
Benzo(a)pyrene	1583	48	1915	59.46	79.5	50-110	1681	6.02	30	
Benzo(b)fluoranthene	1814	48	1915	63.43	91.4	45-115	1855	2.24	30	
Benzo(g,h,i)perylene	1155	48	1915	0	60.3	40-125	1560	29.9	30	
Benzo(k)fluoranthene	1646	48	1915	0	86	45-115	1650	0.233	30	
Chrysene	1584	48	1915	51.54	80	55-110	1712	7.74	30	
Dibenzo(a,h)anthracene	1165	48	1915	0	60.8	40-125	1533	27.3	30	
Fluoranthene	1663	48	1915	63.43	83.5	55-115	1737	4.38	30	
Fluorene	1449	48	1915	0	75.6	50-110	1542	6.21	30	
Indeno(1,2,3-cd)pyrene	1215	48	1915	0	63.4	40-120	1560	24.9	30	
Naphthalene	1181	48	1915	0	61.6	40-105	1352	13.6	30	
Phenanthrene	1527	48	1915	0	79.8	50-110	1624	6.11	30	
Pyrene	1553	48	1915	67.39	77.6	45-125	1685	8.14	30	
Surr: 2,4,6-Tribromophenol	*3690*	0	*4788*	0	*77.1*	*34-140*	3959	*7.03*	*40*	
Surr: 2-Fluorobiphenyl	*3099*	0	*4788*	0	*64.7*	*12-100*	3420	*9.85*	*40*	
Surr: 2-Fluorophenol	*3321*	0	*4788*	0	*69.4*	*33-117*	3794	*13.3*	*40*	
Surr: 4-Terphenyl-d14	*3320*	0	*4788*	0	*69.3*	*25-137*	3503	*5.36*	*40*	
Surr: Nitrobenzene-d5	*2755*	0	*4788*	0	*57.5*	*37-107*	3139	*13*	*40*	
Surr: Phenol-d6	*3274*	0	*4788*	0	*68.4*	*40-106*	3628	*10.3*	*40*	

The following samples were analyzed in this batch:

1206817-01B	1206817-02B	1206817-03B
1206817-04B	1206817-05B	1206817-06B
1206817-07B	1206817-08B	1206817-09B
1206817-10B	1206817-12B	1206817-13B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41929-41929** Units: **µg/Kg** Analysis Date: **6/26/2012 01:17 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012683** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	150.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1049*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*925*	0	*1000*	0	*92.5*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1062*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41929-41929** Units: **µg/Kg** Analysis Date: **6/26/2012 12:27 PM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012638** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1044	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	1041	30	1000	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	976.5	30	1000	0	97.6	55-130	0			
1,1,2-Trichloroethane	1032	30	1000	0	103	60-125	0			
1,1-Dichloroethane	1024	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1044	30	1000	0	104	65-135	0			
1,2,3-Trichlorobenzene	1042	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1054	30	1000	0	105	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	966	30	1000	0	96.6	65-130	0			
1,2,4-Trimethylbenzene	1077	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	1164	30	1000	0	116	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1044	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1062	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1098	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1090	30	1000	0	109	65-135	0			
1,3-Dichlorobenzene	1034	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1076	30	1000	0	108	70-125	0			
2-Butanone	1071	200	1000	0	107	30-160	0			
2-Hexanone	1162	30	1000	0	116	45-145	0			
4-Methyl-2-pentanone	990	30	1000	0	99	45-145	0			
Acetone	1473	100	1000	0	147	20-160	0			B
Acrylonitrile	1038	100	1000	0	104	70-135	0			
Benzene	1036	30	1000	0	104	75-125	0			
Bromobenzene	1045	30	1000	0	104	65-120	0			
Bromochloromethane	1004	30	1000	0	100	70-125	0			
Bromodichloromethane	1104	30	1000	0	110	70-130	0			
Bromoform	1144	30	1000	0	114	55-135	0			
Bromomethane	1224	75	1000	0	122	30-160	0			
Carbon disulfide	1318	30	1000	0	132	45-160	0			
Carbon tetrachloride	1020	30	1000	0	102	65-135	0			
Chlorobenzene	971.5	30	1000	0	97.2	75-125	0			
Chloroethane	1065	100	1000	0	106	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	975.5	100	1000	0	97.6	50-130	0			
cis-1,2-Dichloroethene	1028	30	1000	0	103	65-125	0			
cis-1,3-Dichloropropene	1012	30	1000	0	101	70-125	0			
Dibromochloromethane	1106	30	1000	0	111	65-135	0			
Dibromomethane	1138	30	1000	0	114	75-130	0			
Dichlorodifluoromethane	898.5	30	1000	0	89.8	35-135	0			
Ethylbenzene	1021	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1158	30	1000	0	116	70-135	0
Isopropylbenzene	1087	30	1000	0	109	75-130	0
m,p-Xylene	2100	60	2000	0	105	80-125	0
Methyl tert-butyl ether	1086	30	1000	0	109	75-125	0
Methylene chloride	1093	30	1000	0	109	55-145	0
Naphthalene	1123	100	1000	0	112	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	1008	30	1000	0	101	65-135	0
o-Xylene	1021	30	1000	0	102	75-125	0
p-Isopropyltoluene	1010	30	1000	0	101	75-135	0
sec-Butylbenzene	1079	30	1000	0	108	65-130	0
Styrene	1126	30	1000	0	113	75-125	0
tert-Butylbenzene	1046	30	1000	0	105	65-130	0
Tetrachloroethene	1001	30	1000	0	100	64-140	0
Tetrahydrofuran	1050	200	1000	0	105	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1056	30	1000	0	106	65-135	0
trans-1,3-Dichloropropene	1092	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	1002	30	1000	0	100	70-135	0
Trichloroethene	963	30	1000	0	96.3	75-125	0
Trichlorofluoromethane	846	30	1000	0	84.6	25-185	0
Vinyl chloride	1110	30	1000	0	111	60-125	0
Surr: 1,2-Dichloroethane-d4	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1031*	0	*1000*	0	*103*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206817-03A MS** Units: **µg/Kg** Analysis Date: **6/26/2012 10:09 AM**
Client ID: **SBKR0625R503S062112S006** Run ID: **VMS9_120625A** SeqNo: **2012654** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	807.5	30	1000	0	80.8	75-125	0			
1,1,1-Trichloroethane	744	30	1000	0	74.4	70-135	0			
1,1,2,2-Tetrachloroethane	818	30	1000	0	81.8	55-130	0			
1,1,2-Trichloroethane	868	30	1000	0	86.8	60-125	0			
1,1-Dichloroethane	882.5	30	1000	0	88.2	75-125	0			
1,1-Dichloroethene	883	30	1000	0	88.3	65-135	0			
1,2,3-Trichlorobenzene	775	30	1000	0	77.5	60-135	0			
1,2,3-Trichloropropane	890	30	1000	0	89	65-130	0			
1,2,3-Trimethylbenzene	823	30	1000	0	82.3	65-135	0			
1,2,4-Trichlorobenzene	710.5	30	1000	0	71	65-130	0			
1,2,4-Trimethylbenzene	880	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	837.5	30	1000	0	83.8	40-135	0			
1,2-Dibromoethane	857	30	1000	0	85.7	70-125	0			
1,2-Dichlorobenzene	847	30	1000	0	84.7	75-120	0			
1,2-Dichloroethane	886.5	30	1000	0	88.6	70-135	0			
1,2-Dichloropropane	835	30	1000	0	83.5	70-120	0			
1,3,5-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,3-Dichlorobenzene	837	30	1000	0	83.7	70-125	0			
1,4-Dichlorobenzene	862.5	30	1000	0	86.2	70-125	0			
2-Butanone	1068	100	1000	0	107	30-160	0			
2-Hexanone	945.5	30	1000	0	94.6	45-145	0			
4-Methyl-2-pentanone	820.5	30	1000	0	82	45-145	0			
Acetone	1202	100	1000	0	120	20-160	0			B
Acrylonitrile	930.5	30	1000	0	93	70-135	0			
Benzene	829.5	30	1000	0	83	75-125	0			
Bromobenzene	866.5	30	1000	0	86.6	65-120	0			
Bromochloromethane	900.5	30	1000	0	90	70-125	0			
Bromodichloromethane	769	30	1000	0	76.9	70-130	0			
Bromoform	833	30	1000	0	83.3	55-135	0			
Bromomethane	916	30	1000	0	91.6	30-160	0			
Carbon disulfide	835	30	1000	0	83.5	45-160	0			
Carbon tetrachloride	656	30	1000	0	65.6	65-135	0			
Chlorobenzene	815.5	30	1000	0	81.6	75-125	0			
Chloroethane	884.5	100	1000	0	88.4	40-155	0			
Chloroform	831	30	1000	0	83.1	70-125	0			
Chloromethane	725	30	1000	0	72.5	50-130	0			
cis-1,2-Dichloroethene	861.5	30	1000	0	86.2	65-125	0			
cis-1,3-Dichloropropene	723	30	1000	0	72.3	70-125	0			
Dibromochloromethane	828	30	1000	0	82.8	65-135	0			
Dibromomethane	826.5	30	1000	0	82.6	75-130	0			
Dichlorodifluoromethane	638.5	30	1000	0	63.8	35-135	0			
Ethylbenzene	855	30	1000	0	85.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	840	30	1000	0	84	70-135	0
Isopropylbenzene	867	30	1000	0	86.7	75-130	0
m,p-Xylene	1774	60	2000	0	88.7	80-125	0
Methyl tert-butyl ether	855.5	30	1000	0	85.6	75-125	0
Methylene chloride	1088	30	1000	0	109	55-145	0
Naphthalene	849.5	100	1000	0	85	40-140	0
n-Butylbenzene	772	30	1000	0	77.2	65-140	0
n-Propylbenzene	802	30	1000	0	80.2	65-135	0
o-Xylene	848	30	1000	0	84.8	75-125	0
p-Isopropyltoluene	773	30	1000	0	77.3	75-135	0
sec-Butylbenzene	830.5	30	1000	0	83	65-130	0
Styrene	901	30	1000	0	90.1	75-125	0
tert-Butylbenzene	823	30	1000	0	82.3	65-130	0
Tetrachloroethene	816.5	30	1000	0	81.6	64-140	0
Tetrahydrofuran	936.5	100	1000	0	93.6	70-135	0
Toluene	831.5	30	1000	0	83.2	70-125	0
trans-1,2-Dichloroethene	862	30	1000	0	86.2	65-135	0
trans-1,3-Dichloropropene	831.5	30	1000	0	83.2	65-125	0
trans-1,4-Dichloro-2-butene	757.5	30	1000	0	75.8	70-135	0
Trichloroethene	759	30	1000	0	75.9	75-125	0
Trichlorofluoromethane	645	30	1000	0	64.5	25-185	0
Vinyl chloride	813	30	1000	0	81.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*1022*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*993*	0	*1000*	0	*99.3*	*70-130*	0
Surr: Toluene-d8	*1052*	0	*1000*	0	*105*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206817-03A MSD** Units: **µg/Kg** Analysis Date: **6/26/2012 10:34 AM**
Client ID: **SBKR0625R503S062112S006** Run ID: **VMS9_120625A** SeqNo: **2012655** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	837.5	30	1000	0	83.8	75-125	807.5	3.65	30	
1,1,1-Trichloroethane	749	30	1000	0	74.9	70-135	744	0.67	30	
1,1,2,2-Tetrachloroethane	860.5	30	1000	0	86	55-130	818	5.06	30	
1,1,2-Trichloroethane	900	30	1000	0	90	60-125	868	3.62	30	
1,1-Dichloroethane	900.5	30	1000	0	90	75-125	882.5	2.02	30	
1,1-Dichloroethene	701.5	30	1000	0	70.2	65-135	883	22.9	30	
1,2,3-Trichlorobenzene	814.5	30	1000	0	81.4	60-135	775	4.97	30	
1,2,3-Trichloropropane	913	30	1000	0	91.3	65-130	890	2.55	30	
1,2,3-Trimethylbenzene	853.5	30	1000	0	85.4	65-135	823	3.64	30	
1,2,4-Trichlorobenzene	750	30	1000	0	75	65-130	710.5	5.41	30	
1,2,4-Trimethylbenzene	924.5	30	1000	0	92.4	65-135	880	4.93	30	
1,2-Dibromo-3-chloropropane	899	30	1000	0	89.9	40-135	837.5	7.08	30	
1,2-Dibromoethane	882.5	30	1000	0	88.2	70-125	857	2.93	30	
1,2-Dichlorobenzene	887.5	30	1000	0	88.8	75-120	847	4.67	30	
1,2-Dichloroethane	876.5	30	1000	0	87.6	70-135	886.5	1.13	30	
1,2-Dichloropropane	862	30	1000	0	86.2	70-120	835	3.18	30	
1,3,5-Trimethylbenzene	918	30	1000	0	91.8	65-135	880.5	4.17	30	
1,3-Dichlorobenzene	868.5	30	1000	0	86.8	70-125	837	3.69	30	
1,4-Dichlorobenzene	897	30	1000	0	89.7	70-125	862.5	3.92	30	
2-Butanone	1100	100	1000	0	110	30-160	1068	2.95	30	
2-Hexanone	999	30	1000	0	99.9	45-145	945.5	5.5	30	
4-Methyl-2-pentanone	867.5	30	1000	0	86.8	45-145	820.5	5.57	30	
Acetone	1492	100	1000	0	149	20-160	1202	21.6	30	B
Acrylonitrile	945.5	30	1000	0	94.6	70-135	930.5	1.6	30	
Benzene	834	30	1000	0	83.4	75-125	829.5	0.541	30	
Bromobenzene	913	30	1000	0	91.3	65-120	866.5	5.23	30	
Bromochloromethane	915.5	30	1000	0	91.6	70-125	900.5	1.65	30	
Bromodichloromethane	784	30	1000	0	78.4	70-130	769	1.93	30	
Bromoform	882	30	1000	0	88.2	55-135	833	5.71	30	
Bromomethane	905.5	30	1000	0	90.6	30-160	916	1.15	30	
Carbon disulfide	944.5	30	1000	0	94.4	45-160	835	12.3	30	
Carbon tetrachloride	672	30	1000	0	67.2	65-135	656	2.41	30	
Chlorobenzene	837	30	1000	0	83.7	75-125	815.5	2.6	30	
Chloroethane	878	100	1000	0	87.8	40-155	884.5	0.738	30	
Chloroform	841	30	1000	0	84.1	70-125	831	1.2	30	
Chloromethane	737.5	30	1000	0	73.8	50-130	725	1.71	30	
cis-1,2-Dichloroethene	877.5	30	1000	0	87.8	65-125	861.5	1.84	30	
cis-1,3-Dichloropropene	756.5	30	1000	0	75.6	70-125	723	4.53	30	
Dibromochloromethane	856	30	1000	0	85.6	65-135	828	3.33	30	
Dibromomethane	868	30	1000	0	86.8	75-130	826.5	4.9	30	
Dichlorodifluoromethane	650	30	1000	0	65	35-135	638.5	1.79	30	
Ethylbenzene	879.5	30	1000	0	88	75-125	855	2.83	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	864	30	1000	0	86.4	70-135	840	2.82	30
Isopropylbenzene	897.5	30	1000	0	89.8	75-130	867	3.46	30
m,p-Xylene	1812	60	2000	0	90.6	80-125	1774	2.15	30
Methyl tert-butyl ether	869.5	30	1000	0	87	75-125	855.5	1.62	30
Methylene chloride	1098	30	1000	0	110	55-145	1088	0.915	30
Naphthalene	889.5	100	1000	0	89	40-140	849.5	4.6	30
n-Butylbenzene	805	30	1000	0	80.5	65-140	772	4.19	30
n-Propylbenzene	839	30	1000	0	83.9	65-135	802	4.51	30
o-Xylene	874	30	1000	0	87.4	75-125	848	3.02	30
p-Isopropyltoluene	801	30	1000	0	80.1	75-135	773	3.56	30
sec-Butylbenzene	866.5	30	1000	0	86.6	65-130	830.5	4.24	30
Styrene	919	30	1000	0	91.9	75-125	901	1.98	30
tert-Butylbenzene	870.5	30	1000	0	87	65-130	823	5.61	30
Tetrachloroethene	853	30	1000	0	85.3	64-140	816.5	4.37	30
Tetrahydrofuran	949.5	100	1000	0	95	70-135	936.5	1.38	30
Toluene	860	30	1000	0	86	70-125	831.5	3.37	30
trans-1,2-Dichloroethene	898	30	1000	0	89.8	65-135	862	4.09	30
trans-1,3-Dichloropropene	862	30	1000	0	86.2	65-125	831.5	3.6	30
trans-1,4-Dichloro-2-butene	799.5	30	1000	0	80	70-135	757.5	5.39	30
Trichloroethene	788.5	30	1000	0	78.8	75-125	759	3.81	30
Trichlorofluoromethane	662.5	30	1000	0	66.2	25-185	645	2.68	30
Vinyl chloride	719	30	1000	0	71.9	60-125	813	12.3	30
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	1022	*1.18*	*30*
Surr: 4-Bromofluorobenzene	*1048*	0	*1000*	0	*105*	*70-130*	1008	*3.89*	*30*
Surr: Dibromofluoromethane	*986*	0	*1000*	0	*98.6*	*70-130*	993	*0.707*	*30*
Surr: Toluene-d8	*1078*	0	*1000*	0	*108*	*70-130*	1052	*2.44*	*30*

The following samples were analyzed in this batch: 1206817-01A 1206817-02A 1206817-03A 1206817-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 01:17 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012679** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	150.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1049*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*925*	0	*1000*	0	*92.5*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1062*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 12:24 PM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014092** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	201.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	41.5	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	139	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*945.5*	0	*1000*	0	*94.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*964.5*	0	*1000*	0	*96.4*	*70-130*	0
Surr: Dibromofluoromethane	*900*	0	*1000*	0	*90*	*70-130*	0
Surr: Toluene-d8	*934*	0	*1000*	0	*93.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 12:27 PM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012657** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1044	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	1041	30	1000	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	976.5	30	1000	0	97.6	55-130	0			
1,1,2-Trichloroethane	1032	30	1000	0	103	60-125	0			
1,1-Dichloroethane	1024	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1044	30	1000	0	104	65-135	0			
1,2,3-Trichlorobenzene	1042	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1054	30	1000	0	105	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	966	30	1000	0	96.6	65-130	0			
1,2,4-Trimethylbenzene	1077	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	1164	30	1000	0	116	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1044	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1062	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1098	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1090	30	1000	0	109	65-135	0			
1,3-Dichlorobenzene	1034	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1076	30	1000	0	108	70-125	0			
2-Butanone	1071	200	1000	0	107	30-160	0			
2-Hexanone	1162	30	1000	0	116	45-145	0			
4-Methyl-2-pentanone	990	30	1000	0	99	45-145	0			
Acetone	1473	100	1000	0	147	20-160	0			B
Acrylonitrile	1038	100	1000	0	104	70-135	0			
Benzene	1036	30	1000	0	104	75-125	0			
Bromobenzene	1045	30	1000	0	104	65-120	0			
Bromochloromethane	1004	30	1000	0	100	70-125	0			
Bromodichloromethane	1104	30	1000	0	110	70-130	0			
Bromoform	1144	30	1000	0	114	55-135	0			
Bromomethane	1224	75	1000	0	122	30-160	0			
Carbon disulfide	1318	30	1000	0	132	45-160	0			
Carbon tetrachloride	1020	30	1000	0	102	65-135	0			
Chlorobenzene	971.5	30	1000	0	97.2	75-125	0			
Chloroethane	1065	100	1000	0	106	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	975.5	100	1000	0	97.6	50-130	0			
cis-1,2-Dichloroethene	1028	30	1000	0	103	65-125	0			
cis-1,3-Dichloropropene	1012	30	1000	0	101	70-125	0			
Dibromochloromethane	1106	30	1000	0	111	65-135	0			
Dibromomethane	1138	30	1000	0	114	75-130	0			
Dichlorodifluoromethane	898.5	30	1000	0	89.8	35-135	0			
Ethylbenzene	1021	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1158	30	1000	0	116	70-135	0
Isopropylbenzene	1087	30	1000	0	109	75-130	0
m,p-Xylene	2100	60	2000	0	105	80-125	0
Methyl tert-butyl ether	1086	30	1000	0	109	75-125	0
Methylene chloride	1093	30	1000	0	109	55-145	0
Naphthalene	1123	100	1000	0	112	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	1008	30	1000	0	101	65-135	0
o-Xylene	1021	30	1000	0	102	75-125	0
p-Isopropyltoluene	1010	30	1000	0	101	75-135	0
sec-Butylbenzene	1079	30	1000	0	108	65-130	0
Styrene	1126	30	1000	0	113	75-125	0
tert-Butylbenzene	1046	30	1000	0	105	65-130	0
Tetrachloroethene	1001	30	1000	0	100	64-140	0
Tetrahydrofuran	1050	200	1000	0	105	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1056	30	1000	0	106	65-135	0
trans-1,3-Dichloropropene	1092	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	1002	30	1000	0	100	70-135	0
Trichloroethene	963	30	1000	0	96.3	75-125	0
Trichlorofluoromethane	846	30	1000	0	84.6	25-185	0
Vinyl chloride	1110	30	1000	0	111	60-125	0
Surr: 1,2-Dichloroethane-d4	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1031*	0	*1000*	0	*103*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 11:08 AM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014091** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1014	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	984.5	30	1000	0	98.4	70-135	0			
1,1,2,2-Tetrachloroethane	946	30	1000	0	94.6	55-130	0			
1,1,2-Trichloroethane	890.5	30	1000	0	89	60-125	0			
1,1-Dichloroethane	1010	30	1000	0	101	75-125	0			
1,1-Dichloroethene	1046	30	1000	0	105	65-135	0			
1,2,3-Trichlorobenzene	1034	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	965	30	1000	0	96.5	65-130	0			
1,2,3-Trimethylbenzene	970	30	1000	0	97	65-135	0			
1,2,4-Trichlorobenzene	991	30	1000	0	99.1	65-130	0			
1,2,4-Trimethylbenzene	968	30	1000	0	96.8	65-135	0			
1,2-Dibromo-3-chloropropane	985	30	1000	0	98.5	40-135	0			
1,2-Dibromoethane	1014	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	974.5	30	1000	0	97.4	75-120	0			
1,2-Dichloroethane	980	30	1000	0	98	70-135	0			
1,2-Dichloropropane	1008	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	993	30	1000	0	99.3	65-135	0			
1,3-Dichlorobenzene	1010	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	996	30	1000	0	99.6	70-125	0			
2-Butanone	1084	200	1000	0	108	30-160	0			
2-Hexanone	954.5	30	1000	0	95.4	45-145	0			
4-Methyl-2-pentanone	1486	30	1000	0	149	45-145	0			S
Acetone	1046	100	1000	0	105	20-160	0			B
Acrylonitrile	1014	100	1000	0	101	70-135	0			
Benzene	984.5	30	1000	0	98.4	75-125	0			
Bromobenzene	954	30	1000	0	95.4	65-120	0			
Bromochloromethane	1047	30	1000	0	105	70-125	0			
Bromodichloromethane	1020	30	1000	0	102	70-130	0			
Bromoform	927	30	1000	0	92.7	55-135	0			
Bromomethane	1070	75	1000	0	107	30-160	0			
Carbon disulfide	1113	30	1000	0	111	45-160	0			
Carbon tetrachloride	1070	30	1000	0	107	65-135	0			
Chlorobenzene	998.5	30	1000	0	99.8	75-125	0			
Chloroethane	683	100	1000	0	68.3	40-155	0			
Chloroform	1092	30	1000	0	109	70-125	0			B
Chloromethane	669	100	1000	0	66.9	50-130	0			
cis-1,2-Dichloroethene	1006	30	1000	0	101	65-125	0			
cis-1,3-Dichloropropene	1114	30	1000	0	111	70-125	0			
Dibromochloromethane	1062	30	1000	0	106	65-135	0			
Dibromomethane	994.5	30	1000	0	99.4	75-130	0			
Dichlorodifluoromethane	627	30	1000	0	62.7	35-135	0			
Ethylbenzene	995	30	1000	0	99.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943**	Instrument ID **VMS9**		Method: **SW8260**					
Hexachloroethane	1025	30	1000	0	102	70-135	0	
Isopropylbenzene	1024	30	1000	0	102	75-130	0	
m,p-Xylene	2012	60	2000	0	101	80-125	0	
Methyl tert-butyl ether	1014	30	1000	0	101	75-125	0	
Methylene chloride	1203	30	1000	0	120	55-145	0	B
Naphthalene	849	100	1000	0	84.9	40-140	0	
n-Butylbenzene	1060	30	1000	0	106	65-140	0	
n-Propylbenzene	986	30	1000	0	98.6	65-135	0	
o-Xylene	998	30	1000	0	99.8	75-125	0	
p-Isopropyltoluene	1038	30	1000	0	104	75-135	0	
sec-Butylbenzene	1035	30	1000	0	104	65-130	0	
Styrene	998.5	30	1000	0	99.8	75-125	0	
tert-Butylbenzene	1020	30	1000	0	102	65-130	0	
Tetrachloroethene	1022	30	1000	0	102	64-140	0	
Tetrahydrofuran	1068	200	1000	0	107	70-135	0	
Toluene	943.5	30	1000	0	94.4	70-125	0	
trans-1,2-Dichloroethene	993.5	30	1000	0	99.4	65-135	0	
trans-1,3-Dichloropropene	1059	30	1000	0	106	65-125	0	
trans-1,4-Dichloro-2-butene	1012	30	1000	0	101	70-135	0	
Trichloroethene	1063	30	1000	0	106	75-125	0	
Trichlorofluoromethane	860	30	1000	0	86	25-185	0	
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*958*	0	*1000*	0	*95.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*983*	0	*1000*	0	*98.3*	*70-130*	0	
Surr: Dibromofluoromethane	*982.5*	0	*1000*	0	*98.2*	*70-130*	0	
Surr: Toluene-d8	*973*	0	*1000*	0	*97.3*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206829-08A MS** Units: **µg/Kg** Analysis Date: **6/26/2012 08:44 PM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014101** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	930.4	30	1001	0	93	75-125	0			
1,1,1-Trichloroethane	915.9	30	1001	0	91.5	70-135	0			
1,1,2,2-Tetrachloroethane	902.4	30	1001	0	90.2	55-130	0			
1,1,2-Trichloroethane	844.3	30	1001	0	84.4	60-125	0			
1,1-Dichloroethane	967	30	1001	0	96.6	75-125	0			
1,1-Dichloroethene	895.9	30	1001	0	89.5	65-135	0			
1,2,3-Trichlorobenzene	857.9	30	1001	0	85.7	60-135	0			
1,2,3-Trichloropropane	926.4	30	1001	0	92.6	65-130	0			
1,2,3-Trimethylbenzene	895.9	30	1001	23	87.2	65-135	0			
1,2,4-Trichlorobenzene	868.9	30	1001	0	86.8	65-130	0			
1,2,4-Trimethylbenzene	1078	30	1001	217	86	65-135	0			
1,2-Dibromo-3-chloropropane	841.3	30	1001	0	84	40-135	0			
1,2-Dibromoethane	925.4	30	1001	0	92.4	70-125	0			
1,2-Dichlorobenzene	911.4	30	1001	0	91	75-120	0			
1,2-Dichloroethane	935.4	30	1001	0	93.4	70-135	0			
1,2-Dichloropropane	954.5	30	1001	0	95.4	70-120	0			
1,3,5-Trimethylbenzene	1140	30	1001	314	82.5	65-135	0			
1,3-Dichlorobenzene	920.4	30	1001	0	92	70-125	0			
1,4-Dichlorobenzene	905.4	30	1001	0	90.4	70-125	0			
2-Butanone	944.4	200	1001	0	94.4	30-160	0			
2-Hexanone	906.4	30	1001	0	90.6	45-145	0			
4-Methyl-2-pentanone	1430	30	1001	0	143	45-145	0			
Acetone	1276	100	1001	0	128	20-160	0			B
Acrylonitrile	1044	100	1001	0	104	70-135	0			
Benzene	978.5	30	1001	62.5	91.5	75-125	0			
Bromobenzene	915.4	30	1001	0	91.4	65-120	0			
Bromochloromethane	971.5	30	1001	0	97	70-125	0			
Bromodichloromethane	901.4	30	1001	0	90	70-130	0			
Bromoform	790.8	30	1001	0	79	55-135	0			
Bromomethane	621.6	75	1001	0	62.1	30-160	0			
Carbon disulfide	963	30	1001	0	96.2	45-160	0			
Carbon tetrachloride	972.5	30	1001	0	97.2	65-135	0			
Chlorobenzene	946.4	30	1001	0	94.6	75-125	0			
Chloroethane	689.7	100	1001	0	68.9	40-155	0			
Chloroform	1037	30	1001	42	99.4	70-125	0			
Chloromethane	749.7	100	1001	0	74.9	50-130	0			
cis-1,2-Dichloroethene	973.5	30	1001	0	97.2	65-125	0			
cis-1,3-Dichloropropene	942.4	30	1001	0	94.2	70-125	0			
Dibromochloromethane	910.4	30	1001	0	91	65-135	0			
Dibromomethane	940.9	30	1001	0	94	75-130	0			
Dichlorodifluoromethane	730.7	30	1001	0	73	35-135	0			
Ethylbenzene	1066	30	1001	144	92.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	838.8	30	1001	0	83.8	70-135	0	
Isopropylbenzene	993	30	1001	27.5	96.5	75-130	0	
m,p-Xylene	2799	60	2002	1368	71.5	80-125	0	S
Methyl tert-butyl ether	1065	30	1001	0	106	75-125	0	
Methylene chloride	1082	30	1001	115.5	96.5	55-145	0	
Naphthalene	736.7	100	1001	0	73.6	40-140	0	
n-Butylbenzene	906.4	30	1001	0	90.6	65-140	0	
n-Propylbenzene	952	30	1001	30.5	92.1	65-135	0	
o-Xylene	1052	30	1001	149.5	90.2	75-125	0	
p-Isopropyltoluene	895.4	30	1001	0	89.4	75-135	0	
sec-Butylbenzene	982.5	30	1001	0	98.2	65-130	0	
Styrene	964.5	30	1001	0	96.4	75-125	0	
tert-Butylbenzene	962	30	1001	0	96.1	65-130	0	
Tetrachloroethene	986	30	1001	0	98.5	64-140	0	
Tetrahydrofuran	1054	200	1001	0	105	70-135	0	
Toluene	1026	30	1001	170.5	85.4	70-125	0	
trans-1,2-Dichloroethene	906.4	30	1001	0	90.6	65-135	0	
trans-1,3-Dichloropropene	930.4	30	1001	0	93	65-125	0	
trans-1,4-Dichloro-2-butene	876.4	30	1001	0	87.6	70-135	0	
Trichloroethene	1012	30	1001	0	101	75-125	0	
Trichlorofluoromethane	548	30	1001	0	54.8	25-185	0	
Vinyl chloride	914.9	30	1001	0	91.4	60-125	0	
Surr: 1,2-Dichloroethane-d4	*915.4*	0	*1001*	0	*91.4*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*974.5*	0	*1001*	0	*97.4*	*70-130*	0	
Surr: Dibromofluoromethane	*928.4*	0	*1001*	0	*92.8*	*70-130*	0	
Surr: Toluene-d8	*932.4*	0	*1001*	0	*93.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206829-08A MSD**				Units: **µg/Kg**		Analysis Date: **6/26/2012 09:09 PM**			
Client ID:		Run ID: **VMS7_120626A**			SeqNo: **2014102**		Prep Date: **6/25/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	912.4	30	1001	0	91.2	75-125	930.4	1.96	30	
1,1,1-Trichloroethane	893.4	30	1001	0	89.2	70-135	915.9	2.49	30	
1,1,2,2-Tetrachloroethane	902.9	30	1001	0	90.2	55-130	902.4	0.0554	30	
1,1,2-Trichloroethane	851.9	30	1001	0	85.1	60-125	844.3	0.885	30	
1,1-Dichloroethane	925.4	30	1001	0	92.4	75-125	967	4.39	30	
1,1-Dichloroethene	876.9	30	1001	0	87.6	65-135	895.9	2.15	30	
1,2,3-Trichlorobenzene	865.9	30	1001	0	86.5	60-135	857.9	0.929	30	
1,2,3-Trichloropropane	929.4	30	1001	0	92.8	65-130	926.4	0.324	30	
1,2,3-Trimethylbenzene	877.4	30	1001	23	85.4	65-135	895.9	2.09	30	
1,2,4-Trichlorobenzene	878.9	30	1001	0	87.8	65-130	868.9	1.15	30	
1,2,4-Trimethylbenzene	1059	30	1001	217	84.1	65-135	1078	1.83	30	
1,2-Dibromo-3-chloropropane	856.9	30	1001	0	85.6	40-135	841.3	1.83	30	
1,2-Dibromoethane	932.9	30	1001	0	93.2	70-125	925.4	0.808	30	
1,2-Dichlorobenzene	908.4	30	1001	0	90.8	75-120	911.4	0.33	30	
1,2-Dichloroethane	919.4	30	1001	0	91.8	70-135	935.4	1.73	30	
1,2-Dichloropropane	918.4	30	1001	0	91.8	70-120	954.5	3.85	30	
1,3,5-Trimethylbenzene	1117	30	1001	314	80.2	65-135	1140	2	30	
1,3-Dichlorobenzene	910.4	30	1001	0	91	70-125	920.4	1.09	30	
1,4-Dichlorobenzene	910.4	30	1001	0	91	70-125	905.4	0.551	30	
2-Butanone	943.9	200	1001	0	94.3	30-160	944.4	0.053	30	
2-Hexanone	884.4	30	1001	0	88.4	45-145	906.4	2.46	30	
4-Methyl-2-pentanone	1377	30	1001	0	138	45-145	1430	3.74	30	
Acetone	1255	100	1001	0	125	20-160	1276	1.66	30	B
Acrylonitrile	1015	100	1001	0	101	70-135	1044	2.82	30	
Benzene	949.9	30	1001	62.5	88.7	75-125	978.5	2.96	30	
Bromobenzene	910.4	30	1001	0	91	65-120	915.4	0.548	30	
Bromochloromethane	912.9	30	1001	0	91.2	70-125	971.5	6.22	30	
Bromodichloromethane	890.9	30	1001	0	89	70-130	901.4	1.17	30	
Bromoform	806.3	30	1001	0	80.6	55-135	790.8	1.94	30	
Bromomethane	604.1	75	1001	0	60.4	30-160	621.6	2.86	30	
Carbon disulfide	939.9	30	1001	0	93.9	45-160	963	2.42	30	
Carbon tetrachloride	918.4	30	1001	0	91.8	65-135	972.5	5.72	30	
Chlorobenzene	908.4	30	1001	0	90.8	75-125	946.4	4.1	30	
Chloroethane	662.7	100	1001	0	66.2	40-155	689.7	4	30	
Chloroform	989.5	30	1001	42	94.7	70-125	1037	4.69	30	
Chloromethane	693.7	100	1001	0	69.3	50-130	749.7	7.77	30	
cis-1,2-Dichloroethene	929.9	30	1001	0	92.9	65-125	973.5	4.58	30	
cis-1,3-Dichloropropene	916.4	30	1001	0	91.6	70-125	942.4	2.8	30	
Dibromochloromethane	902.9	30	1001	0	90.2	65-135	910.4	0.828	30	
Dibromomethane	922.4	30	1001	0	92.2	75-130	940.9	1.99	30	
Dichlorodifluoromethane	679.2	30	1001	0	67.8	35-135	730.7	7.31	30	
Ethylbenzene	1043	30	1001	144	89.8	75-125	1066	2.14	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	819.3	30	1001	0	81.8	70-135	838.8	2.35	30	
Isopropylbenzene	977	30	1001	27.5	94.9	75-130	993	1.63	30	
m,p-Xylene	2771	60	2002	1368	70.1	80-125	2799	1.01	30	S
Methyl tert-butyl ether	1032	30	1001	0	103	75-125	1065	3.15	30	
Methylene chloride	1043	30	1001	115.5	92.6	55-145	1082	3.68	30	
Naphthalene	760.3	100	1001	0	76	40-140	736.7	3.14	30	
n-Butylbenzene	886.4	30	1001	0	88.6	65-140	906.4	2.23	30	
n-Propylbenzene	945.4	30	1001	30.5	91.4	65-135	952	0.686	30	
o-Xylene	1030	30	1001	149.5	88	75-125	1052	2.12	30	
p-Isopropyltoluene	875.4	30	1001	0	87.4	75-135	895.4	2.26	30	
sec-Butylbenzene	959.5	30	1001	0	95.8	65-130	982.5	2.37	30	
Styrene	947.9	30	1001	0	94.7	75-125	964.5	1.73	30	
tert-Butylbenzene	939.9	30	1001	0	93.9	65-130	962	2.32	30	
Tetrachloroethene	991.5	30	1001	0	99	64-140	986	0.557	30	
Tetrahydrofuran	1025	200	1001	0	102	70-135	1054	2.79	30	
Toluene	976	30	1001	170.5	80.5	70-125	1026	4.95	30	
trans-1,2-Dichloroethene	875.4	30	1001	0	87.4	65-135	906.4	3.48	30	
trans-1,3-Dichloropropene	925.9	30	1001	0	92.5	65-125	930.4	0.485	30	
trans-1,4-Dichloro-2-butene	910.4	30	1001	0	91	70-135	876.4	3.81	30	
Trichloroethene	980.5	30	1001	0	98	75-125	1012	3.17	30	
Trichlorofluoromethane	513.5	30	1001	0	51.3	25-185	548	6.51	30	
Vinyl chloride	868.4	30	1001	0	86.8	60-125	914.9	5.22	30	
Surr: 1,2-Dichloroethane-d4	*902.4*	0	*1001*	0	*90.2*	*70-130*	915.4	*1.43*	*30*	
Surr: 4-Bromofluorobenzene	*984.5*	0	*1001*	0	*98.4*	*70-130*	974.5	*1.02*	*30*	
Surr: Dibromofluoromethane	*936.4*	0	*1001*	0	*93.6*	*70-130*	928.4	*0.859*	*30*	
Surr: Toluene-d8	*935.4*	0	*1001*	0	*93.4*	*70-130*	932.4	*0.322*	*30*	

The following samples were analyzed in this batch:

1206817-05A	1206817-06A	1206817-07A
1206817-08A	1206817-09A	1206817-10A
1206817-11A	1206817-12A	1206817-13A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206817
Project: Marshall KRRI 0600-0625R,0650I 0650R 6/21/12

QC BATCH REPORT

Batch ID: **R106555** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106555** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106555** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206795-01ADUP** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.41	0.050	0	0	0	0-0	11.63	6.49	20	

DUP Sample ID: **1206817-03BDUP1** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **MOIST_120625B** SeqNo: **2012333** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	72.33	0.050	0	0	0	0-0	72.21	0.166	20	

DUP Sample ID: **1206817-03BDUP2** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: **SBKR0625R503S062112S006** Run ID: **MOIST_120625B** SeqNo: **2012334** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.95	0.050	0	0	0	0-0	72.21	0.361	20	

The following samples were analyzed in this batch:

1206817-01B	1206817-02B	1206817-03B
1206817-04B	1206817-05B	1206817-06B
1206817-07B	1206817-08B	1206817-09B
1206817-10B	1206817-12B	1206817-13B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206817

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062112_LJL1	Task: KRRI_0600,0625,0650
	Total # of Samples: 13	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.
1	SBKR0600R514S062112S010	SBKR0600R514	SO	G	06/21/2012 10:31	3	
2	SBKR0600R515S062112S005	SBKR0600R515	SO	G	06/21/2012 10:41	3	
3	SBKR0625R503S062112S006	SBKR0625R503	SO	G	06/21/2012 09:10	6	MS/MSD
4	SBKR0625R504D062112S005	SBKR0625R504	SO	G	06/21/2012 11:40	3	DUPLICATE
5	SBKR0625R504S062112S005	SBKR0625R504	SO	G	06/21/2012 11:40	3	
6	SBKR0625R505S062112S006	SBKR0625R505	SO	G	06/21/2012 11:54	3	
7	SBKR0625R506S062112S006	SBKR0625R506	SO	G	06/21/2012 13:28	3	
8	SBKR0625R507S062112S005	SBKR0625R507	SO	G	06/21/2012 13:47	3	
9	SBKR0650I501S062112S005	SBKR0650I501	SO	G	06/21/2012 15:34	3	
10	SBKR0650I502S062112S004	SBKR0650I502	SO	G	06/21/2012 15:46	3	
11	SBKR0650I502T062112MX	SBKR0650I502	SQ	G	06/21/2012 00:00	1	TRIP BLANK
12	SBKR0650R505S062112S004	SBKR0650R505	SO	G	06/21/2012 09:28	3	
13	SBKR0650R505S062112S012	SBKR0650R505	SO	G	06/21/2012 09:33	3	

Preservative	None	None	None	None	MeOH
Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 6035/8260
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4	X	X	X	X	X
5	X	X	X	X	X
6	X	X	X	X	X
7	X	X	X	X	X
8	X	X	X	X	X
9	X	X	X	X	X
10	X	X	X	X	X
11					X
12	X	X	X	X	X
13	X	X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.21.12	1730		6.21.12	1730
	6.22.12	1646		6.22.12	1646

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
4.8°C	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1), APRIL MODERT
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 16:46**

Work Order: **1206817** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.8 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-21-12 Time:
Name: Lorri Legg
Company:

Seal Broken By:

Date:

4.8°C

29-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12** Work Order: **1206818**

Dear Bryan,

ALS Environmental received 11 samples on 22-Jun-2012 04:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 61.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12
Work Order: **1206818**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206818-01	SBKR0650I503S062212S005	Soil		6/22/2012 08:42	6/22/2012 16:46	☐
1206818-02	SBKR0650R506S062212S005	Soil		6/22/2012 08:30	6/22/2012 16:46	☐
1206818-03	SBKR0650R507S062212S004	Soil		6/22/2012 10:10	6/22/2012 16:46	☐
1206818-04	SBKR0750L506S062212S007	Soil		6/22/2012 12:48	6/22/2012 16:46	☐
1206818-05	SBKR0750L507S062212S005	Soil		6/22/2012 12:59	6/22/2012 16:46	☐
1206818-06	SBKR0750L507D062212S005	Soil		6/22/2012 12:59	6/22/2012 16:46	☐
1206818-07	SBKR0775L504S062212S007	Soil		6/22/2012 13:17	6/22/2012 16:46	☐
1206818-08	SBKR0925R501S062212S005	Soil		6/22/2012 14:26	6/22/2012 16:46	☐
1206818-09	SBKR0925R502S062212S003	Soil		6/22/2012 14:36	6/22/2012 16:46	☐
1206818-10	SBKR0925R503S062212S010	Soil		6/22/2012 15:52	6/22/2012 16:46	☐
1206818-11	SBKR0925R503T062212MX	Soil		6/22/2012	6/22/2012 16:46	☐

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12
Work Order: 1206818

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41951 MS/MSD data for DRO/ORO is not related to this project's samples. No data requires qualification.

Batches 41955 and41996 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 41950 sample 1206818-06B PAH internal standard recovery was below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

Batch 41950 sample 1206818-07B PAH analysis had one low surrogate recovery de to matrix interference. Target analytes were not affected by the interference. No qualification is necessary.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12
WorkOrder: **1206818**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I503S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:42:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**31**	**12**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**210**	**25**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*41.9*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**8.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*75.7*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*61.6*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*67.2*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*77.9*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*55.1*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*68.0*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	69	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	69	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	69	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	69	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I503S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:42:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	69	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	69	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	69	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	69	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	69	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	69	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	69	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	69	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	69	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	69	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	69	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650I503S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:42:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	69	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	140	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	110	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	69	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	69	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	69	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	69	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	69	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	69	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	69	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	69	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	69	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	69	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	69	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.5*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*99.7*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**26**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R506S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:30:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**150**	**30**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**790**	**60**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*55.3*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	**0.60**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/26/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Chrysene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*86.3*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*73.7*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*82.3*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*84.2*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*65.9*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*81.3*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	460	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	460	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R506S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:30:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	460	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	460	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	460	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	460	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	460	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	1,500	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	1,500	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	3,800	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	460	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	460	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	460	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	460	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	460	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	460	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	460	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	460	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	460	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	1,500	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	460	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	460	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	460	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	460	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	460	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	460	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	460	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R506S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 8:30:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	460	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	460	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	460	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	920	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	460	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	460	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	770	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	1,500	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	460	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	460	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	460	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	460	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	460	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	460	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,500	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	460	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	460	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	460	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	460	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	460	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*91.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*98.0*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**67**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R507S062212S004
Work Order:	1206818	**Collection Date:**	6/22/2012 10:10:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**44**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**1,200**	**88**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*42.7*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.80	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	**3.0**	**1.6**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Nickel	**6.7**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**10**	**1.3**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*81.8*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*63.8*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*73.7*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*75.1*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*58.0*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*70.3*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R507S062212S004
Work Order:	1206818	**Collection Date:**	6/22/2012 10:10:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	1,100	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	1,100	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	1,100	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	1,100	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	3,700	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	3,700	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	9,300	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	1,100	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	3,700	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	1,100	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	1,100	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	1,100	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	1,100	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0650R507S062212S004
Work Order:	1206818	**Collection Date:**	6/22/2012 10:10:00 AM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	1,100	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	1,100	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	2,200	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	3,700	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	3,700	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	3,700	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	1,100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	1,100	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	1,100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	1,100	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.9*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**78**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L506S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 12:48:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**64**	**19**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**270**	**39**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*53.4*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*79.7*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*72.3*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*83.1*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*77.0*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*69.4*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*81.2*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L506S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 12:48:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	670	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	670	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L506S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 12:48:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	670	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*99.9*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*106*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**75**	**20**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**610**	**41**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*45.7*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/26/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/26/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/26/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/26/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)anthracene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Chrysene	**760**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*82.0*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*70.8*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*74.4*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*79.9*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*62.3*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*76.6*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	200	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	200	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	400	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	600	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	200	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	200	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*110*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.7*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*108*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507D062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**20**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**540**	**40**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*57.2*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Nickel	**12**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**920**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**1,600**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Benzo(k)fluoranthene	**530**	**330**	**330**	*	**µg/Kg-dry**	1	6/27/2012
Chrysene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*86.1*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*75.3*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*85.9*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*81.7*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*70.1*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*83.5*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507D062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	830	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	210	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	210	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	210	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR0750L507D062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 12:59:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	340	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	210	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	210	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*91.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*105*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L504S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 1:17:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**230**	**56**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**2,200**	**110**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*43.6*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.90	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	ND	1.8	1.0		mg/Kg-dry	4	6/28/2012
Nickel	**8.9**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**12**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**820**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*57.4*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*41.0*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*42.7*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*53.6*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*35.1*	*37-107*		S	*%REC*	1	6/27/2012
Surr: Phenol-d6	*44.8*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	1,900	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L504S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 1:17:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	1,900	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	1,900	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	1,900	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	1,900	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	1,900	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	1,900	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	6,800	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	6,200	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	16,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	1,900	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	6,200	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	1,900	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	1,900	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	1,900	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	1,900	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0775L504S062212S007
Work Order:	1206818	**Collection Date:**	6/22/2012 1:17:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	1,900	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	1,900	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	3,700	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	6,200	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	6,200	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	1,900	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	6,200	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	1,900	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	1,900	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	1,900	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	1,900	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*88.9*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*99.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*96.5*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**83**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R501S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 2:26:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**220**	**25**	**4.0**		**mg/Kg-dry**	1	6/26/2012
ORO (C20-C34)	**670**	**50**	**4.0**		**mg/Kg-dry**	1	6/26/2012
Surr: 4-Terphenyl-d14	*53.1*	*39-115*			*%REC*	1	6/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/28/2012
Nickel	**16**	**1.5**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*83.8*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*68.2*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*72.1*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*79.3*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*55.6*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*78.1*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R501S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 2:26:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	320	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	320	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	320	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R501S062212S005
Work Order:	1206818	**Collection Date:**	6/22/2012 2:26:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	320	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	320	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*91.0*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*102*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*108*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R502S062212S003
Work Order:	1206818	**Collection Date:**	6/22/2012 2:36:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**170**	**47**	**4.0**		**mg/Kg-dry**	1	6/27/2012
ORO (C20-C34)	**910**	**93**	**4.0**		**mg/Kg-dry**	1	6/27/2012
Surr: 4-Terphenyl-d14	*51.4*	*39-115*			*%REC*	1	6/27/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.85	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	ND	1.7	1.0		mg/Kg-dry	4	6/28/2012
Nickel	**10**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**14**	**1.4**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Chrysene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**940**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**750**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*84.2*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*67.6*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*72.0*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*70.5*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*57.4*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*68.1*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R502S062212S003
Work Order:	1206818	**Collection Date:**	6/22/2012 2:36:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	1,200	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	1,200	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	1,200	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	1,200	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	4,100	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	4,100	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	10,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	1,200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	4,100	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	1,200	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	1,200	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	1,200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	1,200	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R502S062212S003
Work Order:	1206818	**Collection Date:**	6/22/2012 2:36:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	1,200	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	1,200	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	2,400	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	4,100	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	4,100	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	1,200	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	4,100	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	1,200	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	1,200	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	1,200	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	1,200	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*109*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.8*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*105*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R503S062212S010
Work Order:	1206818	**Collection Date:**	6/22/2012 3:52:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	ND	10	4.0		mg/Kg-dry	1	6/27/2012
ORO (C20-C34)	ND	20	4.0		mg/Kg-dry	1	6/27/2012
Surr: 4-Terphenyl-d14	*43.9*	*39-115*			*%REC*	1	6/27/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/28/2012
Nickel	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330	J	µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*93.5*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*71.6*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*72.6*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*60.9*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*62.1*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*68.7*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R503S062212S010
Work Order:	1206818	**Collection Date:**	6/22/2012 3:52:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	37	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	37	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R503S062212S010
Work Order:	1206818	**Collection Date:**	6/22/2012 3:52:00 PM
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	40	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*110*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*92.3*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**6.9**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R503T062212MX
Work Order:	1206818	**Collection Date:**	6/22/2012
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/26/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/26/2012
Benzene	ND	50	50		µg/Kg	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromoform	ND	100	100		µg/Kg	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg	1	6/26/2012
Chloroform	ND	50	50		µg/Kg	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R503T062212MX
Work Order:	1206818	**Collection Date:**	6/22/2012
Project:	Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/22/12		
Lab ID:	1206818-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Styrene	ND	50	50		µg/Kg	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/26/2012
Toluene	ND	100	100		µg/Kg	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/26/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*107*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*90.4*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41951** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41951-41951** Units: **mg/Kg** Analysis Date: **6/26/2012 06:59 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2013987** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.274*	0	*5*	0	*45.5*	*39-115*	0			

LCS Sample ID: **DLCSS1-41951-41951** Units: **mg/Kg** Analysis Date: **6/26/2012 06:59 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014005** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	382.7	10	500	0	76.5	60-130	0			
ORO (C20-C34)	430.6	20	500	0	86.1	60-130	0			
Surr: 4-Terphenyl-d14	*2.691*	0	*5*	0	*53.8*	*39-115*	0			

MS Sample ID: **1206817-03B MS** Units: **mg/Kg** Analysis Date: **6/26/2012 07:24 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2013988** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	376.6	9.8	489.9	38.53	69	60-130	0			
ORO (C20-C34)	694.8	20	489.9	575.4	24.4	60-130	0			S
Surr: 4-Terphenyl-d14	*2.522*	0	*4.899*	0	*51.5*	*39-115*	0			

MSD Sample ID: **1206817-03B MSD** Units: **mg/Kg** Analysis Date: **6/26/2012 07:24 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014006** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	279.2	9.7	485.2	38.53	49.6	60-130	376.6	29.7	30	S
ORO (C20-C34)	373.2	19	485.2	575.4	-41.7	60-130	694.8	60.2	30	SR
Surr: 4-Terphenyl-d14	*2.025*	0	*4.852*	0	*41.7*	*39-115*	2.522	*21.8*	*30*	

The following samples were analyzed in this batch:

1206818-01B	1206818-02B	1206818-03B
1206818-04B	1206818-05B	1206818-06B
1206818-08B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **41958** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41958-41958** Units: **mg/Kg** Analysis Date: **6/26/2012 11:55 PM**
Client ID: Run ID: **GC8_120626A** SeqNo: **2014000** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.356*	0	*5*	0	*47.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-41958-41958** Units: **mg/Kg** Analysis Date: **6/26/2012 11:55 PM**
Client ID: Run ID: **GC8_120626A** SeqNo: **2014017** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.4	10	500	0	70.9	60-130	0			
ORO (C20-C34)	424.2	20	500	0	84.8	60-130	0			
Surr: 4-Terphenyl-d14	*3.119*	0	*5*	0	*62.4*	*39-115*	0			

MS Sample ID: **1206829-07B MS** Units: **mg/Kg** Analysis Date: **6/27/2012 12:19 PM**
Client ID: Run ID: **GC8_120626A** SeqNo: **2014003** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	247	6.6	330.9	8.254	72.1	60-130	0			
ORO (C20-C34)	409.9	13	330.9	73.91	102	60-130	0			
Surr: 4-Terphenyl-d14	*1.666*	0	*3.309*	0	*50.3*	*39-115*	0			

MSD Sample ID: **1206829-07B MSD** Units: **mg/Kg** Analysis Date: **6/27/2012 12:19 PM**
Client ID: Run ID: **GC8_120626A** SeqNo: **2014019** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	225	6.4	320.1	8.254	67.7	60-130	247	9.32	30	
ORO (C20-C34)	314	13	320.1	73.91	75	60-130	409.9	26.5	30	
Surr: 4-Terphenyl-d14	*2.013*	0	*3.201*	0	*62.9*	*39-115*	1.666	*18.9*	*30*	

The following samples were analyzed in this batch: 1206818-09B 1206818-10B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **42018A** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42018-42018A** Units: **mg/Kg** Analysis Date: **6/28/2012 02:46 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016115** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.455*	0	*5*	0	*49.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-42018-42018A** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016118** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	375.9	10	500	0	75.2	60-130	0			
ORO (C20-C34)	559.2	20	500	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.561*	0	*5*	0	*51.2*	*39-115*	0			

MS Sample ID: **1206817-03B MS** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016116** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	314.6	9.2	462	25.31	62.6	60-130	0			
ORO (C20-C34)	435.5	18	462	147.6	62.3	60-130	0			
Surr: 4-Terphenyl-d14	*2.204*	0	*4.62*	0	*47.7*	*39-115*	0			

MSD Sample ID: **1206817-03B MSD** Units: **mg/Kg** Analysis Date: **6/28/2012 03:36 PM**
Client ID: Run ID: **GC8_120628A** SeqNo: **2016119** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	321.8	9.6	482.4	25.31	61.5	60-130	314.6	2.25	30	
ORO (C20-C34)	584.1	19	482.4	147.6	90.5	60-130	435.5	29.2	30	
Surr: 4-Terphenyl-d14	*2.213*	0	*4.824*	0	*45.9*	*39-115*	2.204	*0.434*	*30*	

The following samples were analyzed in this batch: 1206818-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **41955** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41955-41955** Units: **mg/Kg** Analysis Date: **6/26/2012 06:17 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013380** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.004733	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41955-41955** Units: **mg/Kg** Analysis Date: **6/26/2012 06:23 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013381** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.372	0.10	5	0	87.4	80-120	0			
Molybdenum	4.386	0.25	5	0	87.7	80-120	0			
Nickel	4.302	0.25	5	0	86	80-120	0			
Vanadium	4.461	0.25	5	0	89.2	80-120	0			

MS Sample ID: **1206817-03BMS** Units: **mg/Kg** Analysis Date: **6/26/2012 06:54 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013386** Prep Date: **6/26/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.162	0.61	7.634	0.1099	79.3	80-120	0			S
Molybdenum	6.519	1.5	7.634	0.4644	79.3	80-120	0			S
Nickel	9.298	1.5	7.634	3.296	78.6	80-120	0			S
Vanadium	13.04	1.5	7.634	6.886	80.6	80-120	0			

MSD Sample ID: **1206817-03BMSD** Units: **mg/Kg** Analysis Date: **6/26/2012 07:00 PM**
Client ID: Run ID: **ICPMS1_120626A** SeqNo: **2013387** Prep Date: **6/26/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.034	0.62	7.74	0.1099	76.5	80-120	6.162	2.1	25	S
Molybdenum	6.508	1.5	7.74	0.4644	78.1	80-120	6.519	0.174	25	S
Nickel	8.96	1.5	7.74	3.296	73.2	80-120	9.298	3.7	25	S
Vanadium	12.64	1.5	7.74	6.886	74.4	80-120	13.04	3.07	25	S

The following samples were analyzed in this batch: 1206818-01B 1206818-02B 1206818-03B 1206818-04B 1206818-05B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:29 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014929** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.0694	0.25								J
Vanadium	ND	0.25								

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 04:12 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016241** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	ND	0.25								

LCS Sample ID: **LCS-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:35 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014930** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.658	0.10	5	0	93.2	80-120	0			
Molybdenum	4.546	0.25	5	0	90.9	80-120	0			
Nickel	4.555	0.25	5	0	91.1	80-120	0			
Vanadium	4.567	0.25	5	0	91.3	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 06:12 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014935** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	7.514	0.41	8.143	0.431	87	80-120	0			
Nickel	11.08	0.41	8.143	5.146	72.9	80-120	0			S
Vanadium	17.74	0.41	8.143	10.15	93.2	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 08:49 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016290** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.971	0.81	8.143	0.24	82.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 06:19 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014936** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.713	0.40	7.987	0.431	78.7	80-120	7.514	11.3	25	S
Nickel	9.553	0.40	7.987	5.146	55.2	80-120	11.08	14.8	25	S
Vanadium	14.67	0.40	7.987	10.15	56.6	80-120	17.74	18.9	25	S

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 09:20 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016294** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.062	0.80	7.987	0.24	72.9	80-120	6.971	13.9	25	S

The following samples were analyzed in this batch: 1206818-06B 1206818-07B 1206818-08B 1206818-09B 1206818-10B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41950-41950** Units: **µg/Kg** Analysis Date: **6/27/2012 12:05 PM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015322** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3160*	0	*5000*	0	*63.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4045*	0	*5000*	0	*80.9*	*12-100*	0			
Surr: 2-Fluorophenol	*4379*	0	*5000*	0	*87.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4216*	0	*5000*	0	*84.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3982*	0	*5000*	0	*79.6*	*37-107*	0			
Surr: Phenol-d6	*4432*	0	*5000*	0	*88.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41950-41950** Units: **µg/Kg** Analysis Date: **6/27/2012 09:50 AM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015316** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1853	50	2000	0	92.6	45-105	0			
Acenaphthene	1886	50	2000	0	94.3	45-110	0			
Acenaphthylene	1965	50	2000	0	98.2	45-105	0			
Anthracene	2030	50	2000	0	102	55-105	0			
Benzo(a)anthracene	2091	50	2000	0	105	50-110	0			
Benzo(a)pyrene	2001	50	2000	0	100	50-110	0			
Benzo(b)fluoranthene	2097	50	2000	0	105	45-115	0			
Benzo(g,h,i)perylene	2402	50	2000	0	120	40-125	0			
Benzo(k)fluoranthene	2033	50	2000	0	102	45-115	0			
Chrysene	2103	50	2000	0	105	55-110	0			
Dibenzo(a,h)anthracene	2250	50	2000	0	112	40-125	0			
Fluoranthene	2203	50	2000	0	110	55-115	0			
Fluorene	1939	50	2000	0	97	50-110	0			
Indeno(1,2,3-cd)pyrene	2361	50	2000	0	118	40-120	0			
Naphthalene	1826	50	2000	0	91.3	40-105	0			
Phenanthrene	2098	50	2000	0	105	50-110	0			
Pyrene	2250	50	2000	0	112	45-125	0			
Surr: 2,4,6-Tribromophenol	*4019*	0	*5000*	0	*80.4*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3623*	0	*5000*	0	*72.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4277*	0	*5000*	0	*85.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4131*	0	*5000*	0	*82.6*	*25-137*	0			
Surr: Nitrobenzene-d5	*3626*	0	*5000*	0	*72.5*	*37-107*	0			
Surr: Phenol-d6	*4070*	0	*5000*	0	*81.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206817-03B MS** Units: **µg/Kg** Analysis Date: **6/27/2012 10:24 AM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015317** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1381	49	1952	0	70.8	45-105	0			
Acenaphthene	1468	49	1952	0	75.2	45-110	0			
Acenaphthylene	1542	49	1952	0	79	45-105	0			
Anthracene	1635	49	1952	0	83.8	55-105	0			
Benzo(a)anthracene	1591	49	1952	58.47	78.5	50-110	0			
Benzo(a)pyrene	1681	49	1952	59.46	83.1	50-110	0			
Benzo(b)fluoranthene	1855	49	1952	63.43	91.8	45-115	0			
Benzo(g,h,i)perylene	1560	49	1952	0	80	40-125	0			
Benzo(k)fluoranthene	1650	49	1952	0	84.6	45-115	0			
Chrysene	1712	49	1952	51.54	85.1	55-110	0			
Dibenzo(a,h)anthracene	1533	49	1952	0	78.6	40-125	0			
Fluoranthene	1737	49	1952	63.43	85.7	55-115	0			
Fluorene	1542	49	1952	0	79	50-110	0			
Indeno(1,2,3-cd)pyrene	1560	49	1952	0	80	40-120	0			
Naphthalene	1352	49	1952	0	69.3	40-105	0			
Phenanthrene	1624	49	1952	0	83.2	50-110	0			
Pyrene	1685	49	1952	67.39	82.9	45-125	0			
Surr: 2,4,6-Tribromophenol	*3959*	0	*4879*	0	*81.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3420*	0	*4879*	0	*70.1*	*12-100*	0			
Surr: 2-Fluorophenol	*3794*	0	*4879*	0	*77.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3503*	0	*4879*	0	*71.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3139*	0	*4879*	0	*64.3*	*37-107*	0			
Surr: Phenol-d6	*3628*	0	*4879*	0	*74.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41950** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206817-03B MSD** Units: **µg/Kg** Analysis Date: **6/27/2012 10:57 AM**
Client ID: Run ID: **SVMS4_120627A** SeqNo: **2015318** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1237	48	1915	0	64.6	45-105	1381	11	30	
Acenaphthene	1414	48	1915	0	73.8	45-110	1468	3.75	30	
Acenaphthylene	1434	48	1915	0	74.8	45-105	1542	7.27	30	
Anthracene	1537	48	1915	0	80.2	55-105	1635	6.2	30	
Benzo(a)anthracene	1484	48	1915	58.47	74.4	50-110	1591	6.91	30	
Benzo(a)pyrene	1583	48	1915	59.46	79.5	50-110	1681	6.02	30	
Benzo(b)fluoranthene	1814	48	1915	63.43	91.4	45-115	1855	2.24	30	
Benzo(g,h,i)perylene	1155	48	1915	0	60.3	40-125	1560	29.9	30	
Benzo(k)fluoranthene	1646	48	1915	0	86	45-115	1650	0.233	30	
Chrysene	1584	48	1915	51.54	80	55-110	1712	7.74	30	
Dibenzo(a,h)anthracene	1165	48	1915	0	60.8	40-125	1533	27.3	30	
Fluoranthene	1663	48	1915	63.43	83.5	55-115	1737	4.38	30	
Fluorene	1449	48	1915	0	75.6	50-110	1542	6.21	30	
Indeno(1,2,3-cd)pyrene	1215	48	1915	0	63.4	40-120	1560	24.9	30	
Naphthalene	1181	48	1915	0	61.6	40-105	1352	13.6	30	
Phenanthrene	1527	48	1915	0	79.8	50-110	1624	6.11	30	
Pyrene	1553	48	1915	67.39	77.6	45-125	1685	8.14	30	
Surr: 2,4,6-Tribromophenol	*3690*	0	*4788*	0	*77.1*	*34-140*	3959	*7.03*	*40*	
Surr: 2-Fluorobiphenyl	*3099*	0	*4788*	0	*64.7*	*12-100*	3420	*9.85*	*40*	
Surr: 2-Fluorophenol	*3321*	0	*4788*	0	*69.4*	*33-117*	3794	*13.3*	*40*	
Surr: 4-Terphenyl-d14	*3320*	0	*4788*	0	*69.3*	*25-137*	3503	*5.36*	*40*	
Surr: Nitrobenzene-d5	*2755*	0	*4788*	0	*57.5*	*37-107*	3139	*13*	*40*	
Surr: Phenol-d6	*3274*	0	*4788*	0	*68.4*	*40-106*	3628	*10.3*	*40*	

The following samples were analyzed in this batch:

1206818-01B	1206818-02B	1206818-03B
1206818-04B	1206818-05B	1206818-06B
1206818-07B	1206818-08B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 08:50 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017060** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3533*	0	*5000*	0	*70.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4279*	0	*5000*	0	*85.6*	*12-100*	0			
Surr: 2-Fluorophenol	*4444*	0	*5000*	0	*88.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4285*	0	*5000*	0	*85.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*4101*	0	*5000*	0	*82*	*37-107*	0			
Surr: Phenol-d6	*4171*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 05:51 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017055** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1409	50	2000	0	70.4	45-105	0			
Acenaphthene	1592	50	2000	0	79.6	45-110	0			
Acenaphthylene	1638	50	2000	0	81.9	45-105	0			
Anthracene	1637	50	2000	0	81.8	55-105	0			
Benzo(a)anthracene	1754	50	2000	0	87.7	50-110	0			
Benzo(a)pyrene	1812	50	2000	0	90.6	50-110	0			
Benzo(b)fluoranthene	1899	50	2000	0	95	45-115	0			
Benzo(g,h,i)perylene	2006	50	2000	0	100	40-125	0			
Benzo(k)fluoranthene	1801	50	2000	0	90	45-115	0			
Chrysene	1796	50	2000	0	89.8	55-110	0			
Dibenzo(a,h)anthracene	1812	50	2000	0	90.6	40-125	0			
Fluoranthene	1789	50	2000	0	89.4	55-115	0			
Fluorene	1611	50	2000	0	80.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1826	50	2000	0	91.3	40-120	0			
Naphthalene	1440	50	2000	0	72	40-105	0			
Phenanthrene	1647	50	2000	0	82.4	50-110	0			
Pyrene	1807	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4078*	0	*5000*	0	*81.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3876*	0	*5000*	0	*77.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4141*	0	*5000*	0	*82.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3992*	0	*5000*	0	*79.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3632*	0	*5000*	0	*72.6*	*37-107*	0			
Surr: Phenol-d6	*3798*	0	*5000*	0	*76*	*40-106*	0			

The following samples were analyzed in this batch: 1206818-09B 1206818-10B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41929-41929** Units: **µg/Kg** Analysis Date: **6/26/2012 01:17 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012683** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	150.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1049*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*925*	0	*1000*	0	*92.5*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1062*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41929-41929** Units: **µg/Kg** Analysis Date: **6/26/2012 12:27 PM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012638** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1044	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	1041	30	1000	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	976.5	30	1000	0	97.6	55-130	0			
1,1,2-Trichloroethane	1032	30	1000	0	103	60-125	0			
1,1-Dichloroethane	1024	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1044	30	1000	0	104	65-135	0			
1,2,3-Trichlorobenzene	1042	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1054	30	1000	0	105	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	966	30	1000	0	96.6	65-130	0			
1,2,4-Trimethylbenzene	1077	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	1164	30	1000	0	116	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1044	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1062	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1098	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1090	30	1000	0	109	65-135	0			
1,3-Dichlorobenzene	1034	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1076	30	1000	0	108	70-125	0			
2-Butanone	1071	200	1000	0	107	30-160	0			
2-Hexanone	1162	30	1000	0	116	45-145	0			
4-Methyl-2-pentanone	990	30	1000	0	99	45-145	0			
Acetone	1473	100	1000	0	147	20-160	0			B
Acrylonitrile	1038	100	1000	0	104	70-135	0			
Benzene	1036	30	1000	0	104	75-125	0			
Bromobenzene	1045	30	1000	0	104	65-120	0			
Bromochloromethane	1004	30	1000	0	100	70-125	0			
Bromodichloromethane	1104	30	1000	0	110	70-130	0			
Bromoform	1144	30	1000	0	114	55-135	0			
Bromomethane	1224	75	1000	0	122	30-160	0			
Carbon disulfide	1318	30	1000	0	132	45-160	0			
Carbon tetrachloride	1020	30	1000	0	102	65-135	0			
Chlorobenzene	971.5	30	1000	0	97.2	75-125	0			
Chloroethane	1065	100	1000	0	106	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	975.5	100	1000	0	97.6	50-130	0			
cis-1,2-Dichloroethene	1028	30	1000	0	103	65-125	0			
cis-1,3-Dichloropropene	1012	30	1000	0	101	70-125	0			
Dibromochloromethane	1106	30	1000	0	111	65-135	0			
Dibromomethane	1138	30	1000	0	114	75-130	0			
Dichlorodifluoromethane	898.5	30	1000	0	89.8	35-135	0			
Ethylbenzene	1021	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1158	30	1000	0	116	70-135	0
Isopropylbenzene	1087	30	1000	0	109	75-130	0
m,p-Xylene	2100	60	2000	0	105	80-125	0
Methyl tert-butyl ether	1086	30	1000	0	109	75-125	0
Methylene chloride	1093	30	1000	0	109	55-145	0
Naphthalene	1123	100	1000	0	112	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	1008	30	1000	0	101	65-135	0
o-Xylene	1021	30	1000	0	102	75-125	0
p-Isopropyltoluene	1010	30	1000	0	101	75-135	0
sec-Butylbenzene	1079	30	1000	0	108	65-130	0
Styrene	1126	30	1000	0	113	75-125	0
tert-Butylbenzene	1046	30	1000	0	105	65-130	0
Tetrachloroethene	1001	30	1000	0	100	64-140	0
Tetrahydrofuran	1050	200	1000	0	105	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1056	30	1000	0	106	65-135	0
trans-1,3-Dichloropropene	1092	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	1002	30	1000	0	100	70-135	0
Trichloroethene	963	30	1000	0	96.3	75-125	0
Trichlorofluoromethane	846	30	1000	0	84.6	25-185	0
Vinyl chloride	1110	30	1000	0	111	60-125	0
Surr: 1,2-Dichloroethane-d4	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1031*	0	*1000*	0	*103*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206817-03A MS** Units: **µg/Kg** Analysis Date: **6/26/2012 10:09 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012654** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	807.5	30	1000	0	80.8	75-125	0			
1,1,1-Trichloroethane	744	30	1000	0	74.4	70-135	0			
1,1,2,2-Tetrachloroethane	818	30	1000	0	81.8	55-130	0			
1,1,2-Trichloroethane	868	30	1000	0	86.8	60-125	0			
1,1-Dichloroethane	882.5	30	1000	0	88.2	75-125	0			
1,1-Dichloroethene	883	30	1000	0	88.3	65-135	0			
1,2,3-Trichlorobenzene	775	30	1000	0	77.5	60-135	0			
1,2,3-Trichloropropane	890	30	1000	0	89	65-130	0			
1,2,3-Trimethylbenzene	823	30	1000	0	82.3	65-135	0			
1,2,4-Trichlorobenzene	710.5	30	1000	0	71	65-130	0			
1,2,4-Trimethylbenzene	880	30	1000	0	88	65-135	0			
1,2-Dibromo-3-chloropropane	837.5	30	1000	0	83.8	40-135	0			
1,2-Dibromoethane	857	30	1000	0	85.7	70-125	0			
1,2-Dichlorobenzene	847	30	1000	0	84.7	75-120	0			
1,2-Dichloroethane	886.5	30	1000	0	88.6	70-135	0			
1,2-Dichloropropane	835	30	1000	0	83.5	70-120	0			
1,3,5-Trimethylbenzene	880.5	30	1000	0	88	65-135	0			
1,3-Dichlorobenzene	837	30	1000	0	83.7	70-125	0			
1,4-Dichlorobenzene	862.5	30	1000	0	86.2	70-125	0			
2-Butanone	1068	100	1000	0	107	30-160	0			
2-Hexanone	945.5	30	1000	0	94.6	45-145	0			
4-Methyl-2-pentanone	820.5	30	1000	0	82	45-145	0			
Acetone	1202	100	1000	0	120	20-160	0			B
Acrylonitrile	930.5	30	1000	0	93	70-135	0			
Benzene	829.5	30	1000	0	83	75-125	0			
Bromobenzene	866.5	30	1000	0	86.6	65-120	0			
Bromochloromethane	900.5	30	1000	0	90	70-125	0			
Bromodichloromethane	769	30	1000	0	76.9	70-130	0			
Bromoform	833	30	1000	0	83.3	55-135	0			
Bromomethane	916	30	1000	0	91.6	30-160	0			
Carbon disulfide	835	30	1000	0	83.5	45-160	0			
Carbon tetrachloride	656	30	1000	0	65.6	65-135	0			
Chlorobenzene	815.5	30	1000	0	81.6	75-125	0			
Chloroethane	884.5	100	1000	0	88.4	40-155	0			
Chloroform	831	30	1000	0	83.1	70-125	0			
Chloromethane	725	30	1000	0	72.5	50-130	0			
cis-1,2-Dichloroethene	861.5	30	1000	0	86.2	65-125	0			
cis-1,3-Dichloropropene	723	30	1000	0	72.3	70-125	0			
Dibromochloromethane	828	30	1000	0	82.8	65-135	0			
Dibromomethane	826.5	30	1000	0	82.6	75-130	0			
Dichlorodifluoromethane	638.5	30	1000	0	63.8	35-135	0			
Ethylbenzene	855	30	1000	0	85.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	840	30	1000	0	84	70-135	0
Isopropylbenzene	867	30	1000	0	86.7	75-130	0
m,p-Xylene	1774	60	2000	0	88.7	80-125	0
Methyl tert-butyl ether	855.5	30	1000	0	85.6	75-125	0
Methylene chloride	1088	30	1000	0	109	55-145	0
Naphthalene	849.5	100	1000	0	85	40-140	0
n-Butylbenzene	772	30	1000	0	77.2	65-140	0
n-Propylbenzene	802	30	1000	0	80.2	65-135	0
o-Xylene	848	30	1000	0	84.8	75-125	0
p-Isopropyltoluene	773	30	1000	0	77.3	75-135	0
sec-Butylbenzene	830.5	30	1000	0	83	65-130	0
Styrene	901	30	1000	0	90.1	75-125	0
tert-Butylbenzene	823	30	1000	0	82.3	65-130	0
Tetrachloroethene	816.5	30	1000	0	81.6	64-140	0
Tetrahydrofuran	936.5	100	1000	0	93.6	70-135	0
Toluene	831.5	30	1000	0	83.2	70-125	0
trans-1,2-Dichloroethene	862	30	1000	0	86.2	65-135	0
trans-1,3-Dichloropropene	831.5	30	1000	0	83.2	65-125	0
trans-1,4-Dichloro-2-butene	757.5	30	1000	0	75.8	70-135	0
Trichloroethene	759	30	1000	0	75.9	75-125	0
Trichlorofluoromethane	645	30	1000	0	64.5	25-185	0
Vinyl chloride	813	30	1000	0	81.3	60-125	0
Surr: 1,2-Dichloroethane-d4	*1022*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*993*	0	*1000*	0	*99.3*	*70-130*	0
Surr: Toluene-d8	*1052*	0	*1000*	0	*105*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206817-03A MSD** Units: **µg/Kg** Analysis Date: **6/26/2012 10:34 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012655** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	837.5	30	1000	0	83.8	75-125	807.5	3.65	30	
1,1,1-Trichloroethane	749	30	1000	0	74.9	70-135	744	0.67	30	
1,1,2,2-Tetrachloroethane	860.5	30	1000	0	86	55-130	818	5.06	30	
1,1,2-Trichloroethane	900	30	1000	0	90	60-125	868	3.62	30	
1,1-Dichloroethane	900.5	30	1000	0	90	75-125	882.5	2.02	30	
1,1-Dichloroethene	701.5	30	1000	0	70.2	65-135	883	22.9	30	
1,2,3-Trichlorobenzene	814.5	30	1000	0	81.4	60-135	775	4.97	30	
1,2,3-Trichloropropane	913	30	1000	0	91.3	65-130	890	2.55	30	
1,2,3-Trimethylbenzene	853.5	30	1000	0	85.4	65-135	823	3.64	30	
1,2,4-Trichlorobenzene	750	30	1000	0	75	65-130	710.5	5.41	30	
1,2,4-Trimethylbenzene	924.5	30	1000	0	92.4	65-135	880	4.93	30	
1,2-Dibromo-3-chloropropane	899	30	1000	0	89.9	40-135	837.5	7.08	30	
1,2-Dibromoethane	882.5	30	1000	0	88.2	70-125	857	2.93	30	
1,2-Dichlorobenzene	887.5	30	1000	0	88.8	75-120	847	4.67	30	
1,2-Dichloroethane	876.5	30	1000	0	87.6	70-135	886.5	1.13	30	
1,2-Dichloropropane	862	30	1000	0	86.2	70-120	835	3.18	30	
1,3,5-Trimethylbenzene	918	30	1000	0	91.8	65-135	880.5	4.17	30	
1,3-Dichlorobenzene	868.5	30	1000	0	86.8	70-125	837	3.69	30	
1,4-Dichlorobenzene	897	30	1000	0	89.7	70-125	862.5	3.92	30	
2-Butanone	1100	100	1000	0	110	30-160	1068	2.95	30	
2-Hexanone	999	30	1000	0	99.9	45-145	945.5	5.5	30	
4-Methyl-2-pentanone	867.5	30	1000	0	86.8	45-145	820.5	5.57	30	
Acetone	1492	100	1000	0	149	20-160	1202	21.6	30	B
Acrylonitrile	945.5	30	1000	0	94.6	70-135	930.5	1.6	30	
Benzene	834	30	1000	0	83.4	75-125	829.5	0.541	30	
Bromobenzene	913	30	1000	0	91.3	65-120	866.5	5.23	30	
Bromochloromethane	915.5	30	1000	0	91.6	70-125	900.5	1.65	30	
Bromodichloromethane	784	30	1000	0	78.4	70-130	769	1.93	30	
Bromoform	882	30	1000	0	88.2	55-135	833	5.71	30	
Bromomethane	905.5	30	1000	0	90.6	30-160	916	1.15	30	
Carbon disulfide	944.5	30	1000	0	94.4	45-160	835	12.3	30	
Carbon tetrachloride	672	30	1000	0	67.2	65-135	656	2.41	30	
Chlorobenzene	837	30	1000	0	83.7	75-125	815.5	2.6	30	
Chloroethane	878	100	1000	0	87.8	40-155	884.5	0.738	30	
Chloroform	841	30	1000	0	84.1	70-125	831	1.2	30	
Chloromethane	737.5	30	1000	0	73.8	50-130	725	1.71	30	
cis-1,2-Dichloroethene	877.5	30	1000	0	87.8	65-125	861.5	1.84	30	
cis-1,3-Dichloropropene	756.5	30	1000	0	75.6	70-125	723	4.53	30	
Dibromochloromethane	856	30	1000	0	85.6	65-135	828	3.33	30	
Dibromomethane	868	30	1000	0	86.8	75-130	826.5	4.9	30	
Dichlorodifluoromethane	650	30	1000	0	65	35-135	638.5	1.79	30	
Ethylbenzene	879.5	30	1000	0	88	75-125	855	2.83	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41929** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	864	30	1000	0	86.4	70-135	840	2.82	30
Isopropylbenzene	897.5	30	1000	0	89.8	75-130	867	3.46	30
m,p-Xylene	1812	60	2000	0	90.6	80-125	1774	2.15	30
Methyl tert-butyl ether	869.5	30	1000	0	87	75-125	855.5	1.62	30
Methylene chloride	1098	30	1000	0	110	55-145	1088	0.915	30
Naphthalene	889.5	100	1000	0	89	40-140	849.5	4.6	30
n-Butylbenzene	805	30	1000	0	80.5	65-140	772	4.19	30
n-Propylbenzene	839	30	1000	0	83.9	65-135	802	4.51	30
o-Xylene	874	30	1000	0	87.4	75-125	848	3.02	30
p-Isopropyltoluene	801	30	1000	0	80.1	75-135	773	3.56	30
sec-Butylbenzene	866.5	30	1000	0	86.6	65-130	830.5	4.24	30
Styrene	919	30	1000	0	91.9	75-125	901	1.98	30
tert-Butylbenzene	870.5	30	1000	0	87	65-130	823	5.61	30
Tetrachloroethene	853	30	1000	0	85.3	64-140	816.5	4.37	30
Tetrahydrofuran	949.5	100	1000	0	95	70-135	936.5	1.38	30
Toluene	860	30	1000	0	86	70-125	831.5	3.37	30
trans-1,2-Dichloroethene	898	30	1000	0	89.8	65-135	862	4.09	30
trans-1,3-Dichloropropene	862	30	1000	0	86.2	65-125	831.5	3.6	30
trans-1,4-Dichloro-2-butene	799.5	30	1000	0	80	70-135	757.5	5.39	30
Trichloroethene	788.5	30	1000	0	78.8	75-125	759	3.81	30
Trichlorofluoromethane	662.5	30	1000	0	66.2	25-185	645	2.68	30
Vinyl chloride	719	30	1000	0	71.9	60-125	813	12.3	30
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	1022	*1.18*	*30*
Surr: 4-Bromofluorobenzene	*1048*	0	*1000*	0	*105*	*70-130*	1008	*3.89*	*30*
Surr: Dibromofluoromethane	*986*	0	*1000*	0	*98.6*	*70-130*	993	*0.707*	*30*
Surr: Toluene-d8	*1078*	0	*1000*	0	*108*	*70-130*	1052	*2.44*	*30*

The following samples were analyzed in this batch:

1206818-01A	1206818-02A	1206818-03A
1206818-04A	1206818-05A	1206818-06A
1206818-07A	1206818-08A	1206818-09A
1206818-10A	1206818-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **R106555** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106555** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106555** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206795-01ADUP** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.41	0.050	0	0	0	0-0	11.63	6.49	20	

DUP Sample ID: **1206817-03BDUP1** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012333** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	72.33	0.050	0	0	0	0-0	72.21	0.166	20	

DUP Sample ID: **1206817-03BDUP2** Units: **% of sample** Analysis Date: **6/25/2012 02:17 PM**
Client ID: Run ID: **MOIST_120625B** SeqNo: **2012334** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.95	0.050	0	0	0	0-0	72.21	0.361	20	

The following samples were analyzed in this batch: 1206818-01B 1206818-02B 1206818-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206818
Project: Marshall KRRI 0650I,0650R,0750-0775L,0925R 6/

QC BATCH REPORT

Batch ID: **R106556** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012373** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012372** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206818-10BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: **SBKR0925R503S062212S010** Run ID: **MOIST_120625C** SeqNo: **2012358** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.37	0.050	0	0	0	0-0	6.86	7.17	20	

DUP Sample ID: **1206829-02BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012363** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	9.39	0.050	0	0	0	0-0	9.19	2.15	20	

The following samples were analyzed in this batch:

1206818-04B	1206818-05B	1206818-06B
1206818-07B	1206818-08B	1206818-09B
1206818-10B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206818

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062212_LJL1	Task: KRRI_0650,0750,0775,0925
	Total # of Samples: 11	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR0650I503S062212S005	SBKR0650I503	SO	G	06/22/2012 08:42	3			X	X	X	X	X											
2	SBKR0650R506S062212S005	SBKR0650R506	SO	G	06/22/2012 08:30	3			X	X	X	X	X											
3	SBKR0650R507S062212S004	SBKR0650R507	SO	G	06/22/2012 10:10	3			X	X	X	X	X											
4	SBKR0750L506S062212S007	SBKR0750L506	SO	G	06/22/2012 12:48	3			X	X	X	X	X											
5	SBKR0750L507S062212S005	SBKR0750L507	SO	G	06/22/2012 12:59	3			X	X	X	X	X											
6	SBKR0750L507D062212S005	SBKR0750L507	SO	G	06/22/2012 12:59	3	DUPLICATE		X	X	X	X	X											
7	SBKR0775L504S062212S007	SBKR0775L504	SO	G	06/22/2012 13:17	3			X	X	X	X	X											
8	SBKR0925R501S062212S005	SBKR0925R501	SO	G	06/22/2012 14:26	3			X	X	X	X	X											
9	SBKR0925R502S062212S003	SBKR0925R502	SO	G	06/22/2012 14:36	3			X	X	X	X	X											
10	SBKR0925R503S062212S010	SBKR0925R503	SO	G	06/22/2012 15:52	3			X	X	X	X	X											
11	SBKR0925R503T062212MX	SBKR0925R503	SQ	G	06/22/2012 00:00	1	TRIP BLANK						X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	6.22.12	1643	[signature]	6-22-12	1643
[signature]	6.22.12	1646	[signature]	6.22.12	1646

Sample Receipt Conditions	Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
	3.8°C	(Y) N	(Y) N	(Y) N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER: [signature] DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 16:46**

Work Order: **1206818** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.8 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-22-13 Time:
Name:
Company:

Seal Broken By:

Date:

3.8 °C

29-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI Sediment 0625R 6/21/12** Work Order: **1206820**

Dear Bryan,

ALS Environmental received 1 sample on 22-Jun-2012 04:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 0625R 6/21/12
Work Order: **1206820**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206820-01	SEKR0625R501S062112D003	Sediment		6/21/2012 09:48	6/22/2012 16:46	☐

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 0625R 6/21/12
Work Order: 1206820

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41996 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall KRRI Sediment 0625R 6/21/12
WorkOrder: **1206820**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR0625R501S062112D003
Work Order:	1206820	**Collection Date:**	6/21/2012 9:48:00 AM
Project:	Marshall KRRI Sediment 0625R 6/21/12		
Lab ID:	1206820-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	6/27/2012
ORO (C20-C34)	ND	41	4.0		mg/Kg-dry	1	6/27/2012
Surr: 4-Terphenyl-d14	*45.2*	*39-115*			*%REC*	1	6/27/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/28/2012
Nickel	**4.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**8.7**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*85.4*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*67.7*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*66.0*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*76.1*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*55.2*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*68.6*	*40-106*			*%REC*	1	6/27/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206820

Project: Marshall KRRI Sediment 0625R 6/21/12

Batch ID: **41958** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41958-41958** Units: **mg/Kg** Analysis Date: **6/26/2012 11:55 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014000** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.356*	0	*5*	0	*47.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-41958-41958** Units: **mg/Kg** Analysis Date: **6/26/2012 11:55 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014017** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.4	10	500	0	70.9	60-130	0			
ORO (C20-C34)	424.2	20	500	0	84.8	60-130	0			
Surr: 4-Terphenyl-d14	*3.119*	0	*5*	0	*62.4*	*39-115*	0			

MS Sample ID: **1206829-07B MS** Units: **mg/Kg** Analysis Date: **6/27/2012 12:19 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014003** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	247	6.6	330.9	8.254	72.1	60-130	0			
ORO (C20-C34)	409.9	13	330.9	73.91	102	60-130	0			
Surr: 4-Terphenyl-d14	*1.666*	0	*3.309*	0	*50.3*	*39-115*	0			

MSD Sample ID: **1206829-07B MSD** Units: **mg/Kg** Analysis Date: **6/27/2012 12:19 PM**

Client ID: Run ID: **GC8_120626A** SeqNo: **2014019** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	225	6.4	320.1	8.254	67.7	60-130	247	9.32	30	
ORO (C20-C34)	314	13	320.1	73.91	75	60-130	409.9	26.5	30	
Surr: 4-Terphenyl-d14	*2.013*	0	*3.201*	0	*62.9*	*39-115*	1.666	*18.9*	*30*	

The following samples were analyzed in this batch: 1206820-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206820
Project: Marshall KRRI Sediment 0625R 6/21/12

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:29 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014929** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.0694	0.25								J
Vanadium	ND	0.25								

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 04:12 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016241** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	ND	0.25								

LCS Sample ID: **LCS-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:35 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014930** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.658	0.10	5	0	93.2	80-120	0			
Molybdenum	4.546	0.25	5	0	90.9	80-120	0			
Nickel	4.555	0.25	5	0	91.1	80-120	0			
Vanadium	4.567	0.25	5	0	91.3	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 06:12 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014935** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	7.514	0.41	8.143	0.431	87	80-120	0			
Nickel	11.08	0.41	8.143	5.146	72.9	80-120	0			S
Vanadium	17.74	0.41	8.143	10.15	93.2	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 08:49 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016290** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.971	0.81	8.143	0.24	82.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 06:19 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014936** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.713	0.40	7.987	0.431	78.7	80-120	7.514	11.3	25	S
Nickel	9.553	0.40	7.987	5.146	55.2	80-120	11.08	14.8	25	S
Vanadium	14.67	0.40	7.987	10.15	56.6	80-120	17.74	18.9	25	S

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 09:20 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016294** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.062	0.80	7.987	0.24	72.9	80-120	6.971	13.9	25	S

The following samples were analyzed in this batch: 1206820-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 08:50 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017060** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3533*	0	*5000*	0	*70.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4279*	0	*5000*	0	*85.6*	*12-100*	0			
Surr: 2-Fluorophenol	*4444*	0	*5000*	0	*88.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4285*	0	*5000*	0	*85.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*4101*	0	*5000*	0	*82*	*37-107*	0			
Surr: Phenol-d6	*4171*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206820
Project: Marshall KRRI Sediment 0625R 6/21/12

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 05:51 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017055** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1409	50	2000	0	70.4	45-105	0			
Acenaphthene	1592	50	2000	0	79.6	45-110	0			
Acenaphthylene	1638	50	2000	0	81.9	45-105	0			
Anthracene	1637	50	2000	0	81.8	55-105	0			
Benzo(a)anthracene	1754	50	2000	0	87.7	50-110	0			
Benzo(a)pyrene	1812	50	2000	0	90.6	50-110	0			
Benzo(b)fluoranthene	1899	50	2000	0	95	45-115	0			
Benzo(g,h,i)perylene	2006	50	2000	0	100	40-125	0			
Benzo(k)fluoranthene	1801	50	2000	0	90	45-115	0			
Chrysene	1796	50	2000	0	89.8	55-110	0			
Dibenzo(a,h)anthracene	1812	50	2000	0	90.6	40-125	0			
Fluoranthene	1789	50	2000	0	89.4	55-115	0			
Fluorene	1611	50	2000	0	80.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1826	50	2000	0	91.3	40-120	0			
Naphthalene	1440	50	2000	0	72	40-105	0			
Phenanthrene	1647	50	2000	0	82.4	50-110	0			
Pyrene	1807	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4078*	0	*5000*	0	*81.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3876*	0	*5000*	0	*77.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4141*	0	*5000*	0	*82.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3992*	0	*5000*	0	*79.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3632*	0	*5000*	0	*72.6*	*37-107*	0			
Surr: Phenol-d6	*3798*	0	*5000*	0	*76*	*40-106*	0			

The following samples were analyzed in this batch: 1206820-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206820
Project: Marshall KRRI Sediment 0625R 6/21/12

QC BATCH REPORT

Batch ID: **R106556** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012373** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012372** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206818-10BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012358** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.37	0.050	0	0	0	0-0	6.86	7.17	20	

DUP Sample ID: **1206829-02BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012363** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	9.39	0.050	0	0	0	0-0	9.19	2.15	20	

The following samples were analyzed in this batch: 1206820-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206820

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062112_LJL2	Task: KRRI_SED0625
Total # of Samples: 1		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State,	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270												
1	SEKR0625R501S062112D003	SEKR0625R501	SE	G	06/21/2012 09:48	1			X	X	X	X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-21-12	1738		6-21-12	1738
	6-22-12	1646		6-22-12	1646

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
3.0°C	(Y)/N	(Y)/N	Y/(N)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1), APRIL MODERT
SIGNATURE of SAMPLER:
DATE Signed
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 16:46**

Work Order: **1206820** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

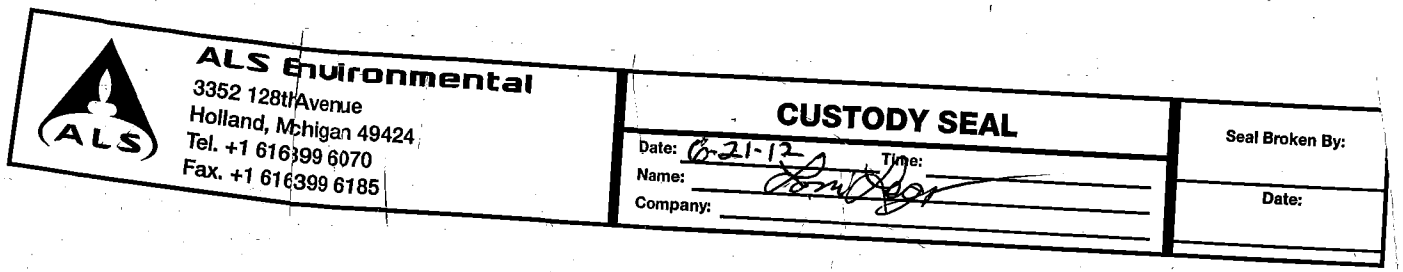
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 6-21-12
Time:
Name:
Company:
Seal Broken By:
Date:

3.0°c

06-Jul-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0700I,0875L 6/26/12** Work Order: **1206892**

Dear Bryan,

ALS Environmental received 11 samples on 27-Jun-2012 10:26 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 67.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0875L 6/26/12
Work Order: **1206892**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206892-01	SBKR0700I501S062612S006	Soil		6/26/2012 11:00	6/27/2012 10:26	☐
1206892-02	SBKR0700I502S062612S005	Soil		6/26/2012 11:40	6/27/2012 10:26	☐
1206892-03	SBKR0700I503S062612S006	Soil		6/26/2012 13:30	6/27/2012 10:26	☐
1206892-04	SBKR0700I504S062612S006	Soil		6/26/2012 14:06	6/27/2012 10:26	☐
1206892-05	SBKR0700I505S062612S005	Soil		6/26/2012 14:40	6/27/2012 10:26	☐
1206892-06	SBKR0700I506S062612S006	Soil		6/26/2012 15:40	6/27/2012 10:26	☐
1206892-07	SBKR0700I506D062612S006	Soil		6/26/2012 15:40	6/27/2012 10:26	☐
1206892-08	SBKR0700I507S062612S006	Soil		6/26/2012 16:15	6/27/2012 10:26	☐
1206892-09	SBKR0700I507T062612MX	Soil		6/26/2012	6/27/2012 10:26	☐
1206892-10	SBKR0875L502S062612S010	Soil		6/26/2012 08:30	6/27/2012 10:26	☐
1206892-11	SBKR0875L503S062612S006	Soil		6/26/2012 09:40	6/27/2012 10:26	☐

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0875L 6/26/12
Work Order: 1206892

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 42036 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 4029 LCS recovery for Chloroethane was above control limits, but all samples in this quality control batch were ND for this compound . The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch 42017 sample 1206892-08 PAH internal standard recovery was below the lower control limit, but >20%. Per the client's request, the results associated with the IS are being reported and should be considered as estimated for the marked PAH compounds.

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0700I,0875L 6/26/12
WorkOrder: **1206892**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I501S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 11:00:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**40**	**13**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**320**	**26**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*44.8*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**13**	**8.3**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/28/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(a)anthracene	**970**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(a)pyrene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(b)fluoranthene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(g,h,i)perylene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Benzo(k)fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Chrysene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/28/2012
Indeno(1,2,3-cd)pyrene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/28/2012
Surr: 2,4,6-Tribromophenol	*80.7*	*34-140*			*%REC*	1	6/28/2012
Surr: 2-Fluorobiphenyl	*70.3*	*12-100*			*%REC*	1	6/28/2012
Surr: 2-Fluorophenol	*78.6*	*33-117*			*%REC*	1	6/28/2012
Surr: 4-Terphenyl-d14	*70.9*	*25-137*			*%REC*	1	6/28/2012
Surr: Nitrobenzene-d5	*65.2*	*37-107*			*%REC*	1	6/28/2012
Surr: Phenol-d6	*75.6*	*40-106*			*%REC*	1	6/28/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	67	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	67	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	67	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	67	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I501S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 11:00:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	67	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	67	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	67	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	67	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	67	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	67	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	67	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	67	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	67	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I501S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 11:00:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	67	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	130	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	67	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	67	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	67	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	67	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	67	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	67	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	67	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	67	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	67	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*98.3*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*94.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**25**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I502S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 11:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**43**	**14**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**180**	**28**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*47.1*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**13**	**8.8**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/28/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/28/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/28/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/28/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/28/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/28/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/28/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/28/2012
Surr: 2,4,6-Tribromophenol	*76.7*	*34-140*			*%REC*	1	6/28/2012
Surr: 2-Fluorobiphenyl	*64.0*	*12-100*			*%REC*	1	6/28/2012
Surr: 2-Fluorophenol	*67.5*	*33-117*			*%REC*	1	6/28/2012
Surr: 4-Terphenyl-d14	*70.7*	*25-137*			*%REC*	1	6/28/2012
Surr: Nitrobenzene-d5	*55.9*	*37-107*			*%REC*	1	6/28/2012
Surr: Phenol-d6	*68.4*	*40-106*			*%REC*	1	6/28/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	80	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	80	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	80	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	80	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I502S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 11:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	80	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	80	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	80	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	80	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	80	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	80	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	80	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	80	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	270	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	80	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	80	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	80	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I502S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 11:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	80	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	160	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	80	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	80	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	80	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	80	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	80	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	80	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	80	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	80	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	80	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	80	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	80	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*93.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**30**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 1:30:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**43**	**17**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**430**	**33**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*41.7*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**12**	**10**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**2,300**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(k)fluoranthene	**980**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Pyrene	**1,900**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*75.3*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*59.5*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*65.2*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*69.8*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*54.2*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*64.2*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	130	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	130	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	130	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 1:30:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	130	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	130	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	130	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	130	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	130	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	440	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,100	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	130	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	130	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	130	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	130	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	130	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	130	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	130	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	440	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	130	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	130	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 1:30:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	130	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	260	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	130	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	130	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	440	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	130	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	130	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	130	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	130	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	130	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	130	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	130	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	130	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	130	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	130	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	130	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	130	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	130	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*94.2*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**43**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I504S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 2:06:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**4.1**	**4.0**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**19**	**4.0**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*49.5*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**12**	**7.5**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**630**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**790**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**890**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*76.7*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*58.0*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*63.4*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*72.9*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*52.2*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*62.1*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	82	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	82	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	82	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	82	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I504S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 2:06:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	82	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	82	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	82	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	82	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	82	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	82	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	82	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	270	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	82	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	82	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I504S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 2:06:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	82	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	160	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	82	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	82	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	82	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	82	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	82	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	82	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	82	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	82	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	82	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*97.6*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*94.2*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**31**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I505S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 2:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**56**	**17**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**400**	**34**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*46.6*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**13**	**11**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**26**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**840**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*83.9*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*72.7*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*80.3*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*83.8*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*66.6*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*79.4*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	150	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	150	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	150	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I505S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 2:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	150	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	150	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	150	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	150	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	150	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	500	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,200	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	150	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	150	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	150	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	150	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	150	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	150	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	150	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	500	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	150	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	150	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I505S062612S005
Work Order:	1206892	**Collection Date:**	6/26/2012 2:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	150	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	300	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	150	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	150	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	500	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	150	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	150	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	150	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	150	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	150	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	150	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	150	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	150	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	150	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	150	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	150	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*93.1*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.9*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**46**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**45**	**15**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**270**	**31**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*50.9*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**14**	**7.9**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**29**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**740**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**660**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**790**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*77.9*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*67.4*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*73.5*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*75.8*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*60.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*72.7*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	96	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	96	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	96	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	96	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	96	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	96	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	96	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	96	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	96	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	96	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	96	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	96	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	320	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	96	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	96	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	96	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	96	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	190	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	96	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	96	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	96	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	96	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	96	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	96	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	96	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	96	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	96	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	96	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	96	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*99.1*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*91.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.1*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**35**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506D062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**36**	**14**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**280**	**29**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*45.9*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**12**	**9.1**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**760**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	**330**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**790**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*86.4*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*70.7*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*80.7*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*84.6*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*67.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*78.1*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	97	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	97	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	97	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	97	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506D062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	97	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	97	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	97	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	97	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	97	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	97	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	97	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	97	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	320	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	97	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	97	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	97	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I506D062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 3:40:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	97	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	190	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	97	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	97	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	97	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	97	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	97	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	97	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	97	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	97	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	97	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	97	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	97	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*84.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*98.4*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**35**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I507S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 4:15:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**45**	**15**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**270**	**30**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*53.0*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	**0.53**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**14**	**9.8**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**28**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**1,000**	**330**	**330**	*	**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**1,600**	**330**	**330**	*	**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**	*	**µg/Kg-dry**	1	6/29/2012
Benzo(k)fluoranthene	**370**	**330**	**330**	*	**µg/Kg-dry**	1	6/29/2012
Chrysene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330	*	µg/Kg-dry	1	6/29/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330	*	µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*81.1*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*64.1*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*73.3*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*78.1*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*60.3*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*71.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I507S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 4:15:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	340	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	100	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	340	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	100	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I507S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 4:15:00 PM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	210	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	340	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	100	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.4*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*93.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.6*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**37**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I507T062612MX
Work Order:	1206892	**Collection Date:**	6/26/2012
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/29/2012
Benzene	ND	50	50		µg/Kg	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/29/2012
Bromoform	ND	100	100		µg/Kg	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg	1	6/29/2012
Chloroform	ND	50	50		µg/Kg	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg	1	6/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0700I507T062612MX
Work Order:	1206892	**Collection Date:**	6/26/2012
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg	1	6/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/29/2012
o-Xylene	ND	50	50		µg/Kg	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Styrene	ND	50	50		µg/Kg	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/29/2012
Toluene	ND	100	100		µg/Kg	1	6/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*98.8*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*95.4*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*89.7*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*98.2*	*70-130*			*%REC*	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L502S062612S010
Work Order:	1206892	**Collection Date:**	6/26/2012 8:30:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	12	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	25	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*55.0*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	**0.62**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**27**	**7.3**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**87**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*86.0*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*66.4*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*77.8*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*80.3*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*64.5*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*76.9*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	60	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	60	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	60	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	60	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L502S062612S010
Work Order:	1206892	**Collection Date:**	6/26/2012 8:30:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	60	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	60	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	60	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	60	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	60	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	60	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	60	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	60	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	60	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	60	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	60	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L502S062612S010
Work Order:	1206892	**Collection Date:**	6/26/2012 8:30:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	60	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	120	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	60	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	60	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	60	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	60	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	60	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	60	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	60	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	60	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	60	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	60	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	60	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*98.3*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*79.4*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**22**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 9:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	9.9	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	20	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*44.2*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**9.3**	**6.8**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*82.4*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*64.4*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*73.9*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*75.6*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*62.0*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*72.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 9:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	37	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	37	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	50	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	50	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	50	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L503S062612S006
Work Order:	1206892	**Collection Date:**	6/26/2012 9:40:00 AM
Project:	Marshall KRRI 0700I,0875L 6/26/12		
Lab ID:	1206892-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	50	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	50	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	50	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	50	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	50	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	40	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.5*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*89.1*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.4*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**7.2**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42018** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42018-42018** Units: **mg/Kg** Analysis Date: **6/28/2012 02:46 PM**

Client ID: Run ID: **GC8_120628A** SeqNo: **2016115** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.455*	0	*5*	0	*49.1*	*39-115*	0			

LCS Sample ID: **DLCSS1-42018-42018** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**

Client ID: Run ID: **GC8_120628A** SeqNo: **2016118** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	375.9	10	500	0	75.2	60-130	0			
ORO (C20-C34)	559.2	20	500	0	112	60-130	0			
Surr: 4-Terphenyl-d14	*2.561*	0	*5*	0	*51.2*	*39-115*	0			

MS Sample ID: **1206817-03B MS** Units: **mg/Kg** Analysis Date: **6/28/2012 03:11 PM**

Client ID: Run ID: **GC8_120628A** SeqNo: **2016116** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	314.6	9.2	462	25.31	62.6	60-130	0			
ORO (C20-C34)	435.5	18	462	147.6	62.3	60-130	0			
Surr: 4-Terphenyl-d14	*2.204*	0	*4.62*	0	*47.7*	*39-115*	0			

MSD Sample ID: **1206817-03B MSD** Units: **mg/Kg** Analysis Date: **6/28/2012 03:36 PM**

Client ID: Run ID: **GC8_120628A** SeqNo: **2016119** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	321.8	9.6	482.4	25.31	61.5	60-130	314.6	2.25	30	
ORO (C20-C34)	584.1	19	482.4	147.6	90.5	60-130	435.5	29.2	30	
Surr: 4-Terphenyl-d14	*2.213*	0	*4.824*	0	*45.9*	*39-115*	2.204	*0.434*	*30*	

The following samples were analyzed in this batch:

1206892-01A	1206892-02A	1206892-03A
1206892-04A	1206892-05A	1206892-06A
1206892-07A	1206892-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42022** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42022-42022** Units: **mg/Kg** Analysis Date: **6/28/2012 09:30 PM**
Client ID: Run ID: **GC8_120628B** SeqNo: **2016892** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.202*	0	*5*	0	*44*	*39-115*	0			

LCS Sample ID: **DLCSS1-42022-42022** Units: **mg/Kg** Analysis Date: **6/28/2012 09:30 PM**
Client ID: Run ID: **GC8_120628B** SeqNo: **2016978** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	352.4	10	500	0	70.5	60-130	0			
ORO (C20-C34)	429.2	20	500	0	85.8	60-130	0			
Surr: 4-Terphenyl-d14	*2.945*	0	*5*	0	*58.9*	*39-115*	0			

MS Sample ID: **1206893-08A MS** Units: **mg/Kg** Analysis Date: **6/28/2012 09:55 PM**
Client ID: Run ID: **GC8_120628B** SeqNo: **2016893** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	345	9.9	496.8	30.39	63.3	60-130	0			
ORO (C20-C34)	796.5	20	496.8	362.4	87.4	60-130	0			
Surr: 4-Terphenyl-d14	*2.366*	0	*4.968*	0	*47.6*	*39-115*	0			

MSD Sample ID: **1206893-08A MSD** Units: **mg/Kg** Analysis Date: **6/28/2012 09:55 PM**
Client ID: Run ID: **GC8_120628B** SeqNo: **2016979** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	352.1	9.8	490.9	30.39	65.5	60-130	345	2.04	30	
ORO (C20-C34)	722.5	20	490.9	362.4	73.3	60-130	796.5	9.74	30	
Surr: 4-Terphenyl-d14	*2.906*	0	*4.909*	0	*59.2*	*39-115*	2.366	*20.5*	*30*	

The following samples were analyzed in this batch: 1206892-10A 1206892-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42036** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-42036-42036** Units: **mg/Kg** Analysis Date: **7/2/2012 01:25 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018339** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.1312	0.25								J
Vanadium	0.02359	0.25								J

LCS Sample ID: **LCS-42036-42036** Units: **mg/Kg** Analysis Date: **6/29/2012 03:18 PM**
Client ID: Run ID: **ICPMS1_120629A** SeqNo: **2017381** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.746	0.10	5	0	94.9	80-120	0			
Molybdenum	4.715	0.25	5	0	94.3	80-120	0			
Nickel	4.67	0.25	5	0	93.4	80-120	0			
Vanadium	4.824	0.25	5	0	96.5	80-120	0			

MS Sample ID: **1206893-08AMS** Units: **mg/Kg** Analysis Date: **6/29/2012 06:28 PM**
Client ID: Run ID: **ICPMS1_120629A** SeqNo: **2017675** Prep Date: **6/28/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.409	0.60	7.463	0.1898	83.3	80-120	0			
Molybdenum	6.719	1.5	7.463	0.411	84.5	80-120	0			
Nickel	12.5	1.5	7.463	7.128	72	80-120	0			S
Vanadium	12.54	1.5	7.463	7.436	68.4	80-120	0			S

MSD Sample ID: **1206893-08AMSD** Units: **mg/Kg** Analysis Date: **6/29/2012 06:34 PM**
Client ID: Run ID: **ICPMS1_120629A** SeqNo: **2017676** Prep Date: **6/28/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.449	0.57	7.153	0.1898	87.5	80-120	6.409	0.626	25	
Molybdenum	6.695	1.4	7.153	0.411	87.9	80-120	6.719	0.36	25	
Nickel	12.75	1.4	7.153	7.128	78.6	80-120	12.5	1.94	25	S
Vanadium	13.28	1.4	7.153	7.436	81.7	80-120	12.54	5.77	25	

The following samples were analyzed in this batch:

1206892-01A	1206892-02A	1206892-03A
1206892-04A	1206892-05A	1206892-06A
1206892-07A	1206892-08A	1206892-10A
1206892-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42017** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42017-42017** Units: **µg/Kg** Analysis Date: **6/28/2012 08:15 PM**
Client ID: Run ID: **SVMS4_120628A** SeqNo: **2017973** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3149*	0	*5000*	0	*63*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3014*	0	*5000*	0	*60.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3468*	0	*5000*	0	*69.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3806*	0	*5000*	0	*76.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*2998*	0	*5000*	0	*60*	*37-107*	0			
Surr: Phenol-d6	*3368*	0	*5000*	0	*67.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42017** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-42017-42017** Units: **µg/Kg** Analysis Date: **6/28/2012 05:55 PM**
Client ID: Run ID: **SVMS4_120628A** SeqNo: **2017969** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1546	50	2000	0	77.3	45-105	0			
Acenaphthene	1582	50	2000	0	79.1	45-110	0			
Acenaphthylene	1608	50	2000	0	80.4	45-105	0			
Anthracene	1726	50	2000	0	86.3	55-105	0			
Benzo(a)anthracene	1674	50	2000	0	83.7	50-110	0			
Benzo(a)pyrene	1740	50	2000	0	87	50-110	0			
Benzo(b)fluoranthene	1668	50	2000	0	83.4	45-115	0			
Benzo(g,h,i)perylene	2028	50	2000	0	101	40-125	0			
Benzo(k)fluoranthene	1957	50	2000	0	97.8	45-115	0			
Chrysene	1787	50	2000	0	89.4	55-110	0			
Dibenzo(a,h)anthracene	1896	50	2000	0	94.8	40-125	0			
Fluoranthene	1772	50	2000	0	88.6	55-115	0			
Fluorene	1631	50	2000	0	81.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1931	50	2000	0	96.6	40-120	0			
Naphthalene	1533	50	2000	0	76.6	40-105	0			
Phenanthrene	1715	50	2000	0	85.8	50-110	0			
Pyrene	1848	50	2000	0	92.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*3856*	0	*5000*	0	*77.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3639*	0	*5000*	0	*72.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4184*	0	*5000*	0	*83.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3986*	0	*5000*	0	*79.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3589*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3997*	0	*5000*	0	*79.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42017** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206892-01A MS** Units: **µg/Kg** Analysis Date: **6/28/2012 06:30 PM**
Client ID: **SBKR0700I501S062612S006** Run ID: **SVMS4_120628A** SeqNo: **2017970** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1171	49	1969	0	59.5	45-105	0			
Acenaphthene	1283	49	1969	0	65.2	45-110	0			
Acenaphthylene	1414	49	1969	110.9	66.2	45-105	0			
Anthracene	1561	49	1969	97.17	74.4	55-105	0			
Benzo(a)anthracene	2140	49	1969	723.4	72	50-110	0			
Benzo(a)pyrene	2367	49	1969	972.7	70.8	50-110	0			
Benzo(b)fluoranthene	2619	49	1969	1146	74.8	45-115	0			
Benzo(g,h,i)perylene	2030	49	1969	594.8	72.9	40-125	0			
Benzo(k)fluoranthene	1722	49	1969	425	65.9	45-115	0			
Chrysene	2211	49	1969	857.9	68.7	55-110	0			
Dibenzo(a,h)anthracene	1555	49	1969	144.3	71.7	40-125	0			
Fluoranthene	2363	49	1969	877.5	75.5	55-115	0			
Fluorene	1331	49	1969	0	67.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1867	49	1969	447.6	72.1	40-120	0			
Naphthalene	1142	49	1969	0	58	40-105	0			
Phenanthrene	1631	49	1969	226.7	71.3	50-110	0			
Pyrene	2523	49	1969	1054	74.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*3406*	0	*4921*	0	*69.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2820*	0	*4921*	0	*57.3*	*12-100*	0			
Surr: 2-Fluorophenol	*3066*	0	*4921*	0	*62.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3009*	0	*4921*	0	*61.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*2609*	0	*4921*	0	*53*	*37-107*	0			
Surr: Phenol-d6	*3089*	0	*4921*	0	*62.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42017** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206892-01A MSD** Units: **µg/Kg** Analysis Date: **6/28/2012 07:05 PM**
Client ID: **SBKR0700I501S062612S006** Run ID: **SVMS4_120628A** SeqNo: **2017971** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1424	48	1933	0	73.7	45-105	1171	19.5	30	
Acenaphthene	1562	48	1933	0	80.8	45-110	1283	19.5	30	
Acenaphthylene	1727	48	1933	110.9	83.6	45-105	1414	19.9	30	
Anthracene	1860	48	1933	97.17	91.2	55-105	1561	17.5	30	
Benzo(a)anthracene	2571	48	1933	723.4	95.6	50-110	2140	18.3	30	
Benzo(a)pyrene	2998	48	1933	972.7	105	50-110	2367	23.5	30	
Benzo(b)fluoranthene	2920	48	1933	1146	91.8	45-115	2619	10.9	30	
Benzo(g,h,i)perylene	2494	48	1933	594.8	98.3	40-125	2030	20.5	30	
Benzo(k)fluoranthene	2266	48	1933	425	95.3	45-115	1722	27.3	30	
Chrysene	2803	48	1933	857.9	101	55-110	2211	23.6	30	
Dibenzo(a,h)anthracene	1897	48	1933	144.3	90.7	40-125	1555	19.8	30	
Fluoranthene	2917	48	1933	877.5	106	55-115	2363	21	30	
Fluorene	1588	48	1933	0	82.2	50-110	1331	17.6	30	
Indeno(1,2,3-cd)pyrene	2279	48	1933	447.6	94.8	40-120	1867	19.9	30	
Naphthalene	1378	48	1933	0	71.3	40-105	1142	18.7	30	
Phenanthrene	1930	48	1933	226.7	88.1	50-110	1631	16.8	30	
Pyrene	3255	48	1933	1054	114	45-125	2523	25.4	30	
Surr: 2,4,6-Tribromophenol	*3947*	0	*4831*	0	*81.7*	*34-140*	3406	*14.7*	*40*	
Surr: 2-Fluorobiphenyl	*3343*	0	*4831*	0	*69.2*	*12-100*	2820	*17*	*40*	
Surr: 2-Fluorophenol	*3596*	0	*4831*	0	*74.4*	*33-117*	3066	*15.9*	*40*	
Surr: 4-Terphenyl-d14	*3609*	0	*4831*	0	*74.7*	*25-137*	3009	*18.1*	*40*	
Surr: Nitrobenzene-d5	*3129*	0	*4831*	0	*64.8*	*37-107*	2609	*18.1*	*40*	
Surr: Phenol-d6	*3512*	0	*4831*	0	*72.7*	*40-106*	3089	*12.8*	*40*	

The following samples were analyzed in this batch:

1206892-01A	1206892-02A	1206892-03A
1206892-04A	1206892-05A	1206892-06A
1206892-07A	1206892-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42021-42021** Units: **µg/Kg** Analysis Date: **6/29/2012 07:24 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020382** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3288*	0	*5000*	0	*65.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3621*	0	*5000*	0	*72.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4172*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3908*	0	*5000*	0	*78.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3706*	0	*5000*	0	*74.1*	*37-107*	0			
Surr: Phenol-d6	*4189*	0	*5000*	0	*83.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-42021-42021** Units: **µg/Kg** Analysis Date: **6/29/2012 02:58 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020378** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1669	50	2000	0	83.4	45-105	0			
Acenaphthene	1681	50	2000	0	84	45-110	0			
Acenaphthylene	1730	50	2000	0	86.5	45-105	0			
Anthracene	1773	50	2000	0	88.6	55-105	0			
Benzo(a)anthracene	1707	50	2000	0	85.4	50-110	0			
Benzo(a)pyrene	1834	50	2000	0	91.7	50-110	0			
Benzo(b)fluoranthene	1713	50	2000	0	85.6	45-115	0			
Benzo(g,h,i)perylene	1908	50	2000	0	95.4	40-125	0			
Benzo(k)fluoranthene	1974	50	2000	0	98.7	45-115	0			
Chrysene	1877	50	2000	0	93.8	55-110	0			
Dibenzo(a,h)anthracene	1936	50	2000	0	96.8	40-125	0			
Fluoranthene	1818	50	2000	0	90.9	55-115	0			
Fluorene	1818	50	2000	0	90.9	50-110	0			
Indeno(1,2,3-cd)pyrene	1893	50	2000	0	94.6	40-120	0			
Naphthalene	1638	50	2000	0	81.9	40-105	0			
Phenanthrene	1768	50	2000	0	88.4	50-110	0			
Pyrene	1783	50	2000	0	89.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*3704*	0	*5000*	0	*74.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3711*	0	*5000*	0	*74.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4034*	0	*5000*	0	*80.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3769*	0	*5000*	0	*75.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3676*	0	*5000*	0	*73.5*	*37-107*	0			
Surr: Phenol-d6	*4001*	0	*5000*	0	*80*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206893-08A MS** Units: **µg/Kg** Analysis Date: **6/29/2012 03:25 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020379** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1388	47	1870	0	74.2	45-105	0			
Acenaphthene	1323	47	1870	0	70.8	45-110	0			
Acenaphthylene	1358	47	1870	0	72.6	45-105	0			
Anthracene	1731	47	1870	0	92.6	55-105	0			
Benzo(a)anthracene	1873	47	1870	193.8	89.8	50-110	0			
Benzo(a)pyrene	1970	47	1870	246.4	92.2	50-110	0			
Benzo(b)fluoranthene	2193	47	1870	265.3	103	45-115	0			
Benzo(g,h,i)perylene	1639	47	1870	142.1	80.1	40-125	0			
Benzo(k)fluoranthene	1806	47	1870	178.9	87	45-115	0			
Chrysene	1974	47	1870	252.4	92.1	55-110	0			
Dibenzo(a,h)anthracene	1636	47	1870	0	87.5	40-125	0			
Fluoranthene	2100	47	1870	335.9	94.3	55-115	0			
Fluorene	1483	47	1870	0	79.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1699	47	1870	105.3	85.2	40-120	0			
Naphthalene	1311	47	1870	0	70.1	40-105	0			
Phenanthrene	1803	47	1870	109.3	90.6	50-110	0			
Pyrene	2019	47	1870	323	90.7	45-125	0			
Surr: 2,4,6-Tribromophenol	*4006*	0	*4675*	0	*85.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2713*	0	*4675*	0	*58*	*12-100*	0			
Surr: 2-Fluorophenol	*3372*	0	*4675*	0	*72.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3484*	0	*4675*	0	*74.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*2914*	0	*4675*	0	*62.3*	*37-107*	0			
Surr: Phenol-d6	*3429*	0	*4675*	0	*73.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206893-08A MSD** Units: **µg/Kg** Analysis Date: **6/29/2012 03:52 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020380** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1316	47	1894	0	69.5	45-105	1388	5.33	30	
Acenaphthene	1422	47	1894	0	75	45-110	1323	7.18	30	
Acenaphthylene	1468	47	1894	0	77.5	45-105	1358	7.81	30	
Anthracene	1642	47	1894	0	86.7	55-105	1731	5.25	30	
Benzo(a)anthracene	1867	47	1894	193.8	88.3	50-110	1873	0.331	30	
Benzo(a)pyrene	1931	47	1894	246.4	88.9	50-110	1970	2	30	
Benzo(b)fluoranthene	2109	47	1894	265.3	97.3	45-115	2193	3.88	30	
Benzo(g,h,i)perylene	1213	47	1894	142.1	56.5	40-125	1639	29.9	30	
Benzo(k)fluoranthene	1997	47	1894	178.9	96	45-115	1806	10	30	
Chrysene	1843	47	1894	252.4	84	55-110	1974	6.86	30	
Dibenzo(a,h)anthracene	1296	47	1894	0	68.4	40-125	1636	23.2	30	
Fluoranthene	2043	47	1894	335.9	90.1	55-115	2100	2.76	30	
Fluorene	1587	47	1894	0	83.8	50-110	1483	6.8	30	
Indeno(1,2,3-cd)pyrene	1333	47	1894	105.3	64.8	40-120	1699	24.1	30	
Naphthalene	1215	47	1894	0	64.2	40-105	1311	7.59	30	
Phenanthrene	1715	47	1894	109.3	84.8	50-110	1803	4.98	30	
Pyrene	1959	47	1894	323	86.3	45-125	2019	3.03	30	
Surr: 2,4,6-Tribromophenol	*3849*	0	*4735*	0	*81.3*	*34-140*	4006	*3.99*	*40*	
Surr: 2-Fluorobiphenyl	*2891*	0	*4735*	0	*61.1*	*12-100*	2713	*6.35*	*40*	
Surr: 2-Fluorophenol	*3064*	0	*4735*	0	*64.7*	*33-117*	3372	*9.57*	*40*	
Surr: 4-Terphenyl-d14	*3270*	0	*4735*	0	*69.1*	*25-137*	3484	*6.33*	*40*	
Surr: Nitrobenzene-d5	*2635*	0	*4735*	0	*55.6*	*37-107*	2914	*10*	*40*	
Surr: Phenol-d6	*3184*	0	*4735*	0	*67.2*	*40-106*	3429	*7.4*	*40*	

The following samples were analyzed in this batch: 1206892-10A 1206892-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 12:57 PM**
Client ID: Run ID: **VMS9_120629A** SeqNo: **2017864** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	250.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1032*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*980*	0	*1000*	0	*98*	*70-130*	0
Surr: Dibromofluoromethane	*1022*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*995*	0	*1000*	0	*99.5*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 01:21 PM**
Client ID: Run ID: **VMS8_120629A** SeqNo: **2018170** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	68.5	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	145	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*962*	0	*1000*	0	*96.2*	*70-130*	0
Surr: Dibromofluoromethane	*887*	0	*1000*	0	*88.7*	*70-130*	0
Surr: Toluene-d8	*986*	0	*1000*	0	*98.6*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **7/3/2012 01:59 AM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2018686** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	147.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	18	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*976*	0	*1000*	0	*97.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*996.5*	0	*1000*	0	*99.6*	*70-130*	0	
Surr: Dibromofluoromethane	*971.5*	0	*1000*	0	*97.2*	*70-130*	0	
Surr: Toluene-d8	*978.5*	0	*1000*	0	*97.8*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 11:29 AM**
Client ID: Run ID: **VMS9_120629A** SeqNo: **2017863** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	878	30	1000	0	87.8	75-125	0			
1,1,1-Trichloroethane	996.5	30	1000	0	99.6	70-135	0			
1,1,2,2-Tetrachloroethane	1266	30	1000	0	127	55-130	0			
1,1,2-Trichloroethane	924.5	30	1000	0	92.4	60-125	0			
1,1-Dichloroethane	1033	30	1000	0	103	75-125	0			
1,1-Dichloroethene	1052	30	1000	0	105	65-135	0			
1,2,3-Trichlorobenzene	1003	30	1000	0	100	60-135	0			
1,2,3-Trichloropropane	898	30	1000	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	989	30	1000	0	98.9	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	1234	30	1000	0	123	65-135	0			
1,2-Dibromo-3-chloropropane	860.5	30	1000	0	86	40-135	0			
1,2-Dibromoethane	890.5	30	1000	0	89	70-125	0			
1,2-Dichlorobenzene	974	30	1000	0	97.4	75-120	0			
1,2-Dichloroethane	1036	30	1000	0	104	70-135	0			
1,2-Dichloropropane	962	30	1000	0	96.2	70-120	0			
1,3,5-Trimethylbenzene	1240	30	1000	0	124	65-135	0			
1,3-Dichlorobenzene	967.5	30	1000	0	96.8	70-125	0			
1,4-Dichlorobenzene	1003	30	1000	0	100	70-125	0			
2-Butanone	858	200	1000	0	85.8	30-160	0			
2-Hexanone	879	30	1000	0	87.9	45-145	0			
4-Methyl-2-pentanone	832.5	30	1000	0	83.2	45-145	0			
Acetone	1226	100	1000	0	123	20-160	0			B
Acrylonitrile	933.5	100	1000	0	93.4	70-135	0			
Benzene	990	30	1000	0	99	75-125	0			
Bromobenzene	1066	30	1000	0	107	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	889	30	1000	0	88.9	70-130	0			
Bromoform	912.5	30	1000	0	91.2	55-135	0			
Bromomethane	1319	75	1000	0	132	30-160	0			
Carbon disulfide	1270	30	1000	0	127	45-160	0			
Carbon tetrachloride	949	30	1000	0	94.9	65-135	0			
Chlorobenzene	927.5	30	1000	0	92.8	75-125	0			
Chloroethane	4494	100	1000	0	449	40-155	0			S
Chloroform	973.5	30	1000	0	97.4	70-125	0			
Chloromethane	1092	100	1000	0	109	50-130	0			
cis-1,2-Dichloroethene	1038	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	873	30	1000	0	87.3	70-125	0			
Dibromochloromethane	897	30	1000	0	89.7	65-135	0			
Dibromomethane	972	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1032	30	1000	0	103	35-135	0			
Ethylbenzene	1016	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	813.5	30	1000	0	81.4	70-135	0
Isopropylbenzene	1138	30	1000	0	114	75-130	0
m,p-Xylene	2276	60	2000	0	114	80-125	0
Methyl tert-butyl ether	1055	30	1000	0	106	75-125	0
Methylene chloride	1031	30	1000	0	103	55-145	0
Naphthalene	1016	100	1000	0	102	40-140	0
n-Butylbenzene	1042	30	1000	0	104	65-140	0
n-Propylbenzene	1104	30	1000	0	110	65-135	0
o-Xylene	1092	30	1000	0	109	75-125	0
p-Isopropyltoluene	987.5	30	1000	0	98.8	75-135	0
sec-Butylbenzene	1208	30	1000	0	121	65-130	0
Styrene	1200	30	1000	0	120	75-125	0
tert-Butylbenzene	1143	30	1000	0	114	65-130	0
Tetrachloroethene	755	30	1000	0	75.5	64-140	0
Tetrahydrofuran	1000	200	1000	0	100	70-135	0
Toluene	879	30	1000	0	87.9	70-125	0
trans-1,2-Dichloroethene	1074	30	1000	0	107	65-135	0
trans-1,3-Dichloropropene	891	30	1000	0	89.1	65-125	0
trans-1,4-Dichloro-2-butene	882	30	1000	0	88.2	70-135	0
Trichloroethene	833	30	1000	0	83.3	75-125	0
Trichlorofluoromethane	908.5	30	1000	0	90.8	25-185	0
Vinyl chloride	1180	30	1000	0	118	60-125	0
Surr: 1,2-Dichloroethane-d4	*1056*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1135*	0	*1000*	0	*114*	*70-130*	0
Surr: Dibromofluoromethane	*1110*	0	*1000*	0	*111*	*70-130*	0
Surr: Toluene-d8	*1001*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 11:45 AM**
Client ID: Run ID: **VMS8_120629A** SeqNo: **2018169** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	918.5	30	1000	0	91.8	75-125	0			
1,1,1-Trichloroethane	934.5	30	1000	0	93.4	70-135	0			
1,1,2,2-Tetrachloroethane	949.5	30	1000	0	95	55-130	0			
1,1,2-Trichloroethane	976	30	1000	0	97.6	60-125	0			
1,1-Dichloroethane	940.5	30	1000	0	94	75-125	0			
1,1-Dichloroethene	1065	30	1000	0	106	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1062	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	892.5	30	1000	0	89.2	65-135	0			
1,2,4-Trichlorobenzene	1049	30	1000	0	105	65-130	0			
1,2,4-Trimethylbenzene	894.5	30	1000	0	89.4	65-135	0			
1,2-Dibromo-3-chloropropane	1071	30	1000	0	107	40-135	0			
1,2-Dibromoethane	990.5	30	1000	0	99	70-125	0			
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	0			
1,2-Dichloroethane	979	30	1000	0	97.9	70-135	0			
1,2-Dichloropropane	893	30	1000	0	89.3	70-120	0			
1,3,5-Trimethylbenzene	911	30	1000	0	91.1	65-135	0			
1,3-Dichlorobenzene	915.5	30	1000	0	91.6	70-125	0			
1,4-Dichlorobenzene	970	30	1000	0	97	70-125	0			
2-Butanone	1016	200	1000	0	102	30-160	0			
2-Hexanone	1104	30	1000	0	110	45-145	0			
4-Methyl-2-pentanone	1396	30	1000	0	140	45-145	0			
Acetone	1270	100	1000	0	127	20-160	0			B
Acrylonitrile	1040	100	1000	0	104	70-135	0			
Benzene	954	30	1000	0	95.4	75-125	0			
Bromobenzene	951.5	30	1000	0	95.2	65-120	0			
Bromochloromethane	1007	30	1000	0	101	70-125	0			
Bromodichloromethane	916.5	30	1000	0	91.6	70-130	0			
Bromoform	923.5	30	1000	0	92.4	55-135	0			
Bromomethane	1041	75	1000	0	104	30-160	0			
Carbon disulfide	1069	30	1000	0	107	45-160	0			
Carbon tetrachloride	912.5	30	1000	0	91.2	65-135	0			
Chlorobenzene	958	30	1000	0	95.8	75-125	0			
Chloroethane	576	100	1000	0	57.6	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	992	100	1000	0	99.2	50-130	0			
cis-1,2-Dichloroethene	964	30	1000	0	96.4	65-125	0			
cis-1,3-Dichloropropene	957.5	30	1000	0	95.8	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	897	30	1000	0	89.7	35-135	0			
Ethylbenzene	937	30	1000	0	93.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	852.5	30	1000	0	85.2	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1877	60	2000	0	93.8	80-125	0
Methyl tert-butyl ether	908.5	30	1000	0	90.8	75-125	0
Methylene chloride	937	30	1000	0	93.7	55-145	0
Naphthalene	1166	100	1000	0	117	40-140	0
n-Butylbenzene	1010	30	1000	0	101	65-140	0
n-Propylbenzene	889	30	1000	0	88.9	65-135	0
o-Xylene	934	30	1000	0	93.4	75-125	0
p-Isopropyltoluene	941.5	30	1000	0	94.2	75-135	0
sec-Butylbenzene	955.5	30	1000	0	95.6	65-130	0
Styrene	909	30	1000	0	90.9	75-125	0
tert-Butylbenzene	922.5	30	1000	0	92.2	65-130	0
Tetrachloroethene	1259	30	1000	0	126	64-140	0
Tetrahydrofuran	1047	200	1000	0	105	70-135	0
Toluene	947.5	30	1000	0	94.8	70-125	0
trans-1,2-Dichloroethene	996.5	30	1000	0	99.6	65-135	0
trans-1,3-Dichloropropene	944	30	1000	0	94.4	65-125	0
trans-1,4-Dichloro-2-butene	800	30	1000	0	80	70-135	0
Trichloroethene	993	30	1000	0	99.3	75-125	0
Trichlorofluoromethane	947	30	1000	0	94.7	25-185	0
Vinyl chloride	970	30	1000	0	97	60-125	0
Surr: 1,2-Dichloroethane-d4	*1009*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*962*	0	*1000*	0	*96.2*	*70-130*	0
Surr: Dibromofluoromethane	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*978*	0	*1000*	0	*97.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **7/3/2012 12:44 PM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2018687** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1066	30	1000	0	107	75-125	0			
1,1,1-Trichloroethane	1159	30	1000	0	116	70-135	0			
1,1,2,2-Tetrachloroethane	1022	30	1000	0	102	55-130	0			
1,1,2-Trichloroethane	992.5	30	1000	0	99.2	60-125	0			
1,1-Dichloroethane	1018	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1145	30	1000	0	114	65-135	0			
1,2,3-Trichlorobenzene	1036	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1002	30	1000	0	100	65-130	0			
1,2,3-Trimethylbenzene	1044	30	1000	0	104	65-135	0			
1,2,4-Trichlorobenzene	1000	30	1000	0	100	65-130	0			
1,2,4-Trimethylbenzene	1037	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	997.5	30	1000	0	99.8	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1039	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1046	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1076	30	1000	0	108	70-120	0			
1,3,5-Trimethylbenzene	1060	30	1000	0	106	65-135	0			
1,3-Dichlorobenzene	1044	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1028	30	1000	0	103	70-125	0			
2-Butanone	1140	200	1000	0	114	30-160	0			
2-Hexanone	994	30	1000	0	99.4	45-145	0			
4-Methyl-2-pentanone	1428	30	1000	0	143	45-145	0			
Acetone	1180	100	1000	0	118	20-160	0			B
Acrylonitrile	975	100	1000	0	97.5	70-135	0			
Benzene	1051	30	1000	0	105	75-125	0			
Bromobenzene	1019	30	1000	0	102	65-120	0			
Bromochloromethane	1086	30	1000	0	109	70-125	0			
Bromodichloromethane	1093	30	1000	0	109	70-130	0			
Bromoform	955	30	1000	0	95.5	55-135	0			
Bromomethane	1330	75	1000	0	133	30-160	0			
Carbon disulfide	1174	30	1000	0	117	45-160	0			
Carbon tetrachloride	1047	30	1000	0	105	65-135	0			
Chlorobenzene	1079	30	1000	0	108	75-125	0			
Chloroethane	1009	100	1000	0	101	40-155	0			
Chloroform	1092	30	1000	0	109	70-125	0			
Chloromethane	1016	100	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1071	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1090	30	1000	0	109	70-125	0			
Dibromochloromethane	1103	30	1000	0	110	65-135	0			
Dibromomethane	1028	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	839.5	30	1000	0	84	35-135	0			
Ethylbenzene	1061	30	1000	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1046	30	1000	0	105	70-135	0
Isopropylbenzene	1074	30	1000	0	107	75-130	0
m,p-Xylene	2148	60	2000	0	107	80-125	0
Methyl tert-butyl ether	1026	30	1000	0	103	75-125	0
Methylene chloride	1037	30	1000	0	104	55-145	0
Naphthalene	975.5	100	1000	0	97.6	40-140	0
n-Butylbenzene	1064	30	1000	0	106	65-140	0
n-Propylbenzene	1064	30	1000	0	106	65-135	0
o-Xylene	1049	30	1000	0	105	75-125	0
p-Isopropyltoluene	1009	30	1000	0	101	75-135	0
sec-Butylbenzene	1072	30	1000	0	107	65-130	0
Styrene	1106	30	1000	0	111	75-125	0
tert-Butylbenzene	1050	30	1000	0	105	65-130	0
Tetrachloroethene	1104	30	1000	0	110	64-140	0
Tetrahydrofuran	904.5	200	1000	0	90.4	70-135	0
Toluene	1042	30	1000	0	104	70-125	0
trans-1,2-Dichloroethene	1092	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1056	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	891.5	30	1000	0	89.2	70-135	0
Trichloroethene	1110	30	1000	0	111	75-125	0
Trichlorofluoromethane	1034	30	1000	0	103	25-185	0
Vinyl chloride	1022	30	1000	0	102	60-125	0
Surr: 1,2-Dichloroethane-d4	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206893-08B MS** Units: **µg/Kg** Analysis Date: **6/29/2012 08:30 PM**
Client ID: Run ID: **VMS8_120629A** SeqNo: **2018201** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4579	160	5266	0	87	75-125	0			
1,1,1-Trichloroethane	4750	160	5266	0	90.2	70-135	0			
1,1,2,2-Tetrachloroethane	4916	160	5266	0	93.4	55-130	0			
1,1,2-Trichloroethane	5113	160	5266	0	97.1	60-125	0			
1,1-Dichloroethane	4858	160	5266	0	92.2	75-125	0			
1,1-Dichloroethene	5131	160	5266	0	97.4	65-135	0			
1,2,3-Trichlorobenzene	4115	160	5266	0	78.2	60-135	0			
1,2,3-Trichloropropane	5313	160	5266	0	101	65-130	0			
1,2,3-Trimethylbenzene	4336	160	5266	0	82.4	65-135	0			
1,2,4-Trichlorobenzene	3883	160	5266	0	73.8	65-130	0			
1,2,4-Trimethylbenzene	4363	160	5266	0	82.8	65-135	0			
1,2-Dibromo-3-chloropropane	4831	160	5266	0	91.8	40-135	0			
1,2-Dibromoethane	5079	160	5266	0	96.4	70-125	0			
1,2-Dichlorobenzene	4750	160	5266	0	90.2	75-120	0			
1,2-Dichloroethane	5166	160	5266	0	98.1	70-135	0			
1,2-Dichloropropane	4586	160	5266	0	87.1	70-120	0			
1,3,5-Trimethylbenzene	4407	160	5266	0	83.7	65-135	0			
1,3-Dichlorobenzene	4418	160	5266	0	83.9	70-125	0			
1,4-Dichlorobenzene	4686	160	5266	0	89	70-125	0			
2-Butanone	4692	530	5266	0	89.1	30-160	0			
2-Hexanone	6261	160	5266	0	119	45-145	0			
4-Methyl-2-pentanone	7691	160	5266	0	146	45-145	0			S
Acetone	6429	530	5266	0	122	20-160	0			B
Acrylonitrile	5392	160	5266	0	102	70-135	0			
Benzene	5047	160	5266	0	95.8	75-125	0			
Bromobenzene	4742	160	5266	0	90	65-120	0			
Bromochloromethane	5168	160	5266	0	98.2	70-125	0			
Bromodichloromethane	4455	160	5266	0	84.6	70-130	0			
Bromoform	4031	160	5266	0	76.6	55-135	0			
Bromomethane	5081	160	5266	0	96.5	30-160	0			
Carbon disulfide	5045	160	5266	0	95.8	45-160	0			
Carbon tetrachloride	4507	160	5266	0	85.6	65-135	0			
Chlorobenzene	4939	160	5266	0	93.8	75-125	0			
Chloroethane	3317	530	5266	0	63	40-155	0			
Chloroform	5084	160	5266	0	96.6	70-125	0			
Chloromethane	4881	160	5266	0	92.7	50-130	0			
cis-1,2-Dichloroethene	4913	160	5266	0	93.3	65-125	0			
cis-1,3-Dichloropropene	4776	160	5266	0	90.7	70-125	0			
Dibromochloromethane	4378	160	5266	0	83.2	65-135	0			
Dibromomethane	4944	160	5266	0	93.9	75-130	0			
Dichlorodifluoromethane	4310	160	5266	0	81.8	35-135	0			
Ethylbenzene	4829	160	5266	0	91.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	3860	160	5266	0	73.3	70-135	0	
Isopropylbenzene	4792	160	5266	0	91	75-130	0	
m,p-Xylene	9541	320	10530	0	90.6	80-125	0	
Methyl tert-butyl ether	5234	160	5266	0	99.4	75-125	0	
Methylene chloride	4731	160	5266	0	89.8	55-145	0	
Naphthalene	4447	530	5266	0	84.4	40-140	0	
n-Butylbenzene	4299	160	5266	0	81.6	65-140	0	
n-Propylbenzene	4373	160	5266	0	83	65-135	0	
o-Xylene	4750	160	5266	0	90.2	75-125	0	
p-Isopropyltoluene	4310	160	5266	0	81.8	75-135	0	
sec-Butylbenzene	4405	160	5266	0	83.6	65-130	0	
Styrene	4170	160	5266	0	79.2	75-125	0	
tert-Butylbenzene	4399	160	5266	0	83.6	65-130	0	
Tetrachloroethene	6695	160	5266	0	127	64-140	0	
Tetrahydrofuran	5774	530	5266	0	110	70-135	0	
Toluene	4981	160	5266	0	94.6	70-125	0	
trans-1,2-Dichloroethene	5042	160	5266	0	95.8	65-135	0	
trans-1,3-Dichloropropene	4729	160	5266	0	89.8	65-125	0	
trans-1,4-Dichloro-2-butene	3386	160	5266	0	64.3	70-135	0	S
Trichloroethene	5171	160	5266	0	98.2	75-125	0	
Trichlorofluoromethane	3823	160	5266	0	72.6	25-185	0	
Vinyl chloride	4686	160	5266	0	89	60-125	0	
Surr: 1,2-Dichloroethane-d4	*5366*	0	*5266*	0	*102*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5163*	0	*5266*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*5095*	0	*5266*	0	*96.8*	*70-130*	0	
Surr: Toluene-d8	*5239*	0	*5266*	0	*99.5*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MSD	Sample ID: **1206893-08B MSD**				Units: **µg/Kg**		Analysis Date: **6/29/2012 08:54 PM**			
Client ID:		Run ID: **VMS8_120629A**			SeqNo: **2018202**		Prep Date: **6/28/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4529	160	5266	0	86	75-125	4579	1.1	30	
1,1,1-Trichloroethane	4663	160	5266	0	88.6	70-135	4750	1.85	30	
1,1,2,2-Tetrachloroethane	4594	160	5266	0	87.2	55-130	4916	6.76	30	
1,1,2-Trichloroethane	4979	160	5266	0	94.6	60-125	5113	2.66	30	
1,1-Dichloroethane	4837	160	5266	0	91.8	75-125	4858	0.435	30	
1,1-Dichloroethene	4684	160	5266	0	89	65-135	5131	9.12	30	
1,2,3-Trichlorobenzene	4642	160	5266	0	88.2	60-135	4115	12	30	
1,2,3-Trichloropropane	5258	160	5266	0	99.8	65-130	5313	1.05	30	
1,2,3-Trimethylbenzene	4463	160	5266	0	84.8	65-135	4336	2.87	30	
1,2,4-Trichlorobenzene	4347	160	5266	0	82.6	65-130	3883	11.3	30	
1,2,4-Trimethylbenzene	4315	160	5266	0	82	65-135	4363	1.09	30	
1,2-Dibromo-3-chloropropane	4739	160	5266	0	90	40-135	4831	1.93	30	
1,2-Dibromoethane	4973	160	5266	0	94.4	70-125	5079	2.1	30	
1,2-Dichlorobenzene	4852	160	5266	0	92.2	75-120	4750	2.14	30	
1,2-Dichloroethane	5042	160	5266	0	95.8	70-135	5166	2.42	30	
1,2-Dichloropropane	4618	160	5266	0	87.7	70-120	4586	0.686	30	
1,3,5-Trimethylbenzene	4423	160	5266	0	84	65-135	4407	0.358	30	
1,3-Dichlorobenzene	4605	160	5266	0	87.4	70-125	4418	4.14	30	
1,4-Dichlorobenzene	4839	160	5266	0	91.9	70-125	4686	3.21	30	
2-Butanone	5711	530	5266	0	108	30-160	4692	19.6	30	
2-Hexanone	5987	160	5266	0	114	45-145	6261	4.47	30	
4-Methyl-2-pentanone	7519	160	5266	0	143	45-145	7691	2.25	30	
Acetone	6011	530	5266	0	114	20-160	6429	6.73	30	B
Acrylonitrile	5437	160	5266	0	103	70-135	5392	0.827	30	
Benzene	4947	160	5266	0	94	75-125	5047	2	30	
Bromobenzene	4797	160	5266	0	91.1	65-120	4742	1.16	30	
Bromochloromethane	5058	160	5266	0	96	70-125	5168	2.16	30	
Bromodichloromethane	4431	160	5266	0	84.2	70-130	4455	0.533	30	
Bromoform	3810	160	5266	0	72.4	55-135	4031	5.64	30	
Bromomethane	4442	160	5266	0	84.4	30-160	5081	13.4	30	
Carbon disulfide	4450	160	5266	0	84.5	45-160	5045	12.5	30	
Carbon tetrachloride	4384	160	5266	0	83.2	65-135	4507	2.78	30	
Chlorobenzene	4913	160	5266	0	93.3	75-125	4939	0.534	30	
Chloroethane	3665	530	5266	0	69.6	40-155	3317	9.95	30	
Chloroform	4934	160	5266	0	93.7	70-125	5084	3	30	
Chloromethane	4718	160	5266	0	89.6	50-130	4881	3.4	30	
cis-1,2-Dichloroethene	4908	160	5266	0	93.2	65-125	4913	0.107	30	
cis-1,3-Dichloropropene	4607	160	5266	0	87.5	70-125	4776	3.59	30	
Dibromochloromethane	4165	160	5266	0	79.1	65-135	4378	4.99	30	
Dibromomethane	4763	160	5266	0	90.4	75-130	4944	3.74	30	
Dichlorodifluoromethane	4344	160	5266	0	82.5	35-135	4310	0.791	30	
Ethylbenzene	4737	160	5266	0	90	75-125	4829	1.93	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	4015	160	5266	0	76.2	70-135	3860	3.95	30	
Isopropylbenzene	4686	160	5266	0	89	75-130	4792	2.22	30	
m,p-Xylene	9444	320	10530	0	89.7	80-125	9541	1.03	30	
Methyl tert-butyl ether	5037	160	5266	0	95.6	75-125	5234	3.85	30	
Methylene chloride	4273	160	5266	0	81.2	55-145	4731	10.2	30	
Naphthalene	5108	530	5266	0	97	40-140	4447	13.8	30	
n-Butylbenzene	4471	160	5266	0	84.9	65-140	4299	3.9	30	
n-Propylbenzene	4318	160	5266	0	82	65-135	4373	1.27	30	
o-Xylene	4660	160	5266	0	88.5	75-125	4750	1.9	30	
p-Isopropyltoluene	4455	160	5266	0	84.6	75-135	4310	3.3	30	
sec-Butylbenzene	4392	160	5266	0	83.4	65-130	4405	0.299	30	
Styrene	4197	160	5266	0	79.7	75-125	4170	0.629	30	
tert-Butylbenzene	4415	160	5266	0	83.8	65-130	4399	0.358	30	
Tetrachloroethene	6619	160	5266	0	126	64-140	6695	1.15	30	
Tetrahydrofuran	5645	530	5266	0	107	70-135	5774	2.26	30	
Toluene	4876	160	5266	0	92.6	70-125	4981	2.14	30	
trans-1,2-Dichloroethene	4910	160	5266	0	93.2	65-135	5042	2.65	30	
trans-1,3-Dichloropropene	4534	160	5266	0	86.1	65-125	4729	4.21	30	
trans-1,4-Dichloro-2-butene	3173	160	5266	0	60.2	70-135	3386	6.5	30	S
Trichloroethene	5160	160	5266	0	98	75-125	5171	0.204	30	
Trichlorofluoromethane	3915	160	5266	0	74.4	25-185	3823	2.38	30	
Vinyl chloride	4497	160	5266	0	85.4	60-125	4686	4.13	30	
Surr: 1,2-Dichloroethane-d4	*5250*	0	*5266*	0	*99.7*	*70-130*	5366	*2.18*	*30*	
Surr: 4-Bromofluorobenzene	*5163*	0	*5266*	0	*98*	*70-130*	5163	*0*	*30*	
Surr: Dibromofluoromethane	*5055*	0	*5266*	0	*96*	*70-130*	5095	*0.778*	*30*	
Surr: Toluene-d8	*5166*	0	*5266*	0	*98.1*	*70-130*	5239	*1.42*	*30*	

The following samples were analyzed in this batch:

1206892-01B	1206892-02B	1206892-03B
1206892-04B	1206892-05B	1206892-06B
1206892-07B	1206892-08B	1206892-09A
1206892-10B	1206892-11B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206892
Project: Marshall KRRI 0700I,0875L 6/26/12

QC BATCH REPORT

Batch ID: **R106728** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106728** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016551** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106728** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206892-01ADUP** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: **SBKR0700I501S062612S006** Run ID: **MOIST_120628A** SeqNo: **2016529** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	25.44	0.050	0	0	0	0-0	25.44	0	20	

DUP Sample ID: **1206893-08ADUP1** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016546** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	68.35	0.050	0	0	0	0-0	67.96	0.572	20	

DUP Sample ID: **1206893-08ADUP2** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016547** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	68.45	0.050	0	0	0	0-0	67.96	0.718	20	

The following samples were analyzed in this batch:

1206892-01A	1206892-02A	1206892-03A
1206892-04A	1206892-05A	1206892-06A
1206892-07A	1206892-08A	1206892-10A
1206892-11A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of 1206892

COC #	ENBRIDGE_062612_GMK1	Task: KRRI_0700,0875
Total # of Samples: 11		Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:		Project Information:		Other Information:	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, Mi 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX — Phone #: 713-821-2000
Lab PM:	Ann Preston	City: Grand Rapids	State, Zip: MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH										
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5036/8260										
1	SBKR0700I501S062612S006	SBKR0700I501	SO	G	06/26/2012 11:00	3			X	X	X	X	X										
2	SBKR0700I502S062612S005	SBKR0700I502	SO	G	06/26/2012 11:40	3			X	X	X	X	X										
3	SBKR0700I503S062612S006	SBKR0700I503	SO	G	06/26/2012 13:30	3			X	X	X	X	X										
4	SBKR0700I504S062612S006	SBKR0700I504	SO	G	06/26/2012 14:06	3			X	X	X	X	X										
5	SBKR0700I505S062612S005	SBKR0700I505	SO	G	06/26/2012 14:40	3			X	X	X	X	X										
6	SBKR0700I506S062612S006	SBKR0700I506	SO	G	06/26/2012 15:40	3			X	X	X	X	X										
7	SBKR0700I506D062612S006	SBKR0700I506	SO	G	06/26/2012 15:40	3	DUPLICATE		X	X	X	X	X										
8	SBKR0700I507S062612S006	SBKR0700I507	SO	G	06/26/2012 16:15	3			X	X	X	X	X										
9	SBKR0700I507T062612MX	SBKR0700I507	SQ	G	06/26/2012 00:00	1	TRIP BLANK						X										
10	SBKR0875L502S062612S010	SBKR0875L502	SO	G	06/26/2012 08:30	3			X	X	X	X	X										
11	SBKR0875L503S062612S006	SBKR0875L503	SO	G	06/26/2012 09:40	3			X	X	X	X	X										

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Gerald Kramer	6.26.12	1719		6.26.12	1719
	6.27.12	1826		6-27-12	1826

Sample Receipt Conditions				
	Temp in °C	Samples on ice?	Sample intact?	Trip Blank?
	3.8°C	Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: GERRY KRAMER (GMK1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **27-Jun-12 10:26**

Work Order: **1206892** Received by: **MA**

Checklist completed by Ann Preston (eSignature) 28-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 28-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.8°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

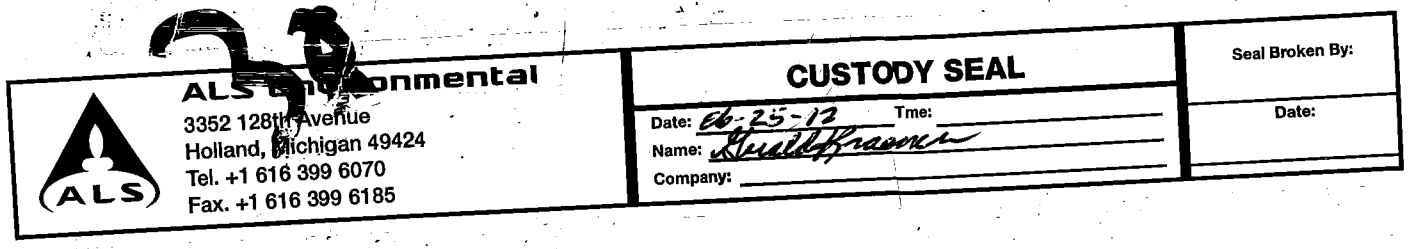
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 06-25-12 Tme:
Name: Gustel Kraemer
Company:

Seal Broken By:

Date:

3.8°C

06-Jul-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 0875L,0900-0925R 6/25/12** Work Order: **1206893**

Dear Bryan,

ALS Environmental received 10 samples on 27-Jun-2012 10:26 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 79.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0875L,0900-0925R 6/25/12
Work Order: **1206893**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206893-01	SBKR0875L501S062512S010	Soil		6/25/2012 16:40	6/27/2012 10:26	☐
1206893-02	SBKR0875L501T062512MX	Soil		6/25/2012	6/27/2012 10:26	☐
1206893-03	SBKR0900R501S062512S005	Soil		6/25/2012 13:35	6/27/2012 10:26	☐
1206893-04	SBKR0900R502S062512S005	Soil		6/25/2012 14:05	6/27/2012 10:26	☐
1206893-05	SBKR0900R503S062512S008	Soil		6/25/2012 14:45	6/27/2012 10:26	☐
1206893-06	SBKR0900R503D062512S008	Soil		6/25/2012 14:45	6/27/2012 10:26	☐
1206893-07	SBKR0900R504S062512S004	Soil		6/25/2012 15:43	6/27/2012 10:26	☐
1206893-08	SBKR0925R504S062512S005	Soil		6/25/2012 10:30	6/27/2012 10:26	☐
1206893-09	SBKR0925R505S062512S006	Soil		6/25/2012 11:48	6/27/2012 10:26	☐
1206893-10	SBKR0925R505S062512S020	Soil		6/25/2012 11:55	6/27/2012 10:26	☐

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0875L,0900-0925R 6/25/12
Work Order: 1206893

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 42036 sample SBKR0925R504S062512S005 MS/MSD recoveries for Nickel were below control limits. The MS recovery for Vanadium was above control limits. The result for Nickel in the parent sample may be biased low. Both the MSD recovery and RPD for Vanadium met quality control criteria. No data requires qualification.

Batch 42029 LCS recovery for Chloroethane was above control limits, but all samples in this quality control batch were ND for this compound. No data requires qualification. Sample SBKR0925R504S062512S005 MS recovery for 4-Methyl-2-Pentanone was above control limits. The parent sample was ND for this compound. No data requires qualification. The MS/MSD recoveries for trans 1, 4-Dichloro-2-Butene were below control limits. The corresponding reporting limit for this compound in the parent sample may be biased low.

Batch 42040 LCS recoveries for 4-Methyl-2-Pentanone, Tetrachloroethene, 2-Hexanone, and Tetrahydrofuran were above control limits, but all samples in this quality control batch were ND for these compounds. No data requires qualification.

ALS Group USA, Corp

Date: 06-Jul-12

Client: AECOM Environment
Project: Marshall KRRI 0875L,0900-0925R 6/25/12
WorkOrder: **1206893**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L501S062512S010
Work Order:	1206893	**Collection Date:**	6/25/2012 4:40:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	11	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	23	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*54.9*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	**0.60**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**30**	**7.6**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**74**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*80.5*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*66.4*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*77.3*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*80.1*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*66.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*76.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	53	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	53	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L501S062512S010
Work Order:	1206893	**Collection Date:**	6/25/2012 4:40:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	53	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	53	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	53	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	53	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	53	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	53	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	53	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	53	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L501S062512S010
Work Order:	1206893	**Collection Date:**	6/25/2012 4:40:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	53	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	110	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	53	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	53	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	53	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	53	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	53	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	53	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	53	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	53	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	53	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*97.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*91.0*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**18**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L501T062512MX
Work Order:	1206893	**Collection Date:**	6/25/2012
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/29/2012
2-Butanone	ND	750	750		µg/Kg	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/29/2012
Benzene	ND	50	50		µg/Kg	1	6/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/29/2012
Bromoform	ND	100	100		µg/Kg	1	6/29/2012
Bromomethane	ND	200	200		µg/Kg	1	6/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/29/2012
Chloroethane	ND	250	250		µg/Kg	1	6/29/2012
Chloroform	ND	50	50		µg/Kg	1	6/29/2012
Chloromethane	ND	250	250		µg/Kg	1	6/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0875L501T062512MX
Work Order:	1206893	**Collection Date:**	6/25/2012
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg	1	6/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/29/2012
o-Xylene	ND	50	50		µg/Kg	1	6/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Styrene	ND	50	50		µg/Kg	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/29/2012
Toluene	ND	100	100		µg/Kg	1	6/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.7*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*90.6*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R501S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 1:35:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	34	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*47.0*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**14**	**11**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**500**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*82.0*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*62.0*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*69.0*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*78.9*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*58.9*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*71.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	120	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	120	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	120	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	120	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	120	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R501S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 1:35:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	120	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	120	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	120	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	120	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	120	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	410	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	120	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	120	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	120	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	120	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	120	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	120	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	120	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	410	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	120	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	120	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R501S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 1:35:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	120	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	240	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	120	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	120	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	410	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	120	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	120	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	120	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	120	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	120	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	120	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	120	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	120	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	120	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	120	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	120	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	120	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	120	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*99.0*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*98.0*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*98.2*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**41**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R502S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 2:05:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	41	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*55.0*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**14**	**13**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**550**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	**520**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**620**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**710**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*82.1*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*67.2*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*76.7*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*79.3*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*65.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*77.8*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R502S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 2:05:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	210	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R502S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 2:05:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	210	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	210	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*104*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*103*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*108*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503S062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	15	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	30	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*45.1*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**11**	**10**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*79.0*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*59.3*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*68.8*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*74.1*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*57.6*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*68.6*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503S062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	100	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	330	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	100	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503S062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	200	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	100	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*97.4*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*97.4*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*99.2*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**36**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503D062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	15	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	30	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*50.8*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	**11**	**8.9**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	**350**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*74.3*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*60.4*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*67.8*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*71.9*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*58.2*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*68.4*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	93	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	93	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	93	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	93	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503D062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	93	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	93	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	93	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	93	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	93	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	93	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	100	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	93	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	93	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	310	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	93	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	93	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	93	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R503D062512S008
Work Order:	1206893	**Collection Date:**	6/25/2012 2:45:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	93	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	190	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	93	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	93	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	**390**	**100**	**100**		**µg/Kg-dry**	1	7/3/2012
sec-Butylbenzene	ND	93	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	93	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	93	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	93	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	100	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	93	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	93	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	93	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	93	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	93	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*99.8*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*97.2*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*99.0*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**34**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R504S062512S004
Work Order:	1206893	**Collection Date:**	6/25/2012 3:43:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	26	4.0		mg/Kg-dry	1	6/28/2012
ORO (C20-C34)	ND	52	4.0		mg/Kg-dry	1	6/28/2012
Surr: 4-Terphenyl-d14	*44.9*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Nickel	**18**	**15**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**760**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**960**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	**380**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(k)fluoranthene	**650**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*82.4*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*67.0*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*74.1*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*76.2*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*61.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*77.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	360	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	360	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	360	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	360	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	360	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R504S062512S004
Work Order:	1206893	**Collection Date:**	6/25/2012 3:43:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	360	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	360	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	360	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	360	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	360	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	360	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	360	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	360	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	1,200	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	1,200	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	3,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	360	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	360	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	360	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	360	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	360	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	360	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	360	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	360	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	360	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	1,200	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	360	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	360	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	360	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	360	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	360	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	360	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	360	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	360	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0900R504S062512S004
Work Order:	1206893	**Collection Date:**	6/25/2012 3:43:00 PM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	360	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	360	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	360	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	720	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	360	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	360	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	360	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	1,200	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	360	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	360	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	360	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	360	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	360	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	360	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	360	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	360	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	360	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,200	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	360	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	360	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	360	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	360	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	360	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	360	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	360	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*102*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*103*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**63**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R504S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 10:30:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**95**	**31**	**4.0**		**mg/Kg-dry**	1	6/28/2012
ORO (C20-C34)	**1,100**	**62**	**4.0**		**mg/Kg-dry**	1	6/28/2012
Surr: 4-Terphenyl-d14	*39.2*	*39-115*			*%REC*	1	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	**0.59**	**0.56**	**0.50**		**mg/Kg-dry**	4	6/29/2012
Molybdenum	**1.3**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Nickel	**22**	**19**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(a)pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(b)fluoranthene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(g,h,i)perylene	**440**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Benzo(k)fluoranthene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Chrysene	**790**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Pyrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*73.3*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*56.6*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*59.2*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*64.4*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*49.4*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*53.5*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	490	100		µg/Kg-dry	1	6/29/2012
1,1,1-Trichloroethane	ND	490	50		µg/Kg-dry	1	6/29/2012
1,1,2,2-Tetrachloroethane	ND	490	50		µg/Kg-dry	1	6/29/2012
1,1,2-Trichloroethane	ND	490	50		µg/Kg-dry	1	6/29/2012
1,1-Dichloroethane	ND	490	50		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R504S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 10:30:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/29/2012
1,2,3-Trichlorobenzene	ND	490	250		µg/Kg-dry	1	6/29/2012
1,2,3-Trichloropropane	ND	490	100		µg/Kg-dry	1	6/29/2012
1,2,3-Trimethylbenzene	ND	490	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trichlorobenzene	ND	490	250		µg/Kg-dry	1	6/29/2012
1,2,4-Trimethylbenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
1,2-Dibromo-3-chloropropane	ND	490	10		µg/Kg-dry	1	6/29/2012
1,2-Dibromoethane	ND	490	20		µg/Kg-dry	1	6/29/2012
1,2-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
1,2-Dichloroethane	ND	490	50		µg/Kg-dry	1	6/29/2012
1,2-Dichloropropane	ND	490	50		µg/Kg-dry	1	6/29/2012
1,3,5-Trimethylbenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
1,3-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
1,4-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
2-Butanone	ND	1,600	750		µg/Kg-dry	1	6/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
2-Methylnaphthalene	ND	1,600	330		µg/Kg-dry	1	6/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
Acetone	ND	4,100	1,000		µg/Kg-dry	1	6/29/2012
Acrylonitrile	ND	490	100		µg/Kg-dry	1	6/29/2012
Benzene	ND	490	50		µg/Kg-dry	1	6/29/2012
Bromobenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
Bromochloromethane	ND	490	100		µg/Kg-dry	1	6/29/2012
Bromodichloromethane	ND	490	100		µg/Kg-dry	1	6/29/2012
Bromoform	ND	490	100		µg/Kg-dry	1	6/29/2012
Bromomethane	ND	490	200		µg/Kg-dry	1	6/29/2012
Carbon disulfide	ND	490	250		µg/Kg-dry	1	6/29/2012
Carbon tetrachloride	ND	490	50		µg/Kg-dry	1	6/29/2012
Chlorobenzene	ND	490	50		µg/Kg-dry	1	6/29/2012
Chloroethane	ND	1,600	250		µg/Kg-dry	1	6/29/2012
Chloroform	ND	490	50		µg/Kg-dry	1	6/29/2012
Chloromethane	ND	490	250		µg/Kg-dry	1	6/29/2012
cis-1,2-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/29/2012
cis-1,3-Dichloropropene	ND	490	50		µg/Kg-dry	1	6/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/29/2012
Dibromochloromethane	ND	490	100		µg/Kg-dry	1	6/29/2012
Dibromomethane	ND	490	250		µg/Kg-dry	1	6/29/2012
Dichlorodifluoromethane	ND	490	250		µg/Kg-dry	1	6/29/2012
Diethyl ether	ND	490	200		µg/Kg-dry	1	6/29/2012
Diisopropyl ether	ND	490	250		µg/Kg-dry	1	6/29/2012
Ethyl tert butyl ether	ND	490	250		µg/Kg-dry	1	6/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R504S062512S005
Work Order:	1206893	**Collection Date:**	6/25/2012 10:30:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	490	50		µg/Kg-dry	1	6/29/2012
Hexachloroethane	ND	490	300		µg/Kg-dry	1	6/29/2012
Isopropylbenzene	ND	490	250		µg/Kg-dry	1	6/29/2012
m,p-Xylene	ND	990	100		µg/Kg-dry	1	6/29/2012
Methyl iodide	ND	490	100		µg/Kg-dry	1	6/29/2012
Methyl tert-butyl ether	ND	490	250		µg/Kg-dry	1	6/29/2012
Methylene chloride	ND	490	100		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	1,600	330		µg/Kg-dry	1	6/29/2012
n-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/29/2012
n-Propylbenzene	ND	490	100		µg/Kg-dry	1	6/29/2012
o-Xylene	ND	490	50		µg/Kg-dry	1	6/29/2012
p-Isopropyltoluene	ND	490	100		µg/Kg-dry	1	6/29/2012
sec-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/29/2012
Styrene	ND	490	50		µg/Kg-dry	1	6/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/29/2012
tert-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/29/2012
Tertiaryamylmethylether	ND	490	250		µg/Kg-dry	1	6/29/2012
Tetrachloroethene	ND	490	50		µg/Kg-dry	1	6/29/2012
Tetrahydrofuran	ND	1,600	1,000		µg/Kg-dry	1	6/29/2012
Toluene	ND	490	100		µg/Kg-dry	1	6/29/2012
trans-1,2-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/29/2012
trans-1,3-Dichloropropene	ND	490	50		µg/Kg-dry	1	6/29/2012
trans-1,4-Dichloro-2-butene	ND	490	50		µg/Kg-dry	1	6/29/2012
Trichloroethene	ND	490	50		µg/Kg-dry	1	6/29/2012
Trichlorofluoromethane	ND	490	100		µg/Kg-dry	1	6/29/2012
Vinyl chloride	ND	490	40		µg/Kg-dry	1	6/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/29/2012
Surr: 4-Bromofluorobenzene	*96.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Dibromofluoromethane	*92.8*	*70-130*			*%REC*	1	6/29/2012
Surr: Toluene-d8	*99.1*	*70-130*			*%REC*	1	6/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S006
Work Order:	1206893	**Collection Date:**	6/25/2012 11:48:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	**4,100**	**220**	**4.0**		**mg/Kg-dry**	10	6/28/2012
ORO (C20-C34)	**18,000**	**440**	**4.0**		**mg/Kg-dry**	10	6/28/2012
Surr: 4-Terphenyl-d14	*61.8*	*39-115*			*%REC*	10	6/28/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	**0.54**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/29/2012
Molybdenum	**1.5**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Nickel	**20**	**14**	**1.0**		**mg/Kg-dry**	4	6/29/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Acenaphthene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Acenaphthylene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Anthracene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Benzo(a)anthracene	**1,100**	**1,100**	**330**	J	**µg/Kg-dry**	10	6/29/2012
Benzo(a)pyrene	**1,100**	**1,100**	**330**	J	**µg/Kg-dry**	10	6/29/2012
Benzo(b)fluoranthene	**1,400**	**1,100**	**330**		**µg/Kg-dry**	10	6/29/2012
Benzo(g,h,i)perylene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Benzo(k)fluoranthene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Chrysene	**1,900**	**1,100**	**330**		**µg/Kg-dry**	10	6/29/2012
Dibenzo(a,h)anthracene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Fluoranthene	**1,300**	**1,100**	**330**		**µg/Kg-dry**	10	6/29/2012
Fluorene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Phenanthrene	ND	1,100	330		µg/Kg-dry	10	6/29/2012
Pyrene	**1,900**	**1,100**	**330**		**µg/Kg-dry**	10	6/29/2012
Surr: 2,4,6-Tribromophenol	*98.2*	*34-140*			*%REC*	10	6/29/2012
Surr: 2-Fluorobiphenyl	*66.8*	*12-100*			*%REC*	10	6/29/2012
Surr: 2-Fluorophenol	*76.8*	*33-117*			*%REC*	10	6/29/2012
Surr: 4-Terphenyl-d14	*78.4*	*25-137*			*%REC*	10	6/29/2012
Surr: Nitrobenzene-d5	*71.2*	*37-107*			*%REC*	10	6/29/2012
Surr: Phenol-d6	*79.8*	*40-106*			*%REC*	10	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	240	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	240	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	240	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	240	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	240	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S006
Work Order:	1206893	**Collection Date:**	6/25/2012 11:48:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	240	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	240	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	240	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	240	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	240	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	240	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	810	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	**960**	**810**	**330**		**µg/Kg-dry**	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	2,000	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	240	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	240	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	240	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	240	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	240	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	240	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	240	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	240	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	810	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	240	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	240	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	240	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S006
Work Order:	1206893	**Collection Date:**	6/25/2012 11:48:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	240	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	490	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	240	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	810	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	240	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	240	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	240	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	240	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	240	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	240	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	240	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	240	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	240	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	240	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	240	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	240	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	240	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*96.4*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*95.4*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*94.5*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*98.8*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**56**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S020
Work Order:	1206893	**Collection Date:**	6/25/2012 11:55:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/28/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	6/29/2012
ORO (C20-C34)	ND	41	4.0		mg/Kg-dry	1	6/29/2012
Surr: 4-Terphenyl-d14	*44.9*	*39-115*			*%REC*	1	6/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/28/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/29/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/29/2012
Nickel	ND	13	1.0		mg/Kg-dry	4	6/29/2012
Vanadium	**9.9**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/28/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/29/2012
Surr: 2,4,6-Tribromophenol	*86.5*	*34-140*			*%REC*	1	6/29/2012
Surr: 2-Fluorobiphenyl	*69.6*	*12-100*			*%REC*	1	6/29/2012
Surr: 2-Fluorophenol	*83.5*	*33-117*			*%REC*	1	6/29/2012
Surr: 4-Terphenyl-d14	*82.3*	*25-137*			*%REC*	1	6/29/2012
Surr: Nitrobenzene-d5	*68.1*	*37-107*			*%REC*	1	6/29/2012
Surr: Phenol-d6	*80.8*	*40-106*			*%REC*	1	6/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/28/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	7/3/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S020
Work Order:	1206893	**Collection Date:**	6/25/2012 11:55:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	7/3/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	7/3/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	7/3/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	7/3/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
2-Methylnaphthalene	ND	700	330		µg/Kg-dry	1	7/3/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	7/3/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	7/3/2012
Benzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromoform	ND	210	100		µg/Kg-dry	1	7/3/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	7/3/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	7/3/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	7/3/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Chloroethane	ND	700	250		µg/Kg-dry	1	7/3/2012
Chloroform	ND	210	50		µg/Kg-dry	1	7/3/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	7/3/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	7/3/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	7/3/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	7/3/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jul-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR0925R505S062512S020
Work Order:	1206893	**Collection Date:**	6/25/2012 11:55:00 AM
Project:	Marshall KRRI 0875L,0900-0925R 6/25/12		
Lab ID:	1206893-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	7/3/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	7/3/2012
m,p-Xylene	ND	420	100		µg/Kg-dry	1	7/3/2012
Methyl iodide	ND	210	100		µg/Kg-dry	1	7/3/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	7/3/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	7/3/2012
Naphthalene	ND	700	330		µg/Kg-dry	1	7/3/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	7/3/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	7/3/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	7/3/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Styrene	ND	210	50		µg/Kg-dry	1	7/3/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	7/3/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	7/3/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	7/3/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	7/3/2012
Toluene	ND	210	100		µg/Kg-dry	1	7/3/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	7/3/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	7/3/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	7/3/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	7/3/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	7/3/2012
Surr: 1,2-Dichloroethane-d4	*99.0*	*70-130*			*%REC*	1	7/3/2012
Surr: 4-Bromofluorobenzene	*99.6*	*70-130*			*%REC*	1	7/3/2012
Surr: Dibromofluoromethane	*95.2*	*70-130*			*%REC*	1	7/3/2012
Surr: Toluene-d8	*99.8*	*70-130*			*%REC*	1	7/3/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	6/28/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **42022** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-42022-42022** Units: **mg/Kg** Analysis Date: **6/28/2012 09:30 PM**

Client ID: Run ID: **GC8_120628B** SeqNo: **2016892** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.202*	0	*5*	0	*44*	*39-115*	0			

LCS Sample ID: **DLCSS1-42022-42022** Units: **mg/Kg** Analysis Date: **6/28/2012 09:30 PM**

Client ID: Run ID: **GC8_120628B** SeqNo: **2016978** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	352.4	10	500	0	70.5	60-130	0			
ORO (C20-C34)	429.2	20	500	0	85.8	60-130	0			
Surr: 4-Terphenyl-d14	*2.945*	0	*5*	0	*58.9*	*39-115*	0			

MS Sample ID: **1206893-08A MS** Units: **mg/Kg** Analysis Date: **6/28/2012 09:55 PM**

Client ID: **SBKR0925R504S062512S005** Run ID: **GC8_120628B** SeqNo: **2016893** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	345	9.9	496.8	30.39	63.3	60-130	0			
ORO (C20-C34)	796.5	20	496.8	362.4	87.4	60-130	0			
Surr: 4-Terphenyl-d14	*2.366*	0	*4.968*	0	*47.6*	*39-115*	0			

MSD Sample ID: **1206893-08A MSD** Units: **mg/Kg** Analysis Date: **6/28/2012 09:55 PM**

Client ID: **SBKR0925R504S062512S005** Run ID: **GC8_120628B** SeqNo: **2016979** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	352.1	9.8	490.9	30.39	65.5	60-130	345	2.04	30	
ORO (C20-C34)	722.5	20	490.9	362.4	73.3	60-130	796.5	9.74	30	
Surr: 4-Terphenyl-d14	*2.906*	0	*4.909*	0	*59.2*	*39-115*	2.366	*20.5*	*30*	

The following samples were analyzed in this batch:

1206893-01A	1206893-03A	1206893-04A
1206893-05A	1206893-06A	1206893-07A
1206893-08A	1206893-09A	1206893-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42036** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-42036-42036** Units: **mg/Kg** Analysis Date: **7/2/2012 01:25 PM**
Client ID: Run ID: **ICPMS1_120702A** SeqNo: **2018339** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.1312	0.25								J
Vanadium	0.02359	0.25								J

LCS Sample ID: **LCS-42036-42036** Units: **mg/Kg** Analysis Date: **6/29/2012 03:18 PM**
Client ID: Run ID: **ICPMS1_120629A** SeqNo: **2017381** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.746	0.10	5	0	94.9	80-120	0			
Molybdenum	4.715	0.25	5	0	94.3	80-120	0			
Nickel	4.67	0.25	5	0	93.4	80-120	0			
Vanadium	4.824	0.25	5	0	96.5	80-120	0			

MS Sample ID: **1206893-08AMS** Units: **mg/Kg** Analysis Date: **6/29/2012 06:28 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **ICPMS1_120629A** SeqNo: **2017675** Prep Date: **6/28/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.409	0.60	7.463	0.1898	83.3	80-120	0			
Molybdenum	6.719	1.5	7.463	0.411	84.5	80-120	0			
Nickel	12.5	1.5	7.463	7.128	72	80-120	0			S
Vanadium	12.54	1.5	7.463	7.436	68.4	80-120	0			S

MSD Sample ID: **1206893-08AMSD** Units: **mg/Kg** Analysis Date: **6/29/2012 06:34 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **ICPMS1_120629A** SeqNo: **2017676** Prep Date: **6/28/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.449	0.57	7.153	0.1898	87.5	80-120	6.409	0.626	25	
Molybdenum	6.695	1.4	7.153	0.411	87.9	80-120	6.719	0.36	25	
Nickel	12.75	1.4	7.153	7.128	78.6	80-120	12.5	1.94	25	S
Vanadium	13.28	1.4	7.153	7.436	81.7	80-120	12.54	5.77	25	

The following samples were analyzed in this batch:

1206893-01A	1206893-03A	1206893-04A
1206893-05A	1206893-06A	1206893-07A
1206893-08A	1206893-09A	1206893-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-42021-42021** Units: **µg/Kg** Analysis Date: **6/29/2012 07:24 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020382** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3288*	0	*5000*	0	*65.8*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3621*	0	*5000*	0	*72.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4172*	0	*5000*	0	*83.4*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3908*	0	*5000*	0	*78.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3706*	0	*5000*	0	*74.1*	*37-107*	0			
Surr: Phenol-d6	*4189*	0	*5000*	0	*83.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-42021-42021** Units: **µg/Kg** Analysis Date: **6/29/2012 02:58 PM**
Client ID: Run ID: **SVMS6_120629A** SeqNo: **2020378** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1669	50	2000	0	83.4	45-105	0			
Acenaphthene	1681	50	2000	0	84	45-110	0			
Acenaphthylene	1730	50	2000	0	86.5	45-105	0			
Anthracene	1773	50	2000	0	88.6	55-105	0			
Benzo(a)anthracene	1707	50	2000	0	85.4	50-110	0			
Benzo(a)pyrene	1834	50	2000	0	91.7	50-110	0			
Benzo(b)fluoranthene	1713	50	2000	0	85.6	45-115	0			
Benzo(g,h,i)perylene	1908	50	2000	0	95.4	40-125	0			
Benzo(k)fluoranthene	1974	50	2000	0	98.7	45-115	0			
Chrysene	1877	50	2000	0	93.8	55-110	0			
Dibenzo(a,h)anthracene	1936	50	2000	0	96.8	40-125	0			
Fluoranthene	1818	50	2000	0	90.9	55-115	0			
Fluorene	1818	50	2000	0	90.9	50-110	0			
Indeno(1,2,3-cd)pyrene	1893	50	2000	0	94.6	40-120	0			
Naphthalene	1638	50	2000	0	81.9	40-105	0			
Phenanthrene	1768	50	2000	0	88.4	50-110	0			
Pyrene	1783	50	2000	0	89.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*3704*	0	*5000*	0	*74.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3711*	0	*5000*	0	*74.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4034*	0	*5000*	0	*80.7*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3769*	0	*5000*	0	*75.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3676*	0	*5000*	0	*73.5*	*37-107*	0			
Surr: Phenol-d6	*4001*	0	*5000*	0	*80*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1206893-08A MS** Units: **µg/Kg** Analysis Date: **6/29/2012 03:25 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **SVMS6_120629A** SeqNo: **2020379** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1388	47	1870	0	74.2	45-105	0			
Acenaphthene	1323	47	1870	0	70.8	45-110	0			
Acenaphthylene	1358	47	1870	0	72.6	45-105	0			
Anthracene	1731	47	1870	0	92.6	55-105	0			
Benzo(a)anthracene	1873	47	1870	193.8	89.8	50-110	0			
Benzo(a)pyrene	1970	47	1870	246.4	92.2	50-110	0			
Benzo(b)fluoranthene	2193	47	1870	265.3	103	45-115	0			
Benzo(g,h,i)perylene	1639	47	1870	142.1	80.1	40-125	0			
Benzo(k)fluoranthene	1806	47	1870	178.9	87	45-115	0			
Chrysene	1974	47	1870	252.4	92.1	55-110	0			
Dibenzo(a,h)anthracene	1636	47	1870	0	87.5	40-125	0			
Fluoranthene	2100	47	1870	335.9	94.3	55-115	0			
Fluorene	1483	47	1870	0	79.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1699	47	1870	105.3	85.2	40-120	0			
Naphthalene	1311	47	1870	0	70.1	40-105	0			
Phenanthrene	1803	47	1870	109.3	90.6	50-110	0			
Pyrene	2019	47	1870	323	90.7	45-125	0			
Surr: 2,4,6-Tribromophenol	*4006*	0	*4675*	0	*85.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*2713*	0	*4675*	0	*58*	*12-100*	0			
Surr: 2-Fluorophenol	*3372*	0	*4675*	0	*72.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3484*	0	*4675*	0	*74.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*2914*	0	*4675*	0	*62.3*	*37-107*	0			
Surr: Phenol-d6	*3429*	0	*4675*	0	*73.3*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42021** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1206893-08A MSD** Units: **µg/Kg** Analysis Date: **6/29/2012 03:52 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **SVMS6_120629A** SeqNo: **2020380** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1316	47	1894	0	69.5	45-105	1388	5.33	30	
Acenaphthene	1422	47	1894	0	75	45-110	1323	7.18	30	
Acenaphthylene	1468	47	1894	0	77.5	45-105	1358	7.81	30	
Anthracene	1642	47	1894	0	86.7	55-105	1731	5.25	30	
Benzo(a)anthracene	1867	47	1894	193.8	88.3	50-110	1873	0.331	30	
Benzo(a)pyrene	1931	47	1894	246.4	88.9	50-110	1970	2	30	
Benzo(b)fluoranthene	2109	47	1894	265.3	97.3	45-115	2193	3.88	30	
Benzo(g,h,i)perylene	1213	47	1894	142.1	56.5	40-125	1639	29.9	30	
Benzo(k)fluoranthene	1997	47	1894	178.9	96	45-115	1806	10	30	
Chrysene	1843	47	1894	252.4	84	55-110	1974	6.86	30	
Dibenzo(a,h)anthracene	1296	47	1894	0	68.4	40-125	1636	23.2	30	
Fluoranthene	2043	47	1894	335.9	90.1	55-115	2100	2.76	30	
Fluorene	1587	47	1894	0	83.8	50-110	1483	6.8	30	
Indeno(1,2,3-cd)pyrene	1333	47	1894	105.3	64.8	40-120	1699	24.1	30	
Naphthalene	1215	47	1894	0	64.2	40-105	1311	7.59	30	
Phenanthrene	1715	47	1894	109.3	84.8	50-110	1803	4.98	30	
Pyrene	1959	47	1894	323	86.3	45-125	2019	3.03	30	
Surr: 2,4,6-Tribromophenol	*3849*	0	*4735*	0	*81.3*	*34-140*	4006	*3.99*	*40*	
Surr: 2-Fluorobiphenyl	*2891*	0	*4735*	0	*61.1*	*12-100*	2713	*6.35*	*40*	
Surr: 2-Fluorophenol	*3064*	0	*4735*	0	*64.7*	*33-117*	3372	*9.57*	*40*	
Surr: 4-Terphenyl-d14	*3270*	0	*4735*	0	*69.1*	*25-137*	3484	*6.33*	*40*	
Surr: Nitrobenzene-d5	*2635*	0	*4735*	0	*55.6*	*37-107*	2914	*10*	*40*	
Surr: Phenol-d6	*3184*	0	*4735*	0	*67.2*	*40-106*	3429	*7.4*	*40*	

The following samples were analyzed in this batch:

1206893-01A	1206893-03A	1206893-04A
1206893-05A	1206893-06A	1206893-07A
1206893-08A	1206893-09A	1206893-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 12:57 PM**
Client ID: Run ID: **VMS9_120629A** SeqNo: **2017864** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	250.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1032*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*980*	0	*1000*	0	*98*	*70-130*	0
Surr: Dibromofluoromethane	*1022*	0	*1000*	0	*102*	*70-130*	0
Surr: Toluene-d8	*995*	0	*1000*	0	*99.5*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 01:21 PM**
Client ID: Run ID: **VMS8_120629A** SeqNo: **2018170** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	68.5	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	145	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*962*	0	*1000*	0	*96.2*	*70-130*	0
Surr: Dibromofluoromethane	*887*	0	*1000*	0	*88.7*	*70-130*	0
Surr: Toluene-d8	*986*	0	*1000*	0	*98.6*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-42029-42029** Units: **µg/Kg** Analysis Date: **7/3/2012 01:59 AM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2018686** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	147.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	18	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*976*	0	*1000*	0	*97.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*996.5*	0	*1000*	0	*99.6*	*70-130*	0	
Surr: Dibromofluoromethane	*971.5*	0	*1000*	0	*97.2*	*70-130*	0	
Surr: Toluene-d8	*978.5*	0	*1000*	0	*97.8*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 11:29 AM**
Client ID: Run ID: **VMS9_120629A** SeqNo: **2017863** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	878	30	1000	0	87.8	75-125	0			
1,1,1-Trichloroethane	996.5	30	1000	0	99.6	70-135	0			
1,1,2,2-Tetrachloroethane	1266	30	1000	0	127	55-130	0			
1,1,2-Trichloroethane	924.5	30	1000	0	92.4	60-125	0			
1,1-Dichloroethane	1033	30	1000	0	103	75-125	0			
1,1-Dichloroethene	1052	30	1000	0	105	65-135	0			
1,2,3-Trichlorobenzene	1003	30	1000	0	100	60-135	0			
1,2,3-Trichloropropane	898	30	1000	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	989	30	1000	0	98.9	65-135	0			
1,2,4-Trichlorobenzene	943.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	1234	30	1000	0	123	65-135	0			
1,2-Dibromo-3-chloropropane	860.5	30	1000	0	86	40-135	0			
1,2-Dibromoethane	890.5	30	1000	0	89	70-125	0			
1,2-Dichlorobenzene	974	30	1000	0	97.4	75-120	0			
1,2-Dichloroethane	1036	30	1000	0	104	70-135	0			
1,2-Dichloropropane	962	30	1000	0	96.2	70-120	0			
1,3,5-Trimethylbenzene	1240	30	1000	0	124	65-135	0			
1,3-Dichlorobenzene	967.5	30	1000	0	96.8	70-125	0			
1,4-Dichlorobenzene	1003	30	1000	0	100	70-125	0			
2-Butanone	858	200	1000	0	85.8	30-160	0			
2-Hexanone	879	30	1000	0	87.9	45-145	0			
4-Methyl-2-pentanone	832.5	30	1000	0	83.2	45-145	0			
Acetone	1226	100	1000	0	123	20-160	0			B
Acrylonitrile	933.5	100	1000	0	93.4	70-135	0			
Benzene	990	30	1000	0	99	75-125	0			
Bromobenzene	1066	30	1000	0	107	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	889	30	1000	0	88.9	70-130	0			
Bromoform	912.5	30	1000	0	91.2	55-135	0			
Bromomethane	1319	75	1000	0	132	30-160	0			
Carbon disulfide	1270	30	1000	0	127	45-160	0			
Carbon tetrachloride	949	30	1000	0	94.9	65-135	0			
Chlorobenzene	927.5	30	1000	0	92.8	75-125	0			
Chloroethane	4494	100	1000	0	449	40-155	0			S
Chloroform	973.5	30	1000	0	97.4	70-125	0			
Chloromethane	1092	100	1000	0	109	50-130	0			
cis-1,2-Dichloroethene	1038	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	873	30	1000	0	87.3	70-125	0			
Dibromochloromethane	897	30	1000	0	89.7	65-135	0			
Dibromomethane	972	30	1000	0	97.2	75-130	0			
Dichlorodifluoromethane	1032	30	1000	0	103	35-135	0			
Ethylbenzene	1016	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	813.5	30	1000	0	81.4	70-135	0
Isopropylbenzene	1138	30	1000	0	114	75-130	0
m,p-Xylene	2276	60	2000	0	114	80-125	0
Methyl tert-butyl ether	1055	30	1000	0	106	75-125	0
Methylene chloride	1031	30	1000	0	103	55-145	0
Naphthalene	1016	100	1000	0	102	40-140	0
n-Butylbenzene	1042	30	1000	0	104	65-140	0
n-Propylbenzene	1104	30	1000	0	110	65-135	0
o-Xylene	1092	30	1000	0	109	75-125	0
p-Isopropyltoluene	987.5	30	1000	0	98.8	75-135	0
sec-Butylbenzene	1208	30	1000	0	121	65-130	0
Styrene	1200	30	1000	0	120	75-125	0
tert-Butylbenzene	1143	30	1000	0	114	65-130	0
Tetrachloroethene	755	30	1000	0	75.5	64-140	0
Tetrahydrofuran	1000	200	1000	0	100	70-135	0
Toluene	879	30	1000	0	87.9	70-125	0
trans-1,2-Dichloroethene	1074	30	1000	0	107	65-135	0
trans-1,3-Dichloropropene	891	30	1000	0	89.1	65-125	0
trans-1,4-Dichloro-2-butene	882	30	1000	0	88.2	70-135	0
Trichloroethene	833	30	1000	0	83.3	75-125	0
Trichlorofluoromethane	908.5	30	1000	0	90.8	25-185	0
Vinyl chloride	1180	30	1000	0	118	60-125	0
Surr: 1,2-Dichloroethane-d4	*1056*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1135*	0	*1000*	0	*114*	*70-130*	0
Surr: Dibromofluoromethane	*1110*	0	*1000*	0	*111*	*70-130*	0
Surr: Toluene-d8	*1001*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **6/29/2012 11:45 AM**
Client ID: Run ID: **VMS8_120629A** SeqNo: **2018169** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	918.5	30	1000	0	91.8	75-125	0			
1,1,1-Trichloroethane	934.5	30	1000	0	93.4	70-135	0			
1,1,2,2-Tetrachloroethane	949.5	30	1000	0	95	55-130	0			
1,1,2-Trichloroethane	976	30	1000	0	97.6	60-125	0			
1,1-Dichloroethane	940.5	30	1000	0	94	75-125	0			
1,1-Dichloroethene	1065	30	1000	0	106	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1062	30	1000	0	106	65-130	0			
1,2,3-Trimethylbenzene	892.5	30	1000	0	89.2	65-135	0			
1,2,4-Trichlorobenzene	1049	30	1000	0	105	65-130	0			
1,2,4-Trimethylbenzene	894.5	30	1000	0	89.4	65-135	0			
1,2-Dibromo-3-chloropropane	1071	30	1000	0	107	40-135	0			
1,2-Dibromoethane	990.5	30	1000	0	99	70-125	0			
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	0			
1,2-Dichloroethane	979	30	1000	0	97.9	70-135	0			
1,2-Dichloropropane	893	30	1000	0	89.3	70-120	0			
1,3,5-Trimethylbenzene	911	30	1000	0	91.1	65-135	0			
1,3-Dichlorobenzene	915.5	30	1000	0	91.6	70-125	0			
1,4-Dichlorobenzene	970	30	1000	0	97	70-125	0			
2-Butanone	1016	200	1000	0	102	30-160	0			
2-Hexanone	1104	30	1000	0	110	45-145	0			
4-Methyl-2-pentanone	1396	30	1000	0	140	45-145	0			
Acetone	1270	100	1000	0	127	20-160	0			B
Acrylonitrile	1040	100	1000	0	104	70-135	0			
Benzene	954	30	1000	0	95.4	75-125	0			
Bromobenzene	951.5	30	1000	0	95.2	65-120	0			
Bromochloromethane	1007	30	1000	0	101	70-125	0			
Bromodichloromethane	916.5	30	1000	0	91.6	70-130	0			
Bromoform	923.5	30	1000	0	92.4	55-135	0			
Bromomethane	1041	75	1000	0	104	30-160	0			
Carbon disulfide	1069	30	1000	0	107	45-160	0			
Carbon tetrachloride	912.5	30	1000	0	91.2	65-135	0			
Chlorobenzene	958	30	1000	0	95.8	75-125	0			
Chloroethane	576	100	1000	0	57.6	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	992	100	1000	0	99.2	50-130	0			
cis-1,2-Dichloroethene	964	30	1000	0	96.4	65-125	0			
cis-1,3-Dichloropropene	957.5	30	1000	0	95.8	70-125	0			
Dibromochloromethane	904	30	1000	0	90.4	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	897	30	1000	0	89.7	35-135	0			
Ethylbenzene	937	30	1000	0	93.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	852.5	30	1000	0	85.2	70-135	0
Isopropylbenzene	945.5	30	1000	0	94.6	75-130	0
m,p-Xylene	1877	60	2000	0	93.8	80-125	0
Methyl tert-butyl ether	908.5	30	1000	0	90.8	75-125	0
Methylene chloride	937	30	1000	0	93.7	55-145	0
Naphthalene	1166	100	1000	0	117	40-140	0
n-Butylbenzene	1010	30	1000	0	101	65-140	0
n-Propylbenzene	889	30	1000	0	88.9	65-135	0
o-Xylene	934	30	1000	0	93.4	75-125	0
p-Isopropyltoluene	941.5	30	1000	0	94.2	75-135	0
sec-Butylbenzene	955.5	30	1000	0	95.6	65-130	0
Styrene	909	30	1000	0	90.9	75-125	0
tert-Butylbenzene	922.5	30	1000	0	92.2	65-130	0
Tetrachloroethene	1259	30	1000	0	126	64-140	0
Tetrahydrofuran	1047	200	1000	0	105	70-135	0
Toluene	947.5	30	1000	0	94.8	70-125	0
trans-1,2-Dichloroethene	996.5	30	1000	0	99.6	65-135	0
trans-1,3-Dichloropropene	944	30	1000	0	94.4	65-125	0
trans-1,4-Dichloro-2-butene	800	30	1000	0	80	70-135	0
Trichloroethene	993	30	1000	0	99.3	75-125	0
Trichlorofluoromethane	947	30	1000	0	94.7	25-185	0
Vinyl chloride	970	30	1000	0	97	60-125	0
Surr: 1,2-Dichloroethane-d4	*1009*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*962*	0	*1000*	0	*96.2*	*70-130*	0
Surr: Dibromofluoromethane	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*978*	0	*1000*	0	*97.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-42029-42029** Units: **µg/Kg** Analysis Date: **7/3/2012 12:44 PM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2018687** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1066	30	1000	0	107	75-125	0			
1,1,1-Trichloroethane	1159	30	1000	0	116	70-135	0			
1,1,2,2-Tetrachloroethane	1022	30	1000	0	102	55-130	0			
1,1,2-Trichloroethane	992.5	30	1000	0	99.2	60-125	0			
1,1-Dichloroethane	1018	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1145	30	1000	0	114	65-135	0			
1,2,3-Trichlorobenzene	1036	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1002	30	1000	0	100	65-130	0			
1,2,3-Trimethylbenzene	1044	30	1000	0	104	65-135	0			
1,2,4-Trichlorobenzene	1000	30	1000	0	100	65-130	0			
1,2,4-Trimethylbenzene	1037	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	997.5	30	1000	0	99.8	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1039	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1046	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1076	30	1000	0	108	70-120	0			
1,3,5-Trimethylbenzene	1060	30	1000	0	106	65-135	0			
1,3-Dichlorobenzene	1044	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1028	30	1000	0	103	70-125	0			
2-Butanone	1140	200	1000	0	114	30-160	0			
2-Hexanone	994	30	1000	0	99.4	45-145	0			
4-Methyl-2-pentanone	1428	30	1000	0	143	45-145	0			
Acetone	1180	100	1000	0	118	20-160	0			B
Acrylonitrile	975	100	1000	0	97.5	70-135	0			
Benzene	1051	30	1000	0	105	75-125	0			
Bromobenzene	1019	30	1000	0	102	65-120	0			
Bromochloromethane	1086	30	1000	0	109	70-125	0			
Bromodichloromethane	1093	30	1000	0	109	70-130	0			
Bromoform	955	30	1000	0	95.5	55-135	0			
Bromomethane	1330	75	1000	0	133	30-160	0			
Carbon disulfide	1174	30	1000	0	117	45-160	0			
Carbon tetrachloride	1047	30	1000	0	105	65-135	0			
Chlorobenzene	1079	30	1000	0	108	75-125	0			
Chloroethane	1009	100	1000	0	101	40-155	0			
Chloroform	1092	30	1000	0	109	70-125	0			
Chloromethane	1016	100	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1071	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1090	30	1000	0	109	70-125	0			
Dibromochloromethane	1103	30	1000	0	110	65-135	0			
Dibromomethane	1028	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	839.5	30	1000	0	84	35-135	0			
Ethylbenzene	1061	30	1000	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1046	30	1000	0	105	70-135	0
Isopropylbenzene	1074	30	1000	0	107	75-130	0
m,p-Xylene	2148	60	2000	0	107	80-125	0
Methyl tert-butyl ether	1026	30	1000	0	103	75-125	0
Methylene chloride	1037	30	1000	0	104	55-145	0
Naphthalene	975.5	100	1000	0	97.6	40-140	0
n-Butylbenzene	1064	30	1000	0	106	65-140	0
n-Propylbenzene	1064	30	1000	0	106	65-135	0
o-Xylene	1049	30	1000	0	105	75-125	0
p-Isopropyltoluene	1009	30	1000	0	101	75-135	0
sec-Butylbenzene	1072	30	1000	0	107	65-130	0
Styrene	1106	30	1000	0	111	75-125	0
tert-Butylbenzene	1050	30	1000	0	105	65-130	0
Tetrachloroethene	1104	30	1000	0	110	64-140	0
Tetrahydrofuran	904.5	200	1000	0	90.4	70-135	0
Toluene	1042	30	1000	0	104	70-125	0
trans-1,2-Dichloroethene	1092	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1056	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	891.5	30	1000	0	89.2	70-135	0
Trichloroethene	1110	30	1000	0	111	75-125	0
Trichlorofluoromethane	1034	30	1000	0	103	25-185	0
Vinyl chloride	1022	30	1000	0	102	60-125	0
Surr: 1,2-Dichloroethane-d4	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206893-08B MS** Units: **µg/Kg** Analysis Date: **6/29/2012 08:30 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **VMS8_120629A** SeqNo: **2018201** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4579	160	5266	0	87	75-125	0			
1,1,1-Trichloroethane	4750	160	5266	0	90.2	70-135	0			
1,1,2,2-Tetrachloroethane	4916	160	5266	0	93.4	55-130	0			
1,1,2-Trichloroethane	5113	160	5266	0	97.1	60-125	0			
1,1-Dichloroethane	4858	160	5266	0	92.2	75-125	0			
1,1-Dichloroethene	5131	160	5266	0	97.4	65-135	0			
1,2,3-Trichlorobenzene	4115	160	5266	0	78.2	60-135	0			
1,2,3-Trichloropropane	5313	160	5266	0	101	65-130	0			
1,2,3-Trimethylbenzene	4336	160	5266	0	82.4	65-135	0			
1,2,4-Trichlorobenzene	3883	160	5266	0	73.8	65-130	0			
1,2,4-Trimethylbenzene	4363	160	5266	0	82.8	65-135	0			
1,2-Dibromo-3-chloropropane	4831	160	5266	0	91.8	40-135	0			
1,2-Dibromoethane	5079	160	5266	0	96.4	70-125	0			
1,2-Dichlorobenzene	4750	160	5266	0	90.2	75-120	0			
1,2-Dichloroethane	5166	160	5266	0	98.1	70-135	0			
1,2-Dichloropropane	4586	160	5266	0	87.1	70-120	0			
1,3,5-Trimethylbenzene	4407	160	5266	0	83.7	65-135	0			
1,3-Dichlorobenzene	4418	160	5266	0	83.9	70-125	0			
1,4-Dichlorobenzene	4686	160	5266	0	89	70-125	0			
2-Butanone	4692	530	5266	0	89.1	30-160	0			
2-Hexanone	6261	160	5266	0	119	45-145	0			
4-Methyl-2-pentanone	7691	160	5266	0	146	45-145	0			S
Acetone	6429	530	5266	0	122	20-160	0			B
Acrylonitrile	5392	160	5266	0	102	70-135	0			
Benzene	5047	160	5266	0	95.8	75-125	0			
Bromobenzene	4742	160	5266	0	90	65-120	0			
Bromochloromethane	5168	160	5266	0	98.2	70-125	0			
Bromodichloromethane	4455	160	5266	0	84.6	70-130	0			
Bromoform	4031	160	5266	0	76.6	55-135	0			
Bromomethane	5081	160	5266	0	96.5	30-160	0			
Carbon disulfide	5045	160	5266	0	95.8	45-160	0			
Carbon tetrachloride	4507	160	5266	0	85.6	65-135	0			
Chlorobenzene	4939	160	5266	0	93.8	75-125	0			
Chloroethane	3317	530	5266	0	63	40-155	0			
Chloroform	5084	160	5266	0	96.6	70-125	0			
Chloromethane	4881	160	5266	0	92.7	50-130	0			
cis-1,2-Dichloroethene	4913	160	5266	0	93.3	65-125	0			
cis-1,3-Dichloropropene	4776	160	5266	0	90.7	70-125	0			
Dibromochloromethane	4378	160	5266	0	83.2	65-135	0			
Dibromomethane	4944	160	5266	0	93.9	75-130	0			
Dichlorodifluoromethane	4310	160	5266	0	81.8	35-135	0			
Ethylbenzene	4829	160	5266	0	91.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	3860	160	5266	0	73.3	70-135	0	
Isopropylbenzene	4792	160	5266	0	91	75-130	0	
m,p-Xylene	9541	320	10530	0	90.6	80-125	0	
Methyl tert-butyl ether	5234	160	5266	0	99.4	75-125	0	
Methylene chloride	4731	160	5266	0	89.8	55-145	0	
Naphthalene	4447	530	5266	0	84.4	40-140	0	
n-Butylbenzene	4299	160	5266	0	81.6	65-140	0	
n-Propylbenzene	4373	160	5266	0	83	65-135	0	
o-Xylene	4750	160	5266	0	90.2	75-125	0	
p-Isopropyltoluene	4310	160	5266	0	81.8	75-135	0	
sec-Butylbenzene	4405	160	5266	0	83.6	65-130	0	
Styrene	4170	160	5266	0	79.2	75-125	0	
tert-Butylbenzene	4399	160	5266	0	83.6	65-130	0	
Tetrachloroethene	6695	160	5266	0	127	64-140	0	
Tetrahydrofuran	5774	530	5266	0	110	70-135	0	
Toluene	4981	160	5266	0	94.6	70-125	0	
trans-1,2-Dichloroethene	5042	160	5266	0	95.8	65-135	0	
trans-1,3-Dichloropropene	4729	160	5266	0	89.8	65-125	0	
trans-1,4-Dichloro-2-butene	3386	160	5266	0	64.3	70-135	0	S
Trichloroethene	5171	160	5266	0	98.2	75-125	0	
Trichlorofluoromethane	3823	160	5266	0	72.6	25-185	0	
Vinyl chloride	4686	160	5266	0	89	60-125	0	
Surr: 1,2-Dichloroethane-d4	*5366*	0	*5266*	0	*102*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*5163*	0	*5266*	0	*98*	*70-130*	0	
Surr: Dibromofluoromethane	*5095*	0	*5266*	0	*96.8*	*70-130*	0	
Surr: Toluene-d8	*5239*	0	*5266*	0	*99.5*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206893-08B MSD** Units: **µg/Kg** Analysis Date: **6/29/2012 08:54 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **VMS8_120629A** SeqNo: **2018202** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	4529	160	5266	0	86	75-125	4579	1.1	30	
1,1,1-Trichloroethane	4663	160	5266	0	88.6	70-135	4750	1.85	30	
1,1,2,2-Tetrachloroethane	4594	160	5266	0	87.2	55-130	4916	6.76	30	
1,1,2-Trichloroethane	4979	160	5266	0	94.6	60-125	5113	2.66	30	
1,1-Dichloroethane	4837	160	5266	0	91.8	75-125	4858	0.435	30	
1,1-Dichloroethene	4684	160	5266	0	89	65-135	5131	9.12	30	
1,2,3-Trichlorobenzene	4642	160	5266	0	88.2	60-135	4115	12	30	
1,2,3-Trichloropropane	5258	160	5266	0	99.8	65-130	5313	1.05	30	
1,2,3-Trimethylbenzene	4463	160	5266	0	84.8	65-135	4336	2.87	30	
1,2,4-Trichlorobenzene	4347	160	5266	0	82.6	65-130	3883	11.3	30	
1,2,4-Trimethylbenzene	4315	160	5266	0	82	65-135	4363	1.09	30	
1,2-Dibromo-3-chloropropane	4739	160	5266	0	90	40-135	4831	1.93	30	
1,2-Dibromoethane	4973	160	5266	0	94.4	70-125	5079	2.1	30	
1,2-Dichlorobenzene	4852	160	5266	0	92.2	75-120	4750	2.14	30	
1,2-Dichloroethane	5042	160	5266	0	95.8	70-135	5166	2.42	30	
1,2-Dichloropropane	4618	160	5266	0	87.7	70-120	4586	0.686	30	
1,3,5-Trimethylbenzene	4423	160	5266	0	84	65-135	4407	0.358	30	
1,3-Dichlorobenzene	4605	160	5266	0	87.4	70-125	4418	4.14	30	
1,4-Dichlorobenzene	4839	160	5266	0	91.9	70-125	4686	3.21	30	
2-Butanone	5711	530	5266	0	108	30-160	4692	19.6	30	
2-Hexanone	5987	160	5266	0	114	45-145	6261	4.47	30	
4-Methyl-2-pentanone	7519	160	5266	0	143	45-145	7691	2.25	30	
Acetone	6011	530	5266	0	114	20-160	6429	6.73	30	B
Acrylonitrile	5437	160	5266	0	103	70-135	5392	0.827	30	
Benzene	4947	160	5266	0	94	75-125	5047	2	30	
Bromobenzene	4797	160	5266	0	91.1	65-120	4742	1.16	30	
Bromochloromethane	5058	160	5266	0	96	70-125	5168	2.16	30	
Bromodichloromethane	4431	160	5266	0	84.2	70-130	4455	0.533	30	
Bromoform	3810	160	5266	0	72.4	55-135	4031	5.64	30	
Bromomethane	4442	160	5266	0	84.4	30-160	5081	13.4	30	
Carbon disulfide	4450	160	5266	0	84.5	45-160	5045	12.5	30	
Carbon tetrachloride	4384	160	5266	0	83.2	65-135	4507	2.78	30	
Chlorobenzene	4913	160	5266	0	93.3	75-125	4939	0.534	30	
Chloroethane	3665	530	5266	0	69.6	40-155	3317	9.95	30	
Chloroform	4934	160	5266	0	93.7	70-125	5084	3	30	
Chloromethane	4718	160	5266	0	89.6	50-130	4881	3.4	30	
cis-1,2-Dichloroethene	4908	160	5266	0	93.2	65-125	4913	0.107	30	
cis-1,3-Dichloropropene	4607	160	5266	0	87.5	70-125	4776	3.59	30	
Dibromochloromethane	4165	160	5266	0	79.1	65-135	4378	4.99	30	
Dibromomethane	4763	160	5266	0	90.4	75-130	4944	3.74	30	
Dichlorodifluoromethane	4344	160	5266	0	82.5	35-135	4310	0.791	30	
Ethylbenzene	4737	160	5266	0	90	75-125	4829	1.93	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42029** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	4015	160	5266	0	76.2	70-135	3860	3.95	30	
Isopropylbenzene	4686	160	5266	0	89	75-130	4792	2.22	30	
m,p-Xylene	9444	320	10530	0	89.7	80-125	9541	1.03	30	
Methyl tert-butyl ether	5037	160	5266	0	95.6	75-125	5234	3.85	30	
Methylene chloride	4273	160	5266	0	81.2	55-145	4731	10.2	30	
Naphthalene	5108	530	5266	0	97	40-140	4447	13.8	30	
n-Butylbenzene	4471	160	5266	0	84.9	65-140	4299	3.9	30	
n-Propylbenzene	4318	160	5266	0	82	65-135	4373	1.27	30	
o-Xylene	4660	160	5266	0	88.5	75-125	4750	1.9	30	
p-Isopropyltoluene	4455	160	5266	0	84.6	75-135	4310	3.3	30	
sec-Butylbenzene	4392	160	5266	0	83.4	65-130	4405	0.299	30	
Styrene	4197	160	5266	0	79.7	75-125	4170	0.629	30	
tert-Butylbenzene	4415	160	5266	0	83.8	65-130	4399	0.358	30	
Tetrachloroethene	6619	160	5266	0	126	64-140	6695	1.15	30	
Tetrahydrofuran	5645	530	5266	0	107	70-135	5774	2.26	30	
Toluene	4876	160	5266	0	92.6	70-125	4981	2.14	30	
trans-1,2-Dichloroethene	4910	160	5266	0	93.2	65-135	5042	2.65	30	
trans-1,3-Dichloropropene	4534	160	5266	0	86.1	65-125	4729	4.21	30	
trans-1,4-Dichloro-2-butene	3173	160	5266	0	60.2	70-135	3386	6.5	30	S
Trichloroethene	5160	160	5266	0	98	75-125	5171	0.204	30	
Trichlorofluoromethane	3915	160	5266	0	74.4	25-185	3823	2.38	30	
Vinyl chloride	4497	160	5266	0	85.4	60-125	4686	4.13	30	
Surr: 1,2-Dichloroethane-d4	*5250*	0	*5266*	0	*99.7*	*70-130*	5366	*2.18*	*30*	
Surr: 4-Bromofluorobenzene	*5163*	0	*5266*	0	*98*	*70-130*	5163	*0*	*30*	
Surr: Dibromofluoromethane	*5055*	0	*5266*	0	*96*	*70-130*	5095	*0.778*	*30*	
Surr: Toluene-d8	*5166*	0	*5266*	0	*98.1*	*70-130*	5239	*1.42*	*30*	

The following samples were analyzed in this batch:

1206893-01B	1206893-02A	1206893-03B
1206893-04B	1206893-05B	1206893-06B
1206893-07B	1206893-08B	1206893-09B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-42040-42040** Units: **µg/Kg** Analysis Date: **6/28/2012 01:41 PM**
Client ID: Run ID: **VMS8_120628A** SeqNo: **2016333** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	80.5	100								J
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	58	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*995.5*	0	*1000*	0	*99.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*959.5*	0	*1000*	0	*96*	*70-130*	0	
Surr: Dibromofluoromethane	*911*	0	*1000*	0	*91.1*	*70-130*	0	
Surr: Toluene-d8	*978.5*	0	*1000*	0	*97.8*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-42040-42040** Units: **µg/Kg** Analysis Date: **6/30/2012 12:51 PM**
Client ID: Run ID: **VMS8_120629B** SeqNo: **2018406** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	148.5	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	88.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*980.5*	0	*1000*	0	*98*	*70-130*	0
Surr: Dibromofluoromethane	*935*	0	*1000*	0	*93.5*	*70-130*	0
Surr: Toluene-d8	*989*	0	*1000*	0	*98.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 01:59 AM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2019187** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	147.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	75						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	18	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	200						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	200						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*976*	0	*1000*	0	*97.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*996.5*	0	*1000*	0	*99.6*	*70-130*	0	
Surr: Dibromofluoromethane	*971.5*	0	*1000*	0	*97.2*	*70-130*	0	
Surr: Toluene-d8	*978.5*	0	*1000*	0	*97.8*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 01:03 AM**
Client ID: Run ID: **VMS8_120702B** SeqNo: **2019353** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	308.5	100								
4-Methyl-2-pentanone	ND	30								
Acetone	330.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	95.5	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1024*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*960*	0	*1000*	0	*96*	*70-130*	0
Surr: Dibromofluoromethane	*924*	0	*1000*	0	*92.4*	*70-130*	0
Surr: Toluene-d8	*1007*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 03:54 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020236** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	101	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1071*	0	*1000*	0	*107*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1047*	0	*1000*	0	*105*	*70-130*	0
Surr: Dibromofluoromethane	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*1060*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-42040-42040** Units: **µg/Kg** Analysis Date: **6/28/2012 12:29 PM**
Client ID: Run ID: **VMS8_120628A** SeqNo: **2016330** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1022	30	1000	0	102	75-125	0			
1,1,1-Trichloroethane	1006	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	1122	30	1000	0	112	55-130	0			
1,1,2-Trichloroethane	1086	30	1000	0	109	60-125	0			
1,1-Dichloroethane	917	30	1000	0	91.7	75-125	0			
1,1-Dichloroethene	1068	30	1000	0	107	65-135	0			
1,2,3-Trichlorobenzene	1244	30	1000	0	124	60-135	0			
1,2,3-Trichloropropane	1156	30	1000	0	116	65-130	0			
1,2,3-Trimethylbenzene	931	30	1000	0	93.1	65-135	0			
1,2,4-Trichlorobenzene	1134	30	1000	0	113	65-130	0			
1,2,4-Trimethylbenzene	952.5	30	1000	0	95.2	65-135	0			
1,2-Dibromo-3-chloropropane	1266	30	1000	0	127	40-135	0			
1,2-Dibromoethane	1102	30	1000	0	110	70-125	0			
1,2-Dichlorobenzene	1022	30	1000	0	102	75-120	0			
1,2-Dichloroethane	1038	30	1000	0	104	70-135	0			
1,2-Dichloropropane	934	30	1000	0	93.4	70-120	0			
1,3,5-Trimethylbenzene	985	30	1000	0	98.5	65-135	0			
1,3-Dichlorobenzene	970	30	1000	0	97	70-125	0			
1,4-Dichlorobenzene	1030	30	1000	0	103	70-125	0			
2-Butanone	1124	200	1000	0	112	30-160	0			
2-Hexanone	1432	30	1000	0	143	45-145	0			
4-Methyl-2-pentanone	1732	30	1000	0	173	45-145	0			S
Acetone	1199	100	1000	0	120	20-160	0			
Acrylonitrile	1057	100	1000	0	106	70-135	0			
Benzene	1013	30	1000	0	101	75-125	0			
Bromobenzene	1036	30	1000	0	104	65-120	0			
Bromochloromethane	1018	30	1000	0	102	70-125	0			
Bromodichloromethane	973.5	30	1000	0	97.4	70-130	0			
Bromoform	1048	30	1000	0	105	55-135	0			
Bromomethane	1280	75	1000	0	128	30-160	0			
Carbon disulfide	1212	30	1000	0	121	45-160	0			
Carbon tetrachloride	984	30	1000	0	98.4	65-135	0			
Chlorobenzene	1054	30	1000	0	105	75-125	0			
Chloroethane	855	100	1000	0	85.5	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	1005	100	1000	0	100	50-130	0			
cis-1,2-Dichloroethene	934	30	1000	0	93.4	65-125	0			
cis-1,3-Dichloropropene	1045	30	1000	0	104	70-125	0			
Dibromochloromethane	1021	30	1000	0	102	65-135	0			
Dibromomethane	1026	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	912.5	30	1000	0	91.2	35-135	0			
Ethylbenzene	1030	30	1000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1022	30	1000	0	102	70-135	0
Isopropylbenzene	1043	30	1000	0	104	75-130	0
m,p-Xylene	2042	60	2000	0	102	80-125	0
Methyl tert-butyl ether	907	30	1000	0	90.7	75-125	0
Methylene chloride	904	30	1000	0	90.4	55-145	0
Naphthalene	1308	100	1000	0	131	40-140	0
n-Butylbenzene	1056	30	1000	0	106	65-140	0
n-Propylbenzene	969.5	30	1000	0	97	65-135	0
o-Xylene	1021	30	1000	0	102	75-125	0
p-Isopropyltoluene	1005	30	1000	0	100	75-135	0
sec-Butylbenzene	1020	30	1000	0	102	65-130	0
Styrene	998.5	30	1000	0	99.8	75-125	0
tert-Butylbenzene	999	30	1000	0	99.9	65-130	0
Tetrachloroethene	1243	30	1000	0	124	64-140	0
Tetrahydrofuran	1210	200	1000	0	121	70-135	0
Toluene	1052	30	1000	0	105	70-125	0
trans-1,2-Dichloroethene	963	30	1000	0	96.3	65-135	0
trans-1,3-Dichloropropene	1072	30	1000	0	107	65-125	0
trans-1,4-Dichloro-2-butene	999	30	1000	0	99.9	70-135	0
Trichloroethene	1058	30	1000	0	106	75-125	0
Trichlorofluoromethane	862.5	30	1000	0	86.2	25-185	0
Vinyl chloride	1010	30	1000	0	101	60-125	0
Surr: 1,2-Dichloroethane-d4	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1012*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1010*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-42040-42040** Units: **µg/Kg** Analysis Date: **6/29/2012 11:59 PM**
Client ID: Run ID: **VMS8_120629B** SeqNo: **2018397** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	999.5	30	1000	0	100	75-125	0			
1,1,1-Trichloroethane	1014	30	1000	0	101	70-135	0			
1,1,2,2-Tetrachloroethane	1001	30	1000	0	100	55-130	0			
1,1,2-Trichloroethane	1043	30	1000	0	104	60-125	0			
1,1-Dichloroethane	1021	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1133	30	1000	0	113	65-135	0			
1,2,3-Trichlorobenzene	1191	30	1000	0	119	60-135	0			
1,2,3-Trichloropropane	1102	30	1000	0	110	65-130	0			
1,2,3-Trimethylbenzene	955	30	1000	0	95.5	65-135	0			
1,2,4-Trichlorobenzene	1108	30	1000	0	111	65-130	0			
1,2,4-Trimethylbenzene	949.5	30	1000	0	95	65-135	0			
1,2-Dibromo-3-chloropropane	1152	30	1000	0	115	40-135	0			
1,2-Dibromoethane	1054	30	1000	0	105	70-125	0			
1,2-Dichlorobenzene	1018	30	1000	0	102	75-120	0			
1,2-Dichloroethane	1062	30	1000	0	106	70-135	0			
1,2-Dichloropropane	968	30	1000	0	96.8	70-120	0			
1,3,5-Trimethylbenzene	962	30	1000	0	96.2	65-135	0			
1,3-Dichlorobenzene	980	30	1000	0	98	70-125	0			
1,4-Dichlorobenzene	1044	30	1000	0	104	70-125	0			
2-Butanone	1045	200	1000	0	104	30-160	0			
2-Hexanone	1342	30	1000	0	134	45-145	0			
4-Methyl-2-pentanone	1622	30	1000	0	162	45-145	0			S
Acetone	1306	100	1000	0	131	20-160	0			
Acrylonitrile	1117	100	1000	0	112	70-135	0			
Benzene	1038	30	1000	0	104	75-125	0			
Bromobenzene	1030	30	1000	0	103	65-120	0			
Bromochloromethane	1080	30	1000	0	108	70-125	0			
Bromodichloromethane	972	30	1000	0	97.2	70-130	0			
Bromoform	902.5	30	1000	0	90.2	55-135	0			
Bromomethane	1258	75	1000	0	126	30-160	0			
Carbon disulfide	1206	30	1000	0	121	45-160	0			
Carbon tetrachloride	964	30	1000	0	96.4	65-135	0			
Chlorobenzene	1064	30	1000	0	106	75-125	0			
Chloroethane	892	100	1000	0	89.2	40-155	0			
Chloroform	1054	30	1000	0	105	70-125	0			
Chloromethane	1046	100	1000	0	105	50-130	0			
cis-1,2-Dichloroethene	1054	30	1000	0	105	65-125	0			
cis-1,3-Dichloropropene	1008	30	1000	0	101	70-125	0			
Dibromochloromethane	948.5	30	1000	0	94.8	65-135	0			
Dibromomethane	1026	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	976	30	1000	0	97.6	35-135	0			
Ethylbenzene	1018	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	907.5	30	1000	0	90.8	70-135	0	
Isopropylbenzene	1017	30	1000	0	102	75-130	0	
m,p-Xylene	2040	60	2000	0	102	80-125	0	
Methyl tert-butyl ether	1078	30	1000	0	108	75-125	0	
Methylene chloride	966	30	1000	0	96.6	55-145	0	
Naphthalene	1252	100	1000	0	125	40-140	0	
n-Butylbenzene	976	30	1000	0	97.6	65-140	0	
n-Propylbenzene	943.5	30	1000	0	94.4	65-135	0	
o-Xylene	1002	30	1000	0	100	75-125	0	
p-Isopropyltoluene	966.5	30	1000	0	96.6	75-135	0	
sec-Butylbenzene	970	30	1000	0	97	65-130	0	
Styrene	987	30	1000	0	98.7	75-125	0	
tert-Butylbenzene	940.5	30	1000	0	94	65-130	0	
Tetrachloroethene	1440	30	1000	0	144	64-140	0	S
Tetrahydrofuran	1206	200	1000	0	121	70-135	0	
Toluene	1044	30	1000	0	104	70-125	0	
trans-1,2-Dichloroethene	1080	30	1000	0	108	65-135	0	
trans-1,3-Dichloropropene	1002	30	1000	0	100	65-125	0	
trans-1,4-Dichloro-2-butene	848.5	30	1000	0	84.8	70-135	0	
Trichloroethene	1096	30	1000	0	110	75-125	0	
Trichlorofluoromethane	907.5	30	1000	0	90.8	25-185	0	
Vinyl chloride	993.5	30	1000	0	99.4	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1002*	0	*1000*	0	*100*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*993*	0	*1000*	0	*99.3*	*70-130*	0	
Surr: Dibromofluoromethane	*977*	0	*1000*	0	*97.7*	*70-130*	0	
Surr: Toluene-d8	*981.5*	0	*1000*	0	*98.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 12:44 PM**
Client ID: Run ID: **VMS7_120702A** SeqNo: **2019188** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1066	30	1000	0	107	75-125	0			
1,1,1-Trichloroethane	1159	30	1000	0	116	70-135	0			
1,1,2,2-Tetrachloroethane	1022	30	1000	0	102	55-130	0			
1,1,2-Trichloroethane	992.5	30	1000	0	99.2	60-125	0			
1,1-Dichloroethane	1018	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1145	30	1000	0	114	65-135	0			
1,2,3-Trichlorobenzene	1036	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1002	30	1000	0	100	65-130	0			
1,2,3-Trimethylbenzene	1044	30	1000	0	104	65-135	0			
1,2,4-Trichlorobenzene	1000	30	1000	0	100	65-130	0			
1,2,4-Trimethylbenzene	1037	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	997.5	30	1000	0	99.8	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1039	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1046	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1076	30	1000	0	108	70-120	0			
1,3,5-Trimethylbenzene	1060	30	1000	0	106	65-135	0			
1,3-Dichlorobenzene	1044	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1028	30	1000	0	103	70-125	0			
2-Butanone	1140	200	1000	0	114	30-160	0			
2-Hexanone	994	30	1000	0	99.4	45-145	0			
4-Methyl-2-pentanone	1428	30	1000	0	143	45-145	0			
Acetone	1180	100	1000	0	118	20-160	0			B
Acrylonitrile	975	100	1000	0	97.5	70-135	0			
Benzene	1051	30	1000	0	105	75-125	0			
Bromobenzene	1019	30	1000	0	102	65-120	0			
Bromochloromethane	1086	30	1000	0	109	70-125	0			
Bromodichloromethane	1093	30	1000	0	109	70-130	0			
Bromoform	955	30	1000	0	95.5	55-135	0			
Bromomethane	1330	75	1000	0	133	30-160	0			
Carbon disulfide	1174	30	1000	0	117	45-160	0			
Carbon tetrachloride	1047	30	1000	0	105	65-135	0			
Chlorobenzene	1079	30	1000	0	108	75-125	0			
Chloroethane	1009	100	1000	0	101	40-155	0			
Chloroform	1092	30	1000	0	109	70-125	0			
Chloromethane	1016	100	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1071	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1090	30	1000	0	109	70-125	0			
Dibromochloromethane	1103	30	1000	0	110	65-135	0			
Dibromomethane	1028	30	1000	0	103	75-130	0			
Dichlorodifluoromethane	839.5	30	1000	0	84	35-135	0			
Ethylbenzene	1061	30	1000	0	106	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1046	30	1000	0	105	70-135	0
Isopropylbenzene	1074	30	1000	0	107	75-130	0
m,p-Xylene	2148	60	2000	0	107	80-125	0
Methyl tert-butyl ether	1026	30	1000	0	103	75-125	0
Methylene chloride	1037	30	1000	0	104	55-145	0
Naphthalene	975.5	100	1000	0	97.6	40-140	0
n-Butylbenzene	1064	30	1000	0	106	65-140	0
n-Propylbenzene	1064	30	1000	0	106	65-135	0
o-Xylene	1049	30	1000	0	105	75-125	0
p-Isopropyltoluene	1009	30	1000	0	101	75-135	0
sec-Butylbenzene	1072	30	1000	0	107	65-130	0
Styrene	1106	30	1000	0	111	75-125	0
tert-Butylbenzene	1050	30	1000	0	105	65-130	0
Tetrachloroethene	1104	30	1000	0	110	64-140	0
Tetrahydrofuran	904.5	200	1000	0	90.4	70-135	0
Toluene	1042	30	1000	0	104	70-125	0
trans-1,2-Dichloroethene	1092	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1056	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	891.5	30	1000	0	89.2	70-135	0
Trichloroethene	1110	30	1000	0	111	75-125	0
Trichlorofluoromethane	1034	30	1000	0	103	25-185	0
Vinyl chloride	1022	30	1000	0	102	60-125	0
Surr: 1,2-Dichloroethane-d4	*998.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1004*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 12:10 PM**
Client ID: Run ID: **VMS8_120702B** SeqNo: **2019354** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1026	30	1000	0	103	75-125	0			
1,1,1-Trichloroethane	1016	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	1164	30	1000	0	116	55-130	0			
1,1,2-Trichloroethane	1107	30	1000	0	111	60-125	0			
1,1-Dichloroethane	1022	30	1000	0	102	75-125	0			
1,1-Dichloroethene	928.5	30	1000	0	92.8	65-135	0			
1,2,3-Trichlorobenzene	1216	30	1000	0	122	60-135	0			
1,2,3-Trichloropropane	1242	30	1000	0	124	65-130	0			
1,2,3-Trimethylbenzene	969	30	1000	0	96.9	65-135	0			
1,2,4-Trichlorobenzene	1118	30	1000	0	112	65-130	0			
1,2,4-Trimethylbenzene	962	30	1000	0	96.2	65-135	0			
1,2-Dibromo-3-chloropropane	1321	30	1000	0	132	40-135	0			
1,2-Dibromoethane	1138	30	1000	0	114	70-125	0			
1,2-Dichlorobenzene	1072	30	1000	0	107	75-120	0			
1,2-Dichloroethane	1078	30	1000	0	108	70-135	0			
1,2-Dichloropropane	982.5	30	1000	0	98.2	70-120	0			
1,3,5-Trimethylbenzene	965	30	1000	0	96.5	65-135	0			
1,3-Dichlorobenzene	990	30	1000	0	99	70-125	0			
1,4-Dichlorobenzene	1048	30	1000	0	105	70-125	0			
2-Butanone	1300	200	1000	0	130	30-160	0			
2-Hexanone	1516	30	1000	0	152	45-145	0			S
4-Methyl-2-pentanone	1906	30	1000	0	191	45-145	0			S
Acetone	1486	100	1000	0	149	20-160	0			B
Acrylonitrile	1162	100	1000	0	116	70-135	0			
Benzene	1048	30	1000	0	105	75-125	0			
Bromobenzene	1048	30	1000	0	105	65-120	0			
Bromochloromethane	1050	30	1000	0	105	70-125	0			
Bromodichloromethane	1017	30	1000	0	102	70-130	0			
Bromoform	1040	30	1000	0	104	55-135	0			
Bromomethane	1169	75	1000	0	117	30-160	0			
Carbon disulfide	994.5	30	1000	0	99.4	45-160	0			
Carbon tetrachloride	996	30	1000	0	99.6	65-135	0			
Chlorobenzene	1068	30	1000	0	107	75-125	0			
Chloroethane	823.5	100	1000	0	82.4	40-155	0			
Chloroform	1045	30	1000	0	104	70-125	0			
Chloromethane	1036	100	1000	0	104	50-130	0			
cis-1,2-Dichloroethene	1030	30	1000	0	103	65-125	0			
cis-1,3-Dichloropropene	1048	30	1000	0	105	70-125	0			
Dibromochloromethane	1026	30	1000	0	103	65-135	0			
Dibromomethane	1054	30	1000	0	105	75-130	0			
Dichlorodifluoromethane	869.5	30	1000	0	87	35-135	0			
Ethylbenzene	1043	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1020	30	1000	0	102	70-135	0	
Isopropylbenzene	1028	30	1000	0	103	75-130	0	
m,p-Xylene	2083	60	2000	0	104	80-125	0	
Methyl tert-butyl ether	913.5	30	1000	0	91.4	75-125	0	
Methylene chloride	765	30	1000	0	76.5	55-145	0	
Naphthalene	1389	100	1000	0	139	40-140	0	
n-Butylbenzene	989.5	30	1000	0	99	65-140	0	
n-Propylbenzene	950.5	30	1000	0	95	65-135	0	
o-Xylene	1030	30	1000	0	103	75-125	0	
p-Isopropyltoluene	979.5	30	1000	0	98	75-135	0	
sec-Butylbenzene	980.5	30	1000	0	98	65-130	0	
Styrene	1014	30	1000	0	101	75-125	0	
tert-Butylbenzene	960	30	1000	0	96	65-130	0	
Tetrachloroethene	1310	30	1000	0	131	64-140	0	
Tetrahydrofuran	1482	200	1000	0	148	70-135	0	S
Toluene	1056	30	1000	0	106	70-125	0	
trans-1,2-Dichloroethene	846.5	30	1000	0	84.6	65-135	0	
trans-1,3-Dichloropropene	1057	30	1000	0	106	65-125	0	
trans-1,4-Dichloro-2-butene	972	30	1000	0	97.2	70-135	0	
Trichloroethene	1096	30	1000	0	110	75-125	0	
Trichlorofluoromethane	802.5	30	1000	0	80.2	25-185	0	
Vinyl chloride	956.5	30	1000	0	95.6	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1035*	0	*1000*	0	*104*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1010*	0	*1000*	0	*101*	*70-130*	0	
Surr: Dibromofluoromethane	*1008*	0	*1000*	0	*101*	*70-130*	0	
Surr: Toluene-d8	*1006*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-42040-42040** Units: **µg/Kg** Analysis Date: **7/3/2012 02:38 PM**
Client ID: Run ID: **VMS7_120703A** SeqNo: **2020235** Prep Date: **6/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1170	30	1000	0	117	75-125	0			
1,1,1-Trichloroethane	1182	30	1000	0	118	70-135	0			
1,1,2,2-Tetrachloroethane	1100	30	1000	0	110	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	1050	30	1000	0	105	75-125	0			
1,1-Dichloroethene	1110	30	1000	0	111	65-135	0			
1,2,3-Trichlorobenzene	1132	30	1000	0	113	60-135	0			
1,2,3-Trichloropropane	1066	30	1000	0	107	65-130	0			
1,2,3-Trimethylbenzene	1073	30	1000	0	107	65-135	0			
1,2,4-Trichlorobenzene	1082	30	1000	0	108	65-130	0			
1,2,4-Trimethylbenzene	1061	30	1000	0	106	65-135	0			
1,2-Dibromo-3-chloropropane	1110	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1110	30	1000	0	111	70-125	0			
1,2-Dichlorobenzene	1085	30	1000	0	108	75-120	0			
1,2-Dichloroethane	1053	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1104	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1110	30	1000	0	111	65-135	0			
1,3-Dichlorobenzene	1092	30	1000	0	109	70-125	0			
1,4-Dichlorobenzene	1098	30	1000	0	110	70-125	0			
2-Butanone	1283	200	1000	0	128	30-160	0			
2-Hexanone	1086	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1546	30	1000	0	155	45-145	0			S
Acetone	1171	100	1000	0	117	20-160	0			B
Acrylonitrile	989	100	1000	0	98.9	70-135	0			
Benzene	1074	30	1000	0	107	75-125	0			
Bromobenzene	1032	30	1000	0	103	65-120	0			
Bromochloromethane	1058	30	1000	0	106	70-125	0			
Bromodichloromethane	1136	30	1000	0	114	70-130	0			
Bromoform	1019	30	1000	0	102	55-135	0			
Bromomethane	1094	75	1000	0	109	30-160	0			
Carbon disulfide	1000	30	1000	0	100	45-160	0			
Carbon tetrachloride	1048	30	1000	0	105	65-135	0			
Chlorobenzene	1134	30	1000	0	113	75-125	0			
Chloroethane	996.5	100	1000	0	99.6	40-155	0			
Chloroform	1132	30	1000	0	113	70-125	0			
Chloromethane	947.5	100	1000	0	94.8	50-130	0			
cis-1,2-Dichloroethene	1068	30	1000	0	107	65-125	0			
cis-1,3-Dichloropropene	1163	30	1000	0	116	70-125	0			
Dibromochloromethane	1176	30	1000	0	118	65-135	0			
Dibromomethane	1062	30	1000	0	106	75-130	0			
Dichlorodifluoromethane	810.5	30	1000	0	81	35-135	0			
Ethylbenzene	1134	30	1000	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **42040** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	1130	30	1000	0	113	70-135	0
Isopropylbenzene	1126	30	1000	0	113	75-130	0
m,p-Xylene	2255	60	2000	0	113	80-125	0
Methyl tert-butyl ether	965.5	30	1000	0	96.6	75-125	0
Methylene chloride	1048	30	1000	0	105	55-145	0
Naphthalene	1054	100	1000	0	105	40-140	0
n-Butylbenzene	1188	30	1000	0	119	65-140	0
n-Propylbenzene	1107	30	1000	0	111	65-135	0
o-Xylene	1112	30	1000	0	111	75-125	0
p-Isopropyltoluene	1131	30	1000	0	113	75-135	0
sec-Butylbenzene	1135	30	1000	0	114	65-130	0
Styrene	1136	30	1000	0	114	75-125	0
tert-Butylbenzene	1099	30	1000	0	110	65-130	0
Tetrachloroethene	1195	30	1000	0	120	64-140	0
Tetrahydrofuran	931.5	200	1000	0	93.2	70-135	0
Toluene	1106	30	1000	0	111	70-125	0
trans-1,2-Dichloroethene	1090	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1184	30	1000	0	118	65-125	0
trans-1,4-Dichloro-2-butene	1044	30	1000	0	104	70-135	0
Trichloroethene	1141	30	1000	0	114	75-125	0
Trichlorofluoromethane	1000	30	1000	0	100	25-185	0
Vinyl chloride	925	30	1000	0	92.5	60-125	0
Surr: 1,2-Dichloroethane-d4	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1034*	0	*1000*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*1059*	0	*1000*	0	*106*	*70-130*	0
Surr: Toluene-d8	*1074*	0	*1000*	0	*107*	*70-130*	0

The following samples were analyzed in this batch: 1206893-10B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206893
Project: Marshall KRRI 0875L,0900-0925R 6/25/12

QC BATCH REPORT

Batch ID: **R106728** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106728** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016551** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106728** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206892-01ADUP** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: Run ID: **MOIST_120628A** SeqNo: **2016529** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	25.44	0.050	0	0	0	0-0	25.44	0	20	

DUP Sample ID: **1206893-08ADUP1** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **MOIST_120628A** SeqNo: **2016546** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	68.35	0.050	0	0	0	0-0	67.96	0.572	20	

DUP Sample ID: **1206893-08ADUP2** Units: **% of sample** Analysis Date: **6/28/2012 01:47 PM**
Client ID: **SBKR0925R504S062512S005** Run ID: **MOIST_120628A** SeqNo: **2016547** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	68.45	0.050	0	0	0	0-0	67.96	0.718	20	

The following samples were analyzed in this batch:

1206893-01A	1206893-03A	1206893-04A
1206893-05A	1206893-06A	1206893-07A
1206893-08A	1206893-09A	1206893-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of 1206893

COC #	ENBRIDGE_062512_GMK1	Task: KRRI_0875-0925
	Total # of Samples: 10	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:		Project Information:		Other Information:	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260												
1	SBKR0875L501S062512S010	SBKR0875L501	SO	G	06/25/2012 16:40	3			X	X	X	X	X												
2	SBKR0875L501T062512MX	SBKR0875L501	SQ	G	06/25/2012 00:00	3	TRIP BLANK		X	X	X	X	X												
3	SBKR0900R501S062512S005	SBKR0900R501	SO	G	06/25/2012 13:35	3			X	X	X	X	X												
4	SBKR0900R502S062512S005	SBKR0900R502	SO	G	06/25/2012 14:05	3			X	X	X	X	X												
5	SBKR0900R503S062512S008	SBKR0900R503	SO	G	06/25/2012 14:45	3			X	X	X	X	X												
6	SBKR0900R503D062512S008	SBKR0900R503	SO	G	06/25/2012 14:45	3	DUPLICATE		X	X	X	X	X												
7	SBKR0900R504S062512S004	SBKR0900R504	SO	G	06/25/2012 15:43	3			X	X	X	X	X												
8	SBKR0925R504S062512S005	SBKR0925R504	SO	G	06/25/2012 10:30	6	MS/MSD		X	X	X	X	X												
9	SBKR0925R505S062512S006	SBKR0925R505	SO	G	06/25/2012 11:48	3			X	X	X	X	X												
10	SBKR0925R505S062512S020	SBKR0925R505	SO	G	06/25/2012 11:55	3			X	X	X	X	X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Gerald Kramer	6.25.12	1736	Hayo Noot	6.25.12	1736
	6.27.12	1026		6.27.12	1026

Sample Receipt Conditions				
	Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
4.0°	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE

Company:

Tracking #:

PRINT Name of SAMPLER: GERRY KRAMER (GMK1)

SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **27-Jun-12 10:26**

Work Order: **1206893** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 27-Jun-12 Date Reviewed by: Ann Preston eSignature 28-Jun-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

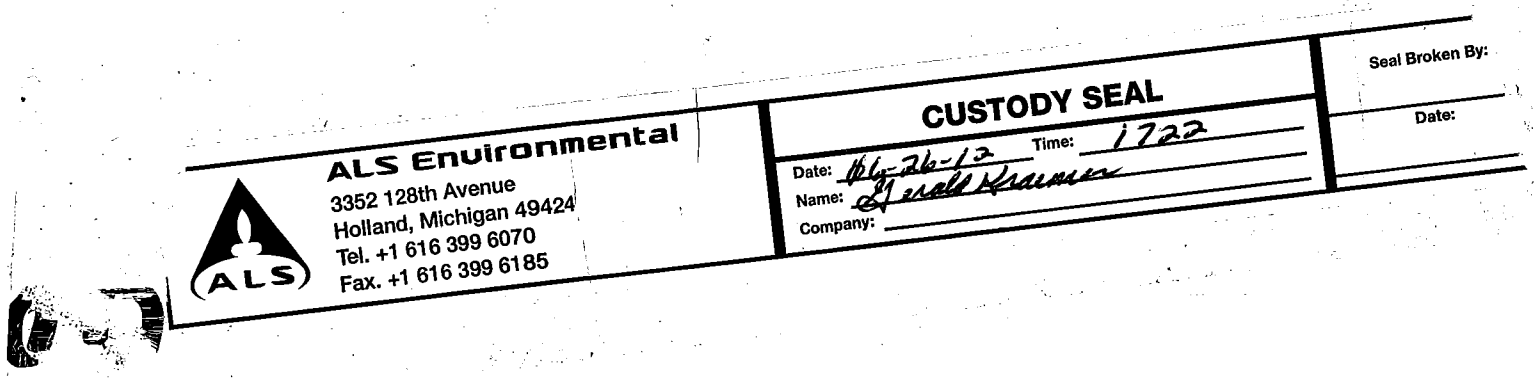
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: May-26-12 Time: 1722
Name: Gerald Kraemer
Company:
Seal Broken By:
Date:

4.0°C

22-Jun-2012

Jim Tolbert
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Sediments 6/12/12** Work Order: **1206434**

Dear Jim,

ALS Environmental received 4 samples on 13-Jun-2012 01:15 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall Sediments 6/12/12
Work Order: **1206434**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206434-01	SEE06121120PDS1	Sediment		6/12/2012 11:20	6/13/2012 13:15	☐
1206434-02	SEC06121510PDS1	Sediment		6/12/2012 15:10	6/13/2012 13:15	☐
1206434-03	SEC06121425PDS1	Sediment		6/12/2012 14:25	6/13/2012 13:15	☐
1206434-04	SEC06121425PDS2	Sediment		6/12/2012 14:25	6/13/2012 13:15	☐

Client: AECOM Environment
Project: Marshall Sediments 6/12/12
Work Order: 1206434

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41728 MS/MSD data for Metals is not related to this project's samples.

Sample 1206434-01 was run at a 1:10 dilution for PAHs due to the extract being very dark and viscous.

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall Sediments 6/12/12
WorkOrder: **1206434**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEE06121120PDS1
Work Order:	1206434	**Collection Date:**	6/12/2012 11:20:00 AM
Project:	Marshall Sediments 6/12/12		
Lab ID:	1206434-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **ML**
Beryllium	ND	0.74	0.50		mg/Kg-dry	4	6/19/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/19/2012
Vanadium	**15**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **RM**
Acenaphthene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Acenaphthylene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Anthracene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Benzo(a)anthracene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Benzo(a)pyrene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Benzo(b)fluoranthene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Benzo(g,h,i)perylene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Benzo(k)fluoranthene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Chrysene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Dibenzo(a,h)anthracene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Fluoranthene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Fluorene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Phenanthrene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Pyrene	ND	2,000	330		µg/Kg-dry	10	6/18/2012
Surr: 2-Fluorobiphenyl	*53.6*	*12-100*			*%REC*	10	6/18/2012
Surr: 4-Terphenyl-d14	*81.2*	*25-137*			*%REC*	10	6/18/2012
Surr: Nitrobenzene-d5	*50.8*	*37-107*			*%REC*	10	6/18/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**76**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEC06121510PDS1
Work Order:	1206434	**Collection Date:**	6/12/2012 3:10:00 PM
Project:	Marshall Sediments 6/12/12		
Lab ID:	1206434-02	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/18/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/19/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/19/2012
Vanadium	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **RM**
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/18/2012
Surr: 2-Fluorobiphenyl	*57.5*	*12-100*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*75.8*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*60.0*	*37-107*			*%REC*	1	6/18/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**38**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEC06121425PDS1
Work Order:	1206434	**Collection Date:**	6/12/2012 2:25:00 PM
Project:	Marshall Sediments 6/12/12		
Lab ID:	1206434-03	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/18/2012**		Analyst: **ML**
Beryllium	ND	0.60	0.50		mg/Kg-dry	4	6/19/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/19/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **RM**
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(k)fluoranthene	**870**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Chrysene	**1,500**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluoranthene	**2,600**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	**680**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Phenanthrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Pyrene	**2,200**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2-Fluorobiphenyl	*58.0*	*12-100*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*82.2*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*56.0*	*37-107*			*%REC*	1	6/18/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**77**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEC06121425PDS2
Work Order:	1206434	**Collection Date:**	6/12/2012 2:25:00 PM
Project:	Marshall Sediments 6/12/12		
Lab ID:	1206434-04	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/18/2012**		Analyst: **ML**
Beryllium	ND	0.69	0.50		mg/Kg-dry	4	6/19/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/19/2012
Vanadium	**23**	**1.2**	**1.0**		**mg/Kg-dry**	4	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/15/2012**		Analyst: **RM**
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/18/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/18/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Benzo(a)anthracene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(a)pyrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(g,h,i)perylene	**530**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Benzo(k)fluoranthene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/18/2012
Fluoranthene	**2,000**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/18/2012
Indeno(1,2,3-cd)pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Phenanthrene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Pyrene	**1,700**	**330**	**330**		**µg/Kg-dry**	1	6/18/2012
Surr: 2-Fluorobiphenyl	*57.9*	*12-100*			*%REC*	1	6/18/2012
Surr: 4-Terphenyl-d14	*80.0*	*25-137*			*%REC*	1	6/18/2012
Surr: Nitrobenzene-d5	*55.9*	*37-107*			*%REC*	1	6/18/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	6/14/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41684** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 08:59 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002958** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41684-41684** Units: **mg/Kg** Analysis Date: **6/18/2012 09:05 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2002959** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.584	0.10	5	0	91.7	80-120	0			
Molybdenum	4.802	0.25	5	0	96	80-120	0			
Vanadium	4.838	0.25	5	0	96.8	80-120	0			

MS Sample ID: **1206417-12AMS** Units: **mg/Kg** Analysis Date: **6/18/2012 11:37 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003023** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.792	0.56	7.032	0.1372	80.4	80-120	0			
Molybdenum	6.127	1.4	7.032	0.1973	84.3	80-120	0			
Vanadium	13.35	1.4	7.032	7.254	86.6	80-120	0			

MSD Sample ID: **1206417-12AMSD** Units: **mg/Kg** Analysis Date: **6/18/2012 11:43 PM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003028** Prep Date: **6/17/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.263	0.60	7.485	0.1372	81.8	80-120	5.792	7.82	25	
Molybdenum	6.734	1.5	7.485	0.1973	87.3	80-120	6.127	9.44	25	
Vanadium	13.77	1.5	7.485	7.254	87	80-120	13.35	3.09	25	

The following samples were analyzed in this batch: 1206434-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206434
Project: Marshall Sediments 6/12/12

QC BATCH REPORT

Batch ID: **41728** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41728-41728** Units: **mg/Kg** Analysis Date: **6/19/2012 12:13 AM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003047** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41728-41728** Units: **mg/Kg** Analysis Date: **6/19/2012 12:19 AM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003052** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.493	0.10	5	0	89.9	80-120	0			
Molybdenum	4.743	0.25	5	0	94.9	80-120	0			
Vanadium	4.693	0.25	5	0	93.9	80-120	0			

MS Sample ID: **1206508-01AMS** Units: **mg/Kg** Analysis Date: **6/19/2012 03:22 AM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003113** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.943	0.37	7.364	0.2196	91.3	80-120	0			
Vanadium	40.05	0.37	7.364	30.38	131	80-120	0			SO

MS Sample ID: **1206508-01AMS** Units: **mg/Kg** Analysis Date: **6/19/2012 11:27 AM**
Client ID: Run ID: **ICPMS1_120619A** SeqNo: **2003818** Prep Date: **6/18/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.627	0.74	7.364	0.4417	84	80-120	0			

MSD Sample ID: **1206508-01AMSD** Units: **mg/Kg** Analysis Date: **6/19/2012 03:28 AM**
Client ID: Run ID: **ICPMS1_120618A** SeqNo: **2003115** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.006	0.33	6.623	0.2196	87.4	80-120	6.943	14.5	25	
Vanadium	34.56	0.33	6.623	30.38	63.2	80-120	40.05	14.7	25	SO

MSD Sample ID: **1206508-01AMSD** Units: **mg/Kg** Analysis Date: **6/19/2012 11:33 AM**
Client ID: Run ID: **ICPMS1_120619A** SeqNo: **2003819** Prep Date: **6/18/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.861	0.66	6.623	0.4417	81.8	80-120	6.627	12.3	25	

The following samples were analyzed in this batch: 1206434-02A 1206434-03A 1206434-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206434
Project: Marshall Sediments 6/12/12

QC BATCH REPORT

Batch ID: **41686** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41686-41686** Units: **µg/Kg** Analysis Date: **6/18/2012 12:24 PM**
Client ID: Run ID: **SVMS7_120618A** SeqNo: **2007039** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2-Fluorobiphenyl	*3006*	0	*5000*	0	*60.1*	*12-100*	0			
Surr: 4-Terphenyl-d14	*3867*	0	*5000*	0	*77.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3198*	0	*5000*	0	*64*	*37-107*	0			

LCS Sample ID: **SLCSS1-41686-41686** Units: **µg/Kg** Analysis Date: **6/18/2012 10:56 AM**
Client ID: Run ID: **SVMS7_120618A** SeqNo: **2007035** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1629	50	2000	0	81.4	45-110	0			
Acenaphthylene	1654	50	2000	0	82.7	45-105	0			
Anthracene	1801	50	2000	0	90	55-105	0			
Benzo(a)anthracene	1809	50	2000	0	90.4	50-110	0			
Benzo(a)pyrene	1926	50	2000	0	96.3	50-110	0			
Benzo(b)fluoranthene	1900	50	2000	0	95	45-115	0			
Benzo(g,h,i)perylene	2037	50	2000	0	102	40-125	0			
Benzo(k)fluoranthene	1786	50	2000	0	89.3	45-115	0			
Chrysene	1883	50	2000	0	94.2	55-110	0			
Dibenzo(a,h)anthracene	1976	50	2000	0	98.8	40-125	0			
Fluoranthene	1856	50	2000	0	92.8	55-115	0			
Fluorene	1719	50	2000	0	86	50-110	0			
Indeno(1,2,3-cd)pyrene	2007	50	2000	0	100	40-120	0			
Phenanthrene	1771	50	2000	0	88.6	50-110	0			
Pyrene	1828	50	2000	0	91.4	45-125	0			
Surr: 2-Fluorobiphenyl	*2972*	0	*5000*	0	*59.4*	*12-100*	0			
Surr: 4-Terphenyl-d14	*4227*	0	*5000*	0	*84.5*	*25-137*	0			
Surr: Nitrobenzene-d5	*3194*	0	*5000*	0	*63.9*	*37-107*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206434
Project: Marshall Sediments 6/12/12

QC BATCH REPORT

Batch ID: **41686** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206434-02A MS** Units: **µg/Kg** Analysis Date: **6/18/2012 11:26 AM**
Client ID: **SEC06121510PDS1** Run ID: **SVMS7_120618A** SeqNo: **2007036** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1638	49	1969	0	83.2	45-110	0			
Acenaphthylene	1677	49	1969	0	85.2	45-105	0			
Anthracene	1822	49	1969	0	92.6	55-105	0			
Benzo(a)anthracene	1884	49	1969	68.37	92.2	50-110	0			
Benzo(a)pyrene	1955	49	1969	83.77	95	50-110	0			
Benzo(b)fluoranthene	1882	49	1969	93.4	90.9	45-115	0			
Benzo(g,h,i)perylene	1900	49	1969	68.37	93	40-125	0			
Benzo(k)fluoranthene	1867	49	1969	52	92.2	45-115	0			
Chrysene	1895	49	1969	85.7	91.9	55-110	0			
Dibenzo(a,h)anthracene	1826	49	1969	0	92.8	40-125	0			
Fluoranthene	2010	49	1969	152.1	94.4	55-115	0			
Fluorene	1745	49	1969	0	88.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1880	49	1969	55.85	92.7	40-120	0			
Phenanthrene	1846	49	1969	81.85	89.6	50-110	0			
Pyrene	1911	49	1969	124.2	90.7	45-125	0			
Surr: 2-Fluorobiphenyl	*2893*	0	*4922*	0	*58.8*	*12-100*	0			
Surr: 4-Terphenyl-d14	*3955*	0	*4922*	0	*80.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3044*	0	*4922*	0	*61.8*	*37-107*	0			

MSD Sample ID: **1206434-02A MSD** Units: **µg/Kg** Analysis Date: **6/18/2012 11:55 AM**
Client ID: **SEC06121510PDS1** Run ID: **SVMS7_120618A** SeqNo: **2007037** Prep Date: **6/15/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1491	49	1953	0	76.4	45-110	1638	9.38	30	
Acenaphthylene	1528	49	1953	0	78.2	45-105	1677	9.24	30	
Anthracene	1626	49	1953	0	83.2	55-105	1822	11.4	30	
Benzo(a)anthracene	1686	49	1953	68.37	82.8	50-110	1884	11.1	30	
Benzo(a)pyrene	1705	49	1953	83.77	83	50-110	1955	13.7	30	
Benzo(b)fluoranthene	1697	49	1953	93.4	82.1	45-115	1882	10.3	30	
Benzo(g,h,i)perylene	1670	49	1953	68.37	82	40-125	1900	12.9	30	
Benzo(k)fluoranthene	1629	49	1953	52	80.7	45-115	1867	13.6	30	
Chrysene	1670	49	1953	85.7	81.1	55-110	1895	12.6	30	
Dibenzo(a,h)anthracene	1625	49	1953	0	83.2	40-125	1826	11.6	30	
Fluoranthene	1740	49	1953	152.1	81.3	55-115	2010	14.4	30	
Fluorene	1572	49	1953	0	80.5	50-110	1745	10.4	30	
Indeno(1,2,3-cd)pyrene	1660	49	1953	55.85	82.1	40-120	1880	12.4	30	
Phenanthrene	1631	49	1953	81.85	79.3	50-110	1846	12.4	30	
Pyrene	1645	49	1953	124.2	77.8	45-125	1911	15	30	
Surr: 2-Fluorobiphenyl	*2731*	0	*4883*	0	*55.9*	*12-100*	2893	*5.78*	*40*	
Surr: 4-Terphenyl-d14	*3618*	0	*4883*	0	*74.1*	*25-137*	3955	*8.9*	*40*	
Surr: Nitrobenzene-d5	*2937*	0	*4883*	0	*60.1*	*37-107*	3044	*3.58*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206434
Project: Marshall Sediments 6/12/12

QC BATCH REPORT

Batch ID: **41686** Instrument ID **SVMS7** Method: **SW8270**

The following samples were analyzed in this batch:

1206434-01A	1206434-02A	1206434-03A
1206434-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206434
Project: Marshall Sediments 6/12/12

QC BATCH REPORT

Batch ID: **R106031** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106031** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000241** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R106031** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000240** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206417-12ADUP1** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000227** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	54.13	0.050	0	0	0	0-0	57.87	6.68	20	

DUP Sample ID: **1206417-12ADUP2** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000228** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	56.94	0.050	0	0	0	0-0	57.87	1.62	20	

DUP Sample ID: **1206449-03ADUP** Units: **% of sample** Analysis Date: **6/14/2012 04:04 PM**
Client ID: Run ID: **MOIST_120614B** SeqNo: **2000234** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	15.25	0.050	0	0	0	0-0	16.72	9.2	20	

The following samples were analyzed in this batch:

1206434-01A 1206434-02A 1206434-03A
1206434-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206434

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061212_PDS2	Task: SWMON_SED
Total # of Samples: 4		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 7.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Be,Mo,V	~~ORO,PRO~~	PNAs by 8270
									None	None	None	None
1	SEE06121120PDS1	SW-937	SE	G	06/12/2012 11:20	1			X	X	X	X
2	SEC06121510PDS1	SWKR0600C01	SE	G	06/12/2012 15:10	1			X	X	X	X
3	SEC06121425PDS1	SWKR1565C01	SE	G	06/12/2012 14:25	1			X	X	X	X
4	SEC06121425PDS2	SWKR1565C01	SE	G	06/12/2012 14:25	1	DUPLICATE		X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6.12.12	1646		6.12.12	1646
	6.13.12	1315		6-13-12	1315

SHIPPING INFO:	SAMPLER NAME AND SIGNATURE			
Company:	PRINT Name of SAMPLER:	PETER STEPHENS (PDS2)		
Tracking #:	SIGNATURE of SAMPLER:	DATE Signed	Time:	

Sample Receipt Conditions

Temp in °C	Samples on ice?	Sample Intact?	Trip Blank?
5.2°C	Y/N (Y) N	Y/N (Y) N	Y/N (N)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_061212_PDS2 | Task: SWMON_SED
Total # of Samples: 4 | Event Complete?
Turn Around Time: 5 Day | Rush: No
BILLING CODE: 7.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave, Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162770
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids | State, Zip: MI
Site PM Name: Bryan Stemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houston, TX | Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Analysis / Preservative	% Moisture None	Be,Mo,V None	PNAs by 8270 None
1	SEC06121120PDS1	SW-937	SE	G	06/12/2012 11:20	1			X	X	X
2	SEC06121510PDS1	SWKR0600C01	SE	G	06/12/2012 15:10	1			X	X	X
3	SEC06121425PDS1	SWKR1565C01	SE	G	06/12/2012 14:25	1			X	X	X
4	SEC06121425PDS2	SWKR1565C01	SE	G	06/12/2012 14:25	1	DUPLICATE		X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME

Sample Receipt Conditions

Temp in oC	Samples on Ice?	Sample Intact?	Trip Blank?
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETER STEPHENS (PDS2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Alex Csaszar

From: April Modert <a.modert@superiorenvironmental.com>
Sent: Monday, June 18, 2012 11:30 AM
To: Ann Preston
Cc: Alex Csaszar
Subject: COC changes for SWMON
Attachments: 20120618113203954.pdf

I am reviewing the WOA and have noticed that ORO/GRO was on the SWMON COCs from last week. This is incorrect and should not have been put on their. Attached are the revised COCs for SWMON and SWMON_SED. Can I get a revised WOA for 1206435 SWMON?

Sorry about this and thanks!

April Modert
Staff Scientist

Superior Environmental Corp
Marshall Field Office
317 S. Grand Street
Marshall, MI 49068
Cell: (517) 227-4710
a.modert@superiorenvironmental.com

ALS Group: Click here to report this email as spam.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **13-Jun-12 13:15**

Work Order: **1206434** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 13-Jun-12 Date Reviewed by: Ann Preston eSignature 14-Jun-12 Date

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

5.2

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-12-12 Time:
Name: Aleah Tlora
Company:

Seal Broken By:

Date:

01-Jun-2012

Alison Schoeff
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Surface Water 5/22/12** Work Order: **1205717**

Dear Alison,

ALS Environmental received 19 samples on 23-May-2012 01:19 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 01-Jun-12

Client: AECOM Environment
Project: Marshall Surface Water 5/22/12
Work Order: **1205717**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205717-01	WSE05221100PMB1	Surface Wate		5/22/2012 11:00	5/23/2012 13:19	☐
1205717-02	WSE05221020PMB1	Surface Wate		5/22/2012 10:20	5/23/2012 13:19	☐
1205717-03	WSE05221008PMB1	Surface Wate		5/22/2012 10:08	5/23/2012 13:19	☐
1205717-04	WSB05221445PMB1	Surface Wate		5/22/2012 14:45	5/23/2012 13:19	☐
1205717-05	WSE05221130PMB1	Surface Wate		5/22/2012 11:30	5/23/2012 13:19	☐
1205717-06	WSF05220835PMB3	Surface Wate		5/22/2012 08:35	5/23/2012 13:19	☐
1205717-07	WSE05221200PMB1	Surface Wate		5/22/2012 12:00	5/23/2012 13:19	☐
1205717-08	WSE05221215PMB1	Surface Wate		5/22/2012 12:15	5/23/2012 13:19	☐
1205717-09	WSE05221030PMB1	Surface Wate		5/22/2012 10:30	5/23/2012 13:19	☐
1205717-10	WSE05221115PMB1	Surface Wate		5/22/2012 11:15	5/23/2012 13:19	☐
1205717-11	WSE05221115PMB2	Surface Wate		5/22/2012 11:15	5/23/2012 13:19	☐
1205717-12	WSE05220950PMB1	Surface Wate		5/22/2012 09:50	5/23/2012 13:19	☐
1205717-13	WSC05221425PMB1	Surface Wate		5/22/2012 14:25	5/23/2012 13:19	☐
1205717-14	WSC05221405PMB1	Surface Wate		5/22/2012 14:05	5/23/2012 13:19	☐
1205717-15	WSC05221340PMB1	Surface Wate		5/22/2012 13:40	5/23/2012 13:19	☐
1205717-16	WSC05221320PMB1	Surface Wate		5/22/2012 13:20	5/23/2012 13:19	☐
1205717-17	WSE05221230PMB1	Surface Wate		5/22/2012 12:30	5/23/2012 13:19	☐
1205717-18	WSE05221040PMB1	Surface Wate		5/22/2012 10:40	5/23/2012 13:19	☐
1205717-19	WSE05220910PMB1	Surface Wate		5/22/2012 09:10	5/23/2012 13:19	☐

Client: AECOM Environment
Project: Marshall Surface Water 5/22/12
Work Order: 1205717

Case Narrative

QC Comments:

Batch 41283, Method ICP_6020_W, Sample 1205717-06AMSD: The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca

Batch 41291, Method SVO_8270_W, Sample 1205717-07B: Surrogate out due to slight leak in extraction; sample was re-prepped past hold with passing surrogates and clean sample verification.

Batch 41291, Method SVO_8270_W, Sample 1205717-08B: Surrogate out due to slight leak in extraction; sample was re-prepped past hold with passing surrogates and clean sample verification.

Batch 41291, Method SVO_8270_W, Sample 1205717-09B: Surrogate out due to slight leak in extraction; sample was re-prepped past hold with passing surrogates and clean sample verification.

Batch 41291, Method SVO_8270_W, Sample 1205717-10B: Surrogate out due to slight leak in extraction; sample was re-prepped past hold with passing surrogates and clean sample verification.

Batch 41317, MS/MSD data for Metals is not related to this project's samples.

ALS Group USA, Corp

Date: 01-Jun-12

Client: AECOM Environment
Project: Marshall Surface Water 5/22/12
WorkOrder: **1205717**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221100PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 11:00:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-01	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*69.8*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*75.4*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*64.4*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221020PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 10:20:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-02	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*62.3*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*70.2*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*56.6*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221008PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 10:08:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-03	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*55.8*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*63.7*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*51.4*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSB05221445PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 2:45:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-04	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*63.7*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*71.4*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*58.9*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221130PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 11:30:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-05	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*57.0*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*65.6*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*51.7*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSF05220835PMB3
Work Order:	1205717	**Collection Date:**	5/22/2012 8:35:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-06	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/24/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*60.3*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*71.4*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*57.2*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221200PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 12:00:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-07	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/25/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/25/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/25/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/25/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*39.4*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*39.1*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*39.8*	*41-104*		S	*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221215PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 12:15:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-08	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*34.7*	*36-94*		S	*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*42.0*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*34.5*	*41-104*		S	*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221030PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 10:30:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-09	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*37.3*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*42.2*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*36.5*	*41-104*		S	*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221115PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 11:15:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-10	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*34.2*	*36-94*		S	*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*36.1*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*34.3*	*41-104*		S	*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221115PMB2
Work Order:	1205717	**Collection Date:**	5/22/2012 11:15:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-11	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*48.1*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*55.7*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*47.1*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05220950PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 9:50:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-12	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*55.8*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*65.9*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*55.1*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC05221425PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 2:25:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-13	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*59.2*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*70.3*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*55.3*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC05221405PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 2:05:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-14	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/29/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/29/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/29/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/29/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/29/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/29/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/29/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/29/2012
Surr: 2-Fluorobiphenyl	*64.4*	*36-94*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*73.7*	*26-119*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*58.8*	*41-104*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC05221340PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 1:40:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-15	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/29/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/29/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/29/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/29/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/29/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/29/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/29/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/29/2012
Surr: 2-Fluorobiphenyl	*68.7*	*36-94*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*74.7*	*26-119*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*62.2*	*41-104*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC05221320PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 1:20:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-16	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/29/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/29/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/29/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/29/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/29/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/29/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/29/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/29/2012
Surr: 2-Fluorobiphenyl	*66.0*	*36-94*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*73.5*	*26-119*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*60.0*	*41-104*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221230PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 12:30:00 PM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-17	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*67.6*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*75.0*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*62.1*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05221040PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 10:40:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-18	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/30/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/30/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/30/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/30/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/30/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/30/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/30/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/30/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/30/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/30/2012
Surr: 2-Fluorobiphenyl	*53.8*	*36-94*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*66.5*	*26-119*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*52.9*	*41-104*			*%REC*	1	5/30/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *01-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE05220910PMB1
Work Order:	1205717	**Collection Date:**	5/22/2012 9:10:00 AM
Project:	Marshall Surface Water 5/22/12		
Lab ID:	1205717-19	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	5/29/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/29/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/29/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/29/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/29/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/29/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/29/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/29/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/29/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/29/2012
Surr: 2-Fluorobiphenyl	*67.2*	*36-94*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*59.6*	*26-119*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*63.4*	*41-104*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41283** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41283-41283** Units: **mg/L** Analysis Date: **5/25/2012 08:40 PM**
Client ID: Run ID: **ICPMS2_120525A** SeqNo: **1986168** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	ND	0.0050								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41283-41283** Units: **mg/L** Analysis Date: **5/25/2012 08:45 PM**
Client ID: Run ID: **ICPMS2_120525A** SeqNo: **1986169** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09966	0.0020	0.1	0	99.7	80-120	0			
Molybdenum	0.1012	0.0050	0.1	0	101	80-120	0			
Vanadium	0.1019	0.0050	0.1	0	102	80-120	0			

LCSD Sample ID: **LCSD-41283-41283** Units: **mg/L** Analysis Date: **5/25/2012 08:50 PM**
Client ID: Run ID: **ICPMS2_120525A** SeqNo: **1986170** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09952	0.0020	0.1	0	99.5	80-120	0.09966	0.141	20	
Molybdenum	0.1008	0.0050	0.1	0	101	80-120	0.1012	0.396	20	
Vanadium	0.1004	0.0050	0.1	0	100	80-120	0.1019	1.48	20	

MS Sample ID: **1205717-06AMS** Units: **mg/L** Analysis Date: **5/25/2012 09:05 PM**
Client ID: **WSF05220835PMB3** Run ID: **ICPMS2_120525A** SeqNo: **1986173** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0975	0.0020	0.1	0.0000161	97.5	80-120	0			
Molybdenum	0.1022	0.0050	0.1	0.002063	100	80-120	0			
Vanadium	0.1032	0.0050	0.1	0.000759	102	80-120	0			

MSD Sample ID: **1205717-06AMSD** Units: **mg/L** Analysis Date: **5/25/2012 09:19 PM**
Client ID: **WSF05220835PMB3** Run ID: **ICPMS2_120525A** SeqNo: **1986176** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09662	0.0020	0.1	0.0000161	96.6	80-120	0.0975	0.907	20	
Molybdenum	0.1031	0.0050	0.1	0.002063	101	80-120	0.1022	0.877	20	
Vanadium	0.102	0.0050	0.1	0.000759	101	80-120	0.1032	1.17	20	

The following samples were analyzed in this batch:

1205717-01A	1205717-02A	1205717-03A
1205717-04A	1205717-05A	1205717-06A
1205717-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41317** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:34 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987173** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	0.0002933	0.0050								J
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:39 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987175** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.1022	0.0020	0.1	0	102	80-120	0			
Molybdenum	0.09803	0.0050	0.1	0	98	80-120	0			
Vanadium	0.1022	0.0050	0.1	0	102	80-120	0			

LCSD Sample ID: **LCSD-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:44 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987177** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09852	0.0020	0.1	0	98.5	80-120	0.1022	3.67	20	
Molybdenum	0.09485	0.0050	0.1	0	94.8	80-120	0.09803	3.3	20	
Vanadium	0.09839	0.0050	0.1	0	98.4	80-120	0.1022	3.8	20	

MS Sample ID: **1205726-01AMS** Units: **mg/L** Analysis Date: **5/29/2012 10:48 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987228** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09484	0.0020	0.1	0.00001094	94.8	80-120	0			
Molybdenum	0.09543	0.0050	0.1	0.0004796	95	80-120	0			
Vanadium	0.1002	0.0050	0.1	0.0008133	99.4	80-120	0			

MSD Sample ID: **1205726-01AMSD** Units: **mg/L** Analysis Date: **5/29/2012 10:52 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987230** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09677	0.0020	0.1	0.00001094	96.8	80-120	0.09484	2.01	20	
Molybdenum	0.09932	0.0050	0.1	0.0004796	98.8	80-120	0.09543	3.99	20	
Vanadium	0.1026	0.0050	0.1	0.0008133	102	80-120	0.1002	2.37	20	

The following samples were analyzed in this batch:

1205717-08A	1205717-09A	1205717-10A
1205717-11A	1205717-12A	1205717-13A
1205717-14A	1205717-15A	1205717-16A
1205717-17A	1205717-18A	1205717-19A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41273** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41273-41273** Units: **µg/L** Analysis Date: **5/29/2012 08:20 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987085** Prep Date: **5/24/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*31.96*	0	*50*	0	*63.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*27.21*	0	*50*	0	*54.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*29.98*	0	*50*	0	*60*	*41-104*	0			

LCS Sample ID: **SLCSW1-41273-41273** Units: **µg/L** Analysis Date: **5/29/2012 07:07 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987082** Prep Date: **5/24/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	13.56	5.0	20	0	67.8	45-110	0			
Acenaphthylene	14.09	5.0	20	0	70.4	50-105	0			
Anthracene	13.35	5.0	20	0	66.8	55-110	0			
Benzo(a)anthracene	14.64	5.0	20	0	73.2	55-110	0			
Benzo(a)pyrene	14.44	5.0	20	0	72.2	55-110	0			
Benzo(b)fluoranthene	17.65	5.0	20	0	88.2	45-120	0			
Benzo(g,h,i)perylene	16.05	5.0	20	0	80.2	40-125	0			
Benzo(k)fluoranthene	12.31	5.0	20	0	61.6	45-125	0			
Chrysene	15.05	5.0	20	0	75.2	55-110	0			
Dibenzo(a,h)anthracene	14.15	5.0	20	0	70.8	40-125	0			
Fluoranthene	13.67	5.0	20	0	68.4	55-115	0			
Fluorene	13.51	5.0	20	0	67.6	50-110	0			
Indeno(1,2,3-cd)pyrene	14.39	5.0	20	0	72	45-125	0			
Phenanthrene	14.41	5.0	20	0	72	50-115	0			
Pyrene	14.59	5.0	20	0	73	50-130	0			
Surr: 2-Fluorobiphenyl	*33.97*	0	*50*	0	*67.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*21.84*	0	*50*	0	*43.7*	*26-119*	0			
Surr: Nitrobenzene-d5	*32.1*	0	*50*	0	*64.2*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41273** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-41273-41273** Units: **µg/L** Analysis Date: **5/29/2012 07:44 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987084** Prep Date: **5/24/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	13.8	5.0	20	0	69	45-110	13.56	1.75	30	
Acenaphthylene	14.25	5.0	20	0	71.2	50-105	14.09	1.13	30	
Anthracene	13.69	5.0	20	0	68.4	55-110	13.35	2.51	30	
Benzo(a)anthracene	14.76	5.0	20	0	73.8	55-110	14.64	0.816	30	
Benzo(a)pyrene	14.61	5.0	20	0	73	55-110	14.44	1.17	30	
Benzo(b)fluoranthene	17.66	5.0	20	0	88.3	45-120	17.65	0.0566	30	
Benzo(g,h,i)perylene	16.16	5.0	20	0	80.8	40-125	16.05	0.683	30	
Benzo(k)fluoranthene	12.44	5.0	20	0	62.2	45-125	12.31	1.05	30	
Chrysene	15.18	5.0	20	0	75.9	55-110	15.05	0.86	30	
Dibenzo(a,h)anthracene	14.39	5.0	20	0	72	40-125	14.15	1.68	30	
Fluoranthene	13.91	5.0	20	0	69.6	55-115	13.67	1.74	30	
Fluorene	13.89	5.0	20	0	69.4	50-110	13.51	2.77	30	
Indeno(1,2,3-cd)pyrene	14.57	5.0	20	0	72.8	45-125	14.39	1.24	30	
Phenanthrene	14.52	5.0	20	0	72.6	50-115	14.41	0.76	30	
Pyrene	14.7	5.0	20	0	73.5	50-130	14.59	0.751	30	
Surr: 2-Fluorobiphenyl	*33.89*	0	*50*	0	*67.8*	*36-94*	33.97	*0.236*	*40*	
Surr: 4-Terphenyl-d14	*28.03*	0	*50*	0	*56.1*	*26-119*	21.84	*24.8*	*40*	
Surr: Nitrobenzene-d5	*31.24*	0	*50*	0	*62.5*	*41-104*	32.1	*2.72*	*40*	

MS Sample ID: **1205717-06B MS** Units: **µg/L** Analysis Date: **5/29/2012 10:51 PM**
Client ID: **WSF05220835PMB3** Run ID: **SVMS5_120529A** SeqNo: **1987088** Prep Date: **5/24/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	137.2	50	200	0	68.6	45-110	0			
Acenaphthylene	145.1	50	200	0	72.6	50-105	0			
Anthracene	132.8	50	200	0	66.4	55-110	0			
Benzo(a)anthracene	147.1	50	200	0	73.6	55-110	0			
Benzo(a)pyrene	142.7	50	200	0	71.4	55-110	0			
Benzo(b)fluoranthene	168.4	50	200	0	84.2	45-120	0			
Benzo(g,h,i)perylene	158.4	50	200	0	79.2	40-125	0			
Benzo(k)fluoranthene	127.4	50	200	0	63.7	45-125	0			
Chrysene	143.1	50	200	0	71.6	55-110	0			
Dibenzo(a,h)anthracene	141	50	200	0	70.5	40-125	0			
Fluoranthene	135	50	200	0	67.5	55-115	0			
Fluorene	139.3	50	200	0	69.6	50-110	0			
Indeno(1,2,3-cd)pyrene	141.5	50	200	0	70.8	45-125	0			
Phenanthrene	142.9	50	200	0	71.4	50-115	0			
Pyrene	144.1	50	200	0	72	50-130	0			
Surr: 2-Fluorobiphenyl	*333.6*	0	*500*	0	*66.7*	*36-94*	0			
Surr: 4-Terphenyl-d14	*329.9*	0	*500*	0	*66*	*26-119*	0			
Surr: Nitrobenzene-d5	*316.3*	0	*500*	0	*63.3*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41273** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205717-06B MSD** Units: **µg/L** Analysis Date: **5/29/2012 11:28 PM**
Client ID: **WSF05220835PMB3** Run ID: **SVMS5_120529A** SeqNo: **1987089** Prep Date: **5/24/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	136.3	50	200	0	68.2	45-110	137.2	0.658	30	
Acenaphthylene	142.5	50	200	0	71.2	50-105	145.1	1.81	30	
Anthracene	130.5	50	200	0	65.2	55-110	132.8	1.75	30	
Benzo(a)anthracene	145.2	50	200	0	72.6	55-110	147.1	1.3	30	
Benzo(a)pyrene	140.5	50	200	0	70.2	55-110	142.7	1.55	30	
Benzo(b)fluoranthene	168.7	50	200	0	84.4	45-120	168.4	0.178	30	
Benzo(g,h,i)perylene	156.4	50	200	0	78.2	40-125	158.4	1.27	30	
Benzo(k)fluoranthene	126	50	200	0	63	45-125	127.4	1.1	30	
Chrysene	143.4	50	200	0	71.7	55-110	143.1	0.209	30	
Dibenzo(a,h)anthracene	139.9	50	200	0	70	40-125	141	0.783	30	
Fluoranthene	132.9	50	200	0	66.4	55-115	135	1.57	30	
Fluorene	137.5	50	200	0	68.8	50-110	139.3	1.3	30	
Indeno(1,2,3-cd)pyrene	140.6	50	200	0	70.3	45-125	141.5	0.638	30	
Phenanthrene	141.6	50	200	0	70.8	50-115	142.9	0.914	30	
Pyrene	143.4	50	200	0	71.7	50-130	144.1	0.487	30	
Surr: 2-Fluorobiphenyl	*338.1*	0	*500*	0	*67.6*	*36-94*	333.6	*1.34*	*40*	
Surr: 4-Terphenyl-d14	*300.8*	0	*500*	0	*60.2*	*26-119*	329.9	*9.23*	*40*	
Surr: Nitrobenzene-d5	*316.9*	0	*500*	0	*63.4*	*41-104*	316.3	*0.19*	*40*	

The following samples were analyzed in this batch:

1205717-01B	1205717-02B	1205717-03B
1205717-04B	1205717-05B	1205717-06B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 06:36 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986476** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*30.62*	0	*50*	0	*61.2*	*36-94*	0			
Surr: 4-Terphenyl-d14	*31.27*	0	*50*	0	*62.5*	*26-119*	0			
Surr: Nitrobenzene-d5	*28.53*	0	*50*	0	*57.1*	*41-104*	0			

LCS Sample ID: **SLCSW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 07:12 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986477** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	13.37	5.0	20	0	66.8	45-110	0			
Acenaphthylene	14.02	5.0	20	0	70.1	50-105	0			
Anthracene	13.34	5.0	20	0	66.7	55-110	0			
Benzo(a)anthracene	14.51	5.0	20	0	72.6	55-110	0			
Benzo(a)pyrene	13.95	5.0	20	0	69.8	55-110	0			
Benzo(b)fluoranthene	16.82	5.0	20	0	84.1	45-120	0			
Benzo(g,h,i)perylene	15.49	5.0	20	0	77.4	40-125	0			
Benzo(k)fluoranthene	12.12	5.0	20	0	60.6	45-125	0			
Chrysene	14.72	5.0	20	0	73.6	55-110	0			
Dibenzo(a,h)anthracene	13.83	5.0	20	0	69.2	40-125	0			
Fluoranthene	13.69	5.0	20	0	68.4	55-115	0			
Fluorene	13.51	5.0	20	0	67.6	50-110	0			
Indeno(1,2,3-cd)pyrene	13.96	5.0	20	0	69.8	45-125	0			
Phenanthrene	14.35	5.0	20	0	71.8	50-115	0			
Pyrene	14.56	5.0	20	0	72.8	50-130	0			
Surr: 2-Fluorobiphenyl	*36.27*	0	*50*	0	*72.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*30.51*	0	*50*	0	*61*	*26-119*	0			
Surr: Nitrobenzene-d5	*33.28*	0	*50*	0	*66.6*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 07:48 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986478** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	12.51	5.0	20	0	62.6	45-110	13.37	6.65	30	
Acenaphthylene	12.91	5.0	20	0	64.6	50-105	14.02	8.24	30	
Anthracene	12.36	5.0	20	0	61.8	55-110	13.34	7.63	30	
Benzo(a)anthracene	13.85	5.0	20	0	69.2	55-110	14.51	4.65	30	
Benzo(a)pyrene	13.5	5.0	20	0	67.5	55-110	13.95	3.28	30	
Benzo(b)fluoranthene	16.72	5.0	20	0	83.6	45-120	16.82	0.596	30	
Benzo(g,h,i)perylene	15.21	5.0	20	0	76	40-125	15.49	1.82	30	
Benzo(k)fluoranthene	11.66	5.0	20	0	58.3	45-125	12.12	3.87	30	
Chrysene	14.19	5.0	20	0	71	55-110	14.72	3.67	30	
Dibenzo(a,h)anthracene	13.55	5.0	20	0	67.8	40-125	13.83	2.05	30	
Fluoranthene	12.83	5.0	20	0	64.2	55-115	13.69	6.49	30	
Fluorene	12.55	5.0	20	0	62.8	50-110	13.51	7.37	30	
Indeno(1,2,3-cd)pyrene	13.67	5.0	20	0	68.4	45-125	13.96	2.1	30	
Phenanthrene	13.08	5.0	20	0	65.4	50-115	14.35	9.26	30	
Pyrene	13.82	5.0	20	0	69.1	50-130	14.56	5.21	30	
Surr: 2-Fluorobiphenyl	*33.67*	0	*50*	0	*67.3*	*36-94*	36.27	*7.43*	*40*	
Surr: 4-Terphenyl-d14	*34.25*	0	*50*	0	*68.5*	*26-119*	30.51	*11.6*	*40*	
Surr: Nitrobenzene-d5	*31.45*	0	*50*	0	*62.9*	*41-104*	33.28	*5.65*	*40*	

MS Sample ID: **1205726-01B MS** Units: **µg/L** Analysis Date: **5/25/2012 08:23 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986479** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	125.5	50	200	0	62.8	45-110	0			
Acenaphthylene	127.7	50	200	0	63.8	50-105	0			
Anthracene	122.7	50	200	0	61.4	55-110	0			
Benzo(a)anthracene	140.7	50	200	0	70.4	55-110	0			
Benzo(a)pyrene	136.5	50	200	0	68.2	55-110	0			
Benzo(b)fluoranthene	167.8	50	200	0	83.9	45-120	0			
Benzo(g,h,i)perylene	152.5	50	200	0	76.2	40-125	0			
Benzo(k)fluoranthene	115.6	50	200	0	57.8	45-125	0			
Chrysene	140.6	50	200	0	70.3	55-110	0			
Dibenzo(a,h)anthracene	135.1	50	200	0	67.6	40-125	0			
Fluoranthene	129.7	50	200	0	64.8	55-115	0			
Fluorene	126.6	50	200	0	63.3	50-110	0			
Indeno(1,2,3-cd)pyrene	136.2	50	200	0	68.1	45-125	0			
Phenanthrene	131.1	50	200	0	65.6	50-115	0			
Pyrene	139.8	50	200	0	69.9	50-130	0			
Surr: 2-Fluorobiphenyl	*330.3*	0	*500*	0	*66.1*	*36-94*	0			
Surr: 4-Terphenyl-d14	*350*	0	*500*	0	*70*	*26-119*	0			
Surr: Nitrobenzene-d5	*305.8*	0	*500*	0	*61.2*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205726-01B MSD** Units: **µg/L** Analysis Date: **5/25/2012 08:59 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986480** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	132.2	50	200	0	66.1	45-110	125.5	5.2	30	
Acenaphthylene	134.9	50	200	0	67.4	50-105	127.7	5.48	30	
Anthracene	127.5	50	200	0	63.8	55-110	122.7	3.84	30	
Benzo(a)anthracene	142.5	50	200	0	71.2	55-110	140.7	1.27	30	
Benzo(a)pyrene	137.2	50	200	0	68.6	55-110	136.5	0.512	30	
Benzo(b)fluoranthene	154.3	50	200	0	77.2	45-120	167.8	8.38	30	
Benzo(g,h,i)perylene	154.3	50	200	0	77.2	40-125	152.5	1.17	30	
Benzo(k)fluoranthene	131.2	50	200	0	65.6	45-125	115.6	12.6	30	
Chrysene	144.6	50	200	0	72.3	55-110	140.6	2.81	30	
Dibenzo(a,h)anthracene	136.8	50	200	0	68.4	40-125	135.1	1.25	30	
Fluoranthene	131.3	50	200	0	65.6	55-115	129.7	1.23	30	
Fluorene	133.7	50	200	0	66.8	50-110	126.6	5.46	30	
Indeno(1,2,3-cd)pyrene	137.2	50	200	0	68.6	45-125	136.2	0.732	30	
Phenanthrene	136.2	50	200	0	68.1	50-115	131.1	3.82	30	
Pyrene	142	50	200	0	71	50-130	139.8	1.56	30	
Surr: 2-Fluorobiphenyl	*353*	0	*500*	0	*70.6*	*36-94*	330.3	*6.64*	*40*	
Surr: 4-Terphenyl-d14	*332.8*	0	*500*	0	*66.6*	*26-119*	350	*5.04*	*40*	
Surr: Nitrobenzene-d5	*330.1*	0	*500*	0	*66*	*41-104*	305.8	*7.64*	*40*	

The following samples were analyzed in this batch:

1205717-07B	1205717-08B	1205717-09B
1205717-10B	1205717-11B	1205717-12B
1205717-13B	1205717-14B	1205717-15B
1205717-16B	1205717-17B	1205717-18B
1205717-19B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41369** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41369-41369** Units: **µg/L** Analysis Date: **5/31/2012 07:19 PM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989050** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*33.5*	0	*50*	0	*67*	*36-94*	0			
Surr: 4-Terphenyl-d14	*48.67*	0	*50*	0	*97.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*30.48*	0	*50*	0	*61*	*41-104*	0			

LCS Sample ID: **SLCSW1-41369-41369** Units: **µg/L** Analysis Date: **5/31/2012 07:55 PM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989051** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	13.31	5.0	20	0	66.6	45-110	0			
Acenaphthylene	13.81	5.0	20	0	69	50-105	0			
Anthracene	12.39	5.0	20	0	62	55-110	0			
Benzo(a)anthracene	13.54	5.0	20	0	67.7	55-110	0			
Benzo(a)pyrene	13.18	5.0	20	0	65.9	55-110	0			
Benzo(b)fluoranthene	14	5.0	20	0	70	45-120	0			
Benzo(g,h,i)perylene	14.66	5.0	20	0	73.3	40-125	0			
Benzo(k)fluoranthene	13.44	5.0	20	0	67.2	45-125	0			
Chrysene	13.97	5.0	20	0	69.8	55-110	0			
Dibenzo(a,h)anthracene	13.08	5.0	20	0	65.4	40-125	0			
Fluoranthene	12.71	5.0	20	0	63.6	55-115	0			
Fluorene	13.14	5.0	20	0	65.7	50-110	0			
Indeno(1,2,3-cd)pyrene	13.14	5.0	20	0	65.7	45-125	0			
Phenanthrene	13.33	5.0	20	0	66.6	50-115	0			
Pyrene	13.51	5.0	20	0	67.6	50-130	0			
Surr: 2-Fluorobiphenyl	*34.96*	0	*50*	0	*69.9*	*36-94*	0			
Surr: 4-Terphenyl-d14	*40.91*	0	*50*	0	*81.8*	*26-119*	0			
Surr: Nitrobenzene-d5	*33.18*	0	*50*	0	*66.4*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41369** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205914-03B MS** Units: **µg/L** Analysis Date: **5/31/2012 09:06 PM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989053** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	125.2	50	200	0	62.6	45-110	0			
Acenaphthylene	129.7	50	200	0	64.8	50-105	0			
Anthracene	121.2	50	200	0	60.6	55-110	0			
Benzo(a)anthracene	131.1	50	200	0	65.6	55-110	0			
Benzo(a)pyrene	130.4	50	200	0	65.2	55-110	0			
Benzo(b)fluoranthene	147.8	50	200	0	73.9	45-120	0			
Benzo(g,h,i)perylene	144.3	50	200	0	72.2	40-125	0			
Benzo(k)fluoranthene	123.3	50	200	0	61.6	45-125	0			
Chrysene	137.9	50	200	0	69	55-110	0			
Dibenzo(a,h)anthracene	129.2	50	200	0	64.6	40-125	0			
Fluoranthene	125.7	50	200	0	62.8	55-115	0			
Fluorene	125.1	50	200	0	62.6	50-110	0			
Indeno(1,2,3-cd)pyrene	130.3	50	200	0	65.2	45-125	0			
Phenanthrene	129	50	200	0	64.5	50-115	0			
Pyrene	134	50	200	0	67	50-130	0			
Surr: 2-Fluorobiphenyl	*326.8*	0	*500*	0	*65.4*	*36-94*	0			
Surr: 4-Terphenyl-d14	*427.3*	0	*500*	0	*85.5*	*26-119*	0			
Surr: Nitrobenzene-d5	*306.9*	0	*500*	0	*61.4*	*41-104*	0			

MSD Sample ID: **1205914-03B MSD** Units: **µg/L** Analysis Date: **5/31/2012 09:43 PM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989054** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	131.5	50	200	0	65.8	45-110	125.2	4.91	30	
Acenaphthylene	136.8	50	200	0	68.4	50-105	129.7	5.33	30	
Anthracene	122.7	50	200	0	61.4	55-110	121.2	1.23	30	
Benzo(a)anthracene	136.9	50	200	0	68.4	55-110	131.1	4.33	30	
Benzo(a)pyrene	129.5	50	200	0	64.8	55-110	130.4	0.693	30	
Benzo(b)fluoranthene	144.6	50	200	0	72.3	45-120	147.8	2.19	30	
Benzo(g,h,i)perylene	142.6	50	200	0	71.3	40-125	144.3	1.19	30	
Benzo(k)fluoranthene	126.3	50	200	0	63.2	45-125	123.3	2.4	30	
Chrysene	129.8	50	200	0	64.9	55-110	137.9	6.05	30	
Dibenzo(a,h)anthracene	127.6	50	200	0	63.8	40-125	129.2	1.25	30	
Fluoranthene	124.9	50	200	0	62.4	55-115	125.7	0.638	30	
Fluorene	130.7	50	200	0	65.4	50-110	125.1	4.38	30	
Indeno(1,2,3-cd)pyrene	129.9	50	200	0	65	45-125	130.3	0.307	30	
Phenanthrene	133.3	50	200	0	66.6	50-115	129	3.28	30	
Pyrene	131.6	50	200	0	65.8	50-130	134	1.81	30	
Surr: 2-Fluorobiphenyl	*340.7*	0	*500*	0	*68.1*	*36-94*	326.8	*4.16*	*40*	
Surr: 4-Terphenyl-d14	*334.7*	0	*500*	0	*66.9*	*26-119*	427.3	*24.3*	*40*	
Surr: Nitrobenzene-d5	*323.7*	0	*500*	0	*64.7*	*41-104*	306.9	*5.33*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205717
Project: Marshall Surface Water 5/22/12

QC BATCH REPORT

Batch ID: **41369** Instrument ID **SVMS5** Method: **SW8270**

The following samples were analyzed in this batch:

1205717-07B	1205717-08B	1205717-09B
1205717-10B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205717

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052212_PMB1	Task: SWMON
	Total # of Samples: 19	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 7.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative: HNO3	Preservative: None	Analysis: Be,Mo,V	Analysis: PNAs by 8270
1	WSE05221100PMB1	ML-1	WS	G	05/22/2012 11:00	3				X	X
2	WSE05221020PMB1	ML-10	WS	G	05/22/2012 10:20	3				X	X
3	WSE05221008PMB1	ML-7	WS	G	05/22/2012 10:08	3				X	X
4	WSB05221445PMB1	SW-105	WS	G	05/22/2012 14:45	3				X	X
5	WSE05221130PMB1	SW-110	WS	G	05/22/2012 11:30	3				X	X
6	WSF05220835PMB3	SW-112	WS	G	05/22/2012 08:35	9	MS/MSD			X	X
7	WSE05221200PMB1	SW-115	WS	G	05/22/2012 12:00	3				X	X
8	WSE05221215PMB1	SW-120	WS	G	05/22/2012 12:15	3				X	X
9	WSE05221030PMB1	SW-935	WS	G	05/22/2012 10:30	3				X	X
10	WSE05221115PMB1	SW-936	WS	G	05/22/2012 11:15	3				X	X
11	WSE05221115PMB2	SW-936	WS	G	05/22/2012 11:15	3	DUPLICATE			X	X
12	WSE05220950PMB1	SW-937	WS	G	05/22/2012 09:50	3				X	X
13	WSC05221425PMB1	SWKR0540C01	WS	G	05/22/2012 14:25	3				X	X
14	WSC05221405PMB1	SWKR0600C01	WS	G	05/22/2012 14:05	3				X	X
15	WSC05221340PMB1	SWKR1480C01/SW-117	WS	G	05/22/2012 13:40	3				X	X
16	WSC05221320PMB1	SWKR1565C01	WS	G	05/22/2012 13:20	3				X	X
17	WSE05221230PMB1	SWKR1948C01	WS	G	05/22/2012 12:30	3				X	X
18	WSE05221040PMB1	SWKR3840C02	WS	G	05/22/2012 10:40	3				X	X
19	WSE05220910PMB1	SWKR3980C01	WS	G	05/22/2012 09:10	3				X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-22-12	1553		5-22-12	1553
	5-23-12	1319		5-23-12	1319

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
0.2	Y/N	Y/N	Y/N
5.8	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

5.8°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL
Date: 5/22/12 Time: 1600
Name: PMB
Company: SEC

Seal Broken By:
Date:

2.0°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL
Date: 5/22/12 Time: 1600
Name: PMB
Company: SEC

Seal Broken By:
Date:

2.8°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL
Date: 5/22/12 Time: 1600
Name: PMB
Company: SEC

Seal Broken By:
Date:

3.0°C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL
Date: 5/22/12 Time: 1600
Name: PMB
Company: SEC

Seal Broken By:
Date:

2.4°C

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **23-May-12 13:19**

Work Order: **1205717** Received by: **PD**

Checklist completed by Diane Shaw eSignature 23-May-12 Date Reviewed by: Ann Preston eSignature 24-May-12 Date

Matrices: 0.2-5.8 c
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	Surface Water		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

22-Jun-2012

Alison Schoeff
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Surface Water 6/12/12** Work Order: **1206435**

Dear Alison,

ALS Environmental received 19 samples on 13-Jun-2012 01:15 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall Surface Water 6/12/12
Work Order: **1206435**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206435-01	WSE06121220PDS1	Surface Water		6/12/2012 12:20	6/13/2012 13:15	☐
1206435-02	WSE06121140PDS1	Surface Water		6/12/2012 11:40	6/13/2012 13:15	☐
1206435-03	WSE06121130PDS1	Surface Water		6/12/2012 11:30	6/13/2012 13:15	☐
1206435-04	WSB06121540PDS1	Surface Water		6/12/2012 15:40	6/13/2012 13:15	☐
1206435-05	WSE06121035PDS3	Surface Water		6/12/2012 10:35	6/13/2012 13:15	☐
1206435-06	WSF06120820PDS1	Surface Water		6/12/2012 08:20	6/13/2012 13:15	☐
1206435-07	WSF06120820PDS2	Surface Water		6/12/2012 08:20	6/13/2012 13:15	☐
1206435-08	WSE06121320PDS1	Surface Water		6/12/2012 13:20	6/13/2012 13:15	☐
1206435-09	WSE06121340PDS1	Surface Water		6/12/2012 13:40	6/13/2012 13:15	☐
1206435-10	WSE06121155PDS1	Surface Water		6/12/2012 11:55	6/13/2012 13:15	☐
1206435-11	WSE06121225PDS1	Surface Water		6/12/2012 12:25	6/13/2012 13:15	☐
1206435-12	WSE06121115PDS1	Surface Water		6/12/2012 11:15	6/13/2012 13:15	☐
1206435-13	WSC06121525PDS1	Surface Water		6/12/2012 15:25	6/13/2012 13:15	☐
1206435-14	WSC06121505PDS1	Surface Water		6/12/2012 15:05	6/13/2012 13:15	☐
1206435-15	WSC06121435PDS1	Surface Water		6/12/2012 14:35	6/13/2012 13:15	☐
1206435-16	WSC06121420PDS1	Surface Water		6/12/2012 14:20	6/13/2012 13:15	☐
1206435-17	WSE06121400PDS1	Surface Water		6/12/2012 14:00	6/13/2012 13:15	☐
1206435-18	WSE06121205PDS1	Surface Water		6/12/2012 12:05	6/13/2012 13:15	☐
1206435-19	WSE06120850PDS1	Surface Water		6/12/2012 08:50	6/13/2012 13:15	☐

Client: AECOM Environment
Project: Marshall Surface Water 6/12/12
Work Order: 1206435

Case Narrative

Batch 41791 sample 1206435-13 had low surrogate recoveries for the PAH analysis. All PAH compounds were ND. The sample was reextracted outside of the holding time. This analyses had passing surrogate recoveries and all PAH compounds were ND. This second set of data is the data included in this report. The sample results for PAHs should be considered estimated.

ALS Group USA, Corp

Date: 22-Jun-12

Client: AECOM Environment
Project: Marshall Surface Water 6/12/12
WorkOrder: **1206435**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121220PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 12:20:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-01	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*54.1*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*72.3*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*56.6*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121140PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 11:40:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-02	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/18/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*52.7*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*89.0*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*54.5*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121130PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 11:30:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-03	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/18/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*59.3*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*89.9*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*62.1*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSB06121540PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 3:40:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-04	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/18/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*58.0*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*96.3*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*60.5*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121035PDS3
Work Order:	1206435	**Collection Date:**	6/12/2012 10:35:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-05	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/18/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*47.8*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*86.1*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*50.6*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSF06120820PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 8:20:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-06	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/18/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/18/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/18/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*54.9*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*91.1*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*57.4*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSF06120820PDS2
Work Order:	1206435	**Collection Date:**	6/12/2012 8:20:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-07	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*57.4*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*90.7*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*60.3*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121320PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 1:20:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-08	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*54.6*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*87.7*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*57.5*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121340PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 1:40:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-09	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*55.8*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*89.4*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*57.7*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121155PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 11:55:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-10	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*57.9*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*93.0*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*59.9*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121225PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 12:25:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-11	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/19/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/19/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/19/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/19/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/19/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/19/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/19/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/19/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/19/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/19/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/19/2012
Surr: 2-Fluorobiphenyl	*54.8*	*36-94*			*%REC*	1	6/19/2012
Surr: 4-Terphenyl-d14	*78.9*	*26-119*			*%REC*	1	6/19/2012
Surr: Nitrobenzene-d5	*57.5*	*41-104*			*%REC*	1	6/19/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121115PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 11:15:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-12	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*57.3*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*94.0*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*59.3*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC06121525PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 3:25:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-13	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/20/2012**		Analyst: **RM**
Acenaphthene	ND	5.0	5.0	H	µg/L	1	6/22/2012
Acenaphthylene	ND	5.0	5.0	H	µg/L	1	6/22/2012
Anthracene	ND	5.0	5.0	H	µg/L	1	6/22/2012
Benzo(a)anthracene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Benzo(a)pyrene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Benzo(b)fluoranthene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Benzo(g,h,i)perylene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Benzo(k)fluoranthene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Chrysene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0	H	µg/L	1	6/22/2012
Fluoranthene	ND	1.0	1.0	H	µg/L	1	6/22/2012
Fluorene	ND	5.0	5.0	H	µg/L	1	6/22/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0	H	µg/L	1	6/22/2012
Phenanthrene	ND	2.0	2.0	H	µg/L	1	6/22/2012
Pyrene	ND	5.0	5.0	H	µg/L	1	6/22/2012
Surr: 2-Fluorobiphenyl	*61.3*	*36-94*			*%REC*	1	6/22/2012
Surr: 4-Terphenyl-d14	*118*	*26-119*			*%REC*	1	6/22/2012
Surr: Nitrobenzene-d5	*66.9*	*41-104*			*%REC*	1	6/22/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC06121505PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 3:05:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-14	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*53.1*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*79.9*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*55.6*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC06121435PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 2:35:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-15	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*61.9*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*99.7*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*64.9*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSC06121420PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 2:20:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-16	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*60.5*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*96.8*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*63.3*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121400PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 2:00:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-17	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*55.9*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*96.7*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*57.8*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06121205PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 12:05:00 PM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-18	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*61.3*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*98.1*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*64.0*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	WSE06120850PDS1
Work Order:	1206435	**Collection Date:**	6/12/2012 8:50:00 AM
Project:	Marshall Surface Water 6/12/12		
Lab ID:	1206435-19	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/17/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/19/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/19/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/19/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/18/2012**		Analyst: **HL**
Acenaphthene	ND	5.0	5.0		µg/L	1	6/20/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/20/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/20/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/20/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/20/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/20/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/20/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/20/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/20/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/20/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/20/2012
Surr: 2-Fluorobiphenyl	*57.6*	*36-94*			*%REC*	1	6/20/2012
Surr: 4-Terphenyl-d14	*93.0*	*26-119*			*%REC*	1	6/20/2012
Surr: Nitrobenzene-d5	*59.9*	*41-104*			*%REC*	1	6/20/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41695** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41695-41695** Units: **mg/L** Analysis Date: **6/18/2012 10:24 PM**
Client ID: Run ID: **ICPMS2_120618A** SeqNo: **2002876** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								
Vanadium	ND	0.0050								

MBLK Sample ID: **MBLK-41695-41695** Units: **mg/L** Analysis Date: **6/19/2012 12:40 AM**
Client ID: Run ID: **ICPMS2_120618A** SeqNo: **2003010** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								

LCS Sample ID: **LCS-41695-41695** Units: **mg/L** Analysis Date: **6/18/2012 10:29 PM**
Client ID: Run ID: **ICPMS2_120618A** SeqNo: **2002877** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.095	0.0050	0.1	0	95	80-120	0			
Vanadium	0.1028	0.0050	0.1	0	103	80-120	0			

LCS Sample ID: **LCS-41695-41695** Units: **mg/L** Analysis Date: **6/19/2012 12:45 AM**
Client ID: Run ID: **ICPMS2_120618A** SeqNo: **2003012** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09371	0.0020	0.1	0	93.7	80-120	0			

MS Sample ID: **1206435-05BMS** Units: **mg/L** Analysis Date: **6/18/2012 11:20 PM**
Client ID: **WSE06121035PDS3** Run ID: **ICPMS2_120618A** SeqNo: **2002995** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09586	0.0020	0.1	-5.267E-06	95.9	80-120	0			
Molybdenum	0.09901	0.0050	0.1	0.001053	98	80-120	0			
Vanadium	0.1026	0.0050	0.1	0.0005952	102	80-120	0			

MSD Sample ID: **1206435-05BMSD** Units: **mg/L** Analysis Date: **6/18/2012 11:25 PM**
Client ID: **WSE06121035PDS3** Run ID: **ICPMS2_120618A** SeqNo: **2002996** Prep Date: **6/17/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09689	0.0020	0.1	-5.267E-06	96.9	80-120	0.09586	1.07	20	
Molybdenum	0.09917	0.0050	0.1	0.001053	98.1	80-120	0.09901	0.161	20	
Vanadium	0.1038	0.0050	0.1	0.0005952	103	80-120	0.1026	1.16	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206435
Project: Marshall Surface Water 6/12/12

QC BATCH REPORT

Batch ID: **41695** Instrument ID **ICPMS2** Method: **SW6020A**

The following samples were analyzed in this batch:

1206435-01B	1206435-02B	1206435-03B
1206435-04B	1206435-05B	1206435-06B
1206435-07B	1206435-08B	1206435-09B
1206435-10B	1206435-11B	1206435-12B
1206435-13B	1206435-14B	1206435-15B
1206435-16B	1206435-17B	1206435-18B
1206435-19B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206435
Project: Marshall Surface Water 6/12/12

QC BATCH REPORT

Batch ID: **41718** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41718-41718** Units: **µg/L** Analysis Date: **6/19/2012 03:40 PM**
Client ID: Run ID: **SVMS4_120619A** SeqNo: **2004599** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*28.18*	0	*50*	0	*56.4*	*36-94*	0			
Surr: 4-Terphenyl-d14	*45.89*	0	*50*	0	*91.8*	*26-119*	0			
Surr: Nitrobenzene-d5	*27.71*	0	*50*	0	*55.4*	*41-104*	0			

LCS Sample ID: **SLCSW1-41718-41718** Units: **µg/L** Analysis Date: **6/19/2012 10:23 AM**
Client ID: Run ID: **SVMS4_120619A** SeqNo: **2004595** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	15.09	5.0	20	0	75.4	45-110	0			
Acenaphthylene	15.39	5.0	20	0	77	50-105	0			
Anthracene	16.46	5.0	20	0	82.3	55-110	0			
Benzo(a)anthracene	16.02	5.0	20	0	80.1	55-110	0			
Benzo(a)pyrene	16.91	5.0	20	0	84.6	55-110	0			
Benzo(b)fluoranthene	17.01	5.0	20	0	85	45-120	0			
Benzo(g,h,i)perylene	17.96	5.0	20	0	89.8	40-125	0			
Benzo(k)fluoranthene	17.84	5.0	20	0	89.2	45-125	0			
Chrysene	17.43	5.0	20	0	87.2	55-110	0			
Dibenzo(a,h)anthracene	17.32	5.0	20	0	86.6	40-125	0			
Fluoranthene	16.81	5.0	20	0	84	55-115	0			
Fluorene	15.44	5.0	20	0	77.2	50-110	0			
Indeno(1,2,3-cd)pyrene	17.63	5.0	20	0	88.2	45-125	0			
Phenanthrene	16.1	5.0	20	0	80.5	50-115	0			
Pyrene	17.27	5.0	20	0	86.4	50-130	0			
Surr: 2-Fluorobiphenyl	*30.59*	0	*50*	0	*61.2*	*36-94*	0			
Surr: 4-Terphenyl-d14	*43.55*	0	*50*	0	*87.1*	*26-119*	0			
Surr: Nitrobenzene-d5	*31.68*	0	*50*	0	*63.4*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206435
Project: Marshall Surface Water 6/12/12

QC BATCH REPORT

Batch ID: **41718** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206435-05A MS** Units: **µg/L** Analysis Date: **6/19/2012 10:57 AM**
Client ID: **WSE06121035PDS3** Run ID: **SVMS4_120619A** SeqNo: **2004596** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	141.4	50	200	0	70.7	45-110	0			
Acenaphthylene	144	50	200	0	72	50-105	0			
Anthracene	158.1	50	200	0	79	55-110	0			
Benzo(a)anthracene	155.6	50	200	0	77.8	55-110	0			
Benzo(a)pyrene	162.9	50	200	0	81.4	55-110	0			
Benzo(b)fluoranthene	165.6	50	200	0	82.8	45-120	0			
Benzo(g,h,i)perylene	173.9	50	200	0	87	40-125	0			
Benzo(k)fluoranthene	168.4	50	200	0	84.2	45-125	0			
Chrysene	167.4	50	200	0	83.7	55-110	0			
Dibenzo(a,h)anthracene	166.9	50	200	0	83.4	40-125	0			
Fluoranthene	164.6	50	200	0	82.3	55-115	0			
Fluorene	145.8	50	200	0	72.9	50-110	0			
Indeno(1,2,3-cd)pyrene	170.1	50	200	0	85	45-125	0			
Phenanthrene	153.9	50	200	0	77	50-115	0			
Pyrene	168	50	200	0	84	50-130	0			
Surr: 2-Fluorobiphenyl	*282.3*	0	*500*	0	*56.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*366.2*	0	*500*	0	*73.2*	*26-119*	0			
Surr: Nitrobenzene-d5	*299.4*	0	*500*	0	*59.9*	*41-104*	0			

MSD Sample ID: **1206435-05A MSD** Units: **µg/L** Analysis Date: **6/19/2012 11:32 AM**
Client ID: **WSE06121035PDS3** Run ID: **SVMS4_120619A** SeqNo: **2004597** Prep Date: **6/18/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	139.2	50	200	0	69.6	45-110	141.4	1.57	30	
Acenaphthylene	143.1	50	200	0	71.6	50-105	144	0.627	30	
Anthracene	158.7	50	200	0	79.4	55-110	158.1	0.379	30	
Benzo(a)anthracene	157.9	50	200	0	79	55-110	155.6	1.47	30	
Benzo(a)pyrene	164	50	200	0	82	55-110	162.9	0.673	30	
Benzo(b)fluoranthene	170.1	50	200	0	85	45-120	165.6	2.68	30	
Benzo(g,h,i)perylene	176	50	200	0	88	40-125	173.9	1.2	30	
Benzo(k)fluoranthene	170.8	50	200	0	85.4	45-125	168.4	1.42	30	
Chrysene	169.6	50	200	0	84.8	55-110	167.4	1.31	30	
Dibenzo(a,h)anthracene	170.6	50	200	0	85.3	40-125	166.9	2.19	30	
Fluoranthene	164.7	50	200	0	82.4	55-115	164.6	0.0607	30	
Fluorene	145.6	50	200	0	72.8	50-110	145.8	0.137	30	
Indeno(1,2,3-cd)pyrene	173.3	50	200	0	86.6	45-125	170.1	1.86	30	
Phenanthrene	156.3	50	200	0	78.2	50-115	153.9	1.55	30	
Pyrene	169.6	50	200	0	84.8	50-130	168	0.948	30	
Surr: 2-Fluorobiphenyl	*285*	0	*500*	0	*57*	*36-94*	282.3	*0.952*	*40*	
Surr: 4-Terphenyl-d14	*449.3*	0	*500*	0	*89.9*	*26-119*	366.2	*20.4*	*40*	
Surr: Nitrobenzene-d5	*296.3*	0	*500*	0	*59.3*	*41-104*	299.4	*1.04*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206435
Project: Marshall Surface Water 6/12/12

QC BATCH REPORT

Batch ID: **41718** Instrument ID **SVMS4** Method: **SW8270**

The following samples were analyzed in this batch:

1206435-01A	1206435-02A	1206435-03A
1206435-04A	1206435-05A	1206435-06A
1206435-07A	1206435-08A	1206435-09A
1206435-10A	1206435-11A	1206435-12A
1206435-13A	1206435-14A	1206435-15A
1206435-16A	1206435-17A	1206435-18A
1206435-19A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206435

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061212_PDS1	Task: SWMON
Total # of Samples: 19		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 7.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave, Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: Be,Mo,V (HNO3)	ORO,DRO (None)	PNAs by 8270 (None)
1	WSE06121220PDS1	ML-1	WS	G	06/12/2012 12:20	3			X	X	X
2	WSE06121140PDS1	ML-10	WS	G	06/12/2012 11:40	3			X	X	X
3	WSE06121130PDS1	ML-7	WS	G	06/12/2012 11:30	3			X	X	X
4	WSB06121540PDS1	SW-105	WS	G	06/12/2012 15:40	3			X	X	X
5	WSE06121035PDS3	SW-110	WS	G	06/12/2012 10:35	9	MS/MSD		X	X	X
6	WSF06120820PDS1	SW-112	WS	G	06/12/2012 08:20	3			X	X	X
7	WSF06120820PDS2	SW-112	WS	G	06/12/2012 08:20	3	DUPLICATE		X	X	X
8	WSE06121320PDS1	SW-115	WS	G	06/12/2012 13:20	3			X	X	X
9	WSE06121340PDS1	SW-120	WS	G	06/12/2012 13:40	3			X	X	X
10	WSE06121155PDS1	SW-935	WS	G	06/12/2012 11:55	3			X	X	X
11	WSE06121225PDS1	SW-936	WS	G	06/12/2012 12:25	3			X	X	X
12	WSE06121115PDS1	SW-937	WS	G	06/12/2012 11:15	3			X	X	X
13	WSC06121525PDS1	SWKR0540C01	WS	G	06/12/2012 15:25	3			X	X	X
14	WSC06121505PDS1	SWKR0600C01	WS	G	06/12/2012 15:05	3			X	X	X
15	WSC06121435PDS1	SWKR1480C01	WS	G	06/12/2012 14:35	3			X	X	X
16	WSC06121420PDS1	SWKR1565C01	WS	G	06/12/2012 14:20	3			X	X	X
17	WSE06121400PDS1	SWKR1948C01	WS	G	06/12/2012 14:00	3			X	X	X
18	WSE06121205PDS1	SWKR3840C02	WS	G	06/12/2012 12:05	3			X	X	X
19	WSE06120850PDS1	SWKR3980C01	WS	G	06/12/2012 08:50	3			X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-12-12	1632		6-12-12	1632
	6-13-12	1315		6-13-12	1315

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
4.8°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETER STEPHENS (PDS1), APRIL MODERT
SIGNATURE of SAMPLER:
DATE Signed:
Time:

6/14/12

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_061212_PDS1	Task: SWMON
	Total # of Samples: 19	Event Complete?

Turn Around Time	5 Day	Rush	No	

BILLING CODE: 7.00

Lab Information:

Lab Name	ALS Laboratory Group
Address	3352 128th Ave. Holland, MI 49424-9263
Lab PM	Ann Preston
Phone/Fax	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #	

Project Information:

Site ID #	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to	Enbridge Energy - ATTN Accounts Payable
Address	1100 Louisiana Suite 1100
City/State	Houson, TX
Phone #	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	HNO3		None												
								Analysis	Be,Mo,V		PNAs by 8270												
1	WSE06121220PDS1	ML-1	WS	G	06/12/2012 12:20	3			X		X												
2	WSE06121140PDS1	ML-10	WS	G	06/12/2012 11:40	3			X		X												
3	WSE06121130PDS1	ML-7	WS	G	06/12/2012 11:30	3			X		X												
4	WSB06121540PDS1	SW-105	WS	G	06/12/2012 15:40	3			X		X												
5	WSE06121035PDS3	SW-110	WS	G	06/12/2012 10:35	9	MS/MSD		X		X												
6	WSF06120820PDS1	SW-112	WS	G	06/12/2012 08:20	3			X		X												
7	WSF06120820PDS2	SW-112	WS	G	06/12/2012 08:20	3	DUPLICATE		X		X												
8	WSE06121320PDS1	SW-115	WS	G	06/12/2012 13:20	3			X		X												
9	WSE06121340PDS1	SW-120	WS	G	06/12/2012 13:40	3			X		X												
10	WSE06121155PDS1	SW-935	WS	G	06/12/2012 11:55	3			X		X												
11	WSE06121225PDS1	SW-936	WS	G	06/12/2012 12:25	3			X		X												
12	WSE06121115PDS1	SW-937	WS	G	06/12/2012 11:15	3			X		X												
13	WSC06121525PDS1	SWKR0540C01	WS	G	06/12/2012 15:25	3			X		X												
14	WSC06121505PDS1	SWKR0600C01	WS	G	06/12/2012 15:05	3			X		X												
15	WSC06121435PDS1	SWKR1480C01	WS	G	06/12/2012 14:35	3			X		X												
16	WSC06121420PDS1	SWKR1565C01	WS	G	06/12/2012 14:20	3			X		X												
17	WSE06121400PDS1	SWKR1948C01	WS	G	06/12/2012 14:00	3			X		X												
18	WSE06121205PDS1	SWKR3840C02	WS	G	06/12/2012 12:05	3			X		X												
19	WSE06120850PDS1	SWKR3980C01	WS	G	06/12/2012 08:50	3			X		X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME

Sample Receipt Conditions

	Y / N		Y / N		Y / N
	Y / N		Y / N		Y / N
	Y / N		Y / N		Y / N
	Y / N		Y / N		Y / N
Temp in OC	Samples on ice?		Sample Intact?		Trip Blank?

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
Print Name of SAMPLER: PETER STEPHENS (POS1), APRIL MODERT
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Alex Csaszar

From: April Modert <a.modert@superiorenvironmental.com>
Sent: Monday, June 18, 2012 11:30 AM
To: Ann Preston
Cc: Alex Csaszar
Subject: COC changes for SWMON
Attachments: 20120618113203954.pdf

I am reviewing the WOA and have noticed that ORO/GRO was on the SWMON COCs from last week. This is incorrect and should not have been put on their. Attached are the revised COCs for SWMON and SWMON_SED. Can I get a revised WOA for 1206435 SWMON?

Sorry about this and thanks!

April Modert
Staff Scientist

Superior Environmental Corp
Marshall Field Office
317 S. Grand Street
Marshall, MI 49068
Cell: (517) 227-4710
a.modert@superiorenvironmental.com

ALS Group: Click here to report this email as spam.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **13-Jun-12 13:15**

Work Order: **1206435** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 13-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 14-Jun-12 (Date)

Matrices: Surface Water
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.8 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

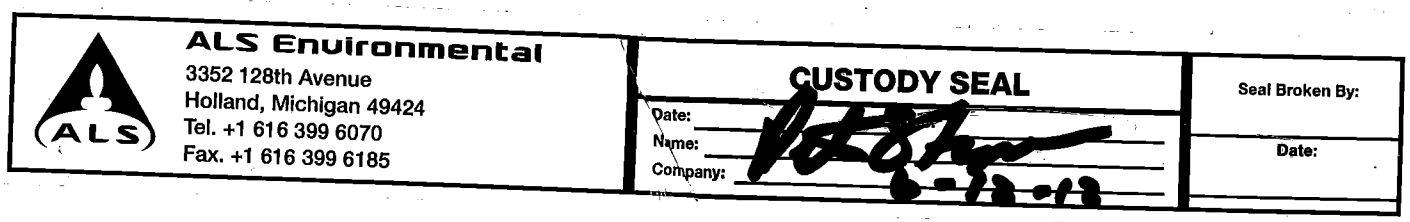
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

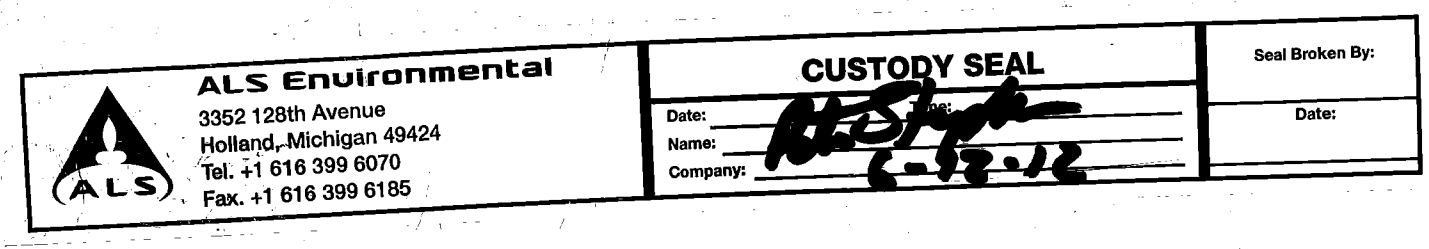
Comments:

CorrectiveAction:

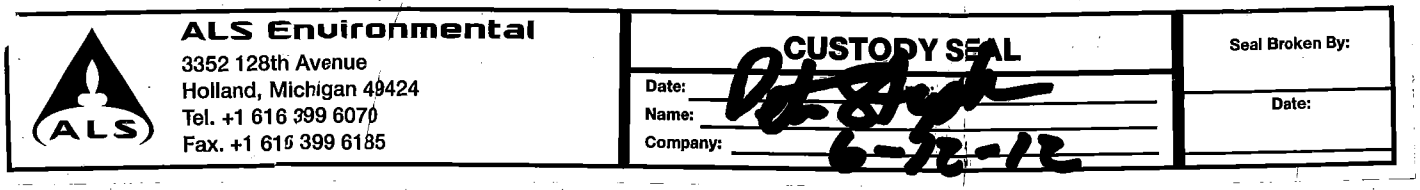
4.8


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date:
Name:
Company:
Seal Broken By:
Date:

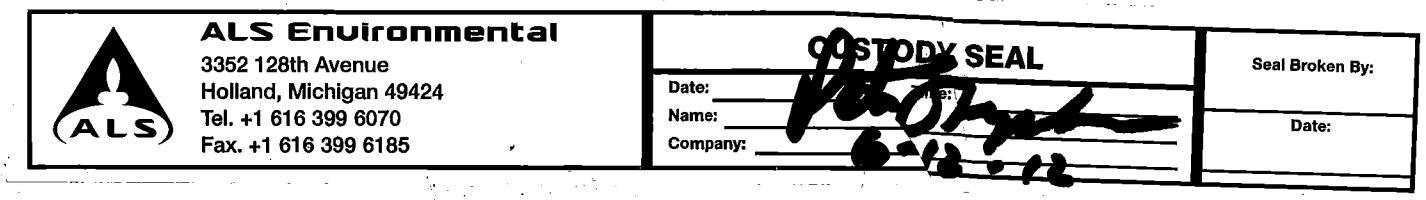
3.6


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date:
Name:
Company:
6.12.12
Seal Broken By:
Date:

4.2


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date:
Name:
Company:
6-22-12
Seal Broken By:
Date:

3.4



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date:
Name:
Company:

Seal Broken By:

Date:

29-Jun-2012

Doran Lefaive
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall RASDP 0600L 6/20/12** Work Order: **1206819**

Dear Doran,

ALS Environmental received 2 samples on 22-Jun-2012 04:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 30.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall RASDP 0600L 6/20/12
Work Order: **1206819**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206819-01	ESKR0600L001S062012S015	Soil		6/20/2012 09:30	6/22/2012 16:46	☐
1206819-02	ESKR0600L001T062012MX	Soil		6/20/2012	6/22/2012 16:46	☐

Client: AECOM Environment
Project: Marshall RASDP 0600L 6/20/12
Work Order: 1206819

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41996 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

Batch 41943 LCS recovery for 4-Methyl-2-pentanone was above control limits, but all samples in this quality control batch were ND for this compound. The MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Client: AECOM Environment
Project: Marshall RASDP 0600L 6/20/12
WorkOrder: **1206819**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	ESKR0600L001S062012S015
Work Order:	1206819	**Collection Date:**	6/20/2012 9:30:00 AM
Project:	Marshall RASDP 0600L 6/20/12		
Lab ID:	1206819-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/26/2012**		Analyst: **CW**
DRO (C10-C20)	**90**	**20**	**4.0**		**mg/Kg-dry**	1	6/27/2012
ORO (C20-C34)	**520**	**39**	**4.0**		**mg/Kg-dry**	1	6/27/2012
Surr: 4-Terphenyl-d14	*59.2*	*39-115*			*%REC*	1	6/27/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/27/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/28/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Nickel	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/28/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/26/2012**		Analyst: **RM**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/27/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/27/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Benzo(a)anthracene	**670**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(a)pyrene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(b)fluoranthene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Benzo(k)fluoranthene	**650**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Chrysene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/27/2012
Fluoranthene	**800**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/27/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/27/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/27/2012
Phenanthrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Pyrene	**900**	**330**	**330**		**µg/Kg-dry**	1	6/27/2012
Surr: 2,4,6-Tribromophenol	*98.2*	*34-140*			*%REC*	1	6/27/2012
Surr: 2-Fluorobiphenyl	*73.5*	*12-100*			*%REC*	1	6/27/2012
Surr: 2-Fluorophenol	*69.5*	*33-117*			*%REC*	1	6/27/2012
Surr: 4-Terphenyl-d14	*82.1*	*25-137*			*%REC*	1	6/27/2012
Surr: Nitrobenzene-d5	*58.9*	*37-107*			*%REC*	1	6/27/2012
Surr: Phenol-d6	*71.5*	*40-106*			*%REC*	1	6/27/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	190	100		µg/Kg-dry	1	6/26/2012
1,1,1-Trichloroethane	ND	190	50		µg/Kg-dry	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	190	50		µg/Kg-dry	1	6/26/2012
1,1,2-Trichloroethane	ND	190	50		µg/Kg-dry	1	6/26/2012
1,1-Dichloroethane	ND	190	50		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12
Lab ID: 1206819-01

Client Sample ID: ESKR0600L001S062012S015
Collection Date: 6/20/2012 9:30:00 AM
Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,3-Trichloropropane	ND	190	100		µg/Kg-dry	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
1,2,4-Trimethylbenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	190	10		µg/Kg-dry	1	6/26/2012
1,2-Dibromoethane	ND	190	20		µg/Kg-dry	1	6/26/2012
1,2-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
1,2-Dichloroethane	ND	190	50		µg/Kg-dry	1	6/26/2012
1,2-Dichloropropane	ND	190	50		µg/Kg-dry	1	6/26/2012
1,3,5-Trimethylbenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
1,3-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
1,4-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
2-Methylnaphthalene	ND	630	330		µg/Kg-dry	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	6/26/2012
Acrylonitrile	ND	190	100		µg/Kg-dry	1	6/26/2012
Benzene	ND	190	50		µg/Kg-dry	1	6/26/2012
Bromobenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
Bromochloromethane	ND	190	100		µg/Kg-dry	1	6/26/2012
Bromodichloromethane	ND	190	100		µg/Kg-dry	1	6/26/2012
Bromoform	ND	190	100		µg/Kg-dry	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/26/2012
Carbon tetrachloride	ND	190	50		µg/Kg-dry	1	6/26/2012
Chlorobenzene	ND	190	50		µg/Kg-dry	1	6/26/2012
Chloroethane	ND	630	250		µg/Kg-dry	1	6/26/2012
Chloroform	ND	190	50		µg/Kg-dry	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
cis-1,2-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/26/2012
cis-1,3-Dichloropropene	ND	190	50		µg/Kg-dry	1	6/26/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/26/2012
Dibromochloromethane	ND	190	100		µg/Kg-dry	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	ESKR0600L001S062012S015
Work Order:	1206819	**Collection Date:**	6/20/2012 9:30:00 AM
Project:	Marshall RASDP 0600L 6/20/12		
Lab ID:	1206819-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	190	50		µg/Kg-dry	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/26/2012
m,p-Xylene	ND	380	100		µg/Kg-dry	1	6/26/2012
Methyl iodide	ND	190	100		µg/Kg-dry	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/26/2012
Methylene chloride	ND	190	100		µg/Kg-dry	1	6/26/2012
Naphthalene	ND	630	330		µg/Kg-dry	1	6/26/2012
n-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/26/2012
n-Propylbenzene	ND	190	100		µg/Kg-dry	1	6/26/2012
o-Xylene	ND	190	50		µg/Kg-dry	1	6/26/2012
p-Isopropyltoluene	ND	190	100		µg/Kg-dry	1	6/26/2012
sec-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/26/2012
Styrene	ND	190	50		µg/Kg-dry	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/26/2012
tert-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/26/2012
Tetrachloroethene	ND	190	50		µg/Kg-dry	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/26/2012
Toluene	ND	190	100		µg/Kg-dry	1	6/26/2012
trans-1,2-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/26/2012
trans-1,3-Dichloropropene	ND	190	50		µg/Kg-dry	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	190	50		µg/Kg-dry	1	6/26/2012
Trichloroethene	ND	190	50		µg/Kg-dry	1	6/26/2012
Trichlorofluoromethane	ND	190	100		µg/Kg-dry	1	6/26/2012
Vinyl chloride	ND	190	40		µg/Kg-dry	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*94.4*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*97.5*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*93.2*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*94.6*	*70-130*			*%REC*	1	6/26/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	6/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	ESKR0600L001T062012MX
Work Order:	1206819	**Collection Date:**	6/20/2012
Project:	Marshall RASDP 0600L 6/20/12		
Lab ID:	1206819-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/25/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/26/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/26/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/26/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/26/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/26/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/26/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/26/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/26/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/26/2012
2-Butanone	ND	750	750		µg/Kg	1	6/26/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/26/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/26/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/26/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/26/2012
Benzene	ND	50	50		µg/Kg	1	6/26/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/26/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/26/2012
Bromoform	ND	100	100		µg/Kg	1	6/26/2012
Bromomethane	ND	200	200		µg/Kg	1	6/26/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/26/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/26/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/26/2012
Chloroethane	ND	250	250		µg/Kg	1	6/26/2012
Chloroform	ND	50	50		µg/Kg	1	6/26/2012
Chloromethane	ND	250	250		µg/Kg	1	6/26/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	ESKR0600L001T062012MX
Work Order:	1206819	**Collection Date:**	6/20/2012
Project:	Marshall RASDP 0600L 6/20/12		
Lab ID:	1206819-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/26/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/26/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/26/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/26/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/26/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/26/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/26/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/26/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/26/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/26/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/26/2012
Naphthalene	ND	330	330		µg/Kg	1	6/26/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/26/2012
o-Xylene	ND	50	50		µg/Kg	1	6/26/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/26/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Styrene	ND	50	50		µg/Kg	1	6/26/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/26/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/26/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/26/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/26/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/26/2012
Toluene	ND	100	100		µg/Kg	1	6/26/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/26/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/26/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/26/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/26/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/26/2012
Surr: 1,2-Dichloroethane-d4	*91.2*	*70-130*			*%REC*	1	6/26/2012
Surr: 4-Bromofluorobenzene	*94.0*	*70-130*			*%REC*	1	6/26/2012
Surr: Dibromofluoromethane	*90.3*	*70-130*			*%REC*	1	6/26/2012
Surr: Toluene-d8	*92.0*	*70-130*			*%REC*	1	6/26/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41958** Instrument ID **GC8** Method: **SW8015M**

MBLK	Sample ID: **DBLKS1-41958-41958**			Units: **mg/Kg**			Analysis Date: **6/26/2012 11:55 PM**			
Client ID:	Run ID: **GC8_120626A**			SeqNo: **2014000**			Prep Date: **6/26/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.356*	0	*5*	0	*47.1*	*39-115*	0			

LCS	Sample ID: **DLCSS1-41958-41958**			Units: **mg/Kg**			Analysis Date: **6/26/2012 11:55 PM**			
Client ID:	Run ID: **GC8_120626A**			SeqNo: **2014017**			Prep Date: **6/26/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	354.4	10	500	0	70.9	60-130	0			
ORO (C20-C34)	424.2	20	500	0	84.8	60-130	0			
Surr: 4-Terphenyl-d14	*3.119*	0	*5*	0	*62.4*	*39-115*	0			

MS	Sample ID: **1206829-07B MS**			Units: **mg/Kg**			Analysis Date: **6/27/2012 12:19 PM**			
Client ID:	Run ID: **GC8_120626A**			SeqNo: **2014003**			Prep Date: **6/26/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	247	6.6	330.9	8.254	72.1	60-130	0			
ORO (C20-C34)	409.9	13	330.9	73.91	102	60-130	0			
Surr: 4-Terphenyl-d14	*1.666*	0	*3.309*	0	*50.3*	*39-115*	0			

MSD	Sample ID: **1206829-07B MSD**			Units: **mg/Kg**			Analysis Date: **6/27/2012 12:19 PM**			
Client ID:	Run ID: **GC8_120626A**			SeqNo: **2014019**			Prep Date: **6/26/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	225	6.4	320.1	8.254	67.7	60-130	247	9.32	30	
ORO (C20-C34)	314	13	320.1	73.91	75	60-130	409.9	26.5	30	
Surr: 4-Terphenyl-d14	*2.013*	0	*3.201*	0	*62.9*	*39-115*	1.666	*18.9*	*30*	

The following samples were analyzed in this batch: 1206819-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:29 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014929** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.0694	0.25								J
Vanadium	ND	0.25								

MBLK Sample ID: **MBLK-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 04:12 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016241** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	ND	0.25								

LCS Sample ID: **LCS-41996-41996** Units: **mg/Kg** Analysis Date: **6/28/2012 05:35 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014930** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.658	0.10	5	0	93.2	80-120	0			
Molybdenum	4.546	0.25	5	0	90.9	80-120	0			
Nickel	4.555	0.25	5	0	91.1	80-120	0			
Vanadium	4.567	0.25	5	0	91.3	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 06:12 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014935** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	7.514	0.41	8.143	0.431	87	80-120	0			
Nickel	11.08	0.41	8.143	5.146	72.9	80-120	0			S
Vanadium	17.74	0.41	8.143	10.15	93.2	80-120	0			

MS Sample ID: **1206753-04AMS** Units: **mg/Kg** Analysis Date: **6/28/2012 08:49 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016290** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.971	0.81	8.143	0.24	82.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41996** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 06:19 AM**
Client ID: Run ID: **ICPMS1_120627A** SeqNo: **2014936** Prep Date: **6/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.713	0.40	7.987	0.431	78.7	80-120	7.514	11.3	25	S
Nickel	9.553	0.40	7.987	5.146	55.2	80-120	11.08	14.8	25	S
Vanadium	14.67	0.40	7.987	10.15	56.6	80-120	17.74	18.9	25	S

MSD Sample ID: **1206753-04AMSD** Units: **mg/Kg** Analysis Date: **6/28/2012 09:20 PM**
Client ID: Run ID: **ICPMS1_120628A** SeqNo: **2016294** Prep Date: **6/27/2012** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.062	0.80	7.987	0.24	72.9	80-120	6.971	13.9	25	S

The following samples were analyzed in this batch: 1206819-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 08:50 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017060** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3533*	0	*5000*	0	*70.7*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4279*	0	*5000*	0	*85.6*	*12-100*	0			
Surr: 2-Fluorophenol	*4444*	0	*5000*	0	*88.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4285*	0	*5000*	0	*85.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*4101*	0	*5000*	0	*82*	*37-107*	0			
Surr: Phenol-d6	*4171*	0	*5000*	0	*83.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41957** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41957-41957** Units: **µg/Kg** Analysis Date: **6/27/2012 05:51 PM**
Client ID: Run ID: **SVMS5_120627A** SeqNo: **2017055** Prep Date: **6/26/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1409	50	2000	0	70.4	45-105	0			
Acenaphthene	1592	50	2000	0	79.6	45-110	0			
Acenaphthylene	1638	50	2000	0	81.9	45-105	0			
Anthracene	1637	50	2000	0	81.8	55-105	0			
Benzo(a)anthracene	1754	50	2000	0	87.7	50-110	0			
Benzo(a)pyrene	1812	50	2000	0	90.6	50-110	0			
Benzo(b)fluoranthene	1899	50	2000	0	95	45-115	0			
Benzo(g,h,i)perylene	2006	50	2000	0	100	40-125	0			
Benzo(k)fluoranthene	1801	50	2000	0	90	45-115	0			
Chrysene	1796	50	2000	0	89.8	55-110	0			
Dibenzo(a,h)anthracene	1812	50	2000	0	90.6	40-125	0			
Fluoranthene	1789	50	2000	0	89.4	55-115	0			
Fluorene	1611	50	2000	0	80.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1826	50	2000	0	91.3	40-120	0			
Naphthalene	1440	50	2000	0	72	40-105	0			
Phenanthrene	1647	50	2000	0	82.4	50-110	0			
Pyrene	1807	50	2000	0	90.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4078*	0	*5000*	0	*81.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3876*	0	*5000*	0	*77.5*	*12-100*	0			
Surr: 2-Fluorophenol	*4141*	0	*5000*	0	*82.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3992*	0	*5000*	0	*79.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3632*	0	*5000*	0	*72.6*	*37-107*	0			
Surr: Phenol-d6	*3798*	0	*5000*	0	*76*	*40-106*	0			

The following samples were analyzed in this batch: 1206819-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 01:17 AM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012679** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	150.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1049*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*925*	0	*1000*	0	*92.5*	*70-130*	0
Surr: Dibromofluoromethane	*1001*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1062*	0	*1000*	0	*106*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 12:24 PM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014092** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	201.5	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	41.5	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	139	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*945.5*	0	*1000*	0	*94.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*964.5*	0	*1000*	0	*96.4*	*70-130*	0
Surr: Dibromofluoromethane	*900*	0	*1000*	0	*90*	*70-130*	0
Surr: Toluene-d8	*934*	0	*1000*	0	*93.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 12:27 PM**
Client ID: Run ID: **VMS9_120625A** SeqNo: **2012657** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1044	30	1000	0	104	75-125	0			
1,1,1-Trichloroethane	1041	30	1000	0	104	70-135	0			
1,1,2,2-Tetrachloroethane	976.5	30	1000	0	97.6	55-130	0			
1,1,2-Trichloroethane	1032	30	1000	0	103	60-125	0			
1,1-Dichloroethane	1024	30	1000	0	102	75-125	0			
1,1-Dichloroethene	1044	30	1000	0	104	65-135	0			
1,2,3-Trichlorobenzene	1042	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1054	30	1000	0	105	65-130	0			
1,2,3-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	966	30	1000	0	96.6	65-130	0			
1,2,4-Trimethylbenzene	1077	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	1164	30	1000	0	116	40-135	0			
1,2-Dibromoethane	1030	30	1000	0	103	70-125	0			
1,2-Dichlorobenzene	1044	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1062	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1098	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1090	30	1000	0	109	65-135	0			
1,3-Dichlorobenzene	1034	30	1000	0	103	70-125	0			
1,4-Dichlorobenzene	1076	30	1000	0	108	70-125	0			
2-Butanone	1071	200	1000	0	107	30-160	0			
2-Hexanone	1162	30	1000	0	116	45-145	0			
4-Methyl-2-pentanone	990	30	1000	0	99	45-145	0			
Acetone	1473	100	1000	0	147	20-160	0			B
Acrylonitrile	1038	100	1000	0	104	70-135	0			
Benzene	1036	30	1000	0	104	75-125	0			
Bromobenzene	1045	30	1000	0	104	65-120	0			
Bromochloromethane	1004	30	1000	0	100	70-125	0			
Bromodichloromethane	1104	30	1000	0	110	70-130	0			
Bromoform	1144	30	1000	0	114	55-135	0			
Bromomethane	1224	75	1000	0	122	30-160	0			
Carbon disulfide	1318	30	1000	0	132	45-160	0			
Carbon tetrachloride	1020	30	1000	0	102	65-135	0			
Chlorobenzene	971.5	30	1000	0	97.2	75-125	0			
Chloroethane	1065	100	1000	0	106	40-155	0			
Chloroform	970.5	30	1000	0	97	70-125	0			
Chloromethane	975.5	100	1000	0	97.6	50-130	0			
cis-1,2-Dichloroethene	1028	30	1000	0	103	65-125	0			
cis-1,3-Dichloropropene	1012	30	1000	0	101	70-125	0			
Dibromochloromethane	1106	30	1000	0	111	65-135	0			
Dibromomethane	1138	30	1000	0	114	75-130	0			
Dichlorodifluoromethane	898.5	30	1000	0	89.8	35-135	0			
Ethylbenzene	1021	30	1000	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1158	30	1000	0	116	70-135	0
Isopropylbenzene	1087	30	1000	0	109	75-130	0
m,p-Xylene	2100	60	2000	0	105	80-125	0
Methyl tert-butyl ether	1086	30	1000	0	109	75-125	0
Methylene chloride	1093	30	1000	0	109	55-145	0
Naphthalene	1123	100	1000	0	112	40-140	0
n-Butylbenzene	1029	30	1000	0	103	65-140	0
n-Propylbenzene	1008	30	1000	0	101	65-135	0
o-Xylene	1021	30	1000	0	102	75-125	0
p-Isopropyltoluene	1010	30	1000	0	101	75-135	0
sec-Butylbenzene	1079	30	1000	0	108	65-130	0
Styrene	1126	30	1000	0	113	75-125	0
tert-Butylbenzene	1046	30	1000	0	105	65-130	0
Tetrachloroethene	1001	30	1000	0	100	64-140	0
Tetrahydrofuran	1050	200	1000	0	105	70-135	0
Toluene	961	30	1000	0	96.1	70-125	0
trans-1,2-Dichloroethene	1056	30	1000	0	106	65-135	0
trans-1,3-Dichloropropene	1092	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	1002	30	1000	0	100	70-135	0
Trichloroethene	963	30	1000	0	96.3	75-125	0
Trichlorofluoromethane	846	30	1000	0	84.6	25-185	0
Vinyl chloride	1110	30	1000	0	111	60-125	0
Surr: 1,2-Dichloroethane-d4	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*1000*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: Toluene-d8	*1031*	0	*1000*	0	*103*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41943-41943** Units: **µg/Kg** Analysis Date: **6/26/2012 11:08 AM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014091** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1014	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	984.5	30	1000	0	98.4	70-135	0			
1,1,2,2-Tetrachloroethane	946	30	1000	0	94.6	55-130	0			
1,1,2-Trichloroethane	890.5	30	1000	0	89	60-125	0			
1,1-Dichloroethane	1010	30	1000	0	101	75-125	0			
1,1-Dichloroethene	1046	30	1000	0	105	65-135	0			
1,2,3-Trichlorobenzene	1034	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	965	30	1000	0	96.5	65-130	0			
1,2,3-Trimethylbenzene	970	30	1000	0	97	65-135	0			
1,2,4-Trichlorobenzene	991	30	1000	0	99.1	65-130	0			
1,2,4-Trimethylbenzene	968	30	1000	0	96.8	65-135	0			
1,2-Dibromo-3-chloropropane	985	30	1000	0	98.5	40-135	0			
1,2-Dibromoethane	1014	30	1000	0	101	70-125	0			
1,2-Dichlorobenzene	974.5	30	1000	0	97.4	75-120	0			
1,2-Dichloroethane	980	30	1000	0	98	70-135	0			
1,2-Dichloropropane	1008	30	1000	0	101	70-120	0			
1,3,5-Trimethylbenzene	993	30	1000	0	99.3	65-135	0			
1,3-Dichlorobenzene	1010	30	1000	0	101	70-125	0			
1,4-Dichlorobenzene	996	30	1000	0	99.6	70-125	0			
2-Butanone	1084	200	1000	0	108	30-160	0			
2-Hexanone	954.5	30	1000	0	95.4	45-145	0			
4-Methyl-2-pentanone	1486	30	1000	0	149	45-145	0			S
Acetone	1046	100	1000	0	105	20-160	0			B
Acrylonitrile	1014	100	1000	0	101	70-135	0			
Benzene	984.5	30	1000	0	98.4	75-125	0			
Bromobenzene	954	30	1000	0	95.4	65-120	0			
Bromochloromethane	1047	30	1000	0	105	70-125	0			
Bromodichloromethane	1020	30	1000	0	102	70-130	0			
Bromoform	927	30	1000	0	92.7	55-135	0			
Bromomethane	1070	75	1000	0	107	30-160	0			
Carbon disulfide	1113	30	1000	0	111	45-160	0			
Carbon tetrachloride	1070	30	1000	0	107	65-135	0			
Chlorobenzene	998.5	30	1000	0	99.8	75-125	0			
Chloroethane	683	100	1000	0	68.3	40-155	0			
Chloroform	1092	30	1000	0	109	70-125	0			B
Chloromethane	669	100	1000	0	66.9	50-130	0			
cis-1,2-Dichloroethene	1006	30	1000	0	101	65-125	0			
cis-1,3-Dichloropropene	1114	30	1000	0	111	70-125	0			
Dibromochloromethane	1062	30	1000	0	106	65-135	0			
Dibromomethane	994.5	30	1000	0	99.4	75-130	0			
Dichlorodifluoromethane	627	30	1000	0	62.7	35-135	0			
Ethylbenzene	995	30	1000	0	99.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1025	30	1000	0	102	70-135	0	
Isopropylbenzene	1024	30	1000	0	102	75-130	0	
m,p-Xylene	2012	60	2000	0	101	80-125	0	
Methyl tert-butyl ether	1014	30	1000	0	101	75-125	0	
Methylene chloride	1203	30	1000	0	120	55-145	0	B
Naphthalene	849	100	1000	0	84.9	40-140	0	
n-Butylbenzene	1060	30	1000	0	106	65-140	0	
n-Propylbenzene	986	30	1000	0	98.6	65-135	0	
o-Xylene	998	30	1000	0	99.8	75-125	0	
p-Isopropyltoluene	1038	30	1000	0	104	75-135	0	
sec-Butylbenzene	1035	30	1000	0	104	65-130	0	
Styrene	998.5	30	1000	0	99.8	75-125	0	
tert-Butylbenzene	1020	30	1000	0	102	65-130	0	
Tetrachloroethene	1022	30	1000	0	102	64-140	0	
Tetrahydrofuran	1068	200	1000	0	107	70-135	0	
Toluene	943.5	30	1000	0	94.4	70-125	0	
trans-1,2-Dichloroethene	993.5	30	1000	0	99.4	65-135	0	
trans-1,3-Dichloropropene	1059	30	1000	0	106	65-125	0	
trans-1,4-Dichloro-2-butene	1012	30	1000	0	101	70-135	0	
Trichloroethene	1063	30	1000	0	106	75-125	0	
Trichlorofluoromethane	860	30	1000	0	86	25-185	0	
Vinyl chloride	877.5	30	1000	0	87.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*958*	0	*1000*	0	*95.8*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*983*	0	*1000*	0	*98.3*	*70-130*	0	
Surr: Dibromofluoromethane	*982.5*	0	*1000*	0	*98.2*	*70-130*	0	
Surr: Toluene-d8	*973*	0	*1000*	0	*97.3*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206829-08A MS** Units: **µg/Kg** Analysis Date: **6/26/2012 08:44 PM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014101** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	930.4	30	1001	0	93	75-125	0			
1,1,1-Trichloroethane	915.9	30	1001	0	91.5	70-135	0			
1,1,2,2-Tetrachloroethane	902.4	30	1001	0	90.2	55-130	0			
1,1,2-Trichloroethane	844.3	30	1001	0	84.4	60-125	0			
1,1-Dichloroethane	967	30	1001	0	96.6	75-125	0			
1,1-Dichloroethene	895.9	30	1001	0	89.5	65-135	0			
1,2,3-Trichlorobenzene	857.9	30	1001	0	85.7	60-135	0			
1,2,3-Trichloropropane	926.4	30	1001	0	92.6	65-130	0			
1,2,3-Trimethylbenzene	895.9	30	1001	23	87.2	65-135	0			
1,2,4-Trichlorobenzene	868.9	30	1001	0	86.8	65-130	0			
1,2,4-Trimethylbenzene	1078	30	1001	217	86	65-135	0			
1,2-Dibromo-3-chloropropane	841.3	30	1001	0	84	40-135	0			
1,2-Dibromoethane	925.4	30	1001	0	92.4	70-125	0			
1,2-Dichlorobenzene	911.4	30	1001	0	91	75-120	0			
1,2-Dichloroethane	935.4	30	1001	0	93.4	70-135	0			
1,2-Dichloropropane	954.5	30	1001	0	95.4	70-120	0			
1,3,5-Trimethylbenzene	1140	30	1001	314	82.5	65-135	0			
1,3-Dichlorobenzene	920.4	30	1001	0	92	70-125	0			
1,4-Dichlorobenzene	905.4	30	1001	0	90.4	70-125	0			
2-Butanone	944.4	200	1001	0	94.4	30-160	0			
2-Hexanone	906.4	30	1001	0	90.6	45-145	0			
4-Methyl-2-pentanone	1430	30	1001	0	143	45-145	0			
Acetone	1276	100	1001	0	128	20-160	0			B
Acrylonitrile	1044	100	1001	0	104	70-135	0			
Benzene	978.5	30	1001	62.5	91.5	75-125	0			
Bromobenzene	915.4	30	1001	0	91.4	65-120	0			
Bromochloromethane	971.5	30	1001	0	97	70-125	0			
Bromodichloromethane	901.4	30	1001	0	90	70-130	0			
Bromoform	790.8	30	1001	0	79	55-135	0			
Bromomethane	621.6	75	1001	0	62.1	30-160	0			
Carbon disulfide	963	30	1001	0	96.2	45-160	0			
Carbon tetrachloride	972.5	30	1001	0	97.2	65-135	0			
Chlorobenzene	946.4	30	1001	0	94.6	75-125	0			
Chloroethane	689.7	100	1001	0	68.9	40-155	0			
Chloroform	1037	30	1001	42	99.4	70-125	0			
Chloromethane	749.7	100	1001	0	74.9	50-130	0			
cis-1,2-Dichloroethene	973.5	30	1001	0	97.2	65-125	0			
cis-1,3-Dichloropropene	942.4	30	1001	0	94.2	70-125	0			
Dibromochloromethane	910.4	30	1001	0	91	65-135	0			
Dibromomethane	940.9	30	1001	0	94	75-130	0			
Dichlorodifluoromethane	730.7	30	1001	0	73	35-135	0			
Ethylbenzene	1066	30	1001	144	92.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	838.8	30	1001	0	83.8	70-135	0	
Isopropylbenzene	993	30	1001	27.5	96.5	75-130	0	
m,p-Xylene	2799	60	2002	1368	71.5	80-125	0	S
Methyl tert-butyl ether	1065	30	1001	0	106	75-125	0	
Methylene chloride	1082	30	1001	115.5	96.5	55-145	0	
Naphthalene	736.7	100	1001	0	73.6	40-140	0	
n-Butylbenzene	906.4	30	1001	0	90.6	65-140	0	
n-Propylbenzene	952	30	1001	30.5	92.1	65-135	0	
o-Xylene	1052	30	1001	149.5	90.2	75-125	0	
p-Isopropyltoluene	895.4	30	1001	0	89.4	75-135	0	
sec-Butylbenzene	982.5	30	1001	0	98.2	65-130	0	
Styrene	964.5	30	1001	0	96.4	75-125	0	
tert-Butylbenzene	962	30	1001	0	96.1	65-130	0	
Tetrachloroethene	986	30	1001	0	98.5	64-140	0	
Tetrahydrofuran	1054	200	1001	0	105	70-135	0	
Toluene	1026	30	1001	170.5	85.4	70-125	0	
trans-1,2-Dichloroethene	906.4	30	1001	0	90.6	65-135	0	
trans-1,3-Dichloropropene	930.4	30	1001	0	93	65-125	0	
trans-1,4-Dichloro-2-butene	876.4	30	1001	0	87.6	70-135	0	
Trichloroethene	1012	30	1001	0	101	75-125	0	
Trichlorofluoromethane	548	30	1001	0	54.8	25-185	0	
Vinyl chloride	914.9	30	1001	0	91.4	60-125	0	
Surr: 1,2-Dichloroethane-d4	*915.4*	0	*1001*	0	*91.4*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*974.5*	0	*1001*	0	*97.4*	*70-130*	0	
Surr: Dibromofluoromethane	*928.4*	0	*1001*	0	*92.8*	*70-130*	0	
Surr: Toluene-d8	*932.4*	0	*1001*	0	*93.2*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206829-08A MSD** Units: **µg/Kg** Analysis Date: **6/26/2012 09:09 PM**
Client ID: Run ID: **VMS7_120626A** SeqNo: **2014102** Prep Date: **6/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	912.4	30	1001	0	91.2	75-125	930.4	1.96	30	
1,1,1-Trichloroethane	893.4	30	1001	0	89.2	70-135	915.9	2.49	30	
1,1,2,2-Tetrachloroethane	902.9	30	1001	0	90.2	55-130	902.4	0.0554	30	
1,1,2-Trichloroethane	851.9	30	1001	0	85.1	60-125	844.3	0.885	30	
1,1-Dichloroethane	925.4	30	1001	0	92.4	75-125	967	4.39	30	
1,1-Dichloroethene	876.9	30	1001	0	87.6	65-135	895.9	2.15	30	
1,2,3-Trichlorobenzene	865.9	30	1001	0	86.5	60-135	857.9	0.929	30	
1,2,3-Trichloropropane	929.4	30	1001	0	92.8	65-130	926.4	0.324	30	
1,2,3-Trimethylbenzene	877.4	30	1001	23	85.4	65-135	895.9	2.09	30	
1,2,4-Trichlorobenzene	878.9	30	1001	0	87.8	65-130	868.9	1.15	30	
1,2,4-Trimethylbenzene	1059	30	1001	217	84.1	65-135	1078	1.83	30	
1,2-Dibromo-3-chloropropane	856.9	30	1001	0	85.6	40-135	841.3	1.83	30	
1,2-Dibromoethane	932.9	30	1001	0	93.2	70-125	925.4	0.808	30	
1,2-Dichlorobenzene	908.4	30	1001	0	90.8	75-120	911.4	0.33	30	
1,2-Dichloroethane	919.4	30	1001	0	91.8	70-135	935.4	1.73	30	
1,2-Dichloropropane	918.4	30	1001	0	91.8	70-120	954.5	3.85	30	
1,3,5-Trimethylbenzene	1117	30	1001	314	80.2	65-135	1140	2	30	
1,3-Dichlorobenzene	910.4	30	1001	0	91	70-125	920.4	1.09	30	
1,4-Dichlorobenzene	910.4	30	1001	0	91	70-125	905.4	0.551	30	
2-Butanone	943.9	200	1001	0	94.3	30-160	944.4	0.053	30	
2-Hexanone	884.4	30	1001	0	88.4	45-145	906.4	2.46	30	
4-Methyl-2-pentanone	1377	30	1001	0	138	45-145	1430	3.74	30	
Acetone	1255	100	1001	0	125	20-160	1276	1.66	30	B
Acrylonitrile	1015	100	1001	0	101	70-135	1044	2.82	30	
Benzene	949.9	30	1001	62.5	88.7	75-125	978.5	2.96	30	
Bromobenzene	910.4	30	1001	0	91	65-120	915.4	0.548	30	
Bromochloromethane	912.9	30	1001	0	91.2	70-125	971.5	6.22	30	
Bromodichloromethane	890.9	30	1001	0	89	70-130	901.4	1.17	30	
Bromoform	806.3	30	1001	0	80.6	55-135	790.8	1.94	30	
Bromomethane	604.1	75	1001	0	60.4	30-160	621.6	2.86	30	
Carbon disulfide	939.9	30	1001	0	93.9	45-160	963	2.42	30	
Carbon tetrachloride	918.4	30	1001	0	91.8	65-135	972.5	5.72	30	
Chlorobenzene	908.4	30	1001	0	90.8	75-125	946.4	4.1	30	
Chloroethane	662.7	100	1001	0	66.2	40-155	689.7	4	30	
Chloroform	989.5	30	1001	42	94.7	70-125	1037	4.69	30	
Chloromethane	693.7	100	1001	0	69.3	50-130	749.7	7.77	30	
cis-1,2-Dichloroethene	929.9	30	1001	0	92.9	65-125	973.5	4.58	30	
cis-1,3-Dichloropropene	916.4	30	1001	0	91.6	70-125	942.4	2.8	30	
Dibromochloromethane	902.9	30	1001	0	90.2	65-135	910.4	0.828	30	
Dibromomethane	922.4	30	1001	0	92.2	75-130	940.9	1.99	30	
Dichlorodifluoromethane	679.2	30	1001	0	67.8	35-135	730.7	7.31	30	
Ethylbenzene	1043	30	1001	144	89.8	75-125	1066	2.14	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41943** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	819.3	30	1001	0	81.8	70-135	838.8	2.35	30	
Isopropylbenzene	977	30	1001	27.5	94.9	75-130	993	1.63	30	
m,p-Xylene	2771	60	2002	1368	70.1	80-125	2799	1.01	30	S
Methyl tert-butyl ether	1032	30	1001	0	103	75-125	1065	3.15	30	
Methylene chloride	1043	30	1001	115.5	92.6	55-145	1082	3.68	30	
Naphthalene	760.3	100	1001	0	76	40-140	736.7	3.14	30	
n-Butylbenzene	886.4	30	1001	0	88.6	65-140	906.4	2.23	30	
n-Propylbenzene	945.4	30	1001	30.5	91.4	65-135	952	0.686	30	
o-Xylene	1030	30	1001	149.5	88	75-125	1052	2.12	30	
p-Isopropyltoluene	875.4	30	1001	0	87.4	75-135	895.4	2.26	30	
sec-Butylbenzene	959.5	30	1001	0	95.8	65-130	982.5	2.37	30	
Styrene	947.9	30	1001	0	94.7	75-125	964.5	1.73	30	
tert-Butylbenzene	939.9	30	1001	0	93.9	65-130	962	2.32	30	
Tetrachloroethene	991.5	30	1001	0	99	64-140	986	0.557	30	
Tetrahydrofuran	1025	200	1001	0	102	70-135	1054	2.79	30	
Toluene	976	30	1001	170.5	80.5	70-125	1026	4.95	30	
trans-1,2-Dichloroethene	875.4	30	1001	0	87.4	65-135	906.4	3.48	30	
trans-1,3-Dichloropropene	925.9	30	1001	0	92.5	65-125	930.4	0.485	30	
trans-1,4-Dichloro-2-butene	910.4	30	1001	0	91	70-135	876.4	3.81	30	
Trichloroethene	980.5	30	1001	0	98	75-125	1012	3.17	30	
Trichlorofluoromethane	513.5	30	1001	0	51.3	25-185	548	6.51	30	
Vinyl chloride	868.4	30	1001	0	86.8	60-125	914.9	5.22	30	
Surr: 1,2-Dichloroethane-d4	*902.4*	0	*1001*	0	*90.2*	*70-130*	915.4	*1.43*	*30*	
Surr: 4-Bromofluorobenzene	*984.5*	0	*1001*	0	*98.4*	*70-130*	974.5	*1.02*	*30*	
Surr: Dibromofluoromethane	*936.4*	0	*1001*	0	*93.6*	*70-130*	928.4	*0.859*	*30*	
Surr: Toluene-d8	*935.4*	0	*1001*	0	*93.4*	*70-130*	932.4	*0.322*	*30*	

The following samples were analyzed in this batch: 1206819-01A 1206819-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206819
Project: Marshall RASDP 0600L 6/20/12

QC BATCH REPORT

Batch ID: **R106556** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012373** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R106556** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012372** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206818-10BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012358** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.37	0.050	0	0	0	0-0	6.86	7.17	20	

DUP Sample ID: **1206829-02BDUP** Units: **% of sample** Analysis Date: **6/25/2012 03:00 PM**
Client ID: Run ID: **MOIST_120625C** SeqNo: **2012363** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	9.39	0.050	0	0	0	0-0	9.19	2.15	20	

The following samples were analyzed in this batch: 1206819-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206819

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_062012_SZ1	Task: RASDP
	Total # of Samples: 2	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 20.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
1	ESKR0600L001S062012S015	ESKR0600L001	SO	G	06/20/2012 09:30	3			X	X	X	X	X
2	ESKR0600L001T062012MX	ESKR0600L001	SQ	G	06/20/2012 00:00	1	TRIP BLANK						X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	6.21.12	0805	[signature]	6.22.12	1646

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
4.2°C	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: SPERIO ZIOS (SZ1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 16:46**

Work Order: **1206819** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.2 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

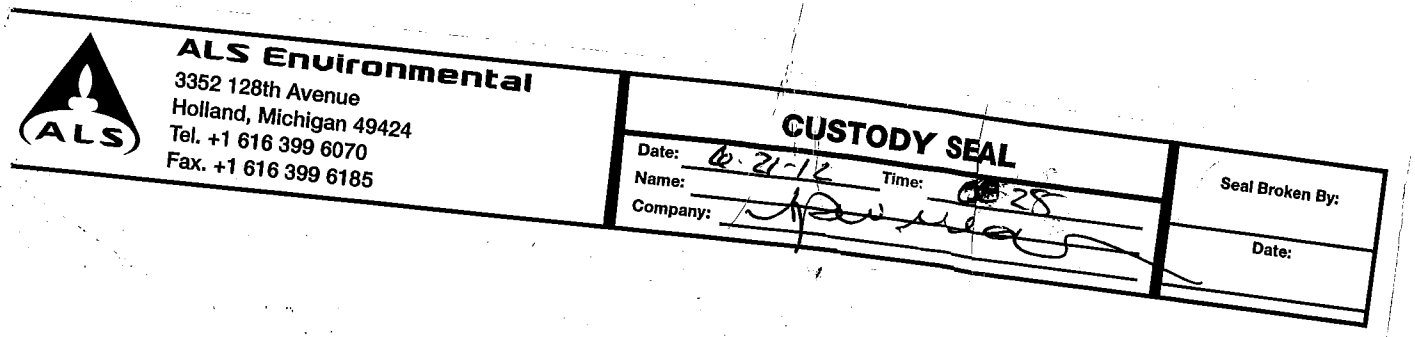
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 4-21-12
Time:
Name:
Company:
Seal Broken By:
Date:

4.2.2

20-Jun-2012

Doran Lefaive
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Timber Mats 6/11/12** Work Order: **1206415**

Dear Doran,

ALS Environmental received 2 samples on 13-Jun-2012 01:15 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 10.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 20-Jun-12

Client: AECOM Environment
Project: Marshall Timber Mats 6/11/12
Work Order: **1206415**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206415-01	CELLBPILE135TPH1081	Solid		6/11/2012 09:45	6/13/2012 13:15	☐
1206415-02	CELLBPILE135TPH1082	Solid		6/11/2012 09:40	6/13/2012 13:15	☐

Client: AECOM Environment
Project: Marshall Timber Mats 6/11/12
Work Order: 1206415

Case Narrative

Samples CELLBPILE135TPH1081 and CELLBPILE135TPH1082 matrix is an oily debris.

Crude oil received from Intertek was used for the QC sample spikes.

Samples are reported on a wet weight basis.

ALS Group USA, Corp

Date: 20-Jun-12

Client: AECOM Environment
Project: Marshall Timber Mats 6/11/12
WorkOrder: **1206415**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: *20-Jun-12*

Client: AECOM Environment

Project: Marshall Timber Mats 6/11/12 **Work Order:** 1206415

Sample ID: CELLBPILE135TPH1081 **Lab ID:** 1206415-01

Collection Date: 6/11/2012 09:45 AM **Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
OIL AND GREASE			**E1664MM**			Analyst: **NZ**
Oil and Grease	**7,200**		**50**	**mg/Kg**	1	6/19/2012 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *20-Jun-12*

Client: AECOM Environment
Project: Marshall Timber Mats 6/11/12
Work Order: 1206415
Sample ID: CELLBPILE135TPH1082
Lab ID: 1206415-02
Collection Date: 6/11/2012 09:40 AM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
OIL AND GREASE			**E1664MM**			Analyst: **NZ**
Oil and Grease	**1,300**		**50**	**mg/Kg**	1	6/19/2012 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 20-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206415

Project: Marshall Timber Mats 6/11/12

Batch ID: **R106209** Instrument ID **O&GMOD** Method: **E1664MM**

MBLK Sample ID: **MB-R106209-R106209** Units: **mg/Kg** Analysis Date: **6/19/2012 09:45 AM**

Client ID: Run ID: **O&GMOD_120619A** SeqNo: **2004492** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	50								

LCS Sample ID: **LCS-R106209-R106209** Units: **mg/Kg** Analysis Date: **6/19/2012 09:45 AM**

Client ID: Run ID: **O&GMOD_120619A** SeqNo: **2004493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	3060	50	4267	0	71.7	50-150	0			

MS Sample ID: **1206415-01A MS** Units: **mg/Kg** Analysis Date: **6/19/2012 09:45 AM**

Client ID: **CELLBPILE135TPH1081** Run ID: **O&GMOD_120619A** SeqNo: **2004495** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	12550	50	10280	7246	51.6	50-150	0			

MSD Sample ID: **1206415-01A MSD** Units: **mg/Kg** Analysis Date: **6/19/2012 09:45 AM**

Client ID: **CELLBPILE135TPH1081** Run ID: **O&GMOD_120619A** SeqNo: **2004496** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	8913	50	8536	7246	19.5	50-150	12550	33.9	30	SR

The following samples were analyzed in this batch: 1206415-01A 1206415-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

ALS Environmental

Page 1 of 1

COC ID: 03223

☐ Cincinnati, OH +1 513 733 5336 ☒ Holland, MI +1 616 399 6070 ☐ Salt Lake City, UT +1 801 266 7700
☐ Everett, WA +1 425 356 2600 ☐ Houston, TX +1 281 530 5656 ☐ Spring City, PA +1 610 948 4903
☐ Fort Collins, CO +1 970 490 1511 ☐ Middletown, PA +1 717 944 5541 ☐ York, PA +1 717 505 5280

ALS Project Manager: | ALS Work Order #: 1206415

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	TASK # 9.05	Project Name	TIMBER MATS	A	O&G Modified (MeCl2)
Work Order		Project Number		B	
Company Name	AECOM Environment	Bill To Company	Enbridge Energy	C	
Send Report To	Doran Lefaive	Invoice Attn	Accounts Payable	D	
Address	5555 Glenwood Parkway SE	Address	1100 Louisiana Suite 1100	E	
				F	
City/State/Zip	Grand Rapids, MI 49512	City/State/Zip	Houston, TX 77002	G	
Phone	(616) 942-9600	Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	CELLB PILE 135 TPH 1081	6-11-12	0945	OILY DEBRIS	none	2	X										
2	CELLB PILE 135 TPH 1082	6-11-12	0940	OILY DEBRIS	none	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HKM 6-11-12

Sampler(s) Please Print & Sign: APRIL MODERT

Shipment Method:

Required Turnaround Time: (Check Box) ☐ Other ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 6.12.12	Time: 1315	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory): KRJ	Date: 6/13/12	Time: 1615	Checked by (Laboratory):	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Notes:

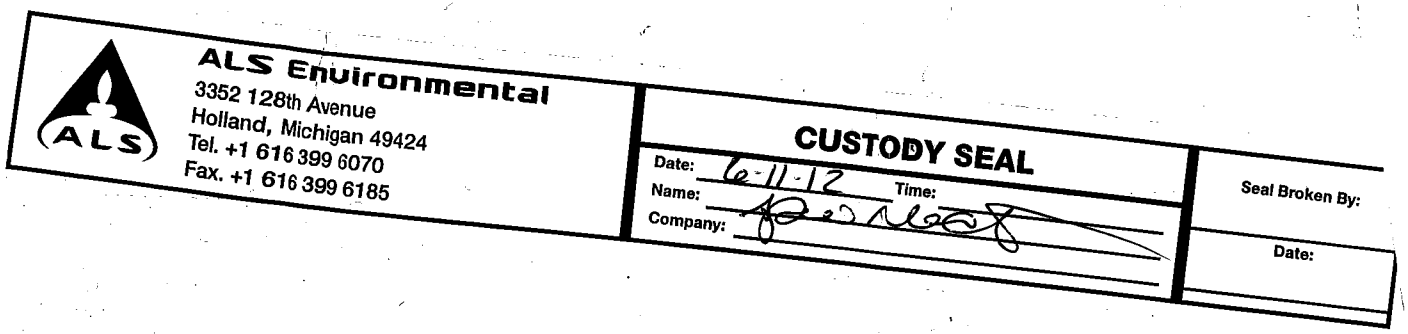
Cooler ID	Cooler Temp
	6.6°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

6.6



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6-11-12 Time:
Name:
Company:

Seal Broken By:

Date:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **13-Jun-12 13:15**

Work Order: **1206415** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 13-Jun-12 Date Reviewed by: Ann Preston eSignature 14-Jun-12 Date

Matrices: Solid
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	6.6 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

27-Jun-2012

Doran Lefaive
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall Roll-Off Box RT3273 6/18/12** Work Order: **1206698**

Dear Doran,

ALS Environmental received 1 sample on 20-Jun-2012 07:10 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall Roll-Off Box RT3273 6/18/12
Work Order: **1206698**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206698-01	061812RB3273	Solid		6/18/2012 13:00	6/20/2012 19:10	☐

Client: AECOM Environment
Project: Marshall Roll-Off Box RT3273 6/18/12
Work Order: 1206698

Case Narrative

Sample 061812RB3273 matrix is an oily debris.

Crude oil received from Intertek was used for the QC sample spikes.

Sample 1206698-01 is reported on a wet weight basis.

ALS Group USA, Corp

Date: 27-Jun-12

Client: AECOM Environment
Project: Marshall Roll-Off Box RT3273 6/18/12
WorkOrder: **1206698**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: *27-Jun-12*

Client: AECOM Environment
Project: Marshall Roll-Off Box RT3273 6/18/12
Work Order: 1206698
Sample ID: 061812RB3273
Lab ID: 1206698-01
Collection Date: 6/18/2012 01:00 PM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
OIL AND GREASE			**E1664MM**			Analyst: **NZ**
Oil and Grease	**130**		**50**	**mg/Kg**	1	6/25/2012 03:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **R106566** Instrument ID **O&GMOD** Method: **E1664MM**

MBLK Sample ID: **MB-R106566-R106566** Units: **mg/Kg** Analysis Date: **6/25/2012 03:00 PM**

Client ID: Run ID: **O&GMOD_120625A** SeqNo: **2012469** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	50								

LCS Sample ID: **LCS-R106566-R106566** Units: **mg/Kg** Analysis Date: **6/25/2012 03:00 PM**

Client ID: Run ID: **O&GMOD_120625A** SeqNo: **2012470** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	3707	50	4667	0	79.4	50-150	0			

MS Sample ID: **1206698-01A MS** Units: **mg/Kg** Analysis Date: **6/25/2012 03:00 PM**

Client ID: **061812RB3273** Run ID: **O&GMOD_120625A** SeqNo: **2012472** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	3546	50	4400	131.1	77.6	50-150	0			

MSD Sample ID: **1206698-01A MSD** Units: **mg/Kg** Analysis Date: **6/25/2012 03:00 PM**

Client ID: **061812RB3273** Run ID: **O&GMOD_120625A** SeqNo: **2012473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	3639	50	4629	131.1	75.8	50-150	3546	2.6	30	

The following samples were analyzed in this batch: 1206698-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

ALS Environmental

Page 1 of 1

COC ID: 03224

☐ Cincinnati, OH +1 513 733 5336 ☒ Holland, MI +1 616 399 6070 ☐ Salt Lake City, UT +1 801 266 7700
☐ Everett, WA +1 425 356 2600 ☐ Houston, TX +1 281 530 5656 ☐ Spring City, PA +1 610 948 4903
☐ Fort Collins, CO +1 970 490 1511 ☐ Middletown, PA +1 717 944 5541 ☐ York, PA +1 717 505 5280

ALS Project Manager: | ALS Work Order #: 1206698

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	TASK 9.05	Project Name	ROLL-OFF BOX RT3273	A	O&G Modified (MeCl2)
Work Order		Project Number		B	
Company Name	AECOM Environment	Bill To Company	Enbridge Energy	C	
Send Report To	Doran Lefaive	Invoice Attn	Accounts Payable	D	
Address	5555 Glenwood Parkway SE	Address	1100 Louisiana Suite 1100	E	
				F	
City/State/Zip	Grand Rapids, MI 49512	City/State/Zip	Houston, TX 77002	G	
Phone	(616) 942-9600	Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	061812 RB3273	6.18.12	1300	OILY DEBRIS	None	2	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

AKM 6.18.12

Sampler(s) Please Print & Sign: APRIL MOORE

Shipment Method:

Required Turnaround Time: (Check Box) ☐ Other ____ ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

	Date:	Time:	
Relinquished by:	6.20.12	1716	Received by:
Relinquished by:	6/20/12	1910	Received by (Laboratory):
Logged by (Laboratory): KW	6/21/12	0815	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp
	4.4°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other ____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **20-Jun-12 19:10**

Work Order: **1206698** Received by: **PD**

Checklist completed by Keith Wierenga (eSignature) 21-Jun-12 (Date) Reviewed by: Tom Bramish (eSignature) 21-Jun-12 (Date)

Matrices: Solid
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.4 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

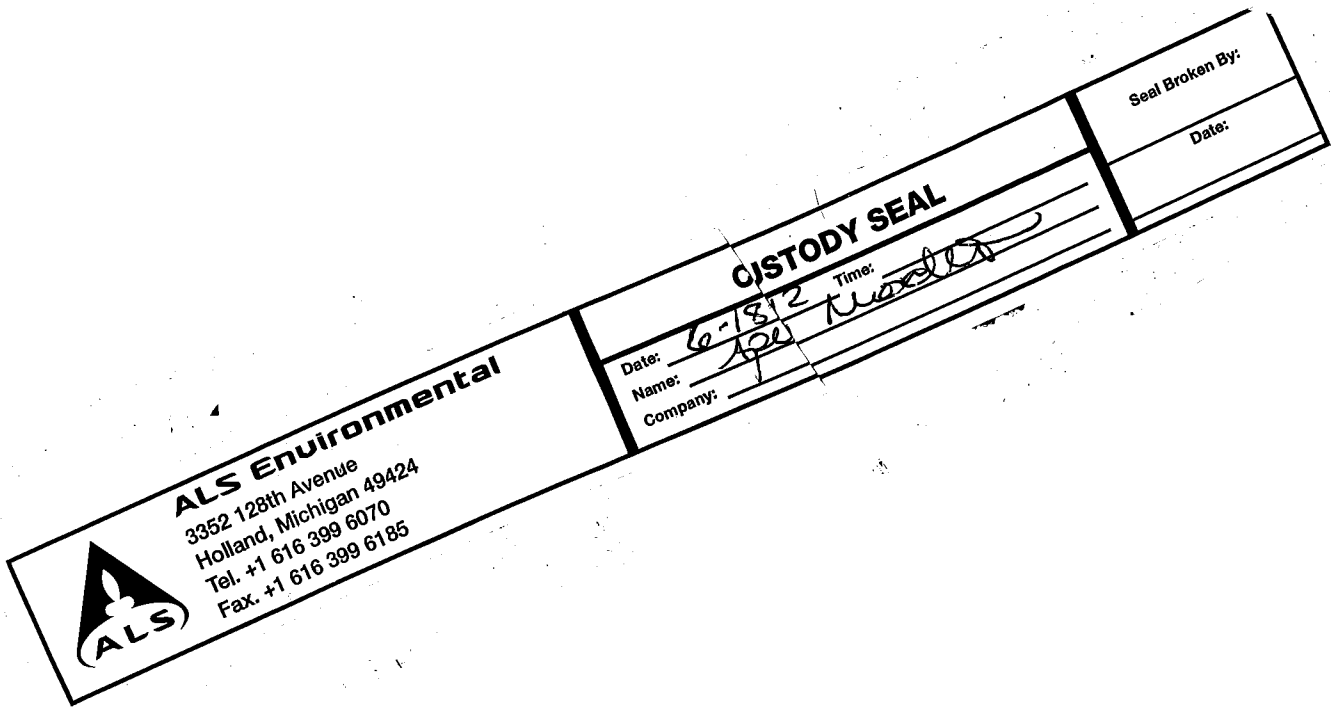
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

4.4 0.3 C


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 6-18-12
Time:
Name:
Company:
Seal Broken By:
Date:

29-Jun-2012

Doran Lefaive
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall FTC Sump 6/22/12** Work Order: **1206821**

Dear Doran,

ALS Environmental received 1 sample on 22-Jun-2012 04:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall FTC Sump 6/22/12
Work Order: **1206821**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206821-01	WWFTCSUMP062212	Wastewater		6/22/2012 07:10	6/22/2012 16:46	☐

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment
Project: Marshall FTC Sump 6/22/12
WorkOrder: **1206821**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *29-Jun-12*

Client:	AECOM Environment		
Project:	Marshall FTC Sump 6/22/12	**Work Order:**	1206821
Sample ID:	WWFTCSUMP062212	**Lab ID:**	1206821-01
Collection Date:	6/22/2012 07:10 AM	**Matrix:**	WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
OIL AND GREASE			**E1664MM**			Analyst: **NZ**
Oil and Grease	ND		5.0	mg/L	1	6/28/2012 02:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 29-Jun-12

Client: AECOM Environment

QC BATCH REPORT

Work Order: 1206821

Project: Marshall FTC Sump 6/22/12

Batch ID: **R106704** Instrument ID **O&G** Method: **E1664MM**

MBLK Sample ID: **MB-R106704-R106704** Units: **mg/L** Analysis Date: **6/28/2012 02:00 PM**

Client ID: Run ID: **O&G_120628B** SeqNo: **2015984** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	5.0								

LCS Sample ID: **LCS-R106704-R106704** Units: **mg/L** Analysis Date: **6/28/2012 02:00 PM**

Client ID: Run ID: **O&G_120628B** SeqNo: **2015988** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	47.2	5.0	70	0	67.4	50-150	0			

The following samples were analyzed in this batch: 1206821-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

ALS Environmental

Page 1 of 1

COC ID: 03225

☐ Cincinnati, OH +1 513 733 5336 ☒ Holland, MI +1 616 399 6070 ☐ Salt Lake City, UT +1 801 266 7700
☐ Everett, WA +1 425 356 2600 ☐ Houston, TX +1 281 530 5656 ☐ Spring City, PA +1 610 948 4903
☐ Fort Collins, CO +1 970 490 1511 ☐ Middletown, PA +1 717 944 5541 ☐ York, PA +1 717 505 5280

ALS Project Manager: | ALS Work Order #: 1206821

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	TASK 9.05	Project Name	FTC SUMP	A	O&G Modified (MeCl2)
Work Order		Project Number		B	
Company Name	AECOM Environment	Bill To Company	Enbridge Energy	C	
Send Report To	Doran Lefaive	Invoice Attn	Accounts Payable	D	
Address	5555 Glenwood Parkway SE	Address	1100 Louisiana Suite 1100	E	
				F	
City/State/Zip	Grand Rapids, MI 49512	City/State/Zip	Houston, TX 77002	G	
Phone	(616) 942-9600	Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WWFTCSUMP062212	6-22-12	0710	WW	3	2	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

KKM 6-22-12

Sampler(s) Please Print & Sign: APRIL MODERT, [signature]

Shipment Method:

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: [signature]	Date: 6-22-12	Time: 1646	Received by: [signature]	Notes:
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory): DES	Date: 6/25/12	Time: 0930	Checked by (Laboratory): [signature]	

Cooler ID	Cooler Temp
	4.4°c

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **22-Jun-12 16:46**

Work Order: **1206821** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 25-Jun-12 (Date) Reviewed by: Ann Preston (eSignature) 25-Jun-12 (Date)

Matrices: Wastewater
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.4 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

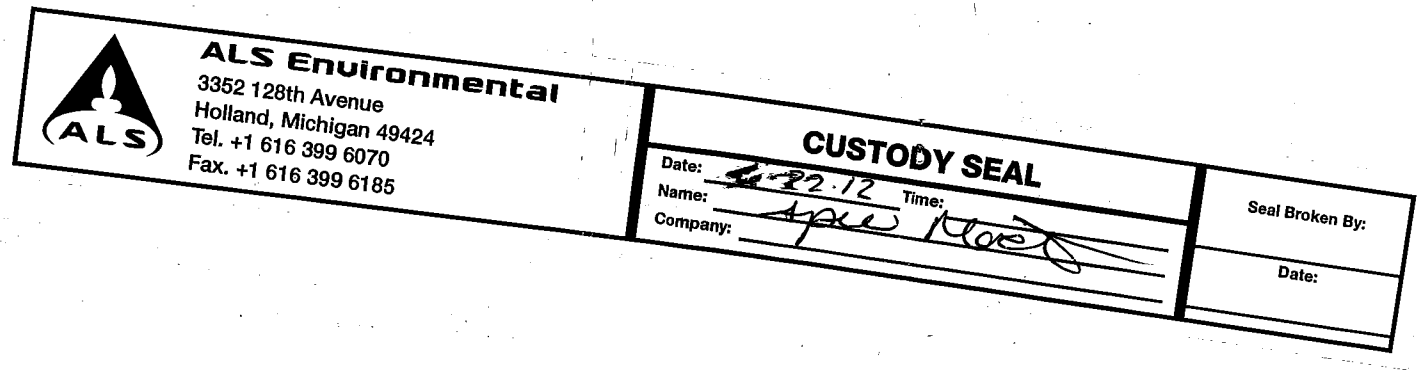
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 4-22-12
Time:
Name:
Company:
Seal Broken By:
Date:

4.4'c

30-May-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1050L SW 5/22/12** Work Order: **1205726**

Dear Bryan,

ALS Environmental received 1 sample on 23-May-2012 01:19 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 30-May-12

Client: AECOM Environment
Project: Marshall KRRI 1050L SW 5/22/12
Work Order: **1205726**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205726-01	SWKR1050L001S052212FX	Surface Water		5/22/2012 14:50	5/23/2012 13:19	☐

ALS Group USA, Corp

Date: 30-May-12

Client: AECOM Environment
Project: Marshall KRRI 1050L SW 5/22/12
Work Order: 1205726

Case Narrative

Sample SWKR1050L001S052212FX PAH analysis had a low surrogate recovery for Nitrobenzene-d5. All PAH compounds were ND for this samples, but the reporting limits may be biased low due to matrix interference.

ALS Group USA, Corp

Date: 30-May-12

Client: AECOM Environment
Project: Marshall KRRI 1050L SW 5/22/12
WorkOrder: **1205726**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *30-May-12*

Client:	AECOM Environment	**Client Sample ID:**	SWKR1050L001S052212FX
Work Order:	1205726	**Collection Date:**	5/22/2012 2:50:00 PM
Project:	Marshall KRRI 1050L SW 5/22/12		
Lab ID:	1205726-01	**Matrix:**	SURFACE WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/25/2012**		Analyst: **CW**
DRO (C10-C20)	ND	0.10	0.10		mg/L	1	5/26/2012
ORO (C20-C34)	ND	0.10	0.10		mg/L	1	5/26/2012
Surr: 4-Terphenyl-d14	*33.8*	*26-109*			*%REC*	1	5/26/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/28/2012**		Analyst: **RH**
Beryllium	ND	0.0010	0.0010		mg/L	1	5/29/2012
Molybdenum	ND	0.050	0.050		mg/L	1	5/29/2012
Nickel	ND	0.020	0.020		mg/L	1	5/29/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	5/29/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/25/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	5/25/2012
Acenaphthene	ND	5.0	5.0		µg/L	1	5/25/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	5/25/2012
Anthracene	ND	5.0	5.0		µg/L	1	5/25/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	5/25/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	5/25/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	5/25/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	5/25/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	5/25/2012
Chrysene	ND	1.0	1.0		µg/L	1	5/25/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	5/25/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	5/25/2012
Fluorene	ND	5.0	5.0		µg/L	1	5/25/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	5/25/2012
Naphthalene	ND	5.0	5.0		µg/L	1	5/25/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	5/25/2012
Pyrene	ND	5.0	5.0		µg/L	1	5/25/2012
Surr: 2,4,6-Tribromophenol	*40.2*	*21-125*			*%REC*	1	5/25/2012
Surr: 2-Fluorobiphenyl	*36.8*	*36-94*			*%REC*	1	5/25/2012
Surr: 2-Fluorophenol	*18.8*	*10-75*			*%REC*	1	5/25/2012
Surr: 4-Terphenyl-d14	*58.0*	*26-119*			*%REC*	1	5/25/2012
Surr: Nitrobenzene-d5	*35.0*	*41-104*		S	*%REC*	1	5/25/2012
Surr: Phenol-d6	*15.5*	*11-50*			*%REC*	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41317** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:34 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987173** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	0.0002933	0.0050								J
Nickel	ND	0.0050								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:39 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987175** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.1022	0.0020	0.1	0	102	80-120	0			
Molybdenum	0.09803	0.0050	0.1	0	98	80-120	0			
Nickel	0.09742	0.0050	0.1	0	97.4	80-120	0			
Vanadium	0.1022	0.0050	0.1	0	102	80-120	0			

LCSD Sample ID: **LCSD-41317-41317** Units: **mg/L** Analysis Date: **5/29/2012 08:44 PM**
Client ID: Run ID: **ICPMS2_120529A** SeqNo: **1987177** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09852	0.0020	0.1	0	98.5	80-120	0.1022	3.67	20	
Molybdenum	0.09485	0.0050	0.1	0	94.8	80-120	0.09803	3.3	20	
Nickel	0.09309	0.0050	0.1	0	93.1	80-120	0.09742	4.55	20	
Vanadium	0.09839	0.0050	0.1	0	98.4	80-120	0.1022	3.8	20	

MS Sample ID: **1205726-01AMS** Units: **mg/L** Analysis Date: **5/29/2012 10:48 PM**
Client ID: **SWKR1050L001S052212FX** Run ID: **ICPMS2_120529A** SeqNo: **1987228** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09484	0.0020	0.1	0.00001094	94.8	80-120	0			
Molybdenum	0.09543	0.0050	0.1	0.0004796	95	80-120	0			
Nickel	0.09381	0.0050	0.1	0.00137	92.4	80-120	0			
Vanadium	0.1002	0.0050	0.1	0.0008133	99.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205726
Project: Marshall KRRI 1050L SW 5/22/12

QC BATCH REPORT

Batch ID: **41317** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1205726-01AMSD** Units: **mg/L** Analysis Date: **5/29/2012 10:52 PM**
Client ID: **SWKR1050L001S052212FX** Run ID: **ICPMS2_120529A** SeqNo: **1987230** Prep Date: **5/28/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09677	0.0020	0.1	0.00001094	96.8	80-120	0.09484	2.01	20	
Molybdenum	0.09932	0.0050	0.1	0.0004796	98.8	80-120	0.09543	3.99	20	
Nickel	0.09561	0.0050	0.1	0.00137	94.2	80-120	0.09381	1.9	20	
Vanadium	0.1026	0.0050	0.1	0.0008133	102	80-120	0.1002	2.37	20	

The following samples were analyzed in this batch: 1205726-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205726
Project: Marshall KRRI 1050L SW 5/22/12

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 06:36 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986476** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*32.61*	0	*50*	0	*65.2*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*30.62*	0	*50*	0	*61.2*	*36-94*	0			
Surr: 2-Fluorophenol	*21.41*	0	*50*	0	*42.8*	*10-75*	0			
Surr: 4-Terphenyl-d14	*31.27*	0	*50*	0	*62.5*	*26-119*	0			
Surr: Nitrobenzene-d5	*28.53*	0	*50*	0	*57.1*	*41-104*	0			
Surr: Phenol-d6	*11.6*	0	*50*	0	*23.2*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 07:12 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986477** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	12.96	5.0	20	0	64.8	45-105	0			
Acenaphthene	13.37	5.0	20	0	66.8	45-110	0			
Acenaphthylene	14.02	5.0	20	0	70.1	50-105	0			
Anthracene	13.34	5.0	20	0	66.7	55-110	0			
Benzo(a)anthracene	14.51	5.0	20	0	72.6	55-110	0			
Benzo(a)pyrene	13.95	5.0	20	0	69.8	55-110	0			
Benzo(b)fluoranthene	16.82	5.0	20	0	84.1	45-120	0			
Benzo(g,h,i)perylene	15.49	5.0	20	0	77.4	40-125	0			
Benzo(k)fluoranthene	12.12	5.0	20	0	60.6	45-125	0			
Chrysene	14.72	5.0	20	0	73.6	55-110	0			
Dibenzo(a,h)anthracene	13.83	5.0	20	0	69.2	40-125	0			
Fluoranthene	13.69	5.0	20	0	68.4	55-115	0			
Fluorene	13.51	5.0	20	0	67.6	50-110	0			
Indeno(1,2,3-cd)pyrene	13.96	5.0	20	0	69.8	45-125	0			
Naphthalene	13.22	5.0	20	0	66.1	40-100	0			
Phenanthrene	14.35	5.0	20	0	71.8	50-115	0			
Pyrene	14.56	5.0	20	0	72.8	50-130	0			
Surr: 2,4,6-Tribromophenol	*40.27*	0	*50*	0	*80.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*36.27*	0	*50*	0	*72.5*	*36-94*	0			
Surr: 2-Fluorophenol	*20.75*	0	*50*	0	*41.5*	*10-75*	0			
Surr: 4-Terphenyl-d14	*30.51*	0	*50*	0	*61*	*26-119*	0			
Surr: Nitrobenzene-d5	*33.28*	0	*50*	0	*66.6*	*41-104*	0			
Surr: Phenol-d6	*11.76*	0	*50*	0	*23.5*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205726
Project: Marshall KRRI 1050L SW 5/22/12

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-41291-41291** Units: **µg/L** Analysis Date: **5/25/2012 07:48 PM**
Client ID: Run ID: **SVMS5_120525A** SeqNo: **1986478** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	11.97	5.0	20	0	59.8	45-105	12.96	7.94	30	
Acenaphthene	12.51	5.0	20	0	62.6	45-110	13.37	6.65	30	
Acenaphthylene	12.91	5.0	20	0	64.6	50-105	14.02	8.24	30	
Anthracene	12.36	5.0	20	0	61.8	55-110	13.34	7.63	30	
Benzo(a)anthracene	13.85	5.0	20	0	69.2	55-110	14.51	4.65	30	
Benzo(a)pyrene	13.5	5.0	20	0	67.5	55-110	13.95	3.28	30	
Benzo(b)fluoranthene	16.72	5.0	20	0	83.6	45-120	16.82	0.596	30	
Benzo(g,h,i)perylene	15.21	5.0	20	0	76	40-125	15.49	1.82	30	
Benzo(k)fluoranthene	11.66	5.0	20	0	58.3	45-125	12.12	3.87	30	
Chrysene	14.19	5.0	20	0	71	55-110	14.72	3.67	30	
Dibenzo(a,h)anthracene	13.55	5.0	20	0	67.8	40-125	13.83	2.05	30	
Fluoranthene	12.83	5.0	20	0	64.2	55-115	13.69	6.49	30	
Fluorene	12.55	5.0	20	0	62.8	50-110	13.51	7.37	30	
Indeno(1,2,3-cd)pyrene	13.67	5.0	20	0	68.4	45-125	13.96	2.1	30	
Naphthalene	11.93	5.0	20	0	59.6	40-100	13.22	10.3	30	
Phenanthrene	13.08	5.0	20	0	65.4	50-115	14.35	9.26	30	
Pyrene	13.82	5.0	20	0	69.1	50-130	14.56	5.21	30	
Surr: 2,4,6-Tribromophenol	*37.31*	0	*50*	0	*74.6*	*21-125*	40.27	*7.63*	*40*	
Surr: 2-Fluorobiphenyl	*33.67*	0	*50*	0	*67.3*	*36-94*	36.27	*7.43*	*40*	
Surr: 2-Fluorophenol	*21.51*	0	*50*	0	*43*	*10-75*	20.75	*3.6*	*40*	
Surr: 4-Terphenyl-d14	*34.25*	0	*50*	0	*68.5*	*26-119*	30.51	*11.6*	*40*	
Surr: Nitrobenzene-d5	*31.45*	0	*50*	0	*62.9*	*41-104*	33.28	*5.65*	*40*	
Surr: Phenol-d6	*11.65*	0	*50*	0	*23.3*	*11-50*	11.76	*0.94*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205726-01B MS** Units: **µg/L** Analysis Date: **5/25/2012 08:23 PM**
Client ID: **SWKR1050L001S052212FX** Run ID: **SVMS5_120525A** SeqNo: **1986479** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	116.6	50	200	0	58.3	45-105	0			
Acenaphthene	125.5	50	200	0	62.8	45-110	0			
Acenaphthylene	127.7	50	200	0	63.8	50-105	0			
Anthracene	122.7	50	200	0	61.4	55-110	0			
Benzo(a)anthracene	140.7	50	200	0	70.4	55-110	0			
Benzo(a)pyrene	136.5	50	200	0	68.2	55-110	0			
Benzo(b)fluoranthene	167.8	50	200	0	83.9	45-120	0			
Benzo(g,h,i)perylene	152.5	50	200	0	76.2	40-125	0			
Benzo(k)fluoranthene	115.6	50	200	0	57.8	45-125	0			
Chrysene	140.6	50	200	0	70.3	55-110	0			
Dibenzo(a,h)anthracene	135.1	50	200	0	67.6	40-125	0			
Fluoranthene	129.7	50	200	0	64.8	55-115	0			
Fluorene	126.6	50	200	0	63.3	50-110	0			
Indeno(1,2,3-cd)pyrene	136.2	50	200	0	68.1	45-125	0			
Naphthalene	116.3	50	200	0	58.2	40-100	0			
Phenanthrene	131.1	50	200	0	65.6	50-115	0			
Pyrene	139.8	50	200	0	69.9	50-130	0			
Surr: 2,4,6-Tribromophenol	*356.7*	0	*500*	0	*71.3*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*330.3*	0	*500*	0	*66.1*	*36-94*	0			
Surr: 2-Fluorophenol	*190.4*	0	*500*	0	*38.1*	*10-75*	0			
Surr: 4-Terphenyl-d14	*350*	0	*500*	0	*70*	*26-119*	0			
Surr: Nitrobenzene-d5	*305.8*	0	*500*	0	*61.2*	*41-104*	0			
Surr: Phenol-d6	*120.4*	0	*500*	0	*24.1*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205726
Project: Marshall KRRI 1050L SW 5/22/12

QC BATCH REPORT

Batch ID: **41291** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205726-01B MSD** Units: **µg/L** Analysis Date: **5/25/2012 08:59 PM**
Client ID: **SWKR1050L001S052212FX** Run ID: **SVMS5_120525A** SeqNo: **1986480** Prep Date: **5/25/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	127.4	50	200	0	63.7	45-105	116.6	8.85	30	
Acenaphthene	132.2	50	200	0	66.1	45-110	125.5	5.2	30	
Acenaphthylene	134.9	50	200	0	67.4	50-105	127.7	5.48	30	
Anthracene	127.5	50	200	0	63.8	55-110	122.7	3.84	30	
Benzo(a)anthracene	142.5	50	200	0	71.2	55-110	140.7	1.27	30	
Benzo(a)pyrene	137.2	50	200	0	68.6	55-110	136.5	0.512	30	
Benzo(b)fluoranthene	154.3	50	200	0	77.2	45-120	167.8	8.38	30	
Benzo(g,h,i)perylene	154.3	50	200	0	77.2	40-125	152.5	1.17	30	
Benzo(k)fluoranthene	131.2	50	200	0	65.6	45-125	115.6	12.6	30	
Chrysene	144.6	50	200	0	72.3	55-110	140.6	2.81	30	
Dibenzo(a,h)anthracene	136.8	50	200	0	68.4	40-125	135.1	1.25	30	
Fluoranthene	131.3	50	200	0	65.6	55-115	129.7	1.23	30	
Fluorene	133.7	50	200	0	66.8	50-110	126.6	5.46	30	
Indeno(1,2,3-cd)pyrene	137.2	50	200	0	68.6	45-125	136.2	0.732	30	
Naphthalene	125.3	50	200	0	62.6	40-100	116.3	7.45	30	
Phenanthrene	136.2	50	200	0	68.1	50-115	131.1	3.82	30	
Pyrene	142	50	200	0	71	50-130	139.8	1.56	30	
Surr: 2,4,6-Tribromophenol	*348.3*	0	*500*	0	*69.7*	*21-125*	356.7	*2.38*	*40*	
Surr: 2-Fluorobiphenyl	*353*	0	*500*	0	*70.6*	*36-94*	330.3	*6.64*	*40*	
Surr: 2-Fluorophenol	*201.9*	0	*500*	0	*40.4*	*10-75*	190.4	*5.86*	*40*	
Surr: 4-Terphenyl-d14	*332.8*	0	*500*	0	*66.6*	*26-119*	350	*5.04*	*40*	
Surr: Nitrobenzene-d5	*330.1*	0	*500*	0	*66*	*41-104*	305.8	*7.64*	*40*	
Surr: Phenol-d6	*134.5*	0	*500*	0	*26.9*	*11-50*	120.4	*11.1*	*40*	

The following samples were analyzed in this batch: 1205726-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205726

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052212_RAR1	Task: KRRI_SW
	Total # of Samples: 1	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City:	Grand Rapids
State, Zip:	MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative: HNO3	None	None	Analysis: Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
1	SWKR1050L001S052212FX	SWKR1050L001	WS	G	05/22/2012 14:50	3					X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Reed Rector	5.22.12	1658		5.22.12	1658
	5.23.12	1319		5.23.12	1319

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
2.0°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: REED RECTOR (RAR1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **23-May-12 13:19**

Work Order: **1205726** Received by: **PD**

Checklist completed by Diane Shaw (eSignature) 23-May-12 (Date) Reviewed by: Ann Preston (eSignature) 24-May-12 (Date)

Matrices: Surface Water
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

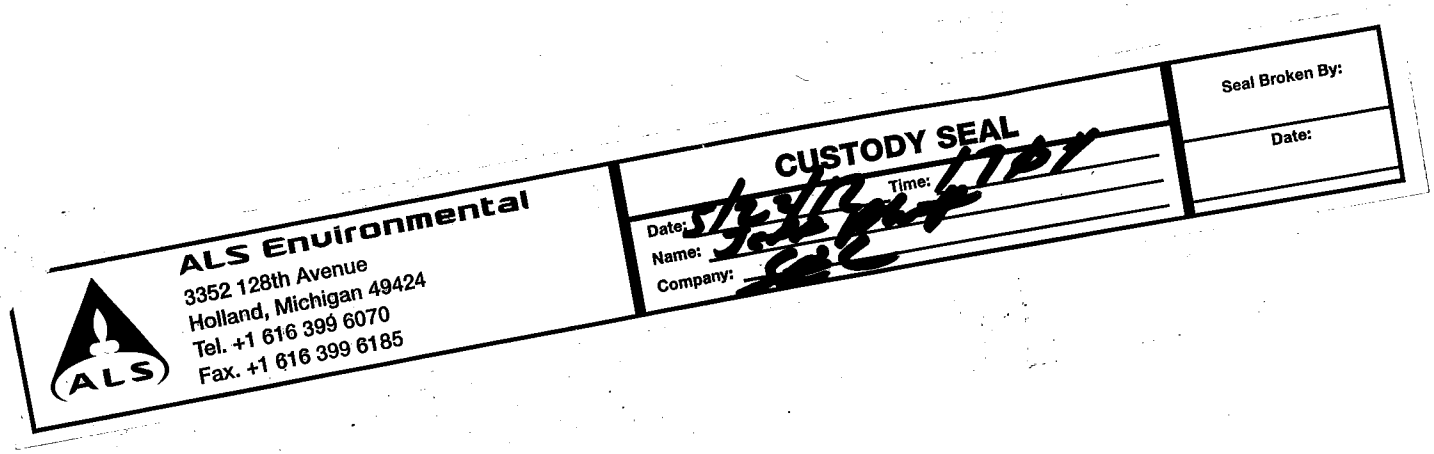
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date:
Time:
Name:
Company:
Seal Broken By:
Date:

04-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1050L,1150L Sediment 5/23/12** Work Order: **1205758**

Dear Bryan,

ALS Environmental received 4 samples on 24-May-2012 03:12 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: MN331938

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12
Work Order: **1205758**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205758-01	SEKR1050L505S052312D005	Sediment		5/23/2012 09:38	5/24/2012 15:12	☐
1205758-02	SEKR1050L505S052312D015	Sediment		5/23/2012 09:39	5/24/2012 15:12	☐
1205758-03	SEKR1150L501S052312D003	Sediment		5/23/2012 15:18	5/24/2012 15:12	☐
1205758-04	SEKR1150L501S052312D010	Sediment		5/23/2012 15:19	5/24/2012 15:12	☐

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12
WorkOrder: **1205758**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1050L505S052312D005
Work Order:	1205758	**Collection Date:**	5/23/2012 9:38:00 AM
Project:	Marshall KRRI 1050L,1150L Sediment 5/23/12		
Lab ID:	1205758-01	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	**130**	**41**	**4.0**		**mg/Kg-dry**	1	5/29/2012
ORO (C20-C34)	**680**	**82**	**4.0**		**mg/Kg-dry**	1	5/29/2012
Surr: 4-Terphenyl-d14	*44.8*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.64	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**2.8**	**1.3**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**28**	**1.1**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**24**	**1.1**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	**760**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(a)pyrene	**910**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(b)fluoranthene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	**640**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(k)fluoranthene	**400**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Chrysene	**850**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**1,300**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	**500**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	**440**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Pyrene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*87.9*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*61.5*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*67.7*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*76.2*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*63.4*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*71.1*	*40-106*			*%REC*	1	5/30/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**76**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1050L505S052312D015
Work Order:	1205758	**Collection Date:**	5/23/2012 9:39:00 AM
Project:	Marshall KRRI 1050L,1150L Sediment 5/23/12		
Lab ID:	1205758-02	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	33	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	**970**	**66**	**4.0**		**mg/Kg-dry**	1	5/29/2012
Surr: 4-Terphenyl-d14	*47.8*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**2.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(a)pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(b)fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	**770**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(k)fluoranthene	**660**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Chrysene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	**620**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	**650**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Pyrene	**1,800**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*90.4*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*59.1*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*58.1*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*79.7*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*56.2*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*65.6*	*40-106*			*%REC*	1	5/30/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**72**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L501S052312D003
Work Order:	1205758	**Collection Date:**	5/23/2012 3:18:00 PM
Project:	Marshall KRRI 1050L,1150L Sediment 5/23/12		
Lab ID:	1205758-03	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	**110**	**29**	**4.0**		**mg/Kg-dry**	1	5/29/2012
ORO (C20-C34)	**370**	**57**	**4.0**		**mg/Kg-dry**	1	5/29/2012
Surr: 4-Terphenyl-d14	*47.1*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Surr: 2,4,6-Tribromophenol	*103*	*34-140*			*%REC*	1	5/29/2012
Surr: 2-Fluorobiphenyl	*72.3*	*12-100*			*%REC*	1	5/29/2012
Surr: 2-Fluorophenol	*79.1*	*33-117*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*80.1*	*25-137*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*70.1*	*37-107*			*%REC*	1	5/29/2012
Surr: Phenol-d6	*72.5*	*40-106*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1150L501S052312D010
Work Order:	1205758	**Collection Date:**	5/23/2012 3:19:00 PM
Project:	Marshall KRRI 1050L,1150L Sediment 5/23/12		
Lab ID:	1205758-04	**Matrix:**	SEDIMENT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	14	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	27	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*42.3*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**4.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**10**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Surr: 2,4,6-Tribromophenol	*95.5*	*34-140*			*%REC*	1	5/29/2012
Surr: 2-Fluorobiphenyl	*72.6*	*12-100*			*%REC*	1	5/29/2012
Surr: 2-Fluorophenol	*80.1*	*33-117*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*86.4*	*25-137*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*72.0*	*37-107*			*%REC*	1	5/29/2012
Surr: Phenol-d6	*77.3*	*40-106*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**31**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: AECOM Environment
Work Order: 1205758
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12

QC BATCH REPORT

Batch ID: **41320** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 08:23 PM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989811** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.16*	0	*5*	0	*43.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 07:31 PM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989812** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	567.8	10	500	0	114	60-130	0			
ORO (C20-C34)	645.5	20	500	0	129	60-130	0			
Surr: 4-Terphenyl-d14	*2.052*	0	*5*	0	*41*	*39-115*	0			

MS Sample ID: **1205760-04A MS** Units: **mg/Kg** Analysis Date: **5/30/2012 01:56 AM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989813** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	535.1	9.8	490.9	0	109	60-130	0			
ORO (C20-C34)	758.9	20	490.9	289.8	95.6	60-130	0			
Surr: 4-Terphenyl-d14	*2.487*	0	*4.909*	0	*50.7*	*39-115*	0			

MSD Sample ID: **1205760-04A MSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:22 AM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989814** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	486.3	9.8	489.7	0	99.3	60-130	535.1	9.56	30	
ORO (C20-C34)	682.4	20	489.7	289.8	80.2	60-130	758.9	10.6	30	
Surr: 4-Terphenyl-d14	*2.716*	0	*4.897*	0	*55.5*	*39-115*	2.487	*8.81*	*30*	

The following samples were analyzed in this batch: 1205758-01A 1205758-02A 1205758-03A 1205758-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205758
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:48 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987143** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01578	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:54 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987145** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.563	0.10	5	0	91.3	80-120	0			
Molybdenum	4.982	0.25	5	0	99.6	80-120	0			
Nickel	4.672	0.25	5	0	93.4	80-120	0			
Vanadium	4.81	0.25	5	0	96.2	80-120	0			

LCSD Sample ID: **LCSD-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 10:00 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987147** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.664	0.10	5	0	93.3	80-120	4.563	2.18	20	
Molybdenum	5.075	0.25	5	0	102	80-120	4.982	1.85	20	
Nickel	4.713	0.25	5	0	94.3	80-120	4.672	0.863	20	
Vanadium	4.868	0.25	5	0	97.4	80-120	4.81	1.19	20	

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 02:39 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987215** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.497	1.3	6.468	0.208	97.2	80-120	0			
Nickel	12.04	1.3	6.468	5.972	93.8	80-120	0			
Vanadium	13.86	1.3	6.468	6.652	111	80-120	0			

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 06:16 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988373** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.845	0.52	6.468	0.1239	88.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:45 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987217** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.952	1.4	6.916	0.208	97.5	80-120	6.497	6.76	25	
Nickel	11.52	1.4	6.916	5.972	80.2	80-120	12.04	4.44	25	
Vanadium	13.13	1.4	6.916	6.652	93.7	80-120	13.86	5.34	25	

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 06:22 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988374** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.279	0.55	6.916	0.1239	89	80-120	5.845	7.17	25	

The following samples were analyzed in this batch: 1205758-01A 1205758-02A 1205758-03A 1205758-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 08:58 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987560** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4491*	0	*5000*	0	*89.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4538*	0	*5000*	0	*90.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4383*	0	*5000*	0	*87.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3928*	0	*5000*	0	*78.6*	*37-107*	0			
Surr: Phenol-d6	*4253*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 09:35 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987561** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1830	50	2000	0	91.5	45-105	0			
Acenaphthene	1864	50	2000	0	93.2	45-110	0			
Acenaphthylene	1978	50	2000	0	98.9	45-105	0			
Anthracene	1727	50	2000	0	86.4	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1654	50	2000	0	82.7	50-110	0			
Benzo(b)fluoranthene	1990	50	2000	0	99.5	45-115	0			
Benzo(g,h,i)perylene	1920	50	2000	0	96	40-125	0			
Benzo(k)fluoranthene	1559	50	2000	0	78	45-115	0			
Chrysene	1856	50	2000	0	92.8	55-110	0			
Dibenzo(a,h)anthracene	1731	50	2000	0	86.6	40-125	0			
Fluoranthene	1704	50	2000	0	85.2	55-115	0			
Fluorene	1797	50	2000	0	89.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1739	50	2000	0	87	40-120	0			
Naphthalene	1804	50	2000	0	90.2	40-105	0			
Phenanthrene	1909	50	2000	0	95.4	50-110	0			
Pyrene	1810	50	2000	0	90.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4779*	0	*5000*	0	*95.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4662*	0	*5000*	0	*93.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4431*	0	*5000*	0	*88.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4445*	0	*5000*	0	*88.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4133*	0	*5000*	0	*82.7*	*37-107*	0			
Surr: Phenol-d6	*4507*	0	*5000*	0	*90.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 10:13 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987562** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1767	50	2000	0	88.4	45-105	1830	3.5	25	
Acenaphthene	1806	50	2000	0	90.3	45-110	1864	3.16	25	
Acenaphthylene	1917	50	2000	0	95.8	45-105	1978	3.13	25	
Anthracene	1694	50	2000	0	84.7	55-105	1727	1.93	25	
Benzo(a)anthracene	1819	50	2000	0	91	50-110	1790	1.61	25	
Benzo(a)pyrene	1744	50	2000	0	87.2	50-110	1654	5.3	25	
Benzo(b)fluoranthene	2102	50	2000	0	105	45-115	1990	5.47	25	
Benzo(g,h,i)perylene	1938	50	2000	0	96.9	40-125	1920	0.933	25	
Benzo(k)fluoranthene	1502	50	2000	0	75.1	45-115	1559	3.72	25	
Chrysene	1874	50	2000	0	93.7	55-110	1856	0.965	25	
Dibenzo(a,h)anthracene	1752	50	2000	0	87.6	40-125	1731	1.21	25	
Fluoranthene	1700	50	2000	0	85	55-115	1704	0.235	25	
Fluorene	1760	50	2000	0	88	50-110	1797	2.08	25	
Indeno(1,2,3-cd)pyrene	1764	50	2000	0	88.2	40-120	1739	1.43	25	
Naphthalene	1790	50	2000	0	89.5	40-105	1804	0.779	25	
Phenanthrene	1889	50	2000	0	94.4	50-110	1909	1.05	25	
Pyrene	1842	50	2000	0	92.1	45-125	1810	1.75	25	
Surr: 2,4,6-Tribromophenol	*4420*	0	*5000*	0	*88.4*	*34-140*	4779	*7.81*	*25*	
Surr: 2-Fluorobiphenyl	*4627*	0	*5000*	0	*92.5*	*12-100*	4662	*0.754*	*25*	
Surr: 2-Fluorophenol	*4338*	0	*5000*	0	*86.8*	*33-117*	4431	*2.12*	*25*	
Surr: 4-Terphenyl-d14	*4416*	0	*5000*	0	*88.3*	*25-137*	4445	*0.655*	*25*	
Surr: Nitrobenzene-d5	*4182*	0	*5000*	0	*83.6*	*37-107*	4133	*1.18*	*25*	
Surr: Phenol-d6	*4479*	0	*5000*	0	*89.6*	*40-106*	4507	*0.623*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205760-04A MS** Units: **µg/Kg** Analysis Date: **6/1/2012 04:08 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989065** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1636	50	1995	0	82	45-105	0			
Acenaphthene	1731	50	1995	0	86.8	45-110	0			
Acenaphthylene	1844	50	1995	0	92.4	45-105	0			
Anthracene	1665	50	1995	156.6	75.6	55-105	0			
Benzo(a)anthracene	1917	50	1995	91.84	91.5	50-110	0			
Benzo(a)pyrene	1651	50	1995	207.8	72.3	50-110	0			
Benzo(b)fluoranthene	2130	50	1995	165.3	98.5	45-115	0			
Benzo(g,h,i)perylene	1159	50	1995	78.31	54.2	40-125	0			
Benzo(k)fluoranthene	1631	50	1995	156.6	73.9	45-115	0			
Chrysene	1778	50	1995	107.3	83.7	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1995	166.3	50.6	40-125	0			
Fluoranthene	1728	50	1995	257.2	73.7	55-115	0			
Fluorene	1765	50	1995	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1210	50	1995	162.4	52.5	40-120	0			
Naphthalene	1588	50	1995	0	79.6	40-105	0			
Phenanthrene	1897	50	1995	51.24	92.5	50-110	0			
Pyrene	1886	50	1995	130.5	88	45-125	0			
Surr: 2,4,6-Tribromophenol	*5018*	0	*4988*	0	*101*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4525*	0	*4988*	0	*90.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4246*	0	*4988*	0	*85.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4561*	0	*4988*	0	*91.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3916*	0	*4988*	0	*78.5*	*37-107*	0			
Surr: Phenol-d6	*4359*	0	*4988*	0	*87.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205758
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205760-04A MSD** Units: **µg/Kg** Analysis Date: **6/1/2012 04:42 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989066** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1495	48	1934	0	77.3	45-105	1636	9	30	
Acenaphthene	1598	48	1934	0	82.6	45-110	1731	8	30	
Acenaphthylene	1668	48	1934	0	86.2	45-105	1844	10	30	
Anthracene	1566	48	1934	156.6	72.9	55-105	1665	6.14	30	
Benzo(a)anthracene	1810	48	1934	91.84	88.9	50-110	1917	5.74	30	
Benzo(a)pyrene	1614	48	1934	207.8	72.7	50-110	1651	2.26	30	
Benzo(b)fluoranthene	2182	48	1934	165.3	104	45-115	2130	2.41	30	
Benzo(g,h,i)perylene	865.5	48	1934	78.31	40.7	40-125	1159	29	30	
Benzo(k)fluoranthene	1762	48	1934	156.6	83	45-115	1631	7.72	30	
Chrysene	1716	48	1934	107.3	83.2	55-110	1778	3.5	30	
Dibenzo(a,h)anthracene	957.4	48	1934	166.3	40.9	40-125	1176	20.5	30	
Fluoranthene	1656	48	1934	257.2	72.3	55-115	1728	4.26	30	
Fluorene	1659	48	1934	0	85.8	50-110	1765	6.14	30	
Indeno(1,2,3-cd)pyrene	953.5	48	1934	162.4	40.9	40-120	1210	23.7	30	
Naphthalene	1431	48	1934	0	74	40-105	1588	10.4	30	
Phenanthrene	1781	48	1934	51.24	89.5	50-110	1897	6.31	30	
Pyrene	1864	48	1934	130.5	89.7	45-125	1886	1.17	30	
Surr: 2,4,6-Tribromophenol	*4678*	0	*4835*	0	*96.8*	*34-140*	5018	*7.01*	*40*	
Surr: 2-Fluorobiphenyl	*4137*	0	*4835*	0	*85.6*	*12-100*	4525	*8.95*	*40*	
Surr: 2-Fluorophenol	*3657*	0	*4835*	0	*75.6*	*33-117*	4246	*14.9*	*40*	
Surr: 4-Terphenyl-d14	*4303*	0	*4835*	0	*89*	*25-137*	4561	*5.81*	*40*	
Surr: Nitrobenzene-d5	*3495*	0	*4835*	0	*72.3*	*37-107*	3916	*11.4*	*40*	
Surr: Phenol-d6	*3962*	0	*4835*	0	*81.9*	*40-106*	4359	*9.55*	*40*	

The following samples were analyzed in this batch: 1205758-01A 1205758-02A 1205758-03A 1205758-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205758
Project: Marshall KRRI 1050L,1150L Sediment 5/23/12

QC BATCH REPORT

Batch ID: **R105302** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205760-04ADUP1** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.64	0.050	0	0	0	-0 0	77.23	0.529	20	

DUP Sample ID: **1205760-04ADUP2** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986328** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.78	0.050	0	0	0	-0 0	77.23	0.71	20	

DUP Sample ID: **1205765-06ADUP** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.6	0.050	0	0	0	-0 0	6.89	9.8	20	

The following samples were analyzed in this batch: 1205758-01A 1205758-02A 1205758-03A 1205758-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205758

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052312_LJL1	Task: KRRI_SED1050-1150
Total # of Samples: 4		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Analysis: % Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
									None	None	None	None
1	SEKR1050L505S052312D005	SEKR1050L505	SE	G	05/23/2012 09:38	1			X	X	X	X
2	SEKR1050L505S052312D015	SEKR1050L505	SE	G	05/23/2012 09:39	1			X	X	X	X
3	SEKR1150L501S052312D003	SEKR1150L501	SE	G	05/23/2012 15:18	1	MDEQ SPLIT		X	X	X	X
4	SEKR1150L501S052312D010	SEKR1150L501	SE	G	05/23/2012 15:19	1			X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-23-12	1746		5-23-12	1746
	5-24-12	1512		5-24-12	1512

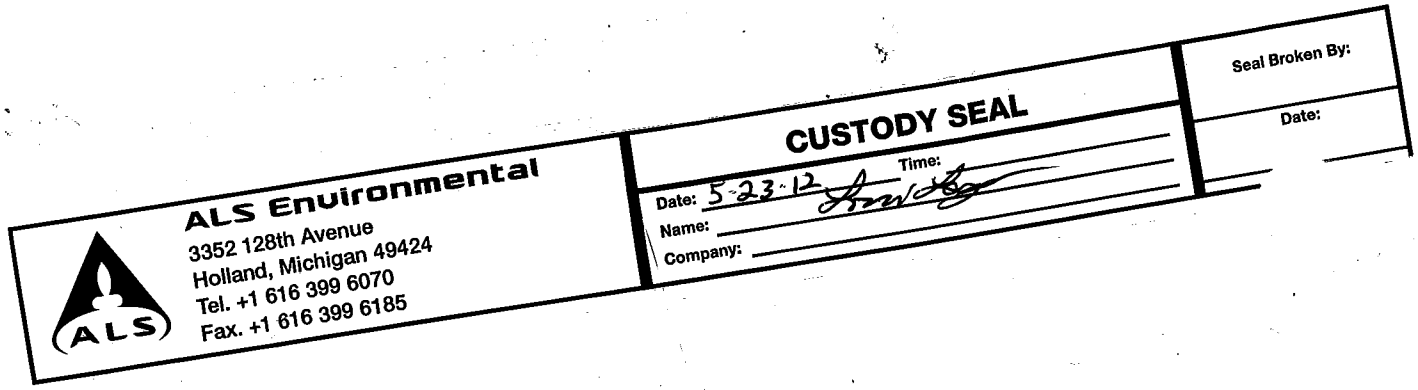
Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
5.4°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: LORRI LEGO (LJL1) SIGNATURE of SAMPLER: DATE Signed: Time:

5/25/12


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Time:
Date: 5-23-12
Name:
Company:
Seal Broken By:
Date:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **24-May-12 15:12**

Work Order: **1205758** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 24-May-12 Date Reviewed by: Ann Preston eSignature 25-May-12 Date

Matrices: Sediment
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.4 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

06-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 5/24/12** Work Order: **1205759**

Dear Bryan,

ALS Environmental received 9 samples on 24-May-2012 03:12 PM for the analyses presented in the following report.

This is a REVISED REPORT. The Case Narrative provides information discussing the reason for issuing a revised report. The total number of pages in this revision is 68.

If you have any questions regarding these test results, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
Work Order: **1205759**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205759-01	SBKR1150L509S052412S006	Soil		5/24/2012 10:17	5/24/2012 15:12	☐
1205759-02	SBKR1150L510S052412S005	Soil		5/24/2012 10:43	5/24/2012 15:12	☐
1205759-03	SBKR1150L511S052412S006	Soil		5/24/2012 11:12	5/24/2012 15:12	☐
1205759-04	SBKR1150L512S052412S007	Soil		5/24/2012 11:54	5/24/2012 15:12	☐
1205759-05	SBKR1150L512D052412S007	Soil		5/24/2012 11:54	5/24/2012 15:12	☐
1205759-06	SBKR1150L513S052412S010	Soil		5/24/2012 13:44	5/24/2012 15:12	☐
1205759-07	SBKR1150L514S052412S004	Soil		5/24/2012 14:00	5/24/2012 15:12	☐
1205759-08	SBKR1150L515S052412S004	Soil		5/24/2012 14:23	5/24/2012 15:12	☐
1205759-09	SBKR1150L515T052412MX	Soil		5/24/2012	5/24/2012 15:12	☐

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
Work Order: 1205759

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41353 MS/MSD data for Volatiles is not related to this project's samples.

Batch 41347 MS/MSD data for PAHs is not related to this project's samples.

This revised report has a corrected narrative and some of the samples' reporting limits for Acetone and Methyl Iodide have been raised to avoid reporting laboratory artifacts.

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
WorkOrder: **1205759**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	**66**	**31**	**4.0**		**mg/Kg-dry**	1	5/29/2012
ORO (C20-C34)	**190**	**61**	**4.0**		**mg/Kg-dry**	1	5/29/2012
Surr: 4-Terphenyl-d14	*49.1*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	**0.80**	**0.50**	**0.50**		**mg/Kg-dry**	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**32**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**40**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Benzo(b)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Chrysene	**350**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Pyrene	**450**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Surr: 2,4,6-Tribromophenol	*96.6*	*34-140*			*%REC*	1	5/29/2012
Surr: 2-Fluorobiphenyl	*67.5*	*12-100*			*%REC*	1	5/29/2012
Surr: 2-Fluorophenol	*75.3*	*33-117*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*78.4*	*25-137*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*68.8*	*37-107*			*%REC*	1	5/29/2012
Surr: Phenol-d6	*72.9*	*40-106*			*%REC*	1	5/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	500	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	500	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	500	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,700	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,700	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	4,100	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	500	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	500	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	500	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	500	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,700	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	500	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	500	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	500	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	500	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	990	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	500	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	500	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,700	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	500	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	500	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	500	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	500	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,700	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	500	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	500	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	500	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*101*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.6*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	35	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*45.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.4	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**36**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*99.6*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*77.1*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*77.3*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*76.4*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*75.9*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	150	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	150	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	150	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	500	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	150	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	150	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	150	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	300	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	150	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	150	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	500	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	150	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	150	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	150	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	150	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	150	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	150	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*102*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.0*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.4*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**46**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	16	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	31	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*47.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.2	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**38**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*98.3*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*78.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*79.4*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*77.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*76.0*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	340	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	340	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	100	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	210	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	340	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	100	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*103*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.3*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*100*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**37**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	25	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	51	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*42.5*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.8	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**47**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*104*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*71.9*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*76.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*72.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	320	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	320	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	320	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.7*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*104*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.4*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	42	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*49.1*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.6	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**41**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*102*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*75.8*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*72.2*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*73.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	210	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	340	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	210	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	210	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.7*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*96.3*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*102*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	31	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	63	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*43.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	2.5	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**110**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*108*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*71.2*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*71.0*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*99.5*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*67.6*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*57.3*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	570	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	570	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	570	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	4,700	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	570	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	570	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	570	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	570	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	570	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	570	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	570	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	570	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	570	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	570	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	570	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	1,300	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	570	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	570	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	570	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	570	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	570	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	570	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	570	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	570	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.3*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*101*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.2*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/30/2012
ORO (C20-C34)	ND	37	4.0		mg/Kg-dry	1	5/30/2012
Surr: 4-Terphenyl-d14	*51.3*	*39-115*			*%REC*	1	5/30/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*77.9*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*57.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*51.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*94.3*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*61.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*59.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	560	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	560	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	170	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	340	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	560	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	560	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	170	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	170	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.0*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**520**	**43**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*57.2*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/31/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/31/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/31/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/31/2012
Benzo(a)anthracene	**510**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(b)fluoranthene	**760**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(g,h,i)perylene	**390**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/31/2012
Chrysene	**580**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/31/2012
Fluoranthene	**910**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/31/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/31/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/31/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/31/2012
Pyrene	**790**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Surr: 2,4,6-Tribromophenol	*107*	*34-140*			*%REC*	1	5/31/2012
Surr: 2-Fluorobiphenyl	*68.5*	*12-100*			*%REC*	1	5/31/2012
Surr: 2-Fluorophenol	*64.9*	*33-117*			*%REC*	1	5/31/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	5/31/2012
Surr: Nitrobenzene-d5	*64.0*	*37-107*			*%REC*	1	5/31/2012
Surr: Phenol-d6	*56.5*	*40-106*			*%REC*	1	5/31/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	750	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	750	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	450	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	750	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	750	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*94.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515T052412MX
Work Order:	1205759	**Collection Date:**	5/24/2012
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	5/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	5/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	5/29/2012
Benzene	ND	50	50		µg/Kg	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromoform	ND	100	100		µg/Kg	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	5/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	5/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	5/29/2012
Chloroethane	ND	250	250		µg/Kg	1	5/29/2012
Chloroform	ND	50	50		µg/Kg	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg	1	5/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515T052412MX
Work Order:	1205759	**Collection Date:**	5/24/2012
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	5/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg	1	5/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	5/29/2012
o-Xylene	ND	50	50		µg/Kg	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	5/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Styrene	ND	50	50		µg/Kg	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	5/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	5/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	5/29/2012
Toluene	ND	100	100		µg/Kg	1	5/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	5/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	5/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.1*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*93.8*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.9*	*85-120*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41320** Instrument ID **GC8** Method: **SW8015M**

MBLK	Sample ID: **DBLKS1-41320-41320**			Units: **mg/Kg**			Analysis Date: **5/29/2012 08:23 PM**			
Client ID:	Run ID: **GC8_120529A**			SeqNo: **1989811**			Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.16*	0	*5*	0	*43.2*	*39-115*	0			

LCS	Sample ID: **DLCSS1-41320-41320**			Units: **mg/Kg**			Analysis Date: **5/29/2012 07:31 PM**			
Client ID:	Run ID: **GC8_120529A**			SeqNo: **1989812**			Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	567.8	10	500	0	114	60-130	0			
ORO (C20-C34)	645.5	20	500	0	129	60-130	0			
Surr: 4-Terphenyl-d14	*2.052*	0	*5*	0	*41*	*39-115*	0			

MS	Sample ID: **1205760-04A MS**			Units: **mg/Kg**			Analysis Date: **5/30/2012 01:56 AM**			
Client ID:	Run ID: **GC8_120529A**			SeqNo: **1989813**			Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	535.1	9.8	490.9	0	109	60-130	0			
ORO (C20-C34)	758.9	20	490.9	289.8	95.6	60-130	0			
Surr: 4-Terphenyl-d14	*2.487*	0	*4.909*	0	*50.7*	*39-115*	0			

MSD	Sample ID: **1205760-04A MSD**			Units: **mg/Kg**			Analysis Date: **5/30/2012 02:22 AM**			
Client ID:	Run ID: **GC8_120529A**			SeqNo: **1989814**			Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	486.3	9.8	489.7	0	99.3	60-130	535.1	9.56	30	
ORO (C20-C34)	682.4	20	489.7	289.8	80.2	60-130	758.9	10.6	30	
Surr: 4-Terphenyl-d14	*2.716*	0	*4.897*	0	*55.5*	*39-115*	2.487	*8.81*	*30*	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41348** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:35 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990206** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.858*	0	*5*	0	*57.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:09 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990207** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	452.1	10	500	0	90.4	60-130	0			
ORO (C20-C34)	485.2	20	500	0	97	60-130	0			
Surr: 4-Terphenyl-d14	*2.553*	0	*5*	0	*51.1*	*39-115*	0			

MS Sample ID: **1205760-11A MS** Units: **mg/Kg** Analysis Date: **5/31/2012 08:26 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990209** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	415.1	9.6	480.7	0	86.4	60-130	0			
ORO (C20-C34)	488.6	19	480.7	0	102	60-130	0			
Surr: 4-Terphenyl-d14	*2.446*	0	*4.807*	0	*50.9*	*39-115*	0			

MSD Sample ID: **1205760-11A MSD** Units: **mg/Kg** Analysis Date: **5/31/2012 08:26 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990210** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	460	9.4	470.1	0	97.9	60-130	415.1	10.3	30	
ORO (C20-C34)	597	19	470.1	0	127	60-130	488.6	20	30	
Surr: 4-Terphenyl-d14	*2.69*	0	*4.701*	0	*57.2*	*39-115*	2.446	*9.51*	*30*	

The following samples were analyzed in this batch: 1205759-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:48 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987143** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01578	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:54 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987145** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.563	0.10	5	0	91.3	80-120	0			
Molybdenum	4.982	0.25	5	0	99.6	80-120	0			
Nickel	4.672	0.25	5	0	93.4	80-120	0			
Vanadium	4.81	0.25	5	0	96.2	80-120	0			

LCSD Sample ID: **LCSD-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 10:00 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987147** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.664	0.10	5	0	93.3	80-120	4.563	2.18	20	
Molybdenum	5.075	0.25	5	0	102	80-120	4.982	1.85	20	
Nickel	4.713	0.25	5	0	94.3	80-120	4.672	0.863	20	
Vanadium	4.868	0.25	5	0	97.4	80-120	4.81	1.19	20	

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 02:39 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987215** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.497	1.3	6.468	0.208	97.2	80-120	0			
Nickel	12.04	1.3	6.468	5.972	93.8	80-120	0			
Vanadium	13.86	1.3	6.468	6.652	111	80-120	0			

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 06:16 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988373** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.845	0.52	6.468	0.1239	88.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:45 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987217** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.952	1.4	6.916	0.208	97.5	80-120	6.497	6.76	25	
Nickel	11.52	1.4	6.916	5.972	80.2	80-120	12.04	4.44	25	
Vanadium	13.13	1.4	6.916	6.652	93.7	80-120	13.86	5.34	25	

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 06:22 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988374** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.279	0.55	6.916	0.1239	89	80-120	5.845	7.17	25	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A	1205759-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 08:58 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987560** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4491*	0	*5000*	0	*89.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4538*	0	*5000*	0	*90.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4383*	0	*5000*	0	*87.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3928*	0	*5000*	0	*78.6*	*37-107*	0			
Surr: Phenol-d6	*4253*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 09:35 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987561** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1830	50	2000	0	91.5	45-105	0			
Acenaphthene	1864	50	2000	0	93.2	45-110	0			
Acenaphthylene	1978	50	2000	0	98.9	45-105	0			
Anthracene	1727	50	2000	0	86.4	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1654	50	2000	0	82.7	50-110	0			
Benzo(b)fluoranthene	1990	50	2000	0	99.5	45-115	0			
Benzo(g,h,i)perylene	1920	50	2000	0	96	40-125	0			
Benzo(k)fluoranthene	1559	50	2000	0	78	45-115	0			
Chrysene	1856	50	2000	0	92.8	55-110	0			
Dibenzo(a,h)anthracene	1731	50	2000	0	86.6	40-125	0			
Fluoranthene	1704	50	2000	0	85.2	55-115	0			
Fluorene	1797	50	2000	0	89.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1739	50	2000	0	87	40-120	0			
Naphthalene	1804	50	2000	0	90.2	40-105	0			
Phenanthrene	1909	50	2000	0	95.4	50-110	0			
Pyrene	1810	50	2000	0	90.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4779*	0	*5000*	0	*95.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4662*	0	*5000*	0	*93.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4431*	0	*5000*	0	*88.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4445*	0	*5000*	0	*88.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4133*	0	*5000*	0	*82.7*	*37-107*	0			
Surr: Phenol-d6	*4507*	0	*5000*	0	*90.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 10:13 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987562** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1767	50	2000	0	88.4	45-105	1830	3.5	25	
Acenaphthene	1806	50	2000	0	90.3	45-110	1864	3.16	25	
Acenaphthylene	1917	50	2000	0	95.8	45-105	1978	3.13	25	
Anthracene	1694	50	2000	0	84.7	55-105	1727	1.93	25	
Benzo(a)anthracene	1819	50	2000	0	91	50-110	1790	1.61	25	
Benzo(a)pyrene	1744	50	2000	0	87.2	50-110	1654	5.3	25	
Benzo(b)fluoranthene	2102	50	2000	0	105	45-115	1990	5.47	25	
Benzo(g,h,i)perylene	1938	50	2000	0	96.9	40-125	1920	0.933	25	
Benzo(k)fluoranthene	1502	50	2000	0	75.1	45-115	1559	3.72	25	
Chrysene	1874	50	2000	0	93.7	55-110	1856	0.965	25	
Dibenzo(a,h)anthracene	1752	50	2000	0	87.6	40-125	1731	1.21	25	
Fluoranthene	1700	50	2000	0	85	55-115	1704	0.235	25	
Fluorene	1760	50	2000	0	88	50-110	1797	2.08	25	
Indeno(1,2,3-cd)pyrene	1764	50	2000	0	88.2	40-120	1739	1.43	25	
Naphthalene	1790	50	2000	0	89.5	40-105	1804	0.779	25	
Phenanthrene	1889	50	2000	0	94.4	50-110	1909	1.05	25	
Pyrene	1842	50	2000	0	92.1	45-125	1810	1.75	25	
Surr: 2,4,6-Tribromophenol	*4420*	0	*5000*	0	*88.4*	*34-140*	4779	*7.81*	*25*	
Surr: 2-Fluorobiphenyl	*4627*	0	*5000*	0	*92.5*	*12-100*	4662	*0.754*	*25*	
Surr: 2-Fluorophenol	*4338*	0	*5000*	0	*86.8*	*33-117*	4431	*2.12*	*25*	
Surr: 4-Terphenyl-d14	*4416*	0	*5000*	0	*88.3*	*25-137*	4445	*0.655*	*25*	
Surr: Nitrobenzene-d5	*4182*	0	*5000*	0	*83.6*	*37-107*	4133	*1.18*	*25*	
Surr: Phenol-d6	*4479*	0	*5000*	0	*89.6*	*40-106*	4507	*0.623*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205760-04A MS** Units: **µg/Kg** Analysis Date: **6/1/2012 04:08 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989065** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1636	50	1995	0	82	45-105	0			
Acenaphthene	1731	50	1995	0	86.8	45-110	0			
Acenaphthylene	1844	50	1995	0	92.4	45-105	0			
Anthracene	1665	50	1995	156.6	75.6	55-105	0			
Benzo(a)anthracene	1917	50	1995	91.84	91.5	50-110	0			
Benzo(a)pyrene	1651	50	1995	207.8	72.3	50-110	0			
Benzo(b)fluoranthene	2130	50	1995	165.3	98.5	45-115	0			
Benzo(g,h,i)perylene	1159	50	1995	78.31	54.2	40-125	0			
Benzo(k)fluoranthene	1631	50	1995	156.6	73.9	45-115	0			
Chrysene	1778	50	1995	107.3	83.7	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1995	166.3	50.6	40-125	0			
Fluoranthene	1728	50	1995	257.2	73.7	55-115	0			
Fluorene	1765	50	1995	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1210	50	1995	162.4	52.5	40-120	0			
Naphthalene	1588	50	1995	0	79.6	40-105	0			
Phenanthrene	1897	50	1995	51.24	92.5	50-110	0			
Pyrene	1886	50	1995	130.5	88	45-125	0			
Surr: 2,4,6-Tribromophenol	*5018*	0	*4988*	0	*101*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4525*	0	*4988*	0	*90.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4246*	0	*4988*	0	*85.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4561*	0	*4988*	0	*91.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3916*	0	*4988*	0	*78.5*	*37-107*	0			
Surr: Phenol-d6	*4359*	0	*4988*	0	*87.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205760-04A MSD** Units: **µg/Kg** Analysis Date: **6/1/2012 04:42 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989066** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1495	48	1934	0	77.3	45-105	1636	9	30	
Acenaphthene	1598	48	1934	0	82.6	45-110	1731	8	30	
Acenaphthylene	1668	48	1934	0	86.2	45-105	1844	10	30	
Anthracene	1566	48	1934	156.6	72.9	55-105	1665	6.14	30	
Benzo(a)anthracene	1810	48	1934	91.84	88.9	50-110	1917	5.74	30	
Benzo(a)pyrene	1614	48	1934	207.8	72.7	50-110	1651	2.26	30	
Benzo(b)fluoranthene	2182	48	1934	165.3	104	45-115	2130	2.41	30	
Benzo(g,h,i)perylene	865.5	48	1934	78.31	40.7	40-125	1159	29	30	
Benzo(k)fluoranthene	1762	48	1934	156.6	83	45-115	1631	7.72	30	
Chrysene	1716	48	1934	107.3	83.2	55-110	1778	3.5	30	
Dibenzo(a,h)anthracene	957.4	48	1934	166.3	40.9	40-125	1176	20.5	30	
Fluoranthene	1656	48	1934	257.2	72.3	55-115	1728	4.26	30	
Fluorene	1659	48	1934	0	85.8	50-110	1765	6.14	30	
Indeno(1,2,3-cd)pyrene	953.5	48	1934	162.4	40.9	40-120	1210	23.7	30	
Naphthalene	1431	48	1934	0	74	40-105	1588	10.4	30	
Phenanthrene	1781	48	1934	51.24	89.5	50-110	1897	6.31	30	
Pyrene	1864	48	1934	130.5	89.7	45-125	1886	1.17	30	
Surr: 2,4,6-Tribromophenol	*4678*	0	*4835*	0	*96.8*	*34-140*	5018	*7.01*	*40*	
Surr: 2-Fluorobiphenyl	*4137*	0	*4835*	0	*85.6*	*12-100*	4525	*8.95*	*40*	
Surr: 2-Fluorophenol	*3657*	0	*4835*	0	*75.6*	*33-117*	4246	*14.9*	*40*	
Surr: 4-Terphenyl-d14	*4303*	0	*4835*	0	*89*	*25-137*	4561	*5.81*	*40*	
Surr: Nitrobenzene-d5	*3495*	0	*4835*	0	*72.3*	*37-107*	3916	*11.4*	*40*	
Surr: Phenol-d6	*3962*	0	*4835*	0	*81.9*	*40-106*	4359	*9.55*	*40*	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:36 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988739** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3958*	0	*5000*	0	*79.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3327*	0	*5000*	0	*66.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3867*	0	*5000*	0	*77.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3322*	0	*5000*	0	*66.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3560*	0	*5000*	0	*71.2*	*37-107*	0			
Surr: Phenol-d6	*4293*	0	*5000*	0	*85.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 07:43 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988730** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1697	50	2000	0	84.8	45-105	0			
Acenaphthene	1709	50	2000	0	85.4	45-110	0			
Acenaphthylene	1725	50	2000	0	86.2	45-105	0			
Anthracene	1844	50	2000	0	92.2	55-105	0			
Benzo(a)anthracene	2078	50	2000	0	104	50-110	0			
Benzo(a)pyrene	1955	50	2000	0	97.8	50-110	0			
Benzo(b)fluoranthene	1861	50	2000	0	93	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	1799	50	2000	0	90	45-115	0			
Chrysene	1861	50	2000	0	93	55-110	0			
Dibenzo(a,h)anthracene	2097	50	2000	0	105	40-125	0			
Fluoranthene	1890	50	2000	0	94.5	55-115	0			
Fluorene	1830	50	2000	0	91.5	50-110	0			
Indeno(1,2,3-cd)pyrene	2060	50	2000	0	103	40-120	0			
Naphthalene	1653	50	2000	0	82.6	40-105	0			
Phenanthrene	1851	50	2000	0	92.6	50-110	0			
Pyrene	1822	50	2000	0	91.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4493*	0	*5000*	0	*89.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3558*	0	*5000*	0	*71.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4112*	0	*5000*	0	*82.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3589*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3997*	0	*5000*	0	*79.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:09 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988738** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1523	50	2000	0	76.2	45-105	1697	10.8	25	
Acenaphthene	1581	50	2000	0	79	45-110	1709	7.78	25	
Acenaphthylene	1579	50	2000	0	79	45-105	1725	8.84	25	
Anthracene	1816	50	2000	0	90.8	55-105	1844	1.53	25	
Benzo(a)anthracene	2013	50	2000	0	101	50-110	2078	3.18	25	
Benzo(a)pyrene	1922	50	2000	0	96.1	50-110	1955	1.7	25	
Benzo(b)fluoranthene	1903	50	2000	0	95.2	45-115	1861	2.23	25	
Benzo(g,h,i)perylene	1984	50	2000	0	99.2	40-125	2060	3.76	25	
Benzo(k)fluoranthene	1644	50	2000	0	82.2	45-115	1799	9	25	
Chrysene	1873	50	2000	0	93.6	55-110	1861	0.643	25	
Dibenzo(a,h)anthracene	2048	50	2000	0	102	40-125	2097	2.36	25	
Fluoranthene	1860	50	2000	0	93	55-115	1890	1.6	25	
Fluorene	1722	50	2000	0	86.1	50-110	1830	6.08	25	
Indeno(1,2,3-cd)pyrene	2017	50	2000	0	101	40-120	2060	2.11	25	
Naphthalene	1494	50	2000	0	74.7	40-105	1653	10.1	25	
Phenanthrene	1811	50	2000	0	90.6	50-110	1851	2.18	25	
Pyrene	1811	50	2000	0	90.6	45-125	1822	0.606	25	
Surr: 2,4,6-Tribromophenol	*4498*	0	*5000*	0	*90*	*34-140*	4493	*0.111*	*25*	
Surr: 2-Fluorobiphenyl	*3208*	0	*5000*	0	*64.2*	*12-100*	3558	*10.3*	*25*	
Surr: 2-Fluorophenol	*3432*	0	*5000*	0	*68.6*	*33-117*	3846	*11.4*	*25*	
Surr: 4-Terphenyl-d14	*4126*	0	*5000*	0	*82.5*	*25-137*	4112	*0.34*	*25*	
Surr: Nitrobenzene-d5	*3254*	0	*5000*	0	*65.1*	*37-107*	3589	*9.79*	*25*	
Surr: Phenol-d6	*3618*	0	*5000*	0	*72.4*	*40-106*	3997	*9.95*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1205760-11A MS** Units: **µg/Kg** Analysis Date: **5/30/2012 10:24 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988740** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1557	46	1845	0	84.4	45-105	0			
Acenaphthene	1564	46	1845	0	84.8	45-110	0			
Acenaphthylene	1548	46	1845	0	83.9	45-105	0			
Anthracene	1750	46	1845	0	94.8	55-105	0			
Benzo(a)anthracene	2175	46	1845	100.8	112	50-110	0			S
Benzo(a)pyrene	2047	46	1845	261.8	96.8	50-110	0			
Benzo(b)fluoranthene	2054	46	1845	296.7	95.2	45-115	0			
Benzo(g,h,i)perylene	2045	46	1845	180.3	101	40-125	0			
Benzo(k)fluoranthene	1675	46	1845	152.2	82.6	45-115	0			
Chrysene	2010	46	1845	244.3	95.7	55-110	0			
Dibenzo(a,h)anthracene	1920	46	1845	0	104	40-125	0			
Fluoranthene	2192	46	1845	331.6	101	55-115	0			
Fluorene	1716	46	1845	0	93	50-110	0			
Indeno(1,2,3-cd)pyrene	2024	46	1845	151.3	102	40-120	0			
Naphthalene	1508	46	1845	0	81.7	40-105	0			
Phenanthrene	1918	46	1845	86.29	99.3	50-110	0			
Pyrene	2070	46	1845	344.2	93.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4457*	0	*4613*	0	*96.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3137*	0	*4613*	0	*68*	*12-100*	0			
Surr: 2-Fluorophenol	*3329*	0	*4613*	0	*72.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3909*	0	*4613*	0	*84.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3252*	0	*4613*	0	*70.5*	*37-107*	0			
Surr: Phenol-d6	*3523*	0	*4613*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1205760-11A MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 10:51 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988741** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1291	46	1850	0	69.8	45-105	1557	18.7	30	
Acenaphthene	1427	46	1850	0	77.2	45-110	1564	9.12	30	
Acenaphthylene	1422	46	1850	0	76.8	45-105	1548	8.5	30	
Anthracene	1669	46	1850	0	90.2	55-105	1750	4.76	30	
Benzo(a)anthracene	2056	46	1850	100.8	106	50-110	2175	5.63	30	
Benzo(a)pyrene	1953	46	1850	261.8	91.4	50-110	2047	4.72	30	
Benzo(b)fluoranthene	1866	46	1850	296.7	84.8	45-115	2054	9.58	30	
Benzo(g,h,i)perylene	1887	46	1850	180.3	92.3	40-125	2045	8.05	30	
Benzo(k)fluoranthene	1809	46	1850	152.2	89.6	45-115	1675	7.69	30	
Chrysene	1873	46	1850	244.3	88	55-110	2010	7.06	30	
Dibenzo(a,h)anthracene	1816	46	1850	0	98.2	40-125	1920	5.57	30	
Fluoranthene	2031	46	1850	331.6	91.8	55-115	2192	7.65	30	
Fluorene	1630	46	1850	0	88.1	50-110	1716	5.14	30	
Indeno(1,2,3-cd)pyrene	1882	46	1850	151.3	93.5	40-120	2024	7.3	30	
Naphthalene	1193	46	1850	0	64.5	40-105	1508	23.3	30	
Phenanthrene	1797	46	1850	86.29	92.5	50-110	1918	6.5	30	
Pyrene	1944	46	1850	344.2	86.4	45-125	2070	6.31	30	
Surr: 2,4,6-Tribromophenol	*4069*	0	*4625*	0	*88*	*34-140*	4457	*9.09*	*40*	
Surr: 2-Fluorobiphenyl	*2706*	0	*4625*	0	*58.5*	*12-100*	3137	*14.8*	*40*	
Surr: 2-Fluorophenol	*2414*	0	*4625*	0	*52.2*	*33-117*	3329	*31.8*	*40*	
Surr: 4-Terphenyl-d14	*3772*	0	*4625*	0	*81.5*	*25-137*	3909	*3.58*	*40*	
Surr: Nitrobenzene-d5	*2599*	0	*4625*	0	*56.2*	*37-107*	3252	*22.3*	*40*	
Surr: Phenol-d6	*2883*	0	*4625*	0	*62.3*	*40-106*	3523	*20*	*40*	

The following samples were analyzed in this batch: 1205759-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 02:51 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987297** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	45	100						J
n-Butylbenzene	28	30						J
n-Propylbenzene	19.5	30						J
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	24	30						J
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*4890*	0	*5000*	0	*97.8*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4875*	0	*5000*	0	*97.5*	*75-120*	0	
Surr: Dibromofluoromethane	*5312*	0	*5000*	0	*106*	*85-115*	0	
Surr: Toluene-d8	*4874*	0	*5000*	0	*97.5*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 01:32 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987295** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1100	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	1008	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	993.5	30	1000	0	99.4	60-125	0			
1,1-Dichloroethane	1037	30	1000	0	104	75-125	0			
1,1-Dichloroethene	1272	30	1000	0	127	65-135	0			
1,2,3-Trichlorobenzene	1066	30	1000	0	107	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1026	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1068	30	1000	0	107	65-130	0			
1,2,4-Trimethylbenzene	1036	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	852	30	1000	0	85.2	40-135	0			
1,2-Dibromoethane	1017	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1037	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1017	30	1000	0	102	70-135	0			
1,2-Dichloropropane	1037	30	1000	0	104	70-120	0			
1,3,5-Trimethylbenzene	1033	30	1000	0	103	65-135	0			
1,3-Dichlorobenzene	1041	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1046	30	1000	0	105	70-125	0			
2-Butanone	1092	100	1000	0	109	30-160	0			
2-Hexanone	957	30	1000	0	95.7	45-145	0			
4-Methyl-2-pentanone	1264	30	1000	0	126	45-145	0			
Acetone	927.5	100	1000	0	92.8	20-160	0			
Acrylonitrile	951	30	1000	0	95.1	70-135	0			
Benzene	1050	30	1000	0	105	75-125	0			
Bromobenzene	997.5	30	1000	0	99.8	65-120	0			
Bromochloromethane	1050	30	1000	0	105	70-125	0			
Bromodichloromethane	1039	30	1000	0	104	70-130	0			
Bromoform	961	30	1000	0	96.1	55-135	0			
Bromomethane	1154	30	1000	0	115	30-160	0			
Carbon disulfide	1164	30	1000	0	116	45-160	0			
Carbon tetrachloride	1107	30	1000	0	111	65-135	0			
Chlorobenzene	1017	30	1000	0	102	75-125	0			
Chloroethane	1378	100	1000	0	138	40-155	0			
Chloroform	997	30	1000	0	99.7	70-125	0			
Chloromethane	1017	30	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1052	30	1000	0	105	65-125	0			
cis-1,3-Dichloropropene	1088	30	1000	0	109	70-125	0			
Dibromochloromethane	1056	30	1000	0	106	65-135	0			
Dibromomethane	992	30	1000	0	99.2	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1045	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	952	30	1000	0	95.2	70-135	0
Isopropylbenzene	1037	30	1000	0	104	75-130	0
m,p-Xylene	2072	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1076	30	1000	0	108	75-125	0
Methylene chloride	988	30	1000	0	98.8	55-145	0
Naphthalene	1153	100	1000	0	115	40-140	0
n-Butylbenzene	1071	30	1000	0	107	65-140	0
n-Propylbenzene	1022	30	1000	0	102	65-135	0
o-Xylene	1022	30	1000	0	102	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1045	30	1000	0	104	65-130	0
Styrene	1020	30	1000	0	102	75-125	0
tert-Butylbenzene	1034	30	1000	0	103	65-130	0
Tetrachloroethene	1041	30	1000	0	104	64-140	0
Tetrahydrofuran	972	100	1000	0	97.2	70-135	0
Toluene	928	30	1000	0	92.8	70-125	0
trans-1,2-Dichloroethene	1086	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1044	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	787.5	30	1000	0	78.8	70-135	0
Trichloroethene	1066	30	1000	0	107	75-125	0
Trichlorofluoromethane	965.5	30	1000	0	96.6	25-185	0
Vinyl chloride	1004	30	1000	0	100	60-125	0
Surr: 1,2-Dichloroethane-d4	*4906*	0	*5000*	0	*98.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4850*	0	*5000*	0	*97*	*75-120*	0
Surr: Dibromofluoromethane	*5282*	0	*5000*	0	*106*	*85-115*	0
Surr: Toluene-d8	*4910*	0	*5000*	0	*98.2*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCSD	Sample ID: **LCSD-41353-41353**				Units: **µg/Kg**		Analysis Date: **5/29/2012 01:58 PM**			
Client ID:		Run ID: **VMS8_120529A**			SeqNo: **1987296**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1016	30	1000	0	102	75-125	1060	4.34	30	
1,1,1-Trichloroethane	1034	30	1000	0	103	70-135	1100	6.14	30	
1,1,2,2-Tetrachloroethane	976	30	1000	0	97.6	55-130	1008	3.28	30	
1,1,2-Trichloroethane	962	30	1000	0	96.2	60-125	993.5	3.22	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	1037	5.09	30	
1,1-Dichloroethene	1165	30	1000	0	116	65-135	1272	8.82	30	
1,2,3-Trichlorobenzene	958.5	30	1000	0	95.8	60-135	1066	10.6	30	
1,2,3-Trichloropropane	927.5	30	1000	0	92.8	65-130	948	2.19	30	
1,2,3-Trimethylbenzene	982	30	1000	0	98.2	65-135	1026	4.33	30	
1,2,4-Trichlorobenzene	963	30	1000	0	96.3	65-130	1068	10.3	30	
1,2,4-Trimethylbenzene	979.5	30	1000	0	98	65-135	1036	5.56	30	
1,2-Dibromo-3-chloropropane	806	30	1000	0	80.6	40-135	852	5.55	30	
1,2-Dibromoethane	989	30	1000	0	98.9	70-125	1017	2.79	30	
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	1037	5.14	30	
1,2-Dichloroethane	992.5	30	1000	0	99.2	70-135	1017	2.44	30	
1,2-Dichloropropane	988.5	30	1000	0	98.8	70-120	1037	4.79	30	
1,3,5-Trimethylbenzene	973	30	1000	0	97.3	65-135	1033	5.98	30	
1,3-Dichlorobenzene	995	30	1000	0	99.5	70-125	1041	4.52	30	
1,4-Dichlorobenzene	1006	30	1000	0	101	70-125	1046	3.95	30	
2-Butanone	1041	100	1000	0	104	30-160	1092	4.74	30	
2-Hexanone	888.5	30	1000	0	88.8	45-145	957	7.42	30	
4-Methyl-2-pentanone	1194	30	1000	0	119	45-145	1264	5.61	30	
Acetone	756.5	100	1000	0	75.6	20-160	927.5	20.3	30	
Acrylonitrile	891.5	30	1000	0	89.2	70-135	951	6.46	30	
Benzene	1004	30	1000	0	100	75-125	1050	4.48	30	
Bromobenzene	959	30	1000	0	95.9	65-120	997.5	3.94	30	
Bromochloromethane	1019	30	1000	0	102	70-125	1050	3	30	
Bromodichloromethane	1002	30	1000	0	100	70-130	1039	3.58	30	
Bromoform	908.5	30	1000	0	90.8	55-135	961	5.62	30	
Bromomethane	1080	30	1000	0	108	30-160	1154	6.58	30	
Carbon disulfide	1078	30	1000	0	108	45-160	1164	7.72	30	
Carbon tetrachloride	1063	30	1000	0	106	65-135	1107	4.06	30	
Chlorobenzene	985.5	30	1000	0	98.6	75-125	1017	3.15	30	
Chloroethane	1374	100	1000	0	137	40-155	1378	0.218	30	
Chloroform	959	30	1000	0	95.9	70-125	997	3.89	30	
Chloromethane	963	30	1000	0	96.3	50-130	1017	5.45	30	
cis-1,2-Dichloroethene	987	30	1000	0	98.7	65-125	1052	6.38	30	
cis-1,3-Dichloropropene	1048	30	1000	0	105	70-125	1088	3.7	30	
Dibromochloromethane	1020	30	1000	0	102	65-135	1056	3.52	30	
Dibromomethane	964.5	30	1000	0	96.4	75-130	992	2.81	30	
Dichlorodifluoromethane	878	30	1000	0	87.8	35-135	942	7.03	30	
Ethylbenzene	1008	30	1000	0	101	75-125	1045	3.65	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	872.5	30	1000	0	87.2	70-135	952	8.71	30
Isopropylbenzene	981	30	1000	0	98.1	75-130	1037	5.55	30
m,p-Xylene	2000	60	2000	0	100	80-125	2072	3.51	30
Methyl tert-butyl ether	1032	30	1000	0	103	75-125	1076	4.08	30
Methylene chloride	953	30	1000	0	95.3	55-145	988	3.61	30
Naphthalene	1039	100	1000	0	104	40-140	1153	10.4	30
n-Butylbenzene	949	30	1000	0	94.9	65-140	1071	12.1	30
n-Propylbenzene	952.5	30	1000	0	95.2	65-135	1022	7.04	30
o-Xylene	977	30	1000	0	97.7	75-125	1022	4.55	30
p-Isopropyltoluene	953	30	1000	0	95.3	75-135	1044	9.16	30
sec-Butylbenzene	937.5	30	1000	0	93.8	65-130	1045	10.8	30
Styrene	991.5	30	1000	0	99.2	75-125	1020	2.88	30
tert-Butylbenzene	943.5	30	1000	0	94.4	65-130	1034	9.1	30
Tetrachloroethene	1029	30	1000	0	103	64-140	1041	1.16	30
Tetrahydrofuran	892	100	1000	0	89.2	70-135	972	8.58	30
Toluene	902.5	30	1000	0	90.2	70-125	928	2.79	30
trans-1,2-Dichloroethene	1012	30	1000	0	101	65-135	1086	7.05	30
trans-1,3-Dichloropropene	1022	30	1000	0	102	65-125	1044	2.08	30
trans-1,4-Dichloro-2-butene	738.5	30	1000	0	73.8	70-135	787.5	6.42	30
Trichloroethene	1023	30	1000	0	102	75-125	1066	4.12	30
Trichlorofluoromethane	906	30	1000	0	90.6	25-185	965.5	6.36	30
Vinyl chloride	949	30	1000	0	94.9	60-125	1004	5.58	30
Surr: 1,2-Dichloroethane-d4	*4899*	0	*5000*	0	*98*	*70-120*	4906	*0.133*	*30*
Surr: 4-Bromofluorobenzene	*4890*	0	*5000*	0	*97.8*	*75-120*	4850	*0.832*	*30*
Surr: Dibromofluoromethane	*5288*	0	*5000*	0	*106*	*85-115*	5282	*0.0946*	*30*
Surr: Toluene-d8	*4896*	0	*5000*	0	*97.9*	*85-120*	4910	*0.286*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1205760-04B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 11:38 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987310** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	8104	250	8173	0	99.2	75-125	0			
1,1,1-Trichloroethane	8210	250	8173	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	7671	250	8173	0	93.8	55-130	0			
1,1,2-Trichloroethane	7691	250	8173	0	94.1	60-125	0			
1,1-Dichloroethane	7887	250	8173	0	96.5	75-125	0			
1,1-Dichloroethene	7327	250	8173	0	89.6	65-135	0			
1,2,3-Trichlorobenzene	5864	250	8173	0	71.8	60-135	0			
1,2,3-Trichloropropane	7344	250	8173	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	7532	250	8173	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	6486	250	8173	0	79.4	65-130	0			
1,2,4-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	6269	250	8173	0	76.7	40-135	0			
1,2-Dibromoethane	7928	250	8173	0	97	70-125	0			
1,2-Dichlorobenzene	7544	250	8173	0	92.3	75-120	0			
1,2-Dichloroethane	7900	250	8173	0	96.6	70-135	0			
1,2-Dichloropropane	7994	250	8173	0	97.8	70-120	0			
1,3,5-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,3-Dichlorobenzene	7417	250	8173	0	90.8	70-125	0			
1,4-Dichlorobenzene	7381	250	8173	0	90.3	70-125	0			
2-Butanone	8243	820	8173	0	101	30-160	0			
2-Hexanone	7450	250	8173	0	91.2	45-145	0			
4-Methyl-2-pentanone	10110	250	8173	0	124	45-145	0			
Acetone	6400	820	8173	1271	62.8	20-160	0			
Acrylonitrile	6878	250	8173	0	84.2	70-135	0			
Benzene	7981	250	8173	0	97.6	75-125	0			
Bromobenzene	7327	250	8173	0	89.6	65-120	0			
Bromochloromethane	8067	250	8173	0	98.7	70-125	0			
Bromodichloromethane	7785	250	8173	0	95.2	70-130	0			
Bromoform	6723	250	8173	0	82.2	55-135	0			
Bromomethane	8104	250	8173	0	99.2	30-160	0			
Carbon disulfide	6686	250	8173	0	81.8	45-160	0			
Carbon tetrachloride	8177	250	8173	0	100	65-135	0			
Chlorobenzene	7671	250	8173	0	93.8	75-125	0			
Chloroethane	9424	820	8173	0	115	40-155	0			
Chloroform	7507	250	8173	0	91.8	70-125	0			
Chloromethane	7193	250	8173	0	88	50-130	0			
cis-1,2-Dichloroethene	7973	250	8173	0	97.6	65-125	0			
cis-1,3-Dichloropropene	8030	250	8173	0	98.2	70-125	0			
Dibromochloromethane	7936	250	8173	0	97.1	65-135	0			
Dibromomethane	7642	250	8173	0	93.5	75-130	0			
Dichlorodifluoromethane	6510	250	8173	0	79.6	35-135	0			
Ethylbenzene	7904	250	8173	0	96.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6387	250	8173	0	78.2	70-135	0	
Isopropylbenzene	7487	250	8173	0	91.6	75-130	0	
m,p-Xylene	15430	490	16350	0	94.4	80-125	0	
Methyl tert-butyl ether	8468	250	8173	0	104	75-125	0	
Methylene chloride	7001	250	8173	0	85.6	55-145	0	
Naphthalene	6559	820	8173	0	80.2	40-140	0	
n-Butylbenzene	6473	250	8173	0	79.2	65-140	0	
n-Propylbenzene	6915	250	8173	0	84.6	65-135	0	
o-Xylene	7703	250	8173	0	94.2	75-125	0	
p-Isopropyltoluene	7054	250	8173	0	86.3	75-135	0	
sec-Butylbenzene	6653	250	8173	0	81.4	65-130	0	
Styrene	7074	250	8173	0	86.6	75-125	0	
tert-Butylbenzene	7050	250	8173	0	86.2	65-130	0	
Tetrachloroethene	7581	250	8173	0	92.8	64-140	0	
Tetrahydrofuran	7001	820	8173	0	85.6	70-135	0	
Toluene	7172	250	8173	0	87.8	70-125	0	
trans-1,2-Dichloroethene	7998	250	8173	0	97.8	65-135	0	
trans-1,3-Dichloropropene	7957	250	8173	0	97.4	65-125	0	
trans-1,4-Dichloro-2-butene	5341	250	8173	0	65.4	70-135	0	S
Trichloroethene	7953	250	8173	0	97.3	75-125	0	
Trichlorofluoromethane	7450	250	8173	0	91.2	25-185	0	
Vinyl chloride	7090	250	8173	0	86.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*39470*	0	*40870*	0	*96.6*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*39060*	0	*40870*	0	*95.6*	*75-120*	0	
Surr: Dibromofluoromethane	*42410*	0	*40870*	0	*104*	*85-115*	0	
Surr: Toluene-d8	*40150*	0	*40870*	0	*98.2*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MSD	Sample ID: **1205760-04B MSD**				Units: **µg/Kg**			Analysis Date: **5/30/2012 12:04 PM**		
Client ID:		Run ID: **VMS8_120529A**			SeqNo: **1987311**		Prep Date: **5/29/2012**		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7904	250	8173	0	96.7	75-125	8104	2.5	30	
1,1,1-Trichloroethane	7994	250	8173	0	97.8	70-135	8210	2.67	30	
1,1,2,2-Tetrachloroethane	8304	250	8173	0	102	55-130	7671	7.93	30	
1,1,2-Trichloroethane	7900	250	8173	0	96.6	60-125	7691	2.67	30	
1,1-Dichloroethane	7801	250	8173	0	95.4	75-125	7887	1.09	30	
1,1-Dichloroethene	5386	250	8173	0	65.9	65-135	7327	30.5	30	R
1,2,3-Trichlorobenzene	6931	250	8173	0	84.8	60-135	5864	16.7	30	
1,2,3-Trichloropropane	7810	250	8173	0	95.6	65-130	7344	6.15	30	
1,2,3-Trimethylbenzene	7569	250	8173	0	92.6	65-135	7532	0.487	30	
1,2,4-Trichlorobenzene	7001	250	8173	0	85.6	65-130	6486	7.64	30	
1,2,4-Trimethylbenzene	7295	250	8173	0	89.2	65-135	7499	2.76	30	
1,2-Dibromo-3-chloropropane	7344	250	8173	0	89.8	40-135	6269	15.8	30	
1,2-Dibromoethane	8308	250	8173	0	102	70-125	7928	4.68	30	
1,2-Dichlorobenzene	7638	250	8173	0	93.4	75-120	7544	1.24	30	
1,2-Dichloroethane	8026	250	8173	0	98.2	70-135	7900	1.59	30	
1,2-Dichloropropane	8002	250	8173	0	97.9	70-120	7994	0.102	30	
1,3,5-Trimethylbenzene	7340	250	8173	0	89.8	65-135	7499	2.15	30	
1,3-Dichlorobenzene	7446	250	8173	0	91.1	70-125	7417	0.385	30	
1,4-Dichlorobenzene	7487	250	8173	0	91.6	70-125	7381	1.43	30	
2-Butanone	8243	820	8173	0	101	30-160	8243	0	30	
2-Hexanone	8562	250	8173	0	105	45-145	7450	13.9	30	
4-Methyl-2-pentanone	11260	250	8173	0	138	45-145	10110	10.8	30	
Acetone	9416	820	8173	1271	99.6	20-160	6400	38.1	30	R
Acrylonitrile	8582	250	8173	0	105	70-135	6878	22	30	
Benzene	7785	250	8173	0	95.2	75-125	7981	2.49	30	
Bromobenzene	7233	250	8173	0	88.5	65-120	7327	1.29	30	
Bromochloromethane	8083	250	8173	0	98.9	70-125	8067	0.202	30	
Bromodichloromethane	7683	250	8173	0	94	70-130	7785	1.32	30	
Bromoform	7238	250	8173	0	88.6	55-135	6723	7.38	30	
Bromomethane	7928	250	8173	0	97	30-160	8104	2.19	30	
Carbon disulfide	6457	250	8173	0	79	45-160	6686	3.48	30	
Carbon tetrachloride	7883	250	8173	0	96.4	65-135	8177	3.66	30	
Chlorobenzene	7560	250	8173	0	92.5	75-125	7671	1.45	30	
Chloroethane	8970	820	8173	0	110	40-155	9424	4.93	30	
Chloroform	7511	250	8173	0	91.9	70-125	7507	0.0544	30	
Chloromethane	7307	250	8173	0	89.4	50-130	7193	1.58	30	
cis-1,2-Dichloroethene	7900	250	8173	0	96.6	65-125	7973	0.927	30	
cis-1,3-Dichloropropene	8137	250	8173	0	99.6	70-125	8030	1.31	30	
Dibromochloromethane	7989	250	8173	0	97.8	65-135	7936	0.667	30	
Dibromomethane	7932	250	8173	0	97	75-130	7642	3.73	30	
Dichlorodifluoromethane	6902	250	8173	0	84.4	35-135	6510	5.85	30	
Ethylbenzene	7789	250	8173	0	95.3	75-125	7904	1.46	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6465	250	8173	0	79.1	70-135	6387	1.21	30
Isopropylbenzene	7454	250	8173	0	91.2	75-130	7487	0.438	30
m,p-Xylene	15250	490	16350	0	93.3	80-125	15430	1.17	30
Methyl tert-butyl ether	8962	250	8173	0	110	75-125	8468	5.67	30
Methylene chloride	6776	250	8173	0	82.9	55-145	7001	3.26	30
Naphthalene	8394	820	8173	0	103	40-140	6559	24.5	30
n-Butylbenzene	6657	250	8173	0	81.4	65-140	6473	2.8	30
n-Propylbenzene	6935	250	8173	0	84.8	65-135	6915	0.295	30
o-Xylene	7589	250	8173	0	92.8	75-125	7703	1.5	30
p-Isopropyltoluene	7127	250	8173	0	87.2	75-135	7054	1.04	30
sec-Butylbenzene	6535	250	8173	0	80	65-130	6653	1.8	30
Styrene	7119	250	8173	0	87.1	75-125	7074	0.633	30
tert-Butylbenzene	6882	250	8173	0	84.2	65-130	7050	2.41	30
Tetrachloroethene	7246	250	8173	0	88.6	64-140	7581	4.52	30
Tetrahydrofuran	8378	820	8173	0	102	70-135	7001	17.9	30
Toluene	7017	250	8173	0	85.8	70-125	7172	2.19	30
trans-1,2-Dichloroethene	7912	250	8173	0	96.8	65-135	7998	1.08	30
trans-1,3-Dichloropropene	8002	250	8173	0	97.9	65-125	7957	0.563	30
trans-1,4-Dichloro-2-butene	6016	250	8173	0	73.6	70-135	5341	11.9	30
Trichloroethene	7748	250	8173	0	94.8	75-125	7953	2.6	30
Trichlorofluoromethane	7160	250	8173	0	87.6	25-185	7450	3.97	30
Vinyl chloride	6980	250	8173	0	85.4	60-125	7090	1.57	30
Surr: 1,2-Dichloroethane-d4	*41110*	0	*40870*	0	*101*	*70-120*	39470	*4.08*	*30*
Surr: 4-Bromofluorobenzene	*38980*	0	*40870*	0	*95.4*	*75-120*	39060	*0.199*	*30*
Surr: Dibromofluoromethane	*42590*	0	*40870*	0	*104*	*85-115*	42410	*0.413*	*30*
Surr: Toluene-d8	*40580*	0	*40870*	0	*99.3*	*85-120*	40150	*1.07*	*30*

The following samples were analyzed in this batch:

1205759-05B	1205759-06B	1205759-07B
1205759-08B	1205759-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 10:44 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987314** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	28.5	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*5040*	0	*5000*	0	*101*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4960*	0	*5000*	0	*99.2*	*75-120*	0	
Surr: Dibromofluoromethane	*5122*	0	*5000*	0	*102*	*85-115*	0	
Surr: Toluene-d8	*5042*	0	*5000*	0	*101*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41354-41354**				Units: **µg/Kg**		Analysis Date: **5/29/2012 09:29 AM**			
Client ID:		Run ID: **VMS7_120529A**			SeqNo: **1987312**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1012	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1017	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	902.5	30	1000	0	90.2	55-130	0			
1,1,2-Trichloroethane	977.5	30	1000	0	97.8	60-125	0			
1,1-Dichloroethane	958	30	1000	0	95.8	75-125	0			
1,1-Dichloroethene	993	30	1000	0	99.3	65-135	0			
1,2,3-Trichlorobenzene	1032	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	934	30	1000	0	93.4	65-130	0			
1,2,3-Trimethylbenzene	1053	30	1000	0	105	65-135	0			
1,2,4-Trichlorobenzene	1058	30	1000	0	106	65-130	0			
1,2,4-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2-Dibromo-3-chloropropane	915	30	1000	0	91.5	40-135	0			
1,2-Dibromoethane	984	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	991	30	1000	0	99.1	75-120	0			
1,2-Dichloroethane	971	30	1000	0	97.1	70-135	0			
1,2-Dichloropropane	982.5	30	1000	0	98.2	70-120	0			
1,3,5-Trimethylbenzene	1024	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	994.5	30	1000	0	99.4	70-125	0			
1,4-Dichlorobenzene	1072	30	1000	0	107	70-125	0			
2-Butanone	1008	100	1000	0	101	30-160	0			
2-Hexanone	846	30	1000	0	84.6	45-145	0			
4-Methyl-2-pentanone	1278	30	1000	0	128	45-145	0			
Acetone	864.5	100	1000	0	86.4	20-160	0			
Acrylonitrile	853	30	1000	0	85.3	70-135	0			
Benzene	968	30	1000	0	96.8	75-125	0			
Bromobenzene	942.5	30	1000	0	94.2	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	933.5	30	1000	0	93.4	55-135	0			
Bromomethane	1328	30	1000	0	133	30-160	0			
Carbon disulfide	1034	30	1000	0	103	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	982	30	1000	0	98.2	75-125	0			
Chloroethane	1043	100	1000	0	104	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	994	30	1000	0	99.4	50-130	0			
cis-1,2-Dichloroethene	986	30	1000	0	98.6	65-125	0			
cis-1,3-Dichloropropene	1058	30	1000	0	106	70-125	0			
Dibromochloromethane	1047	30	1000	0	105	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	759	30	1000	0	75.9	35-135	0			
Ethylbenzene	1000	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1094	30	1000	0	109	70-135	0
Isopropylbenzene	969.5	30	1000	0	97	75-130	0
m,p-Xylene	2032	60	2000	0	102	80-125	0
Methyl tert-butyl ether	971.5	30	1000	0	97.2	75-125	0
Methylene chloride	988.5	30	1000	0	98.8	55-145	0
Naphthalene	935.5	100	1000	0	93.6	40-140	0
n-Butylbenzene	1156	30	1000	0	116	65-140	0
n-Propylbenzene	1034	30	1000	0	103	65-135	0
o-Xylene	981	30	1000	0	98.1	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1080	30	1000	0	108	65-130	0
Styrene	1027	30	1000	0	103	75-125	0
tert-Butylbenzene	1063	30	1000	0	106	65-130	0
Tetrachloroethene	994.5	30	1000	0	99.4	64-140	0
Tetrahydrofuran	878	100	1000	0	87.8	70-135	0
Toluene	954	30	1000	0	95.4	70-125	0
trans-1,2-Dichloroethene	977.5	30	1000	0	97.8	65-135	0
trans-1,3-Dichloropropene	1043	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	906.5	30	1000	0	90.6	70-135	0
Trichloroethene	993.5	30	1000	0	99.4	75-125	0
Trichlorofluoromethane	1048	30	1000	0	105	25-185	0
Vinyl chloride	1058	30	1000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*4855*	0	*5000*	0	*97.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4968*	0	*5000*	0	*99.4*	*75-120*	0
Surr: Dibromofluoromethane	*5009*	0	*5000*	0	*100*	*85-115*	0
Surr: Toluene-d8	*5072*	0	*5000*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCSD Sample ID: **LCSD-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 09:54 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987313** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	1012	3.02	30	
1,1,1-Trichloroethane	1054	30	1000	0	105	70-135	1017	3.57	30	
1,1,2,2-Tetrachloroethane	932	30	1000	0	93.2	55-130	902.5	3.22	30	
1,1,2-Trichloroethane	1010	30	1000	0	101	60-125	977.5	3.32	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	958	2.83	30	
1,1-Dichloroethene	1030	30	1000	0	103	65-135	993	3.66	30	
1,2,3-Trichlorobenzene	976.5	30	1000	0	97.6	60-135	1032	5.57	30	
1,2,3-Trichloropropane	971.5	30	1000	0	97.2	65-130	934	3.94	30	
1,2,3-Trimethylbenzene	1012	30	1000	0	101	65-135	1053	4.02	30	
1,2,4-Trichlorobenzene	997.5	30	1000	0	99.8	65-130	1058	5.89	30	
1,2,4-Trimethylbenzene	1016	30	1000	0	102	65-135	1008	0.79	30	
1,2-Dibromo-3-chloropropane	895.5	30	1000	0	89.6	40-135	915	2.15	30	
1,2-Dibromoethane	999.5	30	1000	0	100	70-125	984	1.56	30	
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	991	2.5	30	
1,2-Dichloroethane	1004	30	1000	0	100	70-135	971	3.34	30	
1,2-Dichloropropane	1026	30	1000	0	103	70-120	982.5	4.38	30	
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	1024	2.7	30	
1,3-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	994.5	2.65	30	
1,4-Dichlorobenzene	1042	30	1000	0	104	70-125	1072	2.84	30	
2-Butanone	1050	100	1000	0	105	30-160	1008	4.13	30	
2-Hexanone	908	30	1000	0	90.8	45-145	846	7.07	30	
4-Methyl-2-pentanone	1391	30	1000	0	139	45-145	1278	8.47	30	
Acetone	895	100	1000	0	89.5	20-160	864.5	3.47	30	
Acrylonitrile	883	30	1000	0	88.3	70-135	853	3.46	30	
Benzene	1013	30	1000	0	101	75-125	968	4.54	30	
Bromobenzene	953	30	1000	0	95.3	65-120	942.5	1.11	30	
Bromochloromethane	1048	30	1000	0	105	70-125	1020	2.8	30	
Bromodichloromethane	1008	30	1000	0	101	70-130	999.5	0.847	30	
Bromoform	958	30	1000	0	95.8	55-135	933.5	2.59	30	
Bromomethane	1458	30	1000	0	146	30-160	1328	9.37	30	
Carbon disulfide	1074	30	1000	0	107	45-160	1034	3.8	30	
Carbon tetrachloride	1024	30	1000	0	102	65-135	997.5	2.67	30	
Chlorobenzene	1009	30	1000	0	101	75-125	982	2.71	30	
Chloroethane	1044	100	1000	0	104	40-155	1043	0.144	30	
Chloroform	1012	30	1000	0	101	70-125	993.5	1.89	30	
Chloromethane	1026	30	1000	0	103	50-130	994	3.17	30	
cis-1,2-Dichloroethene	1004	30	1000	0	100	65-125	986	1.76	30	
cis-1,3-Dichloropropene	1098	30	1000	0	110	70-125	1058	3.71	30	
Dibromochloromethane	1069	30	1000	0	107	65-135	1047	2.08	30	
Dibromomethane	992	30	1000	0	99.2	75-130	959.5	3.33	30	
Dichlorodifluoromethane	806.5	30	1000	0	80.6	35-135	759	6.07	30	
Ethylbenzene	1030	30	1000	0	103	75-125	1000	2.86	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1040	30	1000	0	104	70-135	1094	5.02	30
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	969.5	1.23	30
m,p-Xylene	2094	60	2000	0	105	80-125	2032	3.05	30
Methyl tert-butyl ether	992.5	30	1000	0	99.2	75-125	971.5	2.14	30
Methylene chloride	1024	30	1000	0	102	55-145	988.5	3.53	30
Naphthalene	925	100	1000	0	92.5	40-140	935.5	1.13	30
n-Butylbenzene	1098	30	1000	0	110	65-140	1156	5.1	30
n-Propylbenzene	1037	30	1000	0	104	65-135	1034	0.29	30
o-Xylene	999.5	30	1000	0	100	75-125	981	1.87	30
p-Isopropyltoluene	995	30	1000	0	99.5	75-135	1044	4.76	30
sec-Butylbenzene	1078	30	1000	0	108	65-130	1080	0.278	30
Styrene	1042	30	1000	0	104	75-125	1027	1.45	30
tert-Butylbenzene	1059	30	1000	0	106	65-130	1063	0.377	30
Tetrachloroethene	1035	30	1000	0	104	64-140	994.5	3.99	30
Tetrahydrofuran	942	100	1000	0	94.2	70-135	878	7.03	30
Toluene	995	30	1000	0	99.5	70-125	954	4.21	30
trans-1,2-Dichloroethene	1014	30	1000	0	101	65-135	977.5	3.62	30
trans-1,3-Dichloropropene	1060	30	1000	0	106	65-125	1043	1.66	30
trans-1,4-Dichloro-2-butene	912	30	1000	0	91.2	70-135	906.5	0.605	30
Trichloroethene	1047	30	1000	0	105	75-125	993.5	5.24	30
Trichlorofluoromethane	1063	30	1000	0	106	25-185	1048	1.37	30
Vinyl chloride	1111	30	1000	0	111	60-125	1058	4.93	30
Surr: 1,2-Dichloroethane-d4	*4944*	0	*5000*	0	*98.9*	*70-120*	4855	*1.82*	*30*
Surr: 4-Bromofluorobenzene	*4996*	0	*5000*	0	*99.9*	*75-120*	4968	*0.562*	*30*
Surr: Dibromofluoromethane	*5031*	0	*5000*	0	*101*	*85-115*	5009	*0.438*	*30*
Surr: Toluene-d8	*5032*	0	*5000*	0	*101*	*85-120*	5072	*0.792*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1205760-11B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 07:36 PM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987323** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3075	90	3000	0	102	75-125	0			
1,1,1-Trichloroethane	3004	90	3000	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	2822	90	3000	0	94	55-130	0			
1,1,2-Trichloroethane	3000	90	3000	0	100	60-125	0			
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	0			
1,1-Dichloroethene	2379	90	3000	0	79.3	65-135	0			
1,2,3-Trichlorobenzene	2916	90	3000	0	97.2	60-135	0			
1,2,3-Trichloropropane	2938	90	3000	0	98	65-130	0			
1,2,3-Trimethylbenzene	2998	90	3000	0	100	65-135	0			
1,2,4-Trichlorobenzene	2958	90	3000	0	98.6	65-130	0			
1,2,4-Trimethylbenzene	3110	90	3000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	2494	90	3000	0	83.2	40-135	0			
1,2-Dibromoethane	2974	90	3000	0	99.2	70-125	0			
1,2-Dichlorobenzene	2866	90	3000	0	95.6	75-120	0			
1,2-Dichloroethane	2916	90	3000	0	97.2	70-135	0			
1,2-Dichloropropane	3028	90	3000	0	101	70-120	0			
1,3,5-Trimethylbenzene	3156	90	3000	0	105	65-135	0			
1,3-Dichlorobenzene	2828	90	3000	0	94.2	70-125	0			
1,4-Dichlorobenzene	3092	90	3000	0	103	70-125	0			
2-Butanone	2733	300	3000	0	91.1	30-160	0			
2-Hexanone	2694	90	3000	0	89.8	45-145	0			
4-Methyl-2-pentanone	4072	90	3000	0	136	45-145	0			
Acetone	2482	300	3000	124.5	78.6	20-160	0			
Acrylonitrile	2622	90	3000	0	87.4	70-135	0			
Benzene	2950	90	3000	0	98.4	75-125	0			
Bromobenzene	2925	90	3000	0	97.5	65-120	0			
Bromochloromethane	2914	90	3000	0	97.2	70-125	0			
Bromodichloromethane	2961	90	3000	0	98.7	70-130	0			
Bromoform	2692	90	3000	0	89.8	55-135	0			
Bromomethane	3668	90	3000	0	122	30-160	0			
Carbon disulfide	2637	90	3000	0	87.9	45-160	0			
Carbon tetrachloride	2938	90	3000	0	98	65-135	0			
Chlorobenzene	2962	90	3000	0	98.8	75-125	0			
Chloroethane	2610	300	3000	0	87	40-155	0			
Chloroform	2979	90	3000	0	99.3	70-125	0			
Chloromethane	3392	90	3000	0	113	50-130	0			
cis-1,2-Dichloroethene	2970	90	3000	0	99	65-125	0			
cis-1,3-Dichloropropene	3165	90	3000	0	106	70-125	0			
Dibromochloromethane	3064	90	3000	0	102	65-135	0			
Dibromomethane	2906	90	3000	0	96.8	75-130	0			
Dichlorodifluoromethane	2295	90	3000	0	76.5	35-135	0			
Ethylbenzene	3080	90	3000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2866	90	3000	0	95.6	70-135	0
Isopropylbenzene	2991	90	3000	0	99.7	75-130	0
m,p-Xylene	6194	180	6000	0	103	80-125	0
Methyl tert-butyl ether	2932	90	3000	0	97.8	75-125	0
Methylene chloride	2882	90	3000	0	96	55-145	0
Naphthalene	2834	300	3000	0	94.4	40-140	0
n-Butylbenzene	3252	90	3000	0	108	65-140	0
n-Propylbenzene	3162	90	3000	0	105	65-135	0
o-Xylene	2984	90	3000	0	99.4	75-125	0
p-Isopropyltoluene	2834	90	3000	0	94.4	75-135	0
sec-Butylbenzene	3297	90	3000	0	110	65-130	0
Styrene	3104	90	3000	0	103	75-125	0
tert-Butylbenzene	3166	90	3000	0	106	65-130	0
Tetrachloroethene	3058	90	3000	0	102	64-140	0
Tetrahydrofuran	2868	300	3000	0	95.6	70-135	0
Toluene	2886	90	3000	0	96.2	70-125	0
trans-1,2-Dichloroethene	2894	90	3000	0	96.4	65-135	0
trans-1,3-Dichloropropene	3099	90	3000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	2666	90	3000	0	88.8	70-135	0
Trichloroethene	3016	90	3000	0	101	75-125	0
Trichlorofluoromethane	1713	90	3000	0	57.1	25-185	0
Vinyl chloride	3180	90	3000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*14610*	0	*15000*	0	*97.4*	*70-120*	0
Surr: 4-Bromofluorobenzene	*15140*	0	*15000*	0	*101*	*75-120*	0
Surr: Dibromofluoromethane	*14840*	0	*15000*	0	*98.9*	*85-115*	0
Surr: Toluene-d8	*14950*	0	*15000*	0	*99.7*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1205760-11B MSD** Units: **µg/Kg** Analysis Date: **5/29/2012 08:01 PM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987324** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2988	90	3000	0	99.6	75-125	3075	2.87	30	
1,1,1-Trichloroethane	2949	90	3000	0	98.3	70-135	3004	1.86	30	
1,1,2,2-Tetrachloroethane	2805	90	3000	0	93.5	55-130	2822	0.587	30	
1,1,2-Trichloroethane	2924	90	3000	0	97.4	60-125	3000	2.58	30	
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	2846	0	30	
1,1-Dichloroethene	2241	90	3000	0	74.7	65-135	2379	5.97	30	
1,2,3-Trichlorobenzene	2806	90	3000	0	93.6	60-135	2916	3.83	30	
1,2,3-Trichloropropane	2950	90	3000	0	98.4	65-130	2938	0.408	30	
1,2,3-Trimethylbenzene	2910	90	3000	0	97	65-135	2998	3	30	
1,2,4-Trichlorobenzene	2850	90	3000	0	95	65-130	2958	3.72	30	
1,2,4-Trimethylbenzene	3072	90	3000	0	102	65-135	3110	1.21	30	
1,2-Dibromo-3-chloropropane	2488	90	3000	0	83	40-135	2494	0.241	30	
1,2-Dibromoethane	2938	90	3000	0	98	70-125	2974	1.22	30	
1,2-Dichlorobenzene	2800	90	3000	0	93.4	75-120	2866	2.33	30	
1,2-Dichloroethane	2937	90	3000	0	97.9	70-135	2916	0.718	30	
1,2-Dichloropropane	2988	90	3000	0	99.6	70-120	3028	1.35	30	
1,3,5-Trimethylbenzene	3126	90	3000	0	104	65-135	3156	0.955	30	
1,3-Dichlorobenzene	2746	90	3000	0	91.6	70-125	2828	2.91	30	
1,4-Dichlorobenzene	3018	90	3000	0	101	70-125	3092	2.41	30	
2-Butanone	2720	300	3000	0	90.6	30-160	2733	0.495	30	
2-Hexanone	2642	90	3000	0	88	45-145	2694	1.97	30	
4-Methyl-2-pentanone	4082	90	3000	0	136	45-145	4072	0.221	30	
Acetone	2366	300	3000	124.5	74.7	20-160	2482	4.83	30	
Acrylonitrile	2583	90	3000	0	86.1	70-135	2622	1.5	30	
Benzene	2883	90	3000	0	96.1	75-125	2950	2.31	30	
Bromobenzene	2925	90	3000	0	97.5	65-120	2925	0	30	
Bromochloromethane	2860	90	3000	0	95.4	70-125	2914	1.87	30	
Bromodichloromethane	2924	90	3000	0	97.4	70-130	2961	1.27	30	
Bromoform	2706	90	3000	0	90.2	55-135	2692	0.5	30	
Bromomethane	3488	90	3000	0	116	30-160	3668	5.03	30	
Carbon disulfide	2526	90	3000	0	84.2	45-160	2637	4.3	30	
Carbon tetrachloride	2871	90	3000	0	95.7	65-135	2938	2.32	30	
Chlorobenzene	2943	90	3000	0	98.1	75-125	2962	0.66	30	
Chloroethane	2436	300	3000	0	81.2	40-155	2610	6.9	30	
Chloroform	2908	90	3000	0	97	70-125	2979	2.39	30	
Chloromethane	3220	90	3000	0	107	50-130	3392	5.17	30	
cis-1,2-Dichloroethene	2892	90	3000	0	96.4	65-125	2970	2.66	30	
cis-1,3-Dichloropropene	3087	90	3000	0	103	70-125	3165	2.5	30	
Dibromochloromethane	3050	90	3000	0	102	65-135	3064	0.491	30	
Dibromomethane	2908	90	3000	0	97	75-130	2906	0.103	30	
Dichlorodifluoromethane	2270	90	3000	0	75.6	35-135	2295	1.12	30	
Ethylbenzene	3010	90	3000	0	100	75-125	3080	2.27	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2817	90	3000	0	93.9	70-135	2866	1.74	30
Isopropylbenzene	2930	90	3000	0	97.6	75-130	2991	2.08	30
m,p-Xylene	6130	180	6000	0	102	80-125	6194	1.02	30
Methyl tert-butyl ether	2919	90	3000	0	97.3	75-125	2932	0.461	30
Methylene chloride	2812	90	3000	0	93.8	55-145	2882	2.42	30
Naphthalene	2712	300	3000	0	90.4	40-140	2834	4.38	30
n-Butylbenzene	3069	90	3000	0	102	65-140	3252	5.79	30
n-Propylbenzene	3120	90	3000	0	104	65-135	3162	1.34	30
o-Xylene	2937	90	3000	0	97.9	75-125	2984	1.57	30
p-Isopropyltoluene	2796	90	3000	0	93.2	75-135	2834	1.33	30
sec-Butylbenzene	3248	90	3000	0	108	65-130	3297	1.51	30
Styrene	3098	90	3000	0	103	75-125	3104	0.194	30
tert-Butylbenzene	3128	90	3000	0	104	65-130	3166	1.24	30
Tetrachloroethene	2934	90	3000	0	97.8	64-140	3058	4.16	30
Tetrahydrofuran	2829	300	3000	0	94.3	70-135	2868	1.37	30
Toluene	2896	90	3000	0	96.6	70-125	2886	0.363	30
trans-1,2-Dichloroethene	2868	90	3000	0	95.6	65-135	2894	0.885	30
trans-1,3-Dichloropropene	3045	90	3000	0	102	65-125	3099	1.76	30
trans-1,4-Dichloro-2-butene	2750	90	3000	0	91.6	70-135	2666	3.1	30
Trichloroethene	2949	90	3000	0	98.3	75-125	3016	2.26	30
Trichlorofluoromethane	1646	90	3000	0	54.8	25-185	1713	4.02	30
Vinyl chloride	3136	90	3000	0	105	60-125	3180	1.38	30
Surr: 1,2-Dichloroethane-d4	*14540*	0	*15000*	0	*96.9*	*70-120*	14610	*0.515*	*30*
Surr: 4-Bromofluorobenzene	*15570*	0	*15000*	0	*104*	*75-120*	15140	*2.78*	*30*
Surr: Dibromofluoromethane	*14790*	0	*15000*	0	*98.6*	*85-115*	14840	*0.314*	*30*
Surr: Toluene-d8	*15070*	0	*15000*	0	*100*	*85-120*	14950	*0.75*	*30*

The following samples were analyzed in this batch: 1205759-01B 1205759-02B 1205759-03B 1205759-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **R105302** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: **WBLKS1-R105302**				Units: **% of sample**		Analysis Date: **5/25/2012 01:55 PM**			
Client ID:		Run ID: **MOIST_120525B**			SeqNo: **1986349**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS	Sample ID: **LCS-R105302**				Units: **% of sample**		Analysis Date: **5/25/2012 01:55 PM**			
Client ID:		Run ID: **MOIST_120525B**			SeqNo: **1986348**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP	Sample ID: **1205760-04ADUP1**				Units: **% of sample**		Analysis Date: **5/25/2012 01:55 PM**			
Client ID:		Run ID: **MOIST_120525B**			SeqNo: **1986327**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.64	0.050	0	0	0	0-0	77.23	0.529	20	

DUP	Sample ID: **1205760-04ADUP2**				Units: **% of sample**		Analysis Date: **5/25/2012 01:55 PM**			
Client ID:		Run ID: **MOIST_120525B**			SeqNo: **1986328**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.78	0.050	0	0	0	0-0	77.23	0.71	20	

DUP	Sample ID: **1205765-06ADUP**				Units: **% of sample**		Analysis Date: **5/25/2012 01:55 PM**			
Client ID:		Run ID: **MOIST_120525B**			SeqNo: **1986347**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.6	0.050	0	0	0	0-0	6.89	9.8	20	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A	1205759-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205759

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052412_RLF1	Task: KRRI
	Total # of Samples: 9	Event Complete?

Turn Around Time	5 Day	Rush	No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:				
Project #	60162778			
Site Address	5555 Glenwood Parkway SE Suite 200			
City	Grand Rapids	State, Zip	MI	
Site PM Name	Bryan Stiemsma			
Phone/Fax	616-940-4424			
Site PM Email:	Bryan.Stiemsma@aecom.com			

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	1100 Louisiana Suite 1100		
City/State,	Houson, TX	Phone #:	713-821-2000
PO #			
Send EDD to			
CC Hardcopy report			
CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	None											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR1150L509S052412S006	SBKR1150L509	SO	G	05/24/2012 10:17	3			X	X	X	X	X											
2	SBKR1150L510S052412S005	SBKR1150L510	SO	G	05/24/2012 10:43	3			X	X	X	X	X											
3	SBKR1150L511S052412S006	SBKR1150L511	SO	G	05/24/2012 11:12	3			X	X	X	X	X											
4	SBKR1150L512S052412S007	SBKR1150L512	SO	G	05/24/2012 11:54	3			X	X	X	X	X											
5	SBKR1150L512D052412S007	SBKR1150L512	SO	G	05/24/2012 11:54	3	DUPLICATE		X	X	X	X	X											
6	SBKR1150L513S052412S010	SBKR1150L513	SO	G	05/24/2012 13:44	3	MDEQ SPLIT		X	X	X	X	X											
7	SBKR1150L514S052412S004	SBKR1150L514	SO	G	05/24/2012 14:00	3			X	X	X	X	X											
8	SBKR1150L515S052412S004	SBKR1150L515	SO	G	05/24/2012 14:23	3			X	X	X	X	X											
9	SBKR1150L515T052412MX	SBKR1150L515	SQ	G	05/24/2012 00:00	1	TRIP BLANK						X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ralph Freed	5-24-12	1511		5-24-12	1511
	5-24-12	1512		5-24-12	1512

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
4.0 °C	Y/N	Y/N	Y/N
	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **24-May-12 15:12**

Work Order: **1205759** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 24-May-12 (Date) Reviewed by: Ann Preston (eSignature) 25-May-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

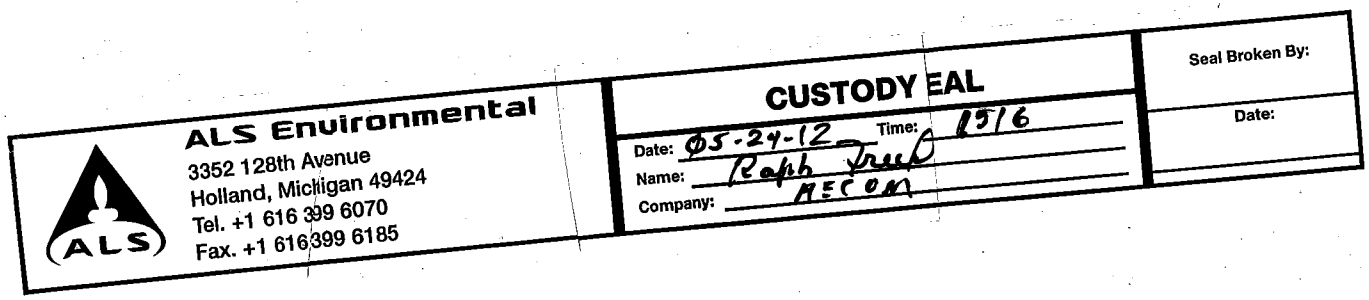
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616399 6185

CUSTODY SEAL

Date: 05-24-12 Time: 1516
Name: Ralph Trued
Company: MECOM

Seal Broken By:

Date:

04-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 5/24/12** Work Order: **1205759**

Dear Bryan,

ALS Environmental received 9 samples on 24-May-2012 03:12 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 68.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: MN331938

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
Work Order: **1205759**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205759-01	SBKR1150L509S052412S006	Soil		5/24/2012 10:17	5/24/2012 15:12	☐
1205759-02	SBKR1150L510S052412S005	Soil		5/24/2012 10:43	5/24/2012 15:12	☐
1205759-03	SBKR1150L511S052412S006	Soil		5/24/2012 11:12	5/24/2012 15:12	☐
1205759-04	SBKR1150L512S052412S007	Soil		5/24/2012 11:54	5/24/2012 15:12	☐
1205759-05	SBKR1150L512D052412S007	Soil		5/24/2012 11:54	5/24/2012 15:12	☐
1205759-06	SBKR1150L513S052412S010	Soil		5/24/2012 13:44	5/24/2012 15:12	☐
1205759-07	SBKR1150L514S052412S004	Soil		5/24/2012 14:00	5/24/2012 15:12	☐
1205759-08	SBKR1150L515S052412S004	Soil		5/24/2012 14:23	5/24/2012 15:12	☐
1205759-09	SBKR1150L515T052412MX	Soil		5/24/2012	5/24/2012 15:12	☐

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
Work Order: 1205759

Case Narrative

QC Comments:

Batch 41353, MS/MSD data for Semi-Volatiles is not related to this project's samples.

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/24/12
WorkOrder: **1205759**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	**66**	**31**	**4.0**		**mg/Kg-dry**	1	5/29/2012
ORO (C20-C34)	**190**	**61**	**4.0**		**mg/Kg-dry**	1	5/29/2012
Surr: 4-Terphenyl-d14	*49.1*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	**0.80**	**0.50**	**0.50**		**mg/Kg-dry**	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**32**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**40**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(a)pyrene	**350**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Benzo(b)fluoranthene	**360**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/29/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/29/2012
Chrysene	**350**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/29/2012
Fluoranthene	**430**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/29/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/29/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/29/2012
Pyrene	**450**	**330**	**330**		**µg/Kg-dry**	1	5/29/2012
Surr: 2,4,6-Tribromophenol	*96.6*	*34-140*			*%REC*	1	5/29/2012
Surr: 2-Fluorobiphenyl	*67.5*	*12-100*			*%REC*	1	5/29/2012
Surr: 2-Fluorophenol	*75.3*	*33-117*			*%REC*	1	5/29/2012
Surr: 4-Terphenyl-d14	*78.4*	*25-137*			*%REC*	1	5/29/2012
Surr: Nitrobenzene-d5	*68.8*	*37-107*			*%REC*	1	5/29/2012
Surr: Phenol-d6	*72.9*	*40-106*			*%REC*	1	5/29/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	500	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	500	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	500	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	500	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,700	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,700	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	4,100	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	500	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	500	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	500	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	500	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	500	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,700	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	500	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	500	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	500	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L509S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 10:17:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	500	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	500	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	990	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	500	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	500	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	500	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,700	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	500	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	500	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	500	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	500	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	500	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	500	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,700	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	500	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	500	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	500	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	500	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	500	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	500	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*101*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.6*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	17	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	35	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*45.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.4	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**36**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*99.6*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*77.1*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*77.3*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*76.4*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*75.9*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	150	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	150	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	150	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	150	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	500	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	150	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	150	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	150	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	500	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	150	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L510S052412S005
Work Order:	1205759	**Collection Date:**	5/24/2012 10:43:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	300	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	150	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	150	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	500	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	150	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	150	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	150	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	150	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	150	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	150	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	150	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	150	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	150	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	150	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	150	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*102*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.0*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.4*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**46**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	16	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	31	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*47.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.2	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**38**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*98.3*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*78.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*79.4*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*77.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*76.0*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	100	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	100	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	100	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	340	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	100	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	100	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	340	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	100	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L511S052412S006
Work Order:	1205759	**Collection Date:**	5/24/2012 11:12:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	210	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	340	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	100	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	100	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	100	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	100	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	100	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	100	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	100	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	100	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.2*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*103*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.3*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*100*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**37**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	25	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	51	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*42.5*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.8	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**47**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*104*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*71.9*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*76.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*101*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*72.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	320	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	320	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	320	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	320	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,600	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	320	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	320	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	320	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	320	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	320	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	320	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	320	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	320	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	320	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	320	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512S052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	320	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	320	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	630	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	320	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	320	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	320	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	320	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	320	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	320	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	320	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	320	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	320	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	320	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	320	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	320	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	320	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	320	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	320	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.7*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*104*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.4*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**61**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	42	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*49.1*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	1.6	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**41**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*102*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*75.8*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*72.2*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*73.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	210	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	210	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	210	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	210	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	690	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,700	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	210	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	210	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	210	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	210	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	690	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	210	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	210	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L512D052412S007
Work Order:	1205759	**Collection Date:**	5/24/2012 11:54:00 AM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	410	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**210**	**210**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	210	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	690	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	210	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	210	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	210	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	210	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	210	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	210	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	210	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	210	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	210	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	210	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	210	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.7*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*96.3*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*102*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**53**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	31	4.0		mg/Kg-dry	1	5/29/2012
ORO (C20-C34)	ND	63	4.0		mg/Kg-dry	1	5/29/2012
Surr: 4-Terphenyl-d14	*43.9*	*39-115*			*%REC*	1	5/29/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **RH**
Beryllium	ND	2.5	0.50		mg/Kg-dry	20	5/31/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**110**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*108*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*71.2*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*71.0*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*99.5*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*67.6*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*57.3*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	570	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	570	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	570	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	570	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,900	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,900	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	4,700	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	570	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	570	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	570	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	570	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	570	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,900	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	570	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	570	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	570	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	570	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	570	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	570	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L513S052412S010
Work Order:	1205759	**Collection Date:**	5/24/2012 1:44:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	570	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	570	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**1,200**	**570**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	570	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	570	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,900	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	570	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	570	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	570	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	570	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	570	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	570	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	570	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	570	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	570	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	570	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	570	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	570	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.3*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*101*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.2*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**70**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/30/2012
ORO (C20-C34)	ND	37	4.0		mg/Kg-dry	1	5/30/2012
Surr: 4-Terphenyl-d14	*51.3*	*39-115*			*%REC*	1	5/30/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*77.9*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*57.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*51.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*94.3*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*61.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*59.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	170	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	170	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	170	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	170	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	560	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,400	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	170	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	170	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	170	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	560	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	170	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L514S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:00:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	340	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**460**	**170**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	170	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	560	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	170	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	170	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	170	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	170	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	170	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	170	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	170	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	170	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	170	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	170	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	170	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.0*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	21	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**520**	**43**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*57.2*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/31/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/31/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/31/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/31/2012
Benzo(a)anthracene	**510**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(b)fluoranthene	**760**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(g,h,i)perylene	**390**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/31/2012
Chrysene	**580**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/31/2012
Fluoranthene	**910**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/31/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/31/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/31/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/31/2012
Pyrene	**790**	**330**	**330**		**µg/Kg-dry**	1	5/31/2012
Surr: 2,4,6-Tribromophenol	*107*	*34-140*			*%REC*	1	5/31/2012
Surr: 2-Fluorobiphenyl	*68.5*	*12-100*			*%REC*	1	5/31/2012
Surr: 2-Fluorophenol	*64.9*	*33-117*			*%REC*	1	5/31/2012
Surr: 4-Terphenyl-d14	*104*	*25-137*			*%REC*	1	5/31/2012
Surr: Nitrobenzene-d5	*64.0*	*37-107*			*%REC*	1	5/31/2012
Surr: Phenol-d6	*56.5*	*40-106*			*%REC*	1	5/31/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	750	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	750	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515S052412S004
Work Order:	1205759	**Collection Date:**	5/24/2012 2:23:00 PM
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	450	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**610**	**230**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	750	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*94.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**54**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515T052412MX
Work Order:	1205759	**Collection Date:**	5/24/2012
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	5/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	5/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	5/29/2012
Benzene	ND	50	50		µg/Kg	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromoform	ND	100	100		µg/Kg	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	5/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	5/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	5/29/2012
Chloroethane	ND	250	250		µg/Kg	1	5/29/2012
Chloroform	ND	50	50		µg/Kg	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg	1	5/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L515T052412MX
Work Order:	1205759	**Collection Date:**	5/24/2012
Project:	Marshall KRRI 1150L 5/24/12		
Lab ID:	1205759-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	5/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg	1	5/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	5/29/2012
o-Xylene	ND	50	50		µg/Kg	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	5/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Styrene	ND	50	50		µg/Kg	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	5/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	5/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	5/29/2012
Toluene	ND	100	100		µg/Kg	1	5/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	5/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	5/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.1*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*93.8*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.9*	*85-120*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41320** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 08:23 PM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989811** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.16*	0	*5*	0	*43.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 07:31 PM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989812** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	567.8	10	500	0	114	60-130	0			
ORO (C20-C34)	645.5	20	500	0	129	60-130	0			
Surr: 4-Terphenyl-d14	*2.052*	0	*5*	0	*41*	*39-115*	0			

MS Sample ID: **1205760-04A MS** Units: **mg/Kg** Analysis Date: **5/30/2012 01:56 AM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989813** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	535.1	9.8	490.9	0	109	60-130	0			
ORO (C20-C34)	758.9	20	490.9	289.8	95.6	60-130	0			
Surr: 4-Terphenyl-d14	*2.487*	0	*4.909*	0	*50.7*	*39-115*	0			

MSD Sample ID: **1205760-04A MSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:22 AM**
Client ID: Run ID: **GC8_120529A** SeqNo: **1989814** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	486.3	9.8	489.7	0	99.3	60-130	535.1	9.56	30	
ORO (C20-C34)	682.4	20	489.7	289.8	80.2	60-130	758.9	10.6	30	
Surr: 4-Terphenyl-d14	*2.716*	0	*4.897*	0	*55.5*	*39-115*	2.487	*8.81*	*30*	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41348** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:35 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990206** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.858*	0	*5*	0	*57.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:09 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990207** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	452.1	10	500	0	90.4	60-130	0			
ORO (C20-C34)	485.2	20	500	0	97	60-130	0			
Surr: 4-Terphenyl-d14	*2.553*	0	*5*	0	*51.1*	*39-115*	0			

The following samples were analyzed in this batch: 1205759-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:48 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987143** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01578	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:54 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987145** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.563	0.10	5	0	91.3	80-120	0			
Molybdenum	4.982	0.25	5	0	99.6	80-120	0			
Nickel	4.672	0.25	5	0	93.4	80-120	0			
Vanadium	4.81	0.25	5	0	96.2	80-120	0			

LCSD Sample ID: **LCSD-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 10:00 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987147** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.664	0.10	5	0	93.3	80-120	4.563	2.18	20	
Molybdenum	5.075	0.25	5	0	102	80-120	4.982	1.85	20	
Nickel	4.713	0.25	5	0	94.3	80-120	4.672	0.863	20	
Vanadium	4.868	0.25	5	0	97.4	80-120	4.81	1.19	20	

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 02:39 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987215** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.497	1.3	6.468	0.208	97.2	80-120	0			
Nickel	12.04	1.3	6.468	5.972	93.8	80-120	0			
Vanadium	13.86	1.3	6.468	6.652	111	80-120	0			

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 06:16 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988373** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.845	0.52	6.468	0.1239	88.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:45 AM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987217** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.952	1.4	6.916	0.208	97.5	80-120	6.497	6.76	25	
Nickel	11.52	1.4	6.916	5.972	80.2	80-120	12.04	4.44	25	
Vanadium	13.13	1.4	6.916	6.652	93.7	80-120	13.86	5.34	25	

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 06:22 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988374** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.279	0.55	6.916	0.1239	89	80-120	5.845	7.17	25	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A	1205759-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 08:58 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987560** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4491*	0	*5000*	0	*89.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4538*	0	*5000*	0	*90.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4383*	0	*5000*	0	*87.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3928*	0	*5000*	0	*78.6*	*37-107*	0			
Surr: Phenol-d6	*4253*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 09:35 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987561** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1830	50	2000	0	91.5	45-105	0			
Acenaphthene	1864	50	2000	0	93.2	45-110	0			
Acenaphthylene	1978	50	2000	0	98.9	45-105	0			
Anthracene	1727	50	2000	0	86.4	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1654	50	2000	0	82.7	50-110	0			
Benzo(b)fluoranthene	1990	50	2000	0	99.5	45-115	0			
Benzo(g,h,i)perylene	1920	50	2000	0	96	40-125	0			
Benzo(k)fluoranthene	1559	50	2000	0	78	45-115	0			
Chrysene	1856	50	2000	0	92.8	55-110	0			
Dibenzo(a,h)anthracene	1731	50	2000	0	86.6	40-125	0			
Fluoranthene	1704	50	2000	0	85.2	55-115	0			
Fluorene	1797	50	2000	0	89.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1739	50	2000	0	87	40-120	0			
Naphthalene	1804	50	2000	0	90.2	40-105	0			
Phenanthrene	1909	50	2000	0	95.4	50-110	0			
Pyrene	1810	50	2000	0	90.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4779*	0	*5000*	0	*95.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4662*	0	*5000*	0	*93.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4431*	0	*5000*	0	*88.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4445*	0	*5000*	0	*88.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4133*	0	*5000*	0	*82.7*	*37-107*	0			
Surr: Phenol-d6	*4507*	0	*5000*	0	*90.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 10:13 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987562** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1767	50	2000	0	88.4	45-105	1830	3.5	25	
Acenaphthene	1806	50	2000	0	90.3	45-110	1864	3.16	25	
Acenaphthylene	1917	50	2000	0	95.8	45-105	1978	3.13	25	
Anthracene	1694	50	2000	0	84.7	55-105	1727	1.93	25	
Benzo(a)anthracene	1819	50	2000	0	91	50-110	1790	1.61	25	
Benzo(a)pyrene	1744	50	2000	0	87.2	50-110	1654	5.3	25	
Benzo(b)fluoranthene	2102	50	2000	0	105	45-115	1990	5.47	25	
Benzo(g,h,i)perylene	1938	50	2000	0	96.9	40-125	1920	0.933	25	
Benzo(k)fluoranthene	1502	50	2000	0	75.1	45-115	1559	3.72	25	
Chrysene	1874	50	2000	0	93.7	55-110	1856	0.965	25	
Dibenzo(a,h)anthracene	1752	50	2000	0	87.6	40-125	1731	1.21	25	
Fluoranthene	1700	50	2000	0	85	55-115	1704	0.235	25	
Fluorene	1760	50	2000	0	88	50-110	1797	2.08	25	
Indeno(1,2,3-cd)pyrene	1764	50	2000	0	88.2	40-120	1739	1.43	25	
Naphthalene	1790	50	2000	0	89.5	40-105	1804	0.779	25	
Phenanthrene	1889	50	2000	0	94.4	50-110	1909	1.05	25	
Pyrene	1842	50	2000	0	92.1	45-125	1810	1.75	25	
Surr: 2,4,6-Tribromophenol	*4420*	0	*5000*	0	*88.4*	*34-140*	4779	*7.81*	*25*	
Surr: 2-Fluorobiphenyl	*4627*	0	*5000*	0	*92.5*	*12-100*	4662	*0.754*	*25*	
Surr: 2-Fluorophenol	*4338*	0	*5000*	0	*86.8*	*33-117*	4431	*2.12*	*25*	
Surr: 4-Terphenyl-d14	*4416*	0	*5000*	0	*88.3*	*25-137*	4445	*0.655*	*25*	
Surr: Nitrobenzene-d5	*4182*	0	*5000*	0	*83.6*	*37-107*	4133	*1.18*	*25*	
Surr: Phenol-d6	*4479*	0	*5000*	0	*89.6*	*40-106*	4507	*0.623*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205760-04A MS** Units: **µg/Kg** Analysis Date: **6/1/2012 04:08 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989065** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1636	50	1995	0	82	45-105	0			
Acenaphthene	1731	50	1995	0	86.8	45-110	0			
Acenaphthylene	1844	50	1995	0	92.4	45-105	0			
Anthracene	1665	50	1995	156.6	75.6	55-105	0			
Benzo(a)anthracene	1917	50	1995	91.84	91.5	50-110	0			
Benzo(a)pyrene	1651	50	1995	207.8	72.3	50-110	0			
Benzo(b)fluoranthene	2130	50	1995	165.3	98.5	45-115	0			
Benzo(g,h,i)perylene	1159	50	1995	78.31	54.2	40-125	0			
Benzo(k)fluoranthene	1631	50	1995	156.6	73.9	45-115	0			
Chrysene	1778	50	1995	107.3	83.7	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1995	166.3	50.6	40-125	0			
Fluoranthene	1728	50	1995	257.2	73.7	55-115	0			
Fluorene	1765	50	1995	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1210	50	1995	162.4	52.5	40-120	0			
Naphthalene	1588	50	1995	0	79.6	40-105	0			
Phenanthrene	1897	50	1995	51.24	92.5	50-110	0			
Pyrene	1886	50	1995	130.5	88	45-125	0			
Surr: 2,4,6-Tribromophenol	*5018*	0	*4988*	0	*101*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4525*	0	*4988*	0	*90.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4246*	0	*4988*	0	*85.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4561*	0	*4988*	0	*91.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3916*	0	*4988*	0	*78.5*	*37-107*	0			
Surr: Phenol-d6	*4359*	0	*4988*	0	*87.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205760-04A MSD** Units: **µg/Kg** Analysis Date: **6/1/2012 04:42 AM**
Client ID: Run ID: **SVMS5_120531A** SeqNo: **1989066** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1495	48	1934	0	77.3	45-105	1636	9	30	
Acenaphthene	1598	48	1934	0	82.6	45-110	1731	8	30	
Acenaphthylene	1668	48	1934	0	86.2	45-105	1844	10	30	
Anthracene	1566	48	1934	156.6	72.9	55-105	1665	6.14	30	
Benzo(a)anthracene	1810	48	1934	91.84	88.9	50-110	1917	5.74	30	
Benzo(a)pyrene	1614	48	1934	207.8	72.7	50-110	1651	2.26	30	
Benzo(b)fluoranthene	2182	48	1934	165.3	104	45-115	2130	2.41	30	
Benzo(g,h,i)perylene	865.5	48	1934	78.31	40.7	40-125	1159	29	30	
Benzo(k)fluoranthene	1762	48	1934	156.6	83	45-115	1631	7.72	30	
Chrysene	1716	48	1934	107.3	83.2	55-110	1778	3.5	30	
Dibenzo(a,h)anthracene	957.4	48	1934	166.3	40.9	40-125	1176	20.5	30	
Fluoranthene	1656	48	1934	257.2	72.3	55-115	1728	4.26	30	
Fluorene	1659	48	1934	0	85.8	50-110	1765	6.14	30	
Indeno(1,2,3-cd)pyrene	953.5	48	1934	162.4	40.9	40-120	1210	23.7	30	
Naphthalene	1431	48	1934	0	74	40-105	1588	10.4	30	
Phenanthrene	1781	48	1934	51.24	89.5	50-110	1897	6.31	30	
Pyrene	1864	48	1934	130.5	89.7	45-125	1886	1.17	30	
Surr: 2,4,6-Tribromophenol	*4678*	0	*4835*	0	*96.8*	*34-140*	5018	*7.01*	*40*	
Surr: 2-Fluorobiphenyl	*4137*	0	*4835*	0	*85.6*	*12-100*	4525	*8.95*	*40*	
Surr: 2-Fluorophenol	*3657*	0	*4835*	0	*75.6*	*33-117*	4246	*14.9*	*40*	
Surr: 4-Terphenyl-d14	*4303*	0	*4835*	0	*89*	*25-137*	4561	*5.81*	*40*	
Surr: Nitrobenzene-d5	*3495*	0	*4835*	0	*72.3*	*37-107*	3916	*11.4*	*40*	
Surr: Phenol-d6	*3962*	0	*4835*	0	*81.9*	*40-106*	4359	*9.55*	*40*	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:36 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988739** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3958*	0	*5000*	0	*79.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3327*	0	*5000*	0	*66.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3867*	0	*5000*	0	*77.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3322*	0	*5000*	0	*66.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3560*	0	*5000*	0	*71.2*	*37-107*	0			
Surr: Phenol-d6	*4293*	0	*5000*	0	*85.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 07:43 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988730** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1697	50	2000	0	84.8	45-105	0			
Acenaphthene	1709	50	2000	0	85.4	45-110	0			
Acenaphthylene	1725	50	2000	0	86.2	45-105	0			
Anthracene	1844	50	2000	0	92.2	55-105	0			
Benzo(a)anthracene	2078	50	2000	0	104	50-110	0			
Benzo(a)pyrene	1955	50	2000	0	97.8	50-110	0			
Benzo(b)fluoranthene	1861	50	2000	0	93	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	1799	50	2000	0	90	45-115	0			
Chrysene	1861	50	2000	0	93	55-110	0			
Dibenzo(a,h)anthracene	2097	50	2000	0	105	40-125	0			
Fluoranthene	1890	50	2000	0	94.5	55-115	0			
Fluorene	1830	50	2000	0	91.5	50-110	0			
Indeno(1,2,3-cd)pyrene	2060	50	2000	0	103	40-120	0			
Naphthalene	1653	50	2000	0	82.6	40-105	0			
Phenanthrene	1851	50	2000	0	92.6	50-110	0			
Pyrene	1822	50	2000	0	91.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4493*	0	*5000*	0	*89.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3558*	0	*5000*	0	*71.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4112*	0	*5000*	0	*82.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3589*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3997*	0	*5000*	0	*79.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:09 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988738** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1523	50	2000	0	76.2	45-105	1697	10.8	25	
Acenaphthene	1581	50	2000	0	79	45-110	1709	7.78	25	
Acenaphthylene	1579	50	2000	0	79	45-105	1725	8.84	25	
Anthracene	1816	50	2000	0	90.8	55-105	1844	1.53	25	
Benzo(a)anthracene	2013	50	2000	0	101	50-110	2078	3.18	25	
Benzo(a)pyrene	1922	50	2000	0	96.1	50-110	1955	1.7	25	
Benzo(b)fluoranthene	1903	50	2000	0	95.2	45-115	1861	2.23	25	
Benzo(g,h,i)perylene	1984	50	2000	0	99.2	40-125	2060	3.76	25	
Benzo(k)fluoranthene	1644	50	2000	0	82.2	45-115	1799	9	25	
Chrysene	1873	50	2000	0	93.6	55-110	1861	0.643	25	
Dibenzo(a,h)anthracene	2048	50	2000	0	102	40-125	2097	2.36	25	
Fluoranthene	1860	50	2000	0	93	55-115	1890	1.6	25	
Fluorene	1722	50	2000	0	86.1	50-110	1830	6.08	25	
Indeno(1,2,3-cd)pyrene	2017	50	2000	0	101	40-120	2060	2.11	25	
Naphthalene	1494	50	2000	0	74.7	40-105	1653	10.1	25	
Phenanthrene	1811	50	2000	0	90.6	50-110	1851	2.18	25	
Pyrene	1811	50	2000	0	90.6	45-125	1822	0.606	25	
Surr: 2,4,6-Tribromophenol	*4498*	0	*5000*	0	*90*	*34-140*	4493	*0.111*	*25*	
Surr: 2-Fluorobiphenyl	*3208*	0	*5000*	0	*64.2*	*12-100*	3558	*10.3*	*25*	
Surr: 2-Fluorophenol	*3432*	0	*5000*	0	*68.6*	*33-117*	3846	*11.4*	*25*	
Surr: 4-Terphenyl-d14	*4126*	0	*5000*	0	*82.5*	*25-137*	4112	*0.34*	*25*	
Surr: Nitrobenzene-d5	*3254*	0	*5000*	0	*65.1*	*37-107*	3589	*9.79*	*25*	
Surr: Phenol-d6	*3618*	0	*5000*	0	*72.4*	*40-106*	3997	*9.95*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1205760-11A MS** Units: **µg/Kg** Analysis Date: **5/30/2012 10:24 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988740** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1557	46	1845	0	84.4	45-105	0			
Acenaphthene	1564	46	1845	0	84.8	45-110	0			
Acenaphthylene	1548	46	1845	0	83.9	45-105	0			
Anthracene	1750	46	1845	0	94.8	55-105	0			
Benzo(a)anthracene	2175	46	1845	100.8	112	50-110	0			S
Benzo(a)pyrene	2047	46	1845	261.8	96.8	50-110	0			
Benzo(b)fluoranthene	2054	46	1845	296.7	95.2	45-115	0			
Benzo(g,h,i)perylene	2045	46	1845	180.3	101	40-125	0			
Benzo(k)fluoranthene	1675	46	1845	152.2	82.6	45-115	0			
Chrysene	2010	46	1845	244.3	95.7	55-110	0			
Dibenzo(a,h)anthracene	1920	46	1845	0	104	40-125	0			
Fluoranthene	2192	46	1845	331.6	101	55-115	0			
Fluorene	1716	46	1845	0	93	50-110	0			
Indeno(1,2,3-cd)pyrene	2024	46	1845	151.3	102	40-120	0			
Naphthalene	1508	46	1845	0	81.7	40-105	0			
Phenanthrene	1918	46	1845	86.29	99.3	50-110	0			
Pyrene	2070	46	1845	344.2	93.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4457*	0	*4613*	0	*96.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3137*	0	*4613*	0	*68*	*12-100*	0			
Surr: 2-Fluorophenol	*3329*	0	*4613*	0	*72.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3909*	0	*4613*	0	*84.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3252*	0	*4613*	0	*70.5*	*37-107*	0			
Surr: Phenol-d6	*3523*	0	*4613*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1205760-11A MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 10:51 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988741** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1291	46	1850	0	69.8	45-105	1557	18.7	30	
Acenaphthene	1427	46	1850	0	77.2	45-110	1564	9.12	30	
Acenaphthylene	1422	46	1850	0	76.8	45-105	1548	8.5	30	
Anthracene	1669	46	1850	0	90.2	55-105	1750	4.76	30	
Benzo(a)anthracene	2056	46	1850	100.8	106	50-110	2175	5.63	30	
Benzo(a)pyrene	1953	46	1850	261.8	91.4	50-110	2047	4.72	30	
Benzo(b)fluoranthene	1866	46	1850	296.7	84.8	45-115	2054	9.58	30	
Benzo(g,h,i)perylene	1887	46	1850	180.3	92.3	40-125	2045	8.05	30	
Benzo(k)fluoranthene	1809	46	1850	152.2	89.6	45-115	1675	7.69	30	
Chrysene	1873	46	1850	244.3	88	55-110	2010	7.06	30	
Dibenzo(a,h)anthracene	1816	46	1850	0	98.2	40-125	1920	5.57	30	
Fluoranthene	2031	46	1850	331.6	91.8	55-115	2192	7.65	30	
Fluorene	1630	46	1850	0	88.1	50-110	1716	5.14	30	
Indeno(1,2,3-cd)pyrene	1882	46	1850	151.3	93.5	40-120	2024	7.3	30	
Naphthalene	1193	46	1850	0	64.5	40-105	1508	23.3	30	
Phenanthrene	1797	46	1850	86.29	92.5	50-110	1918	6.5	30	
Pyrene	1944	46	1850	344.2	86.4	45-125	2070	6.31	30	
Surr: 2,4,6-Tribromophenol	*4069*	0	*4625*	0	*88*	*34-140*	4457	*9.09*	*40*	
Surr: 2-Fluorobiphenyl	*2706*	0	*4625*	0	*58.5*	*12-100*	3137	*14.8*	*40*	
Surr: 2-Fluorophenol	*2414*	0	*4625*	0	*52.2*	*33-117*	3329	*31.8*	*40*	
Surr: 4-Terphenyl-d14	*3772*	0	*4625*	0	*81.5*	*25-137*	3909	*3.58*	*40*	
Surr: Nitrobenzene-d5	*2599*	0	*4625*	0	*56.2*	*37-107*	3252	*22.3*	*40*	
Surr: Phenol-d6	*2883*	0	*4625*	0	*62.3*	*40-106*	3523	*20*	*40*	

The following samples were analyzed in this batch: 1205759-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 02:51 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987297** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	45	100						J
n-Butylbenzene	28	30						J
n-Propylbenzene	19.5	30						J
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	24	30						J
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*4890*	0	*5000*	0	*97.8*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4875*	0	*5000*	0	*97.5*	*75-120*	0	
Surr: Dibromofluoromethane	*5312*	0	*5000*	0	*106*	*85-115*	0	
Surr: Toluene-d8	*4874*	0	*5000*	0	*97.5*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCS	Sample ID: **LCS-41353-41353**				Units: **µg/Kg**		Analysis Date: **5/29/2012 01:32 PM**			
Client ID:		Run ID: **VMS8_120529A**			SeqNo: **1987295**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1100	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	1008	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	993.5	30	1000	0	99.4	60-125	0			
1,1-Dichloroethane	1037	30	1000	0	104	75-125	0			
1,1-Dichloroethene	1272	30	1000	0	127	65-135	0			
1,2,3-Trichlorobenzene	1066	30	1000	0	107	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1026	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1068	30	1000	0	107	65-130	0			
1,2,4-Trimethylbenzene	1036	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	852	30	1000	0	85.2	40-135	0			
1,2-Dibromoethane	1017	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1037	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1017	30	1000	0	102	70-135	0			
1,2-Dichloropropane	1037	30	1000	0	104	70-120	0			
1,3,5-Trimethylbenzene	1033	30	1000	0	103	65-135	0			
1,3-Dichlorobenzene	1041	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1046	30	1000	0	105	70-125	0			
2-Butanone	1092	100	1000	0	109	30-160	0			
2-Hexanone	957	30	1000	0	95.7	45-145	0			
4-Methyl-2-pentanone	1264	30	1000	0	126	45-145	0			
Acetone	927.5	100	1000	0	92.8	20-160	0			
Acrylonitrile	951	30	1000	0	95.1	70-135	0			
Benzene	1050	30	1000	0	105	75-125	0			
Bromobenzene	997.5	30	1000	0	99.8	65-120	0			
Bromochloromethane	1050	30	1000	0	105	70-125	0			
Bromodichloromethane	1039	30	1000	0	104	70-130	0			
Bromoform	961	30	1000	0	96.1	55-135	0			
Bromomethane	1154	30	1000	0	115	30-160	0			
Carbon disulfide	1164	30	1000	0	116	45-160	0			
Carbon tetrachloride	1107	30	1000	0	111	65-135	0			
Chlorobenzene	1017	30	1000	0	102	75-125	0			
Chloroethane	1378	100	1000	0	138	40-155	0			
Chloroform	997	30	1000	0	99.7	70-125	0			
Chloromethane	1017	30	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1052	30	1000	0	105	65-125	0			
cis-1,3-Dichloropropene	1088	30	1000	0	109	70-125	0			
Dibromochloromethane	1056	30	1000	0	106	65-135	0			
Dibromomethane	992	30	1000	0	99.2	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1045	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	952	30	1000	0	95.2	70-135	0
Isopropylbenzene	1037	30	1000	0	104	75-130	0
m,p-Xylene	2072	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1076	30	1000	0	108	75-125	0
Methylene chloride	988	30	1000	0	98.8	55-145	0
Naphthalene	1153	100	1000	0	115	40-140	0
n-Butylbenzene	1071	30	1000	0	107	65-140	0
n-Propylbenzene	1022	30	1000	0	102	65-135	0
o-Xylene	1022	30	1000	0	102	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1045	30	1000	0	104	65-130	0
Styrene	1020	30	1000	0	102	75-125	0
tert-Butylbenzene	1034	30	1000	0	103	65-130	0
Tetrachloroethene	1041	30	1000	0	104	64-140	0
Tetrahydrofuran	972	100	1000	0	97.2	70-135	0
Toluene	928	30	1000	0	92.8	70-125	0
trans-1,2-Dichloroethene	1086	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1044	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	787.5	30	1000	0	78.8	70-135	0
Trichloroethene	1066	30	1000	0	107	75-125	0
Trichlorofluoromethane	965.5	30	1000	0	96.6	25-185	0
Vinyl chloride	1004	30	1000	0	100	60-125	0
Surr: 1,2-Dichloroethane-d4	*4906*	0	*5000*	0	*98.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4850*	0	*5000*	0	*97*	*75-120*	0
Surr: Dibromofluoromethane	*5282*	0	*5000*	0	*106*	*85-115*	0
Surr: Toluene-d8	*4910*	0	*5000*	0	*98.2*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCSD Sample ID: **LCSD-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 01:58 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987296** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1016	30	1000	0	102	75-125	1060	4.34	30	
1,1,1-Trichloroethane	1034	30	1000	0	103	70-135	1100	6.14	30	
1,1,2,2-Tetrachloroethane	976	30	1000	0	97.6	55-130	1008	3.28	30	
1,1,2-Trichloroethane	962	30	1000	0	96.2	60-125	993.5	3.22	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	1037	5.09	30	
1,1-Dichloroethene	1165	30	1000	0	116	65-135	1272	8.82	30	
1,2,3-Trichlorobenzene	958.5	30	1000	0	95.8	60-135	1066	10.6	30	
1,2,3-Trichloropropane	927.5	30	1000	0	92.8	65-130	948	2.19	30	
1,2,3-Trimethylbenzene	982	30	1000	0	98.2	65-135	1026	4.33	30	
1,2,4-Trichlorobenzene	963	30	1000	0	96.3	65-130	1068	10.3	30	
1,2,4-Trimethylbenzene	979.5	30	1000	0	98	65-135	1036	5.56	30	
1,2-Dibromo-3-chloropropane	806	30	1000	0	80.6	40-135	852	5.55	30	
1,2-Dibromoethane	989	30	1000	0	98.9	70-125	1017	2.79	30	
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	1037	5.14	30	
1,2-Dichloroethane	992.5	30	1000	0	99.2	70-135	1017	2.44	30	
1,2-Dichloropropane	988.5	30	1000	0	98.8	70-120	1037	4.79	30	
1,3,5-Trimethylbenzene	973	30	1000	0	97.3	65-135	1033	5.98	30	
1,3-Dichlorobenzene	995	30	1000	0	99.5	70-125	1041	4.52	30	
1,4-Dichlorobenzene	1006	30	1000	0	101	70-125	1046	3.95	30	
2-Butanone	1041	100	1000	0	104	30-160	1092	4.74	30	
2-Hexanone	888.5	30	1000	0	88.8	45-145	957	7.42	30	
4-Methyl-2-pentanone	1194	30	1000	0	119	45-145	1264	5.61	30	
Acetone	756.5	100	1000	0	75.6	20-160	927.5	20.3	30	
Acrylonitrile	891.5	30	1000	0	89.2	70-135	951	6.46	30	
Benzene	1004	30	1000	0	100	75-125	1050	4.48	30	
Bromobenzene	959	30	1000	0	95.9	65-120	997.5	3.94	30	
Bromochloromethane	1019	30	1000	0	102	70-125	1050	3	30	
Bromodichloromethane	1002	30	1000	0	100	70-130	1039	3.58	30	
Bromoform	908.5	30	1000	0	90.8	55-135	961	5.62	30	
Bromomethane	1080	30	1000	0	108	30-160	1154	6.58	30	
Carbon disulfide	1078	30	1000	0	108	45-160	1164	7.72	30	
Carbon tetrachloride	1063	30	1000	0	106	65-135	1107	4.06	30	
Chlorobenzene	985.5	30	1000	0	98.6	75-125	1017	3.15	30	
Chloroethane	1374	100	1000	0	137	40-155	1378	0.218	30	
Chloroform	959	30	1000	0	95.9	70-125	997	3.89	30	
Chloromethane	963	30	1000	0	96.3	50-130	1017	5.45	30	
cis-1,2-Dichloroethene	987	30	1000	0	98.7	65-125	1052	6.38	30	
cis-1,3-Dichloropropene	1048	30	1000	0	105	70-125	1088	3.7	30	
Dibromochloromethane	1020	30	1000	0	102	65-135	1056	3.52	30	
Dibromomethane	964.5	30	1000	0	96.4	75-130	992	2.81	30	
Dichlorodifluoromethane	878	30	1000	0	87.8	35-135	942	7.03	30	
Ethylbenzene	1008	30	1000	0	101	75-125	1045	3.65	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	872.5	30	1000	0	87.2	70-135	952	8.71	30
Isopropylbenzene	981	30	1000	0	98.1	75-130	1037	5.55	30
m,p-Xylene	2000	60	2000	0	100	80-125	2072	3.51	30
Methyl tert-butyl ether	1032	30	1000	0	103	75-125	1076	4.08	30
Methylene chloride	953	30	1000	0	95.3	55-145	988	3.61	30
Naphthalene	1039	100	1000	0	104	40-140	1153	10.4	30
n-Butylbenzene	949	30	1000	0	94.9	65-140	1071	12.1	30
n-Propylbenzene	952.5	30	1000	0	95.2	65-135	1022	7.04	30
o-Xylene	977	30	1000	0	97.7	75-125	1022	4.55	30
p-Isopropyltoluene	953	30	1000	0	95.3	75-135	1044	9.16	30
sec-Butylbenzene	937.5	30	1000	0	93.8	65-130	1045	10.8	30
Styrene	991.5	30	1000	0	99.2	75-125	1020	2.88	30
tert-Butylbenzene	943.5	30	1000	0	94.4	65-130	1034	9.1	30
Tetrachloroethene	1029	30	1000	0	103	64-140	1041	1.16	30
Tetrahydrofuran	892	100	1000	0	89.2	70-135	972	8.58	30
Toluene	902.5	30	1000	0	90.2	70-125	928	2.79	30
trans-1,2-Dichloroethene	1012	30	1000	0	101	65-135	1086	7.05	30
trans-1,3-Dichloropropene	1022	30	1000	0	102	65-125	1044	2.08	30
trans-1,4-Dichloro-2-butene	738.5	30	1000	0	73.8	70-135	787.5	6.42	30
Trichloroethene	1023	30	1000	0	102	75-125	1066	4.12	30
Trichlorofluoromethane	906	30	1000	0	90.6	25-185	965.5	6.36	30
Vinyl chloride	949	30	1000	0	94.9	60-125	1004	5.58	30
Surr: 1,2-Dichloroethane-d4	*4899*	0	*5000*	0	*98*	*70-120*	4906	*0.133*	*30*
Surr: 4-Bromofluorobenzene	*4890*	0	*5000*	0	*97.8*	*75-120*	4850	*0.832*	*30*
Surr: Dibromofluoromethane	*5288*	0	*5000*	0	*106*	*85-115*	5282	*0.0946*	*30*
Surr: Toluene-d8	*4896*	0	*5000*	0	*97.9*	*85-120*	4910	*0.286*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1205760-04B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 11:38 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987310** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	8104	250	8173	0	99.2	75-125	0			
1,1,1-Trichloroethane	8210	250	8173	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	7671	250	8173	0	93.8	55-130	0			
1,1,2-Trichloroethane	7691	250	8173	0	94.1	60-125	0			
1,1-Dichloroethane	7887	250	8173	0	96.5	75-125	0			
1,1-Dichloroethene	7327	250	8173	0	89.6	65-135	0			
1,2,3-Trichlorobenzene	5864	250	8173	0	71.8	60-135	0			
1,2,3-Trichloropropane	7344	250	8173	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	7532	250	8173	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	6486	250	8173	0	79.4	65-130	0			
1,2,4-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	6269	250	8173	0	76.7	40-135	0			
1,2-Dibromoethane	7928	250	8173	0	97	70-125	0			
1,2-Dichlorobenzene	7544	250	8173	0	92.3	75-120	0			
1,2-Dichloroethane	7900	250	8173	0	96.6	70-135	0			
1,2-Dichloropropane	7994	250	8173	0	97.8	70-120	0			
1,3,5-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,3-Dichlorobenzene	7417	250	8173	0	90.8	70-125	0			
1,4-Dichlorobenzene	7381	250	8173	0	90.3	70-125	0			
2-Butanone	8243	820	8173	0	101	30-160	0			
2-Hexanone	7450	250	8173	0	91.2	45-145	0			
4-Methyl-2-pentanone	10110	250	8173	0	124	45-145	0			
Acetone	6400	820	8173	1271	62.8	20-160	0			
Acrylonitrile	6878	250	8173	0	84.2	70-135	0			
Benzene	7981	250	8173	0	97.6	75-125	0			
Bromobenzene	7327	250	8173	0	89.6	65-120	0			
Bromochloromethane	8067	250	8173	0	98.7	70-125	0			
Bromodichloromethane	7785	250	8173	0	95.2	70-130	0			
Bromoform	6723	250	8173	0	82.2	55-135	0			
Bromomethane	8104	250	8173	0	99.2	30-160	0			
Carbon disulfide	6686	250	8173	0	81.8	45-160	0			
Carbon tetrachloride	8177	250	8173	0	100	65-135	0			
Chlorobenzene	7671	250	8173	0	93.8	75-125	0			
Chloroethane	9424	820	8173	0	115	40-155	0			
Chloroform	7507	250	8173	0	91.8	70-125	0			
Chloromethane	7193	250	8173	0	88	50-130	0			
cis-1,2-Dichloroethene	7973	250	8173	0	97.6	65-125	0			
cis-1,3-Dichloropropene	8030	250	8173	0	98.2	70-125	0			
Dibromochloromethane	7936	250	8173	0	97.1	65-135	0			
Dibromomethane	7642	250	8173	0	93.5	75-130	0			
Dichlorodifluoromethane	6510	250	8173	0	79.6	35-135	0			
Ethylbenzene	7904	250	8173	0	96.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353**	Instrument ID **VMS8**		Method: **SW8260**					
Hexachloroethane	6387	250	8173	0	78.2	70-135	0	
Isopropylbenzene	7487	250	8173	0	91.6	75-130	0	
m,p-Xylene	15430	490	16350	0	94.4	80-125	0	
Methyl tert-butyl ether	8468	250	8173	0	104	75-125	0	
Methylene chloride	7001	250	8173	0	85.6	55-145	0	
Naphthalene	6559	820	8173	0	80.2	40-140	0	
n-Butylbenzene	6473	250	8173	0	79.2	65-140	0	
n-Propylbenzene	6915	250	8173	0	84.6	65-135	0	
o-Xylene	7703	250	8173	0	94.2	75-125	0	
p-Isopropyltoluene	7054	250	8173	0	86.3	75-135	0	
sec-Butylbenzene	6653	250	8173	0	81.4	65-130	0	
Styrene	7074	250	8173	0	86.6	75-125	0	
tert-Butylbenzene	7050	250	8173	0	86.2	65-130	0	
Tetrachloroethene	7581	250	8173	0	92.8	64-140	0	
Tetrahydrofuran	7001	820	8173	0	85.6	70-135	0	
Toluene	7172	250	8173	0	87.8	70-125	0	
trans-1,2-Dichloroethene	7998	250	8173	0	97.8	65-135	0	
trans-1,3-Dichloropropene	7957	250	8173	0	97.4	65-125	0	
trans-1,4-Dichloro-2-butene	5341	250	8173	0	65.4	70-135	0	S
Trichloroethene	7953	250	8173	0	97.3	75-125	0	
Trichlorofluoromethane	7450	250	8173	0	91.2	25-185	0	
Vinyl chloride	7090	250	8173	0	86.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*39470*	0	*40870*	0	*96.6*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*39060*	0	*40870*	0	*95.6*	*75-120*	0	
Surr: Dibromofluoromethane	*42410*	0	*40870*	0	*104*	*85-115*	0	
Surr: Toluene-d8	*40150*	0	*40870*	0	*98.2*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MSD	Sample ID: **1205760-04B MSD**				Units: **µg/Kg**			Analysis Date: **5/30/2012 12:04 PM**		
Client ID:		Run ID: **VMS8_120529A**			SeqNo: **1987311**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7904	250	8173	0	96.7	75-125	8104	2.5	30	
1,1,1-Trichloroethane	7994	250	8173	0	97.8	70-135	8210	2.67	30	
1,1,2,2-Tetrachloroethane	8304	250	8173	0	102	55-130	7671	7.93	30	
1,1,2-Trichloroethane	7900	250	8173	0	96.6	60-125	7691	2.67	30	
1,1-Dichloroethane	7801	250	8173	0	95.4	75-125	7887	1.09	30	
1,1-Dichloroethene	5386	250	8173	0	65.9	65-135	7327	30.5	30	R
1,2,3-Trichlorobenzene	6931	250	8173	0	84.8	60-135	5864	16.7	30	
1,2,3-Trichloropropane	7810	250	8173	0	95.6	65-130	7344	6.15	30	
1,2,3-Trimethylbenzene	7569	250	8173	0	92.6	65-135	7532	0.487	30	
1,2,4-Trichlorobenzene	7001	250	8173	0	85.6	65-130	6486	7.64	30	
1,2,4-Trimethylbenzene	7295	250	8173	0	89.2	65-135	7499	2.76	30	
1,2-Dibromo-3-chloropropane	7344	250	8173	0	89.8	40-135	6269	15.8	30	
1,2-Dibromoethane	8308	250	8173	0	102	70-125	7928	4.68	30	
1,2-Dichlorobenzene	7638	250	8173	0	93.4	75-120	7544	1.24	30	
1,2-Dichloroethane	8026	250	8173	0	98.2	70-135	7900	1.59	30	
1,2-Dichloropropane	8002	250	8173	0	97.9	70-120	7994	0.102	30	
1,3,5-Trimethylbenzene	7340	250	8173	0	89.8	65-135	7499	2.15	30	
1,3-Dichlorobenzene	7446	250	8173	0	91.1	70-125	7417	0.385	30	
1,4-Dichlorobenzene	7487	250	8173	0	91.6	70-125	7381	1.43	30	
2-Butanone	8243	820	8173	0	101	30-160	8243	0	30	
2-Hexanone	8562	250	8173	0	105	45-145	7450	13.9	30	
4-Methyl-2-pentanone	11260	250	8173	0	138	45-145	10110	10.8	30	
Acetone	9416	820	8173	1271	99.6	20-160	6400	38.1	30	R
Acrylonitrile	8582	250	8173	0	105	70-135	6878	22	30	
Benzene	7785	250	8173	0	95.2	75-125	7981	2.49	30	
Bromobenzene	7233	250	8173	0	88.5	65-120	7327	1.29	30	
Bromochloromethane	8083	250	8173	0	98.9	70-125	8067	0.202	30	
Bromodichloromethane	7683	250	8173	0	94	70-130	7785	1.32	30	
Bromoform	7238	250	8173	0	88.6	55-135	6723	7.38	30	
Bromomethane	7928	250	8173	0	97	30-160	8104	2.19	30	
Carbon disulfide	6457	250	8173	0	79	45-160	6686	3.48	30	
Carbon tetrachloride	7883	250	8173	0	96.4	65-135	8177	3.66	30	
Chlorobenzene	7560	250	8173	0	92.5	75-125	7671	1.45	30	
Chloroethane	8970	820	8173	0	110	40-155	9424	4.93	30	
Chloroform	7511	250	8173	0	91.9	70-125	7507	0.0544	30	
Chloromethane	7307	250	8173	0	89.4	50-130	7193	1.58	30	
cis-1,2-Dichloroethene	7900	250	8173	0	96.6	65-125	7973	0.927	30	
cis-1,3-Dichloropropene	8137	250	8173	0	99.6	70-125	8030	1.31	30	
Dibromochloromethane	7989	250	8173	0	97.8	65-135	7936	0.667	30	
Dibromomethane	7932	250	8173	0	97	75-130	7642	3.73	30	
Dichlorodifluoromethane	6902	250	8173	0	84.4	35-135	6510	5.85	30	
Ethylbenzene	7789	250	8173	0	95.3	75-125	7904	1.46	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6465	250	8173	0	79.1	70-135	6387	1.21	30
Isopropylbenzene	7454	250	8173	0	91.2	75-130	7487	0.438	30
m,p-Xylene	15250	490	16350	0	93.3	80-125	15430	1.17	30
Methyl tert-butyl ether	8962	250	8173	0	110	75-125	8468	5.67	30
Methylene chloride	6776	250	8173	0	82.9	55-145	7001	3.26	30
Naphthalene	8394	820	8173	0	103	40-140	6559	24.5	30
n-Butylbenzene	6657	250	8173	0	81.4	65-140	6473	2.8	30
n-Propylbenzene	6935	250	8173	0	84.8	65-135	6915	0.295	30
o-Xylene	7589	250	8173	0	92.8	75-125	7703	1.5	30
p-Isopropyltoluene	7127	250	8173	0	87.2	75-135	7054	1.04	30
sec-Butylbenzene	6535	250	8173	0	80	65-130	6653	1.8	30
Styrene	7119	250	8173	0	87.1	75-125	7074	0.633	30
tert-Butylbenzene	6882	250	8173	0	84.2	65-130	7050	2.41	30
Tetrachloroethene	7246	250	8173	0	88.6	64-140	7581	4.52	30
Tetrahydrofuran	8378	820	8173	0	102	70-135	7001	17.9	30
Toluene	7017	250	8173	0	85.8	70-125	7172	2.19	30
trans-1,2-Dichloroethene	7912	250	8173	0	96.8	65-135	7998	1.08	30
trans-1,3-Dichloropropene	8002	250	8173	0	97.9	65-125	7957	0.563	30
trans-1,4-Dichloro-2-butene	6016	250	8173	0	73.6	70-135	5341	11.9	30
Trichloroethene	7748	250	8173	0	94.8	75-125	7953	2.6	30
Trichlorofluoromethane	7160	250	8173	0	87.6	25-185	7450	3.97	30
Vinyl chloride	6980	250	8173	0	85.4	60-125	7090	1.57	30
Surr: 1,2-Dichloroethane-d4	*41110*	0	*40870*	0	*101*	*70-120*	39470	*4.08*	*30*
Surr: 4-Bromofluorobenzene	*38980*	0	*40870*	0	*95.4*	*75-120*	39060	*0.199*	*30*
Surr: Dibromofluoromethane	*42590*	0	*40870*	0	*104*	*85-115*	42410	*0.413*	*30*
Surr: Toluene-d8	*40580*	0	*40870*	0	*99.3*	*85-120*	40150	*1.07*	*30*

The following samples were analyzed in this batch:

1205759-05B	1205759-06B	1205759-07B
1205759-08B	1205759-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 10:44 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987314** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	28.5	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*5040*	0	*5000*	0	*101*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4960*	0	*5000*	0	*99.2*	*75-120*	0	
Surr: Dibromofluoromethane	*5122*	0	*5000*	0	*102*	*85-115*	0	
Surr: Toluene-d8	*5042*	0	*5000*	0	*101*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41354-41354**				Units: **µg/Kg**		Analysis Date: **5/29/2012 09:29 AM**			
Client ID:		Run ID: **VMS7_120529A**			SeqNo: **1987312**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1012	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1017	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	902.5	30	1000	0	90.2	55-130	0			
1,1,2-Trichloroethane	977.5	30	1000	0	97.8	60-125	0			
1,1-Dichloroethane	958	30	1000	0	95.8	75-125	0			
1,1-Dichloroethene	993	30	1000	0	99.3	65-135	0			
1,2,3-Trichlorobenzene	1032	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	934	30	1000	0	93.4	65-130	0			
1,2,3-Trimethylbenzene	1053	30	1000	0	105	65-135	0			
1,2,4-Trichlorobenzene	1058	30	1000	0	106	65-130	0			
1,2,4-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2-Dibromo-3-chloropropane	915	30	1000	0	91.5	40-135	0			
1,2-Dibromoethane	984	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	991	30	1000	0	99.1	75-120	0			
1,2-Dichloroethane	971	30	1000	0	97.1	70-135	0			
1,2-Dichloropropane	982.5	30	1000	0	98.2	70-120	0			
1,3,5-Trimethylbenzene	1024	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	994.5	30	1000	0	99.4	70-125	0			
1,4-Dichlorobenzene	1072	30	1000	0	107	70-125	0			
2-Butanone	1008	100	1000	0	101	30-160	0			
2-Hexanone	846	30	1000	0	84.6	45-145	0			
4-Methyl-2-pentanone	1278	30	1000	0	128	45-145	0			
Acetone	864.5	100	1000	0	86.4	20-160	0			
Acrylonitrile	853	30	1000	0	85.3	70-135	0			
Benzene	968	30	1000	0	96.8	75-125	0			
Bromobenzene	942.5	30	1000	0	94.2	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	933.5	30	1000	0	93.4	55-135	0			
Bromomethane	1328	30	1000	0	133	30-160	0			
Carbon disulfide	1034	30	1000	0	103	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	982	30	1000	0	98.2	75-125	0			
Chloroethane	1043	100	1000	0	104	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	994	30	1000	0	99.4	50-130	0			
cis-1,2-Dichloroethene	986	30	1000	0	98.6	65-125	0			
cis-1,3-Dichloropropene	1058	30	1000	0	106	70-125	0			
Dibromochloromethane	1047	30	1000	0	105	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	759	30	1000	0	75.9	35-135	0			
Ethylbenzene	1000	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1094	30	1000	0	109	70-135	0
Isopropylbenzene	969.5	30	1000	0	97	75-130	0
m,p-Xylene	2032	60	2000	0	102	80-125	0
Methyl tert-butyl ether	971.5	30	1000	0	97.2	75-125	0
Methylene chloride	988.5	30	1000	0	98.8	55-145	0
Naphthalene	935.5	100	1000	0	93.6	40-140	0
n-Butylbenzene	1156	30	1000	0	116	65-140	0
n-Propylbenzene	1034	30	1000	0	103	65-135	0
o-Xylene	981	30	1000	0	98.1	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1080	30	1000	0	108	65-130	0
Styrene	1027	30	1000	0	103	75-125	0
tert-Butylbenzene	1063	30	1000	0	106	65-130	0
Tetrachloroethene	994.5	30	1000	0	99.4	64-140	0
Tetrahydrofuran	878	100	1000	0	87.8	70-135	0
Toluene	954	30	1000	0	95.4	70-125	0
trans-1,2-Dichloroethene	977.5	30	1000	0	97.8	65-135	0
trans-1,3-Dichloropropene	1043	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	906.5	30	1000	0	90.6	70-135	0
Trichloroethene	993.5	30	1000	0	99.4	75-125	0
Trichlorofluoromethane	1048	30	1000	0	105	25-185	0
Vinyl chloride	1058	30	1000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*4855*	0	*5000*	0	*97.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4968*	0	*5000*	0	*99.4*	*75-120*	0
Surr: Dibromofluoromethane	*5009*	0	*5000*	0	*100*	*85-115*	0
Surr: Toluene-d8	*5072*	0	*5000*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCSD Sample ID: **LCSD-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 09:54 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987313** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	1012	3.02	30	
1,1,1-Trichloroethane	1054	30	1000	0	105	70-135	1017	3.57	30	
1,1,2,2-Tetrachloroethane	932	30	1000	0	93.2	55-130	902.5	3.22	30	
1,1,2-Trichloroethane	1010	30	1000	0	101	60-125	977.5	3.32	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	958	2.83	30	
1,1-Dichloroethene	1030	30	1000	0	103	65-135	993	3.66	30	
1,2,3-Trichlorobenzene	976.5	30	1000	0	97.6	60-135	1032	5.57	30	
1,2,3-Trichloropropane	971.5	30	1000	0	97.2	65-130	934	3.94	30	
1,2,3-Trimethylbenzene	1012	30	1000	0	101	65-135	1053	4.02	30	
1,2,4-Trichlorobenzene	997.5	30	1000	0	99.8	65-130	1058	5.89	30	
1,2,4-Trimethylbenzene	1016	30	1000	0	102	65-135	1008	0.79	30	
1,2-Dibromo-3-chloropropane	895.5	30	1000	0	89.6	40-135	915	2.15	30	
1,2-Dibromoethane	999.5	30	1000	0	100	70-125	984	1.56	30	
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	991	2.5	30	
1,2-Dichloroethane	1004	30	1000	0	100	70-135	971	3.34	30	
1,2-Dichloropropane	1026	30	1000	0	103	70-120	982.5	4.38	30	
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	1024	2.7	30	
1,3-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	994.5	2.65	30	
1,4-Dichlorobenzene	1042	30	1000	0	104	70-125	1072	2.84	30	
2-Butanone	1050	100	1000	0	105	30-160	1008	4.13	30	
2-Hexanone	908	30	1000	0	90.8	45-145	846	7.07	30	
4-Methyl-2-pentanone	1391	30	1000	0	139	45-145	1278	8.47	30	
Acetone	895	100	1000	0	89.5	20-160	864.5	3.47	30	
Acrylonitrile	883	30	1000	0	88.3	70-135	853	3.46	30	
Benzene	1013	30	1000	0	101	75-125	968	4.54	30	
Bromobenzene	953	30	1000	0	95.3	65-120	942.5	1.11	30	
Bromochloromethane	1048	30	1000	0	105	70-125	1020	2.8	30	
Bromodichloromethane	1008	30	1000	0	101	70-130	999.5	0.847	30	
Bromoform	958	30	1000	0	95.8	55-135	933.5	2.59	30	
Bromomethane	1458	30	1000	0	146	30-160	1328	9.37	30	
Carbon disulfide	1074	30	1000	0	107	45-160	1034	3.8	30	
Carbon tetrachloride	1024	30	1000	0	102	65-135	997.5	2.67	30	
Chlorobenzene	1009	30	1000	0	101	75-125	982	2.71	30	
Chloroethane	1044	100	1000	0	104	40-155	1043	0.144	30	
Chloroform	1012	30	1000	0	101	70-125	993.5	1.89	30	
Chloromethane	1026	30	1000	0	103	50-130	994	3.17	30	
cis-1,2-Dichloroethene	1004	30	1000	0	100	65-125	986	1.76	30	
cis-1,3-Dichloropropene	1098	30	1000	0	110	70-125	1058	3.71	30	
Dibromochloromethane	1069	30	1000	0	107	65-135	1047	2.08	30	
Dibromomethane	992	30	1000	0	99.2	75-130	959.5	3.33	30	
Dichlorodifluoromethane	806.5	30	1000	0	80.6	35-135	759	6.07	30	
Ethylbenzene	1030	30	1000	0	103	75-125	1000	2.86	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1040	30	1000	0	104	70-135	1094	5.02	30
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	969.5	1.23	30
m,p-Xylene	2094	60	2000	0	105	80-125	2032	3.05	30
Methyl tert-butyl ether	992.5	30	1000	0	99.2	75-125	971.5	2.14	30
Methylene chloride	1024	30	1000	0	102	55-145	988.5	3.53	30
Naphthalene	925	100	1000	0	92.5	40-140	935.5	1.13	30
n-Butylbenzene	1098	30	1000	0	110	65-140	1156	5.1	30
n-Propylbenzene	1037	30	1000	0	104	65-135	1034	0.29	30
o-Xylene	999.5	30	1000	0	100	75-125	981	1.87	30
p-Isopropyltoluene	995	30	1000	0	99.5	75-135	1044	4.76	30
sec-Butylbenzene	1078	30	1000	0	108	65-130	1080	0.278	30
Styrene	1042	30	1000	0	104	75-125	1027	1.45	30
tert-Butylbenzene	1059	30	1000	0	106	65-130	1063	0.377	30
Tetrachloroethene	1035	30	1000	0	104	64-140	994.5	3.99	30
Tetrahydrofuran	942	100	1000	0	94.2	70-135	878	7.03	30
Toluene	995	30	1000	0	99.5	70-125	954	4.21	30
trans-1,2-Dichloroethene	1014	30	1000	0	101	65-135	977.5	3.62	30
trans-1,3-Dichloropropene	1060	30	1000	0	106	65-125	1043	1.66	30
trans-1,4-Dichloro-2-butene	912	30	1000	0	91.2	70-135	906.5	0.605	30
Trichloroethene	1047	30	1000	0	105	75-125	993.5	5.24	30
Trichlorofluoromethane	1063	30	1000	0	106	25-185	1048	1.37	30
Vinyl chloride	1111	30	1000	0	111	60-125	1058	4.93	30
Surr: 1,2-Dichloroethane-d4	*4944*	0	*5000*	0	*98.9*	*70-120*	4855	*1.82*	*30*
Surr: 4-Bromofluorobenzene	*4996*	0	*5000*	0	*99.9*	*75-120*	4968	*0.562*	*30*
Surr: Dibromofluoromethane	*5031*	0	*5000*	0	*101*	*85-115*	5009	*0.438*	*30*
Surr: Toluene-d8	*5032*	0	*5000*	0	*101*	*85-120*	5072	*0.792*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MS	Sample ID: **1205760-11B MS**				Units: **µg/Kg**			Analysis Date: **5/29/2012 07:36 PM**		
Client ID:		Run ID: **VMS7_120529A**			SeqNo: **1987323**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3075	90	3000	0	102	75-125	0			
1,1,1-Trichloroethane	3004	90	3000	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	2822	90	3000	0	94	55-130	0			
1,1,2-Trichloroethane	3000	90	3000	0	100	60-125	0			
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	0			
1,1-Dichloroethene	2379	90	3000	0	79.3	65-135	0			
1,2,3-Trichlorobenzene	2916	90	3000	0	97.2	60-135	0			
1,2,3-Trichloropropane	2938	90	3000	0	98	65-130	0			
1,2,3-Trimethylbenzene	2998	90	3000	0	100	65-135	0			
1,2,4-Trichlorobenzene	2958	90	3000	0	98.6	65-130	0			
1,2,4-Trimethylbenzene	3110	90	3000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	2494	90	3000	0	83.2	40-135	0			
1,2-Dibromoethane	2974	90	3000	0	99.2	70-125	0			
1,2-Dichlorobenzene	2866	90	3000	0	95.6	75-120	0			
1,2-Dichloroethane	2916	90	3000	0	97.2	70-135	0			
1,2-Dichloropropane	3028	90	3000	0	101	70-120	0			
1,3,5-Trimethylbenzene	3156	90	3000	0	105	65-135	0			
1,3-Dichlorobenzene	2828	90	3000	0	94.2	70-125	0			
1,4-Dichlorobenzene	3092	90	3000	0	103	70-125	0			
2-Butanone	2733	300	3000	0	91.1	30-160	0			
2-Hexanone	2694	90	3000	0	89.8	45-145	0			
4-Methyl-2-pentanone	4072	90	3000	0	136	45-145	0			
Acetone	2482	300	3000	124.5	78.6	20-160	0			
Acrylonitrile	2622	90	3000	0	87.4	70-135	0			
Benzene	2950	90	3000	0	98.4	75-125	0			
Bromobenzene	2925	90	3000	0	97.5	65-120	0			
Bromochloromethane	2914	90	3000	0	97.2	70-125	0			
Bromodichloromethane	2961	90	3000	0	98.7	70-130	0			
Bromoform	2692	90	3000	0	89.8	55-135	0			
Bromomethane	3668	90	3000	0	122	30-160	0			
Carbon disulfide	2637	90	3000	0	87.9	45-160	0			
Carbon tetrachloride	2938	90	3000	0	98	65-135	0			
Chlorobenzene	2962	90	3000	0	98.8	75-125	0			
Chloroethane	2610	300	3000	0	87	40-155	0			
Chloroform	2979	90	3000	0	99.3	70-125	0			
Chloromethane	3392	90	3000	0	113	50-130	0			
cis-1,2-Dichloroethene	2970	90	3000	0	99	65-125	0			
cis-1,3-Dichloropropene	3165	90	3000	0	106	70-125	0			
Dibromochloromethane	3064	90	3000	0	102	65-135	0			
Dibromomethane	2906	90	3000	0	96.8	75-130	0			
Dichlorodifluoromethane	2295	90	3000	0	76.5	35-135	0			
Ethylbenzene	3080	90	3000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2866	90	3000	0	95.6	70-135	0
Isopropylbenzene	2991	90	3000	0	99.7	75-130	0
m,p-Xylene	6194	180	6000	0	103	80-125	0
Methyl tert-butyl ether	2932	90	3000	0	97.8	75-125	0
Methylene chloride	2882	90	3000	0	96	55-145	0
Naphthalene	2834	300	3000	0	94.4	40-140	0
n-Butylbenzene	3252	90	3000	0	108	65-140	0
n-Propylbenzene	3162	90	3000	0	105	65-135	0
o-Xylene	2984	90	3000	0	99.4	75-125	0
p-Isopropyltoluene	2834	90	3000	0	94.4	75-135	0
sec-Butylbenzene	3297	90	3000	0	110	65-130	0
Styrene	3104	90	3000	0	103	75-125	0
tert-Butylbenzene	3166	90	3000	0	106	65-130	0
Tetrachloroethene	3058	90	3000	0	102	64-140	0
Tetrahydrofuran	2868	300	3000	0	95.6	70-135	0
Toluene	2886	90	3000	0	96.2	70-125	0
trans-1,2-Dichloroethene	2894	90	3000	0	96.4	65-135	0
trans-1,3-Dichloropropene	3099	90	3000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	2666	90	3000	0	88.8	70-135	0
Trichloroethene	3016	90	3000	0	101	75-125	0
Trichlorofluoromethane	1713	90	3000	0	57.1	25-185	0
Vinyl chloride	3180	90	3000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*14610*	0	*15000*	0	*97.4*	*70-120*	0
Surr: 4-Bromofluorobenzene	*15140*	0	*15000*	0	*101*	*75-120*	0
Surr: Dibromofluoromethane	*14840*	0	*15000*	0	*98.9*	*85-115*	0
Surr: Toluene-d8	*14950*	0	*15000*	0	*99.7*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1205760-11B MSD** Units: **µg/Kg** Analysis Date: **5/29/2012 08:01 PM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987324** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2988	90	3000	0	99.6	75-125	3075	2.87	30	
1,1,1-Trichloroethane	2949	90	3000	0	98.3	70-135	3004	1.86	30	
1,1,2,2-Tetrachloroethane	2805	90	3000	0	93.5	55-130	2822	0.587	30	
1,1,2-Trichloroethane	2924	90	3000	0	97.4	60-125	3000	2.58	30	
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	2846	0	30	
1,1-Dichloroethene	2241	90	3000	0	74.7	65-135	2379	5.97	30	
1,2,3-Trichlorobenzene	2806	90	3000	0	93.6	60-135	2916	3.83	30	
1,2,3-Trichloropropane	2950	90	3000	0	98.4	65-130	2938	0.408	30	
1,2,3-Trimethylbenzene	2910	90	3000	0	97	65-135	2998	3	30	
1,2,4-Trichlorobenzene	2850	90	3000	0	95	65-130	2958	3.72	30	
1,2,4-Trimethylbenzene	3072	90	3000	0	102	65-135	3110	1.21	30	
1,2-Dibromo-3-chloropropane	2488	90	3000	0	83	40-135	2494	0.241	30	
1,2-Dibromoethane	2938	90	3000	0	98	70-125	2974	1.22	30	
1,2-Dichlorobenzene	2800	90	3000	0	93.4	75-120	2866	2.33	30	
1,2-Dichloroethane	2937	90	3000	0	97.9	70-135	2916	0.718	30	
1,2-Dichloropropane	2988	90	3000	0	99.6	70-120	3028	1.35	30	
1,3,5-Trimethylbenzene	3126	90	3000	0	104	65-135	3156	0.955	30	
1,3-Dichlorobenzene	2746	90	3000	0	91.6	70-125	2828	2.91	30	
1,4-Dichlorobenzene	3018	90	3000	0	101	70-125	3092	2.41	30	
2-Butanone	2720	300	3000	0	90.6	30-160	2733	0.495	30	
2-Hexanone	2642	90	3000	0	88	45-145	2694	1.97	30	
4-Methyl-2-pentanone	4082	90	3000	0	136	45-145	4072	0.221	30	
Acetone	2366	300	3000	124.5	74.7	20-160	2482	4.83	30	
Acrylonitrile	2583	90	3000	0	86.1	70-135	2622	1.5	30	
Benzene	2883	90	3000	0	96.1	75-125	2950	2.31	30	
Bromobenzene	2925	90	3000	0	97.5	65-120	2925	0	30	
Bromochloromethane	2860	90	3000	0	95.4	70-125	2914	1.87	30	
Bromodichloromethane	2924	90	3000	0	97.4	70-130	2961	1.27	30	
Bromoform	2706	90	3000	0	90.2	55-135	2692	0.5	30	
Bromomethane	3488	90	3000	0	116	30-160	3668	5.03	30	
Carbon disulfide	2526	90	3000	0	84.2	45-160	2637	4.3	30	
Carbon tetrachloride	2871	90	3000	0	95.7	65-135	2938	2.32	30	
Chlorobenzene	2943	90	3000	0	98.1	75-125	2962	0.66	30	
Chloroethane	2436	300	3000	0	81.2	40-155	2610	6.9	30	
Chloroform	2908	90	3000	0	97	70-125	2979	2.39	30	
Chloromethane	3220	90	3000	0	107	50-130	3392	5.17	30	
cis-1,2-Dichloroethene	2892	90	3000	0	96.4	65-125	2970	2.66	30	
cis-1,3-Dichloropropene	3087	90	3000	0	103	70-125	3165	2.5	30	
Dibromochloromethane	3050	90	3000	0	102	65-135	3064	0.491	30	
Dibromomethane	2908	90	3000	0	97	75-130	2906	0.103	30	
Dichlorodifluoromethane	2270	90	3000	0	75.6	35-135	2295	1.12	30	
Ethylbenzene	3010	90	3000	0	100	75-125	3080	2.27	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2817	90	3000	0	93.9	70-135	2866	1.74	30
Isopropylbenzene	2930	90	3000	0	97.6	75-130	2991	2.08	30
m,p-Xylene	6130	180	6000	0	102	80-125	6194	1.02	30
Methyl tert-butyl ether	2919	90	3000	0	97.3	75-125	2932	0.461	30
Methylene chloride	2812	90	3000	0	93.8	55-145	2882	2.42	30
Naphthalene	2712	300	3000	0	90.4	40-140	2834	4.38	30
n-Butylbenzene	3069	90	3000	0	102	65-140	3252	5.79	30
n-Propylbenzene	3120	90	3000	0	104	65-135	3162	1.34	30
o-Xylene	2937	90	3000	0	97.9	75-125	2984	1.57	30
p-Isopropyltoluene	2796	90	3000	0	93.2	75-135	2834	1.33	30
sec-Butylbenzene	3248	90	3000	0	108	65-130	3297	1.51	30
Styrene	3098	90	3000	0	103	75-125	3104	0.194	30
tert-Butylbenzene	3128	90	3000	0	104	65-130	3166	1.24	30
Tetrachloroethene	2934	90	3000	0	97.8	64-140	3058	4.16	30
Tetrahydrofuran	2829	300	3000	0	94.3	70-135	2868	1.37	30
Toluene	2896	90	3000	0	96.6	70-125	2886	0.363	30
trans-1,2-Dichloroethene	2868	90	3000	0	95.6	65-135	2894	0.885	30
trans-1,3-Dichloropropene	3045	90	3000	0	102	65-125	3099	1.76	30
trans-1,4-Dichloro-2-butene	2750	90	3000	0	91.6	70-135	2666	3.1	30
Trichloroethene	2949	90	3000	0	98.3	75-125	3016	2.26	30
Trichlorofluoromethane	1646	90	3000	0	54.8	25-185	1713	4.02	30
Vinyl chloride	3136	90	3000	0	105	60-125	3180	1.38	30
Surr: 1,2-Dichloroethane-d4	*14540*	0	*15000*	0	*96.9*	*70-120*	14610	*0.515*	*30*
Surr: 4-Bromofluorobenzene	*15570*	0	*15000*	0	*104*	*75-120*	15140	*2.78*	*30*
Surr: Dibromofluoromethane	*14790*	0	*15000*	0	*98.6*	*85-115*	14840	*0.314*	*30*
Surr: Toluene-d8	*15070*	0	*15000*	0	*100*	*85-120*	14950	*0.75*	*30*

The following samples were analyzed in this batch: 1205759-01B 1205759-02B 1205759-03B 1205759-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205759
Project: Marshall KRRI 1150L 5/24/12

QC BATCH REPORT

Batch ID: **R105302** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205760-04ADUP1** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.64	0.050	0	0	0	-0 0	77.23	0.529	20	

DUP Sample ID: **1205760-04ADUP2** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986328** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.78	0.050	0	0	0	-0 0	77.23	0.71	20	

DUP Sample ID: **1205765-06ADUP** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.6	0.050	0	0	0	-0 0	6.89	9.8	20	

The following samples were analyzed in this batch:

1205759-01A	1205759-02A	1205759-03A
1205759-04A	1205759-05A	1205759-06A
1205759-07A	1205759-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205759

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052412_RLF1	Task: KRRI
	Total # of Samples: 9	Event Complete?

Turn Around Time	5 Day	Rush	No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:				
Project #	60162778			
Site Address	5555 Glenwood Parkway SE Suite 200			
City	Grand Rapids	State, Zip	MI	
Site PM Name	Bryan Stiemsma			
Phone/Fax	616-940-4424			
Site PM Email:	Bryan.Stiemsma@aecom.com			

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	1100 Louisiana Suite 1100		
City/State,	Houson, TX	Phone #:	713-821-2000
PO #			
Send EDD to			
CC Hardcopy report			
CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	None											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR1150L509S052412S006	SBKR1150L509	SO	G	05/24/2012 10:17	3			X	X	X	X	X											
2	SBKR1150L510S052412S005	SBKR1150L510	SO	G	05/24/2012 10:43	3			X	X	X	X	X											
3	SBKR1150L511S052412S006	SBKR1150L511	SO	G	05/24/2012 11:12	3			X	X	X	X	X											
4	SBKR1150L512S052412S007	SBKR1150L512	SO	G	05/24/2012 11:54	3			X	X	X	X	X											
5	SBKR1150L512D052412S007	SBKR1150L512	SO	G	05/24/2012 11:54	3	DUPLICATE		X	X	X	X	X											
6	SBKR1150L513S052412S010	SBKR1150L513	SO	G	05/24/2012 13:44	3	MDEQ SPLIT		X	X	X	X	X											
7	SBKR1150L514S052412S004	SBKR1150L514	SO	G	05/24/2012 14:00	3			X	X	X	X	X											
8	SBKR1150L515S052412S004	SBKR1150L515	SO	G	05/24/2012 14:23	3			X	X	X	X	X											
9	SBKR1150L515T052412MX	SBKR1150L515	SQ	G	05/24/2012 00:00	1	TRIP BLANK						X											

Additional Comments/Special Instructions:

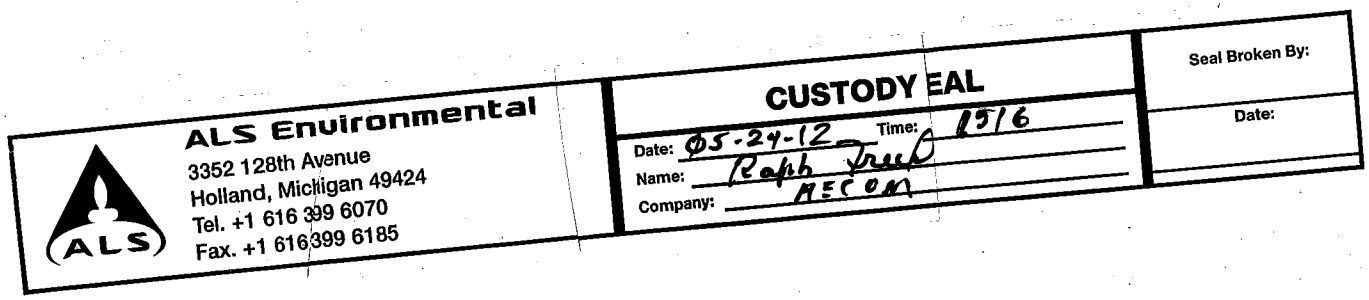
RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ralph Freed	5-24-12	1511		5-24-12	1511
	5-24-12	1512		5-24-12	1512

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
4.0 °C	Y/N	Y/N	Y/N
	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616399 6185

CUSTODY SEAL

Date: 05-24-12 Time: 1516
Name: Ralph Trucil
Company: MECOM

Seal Broken By:

Date:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **24-May-12 15:12**

Work Order: **1205759** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 24-May-12 Date Reviewed by: Ann Preston eSignature 25-May-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

06-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1025-1050L, 1150L 5/23/12** Work Order: **1205760**

Dear Bryan,

ALS Environmental received 11 samples on 24-May-2012 03:12 PM for the analyses presented in the following report.

This is a REVISED REPORT. The Case Narrative provides information discussing the reason for issuing a revised report. The total number of pages in this revision is 77.

If you have any questions regarding these test results, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
Work Order: **1205760**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205760-01	SBKR1025L509S052312S005	Soil		5/23/2012 10:25	5/24/2012 15:12	☐
1205760-02	SBKR1025L510S052312S005	Soil		5/23/2012 10:43	5/24/2012 15:12	☐
1205760-03	SBKR1025L510D052312S005	Soil		5/23/2012 10:43	5/24/2012 15:12	☐
1205760-04	SBKR1025L511S052312S010	Soil		5/23/2012 11:21	5/24/2012 15:12	☐
1205760-05	SBKR1025L512S052312S007	Soil		5/23/2012 11:38	5/24/2012 15:12	☐
1205760-06	SBKR1025L513S052312S005	Soil		5/23/2012 13:53	5/24/2012 15:12	☐
1205760-07	SBKR1025L514S052312S005	Soil		5/23/2012 14:12	5/24/2012 15:12	☐
1205760-08	SBKR1050L520S052312S005	Soil		5/23/2012 09:11	5/24/2012 15:12	☐
1205760-09	SBKR1150L507S052312S006	Soil		5/23/2012 16:48	5/24/2012 15:12	☐
1205760-10	SBKR1150L507T052312MX	Soil		5/23/2012	5/24/2012 15:12	☐
1205760-11	SBKR1150L508S052312S005	Soil		5/23/2012 16:40	5/24/2012 15:12	☐

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
Work Order: 1205760

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

This revised report has a corrected narrative and some of the samples' reporting limits for Acetone and Methyl Iodide have been raised to avoid reporting laboratory artifacts.

Batch 41353 sample SBKR1025L511S052312S010 MS recovery for trans-1,4-Dichloro-2-butene was below the lower control limit. The RPD between the MS and MSD was outside of the control limits for 1,1 Dichloroethene and Acetone. Both the MSD recovery and RPD for trans-1,4-Dichloro-2-butene met quality control criteria. The individual MS/MSD recoveries for 1,1 Dichloroethene and Acetone met quality control criteria. No data requires qualification.

Batch 41347 sample SBKR1150L508S052312S005 MS recovery for Benzo (a) anthracene was above the upper control limit for Benzo (a) anthracene. Both the MSD recovery and RPD for met quality control criteria. No data requires qualification.

Batch 41364 MS/MSD data for Metals is not related to this project's samples.

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
WorkOrder: **1205760**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	**50**	**21**	**4.0**		**mg/Kg-dry**	1	5/31/2012
ORO (C20-C34)	**290**	**43**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*56.6*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*118*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*74.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*112*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.9*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*61.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	230	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*99.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**180**	**39**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*55.5*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*105*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.0*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*67.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.0*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*66.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	200	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	390	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	200	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	200	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.1*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*100*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	**31**	**21**	**4.0**		**mg/Kg-dry**	1	5/31/2012
ORO (C20-C34)	**170**	**42**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*63.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*97.9*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*77.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*77.3*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*74.0*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*73.8*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	760	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*102*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.4*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	42	4.0		mg/Kg-dry	1	5/30/2012
ORO (C20-C34)	**1,300**	**85**	**4.0**		**mg/Kg-dry**	1	5/30/2012
Surr: 4-Terphenyl-d14	*45.6*	*39-115*			*%REC*	1	5/30/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.74	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.5	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**26**	**1.2**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**29**	**1.2**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/1/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/1/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/1/2012
Anthracene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(a)pyrene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(b)fluoranthene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(k)fluoranthene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Chrysene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Dibenzo(a,h)anthracene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/1/2012
Indeno(1,2,3-cd)pyrene	**710**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/1/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/1/2012
Pyrene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Surr: 2,4,6-Tribromophenol	*103*	*34-140*			*%REC*	1	6/1/2012
Surr: 2-Fluorobiphenyl	*85.9*	*12-100*			*%REC*	1	6/1/2012
Surr: 2-Fluorophenol	*79.4*	*33-117*			*%REC*	1	6/1/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	6/1/2012
Surr: Nitrobenzene-d5	*69.8*	*37-107*			*%REC*	1	6/1/2012
Surr: Phenol-d6	*79.0*	*40-106*			*%REC*	1	6/1/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	1,100	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	1,100	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	3,600	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	3,600	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	9,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	1,100	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	3,600	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	1,100	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	1,100	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	1,100	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	2,200	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	2,500	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	3,600	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	3,600	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	3,600	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	1,100	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.4*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.1*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**77**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*66.0*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*102*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*78.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*68.6*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*109*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*74.7*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*69.1*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	600	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	600	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	420	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	600	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	180	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	180	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*96.2*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**160**	**47**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*60.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*88.2*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*61.4*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*65.8*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*87.3*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*60.1*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*49.5*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,300	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	280	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	560	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	940	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	280	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	280	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.9*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.4*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	46	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**650**	**92**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*67.0*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.78	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.6	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**16**	**1.3**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**31**	**1.3**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*89.3*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*59.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*54.1*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*86.5*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*56.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*47.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	1,200	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	1,200	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	4,000	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	4,000	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	12,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	1,200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	4,000	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	1,200	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	1,200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	1,200	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	2,400	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	4,000	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	4,000	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	4,000	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	4,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	1,200	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.9*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.8*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	27	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	55	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*39.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	**0.56**	**0.50**	**0.50**		**mg/Kg-dry**	4	5/30/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*54.0*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*47.1*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*47.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*58.8*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*49.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*44.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	410	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	410	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	410	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	3,400	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	410	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	410	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	410	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	410	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	410	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	410	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	410	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	410	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	410	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	410	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	820	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	950	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	410	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	410	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	410	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	410	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	410	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	410	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	410	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	410	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.9*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**65**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	22	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**200**	**44**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*52.4*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*85.1*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*58.4*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*59.4*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*86.0*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*55.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*56.1*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	240	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	240	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	240	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	800	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	800	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	240	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	240	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	240	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	800	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	240	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	240	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	480	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	560	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	800	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	240	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	240	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	240	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	240	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	240	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	240	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.2*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.2*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*96.5*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**56**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507T052312MX
Work Order:	1205760	**Collection Date:**	5/23/2012
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	5/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	5/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	5/29/2012
Benzene	ND	50	50		µg/Kg	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromoform	ND	100	100		µg/Kg	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	5/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	5/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	5/29/2012
Chloroethane	ND	250	250		µg/Kg	1	5/29/2012
Chloroform	ND	50	50		µg/Kg	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg	1	5/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507T052312MX
Work Order:	1205760	**Collection Date:**	5/23/2012
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	5/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg	1	5/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	5/29/2012
o-Xylene	ND	50	50		µg/Kg	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	5/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Styrene	ND	50	50		µg/Kg	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	5/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	5/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	5/29/2012
Toluene	ND	100	100		µg/Kg	1	5/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	5/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	5/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*104*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.6*	*85-120*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*54.1*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(b)fluoranthene	**600**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	**490**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	**700**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*87.4*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*53.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*52.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*74.8*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*51.7*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*57.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	610	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	610	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	180	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	610	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	180	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	180	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*103*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.1*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41320** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 08:23 PM**

Client ID: Run ID: **GC8_120529A** SeqNo: **1989811** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.16*	0	*5*	0	*43.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 07:31 PM**

Client ID: Run ID: **GC8_120529A** SeqNo: **1989812** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	567.8	10	500	0	114	60-130	0			
ORO (C20-C34)	645.5	20	500	0	129	60-130	0			
Surr: 4-Terphenyl-d14	*2.052*	0	*5*	0	*41*	*39-115*	0			

MS Sample ID: **1205760-04A MS** Units: **mg/Kg** Analysis Date: **5/30/2012 01:56 AM**

Client ID: **SBKR1025L511S052312S010** Run ID: **GC8_120529A** SeqNo: **1989813** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	535.1	9.8	490.9	0	109	60-130	0			
ORO (C20-C34)	758.9	20	490.9	289.8	95.6	60-130	0			
Surr: 4-Terphenyl-d14	*2.487*	0	*4.909*	0	*50.7*	*39-115*	0			

MSD Sample ID: **1205760-04A MSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:22 AM**

Client ID: **SBKR1025L511S052312S010** Run ID: **GC8_120529A** SeqNo: **1989814** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	486.3	9.8	489.7	0	99.3	60-130	535.1	9.56	30	
ORO (C20-C34)	682.4	20	489.7	289.8	80.2	60-130	758.9	10.6	30	
Surr: 4-Terphenyl-d14	*2.716*	0	*4.897*	0	*55.5*	*39-115*	2.487	*8.81*	*30*	

The following samples were analyzed in this batch: 1205760-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41348** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:35 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990206** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.858*	0	*5*	0	*57.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:09 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990207** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	452.1	10	500	0	90.4	60-130	0			
ORO (C20-C34)	485.2	20	500	0	97	60-130	0			
Surr: 4-Terphenyl-d14	*2.553*	0	*5*	0	*51.1*	*39-115*	0			

MS Sample ID: **1205760-11A MS** Units: **mg/Kg** Analysis Date: **5/31/2012 08:26 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **GC8_120531A** SeqNo: **1990209** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	415.1	9.6	480.7	0	86.4	60-130	0			
ORO (C20-C34)	488.6	19	480.7	0	102	60-130	0			
Surr: 4-Terphenyl-d14	*2.446*	0	*4.807*	0	*50.9*	*39-115*	0			

MSD Sample ID: **1205760-11A MSD** Units: **mg/Kg** Analysis Date: **5/31/2012 08:26 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **GC8_120531A** SeqNo: **1990210** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	460	9.4	470.1	0	97.9	60-130	415.1	10.3	30	
ORO (C20-C34)	597	19	470.1	0	127	60-130	488.6	20	30	
Surr: 4-Terphenyl-d14	*2.69*	0	*4.701*	0	*57.2*	*39-115*	2.446	*9.51*	*30*	

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-05A	1205760-06A	1205760-07A
1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:48 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987143** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01578	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:54 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987145** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.563	0.10	5	0	91.3	80-120	0			
Molybdenum	4.982	0.25	5	0	99.6	80-120	0			
Nickel	4.672	0.25	5	0	93.4	80-120	0			
Vanadium	4.81	0.25	5	0	96.2	80-120	0			

LCSD Sample ID: **LCSD-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 10:00 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987147** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.664	0.10	5	0	93.3	80-120	4.563	2.18	20	
Molybdenum	5.075	0.25	5	0	102	80-120	4.982	1.85	20	
Nickel	4.713	0.25	5	0	94.3	80-120	4.672	0.863	20	
Vanadium	4.868	0.25	5	0	97.4	80-120	4.81	1.19	20	

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 02:39 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120529A** SeqNo: **1987215** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.497	1.3	6.468	0.208	97.2	80-120	0			
Nickel	12.04	1.3	6.468	5.972	93.8	80-120	0			
Vanadium	13.86	1.3	6.468	6.652	111	80-120	0			

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 06:16 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120530A** SeqNo: **1988373** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.845	0.52	6.468	0.1239	88.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:45 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120529A** SeqNo: **1987217** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.952	1.4	6.916	0.208	97.5	80-120	6.497	6.76	25	
Nickel	11.52	1.4	6.916	5.972	80.2	80-120	12.04	4.44	25	
Vanadium	13.13	1.4	6.916	6.652	93.7	80-120	13.86	5.34	25	

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 06:22 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120530A** SeqNo: **1988374** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.279	0.55	6.916	0.1239	89	80-120	5.845	7.17	25	

The following samples were analyzed in this batch:

1205760-01A 1205760-02A 1205760-03A
1205760-04A 1205760-05A 1205760-06A
1205760-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41364** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:17 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988383** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:23 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988384** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.372	0.10	5	0	87.4	80-120	0			
Molybdenum	4.732	0.25	5	0	94.6	80-120	0			
Nickel	4.469	0.25	5	0	89.4	80-120	0			
Vanadium	4.728	0.25	5	0	94.6	80-120	0			

LCSD Sample ID: **LCSD-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:29 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988385** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.178	0.10	5	0	83.6	80-120	4.372	4.55	20	
Molybdenum	4.576	0.25	5	0	91.5	80-120	4.732	3.33	20	
Nickel	4.352	0.25	5	0	87	80-120	4.469	2.65	20	
Vanadium	4.576	0.25	5	0	91.5	80-120	4.728	3.27	20	

MS Sample ID: **1205794-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 08:37 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988396** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.989	0.12	6.15	0.02721	80.7	80-120	0			
Molybdenum	5.691	0.31	6.15	0.02291	92.2	80-120	0			
Nickel	6.137	0.31	6.15	0.8372	86.2	80-120	0			
Vanadium	7.429	0.31	6.15	1.682	93.4	80-120	0			

MSD Sample ID: **1205794-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 08:43 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988397** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.998	0.12	6.061	0.02721	82	80-120	4.989	0.185	25	
Molybdenum	5.633	0.30	6.061	0.02291	92.6	80-120	5.691	1.02	25	
Nickel	5.992	0.30	6.061	0.8372	85	80-120	6.137	2.39	25	
Vanadium	7.067	0.30	6.061	1.682	88.8	80-120	7.429	5	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41364** Instrument ID **ICPMS1** Method: **SW6020A**

The following samples were analyzed in this batch:	1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 08:58 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987560** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4491*	0	*5000*	0	*89.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4538*	0	*5000*	0	*90.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4383*	0	*5000*	0	*87.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3928*	0	*5000*	0	*78.6*	*37-107*	0			
Surr: Phenol-d6	*4253*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 09:35 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987561** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1830	50	2000	0	91.5	45-105	0			
Acenaphthene	1864	50	2000	0	93.2	45-110	0			
Acenaphthylene	1978	50	2000	0	98.9	45-105	0			
Anthracene	1727	50	2000	0	86.4	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1654	50	2000	0	82.7	50-110	0			
Benzo(b)fluoranthene	1990	50	2000	0	99.5	45-115	0			
Benzo(g,h,i)perylene	1920	50	2000	0	96	40-125	0			
Benzo(k)fluoranthene	1559	50	2000	0	78	45-115	0			
Chrysene	1856	50	2000	0	92.8	55-110	0			
Dibenzo(a,h)anthracene	1731	50	2000	0	86.6	40-125	0			
Fluoranthene	1704	50	2000	0	85.2	55-115	0			
Fluorene	1797	50	2000	0	89.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1739	50	2000	0	87	40-120	0			
Naphthalene	1804	50	2000	0	90.2	40-105	0			
Phenanthrene	1909	50	2000	0	95.4	50-110	0			
Pyrene	1810	50	2000	0	90.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4779*	0	*5000*	0	*95.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4662*	0	*5000*	0	*93.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4431*	0	*5000*	0	*88.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4445*	0	*5000*	0	*88.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4133*	0	*5000*	0	*82.7*	*37-107*	0			
Surr: Phenol-d6	*4507*	0	*5000*	0	*90.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 10:13 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987562** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1767	50	2000	0	88.4	45-105	1830	3.5	25	
Acenaphthene	1806	50	2000	0	90.3	45-110	1864	3.16	25	
Acenaphthylene	1917	50	2000	0	95.8	45-105	1978	3.13	25	
Anthracene	1694	50	2000	0	84.7	55-105	1727	1.93	25	
Benzo(a)anthracene	1819	50	2000	0	91	50-110	1790	1.61	25	
Benzo(a)pyrene	1744	50	2000	0	87.2	50-110	1654	5.3	25	
Benzo(b)fluoranthene	2102	50	2000	0	105	45-115	1990	5.47	25	
Benzo(g,h,i)perylene	1938	50	2000	0	96.9	40-125	1920	0.933	25	
Benzo(k)fluoranthene	1502	50	2000	0	75.1	45-115	1559	3.72	25	
Chrysene	1874	50	2000	0	93.7	55-110	1856	0.965	25	
Dibenzo(a,h)anthracene	1752	50	2000	0	87.6	40-125	1731	1.21	25	
Fluoranthene	1700	50	2000	0	85	55-115	1704	0.235	25	
Fluorene	1760	50	2000	0	88	50-110	1797	2.08	25	
Indeno(1,2,3-cd)pyrene	1764	50	2000	0	88.2	40-120	1739	1.43	25	
Naphthalene	1790	50	2000	0	89.5	40-105	1804	0.779	25	
Phenanthrene	1889	50	2000	0	94.4	50-110	1909	1.05	25	
Pyrene	1842	50	2000	0	92.1	45-125	1810	1.75	25	
Surr: 2,4,6-Tribromophenol	*4420*	0	*5000*	0	*88.4*	*34-140*	4779	*7.81*	*25*	
Surr: 2-Fluorobiphenyl	*4627*	0	*5000*	0	*92.5*	*12-100*	4662	*0.754*	*25*	
Surr: 2-Fluorophenol	*4338*	0	*5000*	0	*86.8*	*33-117*	4431	*2.12*	*25*	
Surr: 4-Terphenyl-d14	*4416*	0	*5000*	0	*88.3*	*25-137*	4445	*0.655*	*25*	
Surr: Nitrobenzene-d5	*4182*	0	*5000*	0	*83.6*	*37-107*	4133	*1.18*	*25*	
Surr: Phenol-d6	*4479*	0	*5000*	0	*89.6*	*40-106*	4507	*0.623*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205760-04A MS** Units: **µg/Kg** Analysis Date: **6/1/2012 04:08 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **SVMS5_120531A** SeqNo: **1989065** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1636	50	1995	0	82	45-105	0			
Acenaphthene	1731	50	1995	0	86.8	45-110	0			
Acenaphthylene	1844	50	1995	0	92.4	45-105	0			
Anthracene	1665	50	1995	156.6	75.6	55-105	0			
Benzo(a)anthracene	1917	50	1995	91.84	91.5	50-110	0			
Benzo(a)pyrene	1651	50	1995	207.8	72.3	50-110	0			
Benzo(b)fluoranthene	2130	50	1995	165.3	98.5	45-115	0			
Benzo(g,h,i)perylene	1159	50	1995	78.31	54.2	40-125	0			
Benzo(k)fluoranthene	1631	50	1995	156.6	73.9	45-115	0			
Chrysene	1778	50	1995	107.3	83.7	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1995	166.3	50.6	40-125	0			
Fluoranthene	1728	50	1995	257.2	73.7	55-115	0			
Fluorene	1765	50	1995	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1210	50	1995	162.4	52.5	40-120	0			
Naphthalene	1588	50	1995	0	79.6	40-105	0			
Phenanthrene	1897	50	1995	51.24	92.5	50-110	0			
Pyrene	1886	50	1995	130.5	88	45-125	0			
Surr: 2,4,6-Tribromophenol	*5018*	0	*4988*	0	*101*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4525*	0	*4988*	0	*90.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4246*	0	*4988*	0	*85.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4561*	0	*4988*	0	*91.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3916*	0	*4988*	0	*78.5*	*37-107*	0			
Surr: Phenol-d6	*4359*	0	*4988*	0	*87.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205760-04A MSD** Units: **µg/Kg** Analysis Date: **6/1/2012 04:42 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **SVMS5_120531A** SeqNo: **1989066** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1495	48	1934	0	77.3	45-105	1636	9	30	
Acenaphthene	1598	48	1934	0	82.6	45-110	1731	8	30	
Acenaphthylene	1668	48	1934	0	86.2	45-105	1844	10	30	
Anthracene	1566	48	1934	156.6	72.9	55-105	1665	6.14	30	
Benzo(a)anthracene	1810	48	1934	91.84	88.9	50-110	1917	5.74	30	
Benzo(a)pyrene	1614	48	1934	207.8	72.7	50-110	1651	2.26	30	
Benzo(b)fluoranthene	2182	48	1934	165.3	104	45-115	2130	2.41	30	
Benzo(g,h,i)perylene	865.5	48	1934	78.31	40.7	40-125	1159	29	30	
Benzo(k)fluoranthene	1762	48	1934	156.6	83	45-115	1631	7.72	30	
Chrysene	1716	48	1934	107.3	83.2	55-110	1778	3.5	30	
Dibenzo(a,h)anthracene	957.4	48	1934	166.3	40.9	40-125	1176	20.5	30	
Fluoranthene	1656	48	1934	257.2	72.3	55-115	1728	4.26	30	
Fluorene	1659	48	1934	0	85.8	50-110	1765	6.14	30	
Indeno(1,2,3-cd)pyrene	953.5	48	1934	162.4	40.9	40-120	1210	23.7	30	
Naphthalene	1431	48	1934	0	74	40-105	1588	10.4	30	
Phenanthrene	1781	48	1934	51.24	89.5	50-110	1897	6.31	30	
Pyrene	1864	48	1934	130.5	89.7	45-125	1886	1.17	30	
Surr: 2,4,6-Tribromophenol	*4678*	0	*4835*	0	*96.8*	*34-140*	5018	*7.01*	*40*	
Surr: 2-Fluorobiphenyl	*4137*	0	*4835*	0	*85.6*	*12-100*	4525	*8.95*	*40*	
Surr: 2-Fluorophenol	*3657*	0	*4835*	0	*75.6*	*33-117*	4246	*14.9*	*40*	
Surr: 4-Terphenyl-d14	*4303*	0	*4835*	0	*89*	*25-137*	4561	*5.81*	*40*	
Surr: Nitrobenzene-d5	*3495*	0	*4835*	0	*72.3*	*37-107*	3916	*11.4*	*40*	
Surr: Phenol-d6	*3962*	0	*4835*	0	*81.9*	*40-106*	4359	*9.55*	*40*	

The following samples were analyzed in this batch: 1205760-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:36 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988739** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3958*	0	*5000*	0	*79.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3327*	0	*5000*	0	*66.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3867*	0	*5000*	0	*77.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3322*	0	*5000*	0	*66.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3560*	0	*5000*	0	*71.2*	*37-107*	0			
Surr: Phenol-d6	*4293*	0	*5000*	0	*85.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 07:43 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988730** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1697	50	2000	0	84.8	45-105	0			
Acenaphthene	1709	50	2000	0	85.4	45-110	0			
Acenaphthylene	1725	50	2000	0	86.2	45-105	0			
Anthracene	1844	50	2000	0	92.2	55-105	0			
Benzo(a)anthracene	2078	50	2000	0	104	50-110	0			
Benzo(a)pyrene	1955	50	2000	0	97.8	50-110	0			
Benzo(b)fluoranthene	1861	50	2000	0	93	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	1799	50	2000	0	90	45-115	0			
Chrysene	1861	50	2000	0	93	55-110	0			
Dibenzo(a,h)anthracene	2097	50	2000	0	105	40-125	0			
Fluoranthene	1890	50	2000	0	94.5	55-115	0			
Fluorene	1830	50	2000	0	91.5	50-110	0			
Indeno(1,2,3-cd)pyrene	2060	50	2000	0	103	40-120	0			
Naphthalene	1653	50	2000	0	82.6	40-105	0			
Phenanthrene	1851	50	2000	0	92.6	50-110	0			
Pyrene	1822	50	2000	0	91.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4493*	0	*5000*	0	*89.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3558*	0	*5000*	0	*71.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4112*	0	*5000*	0	*82.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3589*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3997*	0	*5000*	0	*79.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:09 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988738** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1523	50	2000	0	76.2	45-105	1697	10.8	25	
Acenaphthene	1581	50	2000	0	79	45-110	1709	7.78	25	
Acenaphthylene	1579	50	2000	0	79	45-105	1725	8.84	25	
Anthracene	1816	50	2000	0	90.8	55-105	1844	1.53	25	
Benzo(a)anthracene	2013	50	2000	0	101	50-110	2078	3.18	25	
Benzo(a)pyrene	1922	50	2000	0	96.1	50-110	1955	1.7	25	
Benzo(b)fluoranthene	1903	50	2000	0	95.2	45-115	1861	2.23	25	
Benzo(g,h,i)perylene	1984	50	2000	0	99.2	40-125	2060	3.76	25	
Benzo(k)fluoranthene	1644	50	2000	0	82.2	45-115	1799	9	25	
Chrysene	1873	50	2000	0	93.6	55-110	1861	0.643	25	
Dibenzo(a,h)anthracene	2048	50	2000	0	102	40-125	2097	2.36	25	
Fluoranthene	1860	50	2000	0	93	55-115	1890	1.6	25	
Fluorene	1722	50	2000	0	86.1	50-110	1830	6.08	25	
Indeno(1,2,3-cd)pyrene	2017	50	2000	0	101	40-120	2060	2.11	25	
Naphthalene	1494	50	2000	0	74.7	40-105	1653	10.1	25	
Phenanthrene	1811	50	2000	0	90.6	50-110	1851	2.18	25	
Pyrene	1811	50	2000	0	90.6	45-125	1822	0.606	25	
Surr: 2,4,6-Tribromophenol	*4498*	0	*5000*	0	*90*	*34-140*	4493	*0.111*	*25*	
Surr: 2-Fluorobiphenyl	*3208*	0	*5000*	0	*64.2*	*12-100*	3558	*10.3*	*25*	
Surr: 2-Fluorophenol	*3432*	0	*5000*	0	*68.6*	*33-117*	3846	*11.4*	*25*	
Surr: 4-Terphenyl-d14	*4126*	0	*5000*	0	*82.5*	*25-137*	4112	*0.34*	*25*	
Surr: Nitrobenzene-d5	*3254*	0	*5000*	0	*65.1*	*37-107*	3589	*9.79*	*25*	
Surr: Phenol-d6	*3618*	0	*5000*	0	*72.4*	*40-106*	3997	*9.95*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1205760-11A MS** Units: **µg/Kg** Analysis Date: **5/30/2012 10:24 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **SVMS6_120530A** SeqNo: **1988740** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1557	46	1845	0	84.4	45-105	0			
Acenaphthene	1564	46	1845	0	84.8	45-110	0			
Acenaphthylene	1548	46	1845	0	83.9	45-105	0			
Anthracene	1750	46	1845	0	94.8	55-105	0			
Benzo(a)anthracene	2175	46	1845	100.8	112	50-110	0			S
Benzo(a)pyrene	2047	46	1845	261.8	96.8	50-110	0			
Benzo(b)fluoranthene	2054	46	1845	296.7	95.2	45-115	0			
Benzo(g,h,i)perylene	2045	46	1845	180.3	101	40-125	0			
Benzo(k)fluoranthene	1675	46	1845	152.2	82.6	45-115	0			
Chrysene	2010	46	1845	244.3	95.7	55-110	0			
Dibenzo(a,h)anthracene	1920	46	1845	0	104	40-125	0			
Fluoranthene	2192	46	1845	331.6	101	55-115	0			
Fluorene	1716	46	1845	0	93	50-110	0			
Indeno(1,2,3-cd)pyrene	2024	46	1845	151.3	102	40-120	0			
Naphthalene	1508	46	1845	0	81.7	40-105	0			
Phenanthrene	1918	46	1845	86.29	99.3	50-110	0			
Pyrene	2070	46	1845	344.2	93.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4457*	0	*4613*	0	*96.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3137*	0	*4613*	0	*68*	*12-100*	0			
Surr: 2-Fluorophenol	*3329*	0	*4613*	0	*72.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3909*	0	*4613*	0	*84.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3252*	0	*4613*	0	*70.5*	*37-107*	0			
Surr: Phenol-d6	*3523*	0	*4613*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1205760-11A MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 10:51 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **SVMS6_120530A** SeqNo: **1988741** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1291	46	1850	0	69.8	45-105	1557	18.7	30	
Acenaphthene	1427	46	1850	0	77.2	45-110	1564	9.12	30	
Acenaphthylene	1422	46	1850	0	76.8	45-105	1548	8.5	30	
Anthracene	1669	46	1850	0	90.2	55-105	1750	4.76	30	
Benzo(a)anthracene	2056	46	1850	100.8	106	50-110	2175	5.63	30	
Benzo(a)pyrene	1953	46	1850	261.8	91.4	50-110	2047	4.72	30	
Benzo(b)fluoranthene	1866	46	1850	296.7	84.8	45-115	2054	9.58	30	
Benzo(g,h,i)perylene	1887	46	1850	180.3	92.3	40-125	2045	8.05	30	
Benzo(k)fluoranthene	1809	46	1850	152.2	89.6	45-115	1675	7.69	30	
Chrysene	1873	46	1850	244.3	88	55-110	2010	7.06	30	
Dibenzo(a,h)anthracene	1816	46	1850	0	98.2	40-125	1920	5.57	30	
Fluoranthene	2031	46	1850	331.6	91.8	55-115	2192	7.65	30	
Fluorene	1630	46	1850	0	88.1	50-110	1716	5.14	30	
Indeno(1,2,3-cd)pyrene	1882	46	1850	151.3	93.5	40-120	2024	7.3	30	
Naphthalene	1193	46	1850	0	64.5	40-105	1508	23.3	30	
Phenanthrene	1797	46	1850	86.29	92.5	50-110	1918	6.5	30	
Pyrene	1944	46	1850	344.2	86.4	45-125	2070	6.31	30	
Surr: 2,4,6-Tribromophenol	*4069*	0	*4625*	0	*88*	*34-140*	4457	*9.09*	*40*	
Surr: 2-Fluorobiphenyl	*2706*	0	*4625*	0	*58.5*	*12-100*	3137	*14.8*	*40*	
Surr: 2-Fluorophenol	*2414*	0	*4625*	0	*52.2*	*33-117*	3329	*31.8*	*40*	
Surr: 4-Terphenyl-d14	*3772*	0	*4625*	0	*81.5*	*25-137*	3909	*3.58*	*40*	
Surr: Nitrobenzene-d5	*2599*	0	*4625*	0	*56.2*	*37-107*	3252	*22.3*	*40*	
Surr: Phenol-d6	*2883*	0	*4625*	0	*62.3*	*40-106*	3523	*20*	*40*	

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-05A	1205760-06A	1205760-07A
1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 02:51 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987297** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	45	100						J
n-Butylbenzene	28	30						J
n-Propylbenzene	19.5	30						J
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	24	30						J
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*4890*	0	*5000*	0	*97.8*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4875*	0	*5000*	0	*97.5*	*75-120*	0	
Surr: Dibromofluoromethane	*5312*	0	*5000*	0	*106*	*85-115*	0	
Surr: Toluene-d8	*4874*	0	*5000*	0	*97.5*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **LCS-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 01:32 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987295** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1100	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	1008	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	993.5	30	1000	0	99.4	60-125	0			
1,1-Dichloroethane	1037	30	1000	0	104	75-125	0			
1,1-Dichloroethene	1272	30	1000	0	127	65-135	0			
1,2,3-Trichlorobenzene	1066	30	1000	0	107	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1026	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1068	30	1000	0	107	65-130	0			
1,2,4-Trimethylbenzene	1036	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	852	30	1000	0	85.2	40-135	0			
1,2-Dibromoethane	1017	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1037	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1017	30	1000	0	102	70-135	0			
1,2-Dichloropropane	1037	30	1000	0	104	70-120	0			
1,3,5-Trimethylbenzene	1033	30	1000	0	103	65-135	0			
1,3-Dichlorobenzene	1041	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1046	30	1000	0	105	70-125	0			
2-Butanone	1092	100	1000	0	109	30-160	0			
2-Hexanone	957	30	1000	0	95.7	45-145	0			
4-Methyl-2-pentanone	1264	30	1000	0	126	45-145	0			
Acetone	927.5	100	1000	0	92.8	20-160	0			
Acrylonitrile	951	30	1000	0	95.1	70-135	0			
Benzene	1050	30	1000	0	105	75-125	0			
Bromobenzene	997.5	30	1000	0	99.8	65-120	0			
Bromochloromethane	1050	30	1000	0	105	70-125	0			
Bromodichloromethane	1039	30	1000	0	104	70-130	0			
Bromoform	961	30	1000	0	96.1	55-135	0			
Bromomethane	1154	30	1000	0	115	30-160	0			
Carbon disulfide	1164	30	1000	0	116	45-160	0			
Carbon tetrachloride	1107	30	1000	0	111	65-135	0			
Chlorobenzene	1017	30	1000	0	102	75-125	0			
Chloroethane	1378	100	1000	0	138	40-155	0			
Chloroform	997	30	1000	0	99.7	70-125	0			
Chloromethane	1017	30	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1052	30	1000	0	105	65-125	0			
cis-1,3-Dichloropropene	1088	30	1000	0	109	70-125	0			
Dibromochloromethane	1056	30	1000	0	106	65-135	0			
Dibromomethane	992	30	1000	0	99.2	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1045	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	952	30	1000	0	95.2	70-135	0
Isopropylbenzene	1037	30	1000	0	104	75-130	0
m,p-Xylene	2072	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1076	30	1000	0	108	75-125	0
Methylene chloride	988	30	1000	0	98.8	55-145	0
Naphthalene	1153	100	1000	0	115	40-140	0
n-Butylbenzene	1071	30	1000	0	107	65-140	0
n-Propylbenzene	1022	30	1000	0	102	65-135	0
o-Xylene	1022	30	1000	0	102	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1045	30	1000	0	104	65-130	0
Styrene	1020	30	1000	0	102	75-125	0
tert-Butylbenzene	1034	30	1000	0	103	65-130	0
Tetrachloroethene	1041	30	1000	0	104	64-140	0
Tetrahydrofuran	972	100	1000	0	97.2	70-135	0
Toluene	928	30	1000	0	92.8	70-125	0
trans-1,2-Dichloroethene	1086	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1044	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	787.5	30	1000	0	78.8	70-135	0
Trichloroethene	1066	30	1000	0	107	75-125	0
Trichlorofluoromethane	965.5	30	1000	0	96.6	25-185	0
Vinyl chloride	1004	30	1000	0	100	60-125	0
Surr: 1,2-Dichloroethane-d4	*4906*	0	*5000*	0	*98.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4850*	0	*5000*	0	*97*	*75-120*	0
Surr: Dibromofluoromethane	*5282*	0	*5000*	0	*106*	*85-115*	0
Surr: Toluene-d8	*4910*	0	*5000*	0	*98.2*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCSD Sample ID: **LCSD-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 01:58 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987296** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1016	30	1000	0	102	75-125	1060	4.34	30	
1,1,1-Trichloroethane	1034	30	1000	0	103	70-135	1100	6.14	30	
1,1,2,2-Tetrachloroethane	976	30	1000	0	97.6	55-130	1008	3.28	30	
1,1,2-Trichloroethane	962	30	1000	0	96.2	60-125	993.5	3.22	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	1037	5.09	30	
1,1-Dichloroethene	1165	30	1000	0	116	65-135	1272	8.82	30	
1,2,3-Trichlorobenzene	958.5	30	1000	0	95.8	60-135	1066	10.6	30	
1,2,3-Trichloropropane	927.5	30	1000	0	92.8	65-130	948	2.19	30	
1,2,3-Trimethylbenzene	982	30	1000	0	98.2	65-135	1026	4.33	30	
1,2,4-Trichlorobenzene	963	30	1000	0	96.3	65-130	1068	10.3	30	
1,2,4-Trimethylbenzene	979.5	30	1000	0	98	65-135	1036	5.56	30	
1,2-Dibromo-3-chloropropane	806	30	1000	0	80.6	40-135	852	5.55	30	
1,2-Dibromoethane	989	30	1000	0	98.9	70-125	1017	2.79	30	
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	1037	5.14	30	
1,2-Dichloroethane	992.5	30	1000	0	99.2	70-135	1017	2.44	30	
1,2-Dichloropropane	988.5	30	1000	0	98.8	70-120	1037	4.79	30	
1,3,5-Trimethylbenzene	973	30	1000	0	97.3	65-135	1033	5.98	30	
1,3-Dichlorobenzene	995	30	1000	0	99.5	70-125	1041	4.52	30	
1,4-Dichlorobenzene	1006	30	1000	0	101	70-125	1046	3.95	30	
2-Butanone	1041	100	1000	0	104	30-160	1092	4.74	30	
2-Hexanone	888.5	30	1000	0	88.8	45-145	957	7.42	30	
4-Methyl-2-pentanone	1194	30	1000	0	119	45-145	1264	5.61	30	
Acetone	756.5	100	1000	0	75.6	20-160	927.5	20.3	30	
Acrylonitrile	891.5	30	1000	0	89.2	70-135	951	6.46	30	
Benzene	1004	30	1000	0	100	75-125	1050	4.48	30	
Bromobenzene	959	30	1000	0	95.9	65-120	997.5	3.94	30	
Bromochloromethane	1019	30	1000	0	102	70-125	1050	3	30	
Bromodichloromethane	1002	30	1000	0	100	70-130	1039	3.58	30	
Bromoform	908.5	30	1000	0	90.8	55-135	961	5.62	30	
Bromomethane	1080	30	1000	0	108	30-160	1154	6.58	30	
Carbon disulfide	1078	30	1000	0	108	45-160	1164	7.72	30	
Carbon tetrachloride	1063	30	1000	0	106	65-135	1107	4.06	30	
Chlorobenzene	985.5	30	1000	0	98.6	75-125	1017	3.15	30	
Chloroethane	1374	100	1000	0	137	40-155	1378	0.218	30	
Chloroform	959	30	1000	0	95.9	70-125	997	3.89	30	
Chloromethane	963	30	1000	0	96.3	50-130	1017	5.45	30	
cis-1,2-Dichloroethene	987	30	1000	0	98.7	65-125	1052	6.38	30	
cis-1,3-Dichloropropene	1048	30	1000	0	105	70-125	1088	3.7	30	
Dibromochloromethane	1020	30	1000	0	102	65-135	1056	3.52	30	
Dibromomethane	964.5	30	1000	0	96.4	75-130	992	2.81	30	
Dichlorodifluoromethane	878	30	1000	0	87.8	35-135	942	7.03	30	
Ethylbenzene	1008	30	1000	0	101	75-125	1045	3.65	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	872.5	30	1000	0	87.2	70-135	952	8.71	30
Isopropylbenzene	981	30	1000	0	98.1	75-130	1037	5.55	30
m,p-Xylene	2000	60	2000	0	100	80-125	2072	3.51	30
Methyl tert-butyl ether	1032	30	1000	0	103	75-125	1076	4.08	30
Methylene chloride	953	30	1000	0	95.3	55-145	988	3.61	30
Naphthalene	1039	100	1000	0	104	40-140	1153	10.4	30
n-Butylbenzene	949	30	1000	0	94.9	65-140	1071	12.1	30
n-Propylbenzene	952.5	30	1000	0	95.2	65-135	1022	7.04	30
o-Xylene	977	30	1000	0	97.7	75-125	1022	4.55	30
p-Isopropyltoluene	953	30	1000	0	95.3	75-135	1044	9.16	30
sec-Butylbenzene	937.5	30	1000	0	93.8	65-130	1045	10.8	30
Styrene	991.5	30	1000	0	99.2	75-125	1020	2.88	30
tert-Butylbenzene	943.5	30	1000	0	94.4	65-130	1034	9.1	30
Tetrachloroethene	1029	30	1000	0	103	64-140	1041	1.16	30
Tetrahydrofuran	892	100	1000	0	89.2	70-135	972	8.58	30
Toluene	902.5	30	1000	0	90.2	70-125	928	2.79	30
trans-1,2-Dichloroethene	1012	30	1000	0	101	65-135	1086	7.05	30
trans-1,3-Dichloropropene	1022	30	1000	0	102	65-125	1044	2.08	30
trans-1,4-Dichloro-2-butene	738.5	30	1000	0	73.8	70-135	787.5	6.42	30
Trichloroethene	1023	30	1000	0	102	75-125	1066	4.12	30
Trichlorofluoromethane	906	30	1000	0	90.6	25-185	965.5	6.36	30
Vinyl chloride	949	30	1000	0	94.9	60-125	1004	5.58	30
Surr: 1,2-Dichloroethane-d4	*4899*	0	*5000*	0	*98*	*70-120*	4906	*0.133*	*30*
Surr: 4-Bromofluorobenzene	*4890*	0	*5000*	0	*97.8*	*75-120*	4850	*0.832*	*30*
Surr: Dibromofluoromethane	*5288*	0	*5000*	0	*106*	*85-115*	5282	*0.0946*	*30*
Surr: Toluene-d8	*4896*	0	*5000*	0	*97.9*	*85-120*	4910	*0.286*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1205760-04B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 11:38 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **VMS8_120529A** SeqNo: **1987310** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	8104	250	8173	0	99.2	75-125	0			
1,1,1-Trichloroethane	8210	250	8173	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	7671	250	8173	0	93.8	55-130	0			
1,1,2-Trichloroethane	7691	250	8173	0	94.1	60-125	0			
1,1-Dichloroethane	7887	250	8173	0	96.5	75-125	0			
1,1-Dichloroethene	7327	250	8173	0	89.6	65-135	0			
1,2,3-Trichlorobenzene	5864	250	8173	0	71.8	60-135	0			
1,2,3-Trichloropropane	7344	250	8173	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	7532	250	8173	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	6486	250	8173	0	79.4	65-130	0			
1,2,4-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	6269	250	8173	0	76.7	40-135	0			
1,2-Dibromoethane	7928	250	8173	0	97	70-125	0			
1,2-Dichlorobenzene	7544	250	8173	0	92.3	75-120	0			
1,2-Dichloroethane	7900	250	8173	0	96.6	70-135	0			
1,2-Dichloropropane	7994	250	8173	0	97.8	70-120	0			
1,3,5-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,3-Dichlorobenzene	7417	250	8173	0	90.8	70-125	0			
1,4-Dichlorobenzene	7381	250	8173	0	90.3	70-125	0			
2-Butanone	8243	820	8173	0	101	30-160	0			
2-Hexanone	7450	250	8173	0	91.2	45-145	0			
4-Methyl-2-pentanone	10110	250	8173	0	124	45-145	0			
Acetone	6400	820	8173	1271	62.8	20-160	0			
Acrylonitrile	6878	250	8173	0	84.2	70-135	0			
Benzene	7981	250	8173	0	97.6	75-125	0			
Bromobenzene	7327	250	8173	0	89.6	65-120	0			
Bromochloromethane	8067	250	8173	0	98.7	70-125	0			
Bromodichloromethane	7785	250	8173	0	95.2	70-130	0			
Bromoform	6723	250	8173	0	82.2	55-135	0			
Bromomethane	8104	250	8173	0	99.2	30-160	0			
Carbon disulfide	6686	250	8173	0	81.8	45-160	0			
Carbon tetrachloride	8177	250	8173	0	100	65-135	0			
Chlorobenzene	7671	250	8173	0	93.8	75-125	0			
Chloroethane	9424	820	8173	0	115	40-155	0			
Chloroform	7507	250	8173	0	91.8	70-125	0			
Chloromethane	7193	250	8173	0	88	50-130	0			
cis-1,2-Dichloroethene	7973	250	8173	0	97.6	65-125	0			
cis-1,3-Dichloropropene	8030	250	8173	0	98.2	70-125	0			
Dibromochloromethane	7936	250	8173	0	97.1	65-135	0			
Dibromomethane	7642	250	8173	0	93.5	75-130	0			
Dichlorodifluoromethane	6510	250	8173	0	79.6	35-135	0			
Ethylbenzene	7904	250	8173	0	96.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6387	250	8173	0	78.2	70-135	0	
Isopropylbenzene	7487	250	8173	0	91.6	75-130	0	
m,p-Xylene	15430	490	16350	0	94.4	80-125	0	
Methyl tert-butyl ether	8468	250	8173	0	104	75-125	0	
Methylene chloride	7001	250	8173	0	85.6	55-145	0	
Naphthalene	6559	820	8173	0	80.2	40-140	0	
n-Butylbenzene	6473	250	8173	0	79.2	65-140	0	
n-Propylbenzene	6915	250	8173	0	84.6	65-135	0	
o-Xylene	7703	250	8173	0	94.2	75-125	0	
p-Isopropyltoluene	7054	250	8173	0	86.3	75-135	0	
sec-Butylbenzene	6653	250	8173	0	81.4	65-130	0	
Styrene	7074	250	8173	0	86.6	75-125	0	
tert-Butylbenzene	7050	250	8173	0	86.2	65-130	0	
Tetrachloroethene	7581	250	8173	0	92.8	64-140	0	
Tetrahydrofuran	7001	820	8173	0	85.6	70-135	0	
Toluene	7172	250	8173	0	87.8	70-125	0	
trans-1,2-Dichloroethene	7998	250	8173	0	97.8	65-135	0	
trans-1,3-Dichloropropene	7957	250	8173	0	97.4	65-125	0	
trans-1,4-Dichloro-2-butene	5341	250	8173	0	65.4	70-135	0	S
Trichloroethene	7953	250	8173	0	97.3	75-125	0	
Trichlorofluoromethane	7450	250	8173	0	91.2	25-185	0	
Vinyl chloride	7090	250	8173	0	86.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*39470*	0	*40870*	0	*96.6*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*39060*	0	*40870*	0	*95.6*	*75-120*	0	
Surr: Dibromofluoromethane	*42410*	0	*40870*	0	*104*	*85-115*	0	
Surr: Toluene-d8	*40150*	0	*40870*	0	*98.2*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **1205760-04B MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 12:04 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **VMS8_120529A** SeqNo: **1987311** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7904	250	8173	0	96.7	75-125	8104	2.5	30	
1,1,1-Trichloroethane	7994	250	8173	0	97.8	70-135	8210	2.67	30	
1,1,2,2-Tetrachloroethane	8304	250	8173	0	102	55-130	7671	7.93	30	
1,1,2-Trichloroethane	7900	250	8173	0	96.6	60-125	7691	2.67	30	
1,1-Dichloroethane	7801	250	8173	0	95.4	75-125	7887	1.09	30	
1,1-Dichloroethene	5386	250	8173	0	65.9	65-135	7327	30.5	30	R
1,2,3-Trichlorobenzene	6931	250	8173	0	84.8	60-135	5864	16.7	30	
1,2,3-Trichloropropane	7810	250	8173	0	95.6	65-130	7344	6.15	30	
1,2,3-Trimethylbenzene	7569	250	8173	0	92.6	65-135	7532	0.487	30	
1,2,4-Trichlorobenzene	7001	250	8173	0	85.6	65-130	6486	7.64	30	
1,2,4-Trimethylbenzene	7295	250	8173	0	89.2	65-135	7499	2.76	30	
1,2-Dibromo-3-chloropropane	7344	250	8173	0	89.8	40-135	6269	15.8	30	
1,2-Dibromoethane	8308	250	8173	0	102	70-125	7928	4.68	30	
1,2-Dichlorobenzene	7638	250	8173	0	93.4	75-120	7544	1.24	30	
1,2-Dichloroethane	8026	250	8173	0	98.2	70-135	7900	1.59	30	
1,2-Dichloropropane	8002	250	8173	0	97.9	70-120	7994	0.102	30	
1,3,5-Trimethylbenzene	7340	250	8173	0	89.8	65-135	7499	2.15	30	
1,3-Dichlorobenzene	7446	250	8173	0	91.1	70-125	7417	0.385	30	
1,4-Dichlorobenzene	7487	250	8173	0	91.6	70-125	7381	1.43	30	
2-Butanone	8243	820	8173	0	101	30-160	8243	0	30	
2-Hexanone	8562	250	8173	0	105	45-145	7450	13.9	30	
4-Methyl-2-pentanone	11260	250	8173	0	138	45-145	10110	10.8	30	
Acetone	9416	820	8173	1271	99.6	20-160	6400	38.1	30	R
Acrylonitrile	8582	250	8173	0	105	70-135	6878	22	30	
Benzene	7785	250	8173	0	95.2	75-125	7981	2.49	30	
Bromobenzene	7233	250	8173	0	88.5	65-120	7327	1.29	30	
Bromochloromethane	8083	250	8173	0	98.9	70-125	8067	0.202	30	
Bromodichloromethane	7683	250	8173	0	94	70-130	7785	1.32	30	
Bromoform	7238	250	8173	0	88.6	55-135	6723	7.38	30	
Bromomethane	7928	250	8173	0	97	30-160	8104	2.19	30	
Carbon disulfide	6457	250	8173	0	79	45-160	6686	3.48	30	
Carbon tetrachloride	7883	250	8173	0	96.4	65-135	8177	3.66	30	
Chlorobenzene	7560	250	8173	0	92.5	75-125	7671	1.45	30	
Chloroethane	8970	820	8173	0	110	40-155	9424	4.93	30	
Chloroform	7511	250	8173	0	91.9	70-125	7507	0.0544	30	
Chloromethane	7307	250	8173	0	89.4	50-130	7193	1.58	30	
cis-1,2-Dichloroethene	7900	250	8173	0	96.6	65-125	7973	0.927	30	
cis-1,3-Dichloropropene	8137	250	8173	0	99.6	70-125	8030	1.31	30	
Dibromochloromethane	7989	250	8173	0	97.8	65-135	7936	0.667	30	
Dibromomethane	7932	250	8173	0	97	75-130	7642	3.73	30	
Dichlorodifluoromethane	6902	250	8173	0	84.4	35-135	6510	5.85	30	
Ethylbenzene	7789	250	8173	0	95.3	75-125	7904	1.46	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6465	250	8173	0	79.1	70-135	6387	1.21	30
Isopropylbenzene	7454	250	8173	0	91.2	75-130	7487	0.438	30
m,p-Xylene	15250	490	16350	0	93.3	80-125	15430	1.17	30
Methyl tert-butyl ether	8962	250	8173	0	110	75-125	8468	5.67	30
Methylene chloride	6776	250	8173	0	82.9	55-145	7001	3.26	30
Naphthalene	8394	820	8173	0	103	40-140	6559	24.5	30
n-Butylbenzene	6657	250	8173	0	81.4	65-140	6473	2.8	30
n-Propylbenzene	6935	250	8173	0	84.8	65-135	6915	0.295	30
o-Xylene	7589	250	8173	0	92.8	75-125	7703	1.5	30
p-Isopropyltoluene	7127	250	8173	0	87.2	75-135	7054	1.04	30
sec-Butylbenzene	6535	250	8173	0	80	65-130	6653	1.8	30
Styrene	7119	250	8173	0	87.1	75-125	7074	0.633	30
tert-Butylbenzene	6882	250	8173	0	84.2	65-130	7050	2.41	30
Tetrachloroethene	7246	250	8173	0	88.6	64-140	7581	4.52	30
Tetrahydrofuran	8378	820	8173	0	102	70-135	7001	17.9	30
Toluene	7017	250	8173	0	85.8	70-125	7172	2.19	30
trans-1,2-Dichloroethene	7912	250	8173	0	96.8	65-135	7998	1.08	30
trans-1,3-Dichloropropene	8002	250	8173	0	97.9	65-125	7957	0.563	30
trans-1,4-Dichloro-2-butene	6016	250	8173	0	73.6	70-135	5341	11.9	30
Trichloroethene	7748	250	8173	0	94.8	75-125	7953	2.6	30
Trichlorofluoromethane	7160	250	8173	0	87.6	25-185	7450	3.97	30
Vinyl chloride	6980	250	8173	0	85.4	60-125	7090	1.57	30
Surr: 1,2-Dichloroethane-d4	*41110*	0	*40870*	0	*101*	*70-120*	39470	*4.08*	*30*
Surr: 4-Bromofluorobenzene	*38980*	0	*40870*	0	*95.4*	*75-120*	39060	*0.199*	*30*
Surr: Dibromofluoromethane	*42590*	0	*40870*	0	*104*	*85-115*	42410	*0.413*	*30*
Surr: Toluene-d8	*40580*	0	*40870*	0	*99.3*	*85-120*	40150	*1.07*	*30*

The following samples were analyzed in this batch:

1205760-03B	1205760-04B	1205760-05B
1205760-06B	1205760-07B	1205760-08B
1205760-09B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 10:44 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987314** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	28.5	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*5040*	0	*5000*	0	*101*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4960*	0	*5000*	0	*99.2*	*75-120*	0	
Surr: Dibromofluoromethane	*5122*	0	*5000*	0	*102*	*85-115*	0	
Surr: Toluene-d8	*5042*	0	*5000*	0	*101*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 09:29 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987312** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1012	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1017	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	902.5	30	1000	0	90.2	55-130	0			
1,1,2-Trichloroethane	977.5	30	1000	0	97.8	60-125	0			
1,1-Dichloroethane	958	30	1000	0	95.8	75-125	0			
1,1-Dichloroethene	993	30	1000	0	99.3	65-135	0			
1,2,3-Trichlorobenzene	1032	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	934	30	1000	0	93.4	65-130	0			
1,2,3-Trimethylbenzene	1053	30	1000	0	105	65-135	0			
1,2,4-Trichlorobenzene	1058	30	1000	0	106	65-130	0			
1,2,4-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2-Dibromo-3-chloropropane	915	30	1000	0	91.5	40-135	0			
1,2-Dibromoethane	984	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	991	30	1000	0	99.1	75-120	0			
1,2-Dichloroethane	971	30	1000	0	97.1	70-135	0			
1,2-Dichloropropane	982.5	30	1000	0	98.2	70-120	0			
1,3,5-Trimethylbenzene	1024	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	994.5	30	1000	0	99.4	70-125	0			
1,4-Dichlorobenzene	1072	30	1000	0	107	70-125	0			
2-Butanone	1008	100	1000	0	101	30-160	0			
2-Hexanone	846	30	1000	0	84.6	45-145	0			
4-Methyl-2-pentanone	1278	30	1000	0	128	45-145	0			
Acetone	864.5	100	1000	0	86.4	20-160	0			
Acrylonitrile	853	30	1000	0	85.3	70-135	0			
Benzene	968	30	1000	0	96.8	75-125	0			
Bromobenzene	942.5	30	1000	0	94.2	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	933.5	30	1000	0	93.4	55-135	0			
Bromomethane	1328	30	1000	0	133	30-160	0			
Carbon disulfide	1034	30	1000	0	103	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	982	30	1000	0	98.2	75-125	0			
Chloroethane	1043	100	1000	0	104	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	994	30	1000	0	99.4	50-130	0			
cis-1,2-Dichloroethene	986	30	1000	0	98.6	65-125	0			
cis-1,3-Dichloropropene	1058	30	1000	0	106	70-125	0			
Dibromochloromethane	1047	30	1000	0	105	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	759	30	1000	0	75.9	35-135	0			
Ethylbenzene	1000	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1094	30	1000	0	109	70-135	0
Isopropylbenzene	969.5	30	1000	0	97	75-130	0
m,p-Xylene	2032	60	2000	0	102	80-125	0
Methyl tert-butyl ether	971.5	30	1000	0	97.2	75-125	0
Methylene chloride	988.5	30	1000	0	98.8	55-145	0
Naphthalene	935.5	100	1000	0	93.6	40-140	0
n-Butylbenzene	1156	30	1000	0	116	65-140	0
n-Propylbenzene	1034	30	1000	0	103	65-135	0
o-Xylene	981	30	1000	0	98.1	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1080	30	1000	0	108	65-130	0
Styrene	1027	30	1000	0	103	75-125	0
tert-Butylbenzene	1063	30	1000	0	106	65-130	0
Tetrachloroethene	994.5	30	1000	0	99.4	64-140	0
Tetrahydrofuran	878	100	1000	0	87.8	70-135	0
Toluene	954	30	1000	0	95.4	70-125	0
trans-1,2-Dichloroethene	977.5	30	1000	0	97.8	65-135	0
trans-1,3-Dichloropropene	1043	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	906.5	30	1000	0	90.6	70-135	0
Trichloroethene	993.5	30	1000	0	99.4	75-125	0
Trichlorofluoromethane	1048	30	1000	0	105	25-185	0
Vinyl chloride	1058	30	1000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*4855*	0	*5000*	0	*97.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4968*	0	*5000*	0	*99.4*	*75-120*	0
Surr: Dibromofluoromethane	*5009*	0	*5000*	0	*100*	*85-115*	0
Surr: Toluene-d8	*5072*	0	*5000*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCSD Sample ID: **LCSD-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 09:54 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987313** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	1012	3.02	30	
1,1,1-Trichloroethane	1054	30	1000	0	105	70-135	1017	3.57	30	
1,1,2,2-Tetrachloroethane	932	30	1000	0	93.2	55-130	902.5	3.22	30	
1,1,2-Trichloroethane	1010	30	1000	0	101	60-125	977.5	3.32	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	958	2.83	30	
1,1-Dichloroethene	1030	30	1000	0	103	65-135	993	3.66	30	
1,2,3-Trichlorobenzene	976.5	30	1000	0	97.6	60-135	1032	5.57	30	
1,2,3-Trichloropropane	971.5	30	1000	0	97.2	65-130	934	3.94	30	
1,2,3-Trimethylbenzene	1012	30	1000	0	101	65-135	1053	4.02	30	
1,2,4-Trichlorobenzene	997.5	30	1000	0	99.8	65-130	1058	5.89	30	
1,2,4-Trimethylbenzene	1016	30	1000	0	102	65-135	1008	0.79	30	
1,2-Dibromo-3-chloropropane	895.5	30	1000	0	89.6	40-135	915	2.15	30	
1,2-Dibromoethane	999.5	30	1000	0	100	70-125	984	1.56	30	
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	991	2.5	30	
1,2-Dichloroethane	1004	30	1000	0	100	70-135	971	3.34	30	
1,2-Dichloropropane	1026	30	1000	0	103	70-120	982.5	4.38	30	
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	1024	2.7	30	
1,3-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	994.5	2.65	30	
1,4-Dichlorobenzene	1042	30	1000	0	104	70-125	1072	2.84	30	
2-Butanone	1050	100	1000	0	105	30-160	1008	4.13	30	
2-Hexanone	908	30	1000	0	90.8	45-145	846	7.07	30	
4-Methyl-2-pentanone	1391	30	1000	0	139	45-145	1278	8.47	30	
Acetone	895	100	1000	0	89.5	20-160	864.5	3.47	30	
Acrylonitrile	883	30	1000	0	88.3	70-135	853	3.46	30	
Benzene	1013	30	1000	0	101	75-125	968	4.54	30	
Bromobenzene	953	30	1000	0	95.3	65-120	942.5	1.11	30	
Bromochloromethane	1048	30	1000	0	105	70-125	1020	2.8	30	
Bromodichloromethane	1008	30	1000	0	101	70-130	999.5	0.847	30	
Bromoform	958	30	1000	0	95.8	55-135	933.5	2.59	30	
Bromomethane	1458	30	1000	0	146	30-160	1328	9.37	30	
Carbon disulfide	1074	30	1000	0	107	45-160	1034	3.8	30	
Carbon tetrachloride	1024	30	1000	0	102	65-135	997.5	2.67	30	
Chlorobenzene	1009	30	1000	0	101	75-125	982	2.71	30	
Chloroethane	1044	100	1000	0	104	40-155	1043	0.144	30	
Chloroform	1012	30	1000	0	101	70-125	993.5	1.89	30	
Chloromethane	1026	30	1000	0	103	50-130	994	3.17	30	
cis-1,2-Dichloroethene	1004	30	1000	0	100	65-125	986	1.76	30	
cis-1,3-Dichloropropene	1098	30	1000	0	110	70-125	1058	3.71	30	
Dibromochloromethane	1069	30	1000	0	107	65-135	1047	2.08	30	
Dibromomethane	992	30	1000	0	99.2	75-130	959.5	3.33	30	
Dichlorodifluoromethane	806.5	30	1000	0	80.6	35-135	759	6.07	30	
Ethylbenzene	1030	30	1000	0	103	75-125	1000	2.86	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1040	30	1000	0	104	70-135	1094	5.02	30
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	969.5	1.23	30
m,p-Xylene	2094	60	2000	0	105	80-125	2032	3.05	30
Methyl tert-butyl ether	992.5	30	1000	0	99.2	75-125	971.5	2.14	30
Methylene chloride	1024	30	1000	0	102	55-145	988.5	3.53	30
Naphthalene	925	100	1000	0	92.5	40-140	935.5	1.13	30
n-Butylbenzene	1098	30	1000	0	110	65-140	1156	5.1	30
n-Propylbenzene	1037	30	1000	0	104	65-135	1034	0.29	30
o-Xylene	999.5	30	1000	0	100	75-125	981	1.87	30
p-Isopropyltoluene	995	30	1000	0	99.5	75-135	1044	4.76	30
sec-Butylbenzene	1078	30	1000	0	108	65-130	1080	0.278	30
Styrene	1042	30	1000	0	104	75-125	1027	1.45	30
tert-Butylbenzene	1059	30	1000	0	106	65-130	1063	0.377	30
Tetrachloroethene	1035	30	1000	0	104	64-140	994.5	3.99	30
Tetrahydrofuran	942	100	1000	0	94.2	70-135	878	7.03	30
Toluene	995	30	1000	0	99.5	70-125	954	4.21	30
trans-1,2-Dichloroethene	1014	30	1000	0	101	65-135	977.5	3.62	30
trans-1,3-Dichloropropene	1060	30	1000	0	106	65-125	1043	1.66	30
trans-1,4-Dichloro-2-butene	912	30	1000	0	91.2	70-135	906.5	0.605	30
Trichloroethene	1047	30	1000	0	105	75-125	993.5	5.24	30
Trichlorofluoromethane	1063	30	1000	0	106	25-185	1048	1.37	30
Vinyl chloride	1111	30	1000	0	111	60-125	1058	4.93	30
Surr: 1,2-Dichloroethane-d4	*4944*	0	*5000*	0	*98.9*	*70-120*	4855	*1.82*	*30*
Surr: 4-Bromofluorobenzene	*4996*	0	*5000*	0	*99.9*	*75-120*	4968	*0.562*	*30*
Surr: Dibromofluoromethane	*5031*	0	*5000*	0	*101*	*85-115*	5009	*0.438*	*30*
Surr: Toluene-d8	*5032*	0	*5000*	0	*101*	*85-120*	5072	*0.792*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1205760-11B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 07:36 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **VMS7_120529A** SeqNo: **1987323** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3075	90	3000	0	102	75-125	0			
1,1,1-Trichloroethane	3004	90	3000	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	2822	90	3000	0	94	55-130	0			
1,1,2-Trichloroethane	3000	90	3000	0	100	60-125	0			
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	0			
1,1-Dichloroethene	2379	90	3000	0	79.3	65-135	0			
1,2,3-Trichlorobenzene	2916	90	3000	0	97.2	60-135	0			
1,2,3-Trichloropropane	2938	90	3000	0	98	65-130	0			
1,2,3-Trimethylbenzene	2998	90	3000	0	100	65-135	0			
1,2,4-Trichlorobenzene	2958	90	3000	0	98.6	65-130	0			
1,2,4-Trimethylbenzene	3110	90	3000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	2494	90	3000	0	83.2	40-135	0			
1,2-Dibromoethane	2974	90	3000	0	99.2	70-125	0			
1,2-Dichlorobenzene	2866	90	3000	0	95.6	75-120	0			
1,2-Dichloroethane	2916	90	3000	0	97.2	70-135	0			
1,2-Dichloropropane	3028	90	3000	0	101	70-120	0			
1,3,5-Trimethylbenzene	3156	90	3000	0	105	65-135	0			
1,3-Dichlorobenzene	2828	90	3000	0	94.2	70-125	0			
1,4-Dichlorobenzene	3092	90	3000	0	103	70-125	0			
2-Butanone	2733	300	3000	0	91.1	30-160	0			
2-Hexanone	2694	90	3000	0	89.8	45-145	0			
4-Methyl-2-pentanone	4072	90	3000	0	136	45-145	0			
Acetone	2482	300	3000	124.5	78.6	20-160	0			
Acrylonitrile	2622	90	3000	0	87.4	70-135	0			
Benzene	2950	90	3000	0	98.4	75-125	0			
Bromobenzene	2925	90	3000	0	97.5	65-120	0			
Bromochloromethane	2914	90	3000	0	97.2	70-125	0			
Bromodichloromethane	2961	90	3000	0	98.7	70-130	0			
Bromoform	2692	90	3000	0	89.8	55-135	0			
Bromomethane	3668	90	3000	0	122	30-160	0			
Carbon disulfide	2637	90	3000	0	87.9	45-160	0			
Carbon tetrachloride	2938	90	3000	0	98	65-135	0			
Chlorobenzene	2962	90	3000	0	98.8	75-125	0			
Chloroethane	2610	300	3000	0	87	40-155	0			
Chloroform	2979	90	3000	0	99.3	70-125	0			
Chloromethane	3392	90	3000	0	113	50-130	0			
cis-1,2-Dichloroethene	2970	90	3000	0	99	65-125	0			
cis-1,3-Dichloropropene	3165	90	3000	0	106	70-125	0			
Dibromochloromethane	3064	90	3000	0	102	65-135	0			
Dibromomethane	2906	90	3000	0	96.8	75-130	0			
Dichlorodifluoromethane	2295	90	3000	0	76.5	35-135	0			
Ethylbenzene	3080	90	3000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2866	90	3000	0	95.6	70-135	0
Isopropylbenzene	2991	90	3000	0	99.7	75-130	0
m,p-Xylene	6194	180	6000	0	103	80-125	0
Methyl tert-butyl ether	2932	90	3000	0	97.8	75-125	0
Methylene chloride	2882	90	3000	0	96	55-145	0
Naphthalene	2834	300	3000	0	94.4	40-140	0
n-Butylbenzene	3252	90	3000	0	108	65-140	0
n-Propylbenzene	3162	90	3000	0	105	65-135	0
o-Xylene	2984	90	3000	0	99.4	75-125	0
p-Isopropyltoluene	2834	90	3000	0	94.4	75-135	0
sec-Butylbenzene	3297	90	3000	0	110	65-130	0
Styrene	3104	90	3000	0	103	75-125	0
tert-Butylbenzene	3166	90	3000	0	106	65-130	0
Tetrachloroethene	3058	90	3000	0	102	64-140	0
Tetrahydrofuran	2868	300	3000	0	95.6	70-135	0
Toluene	2886	90	3000	0	96.2	70-125	0
trans-1,2-Dichloroethene	2894	90	3000	0	96.4	65-135	0
trans-1,3-Dichloropropene	3099	90	3000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	2666	90	3000	0	88.8	70-135	0
Trichloroethene	3016	90	3000	0	101	75-125	0
Trichlorofluoromethane	1713	90	3000	0	57.1	25-185	0
Vinyl chloride	3180	90	3000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*14610*	0	*15000*	0	*97.4*	*70-120*	0
Surr: 4-Bromofluorobenzene	*15140*	0	*15000*	0	*101*	*75-120*	0
Surr: Dibromofluoromethane	*14840*	0	*15000*	0	*98.9*	*85-115*	0
Surr: Toluene-d8	*14950*	0	*15000*	0	*99.7*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1205760-11B MSD** Units: **µg/Kg** Analysis Date: **5/29/2012 08:01 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **VMS7_120529A** SeqNo: **1987324** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2988	90	3000	0	99.6	75-125	3075	2.87	30	
1,1,1-Trichloroethane	2949	90	3000	0	98.3	70-135	3004	1.86	30	
1,1,2,2-Tetrachloroethane	2805	90	3000	0	93.5	55-130	2822	0.587	30	
1,1,2-Trichloroethane	2924	90	3000	0	97.4	60-125	3000	2.58	30	
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	2846	0	30	
1,1-Dichloroethene	2241	90	3000	0	74.7	65-135	2379	5.97	30	
1,2,3-Trichlorobenzene	2806	90	3000	0	93.6	60-135	2916	3.83	30	
1,2,3-Trichloropropane	2950	90	3000	0	98.4	65-130	2938	0.408	30	
1,2,3-Trimethylbenzene	2910	90	3000	0	97	65-135	2998	3	30	
1,2,4-Trichlorobenzene	2850	90	3000	0	95	65-130	2958	3.72	30	
1,2,4-Trimethylbenzene	3072	90	3000	0	102	65-135	3110	1.21	30	
1,2-Dibromo-3-chloropropane	2488	90	3000	0	83	40-135	2494	0.241	30	
1,2-Dibromoethane	2938	90	3000	0	98	70-125	2974	1.22	30	
1,2-Dichlorobenzene	2800	90	3000	0	93.4	75-120	2866	2.33	30	
1,2-Dichloroethane	2937	90	3000	0	97.9	70-135	2916	0.718	30	
1,2-Dichloropropane	2988	90	3000	0	99.6	70-120	3028	1.35	30	
1,3,5-Trimethylbenzene	3126	90	3000	0	104	65-135	3156	0.955	30	
1,3-Dichlorobenzene	2746	90	3000	0	91.6	70-125	2828	2.91	30	
1,4-Dichlorobenzene	3018	90	3000	0	101	70-125	3092	2.41	30	
2-Butanone	2720	300	3000	0	90.6	30-160	2733	0.495	30	
2-Hexanone	2642	90	3000	0	88	45-145	2694	1.97	30	
4-Methyl-2-pentanone	4082	90	3000	0	136	45-145	4072	0.221	30	
Acetone	2366	300	3000	124.5	74.7	20-160	2482	4.83	30	
Acrylonitrile	2583	90	3000	0	86.1	70-135	2622	1.5	30	
Benzene	2883	90	3000	0	96.1	75-125	2950	2.31	30	
Bromobenzene	2925	90	3000	0	97.5	65-120	2925	0	30	
Bromochloromethane	2860	90	3000	0	95.4	70-125	2914	1.87	30	
Bromodichloromethane	2924	90	3000	0	97.4	70-130	2961	1.27	30	
Bromoform	2706	90	3000	0	90.2	55-135	2692	0.5	30	
Bromomethane	3488	90	3000	0	116	30-160	3668	5.03	30	
Carbon disulfide	2526	90	3000	0	84.2	45-160	2637	4.3	30	
Carbon tetrachloride	2871	90	3000	0	95.7	65-135	2938	2.32	30	
Chlorobenzene	2943	90	3000	0	98.1	75-125	2962	0.66	30	
Chloroethane	2436	300	3000	0	81.2	40-155	2610	6.9	30	
Chloroform	2908	90	3000	0	97	70-125	2979	2.39	30	
Chloromethane	3220	90	3000	0	107	50-130	3392	5.17	30	
cis-1,2-Dichloroethene	2892	90	3000	0	96.4	65-125	2970	2.66	30	
cis-1,3-Dichloropropene	3087	90	3000	0	103	70-125	3165	2.5	30	
Dibromochloromethane	3050	90	3000	0	102	65-135	3064	0.491	30	
Dibromomethane	2908	90	3000	0	97	75-130	2906	0.103	30	
Dichlorodifluoromethane	2270	90	3000	0	75.6	35-135	2295	1.12	30	
Ethylbenzene	3010	90	3000	0	100	75-125	3080	2.27	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2817	90	3000	0	93.9	70-135	2866	1.74	30
Isopropylbenzene	2930	90	3000	0	97.6	75-130	2991	2.08	30
m,p-Xylene	6130	180	6000	0	102	80-125	6194	1.02	30
Methyl tert-butyl ether	2919	90	3000	0	97.3	75-125	2932	0.461	30
Methylene chloride	2812	90	3000	0	93.8	55-145	2882	2.42	30
Naphthalene	2712	300	3000	0	90.4	40-140	2834	4.38	30
n-Butylbenzene	3069	90	3000	0	102	65-140	3252	5.79	30
n-Propylbenzene	3120	90	3000	0	104	65-135	3162	1.34	30
o-Xylene	2937	90	3000	0	97.9	75-125	2984	1.57	30
p-Isopropyltoluene	2796	90	3000	0	93.2	75-135	2834	1.33	30
sec-Butylbenzene	3248	90	3000	0	108	65-130	3297	1.51	30
Styrene	3098	90	3000	0	103	75-125	3104	0.194	30
tert-Butylbenzene	3128	90	3000	0	104	65-130	3166	1.24	30
Tetrachloroethene	2934	90	3000	0	97.8	64-140	3058	4.16	30
Tetrahydrofuran	2829	300	3000	0	94.3	70-135	2868	1.37	30
Toluene	2896	90	3000	0	96.6	70-125	2886	0.363	30
trans-1,2-Dichloroethene	2868	90	3000	0	95.6	65-135	2894	0.885	30
trans-1,3-Dichloropropene	3045	90	3000	0	102	65-125	3099	1.76	30
trans-1,4-Dichloro-2-butene	2750	90	3000	0	91.6	70-135	2666	3.1	30
Trichloroethene	2949	90	3000	0	98.3	75-125	3016	2.26	30
Trichlorofluoromethane	1646	90	3000	0	54.8	25-185	1713	4.02	30
Vinyl chloride	3136	90	3000	0	105	60-125	3180	1.38	30
Surr: 1,2-Dichloroethane-d4	*14540*	0	*15000*	0	*96.9*	*70-120*	14610	*0.515*	*30*
Surr: 4-Bromofluorobenzene	*15570*	0	*15000*	0	*104*	*75-120*	15140	*2.78*	*30*
Surr: Dibromofluoromethane	*14790*	0	*15000*	0	*98.6*	*85-115*	14840	*0.314*	*30*
Surr: Toluene-d8	*15070*	0	*15000*	0	*100*	*85-120*	14950	*0.75*	*30*

The following samples were analyzed in this batch: 1205760-01B 1205760-02B 1205760-10A 1205760-11B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **R105302** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205760-04ADUP1** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **MOIST_120525B** SeqNo: **1986327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.64	0.050	0	0	0	0-0	77.23	0.529	20	

DUP Sample ID: **1205760-04ADUP2** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **MOIST_120525B** SeqNo: **1986328** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.78	0.050	0	0	0	0-0	77.23	0.71	20	

DUP Sample ID: **1205765-06ADUP** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.6	0.050	0	0	0	0-0	6.89	9.8	20	

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-04A	1205760-05A	1205760-06A
1205760-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **R105307** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105307** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986396** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105307** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986393** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205790-01ADUP** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986370** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	20.94	0.050	0	0	0	0-0	21.19	1.19	20	

DUP Sample ID: **1205794-04ADUP** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986391** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	3.47	0.050	0	0	0	0-0	3.58	3.12	20	

The following samples were analyzed in this batch: 1205760-08A 1205760-09A 1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205760

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052312_LJL2	Task: KRRI_1025 - 1150
	Total # of Samples: 11	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
	Preservative							None	None	None	None	MeOH
	Analysis											
1	SBKR1025L509S052312S005	SBKR1025L509	SO	G	05/23/2012 10:25	3		X	X	X	X	X
2	SBKR1025L510S052312S005	SBKR1025L510	SO	G	05/23/2012 10:43	3		X	X	X	X	X
3	SBKR1025L510D052312S005	SBKR1025L510	SO	G	05/23/2012 10:43	3	DUPLICATE	X	X	X	X	X
4	SBKR1025L511S052312S010	SBKR1025L511	SO	G	05/23/2012 11:21	6	MS/MSD, MDEQ SPLIT	X	X	X	X	X
5	SBKR1025L512S052312S007	SBKR1025L512	SO	G	05/23/2012 11:38	3		X	X	X	X	X
6	SBKR1025L513S052312S005	SBKR1025L513	SO	G	05/23/2012 13:53	3		X	X	X	X	X
7	SBKR1025L514S052312S005	SBKR1025L514	SO	G	05/23/2012 14:12	3		X	X	X	X	X
8	SBKR1050L520S052312S005	SBKR1050L520	SO	G	05/23/2012 09:11	3		X	X	X	X	X
9	SBKR1150L507S052312S006	SBKR1150L507	SO	G	05/23/2012 16:48	3		X	X	X	X	X
10	SBKR1150L507T052312MX	SBKR1150L507	SQ	G	05/23/2012 00:00	1	TRIP BLANK					X
11	SBKR1150L508S052312S005	SBKR1150L508	SO	G	05/23/2012 16:40	3		X	X	X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-23-12	1745		5-23-12	1745
	5-24-12	1512		5-24-12	1512

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.0°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: SAMPLER NAME AND SIGNATURE
Company:
Tracking #:
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER: DATE Signed: Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **24-May-12 15:12**

Work Order: **1205760** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 24-May-12 Date Reviewed by: Ann Preston eSignature 25-May-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

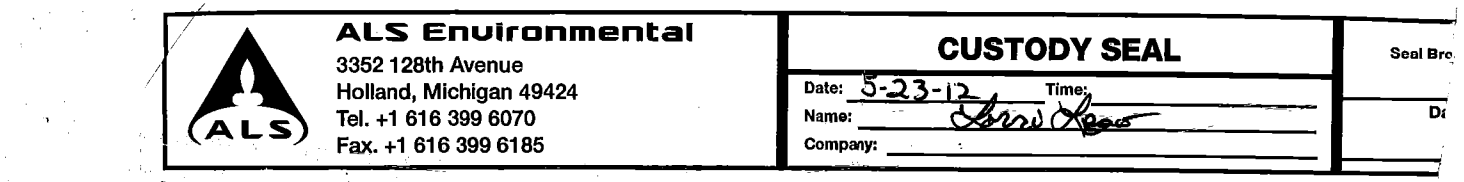
Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-23-12 Time:
Name:
Company:

Seal Bro
Da

5.0°C

04-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1025-1050L, 1150L 5/23/12** Work Order: **1205760**

Dear Bryan,

ALS Environmental received 11 samples on 24-May-2012 03:12 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 77.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
Work Order: **1205760**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205760-01	SBKR1025L509S052312S005	Soil		5/23/2012 10:25	5/24/2012 15:12	☐
1205760-02	SBKR1025L510S052312S005	Soil		5/23/2012 10:43	5/24/2012 15:12	☐
1205760-03	SBKR1025L510D052312S005	Soil		5/23/2012 10:43	5/24/2012 15:12	☐
1205760-04	SBKR1025L511S052312S010	Soil		5/23/2012 11:21	5/24/2012 15:12	☐
1205760-05	SBKR1025L512S052312S007	Soil		5/23/2012 11:38	5/24/2012 15:12	☐
1205760-06	SBKR1025L513S052312S005	Soil		5/23/2012 13:53	5/24/2012 15:12	☐
1205760-07	SBKR1025L514S052312S005	Soil		5/23/2012 14:12	5/24/2012 15:12	☐
1205760-08	SBKR1050L520S052312S005	Soil		5/23/2012 09:11	5/24/2012 15:12	☐
1205760-09	SBKR1150L507S052312S006	Soil		5/23/2012 16:48	5/24/2012 15:12	☐
1205760-10	SBKR1150L507T052312MX	Soil		5/23/2012	5/24/2012 15:12	☐
1205760-11	SBKR1150L508S052312S005	Soil		5/23/2012 16:40	5/24/2012 15:12	☐

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
Work Order: 1205760

Case Narrative

QC Comments:

Batch 41353, Method VOC_8260_SOIL, Sample SBKR1025L511S052312S010 MS: The MS recovery was below the lower control limit. The sample results may be biased low for this analyte: trans-1,4-Dichloro-2-butene.

Batch 41353, Method VOC_8260_SOIL, Sample SBKR1025L511S052312S010 MSD: The RPD between the MS and MSD was outside of the control limits for 1,1 Dichloroethene and Acetone . The corresponding results in the parent sample should be considered estimated for these analytes.

Batch 41347, Method SVOC_8270_SOIL, Sample SBKR1150L508S052312S005 MS: The above the upper control limit for Benzo (a) anthracene. The sample results may be biased high for this analyte.

Batch 41364, MS/MSD data for Metals is not related to this project's samples.

ALS Group USA, Corp

Date: 04-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12
WorkOrder: **1205760**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	**50**	**21**	**4.0**		**mg/Kg-dry**	1	5/31/2012
ORO (C20-C34)	**290**	**43**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*56.6*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	**380**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	**340**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**480**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	**470**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*118*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*74.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*112*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.9*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*61.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L509S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:25:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	230	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*99.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**180**	**39**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*55.5*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*105*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*74.0*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*67.5*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*70.0*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*66.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	200	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	200	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	200	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	200	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	660	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	200	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	200	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	200	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	660	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	200	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	390	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	200	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	200	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	660	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	200	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	200	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	200	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	200	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	200	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	200	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	200	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	200	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	200	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	200	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	200	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*99.1*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*100*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**52**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	**31**	**21**	**4.0**		**mg/Kg-dry**	1	5/31/2012
ORO (C20-C34)	**170**	**42**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*63.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*97.9*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*77.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*77.3*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*74.0*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*73.8*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	230	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	230	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	230	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	760	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,900	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	230	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	230	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	230	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	230	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	760	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	230	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	230	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L510D052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 10:43:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	460	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**620**	**230**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	230	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	760	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	230	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	230	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	230	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	230	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	230	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	230	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	230	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	230	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	230	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*102*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*99.4*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**55**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/29/2012**		Analyst: **CW**
DRO (C10-C20)	ND	42	4.0		mg/Kg-dry	1	5/30/2012
ORO (C20-C34)	**1,300**	**85**	**4.0**		**mg/Kg-dry**	1	5/30/2012
Surr: 4-Terphenyl-d14	*45.6*	*39-115*			*%REC*	1	5/30/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.74	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.5	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**26**	**1.2**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**29**	**1.2**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/29/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/1/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/1/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/1/2012
Anthracene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(a)pyrene	**910**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(b)fluoranthene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(g,h,i)perylene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Benzo(k)fluoranthene	**690**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Chrysene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Dibenzo(a,h)anthracene	**730**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/1/2012
Indeno(1,2,3-cd)pyrene	**710**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/1/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/1/2012
Pyrene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/1/2012
Surr: 2,4,6-Tribromophenol	*103*	*34-140*			*%REC*	1	6/1/2012
Surr: 2-Fluorobiphenyl	*85.9*	*12-100*			*%REC*	1	6/1/2012
Surr: 2-Fluorophenol	*79.4*	*33-117*			*%REC*	1	6/1/2012
Surr: 4-Terphenyl-d14	*103*	*25-137*			*%REC*	1	6/1/2012
Surr: Nitrobenzene-d5	*69.8*	*37-107*			*%REC*	1	6/1/2012
Surr: Phenol-d6	*79.0*	*40-106*			*%REC*	1	6/1/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	1,100	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	1,100	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	1,100	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	3,600	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	3,600	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	9,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	1,100	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	3,600	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	1,100	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	1,100	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L511S052312S010
Work Order:	1205760	**Collection Date:**	5/23/2012 11:21:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	1,100	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	1,100	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	2,200	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**2,400**	**1,100**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	3,600	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	3,600	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	1,100	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	3,600	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	1,100	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	1,100	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	1,100	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	1,100	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.4*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.5*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*98.1*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**77**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	19	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*66.0*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**13**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*102*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*78.7*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*68.6*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*109*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*74.7*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*69.1*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	600	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	600	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L512S052312S007
Work Order:	1205760	**Collection Date:**	5/23/2012 11:38:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**410**	**180**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	600	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	180	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	180	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.6*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*96.2*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.2*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.9*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	24	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**160**	**47**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*60.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**25**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*88.2*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*61.4*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*65.8*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*87.3*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*60.1*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*49.5*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	280	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	280	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	280	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	280	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	940	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	940	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,300	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	280	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	280	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	280	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	280	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	280	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	940	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	280	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	280	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	280	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	280	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	280	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L513S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 1:53:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	280	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	560	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**690**	**280**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	280	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	280	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	940	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	280	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	280	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	280	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	280	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	280	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	280	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	280	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	280	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	280	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	280	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	280	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	280	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.9*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.6*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*99.4*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.6*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**59**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	46	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**650**	**92**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*67.0*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/29/2012**		Analyst: **ML**
Beryllium	ND	0.78	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	ND	1.6	1.0		mg/Kg-dry	4	5/30/2012
Nickel	**16**	**1.3**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**31**	**1.3**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*89.3*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*59.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*54.1*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*86.5*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*56.8*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*47.7*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	1,200	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	1,200	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	1,200	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	4,000	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	4,000	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	**10,000**	**10,000**	**1,000**		**µg/Kg-dry**	1	5/29/2012
Acrylonitrile	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	1,200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	4,000	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	1,200	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	1,200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1025L514S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 2:12:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	1,200	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	1,200	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	2,400	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**2,600**	**1,200**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	4,000	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	4,000	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	1,200	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	4,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	1,200	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	1,200	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	1,200	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	1,200	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.9*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.8*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**79**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	27	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	55	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*39.3*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	**0.56**	**0.50**	**0.50**		**mg/Kg-dry**	4	5/30/2012
Molybdenum	**1.6**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**14**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**27**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*54.0*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*47.1*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*47.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*58.8*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*49.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*44.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	410	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	410	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	410	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	410	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	1,400	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	1,400	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	3,400	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	410	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	410	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	410	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	410	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	410	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	1,400	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	410	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	410	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	410	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	410	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	410	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1050L520S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 9:11:00 AM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	410	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	410	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	820	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**630**	**410**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	410	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	410	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	1,400	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	410	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	410	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	410	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	410	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	410	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	410	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,400	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	410	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	410	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	410	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	410	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	410	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	410	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.7*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.9*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.3*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**65**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	22	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	**200**	**44**	**4.0**		**mg/Kg-dry**	1	5/31/2012
Surr: 4-Terphenyl-d14	*52.4*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**17**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	ND	330	330		µg/Kg-dry	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*85.1*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*58.4*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*59.4*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*86.0*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*55.3*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*56.1*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	240	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	240	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	240	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	240	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	800	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	800	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	2,000	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	240	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	240	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	240	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	240	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	800	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	240	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	240	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507S052312S006
Work Order:	1205760	**Collection Date:**	5/23/2012 4:48:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	480	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	**450**	**240**	**100**		**µg/Kg-dry**	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	240	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	800	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	240	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	240	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	240	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	240	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	240	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	240	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	240	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	240	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	240	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	240	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	240	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*98.2*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*95.2*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*98.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*96.5*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**56**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507T052312MX
Work Order:	1205760	**Collection Date:**	5/23/2012
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	5/29/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	5/29/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	5/29/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	5/29/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	5/29/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	5/29/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	5/29/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	5/29/2012
Acetone	ND	1,000	1,000		µg/Kg	1	5/29/2012
Acrylonitrile	ND	100	100		µg/Kg	1	5/29/2012
Benzene	ND	50	50		µg/Kg	1	5/29/2012
Bromobenzene	ND	100	100		µg/Kg	1	5/29/2012
Bromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	5/29/2012
Bromoform	ND	100	100		µg/Kg	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg	1	5/29/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	5/29/2012
Chlorobenzene	ND	50	50		µg/Kg	1	5/29/2012
Chloroethane	ND	250	250		µg/Kg	1	5/29/2012
Chloroform	ND	50	50		µg/Kg	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg	1	5/29/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L507T052312MX
Work Order:	1205760	**Collection Date:**	5/23/2012
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	5/29/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Ethylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	5/29/2012
m,p-Xylene	ND	100	100		µg/Kg	1	5/29/2012
Methyl iodide	ND	100	100		µg/Kg	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	5/29/2012
Methylene chloride	ND	100	100		µg/Kg	1	5/29/2012
Naphthalene	ND	330	330		µg/Kg	1	5/29/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	5/29/2012
o-Xylene	ND	50	50		µg/Kg	1	5/29/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	5/29/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Styrene	ND	50	50		µg/Kg	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	5/29/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	5/29/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	5/29/2012
Toluene	ND	100	100		µg/Kg	1	5/29/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	5/29/2012
Trichloroethene	ND	50	50		µg/Kg	1	5/29/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	5/29/2012
Vinyl chloride	ND	40	40		µg/Kg	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*100*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*104*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*96.8*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*97.6*	*85-120*			*%REC*	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **5/30/2012**		Analyst: **CW**
DRO (C10-C20)	ND	20	4.0		mg/Kg-dry	1	5/31/2012
ORO (C20-C34)	ND	39	4.0		mg/Kg-dry	1	5/31/2012
Surr: 4-Terphenyl-d14	*54.1*	*39-115*			*%REC*	1	5/31/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/30/2012**		Analyst: **ML**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	5/30/2012
Molybdenum	**1.2**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Nickel	**19**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	5/30/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **5/30/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	5/30/2012
Anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Benzo(a)pyrene	**530**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(b)fluoranthene	**600**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(g,h,i)perylene	**360**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	5/30/2012
Chrysene	**490**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	5/30/2012
Fluoranthene	**670**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Fluorene	ND	330	330		µg/Kg-dry	1	5/30/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	5/30/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	5/30/2012
Pyrene	**700**	**330**	**330**		**µg/Kg-dry**	1	5/30/2012
Surr: 2,4,6-Tribromophenol	*87.4*	*34-140*			*%REC*	1	5/30/2012
Surr: 2-Fluorobiphenyl	*53.8*	*12-100*			*%REC*	1	5/30/2012
Surr: 2-Fluorophenol	*52.2*	*33-117*			*%REC*	1	5/30/2012
Surr: 4-Terphenyl-d14	*74.8*	*25-137*			*%REC*	1	5/30/2012
Surr: Nitrobenzene-d5	*51.7*	*37-107*			*%REC*	1	5/30/2012
Surr: Phenol-d6	*57.6*	*40-106*			*%REC*	1	5/30/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **5/29/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,1,1-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2,2-Tetrachloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1,2-Trichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,1-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,3-Trichloropropane	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
1,2,4-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dibromo-3-chloropropane	ND	180	10		µg/Kg-dry	1	5/29/2012
1,2-Dibromoethane	ND	180	20		µg/Kg-dry	1	5/29/2012
1,2-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,2-Dichloroethane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,2-Dichloropropane	ND	180	50		µg/Kg-dry	1	5/29/2012
1,3,5-Trimethylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,3-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
1,4-Dichlorobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	5/29/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
2-Methylnaphthalene	ND	610	330		µg/Kg-dry	1	5/29/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
Acetone	ND	1,500	1,000		µg/Kg-dry	1	5/29/2012
Acrylonitrile	ND	180	100		µg/Kg-dry	1	5/29/2012
Benzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Bromobenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromodichloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromoform	ND	180	100		µg/Kg-dry	1	5/29/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	5/29/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	5/29/2012
Carbon tetrachloride	ND	180	50		µg/Kg-dry	1	5/29/2012
Chlorobenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloroethane	ND	610	250		µg/Kg-dry	1	5/29/2012
Chloroform	ND	180	50		µg/Kg-dry	1	5/29/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
cis-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
cis-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	5/29/2012
Dibromochloromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	5/29/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	5/29/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *04-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L508S052312S005
Work Order:	1205760	**Collection Date:**	5/23/2012 4:40:00 PM
Project:	Marshall KRRI 1025-1050L, 1150L 5/23/12		
Lab ID:	1205760-11	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	5/29/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	5/29/2012
m,p-Xylene	ND	360	100		µg/Kg-dry	1	5/29/2012
Methyl iodide	ND	180	100		µg/Kg-dry	1	5/29/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	5/29/2012
Methylene chloride	ND	180	100		µg/Kg-dry	1	5/29/2012
Naphthalene	ND	610	330		µg/Kg-dry	1	5/29/2012
n-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
n-Propylbenzene	ND	180	100		µg/Kg-dry	1	5/29/2012
o-Xylene	ND	180	50		µg/Kg-dry	1	5/29/2012
p-Isopropyltoluene	ND	180	100		µg/Kg-dry	1	5/29/2012
sec-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Styrene	ND	180	50		µg/Kg-dry	1	5/29/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	5/29/2012
tert-Butylbenzene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	5/29/2012
Tetrachloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	5/29/2012
Toluene	ND	180	100		µg/Kg-dry	1	5/29/2012
trans-1,2-Dichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,3-Dichloropropene	ND	180	50		µg/Kg-dry	1	5/29/2012
trans-1,4-Dichloro-2-butene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichloroethene	ND	180	50		µg/Kg-dry	1	5/29/2012
Trichlorofluoromethane	ND	180	100		µg/Kg-dry	1	5/29/2012
Vinyl chloride	ND	180	40		µg/Kg-dry	1	5/29/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-120*			*%REC*	1	5/29/2012
Surr: 4-Bromofluorobenzene	*103*	*75-120*			*%REC*	1	5/29/2012
Surr: Dibromofluoromethane	*97.1*	*85-115*			*%REC*	1	5/29/2012
Surr: Toluene-d8	*101*	*85-120*			*%REC*	1	5/29/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**50**	**0.050**	**0**		**% of sample**	1	5/25/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41320** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 08:23 PM**

Client ID: Run ID: **GC8_120529A** SeqNo: **1989811** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.16*	0	*5*	0	*43.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41320-41320** Units: **mg/Kg** Analysis Date: **5/29/2012 07:31 PM**

Client ID: Run ID: **GC8_120529A** SeqNo: **1989812** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	567.8	10	500	0	114	60-130	0			
ORO (C20-C34)	645.5	20	500	0	129	60-130	0			
Surr: 4-Terphenyl-d14	*2.052*	0	*5*	0	*41*	*39-115*	0			

MS Sample ID: **1205760-04A MS** Units: **mg/Kg** Analysis Date: **5/30/2012 01:56 AM**

Client ID: **SBKR1025L511S052312S010** Run ID: **GC8_120529A** SeqNo: **1989813** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	535.1	9.8	490.9	0	109	60-130	0			
ORO (C20-C34)	758.9	20	490.9	289.8	95.6	60-130	0			
Surr: 4-Terphenyl-d14	*2.487*	0	*4.909*	0	*50.7*	*39-115*	0			

MSD Sample ID: **1205760-04A MSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:22 AM**

Client ID: **SBKR1025L511S052312S010** Run ID: **GC8_120529A** SeqNo: **1989814** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	486.3	9.8	489.7	0	99.3	60-130	535.1	9.56	30	
ORO (C20-C34)	682.4	20	489.7	289.8	80.2	60-130	758.9	10.6	30	
Surr: 4-Terphenyl-d14	*2.716*	0	*4.897*	0	*55.5*	*39-115*	2.487	*8.81*	*30*	

The following samples were analyzed in this batch: 1205760-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41348** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:35 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990206** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*2.858*	0	*5*	0	*57.2*	*39-115*	0			

LCS Sample ID: **DLCSS1-41348-41348** Units: **mg/Kg** Analysis Date: **5/31/2012 07:09 PM**
Client ID: Run ID: **GC8_120531A** SeqNo: **1990207** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	452.1	10	500	0	90.4	60-130	0			
ORO (C20-C34)	485.2	20	500	0	97	60-130	0			
Surr: 4-Terphenyl-d14	*2.553*	0	*5*	0	*51.1*	*39-115*	0			

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-05A	1205760-06A	1205760-07A
1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:48 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987143** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	0.01578	0.25								J
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 09:54 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987145** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.563	0.10	5	0	91.3	80-120	0			
Molybdenum	4.982	0.25	5	0	99.6	80-120	0			
Nickel	4.672	0.25	5	0	93.4	80-120	0			
Vanadium	4.81	0.25	5	0	96.2	80-120	0			

LCSD Sample ID: **LCSD-41324-41324** Units: **mg/Kg** Analysis Date: **5/29/2012 10:00 PM**
Client ID: Run ID: **ICPMS1_120529A** SeqNo: **1987147** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.664	0.10	5	0	93.3	80-120	4.563	2.18	20	
Molybdenum	5.075	0.25	5	0	102	80-120	4.982	1.85	20	
Nickel	4.713	0.25	5	0	94.3	80-120	4.672	0.863	20	
Vanadium	4.868	0.25	5	0	97.4	80-120	4.81	1.19	20	

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 02:39 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120529A** SeqNo: **1987215** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.497	1.3	6.468	0.208	97.2	80-120	0			
Nickel	12.04	1.3	6.468	5.972	93.8	80-120	0			
Vanadium	13.86	1.3	6.468	6.652	111	80-120	0			

MS Sample ID: **1205760-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 06:16 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120530A** SeqNo: **1988373** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.845	0.52	6.468	0.1239	88.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41324** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 02:45 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120529A** SeqNo: **1987217** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	6.952	1.4	6.916	0.208	97.5	80-120	6.497	6.76	25	
Nickel	11.52	1.4	6.916	5.972	80.2	80-120	12.04	4.44	25	
Vanadium	13.13	1.4	6.916	6.652	93.7	80-120	13.86	5.34	25	

MSD Sample ID: **1205760-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 06:22 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **ICPMS1_120530A** SeqNo: **1988374** Prep Date: **5/29/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.279	0.55	6.916	0.1239	89	80-120	5.845	7.17	25	

The following samples were analyzed in this batch:

1205760-01A 1205760-02A 1205760-03A
1205760-04A 1205760-05A 1205760-06A
1205760-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41364** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:17 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988383** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	ND	0.25								
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:23 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988384** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.372	0.10	5	0	87.4	80-120	0			
Molybdenum	4.732	0.25	5	0	94.6	80-120	0			
Nickel	4.469	0.25	5	0	89.4	80-120	0			
Vanadium	4.728	0.25	5	0	94.6	80-120	0			

LCSD Sample ID: **LCSD-41364-41364** Units: **mg/Kg** Analysis Date: **5/30/2012 07:29 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988385** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.178	0.10	5	0	83.6	80-120	4.372	4.55	20	
Molybdenum	4.576	0.25	5	0	91.5	80-120	4.732	3.33	20	
Nickel	4.352	0.25	5	0	87	80-120	4.469	2.65	20	
Vanadium	4.576	0.25	5	0	91.5	80-120	4.728	3.27	20	

MS Sample ID: **1205794-04AMS** Units: **mg/Kg** Analysis Date: **5/30/2012 08:37 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988396** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.989	0.12	6.15	0.02721	80.7	80-120	0			
Molybdenum	5.691	0.31	6.15	0.02291	92.2	80-120	0			
Nickel	6.137	0.31	6.15	0.8372	86.2	80-120	0			
Vanadium	7.429	0.31	6.15	1.682	93.4	80-120	0			

MSD Sample ID: **1205794-04AMSD** Units: **mg/Kg** Analysis Date: **5/30/2012 08:43 PM**
Client ID: Run ID: **ICPMS1_120530A** SeqNo: **1988397** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	4.998	0.12	6.061	0.02721	82	80-120	4.989	0.185	25	
Molybdenum	5.633	0.30	6.061	0.02291	92.6	80-120	5.691	1.02	25	
Nickel	5.992	0.30	6.061	0.8372	85	80-120	6.137	2.39	25	
Vanadium	7.067	0.30	6.061	1.682	88.8	80-120	7.429	5	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41364** Instrument ID **ICPMS1** Method: **SW6020A**

The following samples were analyzed in this batch:	1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 08:58 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987560** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*4147*	0	*5000*	0	*82.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4491*	0	*5000*	0	*89.8*	*12-100*	0			
Surr: 2-Fluorophenol	*4538*	0	*5000*	0	*90.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4383*	0	*5000*	0	*87.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3928*	0	*5000*	0	*78.6*	*37-107*	0			
Surr: Phenol-d6	*4253*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 09:35 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987561** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1830	50	2000	0	91.5	45-105	0			
Acenaphthene	1864	50	2000	0	93.2	45-110	0			
Acenaphthylene	1978	50	2000	0	98.9	45-105	0			
Anthracene	1727	50	2000	0	86.4	55-105	0			
Benzo(a)anthracene	1790	50	2000	0	89.5	50-110	0			
Benzo(a)pyrene	1654	50	2000	0	82.7	50-110	0			
Benzo(b)fluoranthene	1990	50	2000	0	99.5	45-115	0			
Benzo(g,h,i)perylene	1920	50	2000	0	96	40-125	0			
Benzo(k)fluoranthene	1559	50	2000	0	78	45-115	0			
Chrysene	1856	50	2000	0	92.8	55-110	0			
Dibenzo(a,h)anthracene	1731	50	2000	0	86.6	40-125	0			
Fluoranthene	1704	50	2000	0	85.2	55-115	0			
Fluorene	1797	50	2000	0	89.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1739	50	2000	0	87	40-120	0			
Naphthalene	1804	50	2000	0	90.2	40-105	0			
Phenanthrene	1909	50	2000	0	95.4	50-110	0			
Pyrene	1810	50	2000	0	90.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4779*	0	*5000*	0	*95.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4662*	0	*5000*	0	*93.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4431*	0	*5000*	0	*88.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4445*	0	*5000*	0	*88.9*	*25-137*	0			
Surr: Nitrobenzene-d5	*4133*	0	*5000*	0	*82.7*	*37-107*	0			
Surr: Phenol-d6	*4507*	0	*5000*	0	*90.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41319-41319** Units: **µg/Kg** Analysis Date: **5/29/2012 10:13 PM**
Client ID: Run ID: **SVMS5_120529A** SeqNo: **1987562** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1767	50	2000	0	88.4	45-105	1830	3.5	25	
Acenaphthene	1806	50	2000	0	90.3	45-110	1864	3.16	25	
Acenaphthylene	1917	50	2000	0	95.8	45-105	1978	3.13	25	
Anthracene	1694	50	2000	0	84.7	55-105	1727	1.93	25	
Benzo(a)anthracene	1819	50	2000	0	91	50-110	1790	1.61	25	
Benzo(a)pyrene	1744	50	2000	0	87.2	50-110	1654	5.3	25	
Benzo(b)fluoranthene	2102	50	2000	0	105	45-115	1990	5.47	25	
Benzo(g,h,i)perylene	1938	50	2000	0	96.9	40-125	1920	0.933	25	
Benzo(k)fluoranthene	1502	50	2000	0	75.1	45-115	1559	3.72	25	
Chrysene	1874	50	2000	0	93.7	55-110	1856	0.965	25	
Dibenzo(a,h)anthracene	1752	50	2000	0	87.6	40-125	1731	1.21	25	
Fluoranthene	1700	50	2000	0	85	55-115	1704	0.235	25	
Fluorene	1760	50	2000	0	88	50-110	1797	2.08	25	
Indeno(1,2,3-cd)pyrene	1764	50	2000	0	88.2	40-120	1739	1.43	25	
Naphthalene	1790	50	2000	0	89.5	40-105	1804	0.779	25	
Phenanthrene	1889	50	2000	0	94.4	50-110	1909	1.05	25	
Pyrene	1842	50	2000	0	92.1	45-125	1810	1.75	25	
Surr: 2,4,6-Tribromophenol	*4420*	0	*5000*	0	*88.4*	*34-140*	4779	*7.81*	*25*	
Surr: 2-Fluorobiphenyl	*4627*	0	*5000*	0	*92.5*	*12-100*	4662	*0.754*	*25*	
Surr: 2-Fluorophenol	*4338*	0	*5000*	0	*86.8*	*33-117*	4431	*2.12*	*25*	
Surr: 4-Terphenyl-d14	*4416*	0	*5000*	0	*88.3*	*25-137*	4445	*0.655*	*25*	
Surr: Nitrobenzene-d5	*4182*	0	*5000*	0	*83.6*	*37-107*	4133	*1.18*	*25*	
Surr: Phenol-d6	*4479*	0	*5000*	0	*89.6*	*40-106*	4507	*0.623*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1205760-04A MS** Units: **µg/Kg** Analysis Date: **6/1/2012 04:08 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **SVMS5_120531A** SeqNo: **1989065** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1636	50	1995	0	82	45-105	0			
Acenaphthene	1731	50	1995	0	86.8	45-110	0			
Acenaphthylene	1844	50	1995	0	92.4	45-105	0			
Anthracene	1665	50	1995	156.6	75.6	55-105	0			
Benzo(a)anthracene	1917	50	1995	91.84	91.5	50-110	0			
Benzo(a)pyrene	1651	50	1995	207.8	72.3	50-110	0			
Benzo(b)fluoranthene	2130	50	1995	165.3	98.5	45-115	0			
Benzo(g,h,i)perylene	1159	50	1995	78.31	54.2	40-125	0			
Benzo(k)fluoranthene	1631	50	1995	156.6	73.9	45-115	0			
Chrysene	1778	50	1995	107.3	83.7	55-110	0			
Dibenzo(a,h)anthracene	1176	50	1995	166.3	50.6	40-125	0			
Fluoranthene	1728	50	1995	257.2	73.7	55-115	0			
Fluorene	1765	50	1995	0	88.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1210	50	1995	162.4	52.5	40-120	0			
Naphthalene	1588	50	1995	0	79.6	40-105	0			
Phenanthrene	1897	50	1995	51.24	92.5	50-110	0			
Pyrene	1886	50	1995	130.5	88	45-125	0			
Surr: 2,4,6-Tribromophenol	*5018*	0	*4988*	0	*101*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*4525*	0	*4988*	0	*90.7*	*12-100*	0			
Surr: 2-Fluorophenol	*4246*	0	*4988*	0	*85.1*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4561*	0	*4988*	0	*91.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3916*	0	*4988*	0	*78.5*	*37-107*	0			
Surr: Phenol-d6	*4359*	0	*4988*	0	*87.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41319** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1205760-04A MSD** Units: **µg/Kg** Analysis Date: **6/1/2012 04:42 AM**
Client ID: **SBKR1025L511S052312S010** Run ID: **SVMS5_120531A** SeqNo: **1989066** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1495	48	1934	0	77.3	45-105	1636	9	30	
Acenaphthene	1598	48	1934	0	82.6	45-110	1731	8	30	
Acenaphthylene	1668	48	1934	0	86.2	45-105	1844	10	30	
Anthracene	1566	48	1934	156.6	72.9	55-105	1665	6.14	30	
Benzo(a)anthracene	1810	48	1934	91.84	88.9	50-110	1917	5.74	30	
Benzo(a)pyrene	1614	48	1934	207.8	72.7	50-110	1651	2.26	30	
Benzo(b)fluoranthene	2182	48	1934	165.3	104	45-115	2130	2.41	30	
Benzo(g,h,i)perylene	865.5	48	1934	78.31	40.7	40-125	1159	29	30	
Benzo(k)fluoranthene	1762	48	1934	156.6	83	45-115	1631	7.72	30	
Chrysene	1716	48	1934	107.3	83.2	55-110	1778	3.5	30	
Dibenzo(a,h)anthracene	957.4	48	1934	166.3	40.9	40-125	1176	20.5	30	
Fluoranthene	1656	48	1934	257.2	72.3	55-115	1728	4.26	30	
Fluorene	1659	48	1934	0	85.8	50-110	1765	6.14	30	
Indeno(1,2,3-cd)pyrene	953.5	48	1934	162.4	40.9	40-120	1210	23.7	30	
Naphthalene	1431	48	1934	0	74	40-105	1588	10.4	30	
Phenanthrene	1781	48	1934	51.24	89.5	50-110	1897	6.31	30	
Pyrene	1864	48	1934	130.5	89.7	45-125	1886	1.17	30	
Surr: 2,4,6-Tribromophenol	*4678*	0	*4835*	0	*96.8*	*34-140*	5018	*7.01*	*40*	
Surr: 2-Fluorobiphenyl	*4137*	0	*4835*	0	*85.6*	*12-100*	4525	*8.95*	*40*	
Surr: 2-Fluorophenol	*3657*	0	*4835*	0	*75.6*	*33-117*	4246	*14.9*	*40*	
Surr: 4-Terphenyl-d14	*4303*	0	*4835*	0	*89*	*25-137*	4561	*5.81*	*40*	
Surr: Nitrobenzene-d5	*3495*	0	*4835*	0	*72.3*	*37-107*	3916	*11.4*	*40*	
Surr: Phenol-d6	*3962*	0	*4835*	0	*81.9*	*40-106*	4359	*9.55*	*40*	

The following samples were analyzed in this batch: 1205760-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:36 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988739** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3958*	0	*5000*	0	*79.2*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3327*	0	*5000*	0	*66.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3867*	0	*5000*	0	*77.3*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3322*	0	*5000*	0	*66.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3560*	0	*5000*	0	*71.2*	*37-107*	0			
Surr: Phenol-d6	*4293*	0	*5000*	0	*85.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCS Sample ID: **SLCSS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 07:43 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988730** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1697	50	2000	0	84.8	45-105	0			
Acenaphthene	1709	50	2000	0	85.4	45-110	0			
Acenaphthylene	1725	50	2000	0	86.2	45-105	0			
Anthracene	1844	50	2000	0	92.2	55-105	0			
Benzo(a)anthracene	2078	50	2000	0	104	50-110	0			
Benzo(a)pyrene	1955	50	2000	0	97.8	50-110	0			
Benzo(b)fluoranthene	1861	50	2000	0	93	45-115	0			
Benzo(g,h,i)perylene	2060	50	2000	0	103	40-125	0			
Benzo(k)fluoranthene	1799	50	2000	0	90	45-115	0			
Chrysene	1861	50	2000	0	93	55-110	0			
Dibenzo(a,h)anthracene	2097	50	2000	0	105	40-125	0			
Fluoranthene	1890	50	2000	0	94.5	55-115	0			
Fluorene	1830	50	2000	0	91.5	50-110	0			
Indeno(1,2,3-cd)pyrene	2060	50	2000	0	103	40-120	0			
Naphthalene	1653	50	2000	0	82.6	40-105	0			
Phenanthrene	1851	50	2000	0	92.6	50-110	0			
Pyrene	1822	50	2000	0	91.1	45-125	0			
Surr: 2,4,6-Tribromophenol	*4493*	0	*5000*	0	*89.9*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3558*	0	*5000*	0	*71.2*	*12-100*	0			
Surr: 2-Fluorophenol	*3846*	0	*5000*	0	*76.9*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4112*	0	*5000*	0	*82.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3589*	0	*5000*	0	*71.8*	*37-107*	0			
Surr: Phenol-d6	*3997*	0	*5000*	0	*79.9*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

LCSD Sample ID: **SLCSDS1-41347-41347** Units: **µg/Kg** Analysis Date: **5/30/2012 08:09 PM**
Client ID: Run ID: **SVMS6_120530A** SeqNo: **1988738** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1523	50	2000	0	76.2	45-105	1697	10.8	25	
Acenaphthene	1581	50	2000	0	79	45-110	1709	7.78	25	
Acenaphthylene	1579	50	2000	0	79	45-105	1725	8.84	25	
Anthracene	1816	50	2000	0	90.8	55-105	1844	1.53	25	
Benzo(a)anthracene	2013	50	2000	0	101	50-110	2078	3.18	25	
Benzo(a)pyrene	1922	50	2000	0	96.1	50-110	1955	1.7	25	
Benzo(b)fluoranthene	1903	50	2000	0	95.2	45-115	1861	2.23	25	
Benzo(g,h,i)perylene	1984	50	2000	0	99.2	40-125	2060	3.76	25	
Benzo(k)fluoranthene	1644	50	2000	0	82.2	45-115	1799	9	25	
Chrysene	1873	50	2000	0	93.6	55-110	1861	0.643	25	
Dibenzo(a,h)anthracene	2048	50	2000	0	102	40-125	2097	2.36	25	
Fluoranthene	1860	50	2000	0	93	55-115	1890	1.6	25	
Fluorene	1722	50	2000	0	86.1	50-110	1830	6.08	25	
Indeno(1,2,3-cd)pyrene	2017	50	2000	0	101	40-120	2060	2.11	25	
Naphthalene	1494	50	2000	0	74.7	40-105	1653	10.1	25	
Phenanthrene	1811	50	2000	0	90.6	50-110	1851	2.18	25	
Pyrene	1811	50	2000	0	90.6	45-125	1822	0.606	25	
Surr: 2,4,6-Tribromophenol	*4498*	0	*5000*	0	*90*	*34-140*	4493	*0.111*	*25*	
Surr: 2-Fluorobiphenyl	*3208*	0	*5000*	0	*64.2*	*12-100*	3558	*10.3*	*25*	
Surr: 2-Fluorophenol	*3432*	0	*5000*	0	*68.6*	*33-117*	3846	*11.4*	*25*	
Surr: 4-Terphenyl-d14	*4126*	0	*5000*	0	*82.5*	*25-137*	4112	*0.34*	*25*	
Surr: Nitrobenzene-d5	*3254*	0	*5000*	0	*65.1*	*37-107*	3589	*9.79*	*25*	
Surr: Phenol-d6	*3618*	0	*5000*	0	*72.4*	*40-106*	3997	*9.95*	*25*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MS Sample ID: **1205760-11A MS** Units: **µg/Kg** Analysis Date: **5/30/2012 10:24 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **SVMS6_120530A** SeqNo: **1988740** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1557	46	1845	0	84.4	45-105	0			
Acenaphthene	1564	46	1845	0	84.8	45-110	0			
Acenaphthylene	1548	46	1845	0	83.9	45-105	0			
Anthracene	1750	46	1845	0	94.8	55-105	0			
Benzo(a)anthracene	2175	46	1845	100.8	112	50-110	0			S
Benzo(a)pyrene	2047	46	1845	261.8	96.8	50-110	0			
Benzo(b)fluoranthene	2054	46	1845	296.7	95.2	45-115	0			
Benzo(g,h,i)perylene	2045	46	1845	180.3	101	40-125	0			
Benzo(k)fluoranthene	1675	46	1845	152.2	82.6	45-115	0			
Chrysene	2010	46	1845	244.3	95.7	55-110	0			
Dibenzo(a,h)anthracene	1920	46	1845	0	104	40-125	0			
Fluoranthene	2192	46	1845	331.6	101	55-115	0			
Fluorene	1716	46	1845	0	93	50-110	0			
Indeno(1,2,3-cd)pyrene	2024	46	1845	151.3	102	40-120	0			
Naphthalene	1508	46	1845	0	81.7	40-105	0			
Phenanthrene	1918	46	1845	86.29	99.3	50-110	0			
Pyrene	2070	46	1845	344.2	93.5	45-125	0			
Surr: 2,4,6-Tribromophenol	*4457*	0	*4613*	0	*96.6*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3137*	0	*4613*	0	*68*	*12-100*	0			
Surr: 2-Fluorophenol	*3329*	0	*4613*	0	*72.2*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3909*	0	*4613*	0	*84.7*	*25-137*	0			
Surr: Nitrobenzene-d5	*3252*	0	*4613*	0	*70.5*	*37-107*	0			
Surr: Phenol-d6	*3523*	0	*4613*	0	*76.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41347** Instrument ID **SVMS6** Method: **SW8270**

MSD Sample ID: **1205760-11A MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 10:51 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **SVMS6_120530A** SeqNo: **1988741** Prep Date: **5/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1291	46	1850	0	69.8	45-105	1557	18.7	30	
Acenaphthene	1427	46	1850	0	77.2	45-110	1564	9.12	30	
Acenaphthylene	1422	46	1850	0	76.8	45-105	1548	8.5	30	
Anthracene	1669	46	1850	0	90.2	55-105	1750	4.76	30	
Benzo(a)anthracene	2056	46	1850	100.8	106	50-110	2175	5.63	30	
Benzo(a)pyrene	1953	46	1850	261.8	91.4	50-110	2047	4.72	30	
Benzo(b)fluoranthene	1866	46	1850	296.7	84.8	45-115	2054	9.58	30	
Benzo(g,h,i)perylene	1887	46	1850	180.3	92.3	40-125	2045	8.05	30	
Benzo(k)fluoranthene	1809	46	1850	152.2	89.6	45-115	1675	7.69	30	
Chrysene	1873	46	1850	244.3	88	55-110	2010	7.06	30	
Dibenzo(a,h)anthracene	1816	46	1850	0	98.2	40-125	1920	5.57	30	
Fluoranthene	2031	46	1850	331.6	91.8	55-115	2192	7.65	30	
Fluorene	1630	46	1850	0	88.1	50-110	1716	5.14	30	
Indeno(1,2,3-cd)pyrene	1882	46	1850	151.3	93.5	40-120	2024	7.3	30	
Naphthalene	1193	46	1850	0	64.5	40-105	1508	23.3	30	
Phenanthrene	1797	46	1850	86.29	92.5	50-110	1918	6.5	30	
Pyrene	1944	46	1850	344.2	86.4	45-125	2070	6.31	30	
Surr: 2,4,6-Tribromophenol	*4069*	0	*4625*	0	*88*	*34-140*	4457	*9.09*	*40*	
Surr: 2-Fluorobiphenyl	*2706*	0	*4625*	0	*58.5*	*12-100*	3137	*14.8*	*40*	
Surr: 2-Fluorophenol	*2414*	0	*4625*	0	*52.2*	*33-117*	3329	*31.8*	*40*	
Surr: 4-Terphenyl-d14	*3772*	0	*4625*	0	*81.5*	*25-137*	3909	*3.58*	*40*	
Surr: Nitrobenzene-d5	*2599*	0	*4625*	0	*56.2*	*37-107*	3252	*22.3*	*40*	
Surr: Phenol-d6	*2883*	0	*4625*	0	*62.3*	*40-106*	3523	*20*	*40*	

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-05A	1205760-06A	1205760-07A
1205760-08A	1205760-09A	1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **MBLK-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 02:51 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987297** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	45	100						J
n-Butylbenzene	28	30						J
n-Propylbenzene	19.5	30						J
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	24	30						J
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*4890*	0	*5000*	0	*97.8*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4875*	0	*5000*	0	*97.5*	*75-120*	0	
Surr: Dibromofluoromethane	*5312*	0	*5000*	0	*106*	*85-115*	0	
Surr: Toluene-d8	*4874*	0	*5000*	0	*97.5*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCS	Sample ID: **LCS-41353-41353**				Units: **µg/Kg**		Analysis Date: **5/29/2012 01:32 PM**			
Client ID:		Run ID: **VMS8_120529A**			SeqNo: **1987295**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1060	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1100	30	1000	0	110	70-135	0			
1,1,2,2-Tetrachloroethane	1008	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	993.5	30	1000	0	99.4	60-125	0			
1,1-Dichloroethane	1037	30	1000	0	104	75-125	0			
1,1-Dichloroethene	1272	30	1000	0	127	65-135	0			
1,2,3-Trichlorobenzene	1066	30	1000	0	107	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1026	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1068	30	1000	0	107	65-130	0			
1,2,4-Trimethylbenzene	1036	30	1000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	852	30	1000	0	85.2	40-135	0			
1,2-Dibromoethane	1017	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1037	30	1000	0	104	75-120	0			
1,2-Dichloroethane	1017	30	1000	0	102	70-135	0			
1,2-Dichloropropane	1037	30	1000	0	104	70-120	0			
1,3,5-Trimethylbenzene	1033	30	1000	0	103	65-135	0			
1,3-Dichlorobenzene	1041	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1046	30	1000	0	105	70-125	0			
2-Butanone	1092	100	1000	0	109	30-160	0			
2-Hexanone	957	30	1000	0	95.7	45-145	0			
4-Methyl-2-pentanone	1264	30	1000	0	126	45-145	0			
Acetone	927.5	100	1000	0	92.8	20-160	0			
Acrylonitrile	951	30	1000	0	95.1	70-135	0			
Benzene	1050	30	1000	0	105	75-125	0			
Bromobenzene	997.5	30	1000	0	99.8	65-120	0			
Bromochloromethane	1050	30	1000	0	105	70-125	0			
Bromodichloromethane	1039	30	1000	0	104	70-130	0			
Bromoform	961	30	1000	0	96.1	55-135	0			
Bromomethane	1154	30	1000	0	115	30-160	0			
Carbon disulfide	1164	30	1000	0	116	45-160	0			
Carbon tetrachloride	1107	30	1000	0	111	65-135	0			
Chlorobenzene	1017	30	1000	0	102	75-125	0			
Chloroethane	1378	100	1000	0	138	40-155	0			
Chloroform	997	30	1000	0	99.7	70-125	0			
Chloromethane	1017	30	1000	0	102	50-130	0			
cis-1,2-Dichloroethene	1052	30	1000	0	105	65-125	0			
cis-1,3-Dichloropropene	1088	30	1000	0	109	70-125	0			
Dibromochloromethane	1056	30	1000	0	106	65-135	0			
Dibromomethane	992	30	1000	0	99.2	75-130	0			
Dichlorodifluoromethane	942	30	1000	0	94.2	35-135	0			
Ethylbenzene	1045	30	1000	0	104	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353**	Instrument ID **VMS8**		Method: **SW8260**				
Hexachloroethane	952	30	1000	0	95.2	70-135	0
Isopropylbenzene	1037	30	1000	0	104	75-130	0
m,p-Xylene	2072	60	2000	0	104	80-125	0
Methyl tert-butyl ether	1076	30	1000	0	108	75-125	0
Methylene chloride	988	30	1000	0	98.8	55-145	0
Naphthalene	1153	100	1000	0	115	40-140	0
n-Butylbenzene	1071	30	1000	0	107	65-140	0
n-Propylbenzene	1022	30	1000	0	102	65-135	0
o-Xylene	1022	30	1000	0	102	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1045	30	1000	0	104	65-130	0
Styrene	1020	30	1000	0	102	75-125	0
tert-Butylbenzene	1034	30	1000	0	103	65-130	0
Tetrachloroethene	1041	30	1000	0	104	64-140	0
Tetrahydrofuran	972	100	1000	0	97.2	70-135	0
Toluene	928	30	1000	0	92.8	70-125	0
trans-1,2-Dichloroethene	1086	30	1000	0	109	65-135	0
trans-1,3-Dichloropropene	1044	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	787.5	30	1000	0	78.8	70-135	0
Trichloroethene	1066	30	1000	0	107	75-125	0
Trichlorofluoromethane	965.5	30	1000	0	96.6	25-185	0
Vinyl chloride	1004	30	1000	0	100	60-125	0
Surr: 1,2-Dichloroethane-d4	*4906*	0	*5000*	0	*98.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4850*	0	*5000*	0	*97*	*75-120*	0
Surr: Dibromofluoromethane	*5282*	0	*5000*	0	*106*	*85-115*	0
Surr: Toluene-d8	*4910*	0	*5000*	0	*98.2*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

LCSD Sample ID: **LCSD-41353-41353** Units: **µg/Kg** Analysis Date: **5/29/2012 01:58 PM**
Client ID: Run ID: **VMS8_120529A** SeqNo: **1987296** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1016	30	1000	0	102	75-125	1060	4.34	30	
1,1,1-Trichloroethane	1034	30	1000	0	103	70-135	1100	6.14	30	
1,1,2,2-Tetrachloroethane	976	30	1000	0	97.6	55-130	1008	3.28	30	
1,1,2-Trichloroethane	962	30	1000	0	96.2	60-125	993.5	3.22	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	1037	5.09	30	
1,1-Dichloroethene	1165	30	1000	0	116	65-135	1272	8.82	30	
1,2,3-Trichlorobenzene	958.5	30	1000	0	95.8	60-135	1066	10.6	30	
1,2,3-Trichloropropane	927.5	30	1000	0	92.8	65-130	948	2.19	30	
1,2,3-Trimethylbenzene	982	30	1000	0	98.2	65-135	1026	4.33	30	
1,2,4-Trichlorobenzene	963	30	1000	0	96.3	65-130	1068	10.3	30	
1,2,4-Trimethylbenzene	979.5	30	1000	0	98	65-135	1036	5.56	30	
1,2-Dibromo-3-chloropropane	806	30	1000	0	80.6	40-135	852	5.55	30	
1,2-Dibromoethane	989	30	1000	0	98.9	70-125	1017	2.79	30	
1,2-Dichlorobenzene	985	30	1000	0	98.5	75-120	1037	5.14	30	
1,2-Dichloroethane	992.5	30	1000	0	99.2	70-135	1017	2.44	30	
1,2-Dichloropropane	988.5	30	1000	0	98.8	70-120	1037	4.79	30	
1,3,5-Trimethylbenzene	973	30	1000	0	97.3	65-135	1033	5.98	30	
1,3-Dichlorobenzene	995	30	1000	0	99.5	70-125	1041	4.52	30	
1,4-Dichlorobenzene	1006	30	1000	0	101	70-125	1046	3.95	30	
2-Butanone	1041	100	1000	0	104	30-160	1092	4.74	30	
2-Hexanone	888.5	30	1000	0	88.8	45-145	957	7.42	30	
4-Methyl-2-pentanone	1194	30	1000	0	119	45-145	1264	5.61	30	
Acetone	756.5	100	1000	0	75.6	20-160	927.5	20.3	30	
Acrylonitrile	891.5	30	1000	0	89.2	70-135	951	6.46	30	
Benzene	1004	30	1000	0	100	75-125	1050	4.48	30	
Bromobenzene	959	30	1000	0	95.9	65-120	997.5	3.94	30	
Bromochloromethane	1019	30	1000	0	102	70-125	1050	3	30	
Bromodichloromethane	1002	30	1000	0	100	70-130	1039	3.58	30	
Bromoform	908.5	30	1000	0	90.8	55-135	961	5.62	30	
Bromomethane	1080	30	1000	0	108	30-160	1154	6.58	30	
Carbon disulfide	1078	30	1000	0	108	45-160	1164	7.72	30	
Carbon tetrachloride	1063	30	1000	0	106	65-135	1107	4.06	30	
Chlorobenzene	985.5	30	1000	0	98.6	75-125	1017	3.15	30	
Chloroethane	1374	100	1000	0	137	40-155	1378	0.218	30	
Chloroform	959	30	1000	0	95.9	70-125	997	3.89	30	
Chloromethane	963	30	1000	0	96.3	50-130	1017	5.45	30	
cis-1,2-Dichloroethene	987	30	1000	0	98.7	65-125	1052	6.38	30	
cis-1,3-Dichloropropene	1048	30	1000	0	105	70-125	1088	3.7	30	
Dibromochloromethane	1020	30	1000	0	102	65-135	1056	3.52	30	
Dibromomethane	964.5	30	1000	0	96.4	75-130	992	2.81	30	
Dichlorodifluoromethane	878	30	1000	0	87.8	35-135	942	7.03	30	
Ethylbenzene	1008	30	1000	0	101	75-125	1045	3.65	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	872.5	30	1000	0	87.2	70-135	952	8.71	30
Isopropylbenzene	981	30	1000	0	98.1	75-130	1037	5.55	30
m,p-Xylene	2000	60	2000	0	100	80-125	2072	3.51	30
Methyl tert-butyl ether	1032	30	1000	0	103	75-125	1076	4.08	30
Methylene chloride	953	30	1000	0	95.3	55-145	988	3.61	30
Naphthalene	1039	100	1000	0	104	40-140	1153	10.4	30
n-Butylbenzene	949	30	1000	0	94.9	65-140	1071	12.1	30
n-Propylbenzene	952.5	30	1000	0	95.2	65-135	1022	7.04	30
o-Xylene	977	30	1000	0	97.7	75-125	1022	4.55	30
p-Isopropyltoluene	953	30	1000	0	95.3	75-135	1044	9.16	30
sec-Butylbenzene	937.5	30	1000	0	93.8	65-130	1045	10.8	30
Styrene	991.5	30	1000	0	99.2	75-125	1020	2.88	30
tert-Butylbenzene	943.5	30	1000	0	94.4	65-130	1034	9.1	30
Tetrachloroethene	1029	30	1000	0	103	64-140	1041	1.16	30
Tetrahydrofuran	892	100	1000	0	89.2	70-135	972	8.58	30
Toluene	902.5	30	1000	0	90.2	70-125	928	2.79	30
trans-1,2-Dichloroethene	1012	30	1000	0	101	65-135	1086	7.05	30
trans-1,3-Dichloropropene	1022	30	1000	0	102	65-125	1044	2.08	30
trans-1,4-Dichloro-2-butene	738.5	30	1000	0	73.8	70-135	787.5	6.42	30
Trichloroethene	1023	30	1000	0	102	75-125	1066	4.12	30
Trichlorofluoromethane	906	30	1000	0	90.6	25-185	965.5	6.36	30
Vinyl chloride	949	30	1000	0	94.9	60-125	1004	5.58	30
Surr: 1,2-Dichloroethane-d4	*4899*	0	*5000*	0	*98*	*70-120*	4906	*0.133*	*30*
Surr: 4-Bromofluorobenzene	*4890*	0	*5000*	0	*97.8*	*75-120*	4850	*0.832*	*30*
Surr: Dibromofluoromethane	*5288*	0	*5000*	0	*106*	*85-115*	5282	*0.0946*	*30*
Surr: Toluene-d8	*4896*	0	*5000*	0	*97.9*	*85-120*	4910	*0.286*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **1205760-04B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 11:38 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **VMS8_120529A** SeqNo: **1987310** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	8104	250	8173	0	99.2	75-125	0			
1,1,1-Trichloroethane	8210	250	8173	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	7671	250	8173	0	93.8	55-130	0			
1,1,2-Trichloroethane	7691	250	8173	0	94.1	60-125	0			
1,1-Dichloroethane	7887	250	8173	0	96.5	75-125	0			
1,1-Dichloroethene	7327	250	8173	0	89.6	65-135	0			
1,2,3-Trichlorobenzene	5864	250	8173	0	71.8	60-135	0			
1,2,3-Trichloropropane	7344	250	8173	0	89.8	65-130	0			
1,2,3-Trimethylbenzene	7532	250	8173	0	92.2	65-135	0			
1,2,4-Trichlorobenzene	6486	250	8173	0	79.4	65-130	0			
1,2,4-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,2-Dibromo-3-chloropropane	6269	250	8173	0	76.7	40-135	0			
1,2-Dibromoethane	7928	250	8173	0	97	70-125	0			
1,2-Dichlorobenzene	7544	250	8173	0	92.3	75-120	0			
1,2-Dichloroethane	7900	250	8173	0	96.6	70-135	0			
1,2-Dichloropropane	7994	250	8173	0	97.8	70-120	0			
1,3,5-Trimethylbenzene	7499	250	8173	0	91.8	65-135	0			
1,3-Dichlorobenzene	7417	250	8173	0	90.8	70-125	0			
1,4-Dichlorobenzene	7381	250	8173	0	90.3	70-125	0			
2-Butanone	8243	820	8173	0	101	30-160	0			
2-Hexanone	7450	250	8173	0	91.2	45-145	0			
4-Methyl-2-pentanone	10110	250	8173	0	124	45-145	0			
Acetone	6400	820	8173	1271	62.8	20-160	0			
Acrylonitrile	6878	250	8173	0	84.2	70-135	0			
Benzene	7981	250	8173	0	97.6	75-125	0			
Bromobenzene	7327	250	8173	0	89.6	65-120	0			
Bromochloromethane	8067	250	8173	0	98.7	70-125	0			
Bromodichloromethane	7785	250	8173	0	95.2	70-130	0			
Bromoform	6723	250	8173	0	82.2	55-135	0			
Bromomethane	8104	250	8173	0	99.2	30-160	0			
Carbon disulfide	6686	250	8173	0	81.8	45-160	0			
Carbon tetrachloride	8177	250	8173	0	100	65-135	0			
Chlorobenzene	7671	250	8173	0	93.8	75-125	0			
Chloroethane	9424	820	8173	0	115	40-155	0			
Chloroform	7507	250	8173	0	91.8	70-125	0			
Chloromethane	7193	250	8173	0	88	50-130	0			
cis-1,2-Dichloroethene	7973	250	8173	0	97.6	65-125	0			
cis-1,3-Dichloropropene	8030	250	8173	0	98.2	70-125	0			
Dibromochloromethane	7936	250	8173	0	97.1	65-135	0			
Dibromomethane	7642	250	8173	0	93.5	75-130	0			
Dichlorodifluoromethane	6510	250	8173	0	79.6	35-135	0			
Ethylbenzene	7904	250	8173	0	96.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6387	250	8173	0	78.2	70-135	0	
Isopropylbenzene	7487	250	8173	0	91.6	75-130	0	
m,p-Xylene	15430	490	16350	0	94.4	80-125	0	
Methyl tert-butyl ether	8468	250	8173	0	104	75-125	0	
Methylene chloride	7001	250	8173	0	85.6	55-145	0	
Naphthalene	6559	820	8173	0	80.2	40-140	0	
n-Butylbenzene	6473	250	8173	0	79.2	65-140	0	
n-Propylbenzene	6915	250	8173	0	84.6	65-135	0	
o-Xylene	7703	250	8173	0	94.2	75-125	0	
p-Isopropyltoluene	7054	250	8173	0	86.3	75-135	0	
sec-Butylbenzene	6653	250	8173	0	81.4	65-130	0	
Styrene	7074	250	8173	0	86.6	75-125	0	
tert-Butylbenzene	7050	250	8173	0	86.2	65-130	0	
Tetrachloroethene	7581	250	8173	0	92.8	64-140	0	
Tetrahydrofuran	7001	820	8173	0	85.6	70-135	0	
Toluene	7172	250	8173	0	87.8	70-125	0	
trans-1,2-Dichloroethene	7998	250	8173	0	97.8	65-135	0	
trans-1,3-Dichloropropene	7957	250	8173	0	97.4	65-125	0	
trans-1,4-Dichloro-2-butene	5341	250	8173	0	65.4	70-135	0	S
Trichloroethene	7953	250	8173	0	97.3	75-125	0	
Trichlorofluoromethane	7450	250	8173	0	91.2	25-185	0	
Vinyl chloride	7090	250	8173	0	86.8	60-125	0	
Surr: 1,2-Dichloroethane-d4	*39470*	0	*40870*	0	*96.6*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*39060*	0	*40870*	0	*95.6*	*75-120*	0	
Surr: Dibromofluoromethane	*42410*	0	*40870*	0	*104*	*85-115*	0	
Surr: Toluene-d8	*40150*	0	*40870*	0	*98.2*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **1205760-04B MSD** Units: **µg/Kg** Analysis Date: **5/30/2012 12:04 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **VMS8_120529A** SeqNo: **1987311** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7904	250	8173	0	96.7	75-125	8104	2.5	30	
1,1,1-Trichloroethane	7994	250	8173	0	97.8	70-135	8210	2.67	30	
1,1,2,2-Tetrachloroethane	8304	250	8173	0	102	55-130	7671	7.93	30	
1,1,2-Trichloroethane	7900	250	8173	0	96.6	60-125	7691	2.67	30	
1,1-Dichloroethane	7801	250	8173	0	95.4	75-125	7887	1.09	30	
1,1-Dichloroethene	5386	250	8173	0	65.9	65-135	7327	30.5	30	R
1,2,3-Trichlorobenzene	6931	250	8173	0	84.8	60-135	5864	16.7	30	
1,2,3-Trichloropropane	7810	250	8173	0	95.6	65-130	7344	6.15	30	
1,2,3-Trimethylbenzene	7569	250	8173	0	92.6	65-135	7532	0.487	30	
1,2,4-Trichlorobenzene	7001	250	8173	0	85.6	65-130	6486	7.64	30	
1,2,4-Trimethylbenzene	7295	250	8173	0	89.2	65-135	7499	2.76	30	
1,2-Dibromo-3-chloropropane	7344	250	8173	0	89.8	40-135	6269	15.8	30	
1,2-Dibromoethane	8308	250	8173	0	102	70-125	7928	4.68	30	
1,2-Dichlorobenzene	7638	250	8173	0	93.4	75-120	7544	1.24	30	
1,2-Dichloroethane	8026	250	8173	0	98.2	70-135	7900	1.59	30	
1,2-Dichloropropane	8002	250	8173	0	97.9	70-120	7994	0.102	30	
1,3,5-Trimethylbenzene	7340	250	8173	0	89.8	65-135	7499	2.15	30	
1,3-Dichlorobenzene	7446	250	8173	0	91.1	70-125	7417	0.385	30	
1,4-Dichlorobenzene	7487	250	8173	0	91.6	70-125	7381	1.43	30	
2-Butanone	8243	820	8173	0	101	30-160	8243	0	30	
2-Hexanone	8562	250	8173	0	105	45-145	7450	13.9	30	
4-Methyl-2-pentanone	11260	250	8173	0	138	45-145	10110	10.8	30	
Acetone	9416	820	8173	1271	99.6	20-160	6400	38.1	30	R
Acrylonitrile	8582	250	8173	0	105	70-135	6878	22	30	
Benzene	7785	250	8173	0	95.2	75-125	7981	2.49	30	
Bromobenzene	7233	250	8173	0	88.5	65-120	7327	1.29	30	
Bromochloromethane	8083	250	8173	0	98.9	70-125	8067	0.202	30	
Bromodichloromethane	7683	250	8173	0	94	70-130	7785	1.32	30	
Bromoform	7238	250	8173	0	88.6	55-135	6723	7.38	30	
Bromomethane	7928	250	8173	0	97	30-160	8104	2.19	30	
Carbon disulfide	6457	250	8173	0	79	45-160	6686	3.48	30	
Carbon tetrachloride	7883	250	8173	0	96.4	65-135	8177	3.66	30	
Chlorobenzene	7560	250	8173	0	92.5	75-125	7671	1.45	30	
Chloroethane	8970	820	8173	0	110	40-155	9424	4.93	30	
Chloroform	7511	250	8173	0	91.9	70-125	7507	0.0544	30	
Chloromethane	7307	250	8173	0	89.4	50-130	7193	1.58	30	
cis-1,2-Dichloroethene	7900	250	8173	0	96.6	65-125	7973	0.927	30	
cis-1,3-Dichloropropene	8137	250	8173	0	99.6	70-125	8030	1.31	30	
Dibromochloromethane	7989	250	8173	0	97.8	65-135	7936	0.667	30	
Dibromomethane	7932	250	8173	0	97	75-130	7642	3.73	30	
Dichlorodifluoromethane	6902	250	8173	0	84.4	35-135	6510	5.85	30	
Ethylbenzene	7789	250	8173	0	95.3	75-125	7904	1.46	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41353** Instrument ID **VMS8** Method: **SW8260**

Hexachloroethane	6465	250	8173	0	79.1	70-135	6387	1.21	30
Isopropylbenzene	7454	250	8173	0	91.2	75-130	7487	0.438	30
m,p-Xylene	15250	490	16350	0	93.3	80-125	15430	1.17	30
Methyl tert-butyl ether	8962	250	8173	0	110	75-125	8468	5.67	30
Methylene chloride	6776	250	8173	0	82.9	55-145	7001	3.26	30
Naphthalene	8394	820	8173	0	103	40-140	6559	24.5	30
n-Butylbenzene	6657	250	8173	0	81.4	65-140	6473	2.8	30
n-Propylbenzene	6935	250	8173	0	84.8	65-135	6915	0.295	30
o-Xylene	7589	250	8173	0	92.8	75-125	7703	1.5	30
p-Isopropyltoluene	7127	250	8173	0	87.2	75-135	7054	1.04	30
sec-Butylbenzene	6535	250	8173	0	80	65-130	6653	1.8	30
Styrene	7119	250	8173	0	87.1	75-125	7074	0.633	30
tert-Butylbenzene	6882	250	8173	0	84.2	65-130	7050	2.41	30
Tetrachloroethene	7246	250	8173	0	88.6	64-140	7581	4.52	30
Tetrahydrofuran	8378	820	8173	0	102	70-135	7001	17.9	30
Toluene	7017	250	8173	0	85.8	70-125	7172	2.19	30
trans-1,2-Dichloroethene	7912	250	8173	0	96.8	65-135	7998	1.08	30
trans-1,3-Dichloropropene	8002	250	8173	0	97.9	65-125	7957	0.563	30
trans-1,4-Dichloro-2-butene	6016	250	8173	0	73.6	70-135	5341	11.9	30
Trichloroethene	7748	250	8173	0	94.8	75-125	7953	2.6	30
Trichlorofluoromethane	7160	250	8173	0	87.6	25-185	7450	3.97	30
Vinyl chloride	6980	250	8173	0	85.4	60-125	7090	1.57	30
Surr: 1,2-Dichloroethane-d4	*41110*	0	*40870*	0	*101*	*70-120*	39470	*4.08*	*30*
Surr: 4-Bromofluorobenzene	*38980*	0	*40870*	0	*95.4*	*75-120*	39060	*0.199*	*30*
Surr: Dibromofluoromethane	*42590*	0	*40870*	0	*104*	*85-115*	42410	*0.413*	*30*
Surr: Toluene-d8	*40580*	0	*40870*	0	*99.3*	*85-120*	40150	*1.07*	*30*

The following samples were analyzed in this batch:

1205760-03B	1205760-04B	1205760-05B
1205760-06B	1205760-07B	1205760-08B
1205760-09B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 10:44 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987314** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	28.5	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*5040*	0	*5000*	0	*101*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*4960*	0	*5000*	0	*99.2*	*75-120*	0	
Surr: Dibromofluoromethane	*5122*	0	*5000*	0	*102*	*85-115*	0	
Surr: Toluene-d8	*5042*	0	*5000*	0	*101*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCS	Sample ID: **LCS-41354-41354**				Units: **µg/Kg**		Analysis Date: **5/29/2012 09:29 AM**			
Client ID:		Run ID: **VMS7_120529A**			SeqNo: **1987312**		Prep Date: **5/29/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1012	30	1000	0	101	75-125	0			
1,1,1-Trichloroethane	1017	30	1000	0	102	70-135	0			
1,1,2,2-Tetrachloroethane	902.5	30	1000	0	90.2	55-130	0			
1,1,2-Trichloroethane	977.5	30	1000	0	97.8	60-125	0			
1,1-Dichloroethane	958	30	1000	0	95.8	75-125	0			
1,1-Dichloroethene	993	30	1000	0	99.3	65-135	0			
1,2,3-Trichlorobenzene	1032	30	1000	0	103	60-135	0			
1,2,3-Trichloropropane	934	30	1000	0	93.4	65-130	0			
1,2,3-Trimethylbenzene	1053	30	1000	0	105	65-135	0			
1,2,4-Trichlorobenzene	1058	30	1000	0	106	65-130	0			
1,2,4-Trimethylbenzene	1008	30	1000	0	101	65-135	0			
1,2-Dibromo-3-chloropropane	915	30	1000	0	91.5	40-135	0			
1,2-Dibromoethane	984	30	1000	0	98.4	70-125	0			
1,2-Dichlorobenzene	991	30	1000	0	99.1	75-120	0			
1,2-Dichloroethane	971	30	1000	0	97.1	70-135	0			
1,2-Dichloropropane	982.5	30	1000	0	98.2	70-120	0			
1,3,5-Trimethylbenzene	1024	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	994.5	30	1000	0	99.4	70-125	0			
1,4-Dichlorobenzene	1072	30	1000	0	107	70-125	0			
2-Butanone	1008	100	1000	0	101	30-160	0			
2-Hexanone	846	30	1000	0	84.6	45-145	0			
4-Methyl-2-pentanone	1278	30	1000	0	128	45-145	0			
Acetone	864.5	100	1000	0	86.4	20-160	0			
Acrylonitrile	853	30	1000	0	85.3	70-135	0			
Benzene	968	30	1000	0	96.8	75-125	0			
Bromobenzene	942.5	30	1000	0	94.2	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	999.5	30	1000	0	100	70-130	0			
Bromoform	933.5	30	1000	0	93.4	55-135	0			
Bromomethane	1328	30	1000	0	133	30-160	0			
Carbon disulfide	1034	30	1000	0	103	45-160	0			
Carbon tetrachloride	997.5	30	1000	0	99.8	65-135	0			
Chlorobenzene	982	30	1000	0	98.2	75-125	0			
Chloroethane	1043	100	1000	0	104	40-155	0			
Chloroform	993.5	30	1000	0	99.4	70-125	0			
Chloromethane	994	30	1000	0	99.4	50-130	0			
cis-1,2-Dichloroethene	986	30	1000	0	98.6	65-125	0			
cis-1,3-Dichloropropene	1058	30	1000	0	106	70-125	0			
Dibromochloromethane	1047	30	1000	0	105	65-135	0			
Dibromomethane	959.5	30	1000	0	96	75-130	0			
Dichlorodifluoromethane	759	30	1000	0	75.9	35-135	0			
Ethylbenzene	1000	30	1000	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1094	30	1000	0	109	70-135	0
Isopropylbenzene	969.5	30	1000	0	97	75-130	0
m,p-Xylene	2032	60	2000	0	102	80-125	0
Methyl tert-butyl ether	971.5	30	1000	0	97.2	75-125	0
Methylene chloride	988.5	30	1000	0	98.8	55-145	0
Naphthalene	935.5	100	1000	0	93.6	40-140	0
n-Butylbenzene	1156	30	1000	0	116	65-140	0
n-Propylbenzene	1034	30	1000	0	103	65-135	0
o-Xylene	981	30	1000	0	98.1	75-125	0
p-Isopropyltoluene	1044	30	1000	0	104	75-135	0
sec-Butylbenzene	1080	30	1000	0	108	65-130	0
Styrene	1027	30	1000	0	103	75-125	0
tert-Butylbenzene	1063	30	1000	0	106	65-130	0
Tetrachloroethene	994.5	30	1000	0	99.4	64-140	0
Tetrahydrofuran	878	100	1000	0	87.8	70-135	0
Toluene	954	30	1000	0	95.4	70-125	0
trans-1,2-Dichloroethene	977.5	30	1000	0	97.8	65-135	0
trans-1,3-Dichloropropene	1043	30	1000	0	104	65-125	0
trans-1,4-Dichloro-2-butene	906.5	30	1000	0	90.6	70-135	0
Trichloroethene	993.5	30	1000	0	99.4	75-125	0
Trichlorofluoromethane	1048	30	1000	0	105	25-185	0
Vinyl chloride	1058	30	1000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*4855*	0	*5000*	0	*97.1*	*70-120*	0
Surr: 4-Bromofluorobenzene	*4968*	0	*5000*	0	*99.4*	*75-120*	0
Surr: Dibromofluoromethane	*5009*	0	*5000*	0	*100*	*85-115*	0
Surr: Toluene-d8	*5072*	0	*5000*	0	*101*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

LCSD Sample ID: **LCSD-41354-41354** Units: **µg/Kg** Analysis Date: **5/29/2012 09:54 AM**
Client ID: Run ID: **VMS7_120529A** SeqNo: **1987313** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1042	30	1000	0	104	75-125	1012	3.02	30	
1,1,1-Trichloroethane	1054	30	1000	0	105	70-135	1017	3.57	30	
1,1,2,2-Tetrachloroethane	932	30	1000	0	93.2	55-130	902.5	3.22	30	
1,1,2-Trichloroethane	1010	30	1000	0	101	60-125	977.5	3.32	30	
1,1-Dichloroethane	985.5	30	1000	0	98.6	75-125	958	2.83	30	
1,1-Dichloroethene	1030	30	1000	0	103	65-135	993	3.66	30	
1,2,3-Trichlorobenzene	976.5	30	1000	0	97.6	60-135	1032	5.57	30	
1,2,3-Trichloropropane	971.5	30	1000	0	97.2	65-130	934	3.94	30	
1,2,3-Trimethylbenzene	1012	30	1000	0	101	65-135	1053	4.02	30	
1,2,4-Trichlorobenzene	997.5	30	1000	0	99.8	65-130	1058	5.89	30	
1,2,4-Trimethylbenzene	1016	30	1000	0	102	65-135	1008	0.79	30	
1,2-Dibromo-3-chloropropane	895.5	30	1000	0	89.6	40-135	915	2.15	30	
1,2-Dibromoethane	999.5	30	1000	0	100	70-125	984	1.56	30	
1,2-Dichlorobenzene	966.5	30	1000	0	96.6	75-120	991	2.5	30	
1,2-Dichloroethane	1004	30	1000	0	100	70-135	971	3.34	30	
1,2-Dichloropropane	1026	30	1000	0	103	70-120	982.5	4.38	30	
1,3,5-Trimethylbenzene	1052	30	1000	0	105	65-135	1024	2.7	30	
1,3-Dichlorobenzene	968.5	30	1000	0	96.8	70-125	994.5	2.65	30	
1,4-Dichlorobenzene	1042	30	1000	0	104	70-125	1072	2.84	30	
2-Butanone	1050	100	1000	0	105	30-160	1008	4.13	30	
2-Hexanone	908	30	1000	0	90.8	45-145	846	7.07	30	
4-Methyl-2-pentanone	1391	30	1000	0	139	45-145	1278	8.47	30	
Acetone	895	100	1000	0	89.5	20-160	864.5	3.47	30	
Acrylonitrile	883	30	1000	0	88.3	70-135	853	3.46	30	
Benzene	1013	30	1000	0	101	75-125	968	4.54	30	
Bromobenzene	953	30	1000	0	95.3	65-120	942.5	1.11	30	
Bromochloromethane	1048	30	1000	0	105	70-125	1020	2.8	30	
Bromodichloromethane	1008	30	1000	0	101	70-130	999.5	0.847	30	
Bromoform	958	30	1000	0	95.8	55-135	933.5	2.59	30	
Bromomethane	1458	30	1000	0	146	30-160	1328	9.37	30	
Carbon disulfide	1074	30	1000	0	107	45-160	1034	3.8	30	
Carbon tetrachloride	1024	30	1000	0	102	65-135	997.5	2.67	30	
Chlorobenzene	1009	30	1000	0	101	75-125	982	2.71	30	
Chloroethane	1044	100	1000	0	104	40-155	1043	0.144	30	
Chloroform	1012	30	1000	0	101	70-125	993.5	1.89	30	
Chloromethane	1026	30	1000	0	103	50-130	994	3.17	30	
cis-1,2-Dichloroethene	1004	30	1000	0	100	65-125	986	1.76	30	
cis-1,3-Dichloropropene	1098	30	1000	0	110	70-125	1058	3.71	30	
Dibromochloromethane	1069	30	1000	0	107	65-135	1047	2.08	30	
Dibromomethane	992	30	1000	0	99.2	75-130	959.5	3.33	30	
Dichlorodifluoromethane	806.5	30	1000	0	80.6	35-135	759	6.07	30	
Ethylbenzene	1030	30	1000	0	103	75-125	1000	2.86	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	1040	30	1000	0	104	70-135	1094	5.02	30
Isopropylbenzene	981.5	30	1000	0	98.2	75-130	969.5	1.23	30
m,p-Xylene	2094	60	2000	0	105	80-125	2032	3.05	30
Methyl tert-butyl ether	992.5	30	1000	0	99.2	75-125	971.5	2.14	30
Methylene chloride	1024	30	1000	0	102	55-145	988.5	3.53	30
Naphthalene	925	100	1000	0	92.5	40-140	935.5	1.13	30
n-Butylbenzene	1098	30	1000	0	110	65-140	1156	5.1	30
n-Propylbenzene	1037	30	1000	0	104	65-135	1034	0.29	30
o-Xylene	999.5	30	1000	0	100	75-125	981	1.87	30
p-Isopropyltoluene	995	30	1000	0	99.5	75-135	1044	4.76	30
sec-Butylbenzene	1078	30	1000	0	108	65-130	1080	0.278	30
Styrene	1042	30	1000	0	104	75-125	1027	1.45	30
tert-Butylbenzene	1059	30	1000	0	106	65-130	1063	0.377	30
Tetrachloroethene	1035	30	1000	0	104	64-140	994.5	3.99	30
Tetrahydrofuran	942	100	1000	0	94.2	70-135	878	7.03	30
Toluene	995	30	1000	0	99.5	70-125	954	4.21	30
trans-1,2-Dichloroethene	1014	30	1000	0	101	65-135	977.5	3.62	30
trans-1,3-Dichloropropene	1060	30	1000	0	106	65-125	1043	1.66	30
trans-1,4-Dichloro-2-butene	912	30	1000	0	91.2	70-135	906.5	0.605	30
Trichloroethene	1047	30	1000	0	105	75-125	993.5	5.24	30
Trichlorofluoromethane	1063	30	1000	0	106	25-185	1048	1.37	30
Vinyl chloride	1111	30	1000	0	111	60-125	1058	4.93	30
Surr: 1,2-Dichloroethane-d4	*4944*	0	*5000*	0	*98.9*	*70-120*	4855	*1.82*	*30*
Surr: 4-Bromofluorobenzene	*4996*	0	*5000*	0	*99.9*	*75-120*	4968	*0.562*	*30*
Surr: Dibromofluoromethane	*5031*	0	*5000*	0	*101*	*85-115*	5009	*0.438*	*30*
Surr: Toluene-d8	*5032*	0	*5000*	0	*101*	*85-120*	5072	*0.792*	*30*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1205760-11B MS** Units: **µg/Kg** Analysis Date: **5/29/2012 07:36 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **VMS7_120529A** SeqNo: **1987323** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	3075	90	3000	0	102	75-125	0			
1,1,1-Trichloroethane	3004	90	3000	0	100	70-135	0			
1,1,2,2-Tetrachloroethane	2822	90	3000	0	94	55-130	0			
1,1,2-Trichloroethane	3000	90	3000	0	100	60-125	0			
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	0			
1,1-Dichloroethene	2379	90	3000	0	79.3	65-135	0			
1,2,3-Trichlorobenzene	2916	90	3000	0	97.2	60-135	0			
1,2,3-Trichloropropane	2938	90	3000	0	98	65-130	0			
1,2,3-Trimethylbenzene	2998	90	3000	0	100	65-135	0			
1,2,4-Trichlorobenzene	2958	90	3000	0	98.6	65-130	0			
1,2,4-Trimethylbenzene	3110	90	3000	0	104	65-135	0			
1,2-Dibromo-3-chloropropane	2494	90	3000	0	83.2	40-135	0			
1,2-Dibromoethane	2974	90	3000	0	99.2	70-125	0			
1,2-Dichlorobenzene	2866	90	3000	0	95.6	75-120	0			
1,2-Dichloroethane	2916	90	3000	0	97.2	70-135	0			
1,2-Dichloropropane	3028	90	3000	0	101	70-120	0			
1,3,5-Trimethylbenzene	3156	90	3000	0	105	65-135	0			
1,3-Dichlorobenzene	2828	90	3000	0	94.2	70-125	0			
1,4-Dichlorobenzene	3092	90	3000	0	103	70-125	0			
2-Butanone	2733	300	3000	0	91.1	30-160	0			
2-Hexanone	2694	90	3000	0	89.8	45-145	0			
4-Methyl-2-pentanone	4072	90	3000	0	136	45-145	0			
Acetone	2482	300	3000	124.5	78.6	20-160	0			
Acrylonitrile	2622	90	3000	0	87.4	70-135	0			
Benzene	2950	90	3000	0	98.4	75-125	0			
Bromobenzene	2925	90	3000	0	97.5	65-120	0			
Bromochloromethane	2914	90	3000	0	97.2	70-125	0			
Bromodichloromethane	2961	90	3000	0	98.7	70-130	0			
Bromoform	2692	90	3000	0	89.8	55-135	0			
Bromomethane	3668	90	3000	0	122	30-160	0			
Carbon disulfide	2637	90	3000	0	87.9	45-160	0			
Carbon tetrachloride	2938	90	3000	0	98	65-135	0			
Chlorobenzene	2962	90	3000	0	98.8	75-125	0			
Chloroethane	2610	300	3000	0	87	40-155	0			
Chloroform	2979	90	3000	0	99.3	70-125	0			
Chloromethane	3392	90	3000	0	113	50-130	0			
cis-1,2-Dichloroethene	2970	90	3000	0	99	65-125	0			
cis-1,3-Dichloropropene	3165	90	3000	0	106	70-125	0			
Dibromochloromethane	3064	90	3000	0	102	65-135	0			
Dibromomethane	2906	90	3000	0	96.8	75-130	0			
Dichlorodifluoromethane	2295	90	3000	0	76.5	35-135	0			
Ethylbenzene	3080	90	3000	0	103	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2866	90	3000	0	95.6	70-135	0
Isopropylbenzene	2991	90	3000	0	99.7	75-130	0
m,p-Xylene	6194	180	6000	0	103	80-125	0
Methyl tert-butyl ether	2932	90	3000	0	97.8	75-125	0
Methylene chloride	2882	90	3000	0	96	55-145	0
Naphthalene	2834	300	3000	0	94.4	40-140	0
n-Butylbenzene	3252	90	3000	0	108	65-140	0
n-Propylbenzene	3162	90	3000	0	105	65-135	0
o-Xylene	2984	90	3000	0	99.4	75-125	0
p-Isopropyltoluene	2834	90	3000	0	94.4	75-135	0
sec-Butylbenzene	3297	90	3000	0	110	65-130	0
Styrene	3104	90	3000	0	103	75-125	0
tert-Butylbenzene	3166	90	3000	0	106	65-130	0
Tetrachloroethene	3058	90	3000	0	102	64-140	0
Tetrahydrofuran	2868	300	3000	0	95.6	70-135	0
Toluene	2886	90	3000	0	96.2	70-125	0
trans-1,2-Dichloroethene	2894	90	3000	0	96.4	65-135	0
trans-1,3-Dichloropropene	3099	90	3000	0	103	65-125	0
trans-1,4-Dichloro-2-butene	2666	90	3000	0	88.8	70-135	0
Trichloroethene	3016	90	3000	0	101	75-125	0
Trichlorofluoromethane	1713	90	3000	0	57.1	25-185	0
Vinyl chloride	3180	90	3000	0	106	60-125	0
Surr: 1,2-Dichloroethane-d4	*14610*	0	*15000*	0	*97.4*	*70-120*	0
Surr: 4-Bromofluorobenzene	*15140*	0	*15000*	0	*101*	*75-120*	0
Surr: Dibromofluoromethane	*14840*	0	*15000*	0	*98.9*	*85-115*	0
Surr: Toluene-d8	*14950*	0	*15000*	0	*99.7*	*85-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1205760-11B MSD** Units: **µg/Kg** Analysis Date: **5/29/2012 08:01 PM**
Client ID: **SBKR1150L508S052312S005** Run ID: **VMS7_120529A** SeqNo: **1987324** Prep Date: **5/29/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2988	90	3000	0	99.6	75-125	3075	2.87	30	
1,1,1-Trichloroethane	2949	90	3000	0	98.3	70-135	3004	1.86	30	
1,1,2,2-Tetrachloroethane	2805	90	3000	0	93.5	55-130	2822	0.587	30	
1,1,2-Trichloroethane	2924	90	3000	0	97.4	60-125	3000	2.58	30	
1,1-Dichloroethane	2846	90	3000	0	94.8	75-125	2846	0	30	
1,1-Dichloroethene	2241	90	3000	0	74.7	65-135	2379	5.97	30	
1,2,3-Trichlorobenzene	2806	90	3000	0	93.6	60-135	2916	3.83	30	
1,2,3-Trichloropropane	2950	90	3000	0	98.4	65-130	2938	0.408	30	
1,2,3-Trimethylbenzene	2910	90	3000	0	97	65-135	2998	3	30	
1,2,4-Trichlorobenzene	2850	90	3000	0	95	65-130	2958	3.72	30	
1,2,4-Trimethylbenzene	3072	90	3000	0	102	65-135	3110	1.21	30	
1,2-Dibromo-3-chloropropane	2488	90	3000	0	83	40-135	2494	0.241	30	
1,2-Dibromoethane	2938	90	3000	0	98	70-125	2974	1.22	30	
1,2-Dichlorobenzene	2800	90	3000	0	93.4	75-120	2866	2.33	30	
1,2-Dichloroethane	2937	90	3000	0	97.9	70-135	2916	0.718	30	
1,2-Dichloropropane	2988	90	3000	0	99.6	70-120	3028	1.35	30	
1,3,5-Trimethylbenzene	3126	90	3000	0	104	65-135	3156	0.955	30	
1,3-Dichlorobenzene	2746	90	3000	0	91.6	70-125	2828	2.91	30	
1,4-Dichlorobenzene	3018	90	3000	0	101	70-125	3092	2.41	30	
2-Butanone	2720	300	3000	0	90.6	30-160	2733	0.495	30	
2-Hexanone	2642	90	3000	0	88	45-145	2694	1.97	30	
4-Methyl-2-pentanone	4082	90	3000	0	136	45-145	4072	0.221	30	
Acetone	2366	300	3000	124.5	74.7	20-160	2482	4.83	30	
Acrylonitrile	2583	90	3000	0	86.1	70-135	2622	1.5	30	
Benzene	2883	90	3000	0	96.1	75-125	2950	2.31	30	
Bromobenzene	2925	90	3000	0	97.5	65-120	2925	0	30	
Bromochloromethane	2860	90	3000	0	95.4	70-125	2914	1.87	30	
Bromodichloromethane	2924	90	3000	0	97.4	70-130	2961	1.27	30	
Bromoform	2706	90	3000	0	90.2	55-135	2692	0.5	30	
Bromomethane	3488	90	3000	0	116	30-160	3668	5.03	30	
Carbon disulfide	2526	90	3000	0	84.2	45-160	2637	4.3	30	
Carbon tetrachloride	2871	90	3000	0	95.7	65-135	2938	2.32	30	
Chlorobenzene	2943	90	3000	0	98.1	75-125	2962	0.66	30	
Chloroethane	2436	300	3000	0	81.2	40-155	2610	6.9	30	
Chloroform	2908	90	3000	0	97	70-125	2979	2.39	30	
Chloromethane	3220	90	3000	0	107	50-130	3392	5.17	30	
cis-1,2-Dichloroethene	2892	90	3000	0	96.4	65-125	2970	2.66	30	
cis-1,3-Dichloropropene	3087	90	3000	0	103	70-125	3165	2.5	30	
Dibromochloromethane	3050	90	3000	0	102	65-135	3064	0.491	30	
Dibromomethane	2908	90	3000	0	97	75-130	2906	0.103	30	
Dichlorodifluoromethane	2270	90	3000	0	75.6	35-135	2295	1.12	30	
Ethylbenzene	3010	90	3000	0	100	75-125	3080	2.27	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41354** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2817	90	3000	0	93.9	70-135	2866	1.74	30
Isopropylbenzene	2930	90	3000	0	97.6	75-130	2991	2.08	30
m,p-Xylene	6130	180	6000	0	102	80-125	6194	1.02	30
Methyl tert-butyl ether	2919	90	3000	0	97.3	75-125	2932	0.461	30
Methylene chloride	2812	90	3000	0	93.8	55-145	2882	2.42	30
Naphthalene	2712	300	3000	0	90.4	40-140	2834	4.38	30
n-Butylbenzene	3069	90	3000	0	102	65-140	3252	5.79	30
n-Propylbenzene	3120	90	3000	0	104	65-135	3162	1.34	30
o-Xylene	2937	90	3000	0	97.9	75-125	2984	1.57	30
p-Isopropyltoluene	2796	90	3000	0	93.2	75-135	2834	1.33	30
sec-Butylbenzene	3248	90	3000	0	108	65-130	3297	1.51	30
Styrene	3098	90	3000	0	103	75-125	3104	0.194	30
tert-Butylbenzene	3128	90	3000	0	104	65-130	3166	1.24	30
Tetrachloroethene	2934	90	3000	0	97.8	64-140	3058	4.16	30
Tetrahydrofuran	2829	300	3000	0	94.3	70-135	2868	1.37	30
Toluene	2896	90	3000	0	96.6	70-125	2886	0.363	30
trans-1,2-Dichloroethene	2868	90	3000	0	95.6	65-135	2894	0.885	30
trans-1,3-Dichloropropene	3045	90	3000	0	102	65-125	3099	1.76	30
trans-1,4-Dichloro-2-butene	2750	90	3000	0	91.6	70-135	2666	3.1	30
Trichloroethene	2949	90	3000	0	98.3	75-125	3016	2.26	30
Trichlorofluoromethane	1646	90	3000	0	54.8	25-185	1713	4.02	30
Vinyl chloride	3136	90	3000	0	105	60-125	3180	1.38	30
Surr: 1,2-Dichloroethane-d4	*14540*	0	*15000*	0	*96.9*	*70-120*	14610	*0.515*	*30*
Surr: 4-Bromofluorobenzene	*15570*	0	*15000*	0	*104*	*75-120*	15140	*2.78*	*30*
Surr: Dibromofluoromethane	*14790*	0	*15000*	0	*98.6*	*85-115*	14840	*0.314*	*30*
Surr: Toluene-d8	*15070*	0	*15000*	0	*100*	*85-120*	14950	*0.75*	*30*

The following samples were analyzed in this batch: 1205760-01B 1205760-02B 1205760-10A 1205760-11B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **R105302** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105302** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205760-04ADUP1** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **MOIST_120525B** SeqNo: **1986327** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.64	0.050	0	0	0	-0 0	77.23	0.529	20	

DUP Sample ID: **1205760-04ADUP2** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: **SBKR1025L511S052312S010** Run ID: **MOIST_120525B** SeqNo: **1986328** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	77.78	0.050	0	0	0	-0 0	77.23	0.71	20	

DUP Sample ID: **1205765-06ADUP** Units: **% of sample** Analysis Date: **5/25/2012 01:55 PM**
Client ID: Run ID: **MOIST_120525B** SeqNo: **1986347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.6	0.050	0	0	0	-0 0	6.89	9.8	20	

The following samples were analyzed in this batch:

1205760-01A	1205760-02A	1205760-03A
1205760-04A	1205760-05A	1205760-06A
1205760-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205760
Project: Marshall KRRI 1025-1050L, 1150L 5/23/12

QC BATCH REPORT

Batch ID: **R105307** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105307** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986396** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105307** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986393** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1205790-01ADUP** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986370** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	20.94	0.050	0	0	0	-0 0	21.19	1.19	20	

DUP Sample ID: **1205794-04ADUP** Units: **% of sample** Analysis Date: **5/25/2012 02:56 PM**
Client ID: Run ID: **MOIST_120525C** SeqNo: **1986391** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	3.47	0.050	0	0	0	-0 0	3.58	3.12	20	

The following samples were analyzed in this batch: 1205760-08A 1205760-09A 1205760-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205760

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052312_LJL2	Task: KRRI_1025 - 1150
	Total # of Samples: 11	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260
	Preservative							None	None	None	None	MeOH
	Analysis											
1	SBKR1025L509S052312S005	SBKR1025L509	SO	G	05/23/2012 10:25	3		X	X	X	X	X
2	SBKR1025L510S052312S005	SBKR1025L510	SO	G	05/23/2012 10:43	3		X	X	X	X	X
3	SBKR1025L510D052312S005	SBKR1025L510	SO	G	05/23/2012 10:43	3	DUPLICATE	X	X	X	X	X
4	SBKR1025L511S052312S010	SBKR1025L511	SO	G	05/23/2012 11:21	6	MS/MSD, MDEQ SPLIT	X	X	X	X	X
5	SBKR1025L512S052312S007	SBKR1025L512	SO	G	05/23/2012 11:38	3		X	X	X	X	X
6	SBKR1025L513S052312S005	SBKR1025L513	SO	G	05/23/2012 13:53	3		X	X	X	X	X
7	SBKR1025L514S052312S005	SBKR1025L514	SO	G	05/23/2012 14:12	3		X	X	X	X	X
8	SBKR1050L520S052312S005	SBKR1050L520	SO	G	05/23/2012 09:11	3		X	X	X	X	X
9	SBKR1150L507S052312S006	SBKR1150L507	SO	G	05/23/2012 16:48	3		X	X	X	X	X
10	SBKR1150L507T052312MX	SBKR1150L507	SQ	G	05/23/2012 00:00	1	TRIP BLANK					X
11	SBKR1150L508S052312S005	SBKR1150L508	SO	G	05/23/2012 16:40	3		X	X	X	X	X

Additional Comments/Special Instructions:

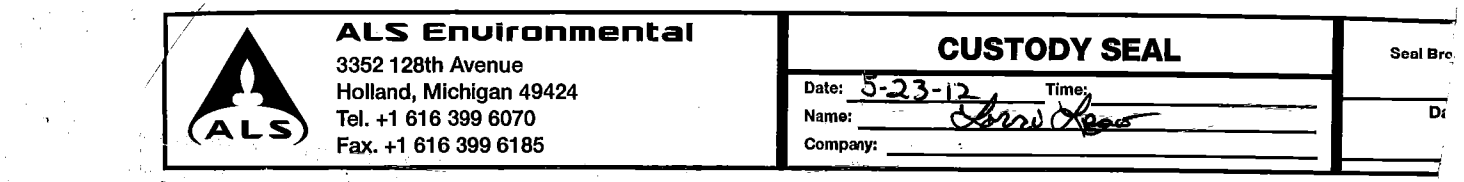
RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-23-12	1745		5-23-12	1745
	5-24-12	1512		5-24-12	1512

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
5.0°c	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER: DATE Signed: Time:



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-23-12 Time:
Name:
Company:

Seal Bro
Da

5.0°C

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **24-May-12 15:12**

Work Order: **1205760** Received by: **MA**

Checklist completed by Keith Wierenga eSignature 24-May-12 Date Reviewed by: Ann Preston eSignature 25-May-12 Date

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

06-Jun-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI SPLP Mo May 2012** Work Order: **1205784**

Dear Mike,

ALS Environmental received 26 samples on 25-May-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 56.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: **1205784**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205784-01	SBKR2925L504S050912S007	Splp Extract		5/9/2012 13:50	5/25/2012	☐
1205784-02	SBKR2950L505S050912S005	Splp Extract		5/9/2012 08:38	5/25/2012	☐
1205784-03	SBKR3225L507D051012S007	Splp Extract		5/10/2012 16:22	5/25/2012	☐
1205784-04	SBKR3225L507S051012S007	Splp Extract		5/10/2012 16:22	5/25/2012	☐
1205784-05	SBKR3225L504D051012S008	Splp Extract		5/10/2012 14:20	5/25/2012	☐
1205784-06	SBKR3225L504S051012S008	Splp Extract		5/10/2012 14:20	5/25/2012	☐
1205784-07	SBKR3225L506S051012S006	Splp Extract		5/10/2012 16:08	5/25/2012	☐
1205784-08	SBKR3200L501S051112S010	Splp Extract		5/11/2012 10:23	5/25/2012	☐
1205784-09	SBKR3200L505S051112S005	Splp Extract		5/11/2012 16:00	5/25/2012	☐
1205784-10	SBKR3200L505D051112S005	Splp Extract		5/11/2012 16:00	5/25/2012	☐
1205784-11	SEKR1125L504S051512D006	Splp Extract		5/15/2012 15:15	5/25/2012	☐
1205784-12	SBKR1100L515S051512S008	Splp Extract		5/15/2012 11:45	5/25/2012	☐
1205784-13	SBKR1125L502S051512S005	Splp Extract		5/15/2012 10:40	5/25/2012	☐
1205784-14	SBKR1125L502D051512S005	Splp Extract		5/15/2012 10:40	5/25/2012	☐
1205784-15	SBKR1125L503S051512S009	Splp Extract		5/15/2012 11:25	5/25/2012	☐
1205784-16	SBKR1100L516S051612S008	Splp Extract		5/16/2012 08:35	5/25/2012	☐
1205784-17	SBKR1125L505S051612S005	Splp Extract		5/16/2012 09:10	5/25/2012	☐
1205784-18	SBKR1125L513S051612S006	Splp Extract		5/16/2012 13:50	5/25/2012	☐
1205784-19	SBKR1125L528S051812S007	Splp Extract		5/18/2012 10:20	5/25/2012	☐
1205784-20	SBKR1125L529S051812S007	Splp Extract		5/18/2012 10:47	5/25/2012	☐
1205784-21	SBKR1125L530S051812S006	Splp Extract		5/18/2012 11:20	5/25/2012	☐
1205784-22	SBKR1125L533D051812S006	Splp Extract		5/18/2012 14:20	5/25/2012	☐
1205784-23	SBKR1125L524D051712S006	Splp Extract		5/17/2012 14:45	5/25/2012	☐
1205784-24	SBKR1125L524S051712S006	Splp Extract		5/17/2012 14:45	5/25/2012	☐
1205784-25	SBKR1125L526S051712S006	Splp Extract		5/17/2012 16:40	5/25/2012	☐
1205784-26	SBKR1100L517S052112S005	Splp Extract		5/21/2012 10:27	5/25/2012	☐

ALS Group USA, Corp

Date: 06-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
WorkOrder: **1205784**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR2925L504S050912S007
Lab ID: 1205784-01
Collection Date: 5/9/2012 01:50 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	**0.011**		**0.0050**	**mg/L**	1	5/31/2012 06:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR2950L505S050912S005
Lab ID: 1205784-02
Collection Date: 5/9/2012 08:38 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	**0.0062**		**0.0050**	**mg/L**	1	5/31/2012 06:43 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3225L507D051012S007
Lab ID: 1205784-03
Collection Date: 5/10/2012 04:22 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 06:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3225L507S051012S007
Lab ID: 1205784-04
Collection Date: 5/10/2012 04:22 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 06:53 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client:	AECOM Environment		
Project:	Marshall KRRI SPLP Mo May 2012	**Work Order:**	1205784
Sample ID:	SBKR3225L504D051012S008	**Lab ID:**	1205784-05
Collection Date:	5/10/2012 02:20 PM	**Matrix:**	SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	**0.18**		**0.0050**	**mg/L**	1	5/31/2012 06:58 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3225L504S051012S008
Lab ID: 1205784-06
Collection Date: 5/10/2012 02:20 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	**0.062**		**0.0050**	**mg/L**	1	5/31/2012 07:03 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3225L506S051012S006
Lab ID: 1205784-07
Collection Date: 5/10/2012 04:08 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 07:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3200L501S051112S010
Lab ID: 1205784-08
Collection Date: 5/11/2012 10:23 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 07:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3200L505S051112S005
Lab ID: 1205784-09
Collection Date: 5/11/2012 04:00 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 07:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR3200L505D051112S005
Lab ID: 1205784-10
Collection Date: 5/11/2012 04:00 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 07:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SEKR1125L504S051512D006
Lab ID: 1205784-11
Collection Date: 5/15/2012 03:15 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 07:37 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1100L515S051512S008
Lab ID: 1205784-12
Collection Date: 5/15/2012 11:45 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 08:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L502S051512S005
Lab ID: 1205784-13
Collection Date: 5/15/2012 10:40 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 08:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L502D051512S005
Lab ID: 1205784-14
Collection Date: 5/15/2012 10:40 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 08:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L503S051512S009
Lab ID: 1205784-15
Collection Date: 5/15/2012 11:25 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	5/31/2012 08:27 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1100L516S051612S008
Lab ID: 1205784-16
Collection Date: 5/16/2012 08:35 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 09:58 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L505S051612S005
Lab ID: 1205784-17
Collection Date: 5/16/2012 09:10 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:03 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L513S051612S006
Lab ID: 1205784-18
Collection Date: 5/16/2012 01:50 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L528S051812S007
Lab ID: 1205784-19
Collection Date: 5/18/2012 10:20 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L529S051812S007
Lab ID: 1205784-20
Collection Date: 5/18/2012 10:47 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L530S051812S006
Lab ID: 1205784-21
Collection Date: 5/18/2012 11:20 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L533D051812S006
Lab ID: 1205784-22
Collection Date: 5/18/2012 02:20 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012 **Work Order:** 1205784
Sample ID: SBKR1125L524D051712S006 **Lab ID:** 1205784-23
Collection Date: 5/17/2012 02:45 PM **Matrix:** SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:43 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L524S051712S006
Lab ID: 1205784-24
Collection Date: 5/17/2012 02:45 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1125L526S051712S006
Lab ID: 1205784-25
Collection Date: 5/17/2012 04:40 PM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:53 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *06-Jun-12*

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: 1205784
Sample ID: SBKR1100L517S052112S005
Lab ID: 1205784-26
Collection Date: 5/21/2012 10:27 AM
Matrix: SPLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**	Analyst: **RH**
Molybdenum	ND		0.0050	mg/L	1	6/4/2012 10:58 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41371** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41371-41371** Units: **mg/L** Analysis Date: **5/31/2012 06:04 PM**

Client ID: Run ID: **ICPMS2_120531A** SeqNo: **1989122** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								

LCS Sample ID: **LCS-41371-41371** Units: **mg/L** Analysis Date: **5/31/2012 06:09 PM**

Client ID: Run ID: **ICPMS2_120531A** SeqNo: **1989123** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08916	0.0050	0.1	0	89.2	80-120	0			

MS Sample ID: **1205784-11AMS** Units: **mg/L** Analysis Date: **5/31/2012 07:47 PM**

Client ID: **SEKR1125L504S051512D006** Run ID: **ICPMS2_120531A** SeqNo: **1989145** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09154	0.0050	0.1	0.000625	90.9	80-120	0			

MSD Sample ID: **1205784-11AMSD** Units: **mg/L** Analysis Date: **5/31/2012 07:52 PM**

Client ID: **SEKR1125L504S051512D006** Run ID: **ICPMS2_120531A** SeqNo: **1989146** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09034	0.0050	0.1	0.000625	89.7	80-120	0.09154	1.32	20	

The following samples were analyzed in this batch:

1205784-01A	1205784-02A	1205784-03A
1205784-04A	1205784-05A	1205784-06A
1205784-07A	1205784-08A	1205784-09A
1205784-10A	1205784-11A	1205784-12A
1205784-13A	1205784-14A	1205784-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205784
Project: Marshall KRRI SPLP Mo May 2012

QC BATCH REPORT

Batch ID: **41419** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41419-41419** Units: **mg/L** Analysis Date: **6/4/2012 12:41 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990255** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								

LCS Sample ID: **LCS-41419-41419** Units: **mg/L** Analysis Date: **6/4/2012 12:46 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990256** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08658	0.0050	0.1	0	86.6	80-120	0			

MS Sample ID: **1205914-03CMS** Units: **mg/L** Analysis Date: **6/4/2012 01:06 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990262** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08934	0.0050	0.1	0.002651	86.7	80-120	0			

MSD Sample ID: **1205914-03CMSD** Units: **mg/L** Analysis Date: **6/4/2012 01:11 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990263** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09035	0.0050	0.1	0.002651	87.7	80-120	0.08934	1.12	20	

The following samples were analyzed in this batch:

1205784-16A	1205784-17A	1205784-18A
1205784-19A	1205784-20A	1205784-21A
1205784-22A	1205784-23A	1205784-24A
1205784-25A	1205784-26A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205392
1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC #	ENBRIDGE_050912_JWP1	Task: KRRI_2950L,2925L,3100L,3125L
	Total # of Samples: 8	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information		Project Information		Other Information			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	# OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None															
	Analysis								% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270		SPLIT MO	5/25/12	MO											
1	SBKR2925L502S050912S006	SBKR2925L502	SO	G	05/09/2012 13:28	1			X	X	X	X															
2	SBKR2925L502D050912S006	SBKR2925L502	SO	G	05/09/2012 13:28	1	DUPLICATE		X	X	X	X															
3	SBKR2925L504S050912S007	SBKR2925L504	SO	G	05/09/2012 13:50	1			X	X	X	X		X													
4	SBKR2950L505S050912S005	SBKR2950L505	SO	G	05/09/2012 08:38	1			X	X	X	X		X													
5	SBKR3100L501S050912S007	SBKR3100L501	SO	G	05/09/2012 14:13	1			X	X	X	X															
6	SBKR3100L503S050912S005	SBKR3100L503	SO	G	05/09/2012 14:44	1			X	X	X	X															
7	SBKR3100L505S050912S007	SBKR3100L505	SO	G	05/09/2012 16:23	1			X	X	X	X															
8	SBKR3125L502S050912S006	SBKR3125L502	SO	G	05/09/2012 16:48	1	MDEQ SPLIT		X	X	X	X															

01
02

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5.10.12	822		5-11-12	1709

SHIPPING INFO.	SAMPLER NAME AND SIGNATURE
Company:	PRINT Name of SAMPLER: JEFF PLUTT (JWP1)
Tracking #:	SIGNATURE of SAMPLER: DATE Signed: Time:

Sample Receipt Conditions	Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
	1.2°c	(Y)N	(Y)N	(Y)N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

1205394
1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_051012_PMB1	Task: KRRI_3125L,3150L,3225L
	Total # of Samples: 8	Event Complete?

Turn Around Time	5 Day	Rush	No	
BILLING CODE: 6.00				

Lab Information:		Project Information:		Other Information:			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270											
1	SBKR3125L503S051012S006	SBKR3125L503	SO	G	05/10/2012 09:15	1			X	X	X	X											
2	SBKR3125L505S051012S009	SBKR3125L505	SO	G	05/10/2012 14:10	1			X	X	X	X											
3	SBKR3150L502S051012S006	SBKR3150L502	SO	G	05/10/2012 13:40	1			X	X	X	X											
4	SBKR3150L504S051012S005	SBKR3150L504	SO	G	05/10/2012 16:53	1			X	X	X	X											
5	SBKR3225L502S051012S005	SBKR3225L502	SO	G	05/10/2012 09:45	1			X	X	X	X											
6	SBKR3225L505S051012S003	SBKR3225L505	SO	G	05/10/2012 14:35	1			X	X	X	X											
7	SBKR3225L507D051012S007	SBKR3225L507	SO	G	05/10/2012 16:22	1	DUPLICATE		X	X	X	X	X										
8	SBKR3225L507S051012S007	SBKR3225L507	SO	G	05/10/2012 16:22	1			X	X	X	X	X										

03
04

SPLP Mo
5/25/12

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5/10	1730		5-10-12	1730
	5/11/12	1709		5-11-12	1709

Sample Receipt Conditions				
Temp in OC	20°C			
Samples on Ice?	Y/N	Y/N	Y/N	Y/N
Sample Intact?	Y/N	Y/N	Y/N	Y/N
Trip Blank?	Y/N	Y/N	Y/N	Y/N

SHIPPING INFO:	SAMPLER NAME AND SIGNATURE		
Company:	PRINT Name of SAMPLER: PETER BAERMAN (PMB1)		
Tracking #:	SIGNATURE of SAMPLER	DATE Signed	Time:

1205395

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051012_LJL1	Task: KRRI_3125L,3150L3225L
	Total # of Samples: 8	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6,000		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60152778
Site Address	5555 Glenwood Parkway SE Suite 200
City / State, Zip	Grand Rapids / MI
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State, Phone #:	Houson, TX 713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Analysis / Preservative	% Moisture / None	Be,Mo,V,Ni by 6020 / None	ORO,DRO / None	PNAs by 8270 / None																		
1	SBKR3125L504S051012S005	SBKR3125L504	SO	G	05/10/2012 13:52	1			X	X	X	X																		
2	SBKR3150L501S051012S007	SBKR3150L501	SO	G	05/10/2012 13:24	1			X	X	X	X																		
3	SBKR3225L501S051012S006	SBKR3225L501	SO	G	05/10/2012 09:28	1			X	X	X	X																		
4	SBKR3225L503S051012S006	SBKR3225L503	SO	G	05/10/2012 09:53	1			X	X	X	X																		
5	SBKR3225L504D051012S008	SBKR3225L504	SO	G	05/10/2012 14:20	1	DUPLICATE		X	X	X	X		X																
6	SBKR3225L504S051012S008	SBKR3225L504	SO	G	05/10/2012 14:20	1			X	X	X	X		X																
7	SBKR3225L506S051012S006	SBKR3225L506	SO	G	05/10/2012 16:08	2	MS/MSD		X	X	X	X		X																
8	SBKR3150L503S051012S006	SBKR3150L503	SO	G	05/10/2012 16:34	1			X	X	X	X																		

SPLP Mo 5/25/12 MD

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lorri Lego	5-10-12	1736	[illegible]	5-10-12	1736
Ann Kloot	5-11-12	1709	[signature]	5-11-12	1709

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
1.2°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

5/14/12

1205398 1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051112_RLF1	Task: KRRI	
	Total # of Samples: 9		Event Complete?
Turn Around Time	5 Day	Rush	No
BILLING CODE: 6.00			

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #
Send EDD to
CC Hardcopy report
CC Hardcopy report

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270													
								Preservative	None	None	None	None													
														SDLP Mo	5/25/12	TBD									
1	SBKR3175L501S051112S004	SBKR3175L501	SO	G	05/11/2012 09:05	1			X	X	X	X													
2	SBKR3175L502S051112S004	SBKR3175L502	SO	G	05/11/2012 09:35	1			X	X	X	X													
3	SBKR3175L503S051112S005	SBKR3175L503	SO	G	05/11/2012 10:00	1	MDEQ SPLIT		X	X	X	X													
4	SBKR3200L501S051112S010	SBKR3200L501	SO	G	05/11/2012 10:23	1			X	X	X	X		X											
5	SBKR3200L502S051112S008	SBKR3200L502	SO	G	05/11/2012 13:32	1			X	X	X	X													
6	SBKR3200L503S051112S005	SBKR3200L503	SO	G	05/11/2012 14:00	1			X	X	X	X													
7	SBKR3200L504S051112S003	SBKR3200L504	SO	G	05/11/2012 15:40	1			X	X	X	X													
8	SBKR3200L505S051112S005	SBKR3200L505	SO	G	05/11/2012 16:00	1			X	X	X	X		X											
9	SBKR3200L505D051112S005	SBKR3200L505	SO	G	05/11/2012 16:00	1	DUPLICATE		X	X	X	X		X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-11-12	1646		5-11-12	1646
	5-11-12	1709		5-11-12	1709

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
2.2°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER: DATE Signed: Time:

1205503

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051512_JWP2	Task: KRRI_SED
	Total # of Samples: 7	Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None														
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270														
1	SEKR1100L503S051512D006	SEKR1100L503	SE	G	05/15/2012 13:35	1			X	X	X	X														
2	SEKR1100L504S051512D003	SEKR1100L504	SE	G	05/15/2012 13:50	1			X	X	X	X														
3	SEKR1100L504S051512D010	SEKR1100L504	SE	G	05/15/2012 13:55	1			X	X	X	X														
4	SEKR1125L501S051512D010	SEKR1125L501	SE	G	05/15/2012 10:25	1	MDEQ SPLIT		X	X	X	X														
5	SEKR1125L502S051512D006	SEKR1125L502	SE	G	05/15/2012 13:25	1			X	X	X	X														
6	SEKR1125L503S051512D006	SEKR1125L503	SE	G	05/15/2012 15:00	1			X	X	X	X														
7	SEKR1125L504S051512D006	SEKR1125L504	SE	G	05/15/2012 15:15	1			X	X	X	X		X												

SPLIT MK 5/23/12 KMD

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1715		5-15-12	1715
	5-16-12	1130		5-16-12	1130

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.8°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: JEFF PLUTT (JWP2)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

11

5,7,

1205507 1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051512_PMB1 | Task: KRRI_1100,1125
Total # of Samples: 7 | Event Complete?
Turn Around Time: 5 Day | Rush: No
BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260														
Preservative								None	None	None	None	MeOH														
Analysis														SPLP Mo	5/15/12	MO									
1	SBKR1100L513S051512S005	SBKR1100L513	SO	G	05/15/2012 08:50	3		X	X	X	X	X														
2	SBKR1100L515S051512S008	SBKR1100L515	SO	G	05/15/2012 11:45	6	MS/MSD	X	X	X	X	X		X												
3	SBKR1125L501S051512S004	SBKR1125L501	SO	G	05/15/2012 10:15	3		X	X	X	X	X														
4	SBKR1125L502S051512S005	SBKR1125L502	SO	G	05/15/2012 10:40	3		X	X	X	X	X		X												
5	SBKR1125L502D051512S005	SBKR1125L502	SO	G	05/15/2012 10:40	3	DUPLICATE	X	X	X	X	X		X												
6	SBKR1125L507S051512S006	SBKR1125L507	SO	G	05/15/2012 15:55	3		X	X	X	X	X														
7	SBKR1125L507T051512MX	SBKR1125L507	SQ	G	05/15/2012 00:00	1	TRIP BLANK					X														

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1713		5-15-12	1713
	5-16-12	1130		5-16-12	1130

Sample Receipt Conditions				
	Y/N		Y/N	Y/N
5.8°c	(Y)N		(Y)N	(Y)N
	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
Temp in OC	Samples on Ice?		Sample Intact?	Trip Blank?

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: PETE BAERMAN (PMB1) | SIGNATURE of SAMPLER: | DATE Signed | Time:

1205508

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051512_JWP1	Task: KRRI_1100L,1125L
	Total # of Samples: 7	Event Complete?

Turn Around Time	6 Day	Rush	No	

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #:	60162778
Site Address:	5555 Glenwood Parkway SE Suite 200
City: Grand Rapids	State, Zip: MI
Site PM Name:	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo	5/25/12	DNO									
1	SBKR1100L511S051512S006	SBKR1100L511	SO	G	05/15/2012 08:31	3			X	X	X	X	X												
2	SBKR1100L514S051512S006	SBKR1100L514	SO	G	05/15/2012 10:02	3			X	X	X	X	X												
3	SBKR1125L503S051512S009	SBKR1125L503	SO	G	05/15/2012 11:25	3			X	X	X	X	X		X										
4	SBKR1125L506D051512S009	SBKR1125L506	SO	G	05/15/2012 15:35	3	DUPLICATE		X	X	X	X	X												
5	SBKR1125L506S051512S009	SBKR1125L506	SO	G	05/15/2012 15:35	3			X	X	X	X	X												
6	SBKR1125L508S051512S007	SBKR1125L508	SO	G	05/15/2012 16:20	3			X	X	X	X	X												
7	SBKR1125L508T051512MX	SBKR1125L508	SQ	G	05/15/2012 00:00	1	TRIP BLANK						X												

5

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1700		5-15-12	1700
	5-16-12	1130		5-16-12	1130

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
5.8°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: JEFF PLUTT (JWP1); SIGNATURE of SAMPLER: ; DATE Signed: ; Time:

1205784
1205549

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_051612_PMB1	Task: KRRI_1100L,1125L
	Total # of Samples: 12	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162770
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH														
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260														
16	1 SBKR1100L516S051612S008	SBKR1100L516	SO	G	05/16/2012 08:35	3			X	X	X	X	X		X												
	2 SBKR1125L504S051612S007	SBKR1125L504	SO	G	05/16/2012 08:53	3			X	X	X	X	X		X												
17	3 SBKR1125L505S051612S005	SBKR1125L505	SO	G	05/16/2012 09:10	3			X	X	X	X	X		X												
	4 SBKR1125L509S051612S008	SBKR1125L509	SO	G	05/16/2012 09:27	3			X	X	X	X	X														
	5 SBKR1125L510S051612S010	SBKR1125L510	SO	G	05/16/2012 09:55	3			X	X	X	X	X														
	6 SBKR1125L511S051612S008	SBKR1125L511	SO	G	05/16/2012 10:15	3			X	X	X	X	X														
	7 SBKR1125L512S051612S008	SBKR1125L512	SO	G	05/16/2012 11:05	3	MDEQ SPLIT		X	X	X	X	X														
18	8 SBKR1125L513S051612S006	SBKR1125L513	SO	G	05/16/2012 13:50	3			X	X	X	X	X		X												
	9 SBKR1125L514S051612S005	SBKR1125L514	SO	G	05/16/2012 15:40	3			X	X	X	X	X														
	10 SBKR1125L514D051612S005	SBKR1125L514	SO	G	05/16/2012 15:40	3	DUPLICATE		X	X	X	X	X														
	11 SBKR1125L515S051612S010	SBKR1125L515	SO	G	05/16/2012 16:05	6	MS/MSD		X	X	X	X	X														
	12 SBKR1125L515T051612MX	SBKR1125L515	SQ	G	05/16/2012 00:00	1	TRIP BLANK						X														

XSPLD Mo
5/16/12

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5.16.12	1659		5-16-12	1659
	5-17-12	1317		5-17-12	1317

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
1.6°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETER BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1205784
~~1205618~~

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051812_PMB1 | Task: KRRI_1125L
Total # of Samples: 9 | Event Complete?

Lab Information:		Project Information:		Other Information:	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX / Phone #: 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids / State, Zip: MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo	5 Bulk	MS									
1	SBKR1125L527S051812S007	SBKR1125L527	SO	G	05/18/2012 08:56	3			X	X	X	X	X												
19 2	SBKR1125L528S051812S007	SBKR1125L528	SO	G	05/18/2012 10:20	3	MDEQ SPLIT		X	X	X	X	X		X										
20 3	SBKR1125L529S051812S007	SBKR1125L529	SO	G	05/18/2012 10:47	3			X	X	X	X	X		X										
21 4	SBKR1125L530S051812S006	SBKR1125L530	SO	G	05/18/2012 11:20	3			X	X	X	X	X		X										
5	SBKR1125L531S051812S004	SBKR1125L531	SO	G	05/18/2012 11:40	3			X	X	X	X	X												
6	SBKR1125L532S051812S004	SBKR1125L532	SO	G	05/18/2012 13:55	3			X	X	X	X	X												
7	SBKR1125L533S051812S006	SBKR1125L533	SO	G	05/18/2012 14:20	3			X	X	X	X	X												
22 8	SBKR1125L533D051812S006	SBKR1125L533	SO	G	05/18/2012 14:20	3	DUPLICATE		X	X	X	X	X		X										
9	SBKR1125L533T051812MX	SBKR1125L533	SQ	G	05/18/2012 00:00	1	TRIP BLANK						X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ron Rea	5-18-12	1700		5-18-12	1700
[illegible]	5.18.12	1706		5.18.12	1706

Sample Receipt Conditions: 5.4°C

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
5.4°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO. | SAMPLER NAME AND SIGNATURE

Company: | PRINT Name of SAMPLER: PETE BAERMAN (PMB1)

Tracking #: | SIGNATURE of SAMPLER: | DATE Signed | Time:

1205784
1205619

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051712_PMB1 | Task: KRRI_1125L, 1125I
Total # of Samples: 14 | Event Complete?
Turn Around Time: 5 Day | Rush | No

BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

Phone #: 713-821-2000
PO #:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo										
	Preservative							None	None	None	None	MeOH												
	Analysis																							
1	SBKR1125I501S051712S005	SBKR1125I501	SO	G	05/17/2012 15:05	3		X	X	X	X	X												
2	SBKR1125L516S051712S007	SBKR1125L516	SO	G	05/17/2012 09:20	3		X	X	X	X	X												
3	SBKR1125L517S051712S004	SBKR1125L517	SO	G	05/17/2012 09:45	3		X	X	X	X	X												
4	SBKR1125L518S051712S005	SBKR1125L518	SO	G	05/17/2012 10:42	3		X	X	X	X	X												
5	SBKR1125L519S051712S005	SBKR1125L519	SO	G	05/17/2012 11:05	3		X	X	X	X	X												
6	SBKR1125L520S051712S006	SBKR1125L520	SO	G	05/17/2012 11:35	3		X	X	X	X	X												
7	SBKR1125L521S051712S005	SBKR1125L521	SO	G	05/17/2012 11:55	3		X	X	X	X	X												
8	SBKR1125L523S051712S004	SBKR1125L523	SO	G	05/17/2012 13:55	3		X	X	X	X	X												
23 9	SBKR1125L524D051712S006	SBKR1125L524	SO	G	05/17/2012 14:45	3	DUPLICATE	X	X	X	X	X		X										
24 10	SBKR1125L524S051712S006	SBKR1125L524	SO	G	05/17/2012 14:45	3		X	X	X	X	X		X										
11	SBKR1125L525S051712S004	SBKR1125L525	SO	G	05/17/2012 16:15	3		X	X	X	X	X												
25 12	SBKR1125L526S051712S006	SBKR1126L526	SO	G	05/17/2012 16:40	3		X	X	X	X	X		X										
13	SBKR1125L526T051712MX	SBKR1125L526	SQ	G	05/17/2012 00:00	1	TRIP BLANK					X												
14	SBKR1125L522S051712S006	SBKR1125L522	SO	G	05/17/2012 13:20	3		X	X	X	X	X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pete Baerman	5-17-12	1725	Dave Hoelt	5-17-12	1725
Dave Hoelt	5-18-12	1706		5-18-12	1706

Sample Receipt Conditions: 5.4°c

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETE BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1205649

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_052112_RLF1 | Task: KRRI_1100 - 1150
Total # of Samples: 9 | Event Complete?
Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 126th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX Phone #: 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids State, Zip MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo	5/21/12	JRP									
1	SBKR1100L517S052112S005	SBKR1100L517	SO	G	05/21/2012 10:27	6	MS/MSD		X	X	X	X	X		X										
2	SBKR1125L534S052112S005	SBKR1125L534	SO	G	05/21/2012 11:15	3			X	X	X	X	X												
3	SBKR1125L535S052112S005	SBKR1125L535	SO	G	05/21/2012 11:50	3			X	X	X	X	X												
4	SBKR1150L501S052112S008	SBKR1150L501	SO	G	05/21/2012 13:40	3			X	X	X	X	X												
5	SBKR1150L502S052112S007	SBKR1150L502	SO	G	05/21/2012 14:18	3			X	X	X	X	X												
6	SBKR1150L503S052112S007	SBKR1150L503	SO	G	05/21/2012 15:08	3			X	X	X	X	X												
7	SBKR1150L504S052112S007	SBKR1150L504	SO	G	05/21/2012 16:08	3			X	X	X	X	X												
8	SBKR1150L505S052112S006	SBKR1150L505	SO	G	05/21/2012 16:47	3			X	X	X	X	X												
9	SBKR1150L505T052112MX	SBKR1150L505	SQ	G	05/21/2012 00:00	1	TRIP BLANK						X												

26

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ralph Freed	5-21-12	1737		5-21-12	1737
	5-21-12	1738		5-21-12	1738

Sample Receipt Conditions				
Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?	
2.0°C	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Thursday, May 24, 2012 2:32 PM
To: Ann Preston
Subject: New SPLP List

Ann – Here is the start of the new SPLP Mo list.
1205392-03, 04 01, 02
1205394-07, 08 ~~03~~ 03, 04
1205395-05, 06, 07 05 is the HOT Mo so probably need to run the latest extract 05, 06 07 ~~08~~
1205398-04, 08, 09 08 09, 10
1205503-07 11
1205507-02, 04, 05 12, 13, 14
1205508-03 15

Thanks

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600 (800)-688-9828
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Wednesday, May 30, 2012 3:14 PM
To: Ann Preston
Subject: More SPLP

Here are a few more Mo SPLP to add to the list.
1205619-09, 10, 12 23, 24, 25
1205618-02, 03, 04, 08 19, 20, 21, 22
1205549-01, 03, 08 16, 17, 18
1205649-01 26

Thanks

Mike

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600 (800)-688-9828
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **25-May-12 00:00**

Work Order: **1205784** Received by: **AP**

Checklist completed by Ann Preston (eSignature) 25-May-12 (Date) Reviewed by: Ann Preston (eSignature) 25-May-12 (Date)

Matrices: soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

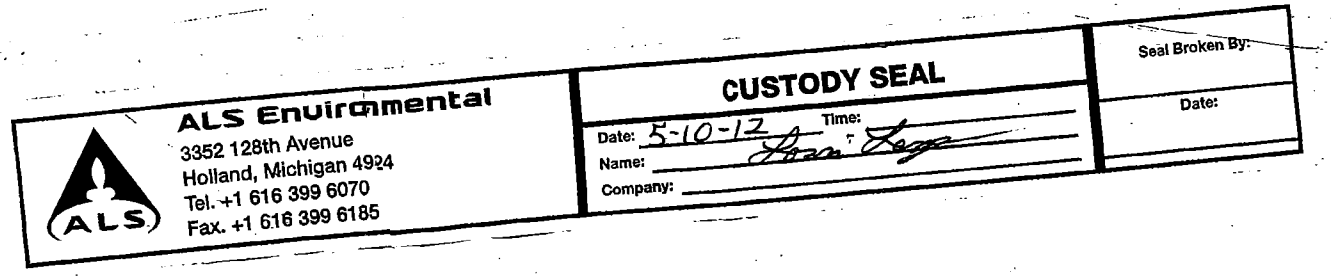
Login Notes: Samples reactivated from refrigerated starage 5/25/12

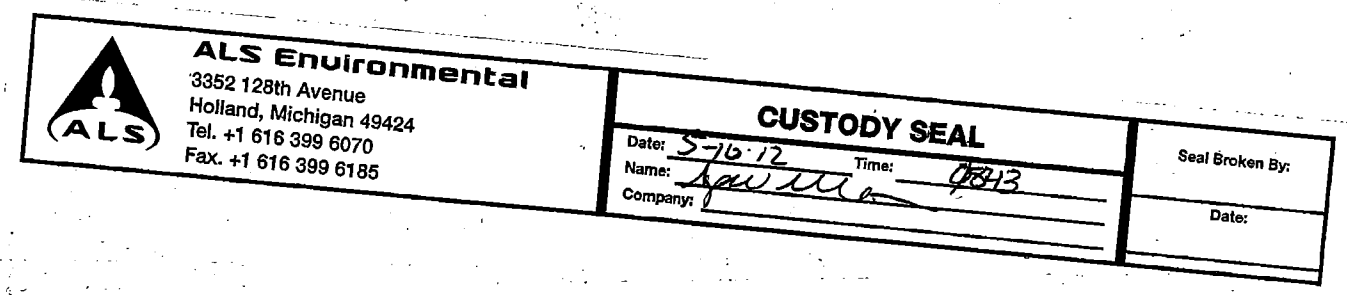
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:


ALS Environmental
3352 128th Avenue
Holland, Michigan 4924
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 5-10-12
Time:
Name:
Company:
Seal Broken By:
Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 5-16-12
Time: 0843
Name:
Company:
Seal Broken By:
Date:

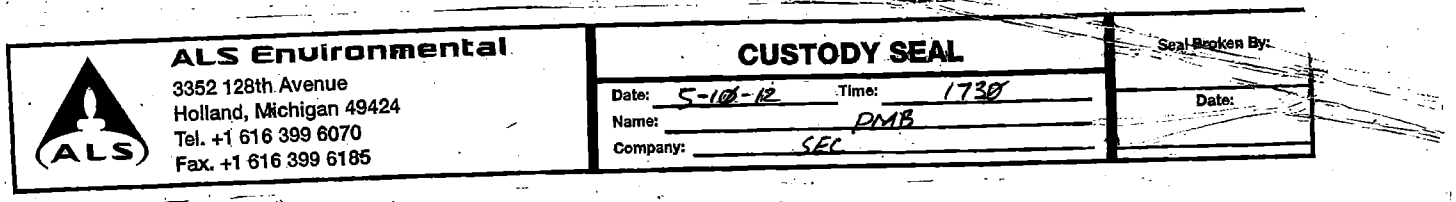
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5/11/12 Time: 1650
Name: Ralph Freed / Ralph Freed
Company: AECOM

Seal Broken By:

Date:



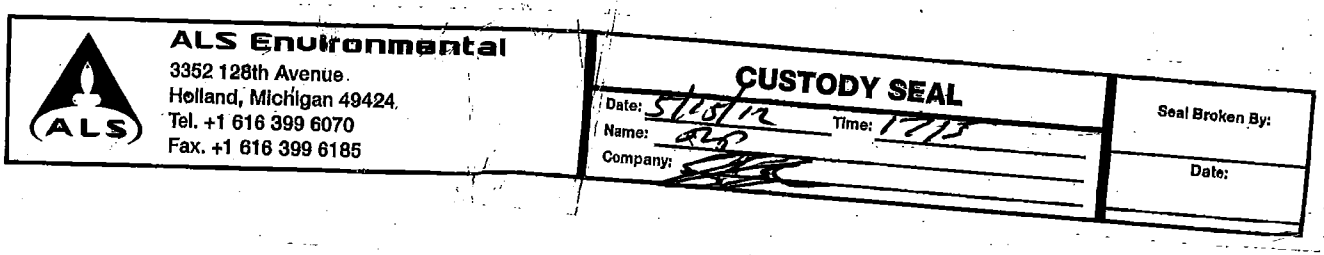
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

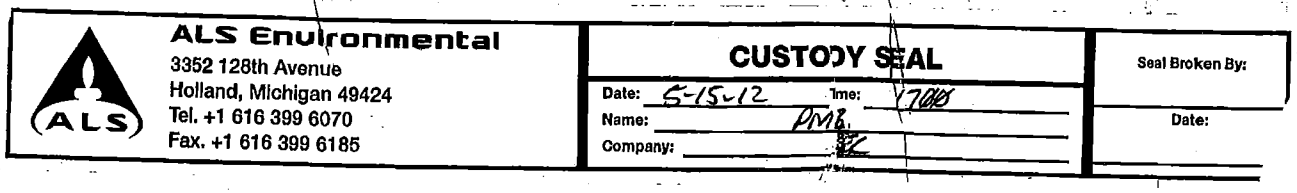
Date: 5-10-12 Time: 1730
Name: DMB
Company: SEC

Seal Broken By:

Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5/18/12
Time: 1715
Name:
Company:
Seal Broken By:
Date:

5.8°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-15-12 Time: 1700

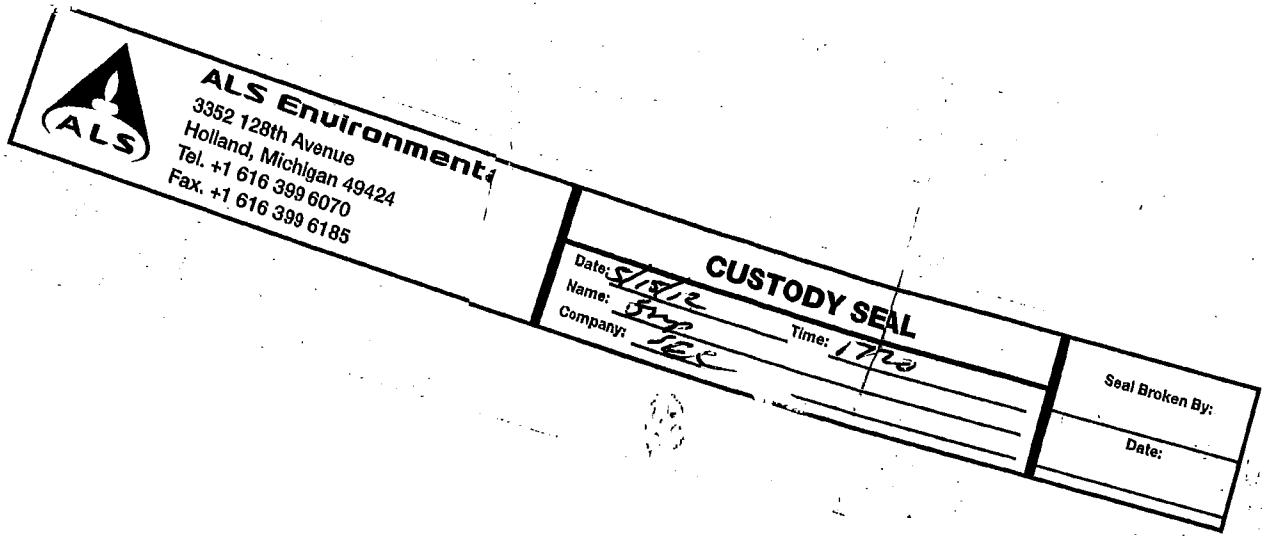
Name: PMB

Company:

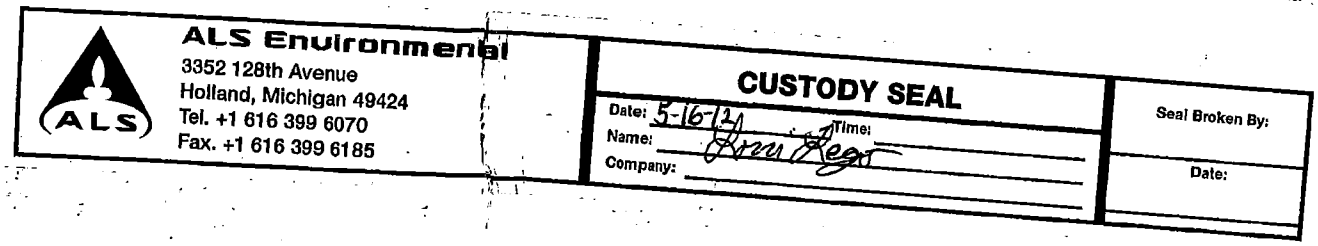
Seal Broken By:

Date:

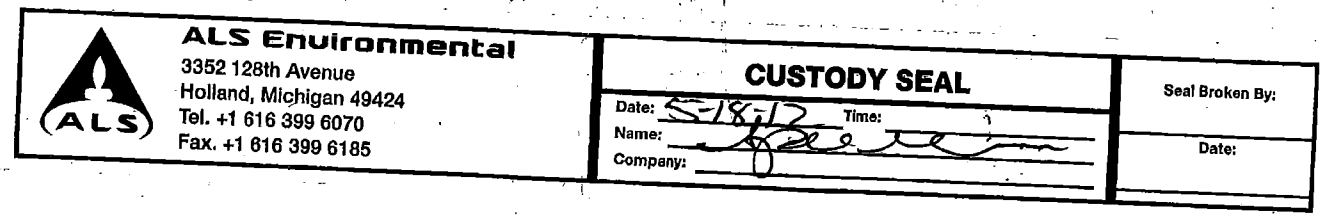
5.8°C

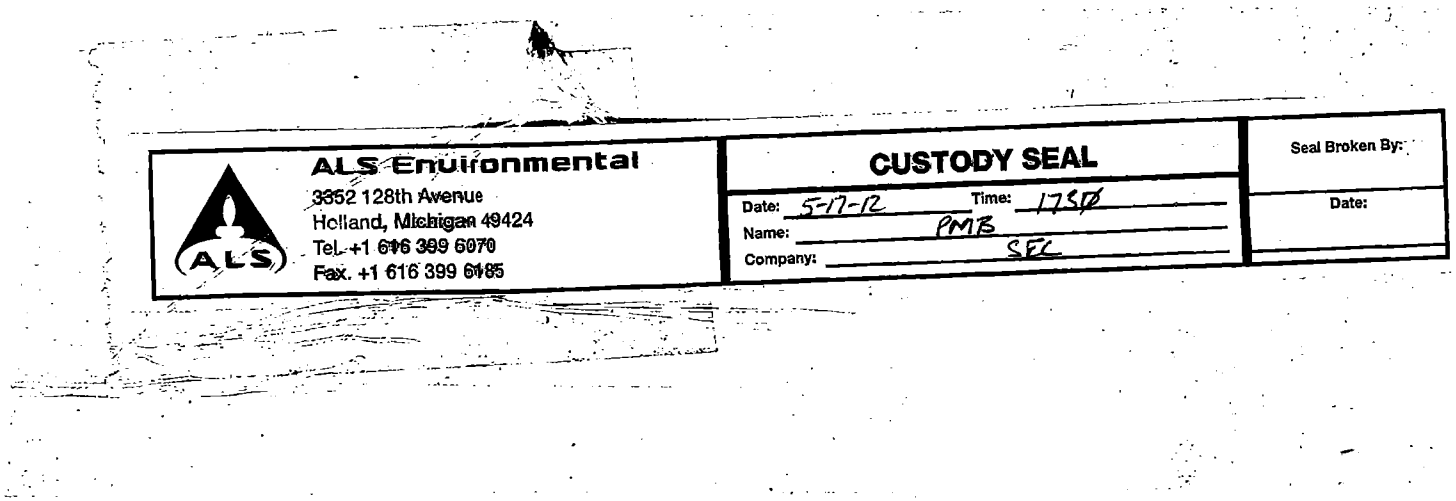

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5/15/12
Time: 1720
Name: Emp
Company: TEC
Seal Broken By:
Date:

5.8°C


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5-16-12
Time:
Name:
Company:
Seal Broken By:
Date:

1.6°C


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 5-18-12
Time:
Name:
Company:
Seal Broken By:
Date:



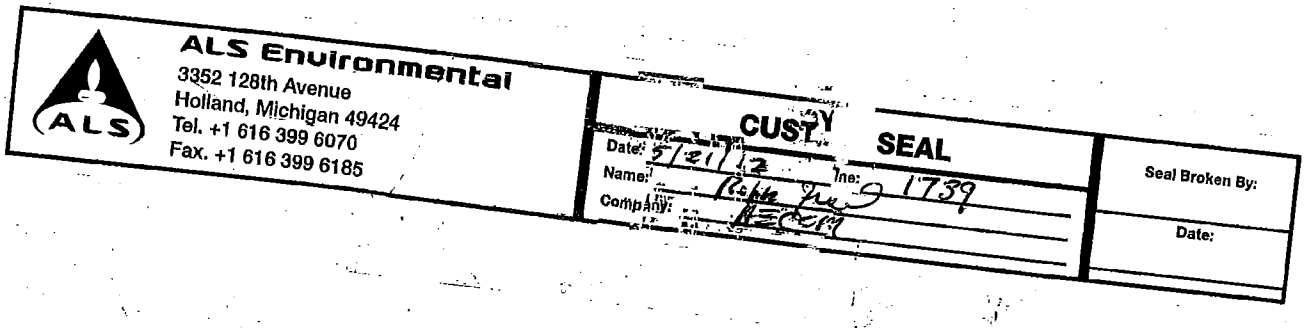
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-17-12 Time: 1750
Name: PMB
Company: SEL

Seal Broken By:

Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUST
SEAL
Date: 5/21/12
Name:
Company:
1739
Seal Broken By:
Date:

05-Jun-2012

Mike Wolf
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI SPLP Mo May 2012** Work Order: **1205784**

Dear Mike,

ALS Environmental received 26 samples on 25-May-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 56.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Alex Csaszar

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 05-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
Work Order: **1205784**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1205784-01	SBKR2925L504S050912S007	Splp Extract		5/9/2012 13:50	5/25/2012	☐
1205784-02	SBKR2950L505S050912S005	Splp Extract		5/9/2012 08:38	5/25/2012	☐
1205784-03	SBKR3225L507D051012S007	Splp Extract		5/10/2012 16:22	5/25/2012	☐
1205784-04	SBKR3225L507S051012S007	Splp Extract		5/10/2012 16:22	5/25/2012	☐
1205784-05	SBKR3225L504D051012S008	Splp Extract		5/10/2012 14:20	5/25/2012	☐
1205784-06	SBKR3225L504S051012S008	Splp Extract		5/10/2012 14:20	5/25/2012	☐
1205784-07	SBKR3225L506S051012S006	Splp Extract		5/10/2012 16:08	5/25/2012	☐
1205784-08	SBKR3200L501S051112S010	Splp Extract		5/11/2012 10:23	5/25/2012	☐
1205784-09	SBKR3200L505S051112S005	Splp Extract		5/11/2012 16:00	5/25/2012	☐
1205784-10	SBKR3200L505D051112S005	Splp Extract		5/11/2012 16:00	5/25/2012	☐
1205784-11	SEKR1125L504S051512D006	Splp Extract		5/15/2012 15:15	5/25/2012	☐
1205784-12	SBKR1100L515S051512S008	Splp Extract		5/15/2012 11:45	5/25/2012	☐
1205784-13	SBKR1125L502S051512S005	Splp Extract		5/15/2012 10:40	5/25/2012	☐
1205784-14	SBKR1125L502D051512S005	Splp Extract		5/15/2012 10:40	5/25/2012	☐
1205784-15	SBKR1125L503S051512S009	Splp Extract		5/15/2012 11:25	5/25/2012	☐
1205784-16	SBKR1100L516S051612S008	Splp Extract		5/16/2012 08:35	5/25/2012	☐
1205784-17	SBKR1125L505S051612S005	Splp Extract		5/16/2012 09:10	5/25/2012	☐
1205784-18	SBKR1125L513S051612S006	Splp Extract		5/16/2012 13:50	5/25/2012	☐
1205784-19	SBKR1125L528S051812S007	Splp Extract		5/18/2012 10:20	5/25/2012	☐
1205784-20	SBKR1125L529S051812S007	Splp Extract		5/18/2012 10:47	5/25/2012	☐
1205784-21	SBKR1125L530S051812S006	Splp Extract		5/18/2012 11:20	5/25/2012	☐
1205784-22	SBKR1125L533D051812S006	Splp Extract		5/18/2012 14:20	5/25/2012	☐
1205784-23	SBKR1125L524D051712S006	Splp Extract		5/17/2012 14:45	5/25/2012	☐
1205784-24	SBKR1125L524S051712S006	Splp Extract		5/17/2012 14:45	5/25/2012	☐
1205784-25	SBKR1125L526S051712S006	Splp Extract		5/17/2012 16:40	5/25/2012	☐
1205784-26	SBKR1100L517S052112S005	Splp Extract		5/21/2012 10:27	5/25/2012	☐

ALS Group USA, Corp

Date: 05-Jun-12

Client: AECOM Environment
Project: Marshall KRRI SPLP Mo May 2012
WorkOrder: **1205784**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR2925L504S050912S007
Work Order:	1205784	**Collection Date:**	5/9/2012 1:50:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-01	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	**0.011**	**0.0050**	**0**		**mg/L**	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR2950L505S050912S005
Work Order:	1205784	**Collection Date:**	5/9/2012 8:38:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-02	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	**0.0062**	**0.0050**	**0**		**mg/L**	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3225L507D051012S007
Work Order:	1205784	**Collection Date:**	5/10/2012 4:22:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-03	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3225L507S051012S007
Work Order:	1205784	**Collection Date:**	5/10/2012 4:22:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-04	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3225L504D051012S008
Work Order:	1205784	**Collection Date:**	5/10/2012 2:20:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-05	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	**0.18**	**0.0050**	**0**		**mg/L**	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3225L504S051012S008
Work Order:	1205784	**Collection Date:**	5/10/2012 2:20:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-06	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	**0.062**	**0.0050**	**0**		**mg/L**	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3225L506S051012S006
Work Order:	1205784	**Collection Date:**	5/10/2012 4:08:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-07	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3200L501S051112S010
Work Order:	1205784	**Collection Date:**	5/11/2012 10:23:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-08	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3200L505S051112S005
Work Order:	1205784	**Collection Date:**	5/11/2012 4:00:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-09	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR3200L505D051112S005
Work Order:	1205784	**Collection Date:**	5/11/2012 4:00:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-10	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SEKR1125L504S051512D006
Work Order:	1205784	**Collection Date:**	5/15/2012 3:15:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-11	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1100L515S051512S008
Work Order:	1205784	**Collection Date:**	5/15/2012 11:45:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-12	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L502S051512S005
Work Order:	1205784	**Collection Date:**	5/15/2012 10:40:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-13	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L502D051512S005
Work Order:	1205784	**Collection Date:**	5/15/2012 10:40:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-14	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L503S051512S009
Work Order:	1205784	**Collection Date:**	5/15/2012 11:25:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-15	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **5/31/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	5/31/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1100L516S051612S008
Work Order:	1205784	**Collection Date:**	5/16/2012 8:35:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-16	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L505S051612S005
Work Order:	1205784	**Collection Date:**	5/16/2012 9:10:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-17	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L513S051612S006
Work Order:	1205784	**Collection Date:**	5/16/2012 1:50:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-18	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L528S051812S007
Work Order:	1205784	**Collection Date:**	5/18/2012 10:20:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-19	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L529S051812S007
Work Order:	1205784	**Collection Date:**	5/18/2012 10:47:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-20	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L530S051812S006
Work Order:	1205784	**Collection Date:**	5/18/2012 11:20:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-21	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L533D051812S006
Work Order:	1205784	**Collection Date:**	5/18/2012 2:20:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-22	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L524D051712S006
Work Order:	1205784	**Collection Date:**	5/17/2012 2:45:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-23	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L524S051712S006
Work Order:	1205784	**Collection Date:**	5/17/2012 2:45:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-24	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1125L526S051712S006
Work Order:	1205784	**Collection Date:**	5/17/2012 4:40:00 PM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-25	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *05-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1100L517S052112S005
Work Order:	1205784	**Collection Date:**	5/21/2012 10:27:00 AM
Project:	Marshall KRRI SPLP Mo May 2012		
Lab ID:	1205784-26	**Matrix:**	SPLP EXTRACT

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/4/2012**		Analyst: **RH**
Molybdenum	ND	0.0050	0		mg/L	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **41371** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41371-41371** Units: **mg/L** Analysis Date: **5/31/2012 06:04 PM**

Client ID: Run ID: **ICPMS2_120531A** SeqNo: **1989122** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								

LCS Sample ID: **LCS-41371-41371** Units: **mg/L** Analysis Date: **5/31/2012 06:09 PM**

Client ID: Run ID: **ICPMS2_120531A** SeqNo: **1989123** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08916	0.0050	0.1	0	89.2	80-120	0			

MS Sample ID: **1205784-11AMS** Units: **mg/L** Analysis Date: **5/31/2012 07:47 PM**

Client ID: **SEKR1125L504S051512D006** Run ID: **ICPMS2_120531A** SeqNo: **1989145** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09154	0.0050	0.1	0.000625	90.9	80-120	0			

MSD Sample ID: **1205784-11AMSD** Units: **mg/L** Analysis Date: **5/31/2012 07:52 PM**

Client ID: **SEKR1125L504S051512D006** Run ID: **ICPMS2_120531A** SeqNo: **1989146** Prep Date: **5/31/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09034	0.0050	0.1	0.000625	89.7	80-120	0.09154	1.32	20	

The following samples were analyzed in this batch:

1205784-01A	1205784-02A	1205784-03A
1205784-04A	1205784-05A	1205784-06A
1205784-07A	1205784-08A	1205784-09A
1205784-10A	1205784-11A	1205784-12A
1205784-13A	1205784-14A	1205784-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1205784
Project: Marshall KRRI SPLP Mo May 2012

QC BATCH REPORT

Batch ID: **41419** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41419-41419** Units: **mg/L** Analysis Date: **6/4/2012 12:41 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990255** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	ND	0.0050								

LCS Sample ID: **LCS-41419-41419** Units: **mg/L** Analysis Date: **6/4/2012 12:46 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990256** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08658	0.0050	0.1	0	86.6	80-120	0			

MS Sample ID: **1205914-03CMS** Units: **mg/L** Analysis Date: **6/4/2012 01:06 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990262** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.08934	0.0050	0.1	0.002651	86.7	80-120	0			

MSD Sample ID: **1205914-03CMSD** Units: **mg/L** Analysis Date: **6/4/2012 01:11 PM**
Client ID: Run ID: **ICPMS2_120604A** SeqNo: **1990263** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.09035	0.0050	0.1	0.002651	87.7	80-120	0.08934	1.12	20	

The following samples were analyzed in this batch:

1205784-16A	1205784-17A	1205784-18A
1205784-19A	1205784-20A	1205784-21A
1205784-22A	1205784-23A	1205784-24A
1205784-25A	1205784-26A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1205392
1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler #

COC #	ENBRIDGE_050912_JWP1	Task: KRRI_2950L,2925L,3100L,3125L
	Total # of Samples: 8	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information		Project Information		Other Information			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	# OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None														
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270		SPLIT MO	5/25/12	MO										
1	SBKR2925L502S050912S006	SBKR2925L502	SO	G	05/09/2012 13:28	1			X	X	X	X														
2	SBKR2925L502D050912S006	SBKR2925L502	SO	G	05/09/2012 13:28	1	DUPLICATE		X	X	X	X														
3	SBKR2925L504S050912S007	SBKR2925L504	SO	G	05/09/2012 13:50	1			X	X	X	X		X												
4	SBKR2950L505S050912S005	SBKR2950L505	SO	G	05/09/2012 08:38	1			X	X	X	X		X												
5	SBKR3100L501S050912S007	SBKR3100L501	SO	G	05/09/2012 14:13	1			X	X	X	X														
6	SBKR3100L503S050912S005	SBKR3100L503	SO	G	05/09/2012 14:44	1			X	X	X	X														
7	SBKR3100L505S050912S007	SBKR3100L505	SO	G	05/09/2012 16:23	1			X	X	X	X														
8	SBKR3125L502S050912S006	SBKR3125L502	SO	G	05/09/2012 16:48	1	MDEQ SPLIT		X	X	X	X														

01
02

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5.10.12	822		5-11-12	1709

SHIPPING INFO.	SAMPLER NAME AND SIGNATURE			
Company:	PRINT Name of SAMPLER:	JEFF PLUTT (JWP1)		
Tracking #:	SIGNATURE of SAMPLER:	DATE Signed	Time:	

Sample Receipt Conditions	Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
	1.2°c	Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

1205394
1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_051012_PMB1	Task: KRRI_3125L,3150L,3225L
	Total # of Samples: 8	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:		Project Information:		Other Information:			
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable		
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100		
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State,	Houson, TX	Phone #:	713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to			
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax	616-940-4424	CC Hardcopy report			
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report			

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270											
1	SBKR3125L503S051012S006	SBKR3125L503	SO	G	05/10/2012 09:15	1			X	X	X	X											
2	SBKR3125L505S051012S009	SBKR3125L505	SO	G	05/10/2012 14:10	1			X	X	X	X											
3	SBKR3150L502S051012S006	SBKR3150L502	SO	G	05/10/2012 13:40	1			X	X	X	X											
4	SBKR3150L504S051012S005	SBKR3150L504	SO	G	05/10/2012 16:53	1			X	X	X	X											
5	SBKR3225L502S051012S005	SBKR3225L502	SO	G	05/10/2012 09:45	1			X	X	X	X											
6	SBKR3225L505S051012S003	SBKR3225L505	SO	G	05/10/2012 14:35	1			X	X	X	X											
7	SBKR3225L507D051012S007	SBKR3225L507	SO	G	05/10/2012 16:22	1	DUPLICATE		X	X	X	X	X										
8	SBKR3225L507S051012S007	SBKR3225L507	SO	G	05/10/2012 16:22	1			X	X	X	X	X										

03
04

SPLPMo 5/15/12

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5/10	1730		5-10-12	1730
	5/11/12	1709		5-11-12	1709

Sample Receipt Conditions			
Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
20°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:	SAMPLER NAME AND SIGNATURE		
Company:	PRINT Name of SAMPLER: PETER BAERMAN (PMB1)		
Tracking #:	SIGNATURE of SAMPLER	DATE Signed	Time:

1205395

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051012_LJL1	Task: KRRI_3125L,3150L3225L
	Total # of Samples: 8	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6,000		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60152778
Site Address	5555 Glenwood Parkway SE Suite 200
City / State, Zip / MI	Grand Rapids
Site PM Name	Bryan Stiemsma
Phone/Fax	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State,	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None																		
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270		SPLP Mo	5/25/12 MD															
1	SBKR3125L504S051012S005	SBKR3125L504	SO	G	05/10/2012 13:52	1			X	X	X	X																		
2	SBKR3150L501S051012S007	SBKR3150L501	SO	G	05/10/2012 13:24	1			X	X	X	X																		
3	SBKR3225L501S051012S006	SBKR3225L501	SO	G	05/10/2012 09:28	1			X	X	X	X																		
4	SBKR3225L503S051012S006	SBKR3225L503	SO	G	05/10/2012 09:53	1			X	X	X	X																		
5	SBKR3225L504D051012S008	SBKR3225L504	SO	G	05/10/2012 14:20	1	DUPLICATE		X	X	X	X		X																
6	SBKR3225L504S051012S008	SBKR3225L504	SO	G	05/10/2012 14:20	1			X	X	X	X		X																
7	SBKR3225L506S051012S006	SBKR3225L506	SO	G	05/10/2012 16:08	2	MS/MSD		X	X	X	X		X																
8	SBKR3150L503S051012S006	SBKR3150L503	SO	G	05/10/2012 16:34	1			X	X	X	X																		

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Lorri Lego	5-10-12	1736	[illegible]	5-10-12	1736
Ann Kloot	5-11-12	1709	[signature]	5-11-12	1709

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
1.2°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1205398 1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051112_RLF1	Task: KRRI	
	Total # of Samples: 9		Event Complete?
Turn Around Time	5 Day	Rush	No
BILLING CODE: 6.00			

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Analysis / Preservative	% Moisture / None	Be,Mo,V,Ni by 6020 / None	ORO,DRO / None	PNAs by 8270 / None														
														SPLIT Mo	5/25/12	TBD										
1	SBKR3175L501S051112S004	SBKR3175L501	SO	G	05/11/2012 09:05	1			X	X	X	X														
2	SBKR3175L502S051112S004	SBKR3175L502	SO	G	05/11/2012 09:35	1			X	X	X	X														
3	SBKR3175L503S051112S005	SBKR3175L503	SO	G	05/11/2012 10:00	1	MDEQ SPLIT		X	X	X	X														
4	SBKR3200L501S051112S010	SBKR3200L501	SO	G	05/11/2012 10:23	1			X	X	X	X		X												
5	SBKR3200L502S051112S008	SBKR3200L502	SO	G	05/11/2012 13:32	1			X	X	X	X														
6	SBKR3200L503S051112S005	SBKR3200L503	SO	G	05/11/2012 14:00	1			X	X	X	X														
7	SBKR3200L504S051112S003	SBKR3200L504	SO	G	05/11/2012 15:40	1			X	X	X	X														
8	SBKR3200L505S051112S005	SBKR3200L505	SO	G	05/11/2012 16:00	1			X	X	X	X		X												
9	SBKR3200L505D051112S005	SBKR3200L505	SO	G	05/11/2012 16:00	1	DUPLICATE		X	X	X	X		X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-11-12	1646		5-11-12	1646
	5-11-12	1709		5-11-12	1709

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
2.2°c	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER: DATE Signed: Time:

1205503

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC # ENBRIDGE_051512_JWP2 | Task: KRRI_SED
Total # of Samples: 7 | Event Complete?
Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None												
	Analysis								% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270												
1	SEKR1100L503S051512D006	SEKR1100L503	SE	G	05/15/2012 13:35	1			X	X	X	X												
2	SEKR1100L504S051512D003	SEKR1100L504	SE	G	05/15/2012 13:50	1			X	X	X	X												
3	SEKR1100L504S051512D010	SEKR1100L504	SE	G	05/15/2012 13:55	1			X	X	X	X												
4	SEKR1125L501S051512D010	SEKR1125L501	SE	G	05/15/2012 10:25	1	MDEQ SPLIT		X	X	X	X												
5	SEKR1125L502S051512D006	SEKR1125L502	SE	G	05/15/2012 13:25	1			X	X	X	X												
6	SEKR1125L503S051512D006	SEKR1125L503	SE	G	05/15/2012 15:00	1			X	X	X	X												
7	SEKR1125L504S051512D006	SEKR1125L504	SE	G	05/15/2012 15:15	1			X	X	X	X	X											

SPLIT MK 5/23/12 KMD

11

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1715		5-15-12	1715
	5-16-12	1130		5-16-12	1130

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
5.8°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: | Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: JEFF PLUTT (JWP2)
SIGNATURE of SAMPLER: | DATE Signed: | Time:

5,7,

1205507 1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051512_PMB1 | Task: KRRI_1100,1125
Total # of Samples: 7 | Event Complete?
Turn Around Time: 5 Day | Rush: No
BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH				
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Ms	5/15/12	MO
1	SBKR1100L513S051512S005	SBKR1100L513	SO	G	05/15/2012 08:50	3			X	X	X	X	X				
12	SBKR1100L515S051512S008	SBKR1100L515	SO	G	05/15/2012 11:45	6	MS/MSD		X	X	X	X	X		X		
3	SBKR1125L501S051512S004	SBKR1125L501	SO	G	05/15/2012 10:15	3			X	X	X	X	X				
13	SBKR1125L502S051512S005	SBKR1125L502	SO	G	05/15/2012 10:40	3			X	X	X	X	X		X		
14	SBKR1125L502D051512S005	SBKR1125L502	SO	G	05/15/2012 10:40	3	DUPLICATE		X	X	X	X	X		X		
6	SBKR1125L507S051512S006	SBKR1125L507	SO	G	05/15/2012 15:55	3			X	X	X	X	X				
7	SBKR1125L507T051512MX	SBKR1125L507	SQ	G	05/15/2012 00:00	1	TRIP BLANK						X				

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1713		5-15-12	1713
	5-16-12	1130		5-16-12	1130

SHIPPING INFO: Company: Tracking #:

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: PETE BAERMAN (PMB1); SIGNATURE of SAMPLER: DATE Signed: Time:

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
5.8°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

1205508

1205784

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler # of

COC #	ENBRIDGE_051512_JWP1	Task: KRRI_1100L,1125L
	Total # of Samples: 7	Event Complete?

Turn Around Time	6 Day	Rush	No	

BILLING CODE: 6.00

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City	Grand Rapids
State, Zip	MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH												
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo	5/25/12	DNO									
1	SBKR1100L511S051512S006	SBKR1100L511	SO	G	05/15/2012 08:31	3			X	X	X	X	X												
2	SBKR1100L514S051512S006	SBKR1100L514	SO	G	05/15/2012 10:02	3			X	X	X	X	X												
3	SBKR1125L503S051512S009	SBKR1125L503	SO	G	05/15/2012 11:25	3			X	X	X	X	X		X										
4	SBKR1125L506D051512S009	SBKR1125L506	SO	G	05/15/2012 15:35	3	DUPLICATE		X	X	X	X	X												
5	SBKR1125L506S051512S009	SBKR1125L506	SO	G	05/15/2012 15:35	3			X	X	X	X	X												
6	SBKR1125L508S051512S007	SBKR1125L508	SO	G	05/15/2012 16:20	3			X	X	X	X	X												
7	SBKR1125L508T051512MX	SBKR1125L508	SQ	G	05/15/2012 00:00	1	TRIP BLANK						X												

5

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-15-12	1700		5-15-12	1700
	5-16-12	1130		5-16-12	1130

Sample Receipt Conditions				
	Y/N		Y/N	Y/N
5.8°c	(Y)N		(Y)N	(Y)N
	Y/N		Y/N	Y/N
	Y/N		Y/N	Y/N
Temp in OC	Samples on Ice?		Sample Intact?	Trip Blank?

SHIPPING INFO

Company:

Tracking #:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JEFF PLUTT (JWP1)

SIGNATURE of SAMPLER:

DATE Signed:

Time:

1205784
1205549

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_051612_PMB1	Task: KRRI_1100L,1125L
	Total # of Samples: 12	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162770
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH													
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260													
16 1	SBKR1100L516S051612S008	SBKR1100L516	SO	G	05/16/2012 08:35	3			X	X	X	X	X		X	5 Bottles										
2	SBKR1125L504S051612S007	SBKR1125L504	SO	G	05/16/2012 08:53	3			X	X	X	X	X		X											
17 3	SBKR1125L505S051612S005	SBKR1125L505	SO	G	05/16/2012 09:10	3			X	X	X	X	X		X											
4	SBKR1125L509S051612S008	SBKR1125L509	SO	G	05/16/2012 09:27	3			X	X	X	X	X													
5	SBKR1125L510S051612S010	SBKR1125L510	SO	G	05/16/2012 09:55	3			X	X	X	X	X													
6	SBKR1125L511S051612S008	SBKR1125L511	SO	G	05/16/2012 10:15	3			X	X	X	X	X													
7	SBKR1125L512S051612S008	SBKR1125L512	SO	G	05/16/2012 11:05	3	MDEQ SPLIT		X	X	X	X	X													
18 8	SBKR1125L513S051612S006	SBKR1125L513	SO	G	05/16/2012 13:50	3			X	X	X	X	X		X											
9	SBKR1125L514S051612S005	SBKR1125L514	SO	G	05/16/2012 15:40	3			X	X	X	X	X													
10	SBKR1125L514D051612S005	SBKR1125L514	SO	G	05/16/2012 15:40	3	DUPLICATE		X	X	X	X	X													
11	SBKR1125L515S051612S010	SBKR1125L515	SO	G	05/16/2012 16:05	6	MS/MSD		X	X	X	X	X													
12	SBKR1125L515T051612MX	SBKR1125L515	SQ	G	05/16/2012 00:00	1	TRIP BLANK						X													

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5.16.12	1659		5-16-12	1659
	5-17-12	1317		5-17-12	1317

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
1.6°C	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: PETER BAERMAN (PMB1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

1205784
~~1205618~~

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051812_PMB1 | Task: KRRI_1125L
Total # of Samples: 9 | Event Complete?

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX Phone #: 713-821-2000
Lab PM:	Ann Preston	City	Grand Rapids State, Zip MI	PO #	
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

Turn Around Time: 5 Day | Rush: No

BILLING CODE: 6.00

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260											
1	SBKR1125L527S051812S007	SBKR1125L527	SO	G	05/18/2012 08:56	3			X	X	X	X	X											
19 2	SBKR1125L528S051812S007	SBKR1125L528	SO	G	05/18/2012 10:20	3	MDEQ SPLIT		X	X	X	X	X		X									
20 3	SBKR1125L529S051812S007	SBKR1125L529	SO	G	05/18/2012 10:47	3			X	X	X	X	X		X									
21 4	SBKR1125L530S051812S006	SBKR1125L530	SO	G	05/18/2012 11:20	3			X	X	X	X	X		X									
5	SBKR1125L531S051812S004	SBKR1125L531	SO	G	05/18/2012 11:40	3			X	X	X	X	X											
6	SBKR1125L532S051812S004	SBKR1125L532	SO	G	05/18/2012 13:55	3			X	X	X	X	X											
7	SBKR1125L533S051812S006	SBKR1125L533	SO	G	05/18/2012 14:20	3			X	X	X	X	X											
22 8	SBKR1125L533D051812S006	SBKR1125L533	SO	G	05/18/2012 14:20	3	DUPLICATE		X	X	X	X	X		X									
9	SBKR1125L533T051812MX	SBKR1125L533	SQ	G	05/18/2012 00:00	1	TRIP BLANK						X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ron Rea	5-18-12	1700		5-18-12	1700
	5.18.12	1706		5.18.12	1706

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
5.4°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO: Company: | Tracking #:

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: PETE BAERMAN (PMB1) | SIGNATURE of SAMPLER: | DATE Signed: | Time:

1205784
1205619

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC # ENBRIDGE_051712_PMB1 | Task: KRRI_1125L, 1125I
Total # of Samples: 14 | Event Complete?
Turn Around Time: 5 Day | Rush | No
BILLING CODE: 6.00

Lab Information		Project Information		Other Information	
Lab Name:	ALS Laboratory Group	Site ID #:		Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	3352 128th Ave. Holland, MI 49424-9263	Project #	60162778	Address:	1100 Louisiana Suite 1100
		Site Address	5555 Glenwood Parkway SE Suite 200	City/State:	Houson, TX
Lab PM:	Ann Preston	City	Grand Rapids	State, Zip	MI
Phone/Fax:	1-616-399-6070/1-616-399-6185	Site PM Name	Bryan Stiemsma	Send EDD to	
Lab PM email:	ann.preston@alsglobal.com	Phone/Fax:	616-940-4424	CC Hardcopy report	
Applicable Lab Quote #:		Site PM Email:	Bryan.Stiemsma@aecom.com	CC Hardcopy report	

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo										
	Preservative:							None	None	None	None	MeOH												
	Analysis:																							
1	SBKR1125I501S051712S005	SBKR1125I501	SO	G	05/17/2012 15:05	3		X	X	X	X	X												
2	SBKR1125L516S051712S007	SBKR1125L516	SO	G	05/17/2012 09:20	3		X	X	X	X	X												
3	SBKR1125L517S051712S004	SBKR1125L517	SO	G	05/17/2012 09:45	3		X	X	X	X	X												
4	SBKR1125L518S051712S005	SBKR1125L518	SO	G	05/17/2012 10:42	3		X	X	X	X	X												
5	SBKR1125L519S051712S005	SBKR1125L519	SO	G	05/17/2012 11:05	3		X	X	X	X	X												
6	SBKR1125L520S051712S006	SBKR1125L520	SO	G	05/17/2012 11:35	3		X	X	X	X	X												
7	SBKR1125L521S051712S005	SBKR1125L521	SO	G	05/17/2012 11:55	3		X	X	X	X	X												
8	SBKR1125L523S051712S004	SBKR1125L523	SO	G	05/17/2012 13:55	3		X	X	X	X	X												
23 9	SBKR1125L524D051712S006	SBKR1125L524	SO	G	05/17/2012 14:45	3	DUPLICATE	X	X	X	X	X		X										
24 10	SBKR1125L524S051712S006	SBKR1125L524	SO	G	05/17/2012 14:45	3		X	X	X	X	X		X										
11	SBKR1125L525S051712S004	SBKR1125L525	SO	G	05/17/2012 16:15	3		X	X	X	X	X												
25 12	SBKR1125L526S051712S006	SBKR1126L526	SO	G	05/17/2012 16:40	3		X	X	X	X	X		X										
13	SBKR1125L526T051712MX	SBKR1125L526	SQ	G	05/17/2012 00:00	1	TRIP BLANK					X												
14	SBKR1125L522S051712S006	SBKR1125L522	SO	G	05/17/2012 13:20	3		X	X	X	X	X												

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pete Baerman	5-17-12	1725	Dave Moore	5-17-12	1725
Dave Moore	5-18-12	1706		5-18-12	1706

Sample Receipt Conditions: 5.4°c | Y/N | Y/N | Y/N

SHIPPING INFO:	SAMPLER NAME AND SIGNATURE			
Company:	PRINT Name of SAMPLER: PETE BAERMAN (PMB1)			
Tracking #:	SIGNATURE of SAMPLER:	DATE Signed	Time:	

Temp in °C | Samples on Ice? | Sample Intact? | Trip Blank?

1205649

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_052112_RLF1	Task: KRRI_1100 - 1150
	Total # of Samples: 9	Event Complete?
Turn Around Time	5 Day	Rush: No

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

BILLING CODE: 6.00

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH											
								Analysis	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260		SPLP Mo	5/21/12	JRP							
1	SBKR1100L517S052112S005	SBKR1100L517	SO	G	05/21/2012 10:27	6	MS/MSD		X	X	X	X	X		X									
2	SBKR1125L534S052112S005	SBKR1125L534	SO	G	05/21/2012 11:15	3			X	X	X	X	X											
3	SBKR1125L535S052112S005	SBKR1125L535	SO	G	05/21/2012 11:50	3			X	X	X	X	X											
4	SBKR1150L501S052112S008	SBKR1150L501	SO	G	05/21/2012 13:40	3			X	X	X	X	X											
5	SBKR1150L502S052112S007	SBKR1150L502	SO	G	05/21/2012 14:18	3			X	X	X	X	X											
6	SBKR1150L503S052112S007	SBKR1150L503	SO	G	05/21/2012 15:08	3			X	X	X	X	X											
7	SBKR1150L504S052112S007	SBKR1150L504	SO	G	05/21/2012 16:08	3			X	X	X	X	X											
8	SBKR1150L505S052112S006	SBKR1150L505	SO	G	05/21/2012 16:47	3			X	X	X	X	X											
9	SBKR1150L505T052112MX	SBKR1150L505	SQ	G	05/21/2012 00:00	1	TRIP BLANK						X											

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ralph Freed	5-21-12	1737		5-21-12	1737
	5-21-12	1738		5-21-12	1738

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
2.0°C	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: RALPH FREED (RLF1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Thursday, May 24, 2012 2:32 PM
To: Ann Preston
Subject: New SPLP List

Ann – Here is the start of the new SPLP Mo list.
1205392-03, 04 01, 02
1205394-07, 08 ~~03~~ 03, 04
1205395-05, 06, 07 05 is the HOT Mo so probably need to run the latest extract 05, 06 07 ~~08~~
1205398-04, 08, 09 08 09, 10
1205503-07 11
1205507-02, 04, 05 12, 13, 14
1205508-03 15

Thanks

Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600 (800)-688-9828
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.

Ann Preston

From: Wolf, Michael G. [Michael.Wolf@aecom.com]
Sent: Wednesday, May 30, 2012 3:14 PM
To: Ann Preston
Subject: More SPLP

Here are a few more Mo SPLP to add to the list.
1205619-09, 10, 12 23, 24, 25
1205618-02, 03, 04, 08 19, 20, 21, 22
1205549-01, 03, 08 16, 17, 18
1205649-01 26

Thanks

Mike

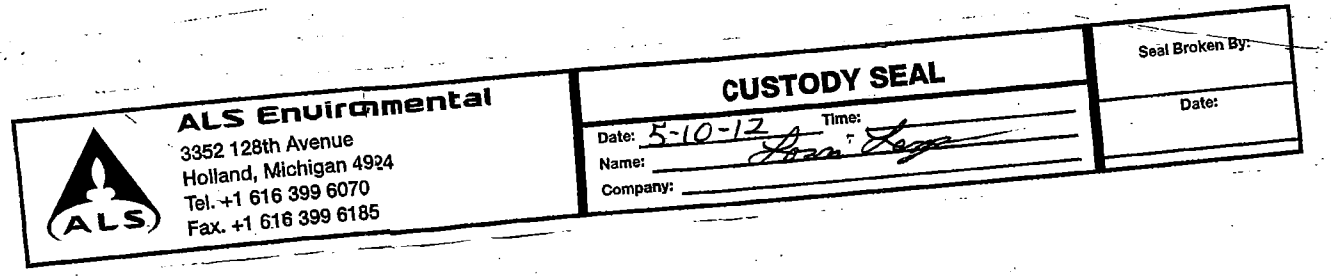
Mike Wolf, CPG
Sr. Hydrogeologist
AECOM Environment
Direct Dial (616)-940-4408
Cell (616)-292-8166
michael.wolf@aecom.com

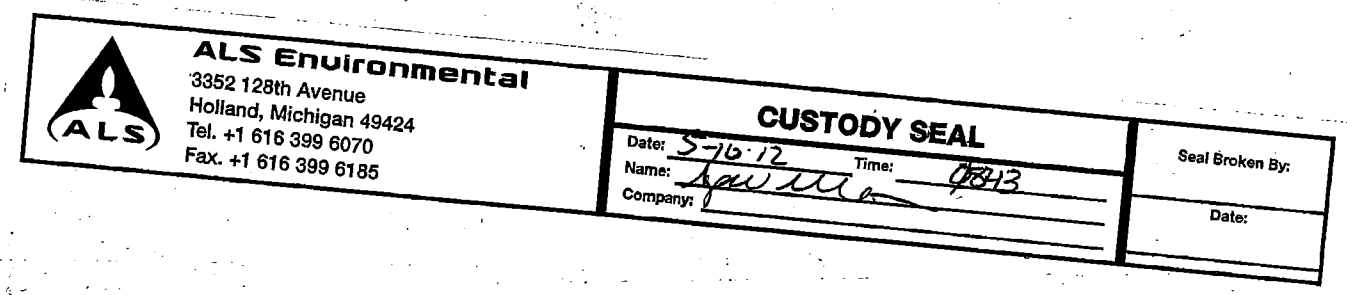
AECOM
5555 Glenwood Hills Pkwy SE, Ste 300
Grand Rapids, MI 49512
Telephone (616)-942-9600 (800)-688-9828
Fax (616)-940-4396

Please consider the environment before printing this page.

This communication is intended for the sole use of the person(s) to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately. Any communication received in error should be deleted and all copies destroyed.

ALS Group: Click here to report this email as spam.


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 5-10-12 Time:
Name: Joan Legg
Company:
Seal Broken By:
Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUSTODY SEAL
Date: 5-16-12
Time: 0843
Name:
Company:
Seal Broken By:
Date:

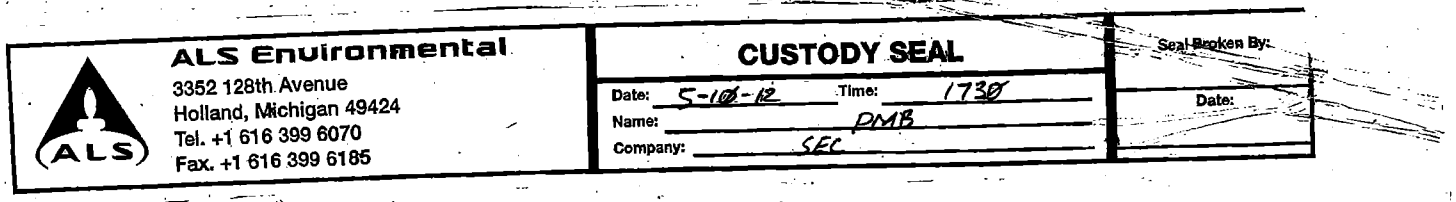
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5/11/12 Time: 1650
Name: Ralph Freed / Ralph Freed
Company: AECOM

Seal Broken By:

Date:



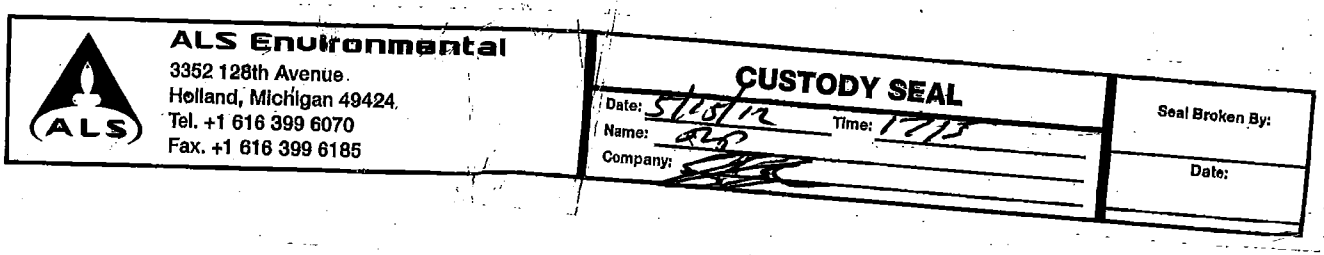
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

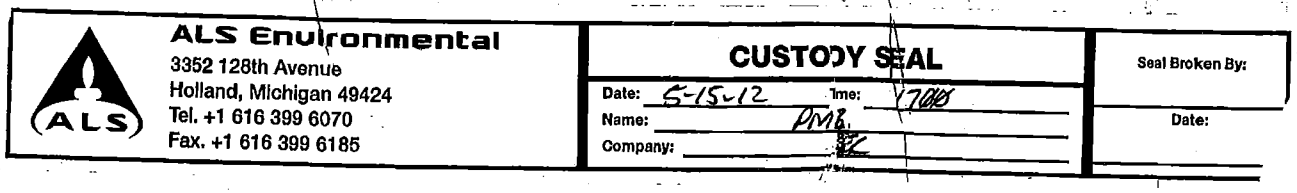
Date: 5-10-12 Time: 1730
Name: DMB
Company: SEC

Seal Broken By:

Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5/18/12
Time: 1715
Name:
Company:
Seal Broken By:
Date:

5.8°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-15-12 Time: 1700

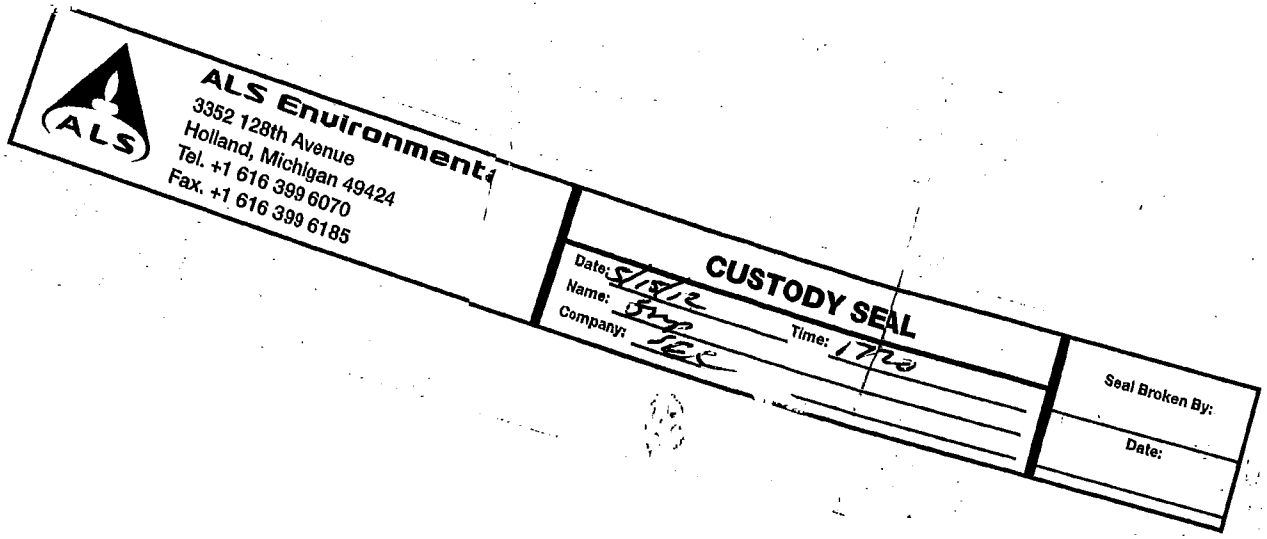
Name: PMB

Company: EC

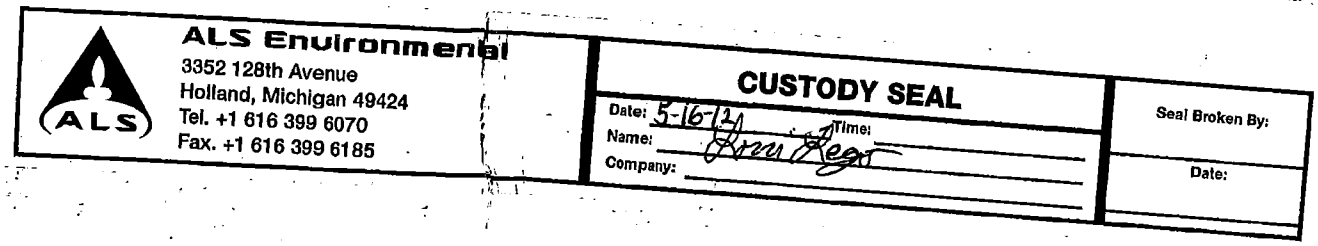
Seal Broken By:

Date:

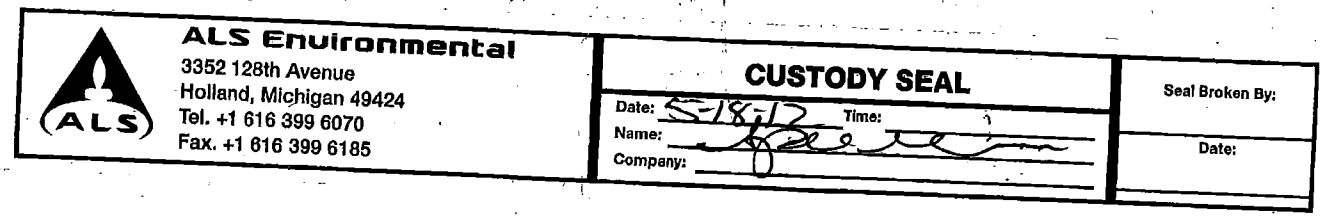
5.8°C

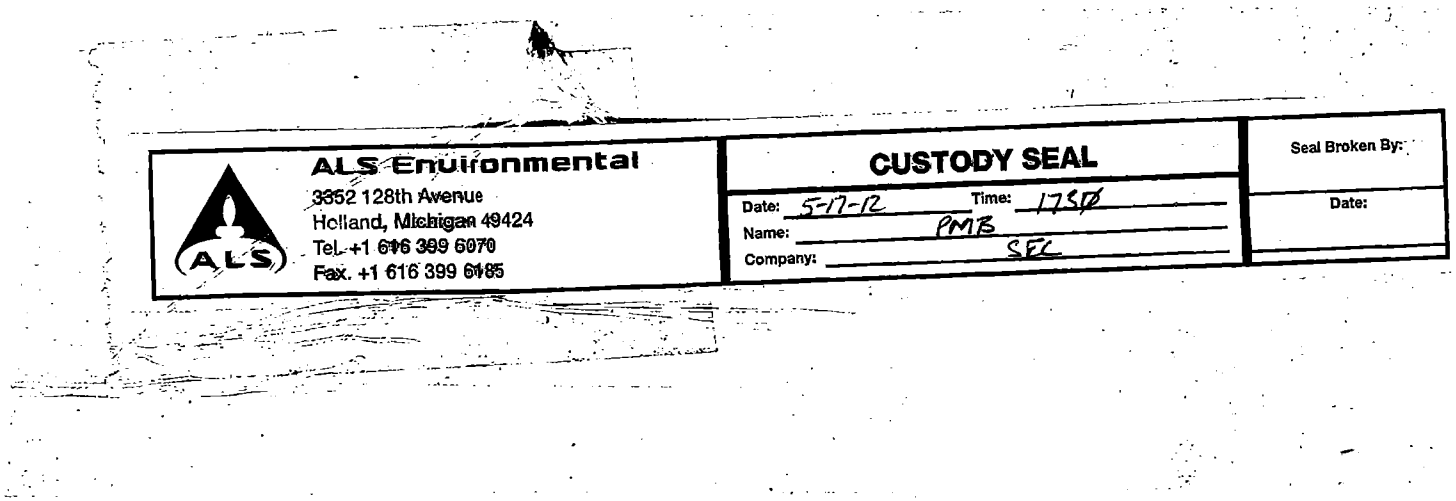

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5/15/12
Time: 1720
Name: Emp
Company: TEC
Seal Broken By:
Date:

5.8°C


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5-16-12
Time:
Name:
Company:
Seal Broken By:
Date:

1.6'c


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5-18-12
Time:
Name:
Company:
Seal Broken By:
Date:



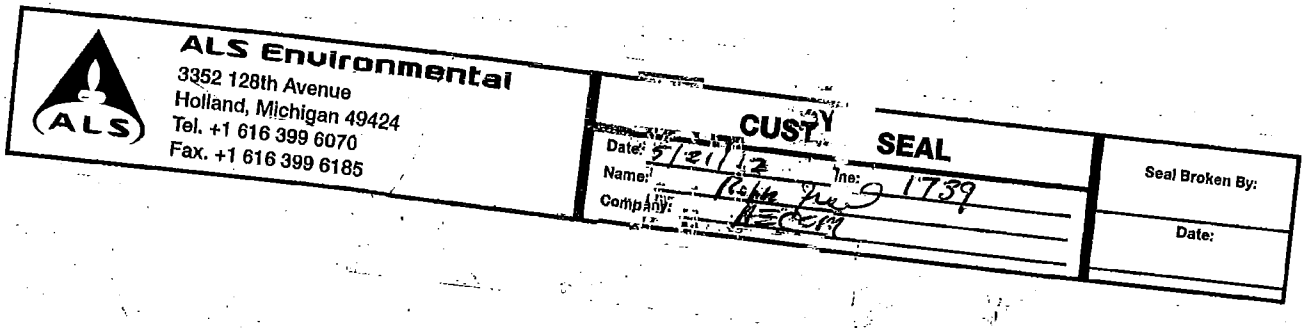
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-17-12 Time: 1750
Name: PMB
Company: SEL

Seal Broken By:

Date:


ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
ALS
CUST
SEAL
Date: 5/21/12
Name:
Company:
1739
Seal Broken By:
Date:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **25-May-12 00:00**

Work Order: **1205784** Received by: **AP**

Checklist completed by Ann Preston 25-May-12 Reviewed by: Ann Preston 25-May-12

eSignature | Date | eSignature | Date

Matrices: soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes: Samples reactivated from refrigerated starage 5/25/12

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

12-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L GW 5/31/12** Work Order: **1206044**

Dear Bryan,

ALS Environmental received 1 sample on 01-Jun-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L GW 5/31/12
Work Order: **1206044**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206044-01	SBKR1150L522S053112G037	Groundwater		5/31/2012 11:30	6/1/2012 17:08	☐

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L GW 5/31/12
Work Order: 1206044

Case Narrative

Batch 41451 sample 1206044-01B MSD recovery for DRO was below the control limit. The LCS recovery was below the lower control limit. The sample was re-prepped, 1 day past hold time, and re-analyzed. The re-analysis was ND for DRO. Only the original analysis for DRO is included in this report. The sample results may be biased low for DRO.

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L GW 5/31/12
WorkOrder: **1206044**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112G037
Work Order:	1206044	**Collection Date:**	5/31/2012 11:30:00 AM
Project:	Marshall KRRI 1150L GW 5/31/12		
Lab ID:	1206044-01	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/5/2012**		Analyst: **CW**
DRO (C10-C20)	**0.26**	**0.10**	**0.10**		**mg/L**	1	6/7/2012
ORO (C20-C34)	ND	0.10	0.10		mg/L	1	6/7/2012
Surr: 4-Terphenyl-d14	*94.9*	*26-109*			*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/5/2012**		Analyst: **ML**
Beryllium	ND	0.0010	0.0010		mg/L	1	6/5/2012
Molybdenum	ND	0.050	0.050		mg/L	1	6/5/2012
Nickel	ND	0.020	0.020		mg/L	1	6/5/2012
Vanadium	ND	0.0040	0.0040		mg/L	1	6/5/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/5/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	5.0	5.0		µg/L	1	6/5/2012
Acenaphthene	ND	5.0	5.0		µg/L	1	6/5/2012
Acenaphthylene	ND	5.0	5.0		µg/L	1	6/5/2012
Anthracene	ND	5.0	5.0		µg/L	1	6/5/2012
Benzo(a)anthracene	ND	1.0	1.0		µg/L	1	6/5/2012
Benzo(a)pyrene	ND	1.0	1.0		µg/L	1	6/5/2012
Benzo(b)fluoranthene	ND	1.0	1.0		µg/L	1	6/5/2012
Benzo(g,h,i)perylene	ND	1.0	1.0		µg/L	1	6/5/2012
Benzo(k)fluoranthene	ND	1.0	1.0		µg/L	1	6/5/2012
Chrysene	ND	1.0	1.0		µg/L	1	6/5/2012
Dibenzo(a,h)anthracene	ND	2.0	2.0		µg/L	1	6/5/2012
Fluoranthene	ND	1.0	1.0		µg/L	1	6/5/2012
Fluorene	ND	5.0	5.0		µg/L	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	2.0	2.0		µg/L	1	6/5/2012
Naphthalene	ND	5.0	5.0		µg/L	1	6/5/2012
Phenanthrene	ND	2.0	2.0		µg/L	1	6/5/2012
Pyrene	ND	5.0	5.0		µg/L	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*64.3*	*21-125*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*54.7*	*36-94*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*34.0*	*10-75*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*76.7*	*26-119*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*48.0*	*41-104*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*18.8*	*11-50*			*%REC*	1	6/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: AECOM Environment
Work Order: 1206044
Project: Marshall KRRI 1150L GW 5/31/12

QC BATCH REPORT

Batch ID: **41451** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKW1-41451-41451** Units: **mg/L** Analysis Date: **6/7/2012 06:47 AM**

Client ID: Run ID: **GC8_120606A** SeqNo: **1993761** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.02952*	0	*0.05*	0	*59*	*26-109*	0			

The following samples were analyzed in this batch: 1206044-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206044
Project: Marshall KRRI 1150L GW 5/31/12

QC BATCH REPORT

Batch ID: **41530** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKW1-41530-41530** Units: **mg/L** Analysis Date: **6/9/2012 12:35 PM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995921** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	0.10								
ORO (C20-C34)	ND	0.10								
Surr: 4-Terphenyl-d14	*0.04588*	0	*0.05*	0	*91.8*	*33-78*	0			*S*

LCS Sample ID: **DLCSW1-41530-41530** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995916** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	2.83	0.10	5	0	56.6	44-116	0			
ORO (C20-C34)	3.203	0.10	5	0	64.1	44-116	0			
Surr: 4-Terphenyl-d14	*0.02203*	0	*0.05*	0	*44.1*	*33-78*	0			

MS Sample ID: **1206179-01B MS** Units: **mg/L** Analysis Date: **6/9/2012 01:01 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995919** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	29.85	1.0	50	0	59.7	44-116	0			
ORO (C20-C34)	32.38	1.0	50	0	64.8	44-116	0			
Surr: 4-Terphenyl-d14	*0.3671*	0	*0.5*	0	*73.4*	*33-78*	0			

MSD Sample ID: **1206179-01B MSD** Units: **mg/L** Analysis Date: **6/9/2012 01:27 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995917** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	24.92	1.0	50	0	49.8	44-116	29.85	18	30	
ORO (C20-C34)	28.69	1.0	50	0	57.4	44-116	32.38	12.1	30	
Surr: 4-Terphenyl-d14	*0.2004*	0	*0.5*	0	*40.1*	*33-78*	0.3671	*58.7*	*30*	*R*

The following samples were analyzed in this batch: 1206044-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206044
Project: Marshall KRRI 1150L GW 5/31/12

QC BATCH REPORT

Batch ID: **41449** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-41449-41449** Units: **mg/L** Analysis Date: **6/5/2012 05:03 PM**
Client ID: Run ID: **ICPMS1_120605A** SeqNo: **1991927** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Vanadium	ND	0.0050								

LCS Sample ID: **LCS-41449-41449** Units: **mg/L** Analysis Date: **6/5/2012 05:22 PM**
Client ID: Run ID: **ICPMS1_120605A** SeqNo: **1991930** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.09156	0.0020	0.1	0	91.6	80-120	0			
Molybdenum	0.09791	0.0050	0.1	0	97.9	80-120	0			
Nickel	0.09506	0.0050	0.1	0	95.1	80-120	0			
Vanadium	0.1007	0.0050	0.1	0	101	80-120	0			

MS Sample ID: **1206044-01AMS** Units: **mg/L** Analysis Date: **6/5/2012 07:42 PM**
Client ID: **SBKR1150L522S053112G037** Run ID: **ICPMS1_120605A** SeqNo: **1991952** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08361	0.0020	0.1	-6.972E-06	83.6	80-120	0			
Molybdenum	0.09828	0.0050	0.1	0.0005462	97.7	80-120	0			
Nickel	0.09332	0.0050	0.1	0.001073	92.2	80-120	0			
Vanadium	0.1043	0.0050	0.1	0.002122	102	80-120	0			

MSD Sample ID: **1206044-01AMSD** Units: **mg/L** Analysis Date: **6/5/2012 08:12 PM**
Client ID: **SBKR1150L522S053112G037** Run ID: **ICPMS1_120605A** SeqNo: **1991957** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.08684	0.0020	0.1	-6.972E-06	86.8	80-120	0.08361	3.79	20	
Molybdenum	0.0987	0.0050	0.1	0.0005462	98.2	80-120	0.09828	0.426	20	
Nickel	0.0921	0.0050	0.1	0.001073	91	80-120	0.09332	1.32	20	
Vanadium	0.1023	0.0050	0.1	0.002122	100	80-120	0.1043	1.94	20	

The following samples were analyzed in this batch: 1206044-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41450** Instrument ID **SVMS5** Method: **SW8270**

MBLK Sample ID: **SBLKW1-41450-41450** Units: **µg/L** Analysis Date: **6/5/2012 05:49 PM**
Client ID: Run ID: **SVMS5_120605A** SeqNo: **1991906** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Chrysene	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Naphthalene	ND	5.0								
Phenanthrene	ND	5.0								
Pyrene	ND	5.0								
Surr: 2-Fluorobiphenyl	*28.16*	0	*50*	0	*56.3*	*36-94*	0			
Surr: 4-Terphenyl-d14	*31.04*	0	*50*	0	*62.1*	*26-119*	0			
Surr: Nitrobenzene-d5	*25.89*	0	*50*	0	*51.8*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41450** Instrument ID **SVMS5** Method: **SW8270**

LCS Sample ID: **SLCSW1-41450-41450** Units: **µg/L** Analysis Date: **6/5/2012 03:27 PM**
Client ID: Run ID: **SVMS5_120605A** SeqNo: **1991902** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	11.97	5.0	20	0	59.8	45-105	0			
Acenaphthene	12.31	5.0	20	0	61.6	45-110	0			
Acenaphthylene	13.07	5.0	20	0	65.4	50-105	0			
Anthracene	12.25	5.0	20	0	61.2	55-110	0			
Benzo(a)anthracene	13.69	5.0	20	0	68.4	55-110	0			
Benzo(a)pyrene	13.01	5.0	20	0	65	55-110	0			
Benzo(b)fluoranthene	15	5.0	20	0	75	45-120	0			
Benzo(g,h,i)perylene	13.6	5.0	20	0	68	40-125	0			
Benzo(k)fluoranthene	12.36	5.0	20	0	61.8	45-125	0			
Chrysene	13.61	5.0	20	0	68	55-110	0			
Dibenzo(a,h)anthracene	12.89	5.0	20	0	64.4	40-125	0			
Fluoranthene	12.29	5.0	20	0	61.4	55-115	0			
Fluorene	12.36	5.0	20	0	61.8	50-110	0			
Indeno(1,2,3-cd)pyrene	13.11	5.0	20	0	65.6	45-125	0			
Naphthalene	11.91	5.0	20	0	59.6	40-100	0			
Phenanthrene	12.99	5.0	20	0	65	50-115	0			
Pyrene	12.85	5.0	20	0	64.2	50-130	0			
Surr: 2-Fluorobiphenyl	*33.64*	0	*50*	0	*67.3*	*36-94*	0			
Surr: 4-Terphenyl-d14	*29.28*	0	*50*	0	*58.6*	*26-119*	0			
Surr: Nitrobenzene-d5	*30.79*	0	*50*	0	*61.6*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41450** Instrument ID **SVMS5** Method: **SW8270**

MS Sample ID: **1206062-29B MS** Units: **µg/L** Analysis Date: **6/5/2012 04:02 PM**
Client ID: Run ID: **SVMS5_120605A** SeqNo: **1991903** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	121.6	50	200	0	60.8	45-105	0			
Acenaphthene	127.3	50	200	0	63.6	45-110	0			
Acenaphthylene	133.1	50	200	0	66.6	50-105	0			
Anthracene	122.4	50	200	0	61.2	55-110	0			
Benzo(a)anthracene	134.8	50	200	0	67.4	55-110	0			
Benzo(a)pyrene	128	50	200	0	64	55-110	0			
Benzo(b)fluoranthene	146.8	50	200	0	73.4	45-120	0			
Benzo(g,h,i)perylene	134.8	50	200	0	67.4	40-125	0			
Benzo(k)fluoranthene	121.8	50	200	0	60.9	45-125	0			
Chrysene	131.5	50	200	0	65.8	55-110	0			
Dibenzo(a,h)anthracene	126.1	50	200	0	63	40-125	0			
Fluoranthene	122.2	50	200	0	61.1	55-115	0			
Fluorene	125	50	200	0	62.5	50-110	0			
Indeno(1,2,3-cd)pyrene	128.6	50	200	0	64.3	45-125	0			
Naphthalene	120	50	200	0	60	40-100	0			
Phenanthrene	132.1	50	200	0	66	50-115	0			
Pyrene	127.3	50	200	0	63.6	50-130	0			
Surr: 2-Fluorobiphenyl	*342.5*	0	*500*	0	*68.5*	*36-94*	0			
Surr: 4-Terphenyl-d14	*299.1*	0	*500*	0	*59.8*	*26-119*	0			
Surr: Nitrobenzene-d5	*310.9*	0	*500*	0	*62.2*	*41-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206044
Project: Marshall KRRI 1150L GW 5/31/12

QC BATCH REPORT

Batch ID: **41450** Instrument ID **SVMS5** Method: **SW8270**

MSD Sample ID: **1206062-29B MSD** Units: **µg/L** Analysis Date: **6/5/2012 04:38 PM**

Client ID: Run ID: **SVMS5_120605A** SeqNo: **1991904** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	110	50	200	0	55	45-105	121.6	10	30	
Acenaphthene	115	50	200	0	57.5	45-110	127.3	10.2	30	
Acenaphthylene	120	50	200	0	60	50-105	133.1	10.4	30	
Anthracene	113.4	50	200	0	56.7	55-110	122.4	7.63	30	
Benzo(a)anthracene	128.4	50	200	0	64.2	55-110	134.8	4.86	30	
Benzo(a)pyrene	118.5	50	200	0	59.2	55-110	128	7.71	30	
Benzo(b)fluoranthene	140	50	200	0	70	45-120	146.8	4.74	30	
Benzo(g,h,i)perylene	126	50	200	0	63	40-125	134.8	6.75	30	
Benzo(k)fluoranthene	115	50	200	0	57.5	45-125	121.8	5.74	30	
Chrysene	125.3	50	200	0	62.6	55-110	131.5	4.83	30	
Dibenzo(a,h)anthracene	119.7	50	200	0	59.8	40-125	126.1	5.21	30	
Fluoranthene	114.3	50	200	0	57.2	55-115	122.2	6.68	30	
Fluorene	114.9	50	200	0	57.4	50-110	125	8.42	30	
Indeno(1,2,3-cd)pyrene	120.2	50	200	0	60.1	45-125	128.6	6.75	30	
Naphthalene	109.1	50	200	0	54.6	40-100	120	9.52	30	
Phenanthrene	118.9	50	200	0	59.4	50-115	132.1	10.5	30	
Pyrene	120.6	50	200	0	60.3	50-130	127.3	5.41	30	
Surr: 2-Fluorobiphenyl	*310.7*	0	*500*	0	*62.1*	*36-94*	342.5	*9.74*	*40*	
Surr: 4-Terphenyl-d14	*283*	0	*500*	0	*56.6*	*26-119*	299.1	*5.53*	*40*	
Surr: Nitrobenzene-d5	*278.3*	0	*500*	0	*55.7*	*41-104*	310.9	*11.1*	*40*	

The following samples were analyzed in this batch: 1206044-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206044

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_053112_LJL1	Task: KRRI_GW1150
	Total # of Samples: 1	Event Complete?
Turn Around Time	5 Day	Rush: No
BILLING CODE: 6.00		

Lab Information:

Lab Name:	ALS Laboratory Group
Address:	3352 128th Ave. Holland, MI 49424-9263
Lab PM:	Ann Preston
Phone/Fax:	1-616-399-6070/1-616-399-6185
Lab PM email:	ann.preston@alsglobal.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	
Project #	60162778
Site Address	5555 Glenwood Parkway SE Suite 200
City / State, Zip	Grand Rapids / MI
Site PM Name	Bryan Stiemsma
Phone/Fax:	616-940-4424
Site PM Email:	Bryan.Stiemsma@aecom.com

Other Information:

Send Invoice to:	Enbridge Energy - ATTN Accounts Payable
Address:	1100 Louisiana Suite 1100
City/State:	Houson, TX
Phone #:	713-821-2000
PO #	
Send EDD to	
CC Hardcopy report	
CC Hardcopy report	

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative: HNO3	None	None	Analysis: Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270
1	SBKR1150L522S053112G037	SBKR1150L522	WG	G	05/31/2012 11:30	3					X	X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-31-12	1732		5-31-12	1732
	6-1-12	1708		6-1-12	1708

Sample Receipt Conditions

Temp in 0C	Samples on Ice?	Sample Intact?	Trip Blank?
2.4°C	(Y)N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

6/1/12

SHIPPING INFO:

Company:

Tracking #:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: LORRI LEGO (LJL1)

SIGNATURE of SAMPLER:

DATE Signed:

Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **01-Jun-12 00:00**

Work Order: **1206044** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 02-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 04-Jun-12 (Date)

Matrices: Water
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

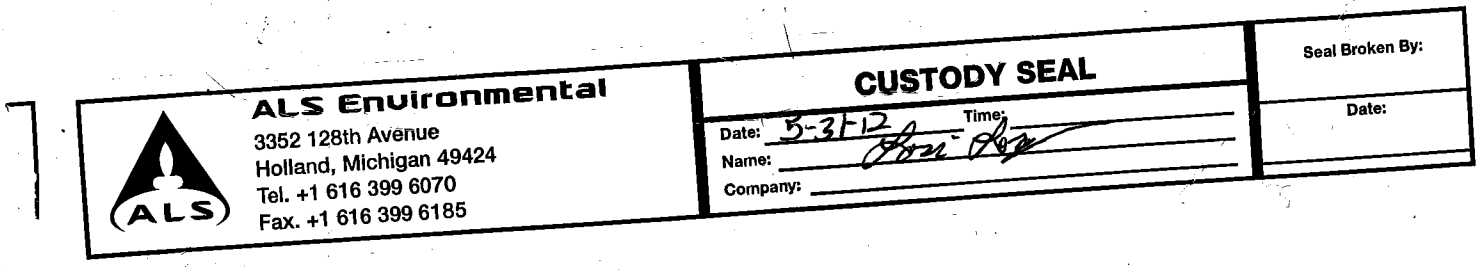
Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

2.4°C



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 5-31-12 Time:
Name:
Company:

Seal Broken By:

Date:

12-Jun-2012

Bryan Stiemsma
AECOM Environment
5555 Glenwood Parkway SE
Grand Rapids, MI 49512

Re: **Marshall KRRI 1150L 5/31/12** Work Order: **1206045**

Dear Bryan,

ALS Environmental received 10 samples on 01-Jun-2012 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 101.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/31/12
Work Order: **1206045**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1206045-01	SBKR1150L522D053112S007	Soil		5/31/2012 09:55	6/1/2012 17:08	☐
1206045-02	SBKR1150L522S053112S007	Soil		5/31/2012 09:55	6/1/2012 17:08	☐
1206045-03	SBKR1150L522S053112S020	Soil		5/31/2012 10:05	6/1/2012 17:08	☐
1206045-04	SBKR1150L523S053112S004	Soil		5/31/2012 10:35	6/1/2012 17:08	☐
1206045-05	SBKR1150L524S053112S004	Soil		5/31/2012 13:20	6/1/2012 17:08	☐
1206045-06	SBKR1150L525S053112S005	Soil		5/31/2012 13:45	6/1/2012 17:08	☐
1206045-07	SBKR1150L526S053112S005	Soil		5/31/2012 14:10	6/1/2012 17:08	☐
1206045-08	SBKR1150L527S053112S004	Soil		5/31/2012 15:09	6/1/2012 17:08	☐
1206045-09	SBKR1150L528S053112S007	Soil		5/31/2012 16:47	6/1/2012 17:08	☐
1206045-10	SBKR1150L528T053112MX	Soil		5/31/2012	6/1/2012 17:08	☐

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/31/12
Work Order: 1206045

Case Narrative

The extraction procedure used to prepare the soil samples for DRO and PAH analyses in this work order was a modification of the standard 3541 procedure. At the request of the client, a 10 gram sample aliquot dried with hydromatrix is used for extraction as outlined in ALS SOP HN-EXT-003(EN)-R01. All samples extracted starting on 10/1/2011 were prepared using this modified SOP.

Batch 41475 SBKR1150L524S053112S004 MS/MSD recoveries for the DRO surrogate, 4-Terphenyl-d14, were above control limits due to matrix interference. Samples 1206045-01, 1206045-02, 1206045-03, 1206045-06, 1206045-07,and 1206045-08 had high DRO surrogate, 4-Terphenyl-d14, recoveries due to matrix interference. The DRO results in these samples may be biased high.

Batch 41473 sample SBKR1150L523S053112S004 MS recoveries for Beryllium, Molybdenum, Nickel and Vanadium were above control limits. Both the MSD recoveries and RPDs met quality control criteria. No data requires qualification.

Batch 41463 LCS/LCSD and MS/MSD recoveries for several Volatile compounds were below control limits due to a sample prep error. Only the Trip Blank data was reported from this batch, as there was not a second VOA vial submitted. No re-analysis was possible.

Batch 41504 sample SBKR1150L523S053112S004 MS and LCS recoveries for 4-Methyl-2-pentanone were above control limits. Both the MSD recovery and RPD met quality control criteria. All samples in this quality control batch were ND for this compound. No data requires qualification.

Batch 41526 LCS/LCSD recoveries for 4-Methyl-2-pentanone were above control limits. All samples in this quality control batch were ND for this compound. No data requires qualification. Sample SBKR1150L528S053112S007 MS/MSD recoveries for MTBE were above control limits. The parent sample was ND for this compound. No data requires qualification. A second MS/MSD set of data is not related to this project's samples.

ALS Group USA, Corp

Date: 12-Jun-12

Client: AECOM Environment
Project: Marshall KRRI 1150L 5/31/12
WorkOrder: **1206045**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522D053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**340**	**28**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**2,200**	**56**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*165*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.1**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**11**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)pyrene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(b)fluoranthene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Chrysene	**420**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluoranthene	**410**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*103*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*67.4*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*58.4*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*110*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*54.6*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*51.8*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	460	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522D053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	460	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	460	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
2-Butanone	**26,000**	**1,500**	**750**		**µg/Kg-dry**	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,500	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	3,800	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	460	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	460	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	460	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	460	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,500	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	460	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	460	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	460	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	460	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522D053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	460	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	910	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	460	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	460	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,500	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	460	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	460	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	460	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	460	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,500	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	460	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	460	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	460	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*97.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**67**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**420**	**29**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**2,300**	**59**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*140*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	**340**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(a)pyrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(b)fluoranthene	**570**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Chrysene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluoranthene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*97.7*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*64.8*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*67.3*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*97.0*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*58.2*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*61.8*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	460	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	460	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	460	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	460	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,500	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,500	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	3,900	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	460	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	460	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	460	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	460	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	460	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,500	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	460	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	460	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	460	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	460	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	460	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 9:55:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	460	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	460	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	930	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	460	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	460	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	460	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,500	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	460	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	460	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	460	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	460	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	460	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	460	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,500	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	460	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	460	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	460	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	460	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	460	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	460	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*92.6*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*90.2*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*89.3*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*91.8*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**67**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S020
Work Order:	1206045	**Collection Date:**	5/31/2012 10:05:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**62**	**24**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**670**	**48**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*160*	*39-115*		S	*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**7.8**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**12**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/5/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/5/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/5/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/5/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/5/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/5/2012
Surr: 2,4,6-Tribromophenol	*110*	*34-140*			*%REC*	1	6/5/2012
Surr: 2-Fluorobiphenyl	*68.8*	*12-100*			*%REC*	1	6/5/2012
Surr: 2-Fluorophenol	*69.5*	*33-117*			*%REC*	1	6/5/2012
Surr: 4-Terphenyl-d14	*102*	*25-137*			*%REC*	1	6/5/2012
Surr: Nitrobenzene-d5	*59.1*	*37-107*			*%REC*	1	6/5/2012
Surr: Phenol-d6	*62.8*	*40-106*			*%REC*	1	6/5/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	330	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S020
Work Order:	1206045	**Collection Date:**	5/31/2012 10:05:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	330	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	330	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	330	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	1,100	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	2,800	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	330	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	330	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	330	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	330	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	330	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	1,100	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	330	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	330	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	330	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	330	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	330	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	330	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L522S053112S020
Work Order:	1206045	**Collection Date:**	5/31/2012 10:05:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	330	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	330	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	670	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	330	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	330	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	330	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	1,100	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	330	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	330	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	330	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	330	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	330	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	330	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,100	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	330	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	330	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	330	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	330	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	330	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	330	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*99.4*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**62**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L523S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 10:35:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/4/2012**		Analyst: **CW**
DRO (C10-C20)	**73**	**19**	**4.0**		**mg/Kg-dry**	1	6/7/2012
ORO (C20-C34)	**620**	**38**	**4.0**		**mg/Kg-dry**	1	6/7/2012
Surr: 4-Terphenyl-d14	*105*	*39-115*			*%REC*	1	6/7/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.0	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**16**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**18**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/4/2012**		Analyst: **HL**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/4/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/4/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Benzo(a)anthracene	**810**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(a)pyrene	**850**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(b)fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(g,h,i)perylene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Benzo(k)fluoranthene	**450**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Chrysene	**810**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/4/2012
Fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/4/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/4/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/4/2012
Phenanthrene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Pyrene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/4/2012
Surr: 2,4,6-Tribromophenol	*103*	*34-140*			*%REC*	1	6/4/2012
Surr: 2-Fluorobiphenyl	*68.1*	*12-100*			*%REC*	1	6/4/2012
Surr: 2-Fluorophenol	*69.2*	*33-117*			*%REC*	1	6/4/2012
Surr: 4-Terphenyl-d14	*92.6*	*25-137*			*%REC*	1	6/4/2012
Surr: Nitrobenzene-d5	*62.9*	*37-107*			*%REC*	1	6/4/2012
Surr: Phenol-d6	*65.7*	*40-106*			*%REC*	1	6/4/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L523S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 10:35:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	530	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	530	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L523S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 10:35:00 AM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	320	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	530	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*100*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*102*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**48**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L524S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 1:20:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**64**	**17**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**710**	**35**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*96.1*	*39-115*			*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.0**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**21**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**780**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**1,000**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**1,200**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**700**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	**370**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Chrysene	**950**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**1,400**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**610**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**460**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**1,600**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*96.0*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*63.7*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*78.2*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*84.8*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*65.8*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*79.8*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/7/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	160	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L524S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 1:20:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	160	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	160	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	160	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	520	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,300	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	160	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	160	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	160	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	520	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	160	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L524S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 1:20:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	310	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	160	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	160	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	520	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	160	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	160	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	160	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	160	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	160	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	160	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	160	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	160	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	160	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	160	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	160	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*97.6*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*97.1*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*101*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**47**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L525S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 1:45:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**140**	**36**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,600**	**72**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*144*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	**0.56**	**0.55**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.3**	**1.1**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**23**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**810**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**830**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**600**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**680**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**560**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	**360**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Pyrene	**1,100**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*95.0*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*62.6*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*75.2*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*80.9*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*62.7*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*76.8*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/8/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	710	100		µg/Kg-dry	1	6/11/2012
1,1,1-Trichloroethane	ND	710	50		µg/Kg-dry	1	6/11/2012
1,1,2,2-Tetrachloroethane	ND	710	50		µg/Kg-dry	1	6/11/2012
1,1,2-Trichloroethane	ND	710	50		µg/Kg-dry	1	6/11/2012
1,1-Dichloroethane	ND	710	50		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L525S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 1:45:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/11/2012
1,2,3-Trichlorobenzene	ND	710	250		µg/Kg-dry	1	6/11/2012
1,2,3-Trichloropropane	ND	710	100		µg/Kg-dry	1	6/11/2012
1,2,3-Trimethylbenzene	ND	710	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trichlorobenzene	ND	710	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trimethylbenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
1,2-Dibromo-3-chloropropane	ND	710	10		µg/Kg-dry	1	6/11/2012
1,2-Dibromoethane	ND	710	20		µg/Kg-dry	1	6/11/2012
1,2-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
1,2-Dichloroethane	ND	710	50		µg/Kg-dry	1	6/11/2012
1,2-Dichloropropane	ND	710	50		µg/Kg-dry	1	6/11/2012
1,3,5-Trimethylbenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
1,3-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
1,4-Dichlorobenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
2-Butanone	ND	2,400	750		µg/Kg-dry	1	6/11/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
2-Methylnaphthalene	ND	2,400	330		µg/Kg-dry	1	6/11/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
Acetone	ND	5,900	1,000		µg/Kg-dry	1	6/11/2012
Acrylonitrile	ND	710	100		µg/Kg-dry	1	6/11/2012
Benzene	ND	710	50		µg/Kg-dry	1	6/11/2012
Bromobenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
Bromochloromethane	ND	710	100		µg/Kg-dry	1	6/11/2012
Bromodichloromethane	ND	710	100		µg/Kg-dry	1	6/11/2012
Bromoform	ND	710	100		µg/Kg-dry	1	6/11/2012
Bromomethane	ND	710	200		µg/Kg-dry	1	6/11/2012
Carbon disulfide	ND	710	250		µg/Kg-dry	1	6/11/2012
Carbon tetrachloride	ND	710	50		µg/Kg-dry	1	6/11/2012
Chlorobenzene	ND	710	50		µg/Kg-dry	1	6/11/2012
Chloroethane	ND	2,400	250		µg/Kg-dry	1	6/11/2012
Chloroform	ND	710	50		µg/Kg-dry	1	6/11/2012
Chloromethane	ND	710	250		µg/Kg-dry	1	6/11/2012
cis-1,2-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/11/2012
cis-1,3-Dichloropropene	ND	710	50		µg/Kg-dry	1	6/11/2012
Cyclohexane	ND	710	500		µg/Kg-dry	1	6/11/2012
Dibromochloromethane	ND	710	100		µg/Kg-dry	1	6/11/2012
Dibromomethane	ND	710	250		µg/Kg-dry	1	6/11/2012
Dichlorodifluoromethane	ND	710	250		µg/Kg-dry	1	6/11/2012
Diethyl ether	ND	710	200		µg/Kg-dry	1	6/11/2012
Diisopropyl ether	ND	710	250		µg/Kg-dry	1	6/11/2012
Ethyl tert butyl ether	ND	710	250		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L525S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 1:45:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	710	50		µg/Kg-dry	1	6/11/2012
Hexachloroethane	ND	710	300		µg/Kg-dry	1	6/11/2012
Isopropylbenzene	ND	710	250		µg/Kg-dry	1	6/11/2012
m,p-Xylene	ND	1,400	100		µg/Kg-dry	1	6/11/2012
Methyl iodide	ND	710	100		µg/Kg-dry	1	6/11/2012
Methyl tert-butyl ether	ND	710	250		µg/Kg-dry	1	6/11/2012
Methylene chloride	ND	710	100		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	2,400	330		µg/Kg-dry	1	6/11/2012
n-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/11/2012
n-Propylbenzene	ND	710	100		µg/Kg-dry	1	6/11/2012
o-Xylene	ND	710	50		µg/Kg-dry	1	6/11/2012
p-Isopropyltoluene	ND	710	100		µg/Kg-dry	1	6/11/2012
sec-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/11/2012
Styrene	ND	710	50		µg/Kg-dry	1	6/11/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
tert-Butylbenzene	ND	710	50		µg/Kg-dry	1	6/11/2012
Tertiaryamylmethylether	ND	710	250		µg/Kg-dry	1	6/11/2012
Tetrachloroethene	ND	710	50		µg/Kg-dry	1	6/11/2012
Tetrahydrofuran	ND	2,400	1,000		µg/Kg-dry	1	6/11/2012
Toluene	ND	710	100		µg/Kg-dry	1	6/11/2012
trans-1,2-Dichloroethene	ND	710	50		µg/Kg-dry	1	6/11/2012
trans-1,3-Dichloropropene	ND	710	50		µg/Kg-dry	1	6/11/2012
trans-1,4-Dichloro-2-butene	ND	710	50		µg/Kg-dry	1	6/11/2012
Trichloroethene	ND	710	50		µg/Kg-dry	1	6/11/2012
Trichlorofluoromethane	ND	710	100		µg/Kg-dry	1	6/11/2012
Vinyl chloride	ND	710	40		µg/Kg-dry	1	6/11/2012
Surr: 1,2-Dichloroethane-d4	*105*	*70-130*			*%REC*	1	6/11/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/11/2012
Surr: Dibromofluoromethane	*100*	*70-130*			*%REC*	1	6/11/2012
Surr: Toluene-d8	*97.4*	*70-130*			*%REC*	1	6/11/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**73**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L526S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 2:10:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**150**	**31**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**1,500**	**62**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*211*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	**0.75**	**0.50**	**0.50**		**mg/Kg-dry**	4	6/7/2012
Molybdenum	**1.4**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**24**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**33**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**510**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**590**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**770**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**480**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**890**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*97.8*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*63.3*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*73.8*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*86.1*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*61.9*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*76.2*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/8/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	490	100		µg/Kg-dry	1	6/11/2012
1,1,1-Trichloroethane	ND	490	50		µg/Kg-dry	1	6/11/2012
1,1,2,2-Tetrachloroethane	ND	490	50		µg/Kg-dry	1	6/11/2012
1,1,2-Trichloroethane	ND	490	50		µg/Kg-dry	1	6/11/2012
1,1-Dichloroethane	ND	490	50		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L526S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 2:10:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/11/2012
1,2,3-Trichlorobenzene	ND	490	250		µg/Kg-dry	1	6/11/2012
1,2,3-Trichloropropane	ND	490	100		µg/Kg-dry	1	6/11/2012
1,2,3-Trimethylbenzene	ND	490	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trichlorobenzene	ND	490	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trimethylbenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
1,2-Dibromo-3-chloropropane	ND	490	10		µg/Kg-dry	1	6/11/2012
1,2-Dibromoethane	ND	490	20		µg/Kg-dry	1	6/11/2012
1,2-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
1,2-Dichloroethane	ND	490	50		µg/Kg-dry	1	6/11/2012
1,2-Dichloropropane	ND	490	50		µg/Kg-dry	1	6/11/2012
1,3,5-Trimethylbenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
1,3-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
1,4-Dichlorobenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
2-Butanone	ND	1,600	750		µg/Kg-dry	1	6/11/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
2-Methylnaphthalene	ND	1,600	330		µg/Kg-dry	1	6/11/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
Acetone	ND	4,100	1,000		µg/Kg-dry	1	6/11/2012
Acrylonitrile	ND	490	100		µg/Kg-dry	1	6/11/2012
Benzene	ND	490	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
Bromochloromethane	ND	490	100		µg/Kg-dry	1	6/11/2012
Bromodichloromethane	ND	490	100		µg/Kg-dry	1	6/11/2012
Bromoform	ND	490	100		µg/Kg-dry	1	6/11/2012
Bromomethane	ND	490	200		µg/Kg-dry	1	6/11/2012
Carbon disulfide	ND	490	250		µg/Kg-dry	1	6/11/2012
Carbon tetrachloride	ND	490	50		µg/Kg-dry	1	6/11/2012
Chlorobenzene	ND	490	50		µg/Kg-dry	1	6/11/2012
Chloroethane	ND	1,600	250		µg/Kg-dry	1	6/11/2012
Chloroform	ND	490	50		µg/Kg-dry	1	6/11/2012
Chloromethane	ND	490	250		µg/Kg-dry	1	6/11/2012
cis-1,2-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/11/2012
cis-1,3-Dichloropropene	ND	490	50		µg/Kg-dry	1	6/11/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/11/2012
Dibromochloromethane	ND	490	100		µg/Kg-dry	1	6/11/2012
Dibromomethane	ND	490	250		µg/Kg-dry	1	6/11/2012
Dichlorodifluoromethane	ND	490	250		µg/Kg-dry	1	6/11/2012
Diethyl ether	ND	490	200		µg/Kg-dry	1	6/11/2012
Diisopropyl ether	ND	490	250		µg/Kg-dry	1	6/11/2012
Ethyl tert butyl ether	ND	490	250		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L526S053112S005
Work Order:	1206045	**Collection Date:**	5/31/2012 2:10:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	490	50		µg/Kg-dry	1	6/11/2012
Hexachloroethane	ND	490	300		µg/Kg-dry	1	6/11/2012
Isopropylbenzene	ND	490	250		µg/Kg-dry	1	6/11/2012
m,p-Xylene	ND	980	100		µg/Kg-dry	1	6/11/2012
Methyl iodide	ND	490	100		µg/Kg-dry	1	6/11/2012
Methyl tert-butyl ether	ND	490	250		µg/Kg-dry	1	6/11/2012
Methylene chloride	ND	490	100		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	1,600	330		µg/Kg-dry	1	6/11/2012
n-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/11/2012
n-Propylbenzene	ND	490	100		µg/Kg-dry	1	6/11/2012
o-Xylene	ND	490	50		µg/Kg-dry	1	6/11/2012
p-Isopropyltoluene	ND	490	100		µg/Kg-dry	1	6/11/2012
sec-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/11/2012
Styrene	ND	490	50		µg/Kg-dry	1	6/11/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
tert-Butylbenzene	ND	490	50		µg/Kg-dry	1	6/11/2012
Tertiaryamylmethylether	ND	490	250		µg/Kg-dry	1	6/11/2012
Tetrachloroethene	ND	490	50		µg/Kg-dry	1	6/11/2012
Tetrahydrofuran	ND	1,600	1,000		µg/Kg-dry	1	6/11/2012
Toluene	ND	490	100		µg/Kg-dry	1	6/11/2012
trans-1,2-Dichloroethene	ND	490	50		µg/Kg-dry	1	6/11/2012
trans-1,3-Dichloropropene	ND	490	50		µg/Kg-dry	1	6/11/2012
trans-1,4-Dichloro-2-butene	ND	490	50		µg/Kg-dry	1	6/11/2012
Trichloroethene	ND	490	50		µg/Kg-dry	1	6/11/2012
Trichlorofluoromethane	ND	490	100		µg/Kg-dry	1	6/11/2012
Vinyl chloride	ND	490	40		µg/Kg-dry	1	6/11/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/11/2012
Surr: 1,2-Dichloroethane-d4	*108*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/11/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*99.8*	*70-130*			*%REC*	1	6/11/2012
Surr: Dibromofluoromethane	*105*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*98.0*	*70-130*			*%REC*	1	6/11/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**68**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L527S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 3:09:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**67**	**20**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**570**	**41**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*147*	*39-115*		S	*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.50	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	**1.3**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Nickel	**20**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/7/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Benzo(a)anthracene	**400**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(a)pyrene	**580**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(b)fluoranthene	**640**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(g,h,i)perylene	**490**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/7/2012
Chrysene	**470**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/7/2012
Fluoranthene	**720**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/7/2012
Indeno(1,2,3-cd)pyrene	**390**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/7/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/7/2012
Pyrene	**760**	**330**	**330**		**µg/Kg-dry**	1	6/7/2012
Surr: 2,4,6-Tribromophenol	*86.9*	*34-140*			*%REC*	1	6/7/2012
Surr: 2-Fluorobiphenyl	*60.0*	*12-100*			*%REC*	1	6/7/2012
Surr: 2-Fluorophenol	*68.2*	*33-117*			*%REC*	1	6/7/2012
Surr: 4-Terphenyl-d14	*78.6*	*25-137*			*%REC*	1	6/7/2012
Surr: Nitrobenzene-d5	*60.5*	*37-107*			*%REC*	1	6/7/2012
Surr: Phenol-d6	*70.8*	*40-106*			*%REC*	1	6/7/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/8/2012**		Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND	190	100		µg/Kg-dry	1	6/8/2012
1,1,1-Trichloroethane	ND	190	50		µg/Kg-dry	1	6/8/2012
1,1,2,2-Tetrachloroethane	ND	190	50		µg/Kg-dry	1	6/8/2012
1,1,2-Trichloroethane	ND	190	50		µg/Kg-dry	1	6/8/2012
1,1-Dichloroethane	ND	190	50		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L527S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 3:09:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/8/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,3-Trichloropropane	ND	190	100		µg/Kg-dry	1	6/8/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
1,2,4-Trimethylbenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
1,2-Dibromo-3-chloropropane	ND	190	10		µg/Kg-dry	1	6/8/2012
1,2-Dibromoethane	ND	190	20		µg/Kg-dry	1	6/8/2012
1,2-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
1,2-Dichloroethane	ND	190	50		µg/Kg-dry	1	6/8/2012
1,2-Dichloropropane	ND	190	50		µg/Kg-dry	1	6/8/2012
1,3,5-Trimethylbenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
1,3-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
1,4-Dichlorobenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
2-Butanone	ND	750	750		µg/Kg-dry	1	6/8/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
2-Methylnaphthalene	ND	630	330		µg/Kg-dry	1	6/8/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
Acetone	ND	1,600	1,000		µg/Kg-dry	1	6/8/2012
Acrylonitrile	ND	190	100		µg/Kg-dry	1	6/8/2012
Benzene	ND	190	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
Bromochloromethane	ND	190	100		µg/Kg-dry	1	6/8/2012
Bromodichloromethane	ND	190	100		µg/Kg-dry	1	6/8/2012
Bromoform	ND	190	100		µg/Kg-dry	1	6/8/2012
Bromomethane	ND	200	200		µg/Kg-dry	1	6/8/2012
Carbon disulfide	ND	250	250		µg/Kg-dry	1	6/8/2012
Carbon tetrachloride	ND	190	50		µg/Kg-dry	1	6/8/2012
Chlorobenzene	ND	190	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	630	250		µg/Kg-dry	1	6/8/2012
Chloroform	ND	190	50		µg/Kg-dry	1	6/8/2012
Chloromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
cis-1,2-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/8/2012
cis-1,3-Dichloropropene	ND	190	50		µg/Kg-dry	1	6/8/2012
Cyclohexane	ND	500	500		µg/Kg-dry	1	6/8/2012
Dibromochloromethane	ND	190	100		µg/Kg-dry	1	6/8/2012
Dibromomethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg-dry	1	6/8/2012
Diethyl ether	ND	200	200		µg/Kg-dry	1	6/8/2012
Diisopropyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L527S053112S004
Work Order:	1206045	**Collection Date:**	5/31/2012 3:09:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	190	50		µg/Kg-dry	1	6/8/2012
Hexachloroethane	ND	300	300		µg/Kg-dry	1	6/8/2012
Isopropylbenzene	ND	250	250		µg/Kg-dry	1	6/8/2012
m,p-Xylene	ND	380	100		µg/Kg-dry	1	6/8/2012
Methyl iodide	ND	190	100		µg/Kg-dry	1	6/8/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg-dry	1	6/8/2012
Methylene chloride	ND	190	100		µg/Kg-dry	1	6/8/2012
Naphthalene	ND	630	330		µg/Kg-dry	1	6/8/2012
n-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/8/2012
n-Propylbenzene	ND	190	100		µg/Kg-dry	1	6/8/2012
o-Xylene	ND	190	50		µg/Kg-dry	1	6/8/2012
p-Isopropyltoluene	ND	190	100		µg/Kg-dry	1	6/8/2012
sec-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/8/2012
Styrene	ND	190	50		µg/Kg-dry	1	6/8/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg-dry	1	6/8/2012
tert-Butylbenzene	ND	190	50		µg/Kg-dry	1	6/8/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg-dry	1	6/8/2012
Tetrachloroethene	ND	190	50		µg/Kg-dry	1	6/8/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg-dry	1	6/8/2012
Toluene	ND	190	100		µg/Kg-dry	1	6/8/2012
trans-1,2-Dichloroethene	ND	190	50		µg/Kg-dry	1	6/8/2012
trans-1,3-Dichloropropene	ND	190	50		µg/Kg-dry	1	6/8/2012
trans-1,4-Dichloro-2-butene	ND	190	50		µg/Kg-dry	1	6/8/2012
Trichloroethene	ND	190	50		µg/Kg-dry	1	6/8/2012
Trichlorofluoromethane	ND	190	100		µg/Kg-dry	1	6/8/2012
Vinyl chloride	ND	190	40		µg/Kg-dry	1	6/8/2012
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*104*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*104*	*70-130*			*%REC*	1	6/8/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**51**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L528S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 4:47:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep Date: **6/6/2012**		Analyst: **CW**
DRO (C10-C20)	**78**	**37**	**4.0**		**mg/Kg-dry**	1	6/8/2012
ORO (C20-C34)	**650**	**75**	**4.0**		**mg/Kg-dry**	1	6/8/2012
Surr: 4-Terphenyl-d14	*110*	*39-115*			*%REC*	1	6/8/2012
METALS BY ICP-MS			**SW6020A**		Prep Date: **6/7/2012**		Analyst: **RH**
Beryllium	ND	0.61	0.50		mg/Kg-dry	4	6/7/2012
Molybdenum	ND	1.2	1.0		mg/Kg-dry	4	6/7/2012
Nickel	**15**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
Vanadium	**22**	**1.0**	**1.0**		**mg/Kg-dry**	4	6/7/2012
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep Date: **6/6/2012**		Analyst: **CW**
2-Methylnaphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Acenaphthylene	ND	330	330		µg/Kg-dry	1	6/6/2012
Anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(a)pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(b)fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(g,h,i)perylene	ND	330	330		µg/Kg-dry	1	6/6/2012
Benzo(k)fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Chrysene	ND	330	330		µg/Kg-dry	1	6/6/2012
Dibenzo(a,h)anthracene	ND	330	330		µg/Kg-dry	1	6/6/2012
Fluoranthene	ND	330	330		µg/Kg-dry	1	6/6/2012
Fluorene	ND	330	330		µg/Kg-dry	1	6/6/2012
Indeno(1,2,3-cd)pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Naphthalene	ND	330	330		µg/Kg-dry	1	6/6/2012
Phenanthrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Pyrene	ND	330	330		µg/Kg-dry	1	6/6/2012
Surr: 2,4,6-Tribromophenol	*88.5*	*34-140*			*%REC*	1	6/6/2012
Surr: 2-Fluorobiphenyl	*61.7*	*12-100*			*%REC*	1	6/6/2012
Surr: 2-Fluorophenol	*78.1*	*33-117*			*%REC*	1	6/6/2012
Surr: 4-Terphenyl-d14	*76.5*	*25-137*			*%REC*	1	6/6/2012
Surr: Nitrobenzene-d5	*66.7*	*37-107*			*%REC*	1	6/6/2012
Surr: Phenol-d6	*76.6*	*40-106*			*%REC*	1	6/6/2012
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/8/2012**		Analyst: **RS**
1,1,1,2-Tetrachloroethane	ND	840	100		µg/Kg-dry	1	6/11/2012
1,1,1-Trichloroethane	ND	840	50		µg/Kg-dry	1	6/11/2012
1,1,2,2-Tetrachloroethane	ND	840	50		µg/Kg-dry	1	6/11/2012
1,1,2-Trichloroethane	ND	840	50		µg/Kg-dry	1	6/11/2012
1,1-Dichloroethane	ND	840	50		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L528S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 4:47:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethene	ND	840	50		µg/Kg-dry	1	6/11/2012
1,2,3-Trichlorobenzene	ND	840	250		µg/Kg-dry	1	6/11/2012
1,2,3-Trichloropropane	ND	840	100		µg/Kg-dry	1	6/11/2012
1,2,3-Trimethylbenzene	ND	840	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trichlorobenzene	ND	840	250		µg/Kg-dry	1	6/11/2012
1,2,4-Trimethylbenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
1,2-Dibromo-3-chloropropane	ND	840	10		µg/Kg-dry	1	6/11/2012
1,2-Dibromoethane	ND	840	20		µg/Kg-dry	1	6/11/2012
1,2-Dichlorobenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
1,2-Dichloroethane	ND	840	50		µg/Kg-dry	1	6/11/2012
1,2-Dichloropropane	ND	840	50		µg/Kg-dry	1	6/11/2012
1,3,5-Trimethylbenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
1,3-Dichlorobenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
1,4-Dichlorobenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
2-Butanone	ND	2,800	750		µg/Kg-dry	1	6/11/2012
2-Hexanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
2-Methylnaphthalene	ND	2,800	330		µg/Kg-dry	1	6/11/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg-dry	1	6/11/2012
Acetone	ND	7,000	1,000		µg/Kg-dry	1	6/11/2012
Acrylonitrile	ND	840	100		µg/Kg-dry	1	6/11/2012
Benzene	ND	840	50		µg/Kg-dry	1	6/8/2012
Bromobenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
Bromochloromethane	ND	840	100		µg/Kg-dry	1	6/11/2012
Bromodichloromethane	ND	840	100		µg/Kg-dry	1	6/11/2012
Bromoform	ND	840	100		µg/Kg-dry	1	6/11/2012
Bromomethane	ND	840	200		µg/Kg-dry	1	6/11/2012
Carbon disulfide	ND	840	250		µg/Kg-dry	1	6/11/2012
Carbon tetrachloride	ND	840	50		µg/Kg-dry	1	6/11/2012
Chlorobenzene	ND	840	50		µg/Kg-dry	1	6/8/2012
Chloroethane	ND	2,800	250		µg/Kg-dry	1	6/11/2012
Chloroform	ND	840	50		µg/Kg-dry	1	6/11/2012
Chloromethane	ND	840	250		µg/Kg-dry	1	6/11/2012
cis-1,2-Dichloroethene	ND	840	50		µg/Kg-dry	1	6/11/2012
cis-1,3-Dichloropropene	ND	840	50		µg/Kg-dry	1	6/11/2012
Cyclohexane	ND	840	500		µg/Kg-dry	1	6/11/2012
Dibromochloromethane	ND	840	100		µg/Kg-dry	1	6/11/2012
Dibromomethane	ND	840	250		µg/Kg-dry	1	6/11/2012
Dichlorodifluoromethane	ND	840	250		µg/Kg-dry	1	6/11/2012
Diethyl ether	ND	840	200		µg/Kg-dry	1	6/11/2012
Diisopropyl ether	ND	840	250		µg/Kg-dry	1	6/11/2012
Ethyl tert butyl ether	ND	840	250		µg/Kg-dry	1	6/11/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L528S053112S007
Work Order:	1206045	**Collection Date:**	5/31/2012 4:47:00 PM
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Ethylbenzene	ND	840	50		µg/Kg-dry	1	6/11/2012
Hexachloroethane	ND	840	300		µg/Kg-dry	1	6/11/2012
Isopropylbenzene	ND	840	250		µg/Kg-dry	1	6/11/2012
m,p-Xylene	ND	1,700	100		µg/Kg-dry	1	6/11/2012
Methyl iodide	ND	840	100		µg/Kg-dry	1	6/11/2012
Methyl tert-butyl ether	ND	840	250		µg/Kg-dry	1	6/11/2012
Methylene chloride	ND	840	100		µg/Kg-dry	1	6/11/2012
Naphthalene	ND	2,800	330		µg/Kg-dry	1	6/11/2012
n-Butylbenzene	ND	840	50		µg/Kg-dry	1	6/11/2012
n-Propylbenzene	ND	840	100		µg/Kg-dry	1	6/11/2012
o-Xylene	ND	840	50		µg/Kg-dry	1	6/11/2012
p-Isopropyltoluene	ND	840	100		µg/Kg-dry	1	6/11/2012
sec-Butylbenzene	ND	840	50		µg/Kg-dry	1	6/11/2012
Styrene	ND	840	50		µg/Kg-dry	1	6/11/2012
tert-Butyl alcohol	ND	2,800	2,500		µg/Kg-dry	1	6/11/2012
tert-Butylbenzene	ND	840	50		µg/Kg-dry	1	6/11/2012
Tertiaryamylmethylether	ND	840	250		µg/Kg-dry	1	6/11/2012
Tetrachloroethene	ND	840	50		µg/Kg-dry	1	6/11/2012
Tetrahydrofuran	ND	2,800	1,000		µg/Kg-dry	1	6/11/2012
Toluene	ND	840	100		µg/Kg-dry	1	6/11/2012
trans-1,2-Dichloroethene	ND	840	50		µg/Kg-dry	1	6/11/2012
trans-1,3-Dichloropropene	ND	840	50		µg/Kg-dry	1	6/11/2012
trans-1,4-Dichloro-2-butene	ND	840	50		µg/Kg-dry	1	6/11/2012
Trichloroethene	ND	840	50		µg/Kg-dry	1	6/11/2012
Trichlorofluoromethane	ND	840	100		µg/Kg-dry	1	6/11/2012
Vinyl chloride	ND	840	40		µg/Kg-dry	1	6/11/2012
Surr: 1,2-Dichloroethane-d4	*102*	*70-130*			*%REC*	1	6/11/2012
Surr: 1,2-Dichloroethane-d4	*103*	*70-130*			*%REC*	1	6/8/2012
Surr: 4-Bromofluorobenzene	*99.0*	*70-130*			*%REC*	1	6/11/2012
Surr: 4-Bromofluorobenzene	*109*	*70-130*			*%REC*	1	6/8/2012
Surr: Dibromofluoromethane	*94.6*	*70-130*			*%REC*	1	6/11/2012
Surr: Dibromofluoromethane	*90.8*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*110*	*70-130*			*%REC*	1	6/8/2012
Surr: Toluene-d8	*97.8*	*70-130*			*%REC*	1	6/11/2012
MOISTURE			**A2540 G**				Analyst: **CG**
Moisture	**75**	**0.050**	**0**		**% of sample**	1	6/4/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L528T053112MX
Work Order:	1206045	**Collection Date:**	5/31/2012
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260**		Prep Date: **6/5/2012**		Analyst: **BG**
1,1,1,2-Tetrachloroethane	ND	100	100		µg/Kg	1	6/5/2012
1,1,1-Trichloroethane	ND	50	50		µg/Kg	1	6/5/2012
1,1,2,2-Tetrachloroethane	ND	50	50		µg/Kg	1	6/5/2012
1,1,2-Trichloroethane	ND	50	50		µg/Kg	1	6/5/2012
1,1-Dichloroethane	ND	50	50		µg/Kg	1	6/5/2012
1,1-Dichloroethene	ND	50	50		µg/Kg	1	6/5/2012
1,2,3-Trichlorobenzene	ND	250	250		µg/Kg	1	6/5/2012
1,2,3-Trichloropropane	ND	100	100		µg/Kg	1	6/5/2012
1,2,3-Trimethylbenzene	ND	250	250		µg/Kg	1	6/5/2012
1,2,4-Trichlorobenzene	ND	250	250		µg/Kg	1	6/5/2012
1,2,4-Trimethylbenzene	ND	100	100		µg/Kg	1	6/5/2012
1,2-Dibromo-3-chloropropane	ND	30	10		µg/Kg	1	6/5/2012
1,2-Dibromoethane	ND	30	20		µg/Kg	1	6/5/2012
1,2-Dichlorobenzene	ND	100	100		µg/Kg	1	6/5/2012
1,2-Dichloroethane	ND	50	50		µg/Kg	1	6/5/2012
1,2-Dichloropropane	ND	50	50		µg/Kg	1	6/5/2012
1,3,5-Trimethylbenzene	ND	100	100		µg/Kg	1	6/5/2012
1,3-Dichlorobenzene	ND	100	100		µg/Kg	1	6/5/2012
1,4-Dichlorobenzene	ND	100	100		µg/Kg	1	6/5/2012
2-Butanone	ND	750	750		µg/Kg	1	6/5/2012
2-Hexanone	ND	2,500	2,500		µg/Kg	1	6/5/2012
2-Methylnaphthalene	ND	330	330		µg/Kg	1	6/5/2012
4-Methyl-2-pentanone	ND	2,500	2,500		µg/Kg	1	6/5/2012
Acetone	ND	1,000	1,000		µg/Kg	1	6/5/2012
Acrylonitrile	ND	100	100		µg/Kg	1	6/5/2012
Benzene	ND	50	50		µg/Kg	1	6/5/2012
Bromobenzene	ND	100	100		µg/Kg	1	6/5/2012
Bromochloromethane	ND	100	100		µg/Kg	1	6/5/2012
Bromodichloromethane	ND	100	100		µg/Kg	1	6/5/2012
Bromoform	ND	100	100		µg/Kg	1	6/5/2012
Bromomethane	ND	200	200		µg/Kg	1	6/5/2012
Carbon disulfide	ND	250	250		µg/Kg	1	6/5/2012
Carbon tetrachloride	ND	50	50		µg/Kg	1	6/5/2012
Chlorobenzene	ND	50	50		µg/Kg	1	6/5/2012
Chloroethane	ND	250	250		µg/Kg	1	6/5/2012
Chloroform	ND	50	50		µg/Kg	1	6/5/2012
Chloromethane	ND	250	250		µg/Kg	1	6/5/2012
cis-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/5/2012
cis-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *12-Jun-12*

Client:	AECOM Environment	**Client Sample ID:**	SBKR1150L528T053112MX
Work Order:	1206045	**Collection Date:**	5/31/2012
Project:	Marshall KRRI 1150L 5/31/12		
Lab ID:	1206045-10	**Matrix:**	SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
Cyclohexane	ND	500	500		µg/Kg	1	6/5/2012
Dibromochloromethane	ND	100	100		µg/Kg	1	6/5/2012
Dibromomethane	ND	250	250		µg/Kg	1	6/5/2012
Dichlorodifluoromethane	ND	250	250		µg/Kg	1	6/5/2012
Diethyl ether	ND	200	200		µg/Kg	1	6/5/2012
Diisopropyl ether	ND	250	250		µg/Kg	1	6/5/2012
Ethyl tert butyl ether	ND	250	250		µg/Kg	1	6/5/2012
Ethylbenzene	ND	50	50		µg/Kg	1	6/5/2012
Hexachloroethane	ND	300	300		µg/Kg	1	6/5/2012
Isopropylbenzene	ND	250	250		µg/Kg	1	6/5/2012
m,p-Xylene	ND	100	100		µg/Kg	1	6/5/2012
Methyl iodide	ND	100	100		µg/Kg	1	6/5/2012
Methyl tert-butyl ether	ND	250	250		µg/Kg	1	6/5/2012
Methylene chloride	ND	100	100		µg/Kg	1	6/5/2012
Naphthalene	ND	330	330		µg/Kg	1	6/5/2012
n-Butylbenzene	ND	50	50		µg/Kg	1	6/5/2012
n-Propylbenzene	ND	100	100		µg/Kg	1	6/5/2012
o-Xylene	ND	50	50		µg/Kg	1	6/5/2012
p-Isopropyltoluene	ND	100	100		µg/Kg	1	6/5/2012
sec-Butylbenzene	ND	50	50		µg/Kg	1	6/5/2012
Styrene	ND	50	50		µg/Kg	1	6/5/2012
tert-Butyl alcohol	ND	2,500	2,500		µg/Kg	1	6/5/2012
tert-Butylbenzene	ND	50	50		µg/Kg	1	6/5/2012
Tertiaryamylmethylether	ND	250	250		µg/Kg	1	6/5/2012
Tetrachloroethene	ND	50	50		µg/Kg	1	6/5/2012
Tetrahydrofuran	ND	1,000	1,000		µg/Kg	1	6/5/2012
Toluene	ND	100	100		µg/Kg	1	6/5/2012
trans-1,2-Dichloroethene	ND	50	50		µg/Kg	1	6/5/2012
trans-1,3-Dichloropropene	ND	50	50		µg/Kg	1	6/5/2012
trans-1,4-Dichloro-2-butene	ND	50	50		µg/Kg	1	6/5/2012
Trichloroethene	ND	50	50		µg/Kg	1	6/5/2012
Trichlorofluoromethane	ND	100	100		µg/Kg	1	6/5/2012
Vinyl chloride	ND	40	40		µg/Kg	1	6/5/2012
Surr: 1,2-Dichloroethane-d4	*98.7*	*70-130*			*%REC*	1	6/5/2012
Surr: 4-Bromofluorobenzene	*84.0*	*70-130*			*%REC*	1	6/5/2012
Surr: Dibromofluoromethane	*91.2*	*70-130*			*%REC*	1	6/5/2012
Surr: Toluene-d8	*83.4*	*70-130*			*%REC*	1	6/5/2012

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **41423** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41423-41423** Units: **mg/Kg** Analysis Date: **6/7/2012 01:39 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994075** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.166*	0	*5*	0	*103*	*39-115*	0			

LCS Sample ID: **DLCSS1-41423-41423** Units: **mg/Kg** Analysis Date: **6/7/2012 01:39 AM**
Client ID: Run ID: **GC8_120606A** SeqNo: **1994076** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	417.2	10	500	0	83.4	60-130	0			
Surr: 4-Terphenyl-d14	*2.753*	0	*5*	0	*55.1*	*39-115*	0			

MS Sample ID: **1206045-04A MS** Units: **mg/Kg** Analysis Date: **6/7/2012 02:05 AM**
Client ID: **SBKR1150L523S053112S004** Run ID: **GC8_120606A** SeqNo: **1994086** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	388.1	9.4	471.8	37.39	74.3	60-130	0			
Surr: 4-Terphenyl-d14	*2.406*	0	*4.718*	0	*51*	*39-115*	0			

MSD Sample ID: **1206045-04A MSD** Units: **mg/Kg** Analysis Date: **6/7/2012 02:05 AM**
Client ID: **SBKR1150L523S053112S004** Run ID: **GC8_120606A** SeqNo: **1994087** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	374.7	9.5	474.5	37.39	71.1	60-130	388.1	3.5	30	
Surr: 4-Terphenyl-d14	*1.997*	0	*4.745*	0	*42.1*	*39-115*	2.406	*18.6*	*30*	

The following samples were analyzed in this batch: 1206045-01A 1206045-02A 1206045-03A 1206045-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41475** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 02:40 PM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995322** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	ND	10								
ORO (C20-C34)	ND	20								
Surr: 4-Terphenyl-d14	*5.245*	0	*5*	0	*105*	*39-115*	0			

LCS Sample ID: **DLCSS1-41475-41475** Units: **mg/Kg** Analysis Date: **6/8/2012 09:01 AM**
Client ID: Run ID: **GC8_120608A** SeqNo: **1995321** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	384.4	10	500	0	76.9	60-130	0			
ORO (C20-C34)	427.8	20	500	0	85.6	60-130	0			
Surr: 4-Terphenyl-d14	*5.513*	0	*5*	0	*110*	*39-115*	0			

MS Sample ID: **1206045-05A MS** Units: **mg/Kg** Analysis Date: **6/8/2012 03:06 PM**
Client ID: **SBKR1150L524S053112S004** Run ID: **GC8_120608A** SeqNo: **1995323** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	358.9	9.5	474.7	33.99	68.4	60-130	0			
ORO (C20-C34)	790.2	19	474.7	380.9	86.2	60-130	0			
Surr: 4-Terphenyl-d14	*7.311*	0	*4.747*	0	*154*	*39-115*	0			*S*

MSD Sample ID: **1206045-05A MSD** Units: **mg/Kg** Analysis Date: **6/8/2012 09:26 AM**
Client ID: **SBKR1150L524S053112S004** Run ID: **GC8_120608A** SeqNo: **1995332** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	365.9	9.7	482.9	33.99	68.7	60-130	358.9	1.94	30	
ORO (C20-C34)	817.9	19	482.9	380.9	90.5	60-130	790.2	3.44	30	
Surr: 4-Terphenyl-d14	*6.783*	0	*4.829*	0	*140*	*39-115*	7.311	*7.5*	*30*	*S*

The following samples were analyzed in this batch:

1206045-05A	1206045-06A	1206045-07A
1206045-08A	1206045-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41473** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:27 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993606** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.10								
Molybdenum	0.02968	0.25								J
Nickel	ND	0.25								
Vanadium	ND	0.25								

LCS Sample ID: **LCS-41473-41473** Units: **mg/Kg** Analysis Date: **6/7/2012 02:32 PM**
Client ID: Run ID: **ICPMS2_120607A** SeqNo: **1993607** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.08	0.10	5	0	102	80-120	0			
Molybdenum	4.997	0.25	5	0	99.9	80-120	0			
Nickel	4.82	0.25	5	0	96.4	80-120	0			
Vanadium	4.966	0.25	5	0	99.3	80-120	0			

MS Sample ID: **1206045-04AMS** Units: **mg/Kg** Analysis Date: **6/7/2012 02:53 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **ICPMS2_120607A** SeqNo: **1993611** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	5.06	0.51	6.369	0.1832	76.6	80-120	0			S
Molybdenum	5.531	1.3	6.369	0.5021	79	80-120	0			S
Nickel	12.69	1.3	6.369	8.142	71.3	80-120	0			S
Vanadium	13.58	1.3	6.369	9.097	70.4	80-120	0			S

MSD Sample ID: **1206045-04AMSD** Units: **mg/Kg** Analysis Date: **6/7/2012 02:58 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **ICPMS2_120607A** SeqNo: **1993612** Prep Date: **6/7/2012** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	6.022	0.54	6.793	0.1832	85.9	80-120	5.06	17.4	25	
Molybdenum	6.628	1.4	6.793	0.5021	90.2	80-120	5.531	18	25	
Nickel	14.43	1.4	6.793	8.142	92.6	80-120	12.69	12.9	25	
Vanadium	15.63	1.4	6.793	9.097	96.1	80-120	13.58	14	25	

The following samples were analyzed in this batch:

1206045-01A	1206045-02A	1206045-03A
1206045-04A	1206045-05A	1206045-06A
1206045-07A	1206045-08A	1206045-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41422-41422** Units: **µg/Kg** Analysis Date: **6/4/2012 07:17 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991221** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3315*	0	*5000*	0	*66.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3441*	0	*5000*	0	*68.8*	*12-100*	0			
Surr: 2-Fluorophenol	*3499*	0	*5000*	0	*70*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3718*	0	*5000*	0	*74.4*	*25-137*	0			
Surr: Nitrobenzene-d5	*3351*	0	*5000*	0	*67*	*37-107*	0			
Surr: Phenol-d6	*3522*	0	*5000*	0	*70.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-41422-41422** Units: **µg/Kg** Analysis Date: **6/4/2012 07:51 PM**
Client ID: Run ID: **SVMS4_120604A** SeqNo: **1991223** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1505	50	2000	0	75.2	45-105	0			
Acenaphthene	1498	50	2000	0	74.9	45-110	0			
Acenaphthylene	1575	50	2000	0	78.8	45-105	0			
Anthracene	1592	50	2000	0	79.6	55-105	0			
Benzo(a)anthracene	1551	50	2000	0	77.6	50-110	0			
Benzo(a)pyrene	1533	50	2000	0	76.6	50-110	0			
Benzo(b)fluoranthene	1408	50	2000	0	70.4	45-115	0			
Benzo(g,h,i)perylene	1663	50	2000	0	83.2	40-125	0			
Benzo(k)fluoranthene	1745	50	2000	0	87.2	45-115	0			
Chrysene	1612	50	2000	0	80.6	55-110	0			
Dibenzo(a,h)anthracene	1656	50	2000	0	82.8	40-125	0			
Fluoranthene	1633	50	2000	0	81.6	55-115	0			
Fluorene	1571	50	2000	0	78.6	50-110	0			
Indeno(1,2,3-cd)pyrene	1630	50	2000	0	81.5	40-120	0			
Naphthalene	1469	50	2000	0	73.4	40-105	0			
Phenanthrene	1596	50	2000	0	79.8	50-110	0			
Pyrene	1544	50	2000	0	77.2	45-125	0			
Surr: 2,4,6-Tribromophenol	*3900*	0	*5000*	0	*78*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3522*	0	*5000*	0	*70.4*	*12-100*	0			
Surr: 2-Fluorophenol	*3729*	0	*5000*	0	*74.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3565*	0	*5000*	0	*71.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*3500*	0	*5000*	0	*70*	*37-107*	0			
Surr: Phenol-d6	*3651*	0	*5000*	0	*73*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **1206045-04A MS** Units: **µg/Kg** Analysis Date: **6/4/2012 10:39 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **SVMS4_120604A** SeqNo: **1991230** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1380	49	1958	0	70.4	45-105	0			
Acenaphthene	1572	49	1958	0	80.2	45-110	0			
Acenaphthylene	1713	49	1958	55.39	84.6	45-105	0			
Anthracene	1844	49	1958	74.18	90.4	55-105	0			
Benzo(a)anthracene	2113	49	1958	416.4	86.6	50-110	0			
Benzo(a)pyrene	2158	49	1958	438.2	87.8	50-110	0			
Benzo(b)fluoranthene	2264	49	1958	563.8	86.8	45-115	0			
Benzo(g,h,i)perylene	1260	49	1958	191.9	54.6	40-125	0			
Benzo(k)fluoranthene	2053	49	1958	229.5	93.1	45-115	0			
Chrysene	2114	49	1958	416.4	86.7	55-110	0			
Dibenzo(a,h)anthracene	1218	49	1958	0	62.2	40-125	0			
Fluoranthene	2468	49	1958	719.1	89.3	55-115	0			
Fluorene	1766	49	1958	0	90.2	50-110	0			
Indeno(1,2,3-cd)pyrene	1305	49	1958	152.3	58.9	40-120	0			
Naphthalene	1290	49	1958	0	65.8	40-105	0			
Phenanthrene	2013	49	1958	252.2	89.9	50-110	0			
Pyrene	2233	49	1958	636	81.6	45-125	0			
Surr: 2,4,6-Tribromophenol	*5477*	0	*4896*	0	*112*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3305*	0	*4896*	0	*67.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3181*	0	*4896*	0	*65*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4752*	0	*4896*	0	*97.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*2884*	0	*4896*	0	*58.9*	*37-107*	0			
Surr: Phenol-d6	*3104*	0	*4896*	0	*63.4*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41422** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **1206045-04A MSD** Units: **µg/Kg** Analysis Date: **6/4/2012 11:12 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **SVMS4_120604A** SeqNo: **1991231** Prep Date: **6/4/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1409	49	1979	0	71.2	45-105	1380	2.1	30	
Acenaphthene	1544	49	1979	0	78	45-110	1572	1.74	30	
Acenaphthylene	1653	49	1979	55.39	80.8	45-105	1713	3.52	30	
Anthracene	1757	49	1979	74.18	85.1	55-105	1844	4.81	30	
Benzo(a)anthracene	2018	49	1979	416.4	81	50-110	2113	4.58	30	
Benzo(a)pyrene	2070	49	1979	438.2	82.5	50-110	2158	4.17	30	
Benzo(b)fluoranthene	2215	49	1979	563.8	83.5	45-115	2264	2.16	30	
Benzo(g,h,i)perylene	1084	49	1979	191.9	45.1	40-125	1260	15	30	
Benzo(k)fluoranthene	2452	49	1979	229.5	112	45-115	2053	17.7	30	
Chrysene	2036	49	1979	416.4	81.9	55-110	2114	3.75	30	
Dibenzo(a,h)anthracene	1096	49	1979	0	55.4	40-125	1218	10.5	30	
Fluoranthene	2367	49	1979	719.1	83.3	55-115	2468	4.21	30	
Fluorene	1730	49	1979	0	87.4	50-110	1766	2.05	30	
Indeno(1,2,3-cd)pyrene	1138	49	1979	152.3	49.8	40-120	1305	13.7	30	
Naphthalene	1341	49	1979	0	67.8	40-105	1290	3.89	30	
Phenanthrene	1898	49	1979	252.2	83.2	50-110	2013	5.9	30	
Pyrene	2172	49	1979	636	77.6	45-125	2233	2.8	30	
Surr: 2,4,6-Tribromophenol	*5249*	0	*4947*	0	*106*	*34-140*	5477	*4.26*	*40*	
Surr: 2-Fluorobiphenyl	*3539*	0	*4947*	0	*71.5*	*12-100*	3305	*6.85*	*40*	
Surr: 2-Fluorophenol	*3354*	0	*4947*	0	*67.8*	*33-117*	3181	*5.29*	*40*	
Surr: 4-Terphenyl-d14	*4742*	0	*4947*	0	*95.9*	*25-137*	4752	*0.201*	*40*	
Surr: Nitrobenzene-d5	*3089*	0	*4947*	0	*62.4*	*37-107*	2884	*6.88*	*40*	
Surr: Phenol-d6	*3261*	0	*4947*	0	*65.9*	*40-106*	3104	*4.94*	*40*	

The following samples were analyzed in this batch: 1206045-01A 1206045-02A 1206045-03A 1206045-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:10 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992950** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	50								
Acenaphthene	ND	50								
Acenaphthylene	ND	50								
Anthracene	ND	50								
Benzo(a)anthracene	ND	50								
Benzo(a)pyrene	ND	50								
Benzo(b)fluoranthene	ND	50								
Benzo(g,h,i)perylene	ND	50								
Benzo(k)fluoranthene	ND	50								
Chrysene	ND	50								
Dibenzo(a,h)anthracene	ND	50								
Fluoranthene	ND	50								
Fluorene	ND	50								
Indeno(1,2,3-cd)pyrene	ND	50								
Naphthalene	ND	50								
Phenanthrene	ND	50								
Pyrene	ND	50								
Surr: 2,4,6-Tribromophenol	*3926*	0	*5000*	0	*78.5*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3461*	0	*5000*	0	*69.2*	*12-100*	0			
Surr: 2-Fluorophenol	*4291*	0	*5000*	0	*85.8*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3742*	0	*5000*	0	*74.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3693*	0	*5000*	0	*73.9*	*37-107*	0			
Surr: Phenol-d6	*4256*	0	*5000*	0	*85.1*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSS1-41474-41474** Units: **µg/Kg** Analysis Date: **6/6/2012 06:39 PM**
Client ID: Run ID: **SVMS7_120606A** SeqNo: **1992951** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1848	50	2000	0	92.4	45-105	0			
Acenaphthene	1836	50	2000	0	91.8	45-110	0			
Acenaphthylene	1812	50	2000	0	90.6	45-105	0			
Anthracene	1867	50	2000	0	93.4	55-105	0			
Benzo(a)anthracene	1830	50	2000	0	91.5	50-110	0			
Benzo(a)pyrene	1809	50	2000	0	90.4	50-110	0			
Benzo(b)fluoranthene	1955	50	2000	0	97.8	45-115	0			
Benzo(g,h,i)perylene	2080	50	2000	0	104	40-125	0			
Benzo(k)fluoranthene	1854	50	2000	0	92.7	45-115	0			
Chrysene	1916	50	2000	0	95.8	55-110	0			
Dibenzo(a,h)anthracene	1882	50	2000	0	94.1	40-125	0			
Fluoranthene	2126	50	2000	0	106	55-115	0			
Fluorene	1846	50	2000	0	92.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1917	50	2000	0	95.8	40-120	0			
Naphthalene	1738	50	2000	0	86.9	40-105	0			
Phenanthrene	1820	50	2000	0	91	50-110	0			
Pyrene	1847	50	2000	0	92.4	45-125	0			
Surr: 2,4,6-Tribromophenol	*4316*	0	*5000*	0	*86.3*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3668*	0	*5000*	0	*73.4*	*12-100*	0			
Surr: 2-Fluorophenol	*4330*	0	*5000*	0	*86.6*	*33-117*	0			
Surr: 4-Terphenyl-d14	*3810*	0	*5000*	0	*76.2*	*25-137*	0			
Surr: Nitrobenzene-d5	*3980*	0	*5000*	0	*79.6*	*37-107*	0			
Surr: Phenol-d6	*4331*	0	*5000*	0	*86.6*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1206045-05A MS** Units: **µg/Kg** Analysis Date: **6/7/2012 01:54 AM**
Client ID: **SBKR1150L524S053112S004** Run ID: **SVMS7_120606A** SeqNo: **1992952** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1616	48	1932	0	83.6	45-105	0			
Acenaphthene	1619	48	1932	0	83.8	45-110	0			
Acenaphthylene	1743	48	1932	49.15	87.7	45-105	0			
Anthracene	1858	48	1932	75.11	92.3	55-105	0			
Benzo(a)anthracene	2131	48	1932	417.3	88.7	50-110	0			
Benzo(a)pyrene	2194	48	1932	553.6	84.9	50-110	0			
Benzo(b)fluoranthene	2552	48	1932	656.5	98.1	45-115	0			
Benzo(g,h,i)perylene	2252	48	1932	375.6	97.2	40-125	0			
Benzo(k)fluoranthene	1781	48	1932	200.3	81.8	45-115	0			
Chrysene	2258	48	1932	506.3	90.7	55-110	0			
Dibenzo(a,h)anthracene	1881	48	1932	115	91.4	40-125	0			
Fluoranthene	2604	48	1932	757.6	95.6	55-115	0			
Fluorene	1837	48	1932	0	95.1	50-110	0			
Indeno(1,2,3-cd)pyrene	2080	48	1932	325.5	90.8	40-120	0			
Naphthalene	1443	48	1932	0	74.7	40-105	0			
Phenanthrene	1961	48	1932	247.6	88.7	50-110	0			
Pyrene	2875	48	1932	838.3	105	45-125	0			
Surr: 2,4,6-Tribromophenol	*4544*	0	*4829*	0	*94.1*	*34-140*	0			
Surr: 2-Fluorobiphenyl	*3018*	0	*4829*	0	*62.5*	*12-100*	0			
Surr: 2-Fluorophenol	*3547*	0	*4829*	0	*73.5*	*33-117*	0			
Surr: 4-Terphenyl-d14	*4048*	0	*4829*	0	*83.8*	*25-137*	0			
Surr: Nitrobenzene-d5	*3124*	0	*4829*	0	*64.7*	*37-107*	0			
Surr: Phenol-d6	*3612*	0	*4829*	0	*74.8*	*40-106*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41474** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1206045-05A MSD** Units: **µg/Kg** Analysis Date: **6/7/2012 02:22 AM**
Client ID: **SBKR1150L524S053112S004** Run ID: **SVMS7_120606A** SeqNo: **1992953** Prep Date: **6/6/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	1562	49	1943	0	80.4	45-105	1616	3.4	30	
Acenaphthene	1579	49	1943	0	81.3	45-110	1619	2.47	30	
Acenaphthylene	1693	49	1943	49.15	84.6	45-105	1743	2.93	30	
Anthracene	1804	49	1943	75.11	89	55-105	1858	2.98	30	
Benzo(a)anthracene	1980	49	1943	417.3	80.5	50-110	2131	7.31	30	
Benzo(a)pyrene	2065	49	1943	553.6	77.8	50-110	2194	6.08	30	
Benzo(b)fluoranthene	2324	49	1943	656.5	85.9	45-115	2552	9.33	30	
Benzo(g,h,i)perylene	2056	49	1943	375.6	86.5	40-125	2252	9.1	30	
Benzo(k)fluoranthene	1755	49	1943	200.3	80	45-115	1781	1.47	30	
Chrysene	2097	49	1943	506.3	81.9	55-110	2258	7.4	30	
Dibenzo(a,h)anthracene	1760	49	1943	115	84.7	40-125	1881	6.67	30	
Fluoranthene	2315	49	1943	757.6	80.2	55-115	2604	11.7	30	
Fluorene	1790	49	1943	0	92.2	50-110	1837	2.59	30	
Indeno(1,2,3-cd)pyrene	1910	49	1943	325.5	81.6	40-120	2080	8.51	30	
Naphthalene	1356	49	1943	0	69.8	40-105	1443	6.22	30	
Phenanthrene	1850	49	1943	247.6	82.5	50-110	1961	5.79	30	
Pyrene	2617	49	1943	838.3	91.5	45-125	2875	9.42	30	
Surr: 2,4,6-Tribromophenol	*4497*	0	*4856*	0	*92.6*	*34-140*	4544	*1.05*	*40*	
Surr: 2-Fluorobiphenyl	*2967*	0	*4856*	0	*61.1*	*12-100*	3018	*1.7*	*40*	
Surr: 2-Fluorophenol	*3392*	0	*4856*	0	*69.8*	*33-117*	3547	*4.49*	*40*	
Surr: 4-Terphenyl-d14	*3972*	0	*4856*	0	*81.8*	*25-137*	4048	*1.88*	*40*	
Surr: Nitrobenzene-d5	*2924*	0	*4856*	0	*60.2*	*37-107*	3124	*6.61*	*40*	
Surr: Phenol-d6	*3571*	0	*4856*	0	*73.5*	*40-106*	3612	*1.14*	*40*	

The following samples were analyzed in this batch:

1206045-05A	1206045-06A	1206045-07A
1206045-08A	1206045-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41463-41463** Units: **µg/Kg** Analysis Date: **6/5/2012 05:22 PM**
Client ID: Run ID: **VMS7_120605A** SeqNo: **1992159** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*948.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*822.5*	0	*1000*	0	*82.2*	*70-130*	0
Surr: Dibromofluoromethane	*867*	0	*1000*	0	*86.7*	*70-130*	0
Surr: Toluene-d8	*797*	0	*1000*	0	*79.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41463-41463** Units: **µg/Kg** Analysis Date: **6/5/2012 05:22 PM**
Client ID: Run ID: **VMS7_120605A** SeqNo: **1992625** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*948.5*	0	*1000*	0	*94.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*822.5*	0	*1000*	0	*82.2*	*70-130*	0
Surr: Dibromofluoromethane	*867*	0	*1000*	0	*86.7*	*70-130*	0
Surr: Toluene-d8	*797*	0	*1000*	0	*79.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41463-41463** Units: **µg/Kg** Analysis Date: **6/5/2012 04:32 PM**
Client ID: Run ID: **VMS7_120605A** SeqNo: **1992158** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	870	30	1000	0	87	75-125	0			
1,1,1-Trichloroethane	882	30	1000	0	88.2	70-135	0			
1,1,2,2-Tetrachloroethane	874	30	1000	0	87.4	55-130	0			
1,1,2-Trichloroethane	825	30	1000	0	82.5	60-125	0			
1,1-Dichloroethane	778.5	30	1000	0	77.8	75-125	0			
1,1-Dichloroethene	609	30	1000	0	60.9	65-135	0			S
1,2,3-Trichlorobenzene	597.5	30	1000	0	59.8	60-135	0			S
1,2,3-Trichloropropane	891	30	1000	0	89.1	65-130	0			
1,2,3-Trimethylbenzene	663.5	30	1000	0	66.4	65-135	0			
1,2,4-Trichlorobenzene	639.5	30	1000	0	64	65-130	0			S
1,2,4-Trimethylbenzene	859	30	1000	0	85.9	65-135	0			
1,2-Dibromo-3-chloropropane	628	30	1000	0	62.8	40-135	0			
1,2-Dibromoethane	871	30	1000	0	87.1	70-125	0			
1,2-Dichlorobenzene	692	30	1000	0	69.2	75-120	0			S
1,2-Dichloroethane	904.5	30	1000	0	90.4	70-135	0			
1,2-Dichloropropane	834	30	1000	0	83.4	70-120	0			
1,3,5-Trimethylbenzene	861	30	1000	0	86.1	65-135	0			
1,3-Dichlorobenzene	672.5	30	1000	0	67.2	70-125	0			S
1,4-Dichlorobenzene	727	30	1000	0	72.7	70-125	0			
2-Butanone	690.5	100	1000	0	69	30-160	0			
2-Hexanone	720.5	30	1000	0	72	45-145	0			
4-Methyl-2-pentanone	1022	30	1000	0	102	45-145	0			
Acetone	638.5	100	1000	0	63.8	20-160	0			
Acrylonitrile	915	30	1000	0	91.5	70-135	0			
Benzene	826.5	30	1000	0	82.6	75-125	0			
Bromobenzene	819	30	1000	0	81.9	65-120	0			
Bromochloromethane	805	30	1000	0	80.5	70-125	0			
Bromodichloromethane	897.5	30	1000	0	89.8	70-130	0			
Bromoform	812.5	30	1000	0	81.2	55-135	0			
Bromomethane	527.5	30	1000	0	52.8	30-160	0			
Carbon disulfide	669	30	1000	0	66.9	45-160	0			
Carbon tetrachloride	839.5	30	1000	0	84	65-135	0			
Chlorobenzene	838.5	30	1000	0	83.8	75-125	0			
Chloroethane	507.5	100	1000	0	50.8	40-155	0			
Chloroform	815	30	1000	0	81.5	70-125	0			
Chloromethane	416	30	1000	0	41.6	50-130	0			S
cis-1,2-Dichloroethene	797	30	1000	0	79.7	65-125	0			
cis-1,3-Dichloropropene	912.5	30	1000	0	91.2	70-125	0			
Dibromochloromethane	882	30	1000	0	88.2	65-135	0			
Dibromomethane	879	30	1000	0	87.9	75-130	0			
Dichlorodifluoromethane	90.5	30	1000	0	9.05	35-135	0			S
Ethylbenzene	840	30	1000	0	84	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	684	30	1000	0	68.4	70-135	0	S
Isopropylbenzene	846	30	1000	0	84.6	75-130	0	
m,p-Xylene	1701	60	2000	0	85	80-125	0	
Methyl tert-butyl ether	947.5	30	1000	0	94.8	75-125	0	
Methylene chloride	875	30	1000	0	87.5	55-145	0	
Naphthalene	676	100	1000	0	67.6	40-140	0	
n-Butylbenzene	693.5	30	1000	0	69.4	65-140	0	
n-Propylbenzene	829.5	30	1000	0	83	65-135	0	
o-Xylene	831	30	1000	0	83.1	75-125	0	
p-Isopropyltoluene	689	30	1000	0	68.9	75-135	0	S
sec-Butylbenzene	829	30	1000	0	82.9	65-130	0	
Styrene	880	30	1000	0	88	75-125	0	
tert-Butylbenzene	858	30	1000	0	85.8	65-130	0	
Tetrachloroethene	797.5	30	1000	0	79.8	64-140	0	
Tetrahydrofuran	837	100	1000	0	83.7	70-135	0	
Toluene	813.5	30	1000	0	81.4	70-125	0	
trans-1,2-Dichloroethene	815.5	30	1000	0	81.6	65-135	0	
trans-1,3-Dichloropropene	884.5	30	1000	0	88.4	65-125	0	
trans-1,4-Dichloro-2-butene	917.5	30	1000	0	91.8	70-135	0	
Trichloroethene	837.5	30	1000	0	83.8	75-125	0	
Trichlorofluoromethane	258.5	30	1000	0	25.8	25-185	0	
Vinyl chloride	386.5	30	1000	0	38.6	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*806.5*	0	*1000*	0	*80.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*708.5*	0	*1000*	0	*70.8*	*70-130*	0	
Surr: Dibromofluoromethane	*772.5*	0	*1000*	0	*77.2*	*70-130*	0	
Surr: Toluene-d8	*679*	0	*1000*	0	*67.9*	*70-130*	0	*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41463-41463** Units: **µg/Kg** Analysis Date: **6/5/2012 04:32 PM**
Client ID: Run ID: **VMS7_120605A** SeqNo: **1992624** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	870	30	1000	0	87	75-125	0			
1,1,1-Trichloroethane	882	30	1000	0	88.2	70-135	0			
1,1,2,2-Tetrachloroethane	874	30	1000	0	87.4	55-130	0			
1,1,2-Trichloroethane	825	30	1000	0	82.5	60-125	0			
1,1-Dichloroethane	778.5	30	1000	0	77.8	75-125	0			
1,1-Dichloroethene	609	30	1000	0	60.9	65-135	0			S
1,2,3-Trichlorobenzene	597.5	30	1000	0	59.8	60-135	0			S
1,2,3-Trichloropropane	891	30	1000	0	89.1	65-130	0			
1,2,3-Trimethylbenzene	663.5	30	1000	0	66.4	65-135	0			
1,2,4-Trichlorobenzene	639.5	30	1000	0	64	65-130	0			S
1,2,4-Trimethylbenzene	859	30	1000	0	85.9	65-135	0			
1,2-Dibromo-3-chloropropane	628	30	1000	0	62.8	40-135	0			
1,2-Dibromoethane	871	30	1000	0	87.1	70-125	0			
1,2-Dichlorobenzene	692	30	1000	0	69.2	75-120	0			S
1,2-Dichloroethane	904.5	30	1000	0	90.4	70-135	0			
1,2-Dichloropropane	834	30	1000	0	83.4	70-120	0			
1,3,5-Trimethylbenzene	861	30	1000	0	86.1	65-135	0			
1,3-Dichlorobenzene	672.5	30	1000	0	67.2	70-125	0			S
1,4-Dichlorobenzene	727	30	1000	0	72.7	70-125	0			
2-Butanone	690.5	100	1000	0	69	30-160	0			
2-Hexanone	720.5	30	1000	0	72	45-145	0			
4-Methyl-2-pentanone	1022	30	1000	0	102	45-145	0			
Acetone	638.5	100	1000	0	63.8	20-160	0			
Acrylonitrile	915	30	1000	0	91.5	70-135	0			
Benzene	826.5	30	1000	0	82.6	75-125	0			
Bromobenzene	819	30	1000	0	81.9	65-120	0			
Bromochloromethane	805	30	1000	0	80.5	70-125	0			
Bromodichloromethane	897.5	30	1000	0	89.8	70-130	0			
Bromoform	812.5	30	1000	0	81.2	55-135	0			
Bromomethane	527.5	30	1000	0	52.8	30-160	0			
Carbon disulfide	669	30	1000	0	66.9	45-160	0			
Carbon tetrachloride	839.5	30	1000	0	84	65-135	0			
Chlorobenzene	838.5	30	1000	0	83.8	75-125	0			
Chloroethane	507.5	100	1000	0	50.8	40-155	0			
Chloroform	815	30	1000	0	81.5	70-125	0			
Chloromethane	416	30	1000	0	41.6	50-130	0			S
cis-1,2-Dichloroethene	797	30	1000	0	79.7	65-125	0			
cis-1,3-Dichloropropene	912.5	30	1000	0	91.2	70-125	0			
Dibromochloromethane	882	30	1000	0	88.2	65-135	0			
Dibromomethane	879	30	1000	0	87.9	75-130	0			
Dichlorodifluoromethane	90.5	30	1000	0	9.05	35-135	0			S
Ethylbenzene	840	30	1000	0	84	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41463**	Instrument ID **VMS7**		Method: **SW8260**					
Hexachloroethane	684	30	1000	0	68.4	70-135	0	S
Isopropylbenzene	846	30	1000	0	84.6	75-130	0	
m,p-Xylene	1701	60	2000	0	85	80-125	0	
Methyl tert-butyl ether	947.5	30	1000	0	94.8	75-125	0	
Methylene chloride	875	30	1000	0	87.5	55-145	0	
Naphthalene	676	100	1000	0	67.6	40-140	0	
n-Butylbenzene	693.5	30	1000	0	69.4	65-140	0	
n-Propylbenzene	829.5	30	1000	0	83	65-135	0	
o-Xylene	831	30	1000	0	83.1	75-125	0	
p-Isopropyltoluene	689	30	1000	0	68.9	75-135	0	S
sec-Butylbenzene	829	30	1000	0	82.9	65-130	0	
Styrene	880	30	1000	0	88	75-125	0	
tert-Butylbenzene	858	30	1000	0	85.8	65-130	0	
Tetrachloroethene	797.5	30	1000	0	79.8	64-140	0	
Tetrahydrofuran	837	100	1000	0	83.7	70-135	0	
Toluene	813.5	30	1000	0	81.4	70-125	0	
trans-1,2-Dichloroethene	815.5	30	1000	0	81.6	65-135	0	
trans-1,3-Dichloropropene	884.5	30	1000	0	88.4	65-125	0	
trans-1,4-Dichloro-2-butene	917.5	30	1000	0	91.8	70-135	0	
Trichloroethene	837.5	30	1000	0	83.8	75-125	0	
Trichlorofluoromethane	258.5	30	1000	0	25.8	25-185	0	
Vinyl chloride	386.5	30	1000	0	38.6	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*806.5*	0	*1000*	0	*80.6*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*708.5*	0	*1000*	0	*70.8*	*70-130*	0	
Surr: Dibromofluoromethane	*772.5*	0	*1000*	0	*77.2*	*70-130*	0	
Surr: Toluene-d8	*679*	0	*1000*	0	*67.9*	*70-130*	0	*S*

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206101-02A MS** Units: **µg/Kg** Analysis Date: **6/5/2012 07:54 PM**
Client ID: Run ID: **VMS7_120605A** SeqNo: **1992299** Prep Date: **6/5/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	694	30	1000	0	69.4	75-125	0			S
1,1,1-Trichloroethane	729	30	1000	0	72.9	70-135	0			
1,1,2,2-Tetrachloroethane	683.5	30	1000	0	68.4	55-130	0			
1,1,2-Trichloroethane	707.5	30	1000	0	70.8	60-125	0			
1,1-Dichloroethane	687.5	30	1000	0	68.8	75-125	0			S
1,1-Dichloroethene	622	30	1000	0	62.2	65-135	0			S
1,2,3-Trichlorobenzene	115.5	30	1000	0	11.6	60-135	0			S
1,2,3-Trichloropropane	704	30	1000	0	70.4	65-130	0			
1,2,3-Trimethylbenzene	299	30	1000	0	29.9	65-135	0			S
1,2,4-Trichlorobenzene	100.5	30	1000	0	10	65-130	0			S
1,2,4-Trimethylbenzene	297	30	1000	0	29.7	65-135	0			S
1,2-Dibromo-3-chloropropane	431.5	30	1000	0	43.2	40-135	0			
1,2-Dibromoethane	723	30	1000	0	72.3	70-125	0			
1,2-Dichlorobenzene	247.5	30	1000	0	24.8	75-120	0			S
1,2-Dichloroethane	819	30	1000	0	81.9	70-135	0			
1,2-Dichloropropane	713	30	1000	0	71.3	70-120	0			
1,3,5-Trimethylbenzene	322	30	1000	0	32.2	65-135	0			S
1,3-Dichlorobenzene	202	30	1000	0	20.2	70-125	0			S
1,4-Dichlorobenzene	223.5	30	1000	0	22.4	70-125	0			S
2-Butanone	586.5	200	1000	0	58.6	30-160	0			
2-Hexanone	633	30	1000	0	63.3	45-145	0			
4-Methyl-2-pentanone	928.5	30	1000	0	92.8	45-145	0			
Acetone	681.5	100	1000	0	68.2	20-160	0			
Acrylonitrile	817	100	1000	0	81.7	70-135	0			
Benzene	696.5	30	1000	0	69.6	75-125	0			S
Bromobenzene	421.5	30	1000	0	42.2	65-120	0			S
Bromochloromethane	752.5	30	1000	0	75.2	70-125	0			
Bromodichloromethane	755.5	30	1000	0	75.6	70-130	0			
Bromoform	631.5	30	1000	0	63.2	55-135	0			
Bromomethane	511.5	75	1000	0	51.2	30-160	0			
Carbon disulfide	609.5	30	1000	0	61	45-160	0			
Carbon tetrachloride	659	30	1000	0	65.9	65-135	0			
Chlorobenzene	525.5	30	1000	0	52.6	75-125	0			S
Chloroethane	545	100	1000	0	54.5	40-155	0			
Chloroform	713	30	1000	0	71.3	70-125	0			
Chloromethane	427.5	100	1000	0	42.8	50-130	0			S
cis-1,2-Dichloroethene	696.5	30	1000	0	69.6	65-125	0			
cis-1,3-Dichloropropene	743	30	1000	0	74.3	70-125	0			
Dibromochloromethane	729.5	30	1000	0	73	65-135	0			
Dibromomethane	772.5	30	1000	0	77.2	75-130	0			
Dichlorodifluoromethane	110.5	30	1000	0	11	35-135	0			S
Ethylbenzene	443.5	30	1000	0	44.4	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	396	30	1000	0	39.6	70-135	0	S
Isopropylbenzene	353	30	1000	0	35.3	75-130	0	S
m,p-Xylene	879	60	2000	0	44	80-125	0	S
Methyl tert-butyl ether	964	30	1000	56.11	90.8	75-125	0	
Methylene chloride	825	30	1000	25.54	79.9	55-145	0	
Naphthalene	191.5	100	1000	0	19.2	40-140	0	S
n-Butylbenzene	71.5	30	1000	0	7.15	65-140	0	S
n-Propylbenzene	225.5	30	1000	0	22.6	65-135	0	S
o-Xylene	507	30	1000	0	50.7	75-125	0	S
p-Isopropyltoluene	142	30	1000	0	14.2	75-135	0	S
sec-Butylbenzene	187	30	1000	0	18.7	65-130	0	S
Styrene	437.5	30	1000	0	43.8	75-125	0	S
tert-Butylbenzene	369	30	1000	0	36.9	65-130	0	S
Tetrachloroethene	439.5	30	1000	0	44	64-140	0	S
Tetrahydrofuran	769	200	1000	0	76.9	70-135	0	
Toluene	599	30	1000	0	59.9	70-125	0	S
trans-1,2-Dichloroethene	694.5	30	1000	0	69.4	65-135	0	
trans-1,3-Dichloropropene	698.5	30	1000	0	69.8	65-125	0	
trans-1,4-Dichloro-2-butene	602	30	1000	0	60.2	70-135	0	S
Trichloroethene	618.5	30	1000	0	61.8	75-125	0	S
Trichlorofluoromethane	230.5	30	1000	0	23	25-185	0	S
Vinyl chloride	359	30	1000	0	35.9	60-125	0	S
Surr: 1,2-Dichloroethane-d4	*861.5*	0	*1000*	0	*86.2*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*422*	0	*1000*	0	*42.2*	*70-130*	0	*S*
Surr: Dibromofluoromethane	*803*	0	*1000*	0	*80.3*	*70-130*	0	
Surr: Toluene-d8	*601*	0	*1000*	0	*60.1*	*70-130*	0	*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

MSD	Sample ID: **1206101-02A MSD**				Units: **µg/Kg**			Analysis Date: **6/5/2012 08:19 PM**			
Client ID:		Run ID: **VMS7_120605A**			SeqNo: **1992300**		Prep Date: **6/5/2012**		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	684	30	1000	0	68.4	75-125	694	1.45	30	S
1,1,1-Trichloroethane	729.5	30	1000	0	73	70-135	729	0.0686	30	
1,1,2,2-Tetrachloroethane	684	30	1000	0	68.4	55-130	683.5	0.0731	30	
1,1,2-Trichloroethane	707	30	1000	0	70.7	60-125	707.5	0.0707	30	
1,1-Dichloroethane	686.5	30	1000	0	68.6	75-125	687.5	0.146	30	S
1,1-Dichloroethene	572	30	1000	0	57.2	65-135	622	8.38	30	S
1,2,3-Trichlorobenzene	124.5	30	1000	0	12.4	60-135	115.5	7.5	30	S
1,2,3-Trichloropropane	723.5	30	1000	0	72.4	65-130	704	2.73	30	
1,2,3-Trimethylbenzene	302	30	1000	0	30.2	65-135	299	0.998	30	S
1,2,4-Trichlorobenzene	107.5	30	1000	0	10.8	65-130	100.5	6.73	30	S
1,2,4-Trimethylbenzene	299.5	30	1000	0	30	65-135	297	0.838	30	S
1,2-Dibromo-3-chloropropane	447	30	1000	0	44.7	40-135	431.5	3.53	30	
1,2-Dibromoethane	720.5	30	1000	0	72	70-125	723	0.346	30	
1,2-Dichlorobenzene	251.5	30	1000	0	25.2	75-120	247.5	1.6	30	S
1,2-Dichloroethane	816	30	1000	0	81.6	70-135	819	0.367	30	
1,2-Dichloropropane	708	30	1000	0	70.8	70-120	713	0.704	30	
1,3,5-Trimethylbenzene	315	30	1000	0	31.5	65-135	322	2.2	30	S
1,3-Dichlorobenzene	206.5	30	1000	0	20.6	70-125	202	2.2	30	S
1,4-Dichlorobenzene	225	30	1000	0	22.5	70-125	223.5	0.669	30	S
2-Butanone	648.5	200	1000	0	64.8	30-160	586.5	10	30	
2-Hexanone	639.5	30	1000	0	64	45-145	633	1.02	30	
4-Methyl-2-pentanone	925.5	30	1000	0	92.6	45-145	928.5	0.324	30	
Acetone	685.5	100	1000	0	68.6	20-160	681.5	0.585	30	
Acrylonitrile	827	100	1000	0	82.7	70-135	817	1.22	30	
Benzene	689	30	1000	0	68.9	75-125	696.5	1.08	30	S
Bromobenzene	426.5	30	1000	0	42.6	65-120	421.5	1.18	30	S
Bromochloromethane	739	30	1000	0	73.9	70-125	752.5	1.81	30	
Bromodichloromethane	751.5	30	1000	0	75.2	70-130	755.5	0.531	30	
Bromoform	632.5	30	1000	0	63.2	55-135	631.5	0.158	30	
Bromomethane	507	75	1000	0	50.7	30-160	511.5	0.884	30	
Carbon disulfide	598	30	1000	0	59.8	45-160	609.5	1.9	30	
Carbon tetrachloride	660	30	1000	0	66	65-135	659	0.152	30	
Chlorobenzene	521.5	30	1000	0	52.2	75-125	525.5	0.764	30	S
Chloroethane	512	100	1000	0	51.2	40-155	545	6.24	30	
Chloroform	706.5	30	1000	0	70.6	70-125	713	0.916	30	
Chloromethane	444	100	1000	0	44.4	50-130	427.5	3.79	30	S
cis-1,2-Dichloroethene	689.5	30	1000	0	69	65-125	696.5	1.01	30	
cis-1,3-Dichloropropene	737.5	30	1000	0	73.8	70-125	743	0.743	30	
Dibromochloromethane	728	30	1000	0	72.8	65-135	729.5	0.206	30	
Dibromomethane	777	30	1000	0	77.7	75-130	772.5	0.581	30	
Dichlorodifluoromethane	109	30	1000	0	10.9	35-135	110.5	1.37	30	S
Ethylbenzene	435	30	1000	0	43.5	75-125	443.5	1.94	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41463** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	402	30	1000	0	40.2	70-135	396	1.5	30	S
Isopropylbenzene	351	30	1000	0	35.1	75-130	353	0.568	30	S
m,p-Xylene	857.5	60	2000	0	42.9	80-125	879	2.48	30	S
Methyl tert-butyl ether	968.5	30	1000	56.11	91.2	75-125	964	0.466	30	
Methylene chloride	820	30	1000	25.54	79.4	55-145	825	0.608	30	
Naphthalene	217	100	1000	0	21.7	40-140	191.5	12.5	30	S
n-Butylbenzene	72.5	30	1000	0	7.25	65-140	71.5	1.39	30	S
n-Propylbenzene	221.5	30	1000	0	22.2	65-135	225.5	1.79	30	S
o-Xylene	497	30	1000	0	49.7	75-125	507	1.99	30	S
p-Isopropyltoluene	136.5	30	1000	0	13.6	75-135	142	3.95	30	S
sec-Butylbenzene	183.5	30	1000	0	18.4	65-130	187	1.89	30	S
Styrene	439.5	30	1000	0	44	75-125	437.5	0.456	30	S
tert-Butylbenzene	365.5	30	1000	0	36.6	65-130	369	0.953	30	S
Tetrachloroethene	434.5	30	1000	0	43.4	64-140	439.5	1.14	30	S
Tetrahydrofuran	766.5	200	1000	0	76.6	70-135	769	0.326	30	
Toluene	577	30	1000	0	57.7	70-125	599	3.74	30	S
trans-1,2-Dichloroethene	692	30	1000	0	69.2	65-135	694.5	0.361	30	
trans-1,3-Dichloropropene	703	30	1000	0	70.3	65-125	698.5	0.642	30	
trans-1,4-Dichloro-2-butene	615.5	30	1000	0	61.6	70-135	602	2.22	30	S
Trichloroethene	624.5	30	1000	0	62.4	75-125	618.5	0.965	30	S
Trichlorofluoromethane	227	30	1000	0	22.7	25-185	230.5	1.53	30	S
Vinyl chloride	355.5	30	1000	0	35.6	60-125	359	0.98	30	S
Surr: 1,2-Dichloroethane-d4	*857.5*	0	*1000*	0	*85.8*	*70-130*	861.5	*0.465*	*30*	
Surr: 4-Bromofluorobenzene	*420*	0	*1000*	0	*42*	*70-130*	422	*0.475*	*30*	*S*
Surr: Dibromofluoromethane	*806.5*	0	*1000*	0	*80.6*	*70-130*	803	*0.435*	*30*	
Surr: Toluene-d8	*590.5*	0	*1000*	0	*59*	*70-130*	601	*1.76*	*30*	*S*

The following samples were analyzed in this batch: 1206045-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MBLK Sample ID: **MBLK-41504-41504** Units: **µg/Kg** Analysis Date: **6/8/2012 12:26 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993885** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	17	30								J
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	112	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	ND	30						
Naphthalene	41.5	100						J
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*1001*	0	*1000*	0	*100*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1010*	0	*1000*	0	*101*	*70-130*	0	
Surr: Dibromofluoromethane	*991.5*	0	*1000*	0	*99.2*	*70-130*	0	
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

LCS Sample ID: **LCS-41504-41504** Units: **µg/Kg** Analysis Date: **6/7/2012 11:35 PM**
Client ID: Run ID: **VMS7_120607A** SeqNo: **1993884** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	958	30	1000	0	95.8	75-125	0			
1,1,1-Trichloroethane	946.5	30	1000	0	94.6	70-135	0			
1,1,2,2-Tetrachloroethane	983.5	30	1000	0	98.4	55-130	0			
1,1,2-Trichloroethane	918.5	30	1000	0	91.8	60-125	0			
1,1-Dichloroethane	896.5	30	1000	0	89.6	75-125	0			
1,1-Dichloroethene	771.5	30	1000	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	1048	30	1000	0	105	60-135	0			
1,2,3-Trichloropropane	966	30	1000	0	96.6	65-130	0			
1,2,3-Trimethylbenzene	906.5	30	1000	0	90.6	65-135	0			
1,2,4-Trichlorobenzene	998.5	30	1000	0	99.8	65-130	0			
1,2,4-Trimethylbenzene	941.5	30	1000	0	94.2	65-135	0			
1,2-Dibromo-3-chloropropane	942	30	1000	0	94.2	40-135	0			
1,2-Dibromoethane	970.5	30	1000	0	97	70-125	0			
1,2-Dichlorobenzene	961.5	30	1000	0	96.2	75-120	0			
1,2-Dichloroethane	929.5	30	1000	0	93	70-135	0			
1,2-Dichloropropane	929.5	30	1000	0	93	70-120	0			
1,3,5-Trimethylbenzene	949.5	30	1000	0	95	65-135	0			
1,3-Dichlorobenzene	951	30	1000	0	95.1	70-125	0			
1,4-Dichlorobenzene	990	30	1000	0	99	70-125	0			
2-Butanone	1044	100	1000	0	104	30-160	0			
2-Hexanone	1019	30	1000	0	102	45-145	0			
4-Methyl-2-pentanone	1454	30	1000	0	145	45-145	0			S
Acetone	845	100	1000	0	84.5	20-160	0			
Acrylonitrile	969	30	1000	0	96.9	70-135	0			
Benzene	908.5	30	1000	0	90.8	75-125	0			
Bromobenzene	944.5	30	1000	0	94.4	65-120	0			
Bromochloromethane	895.5	30	1000	0	89.6	70-125	0			
Bromodichloromethane	932.5	30	1000	0	93.2	70-130	0			
Bromoform	878.5	30	1000	0	87.8	55-135	0			
Bromomethane	881.5	30	1000	0	88.2	30-160	0			
Carbon disulfide	914	30	1000	0	91.4	45-160	0			
Carbon tetrachloride	861.5	30	1000	0	86.2	65-135	0			
Chlorobenzene	939.5	30	1000	0	94	75-125	0			
Chloroethane	678.5	100	1000	0	67.8	40-155	0			
Chloroform	907	30	1000	0	90.7	70-125	0			
Chloromethane	827	30	1000	0	82.7	50-130	0			
cis-1,2-Dichloroethene	905	30	1000	0	90.5	65-125	0			
cis-1,3-Dichloropropene	957.5	30	1000	0	95.8	70-125	0			
Dibromochloromethane	915.5	30	1000	0	91.6	65-135	0			
Dibromomethane	932	30	1000	0	93.2	75-130	0			
Dichlorodifluoromethane	759.5	30	1000	0	76	35-135	0			
Ethylbenzene	908.5	30	1000	0	90.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	915.5	30	1000	0	91.6	70-135	0
Isopropylbenzene	955	30	1000	0	95.5	75-130	0
m,p-Xylene	1818	60	2000	0	90.9	80-125	0
Methyl tert-butyl ether	1104	30	1000	0	110	75-125	0
Methylene chloride	1080	30	1000	0	108	55-145	0
Naphthalene	981.5	100	1000	0	98.2	40-140	0
n-Butylbenzene	922.5	30	1000	0	92.2	65-140	0
n-Propylbenzene	924.5	30	1000	0	92.4	65-135	0
o-Xylene	924	30	1000	0	92.4	75-125	0
p-Isopropyltoluene	927	30	1000	0	92.7	75-135	0
sec-Butylbenzene	972	30	1000	0	97.2	65-130	0
Styrene	944.5	30	1000	0	94.4	75-125	0
tert-Butylbenzene	971	30	1000	0	97.1	65-130	0
Tetrachloroethene	908.5	30	1000	0	90.8	64-140	0
Tetrahydrofuran	939.5	100	1000	0	94	70-135	0
Toluene	906	30	1000	0	90.6	70-125	0
trans-1,2-Dichloroethene	997	30	1000	0	99.7	65-135	0
trans-1,3-Dichloropropene	973	30	1000	0	97.3	65-125	0
trans-1,4-Dichloro-2-butene	922	30	1000	0	92.2	70-135	0
Trichloroethene	920.5	30	1000	0	92	75-125	0
Trichlorofluoromethane	335.5	30	1000	0	33.6	25-185	0
Vinyl chloride	808.5	30	1000	0	80.8	60-125	0
Surr: 1,2-Dichloroethane-d4	*999*	0	*1000*	0	*99.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1024*	0	*1000*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MS Sample ID: **1206045-04B MS** Units: **µg/Kg** Analysis Date: **6/8/2012 08:46 AM**
Client ID: **SBKR1150L523S053112S004** Run ID: **VMS7_120607A** SeqNo: **1994351** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2722	85	2846	0	95.6	75-125	0			
1,1,1-Trichloroethane	2778	85	2846	0	97.6	70-135	0			
1,1,2,2-Tetrachloroethane	2712	85	2846	0	95.3	55-130	0			
1,1,2-Trichloroethane	2618	85	2846	0	92	60-125	0			
1,1-Dichloroethane	2627	85	2846	0	92.3	75-125	0			
1,1-Dichloroethene	2199	85	2846	0	77.2	65-135	0			
1,2,3-Trichlorobenzene	2523	85	2846	0	88.6	60-135	0			
1,2,3-Trichloropropane	2705	85	2846	0	95	65-130	0			
1,2,3-Trimethylbenzene	2495	85	2846	0	87.6	65-135	0			
1,2,4-Trichlorobenzene	2441	85	2846	0	85.8	65-130	0			
1,2,4-Trimethylbenzene	2594	85	2846	0	91.2	65-135	0			
1,2-Dibromo-3-chloropropane	2374	85	2846	0	83.4	40-135	0			
1,2-Dibromoethane	2748	85	2846	0	96.6	70-125	0			
1,2-Dichlorobenzene	2641	85	2846	0	92.8	75-120	0			
1,2-Dichloroethane	2765	85	2846	0	97.2	70-135	0			
1,2-Dichloropropane	2732	85	2846	0	96	70-120	0			
1,3,5-Trimethylbenzene	2668	85	2846	0	93.8	65-135	0			
1,3-Dichlorobenzene	2552	85	2846	0	89.6	70-125	0			
1,4-Dichlorobenzene	2626	85	2846	0	92.2	70-125	0			
2-Butanone	3579	280	2846	0	126	30-160	0			
2-Hexanone	2986	85	2846	0	105	45-145	0			
4-Methyl-2-pentanone	4181	85	2846	0	147	45-145	0			S
Acetone	4299	280	2846	0	151	20-160	0			
Acrylonitrile	2842	85	2846	0	99.8	70-135	0			
Benzene	2673	85	2846	0	93.9	75-125	0			
Bromobenzene	2617	85	2846	0	92	65-120	0			
Bromochloromethane	2710	85	2846	0	95.2	70-125	0			
Bromodichloromethane	2754	85	2846	0	96.8	70-130	0			
Bromoform	2389	85	2846	0	84	55-135	0			
Bromomethane	2230	85	2846	0	78.4	30-160	0			
Carbon disulfide	2641	85	2846	0	92.8	45-160	0			
Carbon tetrachloride	2534	85	2846	0	89	65-135	0			
Chlorobenzene	2671	85	2846	0	93.8	75-125	0			
Chloroethane	1904	280	2846	0	66.9	40-155	0			
Chloroform	2638	85	2846	0	92.7	70-125	0			
Chloromethane	2482	85	2846	0	87.2	50-130	0			
cis-1,2-Dichloroethene	2636	85	2846	0	92.6	65-125	0			
cis-1,3-Dichloropropene	2700	85	2846	0	94.8	70-125	0			
Dibromochloromethane	2530	85	2846	0	88.9	65-135	0			
Dibromomethane	2738	85	2846	0	96.2	75-130	0			
Dichlorodifluoromethane	2197	85	2846	0	77.2	35-135	0			
Ethylbenzene	2554	85	2846	0	89.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2389	85	2846	0	84	70-135	0
Isopropylbenzene	2648	85	2846	0	93	75-130	0
m,p-Xylene	5228	170	5692	0	91.8	80-125	0
Methyl tert-butyl ether	3218	85	2846	0	113	75-125	0
Methylene chloride	3270	85	2846	0	115	55-145	0
Naphthalene	2473	280	2846	0	86.9	40-140	0
n-Butylbenzene	2442	85	2846	0	85.8	65-140	0
n-Propylbenzene	2577	85	2846	0	90.6	65-135	0
o-Xylene	2589	85	2846	0	91	75-125	0
p-Isopropyltoluene	2465	85	2846	0	86.6	75-135	0
sec-Butylbenzene	2636	85	2846	0	92.6	65-130	0
Styrene	2489	85	2846	0	87.4	75-125	0
tert-Butylbenzene	2741	85	2846	0	96.3	65-130	0
Tetrachloroethene	2604	85	2846	0	91.5	64-140	0
Tetrahydrofuran	2711	280	2846	0	95.2	70-135	0
Toluene	2599	85	2846	0	91.3	70-125	0
trans-1,2-Dichloroethene	2946	85	2846	0	104	65-135	0
trans-1,3-Dichloropropene	2647	85	2846	0	93	65-125	0
trans-1,4-Dichloro-2-butene	2250	85	2846	0	79	70-135	0
Trichloroethene	2704	85	2846	0	95	75-125	0
Trichlorofluoromethane	981.9	85	2846	0	34.5	25-185	0
Vinyl chloride	2429	85	2846	0	85.4	60-125	0
Surr: 1,2-Dichloroethane-d4	*2892*	0	*2846*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2937*	0	*2846*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*2880*	0	*2846*	0	*101*	*70-130*	0
Surr: Toluene-d8	*2816*	0	*2846*	0	*99*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

MSD Sample ID: **1206045-04B MSD** Units: **µg/Kg** Analysis Date: **6/8/2012 09:13 AM**
Client ID: **SBKR1150L523S053112S004** Run ID: **VMS7_120607A** SeqNo: **1994352** Prep Date: **6/7/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2685	86	2862	0	93.8	75-125	2722	1.39	30	
1,1,1-Trichloroethane	2675	86	2862	0	93.4	70-135	2778	3.78	30	
1,1,2,2-Tetrachloroethane	2620	86	2862	0	91.6	55-130	2712	3.45	30	
1,1,2-Trichloroethane	2552	86	2862	0	89.2	60-125	2618	2.58	30	
1,1-Dichloroethane	2590	86	2862	0	90.5	75-125	2627	1.41	30	
1,1-Dichloroethene	2267	86	2862	0	79.2	65-135	2199	3.06	30	
1,2,3-Trichlorobenzene	2625	86	2862	0	91.7	60-135	2523	3.95	30	
1,2,3-Trichloropropane	2629	86	2862	0	91.8	65-130	2705	2.86	30	
1,2,3-Trimethylbenzene	2453	86	2862	0	85.7	65-135	2495	1.69	30	
1,2,4-Trichlorobenzene	2507	86	2862	0	87.6	65-130	2441	2.7	30	
1,2,4-Trimethylbenzene	2542	86	2862	0	88.8	65-135	2594	2.05	30	
1,2-Dibromo-3-chloropropane	2357	86	2862	0	82.4	40-135	2374	0.704	30	
1,2-Dibromoethane	2666	86	2862	0	93.2	70-125	2748	3.02	30	
1,2-Dichlorobenzene	2628	86	2862	0	91.8	75-120	2641	0.52	30	
1,2-Dichloroethane	2712	86	2862	0	94.8	70-135	2765	1.94	30	
1,2-Dichloropropane	2688	86	2862	0	93.9	70-120	2732	1.65	30	
1,3,5-Trimethylbenzene	2625	86	2862	0	91.7	65-135	2668	1.65	30	
1,3-Dichlorobenzene	2565	86	2862	0	89.6	70-125	2552	0.507	30	
1,4-Dichlorobenzene	2612	86	2862	0	91.2	70-125	2626	0.527	30	
2-Butanone	3217	290	2862	0	112	30-160	3579	10.7	30	
2-Hexanone	2907	86	2862	0	102	45-145	2986	2.68	30	
4-Methyl-2-pentanone	4084	86	2862	0	143	45-145	4181	2.34	30	
Acetone	4087	290	2862	0	143	20-160	4299	5.05	30	
Acrylonitrile	2742	86	2862	0	95.8	70-135	2842	3.58	30	
Benzene	2563	86	2862	0	89.6	75-125	2673	4.18	30	
Bromobenzene	2613	86	2862	0	91.3	65-120	2617	0.146	30	
Bromochloromethane	2676	86	2862	0	93.5	70-125	2710	1.24	30	
Bromodichloromethane	2685	86	2862	0	93.8	70-130	2754	2.53	30	
Bromoform	2333	86	2862	0	81.5	55-135	2389	2.4	30	
Bromomethane	2310	86	2862	0	80.7	30-160	2230	3.52	30	
Carbon disulfide	2648	86	2862	0	92.5	45-160	2641	0.239	30	
Carbon tetrachloride	2446	86	2862	0	85.4	65-135	2534	3.56	30	
Chlorobenzene	2607	86	2862	0	91.1	75-125	2671	2.41	30	
Chloroethane	1903	290	2862	0	66.5	40-155	1904	0.0367	30	
Chloroform	2560	86	2862	0	89.4	70-125	2638	3.01	30	
Chloromethane	2499	86	2862	0	87.3	50-130	2482	0.678	30	
cis-1,2-Dichloroethene	2565	86	2862	0	89.6	65-125	2636	2.73	30	
cis-1,3-Dichloropropene	2665	86	2862	0	93.1	70-125	2700	1.3	30	
Dibromochloromethane	2527	86	2862	0	88.3	65-135	2530	0.114	30	
Dibromomethane	2659	86	2862	0	92.9	75-130	2738	2.93	30	
Dichlorodifluoromethane	2170	86	2862	0	75.8	35-135	2197	1.27	30	
Ethylbenzene	2514	86	2862	0	87.8	75-125	2554	1.58	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41504** Instrument ID **VMS7** Method: **SW8260**

Hexachloroethane	2434	86	2862	0	85	70-135	2389	1.86	30
Isopropylbenzene	2622	86	2862	0	91.6	75-130	2648	1.01	30
m,p-Xylene	5095	170	5724	0	89	80-125	5228	2.59	30
Methyl tert-butyl ether	3180	86	2862	0	111	75-125	3218	1.18	30
Methylene chloride	3171	86	2862	0	111	55-145	3270	3.07	30
Naphthalene	2559	290	2862	0	89.4	40-140	2473	3.4	30
n-Butylbenzene	2443	86	2862	0	85.4	65-140	2442	0.0372	30
n-Propylbenzene	2526	86	2862	0	88.2	65-135	2577	2.01	30
o-Xylene	2547	86	2862	0	89	75-125	2589	1.6	30
p-Isopropyltoluene	2397	86	2862	0	83.8	75-135	2465	2.78	30
sec-Butylbenzene	2580	86	2862	0	90.2	65-130	2636	2.12	30
Styrene	2419	86	2862	0	84.5	75-125	2489	2.87	30
tert-Butylbenzene	2656	86	2862	0	92.8	65-130	2741	3.14	30
Tetrachloroethene	2510	86	2862	0	87.7	64-140	2604	3.68	30
Tetrahydrofuran	2628	290	2862	0	91.8	70-135	2711	3.13	30
Toluene	2520	86	2862	0	88	70-125	2599	3.06	30
trans-1,2-Dichloroethene	2865	86	2862	0	100	65-135	2946	2.78	30
trans-1,3-Dichloropropene	2586	86	2862	0	90.4	65-125	2647	2.33	30
trans-1,4-Dichloro-2-butene	2207	86	2862	0	77.1	70-135	2250	1.93	30
Trichloroethene	2623	86	2862	0	91.6	75-125	2704	3.03	30
Trichlorofluoromethane	930.2	86	2862	0	32.5	25-185	981.9	5.41	30
Vinyl chloride	2406	86	2862	0	84	60-125	2429	0.972	30
Surr: 1,2-Dichloroethane-d4	*2852*	0	*2862*	0	*99.6*	*70-130*	2892	*1.37*	*30*
Surr: 4-Bromofluorobenzene	*2928*	0	*2862*	0	*102*	*70-130*	2937	*0.313*	*30*
Surr: Dibromofluoromethane	*2854*	0	*2862*	0	*99.7*	*70-130*	2880	*0.93*	*30*
Surr: Toluene-d8	*2842*	0	*2862*	0	*99.3*	*70-130*	2816	*0.916*	*30*

The following samples were analyzed in this batch:

1206045-01B	1206045-02B	1206045-03B
1206045-04B	1206045-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/8/2012 01:57 PM**
Client ID: Run ID: **VMS9_120608A** SeqNo: **1994892** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	21	30					J
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1035*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*974.5*	0	*1000*	0	*97.4*	*70-130*	0
Surr: Dibromofluoromethane	*955.5*	0	*1000*	0	*95.6*	*70-130*	0
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/8/2012 01:57 PM**
Client ID: Run ID: **VMS9_120608A** SeqNo: **1994909** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30						
Diethyl ether	ND	30						
Diisopropyl ether	ND	30						
Ethyl tert butyl ether	ND	30						
Ethylbenzene	ND	30						
Hexachloroethane	ND	30						
Isopropylbenzene	ND	30						
m,p-Xylene	ND	60						
Methyl iodide	ND	30						
Methyl tert-butyl ether	ND	30						
Methylene chloride	21	30						J
Naphthalene	ND	100						
n-Butylbenzene	ND	30						
n-Propylbenzene	ND	30						
o-Xylene	ND	30						
p-Isopropyltoluene	ND	30						
sec-Butylbenzene	ND	30						
Styrene	ND	30						
tert-Butyl alcohol	ND	100						
tert-Butylbenzene	ND	30						
Tertiaryamylmethylether	ND	30						
Tetrachloroethene	ND	30						
Tetrahydrofuran	ND	100						
Toluene	ND	30						
trans-1,2-Dichloroethene	ND	30						
trans-1,3-Dichloropropene	ND	30						
trans-1,4-Dichloro-2-butene	ND	30						
Trichloroethene	ND	30						
Trichlorofluoromethane	ND	30						
Vinyl chloride	ND	30						
Surr: 1,2-Dichloroethane-d4	*1035*	0	*1000*	0	*104*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*974.5*	0	*1000*	0	*97.4*	*70-130*	0	
Surr: Dibromofluoromethane	*955.5*	0	*1000*	0	*95.6*	*70-130*	0	
Surr: Toluene-d8	*1014*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/8/2012 01:34 PM**
Client ID: Run ID: **VMS7_120608A** SeqNo: **1995060** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	19	100					J
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1046*	0	*1000*	0	*105*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Dibromofluoromethane	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*1010*	0	*1000*	0	*101*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/9/2012 12:52 PM**
Client ID: Run ID: **VMS7_120608B** SeqNo: **1995310** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*984*	0	*1000*	0	*98.4*	*70-130*	0
Surr: Dibromofluoromethane	*1066*	0	*1000*	0	*107*	*70-130*	0
Surr: Toluene-d8	*1040*	0	*1000*	0	*104*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/11/2012 01:55 PM**
Client ID: Run ID: **VMS5_120611A** SeqNo: **1996243** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	200					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	200					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1058*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*988.5*	0	*1000*	0	*98.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MBLK Sample ID: **MBLK-41526-41526** Units: **µg/Kg** Analysis Date: **6/11/2012 01:55 PM**
Client ID: Run ID: **VMS5_120611A** SeqNo: **1996251** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichlorobenzene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,3-Trimethylbenzene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	100								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	30								
Benzene	ND	30								
Bromobenzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	30								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	30								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Dichlorodifluoromethane	ND	30					
Diethyl ether	ND	30					
Diisopropyl ether	ND	30					
Ethyl tert butyl ether	ND	30					
Ethylbenzene	ND	30					
Hexachloroethane	ND	30					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	30					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Butylbenzene	ND	30					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
p-Isopropyltoluene	ND	30					
sec-Butylbenzene	ND	30					
Styrene	ND	30					
tert-Butyl alcohol	ND	100					
tert-Butylbenzene	ND	30					
Tertiaryamylmethylether	ND	30					
Tetrachloroethene	ND	30					
Tetrahydrofuran	ND	100					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Surr: 1,2-Dichloroethane-d4	*1058*	0	*1000*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*988.5*	0	*1000*	0	*98.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS	Sample ID: **LCS-41526-41526**				Units: **µg/Kg**		Analysis Date: **6/8/2012 12:46 PM**			
Client ID:		Run ID: **VMS9_120608A**			SeqNo: **1994891**		Prep Date: **6/8/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1050	30	1000	0	105	75-125	0			
1,1,1-Trichloroethane	1067	30	1000	0	107	70-135	0			
1,1,2,2-Tetrachloroethane	1007	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	912.5	30	1000	0	91.2	60-125	0			
1,1-Dichloroethane	1070	30	1000	0	107	75-125	0			
1,1-Dichloroethene	1220	30	1000	0	122	65-135	0			
1,2,3-Trichlorobenzene	1274	30	1000	0	127	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1030	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1051	30	1000	0	105	65-130	0			
1,2,4-Trimethylbenzene	1079	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	900	30	1000	0	90	40-135	0			
1,2-Dibromoethane	954.5	30	1000	0	95.4	70-125	0			
1,2-Dichlorobenzene	976	30	1000	0	97.6	75-120	0			
1,2-Dichloroethane	975	30	1000	0	97.5	70-135	0			
1,2-Dichloropropane	986.5	30	1000	0	98.6	70-120	0			
1,3,5-Trimethylbenzene	1212	30	1000	0	121	65-135	0			
1,3-Dichlorobenzene	998	30	1000	0	99.8	70-125	0			
1,4-Dichlorobenzene	958	30	1000	0	95.8	70-125	0			
2-Butanone	791	200	1000	0	79.1	30-160	0			
2-Hexanone	765	30	1000	0	76.5	45-145	0			
4-Methyl-2-pentanone	912	30	1000	0	91.2	45-145	0			
Acetone	883	100	1000	0	88.3	20-160	0			
Acrylonitrile	1012	100	1000	0	101	70-135	0			
Benzene	972	30	1000	0	97.2	75-125	0			
Bromobenzene	1108	30	1000	0	111	65-120	0			
Bromochloromethane	1080	30	1000	0	108	70-125	0			
Bromodichloromethane	986	30	1000	0	98.6	70-130	0			
Bromoform	973.5	30	1000	0	97.4	55-135	0			
Bromomethane	778	75	1000	0	77.8	30-160	0			
Carbon disulfide	1126	30	1000	0	113	45-160	0			
Carbon tetrachloride	980	30	1000	0	98	65-135	0			
Chlorobenzene	993.5	30	1000	0	99.4	75-125	0			
Chloroethane	779.5	100	1000	0	78	40-155	0			
Chloroform	1069	30	1000	0	107	70-125	0			
Chloromethane	962	100	1000	0	96.2	50-130	0			
cis-1,2-Dichloroethene	1102	30	1000	0	110	65-125	0			
cis-1,3-Dichloropropene	1134	30	1000	0	113	70-125	0			
Dibromochloromethane	908.5	30	1000	0	90.8	65-135	0			
Dibromomethane	954.5	30	1000	0	95.4	75-130	0			
Dichlorodifluoromethane	1036	30	1000	0	104	35-135	0			
Ethylbenzene	1067	30	1000	0	107	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	963	30	1000	0	96.3	70-135	0
Isopropylbenzene	1168	30	1000	0	117	75-130	0
m,p-Xylene	2162	60	2000	0	108	80-125	0
Methyl tert-butyl ether	1149	30	1000	0	115	75-125	0
Methylene chloride	1212	30	1000	0	121	55-145	0
Naphthalene	1158	100	1000	0	116	40-140	0
n-Butylbenzene	1170	30	1000	0	117	65-140	0
n-Propylbenzene	1090	30	1000	0	109	65-135	0
o-Xylene	1064	30	1000	0	106	75-125	0
p-Isopropyltoluene	1071	30	1000	0	107	75-135	0
sec-Butylbenzene	1123	30	1000	0	112	65-130	0
Styrene	1108	30	1000	0	111	75-125	0
tert-Butylbenzene	1100	30	1000	0	110	65-130	0
Tetrachloroethene	983	30	1000	0	98.3	64-140	0
Tetrahydrofuran	992.5	200	1000	0	99.2	70-135	0
Toluene	980	30	1000	0	98	70-125	0
trans-1,2-Dichloroethene	1173	30	1000	0	117	65-135	0
trans-1,3-Dichloropropene	937.5	30	1000	0	93.8	65-125	0
trans-1,4-Dichloro-2-butene	971.5	30	1000	0	97.2	70-135	0
Trichloroethene	948	30	1000	0	94.8	75-125	0
Trichlorofluoromethane	991	30	1000	0	99.1	25-185	0
Vinyl chloride	1143	30	1000	0	114	60-125	0
Surr: 1,2-Dichloroethane-d4	*1030*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1120*	0	*1000*	0	*112*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*997.5*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS	Sample ID: **LCS-41526-41526**				Units: **µg/Kg**		Analysis Date: **6/8/2012 12:46 PM**			
Client ID:		Run ID: **VMS9_120608A**			SeqNo: **1994908**		Prep Date: **6/8/2012**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1050	30	1000	0	105	75-125	0			
1,1,1-Trichloroethane	1067	30	1000	0	107	70-135	0			
1,1,2,2-Tetrachloroethane	1007	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	912.5	30	1000	0	91.2	60-125	0			
1,1-Dichloroethane	1070	30	1000	0	107	75-125	0			
1,1-Dichloroethene	1220	30	1000	0	122	65-135	0			
1,2,3-Trichlorobenzene	1274	30	1000	0	127	60-135	0			
1,2,3-Trichloropropane	948	30	1000	0	94.8	65-130	0			
1,2,3-Trimethylbenzene	1030	30	1000	0	103	65-135	0			
1,2,4-Trichlorobenzene	1051	30	1000	0	105	65-130	0			
1,2,4-Trimethylbenzene	1079	30	1000	0	108	65-135	0			
1,2-Dibromo-3-chloropropane	900	30	1000	0	90	40-135	0			
1,2-Dibromoethane	954.5	30	1000	0	95.4	70-125	0			
1,2-Dichlorobenzene	976	30	1000	0	97.6	75-120	0			
1,2-Dichloroethane	975	30	1000	0	97.5	70-135	0			
1,2-Dichloropropane	986.5	30	1000	0	98.6	70-120	0			
1,3,5-Trimethylbenzene	1212	30	1000	0	121	65-135	0			
1,3-Dichlorobenzene	998	30	1000	0	99.8	70-125	0			
1,4-Dichlorobenzene	958	30	1000	0	95.8	70-125	0			
2-Butanone	791	100	1000	0	79.1	30-160	0			
2-Hexanone	765	30	1000	0	76.5	45-145	0			
4-Methyl-2-pentanone	912	30	1000	0	91.2	45-145	0			
Acetone	883	100	1000	0	88.3	20-160	0			
Acrylonitrile	1012	30	1000	0	101	70-135	0			
Benzene	972	30	1000	0	97.2	75-125	0			
Bromobenzene	1108	30	1000	0	111	65-120	0			
Bromochloromethane	1080	30	1000	0	108	70-125	0			
Bromodichloromethane	986	30	1000	0	98.6	70-130	0			
Bromoform	973.5	30	1000	0	97.4	55-135	0			
Bromomethane	778	30	1000	0	77.8	30-160	0			
Carbon disulfide	1126	30	1000	0	113	45-160	0			
Carbon tetrachloride	980	30	1000	0	98	65-135	0			
Chlorobenzene	993.5	30	1000	0	99.4	75-125	0			
Chloroethane	779.5	100	1000	0	78	40-155	0			
Chloroform	1069	30	1000	0	107	70-125	0			
Chloromethane	962	30	1000	0	96.2	50-130	0			
cis-1,2-Dichloroethene	1102	30	1000	0	110	65-125	0			
cis-1,3-Dichloropropene	1134	30	1000	0	113	70-125	0			
Dibromochloromethane	908.5	30	1000	0	90.8	65-135	0			
Dibromomethane	954.5	30	1000	0	95.4	75-130	0			
Dichlorodifluoromethane	1036	30	1000	0	104	35-135	0			
Ethylbenzene	1067	30	1000	0	107	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	963	30	1000	0	96.3	70-135	0
Isopropylbenzene	1168	30	1000	0	117	75-130	0
m,p-Xylene	2162	60	2000	0	108	80-125	0
Methyl tert-butyl ether	1149	30	1000	0	115	75-125	0
Methylene chloride	1212	30	1000	0	121	55-145	0
Naphthalene	1158	100	1000	0	116	40-140	0
n-Butylbenzene	1170	30	1000	0	117	65-140	0
n-Propylbenzene	1090	30	1000	0	109	65-135	0
o-Xylene	1064	30	1000	0	106	75-125	0
p-Isopropyltoluene	1071	30	1000	0	107	75-135	0
sec-Butylbenzene	1123	30	1000	0	112	65-130	0
Styrene	1108	30	1000	0	111	75-125	0
tert-Butylbenzene	1100	30	1000	0	110	65-130	0
Tetrachloroethene	983	30	1000	0	98.3	64-140	0
Tetrahydrofuran	992.5	100	1000	0	99.2	70-135	0
Toluene	980	30	1000	0	98	70-125	0
trans-1,2-Dichloroethene	1173	30	1000	0	117	65-135	0
trans-1,3-Dichloropropene	937.5	30	1000	0	93.8	65-125	0
trans-1,4-Dichloro-2-butene	971.5	30	1000	0	97.2	70-135	0
Trichloroethene	948	30	1000	0	94.8	75-125	0
Trichlorofluoromethane	991	30	1000	0	99.1	25-185	0
Vinyl chloride	1143	30	1000	0	114	60-125	0
Surr: 1,2-Dichloroethane-d4	*1030*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1120*	0	*1000*	0	*112*	*70-130*	0
Surr: Dibromofluoromethane	*1000*	0	*1000*	0	*100*	*70-130*	0
Surr: Toluene-d8	*997.5*	0	*1000*	0	*99.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41526-41526** Units: **µg/Kg** Analysis Date: **6/8/2012 11:53 AM**
Client ID: Run ID: **VMS7_120608A** SeqNo: **1995057** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1022	30	1000	0	102	75-125	0			
1,1,1-Trichloroethane	974.5	30	1000	0	97.4	70-135	0			
1,1,2,2-Tetrachloroethane	1003	30	1000	0	100	55-130	0			
1,1,2-Trichloroethane	979	30	1000	0	97.9	60-125	0			
1,1-Dichloroethane	923	30	1000	0	92.3	75-125	0			
1,1-Dichloroethene	1018	30	1000	0	102	65-135	0			
1,2,3-Trichlorobenzene	1041	30	1000	0	104	60-135	0			
1,2,3-Trichloropropane	1022	30	1000	0	102	65-130	0			
1,2,3-Trimethylbenzene	972.5	30	1000	0	97.2	65-135	0			
1,2,4-Trichlorobenzene	1014	30	1000	0	101	65-130	0			
1,2,4-Trimethylbenzene	959.5	30	1000	0	96	65-135	0			
1,2-Dibromo-3-chloropropane	984.5	30	1000	0	98.4	40-135	0			
1,2-Dibromoethane	1020	30	1000	0	102	70-125	0			
1,2-Dichlorobenzene	1016	30	1000	0	102	75-120	0			
1,2-Dichloroethane	984	30	1000	0	98.4	70-135	0			
1,2-Dichloropropane	985.5	30	1000	0	98.6	70-120	0			
1,3,5-Trimethylbenzene	983	30	1000	0	98.3	65-135	0			
1,3-Dichlorobenzene	999	30	1000	0	99.9	70-125	0			
1,4-Dichlorobenzene	1029	30	1000	0	103	70-125	0			
2-Butanone	1010	200	1000	0	101	30-160	0			
2-Hexanone	1092	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1545	30	1000	0	154	45-145	0			S
Acetone	1088	100	1000	0	109	20-160	0			
Acrylonitrile	1010	100	1000	0	101	70-135	0			
Benzene	936	30	1000	0	93.6	75-125	0			
Bromobenzene	972	30	1000	0	97.2	65-120	0			
Bromochloromethane	1020	30	1000	0	102	70-125	0			
Bromodichloromethane	1008	30	1000	0	101	70-130	0			
Bromoform	951.5	30	1000	0	95.2	55-135	0			
Bromomethane	1048	75	1000	0	105	30-160	0			
Carbon disulfide	986	30	1000	0	98.6	45-160	0			
Carbon tetrachloride	908.5	30	1000	0	90.8	65-135	0			
Chlorobenzene	989	30	1000	0	98.9	75-125	0			
Chloroethane	1024	100	1000	0	102	40-155	0			
Chloroform	951	30	1000	0	95.1	70-125	0			
Chloromethane	892	100	1000	0	89.2	50-130	0			
cis-1,2-Dichloroethene	940	30	1000	0	94	65-125	0			
cis-1,3-Dichloropropene	1044	30	1000	0	104	70-125	0			
Dibromochloromethane	983	30	1000	0	98.3	65-135	0			
Dibromomethane	989.5	30	1000	0	99	75-130	0			
Dichlorodifluoromethane	707	30	1000	0	70.7	35-135	0			
Ethylbenzene	939	30	1000	0	93.9	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	973	30	1000	0	97.3	70-135	0
Isopropylbenzene	984.5	30	1000	0	98.4	75-130	0
m,p-Xylene	1931	60	2000	0	96.6	80-125	0
Methyl tert-butyl ether	1068	30	1000	0	107	75-125	0
Methylene chloride	1172	30	1000	0	117	55-145	0
Naphthalene	951	100	1000	0	95.1	40-140	0
n-Butylbenzene	1004	30	1000	0	100	65-140	0
n-Propylbenzene	950	30	1000	0	95	65-135	0
o-Xylene	966.5	30	1000	0	96.6	75-125	0
p-Isopropyltoluene	998	30	1000	0	99.8	75-135	0
sec-Butylbenzene	993.5	30	1000	0	99.4	65-130	0
Styrene	976	30	1000	0	97.6	75-125	0
tert-Butylbenzene	993.5	30	1000	0	99.4	65-130	0
Tetrachloroethene	963.5	30	1000	0	96.4	64-140	0
Tetrahydrofuran	1023	200	1000	0	102	70-135	0
Toluene	932	30	1000	0	93.2	70-125	0
trans-1,2-Dichloroethene	951	30	1000	0	95.1	65-135	0
trans-1,3-Dichloropropene	1053	30	1000	0	105	65-125	0
trans-1,4-Dichloro-2-butene	995	30	1000	0	99.5	70-135	0
Trichloroethene	964.5	30	1000	0	96.4	75-125	0
Trichlorofluoromethane	958.5	30	1000	0	95.8	25-185	0
Vinyl chloride	880	30	1000	0	88	60-125	0
Surr: 1,2-Dichloroethane-d4	*1026*	0	*1000*	0	*103*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1011*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1035*	0	*1000*	0	*104*	*70-130*	0
Surr: Toluene-d8	*1025*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41526-41526** Units: **µg/L** Analysis Date: **6/11/2012 12:40 PM**
Client ID: Run ID: **VMS5_120611A** SeqNo: **1995224** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1028	30	1000	0	103	75-125	0			
1,1,1-Trichloroethane	1094	30	1000	0	109	70-135	0			
1,1,2,2-Tetrachloroethane	887.5	30	1000	0	88.8	55-130	0			
1,1,2-Trichloroethane	986	30	1000	0	98.6	60-125	0			
1,1-Dichloroethane	1126	30	1000	0	113	75-125	0			
1,1-Dichloroethene	1195	30	1000	0	120	65-135	0			
1,2,3-Trichlorobenzene	906.5	30	1000	0	90.6	60-135	0			
1,2,3-Trichloropropane	840	30	1000	0	84	65-130	0			
1,2,3-Trimethylbenzene	1016	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	968.5	30	1000	0	96.8	65-130	0			
1,2,4-Trimethylbenzene	1030	30	1000	0	103	65-135	0			
1,2-Dibromo-3-chloropropane	778	30	1000	0	77.8	40-135	0			
1,2-Dibromoethane	994.5	30	1000	0	99.4	70-125	0			
1,2-Dichlorobenzene	1016	30	1000	0	102	75-120	0			
1,2-Dichloroethane	1060	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1100	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1038	30	1000	0	104	65-135	0			
1,3-Dichlorobenzene	1049	30	1000	0	105	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	856	200	1000	0	85.6	30-160	0			
2-Hexanone	826	30	1000	0	82.6	45-145	0			
4-Methyl-2-pentanone	877.5	30	1000	0	87.8	45-145	0			
Acetone	667	100	1000	0	66.7	20-160	0			
Acrylonitrile	841.5	100	1000	0	84.2	70-135	0			
Benzene	1061	30	1000	0	106	75-125	0			
Bromobenzene	815.5	30	1000	0	81.6	65-120	0			
Bromochloromethane	1186	30	1000	0	119	70-125	0			
Bromodichloromethane	1090	30	1000	0	109	70-130	0			
Bromoform	802	30	1000	0	80.2	55-135	0			
Bromomethane	1187	75	1000	0	119	30-160	0			
Carbon disulfide	1179	30	1000	0	118	45-160	0			
Carbon tetrachloride	1113	30	1000	0	111	65-135	0			
Chlorobenzene	1040	30	1000	0	104	75-125	0			
Chloroethane	1108	100	1000	0	111	40-155	0			
Chloroform	1134	30	1000	0	113	70-125	0			
Chloromethane	1012	100	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1190	30	1000	0	119	65-125	0			
cis-1,3-Dichloropropene	1140	30	1000	0	114	70-125	0			
Dibromochloromethane	939	30	1000	0	93.9	65-135	0			
Dibromomethane	1019	30	1000	0	102	75-130	0			
Dichlorodifluoromethane	899.5	30	1000	0	90	35-135	0			
Ethylbenzene	1053	30	1000	0	105	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1018	30	1000	0	102	70-135	0
Isopropylbenzene	1036	30	1000	0	104	75-130	0
m,p-Xylene	2061	60	2000	0	103	80-125	0
Methyl tert-butyl ether	1120	30	1000	0	112	75-125	0
Methylene chloride	1099	30	1000	0	110	55-145	0
Naphthalene	825.5	100	1000	0	82.6	40-140	0
n-Butylbenzene	1090	30	1000	0	109	65-140	0
n-Propylbenzene	1030	30	1000	0	103	65-135	0
o-Xylene	1042	30	1000	0	104	75-125	0
p-Isopropyltoluene	1028	30	1000	0	103	75-135	0
sec-Butylbenzene	1062	30	1000	0	106	65-130	0
Styrene	1066	30	1000	0	107	75-125	0
tert-Butylbenzene	1082	30	1000	0	108	65-130	0
Tetrachloroethene	1012	30	1000	0	101	64-140	0
Tetrahydrofuran	791	200	1000	0	79.1	70-135	0
Toluene	1031	30	1000	0	103	70-125	0
trans-1,2-Dichloroethene	1198	30	1000	0	120	65-135	0
trans-1,3-Dichloropropene	1091	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	828.5	30	1000	0	82.8	70-135	0
Trichloroethene	1044	30	1000	0	104	75-125	0
Trichlorofluoromethane	995.5	30	1000	0	99.6	25-185	0
Vinyl chloride	1024	30	1000	0	102	60-125	0
Surr: 1,2-Dichloroethane-d4	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*988*	0	*1000*	0	*98.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41526-41526** Units: **µg/Kg** Analysis Date: **6/9/2012 12:02 PM**
Client ID: Run ID: **VMS7_120608B** SeqNo: **1995305** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1064	30	1000	0	106	75-125	0			
1,1,1-Trichloroethane	1057	30	1000	0	106	70-135	0			
1,1,2,2-Tetrachloroethane	1089	30	1000	0	109	55-130	0			
1,1,2-Trichloroethane	1013	30	1000	0	101	60-125	0			
1,1-Dichloroethane	977.5	30	1000	0	97.8	75-125	0			
1,1-Dichloroethene	1186	30	1000	0	119	65-135	0			
1,2,3-Trichlorobenzene	1116	30	1000	0	112	60-135	0			
1,2,3-Trichloropropane	1108	30	1000	0	111	65-130	0			
1,2,3-Trimethylbenzene	1013	30	1000	0	101	65-135	0			
1,2,4-Trichlorobenzene	1058	30	1000	0	106	65-130	0			
1,2,4-Trimethylbenzene	1005	30	1000	0	100	65-135	0			
1,2-Dibromo-3-chloropropane	1106	30	1000	0	111	40-135	0			
1,2-Dibromoethane	1077	30	1000	0	108	70-125	0			
1,2-Dichlorobenzene	1073	30	1000	0	107	75-120	0			
1,2-Dichloroethane	1020	30	1000	0	102	70-135	0			
1,2-Dichloropropane	1030	30	1000	0	103	70-120	0			
1,3,5-Trimethylbenzene	1022	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	1062	30	1000	0	106	70-125	0			
1,4-Dichlorobenzene	1103	30	1000	0	110	70-125	0			
2-Butanone	1054	200	1000	0	105	30-160	0			
2-Hexanone	1212	30	1000	0	121	45-145	0			
4-Methyl-2-pentanone	1718	30	1000	0	172	45-145	0			S
Acetone	1468	100	1000	0	147	20-160	0			
Acrylonitrile	1116	100	1000	0	112	70-135	0			
Benzene	1002	30	1000	0	100	75-125	0			
Bromobenzene	1002	30	1000	0	100	65-120	0			
Bromochloromethane	1058	30	1000	0	106	70-125	0			
Bromodichloromethane	1064	30	1000	0	106	70-130	0			
Bromoform	1008	30	1000	0	101	55-135	0			
Bromomethane	1196	75	1000	0	120	30-160	0			
Carbon disulfide	1122	30	1000	0	112	45-160	0			
Carbon tetrachloride	985.5	30	1000	0	98.6	65-135	0			
Chlorobenzene	1034	30	1000	0	103	75-125	0			
Chloroethane	1108	100	1000	0	111	40-155	0			
Chloroform	991.5	30	1000	0	99.2	70-125	0			
Chloromethane	996.5	100	1000	0	99.6	50-130	0			
cis-1,2-Dichloroethene	990.5	30	1000	0	99	65-125	0			
cis-1,3-Dichloropropene	1078	30	1000	0	108	70-125	0			
Dibromochloromethane	1010	30	1000	0	101	65-135	0			
Dibromomethane	1057	30	1000	0	106	75-130	0			
Dichlorodifluoromethane	763	30	1000	0	76.3	35-135	0			
Ethylbenzene	989.5	30	1000	0	99	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1004	30	1000	0	100	70-135	0
Isopropylbenzene	1034	30	1000	0	103	75-130	0
m,p-Xylene	2053	60	2000	0	103	80-125	0
Methyl tert-butyl ether	1130	30	1000	0	113	75-125	0
Methylene chloride	1202	30	1000	0	120	55-145	0
Naphthalene	1100	100	1000	0	110	40-140	0
n-Butylbenzene	1032	30	1000	0	103	65-140	0
n-Propylbenzene	991	30	1000	0	99.1	65-135	0
o-Xylene	1007	30	1000	0	101	75-125	0
p-Isopropyltoluene	1024	30	1000	0	102	75-135	0
sec-Butylbenzene	1037	30	1000	0	104	65-130	0
Styrene	1022	30	1000	0	102	75-125	0
tert-Butylbenzene	1041	30	1000	0	104	65-130	0
Tetrachloroethene	1016	30	1000	0	102	64-140	0
Tetrahydrofuran	1152	200	1000	0	115	70-135	0
Toluene	963	30	1000	0	96.3	70-125	0
trans-1,2-Dichloroethene	1026	30	1000	0	103	65-135	0
trans-1,3-Dichloropropene	1062	30	1000	0	106	65-125	0
trans-1,4-Dichloro-2-butene	1032	30	1000	0	103	70-135	0
Trichloroethene	1056	30	1000	0	106	75-125	0
Trichlorofluoromethane	922	30	1000	0	92.2	25-185	0
Vinyl chloride	981	30	1000	0	98.1	60-125	0
Surr: 1,2-Dichloroethane-d4	*1044*	0	*1000*	0	*104*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1008*	0	*1000*	0	*101*	*70-130*	0
Surr: Dibromofluoromethane	*1065*	0	*1000*	0	*106*	*70-130*	0
Surr: Toluene-d8	*1018*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

LCS Sample ID: **LCS-41526-41526** Units: **µg/Kg** Analysis Date: **6/11/2012 12:40 PM**
Client ID: Run ID: **VMS5_120611A** SeqNo: **1996250** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1028	30	1000	0	103	75-125	0			
1,1,1-Trichloroethane	1094	30	1000	0	109	70-135	0			
1,1,2,2-Tetrachloroethane	887.5	30	1000	0	88.8	55-130	0			
1,1,2-Trichloroethane	986	30	1000	0	98.6	60-125	0			
1,1-Dichloroethane	1126	30	1000	0	113	75-125	0			
1,1-Dichloroethene	1195	30	1000	0	120	65-135	0			
1,2,3-Trichlorobenzene	906.5	30	1000	0	90.6	60-135	0			
1,2,3-Trichloropropane	840	30	1000	0	84	65-130	0			
1,2,3-Trimethylbenzene	1016	30	1000	0	102	65-135	0			
1,2,4-Trichlorobenzene	968.5	30	1000	0	96.8	65-130	0			
1,2,4-Trimethylbenzene	1030	30	1000	0	103	65-135	0			
1,2-Dibromo-3-chloropropane	778	30	1000	0	77.8	40-135	0			
1,2-Dibromoethane	994.5	30	1000	0	99.4	70-125	0			
1,2-Dichlorobenzene	1016	30	1000	0	102	75-120	0			
1,2-Dichloroethane	1060	30	1000	0	106	70-135	0			
1,2-Dichloropropane	1100	30	1000	0	110	70-120	0			
1,3,5-Trimethylbenzene	1038	30	1000	0	104	65-135	0			
1,3-Dichlorobenzene	1049	30	1000	0	105	70-125	0			
1,4-Dichlorobenzene	1008	30	1000	0	101	70-125	0			
2-Butanone	856	100	1000	0	85.6	30-160	0			
2-Hexanone	826	30	1000	0	82.6	45-145	0			
4-Methyl-2-pentanone	877.5	30	1000	0	87.8	45-145	0			
Acetone	667	100	1000	0	66.7	20-160	0			
Acrylonitrile	841.5	30	1000	0	84.2	70-135	0			
Benzene	1061	30	1000	0	106	75-125	0			
Bromobenzene	815.5	30	1000	0	81.6	65-120	0			
Bromochloromethane	1186	30	1000	0	119	70-125	0			
Bromodichloromethane	1090	30	1000	0	109	70-130	0			
Bromoform	802	30	1000	0	80.2	55-135	0			
Bromomethane	1187	30	1000	0	119	30-160	0			
Carbon disulfide	1179	30	1000	0	118	45-160	0			
Carbon tetrachloride	1113	30	1000	0	111	65-135	0			
Chlorobenzene	1040	30	1000	0	104	75-125	0			
Chloroethane	1108	100	1000	0	111	40-155	0			
Chloroform	1134	30	1000	0	113	70-125	0			
Chloromethane	1012	30	1000	0	101	50-130	0			
cis-1,2-Dichloroethene	1190	30	1000	0	119	65-125	0			
cis-1,3-Dichloropropene	1140	30	1000	0	114	70-125	0			
Dibromochloromethane	939	30	1000	0	93.9	65-135	0			
Dibromomethane	1019	30	1000	0	102	75-130	0			
Dichlorodifluoromethane	899.5	30	1000	0	90	35-135	0			
Ethylbenzene	1053	30	1000	0	105	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	1018	30	1000	0	102	70-135	0
Isopropylbenzene	1036	30	1000	0	104	75-130	0
m,p-Xylene	2061	60	2000	0	103	80-125	0
Methyl tert-butyl ether	1120	30	1000	0	112	75-125	0
Methylene chloride	1099	30	1000	0	110	55-145	0
Naphthalene	825.5	100	1000	0	82.6	40-140	0
n-Butylbenzene	1090	30	1000	0	109	65-140	0
n-Propylbenzene	1030	30	1000	0	103	65-135	0
o-Xylene	1042	30	1000	0	104	75-125	0
p-Isopropyltoluene	1028	30	1000	0	103	75-135	0
sec-Butylbenzene	1062	30	1000	0	106	65-130	0
Styrene	1066	30	1000	0	107	75-125	0
tert-Butylbenzene	1082	30	1000	0	108	65-130	0
Tetrachloroethene	1012	30	1000	0	101	64-140	0
Tetrahydrofuran	791	100	1000	0	79.1	70-135	0
Toluene	1031	30	1000	0	103	70-125	0
trans-1,2-Dichloroethene	1198	30	1000	0	120	65-135	0
trans-1,3-Dichloropropene	1091	30	1000	0	109	65-125	0
trans-1,4-Dichloro-2-butene	828.5	30	1000	0	82.8	70-135	0
Trichloroethene	1044	30	1000	0	104	75-125	0
Trichlorofluoromethane	995.5	30	1000	0	99.6	25-185	0
Vinyl chloride	1024	30	1000	0	102	60-125	0
Surr: 1,2-Dichloroethane-d4	*1016*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1010*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*988*	0	*1000*	0	*98.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206045-09B MS** Units: **µg/Kg** Analysis Date: **6/8/2012 10:15 PM**
Client ID: **SBKR1150L528S053112S007** Run ID: **VMS9_120608A** SeqNo: **1994911** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7296	210	7032	0	104	75-125	0			
1,1,1-Trichloroethane	7648	210	7032	0	109	70-135	0			
1,1,2,2-Tetrachloroethane	8266	210	7032	0	118	55-130	0			
1,1,2-Trichloroethane	6835	210	7032	0	97.2	60-125	0			
1,1-Dichloroethane	7704	210	7032	0	110	75-125	0			
1,1-Dichloroethene	8551	210	7032	0	122	65-135	0			
1,2,3-Trichlorobenzene	7292	210	7032	0	104	60-135	0			
1,2,3-Trichloropropane	7437	210	7032	0	106	65-130	0			
1,2,3-Trimethylbenzene	7201	210	7032	66.81	101	65-135	0			
1,2,4-Trichlorobenzene	6079	210	7032	0	86.4	65-130	0			
1,2,4-Trimethylbenzene	7124	210	7032	309.4	96.9	65-135	0			
1,2-Dibromo-3-chloropropane	6396	210	7032	0	91	40-135	0			
1,2-Dibromoethane	7268	210	7032	0	103	70-125	0			
1,2-Dichlorobenzene	7043	210	7032	0	100	75-120	0			
1,2-Dichloroethane	7264	210	7032	0	103	70-135	0			
1,2-Dichloropropane	7145	210	7032	0	102	70-120	0			
1,3,5-Trimethylbenzene	7939	210	7032	0	113	65-135	0			
1,3-Dichlorobenzene	6920	210	7032	0	98.4	70-125	0			
1,4-Dichlorobenzene	6631	210	7032	0	94.3	70-125	0			
2-Butanone	6231	700	7032	506.3	81.4	30-160	0			
2-Hexanone	6515	210	7032	0	92.6	45-145	0			
4-Methyl-2-pentanone	7584	210	7032	0	108	45-145	0			
Acetone	8688	700	7032	1245	106	20-160	0			
Acrylonitrile	7873	210	7032	0	112	70-135	0			
Benzene	7205	210	7032	0	102	75-125	0			
Bromobenzene	8129	210	7032	0	116	65-120	0			
Bromochloromethane	7700	210	7032	0	110	70-125	0			
Bromodichloromethane	6368	210	7032	0	90.6	70-130	0			
Bromoform	6512	210	7032	0	92.6	55-135	0			
Bromomethane	3442	210	7032	0	49	30-160	0			
Carbon disulfide	6656	210	7032	0	94.6	45-160	0			
Carbon tetrachloride	6698	210	7032	0	95.2	65-135	0			
Chlorobenzene	7127	210	7032	0	101	75-125	0			
Chloroethane	4381	700	7032	0	62.3	40-155	0			
Chloroform	7465	210	7032	0	106	70-125	0			
Chloromethane	6238	210	7032	0	88.7	50-130	0			
cis-1,2-Dichloroethene	7619	210	7032	0	108	65-125	0			
cis-1,3-Dichloropropene	7707	210	7032	0	110	70-125	0			
Dibromochloromethane	6311	210	7032	0	89.8	65-135	0			
Dibromomethane	6804	210	7032	0	96.8	75-130	0			
Dichlorodifluoromethane	6948	210	7032	0	98.8	35-135	0			
Ethylbenzene	7525	210	7032	0	107	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	5274	210	7032	0	75	70-135	0	
Isopropylbenzene	7890	210	7032	0	112	75-130	0	
m,p-Xylene	15230	420	14060	154.7	107	80-125	0	
Methyl tert-butyl ether	8973	210	7032	0	128	75-125	0	S
Methylene chloride	7971	210	7032	66.81	112	55-145	0	
Naphthalene	8024	700	7032	478.2	107	40-140	0	
n-Butylbenzene	6716	210	7032	98.45	94.1	65-140	0	
n-Propylbenzene	7096	210	7032	133.6	99	65-135	0	
o-Xylene	7605	210	7032	0	108	75-125	0	
p-Isopropyltoluene	6695	210	7032	0	95.2	75-135	0	
sec-Butylbenzene	6790	210	7032	0	96.6	65-130	0	
Styrene	6653	210	7032	0	94.6	75-125	0	
tert-Butylbenzene	7205	210	7032	0	102	65-130	0	
Tetrachloroethene	5475	210	7032	0	77.8	64-140	0	
Tetrahydrofuran	7468	700	7032	0	106	70-135	0	
Toluene	7359	210	7032	0	105	70-125	0	
trans-1,2-Dichloroethene	8368	210	7032	0	119	65-135	0	
trans-1,3-Dichloropropene	6677	210	7032	0	95	65-125	0	
trans-1,4-Dichloro-2-butene	5752	210	7032	0	81.8	70-135	0	
Trichloroethene	6512	210	7032	0	92.6	75-125	0	
Trichlorofluoromethane	4233	210	7032	0	60.2	25-185	0	
Vinyl chloride	7219	210	7032	0	103	60-125	0	
Surr: 1,2-Dichloroethane-d4	*7233*	0	*7032*	0	*103*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*8133*	0	*7032*	0	*116*	*70-130*	0	
Surr: Dibromofluoromethane	*6772*	0	*7032*	0	*96.3*	*70-130*	0	
Surr: Toluene-d8	*7405*	0	*7032*	0	*105*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MS Sample ID: **1206111-01A MS** Units: **µg/Kg** Analysis Date: **6/8/2012 09:30 PM**
Client ID: Run ID: **VMS7_120608A** SeqNo: **1995066** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	960	5.0	1000	0	96	75-125	0			
1,1,1-Trichloroethane	954	5.0	1000	0	95.4	70-135	0			
1,1,2,2-Tetrachloroethane	1032	5.0	1000	0	103	55-130	0			
1,1,2-Trichloroethane	942	5.0	1000	0	94.2	60-125	0			
1,1-Dichloroethane	904	5.0	1000	0	90.4	75-125	0			
1,1-Dichloroethene	727	5.0	1000	0	72.7	65-135	0			
1,2,3-Trichlorobenzene	913.5	5.0	1000	0	91.4	60-135	0			
1,2,3-Trichloropropane	1028	5.0	1000	0	103	65-130	0			
1,2,4-Trichlorobenzene	870	5.0	1000	0	87	65-130	0			
1,2,4-Trimethylbenzene	932.5	5.0	1000	0	93.2	65-135	0			
1,2-Dibromo-3-chloropropane	937.5	5.0	1000	0	93.8	40-135	0			
1,2-Dibromoethane	988	5.0	1000	0	98.8	70-125	0			
1,2-Dichlorobenzene	945	5.0	1000	0	94.5	75-120	0			
1,2-Dichloroethane	961	5.0	1000	0	96.1	70-135	0			
1,2-Dichloropropane	957	5.0	1000	0	95.7	70-120	0			
1,3,5-Trimethylbenzene	935.5	5.0	1000	0	93.6	65-135	0			
1,3-Dichlorobenzene	911	5.0	1000	0	91.1	70-125	0			
1,4-Dichlorobenzene	936.5	5.0	1000	0	93.6	70-125	0			
2-Butanone	1078	10	1000	0	108	30-160	0			
2-Hexanone	1164	5.0	1000	0	116	45-145	0			
4-Methyl-2-pentanone	1626	5.0	1000	0	163	45-145	0			S
Acetone	1174	10	1000	0	117	20-160	0			
Acrylonitrile	1063	5.0	1000	0	106	70-135	0			
Benzene	914.5	5.0	1000	0	91.4	75-125	0			
Bromobenzene	932.5	10	1000	0	93.2	65-120	0			
Bromochloromethane	952	5.0	1000	0	95.2	70-125	0			
Bromodichloromethane	961.5	5.0	1000	0	96.2	70-130	0			
Bromoform	891	5.0	1000	0	89.1	55-135	0			
Bromomethane	795	10	1000	26	76.9	30-160	0			
Carbon disulfide	894.5	5.0	1000	0	89.4	45-160	0			
Carbon tetrachloride	865	5.0	1000	0	86.5	65-135	0			
Chlorobenzene	929.5	5.0	1000	0	93	75-125	0			
Chloroethane	672.5	5.0	1000	0	67.2	40-155	0			
Chloroform	916	5.0	1000	0	91.6	70-125	0			
Chloromethane	823.5	10	1000	0	82.4	50-130	0			
cis-1,2-Dichloroethene	904	5.0	1000	0	90.4	65-125	0			
cis-1,3-Dichloropropene	960	5.0	1000	0	96	70-125	0			
Dibromochloromethane	922.5	5.0	1000	0	92.2	65-135	0			
Dibromomethane	985.5	5.0	1000	0	98.6	75-130	0			
Dichlorodifluoromethane	666.5	10	1000	0	66.6	35-135	0			
Ethylbenzene	893.5	5.0	1000	0	89.4	75-125	0			
Hexachloroethane	841	5.0	1000	0	84.1	70-135	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526**	Instrument ID **VMS9**		Method: **SW8260**					
Isopropylbenzene	929	5.0	1000	0	92.9	75-130	0	
m,p-Xylene	1838	2.5	2000	0	91.9	80-125	0	
Methyl tert-butyl ether	1192	5.0	1000	0	119	75-125	0	
Methylene chloride	1394	5.0	1000	70.5	132	55-140	0	
Naphthalene	915.5	5.0	1000	25	89	40-140	0	B
n-Butylbenzene	860	5.0	1000	0	86	65-140	0	
n-Propylbenzene	904.5	5.0	1000	0	90.4	65-135	0	
o-Xylene	917.5	2.5	1000	0	91.8	75-125	0	
p-Isopropyltoluene	855.5	5.0	1000	0	85.6	75-135	0	
sec-Butylbenzene	929.5	5.0	1000	0	93	65-130	0	
Styrene	907.5	5.0	1000	0	90.8	75-125	0	
tert-Butylbenzene	950.5	5.0	1000	0	95	65-130	0	
Tetrachloroethene	910	5.0	1000	0	91	65-140	0	
Tetrahydrofuran	1080	20	1000	0	108	70-135	0	
Toluene	898	5.0	1000	0	89.8	70-125	0	
trans-1,2-Dichloroethene	1034	5.0	1000	0	103	65-135	0	
trans-1,3-Dichloropropene	951	10	1000	0	95.1	65-125	0	
trans-1,4-Dichloro-2-butene	931.5	5.0	1000	0	93.2	70-135	0	
Trichloroethene	962	5.0	1000	0	96.2	75-125	0	
Trichlorofluoromethane	311.5	5.0	1000	0	31.2	25-185	0	
Vinyl chloride	817	5.0	1000	0	81.7	60-125	0	
Surr: 1,2-Dichloroethane-d4	*1067*	0	*1000*	0	*107*	*70-120*	0	
Surr: 4-Bromofluorobenzene	*1038*	0	*1000*	0	*104*	*75-120*	0	
Surr: Dibromofluoromethane	*1048*	0	*1000*	0	*105*	*85-115*	0	
Surr: Toluene-d8	*1023*	0	*1000*	0	*102*	*85-120*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206045-09B MSD** Units: **µg/Kg** Analysis Date: **6/8/2012 10:39 PM**
Client ID: **SBKR1150L528S053112S007** Run ID: **VMS9_120608A** SeqNo: **1994912** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	7324	210	7032	0	104	75-125	7296	0.385	30	
1,1,1-Trichloroethane	7486	210	7032	0	106	70-135	7648	2.14	30	
1,1,2,2-Tetrachloroethane	8189	210	7032	0	116	55-130	8266	0.94	30	
1,1,2-Trichloroethane	6719	210	7032	0	95.6	60-125	6835	1.71	30	
1,1-Dichloroethane	7560	210	7032	0	108	75-125	7704	1.89	30	
1,1-Dichloroethene	8382	210	7032	0	119	65-135	8551	1.99	30	
1,2,3-Trichlorobenzene	7373	210	7032	0	105	60-135	7292	1.1	30	
1,2,3-Trichloropropane	7412	210	7032	0	105	65-130	7437	0.332	30	
1,2,3-Trimethylbenzene	7015	210	7032	66.81	98.8	65-135	7201	2.62	30	
1,2,4-Trichlorobenzene	6108	210	7032	0	86.8	65-130	6079	0.462	30	
1,2,4-Trimethylbenzene	6990	210	7032	309.4	95	65-135	7124	1.89	30	
1,2-Dibromo-3-chloropropane	6558	210	7032	0	93.2	40-135	6396	2.5	30	
1,2-Dibromoethane	7183	210	7032	0	102	70-125	7268	1.17	30	
1,2-Dichlorobenzene	6906	210	7032	0	98.2	75-120	7043	1.97	30	
1,2-Dichloroethane	7145	210	7032	0	102	70-135	7264	1.66	30	
1,2-Dichloropropane	6920	210	7032	0	98.4	70-120	7145	3.2	30	
1,3,5-Trimethylbenzene	7672	210	7032	0	109	65-135	7939	3.42	30	
1,3-Dichlorobenzene	6842	210	7032	0	97.3	70-125	6920	1.12	30	
1,4-Dichlorobenzene	6480	210	7032	0	92.2	70-125	6631	2.31	30	
2-Butanone	6115	700	7032	506.3	79.8	30-160	6231	1.88	30	
2-Hexanone	6417	210	7032	0	91.2	45-145	6515	1.52	30	
4-Methyl-2-pentanone	7721	210	7032	0	110	45-145	7584	1.79	30	
Acetone	8249	700	7032	1245	99.6	20-160	8688	5.19	30	
Acrylonitrile	7778	210	7032	0	111	70-135	7873	1.21	30	
Benzene	6920	210	7032	0	98.4	75-125	7205	4.03	30	
Bromobenzene	7837	210	7032	0	111	65-120	8129	3.66	30	
Bromochloromethane	7690	210	7032	0	109	70-125	7700	0.137	30	
Bromodichloromethane	6329	210	7032	0	90	70-130	6368	0.609	30	
Bromoform	6624	210	7032	0	94.2	55-135	6512	1.71	30	
Bromomethane	3618	210	7032	0	51.4	30-160	3442	4.98	30	
Carbon disulfide	7004	210	7032	0	99.6	45-160	6656	5.1	30	
Carbon tetrachloride	6526	210	7032	0	92.8	65-135	6698	2.61	30	
Chlorobenzene	6976	210	7032	0	99.2	75-125	7127	2.14	30	
Chloroethane	4290	700	7032	0	61	40-155	4381	2.11	30	
Chloroform	7426	210	7032	0	106	70-125	7465	0.519	30	
Chloromethane	6199	210	7032	0	88.2	50-130	6238	0.622	30	
cis-1,2-Dichloroethene	7489	210	7032	0	106	65-125	7619	1.72	30	
cis-1,3-Dichloropropene	7637	210	7032	0	109	70-125	7707	0.917	30	
Dibromochloromethane	6329	210	7032	0	90	65-135	6311	0.278	30	
Dibromomethane	6691	210	7032	0	95.2	75-130	6804	1.67	30	
Dichlorodifluoromethane	6980	210	7032	0	99.2	35-135	6948	0.454	30	
Ethylbenzene	7352	210	7032	0	105	75-125	7525	2.32	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Hexachloroethane	5373	210	7032	0	76.4	70-135	5274	1.85	30	
Isopropylbenzene	7718	210	7032	0	110	75-130	7890	2.21	30	
m,p-Xylene	14900	420	14060	154.7	105	80-125	15230	2.19	30	
Methyl tert-butyl ether	8840	210	7032	0	126	75-125	8973	1.5	30	S
Methylene chloride	7767	210	7032	66.81	110	55-145	7971	2.59	30	
Naphthalene	8055	700	7032	478.2	108	40-140	8024	0.394	30	
n-Butylbenzene	6751	210	7032	98.45	94.6	65-140	6716	0.522	30	
n-Propylbenzene	6990	210	7032	133.6	97.5	65-135	7096	1.5	30	
o-Xylene	7423	210	7032	0	106	75-125	7605	2.43	30	
p-Isopropyltoluene	6645	210	7032	0	94.5	75-135	6695	0.738	30	
sec-Butylbenzene	6691	210	7032	0	95.2	65-130	6790	1.46	30	
Styrene	6470	210	7032	0	92	75-125	6653	2.79	30	
tert-Butylbenzene	7060	210	7032	0	100	65-130	7205	2.02	30	
Tetrachloroethene	5489	210	7032	0	78	64-140	5475	0.257	30	
Tetrahydrofuran	7503	700	7032	0	107	70-135	7468	0.47	30	
Toluene	7198	210	7032	0	102	70-125	7359	2.22	30	
trans-1,2-Dichloroethene	8224	210	7032	0	117	65-135	8368	1.74	30	
trans-1,3-Dichloropropene	6660	210	7032	0	94.7	65-125	6677	0.264	30	
trans-1,4-Dichloro-2-butene	6013	210	7032	0	85.5	70-135	5752	4.42	30	
Trichloroethene	6294	210	7032	0	89.5	75-125	6512	3.4	30	
Trichlorofluoromethane	4174	210	7032	0	59.4	25-185	4233	1.42	30	
Vinyl chloride	7194	210	7032	0	102	60-125	7219	0.342	30	
Surr: 1,2-Dichloroethane-d4	*7106*	0	*7032*	0	*101*	*70-130*	7233	*1.77*	*30*	
Surr: 4-Bromofluorobenzene	*7908*	0	*7032*	0	*112*	*70-130*	8133	*2.81*	*30*	
Surr: Dibromofluoromethane	*6663*	0	*7032*	0	*94.8*	*70-130*	6772	*1.62*	*30*	
Surr: Toluene-d8	*7205*	0	*7032*	0	*102*	*70-130*	7405	*2.74*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

MSD Sample ID: **1206111-01A MSD** Units: **µg/Kg** Analysis Date: **6/8/2012 09:56 PM**
Client ID: Run ID: **VMS7_120608A** SeqNo: **1995069** Prep Date: **6/8/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	943	5.0	1000	0	94.3	75-125	960	1.79	30	
1,1,1-Trichloroethane	929	5.0	1000	0	92.9	70-135	954	2.66	30	
1,1,2,2-Tetrachloroethane	1009	5.0	1000	0	101	55-130	1032	2.25	30	
1,1,2-Trichloroethane	917	5.0	1000	0	91.7	60-125	942	2.69	30	
1,1-Dichloroethane	875.5	5.0	1000	0	87.6	75-125	904	3.2	30	
1,1-Dichloroethene	736.5	5.0	1000	0	73.6	65-135	727	1.3	30	
1,2,3-Trichlorobenzene	948.5	5.0	1000	0	94.8	60-135	913.5	3.76	30	
1,2,3-Trichloropropane	1011	5.0	1000	0	101	65-130	1028	1.72	30	
1,2,4-Trichlorobenzene	894	5.0	1000	0	89.4	65-130	870	2.72	30	
1,2,4-Trimethylbenzene	903.5	5.0	1000	0	90.4	65-135	932.5	3.16	30	
1,2-Dibromo-3-chloropropane	958	5.0	1000	0	95.8	40-135	937.5	2.16	30	
1,2-Dibromoethane	975.5	5.0	1000	0	97.6	70-125	988	1.27	30	
1,2-Dichlorobenzene	938.5	5.0	1000	0	93.8	75-120	945	0.69	30	
1,2-Dichloroethane	955	5.0	1000	0	95.5	70-135	961	0.626	30	
1,2-Dichloropropane	943	5.0	1000	0	94.3	70-120	957	1.47	30	
1,3,5-Trimethylbenzene	904.5	5.0	1000	0	90.4	65-135	935.5	3.37	30	
1,3-Dichlorobenzene	913	5.0	1000	0	91.3	70-125	911	0.219	30	
1,4-Dichlorobenzene	943.5	5.0	1000	0	94.4	70-125	936.5	0.745	30	
2-Butanone	1402	10	1000	0	140	30-160	1078	26.1	30	
2-Hexanone	1122	5.0	1000	0	112	45-145	1164	3.63	30	
4-Methyl-2-pentanone	1582	5.0	1000	0	158	45-145	1626	2.74	30	S
Acetone	1204	10	1000	0	120	20-160	1174	2.57	30	
Acrylonitrile	1037	5.0	1000	0	104	70-135	1063	2.48	30	
Benzene	890	5.0	1000	0	89	75-125	914.5	2.72	30	
Bromobenzene	914.5	10	1000	0	91.4	65-120	932.5	1.95	30	
Bromochloromethane	932.5	5.0	1000	0	93.2	70-125	952	2.07	30	
Bromodichloromethane	953	5.0	1000	0	95.3	70-130	961.5	0.888	30	
Bromoform	871	5.0	1000	0	87.1	55-135	891	2.27	30	
Bromomethane	813.5	10	1000	26	78.8	30-160	795	2.3	30	
Carbon disulfide	910.5	5.0	1000	0	91	45-160	894.5	1.77	30	
Carbon tetrachloride	852.5	5.0	1000	0	85.2	65-135	865	1.46	30	
Chlorobenzene	911	5.0	1000	0	91.1	75-125	929.5	2.01	30	
Chloroethane	679.5	5.0	1000	0	68	40-155	672.5	1.04	30	
Chloroform	892.5	5.0	1000	0	89.2	70-125	916	2.6	30	
Chloromethane	831	10	1000	0	83.1	50-130	823.5	0.907	30	
cis-1,2-Dichloroethene	879.5	5.0	1000	0	88	65-125	904	2.75	30	
cis-1,3-Dichloropropene	949.5	5.0	1000	0	95	70-125	960	1.1	30	
Dibromochloromethane	903.5	5.0	1000	0	90.4	65-135	922.5	2.08	30	
Dibromomethane	970	5.0	1000	0	97	75-130	985.5	1.59	30	
Dichlorodifluoromethane	654	10	1000	0	65.4	35-135	666.5	1.89	30	
Ethylbenzene	866	5.0	1000	0	86.6	75-125	893.5	3.13	30	
Hexachloroethane	844.5	5.0	1000	0	84.4	70-135	841	0.415	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **41526** Instrument ID **VMS9** Method: **SW8260**

Isopropylbenzene	912	5.0	1000	0	91.2	75-130	929	1.85	30	
m,p-Xylene	1788	2.5	2000	0	89.4	80-125	1838	2.76	30	
Methyl tert-butyl ether	1121	5.0	1000	0	112	75-125	1192	6.1	30	
Methylene chloride	1314	5.0	1000	70.5	124	55-140	1394	5.87	30	
Naphthalene	956	5.0	1000	25	93.1	40-140	915.5	4.33	30	B
n-Butylbenzene	843	5.0	1000	0	84.3	65-140	860	2	30	
n-Propylbenzene	882.5	5.0	1000	0	88.2	65-135	904.5	2.46	30	
o-Xylene	903	2.5	1000	0	90.3	75-125	917.5	1.59	30	
p-Isopropyltoluene	858.5	5.0	1000	0	85.8	75-135	855.5	0.35	30	
sec-Butylbenzene	898	5.0	1000	0	89.8	65-130	929.5	3.45	30	
Styrene	887.5	5.0	1000	0	88.8	75-125	907.5	2.23	30	
tert-Butylbenzene	926.5	5.0	1000	0	92.6	65-130	950.5	2.56	30	
Tetrachloroethene	881.5	5.0	1000	0	88.2	65-140	910	3.18	30	
Tetrahydrofuran	986	20	1000	0	98.6	70-135	1080	9.15	30	
Toluene	876.5	5.0	1000	0	87.6	70-125	898	2.42	30	
trans-1,2-Dichloroethene	968	5.0	1000	0	96.8	65-135	1034	6.64	30	
trans-1,3-Dichloropropene	940.5	10	1000	0	94	65-125	951	1.11	30	
trans-1,4-Dichloro-2-butene	914	5.0	1000	0	91.4	70-135	931.5	1.9	30	
Trichloroethene	925.5	5.0	1000	0	92.6	75-125	962	3.87	30	
Trichlorofluoromethane	303	5.0	1000	0	30.3	25-185	311.5	2.77	30	
Vinyl chloride	798	5.0	1000	0	79.8	60-125	817	2.35	30	
Surr: 1,2-Dichloroethane-d4	*1054*	0	*1000*	0	*105*	*70-120*	1067	*1.27*	*30*	
Surr: 4-Bromofluorobenzene	*1014*	0	*1000*	0	*101*	*75-120*	1038	*2.29*	*30*	
Surr: Dibromofluoromethane	*1042*	0	*1000*	0	*104*	*85-115*	1048	*0.622*	*30*	
Surr: Toluene-d8	*1008*	0	*1000*	0	*101*	*85-120*	1023	*1.53*	*30*	

The following samples were analyzed in this batch: 1206045-06B 1206045-07B 1206045-08B 1206045-09B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **R105572** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991265** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R105572** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1206045-04ADUP1** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **MOIST_120604C** SeqNo: **1991251** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.56	0.050	0	0	0	0-0	48.47	0.186	20	

DUP Sample ID: **1206045-04ADUP2** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: **SBKR1150L523S053112S004** Run ID: **MOIST_120604C** SeqNo: **1991252** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	48.59	0.050	0	0	0	0-0	48.47	0.247	20	

DUP Sample ID: **1206054-11ADUP** Units: **% of sample** Analysis Date: **6/4/2012 03:18 PM**
Client ID: Run ID: **MOIST_120604C** SeqNo: **1991257** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.42	0.050	0	0	0	0-0	17.72	1.71	20	

The following samples were analyzed in this batch:

1206045-01A	1206045-02A	1206045-03A
1206045-04A	1206045-05A	1206045-06A
1206045-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: AECOM Environment
Work Order: 1206045
Project: Marshall KRRI 1150L 5/31/12

QC BATCH REPORT

Batch ID: **R105573** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: **WBLKS1-R105573**				Units: **% of sample**		Analysis Date: **6/4/2012 03:57 PM**			
Client ID:		Run ID: **MOIST_120604D**			SeqNo: **1991287**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS	Sample ID: **LCS-R105573**				Units: **% of sample**		Analysis Date: **6/4/2012 03:57 PM**			
Client ID:		Run ID: **MOIST_120604D**			SeqNo: **1991286**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP	Sample ID: **1206046-01ADUP**				Units: **% of sample**		Analysis Date: **6/4/2012 03:57 PM**			
Client ID:		Run ID: **MOIST_120604D**			SeqNo: **1991274**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	55.84	0.050	0	0	0	0-0	55.31	0.954	20	

The following samples were analyzed in this batch: 1206045-08A 1206045-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1206045

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1
Cooler # of

COC #	ENBRIDGE_053112_LJL2	Task: KRRI_1150L
Total # of Samples: 10		Event Complete?
Turn Around Time	5 Day	Rush: No

BILLING CODE: 6.00

Lab Information:
Lab Name: ALS Laboratory Group
Address: 3352 128th Ave. Holland, MI 49424-9263
Lab PM: Ann Preston
Phone/Fax: 1-616-399-6070/1-616-399-6185
Lab PM email: ann.preston@alsglobal.com
Applicable Lab Quote #:

Project Information:
Site ID #:
Project #: 60162778
Site Address: 5555 Glenwood Parkway SE Suite 200
City: Grand Rapids State, Zip: MI
Site PM Name: Bryan Stiemsma
Phone/Fax: 616-940-4424
Site PM Email: Bryan.Stiemsma@aecom.com

Other Information:
Send Invoice to: Enbridge Energy - ATTN Accounts Payable
Address: 1100 Louisiana Suite 1100
City/State: Houson, TX Phone #: 713-821-2000
PO #:
Send EDD to:
CC Hardcopy report:
CC Hardcopy report:

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	None	None	None	None	MeOH									
								Analyses	% Moisture	Be,Mo,V,Ni by 6020	ORO,DRO	PNAs by 8270	VOC by 5035/8260									
1	SBKR1150L522D053112S007	SBKR1150L522	SO	G	05/31/2012 09:55	3	DUPLICATE		X	X	X	X	X									
2	SBKR1150L522S053112S007	SBKR1150L522	SO	G	05/31/2012 09:55	3	MDEQ SPLIT		X	X	X	X	X									
3	SBKR1150L522S053112S020	SBKR1150L522	SO	G	05/31/2012 10:05	3			X	X	X	X	X									
4	SBKR1150L523S053112S004	SBKR1150L523	SO	G	05/31/2012 10:35	6	MS/MSD		X	X	X	X	X									
5	SBKR1150L524S053112S004	SBKR1150L524	SO	G	05/31/2012 13:20	3			X	X	X	X	X									
6	SBKR1150L525S053112S005	SBKR1150L525	SO	G	05/31/2012 13:45	3			X	X	X	X	X									
7	SBKR1150L526S053112S005	SBKR1150L526	SO	G	05/31/2012 14:10	3			X	X	X	X	X									
8	SBKR1150L527S053112S004	SBKR1150L527	SO	G	05/31/2012 15:09	3			X	X	X	X	X									
9	SBKR1150L528S053112S007	SBKR1150L528	SO	G	05/31/2012 16:47	3	MDEQ SPLIT		X	X	X	X	X									
10	SBKR1150L528T053112MX	SBKR1150L528	SQ	G	05/31/2012 00:00	1	TRIP BLANK						X									

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-31-12	1742		5-31-12	1742
	6-1-12	1708		6/1/12	1708

Sample Receipt Conditions

Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
4.0°C	Y/N	Y/N	Y/N
	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company:
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: LORRI LEGO (LJL1)
SIGNATURE of SAMPLER:
DATE Signed:
Time:

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **AECOM - GR** Date/Time Received: **01-Jun-12 00:00**

Work Order: **1206045** Received by: **MA**

Checklist completed by Keith Wierenga (eSignature) 02-Jun-12 (Date) Reviewed by: Alex Csaszar (eSignature) 04-Jun-12 (Date)

Matrices: Soil
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

4.0 °C

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185
CUSTODY SEAL
Date: 5/30/12 Time: 1730
Name: PMB
Company: SEC
Seal Broken By:
Date:

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1205035
Matrix: Sediment

The laboratory report cited above contained the results for fifteen field samples.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
WSKU0000C1AS052412DX	1205035-01	05/24/2012	1,2,3
WSKU0000C1BS052412DX	1205035-02	05/24/2012	1,2,3
WSKU0000C2AS052412DX	1205035-03	05/24/2012	1,2,3
WSKR0563C3AS052412DX	1205035-04	05/24/2012	1,2,3
WSKR0563C3BS052412DX	1205035-05	05/24/2012	1,2,3
WSKR0575C4AS052412DX	1205035-06	05/24/2012	1,2,3
WSKR0575C4BS052412DX	1205035-07	05/24/2012	1,2,3
WSKR0200C18AS052412DX	1205035-10	05/24/2012	1,2,3
WSKR3775R17AS052412DX	1205035-11	05/24/2012	1,2,3
WSKR3775R17BS052412DX	1205035-12	05/24/2012	1,2,3
WSKR3660L19AS052412DX	1205035-13	05/24/2012	1,2,3
WSKR3660L19BS052412DX	1205035-14	05/24/2012	1,2,3
WSKR3750L20AS052412DX	1205035-15	05/24/2012	1,2,3
WSKR3750L20BS052412DX	1205035-16	05/24/2012	1,2,3
WSKR0575R5AS052412DX_COMP	1205035-17	05/24/2012	1,2,3

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D
[3] Total Organic Carbon Modified Method 9060

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.
- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use.

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1206001
Matrix: Sediment

The laboratory report cited above contained the results for seven field samples.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
WSKR3833C10AS060112DX	1206001-03	06/01/2012	1,2,3
WSKR3833C10BS060112DX	1206001-04	06/01/2012	1,2,3
WSKR3797C12AS060112DX	1206001-05	06/01/2012	1,2,3
WSKR3797C12BS060112DX	1206001-06	06/01/2012	1,2,3
WSKR3798C13AS060112DX	1206001-07	06/01/2012	1,2,3
WSKR3798C13BS060112DX	1206001-08	06/01/2012	1,2,3
WSKR1560C6AS060112DX_COMP	1206001-09	06/01/2012	1,2,3

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D
[3] Total Organic Carbon Modified Method 9060

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.
- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use.

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1206016
Matrix: Sediment

The laboratory report cited above contained the results for thirteen field samples.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
WSKR1807C7AS060412DX	1206016-01	06/04/2012	1,2,3
WSKR1807C7BS060412DX	1206016-02	06/04/2012	1,2,3
WSKR3820C8AS060412DX	1206016-03	06/04/2012	1,2,3
WSKR3820C8BS060412DX	1206016-04	06/04/2012	1,2,3
WSKR3818C9AS060412DX	1206016-05	06/04/2012	1,2,3
WSKR3787C11AS060412DX	1206016-06	06/04/2012	1,2,3
WSKR3816C14AS060412DX	1206016-07	06/04/2012	1,2,3
WSKR3816C14BS060412DX	1206016-08	06/04/2012	1,2,3
WSKR3799C15AS060412DX	1206016-09	06/04/2012	1,2,3
WSKR3799C15BS060412DX	1206016-10	06/04/2012	1,2,3
WSKR3810C16AS060412DX	1206016-11	06/04/2012	1,2,3
WSKR3810C16BS060412DX	1206016-12	06/04/2012	1,2,3
WSKR3818C9BS060412DX	1206016-13	06/04/2012	1,2,3

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D
[3] Total Organic Carbon Modified Method 9060

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.

- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use.

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1206023
Matrix: SHEEN

The laboratory report cited above contained the results for three field samples and one trip blank.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
SESA0000C0101S060812HX	1206023-01	06/08/2012	1,2
SESA0000C0107S060812HX	1206023-02	06/08/2012	1,2
SESA0000C0107T060812HX	1206023-03	06/08/2012	1,2
SWKR1839C001S060912HX	1206023-04	06/09/2012	1,2

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.
- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use with the following advisories: Some trip blank sheen net contamination was noted and this will be investigated with the laboratory for possible corrective action.

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1206028
Matrix: SHEEN

The laboratory report cited above contained the results for one field sample and one trip blank.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
SWKR3800C001S061512HX	1206028-01	06/15/2012	1,2
SWKR3800C001T061512HX	1206028-02	06/15/2012	1,2

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.
- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use with the following advisories: Some trip blank sheen net contamination was noted and this will be investigated with the laboratory for possible corrective action.

Project Name: Marshall Line 6B Incident
Laboratory: Alpha Analytical
Laboratory Report No.: 1206071
Matrix: SHEEN

The laboratory report cited above contained the results for two field samples, one field duplicate and one trip blank.

Level 1 review was performed using the laboratory report and electronic data deliverable. The review included the following:

- Comparison of results to the requested analyses on the Chain-of-Custody;
- Verification of field sample IDs;
- Review of the sample receipt forms for proper sample preservation.
- Identification of potential data usability issues based on holding times, recoveries of surrogates, laboratory control samples, or matrix spikes, and/or quality control issues identified in the laboratory report narrative.

Criteria for assessing data usability were derived from the *USEPA National Functional Guidelines for Organic Data Review, USEPA National Functional Guidelines for Inorganic Data Review*, and the Kalamazoo River Analytical Quality Assurance Plan (version 2.2).

The following samples were reviewed:

Sample ID	Lab ID	Sample Date	Analyses
SWBC0000L015S062712HX	1206071-01	06/27/2012	1,2
SWBC0000L015D062712HX	1206071-02	06/27/2012	1,2
SWBC0000L010S062712HX	1206071-03	06/27/2012	1,2
SWBC0000L015T062712HX	1206071-04	06/27/2012	1,2

Analyses Performed Codes:
[1] Alkylated PAHs/Biomarkers by GC/MS Modified8270C-SIM
[2] Saturated Hydrocarbons by GC-FID Modified Method 8015D

Results:

- All requested analyses identified on the Chain-of-Custody were performed.
- Sample IDs match the Chain-of-Custody.
- Sample condition and preservation on receipt at the laboratory was acceptable.
- No significant data usability issues were noted; the data are therefore considered acceptable for use with the following advisories: Some trip blank sheen net contamination was noted and this will be investigated with the laboratory for possible corrective action.

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4704 *

Carrier No. 2184

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 6/1/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State MI Zip Code 49068

FROM:
Shipper Enbridge - AECOM
Street 6 Drive
City Battle Creek State Zip Code
24 hr. Emergency Contact Tel. No. 1 877 437 7455

Route

Vehicle Number 2184

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001	NA	oily debris Bay	~~25~~ 201	165		

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6-1-12

PER

DATE

CARRIER SET Environmental

PER [signature]

DATE 6-1-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4710 ✱

Carrier No. _____

Page 1 of 1

SET Environmental

(Name of carrier) (SCAC)

Date 5/30/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:

Consignee Frac City

Street 1600 Division Rd

City Marshall State TX Zip Code 75668

FROM:

Shipper Enbridge

Street Pratt Rd.

City Marshall State TX Zip Code 75668

24 hr. Emergency Contact Tel. No. _____

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
01 TT		Not Regulated Water for watering trees at FTC	22000			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER Enbridge

PER [signature] for Enbridge

CARRIER SET

PER James Rodman

DATE 5/30/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABEL MASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4711

Carrier No. _____

Page 1 of 1

STC Environmental
(Name of carrier) (SCAC)

Date 5/30/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Fire City
Street 16000 Division
City Marshall State MI Zip Code 60874

FROM:
Shipper Rubridge
Street Pratt St.
City Marshall State IL Zip Code 60874
24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
01x44		Non Potable Water	2000G			
		For pressure washer				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER Rubridge
PER James/Karina for Rubridge

CARRIER STC
PER James/Karina
DATE 5/30/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4121

Carrier No.

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 5-30-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street

City Marshall State, MI Zip Code

FROM:
Shipper Plummers Env.

Street

City Grand Rapids State MI Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001 Rolloff		RT3287 - Mobilized to FTC from Plummers G.R.	7.5 yard			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

TOTAL CHARGES $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐
Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 5-30-12

CARRIER [signature]

PER 5-30-12

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4722 ✱

Carrier No. _____

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 5-30-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC Cell B Pile

Street 136

City _____ State, _____ Zip Code _____

FROM:
Shipper Superior

Street _____

City Marshall State MI Zip Code _____

24 hr. Emergency Contact Tel. No. _____

Route _____

Vehicle Number _____

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
		1 from of So:l	55 gallon			
		to Cell B Pile 136	(.01 yd)			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____ 5-30-12

PER _____

CARRIER David Hoekstra

PER SET

DATE 5-30-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4723 *

Carrier No.

Page 1 of 1

SET Environmental

(Name of carrier) (SCAC)

Date 6/4/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:

Consignee Frac City

Street 16000 DIVISION

City MARSHALL State, MI Zip Code

FROM:

Shipper SET

Street Pratt ST

City MARSHALL State MI Zip Code

24 hr. Emergency Contact Tel. No 877-473-7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001 TT		non Potable water	2500 gal			
		used to water trees				
		@ FTC				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6/4/12

CARRIER [signature]

PER SET

DATE 6/4/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4725 ✻

Carrier No. H0112344

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 6/12/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State Mi Zip Code 49068

FROM:
Shipper Enbridge
Street Pratt St
City Marshall State Mi Zip Code 49068
24 hr. Emergency Contact Tel. No. 1877 437 7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT		Non potable Water	2500	G		
		FTC				
		Trees				
		3.2				
		LOAD # 2				

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Dje Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6/12/12

PER

CARRIER SET Environmental

PER [signature]

DATE 6/12/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4726 *

Carrier No. HO112344

Page 1 of 1

SET Environmental

(Name of carrier) (SCAC)

Date 6/12/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State MI Zip Code 49068

FROM:
Shipper Enbridge
Street Pratt St
City Marshall State MI Zip Code 49068
24 hr. Emergency Contact Tel. No. 1 877 437 7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT		Non potable Water	2500G	G		
		FTC Waters				
		Trees &				
		Jackson St				
		Load #1				

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6/12/12

PER

CARRIER SET Environmental

PER D. Lueste

DATE 6/12/12

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4727 ✱

Carrier No. H0112344

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 6/12/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State, MI Zip Code 49068

FROM:
Shipper Enbridge
Street Pratt St
City Marshall State MI Zip Code 49068
24 hr. Emergency Contact Tel. No. 1877 437 7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT		Non potable Water				
		F.T.C. Decon				
		3.2 trees				
		FTC trees				
		FTC Roads				
		Jackson St House for John				
		Load # 4				

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(a) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

DL Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6/12/12

PER

DATE

CARRIER SET Environmental

PER [signature]

DATE 6/12/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK. PRINTED WITH SOY INK.

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4728

Carrier No. H0112344

Page _____ of _____

SET Equipment
(Name of carrier) (SCAC)

Date 6/13/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 1600 Division
City Marshall State MI Zip Code

FROM:
Shipper Enbridge
Street Pratt Street
City Marshall State MI Zip Code
24 hr. Emergency Contact Tel. No. 877-437-7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT		Non potable water	2500	6		
		FTC				
		load 1				

PLACARDS TENDERED: YES ☐ NO ☒

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6/13/2012

PER _____

CARRIER SET

PER [signature]

DATE 6/13/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4730 *

Carrier No. H0112344

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 6/12/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State Mi Zip Code 49068

FROM:
Shipper Enbridge
Street Pratt St
City Marshall State Mi Zip Code 49068
24 hr. Emergency Contact Tel. No. 1 877 497 7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT		Nonpotable Water FTC 3.2 Jackson St	2500	G		
		Load 3				

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____ 6/12/12

PER _____

CARRIER D. Lorester

PER SET Env.

DATE 6/12/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK. PRINTED WITH SOY INK.

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4731 *

Carrier No. 2184

Page 1 of 1

SET Environmental
(Name of carrier) (SCAC)

Date 6/1/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street 16000 Division
City Marshall State, MI Zip Code 49068

FROM:
Shipper Enbridge AECOM
Street G-Drive
City Battle Creek State MI Zip Code
24 hr. Emergency Contact Tel. No. 1 877 437 7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 DM		1-55 gal drum of Soil	250	lbs		
		To Cell B Pile 136				

PLACARDS TENDERED: YES ☐ NO ☑

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____

PER 6/1/12

CARRIER SET Environmental

PER _____

DATE 6/1/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4732 ✻

Carrier No. _____

Page _____ of _____

SET Env. (SCAC)

(Name of carrier)

Date 6-4-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee To Cell AIB sump

Street

City State, Zip Code

FROM:
Shipper Superior

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
		50 Gallons of water from Superior to Cell AIB Sump	50 gallons			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6-4-12

PER J. Wallace 6-4-12

CARRIER Rodney [signature]

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4133

Carrier No. _____

Page 1 of 1

Plummers
(Name of carrier) (SCAC)

Date 6-5-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC
Street 16000 Division Drive
City Marshall State, MI Zip Code

FROM:
Shipper Plummers
Street
City Grand Rapids State MI Zip Code
24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001 RT		Roll off box RT 3398	25 yard			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER 6-5-12

PER

CARRIER

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4734

Carrier No. _____

Page 1 of 1

Plummers
(Name of carrier) (SCAC)

Date 6-5-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street 16600 Division Dr.

City Marshall State, MI Zip Code

FROM:
Shipper Plummers

Street

City Grand Rapids State MI Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001 RT		RT3479 delivered	25 yard			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6-5-12

CARRIER [signature]

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4135

Carrier No.

Page 1 of 1

SET Environmental, INC

(Name of carrier) (SCAC)

Date 6/5/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee SET Environmental, INC

Street 16000 mile F.T.C

City MARSHALL State, MI Zip Code

FROM:
Shipper C-3,2

Street

City Battle Creek State MI Zip Code

24 hr. Emergency Contact Tel. No. 877-473-7455

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001		1X55 soil	500 pd			
005		5 BAGS of oily soil	60 PD			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6/5/12

CARRIER Raul Franco

PER SET

DATE 6/5/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4754

Carrier No. 2184

Date 6-12-12

Page 1 of 1

SET

(Name of carrier) (SCAC)

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO: Consignee FTC

Street Cell B Pile 13E

City State, Zip Code

FROM: Shipper AECOM C3.2

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001		1 drum of R.I Soil	0.1 yard			
		to Cell B Pile 13E				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____

PER 6-12-12

CARRIER _____

PER _____

DATE 6-12-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4161

Carrier No. 1421

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-14-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee To Non-Impacted

Street Mat Pile

City State, Zip Code

FROM:
Shipper FTC Cell B

Street Pile 1350

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
0092		92 cy yards of crane Mats deemed not-impacted and delivered to Clean pile	92 Cy			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER 6-14-12

PER

CARRIER 6/14/12

PER

DATE

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4762 *

Carrier No. 2194

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-15-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC Cell B Pile

Street 136

City State, Zip Code

FROM:
Shipper C3.2 (R.I)

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
01 DM		1 Cy of Soil (1DM) to FTC Cell B Pile 136	1 Cy			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER SW Dw

PER 6-15-12

CARRIER

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4164 *

Carrier No. _____

Page _____ of _____

SET Environmental
(Name of carrier) (SCAC)

Date 6/19/20

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee [redacted] Enbridge
Street 1660 Division
City Marshall State, MN Zip Code

FROM:
Shipper
Street
City State Zip Code
24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 x TT		NON Potable Water (E4)	2500	G		
		#1				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6-18-12

PER

CARRIER SET Environmental

PER [signature]

DATE 6/19/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4119 *

Carrier No. 2185

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-15-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street Cell B Pile 136 + Sump

City State, Zip Code

FROM:
Shipper Superior

Street

City State Zip Code

24 Hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001DM		35 gallons water to Cell a/b Sump	35G			
001DM		.1 cy of R.I. Soil to Cell B Pile 136	.1cy			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6-15-12

CARRIER

PER Mike Lanpreya

DATE 6-15-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4780 *

Carrier No. 2184

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-18-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street Cell B pile 136B

City State, Zip Code

FROM:
Shipper Cresco Powerhouse

Street CO. 4

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1		Sample Soil 1drum	.1cy	½		
		to Cell B pile 136				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER

6-19

CARRIER

PER SET

DATE 2184

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4781 *

Carrier No. 142/

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-18

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street

City State, Zip Code

FROM:
Shipper CO. 4

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
01 RT		Rolloff RT3428	25yards			
		Moved to FTC for				
		Sampling				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6-18

CARRIER [signature]

PER 6-18

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4182

Carrier No. _____

Page _____ of _____

SET

(Name of carrier) (SCAC)

Date 6/19/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge
Street Divison St.
City Marshall State, MI Zip Code

FROM:
Shipper Enbridge
Street
City State Zip Code
24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 x TT		Non Potable Water (FTC)	2500 G			
		#2				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6-18-12

PER

CARRIER SET Environmental

PER Jaymes Kosiva

DATE 6/19/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4183 *

Carrier No. _____

Page 1 of 1

SBT Environmental
(Name of carrier) (SCAC)

Date 6/20/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Enbridge

Street

City [redacted] State, Zip Code

FROM:
Shipper Enbridge

Street Fore Hydrate Rel.

City Marshall State MI Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1x tt		Non-Potable Water	2,000			

#1

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER

CARRIER SBT Environmental

PER James Knowles

DATE 6/20/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4784 ✱

Carrier No. _____

Page _____ of _____

SET Environmental
(Name of carrier) (SCAC)

Date 6/20/12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Iron City (Enbridge)

Street

City Marshall State, MI Zip Code

FROM:
Shipper Enbridge

Street

City Marshall State MI Zip Code

24 hr. Emergency Contact Tel. No. _____

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 x TT		Non Potable Water	2400			
		#2				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER

CARRIER SET

PER James Kosina

DATE 6/20/12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4786

Carrier No. 2184

Page 1 of 1

SET
(Name of carrier) (SCAC)

Date 6-19-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC Cell A/B sump

Street

City State Zip Code

FROM:
Shipper C3.2 (R.I)

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
COIDM		40 gallons of water to Cell A/B sump	406			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER 6-19-12

CARRIER 6-19-12

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4181

Carrier No. 1421

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-20-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee [redacted] 13000 15 Mile Rd.

Street

City State, Zip Code

FROM:
Shipper FTC

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 601 RT		RT 3478 - Change of contents/location	1 box			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 6-20-12

PER

CARRIER J. [signature] 6-20-12

PER

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4188 ✻

Carrier No. _____

Page 1 of 1

Carr Bros. (Name of carrier) (SCAC)

Date 6-20-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street

City State, Zip Code

FROM:
Shipper Ceresco Dam legacy site

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 OOITR		20 yards soil to Cell B Pile	20 yards			
		136				

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____

PER 6-20-12

CARRIER _____

PER 6/22/12

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4789 *

Carrier No. _____

Page 1 of 1

Carr Bros

(Name of carrier) (SCAC)

Date 6-20-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street

City State, Zip Code

FROM:
Shipper Cresco Dam

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
001 TR		20 yards soil to Cell B Pile ISC	20 yards			

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____

PER 6/20/12

CARRIER _____

PER 6/20/12

DATE

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4790 *

Carrier No. 32184

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-22-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street cdl 13 pla 136

City State, Zip Code

FROM:
Shipper Superior

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 55 gal		Rinse Water	40 gal	4		
5		Bags Contaminated waste	5	4		

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER 6-22-12

PER

CARRIER

PER

DATE 6-22-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 4191 *

Carrier No. 2184

Page 1 of 1

SET

(Name of carrier) (SCAC)

Date 6-22-12

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee FTC

Street Cell B pile 136

City State, Zip Code

FROM:
Shipper 3.2

Street

City State Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class UN or NA Number, Packing Group or UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
.1cy		Test soil	.1cy	8		
5		Contaminated ~~Test~~ waste	5	4		
1		MSW	1	8		

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature]

PER 6-22-12

CARRIER [signature]

PER

DATE 6-22-12

1

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

STYLE F365-4 © 2003 LABELMASTER® (800) 621-5808 www.labelmaster.com

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033030 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	3000	G	D29L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 5 Day: 21 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Greg Ebbs
Signature:
Month: 5 Day: 21 Year: 12

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dan Hendrickson
Signature:
Month: 5 Day: 21 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033031 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	2000	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996 Bridge
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Dorrn Lefaive
Signature: Dorrn Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: David Hawley
Signature:
Month: 5 Day: 18 Year: 12

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Don Henderson
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033032 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	0061	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996/ Sludge
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Doran Lefaive
Signature: Doran Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Marvin Steinbrecher
Signature:
Month: 5 Day: 18 Year: 12
Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Don Hendricks
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033043 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	7000	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996 /sludge
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Doran Lefaive
Signature: Doran Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Daryl Heaney
Signature:
Month: 5 Day: 18 Year: 12

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Dan Hendrickson
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033044 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIR 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. Water (not regulated by USDOT or USEPA)	001	TT	1273	G	029L		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996 Ref
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Doran Lefaive
Signature: Doran Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Darwin Steinbrecher
Signature: Darwin Steinbrecher
Month: 5 Day: 18 Year: 12
Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Don Hendrickson
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033045 FLE

GENERATOR

5. Generator's Name and Mailing Address
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address)
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr. SW
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	3500	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996 / Sludge
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Blackburn, Michael
Signature:
Month: 5 Day: 18 Year: 12
Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dan Henderson
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 752 366 161
2. Page 1 of: 1
3. Emergency Response Phone: 218-269-0591
4. Manifest Tracking Number: 004033751 FLE

GENERATOR

5. Generator's Name and Mailing Address:
Enbridge Energy Partners
1601 Pratt
Marshall, MI 49068 218-269-0591
Generator's Phone:

Generator's Site Address (if different than mailing address):
Enbridge Energy Partners
N1/2 Section 2 T3S R6W
Marshall, MI 49068

6. Transporter 1 Company Name: Plummer's Environmental Services, Inc.
U.S. EPA ID Number: MIK 111 229 563

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
Plummer's Environmental Services, Inc.
10075 Sedroc Industrial Dr.
Byron Center, MI 49315 616-877-3930
Facility's Phone:
U.S. EPA ID Number: MIK 111 229 563

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Water (not regulated by USDOT or USEPA)	001	TT	1800	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.) Non-hazardous water (800) 878-3996 / Sludge
On behalf of Enbridge Limited Partnership

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 5 Day: 21 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: PAUL Henry
Signature:
Month: 5 Day: 21 Year: 12

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Dan Hendrickson
Signature:
Month: 5 Day: 21 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIR762366161
2. Page 1 of
3. Emergency Response Phone: (800) 366-8994
4. Manifest Tracking Number: 008877388 JJK

GENERATOR

5. Generator's Name and Mailing Address
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
ATTN: DORAN LEFAIVE
1601 PRATT AVE
MARSHALL, MI 49068
Generator's Phone:

Generator's Site Address (if different than mailing address)
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
1601 PRATT AVE
MARSHALL, MI 49068

6. Transporter 1 Company Name: LIQUID INDUSTRIAL WASTE SERVICE INC.
U.S. EPA ID Number: MID006546121

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
LIQUID INDUSTRIAL WASTE SERVICE INC.
11325 E LAKEWOOD BLVD
HOLLAND, MI 49424
(616) 396-6994
Facility's Phone:
U.S. EPA ID Number: MID006546121

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-HAZARDOUS WATER, N.O.S.	1	TT	6300	G	D29L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
LWS APPROVAL #11-160
ON BEHALF OF ENBRIDGE ENERGY LIMITED PARTNERSHIP

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 06 Day: 22 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: LEE NIENHUIS/JAMIE NIENHUIS/KIRK GEERLINGS/STEVE KAPTEIN
Signature: Lee Nienhuis
Month: 06 Day: 22 Year: 12

Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: JULIE SNIDER/ LAUREN NYKAMP
Signature
Month: Day: Year:

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-003

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK752366161
2. Page 1 of
3. Emergency Response Phone: (800) 396-5994
4. Manifest Tracking Number: 008877990 JJK

GENERATOR

5. Generator's Name and Mailing Address
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
ATTN: DORAN LEFAIVE
1601 PRATT AVE
MARSHALL, MI 49068
Generator's Phone:

Generator's Site Address (if different than mailing address)
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
1601 PRATT AVE
MARSHALL, MI 49068

6. Transporter 1 Company Name: LIQUID INDUSTRIAL WASTE SERVICE INC.
U.S. EPA ID Number: MID006546121

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
LIQUID INDUSTRIAL WASTE SERVICE INC.
11325 E LAKEWOOD BLVD
HOLLAND, MI 49424
Facility's Phone: (616) 396-5994
U.S. EPA ID Number: MID006546121

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-HAZARDOUS WATER, N.O.S.	1	TT	12,000	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
LWS APPROVAL #11-180
ON BEHALF OF ENBRIDGE ENERGY LIMITED PARTNERSHIP
375 G from: FTC TP #1
2700 G from: Decon Sump
8,925 G from: Cell A/B Sump

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 4 Day: 17 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: LEE NIENHUIS/JAMIE NIENHUIS/KIRK GEERLIGS/STEVE KAPTEIN
Signature:
Month: 04 Day: 12 Year: 12
Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H135 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: JULIE SNIDER/ LAUREN NYKAMP
Signature:
Month: 4 Day: 10 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK752366161
2. Page 1 of 1
3. Emergency Response Phone: (800) 396-5994
4. Manifest Tracking Number: 008877993 JJK

GENERATOR

5. Generator's Name and Mailing Address
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
ATTN: DORAN LEFAIVE
1601 PRATT AVE
MARSHALL, MI 49068
Generator's Phone:

Generator's Site Address (if different than mailing address)
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
1601 PRATT AVE
MARSHALL, MI 49068

6. Transporter 1 Company Name: LIQUID INDUSTRIAL WASTE SERVICE INC.
U.S. EPA ID Number: MID006546121

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
LIQUID INDUSTRIAL WASTE SERVICE INC.
11325 E LAKEWOOD BLVD
HOLLAND, MI 49424
Facility's Phone: (616) 396-5994
U.S. EPA ID Number: MID006546121

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-HAZARDOUS WATER, N.O.S.	1	TT	4,800	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
LWS APPROVAL #11-180
ON BEHALF OF ENBRIDGE ENERGY LIMITED PARTNERSHIP
From Recon Sump
From: TP#1
From: Cell A/B Sump

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Doran Lefaive
Signature: Doran Lefaive
Month: 05 Day: 14 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: LEE NIENHUIS/JAMIE NIENHUIS/KIRK GEERLIGS/STEVE KAPTEIN
Signature:
Month: 05 Day: 14 Year: 12

Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H135			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: JULIE SNIDER/ LAUREN NYKAMP
Signature:
Month: 5 Day: 14 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK752366161
2. Page 1 of 1
3. Emergency Response Phone: (800) 396-5994
4. Manifest Tracking Number: 008877995 JJK

GENERATOR

5. Generator's Name and Mailing Address
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
ATTN: DORAN LEFAIVE
1601 PRATT AVE
MARSHALL, MI 49068
Generator's Phone:

Generator's Site Address (if different than mailing address)
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
1601 PRATT AVE
MARSHALL, MI 49068

6. Transporter 1 Company Name: LIQUID INDUSTRIAL WASTE SERVICE INC.
U.S. EPA ID Number: MID006546121

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
LIQUID INDUSTRIAL WASTE SERVICE INC.
11325 E LAKEWOOD BLVD
HOLLAND, MI 49424
Facility's Phone: (616) 396-5994
U.S. EPA ID Number: MID006546121

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-HAZARDOUS WATER, N.O.S.	1	TT	11500	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
LIWS APPROVAL #11-180
ON BEHALF OF ENBRIDGE ENERGY LIMITED PARTNERSHIP

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 5 Day: 18 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: LEE NIENHUIS/JAMIE NIENHUIS/KIRK GEERLIGS/STEVE KAPTEIN
Signature:
Month: 05 Day: 18 Year: 12
Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H135			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: JULIE SNIDER/ LAUREN NYKAMP
Signature:
Month: 5 Day: 18 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK752366161
2. Page 1 of
3. Emergency Response Phone: (800) 396-5994
4. Manifest Tracking Number: 008877996 JJK

GENERATOR

5. Generator's Name and Mailing Address
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
ATTN: DORAN LEFAIVE
1601 PRATT AVE
MARSHALL, MI 49068

Generator's Site Address (if different than mailing address)
ENBRIDGE ENERGY, LIMITED PARTNERSHIP
1601 PRATT AVE
MARSHALL, MI 49068

Generator's Phone:

6. Transporter 1 Company Name: LIQUID INDUSTRIAL WASTE SERVICE INC.
U.S. EPA ID Number: MID006546121

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
LIQUID INDUSTRIAL WASTE SERVICE INC.
11325 E LAKEWOOD BLVD
HOLLAND, MI 49424
(616) 396-5994
U.S. EPA ID Number: MID006546121

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-HAZARDOUS WATER, N.O.S.	1	TT	12000	G	029L
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
LWS APPROVAL #11-180
ON BEHALF OF ENBRIDGE ENERGY LIMITED PARTNERSHIP

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DORAN Lefaive
Signature: Doran Lefaive
Month: 5 Day: 21 Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: ~~LEE NIENHUIS/JAMIE NIENHUIS/MIKE SEERVOGEL/STEVE KAPTEIN~~ Tony Goodhue
Signature:
Month: 5 Day: 21 Year: 12

Transporter 2 Printed/Typed Name
Signature
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H135			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: JULIE SNIDER/ LAUREN NYKAMP
Signature:
Month: 5 Day: 21 Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

MANIFEST NUMBER
625371

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY L'TD PARTNERSHIP

b. Generator Location: FTC

c. Address: ~~1455 LEGGETT RD.~~ 1601 Pratt Ave

d. Address: Box # 3391

MARSHALL, MI 49068

e. Phone No.: 218-749-2591 or 1-888-768-7600

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

4,14 tn

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	CT	25	Y

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dora Lefave — Generator Authorized Agent Name

Doran Lefave — Signature

05/31/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Smac Rd.

Wheeling, IL 60090

j. Driver Name: Jim Kooima

k. Phone No.: X224-688-3147 l. Truck No.: 1412

m. Vehicle License No./State: X P718953

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 05/31/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203092

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 05/31/12 Shipment Date

0,1/4 Debris

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625371

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC

c. Address: ~~4554 EGGERT RD~~ 601 Pratt Ave

d. Address: Box # 33491

MARSHALL, MI 49068

e. Phone No.: 218-769-0591 ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

4.14 tn

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	CT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lafave — Generator Authorized Agent Name

Doran Lafave — Signature

05/31/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~

b. Address: ~~2701 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Sumac Rd.

Wheeling, IL 60090

j. Driver Name: Jim Kooima

k. Phone No.: X224-688-7147 l. Truck No.: 1412

m. Vehicle License No./State: P718953

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 05/31/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203092

I hereby certify that the material described above has been accepted for disposal at this facility.

0,1,4 Debris

f. Tony Keller — Authorized Agent Name — Signature — 05/31/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14026993

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 500710130039

SITE	TICKET	GRID
Y6	203092	

WEIGHMASTER: AMY B

DATE IN	TIME IN
31 May 2012	4:12 pm

DATE OUT	TIME OUT
31 May 2012	4:12 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
825971	CALHOUN

Gross Weight 43,300.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 8,280.00 lb 4.14 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
4.14	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

/ 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625370

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP
b. Generator Location: FTC Cell B Pile 135
c. Address: 1601 Pratt Ave
MARSHALL, MI 49068
d. Address: Box # RT3391
e. Phone No.: 269-789-0591
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039
7,07
i. Customer Account Number:
on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Generator Authorized Agent Name
Doran Lefave — Signature
06/12/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:
b. Address:
c. Driver Name:
d. Phone No.: e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET
i. Address: 150 Sumac
Wheeling IL
j. Driver Name: Mike Lay
k. Phone No.: l. Truck No.: 1121
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — Shipment Date: 06/12/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204307

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1081

f. Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625370

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile 135

c. Address: ~~1155 ENTERPRISE RD~~ 1601 Prairie

d. Address: Box # RT3391

MARSHALL, MI 49068

e. Phone No.: ~~952-808-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

7,07

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~#595~~

in small # envelope w/ limited rainwater

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — 06/12/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQ15~~

b. Address: ~~2101 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Simac

Wheeling IL

j. Driver Name: Mike Lay

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/12/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 20430 7

TPH 108 1

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Eadie — Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

4645227

SITE	TICKET	GRID
Y6	204307	

AMY B — WEIGHMASTER

DATE IN	TIME IN
12 June 2012	9:48 am

DATE OUT	TIME OUT
12 June 2012	9:48 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625370	CALHOUN

00 Gross Weight 49,160.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,140.00 lb 7.07 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.07	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !

HOURS

MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

1/09

SIGNATURE

RS-F04

MANIFEST NUMBER
625371

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: ETC

c. Address: ~~1455 LEGGETT RD.~~ 1601 Praft Ave

d. Address: Box # 3391

MARSHALL, MI 49068

e. Phone No.: 218-269-8591 ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

4.14 hr

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER
UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dora LaFave — Generator Authorized Agent Name

Doran Lafave — Signature

05/31/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[redacted]~~

b. Address: ~~[redacted]~~

c. Driver Name:

d. Phone No.: ~~[redacted]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Smac Rd.

Wheeling, IL 60090

j. Driver Name: Jim Kooima

k. Phone No.: X224-638-3147 l. Truck No.: 1412

m. Vehicle License No./State: X P718953

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 05/31/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203092

I hereby certify that the material described above has been accepted for disposal at this facility.

Oily Debris

f. Authorized Agent Name — Signature — 05/31/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625371

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY L'TD PARTNERSHIP
b. Generator Location: FTC
c. Address: ~~1455 EGGERT RD~~ 601 Pratt Ave
d. Address: Box # 339911
MARSHALL, MI 49068
e. Phone No.: 269-789-0591 ~~952-688-7600~~
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS
Color:
Odor:
4,14 tn
h. Special Waste Approval Number: 5007 10 13039
i. Customer Account Number: #525
on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	CT	25	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER
UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean LeSaint — Generator Authorized Agent Name
Doran Lefaive — Signature
05 31 12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~
b. Address: ~~2701 N I-94 SERVICE DR~~
~~YPSILANTI, MI 48198~~
c. Driver Name:
d. Phone No.: ~~734-547-2520~~ e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental
i. Address: 450 Sumac Rd.
Wheeling, IL 60090
j. Driver Name: Jim Koolma
k. Phone No.: X224-688-3147 l. Truck No.: 1412
m. Vehicle License No./State: P718953
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — 05 31 12 — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 203092

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 05 31 12 — Shipment Date
0,1/4 Debris

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14026993

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
T6	203092	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
31 May 2012	4:12 pm

DATE OUT	TIME OUT
31 May 2012	4:12 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
225371	CALHOUN

Gross Weight 43,300.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 8,280.00 lb 4.14 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
4.14	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER

625372

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC

c. Address: ~~1545 PROGRESS RD~~ 1601 Piatt Ave

d. Address: Box # RT3250

MARSHALL, MI 49068

e. Phone No.: 218-269-0591 ~~952-828-7600~~

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. MEDIA & DEBRIS~~ MSW

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

1.47 TN

i. Customer Account Number: ~~#525~~

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean LaFave — Generator Authorized Agent Name

Dean LaFave — Signature

06/01/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BOTS~~

b. Address: ~~2401 BUSINESS SERVICE DR~~

~~TRAVERSE CITY, MI 49686~~

c. Driver Name:

d. Phone No.: ~~231-941-2430~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental, Inc

i. Address: 450 Sumac Rd

Wheeling, IL 60090

j. Driver Name: James Keating

k. Phone No.: 224-658-7147 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/01/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 208230

I hereby certify that the material described above has been accepted for disposal at this facility.

MSW

Amy Beattie — Authorized Agent Name

Signature

06/01/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625372

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC

c. Address: ~~455 LEGGETT RD.~~ 1601 Prairie Ave

d. Address: Box # RT3250

MARSHALL, MI 49068

e. Phone No.: 269-789-0591 952-688-7600

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. MEDIA & DEBRIS~~ MSW

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

1.47 TN

i. Customer Account Number: ~~#175~~ on behalf of Enbridge from Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefave — Dean Lefave — 06/01/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~

b. Address: ~~2701 N. 24 SERVICE DR~~ ~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental, Inc.

i. Address: 450 Sumac Rd.

Wheeling, IL 60090

j. Driver Name: James Kooima

k. Phone No.: 224-688-2147 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/01/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203230

I hereby certify that the material described above has been accepted for disposal at this facility.

MSW

f. Amy Beattie — Signature — 06/01/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility — Yellow - Transporter Copy — Pink - Generator 2nd Copy — Gold - Generator 1st Copy

14032135

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	203230	

WEIGHMASTER: AMY B

DATE IN	TIME IN
1 June 2012	3:16 pm

DATE OUT	TIME OUT
1 June 2012	3:16 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625372	CALHOUN

Gross Weight 37,960.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 2,940.00 lb 1.47 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
1.47	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

MANIFEST NUMBER
625373

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: CO.4

c. Address: ~~455 LEGGETT RD~~ 1601 Pratt Ave

d. Address: RT-3273

MARSHALL, MI 49068

e. Phone No.: 218-269-0591 ~~952-828-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS (Veg)

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

6.47 TN

i. Customer Account Number: #525

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/05/12 — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~2701 N I-94 SERVICE DR~~

~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: Sez Environmental, Inc

i. Address: 458 Sunny Rd

Wheeling

j. Driver Name: Rick Furness

k. Phone No.: 847-437-7455 l. Truck No.: 1421

m. Vehicle License No./State: P718953 IL

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/05/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203554

I hereby certify that the material described above has been accepted for disposal at this facility.

f. DEB BOUGHTON — Authorized Agent Name

Signature

6/5/12 — Shipment Date

Oily Debris

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625373

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: CO.4

c. Address: ~~455 LEGGETT RD~~ 1401 Hall Ave

d. Address: RT-3273

MARSHALL, MI 49068

e. Phone No.: ~~269-789-0591~~ ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS (Veg)

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 6.47 TN

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	ot	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER
UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doug Lelaire — Doug Lelaire — 06/05/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~

b. Address: ~~2701 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-3500~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET ENVIRONMENTAL, INC

i. Address: 430 SUMAC RD

WAUSAU

j. Driver Name: Rod Fennig

k. Phone No.: 847 437-7455 l. Truck No.: 1421

m. Vehicle License No./State: P718453 IL

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/05/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203554

I hereby certify that the material described above has been accepted for disposal at this facility.

f. DEB BOUGHTON — Authorized Agent Name — Signature — 6/5/12 Shipment Date

Only Debris

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14032461

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000720
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	203554	

WEIGHMASTER: DB000008 DEBORAH B

DATE IN	TIME IN
5 June 2012	1:11 pm

DATE OUT	TIME OUT
5 June 2012	1:11 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
6253373	CALHOUN

Gross Weight 47,960.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 12,940.00 lb 6.47 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.47	TN	SW--CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE

RS-F04

MANIFEST NUMBER

625374

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: F.T.C

c. Address: ~~4545 FOGETT RD~~ 1601 Prall Ave

d. Address: RT-3391

MARSHALL, MI 49068

218-769-0591 ~~952-828-7600~~

e. Phone No.:

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

2.85 hr

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — Shipment Date: 06/08/12

Generator Authorized Agent Name — Signature — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~FOIS~~

b. Address: ~~1701 LAPEER SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental, INC

i. Address: 450 Sumac Rd

Wheeling IL 60090

j. Driver Name: Raul Franco

k. Phone No.: 877-473-7455 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/08/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 203979

I hereby certify that the material described above has been accepted for disposal at this facility.

Oily Debris

f. Amy Sellick — Amy Sellick — Shipment Date: 06/08/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility — Yellow - Transporter Copy — Pink - Generator 2nd Copy — Gold - Generator 1st Copy

MANIFEST NUMBER
625374

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: F.T.C RT-3391

c. Address: ~~455 LEGGITT RD~~ 1601 Prall Ave

d. Address:

MARSHALL, MI 49068

e. Phone No.: 218-969-0541 ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor: 2.85 lr

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: #525 on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Weaver — Generator Authorized Agent Name

Dean Weaver — Signature

0 8 0 8 1 2 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~

b. Address: ~~2701 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: Set Environmental, Inc

i. Address: 450 Sumac Rd

Wheeling IL 60090

j. Driver Name: Carl Thomas

k. Phone No.: 877-473-7455 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 0 8 0 8 1 2 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: C03979

I hereby certify that the material described above has been accepted for disposal at this facility.

Only Debris

f. Amy Collier — Authorized Agent Name

Signature

0 8 0 8 1 2 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14032833

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000726
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	203979	

WEIGHMASTER: AMY B

DATE IN	TIME IN
8 June 2012	12:16 pm

DATE OUT	TIME OUT
8 June 2012	12:19 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625374	CALHOUN

Gross Weight 40,720.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 5,700.00 lb 2.85 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
2.85	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625375

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Pratt Ave

b. Generator Location: FTC / Cell B Pile 135

c. Address: ~~455 LEGGETT RD~~

d. Address: Box # 3348

MARSHALL, MI 49068

e. Phone No.: 269-789-0591 ~~517-788-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 6.30TN

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lafave — Dean Lafave — 06/08/12

Generator Authorized Agent Name — Signature — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Summit

Wheeling, IL 60090

j. Driver Name: Carl F

k. Phone No.: 847-493-7455 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/08/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204011

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Jeff Brighton — Signature — 06/08/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625375

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Rail Rd

b. Generator Location: FTC / Cell B Pile 135

c. Address: ~~455 LEGGETT RD~~ MARSHALL, MI 49068

d. Address: Box # 3348

e. Phone No.: ~~952-688-7600~~ 269-781-9742

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 6.30 TN

i. Customer Account Number: #525 on behalf of Enbridge (US), Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dan Gauvin — Generator Authorized Agent Name
Loran Lefaive — Signature
06/03/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~KOS~~

b. Address: ~~2000 LAKESERVICE DR~~ ~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2200~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Summit Wheeling, IL 60090

j. Driver Name: Earl F

k. Phone No.: 847-493-7455 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/08/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204011

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Dan Gauvin — Authorized Agent Name
Signature
06/08/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14032931

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
16	204011	

WEIGHMASTER: AMY B

DATE IN	TIME IN
6 June 2012	2:00 pm

DATE OUT	TIME OUT
6 June 2012	2:00 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
6258375	CALHOUN

Gross Weight 47,620.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 12,600.00 lb 6.30 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.30	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625376

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP
b. Generator Location: FTC Cell 6 Pile 135
c. Address: ~~[illegible]~~ 1601 Pratt Ave
d. Address: 3391
MARSHALL, MI 49068
e. Phone No.: 218-269-0591 ~~952-688-7600~~
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039
i. Customer Account Number: #525
on behalf of Enbridge Energy, Limited Partnership

7.57 tn

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	10	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lafave — Generator Authorized Agent Name
Doran Lafave — Signature
06/08/12 — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER
UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~
b. Address: ~~[illegible]~~
c. Driver Name:
d. Phone No.: ~~[illegible]~~ e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental
i. Address: 450 Summa Ave
Wheeling, IL 60090
j. Driver Name: Walter
k. Phone No.: 874-437-7455 l. Truck No.: 1421
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — 06/08/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204036

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Sattler — Authorized Agent Name
Amy Sattler — Signature
06/08/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625376

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Pratt Ave

b. Generator Location: FTC Cell 8 Pile 135

c. Address: ~~[illegible] RD.~~ MARSHALL, MI 49068 ~~517-688-7600~~ 517-367-0591

d. Address: 3391

e. Phone No.: ~~517-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

7.57 tn

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: #525 on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	6	~~10~~	Y

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER
UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lavoie — Generator Authorized Agent Name

Signature

06/08/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible] SERVICE DR~~ ~~[illegible] MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-542-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 450 Summit Rd Wheeling IL 60090

j. Driver Name: Carl Fox

k. Phone No.: 874-937-7455 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/08/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204036

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Seattle — Authorized Agent Name

Signature

06/08/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14032936

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
16	204036	

WEIGHMASTER: AMY B

DATE IN	TIME IN
8 June 2012	3:41 pm

DATE OUT	TIME OUT
8 June 2012	3:41 pm

VEHICLE	ROLL OFF
SET21T2EC	

REFERENCE	ORIGIN
6228376	CALHOUN

Gross Weight 50,160.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 15,140.00 lb 7.57 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.57	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625377

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile 35

c. Address: ~~ASSUMPTION RD~~ 160 Pratt Ave

d. Address: Box # RT 3391

MARSHALL, MI 49068

e. Phone No.: 269-269-0591 ~~952-328-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 8.18 tv

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Duran Lavoie — Generator Authorized Agent Name

Doran Lefaive — Signature

06/11/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~ SET

b. Address: ~~2701 N Old SERVICE DR~~ / ~~CBurnC~~

~~YPSILANTI, MI 48198~~ Welding Inc

c. Driver Name: Mike Lange

d. Phone No.: ~~734-547-3330~~ e. Truck No.: 1421

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. X — Driver Signature — 06/11/12 — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204194

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH
1081

f. Tony Bellie — Authorized Agent Name — Signature — 06/11/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625377

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B P. 1e35

c. Address: ~~4451 PROUTY RD~~ 1604 Pratt Ave

d. Address: Box # RT 3391

MARSHALL, MI 49068

e. Phone No.: ~~952-688-7600~~ 218-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 8.18 tv

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	CT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Waisel — Generator Authorized Agent Name

Dean Lefave — Signature

06/11/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BQ13~~ SET

b. Address: ~~2781 N I-94 SERVICE DR~~ / Shirley

~~YPSILANTI, MI 48198~~ Wesley

c. Driver Name: Mike Lange

d. Phone No.: ~~734-547-2530~~ e. Truck No.: 1421

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. X — Driver Signature — 06/11/12 — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 20410-1

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1081

f. Tony Bellile — Authorized Agent Name — Signature — 06/11/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645114

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204194	

WEIGHMASTER: AMY B

DATE IN	TIME IN
11 June 2012	1:07 pm

DATE OUT	TIME OUT
11 June 2012	1:09 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625377	CALHOUN

Gross Weight 51,380.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 16,360.00 lb 8.18 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
8.18	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

RT 3398

MANIFEST NUMBER
625378

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Pratt Ave

b. Generator Location: FTC Cell B Pile 135

c. Address: ~~455 E ECORSE RD~~ MARSHALL, MI 49068

d. Address: Box # RT3398

e. Phone No.: 918-269-0591 ~~952-883-3690~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

6.57 Tn

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	GT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06 / 1 / 1 / 2 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[redacted]~~ SET

b. Address: ~~[redacted]~~ 450 S Main Walling ton

c. Driver Name: Mike Lay

d. Phone No.: ~~[redacted]~~ e. Truck No.: 1421

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature

06 / 1 / 1 / 2 — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature

Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.:

204149

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name

Signature

06 / 1 / 1 / 2 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

RT 3398

MANIFEST NUMBER
625378

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Prairie Ave

b. Generator Location: FTC Cell B P.I.# 135

c. Address: ~~455 LEGGETT RD~~ MARSHALL, MI 49068 (I) 269-789-0591 ~~952-688-7600~~

d. Address: Box # RT3398

e. Phone No.: ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 3007 10 13039

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	GT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Brian Lefaive — Brian Lefaive — 06/11/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~ SET

b. Address: ~~2301 N I-94 SERVICE DR~~ 1505 Wallace Ln ~~YPSILANTI, MI 48198~~

c. Driver Name: Mike Lange

d. Phone No.: ~~734-547-2570~~ e. Truck No.: 1121

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. — Driver Signature — Shipment Date: 06/11/12

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.:

6,597 T
2 of 4
TPH
108Z

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/11/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645069

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204149	

WEIGHMASTER: AMY B

DATE IN	TIME IN
11 June 2012	10:30 am

DATE OUT	TIME OUT
11 June 2012	10:30 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
	CALHOUN

Gross Weight 48,160.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 13,140.00 lb 6.57 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.57	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625379

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Coil B Pile 135

c. Address: 1681 Pratt Ave

d. Address: Box # RT3273

MARSHALL, MI 49068

e. Phone No.: 269-781-9591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

7.24 tn

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/11/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: [redacted] SET

b. Address: [redacted] 1505 [redacted] Wesley Ln

c. Driver Name: Mike Lavenge

d. Phone No.: [redacted] e. Truck No.: 1421

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — 06/11/12 — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204220

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1081

f. Tony Sadler — Authorized Agent Name

Signature

06/11/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625379

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B P:10 135

c. Address: ~~4111 FOGHT RD~~ 1607 Pratt Ave

d. Address: Box # RT3273

MARSHALL, MI 49068

e. Phone No.: ~~952-828-7600~~ 269-789-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

7.24 tn

i. Customer Account Number: #525

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lafave — Generator Authorized Agent Name

Doran Lafave — Signature

06/11/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~FOIS~~ SET

b. Address: ~~2701 N I-94 SERVICE DR 450 S Wing~~

~~YPSILANTI, MI 48198~~ Whalley 14

c. Driver Name: Mike Lavigne

d. Phone No.: ~~734-547-0550~~ e. Truck No.: 1421

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature

06/11/12 — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature

Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204220

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Cadle — Authorized Agent Name

Signature

06/11/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645140

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000723
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204220	

WEIGHMASTER: AMY B

DATE IN	TIME IN
11 June 2012	2:36 pm

DATE OUT	TIME OUT
11 June 2012	2:56 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
526379	CALHOUN

Gross Weight 49,500.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 14,480.00 lb 7.24 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.24	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER

625380

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile 135

c. Address: 1601 Pratt Ave MARSHALL, MI 49068

d. Address: Box # RT 3398

e. Phone No.: 269-789-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

7.38 tn

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dora Lefave — Generator Authorized Agent Name

Dora Lefave — Signature

06/12/12 — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 S. main Wheeling IL

j. Driver Name: Mike Lage

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/12/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204333

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Authorized Agent Name

Signature

06/12/12 — Shipment Date

TPH 1082

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
625380

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Pratt Ave

b. Generator Location: FTC Cell B P.le 135

c. Address: ~~455 HEGGITT RD~~ MARSHALL, MI 49068

d. Address: Box # RT 3398

e. Phone No.: 269-781-9742 ~~989-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~#325~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

7.58 Tn

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean LeFave — Generator Authorized Agent Name

Dean LeFave — Signature

06 11 12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~SOS~~

b. Address: ~~2701 N I-94 SERVICE DR~~ ~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 S. main Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06 12 12 — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204333

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1082

f. Amy Bellis — Authorized Agent Name

Signature

06 12 12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

-4645253

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000738
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013037

SITE	TICKET	GRID
Y6	204333	

WEIGHMASTER: AMY B

DATE IN	TIME IN
12 June 2012	11:21 am

DATE OUT	TIME OUT
12 June 2012	11:21 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625380	CALHOUN

Gross Weight 49,780.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 14,760.00 lb 7.38 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.38	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625381

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY L'TD PARTNERSHIP
b. Generator Location: C-0.1
c. Address: 16d Ratt Ave
d. Address: Box # RT3478
MARSHALL, MI 49068
e. Phone No.: 218-269-0591
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Vegetation
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039
i. Customer Account Number:
on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — 06/12/12
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:
b. Address:
c. Driver Name:
d. Phone No.: e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET
i. Address: 150 Sumac
Wheeling IL
j. Driver Name: mike lanenga
k. Phone No.: l. Truck No.: 1421
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — 06/12/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204284

I hereby certify that the material described above has been accepted for disposal at this facility.

Oily Debris

f. Authorized Agent Name — Signature — 06/12/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625381

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: C-0.1

c. Address: ~~4545 HOFFT RD~~ 16d Rail Ave

d. Address: Box # RT3478

MARSHALL, MI 49068

e. Phone No.: ~~952-828-7600~~ 269-781-9742

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Vegetation

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefave — Generator Authorized Agent Name

Dean Lefave — Signature

06/12/12 — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BOIS~~

b. Address: ~~2501 N I-94 SERVICE DR~~

~~YPSILANTY, MI 48198?~~

c. Driver Name:

d. Phone No.: ~~734-547-2524~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Sumac

Wheeling IL

j. Driver Name: Mike Lavenga

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/12/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204284

oily Debris

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Seattle — Authorized Agent Name

Signature

06/12/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645204

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204284	

WEIGHMASTER: AMY B

DATE IN	TIME IN
12 June 2012	8:45 am

DATE OUT	TIME OUT
12 June 2012	9:48 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
6250381	CALHOUN

Gross Weight 47,780.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 12,760.00 lb 6.38 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.38	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER

625382

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B 9:16 B5

c. Address: ~~1627 EGGERT RD~~ 1601 Pratt Ave

d. Address: RT 3478

MARSHALL, MI 49068

269-781-0591

e. Phone No.: ~~989-358-5808~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

8.07 tn

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~FDS~~

b. Address: ~~2101 W 194 SERVICE DR~~

~~PHILADELPHIA, MI 48134~~

c. Driver Name:

d. Phone No.: ~~734-347-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Sumac

Wyoming IC

j. Driver Name: Mike Lanenga

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 20450

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beadle — Authorized Agent Name — Signature — 06/13/12 Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
625382

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY L'TD PARTNERSHIP

b. Generator Location: FTC Cell B 9.16 [illegible]

c. Address: ~~4551 EGGITT RD.~~ 1601 Rail Ave

d. Address: RT 3478

MARSHALL, MI 49068

269-369-8591

e. Phone No.: ~~952-688-2800~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

8.07 tn

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	10	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefaive — Generator Authorized Agent Name

Dean Lefaive — Signature

06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EDIS~~

b. Address: ~~2101 M-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2120~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Surrac

Wheeling IL

j. Driver Name: Mike Lonergan

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 20450

TPH 108L

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645370

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013099

SITE	TICKET	GRID
Y6	204450	

WEIGHMASTER: AMY B

DATE IN	TIME IN
13 June 2012	8:04 am

DATE OUT	TIME OUT
13 June 2012	8:04 am

VEHICLE	ROLL OFF
SET21,T250	

REFERENCE	ORIGIN
625382	CALHOUN

Gross Weight 51,160.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 16,140.00 lb 8.07 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
8.07	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625383

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP
b. Generator Location: FTC Cell B Pile 135
c. Address: 160 Pratt Ave
MARSHALL, MI 49068
d. Address: RT3398
e. Phone No.: 218-269-0591
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039 5.90
i. Customer Account Number:
on bayalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER
UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — Shipment Date: 06/13/12
Generator Authorized Agent Name — Signature

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:
b. Address:
c. Driver Name:
d. Phone No.: e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET
i. Address: 150 S. Mac Wheeling IL
j. Driver Name: Mike Lange
k. Phone No.: l. Truck No.: 1121
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204473 TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625383

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 164 Platt Rd

b. Generator Location: ETC Cell B Pile B5

c. Address: ~~[illegible]~~ MARSHALL, MI 49068

d. Address: RT3398

e. Phone No.: 269-789-0591 ~~952-[illegible]~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

5.90

i. Customer Account Number: ~~[illegible]~~

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Brian Wawe — Generator Authorized Agent Name

Doran Lafave — Signature

06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQ[illegible]~~

b. Address: ~~2701 N I-94 SERVICE DR~~ ~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: R044473

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 06/13/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

4645393

C&C LANDFILL
14600 F DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204473	

WEIGHTMASTER: AMY D

DATE IN	TIME IN
13 June 2012	9:16 am

DATE OUT	TIME OUT
13 June 2012	9:16 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625363	CALHOUN

Gross Weight 46,820.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 11,800.00 lb 5.90 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
5.90	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625384

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP
b. Generator Location: ETC Cell B Pile 135
c. Address: 1601 Pratt Ave
d. Address: Box RT 3478
MARSHALL, MI 49068
e. Phone No.: 269-781-0591
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039
i. Customer Account Number:
on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

6.99 tn

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Doran Lefaive — 06/13/12
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:
b. Address:
c. Driver Name:
d. Phone No.: e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET
i. Address: 450 Sunnc
Wheeling IL
j. Driver Name: Mike Lay
k. Phone No.: l. Truck No.: 1421
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.:
204511
TPH
1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Slade — Signature — 06/13/12
Authorized Agent Name — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625384

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile 1&2

c. Address: ~~1055 LEGACY RD.~~ 1601 Platt Rd

d. Address: Box RT 3478

MARSHALL, MI 49068

269-781-0591

e. Phone No.: ~~989-668-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~8529~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER
UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — 06/13/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BOS~~

b. Address: ~~6460 N 1-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sunco

Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.:

204511 TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645431

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Yd	204511	

WEIGHMASTER: AMY B

DATE IN	TIME IN
13 June 2012	11:52 am

DATE OUT	TIME OUT
13 June 2012	11:52 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625084	CALHOUN

Gross Weight 49,000.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 13,980.00 lb 6.99 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.99	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !

HOURS

MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625385

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile 135

c. Address: 16d Piatt Ave MARSHALL, MI 49068

d. Address: Box# RT 3391

e. Phone No.: 269-789-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER

UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Synac Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204492

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1082

f. Authorized Agent Name — Signature — 06/13/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625385

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~[illegible]~~ 1st Mail Add

d. Address:

MARSHALL, MI 49068

Box # RT 3391

e. Phone No.: ~~952-988-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER

UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name: Doran Lefaive

Signature: Doran Lefaive

Shipment Date: 06/13/12

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~734-543-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature

Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Symac Lockport IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature

Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 20492

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name

Signature

Shipment Date: 06/13/12

TPH 1082

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645412

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204492	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
13 June 2012	10:21 am

DATE OUT	TIME OUT
13 June 2012	10:21 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
626365	CALHOUN

Gross Weight 48,420.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 13,400.00 lb 6.70 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.70	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !

HOURS

MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER

625386

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~[illegible]~~ 160 Pratt Ave

d. Address: Box # RT 3391

MARSHALL, MI 49068

e. Phone No.: ~~[illegible]~~ 08-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

5.75

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Doran Lefaive — 06/13/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: ~~[illegible]~~ SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Lugo

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14300 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204526

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Keith — Signature — 06/13/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility — Yellow - Transporter Copy — Pink - Generator 2nd Copy — Gold - Generator 1st Copy

MANIFEST NUMBER
625386

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~[illegible] RD~~ MARSHALL, MI 49068

d. Address: Box # RT 3391

e. Phone No.: ~~[illegible]~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 5.15

i. Customer Account Number: ~~[illegible]~~ on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Cleaver — Doran Cleaver — 06/13/12

Generator Authorized Agent Name — Signature — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: ~~[illegible]~~ SET

i. Address: 150 Sumac Wheeling IL

j. Driver Name: Mike Lega

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204526 TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 06/13/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

1404546

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204526	

WEIGHMASTER: AMY B

DATE IN	TIME IN
13 June 2012	12:49 pm

DATE OUT	TIME OUT
13 June 2012	12:49 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625336	CALHOUN

Gross Weight 46,520.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 11,500.00 lb 5.75 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
5.75	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625387

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP
b. Generator Location: FTC Cell B Pile B5
c. Address: ~~185 [illegible]~~ 1664 Prall Ave
MARSHALL, MI 49068
d. Address: Box # RT 3478
e. Phone No.: 313-369-0591 ~~[illegible]~~
f. Phone No.: Timber
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crude Oil
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039
i. Customer Account Number: ~~[illegible]~~
on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

7.10 hr

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran LeSaine — Generator Authorized Agent Name
Doran LeSaine — Signature
06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~
b. Address: ~~[illegible]~~
~~[illegible]~~
c. Driver Name:
d. Phone No.: ~~[illegible]~~ e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET
i. Address: 450 Sumac
Wyoming IL
j. Driver Name: Mike Lange
k. Phone No.: l. Truck No.: 1421
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature — Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204548

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1082

f. Authorized Agent Name — Signature — Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625387

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~1554 EGNER RD~~ 1st Mail Ave

d. Address: Box # RT 3478

MARSHALL, MI 49068

e. Phone No.: ~~269-789-2690~~ 517-629-0591

f. Phone No.: Timber

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color: _____

Odor: _____

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~4735~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Generator Authorized Agent Name

Doran Lefave — Signature

Shipment Date: 06/13/12

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQS~~

b. Address: ~~2101 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name: _____

d. Phone No.: ~~734-547-2570~~ e. Truck No.: _____

f. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

g. _____ Driver Signature

Shipment Date: _____

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: _____ l. Truck No.: 1421

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ Driver Signature

Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address: _____

e. TICKET No.: 204548

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Mike Latta — Authorized Agent Name

Signature

Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

4645469

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204548	

WEIGHMASTER: AMY B

DATE IN	TIME IN
13 June 2012	1:50 pm

DATE OUT	TIME OUT
13 June 2012	1:50 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625037	CALHOUN

Gross Weight 49,220.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,200.00 lb 7.10 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.10	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER

625388

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: KTC Cell 8 pile 35

c. Address: 1601 Ralt Ave.

MARSHALL, MI 49068

d. Address: Box # RT 3398

e. Phone No.: 718-364-8591

f. Phone No.: Timber Clean Mats

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 5.44

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lalaine — Generator Authorized Agent Name

Doran Lalaine — Signature

06/13/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address: 2101 N I-94 SERVICE DR

YPSILANTI, MI 48197

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sunset

Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/13/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204560

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Blatchley — Authorized Agent Name

Signature

06/13/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625388

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Coil B

c. Address: ~~[illegible] RD~~ MARSHALL, MI 49068

d. Address: Box # RT 3398

e. Phone No.: ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Timber Clean Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Weaver — Generator Authorized Agent Name

Doran Weaver — Signature

Shipment Date: 06/13/12

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~2101 N I-94 SERVICE DR~~ ~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-0520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Smac Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/13/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204560 TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. [illegible] — Authorized Agent Name — Signature — Shipment Date: 06/13/12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

4645481

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204560	

WEIGHMASTER: AMY B

DATE IN	TIME IN
13 June 2012	2:45 pm

DATE OUT	TIME OUT
13 June 2012	2:45 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
825388	CALHOUN

Gross Weight 45,900.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 10,880.00 lb 5.44 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
5.44	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625389

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: SET NA ↑ Box # 3287

c. Address: 1601 Prait Ave

MARSHALL, MI 49068

d. Address: 13000, 15 mile Rd

Marshall, MI 49068

e. Phone No.: 269-781-7591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

151

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	07	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lelaine — Generator Authorized Agent Name

Doran Lefaive — Signature

06 13 12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sunac

Wheeling IL

j. Driver Name: Mike Lanunga

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06 13 12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204573

Oil & Debris

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 6 13 12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625389

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: SET ↑ Box # 3287

c. Address: ~~4545 EGYPT RD~~ 160 Plain Ave

MARSHALL, MI 49068

d. Address: 13002 15 mile Rd

Marshall, MI 49068

e. Phone No.: ~~952-828-2000~~ 269-781-7591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~4537~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	07	20	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Brian Celine — Generator Authorized Agent Name

Doran Sylvain — Signature

06 13 12 — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~FOSS~~

b. Address: ~~17014 S SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-0520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Surrac

Wheeling IL

j. Driver Name: Mike Lanigan

k. Phone No.: l. Truck No.: 1721

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06 13 12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204573

Oily Debris

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Statler — Authorized Agent Name

Signature

06 13 12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645494

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204573	

WEIGHMASTER: AMY E

DATE IN	TIME IN
13 June 2012	3:43 pm

DATE OUT	TIME OUT
13 June 2012	3:43 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625389	CALHOUN

Gross Weight 38,040.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 3,020.00 lb 1.51 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
1.51	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625390

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile ~~B~~ 135

c. Address: 1601 Prati Ave

MARSHALL, MI 49068

d. Address: Box # 3398

e. Phone No.: 218-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Brian Lelaire — Generator Authorized Agent Name

Brian Lelaire — Signature

06/14/12 — Shipment Date

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER

UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Long

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204589

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1081

f. Authorized Agent Name — Signature — 06/14/12 Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
625390

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile BS 135

c. Address: ~~[illegible]~~

MARSHALL, MI 49068

d. Address: Box# 3398

e. Phone No.: ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor: 5.72

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~ on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER
UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Brian Delave — Generator Authorized Agent Name

Doran Lefaive — Signature

06/19/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~2701 N. 34 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/19/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204589

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 06/19/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645510

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204589	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
14 June 2012	7:01 am

DATE OUT	TIME OUT
14 June 2012	7:01 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625390	CALHOUN

Gross Weight 46,780.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 11,760.00 lb 5.88 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
5.88	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625391

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile ~~D~~ 135

c. Address: ~~[illegible]~~ 160 Pratt Ave

d. Address: Box # RT3391

MARSHALL, MI 49068

e. Phone No.: 269-789-0591 ~~989-644-2600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 1.02

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefevre — Generator Authorized Agent Name

Doran Lefevre — Signature

06/14/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SFT

i. Address: 450 S. Main

Villa Rica, GA

j. Driver Name: Mike Loya

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204610

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1081

f. Tommy Beattie — Authorized Agent Name

Signature

06/14/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625391

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile, 138

c. Address: ~~[illegible]~~

d. Address: 1601 Pratt Ave

MARSHALL, MI 49068

Box # RT3391

e. Phone No.: ~~[illegible]~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber Mats

Color:

Odor: 1.02

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefevre — Doran Lefevre — 06/11/12

Generator Authorized Agent Name — Signature — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 S. Main Waukegan IL

j. Driver Name: Mike Langa

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/11/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204610

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 06/14/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645531

C&C LANDFILL
14600 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204610	

WEIGHMASTER: AMY B

DATE IN	TIME IN
14 June 2012	8:08 am

DATE OUT	TIME OUT
14 June 2012	8:08 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625391	CALHOUN

Gross Weight 49,060.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,040.00 lb 7.02 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.02	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F0

MANIFEST NUMBER

625392

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Ficht Ave

b. Generator Location: FTC Cell B Pile ~~X~~ 135

c. Address: ~~[illegible]~~

MARSHALL, MI 49068

d. Address: Box # RT 3478

e. Phone No.: 269-789-0591

f. Phone No.: ~~[illegible]~~

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color: _____ Odor: _____

h. Special Waste Approval Number: 5007 10 13039 6,411 lbs

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Sylvaine — Doran Sylvaine — Shipment Date: 06/14/12

Generator Authorized Agent Name — Signature

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name: _____

d. Phone No.: ~~[illegible]~~ e. Truck No.: _____

f. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

g. _____ Shipment Date: _____

Driver Signature

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac Wauconda IL

j. Driver Name: Mike Lavergne

k. Phone No.: _____ l. Truck No.: 1421

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ Shipment Date: 06/14/12

Driver Signature

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address: _____

e. TICKET No.: 204626

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — _____ — Shipment Date: 06/14/12

Authorized Agent Name — Signature

TPH 1081

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625392

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Front Ave

b. Generator Location: FTC Cell B Pile #5 135

c. Address: ~~433 LEGGETT RD.~~

d. Address: Box # RT 3478

MARSHALL, MI 49068

313-269-05 91

e. Phone No.: ~~517 782-7400~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

6.41 tn

i. Customer Account Number: ~~9505~~

on behalf of Enbridge (US) Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Doran Lefaive — 06/14/17

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~DOS~~

b. Address: ~~2101 N LOMA SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wauconda IL

j. Driver Name: Mike Lavenga

k. Phone No.: l. Truck No.: 1471

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/14/17

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204626

TPH

1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/14/17

White - Disposal Facility — Yellow - Transporter Copy — Pink - Generator 2nd Copy — Gold - Generator 1st Copy

14645547

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 500710130B9

SITE	TICKET	GRID
Y6	204626	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
14 June 2012	9:11 am

DATE OUT	TIME OUT
14 June 2012	9:11 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625392	CALHOUN

Gross Weight 47,840.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 12,820.00 lb 6.41 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.41	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625393

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~[illegible] BLVD~~ MARSHALL, MI 49068

d. Address: 1601 Pratt Ave Box #3391

e. Phone No.: 218-269-8591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: [illegible]
on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

1.20 tn

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave (Generator Authorized Agent Name) Doran Lefave (Signature) 06/14/12 (Shipment Date)

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Sumac Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 704643

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie (Authorized Agent Name) [signature] (Signature) 06/14/12 (Shipment Date)

TPH 1081

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
625393

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~4545 FRONTAGE RD~~ 1601 Pratt Ave

MARSHALL, MI 49068

d. Address: Box # 3391

e. Phone No.: ~~952-228-7600~~ 319-269-5591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS Timber Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

7.20 tn

i. Customer Account Number: ~~3225~~

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefave — Generator Authorized Agent Name

Dean Lefave — Signature

Shipment Date: 06/14/17

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQIS~~

b. Address: ~~2201 N LOCUST SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Sumac Wheeling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/14/17

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 704643

TPH 1081

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645564

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204643	

WEIGHMASTER: AMY B

DATE IN	TIME IN
14 June 2012	10:12 am

DATE OUT	TIME OUT
14 June 2012	10:12 am

VEHICLE	ROLL OFF
SET2172SD	

REFERENCE	ORIGIN
625393	CALHOUN

Gross Weight 49,420.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,400.00 lb 7.20 TN

Inbound -- TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.20	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F0

MANIFEST NUMBER

625394

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: 1601 Pratt Ave

MARSHALL, MI 49068

d. Address: Box # RT3478

e. Phone No.: 313-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number:

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

7-34 tn

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Generator Authorized Agent Name

Doran Lefave — Signature

06/14/12 — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Lanenga

k. Phone No.: l. Truck No.: 1121

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204667

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — 06/14/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625394

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile B5

c. Address: ~~1515 E CLIFT RD~~ 1001 Front Ave

d. Address: Box # RT3478

MARSHALL, MI 49068

e. Phone No.: 269-267-5591 ~~800-628-7600~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~9225~~

on behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — 06/14/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~ENDS~~

b. Address: ~~1201 N I-94 SERVICE DR~~

~~BELLEVILLE, MI 48111~~

c. Driver Name:

d. Phone No.: ~~(734) 942-3500~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Lanenga

k. Phone No.: — l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/14/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204667

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645588

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 500710130B9

SITE	TICKET	GRID
Y6	204667	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
14 June 2012	11:16 am

DATE OUT	TIME OUT
14 June 2012	11:16 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625394	CALHOUN

Gross Weight 49,700.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,680.00 lb 7.34 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.34	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625395

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Piatt Ave

b. Generator Location: FTC Cell B P.I. 13.5

c. Address: MARSHALL, MI 49068

d. Address: Box # RT3391

e. Phone No.: 218-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

7.00 tn

i. Customer Account Number:

On behalf of Enbridge (Griggs) Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dan Letcavage — Generator Authorized Agent Name

Dan Letcavage — Signature

06/14/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name:

b. Address:

c. Driver Name:

d. Phone No.: e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: ET

i. Address: 150 Smac Wheeling IL

j. Driver Name: mike Lang

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204682

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Cutler — Authorized Agent Name

Signature

06/14/12 — Shipment Date

TPH 1082

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625395

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Pratt Ave

b. Generator Location: FTC Cell B Pile BS 135

c. Address: [redacted]
MARSHALL, MI 49068

d. Address: Box # RT 3391

e. Phone No.: 518-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

T. 00 tn

i. Customer Account Number: [redacted]
on behalf of Enbridge (NGPL) Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefave — Generator Authorized Agent Name
Dean Lefave — Signature
06/14/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: [redacted]

b. Address: [redacted]

c. Driver Name:

d. Phone No.: [redacted] e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 150 Smac
Wheeling IL

j. Driver Name: mike Long

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204682

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1082

f. Authorized Agent Name — Signature — 06/14/12 Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

4645603

C&C LANDFILL
14800 F DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204682	

WEIGHMASTER: AMY B

DATE IN	TIME IN
14 June 2012	12:35 pm

DATE OUT	TIME OUT
14 June 2012	12:35 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625395	CALHOUN

Gross Weight 49,020.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,000.00 lb 7.00 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.00	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625396

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Piatt Ave

b. Generator Location: FTC Cell B File ~~DK~~ 135

c. Address: ~~[illegible]~~ MARSHALL, MI 49068

d. Address: Box RT 3398

e. Phone No.: 218-269-0591 ~~[illegible]~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS \ Crane Mats

Color:

Odor:

7.18 tn

h. Special Waste Approval Number: 5007 10 13039

i. Customer Account Number: ~~[illegible]~~ on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Claire — Generator Authorized Agent Name

Doran Claire — Signature

06/14/12 — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER
UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac Lueling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1721

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204697

I hereby certify that the material described above has been accepted for disposal at this facility.

TPH 1082

f. Tony Heather — Authorized Agent Name

Signature

06/14/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625396

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1401 Scott Ave

b. Generator Location: FTC Cell B File BS 135

c. Address: ~~455 RIGGS RD~~ MARSHALL, MI 49068

d. Address: Box RT 3398

e. Phone No.: 218-269-0591 ~~800-558-7888~~

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS \ Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 7.18 tn

i. Customer Account Number: ~~4998~~ on behalf of Enbridge (US), Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER
UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Colaire — Generator Authorized Agent Name

Dean Colaire — Signature

06/14/17 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~2201 N I-94 SERVICE DR~~ YPSILANTI, MI 48198

c. Driver Name:

d. Phone No.: ~~734-547-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac Lueling IL

j. Driver Name: Mike Lange

k. Phone No.: l. Truck No.: 1721

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/14/17 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204697 TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Slatter — Authorized Agent Name

Signature

06/14/17 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

14645618

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204697	

WEIGHTMASTER: AMY B

DATE IN	TIME IN
14 June 2012	1:53 pm

DATE OUT	TIME OUT
14 June 2012	1:53 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625396	CALHOUN

Gross Weight 49,380.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 14,360.00 lb 7.18 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
7.18	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625397

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC Cell B Pile ~~KK~~ 135

c. Address: 1601 Pratt Ave

MARSHALL, MI 49068

d. Address: Box #3478

e. Phone No.: 218-269-0591

f. Phone No.:

g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039 8.80

i. Customer Account Number:

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dana LeSaine — Generator Authorized Agent Name

Dana LeSaine — Signature

Shipment Date: 06 14 12

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible] SERVICE DR~~

~~[illegible] ANN ARBOR, MI 48109~~

c. Driver Name:

d. Phone No.: ~~734-217-2500~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac

Wheeling IL

j. Driver Name: Mike Long

k. Phone No.: l. Truck No.: NAZ1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06 14 12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204723

TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06 14 12

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625397

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Piatt Ave
b. Generator Location: FTC Cell B pile BK 135
c. Address: ~~455 [illegible]~~ MARSHALL, MI 49068
d. Address: Box # 3478
e. Phone No.: 218-269-0591 ~~952-[illegible]~~
f. Phone No.:
g. Waste Common Name: CRUDE OIL CONT. MEDIA & DEBRIS / Crane Mats
Color:
Odor:
h. Special Waste Approval Number: 5007 10 13039 8.80
i. Customer Account Number: [illegible] on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dean Lefaive (Generator Authorized Agent Name) Dean Lefaive (Signature) 06/14/12 (Shipment Date)

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER

UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~
b. Address: ~~2301 W M-94 SERVICE DR~~ ~~YPSILANTI, MI 48198~~
c. Driver Name:
d. Phone No.: ~~734-547-2538~~ e. Truck No.:
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
g. Driver Signature (Shipment Date)

TRANSPORTER 2

h. Name: SET
i. Address: 450 Sumac Wheeling IL
j. Driver Name: Mike Long
k. Phone No.: l. Truck No.: NBX1421
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature 06/14/12 (Shipment Date)

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL
b. Phone No.: 269-781-9742
c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068
d. Mailing Address:
e. TICKET No.: 204723 TPH 1082

I hereby certify that the material described above has been accepted for disposal at this facility.

f. [illegible] (Authorized Agent Name) (Signature) 06/14/12 (Shipment Date)

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645544

C&C LANDFILL
14300 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204723	

WEIGHMASTER: AMY B

DATE IN	TIME IN
14 June 2012	2:51 pm

DATE OUT	TIME OUT
14 June 2012	2:51 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625297	CALHOUN

Gross Weight 52,620.00 lb
Stored Tare Weight 35,020.00 lb Inbound - TICKET
Net Weight 17,600.00 lb 8.80 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
8.80	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625398

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: FTC

c. Address: ~~[illegible]~~ Aire

d. Address: Box # 3402

MARSHALL, MI 49068

e. Phone No.: 269-789-0591 ~~952 488 7600~~

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. [illegible]~~ MSW

Color:

Odor:

h. Special Waste Approval Number: ~~5007 10 13038~~ OK

6.91

i. Customer Account Number: ~~[illegible]~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/15/12 — Shipment Date

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBER DRUM
BG	- BAG
TR	- TRUCK
OT	- OTHER
UNITS	
P	- POUNDS
Y	- CUBIC YARDS
T	- TONS
O	- OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~[illegible]~~

b. Address: ~~[illegible]~~

c. Driver Name:

d. Phone No.: ~~[illegible]~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Sumac Wheeling IL

j. Driver Name: Mikelaya - LANENGA

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 06/15/12

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204889

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Authorized Agent Name — Signature — Shipment Date: 06/15/12

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
625398

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP 1601 Fifth Ave

b. Generator Location: FTC

c. Address: ~~1351 DOGPIT RD.~~

d. Address: Box # 3402

MARSHALL, MI 49068

269-789-0591

e. Phone No.: ~~952-688-7600~~

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. MEDIA & DEBRIS~~ MSW

Color:

Odor:

h. Special Waste Approval Number: ~~5007 10 13059~~ OK 6.91

i. Customer Account Number: ~~4923~~ On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	25	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefave — Doran Lefave — 06/15/17

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BOB~~

b. Address: ~~2401 94 SERVICE DR~~

~~EPSILENTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-572-2520~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET

i. Address: 450 Smale Wheeling IL

j. Driver Name: Mikelaya - Lmenga

k. Phone No.: l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date 06/15/17

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 204889

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Tony Kadlec — Tony Kadlec — 06/15/17

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

14645810

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
Y6	204889	

WEIGHMASTER: AMY B

DATE IN	TIME IN
15 June 2012	3:02 pm

DATE OUT	TIME OUT
15 June 2012	3:02 pm

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625398	CALHOUN

Gross Weight 48,840.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 13,820.00 lb 6.91 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
6.91	TN	SW-CONT SOIL				

1xOM .1 cy Manifest: R.I Soil
Dom Superior to FTC

THANK YOU ! HAVE A GREAT DAY
****** HOURS ******
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

136 .1cy

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
625403

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: 13000 15 mile Road

c. Address: ~~1545 CROSSPOINTE DR.~~ 1601 Pratt Ave

d. Address: Box # RT 3290

MARSHALL, MI 49068

e. Phone No.: 218-269-2591 ~~877-498-2689~~

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. MEDIA & DEBRIS~~ MSW

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

0.77 tn

i. Customer Account Number: ~~4527~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	OT	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

06/20/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~EQ~~

b. Address: ~~WOLVERINE SERVICE DR~~

~~EPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: SET Environmental

i. Address: 45 Sun Rd

Wheeling, IL 60090

j. Driver Name: J. Kozina

k. Phone No.: 224-655-3043 l. Truck No.: 1421

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — 06/20/12 Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH

MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 205289

I hereby certify that the material described above has been accepted for disposal at this facility.

MSW

f. Amy Beattie — Authorized Agent Name

Amy Beattie — Signature

06/20/12 — Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
625403

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY LTD PARTNERSHIP

b. Generator Location: 13CC 15 mile Road = RT 3290

c. Address: ~~1545 ROSEFIELD RD~~ 1601 Prott Ave

d. Address:

MARSHALL, MI 49068

e. Phone No.: 269-781-9742 ~~989-838-3609~~

f. Phone No.:

g. Waste Common Name: ~~CRUDE OIL CONT. MEDIA & DEBRIS~~ MSW

Color:

Odor:

h. Special Waste Approval Number: 5007 10 13039

0.77 tn

i. Customer Account Number: ~~4529~~

on behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	DT	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

Shipment Date: 09/19/17

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: ~~BOIS~~

b. Address: ~~2401 N I-94 SERVICE DR~~

~~YPSILANTI, MI 48198~~

c. Driver Name:

d. Phone No.: ~~734-547-2530~~ e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

g. Driver Signature — Shipment Date

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name:

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.

n. Driver Signature — Shipment Date: 09/19/17

DISPOSAL FACILITY INFORMATION

a. Site Name: C&C LANDFILL

b. Phone No.: 269-781-9742

c. Physical Address: 14800 P. DRIVE NORTH
MARSHALL, MI 49068

d. Mailing Address:

e. TICKET No.: 205289

MSW

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beadle — Authorized Agent Name

Amy Beadle — Signature

Shipment Date: 09/19/17

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

14641214

C&C LANDFILL
14800 P DRIVE NORTH
MARSHALL MI
49068
000728
SET ENVIRONMENTAL INC
450 SUMAC ROAD
WHEELING, IL 60090

Contract: 50071013039

SITE	TICKET	GRID
16	205289	

WEIGHMASTER: AMY B

DATE IN	TIME IN
20 June 2012	10:13 am

DATE OUT	TIME OUT
20 June 2012	10:13 am

VEHICLE	ROLL OFF
SET21T250	

REFERENCE	ORIGIN
625403	CALHOUN

Gross Weight 36,560.00 lb
Stored Tare Weight 35,020.00 lb
Net Weight 1,540.00 lb 0.77 TN

Inbound - TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.77	TN	SW-CONT SOIL				

Manifest:

THANK YOU ! HAVE A GREAT DAY !
HOURS
MONDAY THRU FRIDAY 7 TO 4:30
SATURDAY 7:00 TO NOON

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE _____

RS-F04

MANIFEST NUMBER
697358

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: ENBRIDGE ENERGY COMPANY
b. Generator Location: Cell B Pile 134

c. Address: [illegible]
d. Address: Carr-77

e. Phone No.: [illegible]
f. Phone No.: [illegible]

g. Waste Common Name: [illegible]

Color: [illegible]
Odor: [illegible]

h. Special Waste Approval Number: [illegible] 26132

i. Customer Account Number: [illegible]

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive — Generator Authorized Agent Name
Doran Lefaive — Signature
05/21/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Michael Pohl
b. Address: 13613 East Erie RD Albion Mich 49224
c. Driver Name: Michael Pohl
d. Phone No.: 517-740-5661 e. Truck No.: #77
f. Vehicle License No./State: AB43681 Mi

Acknowledgement of Receipt of Materials Described Above.
g. Michael Pohl — Driver Signature
05/21/12 — Shipment Date

TRANSPORTER 2

h. Name:
i. Address:
j. Driver Name:
k. Phone No.: l. Truck No.:
m. Vehicle License No./State:

Acknowledgement of Receipt of Materials Described Above.
n. Driver Signature
Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name:
b. Phone No.:
c. Physical Address:
d. Mailing Address:

e. TICKET No.: 201827

I hereby certify that the material described above has been accepted for disposal at this facility.

t. Amy Beattie — Authorized Agent Name
Amy Beattie — Signature
05/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697359

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr #27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 21.06 tn

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership.

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive | Doran Lefaive | 05/21/12
Generator Authorized Agent Name | Signature | Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Crane Bros + Sons

b. Address: 13613 E Erie Rd
Albion MI 49224

c. Driver Name: Matt Blackmer

d. Phone No.: 5178121001 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Blackmer | 05/21/12
Driver Signature | Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ | _____
Driver Signature | Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201849

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Keller | Amy Keller | 05/21/12
Authorized Agent Name | Signature | Shipment Date

White - Disposal Facility | Yellow - Transporter Copy | Pink - Generator 2nd Copy | Gold - Generator 1st Copy

MANIFEST NUMBER
697360

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr-77

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 2293

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Doran Lefaive — 05/21/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Michael Pohl-Carr Bros

b. Address: 13613 East Erie Rd

Albion, Mich 49224

c. Driver Name: Michael Pohl

d. Phone No.: 517-531-3058 7405661 e. Truck No.: 77

f. Vehicle License No./State: AB43681

Acknowledgement of Receipt of Materials Described Above.

g. Michael Pohl — 05/21/12

Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — _____

Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: 201856

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Amy Beattie — 05/21/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697361

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr-27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 23.98 Tn

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership.

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER

UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive Doran Lefaive 05/21/12

Generator Authorized Agent Name | Signature | Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: CAHILL BROS + SONS

b. Address: 13613 E ELLIE RD
ALBION MI 49224

c. Driver Name: MATT BLACKMER

d. Phone No.: 5177954152 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Blackmer 05/21/12

Driver Signature | Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ _____

Driver Signature | Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: 201878

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Cattin Amy Cattin 05/21/12

Authorized Agent Name | Signature | Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697362

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Corr-77

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____ 26.05 tn

h. Special Waste Approval Number: _____

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership.

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive — Doran Lefaive — 05/21/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Carr Bros

b. Address: 13613 East Erie RD Albion Mich 49224

c. Driver Name: Michael Bell

d. Phone No.: 531-3055 e. Truck No.: 77

f. Vehicle License No./State: AB43681

Acknowledgement of Receipt of Materials Described Above.

g. Michael Bell — 05/21/12

Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____

Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201884

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Amy Beattie — 05/21/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697363

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

Corr-27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 23.02

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

05/21/12 — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Clark Bros + Sons

b. Address: 13613 East Erie RD Albion MI 49224

c. Driver Name: Matt Blackmen

d. Phone No.: 517 795 4152 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Blackmen — Driver Signature — 05/21/12 — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

e. TICKET No.: 201892

I hereby certify that the material described above has been accepted for disposal at this facility.

o. Amy Battie — Authorized Agent Name — Signature — 05/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697364

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr - 27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 22,28

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

05/21/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Crum Bros & Sons

b. Address: 13613 E Erie Rd
Albion MI 49224

c. Driver Name: Matt Bachmen

d. Phone No.: 517 795-4152 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Bachmen — Driver Signature — 05/21/12 — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: 201953

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Bratlie — Authorized Agent Name — [signature] — Signature — 05/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697365

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr - 77

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____ 25.60

h. Special Waste Approval Number: _____

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Lefaive — Doran Lefaive — Shipment Date: 05/21/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Carr Bros

b. Address: 13613 East Erie Rd
Albion, Mich 49224

c. Driver Name: Michael Bolt

d. Phone No.: 740-3661 e. Truck No.: 77

f. Vehicle License No./State: AB43681 Mi

Acknowledgement of Receipt of Materials Described Above.

g. Michael Bolt — Shipment Date: 05/21/12

Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ Shipment Date: _____

Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201957

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Sattler — _____ — Shipment Date: 05/21/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697378

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr-27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 19.97

i. Customer Account Number: _____

On behalf of Enbridge Energy Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

05/21/12 — Shipment Date

TYPE	
DM	METAL DRUM
DP	PLASTIC DRUM
DF	FIBER DRUM
BG	BAG
TR	TRUCK
OT	OTHER

UNITS	
P	POUNDS
Y	CUBIC YARDS
T	TONS
O	OTHER

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Call Bros & Sons

b. Address: 13613 E Erie RD

Albion MI 49224

c. Driver Name: Matt Beachum

d. Phone No.: 517 795 4152 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Beachum — Driver Signature — 05/21/12 — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — Driver Signature — _____ — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201940

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Authorized Agent Name — Amy Beattie — Signature — 05/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697379

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr - 77

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 26,17

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE		
DM	-	METAL DRUM
DP	-	PLASTIC DRUM
DF	-	FIBER DRUM
BG	-	BAG
TR	-	TRUCK
OT	-	OTHER
UNITS		
P	-	POUNDS
Y	-	CUBIC YARDS
T	-	TONS
O	-	OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN Letaive — Doran Letaive — 05/21/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Call Bros

b. Address: 13613 East Erie RD Albion Mich 49224

c. Driver Name: Michael Pohl

d. Phone No.: 340-5661 e. Truck No.: 77

f. Vehicle License No./State: AB43681

Acknowledgement of Receipt of Materials Described Above.

g. Michael Pohl — 05/21/12

Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ _____

Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201939

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Amy Beattie — 05/21/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697380

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr-27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 27.68 tn

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; DF - FIBER DRUM; BG - BAG; TR - TRUCK; OT - OTHER

UNITS: P - POUNDS; Y - CUBIC YARDS; T - TONS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Doran Lefaive — 05/21/12

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Carl Bros + Sons

b. Address: 13613 E Erie Rd

Albion MI 49224

c. Driver Name: Matt Blackmer

d. Phone No.: 517 795 4152 e. Truck No.: #27

f. Vehicle License No./State: AB43680

Acknowledgement of Receipt of Materials Described Above.

g. Matt Blackmer — 05/21/12

Driver Signature — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — _____

Driver Signature — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: _____ 201912

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Amy Beattie — 05/21/12

Authorized Agent Name — Signature — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697381

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

Carr-77

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 19.45 Td

i. Customer Account Number: _____

On behalf of Enbridge Energy Limited Partnership

J. Containers No.	Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

Doran Lefaive — Generator Authorized Agent Name

Doran Lefaive — Signature

05/11/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Carr Bros

b. Address: 13613 East Erie Rd
Albion, Mich 49224

c. Driver Name: Michael Pohl

d. Phone No.: 531-3058 e. Truck No.: 77

f. Vehicle License No./State: AB43681

Acknowledgement of Receipt of Materials Described Above.

g. Michael Pohl — Driver Signature

05/11/12 — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ — Driver Signature

_____ — Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

e. TICKET No.: 201504

I hereby certify that the material described above has been accepted for disposal at this facility.

f. DEB BOUGHTON — Authorized Agent Name

Signature

5/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy

MANIFEST NUMBER
697382

NON-HAZARDOUS SPECIAL WASTE MANIFEST

Directions: Print or type all information except where signature is required.
Make sure information is transmitted on all copies.

GENERATOR INFORMATION

a. Generator Name: _____ b. Generator Location: Cell B Pile 134

c. Address: _____ d. Address: _____

_____ Carr - 27

e. Phone No.: _____ f. Phone No.: _____

g. Waste Common Name: _____

Color: _____ Odor: _____

h. Special Waste Approval Number: _____ 26.00 tn

i. Customer Account Number: _____

On behalf of Enbridge Energy, Limited Partnership.

J. Containers No.	J. Containers Type	K. Total Quantity	L. Unit Wt/Vol
01	TR	20	Y

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBER DRUM
BG - BAG
TR - TRUCK
OT - OTHER

UNITS
P - POUNDS
Y - CUBIC YARDS
T - TONS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above mentioned material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly classified and packaged, and is in proper condition for transportation according to applicable regulations.

DORAN LeSaive — Generator Authorized Agent Name
Doran LeSaive — Signature
05/21/12 — Shipment Date

TRANSPORTER INFORMATION

TRANSPORTER 1

a. Name: Carr Bros + Sons

b. Address: 13613 E Erie
Albion MI 49224

c. Driver Name: Matt Blackmer

d. Phone No.: 517 795 4152 e. Truck No.: 27

f. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

g. Matt Blackmer — Driver Signature
05/21/12 — Shipment Date

TRANSPORTER 2

h. Name: _____

i. Address: _____

_____

j. Driver Name: _____

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials Described Above.

n. _____ Driver Signature
_____ Shipment Date

DISPOSAL FACILITY INFORMATION

a. Site Name: _____ b. Phone No.: _____

c. Physical Address: _____ d. Mailing Address: _____

_____ _____

e. TICKET No.: 201824

I hereby certify that the material described above has been accepted for disposal at this facility.

f. Amy Beattie — Authorized Agent Name
Amy Beattie — Signature
05/21/12 — Shipment Date

White - Disposal Facility Yellow - Transporter Copy Pink - Generator 2nd Copy Gold - Generator 1st Copy